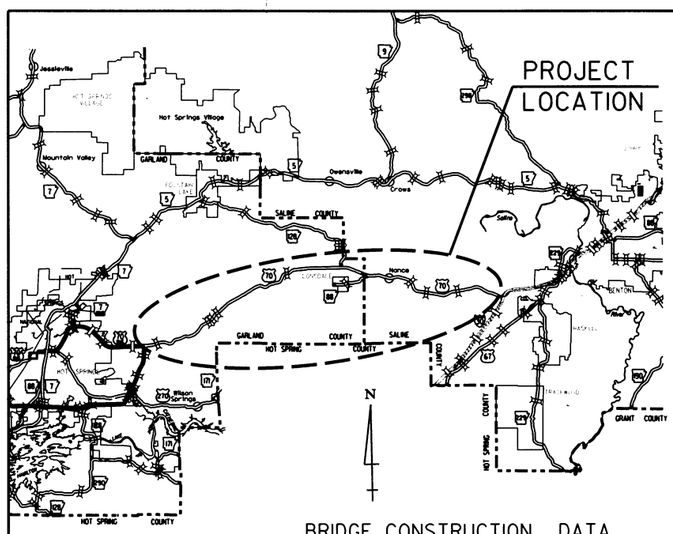
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	1	888
(2) HOT SPRINGS - I-30 (WIDENING) (S)				



ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

CONSTRUCTION PLANS FOR STATE HIGHWAY

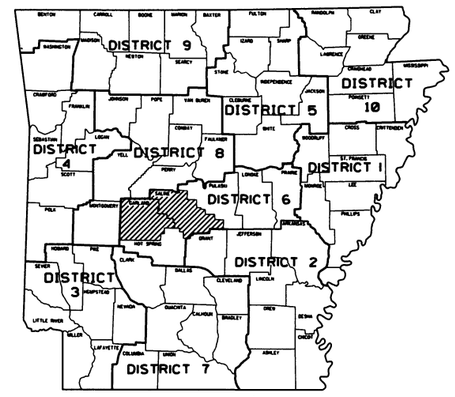
HOT SPRINGS - I-30 (WIDENING) (S)

GARLAND AND SALINE COUNTIES

ROUTE 70 SECTION 9 & 10

JOB CA0610

FED. AID PROJ. NHPP-2662(7)



ARK. HWY. DIST. NO.6

BRIDGE CONSTRUCTION DATA

[1] STA. 480+71.92 BRIDGE END
BRIDGE NO. A7135 OVER CEDAR CREEK
315'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
(84'-84'-84'-63')
40' CLEAR ROADWAY
317'-2" BRIDGE LENGTH
STA. 483+89.08 BRIDGE END

[2] STA. 870+86.50 BRIDGE END
BRIDGE NO. 07398 OVER TEN MILE CREEK WEST
143'-0" INTEGRAL COMPOSITE W-BEAM UNIT
(45'-53'-45')
75' CLEAR ROADWAY
144'-0" BRIDGE LENGTH
STA. 872+30.50 BRIDGE END

[3] STA. 1207+88.90 BRIDGE END
BRIDGE NO. 07366 OVER TEN MILE CREEK
330'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
(40'-50'-50'-50'-50'-50'-40')
75' CLEAR ROADWAY
332'-2½" BRIDGE LENGTH
STA. 1211+21.10 BRIDGE END

[4] STA. 1261+58.50 BRIDGE END
BRIDGE NO. 07367 OVER CANEY CREEK
100'-0" INTEGRAL COMPOSITE W-BEAM UNIT
(30'-40'-30')
75' CLEAR ROADWAY
101'-0" BRIDGE LENGTH
STA. 1262+59.50 BRIDGE END

STRUCTURES OVER 20'-0" SPAN

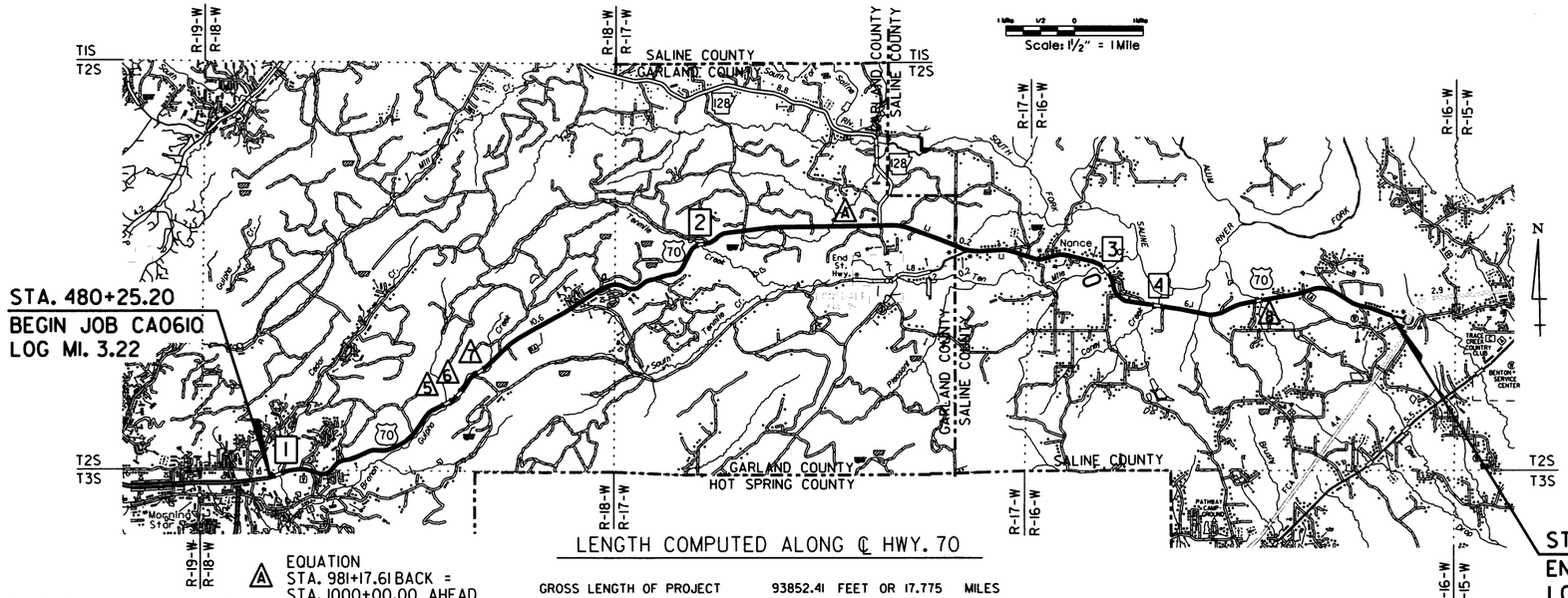
(5) STA. 630+85.44 IN PLACE
DBL. 10' X 10' X 96' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
REMOVE 0' LT. & 26' RT. AND
EXTEND 14' LT. & 68' RT.
TO A COMPLETED LENGTH OF
152' SPAN = 22.67'
Q_{50} =2506.3 CFS D.A.=1002 ACRES

(6) STA. 642+74.89 IN PLACE
DBL. 12' X 10' X 69' R.C. BOX CULVERT
30° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
RETAIN AND EXTEND 84' RT.
TO A COMPLETED LENGTH OF
153' SPAN = 30.79'
Q_{50} =2403.6 CFS D.A.=961 ACRES

(7) STA. 663+62.43 IN PLACE
DBL. 10' X 10' X 114' R.C. BOX CULVERT
45° RT. FWD. SKEW
WITH 3:1 WINGS LT. AND RT.
RETAIN AND EXTEND
49' LT. AND 36' RT.
TO A COMPLETED LENGTH OF
199' SPAN = 32.06'
Q_{50} =1993.6 CFS D.A.=737 ACRES

(8) STA. 1342+43.00 IN PLACE
TRIP. 10' X 8' X 69' R.C. BOX CULVERT
30° RT. FWD. SKEW.
WITH 3:1 WINGS LT. & RT.
RETAIN & EXTEND 20' LT. & 67' RT.
TO A COMPLETED LENGTH OF
156' SPAN = 38.11'
Q_{50} =1920 CFS DA=1056 ACRES

	BEGIN OF PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 34°30'23"	N 34°33'22"	N 34°32'10"
LONGITUDE	W 92°57'55"	W 92°49'51"	W 92°41'06"



(A) EQUATION
STA. 981+17.61 BACK =
STA. 1000+00.00 AHEAD

LENGTH COMPUTED ALONG ℄ HWY. 70

GROSS LENGTH OF PROJECT	93852.41	FEET OR 17.775	MILES
NET LENGTH OF ROADWAY	92834.42	FEET OR 17.582	MILES
NET LENGTH OF BRIDGES	1017.99	FEET OR 0.193	MILES
NET LENGTH OF PROJECT	93852.41	FEET OR 17.775	MILES

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2036
2016 ADT	16,500
2036 ADT	27,000
2036 DHV	3,000
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	7%
DESIGN SPEED	60 MPH

CERTIFICATE OF AUTHORIZATION
MICHAEL BAKER INTERNATIONAL INC
No. 1126
ARKANSAS ENGINEER

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

P.E. JOB 061330

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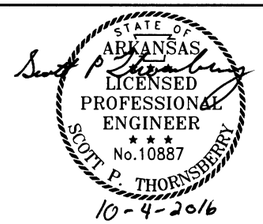

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	2	888

(2) INDEX OF SHEETS

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492	DETAILS OF STANDARD BARREL SECTION FOR REINFORCED CONCRETE BOX CULVERTS		R-200X-X4		2-37-50
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502	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS		W-X453-1		2-42-37
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NOTE: CROSS SECTIONS NOT NORMALLY INCLUDED IN PLANS SOLD TO PROSPECTIVE BIDDERS, BUT MAY BE HAD UPON REQUEST.

INDEX OF SHEETS

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GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - TRAINING PROGRAM - JOB CA0610
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
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102-2	ISSUANCE OF PROPOSALS
108-1	LIQUIDATED DAMAGES
108-2	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
303-1	AGGREGATE BASE COURSE
400-1	TACK COATS
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
620-1	MULCH COVER
JOB CA0610	BIDDING REQUIREMENTS AND CONDITIONS
JOB CA0610	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB CA0610	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB CA0610	CABINET DRAWER ASSEMBLY
JOB CA0610	CARGO PREFERENCE ACT REQUIREMENTS
JOB CA0610	CONCRETE DITCH PAVING
JOB CA0610	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB CA0610	DELAY IN RIGHT OF WAY OCCUPANCY
JOB CA0610	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB CA0610	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB CA0610	DRILLED SHAFT FOUNDATIONS
JOB CA0610	EDGE CARD VIDEO PROCESSOR
JOB CA0610	ELECTRICAL CONDUCTORS-IN-CONDUIT
JOB CA0610	ELECTRICAL CONDUCTORS FOR LUMINAIRES
JOB CA0610	EMPLOYMENT REPORTING
JOB CA0610	EXTENSION FOR PIPE CULVERTS
JOB CA0610	FURNISH AND OPERATION OF MOBILE SPEED NOTIFICATION SYSTEM
JOB CA0610	GEOGRID REINFORCED EMBANKMENT
JOB CA0610	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB CA0610	HIGH PERFORMANCE PAVEMENT MARKING
JOB CA0610	LED LUMINAIRE ASSEMBLY (BUG U0 TYPE)
JOB CA0610	LED TRAFFIC SIGNAL HEAD
JOB CA0610	LOOP WIRING REVISION 1.4
JOB CA0610	MANDATORY ELECTRONIC CONTRACT
JOB CA0610	NESTING SITES OF MIGRATORY BIRDS
JOB CA0610	NONDESTRUCTIVE TESTING OF DRILLED SHAFTS
JOB CA0610	OFF-SITE RESTRAINING CONDITIONS FOR NORTHERN LONG-EARED BATS
JOB CA0610	PARTNERING REQUIREMENTS
JOB CA0610	PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS
JOB CA0610	PLASTIC PIPE
JOB CA0610	PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS
JOB CA0610	PROSECUTION AND PROGRESS - CONNECTING ARKANSAS PROGRAM
JOB CA0610	REMOVAL AND DISPOSAL OF WIRE ROPE SAFETY FENCE
JOB CA0610	RIPRAP
JOB CA0610	RUMBLE STRIPES
JOB CA0610	SECTION 404 INDIVIDUAL PERMIT REQUIREMENTS
JOB CA0610	SERVICE POINT ASSEMBLY (TRAFFIC CONTROL DEVICES)
JOB CA0610	SHORING
JOB CA0610	SHORING FOR CULVERTS
JOB CA0610	SITE USE (A + C METHOD) - CALENDAR DAY CONTRACT – CONNECTING ARKANSAS PROGRAM
JOB CA0610	SOIL STABILIZATION
JOB CA0610	STORM WATER POLLUTION PREVENTION PLAN
JOB CA0610	STREET NAME SIGN (MAST ARM MOUNTED)
JOB CA0610	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB CA0610	TEXTURED COATING FINISH
JOB CA0610	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
JOB CA0610	UTILITY ADJUSTMENTS
JOB CA0610	VALUE ENGINEERING
JOB CA0610	VEGETATED BUFFER ZONE
JOB CA0610	VIDEO DETECTOR (COLOR)
JOB CA0610	WARM MIX ASPHALT
JOB CA0610	WATER POLLUTION CONTROL
JOB CA0610	WELLHEAD PROTECTION
JOB CA0610	WIRE ROPE SAFETY FENCE END TERMINAL
JOB CA0610	WIRE ROPE SAFETY FENCE (POST REPAIR)
JOB CA0610	WIRE ROPE SAFETY FENCE (WRSF) SPECIFICATIONS

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED
10-18-2016			
11-07-2016			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	3	888
(2) GOV. SPECS. & GEN. NOTES				

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
9. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY

11-7-2016

Scott.Thornsberry 8/2016 10:25:30 AM
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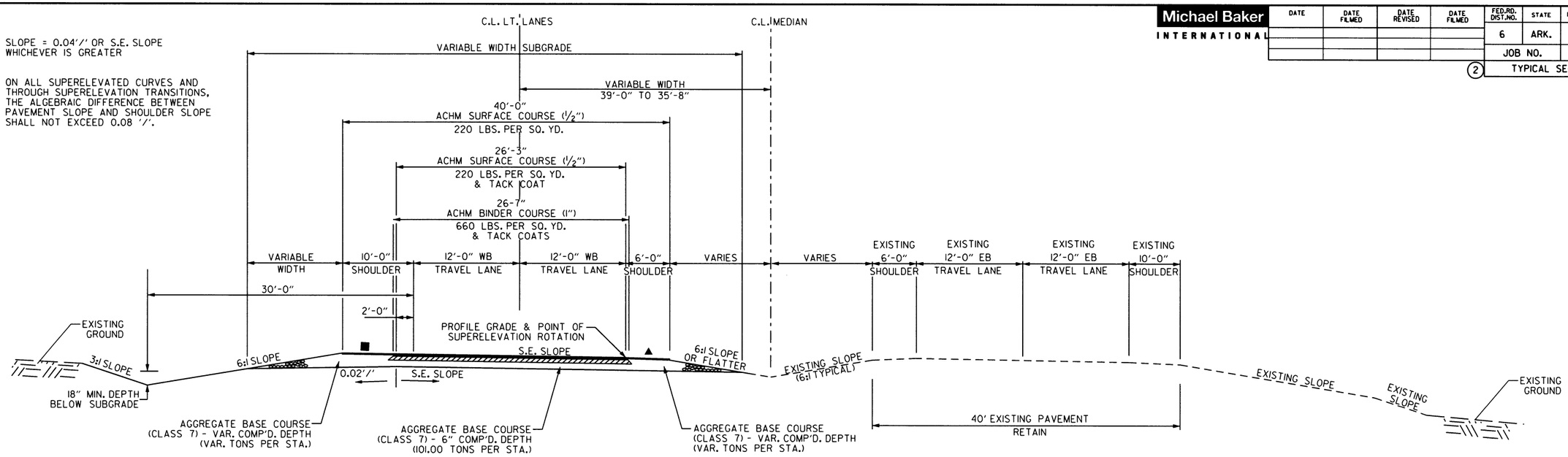
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	4	888

(2) TYPICAL SECTIONS OF IMPROVEMENT

▲ SLOPE = 0.04'/' OR S.E. SLOPE WHICHEVER IS GREATER

■ ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS, THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08 '/'.



HWY. 70 - FOUR LANE DIVIDED FULL DEPTH LT. LANES SUPERELEVATED TYPICAL SECTION (2)

STA. 483+89.08 TO STA. 486+50.00

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

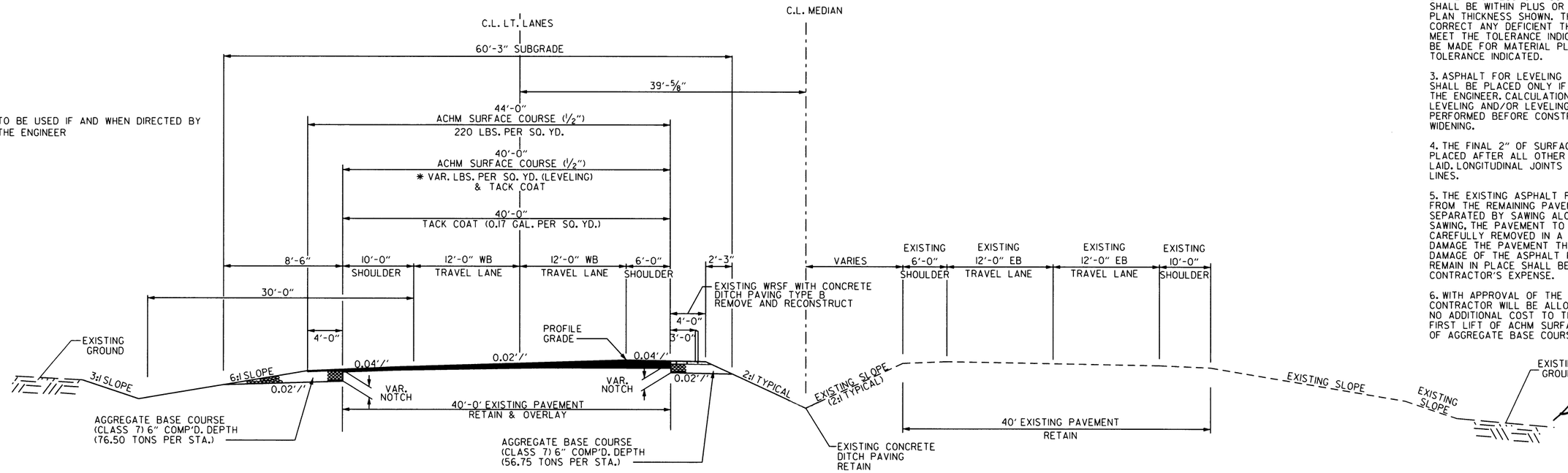
3. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING.

4. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.

5. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

6. WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

✱ TO BE USED IF AND WHEN DIRECTED BY THE ENGINEER



HWY. 70 - FOUR LANE DIVIDED NOTCH AND WIDEN LT. LANES TYPICAL SECTION (1)

STA. 480+25.20 TO STA. 480+71.92

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
7-23-2016

TYPICAL SECTIONS OF IMPROVEMENT

Leonard.Speed 9/23/2016 10:16:47 AM
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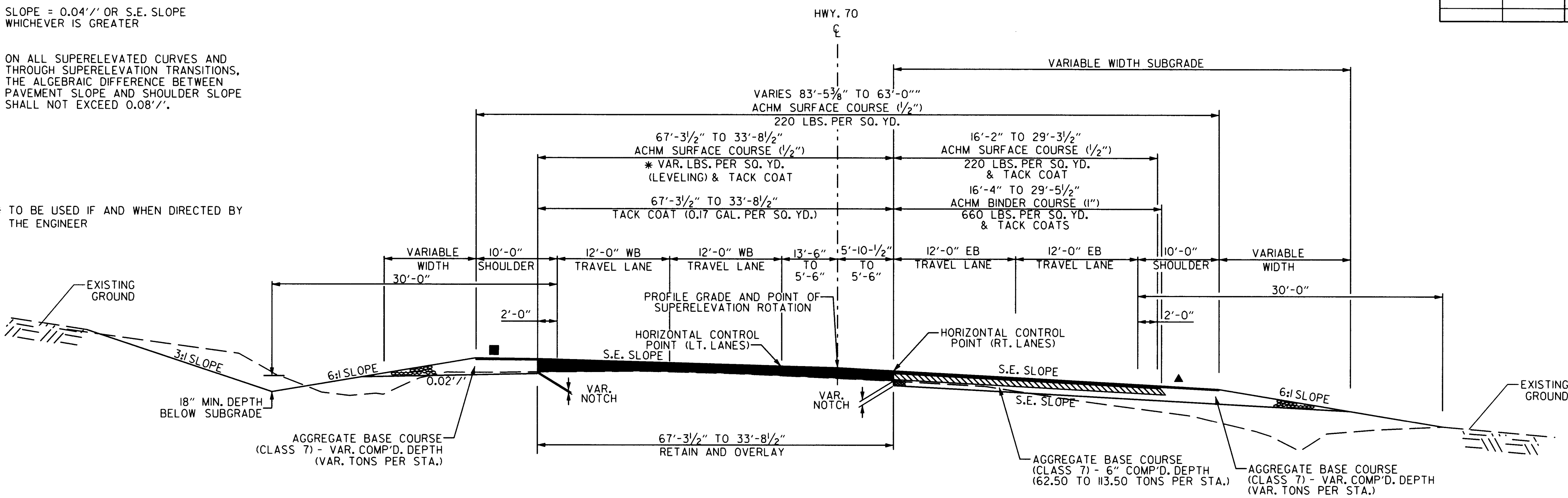
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	5	888
					(2) TYPICAL SECTIONS OF IMPROVEMENT				

▲ SLOPE = 0.04'/' OR S.E. SLOPE WHICHEVER IS GREATER

■ ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS, THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

* TO BE USED IF AND WHEN DIRECTED BY THE ENGINEER



HWY. 70 - SUPERELEVATED TYPICAL SECTION (4)

STA. 489+87.50 TO STA. 494+00.00

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

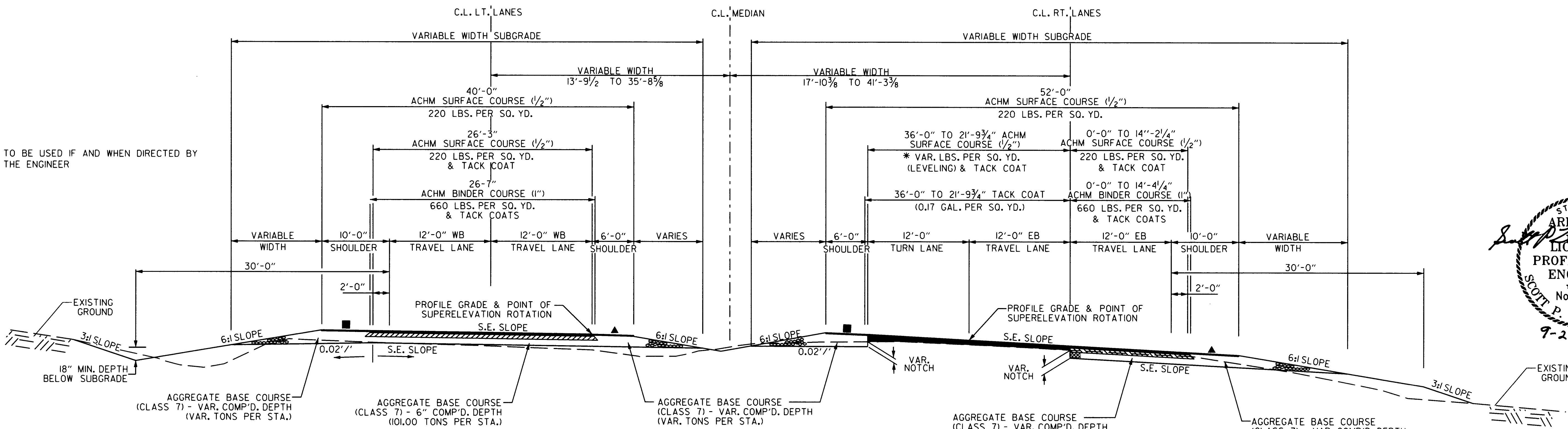
3. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING.

4. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.

5. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

6. WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (½") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

* TO BE USED IF AND WHEN DIRECTED BY THE ENGINEER



HWY. 70 - FOUR LANE DIVIDED NOTCH AND WIDEN RT. LANES FULL DEPTH LT. LANES SUPERELEVATED TYPICAL SECTION (3)

STA. 486+50.00 TO STA. 489+87.50

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER ★ ★ ★ No. 10887 SCOTT P. THORNSBERRY

9-23-2016

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TYPICAL SECTIONS OF IMPROVEMENT

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	6	888

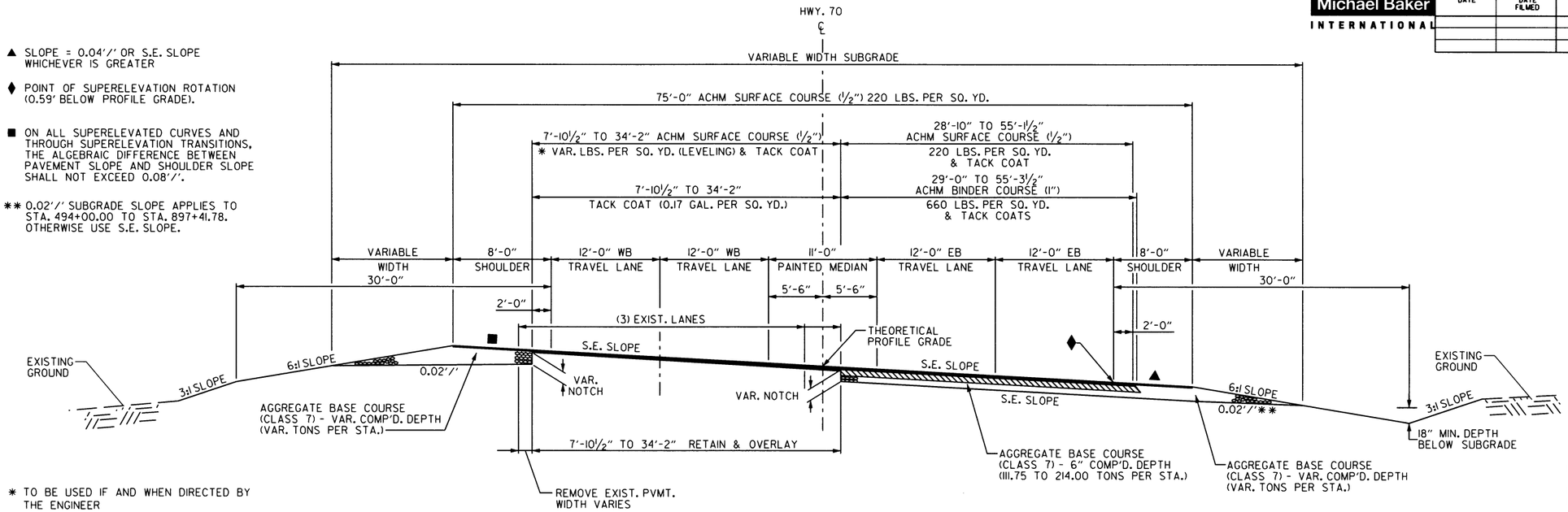
(2) TYPICAL SECTIONS OF IMPROVEMENT

▲ SLOPE = 0.04'/' OR S.E. SLOPE WHICHEVER IS GREATER

♦ POINT OF SUPERELEVATION ROTATION (0.59' BELOW PROFILE GRADE).

■ ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS, THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

** 0.02'/' SUBGRADE SLOPE APPLIES TO STA. 494+00.00 TO STA. 897+41.78. OTHERWISE USE S.E. SLOPE.



* TO BE USED IF AND WHEN DIRECTED BY THE ENGINEER

HWY. 70 - SUPERELEVATED TYPICAL SECTION (6)

STA. 496+82.30 TO STA. 504+36.05
STA. 508+64.91 TO STA. 510+50.00
STA. 521+38.24 TO STA. 522+97.38
STA. 538+00.00 TO STA. 543+40.38
STA. 569+64.00 TO STA. 574+32.93
STA. 612+47.19 TO STA. 616+55.34
STA. 627+25.12 TO STA. 650+75.00
STA. 792+55.58 TO STA. 797+25.00
STA. 809+88.96 TO STA. 812+39.14
STA. 835+23.50 TO STA. 837+90.00
STA. 844+50.00 TO STA. 852+22.78
STA. 855+13.22 TO STA. 866+09.88
STA. 875+00.00 TO STA. 881+63.10
STA. 885+35.78 TO STA. 897+41.78
STA. 1198+23.21 TO STA. 1198+80.00
STA. 1296+87.12 TO STA. 1316+00.00
STA. 1323+25.00 TO STA. 1325+51.75
STA. 1334+13.62 TO STA. 1335+80.73
STA. 1371+25.79 TO STA. 1383+91.09
STA. 1404+63.66 TO STA. 1408+13.75
STA. 1414+20.06 TO STA. 1418+48.19
STA. 1427+61.66 TO STA. 1429+14.26

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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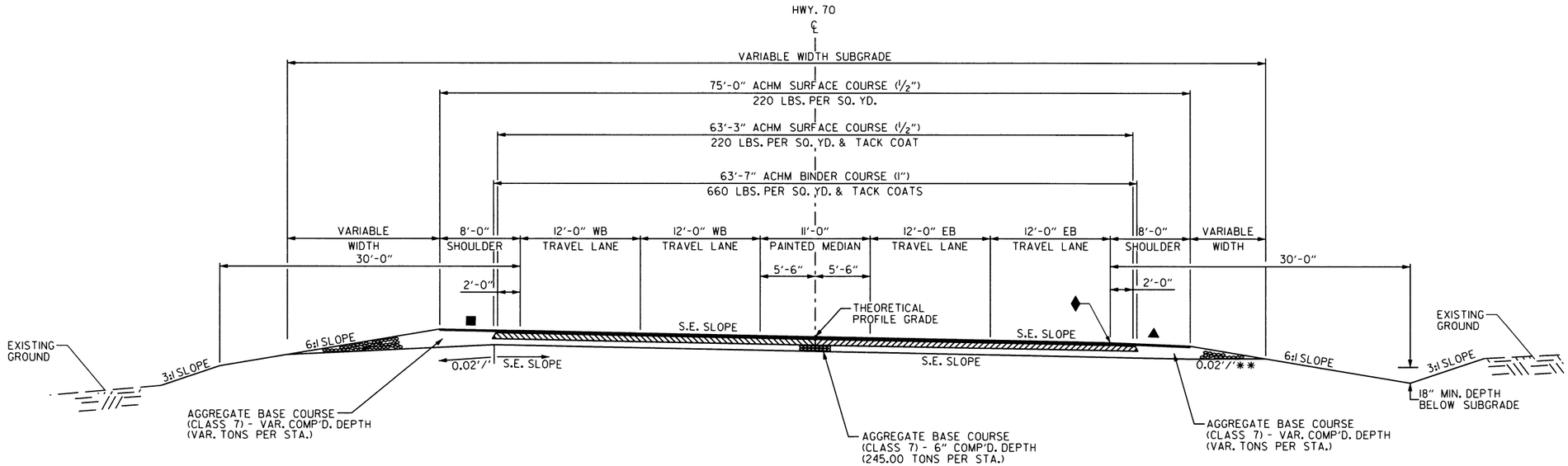

HWY. 70 - SUPERELEVATED TYPICAL SECTION (5)

STA. 494+00.00 TO STA. 496+82.30
STA. 505+09.59 TO STA. 507+50.00
STA. 510+50.00 TO STA. 517+33.75
STA. 522+97.38 TO STA. 529+20.97
STA. 797+25.00 TO STA. 800+29.93
STA. 812+39.14 TO STA. 823+04.66
STA. 825+61.61 TO STA. 835+23.50
STA. 866+09.88 TO STA. 870+86.50 (BRIDGE)
(BRIDGE) STA. 872+30.50 TO STA. 875+75.00
STA. 1201+70.00 TO STA. 1207+88.90
STA. 1211+21.10 TO STA. 1220+75.00
STA. 1316+00.00 TO STA. 1323+25.00
STA. 1385+65.00 TO STA. 1390+00.00

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 10887
SCOTT P. THORNSBERRY
9-23-2016

TYPICAL SECTIONS OF IMPROVEMENT

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Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	7	888
					(2)	TYPICAL SECTIONS OF IMPROVEMENT			

▲ SLOPE = 0.04'/' OR S.E. SLOPE WHICHEVER IS GREATER

♦ POINT OF SUPERELEVATION ROTATION (0.59' BELOW PROFILE GRADE).

■ ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS, THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

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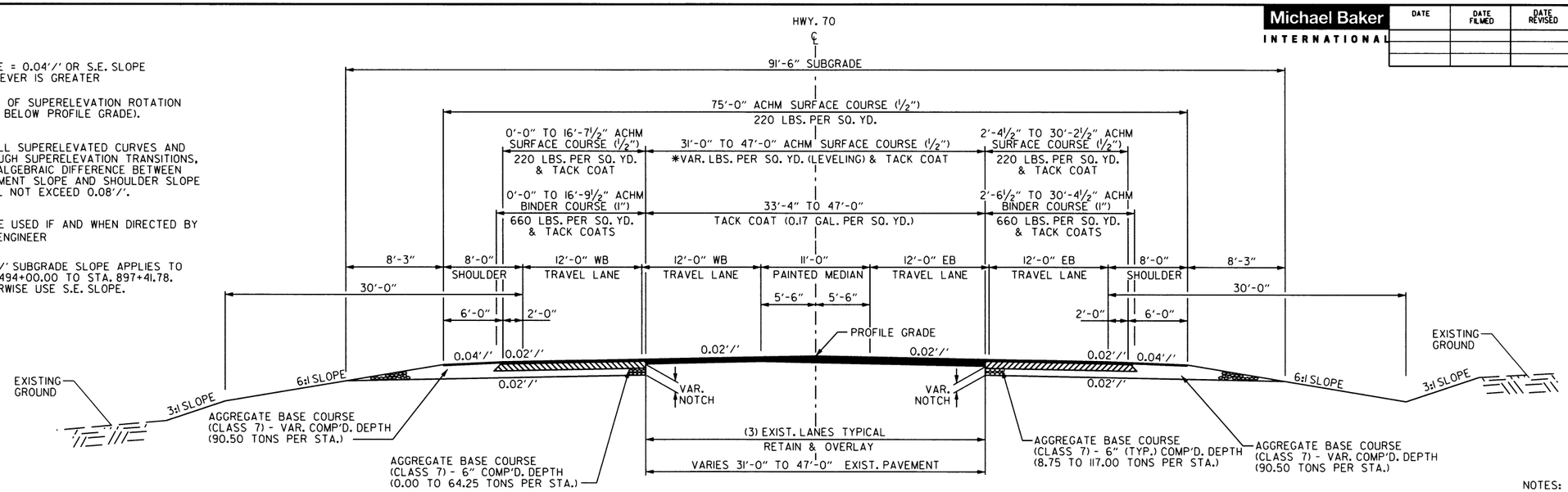

HWY. 70 - TANGENT TYPICAL SECTION (8)

STA. 605+10.10 TO STA. 605+95.09
STA. 624+05.38 TO STA. 627+25.12
STA. 665+07.79 TO STA. 665+90.54
STA. 679+10.35 TO STA. 689+43.92
STA. 712+82.73 TO STA. 740+29.50
STA. 751+78.82 TO STA. 774+33.82
STA. 921+50.00 TO STA. 969+49.03
STA. 974+25.00 TO STA. 1025+75.00
STA. 1028+00.00 TO STA. 1034+66.90
STA. 1055+75.98 TO STA. 1087+88.11
STA. 1112+30.91 TO STA. 1120+83.10
STA. 1136+33.10 TO STA. 1144+17.03
STA. 1183+23.06 TO STA. 1190+33.71
STA. 1408+43.70 TO STA. 1412+37.99

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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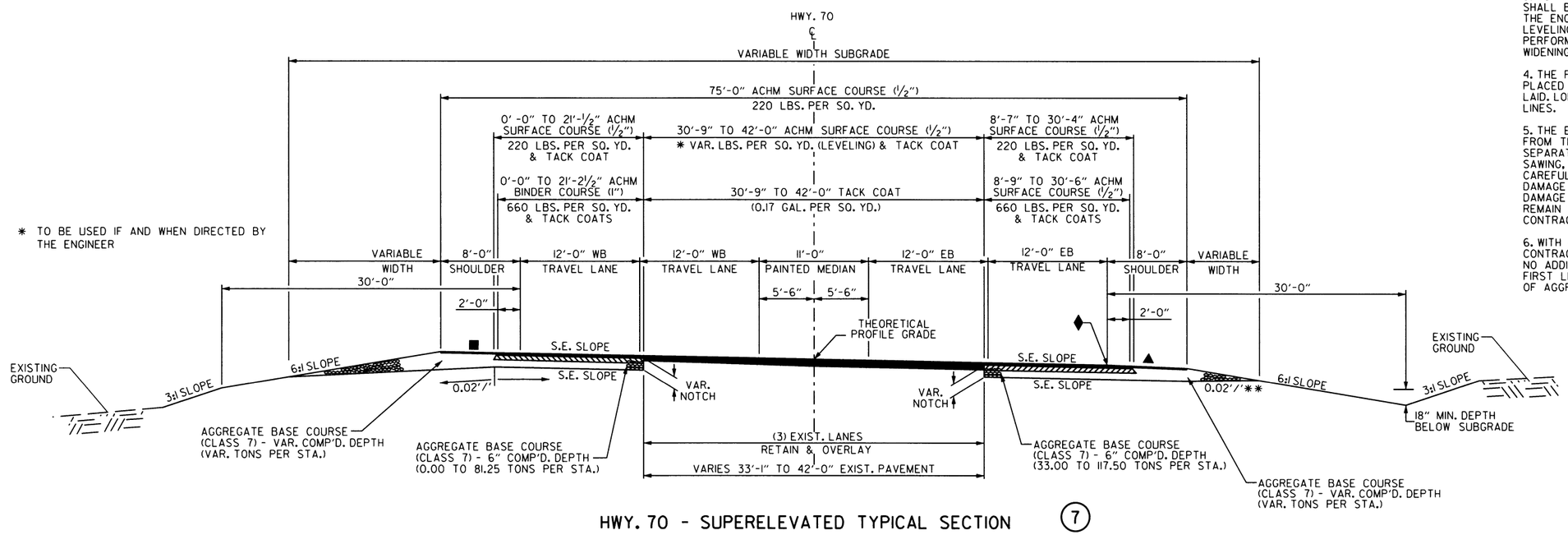

HWY. 70 - SUPERELEVATED TYPICAL SECTION (7)

STA. 504+36.05 TO STA. 505+09.59
STA. 507+50.00 TO STA. 508+64.91
STA. 517+33.75 TO STA. 521+38.24
STA. 529+20.97 TO STA. 538+00.00
STA. 543+40.27 TO STA. 569+64.00
STA. 574+32.93 TO STA. 605+10.10
STA. 605+95.09 TO STA. 612+47.19
STA. 616+55.34 TO STA. 624+05.38
STA. 650+75.00 TO STA. 665+07.79
STA. 665+90.54 TO STA. 679+10.35
STA. 689+43.92 TO STA. 712+82.73
STA. 740+29.50 TO STA. 751+78.82
STA. 774+33.82 TO STA. 792+55.58
STA. 800+29.93 TO STA. 809+88.96
STA. 837+90.00 TO STA. 844+50.00
STA. 881+63.10 TO STA. 885+35.78
STA. 1034+66.90 TO STA. 1055+75.98
STA. 1087+88.11 TO STA. 1112+30.91
STA. 1120+83.10 TO STA. 1136+33.10
STA. 1144+17.03 TO STA. 1183+23.06
STA. 1190+33.71 TO STA. 1198+23.21
STA. 1296+87.12 TO STA. 1298+35.00
STA. 1325+51.75 TO STA. 1334+13.62
STA. 1364+03.26 TO STA. 1371+25.79
STA. 1383+91.09 TO STA. 1385+65.00
STA. 1390+00.00 TO STA. 1404+63.66
STA. 1412+37.99 TO STA. 1414+20.06
STA. 1418+48.19 TO STA. 1427+61.66

STATE OF ARKANSAS
Scott P. Thornsberry
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

TYPICAL SECTIONS OF IMPROVEMENT

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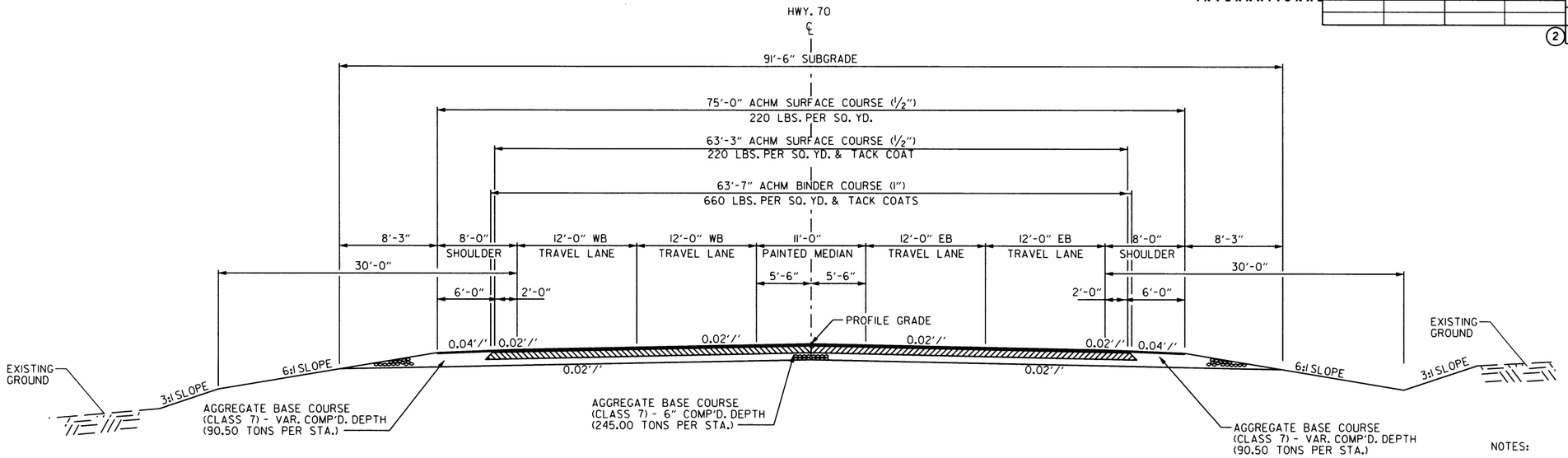
Michael Baker INTERNATIONAL

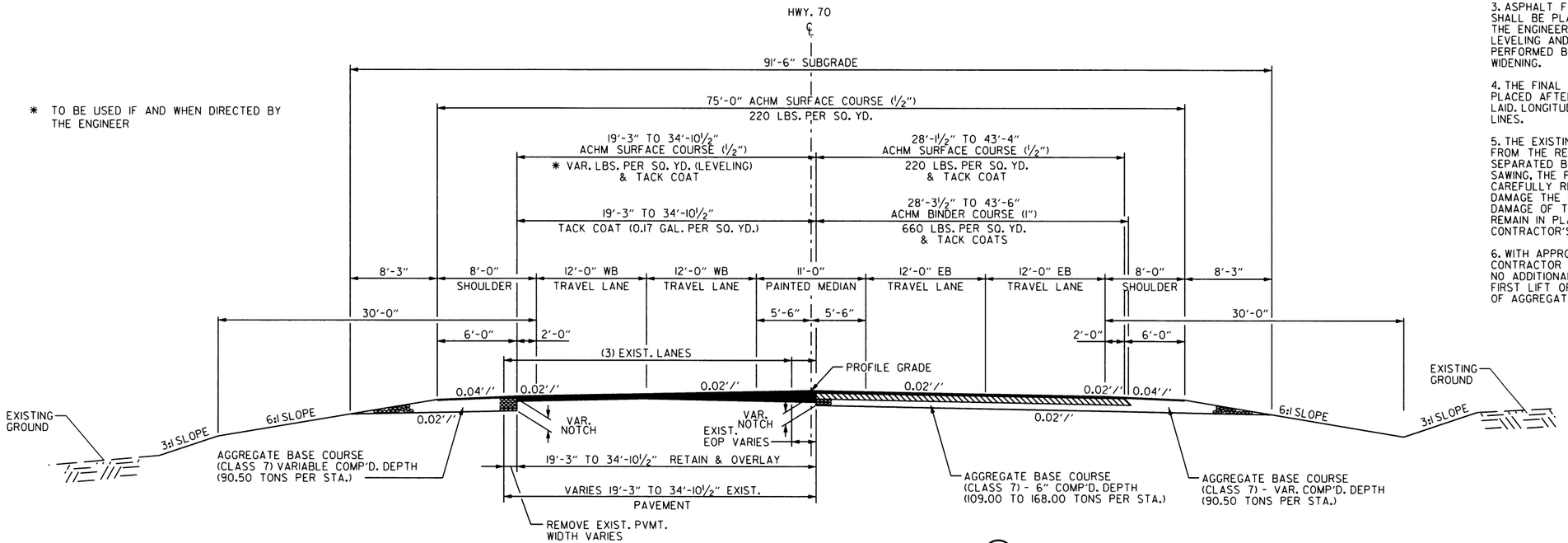
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	8	888

(2) TYPICAL SECTIONS OF IMPROVEMENT



HWY. 70 - TANGENT TYPICAL SECTION (10)

STA. 823+04.66 TO STA. 825+61.61
STA. 969+49.03 TO STA. 974+25.00
STA. 1025+75.00 TO STA. 1028+00.00
STA. 1262+59.50 TO STA. 1263+00.00



HWY. 70 - TANGENT TYPICAL SECTION (9)

STA. 852+22.78 TO STA. 855+13.22
STA. 897+41.78 TO STA. 921+50.00
STA. 1272+10.00 TO STA 1296+87.12
STA. 1335+80.73 TO STA. 1364+03.26
STA. 1408+13.75 TO STA. 1408+43.70

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

3. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING.

4. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.

5. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

6. WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

TYPICAL SECTIONS OF IMPROVEMENT

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Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		CA0610	9	888

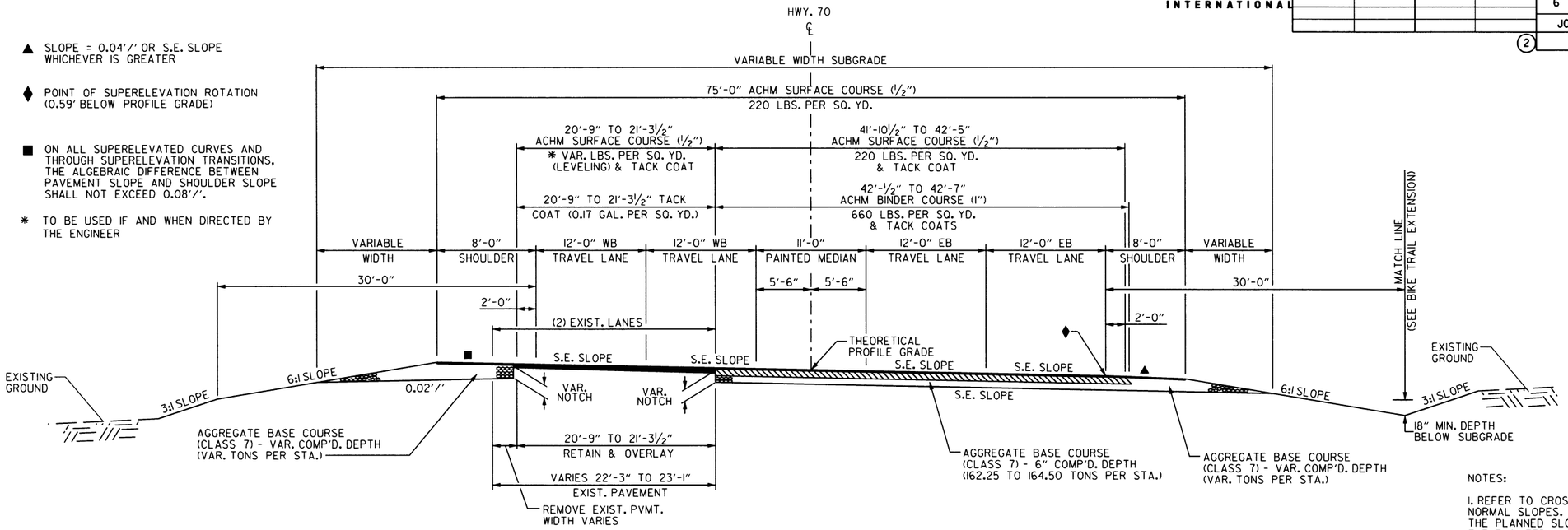
(2) TYPICAL SECTIONS OF IMPROVEMENT

▲ SLOPE = 0.04'/' OR S.E. SLOPE WHICHEVER IS GREATER

♦ POINT OF SUPERELEVATION ROTATION (0.59' BELOW PROFILE GRADE)

■ ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS, THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

✱ TO BE USED IF AND WHEN DIRECTED BY THE ENGINEER



HWY. 70 - SUPERELEVATED TYPICAL SECTION (12)

STA. 1239+33.96 TO STA. 1245+15.15

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

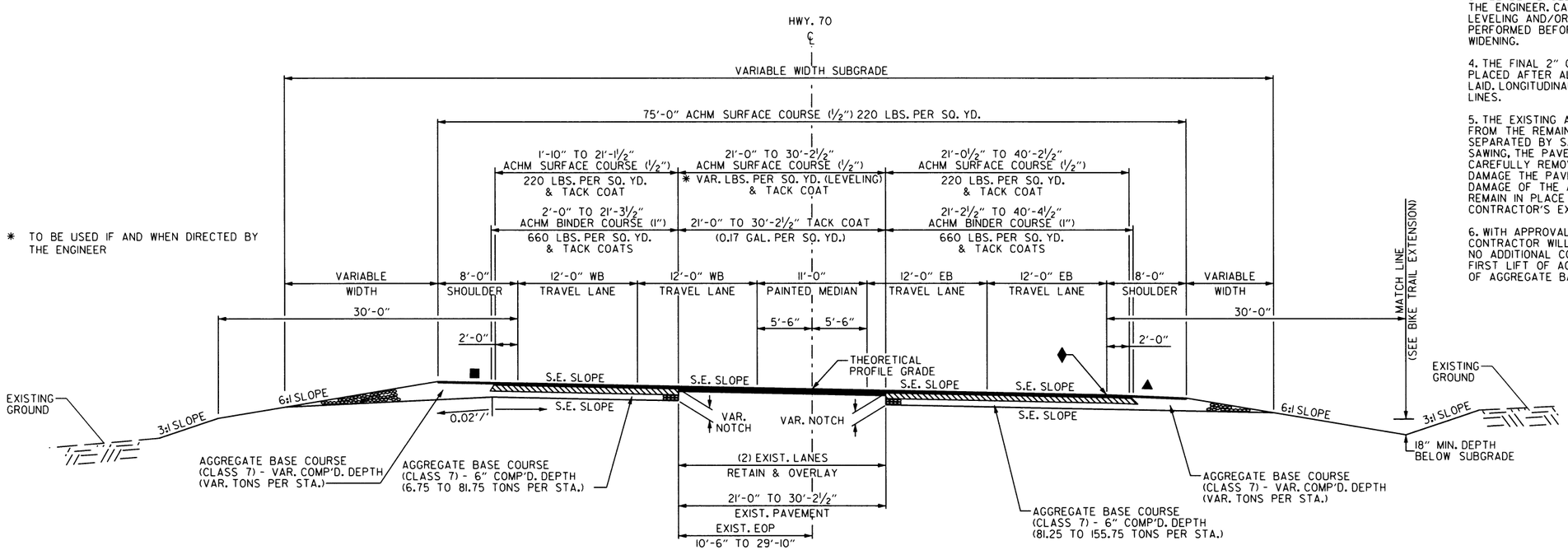
3. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING.

4. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.

5. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

6. WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

✱ TO BE USED IF AND WHEN DIRECTED BY THE ENGINEER



HWY. 70 - SUPERELEVATED TYPICAL SECTION (11)

STA. 1198+80.00 TO STA. 1201+70.00
STA. 1220+75.00 TO STA. 1239+33.96

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
9-23-2016

TYPICAL SECTIONS OF IMPROVEMENT

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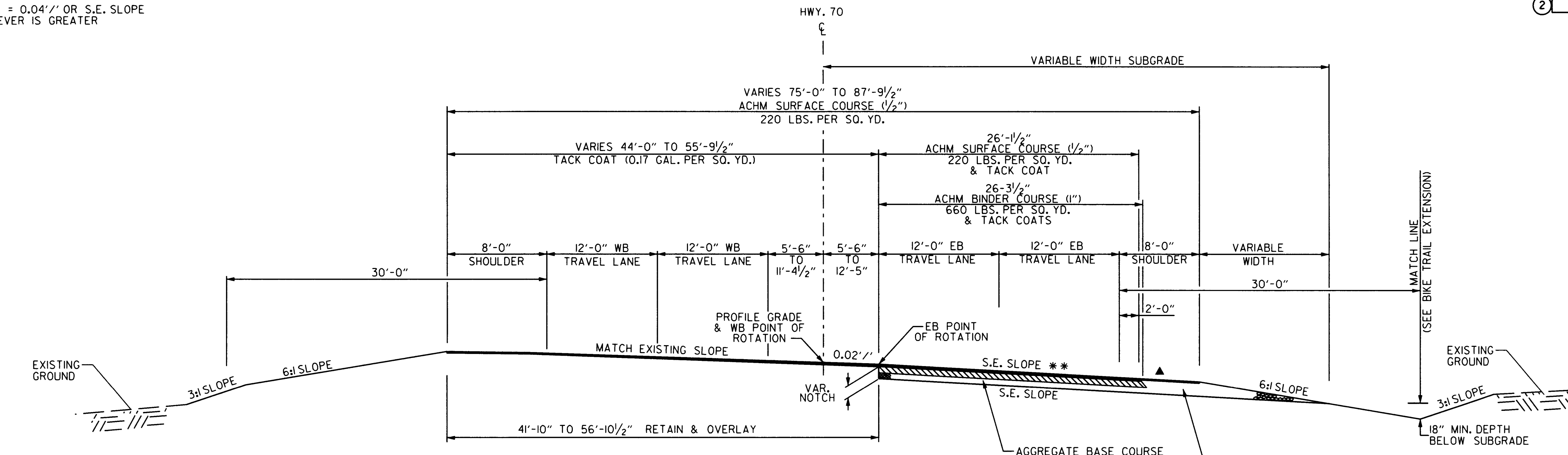
▲ SLOPE = 0.04'/' OR S.E. SLOPE WHICHEVER IS GREATER



✱✱ROTATE EB LANES ABOUT INSIDE EDGE OF TRAVEL LANES. ROTATE WB LANES ABOUT PROFILE GRADE POINT. ELEVATION OF EB POINT OF ROTATION SHALL BE 2% BELOW PROFILE GRADE.

HWY. 70 - SUPERELEVATED TYPICAL SECTION (14)

STA. 1429+14.26 TO STA. 1434+80.00

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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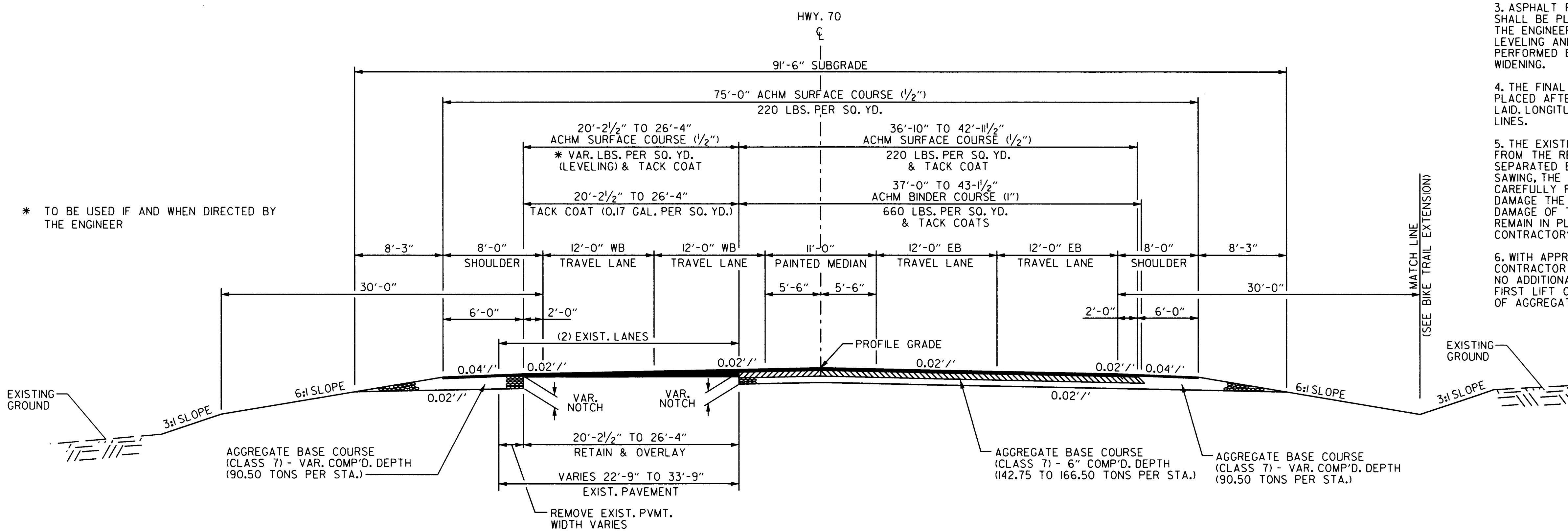
6. WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (½") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

✱ TO BE USED IF AND WHEN DIRECTED BY THE ENGINEER



HWY. 70 - TANGENT TYPICAL SECTION (13)

STA. 1245+15.15 TO STA. 1261+58.50
STA. 1263+00.00 TO STA. 1272+10.00

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER ★★★ No. 10887 SCOTT P. THORNSBERRY
9-23-2016

TYPICAL SECTIONS OF IMPROVEMENT

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Michael Baker INTERNATIONAL

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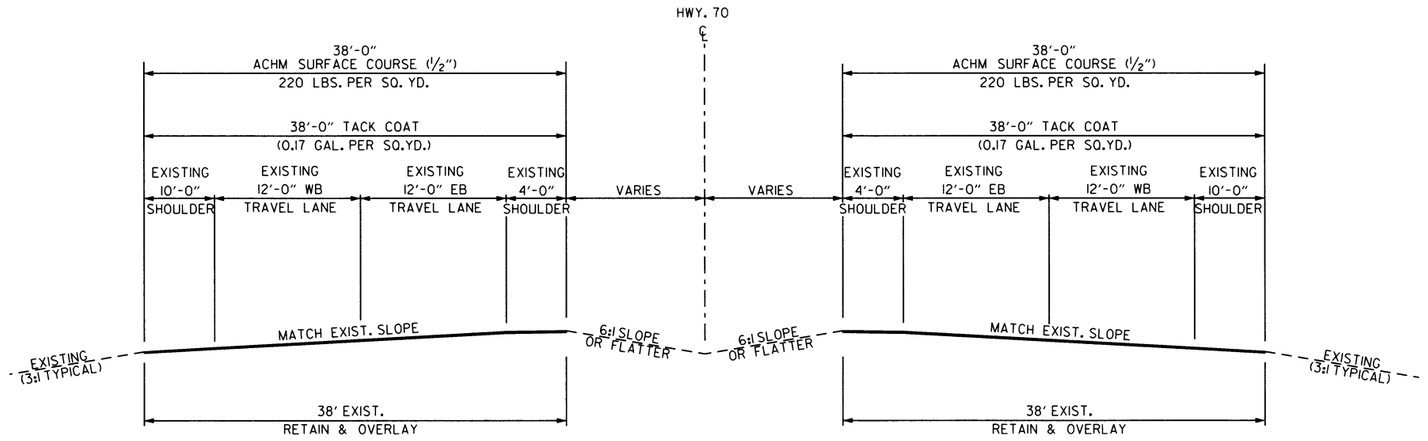
				6	ARK.			
				JOB NO.		CA0610	11	888

(2) TYPICAL SECTIONS OF IMPROVEMENT



HWY. 70 - OVERLAY TYPICAL SECTION (16)

STA. 1437+60.00 TO STA. 1441+42.50

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

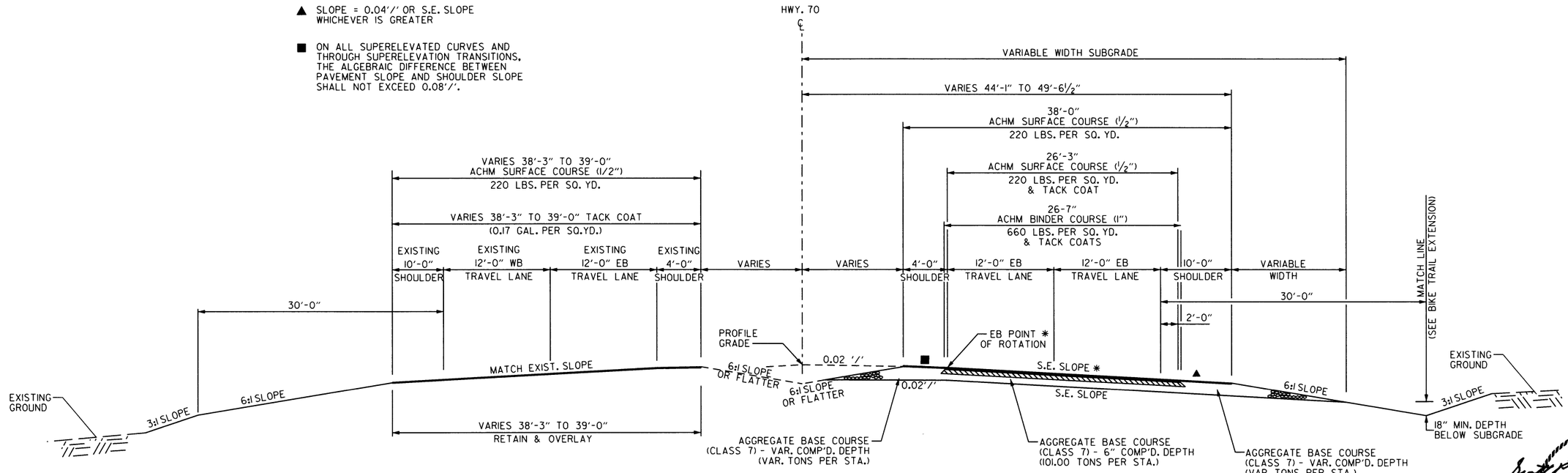
2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

3. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.

4. WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

▲ SLOPE = 0.04'/' OR S.E. SLOPE WHICHEVER IS GREATER

■ ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS, THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.



HWY. 70 - SUPERELEVATED TYPICAL SECTION (15)

STA. 1434+80.00 TO STA. 1437+60.00

* ROTATE EB LANES ABOUT INSIDE EDGE OF TRAVEL LANES. ELEVATION OF EB POINT OF ROTATION SHALL BE DETERMINED BY EXTENDING A LINE FROM THE THEORETICAL PROFILE GRADE TO THE EB POINT OF ROTATION AT A 2% DOWNWARD SLOPE.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

TYPICAL SECTIONS OF IMPROVEMENT

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Michael Baker INTERNATIONAL

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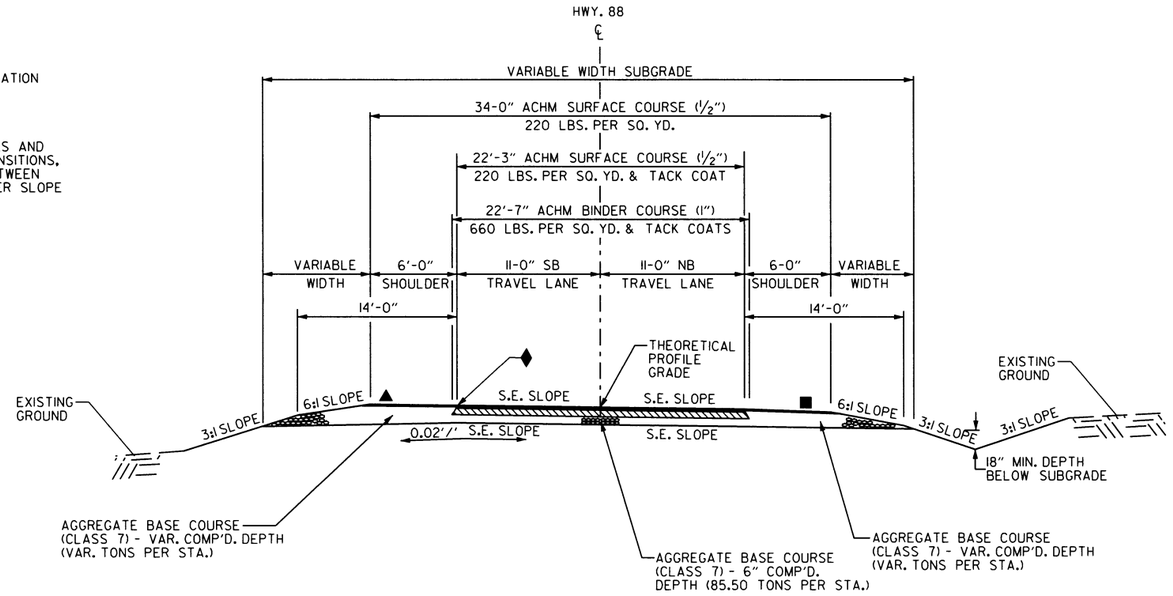
				JOB NO.		CA0610	12	888

(2) TYPICAL SECTIONS OF IMPROVEMENT

▲ SLOPE = 0.04'/' OR S.E. SLOPE WHICHEVER IS GREATER

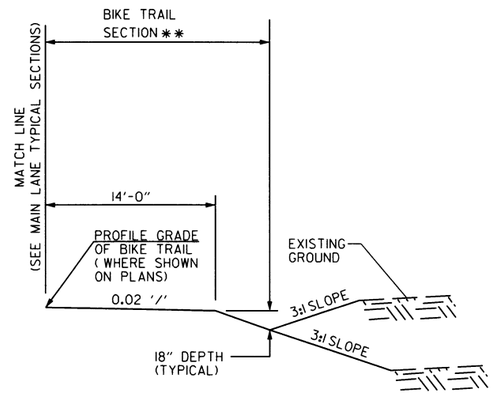
♦ POINT OF SUPERELEVATION ROTATION (0.22' BELOW PROFILE GRADE)

■ ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS, THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.



HWY. 88 - SUPERELEVATED TYPICAL SECTION

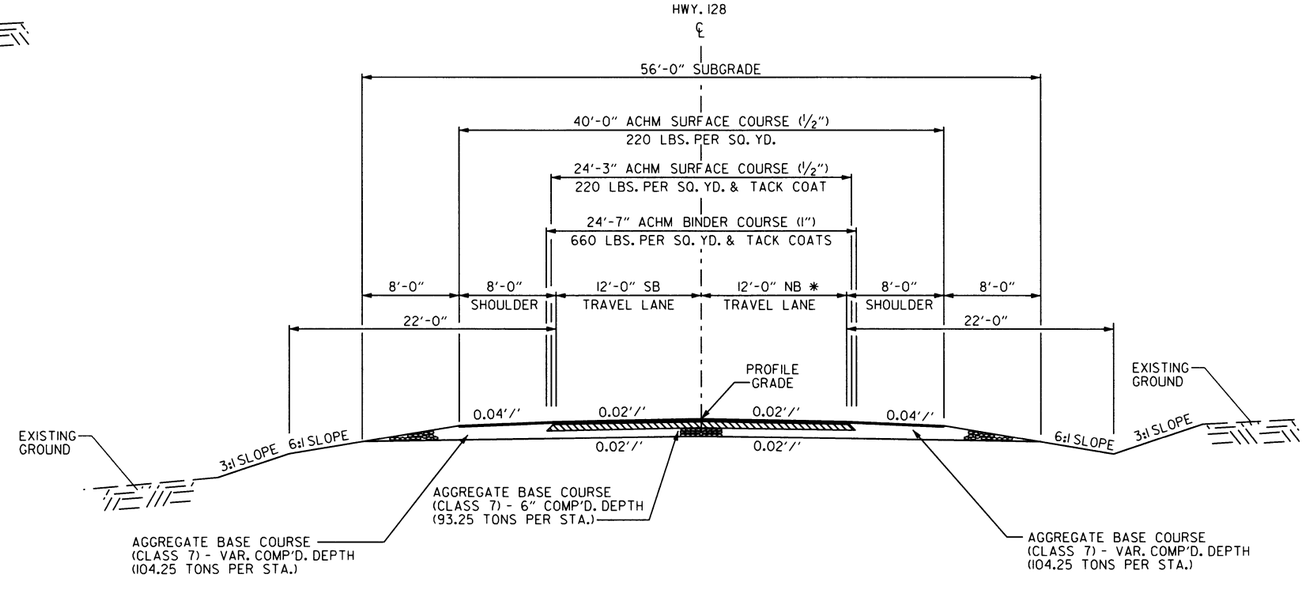
STA. 38+00.00 TO STA. 39+70.39



BIKE TRAIL EXTENSION (GRADING ONLY)

** BIKE TRAIL SECTION TO BE APPLIED TO THESE STATION LIMITS ALONG THE RIGHT MAIN LANE SECTIONS

STA. 1099+31.07 TO STA. 1207+89.21
STA. 1211+18.03 TO STA. 1247+40.36
STA. 1249+35.29 TO STA. 1261+49.88
STA. 1262+59.89 TO STA. 1299+42.62
STA. 1323+29.56 TO STA. 1380+99.66
STA. 1384+75.00 TO STA. 1390+80.39
STA. 1393+35.82 TO STA. 1427+01.15
STA. 1429+49.62 TO STA. 1436+51.30



HWY. 128 - TANGENT TYPICAL SECTION

STA. 10+29.50 TO STA. 18+00.00

* TRANSITION FROM 15.79' AT STA. 11+49.69 TO 12' AT STA. 12+63.33

NOTES:

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2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

3. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.

4. WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

TYPICAL SECTIONS OF IMPROVEMENT

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Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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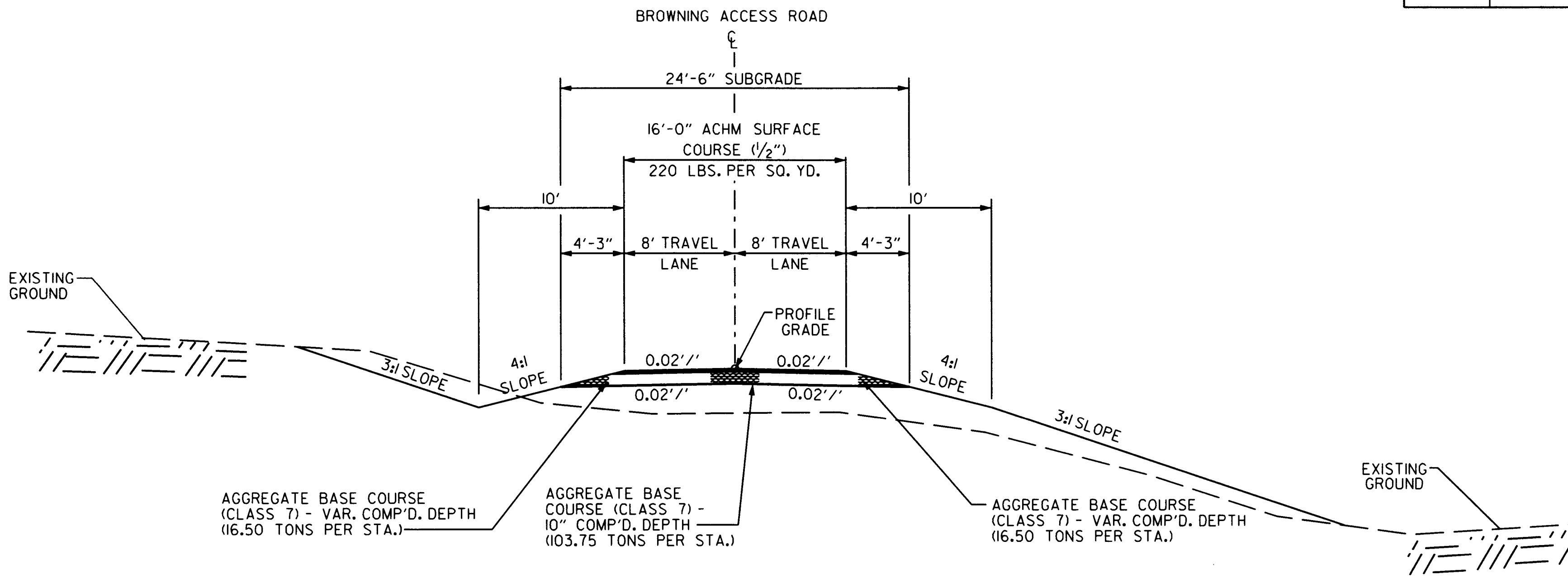

BROWNING ACCESS ROAD TYPICAL SECTION

STA. 205+30.53 TO STA. 217+14.39

NOTES:

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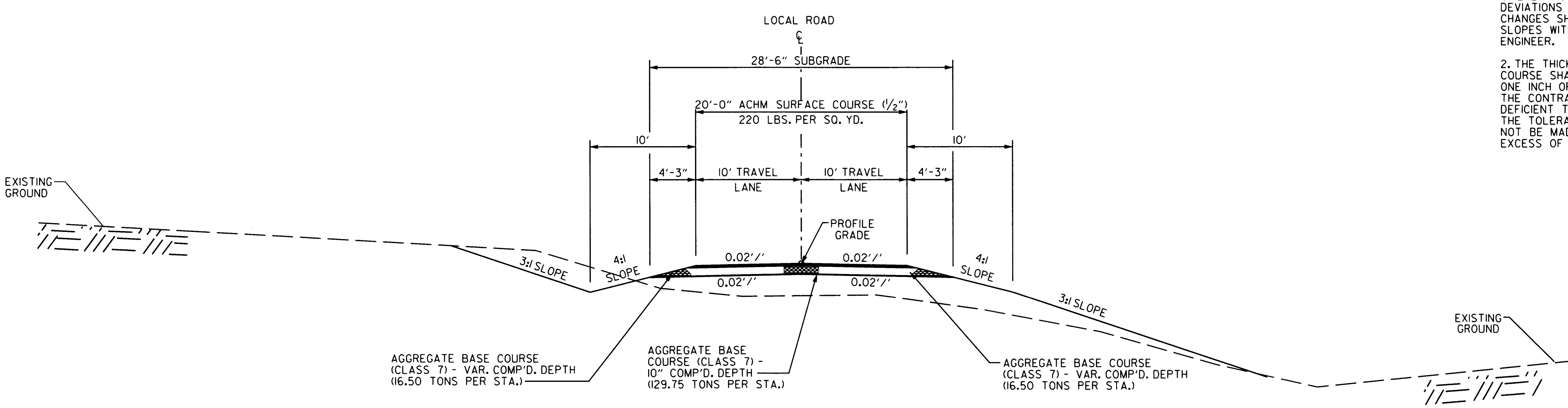

LOCAL ROAD TYPICAL SECTION

* THESE SIDE ROADS DO NOT HAVE CROSS SECTIONS. VERTICAL ALIGNMENTS ARE SHOWN IN SHEETS TITLED "SIDE ROAD PROFILES". ASPHALT FOR THESE APPROACHES ARE QUANTIFIED IN THE "DRIVEWAYS & TURNOUTS" QUANTITY CHART.

* BRATTON DRIVE STA. 20+29.72 TO STA. 21+28.53
* BARTEE TRAIL STA. 17+91.28 TO STA. 19+69.46
* BEUKAH STREET STA. 17+75.00 TO STA. 19+69.46
* OHANA TERRACE STA. 20+29.50 TO STA. 21+28.68
* CLOUD 9 DRIVE STA. 18+03.39 TO STA. 19+70.50
* SUMMIT RIDGE ROAD STA. 14+38+00 TO STA. 16+69.46
CEDAR CREEK ROAD STA. 20+30.57 TO STA. 23+60.00
* COUNTY ROAD 369 STA. 20+29.50 TO STA. 21+47.70
COUNTY ROAD 1381 STA. 20+30.40 TO STA. 21+80.00

LONSDALE CUTOFF RD STA. 6+50.00 TO STA. 9+70.50
NANCE ROAD STA. 107+44.25 TO STA. 109+70.50
TEN MILE ROAD STA. 128+07.35 TO STA. 129+70.50
NARROWS ROAD STA. 140+29.50 TO STA. 142+50.00
* ROCKY LOOP STA. 158+50.00 TO STA. 159+70.50
* FAIRPLAY ROAD STA. 208+40.00 TO STA. 209+70.44
BROWNING ROAD WEST STA. 210+29.57 TO STA. 212+40.00
* BROWNING ROAD EAST STA. 220+32.61 TO STA. 221+20.00
* OLD 88 ROAD STA. 288+35.54 TO 289+70.50
* HIGHPOINT DRIVE STA. 290+31.77 TO 290+59.69
SMITH FORD ROAD STA. 300+30.53 TO STA. 302+60.65

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER ★ ★ ★ No.10887 SCOTT P. THORNSBERRY

9-23-2016

TYPICAL SECTIONS OF IMPROVEMENT

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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

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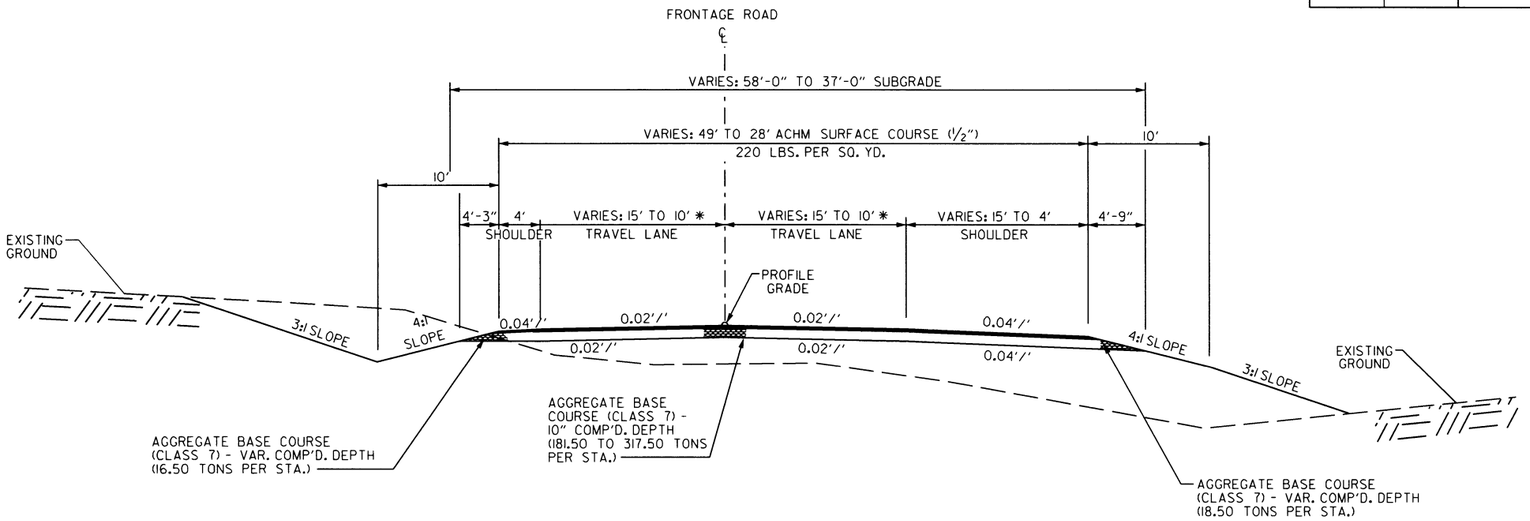

FRONTAGE ROAD TYPICAL SECTION

STA. 330+41.43 TO 336+05.20

* VARIES FROM 15' @ STA. 332+75.76 TO 10' @ STA. 334+71.53

NOTES:

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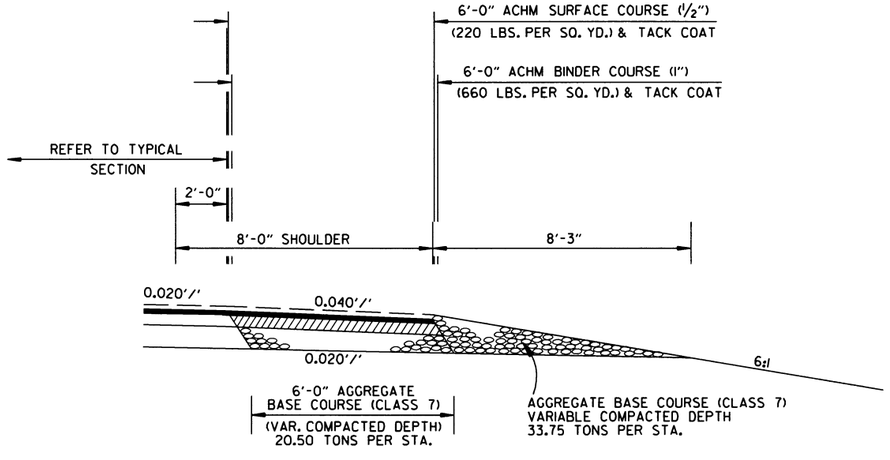
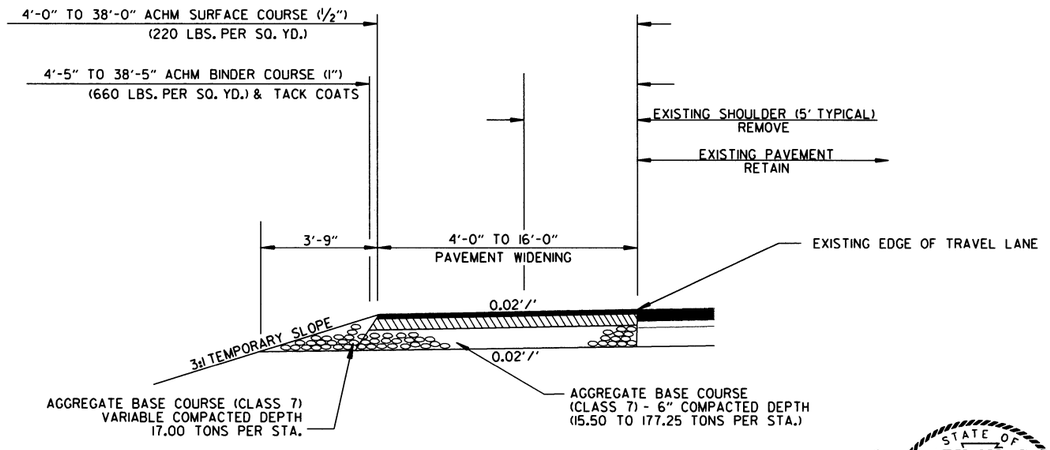


FULL DEPTH SHOULDER FOR MAINTENANCE OF TRAFFIC

STA. 487+89.30 TO STA. 490+00.00 LT. OF LT. LANES
STA. 958+20.00 TO STA. 981+17.61 RT.
HWY. 128 STA. 10+29.52 TO STA. 19+00.00 RT.

NOTE:
IN NOTCH AND WIDEN SECTIONS PAVEMENT WIDENING TO REMAIN AND EXTENDED TO FULL DEPTH PAVEMENT SECTION IN STAGE 2.



PAVEMENT WIDENING FOR MAINTENANCE OF TRAFFIC

TEMP CROSSOVER STA. 10+00 TO STA. 16+54.66 (WIDEN 25 FT.)
STA. 505+31.34 TO STA. 529+01.99 (AVG. WIDENING 26.0 FT.)
STA. 535+50.07 TO STA. 551+50.00 (AVG. WIDENING 15.6 FT.)
STA. 627+00.00 TO STA. 635+00.00 (AVG. WIDENING 6.6 FT.)
STA. 821+65.44 TO STA. 827+69.64 (AVG. WIDENING 8.2 FT.)
STA. 1019+00.00 TO STA. 1032+60.00 (AVG. WIDENING 10.0 FT.)
STA. 1050+68.00 TO STA. 1057+68.00 (AVG. WIDENING 9.0 FT.)
STA. 1067+68.57 TO STA. 1120+91.68 (AVG. WIDENING 12.0 FT.)
STA. 1188+58.78 TO STA. 1198+14.23 (AVG. WIDENING 10.0 FT.)
STA. 1210+81.56 TO STA. 1219+45.85 (AVG. WIDENING 4.0 FT.)
STA. 1219+45.85 TO STA. 1227+30.41 (AVG. WIDENING 16.0 FT.)
STA. 1234+45.43 TO STA. 1267+87.25 (AVG. WIDENING 4.0 FT.)
HWY. 128 STA. 10+29.50 TO STA. 25+60.00 (AVG. WIDENING 24.0 FT.)

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY

TYPICAL SECTIONS OF IMPROVEMENT

Scott.Thornsberry 9/23/2016 2:07:34 PM
WORKSPACE: AHTD
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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

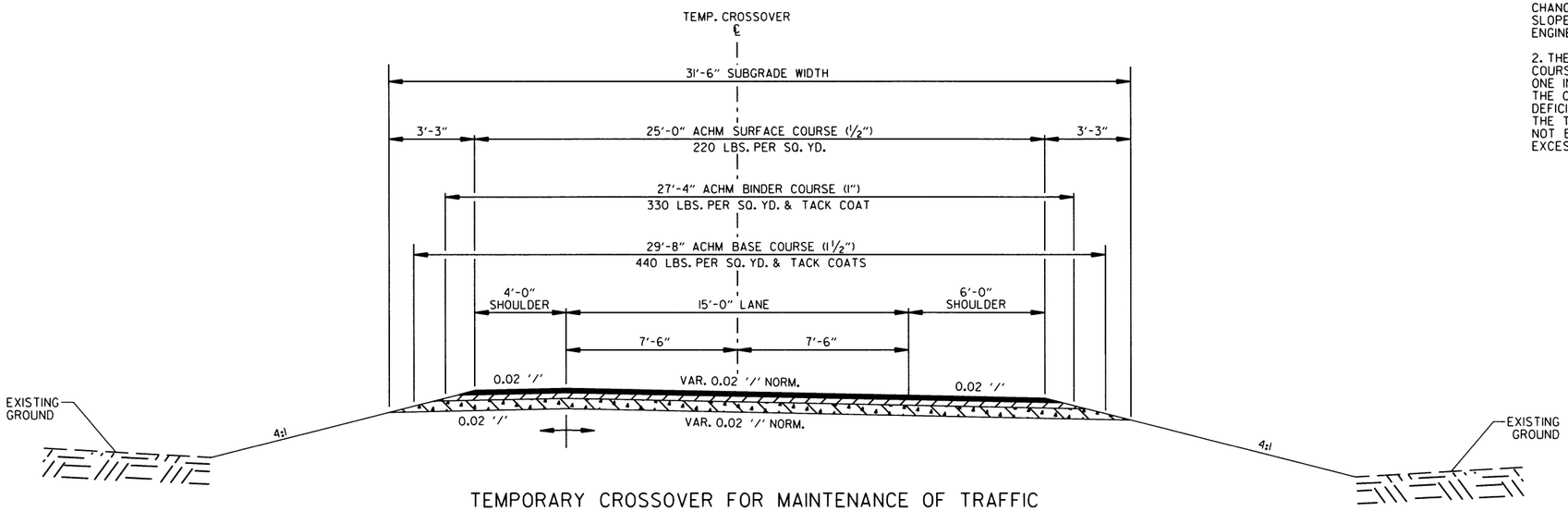
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	15	888

(2) TYPICAL SECTIONS OF IMPROVEMENT

NOTES:

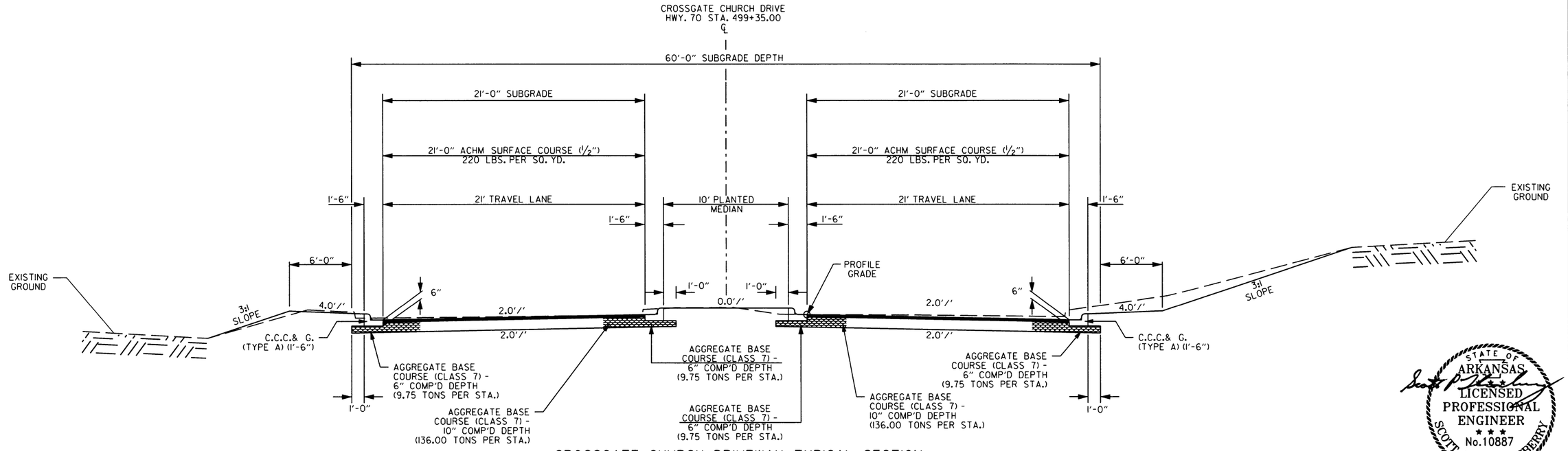
1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.



TEMPORARY CROSSOVER FOR MAINTENANCE OF TRAFFIC

STA. 10+00.00 TO 16+54.68



CROSSGATE CHURCH DRIVEWAY TYPICAL SECTION

STA. 17+60.00 TO 19+70.50

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

TYPICAL SECTIONS OF IMPROVEMENT

Leonard.Speed 9/23/2016 10:16:57 AM
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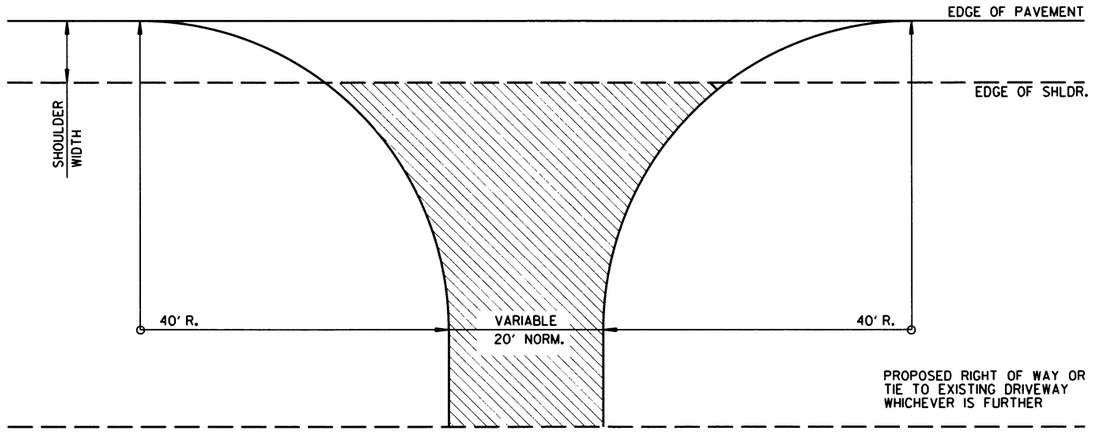
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	16	888

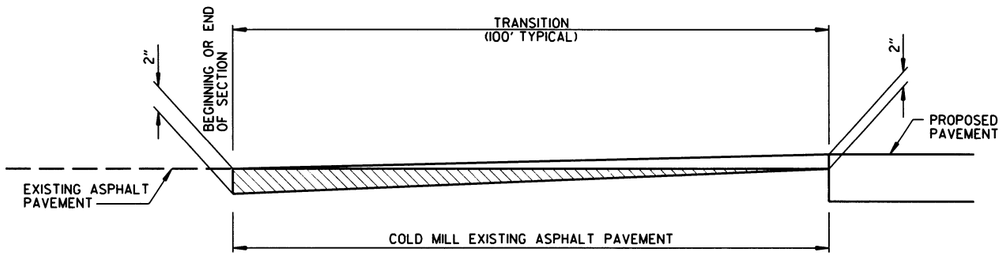
(2) SPECIAL DETAILS



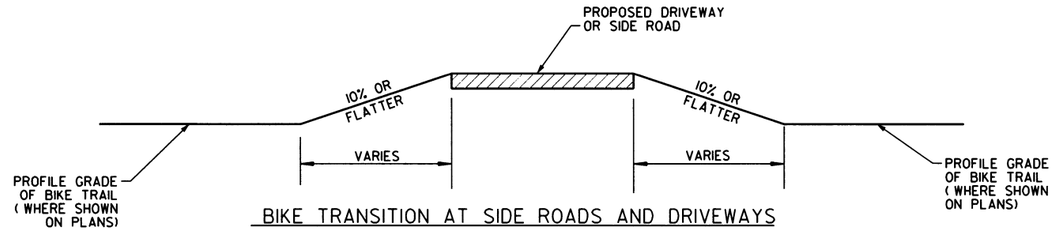
ASPHALT CONCRETE HOT MIX SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH.

NOTE:
REFER TO PLAN SHEETS FOR WIDTHS OF COUNTY ROADS.

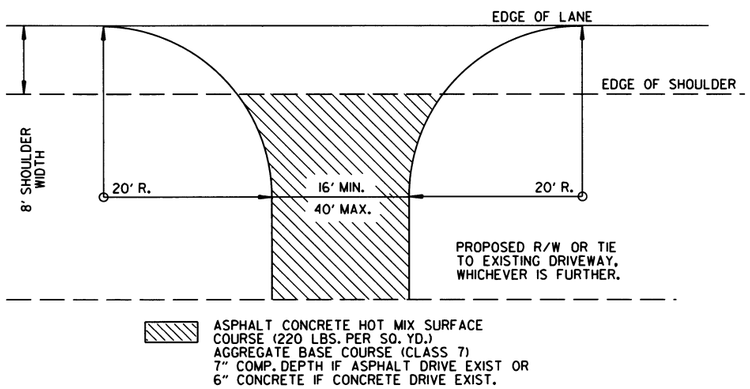
DETAIL FOR COUNTY AND LOCAL ROAD TURNOUTS



DETAIL FOR TRANSITIONS



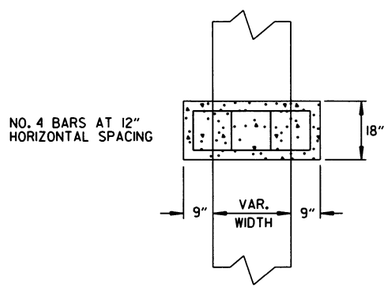
BIKE TRANSITION AT SIDE ROADS AND DRIVEWAYS



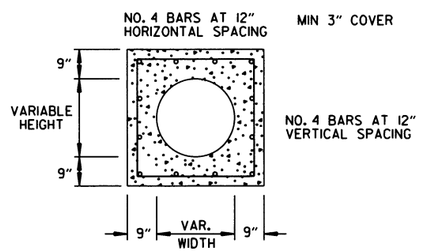
ASPHALT CONCRETE HOT MIX SURFACE COURSE (220 LBS. PER SQ. YD.) AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT DRIVE EXIST OR 6" CONCRETE IF CONCRETE DRIVE EXIST.

DETAIL FOR DRIVEWAY TURNOUTS

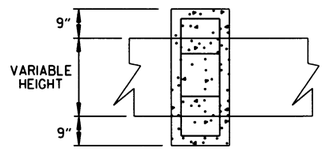
NOTE:
REFER TO PLAN SHEETS FOR WIDTHS OF DRIVEWAYS.



TOP VIEW



FRONT VIEW



SIDE VIEW

PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL

NOTE: PIPE COLLAR TO BE UTILIZED AS APPROVED BY THE ENGINEER.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

SPECIAL DETAILS

Leonard Speed 9/23/2016 10:17:10 AM
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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		CA0610	17	888
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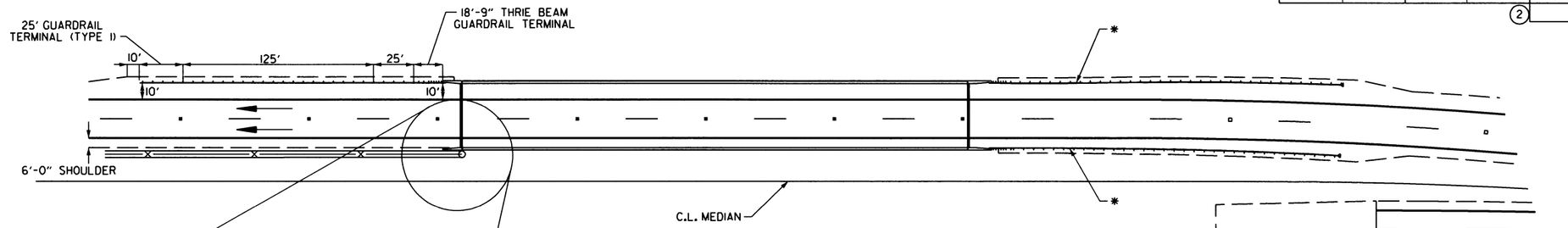
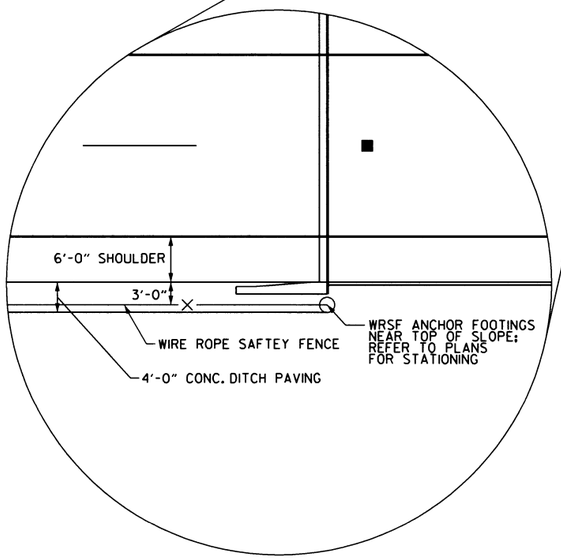
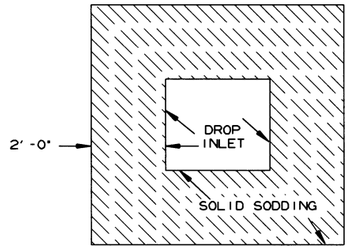


GUARDRAIL AT CEDAR CREEK BRIDGE

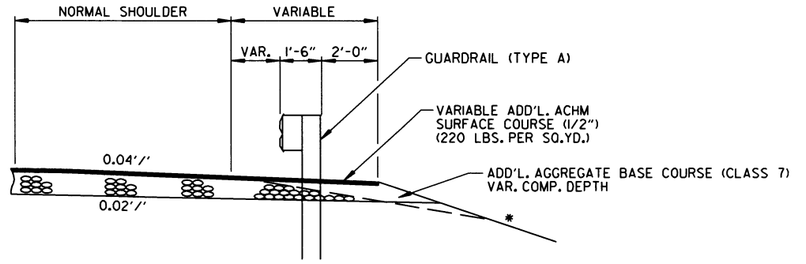
*SEE STD. DRAWING GR-9 METHOD OF INSTALLATION OF GUARDRAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2).

NOTE: REFER TO STANDARD DRAWINGS GR-8, GR-8A, GR-9, GR-10 & GR-10A FOR ADDITIONAL INFORMATION.





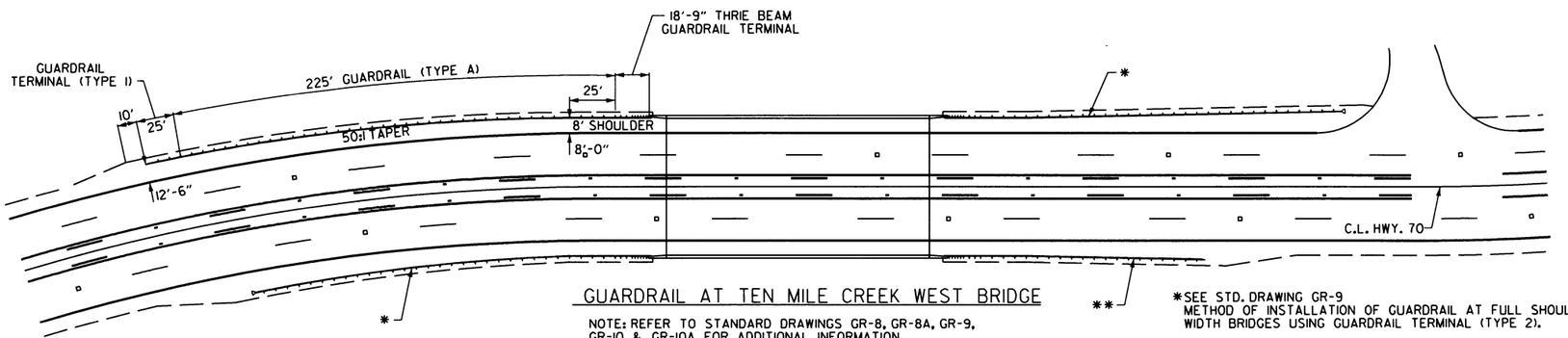
DETAIL FOR SOLID SODDING AROUND DROP INLETS



WIDENING FOR GUARDRAIL

NOTE: REFER TO STANDARD DRAWINGS GR-8, GR-8A, GR-9, GR-10 & GR-10A FOR ADDITIONAL INFORMATION.

* NOTE: REFER TO STD. DWG. GR-9A AND CROSS SECTIONS FOR SLOPE REQUIREMENTS BEHIND GUARDRAIL.



GUARDRAIL AT TEN MILE CREEK WEST BRIDGE

NOTE: REFER TO STANDARD DRAWINGS GR-8, GR-8A, GR-9, GR-10 & GR-10A FOR ADDITIONAL INFORMATION.

*SEE STD. DRAWING GR-9 METHOD OF INSTALLATION OF GUARDRAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2).

**SEE STD. DRAWING GR-9 METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES).

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
10-4-2016

SPECIAL DETAILS

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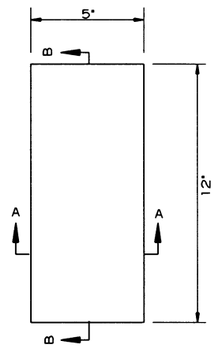
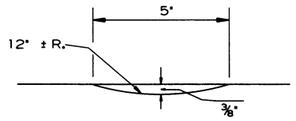
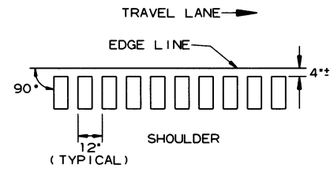


PLAN SECTION B-B

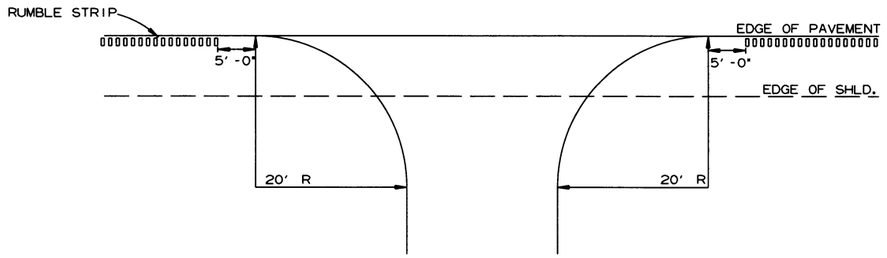


SECTION A-A

DETAILS OF RUMBLE STRIPS



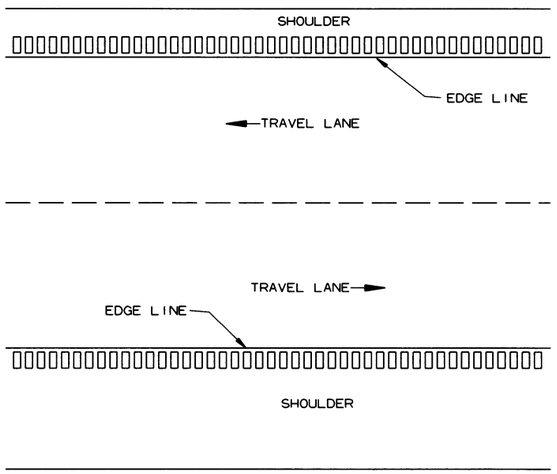
LOCATION PLAN OF RUMBLE STRIPS LEFT OR RIGHT SHOULDER



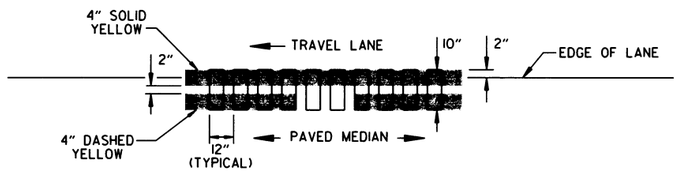
DETAIL FOR RUMBLE STRIP GAP AT DRIVEWAY TURNOUTS

GENERAL NOTES

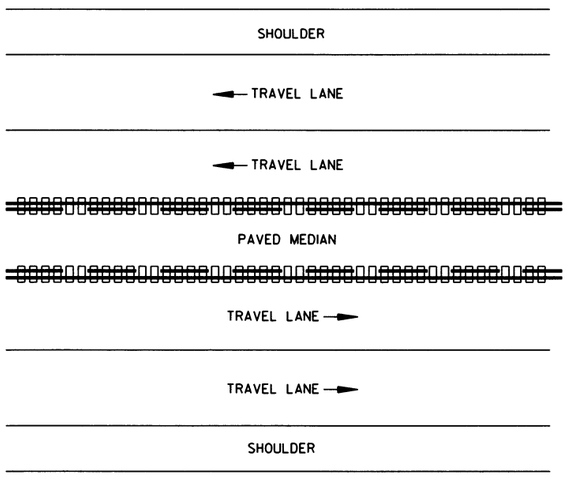
1. RUMBLE STRIPS SHALL NOT BE INSTALLED ON CURB SECTIONS, BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, RESIDENTIAL OR COMMERCIAL DRIVEWAYS OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.
2. RUMBLE STRIPS SHALL NOT BE INSTALLED ON A PAVED SHOULDER THAT IS USED AS A DECELERATION LANE FOR THE LENGTH DEEMED APPROPRIATE BY THE ENGINEER.
3. THE 4" OFFSET FROM THE EDGE LINE MAY BE INCREASED TO AVOID LONGITUDINAL JOINTS. IN ALL CASES, THE LATERAL DEVIATION FROM THE PLANNED OFFSET SHOULD BE KEPT TO A MINIMUM.
4. RUMBLE STRIPS SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE SHOULDER. PAYMENT SHALL ONLY INCLUDE THAT PORTION OF THE SHOULDER ON WHICH RUMBLE STRIPS HAVE BEEN CONSTRUCTED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR GAPS, DRIVEWAYS, TURNOUTS, OR OTHER PUBLIC ROAD INTERSECTIONS WHERE RUMBLE STRIPS HAVE NOT BEEN CONSTRUCTED.
5. THE 3/8" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 12" LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.
6. RUMBLE STRIPES SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE CENTERLINE.



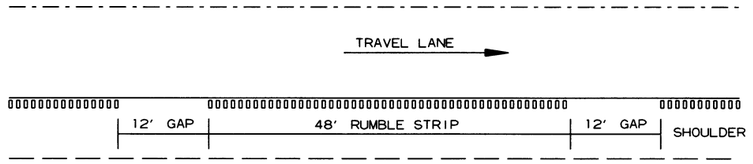
PLAN VIEW - RUMBLE STRIPS



LOCATION PLAN OF PAVED MEDIAN RUMBLE STRIPES



PLAN VIEW - RUMBLE STRIPS



NOTE: GAP PATTERN SHALL BE ADJUSTED BY THE ENGINEER IN THE FIELD ALLOWING FOR DRIVEWAYS TO SERVE AS THE GAP.

DETAIL FOR GAP PATTERN RUMBLE STRIP

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

SPECIAL DETAILS

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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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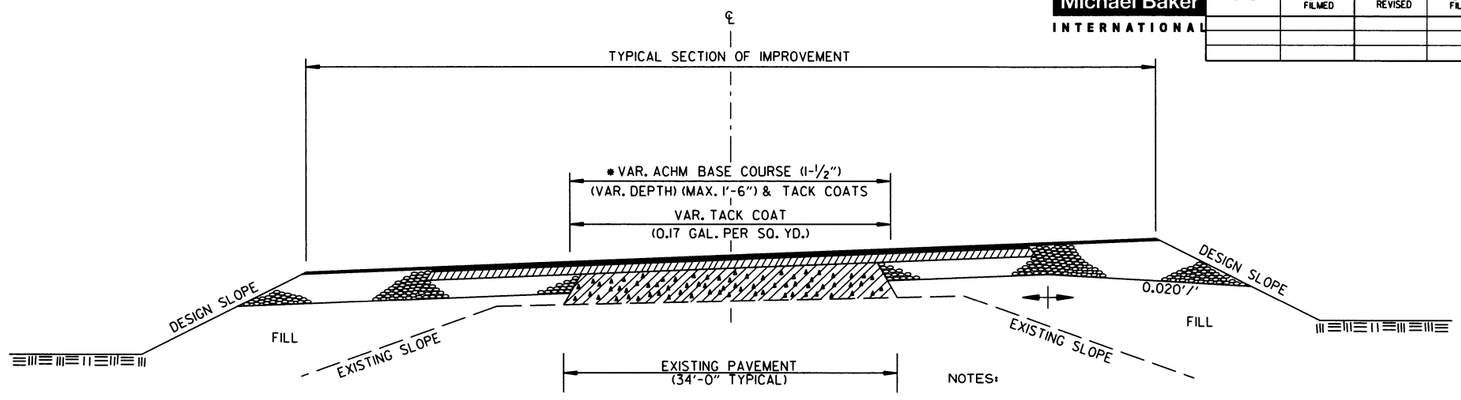
(2) SPECIAL DETAILS



* 6" AGGREGATE BASE COURSE (CLASS 7) TO BE REPLACED WITH ACHM BASE COURSE (1-1/2")

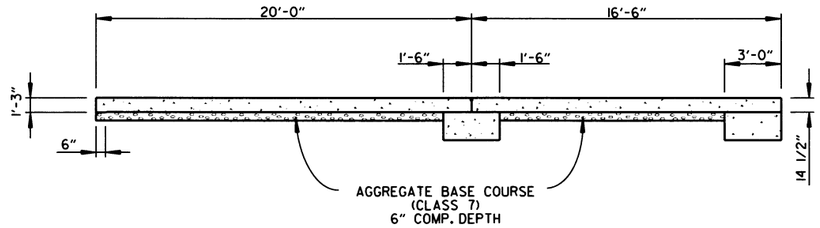
METHOD OF RAISING GRADE

NOTES:

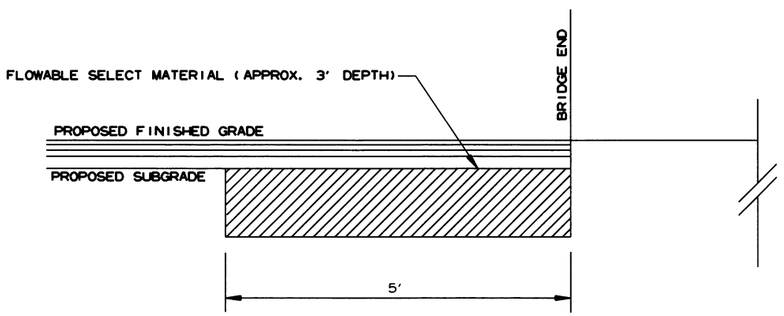
(1) THIS DETAIL TO BE USED ONLY WHERE DIRECTED BY THE ENGINEER.

(2) QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.

(3) IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09, OF THE STANDARD SPECIFICATIONS.

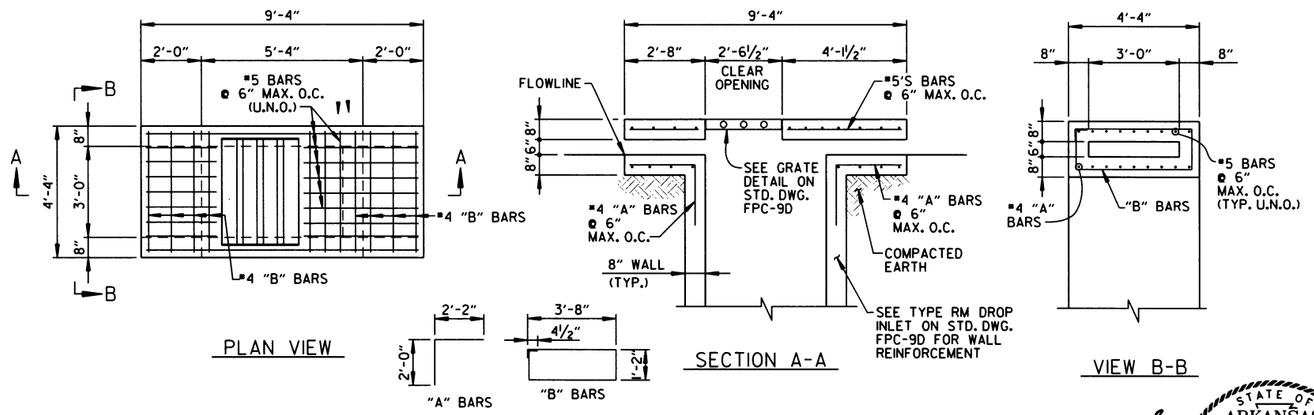


SECTION OF APPROACH SLAB



NOTE: EXCAVATION FOR PLACING FLOWABLE SELECT MATERIAL WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT SHALL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS BID ITEMS.

FLOWABLE SELECT MATERIAL AT BRIDGE ENDS



DROP INLET STA. 1152+15.41

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
9-23-2016

SPECIAL DETAILS

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Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		CA0610	20	888
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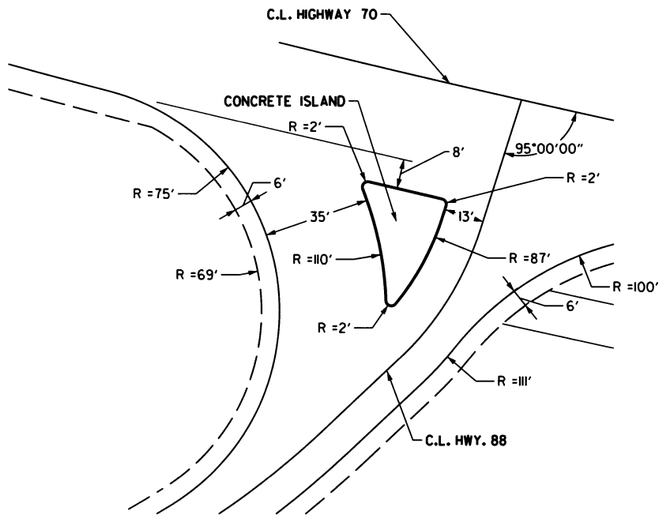
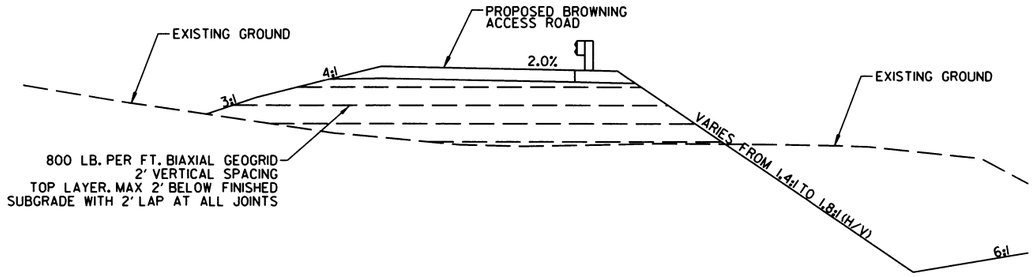
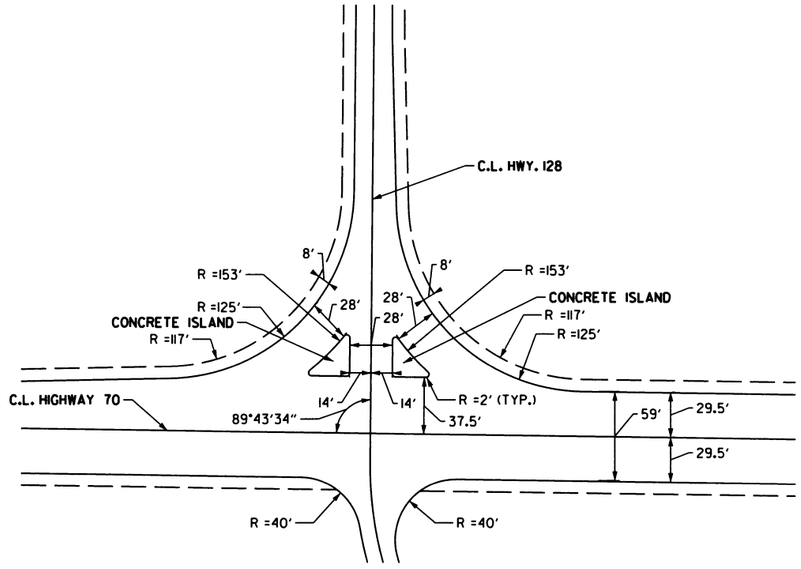


U.S. HWY. 70/STATE HWY. 88
INTERSECTION DETAIL

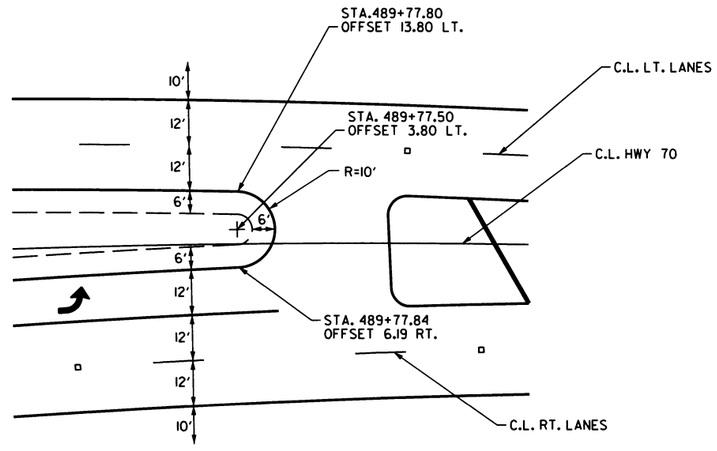
NOTE:
- FILL MATERIAL AND GEOGRID MATERIAL INSTALLED SHALL BE PAID FOR AS COMPACTED EMBANKMENT (SPECIAL).



DETAIL FOR GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT
BROWNING ACCESS RD. STATION 208+00.00 TO 214+00.00

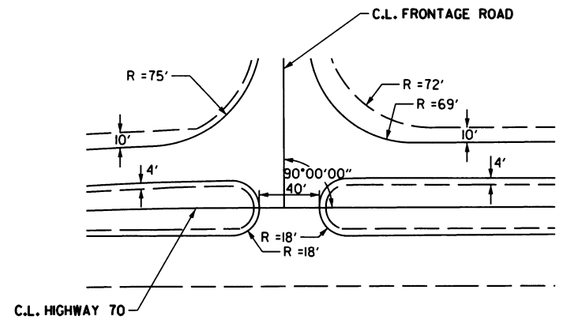


U.S. HWY. 70/STATE HWY. 128
INTERSECTION DETAIL



NOTE: ALL STA. AND OFFSETS ARE FROM THE C.L. OF HWY 70.

INTERSECTION DETAIL
MEDIAN TURN AROUND



U.S. HWY. 70/FRONTAGE ROAD
INTERSECTION DETAIL

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

SPECIAL DETAILS

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REVISED DATE: ##REVDATE##

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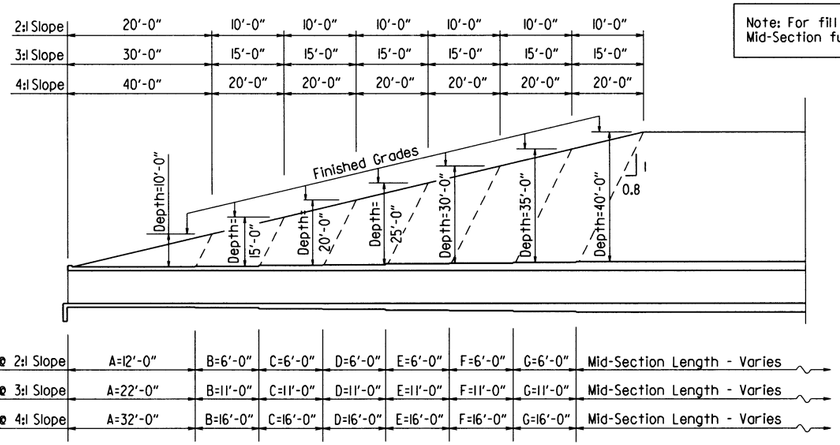
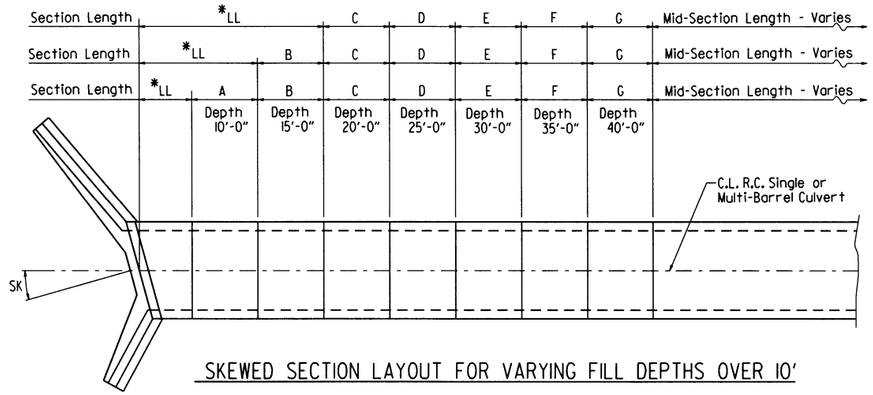


Note: For fill depths 10' and under, use Mid-Section full length of box culvert.

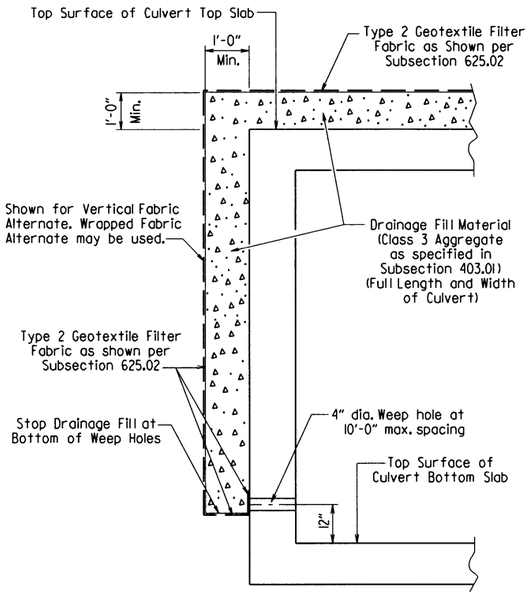
LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

Lengths for Non-Skewed Boxes

*LL = Skewed End Section Length - See "Skewed End Section Details" Length LL varies with skew angle, overall box width and fill depth and may eliminate the need for some slope section lengths as shown.

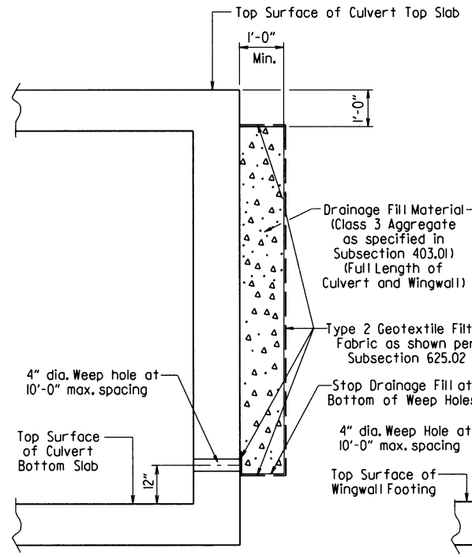


SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'



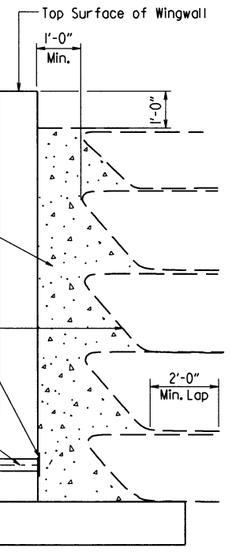
CULVERT DRAINAGE DETAIL FOR ROCK FILL

This detail shall be used when rock fill is specified for embankment construction.



VERTICAL FABRIC ALTERNATE

(Shown for Culvert, Similar for Wingwall)



WRAPPED FABRIC ALTERNATE

(Shown for Wingwall, Similar for Culvert)

For Details of Excavation and Pay Limits, see Standard Drawing RCB-2.

WINGWALL & CULVERT DRAINAGE DETAIL

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Construction Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Fifth Edition (2010) with 2010 interim revisions.

LIVE LOADING: HL-93

All concrete shall be Class S with a minimum 28-day compressive strength of 3,500 psi and shall be poured in the dry. All exposed corners to have 3/4" chamfers.
Reinforcing Steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Reinforcing Steel Tolerances: The tolerances for reinforcing steel shall meet those listed in 'Manual of Standard Practice' published by Concrete Reinforcing Steel Institute (CRSI) except that the tolerance for truss bars such as Figure 3 on page 7-4 of the CRSI Manual shall be minus zero to plus 1/2 inch.

Excavation and backfilling shall be in accordance with the requirements of Section 801.

Membrane Waterproofing shall conform to the requirements of Section 815. Membrane Waterproofing shall be Type C and as directed by the Engineer applied to all construction joints in the top slab and the sidewalls of R.C. Box culverts and to the construction joint between wingwalls and R.C. Box culvert walls.

Weep Holes in box culvert walls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. The drain opening shall be 4" diameter and shall be placed 12" above the top of the bottom slab.

Weep Holes in wingwalls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. There shall be a minimum of two (2) weep holes in each wingwall. The drain opening shall be 4 9/32 diameter and shall be placed 12 9/32 above the top of the wingwall footing.

The barrel components of the culvert may be constructed using continuous pours. For longer culvert construction, the Contractor may use multiple pours with transverse construction joints spaced a minimum of 50 feet apart unless superseded by stage construction or site constraints as approved by the Engineer. Construction joints between footings and walls shall be made only where shown in the Plans. Joints shall be normal to the centerline of barrel and shall be keyed. Longitudinal reinforcing shall be continuous through joints unless shown otherwise. All longitudinal construction joints shall be submitted to the Engineer for approval.

Membrane Waterproofing, Weep Holes, Geotextile Filter Fabric, and Drainage Fill Material will not be paid for directly but shall be considered subsidiary to Class S Concrete.

When the top slab of the box culvert serves as finished roadway surface, curing and finishing shall be in accordance with subsections 802.17 and 802.20 for bridge roadway surface and a tine finish shall be applied in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Curing and finishing shall not be paid for directly, but shall be considered incidental to the item "Class S Concrete-Roadway". Class I Protective Surface Treatment shall be applied to the roadway surface and this work shall be paid for under the unit price bid for "Class I Protective Surface Treatment".

When precast reinforced concrete box culverts are substituted for cast in place box culverts, they shall be manufactured according to ASTM C 1577 and meet the requirements of Section 607. When the top slab of the box culvert serves as the finished roadway surface, a precast reinforced concrete box culvert substitution is not allowed.

STATE OF ARKANSAS
Stephen F. Harper
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER
9/26/16

SHEET 1 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT

GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE

SPECIAL DETAILS

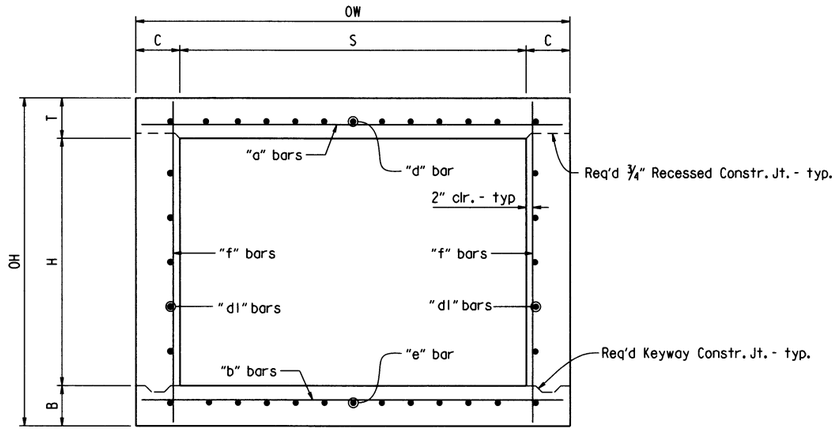
LRFD

Scott.Thornsberry 9/26/2016 8:20:00 AM
WORKSPACE: AHTD
c:\pw\bi-local\baker_projects\scott.thornsberry\d0424368\rCA0610_05_SD_MAIN_002.dgn
REVISED DATE: $$REVDATE$$

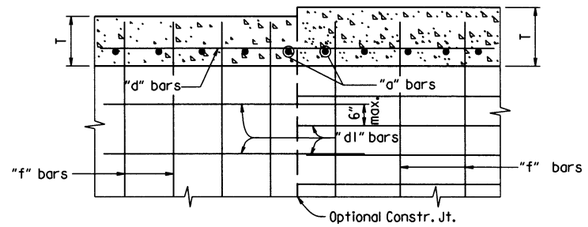
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	22	888

(1) SPECIAL DETAILS

Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



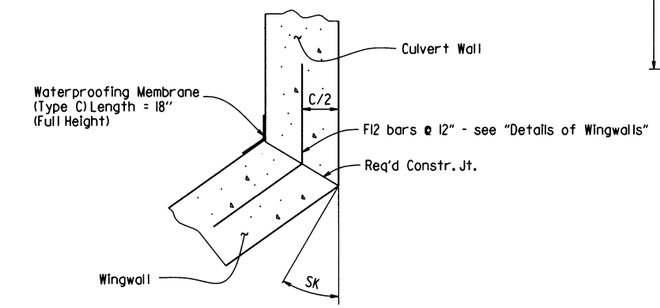
TYPICAL SECTION M-M



Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

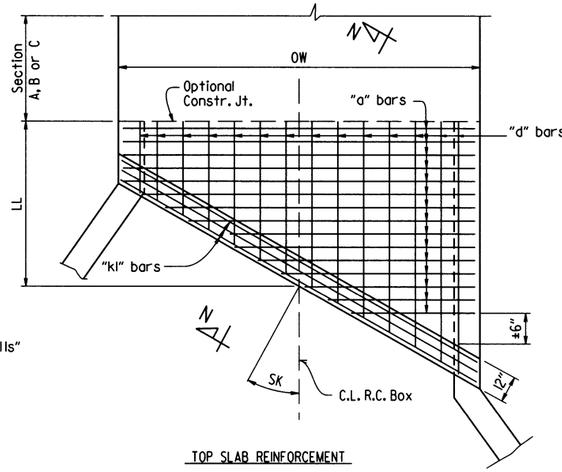
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

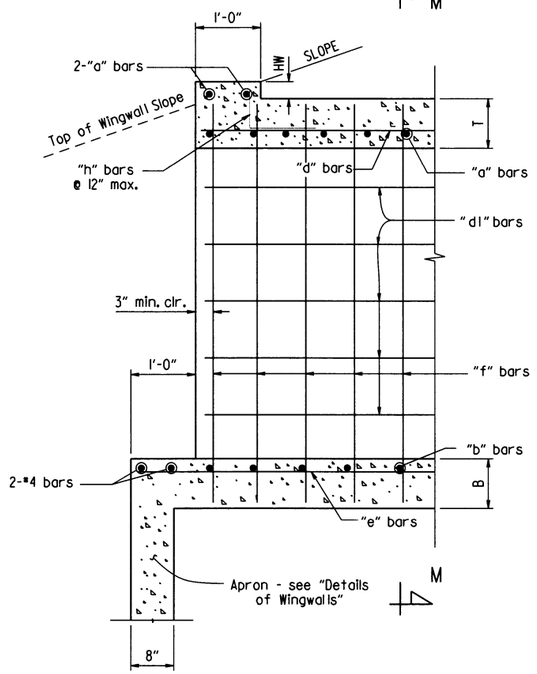


WINGWALL ATTACHMENT

See "Details of Wingwalls" for additional information and wingwall details.

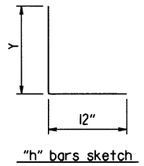


TOP SLAB REINFORCEMENT

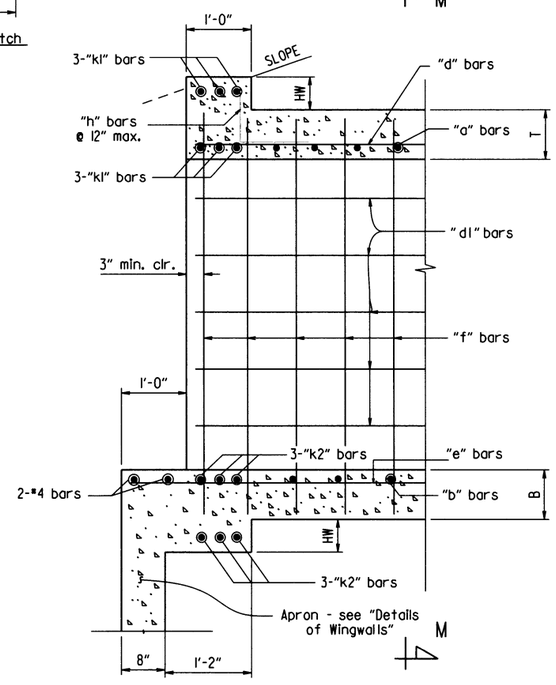


PART LONGITUDINAL SECTION

(Non-Skewed Ends)

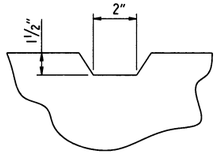


"h" bars sketch



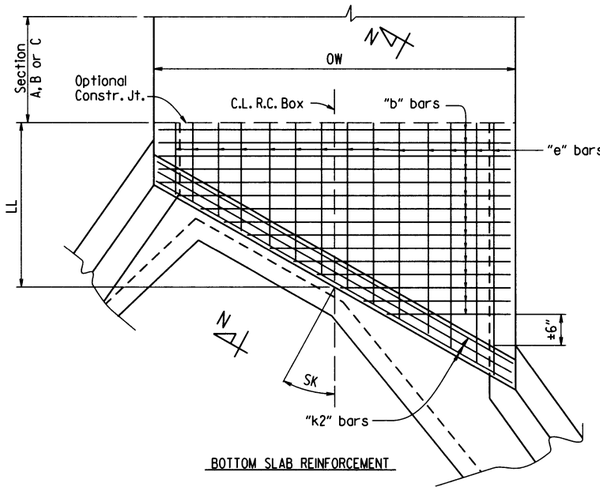
PART LONGITUDINAL SECTION N-N

(Skewed Ends)



TYPICAL KEYWAY DETAIL

(All Construction Joints)



BOTTOM SLAB REINFORCEMENT

SKEWED END SECTION DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER
9/26/16

SHEET 2 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT

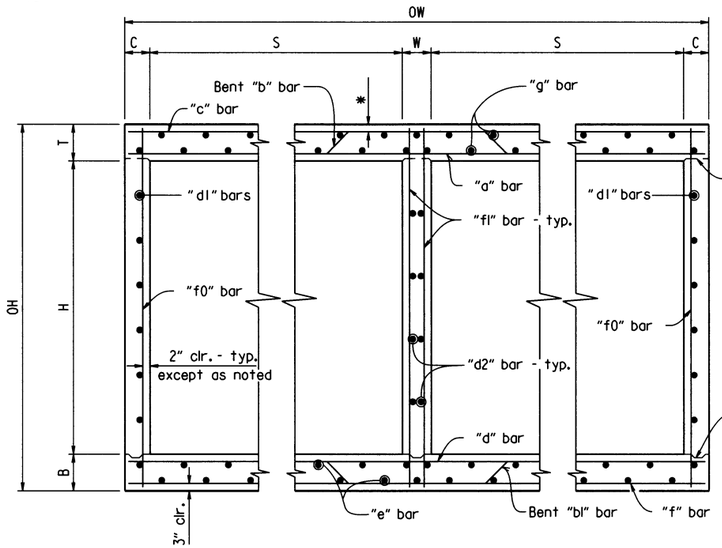
DETAILS OF SINGLE BARREL
R.C. BOX CULVERT

SPECIAL DETAILS

DATE REVISED	DATE FILMED	REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	23	888
				①		SPECIAL DETAILS		

*2" clr. for fill depth (D) greater than 2 ft.
2½" clr. for fill depth (D) equal to or less than 2 ft.

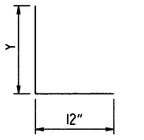
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



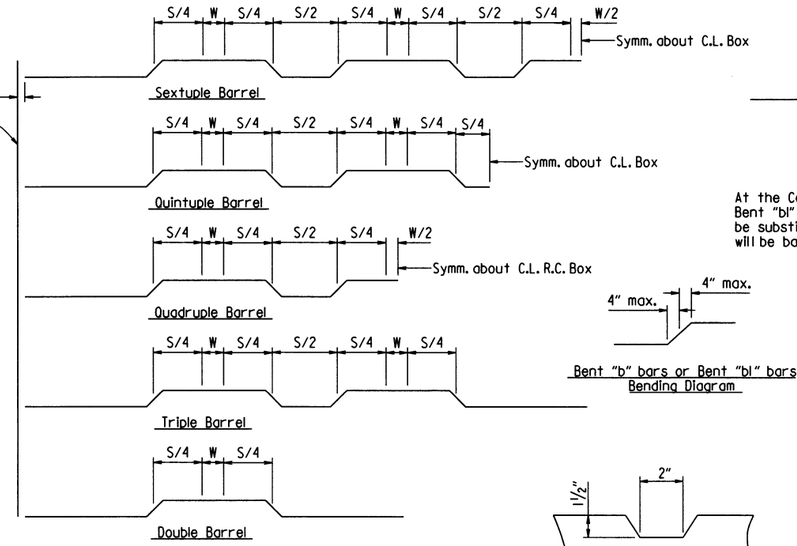
TYPICAL SECTION M-M

Top Slab
Straight "c" bars shall alternate with Bent "b" bars in top.
Straight "a" bars shall alternate with Bent "b" bars in bottom.

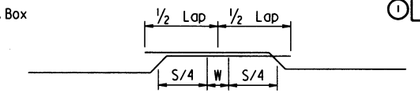
Bottom Slab
Straight "d" bars shall alternate with Bent "bl" bars in top.
Straight "f" bars shall alternate with Bent "bl" bars in bottom.



"h" bars sketch



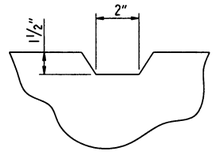
Bent "b" bars or Bent "bl" bars sketch



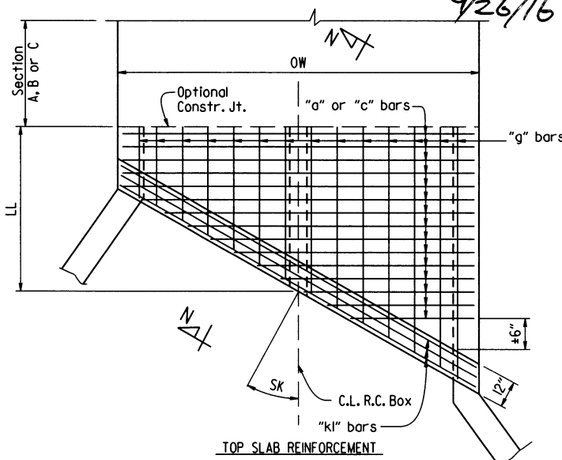
Lap Detail
For Bent "b" bars and Bent "bl" bars

At the Contractor's option in lieu of providing Bent "b" or Bent "bl" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "bl" bar.

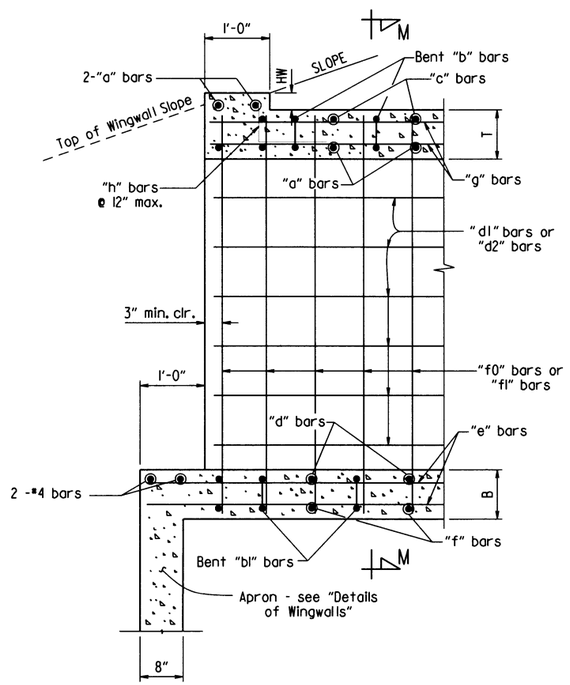
Bent "b" bars or Bent "bl" bars Bending Diagram



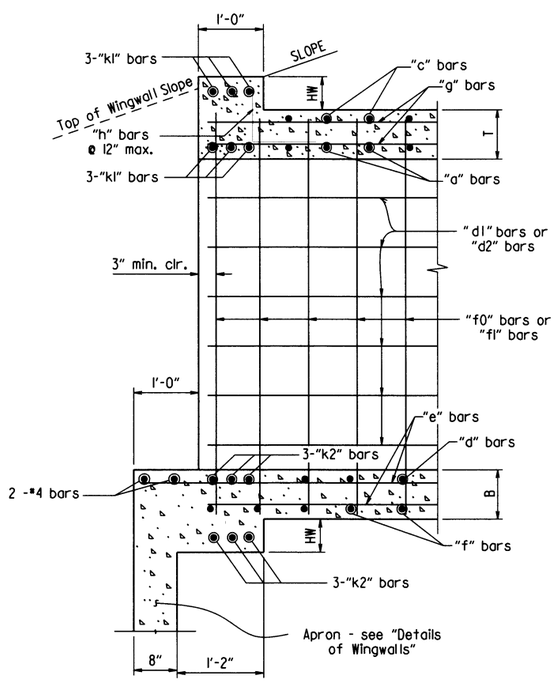
TYPICAL KEYWAY DETAIL
(All Construction Joints)



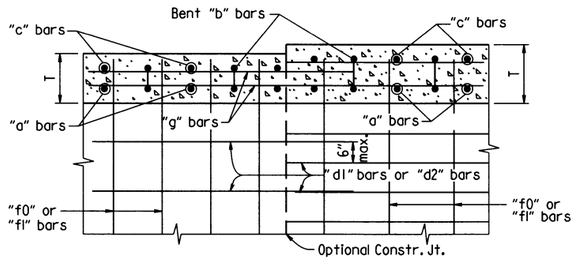
TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



PART LONGITUDINAL SECTION
(Non-Skewed Ends)

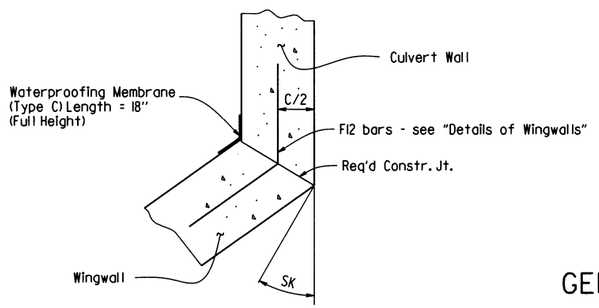


PART LONGITUDINAL SECTION N-N
(Skewed Ends)

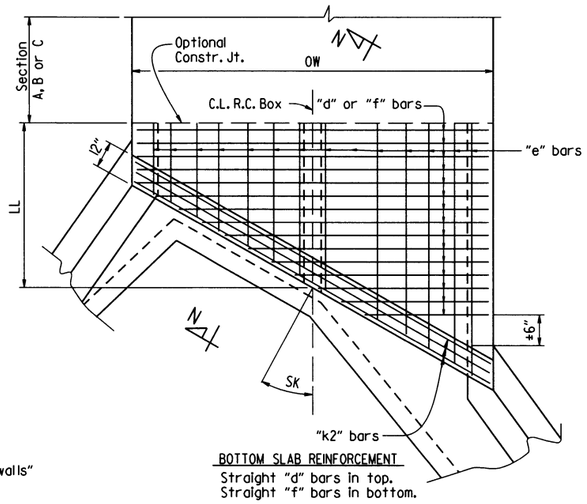


Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS
TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



WINGWALL ATTACHMENT
See "Details of Wingwalls" for additional information and wingwall details.



BOTTOM SLAB REINFORCEMENT
Straight "d" bars in top.
Straight "f" bars in bottom.

SKEWED END SECTION DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER
9/26/16

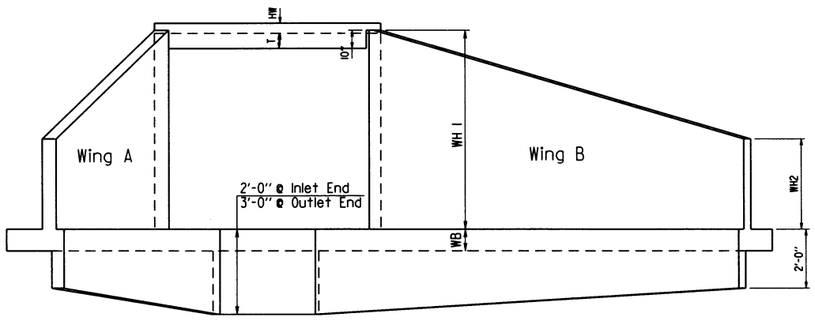
SHEET 3 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF MULTI-BARREL
R.C. BOX CULVERT

SPECIAL DETAILS

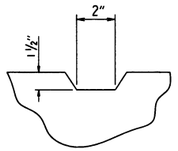
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	24	888

1 SPECIAL DETAILS



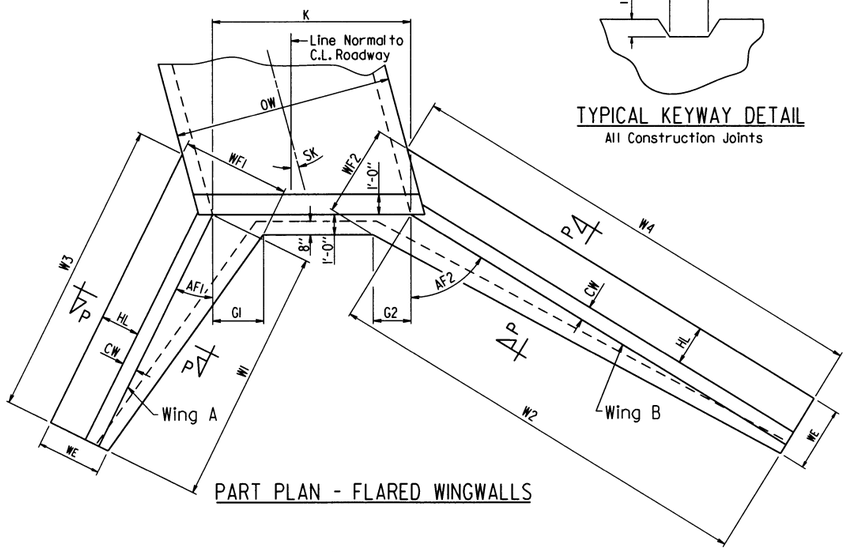
END ELEVATION

Flared Wingwalls Shown

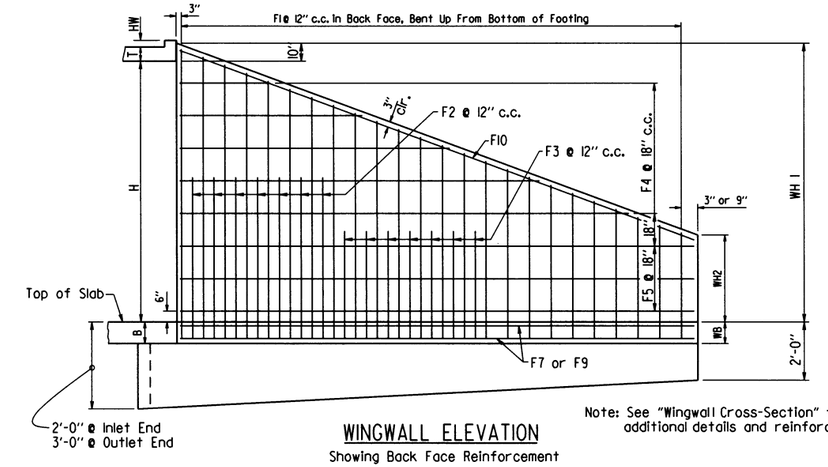


TYPICAL KEYWAY DETAIL

All Construction Joints



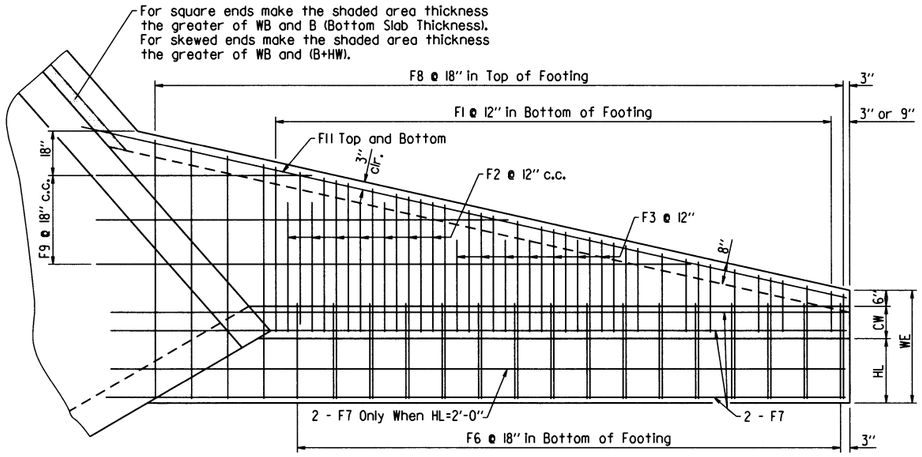
PART PLAN - FLARED WINGWALLS



WINGWALL ELEVATION

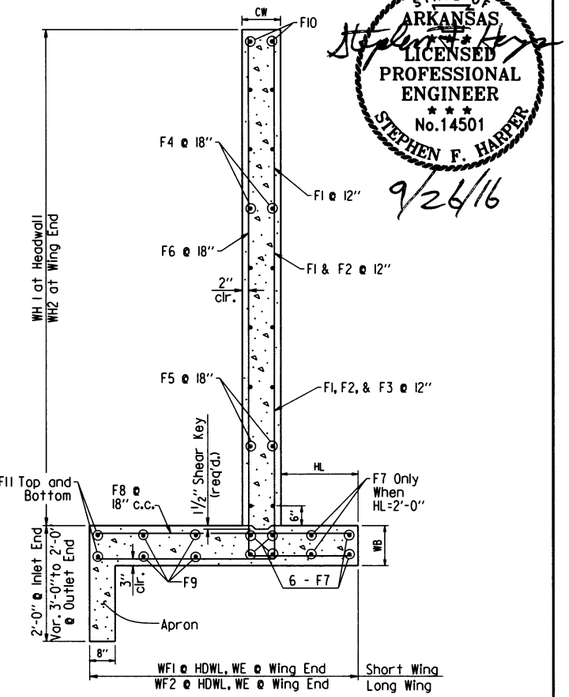
Showing Back Face Reinforcement

Note: See "Wingwall Cross-Section" for additional details and reinforcing

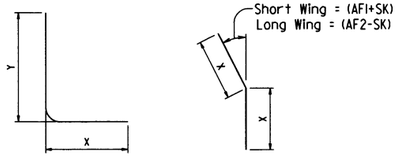


PLAN - FLARED WINGWALLS

Showing Footing Reinforcement



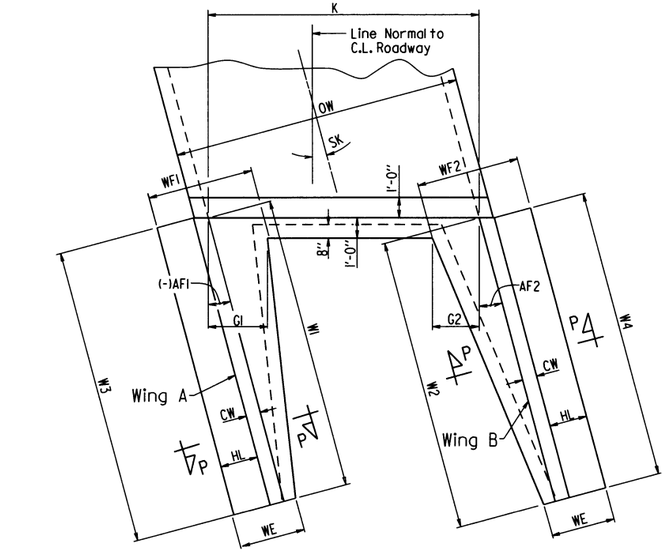
WINGWALL SECTION P-P



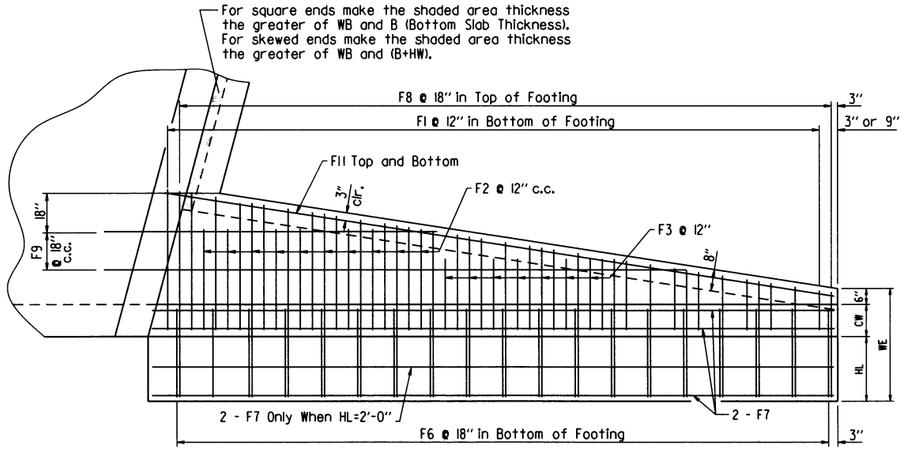
F1, F2, F3, & F6 BARS

*F12 BAR

*F12 is a straight bar for parallel wingwalls

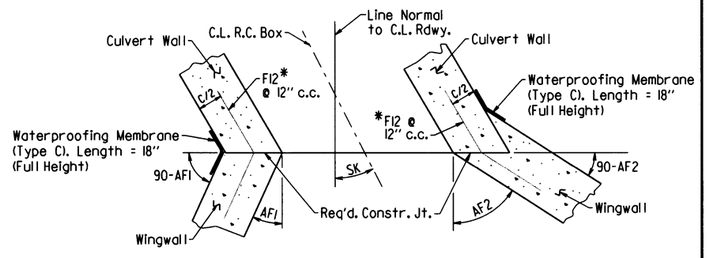


PART PLAN - PARALLEL WINGWALLS



PLAN - PARALLEL WINGWALLS

Showing Footing Reinforcement



CONSTRUCTION JOINTS

Flared Wingwalls Shown

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER
9/26/16

SHEET 4 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF WINGWALLS
SPECIAL DETAILS

LRFD

Leonard.Speed 9/23/2016 10:17:30 AM
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REVISED DATE: $$REVDATE$$

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER ★ ★ ★ No.14501 STEPHEN F. HARPER

9/26/16

TABULAR DATA BY: LKM DATE: 7/16/15
CHECKED BY: SFH DATE: 8/7/15

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
6'-0"	4'-0"	0'-9"	0'-8"	15	3:1	5'-2 1/8"	1'-0"	4'-10"	1'-4"	15	45	2'-2"	2'-4 3/4"	2'-6 7/8"	0'-5 7/8"	0'-3 1/4"	10'-6"	14'-6"	12'-4 5/8"	16'-4 5/8"

CLASS "S" CONCRETE (Includes apron) INLET	REINFORCING STEEL (Includes apron and laps if required) INLET
CU.YD	LBS.
4.57	456

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY
WING A	4	12	11	L Min 2'-4" Max 5'-11"; X Min 0'-9" Max 1'-0"; Y Min 1'-8" Max 5'-0"	-	-	-	L -; X -; Y -	-	-	-	L -; X -; Y -	4	18	4	Min 3'-4"; Max 7'-10"
WING B	4	12	15	L Min 2'-4" Max 6'-1"; X Min 0'-9" Max 1'-2"; Y Min 1'-8" Max 5'-0"	-	-	-	L -; X -; Y -	-	-	-	L -; X -; Y -	4	18	4	Min 4'-8"; Max 10'-11"

WING	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY
WING A	4	18	2	10'-2"	4	18	7	L Min 3'-3" Max 6'-3"; X Min 1'-4" Max 1'-4"; Y Min 2'-0" Max 5'-0"	4	6	13'-3"	4	18	7	Min 1'-8"; Max 1'-11"
WING B	4	18	2	14'-2"	4	18	10	L Min 3'-0" Max 6'-3"; X Min 1'-4" Max 1'-4"; Y Min 1'-9" Max 5'-0"	4	6	17'-3"	4	18	10	Min 1'-8"; Max 2'-1"

WING	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	-	-	-	Min -; Max -	4	2	10'-7"	4	2	11'-6"	6	12	4	L 3'-4"; X 1'-8"	196
WING B	-	-	-	Min -; Max -	4	2	14'-5"	4	2	16'-3"	6	12	4	L 3'-4"; X 1'-8"	260

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 2 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF SINGLE-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.
For additional information and outlet sections, see Sheet 2 of 2.

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL HEIGHT	OVER ALL WIDTH	OVER ALL HEIGHT
SK	SL	D	S	H	LL	T	B	C	HW	OW	OH
15	3:1	10	5	4	1'-10"	8	9	6	3	6'-0"	5'-5"

	TOP SLAB REINFORCING STEEL "a"				BOTTOM SLAB REINFORCING STEEL "b"				SIDE WALL REINFORCING STEEL "f"			
	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACEING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH
	4	8	Max 5'-8"; Min	0	4	8	Max 5'-8"; Min	0	4	8.5	6	5'-1"
			5'-8"	2			5'-8"	2				

TOP SLAB DISTRIBUTION REINFORCING STEEL "d"				BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e"				SIDE WALL DISTRIBUTION REINFORCING STEEL "d1"			
SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH
4	12	6	Max 2'-5"; Min 0'-10"	4	12	6	Max 2'-5"; Min 0'-10"	4	12	4	LONG 2'-5"
										4	SHORT 0'-10"

HDWL "k1", "k2" & "h" BAR	SIZE	NO. REQ'D	LENGTH
k1	4	6	5'-11"
k2	4	6	5'-11"
			1'-7"
h	4	8	Y
			0'-7"

CLASS "S" CONCRETE (Includes HDWL)	(1) REINFORCING STEEL (GR. 60) (Includes HDWL)
CU. YDS.	LBS.
0.96	113

(1) Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D
	D	S	H	T	B	C	OW	OH	SL																					
	10	5	4																											

HDWL THK.	ADDITIONAL REINF. FOR HDWL	"h" bars SIZE	Y	LENGTH	NO. REQ'D
HW	LBS	SIZE	Y	LENGTH	NO. REQ'D

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 50)	(2) ADTL. REINF. PER LONG. LAP LOCATION	ADDITIONAL CONCRETE FOR HDWL	TOTAL ADDITIONAL REINF. FOR HDWL
CU. YDS. PER LIN. FT.	LBS. PER LIN. FT.	LBS.	CU. YDS.	LBS.

(2) Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)
	D	S	H	T	B	C	OW	OH	SL
A	10	5	4	8	9	6	6'-0"	5'-5"	134.33

TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4"				BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4"				SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4"			
SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH
4	7.5	214	5'-8"	4	8	201	5'-8"	4	8	402	5'-1"

TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL			BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL			SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL		
SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D
4	12	6	4	12	6	4	12	8

CLASS "S" CONCRETE	REINFORCING STEEL (Gr. 60)	(3) ADTL. REINF. PER LONG. LAP LOCATION(S)
CU. YDS. PER LIN. FT.	LBS. PER LIN. FT.	LBS.
0.46	35	23

(3) MID-SECTION BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft - 344.0 ft

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
SINGLE BARREL BOX CULVERT
Sta. 1071+70

SPECIAL DETAILS

LRFD

Leonard.Speed 9/23/2016 10:17:43 AM
WORKSPACE: Leonard.Speed
c:\pwv81-local\boker_projects\leonard.speed\d0424368\CA0610_05_SD_MAIN_003.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	26	888

① SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER
9/24/16

TABULAR DATA BY: LKM DATE: 7/16/15
CHECKED BY: SFH DATE: 8/7/15

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AP1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
6'-0"	4'-0"	0'-9"	0'-8"	15	3:1	5'-2 1/8"	1'-0"	4'-10"	1'-4"	15	45	2'-2"	2'-4 3/4"	2'-6 7/8"	0'-5 7/8"	0'-3 1/4"	10'-6"	14'-6"	12'-4 5/8"	16'-4 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
4.97	456

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS VARY	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS VARY	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F4 LENGTHS	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6 LENGTHS	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F8 LENGTHS	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	11	L	Min 2'-4"	-	-	-	L	-	-	-	-	L	-	4	18	4	Min		4	18	2	10'-2"	4	18	7	L	Min 3'-3"	4	6	13'-3"	4	18	7	Min		-	-	-	Min	4	2	10'-7"	4	2	11'-6"	6	12	4	L	3'-4"	196
					Max 5'-11"														3'-4"										Max 6'-3"							1'-8"														
				X	Min 0'-9"				X	-				X	-				Max									X	Min 1'-4"							Max				Max									X	1'-8"	
					Max 1'-0"														7'-10"										Max 1'-4"							1'-11"				-										
				Y	Min 1'-8"				Y	-				Y	-													Y	Min 2'-0"																					
					Max 5'-0"																								Max 5'-0"																					
WING B	4	12	15	L	Min 2'-4"	-	-	-	L	-	-	-	-	L	-	4	18	4	Min		4	18	2	14'-2"	4	18	10	L	Min 3'-0"	4	6	17'-3"	4	18	10	Min		-	-	-	Min	4	2	14'-5"	4	2	16'-3"	6	12	4	L	3'-4"	260
					Max 6'-1"														4'-8"										Max 6'-3"							1'-8"														
				X	Min 0'-9"				X	-				X	-				Max									X	Min 1'-4"							Max				Max									X	1'-8"	
					Max 1'-2"														10'-11"										Max 1'-4"							1'-11"				-										
				Y	Min 1'-8"				Y	-				Y	-													Y	Min 1'-9"																					
					Max 5'-0"																								Max 5'-0"																					

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL HEIGHT	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "b" SIZE	"b" SPACING	"b" LENGTHS VARY	"b" NO. REQ'D	SIDE WALL REINFORCING STEEL "f" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "d" SIZE	"d" SPACING	"d" NO. REQ'D	"d" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	HDWL "k1", "k2" & "h" BAR	HDWL SIZE	HDWL NO. REQ'D	HDWL LENGTH
SK	SL	D	S	H	LL	T	B	C	HW	OW	OH																															
15	3:1	10	5	4	1'-10"	8	9	6	3	6'-0"	5'-5"	4	8	Max 5'-8" Min 5'-8"	0 2	4	8	Max 5'-8" Min 5'-8"	0 2	4	8.5	6	5'-1"	4	12	6	Max 2'-5" Min 0'-10"	4	12	6	Max 2'-5" Min 0'-10"	4	12	4	LONG 2'-5" SHORT 0'-10"	k1 k2 h	4 4 4	6 6 8	5'-11" 5'-11" 1'-7" Y 0'-7"

CLASS "S" CONCRETE (Includes HDWL)	①REINFORCING STEEL (GR. 60) (Includes HDWL)
CU. YDS.	LBS.
0.96	113

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	"a" SPACING	"a" NO. REQ'D	"a" LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	"b" SPACING	"b" NO. REQ'D	"b" LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	"d" SPACING	"d" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D
	D	S	H	T	B	C	OW	OH	SL																					
	10	5	4																											

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 50) LBS. PER LIN. FT.	②ADTL. REINF. PER LONG. LAP LOCATION LBS.	ADDITIONAL CONCRETE FOR HDWL CU. YDS.	TOTAL ADDITIONAL REINF. FOR HDWL LBS.

HDWL THK.	ADDITIONAL REINF. FOR HDWL	"h" bars			
HW	LBS	SIZE	Y	LENGTH	NO. REQ'D

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

The required number of bars and lengths shown are for estimating purpose only. The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT

SINGLE BARREL BOX CULVERT
Sta. 1071+70

SPECIAL DETAILS

Leonard.Speed 9/23/2016 10:17:46 AM
WORKSPACE: Leonard.Speed
c:\devdl-local\baker_projects\leonard.speed\d0424368\rCA0610_05_SD_MAIN_003.dgn
REVISED DATE: $$REVDATE$$

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/26/16

TABULAR DATA BY: LKM DATE: 7/16/15
CHECKED BY: SFH DATE: 8/7/15

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B	CLASS "S" CONCRETE (Includes apron) INLET	REINFORCING STEEL (Includes apron and laps if required) INLET
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4	CU.YD	LBS.
5'-0"	6'-0"	0'-9"	0'-8"	0	3:1	4'-0"	2'-0"	6'-10"	2'-0"	30	30	3'-2"	3'-4 7/8"	3'-4 7/8"	0'-3 1/4"	0'-3 1/4"	16'-6"	16'-6"	20'-1 3/8"	20'-1 3/8"	7.99	780

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS		F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	
WING A	4	12	17	L	Min	3'-0"	-	-	-	L	-	-	-	-	L	-
					Max	7'-11"										
				X	Min	0'-9"				X	-				X	-
					Max	1'-0"										
				Y	Min	2'-4"				Y	-				Y	-
					Max	7'-0"										
WING B	4	12	17	L	Min	3'-0"	-	-	-	L	-	-	-	-	L	-
					Max	7'-11"										
				X	Min	0'-9"				X	-				X	-
					Max	1'-0"										
				Y	Min	2'-4"				Y	-				Y	-
					Max	7'-0"										

WING	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY		
WING A	4	18	4	Min	4	18	4	16'-2"	4	18	11	L	Min	4'-10"
				5'-6"									Max	9'-3"
												X	Min	2'-4"
				Max									Max	2'-4"
				10'-8"								Y	Min	2'-7"
													Max	7'-0"
WING B	4	18	4	Min	4	18	4	16'-2"	4	18	11	L	Min	4'-10"
				5'-6"									Max	9'-3"
												X	Min	2'-4"
				Max									Max	2'-4"
				10'-8"								Y	Min	2'-7"
													Max	7'-0"

WING	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	8	20'-11"	4	18	11	Min	-	-	-	Min	4	2	16'-9"	4	2	17'-9"	6	12	6	L	3'-4"	390
							2'-8"				-												
							Max				Max										X	1'-8"	
							2'-11"				-												
WING B	4	8	20'-11"	4	18	11	Min	-	-	-	Min	4	2	16'-9"	4	2	17'-9"	6	12	6	L	3'-4"	390
							2'-8"				-												
							Max				Max										X	1'-8"	
							2'-11"				-												

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 2 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF SINGLE-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.

For additional information and outlet sections, see Sheet 2 of 2.

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL HEIGHT	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	SPACING	LENGTHS VARY	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "b" SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIDE WALL REINFORCING STEEL "f" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "d" SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	SPACING	NO. REQ'D	LENGTH	HDWL "k1", "k2" & "h" BAR	SIZE	NO. REQ'D	LENGTH
SK	SL	D	S	H	LL	T	B	C	HW	OW	OH																												
														Max				Max									Max				Max				LONG	k1			
																																				k2			
														Min				Min									Min				Min				SHORT				
																																				h			Y

CLASS "S" CONCRETE (Includes HDWL)	(1) REINFORCING STEEL (GR. 60) (Includes HDWL)
CU. YDS.	LBS.

(1) Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the Item "Reinforcing Steel - Roadway (Gr. 60)."

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THICKNESS T	BOTTOM SLAB THK. B	SIDE WALL THICKNESS C	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D
	5	4	6																											

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	(2) ADTL. REINF. PER LONG. LAP LOCATION LBS.	ADDITIONAL CONCRETE FOR HDWL CU. YDS.	TOTAL ADDITIONAL REINF. FOR HDWL LBS.
			0.05	13

HDWL THK.	ADDITIONAL REINF. FOR HDWL	"h" bars SIZE	Y	LENGTH	NO. REQ'D
HW	LBS				
3"	6	4	0'-7"	1'-7"	6

(2) Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

(3) MID-SECTION BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft - 344.0 ft

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK C	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D
A	5	4	6	8	9	6	5'-0"	7'-5"	125.00	4	6.5	230	4'-8"	4	11	136	4'-8"	4	4	750	7'-1"	4	12	5	4	12	5	4	12	12

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (Gr. 60) LBS. PER LIN. FT.	(3) ADTL. REINF. PER LONG. LAP LOCATION(S) LBS.
0.48	52	26

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
SINGLE BARREL BOX CULVERT
STA 1319+50

SPECIAL DETAILS

Leonard.Speed 9/23/2016 10:18:03 AM
WORKSPACE: Leonard.Speed
c:\pw\...\CA0610_05_SD_MAIN_004.dgn
REVISED DATE: ##REVDATE##
Ver. 1.114 FILENAME

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	28	888
				①		SPECIAL DETAILS		

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER
9/26/16

TABULAR DATA BY: LKM DATE: 7/16/15
CHECKED BY: SFH DATE: 8/7/15

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B	CLASS "S" CONCRETE (Includes apron) OUTLET	REINFORCING STEEL (Includes apron and laps if required) OUTLET
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4	CU.YD	LBS.
5'-0"	6'-0"	0'-9"	0'-8"	0	3:1	4'-0"	2'-0"	6'-10"	2'-0"	30	30	3'-2"	3'-4 7/8"	3'-4 7/8"	0'-3 1/4"	0'-3 1/4"	16'-6"	16'-6"	20'-1 3/8"	20'-1 3/8"	8.47	780

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS			F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS			F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	17	L	Min	3'-0"	-	-	-	L	-	-	-	-	L	-	4	18	4	Min	4	18	4	16'-2"	4	18	11	L	Min	4'-10"	4	8	20'-11"	4	18	11	Min	-	-	-	Min	4	2	16'-9"	4	2	17'-9"	6	12	6	L	3'-4"	390
					Max	7'-11"														5'-6"								Max	9'-3"							2'-8"				-											
				X	Min	0'-9"				X	-				X	-				Max								Max	2'-4"							Max				Max									X	1'-8"	
					Max	1'-0"														10'-8"									2'-4"							2'-11"				-											
				Y	Min	2'-4"				Y	-				Y	-													Min	2'-7"																					
					Max	7'-0"																							Max	7'-0"																					
WING B	4	12	17	L	Min	3'-0"	-	-	-	L	-	-	-	-	L	-	4	18	4	Min	4	18	4	16'-2"	4	18	11	L	Min	4'-10"	4	8	20'-11"	4	18	11	Min	-	-	-	Min	4	2	16'-9"	4	2	17'-9"	6	12	6	L	3'-4"	390
					Max	7'-11"														5'-6"								Max	9'-3"							2'-8"				-											
				X	Min	0'-9"				X	-				X	-				Max								Max	2'-4"							Max				Max									X	1'-8"	
					Max	1'-0"														10'-8"									2'-4"							2'-11"				-											
				Y	Min	2'-4"				Y	-				Y	-													Min	2'-7"																					
					Max	7'-0"																							Max	7'-0"																					

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL HEIGHT	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "b" SPACEING	"b" LENGTHS VARY	"b" NO. REQ'D	SIDE WALL REINFORCING STEEL "f" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "d" SIZE	"d" SPACING	"d" NO. REQ'D	"d" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	HDWL "k1", "k2" & "h" BAR	HDWL SIZE	HDWL NO. REQ'D	HDWL LENGTH	CLASS "S" CONCRETE (Includes HDWL.) CU. YDS.	① REINFORCING STEEL (GR. 60) (Includes HDWL.) LBS.
SK	SL	D	S	H	L	T	B	C	HW	OW	OH																																
														Max			Max									Max				Max			LONG	k1							
																																				k2						
														Min			Min									Min				Min			SHORT								
																																		h			Y				

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 50) LBS. PER LIN. FT.	② ADTL. REINF. PER LONG. LAP LOCATION LBS.	ADDITIONAL CONCRETE FOR HDWL CU. YDS.	TOTAL ADDITIONAL REINF. FOR HDWL LBS.
D	S	H	T	B	C	OW	OH	SL																																	
5	4	6																																				0.05	13

HDWL THK.	ADDITIONAL REINF. FOR HDWL	"h" bars			
HW	LBS	SIZE	Y	LENGTH	NO. REQ'D
3"	6	4	0'-7"	1'-7"	6

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

The required number of bars and lengths shown are for estimating purpose only. The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT

SINGLE BARREL BOX CULVERT
STA 1319+50

SPECIAL DETAILS

Leonard.Speed 9/23/2016 10:18:06 AM
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CHANGED FROM: C:\Projects\Leonard.speed\d0424368\rCA0610.05.SD.MAIN.004.dgn
REVISED DATE: $$REVDATE$$
Ver. 1.14 FILENAME

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	29	888

① SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER
9/26/15

TABULAR DATA BY: LKM DATE: 9/24/15
CHECKED BY: SFH DATE: 10/03/15

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AP1	AP2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
8'-0"	5'-0"	0'-9"	0'-8"	30	3:1	7'-11 7/8"	1'-0"	5'-10"	1'-8"	0	60	2'-2"	2'-8 1/2"	3'-3 3/8"	1'-0 1/2"	1'-6"	12'-6"	25'-0"	14'-3 5/8"	26'-9 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
7.76	772

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS
WING A	4	12	13	L	Min 2'-8"	-	-	-	-	-	-	-	L -	4	18	4	Min	4	18	2	12'-2"
					Max 7'-3"												6'-4"				
				X	Min 0'-9"				X -				X -				Max				
					Max 1'-4"												10'-10"				
				Y	Min 2'-0"				Y -				Y -								
					Max 6'-0"																
WING B	4	12	25	L	Min 2'-8"	-	-	-	-	-	-	-	L -	4	18	6	Min	4	18	2	24'-8"
					Max 7'-9"												3'-10"				
				X	Min 0'-9"				X -				X -				Max				
					Max 1'-10"												21'-10"				
				Y	Min 2'-0"				Y -				Y -								
					Max 6'-0"																

WING	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6 LENGTHS	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	9	L	Min 3'-3"	4	6	15'-2"	4	18	8	-	-	-	Min	4	2	12'-8"	4	2	13'-4"	6	12	5	L 3'-4"	251
					Max 7'-3"										1'-8"											
				X	Min 1'-4"										-										X 1'-8"	
					Max 1'-4"										Max											
				Y	Min 2'-0"										2'-2"											
					Max 6'-0"										-											
WING B	4	18	17	L	Min 3'-3"	4	6	27'-8"	4	18	18	4	18	2	Min	4	2	24'-10"	4	2	28'-10"	6	12	5	L 3'-4"	521
					Max 7'-3"										1'-8"											
				X	Min 1'-4"										37'-3"										X 1'-8"	
					Max 1'-4"										Max											
				Y	Min 2'-0"										2'-9"											
					Max 6'-0"										37'-3"											

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 2 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF SINGLE-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.

For additional information and outlet sections, see Sheet 2 of 2.

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL HEIGHT	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "b" SIZE	"b" SPACEING	"b" LENGTHS VARY	"b" NO. REQ'D	SIDE WALL REINFORCING STEEL "f" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "d" SIZE	"d" SPACING	"d" NO. REQ'D	"d" LENGTHS VARY
SK	SL	D	S	H	LL	T	B	C	HW	OW	OH																
30	3:1	10	7	5	3'-4"	8	9	6	3	8'-0"	6'-5"	4	4	Max 7'-8"	9	4	4.5	Max 7'-8"	8	4	6	14	6'-1"	4	12	8	Max 5'-5"
														Min 3'-0"				Min 3'-0"									Min 0'-10"
														7'-8"	3			7'-8"	3								

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	HDWL "k1", "k2" & "h" BAR	HDWL SIZE	HDWL NO. REQ'D	HDWL LENGTH
4	12	8	Max 5'-5"	4	12	5	LONG 5'-5"	k1	4	6	8'-11"
								k2	4	6	8'-11"
			Min 0'-10"			5	SHORT 0'-10"				1'-7"
								h	4	11	Y
											0'-7"

CLASS "S" CONCRETE (Includes HDWL)	① REINFORCING STEEL (GR. 60) (Includes HDWL)
CU. YDS.	LBS.
2.19	286

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

INLET SLOPE SECTION(S)

	R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THICKNESS T	BOTTOM SLAB THK. B	SIDE WALL THICKNESS C	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	"a" SPACING	"a" NO. REQ'D	"a" LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	"b" SPACING	"b" NO. REQ'D	"b" LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	"d" SPACING	"d" NO. REQ'D
A	10	7	5	8	9	6	8'-0"	6'-5"	75.67	4	4	227	7'-8"	4	4.5	201	7'-8"	4	6	302	6'-1"	4	12	8

	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SPACING	"d" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D
A	12	8	4	12	8	4	12	10

HDWL THK. HW	ADDITIONAL REINF. FOR HDWL LBS	"h" bars SIZE	Y	LENGTH	NO. REQ'D

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 50) LBS. PER LIN. FT.	② ADJTL. REINF. PER LONG. LAP LOCATION LBS.	ADDITIONAL CONCRETE FOR HDWL CU. YDS.	TOTAL ADDITIONAL REINF. FOR HDWL LBS.
0.60	63	30		

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

MID-SECTION

	R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) ⊥	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK C	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	"a" SPACING	"a" NO. REQ'D	"a" LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	"b" SPACING	"b" NO. REQ'D	"b" LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	"d" SPACING	"d" NO. REQ'D
B	15	7	5	5	8.5	9	6.5	8'-1"	6'-5 1/2"	102.00	5	4.5	272	7'-9"	6	6.5	188	7'-9"	5	8	306	6'-2"	4	12	8

	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SPACING	"d" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D
B	12	8	4	12	8	4	12	10

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (Gr. 60) LBS. PER LIN. FT.	③ ADJTL. REINF. PER LONG. LAP LOCATION(S) LBS.
0.64	80	30

③ MID-SECTION BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft -344.0 ft

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
SINGLE BARREL BOX CULVERT
Sta. 1397+50

SPECIAL DETAILS

Leonard.Speed 9/23/2016 10:18:20 AM
WORKSPACE: Leonard.Speed
CONFIGURATION: C:\Projects\leonard.speed\d0424368\rCA0610_05_SD_MAIN_05.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	30	888
				①		SPECIAL DETAILS		

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER
9/26/16

TABULAR DATA BY: LKM DATE: 9/24/15
CHECKED BY: SFH DATE: 10/03/15

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
8'-0"	5'-0"	0'-9"	0'-8"	30	3:1	7'-11 7/8"	1'-0"	5'-10"	1'-8"	0	60	2'-2"	2'-8 1/2"	3'-3 3/8"	1'-0 1/2"	1'-6"	12'-6"	25'-0"	14'-3 5/8"	26'-9 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
8.36	772

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS VARY	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS VARY	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F4 LENGTHS
WING A	4	12	13	L	Min 2'-8"	-	-	-	L	-	-	-	-	L	-	4	18	4	Min	4
					Max 7'-3"														6'-4"	
				X	Min 0'-9"				X	-	-	-	-	X	-				Max	4
					Max 1'-4"														10'-10"	
				Y	Min 2'-0"				Y	-	-	-	-	Y	-					
					Max 6'-0"															
WING B	4	12	25	L	Min 2'-8"	-	-	-	L	-	-	-	-	L	-	4	18	6	Min	4
					Max 7'-9"														3'-10"	
				X	Min 0'-9"				X	-	-	-	-	X	-				Max	4
					Max 1'-10"														21'-10"	
				Y	Min 2'-0"				Y	-	-	-	-	Y	-					
					Max 6'-0"															

WING	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6 LENGTHS	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F8 LENGTHS	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	2	12'-2"	4	18	9	L Min 3'-3" Max 7'-3"		4	6	15'-2"	4	18	8	Min 1'-8"		-	-	-		4	2	12'-8"	4	2	13'-4"	6	12	5	L 3'-4"	251
								X Min 1'-4" Max 1'-4"								Max 2'-2"					Max -										X 1'-8"	
								Y Min 2'-0" Max 6'-0"																								
WING B	4	18	2	24'-8"	4	18	17	L Min 3'-3" Max 7'-3"		4	6	27'-8"	4	18	18	Min 1'-8"		4	18	2	37'-3"	4	2	24'-10"	4	2	28'-10"	6	12	5	L 3'-4"	521
								X Min 1'-4" Max 1'-4"								Max 2'-9"					Max 37'-3"										X 1'-8"	
								Y Min 2'-0" Max 6'-0"																								

OUTLET SKEWED END SECTION

SK	SL	D	S	H	LL	T	B	C	HW	OW	OH	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" LENGTHS	"a" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "b" SIZE	"b" SPACING	"b" LENGTHS VARY	"b" LENGTHS	"b" NO. REQ'D	SIDE WALL REINFORCING STEEL "f" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "d" SIZE	"d" SPACING	"d" NO. REQ'D	"d" LENGTHS VARY	"d" LENGTHS	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	"e" LENGTHS	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	HDWL "k1", "k2" & "h" BAR	HDWL SIZE	HDWL NO. REQ'D	HDWL LENGTH
	SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL HEIGHT	OVER ALL WIDTH	OVER ALL HEIGHT																																
30	3:1	10	7	5	3'-4"	8	9	6	3	8'-0"	6'-5"	4	4	Max 7'-8" Min 3'-0" 7'-8"	9	3	4	4.5	Max 7'-8" Min 3'-0" 7'-8"	8	3	4	6	14	6'-1"	4	12	8	Max 5'-5" Min 0'-10"		4	12	8	Max 5'-5" Min 0'-10"		4	12	5	LONG 5'-5" SHORT 0'-10"	k1 k2 h	4 4 4	6 6 11	8'-11" 8'-11" 1'-7" Y 0'-7"

CLASS "S" CONCRETE (Includes HDWL)	①REINFORCING STEEL (GR. 60) (Includes HDWL)
CU. YDS.	LBS.
2.19	286

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

OUTLET SLOPE SECTION(S)

	R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	"a" SPACING	"a" NO. REQ'D	"a" LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	"b" SPACING	"b" NO. REQ'D	"b" LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	"d" SPACING	"d" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D
		D	S	H	T	B	C	OW	OH	SL																						
A	10	7	5	8	9	6	8'-0"	6'-5"	26.67	4	4	80	7'-8"	4	4.5	71	7'-8"	4	6	106	6'-1"	4	12	8	4	12	8	4	12	10

HDWL THK.	ADDITIONAL REINF. FOR HDWL	"h" bars			
HW	LBS	SIZE	Y	LENGTH	NO. REQ'D

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 50)	②ADTL. REINF. PER LONG. LAP LOCATION	ADDITIONAL CONCRETE FOR HDWL	TOTAL ADDITIONAL REINF. FOR HDWL
CU. YDS. PER LIN. FT.	LBS. PER LIN. FT.	LBS.	CU. YDS.	LBS.
0.60	63	30		

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

The required number of bars and lengths shown are for estimating purpose only. The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT

SINGLE BARREL BOX CULVERT
Sta. 1397+50

SPECIAL DETAILS

Leonard.Speed 9/23/2016 10:18:23 AM
WORKSPACE: Leonard.Speed
C:\Users\Leonard.Speed\Documents\Projects\leonard.speed\d0424368\rCA0610_05_SD_MAIN_05.dgn
REVISED DATE: 9/26/2016

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	CA0610		31	888

2 TEMPORARY EROSION CONTROL DETAILS

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- E-9 & E-14 = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES PLACED IN STAGE 1 SHALL BE RETAINED THROUGHOUT STAGE 2 OR UNTIL FINAL STABILIZATION.

SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 477+50 TO 480+50	C.L. MEDIAN	7
STA. 484+00 TO 486+00	LT. =	3
STA. 484+38 TO 489+56	C.L. MEDIAN	3
STA. 489+50 TO 492+00	RT. =	5
STA. 493+50 TO 498+50	RT. =	9

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 484+50 TO 486+50	LT. =	2
STA. 491+50 TO 492+50	RT. =	2
STA. 497+75	RT. =	1

DROP INLET SILT FENCE	E-7	LIN. FT.
STA. 486+00 TO 489+00	C.L. MEDIAN	40

DIVERSION DITCH	(E-8)	LIN. FT.
STA. 483+80 TO 484+39	LT. =	59

STA. 484+39 LT.
INSTALL 12" X 55' SLOPE DRAIN (TYPE E-12)
W/2 CU. YDS. DUMPED RIPRAP (TYPE E-9)

RT. LANES STA. 486+50.00
BEGIN RT. LANES

STA. 480+25.20
BEGIN JOB CA0610
BEGIN LT. LANES
LOG MILE 3.22

PT 477+52.35
PC 471+94.92
PI 474+74.86
PC 485+71.79
PC 485+34.91
PT 492+68.95
PC 496+63.92

470+00 475+00 480+00 485+00 490+00 495+00 500+00

CONST. LIMITS
EXIST. R/W
APPROXIMATE 100 YR. FLOODPLAIN LIMITS
825 CU. YDS.
T.C.E.

SEDIMENT BASIN	E-14	CU. YDS.
STA. 488+00	RT. =	825

REVISIONS

DATE OF REVISION	REVISION

PI 501+60.18

500+00 505+00 510+00 515+00 520+00 525+00

CONST. LIMITS
EXIST. R/W
PROP. R/W
PC 512+16.53
PT 506+38.88
PT 525+49.35
PC 528+13.35
PI 519+80.33
T.C.E.
BARTLEE DRIVE

SILT FENCE	(E-11)	LIN. FT.
STA. 507+75 TO 509+00	RT.	135
STA. 510+40 TO 512+00	RT	200
STA. 513+65 TO 515+00	RT.	250
STA. 515+35 TO 516+75	RT.	185
STA. 525+10 TO 525+90	RT.	80

DIVERSION DITCH	(E-8)	LIN. FT.
STA. 512+95 TO 514+52	RT. =	157

STA. 512+95 RT.
INSTALL 12" X 61' SLOPE DRAIN (TYPE E-12)
W/2 CU. YDS. DUMPED RIPRAP (TYPE E-9)

SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 500+50 TO 502+00	RT. =	4
STA. 507+50	RT. =	1
STA. 509+50 TO 510+50	RT. =	2
STA. 512+50 TO 513+50	RT. =	2
STA. 513+50 TO 515+00	LT. =	3
STA. 515+50 TO 516+50	LT. =	3
STA. 517+00 TO 519+50	RT. =	5
STA. 517+50 TO 525+00	LT. =	14
STA. 520+50 TO 524+00	RT. =	6
STA. 526+75	RT. =	1

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 510+00 TO 513+00	RT. =	2
STA. 514+50	RT. =	1
STA. 517+50	RT. =	1
STA. 521+00 TO 522+00	RT. =	2

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
5-23-2016

TEMPORARY EROSION CONTROL DETAILS STAGE 1

Scott.Thornsberry 9/23/2016 2:09:09 PM
WORKSPACE: AHTD
c:\pw_work\baker_projects\scott.thornsberry\d0217144\rCA0606_05E_EC_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

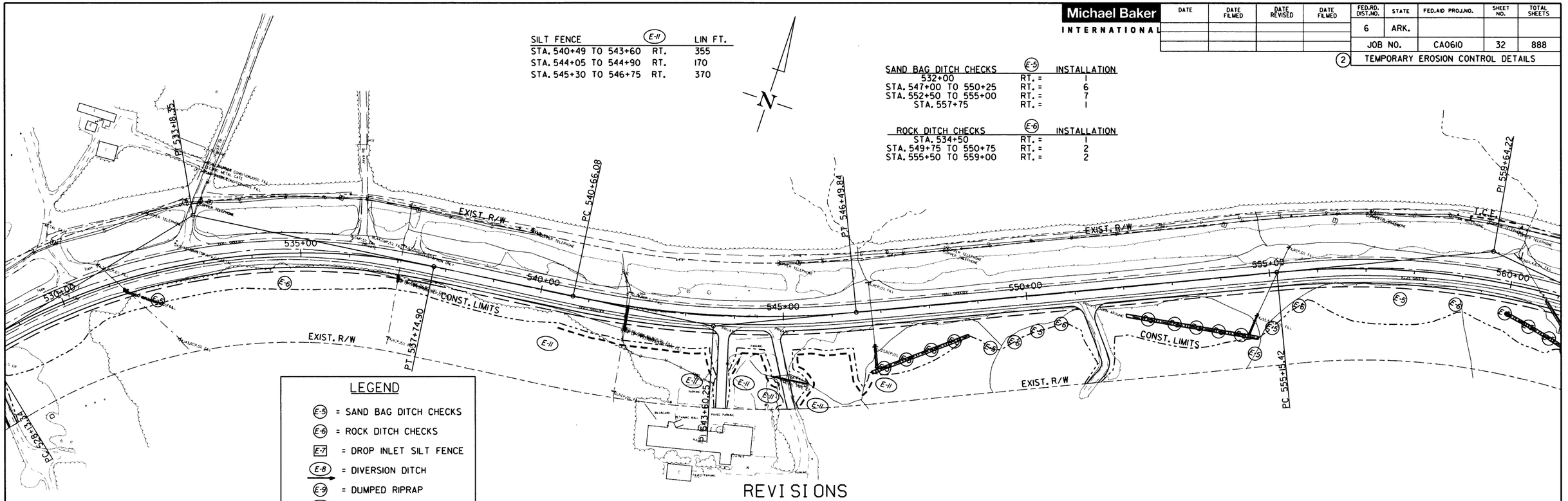
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	32	888

(2) TEMPORARY EROSION CONTROL DETAILS

SILT FENCE	(E-11)	LIN FT.
STA. 540+49 TO 543+60	RT.	355
STA. 544+05 TO 544+90	RT.	170
STA. 545+30 TO 546+75	RT.	370

SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
532+00	RT. =	1
STA. 547+00 TO 550+25	RT. =	6
STA. 552+50 TO 555+00	RT. =	7
STA. 557+75	RT. =	1

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 534+50	RT. =	1
STA. 549+75 TO 550+75	RT. =	2
STA. 555+50 TO 559+00	RT. =	2



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- E-9 & E-14 = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES PLACED IN STAGE I SHALL BE RETAINED THROUGHOUT STAGE 2 OR UNTIL FINAL STABILIZATION.

REVISIONS

DATE OF REVISION	REVISION

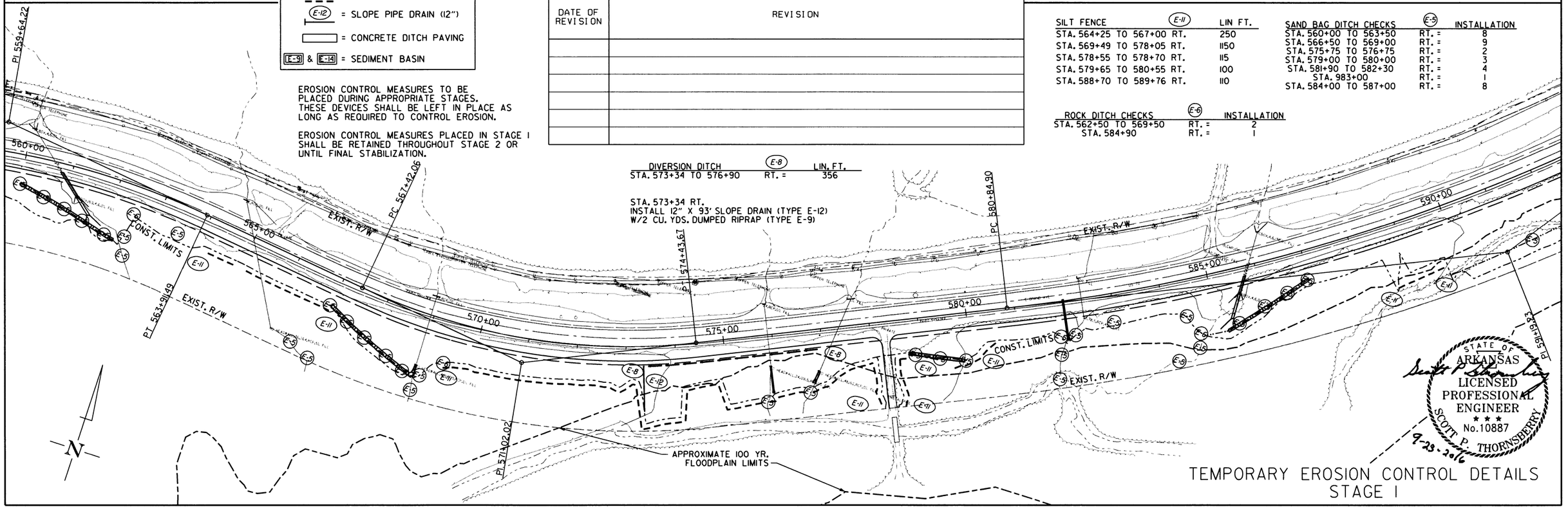
SILT FENCE	(E-11)	LIN FT.
STA. 564+25 TO 567+00	RT.	250
STA. 569+49 TO 578+05	RT.	1150
STA. 578+55 TO 578+70	RT.	115
STA. 579+65 TO 580+55	RT.	100
STA. 588+70 TO 589+76	RT.	110

SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 560+00 TO 563+50	RT. =	8
STA. 566+50 TO 569+00	RT. =	9
STA. 575+75 TO 576+75	RT. =	2
STA. 579+00 TO 580+00	RT. =	3
STA. 581+90 TO 582+30	RT. =	4
STA. 983+00	RT. =	1
STA. 584+00 TO 587+00	RT. =	8

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 562+50 TO 569+50	RT. =	2
STA. 584+90	RT. =	1

DIVERSION DITCH	(E-8)	LIN. FT.
STA. 573+34 TO 576+90	RT. =	356

STA. 573+34 RT.
INSTALL 12" X 93' SLOPE DRAIN (TYPE E-12)
W/2 CU. YDS. DUMPED RIPRAP (TYPE E-9)



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

TEMPORARY EROSION CONTROL DETAILS
STAGE I

Scott.Thornsberry 9/23/2016 2:09:22 PM
WORKSPACE: AHTD
C:\Dwg\Michael Baker Projects\Scott.Thornsberry\d0211744\rCA0606.05E.EC.002.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

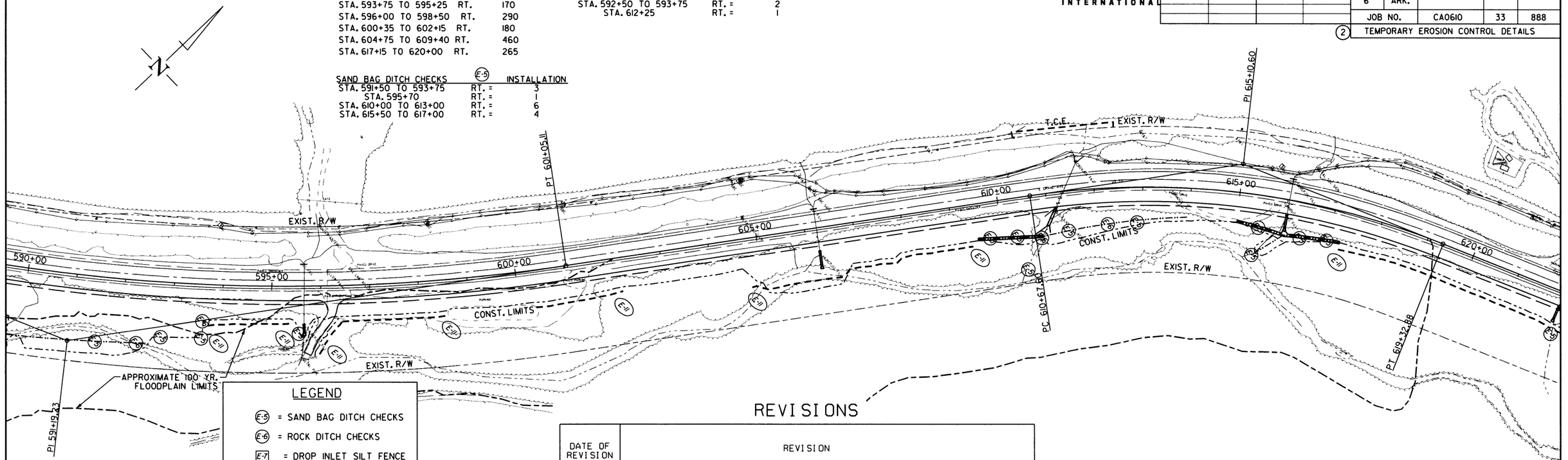
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	33	888

(2) TEMPORARY EROSION CONTROL DETAILS

SILT FENCE	(E-11)	LIN FT.
STA. 593+75 TO 595+25	RT.	170
STA. 596+00 TO 598+50	RT.	290
STA. 600+35 TO 602+15	RT.	180
STA. 604+75 TO 609+40	RT.	460
STA. 617+15 TO 620+00	RT.	265

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 592+50 TO 593+75	RT. =	2
STA. 612+25	RT. =	1

SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 591+50 TO 593+75	RT. =	3
STA. 595+70	RT. =	1
STA. 610+00 TO 613+00	RT. =	6
STA. 615+50 TO 617+00	RT. =	4



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- [E-7] = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- [E-9] & [E-14] = SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

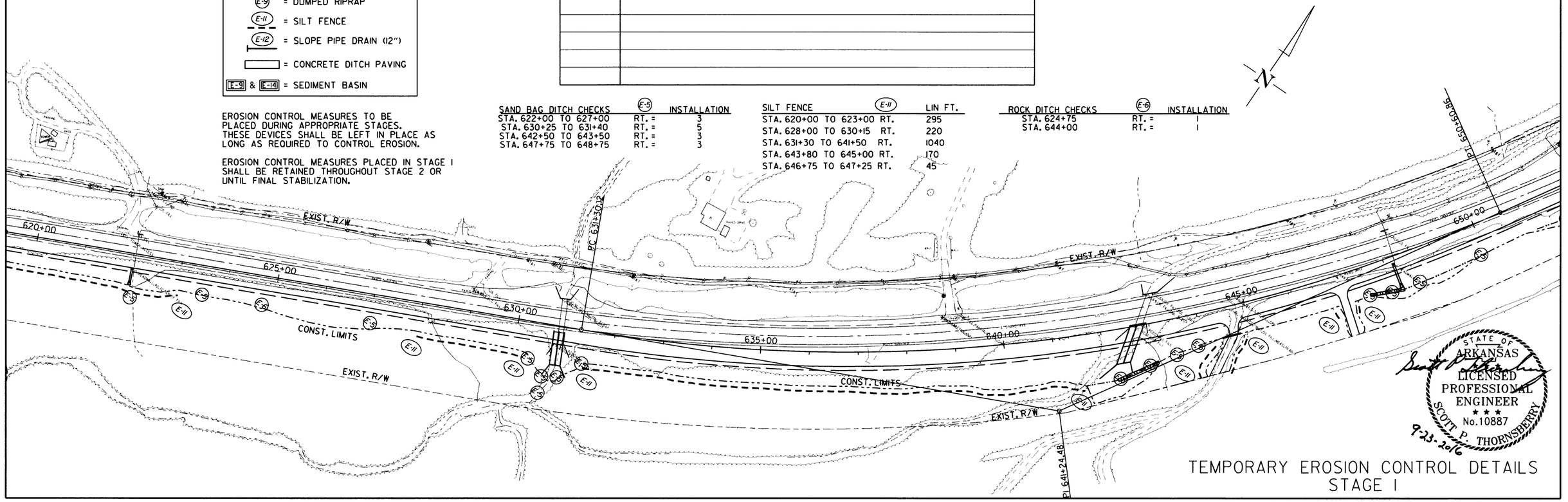
EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES PLACED IN STAGE I SHALL BE RETAINED THROUGHOUT STAGE 2 OR UNTIL FINAL STABILIZATION.

SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 622+00 TO 627+00	RT. =	3
STA. 630+25 TO 631+40	RT. =	5
STA. 642+50 TO 643+50	RT. =	3
STA. 647+75 TO 648+75	RT. =	3

SILT FENCE	(E-11)	LIN FT.
STA. 620+00 TO 623+00	RT.	295
STA. 628+00 TO 630+15	RT.	220
STA. 631+30 TO 641+50	RT.	1040
STA. 643+80 TO 645+00	RT.	170
STA. 646+75 TO 647+25	RT.	45

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 624+75	RT. =	1
STA. 644+00	RT. =	1



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

TEMPORARY EROSION CONTROL DETAILS STAGE I

Scott.Thornsberry 9/23/2016 2:09:35 PM
WORKSPACE: AHTD
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REVISED DATE1 ##REVDATE##

Michael Baker INTERNATIONAL

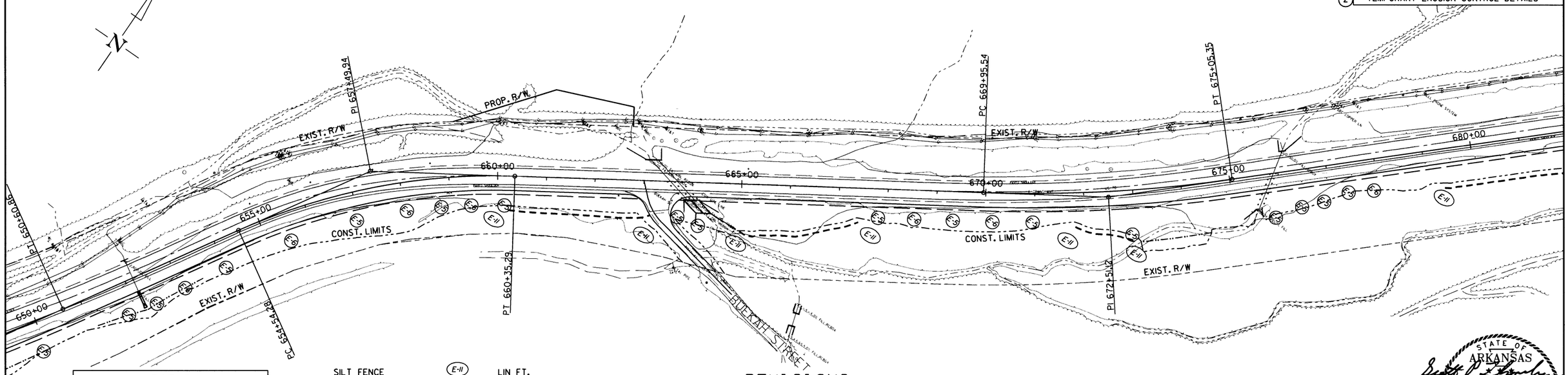
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	34	888

(2) TEMPORARY EROSION CONTROL DETAILS

SAND BAG DITCH CHECKS (E-5)		INSTALLATION
STA. 650+00 TO 660+10	RT. =	7
STA. 663+50 TO 664+25	RT. =	2
STA. 667+75 TO 673+00	RT. =	4
STA. 676+00 TO 677+50	RT. =	4

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 653+00 TO 659+50	RT. =	4
STA. 668+50 TO 670+00	RT. =	2
STA. 678+00	RT. =	1



SILT FENCE (E-11)		LIN FT.
STA. 660+22 TO 663+14	RT. =	292
STA. 664+79 TO 667+41	RT. =	273
STA. 671+83 TO 672+98	RT. =	122
STA. 679+36 TO 680+00	RT. =	64

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- E-9 & E-14 = SEDIMENT BASIN

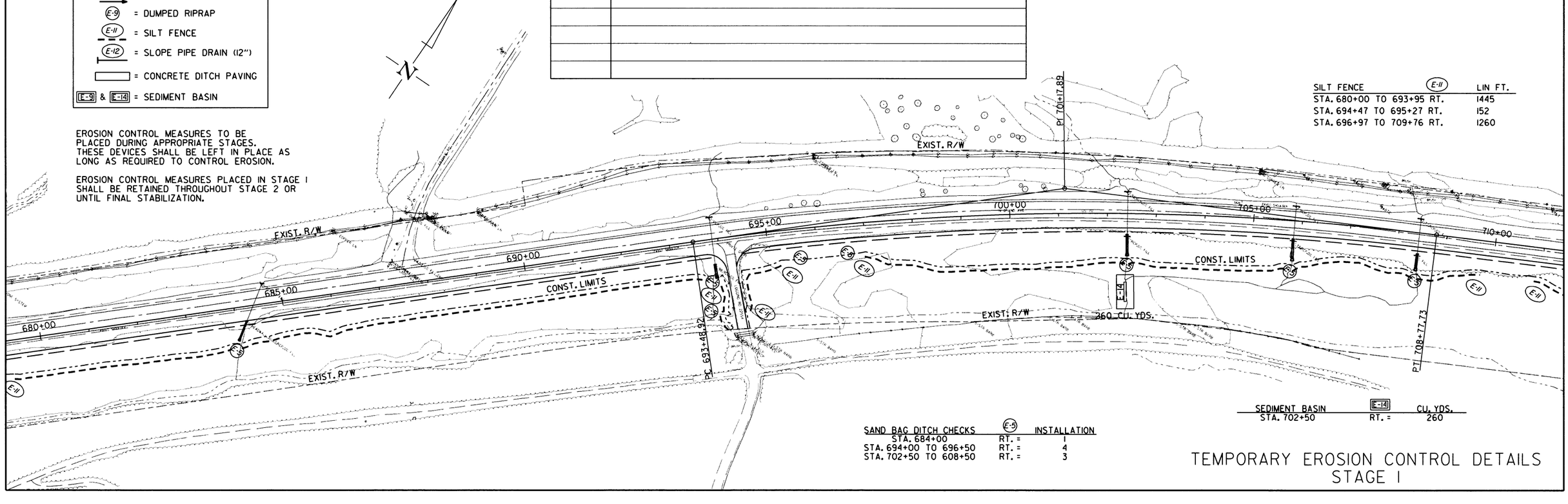
EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES PLACED IN STAGE I SHALL BE RETAINED THROUGHOUT STAGE 2 OR UNTIL FINAL STABILIZATION.

REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016



SILT FENCE (E-11)		LIN FT.
STA. 680+00 TO 693+95	RT. =	1445
STA. 694+47 TO 695+27	RT. =	152
STA. 696+97 TO 709+76	RT. =	1260

SEDIMENT BASIN	E-14	CU. YDS.
STA. 702+50	RT. =	260

SAND BAG DITCH CHECKS (E-5)		INSTALLATION
STA. 684+00	RT. =	1
STA. 694+00 TO 696+50	RT. =	4
STA. 702+50 TO 608+50	RT. =	3

TEMPORARY EROSION CONTROL DETAILS STAGE I

Scott.Thornsberry 9/23/2016 2:09:48 PM
WORKSPACE: AHTD
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

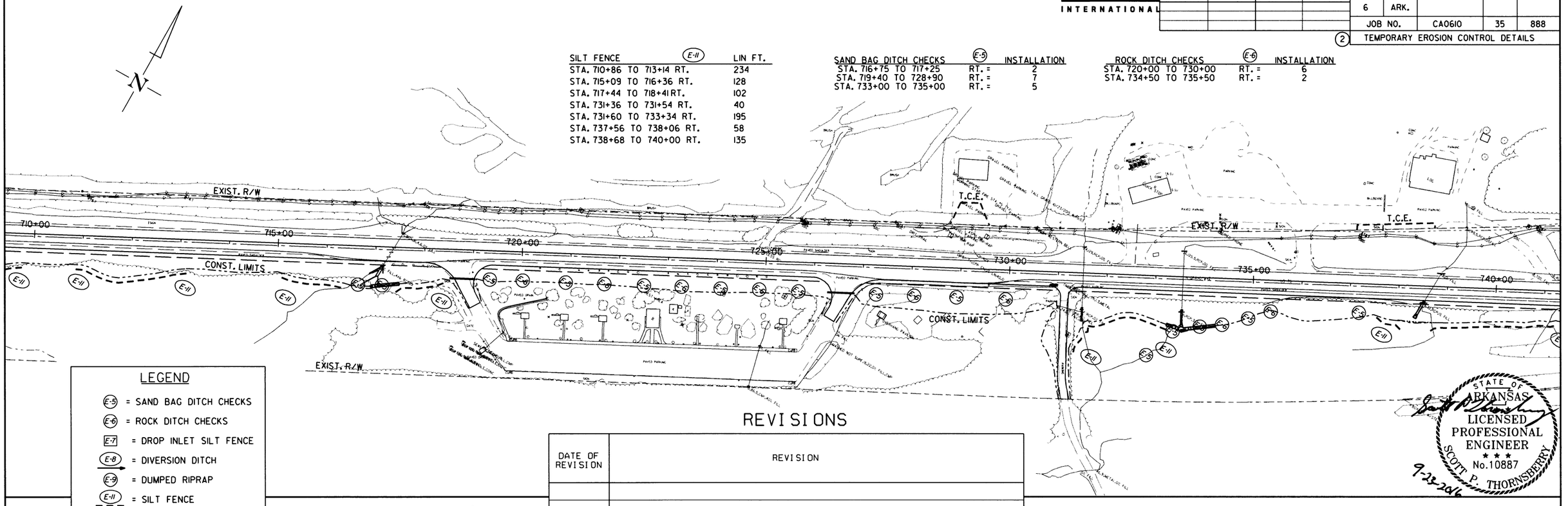
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	35	888

(2) TEMPORARY EROSION CONTROL DETAILS

SILT FENCE (E-11)	LIN FT.
STA. 710+86 TO 713+14 RT.	234
STA. 715+09 TO 716+36 RT.	128
STA. 717+44 TO 718+41RT.	102
STA. 731+36 TO 731+54 RT.	40
STA. 731+60 TO 733+34 RT.	195
STA. 737+56 TO 738+06 RT.	58
STA. 738+68 TO 740+00 RT.	135

SAND BAG DITCH CHECKS (E-5)		INSTALLATION
STA. 716+75 TO 717+25	RT. =	2
STA. 719+40 TO 728+90	RT. =	7
STA. 733+00 TO 735+00	RT. =	5

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 720+00 TO 730+00	RT. =	6
STA. 734+50 TO 735+50	RT. =	2



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- [E-7] = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- [E-9] & [E-14] = SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY
9-23-2016

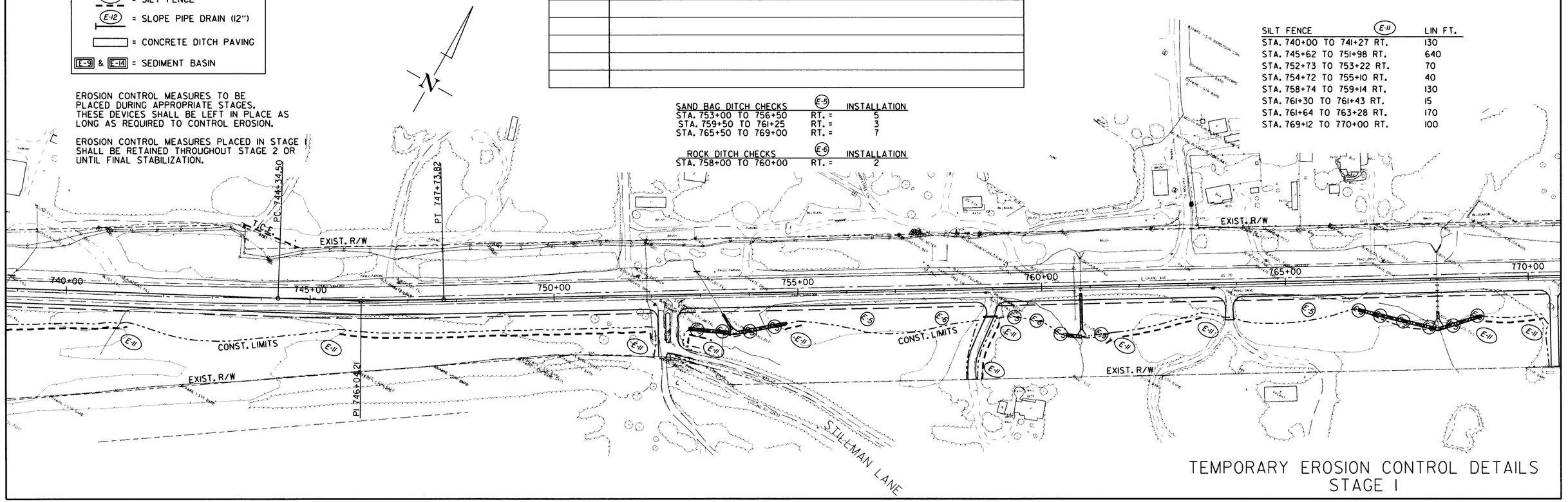
EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES PLACED IN STAGE I SHALL BE RETAINED THROUGHOUT STAGE 2 OR UNTIL FINAL STABILIZATION.

SILT FENCE (E-11)	LIN FT.
STA. 740+00 TO 741+27 RT.	130
STA. 745+62 TO 751+98 RT.	640
STA. 752+73 TO 753+22 RT.	70
STA. 754+72 TO 755+10 RT.	40
STA. 758+74 TO 759+14 RT.	130
STA. 761+30 TO 761+43 RT.	15
STA. 761+64 TO 763+28 RT.	170
STA. 769+12 TO 770+00 RT.	100

SAND BAG DITCH CHECKS (E-5)		INSTALLATION
STA. 753+00 TO 756+50	RT. =	5
STA. 759+50 TO 761+25	RT. =	3
STA. 765+50 TO 769+00	RT. =	7

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 758+00 TO 760+00	RT. =	2



TEMPORARY EROSION CONTROL DETAILS STAGE I

Scott.Thornsberry 9/23/2016 2:10:01 PM
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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	36	888

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY
9-23-2016

SAND BAG DITCH CHECKS (E-5)		INSTALLATION
STA. 780+25 TO 780+75	RT. =	2
STA. 782+00 TO 795+75	RT. =	27
STA. 798+50 TO 802+00	RT. =	8

SILT FENCE (E-11)		LIN FT.
STA. 770+00 TO 771+52	RT.	105
STA. 776+36 TO 779+78	RT.	345
STA. 797+06 TO 798+60	RT.	160

SEDIMENT BASIN (E-14)		CU. YDS.
STA. 781+50	RT. =	370

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- [E-7] = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- [E-9] & [E-14] = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES PLACED IN STAGE 1 SHALL BE RETAINED THROUGHOUT STAGE 2 OR UNTIL FINAL STABILIZATION.

REVISIONS

DATE OF REVISION	REVISION

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 811+90	RT. =	1
STA. 814+00	RT. =	1

DIVERSION DITCH (E-8)		LIN. FT.
STA. 807+29 TO 811+65	RT. =	436
STA. 814+32 TO 819+62	RT. =	530

STA. 807+29 RT.
INSTALL 12" X 65' SLOPE DRAIN (TYPE E-12)
W/2 CU. YDS. DUMPED RIPRAP (TYPE E-9)

STA. 814+32 RT.
INSTALL 12" X 67' SLOPE DRAIN (TYPE E-12)
W/2 CU. YDS. DUMPED RIPRAP (TYPE E-9)

SILT FENCE (E-11)		LIN FT.
STA. 805+87 TO 808+61	RT.	345
STA. 811+93 TO 812+48	RT.	60
STA. 813+01 TO 813+24	RT.	25
STA. 818+22 TO 821+13	RT.	305
STA. 821+62 TO 822+10	RT.	50

SAND BAG DITCH CHECKS (E-5)		INSTALLATION
STA. 809+00 TO 811+75	RT. =	5
STA. 813+50 TO 818+00	RT. =	9
STA. 822+25 TO 822+75	RT. =	2
STA. 824+00 TO 830+00	RT. =	13

TEMPORARY EROSION CONTROL DETAILS STAGE 1

Scott.Thornsberry 9/23/2016 2:40:14 PM
WORKSPACE: AHTD
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	37	888

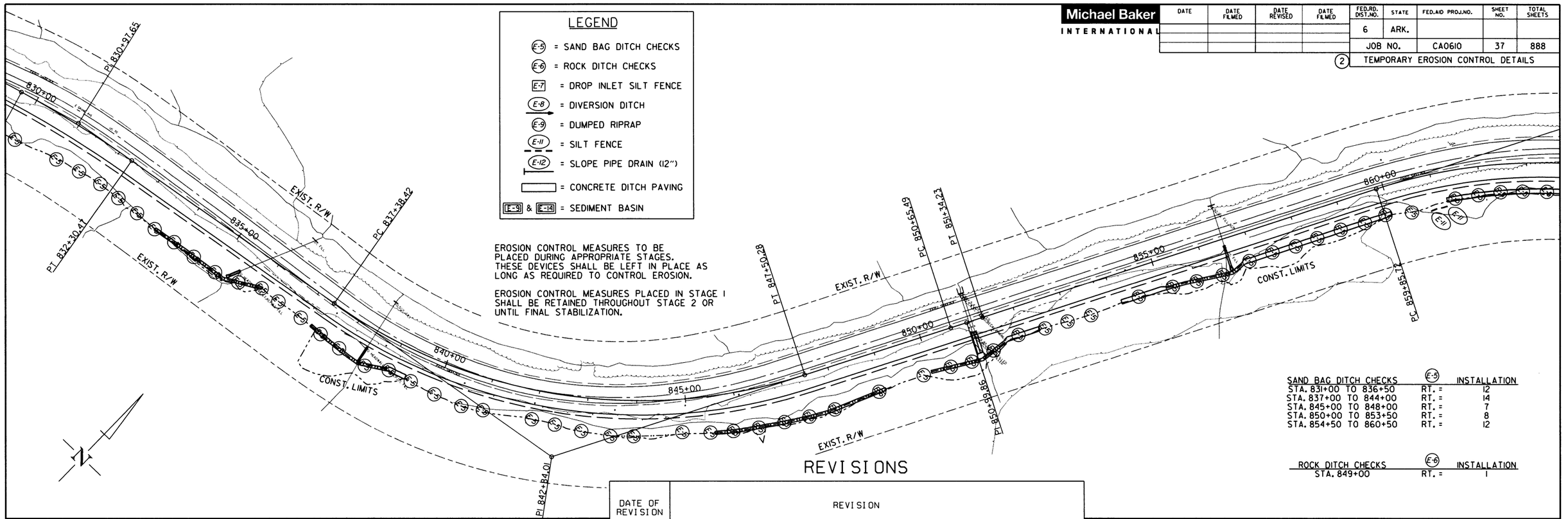
(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- [E-7] = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- [E-9] & [E-14] = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES PLACED IN STAGE I SHALL BE RETAINED THROUGHOUT STAGE 2 OR UNTIL FINAL STABILIZATION.



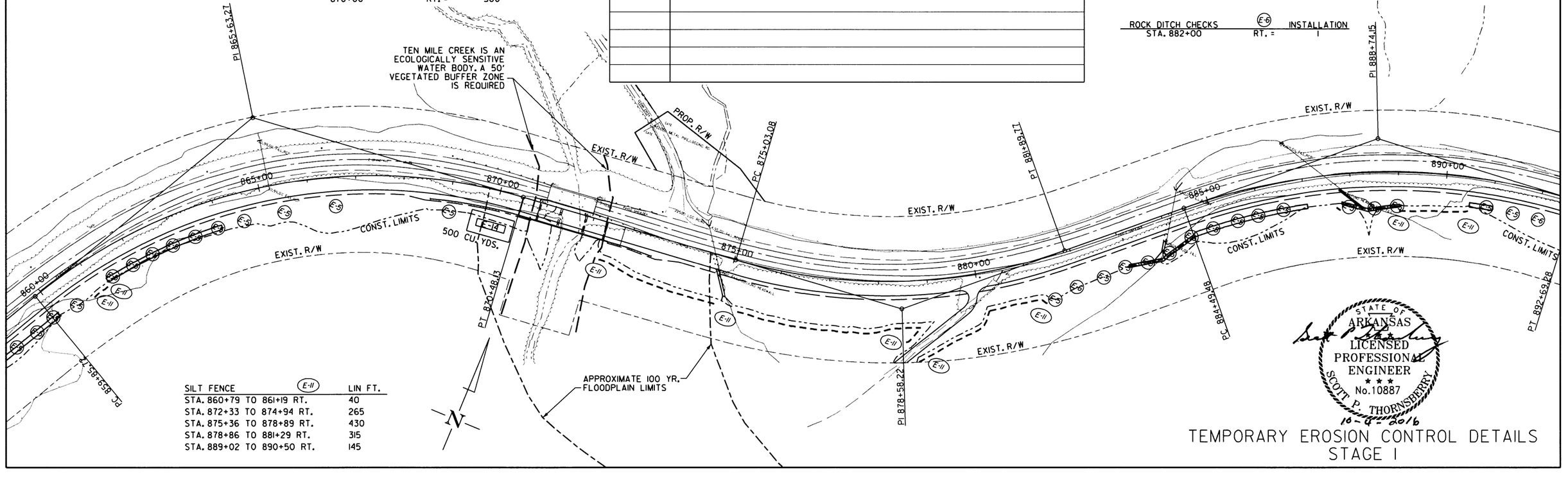
REVISIONS

DATE OF REVISION	REVISION

SAND BAG DITCH CHECKS (E-5)		INSTALLATION
STA. 831+00 TO 836+50	RT. =	12
STA. 837+00 TO 844+00	RT. =	14
STA. 845+00 TO 848+00	RT. =	7
STA. 850+00 TO 853+50	RT. =	8
STA. 854+50 TO 860+50	RT. =	12

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 849+00	RT. =	1

SEDIMENT BASIN [E-14]		CU. YDS.
870+00	RT. =	500



SAND BAG DITCH CHECKS (E-5)		INSTALLATION
STA. 861+50 TO 869+00	RT. =	10
STA. 881+50 TO 889+00	RT. =	13

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 882+00	RT. =	1

SILT FENCE (E-11)		LIN FT.
STA. 860+79 TO 861+19	RT.	40
STA. 872+33 TO 874+94	RT.	265
STA. 875+36 TO 878+89	RT.	430
STA. 878+86 TO 881+29	RT.	315
STA. 889+02 TO 890+50	RT.	145

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
10-4-2016

TEMPORARY EROSION CONTROL DETAILS STAGE I

Leonard.Speed 10/4/2016 9:08:40 AM
WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

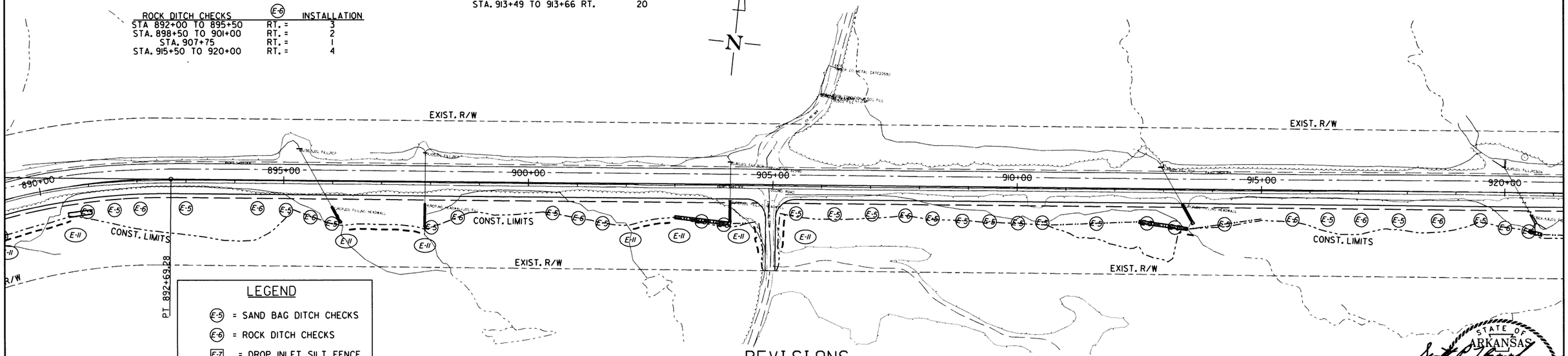
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	38	888

(2) TEMPORARY EROSION CONTROL DETAILS

SAND BAG DITCH CHECKS (E-5)		INSTALLATION
STA. 891+00 TO 896+00	RT. =	5
STA. 898+00 TO 901+50	RT. =	3
STA. 903+50 TO 904+00	RT. =	2
STA. 905+50 TO 914+00	RT. =	12
STA. 916+30 TO 919+50	RT. =	3

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA 892+00 TO 895+50	RT. =	3
STA. 898+50 TO 901+00	RT. =	2
STA. 907+75	RT. =	1
STA. 915+50 TO 920+00	RT. =	4

SILT FENCE (E-11)	LIN FT.
STA. 895+34 TO 897+89 RT.	160
STA. 902+15 TO 902+91 RT.	80
STA. 904+61 TO 904+72 RT.	60
STA. 905+20 TO 905+25 RT.	70
STA. 913+49 TO 913+66 RT.	20



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- E-9 & E-14 = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

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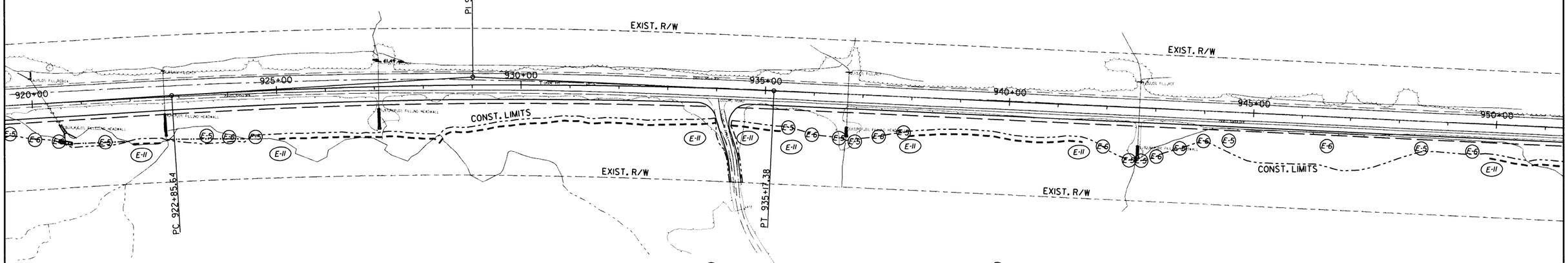
REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY

9-23-2016

SILT FENCE (E-11)	LIN FT.
STA. 921+00 TO 922+65 RT.	65
STA. 925+00 TO 934+00 RT.	915
STA. 934+33 TO 935+42 RT.	110
STA. 937+96 TO 941+53 RT.	360



SAND BAG DITCH CHECKS (E-5)		INSTALLATION
STA. 920+50 TO 921+50	RT. =	2
STA. 923+50 TO 924+50	RT. =	2
STA. 935+50 TO 937+80	RT. =	4
STA. 942+50 TO 944+50	RT. =	4
STA. 948+50	RT. =	1

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 924+00	RT. =	1
STA. 936+00 TO 937+30	RT. =	2
STA. 942+00 TO 944+00	RT. =	3
STA. 946+50 TO 949+50	RT. =	2

TEMPORARY EROSION CONTROL DETAILS STAGE I

Scott.Thornsberry 9/23/2016 2:10:40 PM
WORKSPACE: AHTD
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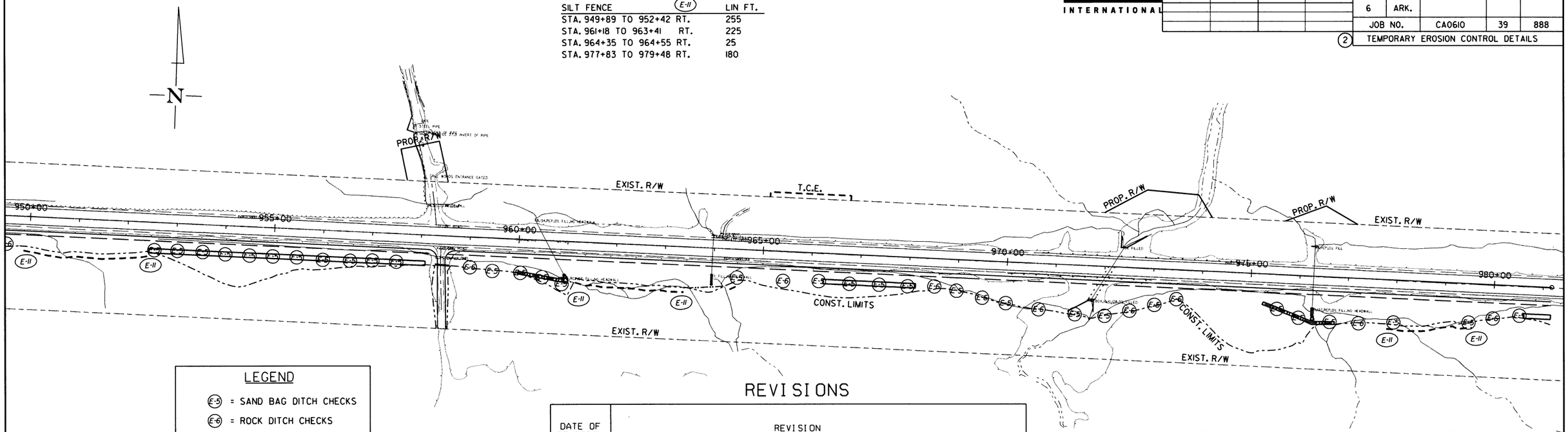
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	39	888
				(2)	TEMPORARY EROSION CONTROL DETAILS			

SILT FENCE (E-11)		LIN FT.
STA. 949+89 TO 952+42	RT.	255
STA. 961+18 TO 963+41	RT.	225
STA. 964+35 TO 964+55	RT.	25
STA. 977+83 TO 979+48	RT.	180



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- (E-9) & (E-14) = SEDIMENT BASIN

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EROSION CONTROL MEASURES PLACED IN STAGE I SHALL BE RETAINED THROUGHOUT STAGE 2 OR UNTIL FINAL STABILIZATION.

REVISIONS

DATE OF REVISION	REVISION

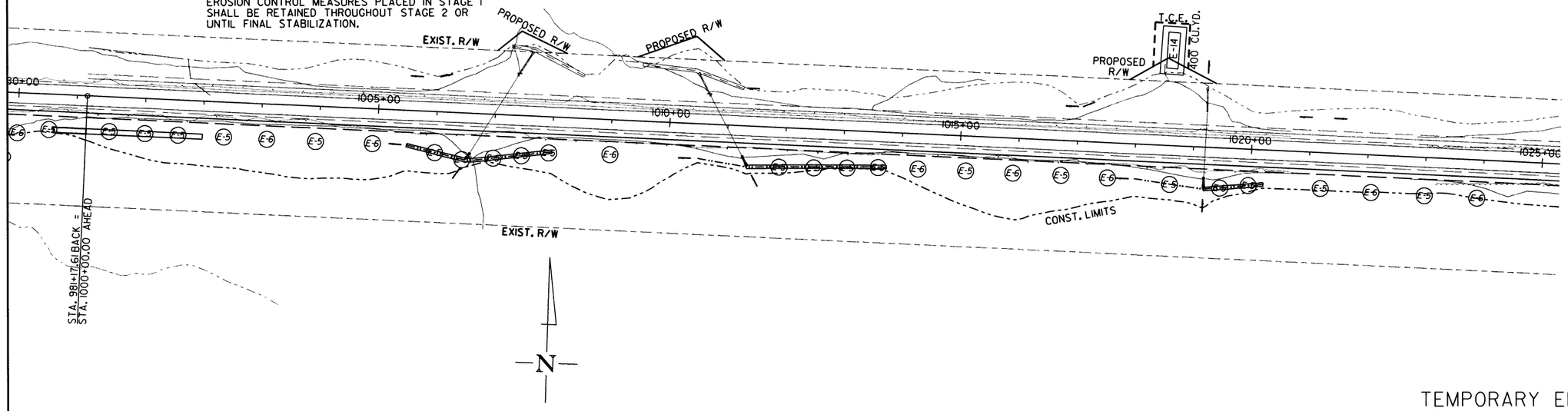
SAND BAG DITCH CHECKS (E-5)		INSTALLATION
STA. 952+50 TO 961+00	RT. =	15
STA. 964+50 TO 973+00	RT. =	10
STA. 975+50 TO 978+00	RT. =	4
STA. 979+50 TO 980+50	RT. =	2

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 959+00 TO 965+50	RT. =	2
STA. 968+50 TO 973+50	RT. =	5
STA. 977+25 TO 980+00	RT. =	2

SAND BAG DITCH CHECKS (E-5)		INSTALLATION
STA. 1000+50 TO 1008+00	RT. =	10
STA. 1012+00 TO 1023+00	RT. =	11

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 1003+00 TO 1009+00	RT. =	3
STA. 1014+25 TO 1024+00	RT. =	5

SEDIMENT BASIN (E-14)		CU. YDS.
STA. 1018+50	LT.	400



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

TEMPORARY EROSION CONTROL DETAILS STAGE I

Scott.Thornsberry 9/23/2016 2:10:51 PM
WORKSPACE: AHTD
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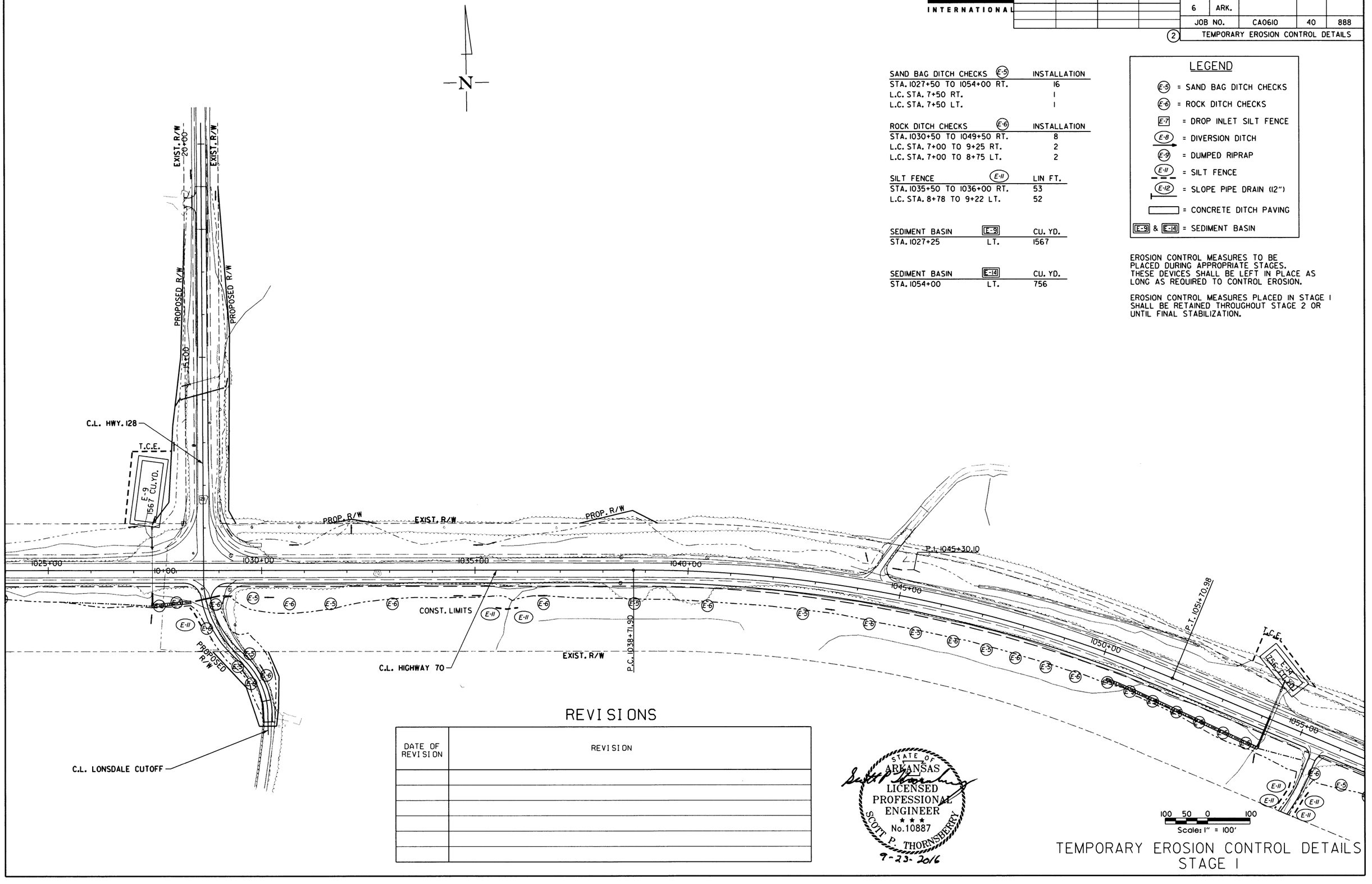
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	40	888
(2)	TEMPORARY EROSION CONTROL DETAILS			



SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1027+50 TO 1054+00 RT.	16
L.C. STA. 7+50 RT.	1
L.C. STA. 7+50 LT.	1

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1030+50 TO 1049+50 RT.	8
L.C. STA. 7+00 TO 9+25 RT.	2
L.C. STA. 7+00 TO 8+75 LT.	2

SILT FENCE (E-11)	LIN FT.
STA. 1035+50 TO 1036+00 RT.	53
L.C. STA. 8+78 TO 9+22 LT.	52

SEDIMENT BASIN (E-9)		CU. YD.
STA. 1027+25	LT.	1567

SEDIMENT BASIN (E-14)		CU. YD.
STA. 1054+00	LT.	756

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- E-9 & E-14 = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES PLACED IN STAGE I SHALL BE RETAINED THROUGHOUT STAGE 2 OR UNTIL FINAL STABILIZATION.

REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 10887
SCOTT P. THORNSBERRY
9-23-2016

TEMPORARY EROSION CONTROL DETAILS STAGE I

Scott.Thornsberry 9/23/2016 2:11:01 PM
WORKSPACE: AHTD
C:\Users\scott.thornsberry\Desktop\projects\scott.thornsberry\d0271682\v06377.05E_ECC.002.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	41	888

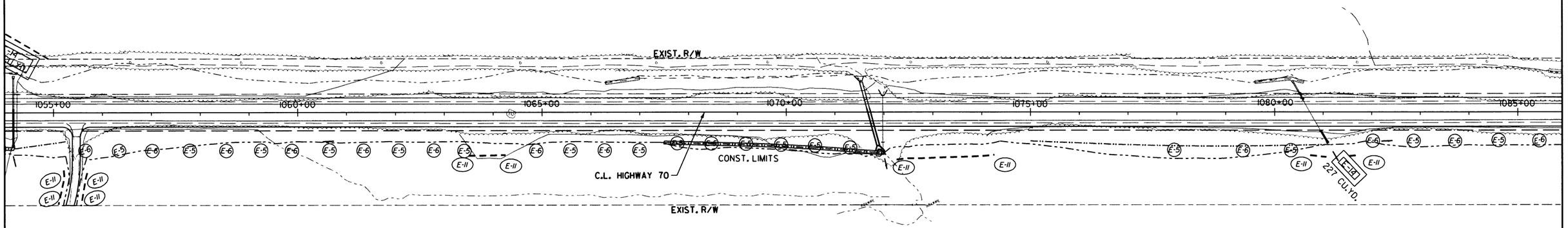
(2) TEMPORARY EROSION CONTROL DETAILS

SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1056+25 TO 1084+50 RT.	18

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1055+75 TO 1083+75 RT.	11

SILT FENCE (E-11)	LIN. FT.
STA. 1055+00 TO 1056+00 RT.	140
STA. 1063+50 TO 1064+25 RT.	75
STA. 1072+26 TO 1074+26 RT.	200
STA. 1080+74 TO 1081+76 RT.	56

SEDIMENT BASIN (E-14)		CU. YD.
STA. 1081+25	RT.	227

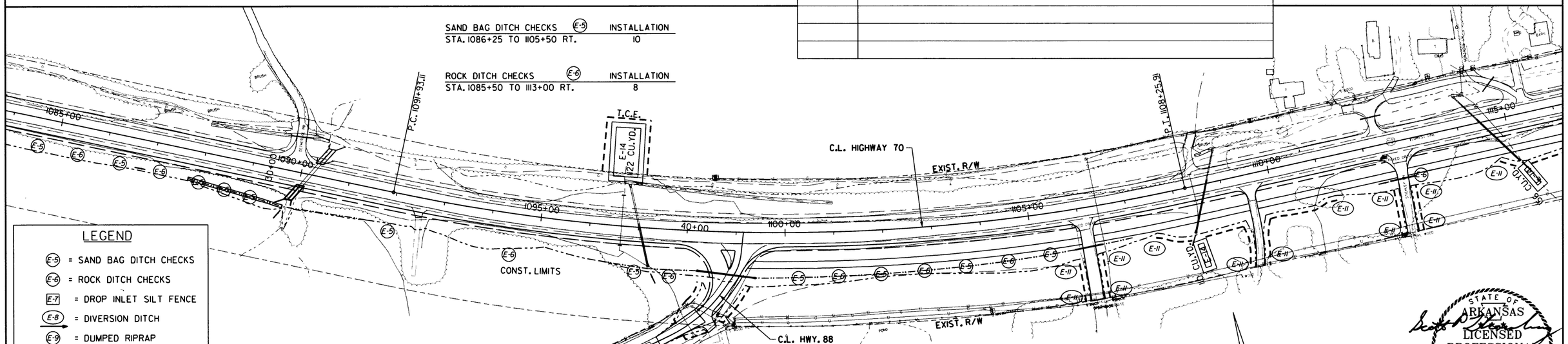


REVISIONS

DATE OF REVISION	REVISION

SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1086+25 TO 1105+50 RT.	10

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1085+50 TO 1113+00 RT.	8



SILT FENCE (E-11)	LIN. FT.
STA. 1105+88 TO 1115+00 RT.	890
HWY. 88 STA. 37+50 TO 39+00 RT.	155
HWY. 88 STA. 37+50 TO 39+00 LT.	103

SEDIMENT BASIN (E-14)		CU. YD.
STA. 1096+65	LT.	1122
STA. 1108+25	RT.	110
STA. 1115+00	RT.	156

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- (E-9) & (E-14) = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES PLACED IN STAGE I SHALL BE RETAINED THROUGHOUT STAGE 2 OR UNTIL FINAL STABILIZATION.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 10887
SCOTT P. THORNSBERRY
9-23-2016

100 50 0 100
Scale: 1" = 100'

TEMPORARY EROSION CONTROL DETAILS STAGE 1

Scott.Thornsberry 9/23/2016 2:14:11 PM
WORKSPACE: AHTD
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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	42	888

(2) TEMPORARY EROSION CONTROL DETAILS

SAND BAG DITCH CHECKS (E-5)		INSTALLATION
STA. 1117+50 TO 1140+75	RT.	9

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 1119+25 TO 1141+25	RT.	5

SILT FENCE (E-11)		LIN. FT.
STA. 1115+00 TO 1116+50	RT.	154
STA. 1120+00 TO 1126+00	RT.	565
STA. 1132+00 TO 1135+30	RT.	372
STA. 1138+25 TO 1141+60	RT.	285

SEDIMENT BASIN (E-14)		CU. YD.
STA. 1122+00	RT.	450
STA. 1125+00	RT.	239
STA. 1134+25	RT.	750

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- (E-9) & (E-14) = SEDIMENT BASIN

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REVISIONS

DATE OF REVISION	REVISION

DIVERSION DITCH (E-8)		LIN. FT.
STA. 1166+00 TO 1169+85	RT.	385

STA. 1166+00 RT.
INSTALL 12" X 32' SLOPE DRAIN (TYPE E-12)
W/2 CU. YDS. DUMPED RIPRAP (TYPE E-9)

SILT FENCE (E-11)		LIN. FT.
STA. 1146+50 TO 1161+50	RT.	1096
STA. 1166+00 TO 1170+00	RT.	460

SEDIMENT BASIN (E-14)		CU. YD.
STA. 1152+00	RT.	459

SAND BAG DITCH CHECKS (E-5)		INSTALLATION
STA. 1146+00 TO 1167+00	RT.	13

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 1145+50 TO 1165+50	RT.	12

Scale: 1" = 100'

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
7-25-2016

TEMPORARY EROSION CONTROL DETAILS STAGE 1

Scott.Thornsberry 9/23/2016 2:14:20 PM
WORKSPACE: AHTD
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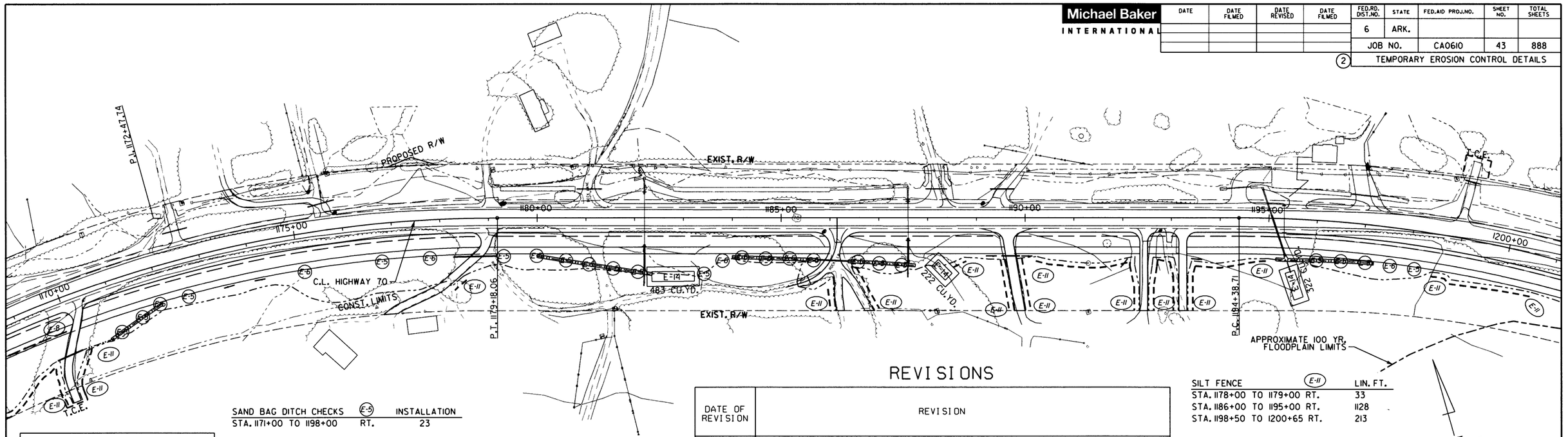
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	43	888

(2) TEMPORARY EROSION CONTROL DETAILS



SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 1171+00 TO 1198+00	RT.	23

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 1175+00 TO 1197+50	RT.	4

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- E-9 & E-14 = SEDIMENT BASIN

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REVISIONS

DATE OF REVISION	REVISION

SILT FENCE	(E-11)	LIN. FT.
STA. 1178+00 TO 1179+00 RT.		33
STA. 1186+00 TO 1195+00 RT.		1128
STA. 1198+50 TO 1200+65 RT.		213

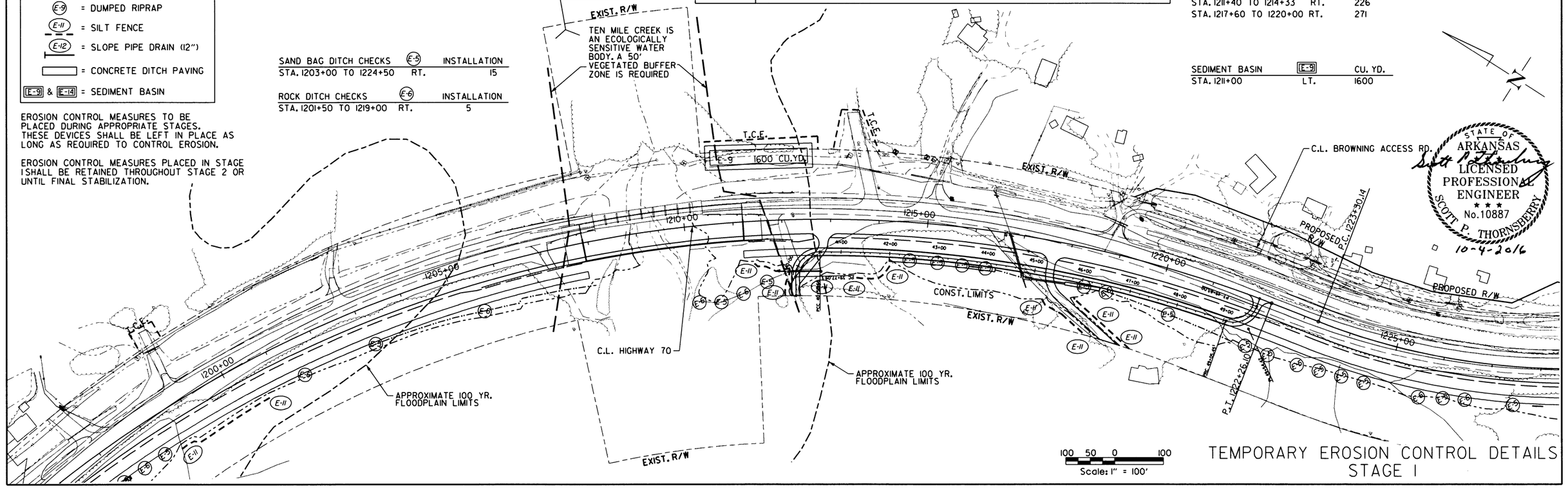
SEDIMENT BASIN	E-14	CU. YD.
STA. 1183+00	RT.	483
STA. 1188+50	RT.	222
STA. 1195+50	RT.	322

SILT FENCE	(E-11)	LIN. FT.
STA. 1211+40 TO 1214+33	RT.	226
STA. 1217+60 TO 1220+00	RT.	271

SEDIMENT BASIN	E-9	CU. YD.
STA. 1211+00	LT.	1600

SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 1203+00 TO 1224+50	RT.	15

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 1201+50 TO 1219+00	RT.	5



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
10-4-2016

100 50 0 100
Scale: 1" = 100'

TEMPORARY EROSION CONTROL DETAILS STAGE 1

Leonard.Speed 10/4/2016 9:08:53 AM
WORKSPACE: Leonard.Speed
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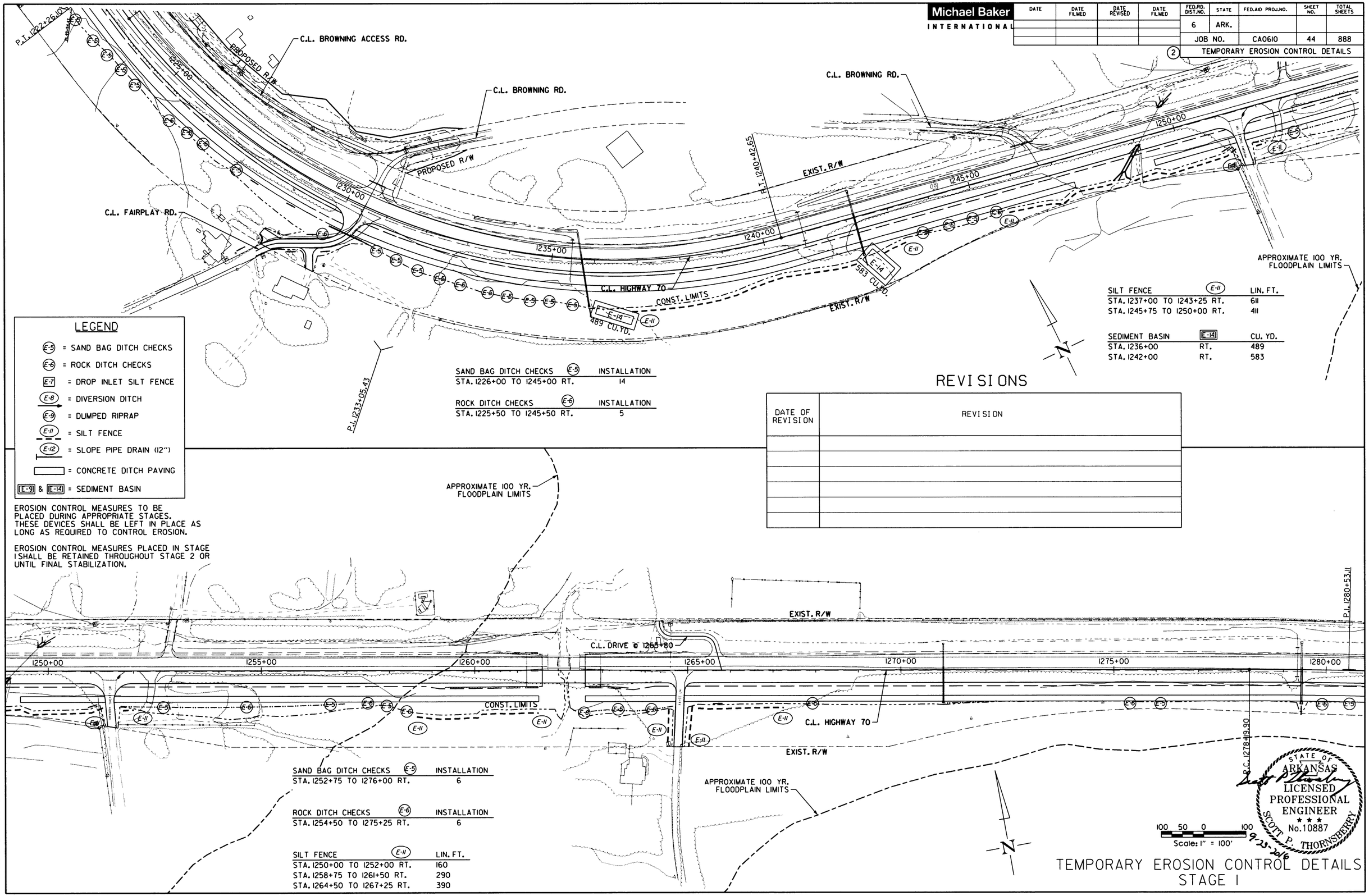
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	44	888

(2) TEMPORARY EROSION CONTROL DETAILS



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- [E-7] = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- [E-9] & [E-14] = SEDIMENT BASIN

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SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1226+00 TO 1245+00 RT.	14

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1225+50 TO 1245+50 RT.	5

SILT FENCE (E-11)	LIN. FT.
STA. 1237+00 TO 1243+25 RT.	611
STA. 1245+75 TO 1250+00 RT.	411

SEDIMENT BASIN [E-14]		CU. YD.
STA. 1236+00	RT.	489
STA. 1242+00	RT.	583

SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1252+75 TO 1276+00 RT.	6

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1254+50 TO 1275+25 RT.	6

SILT FENCE (E-11)	LIN. FT.
STA. 1250+00 TO 1252+00 RT.	160
STA. 1258+75 TO 1261+50 RT.	290
STA. 1264+50 TO 1267+25 RT.	390

REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
9-23-2016

100 50 0 100
Scale: 1" = 100'

TEMPORARY EROSION CONTROL DETAILS
STAGE 1

Scott.Thornsberry 9/23/2016 2:11:40 PM
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REVISED DATE: ***REVDATE***

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

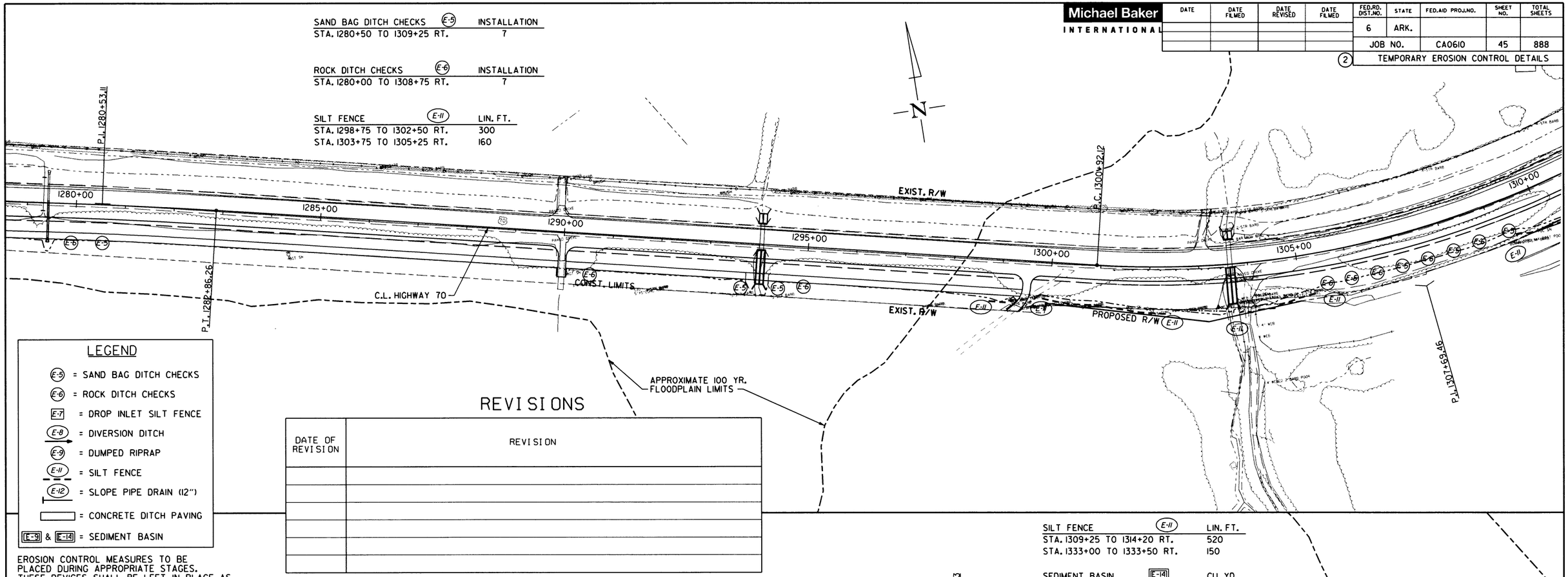
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	CA0610		45	888

(2) TEMPORARY EROSION CONTROL DETAILS

SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1280+50 TO 1309+25 RT.	7

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1280+00 TO 1308+75 RT.	7

SILT FENCE (E-11)	LIN. FT.
STA. 1298+75 TO 1302+50 RT.	300
STA. 1303+75 TO 1305+25 RT.	160



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- [E-7] = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- [E-9] & [E-14] = SEDIMENT BASIN

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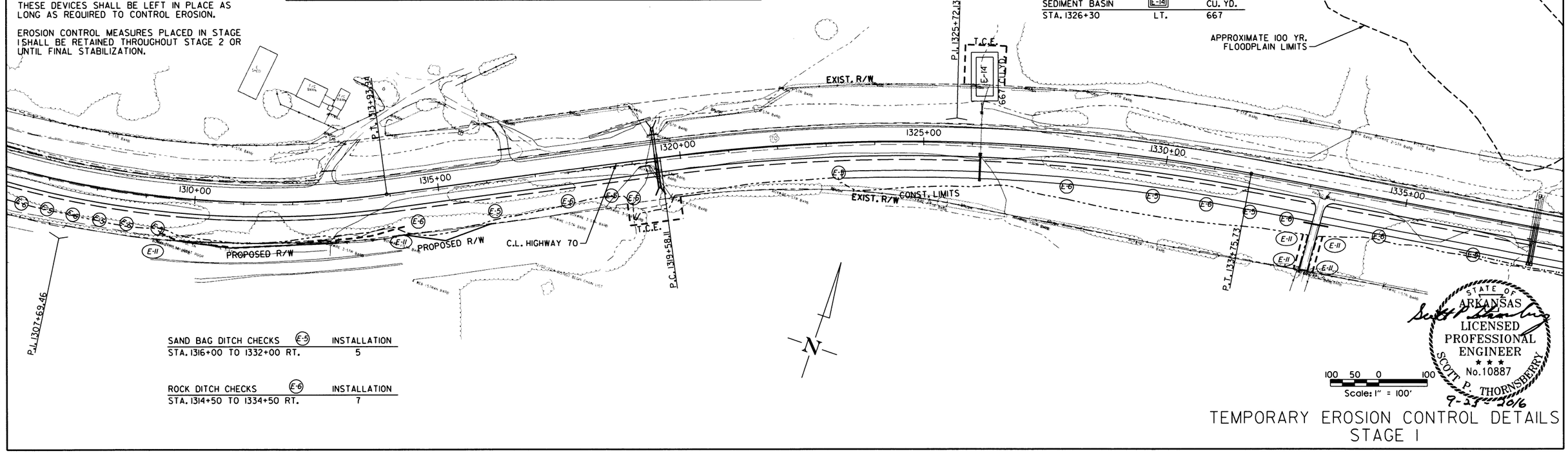
REVISIONS

DATE OF REVISION	REVISION

SILT FENCE (E-11)	LIN. FT.
STA. 1309+25 TO 1314+20 RT.	520
STA. 1333+00 TO 1333+50 RT.	150

SEDIMENT BASIN [E-14]	CU. YD.
STA. 1326+30 LT.	667



SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1316+00 TO 1332+00 RT.	5

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1314+50 TO 1334+50 RT.	7

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 10887
SCOTT P. THORNSBERRY
9-23-2016

Scale: 1" = 100'

TEMPORARY EROSION CONTROL DETAILS STAGE 1

Scott.Thornsberry 9/23/2016 2:11:50 PM
WORKSPACE: AHTD
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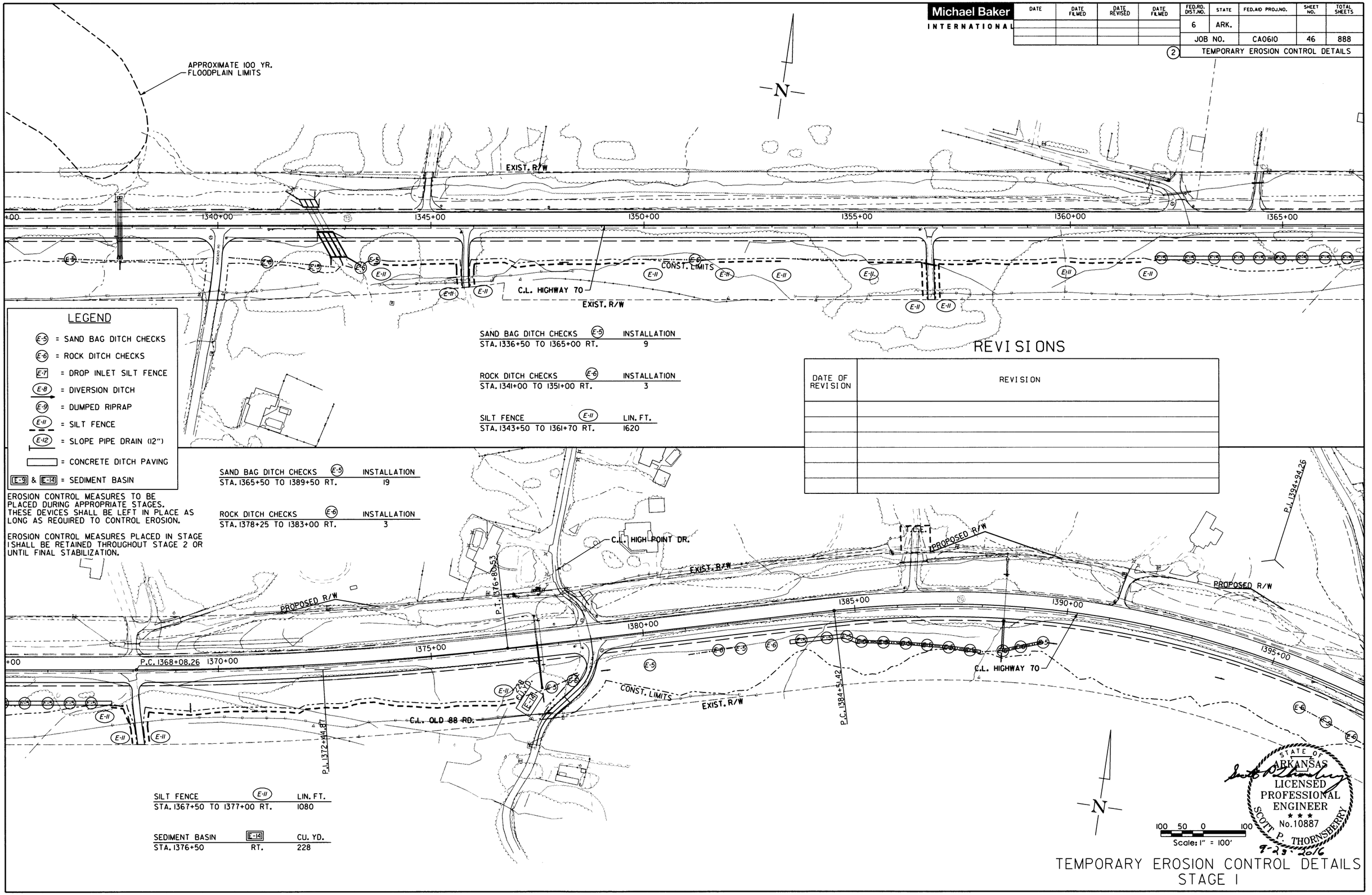
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	46	888
(2) TEMPORARY EROSION CONTROL DETAILS				



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
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- (E-9) & (E-14) = SEDIMENT BASIN

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SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1336+50 TO 1365+00 RT.	9

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1341+00 TO 1351+00 RT.	3

SILT FENCE (E-11)	LIN. FT.
STA. 1343+50 TO 1361+70 RT.	1620

SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1365+50 TO 1389+50 RT.	19

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1378+25 TO 1383+00 RT.	3

SILT FENCE (E-11)	LIN. FT.
STA. 1367+50 TO 1377+00 RT.	1080

SEDIMENT BASIN (E-14)	CU. YD.
STA. 1376+50 RT.	228

REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-29-2016

TEMPORARY EROSION CONTROL DETAILS STAGE 1

Scott.Thornsberry 9/23/2016 2:12:00 PM
WORKSPACE: AHTD
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

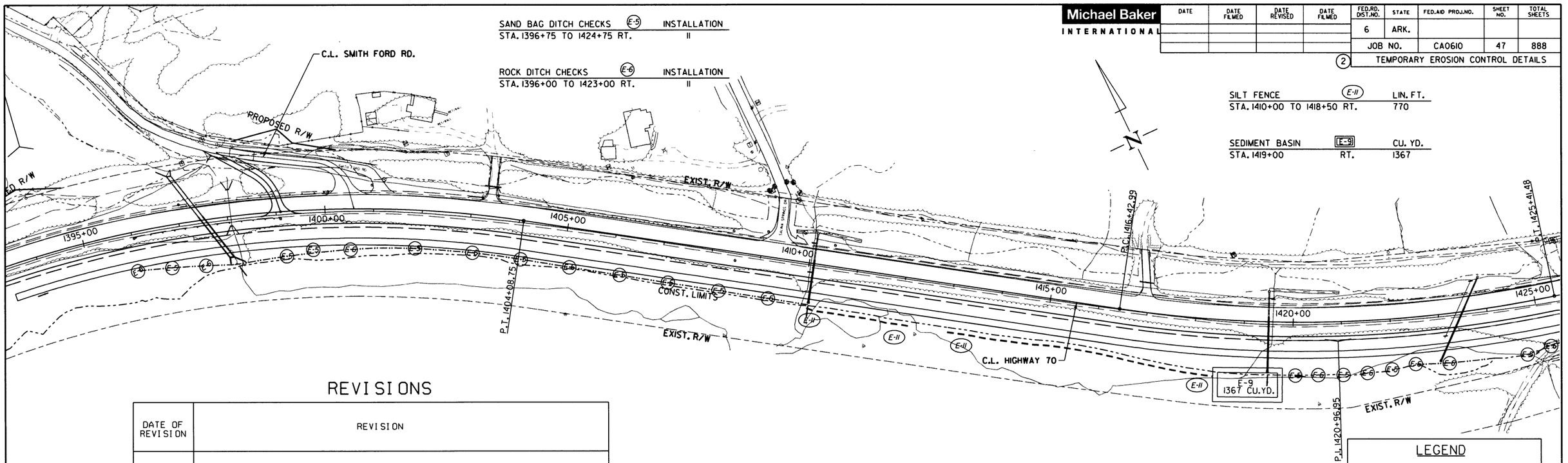
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	47	888
				(2)	TEMPORARY EROSION CONTROL DETAILS			

SAND BAG DITCH CHECKS (E-5) INSTALLATION
STA. 1396+75 TO 1424+75 RT. II

ROCK DITCH CHECKS (E-6) INSTALLATION
STA. 1396+00 TO 1423+00 RT. II

SILT FENCE (E-11) LIN. FT.
STA. 1410+00 TO 1418+50 RT. 770

SEDIMENT BASIN E-9 CU. YD.
STA. 1419+00 RT. 1367

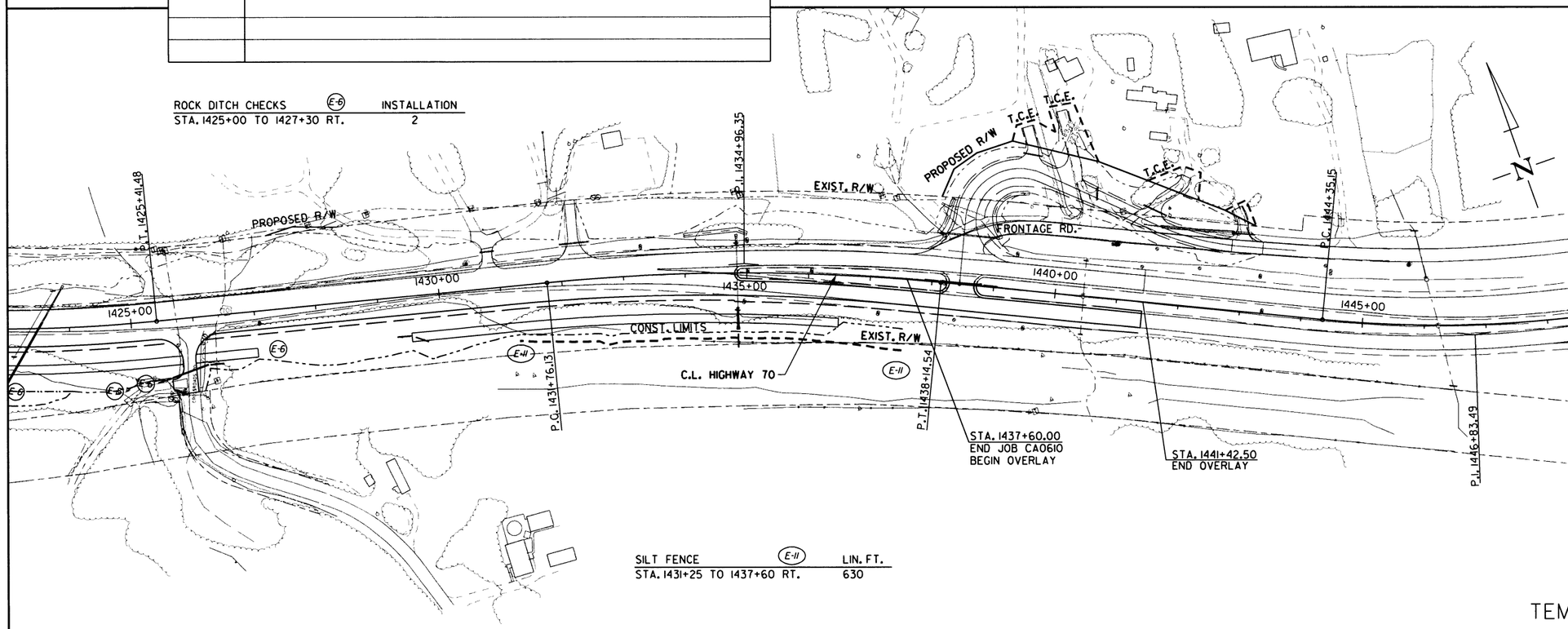


REVISIONS

DATE OF REVISION	REVISION

ROCK DITCH CHECKS (E-6) INSTALLATION
STA. 1425+00 TO 1427+30 RT. 2

SILT FENCE (E-11) LIN. FT.
STA. 1431+25 TO 1437+60 RT. 630



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

100 50 0 100
Scale: 1" = 100'

TEMPORARY EROSION CONTROL DETAILS STAGE I

Scott Thornsberry 9/23/2016 2:12:40 PM
Workspace: CA0610
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	CA0610		48	888

2 TEMPORARY EROSION CONTROL DETAILS

SAND BAG DITCH CHECKS (E-5) INSTALLATION
STA. 491+00 TO 499+00 LT. = 14

ROCK DITCH CHECKS (E-6) INSTALLATION
STA. 489+75 LT. = 1

N

APPROXIMATE 100 YR. FLOODPLAIN LIMITS

STA. 480+25.20
BEGIN JOB CA0610
BEGIN LT. LANES
LOG MILE 3.22

RT. LANES STA. 486+50.00
BEGIN RT. LANES

PC 471+94.12
PT 477+52.35
PI 474+74.86
PI 483+34.91
PT 492+88.95
PC 496+63.92
PC 485+17.19
PI 501+60.48
PC 512+16.53
PT 506+38.28
PI 518+80.33
PT 525+49.36
PC 528+13.34

470+00 475+00 480+00 485+00 490+00 495+00 500+00 505+00 510+00 515+00 520+00 525+00

EXIST. R/W
CONST. LIMITS
T.C.E.
825 CU. YDS.
PROP. R/W
BARTEE DRIVE
DRAINAGE DITCH

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
7-23-2016

SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 501+50 TO 502+00	LT. =	2
STA. 506+00 TO 510+25	LT. =	5
STA. 526+00 TO 527+30	LT. =	4

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 507+00 TO 510+50	LT. =	3
STA. 528+15	LT. =	1

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

Scott Thornsberry 9/23/2016 2:12:21 PM
WORKSPACE: Arkansas
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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

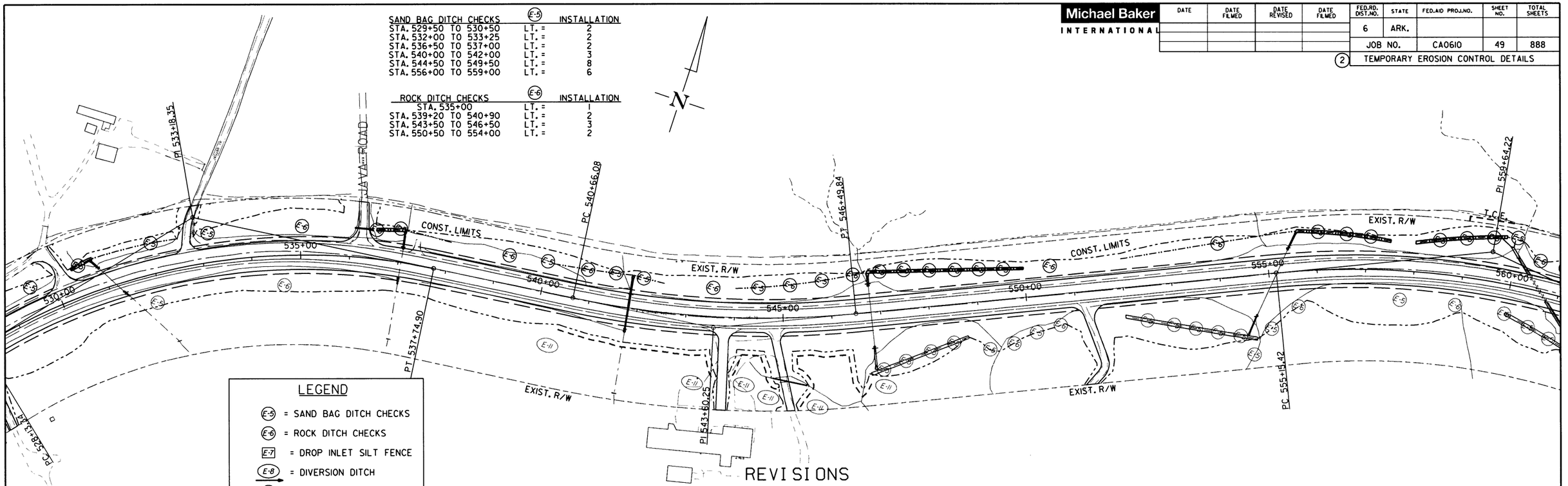
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	49	888

(2) TEMPORARY EROSION CONTROL DETAILS

SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 529+50 TO 530+50	LT. =	2
STA. 532+00 TO 533+25	LT. =	2
STA. 536+50 TO 537+00	LT. =	2
STA. 540+00 TO 542+00	LT. =	3
STA. 544+50 TO 549+50	LT. =	8
STA. 556+00 TO 559+00	LT. =	6

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 535+00	LT. =	1
STA. 539+20 TO 540+90	LT. =	2
STA. 543+50 TO 546+50	LT. =	3
STA. 550+50 TO 554+00	LT. =	2



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- E-9 & E-14 = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

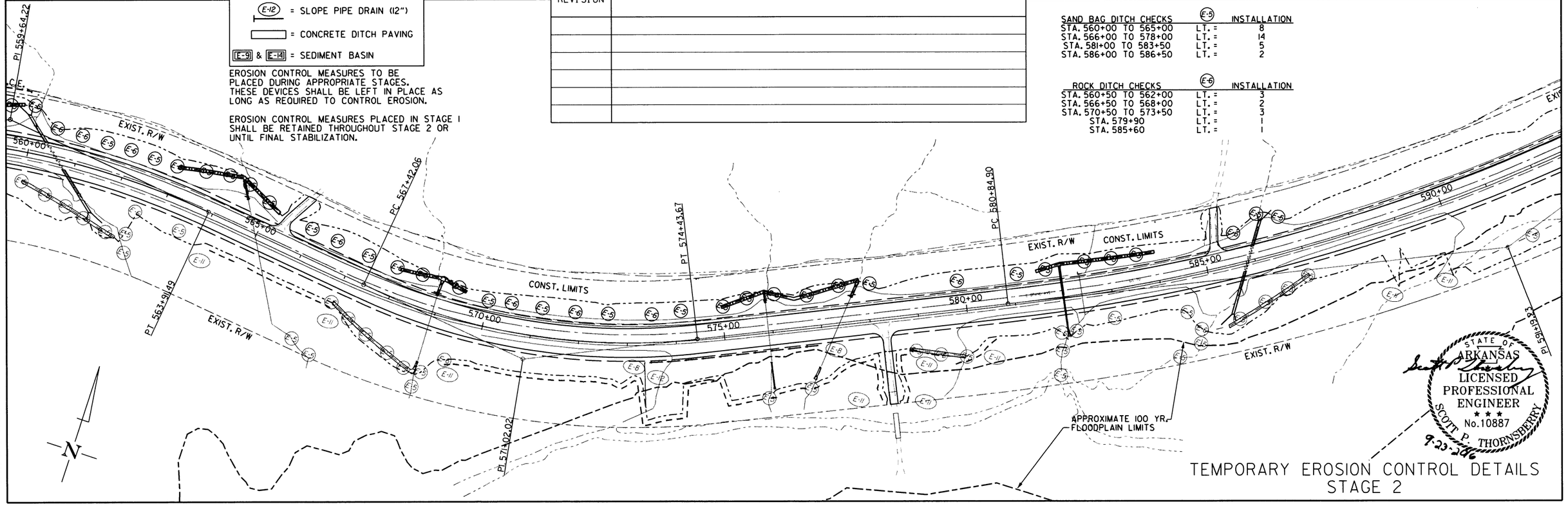
EROSION CONTROL MEASURES PLACED IN STAGE I SHALL BE RETAINED THROUGHOUT STAGE 2 OR UNTIL FINAL STABILIZATION.

REVISIONS

DATE OF REVISION	REVISION

SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 560+00 TO 565+00	LT. =	8
STA. 566+00 TO 578+00	LT. =	14
STA. 581+00 TO 583+50	LT. =	5
STA. 586+00 TO 586+50	LT. =	2

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 560+50 TO 562+00	LT. =	3
STA. 566+50 TO 568+00	LT. =	2
STA. 570+50 TO 573+50	LT. =	3
STA. 579+90	LT. =	1
STA. 585+60	LT. =	1



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

Scott.Thornsberry@9/23/2016 2:12:31 PM
WORKSPACE: ANTD
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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

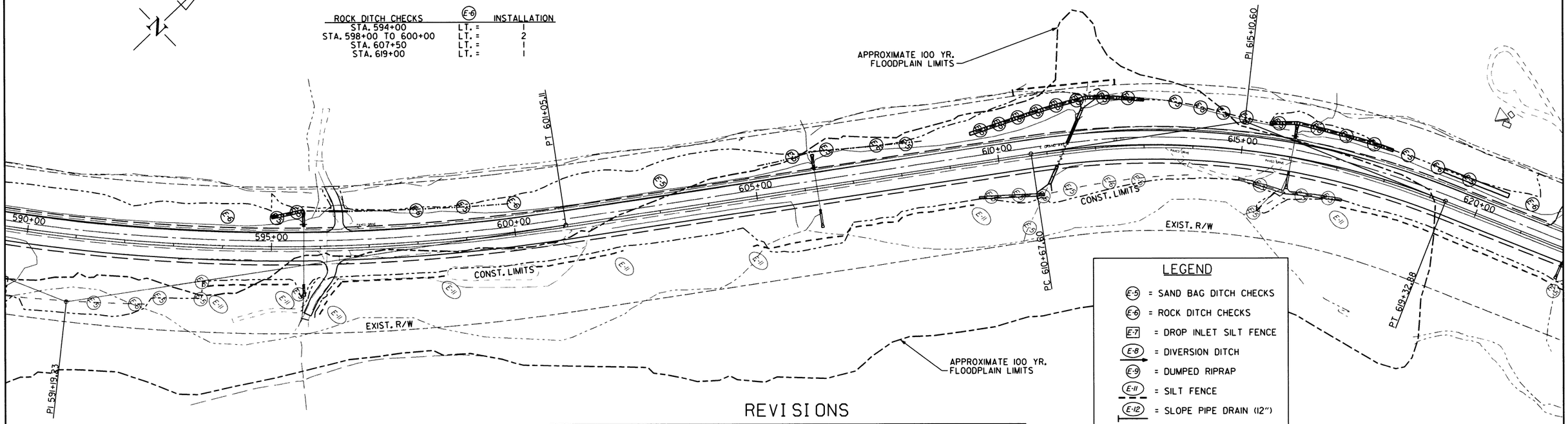
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	50	888

(2) TEMPORARY EROSION CONTROL DETAILS

SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 595+00 TO 595+50	LT. =	2
STA. 599+00 TO 603+00	LT. =	2
STA.605+75 TO 608+00	LT. =	3
STA. 609+50 TO 619+50	LT. =	18

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 594+00	LT. =	1
STA. 598+00 TO 600+00	LT. =	2
STA. 607+50	LT. =	1
STA. 619+00	LT. =	1



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- [E-7] = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- [E-9] & [E-14] = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

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REVISIONS

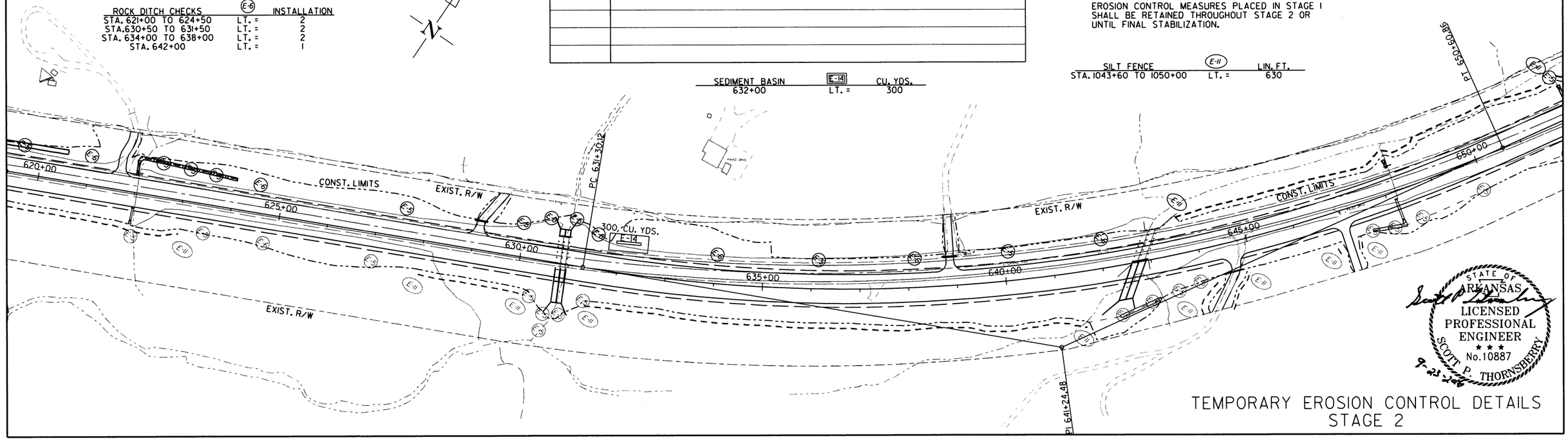
DATE OF REVISION	REVISION

SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 622+50 TO 623+50	LT. =	3
STA. 627+50	LT. =	1
STA. 630+00 TO 631+00	LT. =	2
STA. 636+00 TO 640+00	LT. =	2

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 621+00 TO 624+50	LT. =	2
STA.630+50 TO 631+50	LT. =	2
STA. 634+00 TO 638+00	LT. =	2
STA. 642+00	LT. =	1

SEDIMENT BASIN	[E-14]	CU. YDS.
632+00	LT. =	300

SILT FENCE	(E-11)	LIN. FT.
STA. 1043+60 TO 1050+00	LT. =	630



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-25-2016

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

Scott.Thornsberry 9/23/2016 2:12:41 PM
WORKSPACE: AHTD
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

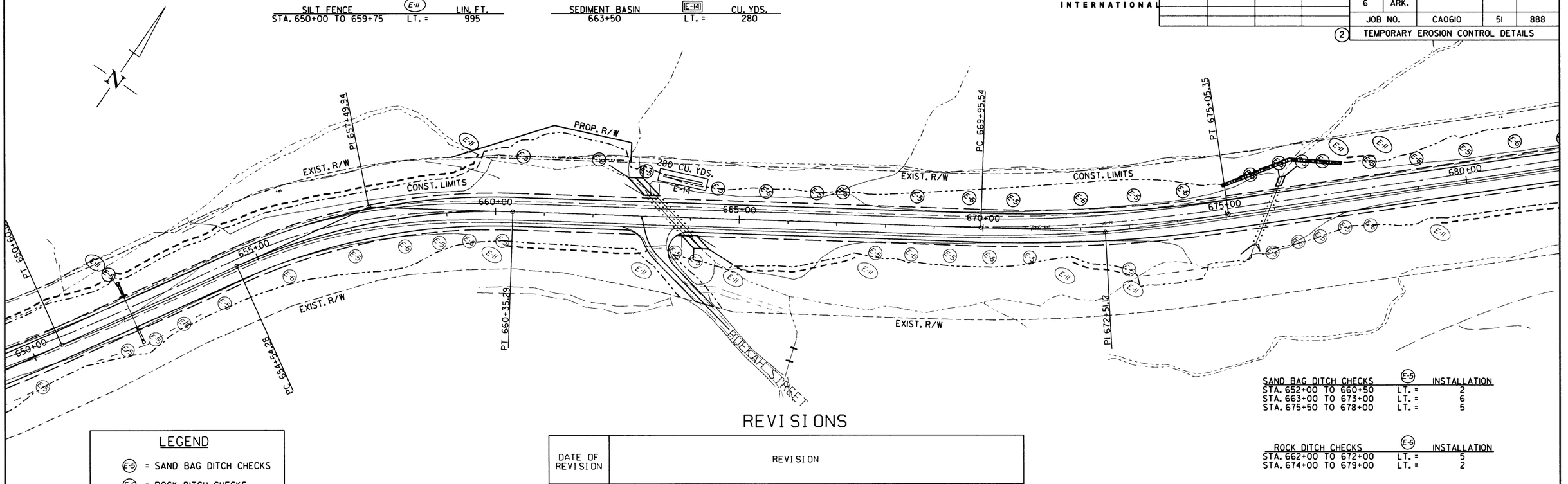
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	51	888

(2) TEMPORARY EROSION CONTROL DETAILS

SILT FENCE (E-11) — STA. 650+00 TO 659+75 — LT. = 995 LIN. FT.

SEDIMENT BASIN 663+50 (E-14) — LT. = 280 CU. YDS.



SAND BAG DITCH CHECKS (E-5) — INSTALLATION
- STA. 652+00 TO 660+50 — LT. = 2
- STA. 663+00 TO 673+00 — LT. = 6
- STA. 675+50 TO 678+00 — LT. = 5

ROCK DITCH CHECKS (E-6) — INSTALLATION
- STA. 662+00 TO 672+00 — LT. = 5
- STA. 674+00 TO 679+00 — LT. = 2

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- E-9 & E-14 = SEDIMENT BASIN

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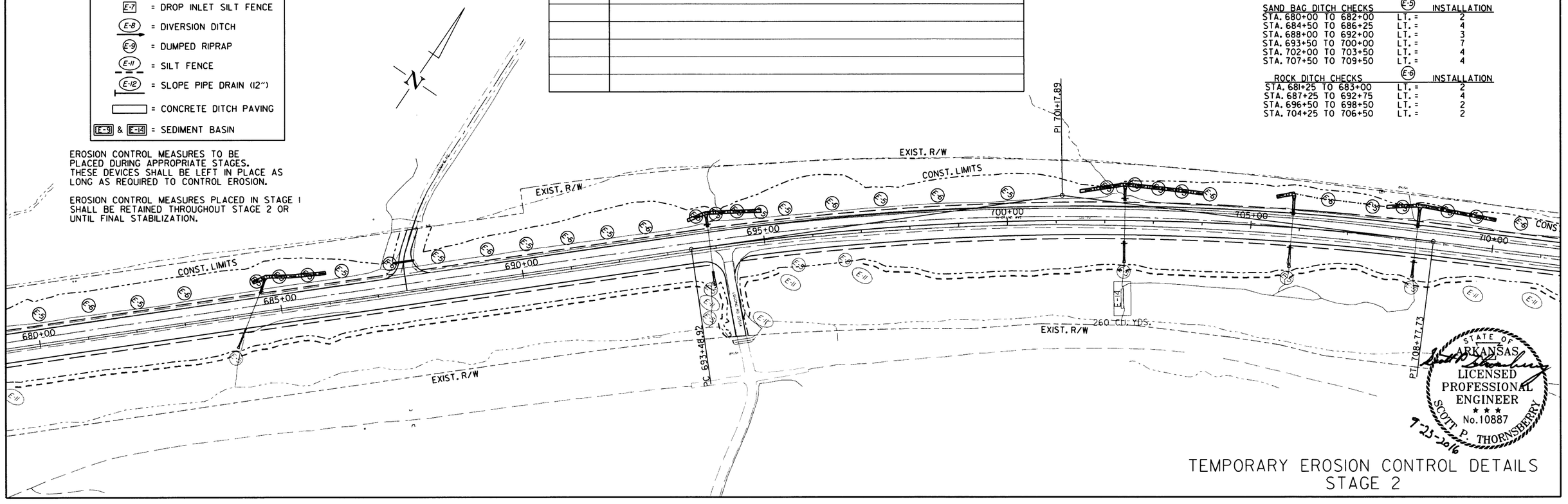
REVISIONS

DATE OF REVISION	REVISION

SAND BAG DITCH CHECKS (E-5) — INSTALLATION
- STA. 680+00 TO 682+00 — LT. = 2
- STA. 684+50 TO 686+25 — LT. = 4
- STA. 688+00 TO 692+00 — LT. = 3
- STA. 693+50 TO 700+00 — LT. = 7
- STA. 702+00 TO 703+50 — LT. = 4
- STA. 707+50 TO 709+50 — LT. = 4

ROCK DITCH CHECKS (E-6) — INSTALLATION
- STA. 681+25 TO 683+00 — LT. = 2
- STA. 687+25 TO 692+75 — LT. = 4
- STA. 696+50 TO 698+50 — LT. = 2
- STA. 704+25 TO 706+50 — LT. = 2



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
7-25-2016

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

Scott.Thornsberry 7/23/2016 2:25:51 PM
WORKSPACE: AHTD
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

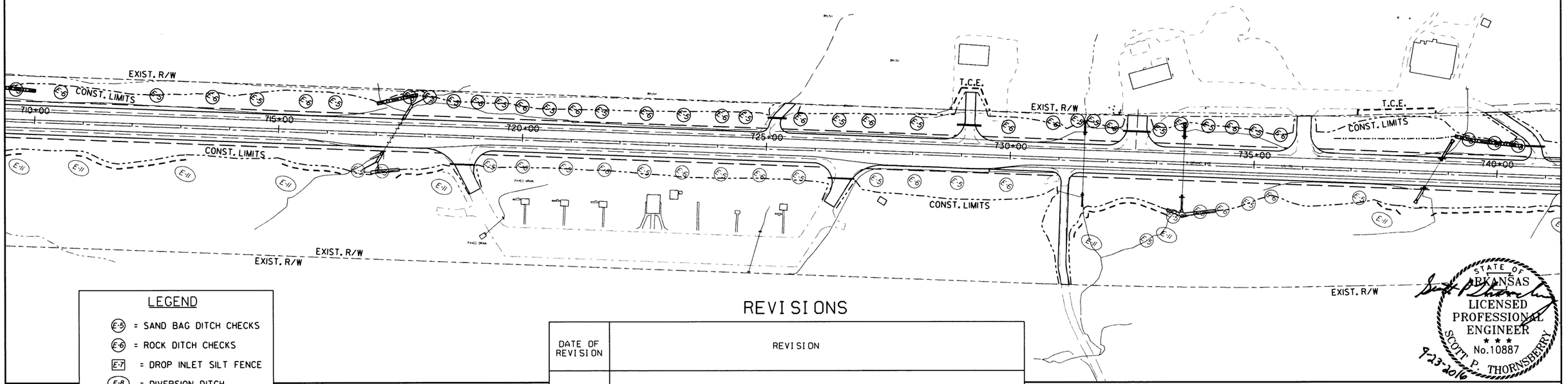
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	52	888

(2) TEMPORARY EROSION CONTROL DETAILS

SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 712+50 TO 716+00	LT. =	3
STA. 717+50 TO 724+50	LT. =	8
STA. 726+50 TO 728+00	LT. =	2
STA. 731+30 TO 735+70	LT. =	2
STA. 733+00 TO 735+00	LT. =	4

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 710+50 TO 715+50	LT. =	3
STA. 719+00 TO 727+00	LT. =	7
STA. 730+00 TO 735+50	LT. =	5



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- [E-7] = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- [E-9] & [E-14] = SEDIMENT BASIN

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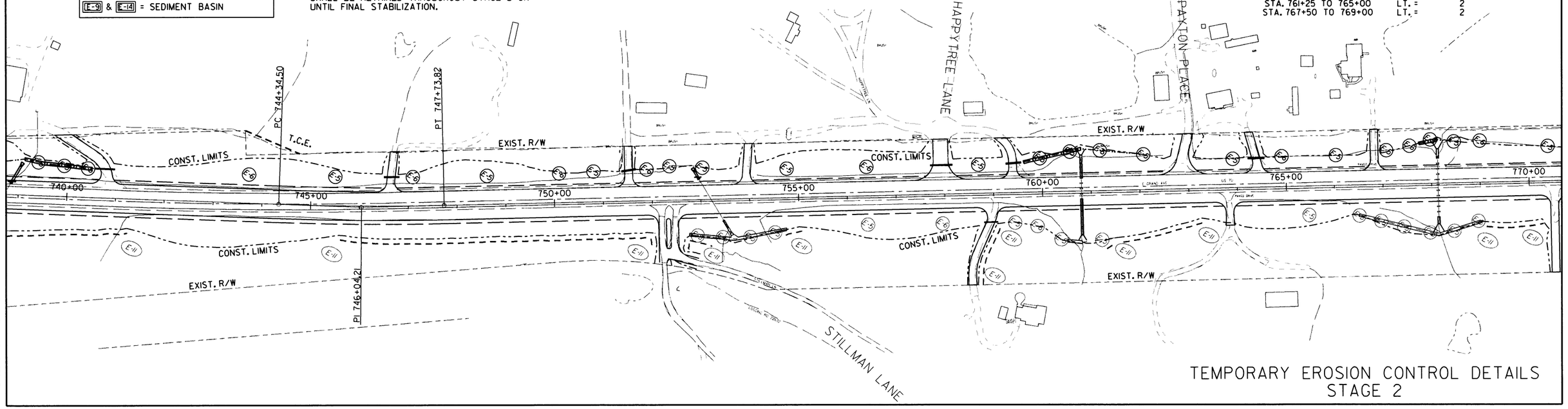
REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY
9-23-2016

SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 739+40 TO 740+40	LT. =	3
STA. 745+50 TO 758+60	LT. =	7
STA. 760+00 TO 760+50	LT. =	2
STA. 762+00 TO 766+00	LT. =	3
STA. 767+00 TO 768+50	LT. =	3

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 743+75 TO 756+50	LT. =	5
STA. 761+25 TO 765+00	LT. =	2
STA. 767+50 TO 769+00	LT. =	2



TEMPORARY EROSION CONTROL DETAILS
STAGE 2

Scott.Thornsberry 9/23/2016 2:13:01 PM
WORKSPACE: AHTD
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	53	888

(2) TEMPORARY EROSION CONTROL DETAILS

SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 770+30 TO 772+90	LT. =	2
STA. 781+00 TO 788+00	LT. =	8
STA. 789+50 TO 790+75	LT. =	3
STA. 793+60 TO 799+00	LT. =	9

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 782+50 TO 787+50	LT. =	6
STA. 794+25 TO 795+50	LT. =	2

SILT FENCE	(E-11)	LIN. FT.
STA. 779+50 TO 780+50	LT. =	295
STA. 791+25 TO 793+60	LT. =	100

DIVERSION DITCH	(E-8)	LIN. FT.
STA. 788+96 TO 789+45	LT. =	49
STA. 791+26 TO 792+06	LT. =	80

STA. 789+45 LT.
INSTALL 12" X 74' SLOPE DRAIN (TYPE E-12)
W/ 2 CU. YDS. DUMPED RIPRAP (TYPE E-9)

STA. 792+06 LT.
INSTALL 12" X 57' SLOPE DRAIN (TYPE E-12)
W/ 2 CU. YDS. DUMPED RIPRAP (TYPE E-9)

SEDIMENT BASIN	(E-14)	CU. YDS.
STA. 791+00	LT. =	650

EVERHART ROAD
PI 791+57.27
T.C.E.
PROP. R/W
PI 791+14.40
T.C.E.
650 CU. YDS.
EXIST. R/W
CONST. LIMITS
780+00
785+00
790+00
795+00
800+00
775+00
770+00
370 CU. YDS.
PC 778+38.83
PT 784+71.65
PC 787+31.90
PT 794+67.70
PC 799+50.57
CLOUD 9 DRIVE

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- E-9 & E-14 = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

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SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 801+00 TO 804+50	LT. =	4
STA. 808+50 TO 812+00	LT. =	4
STA. 813+50 TO 827+00	LT. =	25

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 800+00 TO 803+00	LT. =	2
STA. 807+50 TO 810+50	LT. =	3
STA. 816+50 TO 818+50	LT. =	3
STA. 827+50	LT. =	1

SILT FENCE	(E-11)	LIN. FT.
STA. 827+75 TO 830+00	LT. =	220

PC 799+50.57
800+00
PROP. R/W
805+00
PI 805+46.74
EXIST. R/W
CONST. LIMITS
T.C.E.
PROP. R/W
SCENIC RIDGE ROAD
PC 808+14.87
810+00
PC 814+52.42
PI 816+19.12
815+00
820+00
825+00
830+00
PI 830+97.65
T.C.E.
EXIST. R/W
PROP. R/W
PT 819+19.91
PC 823+64.53
PT 832+30.47
SUMMIT RIDGE ROAD

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
9-24-2016

TEMPORARY EROSION CONTROL DETAILS STAGE 2

Scott.Thornsberry 9/23/2016 2:31:11 PM
WORKSPACE: AHTD
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REVISED DATE: $$REVDATE$$

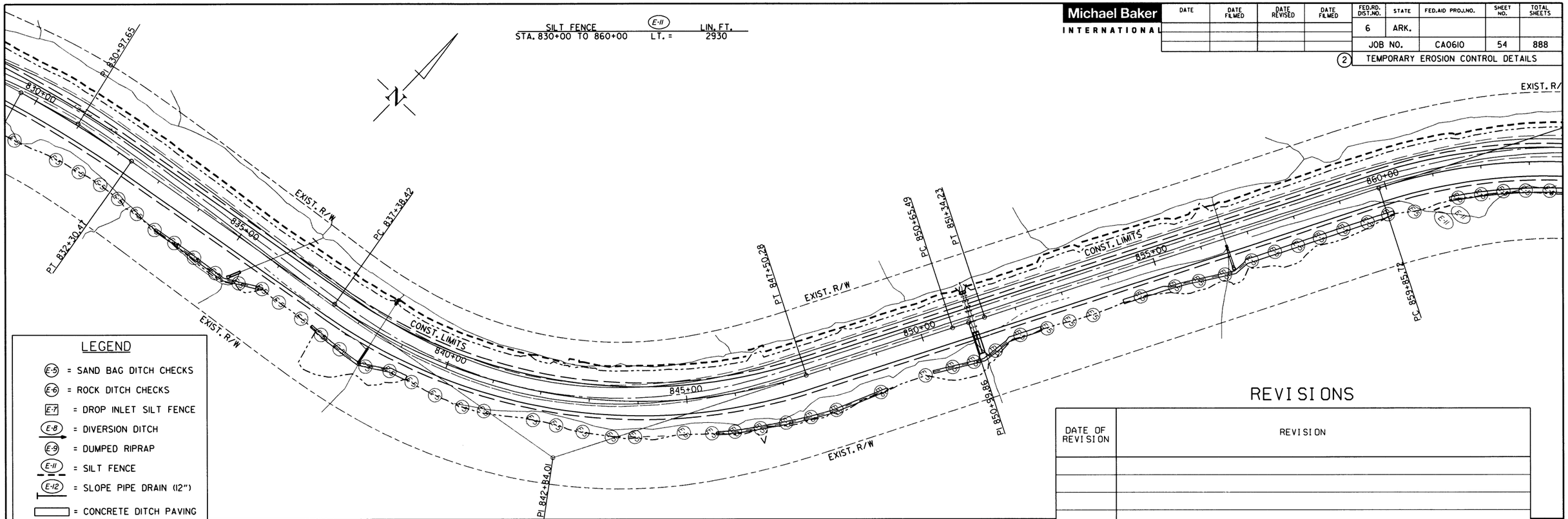
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	54	888

(2) TEMPORARY EROSION CONTROL DETAILS

SILT FENCE (E-11) STA. 830+00 TO 860+00 LT. = LIN. FT. 2930



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- E-9 & E-14 = SEDIMENT BASIN

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REVISIONS

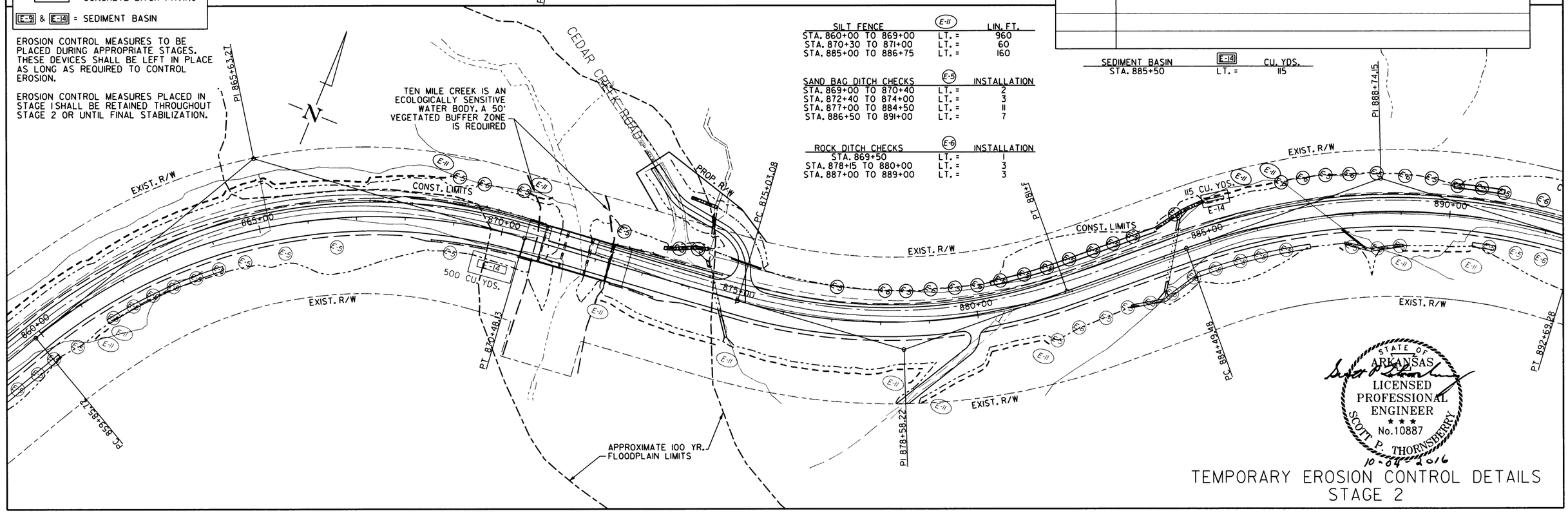
DATE OF REVISION	REVISION

SILT FENCE	(E-11)	LIN. FT.
STA. 860+00 TO 869+00	LT. =	960
STA. 870+30 TO 871+00	LT. =	60
STA. 885+00 TO 886+75	LT. =	160

SAND BAG DITCH CHECKS	(E-5)	INSTALLATION
STA. 869+00 TO 870+40	LT. =	2
STA. 872+40 TO 874+00	LT. =	3
STA. 877+00 TO 884+50	LT. =	11
STA. 886+50 TO 891+00	LT. =	7

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 869+50	LT. =	1
STA. 878+15 TO 880+00	LT. =	3
STA. 887+00 TO 889+00	LT. =	3

SEDIMENT BASIN	E-14	CU. YDS.
STA. 885+50	LT. =	115



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No. 10887
SCOTT P. THORNSBERRY
10-04-2016

TEMPORARY EROSION CONTROL DETAILS STAGE 2

Leonard.Speed 10/4/2016 9:09:04 AM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

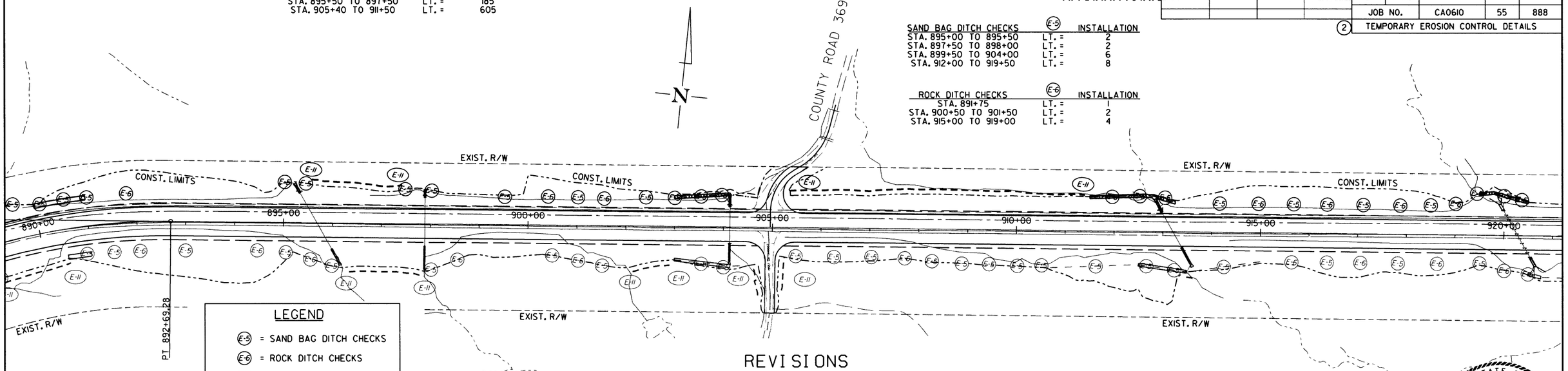
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	55	888

(2) TEMPORARY EROSION CONTROL DETAILS

SILT FENCE (E-11)		LIN. FT.
STA. 895+50 TO 897+50	LT. =	185
STA. 905+40 TO 911+50	LT. =	605

SAND BAG DITCH CHECKS (E-5)		INSTALLATION
STA. 895+00 TO 895+50	LT. =	2
STA. 897+50 TO 898+00	LT. =	2
STA. 899+50 TO 904+00	LT. =	6
STA. 912+00 TO 919+50	LT. =	8

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 891+75	LT. =	1
STA. 900+50 TO 901+50	LT. =	2
STA. 915+00 TO 919+00	LT. =	4



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- (E-9) & (E-14) = SEDIMENT BASIN

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REVISIONS

DATE OF REVISION	REVISION

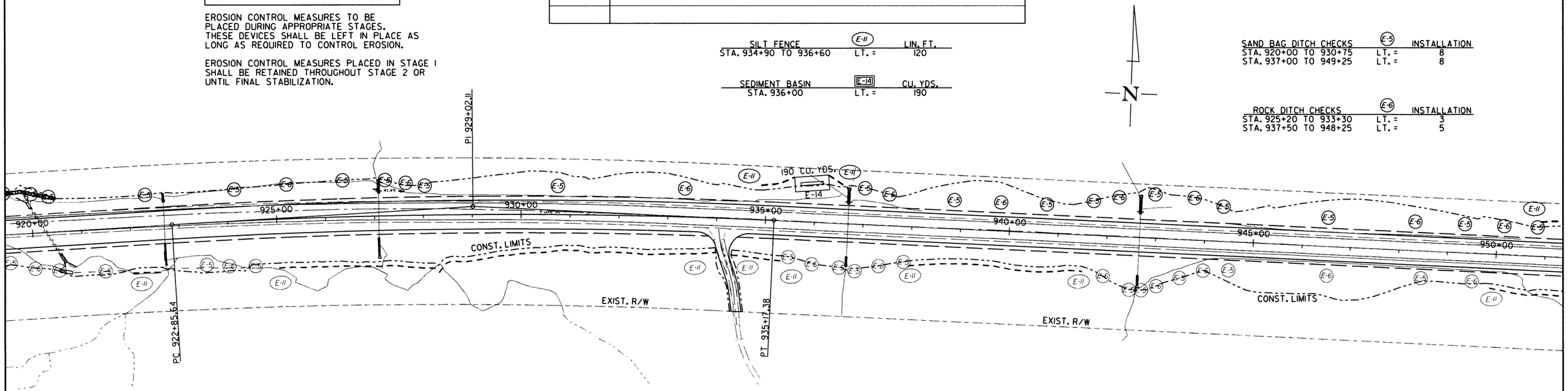
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY
9-23-2016

SILT FENCE (E-11)		LIN. FT.
STA. 934+90 TO 936+60	LT. =	120

SEDIMENT BASIN (E-14)		CU. YDS.
STA. 936+00	LT. =	190

SAND BAG DITCH CHECKS (E-5)		INSTALLATION
STA. 920+00 TO 930+75	LT. =	8
STA. 937+00 TO 949+25	LT. =	8

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 925+20 TO 933+30	LT. =	3
STA. 937+50 TO 948+25	LT. =	5



TEMPORARY EROSION CONTROL DETAILS STAGE 2

Scott.Thornsberry 9/23/2016 2:13:32 PM
WORKSPACE: AHTD
c:\pw\bi-local\baker_projects\scott.thornsberry.d0211744\rCA0606.05E.EC.017.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

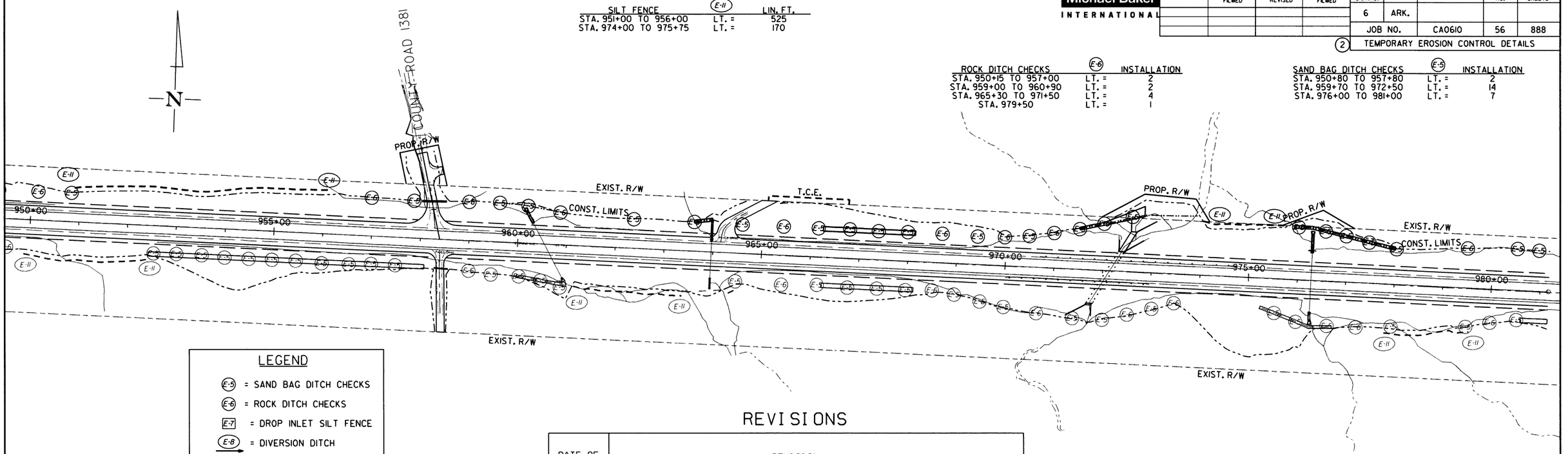
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	56	888

(2) TEMPORARY EROSION CONTROL DETAILS

SILT FENCE (E-11)		LIN. FT.
STA. 951+00 TO 956+00	LT. =	525
STA. 974+00 TO 975+75	LT. =	170

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 950+15 TO 957+00	LT. =	2
STA. 959+00 TO 960+90	LT. =	2
STA. 965+30 TO 971+50	LT. =	4
STA. 979+50	LT. =	1

SAND BAG DITCH CHECKS (E-5)		INSTALLATION
STA. 950+80 TO 957+80	LT. =	2
STA. 959+70 TO 972+50	LT. =	14
STA. 976+00 TO 981+00	LT. =	7



LEGEND

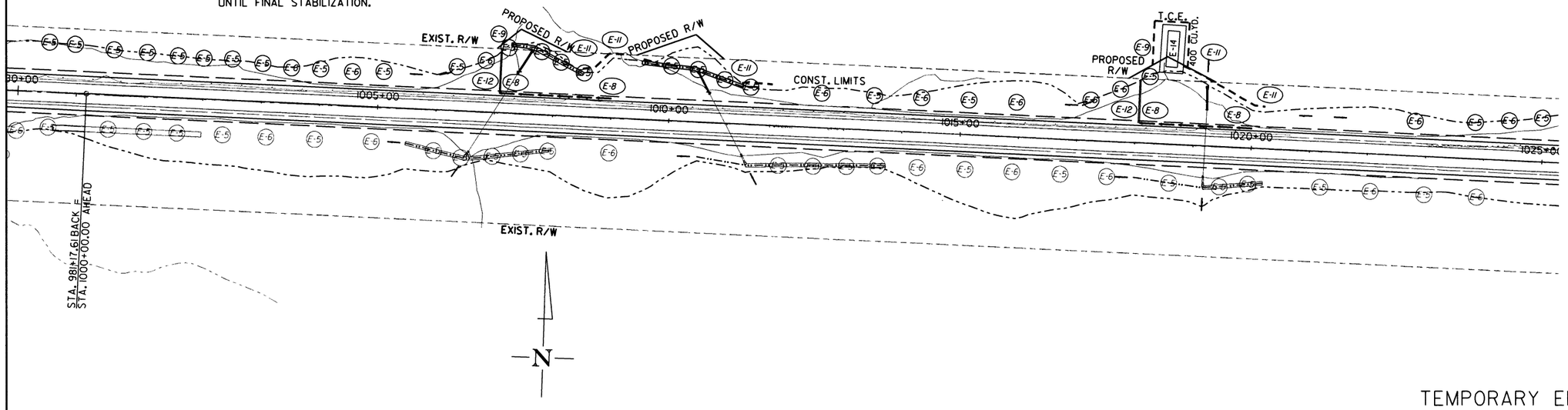
- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- E-9 & E-14 = SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

EROSION CONTROL MEASURES PLACED IN STAGE 1 SHALL BE RETAINED THROUGHOUT STAGE 2 OR UNTIL FINAL STABILIZATION.



SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1000+50 TO 1025+00 LT.	23

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1003+50 TO 1024+50 LT.	9

SILT FENCE (E-11)	LIN. FT.
STA. 1008+50 TO 1011+75 LT.	168
STA. 1018+75 TO 1020+25 LT.	160

DIVERSION DITCH (E-8)	LIN. FT.
STA. 1007+00 TO 1009+00 LT.	200
STA. 1018+00 TO 1020+00 LT.	200

STA. 1007+00 LT.
INSTALL 12" X 70' SLOPE DRAIN (TYPE E-12)
W/2 CU. YDS. DUMPED RIPRAP (TYPE E-9)

STA. 1018+00 LT.
INSTALL 12" X 75' SLOPE DRAIN (TYPE E-12)
W/2 CU. YDS. DUMPED RIPRAP (TYPE E-9)

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
9-23-2016

TEMPORARY EROSION CONTROL DETAILS STAGE 2

Scott.Thornsberry 9/23/2016 2:53:43 PM
WORKSPACE: AHTD
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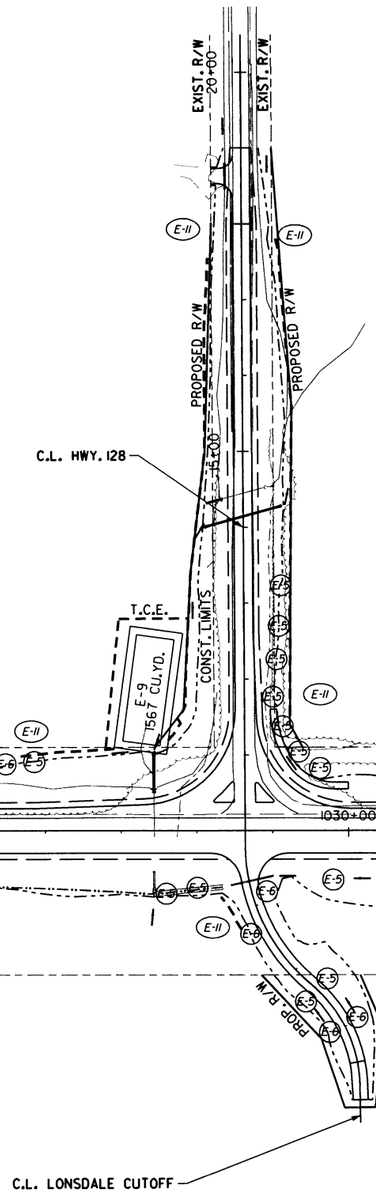
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	57	888

(2) TEMPORARY EROSION CONTROL DETAILS



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SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1026+00 TO 1052+00 LT.	24
HWY. 128 STA. 10+50 TO 13+25 RT.	7

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1025+50 TO 1046+25 LT.	5

SILT FENCE (E-11)	LIN. FT.
STA. 1025+75 TO 1027+50 LT.	190
STA. 1038+75 TO 1044+00 LT.	375
STA. 1054+50 TO 1054+75 LT.	30
HWY. 128 STA. 11+50 TO 17+75 RT.	630
HWY. 128 STA. 11+00 TO 17+50 LT.	650

DIVERSION DITCH (E-8)	LIN. FT.
STA. 1032+00 TO 1033+00 LT.	100
STA. 1038+00 TO 1039+00 LT.	100

STA. 1039+00 LT.
INSTALL 12" X 75' SLOPE DRAIN (TYPE E-12)
W/2 CU. YDS. DUMPED RIPRAP (TYPE E-9)

STA. 1032+00 LT.
INSTALL 12" X 75' SLOPE DRAIN (TYPE E-12)
W/2 CU. YDS. DUMPED RIPRAP (TYPE E-9)

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- E-9 & E-14 = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

100 50 0 100
Scale: 1" = 100'

TEMPORARY EROSION CONTROL DETAILS STAGE 2

Scott.Thornsberry 9/23/2016 2:13:53 PM
WORKSPACE: AHTD
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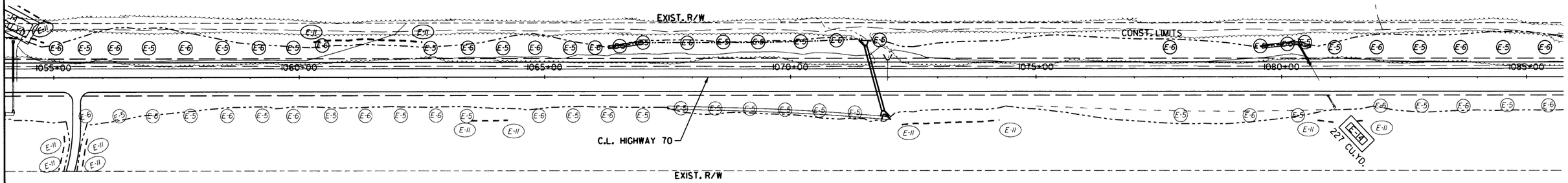
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	58	888
(2) TEMPORARY EROSION CONTROL DETAILS				



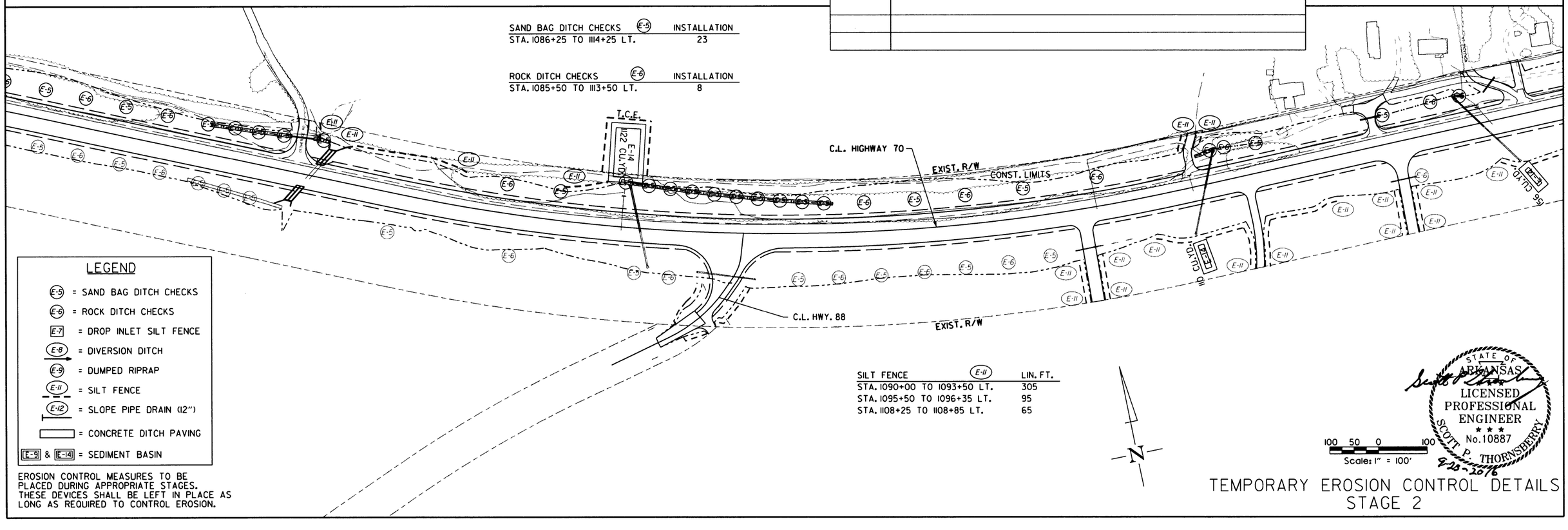
SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1055+50 TO 1084+50 LT.	18

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1055+00 TO 1083+75 LT.	14

SILT FENCE (E-11)	LIN. FT.
STA. 1060+25 TO 1062+50 LT.	225

REVISIONS

DATE OF REVISION	REVISION



SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1086+25 TO 1114+25 LT.	23

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1085+50 TO 1113+50 LT.	8

SILT FENCE (E-11)	LIN. FT.
STA. 1090+00 TO 1093+50 LT.	305
STA. 1095+50 TO 1096+35 LT.	95
STA. 1108+25 TO 1108+85 LT.	65

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- [E-7] = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- [E-9] & [E-14] = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
8-25-2016

100 50 0 100
Scale: 1" = 100'

TEMPORARY EROSION CONTROL DETAILS STAGE 2

Scott.Thornsberry 8/23/2016 2:14:02 PM
WORKSPACE: AHTD
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	59	888

(2) TEMPORARY EROSION CONTROL DETAILS

SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1118+50 TO 1136+25 LT.	14

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1117+00 TO 1139+00 LT.	7

SILT FENCE (E-11)	LIN. FT.
STA. 1119+45 TO 1120+00 LT.	55
STA. 1126+00 TO 1131+60 LT.	230
STA. 1139+80 TO 1141+80 LT.	200

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- [E-7] = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- [E-9] & [E-14] = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1146+75 TO 1167+00 LT.	3
NARROWS RD. STA. 142+00 TO 142+50 RT.	2
NARROWS RD. STA. 142+50 LT.	1

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1145+00 TO 1167+50 LT.	4
NARROWS RD. STA. 143+00 RT.	1
NARROWS RD. STA. 143+00 LT.	1

DROP INLET SILT FENCE [E-7]	LIN. FT.
STA. 1152+15 LT.	20

SILT FENCE (E-11)	LIN. FT.
STA. 1163+00 TO 1173+00 LT.	750
NARROWS STA. 140+70 TO 142+00 RT.	160
NARROWS STA. 141+20 TO 142+50 LT.	150

DIVERSION DITCH (E-8)	LIN. FT.
STA. 1164+00 TO 1165+75 LT.	175

STA. 1164+00 LT.
INSTALL 12" X 50' SLOPE DRAIN (TYPE E-12)
W/2 CU. YDS. DUMPED RIPRAP (TYPE E-9)

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-16

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Scale: 1" = 100'

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

Scott.Thornsberry 9/23/2016 2:14:12 PM
WORKSPACE: AHTD
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

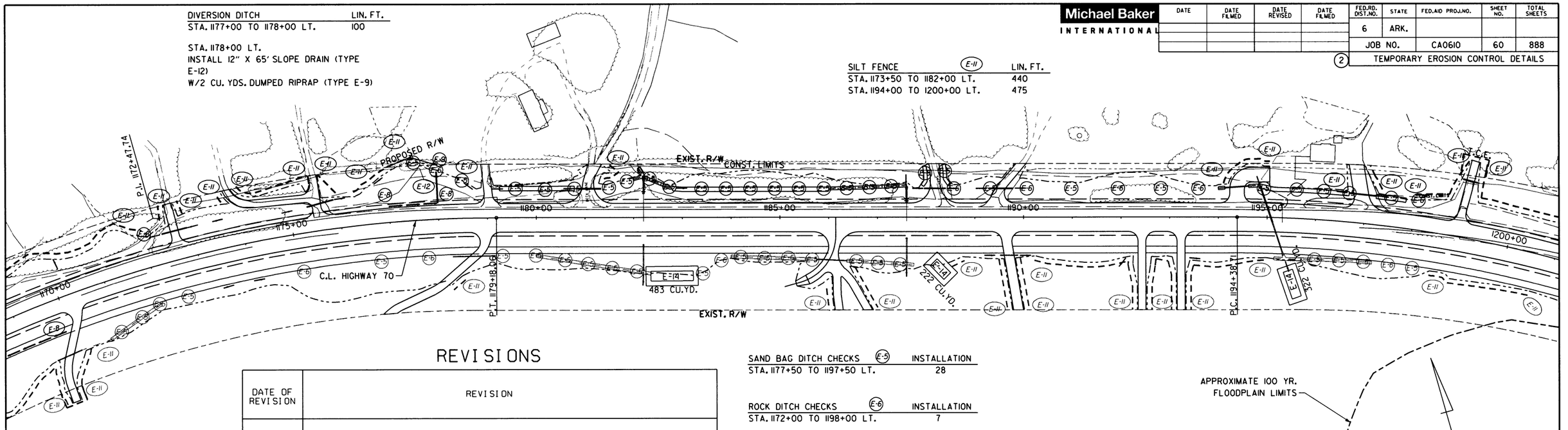
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	60	888

(2) TEMPORARY EROSION CONTROL DETAILS

DIVERSION DITCH	LIN. FT.
STA. 1177+00 TO 1178+00 LT.	100

STA. 1178+00 LT.
INSTALL 12" X 65' SLOPE DRAIN (TYPE E-12)
W/2 CU. YDS. DUMPED RIPRAP (TYPE E-9)

SILT FENCE (E-11)	LIN. FT.
STA. 1173+50 TO 1182+00 LT.	440
STA. 1194+00 TO 1200+00 LT.	475



REVISIONS

DATE OF REVISION	REVISION

SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1177+50 TO 1197+50 LT.	28

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1172+00 TO 1198+00 LT.	7

APPROXIMATE 100 YR. FLOODPLAIN LIMITS

N

LEGEND

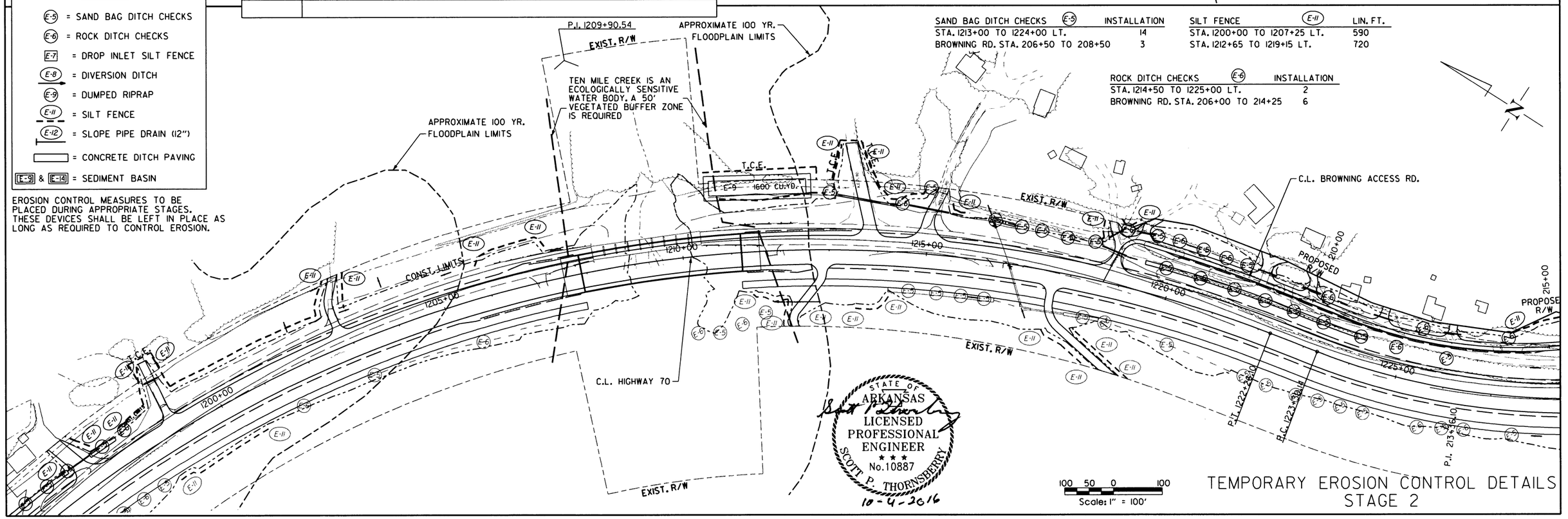
- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- E-7 = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- E-9 & E-14 = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1213+00 TO 1224+00 LT.	14
BROWNING RD. STA. 206+50 TO 208+50	3

SILT FENCE (E-11)	LIN. FT.
STA. 1200+00 TO 1207+25 LT.	590
STA. 1212+65 TO 1219+15 LT.	720

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1214+50 TO 1225+00 LT.	2
BROWNING RD. STA. 206+00 TO 214+25	6



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
10-4-2016

100 50 0 100
Scale: 1" = 100'

TEMPORARY EROSION CONTROL DETAILS STAGE 2

Leonard.Speed 10/4/2016 9:09:16 AM
WORKSPACE: Leonard.Speed
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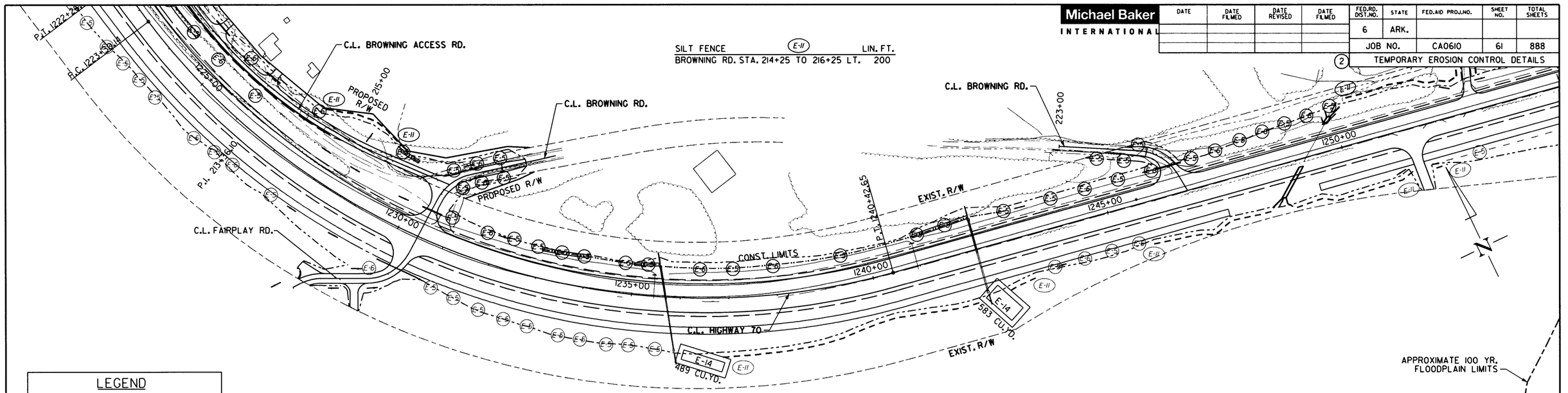
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	61	888

(2) TEMPORARY EROSION CONTROL DETAILS



SILT FENCE (E-11) LIN. FT.

BROWNING RD. STA. 214+25 TO 216+25 LT.	200

P.I. 1233+05.43

SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1231+00 TO 1250+00 LT.	18
BROWNING WEST STA. 210+80 TO 212+40 LT.	2
BROWNING WEST STA. 210+80 TO 212+40 RT.	2
BROWNING ACCESS STA. 216+00 LT.	1
BROWNING EAST STA. 221+30 RT.	1
BROWNING EAST STA. 221+50 TO 222+25 LT.	2

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1232+00 TO 1249+50 LT.	8
BROWNING WEST. STA. 210+80 RT.	1
BROWNING WEST. STA. 210+80 LT.	1

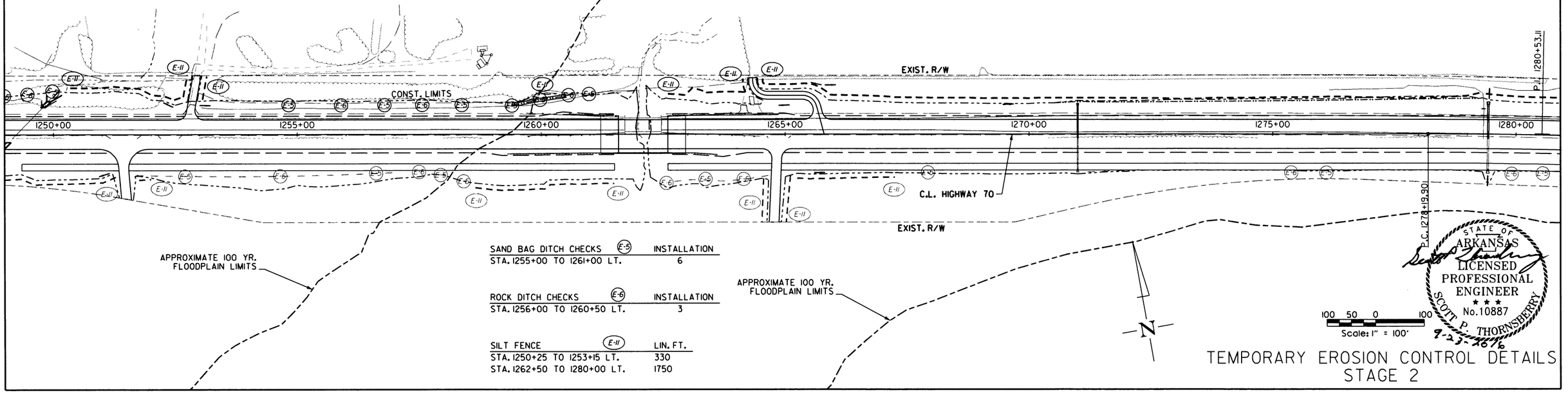
LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- [E-7] = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- [E-9] & [E-14] = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE OF REVISION	REVISION



SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1255+00 TO 1261+00 LT.	6

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1256+00 TO 1260+50 LT.	3

SILT FENCE (E-11)	LIN. FT.
STA. 1250+25 TO 1253+15 LT.	330
STA. 1262+50 TO 1280+00 LT.	1750

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

100 50 0 100
Scale: 1" = 100'

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

Scott.Thornsberry 9/23/2016 2:14:33 PM
WORKSPACE: AHTD
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REVISED DATE: **REVDATE**

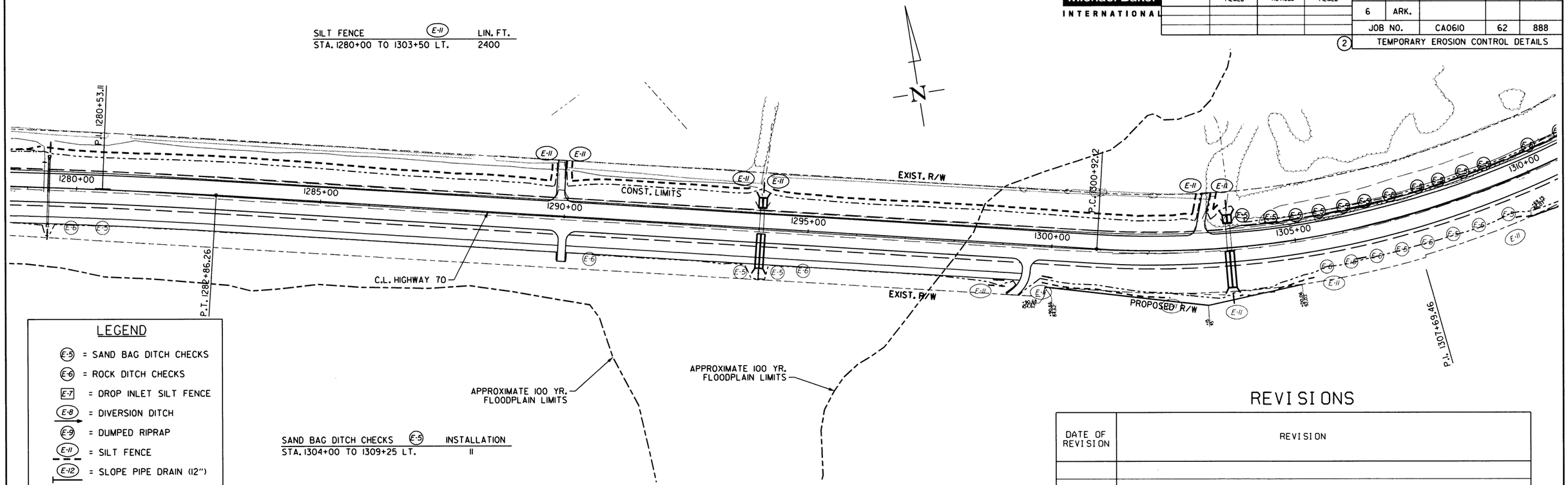
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	62	888

(2) TEMPORARY EROSION CONTROL DETAILS

SILT FENCE (E-11) LIN. FT.
STA. 1280+00 TO 1303+50 LT. 2400



LEGEND

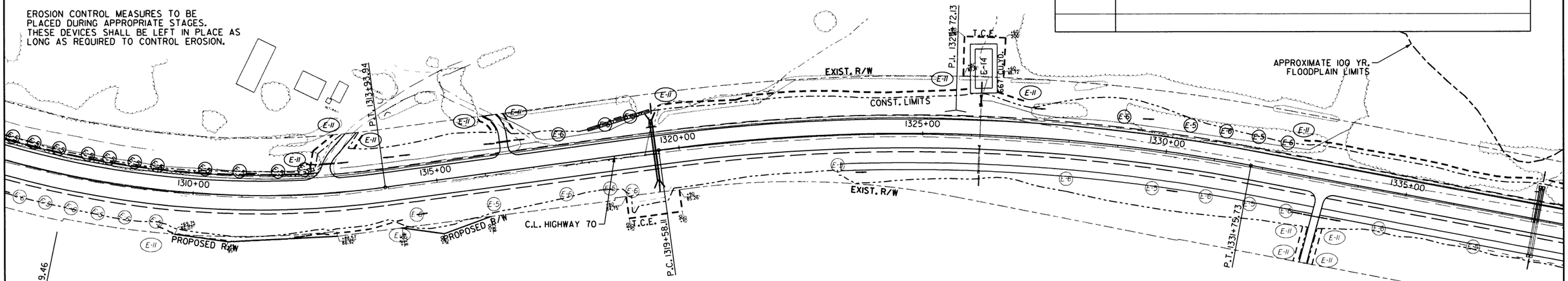
- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- (E-9) & (E-14) = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

SAND BAG DITCH CHECKS (E-5) INSTALLATION
STA. 1304+00 TO 1309+25 LT. 11

REVISIONS

DATE OF REVISION	REVISION



SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1310+25 TO 1312+25 LT.	4
STA. 1318+50 TO 1319+00 LT.	2
STA. 1330+50 TO 1331+75 LT.	2

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1317+50 LT.	1
STA. 1329+00 TO 1332+50 LT.	3

SILT FENCE (E-11)	LIN. FT.
STA. 1312+25 TO 1313+50 LT.	125
STA. 1316+00 TO 1317+00 LT.	75
STA. 1319+60 TO 1327+00 LT.	710
STA. 1332+75 TO 1335+00 LT.	225

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

Scale: 1" = 100'

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

Scott.Thornsberry 9/23/2016 2:14:43 PM
WORKSPACE: AHTD
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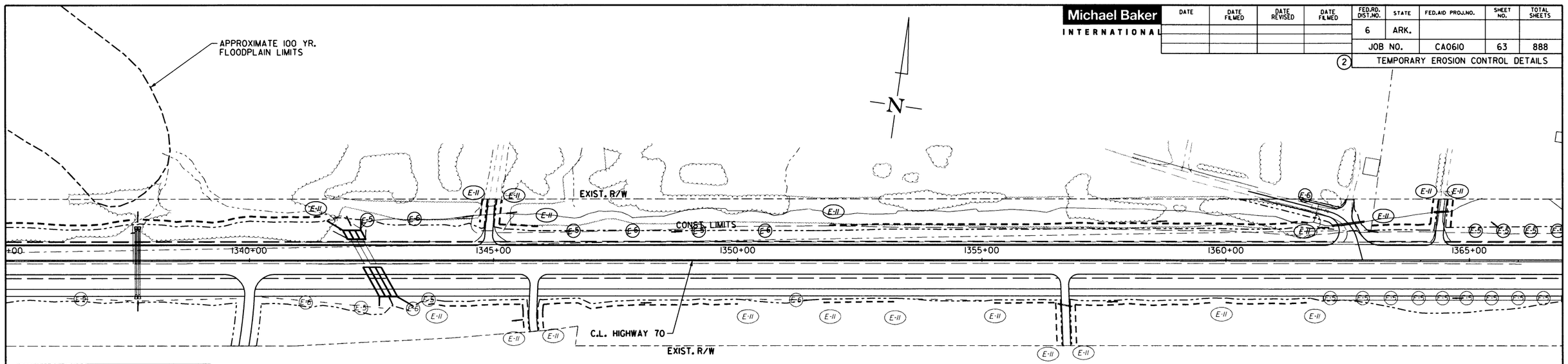
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	63	888
(2) TEMPORARY EROSION CONTROL DETAILS				



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- (E-9) & (E-14) = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1342+50 TO 1349+25 LT.	3

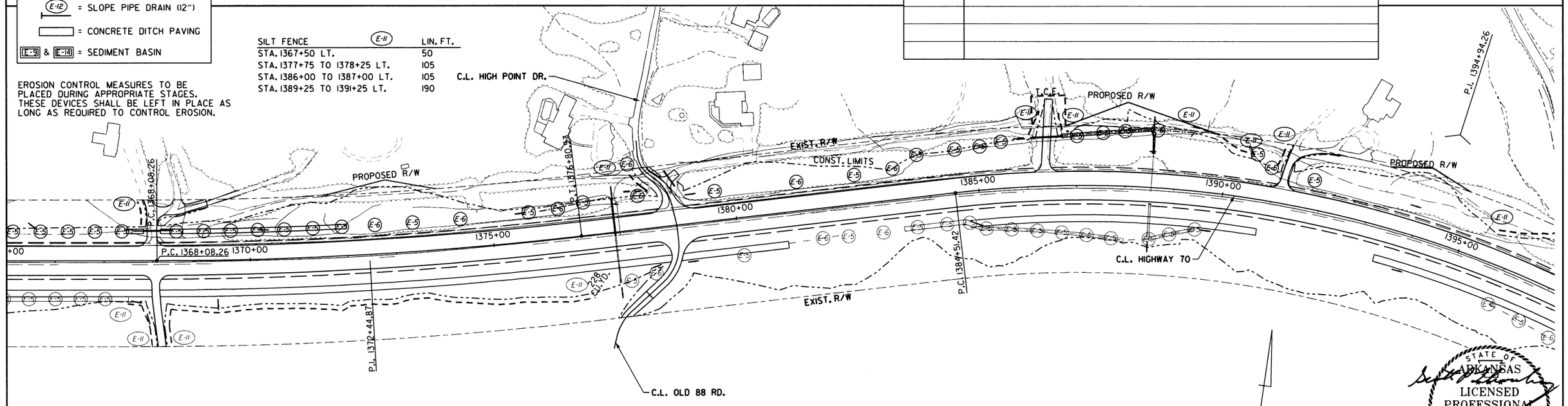
ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1343+50 TO 1350+50 LT.	3
STA. 1361+50 LT.	1

SILT FENCE (E-11)	LIN. FT.
STA. 1335+00 TO 1365+00 LT.	2040

SILT FENCE (E-11)	LIN. FT.
STA. 1367+50 LT.	50
STA. 1377+75 TO 1378+25 LT.	105
STA. 1386+00 TO 1387+00 LT.	105
STA. 1389+25 TO 1391+25 LT.	190

REVISIONS

DATE OF REVISION	REVISION



SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1365+00 TO 1392+00 LT.	26

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1372+50 TO 1383+25 LT.	8

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

TEMPORARY EROSION CONTROL DETAILS STAGE 2

Scott.Thornsberry 9/23/2016 2:14:54 PM
WORKSPACE: AHTD
c:\pw\bi-local\baker_projects\scott.thornsberry\d0271682\r061377_05E_EC_01.dgn
REVISED DATE: $$REVDATE$$

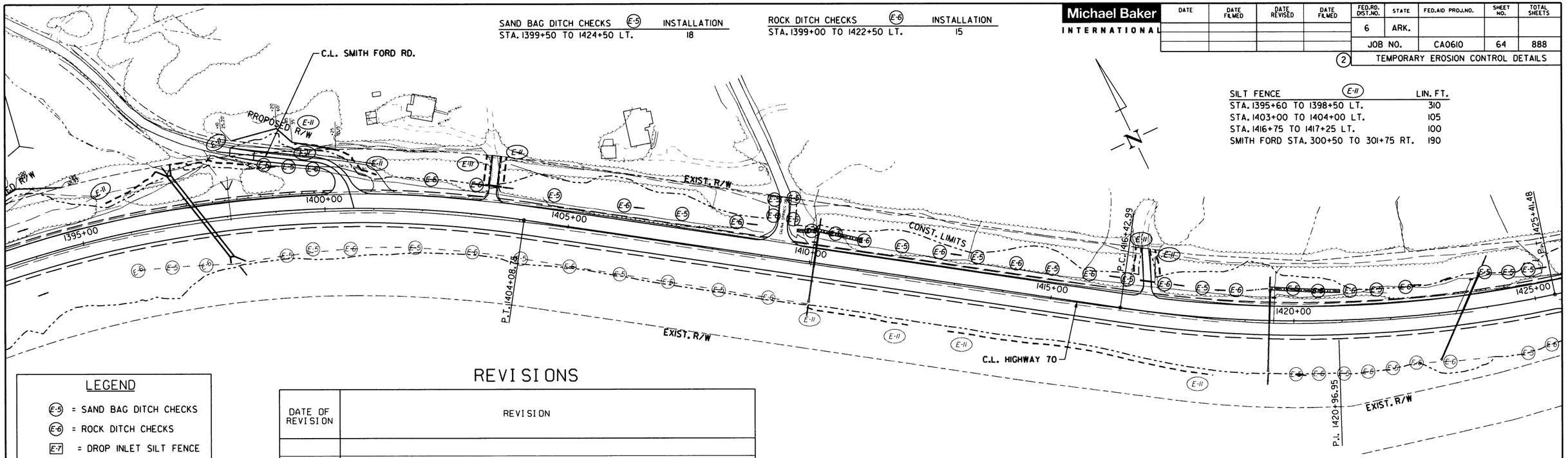
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	64	888
				(2)	TEMPORARY EROSION CONTROL DETAILS			

SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1399+50 TO 1424+50 LT.	18

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1399+00 TO 1422+50 LT.	15

SILT FENCE (E-11)	LIN. FT.
STA. 1395+60 TO 1398+50 LT.	310
STA. 1403+00 TO 1404+00 LT.	105
STA. 1416+75 TO 1417+25 LT.	100
SMITH FORD STA. 300+50 TO 301+75 RT.	190



LEGEND

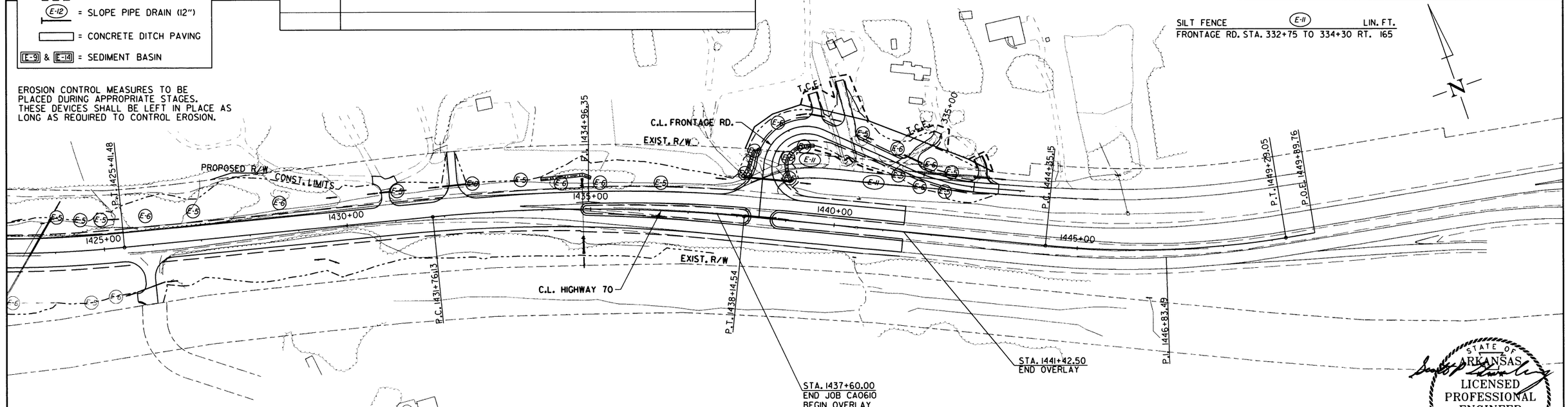
- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- [E-7] = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-9) = DUMPED RIPRAP
- (E-11) = SILT FENCE
- (E-12) = SLOPE PIPE DRAIN (12")
- = CONCRETE DITCH PAVING
- [E-9] & [E-14] = SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

SILT FENCE (E-11)	LIN. FT.
FRONTAGE RD. STA. 332+75 TO 334+30 RT.	165



STA. 1437+60.00
END JOB CA0610
BEGIN OVERLAY

STA. 1441+42.50
END OVERLAY

ROCK DITCH CHECKS (E-6)	INSTALLATION
STA. 1426+00 TO 1435+25 LT.	5
FRONTAGE RD. STA. 331+75 TO 335+00 LT.	3
FRONTAGE RD. STA. 335+00 RT.	1

SAND BAG DITCH CHECKS (E-5)	INSTALLATION
STA. 1425+00 TO 1436+50 LT.	5
FRONTAGE RD. STA. 330+75 TO 335+50 RT.	5
FRONTAGE RD. STA. 330+75 TO 335+50 LT.	4

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

100 50 0 100
Scale: 1" = 100'

TEMPORARY EROSION CONTROL DETAILS STAGE 2

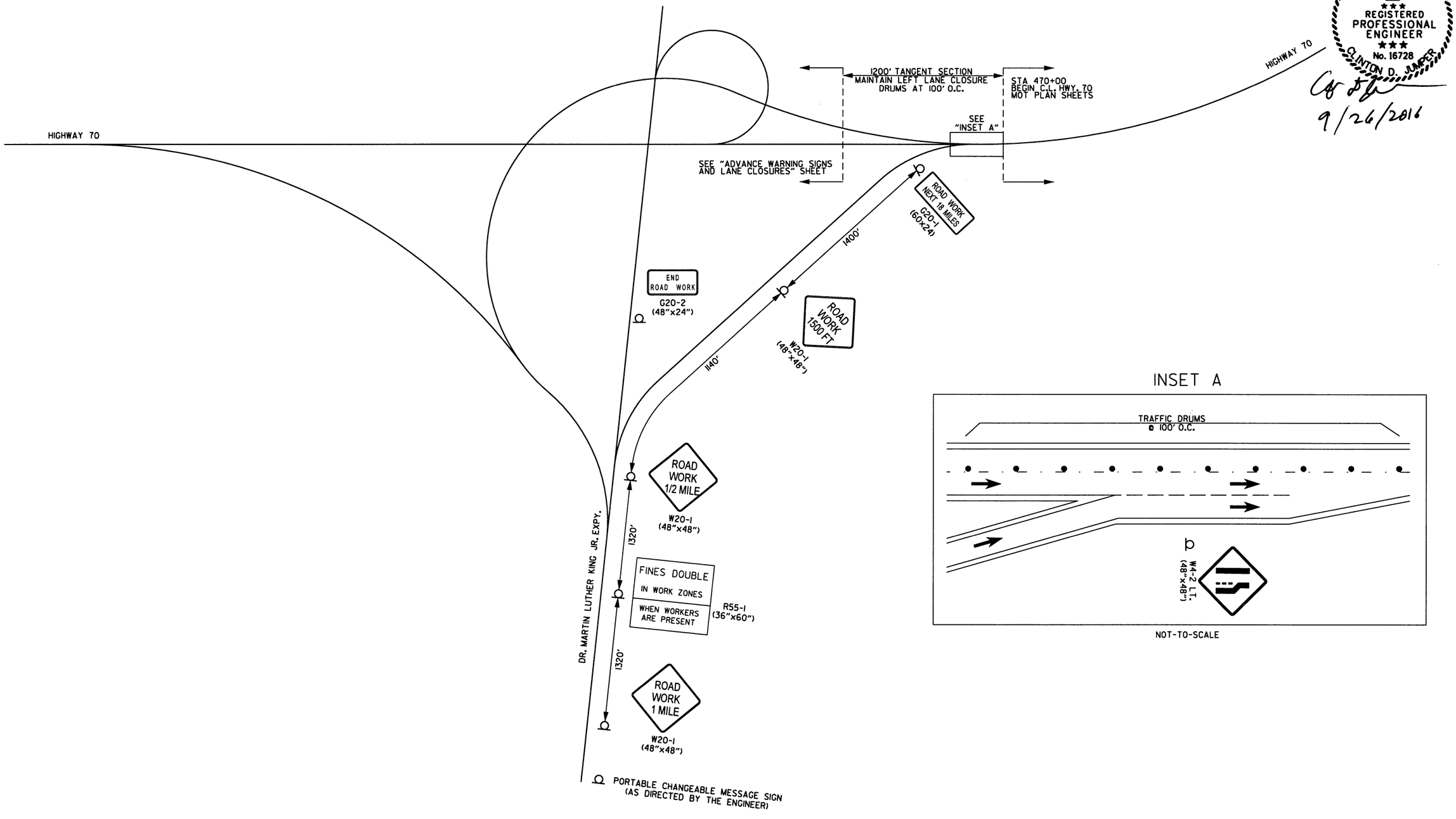
Scott.Thornsberry 9/23/2016 2:15:04 PM
WORKSPACE: AHTD
c:\pwv8i-local\baker_projects\scott.thornsberry\d0217682\v-06l377_05E_EC_08.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	65	888

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016



INSET A

NOT-TO-SCALE

ADVANCE WARNING SIGNS AT DR. MARTIN LUTHER KING JR. EXPY.

MAINTENANCE OF TRAFFIC

SEQUENCE OF CONSTRUCTION:

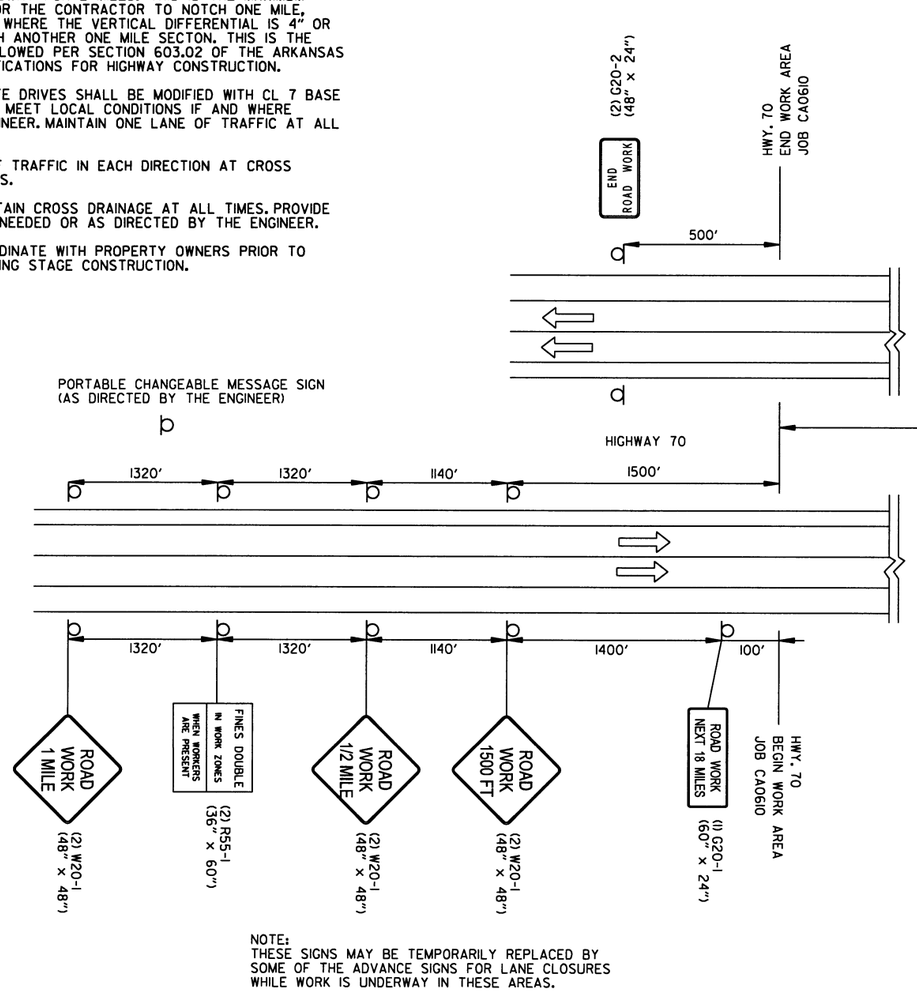
STAGE IA:
MAINTAIN TRAFFIC ON EXISTING ROADWAY. CONSTRUCT TEMPORARY AND PERMANENT CULVERT EXTENSIONS NECESSARY TO PLACE TEMPORARY AND PERMANENT WIDENING AND CROSSOVER. CONSTRUCT TEMPORARY WIDENING AND CROSSOVER TO THE LIMITS SHOWN ON MOT PLAN SHEETS AND MOT TYPICAL SECTIONS.

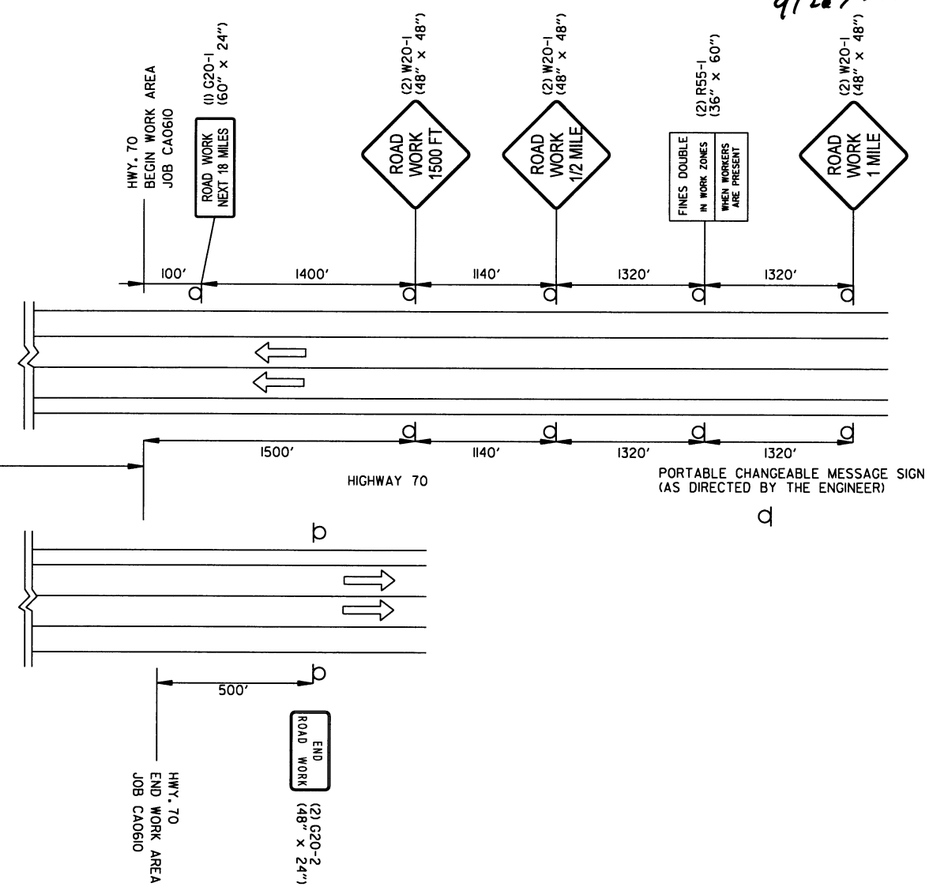
STAGE IB:
MAINTAIN TRAFFIC ON EXISTING ROADWAY AND SHIFT TRAFFIC ON CROSSOVER AND TO TEMPORARY WIDENING CONSTRUCTED IN STAGE IA. NOTCH AND WIDEN ON RIGHT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON RIGHT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS.

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 LOCATION. NOTCH AND WIDEN ON LEFT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON THE LEFT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE. PLACE FINAL ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS. REMOVE CROSSOVER AND TEMPORARY PAVEMENT.

NOTES:
1. THE QUANTITY OF VERTICAL PANELS SHOWN ON THE PLANS IS FOR ONE SIDE OF THE ROADWAY FOR 2 MILES. THIS IS THE MAXIMUM ALLOWED QUANTITY FOR THE CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 4" OR LESS, AND THEN NOTCH ANOTHER ONE MILE SECTON. THIS IS THE MAXIMUM DISTANCE ALLOWED PER SECTION 603.02 OF THE ARKANSAS 2014 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WITH CL 7 BASE WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER. MAINTAIN ONE LANE OF TRAFFIC AT ALL TIMES.
3. MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION AT CROSS STREETS AT ALL TIMES.
4. CONTRACTOR TO MAINTAIN CROSS DRAINAGE AT ALL TIMES. PROVIDE TEMPORARY R.C.P. AS NEEDED OR AS DIRECTED BY THE ENGINEER.
5. CONTRACTOR TO COORDINATE WITH PROPERTY OWNERS PRIOR TO BLOCKING ACCESS DURING STAGE CONSTRUCTION.





NOTE:
THESE SIGNS MAY BE TEMPORARILY REPLACED BY SOME OF THE ADVANCE SIGNS FOR LANE CLOSURES WHILE WORK IS UNDERWAY IN THESE AREAS.

NOTE: THESE SIGNS MAY BE TEMPORARILY REPLACED BY SOME OF THE ADVANCE SIGNS FOR LANE CLOSURES WHILE WORK IS UNDERWAY IN THESE AREAS.

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	66	888
				(2)	MAINTENANCE OF TRAFFIC			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016

ADVANCE WARNING SIGNS AT BEGINNING AND END OF HWY. 70

MAINTENANCE OF TRAFFIC

SEQUENCE OF CONSTRUCTION:

STAGE IA:
MAINTAIN TRAFFIC ON EXISTING ROADWAY. CONSTRUCT TEMPORARY AND PERMANENT CULVERT EXTENSIONS NECESSARY TO PLACE TEMPORARY AND PERMANENT WIDENING AND CROSSOVER. CONSTRUCT TEMPORARY WIDENING AND CROSSOVER TO THE LIMITS SHOWN ON MOT PLAN SHEETS AND MOT TYPICAL SECTIONS.

STAGE IB:
MAINTAIN TRAFFIC ON EXISTING ROADWAY AND SHIFT TRAFFIC ON CROSSOVER AND TO TEMPORARY WIDENING CONSTRUCTED IN STAGE IA. NOTCH AND WIDEN ON RIGHT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON RIGHT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS.

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 LOCATION. NOTCH AND WIDEN ON LEFT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON THE LEFT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS.

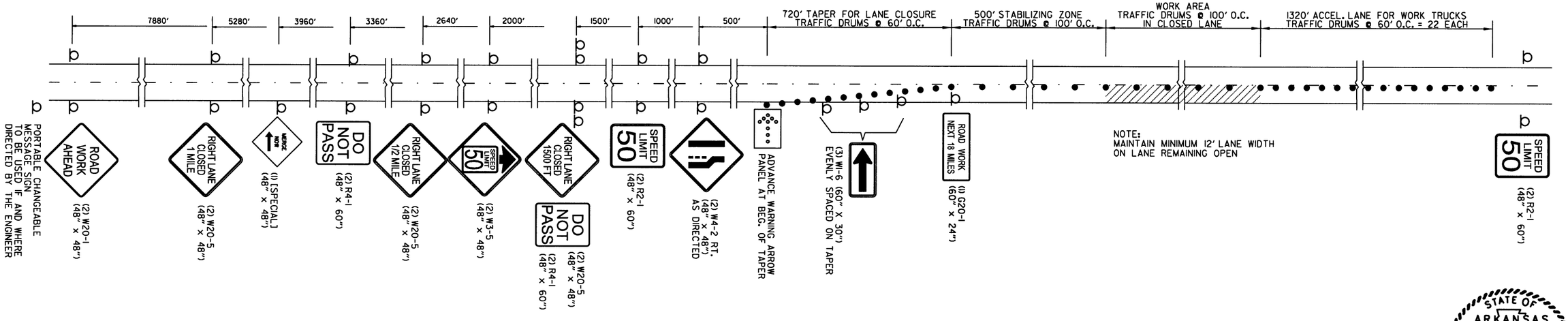
STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE. PLACE FINAL ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS. REMOVE CROSSOVER AND TEMPORARY PAVEMENT.

NOTES:
1. THE QUANTITY OF VERTICAL PANELS SHOWN ON THE PLANS IS FOR ONE SIDE OF THE ROADWAY FOR 2 MILES. THIS IS THE MAXIMUM ALLOWED QUANTITY FOR THE CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 4" OR LESS, AND THEN NOTCH ANOTHER ONE MILE SECTON. THIS IS THE MAXIMUM DISTANCE ALLOWED PER SECTION 603.02 OF THE ARKANSAS 2014 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WITH CL 7 BASE WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER. MAINTAIN ONE LANE OF TRAFFIC AT ALL TIMES.
3. MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION AT CROSS STREETS AT ALL TIMES.
4. CONTRACTOR TO MAINTAIN CROSS DRAINAGE AT ALL TIMES. PROVIDE TEMPORARY R.C.P. AS NEEDED OR AS DIRECTED BY THE ENGINEER.
5. CONTRACTOR TO COORDINATE WITH PROPERTY OWNERS PRIOR TO BLOCKING ACCESS DURING STAGE CONSTRUCTION.

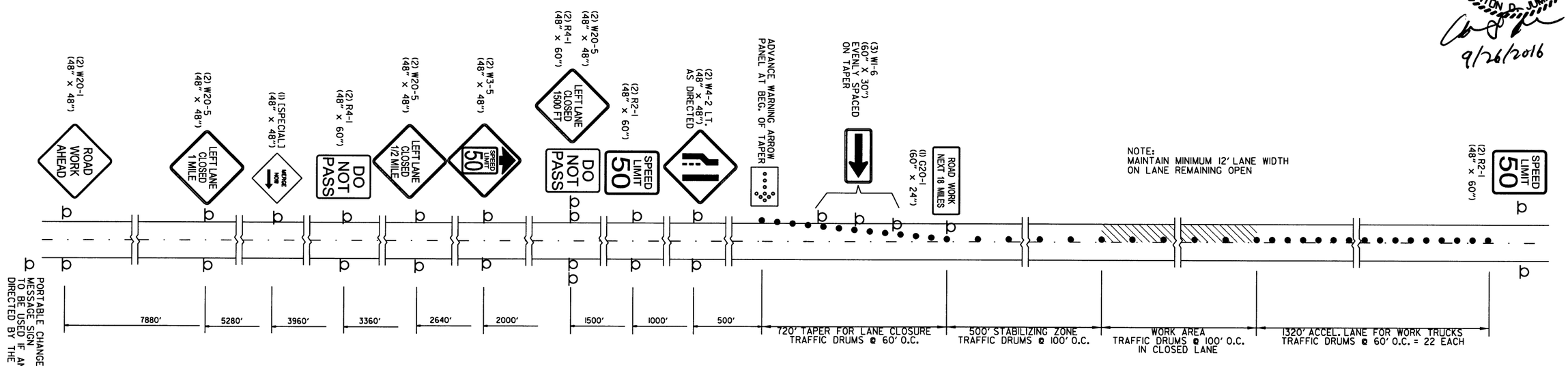
Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RO. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	67	888

(2) MAINTENANCE OF TRAFFIC



RT. LANE CLOSURE AND DIVERSION FOR RT. LANE WORK ZONE



RT. LANE CLOSURE AND DIVERSION FOR LT. LANE WORK ZONE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JAMES
9/26/2016

ADVANCE WARNING SIGNS AND LANE CLOSURES

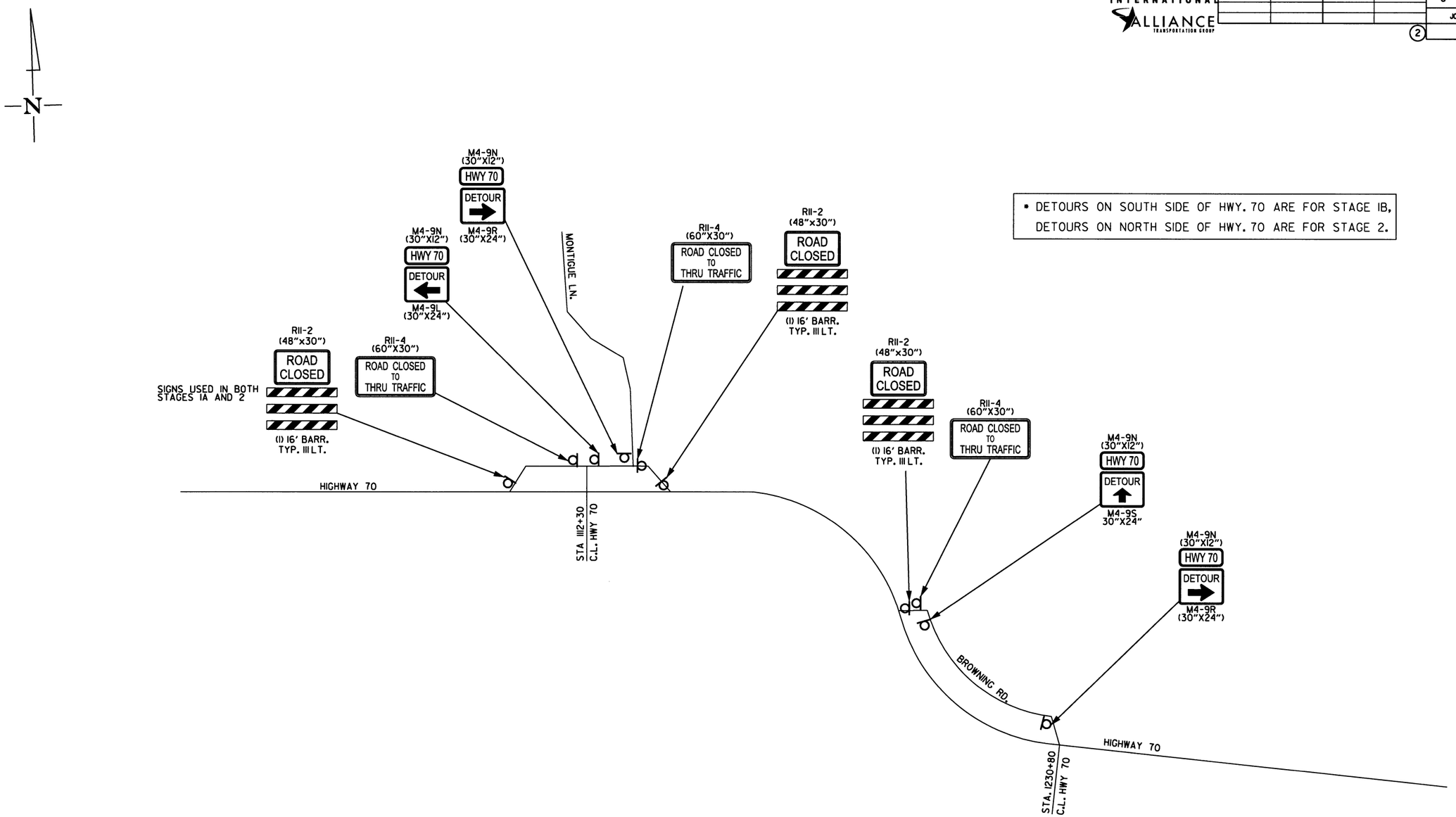
MAINTENANCE OF TRAFFIC

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	68	888
				(2) MAINTENANCE OF TRAFFIC				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
10/03/2016

- DETOURS ON SOUTH SIDE OF HWY. 70 ARE FOR STAGE IB,
  DETOURS ON NORTH SIDE OF HWY. 70 ARE FOR STAGE 2.



DETOUR ROUTE PLAN
NOT-TO-SCALE

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

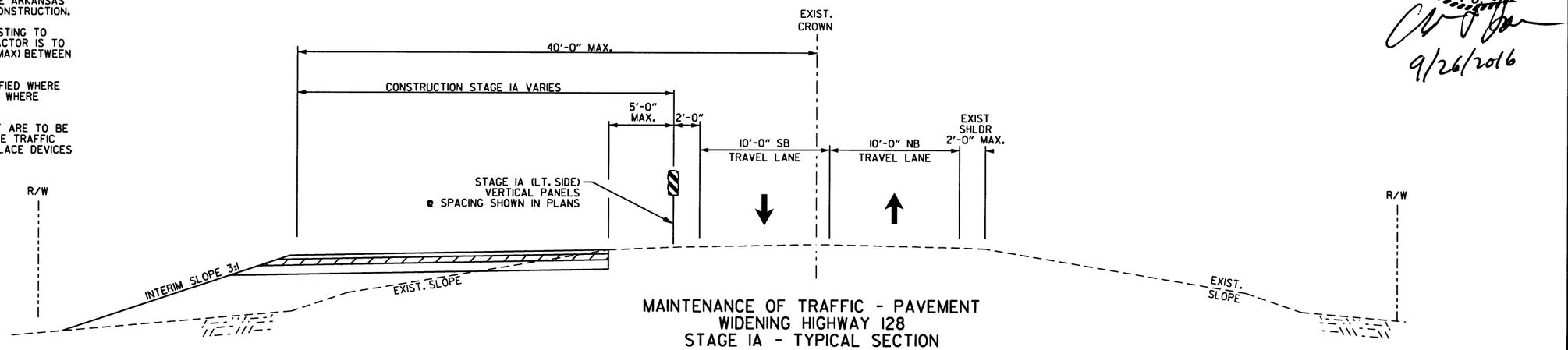
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	69	888
				(2) MAINTENANCE OF TRAFFIC				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016

STAGE IA:
MAINTAIN TRAFFIC ON EXISTING ROADWAY. CONSTRUCT TEMPORARY AND PERMANENT CULVERT EXTENSIONS NECESSARY TO PLACE TEMPORARY AND PERMANENT WIDENING. CONSTRUCT TEMPORARY WIDENING TO THE LIMITS SHOWN ON MOT PLAN SHEETS AND MOT TYPICAL SECTIONS.

NOTES:

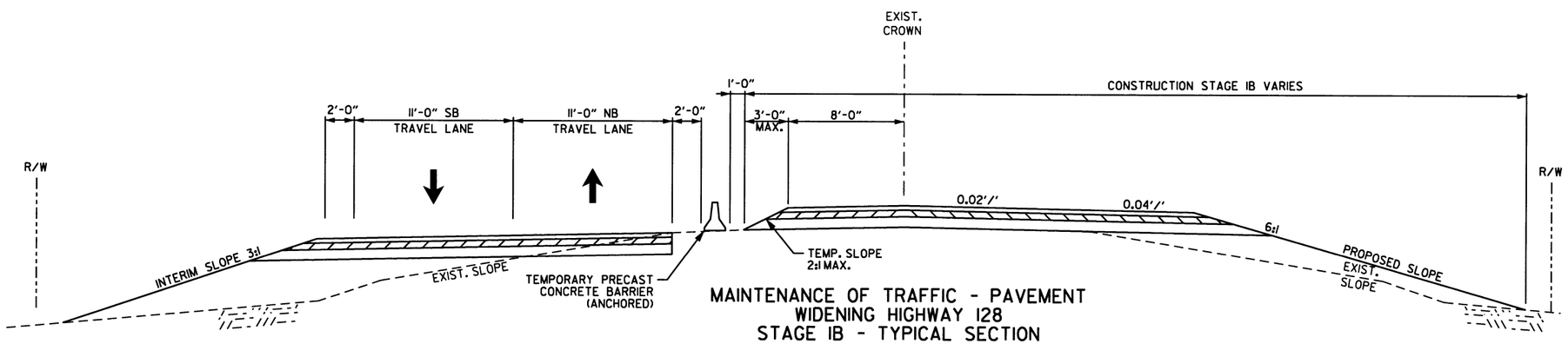
1. QUANTITY OF VERTICAL PANELS SHOWN ON PLANS IS FOR ONE SIDE OF ROADWAY FOR 2 MILES. QUANTITY SHOWN IS MAXIMUM ALLOWED FOR CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO VERTICAL DIFFERENTIAL OF 4" OR LESS, AND THEN NOTCH ANOTHER MILE SECTION. THIS IS THE MAXIMUM DISTANCE ALLOWED PER SECTION 603.02 OF THE ARKANSAS 2014 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. IN LOCATIONS WHERE TRAFFIC SHIFTS FROM EXISTING TO TEMPORARY OR PROPOSED TRAVEL WAY, CONTRACTOR IS TO MAINTAIN MINIMAL LEVELING DIFFERENTIALS (2" MAX) BETWEEN THE TWO SURFACES.
3. TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.
4. VERTICAL PANELS ONLY PLACED IN AREAS THAT ARE TO BE RECONSTRUCTED. VERTICAL PANELS MAY REPLACE TRAFFIC DRUMS OR VICE VERSA IN TYPICAL SECTIONS. PLACE DEVICES AS SHOWN IN PLANS.



MAINTENANCE OF TRAFFIC - PAVEMENT WIDENING HIGHWAY 128
STAGE IA - TYPICAL SECTION

STA. 10+30 TO STA. 25+60

STAGE IB:
MAINTAIN TRAFFIC ON EXISTING ROADWAY AND SHIFT TRAFFIC TO TEMPORARY WIDENING CONSTRUCTED IN STAGE IA. NOTCH AND WIDEN ON RIGHT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON RIGHT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS.



MAINTENANCE OF TRAFFIC - PAVEMENT WIDENING HIGHWAY 128
STAGE IB - TYPICAL SECTION

STA. 10+30 TO STA. 25+60

HWY. 128 TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE I

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	70	888
				(2)	MAINTENANCE OF TRAFFIC			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 LOCATION. NOTCH AND WIDEN ON LEFT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON THE LEFT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS. CONSTRUCT MILL AND OVERLAY AT END OF STAGE 2.

NOTES:

1. QUANTITY OF VERTICAL PANELS SHOWN ON PLANS IS FOR ONE SIDE OF ROADWAY FOR 2 MILES. QUANTITY SHOWN IS MAXIMUM ALLOWED FOR CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO VERTICAL DIFFERENTIAL OF 4" OR LESS, AND THEN NOTCH ANOTHER MILE SECTION. THIS IS THE MAXIMUM DISTANCE ALLOWED PER SECTION 603.02 OF THE ARKANSAS 2014 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
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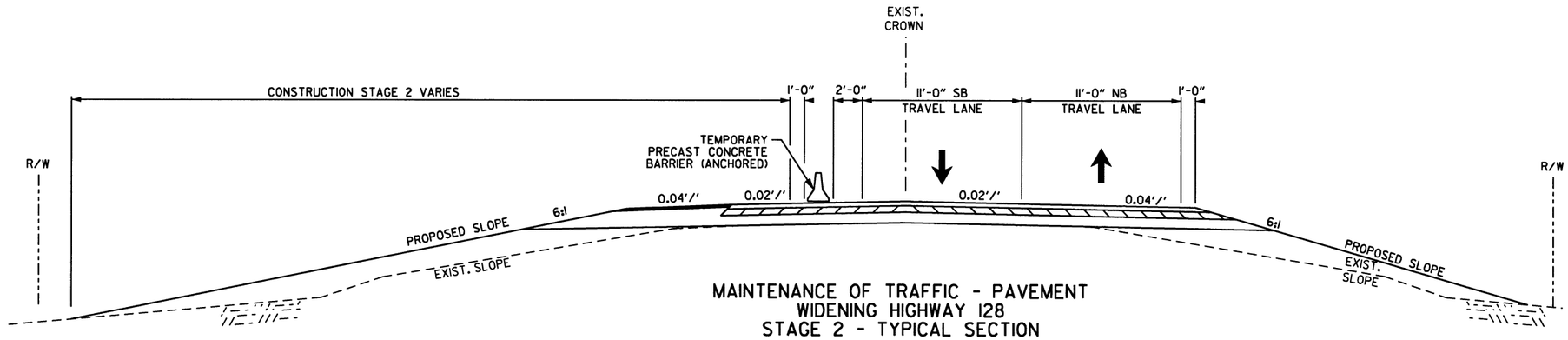
4. VERTICAL PANELS ONLY PLACED IN AREAS THAT ARE TO BE RECONSTRUCTED. VERTICAL PANELS MAY REPLACE TRAFFIC DRUMS OR VICE VERSA IN TYPICAL SECTIONS. PLACE DEVICES AS SHOWN IN PLANS.



MAINTENANCE OF TRAFFIC - PAVEMENT
WIDENING HIGHWAY 128
STAGE 2 - TYPICAL SECTION

STA. 10+30 TO STA. 19+00
STA. 19+00 TO STA. 25+60 (REMOVE TEMP WIDENING)

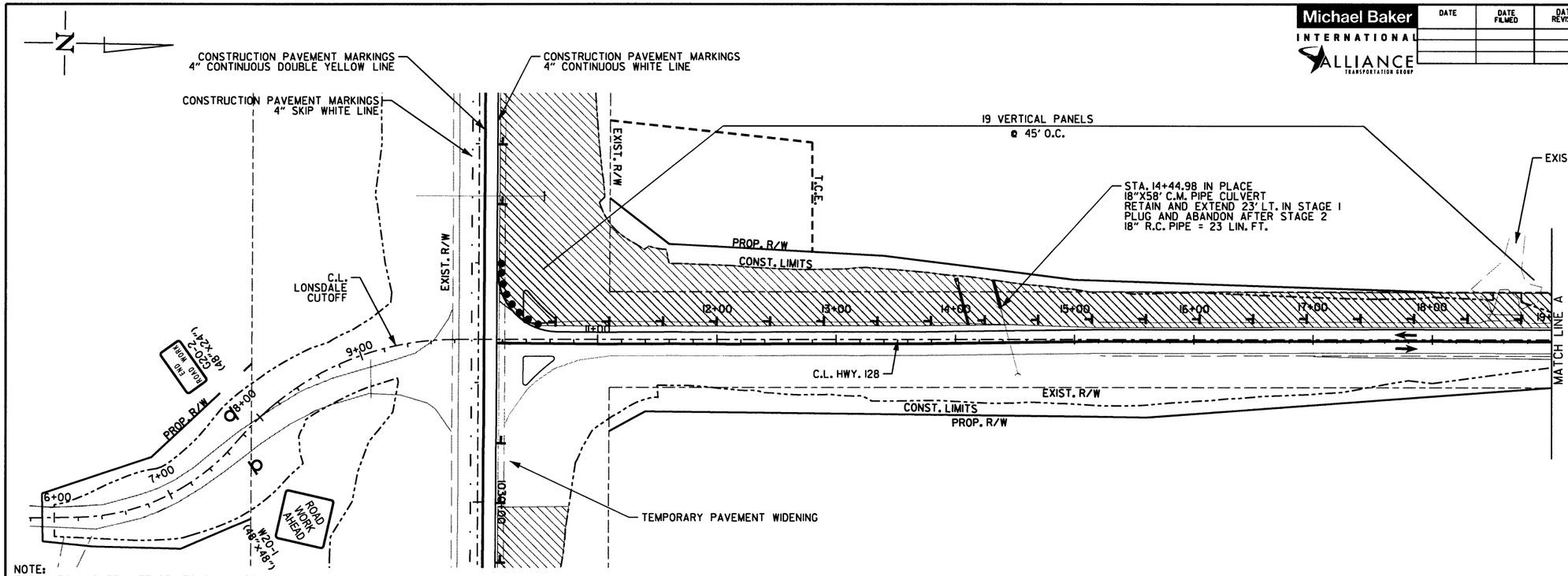
HWY. 128 TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

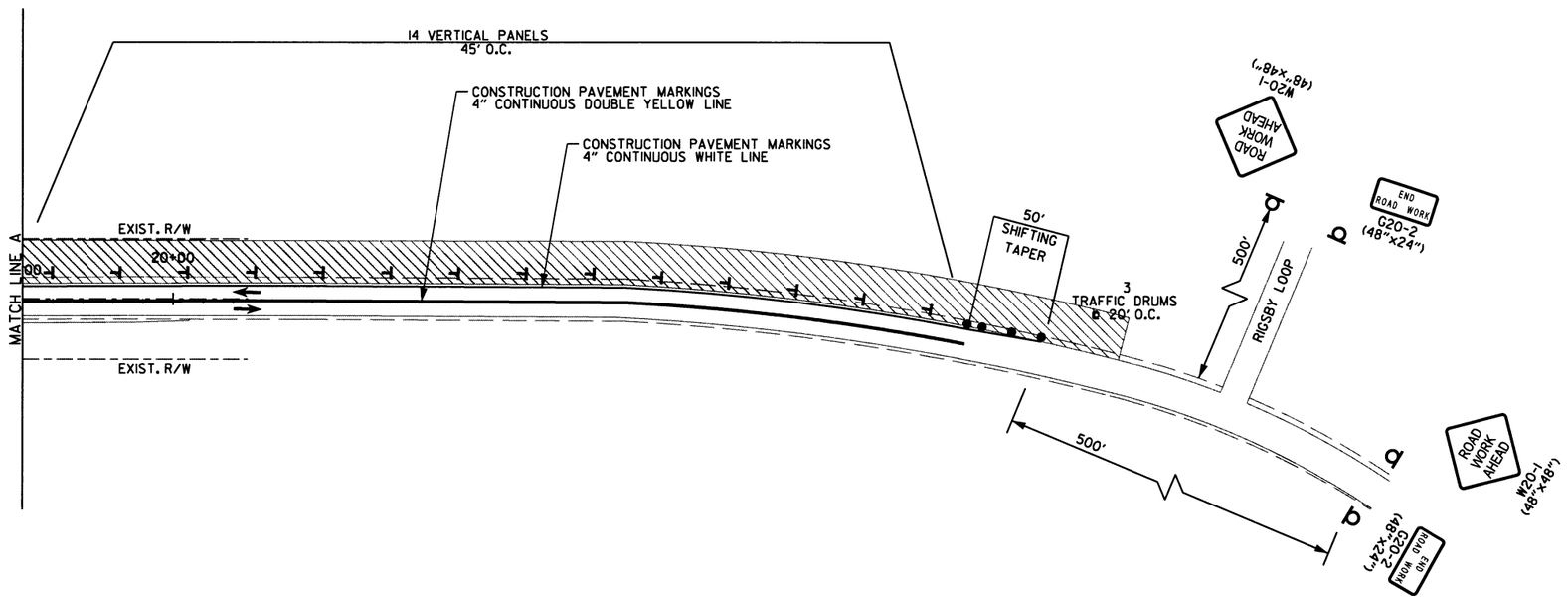
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	71	888

(2) MAINTENANCE OF TRAFFIC



NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016



HWY. 128
MAINTENANCE OF TRAFFIC - STAGE IA

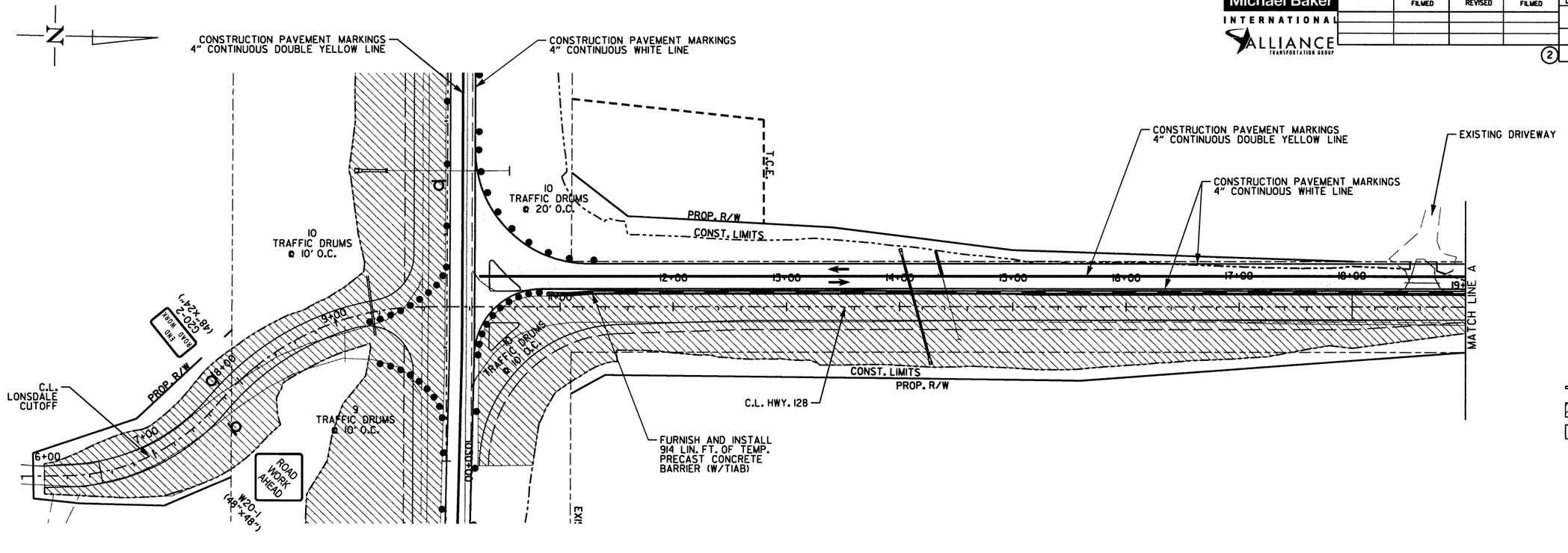
Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

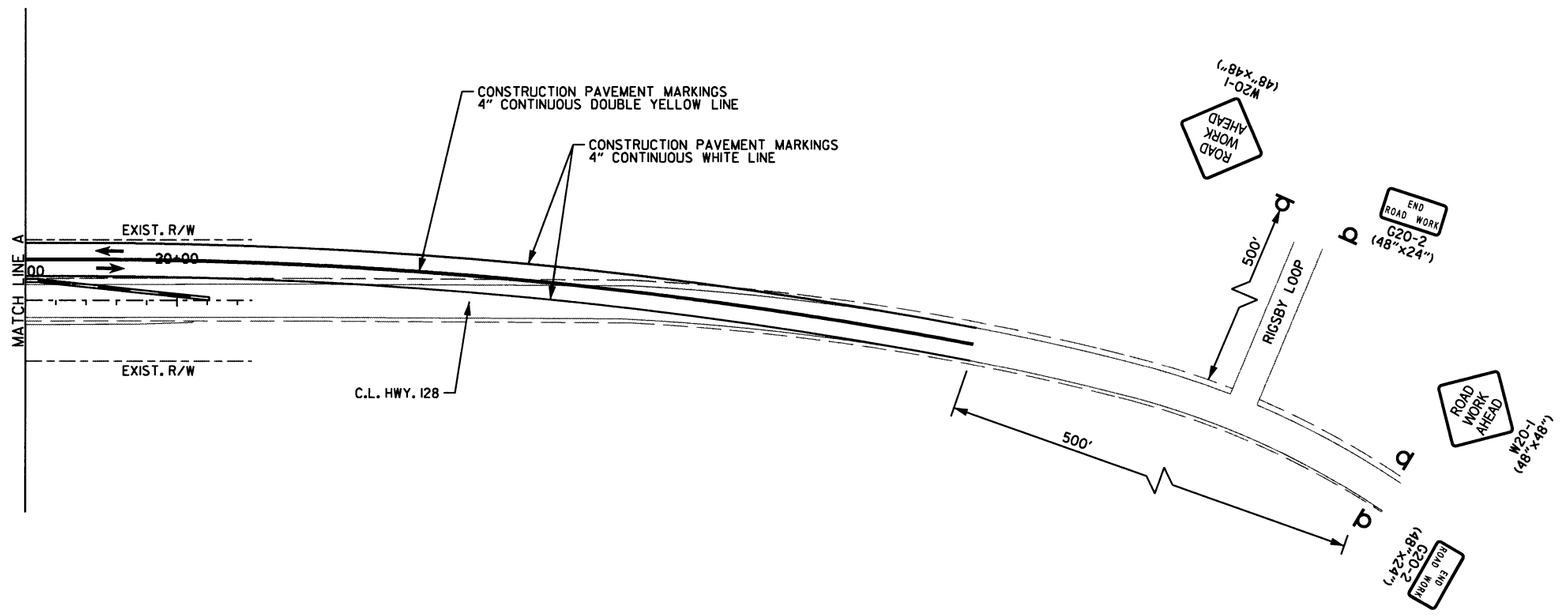
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	72	888

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016





NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

HWY. 128
MAINTENANCE OF TRAFFIC - STAGE IB

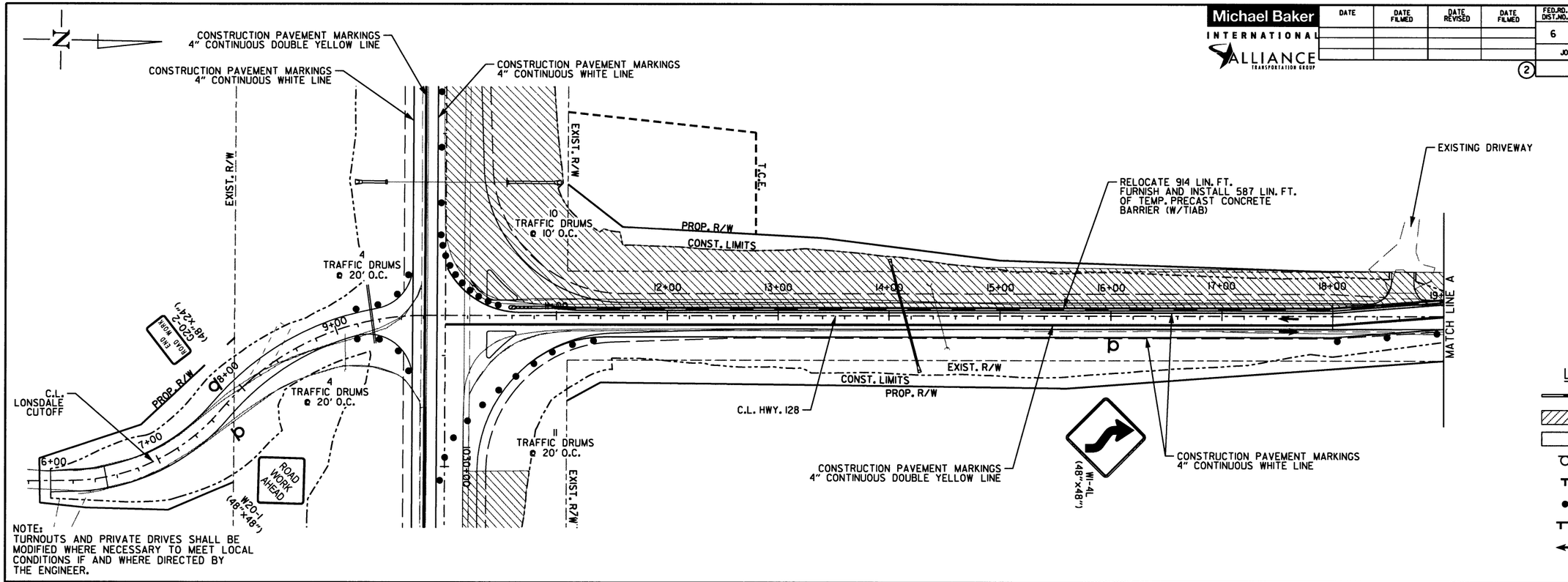
Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CAOGIO	73	888

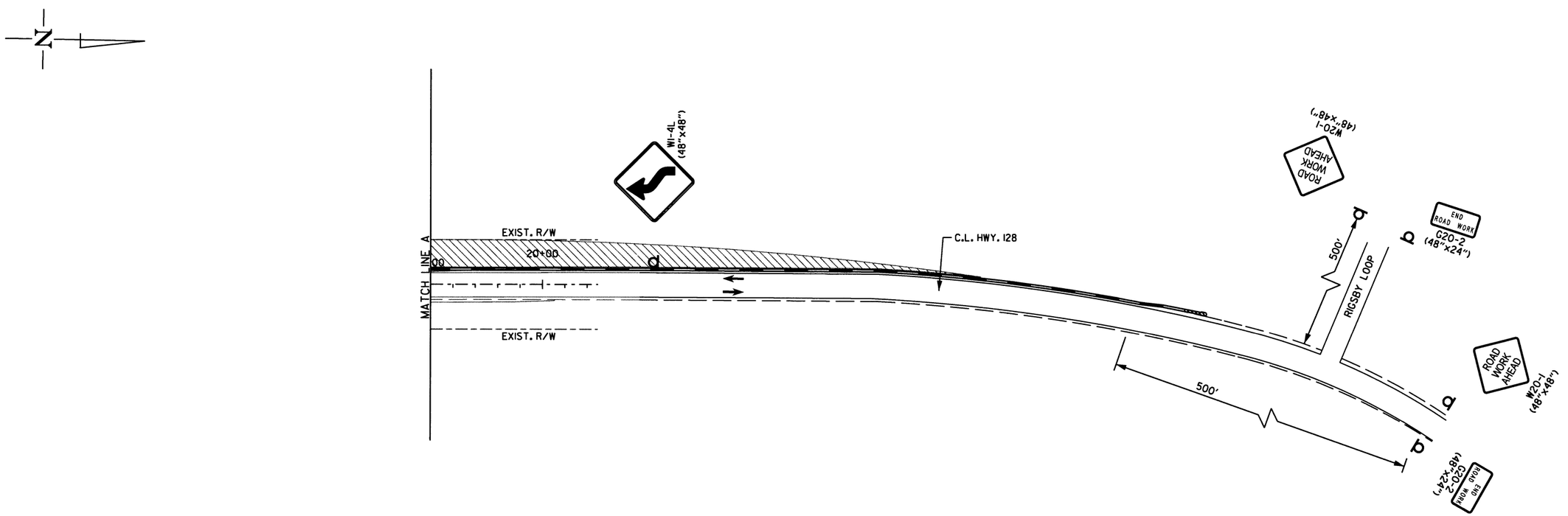
(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016



LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS



HWY. 128
MAINTENANCE OF TRAFFIC - STAGE 2

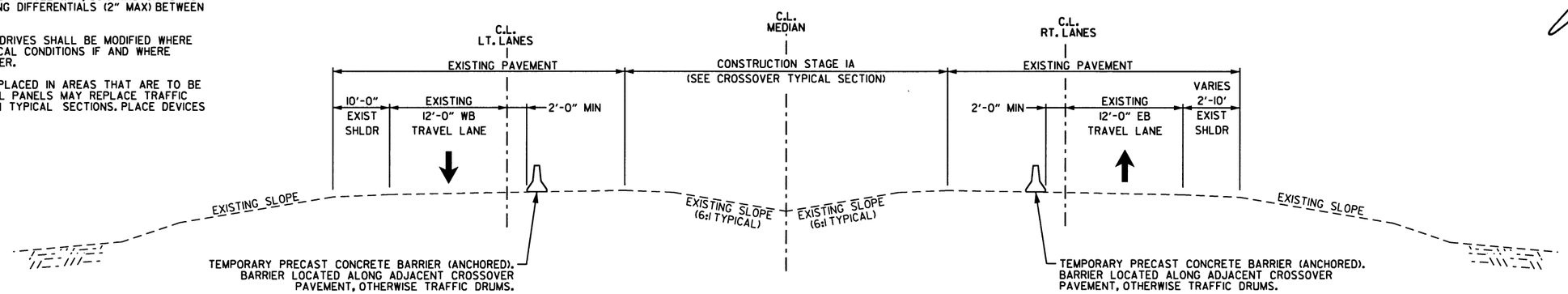
Michael Baker INTERNATIONAL / ALLIANCE TRANSPORTATION GROUP	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	74	888
					(2)	MAINTENANCE OF TRAFFIC			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER
9/26/2016

STAGE IA:
MAINTAIN TRAFFIC ON EXISTING ROADWAY. CONSTRUCT TEMPORARY AND PERMANENT CULVERT EXTENSIONS NECESSARY TO PLACE TEMPORARY AND PERMANENT WIDENING AND CROSSOVER. CONSTRUCT TEMPORARY WIDENING AND CROSSOVER TO THE LIMITS SHOWN ON MOT PLAN SHEETS AND MOT TYPICAL SECTIONS.

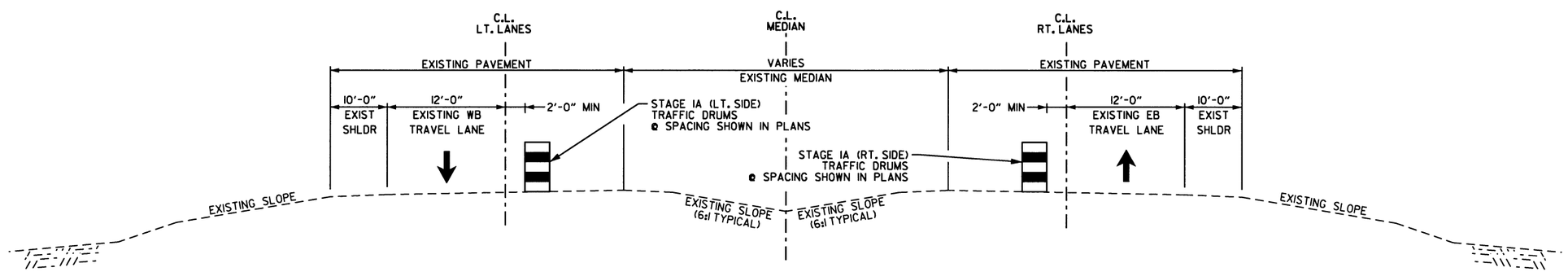
NOTES:

1. QUANTITY OF VERTICAL PANELS SHOWN ON PLANS IS FOR ONE SIDE OF ROADWAY FOR 2 MILES. QUANTITY SHOWN IS MAXIMUM ALLOWED FOR CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO VERTICAL DIFFERENTIAL OF 4" OR LESS, AND THEN NOTCH ANOTHER MILE SECTION. THIS IS THE MAXIMUM DISTANCE ALLOWED PER SECTION 603.02 OF THE ARKANSAS 2014 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. IN LOCATIONS WHERE TRAFFIC SHIFTS FROM EXISTING TO TEMPORARY OR PROPOSED TRAVEL WAY, CONTRACTOR IS TO MAINTAIN MINIMAL LEVELING DIFFERENTIALS (2" MAX) BETWEEN THE TWO SURFACES.
3. TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.
4. VERTICAL PANELS ONLY PLACED IN AREAS THAT ARE TO BE RECONSTRUCTED. VERTICAL PANELS MAY REPLACE TRAFFIC DRUMS OR VICE VERSA IN TYPICAL SECTIONS. PLACE DEVICES AS SHOWN IN PLANS.



MAINTENANCE OF TRAFFIC - OPEN SHOULDERS
FOUR LANE DIVIDED AT CROSSOVER
STAGE IA - TYPICAL SECTION

STA. 471+59 TO STA. 478+12



MAINTENANCE OF TRAFFIC - OPEN SHOULDERS
FOUR LANE DIVIDED
STAGE IA - TYPICAL SECTION

STA. 478+12 TO STA. 480+80
STA. 483+82 TO STA. 486+00

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE IA

Michael Baker INTERNATIONAL / ALLIANCE TRANSPORTATION GROUP	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	75	888
					(2) MAINTENANCE OF TRAFFIC				

STAGE IA:
MAINTAIN TRAFFIC ON EXISTING ROADWAY. CONSTRUCT TEMPORARY AND PERMANENT CULVERT EXTENSIONS NECESSARY TO PLACE TEMPORARY AND PERMANENT WIDENING AND CROSSOVER. CONSTRUCT TEMPORARY WIDENING AND CROSSOVER TO THE LIMITS SHOWN ON MOT PLAN SHEETS AND MOT TYPICAL SECTIONS.

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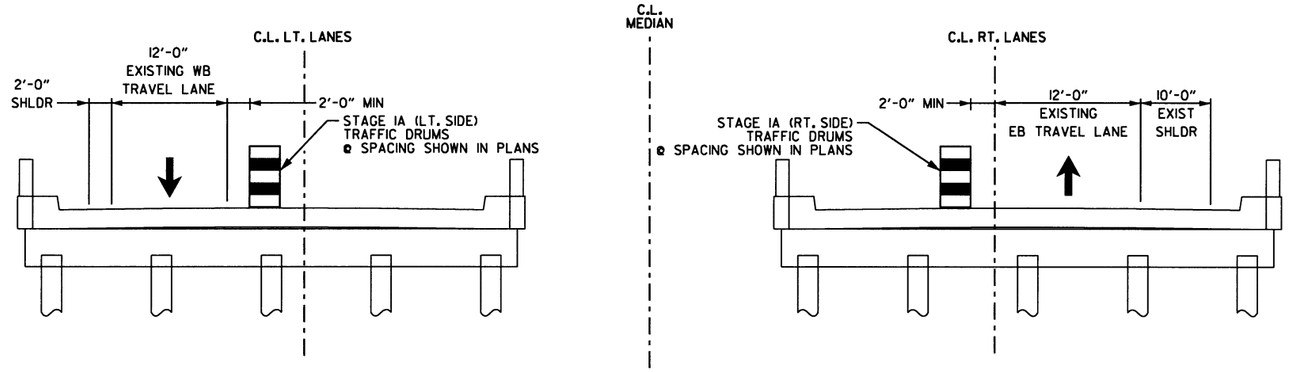
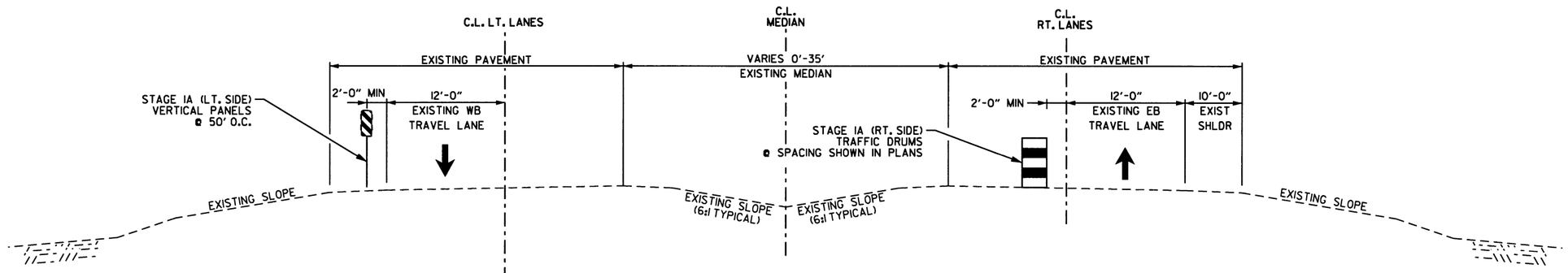


MAINTENANCE OF TRAFFIC - BRIDGE
STAGE IA - TYPICAL SECTION

STA. 480+80 TO STA. 483+82



MAINTENANCE OF TRAFFIC - OPEN SHOULDERS
FOUR LANE DIVIDED
STAGE IA - TYPICAL SECTION

STA. 486+00 TO STA. 497+20

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE IA

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					6	ARK.			
					JOB NO.		CA0610	76	888
					(2)	MAINTENANCE OF TRAFFIC			

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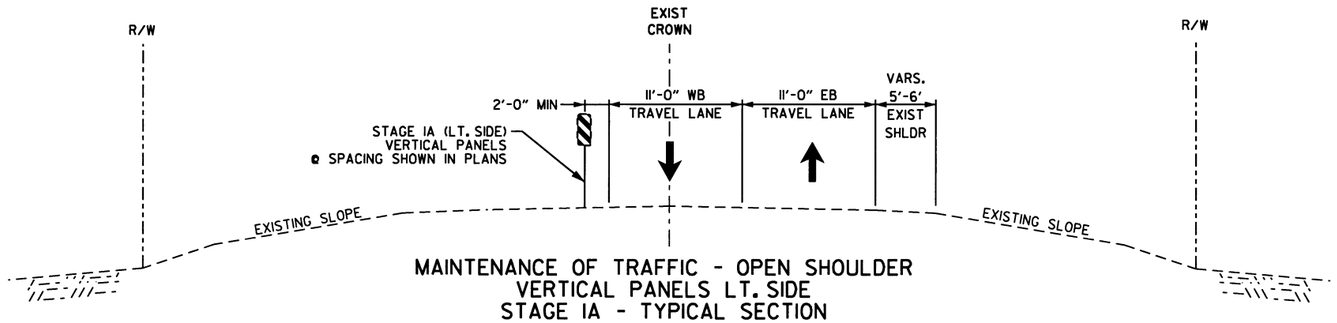
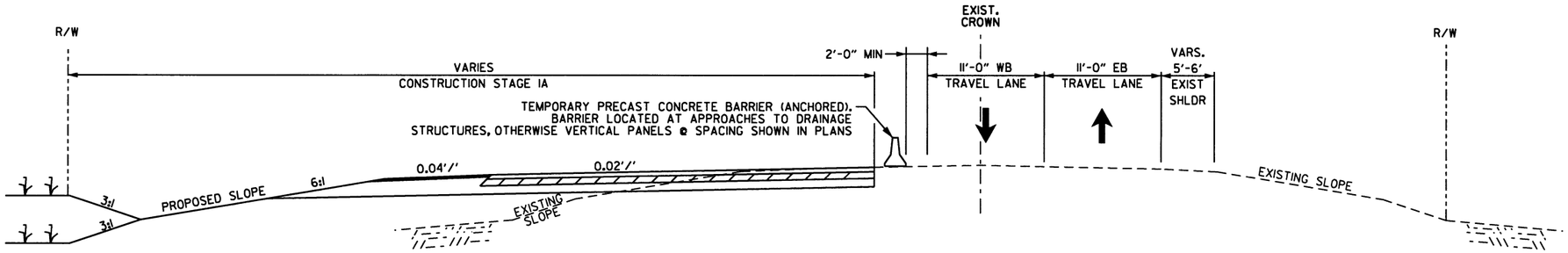


MAINTENANCE OF TRAFFIC - OPEN SHOULDER
VERTICAL PANELS LT. SIDE
STAGE IA - TYPICAL SECTION

STA. 497+20 TO STA. 505+25
STA. 527+11 TO STA. 535+50
STA. 551+50 TO STA. 554+50



MAINTENANCE OF TRAFFIC - OPEN SHOULDER
TEMPORARY PAVEMENT
STAGE IA - TYPICAL SECTION

STA. 505+25 TO STA. 527+11

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE IA

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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STATE OF ARKANSAS
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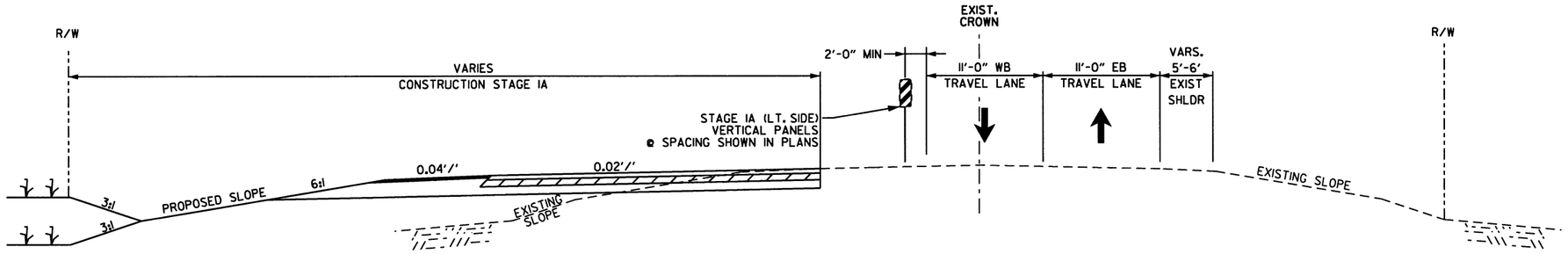

MAINTENANCE OF TRAFFIC - OPEN SHOULDER
TEMPORARY PAVEMENT
STAGE IA - TYPICAL SECTION

STA. 535+50 TO STA. 551+50

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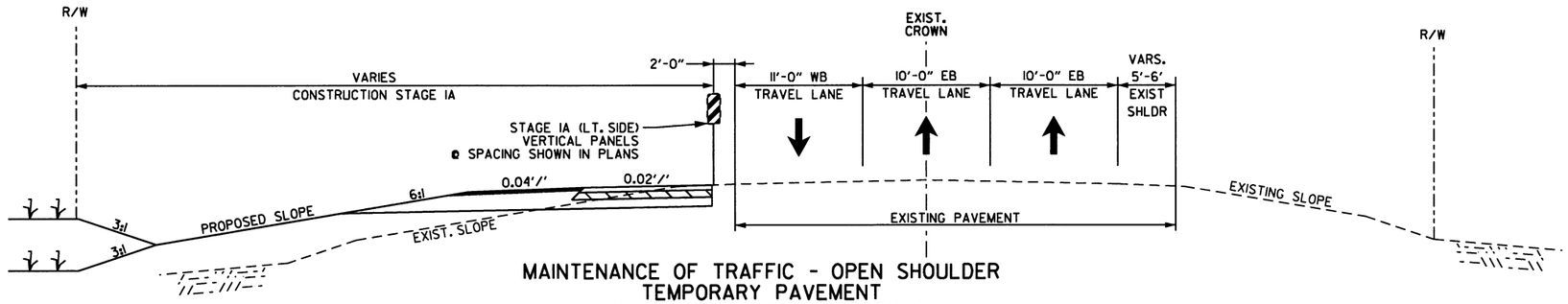

MAINTENANCE OF TRAFFIC - OPEN SHOULDER
TEMPORARY PAVEMENT
STAGE IA - TYPICAL SECTION

STA. 627+00 TO STA. 635+00

CONSTRUCTION PAVEMENT MARKINGS (4" CONTINUOUS WHITE LINE + 4" CONTINUOUS DOUBLE YELLOW).
STRIPING SHIFT TRANSITION TO MATCH EXISTING STRIPING 100 FT. FROM BOTH ENDS OF PAVEMENT WIDENING SECTIONS.

PLACE "SHOULDER CLOSED" SIGN (RSP-1, 48"X30")
500 FT. IN ADVANCE OF WESTBOUND APPROACH TO EACH PAVEMENT WIDENING SECTION.

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE IA

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
ALLIANCE TRANSPORTATION GROUP					6	ARK.			
					JOB NO.		CA0610	78	888
					(2)	MAINTENANCE OF TRAFFIC			

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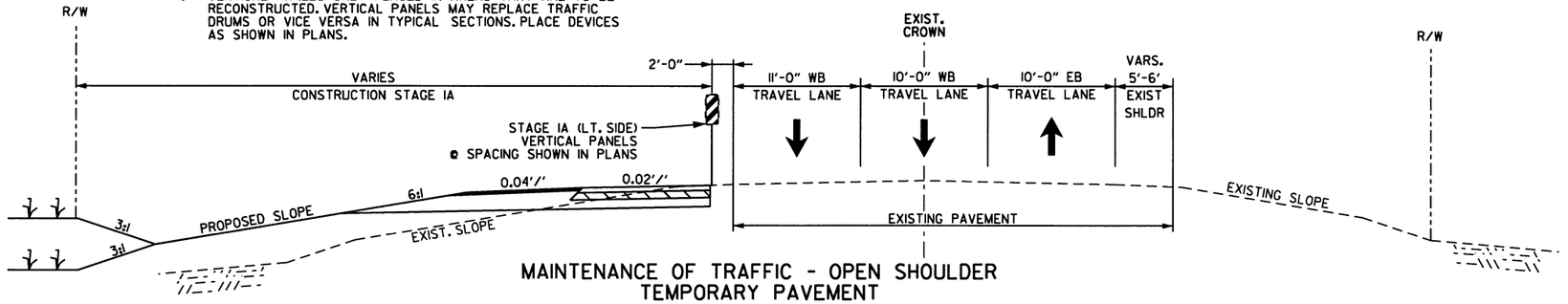
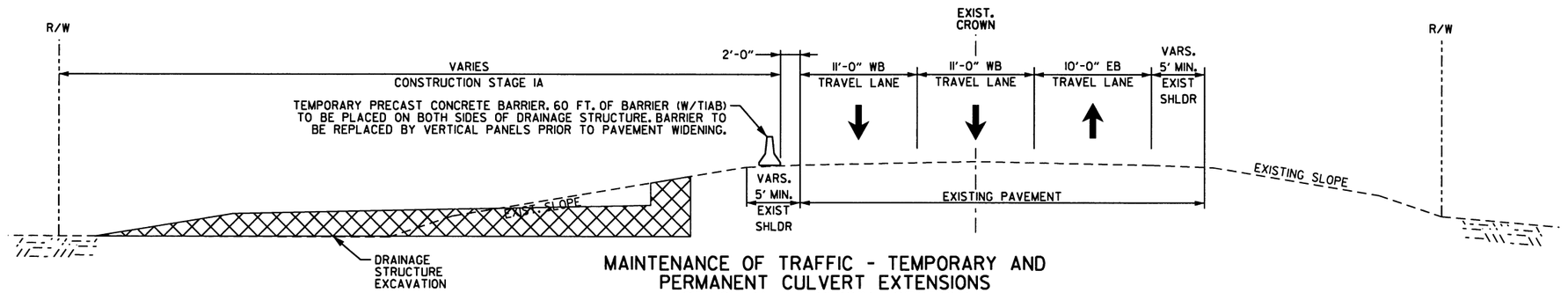


MAINTENANCE OF TRAFFIC - OPEN SHOULDER TEMPORARY PAVEMENT
STAGE IA - TYPICAL SECTION

CONSTRUCTION PAVEMENT MARKINGS (4" CONTINUOUS WHITE LINE + 4" CONTINUOUS DOUBLE YELLOW).
STRIPING SHIFT TRANSITION TO MATCH EXISTING STRIPING 100 FT. FROM BOTH ENDS OF PAVEMENT WIDENING SECTIONS.

PLACE "SHOULDER CLOSED" SIGN (RSP-1, 48"X30")
500 FT. IN ADVANCE OF WESTBOUND APPROACH TO EACH PAVEMENT WIDENING SECTION.

STA. 821+65 TO STA. 825+70
STA. 1019+00 TO STA. 1032+60
STA. 1050+50 TO STA. 1059+00
STA. 1067+70 TO STA. 1120+90
STA. 1188+18 TO STA. 1198+14
STA. 1210+82 TO STA. 1219+46
STA. 1219+46 TO STA. 1227+30
STA. 1234+45 TO STA. 1267+87



MAINTENANCE OF TRAFFIC - TEMPORARY AND PERMANENT CULVERT EXTENSIONS
STAGE IA - TYPICAL SECTION

CONSTRUCTION PAVEMENT MARKINGS (4" CONTINUOUS WHITE LINE + 4" CONTINUOUS DOUBLE YELLOW).
STRIPING SHIFT TRANSITION TO MATCH EXISTING STRIPING 100 FT. FROM BOTH ENDS OF PAVEMENT WIDENING SECTIONS.

PLACE "SHOULDER CLOSED" SIGN (RSP-1, 48"X30")
500 FT. IN ADVANCE OF WESTBOUND APPROACH TO EACH PAVEMENT WIDENING SECTION.

STA. 514+35
STA. 520+26
STA. 525+74
STA. 541+82
STA. 1080+57
STA. 1090+33
STA. 1108+41
STA. 1195+31

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE IA

Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

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				6	ARK.			
				JOB NO.		CA0610	79	888
				(2) MAINTENANCE OF TRAFFIC				

STATE OF ARKANSAS
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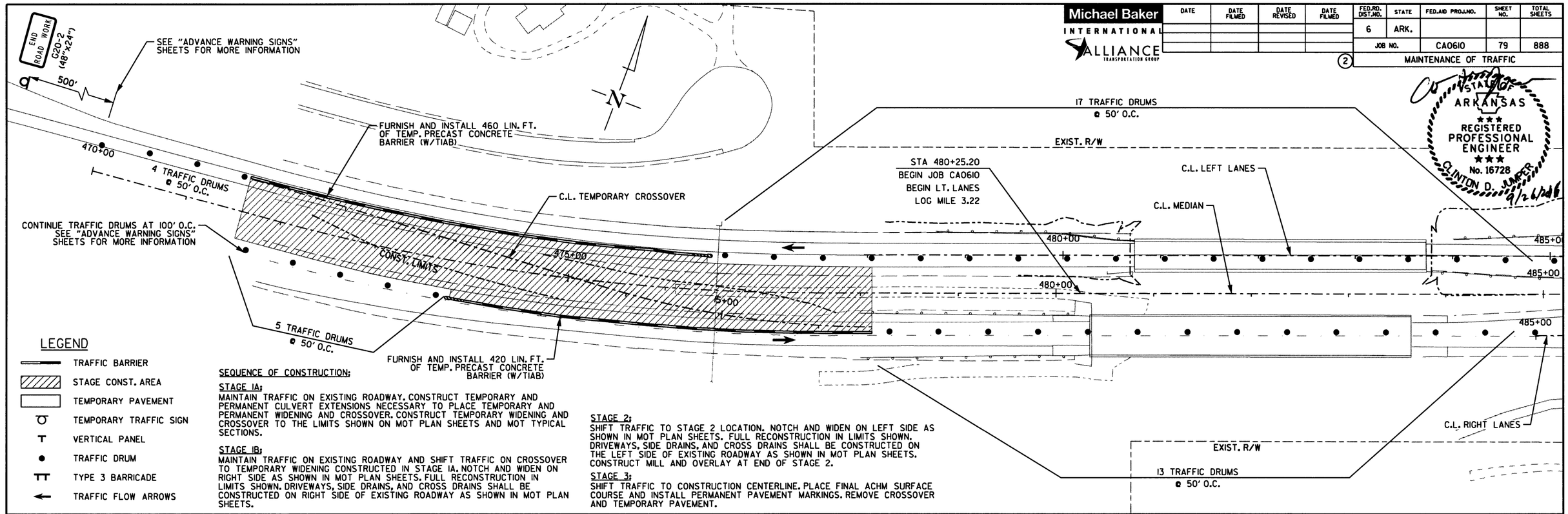

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

SEQUENCE OF CONSTRUCTION:

STAGE IA:
MAINTAIN TRAFFIC ON EXISTING ROADWAY. CONSTRUCT TEMPORARY AND PERMANENT CULVERT EXTENSIONS NECESSARY TO PLACE TEMPORARY AND PERMANENT WIDENING AND CROSSOVER. CONSTRUCT TEMPORARY WIDENING AND CROSSOVER TO THE LIMITS SHOWN ON MOT PLAN SHEETS AND MOT TYPICAL SECTIONS.

STAGE IB:
MAINTAIN TRAFFIC ON EXISTING ROADWAY AND SHIFT TRAFFIC ON CROSSOVER TO TEMPORARY WIDENING CONSTRUCTED IN STAGE IA. NOTCH AND WIDEN ON RIGHT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON RIGHT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS.

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 LOCATION. NOTCH AND WIDEN ON LEFT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON THE LEFT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS. CONSTRUCT MILL AND OVERLAY AT END OF STAGE 2.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE. PLACE FINAL ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS. REMOVE CROSSOVER AND TEMPORARY PAVEMENT.

NOTES:
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2. TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WITH CL 7 BASE WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER. MAINTAIN ONE LANE OF TRAFFIC AT ALL TIMES.
3. MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION AT CROSS STREETS AT ALL TIMES.
4. CONTRACTOR TO MAINTAIN CROSS DRAINAGE AT ALL TIMES. PROVIDE TEMPORARY R.C.P. AS NEEDED OR AS DIRECTED BY THE ENGINEER
5. CONTRACTOR TO COORDINATE WITH PROPERTY OWNERS PRIOR TO BLOCKING ACCESS DURING STAGE CONSTRUCTION.
6. ALL STATIONING BASED OFF C.L. MEDIAN AND C.L. HWY. 70 UNLESS STATED OTHERWISE.

MAINTENANCE OF TRAFFIC - STAGE IA

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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(2) MAINTENANCE OF TRAFFIC

STA 505+25
BEGIN TEMPORARY PAVEMENT WIDENING

6 TRAFFIC DRUMS @ 50' O.C.

13 TRAFFIC DRUMS @ 20' O.C.

SHOULDER CLOSED R5P-1 (48"x30")

EXIST. R/W

CONST. LIMITS

FURNISH & INSTALL 2313 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

STA. 514+34.54 IN PLACE
6' X 8' X 185' R.C. BOX CULVERT
35° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
TEMP. EXTEND 50' LT. IN STAGE IA
REMOVE 119' RT. AND
EXTEND 171' RT. IN STAGE IB
REMOVE TEMP. EXTENSION AND
57' LT. AND EXTEND 112' LT. IN STAGE 2
Q50=608.5 CFS D.A.=273 ACRES
72" TEMP. PIPE CULVERT = 50 LIN. FT.

PROP. R/W

505+00

510+00

515+00

DO NOT PASS R4-1 (36"x48")

C.L. HWY. 70

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

CONST. LIMITS

EXIST. R/W

ROAD WORK AHEAD W20-1 (48"x48")

END ROAD WORK G20-2 (48"x24")

BARTEE TR

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

R11-2 (48"x30") ROAD CLOSED

(1) 16' BARR. TYP. III LT.

T.C.E.

515+00

PROP. R/W

EXIST. R/W

CONST. LIMITS

520+00

525+00

530+00

STA. 527+11
END TEMPORARY PAVEMENT WIDENING

12 TRAFFIC DRUMS @ 20' O.C.

4 TRAFFIC DRUMS @ 50' O.C.

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

SHANE LN

SARGENT LN

AUTUMN HILLS LN

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

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MAINTENANCE OF TRAFFIC - STAGE IA

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(2) MAINTENANCE OF TRAFFIC

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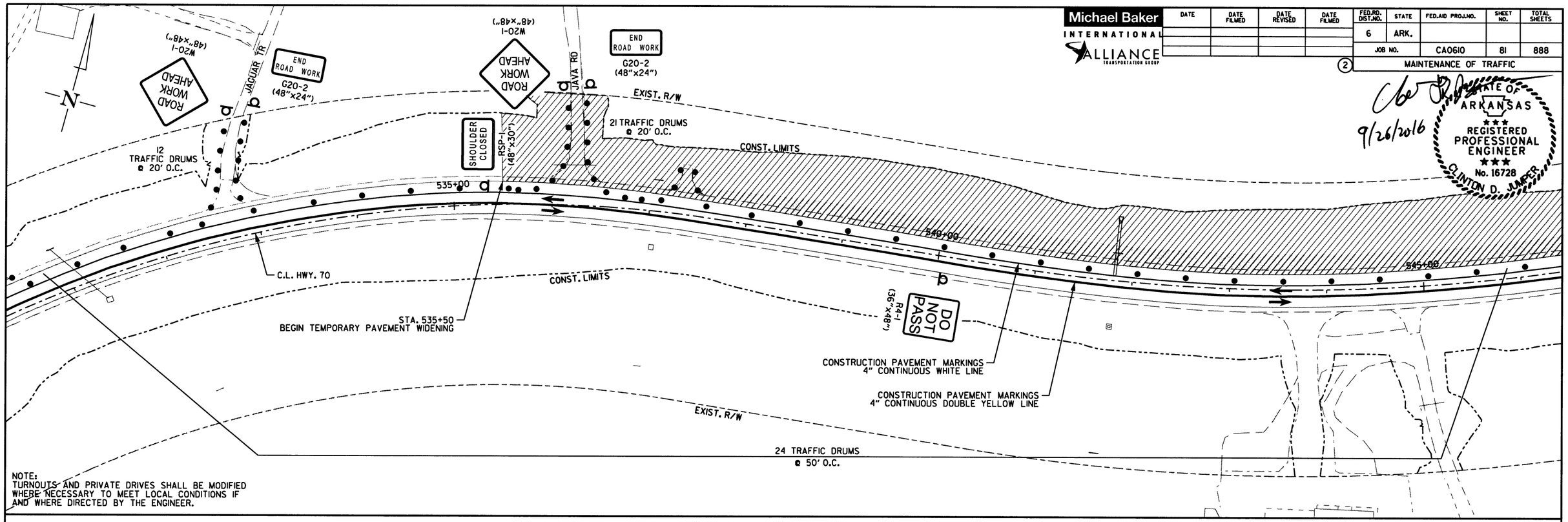

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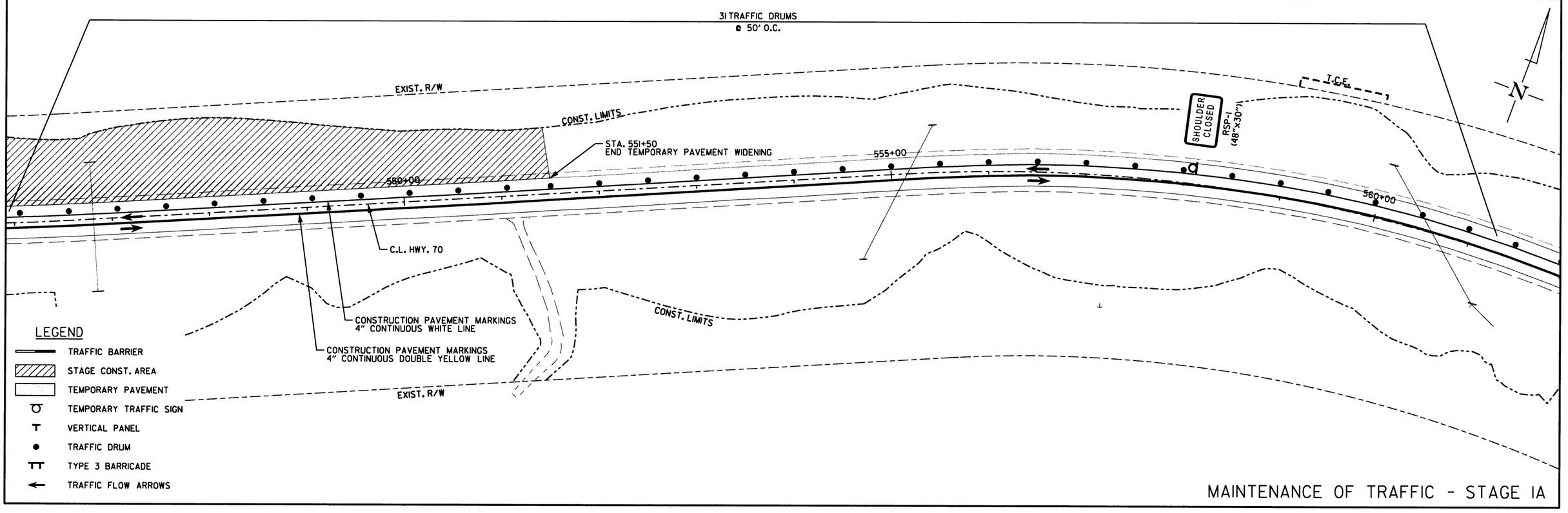

MAINTENANCE OF TRAFFIC - STAGE IA

Michael Baker INTERNATIONAL
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(2) MAINTENANCE OF TRAFFIC

21 TRAFFIC DRUMS @ 50' O.C.

EXIST. R/W

565+00

CONST. LIMITS

570+00

C.L. HWY. 70

12 TRAFFIC DRUMS @ 50' O.C.

CONST. LIMITS

575+00

STA. 575+00

550' SHIFTING TAPER

EXIST. R/W

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

N

STATE OF ARKANSAS
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No. 16728
CLINTON D. JUNKER

9/26/2016

EXIST. R/W

6 TRAFFIC DRUMS @ 50' O.C.

50 M.P.H

CONST. LIMITS

SHOULDER CLOSED

580+00

585+00

590+00

550' SHIFTING TAPER

STA. 580+50

TIE-IN WITH EXISTING PAVEMENT MARKINGS

C.L. HWY. 70

CONST. LIMITS

EXIST. R/W

N

NOTE:
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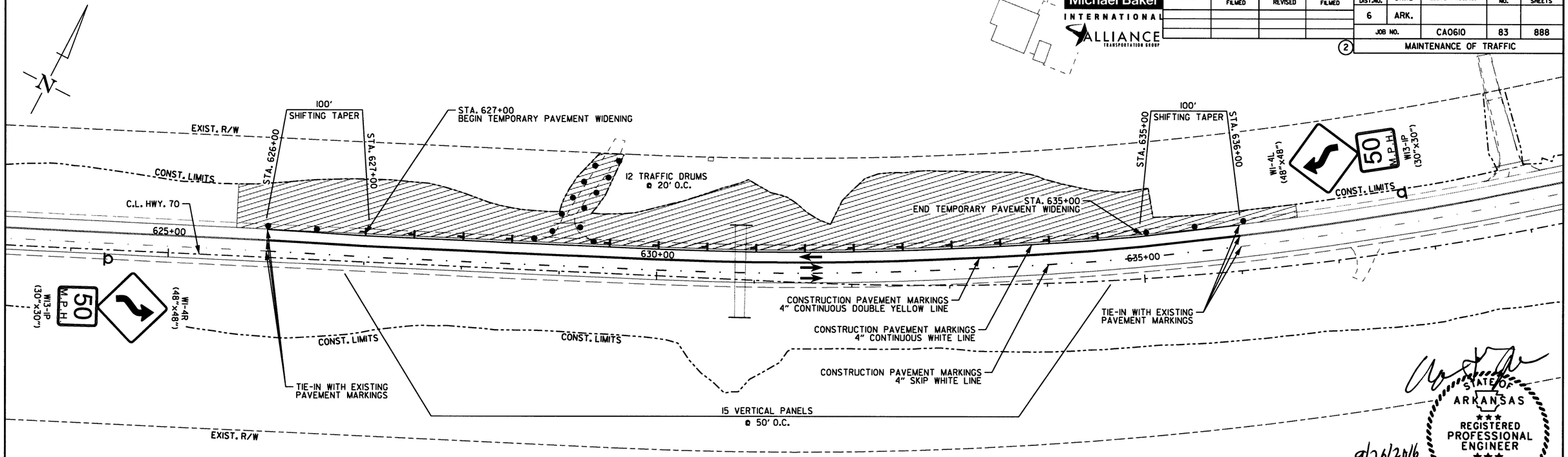
MAINTENANCE OF TRAFFIC - STAGE IA

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

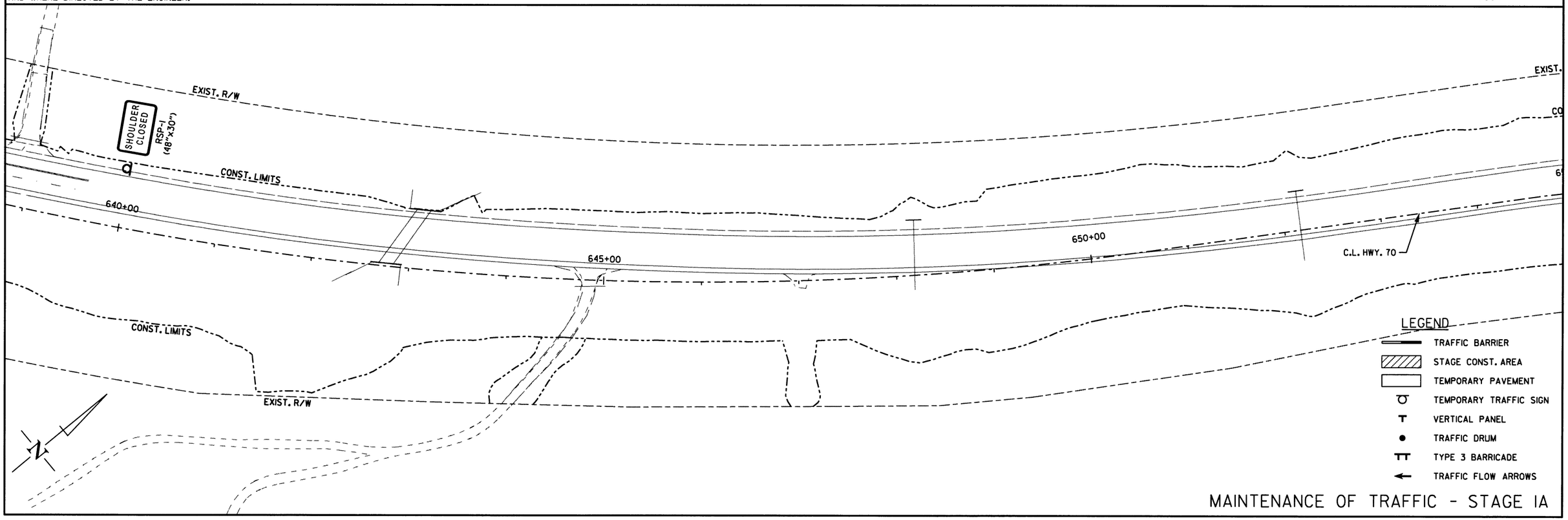
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	83	888

(2) MAINTENANCE OF TRAFFIC



NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016



MAINTENANCE OF TRAFFIC - STAGE IA

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	84	888

(2) MAINTENANCE OF TRAFFIC

PROP. R/W
CONST. LIMITS
810+00
815+00
820+00
C.L. HWY. 70
SCENIC RIDGE RD
CONST. LIMITS
EXIST. R/W
PROP. R/W
T.C.E.
PROP. R/W
CONST. LIMITS
EXIST. R/W

2 TRAFFIC DRUMS @ 50' O.C.
2 VERTICAL PANELS @ 50' O.C.
TIE-IN WITH EXISTING PAVEMENT MARKINGS
100' SHIFTING TAPER
STA. 820+65
STA. 821+65
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
STA. 821+65 BEGIN TEMPORARY PAVEMENT WIDENING
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE

50 M.P.H. (W3-1P 30"x30")
(W1-4R 48"x48")

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

11 VERTICAL PANELS @ 50' O.C.
T.C.E.
100' SHIFTING TAPER
STA. 827+70
STA. 828+70
825+00
830+00
835+00
WI-4R (48"x48")
50 M.P.H. W3-1P (30"x30")
SHOULDER CLOSED RSP-I (48"x30")
EXIST. R/W
CONST. LIMITS
STA. 827+70 END TEMPORARY PAVEMENT WIDENING
TIE-IN WITH EXISTING PAVEMENT MARKINGS
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONST. LIMITS
C.L. HWY. 70
CONST. LIMITS
EXIST. R/W

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

ROAD WORK AHEAD W20-1 (48"x48")
ROAD WORK END C20-2 (48"x24")
SUMMIT RIDGE RD

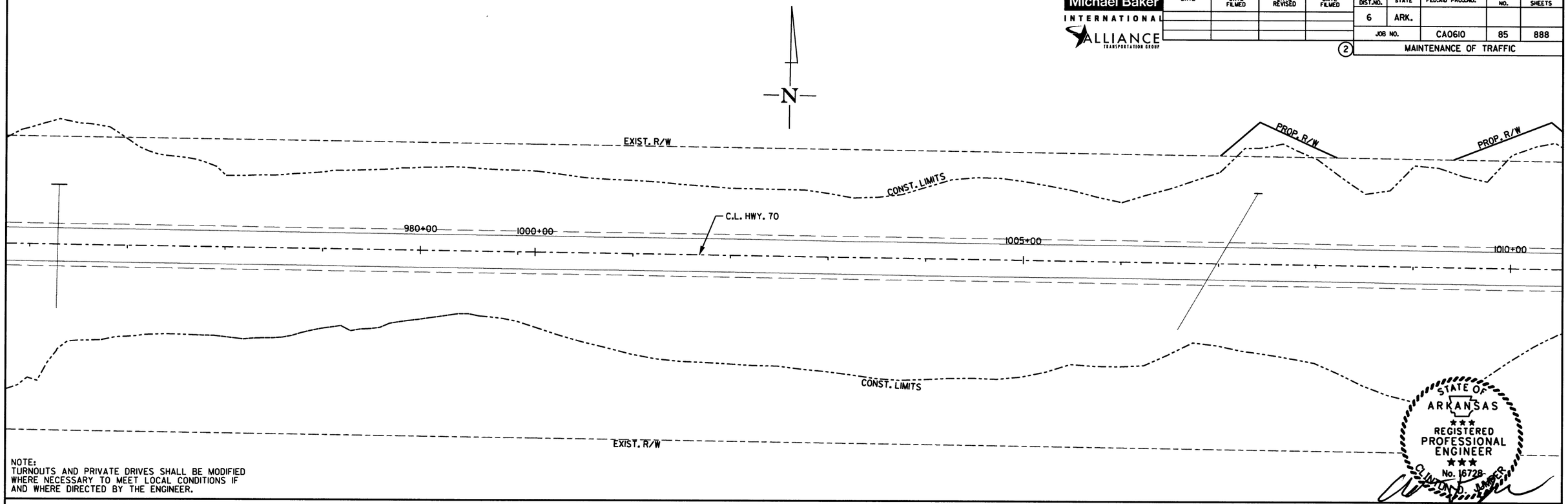
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER
9/26/2016

MAINTENANCE OF TRAFFIC - STAGE IA

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	85	888

(2) MAINTENANCE OF TRAFFIC



NOTE:
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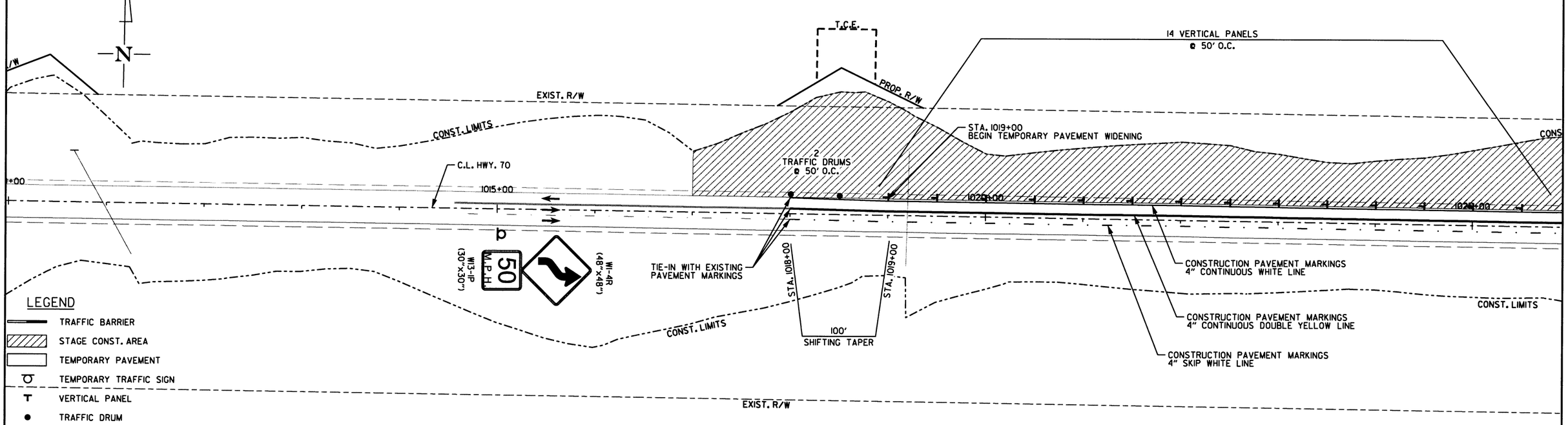
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON L. LANIER

9/26/2016



LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

MAINTENANCE OF TRAFFIC - STAGE IA

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	86	888

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
CLINTON D. JUNKER
No. 16728
9/26/2016

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

T.C.E.
PROP. R/W
CONST. LIMITS
12+00
11+00
C.L. HWY. 128
SEE HWY. 128 MOT PLAN SHEET FOR MORE INFORMATION
N
7 VERTICAL PANELS @ 50' O.C.
EXIST. R/W
PROP. R/W
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
STA. 1032+60 END TEMPORARY PAVEMENT WIDENING
CONST. LIMITS
1028+00
1030+00
1035+00
C.L. HWY. 70
1040+00
4 VERTICAL PANELS @ 50' O.C.
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
CONST. LIMITS
CONST. LIMITS
94+00
C.L. LONSDALE CUTOFF
G20-2 (48"x24") END ROAD WORK
ROAD WORK AHEAD
W20-1 (48"x48")
98+00
EXIST. R/W
15 TRAFFIC DRUMS 50' O.C.
20 TRAFFIC DRUMS 50' O.C.
W20-1 (48"x48") ROAD WORK AHEAD
CR 379
G20-2 (48"x24") END ROAD WORK
10 VERTICAL PANELS @ 50' O.C.
N
STA. 1050+50 BEGIN TEMPORARY PAVEMENT WIDENING
EXIST. R/W
T.C.E.
CONST. LIMITS
CONST. LIMITS
10 TRAFFIC DRUMS @ 20' O.C.
1045+00
1050+00
1055+00
C.L. HWY. 70
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
CONST. LIMITS
EXIST. R/W

MAINTENANCE OF TRAFFIC - STAGE IA

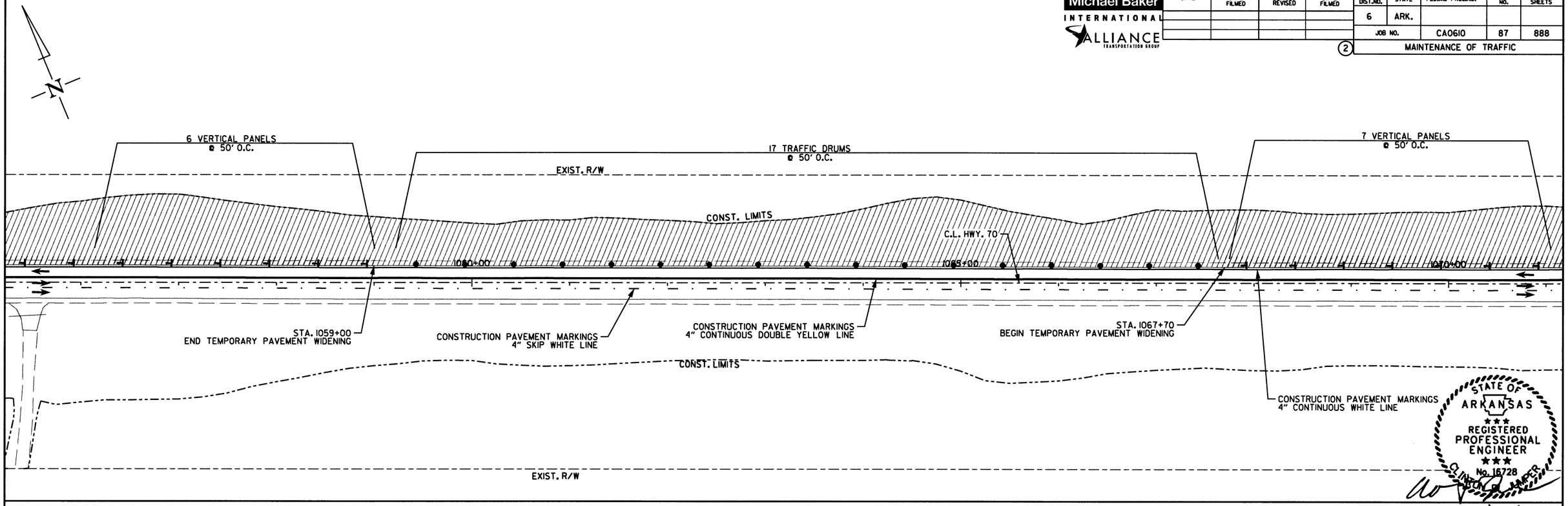
Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	87	888

(2) MAINTENANCE OF TRAFFIC

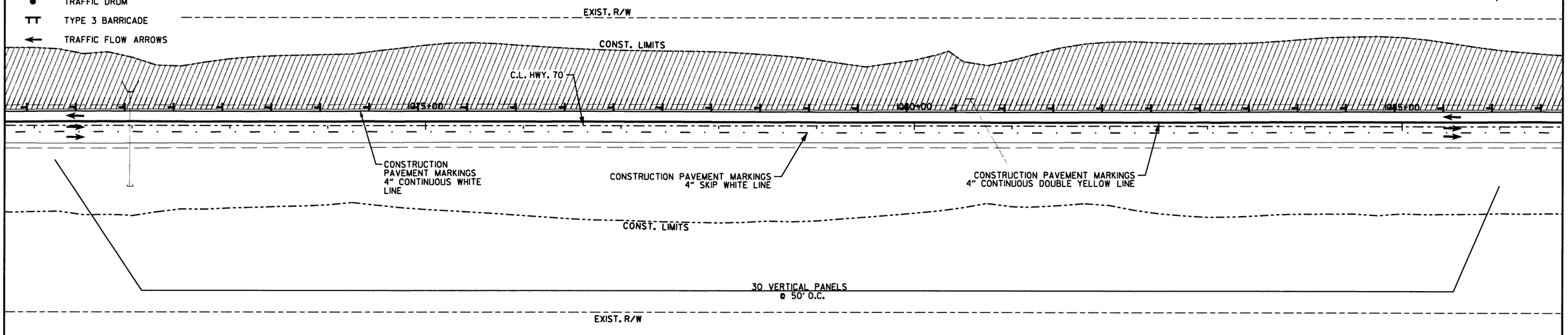


STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. HARPER

9/26/2016

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS



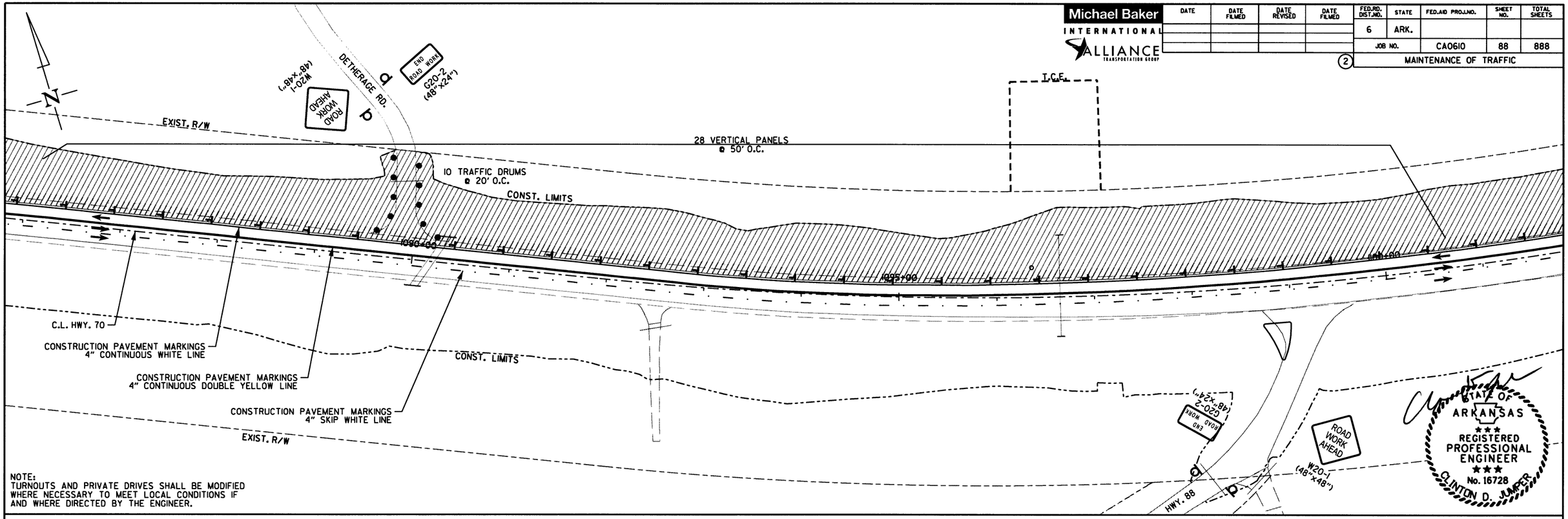
MAINTENANCE OF TRAFFIC - STAGE IA

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	88	888

(2) MAINTENANCE OF TRAFFIC



NOTE:
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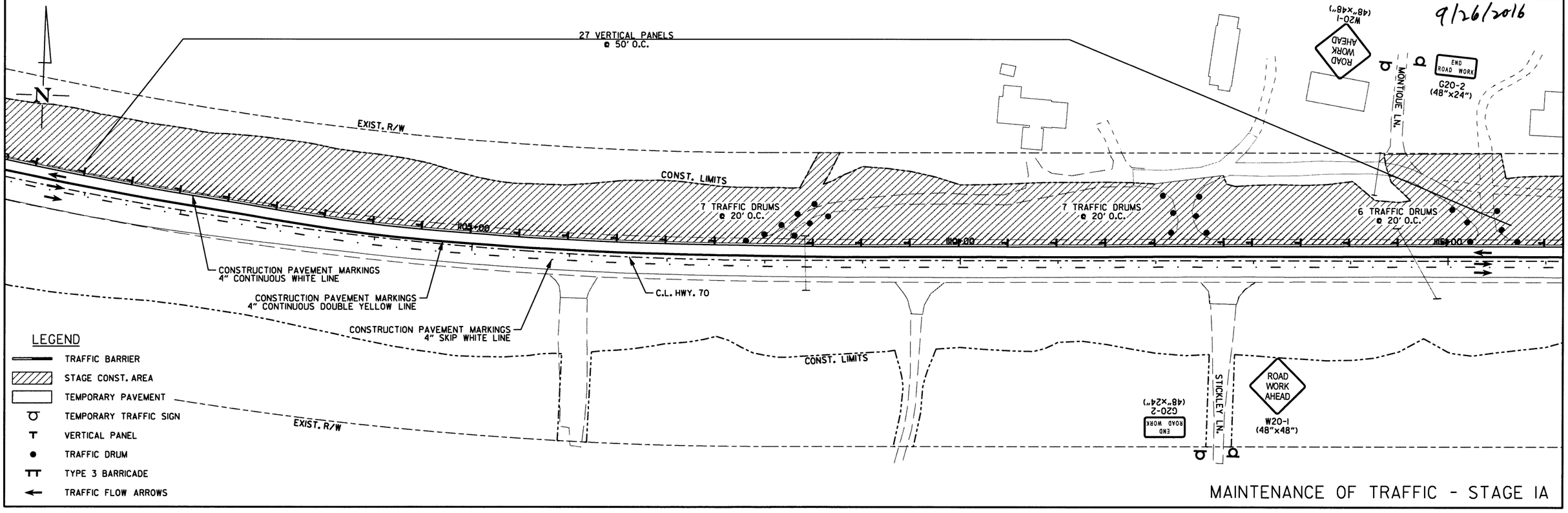

9/26/2016

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

MAINTENANCE OF TRAFFIC - STAGE IA

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	89	888

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER
9/26/2016

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

N

10 VERTICAL PANELS @ 50' O.C.

8 TRAFFIC DRUMS @ 20' O.C.

8 TRAFFIC DRUMS @ 20' O.C.

100' SHIFTING TAPER

EXIST. R/W

CONST. LIMITS

STA. 1120+90

STA. 1121+90

W1-4L (48"x48")

50 M.P.H.

W13-1P (30"x30")

SHOULDER CLOSED

RSP-1 (48"x30")

ICE

1120+00

1125+00

1130+00

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

STA. 1120+90 END TEMPORARY PAVEMENT WIDENING

TIE-IN WITH EXISTING PAVEMENT MARKINGS

C.L. HWY. 70

3 TRAFFIC DRUMS @ 50' O.C.

CONST. LIMITS

EXIST. R/W

N

EXIST. R/W

PROP. R/W

CONST. LIMITS

CONST. LIMITS

IRA WILLIAMS RD.

C.L. HWY. 70

1135+00

1140+00

1145+00

CONST. LIMITS

CONST. LIMITS

EXIST. R/W

NANCE RD.

NOTE:
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MAINTENANCE OF TRAFFIC - STAGE IA

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	90	888

(2) MAINTENANCE OF TRAFFIC

Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

N

BECK LANE

EXIST. R/W

CONST. LIMITS

1180+00

1175+00

C.L. HWY. 70

ROAD WORK AHEAD W20-1 (48"x48")

END ROAD WORK G20-2 (48"x24")

9 TRAFFIC DRUMS @ 20' O.C.

SMART RD.

CONST.

TIE-IN WITH EXISTING PAVEMENT MARKINGS

1185+00

1188+00

50 M.P.H W13-1P (30"x30")

W1-4R (48"x48")

4 TRAFFIC DRUMS @ 50' O.C.

STA. 1188+18 BEGIN TEMPORARY PAVEMENT WIDENING

CONST. LIMITS

ROCKY LOOP

EXIST. R/W

14 VERTICAL PANELS @ 50' O.C.

100' SHIFTING TAPER

STA. 1187+18

W20-1 (48"x48") ROAD WORK AHEAD

SMART RD.

STA. 1188+18

END ROAD WORK G20-2 (48"x24")

11 TRAFFIC DRUMS @ 20' O.C.

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

EXIST. R/W

CONST. LIMITS

1190+00

1195+00

9 TRAFFIC DRUMS @ 20' O.C.

100' SHIFTING TAPER

STA. 1198+14.35

STA. 1199+14.35

I.C.E.

CONST. LIMITS

W1-4L (48"x48")

50 M.P.H

W13-1P (30"x30")

1200+00

STA. 1188+18 BEGIN TEMPORARY PAVEMENT WIDENING

STA. 1198+14.35 END TEMPORARY PAVEMENT WIDENING

TIE-IN WITH EXISTING PAVEMENT MARKINGS

CONST. LIMITS

CONST. LIMITS

C.L. HWY. 70

EXIST. R/W

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER

9/26/2016

N

NOTE:
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MAINTENANCE OF TRAFFIC - STAGE IA

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	91	888

(2) MAINTENANCE OF TRAFFIC

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

STA. 1210+81.56
BEGIN TEMPORARY PAVEMENT
(CONSTRUCTED IN STAGE IA)
SEE MOT TYPICAL SECTIONS

40' SHIFTING TAPER
STA. 1210+41 TO STA. 1210+81

TIE-IN WITH EXISTING
PAVEMENT MARKINGS

CONST. LIMITS

EXIST. R/W

SHOULDER CLOSED
RSP-1
(48"x30")

1205+00

C.L. HWY. 70

50 M.P.H.
W13-1P
(30"x30")

W4-4R
(48"x48")

1210+00

1215+00

W20-1
(48"x48")
ROAD WORK AHEAD

END ROAD WORK
G20-2
(48"x24")

T.C.E.

HOLLOWOA RD.

23 TRAFFIC DRUMS
@ 20' O.C.

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

8 VERTICAL PANELS
@ 50' O.C.

NOTE:
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PROP. R/W

EXIST. R/W

CONST. LIMITS

BROWNING ACCESS RD.

1220+00

1225+00

1230+00

5 TRAFFIC DRUMS
@ 20' O.C.

5 TRAFFIC DRUMS
@ 50' O.C.

STA. 1227+30.41
END TEMPORARY PAVEMENT WIDENING

24 VERTICAL PANELS
@ 50' O.C.

FAIRPLAY RD.

STATE OF ARKANSAS
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CLINTON D. JUNKER
9/26/2016

MAINTENANCE OF TRAFFIC - STAGE IA

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	92	888

(2) MAINTENANCE OF TRAFFIC

PROP. R/W
CONST. LIMITS
EXIST. R/W
5 TRAFFIC DRUMS @ 20' O.C.
7 TRAFFIC DRUMS @ 50' O.C.
16 TRAFFIC DRUMS @ 20' O.C.
8 TRAFFIC DRUMS @ 20' O.C.
22 VERTICAL PANELS @ 50' O.C.
26 VERTICAL PANELS @ 50' O.C.
1230+00
1235+00
1240+00
1245+00
1250+00
1255+00
STA. 1234+45 BEGIN TEMPORARY PAVEMENT WIDENING
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
C.L. HWY. 70
BROWNING RD.
HICKORY THICKET DR.
ROAD WORK AHEAD W20-1 (48"x48")
END ROAD WORK G20-2 (48"x24")
N

STATE OF ARKANSAS
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MAINTENANCE OF TRAFFIC - STAGE IA

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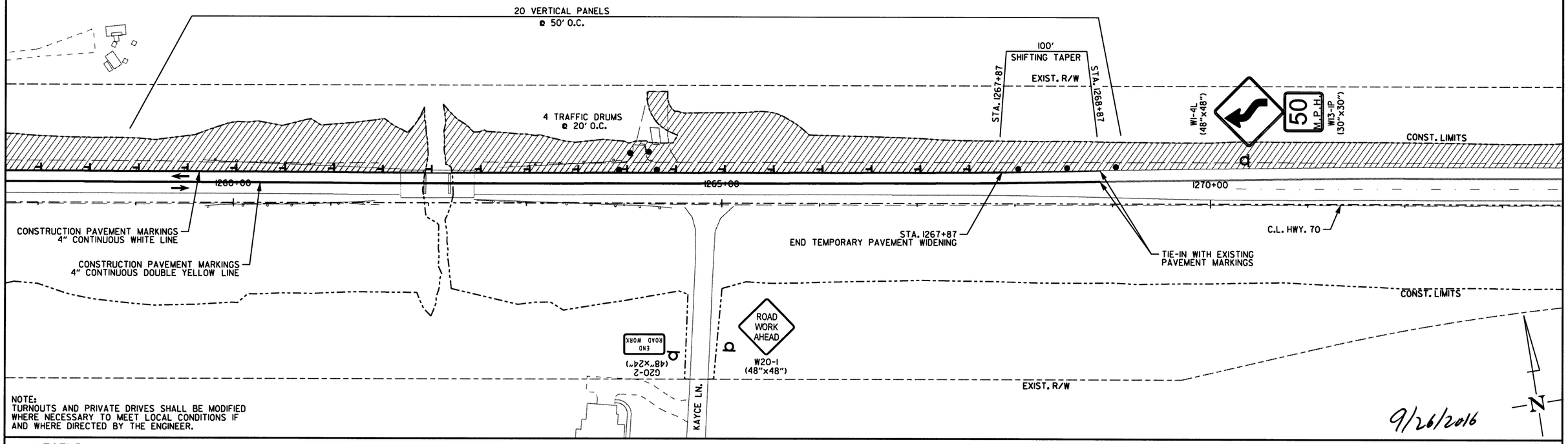
				JOB NO.		CA0610	93	888

(2) MAINTENANCE OF TRAFFIC



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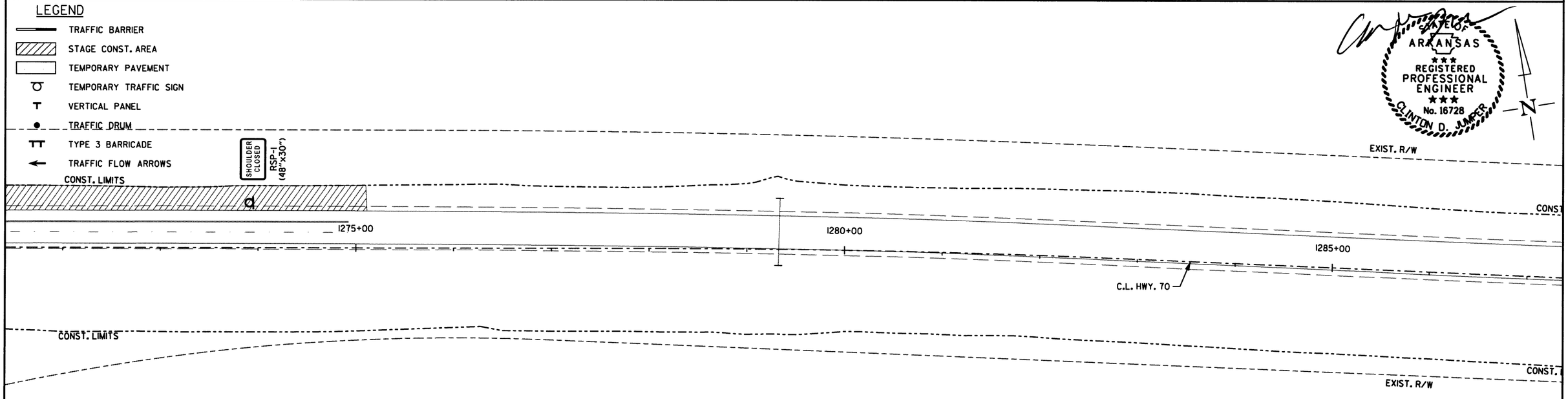
9/26/2016

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER



MAINTENANCE OF TRAFFIC - STAGE IA

STAGE IB:

MAINTAIN TRAFFIC ON EXISTING ROADWAY AND SHIFT TRAFFIC ON CROSSOVER TO TEMPORARY WIDENING CONSTRUCTED IN STAGE IA. NOTCH AND WIDEN ON RIGHT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON RIGHT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS.

NOTES:

1. QUANTITY OF VERTICAL PANELS SHOWN ON PLANS IS FOR ONE SIDE OF ROADWAY FOR 2 MILES. QUANTITY SHOWN IS MAXIMUM ALLOWED FOR CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO VERTICAL DIFFERENTIAL OF 4" OR LESS, AND THEN NOTCH ANOTHER MILE SECTION. THIS IS THE MAXIMUM DISTANCE ALLOWED PER SECTION 603.02 OF THE ARKANSAS 2014 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. IN LOCATIONS WHERE TRAFFIC SHIFTS FROM EXISTING TO TEMPORARY OR PROPOSED TRAVEL WAY, CONTRACTOR IS TO MAINTAIN MINIMAL LEVELING DIFFERENTIALS (2" MAX) BETWEEN THE TWO SURFACES.
3. TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.
4. VERTICAL PANELS ONLY PLACED IN AREAS THAT ARE TO BE RECONSTRUCTED. VERTICAL PANELS MAY REPLACE TRAFFIC DRUMS OR VICE VERSA IN TYPICAL SECTIONS. PLACE DEVICES AS SHOWN IN PLANS.

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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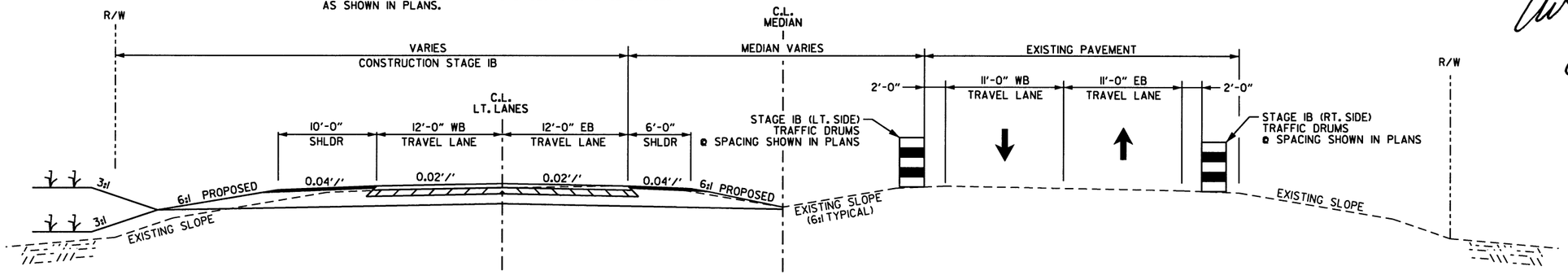
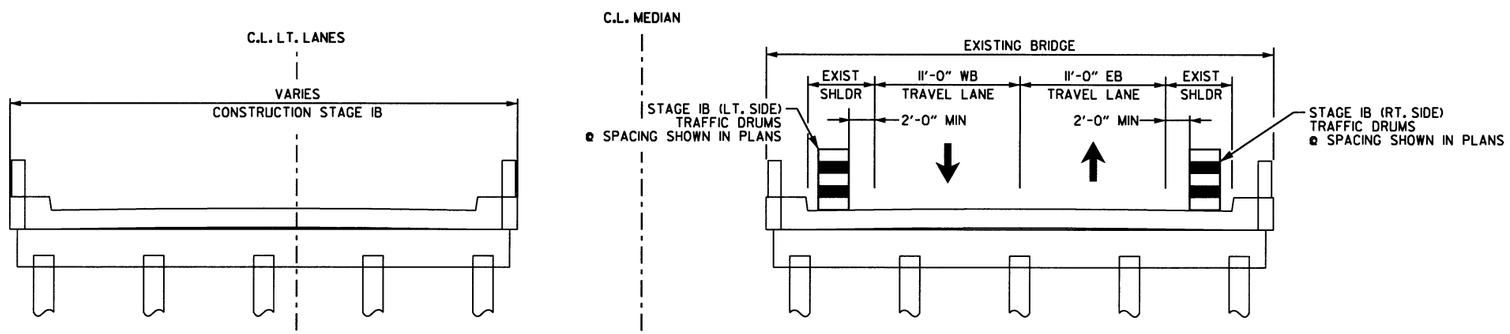
				6	ARK.			
				JOB NO.		CA0610	94	888
				(2) MAINTENANCE OF TRAFFIC				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016



MAINTENANCE OF TRAFFIC - OPEN SHOULDERS
TRAFFIC RT. SIDE - CONST. LT. SIDE ONLY
STAGE IB - TYPICAL SECTION

STA. 478+45 TO STA. 480+35
STA. 483+65 TO STA. 486+50



MAINTENANCE OF TRAFFIC - CEDAR CREEK BRIDGE
STAGE IB - TYPICAL SECTION

STA. 480+35 TO STA. 483+65

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE IB

STAGE IB:

MAINTAIN TRAFFIC ON EXISTING ROADWAY AND SHIFT TRAFFIC ON CROSSOVER TO TEMPORARY WIDENING CONSTRUCTED IN STAGE IA. NOTCH AND WIDEN ON RIGHT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON RIGHT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS.

NOTES:

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Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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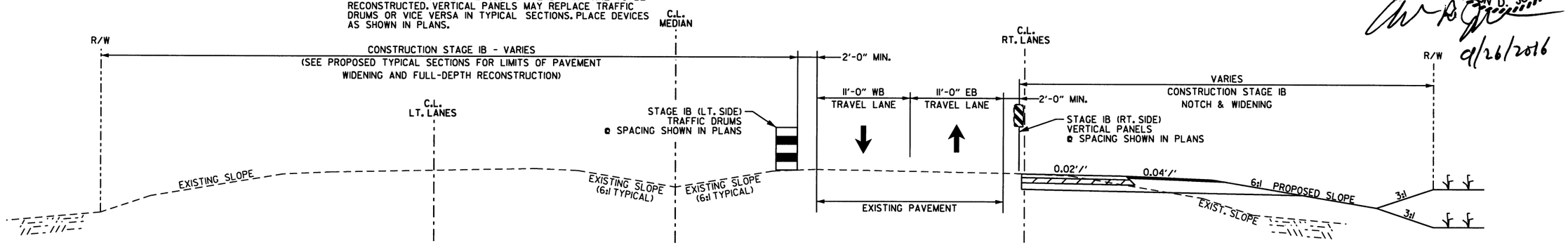
6	ARK.			
JOB NO.		CA0610	95	888

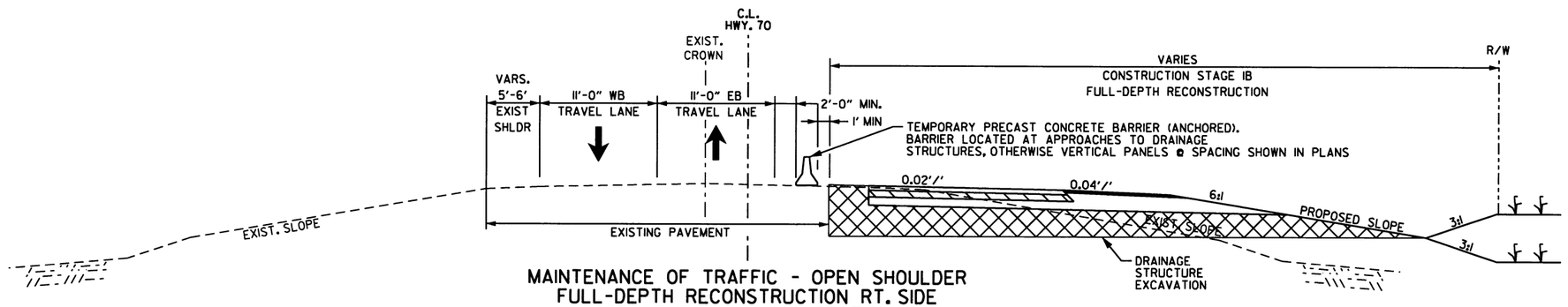
(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016



MAINTENANCE OF TRAFFIC - CLOSED SHOULDER
TRAFFIC RT. SIDE - CONST. BOTH SIDES
STAGE IB - TYPICAL SECTION

STA. 486+50 TO STA. 489+88



MAINTENANCE OF TRAFFIC - OPEN SHOULDER
FULL-DEPTH RECONSTRUCTION RT. SIDE
STAGE IB - TYPICAL SECTION

STA. 493+80 TO STA. 495+60
STA. 527+11 TO STA. 529+60
STA. 797+37 TO STA. 800+38
STA. 812+50 TO STA. 821+70
STA. 827+67 TO STA. 835+14
STA. 866+07 TO STA. 870+87
STA. 872+31 TO STA. 875+81
STA. 969+60 TO STA. 974+20
STA 1200+60 TO STA. 1207+89
STA. 1319+02 TO STA. 1319+67

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE IB

STAGE IB:

MAINTAIN TRAFFIC ON EXISTING ROADWAY AND SHIFT TRAFFIC ON CROSSOVER TO TEMPORARY WIDENING CONSTRUCTED IN STAGE IA. NOTCH AND WIDEN ON RIGHT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON RIGHT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS.

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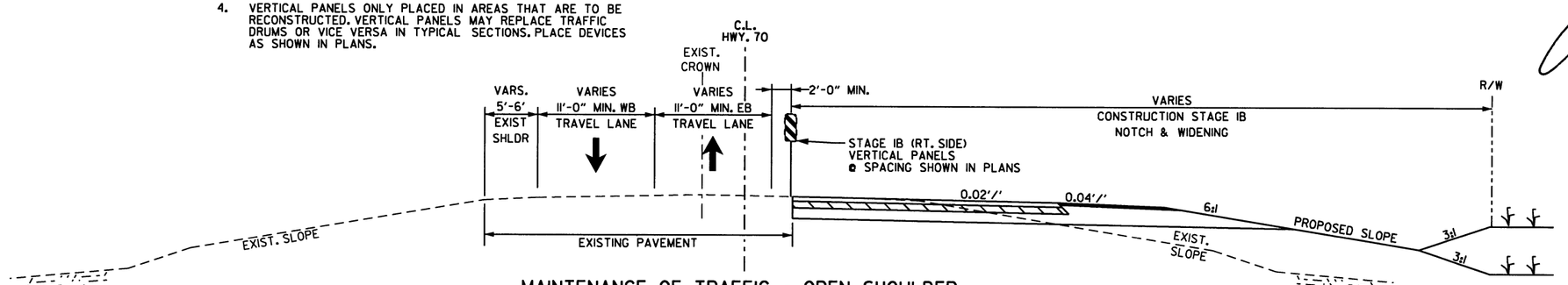
(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JAMES
9/26/2016



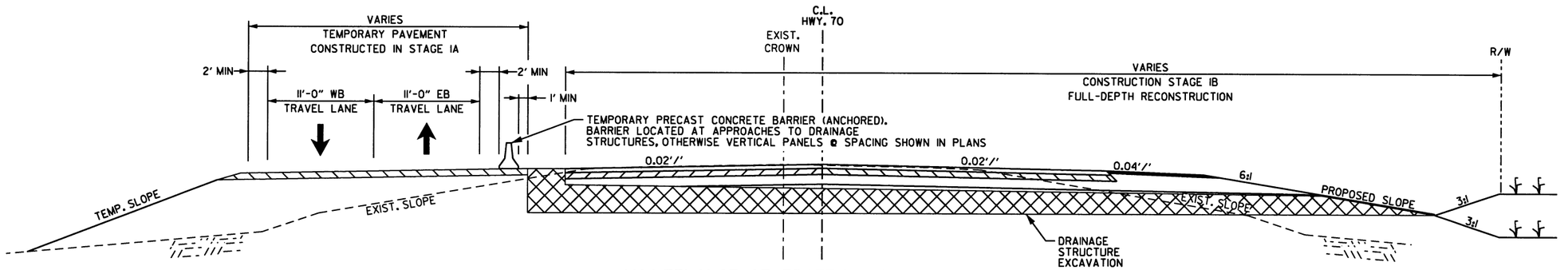
MAINTENANCE OF TRAFFIC - OPEN SHOULDER NOTCH AND WIDENING RT. SIDE STAGE IB - TYPICAL SECTION

STA. 489+88 TO STA. 493+80
STA. 495+60 TO STA. 505+31
STA. 529+60 TO STA. 535+50
STA. 551+50 TO STA. 560+24
STA. 560+84 TO STA. 581+75

STA. 772+90 TO STA. 797+37
STA. 800+38 TO STA. 812+50
STA. 835+14 TO STA. 866+07
STA. 875+81 TO STA. 881+46
STA. 974+20 TO STA. 1019+02
STA. 1032+60 TO STA. 1050+68

STA. 1059+01 TO STA. 1067+69
STA. 1198+14 TO STA. 1200+60
STA. 1267+86 TO STA. 1279+13
STA. 1279+73 TO STA. 1293+75
STA. 1294+35 TO STA. 1316+00
STA. 1323+25 TO STA. 1337+41

STA. 1338+01 TO STA. 1377+24
STA. 1377+84 TO STA. 1385+65
STA. 1390+00 TO STA. 1397+19
STA. 1398+39 TO STA. 1409+77
STA. 1410+37 TO STA. 1419+18
STA. 1423+79 TO STA. 1429+00



MAINTENANCE OF TRAFFIC - TEMP. WIDENING FULL-DEPTH RECONSTRUCTION RT. SIDE STAGE IB - TYPICAL SECTION

STA. 510+25 TO STA. 527+11

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE IB

STAGE IB:

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Michael Baker INTERNATIONAL
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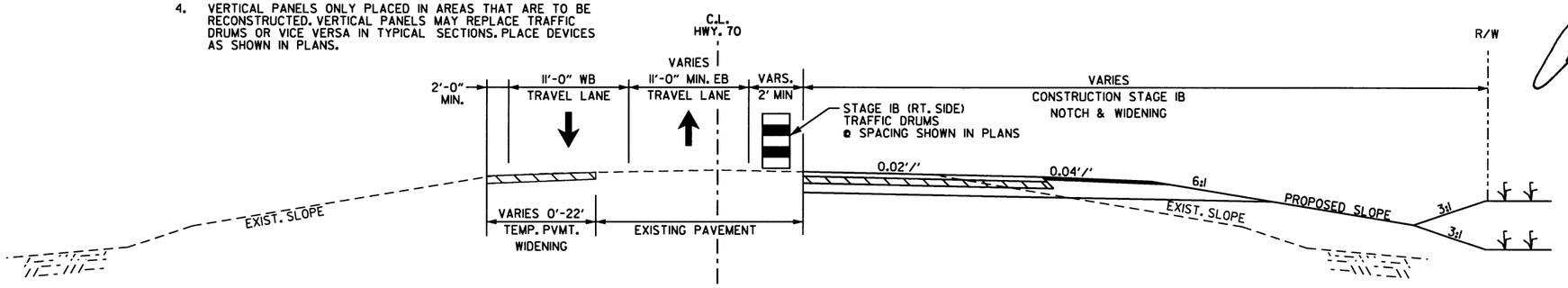
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER

9/26/2016



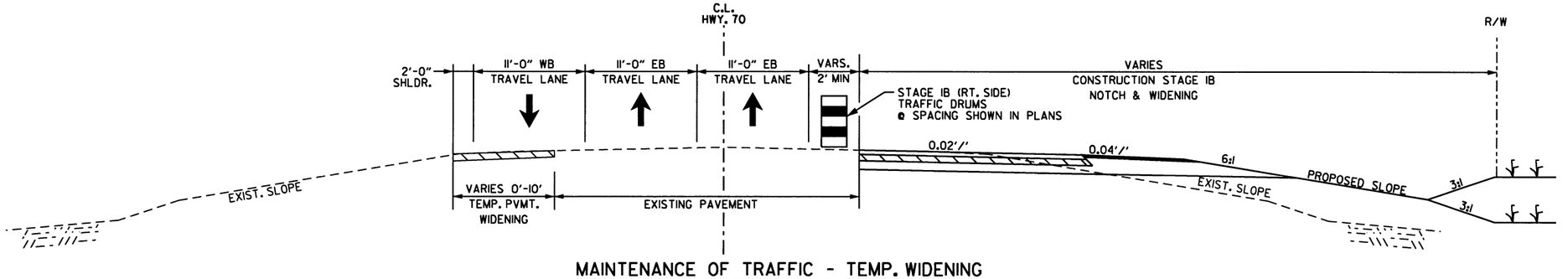
MAINTENANCE OF TRAFFIC - TEMP. WIDENING
NOTCH AND WIDENING RT. SIDE
STAGE IB - TYPICAL SECTION

STA. 505+31 TO STA. 510+25
STA. 535+50 TO STA. 541+52
STA. 542+12 TO STA. 551+50
STA. 1019+02 TO STA. 1025+75
STA. 1028+00 TO STA. 1032+60

STA. 1050+68 TO STA. 1053+88
STA. 1054+48 TO STA. 1059+01
STA. 1067+69 TO STA. 1071+29
STA. 1072+09 TO STA. 1096+46

STA. 1097+27 TO STA. 1108+26
STA. 1108+86 TO STA. 1114+12
STA. 1114+92 TO STA. 1120+92
STA. 1188+18 TO STA. 1194+78 (TRANS. W/ FLUSH MEDIAN STA. 1188+18 TO STA. 1193+54)

STA. 1195+58 TO STA. 1198+14
STA. 1220+75 TO STA. 1227+30
STA. 1236+03 TO STA. 1240+81
STA. 1242+41 TO STA. 1260+00
STA. 1264+00 TO STA. 1267+86



MAINTENANCE OF TRAFFIC - TEMP. WIDENING
NOTCH AND WIDENING RT. SIDE
STAGE IB - TYPICAL SECTION

STA. 627+00 TO STA. 630+35
STA. 631+36 TO STA. 635+00

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL / ALLIANCE TRANSPORTATION GROUP	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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					(2)	MAINTENANCE OF TRAFFIC			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON DA JUMPER
9/26/2016

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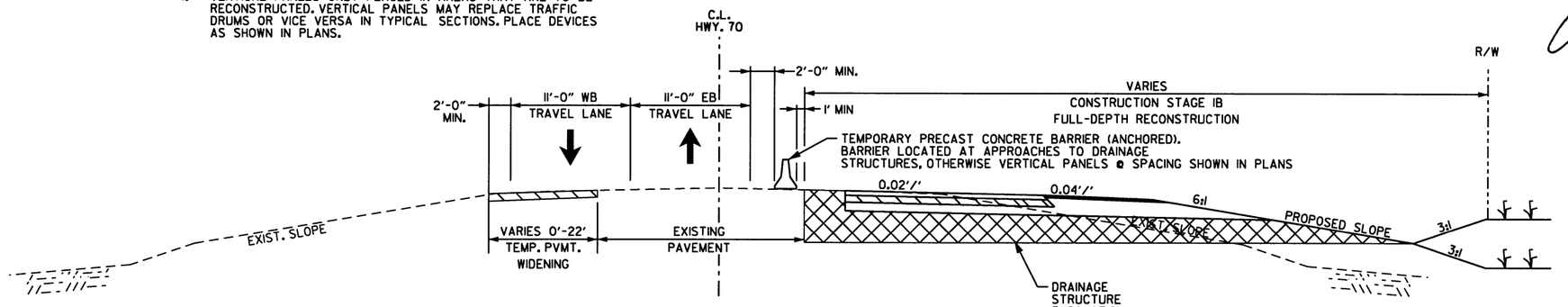
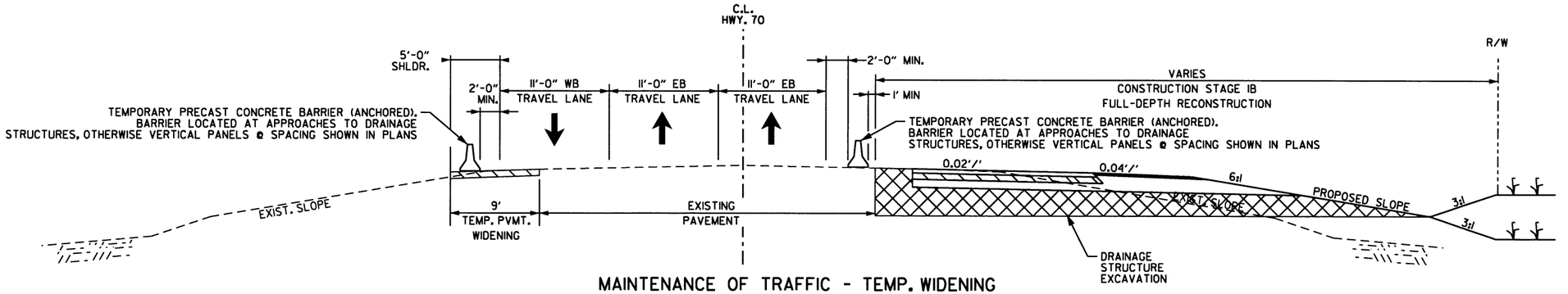


MAINTENANCE OF TRAFFIC - TEMP. WIDENING FULL-DEPTH RECONSTRUCTION RT. SIDE STAGE IB - TYPICAL SECTION

STA. 541+52 TO STA. 542+12
STA. 821+70 TO STA. 827+67
STA. 1053+88 TO STA. 1054+48
STA. 1071+29 TO STA. 1072+09
STA. 1096+46 TO STA. 1097+27
STA. 1108+26 TO STA. 1108+86
STA. 1114+12 TO STA. 1114+92
STA. 1194+78 TO STA. 1195+58
STA. 1235+23 TO STA. 1236+03
STA. 1240+81 TO STA. 1242+41
STA. 1260+00 TO STA. 1264+00 (EXCLUDING BRIDGE TYPICAL)



MAINTENANCE OF TRAFFIC - TEMP. WIDENING FULL-DEPTH RECONSTRUCTION RT. SIDE STAGE IB - TYPICAL SECTION

STA. 630+35 TO STA. 631+36

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE IB

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STATE OF ARKANSAS
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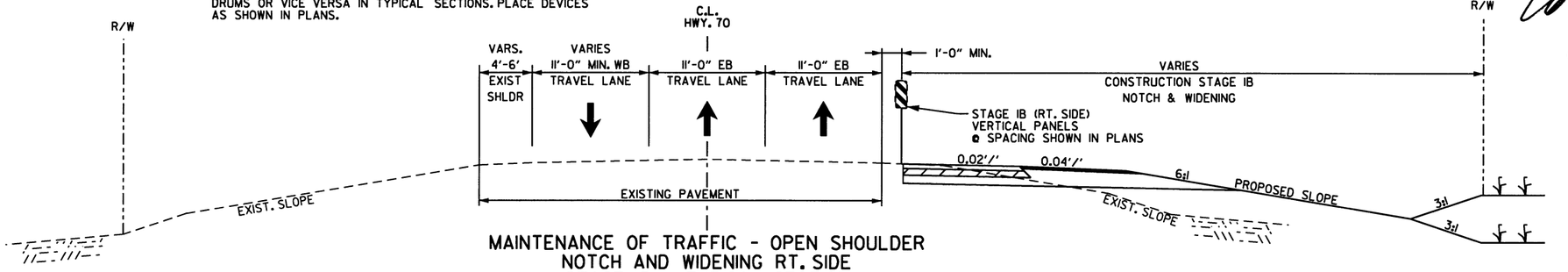
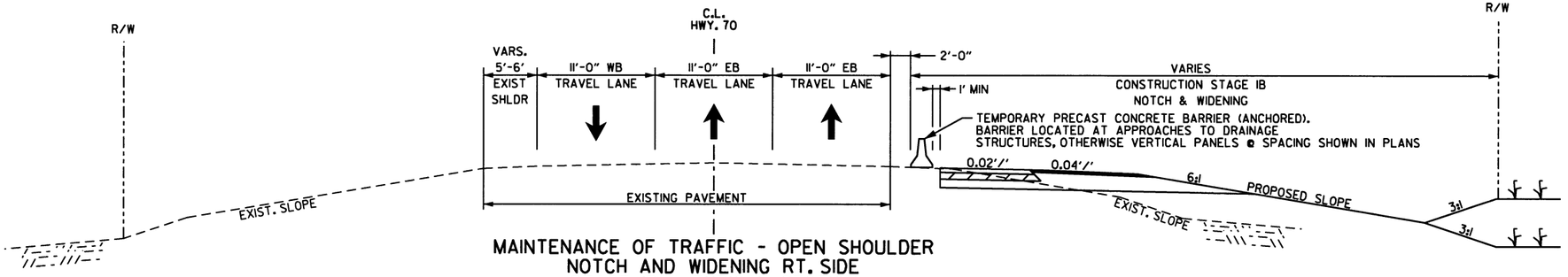
No. 16728
CLINTON D. JUMPER
9/26/2016



MAINTENANCE OF TRAFFIC - OPEN SHOULDER
NOTCH AND WIDENING RT. SIDE
STAGE IB - TYPICAL SECTION

STA. 586+08 TO STA. 610+93
STA. 611+86 TO STA. 627+00
STA. 635+00 TO STA. 642+44
STA. 643+38 TO STA. 663+78
STA. 664+91 TO STA. 677+60
STA. 881+46 TO STA. 950+90
STA. 1120+92 TO STA. 1180+18
STA. 1429+00 TO END OF PROJECT



MAINTENANCE OF TRAFFIC - OPEN SHOULDER
NOTCH AND WIDENING RT. SIDE
STAGE IB - TYPICAL SECTION

STA. 610+93 TO STA. 611+86
STA. 642+44 TO STA. 643+38
STA. 663+78 TO STA. 664+91

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE IB

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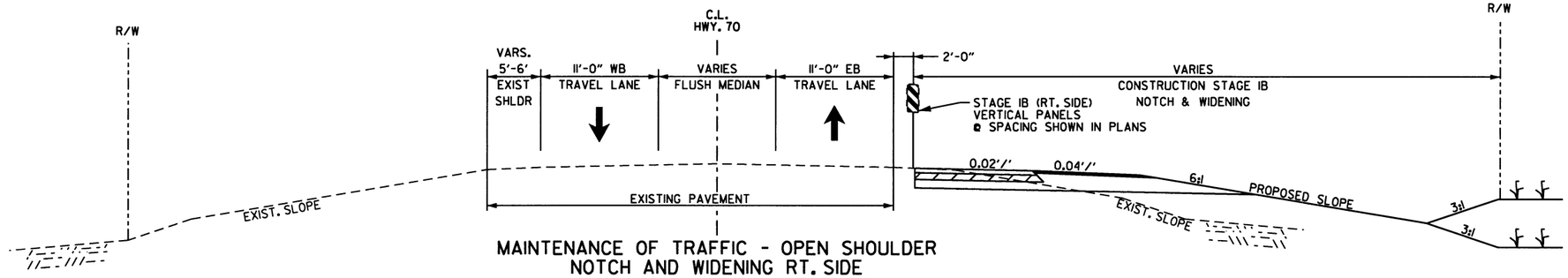
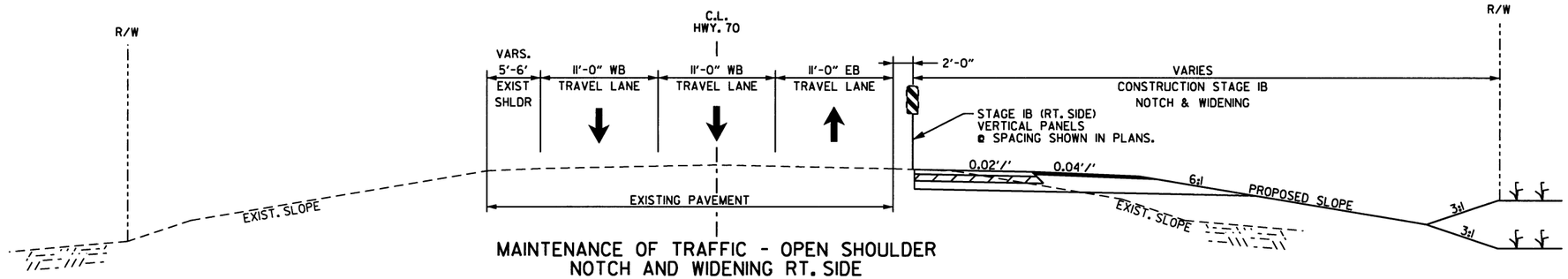


MAINTENANCE OF TRAFFIC - OPEN SHOULDER
NOTCH AND WIDENING RT. SIDE
STAGE IB - TYPICAL SECTION

STA. 677+60 TO STA. 695+60
STA. 950+90 TO STA. 969+60
STA. 1180+18 TO STA. 1188+18
STA. 1227+30 TO STA. 1235+23



MAINTENANCE OF TRAFFIC - OPEN SHOULDER
NOTCH AND WIDENING RT. SIDE
STAGE IB - TYPICAL SECTION

STA. 695+60 TO STA. 716+86
STA. 717+46 TO STA. 738+32
STA. 738+92 TO STA. 760+40
STA. 761+00 TO STA. 767+73
STA. 768+33 TO STA. 772+90

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
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STATE OF ARKANSAS
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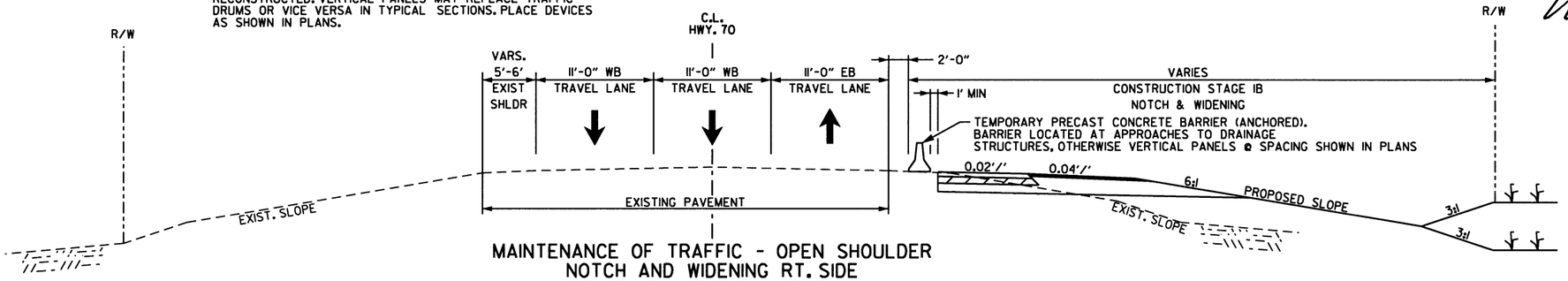
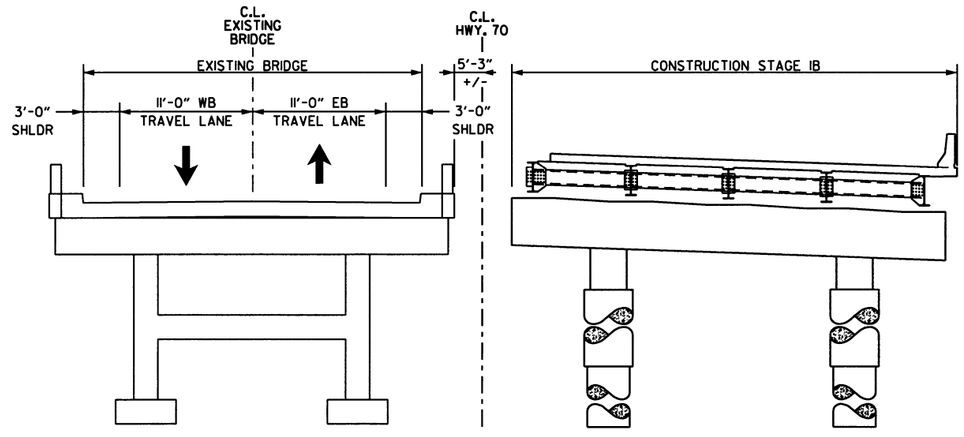


MAINTENANCE OF TRAFFIC - OPEN SHOULDER
NOTCH AND WIDENING RT. SIDE
STAGE IB - TYPICAL SECTION

STA. 716+86 TO STA. 717+46
STA. 738+32 TO STA. 738+92
STA. 760+40 TO STA. 761+00
STA. 767+73 TO STA. 768+33



MAINTENANCE OF TRAFFIC - TEN MILE CREEK WEST
BRIDGE RECONSTRUCTION
STAGE IB - TYPICAL SECTION

STA. 870+87 TO STA. 872+31

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE IB

STAGE IB:

MAINTAIN TRAFFIC ON EXISTING ROADWAY AND SHIFT TRAFFIC ON CROSSOVER TO TEMPORARY WIDENING CONSTRUCTED IN STAGE IA. NOTCH AND WIDEN ON RIGHT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON RIGHT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS.

NOTES:

1. QUANTITY OF VERTICAL PANELS SHOWN ON PLANS IS FOR ONE SIDE OF ROADWAY FOR 2 MILES. QUANTITY SHOWN IS MAXIMUM ALLOWED FOR CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO VERTICAL DIFFERENTIAL OF 4" OR LESS, AND THEN NOTCH ANOTHER MILE SECTION. THIS IS THE MAXIMUM DISTANCE ALLOWED PER SECTION 603.02 OF THE ARKANSAS 2014 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. IN LOCATIONS WHERE TRAFFIC SHIFTS FROM EXISTING TO TEMPORARY OR PROPOSED TRAVEL WAY, CONTRACTOR IS TO MAINTAIN MINIMAL LEVELING DIFFERENTIALS (2" MAX) BETWEEN THE TWO SURFACES.
3. TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.
4. VERTICAL PANELS ONLY PLACED IN AREAS THAT ARE TO BE RECONSTRUCTED. VERTICAL PANELS MAY REPLACE TRAFFIC DRUMS OR VICE VERSA IN TYPICAL SECTIONS. PLACE DEVICES AS SHOWN IN PLANS.

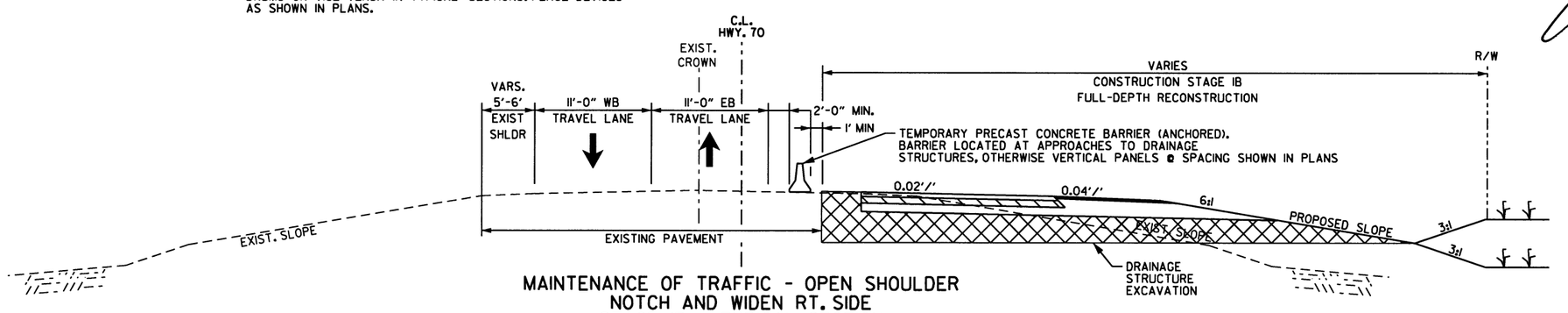
Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	102	888

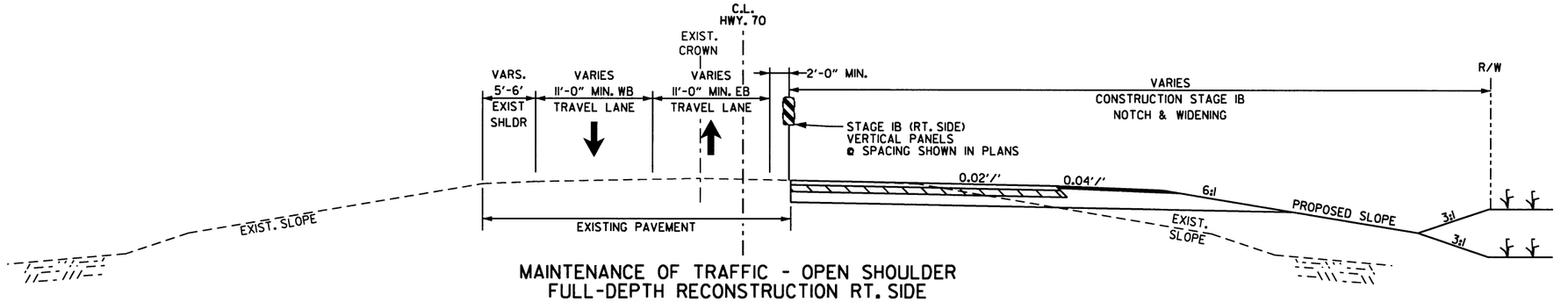
(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER
9/26/2016



MAINTENANCE OF TRAFFIC - OPEN SHOULDER
NOTCH AND WIDEN RT. SIDE
STAGE IB - TYPICAL SECTION

STA. 560+24 TO STA. 560+84
STA. 581+75 TO STA. 586+08
STA. 1279+13 TO STA. 1279+73
STA. 1337+41 TO STA. 1338+01
STA. 1293+75 TO STA. 1294+35
STA. 1377+24 TO STA. 1377+84
STA. 1397+19 TO STA. 1398+39
STA. 1409+77 TO STA. 1410+37
STA. 1419+18 TO STA. 1423+79



MAINTENANCE OF TRAFFIC - OPEN SHOULDER
FULL-DEPTH RECONSTRUCTION RT. SIDE
STAGE IB - TYPICAL SECTION

STA. 551+50 TO STA. 560+24
STA. 1316+00 TO STA. 1319+07
STA. 1319+67 TO STA. 1323+25
STA. 1385+65 TO STA. 1390+00

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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				(2)	MAINTENANCE OF TRAFFIC			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016

STAGE IB:

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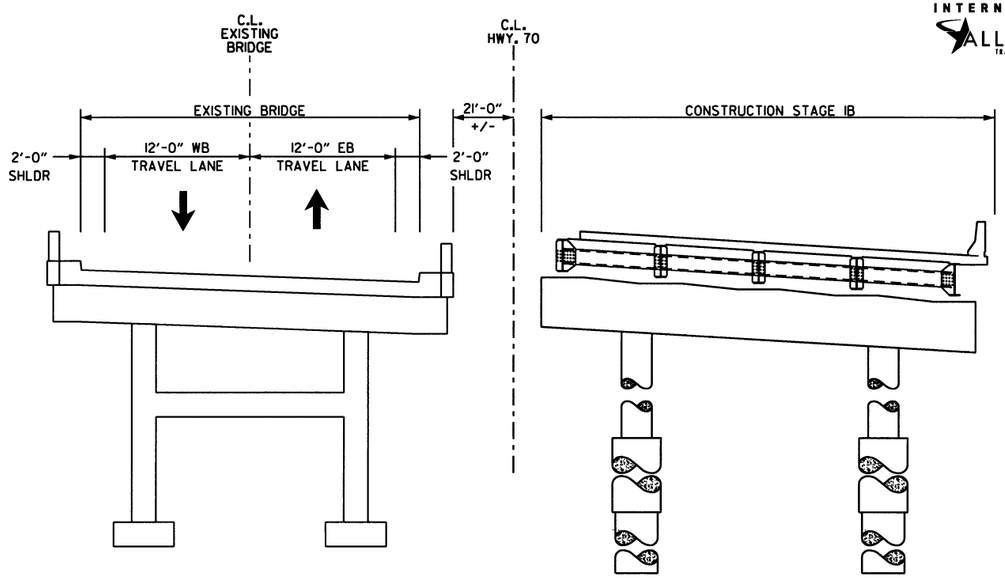
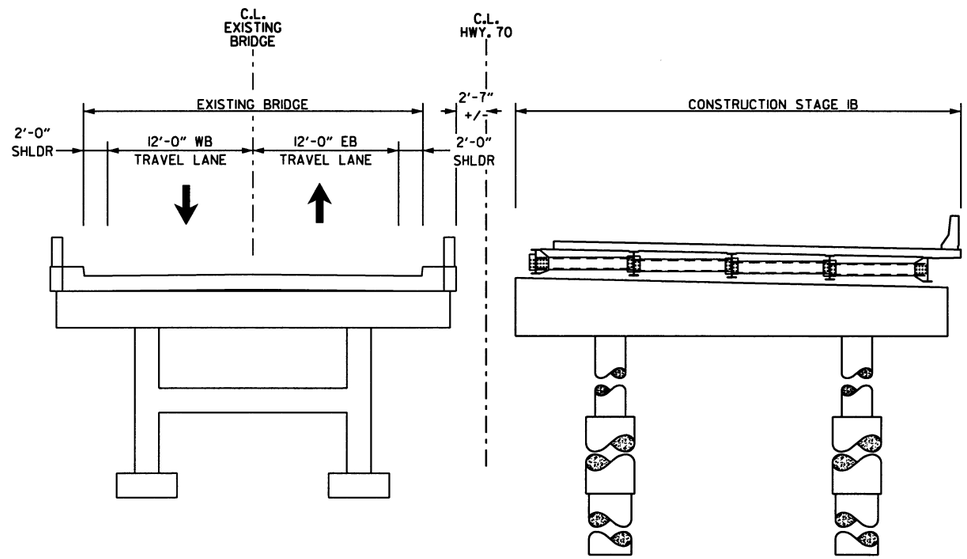


MAINTENANCE OF TRAFFIC - TEN MILE CREEK
BRIDGE RECONSTRUCTION
STAGE IB - TYPICAL SECTION

STA. 1207+88 TO STA. 1211+21



MAINTENANCE OF TRAFFIC - CANEY CREEK
BRIDGE RECONSTRUCTION
STAGE IB - TYPICAL SECTION

STA. 1261+59 TO STA. 1262+60

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE IB

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STATE OF ARKANSAS
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CLINTON D. JUNIPER

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STAGE IB:

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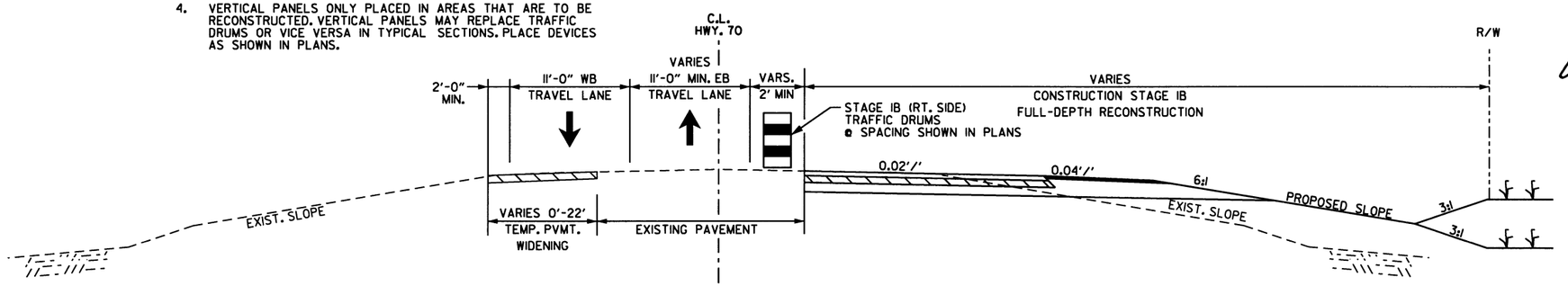

MAINTENANCE OF TRAFFIC - TEMP. WIDENING FULL-DEPTH RECONSTRUCTION RT. SIDE STAGE IB - TYPICAL SECTION

STA. 1025+75 TO STA. 1028+00
STA. 1211+21 TO STA. 1220+75

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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(2) MAINTENANCE OF TRAFFIC

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END ROAD WORK G20-2 (48"x24")
500'
470+00
28 TRAFFIC DRUMS @ 50' O.C.
EXIST. R/W
STA 480+25.20
BEGIN JOB CA0610
LOG MI. 3.22
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS YELLOW LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
C.L. LEFT LANES
C.L. MEDIAN
SHOULDER CLOSED RSP-I (48"x30")
CONTINUE TRAFFIC DRUMS WESTWARD AT 100' O.C. SEE "ADVANCE WARNING SIGNS" SHEETS FOR MORE INFORMATION
CONST. LIMITS
475+00
480+00
485+00
(3) WI-8R (36"x48")
CEMETERY ACCESS 1000 FEET
SEE "CEMETERY ACCESS SIGN DETAILS" SHEET FOR MORE INFORMATION
STA. 478+18.10, 42' RT.
C.L. MEDIAN
END 1200' TANGENT SECTION
BEGIN HEAD-TO-HEAD TRAFFIC
SEE "ADVANCE WARNING SIGNS" SHEETS FOR MORE INFORMATION
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
DO NOT PASS R4-1 (36"x48")
CEMETERY ACCESS 500 FEET
FURNISH AND INSTALL 200 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/ TIAB)
EXIST. R/W
13 TRAFFIC DRUMS @ 50' O.C.

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

31 TRAFFIC DRUMS @ 50' O.C.
(2) RII-2 (48"x30") ROAD CLOSED
(2) 16' BARR. TYP. III LT.
MAINTAIN DRIVEWAY ACCESS
(FRONT) DO NOT ENTER R5-1 (36"x36")
(BACK) YIELD RI-2 (36"x36")
RII-4 (60"x30") ROAD CLOSED THRU TRAFFIC / CEMETERY ACCESS ONLY
EXIST. R/W
STA. 495+13.8, 22' LT
C.L. MEDIAN
P.T. DOUBLE YELLOW LINE
R=2600'
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
(48"x48") I-02M ROAD WORK AHEAD
BRATTON DR
END ROAD WORK G20-2 (48"x24")
SHOULDER CLOSED RSP-I (48"x30")
DO NOT PASS R4-I (36"x48")
C.L. HWY. 70
CEMETERY ACCESS 500 FT
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONST. LIMITS
25 TRAFFIC DRUMS @ 10' O.C.
490+00
495+00
500+00
C.L. MEDIAN
485+00
STA. 488+72.75, 7.0' LT
C.L. RIGHT LANES
P.C. DOUBLE YELLOW LINE
R=2600'
W16-5P (30"x48") CEMETERY ACCESS ONLY
STOP RI-I (36"x36")
SHOULDER CLOSED RSP-I (48"x30")
11 VERTICAL PANELS @ 50' O.C.
4 TRAFFIC DRUMS @ 50' O.C.
13 TRAFFIC DRUMS @ 50' O.C.
30 TRAFFIC DRUMS @ 10' O.C.
ROAD WORK AHEAD W20-I (48"x48")
END ROAD WORK G20-2 (48"x24")

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

MAINTENANCE OF TRAFFIC - STAGE IB

NOTE:
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(2) MAINTENANCE OF TRAFFIC

STA 505+30, 30.35' LT
C.L. HWY. 70
P.T. CONTINUOUS WHITE LINE
L=729.41'

EXIST. R/W

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

CEMETERY ACCESS 1000 FEET

CONST. LIMITS

505+00

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

STA 512+61.82, 54.50' LT
C.L. HWY. 70
P.C. CONTINUOUS WHITE LINE
R=1000'

STA 515+59.75, 50.21' LT
C.L. HWY. 70
P.C. CONTINUOUS WHITE LINE
R=850'

PROP. R/W

STA 514+57.04, 54.49' LT
C.L. HWY. 70
P.T. CONTINUOUS WHITE LINE

DO NOT PASS R4-1 (36"x48")

510+00

515+00

SHOULDER CLOSED RSP-1 (48"x30")

W8-9A (48"x48") SHOULDER DROP OFF

C.L. HWY. 70

31 TRAFFIC DRUMS @ 10' O.C.

CONST. LIMITS

EXIST. R/W

16 TRAFFIC DRUMS @ 50' O.C.

ROAD WORK AHEAD W20-1 (48"x48")

RELOCATE 140 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

31 TRAFFIC DRUMS @ 10' O.C.

END ROAD WORK G20-2 (48"x24")

BARTEE TR

28 TRAFFIC DRUMS @ 10' O.C.

RELOCATE 180 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

520+00

ROAD WORK AHEAD W20-1 (48"x48")

T.C.E.

STA 523+72.33, 49.32' LT
C.L HWY. 70
P.T. CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

STA 529+1.98, 26.70' LT
C.L. HWY. 70
4" CONTINUOUS WHITE LINE
TIE-IN TO EXISTING
END TEMPORARY PAVEMENT
(CONSTRUCTED IN STAGE IA)

530+00

EXIST. R/W

PROP. R/W

EXIST. R/W

CONST. LIMITS

525+00

DO NOT PASS R4-1 (36"x48")

EXIST. R/W

END ROAD WORK G20-2 (48"x24")

21 TRAFFIC DRUMS @ 10' O.C.

RELOCATE 320 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

SHANE LN

ROAD WORK AHEAD W20-1 (48"x48")

RELOCATE 380 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

C.L. HWY. 70

27 TRAFFIC DRUMS @ 10' O.C.

CONST. LIMITS

END ROAD WORK G20-2 (48"x24")

SARGENT LN

ROAD WORK AHEAD W20-1 (48"x48")

RELOCATE 200 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

25 TRAFFIC DRUMS @ 10' O.C.

AUTUMN HILLS LN

RELOCATE 193 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

EXIST. R/W

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

STATE OF ARKANSAS
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MAINTENANCE OF TRAFFIC - STAGE IB

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LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

W20-1 (48"x48") ROAD WORK AHEAD
JAGUAR TR
JAVA RD
END ROAD WORK G20-2 (48"x24")
STA 535+50.00, 23.41' LT
C.L. HWY. 70
BEGIN TEMPORARY PAVEMENT
(CONSTRUCTED IN STAGE IA)
P.C.C. CONTINUOUS WHITE LINE
R=2555.21'
STA 539+45.46, 34.50' LT
C.L. HWY. 70
P.T. CONTINUOUS WHITE LINE
MATCH PROP. C.L. HWY 70
AT 34.50' OFFSET
EXIST. R/W
CONST. LIMITS
535+00
540+00
545+00
C.L. HWY. 70
DO NOT PASS R4-1 (36"x48")
SHOULDER CLOSED RSP-1 (48"x30")
SHOULDER DROP OFF W8-9A (48"x48")
50 M.P.H W13-1P (30"x30")
W1-4L (48"x48")
CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE
CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE
2 TRAFFIC DRUMS @ 50' O.C.
2 TRAFFIC DRUMS @ 50' O.C.
FURNISH AND INSTALL
153 LIN. FT. OF TEMP.
PRECAST CONCRETE
BARRIER (W/TIAB)
65 TRAFFIC DRUMS @ 10' O.C.
21 TRAFFIC DRUMS @ 50' O.C.
N

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE
450'
SHIFTING TAPER
STA. 551+50.00, 16' LT.
C.L. HWY. 70
END SHIFTING TAPER
END TEMPORARY PAVEMENT
(CONSTRUCTED IN STAGE IA)
TIE-IN TO EXISTING
W1-4R (48"x48")
W13-1P (30"x30")
50 M.P.H
CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE
EXIST. R/W
CONST. LIMITS
I.C.E.
STA. 547+00.00, 34.50' LT.
C.L. HWY. 70
BEGIN SHIFTING TAPER
550+00
555+00
560+00
CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE
C.L. HWY. 70
DO NOT PASS R4-1 (36"x48")
CONST. LIMITS
FURNISH AND INSTALL
193 LIN. FT. OF
TEMP. PRECAST CONCRETE
BARRIER (W/TIAB)
EXIST. R/W
28 TRAFFIC DRUMS @ 50' O.C.
N

NOTE:
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MAINTENANCE OF TRAFFIC - STAGE IB

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(2) MAINTENANCE OF TRAFFIC

EXIST. R/W
565+00
C.L. HWY. 70
CONST. LIMITS
570+00
575+00
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
DO NOT PASS (24-1) (36"x48")
SHOULDER CLOSED (48"x30") (R5A-1)
SHOULDER DROP OFF (48"x48") (M8-9a)
32 TRAFFIC DRUMS @ 50' O.C.

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

N

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STATE OF ARKANSAS
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EXIST. R/W
7 TRAFFIC DRUMS @ 50' O.C.
C.L. HWY. 70
580+00
CONST. LIMITS
585+00
590+00
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
FURNISH AND INSTALL 473 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
STA 582+37.81 IN PLACE 30"X 79' R.C. PIPE CULVERT WITH HDWLS. LT. REMOVE HDWL. LT. AND EXTEND 30' RT. IN STAGE IB PLUG AND ABANDON AFTER STAGE 2
STA. 583+00
320' TAPER
STA. 586+20
14 VERTICAL PANELS @ 50' O.C.
EXIST. R/W

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MAINTENANCE OF TRAFFIC - STAGE IB

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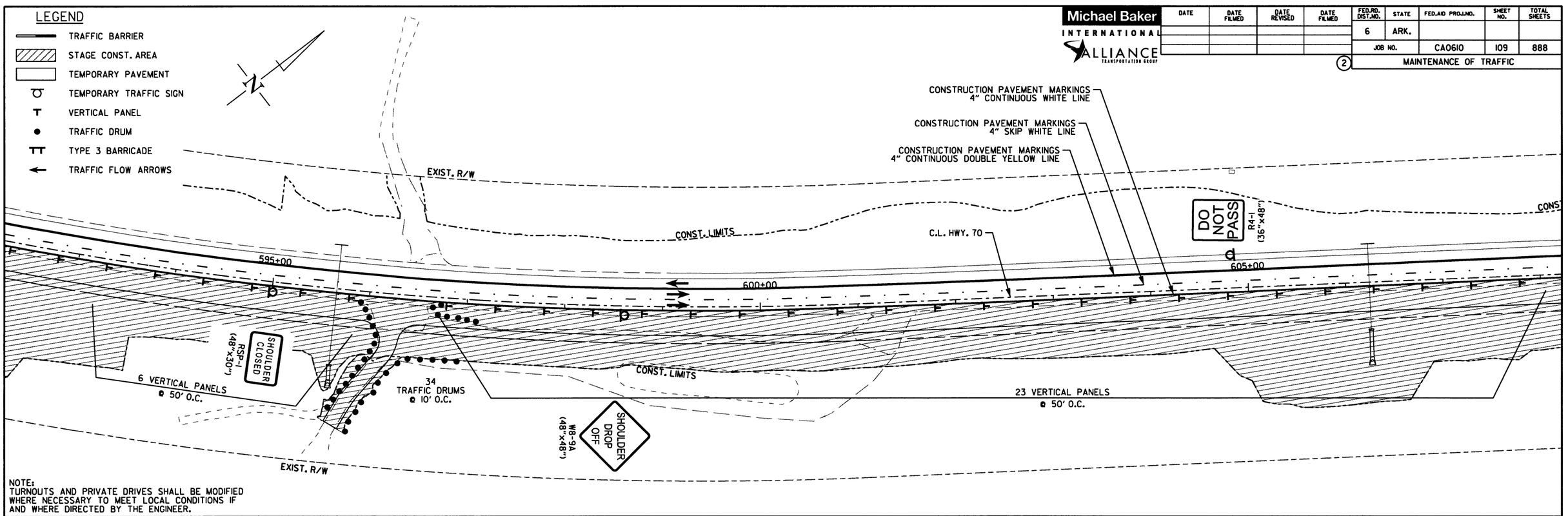
LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS



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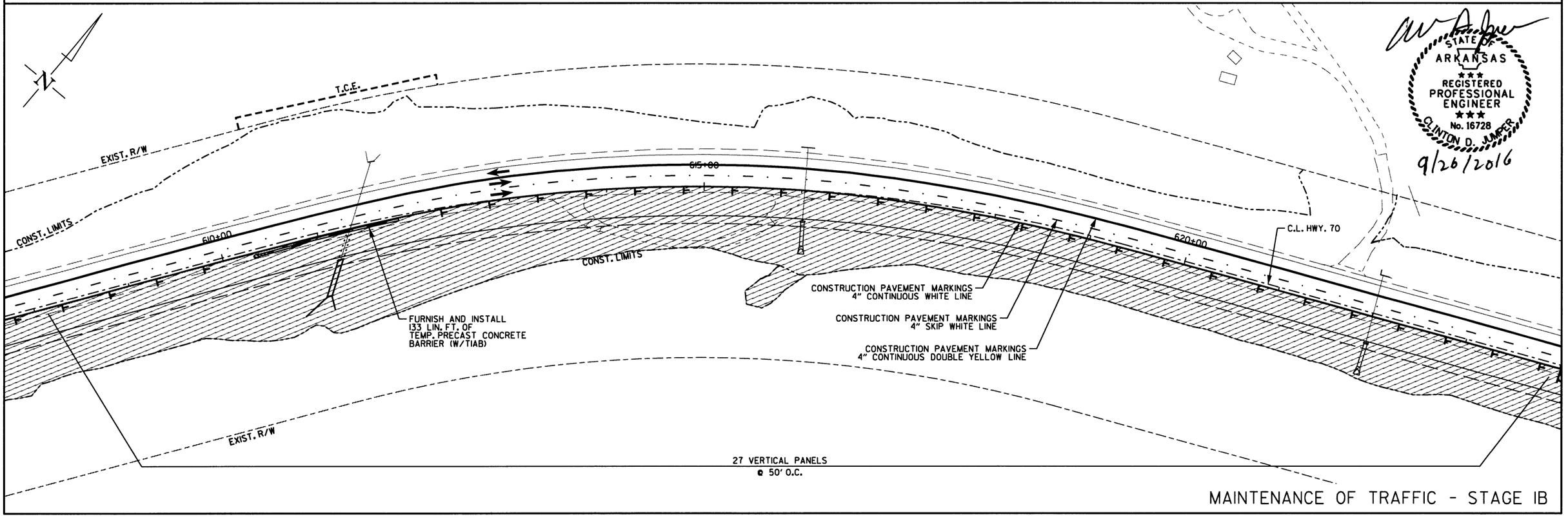

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(2) MAINTENANCE OF TRAFFIC

STA. 627+00, 28.7' LT.
C.L. HWY. 70
BEGIN TEMPORARY PAVEMENT
(CONSTRUCTED IN STAGE IA)
BEGIN 200' SHIFTING TAPER

220'
SHIFTING TAPER

STA. 627+00

STA. 629+20

STA. 629+00, 33' LT.
C.L. HWY. 70
END 200' SHIFTING TAPER
MATCH PROPOSED ALIGNMENT

STA. 630+00, 33' LT.
C.L. HWY. 70
P.C. 4" CONTINUOUS WHITE LINE
R= 3676'

FURNISH AND INSTALL
100 LIN. FT. OF
TEMP. PRECAST CONCRETE
BARRIER (W/TIAB)

CONSTRUCTION PAVEMENT MARKINGS
4" SKIP WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

STA. 635+00, 45.27' LT.
C.L. HWY. 70
END TEMPORARY PAVEMENT
(CONSTRUCTED IN STAGE IA)
TIE-IN TO EXISTING

EXIST. R/W

CONST. LIMITS

C.L. HWY. 70

625+00

630+00

635+00

W1-4L (48"x48")

50 M.P.H.

W13-1P (30"x30")

DO NOT PASS R4-1 (36"x48")

W1-4L (48"x48")

50 M.P.H.

W13-1P (30"x30")

W8-9A (48"x48")

SHOULDER DROP OFF

CONST. LIMITS

SHOULDER CLOSED R5-1 (48"x30")

8 VERTICAL PANELS
@ 50' O.C.

FURNISH AND INSTALL
133 LIN. FT. OF
TEMP. PRECAST CONCRETE
BARRIER (W/TIAB)

12 TRAFFIC DRUMS
@ 50' O.C.

8 VERTICAL PANELS
@ 50' O.C.

EXIST. R/W

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

STATE OF ARKANSAS
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No. 16728
CLINTON D. JUMPER
9/26/2016

W20-1 (48"x48")
ROAD WORK AHEAD

END ROAD WORK
G20-2 (48"x24")

EXIST. R/W

CONST. LIMITS

640+00

645+00

650+00

FURNISH AND INSTALL
133 LIN. FT. OF
TEMP. PRECAST CONCRETE
BARRIER (W/TIAB)

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS
4" SKIP WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

C.L. HWY. 70

W20-5L (48"x48")
LEFT LANE CLOSED 1/2 MILE

26 TRAFFIC DRUMS
@ 10' O.C.

26 VERTICAL PANELS
@ 50' O.C.

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

MAINTENANCE OF TRAFFIC - STAGE IB

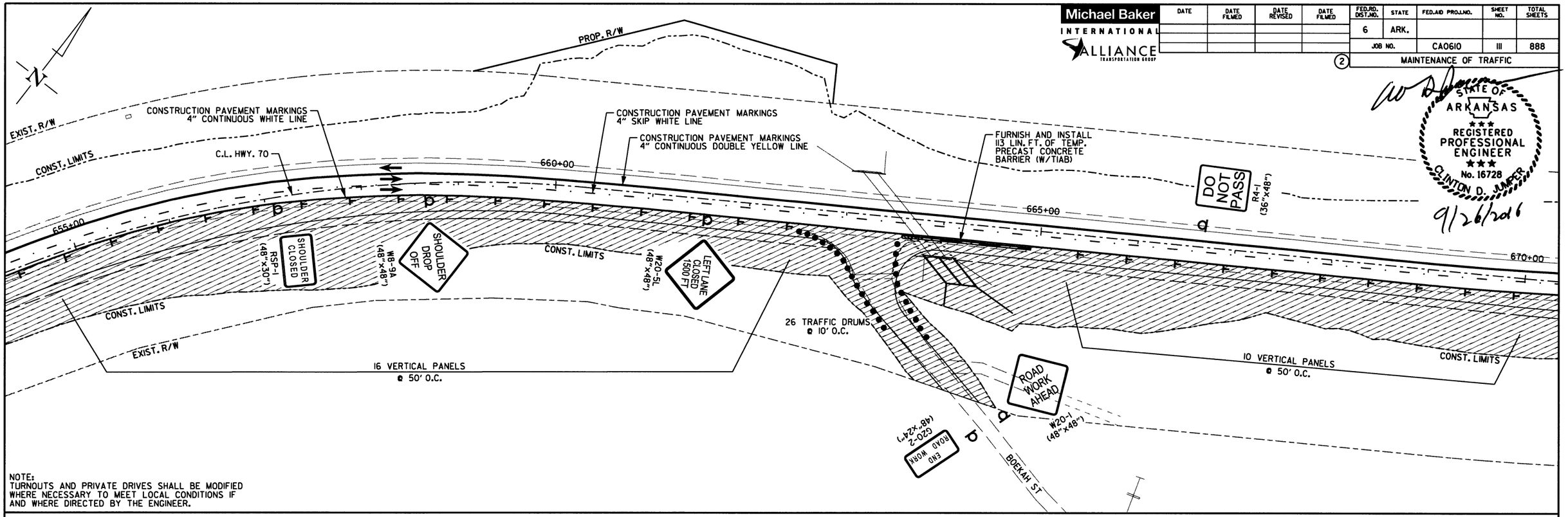
Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	III	888

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016



NOTE:
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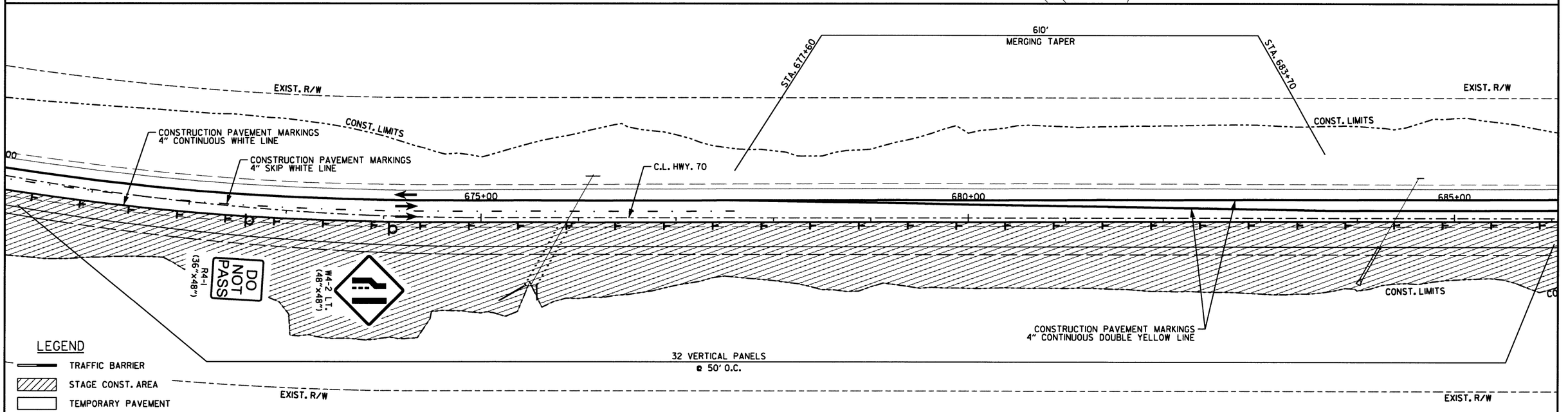


LEGEND

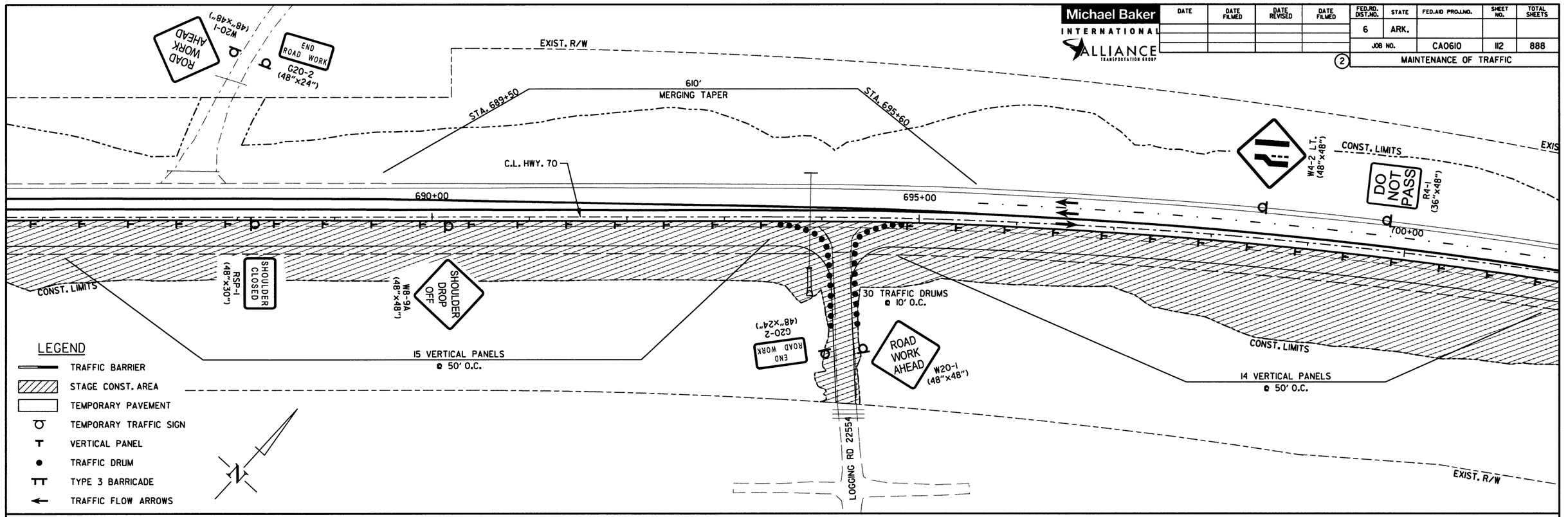
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	112	888

(2) MAINTENANCE OF TRAFFIC



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016

NOTE:
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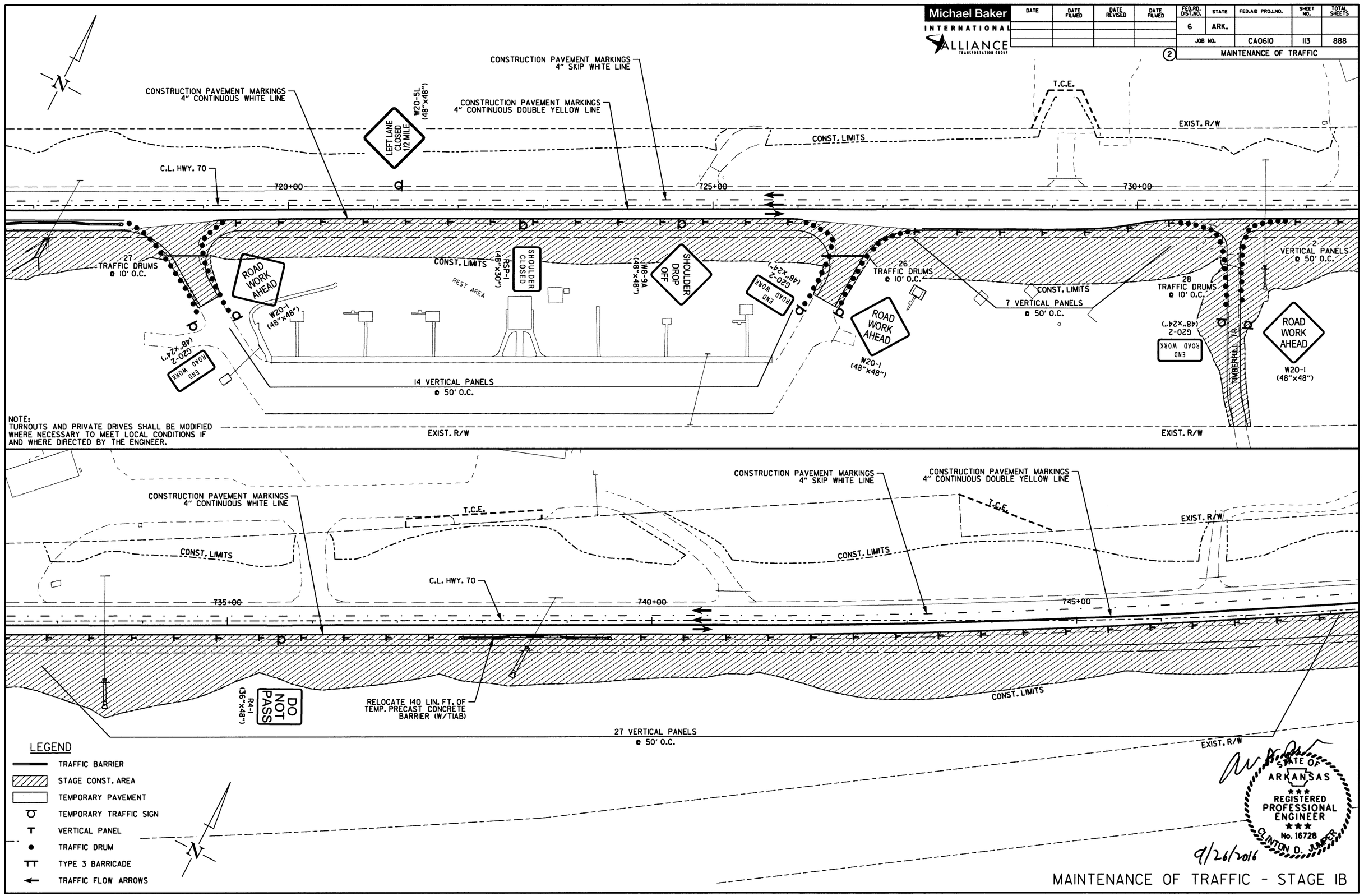
MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	113	888

(2) MAINTENANCE OF TRAFFIC



LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER
9/26/2016

MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	114	888

(2) MAINTENANCE OF TRAFFIC

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

CONSTRUCTION PAVEMENT MARKINGS
4" SKIP WHITE LINE

N

W20-1 (48"x48") ROAD WORK AHEAD

END ROAD WORK G20-2 (48"x24")

HAPPYTREE LN

EXIST. R/W

CONST. LIMITS

PAYTON PL

W20-1 (48"x48") ROAD WORK AHEAD

END ROAD WORK G20-2 (48"x24")

C.L. HWY. 70

750±00 | 755±00 | 760±00

SHOULDER CLOSED R5P-1 (48"x30")

26 TRAFFIC DRUMS @ 10' O.C.

W8-9A (48"x48") SHOULDER DROP OFF

CONST. LIMITS

FURNISH AND INSTALL 140 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

25 TRAFFIC DRUMS @ 10' O.C.

7 VERTICAL PANELS @ 50' O.C.

END ROAD WORK G20-2 (48"x24")

BUNKER HILL TR

ROAD WORK AHEAD W20-1 (48"x48")

STILLMAN LN

12 VERTICAL PANELS @ 50' O.C.

5 VERTICAL PANELS @ 50' O.C.

EXIST. R/W

NOTE:
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CONSTRUCTION PAVEMENT MARKINGS
4" SKIP WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

550' SHIFTING TAPER

STA. 770+50

STA. 776+00

EXIST. R/W

CONST. LIMITS

CONST. LIMITS

C.L. HWY. 70

765+00 | 770±00 | 775+00

STATE OF ARKANSAS
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R4-1 (36"x48") DO NOT PASS

CONST. LIMITS

22 TRAFFIC DRUMS @ 10' O.C.

FURNISH AND INSTALL 140 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

50 M.P.H. W13-1P (30"x30")

W1-4L (48"x48")

25 TRAFFIC DRUMS @ 10' O.C.

8 VERTICAL PANELS @ 50' O.C.

29 TRAFFIC DRUMS @ 10' O.C.

END ROAD WORK G20-2 (48"x24")

ROAD WORK AHEAD W20-1 (48"x48")

CONST. LIMITS

6 TRAFFIC DRUMS @ 50' O.C.

EXIST. R/W

8 VERTICAL PANELS @ 50' O.C.

CLOUD 9 DR

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

N

MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	115	888

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016

N

W20-1 (48"x48")
ROAD WORK AHEAD

T.C.E.

EVERHART RD

END ROAD WORK
G20-2 (48"x24")

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

PROP. R/W
CONST. LIMITS
EXIST. R/W

C.L. HWY. 70

780+00
785+00
790+00

DO NOT PASS
R4-1 (36"x48")

SHOULDER CLOSED
RSP-1 (48"x30")

W8-9A (48"x48")
SHOULDER DROP OFF

28 TRAFFIC DRUMS
@ 50' O.C.

NOTE:
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795+00
800+00
805+00

7 TRAFFIC DRUMS
@ 50' O.C.

DO NOT PASS
R4-1 (36"x48")

FURNISH AND INSTALL 413 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

2 TRAFFIC DRUMS
@ 50' O.C.

27 TRAFFIC DRUMS
@ 10' O.C.

END ROAD WORK
G20-2 (48"x24")

ROAD WORK AHEAD
W20-1 (48"x48")

11 TRAFFIC DRUMS
@ 50' O.C.

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	116	888

(2) MAINTENANCE OF TRAFFIC

9/26/2016

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER

PROP. R/W
CONST. LIMITS
C.L. HWY. 70
810+00
FURNISH AND INSTALL 860 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
815+00
EXIST. R/W
STA. 821+69.89, 34' LT
C.L. HWY. 70
4" CONTINUOUS WHITE LINE
P.C. FROM EXISTING E.O.P.
R=2000'
CONST. LIMITS
820+00
26 TRAFFIC DRUMS @ 10' O.C.
7 TRAFFIC DRUMS @ 50' O.C.
SCENIC RIDGE RD
CONST. LIMITS
EXIST. R/W
PROP. R/W
PROP. R/W
CONST. LIMITS
EXIST. R/W
T.C.E.

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

N

STA. 823+65.19, 24.5' LT
C.L. HWY. 70
P.T. CONTINUOUS WHITE LINE
STA. 825+18.95, 24.5' LT
C.L. HWY. 70
P.C. CONTINUOUS WHITE LINE
R=2000'
STA. 827+67.40, 30' LT
4" CONTINUOUS WHITE LINE
TIE-IN TO EXISTING
T.C.E.
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
EXIST. R/W
CONST. LIMITS
825+00
830+00
835+00
32 TRAFFIC DRUMS @ 10' O.C.
FURNISH AND INSTALL 1213 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
CONST. LIMITS
C.L. HWY. 70
5 TRAFFIC DRUMS @ 50' O.C.
R4-1 (36"x48")
DO NOT PASS
RSP-1 (48"x30")
SHOULDER CLOSED
EXIST. R/W
ROAD WORK AHEAD
W20-1 (48"x48")
END ROAD WORK
G20-2 (48"x24")
SUMMIT RIDGE RD

N

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

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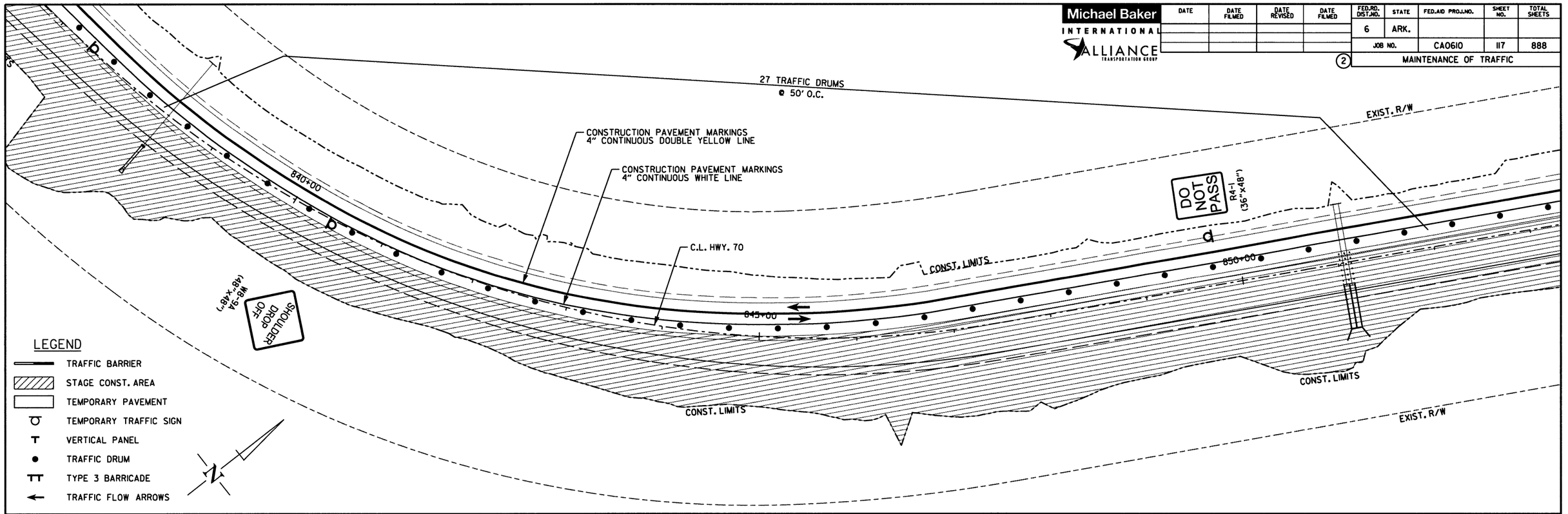
6	ARK.			
JOB NO.		CA0610	117	888

(2) MAINTENANCE OF TRAFFIC



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER
9/26/2016

NOTE:
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MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	118	888

(2) MAINTENANCE OF TRAFFIC

CONST. LIMITS
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
EXIST. R/W
W20-1 (48"x48")
ROAD WORK AHEAD
CEDAR CREEK RD
END ROAD WORK
G20-2 (48"x24")
PROP. R/W
870+00
CONST. LIMITS
873+00
CONST. LIMITS
FURNISH AND INSTALL 486 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER
C.L. HWY. 70
EXIST. R/W
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
350' TAPER
STA. 878+00
STA. 881+50
EXIST. R/W
DO NOT PASS R4-1 (36"x48")
CONST. LIMITS
880+00
27 TRAFFIC DRUMS @ 10' O.C.
5 VERTICAL PANELS @ 50' O.C.
7 TRAFFIC DRUMS @ 50' O.C.
EXIST. R/W

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

EXIST. R/W
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONST. LIMITS
890+00
885+00
C.L. HWY. 70
CONST. LIMITS
SHOULDER CLOSED
RSP-1 (48"x30")
W8-9A (48"x48")
SHOULDER DROP OFF
895+00
CONST. LIMITS
EXIST. R/W
29 VERTICAL PANELS @ 50' O.C.

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MAINTENANCE OF TRAFFIC - STAGE IB

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6	ARK.			
JOB NO.		CA0610	119	888

(2) MAINTENANCE OF TRAFFIC

9/26/2016

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

N

EXIST. R/W
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONST. LIMITS
C.L. HWY. 70
900+00
905+00
910+00
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
ROAD WORK AHEAD W20-1 (48"x48")
CR 369
ROAD WORK END G20-2 (48"x24")
DO NOT PASS R4-1 (36"x48")
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
LEFT LANE CLOSED 1 MILE W20-5L (48"x48")
13 VERTICAL PANELS @ 50' O.C.
27 TRAFFIC DRUMS @ 10' O.C.
LOGGING RD. 22561
ROAD WORK AHEAD W20-1 (48"x48")
ROAD WORK END G20-2 (48"x24")
13 VERTICAL PANELS @ 50' O.C.

NOTE:
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CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
EXIST. R/W
CONST. LIMITS
C.L. HWY. 70
915+00
920+00
925+00
SHOULDER CLOSED RSP-1 (48"x30")
SHOULDER DROP OFF W8-9A (48"x48")
LEFT LANE CLOSED 1/2 MILE W20-5L (48"x48")
CONST. LIMITS
EXIST. R/W
31 VERTICAL PANELS @ 50' O.C.

N

MAINTENANCE OF TRAFFIC - STAGE IB

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Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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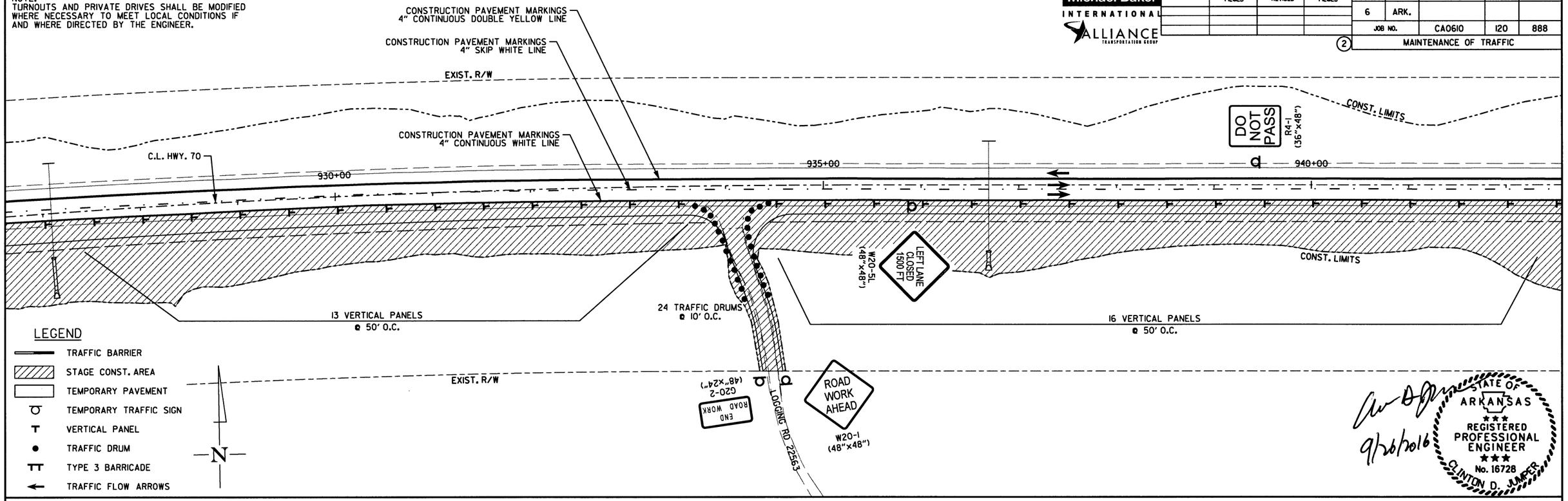
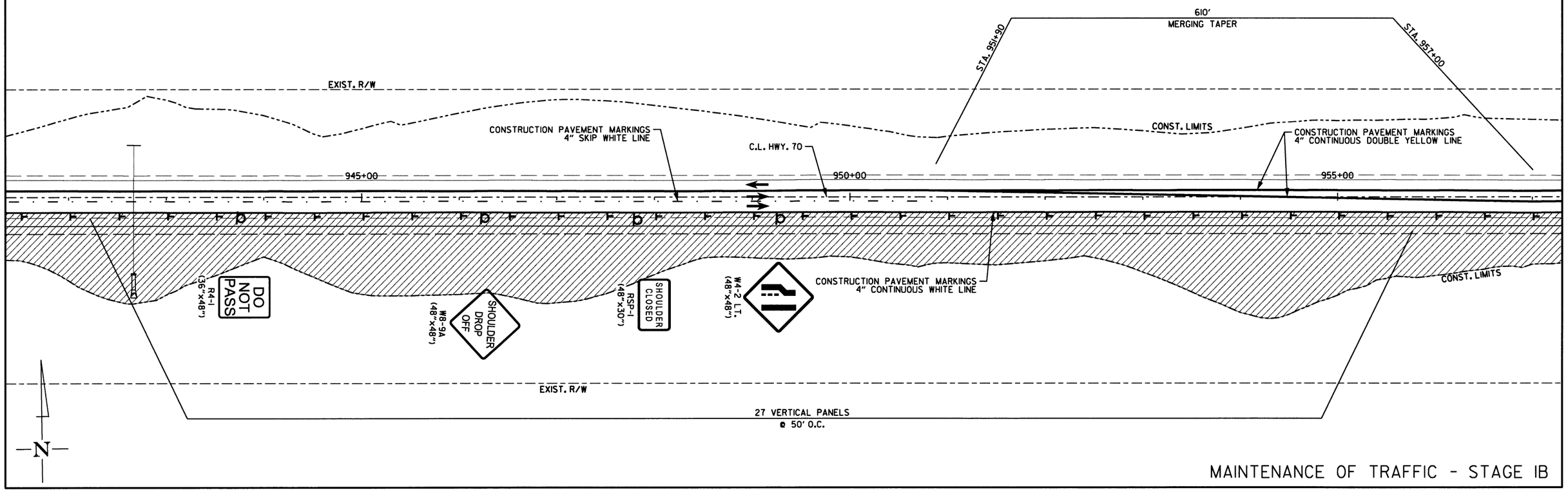
				6	ARK.			
				JOB NO.		CA0610	120	888

(2) MAINTENANCE OF TRAFFIC



9/26/2016

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER



MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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6	ARK.			
JOB NO.		CA0610	121	888

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
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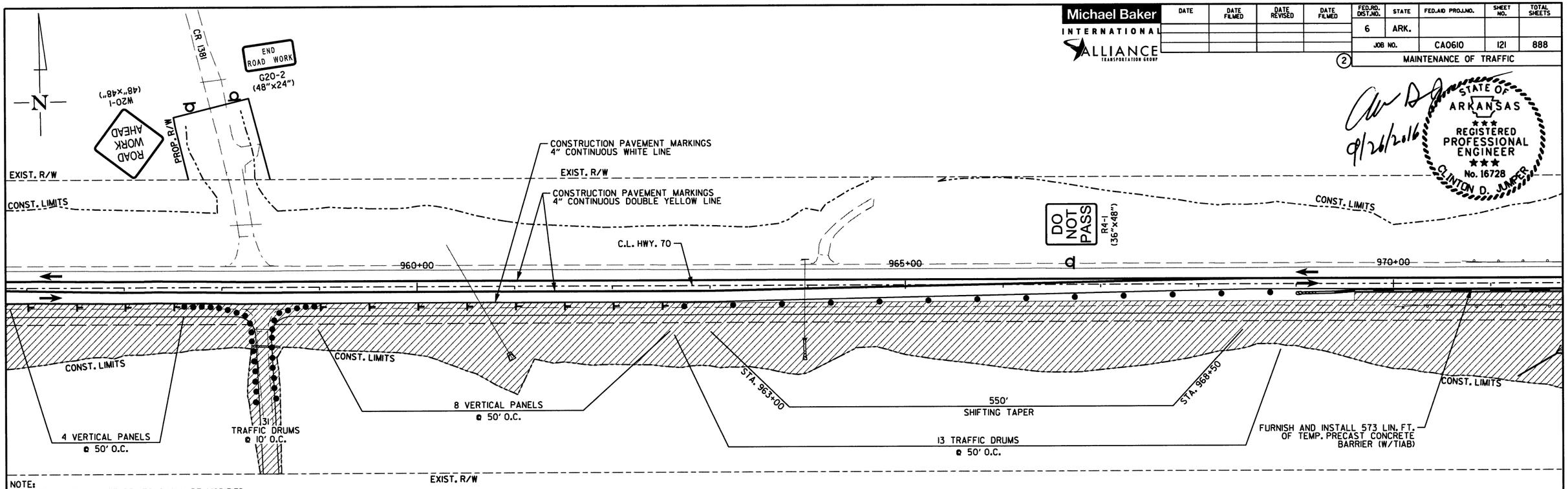
CLINTON D. JUNKER
9/26/2016



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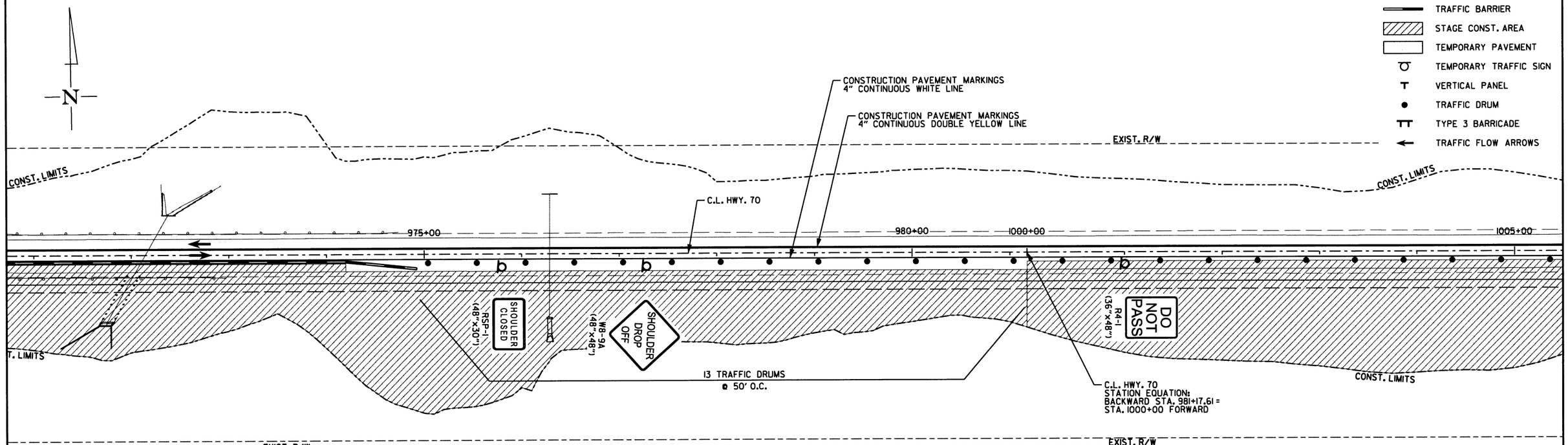
LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS



MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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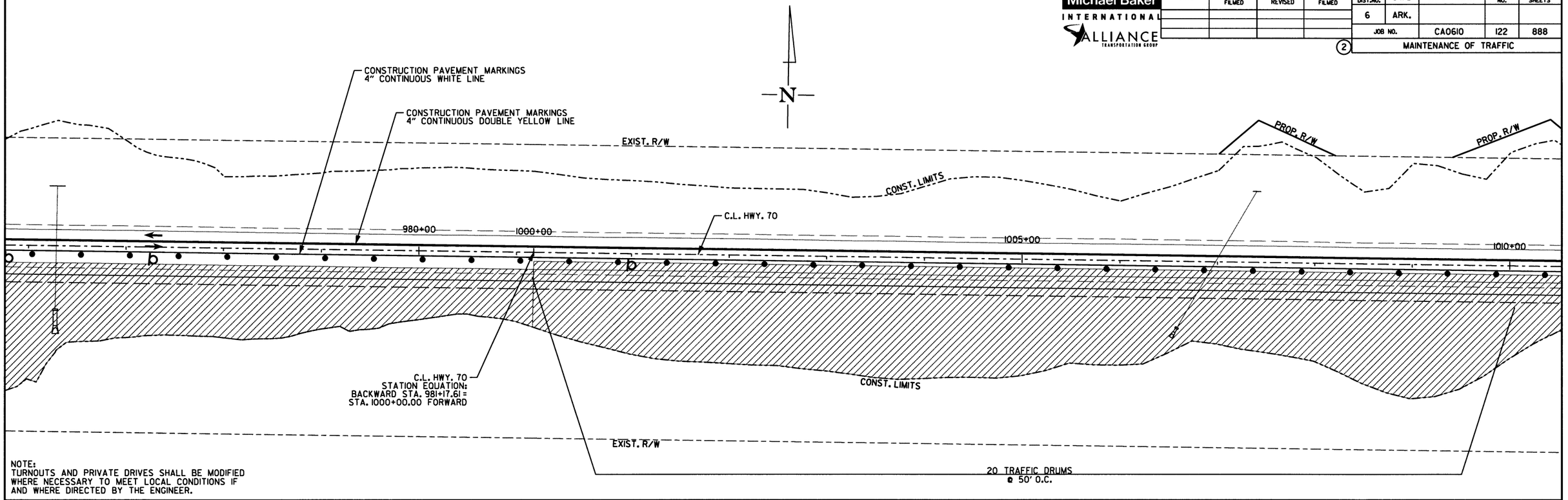
6	ARK.			
JOB NO.		CA0610	122	888

(2) MAINTENANCE OF TRAFFIC



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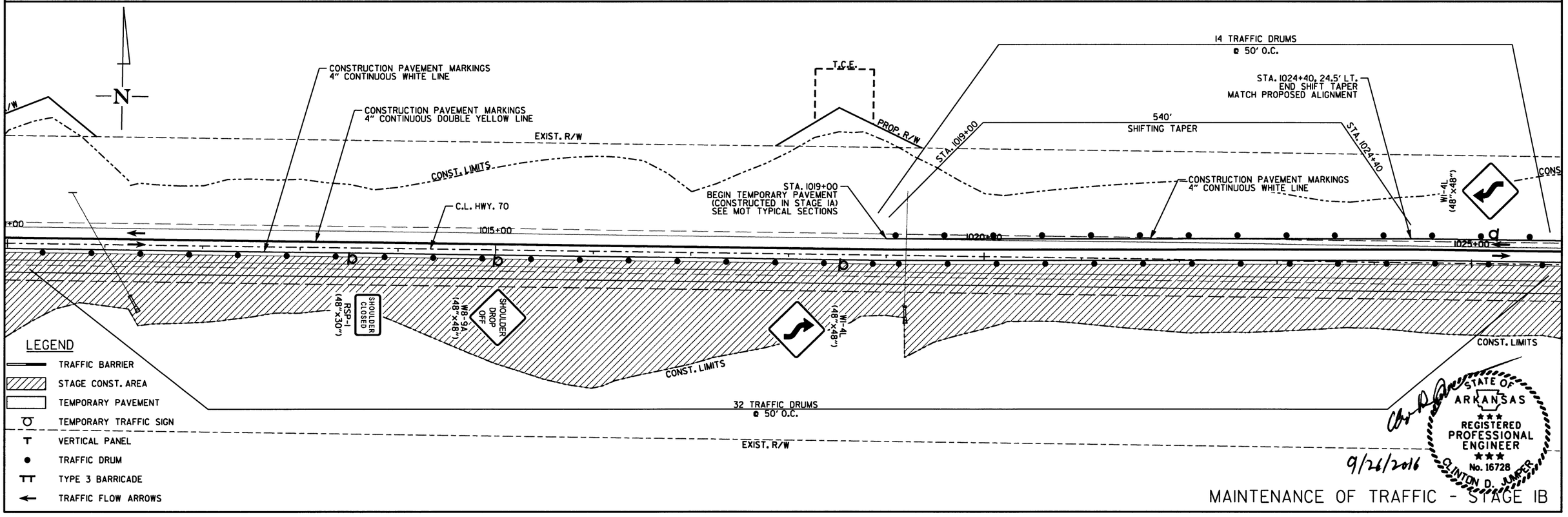

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

STATE OF ARKANSAS
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ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	123	888

(2) MAINTENANCE OF TRAFFIC

9/26/2016

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

T.C.E.
PROP. R/W
CONST. LIMITS
12'-00
C.L. HWY. 128
SEE HWY. 128 MOT PLAN SHEET FOR MORE INFORMATION
N
STA. 1029+00
360' SHIFTING TAPER
STA. 1032+60
STA. 1032+60.00 END TEMPORARY PAVEMENT (CONSTRUCTED IN STAGE IA) SEE MOT TYPICAL SECTIONS
EXIST. R/W
PROP. R/W
7 TRAFFIC DRUMS @ 50' O.C.
19 TRAFFIC DRUMS @ 50' O.C.
3 TRAFFIC DRUMS @ 50' O.C.
W1-4R (48"x48")
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONST. LIMITS
DO NOT PASS R4-1 (36"x48")
C.L. HWY. 70
1025+00
1030+00
1035+00
1040+00
19 TRAFFIC DRUMS @ 50' O.C.
4 TRAFFIC DRUMS @ 50' O.C.
W1-4R (48"x48")
C.L. LONSDALE CUTOFF
G20-2 (48"x24")
ROAD WORK AHEAD
W20-1 (48"x48")
EXIST. R/W
SHOULDER DROP OFF W8-9A (48"x48")
21 TRAFFIC DRUMS 50' O.C.

N
W20-1 (48"x48")
ROAD WORK AHEAD
CR 1379
END ROAD WORK G20-2 (48"x24")
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
EXIST. R/W
CONST. LIMITS
1045+00
1050+00
1055+00
STA 1050+50 BEGIN TEMPORARY PAVEMENT (CONSTRUCTED IN STAGE IA) SEE MOT TYPICAL SECTIONS
STA. 1050+50
325' SHIFTING TAPER
STA. 1053+75
T.C.E.
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
6 TRAFFIC DRUMS @ 50' O.C.
W1-4L (48"x48")
SHOULDER CLOSED RSP-1 (48"x30")
C.L. HWY. 70
W1-4L (48"x48")
CONST. LIMITS
FURNISH AND INSTALL 153 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
STA. 1054+24.97 IN PLACE 30"X 78' R.C. PIPE CULVERT WITH HDWL. LT. RETAIN AND EXTEND 19' RT. IN STAGE I PLUG AND ABANDON AFTER STAGE 2 30" R.C. PIPE = 19 LIN. FT.
20 TRAFFIC DRUMS @ 50' O.C.
W1-4R (48"x48")
DO NOT PASS R4-1 (36"x48")
EXIST. R/W
26 TRAFFIC DRUMS 50' O.C.

MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

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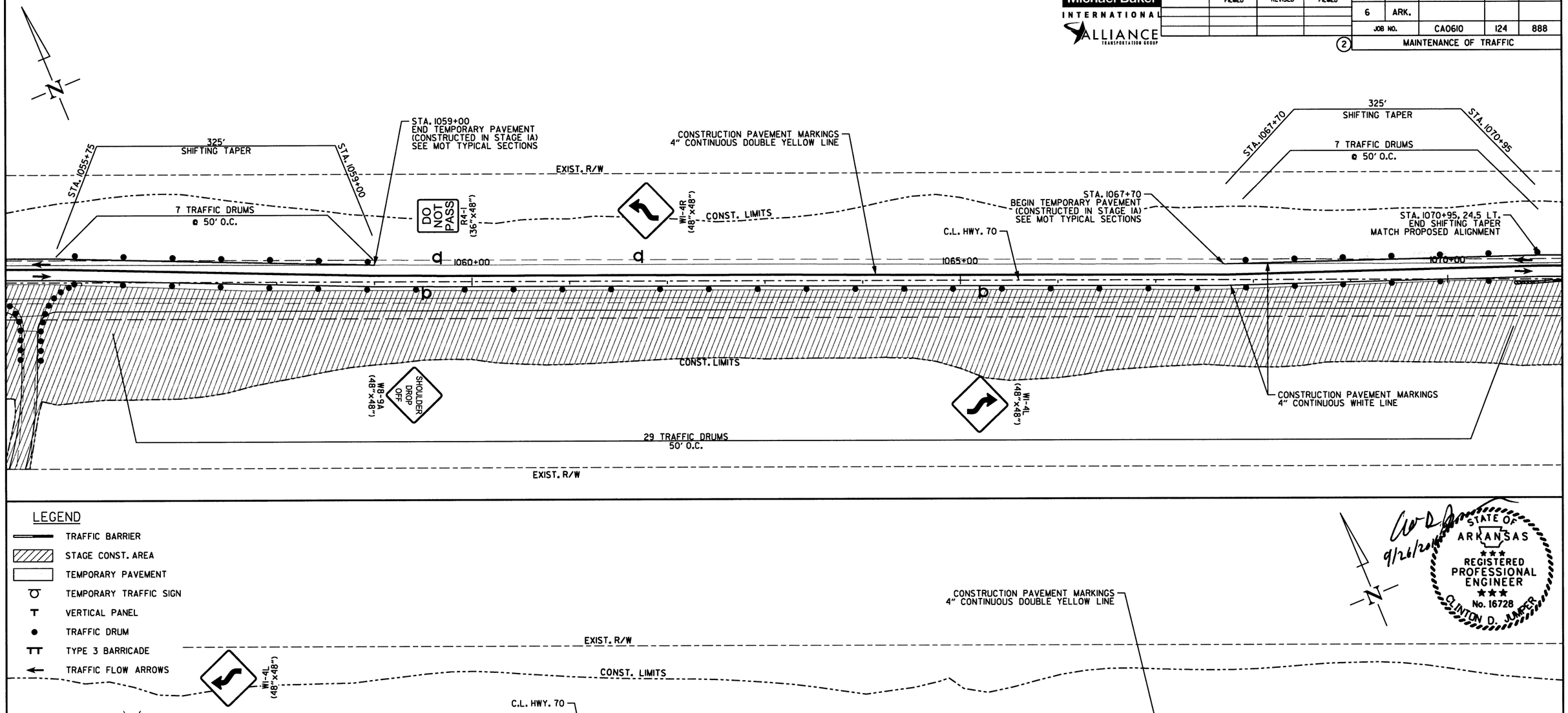
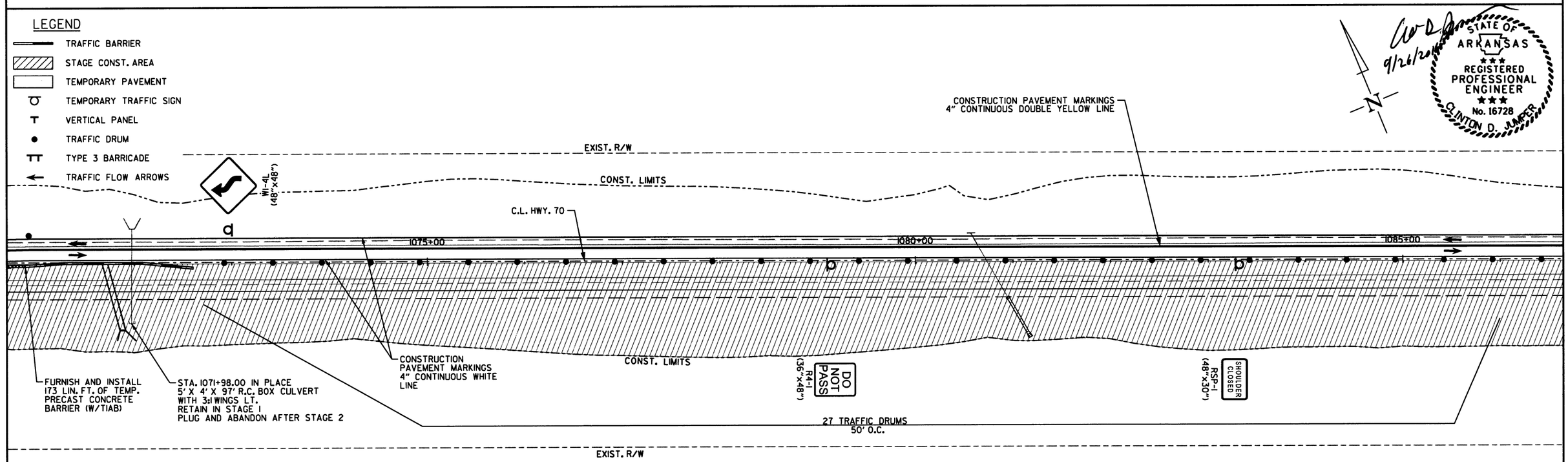
				6	ARK.			
				JOB NO.		CA0610	124	888
				(2)	MAINTENANCE OF TRAFFIC			



LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS



MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	125	888

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016

N

EXIST. R/W

DETHERAGE RD.

W20-1 (48"x48") ROAD WORK AHEAD

G20-2 (48"x24") END ROAD WORK

18 TRAFFIC DRUMS 50' O.C.

I.C.E.

FURNISH AND INSTALL 173 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

CONST. LIMITS

PAVEMENT WIDENING (CONSTRUCTED IN STAGE IA)

R4-1 (36"x48") DO NOT PASS

1090+00

1095+00

1100+00

C.L. HWY. 70

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

CONST. LIMITS

23 TRAFFIC DRUMS 10' O.C.

W8-9A (48"x48") SHOULDER DROP OFF

STA. 1096+64.99 IN PLACE
26"X 104' R.C. PIPE CULVERT
WITH HDWLS. LT. AND RT.
REMOVE HDWL. RT. &
EXTEND 34' RT. IN STAGE I
PLUG AND ABANDON AFTER STAGE II
26" R.C. PIPE = 34 LIN. FT.

G20-2 (48"x24") END ROAD WORK

29 TRAFFIC DRUMS 10' O.C.

W20-1 (48"x48") ROAD WORK AHEAD

HWY. 88

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

N

17 TRAFFIC DRUMS 50' O.C.

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

EXIST. R/W

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

CONST. LIMITS

C.L. HWY. 70

STA. 1108+41.40 IN PLACE
22"X 56' R.C. PIPE CULVERT
WITH HDWLS. LT. AND RT.
REMOVE HDWL. LT. & RT. AND
EXTEND 40' RT. AND 12' LT. IN STAGE I
PLUG AND ABANDON AFTER STAGE II
24" R.C. PIPE = 52 LIN. FT.

FURNISH AND INSTALL 173 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

W20-1 (48"x48") ROAD WORK AHEAD

MONTIQUE LN.

G20-2 (48"x24") END ROAD WORK

1105+00

1110+00

1115+00

R4-1 (36"x48") DO NOT PASS

RSP-1 (48"x30") SHOULDER CLOSED

19 TRAFFIC DRUMS 10' O.C.

FURNISH AND INSTALL 120 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

CONST. LIMITS

18 TRAFFIC DRUMS 10' O.C.

20 TRAFFIC DRUMS 10' O.C.

G20-2 (48"x24") END ROAD WORK

STICKLEY LN.

W20-1 (48"x48") ROAD WORK AHEAD

STA. 1114+66.84 IN PLACE
22"X 83' R.C. PIPE CULVERT
30°RT. FWD. SKEW
WITH HDWLS. LT. & RT.
REMOVE HDWL. RT. &
EXTEND 37' RT. IN STAGE I
PLUG AND ABANDON AFTER STAGE 2
R.C. PIPE CULVERT = 37' LIN. FT.

W1-4R (48"x48")

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	126	888

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

N

STA. 1115+90
500' SHIFTING TAPER
STA. 1120+90
STA. 1120+90 END TEMPORARY PAVEMENT (CONSTRUCTED IN STAGE IA) SEE MOT TYPICAL SECTIONS
EXIST. R/W
CONST. LIMITS
W1-4R (48"x48")
DO NOT PASS R4-1 (36"x48")
11 TRAFFIC DRUMS @ 50' O.C.
1120+00
C.L. HWY. 70
1125+00
1130+00
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
ICE
10 TRAFFIC DRUMS @ 10' O.C.
CONST. LIMITS
W8-9A (48"x48") SHOULDER DROP OFF
6 TRAFFIC DRUMS @ 10' O.C.
11 TRAFFIC DRUMS 50' O.C.
18 VERTICAL PANELS 50' O.C.
EXIST. R/W

25 VERTICAL PANELS 50' O.C.
W20-1 (48"x48")
CHURCH RD.
END ROAD WORK G20-2 (48"x24")
ROAD WORK AHEAD
EXIST. R/W
PROP. R/W
CONST. LIMITS
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
IRA WILLIAMS RD.
13 TRAFFIC DRUMS 10' O.C.
1135+00
1140+00
1145+00
C.L. HWY. 70
15 TRAFFIC DRUMS 10' O.C.
CONST. LIMITS
RSP-1 (48"x30") SHOULDER CLOSED
CONST. LIMITS
DO NOT PASS R4-1 (36"x48")
END ROAD WORK G20-2 (48"x24")
ROAD WORK AHEAD W20-1 (48"x48")
MANGE RD.
EXIST. R/W

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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(2) MAINTENANCE OF TRAFFIC

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER

IRA WILLIAMS DR.
END ROAD WORK G20-2 (48"×24")
CONST. LIMITS
EXIST. R/W
27 VERTICAL PANELS 50' O.C.
1145+00
1150+00
1155+00
1160+00
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
C.L. HWY. 70
DO NOT PASS R4-1 (36"×48")
12 TRAFFIC DRUMS 10' O.C.
14 TRAFFIC DRUMS 10' O.C.
TEN MILE RD.
ROAD WORK AHEAD W20-1 (48"×48")
LEFT LANE CLOSED 1/2 MILE W20-5 (48"×48")
SHOULDER DROP OFF W8-9A (48"×48")

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

PROP. R/W
EXIST. R/W
CONST. LIMITS
ROAD WORK AHEAD W20-1 (48"×48")
NARROWS RD.
END ROAD WORK G20-2 (48"×24")
1160+00
1165+00
1170+00
1175+00
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
13 TRAFFIC DRUMS 10' O.C.
DO NOT PASS R4-1 (36"×48")
LEFT LANE CLOSED 1500 FT W20-5 (48"×48")
SHOULDER CLOSED RSP-1 (48"×30")
20 TRAFFIC DRUMS @ 10' O.C.
T.C.E.
27 VERTICAL PANELS 50' O.C.

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL / ALLIANCE TRANSPORTATION GROUP	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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					(2) MAINTENANCE OF TRAFFIC				

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
ROAD WORK AHEAD W20-1 (48"x48")
END ROAD WORK G20-2 (48"x24")
BECK LANE
STA. 1180+18
600' LANE CLOSURE TAPER
STA. 1186+18
STA. 1188+18 BEGIN TEMPORARY PAVEMENT (CONSTRUCTED IN STAGE IA) SEE MOT TYPICAL SECTIONS
EXIST. R/W
CONST. LIMITS
DO NOT PASS R4-1 (36"x48")
SMART RD.
CONST.
16 TRAFFIC DRUMS 10' O.C.
1175+00
1180+00
1185+00
1188+00
W4-2 LT. (48"x48")
W8-9A (48"x48")
SHOULDER DROP OFF
ROCKY LOOP
W1-4L (48"x48")
24 VERTICAL PANELS 50' O.C.

17 TRAFFIC DRUMS 50' O.C.
536' SHIFTING TAPER
STA. 1188+17
STA. 1193+54
STA. 1193+53.88, 24.3' LT. 4" CONTINUOUS WHITE LINE END SHIFTING TAPER MATCH EXISTING ALIGNMENT
STA. 1194+55, 23.6' LT. P.C. 4" CONTINUOUS WHITE R=3000'
STA. 1196+55.6, 24.4' LT. P.T. 4" CONTINUOUS WHITE LINE
STA. 1198+14.23, 31' LT. 4" CONTINUOUS WHITE LINE TIE-IN WITH EXISTING END TEMPORARY PAVEMENT (CONSTRUCTED IN STAGE IA)
T.C.E.
1190+00
1195+00
1200+00
33 TRAFFIC DRUMS 10' O.C.
9 TRAFFIC DRUMS 10' O.C.
STA. 1195+31.24 IN PLACE 24"X 57' R.C. PIPE CULVERT WITH HDWLS. LT. AND RT. REMOVE HDWL. LT. & RT. AND EXTEND 14' LT. AND 34' RT. IN STAGE I PLUG AND ABANDON AFTER STAGE 2 24" R.C. PIPE = 48 LIN. FT.
FURNISH AND INSTALL 173 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
FURNISH AND INSTALL 820 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
SHOULDER CLOSED R5P1-1 (48"x30")
14 TRAFFIC DRUMS 50' O.C.

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
CLINTON D. JUMPER
No. 16728
9/26/2016

MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER
9/26/2016

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
EXIST. R/W
DO NOT PASS R4-1 (36"x48")
1205+00
STA. 1210+81.56 BEGIN TEMPORARY PAVEMENT (CONSTRUCTED IN STAGE 1A) SEE MOT TYPICAL SECTIONS
1210+00
C.L. HWY. 70
FURNISH AND INSTALL 100 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
CONSTRUCT TEMPORARY DRIVEWAY TO MAINTAIN DRIVEWAY ACCESS. REMOVE IN STAGE 2.
SHOULDER DROP OFF W8-9A (48"x48")
EXIST. R/W
NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.
100' SHIFTING TAPER
STA. 1210+82
STA. 1211+82
CONST. LIMITS
STA. 1211+80, 47.5' LT. 4" CONTINUOUS WHITE LINE MATCH EXISTING ALIGNMENT
ROAD WORK AHEAD W20-1 (48"x48")
END ROAD WORK G20-2 (48"x24")
T.C.E.
HOLLOWOA RD.
1215+00
9 TRAFFIC DRUMS 50' O.C.
CONST. LIMITS
STA. 1227+30.41 END TEMPORARY PAVEMENT (CONSTRUCTED IN STAGE 1A) SEE MOT TYPICAL SECTIONS
WI-4L (48"x48")
PROP. R/W
EXIST. R/W
CONST. LIMITS
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
STA. 1223+39.1, 25' LT. C.L. HWY. 70 P.C. CONTINUOUS WHITE LINE R=1500'
1230+00
BROWNING ACCESS RD.
ROAD WORK AHEAD W20-1 (48"x48")
END ROAD WORK G20-2 (48"x24")
HOLLOWOA RD.
STA. 1218+65.3, 28' LT. C.L. HWY. 70 4" CONTINUOUS WHITE LINE P.T. FROM EXISTING E.O.P.
END ROAD WORK G20-2 (48"x24")
STA. 1219+89.4, 25' LT. C.L. HWY. 70 P.C. CONTINUOUS WHITE LINE MATCH PROPOSED ALIGNMENT R=2571.5'
1220+00
1225+00
1215+00
C.L. HWY. 70
CONST. LIMITS
SHOULDER CLOSED RSP-1 (48"x30")
DO NOT PASS R4-1 (36"x48")
6 VERTICAL PANELS 50' O.C.
FAIRPLAY RD.
22 TRAFFIC DRUMS 50' O.C.
EXIST. R/W

MAINTENANCE OF TRAFFIC - STAGE 1B

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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(2) MAINTENANCE OF TRAFFIC

ROAD WORK AHEAD W20-1 (48"x48")
PROP. R/W
CONST. LIMITS
21 VERTICAL PANELS 50' O.C.
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
EXIST. R/W
CONST. LIMITS
1230+00
END ROAD WORK G20-2 (48"x24")
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS YELLOW LINE
STA. 1234+45.43 BEGIN TEMPORARY PAVEMENT (CONSTRUCTED IN STAGE IA) SEE MOT TYPICAL SECTIONS
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
C.L. HWY. 70
DO NOT PASS R4-1 (36"x48")
PAVEMENT WIDENING (CONSTRUCTED IN STAGE IA)
1245+00
END ROAD WORK G20-2 (48"x24")
25 TRAFFIC DRUMS 10' O.C.
CONST. LIMITS
ROAD WORK AHEAD W20-1 (48"x48")
1235+00
1240+00
CONST. LIMITS
SHOULDER DROP OFF W8-9A (48"x48")
STA. 1235+45.55 IN PLACE 24"X81' R.C. PIPE CULVERT WITH HDWLS. LT. & RT. REMOVE HDWL. RT. & EXTEND 64' RT. IN STAGE 1 PLUG AND ABANDON AFTER STAGE 2 24" R.C. PIPE = 64 LIN. FT.
FURNISH AND INSTALL 173 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
FURNISH AND INSTALL 253 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
STA. 1240+94.60 IN PLACE 30"X 69' R.C. PIPE CULVERT WITH HDWLS. LT. & RT. REMOVE HDWL. RT. & EXTEND 65' RT. IN STAGE 1 PLUG AND ABANDON AFTER STAGE 2 30" R.C. PIPE = 65 LIN. FT.
CONST. LIMITS
N

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JAMPER
9/26/2016

BROWNING RD.
CONST. LIMITS
C.L. HWY. 70
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
EXIST. R/W
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONST. LIMITS
1245+00
1250+00
1255+00
37 TRAFFIC DRUMS 10' O.C.
CONST. LIMITS
24 VERTICAL PANELS 50' O.C.
DO NOT PASS R4-1 (36"x48")
END ROAD WORK G20-2 (48"x24")
HICKORY THICKET DR.
ROAD WORK AHEAD W20-1 (48"x48")
SHOULDER CLOSED RSP-1 (48"x30")
EXIST. R/W

MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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				6	ARK.			
				JOB NO.		CA0610	131	888

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
CLINTON D. JUNKER
No. 16728
09/26/2016

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

100' SHIFTING TAPER
STA. 1260+70
STA. 1261+70

100' SHIFTING TAPER
STA. 1262+43
STA. 1263+43

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

DO NOT PASS
R4-1
(36"x48")

EXIST. R/W

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

STA. 1267+87
END TEMPORARY PAVEMENT
(CONSTRUCTED IN STAGE 1A)
SEE MOT TYPICAL SECTIONS

CONST. LIMITS

C.L. HWY. 70

1260+00

1265+00

1270+00

3
VERTICAL PANELS
50' O.C.

FURNISH AND INSTALL
220 LIN. FT. OF TEMP.
PRECAST CONCRETE
BARRIER (W/TIAB)

FURNISH AND INSTALL
213 LIN. FT. OF TEMP.
PRECAST CONCRETE
BARRIER

21
TRAFFIC DRUMS
10' O.C.

G20-2
(48"x24")
END ROAD WORK

ROAD WORK AHEAD
W20-1
(48"x48")

6 VERTICAL PANELS
50' O.C.

CONST. LIMITS

SHOULDER DROP OFF
W8-9A
(48"x48")

EXIST. R/W

10 TRAFFIC DRUMS
50' O.C.

KAYCE LN.

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

N

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

EXIST. R/W

CONST. LIMITS

C.L. HWY. 70

CONST. LIMITS

1275+00

1280+00

1285+00

CONST. LIMITS

SHOULDER CLOSED
RSP-1
(48"x30")

FURNISH AND INSTALL
153 LIN. FT. OF TEMP.
PRECAST CONCRETE
BARRIER (W/TIAB)

STA. 1279+32.81 IN PLACE
24"X 69' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWL. RT. &
EXTEND 62' RT. IN STAGE 1
PLUG AND ABANDON AFTER STAGE 2
24" R.C. PIPE = 62 LIN. FT.

DO NOT PASS
R4-1
(36"x48")

EXIST. R/W

25 TRAFFIC DRUMS
50' O.C.

N

MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	132	888
				(2)	MAINTENANCE OF TRAFFIC			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

DO NOT PASS R4-1 (36"x48")

EXIST. R/W

CONST. LIMITS

C.L. HWY. 70

1290+00

1295+00

1300+00

21 TRAFFIC DRUMS 10' O.C.

FURNISH AND INSTALL 153 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

W8-9A (48"x48") SHOULDER DROP OFF

25 TRAFFIC DRUMS 10' O.C.

25 TRAFFIC DRUMS 50' O.C.

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

1305+00

1310+00

1315+00

11 TRAFFIC DRUMS 10' O.C.

PROP. R/W

28 TRAFFIC DRUMS 50' O.C.

RSP-1 (48"x30") SHOULDER CLOSED

MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

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(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
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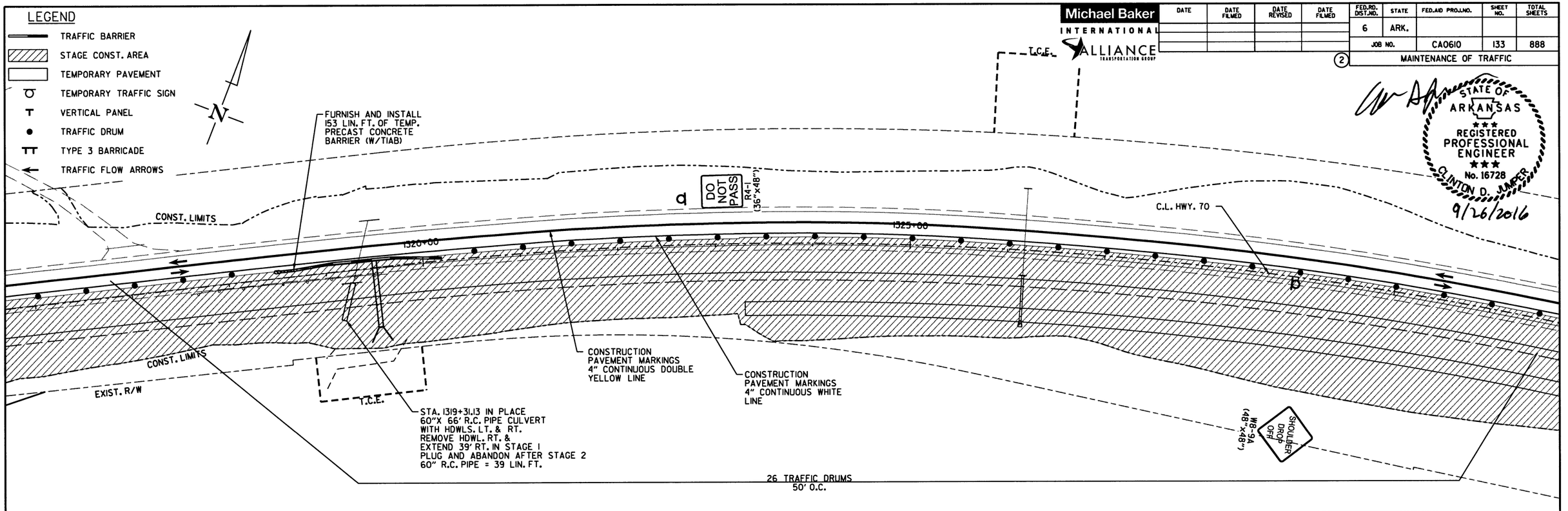
No. 16728
CLINTON D. JUMPER
9/26/2016

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS



MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
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(2) MAINTENANCE OF TRAFFIC

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

N

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

EXIST. R/W

DO NOT PASS R4-1 (36"x48")

CONST. LIMITS

CONST. LIMITS

C.L. HWY. 70

1350+00 1355+00 1360+00

CONST. LIMITS

CONST. LIMITS

SHOULDER DROP OFF W8-9A (48"x48")

18 TRAFFIC DRUMS 10' O.C.

EXIST. R/W

EXIST. R/W

28 TRAFFIC DRUMS 50' O.C.

N

ELLIOT RD.

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

END ROAD WORK G20-2 (48"x24")

ROAD WORK AHEAD W20-1 (48"x48")

PROP. R/W

EX

IMITS

C.L. HWY. 70

1360+00 1365+00 1370+00 1375+00

18 TRAFFIC DRUMS 10' O.C.

IMITS

DO NOT PASS R4-1 (36"x48")

SHOULDER CLOSED R5P-1 (48"x30")

EXIST. R/W

23 TRAFFIC DRUMS 50' O.C.

STATE OF ARKANSAS
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9/26/2016

MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
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(2) MAINTENANCE OF TRAFFIC

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

EXIST. R/W

FURNISH AND INSTALL 153 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

CONST. LIMITS

C.L. HWY. 70

1375+00 1378+00 1380+00 1385+00

HIGHPOINT DR.

W20-1 (48"x48") ROAD WORK AHEAD

END ROAD WORK G20-2 (48"x24")

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

DO NOT PASS R4-1 (36"x48")

T.C.E.

PROP. R/W

19 TRAFFIC DRUMS 10' O.C.

CONST. LIMITS

STA. 1377+59.49 IN PLACE
24"X 105' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWL. RT. & EXTEND 5I' RT. IN STAGE I
PLUG AND ABANDON AFTER STAGE 2
24" R.C. PIPE = 5I LIN. FT.

END ROAD WORK G20-2 (48"x24")

OLD 88 RD.

ROAD WORK AHEAD W20-1 (48"x48")

SHOULDER DROP OFF W8-9A (48"x48")

26 TRAFFIC DRUMS 50' O.C.

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

PROP. R/W

EXIST. R/W

CONST. LIMITS

1395+00 1400+00

C.L. HWY. 70

1390+00

END ROAD WORK G20-2 (48"x24")

SMITH FORD RD.

ROAD WORK AHEAD W20-1 (48"x48")

PROP. R/W

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/20/2016

PAVED DRIVE

W20-1 (48"x48") ROAD WORK AHEAD

END ROAD WORK G20-2 (48"x24")

FURNISH AND INSTALL 213 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

STA. 1398+06.72 IN PLACE
5'X7'X 77' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
REMOVE WINGS AND HDWL. RT. & EXTEND 28' RT. IN STAGE I
PLUG AND ABANDON AFTER STAGE 2
60" R.C. PIPE = 28 LIN. FT.

SHOULDER CLOSED RSP-1 (48"x30")

EXIST. R/W

DO NOT PASS R4-1 (36"x48")

28 TRAFFIC DRUMS 50' O.C.

MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
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No. 16728
CLINTON D. JUMPER
9/26/2016

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

SALINAS SPRINGS DR.
W20-1 (48"x48") ROAD WORK AHEAD
END ROAD WORK C20-2 (48"x24")
EXIST. R/W
CONST. LIMITS
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
DO NOT PASS R4-1 (36"x48")
C.L. HWY. 70
1405+00
1410+00
1415+00
FURNISH AND INSTALL 153 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
STA. 1410+03.52 IN PLACE 24"X 61' R.C. PIPE CULVERT WITH HDWLS. LT. & RT. REMOVE HDWL. RT. & EXTEND 50' RT. IN STAGE I PLUG AND ABANDON AFTER STAGE 2 24" R.C. PIPE = 50 LIN. FT.
SHOULDER DROP OFF W8-9A (48"x48")
DO NOT PASS R4-1 (36"x48")
SHOULDER CLOSED RSP-1 (48"x30")
24 TRAFFIC DRUMS 50' O.C.

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

7 TRAFFIC DRUMS 50' O.C.
PROP. R/W
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
DO NOT PASS R4-1 (36"x48")
1415+00
1420+00
1425+00
1430+00
C.L. HWY. 70
FURNISH AND INSTALL 553 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
STA. 1419+58.48 IN PLACE 24"X 77' R.C. PIPE CULVERT WITH HDWLS. LT. & RT. REMOVE HDWL. RT. & EXTEND 60' RT. IN STAGE I PLUG AND ABANDON AFTER STAGE 2 24" R.C. PIPE = 60 LIN. FT.
STA. 1423+37.12 IN PLACE 24"X 124' R.C. PIPE CULVERT WITH HDWLS. LT. & RT. REMOVE HDWL. RT. & EXTEND 63' RT. IN STAGE I PLUG AND ABANDON AFTER STAGE 2 24" R.C. PIPE = 63 LIN. FT.
18 TRAFFIC DRUMS @ 10' O.C.
SHOULDER DROP OFF W8-9A (48"x48")
END ROAD WORK G20-2 (48"x24")
ROAD WORK AHEAD W20-1 (48"x48")
W1-4R (48"x48")
CROSSROADS RD.

MAINTENANCE OF TRAFFIC - STAGE IB

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				6	ARK.			
				JOB NO.		CA0610	137	888

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

(2) MAINTENANCE OF TRAFFIC

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

EXISTING PAVEMENT MARKINGS

STA. 1437+60.00
END JOB CA0610
BEGIN OVERLAY

ROAD WORK NEXT 18 MILES
G20-1 (60"x24")

PROP. R/W

EXIST. R/W

C.L. HWY. 70

CONST. LIMITS

1435+00

1440+00

1430+00

CONST. LIMITS

EXIST. R/W

STA. 1440+42.50
END OVERLAY

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

17 VERTICAL PANELS
50' O.C.

ROAD WORK AHEAD
(2) W20-1 (48"x48")

END ROAD WORK
G20-2 (48"x24")

ROAD WORK 500 FT
(2) W20-1 (48"x48")

POE 1449+89.76

ROAD WORK 1000 FT.
(2) W20-1 (48"x48")

ROAD WORK AHEAD
(2) W20-1 (48"x48")

1445+00

C.L. HWY. 70

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
CLINTON D. JUMPER
No. 16728
9/26/2016

NOTES:
1) TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.
2) EXISTING PAVEMENT MARKINGS ARE APPROXIMATE.
3) SEE "ADVANCE WARNING SIGNS" SHEETS.

MAINTENANCE OF TRAFFIC - STAGE IB

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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				6	ARK.			
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				(2)	MAINTENANCE OF TRAFFIC			

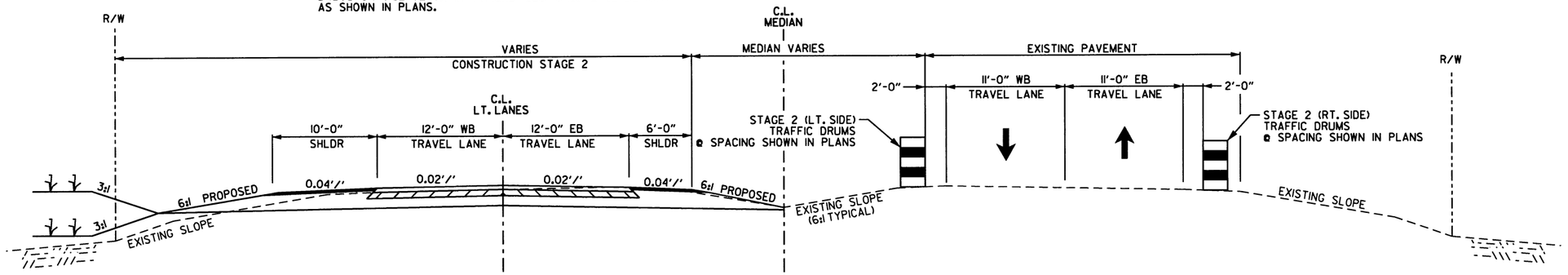
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER
9/26/2016

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 LOCATION. NOTCH AND WIDEN ON LEFT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON THE LEFT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS. CONSTRUCT MILL AND OVERLAY AT END OF STAGE 2.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE. PLACE FINAL ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS. REMOVE CROSSOVER AND TEMPORARY PAVEMENT.

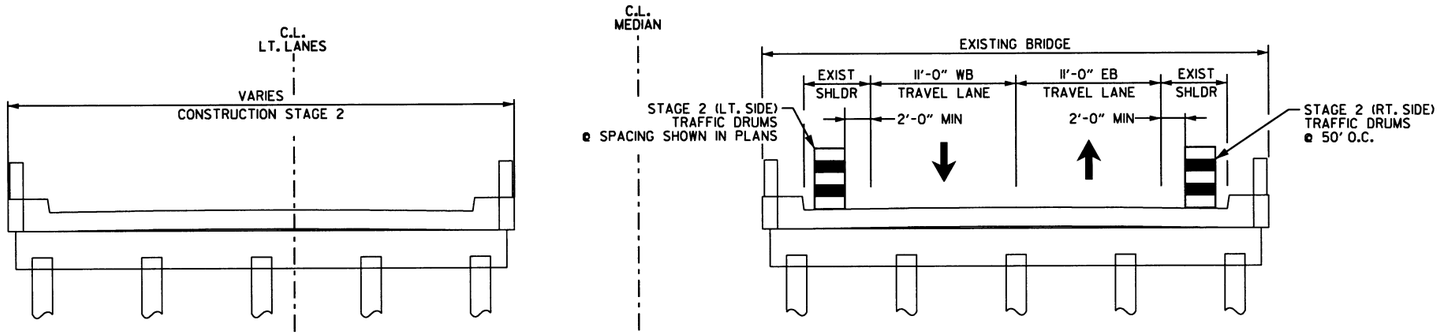
NOTES:

1. QUANTITY OF VERTICAL PANELS SHOWN ON PLANS IS FOR ONE SIDE OF ROADWAY FOR 2 MILES. QUANTITY SHOWN IS MAXIMUM ALLOWED FOR CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO VERTICAL DIFFERENTIAL OF 4" OR LESS, AND THEN NOTCH ANOTHER MILE SECTION. THIS IS THE MAXIMUM DISTANCE ALLOWED PER SECTION 603.02 OF THE ARKANSAS 2014 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. IN LOCATIONS WHERE TRAFFIC SHIFTS FROM EXISTING TO TEMPORARY OR PROPOSED TRAVEL WAY, CONTRACTOR IS TO MAINTAIN MINIMAL LEVELING DIFFERENTIALS (2" MAX) BETWEEN THE TWO SURFACES.
3. TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.
4. VERTICAL PANELS ONLY PLACED IN AREAS THAT ARE TO BE RECONSTRUCTED. VERTICAL PANELS MAY REPLACE TRAFFIC DRUMS OR VICE VERSA IN TYPICAL SECTIONS. PLACE DEVICES AS SHOWN IN PLANS.



MAINTENANCE OF TRAFFIC - OPEN SHOULDERS
TRAFFIC RT. SIDE - CONST. LT. SIDE ONLY
STAGE 2 - TYPICAL SECTION

STA. 478+45 TO STA. 480+35
STA. 483+65 TO STA. 489+88



MAINTENANCE OF TRAFFIC - BRIDGE
STAGE 2 - TYPICAL SECTION

STA. 480+35 TO STA. 483+65

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

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				(2)	MAINTENANCE OF TRAFFIC			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER

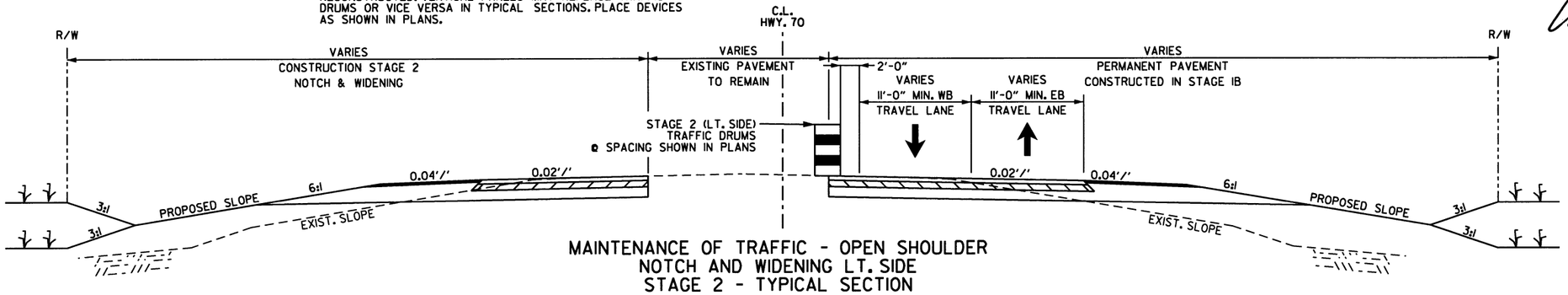
9/26/2016

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 LOCATION. NOTCH AND WIDEN ON LEFT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON THE LEFT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS. CONSTRUCT MILL AND OVERLAY AT END OF STAGE 2.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE. PLACE FINAL ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS. REMOVE CROSSOVER AND TEMPORARY PAVEMENT.

NOTES:

1. QUANTITY OF VERTICAL PANELS SHOWN ON PLANS IS FOR ONE SIDE OF ROADWAY FOR 2 MILES. QUANTITY SHOWN IS MAXIMUM ALLOWED FOR CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO VERTICAL DIFFERENTIAL OF 4" OR LESS, AND THEN NOTCH ANOTHER MILE SECTION. THIS IS THE MAXIMUM DISTANCE ALLOWED PER SECTION 603.02 OF THE ARKANSAS 2014 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. IN LOCATIONS WHERE TRAFFIC SHIFTS FROM EXISTING TO TEMPORARY OR PROPOSED TRAVEL WAY, CONTRACTOR IS TO MAINTAIN MINIMAL LEVELING DIFFERENTIALS (2" MAX) BETWEEN THE TWO SURFACES.
3. TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.
4. VERTICAL PANELS ONLY PLACED IN AREAS THAT ARE TO BE RECONSTRUCTED. VERTICAL PANELS MAY REPLACE TRAFFIC DRUMS OR VICE VERSA IN TYPICAL SECTIONS. PLACE DEVICES AS SHOWN IN PLANS.



MAINTENANCE OF TRAFFIC - OPEN SHOULDER
NOTCH AND WIDENING LT. SIDE
STAGE 2 - TYPICAL SECTION

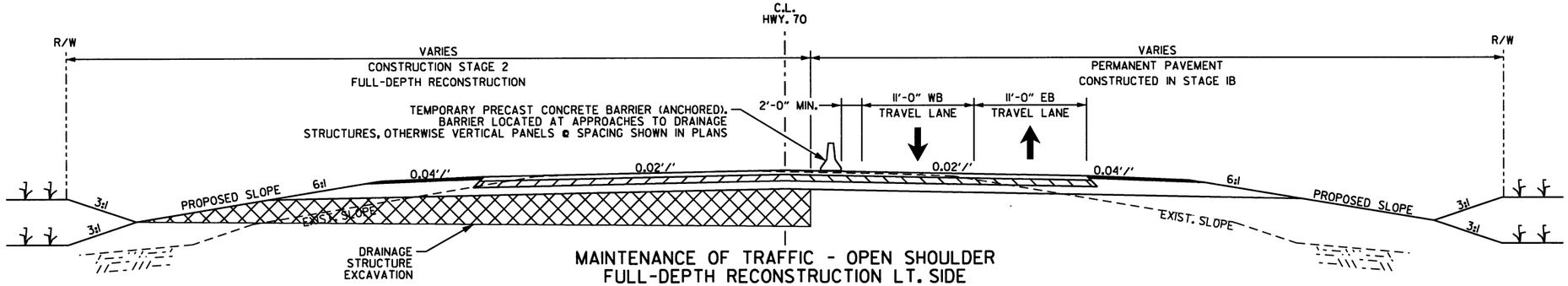
STA. 489+88 TO STA. 494+00
STA. 495+50 TO STA. 510+25
STA. 529+50 TO STA. 540+68
STA. 542+60 TO STA. 581+28
STA. 583+20 TO STA. 585+56
STA. 587+56 TO STA. 605+50

STA. 772+92 TO STA. 797+38
STA. 800+38 TO STA. 812+50
STA. 835+13 TO STA. 859+79
STA. 876+23 TO STA. 881+59
STA. 958+20 TO STA. 966+30
STA. 977+99 TO STA. 1025+75
STA. 1028+00 TO STA. 1053+88

STA. 1054+68 TO STA. 1071+29
STA. 1072+09 TO STA. 1096+46
STA. 1097+26 TO STA. 1108+26
STA. 1108+86 TO STA. 1114+12
STA. 1114+92 TO STA. 1122+60
STA. 1191+00 TO STA. 1194+78

STA. 1195+58 TO STA. 1200+60
STA. 1220+75 TO STA. 1235+23
STA. 1236+03 TO STA. 1240+43
STA. 1242+03 TO STA. 1260+00
STA. 1264+00 TO STA. 1279+12
STA. 1279+72 TO STA. 1316+00

STA. 1323+25 TO STA. 1337+40
STA. 1338+00 TO STA. 1377+20
STA. 1377+80 TO STA. 1385+65
STA. 1390+00 TO STA. 1397+13
STA. 1398+33 TO STA. 1409+78
STA. 1410+38 TO STA. 1419+20
STA. 1423+79 TO STA. 1426+33



MAINTENANCE OF TRAFFIC - OPEN SHOULDER
FULL-DEPTH RECONSTRUCTION LT. SIDE
STAGE 2 - TYPICAL SECTION

STA. 494+00 TO STA. 495+50
STA. 510+25 TO STA. 529+50
STA. 540+68 TO STA. 542+60
STA. 581+28 TO STA. 583+20
STA. 585+56 TO STA. 587+56
STA. 797+38 TO STA. 800+38

STA. 812+50 TO STA. 835+13
STA. 1053+88 TO STA. 1054+68
STA. 1071+29 TO STA. 1072+09
STA. 1096+46 TO STA. 1097+26
STA. 1108+26 TO STA. 1108+86
STA. 1114+12 TO STA. 1114+92

STA. 1194+78 TO STA. 1195+58
STA. 1200+60 TO STA. 1212+60 (EXCLUDING BRIDGE TYPICAL)
STA. 1253+23 TO STA. 1236+03
STA. 1240+43 TO STA. 1242+03
STA. 1260+00 TO STA. 1264+00 (EXCLUDING BRIDGE TYPICAL)
STA. 1279+12 TO STA. 1279+72

STA. 1318+99 TO STA. 1319+59
STA. 1337+40 TO STA. 1338+00
STA. 1377+20 TO STA. 1377+80
STA. 1397+13 TO STA. 1398+33
STA. 1409+78 TO STA. 1410+38
STA. 1419+20 TO STA. 1423+79

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL / ALLIANCE TRANSPORTATION GROUP	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	140	888
					(2)	MAINTENANCE OF TRAFFIC			

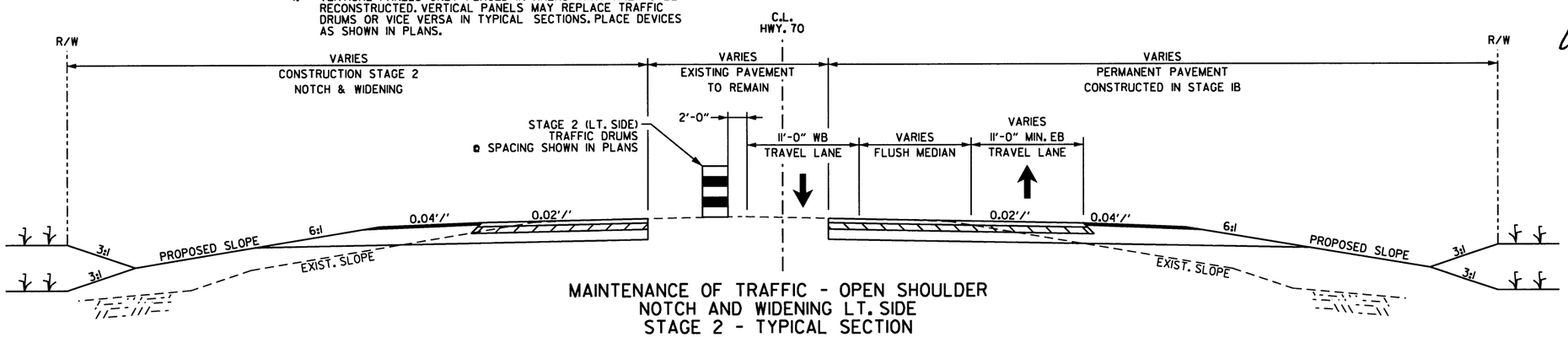
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER
9/26/2016

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 LOCATION. NOTCH AND WIDEN ON LEFT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON THE LEFT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS. CONSTRUCT MILL AND OVERLAY AT END OF STAGE 2.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE. PLACE FINAL ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS. REMOVE CROSSOVER AND TEMPORARY PAVEMENT.

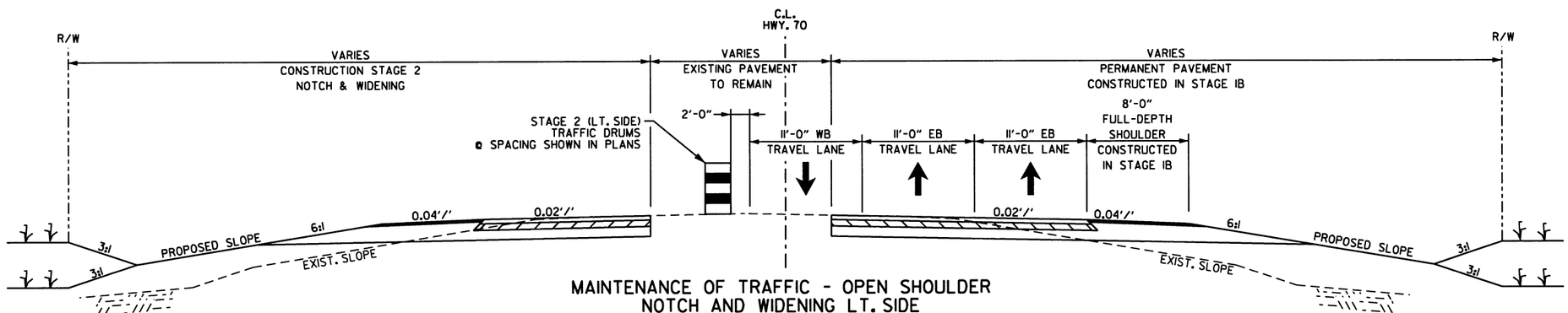
NOTES:

1. QUANTITY OF VERTICAL PANELS SHOWN ON PLANS IS FOR ONE SIDE OF ROADWAY FOR 2 MILES. QUANTITY SHOWN IS MAXIMUM ALLOWED FOR CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO VERTICAL DIFFERENTIAL OF 4" OR LESS, AND THEN NOTCH ANOTHER MILE SECTION. THIS IS THE MAXIMUM DISTANCE ALLOWED PER SECTION 603.02 OF THE ARKANSAS 2014 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. IN LOCATIONS WHERE TRAFFIC SHIFTS FROM EXISTING TO TEMPORARY OR PROPOSED TRAVEL WAY, CONTRACTOR IS TO MAINTAIN MINIMAL LEVELING DIFFERENTIALS (2" MAX) BETWEEN THE TWO SURFACES.
3. TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.
4. VERTICAL PANELS ONLY PLACED IN AREAS THAT ARE TO BE RECONSTRUCTED. VERTICAL PANELS MAY REPLACE TRAFFIC DRUMS OR VICE VERSA IN TYPICAL SECTIONS. PLACE DEVICES AS SHOWN IN PLANS.



MAINTENANCE OF TRAFFIC - OPEN SHOULDER
NOTCH AND WIDENING LT. SIDE
STAGE 2 - TYPICAL SECTION

STA. 677+60 TO STA. 695+61
STA. 1426+33 TO STA. 1429+08



MAINTENANCE OF TRAFFIC - OPEN SHOULDER
NOTCH AND WIDENING LT. SIDE
STAGE 2 - TYPICAL SECTION

STA. 605+50 TO STA. 610+64
STA. 612+36 TO STA. 677+60
STA. 881+59 TO STA. 958+20

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	141	888
				(2)	MAINTENANCE OF TRAFFIC			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER
9/26/2016

STAGE 2;
SHIFT TRAFFIC TO STAGE 2 LOCATION. NOTCH AND WIDEN ON LEFT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON THE LEFT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS. CONSTRUCT MILL AND OVERLAY AT END OF STAGE 2.

STAGE 3;
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE. PLACE FINAL ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS. REMOVE CROSSOVER AND TEMPORARY PAVEMENT.

NOTES:

1. QUANTITY OF VERTICAL PANELS SHOWN ON PLANS IS FOR ONE SIDE OF ROADWAY FOR 2 MILES. QUANTITY SHOWN IS MAXIMUM ALLOWED FOR CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO VERTICAL DIFFERENTIAL OF 4" OR LESS, AND THEN NOTCH ANOTHER MILE SECTION. THIS IS THE MAXIMUM DISTANCE ALLOWED PER SECTION 603.02 OF THE ARKANSAS 2014 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
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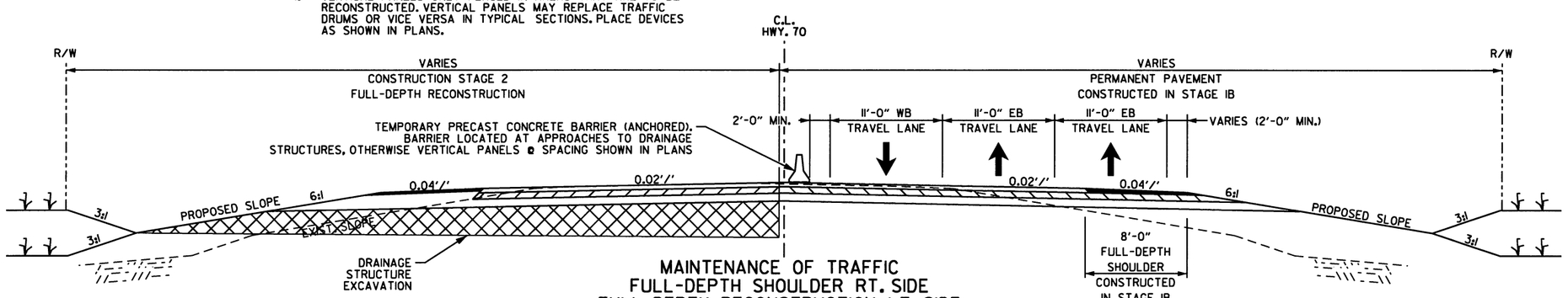
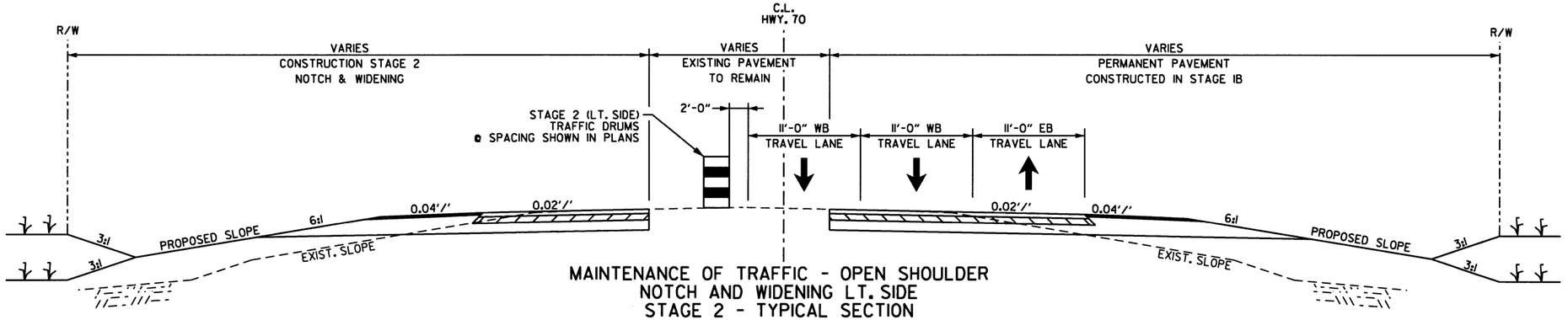


MAINTENANCE OF TRAFFIC
FULL-DEPTH SHOULDER RT. SIDE
FULL-DEPTH RECONSTRUCTION LT. SIDE
STAGE 2 - TYPICAL SECTION

STA. 610+64 TO STA. 612+36



MAINTENANCE OF TRAFFIC - OPEN SHOULDER
NOTCH AND WIDENING LT. SIDE
STAGE 2 - TYPICAL SECTION

STA. 695+61 TO STA. 716+88
STA. 718+41 TO STA. 737+10
STA. 739+63 TO STA. 759+28
STA. 762+40 TO STA. 772+92
STA. 1122+60 TO STA. 1191+00

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	142	888
				(2)	MAINTENANCE OF TRAFFIC			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER
9/26/2016

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 LOCATION. NOTCH AND WIDEN ON LEFT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON THE LEFT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS. CONSTRUCT MILL AND OVERLAY AT END OF STAGE 2.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE. PLACE FINAL ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS. REMOVE CROSSOVER AND TEMPORARY PAVEMENT.

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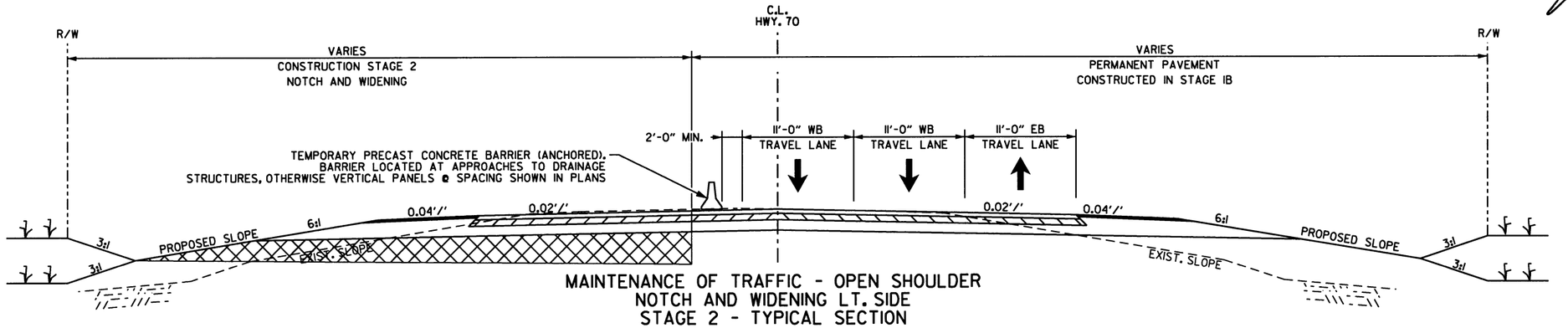
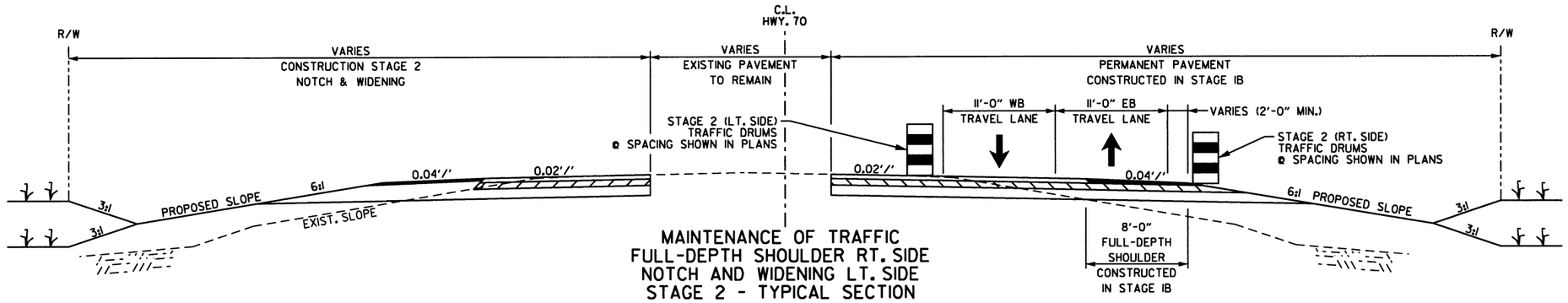


MAINTENANCE OF TRAFFIC - OPEN SHOULDER
NOTCH AND WIDENING LT. SIDE
STAGE 2 - TYPICAL SECTION

STA. 716+88 TO STA. 718+41
STA. 737+10 TO STA. 739+63
STA. 759+28 TO STA. 762+40



MAINTENANCE OF TRAFFIC
FULL-DEPTH SHOULDER RT. SIDE
NOTCH AND WIDENING LT. SIDE
STAGE 2 - TYPICAL SECTION

STA. 859+79 TO STA. 865+66
STA. 966+30 TO STA. 969+60
STA. 974+20 TO STA. 977+99

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

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JOB NO.		CA0610	143	888

(2) MAINTENANCE OF TRAFFIC

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 LOCATION. NOTCH AND WIDEN ON LEFT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON THE LEFT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS. CONSTRUCT MILL AND OVERLAY AT END OF STAGE 2.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE. PLACE FINAL ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS. REMOVE CROSSOVER AND TEMPORARY PAVEMENT.

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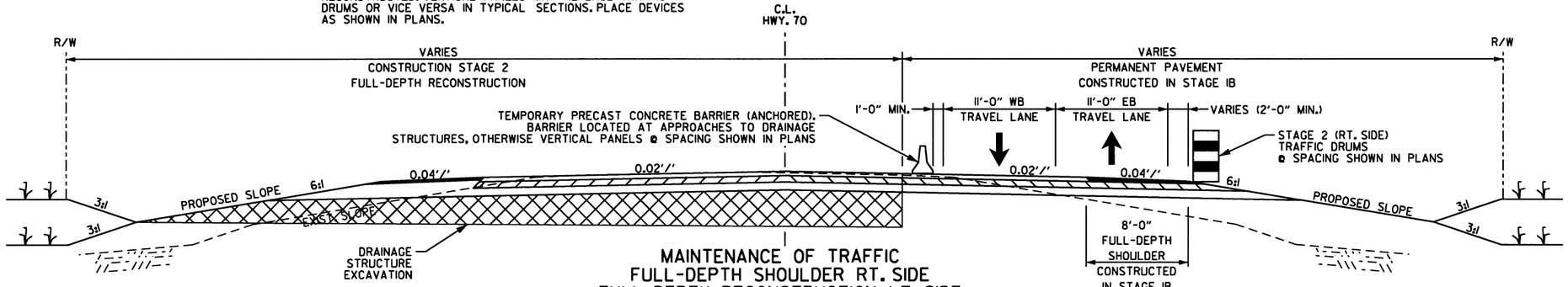
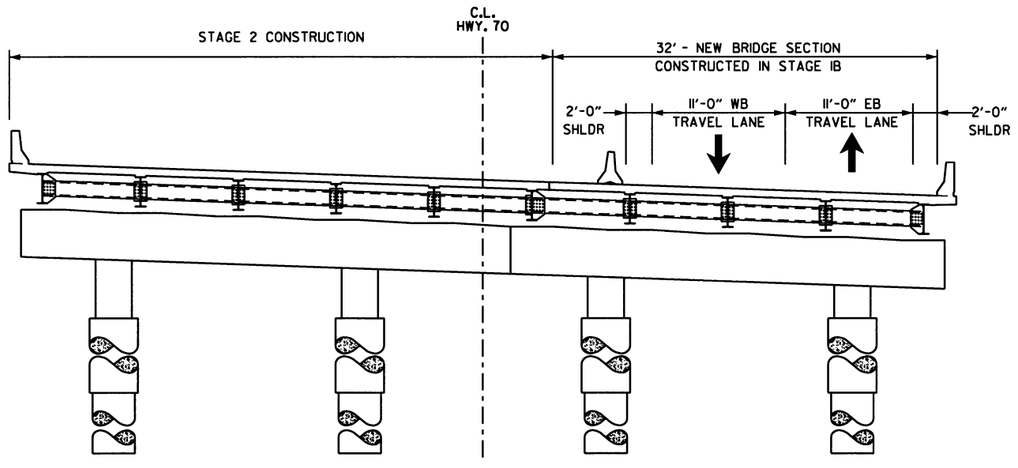
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER

9/26/2016



MAINTENANCE OF TRAFFIC
FULL-DEPTH SHOULDER RT. SIDE
FULL-DEPTH RECONSTRUCTION LT. SIDE
STAGE 2 - TYPICAL SECTION

STA. 865+66 TO STA. 870+87
STA. 872+31 TO STA. 876+23
STA. 969+60 TO STA. 974+20



MAINTENANCE OF TRAFFIC - TEN MILE CREEK WEST
BRIDGE RECONSTRUCTION
STAGE 2 - TYPICAL SECTION

STA. 870+87 TO STA. 872+31

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL / ALLIANCE TRANSPORTATION GROUP	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	144	888
					(2)	MAINTENANCE OF TRAFFIC			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER
9/26/2016

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 LOCATION. NOTCH AND WIDEN ON LEFT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON THE LEFT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS. CONSTRUCT MILL AND OVERLAY AT END OF STAGE 2.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE. PLACE FINAL ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS. REMOVE CROSSOVER AND TEMPORARY PAVEMENT.

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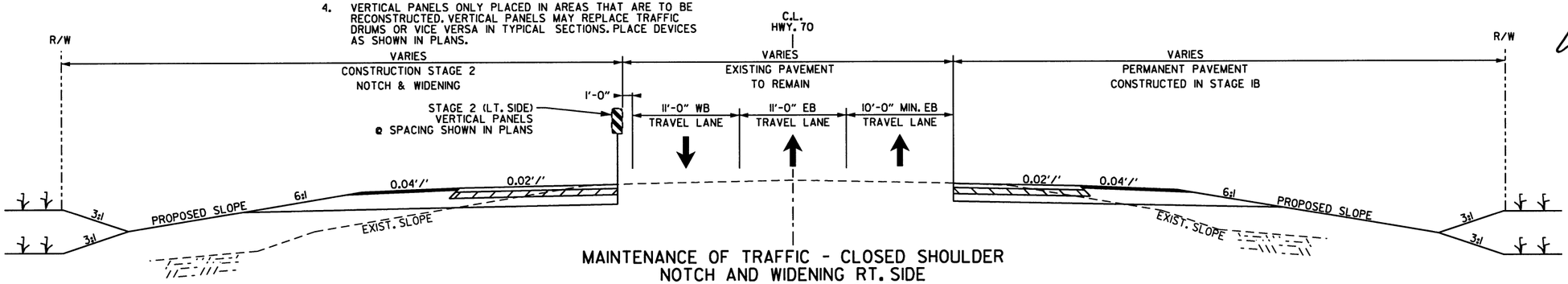
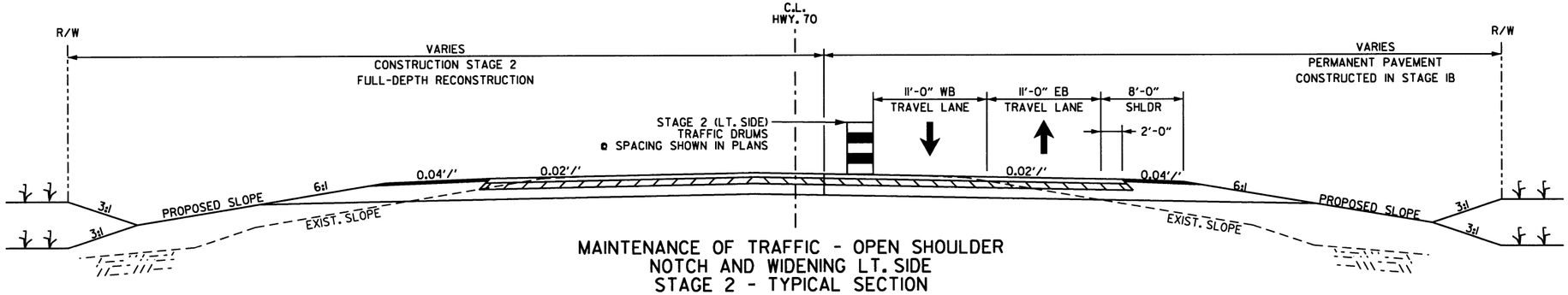


MAINTENANCE OF TRAFFIC - CLOSED SHOULDER
NOTCH AND WIDENING RT. SIDE
STAGE 2 - TYPICAL SECTION

STA. 1429+08 TO END OF PROJECT



MAINTENANCE OF TRAFFIC - OPEN SHOULDER
NOTCH AND WIDENING LT. SIDE
STAGE 2 - TYPICAL SECTION

STA. 1025+75 TO STA. 1028+00
STA. 1212+60 TO STA. 1220+75
STA. 1316+00 TO STA. 1318+99
STA. 1319+59 TO STA. 1323+25
STA. 1385+65 TO STA. 1390+00

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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				6	ARK.			
				JOB NO.		CA0610	145	888
				(2)	MAINTENANCE OF TRAFFIC			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER

9/26/2016

STAGE 2:
SHIFT TRAFFIC TO STAGE 2 LOCATION. NOTCH AND WIDEN ON LEFT SIDE AS SHOWN IN MOT PLAN SHEETS. FULL RECONSTRUCTION IN LIMITS SHOWN. DRIVEWAYS, SIDE DRAINS, AND CROSS DRAINS SHALL BE CONSTRUCTED ON THE LEFT SIDE OF EXISTING ROADWAY AS SHOWN IN MOT PLAN SHEETS. CONSTRUCT MILL AND OVERLAY AT END OF STAGE 2.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE. PLACE FINAL ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS. REMOVE CROSSOVER AND TEMPORARY PAVEMENT.

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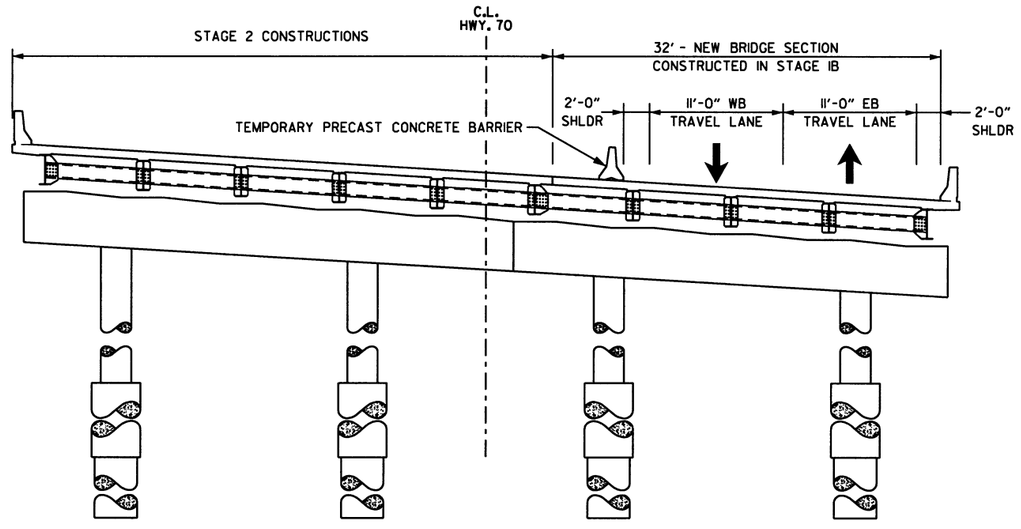

MAINTENANCE OF TRAFFIC - TEN MILE CREEK
BRIDGE RECONSTRUCTION
STAGE 2 - TYPICAL SECTION

STA. 1207+89 TO STA. 1211+21

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
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				6	ARK.			
				JOB NO.		CA0610	146	888
				(2) MAINTENANCE OF TRAFFIC				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER
9/26/2016

STAGE 2:
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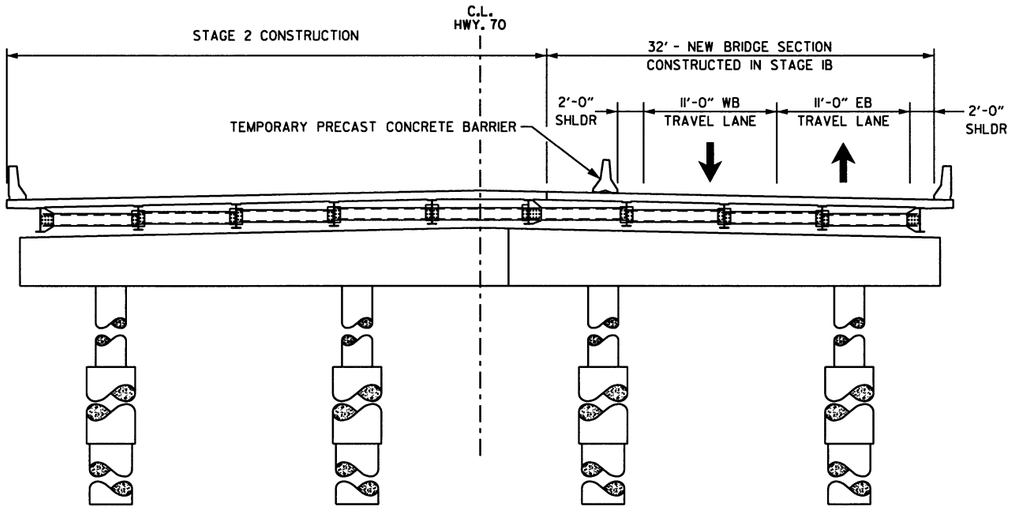

MAINTENANCE OF TRAFFIC - CANEY CREEK
BRIDGE RECONSTRUCTION
STAGE 2 - TYPICAL SECTION

STA. 1261+59 TO STA. 1262+60

TYPICAL SECTIONS
MAINTENANCE OF TRAFFIC - STAGE 2

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(2) MAINTENANCE OF TRAFFIC

G20-2 (48"×24") END ROAD WORK
500'
470+00
28 TRAFFIC DRUMS @ 50' O.C.
EXIST. R/W
W1-4R (48"×48")
50 M.P.H.
W13-1P (30"×30")
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS YELLOW LINE
STA 480+25.20 BEGIN JOB CA0610 LOG MI. 3.22
DO NOT PASS
R4-1 (36"×48")
CONST. LIMITS
TRAFFIC DRUMS CONTINUED AT 100' O.C. SEE "ADVANCE WARNING SIGNS" SHEET FOR MORE INFORMATION
475+00
CONST. LIMITS
C.L. MEDIAN
480+00
485+00
6 TRAFFIC DRUMS @ 100' O.C.
(3) W1-8R (36"×48")
CEMETERY ACCESS 1000 FEET
SEE "CEMETERY ACCESS SIGN DETAILS" SHEET FOR MORE INFORMATION
STA. 478+18.10, 42' RT END 1200' TANGENT SECTION BEGIN HEAD-TO-HEAD TRAFFIC SEE "ADVANCE WARNING SIGNS" SHEETS FOR MORE INFORMATION
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CEMETERY ACCESS 500 FEET
EXIST. R/W
13 TRAFFIC DRUMS @ 50' O.C.

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

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16 TRAFFIC DRUMS @ 50' O.C.
CEMETERY ACCESS 500 FT
6 TRAFFIC DRUMS @ 50' O.C.
W20-1 (48"×48")
ROAD WORK AHEAD
BRATTON DR
G20-2 (48"×24")
END ROAD WORK
(2) R11-2 (48"×30")
ROAD CLOSED
(2) 16' BARR. TYP. III LT.
MAINTAIN DRIVEWAY ACCESS
R1-1 (36"×36")
STOP
C.L. LEFT LANES
CONST. LIMITS
C.L. HWY. 70
R11-2 (48"×30")
(1) 16' BARR. TYP. III LT.
32 TRAFFIC DRUMS @ 10' O.C.
CEMETERY ACCESS 1000 FT
20 TRAFFIC DRUMS @ 10' O.C.
490+00
495+00
500+00
485+00
C.L. RIGHT LANES
CEMETERY ACCESS ONLY
W16-5P (30"×18")
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
10 TRAFFIC DRUMS @ 20' O.C.
EXIST. R/W
4 TRAFFIC DRUMS @ 50' O.C.
R4-1 (36"×48")
DO NOT PASS
W16-5P (30"×18")
CEMETERY ACCESS ONLY
G20-2 (48"×24")
END ROAD WORK
ROAD WORK AHEAD
W20-1 (48"×48")
T.C.E.

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

MAINTENANCE OF TRAFFIC - STAGE 2

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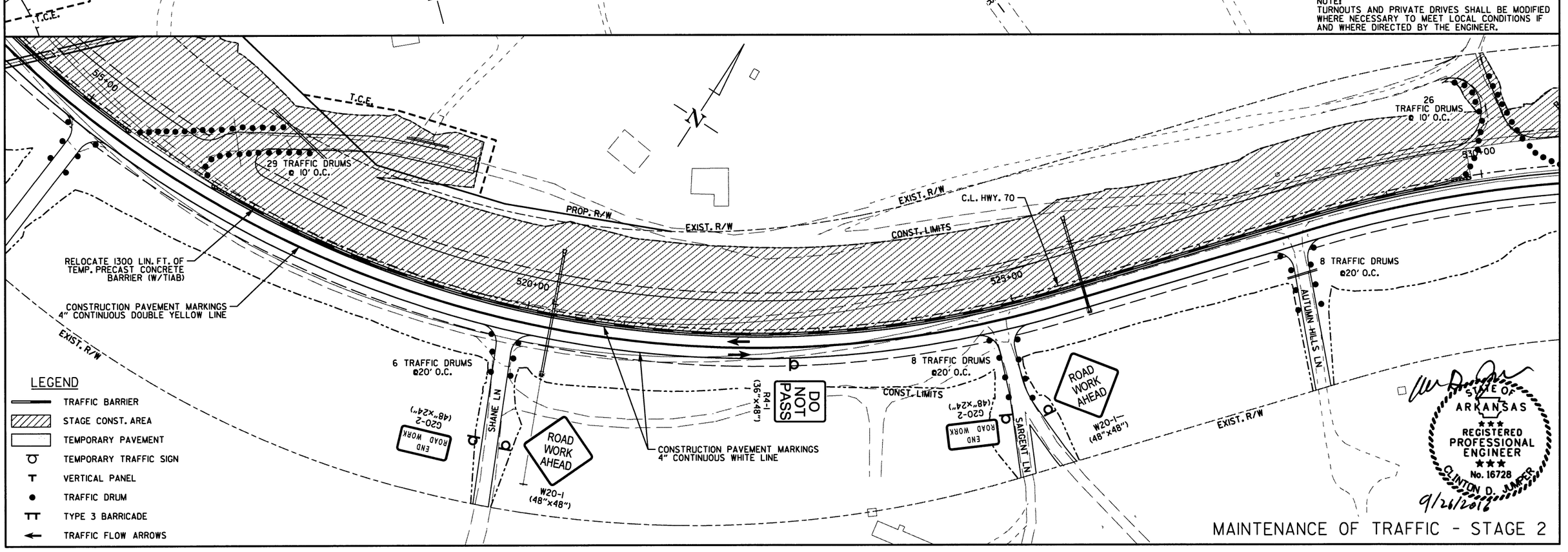
(2) MAINTENANCE OF TRAFFIC

7 TRAFFIC DRUMS @ 50' O.C.
29 TRAFFIC DRUMS @ 10' O.C.
EXIST. R/W
10 TRAFFIC DRUMS @ 50' O.C.
CONST. LIMITS
C.L. HWY. 70
SHOULDER CLOSED
RSP-1 (48"x30")
DO NOT PASS
R4-1 (36"x48")
505+00
510+00
515+00
RELOCATE 180 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
PROP. R/W
27 TRAFFIC DRUMS @ 10' O.C.
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
9 TRAFFIC DRUMS @20' O.C.
RELOCATE 273 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
8 TRAFFIC DRUMS @ 20' O.C.
6 TRAFFIC DRUMS @ 20' O.C.
ROAD WORK AHEAD
W20-1 (48"x48")
G20-2 (48"x24") ROAD WORK END
19+00
18+00
BARTEE TR
C.L. BARTEE TRAIL
T.C.E.
N

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.



LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER
9/26/2016

MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

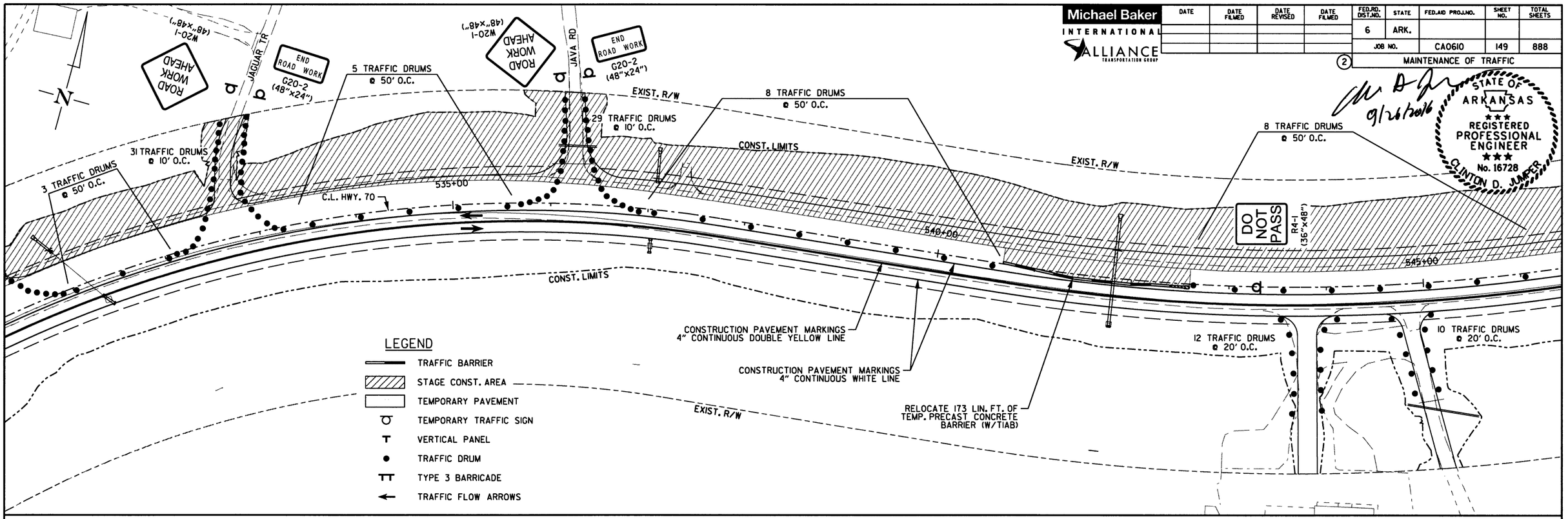
DATE	DATE FILMED	DATE REVISED	DATE FILMED

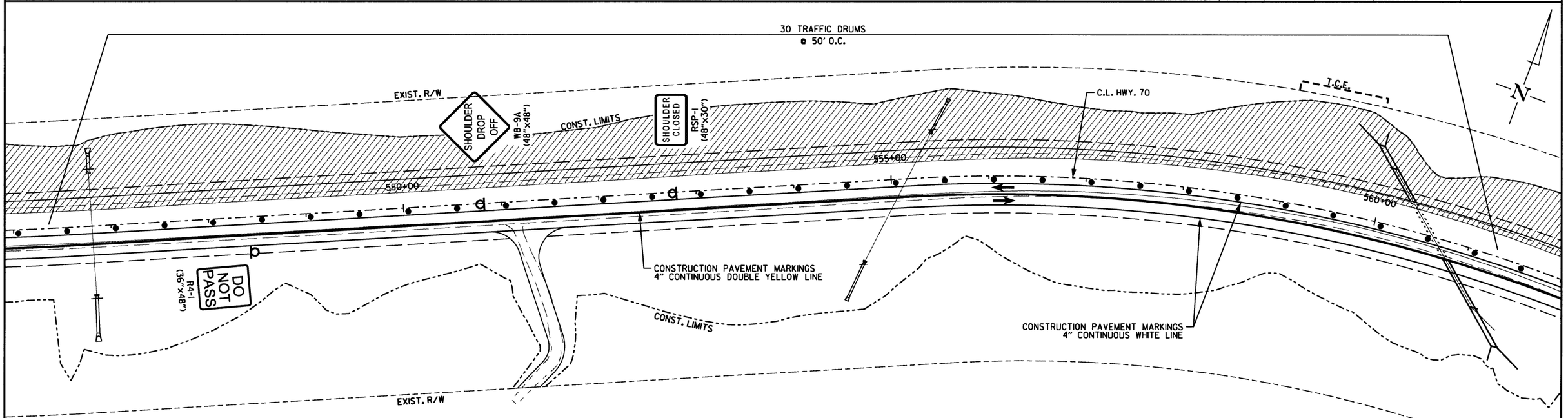
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	149	888

(2) MAINTENANCE OF TRAFFIC

9/26/2016

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JAMES





NOTE:
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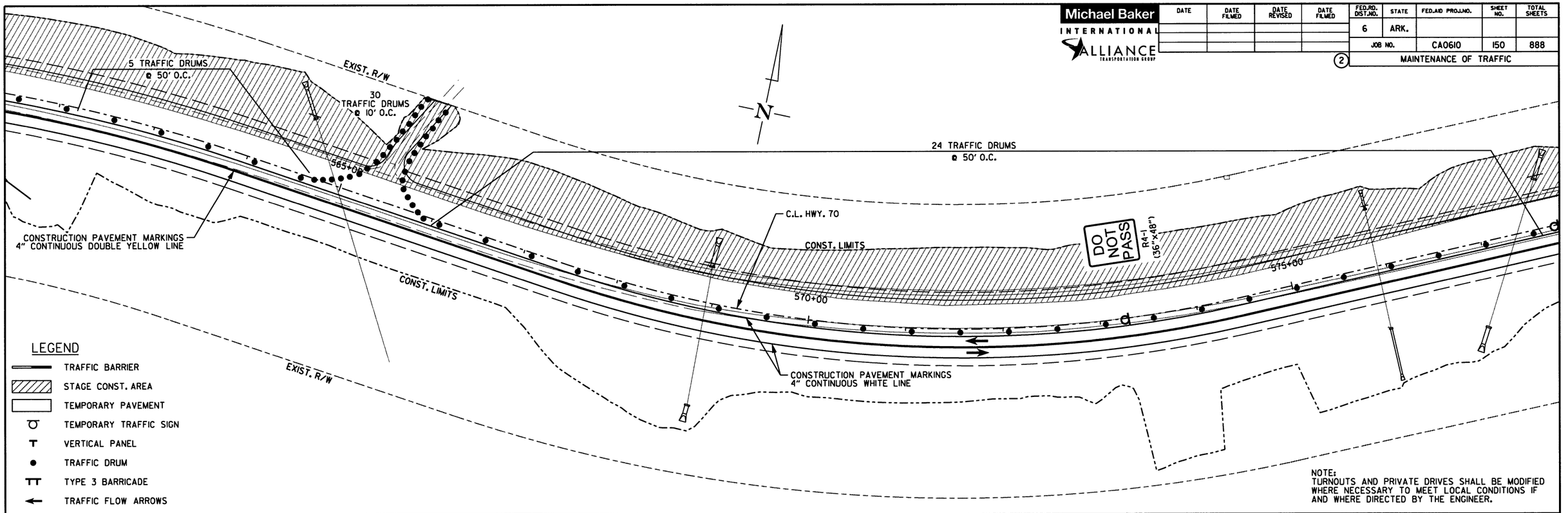
MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	150	888

(2) MAINTENANCE OF TRAFFIC



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER

9/26/2016

MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

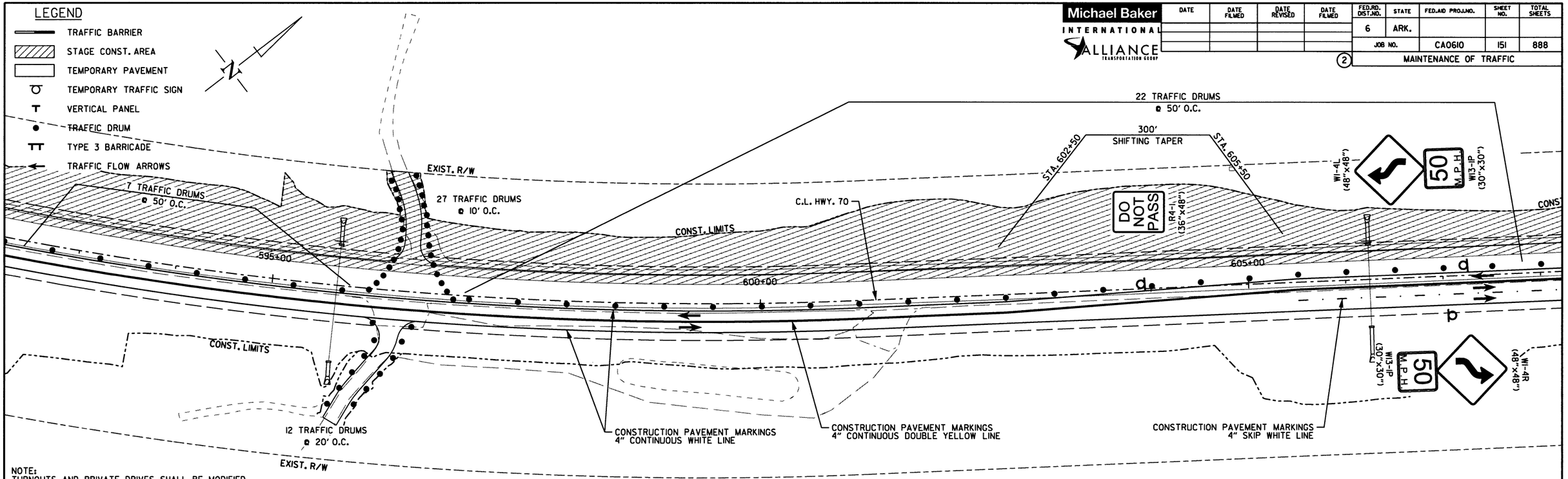
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	151	888

(2) MAINTENANCE OF TRAFFIC

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS



NOTE:
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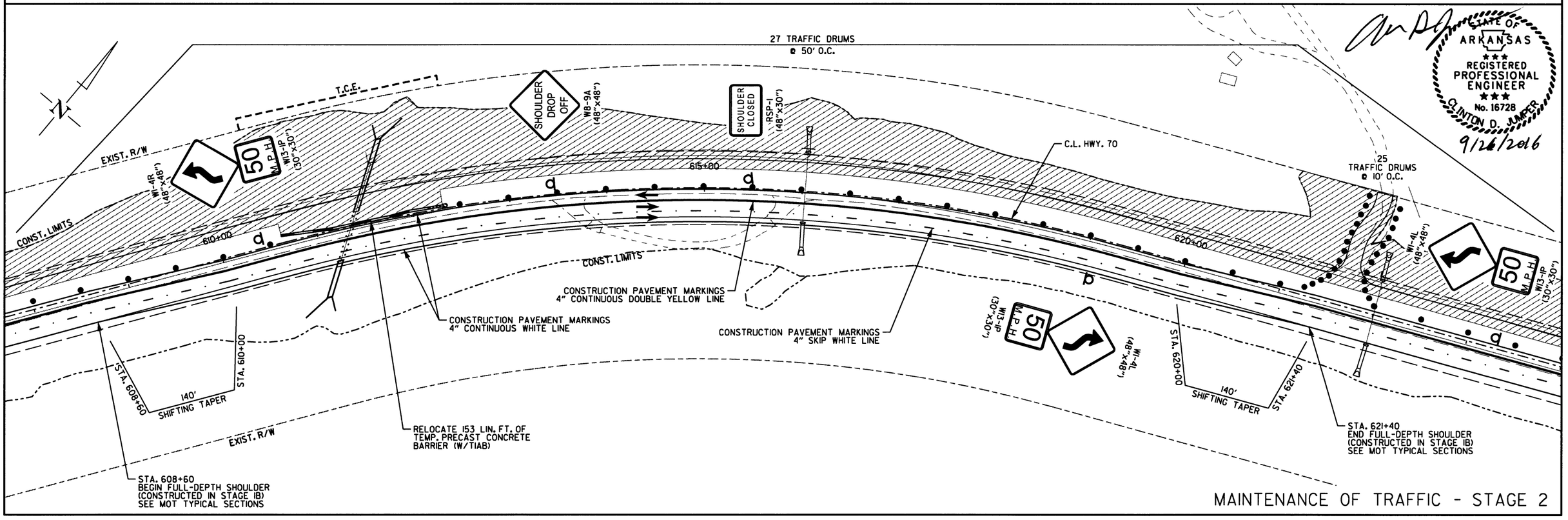

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
CLINTON D. JUMPER
No. 16728
9/26/2016

MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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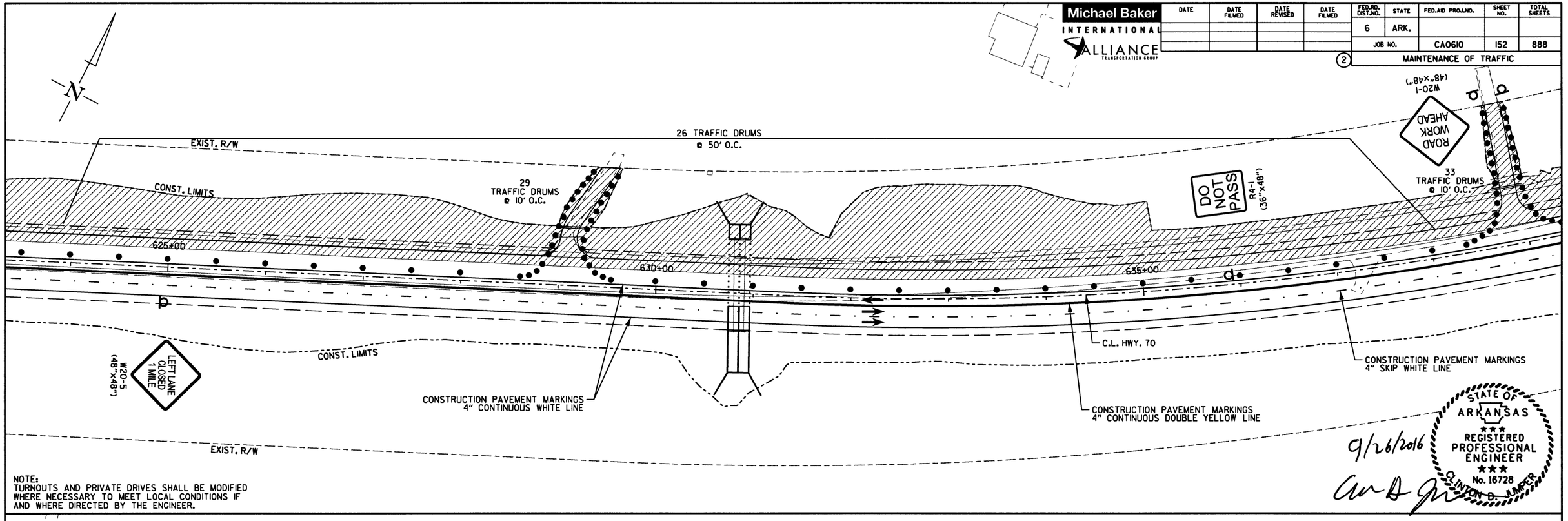
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	152	888

(2) MAINTENANCE OF TRAFFIC



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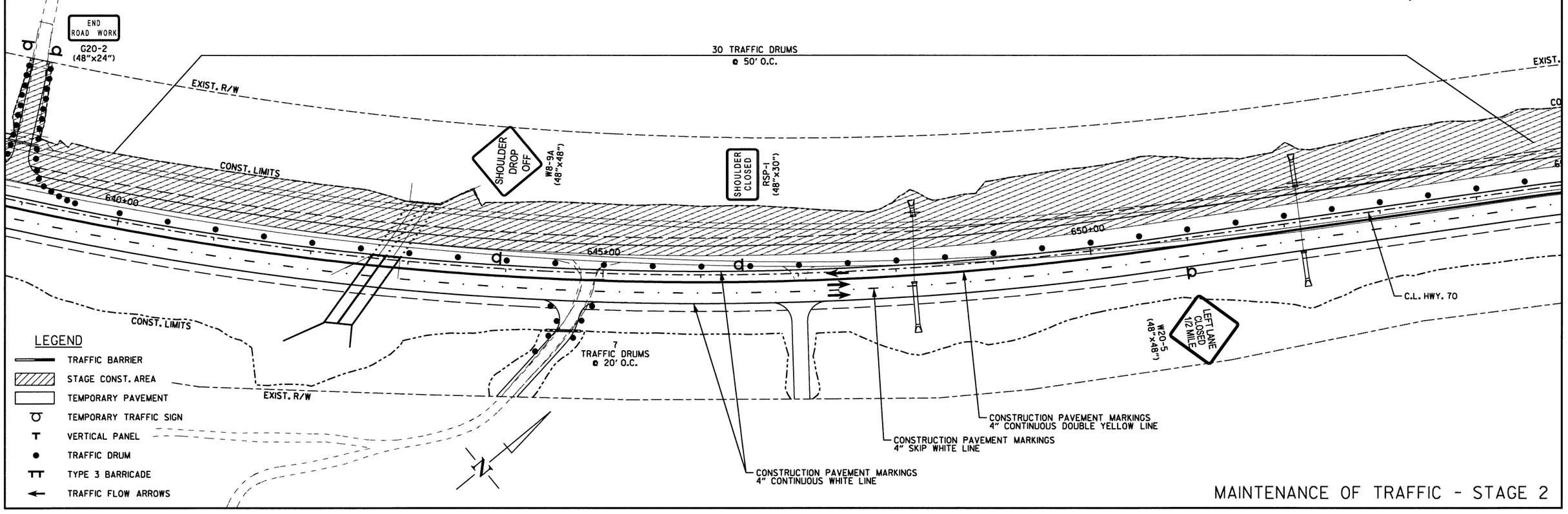


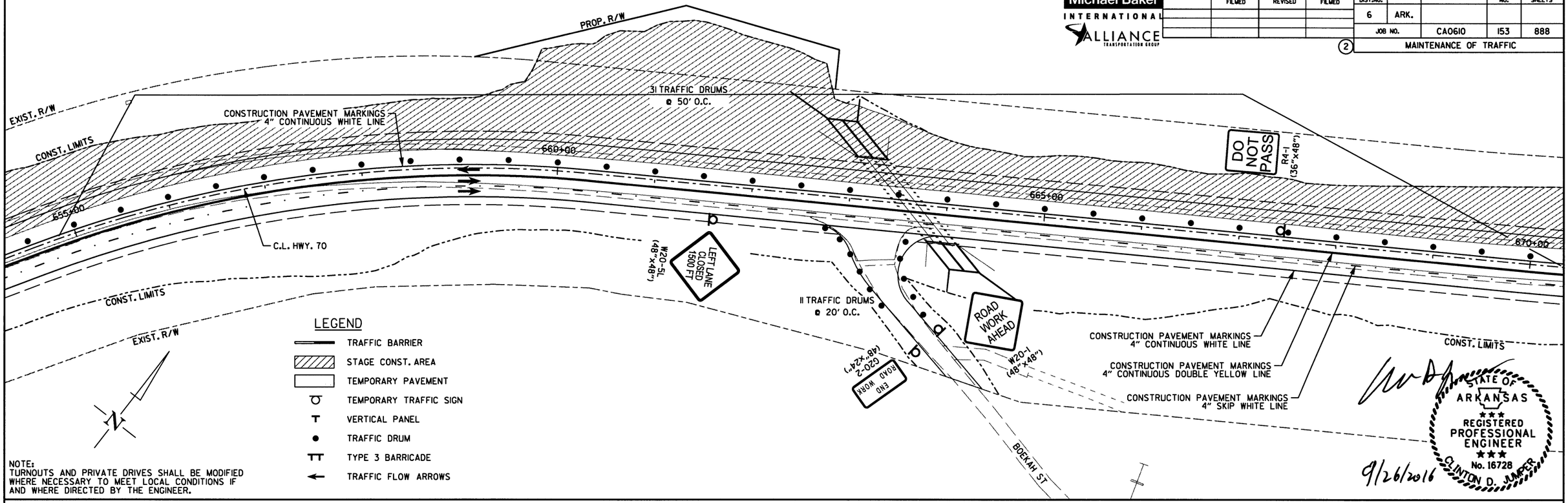
MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	153	888

(2) MAINTENANCE OF TRAFFIC



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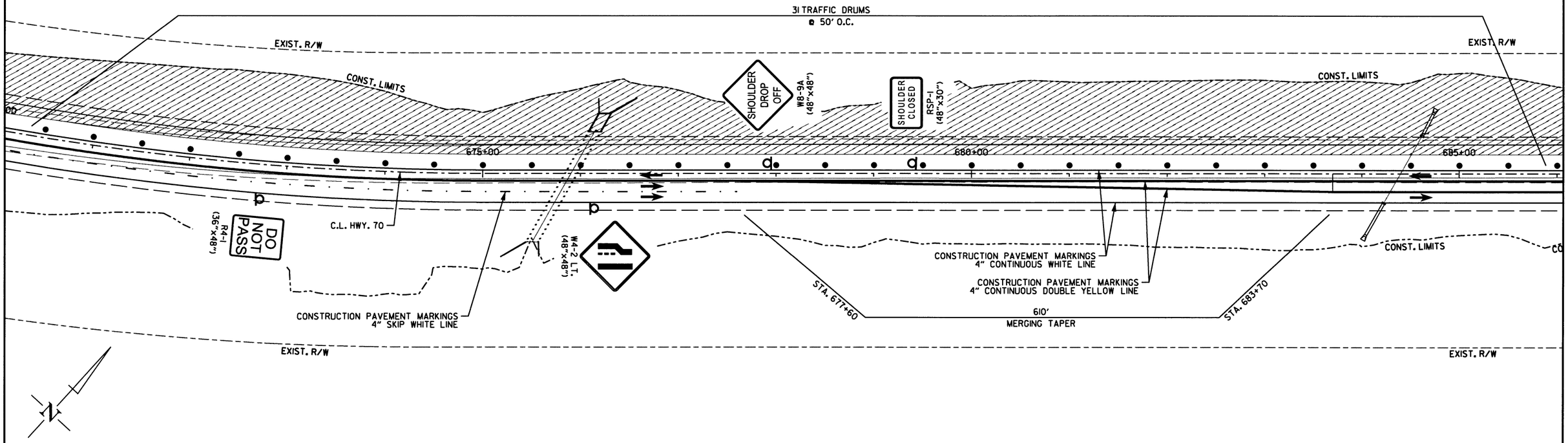
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNPER
9/26/2016



MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	154	888

(2) MAINTENANCE OF TRAFFIC

EXIST. R/W
27 TRAFFIC DRUMS @ 50' O.C.
575' MERGING TAPER
27 TRAFFIC DRUMS @ 10' O.C.
3 TRAFFIC DRUMS @ 50' O.C.
W20-1 (48"x48")
ROAD WORK AHEAD
END ROAD WORK
G20-2 (48"x24")
STA. 689+84
STA. 695+60
CONST. LIMITS
W4-2 LT. (48"x48")
DO NOT PASS R4-1 (36"x48")
690+00
695+00
700+00
C.L. HWY. 70
10 TRAFFIC DRUMS @ 20' O.C.
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
G20-2 (48"x24") END ROAD WORK
ROAD WORK AHEAD W20-1 (48"x48")
LOGGING RD 22554

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

30 TRAFFIC DRUMS @ 50' O.C.
SHOULDER DROP OFF W8-9A (48"x48")
SHOULDER CLOSED RSP-11 (48"x30")
LEFT LANE CLOSED 1500 FT W20-5L (48"x48")
705+00
710+00
715+00
C.L. HWY. 70
DO NOT PASS R4-1 (36"x48")
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNPER
9/26/2016

MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	155	888

(2) MAINTENANCE OF TRAFFIC

13 TRAFFIC DRUMS @ 50' O.C.
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
C.L. HWY. 70
EXIST. R/W
CONST. LIMITS
LEFT LANE CLOSED 1/2 MILE
W20-5L (48"x48")
720+00
22 TRAFFIC DRUMS @ 10' O.C.
725+00
6 TRAFFIC DRUMS @ 50' O.C.
24 TRAFFIC DRUMS @ 10' O.C. T.C.E.
730+00
5 TRAFFIC DRUMS @ 50' O.C.
EXIST. R/W
9 TRAFFIC DRUMS @ 10' O.C.
13 TRAFFIC DRUMS @ 20' O.C.
ROAD WORK AHEAD
W20-1 (48"x48")
CONST. LIMITS
G20-2 (48"x24") ROAD WORK END
RELOCATE 133 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
12 TRAFFIC DRUMS @ 20' O.C.
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
9 TRAFFIC DRUMS @ 20' O.C.
CONST. LIMITS
TIMBERHILL TR
ROAD WORK AHEAD
W20-1 (48"x48")
EXIST. R/W

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

21 TRAFFIC DRUMS @ 50' O.C.
RELOCATE 133 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
T.C.E.
9 TRAFFIC DRUMS @ 10' O.C.
21 TRAFFIC DRUMS @ 10' O.C.
CONST. LIMITS
SHOULDER DROP OFF
W8-9A (48"x48")
735+00
SHOULDER CLOSED
RSP-1 (48"x30")
740+00
35 TRAFFIC DRUMS @ 10' O.C.
CONST. LIMITS
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
745+00
24 TRAFFIC DRUMS @ 10' O.C.
EXIST. R/W
LEFT LANE CLOSED 1 MILE
W20-5 (48"x48")
2 TRAFFIC DRUMS @ 50' O.C.
DO NOT PASS
R4-1 (36"x48")
C.L. HWY. 70
CONST. LIMITS
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
EXIST. R/W

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

9/26/2016

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER

MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	156	888

(2) MAINTENANCE OF TRAFFIC

22 TRAFFIC DRUMS @ 10' O.C.
23 TRAFFIC DRUMS @ 10' O.C.
25 TRAFFIC DRUMS @ 10' O.C.
6 TRAFFIC DRUMS @ 50' O.C.
4 TRAFFIC DRUMS @ 50' O.C.
6 TRAFFIC DRUMS @ 50' O.C.
2 TRAFFIC DRUMS @ 50' O.C.
24 TRAFFIC DRUMS @ 10' O.C.
8 TRAFFIC DRUMS @ 10' O.C.
750+00
755+00
C.L. HWY. 70
760+00
ROAD WORK AHEAD (W20-1, 48"x48")
END ROAD WORK (G20-2, 48"x24")
HAPPYTREE LN
PAYTON PL
RELOCATE 293 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
EXIST. R/W
CONST. LIMITS
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
BUNKER HILL TR
STILLMAN LN

NOTE:
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9/26/2016

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER

24 TRAFFIC DRUMS @ 50' O.C.
23 TRAFFIC DRUMS @ 10' O.C.
23 TRAFFIC DRUMS @ 10' O.C.
23 TRAFFIC DRUMS @ 10' O.C.
26 TRAFFIC DRUMS @ 10' O.C.
765+00
770+00
775+00
C.L. HWY. 70
SHOULDER DROP OFF (W8-9A, 48"x48")
SHOULDER CLOSED (RSP-1, 48"x30")
DO NOT PASS (R4-1, 36"x48")
6 TRAFFIC DRUMS @ 20' O.C.
8 TRAFFIC DRUMS @ 20' O.C.
8 TRAFFIC DRUMS @ 20' O.C.
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
ROAD WORK AHEAD (W20-1, 48"x48")
END ROAD WORK (G20-2, 48"x24")
CLOUD 9 DR

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	157	888

(2) MAINTENANCE OF TRAFFIC

N

ROAD WORK AHEAD W20-1 (48"x48")

EVERHART RD

END ROAD WORK G20-2 (48"x24")

T.C.E.

C.L. HWY. 70

DO NOT PASS R4-1 (36"x48")

PROP. R/W

EXIST. R/W

CONST. LIMITS

T.C.E.

27 TRAFFIC DRUMS @ 10' O.C.

780+00

785+00

790+00

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

CONST. LIMITS

EXIST. R/W

27 TRAFFIC DRUMS @ 50' O.C.

STATE OF ARKANSAS
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CLINTON D. JUMPER

9/26/2016

7 TRAFFIC DRUMS @ 50' O.C.

12 TRAFFIC DRUMS @ 50' O.C.

PROP. R/W

CONST. LIMITS

EXIST. R/W

CONST. LIMITS

795+00

800+00

805+00

FURNISH AND INSTALL 393 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

C.L. HWY. 70

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

CONST. LIMITS

DO NOT PASS R4-1 (36"x48")

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

9 TRAFFIC DRUMS @ 10' O.C.

END ROAD WORK G20-2 (48"x24")

ROAD WORK AHEAD

W20-1 (48"x48")

CLOUD NINE DR

EXIST. R/W

CONST. LIMITS

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	158	888

(2) MAINTENANCE OF TRAFFIC

PROP. R/W
CONST. LIMITS
11 TRAFFIC DRUMS @ 50' O.C.
SHOULDER DROP OFF W8-9A (48"×48")
SHOULDER CLOSED R5P-1 (48"×30")
FURNISH AND INSTALL 2486 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER
EXIST. R/W
DO NOT PASS R4-1 (36"×48")
N
810+00
815+00
820+00
CONST. LIMITS
C.L. HWY. 70
6 TRAFFIC DRUMS @ 20' O.C.
SCENIC RIDGE RD
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONST. LIMITS
EXIST. R/W
PROP. R/W
T.C.E.
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONST. LIMITS
EXIST. R/W

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

T.C.E.
EXIST. R/W
C.L. HWY. 70
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONST. LIMITS
RII-2 (48"×30") ROAD CLOSED
(1) 16' BARR. TYP. III L.T.
825+00
830+00
835+00
11 TRAFFIC DRUMS @ 20' O.C.
ROAD WORK AHEAD W20-1 (48"×48")
DO NOT PASS R4-1 (36"×48")
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONST. LIMITS
6 TRAFFIC DRUMS @ 50' O.C.
EXIST. R/W
SUMMIT RIDGE RD
END ROAD WORK G20-2 (48"×24")
N

NOTE:
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STATE OF ARKANSAS
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9/26/2016

MAINTENANCE OF TRAFFIC - STAGE 2

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(2) MAINTENANCE OF TRAFFIC

28 TRAFFIC DRUMS @ 50' O.C.

EXIST. R/W

840+00

C.L. HWY. 70

DO NOT PASS R4-1 (36"x48")

CONST. LIMITS

850+00

845+00

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

CONST. LIMITS

EXIST. R/W

27 TRAFFIC DRUMS @ 50' O.C.

EXIST. R/W

SHOULDER DROP OFF W8-9A (48"x48")

SHOULDER CLOSED RSP-1 (48"x30")

C.L. HWY. 70

CONST. LIMITS

855+00

860+00

865+00

CONST. LIMITS

DO NOT PASS R4-1 (36"x48")

CONST. LIMITS

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

EXIST. R/W

FURNISH AND INSTALL 773 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
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No. 16728

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MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

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6	ARK.			
JOB NO.		CA0610	160	888

(2) MAINTENANCE OF TRAFFIC

CONST. LIMITS
EXIST. R/W
PROP. R/W
CEDAR CREEK RD.
870+00
875+00
880+00
C.L. HWY. 70
37 TRAFFIC DRUMS @ 10' O.C.
6 TRAFFIC DRUMS @ 50' O.C.
10 TRAFFIC DRUMS @ 50' O.C.
7 TRAFFIC DRUMS @ 20' O.C.
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
FURNISH AND INSTALL 200 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
STA. 876+26, 29.50' RT. C.L. HWY. 70
END FULL-DEPTH SHOULDER 4" CONTINUOUS WHITE LINE TIE-IN WITH EXISTING EDGE OF PAVEMENT
STA. 877+99
STA. 874+59
340' SHIFTING TAPER
END ROAD WORK G20-2 (48"x24")
ROAD WORK AHEAD (48"x48") I-02M
DO NOT PASS R4-1 (36"x48")

STATE OF ARKANSAS
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LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

EXIST. R/W
CONST. LIMITS
885+00
890+00
895+00
SHOULDER CLOSED RSP-1 (48"x30")
SHOULDER DROP OFF W8-9A (48"x48")
M13-1P (30"x30")
M4-8A (48"x48")
50 MPH
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
C.L. HWY. 70
33 TRAFFIC DRUMS @ 50' O.C.

MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	161	888

(2) MAINTENANCE OF TRAFFIC

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

N

27 TRAFFIC DRUMS @ 50' O.C.

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

EXIST. R/W

CONST. LIMITS

900+00

905+00

910+00

20 TRAFFIC DRUMS @ 10' O.C.

ROAD WORK AHEAD W20-1 (48"x48")

SR 63

END ROAD WORK G20-2 (48"x24")

DO NOT PASS R4-1 (36"x48")

C.L. HWY. 70

8 TRAFFIC DRUMS @ 20' O.C.

LOGGING RD 2256

ROAD WORK AHEAD W20-1 (48"x48")

LEFT LANE CLOSED 1 MILE W20-5L (48"x48")

END ROAD WORK G20-2 (48"x24")

CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

31 TRAFFIC DRUMS @ 50' O.C.

SHOULDER DROP OFF W8-9A (48"x48")

SHOULDER CLOSED RSP-1 (48"x30")

915+00

920+00

925+00

CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER

9/26/2016

MAINTENANCE OF TRAFFIC - STAGE 2

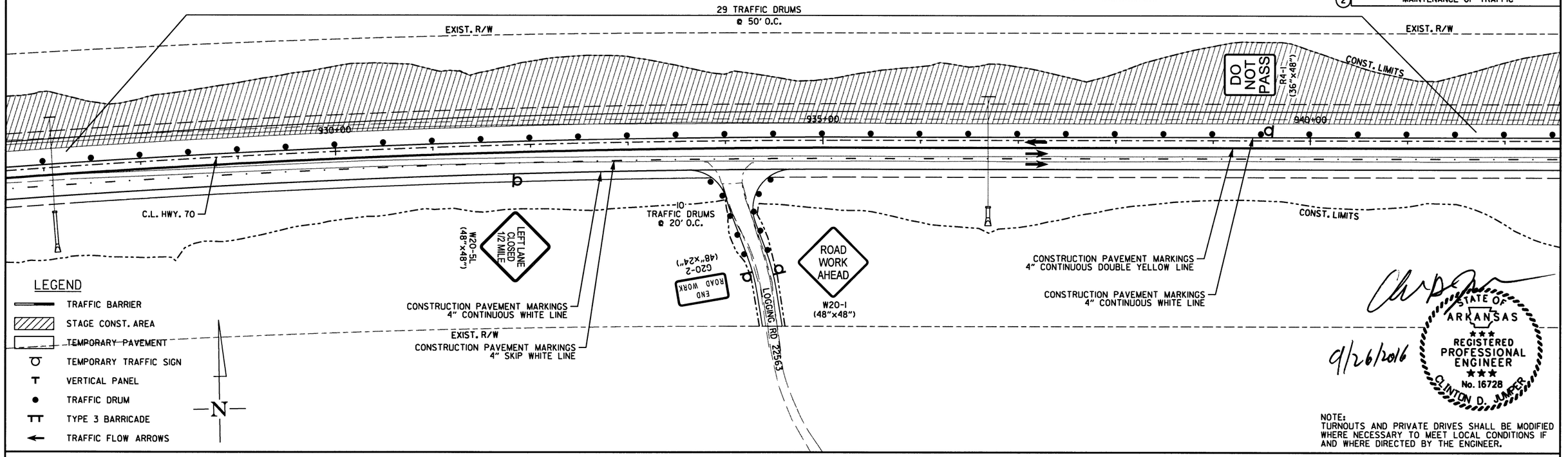
Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	162	888

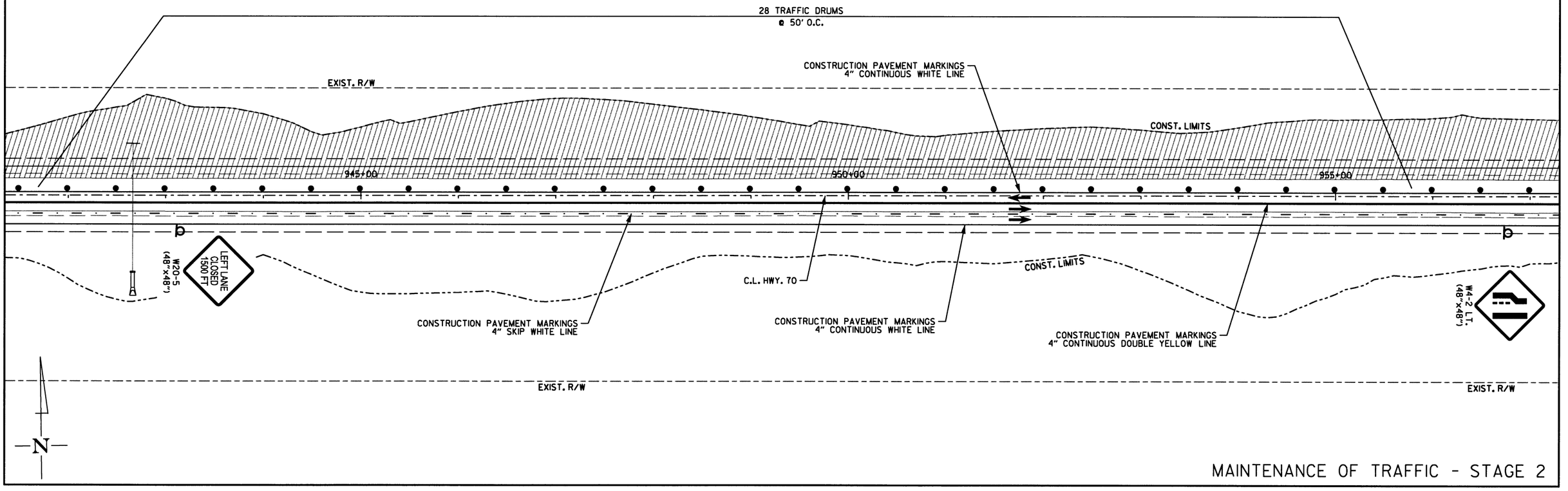
(2) MAINTENANCE OF TRAFFIC



9/26/2016

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

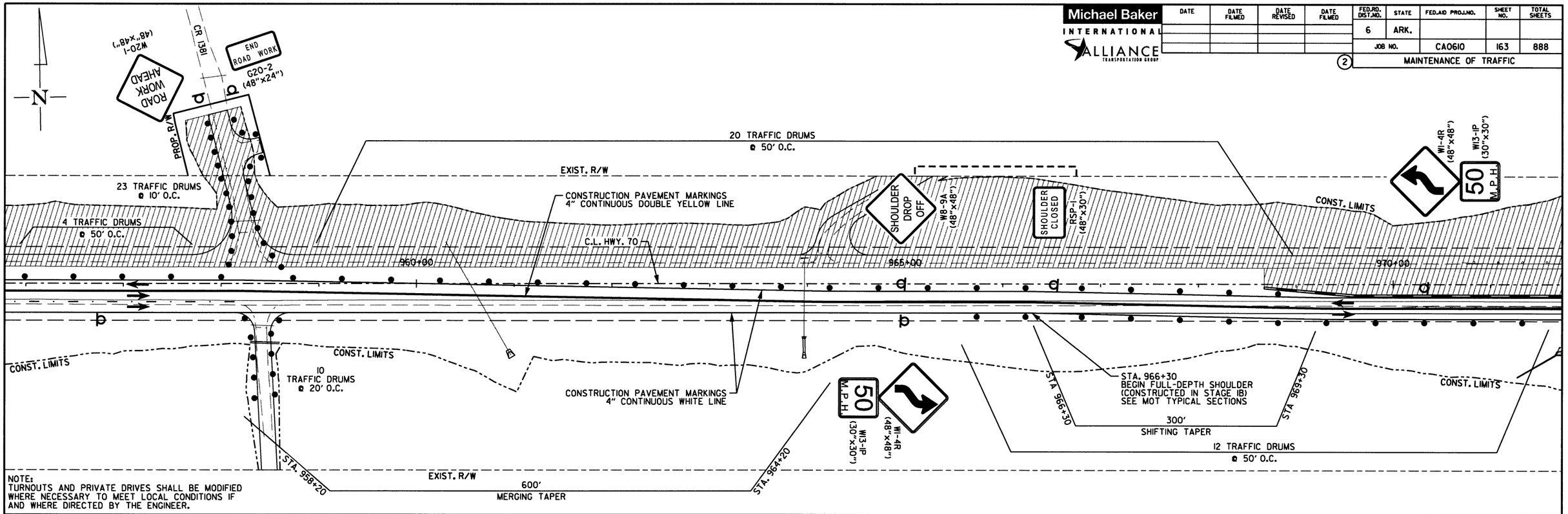


MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	163	888

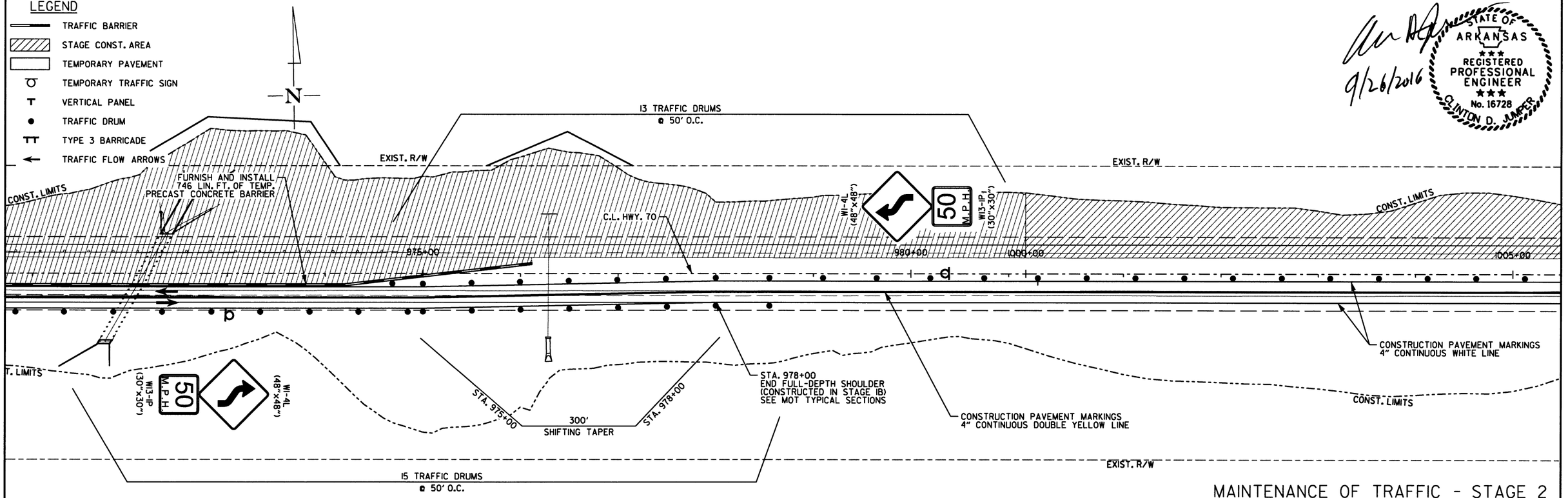
(2) MAINTENANCE OF TRAFFIC



NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JAMES
9/26/2016

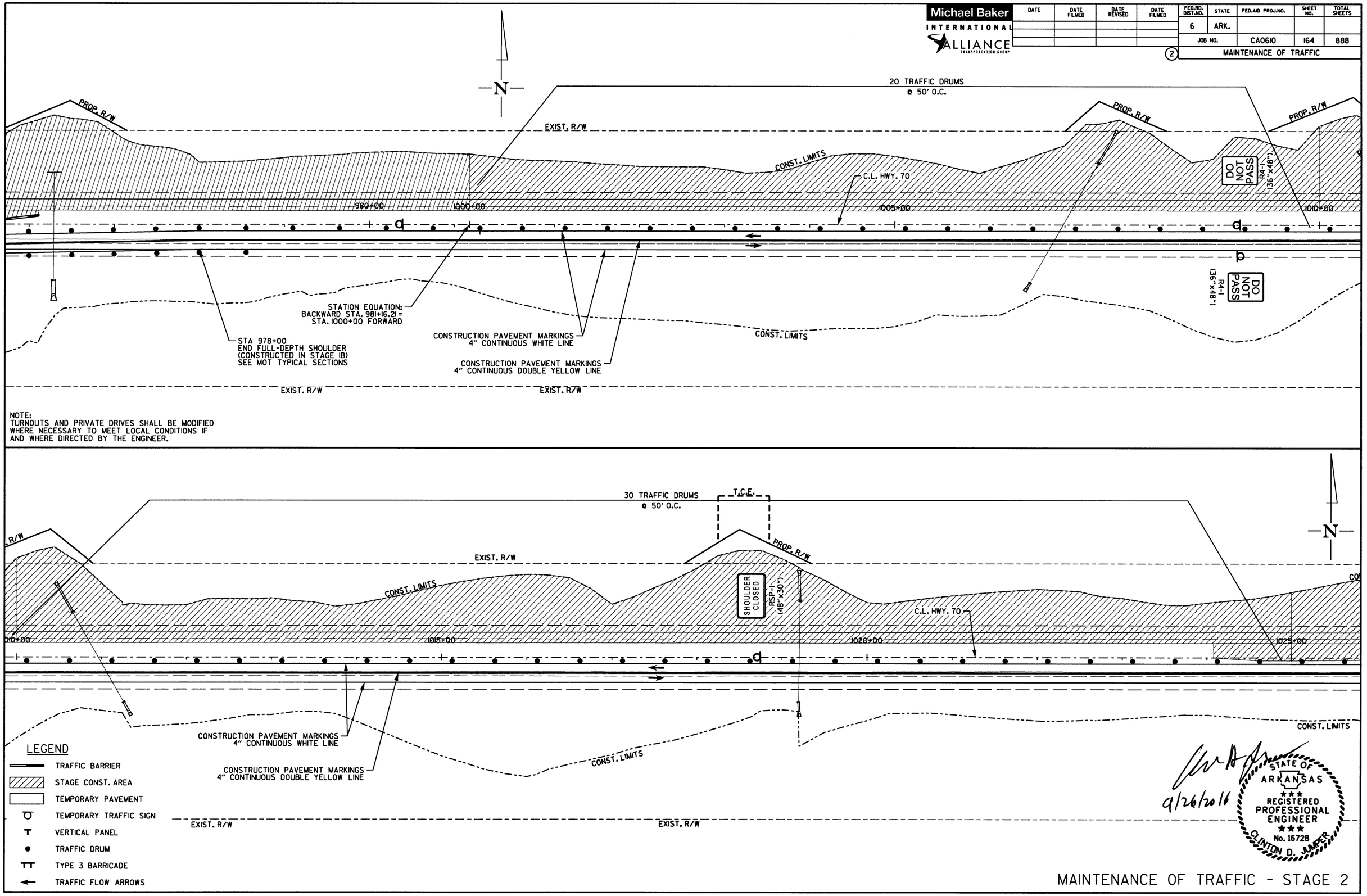
MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	164	888

(2) MAINTENANCE OF TRAFFIC



NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

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MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	165	888

(2) MAINTENANCE OF TRAFFIC

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STATE OF ARKANSAS
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T.C.E.
PROP. R/W
CONST. LIMITS
13+00
12+00
C.L. HWY. 128
SEE HWY. 128 MOT PLAN SHEETS FOR MOT DEVICE INFORMATION
6 TRAFFIC DRUMS @ 50' O.C.
EXIST. R/W
PROP. R/W
CONST. LIMITS
10 TRAFFIC DRUMS 20' O.C.
C.L. HWY. 70
CONST. LIMITS
DO NOT PASS R4-1 (36"x48")
1025+00
10 TRAFFIC DRUMS 10' O.C.
1030+00
1035+00
1040+00
8 TRAFFIC DRUMS 20' O.C.
CONST. LIMITS
C.L. LONSDALE CUTOFF
CONST. LIMITS
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.
G20-2 (48"x24") END ROAD WORK
ROAD WORK AHEAD W20-1 (48"x48")
00+00
00+80
20 TRAFFIC DRUMS 50' O.C.
EXIST. R/W

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

25 TRAFFIC DRUMS 50' O.C.
ROAD WORK AHEAD W20-1 (48"x48")
CR 1379
END ROAD WORK G20-2 (48"x24")
SHOULDER CLOSED RSP-1 (48"x30")
EXIST. R/W
SHOULDER DROP OFF W8-9A (48"x48")
T.C.E.
CONST. LIMITS
20 TRAFFIC DRUMS 10' O.C.
CONST. LIMITS
1045+00
1050+00
1055+00
DO NOT PASS R4-1 (36"x48")
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
CONST. LIMITS
C.L. HWY. 70
RELOCATE 173 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
7 TRAFFIC DRUMS 20' O.C.
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
EXIST. R/W

MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

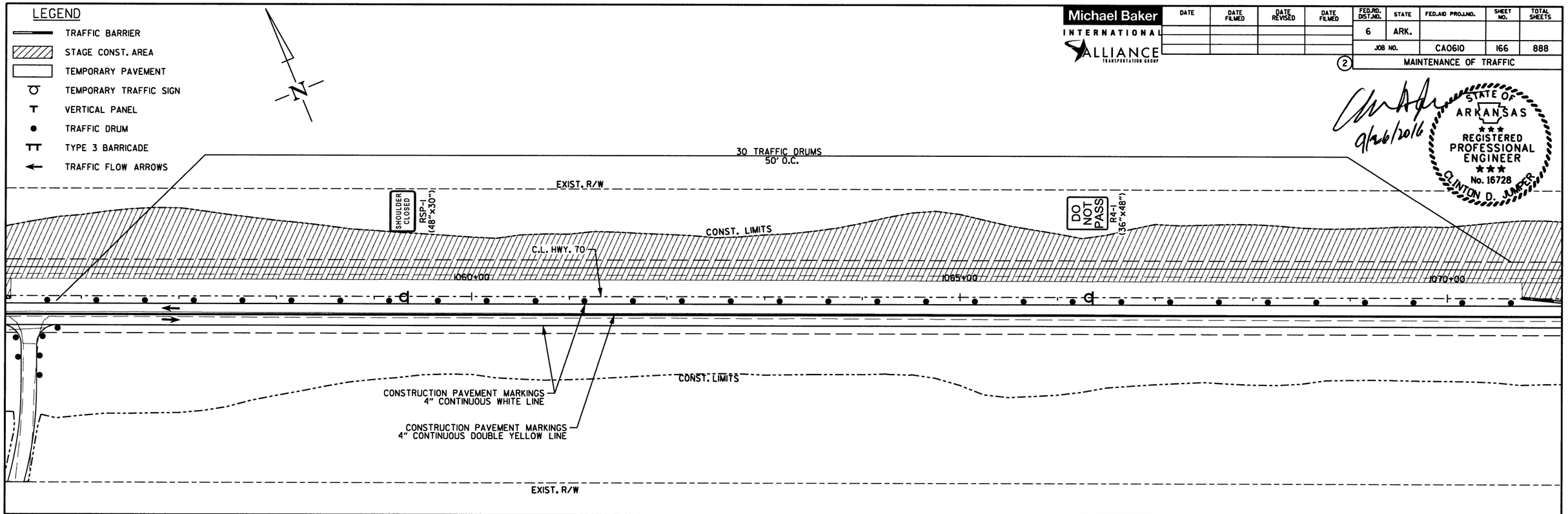
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	166	888

(2) MAINTENANCE OF TRAFFIC

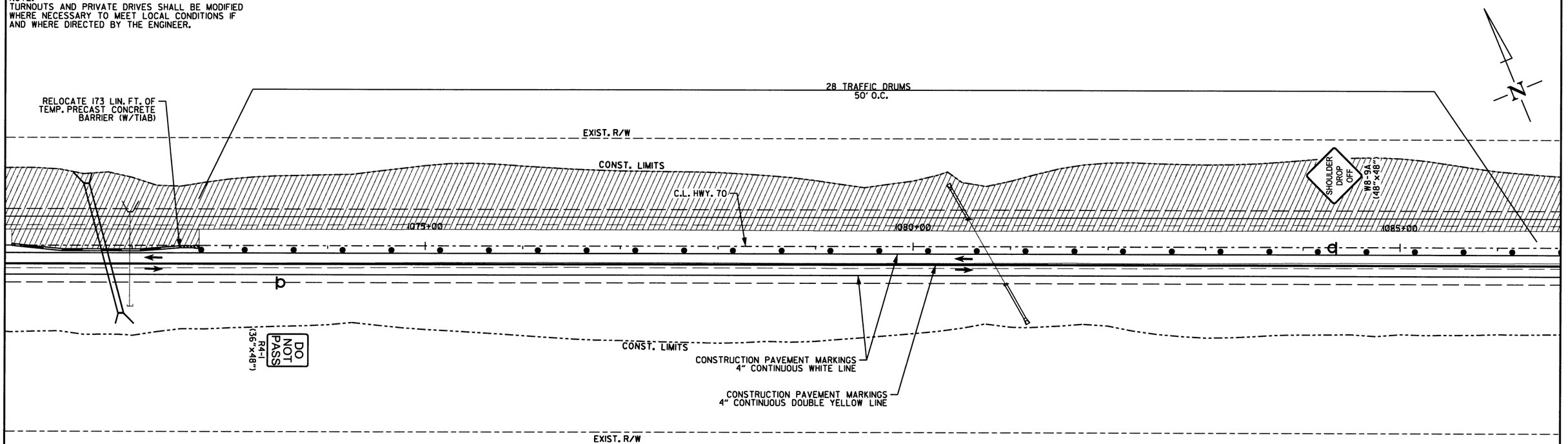
9/26/2016

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS



NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

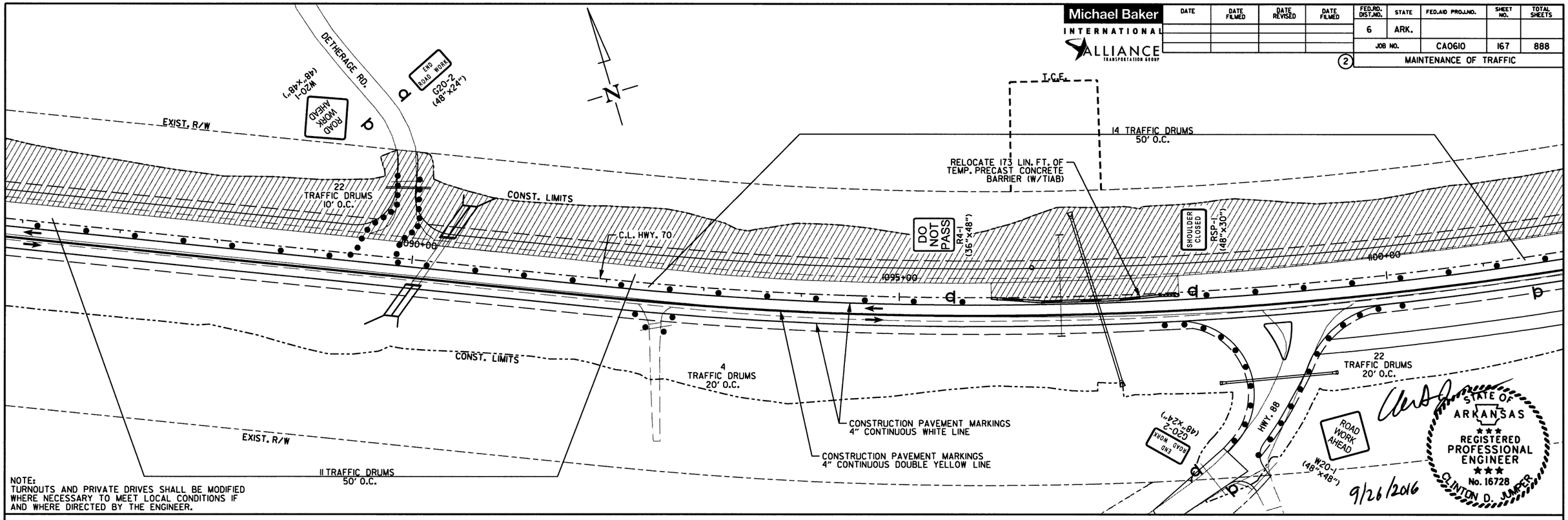


MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	167	888

(2) MAINTENANCE OF TRAFFIC



MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	168	888

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNIPER
9/26/2016

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

N

STA 1115+90
660' MERGING TAPER
STA 1122+50
EXIST. R/W
CONST. LIMITS
24 TRAFFIC DRUMS 50' O.C.
13 TRAFFIC DRUMS 10' O.C.
16 TRAFFIC DRUMS 10' O.C.
W1-4L (48"x48")
C.L. HWY. 70
L.C.E.
14 TRAFFIC DRUMS 10' O.C.
DO NOT PASS R4-1 (36"x48")
1120+00
1125+00
1130+00
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
10 TRAFFIC DRUMS 20' O.C.
CONST. LIMITS
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
10 TRAFFIC DRUMS 20' O.C.
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
EXIST. R/W

N

22 TRAFFIC DRUMS 50' O.C.
W4-2 LT. (48"x48")
W20-1 (48"x48")
SHOULDER DROP OFF
W8-9A (48"x48")
ROAD WORK AHEAD
CHURCH RD.
END ROAD WORK G20-2 (48"x24")
IRA WILLIAMS RD.
W20-1 (48"x48")
EXIST. R/W
PROP. R/W
19 TRAFFIC DRUMS 10' O.C.
CONST. LIMITS
29 TRAFFIC DRUMS 10' O.C.
C.L. HWY. 70
CONST. LIMITS
27 TRAFFIC DRUMS 10' O.C.
1135+00
1140+00
1145+00
2 TRAFFIC DRUMS 110' O.C.
7 TRAFFIC DRUMS 20' O.C.
10 TRAFFIC DRUMS 20' O.C.
CONST. LIMITS
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
DO NOT PASS R4-1 (36"x48")
END ROAD WORK G20-2 (48"x24")
ROAD WORK AHEAD W20-1 (48"x48")
CONST. LIMITS
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE
C.L. NANCE RD.
EXIST. R/W
10 TRAFFIC DRUMS 110' O.C.

MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

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6	ARK.			
JOB NO.		CA0610	169	888

(2) MAINTENANCE OF TRAFFIC

IRA WILLIAMS RD.

C20-2 (48"×24") END ROAD WORK

LEFT LANE CLOSED 1500 FT

W20-5 (48"×48")

CONST. LIMITS

16 TRAFFIC DRUMS 10' O.C.

1145+00

22 TRAFFIC DRUMS 10' O.C.

EXIST. R/W

19 TRAFFIC DRUMS 50' O.C.

SHOULDER CLOSED

RSP-1 (48"×30")

21 TRAFFIC DRUMS 10' O.C.

22 TRAFFIC DRUMS 10' O.C.

LEFT LANE CLOSED 1/2 MILE

W20-5 (48"×48")

DO NOT PASS R4-1 (36"×48")

1150+00

C.L. HWY. 70

CONST. LIMITS

1155+00

1160+00

7 TRAFFIC DRUMS 20' O.C.

16 TRAFFIC DRUMS 20' O.C.

ROAD WORK AHEAD W20-1 (48"×48")

CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

N

8 TRAFFIC DRUMS @ 50' O.C.

W20-1 (48"×48") ROAD WORK AHEAD

END ROAD WORK G20-2 (48"×24")

EXIST. R/W

CONST. LIMITS

9 TRAFFIC DRUMS 10' O.C.

1160+00

1165+00

25 TRAFFIC DRUMS 10' O.C.

13 TRAFFIC DRUMS 50' O.C.

SHOULDER DROP OFF W8-9A (48"×48")

12 TRAFFIC DRUMS 10' O.C.

12 TRAFFIC DRUMS 10' O.C.

1170+00

1175+00

C.L. HWY. 70

8 TRAFFIC DRUMS 20' O.C.

CONST. LIMITS

DO NOT PASS R4-1 (36"×48")

9 TRAFFIC DRUMS @ 50' O.C.

EXIST. R/W

CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

16 TRAFFIC DRUMS 20' O.C.

T.C.E.

N

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

STATE OF ARKANSAS
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No. 16728
CLINTON D. JUMPER
9/26/2016

MAINTENANCE OF TRAFFIC - STAGE 2

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	170	888

(2) MAINTENANCE OF TRAFFIC

Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

N

9 TRAFFIC DRUMS 50' O.C.

W20-1 (48"x48")

ROAD WORK AHEAD

END ROAD WORK G20-2 (48"x24")

BECK LN.

13 TRAFFIC DRUMS 50' O.C.

SMART RD.

PROP. R/W

SHOULDER CLOSED RSP-1 (48"x30")

CONST. LIMITS

EXIST. R/W

11 TRAFFIC DRUMS 10' O.C.

12 TRAFFIC DRUMS 10' O.C.

DO NOT PASS R4-1 (36"x48")

23 TRAFFIC DRUMS 10' O.C.

1180+00

1185+00

1175+00

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE

C.L. HWY. 70

8 TRAFFIC DRUMS 20' O.C.

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

ROCKY LOOP

11 TRAFFIC DRUMS 20' O.C.

NOTE:
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14 TRAFFIC DRUMS 50' O.C.

RELOCATE 173 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

(1) 16' BARR. TYP. III L.T.

ROAD CLOSED R11-2 (48"x30")

T.C.E.

38 TRAFFIC DRUMS 10' O.C.

6 TRAFFIC DRUMS 10' O.C.

16 TRAFFIC DRUMS 10' O.C.

17 TRAFFIC DRUMS 10' O.C.

SHOULDER DROP OFF W8-9A (48"x48")

1190+00

1195+00

1200+00

6 TRAFFIC DRUMS 20' O.C.

23 TRAFFIC DRUMS 20' O.C.

CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

C.L. HWY. 70

DO NOT PASS R4-1 (36"x48")

9/26/2016

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JAMES

MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	171	888

(2) MAINTENANCE OF TRAFFIC

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No. 16728
CLINTON D. JUMPER
9/26/2016

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

RELOCATE 1313 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

EXIST. R/W

ROAD CLOSED (48"x30") RII-2
(1) 16' BARR. TYP. III L.T.

DO NOT PASS R4-1 (36"x48")

SHOULDER CLOSED RSP-I (48"x30")

4 TRAFFIC DRUMS 10' O.C.

1205+00

C.L. HWY. 70

1210+00

CONST. LIMITS

BEGIN REMOVABLE CONSTRUCTION PAVEMENT MARKINGS AT APPROACH SLAB

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

EXIST. R/W

END REMOVABLE CONSTRUCTION PAVEMENT MARKINGS AT APPROACH SLAB

CONST. LIMITS

13 TRAFFIC DRUMS 20' O.C.

1215+00

47 TRAFFIC DRUMS 10' O.C.

T.C.E.

PAVED DRIVE

ROAD WORK AHEAD (48"x48") W20-1

END ROAD WORK G20-2 (48"x24")

HOLLOWOA RD.

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

29 TRAFFIC DRUMS 50' O.C.

CONST. LIMITS

PROP. R/W

EXIST. R/W

1230+00

SHOULDER DROP OFF (48"x48") W8-9A

BROWNING RD.

1220+00

1225+00

7 TRAFFIC DRUMS 10' O.C. (SEE DETOUR PLAN)

HOLLOWOA RD.

1215+00

14 TRAFFIC DRUMS 20' O.C.

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS
4" CONTINUOUS DOUBLE YELLOW LINE

FAIRPLAY RD.

ROAD WORK AHEAD (48"x48") W20-1

END ROAD WORK G20-2 (48"x24")

MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	172	888

(2) MAINTENANCE OF TRAFFIC

PROP. R/W
CONST. LIMITS
BROWNING RD.
W20-1 (48"x48") ROAD WORK AHEAD
16 TRAFFIC DRUMS 10' O.C.
17 TRAFFIC DRUMS 50' O.C.
END ROAD WORK G20-2 (48"x24")
1230+00
RELOCATE 173 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
SHOULDER CLOSED RSP-1 (48"x30")
14 TRAFFIC DRUMS 20' O.C.
FAIRPLAY RD.
CONST. LIMITS
DO NOT PASS R4-1 (36"x48")
1235+00
RELOCATE 253 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
EXIST. R/W
CONST. LIMITS
1240+00
1245+00
CONST. LIMITS
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

NOTE:
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END ROAD WORK G20-2 (48"x24")
BROWNING RD.
CONST. LIMITS
19 TRAFFIC DRUMS 10' O.C.
5 TRAFFIC DRUMS @ 50' O.C.
1245+00
1250+00
1255+00
23 TRAFFIC DRUMS 50' O.C.
EXIST. R/W
SHOULDER DROP OFF W8-9A (48"x48")
17 TRAFFIC DRUMS 10' O.C.
CONST. LIMITS
8 TRAFFIC DRUMS 20' O.C.
C.L. HWY. 70
CONST. LIMITS
DO NOT PASS R4-1 (36"x48")
G20-2 (48"x24") END ROAD WORK
HICKORY THICKET DR.
ROAD WORK AHEAD W20-1 (48"x48")
EXIST. R/W

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CAOGIO	173	888

(2) MAINTENANCE OF TRAFFIC

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

RELOCATE 493 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

AT START OF CONCRETE SLAB, BEGIN REMOVABLE CONSTRUCTION PAVEMENT MARKINGS

AT END OF CONCRETE SLAB, END REMOVEABLE CONSTRUCTION PAVEMENT MARKINGS

21 TRAFFIC DRUMS 10' O.C.

17 TRAFFIC DRUMS 50' O.C.

EXIST. R/W

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

SHOULDER CLOSED RSP-1 (48"x30")

DO NOT PASS R4-1 (36"x48")

CONST. LIMITS

1260+00

1265+00

C.L. HWY 70

1270+00

8 TRAFFIC DRUMS 20' O.C.

CONST. LIMITS

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

G20-2 (48"x24") ROAD WORK END

ROAD WORK AHEAD W20-1 (48"x48")

KAYCE LN.

EXIST. R/W

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

STATE OF ARKANSAS
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9/26/2016

25 TRAFFIC DRUMS 50' O.C.

EXIST. R/W

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

SHOULDER DROP OFF W8-9A (48"x48")

CONST. LIMITS

1275+00

1280+00

1285+00

C.L. HWY. 70

CONST. LIMITS

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

DO NOT PASS R4-1 (36"x48")

RELOCATE 153 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

EXIST. R/W

MAINTENANCE OF TRAFFIC - STAGE 2

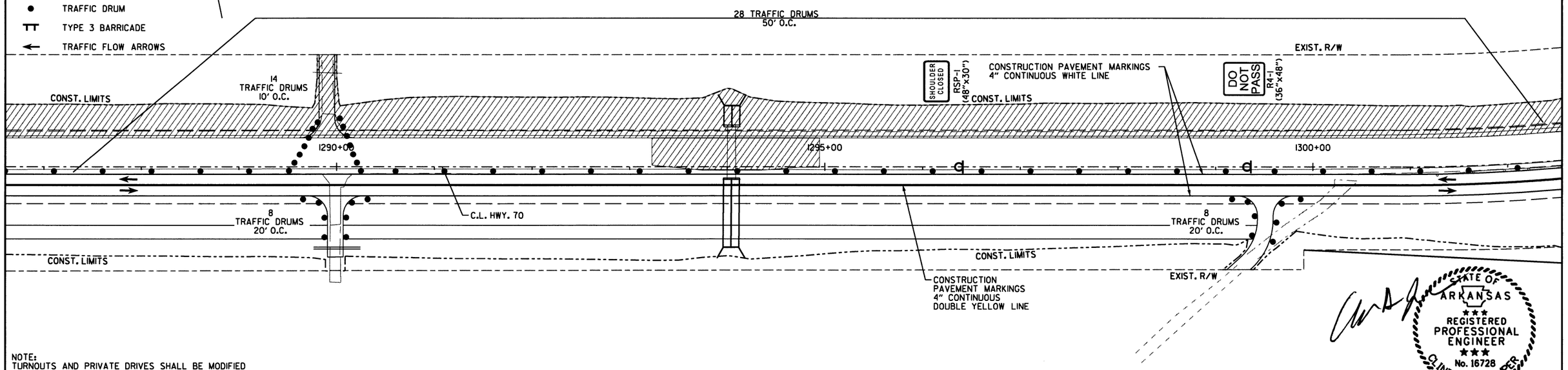
Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	174	888

(2) MAINTENANCE OF TRAFFIC

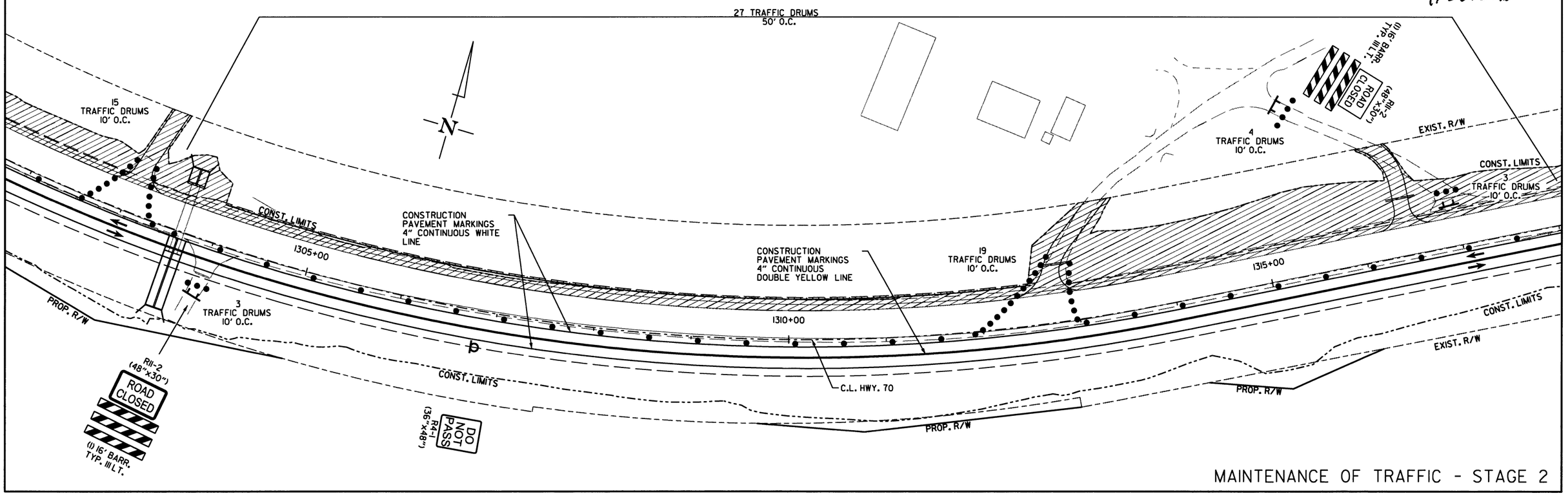
LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS



NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER

9/26/2016



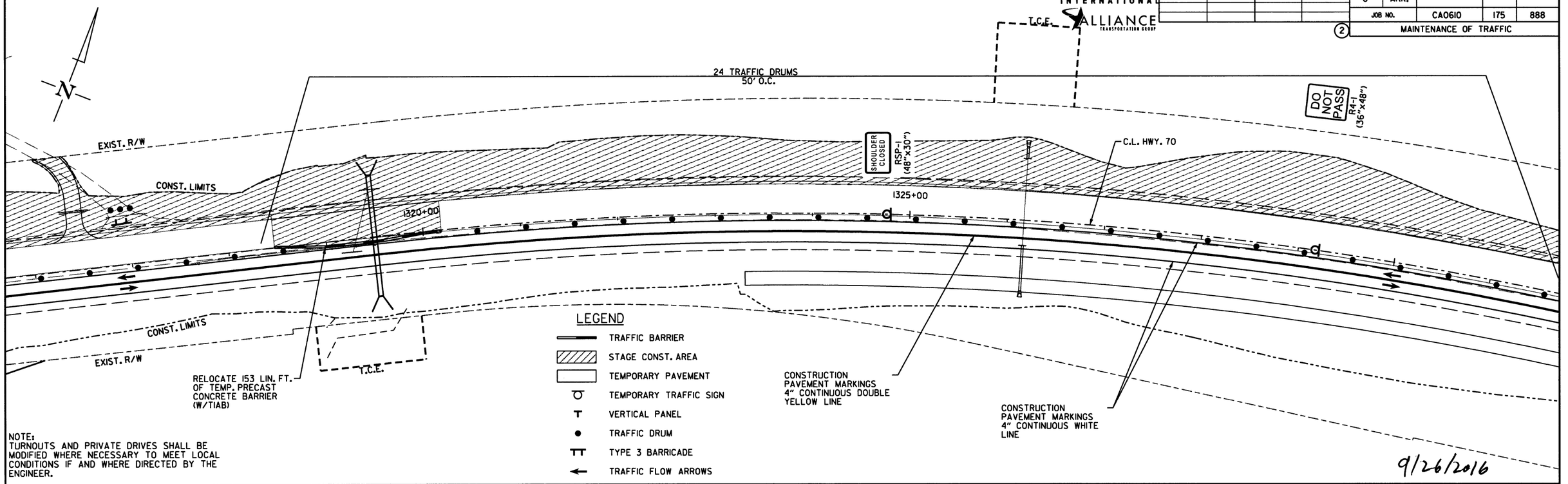
MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	175	888

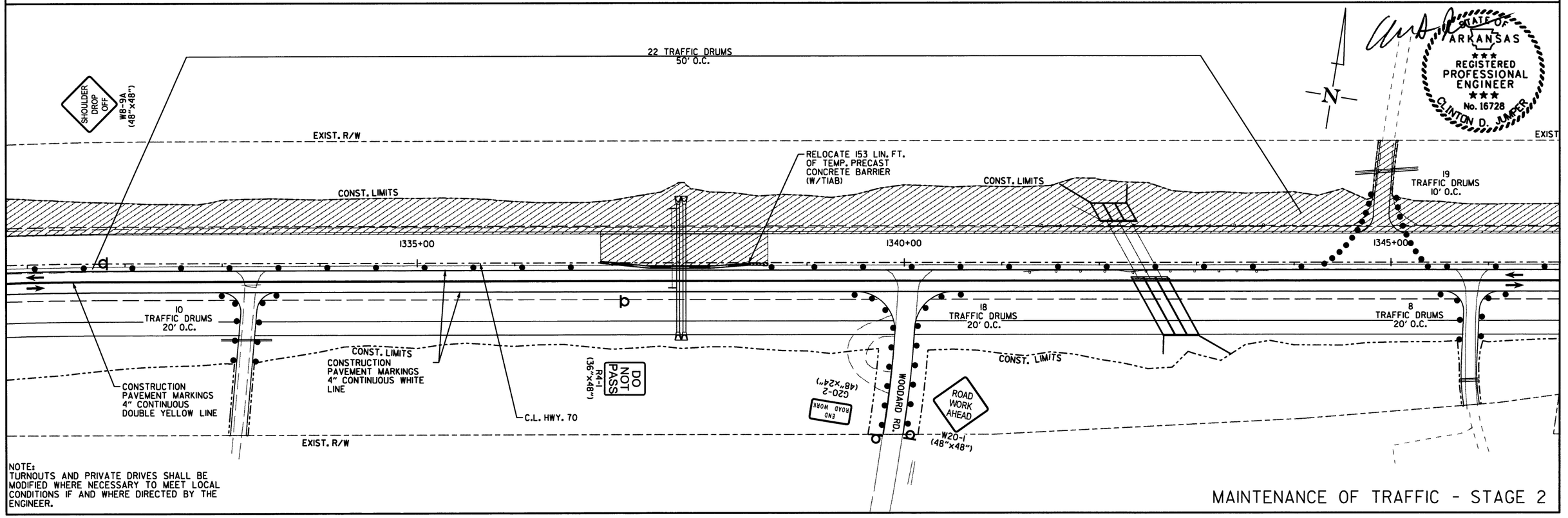
(2) MAINTENANCE OF TRAFFIC



NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

9/26/2016

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER



NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	176	888

(2) MAINTENANCE OF TRAFFIC

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TT TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

N

32 TRAFFIC DRUMS 50' O.C.

EXIST. R/W

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

DO NOT PASS R4-1 (36"x48")

SHOULDER CLOSED RSP-1 (48"x30")

CONST. LIMITS

1350+00 1355+00 1360+00

C.L. HWY. 70

6 TRAFFIC DRUMS 20' O.C.

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

EXIST. R/W

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

21 TRAFFIC DRUMS 50' O.C.

ROAD WORK AHEAD W20-1 (48"x48")

ELLIOT RD.

END ROAD WORK G20-2 (48"x24")

52 TRAFFIC DRUMS 10' O.C.

EXIST. R/W

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

PROP. R/W

SHOULDER DROP OFF W8-9A (48"x48")

CONST. LIMITS

19 TRAFFIC DRUMS 10' O.C.

1360+00 1365+00 1370+00 1375+00

C.L. HWY. 70

10 TRAFFIC DRUMS 20' O.C.

DO NOT PASS R4-1 (36"x48")

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

CONST. LIMITS

EXIST. R/W EXIST. R/W

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUNKER

9/26/2016

MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	177	888

(2) MAINTENANCE OF TRAFFIC

13 TRAFFIC DRUMS 50' O.C.
HIGH POINT DR.
EXIST. R/W
CONST. LIMITS
END ROAD WORK G20-2 (48"x24")
ROAD WORK AHEAD W20-1 (48"x48")
18 TRAFFIC DRUMS 10' O.C.
1375+00
1380+00
1385+00
MAINTAIN DRIVEWAY ACCESS
T.O.E.
PROP. R/W
SHOULDER CLOSED RSP-1 (48"x30")
R4-1 (36"x48") DO NOT PASS
C.L. HWY. 70
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
RELOCATE 153 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
END ROAD WORK G20-2 (48"x24")
24 TRAFFIC DRUMS 20' O.C.
OLD 88 RD.
ROAD WORK AHEAD W20-1 (48"x48")
11 TRAFFIC DRUMS 50' O.C.

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

9/26/2016

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

SMITH FORD RD.
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE
ROAD WORK AHEAD W20-1 (48"x48")
END ROAD WORK G20-2 (48"x24")
CONSTRUCT TEMP. DRIVEWAY TO MAINTAIN DRIVEWAY ACCESS. REMOVE AFTER STAGE 2.
PROP. R/W
EXIST. R/W
CONST. LIMITS
SHOULDER DROP OFF W8-9A (48"x48")
28 TRAFFIC DRUMS 10' O.C.
1390+00
1395+00
1400+00
1405+
18 TRAFFIC DRUMS 10' O.C.
ROAD WORK AHEAD W20-1 (48"x48")
END ROAD WORK G20-2 (48"x24")
16 TRAFFIC DRUMS 10' O.C.
PAVED DRIVE
R4-1 (36"x48") DO NOT PASS
C.L. HWY. 70
CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE
RELOCATE 173 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)
22 TRAFFIC DRUMS 50 O.C.

STATE OF ARKANSAS
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No. 16728
CLINTON D. JAMPER

MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	178	888

(2) MAINTENANCE OF TRAFFIC

9/26/2016

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JUMPER

LEGEND
- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

SALINAS SPRINGS DR.

EXIST. R/W

CONST. LIMITS

ROAD WORK AHEAD W20-1 (48"x48")

END ROAD WORK G20-2 (48"x24")

21 TRAFFIC DRUMS 50' O.C.

19 TRAFFIC DRUMS 10' O.C.

SHOULDER CLOSED RSP-1 (48"x30")

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

DO NOT PASS R4-1 (36"x48")

14 TRAFFIC DRUMS 10' O.C.

1405+00

1410+00

1415+00

C.L. HWY. 70

RELOCATE 153 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

12 TRAFFIC DRUMS 50' O.C.

820' SHIFTING TAPER

PROP. R/W

STA. 1425+00

RELOCATE 553 LIN. FT. OF TEMP. PRECAST CONCRETE BARRIER (W/TIAB)

12 TRAFFIC DRUMS 55' O.C.

SHOULDER DROP OFF W8-9A (48"x48")

1420+00

1425+00

1430+00

14 TRAFFIC DRUMS 20' O.C.

CROSSROADS RD.

NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

MAINTENANCE OF TRAFFIC - STAGE 2

Michael Baker INTERNATIONAL

ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	179	888

(2) MAINTENANCE OF TRAFFIC

LEGEND

- TRAFFIC BARRIER
- STAGE CONST. AREA
- TEMPORARY PAVEMENT
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC DRUM
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS

N

820' SHIFTING TAPER

STA. 1433+20

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS WHITE LINE

EXIST. R/W

CONST. LIMITS

15 TRAFFIC DRUMS 10' O.C.

11 TRAFFIC DRUMS 10' O.C.

W1-4L (48"x48")

1430+00

1435+00

STA. 1437+60.00 END JOB CA0610 BEGIN OVERLAY

ROAD WORK NEXT 18 MILES

G20-1 (60x24)

13 TRAFFIC DRUMS 10' O.C.

17 TRAFFIC DRUMS 10' O.C.

MAINTAIN DRIVEWAY ACCESS

T.C.E.

PROP. R/W

ROAD WORK 500 FT W20-1 (48"x48")

ROAD WORK AHEAD W20-1 (48"x48")

ROAD WORK END G20-2 (48"x24")

1440+00

CONSTRUCTION PAVEMENT MARKINGS 4" SKIP WHITE LINE

CONSTRUCTION PAVEMENT MARKINGS 4" CONTINUOUS DOUBLE YELLOW LINE

C.L. HWY. 70

CONST. LIMITS

EXIST. R/W

STA. 1441+42.50 END OVERLAY

N

ROAD WORK 1000 FT (2) W20-1 (48"x48")

POE 1449+89.76

1445+00

C.L. HWY. 70

ROAD WORK 1500 FT (2) W20-1 (48"x48")

ROAD WORK AHEAD (2) W20-1 (48"x48")

ROAD WORK END G20-2 (48"x24")

STATE OF ARKANSAS
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No. 16728
CLINTON D. JUMPER

9/26/2016

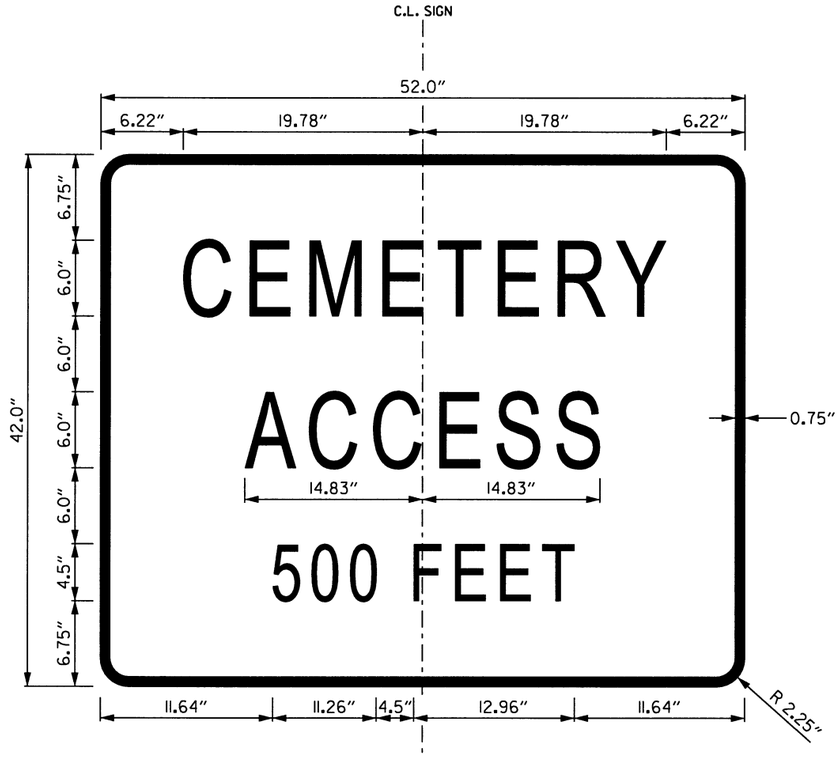
NOTE:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

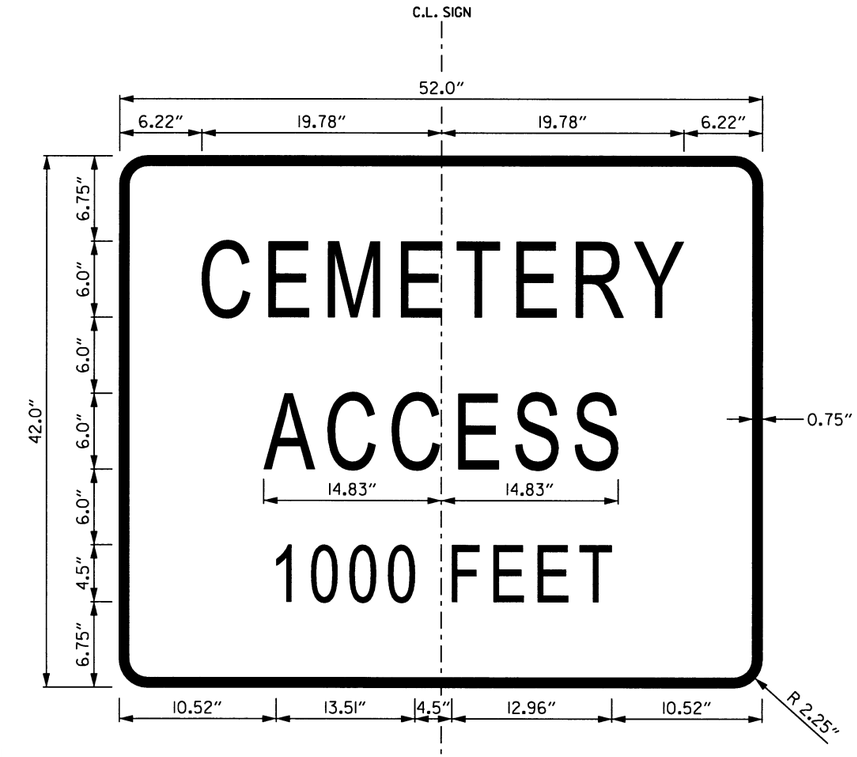
MAINTENANCE OF TRAFFIC - STAGE 2

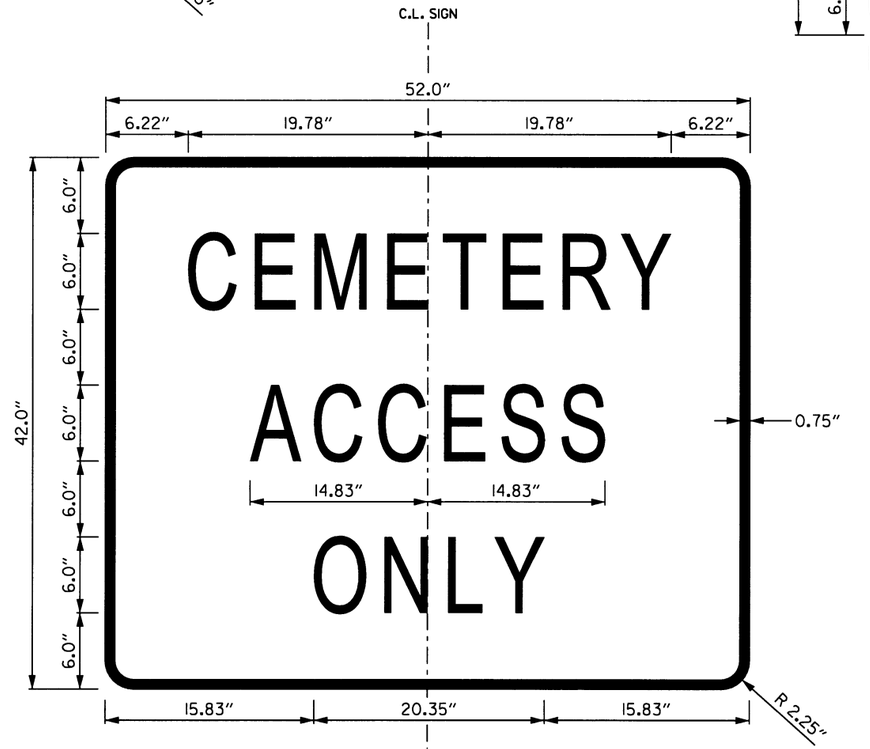
Michael Baker INTERNATIONAL
ALLIANCE TRANSPORTATION GROUP

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	180	888

(2) MAINTENANCE OF TRAFFIC







STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16728
CLINTON D. JAMES
10/03/2016

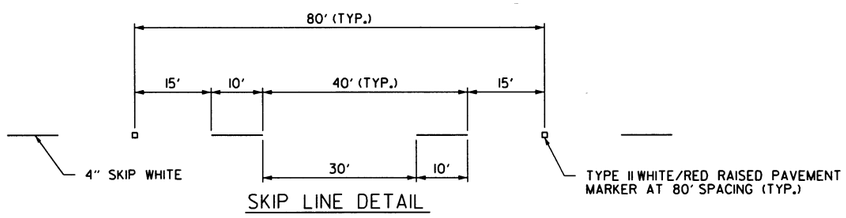
CEMETERY ACCESS SIGN DETAILS
MAINTENANCE OF TRAFFIC

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	181	888

(2) PERMANENT PAVEMENT MARKING DETAILS



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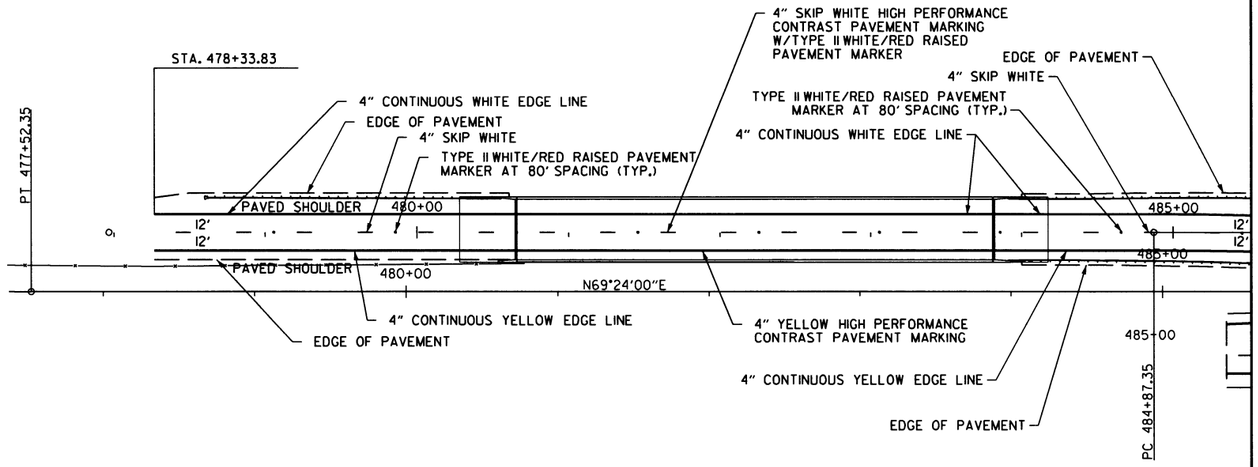
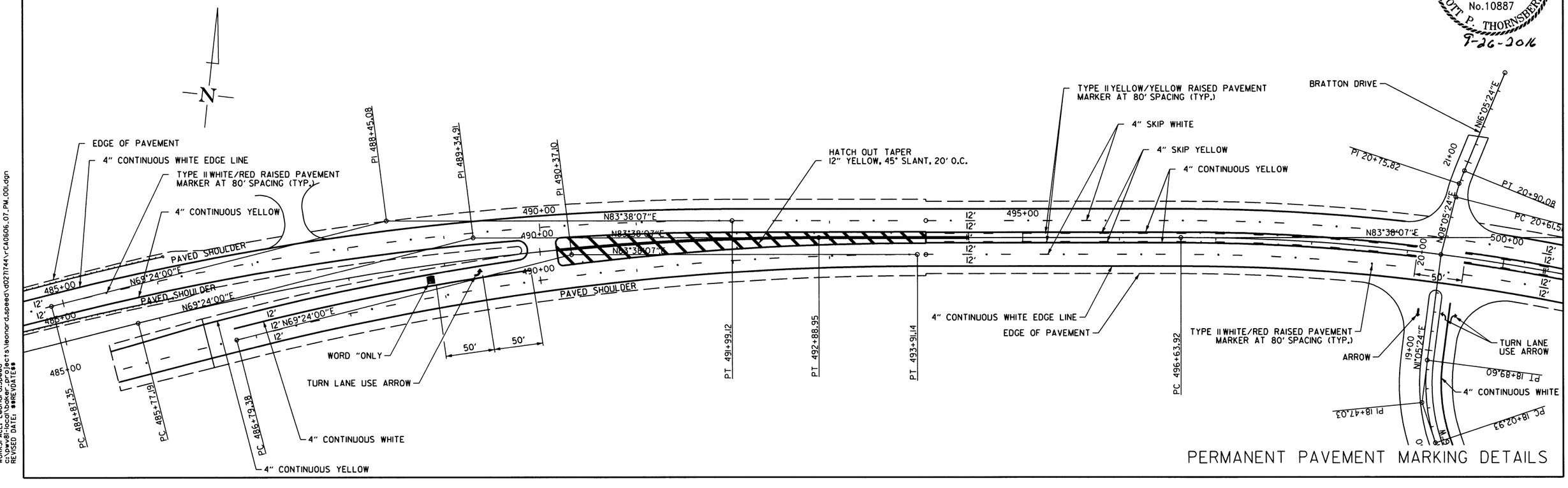


STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★★★
No.10887
SCOTT P. THORNSBERRY
9-26-2016



PERMANENT PAVEMENT MARKING DETAILS

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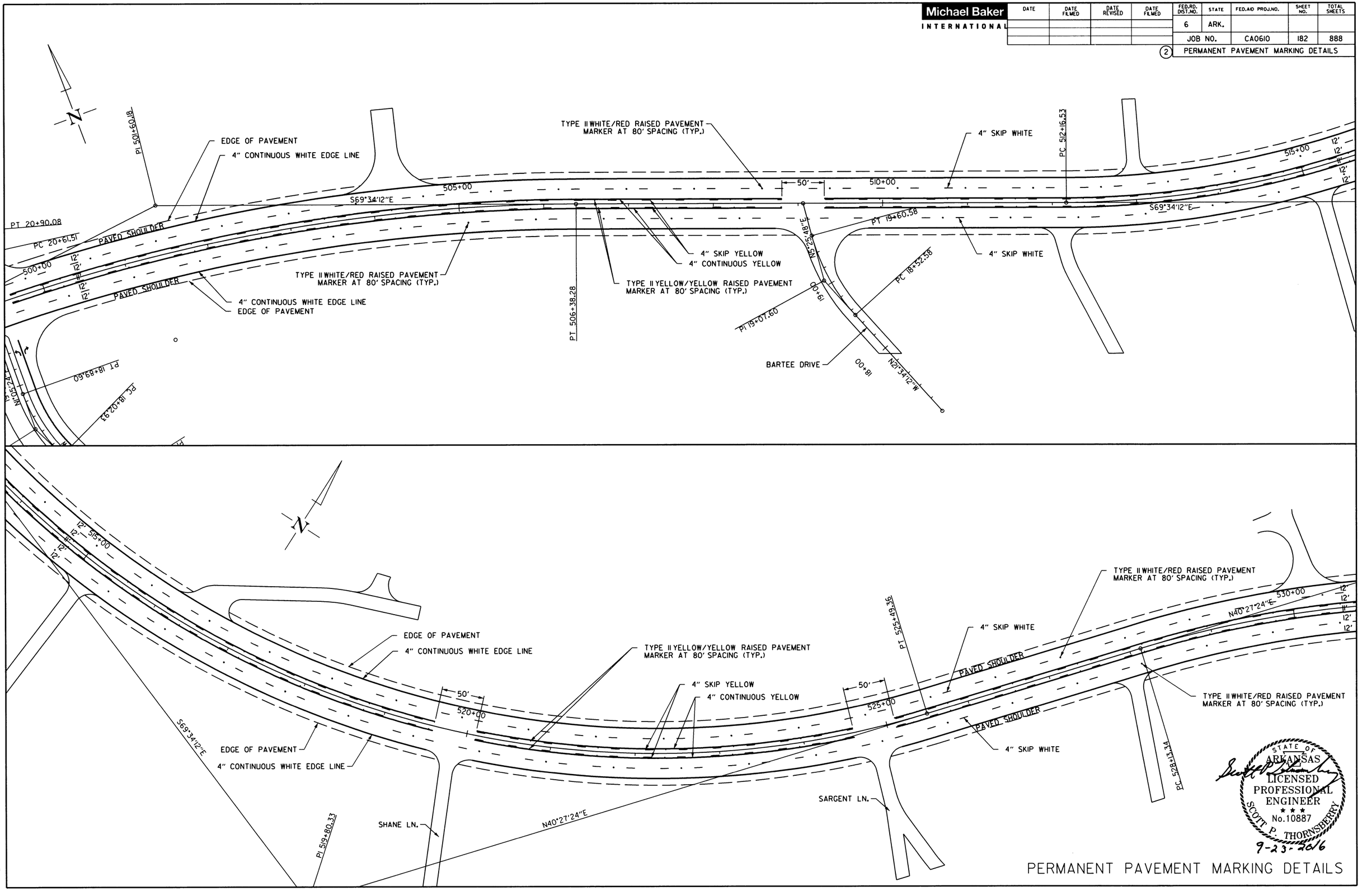
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	182	888
(2) PERMANENT PAVEMENT MARKING DETAILS				



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

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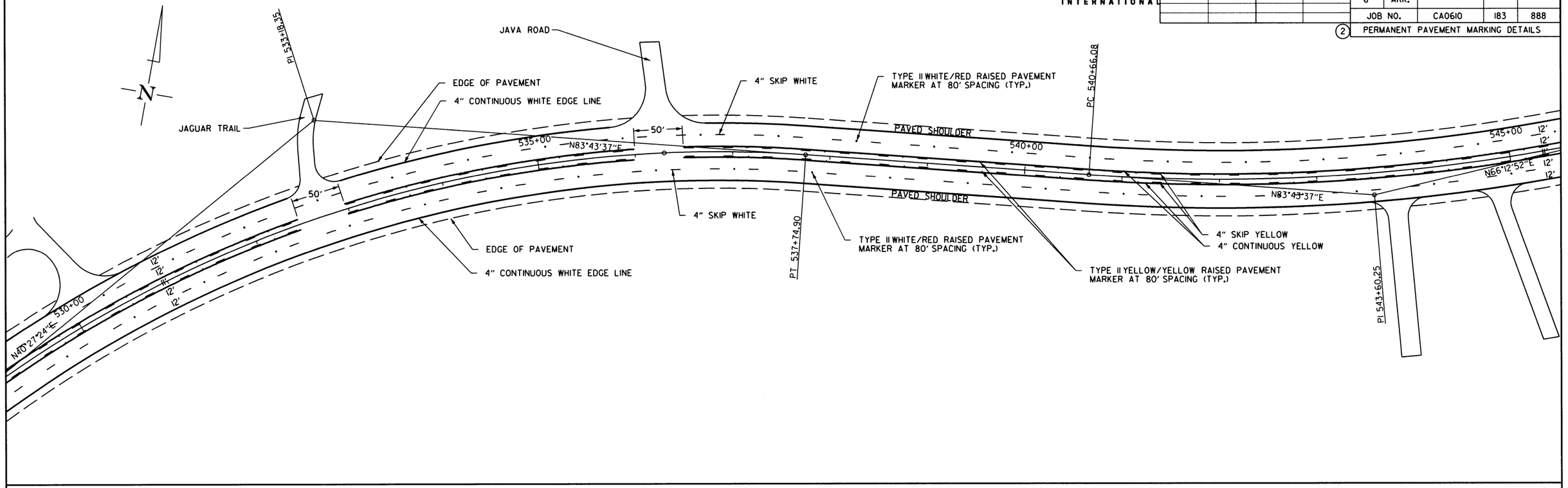
REVISED DATE: **REVDATE**

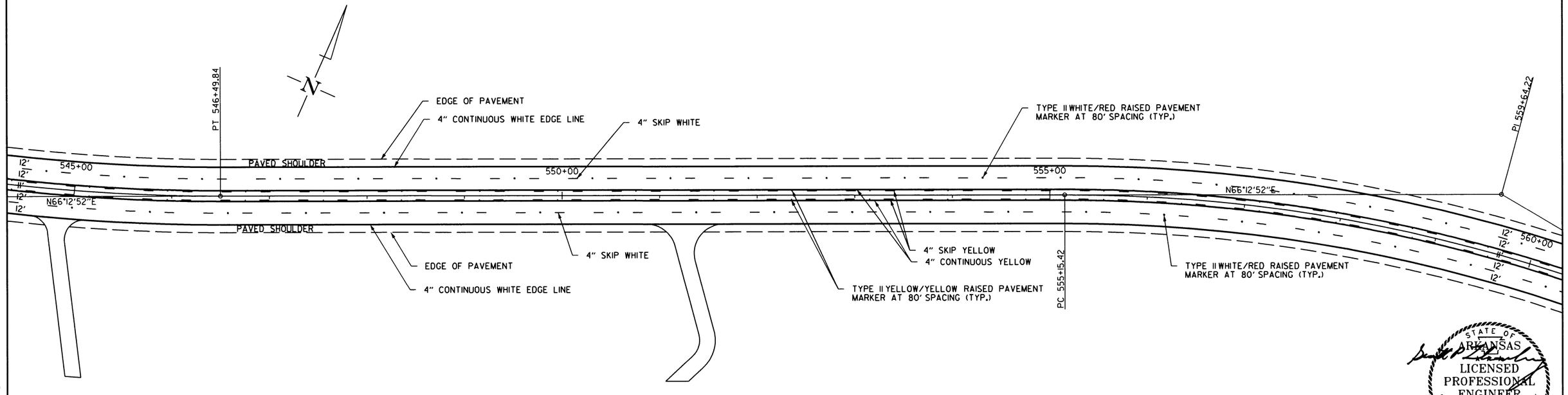
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	183	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

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WORKSPACE: Leonard.Speed
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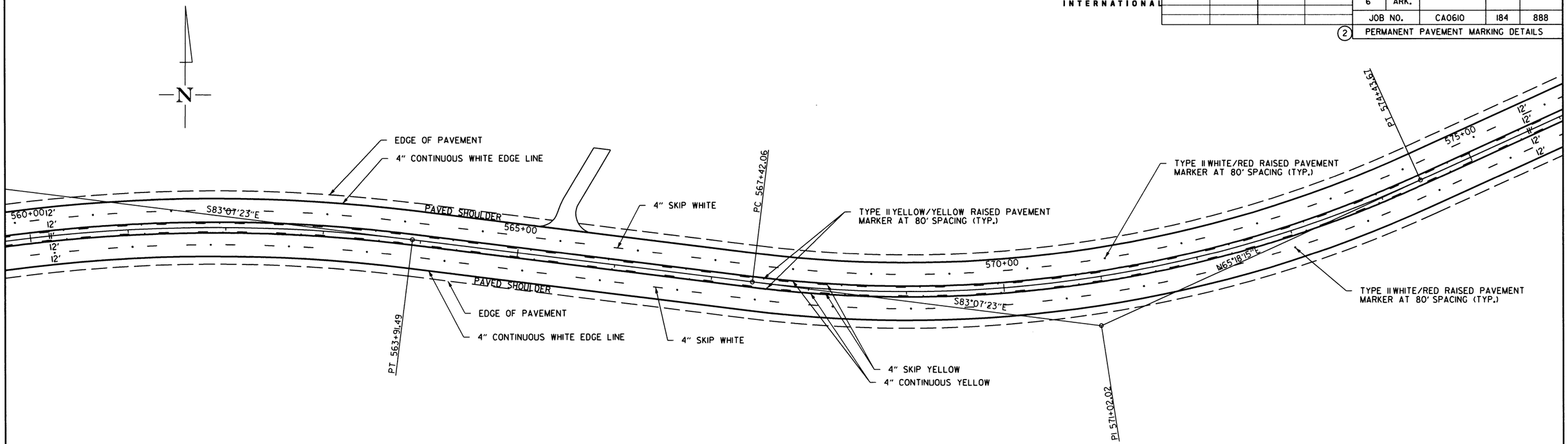
REVISED DATE: $$REVDATE$$

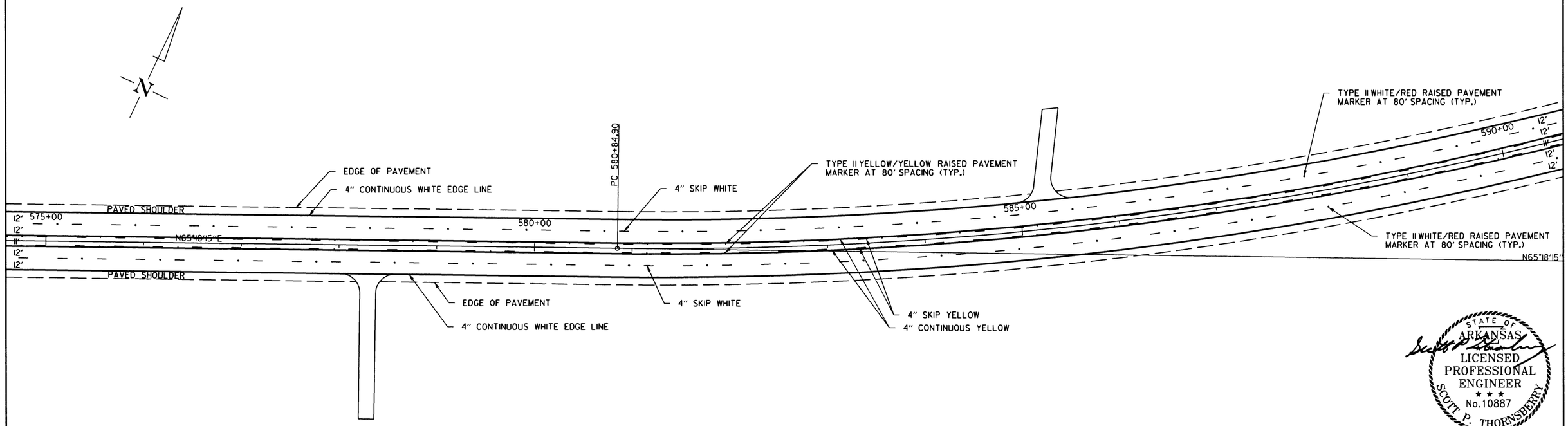
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	184	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

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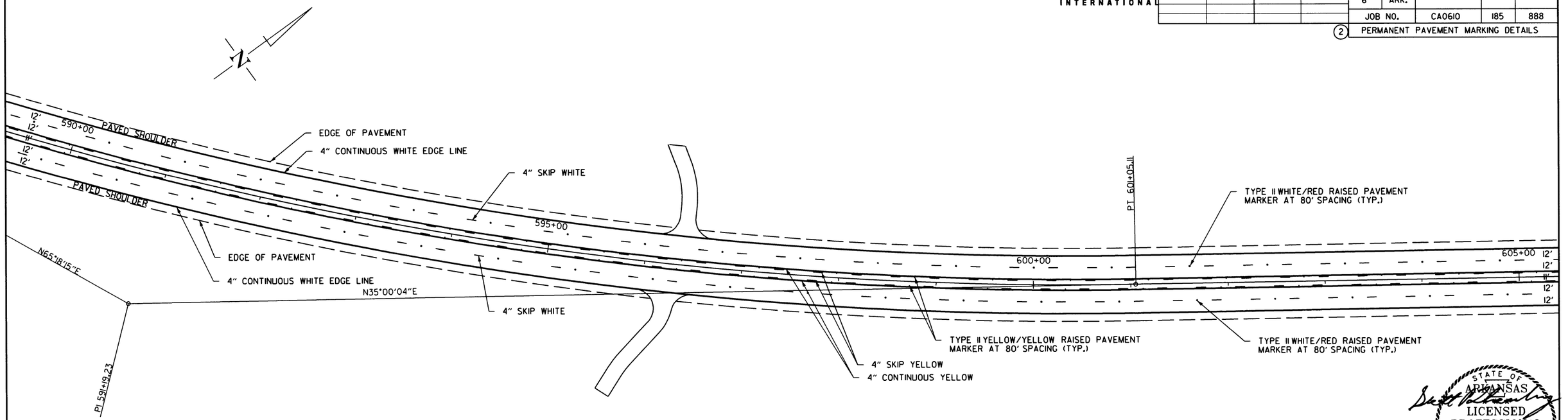
REVISED DATE: ***REVDATE***

Michael Baker INTERNATIONAL

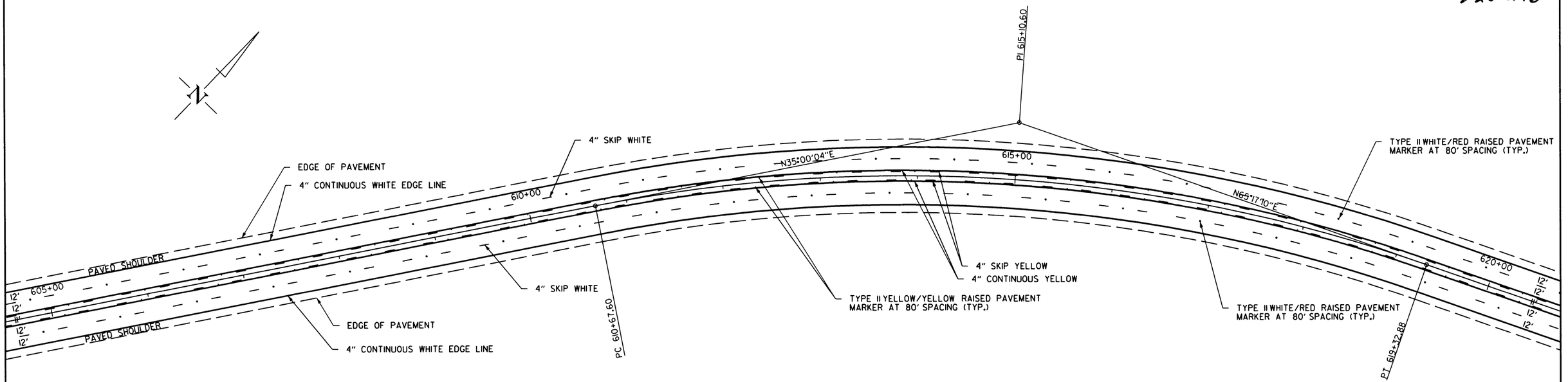
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	185	888

(2) PERMANENT PAVEMENT MARKING DETAILS



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016



PERMANENT PAVEMENT MARKING DETAILS

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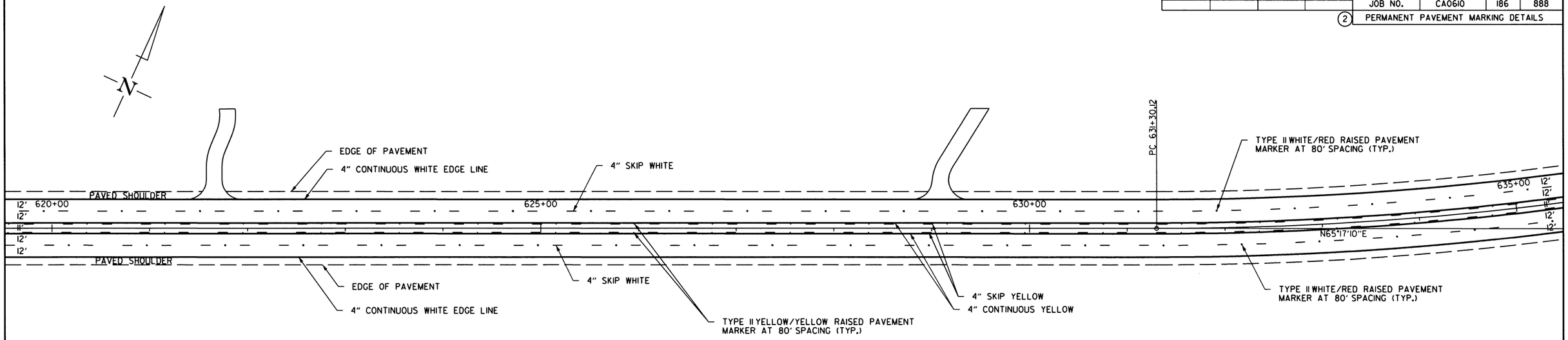
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

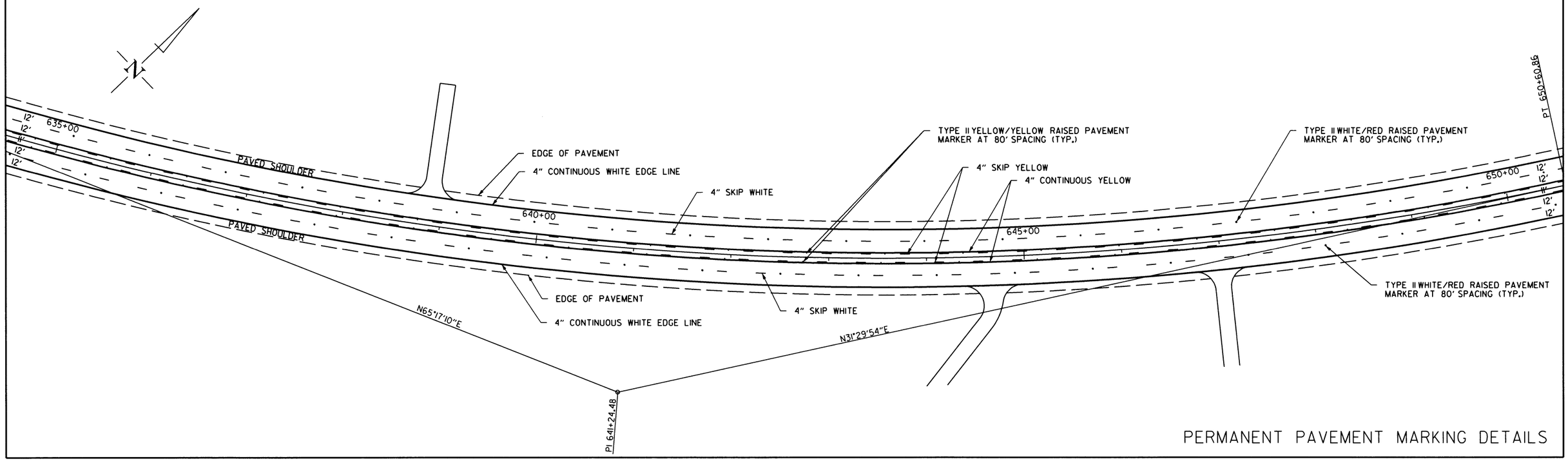
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	186	888

(2) PERMANENT PAVEMENT MARKING DETAILS



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY

9-23-2016



PERMANENT PAVEMENT MARKING DETAILS

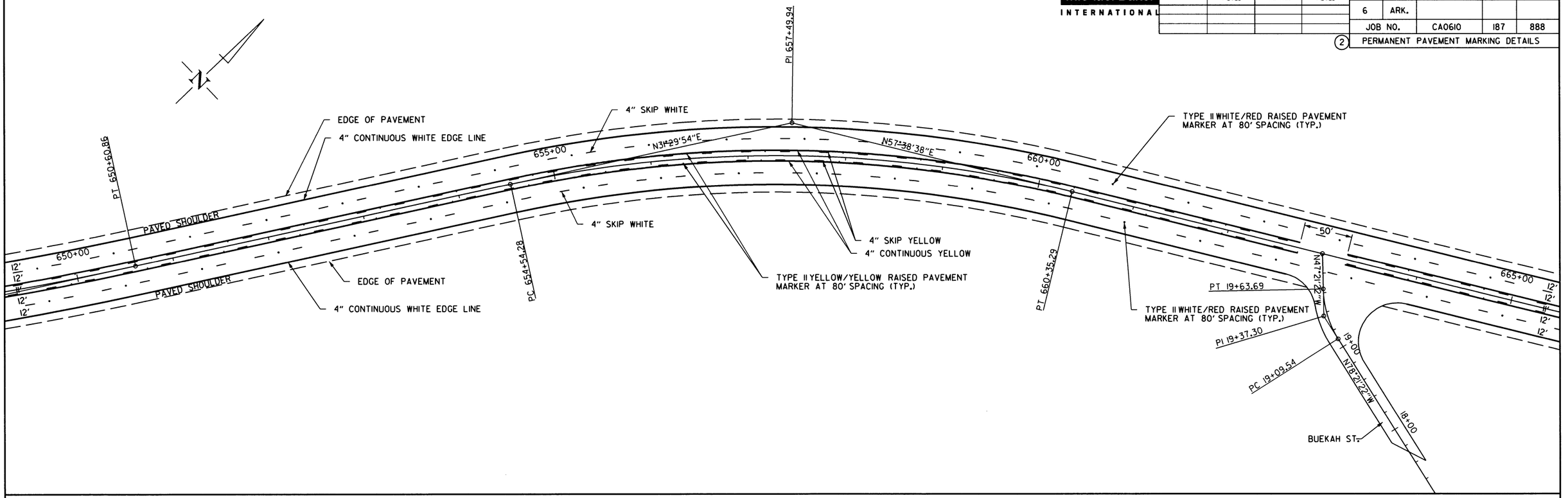
Leonard.Speed 9/23/2016 11:55:44 PM
WORKSPACE: Leonard.Speed
c:\pwdl-local\baker_projects\leonard.speed\d0217744\rCA0606_07_PM_006.dgn
REVISED DATE: $$REVDATE$$

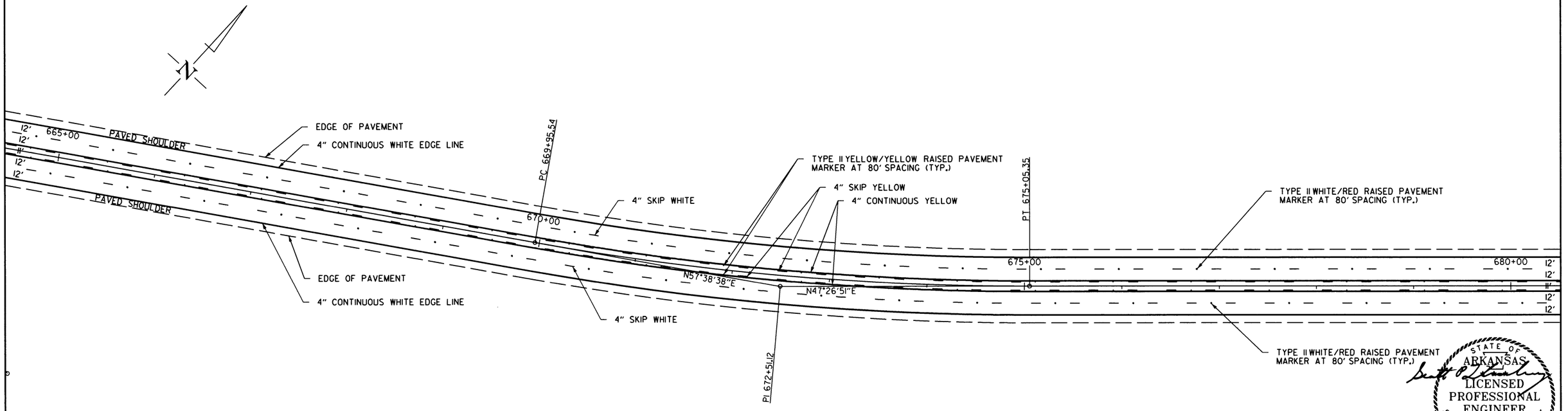
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	187	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

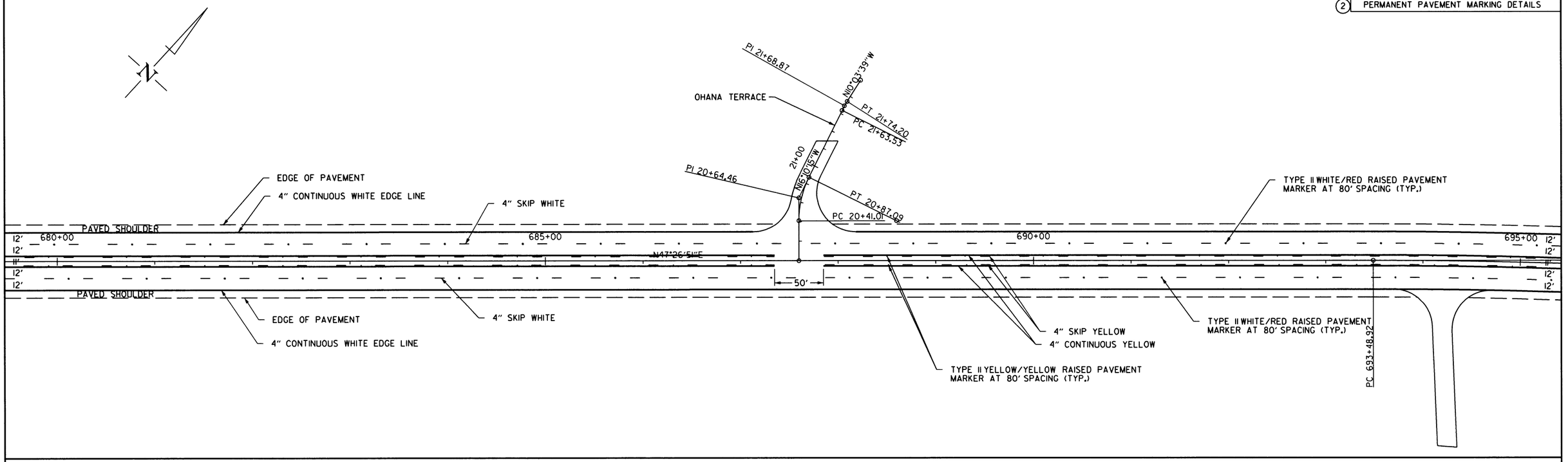
Leonard.Speed 9/23/2016 1:55:57 PM
WORKSPACE: Leonard.Speed
c:\pwdl-local\baker_projects\leonard.speed\d027f744\rCA0606_07_PM_007.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	188	888

(2) PERMANENT PAVEMENT MARKING DETAILS



STATE OF ARKANSAS
Scott P. Thornsberry
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

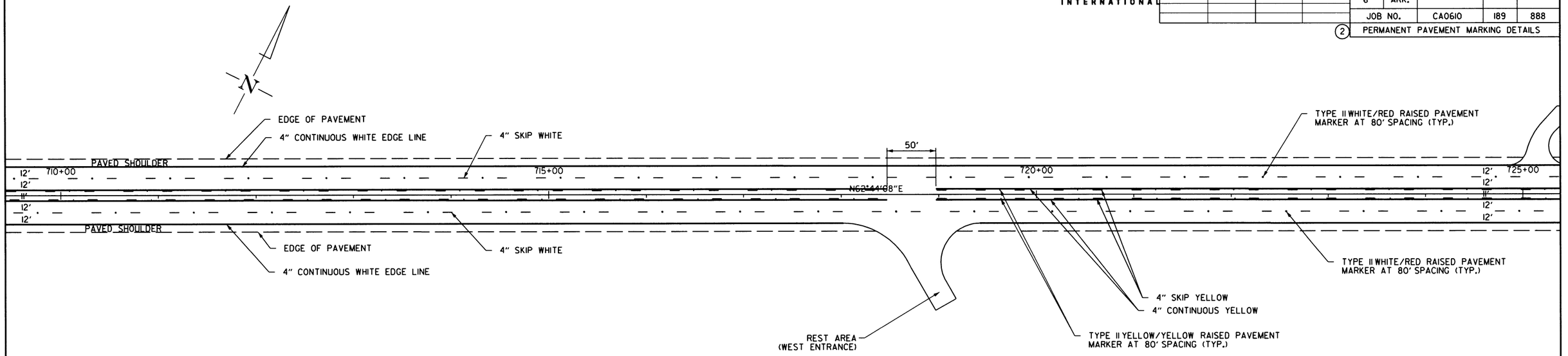
Leonard_Speed 9/23/2016 11:55:10 PM
WORKSPACE: Leonard_Speed
c:\pwwbl-local\baker_projects\leonard_speed\d0271744\r-CA0606_07_PM_008.dgn
REVISED DATE: ##REVDATE##

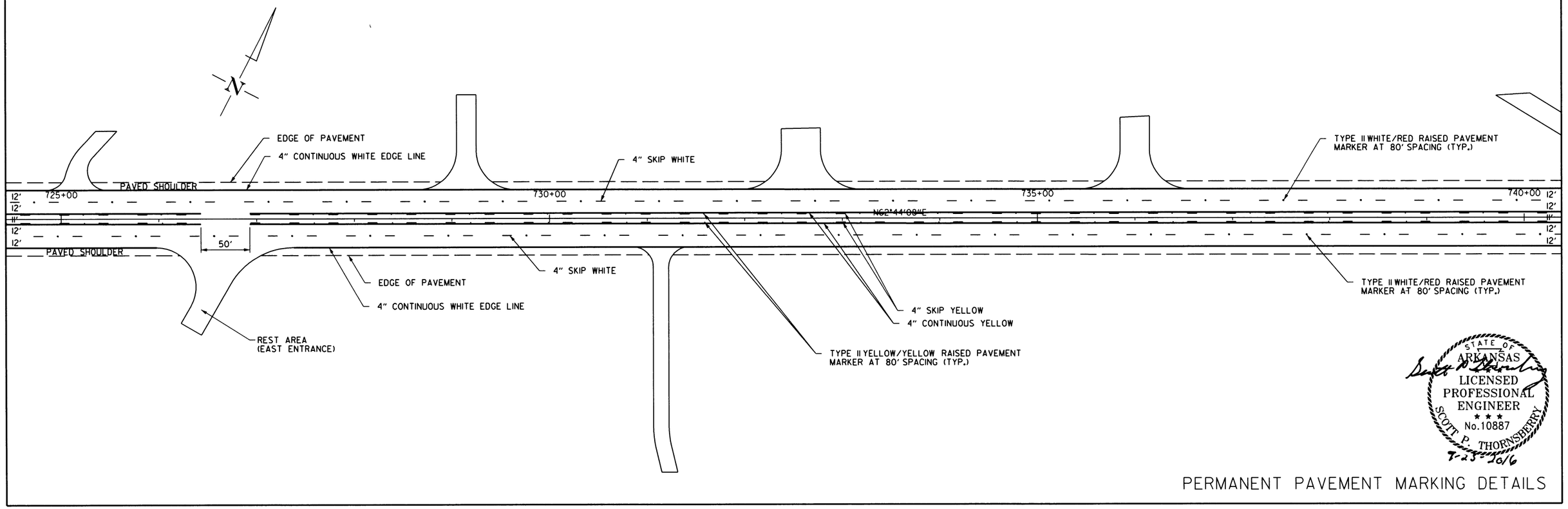
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	189	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

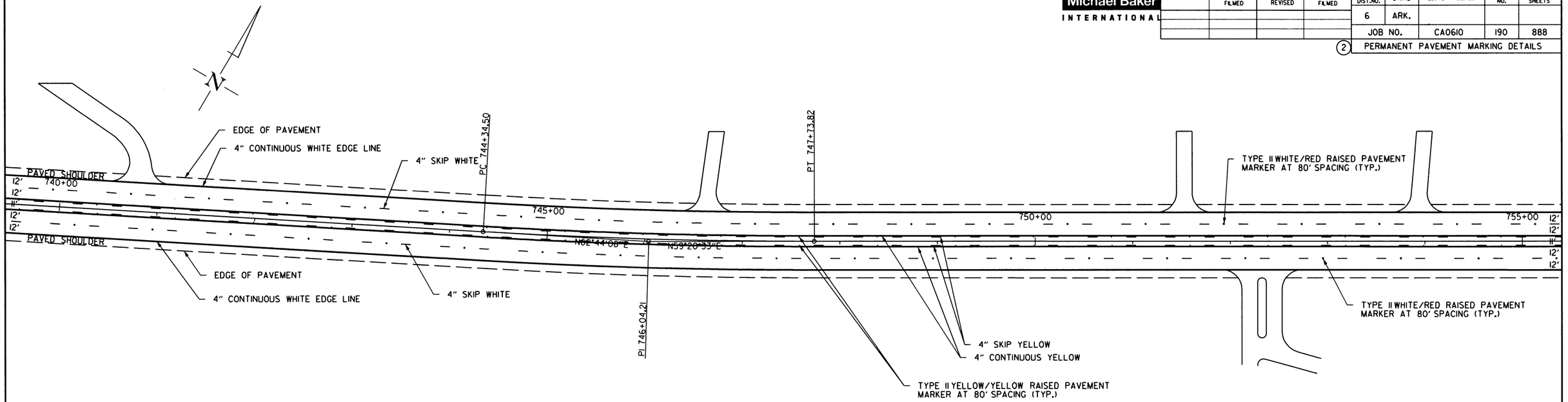
Leonard Speed 9/23/2016 11:56:23 PM
WORKSPACE: Leonard Speed
c:\pw\bl-local\baker_projects\leonard.speed\d0211744\r-CA0606_07_PM_009.dgn
REVISED DATE: $$REVDATE$$

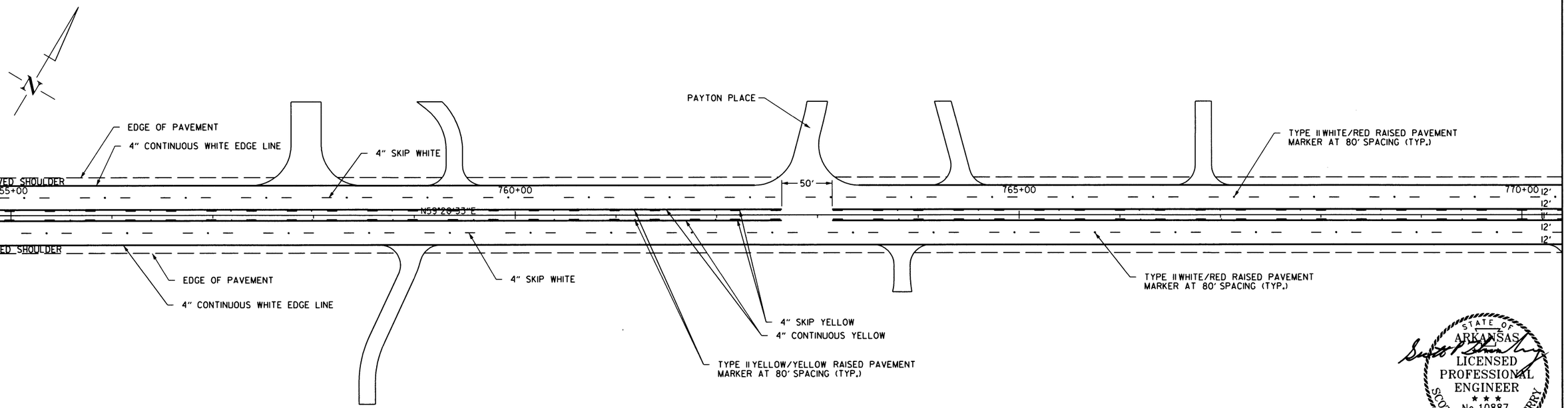
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	190	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

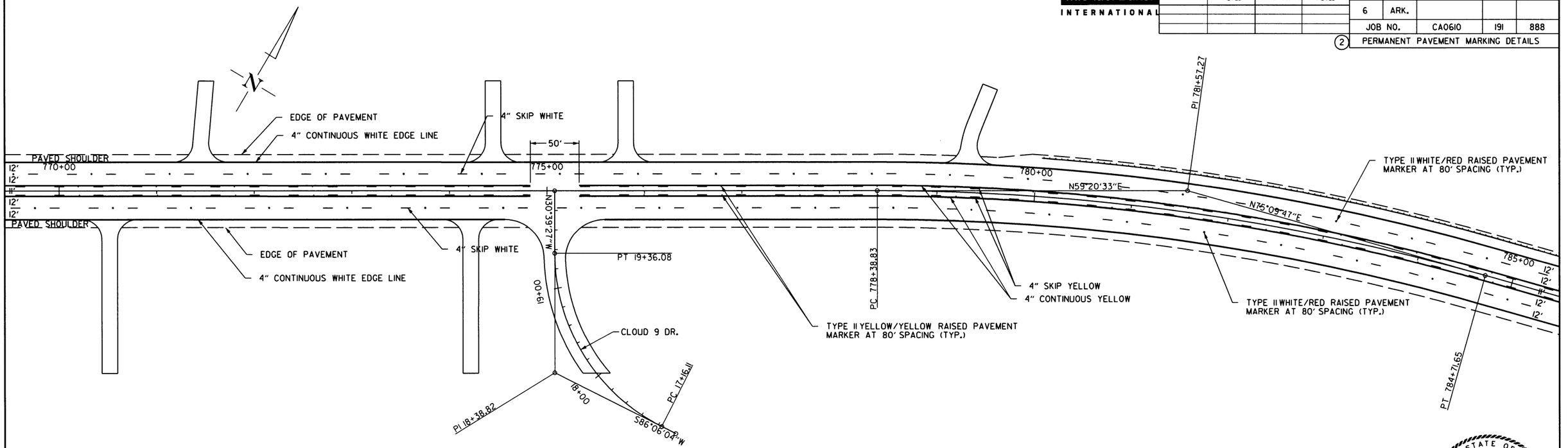
Leonard Speed 9/23/2016 11:56:16 PM
WORKSPACE: Leonard Speed
c:\pw\bi-local\baker_projects\leonard.speed\d0271744\rCA0606_07_PM_010.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

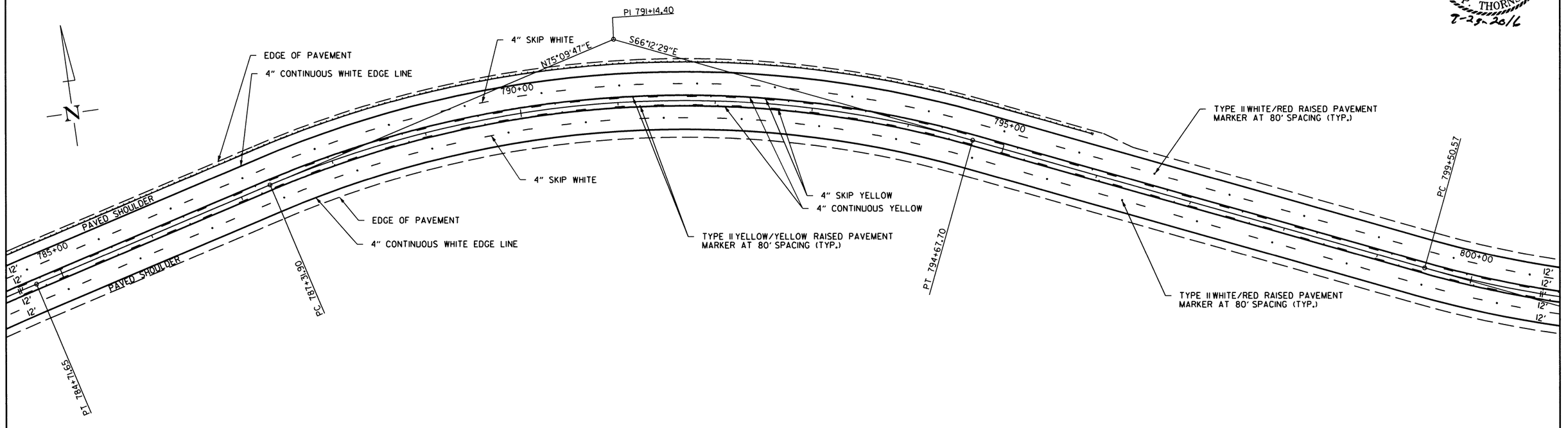
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	191	888

(2) PERMANENT PAVEMENT MARKING DETAILS



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY
9-23-2016



PERMANENT PAVEMENT MARKING DETAILS

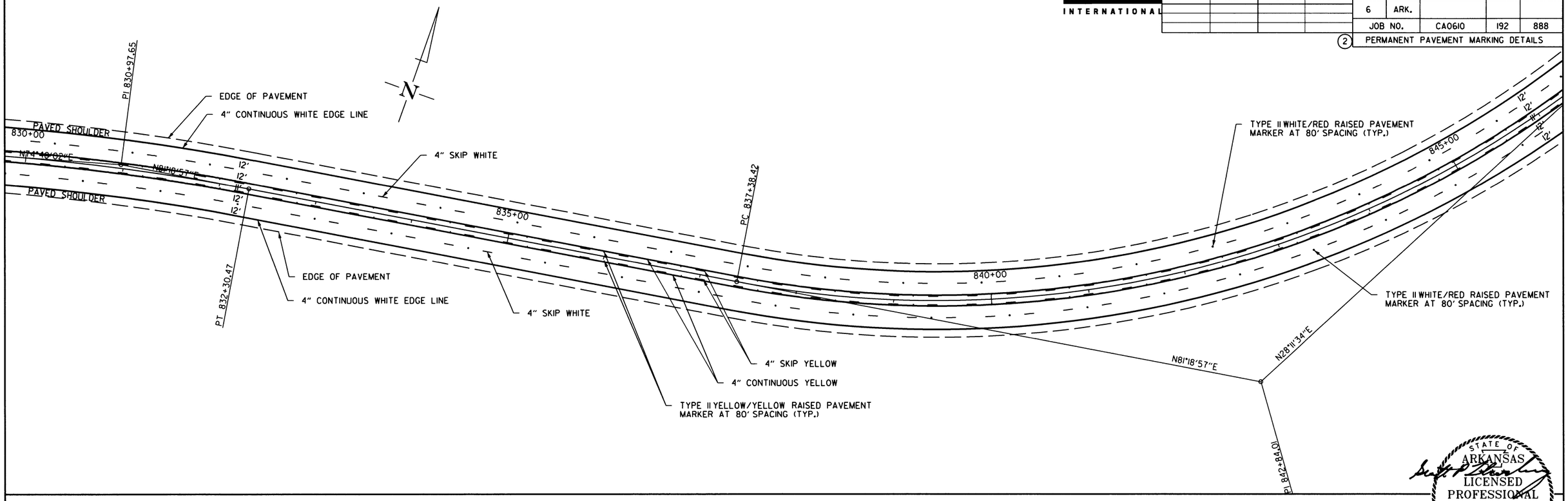
Leonard.Speed 9/23/2016 11:56:49 PM
WORKSPACE: Leonard.Speed
c:\prvdfl-local\baker_projects\leonard.speed\d0271741\rCA0606_07_PM_01i.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

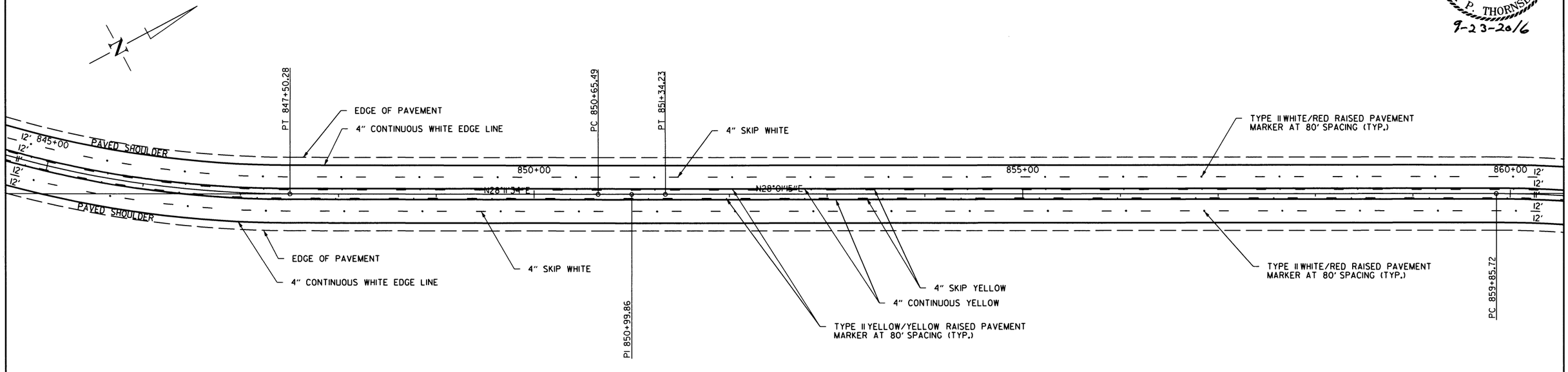
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	192	888

(2) PERMANENT PAVEMENT MARKING DETAILS



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★★★
No.10887
SCOTT P. THORNSBERRY
9-23-2016



Leonard.Speed 9/23/2016 1:57:01 PM
WORKSPACE: Leonard.Speed
c:\pw\bi-local\baker_projects\leonard.speed\d0217744\r-CA0606_07_PM_013.dgn
REVISED DATE: $$REVDATE$$

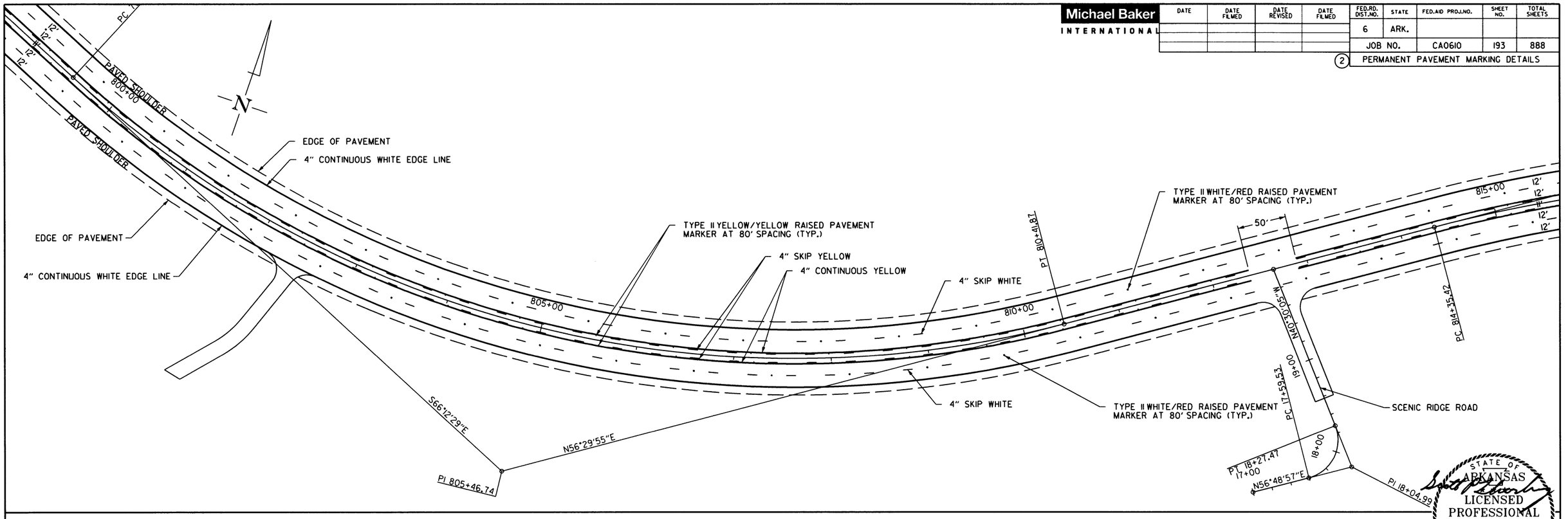
PERMANENT PAVEMENT MARKING DETAILS

Michael Baker INTERNATIONAL

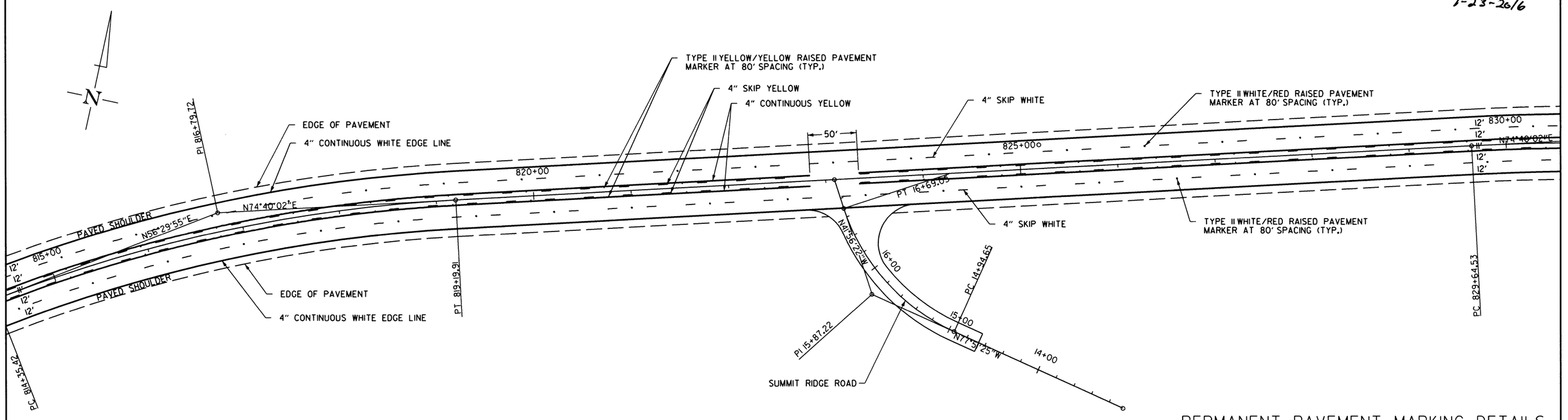
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	193	888

(2) PERMANENT PAVEMENT MARKING DETAILS



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016



PERMANENT PAVEMENT MARKING DETAILS

Leonard.Speed 9/23/2016 1:57:14 PM
WORKSPACE: Leonard.Speed
c:\pw\bi-local\baker_projects\leonard.speed\d0211744\r.CA0606_07_PM_012.dgn
REVISED DATE: ***REVDATE***

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	194	888

(2) PERMANENT PAVEMENT MARKING DETAILS

PI 865+63.27
N28°01'15"E
N83°47'50"E
TYPE II WHITE/RED RAISED PAVEMENT MARKER AT 80' SPACING (TYP.)
4" SKIP WHITE
865+00
870+00
EDGE OF PAVEMENT
4" CONTINUOUS WHITE EDGE LINE
TYPE II WHITE/RED RAISED PAVEMENT MARKER AT 80' SPACING (TYP.)
4" SKIP YELLOW
4" CONTINUOUS YELLOW
TYPE II YELLOW/YELLOW RAISED PAVEMENT MARKER AT 80' SPACING (TYP.)
PT 870+48.13
4" SKIP WHITE
PAVED SHOULDER
860+00
EDGE OF PAVEMENT
4" CONTINUOUS WHITE EDGE LINE
PAVED SHOULDER
12'
PC 859+85.72
CEDAR CREEK ROAD
4" CONTINUOUS WHITE EDGE LINE
4" SKIP WHITE HIGH PERFORMANCE CONTRAST PAVEMENT MARKING W/TYPE II WHITE/RED RAISED PAVEMENT MARKER
N55°22'55"W
PC 22+50.16
PT 21+71.13
N82°50'28"W
00+22
PT 22+96.82
PT 22+73.92
PI 21+24.11
PC 20+66.33
N22°05'28"W
875+00
50'
PC 875+03.08
4" SKIP YELLOW HIGH PERFORMANCE CONTRAST PAVEMENT MARKING
4" YELLOW HIGH PERFORMANCE CONTRAST PAVEMENT MARKING

PI 21+71.13
PI 21+24.11
20+66.33
N22°05'28"W
875+00
50'
PC 875+03.08
EDGE OF PAVEMENT
4" CONTINUOUS WHITE EDGE LINE
PAVED SHOULDER
4" SKIP WHITE
880+00
N83°47'50"E
N47°44'46"E
EDGE OF PAVEMENT
4" CONTINUOUS WHITE EDGE LINE
PI 878+58.22
PT 881+88.17
4" SKIP YELLOW
4" CONTINUOUS YELLOW
TYPE II YELLOW/YELLOW RAISED PAVEMENT MARKER AT 80' SPACING (TYP.)
TYPE II WHITE/RED RAISED PAVEMENT MARKER AT 80' SPACING (TYP.)
PC 884+49.48
PI 888+74.15
N47°44'46"E
N84°38'14"E
885+00
890+00
TYPE II WHITE/RED RAISED PAVEMENT MARKER AT 80' SPACING (TYP.)

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

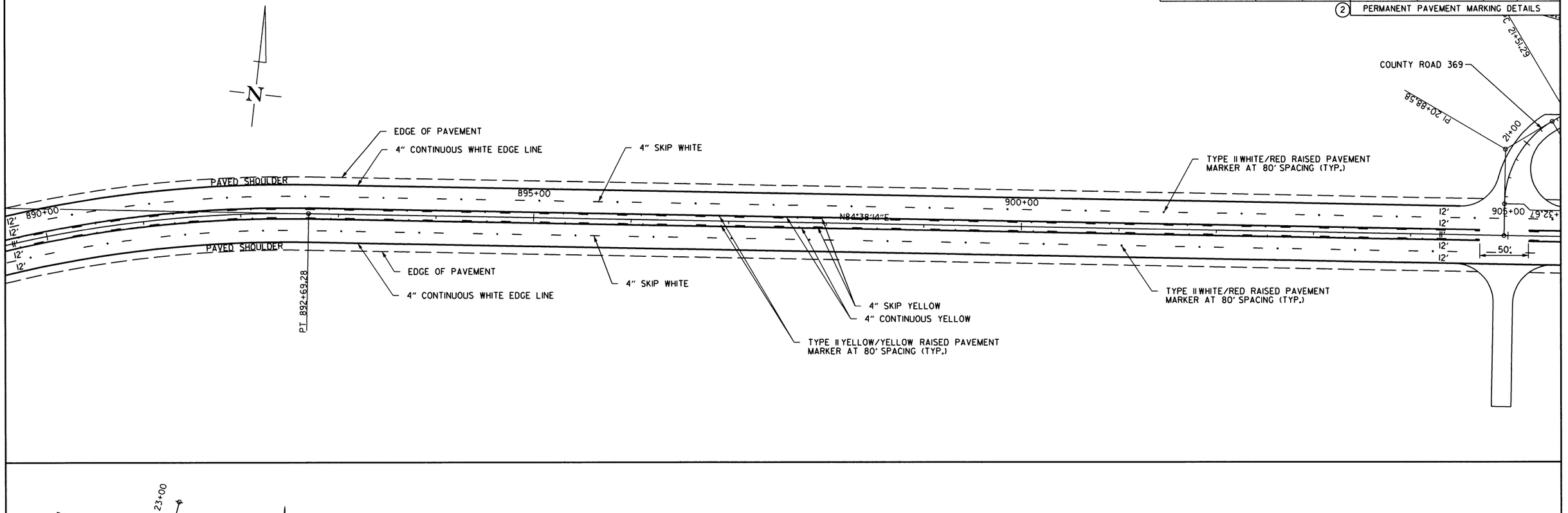
LeonardSpeed 9/23/2016 11:57:27 PM
WORKSPACE: Leonard_Speed
c:\pw\bi-local\baker_projects\leonard_speed\d0217144\r-CA0606_07_PM_014.dgn
REVISED DATE: **REVDATE**

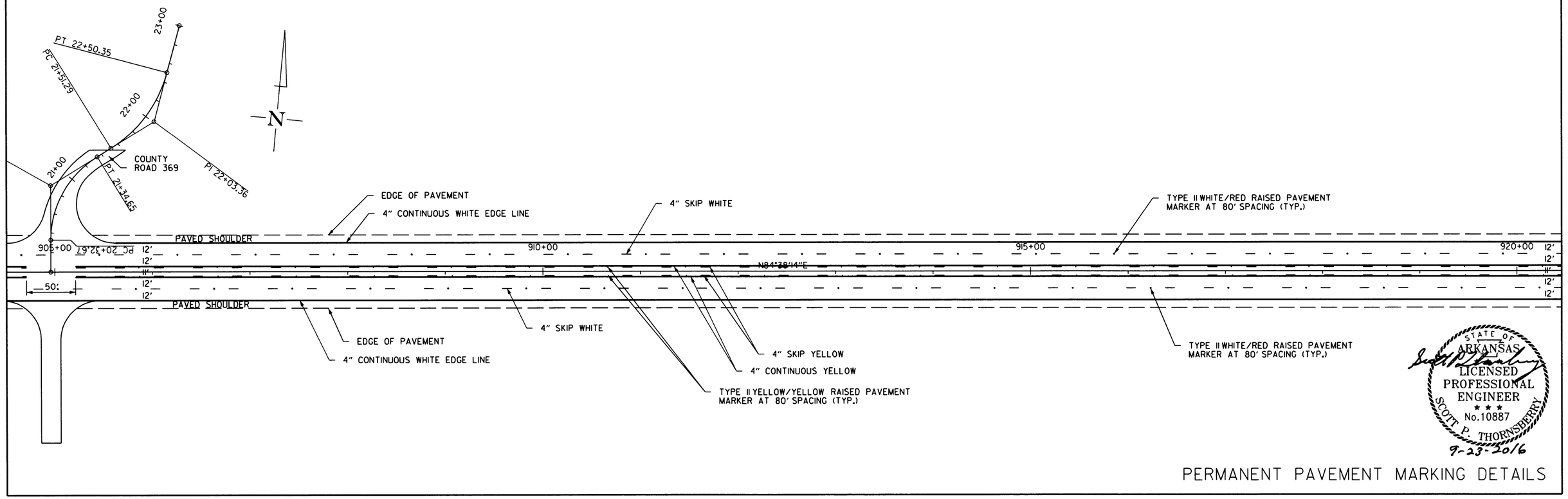
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	195	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

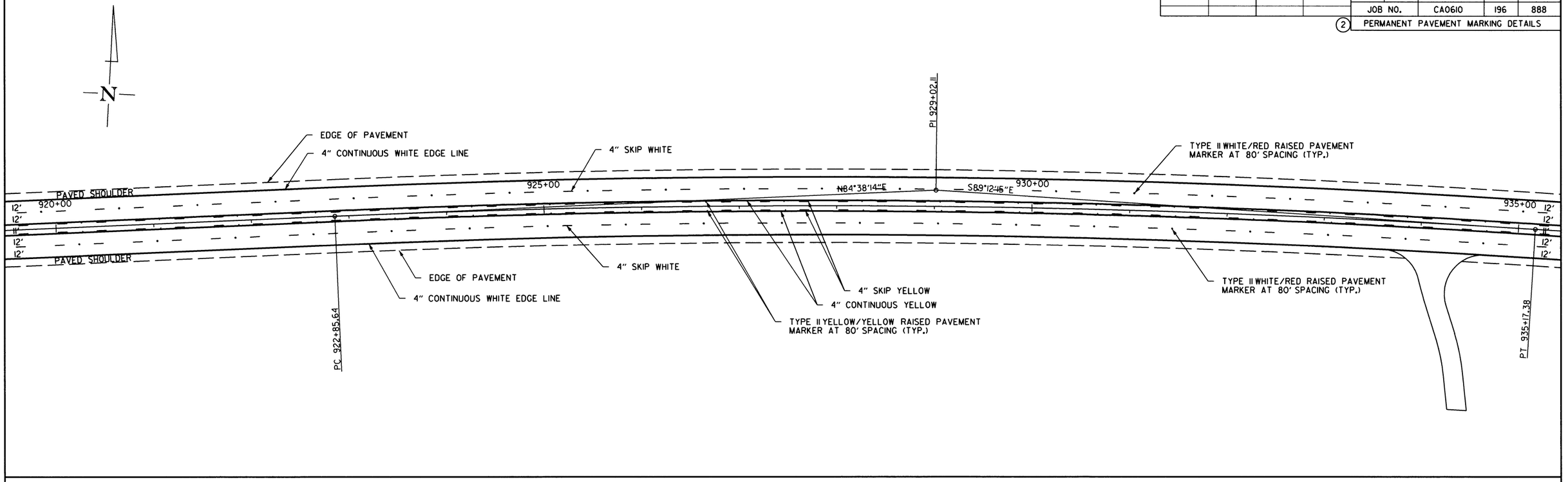
Leonard.Speed 9/23/2016 1:57:41 PM
WORKSPACE: Leonard.Speed
C:\pw\bi-local\baker_projects\leonard.speed\d0211441\rCA0606_07_PM_015.dgn
REVISED DATE: $$REVDATE$$

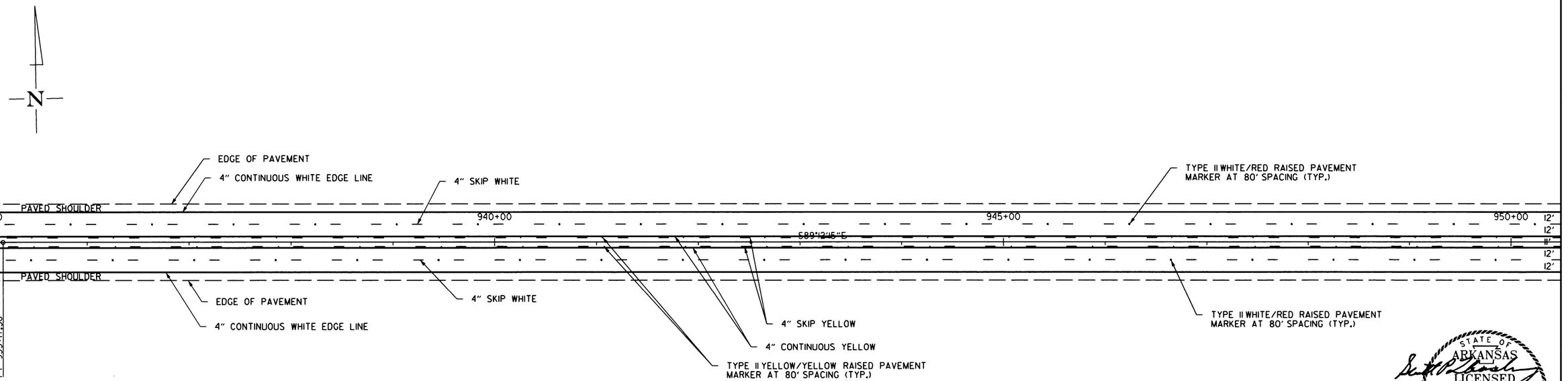
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	196	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

Leonard.Speed 9/23/2016 1:57:55 PM
WORKSPACE: Leonard.Speed
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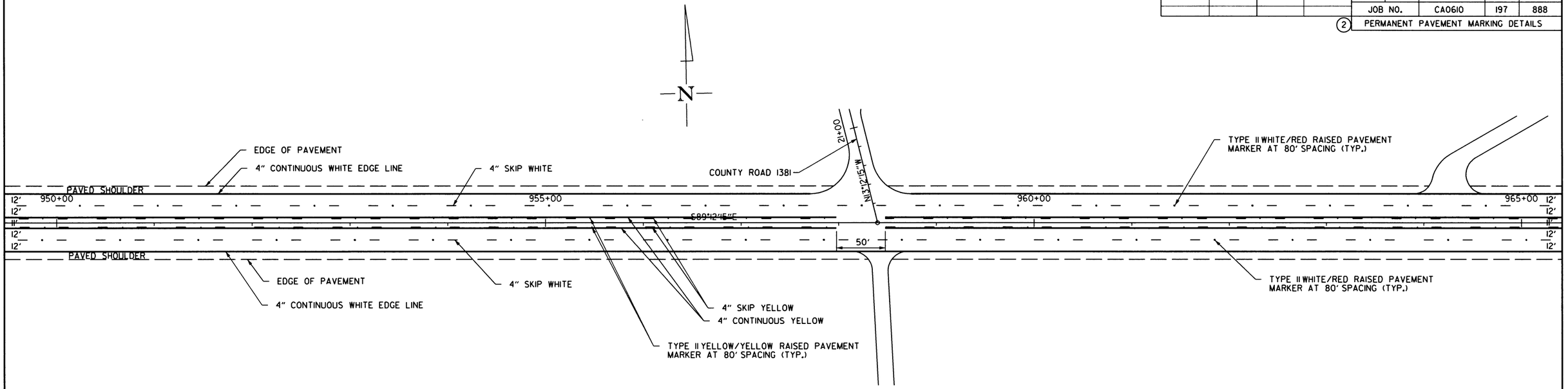
REVISED DATE: $$REVDATE$$

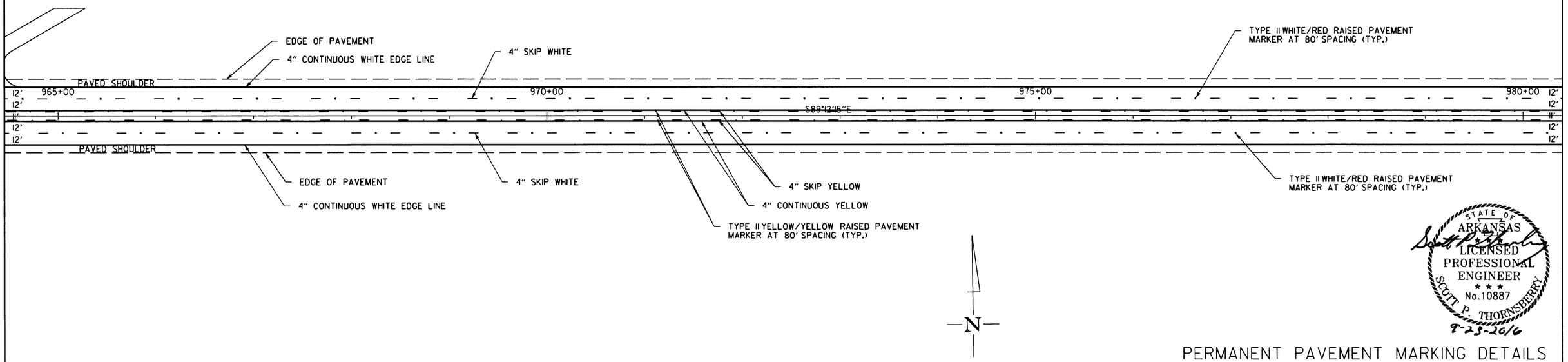
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	197	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

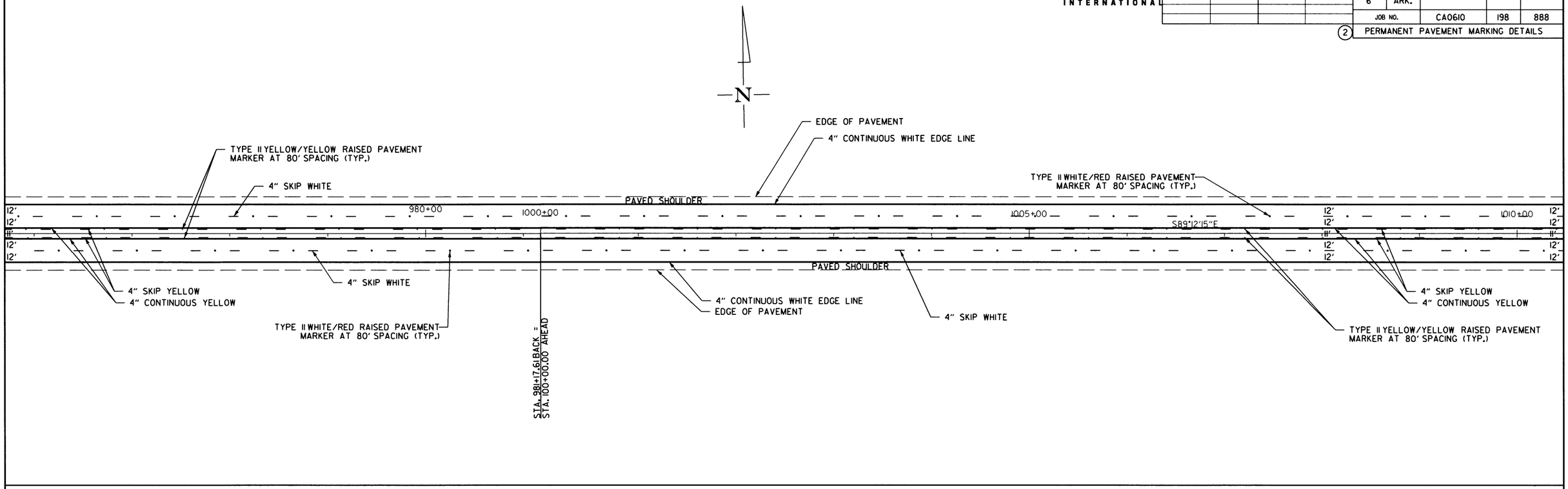
Leonard.Speed 9/23/2016 11:58:09 PM
WORKSPACE: Leonard.Speed
C:\Devel-local\baker_projects\leonard.speed\d0217144\rCA0606_07_PM_017.dgn
REVISED DATE: ##REVDATE##

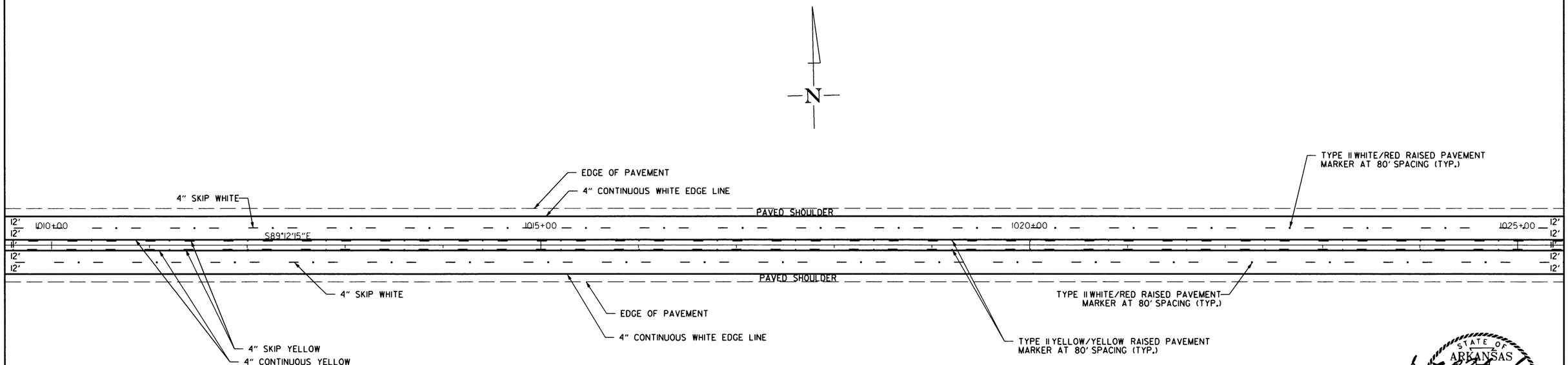
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	198	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

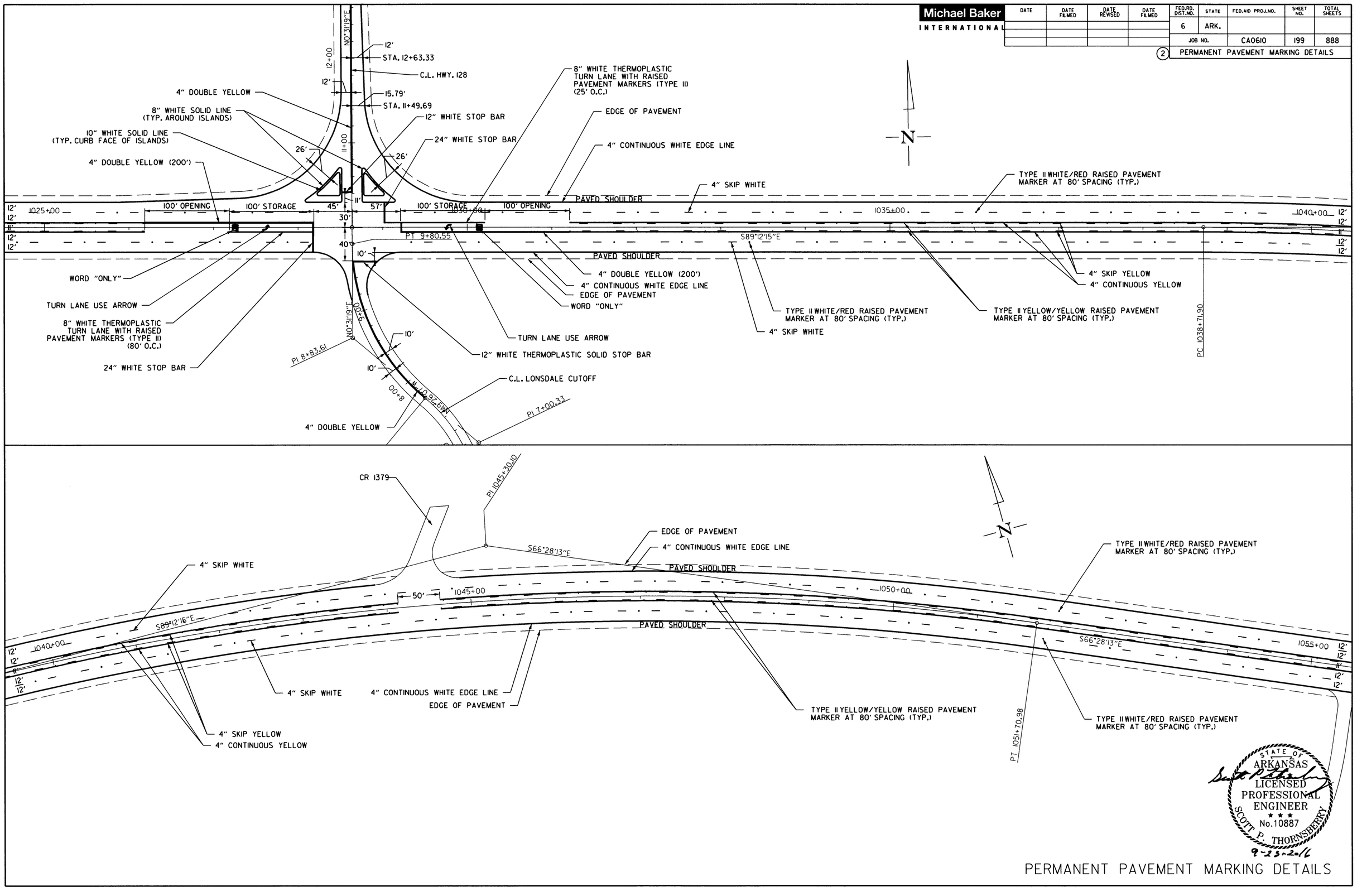
Leonard.Speed 9/23/2016 1:58:24 PM
WORKSPACE: Leonard.Speed
c:\pavbl-local\baker_projects\leonard.speed\d0211682\r-061377.07_PM_002.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	199	888

(2) PERMANENT PAVEMENT MARKING DETAILS



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

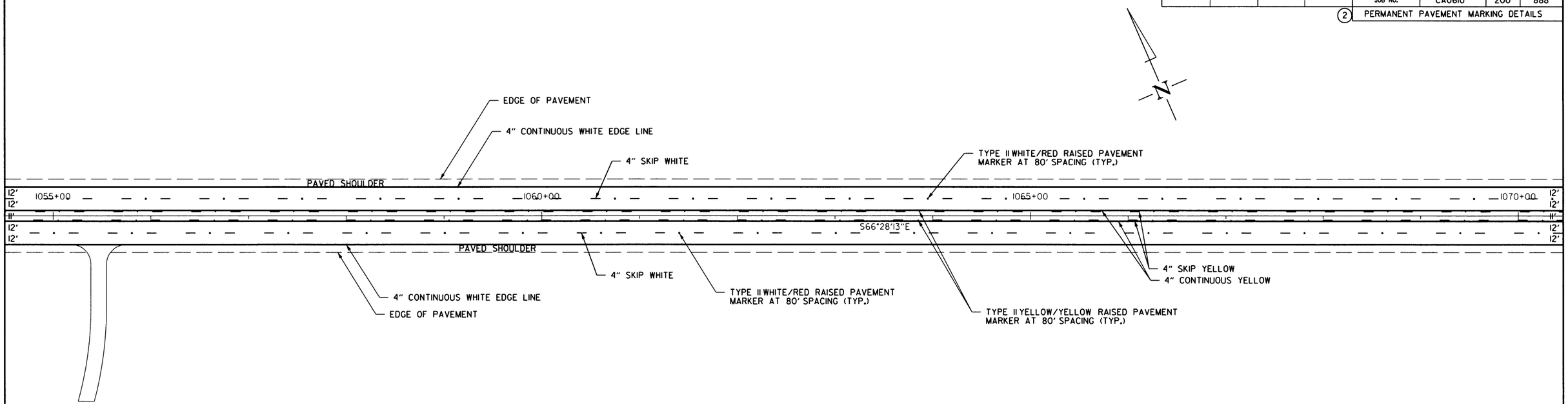
Leonard.Speed 9/23/2016 11:58:37 PM
WORKSPACE: Leonard.Speed
c:\pw\bl-local\baker_projects\leonard.speed\d0271682\r061377_07_PM_003.dgn
REVISED DATE: $$REVDATE$$

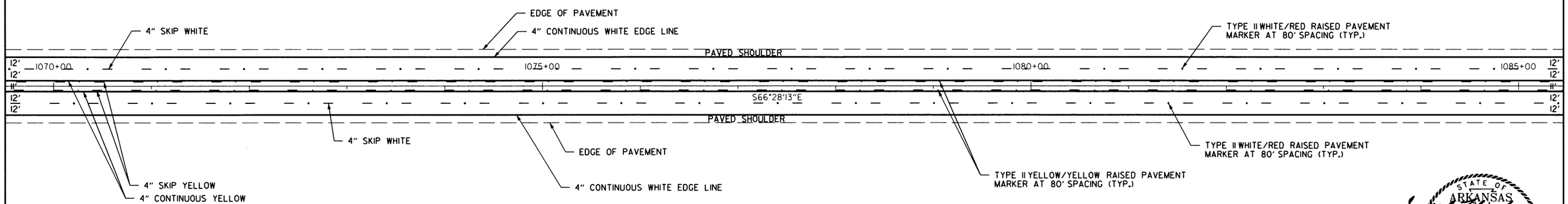
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	200	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-29-2016

PERMANENT PAVEMENT MARKING DETAILS

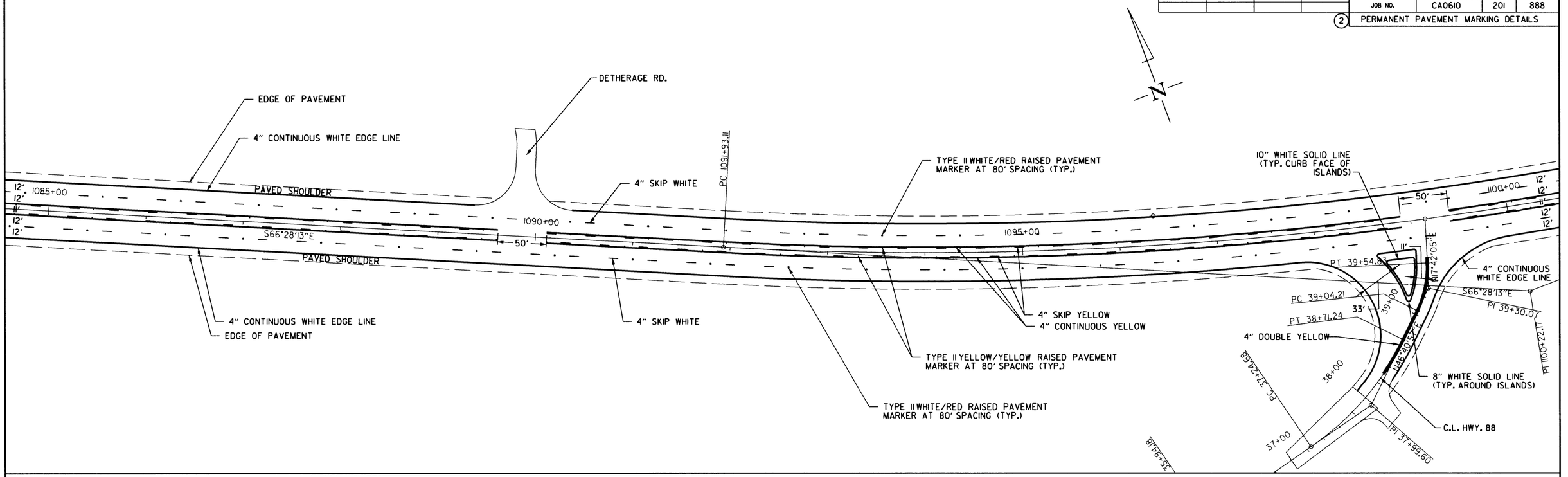
Leonard.Speed 9/21/2016 1:58:52 PM
WORKSPACE: Leonard.Speed
c:\pw\bi-local\baker_projects\leonard.speed\d0216682\r-061377.07_PW_004.dgn
REVISED DATE: $$REVDATE$$

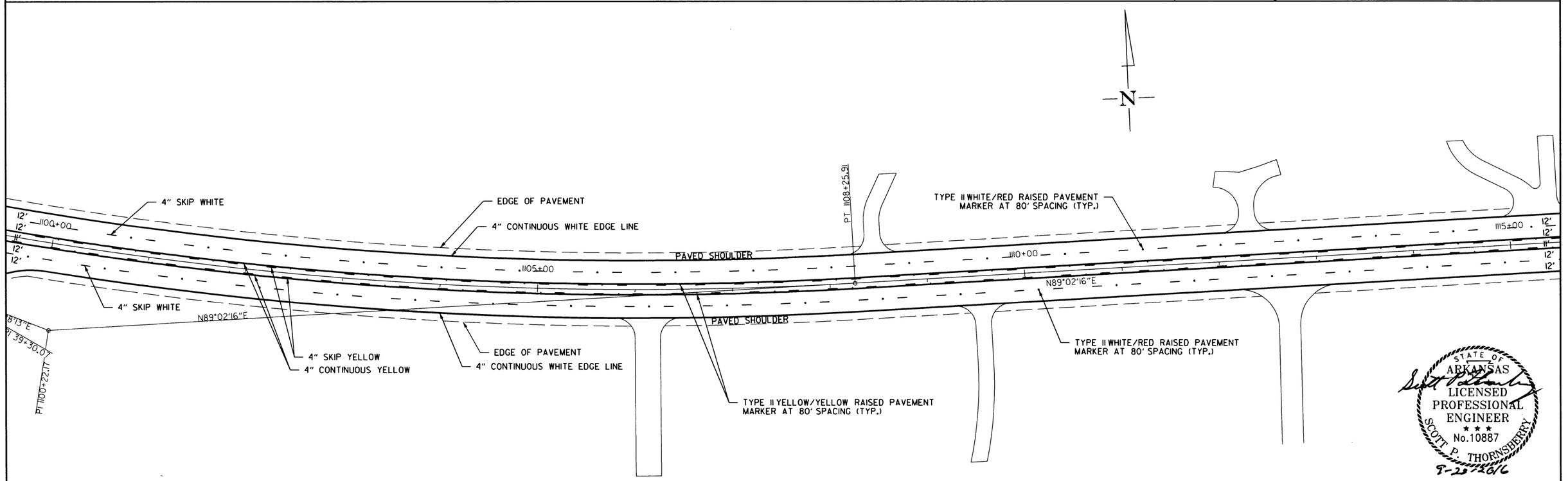
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	201	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

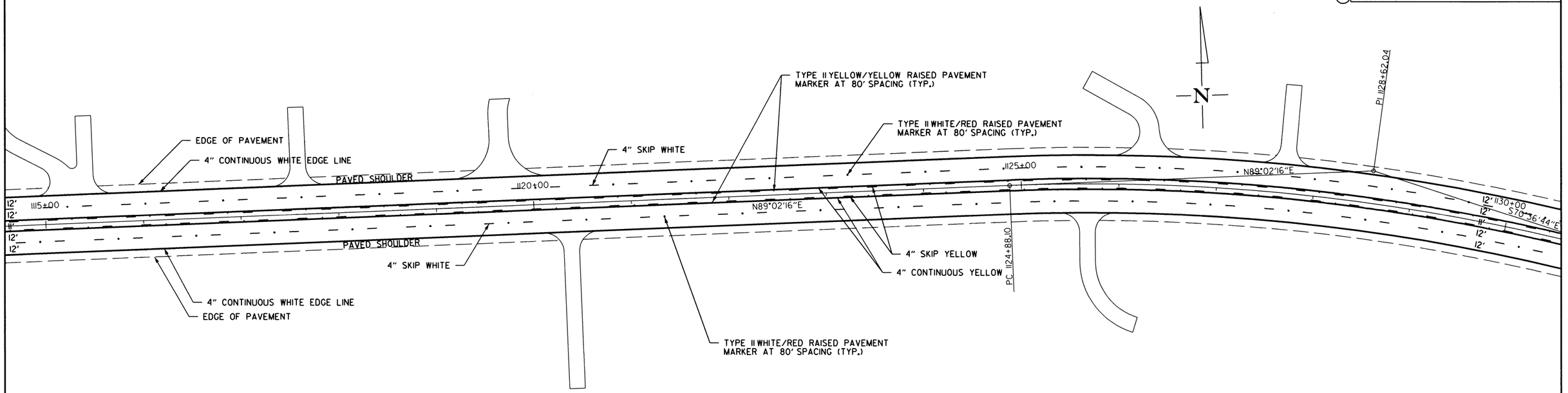
Leonard.Speed 9/23/2016 1:59:06 PM
WORKSPACE: Leonard.Speed
C:\pw\BI-local\baker_projects\leonard.speed\d0216821\r061377_07_PM_005.dgn
REVISED DATE: $$REVDATE$$

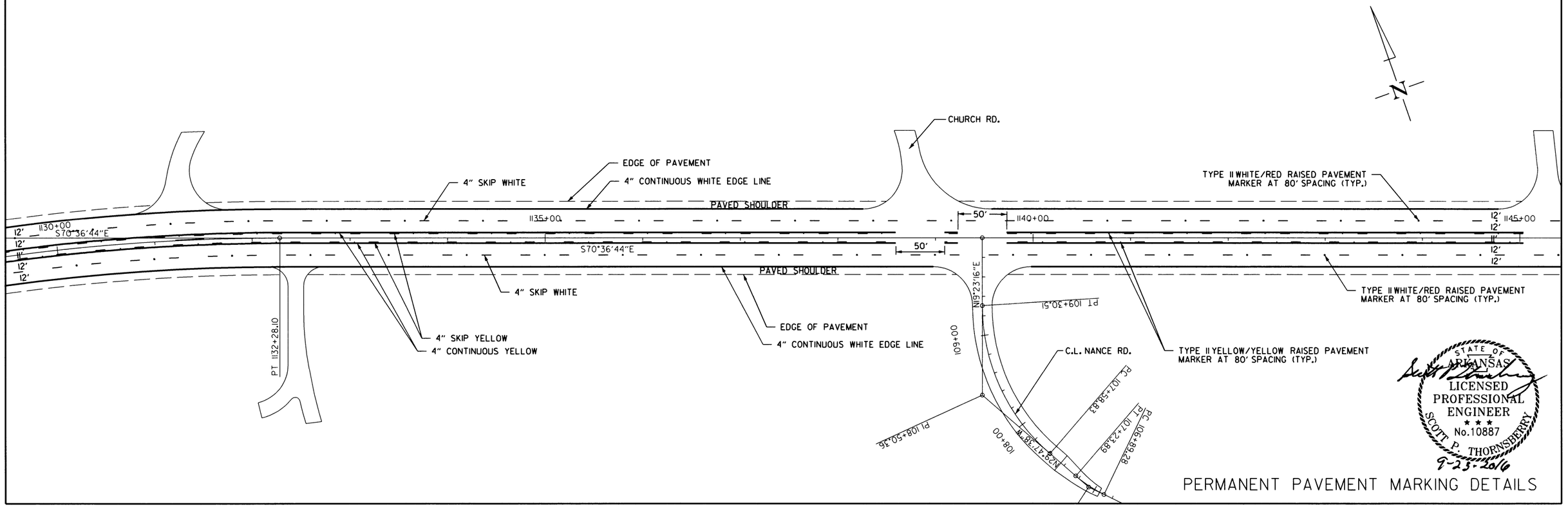
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	202	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

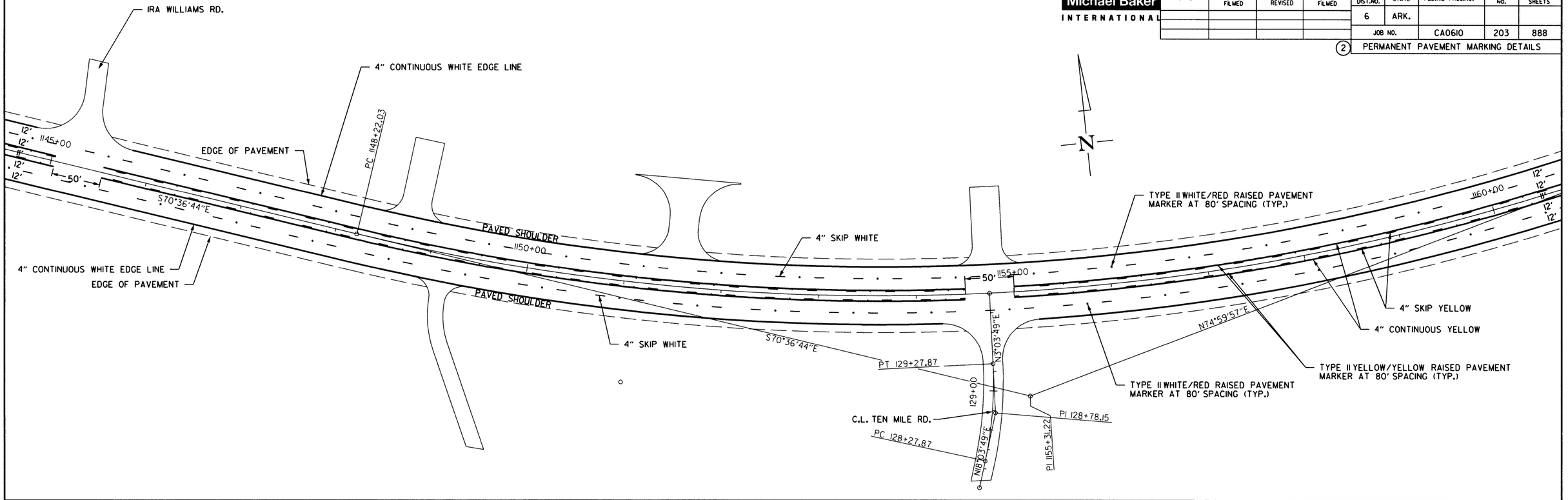
Leonard.Speed 9/23/2016 1:59:19 PM
WORKSPACE: Leonard.Speed
C:\pw\bi-local\baker_projects\leonard.speed\d0216821\r061377_07_PM_006.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	203	888

(2) PERMANENT PAVEMENT MARKING DETAILS



PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

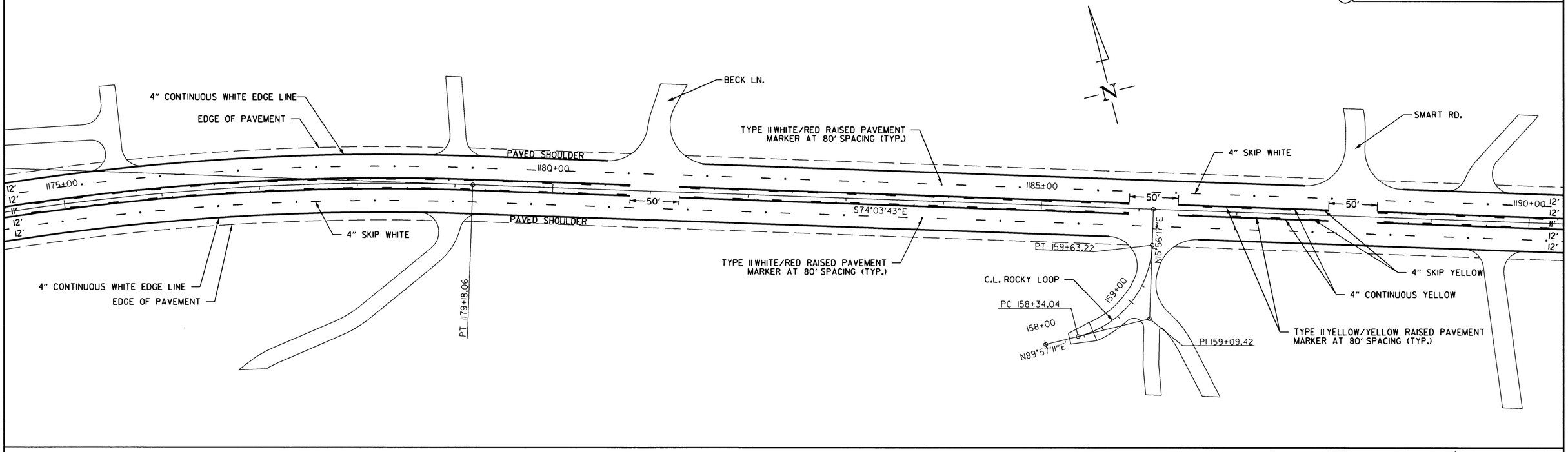
Leonard.Speed 9/23/2016 1:59:32 PM
WORKSPACE: Leonard.Speed
C:\Dwg\81-local\baker_projects\leonard.speed\d0271682\r061377_07_PM_007.dgn
REVISED DATE: ##REVDATE##

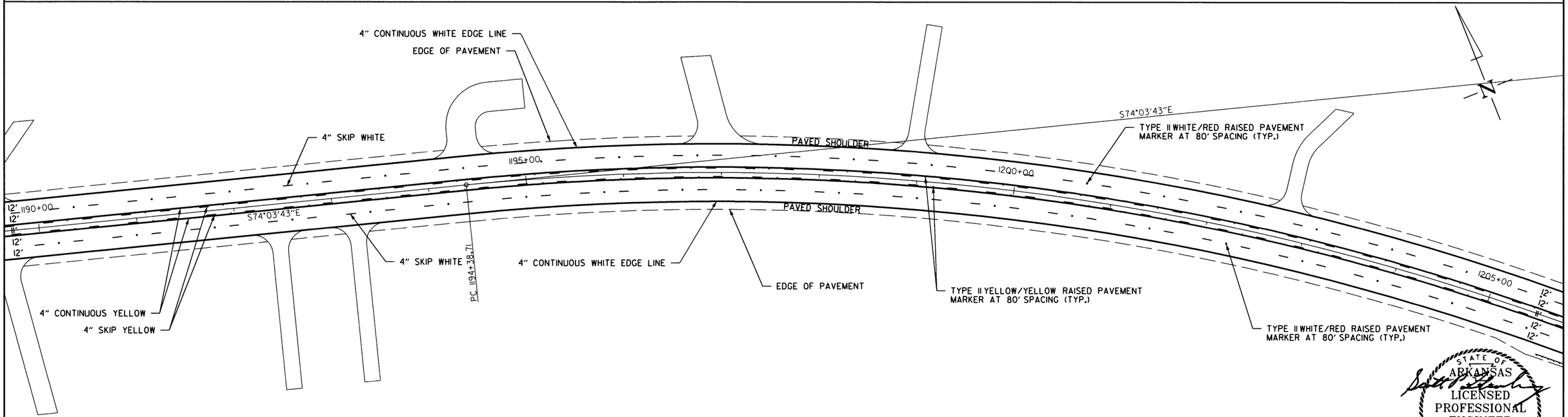
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	204	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

Leonard.Speed 9/23/2016 11:59:45 PM
WORKSPACE: Leonard.Speed
c:\pw\bl-local\baker_projects\leonard.speed\d0271682\r-061377_07_PM_008.dgn
REVISED DATE: $$REVDATE$$

Michael Baker
INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	205	888

(2) PERMANENT PAVEMENT MARKING DETAILS

S74°03'43"E
PI 204+90.54
S11°20'44"E
4" CONTINUOUS WHITE EDGE LINE
EDGE OF PAVEMENT
4" SKIP WHITE
4" CONTINUOUS WHITE EDGE LINE
4" SKIP WHITE HIGH PERFORMANCE CONTRAST PAVEMENT MARKING W/TYPE II WHITE/RED RAISED PAVEMENT MARKER
TYPE II WHITE/RED RAISED PAVEMENT MARKER AT 80' SPACING (TYP.)
HOLLOWOA RD.
PI 206+06.63
PC 206+83.67
1210+00
1215+00
S11°20'44"E
BROWNING ACCESS
206+00
207+00
S15°40'51"E
PAVED SHOULDER
1205+00
12'
11'
12'
12'
PAVED SHOULDER
50'
N85°37'12"E
PI 206+28.78
PC 205+73.84
1220+00
4" SKIP WHITE
4" SKIP YELLOW HIGH PERFORMANCE CONTRAST PAVEMENT MARKING
4" YELLOW HIGH PERFORMANCE CONTRAST PAVEMENT MARKING
EDGE OF PAVEMENT
4" CONTINUOUS WHITE EDGE LINE
TYPE II YELLOW/YELLOW RAISED PAVEMENT MARKER AT 80' SPACING (TYP.)
TYPE II WHITE/RED RAISED PAVEMENT MARKER AT 80' SPACING (TYP.)
4" SKIP YELLOW
4" CONTINUOUS YELLOW

207+00
PI 208+05
S15°40'51"E
208+00
209+00
210+00
PC 1223+30.14
PC 210+78.31
211+00
212+00
213+00
C.L. BROWNING ACCESS
4" CONTINUOUS WHITE EDGE LINE
EDGE OF PAVEMENT
PT 215+81.88
C.L. BROWNING RD.
212+00
S76°40'51"E
213+00
PC 205+73.84
12'
12'
11'
12'
12'
1220+00
S11°20'44"E
PT 209+27.27
214+00
215+00
216+00
217+00
PI 211+31.96
S41°01'22"E
211+00
PT 211+72.23
PC 210+85.91
N53°54'02"E
TYPE II WHITE/RED RAISED PAVEMENT MARKER AT 80' SPACING (TYP.)
1235+00
12'
12'
11'
12'
12'
4" CONTINUOUS YELLOW
4" SKIP YELLOW
S10°48'32"E
S41°01'22"E
4" SKIP WHITE
S11°20'44"E
PT 1222+26.10
1225+00
PAVED SHOULDER
1230+00
50'
S79°50'45"E
4" SKIP WHITE
PI 215+38.10
PI 209+61.83
TYPE II WHITE/RED RAISED PAVEMENT MARKER AT 80' SPACING (TYP.)
TYPE II YELLOW/YELLOW RAISED PAVEMENT MARKER AT 80' SPACING (TYP.)
4" CONTINUOUS WHITE EDGE LINE
EDGE OF PAVEMENT
S11°20'44"E
PC 208+53.41
209+00
C.L. FAIRPLAY RD.
PI 209+13.64
PI 207+41.58
208+00

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

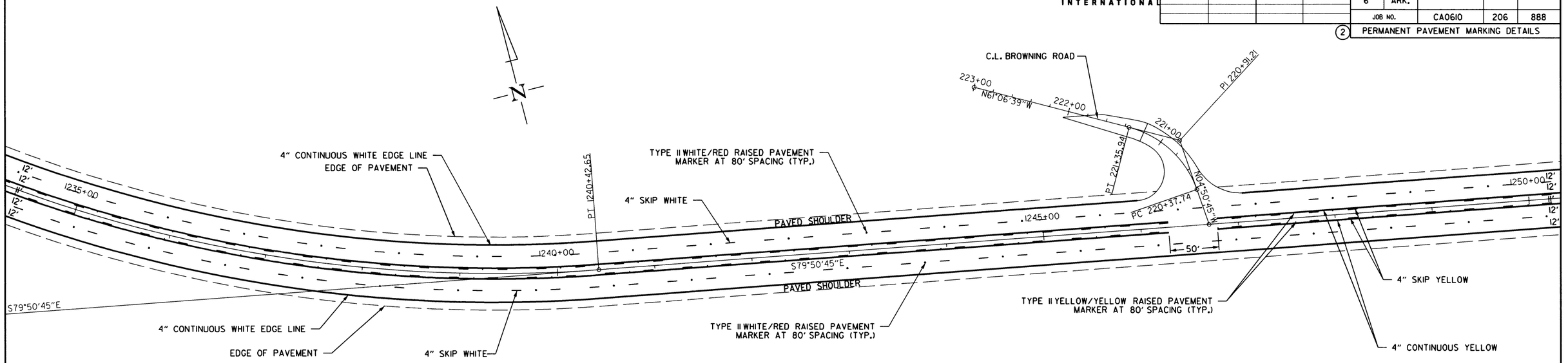
LeonardSpeed 9/23/2016 11:59:57 PM
WORKSPACE: LeonardSpeed
c:\pw\bi-local\baker_projects\leonard_speed\d0271682\r-06377_07_PM_009.dgn
REVISED DATE: $$REVDATE$$

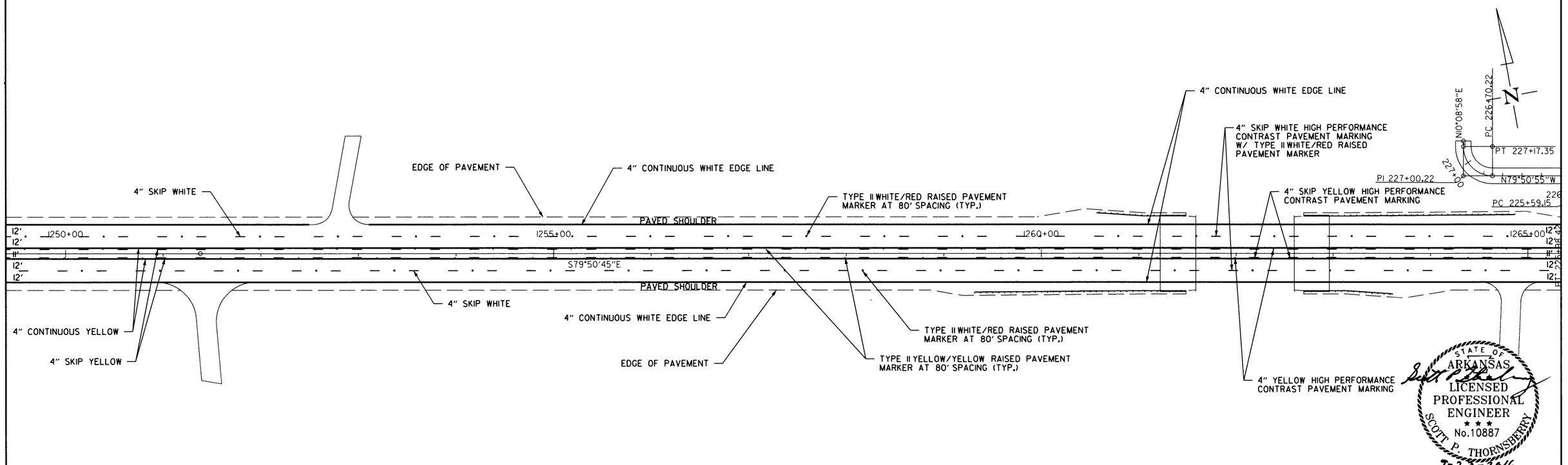
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	206	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY
2-23-2016

PERMANENT PAVEMENT MARKING DETAILS

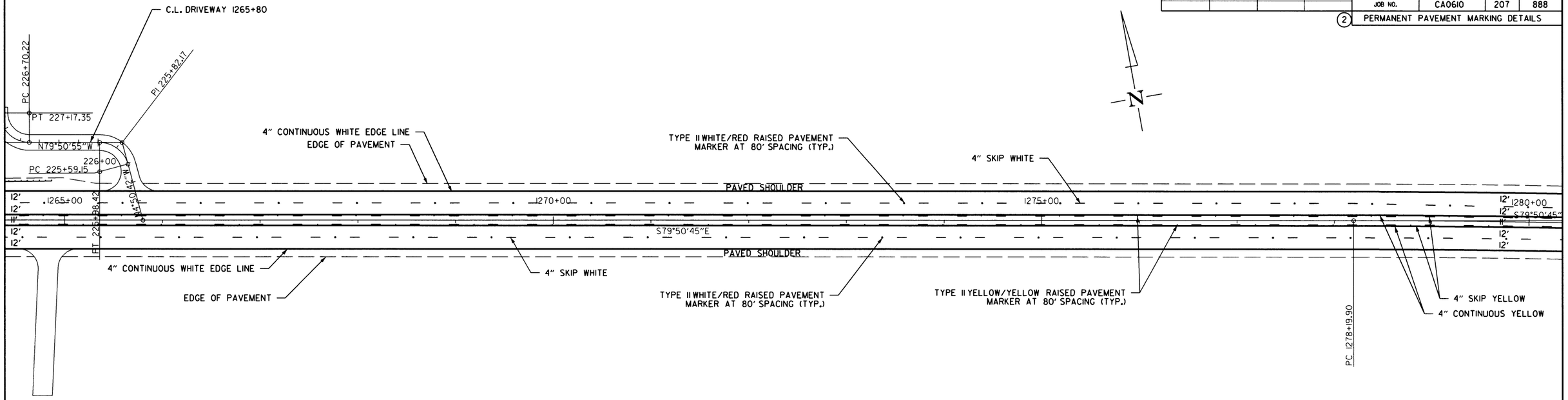
LeonardSpeed 9/21/2016 2:00:10 PM
WORKSPACE: Leonard_Speed
c:\pw\bl-local\baker_projects\leonard_speed\d0271682\r-061377.07_PM_010.dgn
REVISED DATE: $$REVDATE$$

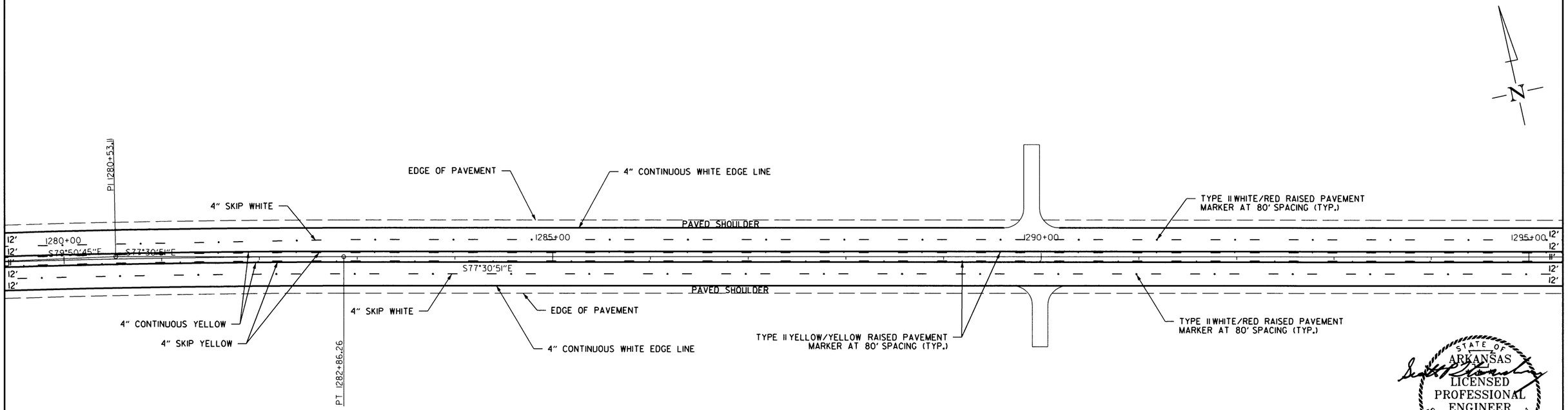
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	207	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

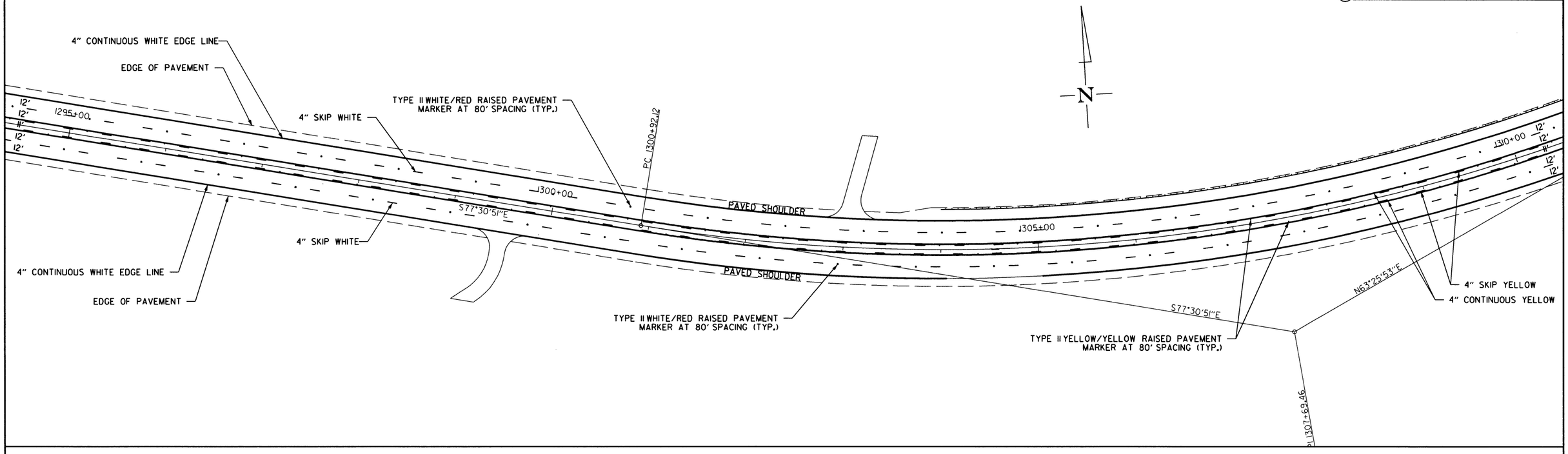
Leonard.Speed 9/23/2016 2:00:23 PM
WORKSPACE: Leonard.Speed
c:\pw\dl-local\baker_projects\leonard.speed\d0216682\r-061377_07_PM_01.dgn
REVISED DATE: $$REVDATE$$

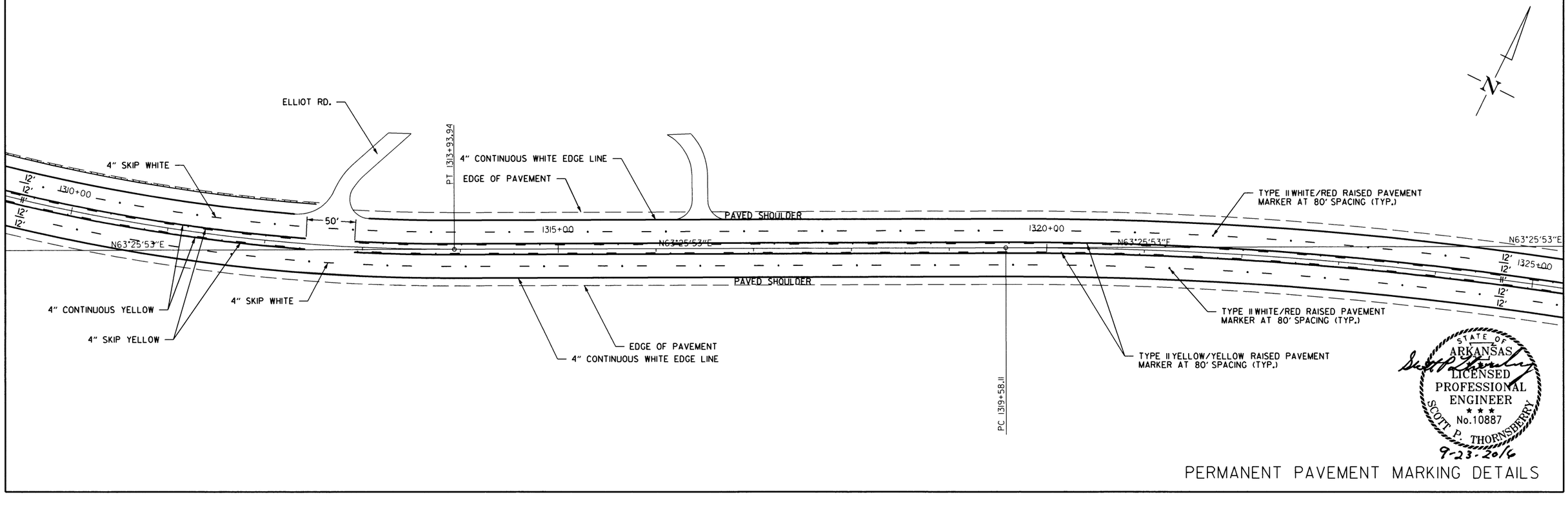
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	208	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

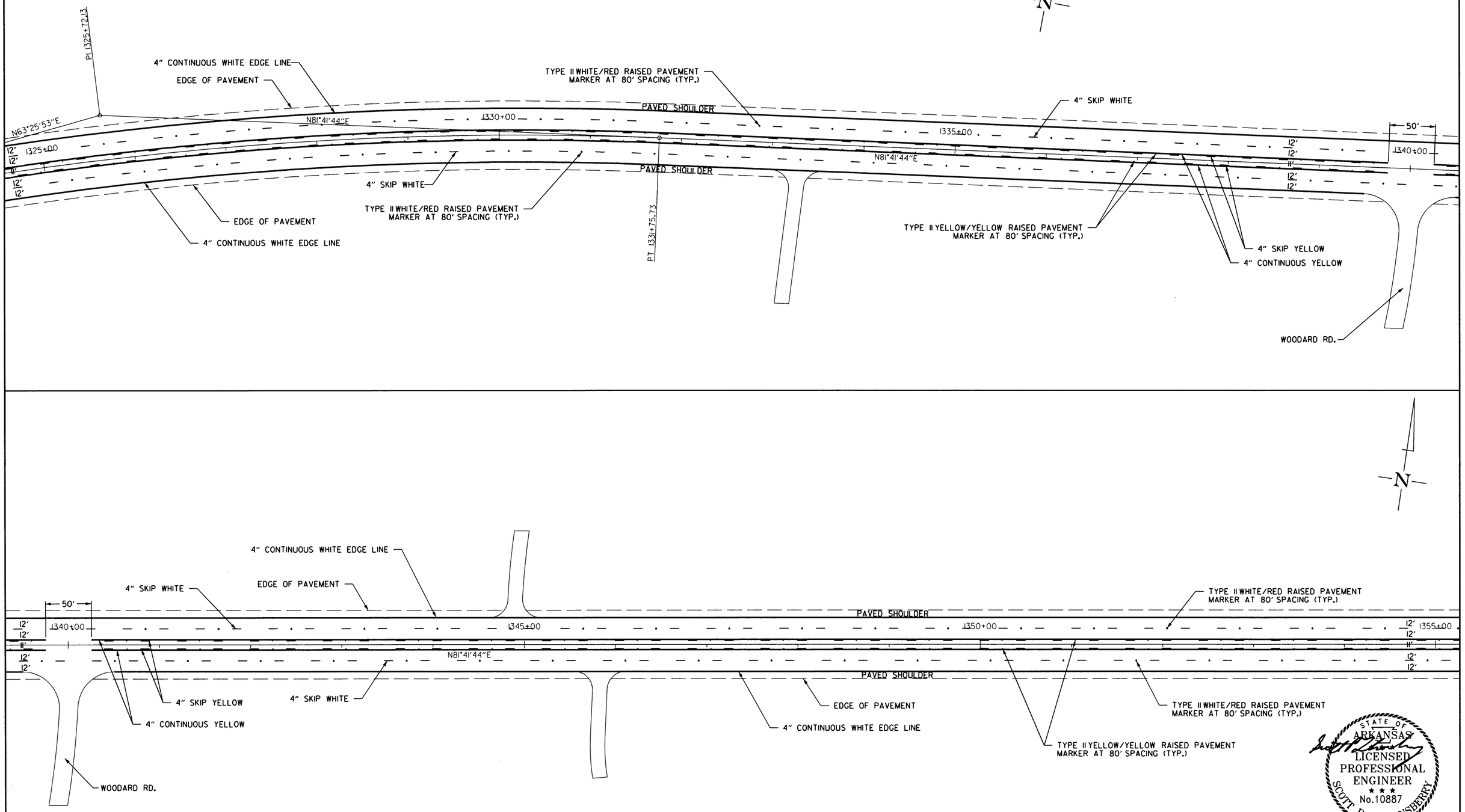
Leonard.Speed 9/23/2016 2:00:36 PM
WORKSPACE: Leonard.Speed
C:\pw\bi-local\baker_projects\leonard.speed\d0216821\r061377_07_PM_012.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	209	888

(2) PERMANENT PAVEMENT MARKING DETAILS



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

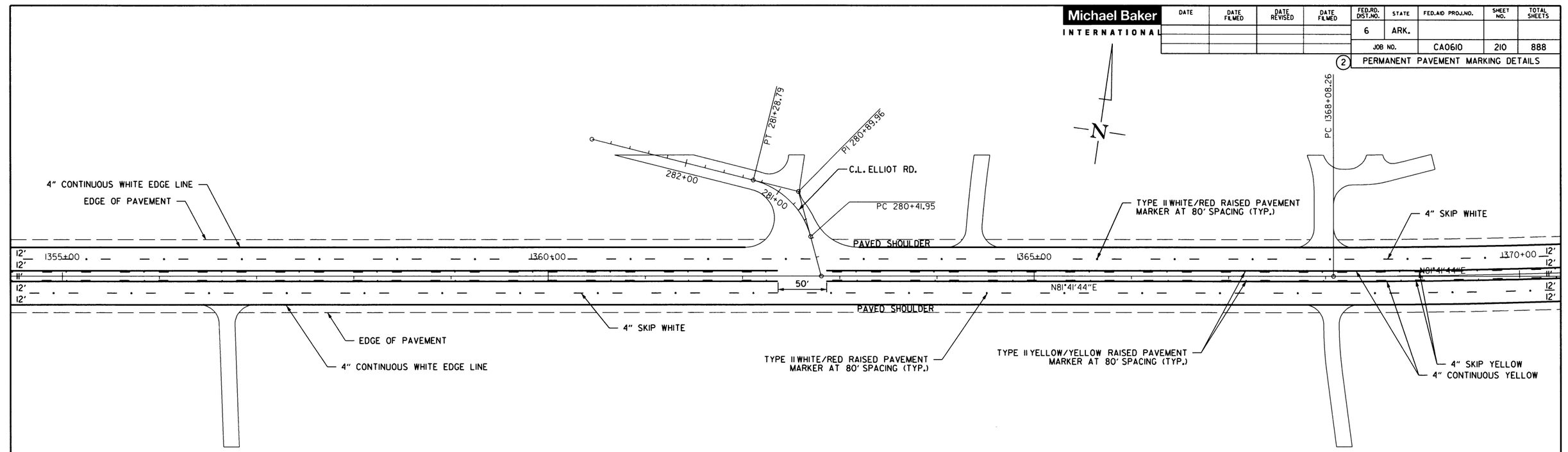
Leonard.Speed 9/23/2016 2:00:50 PM
WORKSPACE: Leonard.Speed
C:\Dwg\Local\baker_projects\leonard.speed\d0271682\r061377_07_PM_013.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	210	888

(2) PERMANENT PAVEMENT MARKING DETAILS



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

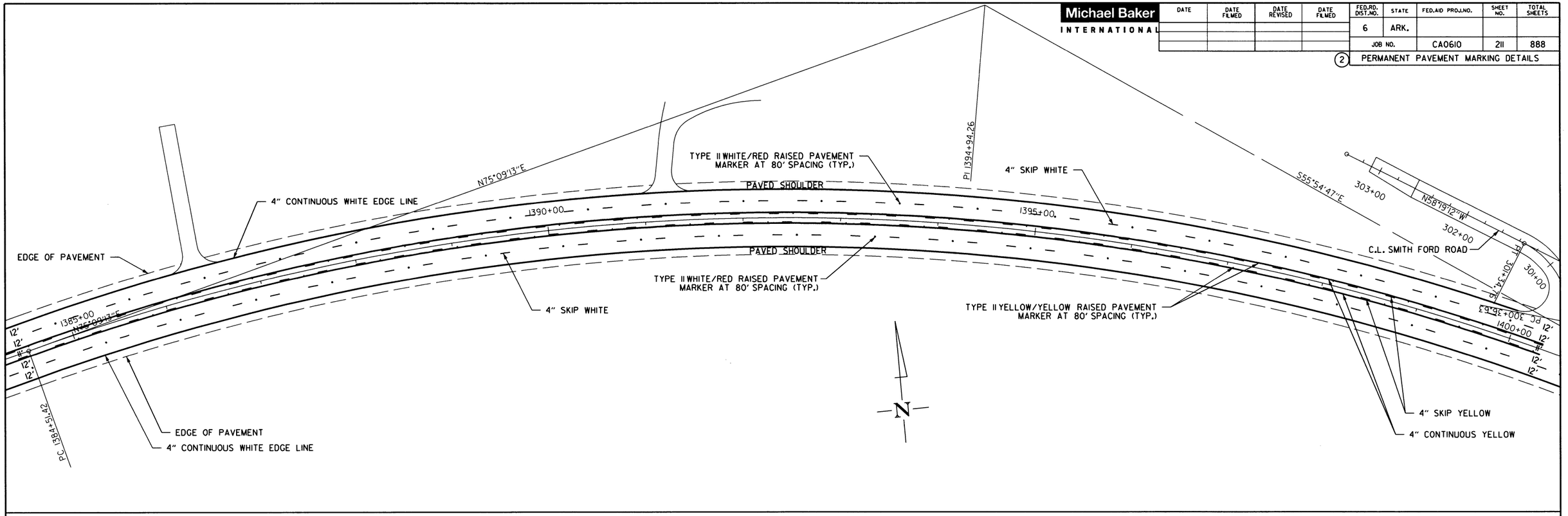
Leonard.Speed 9/23/2016 2:01:03 PM
WORKSPACE: Leonard.Speed
c:\pw\bl-local\baker_projects\leonard.speed\d0276821\r061377_07_PM_014.dgn
REVISED DATE: $$REVDATE$$

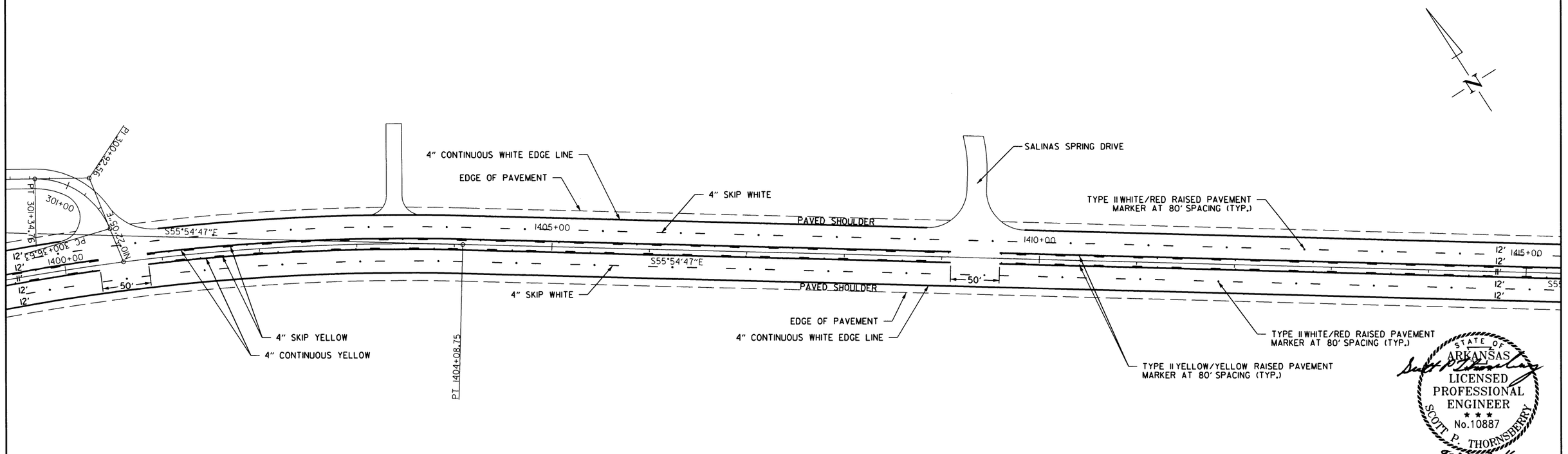
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	211	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

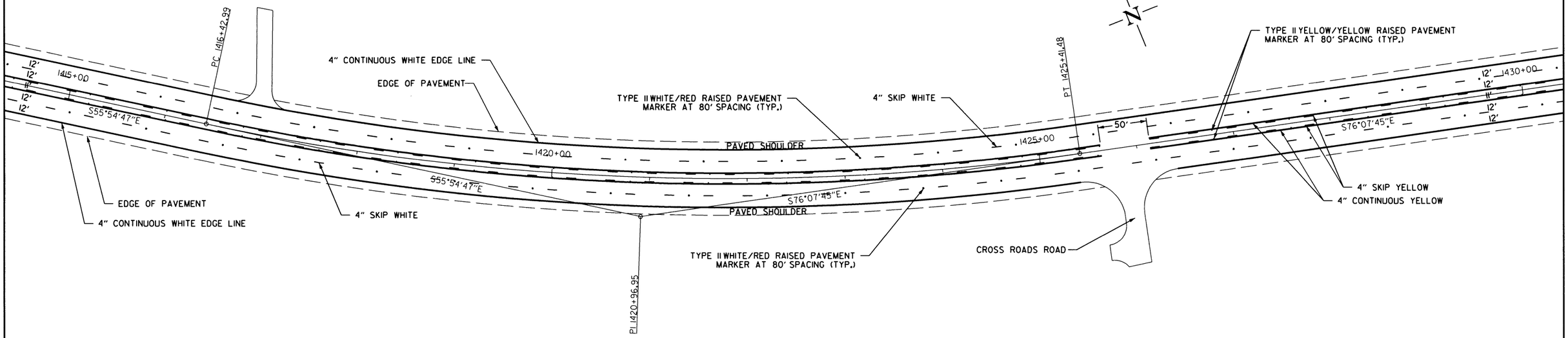
PERMANENT PAVEMENT MARKING DETAILS

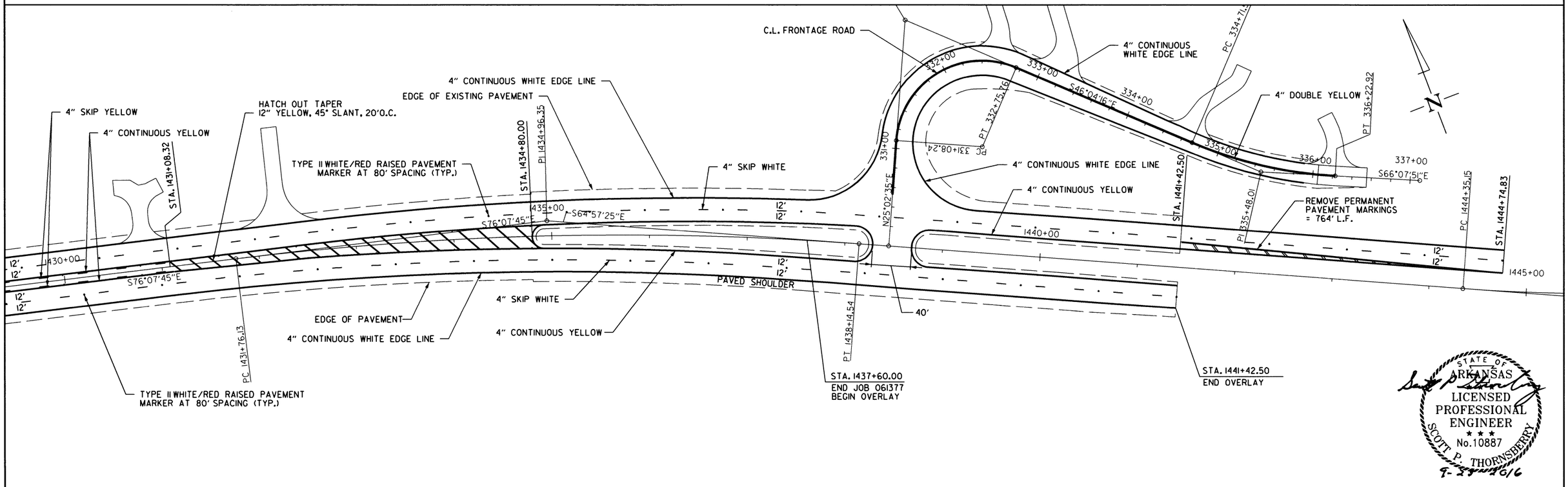
Leonard.Speed 9/23/2016 2:04:15 PM
WORKSPACE: Leonard.Speed
c:\pwwl-local\baker_projects\leonard.speed\d0271682\r061377_07_PM_015.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	212	888

(2) PERMANENT PAVEMENT MARKING DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

PERMANENT PAVEMENT MARKING DETAILS

Leonard.Speed 9/23/2016 2:01:28 PM
WORKSPACE: Leonard.Speed
c:\pw\v8i-local\baker_projects\leonard.speed\d0271682\r-061377_07_PM_016.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	213	888

(2) SOIL BORING LOGS

CA0610 SOIL BORING LOG

BORING/TEST PIT NO.	APPROX STATION	SAMPLE DEPTH (FT)	WATER CONTENT (%)	ATTERBERG LIMITS			PERCENT PASSING #200	UNIFIED CLASS.	AASHTO CLASS.
				LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX			
1	484+43, 91 RT	0.5-1.5	10	29	19	10	31	SC	A-2-4
TP-2	491+16, 40 RT	2.5-3.5	19	46	36	10	17	GC	A-2-4
3	498+90, 32 RT	2.5-3.5	14	32	22	10	26	GC	A-2-4
TP-4	506+01, 21 RT	0.5-1.5	12	31	22	9	16	GC	A-2-4
TP-5	513+65, 34 RT	0.5-1.5	19	36	26	10	32	GC	A-2-4
TP-6	520+86, 53 RT	0.5-1.5	12	29	20	9	20	GC	A-2-4
TP-6	520+86, 53 RT	2.5-3.5	16	21	17	4	48	GC-GM	A-4
8	544+00, 43 RT	2.5-2.8	15	43	28	15	33	SC	A-2-7
TP-9	551+10, 42 RT	0.5-1.5	15	27	22	5	29	GC-GM	A-2-4
TP-14	592+76, 36 RT	0.5-1.5	13	47	28	19	18	GC	A-2-7
15	599+07, 30 RT	0.5-1.5	8	---	---	---	13	SC	A-2-4
15	599+07, 30 RT	4-5	19	44	25	19	41	SC	A-7-6
TP-16	606+35, 37 RT	0.5-1.5	5	21	16	5	7	GW-GM	A-1-a
TP-16	606+35, 37 RT	3-4	16	35	22	13	35	GC	A-2-6
17	613+76, 17 RT	2.5-3.5	13	25	19	6	35	SC-SM	A-2-4
TP-18	621+46, 30 RT	0.5-1.5	16	36	24	12	32	GC	A-2-6
TP-18	621+46, 30 RT	2-3	17	32	23	9	33	GC	A-2-4
TP-19	629+13, 22 RT	0.5-1.5	14	35	25	10	15	GC	A-2-4
TP-20	646+33, 12 RT	0.5-1.5	10	35	22	13	13	GC	A-2-6
TP-21	654+49, 31 RT	0.5-1.5	11	37	21	16	15	GC	A-2-6
TP-22	669+73, 34 RT	0.5-1.5	13	35	22	13	15	GC	A-2-6
TP-23	677+14, 28 RT	0.5-1.5	17	36	25	11	22	GC	A-2-6
TP-26	708+73, 38 RT	0.5-1.5	15	29	21	8	24	GC	A-2-4
TP-27	716+61, 43 RT	0.5-1.5	24	41	26	15	61	CL	A-7-6
TP-27	716+61, 43 RT	3.5-4.5	16	21	16	5	68	CL-ML	A-4
TP-28	723+70, 42 RT	0.5-1.5	9	32	19	13	17	GC	A-2-6
TP-29	731+36, 38 RT	0.5-1.5	19	43	23	20	57	CL	A-7-6
TP-30	738+90, 37 RT	0.5-1.5	21	44	23	21	71	CL	A-7-6
TP-31	746+53, 23 RT	0.5-1.5	19	26	20	6	59	CL-ML	A-4
TP-33	766+20, 24 RT	0.5-1.5	14	29	18	11	61	CL	A-6
34	774+29, 26 RT	0.5-1.5	16	---NON PLASTIC---			26	SM	A-4
TP-35	781+14, 36 RT	0.5-1.5	14	26	19	7	48	GC-GM	A-4
TP-36	789+07, 34 RT	0.5-1.5	7	21	16	5	11	GW-GM	A-1-a
TP-36	789+07, 34 RT	4-5	29	57	29	28	87	CH	A-7-6
TP-37	796+65, 11 RT	0.5-1.5	7	18	15	3	10	GW-GM	A-1-a
TP-37	796+65, 11 RT	5-6	14	28	17	11	55	CL	A-6
TP-38	810+68, 26 RT	0.5-1.5	28	70	32	38	84	CH	A-7-5
TP-39	817+90, 0	0.5-1.5	15	34	21	13	21	GC	A-2-6
TP-41	833+04, 7 RT	0.5-1.5	16	34	20	14	33	GC	A-2-6
TP-42	840+07, 32 RT	0.5-1.5	18	33	23	10	31	GC	A-2-4
TP-43	847+02, 14 RT	0.5-1.5	8	25	21	4	10	GW-GM	A-2-4
TP-44	854+39, 13 RT	0.5-1.5	7	27	23	4	9	GW-GM	A-2-4
TP-44	854+39, 13 RT	2-3	6	27	18	9	12	GW-GC	A-2-4
TP-45	865+45, 2 LT	0.5-1.5	15	26	21	5	37	GC-GM	A-4
TP-45	865+45, 2 LT	2.5-3.5	10	23	19	4	14	GC-GM	A-1-a
TP-46	879+17, 20 RT	0.5-1.5	16	24	20	4	52	CL-ML	A-4

CA0610 SOIL BORING LOG

BORING/TEST PIT NO.	APPROX STATION	SAMPLE DEPTH (FT)	WATER CONTENT (%)	ATTERBERG LIMITS			PERCENT PASSING #200	UNIFIED CLASS.	AASHTO CLASS.
				LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX			
TP-47	886+68, 26 RT	0.5-1.5	23	49	30	19	49	GC	A-7-5
TP-49	901+65, 24 RT	0.5-1.5	21	46	29	17	41	GC	A-7-6
TP-49	901+65, 24 RT	3.5-4.5	25	43	24	19	79	CL	A-7-6
TP-51	925+53, 26 RT	0.5-1.5	21	39	28	11	37	GC	A-6
TP-52	933+74, 31 RT	0.5-1.5	25	56	28	28	82	CH	A-7-6
TP-52	933+74, 31 RT	3-4	28	76	38	38	83	MH	A-7-5
TP-53	941+00, 32 RT	0.5-1.5	26	50	32	18	58	MH	A-7-5
TP-54	948+55, 32 RT	0.5-1.5	25	48	27	21	61	CL	A-7-6
TP-55	956+11, 38 RT	2.5-3.5	27	62	34	28	94	MH	A-7-5
TP-56	971+08, 35 RT	0.5-1.5	25	49	31	18	63	SC	A-7-5
TP-56	971+08, 35 RT	4.5-5.5	30	71	33	38	89	MH	A-7-5
TP-57	978+70, 40 RT	0.5-1.5	25	53	32	21	63	MH	A-7-5
113	662+36, 40 RT	2.5-3.5	12	31	22	9	13	GC	A-2-4
TP-1A	485+69, 91 RT	0-1	15	36	21	15	32	SC	A-2-6
TP-3A	586+28, 45 RT	0.5-1.5	11	37	24	13	24	GC	A-2-6
TP-4A	639+04, 11 RT	0.5-1.5	13	47	29	18	18	GC	A-2-7
TP-5A	693+25, 38 RT	0.5-1.5	17	28	22	6	23	GC-GM	A-1-b
TP-5A	693+25, 38 RT	4-5	16	22	18	4	38	GC-GM	A-4
TP-6A	750+86, 37 RT	0.5-1.5	23	35	24	11	56	CL	A-6
TP-6A	750+86, 37 RT	2-3	14	26	20	6	70	CL-ML	A-4
TP-7A	802+80, 43 RT	0.5-1.5	5	23	17	6	15	GC-GM	A-1-a
TP-9A	910+60, 41 RT	0.5-1.5	20	47	26	21	50	CL	A-7-6
TP-10A	964+65, 48 RT	0.5-1.5	10	27	20	7	60	CL-ML	A-4
TP-10A	964+65, 48 RT	3.5-4.5	18	69	35	34	85	MH	A-7-5
C-6	545+26, 14 LT	0.5-2	6	---NON PLASTIC---			8	GW-GM	A-1-a
C-6	545+26, 14 LT	2-3.5	8	27	17	10	26	GC	A-2-4
C-6	545+26, 14 LT	3.5-5	19	31	19	12	78	CL	A-6
S4	871+98, 35 RT	4.5-5.5	7	26	20	6	11	GW-GM	A-1-a
S5	872+46, 29 RT	2.5-3.5	13	34	26	8	22	SC	A-2-4
TP-58	1005+26, 39 FT RT	0.5-1.5	20	32	22	10	43	GC	A-4
TP-59	1012+61, 37 FT RT	0.5-1.5	22	61	33	28	43	GC	A-7-6
TP-60	1019+89, 43 FT RT	0.5-1.5	14	43	27	16	49	SC	A-7-6
TP-61	1027+45, 39 FT RT	0.5-1.5	18	34	21	13	60	CL	A-6
TP-62	1035+56, 40 FT RT	0.5-1.5	25	55	28	27	74	CH	A-7-6
TP-63	1043+13, 28 FT RT	0.5-1.5	18	35	20	15	72	CL	A-6
TP-64	1050+58, 33 FT RT	0.5-1.5	22	41	24	17	64	CL	A-7-6
TP-65	1057+85, 37 FT RT	0.5-1.5	34	39	25	14	87	CL	A-6
TP-66	1065+33, 34 FT RT	2-3	22	42	27	15	17	GC	A-2-7
TP-66	1065+33, 34 FT RT	3-4	15	25	18	7	40	SC	A-4
TP-67	1072+90, 38 FT RT	1.5-2.5	20	29	19	10	74	CL	A-4
TP-68	1080+34, 35 FT RT	0.5-1.5	34	68	24	44	80	CH	A-7-6
TP-69	1088+10, 38 FT RT	2-3	22	40	22	18	81	CL	A-6
TP-71	1103+81, 38 FT RT	0.5-1.5	30	55	31	24	64	CH	A-7-6
TP-72	1111+92, 32 FT RT	1.5-2.5	48	52	43	9	---	SHALE	
TP-73	1119+27, 34 FT RT	0.5-1.5	25	45	27	18	32	GC	A-2-7
TP-74	1126+84, 34 FT RT	0.5-1.5	33	51	30	21	29	GC	A-2-7

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
2-23-2016

SOIL BORING LOGS

Leonard Speed 9/23/2016 2:01:40 PM
WORKSPACE: leonard_speed
c:\pw\bl-local\baker_projects\leonard_speed\d0271744\rCA0606_08_SB_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	214	888

(2) SOIL BORING LOGS

CA0610 SOIL BORING LOG

BORING/TEST PIT NO.	APPROX STATION	SAMPLE DEPTH (FT)	WATER CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT	ATTERBERG LIMITS PLASTIC LIMIT	ATTERBERG LIMITS PLASTICITY INDEX	PERCENT PASSING #200	UNIFIED CLASS.	AASHTO CLASS.
TP-75	1139+81, 35 FT RT	0.5-1.5	20	44	29	15	25	GC	A-2-7
77	1154+58, 43 FT RT	0.5-1.5	18	45	24	21	49	SC	A-7-6
TP-78	1161+90, 36 FT RT	0.5-1.5	16	62	29	33	19	GC	A-2-7
TP-79	1169+45, 26 FT RT	0.5-1.5	20	40	26	14	33	GC	A-2-6
TP-80	1176+95, 31 FT RT	0.5-1.5	29	70	34	36	43	GC	A-7-6
82	1191+99, 42 FT RT	0.5-1.5	18	43	25	18	47	GC	A-7-6
TP-83	1199+43, 19 FT RT	0.5-1.5	22	41	24	17	47	GC	A-7-6
84	1207+12, 4 FT LT	0.5-1.5	14	25	19	6	34	GC	A-2-4
TP-85	1214+86, 4 FT RT	0.5-1.5	13	36	26	10	10	GC	A-2-4
TP-86	1222+42, 41 FT RT	0.5-1.5	18	43	27	16	29	GC	A-2-7
TP-87	1229+47, 24 FT RT	0.5-1.5	22	41	25	16	29	GC	A-2-7
TP-88	1237+19, 18 FT RT	1-2	20	40	28	12	36	GC	A-6
TP-89	1244+75, 10 FT RT	0.5-1.5	17	43	26	17	---	SHALE	
90	1252+23, 11 FT RT	2.5-3.5	16	34	25	9	30	GC	A-2-4
TP-91	1259+65, 18 FT RT	1-2	12	36	23	13	19	GC	A-2-6
TP-92	1270+64, 13 FT RT	0.5-1.5	18	32	18	14	78		A-6
TP-93	1278+57, 13 FT RT	1.5-2.5	23	27	20	7	71		A-4
TP-94	1285+74, 17 FT RT	0.5-1.5	18	30	20	10	44	GC	A-4
TP-95	1293+38, 27 FT RT	0.5-1.5	19	32	21	11	42	GC	A-6
TP-95	1293+38, 27 FT RT	4-5	21	36	20	16	28		A-2-6
TP-96	1300+48, 17 FT RT	0.5-1.5	15	31	20	11	27	GC	A-2-6
TP-96	1300+48, 17 FT RT	3-4	17	29	18	11	46	GC	A-6
97	1314+21, 21 FT RT	0.5-1.5	20	42	25	17	45	GC	A-7-6
TP-98	1321+58, 20 FT RT	2.5-3.5	24	27	18	9	69		A-4
TP-99	1329+25, 20 FT RT	1-2	13	34	22	12	---	SHALE	
TP-100	1336+77, 26 FT RT	2-3	23	43	21	22	70		A-7-6
TP-101	1344+30, 24 FT RT	0.5-1.5	13	37	21	16	35	GC	A-2-6
TP-101	1344+30, 24 FT RT	2-3	13	24	17	7	43	GC	A-4
TP-102	1351+79, 17 FT RT	2-3	16	26	18	8	71		A-4
TP-103	1362+86, 24 FT RT	0.5-1.5	17	39	25	14	34	GC	A-2-6
104	1370+20, 21 FT RT	2.5-3	9	33	23	10	---	SHALE	
TP-105	1378+08, 32 FT RT	0.5-1.5	16	41	23	18	30	GC	A-2-7
TP-106	1385+55, 21 FT RT	0.5-1.5	17	38	22	16	27	GC	A-2-6
TP-107	1393+11, 33 FT RT	0-1	23	32	20	12	21	GC	A-2-6
TP-108	1400+89, 31 FT RT	0.5-1.5	19	46	25	21	30	GC	A-2-7
109	1408+21, 34 FT RT	2.5-3.5	26	53	22	31	81	CH	A-7-6
TP-110	1415+97, 22 FT RT	1.5-2.5	21	41	23	18	62		A-7-6
TP-111	1423+43, 32 FT RT	0.5-1.5	14	40	25	15	18	GC	A-2-6
112	1431+12, 31 FT RT	0.5-1.5	20	51	35	16	26	GC	A-2-7
112	1431+12, 31 FT RT	2.5-3.5	16	34	19	15	56		A-6
TP-11	1038+25, 60 FT RT	0.5-1.5	13	37	24	13	8	GC-GP	A-2-6
TP-12	1096+96, 56 FT RT	4-5	11	48	23	25	48		A-7-6
TP-13	1132+03, 58 FT RT	0.5-1.5	10	46	31	15	8	GC-GP	A-2-7
TP-14	1197+01, 60 FT RT	0.5-1.5	5	23	19	4	68	CL-ML	A-4
TP-14	1197+01, 60 FT RT	2-3	13	42	22	20	78		A-7-6
TP-15	1253+01, 39 FT RT	0-1	8	29	23	6	0.1	GP	A-1-a

CA0610 SOIL BORING LOG

BORING/TEST PIT NO.	APPROX STATION	SAMPLE DEPTH (FT)	WATER CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT	ATTERBERG LIMITS PLASTIC LIMIT	ATTERBERG LIMITS PLASTICITY INDEX	PERCENT PASSING #200	UNIFIED CLASS.	AASHTO CLASS.
TP-16	1306+61, 34 FT RT	0.5-1.5	10	37	21	16	18	GC	A-2-6
TP-17	1355+47, 43 FT RT	0.5-1.5	16	35	18	17	80		A-6
TP-17	1355+47, 43 FT RT	3-4	12	40	20	20	37	GC	A-6
S6	1207+71, 10 FT RT	0.5-1.5	16	34	27	7	58		A-4
S6	1207+71, 10 FT RT	2.5-3.5	7	19	17	2	10	GM-GP	A-4
S7	1208+23, 5 FT RT	2.5-3.5	15	30	19	11	48		A-6
S8	1208+94, 3 FT RT	6.5-7	14	30	18	12	46		A-6
S9	1209+67, 1 FT RT	2.5-3.5	10	---	---	---	8	GM-GP	A-1-a
S9	1209+67, 1 FT RT	8-20	---	27	20	7	15		A-2-4
S10	1210+46, 2 FT RT	0.5-1.5	13	25	21	4	35	GM-GC	A-2-4
S10	1210+46, 2 FT RT	4.5-5.5	12	---NON PLASTIC---			14	GM	A-1a
S11	1211+01, 3 FT RT	0.5-1.5	8	22	18	4	20	GM-GC	A-1-b
S11	1211+01, 3 FT RT	4.5-5.5	19	24	16	8	58		A-4
S11	1211+01, 3 FT RT	6.5-7.5	10	---NON PLASTIC---			15	SM-SP	A-1-b
S11A	1211+59, 3 FT RT	4.5-5.5	16	26	20	6	34	GM-GC	A-1-b
S11A	1211+59, 3 FT RT	9-10	26	35	21	14	91		A-6
S12	1261+03, 45 FT RT	2.5-3.5	26	33	22	11	74		A-6
S14	1262+17, 16 FT RT	4.5-5.5	18	33	24	9	---	SHALE	
S15	1262+62, 15 FT RT	2.5-3.5	22	33	21	12	74		A-6
S16	1263+18, 17 FT RT	4.5-5.5	21	46	20	26	68		A-7-6
S16	1263+18, 17 FT RT	6.5-7.5	13	36	20	16	----		A-6
CS1	1135+92, 108 FT LT	4-5	50	78	48	30	96	MH	A-7-5
CS1	1135+92, 108 FT LT	9-10	41	51	42	9	89	MH	A-5
CS4	1191+99, 89 FT LT	2.5-3	12	35	26	9	---	SHALE	
CS4A	1192+03, 97 FT LT	2.5-3.5	15	36	26	10	---	SHALE	
CS5	1220+35, 53 FT LT	2.5-2.7	8	---NON PLASTIC---			---	SHALE	
CS6A	1224+00, 88 FT LT	2-2.3	12	32	25	7	---	SHALE	
CS10	1328+45, 111 FT LT	0.5-1.5	20	38	27	11	57		A-6
CS13	1380+75, 127 FT LT	4.5-5.5	22	44	26	18	---	SHALE	
CS18	1405+93, 137 FT LT	0.5-1.5	20	37	21	16	58		A-6
CS18	1405+93, 137 FT LT	4-4.5	18	40	21	19	47		A-6
CS23	1427+69, 125 FT LT	2.5-3	19	38	25	13	---	SHALE	
CS23	1427+69, 125 FT LT	14-15	9	33	22	11	---	SHALE	

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

SOIL BORING LOGS

Leonard.Speed 9/23/2016 2:01:53 PM
WORKSPACE: Leonard.Speed
C:\pwdi-local\baker_projects\leonard.speed\d0217744\rCA0606_08_SB_002.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	215	888

(2) QUANTITIES

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1A	STAGE 1B	STAGE 2	DETOUR STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)	FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)	TEMP. IMPACT ATTEN.BARR. (RELOCATION)
			LIN. FT. - EACH					NO.	SQ. FT.	EACH		LEFT	LIN. FT.			EACH	
G20-1	ROAD WORK NEXT 18 MILES	60" x 24"	3	3	3		3	3	30.0								
G20-2	END ROAD WORK	48" x 24"	35	64	64		64	64	512.0								
M4-9L	DETOUR (LEFT)	30" x 24"				1	1	1	5.0								
M4-9R	DETOUR (RIGHT)	30" x 24"				2	2	2	10.0								
M4-9S	DETOUR (STRAIGHT)	30" x 24"				1	1	1	5.0								
M4-9N	DETOUR - STREET NAME PLAQUE	30" x 12"				4	4	4	10.0								
R1-1	STOP	36" x 36"		1	1		1	1	9.0								
R11-2	ROAD CLOSED	48" x 30"	2	2	14	3	14	14	140.0								
R11-4	ROAD CLOSED TO THRU TRAFFIC	60" x 30"		1	3	3	3	3	37.5								
R1-2	YIELD	36" x 36"		2			2	2	18.0								
R2-1	SPEED LIMIT 50	48" x 48"	8	8	8		8	8	128.0								
R4-1	DO NOT PASS	24" x 30"	11	63	61		63	63	315.0								
R5-1	DO NOT ENTER	36" x 36"		2			2	2	18.0								
R55-1	FINES DOUBLE IN WORK ZONES	36" x 60"	5	5	5		5	5	75.0								
RSP-1	SHOULDER CLOSED	48" x 30"	9	34	27		34	34	340.0								
W13-1	SPEED LIMIT (ADVISORY - 50 M.P.H.)	24" x 24"	12	5	6		12	12	48.0								
W1-4AL	REVERSE CURVE LT.	48" x 48"		10	8		10	10	160.0								
W1-4AR	REVERSE CURVE RT.	48" x 48"	12	12	4		12	12	192.0								
W16-5P	CEMETERY ACCESS ARROW	30" x 18"		1	2		2	2	7.5								
W1-6	ONE-DIRECTION LARGE ARROW	60" x 30"	6	6	6		6	6	75.0								
W1-8	CHEVRONS	18" x 24"		3	3		3	3	9.0								
W3-5	SPEED LIMIT 50 AHEAD	48" x 48"	4	4	4		4	4	64.0								
W20-1	ROAD WORK 1 MILE	48" x 48"	5	5	5		5	5	80.0								
W20-1	ROAD WORK 1/2 MILE	48" x 48"	5	5	5		5	5	80.0								
W20-1	ROAD WORK 1500 FT.	48" x 48"	5	5	5		5	5	80.0								
W20-1	ROAD WORK 1000 FT.	48" x 48"	5	5	5		5	5	80.0								
W20-1	ROAD WORK 500 FT.	48" x 48"	5	5	5		5	5	80.0								
W20-1	ROAD WORK AHEAD	48" x 48"	33	65	65		65	65	1040.0								
W20-5L	LEFT LANE CLOSED (1 MILE)	48" x 48"	4	5	7		7	7	112.0								
W20-5L	LEFT LANE CLOSED (1/2 MILE)	48" x 48"	4	8	8		8	8	128.0								
W20-5L	LEFT LANE CLOSED (1500 FT.)	48" x 48"	4	8	8		8	8	128.0								
W4-2L	LEFT LANE CLOSED	48" x 48"	5	9	9		9	9	144.0								
W8-9A	SHOULDER DROP OFF	48" x 48"		31	25		31	31	496.0								
	CEMETERY ACCESS	52" x 42"		6	6		6	6	91.0								
SPECIAL	MERGE NOW	48" x 48"	2	2	2		2	2	32.0								
	VERTICAL PANELS		327	673			673			673							
	TRAFFIC DRUMS		520	2351	3952		3952				3952						
	TYPE III BARRICADE-LT. (16')		2	2	14	3	14					224					
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		3200	10000	600		13800						13800				
	RELOCATING PRECAST CONCRETE BARRIER			3200	13200		16400							16400			
	TEMPORARY IMPACT ATTENUATION BARRIER		3	57			60								60		
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)						10									10	10
	TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION)			3	33		36	36									36
TOTALS:								**4779.0**		**673**	**3952**	**224**	**13800**	**16400**	**60**	**10**	**46**

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

THE QUANTITY OF VERTICAL PANELS PROVIDED IN THE CONTRACT IS FOR ONE SIDE OF THE ROADWAY FOR 2 MILES. THIS IS THE MAXIMUM QUANTITY REQUIRED TO ALLOW THE CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 4" OR LESS, AND THEN NOTCH ANOTHER ONE-MILE SECTION. THIS IS THE MAXIMUM NUMBER OF VERTICAL PANELS THAT WILL BE PAID FOR. REFER TO SECTION 603.02 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-26-2016

QUANTITIES

Scott.Thornsberry 9/26/2016 7:50:54 AM
WORKSPACE: I:AHTD
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	216	888

(2) QUANTITIES

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1A	STAGE 1B	STAGE 2	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKING								REFLECTORIZED PAINT PAVEMENT MARKING	HIGH PERFORMANCE CONTRAST PAVEMENT MARKING	
									TYPE II (WHITE/RED)	TYPE II (YEL/YEL)	4"		8" WHITE	12"		24" WHITE	WORDS	ARROWS	10" WHITE	4"	
											WHITE	YELLOW		WHITE	YELLOW					WHITE	YELLOW
	LIN. FT. - EACH				LIN. FT.		LIN. FT.		EACH		LIN. FT.						EACH		LIN. FT.	LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS	124678	282740			407418																
CONSTRUCTION PAVEMENT MARKINGS	91940	333480	393750			819170															
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		91940	333480	393750			819170														
REMOVABLE CONSTRUCTION PAV'T MARKINGS			3184					3184													
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)				1249					1249												
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)				1228						1228											
THERMOPLASTIC PAVEMENT MARKING WHITE (4")				240662							240662										
THERMOPLASTIC PAVEMENT MARKING WHITE (8")				650									650								
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10")				289															289		
THERMOPLASTIC PAVEMENT MARKING WHITE (12")				515										515							
THERMOPLASTIC PAVEMENT MARKING WHITE (24")				70												70					
THERMOPLASTIC PAVEMENT MARKING YELLOW (4")				231782								231782									
THERMOPLASTIC PAVEMENT MARKING YELLOW (12")				775											775						
THERMOPLASTIC PAVEMENT MARKING (WORDS)				3													3				
THERMOPLASTIC PAVEMENT MARKING (ARROWS)				6														6			
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING WHITE (4")				369																369	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")				1443																	1443
TOTALS:					**407418**	**819170**	**819170**	**3184**	**1249**	**1228**	**240662**	**231782**	**650**	**515**	**775**	**70**	**3**	**6**	**289**	**369**	**1443**

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
719+00	719+14	HWY. 70 LT. OF C.L.	34	
726+20	726+32	HWY. 70 LT. OF C.L.	28	
802+25	802+73	HWY. 70 RT. OF C.L.	34	1
106+88	108+14	NANCE DR. LT. OF C.L.	156	
107+01	107+71	NANCE DR. LT. OF C.L.	91	
141+14	143+18	NARROWS RD. LT. OF C.L.	208	
1164+50	1166+08	HWY. 70 LT. OF C.L.	162	
1177+00	1178+00	HWY. 70 LT. OF C.L.	98	
1198+80	1199+30	HWY. 70 LT. OF C.L.	36	1
1248+30	1248+95	HWY. 70 RT. OF C.L.	85	
1249+00	1249+11	HWY. 70 RT. OF C.L.	73	
1298+99	1299+15	HWY. 70 RT. OF C.L.	28	
1299+42	1299+91	HWY. 70 RT. OF C.L.	50	1
1300+37	1305+68	HWY. 70 RT. OF C.L.	558	1
1303+48	1303+79	HWY. 70 LT. OF C.L.	113	
1309+64	1314+88	HWY. 70 RT. OF C.L.	339	
1314+17	1316+00	HWY. 70 RT. OF C.L.	184	
1318+36	1319+66	HWY. 70 RT. OF C.L.	124	
1319+40	1319+64	HWY. 70 LT. OF C.L.	68	
1344+83	1345+09	HWY. 70 LT. OF C.L.	22	1
1371+77	1373+76	HWY. 70 LT. OF C.L.	196	
301+81	303+00	SMITH FORD RD. RT. OF C.L.	121	
281+04		ELLIOTT RD. RT.OF C.L.		1
330+80		FRONTAGE RD. LT.		1
333+00		FRONTAGE RD. RT.		1
TOTALS:			**2808**	**8**

MAINTENANCE OF TRAFFIC ITEMS

	LOCATION	MOBILE SPEED NOTIFICATION SYSTEM	ADVANCE WARNING ARROW PANEL		PORTABLE CHANGEABLE MESSAGE SIGN
			SIGNS	DAY	
		EACH	EACH		WEEK
	WEST END OF PROJECT (HWY. 70)		1	1356	208
	WEST END OF PROJECT (MLK EXPY.)				208
	EAST END OF PROJECT		1	1356	208
*	ENTIRE PROJECT IF AND WHERE DIRECTED BY ENGINEER	3			
	TOTALS:	**3**		**2712**	**624**

NOTE:THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION,2014 EDITION.

* QUANTITY ESTIMATED. SEE SECTION 104.03 OF THE STD. SPECS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
10-4-2016

QUANTITIES

Leonard.Speed 10/4/2016 9:20:17 AM
WORKSPACE: Leonard.Speed
c:\pwdi-local\baker_projects\leonard.speed\d0424368\r-CA0610_08_QTY_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	217	888

(2) QUANTITIES

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	DESCRIPTION	CURB AND GUTTER	CONCRETE DRIVEWAYS	PLUG AND ABANDON *	HEADWALLS	WINGWALLS	GUARDRAIL	WIRE ROPE SAFETY FENCE	WIRE ROPE SAFETY FENCE END TERMINAL	TERMINAL ANCHOR POSTS	BUILDINGS	BILLBOARD
				LIN. FT.	SQ. YD.	EACH	EACH	EACH	LIN. FT.	LIN. FT.	EACH	EACH	EACH	EACH
17+60	19+90	CROSSGATE CHURCH	CROSSGATE CHURCH DRIVE	986										
		HWY. 70	C.L. MEDIAN							978	1			
504+22		HWY. 70	LT. OF C.L.		425									
812+64		HWY. 70	RT. OF C.L.		400									
582+38		HWY. 70	30" RCP			1	1							
478+77	480+80	HWY. 70	LT. OF L.M.L. (CEDAR CREEK)						203			1		
483+80	486+20	HWY. 70	RT. OF L.M.L. (CEDAR CREEK)						240					
484+07	485+57	HWY. 70	LT. OF L.M.L. (CEDAR CREEK)						150			1		
780+06	795+94	HWY. 70	LT. OF C.L.						1588			2		
868+97	870+94	HWY. 70	LT. OF C.L. (TEN MILE CREEK)						197			1		
868+97	870+94	HWY. 70	RT. OF C.L. (TEN MILE CREEK)						197			1		
872+19	873+19	HWY. 70	LT. OF C.L. (TEN MILE CREEK)						100			1		
871+94	873+94	HWY. 70	RT. OF C.L. (TEN MILE CREEK)						200			1		
970+00	973+00	HWY. 70	RT. OF C.L.						300			2		
970+70	974+74	HWY. 70	LT. OF C.L.						404			2		
1054+25		HWY. 70	EX. PIPE & TEMP. EXT. RT.			1	1							
1071+98		HWY. 70	EX. BOX			1	2	1						
1096+65		HWY. 70	EX. PIPE & TEMP. EXT. RT.			1	1							
1108+41		HWY. 70	EX. PIPE & TEMP. EXT. LT. & RT.			1								
1114+67		HWY. 70	EX. PIPE & TEMP. EXT. RT.			1	1							
1195+31		HWY. 70	EX. PIPE & TEMP. EXT. LT. & RT.			1								
1235+45		HWY. 70	EX. PIPE & TEMP. EXT. RT.			1	1							
1240+95		HWY. 70	EX. PIPE & TEMP. EXT. RT.			1	1							
1279+33		HWY. 70	EX. PIPE & TEMP. EXT. RT.			1	1							
1319+31		HWY. 70	EX. BOX & TEMP. EXT. RT.			1	1	1						
1337+62		HWY. 70	EX. PIPE & TEMP. EXT. RT.			1	1							
1377+59		HWY. 70	EX. PIPE & TEMP. EXT. RT.			1	1							
1398+07		HWY. 70	EX. BOX & TEMP. EXT. RT.			1	1	1						
1410+04		HWY. 70	EX. PIPE & TEMP. EXT. RT.			1	1							
1419+58		HWY. 70	EX. PIPE & TEMP. EXT. RT.			1	1							
1423+37		HWY. 70	EX. PIPE & TEMP. EXT. RT.			1	1							
14+45		HWY. 128	EX. PIPE & TEMP. EXT. LT.			1								
1124+00	1126+00	HWY. 70	LT. OF C.L.						200			2		
1206+20	1208+20	HWY. 70	LT. OF C.L. (TEN MILE CREEK)						200			1		
1207+19	1207+94	HWY. 70	LT. OF C.L. (TEN MILE CREEK)						75			1		
1210+40	1211+67	HWY. 70	LT. OF C.L. (TEN MILE CREEK)						127			1		
1210+66	1212+37	HWY. 70	LT. OF C.L. (TEN MILE CREEK)						171			1		
210+60		BROWNING	RUINS LT. OF C.L.										1	
1259+69	1261+72	HWY. 70	LT. OF C.L. (CANEY CREEK)						203			1		
1259+71	1261+72	HWY. 70	LT. OF C.L. (CANEY CREEK)						201			1		
1262+46	1264+49	HWY. 70	LT. OF C.L. (CANEY CREEK)						203			1		
1262+46	1263+97	HWY. 70	LT. OF C.L. (CANEY CREEK)						151			1		
1301+24	1303+76	HWY. 70	RT. OF C.L.						252			2		
1317+59	1319+63	HWY. 70	RT. OF C.L.						204			2		
1341+22	1343+75	HWY. 70	RT. OF C.L.						253			2		
1341+28	1343+81	HWY. 70	LT. OF C.L.						253			2		
1396+02	1399+08	HWY. 70	RT. OF C.L.						306			2		
1397+08	1400+07	HWY. 70	LT. OF C.L.						299			2		
1417+00		HWY. 70	LT. OF C.L.		150									
1440+54		HWY. 70	156' LT. OF C.L.											1
TOTALS:				**986**	**975**	**18**	**16**	**3**	**6677**	**978**	**1**	**34**	**1**	**1**

* SHOWN FOR INFORMATION ONLY.

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	800
ENGINEER	
TOTAL:	**800**

NOTE: QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

DUMPED RIPRAP AND FILTER BLANKET

	STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
			CU. YDS.	SQ. YDS.
	509+84	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	6
	513+39	RT. OF HWY. 70 OUTLET OF BOX CULVERT	24	48
	561+87	RT. OF HWY. 70 OUTLET OF BOX CULVERT	15	30
	575+91	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	2	4
	576+71	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	4	8
	582+00	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	6
	585+18	RT. OF HWY. 70 OUTLET OF BOX CULVERT	14	28
*	590+00 - 592+50	RT. OF HWY. 70 GULPHA CREEK REALIGNMENT	630	315
	595+66	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	4	7
*	605+10 - 606+75	RT. OF HWY. 70 GULPHA CREEK REALIGNMENT	476	238
	606+26	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	4	7
	610+84	RT. OF HWY. 70 OUTLET OF BOX CULVERT	14	28
	622+00	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	4	7
	630+89	RT. OF HWY. 70 OUTLET OF BOX CULVERT	43	87
	642+17	RT. OF HWY. 70 OUTLET OF BOX CULVERT	60	120
	648+19	LT. OF HWY. 70 OUTLET OF PIPE CULVERT	4	8
	652+17	LT. OF HWY. 70 OUTLET OF PIPE CULVERT	4	8
	662+51	LT. OF HWY. 70 OUTLET OF BOX CULVERT	63	126
	675+35	RT. OF HWY. 70 OUTLET OF BOX CULVERT	21	42
	683+97	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	6
	693+88	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	4	7
	702+41	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	4	7
	705+85	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	4	7
	708+43	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	4	7
	716+92	RT. OF HWY. 70 OUTLET OF BOX CULVERT	14	28
	731+51	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	2	4
	738+30	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	4	8
	760+80	RT. OF HWY. 70 OUTLET OF BOX CULVERT	6	12
	768+13	RT. OF HWY. 70 OUTLET OF BOX CULVERT	10	20
	779+89	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	25	50
	822+56	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	6
	836+37	LT. OF HWY. 70 OUTLET OF PIPE CULVERT	4	8
	838+49	LT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	6
	851+08	LT. OF HWY. 70 OUTLET OF BOX CULVERT	10	20
	856+51	LT. OF HWY. 70 OUTLET OF PIPE CULVERT	4	7
	875+09	RT. OF HWY. 70 OUTLET OF BOX CULVERT	8	16
	883+70	RT. OF HWY. 70 OUTLET OF BOX CULVERT	8	16
	886+67	LT. OF HWY. 70 OUTLET OF PIPE CULVERT	2	4
	896+21	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	7
	897+89	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	2	4
	913+66	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	4	7
	920+77	RT. OF HWY. 70 OUTLET OF BOX CULVERT	8	16
	922+70	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	2	4
	927+09	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	7
	936+69	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	4	7
	942+67	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	4	7
	963+97	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	2	4
	972+83	LT. OF HWY. 70 OUTLET OF BOX CULVERT	39	79
	1019+20	LT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	5
	1027+44	LT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	5
	1081+20	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	5
	1115+12	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	5
	1134+22	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	6
	1152+15	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	5
	1242+20	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	6
	1250+10	LT. OF HWY. 70 OUTLET OF BOX CULVERT	14	27
	1271+00	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	2	4
	1294+05	LT. OF HWY. 70 OUTLET OF BOX CULVERT	14	28
	1303+64	LT. OF HWY. 70 OUTLET OF BOX CULVERT	14	28
	1326+17	LT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	5
	1337+71	LT. OF HWY. 70 OUTLET OF PIPE CULVERT	7	14
	1377+50	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	5
	1388+53	LT. OF HWY. 70 OUTLET OF PIPE CULVERT	4	7
	1396+93	LT. OF HWY. 70 OUTLET OF BOX CULVERT	13	26
	1410+10	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	5
	1419+50	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	5
	1422+92	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	5	9
	1434+84	RT. OF HWY. 70 OUTLET OF PIPE CULVERT	3	5
*	ENTIRE	TO BE USED IF AND WHERE	100	200
	PROJECT	DIRECTED BY THE ENGINEER		
	TOTALS:		**1794**	**1909**

* NOTE: QUANTITIES ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

NOTE: FILTER BLANKET SHALL BE GEOTEXTILE FABRIC (TYPE 5).

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
10-04-2016

QUANTITIES

Leonard.Speed 10/4/2016 9:20:18 AM
WORKSPACE: Leonard.Speed
c:\pwdl-local\baker_projects\leonard.speed\d0424368\r-CA0610_08_QYT_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0610		218	888
				(2)	QUANTITIES			

REMOVAL AND DISPOSAL OF CULVERTS AND DROP INLETS

STATION	DESCRIPTION	PIPE CULVERTS	DROP INLETS	CURB INLETS
		EACH	EACH	EACH
485+82	LT. OF HWY. 70	1		
489+09	MEDIAN OF HWY. 70	1	1	
18+80	LT. OF CROSSGATE CHURCH DRIVE	2		1
18+80	RT. OF CROSSGATE CHURCH DRIVE	1		1
19+43	LT. OF CROSSGATE CHURCH DRIVE	1		1
19+63	RT. OF CROSSGATE CHURCH DRIVE	2		1
499+35	LT. OF HWY. 70	1		
509+06	RT. OF HWY. 70	1		
513+00	LT. OF HWY. 70	1		
516+30	LT. OF HWY. 70	2		
520+26	RT. OF HWY. 70		1	
525+74	RT. OF HWY. 70		1	
528+00	RT. OF HWY. 70	1		
531+16	RT. OF HWY. 70		1	
536+30	LT. OF HWY. 70	1		
537+06	RT. OF HWY. 70		1	
541+83	RT. OF HWY. 70		1	
544+75	RT. OF HWY. 70	1		
585+15	LT. OF HWY. 70	1		
629+09	LT. OF HWY. 70	1		
638+88	LT. OF HWY. 70	1		
644+66	RT. OF HWY. 70	1		
687+60	LT. OF HWY. 70	1		
725+10	LT. OF HWY. 70	1		
729+15	LT. OF HWY. 70	1		
731+14	RT. OF HWY. 70	1		
740+83	LT. OF HWY. 70	1		
746+58	LT. OF HWY. 70	1		
751+53	LT. OF HWY. 70	1		
757+93	LT. OF HWY. 70	1		
758+96	RT. OF HWY. 70	1		
759+40	LT. OF HWY. 70	1		
764+55	LT. OF HWY. 70	1		
774+22	RT. OF HWY. 70	1		
774+45	LT. OF HWY. 70	1		
775+81	LT. OF HWY. 70	1		
779+30	LT. OF HWY. 70	1		
802+40	RT. OF HWY. 70	1		
865+17	HWY. 70 (30" CROSS DRAIN)	1		
958+40	RT. OF HWY. 70	1		
20+79	COUNTY ROAD 1381	1		
18+63	LT. OF HWY. 128	1		
9+34	LONSDALE	1		
1044+39	LT. OF HWY. 70	1		
1055+47	RT. OF HWY. 70	1		
1089+86	LT. OF HWY. 70	1		
1092+52	RT. OF HWY. 70	1		
1117+60	LT. OF HWY. 70	1		
1119+67	LT. OF HWY. 70	1		
1131+27	LT. OF HWY. 70	1		
1132+45	RT. OF HWY. 70	1		
1148+75	LT. OF HWY. 70	1		
1151+56	LT. OF HWY. 70	1		
1152+15	LT. OF HWY. 70		1	
1154+75	LT. OF HWY. 70	1		
1157+80	LT. OF HWY. 70	1		
1170+40	RT. OF HWY. 70	1		
1175+56	LT. OF HWY. 70	1		
1179+00	RT. OF HWY. 70	1		
1181+04	LT. OF HWY. 70	1		
1188+19	LT. OF HWY. 70	1		
1197+05	LT. OF HWY. 70	1		
1198+92	LT. OF HWY. 70	1		
1212+87	RT. OF HWY. 70	1		
1213+96	LT. OF HWY. 70	1		
1214+95	LT. OF HWY. 70	1		
205+67	LT. OF BROWNING ACC.	1		
205+89	LT. OF BROWNING ACC.	1		
206+30	LT. OF BROWNING ACC.	1		
209+37	FAIRPLAY	1		
210+60	BROWNING RD. (W)	1		
220+67	BROWNING RD. (E)	1		
1251+38	RT. OF HWY. 70	1		
1316+45	LT. OF HWY. 70	1		
1333+27	RT. OF HWY. 70	1		
1356+70	RT. OF HWY. 70	1		
280+80	ELLIOT RD.	1		
1364+38	LT. OF HWY. 70	1		
1367+98	LT. OF HWY. 70	1		
1386+34	LT. OF HWY. 70	1		
1391+21	LT. OF HWY. 70	1		
1401+09	LT. OF HWY. 70	1		
1403+39	LT. OF HWY. 70	1		
1417+03	LT. OF HWY. 70	1		
1432+24	LT. OF HWY. 70	1		
1438+48	C.L. OF MEDIAN	1		
330+80	FRONTAGE RD.	1		
330+86	LT. OF FRONTAGE RD.	1		
330+91	RT. OF FRONTAGE RD.	1		
336+23	LT. OF FRONTAGE RD.	1		
TOTALS:		87	7	4

NOTE: QUANTITIES SHOWN ABOVE SHALL INCLUDE REMOVAL & DISPOSAL OF ALL HEADWALLS AND FLARED END SECTIONS IF APPLICABLE.

MAILBOXES

STATION	LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)	MAILBOX SUPPORTS (DOUBLE)
		EACH	EACH	EACH
511+80	RT. OF HWY. 70	1	1	
516+42	LT. OF HWY. 70	4		2
542+56	LT. OF HWY. 70	4		2
543+91	RT. OF HWY. 70	1	1	
638+79	LT. OF HWY. 70	3	1	1
687+51	LT. OF HWY. 70	1	1	
730+92	RT. OF HWY. 70	6		3
735+87	LT. OF HWY. 70	1	1	
746+84	LT. OF HWY. 70	1	1	
751+72	LT. OF HWY. 70	2		1
752+08	RT. OF HWY. 70	1	1	
752+35	RT. OF HWY. 70	1	1	
752+63	RT. OF HWY. 70	1	1	
758+87	RT. OF HWY. 70	1	1	
763+53	RT. OF HWY. 70	2		1
764+63	LT. OF HWY. 70	1	1	
767+05	LT. OF HWY. 70	1	1	
771+60	LT. OF HWY. 70	1	1	
812+92	RT. OF HWY. 70	1	1	
38+30	RT. OF HWY. 88	2		1
1112+42	RT. OF HWY. 70	7	1	3
1125+82	RT. OF HWY. 70	2		1
1139+93	RT. OF HWY. 70	3	1	1
1152+20	LT. OF HWY. 70	1	1	
1153+06	LT. OF HWY. 70	2		1
1155+24	LT. OF HWY. 70	1	1	
1161+00	LT. OF HWY. 70	5	1	2
1168+50	LT. OF HWY. 70	2		1
1170+46	RT. OF HWY. 70	1	1	
1175+44	LT. OF HWY. 70	2		1
1175+89	LT. OF HWY. 70	4		2
1179+32	LT. OF HWY. 70	7	1	3
1185+90	RT. OF HWY. 70	3	1	1
1189+15	LT. OF HWY. 70	3	1	1
1192+80	RT. OF HWY. 70	2		1
1196+94	LT. OF HWY. 70	8		4
1212+64	RT. OF HWY. 70	1	1	
1214+00	LT. OF HWY. 70	1	1	
1215+48	LT. OF HWY. 70	4		2
1217+42	RT. OF HWY. 70	1	1	
206+30	LT. OF BROWNING ACCESS RD.	5	1	2
209+09	LT. OF BROWNING ACCESS RD.	1	1	
212+74	LT. OF BROWNING ACCESS RD.	4		2
207+59	LT. OF FAIRPLAY RD	1	1	
208+60	RT. OF FAIRPLAY RD	1	1	
1251+68	RT. OF HWY. 70	2		1
1333+39	RT. OF HWY. 70	1	1	
1345+64	RT. OF HWY. 70	1	1	
1356+50	RT. OF HWY. 70	1	1	
281+10	LT. OF ELLIOT RD.	4		2
1378+38	RT. OF HWY. 70	1	1	
1386+21	LT. OF HWY. 70	1	1	
1391+06	LT. OF HWY. 70	1	1	
1403+22	LT. OF HWY. 70	1	1	
1425+76	RT. OF HWY. 70	1	1	
1430+50	LT. OF HWY. 70	2		1
334+35	RT. OF FRONTAGE RD.	7	1	3
TOTALS:		131	39	46

APPROACH SLABS & GUTTERS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE C)	APPROACH SLABS (TYPE SPECIAL)	APPROACH SLABS (TYPE C1)	REINFORCING STEEL RDWY. (GR 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	CU.YD.	POUND	TON
480+35.42	480+71.92	CEDAR CREEK RT.	11.55			630	10.2
480+35.42	480+71.92	CEDAR CREEK LT.	18.10			995	15.9
480+35.42	480+71.92	CEDAR CREEK			49.15	5775	28.5
483+52.58	483+89.08	CEDAR CREEK RT.	11.55			630	10.2
483+52.58	483+89.08	CEDAR CREEK LT.	18.10			995	15.9
483+52.58	483+89.08	CEDAR CREEK			49.15	5775	28.5
870+50.00	870+86.50	TEN MILE CREEK LT.	14.80			810	13.0
870+50.00	870+86.50	TEN MILE CREEK RT.	14.80			810	13.0
870+40.00	870+76.50	TEN MILE CREEK		120.42		13777	70.0
1272+30.50	1272+67.00	TEN MILE CREEK LT.	14.80			810	13.0
1272+30.50	1272+67.00	TEN MILE CREEK RT.	14.80			810	13.0
1272+30.50	1272+67.00	TEN MILE CREEK		120.42		13777	70.0
1207+52.40	1207+88.90	TEN MILE CREEK LT.	14.80			810	13.0
1207+52.40	1207+88.90	TEN MILE CREEK RT.	14.80			810	13.0
1207+52.40	1207+88.90	TEN MILE CREEK		120.42		13777	70.0
1211+21.10	1211+57.60	TEN MILE CREEK LT.	14.80			810	13.0
1211+21.10	1211+57.60	TEN MILE CREEK RT.	14.80			810	13.0
1211+21.10	1211+57.60	TEN MILE CREEK		120.42		13777	70.0
1261+22.00	1261+58.50	CANEY CREEK LT.	14.80			810	13.0
1261+22.00	1261+58.50	CANEY CREEK RT.	14.80			810	13.0
1261+22.00	1261+58.50	CANEY CREEK		120.42		13777	70.0
1262+59.50	1262+96.00	CANEY CREEK LT.	14.80			810	13.0
1262+59.50	1262+96.00	CANEY CREEK RT.	14.80			810	13.0
1261+22.00	1261+58.50	CANEY CREEK		120.42		13777	70.0
TOTALS:			236.90	722.52	98.30	107182	685.2

NOTE: USE T =10" FOR 8' SHOULDER.

EARTHWORK

	STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	COMPACTED EMBANKMENT (SPECIAL)	* SOIL STABILIZATION
				CU. YD.		CU.YD.	TON
	ENTIRE	PROJECT	HWY. 70 - STAGE 1	194918	380611		
	ENTIRE	PROJECT	HWY. 70 - STAGE 2	241056	122443		
	480+71.92	483+89.08	ADDITIONAL FOR BRIDGE - CEDAR CREEK STRUCTURE	130			
	870+86.50	872+30.50	ADDITIONAL FOR BRIDGE - TEN MILE CREEK STRUCTURE	1090	450		
			BRATTON DRIVE		105		
			BARTEE TRAIL		295		
			BEUKAH STREET		140		
			FRANKIE ROAD		105		
			PAYTON PLACE		95		
			CLOUD 9 DRIVE		45		
			SCENIC RIDGE ROAD		340		
			SUMMIT RIDGE ROAD	743	360		
			CEDAR CREEK ROAD	140	435		
			COUNTY ROAD 369	15	35		
			COUNTY ROAD 1381		90		
	1000+00.00	1437+60.00	HWY. 70 - STAGE 1	220839	290824		
	1000+00.00	1437+60.00	HWY. 70 - STAGE 2	118261	118231		
	1207+88.90	1211+21.10	ADDITIONAL FOR BRIDGE - TEN MILE CREEK STRUCTURE	5250	860		
	1261+58.50	1262+59.50	ADDITIONAL FOR BRIDGE - CANEY CREEK STRUCTURE	1460	480		
	11+59.84	18+00.00	HWY. 128	181	5529		
	38+00.00	39+35.56	HWY. 88	194	1101		
	7+00.00	9+35.33	LONDSDALE CUTOFF	613	300		
	108+00.00	109+70.50	NANCE RD.	20	340		
	128+07.35	129+70.50	TEN MILE RD.		275		
	141+00.00	142+50.00	NARROWS RD.	24	3375		
	205+64.59	217+00.00	BROWNING ACCESS RD.	6573	1385	1369	
	210+58.25	212+00.00	BROWNING RD. WEST	1071	0		
	300+30.53	302+60.00	SMITH FORD RD.	64	863		
	330+80.00	336+00.00	FRONTAGE RD	2494	987		
*	ENTIRE	PROJECT	DRIVEWAYS	3055	12646		
*	ENTIRE	PROJECT	TO BE USED IF AND WHERE				2000
			DIRECTED BY THE ENGINEER				
	TOTALS:			798191	942745	1369	2000

* QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE A)	WIRE FENCE (TYPE D)	* 16'-0" GATES
			LIN. FT.		EACH
802+25	802+73	RT. OF HWY. 70		35	1
106+88	108+14	LT. OF NANCE RD.	138		
107+01	107+71	RT. OF NANCE RD.	70		
1164+49	1165+20	LT. OF HWY. 70	74		
141+27	143+18	LT. OF NARROWS RD.	221		
1177+03	1177+97	LT. OF HWY. 70	106		
1198+85	1199+19	LT. OF HWY. 70	75		1
1202+97	1203+20	LT. OF HWY. 70	12		1
1248+30	1248+95	RT. OF HWY. 70	85		
1298+99	1299+15	RT. OF HWY. 70	28		1
1300+37	1305+68	RT. OF HWY. 70	558		
1303+48	1303+79	LT. OF HWY. 70	60		
1309+70	1312+89	RT. OF HWY. 70	339		
1314+19	1315+96	RT. OF HWY. 70	184		
1318+36	1319+66	RT. OF HWY. 70	124		
1319+40	1319+64	LT. OF HWY. 70	68		
1362+45	1362+66	LT. OF HWY. 70	13		1
1371+77	1373+76	LT. OF HWY. 70	200		
301+81	303+00	RT. OF SMITH FORD RD.	134		
TOTALS:			2489	35	5

* DENOTES ALTERNATE BID ITEM.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
10-04-16

QUANTITIES

Leonard.Speed 10/4/2016 9:20:19 AM
WORKSPACE: Leonard.Speed
C:\vwbi_local\baker_projects\leonard.speed\d0424368\rCA0610_08_QYT_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	CA0610	219	888	

(2) QUANTITIES

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL														
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	DROP INLET SILT FENCE (E-7)	SILT FENCE (E-11)	DIVERSION DITCH (E-8)	TRIANGULAR SILT DIKE	SLOPE DRAIN (E-12) PIPE FOR SLOPE DRAINS	SLOPE DRAIN (E-12) DUMPED RIPRAP	SEDIMENT BASIN (E-9)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN. FT.	LIN. FT.	LIN. FT.	LIN.FT.	LIN. FT.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING	370.00	740.00	370.00	37740.0	370.00	370.00	370.00	7548.0												
ENTIRE	PROJECT	STAGE 1	118.00	236.00	118.00	12036.0	118.00	148.00	148.00	3019.2	13398	543	60	31284	1923		373	12	4534	9618	14152	5695
ENTIRE	PROJECT	STAGE 2	112.00	224.00	112.00	11424.0	112.00	142.00	142.00	2896.8	13002	723		23793	1004		541	14	7600	885	8485	8481
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.																1000			200	200	400	200
TOTALS:			**600.00**	**1200.00**	**600.00**	**61200.0**	**600.00**	**660.00**	**660.00**	**13464.0**	**26400**	**1266**	**60**	**55077**	**2927**	**1000**	**914**	**26**	**12334**	**10703**	**23037**	**14376**

BASIS OF ESTIMATE:
LIME.....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING.
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING.
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

NOTE: THE TEMPORARY EROSION CONTROL DEVICES SHOWN ABOVE AND ON THE PLANS SHALL BE INSTALLED IN SUCH A SEQUENCE AS TO DETER EROSION AND SEDIMENTATION ON U.S. WATERWAYS AS EXPLAINED BY THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT.

*QUANTITIES ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

WIRE ROPE SAFETY FENCE

STATION	STATION	LOCATION	WIRE ROPE SAFETY FENCE	WRSF END TERMINAL	DITCH PAVING LENGTH	DITCH PAVING WIDTH	DITCH PAVING CONCRETE DITCH PAVING (TYPE B)	DITCH PAVING SOLID SODDING	DITCH PAVING WATER	** WRSF POST REPAIR
			LIN. FT.	EACH	LIN. FT.	LIN. FT.	SQ. YD.	SQ. YD.	M. GAL.	EACH
471+00	480+78	HWY. 70 RT. OF L.M.L.	978	* 1	978	4	435	435	5.5	
471+00		END OF R&D WRSF SECTION		1						
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER										20
TOTALS:			**978**	**1**			**435**	**435**	**5.5**	**20**

WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.
* THIS ITEM IS SHOWN FOR INFORMATION ONLY
** QUANTITY ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

FLOWABLE SELECT MATERIAL

STATION	LOCATION	DESCRIPTION	CU. YD.
582+38	HWY. 70	PIPE CULVERT	19.82
1054+25	HWY. 70	PIPE CULVERT	17.64
1071+98	HWY. 70	BOX CULVERT	71.90
1096+65	HWY. 70	PIPE CULVERT	16.06
1108+41	HWY. 70	PIPE CULVERT	10.56
1114+67	HWY. 70	PIPE CULVERT	11.73
1195+31	HWY. 70	PIPE CULVERT	12.22
1235+46	HWY. 70	PIPE CULVERT	16.87
1240+95	HWY. 70	PIPE CULVERT	24.36
1279+33	HWY. 70	PIPE CULVERT	15.24
1319+31	HWY. 70	PIPE CULVERT	76.36
1337+62	HWY. 70	PIPE CULVERT	8.31
1377+59	HWY. 70	PIPE CULVERT	18.15
1398+07	HWY. 70	BOX CULVERT	136.11
1410+04	HWY. 70	PIPE CULVERT	12.92
1419+58	HWY. 70	PIPE CULVERT	15.94
1423+37	HWY. 70	PIPE CULVERT	21.76
1207+89	HWY. 70	BRIDGE END	41.70
1211+21	HWY. 70	BRIDGE END	41.70
1261+59	HWY. 70	BRIDGE END	41.70
1262+60	HWY. 70	BRIDGE END	41.70
14+45	HWY. 128	PIPE CULVERT	5.30
TOTAL:			**678.05**

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
559+90	HWY. 70 BOX CULVERT HEADWALL	1
586+50	HWY. 70 BOX CULVERT HEADWALL	1
610+75	HWY. 70 BOX CULVERT HEADWALL	1
631+00	HWY. 70 BOX CULVERT HEADWALL	1
642+50	HWY. 70 BOX CULVERT HEADWALL	1
662+50	HWY. 70 BOX CULVERT HEADWALL	1
675+25	HWY. 70 BOX CULVERT HEADWALL	1
717+90	HWY. 70 BOX CULVERT HEADWALL	1
768+20	HWY. 70 BOX CULVERT HEADWALL	1
781+75	HWY. 70 BOX CULVERT HEADWALL	1
851+00	HWY. 70 BOX CULVERT HEADWALL	1
874+00	HWY. 70 BOX CULVERT HEADWALL	1
883+65	HWY. 70 BOX CULVERT HEADWALL	1
919+75	HWY. 70 BOX CULVERT HEADWALL	1
973+00	HWY. 70 BOX CULVERT HEADWALL	1
1071+70	HWY. 70 BOX CULVERT HEADWALL	1
1090+20	HWY. 70 BOX CULVERT HEADWALL	1
1249+24	HWY. 70 BOX CULVERT HEADWALL	1
1294+05	HWY. 70 BOX CULVERT HEADWALL	1
1303+64	HWY. 70 BOX CULVERT HEADWALL	1
1319+50	HWY. 70 BOX CULVERT HEADWALL	1
1342+43	HWY. 70 BOX CULVERT HEADWALL	1
1397+50	HWY. 70 BOX CULVERT HEADWALL	1
TOTAL:		**23**

NOTE: SHOWN FOR INFORMATION ONLY. BENCH MARKS SHALL BE FURNISHED AND PLACED BY STATE FORCES.

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POSTS (TYPE 1)
			LIN. FT.	EACH		
478+67.17	480+60.92	HWY. 70 LT. OF L.M.L.	150	1		1
484+00.11	486+18.86	HWY. 70 LT. OF L.M.L.	150	1	1	
484+00.11	487+18.86	HWY. 70 RT. OF L.M.L.	150	1	1	
780+05.00	795+85.00	HWY. 70 LT. OF C.L.	1505		1	1
868+57.75	870+76.50	HWY. 70 RT. OF C.L.	150	1	1	
868+07.75	870+76.50	HWY. 70 LT. OF C.L.	225	1		1
872+40.50	873+34.25	HWY. 70 RT. OF C.L.	50	1		1
872+40.50	874+59.25	HWY. 70 LT. OF C.L.	150	1	1	
1206+86.15	1207+79.90	HWY. 70 LT. OF C.L.	50	1		1
1205+61.15	1207+79.90	HWY. 70 RT. OF C.L.	150	1	1	
1211+30.10	1212+23.85	HWY. 70 RT. OF C.L.	50	1		1
1211+30.10	1213+48.85	HWY. 70 LT. OF C.L.	150	1	1	
207+10.00	214+60.00	BROWNING ACCESS RD RT. OF C.L.	700			2
1259+29.75	1261+48.50	HWY. 70 RT. OF C.L.	150	1	1	
1260+54.75	1261+48.50	HWY. 70 LT. OF C.L.	50	1		1
1262+69.50	1264+88.25	HWY. 70 LT. OF C.L.	150	1	1	
1262+69.50	1263+63.25	HWY. 70 RT. OF C.L.	50	1		1
1304+00.00	1312+50.00	HWY. 70 LT. OF C.L.	775		1	1
TOTALS:			**4805**	**15**	**10**	**11**

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
483+80	981+00	HWY. 70	498	498
21+60	22+60	CEDAR CREEK ROAD	1	1
21+13	21+80	COUNTY ROAD 1381	1	1
1000+00	1437+60	HWY. 70	438	438
6+50	7+90	LONSDALE CUTOFF	2	2
11+10	18+00	HWY. 128	7	7
107+44	108+01	NANCE RD.	1	1
141+10	142+50	NARROWS RD.	2	2
215+20	217+26	BROWNING ACCESS	3	3
211+10	212+40	BROWNING RD.	2	2
302+30	302+60	SMITH FORD RD.	1	1
331+40	334+75	FRONTAGE RD.	4	4
TOTALS:			**960**	**960**

CONCRETE ISLAND

STATION	LOCATION	CURB FACE TYPE	CONCRETE ISLAND SQ.YD.
10+48	HWY. 128 LT. OF CL.	B	47
10+48	HWY. 128 RT. OF CL.	B	41
39+40	HWY. 88 LT. OF CL.	B	65
TOTAL:			**153**

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE A (1'-6")
			LIN. FT.
17+61	19+61	CROSSGATE CHURCH DR.	870
TOTAL:			**870**

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
10-4-2016

QUANTITIES

Leonard.Speed 10/4/2016 9:20:20 AM
WORKSPACE: Leonard.Speed
CONNECTION: Projects\Leonard.speed\d0424368\r-CA0610_08.OYT.001.dgn
REVISED DATE: **REVISED DATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	CA0610	220	888	

(2) QUANTITIES

CONCRETE DITCH PAVING (BOX 1 OF 2)

STATION	STATION	LOCATION	LENGTH	"W"	"B"	CONC. DITCH PAVING (TYPE A)	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	FEET	SQ. YD.	SQ. YD.	SQ. YD.	M. GAL.
484+25	488+00	MEDIAN	375.00	6			250.00	166.67	2.10
485+10	486+55	LT. OF LT. LANES	145.00	6			96.67	64.44	0.81
491+00	493+00	LT. OF HWY. 70	200.00	9			200.00	88.89	1.12
493+00	499+00	LT. OF HWY. 70	600.00	6			400.00	266.67	3.36
493+38	496+87	RT. OF HWY. 70	349.00	6			232.67	155.11	1.95
500+29	502+00	RT. OF HWY. 70	171.00	6			114.00	76.00	0.96
501+10	502+00	LT. OF HWY. 70	90.00	6			60.00	40.00	0.50
509+00	509+84	LT. OF HWY. 70	84.00	6			56.00	37.33	0.47
515+42	518+00	LT. OF HWY. 70	258.00	6			172.00	114.67	1.44
518+00	520+00	LT. OF HWY. 70	200.00	9			200.00	88.89	1.12
520+00	521+00	LT. OF HWY. 70	100.00	6			66.67	44.44	0.56
521+00	525+50	LT. OF HWY. 70	450.00	9			450.00	200.00	2.52
525+50	527+00	LT. OF HWY. 70	150.00	6			100.00	66.67	0.84
518+50	519+70	RT. OF HWY. 70	120.00	9			120.00	53.33	0.67
522+20	525+13	RT. OF HWY. 70	293.00	9			293.00	130.22	1.64
530+40	530+85	LT. OF HWY. 70	45.00	6			30.00	20.00	0.25
536+50	537+06	LT. OF HWY. 70	56.00	6			37.33	24.89	0.31
546+70	548+75	RT. OF HWY. 70	205.00	6			136.67	91.11	1.15
546+81	550+00	LT. OF HWY. 70	319.00	6			212.67	141.78	1.79
552+00	554+65	RT. OF HWY. 70	265.00	6			176.67	117.78	1.48
555+63	557+50	LT. OF HWY. 70	187.00	6			124.67	83.11	1.05
558+00	559+77	LT. OF HWY. 70	177.00	6			118.00	78.67	0.99
560+00	562+25	RT. OF HWY. 70	225.00	6			150.00	100.00	1.26
563+00	565+25	LT. OF HWY. 70	225.00	6			150.00	100.00	1.26
567+00	568+94	RT. OF HWY. 70	194.00	6			129.33	86.22	1.09
568+00	569+50	LT. OF HWY. 70	150.00	6			100.00	66.67	0.84
575+00	577+86	LT. OF HWY. 70	286.00	6			190.67	127.11	1.60
578+75	579+88	RT. OF HWY. 70	113.00	6			75.33	50.22	0.63
581+50	584+00	LT. OF HWY. 70	250.00	6			166.67	111.11	1.40
585+18	587+00	RT. OF HWY. 70	182.00	6			121.33	80.89	1.02
595+00	595+66	LT. OF HWY. 70	66.00	6			44.00	29.33	0.37
609+50	613+00	LT. OF HWY. 70	350.00	6			233.33	155.56	1.96
609+50	610+84	RT. OF HWY. 70	134.00	6			89.33	59.56	0.75
615+00	617+25	RT. OF HWY. 70	225.00	6			150.00	100.00	1.26
615+50	618+00	LT. OF HWY. 70	250.00	6			166.67	111.11	1.40
619+08	620+50	LT. OF HWY. 70	142.00	9			142.00	63.11	0.80
621+70	624+00	LT. OF HWY. 70	230.00	6			153.33	102.22	1.29
642+17	643+02	RT. OF HWY. 70	85.00	6			56.67	37.78	0.48
647+50	648+19	RT. OF HWY. 70	69.00	6			46.00	30.67	0.39
675+00	677+50	LT. OF HWY. 70	250.00	6			166.67	111.11	1.40
684+50	686+00	LT. OF HWY. 70	150.00	6			100.00	66.67	0.84
693+50	695+00	LT. OF HWY. 70	150.00	6			100.00	66.67	0.84
701+50	704+00	LT. OF HWY. 70	250.00	6			166.67	111.11	1.40
705+50	705+85	LT. OF HWY. 70	35.00	6			23.33	15.56	0.20
707+75	710+00	LT. OF HWY. 70	225.00	6			150.00	100.00	1.26
716+92	717+50	RT. OF HWY. 70	58.00	6			38.67	25.78	0.32
717+00	717+82	LT. OF HWY. 70	82.00	6			54.67	36.44	0.46
733+25	734+25	RT. OF HWY. 70	100.00	6			66.67	44.44	0.56
739+12	740+50	LT. OF HWY. 70	138.00	6			92.00	61.33	0.77
752+75	754+75	RT. OF HWY. 70	200.00	6			133.33	88.89	1.12
759+50	760+80	LT. OF HWY. 70	130.00	6			86.67	57.78	0.73
760+50	760+80	RT. OF HWY. 70	30.00	6			20.00	13.33	0.17
766+50	769+00	RT. OF HWY. 70	250.00	6			166.67	111.11	1.40
767+75	768+13	LT. OF HWY. 70	38.00	6			25.33	16.89	0.21
781+72	782+50	LT. OF HWY. 70	78.00	6			52.00	34.67	0.44
781+75	784+25	RT. OF HWY. 70	250.00	9			250.00	111.11	1.40
788+30	791+00	RT. OF HWY. 70	270.00	9			270.00	120.00	1.51
790+15	791+25	LT. OF HWY. 70	110.00	6			73.33	48.89	0.62
791+00	792+50	RT. OF HWY. 70	150.00	6			100.00	66.67	0.84
792+50	795+50	RT. OF HWY. 70	300.00	9			300.00	133.33	1.68
797+30	799+30	LT. OF HWY. 70	200.00	9			200.00	88.89	1.12
798+75	802+00	RT. OF HWY. 70	325.00	6			216.67	144.44	1.82
801+50	803+00	LT. OF HWY. 70	150.00	6			100.00	66.67	0.84
810+00	811+88	RT. OF HWY. 70	188.00	6			125.33	83.56	1.05
811+00	812+50	LT. OF HWY. 70	150.00	6			100.00	66.67	0.84
813+00	816+45	LT. OF HWY. 70	345.00	9			345.00	153.33	1.93
821+15	822+00	LT. OF HWY. 70	85.00	9			85.00	37.78	0.48
822+00	823+00	LT. OF HWY. 70	100.00	6			66.67	44.44	0.56
823+00	826+25	LT. OF HWY. 70	325.00	9			325.00	144.44	1.82
821+12	821+60	RT. OF HWY. 70	48.00	9			48.00	21.33	0.27
823+90	827+00	RT. OF HWY. 70	310.00	9			310.00	137.78	1.74
834+50	836+00	RT. OF HWY. 70	150.00	6			100.00	66.67	0.84
837+25	839+00	RT. OF HWY. 70	175.00	6			116.67	77.78	0.98
839+00	839+35	RT. OF HWY. 70	35.00	9			35.00	15.56	0.20
845+50	849+00	RT. OF HWY. 70	350.00	6			233.33	155.56	1.96
850+00	851+69	RT. OF HWY. 70	169.00	6			112.67	75.11	0.95
851+69	852+38	RT. OF HWY. 70	69.00	9			69.00	30.67	0.39
854+15	855+00	RT. OF HWY. 70	85.00	9			85.00	37.78	0.48
855+00	856+80	RT. OF HWY. 70	180.00	6			120.00	80.00	1.01
856+80	860+00	RT. OF HWY. 70	320.00	9			320.00	142.22	1.79
861+25	864+00	RT. OF HWY. 70	275.00	9			275.00	122.22	1.54
873+25	874+13	LT. OF HWY. 70	88.00	6			58.67	39.11	0.49
880+35	884+00	LT. OF HWY. 70	365.00	9			365.00	162.22	2.04
884+00	885+07	LT. OF HWY. 70	107.00	6			71.33	47.56	0.60
883+00	884+50	RT. OF HWY. 70	150.00	6			100.00	66.67	0.84
884+50	887+00	RT. OF HWY. 70	250.00	9			250.00	111.11	1.40
887+75	889+00	RT. OF HWY. 70	125.00	6			83.33	55.56	0.70
890+00	891+00	LT. OF HWY. 70	100.00	9			100.00	44.44	0.56
890+50	891+00	RT. OF HWY. 70	50.00	9			50.00	22.22	0.28
903+00	904+13	LT. OF HWY. 70	113.00	6			75.33	50.22	0.63
903+00	904+13	RT. OF HWY. 70	113.00	6			75.33	50.22	0.63
SUBTOTALS:							**12865.02**	**7446.24**	**93.83**

CONCRETE DITCH PAVING (BOX 2 OF 2)

STATION	STATION	LOCATION	LENGTH	"W"	"B"	CONC. DITCH PAVING (TYPE A)	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	FEET	SQ. YD.	SQ. YD.	SQ. YD.	M. GAL.
911+50	913+25	LT. OF HWY. 70	175.00	6			116.67	77.78	0.98
912+50	913+50	RT. OF HWY. 70	100.00	6			66.67	44.44	0.56
919+50	920+50	LT. OF HWY. 70	100.00	6			66.67	44.44	0.56
920+50	920+77	RT. OF HWY. 70	27.00	6			18.00	12.00	0.15
952+45	958+10	RT. OF HWY. 70	565.00	9			565.00	251.11	3.16
960+00	961+03	RT. OF HWY. 70	103.00	6			68.67	45.78	0.58
963+60	963+97	LT. OF HWY. 70	37.00	6			24.67	16.44	0.21
966+25	968+14	LT. OF HWY. 70	189.00	9			189.00	84.00	1.06
966+25	968+14	RT. OF HWY. 70	189.00	9			189.00	84.00	1.06
971+50	972+00	LT. OF HWY. 70	50.00	6			33.33	22.22	0.28
972+00	972+83	LT. OF HWY. 70	83.00	13.5	7.5	124.50		36.89	0.46
975+25	976+75	RT. OF HWY. 70	150.00	6			100.00	66.67	0.84
975+90	978+00	LT. OF HWY. 70	210.00	6			140.00	93.33	1.18
980+62	981+19	RT. OF HWY. 70	57.00	9			57.00	25.33	0.32
22+02	22+60	RT. OF CEDAR CREEK ROAD	58.00	6			38.67	25.78	0.32
1000+00	1002+00	RT. OF HWY. 70.	200.00	9			200.00	88.89	1.12
1005+50	1008+00	RT. OF HWY. 70.	250.00	6			166.67	111.11	1.40
1007+25	1008+50	LT. OF HWY. 70.	125.00	6			83.33	55.56	0.70
1009+50	1010+00	LT. OF HWY. 70.	50.00	6			33.33	22.22	0.28
1010+00	1011+25	LT. OF HWY. 70.	125.00	6			83.33	55.56	0.70
1011+37	1013+75	RT. OF HWY. 70.	238.00	6			158.67	105.78	1.33
1019+20	1020+20	RT. OF HWY. 70.	100.00	6			66.67	44.44	0.56
1027+44	1028+35	RT. OF HWY. 70.	91.00	6			60.67	40.44	0.51
1028+99	1030+00	LT. OF HWY. 70.	101.00	9			101.00	44.89	0.57
1046+75	1052+00	LT. OF HWY. 70.	525.00	6			350.00	233.33	2.94
1050+25	1054+18	RT. OF HWY. 70.	393.00	6			262.00	174.67	2.20
1066+30	1067+00	LT. OF HWY. 70.	70.00	6			46.67	31.11	0.39
1067+50	1070+00	RT. OF HWY. 70.	250.00	6			166.67	111.11	1.40
1070+00	1072+00	RT. OF HWY. 70.	200.00	6			133.33	88.89	1.12
1079+60	1080+60	LT. OF HWY. 70.	100.00	6			66.67	44.44	0.56
1087+75	1089+76	RT. OF HWY. 70.	201.00	6			134.00	89.33	1.13
1088+00	1089+66	LT. OF HWY. 70.	166.00	6			110.67	73.78	0.93
1090+11	1090+44	LT. OF HWY. 70.	33.00	6			22.00	14.67	0.18
1096+64	1100+00	LT. OF HWY. 70.	336.00	6			224.00	149.33	1.88
1100+00	1101+00	LT. OF HWY. 70.	100.00	6			66.67	44.44	0.56
1108+60	1109+00	LT. OF HWY. 70.	40.00	6			26.67	17.78	0.22
1114+02	1114+26	LT. OF HWY. 70.	24.00	6			16.00	10.67	0.13
1120+55	1121+83	RT. OF HWY. 70.	128.00	6			85.33	56.89	0.72
1124+98	1125+52	RT. OF HWY. 70.	54.00	6			36.00	24.00	0.30
1124+00	1125+88	LT. OF HWY. 70.	188.00	6			125.33	83.56	1.05
1126+50	1127+00	LT. OF HWY. 70.	50.00	6			33.33	22.22	0.28
1132+00	1135+00	LT. OF HWY. 70.	300.00	6			200.00	133.33	1.68
1170+75	1172+00	RT. OF HWY. 70.	125.00	6			83.33	55.56	0.70
1179+25	1180+78	LT. OF HWY. 70.	153.00	9			153.00	68.00	0.86
1180+00	1182+36	RT. OF HWY. 70.	236.00	6			157.33	104.89	1.32
1182+00	1182+80	LT. OF HWY. 70.	80.00	6			53.33	35.56	0.45
1182+80	1186+00	LT. OF HWY. 70.	320.00	9			320.00	142.22	1.79
1184+00	1185+75	RT. OF HWY. 70.	175.00	6			116.67	77.78	0.98
1186+00	1187+60	LT. OF HWY. 70.	160.00	6			106.67	71.11	0.90
1186+37	1187+75	RT. OF HWY. 70.	138.00	6			92.00	61.33	0.77
1188+00	1188+50	LT. OF HWY. 70.	50.00	9			50.00	22.22	0.28
1194+00	1194+14	LT. OF HWY. 70.	14.00	6			9.33	6.22	0.08
1194+62	1194+85	LT. OF HWY. 70.	23.00	6			15.33	10.22	0.13
1194+85	1196+65	LT. OF HWY. 70.	180.00	9			180.00	80.00	1.01
1197+20	1197+81	LT. OF HWY. 70.	61.00	9			61.00	27.11	0.34
1195+16	1197+25	RT. OF HWY. 70.	209.00	6			139.33	92.89	1.17
1214+25	1216+50	RT. OF HWY. 70.	225.00	9			225.00	100.00	1.26
1216+26	1216+70	LT. OF HWY. 70.	44.00	6			29.33	19.56	0.25
1219+42	1220+00	LT. OF HWY. 70.	58.00	9			58.00	25.78	0.32
1217+11	1217+30	RT. OF HWY. 70.	19.00	6			12.67	8.44	0.11
1218+01	1218+75	RT. OF HWY. 70.	74.00	6			49.33	32.89	0.41
1220+00	1224+20	LT. OF HWY. 70.	420.00	9			420.00	186.67	2.35
1233+00	1234+00	LT. OF HWY. 70.	100.00	6			66.67	44.44	0.56
1235+00	1235+55	LT. OF HWY. 70.	55.00	6			36.67	24.44	0.31
1241+00	1242+20	LT. OF HWY. 70.	120.00	6			80.00	53.33	0.67
1259+40	1260+50	LT. OF HWY. 70.	110.00	6			73.33	48.89	0.62
1303+80	1310+00	LT. OF HWY. 70.	620.00	6			413.33	275.56	3.47
1310+00	1312+50	LT. OF HWY. 70.	250.00	6			166.67	111.11	1.40
1318+20	1319+50	LT. OF HWY. 70.	130.00	6			86.67	57.78	0.73
1362+00	1367+50	RT. OF HWY. 70.	550.00	9			550.00	244.44	3.08
1367+46	1367+81	LT. OF HWY. 70.	35.00	9			35.00	15.56	0.20
1368+16	1370+00	LT. OF HWY. 70.	184.00	9			184.00	81.78	1.03
1370+00	1372+00	LT. OF HWY. 70.	200.00	9			200.00	88.89	1.12
1383+40	1385+00	RT. OF HWY. 70.	160.00	9			160.00	71.11	0.90
1385+00	1388+00	RT. OF HWY. 70.	300.00	6			200.00	133.33	1.68
1386+72	1386+89	LT. OF HWY. 70.	17.00	9			17.00	7.56	0.10
1386+89	1388+54	LT. OF HWY. 70.	165.00	6			110.00	73.33	0.92
1388+53	1389+50	RT. OF HWY. 70.	97.00	6			64.67	43.11	0.54
1409+68	1411+00	LT. OF HWY. 70.	132.00	6			88.00	58.67	0.74
1419+50	1421+00	LT. OF HWY. 70.	150.00	6			100.00	66.67	0.84
1434+00	1435+00	LT. OF HWY. 70.	100.00	6			66.67	44.44	0.56
142+30	142+50	RT. OF NARROWS RD.	20.00	6			13.33	8.89	0.11
216+08	216+50	LT. OF BROWNING ACCESS RD.	42.00	6			28.00	18.67	0.24
330+80	331+31	LT. OF FRONTAGE RD.	51.00	6			34.00	22.67	0.29
330+80	332+66	RT. OF FRONTAGE RD.	186.00	6			124.00	82.67	1.04
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			2937.28	6			1958.19	1305.46	16.45
SUBTOTALS:						**124.50**	**11920.21**	**7113.90**	**89.64**
TOTALS:						**124.50**	**24785.23**	**14560.14**	**183.47**

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.

*QUANTITIES ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

QUANTITIES

Leonard.Speed 9/23/2016 2:02:12 PM
WORKSPACE: Leonard.Speed
c:\pw\ei-local\baker_projects\leonard.speed\d0424368\rCA0610_08_QTY_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	221	888
					(2) QUANTITIES				

STRUCTURES (BOX 1 OF 3)

STATION	LOCATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18"	24"	30"	36"	42"	48"	60"	(CLASS IV) 36"	42"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 24"	30"	36"	42"	48"	SAFETY END SECTIONS FOR R.C. PIPE CULVERTS 18"	TEMPORARY CULVERT 24"	72"	DROP INLETS TYPE C	RM	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
			LIN. FT.									EACH					EACH	LIN. FT.		EACH		LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL	
473+05	HWY. 70	TEMPORARY MEDIAN CROSSOVER																380												PCM-1, PCP-1, PCP-2
493+38	HWY. 70	EXT. R.C. PIPE 15' LT. & 24' RT.		43								2																10	0.13	FES-1, FES-2, PCC-1
496+87	HWY. 70	EXT. R.C. PIPE 13' LT. & 43' RT.								34				2														26	0.33	FES-1, FES-2, PCC-1
500+73	HWY. 70	EXT. R.C. PIPE 14' LT. & 54' RT.				76								2														26	0.33	FES-1, FES-2, PCC-1
509+84	HWY. 70	EXT. R.C. PIPE 19' LT. & 61' RT.			88								2															16	0.20	FES-1, FES-2, PCC-1
514+35	HWY. 70	6X8 EXTEND RT.																				6	8	171	166.27	19376	58	15	0.19	R-100X-X1, R-130X-1 , W-X303-1, RCB-1, RCB-2, RCB-3
514+35	HWY. 70	6X8 EXTEND LT.																	50			6	8	112	105.70	12107	37	15	0.19	R-100X-X1, R-130X-1 , W-X303-1, RCB-1, RCB-2, RCB-3
520+26	HWY. 70	EXT. R.C. PIPE 124' LT		124								1																5	0.06	FES-1, FES-2, PCC-1
525+74	HWY. 70	EXT. R.C. PIPE 95' RT.		95								1																5	0.06	FES-1, FES-2, PCC-1
531+16	HWY. 70	EXT. R.C. PIPE 15' LT.		33								1																5	0.06	FES-1, FES-2, PCC-1
537+06	HWY. 70	EXT. R.C. PIPE 25' LT.		42								1																5	0.06	FES-1, FES-2, PCC-1
541+83	HWY. 70	EXT. R.C. PIPE 109' LT.			109								1															8	0.10	FES-1, FES-2, PCC-1
546+81	HWY. 70	EXT. R.C. PIPE 13' LT. & 35' RT.				56								2						4	2							26	0.33	FES-1, FES-2, PCC-1
555+17	HWY. 70	EXT. R.C. PIPE 29' LT. & 34' RT.		71								2																10	0.13	FES-1, FES-2, PCC-1
560+62	HWY. 70	4X6 EXTEND LT.																				4	6	66	40.44	3166	14	12	0.15	R-100X-X1, R-145X-1, W-X453-1, RCB-1, RCB-2, RCB-3
560+62	HWY. 70	4X6 EXTEND RT.																				4	6	104	87.37	4720	21	12	0.15	R-100X-X1, R-145X-1, W-X453-1, RCB-1, RCB-2, RCB-3
564+96	HWY. 70	EXT. R.C. PIPE 27' LT.				31								1														13	0.16	FES-1, FES-2, PCC-1
568+94	HWY. 70	EXT. R.C. PIPE 18' LT. & 9' RT.						31								2												46	0.58	FES-1, FES-2, PCC-1
575+91	HWY. 70	EXT. R.C. PIPE 10' LT. & 48' RT.		62								2																10	0.13	FES-1, FES-2, PCC-1
577+38	HWY. 70	EXT. R.C. PIPE 19' LT. & 18' RT.						41								2												46	0.58	FES-1, FES-2, PCC-1
582+00	HWY. 70	INSTALL R.C. PIPE			133								2															16	0.20	FES-1, FES-2, PCC-1
582+38	HWY. 70	TEMP. EXT. PIPE CULV. 30' RT.			79																									PCC-1
585+86	HWY. 70	4X6 EXTEND RT.																				4	6	55	52.39	3948	19	12	0.15	R-100X-X1, R-130X-1, W-X303-1, RCB-1, RCB-2, RCB-3
585+86	HWY. 70	4X6 EXTEND LT.																				4	6	92	35.11	2521	12	12	0.15	R-100X-X1, R-130X-1, W-X303-1, RCB-1, RCB-2, RCB-3
595+66	HWY. 70	EXT. R.C. PIPE 15' LT. & 15' RT.					34								2													34	0.43	FPC-9D, FES-1, FES-2, PCC-1
606+25	HWY. 70	EXT. R.C. PIPE 18' LT. & 28' RT.					50								2													34	0.43	FES-1, FES-2, PCC-1
611+36	HWY. 70	4X6 EXTEND RT.																				4	6	38	28.11	1873	10	12	0.15	R-100X-X1, R-130X-1, W-X303-1, RCB-1, RCB-2, RCB-3
611+36	HWY. 70	4X6 EXTEND LT.																				4	6	78	45.85	3415	16	12	0.15	R-100X-X1, R-130X-1, W-X303-1, RCB-1, RCB-2, RCB-3
616+03	HWY. 70	EXT. R.C. PIPE 14' LT. & 25' RT.					43								2													34	0.43	FES-1, FES-2, PCC-1
622+00	HWY. 70	EXT. R.C. PIPE 17' LT. & 25' RT.									46				2													34	0.43	PCC-1, FPC-9D
648+19	HWY. 70	EXT. R.C. PIPE 4' LT. & 43' RT.						51								2												46	0.58	FES-1, FES-2, PCC-1
652+17	HWY. 70	EXT. R.C. PIPE 21' LT. & 27' RT.						52								2												46	0.58	FES-1, FES-2, PCC-1
675+90	HWY. 70	10X10 CONSTRUCT 3:1 WINGS RT.																				10	10		25.86	1900	7	14	0.18	W-X303-2, RCB-1, RCB-2, RCB-3
675+90	HWY. 70	10X10 EXTEND LT.																				10	10	28	64.81	5010	18	14	0.18	W-X303-2, R-130X-0, RCB-1, RCB-2, RCB-3
684+40	HWY. 70	EXT. R.C. PIPE 21' LT. & 37' RT.			62								2															16	0.20	FES-1, FES-2, PCC-1
693+88	HWY. 70	EXT. R.C. PIPE 12' LT. & 20' RT.					36								2													34	0.43	FES-1, FES-2, PCC-1
702+41	HWY. 70	EXT. R.C. PIPE 16' LT. & 31' RT.					55								2													34	0.43	FES-1, FES-2, PCC-1
705+85	HWY. 70	EXT. R.C. PIPE 26' LT. & 32' RT.									66				2													34	0.43	FES-1, FES-2, PCC-1
708+43	HWY. 70	EXT. R.C. PIPE 28' LT. & 22' RT.					58								2													34	0.43	FES-1, FES-2, PCC-1
717+38	HWY. 70	4X6 EXTEND RT.																				4	6	24	20.80	1321	8	12	0.15	W-X303-1, R-130X-0, RCB-1, RCB-2, RCB-3
717+38	HWY. 70	4X6 EXTEND LT.																				4	6	35	26.02	1758	9	12	0.15	W-X303-1, R-130X-0, RCB-1, RCB-2, RCB-3
731+51	HWY. 70	EXT. R.C. PIPE 17' LT. & 17' RT.		42								2																10	0.13	FES-1, FES-2, PCC-1
733+56	HWY. 70	EXT. R.C. PIPE 18' LT. & 22' RT.				48								2														26	0.33	FES-1, FES-2, PCC-1
738+71	HWY. 70	EXT. R.C. PIPE 36' LT. & 27' RT.						71								2												46	0.58	FES-1, FES-2, PCC-1
753+21	HWY. 70	EXT. R.C. PIPE 13' LT. & 26' RT.					43								2													34	0.43	FES-1, FES-2, PCC-1
760+80	HWY. 70	4X4 EXTEND LT.																				4	4	48	20.91	1783	10	7	0.09	W-X003-1, R-100X-X1, RCB-1, RCB-2, RCB-3
760+80	HWY. 70	4X4 EXTEND RT.																				4	4	75	30.34	2808	14	7	0.09	W-X003-1, R-100X-X1, RCB-1, RCB-2, RCB-3
768+13	HWY. 70	4X6 EXTEND LT.																				4	6	16	14.75	836	6	10	0.13	W-X003-1, R-100X-X1, RCB-1, RCB-2, RCB-3
768+13	HWY. 70	4X6 EXTEND RT.																				4	6	13	13.35	739	5	10	0.13	W-X003-1, R-100X-X1, RCB-1, RCB-2, RCB-3
780+83	HWY. 70	DBL. 6X6 EXTEND RT.																				6	6	54	42.82	8199	31	15	0.19	W-X453-1, R-245X-1, RCB-1, RCB-2, RCB-3
780+83	HWY. 70	DBL. 6X6 EXTEND LT.																				6	6	60	46.37	7430	27	15	0.19	W-X453-1, R-245X-1, RCB-1, RCB-2, RCB-3
790+83	HWY. 70	EXT. R.C. PIPE 32' LT. & 29' RT.		65								2																10	0.13	FES-1, FES-2, PCC-1
795+20	HWY. 70	EXT. R.C. PIPE 63' RT.			63								1															8	0.10	FES-1, FES-2, PCC-1
SUBTOTALS:				**577**	**534**	**211**	**319**	**246**		**34**	**112**	**14**	**8**	**9**	**18**	**10**		**380**	**50**	**4**	**2**				**867.27**	**82910**	**322**	**1005**	**12.70**	
STRUCTURES OVER 20' - 0" SPAN																														
630+85	HWY. 70	DBL. 10X10 EXTEND LT.																				10	10	14	50.52	5420	23	18	0.23	W-X002-2, R-200X-X2, RCB-1, RCB-2, RCB-3
630+85	HWY. 70	DBL. 10X10 EXTEND RT.																				10	10	68	187.90	22309	70	18	0.23	W-X002-2, R-200X-X2, RCB-1, RCB-2, RCB-3
642+75	HWY. 70	DBL. 12X10 EXTEND RT.																				12	10	84	290.52	2538	115	45	0.57	W-X303-2, R-230X-2, RCB-1, RCB-2, RCB-3
663+62	HWY. 70	DBL. 10X10 EXTEND LT.																				10	10	49	152.55	17195	58	23	0.29	W-X453-2, R-245X-2, RCB-1, RCB-2, RCB-3
663+62	HWY. 70	DBL. 10X10 EXTEND RT.																				10	10	36	119.48	13167	46	23	0.29	W-X453-2, R-245X-2, RCB-1, RCB-2, RCB-4
SUBTOTALS:																									**800.97**	**60629**	**312**	**127**	**1.61**	

BASIS OF ESTIMATE:
WATER....................................12.6 GAL. / SQ. YD. OF SOLID SODDING.
NOTE: FOR R.C. PIPE CULVERT. INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
NOTE: FOR C.M. PIPE CULVERT. INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY
10-4-2016

QUANTITIES

Leonard.Speed 10/4/2016 9:20:22 AM
WORKSPACE: Leonard.Speed
c:\pwworking\baker_projects\leonard.speed\d0424368\rCA0610_08_QT_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	222	888

(2) QUANTITIES

STRUCTURES (BOX 2 OF 3)

STATION	LOCATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT									FLARED END SECTIONS FOR R.C. PIPE CULVERTS					SAFETY END SECTIONS FOR R.C. PIPE CULVERTS	TEMPORARY CULVERT		DROP INLETS		SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
			CLASS III						(CLASS IV)											TYPE										
			18"	24"	30"	36"	42"	48"	60"	36"	42	24"	30"	36"	42"	48"	18"	24"	72"	C	RM									
			LIN. FT.									EACH					EACH	LIN. FT.		EACH			LIN. FT.		CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL	
801+49	HWY. 70	EXT. R.C. PIPE 31' LT. & 24' RT.		59								2																10	0.13	FES-1, FES-2, PCC-1
811+80	HWY. 70	EXT. R.C. PIPE 6' LT.			10								1															8	0.10	FES-1, FES-2, PCC-1
811+88	HWY. 70	RT. OF C.L.											1															8	0.10	FES-1, FES-2, PCC-1
818+24	HWY. 70	RETAIN																										17	0.21	FES-1, FES-2, PCC-1
822+65	HWY. 70	EXT. R.C. PIPE 21' LT. & 12' RT.			37								1															8	0.10	FES-1, FES-2, PCC-1
835+79	HWY. 70	EXT. R.C. PIPE 21' RT.						21								1												23	0.29	FES-1, FES-2, PCC-1
838+44	HWY. 70	EXT. R.C. PIPE 3' LT. & 29' RT.			36								2															16	0.20	FES-1, FES-2, PCC-1
851+08	HWY. 70	DBL. 5X4 EXTEND LT.																				5	4	4	7.71	563	4	9	0.11	W-X003-1, R-200X-X1, RCB-1, RCB-2, RCB-3
851+08	HWY. 70	DBL. 5X4 EXTEND RT.																				5	4	44	36.31	4697	16	9	0.11	W-X003-1, R-200X-X1, RCB-1, RCB-2, RCB-3
856+51	HWY. 70	EXT. R.C. PIPE 39' RT.					43								1													17	0.21	FES-1, FES-2, PCC-1
874+56	HWY. 70	4X4 EXTEND LT.																				4	4	11	9.23	544	5	9	0.11	W-X303-1, R-130X-1, RCB-1, RCB-2, RCB-3
874+56	HWY. 70	4X4 EXTEND RT.																				4	4	55	24.59	1980	12	9	0.11	W-X303-1, R-130X-1, RCB-1, RCB-2, RCB-3
884+19	HWY. 70	4X4 EXTEND RT.																				4	4	21	12.72	835	6	9	0.11	W-X303-1, R-130X-1, RCB-1, RCB-2, RCB-3
884+19	HWY. 70	4X4 EXTEND LT.																				4	4	20	12.37	867	6	9	0.11	W-X303-1, R-130X-1, RCB-1, RCB-2, RCB-3
887+41	HWY. 70	EXT. R.C. PIPE 51' RT.		51								1																5	0.06	FES-1, FES-2, PCC-1
895+68	HWY. 70	EXT. R.C. PIPE 9' LT. & 29' RT.				42								2														26	0.33	FES-1, FES-2, PCC-1
897+89	HWY. 70	EXT. R.C. PIPE 5' LT. & 41' RT.		50								2																10	0.13	FES-1, FES-2, PCC-1
904+13	HWY. 70	EXT. R.C. PIPE 12' LT. & 36' RT.			52								2															16	0.20	FES-1, FES-2, PCC-1
913+21	HWY. 70	EXT. R.C. PIPE 17' LT. & 37' RT.					58								2													34	0.43	FES-1, FES-2, PCC-1
920+28	HWY. 70	4X6 EXTEND LT.																				4	6	14	15.96	940	5	9	0.11	W-X303-1, R-130X-1, RCB-1, RCB-2, RCB-3
920+28	HWY. 70	4X6 EXTEND RT.																				4	6	18	17.83	1093	6	9	0.11	W-X303-1, R-130X-1, RCB-1, RCB-2, RCB-3
922+70	HWY. 70	EXT. R.C. PIPE 7' LT. & 39' RT.		50								2																10	0.13	FES-1, FES-2, PCC-1
927+09	HWY. 70	EXT. R.C. PIPE 14' LT. & 33' RT.				51								2														26	0.33	FES-1, FES-2, PCC-1
936+69	HWY. 70	EXT. R.C. PIPE 20' LT. & 11' RT.					35								2													34	0.43	FES-1, FES-2, PCC-1
942+67	HWY. 70	EXT. R.C. PIPE 25' LT. & 16' RT.					45								2													34	0.43	FES-1, FES-2, PCC-1
960+55	HWY. 70	EXT. R.C. PIPE 25' LT. & 0' RT.						25								2												46	0.58	FES-1, FES-2, PCC-1
963+97	HWY. 70	EXT. R.C. PIPE 31' LT. & 15' RT.		54								2																10	0.13	FES-1, FES-2, PCC-1
972+14	HWY. 70	10X10 EXTEND RT.																				10	10	3	30.09	2366	12	14	0.18	W-X303-2, R-130X-1, RCB-1, RCB-2, RCB-3
972+14	HWY. 70	10X10 EXTEND LT.																				10	10	47	92.08	9243	35	14	0.18	W-X303-2, R-130X-1, RCB-1, RCB-2, RCB-3
976+29	HWY. 70	EXT. R.C. PIPE 31' LT. & 16' RT.						51								2												46	0.58	FES-1, FES-2, PCC-1
1006+98	HWY. 70	EXT. R.C. PIPE 38' LT.		42								1																8	0.10	FES-1, FES-2, PCC-1
1006+98	HWY. 70	EXT. R.C. PIPE 5' RT.		5								1																8	0.10	FES-1, FES-2, PCC-1
1010+96	HWY. 70	EXT. R.C. PIPE 33' LT.		37								1																8	0.10	FES-1, FES-2, PCC-1
1010+96	HWY. 70	EXT. R.C. PIPE 32' RT.		12								1																8	0.10	FES-1, FES-2, PCC-1
1019+20	HWY. 70	EXT. R.C. PIPE 30' LT.		34								1																8	0.10	FES-1, FES-2, PCC-1
1019+20	HWY. 70	EXT. R.C. PIPE 11' RT.		11								1																8	0.10	FES-1, FES-2, PCC-1
1027+44	HWY. 70	EXT. R.C. PIPE 42' LT.		46								1																8	0.10	FES-1, FES-2, PCC-1
1027+44	HWY. 70	EXT. R.C. PIPE 21' RT.		21								1																8	0.10	FES-1, FES-2, PCC-1
1054+18	HWY. 70	134' R.C. PIPE			134								2															26	0.33	FES-1, FES-2, PCC-1
1054+25	HWY. 70	TEMP. EXT. PIPE CULV. 19' RT.			19																									PCC-1
1071+70	HWY. 70	5X4 BOX CULVERT																				5	4	138	73.25	5863	55	15	0.19	SPECIAL DETAIL SHEET 25-26, RCB-1, RCB-2
1080+73	HWY. 70	EXT. R.C. PIPE 35' LT.		39								1																8	0.10	FES-1, FES-2, PCC-1
1080+73	HWY. 70	EXT. R.C. PIPE 23' RT.		23								1																8	0.10	FES-1, FES-2, PCC-1
1090+20	HWY. 70	DBL. 6X4 EXTEND LT																				6	4	41	42.51	6701	21	12	0.15	W-X303-1, R-230X-01, RCB-1, RCB-2, RCB-3
1090+20	HWY. 70	DBL. 6X4 EXTEND RT																				6	4	42	43.39	6855	21	12	0.15	W-X303-1, R-230X-01, RCB-1, RCB-2, RCB-3
1096+65	HWY. 70	TEMP. EXT. PIPE CULV. 34' RT.		34																										PCC-1
1097+00	HWY. 70	160' R.C. PIPE			160								2															26	0.33	FES-1, FES-2, PCC-1
1108+41	HWY. 70	TEMP. EXT. PIPE CULV. 40' RT. & 12' LT.		52																										PCC-1
1108+70	HWY. 70	162' R.C. PIPE		162								2																16	0.20	FES-1, FES-2, PCC-1
1114+47	HWY. 70	179' R.C. PIPE		179								2																16	0.20	FES-1, FES-2, PCC-1
1114+67	HWY. 70	TEMP. EXT. PIPE CULV. 37' RT.		37																										PCC-1
1121+03	HWY. 70	EXT. R.C. PIPE 21' LT.		25								1																8	0.10	FES-1, FES-2, PCC-1
1121+03	HWY. 70	EXT. R.C. PIPE 46' RT.		50								1																8	0.10	FES-1, FES-2, PCC-1
SUBTOTALS:				**1073**	**448**	**93**	**181**	**97**				**25**	**11**	**4**	**7**	**5**									**418.04**	**42547**	**204**	**723**	**9.09**	

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.

NOTE: FOR R.C. PIPE CULVERT. INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.

NOTE: FOR C.M. PIPE CULVERT. INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
10-4-2016

QUANTITIES

Leonard.Speed 10/4/2016 9:20:23 AM
WORKSPACE: Leonard.Speed
c:\pw\bl-local\baker_projects\leonard.speed\d0424368\r-CA0610_08_QYT_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	223	888

(2) QUANTITIES

STRUCTURES (BOX 3 OF 3)

STATION	LOCATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT CLASS III 18"	24"	30"	36"	42"	48"	60"	(CLASS IV) 36"	42"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 24"	30"	36"	42"	48"	SAFETY END SECTIONS FOR R.C. PIPE CULVERTS 18"	TEMPORARY CULVERT 24"	72"	DROP INLETS TYPE C	RM	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
			LIN. FT.									EACH					EACH	LIN. FT.		EACH		LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL	
1125+25	HWY. 70	EXT. R.C. PIPE 30' LT.		34								1																8	0.10	FPC-9D, FES-1, FES-2, PCC-1
1125+25	HWY. 70	EXT. R.C. PIPE 41' RT.		45								1																8	0.10	FES-1, FES-2, PCC-1
1134+22	HWY. 70	EXT. R.C. PIPE 26' LT.			32								1															13	0.16	FES-1, FES-2, PCC-1
1134+22	HWY. 70	EXT. R.C. PIPE 48' RT.			52								1															13	0.16	FES-1, FES-2, PCC-1
1152+15	HWY. 70	EXT. R.C. PIPE 4' LT.		4																	1							6	0.08	PCC-1, FPC-9D
1152+15	HWY. 70	EXT. R.C. PIPE 64' RT.		68								1																8	0.10	FES-1, FES-2, PCC-1
1182+20	HWY. 70	EXT. R.C. PIPE 22' LT.		26								1																8	0.10	FES-1, FES-2, PCC-1
1182+20	HWY. 70	EXT. R.C. PIPE 43' RT.		47								1																8	0.10	FES-1, FES-2, PCC-1
1187+60	HWY. 70	EXT. R.C. PIPE 22' LT.		26								1																8	0.10	FES-1, FES-2, PCC-1
1187+60	HWY. 70	EXT. R.C. PIPE 40' RT.		44								1																8	0.10	FES-1, FES-2, PCC-1
1195+08	HWY. 70	140' R.C. PIPE		140								2																16	0.20	FES-1, FES-2, PCC-1
1195+31	HWY. 70	TEMP. EXT. PIPE CULV. 34' RT. & 14' LT.		48																										PCC-1
1216+70	HWY. 70	EXT. R.C. PIPE 4' LT.			8								1															13	0.16	FES-1, FES-2, PCC-1
1216+70	HWY. 70	EXT. R.C. PIPE 79' RT.			83								1															13	0.16	FES-1, FES-2, PCC-1
1235+46	HWY. 70	TEMP. EXT. PIPE CULV. 64' RT.		64																										PCC-1
1235+70	HWY. 70	165' R.C. PIPE		165								2																16	0.20	FES-1, FES-2, PCC-1
1240+95	HWY. 70	TEMP. EXT. PIPE CULV. 65' RT.			65																									PCC-1
1242+20	HWY. 70	145' R.C. PIPE			145								2															26	0.33	FES-1, FES-2, PCC-1
1249+24	HWY. 70	6X5 EXTEND RT																				6	5	74	45.09	4947	11	11	0.14	W-X453-1, R-145X-1, RCB-1, RCB-2, RCB-3, R100X-X2
1249+24	HWY. 70	6X5 EXTEND LT																				6	5	18	16.59	1454	24	11	0.14	W-X453-1, R-145X-1, RCB-1, RCB-2, RCB-3
1271+00	HWY. 70	129' R.C. PIPE		129								2																16	0.20	FES-1, FES-2, PCC-1
1279+33	HWY. 70	TEMP. EXT. PIPE CULV. 62' RT.		62																										PCC-1
1279+43	HWY. 70	130' R.C. PIPE				130								2														34	0.43	FES-1, FES-2, PCC-1
1294+05	HWY. 70	DBL. 8X4 EXTEND LT																				8	4	22	31.34	5060	19	10	0.13	W-X003-1, R-200X-0, RCB-1, RCB-2, RCB-3
1294+05	HWY. 70	DBL. 8X4 EXTEND RT																				8	4	71	88.87	15512	44	10	0.13	W-X003-1, R-200X-0, RCB-1, RCB-2, RCB-3
1303+64	HWY. 70	DBL. 8X4 EXTEND LT																				8	4	18	28.61	3508	17	10	0.13	W-X003-1, R-200X-X4, RCB-1, RCB-2, RCB-3
1303+64	HWY. 70	DBL 8X4 EXTEND RT																				8	4	75	106.97	14006	54	10	0.13	W-X003-1, R-200X-X4, RCB-1, RCB-2, RCB-3
1319+31	HWY. 70	TEMP. EXT. BOX CULV. 39' RT.							39																					PCC-1
1319+50	HWY. 70	4X6 BOX CULVERT																				4	6	125	76.56	8112	36	18	0.23	SPECIAL DETAIL SHEET 27-28, RCB-1, RCB-2
1397+50	HWY. 70	7x5 BOX CULVERT																				7	5	211	147.18	16813	90	18	0.23	SPECIAL DETAIL SHEET 29-30, RCB-1, RCB-2
1326+17	HWY. 70	EXT. R.C. PIPE 12' LT.		16								1																8	0.10	FES-1, FES-2, PCC-1
1326+17	HWY. 70	EXT. R.C. PIPE 46' RT.		50								1																8	0.10	FES-1, FES-2, PCC-1
1337+62	HWY. 70	TEMP. EXT. PIPE CULV. 45' RT.																												PCC-1
1337+71	HWY. 70	DBL. 134' R.C. PIPE				268								4														36	0.45	FES-1, FES-2, PCC-1
1377+50	HWY. 70	162' R.C. PIPE		162								2																16	0.20	FES-1, FES-2, PCC-1
1377+59	HWY. 70	TEMP. EXT. PIPE CULV. 51' RT.		51																										PCC-1
1388+53	HWY. 70	EXT. R.C. PIPE 29' LT.					33								1													23	0.29	FES-1, FES-2, PCC-1
1388+53	HWY. 70	EXT. R.C. PIPE 54' RT.					58								1													23	0.29	FES-1, FES-2, PCC-1
1398+07	HWY. 70	TEMP. EXT. BOX CULV. 28' RT.							28																					PCC-1
1410+04	HWY. 70	TEMP. EXT. PIPE CULV. 50' RT.		50																										PCC-1
1410+10	HWY. 70	156' R.C. PIPE		156								2																16	0.20	FES-1, FES-2, PCC-1
1419+50	HWY. 70	167' R.C. PIPE		167								2																16	0.20	FES-1, FES-2, PCC-1
1419+58	HWY. 70	TEMP. EXT. PIPE CULV. 60' RT.		60																										PCC-1
1423+37	HWY. 70	TEMP. EXT. PIPE CULV. 63' RT.		63																										PCC-1
1423+50	HWY. 70	179' R.C. PIPE		179								2																16	0.20	FES-1, FES-2, PCC-1
1434+86	HWY. 70	EXT. R.C. PIPE 24' RT.		28								1																8	0.10	FES-1, FES-2, PCC-1
1434+86	HWY. 70	EXT. R.C. PIPE 12' LT.		16								1																8	0.10	FES-1, FES-2, PCC-1
14+14	HWY. 128	93' R.C. PIPE		93								2																16	0.20	FES-1, FES-2, PCC-1
14+45	HWY. 128	TEMP. EXT. PIPE CULV. 23'																												PCC-1
39+03	HWY. 88	109' R.C. PIPE		109								2																16	0.20	FES-1, FES-2, PCC-1
330+80	FRONTAGE RD.	86' R.C. PIPE		86								2																16	0.20	FES-1, FES-2, PCC-1
1438+48	HWY. 70 TURNAROUND	52' R.C. PIPE	52														2											24	0.30	FES-1, FES-2, SES-1, PCC-1
SUBTOTALS:			**52**	**2188**	**385**	**398**	**91**		**67**			**31**	**6**	**6**	**2**		**2**				**1**				**541.21**	**69412**	**295**	**570**	**7.17**	
STRUCTURES OVER 20' - 0" SPAN																														
1342+43	HWY. 70	TRIPLE 10X8 EXTEND LT																				10	8	22	90.95	11548	39	21	0.26	W-X303-1,R-330X-02, RCB-1, RCB-2, RCB-3
1342+43	HWY. 70	TRIPLE 10X8 EXTEND RT																				10	8	69	223.68	34162	89	21	0.26	W-X303-1,R-330X-02, RCB-1, RCB-2, RCB-3
SUBTOTALS:																									**314.63**	**45710**	**128**	**42**	**0.52**	
STRUCTURES BOX (1 OF 3) SUBTOTALS:				**577**	**534**	**211**	**319**	**246**		**34**	**112**	**14**	**8**	**9**	**18**	**10**		**380**	**50**	**4**	**2**				**867.27**	**82910**	**322**	**1005**	**12.70**	
STRUCTURES BOX (2 OF 3) SUBTOTALS:				**1073**	**448**	**93**	**181**	**97**				**25**	**11**	**4**	**7**	**5**									**418.04**	**42547**	**204**	**723**	**9.09**	
STRUCTURES BOX (3 OF 3) SUBTOTALS:			**52**	**2188**	**385**	**398**	**91**		**67**			**31**	**6**	**6**	**2**		**2**				**1**				**541.21**	**69412**	**295**	**570**	**7.17**	
TOTALS:			**52**	**3838**	**1367**	**702**	**591**	**343**	**67**	**34**	**112**	**70**	**25**	**19**	**27**	**15**	**2**	**380**	**50**	**4**	**3**				**1826.52**	**194869**	**821**	**2298**	**28.96**	
STRUCTURES OVER 20' - 0" SPAN (BOX 1 OF 3) SUBTOTALS:																									**800.97**	**60629**	**312**	**127**	**1.61**	
STRUCTURES OVER 20' - 0" SPAN (BOX 3 OF 3) SUBTOTALS:																									**314.63**	**45710**	**128**	**42**	**0.52**	
TOTALS (STRUCTURES OVER 20' - 0" SPAN):																									**1115.60**	**106339**	**440**	**169**	**2.13**	
TOTALS:			**52**	**3838**	**1367**	**702**	**591**	**343**	**67**	**34**	**112**	**70**	**25**	**19**	**27**	**15**	**2**	**380**	**50**	**4**	**3**				**2942**	**301208**	**1261**	**2467**	**31.09**	

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.

NOTE: FOR R.C. PIPE CULVERT. INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.

NOTE: FOR C.M. PIPE CULVERT. INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
10-4-2016

QUANTITIES

LeonardSpeed 10/4/2016 9:20:24 AM
WORKSPACE: leonardspeed
c:\pw\bi-local\baker_projects\leonardspeed\d0424368\rCA0610_08_01T_00.dgn
REVISED DATE: $$REVDATE$$

DRIVEWAYS & TURNOUTS (BOX 1 OF 2)

STATION	SIDE	LOCATION	WIDTH	PORTLAND CEMENT CONCRETE DRIVEWAY	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS					STANDARD DRAWINGS
								18"	24"	30"	36"	48"	
			FEET	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.					
487+55	LT.	HWY. 70	20		140.4	15.4	57.3	44					PCC-1, PCM-1, PCP-1, PCP-2
499+35	LT.	HWY. 70 (BRATTON DR.)	20		239.0	26.3	97.6						
504+22	LT.	HWY. 70	26		312.5	34.4	127.6						
509+06	RT.	HWY. 70 (BARTEE TRAIL)	20		443.6	48.8	181.1	86					PCC-1, PCM-1, PCP-1, PCP-2
512+00	RT.	HWY. 70 (BARTEE MEADOW)	16		281.6	31.0	115.0						
513+00	LT.	HWY. 70	16		148.0	16.3	60.4		30				PCC-1, PCM-1, PCP-1, PCP-2
515+15	RT.	HWY. 70	16		285.5	31.4	116.6						
516+30	RT.	HWY. 70	16		491.0	54.0	200.5		84				PCC-1, PCM-1, PCP-1, PCP-2
516+30	LT.	DRIVEWAY 516+30 LT. SIDE DRAIN	16		71.5	7.9	29.2	44					PCC-1, PCM-1, PCP-1, PCP-2
519+81	RT.	HWY. 70 (SHANE LANE)	16		316.2	34.8	129.1						
524+84	RT.	HWY. 70 (SARGENT LANE)	16		389.9	42.9	159.2						
528+00	RT.	HWY. 70 (AUTUMN HILLS LANE)	16		258.6	28.4	105.6	32					PCC-1, PCM-1, PCP-1, PCP-2
530+35	LT.	HWY. 70	16		265.2	29.2	108.3						
532+60	LT.	HWY. 70 (JAGUAR TRAIL)	16		164.9	18.1	67.3						
536+30	LT.	HWY. 70 (JAVA RD.)	20		204.8	22.5	83.6	40					PCC-1, PCM-1, PCP-1, PCP-2
543+80	RT.	HWY. 70	20		343.9	37.8	140.4						
544+75	RT.	HWY. 70	16		291.0	32.0	118.8	74					PCC-1, PCM-1, PCP-1, PCP-2
551+10	RT.	HWY. 70	16		331.2	36.4	135.2						
565+45	LT.	HWY. 70	16		162.9	17.9	66.5						
578+30	RT.	HWY. 70	16		252.5	27.8	103.1						
585+15	LT.	HWY. 70	16		159.6	17.6	65.2						
596+25	RT.	HWY. 70	16		217.6	23.9	88.9						
596+40	LT.	HWY. 70	16		159.7	17.6	65.2		38				PCC-1, PCM-1, PCP-1, PCP-2
621+73	LT.	HWY. 70	16		158.0	17.4	64.5						
629+09	LT.	HWY. 70	16		178.9	19.7	73.1	28					PCC-1, PCM-1, PCP-1, PCP-2
638+88	LT.	HWY. 70	16		195.9	21.5	80.0	32					PCC-1, PCM-1, PCP-1, PCP-2
644+66	RT.	HWY. 70	16		211.0	23.2	86.2		36				PCC-1, PCM-1, PCP-1, PCP-2
647+00	RT.	HWY. 70	16		165.5	18.2	67.6						
663+00	RT.	HWY. 70 (BUEKAH ST.)	20		541.8	59.6	221.2						
687+60	LT.	HWY. 70 (OHANA TERRACE)	20		258.6	28.4	105.6		45				PCC-1, PCM-1, PCP-1, PCP-2
694+17	RT.	HWY. 70 (LOGGING ROAD 22554)	20		379.7	41.8	155.0						
718+86	RT.	HWY. 70 (REST AREA)	24		321.1	35.3	131.1	53					PCC-1, PCM-1, PCP-1, PCP-2
725+10	LT.	HWY. 70	16		130.4	14.3	53.2	39					PCC-1, PCM-1, PCP-1, PCP-2
726+62	RT.	HWY. 70 (REST AREA)	24		323.3	35.6	132.0	56					PCC-1, PCM-1, PCP-1, PCP-2
729+15	LT.	HWY. 70	20		232.4	25.6	94.9	50					PCC-1, PCM-1, PCP-1, PCP-2
731+14	RT.	HWY. 70 (TIMBERHILL TRAIL)	16		400.1	44.0	163.4						
732+58	LT.	HWY. 70	40		275.4	30.3	112.5	56					PCC-1, PCM-1, PCP-1, PCP-2
736+00	LT.	HWY. 70	30		253.9	27.9	103.7						
740+83	LT.	HWY. 70	20		298.3	32.8	121.8	42					PCC-1, PCM-1, PCP-1, PCP-2
746+58	LT.	HWY. 70	16		135.7	14.9	55.4	32					PCC-1, PCM-1, PCP-1, PCP-2
751+53	LT.	HWY. 70	16		136.7	15.0	55.8		28				PCC-1, PCM-1, PCP-1, PCP-2
752+20	RT.	HWY. 70 (BUNKER HILL TRAIL)	16		169.9	18.7	69.4						
752+45	RT.	HWY. 70 (BUNKER HILL TRAIL)	16		243.0	26.7	99.2						
753+90	LT.	HWY. 70	16		137.2	15.1	56.0						
757+93	LT.	HWY. 70 (HAPPY TREE LANE)	30		280.9	30.9	114.7	46					PCC-1, PCM-1, PCP-1, PCP-2
758+96	RT.	HWY. 70	16		282.3	31.1	115.3	30					PCC-1, PCM-1, PCP-1, PCP-2
759+40	LT.	HWY. 70	16		150.8	16.6	61.6		32				PCC-1, PCM-1, PCP-1, PCP-2
762+71	LT.	HWY. 70 (PAYTON PLACE)	20		217.9	16.6	61.6						
763+84	RT.	HWY. 70	16		72.6	8.0	29.6						
764+55	LT.	HWY. 70	16		141.1	15.5	57.6	34					PCC-1, PCM-1, PCP-1, PCP-2
766+83	LT.	HWY. 70	16		137.2	15.1	56.0						
770+52	RT.	HWY. 70	16		269.4	29.6	110.0						
771+41	LT.	HWY. 70	16		137.8	15.2	56.3						
774+22	RT.	HWY. 70	16		270.8	29.8	110.6	28					PCC-1, PCM-1, PCP-1, PCP-2
774+45	LT.	HWY. 70	16		137.3	15.1	56.1	42					PCC-1, PCM-1, PCP-1, PCP-2
775+08	RT.	HWY. 70 (CLOUD 9 DR.)	22		424.5	46.7	173.3						
775+81	LT.	HWY. 70	16		137.5	15.1	56.1	36					PCC-1, PCM-1, PCP-1, PCP-2
779+30	LT.	HWY. 70 (EVERHART RD.)	16		135.3	14.9	55.2						
802+40	RT.	HWY. 70	16		290.8	32.0	118.7	52					PCC-1, PCM-1, PCP-1, PCP-2
812+64	RT.	HWY. 70 (SCENIC RIDGE RD.)	20	307.30									
823+09	RT.	HWY. 70 (SUMMIT RIDGE RD.)	20		602.4	66.3	246.0						
20+77	CROSS	CEDAR CREEK RD.	20						65				PCC-1, PCM-1, PCP-1, PCP-2
21+89	CROSS	CEDAR CREEK RD.	20									46	PCC-1, PCM-1, PCP-1, PCP-2
879+88	RT.	HWY. 70	16		383.5	42.2	156.6						
904+96	RT.	HWY. 70 (LOGGING ROAD 22561)	20		741.6	81.6	302.8						
904+96	LT.	HWY. 70 (COUNTY ROAD 369)	20		329.8	36.3	134.7						
934+15	RT.	HWY. 70 (LOGGING ROAD 22563)	20		404.6	44.5	165.2						
958+40	RT.	HWY. 70	16		275.0	30.3	112.3	30					PCC-1, PCM-1, PCP-1, PCP-2
958+40	LT.	HWY. 70 (COUNTY ROAD 1381)	20						51				PCC-1, PCM-1, PCP-1, PCP-2
21+37	RT.	COUNTY ROAD 1381	16		81.4	9.0	33.2						
964+16	LT.	HWY. 70	16		260.9	28.7	106.5						
18+63	LT.	HWY. 128	20		119.0	13.1	48.6	35					PCC-1, PCM-1, PCP-1, PCP-2
9+34	CROSS	LONSDALE	20					59					PCC-1, PCM-1, PCP-1, PCP-2
1044+39	LT.	HWY. 70 (C.R. 1379)	20		228.0	25.1	93.1						
1055+47	RT.	HWY. 70	16		275.4	30.3	112.5						
1089+86	RT.	HWY. 70 (DETHRAGE RD.)	20		196.6	21.6	80.3	33					PCC-1, PCM-1, PCP-1, PCP-2
38+05	RT.	HWY. 88	20		64.3	7.1	26.3						
1106+13	RT.	HWY. 70	26		448.2	49.3	183.0	58					PCC-1, PCM-1, PCP-1, PCP-2
1108+46	RT.	HWY. 70	16		140.3	15.4	57.3						
1109+55	RT.	HWY. 70	16		277.1	30.5	113.1						
1112+31	LT.	HWY. 70	16		220.3	24.2	90.0	44					PCC-1, PCM-1, PCP-1, PCP-2
1112+69	RT.	HWY. 70	22		408.2	44.9	166.7	46					PCC-1, PCM-1, PCP-1, PCP-2
1115+40	LT.	HWY. 70	16		206.8	22.7	84.4	40					PCC-1, PCM-1, PCP-1, PCP-2
1115+42	LT.	HWY. 70	16		134.9	14.8	55.1						
1117+60	LT.	HWY. 70	16		132.3	14.6	54.0	40					PCC-1, PCM-1, PCP-1, PCP-2
1119+67	LT.	HWY. 70	20		196.4	21.6	80.2	50					PCC-1, PCM-1, PCP-1, PCP-2
1120+37	RT.	HWY. 70	16		274.5	30.2	112.1	42					PCC-1, PCM-1, PCP-1, PCP-2
1125+68	RT.	HWY. 70	16		230.9	25.4	94.3						
1126+30	LT.	HWY. 70	20		242.4	26.7	99.0	64					PCC-1, PCM-1, PCP-1, PCP-2
1127+70	LT.	HWY. 70	16		134.9	14.8	55.1	42					PCC-1, PCM-1, PCP-1, PCP-2
1131+27	LT.	HWY. 70	20		219.1	24.1	89.5		34				PCC-1, PCM-1, PCP-1, PCP-2
1132+45	RT.	HWY. 70	16		382.4	42.1	156.1		51				PCC-1, PCM-1, PCP-1, PCP-2
1138+76	LT.	HWY. 70 (CHURCH RD.)	20		249.4	27.4	101.8	62					PCC-1, PCM-1, PCP-1, PCP-2
1145+28	LT.	HWY. 70	20		196.4	21.6	80.2	48					PCC-1, PCM-1, PCP-1, PCP-2
1148+75	LT.	HWY. 70	30		243.4	26.8	99.4		56				PCC-1, PCM-1, PCP-1, PCP-2
1149+15	RT.	HWY. 70	16		303.8	33.4	124.1						
SUBTOTALS (BOX 1 OF 2):				307.30	22768.3	2497.2	9269.5	1669	550			46	

DRIVEWAYS & TURNOUTS (BOX 2 OF 2)

STATION	SIDE	LOCATION	WIDTH	PORTLAND CEMENT CONCRETE DRIVEWAY	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS					STANDARD DRAWINGS
								18"	24"	30"	36"	48"	
			FEET	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.					
1151+56	LT.	HWY. 70	30		351.0	38.6	143.3		55				PCC-1, PCM-1, PCP-1, PCP-2
1154+75	LT.	HWY. 70	30		241.1	26.5	98.4		55				PCC-1, PCM-1, PCP-1, PCP-2
1161+07	RT.	HWY. 70	16		356.1	39.2	145.4	44					PCC-1, PCM-1, PCP-1, PCP-2
1161+35	LT.	HWY. 70	16		172.9	19.0	70.6	38					PCC-1, PCM-1, PCP-1, PCP-2
141+68	RT.	NARROWS RD.	16		102.9	11.3	42.0	30					PCC-1, PCM-1, PCP-1, PCP-2
1168+30	LT.	HWY. 70	16		152.7	16.8	62.4						
1170+40	RT.	HWY. 70	16		353.3	38.9	144.3	66					PCC-1, PCM-1, PCP-1, PCP-2
1172+65	LT.	HWY. 70	16		144.2	15.9	58.9	54					PCC-1, PCM-1, PCP-1, PCP-2
1175+56	LT.	HWY. 70	16		488.4	53.7	199.4	57					PCC-1, PCM-1, PCP-1, PCP-2
1179+00	RT.	HWY. 70	16		460.3	50.6	188.0	41					PCC-1, PCM-1, PCP-1, PCP-2
1179+00	LT.	HWY. 70	16		133.1	14.6	54.3						
1181+04	LT.	HWY. 70 (BECK RD.)	20		219.7	24.2	89.7		52				PCC-1, PCM-1, PCP-1, PCP-2
1186+15	RT.	HWY. 70 (ROCKY LOOP RD.)	20		334.2	36.8	136.5	62					PCC-1, PCM-1, PCP-1, PCP-2
159+00	RT.	ROCKY LOOP	16		143.9	15.8	58.8						
159+10	RT.	ROCKY LOOP	16		227.7	25.0	93.0						
1188+19	LT.	HWY. 70 (SMART RD.)	20		196.0	21.6	80.0	45					PCC-1, PCM-1, PCP-1, PCP-2
1189+30	LT.	HWY. 70	16		180.4	19.8	73.7	51					PCC-1, PCM-1, PCP-1, PCP-2
1189+66	RT.	HWY. 70	20		346.9	38.2	141.7	36					PCC-1, PCM-1, PCP-1, PCP-2
1192+43	RT.	HWY. 70	16		274.5	30.2	112.1						
1193+23	RT.	HWY. 70	16		274.5	30.2	112.1						
1194+39	LT.	HWY. 70 (KREAM KASTLE)	30		356.7	39.2	145.7	48					PCC-1, PCM-1, PCP-1, PCP-2
1197+05	LT.	HWY. 70	30		301.9	33.2	123.3	56					PCC-1, PCM-1, PCP-1, PCP-2
1198+92	LT.	HWY. 70	16		221.1	24.3	90.3	34					PCC-1, PCM-1, PCP-1, PCP-2
1202+80	LT.	HWY. 70	16		204.5	22.5	83.5						
1212+87	RT.	HWY. 70	16		238.0	26.2	97.2	71					PCC-1, PCM-1, PCP-1, PCP-2
1213+96	LT.	HWY. 70 (AEP RD.)	24		503.4	55.4	205.6				110		PCC-1, PCM-1, PCP-1, PCP-2
1214+95	LT.	HWY. 70 (HOLLOWOA RD.)	20		281.7	31.0	115.0				87		PCC-1, PCM-1, PCP-1, PCP-2
1217+65	RT.	HWY. 70	16		397.1	43.7	162.1			69			PCC-1, PCM-1, PCP-1, PCP-2
205+67	CROSS	BROWNING ACCESS RD.	16						54				PCC-1, PCM-1, PCP-1, PCP-2
205+89	LT.	BROWNING ACC.	16		95.4	10.5	39.0	40					PCC-1, PCM-1, PCP-1, PCP-2
206+30	LT.	BROWNING ACC.	16		94.4	10.4	38.5	39					PCC-1, PCM-1, PCP-1, PCP-2
208+91	LT.	BROWNING ACC.	22		171.8	18.9	70.2	41					PCC-1, PCM-1, PCP-1, PCP-2
209+90	LT.	BROWNING ACC.	16		101.4	11.2	41.4	41					PCC-1, PCM-1, PCP-1, PCP-2
211+50	LT.	BROWNING ACC.	16		76.7	8.4	31.3	42					PCC-1, PCM-1, PCP-1, PCP-2
212+98	LT.	BROWNING ACC.	16		61.1	6.7	24.9	36					PCC-1, PCM-1, PCP-1, PCP-2
207+40	LT	FAIRPLAY	16		85.2	9.4	34.8						
208+19	RT.	FAIRPLAY	16		113.1	12.4	46.2						
1230+44	RT.	HWY. 70 (FAIRPLAY RD.)	20		606.8	66.7	247.8	60					PCC-1, PCM-1, PCP-1, PCP-2
210+60	CROSS	BROWNING RD. (W)						44					PCC-1, PCM-1, PCP-1, PCP-2
1246+70	LT.	HWY. 70 (BROWNING RD. (E.))	20		366.6	40.3	149.7		55				PCC-1, PCM-1, PCP-1, PCP-2
1251+38	RT.	HWY. 70	20		244.3	26.9	99.8						
1252+83	LT.	HWY. 70	16		152.7	16.8	62.4						
1264+83	RT.	HWY. 70	20		319.5	35.1	130.5						
1265+80	LT.	HWY. 70	16		330.7	36.4	135.0						
1289+90	LT.	HWY. 70	16		140.3	15.4	57.3						
1289+99	RT.	HWY. 70	16		96.7	10.6	39.5						
1299+51	RT.	HWY. 70	16		139.0	15.3	56.8						
1303+07	LT.	HWY. 70	16		143.7	15.8	58.7						
1312+60	LT.	HWY. 70	16		107.1	11.8	43.7	30					PCC-1, PCM-1, PCP-1, PCP-2
1316+45	LT.	HWY. 70	16		157.3	17.3	64.2	30					PCC-1, PCM-1, PCP-1, PCP-2
1333+27	RT.	HWY. 70	16		249.5	27.4	101.9	30					PCC-1, PCM-1, PCP-1, PCP-2
1340+00	RT.	HWY. 70	20		342.2	37.6	139.7						
1344+90	LT.	HWY. 70	16		158.6	17.4	64.8						
1345+83	RT.	HWY. 70	16		195.9	21.5	80.0						
1356+70	RT.	HWY. 70	16		248.8	27.4	101.6		32				PCC-1, PCM-1, PCP-1, PCP-2
1362+81	LT.	HWY. 70 (ELLIOT RD.)	20		536.0	59.0	218.9			60			
281+00	RT.	ELLIOT RD.	16		78.9	8.7	32.2						
1364+38	LT.	HWY. 70	16		159.5	17.5	65.1			30			PCC-1, PCM-1, PCP-1, PCP-2
1367+98	LT.	HWY. 70	20		432.0	47.5	176.4		34				PCC-1, PCM-1, PCP-1, PCP-2
1368+06	RT.	HWY. 70	16		249.9	27.5	102.0						
1378+77	LT.	HWY. 70 (HIGHPOINT DR)	20		232.2	25.5	94.8						
1378+77	LT.	HWY. 70 (OLD EIGHTY EIGHT RD.)	20		447.4	49.2	182.7						
290+88	RT.	HIGHPOINT	16		69.3	7.6	28.3	40					PCC-1, PCM-1, PCP-1, PCP-2
1386+34	LT.	HWY. 70	16		253.9	27.9	103.7		65				PCC-1, PCM-1, PCP-1, PCP-2
1391+21	LT.	HWY. 70	16		237.7	26.1	97.1						
1399+09	LT.	HWY. 70 (SMITH FORD RD. TEMP.)	16		330.8	36.4	135.1	113					
1403+39	LT.	HWY. 70	16		155.6	17.1	63.5		34				PCC-1, PCM-1, PCP-1, PCP-2
1409+34	LT.	HWY. 70	20		228.4	25.1	93.3						
1417+03	LT.	HWY. 70	16	165.30				40					PCC-1, PCM-1, PCP-1, PCP-2
1425+89	RT.	HWY. 70 (CROSSROADS RD.)	16		274.9	30.2	112.3	58					PCC-1, PCM-1, PCP-1, PCP-2
1430+84	LT.	HWY. 70	16		163.5	18.0	66.8	24					PCC-1, PCM-1, PCP-1, PCP-2
1432+24	LT.	HWY. 70	16		197.3	21.7	80.6	50					PCC-1, PCM-1, PCP-1, PCP-2
332+62	LT.	FRONTAGE RD.	16		101.8	11.2	41.6	32					PCC-1, PCM-1, PCP-1, PCP-2
333+33	LT.	FRONTAGE RD.	16		225.6	24.8	92.1						
334+57	LT.	FRONTAGE RD.	16		163.0	17.9	66.6	42					PCC-1, PCM-1, PCP-1, PCP-2
336+23	LT.	FRONTAGE RD.	16		119.4	13.1	48.8	38					PCC-1, PCM-1, PCP-1, PCP-2
* ENTIRE PROJECT TEMPORARY DRIVES					2234.5	245.8	912.4						
SUBTOTALS (BOX 1 OF 2):				307.30	22768.3	2497.2	9269.5	1669	550			46	
SUBTOTALS (BOX 2 OF 2):				165.30	19348.6	2127.8	7901.3	1603	436	159	197		
TOTALS:				472.60	42116.9	4625.0	17170.8	3272	986	159	197	46	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2")....................95.1% MIN. AGGR.................4.9% ASPHALT BINDER (PG64-22)

* QUANTITY ESTIMATED
SEE SECTION 104.03 OF THE STD. SPECS.
TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER ★ ★ ★ No.10887 SCOTT P. THORNSBERRY

QUANTITIES

Leonard.Speed 9/23/2016 2:02:16 PM
WORKSPACE: Leonard.Speed
c:\pw\8l-local\baker_projects\leonard.speed\d0424568\rCA0610_08_QT_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	225	888

(2) QUANTITIES

BASE AND SURFACING (BOX 1 OF 4)

STATION	STATION	LOCATION	TYP NO.	LENGTH FEET	AGGREGATE BASE COURSE (CLASS 7) TON / STATION	AGGREGATE BASE COURSE (CLASS 7) TON	TACK COAT AVG. WID. FEET	TACK COAT SQ.YD.	TACK COAT GALLONS / SQ.YD.	TACK COAT GALLON	ACHM BINDER COURSE (1") AVG. WID. FEET	ACHM BINDER COURSE (1") SQ.YD.	ACHM BINDER COURSE (1") POUND / SQ.YD.	ACHM BINDER COURSE (1") PG 70-22 TON	ACHM SURFACE COURSE (1/2") AVG. WID. FEET	ACHM SURFACE COURSE (1/2") SQ.YD.	ACHM SURFACE COURSE (1/2") POUND / SQ.YD.	ACHM SURFACE COURSE (1/2") PG 70-22 TON	ACHM SURFACE COURSE (1/2") AVG. WID. FEET	ACHM SURFACE COURSE (1/2") SQ.YD.	ACHM SURFACE COURSE (1/2") POUND / SQ.YD.	ACHM SURFACE COURSE (1/2") PG 70-22 TON	TOTAL PG 70-22 TON
HWY. 70																							
480+25.20	480+71.92	HWY. 70 LEFT LANES NOTCH & WIDEN	1	46.72	76.50	35.74	40.00	207.64	0.17	35.30					40.00	207.64	535	55.54	44.00	228.41	220	25.13	80.67
480+25.20	480+71.92	HWY. 70 LEFT LANES NOTCH & WIDEN	1	46.72	56.75	26.51	40.00	207.64	0.05	10.38													
483+89.08	486+50.00	HWY. 70 FULL DEPTH LT. - LANES	2	260.92	101.00	263.53	52.83	1531.60	0.05	76.58	26.58	770.58	660	254.29	26.25	761.02	220	83.71	40.00	1159.64	220	127.56	211.27
483+89.08	486+50.00	HWY. 70 FULL DEPTH LT. - OUT SHLDR.	2	260.92	71.56	186.71																	
483+89.08	486+50.00	HWY. 70 FULL DEPTH LT. - IN SHLDR.	2	260.92	79.96	208.63																	
486+50.00	489+87.50	HWY. 70 FULL DEPTH LT. OVERLAY RT. - LT. LANES	3	337.50	101.00	340.88	52.83	1981.13	0.05	99.06	26.58	996.75	660	328.93	26.25	984.38	220	108.28	40.00	1500.00	220	165.00	273.28
486+50.00	489+87.50	HWY. 70 FULL DEPTH LT. OVERLAY RT. - LT. OUTSIDE SHLDRS.	3	337.50	71.56	241.52																	
486+50.00	489+87.50	HWY. 70 FULL DEPTH LT. OVERLAY RT. - LT. IN SHLDRS.	3	337.50	79.96	269.87																	
486+50.00	489+87.50	HWY. 70 FULL DEPTH LT. OVERLAY RT. - RT. LANE OVERLAY	3	337.50			28.91	1084.13	0.17	184.30					28.91	1084.13	385	208.70	52.00	1950.00	220	214.50	423.20
486+50.00	489+87.50	HWY. 70 FULL DEPTH LT. OVERLAY RT. - RT. LANES FULL DEPTH	3	337.50	27.63	93.25	14.28	535.50	0.05	26.78	7.18	269.25	660	88.85	7.10	266.25	220	29.29					29.29
486+50.00	489+87.50	HWY. 70 FULL DEPTH LT. OVERLAY RT. - RT. OUTSIDE SHLDRS.	3	337.50	137.41	463.76																	
486+50.00	489+87.50	HWY. 70 FULL DEPTH LT. OVERLAY RT. - RT. IN SHLDRS.	3	337.50	152.09	513.30																	
489+87.50	494+00.00	HWY. 70 TRANSITION SUPER PART. OVERLAY - FULL DEPTH LANES	4	412.50	88.38	364.57	45.63	2091.38	0.05	104.57	22.90	1049.58	660	346.36	22.73	1041.79	220	114.60	73.22	3355.92	220	369.15	483.75
489+87.50	494+00.00	HWY. 70 TRANSITION SUPER PART. OVERLAY - OVERLAY LANES	4	412.50			33.50	1535.42	0.17	261.02					33.50	1535.42	385	295.57					295.57
489+87.50	494+00.00	HWY. 70 TRANSITION SUPER PART. OVERLAY - RT. SHLDR.	4	412.50	127.17	524.58																	
489+87.50	494+00.00	HWY. 70 TRANSITION SUPER PART. OVERLAY - LT. SHLDR.	4	412.50	174.71	720.68																	
494+00.00	496+82.30	HWY. 70 SUPERELEVATED - MAIN LANES	5	282.30	245.00	691.64	126.83	3978.23	0.05	198.91	63.58	1994.29	660	658.12	63.25	1983.94	220	218.23	75.00	2352.50	220	258.78	477.01
505+09.59	507+50.00	HWY. 70 SUPERELEVATED - MAIN LANES	5	240.41	245.00	589.00	126.83	3387.91	0.05	169.40	63.58	1698.36	660	560.46	63.25	1689.55	220	185.85	75.00	2003.42	220	220.38	406.23
510+50.00	517+33.75	HWY. 70 SUPERELEVATED - MAIN LANES	5	683.75	245.00	1675.19	126.83	9635.56	0.05	481.78	63.58	4830.31	660	1594.00	63.25	4805.24	220	528.58	75.00	5697.92	220	626.77	1155.35
522+97.38	529+20.97	HWY. 70 SUPERELEVATED - MAIN LANES	5	623.59	245.00	1527.80	126.83	8787.77	0.05	439.39	63.58	4405.32	660	1453.76	63.25	4382.45	220	482.07	75.00	5196.58	220	571.62	1053.69
797+25.00	800+29.93	HWY. 70 SUPERELEVATED - MAIN LANES	5	304.93	245.00	747.08	126.83	4297.14	0.05	214.86	63.58	2154.16	660	710.87	63.25	2142.98	220	235.73	75.00	2541.08	220	279.52	515.25
812+39.14	823+04.66	HWY. 70 SUPERELEVATED - MAIN LANES	5	1065.52	245.00	2610.52	126.83	15015.54	0.05	750.78	63.58	7527.31	660	2484.01	63.25	7488.24	220	823.71	75.00	8879.33	220	976.73	1800.44
825+61.61	835+23.50	HWY. 70 SUPERELEVATED - MAIN LANES	5	961.89	245.00	2356.63	126.83	13555.17	0.05	677.76	63.58	6795.22	660	2242.42	63.25	6759.95	220	743.59	75.00	8015.75	220	881.73	1625.32
866+09.88	870+86.50	HWY. 70 SUPERELEVATED - MAIN LANES	5	476.62	245.00	1167.72	126.83	6716.63	0.05	335.83	63.58	3367.06	660	1111.13	63.25	3349.58	220	368.45	75.00	3971.83	220	436.90	805.35
872+30.50	875+75.00	HWY. 70 SUPERELEVATED - MAIN LANES	5	344.50	245.00	844.03	126.83	4854.77	0.05	242.74	63.58	2433.70	660	803.12	63.25	2421.07	220	266.32	75.00	2870.83	220	315.79	582.11
494+00.00	496+82.30	HWY. 70 SUPERELEVATED - SHOULDERS	5	282.30	301.88	852.21																	
505+09.59	507+50.00	HWY. 70 SUPERELEVATED - SHOULDERS	5	240.41	245.00	589.00																	
510+50.00	517+33.75	HWY. 70 SUPERELEVATED - SHOULDERS	5	683.75	245.00	1675.19																	
522+97.38	529+20.97	HWY. 70 SUPERELEVATED - SHOULDERS	5	623.59	301.88	1882.49																	
797+25.00	800+29.93	HWY. 70 SUPERELEVATED - SHOULDERS	5	304.93	301.88	920.52																	
812+39.14	823+04.66	HWY. 70 SUPERELEVATED - SHOULDERS	5	1065.52	301.88	3216.59																	
825+61.61	835+23.50	HWY. 70 SUPERELEVATED - SHOULDERS	5	961.89	301.88	2903.75																	
866+09.88	870+86.50	HWY. 70 SUPERELEVATED - SHOULDERS	5	476.62	301.88	1438.82																	
872+30.50	875+75.00	HWY. 70 SUPERELEVATED - SHOULDERS	5	344.50	301.88	1039.98																	
496+82.30	504+36.05	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES FULL DEPTH	6	753.75	163.38	1231.48	83.96	7031.65	0.05	351.58	41.98	3515.83	660	1160.22	41.98	3515.83	220	386.74	75.00	6281.25	220	690.94	1077.68
508+64.91	510+50.00	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES FULL DEPTH	6	185.09	163.38	302.40	83.96	1726.68	0.05	86.33	41.98	863.34	660	284.90	41.98	863.34	220	94.97	75.00	1542.42	220	169.67	264.64
521+38.24	522+97.38	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES FULL DEPTH	6	159.14	163.38	260.00	83.96	1484.60	0.05	74.23	41.98	742.30	660	244.96	41.98	742.30	220	81.65	75.00	1326.17	220	145.88	227.53
538+00.00	543+40.27	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES FULL DEPTH	6	540.27	163.38	882.69	83.96	5040.12	0.05	252.01	41.98	2520.06	660	831.62	41.98	2520.06	220	277.21	75.00	4502.25	220	495.25	772.46
569+64.00	574+32.93	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES FULL DEPTH	6	468.93	163.38	766.14	83.96	4374.60	0.05	218.73	41.98	2187.30	660	721.81	41.98	2187.30	220	240.60	75.00	3907.75	220	429.85	670.45
612+47.19	616+55.34	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES FULL DEPTH	6	408.15	163.38	666.84	83.96	3807.59	0.05	190.38	41.98	1903.79	660	628.25	41.98	1903.79	220	209.42	75.00	3401.25	220	374.14	583.56
627+25.12	650+75.00	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES FULL DEPTH	6	2349.88	163.38	3839.23	83.96	21921.77	0.05	1096.09	41.98	10960.88	660	3617.09	41.98	10960.88	220	1205.70	75.00	19582.33	220	2154.06	3359.76
792+55.58	797+25.00	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES FULL DEPTH	6	469.42	163.38	766.94	83.96	4379.17	0.05	218.96	41.98	2189.58	660	722.56	41.98	2189.58	220	240.85	75.00	3911.83	220	430.30	671.15
809+88.96	812+39.14	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES FULL DEPTH	6	250.18	163.38	408.74	83.96	2333.90	0.05	116.70	41.98	1166.95	660	385.09	41.98	1166.95	220	128.36	75.00	2084.83	220	229.33	357.69
835+23.50	837+90.00	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES FULL DEPTH	6	266.50	163.38	435.41	83.96	2486.15	0.05	124.31	41.98	1243.07	660	410.21	41.98	1243.07	220	136.74	75.00	2220.83	220	244.29	381.03
844+50.00	852+22.78	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES FULL DEPTH	6	772.78	163.38	1262.57	83.96	7209.18	0.05	360.46	41.98	3604.59	660	1189.51	41.98	3604.59	220	396.50	75.00	6439.83	220	708.38	1104.88
855+13.22	866+09.88	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES FULL DEPTH	6	1096.66	163.38	1791.72	83.96	10230.62	0.05	511.53	41.98	5115.31	660	1688.05	41.98	5115.31	220	562.68	75.00	9138.83	220	1005.27	1567.95
875+75.00	881+63.10	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES FULL DEPTH	6	588.10	163.38	960.84	83.96	5486.32	0.05	274.32	41.98	2743.16	660	905.24	41.98	2743.16	220	301.75	75.00	4900.83	220	539.09	840.84
885+35.78	897+41.78	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES FULL DEPTH	6	1206.00	163.38	1970.36	83.96	11250.64	0.05	562.53	41.98	5625.32	660	1856.36	41.98	5625.32	220	618.79	75.00	10050.00	220	1105.50	1724.29
496+82.30	504+36.05	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	753.75	301.88	2275.42																	
508+64.91	510+50.00	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	185.09	301.88	558.75																	
521+38.24	522+97.38	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	159.14	301.88	480.41																	
538+00.00	543+40.27	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	540.27	301.88	1630.97																	
569+64.00	574+32.93	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	468.93	301.88	1415.61																	
612+47.19	616+55.34	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	408.15	301.88	1232.12																	
627+25.12	650+75.00	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	2349.88	301.88	7093.82																	
792+55.58	797+25.00	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	469.42	301.88	1417.09																	
809+88.96	812+39.14	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	250.18	301.88	755.24																	
835+23.50	837+90.00	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	266.50	301.88	804.51																	
844+50.00	852+22.78	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	772.78	301.88	2332.87																	
855+13.22	866+09.88	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	1096.66	301.88	3310.60																	
875+75.00	881+63.10	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	588.10	301.88	1775.36																	
885+35.78	897+41.78	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	1206.00	301.88	3640.67																	
SUBTOTALS (BOX 1 OF 4):						**75250.49**		**168166.15**		**8747.60**		**82673.37**		**27282.19**		**85285.11**		**9630.18**		**129013.61**		**14191.51**	**23821.69**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2")....................95.2% MIN. AGGR.................4.8% ASPHALT BINDER (PG70-22)
ACHM BINDER COURSE (1")..........................95.9% MIN. AGGR.................4.1% ASPHALT BINDER (PG70-22)
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY
9-23-2016

QUANTITIES

Leonard.Speed 9/23/2016 2:02:17 PM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0424368\rCA0610_08_QT_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	226	888
					(2)		QUANTITIES		

BASE AND SURFACING (BOX 2 OF 4)

STATION	STATION	LOCATION	TYP NO.	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
				FEET	TON / STATION	TON	AVG. WID. FEET	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	TOTAL PG 70-22 TON
HWY. 70																							
504+36.05	505+09.59	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	73.54	118.25	86.96	59.55	486.59	0.05	24.33	29.90	244.32	660	80.63	29.65	242.27	220	26.65	75.00	612.83	220	67.41	94.06
507+50.00	508+64.91	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	114.91	118.25	135.88	59.55	760.32	0.05	38.02	29.90	381.76	660	125.98	29.65	378.56	220	41.64	75.00	957.58	220	105.33	146.97
517+33.75	521+38.24	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	404.49	118.25	478.31	59.55	2676.38	0.05	133.82	29.90	1343.81	660	443.46	29.65	1332.57	220	146.58	75.00	3370.75	220	370.78	517.36
529+20.97	538+00.00	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	879.03	118.25	1039.45	59.55	5816.25	0.05	290.81	29.90	2920.33	660	963.71	29.65	2895.92	220	318.55	75.00	7325.25	220	805.78	1124.33
543+40.27	569+64.00	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	2623.73	118.25	3102.56	59.55	17360.35	0.05	868.02	29.90	8716.61	660	2876.48	29.65	8643.73	220	950.81	75.00	21864.42	220	2405.09	3355.90
574+32.93	605+10.10	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	3077.17	118.25	3638.75	59.55	20360.61	0.05	1018.03	29.90	10223.04	660	3373.60	29.65	10137.57	220	1115.13	75.00	25643.08	220	2820.74	3935.87
605+95.09	612+47.19	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	652.10	118.25	771.11	59.55	4314.73	0.05	215.74	29.90	2166.42	660	714.92	29.65	2148.31	220	236.31	75.00	5434.17	220	597.76	834.07
616+55.34	624+05.38	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	750.04	118.25	886.92	59.55	4962.76	0.05	248.14	29.90	2491.80	660	822.29	29.65	2470.97	220	271.81	75.00	6250.33	220	687.54	959.35
650+75.00	665+07.79	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	1432.79	118.25	1694.27	59.55	9480.29	0.05	474.01	29.90	4760.05	660	1570.82	29.65	4720.25	220	519.23	75.00	11939.92	220	1313.39	1832.62
665+90.54	679+10.35	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	1319.81	118.25	1560.68	59.55	8732.74	0.05	436.64	29.90	4384.70	660	1446.95	29.65	4348.04	220	478.28	75.00	10998.42	220	1209.83	1688.11
689+43.92	712+82.73	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	2338.81	118.25	2765.64	59.55	15475.13	0.05	773.76	29.90	7770.05	660	2564.12	29.65	7705.08	220	847.56	75.00	19490.08	220	2143.91	2991.47
740+29.50	751+78.82	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	1149.32	118.25	1359.07	59.55	7604.67	0.05	380.23	29.90	3818.30	660	1260.04	29.65	3786.37	220	416.50	75.00	9577.67	220	1053.54	1470.04
774+33.82	792+55.58	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	1821.76	118.25	2154.23	59.55	12053.98	0.05	602.70	29.90	6052.29	660	1997.26	29.65	6001.69	220	660.19	75.00	15181.33	220	1669.95	2330.14
800+29.93	809+88.96	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	959.03	118.25	1134.05	59.55	6345.58	0.05	317.28	29.90	3186.11	660	1051.42	29.65	3159.47	220	347.54	75.00	7991.92	220	879.11	1226.65
837+90.00	844+50.00	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	660.00	118.25	780.45	59.55	4367.00	0.05	218.35	29.90	2192.67	660	723.58	29.65	2174.33	220	239.18	75.00	5500.00	220	605.00	844.18
881+63.10	885+35.78	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	372.68	118.25	440.69	59.55	2465.90	0.05	123.30	29.90	1238.13	660	408.58	29.65	1227.77	220	135.05	75.00	3105.67	220	341.62	476.67
504+36.05	505+09.59	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	73.54	301.88	222.00																	
507+50.00	508+64.91	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	114.91	301.88	346.89																	
517+33.75	521+38.24	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	404.49	301.88	1221.07																	
529+20.97	538+00.00	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	879.03	301.88	2653.62																	
543+40.27	569+64.00	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	2623.73	301.88	7920.52																	
574+32.93	605+10.10	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	3077.17	301.88	9289.36																	
605+95.09	612+47.19	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	652.10	301.88	1968.56																	
616+55.34	624+05.38	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	750.04	301.88	2264.22																	
650+75.00	665+07.79	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	1432.79	301.88	4325.31																	
665+90.54	679+10.35	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	1319.81	301.88	3984.24																	
689+43.92	712+82.73	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	2338.81	301.88	7060.40																	
740+29.50	751+78.82	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	1149.32	301.88	3469.57																	
774+33.82	792+55.58	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	1821.76	301.88	5499.53																	
800+29.93	809+88.96	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	959.03	301.88	2895.12																	
837+90.00	844+50.00	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	660.00	301.88	1992.41																	
881+63.10	885+35.78	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	372.68	301.88	1125.05																	
605+10.10	605+95.09	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	8	84.99	93.00	79.04	72.20	681.81	0.05	34.09	24.15	228.06	660	75.26	23.90	225.70	220	24.83	75.00	708.25	220	77.91	102.74
624+05.38	627+25.12	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	8	319.74	93.00	297.36	72.20	2565.03	0.05	128.25	24.15	857.97	660	283.13	23.90	849.09	220	93.40	75.00	2664.50	220	293.10	386.50
665+07.79	665+90.54	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	8	82.75	93.00	76.96	72.20	663.84	0.05	33.19	24.15	222.05	660	73.28	23.90	219.75	220	24.17	75.00	689.58	220	75.85	100.02
679+10.35	689+43.92	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	8	1033.57	93.00	961.22	72.20	8291.53	0.05	414.58	24.15	2773.41	660	915.23	23.90	2744.70	220	301.92	75.00	8613.08	220	947.44	1249.36
712+82.73	740+29.50	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	8	2746.77	93.00	2554.50	72.20	22035.20	0.05	1101.76	24.15	7370.50	660	2432.27	23.90	7294.20	220	802.36	75.00	22889.75	220	2517.87	3320.23
751+78.82	774+33.82	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	8	2255.00	93.00	2097.15	72.20	18090.11	0.05	904.51	24.15	6050.92	660	1996.80	23.90	5988.28	220	658.71	75.00	18791.67	220	2067.08	2725.79
921+50.00	969+49.03	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	8	4799.03	93.00	4463.10	72.20	38498.89	0.05	1924.94	24.15	12877.40	660	4249.54	23.90	12744.09	220	1401.85	75.00	39991.92	220	4399.11	5800.96
974+25.00	981+17.61	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	8	692.61	93.00	644.13	72.20	5556.27	0.05	277.81	24.15	1858.50	660	613.31	23.90	1839.26	220	202.32	75.00	5771.75	220	634.89	837.21
605+10.10	605+95.09	HWY. 70 TANGENT OVERLAY CENTER - SHOULDERS	8	84.99	181.00	153.83																	
624+05.38	627+25.12	HWY. 70 TANGENT OVERLAY CENTER - SHOULDERS	8	319.74	181.00	578.73																	
665+07.79	665+90.54	HWY. 70 TANGENT OVERLAY CENTER - SHOULDERS	8	82.75	181.00	149.78																	
679+10.35	689+43.92	HWY. 70 TANGENT OVERLAY CENTER - SHOULDERS	8	1033.57	181.00	1870.76																	
712+82.73	740+29.50	HWY. 70 TANGENT OVERLAY CENTER - SHOULDERS	8	2746.77	181.00	4971.65																	
751+78.82	774+33.82	HWY. 70 TANGENT OVERLAY CENTER - SHOULDERS	8	2255.00	181.00	4081.55																	
921+50.00	969+49.03	HWY. 70 TANGENT OVERLAY CENTER - SHOULDERS	8	4799.03	181.00	8686.24																	
974+25.00	981+17.61	HWY. 70 TANGENT OVERLAY CENTER - SHOULDERS	8	692.61	181.00	1253.62																	
852+22.78	855+13.22	HWY. 70 TANGENT OVERLAY LT. - MAIN LANES-FULL DEPTH	9	290.44			71.63	2311.58	0.05	115.58	35.90	1158.53	660	382.31	35.73	1153.05	220	126.84	75.00	2420.33	220	266.24	393.08
897+41.78	921+50.00	HWY. 70 TANGENT OVERLAY LT. - MAIN LANES-FULL DEPTH	9	2408.22			71.63	19166.76	0.05	958.34	35.90	9606.12	660	3170.02	35.73	9560.63	220	1051.67	75.00	20068.50	220	2207.54	3259.21
852+22.78	855+13.22	HWY. 70 TANGENT OVERLAY LT. - SHOULDERS	9	290.44	181.00	525.70																	
897+41.78	921+50.00	HWY. 70 TANGENT OVERLAY LT. - SHOULDERS	9	2408.22	181.00	4358.88																	
823+04.66	825+61.61	HWY. 70 TANGENT - MAIN LANES-FULL DEPTH	10	256.95	245.00	629.53	126.83	3621.00	0.05	181.05	63.58	1815.21	660	599.02	63.25	1805.79	220	198.64	75.00	2141.25	220	235.54	434.18
969+46.03	974+25.00	HWY. 70 TANGENT - MAIN LANES-FULL DEPTH	10	478.97	245.00	1173.48	126.83	6749.75	0.05	337.49	63.58	3383.66	660	1116.61	63.25	3366.09	220	370.27	75.00	3991.42	220	439.06	809.33
823+04.66	825+61.61	HWY. 70 TANGENT - SHOULDERS	10	256.95	181.00	465.08																	
969+46.03	974+25.00	HWY. 70 TANGENT - SHOULDERS	10	478.97	181.00	866.94																	
SUBTOTALS (BOX 2 OF 4):						119206.12		251495.05		12574.77		110092.72		36330.62		109163.53		12007.99		283985.42		31238.41	43246.40

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2")....................95.2% MIN. AGGR..................4.8% ASPHALT BINDER (PG70-22)
ACHM BINDER COURSE (1")............................95.9% MIN. AGGR..................4.1% ASPHALT BINDER (PG70-22)
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY
9-23-2016

QUANTITIES

Leonard.Speed 9/23/2016 2:02:19 PM
WORKSPACE: Leonard.Speed
c:\pw\lr-pod\baker_projects\leonard.speed\d0424368\rCA0610_08_QYT_001.dgn
REVISED DATE: $$REVDATE$$

BASE AND SURFACING (BOX 3 OF 4)

STATION	STATION	LOCATION	TYP NO.	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
				FEET	TON / STATION	TON	AVG. WID. FEET	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	TOTAL PG 70-22 TON
HWY. 70																							
1201+70.00	1207+88.90	HWY. 70 SUPERELEVATED - MAIN LANES	5	618.90	245.00	1516.31	190.41	13093.86	0.05	654.69	63.58	4372.18	660	1442.82	63.25	4349.49	220	478.44	75.00	5157.50	220	567.33	1045.77
1211+21.10	1220+75.00	HWY. 70 SUPERELEVATED - MAIN LANES	5	953.90	245.00	2337.06	190.41	20181.34	0.05	1009.07	63.58	6738.77	660	2223.79	63.25	6703.80	220	737.42	75.00	7949.17	220	874.41	1611.83
1316+00.00	1323+25.00	HWY. 70 SUPERELEVATED - MAIN LANES	5	725.00	245.00	1776.25	190.41	15338.58	0.05	766.93	63.58	5121.72	660	1690.17	63.25	5095.14	220	560.47	75.00	6041.67	220	664.58	1225.05
1385+65.00	1390+00.00	HWY. 70 SUPERELEVATED - MAIN LANES	5	435.00	245.00	1065.75	190.41	9203.15	0.05	460.16	63.58	3073.03	660	1014.10	63.25	3057.08	220	336.28	75.00	3625.00	220	398.75	735.03
1201+70.00	1207+88.90	HWY. 70 SUPERELEVATED - SHOULDERS	5	618.90	301.88	1868.34																	
1211+21.10	1220+75.00	HWY. 70 SUPERELEVATED - SHOULDERS	5	953.90	301.88	2879.63																	
1316+00.00	1323+25.00	HWY. 70 SUPERELEVATED - SHOULDERS	5	725.00	301.88	2188.63																	
1385+65.00	1390+00.00	HWY. 70 SUPERELEVATED - SHOULDERS	5	435.00	301.88	1313.18																	
1198+23.21	1198+80.00	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES - FULL DEPTH	6	56.79	123.00	69.85	95.65	603.55	0.05	30.18	31.94	201.54	660	66.51	31.77	200.47	220	22.05	75.00	473.25	220	52.06	74.11
1296+87.12	1316+00.00	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES - FULL DEPTH	6	1912.88	123.00	2352.84	95.65	20329.66	0.05	1016.48	31.94	6788.60	660	2240.24	31.77	6752.47	220	742.77	75.00	15940.67	220	1753.47	2496.24
1323+25.00	1325+51.75	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES - FULL DEPTH	6	226.75	123.00	278.90	95.65	2409.85	0.05	120.49	31.94	804.71	660	265.55	31.77	800.43	220	88.05	75.00	1889.58	220	207.85	295.90
1334+13.62	1335+80.73	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES - FULL DEPTH	6	167.11	123.00	205.55	95.65	1776.01	0.05	88.80	31.94	593.05	660	195.71	31.77	589.90	220	64.89	75.00	1392.58	220	153.18	218.07
1371+25.79	1383+91.09	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES - FULL DEPTH	6	1265.30	123.00	1556.32	95.65	13447.33	0.05	672.37	31.94	4490.41	660	1481.84	31.77	4466.51	220	491.32	75.00	10544.17	220	1159.86	1651.18
1404+63.66	1408+13.75	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES - FULL DEPTH	6	350.09	123.00	430.61	95.65	3720.68	0.05	186.03	31.94	1242.43	660	410.00	31.77	1235.82	220	135.94	75.00	2917.42	220	320.92	456.86
1414+20.06	1418+48.19	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES - FULL DEPTH	6	428.13	123.00	526.60	95.65	4550.07	0.05	227.50	31.94	1519.39	660	501.40	31.77	1511.30	220	166.24	75.00	3567.75	220	392.45	558.69
1427+61.66	1429+14.26	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES - FULL DEPTH	6	152.60	123.00	187.70	95.65	1621.80	0.05	81.09	31.94	541.56	660	178.71	31.77	538.68	220	59.25	75.00	1271.67	220	139.88	199.13
1198+23.21	1198+80.00	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	56.79	301.79	171.39															220		
1296+87.12	1304+00.00	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	712.88	301.79	2151.40															220		
1304+00.00	1312+60.00	HWY. 70 SUPERELEVATED OVERLAY LT. - RT. SHOULDER ONLY	6	860.00	134.23	1154.38															220		
1312+60.00	1316+00.00	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	340.00	301.79	1026.09															220		
1323+25.00	1325+51.75	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	226.75	301.79	684.31															220		
1334+13.62	1335+80.73	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	167.11	301.79	504.32															220		
1371+25.79	1383+91.09	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	1265.30	301.79	3818.55															220		
1404+63.66	1408+13.75	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	350.09	301.79	1056.54															220		
1414+20.06	1418+48.19	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	428.13	301.79	1292.05															220		
1427+61.66	1429+14.26	HWY. 70 SUPERELEVATED OVERLAY LT. - SHOULDERS	6	152.60	301.79	460.53															220		
1034+66.90	1055+75.98	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	2109.08	115.63	2438.73	90.05	21102.52	0.05	1055.13	30.13	7060.73	660	2330.04	29.79	6981.05	220	767.92	75.00	17575.67	220	1933.32	2701.24
1087+88.11	1112+30.91	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	2442.80	115.63	2824.61	90.05	24441.57	0.05	1222.08	30.13	8177.95	660	2698.72	29.79	8085.67	220	889.42	75.00	20356.67	220	2239.23	3128.65
1120+83.10	1136+33.10	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	1550.00	115.38	1788.39	90.05	15508.61	0.05	775.43	29.96	5159.78	440	1135.15	29.92	5152.89	220	566.82	75.00	12916.67	220	1420.83	1987.65
1144+17.03	1183+23.06	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	3906.03	115.63	4516.54	90.05	39082.00	0.05	1954.10	30.13	13076.52	660	4315.25	29.79	12928.96	220	1422.19	75.00	32550.25	220	3580.53	5002.72
1190+33.71	1198+23.21	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	789.50	115.63	912.90	90.05	7899.39	0.05	394.97	30.13	2643.07	660	872.21	29.79	2613.25	220	287.46	75.00	6579.17	220	723.71	1011.17
1296+87.12	1298+35.00	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	147.88	115.63	170.99	90.05	1479.62	0.05	73.98	30.13	495.07	660	163.37	29.79	489.48	220	53.84	75.00	1232.33	220	135.56	189.40
1325+51.75	1334+13.62	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	861.87	115.63	996.58	90.05	8623.49	0.05	431.17	30.13	2885.35	660	952.17	29.79	2852.79	220	313.81	75.00	7182.25	220	790.05	1103.86
1364+03.26	1371+25.79	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	722.53	115.63	835.46	90.05	7229.31	0.05	361.47	30.13	2418.87	660	798.23	29.79	2391.57	220	263.07	75.00	6021.08	220	662.32	925.39
1383+91.09	1385+65.00	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	173.91	115.63	201.09	90.05	1740.07	0.05	87.00	30.13	582.21	660	192.13	29.79	575.64	220	63.32	75.00	1449.25	220	159.42	222.74
1390+00.00	1404+63.66	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	1463.66	115.63	1692.43	90.05	14644.73	0.05	732.24	30.13	4900.01	660	1617.00	29.79	4844.71	220	532.92	75.00	12197.17	220	1341.69	1874.61
1412+37.99	1414+20.06	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	182.07	115.63	210.53	90.05	1821.71	0.05	91.09	30.13	609.53	660	201.14	29.79	602.65	220	66.29	75.00	1517.25	220	166.90	233.19
1418+48.19	1427+61.66	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	7	913.47	115.63	1056.25	90.05	9139.77	0.05	456.99	30.13	3058.09	660	1009.17	29.79	3023.59	220	332.59	75.00	7612.25	220	837.35	1169.94
1034+66.90	1055+75.98	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	2109.08	301.79	6364.99																	
1087+88.11	1112+30.91	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	2442.80	301.79	7372.13																	
1120+83.10	1136+33.10	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	1550.00	301.79	4677.75																	
1144+17.03	1183+23.06	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	3906.03	301.79	11788.01																	
1190+33.71	1198+23.21	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	789.50	301.79	2382.63																	
1296+87.12	1298+35.00	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	147.88	301.79	446.29																	
1325+51.75	1334+13.62	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	861.87	301.79	2601.04																	
1364+03.26	1371+25.79	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	722.53	301.79	2180.52																	
1383+91.09	1385+65.00	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	173.91	301.79	524.84																	
1390+00.00	1404+63.66	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	1463.66	301.79	4417.18																	
1412+37.99	1414+20.06	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	182.07	301.79	549.47																	
1418+48.19	1427+61.66	HWY. 70 SUPERELEVATED OVERLAY CENTER - SHOULDERS	7	913.47	301.79	2756.76																	
1000+00.00	1025+75.00	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	8	2575.00	119.26	3070.95	93.01	26611.19	0.05	1330.56	31.09	8895.19	660	2935.41	30.83	8820.81	220	970.29	75.00	21458.33	220	2360.42	3330.71
1028+00.00	1034+66.90	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	8	666.90	119.26	795.34	93.01	6892.04	0.05	344.60	31.09	2303.77	660	760.24	30.83	2284.50	220	251.30	75.00	5557.50	220	611.33	862.63
1055+75.98	1087+88.11	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	8	3212.13	119.26	3830.79	93.01	33195.58	0.05	1659.78	31.09	11096.12	660	3661.72	30.83	11003.33	220	1210.37	75.00	26767.75	220	2944.45	4154.82
1112+30.91	1120+83.10	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	8	852.19	119.26	1016.32	93.01	8806.91	0.05	440.35	31.09	2943.84	660	971.47	30.83	2919.22	220	321.11	75.00	7101.58	220	781.17	1102.28
1136+33.10	1144+17.03	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	8	783.93	119.26	934.91	93.01	8101.48	0.05	405.07	31.09	2708.04	660	893.65	30.83	2685.40	220	295.39	75.00	6532.75	220	718.60	1013.99
1183+23.06	1190+33.71	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	8	710.65	119.26	847.52	93.01	7344.17	0.05	367.21	31.09	2454.90	660	810.12	30.83	2434.37	220	267.78	75.00	5922.08	220	651.43	919.21
1408+43.70	1412+37.99	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES - FULL DEPTH LT. & RT.	8	394.29	119.26	470.23	93.01	4074.77	0.05	203.74	31.09	1362.05	660	449.48	30.83	1350.66	220	148.57	75.00	3285.75	220	361.43	510.00
1000+00.00	1025+75.00	HWY. 70 TANGENT OVERLAY CENTER - SHOULDERS	8	2575.00	181.00	4660.75																	
1028+00.00	1034+66.90	HWY. 70 TANGENT OVERLAY CENTER - SHOULDERS	8	666.90	181.00	1207.09																	
1055+75.98	1087+88.11	HWY. 70 TANGENT OVERLAY CENTER - SHOULDERS	8	3212.13	181.00	5813.96																	
1112+30.91	1120+83.10	HWY. 70 TANGENT OVERLAY CENTER - SHOULDERS	8	852.19	181.00	1542.46																	
1136+33.10	1144+17.03	HWY. 70 TANGENT OVERLAY CENTER - SHOULDERS	8	783.93	181.00	1418.91																	
1183+23.06	1190+33.71	HWY. 70 TANGENT OVERLAY CENTER - SHOULDERS	8	710.65	181.00	1286.28																	
1408+43.70	1412+37.99	HWY. 70 TANGENT OVERLAY CENTER - SHOULDERS	8	394.29	181.00	713.66																	
1272+10.00	1296+87.12	HWY. 70 TANGENT OVERLAY LT. - MAIN LANES - FULL DEPTH	9	2477.12	129.75	3214.06	100.78	27738.24	0.05	1386.91	33.65	9261.68	660	3056.35	33.48	9214.89	220	1013.64	75.00	20642.67	220	2270.69	3284.33
1335+80.73	1364+03.26	HWY. 70 TANGENT OVERLAY LT. - MAIN LANES - FULL DEPTH	9	2822.53	129.75	3662.23	100.78	31606.06	0.05	1580.30	33.65	10553.13	660	3482.53	33.48	10499.81	220	1154.98	75.00	23521.08	220	2587.32	3742.30
1408+13.75	1408+43.70	HWY. 70 TANGENT OVERLAY LT. - MAIN LANES - FULL DEPTH	9	29.95	129.75	38.86	100.78	335.37	0.05	16.77	33.65	111.98	660	36.95	33.48	111.41	220	12.26	75.00	249.58	220	27.45	39.71
1272+10.00	1296+87.12	HWY. 70 TANGENT OVERLAY LT. - SHOULDERS	9	2477.12	181.00	4483.59																	
1335+80.73	1364+03.26	HWY. 70 TANGENT OVERLAY LT. - SHOULDERS	9	2822.53	181.00	5108.78																	
1408+13.75	1408+43.70	HWY. 70 TANGENT OVERLAY LT. - SHOULDERS	9	29.95	181.00	54.21																	
1025+75.00	1028+00.00	HWY. 70 TANGENT - MAIN LANES - FULL DEPTH	10	225.00	245.00	551.25	190.41	4760.25	0.05	238.01	63.58	1589.50	660	524.54	63.25	1581.25	220	173.94	75.00	1875.00	220	206.25	380.19
1025+87.66	1027+31.92	HWY. 70 TANGENT - MAIN LANES - FULL DEPTH-WIDENING	10	144.26	56.67	81.75	7.14	114.45	0.05	5.72	2.38	38.15	660	12.59	2.38	38.15	220	4.20	2.38	38.15	220	4.20	8.40
1262+59.50	1263+00.00	HWY. 70 TANGENT - MAIN LANES - FULL DEPTH	10	40.50	245.00	99.23	190.41	856.85	0.05	42.84	63.58	286.11	660	94.42	63.25	284.63	220	31.31	75.00	337.50	220	37.13	68.44
1025+75.00	1028+00.00	HWY. 70 TANGENT - SHOULDERS	10	225.00	181.00	407.25																	
1262+59.50	1263+00.00	HWY. 70 TANGENT - SHOULDERS	10	40.50	181.00	73.31																	
SUBTOTALS (BOX 3 OF 4):						**141962.88**		**419426.03**		**20971.30**		**140159.03**		**45684.89**		**139071.77**		**15297.91**		**311250.16**		**34237.52**	**49535.43**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2")....................95.2% MIN. AGGR.................4.8% ASPHALT BINDER (PG70-22)
ACHM BINDER COURSE (1")...........................95.9% MIN. AGGR.................4.1% ASPHALT BINDER (PG70-22)
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.10887 SCOTT P. THORNSBERRY
9-28-2016

QUANTITIES

Leonard.Speed 9/23/2016 2:02:20 PM
WORKSPACE: Leonard.Speed
c:\pwwbi-local\baker_projects\leonard.speed\d0424368\rCA0610_08_QYT_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	228	888

(2) QUANTITIES

BASE AND SURFACING (BOX 4 OF 4)

STATION	STATION	LOCATION	TYP NO.	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BINDER COURSE (1")					ACHM SURFACE COURSE (1/2")										
					TON / STATION	TON	AVG. WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	PG 70-22	TOTAL PG 64-22	TOTAL PG 70-22
				FEET			FEET				FEET			TON	TON	FEET			TON	TON	FEET			TON	TON	TON	TON
HWY. 70																										
1198+80.00	1201+70.00	LEFT TRAVEL LANE	11	290.00	44.25	128.33	34.78	1120.69	0.05	56.03	11.65	375.39	660		123.88	11.48	369.91	220		40.69	29.50	950.56	220		104.56		145.25
1220+75.00	1239+33.96	LEFT TRAVEL LANE	11	1858.96	44.25	822.59	34.78	7183.85	0.05	359.19	11.65	2406.32	660		794.09	11.48	2371.21	220		260.83	29.50	6093.26	220		670.26		931.09
1198+80.00	1201+70.00	LEFT SHOULDER	11	290.00	167.56	485.92															8.00	257.78	220		28.36		28.36
1220+75.00	1239+33.96	LEFT SHOULDER	11	1858.96	167.56	3114.87															8.00	1652.41	220		181.77		181.77
1198+80.00	1201+70.00	RIGHT TRAVEL LANE	11	290.00	118.50	343.65	92.21	2971.21	0.05	148.56	30.79	992.12	660		327.40	30.63	986.97	220		108.57	29.50	950.56	220		104.56		213.13
1220+75.00	1239+33.96	RIGHT TRAVEL LANE	11	1858.96	118.50	2202.87	92.21	19046.08	0.05	952.30	30.79	6359.71	660		2098.70	30.63	6326.66	220		695.93	29.50	6093.26	220		670.26		1366.19
1198+80.00	1201+70.00	RIGHT SHOULDER	11	290.00	134.23	389.27															8.00	257.78	220		28.36		28.36
1220+75.00	1239+33.96	RIGHT SHOULDER	11	1858.96	134.23	2495.28															8.00	1652.41	220		181.77		181.77
1239+33.96	1245+15.15	LEFT SHOULDER	12	581.19	167.56	973.84															8.00	516.61	220		56.83		56.83
1239+33.96	1245+15.15	RIGHT TRAVEL LANE	12	581.19	153.00	889.22	126.77	8186.38	0.05	409.32	42.31	2732.24	660		901.64	42.15	2721.91	220		299.41	59.00	3810.02	220		419.10		718.51
1239+33.96	1245+15.15	RIGHT SHOULDER	12	581.19	134.23	780.13															8.00	516.61	220		56.83		56.83
1245+15.15	1262+58.50	LEFT SHOULDER	13	1743.35	90.50	1577.73															8.00	1549.64	220		170.46		170.46
1263+00.00	1272+10.00	LEFT SHOULDER	13	910.00	90.50	823.55															8.00	808.89	220		88.98		88.98
1245+15.15	1262+58.50	RIGHT TRAVEL LANE	13	1743.35	154.63	2695.74	120.02	23248.54	0.05	1162.43	40.06	7759.84	660		2560.75	39.90	7728.85	220		850.17	59.00	11428.63	220		1257.15		2107.32
1263+00.00	1272+10.00	RIGHT TRAVEL LANE	13	910.00	154.63	1407.13	120.02	12135.36	0.05	606.77	40.06	4050.51	660		1336.67	39.90	4034.33	220		443.78	59.00	5965.56	220		656.21		1099.99
1245+15.15	1262+58.50	RIGHT SHOULDER	13	1743.35	90.50	1577.73															8.00	1549.64	220		170.46		170.46
1263+00.00	1272+10.00	RIGHT SHOULDER	13	910.00	90.50	823.55															8.00	808.89	220		88.98		88.98
1429+14.26	1434+80.00	RIGHT TRAVEL LANE	14	565.74	101.00	571.40	78.71	4947.71	0.05	247.39	26.29	1652.59	660		545.35	26.13	1642.53	220		180.68	73.40	4613.92	220		507.53		688.21
1429+14.26	1434+80.00	RIGHT SHOULDER	14	565.74	134.23	759.39															8.00	502.88	220		55.32		55.32
1429+14.26	1434+80.00	LEFT LANE OVERLAY	14	565.74			49.90	3136.71	0.17	533.24																	
1434+80.00	1437+60.00	LEFT LANE SURFACE	15	280.00			38.63	1201.82	0.17	204.31											38.63	1201.82	220		132.20		132.20
1434+80.00	1437+60.00	RIGHT INSIDE SHOULDER	15	280.00	105.46	295.29															4.00	124.44	220		13.69		13.69
1434+80.00	1437+60.00	RIGHT TRAVEL LANE	15	280.00	101.00	282.80	79.41	2470.53	0.05	123.53	26.58	826.93	660		272.89	26.25	816.67	220		89.83	24.00	746.67	220		82.13		171.96
1434+80.00	1437+60.00	RIGHT OUTSIDE SHOULDER	15	280.00	134.23	375.84															10.00	311.11	220		34.22		34.22
1437+60.00	1441+42.50	RIGHT LANE OVERLAY	16	382.50			38.00	1615.00	0.17	274.55											38.00	1615.00	220		177.65		177.65
1437+60.00	1441+42.50	LEFT LANE OVERLAY	16	382.50			38.00	1615.00	0.17	274.55											38.00	1615.00	220		177.65		177.65
SIDE ROADS																										
17+60.00	19+70.50	CROSSGATE CHURCH DR.		210.50	311.00	654.66															42.00	982.33	220	108.06		108.06	
20+30.57	23+60.00	CEDAR CREEK ROAD		329.43	162.75	536.15					24.58	899.71									20.00	732.07	220	80.53		80.53	
20+30.40	21+80.00	COUNTY ROAD 1381		149.60	162.75	243.47					7.00	116.36									20.00	332.44	220	36.57		36.57	
10+29.50	18+00.00	HWY. 128		770.50	197.50	1521.74	48.83	4180.39	0.05	209.02	24.58	2104.32	660	694.43		24.25	2076.07	220	228.37		40.00	3424.44	220	376.69		605.06	
10+29.52	19+00.00	HWY. 128 FULL DEPTH SHOULDER		870.48	61.25	533.17	24.00	2321.28	0.05	116.06	8.00	773.76	660	255.34		8.00	773.76	220	85.11							85.11	
6+50.00	9+70.50	LONSDALE CUTOFF RD		320.50	162.75	521.61															20.00	712.22	220	78.34		78.34	
38+00.00	39+70.39	HWY. 88 SUPERELEVATED		170.39	253.00	431.09	44.83	848.73	0.05	42.44	22.58	427.49	660	141.07		22.25	421.24	220	46.34		34.00	643.70	220	70.81		117.15	
38+00.00	39+70.39	HWY. 88 SUPER ELEV. (RAD RET. WIDENING)		170.39	0.27	0.46	0.14	2.65	0.05	0.13	0.07	1.33	660	0.44		0.07	1.33	220	0.15		0.07	1.33	220	0.15		0.30	
107+44.25	109+70.50	NANCE ROAD		226.25	162.75	368.22															20.00	502.78	220	55.31		55.31	
128+07.35	129+70.50	TEN MILE ROAD		163.15	162.75	265.53															20.00	362.56	220	39.88		39.88	
140+29.50	142+50.00	NARROWS ROAD		220.50	162.75	358.86															20.00	490.00	220	53.90		53.90	
205+30.53	217+14.39	BROWNING ACCESS RD.		1183.86	136.75	1618.93															16.00	2104.64	220	231.51		231.51	
210+29.57	212+40.00	BROWNING ROAD W.		210.43	162.75	342.47															20.00	467.62	220	51.44		51.44	
300+30.53	302+60.00	SMITH FORD ROAD		229.47	162.75	373.46															20.00	509.93	220	56.09		56.09	
330+41.43	336+05.20	FRONTAGE ROAD		563.77	284.50	1603.93															38.50	2411.68	220	265.28		265.28	
1438+28.00	1438+68.00	MEDIAN TURN AROUND		40.00	284.50	113.80	114.00	506.67	0.05	25.33	38.00	168.89	660		55.73	38.00	168.89	220		18.58	38.00	168.89	220	18.58	18.58		37.16
BASE AND SURFACING - (BOX 1 OF 4)						**75250.49**		**168166.15**		**8747.60**		**82673.37**			**27282.19**		**85285.11**			**9630.18**		**129013.61**			**14191.51**		**23821.69**
BASE AND SURFACING - (BOX 2 OF 4)						**119206.12**		**251495.05**		**12574.77**		**110092.72**			**36330.62**		**109163.53**			**12007.99**		**283985.42**			**31238.41**		**43246.40**
BASE AND SURFACING - (BOX 3 OF 4)						**141962.88**		**419426.03**		**20971.30**		**140159.03**			**45684.89**		**139071.77**			**15297.91**		**311250.16**			**34237.52**		**49535.43**
BASE AND SURFACING - (BOX 4 OF 4)						**33303.67**		**96738.60**		**5745.15**		**31647.51**		**1091.28**	**9017.10**		**30440.33**		**359.97**	**2988.47**		**69439.98**		**1523.14**	**6133.87**	**1864.53**	**9122.34**
BASE AND SURFACING - TOTALS:						**369723.16**		**935825.83**		**48038.82**		**364572.63**		**1091.28**	**118314.80**		**363960.74**		**359.97**	**39924.55**		**793689.17**		**1523.14**	**85801.31**	**1864.53**	**125725.86**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....95.2% MIN. AGGR.....4.8% ASPHALT BINDER (PG70-22)
ACHM SURFACE COURSE (1/2").....95.1% MIN. AGGR.....4.9% ASPHALT BINDER (PG64-22)
ACHM BINDER COURSE (1").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER (PG70-22)
ACHM BINDER COURSE (1").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER (PG64-22)
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
* * *
No.10887
SCOTT P. THORNSBERRY
9-23-2016

QUANTITIES

Leonard.Speed 9/23/2016 2:02:21 PM
WORKSPACE: Leonard.Speed
C:\pw\bl-local\baker_projects\leonard.speed\d0424368\rCA0610_08_QYT_001.dgn
REVISED DATE: $$REVDATE$$

BASE AND SURFACING - ADDITIONAL FOR LEVELING (BOX 1 OF 2)

STATION	STATION	LOCATION	TYP NO.	LENGTH	TACK COAT				ACHM BASE COURSE (1-1/2")				ACHM SURFACE COURSE (1/2")			
					AVG. WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22
				FEET	FEET				FEET			TON	FEET			TON
HWY. 70																
496+82.30	504+36.05	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANESOVERLAY	6	753.75	42.04	3520.85	0.05	176.04	21.02	1760.43	453	398.74	21.02	1760.43	220	193.65
508+64.91	510+50.00	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES OVERLAY	6	185.09	42.04	864.58	0.05	43.23	21.02	432.29	453	97.91	21.02	432.29	220	47.55
521+38.24	522+97.38	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES OVERLAY	6	159.14	42.04	743.36	0.05	37.17	21.02	371.68	453	84.19	21.02	371.68	220	40.88
538+00.00	543+40.27	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES OVERLAY	6	540.27	42.04	2523.66	0.05	126.18	21.02	1261.83	453	285.80	21.02	1261.83	220	138.80
569+64.00	574+32.93	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES OVERLAY	6	468.93	42.04	2190.42	0.05	109.52	21.02	1095.21	453	248.07	21.02	1095.21	220	120.47
612+47.19	616+55.34	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES OVERLAY	6	408.15	42.04	1906.51	0.05	95.33	21.02	953.26	453	215.91	21.02	953.26	220	104.86
627+25.12	650+75.00	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES OVERLAY	6	2349.88	42.04	10976.55	0.05	548.83	21.02	5488.28	453	1243.10	21.02	5488.28	220	603.71
792+55.58	797+25.00	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES OVERLAY	6	469.42	42.04	2192.71	0.05	109.64	21.02	1096.36	453	248.33	21.02	1096.36	220	120.60
809+88.96	812+39.14	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES OVERLAY	6	250.18	42.04	1168.62	0.05	58.43	21.02	584.31	453	132.35	21.02	584.31	220	64.27
835+23.50	837+90.00	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES OVERLAY	6	266.50	42.04	1244.85	0.05	62.24	21.02	622.43	453	140.98	21.02	622.43	220	68.47
844+50.00	852+22.78	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES OVERLAY	6	772.78	42.04	3609.74	0.05	180.49	21.02	1804.87	453	408.80	21.02	1804.87	220	198.54
855+13.22	866+09.88	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES OVERLAY	6	1096.66	42.04	5122.62	0.05	256.13	21.02	2561.31	453	580.14	21.02	2561.31	220	281.74
875+75.00	881+63.10	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES OVERLAY	6	588.10	42.04	2747.08	0.05	137.35	21.02	1373.54	453	311.11	21.02	1373.54	220	151.09
885+35.78	897+41.78	HWY. 70 SUPERELEVATED OVERLAY LT. - MAIN LANES OVERLAY	6	1206.00	42.04	5633.36	0.05	281.67	21.02	2816.68	453	637.98	21.02	2816.68	220	309.83
496+82.30	504+36.05	HWY. 70 SUPERELEVATED OVERLAY LT. - TACK COAT EXIST.	6	753.75	21.02	1760.43	0.17	299.27	21.02	1760.43						
508+64.91	510+50.00	HWY. 70 SUPERELEVATED OVERLAY LT. - TACK COAT EXIST.	6	185.09	21.02	432.29	0.17	73.49	21.02	432.29						
521+38.24	522+97.38	HWY. 70 SUPERELEVATED OVERLAY LT. - TACK COAT EXIST.	6	159.14	21.02	371.68	0.17	63.19	21.02	371.68						
538+00.00	543+40.27	HWY. 70 SUPERELEVATED OVERLAY LT. - TACK COAT EXIST.	6	540.27	21.02	1261.83	0.17	214.51	21.02	1261.83						
569+64.00	574+32.93	HWY. 70 SUPERELEVATED OVERLAY LT. - TACK COAT EXIST.	6	468.93	21.02	1095.21	0.17	186.19	21.02	1095.21						
612+47.19	616+55.34	HWY. 70 SUPERELEVATED OVERLAY LT. - TACK COAT EXIST.	6	408.15	21.02	953.26	0.17	162.05	21.02	953.26						
627+25.12	650+75.00	HWY. 70 SUPERELEVATED OVERLAY LT. - TACK COAT EXIST.	6	2349.88	21.02	5488.28	0.17	933.01	21.02	5488.28						
792+55.58	797+25.00	HWY. 70 SUPERELEVATED OVERLAY LT. - TACK COAT EXIST.	6	469.42	21.02	1096.36	0.17	186.38	21.02	1096.36						
809+88.96	812+39.14	HWY. 70 SUPERELEVATED OVERLAY LT. - TACK COAT EXIST.	6	250.18	21.02	584.31	0.17	99.33	21.02	584.31						
835+23.50	837+90.00	HWY. 70 SUPERELEVATED OVERLAY LT. - TACK COAT EXIST.	6	266.50	21.02	622.43	0.17	105.81	21.02	622.43						
844+50.00	852+22.78	HWY. 70 SUPERELEVATED OVERLAY LT. - TACK COAT EXIST.	6	772.78	21.02	1804.87	0.17	306.83	21.02	1804.87						
855+13.22	866+09.88	HWY. 70 SUPERELEVATED OVERLAY LT. - TACK COAT EXIST.	6	1096.66	21.02	2561.31	0.17	435.42	21.02	2561.31						
875+75.00	881+63.10	HWY. 70 SUPERELEVATED OVERLAY LT. - TACK COAT EXIST.	6	588.10	21.02	1373.54	0.17	233.50	21.02	1373.54						
885+35.78	897+41.78	HWY. 70 SUPERELEVATED OVERLAY LT. - TACK COAT EXIST.	6	1206.00	21.02	2816.68	0.17	478.84	21.02	2816.68						
504+36.05	505+09.59	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES OVERLAY	7	73.54	67.80	554.00	0.05	27.70	33.90	277.00	453	62.74	33.90	277.00	220	30.47
507+50.00	508+64.91	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES OVERLAY	7	114.91	67.80	865.66	0.05	43.28	33.90	432.83	453	98.04	33.90	432.83	220	47.61
517+33.75	521+38.24	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES OVERLAY	7	404.49	67.80	3047.16	0.05	152.36	33.90	1523.58	453	345.09	33.90	1523.58	220	167.59
529+20.97	538+00.00	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES OVERLAY	7	879.03	67.80	6622.03	0.05	331.10	33.90	3311.01	453	749.94	33.90	3311.01	220	364.21
543+40.27	569+64.00	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES OVERLAY	7	2623.73	67.80	19765.43	0.05	988.27	33.90	9882.72	453	2238.44	33.90	9882.72	220	1087.10
574+32.93	605+10.10	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES OVERLAY	7	3077.17	67.80	23181.35	0.05	1159.07	33.90	11590.67	453	2625.29	33.90	11590.67	220	1274.97
605+95.09	612+47.19	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES OVERLAY	7	652.10	67.80	4912.49	0.05	245.62	33.90	2456.24	453	556.34	33.90	2456.24	220	270.19
616+55.34	624+05.38	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES OVERLAY	7	750.04	67.80	5650.30	0.05	282.52	33.90	2825.15	453	639.90	33.90	2825.15	220	310.77
650+75.00	665+07.79	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES OVERLAY	7	1432.79	67.80	10793.68	0.05	539.68	33.90	5396.84	453	1222.38	33.90	5396.84	220	593.65
665+90.54	679+10.35	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES OVERLAY	7	1319.81	67.80	9942.57	0.05	497.13	33.90	4971.28	453	1125.99	33.90	4971.28	220	546.84
689+43.92	712+82.73	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES OVERLAY	7	2338.81	67.80	17619.04	0.05	880.95	33.90	8809.52	453	1995.36	33.90	8809.52	220	969.05
740+29.50	751+78.82	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES OVERLAY	7	1149.32	67.80	8658.21	0.05	432.91	33.90	4329.11	453	980.54	33.90	4329.11	220	476.20
774+33.82	792+55.58	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES OVERLAY	7	1821.76	67.80	13723.93	0.05	686.20	33.90	6861.96	453	1554.23	33.90	6861.96	220	754.82
800+29.93	809+88.96	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES OVERLAY	7	959.03	67.80	7224.69	0.05	361.23	33.90	3612.35	453	818.20	33.90	3612.35	220	397.36
837+90.00	844+50.00	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES OVERLAY	7	660.00	67.80	4972.00	0.05	248.60	33.90	2486.00	453	563.08	33.90	2486.00	220	273.46
881+63.10	885+35.78	HWY. 70 SUPERELEVATED OVERLAY CENTER - MAIN LANES OVERLAY	7	372.68	67.80	2807.52	0.05	140.38	33.90	1403.76	453	317.95	33.90	1403.76	220	154.41
504+36.05	505+09.59	HWY. 70 SUPERELEVATED OVERLAY CENTER - TACK COAT EXIST.	7	73.54	33.90	277.00	0.17	47.09	33.90							
507+50.00	508+64.91	HWY. 70 SUPERELEVATED OVERLAY CENTER - TACK COAT EXIST.	7	114.91	33.90	432.83	0.17	73.58	33.90							
517+33.75	521+38.24	HWY. 70 SUPERELEVATED OVERLAY CENTER - TACK COAT EXIST.	7	404.49	33.90	1523.58	0.17	259.01	33.90							
529+20.97	538+00.00	HWY. 70 SUPERELEVATED OVERLAY CENTER - TACK COAT EXIST.	7	879.03	33.90	3311.01	0.17	562.87	33.90							
529+20.97	538+00.00	HWY. 70 SUPERELEVATED OVERLAY CENTER - TACK COAT EXIST.	7	879.03	33.90	3311.01	0.17	562.87	33.90							
574+32.93	605+10.10	HWY. 70 SUPERELEVATED OVERLAY CENTER - TACK COAT EXIST.	7	3077.17	33.90	11590.67	0.17	1970.41	33.90							
605+95.09	612+47.19	HWY. 70 SUPERELEVATED OVERLAY CENTER - TACK COAT EXIST.	7	652.10	33.90	2456.24	0.17	417.56	33.90							
616+55.34	624+05.38	HWY. 70 SUPERELEVATED OVERLAY CENTER - TACK COAT EXIST.	7	750.04	33.90	2825.15	0.17	480.28	33.90							
650+75.00	665+07.79	HWY. 70 SUPERELEVATED OVERLAY CENTER - TACK COAT EXIST.	7	1432.79	33.90	5396.84	0.17	917.46	33.90							
665+90.54	679+10.35	HWY. 70 SUPERELEVATED OVERLAY CENTER - TACK COAT EXIST.	7	1319.81	33.90	4971.28	0.17	845.12	33.90							
689+43.92	712+82.73	HWY. 70 SUPERELEVATED OVERLAY CENTER - TACK COAT EXIST.	7	2338.81	33.90	8809.52	0.17	1497.62	33.90							
740+29.50	751+78.82	HWY. 70 SUPERELEVATED OVERLAY CENTER - TACK COAT EXIST.	7	1149.32	33.90	4329.11	0.17	735.95	33.90							
774+33.82	792+55.58	HWY. 70 SUPERELEVATED OVERLAY CENTER - TACK COAT EXIST.	7	1821.76	33.90	6861.96	0.17	1166.53	33.90							
800+29.93	809+88.96	HWY. 70 SUPERELEVATED OVERLAY CENTER - TACK COAT EXIST.	7	959.03	33.90	3612.35	0.17	614.10	33.90							
837+90.00	844+50.00	HWY. 70 SUPERELEVATED OVERLAY CENTER - TACK COAT EXIST.	7	660.00	33.90	2486.00	0.17	422.62	33.90							
881+63.10	885+35.78	HWY. 70 SUPERELEVATED OVERLAY CENTER - TACK COAT EXIST.	7	372.68	33.90	1403.76	0.17	238.64	33.90							
605+10.10	605+95.09	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES OVERLAY	8	84.99	47.80	451.39	0.05	22.57	23.90	225.70	453	51.12	23.90	225.70	220	24.83
624+05.38	627+25.12	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES OVERLAY	8	319.74	47.80	1698.17	0.05	84.91	23.90	849.09	453	192.32	23.90	849.09	220	93.40
665+07.79	665+90.54	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES OVERLAY	8	82.75	47.80	439.49	0.05	21.97	23.90	219.75	453	49.77	23.90	219.75	220	24.17
679+10.35	689+43.92	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES OVERLAY	8	1033.57	47.80	5489.41	0.05	274.47	23.90	2744.70	453	621.67	23.90	2744.70	220	301.92
712+82.73	740+29.50	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES OVERLAY	8	2746.77	47.80	14588.40	0.05	729.42	23.90	7294.20	453	1652.14	23.90	7294.20	220	802.36
751+78.82	774+33.82	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES OVERLAY	8	2255.00	47.80	11976.56	0.05	598.83	23.90	5988.28	453	1356.35	23.90	5988.28	220	658.71
921+50.00	969+49.03	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES OVERLAY	8	4799.03	47.80	25488.18	0.05	1274.41	23.90	12744.09	453	2886.54	23.90	12744.09	220	1401.85
974+25.00	981+17.61	HWY. 70 TANGENT OVERLAY CENTER - MAIN LANES OVERLAY	8	692.61	47.80	3678.53	0.05	183.93	23.90	1839.26	453	416.59	23.90	1839.26	220	202.32
605+10.10	605+95.09	HWY. 70 TANGENT OVERLAY CENTER - TACK COAT EXIST.	8	84.99	23.90	225.70	0.17	38.37	23.90	225.70						
624+05.38	627+25.12	HWY. 70 TANGENT OVERLAY CENTER - TACK COAT EXIST.	8	319.74	23.90	849.09	0.17	144.35	23.90	849.09						
665+07.79	665+90.54	HWY. 70 TANGENT OVERLAY CENTER - TACK COAT EXIST.	8	82.75	23.90	219.75	0.17	37.36	23.90	219.75						
679+10.35	689+43.92	HWY. 70 TANGENT OVERLAY CENTER - TACK COAT EXIST.	8	1033.57	23.90	2744.70	0.17	466.60	23.90	2744.70						
712+82.73	740+29.50	HWY. 70 TANGENT OVERLAY CENTER - TACK COAT EXIST.	8	2746.77	23.90	7294.20	0.17	1240.01	23.90	7294.20						
751+78.82	774+33.82	HWY. 70 TANGENT OVERLAY CENTER - TACK COAT EXIST.	8	2255.00	23.90	5988.28	0.17	1018.01	23.90	5988.28						
921+50.00	969+49.03	HWY. 70 TANGENT OVERLAY CENTER - TACK COAT EXIST.	8	4799.03	23.90	12744.09	0.17	2166.50	23.90	12744.09						
974+25.00	981+17.61	HWY. 70 TANGENT OVERLAY CENTER - TACK COAT EXIST.	8	692.61	23.90	1839.26	0.17	312.67	23.90	1839.26						
852+22.78	855+13.22	HWY. 70 TANGENT OVERLAY LT. - MAIN LANES OVERLAY	9	290.44	54.12	1746.51	0.17	296.91	27.06	873.26	453	197.79	27.06	873.26	220	96.06
897+41.78	921+50.00	HWY. 70 TANGENT OVERLAY LT. - MAIN LANES OVERLAY	9	2408.22	54.12	14481.43	0.17	2461.84	27.06	7240.71	453	1640.02	27.06	7240.71	220	796.48
852+22.78	855+13.22	HWY. 70 TANGENT OVERLAY LT. - TACK COAT EXIST.	9	290.44												
897+41.78	921+50.00	HWY. 70 TANGENT OVERLAY LT. - TACK COAT EXIST.	9	2408.22												
SUBTOTALS:						**382548.90**		**35201.91**		**186539.09**		**29991.23**		**132411.54**		**14565.26**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....95.2% MIN. AGGR.....4.8% ASPHALT BINDER (PG70-22)
ACHM BINDER COURSE (1").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER (PG70-22)
ACHM BASE COURSE (1 1/2").....96.2% MIN. AGGR.....3.8% ASPHALT BINDER (PG70-22)
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

QUANTITIES

Leonard.Speed 9/23/2016 2:02:22 PM
WORKSPACE: Leonard.Speed
c:\pw\bi-local\baker_projects\leonard.speed\d0424368\r-ca0610_08_01_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	230	888

(2) QUANTITIES

BASE AND SURFACING - ADDITIONAL FOR LEVELING (BOX 2 OF 2)

STATION	STATION	LOCATION	TYP NO.	LENGTH	TACK COAT				ACHM BASE COURSE (1-1/2")				ACHM SURFACE COURSE (1/2")			
					AVG. WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22
				FEET	FEET				FEET			TON	FEET			TON
HWY. 70																
1198+23.21	1198+80.00	LEVELING EXISTING LANES	6	56.79	64.00	403.84	0.05	20.19	32.00	201.92	295	29.78	32.00	201.92	220	22.21
1296+87.12	1316+00.00	LEVELING EXISTING LANES	6	1912.88	64.00	13602.70	0.05	680.14	32.00	6801.35	295	1003.20	32.00	6801.35	220	748.15
1323+25.00	1325+51.75	LEVELING EXISTING LANES	6	226.75	64.00	1612.44	0.05	80.62	32.00	806.22	295	118.92	32.00	806.22	220	88.68
1334+13.62	1335+80.73	LEVELING EXISTING LANES	6	167.11	64.00	1188.34	0.05	59.42	32.00	594.17	295	87.64	32.00	594.17	220	65.36
1371+25.79	1383+91.09	LEVELING EXISTING LANES	6	1265.30	64.00	8997.69	0.05	449.88	32.00	4498.84	295	663.58	32.00	4498.84	220	494.87
1404+63.66	1408+13.75	LEVELING EXISTING LANES	6	350.09	64.00	2489.53	0.05	124.48	32.00	1244.76	295	183.60	32.00	1244.76	220	136.92
1414+20.06	1418+48.19	LEVELING EXISTING LANES	6	428.13	64.00	3044.48	0.05	152.22	32.00	1522.24	295	224.53	32.00	1522.24	220	167.45
1427+61.66	1429+14.26	LEVELING EXISTING LANES	6	152.60	64.00	1085.16	0.05	54.26	32.00	542.58	295	80.03	32.00	542.58	220	59.68
1198+23.21	1198+80.00	TACK COAT EXISTING LANES	6	56.79	32.00	201.92	0.17	34.33								
1296+87.12	1316+00.00	TACK COAT EXISTING LANES	6	1912.88	32.00	6801.35	0.17	1156.23								
1323+25.00	1325+51.75	TACK COAT EXISTING LANES	6	226.75	32.00	806.22	0.17	137.06								
1334+13.62	1335+80.73	TACK COAT EXISTING LANES	6	167.11	32.00	594.17	0.17	101.01								
1371+25.79	1383+91.09	TACK COAT EXISTING LANES	6	1265.30	32.00	4498.84	0.17	764.80								
1404+63.66	1408+13.75	TACK COAT EXISTING LANES	6	350.09	32.00	1244.76	0.17	211.61								
1414+20.06	1418+48.19	TACK COAT EXISTING LANES	6	428.13	32.00	1522.24	0.17	258.78								
1427+61.66	1429+14.26	TACK COAT EXISTING LANES	6	152.60	32.00	542.58	0.17	92.24								
1034+66.90	1055+75.98	LEVELING EXISTING LANES	7	2109.08	72.76	17050.74	0.05	852.54	36.38	8525.37	295	1257.49	36.38	8525.37	220	937.79
1087+88.11	1112+30.91	LEVELING EXISTING LANES	7	2442.80	72.76	19748.68	0.05	987.43	36.38	9874.34	295	1456.47	36.38	9874.34	220	1086.18
1120+83.10	1136+33.10	LEVELING EXISTING LANES	7	1550.00	72.76	12530.89	0.05	626.54	36.38	6265.44	295	924.15	36.38	6265.44	220	689.20
1144+17.03	1183+23.06	LEVELING EXISTING LANES	7	3906.03	72.76	31578.08	0.05	1578.90	36.38	15789.04	295	2328.88	36.38	15789.04	220	1736.79
1190+33.71	1198+23.21	LEVELING EXISTING LANES	7	789.50	72.76	6382.67	0.05	319.13	36.38	3191.33	295	470.72	36.38	3191.33	220	351.05
1296+87.12	1298+35.00	LEVELING EXISTING LANES	7	147.88	72.76	1195.53	0.05	59.78	36.38	597.76	295	88.17	36.38	597.76	220	65.75
1325+51.75	1334+13.62	LEVELING EXISTING LANES	7	861.87	72.76	6967.74	0.05	348.39	36.38	3483.87	295	513.87	36.38	3483.87	220	383.23
1364+03.26	1371+25.79	LEVELING EXISTING LANES	7	722.53	72.76	5841.25	0.05	292.06	36.38	2920.63	295	430.79	36.38	2920.63	220	321.27
1383+91.09	1385+65.00	LEVELING EXISTING LANES	7	173.91	72.76	1405.97	0.05	70.30	36.38	702.98	295	103.69	36.38	702.98	220	77.33
1390+00.00	1404+63.66	LEVELING EXISTING LANES	7	1463.66	72.76	11832.88	0.05	591.64	36.38	5916.44	295	872.67	36.38	5916.44	220	650.81
1412+37.99	1414+20.06	LEVELING EXISTING LANES	7	182.07	72.76	1471.93	0.05	73.60	36.38	735.97	295	108.56	36.38	735.97	220	80.96
1418+48.19	1427+61.66	LEVELING EXISTING LANES	7	913.47	72.76	7384.90	0.05	369.25	36.38	3692.45	295	544.64	36.38	3692.45	220	406.17
1034+66.90	1055+75.98	TACK COAT EXISTING LANES	7	2109.08	36.38	8525.37	0.17	1449.31								
1087+88.11	1112+30.91	TACK COAT EXISTING LANES	7	2442.80	36.38	9874.34	0.17	1678.64								
1120+83.10	1136+33.10	TACK COAT EXISTING LANES	7	1550.00	36.38	6265.44	0.17	1065.12								
1144+17.03	1183+23.06	TACK COAT EXISTING LANES	7	3906.03	36.38	15789.04	0.17	2684.14								
1190+33.71	1198+23.21	TACK COAT EXISTING LANES	7	789.50	36.38	3191.33	0.17	542.53								
1296+87.12	1298+35.00	TACK COAT EXISTING LANES	7	147.88	36.38	597.76	0.17	101.62								
1325+51.75	1334+13.62	TACK COAT EXISTING LANES	7	861.87	36.38	3483.87	0.17	592.26								
1364+03.26	1371+25.79	TACK COAT EXISTING LANES	7	722.53	36.38	2920.63	0.17	496.51								
1383+91.09	1385+65.00	TACK COAT EXISTING LANES	7	173.91	36.38	702.98	0.17	119.51								
1390+00.00	1404+63.66	TACK COAT EXISTING LANES	7	1463.66	36.38	5916.44	0.17	1005.79								
1412+37.99	1414+20.06	TACK COAT EXISTING LANES	7	182.07	36.38	735.97	0.17	125.11								
1418+48.19	1427+61.66	TACK COAT EXISTING LANES	7	913.47	36.38	3692.45	0.17	627.72								
1000+00.00	1025+75.00	LEVELING EXISTING LANES	8	2575.00	32.25	9227.08	0.05	461.35	32.25	9227.08	295	1360.99	32.25	9227.08	220	1014.98
1028+00.00	1034+66.90	LEVELING EXISTING LANES	8	666.90	64.50	4779.45	0.05	238.97	32.25	2389.73	295	352.49	32.25	2389.73	220	262.87
1055+75.98	1087+88.11	LEVELING EXISTING LANES	8	3212.13	32.25	11510.13	0.05	575.51	32.25	11510.13	295	1697.74	32.25	11510.13	220	1266.11
1112+30.91	1120+83.10	LEVELING EXISTING LANES	8	852.19	32.25	3053.68	0.05	152.68	32.25	3053.68	295	450.42	32.25	3053.68	220	335.90
1136+33.10	1144+17.03	LEVELING EXISTING LANES	8	783.93	32.25	2809.08	0.05	140.45	32.25	2809.08	295	414.34	32.25	2809.08	220	309.00
1183+23.06	1190+33.71	LEVELING EXISTING LANES	8	710.65	32.25	2546.50	0.05	127.33	32.25	2546.50	295	375.61	32.25	2546.50	220	280.12
1408+43.70	1412+37.99	LEVELING EXISTING LANES	8	394.29	32.25	1412.87	0.05	70.64	32.25	1412.87	295	208.40	32.25	1412.87	220	155.42
1000+00.00	1025+75.00	TACK COAT EXISTING LANES	8	2575.00	32.25	9227.08	0.17	1568.60								
1028+00.00	1034+66.90	TACK COAT EXISTING LANES	8	666.90	32.25	2389.73	0.17	406.25								
1055+75.98	1087+88.11	TACK COAT EXISTING LANES	8	3212.13	32.25	11510.13	0.17	1956.72								
1112+30.91	1120+83.10	TACK COAT EXISTING LANES	8	852.19	32.25	3053.68	0.17	519.13								
1136+33.10	1144+17.03	TACK COAT EXISTING LANES	8	783.93	32.25	2809.08	0.17	477.54								
1183+23.06	1190+33.71	TACK COAT EXISTING LANES	8	710.65	32.25	2546.50	0.17	432.91								
1408+43.70	1412+37.99	TACK COAT EXISTING LANES	8	394.29	32.25	1412.87	0.17	240.19								
1272+10.00	1296+87.12	LEVELING EXISTING LANES	9	2477.12	64.84	17846.27	0.05	892.31	32.42	8923.14	295	1316.16	32.42	8923.14	220	981.55
1335+80.73	1364+03.26	LEVELING EXISTING LANES	9	2822.53	64.84	20334.76	0.05	1016.74	32.42	10167.38	295	1499.69	32.42	10167.38	220	1118.41
1408+13.75	1408+43.70	LEVELING EXISTING LANES	9	29.95	64.84	215.77	0.05	10.79	32.42	107.89	295	15.91	32.42	107.89	220	11.87
1272+10.00	1296+87.12	TACK COAT EXISTING LANES	9	2477.12	32.42	8923.14	0.17	1516.93								
1335+80.73	1364+03.26	TACK COAT EXISTING LANES	9	2822.53	32.42	10167.38	0.17	1728.45								
1408+13.75	1408+43.70	TACK COAT EXISTING LANES	9	29.95	32.42	107.89	0.17	18.34								
1198+80.00	1201+70.00	LEVELING EXISTING LANES	11	290.00	51.20	1649.78	0.05	82.49	25.60	824.89	295	121.67	25.60	824.89	220	90.74
1220+75.00	1239+33.96	LEVELING EXISTING LANES	11	1858.96	51.20	10575.42	0.05	528.77	25.60	5287.71	295	779.94	25.60	5287.71	220	581.65
1198+80.00	1201+70.00	TACK COAT EXISTING LANES	11	290.00	25.60	824.89	0.17	140.23								
1220+75.00	1239+33.96	TACK COAT EXISTING LANES	11	1858.96	25.60	5287.71	0.17	898.91								
1239+33.96	1245+15.15	LEVELING EXISTING LANES	12	581.19	40.04	2585.65	0.05	129.28	20.02	1292.82	295	190.69	20.02	1292.82	220	142.21
1239+33.96	1245+15.15	TACK COAT EXISTING LANES	12	581.19	20.02	1292.82	0.17	219.78								
1245+15.15	1262+58.50	LEVELING EXISTING LANES	13	1743.35	46.54	9015.06	0.05	450.75	23.27	4507.53	295	664.86	23.27	4507.53	220	495.83
1263+00.00	1272+10.00	LEVELING EXISTING LANES	13	910.00	46.54	4705.71	0.05	235.29	23.27	2352.86	295	347.05	23.27	2352.86	220	258.81
1245+15.15	1262+58.50	TACK COAT EXISTING LANES	13	1743.35	23.27	4507.53	0.17	766.28								
1263+00.00	1272+10.00	TACK COAT EXISTING LANES	13	910.00	23.27	2352.86	0.17	399.99								
BASE AND SURF - ADD'L FOR LEVELING (BOX 1 OF 2) SUBTOTALS:						**382548.90**		**35201.91**		**186539.09**		**29991.23**		**132411.54**		**14565.26**
BASE AND SURF - ADD'L FOR LEVELING (BOX 2 OF 2) SUBTOTALS:						**402403.64**		**37438.69**		**144320.99**		**21287.34**		**144320.99**		**15875.32**
TOTALS:						**784952.54**		**72640.60**		**330860.08**		**51278.57**		**276732.53**		**30440.58**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....95.2% MIN. AGGR.....4.8% ASPHALT BINDER (PG70-22)
ACHM BINDER COURSE (1").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER (PG70-22)
ACHM BASE COURSE (1 1/2").....96.2% MIN. AGGR.....3.8% ASPHALT BINDER (PG70-22)
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

QUANTITIES

LeonardSpeed 9/23/2016 2:02:24 PM
WORKSPACE: LeonardSpeed
c:\pw\bl-local\baker_projects\leonardspeed\d0424368\rCA0610_08_01T_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	231	888

(2) QUANTITIES

BASE AND SURFACING - ADDITIONAL FOR MAINTENANCE OF TRAFFIC

STATION	STATION	LOCATION	TYP NO.	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1-1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")			
				FEET	TON / STATION	TON	AVG. WID. FEET	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON
MAINTENANCE OF TRAFFIC																						
10+00.00	16+54.68	TEMPORARY CROSSOVER		654.68	116.00	759.43	54.66	3976.09	0.05	198.80	29.67	2503.59	440	550.79	27.33	1988.04	330	328.03	25.00	1818.56	220	200.04
505+31.34	529+01.99	HWY. 70 SHOULDER WIDENING		2370.65	120.00	2844.78	52.44	13812.99	0.05	690.65					26.22	6906.49	660	2279.14	26.01	6851.18	220	753.63
535+50.07	551+50.00	HWY. 70 SHOULDER WIDENING		1599.93	79.25	1267.94	31.54	5606.87	0.05	280.34					15.77	2803.43	660	925.13	15.56	2766.10	220	304.27
627+00.00	635+00.00	HWY. 70 SHOULDER WIDENING		800.00	44.50	356.00	13.66	1214.22	0.05	60.71					6.83	607.11	660	200.35	6.62	588.44	220	64.73
821+65.44	827+69.64	HWY. 70 SHOULDER WIDENING		604.20	50.75	306.63	16.86	1131.87	0.05	56.59					8.43	565.93	660	186.76	8.22	551.84	220	60.70
1019+00.00	1032+60.00	HWY. 70 SHOULDER WIDENING		1360.00	57.75	785.40	20.42	3085.69	0.05	154.28					10.21	1542.84	660	509.14	10.00	1511.11	220	166.22
1050+68.00	1057+68.00	HWY. 70 SHOULDER WIDENING		700.00	53.75	376.25	18.42	1432.67	0.05	71.63					9.21	716.33	660	236.39	9.00	700.00	220	77.00
1067+68.57	1120+91.68	HWY. 70 SHOULDER WIDENING		5323.11	65.50	3486.64	24.42	14443.37	0.05	722.17					12.21	7221.69	660	2383.16	12.00	7097.48	220	780.72
1188+58.78	1198+14.23	HWY. 70 SHOULDER WIDENING		955.45	57.75	551.77	20.42	2167.81	0.05	108.39					10.21	1083.90	660	357.69	10.00	1061.61	220	116.78
1210+81.56	1219+45.85	HWY. 70 SHOULDER WIDENING		864.29	34.25	296.02	8.42	808.59	0.05	40.43					4.21	404.30	660	133.42	4.00	384.13	220	42.25
1219+45.85	1227+30.41	HWY. 70 SHOULDER WIDENING		784.56	81.00	635.49	32.42	2826.16	0.05	141.31					16.21	1413.08	660	466.32	16.00	1394.77	220	153.42
1234+45.43	1267+87.25	HWY. 70 SHOULDER WIDENING		3341.82	34.25	1144.57	8.42	3126.46	0.05	156.32					4.21	1563.23	660	515.87	4.00	1485.25	220	163.38
10+29.52	25+60.00	HWY. 128 STAGE 1 WIDENING		1530.48	112.00	1714.14	48.42	8233.98	0.05	411.70					24.21	4116.99	660	1358.61	24.00	4081.28	220	448.94
TOTALS:						**14525.06**		**61866.77**		**3093.32**		**2503.59**		**550.79**		**30933.36**		**9880.01**		**30291.75**		**3332.08**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....95.2% MIN. AGGR.....4.8% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.2% MIN. AGGR.....3.8% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

END STATION FOR HWY. 128 INCLUDES 660 FEET ADDITIONAL LENGTH BEYOND PROVIDED HORIZONTAL ALIGNMENT.

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	443	886
DIRECTED BY THE ENGINEER		
TOTALS:	**443**	**886**

BASIS OF ESTIMATE:
ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC...25 TON/MILE
TACK COAT FOR MAINTENANCE OF TRAFFIC.....50 GAL./MILE

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	400
DIRECTED BY THE ENGINEER	
TOTAL:	**400**

NOTE: QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH FEET	COLD MILLING ASPHALT PAVEMENT SQ. YD.
478+34	480+25	LT. MAIN LANES	24	509.33
485+50	486+50	RT. MAIN LANES	24	266.67
998+50	1000+00	MAIN LANES	58.00	966.67
18+00	19+00	HWY. 128	28.00	311.11
6+00	6+50	LONSDALE CUTOFF	20.00	111.11
37+00	38+00	HWY. 88	27.00	300.00
106+95	107+45	NANCE RD.	15.00	83.33
142+50	143+00	NARROWS RD.	20.00	111.11
212+40	212+90	BROWNING RD.	17.00	94.44
207+25	208+40	FAIRPLAY RD.	20.00	255.56
221+20	221+80	BROWNING RD.	18.00	120.00
290+60	291+22	HIGH POINT DR.	18.00	124.00
287+90	288+55	OLD 88 DR.	19.00	137.22
302+60	303+10	SMITH FORD RD.	18.00	100.00
336+05	336+55	FRONTAGE RD.	20.00	111.11
1440+50	1441+50	WESTBOUND HWY. 70	37.00	411.11
1440+50	1441+50	EASTBOUND HWY. 70	38.00	422.22
TOTAL:				**4434.99**

NOTE: AVERAGE MILLING DEPTH = 1".

PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

STATION	LOCATION	DESCRIPTION	WIDTH FEET	LENGTH FEET	TON
520+26	HWY. 70	PIPE	16.00	44	39
541+83	HWY. 70	PIPE	26.00	44	63
582+00	HWY. 70	PIPE	18.50	44	45
585+86	HWY. 70	BOX	42.00	20	46
611+36	HWY. 70	BOX	38.00	25	52
760+80	HWY. 70	BOX	38.00	18	38
1054+18	HWY. 70	PIPE	24.50	34	46
1071+70	HWY. 70	BOX	30.00	36	59
1097+00	HWY. 70	PIPE	19.50	40	43
1108+70	HWY. 70	PIPE	15.00	34	28
1114+47	HWY. 70	PIPE	21.00	40	46
1195+08	HWY. 70	PIPE	10.00	36	20
1235+70	HWY. 70	PIPE	23.00	24	30
1242+20	HWY. 70	PIPE	19.50	22	24
1279+43	HWY. 70	PIPE	20.00	31	34
1337+71	HWY. 70	DBL. PIPE	27.00	34	50
1377+50	HWY. 70	PIPE	25.00	34	47
1397+50	HWY. 70	BOX	45.00	50	124
1410+10	HWY. 70	PIPE	19.00	35	37
1419+50	HWY. 70	PIPE	22.00	35	42
1423+50	HWY. 70	PIPE	23.00	44	56
1438+48	HWY. 70	PIPE	4.50	40	10
TOTAL:					**979**

AVG. DEPTH = 9"

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS LIN.FT.
480+70	981+00	HWY. 70 LT.	49917
480+70	981+00	HWY. 70 RT.	50005
1000+00	1437+60	HWY. 70 LT.	38065
1000+00	1437+60	HWY. 70 RT.	40266
TOTAL:			**178253**

* QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.
TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

PAVED MEDIAN RUMBLE STRIPES

STATION	STATION	LOCATION	PAVED MEDIAN RUMBLE STRIPES LIN.FT.
480+70	981+00	HWY. 70 LT.	47867
480+70	981+00	HWY. 70 RT.	47867
1000+00	1437+60	HWY. 70 LT.	41509
1000+00	1437+60	HWY. 70 RT.	41509
TOTAL:			**178752**

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
10-4-2016

QUANTITIES

Leonard.Speed 10/4/2016 9:20:34 AM
WORKSPACE: Leonard.Speed
C:\pw\bi-local\baker_projects\leonard.speed\d0424368\rCA0610_08_01T_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	232	888

(1) A7135, 07398, 07366 & 07367 - QUANTITIES - 58871

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. CA0610

BRIDGE NUMBER	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NUMBER	205	801	802	802	803	804	804	805	805	SP & 807	808	809	812	816	SP JOB CA0610	816	SP JOB CA0610	SP JOB CA0610	SP JOB CA0610	SP JOB CA0610	SP JOB CA0610	SP JOB CA0610	SP JOB CA0610	SP JOB CA0610
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	UNCLASSIFIED EXCAVATION FOR STRUCTURES - BRIDGE	CLASS S CONCRETE - BRIDGE	CLASS S(AE) CONCRETE - BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL - BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STEEL PILING (HP 12x53) (1)	PREBORING	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	DUMPED RIPRAP	RIPRAP	FILTER BLANKET	DRILLED SHAFT (42" DIA.)	PERMANENT STEEL CASING (48" DIA.)	CROSSHOLE SONIC LOGGING (42" DIA.)	DRILLED SHAFT (72" DIA.)	PERMANENT STEEL CASING (84" DIA.)	CROSSHOLE SONIC LOGGING (72" DIA.)	CORING DRILLED SHAFT	TEXTURED COATING FINISH
			UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LB.	CU. IN.	LIN. FT.	EACH	CU. YD.	CU. YD.	SQ. YD.	LIN. FT.	LIN. FT.	EACH	LIN. FT.	LIN. FT.	EACH	LIN. FT.	SQ. YD.
A7135	CEDAR CREEK	END BENT NO. 1			16	32.75		0.1	3,271		45	35	1,670	1,536													31
		INTERMEDIATE BENT NO. 2				58.34			8,481					2,066										60	36	2	30	
		INTERMEDIATE BENT NO. 3				58.70			8,543					2,039										38	14	2	19	
		INTERMEDIATE BENT NO. 4				55.14			7,991					2,377										38	14	2	19	
		END BENT NO. 5			33	32.87		0.1	3,294		60		1,670	2,284													31
		315'-0" CONT. COMP. W-BEAM UNIT					404.20	27.9		94,120			354,460		86	1											688
		EXIST. BRIDGE NO. 02944 (SITE NO. 1)		1																							
		TOTALS FOR BRIDGE NO. A7135			(2) 49	237.80	404.20	28.1	31,580	94,120	105	35	357,800	10,302	86	1								136	64	6	68	750
07398	TEN MILE CREEK	END BENT NO. 1			22	27.12			2,704	715	210	200	554				96		140								
		INTERMEDIATE BENT NO. 2				45.31			7,106				1,514							60	20	4				15	
		INTERMEDIATE BENT NO. 3				44.75			7,076				1,514							62	20	4				16	
		END BENT NO. 4				27.12			2,704	715	160	150	554				87		128								
		143'-0" INTEGRAL W-BEAM UNIT			20		331.60	26.6		78,670			173,244			1											
		EXIST. BRIDGE NO. 02945 (SITE NO. 2)		1																							
		TOTALS FOR BRIDGE NO. 07398			42	144.30	331.60	26.6	19,590	80,100	370	350	177,380			1	183		268	122	40	8				31	
07366	TEN MILE CREEK	END BENT NO. 1				50.41		0.3	4,884		184		1,868	2,970			361		722								
		INTERMEDIATE BENT NO. 2				41.48			10,668				450	4,095						72	28	4				18	
		INTERMEDIATE BENT NO. 3				41.92			10,743				417	3,045						72	32	4				18	
		INTERMEDIATE BENT NO. 4				40.83			10,541				417	3,045						80	40	4				20	
		INTERMEDIATE BENT NO. 5				41.20			10,611				417	3,045						80	36	4				20	
		INTERMEDIATE BENT NO. 6				40.10			10,401				417	3,045						84	44	4				21	
		INTERMEDIATE BENT NO. 7				40.39			10,458				450	4,095						84	40	4				21	
		END BENT NO. 8				50.57		0.3	4,884		214		1,868	2,970			175		349								
		330'-0" CONT. COMP. W-BEAM UNIT					700.80	60.2		175,120			398,376		156	1											
		EXIST. BRIDGE NO. 02931 (SITE NO. 3)		1																							
		TOTALS FOR BRIDGE NO. 07366				346.90	700.80	60.8	73,190	175,120	398		404,680	26,310	156	1	536		1,071	472	220	24				118	
07367	CANEY CREEK	END BENT NO. 1			60	30.53			3,115	646	210	200	539					527	464								
		INTERMEDIATE BENT NO. 2				42.92			9,885				1,403							68	28	4				17	
		INTERMEDIATE BENT NO. 3				42.72			9,885				1,403							68	28	4				17	
		END BENT NO. 4			60	30.53			3,115	646	170	160	539					478	432								
		100'-0" INTEGRAL W-BEAM UNIT					258.40	18.7		56,198			89,976			1											
		EXIST. BRIDGE NO. 02932 (SITE NO. 4)		1																							
		TOTALS FOR BRIDGE NO. 07367			120	146.70	258.40	18.7	26,000	57,490	380	360	93,860			1		1,005	896	136	56	8				34	
		TOTALS FOR JOB NO. CA0610			211	875.70	1,695.00	134.2	150,360	406,830	1,253	745	1,033,720	36,612	242	4	719	1,005	2,235	730	316	40	136	64	6	251	750

(1) Steel Piles are required to be Grade 50 and have approved driving points which will not be paid for directly, but shall be considered subsidiary to Item "Steel Piling (HP 12x53)". All piles shall conform to Std. Dwg. No. 55020.

(2) Includes approx. 16 cu. Yds. of rock excavation.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

10/5/16

BRIDGE ENGINEER
PRINT DATE: 10/5/2016

SCHEDULE OF BRIDGE QUANTITIES
HOT SPRINGS - I-30 (WIDENING) (S)
GARLAND AND SALINE COUNTIES
ROUTE 70 SECTION 9 & 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LAS DATE: 06/16 FILENAME: bCA0610xm_qxl.dgn
CHECKED BY: SFH DATE: 05/16
DESIGNED BY: - DATE: 05/16 SCALE: NONE
BRIDGE NO. A7135, 07398, 07366 & 07367 DRAWING NO. 58871

Scott.Thornsberry 10/5/2016 3:36:12 PM
WORKSPACE: AHTD
c:\pw\dl-local\baker_projects\scott.thornsberry\d0424368\r-CA0610_08_0YT_001.dgn
REVISED DATE:

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-07-2016				6	ARK.			
				JOB NO.		CA0610	233	888

(2) SUMMARY OF QUANTITIES

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.10887 SCOTT P. THORNSBERRY

Scott P. Thornsberry 11-07-2016

SUMMARY OF QUANTITIES (BOX 1 OF 3)

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	960	STATION
201	GRUBBING	960	STATION
202	REMOVAL AND DISPOSAL OF CURB INLETS	4	EACH
202	REMOVAL AND DISPOSAL OF CURB AND GUTTER	986	LIN. FT.
202	REMOVAL AND DISPOSAL OF FENCE	2808	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES	8	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS	975	SQ. YD.
202	REMOVAL AND DISPOSAL OF DROP INLETS	7	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	87	EACH
202	REMOVAL AND DISPOSAL OF HEADWALLS	16	EACH
202	REMOVAL AND DISPOSAL OF WINGWALLS	3	EACH
SP & 202	REMOVAL AND DISPOSAL OF WIRE ROPE SAFETY FENCE	978	LIN. FT.
202	REMOVAL AND DISPOSAL OF GUARDRAIL	6677	LIN. FT.
202	REMOVAL AND DISPOSAL OF TERMINAL ANCHOR POSTS	34	EACH
202	REMOVAL AND DISPOSAL OF BUILDINGS	1	EACH
202	REMOVAL AND DISPOSAL OF BILLBOARDS	1	EACH
202	REMOVAL AND DISPOSAL OF WIRE ROPE SAFETY FENCE END TERMINAL	1	EACH
206	FLOWABLE SELECT MATERIAL	678	CU. YD.
210	UNCLASSIFIED EXCAVATION	798191	CU. YD.
210	COMPACTED EMBANKMENT	942745	CU. YD.
SP & 210	COMPACTED EMBANKMENT (SPECIAL)	1369	CU. YD.
SP & 210	SOIL STABILIZATION	2000	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	402104	TON
SS & 401	TACK COAT	124659	GAL.
SP & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")	49859	TON
SP & 405	ASPHALT BINDER (PG 70-22) IN ACHM BASE COURSE (1 1/2")	1970	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	123985	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	45	TON
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")	5256	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	158014	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	318	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")	7656	TON
412	COLD MILLING ASPHALT PAVEMENT	4435	SQ. YD.
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	443	TON
SP & 415	ACHM PATCHING OF EXISTING ROADWAY	400	TON
504	APPROACH SLABS	820.82	CU. YD.
504	APPROACH GUTTERS	236.90	CU. YD.
505	PORTLAND CEMENT CONCRETE DRIVEWAY	472.60	SQ. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
603	24" TEMPORARY CULVERT	380	LIN. FT.
603	72" TEMPORARY CULVERT	50	LIN. FT.
SS & 604	SIGNS	4779	SQ. FT.
SS & 604	BARRICADES	224	LIN. FT.
SS & 604	TRAFFIC DRUMS	3952	EACH
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	13800	LIN. FT.
604	RELOCATING PRECAST CONCRETE BARRIER	16400	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	819170	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	3184	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	819170	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	407418	LIN. FT.
604	ADVANCE WARNING ARROW PANEL	2712	DAY
SP & 604	PORTABLE CHANGEABLE MESSAGE SIGN	624	WEEK
SS & 604	VERTICAL PANELS	673	EACH
605	CONCRETE DITCH PAVING (TYPE A)	125	SQ. YD.
SP & 605	CONCRETE DITCH PAVING (TYPE B)	25220	SQ. YD.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	52	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	3838	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	1367	LIN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	702	LIN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	34	LIN. FT.
606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	591	LIN. FT.
606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	112	LIN. FT.
606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	343	LIN. FT.
606	60" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	67	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN	3272	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	986	LIN. FT.
SP, SS, & 606	30" SIDE DRAIN	159	LIN. FT.
SP, SS, & 606	36" SIDE DRAIN	197	LIN. FT.
SP, SS, & 606	48" SIDE DRAIN	46	LIN. FT.
606	18" SAFETY END SECTIONS FOR CROSS DRAIN PIPE CULVERTS (CLASS 2)	2	EACH
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	70	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	25	EACH
606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	19	EACH
606	42" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	27	EACH
606	48" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	15	EACH
606	SELECTED PIPE BEDDING	800	CU. YD.
609	DROP INLETS (TYPE C)	4	EACH
609	DROP INLETS (TYPE RM)	3	EACH
615	PAVEMENT REPAIR OVER CULVERTS (ASPHALT)	979	TON
617	GUARDRAIL (TYPE A)	4805	LIN. FT.
617	TERMINAL ANCHOR POSTS (TYPE 1)	11	EACH
617	GUARDRAIL TERMINAL (TYPE 2)	10	EACH
617	THRIE BEAM GUARDRAIL TERMINAL	15	EACH
619	WIRE FENCE (TYPE A)	2489	LIN. FT.
619	WIRE FENCE (TYPE D)	35	LIN. FT.
* 619	16' STEEL GATES (ALTERNATE NO. 1)	5	EACH
* 619	16' ALUMINUM GATES (ALTERNATE NO. 2)	5	EACH
620	LIME	1200	TON
620	SEEDING	600.00	ACRE
SS & 620	MULCH COVER	1260.00	ACRE
620	WATER	74884.1	M.GAL.
621	TEMPORARY SEEDING	660.00	ACRE
621	SILT FENCE	55077	LIN. FT.
621	SAND BAG DITCH CHECKS	26400	BAG
621	DIVERSION DITCH	2927	LIN. FT.
621	DROP INLET SILT FENCE	60	LIN. FT.

SUMMARY OF QUANTITIES (BOX 2 OF 3)

ITEM NUMBER	ITEM	QUANTITY	UNIT
621	SEDIMENT BASIN	23037	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	23037	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	14376	CU. YD.
621	PIPE FOR SLOPE DRAINS	914	LIN. FT.
621	ROCK DITCH CHECKS	1266	CU. YD.
621	TRIANGULAR SILT DIKE	1000	LIN. FT.
623	SECOND SEEDING APPLICATION	600.00	ACRE
624	SOLID SODDING	17462	SQ. YD.
632	CONCRETE ISLAND	153	SQ. YD.
634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")	870	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	131	EACH
637	MAILBOX SUPPORTS (SINGLE)	39	EACH
637	MAILBOX SUPPORTS (DOUBLE)	46	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	178253	LIN. FT.
SP & 701	ACTUATED CONTROLLER TS2-TYPE 2 (8 PHASES)	1	EACH
703	FLASHING BEACON CONTROLLER	2	EACH
704	VEHICLE DETECTOR-RACK MOUNT	1	EACH
704	FEEDER WIRE	1265	LIN. FT.
SP & 706	TRAFFIC SIGNAL HEAD, LED, (1 SECTION,1 WAY)	4	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	10	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	2	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	913	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	200	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	715	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")	30	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.5")	35	LIN. FT.
710	NON-METALLIC CONDUIT (1.25")	55	LIN. FT.
710	NON-METALLIC CONDUIT (2")	910	LIN. FT.
710	NON-METALLIC CONDUIT (3")	480	LIN. FT.
711	CONCRETE PULL BOX (TYPE 1 HD)	6	EACH
711	CONCRETE PULL BOX (TYPE 2 HD)	5	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (28')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (54')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (56')	2	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (62')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (68')	1	EACH
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10")	289	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	240662	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (8")	650	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")	515	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (24")	70	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	231782	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (12")	775	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	3	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	6	EACH
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING WHITE (4") (ALTERNATE NO. 1)	369	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE WHITE (4") (ALTERNATE NO. 2)	369	LIN. FT.
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4") (ALTERNATE NO. 1)	1443	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4") (ALTERNATE NO. 2)	1443	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	2477	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER	60	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	10	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION)	46	EACH
SP & 733	VEHICLE DETECTOR RACK (20 CHANNEL)	1	EACH
733	VIDEO CABLE	1610	LIN. FT.
** SP & 733	VIDEO DETECTOR (CLR)	7	EACH
733	VIDEO MONITOR (CLR)	1	EACH
** SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	4	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	821	CU. YD.
802	CLASS S CONCRETE-ROADWAY	1826.52	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)	302051	POUND
816	FILTER BLANKET	1909	SQ. YD.
816	DUMPED RIPRAP	1820	CU. YD.
SP	LOOP WIRING CLASS III (1C/16 A.W.G.)	490	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	115	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)	646	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.)	245	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	960	LIN. FT.
SP	LED LUMINAIRE ASSEMBLY	4	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	3	EACH
SP	18" STREET NAME SIGN	2	EACH
SP	MOBILE SPEED NOTIFICATION SYSTEM	3	EACH
SP	WIRE ROPE SAFETY FENCE	978	LIN. FT.
SP	WIRE ROPE SAFETY FENCE END TERMINAL	1	EACH
SP	WIRE ROPE SAFETY FENCE (POST REPAIR)	20	EACH
SP	RUMBLE STRIPES	178752	LIN. FT.

* DENOTES ALTERNATE BID ITEMS

** ONE ADDITIONAL VIDEO DETECTOR AND ONE ADDITIONAL VIDEO PROCESSOR, EDGE CARD, SHALL BE PROVIDED FOR FUTURE USE

SUMMARY OF QUANTITIES

Scott.Thornsberry 11/7/2016 2:28:07 PM
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-18-2016				6	ARK.			
11-07-2016				JOB NO.		CA0610	234	888
				(2)	SUMMARY OF QUANTITIES & REVISIONS			

SUMMARY OF QUANTITIES (BOX 3 OF 3)

ITEM NUMBER	ITEM	QUANTITY	UNIT
	STRUCTURES OVER 20' SPAN		
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)	1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 3)	1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 4)	1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	440	CU. YD.
802	CLASS S CONCRETE-ROADWAY	1115.60	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)	106339	POUND
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	211	CU. YD.
802	CLASS S CONCRETE-BRIDGE	875.70	CU. YD.
802	CLASS S(AE) CONCRETE-BRIDGE	1695.00	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	134.2	GAL.
804	REINFORCING STEEL-BRIDGE (GRADE 60)	150360	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)	406830	POUND
805	STEEL PILING (HP 12X53)	1253	LIN. FT.
805	PREBORING	745	LIN. FT.
SP & 807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)	1033720	POUND
808	ELASTOMERIC BEARINGS	36612	CU. IN.
809	SILICONE JOINT SEALANT	242	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	4	EACH
816	FILTER BLANKET	2235	SQ. YD.
816	DUMPED RIPRAP	719	CU. YD.
SP	TEXTURED COATING FINISH	750	SQ. YD.
SP	RIPRAP	1005	CU. YD.
SP	CORING DRILLED SHAFT	251	LIN. FT.
SP	DRILLED SHAFT (42" DIAMETER)	730	LIN. FT.
SP	DRILLED SHAFT (72" DIAMETER)	136	LIN. FT.
SP	PERMANENT STEEL CASING (48" DIAMETER)	316	LIN. FT.
SP	PERMANENT STEEL CASING (84" DIAMETER)	64	LIN. FT.
SP	CROSSHOLE SONIC LOGGING (42" DIAMETER)	40	EACH
SP	CROSSHOLE SONIC LOGGING (72" DIAMETER)	6	EACH

REVISIONS

DATE	REVISION	SHEET NUMBER
10/18/2016	REMOVED SPECIAL PROVISION "MANDATORY ELECTRONIC DOCUMENT SUBMITTAL". ADDED SPECIAL PROVISION "PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS".	3, 234
11/7/2016	ADDED "VEHICLE DETECTOR - RACK MOUNT" PAY ITEM. ADDED NOTE 25 ON SHEET 359. REVISED LOCATION OF VIDEO DETECTOR ZONES AND LOOP WIRING. REVISED "FEEDER WIRE" AND "NON-METALLIC CONDUIT (2")" QUANTITIES. REVISED DETECTOR CHART ON SHEET 362. ADDED SPECIAL PROVISION "VEGETATED BUFFER ZONE".	3, 233-234, 359-362

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
11-7-2016

Scott.Thornsberry 11/5/2016 2:52:58 PM
WORKSPACE: AHTD
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	235	888

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES
Project Name: CA0610
Date: 10/8/2015

Coordinate System: Arkansas State Plane Coordinates
Based on AHTD GPS PTS : 100-113
Projected to Ground Coordinates

Units: U.S .Survey Foot
COORDINATES LISTED ARE GROUND (Localized)COORDINATES !!!!

Point No.	Northing	Easting	Elevation	Feature Code	Point Description
1	1982957.1546	1020556.8329	493.17	CTL	5/8"REBAR/AHTD AL CAP*
2	1983020.6981	1021021.8813	493.49	CTL	5/8"REBAR/AHTD AL CAP*
3	1983352.9203	1021967.9419	450.89	CTL	5/8"REBAR/AHTD AL CAP*
4	1983595.6795	1022699.5752	455.90	CTL	5/8"REBAR/AHTD AL CAP*
5	1983671.4640	1023486.4955	485.13	CTL	5/8"REBAR/AHTD AL CAP*
6	1983641.5875	1023968.1182	491.30	CTL	5/8"REBAR/AHTD AL CAP*
7	1983344.4369	1024611.3768	479.88	CTL	5/8"REBAR/AHTD AL CAP*
8	1983253.9289	1025218.7237	498.94	CTL	5/8"REBAR/AHTD AL CAP*
9	1983546.9630	1025813.8038	529.83	CTL	5/8"REBAR/AHTD AL CAP*
10	1984316.8671	1026723.7145	532.55	CTL	5/8"REBAR/AHTD AL CAP*
11	1984362.3734	1027428.3803	526.22	CTL	5/8"REBAR/AHTD AL CAP*
12	1984650.4751	1028135.9363	524.72	CTL	5/8"REBAR/AHTD AL CAP*
13	1984958.2712	1028750.1743	527.25	CTL	5/8"REBAR/AHTD AL CAP*
14	1984982.8665	1029481.4729	506.77	CTL	5/8"REBAR/AHTD AL CAP*
15	1984918.1515	1030060.7456	490.58	CTL	5/8"REBAR/AHTD AL CAP*
16	1985189.9263	1030764.9999	479.59	CTL	5/8"REBAR/AHTD AL CAP*
17	1985549.1096	1031361.1492	489.63	CTL	5/8"REBAR/AHTD AL CAP*
18	1985922.1794	1031942.5515	493.01	CTL	5/8"REBAR/AHTD AL CAP*
19	1986440.4124	1032421.1672	493.61	CTL	5/8"REBAR/AHTD AL CAP*
20	1987027.3312	1032835.5451	496.81	CTL	5/8"REBAR/AHTD AL CAP*
21	1987614.8568	1033214.1576	501.88	CTL	5/8"REBAR/AHTD AL CAP*
22	1988060.5915	1033925.4618	516.20	CTL	5/8"REBAR/AHTD AL CAP*
23	1988316.6750	1034612.9217	524.54	CTL	5/8"REBAR/AHTD AL CAP*
24	1988660.6046	1035250.3379	527.04	CTL	5/8"REBAR/AHTD AL CAP*
25	1989211.7559	1035874.9625	538.28	CTL	5/8"REBAR/AHTD AL CAP*
26	1989746.3457	1036281.0110	545.60	CTL	5/8"REBAR/AHTD AL CAP*
27	1990308.9945	1036631.9713	560.00	CTL	5/8"REBAR/AHTD AL CAP*
28	1990530.4441	1037063.6551	567.09	CTL	5/8"REBAR/AHTD AL CAP*
29	1990878.4588	1037595.0918	581.36	CTL	5/8"REBAR/AHTD AL CAP*
30	1991270.2566	1038103.8352	590.96	CTL	5/8"REBAR/AHTD AL CAP*
31	1991752.4051	1038619.7772	604.73	CTL	5/8"REBAR/AHTD AL CAP*
32	1992093.8123	1038913.1510	614.11	CTL	5/8"REBAR/AHTD AL CAP*
33	1992512.9364	1039455.0799	626.49	CTL	5/8"REBAR/AHTD AL CAP*
34	1992949.8903	1039915.0130	641.27	CTL	5/8"REBAR/AHTD AL CAP*
35	1993247.9241	1040500.3908	646.73	CTL	5/8"REBAR/AHTD AL CAP*
36	1993559.4845	1041089.8108	657.94	CTL	5/8"REBAR/AHTD AL CAP*
37	1993822.1471	1041599.8212	672.59	CTL	5/8"REBAR/AHTD AL CAP*
38	1994357.4474	1042648.3196	700.38	CTL	5/8"REBAR/AHTD AL CAP*
39	1994777.3746	1043213.4704	717.70	CTL	5/8"REBAR/AHTD AL CAP*
40	1994971.8481	1043815.4914	710.94	CTL	5/8"REBAR/AHTD AL CAP*
41	1995336.8400	1044447.0677	699.81	CTL	5/8"REBAR/AHTD AL CAP*
42	1995731.5551	1044992.6169	693.21	CTL	5/8"REBAR/AHTD AL CAP*
43	1996063.4438	1045544.0350	684.47	CTL	5/8"REBAR/AHTD AL CAP*
44	1996402.6199	1046121.4272	676.27	CTL	5/8"REBAR/AHTD AL CAP*
45	1996797.1540	1046797.6204	678.24	CTL	5/8"REBAR/AHTD AL CAP*
46	1996959.8351	1047410.6812	695.99	CTL	5/8"REBAR/AHTD AL CAP*
47	1997045.4871	1047812.2697	712.43	CTL	5/8"REBAR/AHTD AL CAP*
48	1997023.0895	1048160.7701	727.17	CTL	5/8"REBAR/AHTD AL CAP*
49	1996931.6273	1048545.9544	746.81	CTL	5/8"REBAR/AHTD AL CAP*
50	1996676.2194	1049013.7611	765.08	CTL	5/8"REBAR/AHTD AL CAP*
51	1996740.5988	1049595.7873	761.84	CTL	5/8"REBAR/AHTD AL CAP*
52	1997011.7535	1050004.2429	740.56	CTL	5/8"REBAR/AHTD AL CAP*
53	1997292.9228	1050357.6830	721.63	CTL	5/8"REBAR/AHTD AL CAP*
54	1997360.8309	1050973.7556	692.65	CTL	5/8"REBAR/AHTD AL CAP*
55	1997625.6731	1051545.6166	658.99	CTL	5/8"REBAR/AHTD AL CAP*
56	1997665.7840	1052183.1414	625.99	CTL	5/8"REBAR/AHTD AL CAP*
57	1997938.9241	1052899.6543	593.93	CTL	5/8"REBAR/AHTD AL CAP*
58	1998592.1892	1053307.0413	568.35	CTL	5/8"REBAR/AHTD AL CAP*
59	1999270.4798	1053602.0006	548.53	CTL	5/8"REBAR/AHTD AL CAP*
60	1999775.2748	1053998.3083	534.28	CTL	5/8"REBAR/AHTD AL CAP*
61	1999971.7152	1054579.5437	521.28	CTL	5/8"REBAR/AHTD AL CAP*
62	2000001.9164	1055170.1196	520.59	CTL	5/8"REBAR/AHTD AL CAP*
63	2000283.6221	1055678.6386	534.82	CTL	5/8"REBAR/AHTD AL CAP*
64	2000669.5423	1056095.9275	557.24	CTL	5/8"REBAR/AHTD AL CAP*
65	2000813.0137	1056801.3610	570.51	CTL	5/8"REBAR/AHTD AL CAP*
66	2000865.0163	1057314.2534	560.72	CTL	5/8"REBAR/AHTD AL CAP*
67	2000905.3551	1058314.1575	535.89	CTL	5/8"REBAR/AHTD AL CAP*
68	2000967.9454	1058967.9903	518.83	CTL	5/8"REBAR/AHTD AL CAP*
69	2001097.4537	1059969.6132	505.30	CTL	5/8"REBAR/AHTD AL CAP*
70	2001046.2020	1060656.1490	498.59	CTL	5/8"REBAR/AHTD AL CAP*
71	2001101.5298	1061166.0635	503.05	CTL	5/8"REBAR/AHTD AL CAP*
72	2001041.6554	1061846.9030	513.34	CTL	5/8"REBAR/AHTD AL CAP*
73	2001032.4340	1062468.8046	500.97	CTL	5/8"REBAR/AHTD AL CAP*
74	2001079.6349	1063073.4423	479.87	CTL	5/8"REBAR/AHTD AL CAP*
75	2001067.9157	1063693.8120	467.45	CTL	5/8"REBAR/AHTD AL CAP*
76	2001003.6964	1064412.9691	447.24	CTL	5/8"REBAR/AHTD AL CAP*
77	2000994.1829	1065067.9549	460.66	CTL	5/8"REBAR/AHTD AL CAP*
78	2001036.8854	1065797.4648	483.01	CTL	5/8"REBAR/AHTD AL CAP*
79	2000975.8951	1066451.6423	492.85	CTL	5/8"REBAR/AHTD AL CAP*
80	2000969.6678	1067089.1248	507.87	CTL	5/8"REBAR/AHTD AL CAP*
81	2000958.8780	1067608.8243	512.58	CTL	5/8"REBAR/AHTD AL CAP*
82	2001007.4918	1068213.6698	512.86	CTL	5/8"REBAR/AHTD AL CAP*
102	1985542.4616	1024932.8921	585.42	GPS	AHTD GPS #260032**
103	1984023.8635	1026083.4768	543.06	GPS	AHTD GPS #260032A**
104	1993072.0426	1040091.0922	643.16	GPS	AHTD GPS #260033**
105	1994056.7763	1042052.0183	685.57	GPS	AHTD GPS #260033A**
106	2000902.9666	1057728.3645	550.98	GPS	AHTD GPS #260034**
107	2001047.6566	1059278.4374	510.57	GPS	AHTD GPS #260034A**
108	1998571.1612	1074425.0267	433.43	GPS	AHTD GPS #620031**

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
10-5-2016

SURVEY CONTROL DETAILS

Scott.Thornsberry 10/5/2016 2:13:17 PM
WORKSPACE: AHTD
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Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	236	888

(2) SURVEY CONTROL DETAILS

Point No.	Northing	Easting	Elevation	Feature Code	Point Description
109	1998815.53	1076171.72	444.52	GPS	AHTD GPS #620031A
110	1994230.99	1089759.4	340.42	GPS	AHTD GPS #620032
111	1993768.9	1092039.33	338.43	GPS	AHTD GPS #620032A
112	1991599.3	1108168.86	444.2	GPS	AHTD GPS #620029
113	1990628.92	1107662.55	445.55	GPS	AHTD GPS #620004A
140	1998860.34	1077364.67	438.22	CTL	AHTD STD MON. STAMPED PN:140
141	1998763.96	1078079.63	434.75	CTL	AHTD STD MON. STAMPED PN:141
142	1998446.03	1078751.08	431.67	CTL	AHTD STD MON. STAMPED PN:142
143	1998318.4	1079390.26	436.34	CTL	AHTD STD MON. STAMPED PN:143
144	1998129.4	1079977.73	432.48	CTL	AHTD STD MON. STAMPED PN:144
145	1998065.91	1080606.04	434.24	CTL	AHTD STD MON. STAMPED PN:145
146	1998069.6	1081117.79	435.04	CTL	AHTD STD MON. STAMPED PN:146
147	1998285.64	1081662.23	438.01	CTL	AHTD STD MON. STAMPED PN:147
148	1998290.28	1082411.96	443.56	CTL	AHTD STD MON. STAMPED PN:148
149	1998050.9	1083076.65	418.44	CTL	AHTD STD MON. STAMPED PN:149
150	1997848.77	1083694.9	397.25	CTL	AHTD STD MON. STAMPED PN:150
151	1997730.78	1084426.17	375.72	CTL	AHTD STD MON. STAMPED PN:151
152	1997452.68	1085012.09	354.09	CTL	AHTD STD MON. STAMPED PN:152
153	1996883.93	1085514.66	355.38	CTL	AHTD STD MON. STAMPED PN:153
154	1996299.31	1085897.62	375.33	CTL	AHTD STD MON. STAMPED PN:154
155	1995614.21	1086005.6	404.88	CTL	AHTD STD MON. STAMPED PN:155
156	1995026.74	1086310.83	412.6	CTL	AHTD STD MON. STAMPED PN:156
157	1994742.54	1086878.14	391.78	CTL	AHTD STD MON. STAMPED PN:157
158	1994558.76	1087573.36	377.52	CTL	AHTD STD MON. STAMPED PN:158
159	1994364.74	1088314.72	364.37	CTL	AHTD STD MON. STAMPED PN:159
160	1994293.19	1089037.71	351.18	CTL	AHTD STD MON. STAMPED PN:160
161	1994077.98	1090440.97	338.82	CTL	AHTD STD MON. STAMPED PN:161
162	1993915	1091239.14	336.9	CTL	AHTD STD MON. STAMPED PN:162
163	1993568.03	1092763.87	339.8	CTL	AHTD STD MON. STAMPED PN:163
164	1993374.74	1093425.37	353.38	CTL	AHTD STD MON. STAMPED PN:164
165	1993471.84	1094107.52	376.05	CTL	AHTD STD MON. STAMPED PN:165
166	1993841.39	1094721.82	374.7	CTL	AHTD STD MON. STAMPED PN:166
167	1994088.61	1095365.42	371.66	CTL	AHTD STD MON. STAMPED PN:167
168	1994204.5	1096117.68	360.55	CTL	AHTD STD MON. STAMPED PN:168
169	1994309.18	1096825.78	354.73	CTL	AHTD STD MON. STAMPED PN:169
170	1994406.95	1097498.77	362.14	CTL	AHTD STD MON. STAMPED PN:170
171	1994520.03	1098267.67	374.63	CTL	AHTD STD MON. STAMPED PN:171
172	1994679.49	1099013.26	388.17	CTL	AHTD STD MON. STAMPED PN:172
173	1994743.57	1099783.87	415.57	CTL	AHTD STD MON. STAMPED PN:173
174	1994907.83	1100549.31	430.81	CTL	AHTD STD MON. STAMPED PN:174
175	1995122.66	1101150.22	422.87	CTL	AHTD STD MON. STAMPED PN:175
176	1995220.19	1101905.79	402.15	CTL	AHTD STD MON. STAMPED PN:176
177	1995054.36	1102667.86	398.08	CTL	AHTD STD MON. STAMPED PN:177
178	1994640.57	1103287.31	405.94	CTL	AHTD STD MON. STAMPED PN:178
179	1994204.09	1103925.61	423.38	CTL	AHTD STD MON. STAMPED PN:179
180	1993886.68	1104454.18	443.99	CTL	AHTD STD MON. STAMPED PN:180
181	1993697.07	1104952.09	461.36	CTL	AHTD STD MON. STAMPED PN:181
182	1993590.88	1105684.96	460.89	CTL	AHTD STD MON. STAMPED PN:182
183	1993336.86	1106384.98	448.96	CTL	AHTD STD MON. STAMPED PN:183

Point No.	Northing	Easting	Elevation	Feature Code	Point Description
900	1981462.8071	1011779.8662	464.75	BM	USGS BRASS DISK IN CONCRETE
904	1983090.6692	1021253.5197	482.28	TBM	CHISELED SQUARE IN CONCRETE EAST EDGE OF DROP INLET
905	1983188.6045	1021589.2314	470.22	TBM	4"DIAMETER AHTD ALUMINUM DISK @ SOUTHWEST END OF EAST BOUND BRIDGE @ TOP OF WALL
906	1983416.4405	1021894.5554	454.10	TBM	CHISELED SQUARE SOUTHEAST ABUTMENT
907	1983581.1689	1022848.3677	458.34	TBM	CHISELED SQUARE @ TOP of 24" RCP SOUTH SIDE HIGHWAY
908	1983671.8589	1023846.7468	492.14	TBM	CHISELED SQUARE @ WEST EDGE OF CONCRETE DRIVE ENTRANCE
909	1983358.6285	1025022.3770	490.21	TBM	AHTD 5"X5" CONCRETE RIGHT OF WAY MONUMENT
910	1984054.6144	1026284.2745	531.17	TBM	CHISELED SQUARE @ CONCRETE STORM DRAIN @ NORTH EDGE OF MANHOLE LID
911	1984348.5964	1027291.3215	522.02	TBM	CHISELED SQUARE IN CONCRETE STORM DRAIN
912	1985040.8281	1028971.5489	515.90	TBM	CHISELD SQUARE IN NORTH HEADWALL
913	1985128.1147	1030478.7892	471.21	TBM	CHISELED SQUARE NORTH HEADWALL
914	1985625.1848	1031403.9199	483.53	TBM	CHISELED SQUARE NORTH HEADWALL
915	1986224.8985	1032162.5759	486.60	TBM	CHISELED SQUARE NORTH HEADWALL
916	1987028.3364	1032755.6772	495.25	TBM	CHISELED SQUARE NORTH HEADWALL
917	1987831.0292	1033432.4249	502.20	TBM	CHISELED SQUARE NORTH HEADWALL
918	1988425.5146	1034776.7126	519.03	TBM	CHISELED SQUARE NORTH HEADWALL
919	1989023.8102	1035702.5814	534.06	TBM	CHISELED SQUARE SOUTH HEADWALL
920	1989827.3181	1036295.5377	544.35	TBM	CHISELED SQUARE NORTH HEADWALL
921	1990628.5968	1037139.4712	566.19	TBM	CHISELED SQUARE SOUTH HEADWALL
922	1991328.0589	1038066.1270	590.73	TBM	CHISELED SQUARE NORTH HEADWALL
923	1992229.7401	1038994.5349	620.07	TBM	5/8"REBAR/AHTD AL CAP*
924	1993129.9712	1040090.2126	639.86	TBM	CHISELED SQUARE NORTH HEADWALL
925	1993625.1252	1041265.9305	656.84	TBM	5/8"REBAR/AHTD AL CAP*
926	1993724.7496	1041434.1414	665.32	TBM	CHISELED SQUARE SOUTH HEADWALL
927	1993920.3323	1042188.8591	680.30	TBM	CHISELED SQUARE NORTH HEADWALL
928	1994521.0460	1042863.4436	694.81	BM	CHISELED SQUARE NORTH HEADWALL
929	1994719.5829	1043283.5018	707.46	TBM	CHISELED SQUARE NORTH HEADWALL
930	1995416.3228	1044544.5201	696.27	TBM	CHISELED SQUARE NORTH HEADWALL
931	1996115.2869	1045554.5193	683.28	TBM	5/8"REBAR/AHTD AL CAP*
932	1996214.2113	1045806.3556	673.43	TBM	CHISELED SQUARE NORTH HEADWALL
933	1996811.4009	1046899.0811	676.41	TBM	CHISELED SQUARE NORTH HEADWALL
934	1997004.2453	1047988.2954	714.87	TBM	CHISELED SQUARE IN S.END
935	1996793.4597	1048990.3891	757.36	TBM	CHISELED SQUARE NORTH HEADWALL
936	1996987.8023	1049912.2866	738.62	TBM	CHISELED SQUARE NORTH HEADWALL
937	1997383.6548	1050919.5396	693.04	BM	CHISELED SQUARE NORTH HEADWALL
938	1997678.4448	1051925.9106	635.79	TBM	5/8"REBAR/AHTD AL CAP*

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
10-5-2016

SURVEY CONTROL DETAILS

Scott.Thornsberry 9/5/2016 2:13:27 PM
WORKSPACE: AHTD
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REVISED DATE: ##REVDATE##

STANDARD PRIMARY CONTROL MONUMENT – REBAR AND CAP – STANDARD – 5/8"X 24" REBAR WITH 2"ALUMINUM CAP STAMPED: "(INCLUDE ALL COMMON INFORMATION HERE)" PLUS OTHER MARKINGS INDICATED IN THE POINT DESCRIPTION OF THE INDIVIDUAL POINT. AHTD MONUMENTS WILL BE STAMPED "ARKANSAS HWY & TRANS DEPT" WITH " ###" & "JOB ######". MONUMENTS THAT ARE SET BY CONSULTANTS WILL BE STAMPED "ARKANSAS HWY & TRANS DEPT" WITH "###", "JOB######", & "PS####". THE CONSULTANT PROFESSIONAL SURVEYOR IN CHARGE WILL STAMP HIS/HER PS LICENSE NUMBER ON THE CAP*.
**STANDARD GPS CONTROL POINT MONUMENT – 5/8" X 48" REBAR WITH 2.5"ALUMINUM CAP STAMPED: "(INCLUDE ALL COMMON INFORMATION HERE)" PLUS OTHER MARKINGS INDICATED IN THE POINT DESCRIPTION OF THE INDIVIDUAL POINT. THESE MONUMENTS WILL BE STAMPED "ARK. STATE HWY TRANS. DEPT.", "GPS SURVEY", & "POINT NO. ######".

SX, SY, SZ " REPRESENTS THE STANDARD ERROR ESTIMATE OF THE COORDINATE VALUES OF EACH POINT AT THE 67% CONFIDENCE LEVEL (ONE SIGMA) BASED ON THE LEAST SQUARES ANALYSIS OF THE CONTROL NETWORK. SEE THE AASHTO SDMS TECHNICAL DATA GUIDE DATA TAG DEFINITION FOR SX:, SY:, AND SZ: FOR ADDITIONAL INFORMATION. THESE VALUES SHALL BE USED WHEN CONTROL POINTS ARE ADDED AND THE ENTIRE NETWORK IS REPROCESSED USING LEAST SQUARE ANALYSIS. A VALUE OF 0.001 IS DEFINED AS FIXED (NO ADJUSTMENT) IN THE LEAST SQUARE ANALYSIS PROCESS. A VALUE OF 30 IS DEFINED AS LOCATION BY HANDHELD GPS DEVICE OR SCALED FROM USGS QUADMAP.

REFERENCE CONTROL POINTS (1000 SERIES) SHALL BE USED TO RE-ESTABLISH HORIZONTAL DATUM IF THE PRIMARY CONTROL HAS BEEN DESTROYED. THESE REFERENCE CONTROL POINTS SHALL NOT BE USED FOR VERTICAL CONTROL UNLESS THE ELEVATION HAS BEEN ESTABLISHED FROM THE PROJECT DATUM WITH 3-WIRE LEVEL TECHINIQUES.

ALL ADDITIONAL PROJECT CONTROL SHALL BE OCCUPIED, MEASURED, AND ADJUSTED WITH DIRECT SURVEY TIES TO AT LEAST TWO OF THE CONTROL POINTS LISTED IN THE TABLE ABOVE. NEW SURVEY CONTROL SHALL NOT BE INDEPENDENT OF THE SURVEY CONTROL LISTED ABOVE. THIS INCLUDES HORIZONTAL COORDINATES AND ELEVATIONS.

POSITIONAL ACCURACY: HORIZONTAL – GPS (1.0 CM± 1PPM) 100-113
HORIZONTAL – PRIMARY (2.0CM± 20PPM): JAN-81
HORIZONTAL – SECONDARY (3 CM ± 50PPM):
VERTICAL – NGS 1ST ORDER (±4MM X VDIST IN KM)
VERTICAL – NGS 2ND ORDER (±6MM X VDIST IN KM) 997-999
VERTICAL – NGS 3RD ORDER (±8MM X VDIST IN KM)

HORIZONTAL DATUM: NAD 1983 (1997) STATE PLANE ZONE: 0302 – SOUTH ZONE
THE ADJUSTMENT YEAR IS BASED ON METADATA IN THE SDMS CONTROL FILE
A PROJECT CAF OF: 0.99993545115 HAS BEEN USED TO COMPUTE THE ABOVE COORDINATES.
THE PROJECT CAF SHALL HAVE A MINIMUM PRECISION OF 9 DIGITS RIGHT OF THE DECIMAL.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS ONLY.
GRID DISTANCE = GROUND DISTANCE X CAF
IF COORDINATES ARE LISTED AS GROUND:
TO COMPUTE GRID COORDINATES, MULTIPLY THE GROUND COORDINATES BY CAF ABOUT THE ORIGIN OF X=0 & Y=0
IF COORDINATES ARE LISTED AS GRID:
TO COMPUTE GROUND COORDINATES, DIVIDE THE GRID COORDINATES BY CAF ABOUT THE ORIGIN OF X=0 & Y=0

VERTICAL DATUM: NAVD 1988 BASED NGS BM:
A PROJECT ELEVATION FACTOR OF: 0.9999729269 HAS BEEN COMPUTED AND INCORPORATED IN THE ABOVE CAF. THIS IS BASED ON THE AVERAGE ELEVATION OF THE PROJECT: 566.00 FEET 3-WIRE LEVELING TECHNIQUES HAVE BEEN USED TO ESTABLISH ELEVATIONS ON POINTS: 1-145, 182, 183. 900, 902 -973, 998, 999

FROM NGS BM: SALISPORT

BASIS OF BEARING: GRID BEARINGS BASED ON AHTD GPS POINTS: 100-113
CONVERGENCE ANGLE IS: 0°28'09" LEFT AT 69
LT: 34-33-22.48 N LG: 92-50-18.18 W
GRID AZIMUTH = ASTRONOMICAL AZIMUTH – CONVERGENCE ANGLE

PT.NO.	NORTHING	EASTING	ELEVATION	FEATURE CODE	POINT DESCRIPTION
939	1997777.4212	1052177.7139	618.96	CTL	CHISELED SQUARE NORTH HEADWALL
940	1998074.3634	1052933.1146	586.47	CTL	5/8"REBAR/AHTD AL CAP*
941	1998576.3258	1053355.6069	566.66	CTL	CHISELED SQUARE SOUTH HEADWALL
942	1999079.6993	1053610.7934	553.92	CTL	CHISELED SQUARE IN SOUTH END CULVERT
943	1999783.8647	1054034.9557	527.78	CTL	CHISELED SQUARE NORTH HEADWALL
944	1999981.1545	1054622.1566	521.40	CTL	CHISELED SQUARE NORTH HEADWALL
945	2000476.8655	1055797.3765	540.57	CTL	CHISELED SQUARE NORTH HEADWALL
946	2000872.9120	1056804.4385	564.69	CTL	CHISELED SQUARE NORTH HEADWALL
947	2000870.8319	1057055.3617	563.51	CTL	CHISELED SQUARE NORTH HEADWALL
948	2000959.4926	1058561.7379	527.33	CTL	CHISELED SQUARE IN SOUTH HEADWALL
949	2001055.0858	1059231.6972	507.90	CTL	CHISELED SQUARE NORTH HEADWALL
950	2001150.0089	1059985.2918	500.29	CTL	CHISELED SQUARE NORTH HEADWALL
951	2001142.4874	1060905.3382	494.06	CTL	CHISELED SQUARE NORTH HEADWALL
952	2001137.0351	1061574.4624	500.41	CTL	CHISELED SQUARE NORTH HEADWALL
953	2001129.5616	1062494.5088	493.66	CTL	5/8"REBAR/AHTD AL CAP*
954	2001122.7912	1063330.9148	469.85	CTL	CHISELED SQUARE NORTH HEADWALL
955	2001120.0900	1063665.4774	467.16	CTL	CHISELED SQUARE NORTH HEADWALL
956	2000911.8306	1064416.6159	442.90	CTL	CHISELED SQUARE SOUTH HEADWALL
957	2001109.9903	1064920.0864	443.52	CTL	CHISELED SQUARE NORTH HEADWALL
958	2001100.6107	1066091.0550	471.56	CTL	CHISELED SQUARE NORTH HEADWALL
959	2000983.5382	1068097.6305	500.04	CTL	CHISELED SQUARE NORTH HEADWALL
997	1995301.4584	1046133.1127	651.06	CTL	NGS BENCHMARK Z 78
998	1990423.4205	1037472.3446	577.92	CTL	NGS BENCHMARK N 79

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-25-2016

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	237	888

(2) SURVEY CONTROL DETAILS

Leonard.Speed 9/23/2016 2:03:05 PM
WORKSPACE: Leonard.Speed
C:\pwdl-local\baker_projects\leonard.speed\d0217744\rCA0606_IL_SC_003.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	238	888
					(2) SURVEY CONTROL DETAILS				

HIGHWAY 70 CENTERLINE

PT. NO.	TYPE	STATION	NORTHING	EASTING
8300	POB	469+99.89	1983031.7262	1020577.4654
8301	PC	471+94.12	1983050.4358	1020770.7928
	PI	474+74.86	1983077.4784	1021050.2245
8302	CC		1985162.6278	1020566.3816
8303	PT	477+52.35	1983176.2535	1021313.0112
8304	PC	485+77.19	1983466.4644	1022085.1041
	PI	489+34.91	1983592.3270	1022419.9558
8305	CC		1980784.8507	1023093.0573
8306	PT	492+88.95	1983631.9832	1022775.4759
8307	PC	496+63.92	1983673.5509	1023148.1319
	PI	501+60.18	1983728.5643	1023641.3297
8308	CC		1981602.9098	1023379.1001
8309	PT	506+38.28	1983555.3385	1024106.3710
8310	PC	512+16.53	1983353.4898	1024648.2534
	PI	519+80.33	1983086.8766	1025364.0021
8311	CC		1984376.1904	1025029.2047
8312	PT	525+49.36	1983668.0431	1025859.6070
8313	PC	528+13.34	1983868.9029	1026030.8954
	PI	533+18.35	1984253.1671	1026358.5867
8314	CC		1983042.7307	1026999.6985
8315	PT	537+74.90	1984308.3474	1026860.5784
8316	PC	540+66.08	1984340.1631	1027150.0152
	PI	543+60.25	1984372.3056	1027442.4252
8317	CC		1986238.5882	1026941.3350
8318	PT	546+49.84	1984490.9493	1027711.6100
8319	PC	555+15.42	1984840.0519	1028503.6717
	PI	559+64.22	1985021.0593	1028914.3504
8320	CC		1983342.0784	1029163.9062
8321	PT	563+91.49	1984967.3208	1029359.9206
8322	PC	567+42.06	1984925.3446	1029707.9638
	PI	571+02.02	1984882.2430	1030065.3380
8323	CC		1986189.4242	1029860.4196
8324	PT	574+43.67	1985032.6360	1030392.3793
8325	PC	580+84.90	1985300.5398	1030974.9572
	PI	591+19.23	1985732.6822	1031914.6850
8326	CC		1988770.9044	1029379.0782
8327	PT	601+05.11	1986579.9432	1032507.9677
8328	PC	610+67.60	1987368.3581	1033060.0442
	PI	615+10.60	1987731.2415	1033314.1483
8329	CC		1986429.3764	1034400.9946
8330	PT	619+32.88	1987916.4564	1033716.5768
8331	PC	631+30.12	1988417.0072	1034804.1568
	PI	641+24.48	1988832.7341	1035707.4344
8332	CC		1991391.1762	1033435.3172
8333	PT	650+60.86	1989680.5760	1036226.9566
8334	PC	654+54.28	1990016.0293	1036432.5083
	PI	657+49.94	1990268.1208	1036586.9795
8335	CC		1989350.7968	1037518.1445
8336	PT	660+35.29	1990426.3495	1036836.7295
8337	PC	669+95.54	1990940.2555	1037647.8842
	PI	672+51.12	1991077.0375	1037863.7822
8338	CC		1993360.2492	1036114.7004
8339	PT	675+05.35	1991249.8774	1038052.0575
8340	PC	693+48.92	1992496.6194	1039410.1391
	PI	701+17.89	1993016.6502	1039976.6109
8341	CC		1988275.8759	1043284.8535
8342	PT	708+77.73	1993368.9146	1040660.1547
8343	PC	744+34.50	1994998.2546	1043821.7714
	PI	746+04.21	1995075.9985	1043972.6278

HIGHWAY 70 CENTERLINE

PT. NO.	TYPE	STATION	NORTHING	EASTING
8344	CC		2000091.2933	1041197.0726
8345	PT	747+73.82	1995162.5350	1044118.6183
8346	PC	778+38.83	1996725.4010	1046755.2324
	PI	781+57.27	1996887.7741	1047029.1620
8347	CC		1994753.8977	1047923.8507
8348	PT	784+71.65	1996969.3162	1047336.9822
8349	PC	787+31.90	1997035.9586	1047588.5558
	PI	791+14.40	1997133.9040	1047958.2982
8350	CC		1995980.9973	1047868.0170
8351	PT	794+67.70	1996979.5982	1048308.2874
8352	PC	799+50.57	1996784.7994	1048750.1211
	PI	805+46.74	1996544.2900	1049295.6332
8353	CC		1997783.4002	1049190.3915
8354	PT	810+41.87	1996873.3549	1049792.7695
8355	PC	814+35.42	1997090.5748	1050120.9355
	PI	816+79.72	1997225.4182	1050324.6506
8356	CC		1995816.5119	1050964.2644
8357	PT	819+19.91	1997290.0168	1050560.2554
8358	PC	829+64.53	1997566.2378	1051567.6908
	PI	830+97.65	1997601.4371	1051696.0701
8359	CC		1995355.9815	1052173.7040
8360	PT	832+30.47	1997621.5365	1051827.6614
8361	PC	837+38.42	1997698.2315	1052329.7871
	PI	842+84.01	1997780.6099	1052869.1221
8362	CC		1998777.0676	1052165.0049
8363	PT	847+50.28	1998261.4733	1053126.8796
8364	PC	850+65.49	1998539.2852	1053275.7953
	PI	850+99.86	1998569.5793	1053292.0339
8365	CC		2009366.7675	1033076.4229
8366	PT	851+34.23	1998599.9220	1053308.1815
8367	PC	859+85.72	1999351.5923	1053708.2020
	PI	865+63.27	1999861.4419	1053979.5315
8368	CC		1998838.8855	1054671.6189
8369	PT	870+48.13	1999923.8445	1054553.7024
8370	PC	875+03.08	1999973.0007	1055005.9921
	PI	878+58.22	2000011.3723	1055359.0521
8371	CC		2001057.9597	1054888.0755
8372	PT	881+89.77	2000250.1738	1055621.9163
8373	PC	884+49.48	2000424.8093	1055814.1489
	PI	888+74.15	2000710.3671	1056128.4808
8374	CC		1999482.3919	1056670.2970
8375	PT	892+69.28	2000750.0585	1056551.2956
8376	PC	922+85.64	2001031.9779	1059554.4522
	PI	929+02.11	2001089.5948	1060168.2189
8377	CC		1989622.9779	1060625.4646
8378	PT	935+17.38	2001081.0326	1060784.6247
8379	POE	981+17.61	2001017.1385	1065384.4056
8000	POB	1000+00.00	2001017.1385	1065384.4056
8001	P.C.	1038+71.90	2000963.3604	1069255.9275
	P.I.	1045+30.10	2000954.2185	1069914.0659
8002	CC		1997689.6318	1069210.4532
8003	P.T.	1051+70.98	2000691.4466	1070517.5397
8004	P.C.	1091+93.11	1999085.7052	1074205.2361
8002	CC		1997689.6318	1069210.4532
8003	P.T.	1051+70.98	2000691.4466	1070517.5397
8004	P.C.	1091+93.11	1999085.7052	1074205.2361
	P.I.	1100+22.17	1998754.7216	1074965.3630
8005	CC		2002587.8226	1075730.1703
8006	P.T.	1108+25.91	1998768.6425	1075794.3076
8007	P.C.	1124+88.10	1998796.5526	1077456.2690
	P.I.	1128+62.04	1998802.8314	1077830.1514

HIGHWAY 70 CENTERLINE

POINT NO.	TYPE.	STATION	NORTHING	EASTING
	P.I.	1128+62.04	1998802.8314	1077830.1514
8008	CC		1996713.3634	1077491.2530
8009	P.T.	1132+28.10	1998678.7005	1078182.8822
8010	P.C.	1148+22.03	1998149.5796	1079686.4349
	P.I.	1155+31.22	1997914.1583	1080355.4093
8011	CC		2000311.4505	1080447.2270
8012	P.T.	1161+97.58	1998097.7207	1081040.4310
8013	P.C.	1165+43.00	1998187.1292	1081374.0871
	P.I.	1172+47.74	1998369.5393	1082054.8087
8014	CC		1995727.4295	1082033.2027
8015	P.T.	1179+18.06	1998176.0211	1082732.4561
8016	P.C.	1194+38.71	1997758.4584	1084194.6447
	P.I.	1209+90.54	1997332.3320	1085686.8214
8017	CC		1995309.8669	1083495.3913
8018	P.T.	1222+26.10	1995810.8277	1085992.1080
8019	P.C.	1223+30.14	1995708.8202	1086012.5755
	P.I.	1233+05.43	1994752.5918	1086204.4407
8020	CC		1995990.6107	1087416.9787
8021	P.T.	1240+42.65	1994580.6517	1087164.4521
8022	P.C.	1278+19.90	1993914.7349	1090882.5371
	P.I.	1280+53.11	1993873.6197	1091112.0999
8023	CC		1982635.0632	1088862.3243
8024	P.T.	1282+86.26	1993823.1984	1091339.7997
8025	P.C.	1300+92.12	1993432.7723	1093102.9413
	P.I.	1307+69.46	1993286.3307	1093764.2631
8026	CC		1995297.4615	1093515.8538
8027	P.T.	1313+93.94	1993589.2854	1094370.0767
8028	P.C.	1319+58.11	1993841.6215	1094874.6694
	P.I.	1325+72.13	1994116.2534	1095423.8465
8029	CC		1990425.2692	1096583.1152
8030	P.T.	1331+75.73	1994204.9371	1096031.4263
8031	P.C.	1368+08.26	1994729.5910	1099625.8753
	P.I.	1372+44.87	1994792.6509	1100057.9043
8032	CC		2002288.9269	1098522.4976
8033	P.T.	1376+80.53	1994904.5219	1100479.9358
8034	P.C.	1384+51.42	1995102.0472	1101225.0968
	P.I.	1394+94.26	1995369.2507	1102233.1180
8035	CC		1992886.7256	1101812.3283
8036	P.T.	1404+08.75	1994784.7952	1103096.7823
8037	P.C.	1416+42.99	1994093.0675	1104118.9655
	P.I.	1420+96.95	1993838.6447	1104494.9322
8038	CC		1996202.0336	1105546.1367
8039	P.T.	1425+41.48	1993729.8140	1104935.6564
8040	P.C.	1431+76.13	1993577.6657	1105551.8007
	P.I.	1434+96.35	1993500.8971	1105862.6852
8041	CC		1990399.0978	1104766.8975
8042	P.T.	1438+14.54	1993365.3466	1106152.8035
8043	P.C.	1444+35.15	1993102.6438	1106715.0652
	P.I.	1446+83.49	1992997.5222	1106940.0565
8044	CC		1994832.9556	1107523.5104
8045	P.T.	1449+29.05	1992953.4343	1107184.4495
8046	POE	1449+89.76	1992942.6565	1107244.1944

HIGHWAY 70 WESTBOUND LANES

PT. NO.	TYPE	STATION	NORTHING	EASTING
8380	POB	477+96.85	1983230.9506	1021347.5331
8381	PC	484+87.35	1983473.8979	1021993.8832
	PI	488+45.08	1983599.7605	1022328.7352
8382	CC		1980792.2842	1023001.8365
8383	PT	491+99.12	1983639.4168	1022684.2554
8384	POE	494+00.00	1983661.6856	1022883.8965

HIGHWAY 70 EASTBOUND LANES

PT. NO.	TYPE	STATION	NORTHING	EASTING
8385	POB	479+42.13	1983201.0062	1021498.4993
8386	PC	486+79.38	1983460.4012	1022188.6078
	PI	490+37.10	1983586.2637	1022523.4592
8387	CC		1980778.7875	1023196.5610
8388	PT	493+91.14	1983625.9199	1022878.9788
8389	POE	494+00.00	1983626.9016	1022887.7795

TEMPORARY CROSSOVER

PT. NO.	TYPE	STATION	NORTHING	EASTING
8404	PC	10+00.00	1983081.6174	1020734.2827
	PI	10+33.34	1983084.8287	1020767.4644
8405	CC		1981180.6394	1020918.2533
8406	PT	10+66.67	1983086.8799	1020800.7379
8407	PC	13+70.14	1983105.5530	1021103.6374
	PI	15+13.47	1983114.3723	1021246.6973
8408	CC		1984058.6732	1021044.8797
8409	PT	16+54.68	1983164.8023	1021380.8640

BRATTON DRIVE

PT. NO.	TYPE	STATION	NORTHING	EASTING
8420	POB	20+00.00	1983686.0157	1023418.7311
8421	PC	20+61.51	1983746.9116	1023427.3870
	PI	20+75.82	1983761.0782	1023429.4006
8422	CC		1983718.1150	1023629.9784
8423	PT	20+90.08	1983774.8267	1023433.3663
8424	POE	22+50.00	1983928.4833	1023477.6877

BARTEE TRAIL

PT. NO.	TYPE	STATION	NORTHING	EASTING
8430	POB	17+00.00	1983174.8088	1024424.6335
8431	PC	18+52.58	1983316.6997	1024368.5412
	PI	19+07.60	1983367.8685	1024348.3132
8432	CC		1983400.9556	1024581.6746
8433	PT	19+60.58	1983422.6436	1024353.5200
8434	POE	20+00.00	1983461.8870	1024357.2505

BUEKAH STREET

PT. NO.	TYPE	STATION	NORTHING	EASTING
8435	POB	17+00.00	1990476.7235	1037339.8707
8436	PC	19+09.54	1990519.0146	1037134.6402
	PI	19+37.30	1990524.6162	1037107.4567
8437	CC		1990617.0351	1037154.8389
8438	PT	19+63.69	1990543.4183	1037087.0409
8439	POE	20+00.00	1990568.0140	1037060.3342

CLOUD 9 DRIVE

PT. NO.	TYPE	STATION	NORTHING	EASTING
8460	POB	17+00.00	1996405.6112	1046704.2958
8461	PC	17+16.11	1996404.5157	1046688.2206
	PI	18+38.82	1996396.1727	1046565.8017
8462	CC		1996603.3445	1046674.6701
8463	PT	19+36.08	1996501.7254	1046503.2348
8464	POE	20+00.00	1996556.7092	1046470.6429

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
7-25-2016

SURVEY CONTROL DETAILS

Leonard.Speed 9/23/2016 2:03:18 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	239	888

(2) SURVEY CONTROL DETAILS

OHANA TERRACE				
PT. NO.	TYPE	STATION	NORTHING	EASTING
8450	POB	20+00.00	1992098.3514	1038976.3040
8451	PC	20+41.01	1992128.5593	1038948.5727
	PI	20+64.46	1992145.8389	1038932.7097
8452	CC		1992196.2399	1039022.2975
8453	PT	20+87.09	1992168.3676	1038926.1770
8454	PC	21+63.53	1992241.7855	1038904.8878
	PI	21+68.87	1992246.9152	1038903.4003
8455	CC		1992269.6578	1039001.0083
8456	PT	21+74.20	1992252.1742	1038902.4673
8457	POE	22+00.00	1992277.5716	1038897.9612

SCENIC RIDGE ROAD				
PT. NO.	TYPE	STATION	NORTHING	EASTING
8480	POB	17+00.00	1996772.7319	1050031.7126
8481	PC	17+59.53	1996805.3124	1050081.5306
	PI	18+04.99	1996830.1967	1050119.5807
8482	CC		1996838.7890	1050059.6373
8483	PT	18+27.47	1996864.7676	1050090.0529
8484	POE	20+00.00	1996995.9612	1049977.9975

SUMMIT RIDGE ROAD				
PT. NO.	TYPE	STATION	NORTHING	EASTING
8490	POB	13+04.46	1997226.8112	1051274.3019
8491	PC	14+94.65	1997266.8173	1051088.3710
	PI	15+87.22	1997286.2895	1050997.8724
8492	CC		1997472.3726	1051132.5995
8493	PT	16+69.05	1997366.1872	1050951.1228
8494	POE	17+00.00	1997392.9002	1050935.4925

COUNTY ROAD 369				
PT. NO.	TYPE	STATION	NORTHING	EASTING
8510	POB	20+00.00	2000864.7119	1057772.6450
8511	PC	20+32.67	2000897.2395	1057769.5915
	PI	20+88.58	2000952.9053	1057764.3659
8512	CC		2000906.5934	1057869.2334
8513	PT	21+34.65	2000986.5393	1057809.0284
8514	PC	21+51.29	2000996.5546	1057822.3276
	PI	22+03.36	2001027.8756	1057863.9186
8515	CC		2001100.5751	1057743.9928
8516	PT	22+50.35	2001079.2372	1057872.4502
8517	POE	23+00.00	2001128.2152	1057880.5858

COUNTY ROAD 1381				
PT. NO.	TYPE	STATION	NORTHING	EASTING
8520	POB	20+00.00	2001048.7730	1063107.0166
8521	POE	22+00.00	2001243.4854	1063061.3323

CEDAR CREEK ROAD				
PT. NO.	TYPE	STATION	NORTHING	EASTING
8500	POB	20+00.00	1999974.9592	1055022.7989
8501	PC	20+66.33	2000036.4189	1054997.8539
	PI	21+24.11	2000089.9582	1054976.1235
8502	CC		1999998.7808	1054905.1210
8503	PT	21+71.13	2000097.9088	1054918.8919
8504	PC	22+50.16	2000108.7834	1054840.6129
	PI	22+73.92	2000112.0526	1054817.0798
8505	CC		2000207.9114	1054854.3838
8506	PT	22+96.82	2000125.5504	1054797.5272
8507	POE	24+00.00	2000184.1694	1054712.6132

HWY. 88				
Type	PT. NO.	STATION	NORTHING	EASTING
POB	8248	35+94.18	1998652.4305	1074572.0980
P.C.	8249	37+24.67	1998684.0117	1074698.7122
P.I.		37+99.60	1998702.1437	1074771.4066
CC	8219		1998961.9754	1074629.3801
P.T.	8065	38+71.23	1998753.5429	1074825.9169
P.C.	8066	39+04.20	1998776.1618	1074849.9048
P.I.		39+30.07	1998793.9061	1074868.7231
C.C.	8067		1998848.9764	1074781.2459
P.T.	8068	39+54.83	1998818.5462	1074876.5874
P.O.E.	8069	40+00.00	1998861.5772	1074890.3216

HWY. 128				
TYPE	PT. NO.	STATION	NORTHING	EASTING
POB	8047	10+00.00	2000977.3606	1068248.0436
POE	8048	20+49.63	2002026.9434	1068257.6061

LONSDALE CUTOFF RD.				
TYPE	PT. NO.	STATION	NORTHING	EASTING
POB	8049	5+70.00	2000590.4461	1068393.9519
P.C.	8050	6+17.91	2000638.3590	1068393.9519
P.I.		7+00.33	2000720.7793	1068393.9519
CC	8051		2000638.3590	1068214.9024
PRC	8052	7+72.39	2000774.3778	1068331.3395
P.I.		8+83.61	2000846.7012	1068246.8532
CC	8053		2000955.7360	1068486.5889
P.T.	8054	9+80.55	2000957.9109	1068247.8664
POE	8047	10+00.00	2000977.3606	1068248.0436

NANCE RD.				
TYPE	PT. NO.	STATION	NORTHING	EASTING
POB	8229	106+61.35	1998130.8370	1078911.9682
P.C.	8230	106+89.28	1998150.6361	1078892.2733
P.I.		107+06.69	1998162.9756	1078879.9988
CC	8231		1998243.5262	1078985.6551
P.T.	8075	107+23.89	1998178.0798	1078871.3507
P.C.	8076	107+58.83	1998208.4008	1078853.9900
P.I.		108+50.36	1998287.8307	1078808.5115
CC	8077		1998307.7770	1079027.5538
P.T.	8078	109+30.51	1998374.1686	1078838.8950
POE	8079	110+00.00	1998439.7222	1078861.9642

TEN MILE RD.				
TYPE	PT. NO.	STATION	NORTHING	EASTING
P.O.B.	8250	128+00.00	1997826.3454	1080293.9693
P.C.		128+27.87	1997852.8376	1080302.6096
P.I.	8251	128+78.15	1997900.6466	1080318.2023
C.C.	8252		1997971.2760	1079939.4639
P.T.	8253	129+27.87	1997950.8623	1080320.8898
P.O.E.	8254	130+00.00	1998022.8945	1080324.7450

NARROWS RD.				
TYPE	PT. NO.	STATION	NORTHING	EASTING
POB	8089	140+00.00	1998202.1848	1081433.0842
P.C.	8090	141+19.23	1998318.0599	1081404.9849
P.I.		141+92.12	1998388.8931	1081387.8081
CC	8232		1998421.9265	1081833.3079
P.T.	8233	142+63.70	1998461.4851	1081394.3500
POE	8234	143+20.16	1998517.7172	1081399.4176

ROCKY LOOP				
TYPE	PT. NO.	STATION	NORTHING	EASTING
POB	8235	158+00.00	1997876.7853	1083262.1391
P.C.	8236	158+34.04	1997876.8131	1083296.1791
P.I.		159+09.42	1997876.8748	1083371.5552
CC	8237		1997976.8131	1083296.0972
P.T.	8238	159+63.22	1997949.3535	1083392.2532
POE	8239	160+00.00	1997984.7164	1083402.3519

BROWNING ACCESS RD.				
TYPE	PT. NO.	STATION	NORTHING	EASTING
POB	8201	205+00.00	1996156.7138	1085896.9337
P.C.	8202	205+73.84	1996162.3495	1085970.5550
P.I.		206+06.63	1996164.8526	1086003.2552
CC	8203		1996122.4661	1085973.6080
P.T.	8204	206+28.78	1996133.2773	1086012.1193
P.C.	8205	206+83.67	1996080.4272	1086026.9557
P.I.		208+05.54	1995963.0915	1086059.8950
CC	8206		1995306.1355	1083268.7881
P.T.	8207	209+27.27	1995843.3822	1086082.7501
P.C.	8208	210+78.31	1995695.0148	1086111.0767
P.I.		213+36.10	1995441.8047	1086159.4200
CC	8209		1995874.0970	1087049.0643
P.T.	8210	215+81.88	1995247.3202	1086328.6185
POE	8211	217+25.52	1995138.9475	1086422.9011

FAIRPLAY RD.				
TYPE	PT. NO.	STATION	NORTHING	EASTING
POB	8112	207+00.00	1995089.2515	1086041.5236
P.C.	8113	207+17.77	1995089.4881	1086059.2920
P.I.		207+41.58	1995089.8052	1086083.1011
CC	8114		1994989.4970	1086060.6235
P.T.	8115	207+64.52	1995079.3581	1086104.4982
P.C.	8116	208+53.41	1995040.3596	1086184.3721
P.I.		209+13.64	1995013.9327	1086238.4978
CC	8117		1995130.2207	1086228.2467
P.T.	8118	209+61.83	1995049.4212	1086287.1656
POE	8119	210+00.00	1995071.9095	1086318.0054

BROWNING RD. 1				
TYPE	PT. NO.	Station	NORTHING	Easting
POB	8119	210+00.00	1995071.9095	1086318.0054
P.C.	8120	210+85.91	1995122.5261	1086387.4196
P.I.		211+31.96	1995149.6591	1086424.6289
CC	8121		1995041.6619	1086446.3856
P.T.	8122	211+72.23	1995139.0500	1086469.4416
POE	8123	213+53.15	1995097.3703	1086645.4951

BROWNING RD. 2				
TYPE	PT. NO.	STATION	NORTHING	EASTING
POB	8124	220+00.00	1994470.0519	1087781.9761
P.C.	8125	220+37.74	1994507.6577	1087778.7880
P.I.		220+91.21	1994560.9346	1087774.2712
CC	8126		1994499.2102	1087679.1454
P.T.	8127	221+35.94	1994586.7659	1087727.4570
POE	8128	223+00.00	1994666.0261	1087583.8125

DRIVEWAY @ 1265+80 LT				
TYPE	PT. NO.	STATION	NORTHING	EASTING
POB	8221	225+00.00	1994133.3249	1089662.0599
P.C.	8222	225+59.15	1994192.2609	1089657.0644
P.I.		225+82.17	1994215.2000	1089655.1200
CC	8223		1994189.7271	1089627.1716
P.T.	8224	225+98.42	1994219.2575	1089632.4590
P.C.	8225	226+70.22	1994231.9127	1089561.7794
P.I.		227+00.22	1994237.2000	1089532.2500
CC	8226		1994261.4431	1089567.0669
P.T.	8227	227+17.35	1994266.7296	1089537.5363
POE	8228	227+23.18	1994272.4751	1089538.5649

OLD 88 RD.				
TYPE	PT. NO.	STATION	NORTHING	EASTING
POB	8141	287+00.00	1994686.4347	1100578.8106
P.C.	8142	287+25.57	1994711.9011	1100581.0785
P.I.		287+56.04	1994742.2547	1100583.7817
CC	8143		1994703.0305	1100680.6843
P.T.	8144	287+84.73	1994765.9423	1100602.9533
P.C.	8145	288+73.97	1994835.3117	1100659.0976
P.I.		289+24.74	1994874.7737	1100691.0363
CC	8146		1994898.2235	1100581.3667
P.T.	8147	289+67.92	1994923.8463	1100678.0283
POE	8148	290+00.00	1994954.8530	1100669.8091

HIGHPOINT DR				
TYPE	PT. NO.	STATION	NORTHING	EASTING
POB	8148	290+00.00	1994954.8530	1100669.8091
P.C.	8149	290+42.08	1994993.7687	1100653.8118
P.I.		290+80.37	1995029.1849	1100639.2531
CC	8150		1994955.7482	1100561.3216
P.T.	8151	291+15.21	1995045.8195	1100604.7631
P.C.	8169	291+21.52	1995048.5584	1100599.0842
P.I.		291+49.54	1995060.7297	1100573.8484
CC	8170		1995100.1655	1100623.9744
P.T.	8171	291+73.64	1995088.1212	1100567.9588
POE	8172	292+00.00	1995113.8956	1100562.4169

SMITH FORD RD.				
TYPE	PT. NO.	STATION	NORTHING	EASTING
POB	8152	300+00.00	1994957.5661	1102794.2192
P.C.	8153	300+36.63	1994993.5976	1102800.8114
P.I.		300+92.56	1995048.6115	1102810.8766
CC	8154		1995008.3283	1102720.2968
P.T.	8155	301+34.76	1995077.9831	1102763.2830
POE	8156	303+38.59	1995185.0304	1102589.8239

FRONTAGE RD.				
TYPE	PT. NO.	STATION	NORTHING	EASTING
POB	8240	330+00.00	1993352.4549	1106180.3955
P.C.	8241	331+08.24	1993450.5232	1106226.2154
P.I.		332+31.56	1993562.2478	1106278.4159
CC	8242		1993413.2104	1106306.0760
P.T.	8243	332+75.76	1993476.6942	1106367.2295
P.C.	8244	334+71.53	1993340.8790	1106508.2200
P.I.		335+48.01	1993287.8200	1106563.3008
CC	8245		1993652.3092	1106808.2188
P.T.	8246	336+22.92	1993256.8724	1106633.2393
POE	8247	337+09.95	1993221.6553	1106712.8266

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-26-2016

SURVEY CONTROL DETAILS

LeonardSpeed 9/23/2016 2:03:31 PM
WORKSPACE: LeonardSpeed
C:\Dwg\I-local\baker_projects\leonard.speed\d0217744\r-CA0606_II_SC_004B.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	240	888

(2) SURVEY CONTROL DETAILS

TEMPORARY CROSSOVER
P.I. = 10+33.34
Δ = 2°00'00.0" RT.
D = 3°30'00"
T = 33.34'
L = 66.67'
P.C. = 10+00.00
P.T. = 10+66.67
NO SUPER

C.L. MEDIAN
P.I. = 474+74.86
Δ = 15°04'20.4" LT.
D = 02°42'00"
T = 280.74'
L = 558.23'
P.C. = 471+94.12
P.T. = 477+52.35
e = 0.070'/'
Ls = 350

TEMPORARY CROSSOVER
P.I. = 15+13.47
Δ = 17°04'20.4" LT.
D = 6°00'00"
T = 143.33'
L = 284.54'
P.C. = 13+70.14
P.T. = 16+54.68
NO SUPER

W—N—E
S
BEARINGS ARE GRID BASED ON GPS

C.L. LEFT LANES
P.I. = 488+45.08
Δ = 14°14'07.1" RT.
D = 02°00'00"
T = 357.73'
L = 711.77'
P.C. 484+87.35
P.T. 491+99.12
e = .055'/'
Ls = 350'

C.L. BRATTON DRIVE
P.I. 20+75.82
Δ = 8°00'00.0" RT.
D = 28°00'00"
T = 14.31'
L = 28.57'
P.C. = 20+61.51
P.T. = 20+90.08
NO SUPER

C.L. MEDIAN
P.I. = 489+34.91
Δ = 14°14'07.1" RT.
D = 02°00'00"
T = 357.72'
L = 711.77'
P.C. = 485+77.19
P.T. = 492+88.95
e = .055'/'
Ls = 350'

C.L. RIGHT LANES
P.I. = 490+37.10
Δ = 14°14'07.1" RT.
D = 02°00'00"
T = 357.72'
L = 711.76'
P.C. = 486+79.38
P.T. = 493+91.14
e = .055'/'
Ls = 350'

C.L. HIGHWAY 70
P.I. = 501+60.18
Δ = 26°47'41.4" RT.
D = 2°45'00"
T = 496.26'
L = 974.36'
P.C. = 496+63.92
P.T. = 506+38.28
e = 0.072 '/'
Ls = 450'

C.L. HIGHWAY 70
P.I. = 519+80.32
Δ = 69°58'24.2" LT.
D = 5°15'00"
T = 763.79'
L = 1332.83'
P.C. = 512+16.53
P.T. = 525+49.36
e = 0.100 '/'
Ls = 585'

C.L. BARTEE TRAIL
P.I. 19+07.60
Δ = 27°00'00.0" RT.
D = 25°00'00"
T = 55.02'
L = 108.00'
P.C. = 18+52.58
P.T. = 19+60.58
NO SUPER

PN:1 PD:AHTD STD MON. STAMPED PN:1
PN:2 PD:AHTD STD MON. STAMPED PN:2
PN:3 PD:AHTD STD MON. STAMPED PN:3
PN:4 PD:AHTD STD MON. STAMPED PN:4
PN:5 PD:AHTD STD MON. STAMPED PN:5
PN:6 PD:AHTD STD MON. STAMPED PN:6
PN:7 PD:AHTD STD MON. STAMPED PN:7
PN:8 PD:AHTD STD MON. STAMPED PN:8
PN:9 PD:AHTD STD MON. STAMPED PN:9
PN:904 PD:CHISELED SQ. IN CONC
PN:905 PD:4"DIAMETER AHTD AL
PN:906 PD:CHISELED SQ. SE
PN:907 PD:CHISELED SQ. @ TOP
PN:908 PD:CHISELED SQ. @ W. EDGE
PN:909 PD:AHTD 5"X5" CONC RWM
PN:910 PD:CHISELED SQ. @ CONC

SURVEY BASELINE N82°13'10"E 469.37'
SURVEY BASELINE N84°29'57"E 790.56'
SURVEY BASELINE N70°39'02"E 1002.70'
SURVEY BASELINE N71°38'38"E 770.86'
SURVEY BASELINE S86°27'01"E 482.55'
SURVEY BASELINE S65°12'20"E 708.58'
SURVEY BASELINE S81°31'27"E 614.05'
SURVEY BASELINE N49°45'52"E 1191.93'
SURVEY BASELINE N63°46'59"E 663.32'

HIGHWAY 70
BRATTON DR
BARTEE TRAIL

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

100 50 0 100
Scale: 1" = 200'

SURVEY CONTROL DETAILS
STA. 470+00 TO 530+00

Leonard.Speed 9/23/2016 2:03:44 PM
WORKSPACE: Leonard.Speed
C:\Dwg\Hicad\baker_projects\leonard.speed\d0211744\r-CA0606_JL_SC_005.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	241	888

(2) SURVEY CONTROL DETAILS

PI 533+18.35
PN:103 PD:AHTD GPS #260032A
N40°27'24"E
N83°43'37"E 535+00
PN:10 PD:AHTD STD MON. STAMPED PN:10
C.L. HIGHWAY 70
P.I. = 543+60.25
Δ = 17°30'45.5" LT.
D = 3°00'00"
T = 294.17'
L = 583.76'
P.C. = 540+66.08
P.T. = 546+49.83
e = 0.077 '/'
Ls = 540' (468')
PC 540+66.08
PT 546+49.84
PI 559+64.22
PN:13 PD:AHTD STD MON. STAMPED PN:13
PN:912 PD:CHISELED SQ. IN N.HW
560+00
S83°07'23"E
N66°12'52"E
555+00
550+00
545+00
540+00
530+00
PN:910 PD:CHISELED SQ. @ CONC
SURVEY BASELINE N49°45'52"E 1191.93'
8315
706.13'
SURVEY BASELINE N86°18'18"E
8316
PN:911 PD:CHISELED SQ. IN CONC
N83°43'37"E
PN:11 PD:AHTD STD MON. STAMPED PN:11
8318
SURVEY BASELINE N67°50'42"E 763.96'
PN:12 PD:AHTD STD MON. STAMPED PN:12
8319
SURVEY BASELINE N63°23'04"E 687.04'
HIGHWAY 70
PC 555+15.42
PC 528+13.34
PT 537+74.90
PI 543+60.25
C.L. HIGHWAY 70
P.I. = 533+18.36
Δ = 43°16'13.2" RT.
D = 4°30'00"
T = 505.02'
L = 961.56'
P.C. = 528+13.34
P.T. = 537+74.90
e = 0.096'/'
Ls = 567'
C.L. HIGHWAY 70
P.I. = 559+64.22
Δ = 30°39'45.3" RT.
D = 3°30'00"
T = 448.80'
L = 876.07'
P.C. = 555+15.42
P.T. = 563+91.49
e = 0.086 '/'
Ls = 630' (513')
BEARINGS ARE GRID BASED ON GPS

PI 559+64.22
PN:912 PD:CHISELED SQ. IN N.HW
560+00
S83°07'23"E
SURVEY BASELINE N88°04'25"E 731.71'
8321
565+00
PN:14 PD:AHTD STD MON. STAMPED PN:14
PC 567+42.06
PT 563+91.49
SURVEY BASELINE S83°37'32"E 582.88'
8322
570+00
PN:15 PD:AHTD STD MON. STAMPED PN:15
S83°07'23"E
N65°18'15"E
PI 571+02.02
C.L. HIGHWAY 70
P.I. = 559+64.22
Δ = 30°39'45.3" RT.
D = 3°30'00"
T = 448.80'
L = 876.07'
P.C. = 555+15.42
P.T. = 563+91.49
e = 0.086 '/'
Ls = 630' (513')
C.L. HIGHWAY 70
P.I. = 571+02.02
Δ = 31°34'22.0" LT.
D = 4°30'00"
T = 359.96'
L = 701.62'
P.C. = 567+42.06
P.T. = 574+43.67
e = 0.096 '/'
Ls = 567'
PT 574+43.67
PN:913 PD:CHISELED SQ. N.HW. 45°FROM C/L OF ROAD
575+00
HIGHWAY 70
8324
PN:16 PD:AHTD STD MON. STAMPED PN:16
SURVEY BASELINE N68°53'53"E 754.87'
PC 580+84.90
580+00
8325
SURVEY BASELINE N58°55'51"E 695.99'
PN:914 PD:CHISELED SQ. N.HW
PN:17 PD:AHTD STD MON. STAMPED PN:17
585+00
590+00
PN:18 PD:AHTD STD MON. STAMPED PN:18
N35°00'04"E
PI 591+19.23
C.L. HIGHWAY 70
P.I. 591+19.23
Δ = 30°18'11.3" LT.
D = 1°30'00"
T = 1034.33'
L = 2020.21'
P.C. = 580+84.90
P.T. = 601+05.11
e = 0.043 '/'
Ls = 540' (450')
SURVEY BASELINE N57°18'46"E 690.80'
PI 591+91.23

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-15-2016

100 50 0 100
Scale: 1" = 200'

SURVEY CONTROL DETAILS STA. 530+00 TO 590+00

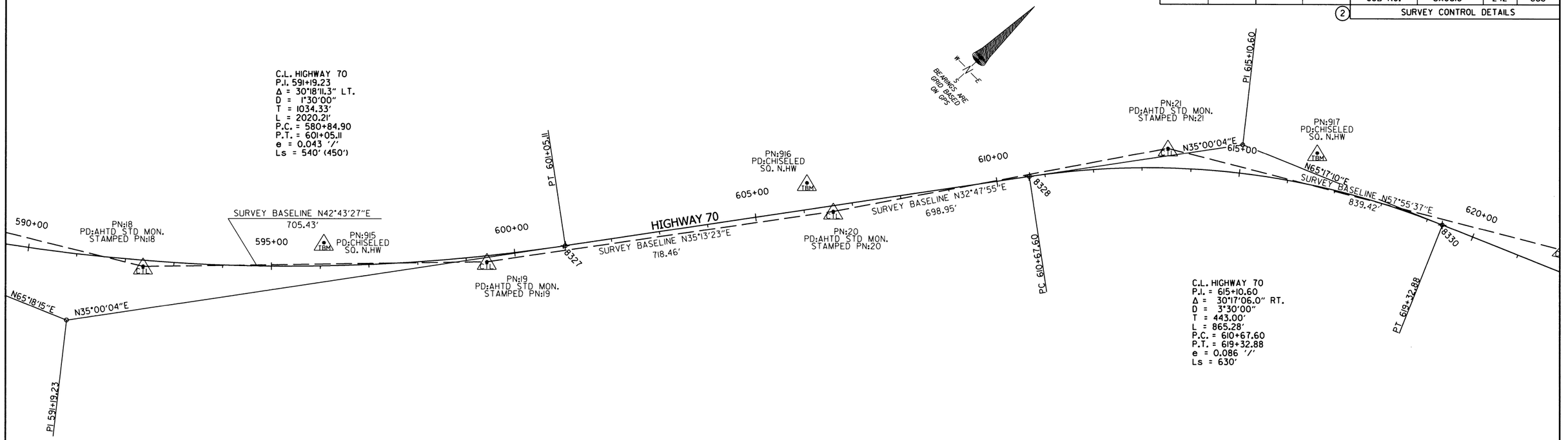
Leonard.Speed 9/23/2016 2:03:58 PM
WORKSPACE: Leonard.Speed
c:\pw\bl-local\baker_projects\leonard.speed\v0217144\r-CA0606_II_SC_006.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	242	888

(2) SURVEY CONTROL DETAILS



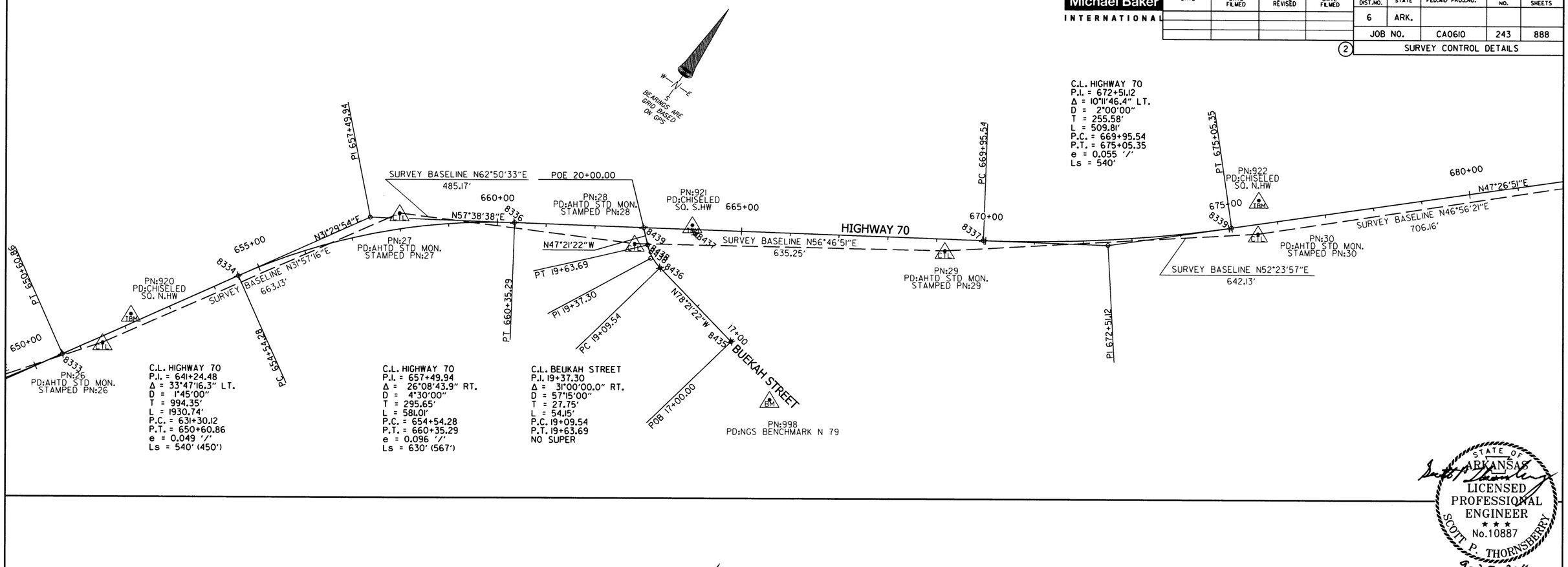
SURVEY CONTROL DETAILS
STA. 590+00 TO 650+00

Leonard Speed 9/23/2016 2:04:10 PM
KRW SCALE Leonard Sheet
c:\pw\bi-local\baker_projects\leonard.speed\d027744\r-CA0606_II_SC_007.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	243	888

(2) SURVEY CONTROL DETAILS



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY
9-25-2016

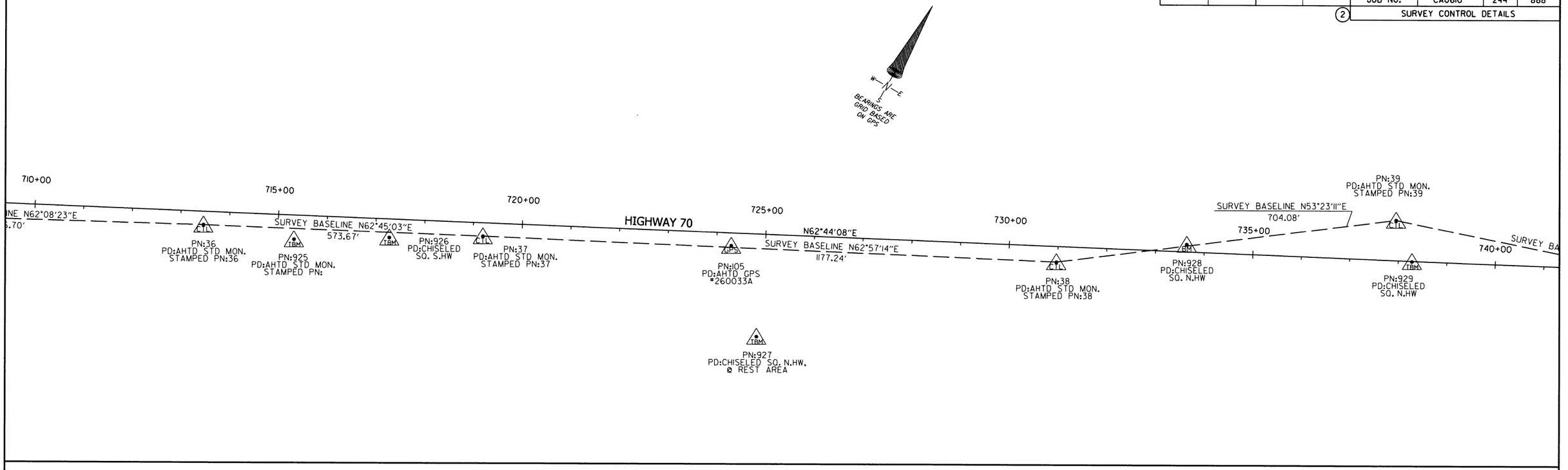
SURVEY CONTROL DETAILS STA. 650+00 TO 710+00

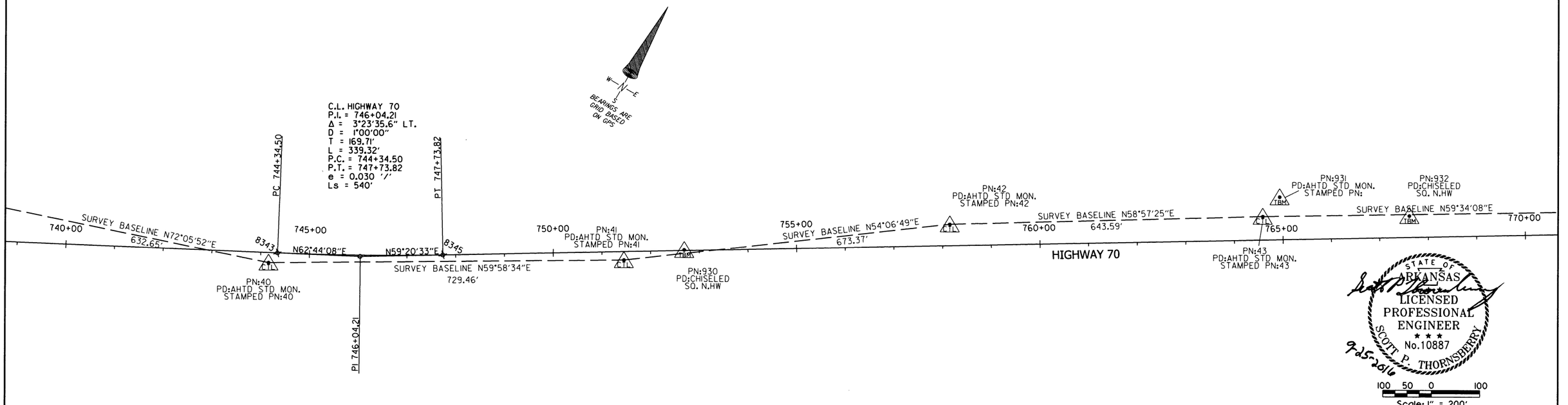
Leonard.Speed 9/23/2016 2:04:23 PM
WORKSPACE: Leonard.Speed
c:\pw\bi-local\baker_projects\leonard.speed\d0217144\r-CA0606_II_SC_008.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	244	888

(2) SURVEY CONTROL DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-25-2016

100 50 0 100
Scale: 1" = 200'

SURVEY CONTROL DETAILS STA. 710+00 TO 770+00

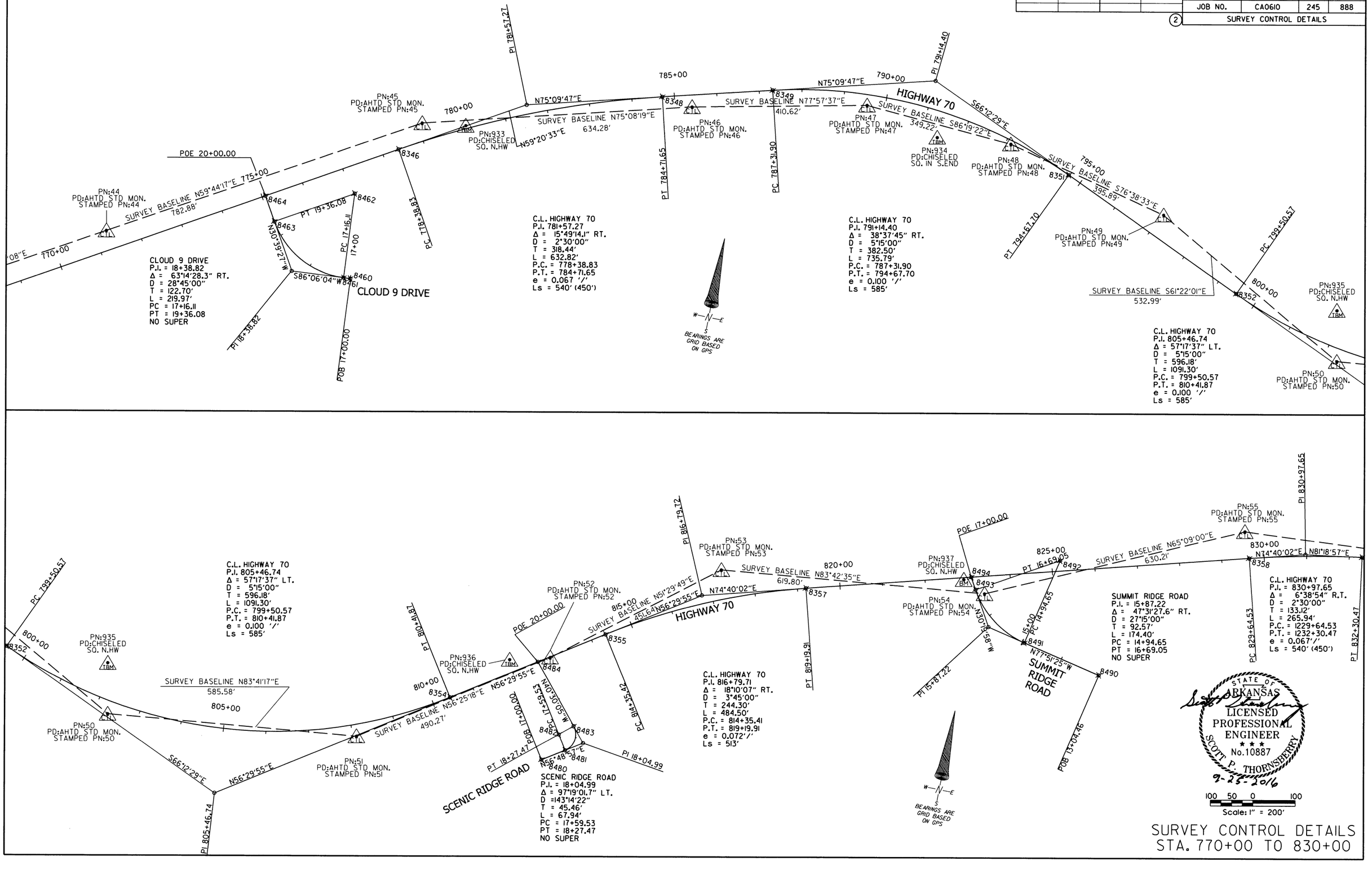
LeonardSpeed 9/23/2016 2:04:35 PM
WORKSPACE: Leonard.Speed
C:\pw8i-local\baker_projects\leonard.speed\d0271744\rCA0606_11_SC_009.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	245	888

(2) SURVEY CONTROL DETAILS



SURVEY CONTROL DETAILS
STA. 770+00 TO 830+00

Leonard.Speed 9/23/2016 2:04:49 PM
WORKSPACE: Leonard.Speed
C:\pw\bl-local\baker_projects\leonard.speed\d0271744\r-CA0606_II_SC_010.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	246	888

(2) SURVEY CONTROL DETAILS

PD:AHTD STD MON. STAMPED PN:55
PN:55
PI 830+97.65
830+00
8358
N74°40'02"E
N81°18'57"E
SURVEY BASELINE N86°24'00"E
638.79'
8360
PN:938
PD:AHTD STD MON. STAMPED PN:
PN:939
PD:CHISELED SQ. N.HW
835+00
PT 832+30.47
PC 837+38.42
C.L. HIGHWAY 70
P.I. = 830+97.65
Δ = 6°38'54" RT.
D = 2°30'00"
T = 133.12'
L = 265.94'
P.C. = 829+64.53
P.T. = 832+30.47
e = 0.067'/'
Ls = 540' (450')
PN:56
PD:AHTD STD MON. STAMPED PN:56
8361
SURVEY BASELINE N69°07'58"E
766.81'
840+00
N81°18'57"E
N28°11'34"E
PI 842+84.01
C.L. HIGHWAY 70
P.I. = 842+84.01
Δ = 53°07'23" LT.
D = 5°15'00"
T = 545.59'
L = 1011.87'
P.C. = 837+38.42
P.T. = 847+50.28
e = 0.100'/'
Ls = 630' (576')
W E S
BEARINGS ARE GRID BASED ON GPS
PN:940
PD:AHTD STD MON. STAMPED PN:
PN:57
PD:AHTD STD MON. STAMPED PN:57
845+00
8363
SURVEY BASELINE N31°56'54"E
769.88'
PT 847+50.28
PC 850+65.49
PT 851+34.23
C.L. HIGHWAY 70
P.I. = 850+99.86
Δ = 0°10'19" LT.
D = 00°15'00"
T = 34.37'
L = 68.74'
P.C. = 850+65.49
P.T. = 851+34.23
NO SUPER
850+00
8364
PN:58
PD:AHTD STD MON. STAMPED PN:58
8366
PN:941
PD:CHISELED SQ. S.HW
PI 858+98.86
N28°01'15"E
855+00 SURVEY BASELINE N23°30'08"E
739.65'
PN:942
PD:CHISELED SQ. IN S.END
PN:59
PD:AHTD STD MON. STAMPED PN:59
860+00 SURVEY BASELINE N38°08'06"E
641.78'
8367
PC 859+58.72
C.L. HWY. 70
P.I. = 865+63.27
Δ = 55°46'35" RT.
D = 5°15'00"
T = 577.55'
L = 1062.41'
P.C. = 859+85.72
P.T. = 870+48.13
e = 0.100'/'
Ls = 630' (576')

CEDAR CREEK ROAD N55°22'53"W
CEDAR CREEK RD.
P.I. 22+73.92
Δ = 26°42'34.9" RT.
D = 57°15'00"
T = 23.76'
L = 46.65'
P.C. = 22+50.16
P.T. = 22+96.82
NO SUPER
POE 24+00.00
PT 22+96.82
PC 22+50.16
8505
8506
PI 22+73.92
8504
8503
CEDAR CREEK RD.
P.I. 21+24.11
Δ = 60°00'00.0" LT.
D = 57°15'00"
T = 57.78'
L = 104.80'
P.C. = 20+66.33
P.T. = 21+71.13
NO SUPER
PT 21+71.13
PC 875+03.08
PI 21+24.11
N82°05'28"W
N22°05'28"W
PC 20+66.33
8501
875+00
W E S
BEARINGS ARE GRID BASED ON GPS
C.L. HIGHWAY 70
P.I. 878+58.22
Δ = 36°03'04.1" LT.
D = 5°15'00"
T = 355.14'
L = 686.69'
P.C. = 875+03.08
P.T. = 881+89.77
e = 0.100'/'
Ls = 576'
PT 881+89.77
PN:945
PD:CHIS SQ. N.HW,25' TO CL HWY70
885+00
8373
SURVEY BASELINE N47°14'11"E
568.39'
PC 884+49.48
PI 888+74.15
PN:64
PD:AHTD STD MON. STAMPED PN:64
N84°38'14"E 890+00
N47°44'46"E
SURVEY BASELINE N78°30'14"E
719.88'
PT 892+69.28
PI 865+63.27
PN:60
PD:AHTD STD MON. STAMPED PN:60
N83°47'50"E
SURVEY BASELINE N71°19'35"E
613.53'
N28°01'15"E
865+00
PN:943
PD:CHISELED SQ. N.HW
860+00 SURVEY BASELINE N38°08'06"E
641.78'
8367
PC 859+85.72
PN:61
PD:AHTD STD MON. STAMPED PN:61
870+00
PN:944
PD:CHISELED SQ. N.HW
8369
SURVEY BASELINE N87°04'21"E
591.35'
8502
HIGHWAY 70
PT 870+48.13
8370
8500
PN:62
PD:AHTD STD MON. STAMPED PN:62
N83°47'50"E
N47°44'46"E
POB 20+00.00
PI 878+58.22
SURVEY BASELINE N61°00'53"E
581.33'
880+00
8372
PN:63
PD:AHTD STD MON. STAMPED PN:63
C.L. HIGHWAY 70
P.I. = 865+63.27
Δ = 55°46'35" RT.
D = 5°15'00"
T = 577.55'
L = 1062.41'
P.C. = 859+85.72
P.T. = 870+48.13
e = 0.100'/'
Ls = 630' (576')
C.L. HIGHWAY 70
P.I. = 888+74.15
Δ = 36°53'27.5" RT.
D = 4°30'00"
T = 424.67'
L = 819.80'
P.C. = 884+49.48
P.T. = 892+69.28
e = 0.096'/'
Ls = 630' (576')

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-26-2016

100 50 0 100
Scale: 1" = 200'

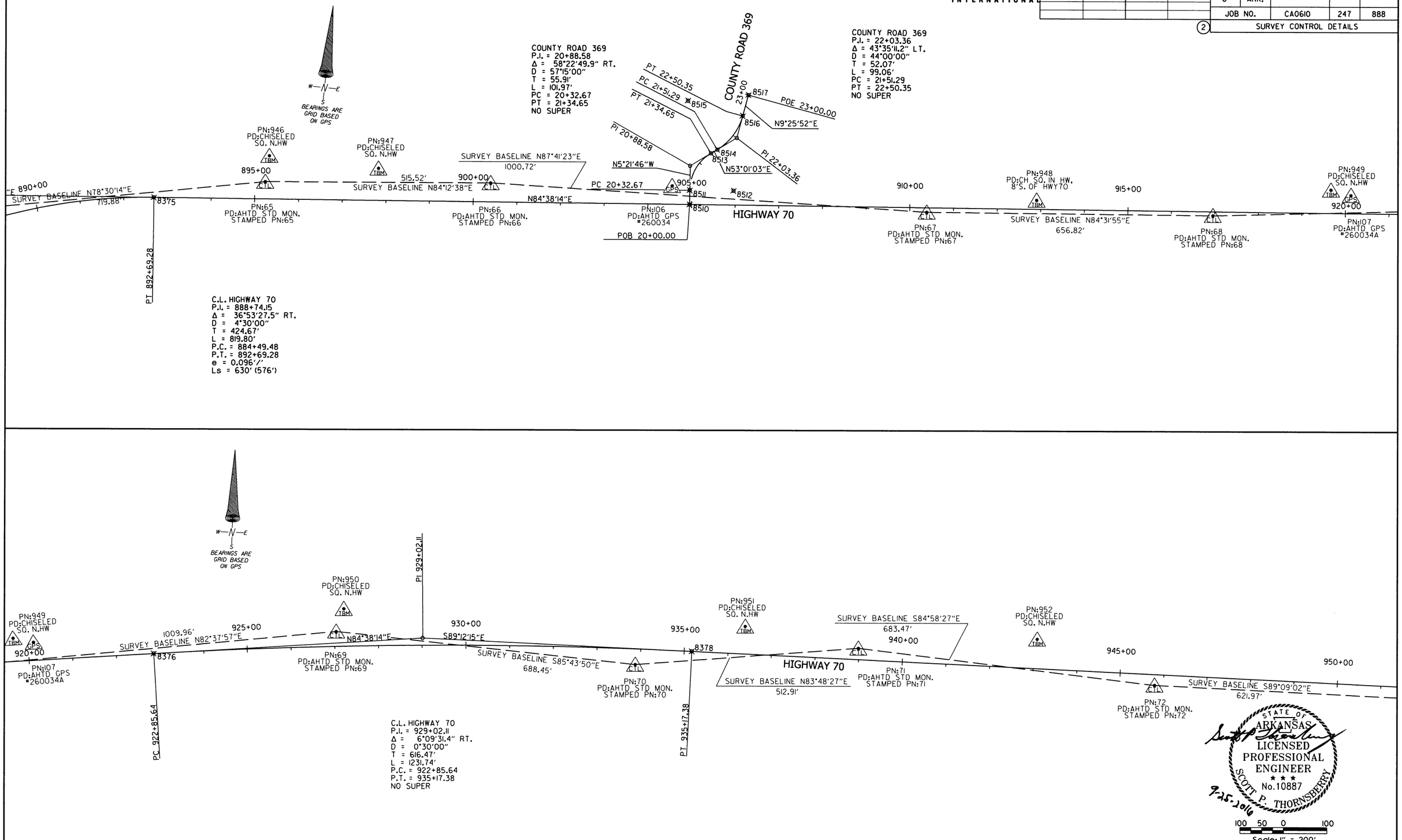
SURVEY CONTROL DETAILS
STA. 830+00 TO 890+00

Leonard.Speed 9/23/2016 2:05:03 PM
WORKSPACE: Leonard.Speed
C:\Dwg\Local\baker_projects\leonard.speed\d0217144\r-CA0606_11_SC_01.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	247	888

(2) SURVEY CONTROL DETAILS



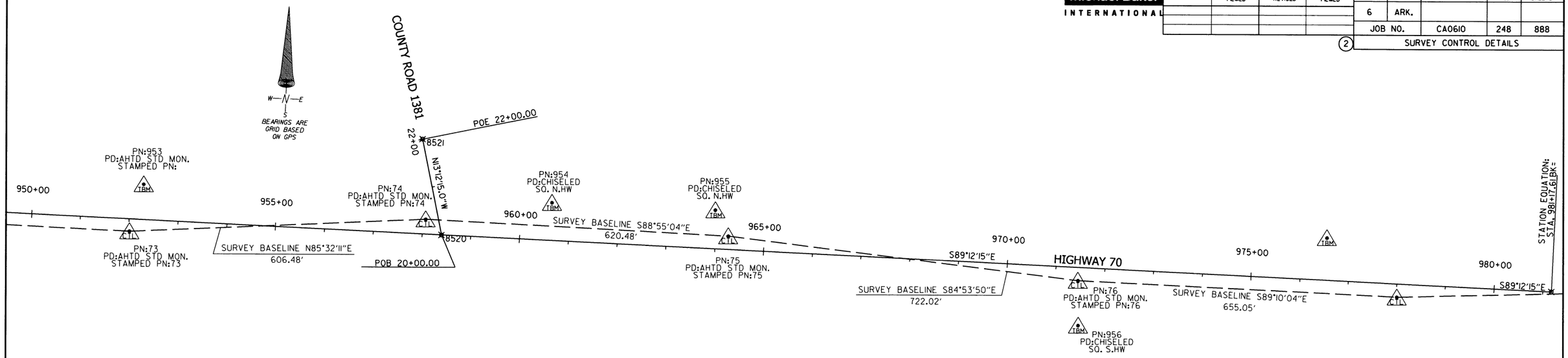
SURVEY CONTROL DETAILS
STA. 890+00 TO 950+00

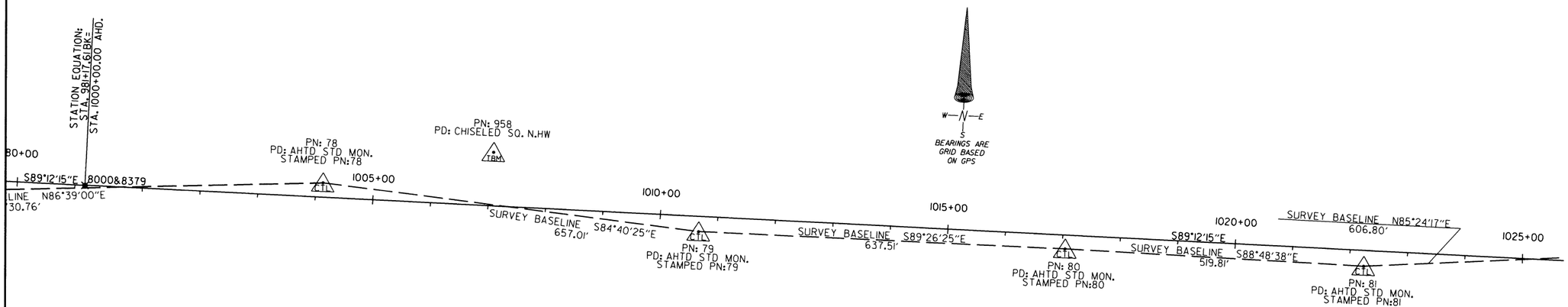
Leonard.Speed 9/23/2016 2:05:16 PM
WORKSPACE: Leonard.Speed
C:\Dwg\Baker_projects\leonard.speed\d0211744\rCA0606_ii_SC_02.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	248	888

(2) SURVEY CONTROL DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-25-2016

100 50 0 100
Scale: 1" = 200'

SURVEY CONTROL DETAILS
STA. 950+00 TO STA. 1025+00

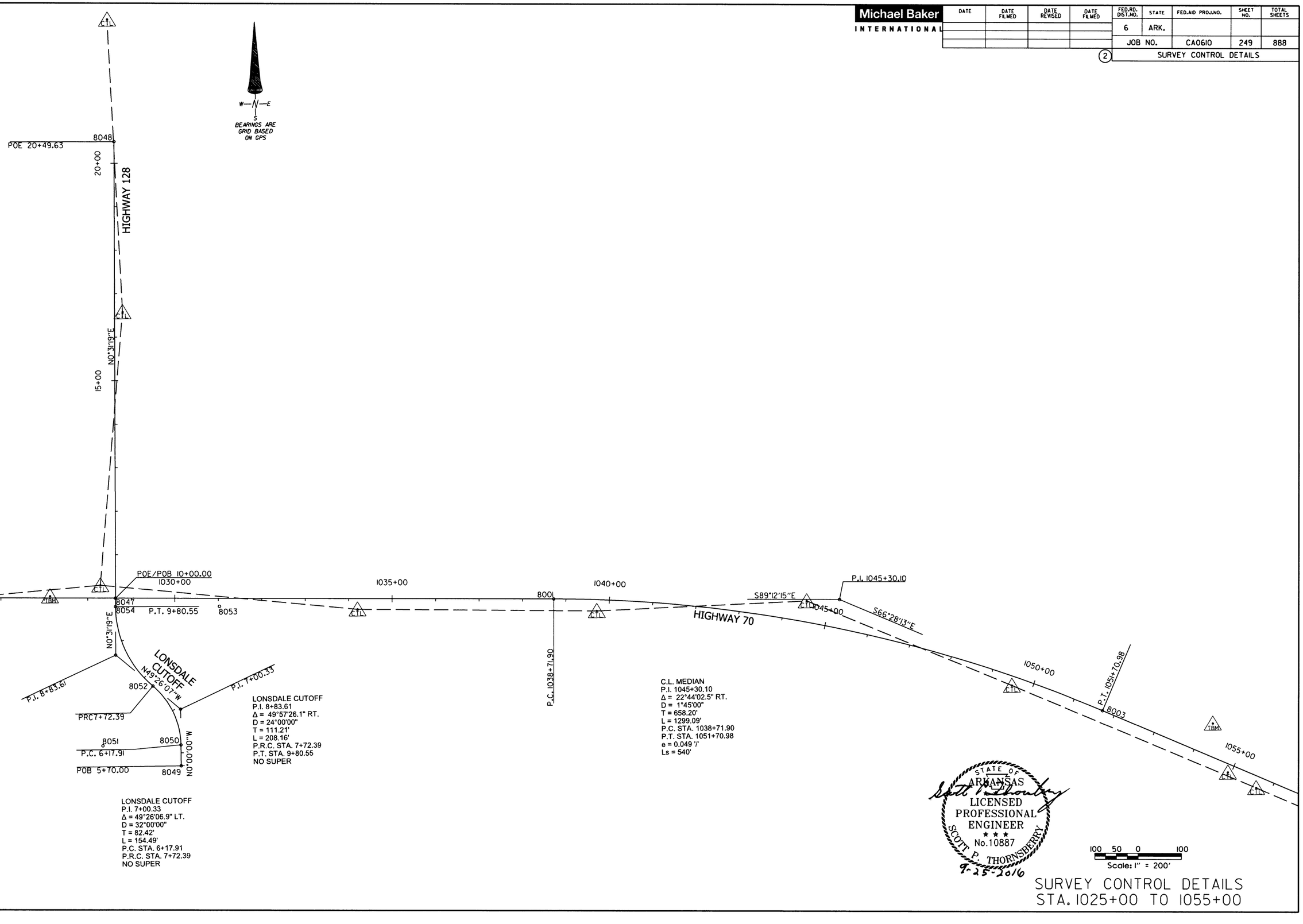
Leonard Speed 9/23/2016 2:05:29 PM
WORKSPACE: Leonard Speed
C:\pw\bl-local\baker.projects\leonard.speed\d0217741\rCA0606_II_SC_013.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	249	888

(2) SURVEY CONTROL DETAILS



LONSDALE CUTOFF
P.I. 8+83.61
Δ = 49°57'26.1" RT.
D = 24°00'00"
T = 111.21'
L = 208.16'
P.R.C. STA. 7+72.39
P.T. STA. 9+80.55
NO SUPER

LONSDALE CUTOFF
P.I. 7+00.33
Δ = 49°26'06.9" LT.
D = 32°00'00"
T = 82.42'
L = 154.49'
P.C. STA. 6+17.91
P.R.C. STA. 7+72.39
NO SUPER

C.L. MEDIAN
P.I. 1045+30.10
Δ = 22°44'02.5" RT.
D = 1°45'00"
T = 658.20'
L = 1299.09'
P.C. STA. 1038+71.90
P.T. STA. 1051+70.98
e = 0.049 '/'
Ls = 540'

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-25-2016

100 50 0 100
Scale: 1" = 200'

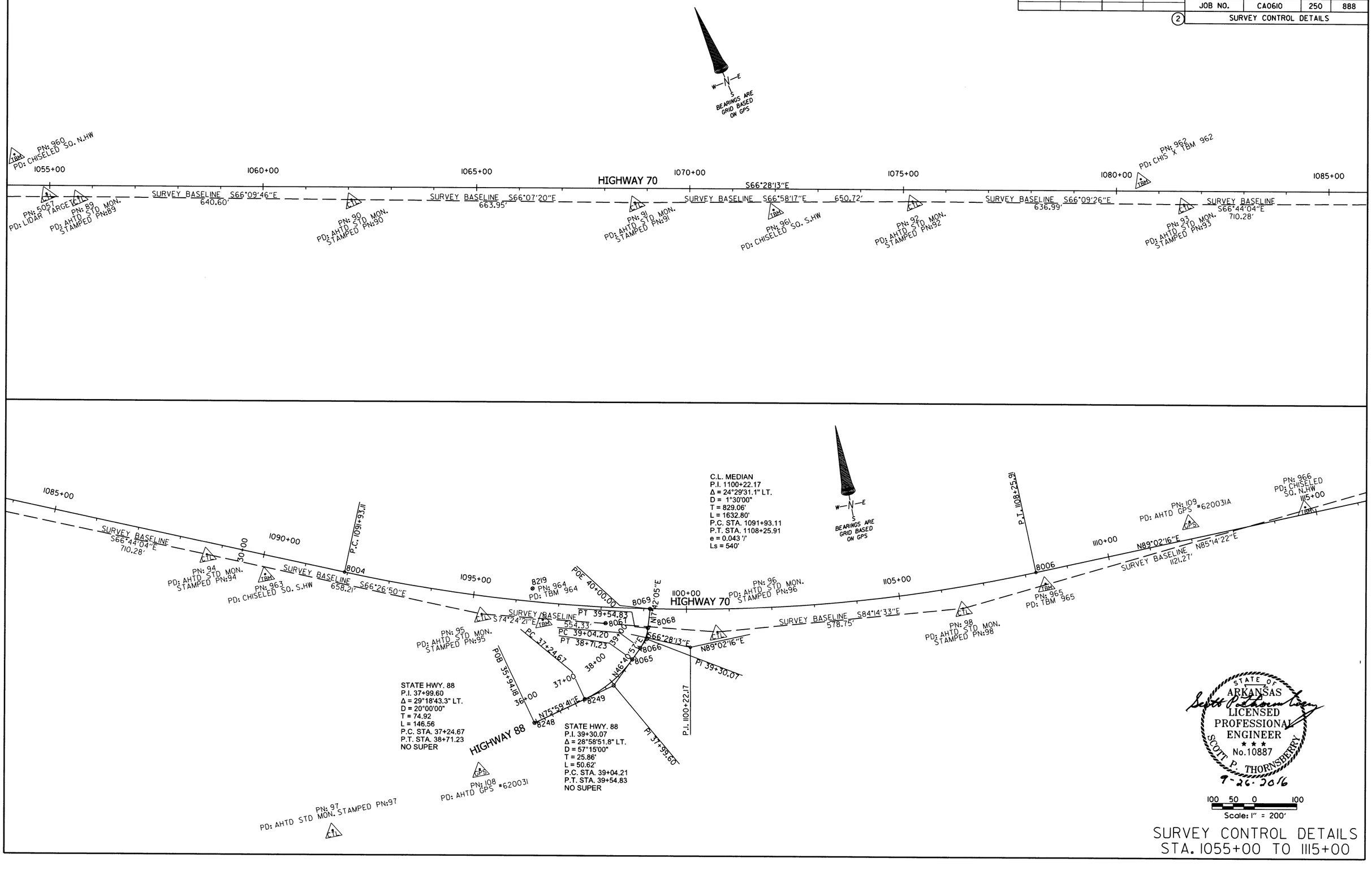
SURVEY CONTROL DETAILS
STA. 1025+00 TO 1055+00

Leonard.Speed 9/23/2016 2:05:43 PM
WORKSPACE: Leonard.Speed
C:\Dw\8i-local\baker_projects\leonard.speed\d0211682\r0613771_IL_SC_004.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	250	888

(2) SURVEY CONTROL DETAILS



STATE OF ARKANSAS
Scott P. Thornsberry
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-26-2016

100 50 0 100
Scale: 1" = 200'

SURVEY CONTROL DETAILS STA. 1055+00 TO 1115+00

LeonardSpeed 9/26/2016 8:05:02 AM
WORKSPACE: Monroe County
c:\pw\ei-local\baker_projects\leonard.speed\d0216682\r-06377_11_SC_005.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	251	888
				(2)	SURVEY CONTROL DETAILS			

W—N—E
S
BEARINGS ARE GRID BASED ON GPS

PN: 966
PD: CHISELED SQ. N.HW
1115+00

PN: 99
PD: AHTD STD MON. STAMPED PN:99
CTL

SURVEY BASELINE
N89°02'16"E
1120+00

PN: 140
PD: AHTD STD MON. STAMPED PN:140
CTL

SURVEY BASELINE N85°42'30"E
638.97'

PN: 967
PD: CHISELED SQ. N.HW
TBM

SURVEY BASELINE S82°19'23"E
721.43'
1125+00
N89°02'16"E

P.I. 1128+62.04

1130+00
S70°36'44"E

PN: 141
PD: AHTD STD MON. STAMPED PN:141
CTL

HIGHWAY 70

8007

P.C. 1124+88.10

C.L. MEDIAN
P.I. 1128+62.04
Δ = 20°20'59.2" RT.
D = 2°45'00"
T = 373.94'
L = 739.99'
P.C. STA. 1124+88.10
P.T. STA. 1132+28.10
e = 0.072 '/'
Ls = 540'

8009

P.T. 1132+28.10

1135+00
S70°36'44"E
SURVEY BASELINE
742.92'
S64°39'44"E

CTL

POE 110+00.00

1140+00
N19°23'16"E
110.00'

8079

SURVEY BASELINE
S78°42'29"E
651.80'

PN: 142
PD: AHTD STD MON. STAMPED PN:142

8078

P.T. 109+30.51

8077

NANCE ROAD
P.I. 108+50.36
Δ = 49°10'53.4" RT.
D = 28°38'52"
T = 91.53'
L = 171.68'
P.C. STA. 107+58.83
P.T. STA. 109+30.51
NO SUPER

P.C. 107+58.83

82.31°

P.I. 108+50.36

P.I. 107+23.89

N11°07'32"W

8076

NANCE ROAD
P.I. 107+06.69
Δ = 15°03'17.7" RT.
D = 43°30'00"
T = 17.40'
L = 34.61'
P.C. STA. 106+89.28
P.T. STA. 107+23.89
NO SUPER

8075

P.C. 106+89.28

8230

P.I. 107+06.69

N40°53'29"W

8229

19.90'

NANCE RD.

POB 106+61.35

NARROWS ROAD
P.I. 141+92.12
D = 18°46'49.5" RT.
D = 13°00'00"
T = 72.89'
L = 144.46'
P.C. STA. 141+19.23
P.T. STA. 142+63.70
NO SUPER

POE 143+20.16

8234

8233

N6°35'33"W

PT 142+63.70

8232

PT 141+92.12

PC 141+19.23

PN: 147
PD: AHTD STD MON. STAMPED PN:147
CTL

1170+00

8090

NARROWS RD

N6°35'33"W

8089

1165+00

PN: 143
PD: AHTD STD MON. STAMPED PN:143
CTL

SURVEY BASELINE
S78°42'29"E
651.80'

1145+00

S70°36'44"E

P.C. 1148+22.03

C.L. MEDIAN
P.I. 1155+31.22
Δ = 34°23'18.8" LT.
D = 2°30'00"
T = 709.19'
L = 1375.54'
P.C. STA. 1148+22.03
P.T. STA. 1161+97.58
e = 0.067 '/'
Ls = 540'

SURVEY BASELINE S72°09'57"E
617.12'

PN: 144
PD: AHTD STD MON. STAMPED PN:144
CTL

1150+00

8010

SURVEY BASELINE S84°13'47"E
631.52'

PN: 145
PD: AHTD STD MON. STAMPED PN:145
CTL

1160+00

P.T. 1161+97.58

8012

SURVEY BASELINE N89°35'13"E
511.76'

CTL

PN: 146
PD: AHTD STD MON. STAMPED PN:146

N74°59'57"E

SURVEY BASELINE
N68°21'23"E
585.14'

8011

P.C. 1165+43.00

C.L. MEDIAN
P.I. 1172+47.74
Δ = 30°56'19.8" R.T.
D = 2°15'00"
T = 704.74'
L = 1375.06'
P.C. STA. 1165+43.00
P.T. STA. 1179+18.06
e = 0.061 '/'
Ls = 540'

1155+00

8254

POE 130+00.00

PN: 968
PD: CHISELED SQ. IN

1300.00

S70°36'44"E

N3°03'49"E

HIGHWAY 70

8252

PT 129+27.87

8253

N74°59'57"E

129+00

PI 128+78.15

PC 128+27.87

8251

8250

N18°03'49"E

10 MILE RD.

P.I. 1155+31.22

10 MILE ROAD
P.I. 128+78.15
Δ = 15°00'00.0" LT.
D = 15°00'00"
T = 50.29'
L = 100.00'
P.C. STA. 128+27.87
P.T. STA. 129+27.87
NO SUPER

W—N—E
S
BEARINGS ARE GRID BASED ON GPS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
7-25-2016

100 50 0 100
Scale: 1" = 200'

SURVEY CONTROL DETAILS
STA. 1115+00 TO 1170+00

Leonard.Speed 9/23/2016 2:06:09 PM
WORKSPACE: Leonard.Speed
C:\Drw81\local\baker_projects\leonard.speed\d0271682\r-061377_ll_SC_006.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	252	888

(2) SURVEY CONTROL DETAILS

P.I. 1172+47.74
S74°03'43"E
N74°59'57"E
8232
1170+00
SURVEY BASELINE N89°38'41"E 745.75'
1175+00
PN: 148 PD: AHTD STD MON. STAMPED PN:148
SURVEY BASELINE S70°11'38"E 706.48'
8015
1180+00
P.T. 1179+18.06
PN: 969 PD: CHISELED SO. IN N. HW
S74°03'43"E
1185+00
HIGHWAY 70
SMART RD.
PN: 970 PD: CHIS SO. S.HW
1190+00
PN: 149 PD: AHTD STD MON. STAMPED PN:149
8237
8239
PT 159+63.22
8238
PC 158+34.04
8236
8235
N89°57'11"E
N15°56'11"E
PI 159+09.42
ROCKY LOOP
SURVEY BASELINE S71°53'43"E 650.45'
PN: 150 PD: AHTD STD MON. STAMPED PN:150
SURVEY BASELINE S80°50'05"E 740.73'
8016
P.C. 1194+38.71
1195+00
PN: 971 PD: CHISELED SO. S.HW
PN: 151 PD: AHTD STD MON. STAMPED PN:151
SURVEY BASELINE S64°36'30"E 648.57'
1200+00

C.L. MEDIAN
P.I. 1172+47.74
Δ = 30°56'19.8" RT.
D = 2°15'00"
T = 704.74'
L = 1375.06'
P.C. STA. 1165+43.00
P.T. STA. 1179+18.06
e = 0.061 '/'
Ls = 540'

ROCKY LOOP ROAD
P.I. 159+09.42
Δ = 74°00'54.5" LT.
D = 57°17'45"
T = 75.38'
L = 129.18'
P.C. STA. 158+34.04
P.T. STA. 159+63.22
NO SUPER

C.L. MEDIAN
P.I. 1209+90.54
Δ = 62°42'59.2" RT.
D = 2°15'00"
T = 1551.83'
L = 2787.40'
P.C. STA. 1194+38.71
P.T. STA. 1222+26.10
e = 0.061 '/'
Ls = 540'

BEARINGS ARE GRID BASED ON GPS

P.I. 1209+90.54
S74°03'43"E
S11°20'44"E
C.L. MEDIAN
P.I. 1209+90.54
Δ = 62°42'59.2" RT.
D = 2°15'00"
T = 1551.83'
L = 2787.40'
P.C. STA. 1194+38.71
P.T. STA. 1222+26.10
e = 0.061 '/'
Ls = 540'
PN: 152 PD: AHTD STD MON. STAMPED PN:152
SURVEY BASELINE S64°36'30"E 648.57'
1200+00
SURVEY BASELINE S41°27'56"E 758.98'
1205+00
PN: 972 PD: CHISELED SO. IN S.
1210+00
PN: 153 PD: AHTD STD MON. STAMPED PN:153
SURVEY BASELINE S33°13'37"E 698.88'
1215+00
PN: 973 PD: CHISELED SO. N.HW
PN: 154 PD: AHTD STD MON. STAMPED PN:154
P.O.B. 208+00.00
HIGHWAY 70
N85°37'21"E
8201
8202
8203
8204
8205
P.I. 206+06.63
P.C. 206+83.67
P.I. 206+28.18
P.C. 205+13.84
S38°24'37"E
BROWNING ACCESS
8207
1220+00
SURVEY BASELINE S8°57'26"E 693.56'
P.I. 208+05.54
P.C. 210+18.31
210+00
8208
S11°20'44"E
8018
8019
1225+00
P.I. 209+27.27
P.T. 1222+26.10
P.C. 1223+30.14
PN: 155 PD: AHTD STD MON. STAMPED PN:155

BROWNING ACCESS
P.I. 206+06.63
Δ = 78°41'47.5" RT.
D =143°14'22"
T = 32.80'
L = 54.94'
P.C. STA. 205+73.84
P.T. STA. 206+28.78
NO SUPER

BROWNING ACCESS
P.I. 208+05.54
Δ = 04°52'18.9" RT.
D = 02°00'00"
T = 121.87'
L = 243.60'
P.C. STA. 206+83.67
P.T. STA. 209+27.27
NO SUPER

C.L. MEDIAN
P.I. 1233+05.43
Δ = 68°30'00.9" LT.
D = 4°00'00"
T = 975.29'
L = 1712.51'
P.C. STA. 1223+30.14
P.T. STA. 1240+42.65
e = 0.093 '/'
Ls = 630'

BEARINGS ARE GRID BASED ON GPS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
7-25-2016

100 50 0 100
Scale: 1" = 200'

SURVEY CONTROL DETAILS
STA. 1170+00 TO 1225+00

Leonard.Speed 9/23/2016 2:06:25 PM
WORKSPACE: Leonard.Speed
C:\Users\Michael Baker Projects\leonard.speed\d0276682\r06i377_II_SC_007.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	253	888

(2) SURVEY CONTROL DETAILS

BROWNING ACCESS
P.I. 213+36.10
Δ = 30°12'49.8" LT.
D = 06°00'00"
T = 257.78'
L = 503.56'
P.C. STA. 210+78.31
P.T. STA. 215+81.88
NO SUPER

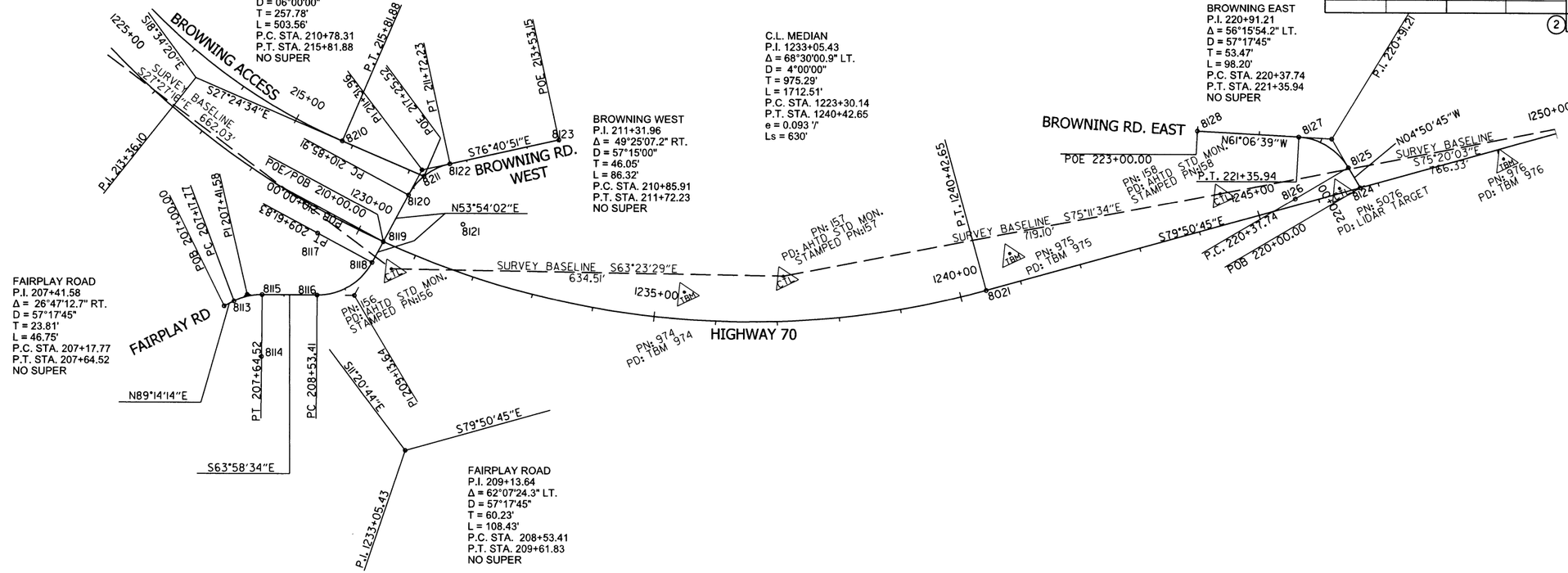
BROWNING EAST
P.I. 220+91.21
Δ = 56°15'54.2" LT.
D = 57°17'45"
T = 53.47'
L = 98.20'
P.C. STA. 220+37.74
P.T. STA. 221+35.94
NO SUPER

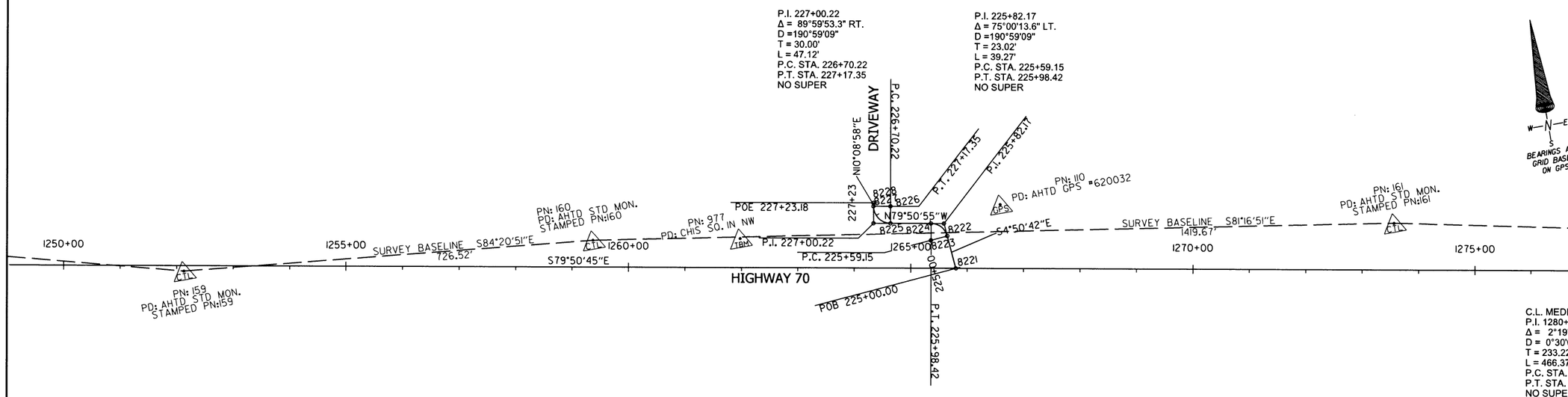
C.L. MEDIAN
P.I. 1233+05.43
Δ = 68°30'00.9" LT.
D = 4°00'00"
T = 975.29'
L = 1712.51'
P.C. STA. 1223+30.14
P.T. STA. 1240+42.65
e = 0.093 '/'
Ls = 630'

BROWNING WEST
P.I. 211+31.96
Δ = 49°25'07.2" RT.
D = 57°15'00"
T = 46.05'
L = 86.32'
P.C. STA. 210+85.91
P.T. STA. 211+72.23
NO SUPER

FAIRPLAY ROAD
P.I. 207+41.58
Δ = 26°47'12.7" RT.
D = 57°17'45"
T = 23.81'
L = 46.75'
P.C. STA. 207+17.77
P.T. STA. 207+64.52
NO SUPER

FAIRPLAY ROAD
P.I. 209+13.64
Δ = 62°07'24.3" LT.
D = 57°17'45"
T = 60.23'
L = 108.43'
P.C. STA. 208+53.41
P.T. STA. 209+61.83
NO SUPER





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-25-2016

SURVEY CONTROL DETAILS STA. 1225+00 TO 1280+00

Leonard.Speed 9/23/2016 2:06:38 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

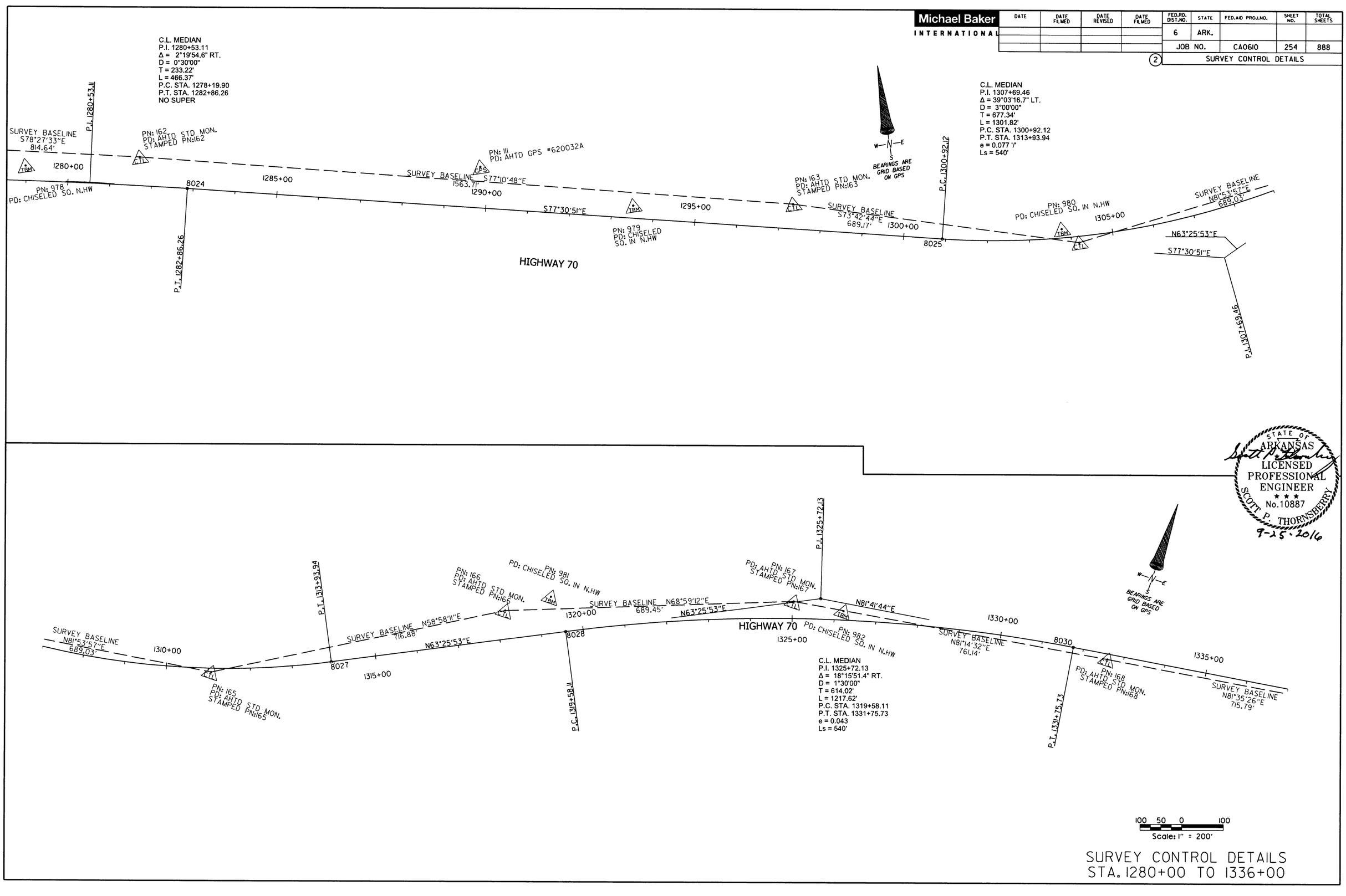
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	254	888

(2) SURVEY CONTROL DETAILS

C.L. MEDIAN
P.I. 1280+53.11
Δ = 2°19'54.6" RT.
D = 0°30'00"
T = 233.22'
L = 466.37'
P.C. STA. 1278+19.90
P.T. STA. 1282+86.26
NO SUPER

C.L. MEDIAN
P.I. 1307+69.46
Δ = 39°03'16.7" LT.
D = 3°00'00"
T = 677.34'
L = 1301.82'
P.C. STA. 1300+92.12
P.T. STA. 1313+93.94
e = 0.077 '/'
Ls = 540'

C.L. MEDIAN
P.I. 1325+72.13
Δ = 18°15'51.4" RT.
D = 1°30'00"
T = 614.02'
L = 1217.62'
P.C. STA. 1319+58.11
P.T. STA. 1331+75.73
e = 0.043
Ls = 540'



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-25-2016

100 50 0 100
Scale: 1" = 200'

SURVEY CONTROL DETAILS
STA. 1280+00 TO 1336+00

Leonard.Speed 9/23/2016 2:06:54 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	255	888

(2) SURVEY CONTROL DETAILS

W—N—E
S
BEARINGS ARE GRID BASED ON GPS

PN: 985
PD: CHISELED SQ. IN N.HW
TBM

PN: 983
PD: CHISELED SQ. IN S.HW
TBM

PN: 169
PD: AHTD STD MON. STAMPED PN:169
CTL

PN: 984
PD: CHISELED SQ. IN S.HW
TBM

PN: 172
PD: AHTD STD MON. STAMPED PN:172
CTL

PN: 170
PD: AHTD STD MON. STAMPED PN:170
CTL

PN: 5086
PD: LIDAR TARGET
CTL

PN: 171
PD: AHTD STD MON. STAMPED PN:171
CTL

SURVEY BASELINE N81°35'26"E 715.79'

1340+00

SURVEY BASELINE N81°44'04"E 680.05'

1345+00

1350+00

SURVEY BASELINE N81°41'44"E

SURVEY BASELINE N81°38'02"E 777.17'

1355+00

HIGHWAY 70

SURVEY BASELINE N77°55'41"E 762.45'

1360+00

1365+00

SURVEY BASELINE N85°14'46"E 773.27'

W—N—E
S
BEARINGS ARE GRID BASED ON GPS

C.L. MEDIAN
P.I. 1372+44.87
Δ = 6°32'31.2" LT.
D = 0°45'00"
T = 436.61'
L = 872.27'
P.C. STA. 1368+08.26
P.T. STA. 1376+80.53
e = 0.023
Ls = 540'

P.C. 1368+08.26

SURVEY BASELINE N85°14'46"E 773.27'

1370+00

SURVEY BASELINE N77°53'19"E 782.86'

8031

PN: 173
PD: AHTD STD MON. STAMPED PN:173
CTL

N81°41'44"E

N75°09'13"E

P.I. 1372+44.87

HIGHPOINT DRIVE
P.I. 290+80.37
Δ = 41°54'19.9" LT.
D = 57°17'45"
T = 38.29'
L = 73.14'
P.C. STA. 290+42.08
P.T. STA. 291+15.21
NO SUPER

HIGHPOINT DR.

HIGHPOINT DRIVE
P.I. 291+49.54
Δ = 52°07'01.6" RT.
D =100°00'00"
T = 28.02'
L = 52.12'
P.C. STA. 291+21.52
P.T. STA. 291+73.64
NO SUPER

P.I. 291+73.64
P.C. 291+21.52
P.I. 291+15.21
P.I. 290+80.37
N64°15'07"W
N12°08'05"W
292+00.00
8172
8170
8171
8169
8151
8149
POE 292+00.00
P.I. 291+49.54
P.T. 1376+80.53
P.C. 290+42.08
1380+00
POB 290+00.00
N22°20'47"W
290+00.00
8148
8147
8146
8150
8033
1375+00
PN: 174
PD: AHTD STD MON. STAMPED PN:174
CTL
N14°50'47"W
POE 290+00.00
PN: 986
PD: CHISELED SQ. IN S.HW
TBM
P.I. 287+56.04
N38°59'06"E
8145
8144
P.I. 289+24.74
P.C. 288+73.97
P.T. 287+84.73
N5°05'21"E
POB 287+00.00
8142
8141
8143
P.C. 287+25.57

PN: 175
PD: AHTD STD MON. STAMPED PN:175
CTL

1385+00

SURVEY BASELINE N82°38'41"E 761.84'

1390+00

PN: 176
PD: AHTD STD MON. STAMPED PN:176
CTL

P.I. 1394+94.26
N75°09'13"E
S55°54'47"E

SURVEY BASELINE N70°19'38"E 638.16'

8034

P.T. 289+67.92

HIGHWAY 70

N75°09'13"E

PN: 987
PD: CHISELED SQ. IN S.HW

1395+00

SURVEY BA S77°43'' 779.9

P.C. 1384+51.42

C.L. MEDIAN
P.I. 1394+94.26
Δ = 48°55'59.5" RT.
D = 2°30'00"
T = 1042.83'
L = 1957.33'
P.C. STA. 1384+51.42
P.T. STA. 1404+08.75
e = 0.067 'f'
Ls = 540

OLD 88 RD.

OLD 88 ROAD
P.I. 287+56.04
Δ = 33°53'45.3" RT.
D = 57°17'45"
T = 30.47'
L = 59.16'
P.C. STA. 287+25.57
P.T. STA. 287+84.73
NO SUPER

OLD 88 ROAD
P.I. 289+24.74
Δ = 53°49'53.2" LT.
D = 57°17'45"
T = 50.77'
L = 93.95'
P.C. STA. 288+73.97
P.T. STA. 289+67.92
NO SUPER

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-15-2016

100 50 0 100
Scale: 1" = 200'

SURVEY CONTROL DETAILS
STA. 1336+00 TO 1395+00

Leonard.Speed 9/23/2016 2:07:07 PM
WORKSPACE: Leonard.Speed
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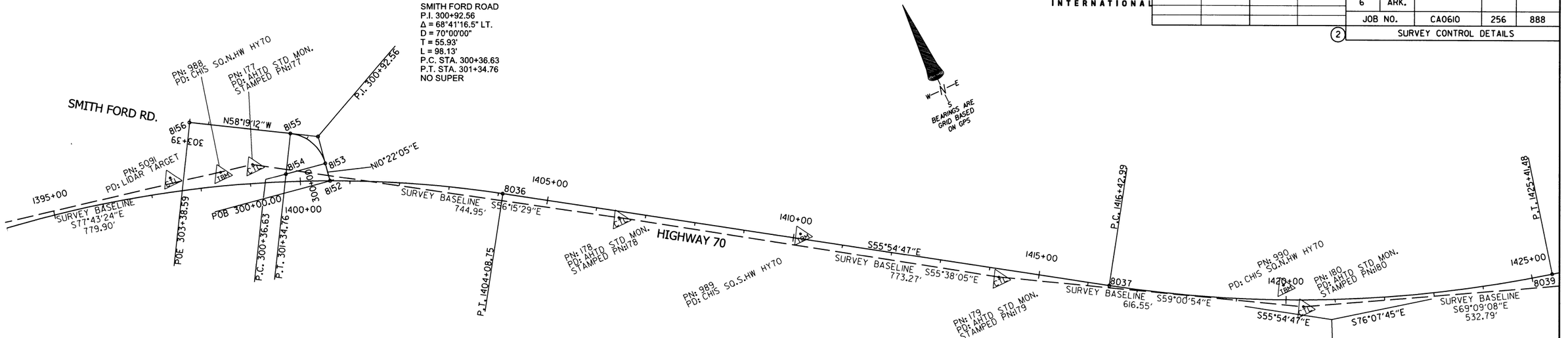
REVISED DATE: ##REVDATE##

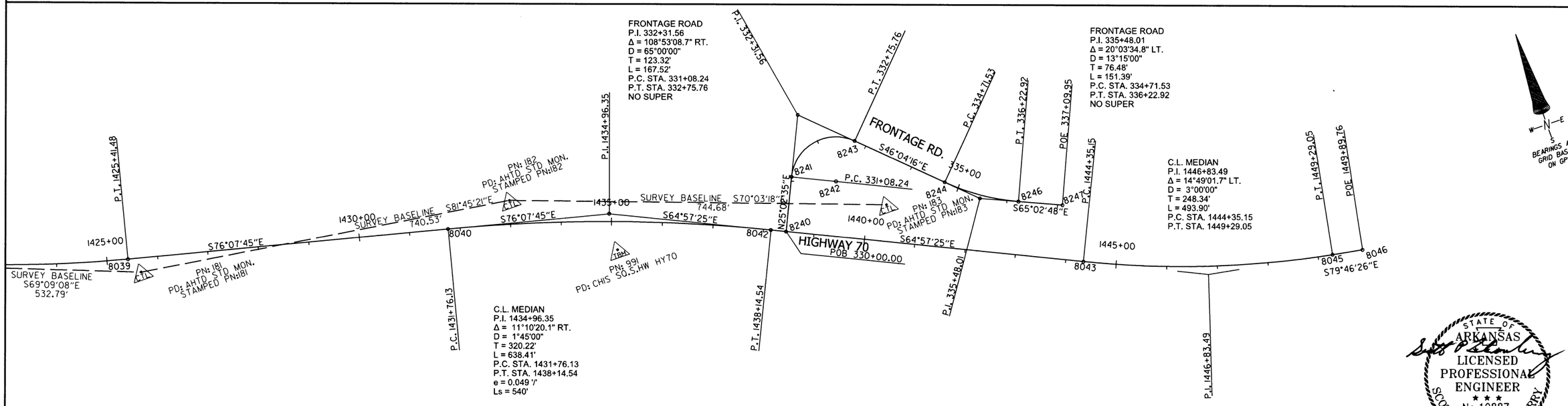
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	256	888

(2) SURVEY CONTROL DETAILS





STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-25-2016

100 50 0 100
Scale: 1" = 200'

SURVEY CONTROL DETAILS
STA. 1395+00 TO END JOB

LeonardSpeed 9/23/2016 2:07:22 PM
WORKSPACE: LeonardSpeed
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REVISED DATE: $$REVDATE$$

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	257	888

(2) PLAN & PROFILE - BEGIN JOB TO STA. 485+00

Michael Baker INTERNATIONAL

TEMPORARY CROSSOVER
P.I. = 10+33.34
Δ = 2°00'00.0" RT.
D = 3°00'00"
T = 33.34'
L = 66.67'
P.C. = 10+00.00
P.T. = 10+66.67
NO SUPER

TEMPORARY CROSSOVER
P.I. = 15+13.47
Δ = 17°04'20.4" LT.
D = 6°00'00"
T = 143.33'
L = 284.54'
P.C. = 13+70.14
P.T. = 16+54.68
NO SUPER

NOTE: ALL STATIONS ARE FROM CENTERLINE OF HWY. 70 UNLESS OTHERWISE NOTED.

	GUARDRAIL (TYPE A)	TRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POST (TYPE I)
STA. 478+67.17 TO STA. 480+60.92 LT. OF L.M.L. =	150 LIN. FT.	1 EACH		1 EACH
STA. 484+00.11 TO STA. 486+18.86 LT. OF L.M.L. =	150 LIN. FT.	1 EACH	1 EACH	
STA. 484+00.11 TO STA. 486+18.86 RT. OF L.M.L. =	150 LIN. FT.	1 EACH	1 EACH	

STA. 471+00.00 TO STA. 480+78.00
REMOVE AND RECONSTRUCT WIRE ROPE SAFETY FENCE WITH CONCRETE DITCH PAVING TYPE B (4'-0") SEE TYPICAL SECTIONS

APPROXIMATE 100 YR. FLOODPLAIN LIMITS

STA. 480+71.92 TO STA. 483+89.08
CONSTRUCT 317'-2" X 40'-0" CLEAR ROADWAY WIDTH
315'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
(84'-84'-84'-63')

STA. 480+80.49 TO STA. 483+79.69
EXISTING BRIDGE NO. 02944, 302' X 28'
STEEL I-BEAM SUPERSTRUCTURE
(6 @ 50') & SUBSTRUCTURE COMPOSED
OF SOLID WALL PIERS ON SPREAD FOOTINGS.
REMOVE AS EXISTING BRIDGE STRUCTURE.
SITE NO. 1 = 1.00 LUMP SUM.

STA. 480+33.60 TO STA. 483+65.80
EXISTING BRIDGE NO. 07135, 332.2' X 43.2'
CONTINUOUS COMPOSITE PLATE GIRDER UNIT
(102'-126'-102') AND SUBSTRUCTURE COMPOSED
OF 2-COLUMN BENTS ON SPREAD FOOTINGS
RETAIN

LEFT LANES STA. 477+52.35 =
C.L. MEDIAN STA. 478+03.91, 39.05' LT.

TEMPORARY CROSSOVER STA. 10+00.00 =
C.L. MEDIAN STA. 471+60.78, 34.55' LT.

C.L. TEMPORARY CROSSOVER

191.4' TRANSITION TO MATCH EXISTING

C.L. MEDIAN
P.I. = 474+74.86
Δ = 15°04'20.4" LT
D = 02°42'00"
T = 280.74'
L = 558.23'
P.C. = 471+94.12
P.T. = 477+52.35
e = 0.70'/'
Ls = 350

CONST. LIMITS

EXIST. R/W

C.L. MEDIAN

TEMPORARY CROSSOVER STA. 16+54.68 =
C.L. MEDIAN STA. 478+11.84, 34.59' RT.

STA. 476+53.00 IN PLACE
TYPE R.M. DROP INLET WITH 24"X 63' R.C. PIPE INLET ON LT. WITH HDWL. AND 24"X 91' R.C. PIPE OUTLET ON LT.
RETAIN

COVER EXIST. DROP INLET AT STA. 476+53.00 AS DIRECTED BY THE ENGINEER PRIOR TO CONSTRUCTION OF THE TEMPORARY CROSSOVER. REMOVE COVER WHEN CROSSOVER IS REMOVED. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR VARIOUS CONTRACT ITEMS.

STA. 473+05.00 TO STA. 476+85.00 INSTALL TEMPORARY 24"X 380' CULVERT IN MEDIAN

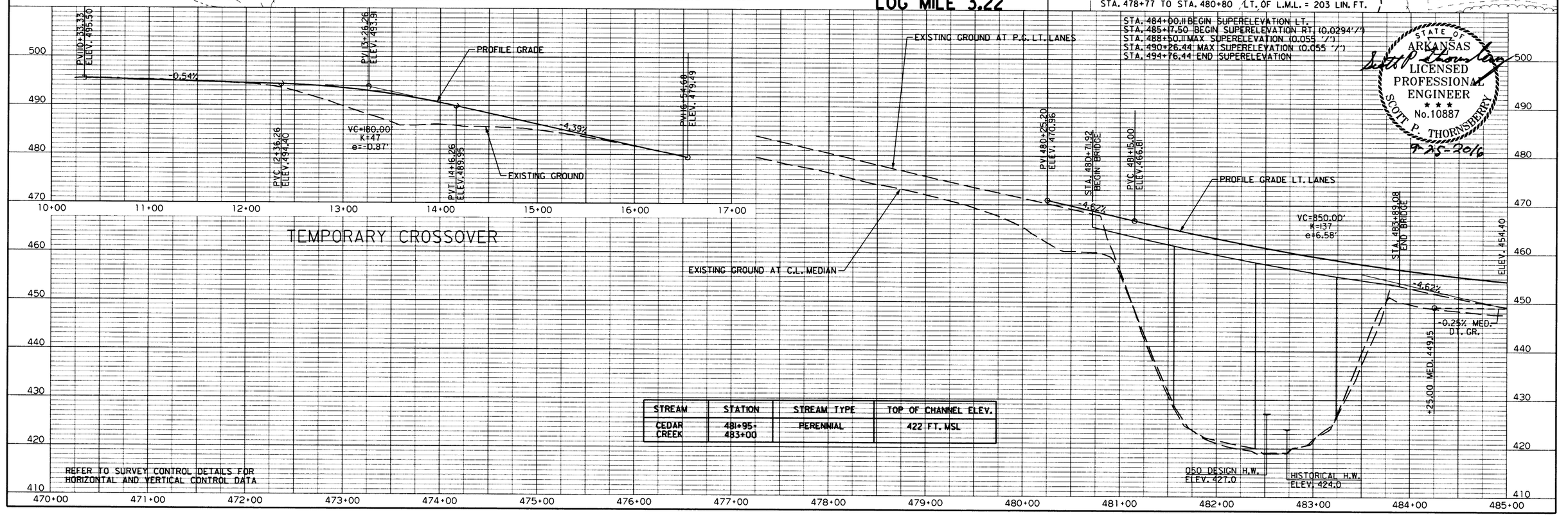
STA. 480+25.20
BEGIN JOB CA0610
BEGIN LT. LANES
LOG MILE 3.22

REMOVAL & DISPOSAL OF GUARDRAIL
STA. 478+77 TO STA. 480+80 LT. OF L.M.L. = 203 LIN. FT.

LEGEND
PAVEMENT TRANSITION

STA. 484+00.11 BEGIN SUPERELEVATION LT.
STA. 485+17.50 BEGIN SUPERELEVATION RT. (0.0294'/')
STA. 488+50.11 MAX SUPERELEVATION (0.055 '/')
STA. 490+26.44 MAX SUPERELEVATION (0.055 '/')
STA. 494+76.44 END SUPERELEVATION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 10887
SCOTT P. THORNSBERRY
9-25-2016



STREAM	STATION	STREAM TYPE	TOP OF CHANNEL ELEV.
CEDAR CREEK	481+95+ 483+00	PERENNIAL	422 FT. MSL

Leonard.Speed 9/23/2016 2:07:38 PM
WORKSPACE: Leonard.Speed
C:\pwdl-local\baker_projects\leonard.speed\d0217744\rCA0606_12_PP_Main_01.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	258	888

(2) PLAN & PROFILE - STA. 485+00 TO STA. 500+00

C.L. LEFT LANES
P.I. = 488+45.08
Δ = 14°14'07.1" RT.
D = 02°00'00"
T = 357.73'
L = 711.77'
P.C. 484+87.35
P.T. 491+99.12
e = .055'/'
Ls = 350'

C.L. MEDIAN
P.I. = 489+34.91
Δ = 14°14'07.1" RT.
D = 02°00'00"
T = 357.72'
L = 711.77'
P.C. = 485+77.19
P.T. = 492+88.95
e = .055'/'
Ls = 350'

C.L. RIGHT LANES
P.I. = 490+37.10
Δ = 14°14'07.1" RT.
D = 02°00'00"
T = 357.72'
L = 711.76'
P.C. = 486+79.38
P.T. = 493+91.14
e = .055'/'
Ls = 350'

STA. 486+08.59 IN PLACE
TYPE R.M. DROP INLET
IN MEDIAN WITH
24"X 110' OUTLET WITH FES ON RT.
REMOVE AND CONSTRUCT
TYPE RM DROP INLET
(3'-0" X 4'-0" X H=8'-7 1/16")
TIE TO EXITING PIPE OUTLET
Q50=26.5 CFS D.A.=3 ACRE
24" R.C. PIPE REMOVAL = 17 LIN. FT.

NOTE: ALL STATIONS ARE FROM CENTERLINE OF HWY. 70 UNLESS OTHERWISE NOTED.

REMOVAL & DISPOSAL OF GUARDRAIL
STA. 483+80 TO STA. 486+20 RT. OF L.M.L. = 240 LIN. FT.
STA. 484+07 TO STA. 485+57 LT. OF L.M.L. = 150 LIN. FT.

STA. 485+81.79 IN PLACE
18"X 33' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 487+55.13 INSTALL
18"X 44' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH ON LT. =
105 CU. YDS.

STA. 489+08.91 IN PLACE
TYPE R.M. DROP INLET
IN MEDIAN
WITH 24"X 297' R.C. PIPE OUTLET
CONNECTING TO D.I. AT STA. 486+08.59
REMOVE

C.L. BRATTON DRIVE
P.I. = 20+75.82
Δ = 8°00'00.0" RT.
D = 28°00'00"
T = 14.31'
L = 28.57'
P.C. = 20+61.51
P.T. = 20+90.08
NO SUPER

STA. 21+28.53
END BRATTON DRIVE

STA. 499+35.00 (BRATTON DRIVE)
IN PLACE
18"X 64' ARCH C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE
CONSTRUCT APPROACH =
105 CU. YDS

C.L. HWY. 70 STA. 494+00.00, 17.50' LT. =
C.L. / LT. LANES STA. 494+00.00

C.L. HWY. 70 STA. 499+35.00 =
C.L. BRATTON DRIVE STA. 20+00.00

C.L. HWY. 70 STA. 494+00.00, 17.50' RT. =
C.L. RT. LANES STA. 494+00.00

STA. 499+35.00
(CROSSGATE CHURCH DRIVE)
CONSTRUCT APPROACH
ON RT. =
605 CU. YDS.

C.L. HIGHWAY 70
P.I. = 501+60.18
Δ = 26°47'41.4" RT.
D = 2°45'00"
T = 498.26'
L = 974.36'
P.C. = 496+63.92
P.T. = 506+38.28
e = 0.072 '/'
Ls = 450'

C.L. RT. LANES STA. 485+00.00 =
C.L. MEDIAN TO STA. 484+92.56, 42.09' RT.

STA. 484+00.11 BEGIN SUPERELEVATION LT.
STA. 485+17.50 BEGIN SUPERELEVATION RT. (0.0294'/')
STA. 488+50.11 MAX SUPERELEVATION (0.055 '/')
STA. 490+26.44 MAX SUPERELEVATION (0.055 '/')
STA. 494+76.44 END SUPERELEVATION

CONCRETE DITCH PAVING (TYPE B)

	STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
	484+25.00	488+00.00	MED.=	375 LIN. FT.	6'- 0"	250.00
LT. LANES	485+10.00	486+55.00	LT. =	145 LIN. FT.	6'- 0"	96.67
	491+00.00	493+00.00	LT. =	200 LIN. FT.	9'- 0"	200.00
	493+00.00	499+00.00	LT. =	600 LIN. FT.	6'- 0"	400.00
	493+38.00	496+87.00	RT. =	349 LIN. FT.	6'- 0"	232.67

STA. 493+37.60 IN PLACE
24"X 79' R.C. PIPE CULVERT
WITH HDWLS. LT. & FES RT.
REMOVE HDWL. LT. & FES RT. AND
EXTEND R.C. PIPE 15' LT. AND 24' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=24.5CFS D.A.=3 ACRES
24" R.C. PIPE = 43 LIN. FT.
24" FES = 2 EA.

STA. 496+86.77 IN PLACE
36"X 57' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 13' LT. AND 43' RT.
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=31.0 CFS D.A.=5 ACRES
36" R.C. PIPE = 64 LIN. FT.
36" FES = 2 EA.

STA. 494+76.44 BEGIN SUPERELEVATION LT.
STA. 499+26.44 MAX SUPERELEVATION (0.072'/')
STA. 505+39.91 MAX SUPERELEVATION (0.072'/')
STA. 508+64.91 REVERSE CROWN (0.020'/')
STA. 509+27.41 NO CROWN (0.000'/')
STA. 509+89.91 END SUPERELEVATION LT.

LEGEND
PAVEMENT TRANSITION

PROFILE GRADE LT. LANES
EXISTING GROUND AT P.C. RT. LANES
PROFILE GRADE RT. LANES
EXISTING GROUND AT C.L. HWY. 70
PROFILE GRADE C.L. HWY. 70

VC=850.00'
K=137
e=6.58'

VC=300.00'
K=141
e=0.79'

VC=237.50'
K=136
e=0.52'

VC=900.00'
K=195
e=5.19'

-0.25% MED. DT. GR.
-0.35% MED. DT. GR.
-0.20%
4.62%
1.57%
4.35% LT. DT. GR.
1.93%
1.73%
3.47%
3.91% LT. DT. GR.
2.23% RT. DT. GR.
3.5%
4.24% LT. DT. GR.
3.55% RT. DT. GR.
1.17% LT. DT. GR.
5.62% LT. DT. GR.
2.49% RT. DT. GR.

TOP=448.68
FL LT.=440.04+-
MATCH EXIST. PIPE ELEV.

FL. LT. = 458.00
FL. RT. = 455.35

FL. LT. = 470.80
FL. RT. = 467.75

LT. LANES STA. 485+10.00
LT. 442.26

LT. LANES STA. 486+55.00 LT. 448.56

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

LeonardSpeed 9/23/2016 2:07:53 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	259	888

(2) PLAN & PROFILE - STA. 500+00 TO STA. 515+00

C.L. HIGHWAY 70
P.I. = 501+60.18
Δ = 26°47'41.4" RT.
D = 2°45'00"
T = 496.26'
L = 974.36'
P.C. = 496+63.92
P.T. = 506+38.28
e = 0.072 '/'
Ls = 450'

STA. 500+72.63 IN PLACE
36"X 63' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 14' LT. AND 54' RT.
32° LT. FWD. SKEW
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=19.4 CFS D.A.=2 ACRES
36" R.C. PIPE = 76 LIN. FT.
36" FES = 2 EA.

STA. 504+22.00
CONSTRUCT APPROACH
ON LT. =
240 CU. YDS.

C.L. HWY 70 STA. 509+06.00=
C.L. BARTEE TRAIL STA. 20+00.00

C.L. HIGHWAY 70
P.I. = 519+80.32
Δ = 69°58'24.2" LT.
D = 5°15'00"
T = 763.79'
L = 1332.83'
P.C. = 512+16.53
P.T. = 525+49.36
e = 0.100 '/'
Ls = 585'

STA. 513+00.00 IN PLACE
24"X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 30' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH =
95 CU. YDS.

STA. 510+25.00 CONSTRUCT
DIKE IN DITCH ON LT.

STA. 509+06.00 IN PLACE
18"X 33' C.M. ARCHED PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18"X 86' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH =
295 CU. YDS.

STA. 512+00.00
CONSTRUCT APPROACH
ON RT. =
185 CU. YDS.

STA. 509+84.47 RT.
2.78 CU. YDS.
DUMPED RIPRAP

C.L. BARTEE TRAIL
P.I. = 19+07.60
Δ = 27°00'00.0" RT.
D = 25°00'00"
T = 55.02'
L = 108.00'
P.C. = 18+52.58
P.T. = 19+60.58
NO SUPER

STA. 17+91.28
BEGIN BARTEE TRAIL

STA. 509+84.47 IN PLACE
30"X 58' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 19' LT. AND 61' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=29.5 CFS D.A.=4 ACRES
30" R.C. PIPE = 88 LIN. FT.
30" FES = 2 EA.

STA. 513+38.98 RT.
23.84 CU. YDS.
DUMPED RIPRAP

STA. 514+34.54 IN PLACE
6'-X 8'-X 185' R.C. BOX CULVERT
35° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
TEMP. EXTEND 50' LT. IN STAGE IA
REMOVE 119' RT. AND
EXTEND 171' RT. IN STAGE IB
REMOVE TEMP. EXTENSION AND
57' LT. AND EXTEND 112' LT. IN STAGE 2
Q50=608.5 CFS D.A.=273 ACRES
72" TEMP. PIPE CULVERT = 50 LIN. FT.

EXIST. R/W
CONST. LIMITS
C.L. HWY 70
PROP. R/W
DIKE
DITCH
C.L. BARTEE TRAIL
PT 20+90.08
PC 20+61.51
PT 18+89.60
PC 18+02.92
PT 506+38.28
PT 19+60.58
PC 18+52.58
PT 19+07.60
PC 512+16.53
515+00
505+00
500+00
510+00
S69°34'12"E
N20°25'48"E
N20°34'12"W
75°00'00"
R =40'
R =36'
R =50'
R =20'
26'
29.5'
8'
16'

STA. 494+76.44 BEGIN SUPERELEVATION LT.
STA. 499+26.44 MAX SUPERELEVATION (0.072'/')
STA. 505+39.91 MAX SUPERELEVATION (0.072'/')
STA. 508+64.91 REVERSE CROWN (0.020'/')
STA. 509+27.41 NO CROWN (0.000'/')
STA. 509+89.91 END SUPERELEVATION LT.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
500+29.00	502+00.00	RT. =	171 LIN. FT.	6'- 0"	114.00
501+10.00	502+00.00	LT. =	90 LIN. FT.	6'- 0"	60.00
509+00.00	509+84.00	LT. =	84 LIN. FT.	6'- 0"	56.00

STA. 508+68.91 BEGIN SUPERELEVATION RT.
STA. 509+27.41 NO CROWN (0.000'/')
STA. 509+85.91 REVERSE CROWN (+0.020'/')
STA. 514+53.91 MAX SUPERELEVATION (0.100'/')
STA. 521+54.84 MAX SUPERELEVATION (0.100'/')
STA. 526+22.84 REVERSE CROWN (0.020'/')
STA. 526+81.34 NO CROWN (0.000'/')
STA. 527+39.84 END SUPERELEVATION RT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No. 10887
SCOTT P. THORNSBERRY
9-25-2016

ELEV. 484.86
3.51%
-1.10%
-1.24% LT. DT. GR.
-2.49% RT. DT. GR.
-5.02% LT. DT. GR.
-4.05% RT. DT. GR.
VC=900.00'
K=195
e=-5.19'
PVI 501+75.00
ELEV. 492.95
PVT 506+25.00
ELEV. 487.99
PVI 508+85.00
ELEV. 485.13
PVC 507+95.00
ELEV. 486.42
PVRC 509+75.00
ELEV. 483.56
VC=180.00'
K=284
e=-0.14'
VC=1050.00'
K=138
e=9.99'
-1.74%
-4.41% LT. DT. GR.
-1.49% LT.
-1.14% LT. DT. GR.
-2.35% LT. DT. GR.
ELEV. 484.416
PROFILE GRADE
EXISTING GROUND
FL. LT. = 484.05
FL. RT. = 476.27
FL. LT. = 477.63
FL. RT. = 470.00
FL. LT. = 456.22
FL. RT. = 448.66
LT. 485.42 +00.00
LT. 484.05 +10.00
RT. 483.17 +00.00
RT. 476.27 +28.71
LT. 481.36 +00.00
LT. 477.63 +84.47
LT. 478.23 +25.00
LT. 477.38 +00.00
LT. 458.25 +55.00

REFER TO SURVEY CONTROL DETAILS FOR
HORIZONTAL AND VERTICAL CONTROL DATA

520 510 500 490 480 470 460 450 440 430
500+00 501+00 502+00 503+00 504+00 505+00 506+00 507+00 508+00 509+00 510+00 511+00 512+00 513+00 514+00 515+00

Leonard.Speed 9/23/2016 2:06:08 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	260	888

(2) PLAN & PROFILE - STA. 515+00 TO STA. 530+00

STA. 516+30.00 IN PLACE
24"X 50' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 84' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
890 CU. YDS.

DRIVEWAY
STA. 516+30.00 IN PLACE
15"X 25' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 44' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
10 CU. YDS.

C.L. HIGHWAY 70
P.I. 519+80.33
Δ = 69°58'24.2" LT.
D = 5°15'00"
T = 763.79'
L = 1332.83'
P.C. = 512+16.53
P.T. = 525+49.36
e = 0.100'/'
Ls = 585'

C.L. HIGHWAY 70
P.I. = 533+18.35
Δ = 43°16'13.2" RT.
D = 4°30'00"
T = 505.02'
L = 961.56'
P.C. = 528+13.34
P.T. = 537+74.90
e = 0.096'/'
Ls = 567'

STA. 515+15.00
CONSTRUCT APPROACH
ON RT. =
780 CU. YDS.

STA. 520+00.00 CONSTRUCT
DIKE IN DITCH ON LT.

STA. 508+68.91 BEGIN SUPERELEVATION RT.
STA. 509+27.41 NO CROWN (0.000'/')
STA. 509+85.91 REVERSE CROWN (+0.020'/')
STA. 514+53.91 MAX SUPERELEVATION (0.100'/')
STA. 521+54.84 MAX SUPERELEVATION (0.100'/')
STA. 526+22.84 REVERSE CROWN (0.020'/')
STA. 526+81.34 NO CROWN (0.000'/')
STA. 527+39.84 END SUPERELEVATION RT.

STA. 519+81.00
CONSTRUCT APPROACH
ON RT. =
50 CU. YDS.

STA. 520+26.02 IN PLACE
24"X 72' R.C. PIPE CULVERT
WITH HDWL. LT. AND DROP INLET RT.
REMOVE 72' LT. AND DROP INLET RT.
TIE TO EXIST. CULVERT RT. AND
EXTEND R.C. PIPE 124' LT.
(CLASS III) (TYPE 2 BEDDING)
WITH FES LT.
Q50=12.3 CFS D.A.=2 ACRES
24" R.C. PIPE = 124 LIN. FT.
24" FES = 1EA.

STA. 524+84.00
(SARGENT LANE)
CONSTRUCT APPROACH
ON RT. =
95 CU. YDS.

STA. 525+73.62 IN PLACE
24"X 72' R.C. PIPE CULVERT
WITH HDWL. LT. AND DROP INLET RT.
REMOVE 72' LT. AND DROP INLET RT.
TIE TO EXIST. CULVERT RT. AND
EXTEND R.C. PIPE 95' LT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT.
Q50=8.9 CFS D.A.=2 ACRES
24" R.C. PIPE = 95 LIN. FT.
24" FES = 1EA.

STA. 526+22.28 BEGIN SUPERELEVATION LT.
STA. 526+81.34 NO CROWN (0.000'/')
STA. 527+40.40 REVERSE CROWN (-0.020'/')
STA. 531+89.28 MAX SUPERELEVATION (0.096'/')
STA. 534+12.54 MAX SUPERELEVATION (0.096'/')
STA. 538+81.42 REVERSE CROWN (-0.020'/')
STA. 539+20.48 NO CROWN (0.000'/')
STA. 539+79.54 END SUPERELEVATION LT.

STA. 528+00.00
(AUTUMN HILLS LN.)
IN PLACE
18"X 28' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
50 CU. YDS.

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
515+42.00	518+00.00	LT. =	258 LIN. FT.	6'- 0"	172.00
518+00.00	520+00.00	LT. =	200 LIN. FT.	9'- 0"	200.00
520+00.00	521+00.00	LT. =	100 LIN. FT.	6'- 0"	66.67
521+00.00	525+50.00	LT. =	450 LIN. FT.	9'- 0"	450.00
525+50.00	527+00.00	LT. =	150 LIN. FT.	6'- 0"	100.00
518+50.00	519+70.00	RT. =	120 LIN. FT.	9'- 0"	120.00
522+20.00	525+13.00	RT. =	293 LIN. FT.	9'- 0"	293.00

VC=1050.00'
K=138
e=9.99'

PVI 515+00.00
ELEV. 474.45

12.63% LT. DT. GR.

2.35% LT. DT. GR.

+41.63 LT. 456.22

5.88%

+00.00 LT. 488.86

ELEV. 484.46

PVI 520+25.00
ELEV. 505.50

-3.07% LT. DT. GR.

8.96% LT. DT. GR.

FL. LT. = 498.00
FL. RT. = EXIST.

+00.00 LT. 498.80

+26.02 LT. 498.00

PVC 520+75.00
ELEV. 508.24

+00.00 LT. 504.63

VC=1050.00'
K=152
e=-9.06'

PVI 526+00.00
ELEV. 539.09

-1.03%

-7.49% LT. DT. GR.

4.98% LT. DT. GR.

FL. LT. = 522.40
FL. RT. = EXIST.

+50.00 LT. 524.17

+73.62 LT. 522.40

+00.00 LT. 528.69

ELEV. 534.45

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
FAS-4516

Leonard Speed 9/21/2016 2:08:22 PM
WORKSPACE: Leonard Speed
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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	261	888

(2) PLAN & PROFILE - STA. 530+00 TO STA. 545+00

STA. 532+60.00 (JAGUAR TR.)
CONSTRUCT APPROACH
ON LT. =
145 CU. YDS.

STA. 530+35.00
CONSTRUCT APPROACH
ON LT. =
80 CU. YDS.

C.L. HIGHWAY 70
P.I. = 533+18.35
Δ = 43°16'13.2" RT.
D = 4°30'00"
R = 505.02'
L = 961.56'
P.C. = 528+13.34
P.T. = 537+74.90
e = 0.096'/'
Ls = 567'

STA. 536+30.00 (JAVA RD.)
IN PLACE
18"X 44' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 40' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH =
80 CU. YDS.

STA. 542+50.00 CONSTRUCT
DIKE IN DITCH ON LT.

(DIKE) STA. 538+00.00 CONSTRUCT
DIKE IN DITCH ON LT.

C.L. HIGHWAY 70
P.I. = 543+60.25
Δ = 17°30'45.5" LT.
D = 3°00'00"
T = 294.17'
L = 583.76'
P.C. = 540+66.08
P.T. = 546+49.84
e = 0.077 '/'
Ls = 540' (468')

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
530+40.00	530+85.00	LT. =	45 LIN. FT.	6'- 0"	30.00
536+50.00	537+06.00	LT. =	56 LIN. FT.	6'- 0"	37.33

STA. 531+16.38 IN PLACE
24"X 78' R.C. PIPE CULVERT
WITH HDWL. LT. AND DROP INLET RT.
REMOVE HDWL. LT. & D.I. RT. AND
EXTEND R.C. PIPE 15' LT.
AND INSERT 18' OF R.C. PIPE RT.
30° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT.
Q50=14.0 CFS D.A.=3 ACRES
24" R.C. PIPE = 33 LIN. FT.
24" FES = 1EA.

STA. 537+06.12 IN PLACE
24"X 67' R.C. PIPE CULVERT
WITH HDWL. LT. AND DROP INLET RT.
REMOVE HDWL. LT. & D.I. RT. AND
EXTEND R.C. PIPE 25' LT.
AND INSERT 17' OF R.C. PIPE RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT.
Q50=25.5 CFS D.A.=10 ACRES
24" R.C. PIPE = 42 LIN. FT.
24" FES = 1EA.

STA. 541+82.50 IN PLACE
30"X 75' R.C. PIPE CULVERT
WITH HDWL. LT. AND DROP INLET RT.
REMOVE 75' LT. & DROP INLET RT.
TIE TO EXIST. CULVERT RT. AND
EXTEND R.C. PIPE 109' LT.
(CLASS III) (TYPE 2 BEDDING)
WITH FES LT.
Q50=40.4 CFS D.A.=7 ACRES
30" R.C. PIPE = 109 LIN. FT.
30" FES = 1EA.

STA. 544+75.00 IN PLACE
18"X 26' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18"X 74' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
730 CU. YDS.

STA. 543+80.00
CONSTRUCT APPROACH
ON RT. =
330 CU. YDS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-16

STA. 526+22.28 BEGIN SUPERELEVATION LT.
STA. 526+81.34 NO CROWN (0.000'/')
STA. 527+40.40 REVERSE CROWN (-0.020'/')
STA. 531+89.28 MAX SUPERELEVATION (0.096'/')
STA. 534+12.54 MAX SUPERELEVATION (0.096'/')
STA. 538+61.42 REVERSE CROWN (=0.020'/')
STA. 539+20.48 NO CROWN (0.000'/')
STA. 539+79.54 END SUPERELEVATION LT.

STA. 538+59.70 BEGIN SUPERELEVATION RT.
STA. 539+20.48 NO CROWN (0.000'/')
STA. 539+81.26 REVERSE CROWN (+0.020'/')
STA. 543+27.70 MAX SUPERELEVATION (0.077'/')
STA. 545+14.83 MAX SUPERELEVATION (0.077'/')
STA. 550+54.83 END SUPERELEVATION RT.

EXISTING GROUND
PROFILE GRADE

ELEV. 534.45
VC=1050.00'
K=152
e=-9.06'
-0.88% LT. DT. GR.
-0.99% LT. DT. GR.
-1.032
-0.93%
PVT 532+00.00
ELEV. 532.91
PVC 537+00.00
ELEV. 531.98
VC=200.00'
K=275
e=0.18'
PVT 535+00.00
ELEV. 530.85
-0.20%
-5.40% LT. DT. GR.
-1.10% LT. DT. GR.
PVT 539+00.00
ELEV. 530.05
VC=200.00'
K=212
e=-0.24'
-1.14%
-2.76% LT. DT. GR.
-2.89% LT. DT. GR.
PVC 543+85.00
ELEV. 524.51
VC=350.00'
K=185
e=0.84'
-2.98% LT. DT. GR.
ELEV. 523.55

+40.00 LT. 534.80
+80.00 LT. 532.85
PVT 531+25.00
ELEV. 533.68
+55.00 LT. 534.57
+50.00 LT. 530.03
PVC 534+00.00
ELEV. 531.05
+06.12 LT. 527.00
+00.00 LT. 528.03
PVC 538+00.00
ELEV. 530.25
+00.00 LT. 524.36
PVT 540+00.00
ELEV. 528.91
+82.50 LT. 519.33
+50.00 LT. 521.28
+00.00 LT. 519.47

FL. LT. = 532.85
FL. RT. = EXIST.
FL. LT. = 527.00
FL. RT. = EXIST.
FL. LT. = 519.33
FL. RT. = EXIST.

REFER TO SURVEY CONTROL DETAILS FOR
HORIZONTAL AND VERTICAL CONTROL DATA

560 550 540 530 520 510 500 490 480 470

530+00 531+00 532+00 533+00 534+00 535+00 536+00 537+00 538+00 539+00 540+00 541+00 542+00 543+00 544+00 545+00

Leonard.Speed 9/23/2016 2:08:36 PM
WORKSPACE: Leonard.Speed
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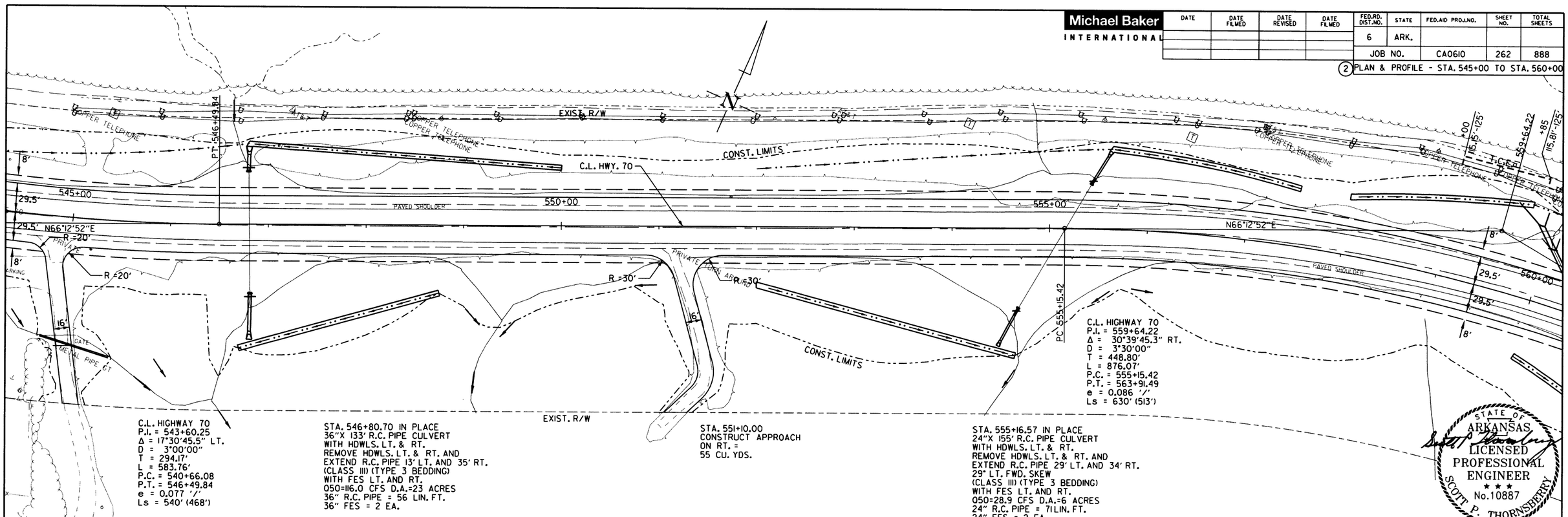
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	262	888

(2) PLAN & PROFILE - STA. 545+00 TO STA. 560+00



C.L. HIGHWAY 70
P.I. = 543+60.25
Δ = 17°30'45.5" LT.
D = 3°00'00"
T = 294.17'
L = 583.76'
P.C. = 540+66.08
P.T. = 546+49.84
e = 0.077 '/'
Ls = 540' (468')

STA. 546+80.70 IN PLACE
36"X 133' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 13' LT. AND 35' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=116.0 CFS D.A.=23 ACRES
36" R.C. PIPE = 56 LIN. FT.
36" FES = 2 EA.

STA. 551+10.00
CONSTRUCT APPROACH
ON RT. =
55 CU. YDS.

STA. 555+16.57 IN PLACE
24"X 155' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 29' LT. AND 34' RT.
29° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=28.9 CFS D.A.=6 ACRES
24" R.C. PIPE = 71 LIN. FT.
24" FES = 2 EA.

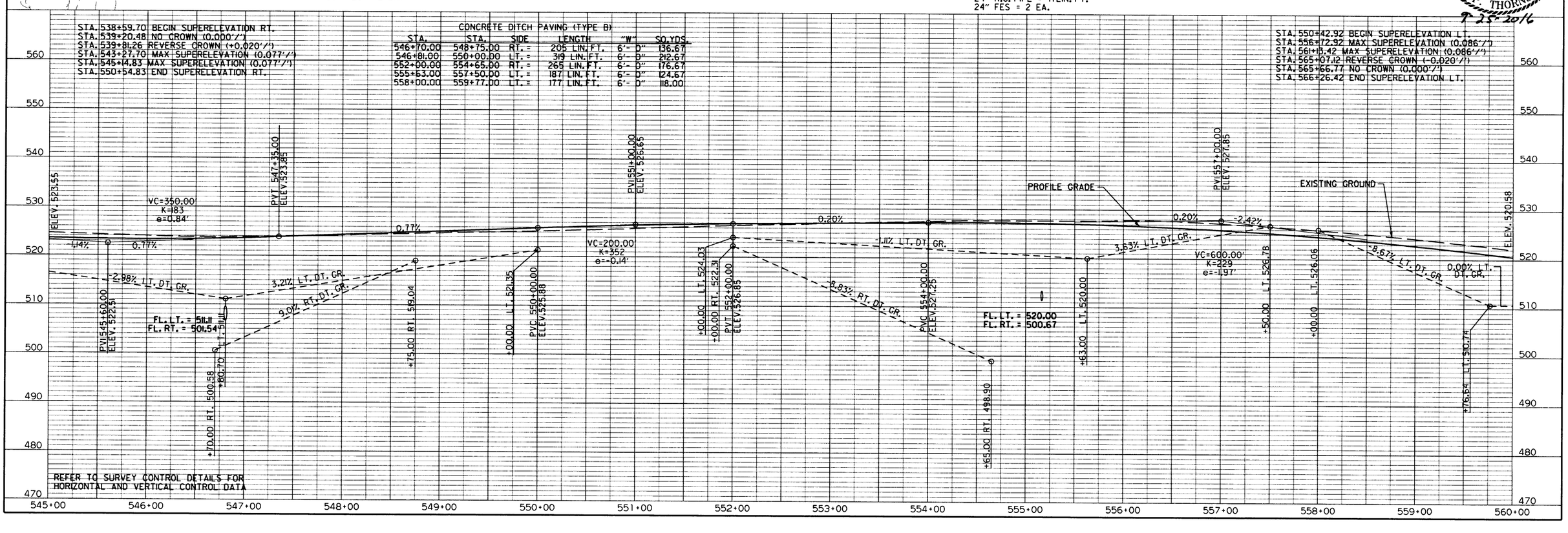
C.L. HIGHWAY 70
P.I. = 559+64.22
Δ = 30°39'45.3" RT.
D = 3°30'00"
T = 448.80'
L = 876.07'
P.C. = 555+15.42
P.T. = 563+91.49
e = 0.086 '/'
Ls = 630' (513')

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-25-2016

STA. 538+59.70 BEGIN SUPERELEVATION RT.
STA. 539+20.48 NO CROWN (0.000'/')
STA. 539+81.26 REVERSE CROWN (+0.020'/')
STA. 543+27.70 MAX SUPERELEVATION (0.077'/')
STA. 545+14.83 MAX SUPERELEVATION (0.077'/')
STA. 550+54.83 END SUPERELEVATION RT.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
546+70.00	548+75.00	RT. =	205 LIN. FT.	6'- 0"	136.67
546+81.00	550+00.00	LT. =	319 LIN. FT.	6'- 0"	212.67
552+00.00	554+65.00	RT. =	265 LIN. FT.	6'- 0"	176.67
555+63.00	557+50.00	LT. =	187 LIN. FT.	6'- 0"	124.67
558+00.00	559+77.00	LT. =	177 LIN. FT.	6'- 0"	118.00



REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

545+00 546+00 547+00 548+00 549+00 550+00 551+00 552+00 553+00 554+00 555+00 556+00 557+00 558+00 559+00 560+00

560 550 540 530 520 510 500 490 480 470

Leonard.Speed 9/23/2016 2:08:51 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	263	888

(2) PLAN & PROFILE - STA. 560+00 TO STA. 575+00

STA. 560+61.72 IN PLACE
4' X 6' X 163' R.C. BOX CULVERT
45° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
REMOVE 39' LT. & 58' RT. AND
EXTEND 66' LT. & 104' RT.
Q50=215.0 CFS D.A.=46 ACRES

STA. 561+86.69 RT.
15.06 CU. YDS.
DUMPED RIPRAP

C.L. HIGHWAY 70
P.I. = 559+64.22
Δ = 30°39'45.3" RT.
D = 3°30'00"
T = 448.80'
L = 876.07'
P.C. = 555+15.42
P.T. = 563+91.49
e = 0.086 '/'
Ls = 630' (513')

STA. 564+96.08 IN PLACE
36"X 264' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 27' LT.
31° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT.
Q50=59.9 CFS D.A.=11 ACRES
36" R.C. PIPE = 31 LIN. FT.
36" FES = 1 EA.

STA. 565+45.00
CONSTRUCT APPROACH
ON LT. =
100 CU. YDS.

C.L. HIGHWAY 70
P.I. = 571+02.02
Δ = 31°34'22.0" LT.
D = 4°30'00"
T = 359.96'
L = 701.62'
P.C. = 567+42.06
P.T. = 574+43.67
e = 0.096 '/'
Ls = 567'

STA. 569+50.00 CONSTRUCT
DIKE IN DITCH ON LT.

STA. 568+94.30 IN PLACE
48"X 148' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 18' LT. AND 9' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=120.3 CFS D.A.=22 ACRES
48" R.C. PIPE = 31 LIN. FT.
48" FES = 2 EA.

STA. 565+07.71 BEGIN SUPERELEVATION RT.
STA. 565+66.77 NO CROWN (0.000'/')
STA. 566+25.83 REVERSE CROWN (+0.020'/')
STA. 570+74.71 MAX SUPERELEVATION (0.096'/')
STA. 573+01.92 MAX SUPERELEVATION (0.096'/')
STA. 577+50.79 REVERSE CROWN (+0.020'/')
STA. 578+25.08 END SUPERELEVATION RT. (+0.007'/')

STA. 550+42.92 BEGIN SUPERELEVATION LT.
STA. 556+72.92 MAX SUPERELEVATION (0.086'/')
STA. 561+13.42 MAX SUPERELEVATION (0.086'/')
STA. 565+07.12 REVERSE CROWN (-0.020'/')
STA. 565+66.77 NO CROWN (0.000'/')
STA. 566+26.42 END SUPERELEVATION LT.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
560+00.00	562+25.00	RT. =	225 LIN. FT.	6'- 0"	150.00
563+00.00	565+25.00	LT. =	225 LIN. FT.	6'- 0"	150.00
567+00.00	568+94.00	RT. =	194 LIN. FT.	6'- 0"	129.33
568+00.00	569+50.00	LT. =	150 LIN. FT.	6'- 0"	100.00

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-25-2016

Leonard.Speed 9/23/2016 2:09:06 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	264	888

(2) PLAN & PROFILE - STA. 575+00 TO STA. 590+00

STA. 575+90.67 IN PLACE
24"X 129' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT.
EXTEND R.C. PIPE 10' LT. AND 48' RT.
(CLASS III) (TYPE 3 BEDDING)
Q50=17.0 CFS D.A.=3 ACRES
24" R.C. PIPE = 62 LIN. FT.
24" FES = 2 EACH

STA. 577+37.94 IN PLACE
48"X 162' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT.
EXTEND R.C. PIPE 19' LT. AND 18' RT.
30° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
Q50=106.3 CFS D.A.=119 ACRES
48" R.C. PIPE = 411 LIN. FT.
48" FES = 2 EACH

STA. 582+00.00 INSTALL
30"X 133' R.C. PIPE CULVERT
WITH FES LT. AND RT.
(CLASS III) (TYPE 3 BEDDING)
Q50=35.3 CFS D.A.=7 ACRES
30" R.C. PIPE = 133 LIN. FT.
30" FES = 2 EACH

STA. 582+37.81 IN PLACE
30"X 79' R.C. PIPE CULVERT
WITH HDWL. LT..
REMOVE HDWL. LT. &
EXTEND 30' RT. IN STAGE IB
PLUG AND ABANDON AFTER STAGE 2
30" R.C. PIPE = 30'

C.L. HIGHWAY 70
P.I. = 591+19.23
Δ = 30°18'11.3" LT.
D = 1°30'00"
T = 1034.33'
L = 2020.21'
P.C. = 580+84.90
P.T. = 601+05.11
e = 0.043 '/'
Ls = 540' (450')

STA. 585+15.00 IN PLACE
18"X 40' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE
CONSTRUCT APPROACH =
45 CU. YDS.

STA. 581+50.00 CONSTRUCT
DIKE IN DITCH ON LT.

STA. 578+30.00
CONSTRUCT APPROACH
ON RT. =
395 CU. YDS.

STA. 575+90.67 RT.
2.22 CU. YDS.
DUMPED RIPRAP

STA. 576+70.63 RT.
3.89 CU. YDS.
DUMPED RIPRAP

STA. 582+00.00 RT.
2.78 CU. YDS.
DUMPED RIPRAP

STA. 585+18.34 RT.
13.87 CU. YDS.
DUMPED RIPRAP

STA. 585+86.26 IN PLACE
4' X 6' X 130' R.C. BOX CULVERT
30° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
REMOVE 41' LT. & 36' RT. AND
EXTEND 55' LT. & 92' RT.
Q50=323.4 CFS D.A.=93 ACRES

APPROXIMATE 100 YR.
FLOODPLAIN LIMITS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-15-2016

CONCRETE DITCH PAVING (TYPE B)					
STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
575+00.00	577+86.00	LT. =	286 LIN. FT.	6'- 0"	190.67
578+75.00	579+88.00	RT. =	113 LIN. FT.	6'- 0"	75.33
581+50.00	584+00.00	LT. =	250 LIN. FT.	6'- 0"	166.67
585+18.00	587+00.00	RT. =	182 LIN. FT.	6'- 0"	121.33

STA. 578+25.08 BEGIN SUPERELEVATION RT. (+0.007'/')
STA. 579+56.70 REVERSE CROWN (+0.020'/')
STA. 581+97.40 MAX SUPERELEVATION (0.043'/')
STA. 599+70.10 MAX SUPERELEVATION (0.043'/')
STA. 605+10.10 END SUPERELEVATION RT.

PROFILE GRADE
EXISTING GROUND
VC=620.00'
K=144
e=3.34'
VC=180.00'
K=1440
e=0.03'
VC=600.00'
K=290
e=-1.55'
PVC 575+15.00 ELEV. 477.00
PVT 579+25.00 ELEV. 481.62
PVC 581+20.00 ELEV. 484.53
PVT 583+00.00 ELEV. 487.32
PVC 585+00.00 ELEV. 490.56
PVI 588+00.00 ELEV. 495.40
ELEV. 481.56
ELEV. 494.33
FL. LT. = 468.54
FL. RT. = 458.40
FL. LT. = 467.53
FL. RT. = 458.67
FL. LT. = 478.35
FL. RT. = 475.77
FL. LT. = 482.48
FL. RT. = 478.75
FL. LT. = 478.07
FL. RT. = 468.53

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

LeonardSpeed 9/23/2016 2:09:20 PM
WORKSPACE: Leonard Speed
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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	265	888

(2) PLAN & PROFILE - STA. 590+00 TO STA. 605+00

C.L. HIGHWAY 70
P.I. = 591+19.23
Δ = 30°18'11.3" LT.
D = 1°30'00"
T = 1034.33'
L = 2020.21'
P.C. = 580+84.90
P.T. = 601+05.11
e = 0.043 '/'
LS = 540' (450')

STA. 595+66.23 IN PLACE
42"X 124' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 15' LT. AND 15' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=125.7 CFS D.A.=24 ACRES
42" R.C. PIPE = 34 LIN. FT.
42" FES = 2 EA.

STA. 596+40.00 INSTALL
24"X 38' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
135 CU. YDS.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
595+00.00	595+66.00	LT. =	66 LIN. FT.	6'- 0"	44.00

STA. 590+00 TO 592+50 RT.
630 CU. YD. DUMPED RIPRAP
TO BE USED IF AND WHERE
DIRECTED BY THE ENGINEER

APPROXIMATE 100 YR.
FLOODPLAIN LIMITS

APPROXIMATE 100 YR.
FLOODPLAIN LIMITS

N65°18'15"W

N35°00'04"E

P.I. 591+19.23

EXIST. R/W

CONST. LIMITS

C.L. HWY. 70

CONST. LIMITS

P.T. 601+05.11

PAVED SHOULDER

PAVED DRIVE

YELLOW PAINT

LINE ACCESS

PAVED PARKING

PARKING

GATE

METAL PIPE

R =20'

R =20'

R =20'

R =68'

R =92'

STA. 596+25.00
CONSTRUCT APPROACH
ON RT. =
180 CU. YDS.

STA. 595+66.23 RT.
3.61 CU. YDS.
DUMPED RIPRAP

STA. 578+25.08 BEGIN SUPERELEVATION RT. (+0.007'/')
STA. 579+56.70 REVERSE CROWN (+0.020'/')
STA. 581+97.40 MAX SUPERELEVATION (0.043'/')
STA. 599+70.10 MAX SUPERELEVATION (0.043'/')
STA. 605+10.10 END SUPERELEVATION

ELEV. 494.33

PVT 591+00.00
ELEV. 494.04

PVC 594+50.00
ELEV. 492.46

PVI 596+00.00
ELEV. 491.78

PVT 597+50.00
ELEV. 492.81

PVC 600+70.00
ELEV. 495.01

PVI 601+60.00
ELEV. 495.65

PVT 602+50.00
ELEV. 496.17

PVC 603+20.00
ELEV. 496.59

PVI 604+10.00
ELEV. 497.12

ELEV. 497.73

VC=600.00'
K=290
e=-1.55'

VC=300.00'
K=263
e=0.43'

VC=180.00'
K=2368
e=0.02'

VC=180.00'
K=1957
e=-0.02'

-0.45%

1.29% RT. DT. GR.

0.07% LT. DT. GR.

1.28% LT. DT. GR.

0.69%

1.98% LT. DT. GR.

0.60%

0.67%

+00.00 RT. 466.05

+50.00 RT. 469.28

+00.00 LT. 487.68

+66.23 LT. 483.00

FL. LT. = 483.00
FL. RT. = 473.91

+00.00 LT. 486.00

+00.00 LT. 489.95

PROFILE GRADE

EXISTING GROUND

REFER TO SURVEY CONTROL DETAILS FOR
HORIZONTAL AND VERTICAL CONTROL DATA

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-26-2016

530 520 510 500 490 480 470 460 450 440

590+00 591+00 592+00 593+00 594+00 595+00 596+00 597+00 598+00 599+00 600+00 601+00 602+00 603+00 604+00 605+00

Leonard.Speed 9/23/2016 2:09:31 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	266	888

(2) PLAN & PROFILE-STA. 605+00 TO STA. 620+00

STA. 606+24.50 IN PLACE
42"X 88' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 18' LT. AND 28' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=90.9 CFS D.A.=17 ACRES
42" R.C. PIPE = 50 LIN. FT.
42" FES = 2 EA.

APPROXIMATE 100 YR. FLOODPLAIN LIMITS

T.C.E.

+50 123.45'-135

+45 124.42'-135

EXIST. R/W

STA. 605+00.00 CONSTRUCT DIKE IN DITCH ON LT.

CONST. LIMITS

C.L. HWY.70

610+00

E GRAND AVE

US 70 N35°00'04"E

PAVED SHOULDER

DIKE

8'

605+00

29.5'

29.5'

8'

STA. 606+25.50 RT.
3.61 CU. YDS.
DUMPED RIPRAP

STA. 605+10 TO 606+75 RT.
476 CU. YD DUMPED RIPRAP
TO BE USED IF AND WHERE
DIRECTED BY THE ENGINEER

EXIST. R/W

STA. 611+36.13 IN PLACE
4' X 6' X 107' R.C. BOX CULVERT
30° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
REMOVE 53' LT. & 0' RT. AND
EXTEND 78' LT. & 38' RT.
Q50=214.0 CFS D.A.=42 ACRES

STA. 610+83.71 RT.
13.87 CU. YDS.
DUMPED RIPRAP

PC 610+67.60

C.L. HIGHWAY 70
P.I. = 615+10.60
Δ = 30°17'06.0" RT.
D = 3°30'00"
T = 443.00'
L = 865.28'
P.C. = 610+67.60
P.T. = 619+32.88
e = 0.086 '/'
Ls = 630'

PI 615+10.60

STA. 615+50.00 CONSTRUCT DIKE IN DITCH ON LT.

DIKE

615+00

PAVED DRIVE TURNOUT

CONST. LIMITS

N65°17'10"E

STA. 616+03.32 IN PLACE
42"X 76' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 14' LT. AND 25' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=65.0 CFS D.A.=12 ACRES
42" R.C. PIPE = 43 LIN. FT.
42" FES = 2 EA.

PARKING

TOWER

STOP SIGN

620+00

29.5'

29.5'

8'

PT 619+32.88

APPROXIMATE 100 YR. FLOODPLAIN LIMITS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY

9-25-2016

STA. 605+95.09 BEGIN SUPERELEVATION LT.
STA. 612+25.09 MAX SUPERELEVATION (0.086'/')
STA. 617+75.38 MAX SUPERELEVATION (0.086'/')
STA. 624+05.38 END SUPERELEVATION LT.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
609+50.00	613+00.00	LT. =	350 LIN. FT.	6'- 0"	233.33
609+50.00	610+84.00	RT. =	134 LIN. FT.	6'- 0"	89.33
615+00.00	617+25.00	RT. =	225 LIN. FT.	6'- 0"	150.00
615+50.00	618+00.00	LT. =	250 LIN. FT.	6'- 0"	166.67
618+08.00	620+50.00	LT. =	142 LIN. FT.	9'- 0"	142.00

EXISTING GROUND

PROFILE GRADE

ELEV. 497.73

PVC 605+00.00
ELEV. 497.73

PVI 606+00.00
ELEV. 498.40

VC=200.00'
K=270
e=-0.19'

PVT 607+00.00
ELEV. 498.33

PVC 612+50.00
ELEV. 497.95

VC=600.00'
K=195
e=2.30'

PVI 615+60.00
ELEV. 497.75

PVT 618+60.00
ELEV. 506.76

PVC 619+00.00
ELEV. 507.96

ELEV. 510.90

0.67%
-0.07%
-1.26% LT. DT. GR.
-0.08% LT. DT. GR.
2.59% LT. DT. GR.
-0.68% RT. DT. GR.
-5.08% LT. DT. GR.
-3.53% RT. DT. GR.
2.87% RT. DT. GR.
3.19% LT. DT. GR.
-0.07%
-4.30% LT. DT. GR.
3.00%
3.49% LT. DT. GR.
-3.11% RT. DT. GR.
4.65% RT. DT. GR.
3.00%
2.94%

FL. LT. = 491.60
FL. RT. = 488.34

FL. LT. = 484.94
FL. RT. = 484.35

FL. LT. = 498.48
FL. RT. = 491.10

+00.00 LT. 493.17
+24.50 LT. 491.60
+00.00 RT. 479.81
+10.10 RT. 479.81
+75.00 RT. 480.93
+00.00 LT. 492.42
+50.00 LT. 496.30
+50.00 LT. 491.45
+50.00 RT. 489.07
+83.71 RT. 484.35
+90.35 LT. 484.94
+00.00 LT. 488.44
+00.00 RT. 493.41
+00.00 RT. 494.31
+50.00 LT. 500.77
+03.32 LT. 498.48
+03.32 RT. 491.10
+00.00 LT. 505.34
+25.00 RT. 496.76

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

540 530 520 510 500 490 480 470 460 450

605+00 606+00 607+00 608+00 609+00 610+00 611+00 612+00 613+00 614+00 615+00 616+00 617+00 618+00 619+00 620+00

Leonard.Speed 9/23/2016 2:09:42 PM
WORKSPACE: Leonard.Speed
C:\Dwg\81-local\baker_projects\leonard.speed\d0271f44\r-CA0606_i2_PP_Main_10.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	267	888

(2) PLAN & PROFILE-STA. 620+00 TO STA. 635+00

STA. 621+73.00
CONSTRUCT APPROACH
ON LT. =
145 CU. YDS.

STA. 622+00.00 IN PLACE
42"X 72' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 17' LT. AND 25' RT.
(CLASS IV) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=147.4 CFS D.A.=31 ACRES
42" R.C. PIPE = 46 LIN. FT.
42" FES = 2 EA.

STA. 629+09.00 IN PLACE
12"X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
30 CU. YDS.

PARKING
GATE
TOWER
SIGN
EXIST. R/W
R =42'
R =58'
R =20'
16'
CONST. LIMITS
C.L. HWY.70
8'
620+00
625+00
630+00
635+00
29.5'
CELL TOWER ACCESS
PAVED SHOULDER
PAVED PARKING
AT&T
PC 631+30.12
N65°17'10"E

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
621+70.00	624+00.00	LT. =	230 LIN. FT.	6'- 0"	153.33

C.L. HIGHWAY 70
P.I. = 641+24.48
Δ = 33°47'16.3" LT.
D = 1°45'00"
T = 994.35'
L = 1930.74'
P.C. = 631+30.12
P.T. = 650+60.86
e = 0.049 '/'
Ls = 540' (450')

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

STA. 622+00.00 RT.
3.61 CU. YDS.
DUMPED RIPRAP

APPROXIMATE 100 YR.
FLOODPLAIN LIMITS

EXIST. R/W

STA. 630+85.44 IN PLACE
DBL. 10' X 10' X 96' R.C. BOX CULVERT
WITH 31 WINGS LT. & RT.
REMOVE 0' LT. & 26' RT. AND
EXTEND 14' LT. & 68' RT.
TO A COMPLETED LENGTH OF
152' SPAN = 22.67'
Q50=2506.3 CFS D.A.=1002 ACRES

STA. 630+89.10 RT.
43.29 CU. YDS.
DUMPED RIPRAP

STA. 627+25.12 BEGIN SUPERELEVATION RT.
STA. 632+65.12 MAX SUPERELEVATION (0.049'/')
STA. 648+99.41 MAX SUPERELEVATION (0.049'/')
STA. 651+65.74 REVERSE CROWN (+0.020'/')
STA. 652+57.57 NO CROWN (0.000'/')
STA. 653+49.41 END SUPERELEVATION RT.

PROFILE GRADE
EXISTING GROUND
ELEV. 560.90
PVI 620+50.00
ELEV. 512.37
-4.50% L.T. DT. GR.
2.91%
2.94%
+70.00 LT. 513.76
+00.00 LT. 510.31
PVC 622+00.00
ELEV. 506.74
FL. LT. = 510.31
FL. RT. = 508.19
PVI 624+00.00
ELEV. 522.56
0.55%
VC=400.00'
K=169
e=-1.18'
3.36% LT. DT. GR.
+00.00 LT. 517.02
PVT 626+00.00
ELEV. 523.67
FL. LT. = 507.45
FL. RT. = 505.85
PVC 631+50.00
ELEV. 526.71
VC=200.00'
K=741
e=0.07'
PVI 632+50.00
ELEV. 527.26
PVCC 633+50.00
ELEV. 528.08
0.82%
VC=200.00'
K=1000
e=0.05'
PVI 634+50.00
ELEV. 528.89
1.02%
ELEV. 529.42

560 550 540 530 520 510 500 490 480 470

620+00 621+00 622+00 623+00 624+00 625+00 626+00 627+00 628+00 629+00 630+00 631+00 632+00 633+00 634+00 635+00

REFER TO SURVEY CONTROL DETAILS FOR
HORIZONTAL AND VERTICAL CONTROL DATA

Leonard.Speed 9/23/2016 2:09:53 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	268	888

(2) PLAN & PROFILE-STA. 635+00 TO STA. 650+00

STA. 638+88.00 IN PLACE
18"X 40' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
55 CU. YDS.

C.L. HIGHWAY 70
P.I. = 641+24.48
Δ = 33°47'16.3" LT.
D = 1°45'00"
T = 994.35'
L = 1930.74'
P.C. = 631+30.12
P.T. = 650+60.86
e = 0.049 '/'
Ls = 540' (450')

STA. 642+74.89 IN PLACE
DBL. 12' X 10' X 69' R.C. BOX CULVERT
30° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
RETAIN AND EXTEND 84' RT.
TO A COMPLETED LENGTH OF
153' SPAN = 30.79'
Q50=2403.6 CFS D.A.=961 ACRES

STA. 648+19.00 LT.
3.89 CU. YDS.
DUMPED RIPRAP

STA. 642+17.02 RT.
59.87 CU. YDS.
DUMPED RIPRAP

STA. 644+66.00 IN PLACE
24"X 32' C.P. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24"X 36' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
230 CU. YDS.

STA. 647+00.00
CONSTRUCT APPROACH
ON RT. =
140 CU. YDS.

STA. 648+18.52 IN PLACE
48"X 72' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 4' LT. AND 43' RT.
(CLASS III) (TYPE 2 BEDDING)
WITH FES LT. AND RT.
Q50=106.3 CFS D.A.=20 ACRES
48" R.C. PIPE = 51 LIN. FT.
48" FES = 2 EA.

635+00 · 640+00 · 645+00 · 650+00
29.5' · 8' · 16' · R=20' · R=58'
C.L. HWY. 70 · CONST. LIMITS · EXIST. R/W · PAVED SHOULDER · E. BRAND AVE. · US 70
ASPHALT CRUSHER · CONCRETE RUBBLE RIPRAP · PRIVATE PAVED DRIVE
N65°17'10"E · N31°29'54"E · 3.5% RT. DT. GR. · 4.5% RT. DT. GR.
PRIVATE 15 SF. FULL MEASUREABLE LENGTH GABION BASKET
R 641+24.48

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
642+17.00	643+02.00	RT. =	85 LIN. FT.	6'-0"	56.67
647+50.00	648+19.00	RT. =	69 LIN. FT.	6'-0"	46.00

STA. 627+25.12 BEGIN SUPERELEVATION RT.
STA. 632+65.12 MAX SUPERELEVATION (0.049'/')
STA. 648+99.41 MAX SUPERELEVATION (0.049'/')
STA. 651+65.74 REVERSE CROWN (+0.020'/')
STA. 652+57.57 NO CROWN (0.000'/')
STA. 653+49.41 END SUPERELEVATION RT.

PVT 635+50.00 ELEV. 529.32
ELEV. 529.42
VC=200.00'
K=1000
e=0.05
1.02%
PVI 642+00.00 ELEV. 536.57
PROFILE GRADE
EXISTING GROUND
0.93%
1.56%
4.66% DT. GR.
2.21% RT. DT. GR.
1.48% RT. DT. GR.
3.59% RT. DT. GR.
FL. LT. = 522.27 (EXIST.)
FL. RT. = 521.16
+92.95 RT. 520.21
+17.02 RT. 521.16
+02.36 RT. 529.34
PVC 648+00.00 ELEV. 542.14
VC=300.00'
K=476
e=0.24'
PVT 649+50.00 ELEV. 543.55
ELEV. 544.42
+50.00 RT. 540.71
+19.00 RT. 537.49
+00.00 RT. 541.49
FL. LT. = 530.97
FL. RT. = 537.49

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

LeonardSpeed 9/23/2016 2:10:04 PM
WORKSPACE: LeonardSpeed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	269	888

(2) PLAN & PROFILE-STA. 650+00 TO STA. 665+00

STA. 652+16.65 LT.
3.89 CU. YDS.
DUMPED RIPRAP

STA. 652+16.65 IN PLACE
48"X 72' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 21' LT. AND 27' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=98.5 CFS D.A.=31 ACRES
48" R.C. PIPE = 52 LIN. FT.
48" FES = 2 EA.

C.L. HIGHWAY 70
P.I. = 641+24.48
Δ = 33°47'16.3" LT.
D = 1°45'00"
T = 994.35'
L = 1930.74'
P.C. = 631+30.12
P.T. = 650+60.86
e = 0.049 '/'
Ls = 540' (450')

C.L. HIGHWAY 70
P.I. = 657+49.94
Δ = 26°08'43.9" RT.
D = 4°30'00"
T = 295.65'
L = 581.01'
P.C. = 654+54.28
P.T. = 660+35.29
e = 0.096 '/'
Ls = 630' (567')

C.L. BUEKAH STREET
P.I. = 19+37.30
Δ = 31°00'00.0" RT.
D = 57°15'00"
T = 27.75'
L = 54.15'
P.C. = 19+09.54
P.T. = 19+63.69
NO SUPER

STA. 662+51.00 LT.
63.04 CU. YDS.
DUMPED RIPRAP

STA. 663+62.43 IN PLACE
DBL. 10' X 10' X 114' R.C. BOX CULVERT
45° RT. FWD. SKEW
WITH 31 WINGS LT. AND RT.
RETAIN AND EXTEND
49' LT. AND 36' RT.
TO A COMPLETED LENGTH OF
199' SPAN = 32.06'
Q50=1993.6 CFS D.A.=737 ACRES

C.L. HWY. 70 STA. 663+00.00=
C.L. BOEKAH STREET STA. 20+00.00

STA. 663+00.00
(BOEKAH ST.)
CONSTRUCT APPROACH
ON RT. =
140 CU. YDS.

STA. 17+75.00
BEGIN BOEKAH STREET

STA. 627+25.12 BEGIN SUPERELEVATION RT.
STA. 632+65.12 MAX SUPERELEVATION (0.049'/')
STA. 648+99.41 MAX SUPERELEVATION (0.049'/')
STA. 651+65.74 REVERSE CROWN (+0.020'/')
STA. 652+57.57 NO CROWN (0.000'/')
STA. 653+49.41 END SUPERELEVATION RT.

STA. 651+98.51 BEGIN SUPERELEVATION LT.
STA. 652+57.57 NO CROWN (0.000'/')
STA. 653+16.63 REVERSE CROWN (-0.020'/')
STA. 657+65.51 MAX SUPERELEVATION (0.096'/')
STA. 658+77.79 MAX SUPERELEVATION (0.096'/')
STA. 665+07.79 END SUPERELEVATION LT.

ELEV. 541.42
VC=300.00'
K=476
e=0.24'
PVT 651+00.00
ELEV. 545.87
1.56%
1.85% RT. DT. GR.
2.95% RT. DT. GR.
FL. LT. = 536.84
FL. RT. = 541.27
+00.00 RT. 543.43
+16.65 RT. 542.27
+50.00 RT. 545.21
PVI 654+00.00
ELEV. 550.34
PVC 657+00.00
ELEV. 555.16
VC=200.00'
K=138
e=0.36'
EXISTING GROUND
PROFILE GRADE
1.54%
2.99%
PVI 658+00.00
ELEV. 556.70
PVRC 659+00.00
ELEV. 559.89
PVI 660+00.00
ELEV. 562.66
VC=200.00'
K=244
e=0.21'
PVT 661+00.00
ELEV. 564.84
1.38% LT. DT. GR.
+75.00 LT. 544.67
+50.00 LT. 548.61
FL. LT. = 548.49
FL. RT. = 555.28
PVC 664+00.00
ELEV. 571.34
2.17%
VC=200.00'
K=741
e=-0.07'
ELEV. 573.44

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
7-26-2016

LeonardSpeed 9/25/2016 8:06:43 AM
WORKSPACE: Leonard Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	270	888

(2) PLAN & PROFILE-STA. 665+00 TO STA. 680+00

C.L. HIGHWAY 70
P.I. = 672+51.12
Δ = 10°11'46.4" LT.
D = 2°00'00"
T = 255.58'
L = 509.81'
P.C. = 669+95.54
P.T. = 675+05.35
e = 0.055 '/'
Ls = 540'

STA. 675+35.21 RT.
20.83 CU. YDS.
DUMPED RIPRAP

STA. 675+90.37 IN PLACE
10' X 10' X 130' R.C. BOX CULVERT
36° LT. FWD. SKEW
WITH 3:1 WINGS LT.
RETAIN AND EXTEND 20' LT.
CONSTRUCT 3:1 WINGS RT.
Q50=1074.9 CFS D.A.=364 ACRES

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
675+00.00	677+50.00	LT. =	250 LIN. FT.	6'- 0"	166.67

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-28-2016

STA. 665+90.54 BEGIN SUPERELEVATION RT.
STA. 671+30.54 MAX SUPERELEVATION (0.055'/')
STA. 673+10.35 MAX SUPERELEVATION (0.055'/')
STA. 679+10.35 END SUPERELEVATION RT.

PVI 665+00.00 ELEV. 575.91
VC=200.00' K=741 e=-0.07'
PVI 666+00.00 ELEV. 575.41
PVI 667+20.00 ELEV. 577.68
PVC 668+00.00 ELEV. 579.29
PVI 669+00.00 ELEV. 581.29
VC=200.00' K=870 e=-0.06'
PVT 670+00.00 ELEV. 583.06
PVC 672+00.00 ELEV. 586.61
VC=200.00' K=1333 e=0.04'
PVI 673+00.00 ELEV. 588.38
PVRC 674+00.00 ELEV. 590.30
VC=200.00' K=2000 e=-0.03'
PVI 675+00.00 ELEV. 592.22
PVC 676+70.00 ELEV. 595.31
VC=400.00' K=1667 e=0.12'
PVI 678+70.00 ELEV. 598.99
ELEV. 601.64
ELEV. 573.44

1.90% 2.00% 1.77% 1.77% 1.92% 1.92% 1.82% 1.82% 2.06%
2.53% RT. DT. GR.
+10.00 RT. 572.21
+50.00 RT. 575.75
+00.00 LT. 587.60
8.92% LT. DT. GR.
FL. LT. = 579.06
FL. RT. = 577.07
8.99% LT. DT. GR.
PVT 676+00.00 ELEV. 594.04
+44.37 LT. 579.06
+50.00 LT. 588.55
PROFILE GRADE
EXISTING GROUND

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

665+00 666+00 667+00 668+00 669+00 670+00 671+00 672+00 673+00 674+00 675+00 676+00 677+00 678+00 679+00 680+00

630 620 610 600 590 580 570 560 550 540

C.L. HWY.70 · PC 669+95.54 · PI 672+51.12 · PT 675+05.35 · 670+00 · 675+00 · 680+00
EXIST. R/W · CONST. LIMITS · PAVED SHOULDER · E GRAND AVE · US 70 · N57°38'38"E · N47°26'51"E
8' · 29.5' · 665+00 · LINE
EXIST. GAS · AT&T · COPPER LN. · SHELL PHONE SYSTEM

LeonardSpeed 9/23/2016 2:10:26 PM
WORKSPACE: LeonardSpeed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	271	888

(2) PLAN & PROFILE-STA. 680+00 TO STA. 695+00

STA. 687+60.00 (OHANA TERRACE)
IN PLACE
24"X 53' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 45' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH =
105 CU. YDS.

STA. 21+28.68
END OHANA TERRACE

PI 21+68.87

N10°03'39"W

FRANKE RD.

C.L. OHANA TERRACE
P.I. = 20+64.46
Δ = 26°22'54.3" RT.
D = 57°15'00"
T = 23.46'
L = 46.08'
P.C. = 20+41.01
P.T. = 20+87.09
NO SUPER

C.L. OHANA TERRACE
P.I. = 21+68.87
Δ = 6°06'35.1" RT.
D = 57°15'00"
T = 5.34'
L = 10.67'
P.C. = 21+63.53
P.T. = 21+74.20
NO SUPER
EXIST. R/W

STA. 693+88.15 IN PLACE
42"X 98' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 12' LT. AND 20' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
050=19.0 CFS D.A.=4 ACRES
42" R.C. PIPE = 36 LIN. FT.
42" FES = 2 EA.

EXIST. R/W

PC 21+63.53

PT 21+74.20

N10°03'15"W 21.00'

CONST. LIMITS

STA. 684+50.00 CONSTRUCT
DIKE IN DITCH ON LT.

C.L. HWY.70

DIKE

PI 20+64.46

R =40'

PC 20+41.01

PT 20+87.09

R =40'

C.L. OHANA TERRACE

680+00

685+00

690+00

695+00

29.5'

8'

PAVED SHOULDER

N47°26'51"E

90°00'00"

STA. 684+39.59 IN PLACE
30"X 83' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 21' LT. AND 37' RT.
30° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
050=36.1 CFS D.A.=7 ACRES
30" R.C. PIPE = 62 LIN. FT.
30" FES = 2 EA.

CONST. LIMITS

C.L. HWY 70 STA. 687+60.00=
C.L. OHANA TERRACE STA. 20+00.00

C.L. HIGHWAY 70
P.I. = 701+17.89
Δ = 15°17'17.3" RT.
D = 1°00'00"
T = 768.97'
L = 1528.81'
P.C. = 693+48.92
P.T. = 708+77.73
e = 0.030 '/'
Ls = 540'

PC 693+48.92

R =40'

DRIVE DRIVE

LOGGING RD 22554

STA. 694+17.00
(LOGGING ROAD 22554)
CONSTRUCT APPROACH
ON RT. =
420 CU. YDS.

STA. 683+97.25 RT.
2.78 CU. YDS.
DUMPED RIPRAP

EXIST. R/W

STA. 693+88.15 RT.
3.61 CU. YDS.
DUMPED RIPRAP

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
684+50.00	686+00.00	LT. =	150 LIN. FT.	6'- 0"	100.00
693+50.00	695+00.00	LT. =	150 LIN. FT.	6'- 0"	100.00

STA. 689+43.92 BEGIN SUPERELEVATION LT.
STA. 694+83.92 MAX SUPERELEVATION (0.030'/')
STA. 707+42.73 MAX SUPERELEVATION (0.030'/')
STA. 712+82.73 END SUPERELEVATION LT.

PROFILE GRADE

EXISTING GROUND

ELEV. 601.64

PVT 680+70.00
ELEV. 600.06

VC=400.00'
K=1667
e=0.12'

2.06%

PVC 683+20.00
ELEV. 598.20

VC=180.00'
K=3000
e=-0.01'

PVI 684+10.00
ELEV. 601.05

FL. LT. = 605.00
FL. RT. = 600.98

+50.00 LT. 606.34

+78.00 LT. 605.60

4.77% DT. GR.

PVT 685+00.00
ELEV. 611.85

3.53% LT. DT. GR.

+00.00 LT. 609.31

VC=200.00'
K=6667
e=-0.01'

PVC 687+00.00
ELEV. 615.85

PVI 688+00.00
ELEV. 617.85

PVT 689+00.00
ELEV. 619.82

1.97%

PVC 690+00.00
ELEV. 621.78

VC=200.00'
K=1538
e=-0.03'

PVI 691+00.00
ELEV. 623.95

PVT 692+00.00
ELEV. 625.59

1.84%

PVC 693+50.00
ELEV. 628.34

+50.00 LT. 625.60

+88.15 LT. 623.11

FL. LT. = 623.11
FL. RT. = 615.74

0.62% DT. GR. LT.

5.25% LT. DT. GR.

PVI 694+50.00
ELEV. 630.18

VC=200.00'
K=909
e=0.06'

2.06%

+00.00 LT. 628.98

ELEV. 631.22

REFER TO SURVEY CONTROL DETAILS FOR
HORIZONTAL AND VERTICAL CONTROL DATA

660 650 640 630 620 610 600 590 580 570

680+00 681+00 682+00 683+00 684+00 685+00 686+00 687+00 688+00 689+00 690+00 691+00 692+00 693+00 694+00 695+00

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-26-2016

Leonard.Speed 9/26/2016 8:08:04 AM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	272	888

(2) PLAN & PROFILE-STA. 695+00 TO STA. 710+00

STATE OF ARKANSAS
SCOTT P. THORNSBERRY
LICENSED PROFESSIONAL ENGINEER
No.10887
9-25-2016

STA. 705+50.00 CONSTRUCT DIKE IN DITCH ON LT.

STA. 701+50.00 CONSTRUCT DIKE IN DITCH ON LT.

EXIST. R/W

CONST. LIMITS

P.I. 701+17.89

N62°44'08"E

N47°29'51"E

C.L. HWY.70

C.L. HIGHWAY 70
P.I. = 701+17.89
Δ = 15°17'17.3" RT.
D = 1°00'00"
T = 768.97'
L = 1528.81'
P.C. = 693+48.92
P.T. = 708+77.73
e = 0.030 '/'
Ls = 540'

R =40'

STA. 702+41.05 IN PLACE
42"X 93' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 16' LT. AND 31' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
050=66.2 CFS D.A.=14 ACRES
42" R.C. PIPE = 55 LIN. FT.
42" FES = 2 EA.

STA. 705+84.61 IN PLACE
42"X 73' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 26' LT. AND 32' RT.
(CLASS IV) (TYPE 2 BEDDING)
WITH FES LT. AND RT.
050=25.3 CFS D.A.=5 ACRES
42" R.C. PIPE = 66 LIN. FT.
42" FES = 2 EA.

STA. 708+42.72 IN PLACE
42"x 77' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 28' LT. AND 22' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
050=95.0 CFS D.A.=20 ACRES
42" R.C. PIPE = 58 LIN. FT.
42" FES = 2 EA.

STA. 702+41.05 RT.
3.61 CU. YDS.
DUMPED RIPRAP

STA. 705+84.61 RT.
3.61 CU. YDS.
DUMPED RIPRAP

STA. 708+42.72 RT.
3.61 CU. YDS.
DUMPED RIPRAP

EXIST. R/W

5-STR BARB

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
701+50.00	704+00.00	LT. =	250 LIN. FT.	6'- 0"	166.67
705+50.00	705+85.00	LT. =	35 LIN. FT.	6'- 0"	23.33
707+75.00	710+00.00	LT. =	225 LIN. FT.	6'- 0"	150.00

STA. 689+43.92 BEGIN SUPERELEVATION LT.
STA. 694+83.92 MAX SUPERELEVATION (0.030'/')
STA. 707+42.73 MAX SUPERELEVATION (0.030'/')
STA. 712+82.73 END SUPERELEVATION LT.

PROFILE GRADE
EXISTING GROUND

ELEV. 631.22
P.V.T. 695+50.00 ELEV. 632.24
VC=200.00' K=909 e=0.06'
2.06%
1.41%
PVC 697+00.00 ELEV. 635.32
PVI 698+00.00 ELEV. 637.38
VC=200.00' K=308 e=-0.16'
PVT 699+00.00 ELEV. 638.79
-3.88% LT. DT. GR.
-4.44% LT. DT. GR.
FL. LT. = 636.55
FL. RT. = 627.63
+50.00 LT. 640.08
+41.05 LT. 635.55
+00.00 LT. 643.6
-4.37% LT. DT. GR.
PVC 706+00.00 ELEV. 648.68
+50.00 LT. 645.73
+84.61 LT. 644.22
FL. LT. = 644.22
FL. RT. = 635.09
VC=200.00' K=2500 e=0.02'
PVT 707+00.00 ELEV. 650.10
1.41%
1.49%
-2.43% LT. DT. GR.
-2.04% LT. DT. GR.
PVT 708+00.00 ELEV. 651.58
+75.00 LT. 648.85
+42.72 LT. 646.11
FL. LT. = 646.11
FL. RT. = 639.57
1.49%
3.29% LT. DT. GR.
VC=200.00' K=2000 e=-0.02'
ELEV. 654.53
PVC 709+00.00 ELEV. 653.07
+00.00 LT. 651.29

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

680 670 660 650 640 630 620 610 600 590

695+00 696+00 697+00 698+00 699+00 700+00 701+00 702+00 703+00 704+00 705+00 706+00 707+00 708+00 709+00 710+00

Leonard.Speed 9/23/2016 2:10:48 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	273	888

(2) PLAN & PROFILE-STA. 710+00 TO STA. 725+00

STA. 717+37.95 IN PLACE
4' X 6' X 81' R.C. BOX CULVERT
33° LT. FWD. SKEW
WITH 3:1 WINGS LT. AND RT.
RETAIN AND EXTEND
35' LT. AND 24' RT.
Q50=140.1 CFS D.A.=48 ACRES

EXIST. R/W
C.L. HWY. 70
CONST. LIMITS
BRUSH
8'
29.5'
PAVED SHOULDER
SIGN
710+00
715+00
720+00
725+00
N62°44'08"E
PAVED PARKING
R =75'
R =40'
R =20'
24'
PAVED DRAIN
REST AREA
GATE
CURB
SEWER CLEANOUT
TOP OF PIPE
PAVED DRIVEWAY
ACCESS RD.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
716+92.00	717+50.00	RT. =	58 LIN. FT.	6'- 0"	38.67
717+00.00	717+82.00	LT. =	82 LIN. FT.	6'- 0"	54.67

STA. 716+92.20 RT.
14.02 CU. YDS.
DUMPED RIPRAP

STA. 718+86.00 INSTALL
18"X 53' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
45 CU. YDS.

REMOVAL AND DISPOSAL OF FENCE
STA. 719+00 TO STA. 719+14 RT. OF CL. = 34 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

ELEV. 654.53
PVT 710+00.00
ELEV. 654.55
VC=200.00'
K=2000
e=-0.02'
PVT 711+00.00
ELEV. 655.94
PVC 711+10.00
ELEV. 656.08
1.39%
VC=400.00'
K=357
e=0.56'
2.51%
PVT 713+10.00
ELEV. 658.85
PVT 715+10.00
ELEV. 663.88
+00.00 LT. 664.12
2.17% RT.
DT. GR.
+50.00 RT. 655.41
+92.20 RT. 656.33
6.92% RT.
DT. GR.
3.03% LT.
DT. GR.
+50.00 RT. 660.33
FL. LT. = 661.62
FL. RT. = 656.33
+92.41 LT. 661.62
2.36% LT.
DT. GR.
+12.50 LT. 662.33
PROFILE GRADE
EXISTING GROUND
ELEV. 688.78

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

710 700 690 680 670 660 650 640 630 620

710+00 711+00 712+00 713+00 714+00 715+00 716+00 717+00 718+00 719+00 720+00 721+00 722+00 723+00 724+00 725+00

LeonardSpeed 9/23/2016 2:11:00 PM
WORKSPACE: leonardspeed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	274	888

(2) PLAN & PROFILE-STA. 725+00 TO STA. 740+00

STA. 725+10.00 IN PLACE
18"X 27' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 39' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
65 CU. YDS.

STA. 729+15.00 IN PLACE
18"X 40' C.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 50' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
115 CU. YDS.

STA. 732+58.00 INSTALL
18"X 56' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
100 CU. YDS.

STA. 736+00.00
CONSTRUCT APPROACH
ON LT. =
80 CU. YDS.

STA. 726+62.00 INSTALL
18"X 56' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
70 CU. YDS.

REMOVAL AND DISPOSAL OF FENCE
STA. 726+20 TO STA. 726+32 RT. OF CL. = 28 LIN. FT.

STA. 731+14.00 IN PLACE
18"X 24' C.P. PIPE CULVERT
RT. SIDE DRAIN
REMOVE
CONSTRUCT APPROACH =
185 CU. YDS.

STA. 731+51.27 RT.
2.22 CU. YDS.
DUMPED RIPRAP

STA. 731+51.27 IN PLACE
24"X 129' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 17' LT. AND 17' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=30.0 CFS D.A.=9 ACRES
24" R.C. PIPE = 42 LIN. FT.
24" FES = 2 EA.

STA. 733+55.70 IN PLACE
36"X 125' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 18' LT. AND 22' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=46.7 CFS D.A.=14 ACRES
36" R.C. PIPE = 48 LIN. FT.
36" FES = 2 EA.

STA. 738+30.00 RT.
3.89 CU. YDS.
DUMPED RIPRAP

STA. 738+71.10 IN PLACE
48"X 72' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 36' LT. AND 27' RT.
31° LT. FWD. SKEW
(CLASS IV) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=115.4 CFS D.A.=28 ACRES
48" R.C. PIPE = 71 LIN. FT.
48" FES = 2 EA.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
733+25.00	734+25.00	RT. =	100 LIN. FT.	6'- 0"	66.67
739+12.00	740+50.00	LT. =	138 LIN. FT.	6'- 0"	92.00

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

PVI 730+00.00
ELEV. 701.35
VC=400.00'
K=265
e=-0.76'
PVC 728+00.00
ELEV. 696.32
ELEV. 688.78
2.51%
1.00%
PROFILE GRADE
EXISTING GROUND
FL. LT. = 693.10
FL. RT. = 684.21
FL. LT. = 691.91
FL. RT. = 683.67
PVI 732+00.00
ELEV. 703.35
+25.00 RT. 687.01
+55.70 RT. 684.21
+25.00 RT. 688.35
5.97% RT. DT. GR.
PVC 737+00.00
ELEV. 708.33
VC=200.00'
K=690
e=0.07'
PVI 738+00.00
ELEV. 709.32
PVI 739+00.00
ELEV. 710.62
+50.00 LT. 703.29
+00.00 RT. 700.88
+30.00 RT. 700.31
+00.00 RT. 701.26
+12.00 LT. 702.20
FL. LT. = 702.20
FL. RT. = 700.31
1.00%
1.29%
-0.42% LT. DT. GR.
1.89% RT. DT. GR.
1.55% RT. DT. GR.
4.13% LT. DT. GR.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-25-2016

LeonardSpeed 9/23/2016 2:11:11 PM
WORKSPACE: LeonardSpeed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	275	888

(2) PLAN & PROFILE-STA. 740+00 TO STA. 755+00

STA. 740+83.00 IN PLACE
18"X 42' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 42' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
65 CU. YDS.

C.L. HIGHWAY 70
P.I. = 746+04.21
Δ = 3°23'35.6" LT.
D = 1°00'00"
T = 169.71'
L = 339.32'
P.C. = 744+34.50
P.T. = 747+73.82
e = 0.030 '/'
Ls = 540'

STA. 746+58.00 IN PLACE
18"X 32' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
45 CU. YDS.

STA. 751+53.00 IN PLACE
18"X 30' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
55 CU. YDS.

STA. 753+90.00
CONSTRUCT APPROACH
ON LT. =
50 CU. YDS.

+61.59
148.27'
L.T.C.E.
N
104.75'
+75
20'
R =110'
CONST. LIMITS
8'
R =90'
R =20'
R =20'
740+00
29.5'
29.5'
8'
PC 744+34.50
EXIST. R/W
PI 746+73.82
16'
R =20'
R =20'
745+00
C.L. HWY.70
750+00
R =20'
R =20'
16'
16'
R =20'
755+00
29.5'
29.5'
8'
N62°44'08"E
N59°20'33"E
R =5'
R =20'
16'
16'
R =20'
CONST. LIMITS
PI 746+04.21
R =5'
EXIST. R/W

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
752+75.00	754+75.00	RT. =	200 LIN. FT.	6'- 0"	133.33

STA. 752+20.00
CONSTRUCT APPROACH
ON RT. =
125 CU. YDS.

STA. 752+45.00
CONSTRUCT APPROACH
ON RT. =
235 CU. YDS.

STA. 753+21.02 IN PLACE
42"X 104' R.C. PIPE CULVERT
WITH HDWL. LT. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 13' LT. AND 25' RT.
31° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=84.6 CFS D.A.=31 ACRES
42" R.C. PIPE = 43 LIN. FT.
42" FES = 2 EA.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY
9-25-2016

STA. 740+29.50 BEGIN SUPERELEVATION RT.
STA. 745+69.50 MAX SUPERELEVATION (0.030'/')
STA. 746+38.82 MAX SUPERELEVATION (0.030'/')
STA. 751+78.82 END SUPERELEVATION RT.

PVI 742+00.00
ELEV. 714.50
PVI 746+00.00
ELEV. 710.00
PVC 753+00.00
ELEV. 700.72
PROFILE GRADE
EXISTING GROUND
1.29%
-1.22
-1.33%
-1.33%
-1.33%
-1.14%
4.31% LT. DT. GR.
5.23% RT. DT. GR.
4.26% RT. DT. GR.
VC=400.00'
K=166
e=-1.21'
VC=200.00'
K=952
e=-0.05'
VC=200.00'
K=1053
e=0.05'
PVC 740+00.00
ELEV. 711.91
+50.00 LT. 708.15
PVT 744+00.00
ELEV. 712.25
PVC 745+00.00
ELEV. 711.13
PVT 747+00.00
ELEV. 708.68
+75.00 RT. 692.57
+68.00 RT. 687.71
PVI 754+00.00
ELEV. 699.39
+75.00 RT. 692.27
FL. LT. = 692.90
FL. RT. = 687.71

750 740 730 720 710 700 690 680 670 660

740+00 741+00 742+00 743+00 744+00 745+00 746+00 747+00 748+00 749+00 750+00 751+00 752+00 753+00 754+00 755+00

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

Leonard.Speed 9/23/2016 2:11:22 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	276	888

(2) PLAN & PROFILE - STA. 755+00 TO STA. 770+00

STA. 757+93.00 (HAPPYTREE LN.)
IN PLACE
18"X 60' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 46' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
80 CU. YDS.

STA. 759+40.00 IN PLACE
18"X 63' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
50 CU. YDS.

STA. 762+71.00
(PAYTON PLACE)
CONST. APPROACH
ON LT. =
35 CU. YDS.

STA. 764+55.00 IN PLACE
18"X 43' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
55 CU. YDS.

STA. 766+83.00 IN PLACE
18"X 46' R.C. PIPE CULVERT
LT. SIDE DRAIN
RETAIN
CONSTRUCT APPROACH =
50 CU. YDS.

HAPPYTREE LANE
HAPPY TREE LN
E GRAND AVE
US 70
PAYTON PL
PRIVATE DR
PRIVATE DRIVE
PAVED DRIVE
PAVED SHOULDER
EXIST. R/W
CONST. LIMITS
C.L. HWY.70
N59°20'33"E
755+00
760+00
765+00
770+00
29.5'
8'
30'
20'
16'
R =68'
R =52'
R =40'
R =20'
BILLBOARD
ADVERTISEMENT, 3.8, METAL
ADVERTISE HERE, 104, WOOD
BILLBOARD, ADVERTISE HERE, 104, WOOD
PARKING
BRUSH
PATIO
DECK
WALL
GATE
CHAINLINK POST
SIGN
POWER POLE
TELEPHONE JUNCTION BOX
BARBED WIRE
BARBED FOC
3-STR BARB
VACANT

STA. 758+96.00 IN PLACE
18"X 20' C.P. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18"X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
80 CU. YDS.

STA. 760+80.24 IN PLACE
4'X 4' X 130' R.C. BOX CULVERT
WITH 3:1 WINGS LT.
REMOVE 31' LT. & 58' RT. AND
EXTEND 48' LT. AND 75' RT.
Q50=172.2 CFS D.A.=36 ACRES

STA. 760+80.24 RT.
6.00 CU. YDS.
DUMPED RIPRAP

STA. 763+84.00
CONSTRUCT APPROACH
ON RT. =
50 CU. YDS.

STA. 768+13.00 IN PLACE
4' X 6" X 125' R.C. BOX CULVERT
WITH 3:1 WINGS LT.
RETAIN AND EXTEND
EXTEND 16' LT. AND 13' RT.
Q50=365.2 CFS D.A.=111 ACRES

STA. 768+13.00 RT.
10.10 CU. YDS.
DUMPED RIPRAP

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-25-2016

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
759+50.00	760+80.00	LT. =	130 LIN. FT.	6'- 0"	86.67
760+50.00	760+80.00	RT. =	30 LIN. FT.	6'- 0"	20.00
766+50.00	769+00.00	RT. =	250 LIN. FT.	6'- 0"	166.67
767+75.00	768+13.00	LT. =	38 LIN. FT.	6'- 0"	25.33

PVC 755+00.00
ELEV. 698.26
PVI 756+00.00
ELEV. 697.12
PVT 757+00.00
ELEV. 695.74
PVC 759+00.00
ELEV. 692.98
PVI 760+00.00
ELEV. 691.60
PVT 761+00.00
ELEV. 690.31
PVI 765+00.00
ELEV. 685.14
PVC 769+40.00
ELEV. 679.40
ELEV. 678.67

-1.14%
VC=200.00'
K=833
e=-0.06'
-1.38%
VC=200.00'
K=2222
e=0.02'
-8.24% LT. DT. GR.
2.31% LT. DT. GR.
-5.39% RT. DT. GR.
2.44% RT. DT. GR.
-1.29%
-1.30%
-10.17% RT. DT. GR.
-7.38% LT. DT. GR.
2.48% LT. DT. GR.
8.30% RT. DT. GR.
VC=500.00'
K=347
e=0.90'
PROFILE GRADE
EXISTING GROUND

+50.00 LT. 687.76
+50.00 RT. 672.61
+80.24 LT. 677.03
+80.24 RT. 670.98
+00.00 LT. 679.80
+50.00 RT. 672.68
+50.00 RT. 677.91
+75.00 LT. 669.48
+13.00 LT. 666.68
+13.00 RT. 661.34
+75.00 LT. 668.22
+00.00 RT. 668.56

FL. LT. = 677.03
FL. RT. = 670.98
FL. LT. = 666.68
FL. RT. = 661.34

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

730 720 710 700 690 680 670 660 650 640

755+00 756+00 757+00 758+00 759+00 760+00 761+00 762+00 763+00 764+00 765+00 766+00 767+00 768+00 769+00 770+00

Leonard.Speed 9/23/2016 2:11:33 PM
WORKSPACE: Leonard.Speed
C:\Dwv8\local\baker_projects\leonard.speed\d027144\r-CA0606_12_PP_Main_20.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	277	888

(2) PLAN & PROFILE-STA. 770+00 TO STA. 785+00

C.L. HIGHWAY 70
P.I. = 781+57.27
Δ = 15°49'14.1" RT.
D = 2°30'00"
T = 318.44'
L = 632.82'
P.C. = 778+38.83
P.T. = 784+71.65
e = 0.067 '/'
Ls = 540' (450')

STA. 771+41.00 IN PLACE
18"X 54' C.M. PIPE CULVERT
LT. SIDE DRAIN
RETAIN
CONSTRUCT APPROACH =
50 CU. YDS.

C.L. HWY 70 STA. 775+08.00 =
C.L. CLOUD 9 DRIVE STA. 20+00.00

STA. 774+45.00 IN PLACE
18"X 40' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 42' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
115 CU. YDS.

STA. 775+81.00 IN PLACE
18"X 40' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
75 CU. YDS.

STA. 779+30.00 IN PLACE
30"X 42' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE
CONSTRUCT APPROACH =
105 CU. YDS.

STA. 770+52.00
CONSTRUCT APPROACH
ON RT. =
130 CU. YDS.

STA. 774+22.00 IN PLACE
18"X 24' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18"X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
30 CU. YDS.

STA. 775+08.00
(CLOUD 9 DRIVE)
CONST. APPROACH
ON RT. =
45 CU. YDS.

C.L. CLOUD 9 DRIVE
P.I. = 18+38.82
Δ = 63°14'28.3" RT.
D = 28°45'00"
T = 122.70'
L = 219.97'
P.C. = 17+16.11
P.T. = 19+36.08
NO SUPER

STA. 18+03.39
BEGIN CLOUD 9 DRIVE

STA. 779+89.44 RT.
25.18 CU. YDS.
DUMPED RIPRAP

STA. 780+82.82 IN PLACE
DBL. 6' X 6' X 127' R.C. BOX CULVERT
44° LT. FWD. SKEW
WITH 3:1 WINGS LT.
REMOVE 0' LT. & 60' RT. AND
EXTEND 54' LT. AND 65' RT.
Q50=444.5 CFS D.A.=243 ACRES

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
781+72.00	782+50.00	LT. =	78 LIN. FT.	6'- 0"	52.00
781+75.00	784+25.00	RT. =	250 LIN. FT.	9'- 0"	250.00

STA. 774+33.82 BEGIN SUPERELEVATION LT.
STA. 779+73.82 MAX SUPERELEVATION (0.067'/')
STA. 783+59.15 MAX SUPERELEVATION (0.067'/')
STA. 785+33.37 END SUPERELEVATION LT. (0.041'/')

	GUARDRAIL (TYPE A)	TRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POST (TYPE II)
STA. 780+05.00 TO STA. 795+85.00 LT. OF C.L. HWY 70 =	1505 LIN. FT.	N/A	1 EACH	1 EACH

REMOVAL & DISPOSAL OF GUARDRAIL
STA. 780+06 TO STA. 795+94 LT. OF HWY. 70 = 1588 LIN. FT.

ELEV. 678.67
VC=500.00'
K=347
e=0.90'
-1.30%
0.14%
PVI 771+90.00
ELEV. 676.14
PVRC 774+40.00
ELEV. 676.49
PVI 775+30.00
ELEV. 676.61
0.14%
VC=180.00'
K=750
e=-0.05'
-0.10%
PVC 777+50.00
ELEV. 676.40
PVT 776+20.00
ELEV. 676.52
EXISTING GROUND
PROFILE GRADE
VC=700.00'
K=38
e=4.44'
-0.10%
4.91%
-0.44% LT. DT. GR.
4.66% LT. DT. GR.
PVI 781+00.00
ELEV. 676.05
+50.00 LT. 672.31
+71.96 LT. 671.77
+50.00 LT. 675.41
FL. LT. = 671.77
FL. RT. = 667.29
PVRC 784+50.00
ELEV. 693.44
VC=300.00'
K=219
e=-0.51'
ELEV. 695.87

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-26-2016

Leonard.Speed 9/26/2016 8:49 AM
WORKSPACE: Leonard.Speed
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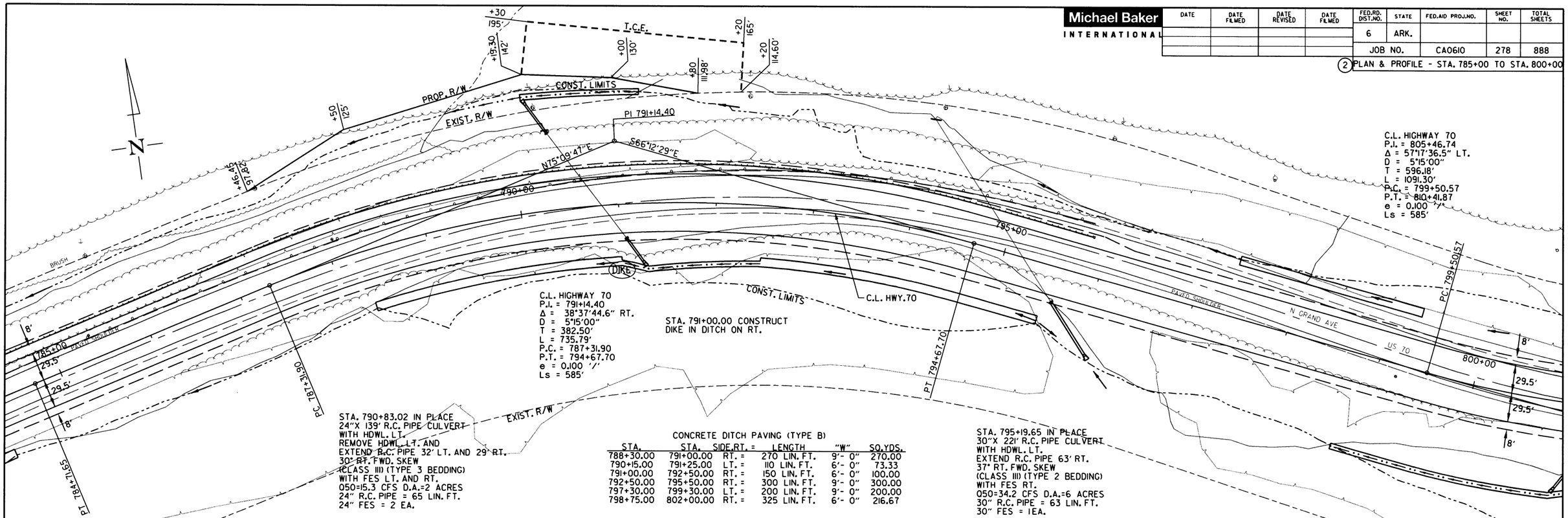
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

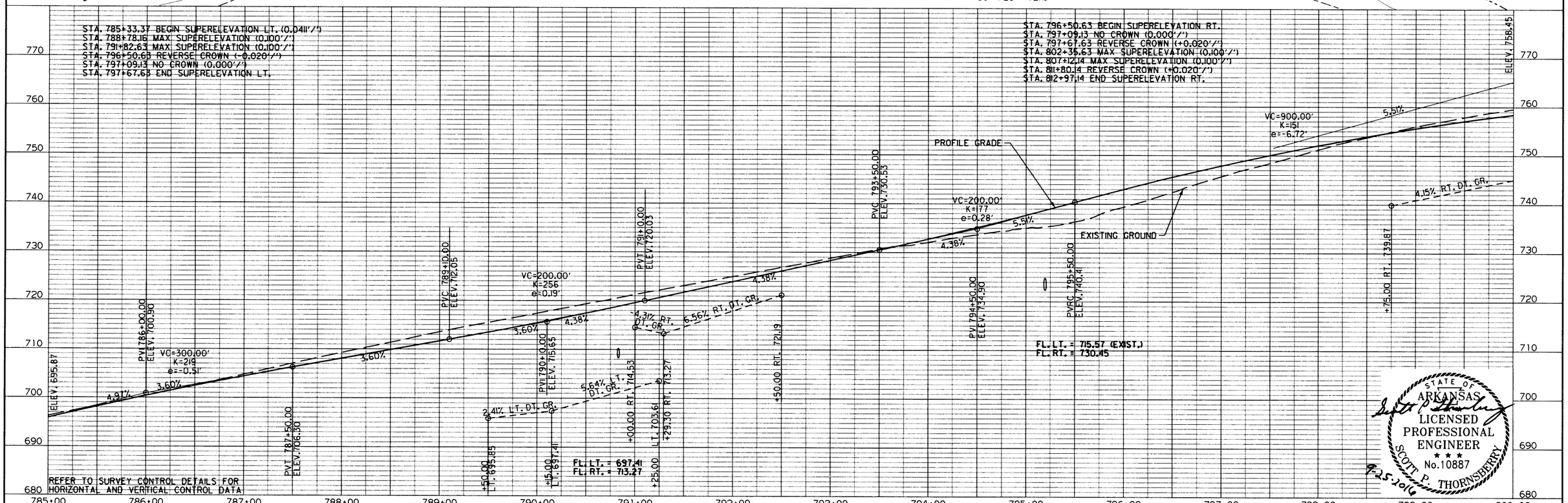
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	278	888

(2) PLAN & PROFILE - STA. 785+00 TO STA. 800+00



CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE,RT. =	LENGTH	"W"	SQ.YDS.
788+30.00	791+00.00	RT. =	270 LIN. FT.	9'- 0"	270.00
790+15.00	791+25.00	LT. =	110 LIN. FT.	6'- 0"	73.33
791+00.00	792+50.00	RT. =	150 LIN. FT.	6'- 0"	100.00
792+50.00	795+50.00	RT. =	300 LIN. FT.	9'- 0"	300.00
797+30.00	799+30.00	LT. =	200 LIN. FT.	9'- 0"	200.00
798+75.00	802+00.00	RT. =	325 LIN. FT.	6'- 0"	216.67



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-25-2016

Leonard Speed 9/23/2016 2:11:56 PM
WORKSPACE: Leonard Speed
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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	279	888

(2) PLAN & PROFILE - STA. 800+00 TO STA. 815+00

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
801+50.00	803+00.00	LT. =	150 LIN. FT.	6'- 0"	100.00
810+00.00	811+88.00	RT. =	188 LIN. FT.	6'- 0"	125.00
811+00.00	812+50.00	LT. =	150 LIN. FT.	6'- 0"	100.00
813+00.00	816+45.00	LT. =	345 LIN. FT.	9'- 0"	345.00

C.L. HIGHWAY 70
P.I. = 805+46.74
Δ = 57°17'36.5" LT.
D = 5°15'00"
T = 596.18'
L = 1091.30'
P.C. = 799+50.57
P.T. = 810+41.87
e = 0.100 '/'
Ls = 585'

STA. 811+79.55 IN PLACE
30"X 217' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND 4' RT.
EXTEND R.C. PIPE 6' LT. & 0' RT.
3° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
050=28.4 CFS D.A.=7 ACRES
30" R.C. PIPE = 10 LIN. FT.
30" FES = 2 EA.

C.L. HIGHWAY 70
P.I. = 816+79.72
Δ = 18°10'07.4" RT.
D = 3°45'00"
T = 244.30'
L = 484.50'
P.C. = 814+35.42
P.T. = 819+19.91
e = 0.090'/'
Ls = 531'

C.L. HWY. 70 STA. 812+64.00 =
SCENIC RIDGE RD. STA. 20+00.00

STA. 801+49.00 IN PLACE
24"X 120' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 31' LT. AND 24' RT.
31° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
050=13.6 CFS D.A.=3 ACRES
24" R.C. PIPE = 59 LIN. FT.
24" FES = 2 EA.

STA. 802+40.00 IN PLACE
18"X 36' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18"X 52' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
280 CU. YDS.

FENCE TYPE D
STA. 802+25 TO STA. 802+73 RT. OF CL. = 35 LIN. FT.

REMOVAL AND DISPOSAL OF FENCE
STA. 802+25 TO STA. 802+73 RT. OF CL. = 35 LIN. FT.

STA. 812+64.00
(SCENIC RIDGE RD.)
CONST. APPROACH
ON RT. =
340 CU. YDS.

STA. 18+62.38
BEGIN SCENIC RIDGE ROAD

C.L. SCENIC RIDGE ROAD
P.I. = 18+04.99
Δ = 97°19'01.7" LT.
D =143°14'22"
T = 45.46'
L = 67.94'
P.C. = 17+59.53
P.T. = 18+27.47
NO SUPER

SCENIC RIDGE ROAD STA. 18+42.88 RT. THE CONTRACTOR SHOULD TAKE CARE NOT TO DAMAGE THE EXISTING GATE KEYPAD AND SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE THAT OCCURS.

STA. 796+50.63 BEGIN SUPERELEVATION RT.
STA. 797+09.13 NO CROWN (0.000'/')
STA. 797+67.63 REVERSE CROWN (+0.020'/')
STA. 802+35.63 MAX SUPERELEVATION (0.100'/')
STA. 807+12.14 MAX SUPERELEVATION (0.100'/')
STA. 811+80.14 REVERSE CROWN (+0.020'/')
STA. 812+97.14 END SUPERELEVATION RT.

STA. 811+80.14 BEGIN SUPERELEVATION LT.
STA. 812+98.14 REVERSE CROWN (-0.020'/')
STA. 817+11.14 MAX SUPERELEVATION (0.090'/')
STA. 817+91.66 MAX SUPERELEVATION (0.090'/')
STA. 823+04.66 END SUPERELEVATION LT.

PVI 800+00.00
ELEV. 765.18
ELEV. 758.45
-0.47%
VC=900.00'
K=151
e=-6.72'
+00.00 RT. 762.63
12.86% RT. DT. GR.
3.81% LT. DT. GR.
2.99% LT. DT. GR.
FL. LT. = 754.84
FL. RT. = 748.84
4.15% RT. DT. GR.
+91.00 RT. 748.84
+50.00 LT. 756.55
+95.00 LT. 754.84
+00.00 LT. 757.98
PVT 804+50.00
ELEV. 763.08
PVC 805+90.00
ELEV. 762.47
-0.47%
PVI 809+30.00
ELEV. 760.85
4.83%
VC=700.00'
K=161
e=-3.82'
PROFILE GRADE
EXISTING GROUND
4.50% LT. DT. GR.
6.90% LT. DT. GR.
4.84%
ELEV. 733.27
+00.00 LT. 739.29
+75.00 LT. 735.91
+50.00 LT. 741.09
PVT 812+80.00
ELEV. 745.91
FL. LT. = 735.91
FL. RT. = 719.62
10.76% RT. DT. GR.
-10.00% RT. DT. GR.
15.12% RT. DT. GR.
+00.00 RT. 723.63
+50.00 RT. 714.75
+37.50 RT. 706.00
+69.19 RT. 710.19

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-25-2006

LeonardSpeed 9/23/2006 2:12:07 PM
WORKSPACE: Leonard Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	280	888

(2) PLAN & PROFILE - STA. 815+00 TO STA. 830+00

C.L. HIGHWAY 70
P.I. = 816+79.71
Δ = 18°10'07.4" RT.
D = 3°45'00"
T = 244.30'
L = 484.50'
P.C. = 814+35.41
P.T. = 819+19.91
e = 0.090'/'
Ls = 531'

STA. 818+24.23 IN PLACE
36"x 307' R.C. PIPE CULVERT
WITH HDWL. LT.
27° RT. FWD. SKEW
RETAIN AND INSTALL FES RT.
050=53.8 CFS D.A.=11 ACRES
36" FES = 1EA.

C.L. HWY. 70 STA. 823+09.00 =
C.L. SUMMIT RIDGE RD. STA. 17+00.00

STA. 822+56.00 RT.
2.78 CU. YDS.
DUMPED RIPRAP

STA. 822+64.89 IN PLACE
30"X 115' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 21' LT. AND 12' RT.
6° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT.& RT.
050=25.3 CFS D.A.=5 ACRES
30" R.C. PIPE = 37 LIN. FT.
30" FES = 2 EA.

+45 111.05'-120'
+25 106.74'-120'
T.C.E.

EXIST. R/W
STA. 823+00.00 CONSTRUCT
DIKE IN DITCH ON LT.
TOP OF DIKE ELEV. = 693.21
DIKE
CONST. LIMITS
PI 816+79.12
N74°40'02"E
N56°29'55"E
820+00
PAVED SHOULDER
815+00
29.5'
29.5'
8'
PC 814+35.41
PROP. R/W
+35 148.63'
+65 150.53'
+15 165'
C.L. HWY.70
PT 819+19.91
CONST. LIMITS
EXIST. R/W
STA. 823+09.00
(SUMMIT RIDGE RD.)
CONSTRUCT APPROACH
ON RT. =
360 CU. YDS
PI 15+87.22
C.L. SUMMIT RIDGE ROAD
P.I. = 15+87.22
Δ = 47°31'27.6" RT.
D = 27°15'00"
T = 92.57'
L = 174.40'
P.C. = 14+94.65
P.T. = 16+69.05
NO SUPER
PT 16+69.05
R=40'
R=40'
SUMMIT RIDGE ROAD
STA. 14+67.20
BEGIN SUMMIT RIDGE RD.
PC 14+94.65
15+00
16+00
N71°35'22"W
STATE KEY PAD
TELEPHONE
PANEL PIPE
OVERHANG
SUMMIT RIDGE ROAD STA. 14+60.00 RT.
THE CONTRACTOR SHOULD TAKE CARE
NOT TO DAMAGE THE EXISTING GATE
KEYPAD AND SHALL BE RESPONSIBLE
FOR REPAIRING ANY DAMAGE THAT
OCCURS.
825+00
PAVED SHOULDER
8'
830+00
29.5'
N74°40'02"E
29.5'
8'
PC 829+64.53

C.L. HIGHWAY 70
P.I. = 830+97.65
Δ = 6°38'54.3" RT.
D = 2°30'00"
T = 133.12'
L = 265.94'
P.C. = 829+64.53
P.T. = 832+30.47
e = 0.067'/'
Ls = 540' (450')

STATE OF ARKANSAS
Scott P. Thornsberry
LICENSED PROFESSIONAL ENGINEER
No.10887
9-25-2016

STA. 811+80.14 BEGIN SUPERELEVATION LT.
STA. 812+98.14 REVERSE CROWN (-0.020'/')
STA. 817+11.14 MAX SUPERELEVATION (0.090'/')
STA. 817+91.66 MAX SUPERELEVATION (0.090'/')
STA. 823+04.66 END SUPERELEVATION LT.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
821+15.00	822+00.00	LT. =	85 LIN. FT.	9'- 0"	85.00
822+00.00	823+00.00	LT. =	100 LIN. FT.	6'- 0"	66.67
823+00.00	825+25.00	LT. =	225 LIN. FT.	9'- 0"	225.00
821+12.00	821+60.00	RT. =	48 LIN. FT.	9'- 0"	48.00
823+90.00	827+00.00	RT. =	310 LIN. FT.	9'- 0"	310.00

STA. 825+61.61 BEGIN SUPERELEVATION LT.
STA. 831+01.61 MAX SUPERELEVATION (0.067'/')
STA. 834+17.29 REVERSE CROWN (-0.020'/')
STA. 835+51.61 END SUPERELEVATION LT.

ELEV. 733.27
PROFILE GRADE
-4.83%
EXISTING GROUND
FL. LT. = 695.90
FL. RT. = 683.86
+00.00 LT. 696.11
-6.93% DT. GR. LT.
+70.75 LT. 691.21
1.64% DT. GR. RT.
+00.00 LT. 691.69
FL. LT. = 691.21
FL. RT. = 678.08
PVC 824+00.00
ELEV. 689.76
PVI 825+00.00
ELEV. 684.92
-4.83%
-5.07%
VC=200.00'
K=833
e=-0.06'
PVT 826+00.00
ELEV. 679.85
-5.07%
ELEV. 659.56

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

730 720 710 700 690 680 670 660 650 640
815+00 816+00 817+00 818+00 819+00 820+00 821+00 822+00 823+00 824+00 825+00 826+00 827+00 828+00 829+00 830+00

Leonard.Speed 9/23/2016 2:12:18 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	281	888

(2) PLAN & PROFILE - STA. 830+00 TO STA. 845+00

STA. 836+36.60 LT.
3.89 CU. YDS.
DUMPED RIPRAP

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
834+50.00	836+00.00	RT. =	150 LIN. FT.	6'- 0"	100.00
837+25.00	839+00.00	RT. =	175 LIN. FT.	6'- 0"	116.67
839+00.00	839+35.00	RT. =	35 LIN. FT.	9'- 0"	35.00

STA. 838+49.00 LT.
2.78 CU. YDS.
DUMPED RIPRAP

C.L. HIGHWAY 70
P.I. = 830+97.65
Δ = 6°38'54.3" RT.
D = 2°30'00"
T = 133.12'
L = 265.94'
P.C. = 829+64.53
P.T. = 832+30.47
e = 0.067'/'
Ls = 540' (450')

STA. 835+79.23 IN PLACE
48"X 167' R.C. PIPE CULVERT
WITH HDWL. LT.
EXTEND R.C. PIPE 21' RT.
30° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES RT.
Q50=88.2 CFS D.A.=16 ACRES
48" R.C. PIPE = 21 LIN. FT.
48" FES = 1 EA.

STA. 838+44.16 IN PLACE
30"X 111' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 3' LT. AND 29' RT.
4° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=20.7 CFS D.A.=4 ACRES
30" R.C. PIPE = 36 LIN. FT.
30" FES = 2 EA.

C.L. HIGHWAY 70
P.I. = 842+84.01
Δ = 53°07'23.0" LT.
D = 5°15'00"
T = 545.59'
L = 1011.87'
P.C. = 837+38.42
P.T. = 847+50.28
e = 0.100'/'
Ls = 630' (576')

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

STA. 825+61.61 BEGIN SUPERELEVATION LT.
STA. 831+01.61 MAX SUPERELEVATION (0.067'/')
STA. 834+17.29 REVERSE CROWN (-0.020'/')
STA. 835+51.61 END SUPERELEVATION LT.

STA. 834+36.41 BEGIN SUPERELEVATION RT.
STA. 835+51.61 REVERSE CROWN (+0.020'/')
STA. 840+12.41 MAX SUPERELEVATION (0.100'/')
STA. 845+92.78 MAX SUPERELEVATION (0.100'/')
STA. 852+22.78 END SUPERELEVATION RT.

ELEV. 659.56'
-5.07%
PVI 834+00.00
ELEV. 639.27'
PROFILE GRADE
EXISTING GROUND
PVC 832+50.00
ELEV. 646.88
VC=300.00'
K=968
e=-0.12'
-5.07% RT. DT. GR.
-5.38%
-8.77% RT. DT. GR.
+50.00 RT. 627.94
+00.00 RT. 626.06
+22.00 RT. 619.22
PVT 835+50.00
ELEV. 631.20
FL. LT. = 613.60 (EXIST.)
FL. RT. = 619.22
+25.00 RT. 619.17
-5.38%
-7.97% RT. DT. GR.
PVC 839+00.00
ELEV. 612.36
-5.82% RT. DT. GR.
+40.00 RT. 610.00
+00.00 RT. 613.50
FL. LT. = 602.38
FL. RT. = 610.00
VC=400.00'
K=148
e=1.35'
PVI 841+00.00
ELEV. 601.60
-5.38%
2.68%
PVT 843+00.00
ELEV. 595.25
+50.00 RT. 592.67
-2.68%
-2.09% RT. DT. GR.
+75.00 RT. 590.07
ELEV. 590.90

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

660 650 640 630 620 610 600 590 580 570

830+00 831+00 832+00 833+00 834+00 835+00 836+00 837+00 838+00 839+00 840+00 841+00 842+00 843+00 844+00 845+00

Leonard.Speed 9/23/2016 2:12:44 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

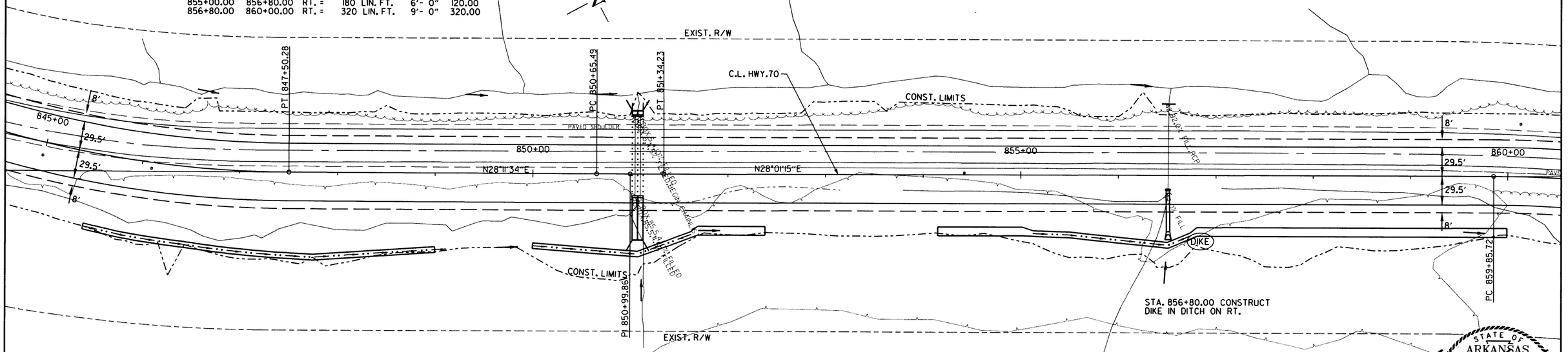
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	282	888

(2) PLAN & PROFILE - STA. 845+00 TO STA. 860+00

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
845+50.00	849+00.00	RT. =	350 LIN. FT.	6'- 0"	233.33
850+00.00	851+69.00	RT. =	169 LIN. FT.	6'- 0"	112.67
851+69.00	852+38.00	RT. =	69 LIN. FT.	9'- 0"	69.00
854+15.00	855+00.00	RT. =	85 LIN. FT.	9'- 0"	85.00
855+00.00	856+80.00	RT. =	180 LIN. FT.	6'- 0"	120.00
856+80.00	860+00.00	RT. =	320 LIN. FT.	9'- 0"	320.00



C.L. HIGHWAY 70
P.I. = 842+84.01
Δ = 53°07'23.0" LT.
D = 5°15'00"
T = 545.59'
L = 1011.87'
P.C. = 837+38.42
P.T. = 847+50.28
e = 0.100'/'
Ls = 630' (576')

C.L. HIGHWAY 70
P.I. = 850+99.86
Δ = 0°10'18.7" LT.
D = 0°15'00"
T = 34.37'
L = 68.74'
P.C. = 850+65.49
P.T. = 851+34.23
NO SUPER

STA. 851+07.50 LT.
9.99 CU. YDS.
DUMPED RIPRAP

STA. 851+07.50 IN PLACE
DOUBLE 5' X 4' X 85' R.C. BOX CULVERT
WITH 3:1 WINGS LT.
RETAIN AND
EXTEND 4' LT. AND 44' RT.
Q50=1101.5 CFS D.A.=21 ACRES

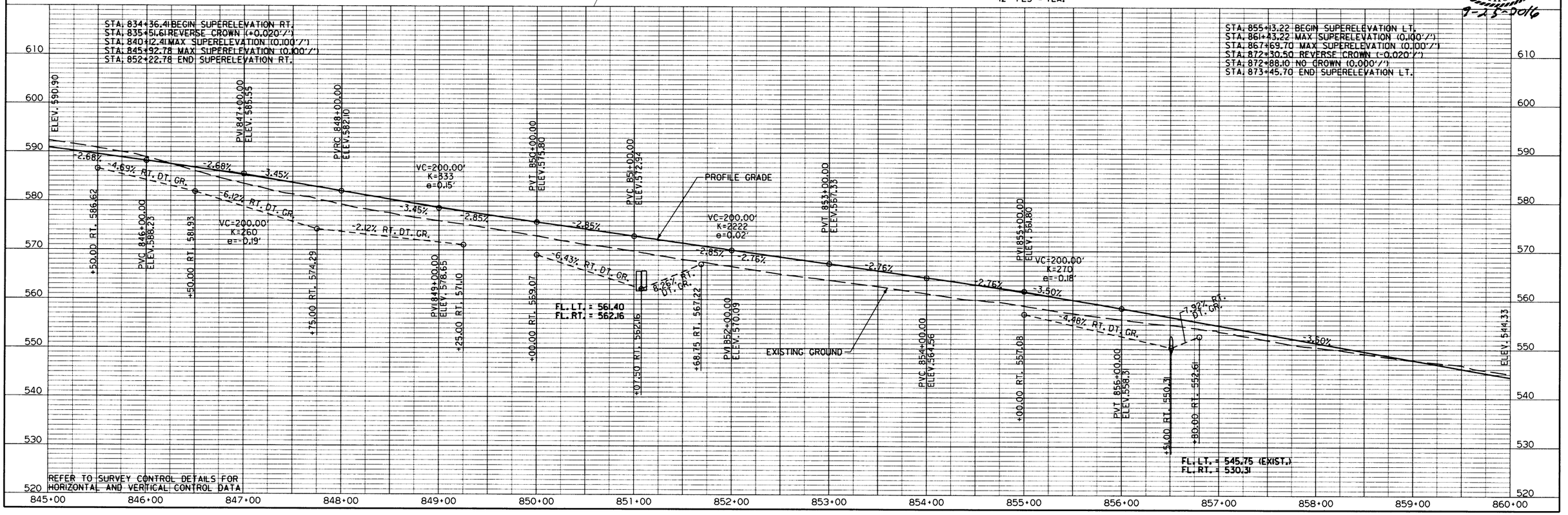
STA. 856+51.00 IN PLACE
42"X 92' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWL. RT. AND
EXTEND R.C. PIPE 39' RT.
(CLASS IV) (TYPE 3 BEDDING)
WITH FES RT.
Q50=47.0 CFS D.A.=10 ACRES
42" R.C. PIPE = 43 LIN. FT.
42" FES = 1EA.

STA. 856+51.00 LT.
3.61 CU. YDS.
DUMPED RIPRAP

C.L. HWY. 70
P.I. = 865+63.27
Δ = 55°46'35.2" RT.
D = 5°15'00"
T = 577.55'
L = 1062.41'
P.C. = 859+85.72
P.T. = 870+48.13
e = 0.100'/'
Ls = 630' (576')

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

STA. 856+80.00 CONSTRUCT DIKE IN DITCH ON RT.



REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

Leonard.Speed 9/23/2016 2:12:55 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	283	888

2 PLAN & PROFILE - STA. 860+00 TO STA. 875+00

C.L. HWY. 70
P.I. = 865+63.27
Δ = 55°46'35.2" RT.
D = 5°15'00"
T = 577.55'
L = 1062.41'
P.C. = 859+85.72
P.T. = 870+48.13
e = 0.100'/'
Ls = 630' (576')

PI 865+63.27
N83°47'50"E
N28°01'15"E
EXIST. R/W
CONST. LIMITS
865+00
C.L. HWY.70
CONST. LIMITS
APPROXIMATE 100 YR. FLOODPLAIN LIMITS
EXIST. R/W
860+00
8'
29.5'
29.5'
8'
PC 859+85.72
EXIST. R/W
PT 870+48.13
870+00
EXIST. R/W
875+00
105°00'00"
PC 875+03.08
29.5'
8'
R =40'
N22°05'28"W
STA. 23+60.00
END CEDAR CREEK ROAD
+70
40'
+86.04
45.45'
M 82,50.28N
00+22
PT 22+96.82
PT 22+73.92
CEDAR CREEK ROAD
PRIV. R/W
PI 20+50.16
PI 21+71.13
+60
555
PI 21+24.
M 82,50.28N
00+22
22500 LOG ROAD
PI 20+66.33
21+00
STA. 23+60.00
END CEDAR CREEK ROAD
C.L. HWY 70 STA. 875+20.00 =
C.L. CEDAR CREEK ROAD STA. 20+00.00

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
861+25.00	864+00.00	RT. =	275 LIN. FT.	9'- 0"	275.00
873+25.00	874+13.00	LT. =	88 LIN. FT.	6'- 0"	58.67

STA. 865+17.33 IN PLACE
30"X 99' R.C. PIPE CULVERT
REMOVE 28' RT. IN STAGE IB &
REMOVE HDWL. AND 71' LT. IN STAGE 2

STA. 870+93.00 TO STA. 871+93.00
EXISTING BRIDGE NO. 02945 100'X32.0'
CONCRETE SLAB SPAN SUPERSTRUCTURE
(4@25') & SUBSTRUCTURE COMPOSED
OF 2-COLUMN BENTS ON SPREAD FOOTINGS.
REMOVE AS EXISTING BRIDGE STRUCTURE.
SITE NO. 2 = 1.00 LUMP SUM

STA. 870+86.50 TO STA. 872+30.50 CONSTRUCT
144'-0" X 75'-0" CLEAR ROADWAY WIDTH
143'-0" INTEGRAL COMPOSITE W-BEAM UNIT
(45'-53'-45')

C.L. HWY. 70
P.I. 878+58.22
Δ = 36°03'04.1" LT.
D = 5°15'00"
T = 355.14'
L = 686.69'
P.C. = 875+03.08
P.T. = 881+89.77
e = 0.100'/'
Ls = 576'

STA. 875+09.26 RT.
8.07 CU. YDS.
DUMPED RIPRAP

APPROXIMATE 100 YR. FLOODPLAIN LIMITS

STA. 874+55.81 IN PLACE
4' X 4' X 95' R.C. BOX CULVERT
31° RT. FWD. SKEW
WITH 3:1 WINGS LT.
REMOVE HDWL. LT. AND
EXTEND 11' LT. AND 55' RT.
Q50=224.8 CFS D.A.=53 ACRES

STA. 855+13.22 BEGIN SUPERELEVATION LT.
STA. 861+43.22 MAX SUPERELEVATION (0.100 '/')
STA. 867+69.70 MAX SUPERELEVATION (0.100 '/')
STA. 872+30.50 REVERSE CROWN (-0.020'/')
STA. 872+88.10 NO CROWN (0.000 '/')
STA. 873+45.70 END SUPERELEVATION LT.

	GUARDRAIL (TYPE A)	TRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POST (TYPE D)
STA. 868+57.75 TO STA. 870+76.50 RT. OF C.L. HWY. 70 =	150 LIN. FT.	1 EACH	1 EACH	
STA. 868+07.75 TO STA. 870+76.50 LT. OF C.L. HWY. 70 =	225 LIN. FT.	1 EACH		1 EACH
STA. 872+40.50 TO STA. 873+34.25 RT. OF C.L. HWY. 70 =	50 LIN. FT.	1 EACH		1 EACH
STA. 872+40.50 TO STA. 874+59.25 LT. OF C.L. HWY. 70 =	150 LIN. FT.	1 EACH	1 EACH	

REMOVAL & DISPOSAL OF GUARDRAIL

STA. 868+97 TO STA. 870+94 LT. OF HWY. 70 = 197 LIN. FT.
STA. 868+97 TO STA. 870+94 RT. OF HWY. 70 = 197 LIN. FT.
STA. 872+19 TO STA. 873+19 LT. OF HWY. 70 = 100 LIN. FT.
STA. 871+94 TO STA. 873+94 RT. OF HWY. 70 = 200 LIN. FT.

STA. 872+30.50 BEGIN SUPERELEVATION RT.
STA. 872+88.10 NO CROWN (0.000 '/')
STA. 873+45.70 RT. REVERSE CROWN (+0.020'/')
STA. 878+06.50 MAX SUPERELEVATION (0.100 '/')
STA. 882+67.30 REVERSE CROWN (+0.020'/')
STA. 883+24.90 RT. SUPERELEVATION (0.000'/')
STA. 883+82.50 END SUPERELEVATION RT.

STREAM	STREAM ID	STATION	STREAM TYPE	TOP OF CHANNEL ELEV.
TENMILE CREEK	ST29	870+86.50-872+30.50	PERENNIAL	510 FT. MSL

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-15-2016

ELEV. 544.33
3.50%
PVC 863+25.00
ELEV. 532.97
PLUG AND ABANDON
VC=550.00'
K=145
e=2.61'
PROFILE GRADE
-3.50%
0.30%
EXISTING GROUND
PVI 866+00.00
ELEV. 529.36
PVT 868+75.00
ELEV. 524.18
0.30%
PVC 869+36.00
ELEV. 524.35
PVI 870+05.00
ELEV. 524.37
VC=150.00'
K=188
e=-0.15'
PVT 870+80.00
ELEV. 524.20
STA. 870+86.50
BEGIN BRIDGE
HISTORICAL H.W.
ELEV. 515.6
Q50 DESIGN H.W.
ELEV. 516.0
STA. 872+30.50
END BRIDGE
PVC 872+25.00
ELEV. 523.47
-0.50%
-0.72%
PVI 873+00.00
ELEV. 523.10
VC=150.00'
K=682
e=-0.04'
-6.50% LT. DT. GR.
PVT 873+75.00
ELEV. 522.56
1.54% LT. DT. GR.
ELEV. 521.66
+25.00 LT. 516.52
+00.00 LT. 512.13
+3.25 LT. 510.79
FL. LT. = 510.79
FL. RT. = 508.79

570 560 550 540 530 520 510 500 490 480

860+00 861+00 862+00 863+00 864+00 865+00 866+00 867+00 868+00 869+00 870+00 871+00 872+00 873+00 874+00 875+00

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

LeonardSpeed 9/23/2016 2:35:05 PM
WORKSPACE: LeonardSpeed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	284	888

(2) PLAN & PROFILE - STA. 875+00 TO STA. 890+00

STA. 886+66.81 LT.
2.22 CU. YDS.
DUMPED RIPRAP

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
880+35.00	884+00.00	LT. =	365 LIN. FT.	9'- 0"	365.00
884+00.00	885+07.00	LT. =	107 LIN. FT.	6'- 0"	71.33
883+00.00	884+50.00	RT. =	150 LIN. FT.	6'- 0"	100.00
884+50.00	887+00.00	RT. =	250 LIN. FT.	9'- 0"	250.00
887+75.00	889+00.00	RT. =	125 LIN. FT.	6'- 0"	83.33

C.L. HWY. 70
P.I. = 878+58.22
Δ = 36°03'04.1" LT.
D = 5°15'00"
T = 355.14'
L = 686.69'
P.C. = 875+03.08
P.T. = 881+89.77
e = 0.100'/'
Ls = 576'

EXIST. R/W
PROP. R/W
PT 21+71.13
+60
55'
PI 21+24.11
21+05.29
54.08'
20+66.33
N22°05'28"W
21+00.00
R=40'
R = 40'
875+00
PC 875+03.08
C.L. HWY. 70
CONST. LIMITS
8'
29.5'
29.5'
8'
880+00
PT 881+89.77
N83°47'50"E
N47°44'46"E
R =15'
R =32'
R =25'
R =48'
STA. 879+88.00
CONSTRUCT APPROACH
ON RT. =
590 CU. YDS.
PI 878+58.22
15'
EXIST. R/W
STA. 883+69.83 RT.
8.07 CU. YDS.
DUMPED RIPRAP
PC 884+49.48
885+00
EXIST. R/W
PT 888+74.15
N47°44'46"E
N84°38'14"E
890+00
8'
29.5'
29.5'
8'
CONST. LIMITS

C.L. HIGHWAY 70
P.I. = 888+74.15
Δ = 36°53'27.5" RT.
D = 4°30'00"
T = 424.67'
L = 819.80'
P.C. = 884+49.48
P.T. = 892+69.28
e = 0.096'/'
Ls = 630' (567')

STA. 884+19.23 IN PLACE
4' X 4' X 110' R.C. BOX CULVERT
32° LT. FWD. SKEW
WITH 3:1 WINGS LT.
RETAIN AND EXTEND 21' LT. & 20' RT.
Q50=153.2 CFS D.A.=33 ACRES

STA. 887+41.12 IN PLACE
24"X 160' R.C. PIPE CULVERT
WITH HDWL. LT.
RETAIN AND
EXTEND R.C. PIPE 51' RT.
38° RT. FWD. SKEW
(CLASS III (TYPE 3 BEDDING)
WITH FES RT.
Q50=22.5 CFS D.A.=4 ACRES
24" R.C. PIPE = 51LIN. FT.
24" FES = 1EA.

STATE OF ARKANSAS
Scott P. Thornsberry
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
7-25-2016

STA. 872+30.50 BEGIN SUPERELEVATION RT.
STA. 872+88.10 NO CROWN (0.000 '/')
STA. 873+45.70 RT. REVERSE CROWN (+0.020'/')
STA. 878+06.50 MAX SUPERELEVATION (0.100 '/')
STA. 882+67.30 REVERSE CROWN (+0.020'/')
STA. 883+24.90 RT. SUPERELEVATION (0.000'/')
STA. 883+82.50 END SUPERELEVATION RT.

STA. 882+67.30 BEGIN SUPERELEVATION LT.
STA. 883+26.36 LT. SUPERELEVATION (0.000 '/')
STA. 883+85.43 REVERSE CROWN (-0.020'/')
STA. 888+34.30 MAX SUPERELEVATION (0.096 '/')
STA. 891+11.78 MAX SUPERELEVATION (0.096 '/')
STA. 897+41.78 END SUPERELEVATION LT.

570 560 550 540 530 520 510 500 490 480

875+00 876+00 877+00 878+00 879+00 880+00 881+00 882+00 883+00 884+00 885+00 886+00 887+00 888+00 889+00 890+00

ELEV. 521.66
PVC 875+10.00
ELEV. 521.59
VC=630.00'
K=137
e=3.62'
-0.72%
3.87%
PVI 878+25.00
ELEV. 539.32
EXISTING GROUND
PROFILE GRADE
PVRC 881+40.00
ELEV. 539.52
PVI 882+30.00
ELEV. 535.01
VC=180.00'
K=383
e=-0.11'
3.87%
PVT 883+20.00
ELEV. 536.07
+00.00 RT. 529.29
3.40%
3.99%
DT. GR.
3.10%
DT. GR. RT.
13.48%
DT. GR.
+69.83 RT. 527.13
+00.00 LT. 538.04
FL. LT. = 535.55
FL. RT. = 527.13
0.44% LT.
DT. GR.
+50.00 RT. 537.94
+62.45 LT. 535.55
PVC 885+00.00
ELEV. 544.20
+07.01 LT. 535.75
PVI 886+00.00
ELEV. 547.60
VC=200.00'
K=909
e=-0.06'
PVC 887+00.00
ELEV. 550.78
PVT 887+50.00
ELEV. 552.37
3.18%
FL. LT. = 542.07 (EXIST.)
FL. RT. = 544.00
+75.00 RT. 548.01
-7.29%
DT. GR.
-1.22%
DT. GR. RT.
+30.00 RT. 544.00
PVI 888+50.00
ELEV. 555.25
VC=200.00'
K=526
e=0.09'
3.56%
PVT 889+50.00
ELEV. 559.11
+00.00 RT. 549.05

Leonard.Speed 9/23/2016 2:13:15 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	285	888

(2) PLAN & PROFILE - STA. 890+00 TO STA. 905+00

C.L. HIGHWAY 70
P.I. = 888+74.15
Δ = 36°53'27.5" RT.
D = 4°30'00"
T = 424.67'
L = 819.80'
P.C. = 884+49.48
P.T. = 892+69.28
e = 0.096'/'
Ls = 630' (576')

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
890+00.00	891+00.00	LT. =	100 LIN. FT.	9'- 0"	100.00
890+50.00	891+00.00	RT. =	50 LIN. FT.	9'- 0"	50.00
903+00.00	904+13.00	LT. =	113 LIN. FT.	6'- 0"	75.33
903+00.00	904+13.00	RT. =	113 LIN. FT.	6'- 0"	75.33

N

STA. 904+13.00 IN PLACE
30"X 80' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 12' LT. AND 36' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=26.2 CFS D.A.=10 ACRES
30" R.C. PIPE = 52 LIN. FT.
30" FES = 2 EA.

STA. 904+96.00
(COUNTY RD. 369)
CONST. APPROACH
ON LT. =
35 CU. YDS.

EXIST. R/W

CONST. LIMITS

PAVED SHOULDER

8'

890+00

29.5'

895+00

900+00

N84°38'14"E

905+00

90°00'00"

R =40'

C.L. HWY.70

PI 892+69.28

CONST. LIMITS

C.L. HWY 70 STA. 904+96.00 =
C.L. COUNTY ROAD 369 STA. 20+00.00

LOGGING ROAD

STA. 895+68.26 IN PLACE
36"X 136' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 9' LT. AND 29' RT.
30° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=86.9 CFS D.A.=16 ACRES
36" R.C. PIPE = 42 LIN. FT.
36" FES = 2 EA.

STA. 896+20.61 RT.
3.33 CU. YDS.
DUMPED RIPRAP

STA. 897+88.79 RT.
2.22 CU. YDS.
DUMPED RIPRAP

STA. 897+88.79 IN PLACE
24"X 105' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 5' LT. AND 41' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=36.0 CFS D.A.=6 ACRES
24" R.C. PIPE = 50 LIN. FT.
24" FES = 2 EA.

EXIST. R/W

STA. 904+96.00
(LOGGING ROAD 2256)
CONSTRUCT APPROACH
ON LT. =
255 CU. YDS.

STA. 882+67.30 BEGIN SUPERELEVATION LT.
STA. 883+26.36 LT. SUPERELEVATION (0.000 '/')
STA. 883+85.43 REVERSE CROWN (-0.020'/')
STA. 888+34.30 MAX SUPERELEVATION (0.096 '/')
STA. 891+11.78 MAX SUPERELEVATION (0.096 '/')
STA. 897+41.78 END SUPERELEVATION LT.

EXISTING GROUND

PROFILE GRADE

PVC 890+00.00
ELEV. 560.89

PVI 895+30.00
ELEV. 580.45

3.56%

-3.22%

VC=1100.00'
K=62
e=-9.32'

FL. LT. = 561.09
FL. RT. = 555.95

FL. LT. = 561.15
FL. RT. = 552.75

PVRC 900+00.00
ELEV. 562.72

-3.22%

VC=200.00'
K=303
e=0.17'

-2.56%

PVI 902+00.00
ELEV. 559.50

PVT 903+00.00
ELEV. 556.94

-2.56%

-4.61% LT. DT. GR.

-6.14% RT. DT. GR.

-1.18% LT. DT. GR.

-1.30% RT. DT. GR.

ELEV. 551.83

+00.00 LT. 552.41
+00.00 RT. 549.53

+13.00 LT. 547.20
+13.00 RT. 542.60

+50.00 RT. 542.12

+75.00 LT. 547.93

FL. LT. = 547.20
FL. RT. = 542.60

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-25-2016

600 590 580 570 560 550 540 530 520 510

890+00 891+00 892+00 893+00 894+00 895+00 896+00 897+00 898+00 899+00 900+00 901+00 902+00 903+00 904+00 905+00

Leonard.Speed 9/23/2016 2:13:27 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	286	888

(2) PLAN & PROFILE - STA. 905+00 TO STA. 920+00

C.L. COUNTY ROAD 369
P.I. = 20+88.58
Δ = 58°22'49.9" RT.
D = 57°14'59.9"
T = 55.91'
L = 101.97'
P.C. = 20+32.67
P.T. = 21+34.65
NO SUPER

C.L. COUNTY ROAD 369
P.I. = 22+03.36
Δ = 43°35'11.2" LT.
D = 44°00'00.2"
T = 52.07'
L = 99.06'
P.C. = 21+51.29
P.T. = 22+50.35
NO SUPER

PT 22+50.35
PC 21+51.29
23+00
22+00
21+00
20+00
GATE
TIMBER CO METAL GATE22590
C.L. COUNTY ROAD 369
STA. 21+47.70
END COUNTY RD. 369
PT 22+03.36
PT 21+34.65
R =40'
R =40'
PC 20+32.67
905+00
LOGGING RD. 22500
LOGGING ROAD
LOGGING RD. 23621
N
EXIST. R/W
CONST. LIMITS
C.L. HWY.70
PAVED SHOULDER
910+00
915+00
920+00
N84°38'14"E
8'
29.5'
29.5'
8'
8'
29.5'
29.5'
8'
CONST. LIMITS

STA. 913+20.83 IN PLACE
42"X 88' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 17' LT. AND 37' RT.
31° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=99.7 CFS D.A.=21 ACRES
42" R.C. PIPE = 58 LIN. FT.
42" FES = 2 EA.

STA. 913+66.00 RT.
3.61 CU. YDS.
DUMPED RIPRAP

EXIST. R/W

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
911+50.00	913+25.00	LT. =	175 LIN. FT.	6'- 0"	116.67
912+50.00	913+50.00	RT. =	100 LIN. FT.	6'- 0"	66.67
919+50.00	920+50.00	LT. =	100 LIN. FT.	6'- 0"	66.67

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

ELEV. 551.83
-2.56%
PVC 906+00.00
ELEV.549.27
VC=200.00'
K=6667
e=-0.01'
PVI 907+00.00
ELEV.546.72
PVT 908+00.00
ELEV.544.12
PROFILE GRADE
EXISTING GROUND
-2.59%
PVC 911+00.00
ELEV.536.34
PVI 912+00.00
ELEV.533.75
VC=200.00'
K=1250
e=0.04'
PVT 913+00.00
ELEV.531.32
-2.43%
1.00% RT. DT. GR.
3.40% LT. DT. GR.
-0.80% DT. GR. LT.
1.06% LT. DT. GR.
-7.08% DT. GR. RT.
2.54% RT. DT. GR.
+70.00 RT. 526.92
+50.00 LT. 527.42
+50.00 RT. 525.12
+60.00 LT. 523.24
+81.00 LT. 523.07
+25.00 LT. 526.17
+50.00 RT. 518.03
FL. LT. = 523.07
FL. RT. = 518.44
PVC 914+00.00
ELEV.528.88
PVI 915+00.00
ELEV.526.45
-2.90%
VC=200.00'
K=426
e=-0.12'
+00.00 RT 521.80
PVI 917+00.00
ELEV.520.65
PVRC 916+00.00
ELEV.523.55
VC=200.00'
K=526
e=0.10'
PVT 918+00.00
ELEV.518.13
-2.52%
PVC 918+80.00
ELEV.516.12
VC=200.00'
K=167
e=0.30'
ELEV. 513.53
6.98% DT. GR. LT.
-5.08% DT. GR. RT.
PVI 919+80.00
ELEV. 513.60
+50.00 LT. 501.92
+79.47 LT. 500.42

560 550 540 530 520 510 500 490 480 470

905+00 906+00 907+00 908+00 909+00 910+00 911+00 912+00 913+00 914+00 915+00 916+00 917+00 918+00 919+00 920+00

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

Leonard.Speed 9/23/2016 2:13:38 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

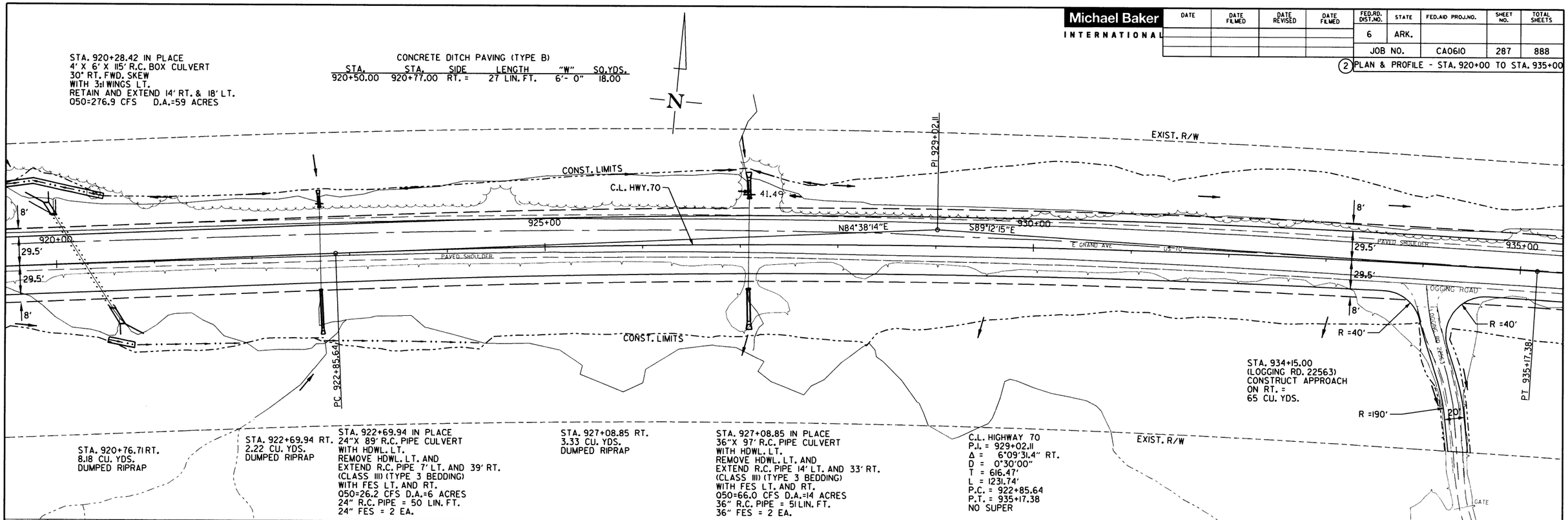
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	287	888

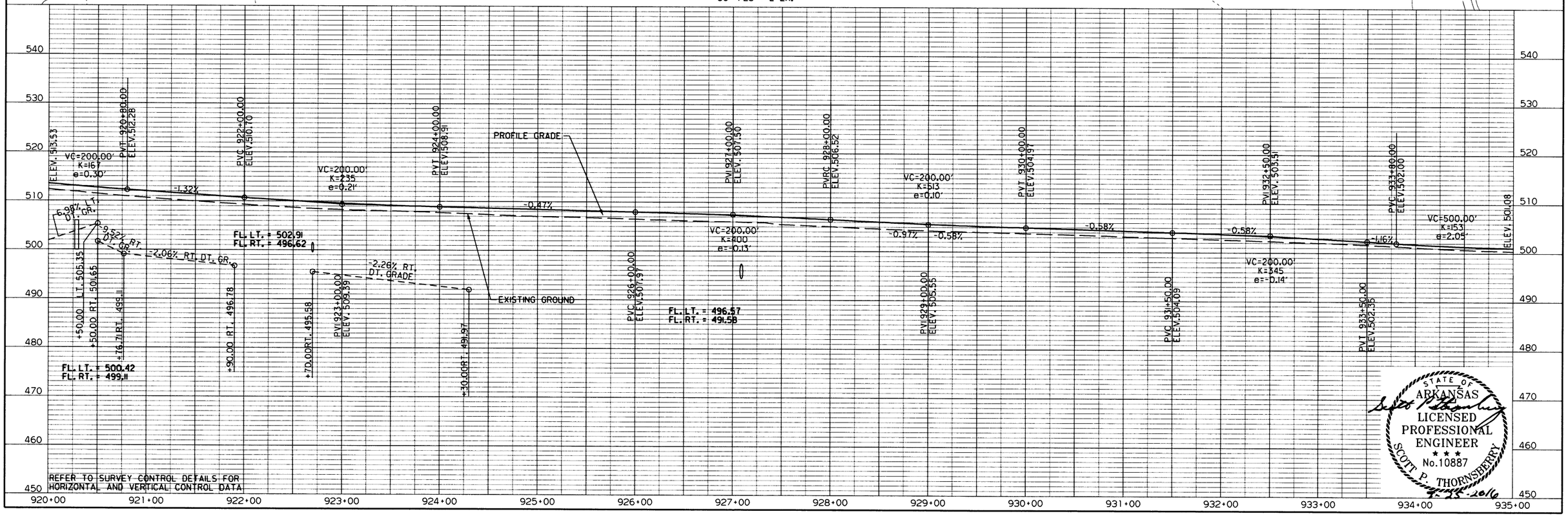
(2) PLAN & PROFILE - STA. 920+00 TO STA. 935+00

STA. 920+28.42 IN PLACE
4' X 6' X 115' R.C. BOX CULVERT
30° RT. FWD. SKEW
WITH 3:1 WINGS LT.
RETAIN AND EXTEND 14' RT. & 18' LT.
Q50=276.9 CFS D.A.=59 ACRES

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
920+50.00	920+77.00	RT. =	27 LIN. FT.	6'-0"	18.00





REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9/23/2016

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PROJECT NAME: Projects\leonard.speed\d0271744\vrCA0606_02_PP_Main_3L.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	288	888

(2) PLAN & PROFILE - STA. 935+00 TO STA. 950+00

C.L. HIGHWAY 70
P.I. = 929+02.11
Δ = 6°09'31.4" RT.
D = 0°30'00"
T = 616.47'
L = 1231.74'
P.C. = 922+85.64
P.T. = 935+17.38
NO SUPER

N

EXIST. R/W

C.L. HWY.70

CONST. LIMITS

8'
29.5'
29.5'
8'

935+00
940+00
945+00
950+00

S89°12'15"E

PAVED SHOULDER

PT 935+17.38

CONST. LIMITS

STA. 936+69.29 IN PLACE
42"X 113' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 20' LT. AND 11' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=139.4 CFS D.A.=29 ACRES
42" R.C. PIPE = 35 LIN. FT.
42" FES = 2 EA.

STA. 936+69.29 RT.
3.61 CU. YDS.
DUMPED RIPRAP

STA. 942+66.54 IN PLACE
42"X 132' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 25' LT. AND 16' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=71.9 CFS D.A.=15 ACRES
42" R.C. PIPE = 45 LIN. FT.
42" FES = 2 EA.

STA. 942+66.54 RT.
3.61 CU. YDS.
DUMPED RIPRAP

EXIST. R/W

GATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

ELEV. 501.08

PROFILE GRADE

VC=500.00'
K=153
e=2.05'

-1.16%

2.11%

PVT 936+30.00
ELEV. 499.10

FL. LT. = 490.67
FL. RT. = 485.11

PVT 938+80.00
ELEV. 504.89

EXISTING GROUND

2.11%

PVC 941+95.00
ELEV. 501.08

FL. LT. = 497.34
FL. RT. = 491.47

1.66% L.T. DT. CR.

+70.00 L.T. 497.54

+300.00 L.T. 498.54

PVT 946+70.00
ELEV. 504.10

2.11%

-3.51%

VC=950.00'
K=169
e=6.68'

ELEV. 508.89

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

540 530 520 510 500 490 480 470 460 450

935+00 936+00 937+00 938+00 939+00 940+00 941+00 942+00 943+00 944+00 945+00 946+00 947+00 948+00 949+00 950+00

Leonard.Speed 9/23/2016 2:14:00 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: ***REVDATE***

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	289	888

(2) PLAN & PROFILE - STA. 950+00 TO STA. 965+00

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
952+45.00	958+10.00	RT. =	565 LIN. FT.	9'- 0"	565.00
960+00.00	961+03.00	RT. =	103 LIN. FT.	6'- 0"	68.67
963+60.00	963+97.00	LT. =	37 LIN. FT.	6'- 0"	24.67

STA. 964+16.00
CONSTRUCT APPROACH
ON LT. =
200 CU. YDS.

STA. 958+40.00 IN PLACE
18"X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18"X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
50 CU. YDS.

C.L. HWY 70 STA. 958+40.00 =
C.L. COUNTY ROAD 1381 STA. 20+00.00

STA. 960+54.70 IN PLACE
48"X 134' R.C. PIPE CULVERT
RETAIN AND
EXTEND R.C. PIPE 25' LT. & 0' RT.
30° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=120.8 CFS D.A.=35 ACRES
48" R.C. PIPE = 25 LIN. FT.
48" FES = 2 EA.

STA. 963+97.00 IN PLACE
24"X 82' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 31' LT. AND 15' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=16.4 CFS D.A.=4 ACRES
24" R.C. PIPE = 54 LIN. FT.
24" FES = 2 EA.

STA. 963+97.00 RT.
2.22 CU. YDS.
DUMPED RIPRAP

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
7-15-2016

Leonard.Speed 9/23/2016 2:44:10 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	290	888

(2) PLAN & PROFILE - STA. 965+00 TO STA. 980+00

STA. 972+82.63 LT.
39.30 CU. YDS.
DUMPED RIPRAP

N

CONST. LIMITS

8'

965+00

970+00

975+00

980+00

29.5'

29.5'

8'

PAVED SHOULDER

C.L. HWY.70

S89°12'15"E

CONST. LIMITS

STA. 972+14.31 IN PLACE
10' X 10' X 128' R.C. BOX CULVERT
36° LT. FWD. SKEW
WITH 3:1 WINGS LT.
RETAIN AND EXTEND 47' LT. & 3' RT.
Q50=1703.2 CFS D.A.=614 ACRES

STA. 976+29.00 IN PLACE
48"X 127' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 31' LT. AND 16' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=71.9 CFS D.A.=15 ACRES
48" R.C. PIPE = 51 LIN. FT.
48" FES = 2 EA.

EXIST. R/W

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
966+25.00	968+14.00	LT. =	189 LIN. FT.	9'- 0"	189.00
966+25.00	968+14.00	RT. =	189 LIN. FT.	9'- 0"	189.00
971+50.00	972+00.00	LT. =	50 LIN. FT.	6'- 0"	33.33
975+25.00	976+75.00	RT. =	150 LIN. FT.	6'- 0"	100.00
975+90.00	978+00.00	LT. =	210 LIN. FT.	6'- 0"	140.00

CONCRETE DITCH PAVING (TYPE A)

STA.	STA.	SIDE	LENGTH	"B" VAR	"W" VAR.	SQ.YDS.
972+00.00	972+83.00	LT. =	83 LIN. FT.	0'-0" TO 15'-0"	6'-0" TO 21'-0"	124.50

REMOVAL & DISPOSAL OF GUARDRAIL
STA. 970+00 TO STA. 973+00 RT. OF HWY. 70 = 300 LIN. FT.
STA. 970+70 TO STA. 974+74 LT. OF HWY. 70 = 404 LIN. FT.

PROFILE GRADE

EXISTING GROUND

ELEV. 467.39
PVI 965+25.00
ELEV. 467.90
VC=400.00'
K=214
e=-0.93
+1.60%
-3.47%
PVC 967+50.00
ELEV. 460.10
-3.47%
PVT 967+25.00
ELEV. 460.97
VC=900.00'
K=136
e=7.42'
-3.47%
3.13%
PVI 972+00.00
ELEV. 444.50
-8.52% RT. DT. GR.
-8.52% LT. DT. GR.
LT. 439.56
+50.00
+82.63 LT. 428.76
-0.20% LT. DT. GR.
+90.00 LT. 428.04
FL. LT. = 428.26
FL. RT. = 433.00
+25.00 RT. 450.69
PVT 975+50.00
ELEV. 458.56
3.13%
-8.92% RT. DT. GR.
FL. LT. = 437.25
FL. RT. = 441.42
4.35% RT. DT. GR.
3.93% LT. DT. GR.
3.16% LT. DT. GR.
+90.00 LT. 436.02
+29.00 LT. 437.25
+29.00 RT. 441.42
+75.00 RT. 443.42
PVC 977+00.00
ELEV. 460.13
PVI 978+00.00
ELEV. 463.25
+00.00 LT. 454.23
VC=200.00'
K=2000
e=-0.02'
PVT 979+00.00
ELEV. 466.29
PVC 979+35.00
ELEV. 467.35
VC=180.00'
K=600
e=0.07'
3.03%

510 500 490 480 470 460 450 440 430 420

965+00 966+00 967+00 968+00 969+00 970+00 971+00 972+00 973+00 974+00 975+00 976+00 977+00 978+00 979+00 980+00

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-26-2016

Leonard.Speed 9/26/2016 8:42:45 AM
WORKSPACE: Leonard.Speed
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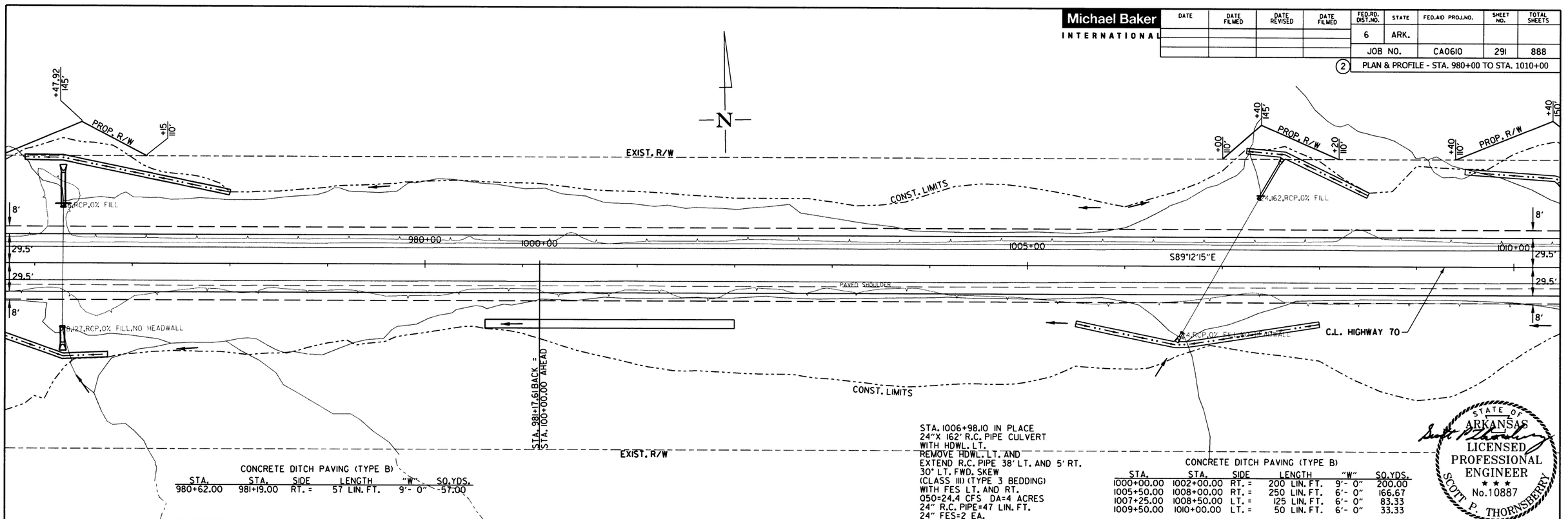
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	291	888

(2) PLAN & PROFILE - STA. 980+00 TO STA. 1010+00



CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
980+62.00	981+19.00	RT. =	57 LIN. FT.	9'- 0"	57.00

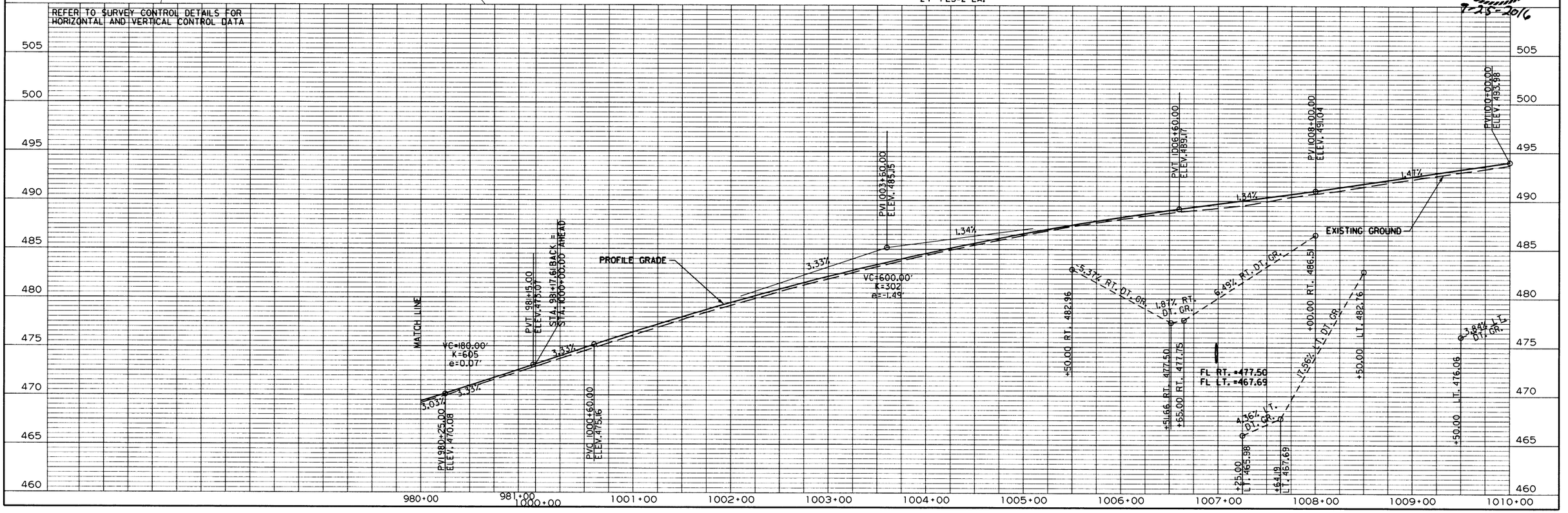
STA. 1006+98.10 IN PLACE
24"X 162' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 38' LT. AND 5' RT.
30° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=24.4 CFS DA=4 ACRES
24" R.C. PIPE=47 LIN. FT.
24" FES=2 EA.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1000+00.00	1002+00.00	RT. =	200 LIN. FT.	9'- 0"	200.00
1005+50.00	1008+00.00	RT. =	250 LIN. FT.	6'- 0"	166.67
1007+25.00	1008+50.00	LT. =	125 LIN. FT.	6'- 0"	83.33
1009+50.00	1010+00.00	LT. =	50 LIN. FT.	6'- 0"	33.33

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-25-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA



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WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

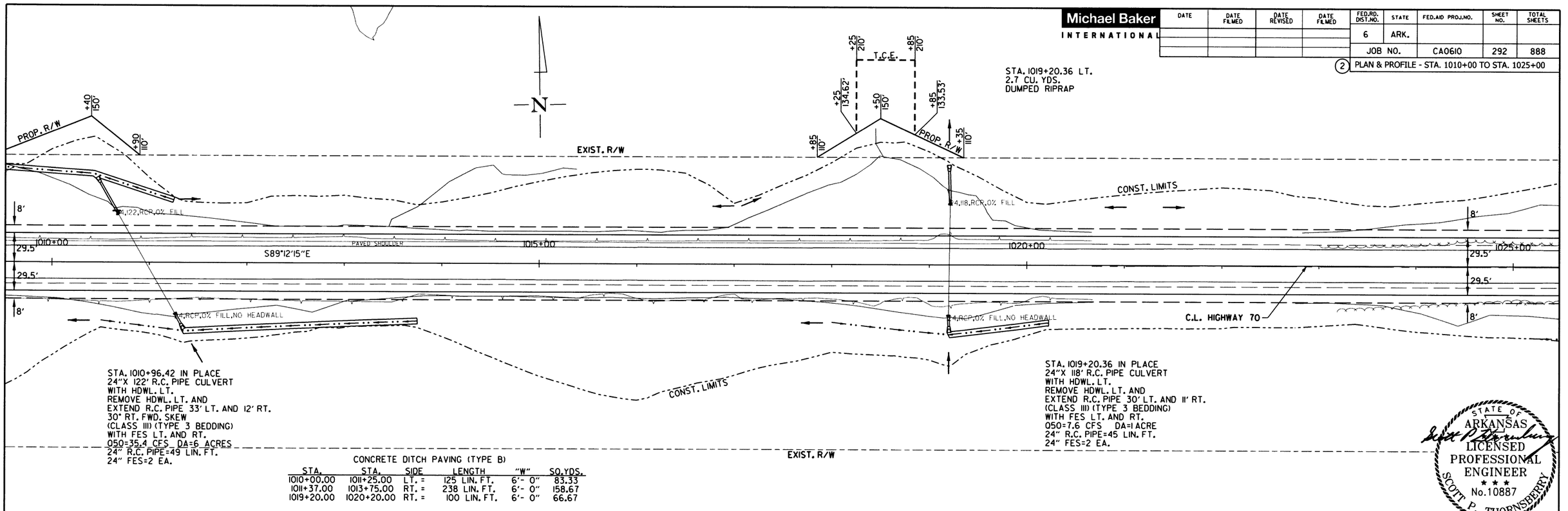
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	292	888

(2) PLAN & PROFILE - STA. 1010+00 TO STA. 1025+00

STA. 1019+20.36 LT.
2.7 CU. YDS.
DUMPED RIPRAP



STA. 1010+96.42 IN PLACE
24"X 122' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 33' LT. AND 12' RT.
30° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=35.4 CFS DA=6 ACRES
24" R.C. PIPE=49 LIN. FT.
24" FES=2 EA.

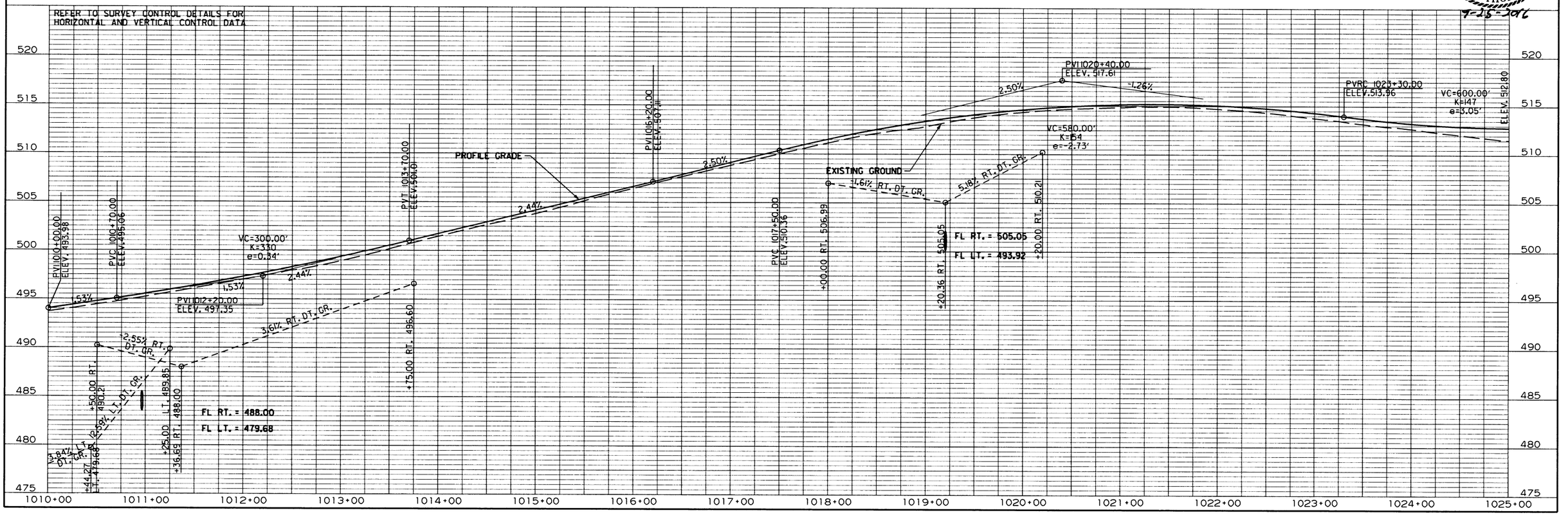
STA. 1019+20.36 IN PLACE
24"X 118' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 30' LT. AND 11' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=7.6 CFS DA=1 ACRE
24" R.C. PIPE=45 LIN. FT.
24" FES=2 EA.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1010+00.00	1011+25.00	LT. =	125 LIN. FT.	6'- 0"	83.33
1011+37.00	1013+75.00	RT. =	238 LIN. FT.	6'- 0"	158.67
1019+20.00	1020+20.00	RT. =	100 LIN. FT.	6'- 0"	66.67

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
7-15-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA



Leonard.Speed 9/23/2016 2:14:48 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	293	888

(2) PLAN & PROFILE - STA. 1025+00 TO STA. 1040+00

C.L. HWY. 70 STA. 1028+63.91=
C.L. LONSDALE CUTOFF STA. 10+00.00=
C.L. HWY. 128 STA. 10+00.00

C.L. HWY. 128

PROP. R/W

I.C.E.

N01°31'19"E

STA. 1027+43.83 LT.
2.7 CU. YDS.
DUMPED RIPRAP

STA. 1025+87.66

STA. 1027+31.92

144.26' TAPER

CONST. LIMITS

R =125'

90°16'26"

34.29'

EXIST. R/W

PROP. R/W

PT 9+80.55

S89°12'15"E

R =40'

STA. 1027+43.83 IN PLACE
24"X 109' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. &
EXTEND R.C. PIPE 42' LT. AND 21' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
050=8.9 CFS DA=9 ACRES
24' R.C. PIPE=67 LIN. FT.
24" FES=2 EA.

C.L. LONSDALE CUTOFF

PI 8+83.61

N63°26'09"W

EXIST. R/W

PROP R/W

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1027+44.00	1028+35.00	RT. =	91 LIN. FT.	6'- 0"	60.67
1028+99.00	1030+00.00	LT. =	101 LIN. FT.	9'- 0"	101.00

C.L. HIGHWAY 70

C.L. HWY. 70
P.I. 1045+30.10
Δ = 22°44'02.5" RT.
D = 1°45'00"
T = 658.20'
L = 1299.09'
P.C. = 1038+71.90
P.T. = 1051+70.98
e = 0.049 '/'
Ls = 540'

PC 1038+71.90

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STA. 1034+66.90 BEGIN SUPERELEVATION
STA. 1040+06.90 MAX. SUPERELEVATION (0.049 '/')
STA. 1050+35.98 MAX. SUPERELEVATION (0.049 '/')
STA. 1055+75.98 END SUPERELEVATION

PROFILE GRADE

EXISTING GROUND

ELEV. 512.80

VC=600.00'
K=147
e=3.05'

-1.26%

2.81%

PVI 1026+30.00
ELEV. 510.18

-0.68% RT. DT. CR.

5.30% RT. DT. CR.

9.89% RT. DT. CR.

+25.00 RT.
503.50

+43.83 RT.
502.00

FL RT. = 502.00
FL LT. = 496.35

+35.00 RT.
506.83

+00.00 RT.
513.26

PVT 1029+30.00
ELEV. 518.61

PVC 1029+90.00
ELEV. 520.29

VC=600.00'
K=173
e=-2.59'

PVI 1032+90.00
ELEV. 528.12

-0.65%

PVI 1037+00.00
ELEV. 526.06

PVT 1035+90.00
ELEV. 526.77

-0.99%

PVI 1039+00.00
ELEV. 524.07

-1.40%

ELEV. 522.97

540 535 530 525 520 515 510 505 500 495

1025+00 1026+00 1027+00 1028+00 1029+00 1030+00 1031+00 1032+00 1033+00 1034+00 1035+00 1036+00 1037+00 1038+00 1039+00 1040+00

Leonard.Speed 9/23/2016 2:15:00 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	294	888

(2) PLAN & PROFILE - STA. 1040+00 TO STA. 1055+00

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1046+75.00	1052+00.00	LT. =	525. LIN. FT.	6'- 0"	350.00
1050+25.00	1054+18.00	RT. =	393 LIN. FT.	6'- 0"	262.00

STA. 1044+39.00 IN PLACE
14"X 37' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE
CONST. APPROACH =
80 CU. YDS.

STA. 1054+18.00 CONSTRUCT
30"X 134' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=10.4 CFS DA=6 ACRES

STA. 1054+24.97 IN PLACE
30"X 78' R.C. PIPE CULVERT
WITH HDWL. LT.
RETAIN AND EXTEND 19' RT. IN STAGE 1
PLUG AND ABANDON AFTER STAGE 2
30" R.C. PIPE = 19 LIN. FT.

C.L. COUNTY ROAD 1379
PI 1045+30.10
GRAVEL TO HUNTING CLUB
4" PIPE GT
EXIST. R/W
R =50'
R =30'
20'
S66°28'13"E
CONST. LIMITS
1045+00
1050+00
S89°12'15"E
1040+00
29.5'
8'
C.L. HIGHWAY 70
S66°28'13"E
CONST. LIMITS
1055+00
R 20'
R =352'
PT 1051+70.98
EXIST. R/W
+30 180°
+70 180°
I.C.E.
+30 110°
+90 110°

C.L. HWY. 70
P.I. = 1045+30.10
Δ = 22°44'02.5" RT.
D = 1°45'00"
T = 658.20'
L = 1299.09'
P.C. = 1038+71.90
P.T. = 1051+70.98
e = 0.049 '/'
Ls = 540'

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STA. 1034+66.90 BEGIN SUPERELEVATION
STA. 1040+06.90 MAX. SUPERELEVATION (0.049 '/')
STA. 1050+35.98 MAX. SUPERELEVATION (0.049 '/')
STA. 1055+75.98 END SUPERELEVATION

PVI 1041+00.00
ELEV. 521.87
ELEV. 522.97
-1.0%
-0.80%
PVC 1042+45.00
ELEV. 520.71
PVI 1044+95.00
ELEV. 518.71
-0.80%
-2.69%
VC=500.00'
K=265
e=-1.18'
PROFILE GRADE
PVT 1047+45.00
ELEV. 514.69
6.32% LT. DT. GR.
+00.00 LT. 510.53
+40.00 LT. 508.00
3.74% LT. DT. GR.
+20.00 LT. 501.27
EXISTING GROUND
PVI 1050+00.00
ELEV. 505.13
2.69%
+25.00 RT. 489.84
+00.00 LT. 498.10
2.55%
PVI 1052+50.00
ELEV. 498.75
5.50% LT. DT. GR.
3.80% RT. DT. GR.
+18.00 RT. 484.90
FL RT. = 484.90
FL LT. = 484.19
0.83% LT. DT. GR.
1.86% RT. DT. GR.
+00.00 LT. 486.00
+34.20 LT. 484.05
-2.64%
PVI 1055+00.00
ELEV. 492.15

STATE OF ARKANSAS
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No.10887
SCOTT P. THORNSBERRY
9-23-2016

525 520 515 510 505 500 495 490 485 480

1040+00 1041+00 1042+00 1043+00 1044+00 1045+00 1046+00 1047+00 1048+00 1049+00 1050+00 1051+00 1052+00 1053+00 1054+00 1055+00

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WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	295	888

(2) PLAN & PROFILE - STA. 1055+00 TO STA. 1070+00

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1066+30.00	1067+00.00	LT. =	70 LIN. FT.	6'- 0"	46.67
1067+50.00	1070+00.00	RT. =	250 LIN. FT.	6'- 0"	166.67

EXIST. R/W

CONST. LIMITS

1055+00 1060+00 1065+00 1070+00

S66°28'13"E

70

8' R =20' R =20'

16'

STA. 1055+47.00 IN PLACE
14"X 38' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE
CONSTRUCT APPROACH =
290 CU. YDS.

C.L. HIGHWAY 70

EXIST. R/W

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-25-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

PVI 1055+00.00 ELEV. 492.15

PVI 1057+00.00 ELEV. 486.35

PVI 1059+00.00 ELEV. 481.03

PVI 1061+00.00 ELEV. 475.27

PVI 1063+50.00 ELEV. 468.30

PVI 1066+50.00 ELEV. 459.63

PVC 1068+86.00 ELEV. 453.45

VC=350.00'
K 148
e=1.04'

ELEV. 450.87

-1.86% RT. DT. GR.

-2.90%

-2.56%

-2.88%

-2.79%

-2.79%

-2.89%

-2.63%

-2.34% LT. DT. GR.

-3.49% RT. DT. GR.

-2.66% LT. DT. GR.

+25.00 RT. 486.89

30.00 LT. 455.67

+00.00 LT. 450.51

+50.00 RT. 451.50

PROFILE GRADE

PROFILE GRADE

EXISTING GROUND

EXISTING GROUND

ELEV. 472.48

ELEV. 472.48

495 490 485 480 475 470 465 460 455 450

480 475 470 465 460 455 450 445 440 435

1055+00 1056+00 1057+00 1058+00 1059+00 1060+00 1061+00 1062+00 1063+00 1064+00 1065+00 1066+00 1067+00 1068+00 1069+00 1070+00

Leonard.Speed 9/23/2016 2:15:22 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	296	888

(2) PLAN & PROFILE - STA. 1070+00 TO STA. 1085+00

STA. 1071+98.00 IN PLACE
5' X 4' X 97' R.C. BOX CULVERT
WITH 3:1 WINGS LT.
RETAIN IN STAGE 1
REMOVE HEADWALL AND WINGS LT.
AND HEADWALL RT.
PLUG AND ABANDON AFTER STAGE 2

STA. 1071+70.00 CONSTRUCT
5' X 4' X 138' R.C. BOX CULVERT
15° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q50=138.7 CFS D.A.=84 ACRES

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1070+00.00	1072+00.00	RT. =	200 LIN. FT.	6'- 0"	133.33
1079+60.00	1080+60.00	LT. =	100 LIN. FT.	6'- 0"	66.67

EXIST. R/W
CONST. LIMITS
8'
29.5'
8'
1070+00
1075+00
1080+00
1085+00
S66°28'13"E
C.L. HIGHWAY 70
CONST. LIMITS
EXIST. R/W
BOXWIRE
BOXWIRE
CN:0% FILL 4'X5' SINGLE BOX
CN:0% FILL 5'X4' LN:37 CN:0% FILL TY:R
CN:0% FILL 77 TY:RCP CN:0% FILL
CN:0% FILL NO HEADWALL

STA. 1080+72.99 IN PLACE
24"X 77' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 35' LT. AND 23' RT.
30° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=5.3 CFS D.A.=2 ACRES
24" R.C. PIPE=62 LIN. FT.
24" FES=2 EA.

STA. 1081+20.40 RT.
2.5 CU. YDS.
DUMPED RIPRAP

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

ELEV. 450.87
VC=350.00'
K=148
e=1.04'
-2.63%
-0.26%
PVI 1070+60.00
ELEV. 448.85
PVT 1072+35.00
ELEV. 448.39
PROFILE GRADE
EXISTING GROUND
+0.26%
PVC 1076+40.00
ELEV. 447.34
PVI 1078+40.00
ELEV. 446.82
-0.26%
-2.34%
VC=400.00'
K=192
e=-1.04'
PVT 1080+40.00
ELEV. 442.14
-2.66% LT. DT. GR.
-3.49% RT. DT. GR.
+49.00 LT. 438.55
FL RT.=436.05
FL LT.=438.51
+00.00 RT. 435.79
+00.00 RT. 443.6
-1.58% RT. DT. GR.
-5.46% LT. DT. GR.
+60.00 LT. 438.82
+33.53 LT. 434.79
0.45% LT. DT. GR.
+60.00 LT. 437.03
+12.00 RT. 433.50
FL LT.=434.79
FL RT.=433.50
2.34%
ELEV. 431.37

465 460 455 450 445 440 435 430 425 420

1070+00 1071+00 1072+00 1073+00 1074+00 1075+00 1076+00 1077+00 1078+00 1079+00 1080+00 1081+00 1082+00 1083+00 1084+00 1085+00

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WORKSPACE: Leonard Speed
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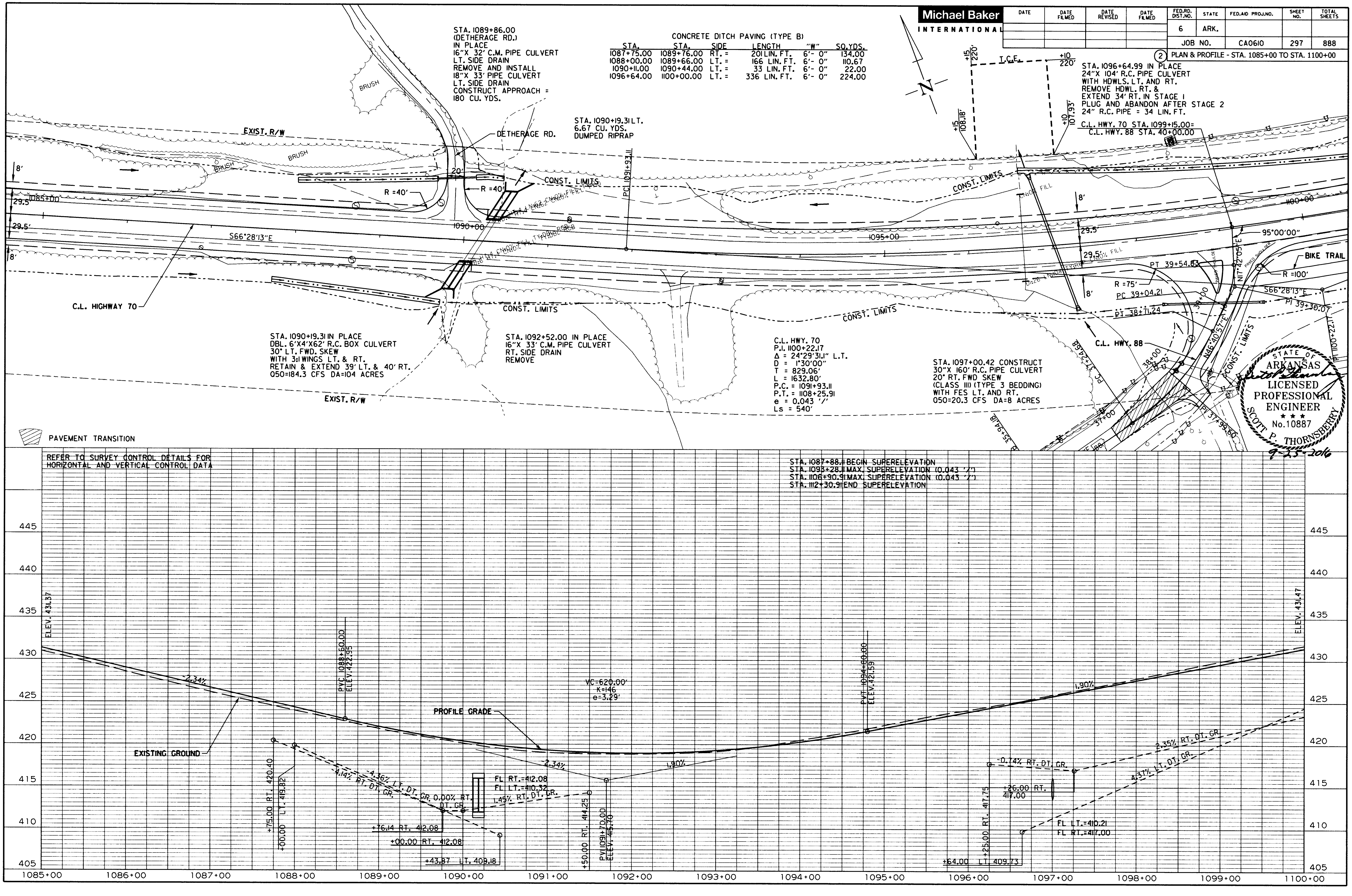
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	297	888

(2) PLAN & PROFILE - STA. 1085+00 TO STA. 1100+00

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1087+75.00	1089+76.00	RT. =	201 LIN. FT.	6'- 0"	134.00
1088+00.00	1089+66.00	LT. =	166 LIN. FT.	6'- 0"	110.67
1090+11.00	1090+44.00	LT. =	33 LIN. FT.	6'- 0"	22.00
1096+64.00	1100+00.00	LT. =	336 LIN. FT.	6'- 0"	224.00



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WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	298	888

(2) PLAN & PROFILE - STA. 1100+00 TO STA. 1115+00

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1100+00.00	1101+00.00	LT. =	100 LIN. FT.	6'- 0"	66.67
1108+60.00	1109+00.00	LT. =	40 LIN. FT.	6'- 0"	26.67
1114+02.00	1114+26.00	LT. =	24 LIN. FT.	6'- 0"	16.00

C.L. HWY. 70
P.I. 1100+22.17
Δ = 24°29'31.1" LT.
D = 1°30'00"
T = 829.06'
L = 1632.80'
P.C. = 1091+93.11
P.T. = 1108+25.91
e = 0.043 '/'
Ls = 540'

STA. 1108+46.00 CONSTRUCT APPROACH ON LT. = 55 CU. YDS.

STA. 1112+31.00 INSTALL 18"X 44' PIPE CULVERT LT. SIDE DRAIN CONSTRUCT APPROACH = 60 CU. YDS.

STA. 1106+13.00 INSTALL 18"X 58' PIPE CULVERT RT. SIDE DRAIN CONSTRUCT APPROACH = 290 CU. YDS

STA. 1108+70.00 CONSTRUCT 24"X 162' R.C. PIPE CULVERT 24° LT. FWD SKEW (CLASS III) (TYPE 3 BEDDING) WITH FES LT. AND RT. Q50=4.2 CFS DA=1 ACRE

STA. 1108+41.40 IN PLACE 22"X 56' R.C. PIPE CULVERT WITH HDWLS. LT. AND RT. REMOVE HDWL. LT. & RT. AND EXTEND 40' RT. AND 12' LT. IN STAGE 1 PLUG AND ABANDON AFTER STAGE 2 24" R.C. PIPE = 52 LIN. FT.

STA. 1109+55.00 CONSTRUCT APPROACH ON RT. = 365 CY. YDS.

STA. 1112+69.00 (STICLEY LN.) INSTALL 18"X 46' PIPE CULVERT RT. SIDE DRAIN CONSTRUCT APPROACH = 205 CU. YDS.

STA. 1114+47.42 CONSTRUCT 24"X 179' R.C. PIPE CULVERT 34° RT. FWD. SKEW (CLASS III) (TYPE 3 BEDDING) WITH FES LT. AND RT. Q50=5.6 CFS DA=1 ACRE

STA. 1115+11.95 RT. 2.5 CU. YDS. DUMPED RIPRAP

STA. 1114+66.84 IN PLACE 22"X 83' R.C. PIPE CULVERT 30° RT. FWD. SKEW WITH HDWLS. LT. & RT. REMOVE HDWL. RT. & EXTEND 37' RT. IN STAGE 1 PLUG AND ABANDON AFTER STAGE 2 24" R.C. PIPE = 37 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-25-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STA. 1087+88.1 BEGIN SUPERELEVATION
STA. 1093+28.1 MAX. SUPERELEVATION (0.043 '/')
STA. 1106+90.9 MAX. SUPERELEVATION (0.043 '/')
STA. 1112+30.9 END SUPERELEVATION

PROFILE GRADE
EXISTING GROUND
PVI 1103+40.00 ELEV. 437.93
PVI 1107+90.00 ELEV. 446.48
PVI 1112+40.00 ELEV. 444.59
VC=900.00'
K=388
e=-2.61'
FL LT. =437.40
FL RT. =432.99
FL LT. =436.84
FL RT. =430.75
ELEV. 431.47
ELEV. 445.49
1.90%
2.35% RT. DT. GR.
-0.42%
-2.94% LT. DT. GR.
-2.41% LT. DT. GR.

Leonard.Speed 9/23/2016 2:15:55 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	299	888

(2) PLAN & PROFILE - STA. 1115+00 TO STA. 1130+00

STA. 1115+40.00
(MONTAQUE LN.)
INSTALL
18"X 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
75 CU. YDS.

STA. 1115+42.00
CONSTRUCT APPROACH ON LT. =
60 CU. YDS.

STA. 1117+60.00 IN PLACE
12"X 30' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
65 CU. YDS.

STA. 1119+67.00 IN PLACE
12"X 48' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 50' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
110 CU. YDS.

STA. 1120+37.00 INSTALL
18"X 42' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
65 CU. YDS.

STA. 1121+02.92 IN PLACE
24"X 107' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT.
EXTEND R.C. PIPE 21' LT. AND 46' RT.
30° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
Q50=141.7 CFS DA=3 ACRES
24" R.C. PIPE=75 LIN. FT.
24" FES=2 EA.

STA. 1125+24.80 IN PLACE
24"X 81' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. &
EXTEND 30' LT. AND 41' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=7.6 CFS DA=2 ACRES
24" R.C. PIPE=79 LIN. FT.
24" FES=2 EA.

STA. 1125+68.00
CONSTRUCT APPROACH ON RT. =
100 CU. YDS.

STA. 1126+30.00 INSTALL
18"X 64' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
285 CU. YDS.

STA. 1127+70.00 INSTALL
18"X 42' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
100 CU. YDS.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1120+55.00	1121+83.00	RT. =	128 LIN. FT.	6'- 0"	85.33
1124+98.00	1125+52.00	RT. =	54 LIN. FT.	6'- 0"	36.00
1124+00.00	1125+88.00	LT. =	188 LIN. FT.	6'- 0"	125.33
1126+50.00	1127+00.00	LT. =	50 LIN. FT.	6'- 0"	33.33

REMOVAL & DISPOSAL OF GUARDRAIL
STA. 1124+00 TO STA. 1126+00 ON LT. = 200 LIN. FT.

STA. 1120+83.10 BEGIN SUPERELEVATION
STA. 1126+23.10 MAX. SUPERELEVATION (0.072 '/')
STA. 1130+93.10 MAX. SUPERELEVATION (0.072 '/')
STA. 1136+33.10 END SUPERELEVATION

C.L. HWY. 70
P.I. 1128+62.04
Δ = 20°20'59.2" RT.
D = 2°45'00"
T = 873.84'
L = 739.99'
P.C. = 1124+88.10
P.T. = 1132+28.10
e = 0.072 '/'
Ls = 540'

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

PROFILE GRADE
EXISTING GROUND

ELEV. 443.49 -0.42% PVC 1116+10.00 ELEV.443.03
PVI 1117+00.00 ELEV. 442.65
VC=180.00' K=514 e=-0.08' PVT 1117+90.00 ELEV.441.96
-0.77%
PVI 1119+00.00 ELEV. 441.11
-2.27% LT. DT. GR.
-1.69% RT. DT. GR.
+00.00 LT. 437.35
+50.00 RT. 435.16
+37.00 RT. 432.00
+61.32 LT. 439.42
FL LT. = 431.42
FL RT. = 426.83
4.28% RT. DT. GR.
+83.00 RT. 425.79
PVC 1122+20.00 ELEV.439.16
0.61%
PVI 1123+20.00 ELEV. 438.55
PVT 1124+20.00 ELEV.437.61
-0.94%
PVI 1125+40.00 ELEV. 436.18
1.30% LT. DT. GR.
4.95% LT. DT. GR.
VC=200.00' K=606 e=-0.08'
+00.00 LT. 435.82
+24.80 LT. 429.64
FL LT. = 429.64
FL RT. = 425.31
3.58% LT. DT. GR.
10.27% RT. DT. GR.
+68.00 RT. 429.41
+98.00 RT. 422.56
+00.00 LT. 435.91
-0.71%
PVI 1128+80.00 ELEV. 434.07
-0.82%
PVC 1129+50.00 ELEV.433.50
VC=300.00' K=239 e=0.47'
ELEV. 433.14

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WORKSPACE: Leonard.Speed
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REVISED DATE: ***REVDATE***

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	300	888

(2) PLAN & PROFILE - STA. 1130+00 TO STA. 1145+00

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1132+00.00	1135+00.00	LT. =	300 LIN. FT.	6'-0"	200.00

STA. 1131+27.00 IN PLACE
24"X 25' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
80 CU. YDS.

STA. 1138+76.00 INSTALL
18"X 62' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
70 CU. YDS.

PAVED PARKING
EXIST. R/W
CONST. LIMITS
PROP. R/W
CHURCH RD.
BRUSH
20'
30'
8'
29.5'
R =40'
R =20'
R =300'
R =5'
R =75'
1130+00
1135+00
1140+00
1145+00
S70°36'44"E
N19°23'16"E
90°00'00"
C.L. HIGHWAY 70
C.L. NANCE RD.
BIKE TRAIL
CONST. LIMITS
+30 LN.@4% TYP. @ 0% FILL
+40 LN.@4% TYP. @ 0% FILL

C.L. HWY. 70
P.I. 1128+62.04
Δ = 20°20'59.2" RT.
D = 2°45'00"
T = 373.94'
L = 739.99'
P.C. = 1124+88.10
P.T. = 1132+28.10
e = 0.072 '/'
Ls = 540'

PT 1132+28.10

STA. 1132+45.00 IN PLACE
24"X 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24"X 51' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
90 CU. YDS.

STA. 1134+22.00 RT.
3.1 CU. YDS.
DUMPED RIPRAP

STA. 1134+21.51 IN PLACE
30"X 95' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT.
EXTEND R.C. PIPE 26' LT. AND 48' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=27.0 CFS DA=6 ACRES
30" R.C. PIPE=82 LIN. FT.
30" FES=2 EA.

C.L. HWY. 70 STA. 1139+48.00=
NANCE RD. STA. 110+00.00

PI 109+30.51
PT 107+58.83
PC 107+23.89
PC 106+89.28
PT 106+54.34
PI 108+50.36

T.C.E.
+80 190'
+80 210'
+70 210'
+70 190'

EXIST. R/W

PAVEMENT TRANSITION
PAVEMENT OBLITERATION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
7-25-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STA. 1120+83.10 BEGIN SUPERELEVATION
STA. 1126+23.10 MAX. SUPERELEVATION (0.072 '/')
STA. 1130+93.10 MAX. SUPERELEVATION (0.072 '/')
STA. 1136+33.10 END SUPERELEVATION

PROFILE GRADE
EXISTING GROUND

ELEV. 433.14
PVI 1131+00.00
ELEV. 432.27
VC=300.00'
K=239
e=0.47'
0.82%
0.44%
-2.30% RT. DT. GR.
PVT 1132+50.00
ELEV. 432.92
+00.00 RT. 426.53
+00.00 LT. 432.37
+25.00 RT. 421.35
-3.80% LT. DT. GR.
FL LT. = 423.96
FL RT. = 417.04
+21.51 LT. 423.95
PVI 1135+00.00
ELEV. 434.01
0.44%
+00.00 LT. 428.00
-1.38% LT. DT. GR.
-3.45% LT. DT. GR.
+40.00 LT. 429.93
PVC 1139+75.00
ELEV. 435.56
0.33%
PVI 1143+75.00
ELEV. 436.87
VC=800.00'
K=730
e=-1.10'
-0.77%
-0.97% RT. DT. GR.
+75.00 RT. 429.46
ELEV. 435.39

410 415 420 425 430 435 440 445 450

1130+00 1131+00 1132+00 1133+00 1134+00 1135+00 1136+00 1137+00 1138+00 1139+00 1140+00 1141+00 1142+00 1143+00 1144+00 1145+00

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WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	301	888

(2) PLAN & PROFILE - STA. 1145+00 TO STA. 1160+00

STA. 1145+28.00
(IRA WILLIAMS RD.)
INSTALL
18"X 48' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
45 CU. YDS.

STA. 1148+75.00 IN PLACE
24"X 44' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 56' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
90 CU. YDS.

C.L. HWY. 70
P.I. 1155+31.22
Δ = 34°23'18.8" LT.
D = 2°30'00"
T = 709.19'
L = 1375.54'
P.C. = 1148+22.03
P.T. = 1161+97.58
e = 0.067 '/'
Ls = 540'

STA. 1151+56.00 IN PLACE
24"X 40' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 55' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
80 CU. YDS.

STA. 1154+75.00 IN PLACE
24"X 45' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 55' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
80 CU. YDS.

STA. 1157+80.00 IN PLACE
24"X 35' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 1152+15.41 IN PLACE
24"X 140' R.C. PIPE CULVERT
WITH HDWL. RT. AND D.I. LT.
REMOVE HDWL. RT. AND D.I. LT.
EXTEND R.C. PIPE 4' LT. AND 64' RT.
AND CONSTRUCT 3'X4'X H=8'-7⅜"
TYPE RM D.I. LT. WITH SIDE OPENINGS
TO THE EAST AND WEST
(CLASS III) (TYPE 3 BEDDING)
WITH FES RT.
Q50=15.9 CFS DA=3 ACRES
24" R.C. PIPE=72 LIN. FT.
24" FES=1 EA.
SEE SPECIAL DETAILS

STA. 1149+15.00
CONSTRUCT APPROACH =
210 CU. YDS.

STA. 1152+19.41 RT.
2.5 CU. YDS.
DUMPED RIPRAP

C.L. HWY. 70 STA. 1154+75.00=
C.L. 10 MILE RD. STA. 130+00.00

C.L. HIGHWAY 70

C.L. TEN MILE ROAD

PC 128+27.87

PT 129+27.87

PI 128+78.15

PI 1155+31.22

BIKE TRAIL

CONST. LIMITS

EXIST. R/W

PAVED PARKING

PAVED DRIVE

CONCRETE

BRUSH

K CITGO

B VACANT

F

T.C.E.

+65 240' 190.66'

+40 240' 190.75'

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STA. 1144+17.03 BEGIN SUPERELEVATION
STA. 1149+57.03 MAX. SUPERELEVATION (0.067 '/')
STA. 1158+30.29 MAX. SUPERELEVATION (0.067 '/')
STA. 1163+70.29 END SUPERELEVATION

ELEV. 435.39

PVI 1149+00.00
ELEV. 432.83

PVC 1151+00.00
ELEV. 431.43

PVI 1153+50.00
ELEV. 431.51

PVI 1156+00.00
ELEV. 433.44

ELEV. 436.15

EXISTING GROUND

PROFILE GRADE

VC=800.00'
K=730
e=1.10'

VC=250.00'
K=170
e=0.46'

-0.97% RT. DIT. GR.

-0.70%

0.77%

0.68%

-0.50% RT. DT. GR.

+25.00 RT. 428.00

PVT 1147+75.00
ELEV. 433.79

+00.00 RT. 430.77

+75.00 RT. 430.39

PVI 1152+25.00
ELEV. 430.55

TOP = 427.39
FL LT. = 418.77
FL RT. = 402.00

445 440 435 430 425 420 415 410 405 400

1145+00 1146+00 1147+00 1148+00 1149+00 1150+00 1151+00 1152+00 1153+00 1154+00 1155+00 1156+00 1157+00 1158+00 1159+00 1160+00

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

Leonard.Speed 9/23/2016 2:16:28 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	302	888

(2) PLAN & PROFILE - STA. 1160+00 TO STA. 1175+00

C.L. HWY. 70
P.I. 1155+31.22
Δ = 34°23'18.8" LT.
D = 2°30'00"
T = 709.19'
L = 1375.54'
P.C. = 1148+22.03
P.T. = 1161+97.58
e = 0.067 '/'
Ls = 540'

FENCE (TYPE A)
STA. 1164+49 TO STA. 1165+20 LT. OF CL. = 74 LIN. FT.

REMOVAL AND DISPOSAL OF FENCE
STA. 1164+49 TO STA. 1165+20 LT. OF CL. = 74 LIN. FT.

STA. 1161+35.00 INSTALL
18"X 38' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
50 CU. YDS.

STA. 1168+30.00
CONSTRUCT APPROACH ON LT. =
130 CU. YDS.

C.L. HWY. 70
P.I. 1172+47.74
Δ = 30°56'19.8" RT.
D = 2°15'00"
T = 704.74'
L = 1375.06'
P.C. = 1165+43.00
P.T. = 1179+18.06
e = 0.061'/'
Ls = 540'

STA. 1172+65.00 INSTALL
18"X 54' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
130 CU. YDS.

STA. 1161+07.00 INSTALL
18"X 44' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
105 CU. YDS.

STA. 1170+40.00 IN PLACE
18"X 21' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18"X 66' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
285 CU. YDS.

C.L. HWY. 70 STA. 1166+03.89=
C.L. NARROWS RD. STA. 140+00.00

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1170+75.00	1172+00.00	RT. =	125 LIN. FT.	6'- 0"	83.33

PAVEMENT OBLITERATION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STA. 1144+17.03 BEGIN SUPERELEVATION
STA. 1149+57.03 MAX. SUPERELEVATION (0.067 '/')
STA. 1158+30.29 MAX. SUPERELEVATION (0.067 '/')
STA. 1163+70.29 END SUPERELEVATION

STA. 1163+70.29 BEGIN SUPERELEVATION
STA. 1169+10.29 MAX. SUPERELEVATION (0.061'/')
STA. 1177+83.06 MAX. SUPERELEVATION (0.061'/')
STA. 1183+23.06 END SUPERELEVATION

ELEV. 436.15
PVC 1160+90.00
ELEV. 436.76
0.68%
+00.00 RT. 433.04
-1.81% RT. DT. GR.
PVI 1162+50.00
ELEV. 437.85
VC=320.00'
K=275
e=-0.47'
PROFILE GRADE
PVRC 1164+10.00
ELEV. 437.07
-0.49%
+00.00 RT. 424.00
PVI 1167+50.00
ELEV. 435.42
VC=680.00'
K=344
e=1.68'
1.49%
EXISTING GROUND
PVT 1170+90.00
ELEV. 440.49
PVC 1171+30.00
ELEV. 441.08
VC=940.00'
K=171
e=-6.45'
ELEV. 442.60
1.57% RT. DT. GR.
+00.00 RT. 435.46
.33% RT. DT. GR.
+00.00 RT. 420.00
+75.00 RT. 421.00

455 450 445 440 435 430 425 420 415

1160+00 1161+00 1162+00 1163+00 1164+00 1165+00 1166+00 1167+00 1168+00 1169+00 1170+00 1171+00 1172+00 1173+00 1174+00 1175+00

Leonard.Speed 9/23/2016 2:16:39 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	303	888

(2) PLAN & PROFILE - STA. 1175+00 TO STA. 1190+00

STA. 1175+56.00 IN PLACE
12"X 28' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 57' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH (A&B) =
45 CU. YDS.

C.L. HWY. 70
P.I. 1172+47.74
Δ = 30°56'19.8" RT.
D = 2°15'00"
T = 704.74'
L = 1375.06'
P.C. STA. 1165+43.00
P.T. STA. 1179+18.06
e = 0.061'/'
Ls = 540'

STA. 1181+04.37
(BECK LN.)
IN PLACE
24"X 40' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 52' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH
= 90 CU. YD

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1179+25.00	1180+78.00	LT. =	153 LIN. FT.	9'- 0"	153.00
1182+00.00	1182+80.00	LT. =	80 LIN. FT.	6'- 0"	53.33
1182+80.00	1186+00.00	LT. =	320 LIN. FT.	9'- 0"	320.00
1186+00.00	1187+60.00	LT. =	160 LIN. FT.	6'- 0"	106.67
1188+00.00	1188+50.00	LT. =	50 LIN. FT.	9'- 0"	50.00

STA. 1188+19.00
(SMART RD.)
IN PLACE
18"X 25' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 45' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
75 CU. YDS.

STA. 1189+30.00 INSTALL
18"X 51' PIPE CULVERT
L.T. SIDE DRAIN
CONSTRUCT APPROACH =
70 CU. YDS.

STA. 1179+00.00
CONSTRUCT APPROACH ON LT. =
75 CU. YDS.

C.L. HWY. 70 STA. 1186+14.74 =
C.L. ROCKY LOOP STA. 160+00.00

BECK LANE
SMART RD.
EXIST. R/W
CONST. LIMITS
PAVED DRIVE
BRUSH
POND
GARAGE
C.L. HIGHWAY 70
BIKE TRAIL
PT 1179+18.06
PC 158+34.04
PT 159+63.22
PI 159+09.42
S74°03'43"E
N89°51'11"E
N15°56'11"E
90°00'00"
R =90'
R =65'
R =40'
R =30'
R =20'
R =15'
R =58'
1180+00
1185+00
1190+00
158+00

MAIN LANES (ROCKY LOOP)
STA. 1186+14.74 INSTALL
18"X 62' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
115 CU. YDS.

STA. 158+25.00
BEGIN ROCKY LOOP

C.L. ROCKY LOOP
P.I. 159+09.42
Δ = 74°00'54.5" LT.
D = 57°17'45"
T = 75.38'
L = 129.18'
P.C. = 158+34.04
P.T. = 159+63.22
NO SUPER

ROCKY LOOP
STA. 159+10.00
CONSTRUCT APPROACH ON RT. =
30 CU. YDS.

STA. 1187+60.29 IN PLACE
24"X 82' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT.
EXTEND R.C. PIPE 22' LT. AND 40' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
~~050=8.8 CFS~~ DA=1 ACRE
24" R.C. PIPE=70 LIN. FT.
24" FES=2 EA.

PAVEMENT TRANSITION

STA. 1179+00.00 IN PLACE
12"X 24' C.M. PIPE CULVERT
~~RT. SIDE DRAIN~~
REMOVE AND INSTALL
18"X 41' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
295 CU. YDS.

STA. 1182+20.37 IN PLACE
24"X 113' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT.
EXTEND R.C. PIPE 22' LT. AND 43' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
~~050=18.1 CFS~~ DA=4 ACRES
24" R.C. PIPE=73 LIN. FT.
24" FES=2 EA.

FENCE (TYPE A)
STA. 1177+03 TO STA. 1177+97 LT. OF CL. = 106 LIN. FT.

REMOVAL AND DISPOSAL OF FENCE
STA. 1177+03 TO STA. 1177+97 LT. OF CL. = 106 LIN. FT.

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STA. 1163+70.29 BEGIN SUPERELEVATION
STA. 1169+10.29 MAX. SUPERELEVATION (0.061'/')
STA. 1177+83.06 MAX. SUPERELEVATION (0.061'/')
STA. 1183+23.06 END SUPERELEVATION

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1180+00.00	1182+36.00	RT. =	236 LIN.FT.	6'- 0"	157.33
1184+00.00	1185+75.00	RT. =	175 LIN.FT.	6'- 0"	116.67
1186+37.00	1187+75.00	RT. =	138 LIN.FT.	6'- 0"	92.00

STA. 1189+66.00 INSTALL
18"X 36' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
70 CU. YDS.

ELEV. 442.60
PVI 1176+00.00
ELEV. 448.09
1.49%
-4.00%
VC=940.00'
K=171
e=-6.45'
PROFILE GRADE
EXISTING GROUND
PVT 1180+70.00
ELEV. 429.29
-9.46% RT. DT. GR.
+00.00 RT. 425.61
ELEV. 424.09
FL LT. = 411.45
FL RT. = 405.43
+00.00 LT. 413.55
-8.82% LT. DT. GR.
+80.00 LT. 446.7
-9.46% RT. DT. GR.
+00.00
+36.00 RT. 404.00
+20.37 LT. 411.45
ELEV. 424.09
PROFILE GRADE
-4.00%
-10.29% LT. DT. GR.
+00.00 RT. 409.00
PVC 1185+55.00
ELEV. 409.89
VC=200.00'
K=150
e=0.33'
EXISTING GROUND
-5.09% RT. DT. GR.
-4.42% LT. DT. GR.
PVI 1186+55.00
ELEV. 405.89
PVT 1187+55.00
ELEV. 403.22
-4.00%
-2.67%
+00.00 LT. 403.62
+75.00 RT. 389.92
+60.29 LT. 396.54
FL LT. = 396.54
FL RT. = 390.67
ELEV. 396.67

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-15-2016

Leonard.Speed 9/23/2016 2:16:51 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	304	888

(2) PLAN & PROFILE - STA. 1190+00 TO STA. 1205+00

STA. 1194+38.71 INSTALL 18"X 48' PIPE CULVERT LT. SIDE DRAIN CONSTRUCT APPROACH = 230 CU. YDS.

STA. 1197+05.00 IN PLACE 12"X 43' C.M. PIPE CULVERT LT. SIDE DRAIN REMOVE AND INSTALL 18"X 56' PIPE CULVERT LT. SIDE DRAIN CONSTRUCT APPROACH = 170 CU. YDS.

STA. 1198+92 IN PLACE 12"X 18' C.M. PIPE CULVERT LT. SIDE DRAIN REMOVE AND INSTALL 18"X 34' PIPE CULVERT LT. SIDE DRAIN CONSTRUCT APPROACH = 155 CU. YDS.

STA. 1202+80.00 CONSTRUCT APPROACH ON LT. = 110 CU. YDS.

STA. 1193+23.00 CONSTRUCT APPROACH ON RT. = 115 CU. YDS.

STA. 1192+43.00 CONSTRUCT APPROACH ON RT. = 55 CU. YDS.

STA. 1195+07.86 CONSTRUCT 24"X 140' R.C. PIPE CULVERT 21° RT. FWD. SKEW (CLASS III) (TYPE 3 BEDDING) WITH FES LT. AND RT. Q50=13.1 CFS DA=2 ACRES

STA. 1195+31.24 IN PLACE 24"X 57' R.C. PIPE CULVERT WITH HDWLS. LT. AND RT. REMOVE HDWL. LT. & RT. AND EXTEND 14' LT. AND 34' RT. IN STAGE I PLUG AND ABANDON AFTER STAGE 2 24" R.C. PIPE = 48 LIN. FT.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1194+00.00	1194+14.00	LT. =	14 LIN. FT.	6'- 0"	9.33
1194+62.00	1194+85.00	LT. =	23 LIN. FT.	6'- 0"	15.33
1194+85.00	1196+65.00	LT. =	180 LIN. FT.	9'- 0"	180.00
1197+20.00	1197+81.00	LT. =	61 LIN. FT.	9'- 0"	61.00
1195+16.00	1197+25.00	RT. =	209 LIN. FT.	6'- 0"	139.33

C.L. HWY. 70
P.I. 1209+90.54
Δ = 62°42'59.2" RT.
D = 2°15'00"
T = 1551.83'
L = 2787.40'
P.C. = 1194+38.71
P.T. = 1222+26.10
e = 0.061'/'
Ls = 540'

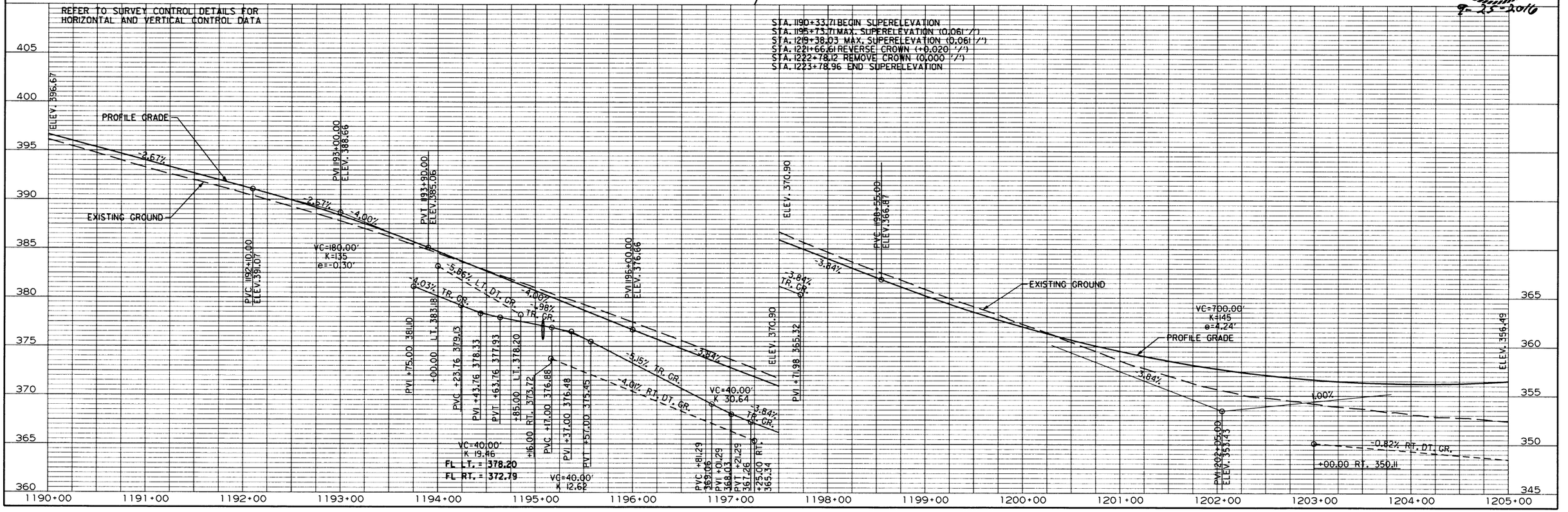
FENCE (TYPE A)
STA. 1198+85 TO STA. 1199+19 LT. OF L.M.L = 75 LIN. FT.
STA. 1202+97 TO STA. 1203+20 LT. OF CL. = 12 LIN. FT.

REMOVE AND DISPOSE OF FENCE
STA. 1198+85 TO STA. 1199+19 LT. OF L.M.L = 75 LIN. FT.
STA. 1202+97 TO STA. 1203+20 LT. OF CL. = 12 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STA. 1190+33.71 BEGIN SUPERELEVATION
STA. 1195+73.71 MAX. SUPERELEVATION (0.061'/')
STA. 1219+38.03 MAX. SUPERELEVATION (0.061'/')
STA. 1221+66.61 REVERSE CROWN (+0.020 '/')
STA. 1222+78.12 REMOVE CROWN (0.000 '/')
STA. 1223+78.96 END SUPERELEVATION



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WORKSPACE: Leonard.Speed
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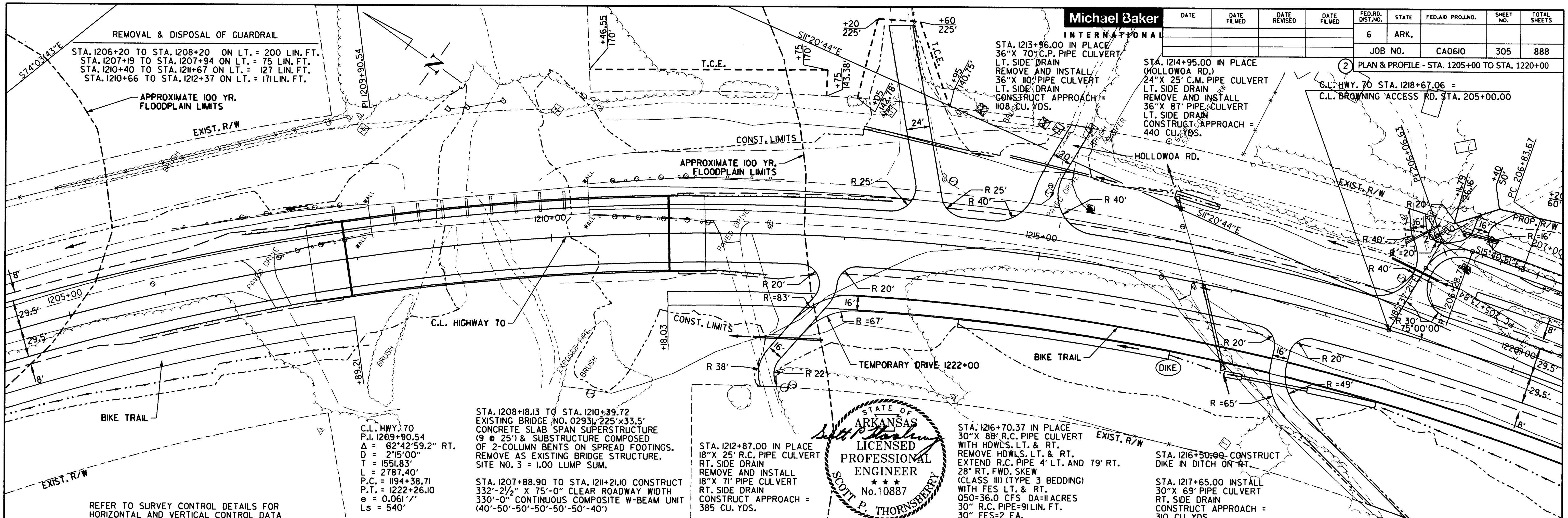
REVISED DATE: $$REVDATE$$

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	305	888

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

(2) PLAN & PROFILE - STA. 1205+00 TO STA. 1220+00



REMOVAL & DISPOSAL OF GUARDRAIL

STA. 1206+20 TO STA. 1208+20 ON LT. = 200 LIN. FT.
STA. 1207+19 TO STA. 1207+94 ON LT. = 75 LIN. FT.
STA. 1210+40 TO STA. 1211+67 ON LT. = 127 LIN. FT.
STA. 1210+66 TO STA. 1212+37 ON LT. = 171 LIN. FT.

STA. 1213+96.00 IN PLACE
36"X 70'C.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
36"X 110' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
1108 CU. YDS.

STA. 1214+95.00 IN PLACE
(HOLLOWOA RD.)
24"X 25' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
36"X 87' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
440 CU. YDS.

C.L. HWY. 70 STA. 1218+67.06 =
C.L. BROWNING ACCESS RD. STA. 205+00.00

C.L. HWY. 70
P.I. 1209+90.54
Δ = 62°42'59.2" RT.
D = 2°15'00"
T = 1551.83'
L = 2787.40'
P.C. = 1194+38.71
P.T. = 1222+26.10
e = 0.061'/'
Ls = 540'

STA. 1208+18.13 TO STA. 1210+39.72
EXISTING BRIDGE NO. 02931 225'x33.5'
CONCRETE SLAB SPAN SUPERSTRUCTURE
(9 @ 25') & SUBSTRUCTURE COMPOSED
OF 2-COLUMN BENTS ON SPREAD FOOTINGS.
REMOVE AS EXISTING BRIDGE STRUCTURE.
SITE NO. 3 = 1.00 LUMP SUM.

STA. 1207+88.90 TO STA. 1211+21.10 CONSTRUCT
332'-2½" X 75'-0" CLEAR ROADWAY WIDTH
330'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
(40'-50'-50'-50'-50'-50'-40')

STA. 1212+87.00 IN PLACE
18"X 25' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18"X 71' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
385 CU. YDS.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.10887 SCOTT P. THORNSBERRY
9-23-2016

STA. 1216+70.37 IN PLACE
30"X 88' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT.
EXTEND R.C. PIPE 4' LT. AND 79' RT.
28° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50=36.0 CFS DA=11 ACRES
30" R.C. PIPE=91 LIN. FT.
30" FES=2 EA.

STA. 1216+50.00 CONSTRUCT
DIKE IN DITCH ON RT.

STA. 1217+65.00 INSTALL
30"X 69' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
310 CU. YDS.

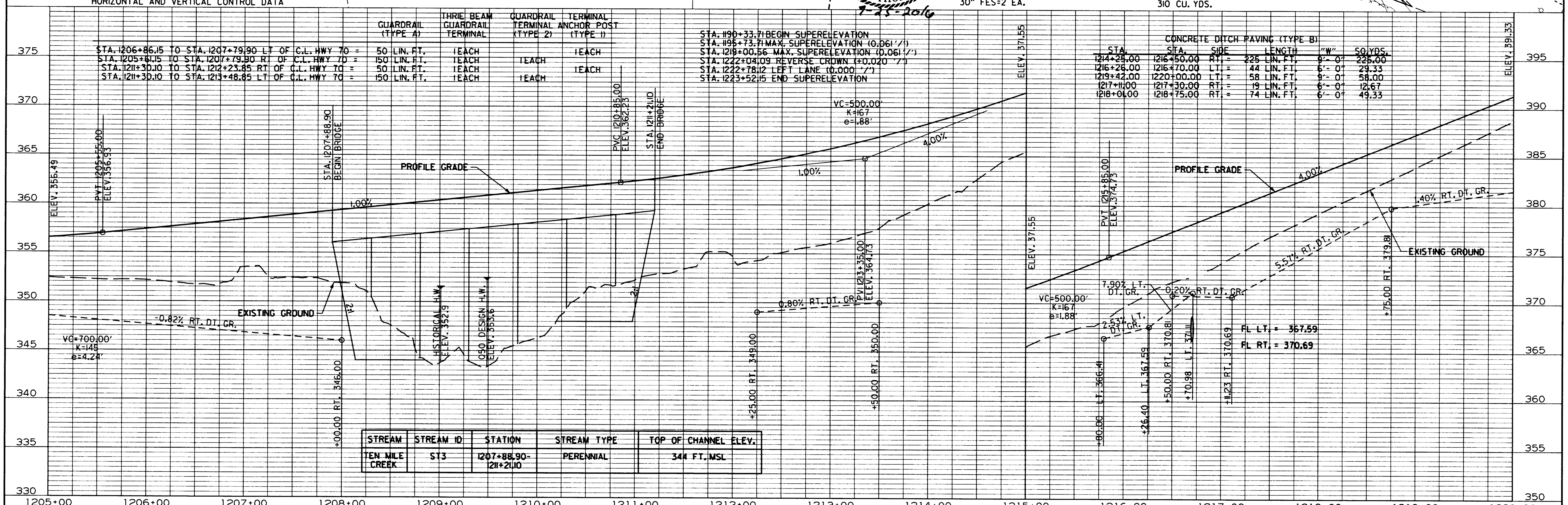
REFER TO SURVEY CONTROL DETAILS FOR
HORIZONTAL AND VERTICAL CONTROL DATA

	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POST (TYPE 1)
STA. 1206+86.15 TO STA. 1207+79.90 LT OF C.L. HWY 70 =	50 LIN. FT.	1 EACH		1 EACH
STA. 1205+61.15 TO STA. 1207+79.90 RT OF C.L. HWY 70 =	150 LIN. FT.	1 EACH	1 EACH	
STA. 1211+30.10 TO STA. 1212+23.85 RT OF C.L. HWY 70 =	50 LIN. FT.	1 EACH		1 EACH
STA. 1211+30.10 TO STA. 1213+48.85 LT OF C.L. HWY 70 =	150 LIN. FT.	1 EACH	1 EACH	

STA. 1190+33.71 BEGIN SUPERELEVATION
STA. 1195+73.71 MAX. SUPERELEVATION (0.061'/')
STA. 1219+00.56 MAX. SUPERELEVATION (0.061'/')
STA. 1222+04.09 REVERSE CROWN (+0.020 '/')
STA. 1222+78.12 LEFT LANE (0.000 '/')
STA. 1223+52.15 END SUPERELEVATION

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1214+25.00	1216+50.00	RT. =	225 LIN. FT.	9'- 0"	225.00
1216+26.00	1216+70.00	LT. =	44 LIN. FT.	6'- 0"	29.33
1219+42.00	1220+00.00	LT. =	58 LIN. FT.	9'- 0"	58.00
1217+11.00	1217+30.00	RT. =	19 LIN. FT.	6'- 0"	12.67
1218+01.00	1218+75.00	RT. =	74 LIN. FT.	6'- 0"	49.33



STREAM	STREAM ID	STATION	STREAM TYPE	TOP OF CHANNEL ELEV.
TEN MILE CREEK	ST3	1207+88.90-1211+21.10	PERENNIAL	344 FT. MSL

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WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	306	888

(2) PLAN & PROFILE - STA. 1220+00 TO STA. 1235+00

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1220+00.00	1224+20.00	LT. =	420 LIN. FT.	9'- 0"	420.00
1233+00.00	1234+00.00	LT. =	100 LIN. FT.	6'- 0"	66.67

C.L. HWY. 70
P.I. 1233+05.43
Δ = 68°30'00.9" LT.
D = 4°00'00"
T = 975.29'
L = 1712.51'
P.C. = 1223+30.14
P.T. = 1240+42.65
e = 0.093 '/'
Ls = 630'

C.L. HWY. 70
P.I. 1209+90.54
Δ = 62°42'59.2" RT.
D = 2°15'00"
T = 1551.83'
L = 2787.40'
P.C. = 1194+38.71
P.T. = 1222+26.10
e = 0.061'/'
Ls = 540'

C.L. HIGHWAY 70
C.L. HWY. 70 STA. 1222+00.00 =
TEMPORARY DRIVE 1222+00 STA. 49+83.56

C.L. HWY. 70 STA. 1230+43.86=
C.L. BROWNING RD. STA. 210+00.00=
C.L. FAIRPLAY RD. STA. 210+00.00

C.L. BROWNING ACCESS STA. 217+25.52
C.L. BROWNING RD. STA. 211+25.26

PAVEMENT TRANSITION

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STA. 1190+33.7 BEGIN SUPERELEVATION
STA. 1195+73.7 MAX. SUPERELEVATION (0.061'/')
STA. 1219+00.56 MAX. SUPERELEVATION (0.061'/')
STA. 1222+04.09 REVERSE CROWN (+0.020 '/')
STA. 1222+78.12 LT. LANE (0.000 '/')
STA. 1223+52.15 END SUPERELEVATION LT.

STA. 1222+16.67 BEGIN SUPERELEVATION RT.
STA. 1222+84.81 RT. LANE (0.000 '/')
STA. 1223+52.15 REVERSE CROWN (+0.020 '/')
STA. 1228+96.67 MAX. SUPERELEVATION (0.093 '/')
STA. 1238+85.15 MAX. SUPERELEVATION (0.093 '/')
STA. 1245+15.15 END SUPERELEVATION

PROFILE GRADE
EXISTING GROUND
VC=1100.00'
K=154
e=-9.82'
PVI 1227+75.00
ELEV. 422.33
PVC 1222+25.00
ELEV. 400.33
ELEV. 391.33
PVI 1233+25.00
ELEV. 405.06
PVI 1234+00.00
ELEV. 402.71
ELEV. 399.50
P.I. 1233+50.43
4.00%
-3.14%
-4.83% LT. DT. CR.
-2.50% LT. DT. CR.
-3.12%
.40% RT. DT. CR.
+75.00 RT. 384.00
+00.00 LT. 400.83
+00.00 LT. 396.00
+00.00 LT. 393.50

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-15-2016

Leonard.Speed 9/23/2016 2:17:24 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: ***REVDATE***

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	307	888

PLAN & PROFILE - STA. 1235+00 TO STA. 1250+00

STA. 1235+45.55 IN PLACE
24"X81' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWL. RT. &
EXTEND 64' RT. IN STAGE 1
PLUG AND ABANDON AFTER STAGE 2
24" R.C. PIPE = 64 LIN. FT.

STA. 1235+55.00 CONSTRUCT
DIKE IN DITCH ON LT.

C.L. HWY. 70
P.I. 1233+05.43
Δ = 68°30'00.9" LT.
D = 4°00'00"
T = 975.29'
L = 1712.51'
P.C. = 1223+30.14
P.T. = 1240+42.65
e = 0.093 '/'
Ls = 630'

STA. 1240+94.60 IN PLACE
30"X 69' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWL. RT. &
EXTEND 65' RT. IN STAGE 1
PLUG AND ABANDON AFTER STAGE 2
30" R.C. PIPE = 65 LIN. FT.

BROWNING RD. STA. 220+66.57
IN PLACE
24"X 23' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 55' PIPE CULVERT
LT. SIDE DRAIN
20° LT. FWD. SKEW
CONSTRUCT APPROACH =
70 CU. YDS.

BROWNING RD.
P.I. 220+91.21
Δ = 56°15'54.2" LT.
D = 57°17'45"
T = 53.47'
L = 98.20'
P.C. = 220+37.74
P.T. = 221+35.94
NO SUPER

STA. 1250+10.49 LT.
13.7 CU. YDS.
DUMPED RIPRAP

STA. 1243+00.00 CONSTRUCT
DIKE IN DITCH ON LT.

STA. 1235+70.00 CONSTRUCT
24"X 165' R.C. PIPE CULVERT
12° RT. FWD. SKEW
(CLASS IV) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=14.1 CFS DA=4 ACRES

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1235+00.00	1235+55.00	LT. =	55 LIN. FT.	6'- 0"	36.67
1241+00.00	1242+20.00	LT. =	120 LIN. FT.	6'- 0"	80.00

STA. 1242+20.00 CONSTRUCT
30"X 145' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=21.2 CFS DA=4 ACRES

STA. 1242+20.00 RT.
3.1 CU. YDS.
DUMPED RIPRAP

C.L. HWY. 70 STA. 1246+70.00 =
C.L. BROWNING RD. STA. 220+00.00

STA. 1249+24 IN PLACE
6' X 5' X 104' R.C. BOX CULVERT
45° LT FWD. SKEW
WITH 3:1 WINGS LT. & RT.
RETAIN & EXTEND 16' LT. & 72' RT.
Q50=277.7 CFS DA=100 ACRES

FENCE (TYPE A)
STA. 1248+30 TO STA. 1248+95 RT. OF CL. = 85 LIN. FT.

REMOVAL AND DISPOSAL OF FENCE
STA. 1248+30 TO STA. 1248+95 RT. OF CL. = 85 LIN. FT.
STA. 1249+00 TO STA. 1249+11 RT. OF CL. = 73 LIN. FT.

PAVEMENT TRANSITION

REFER TO SURVEY CONTROL DETAILS FOR
HORIZONTAL AND VERTICAL CONTROL DATA

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

STA. 1222+16.67 BEGIN SUPERELEVATION
STA. 1222+84.81RT. LANE (0.000 '/')
STA. 1223+52.15 REVERSE CROWN (+0.020 '/')
STA. 1228+96.67 MAX. SUPERELEVATION (0.093 '/')
STA. 1238+85.15 MAX. SUPERELEVATION (0.093 '/')
STA. 1245+15.15 END SUPERELEVATION

EXISTING GROUND
PROFILE GRADE

FL LT. = 390.52
FL RT. = 385.00
FL LT. = 378.50
FL RT. = 375.83
FL LT. = 354.84
FL RT. = 357.18

Leonard.Speed 9/23/2016 2:17:41 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	308	888

(2) PLAN & PROFILE - STA. 1250+00 TO STA. 1265+00

STA. 1252+83.00
CONSTRUCT APPROACH ON LT. = 40 CU. YDS.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1259+40.00	1260+50.00	LT.	110 LIN. FT.	6'-0"	73.33

STA. 1261+84.94 TO STA. 1262+59.83
~~EXISTING BRIDGE NO. 02932, 75'x33.5'~~
CONCRETE SLAB SPAN SUPERSTRUCTURE (3 @25') & SUBSTRUCTURE COMPOSED OF 2-COLUMN BENTS ON SPREAD FOOTINGS.
REMOVE AS EXISTING BRIDGE STRUCTURE.
SITE NO. 4 = 1.00 LUMP SUM.

APPROXIMATE 100 YR. FLOODPLAIN LIMITS

EXIST. R/W

CONST. LIMITS

C.L. HIGHWAY 70

BIKE TRAIL

APPROXIMATE 100 YR. FLOODPLAIN LIMITS

STA. 1261+58.50 TO STA. 1262+59.50 CONSTRUCT
101'-0" X 75'-0" CLEAR ROADWAY WIDTH
100'-0" INTEGRAL COMPOSITE W-BEAM UNIT
(30'-40'-30')

STA. 1251+38.00 IN PLACE
18" X 57' C.M. PIPE CULVERT
RT. SIDE DRAIN
~~REMOVE~~
CONSTRUCT APPROACH = 140 CU. YDS.

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

REMOVAL & DISPOSAL OF GUARDRAIL

STA. 1259+69 TO STA. 1261+72 ON LT. = 203 LIN. FT.
STA. 1259+71 TO STA. 1261+72 ON RT. = 201 LIN. FT.
STA. 1262+46 TO STA. 1263+97 ON LT. = 151 LIN. FT.
STA. 1262+46 TO STA. 1264+49 ON RT. = 203 LIN. FT.

	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POST (TYPE I)
STA. 1259+29.75 TO STA. 1261+48.50 RT. OF C.L. HWY. 70 =	150 LIN. FT.	1 EACH	1 EACH	
STA. 1260+54.75 TO STA. 1261+48.50 LT. OF C.L. HWY. 70 =	50 LIN. FT.	1 EACH		1 EACH
STA. 1262+69.50 TO STA. 1263+63.25 RT. OF C.L. HWY. 70 =	50 LIN. FT.	1 EACH		1 EACH
STA. 1262+69.50 TO STA. 1264+88.25 LT. OF C.L. HWY. 70 =	150 LIN. FT.	1 EACH	1 EACH	

STA. 1264+83.00
CONSTRUCT APPROACH ON RT. = 100 CU. YDS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
9-23-2016

PROFILE GRADE

EXISTING GROUND

STREAM	STREAM ID	STATION	STREAM TYPE	TOP OF CHANNEL ELEV.
CANEY CREEK	ST5	1261+58.50-1262+59.50	PERENNIAL	334 FT. MSL

PVT 1250+90.00 ELEV. 367.53
PVI 1254+70.00 ELEV. 365.76
PVT 1252+60.00 ELEV. 366.74
PVT 1256+80.00 ELEV. 360.44
PVI 1258+05.00 ELEV. 357.27
PVI 1259+40.00 ELEV. 353.84
PVT 1260+75.00 ELEV. 352.84
PVI 1264+00.00 ELEV. 350.44
PVT 1264+90.00 ELEV. 349.45
ELEV. 349.35

VC=400.00'
K=167
e=1.20'

VC=420.00'
K=202
e=-1.09'

VC=270.00'
K=150
e=-0.61'

VC=180.00'
K=514
e=-0.08'

-0.46%
-1.02% RT. DT. GR.
2.54%
-0.74%
-6.21% LT. DT. GR.
2.49% RT. DT. GR.

+70.00 RT. 359.00
+00.00 RT. 353.62
+40.00 LT. 349.58
+50.00 LT. 342.75
+59.00 RT. 336.00
+00.00 RT. 342.00

STA. 1263+10.00
END BRIDGE

STA. 1261+58.50
BEGIN BRIDGE

HISTORICAL H.W. ELEV. 342.7
DSO DESIGN H.W. ELEV. 341.9

ELEV. 368.18

Leonard.Speed 9/23/2016 2:17:52 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	309	888

(2) PLAN & PROFILE - STA. 1265+00 TO STA. 1280+00

DRIVE @ 1265+80.00
P.I. 225+82.17
Δ = 75°00'13.6" LT.
D =190°59'09"
T = 23.02'
L = 39.27'
P.C. = 225+59.15
P.T. = 225+98.42
NO SUPER

DRIVE @ 1265+80.00
P.I. 227+00.22
Δ = 89°59'53.3" RT.
D =190°59'09"
T = 30.00'
L = 47.12'
P.C. = 226+70.22
P.T. = 227+17.35
NO SUPER

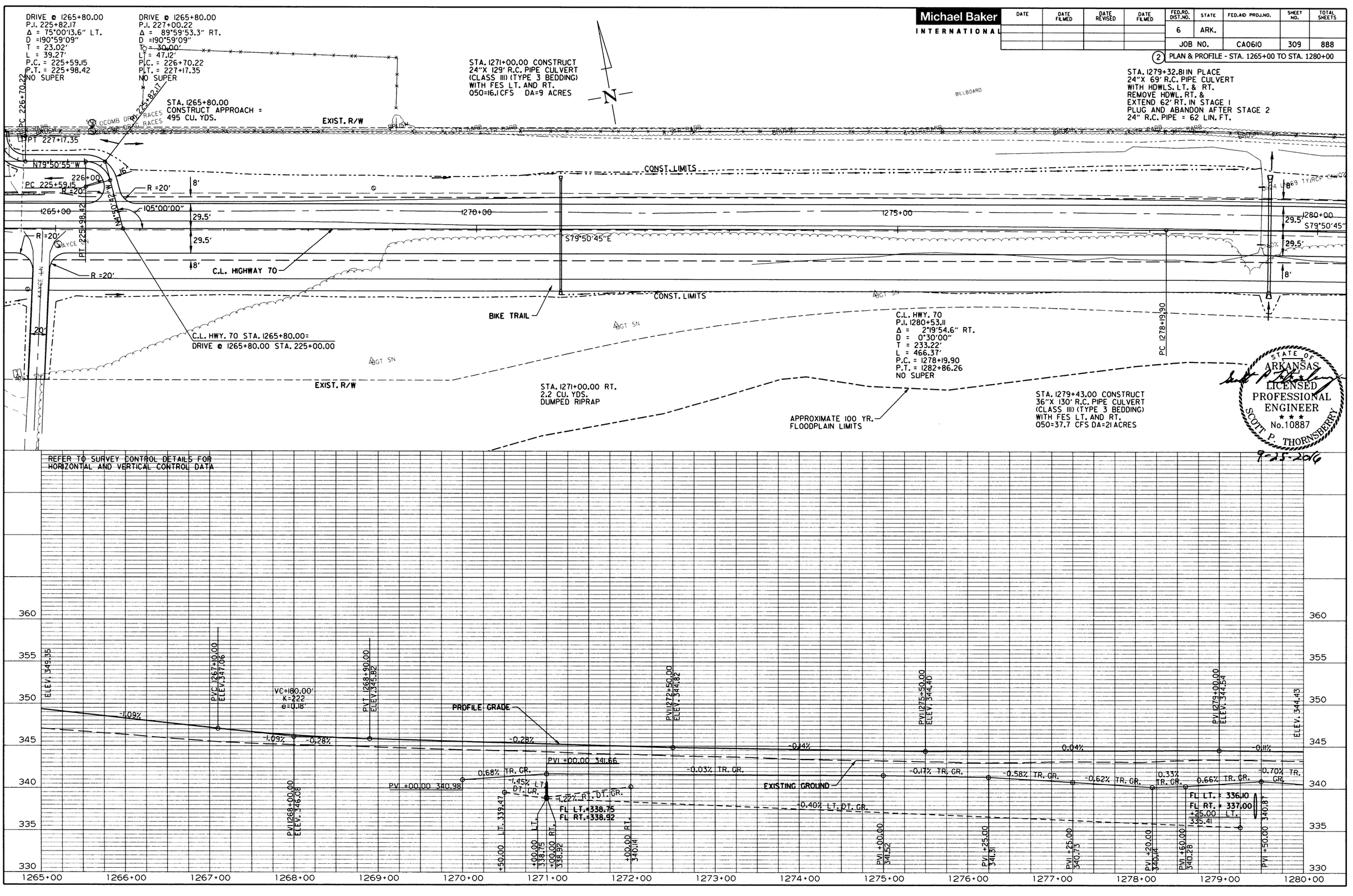
STA. 1265+80.00
CONSTRUCT APPROACH =
495 CU. YDS.

STA. 1271+00.00 CONSTRUCT
24"X 129' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=16.1 CFS DA=9 ACRES

STA. 1279+32.81 IN PLACE
24"X 69' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWL. RT. &
EXTEND 62' RT. IN STAGE 1
PLUG AND ABANDON AFTER STAGE 2
24" R.C. PIPE = 62 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-25-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA



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WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	310	888

(2) PLAN & PROFILE - STA. 1280+00 TO STA. 1295+00

C.L. HWY. 70
P.I. 1280+53.11
Δ = 2°19'54.6" RT.
D = 0°30'00"
T = 233.22'
L = 466.37'
P.C. = 1278+19.90
P.T. = 1282+86.26
NO SUPER

STA. 1289+90.00 IN PLACE
24"X 25' R.C. PIPE CULVERT
LT. SIDE DRAIN
RETAIN
CONSTRUCT APPROACH =
35 CU. YDS.

STA. 1294+04.57 IN PLACE
DBL. 8' X 4' X 56' R.C. BOX CULVERT
WITH 31 WINGS LT. & RT.
RETAIN AND EXTEND 20' LT. & 69' RT.
Q50=682.5 CFS DA=465 ACRES

STA. 1294+04.57 LT.
140 CU. YDS.
DUMPED RIPRAP

EXIST. R/W
CONST. LIMITS
PI 1280+53.11
8'
29.5'
1280+00
S79°50'45"E
S77°30'51"E
1285+00
1290+00
1295+00
R =20'
PAVED DRIVE
16'
C.L. HIGHWAY 70
BIKE TRAIL
ABGT SN
PT 1282+86.26

STA. 1289+99.00
CONSTRUCT APPROACH ON RT. =
10 CU. YDS.

STA. 1293+75.92 RT. AND STA. 1294+22.35 RT.
EXISTING BRIDGE ABUTMENTS TO REMAIN
AND BURIED UNDER FILL AS DIRECTED BY
THE ENGINEER.

APPROXIMATE 100 YR.
FLOODPLAIN LIMITS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

REFER TO SURVEY CONTROL DETAILS FOR
HORIZONTAL AND VERTICAL CONTROL DATA

PROFILE GRADE
EXISTING GROUND
ELEV. 344.43
PVI +50.00 340.17
-0.70% TR. GR.
-0.23% TR. GR.
PVI +00.00 339.82
PVI 282+50.00
ELEV. 344.15
-0.11%
-0.07%
PVI 285+50.00
ELEV. 343.94
0.20% TR. GR.
PVI +60.00 340.55
PVI 288+50.00
ELEV. 343.91
-0.01%
0.35% TR. GR.
PVI +25.00 344.47
0.24% TR. GR.
0.08%
PVI +20.00 341.94
PVC 1290+75.00
ELEV. 344.09
VC=250.00'
K=833
e=0.09'
0.08%
0.38%
-0.18% TR. GR.
PVI 1292+00.00
ELEV. 344.19
PVT 1293+25.00
ELEV. 344.67
2.54% TR. GR.
PVI +80.00
344.00
VC=100.00'
K 24.59
FL LT. =333.71
FL RT. =335.39
PVT +30.00 343.24
1.53% TR. GR.
0.38%
0.07% TR. GR.
PVI +80.00 342.47
ELEV. 345.33
PVI +80.00 340.46
PVC +30.00 342.73

355
350
345
340
335
330
1280+00
1281+00
1282+00
1283+00
1284+00
1285+00
1286+00
1287+00
1288+00
1289+00
1290+00
1291+00
1292+00
1293+00
1294+00
1295+00

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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	311	888

(2) PLAN & PROFILE - STA. 1295+00 TO STA. 1310+00

REMOVAL AND DISPOSAL OF FENCE
STA. 1298+99 TO STA. 1299+15 RT. OF CL. = 28 LIN. FT.
STA. 1299+42 TO STA. 1299+91 RT. OF CL. = 50 LIN. FT.
STA. 1300+37 TO STA. 1305+68 RT. OF CL. = 558 LIN. FT.
STA. 1303+48 TO STA. 1303+79 LT. OF CL. = 113 LIN. FT.

FENCE (TYPE A)
STA. 1298+99 TO STA. 1299+15 RT. OF CL. = 28 LIN. FT.
STA. 1300+37 TO STA. 1305+68 RT. OF CL. = 558 LIN. FT.
STA. 1303+48 TO STA. 1303+79 LT. OF CL. = 60 LIN. FT.

C.L. HWY. 70
P.I. 1307+69.46
Δ = 39°03'16.7" LT.
D = 3°00'00"
T = 677.34'
L = 1301.82'
P.C. = 1300+92.12
P.T. = 1313+93.94
e = 0.077 '/'
Ls = 540'

STA. 1303+64.06 LT.
14.0 CU. YDS.
DUMPED RIPRAP

STA. 1303+07.00
CONSTRUCT APPROACH ON LT. =
20 CU. YDS.

STA. 1299+51.00
CONSTRUCT APPROACH ON RT. =
139 CU. YDS.

STA. 1303+64.00 IN PLACE
DBL. 8' X 4' X 75' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
REMOVE 0' LT. AND 16' RT. AND
EXTEND 16' LT. & 75' RT.
Q50=1405.0 CFS DA=761 ACRES

BILLBOARD
BRUSH
CONST. LIMITS
EXIST. R/W
C.L. HIGHWAY 70
PC 1300+92.12
1300+00
1305+00
1310+00
S77°30'51"E
N67°29'53"E
R =20'
R =52'
R =68'
+42.62'
+90.68
104.62'
+90.66
84.62'
BIKE TRAIL
APPROXIMATE 100 YR. FLOODPLAIN LIMITS
PAVED DRIVE
PROP. R/W
PROPOSED R/W
+69.75
86.04'
+00.06
92.03'
+15
115'
PI 1307+69.46
5:1 5'x5' CONC. RWG.
8'
29.5'
1295+00
16'

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-26-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

PROPOSED GUARDRAIL
STA. 1304+00.00 TO STA. 1312+50.00 LT OF C.L. HWY 70 = 775 LIN. FT.

GUARDRAIL (TYPE A)	GUARDRAIL TERMINAL TERMINAL ANCHOR POST (TYPE 2)	GUARDRAIL TERMINAL (TYPE I)
	1 EACH	1 EACH

REMOVAL & DISPOSAL OF GUARDRAIL
STA. 1301+24 TO STA. 1303+76 ON RT. = 252 LIN. FT.

STA. 1296+87.12 BEGIN SUPERELEVATION
STA. 1302+27.12 MAX. SUPERELEVATION (0.077 '/')
STA. 1311+36.03 MAX. SUPERELEVATION (0.077 '/')
STA. 1316+76.03 END SUPERELEVATION

ELEV. 345.53
PVI 1296+00.00
ELEV. 345.71
PVI 1299+00.00
ELEV. 345.82
PVC 1300+40.00
ELEV. 347.24
PVI 1302+80.00
ELEV. 347.96
PVI 1305+20.00
ELEV. 359.24
PVI 1307+00.00
ELEV. 364.26
PVC 1308+25.00
ELEV. 368.98
ELEV. 374.64
VC=480.00'
K=134
e=2.15'
VC=750.00'
K=160
e=-4.40'
PROFILE GRADE
EXISTING GROUND
0.38%
0.37%
0.30%
0.30%
3.88%
3.88%
3.18%
0.07% TR. GR.
-0.47% RT. DT. GR.
PVI 1300+60.00 342.67
+50.00 RT. 341.00
+64.00 RT. 340.46
FL LT. = 339.45
FL RT. = 340.46

375 370 365 360 355 350 345 340 335 330

1295+00 1296+00 1297+00 1298+00 1299+00 1300+00 1301+00 1302+00 1303+00 1304+00 1305+00 1306+00 1307+00 1308+00 1309+00 1310+00

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WORKSPACE: Leonard.Speed
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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	312	888

(2) PLAN & PROFILE - STA. 1310+00 TO STA. 1325+00

STA. 1312+60.00 INSTALL
18"X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
55 CU. YDS.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1318+20.00	1319+50.00	LT. =	130 LIN. FT.	6'- 0"	86.67

FENCE (TYPE A)
STA. 1309+70 TO STA. 1312+89 RT. OF CL. = 339 LIN. FT.
STA. 1314+19 TO STA. 1315+96 RT. OF CL. = 184 LIN. FT.
STA. 1318+36 TO STA. 1319+66 RT. OF CL. = 124 LIN. FT.
STA. 1319+40 TO STA. 1319+64 LT. OF CL. = 68 LIN. FT.

REMOVAL AND DISPOSAL OF FENCE
STA. 1309+64 TO STA. 1314+88 RT. OF CL. = 339 LIN. FT.
STA. 1314+17 TO STA. 1316+00 RT. OF CL. = 184 LIN. FT.
STA. 1318+36 TO STA. 1319+66 RT. OF CL. = 124 LIN. FT.
STA. 1319+40 TO STA. 1319+64 LT. OF CL. = 68 LIN. FT.

C.L. HWY. 70
P.I. 1325+72.13
Δ = 18°15'51.4" RT.
D = 1°30'00"
T = 614.02'
L = 1217.62'
P.C. = 1319+58.11
P.T. = 1331+75.73
e = 0.043 '/'
Ls = 540'

STA. 1316+45.00 IN PLACE
12"X 42' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
65 CU. YDS.

C.L. HWY. 70
P.I. 1307+69.46
Δ = 39°03'16.7" LT.
D = 3°00'00"
T = 677.34'
L = 1301.82'
P.C. = 1300+92.12
P.T. = 1313+93.94
e = 0.077 '/'
Ls = 540'

STA. 1319+31.13 IN PLACE
60"X 66' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWL. RT. &
EXTEND 39' RT. IN STAGE 1
PLUG AND ABANDON AFTER STAGE 2
60" R.C. PIPE = 39 LIN. FT.

STA. 1319+50.00 CONSTRUCT
4'X6'X125' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
Q50=39.1 CFS DA=29 ACRES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-25-2016

REMOVAL & DISPOSAL OF GUARDRAIL
STA. 1317+59 TO STA. 1319+63 ON RT. = 204 LIN. FT.

STA. 1296+87.12 BEGIN SUPERELEVATION
STA. 1302+27.12 MAX. SUPERELEVATION (0.077 '/')
STA. 1311+36.03 MAX. SUPERELEVATION (0.077 '/')
STA. 1316+76.03 END SUPERELEVATION

REFER TO SURVEY CONTROL DETAILS FOR
HORIZONTAL AND VERTICAL CONTROL DATA

STA. 1316+76.03 BEGIN SUPERELEVATION
STA. 1322+16.03 MAX. SUPERELEVATION (0.043 '/')
STA. 1330+40.73 MAX. SUPERELEVATION (0.043 '/')
STA. 1335+80.73 END SUPERELEVATION

PVI 1312+00.00
ELEV. 383.16
ELEV. 374.64
3.78%
-0.91%
VC=750.00'
K=160
e=-4.40
PROFILE GRADE
EXISTING GROUND
PVC 1308+60.00
ELEV. 377.12
PVI 1315+75.00
ELEV. 379.73
PVI 1319+50.00
ELEV. 376.30
-0.91%
-1.50%
VC=180.00'
K=306
e=-0.13'
PVT 1320+40.00
ELEV. 374.95
6.49% LT. DT. GR.
1.63% RT. DT. GR.
FL LT. = 365.50
FL RT. = 366.10
0.20% RT. DT. GR.
PVI 1323+00.00
ELEV. 371.04
VC=300.00'
K=204
e=-0.55'
PVC 1321+50.00
ELEV. 373.50
PVT 1324+50.00
ELEV. 371.00
0.03%
ELEV. 370.98
+20.00 LT. 373.93
+95.00 RT. 367.00
+50.00 LT. 365.50
+50.00 RT. 366.10
+22.00 RT. 366.84

390 385 380 375 370 365 360
1310+00 1311+00 1312+00 1313+00 1314+00 1315+00 1316+00 1317+00 1318+00 1319+00 1320+00 1321+00 1322+00 1323+00 1324+00 1325+00

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WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	313	888

(2) PLAN & PROFILE - STA. 1325+00 TO STA. 1340+00

STA. 1326+17.17 LT.
2.5 CU. YDS.
DUMPED RIPRAP

C.L. HWY. 70
P.I. 1325+72.13
Δ = 18°15'51.4" RT.
D = 1°30'00"
T = 614.02'
L = 1217.62'
P.C. = 1319+58.11
P.T. = 1331+75.73
e = 0.043
Ls = 540'

+80 200' T.C.E. +60 200'
+80 118.14' +60 118.72'
P.I. 1325+72.13
BRUSH
8'
N63°25'53"E
29.5'
1325+00
N81°41'44"E
1330+00
1335+00
1340+00
C.L. HIGHWAY 70
BIKE TRAIL
DIKE
PT 1331+75.73
PRIVATE DRIVE PAVED
R =20'
R =20'
CONST. LIMITS
EXIST. R/W
16'
R =40'
20'
PARKING
WOODARD RD.
APPROXIMATE 100 YR. FLOODPLAIN LIMITS
STA. 1337+71.00 LT.
7.2 CU. YDS.
DUMPED RIPRAP
STA. 1337+61.70 IN PLACE
18"X 82' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWL. RT. &
EXTEND 45' RT. IN STAGE I
PLUG AND ABANDON AFTER STAGE 2
18" R.C. PIPE = 45 LIN. FT.
STA. 1337+71.00 CONSTRUCT
DBL. 36"X 134' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=131.5 CFS DA=129 ACRES
STA. 1340+00.00
(WOODARD RD.)
CONSTRUCT APPROACH
ON RT. = 115 CU. YDS.
STA. 1326+17.17 IN PLACE
24"X 90' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 12' LT. AND 46' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50=26.5 CFS DA=5 ACRES
24" R.C. PIPE=66 LIN. FT.
24" FES=2 EA.
STA. 1326+18.00 CONSTRUCT
DIKE IN DITCH ON RT.
STA. 1333+27.00 IN PLACE
14"X 20' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18"X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
185 CU. YDS.
BRUSH
EXIST. R/W

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY
9-15-2016

STA. 1316+76.03 BEGIN SUPERELEVATION
STA. 1322+16.03 MAX. SUPERELEVATION (0.043 '/')
STA. 1330+40.73 MAX. SUPERELEVATION (0.043 '/')
STA. 1335+80.73 END SUPERELEVATION

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

ELEV. 370.98
0.03%
-0.03% TR. GR.
-0.08% RT. DT. GR.
1.89% TR. GR.
-1.87% TR. GR.
-0.35% TR. GR.
+00.00 RT. 364.60
PVI +00.00 366.38
PVC +30.00 368.37
PVI +50.00 366.37
PVT +70.00 365.74
PVC +90.00 367.12
PVI +10.00 367.50
+17 RT. 364.51
PVT +30.00 367.12
PVC +50.00 365.75
PVI +70.00 366.38
PVT +90.00 366.31
PVI +20.00 366.20
VC=40.00' K 20.87
VC=40.00' K 10.66
VC=40.00' K 26.35
FL LT. = 361.06
FL RT. = 364.51
PVC 1326+50.00 ELEV. 370.34
PVI 1329+40.00 ELEV. 370.85
VC=580.00' K=222 e=-1.89'
PVT 1332+30.00 ELEV. 363.19
PVC 1332+70.00 ELEV. 362.74
EXISTING GROUND
PROFILE GRADE
VC=380.00' K=158 e=-1.14'
PVT 1336+50.00 ELEV. 356.67
PVI 1337+85.00 ELEV. 356.34
PVC 1339+10.00 ELEV. 356.27
VC=500.00' K=289 e=1.08'
ELEV. 356.35
-2.64%
-0.24%
-0.06%
PVI 1334+60.00 ELEV. 357.12
+25.00 RT. 350.43
-1.58% RT. DT. GR.
FL LT. = 346.19
FL RT. = 348.20
0.80% RT. DT. GR.
+71.00 RT. 348.20
+00.00 RT. 350.04

385 380 375 370 365 360 355 350 345
1325+00 1326+00 1327+00 1328+00 1329+00 1330+00 1331+00 1332+00 1333+00 1334+00 1335+00 1336+00 1337+00 1338+00 1339+00 1340+00

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WORKSPACE: Leonard.Speed
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Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	314	888

(2) PLAN & PROFILE - STA. 1340+00 TO STA. 1355+00

REMOVAL & DISPOSAL OF GUARDRAIL
STA. 1341+22 TO STA. 1343+75 ON RT. = 253 LIN. FT.
STA. 1341+28 TO STA. 1343+81 ON LT. = 253 LIN. FT.

STA. 1344+90.00 IN PLACE
38"X 65' C.M. PIPE CULVERT
LT. SIDE DRAIN
RETAIN
CONSTRUCT APPROACH =
45 CU. YDS.

FENCE (TYPE A)
STA. 1344+83 TO STA. 1345+09 LT. OF CL. = 22 LIN. FT.

EXIST. R/W
CONST. LIMITS
8'
29.5'
16'
R =20'
PAVED DRIVE
1340+00
1345+00
1350+00
1355+00
70
N81°41'44"E
R =40'
#90 RAILROAD RD
PARKING
20'
ADC SN
CROSS PAVED DRIVE
BIKE TRAIL
C.L. HIGHWAY 70
R =207'

STA. 1342+43.00 IN PLACE
TRIP. 10' X 8' X 69' R.C. BOX CULVERT
30° RT. FWD. SKEW.
WITH 3:1 WINGS LT. & RT.
RETAIN & EXTEND 20' LT. & 67' RT.
TO A COMPLETED LENGTH OF
156' SPAN = 38.11'
Q50=1920 CFS DA=1056 ACRES

STA. 1345+83.00 IN PLACE
38"X 20' C.M. PIPE CULVERT
RT. SIDE DRAIN
RETAIN
CONSTRUCT APPROACH =
60 CU. YDS.

REMOVE AND DISPOSE OF FENCE
STA. 1344+83 TO STA. 1345+09 LT. OF CL. = 22 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★★★
No.10887
SCOTT P. THORNSBERRY
9-23-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

ELEV. 356.35
0.06%
1.67%
PVI 1341+60.00
ELEV. 356.12
VC=500.00'
K=289
e=1.08'
PVI +00.00 352.24
1.79% RT. DT. GR.
+00.00 RT. 350.04
1.61% TR. GR.
VC=40.00'
K 40.80
0.63% TR. GR.
PVC +30.00
354.83
PVI +50.00
354.65
PVT +70.00
354.78
FL LT. = 344.14
FL RT. = 345.00
+80.00 RT. 345.04
PVI +00.00 355.59
PVT 1344+10.00
ELEV. 360.29
PROFILE GRADE
1.67%
PVI 1347+60.00
ELEV. 366.47
1.47%
PVI 1350+50.00
ELEV. 370.44
1.53%
PVI 1353+90.00
ELEV. 374.26
1.61%
ELEV. 377.48
EXISTING GROUND
1.15% RT. DT. GR.
+00.00 RT. 362.58
+50.00 RT. 364.30
0.87% RT. DT. GR.
+50.00 RT. 368.20
+00.00 RT. 369.50

385 380 375 370 365 360 355 350 345 340
1340+00 1341+00 1342+00 1343+00 1344+00 1345+00 1346+00 1347+00 1348+00 1349+00 1350+00 1351+00 1352+00 1353+00 1354+00 1355+00

Leonard.Speed 9/23/2016 2:19:00 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	315	888

(2) PLAN & PROFILE - STA. 1355+00 TO STA. 1370+00

ELLIOT RD.
STA. 281+00.00
CONSTRUCT APPROACH ON RT. =
10 CU. YD.

ELLIOT RD.
STA. 280+80.00 IN PLACE
24"X 35' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
30"X 60' PIPE CULVERT
LT. SIDE DRAIN
35° LT. FWD. SKEW
CONSTRUCT. APPROACH =
40 CU. YDS.

STA. 1364+38.00 IN PLACE
30"X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
30"X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
100 CU. YDS.

STA. 1367+98.00 IN PLACE
24"X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
50 CU. YDS.

STA. 1368+66.00 IN PLACE
12"X 20' C.M. PIPE CULVERT
LT. SIDE DRAIN
RETAIN

STA. 1356+70.00 IN PLACE
24"X 25' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24"X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
45 CU. YDS.

C.L. HWY. 70 STA. 1362+80.94=
C.L. ELLIOT ROAD STA. 280+00.00

REMOVAL AND DISPOSAL OF FENCE
STA. 1362+45 TO STA. 1362+66 LT. OF CL. = 13 LIN. FT.

FENCE (TYPE A)
STA. 1362+45 TO STA. 1362+66 LT. OF CL. = 13 LIN. FT.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1362+00.00	1367+50.00	RT. =	550 LIN. FT.	9'- 0"	550.00
1367+46.00	1367+81.00	LT. =	35 LIN. FT.	9'- 0"	35.00
1368+16.00	1370+00.00	LT. =	184 LIN. FT.	9'- 0"	184.00

C.L. HWY. 70
P.I. 1372+44.87
Δ = 6°32'31.2" LT.
D = 0°45'00"
T = 436.61'
L = 872.27'
P.C. = 1368+08.26
P.T. = 1376+80.53
e = 0.023 '/'
Ls = 540'

STA. 1368+06.00
CONSTRUCT APPROACH ON RT. =
165 CU. YDS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-25-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STA. 1364+03.26 BEGIN SUPERELEVATION
STA. 1369+43.26 MAX. SUPERELEVATION (0.023 '/')
STA. 1375+25.98 MAX. SUPERELEVATION (0.023 '/')
STA. 1380+65.98 END SUPERELEVATION

ELEV. 377.48
PVI 1355+50.00
ELEV. 378.29
1.61%
1.68%
PVI 1358+00.00
ELEV. 382.49
PROFILE GRADE
EXISTING GROUND
PVC 1360+05.00
ELEV. 385.75
1.58%
VC=350.00'
K=172
e=0.89'
ELEV. 391.34
3.61%
PVT 1363+55.00
ELEV. 394.81
PVI 1364+75.00
ELEV. 399.41
3.51%
PVI 1369+00.00
ELEV. 414.32
3.56%
ELEV. 417.88

Leonard.Speed 9/23/2016 2:19:41 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	316	888

(2) PLAN & PROFILE - STA. 1370+00 TO STA. 1385+00

C.L. HWY. 70
P.I. 1372+44.87
Δ = 6°32'31.2" LT.
D = 0°45'00"
T = 436.61'
L = 872.27'
P.C. = 1368+08.26
P.T. = 1376+80.53
e = 0.023 '/'
Ls = 540'

HIGHPOINT DRIVE
STA. 290+88.00 INSTALL
18"X 40' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH
10 CU. YDS.

HIGHPOINT DRIVE
P.I. 291+49.54
Δ = 52°07'01.6" RT.
D =100°00'00"
T = 28.02'
L = 52.12'
P.C. = 291+21.52
P.T. = 291+73.64
NO SUPER

HIGHPOINT DRIVE
P.I. 290+80.37
Δ = 41°54'19.9" LT.
D = 57°17'45"
T = 38.29'
L = 73.14'
P.C. = 290+42.08
P.T. = 291+15.22
NO SUPER

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1370+00.00	1372+00.00	LT. =	200 LIN. FT.	9'-0"	200.00
1383+40.00	1385+00.00	RT. =	160 LIN. FT.	9'-0"	160.00

STA. 290+59.69
END HIGHPOINT DR.

STA. 1378+76.96
CONSTRUCT APPROACH ON LT.
(HIGHPOINT DRIVE) =
40 CU. YDS.

OLD 88 ROAD
P.I. 289+24.74
Δ = 53°49'53.2" LT.
D = 57°17'45"
T = 50.77'
L = 93.95'
P.C. = 288+73.97
P.T. = 289+67.92
NO SUPER

C.L. HWY. 70 STA. 1378+76.96=
C.L. HIGHPOINT DR. STA. 290+00.00=
C.L. OLD 88 RD. STA. 290+00.00

C.L. HWY. 70
P.I. 1394+94.26
Δ = 48°55'59.5" RT.
D = 2°30'00"
T = 1042.83'
L = 1957.33'
P.C. = 1384+51.42
P.T. = 1404+08.75
e = 0.067 '/'
Ls = 540'

PAVEMENT TRANSITION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-26-2016

FENCE (TYPE A)
STA. 1371+77 TO STA. 1373+76 LT. OF CL. = 200 LIN. FT.

REMOVAL AND DISPOSAL OF FENCE
STA. 1371+77 TO STA. 1373+76 LT. OF CL. = 200 LIN. FT.

STA. 1377+59.49, IN PLACE
24"X 105' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWL. RT. &
EXTEND 51' RT. IN STAGE II
PLUG AND ABANDON AFTER STAGE 2
24" R.C. PIPE = 51 LIN. FT.

STA. 1377+50.00 CONSTRUCT
24"X 162' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=14.6CFS DA=3 ACRES

STA. 1377+50.00 RT.
2.5 CU. YDS.
DUMPED RIPRAP

STA. 1378+76.96
CONSTRUCT APPROACH ON RT.
(OLD EIGHTY 8 ROAD) =
150 CU. YDS.

REFER TO SURVEY CONTROL DETAILS FOR
HORIZONTAL AND VERTICAL CONTROL DATA

STA. 1364+03.26 BEGIN SUPERELEVATION
STA. 1369+43.26 MAX. SUPERELEVATION (0.023 '/')
STA. 1375+25.98 MAX. SUPERELEVATION (0.023 '/')
STA. 1380+65.98 END SUPERELEVATION

STA. 1380+65.98 BEGIN SUPERELEVATION
STA. 1386+05.98 MAX. SUPERELEVATION (0.067 '/')
STA. 1402+73.75 MAX. SUPERELEVATION (0.067 '/')
STA. 1408+13.75 END SUPERELEVATION

PROFILE GRADE
EXISTING GROUND
PVI 1378+10.00
ELEV. 446.71
PVC 1371+10.00
ELEV. 421.79
ELEV. 417.88
3.56%
-4.00%
-2.44% LT. DT. GR.
-0.76% RT. DT. GR.
VC=1400.00'
K=185
e=-13.23'
FL LT. = 424.56
FL RT. = 418.36
+00.00 LT. 428.21
+50.00 LT. 424.56
+70.00 RT. 424.77
+12.50 RT. 423.68
ELEV. 419.10

Leonard.Speed 9/23/2016 2:19:22 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: ***REVDATE***

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	317	888

(2) PLAN & PROFILE - STA. 1385+00 TO STA. 1400+00

STA. 1386+34.00 IN PLACE
24"X 60' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 65' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
491 CU. YDS.

STA. 1388+53.12 LT.
3.3 CU. YDS.
DUMPED RIPRAP

STA. 1391+21.00 IN PLACE
24"X 45' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE
CONSTRUCT APPROACH =
85 CU. YDS.

STA. 1396+92.70 LT.
13.1 CU. YDS.
DUMPED RIPRAP

C.L. SMITH FORD ROAD

STA. 302+60.65
END SMITH FORD RD.

STA. 1388+53.12 IN PLACE
42"X 112' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 29' LT. AND 54' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=36.7 CFS DA=21 ACRES
42" R.C. PIPE=91 LIN. FT.
42" FES=2 EA.

C.L. HWY. 70
P.I. 1394+94.26
Δ = 48°55'59.5" RT.
D = 2°30'00"
T = 1042.83'
L = 1957.33'
P.C. = 1384+51.42
P.T. = 1404+08.75
e = 0.067 '/'
Ls = 540'

STA. 1398+06.72 IN PLACE
5'X7'X 77' R.C. BOX CULVERT
WITH 31 WINGS LT. & RT.
REMOVE WINGS AND HDWL. RT. &
EXTEND 28' RT. IN STAGE 1
PLUG AND ABANDON AFTER STAGE 2
60" R.C. PIPE = 28 LIN. FT.

STA. 1397+50 CONSTRUCT
7'X5'X 211' R.C. BOX CULVERT
30° RT. FWD. SKEW
WITH 31 WINGS LT. & RT.
Q50=346.0 CFS DA.=87 ACRES

PAVEMENT TRANSITION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1385+00.00	1388+00.00	RT. =	300 LIN. FT.	6'- 0"	200.00
1386+72.00	1386+89.00	LT. =	17 LIN. FT.	9'- 0"	17.00
1386+89.00	1388+54.00	LT. =	165 LIN. FT.	6'- 0"	110.00
1388+53.00	1389+50.00	RT. =	97 LIN. FT.	6'- 0"	64.67

REMOVAL & DISPOSAL OF GUARDRAIL

STA. 1396+02 TO STA. 1399+08 ON RT. = 306 LIN. FT.
STA. 1397+08 TO STA. 1400+07 ON LT. = 299 LIN. FT.

STA. 1380+65.98 BEGIN SUPERELEVATION
STA. 1386+05.98 MAX. SUPERELEVATION (0.067 '/')
STA. 1402+13.75 MAX. SUPERELEVATION (0.067 '/')
STA. 1408+13.75 END SUPERELEVATION

VC=1400.00'
K=185
e=-13.23'
PVT 1385+10.00
ELEV. 418.71
ELEV. 419.10'
+00.00 RT. 412.61'
-4.00%
PVC 1387+10.00
ELEV. 410.71
-2.55% RT. DT. GR.
EXISTING GROUND
-0.21% RT. DT. GR.
FL LT. = 386.22
FL RT. = 389.90
-6.90% RT. DT. GR.
+89.45 LT. 397.28
-2.74% LT. DT. GR.
+00.00 RT. 390.01
+53.12 LT. 386.22
+53.12 RT. 389.90
+50.00 RT. 396.59
PVI 1389+70.00
ELEV. 406.31
+30.00 LT. 384.11
VC=520.00'
K=141
e=2.40'
PVT 1392+30.00
ELEV. 399.53
PROFILE GRADE
PVI 1395+00.00
ELEV. 398.12
PVI +00.00 393.93
-0.30%
-0.25%
+00.00 RT. 391.90
VC=40.00'
K 38.35
0.38% TR. GR.
-0.66% TR. GR.
-2.74% RT. DT. GR.
1.48% RT. DT. GR.
PVT +00.00
395.01
PVI +00.00
395.08
PVT +20.00
394.95
FL LT. = 379.14
FL RT. = 386.31
+04.21 RT.
386.31
VC=450.00'
K=176
e=1.43'
PVC 1399+45.00
ELEV. 397.61
ELEV. 397.56

Leonard.Speed 9/23/2016 2:19:33 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	318	888

(2) PLAN & PROFILE - STA. 1400+00 TO STA. 1415+00

STA. 1409+09.00 IN PLACE
18"X 30' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 1403+39.00 IN PLACE
24"X 28' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH=
95 CU. YDS.

STA. 1409+34.00
(SALINAS SPRINGS RD.)
CONSTRUCT APPROACH ON LT. =
60 CU. YDS.

C.L. HWY. 70 STA. 1400+60.00 =
C.L. SMITH FORD RD. STA. 300+00.00

C.L. HWY. 70
P.I. 1394+94.26
Δ = 48°55'59.5" RT.
D = 2°30'00"
T = 1042.83'
L = 1957.33'
P.C. = 1384+51.42
P.T. = 1404+08.75
e = 0.067 '/'
Ls = 540

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1409+68.00	1411+00.00	LT. =	132 LIN. FT.	6'- 0"	88.00

STA. 1410+10.00 RT.
2.5 CU. YDS.
DUMPED RIPRAP

STA. 1410+03.52 IN PLACE
24"X 61' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWL. RT. &
EXTEND 50' RT. IN STAGE I
PLUG AND ABANDON AFTER STAGE 2
24" R.C. PIPE = 50 LIN. FT.

STA. 1410+10.00 CONSTRUCT
24"X 156' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=46.9 CFS DA=7 ACRES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-15-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STA. 1380+65.98 BEGIN SUPERELEVATION
STA. 1386+05.98 MAX. SUPERELEVATION (0.067 '/')
STA. 1402+73.75 MAX. SUPERELEVATION (0.067 '/')
STA. 1408+13.75 END SUPERELEVATION

PROFILE GRADE
EXISTING GROUND
PVI 1400+00.00 ELEV. 397.05
PVI 1401+00.00 ELEV. 393.11
PVI 1403+95.00 ELEV. 402.22
PVI 1408+00.00 ELEV. 411.54
PVI 1411+00.00 ELEV. 418.41
PVI 1414+00.00 ELEV. 426.00
ELEV. 397.56
ELEV. 428.63
VC=450.00'
K=176
e=1.43'
-0.66% TR. GR.
-0.25%
2.30%
1.48% RT. DT. GR.
1.95% RT. DT. GR.
2.29%
2.53%
3.19% DT. GR.
4.86% LT. DT. GR.
+75.00 RT. 393.28
+67.9 LT. 410.84
+10.00 RT. 407.60
+10.00 LT. 409.50
+00.00 LT. 413.87
FL LT. = 409.50
FL RT. = 407.60

LeonardSpeed 9/23/2016 2:19:44 PM
WORKSPACE: Leonard Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	319	888

(2) PLAN & PROFILE - STA. 1415+00 TO STA. 1430+00

STA. 1417+03.00 IN PLACE
12"X 50' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH=
50 CU. YDS.

STA. 1419+50.00 CONSTRUCT
24"X 167' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=22.7 CFS DA=4 ACRES

STA. 1419+58.48 IN PLACE
24"X 77' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWL. RT. &
EXTEND 60' RT. IN STAGE I
PLUG AND ABANDON AFTER STAGE 2
24" R.C. PIPE = 60 LIN. FT.

STA. 1419+00.00 CONSTRUCT
DIKE IN DITCH ON LT.

C.L. HWY. 70
P.I. 1420+96.95
Δ = 20°12'57.4" LT.
D = 2°15'00"
T = 453.96'
L = 898.49'
P.C. = 1416+42.99
P.T. = 1425+41.48
e = 0.061'/'
Ls = 540'

STA. 1423+37.12 IN PLACE
24"X 124' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWL. RT. &
EXTEND 63' RT. IN STAGE I
PLUG AND ABANDON AFTER STAGE 2
24" R.C. PIPE = 63 LIN. FT.

STA. 1423+00.00 CONSTRUCT
DIKE IN DITCH ON LT.

STA. 1423+50.00 CONSTRUCT
24"X 179' R.C. PIPE CULVERT
30° LT. FWD SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=9.7 CFS DA=4 ACRES

STA. 1425+89.00
(CROSSROADS RD.)
INSTALL
18"X 58' R.C. PIPE CULVERT
15° RT. FWD SKEW
RT. SIDE DRAIN
CONSTRUCT APPROACH=
130 CU. YDS.

STA. 1422+92.38 RT.
4.6 CU. YDS.
DUMPED RIPRAP

STA. 1419+50.00 RT.
2.5 CU. YDS.
DUMPED RIPRAP

CROSS ROADS RD.
IN PLACE 36"X 40' C.P.
PIPE CULVERT
LT. SIDE DRAIN
RETAIN

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1419+50.00	1421+00.00	LT. =	150 LIN. FT.	6'- 0"	100.00

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STA. 1412+37.99 BEGIN SUPERELEVATION
STA. 1417+77.99 MAX. SUPERELEVATION (0.061'/')
STA. 1423+18.80 MAX. SUPERELEVATION (0.061'/')
STA. 1428+58.80 END SUPERELEVATION

ELEV. 428.63
PROFILE GRADE
EXISTING GROUND
PVC 1418+10.00 ELEV. 436.78
VC=180.00'
K=217
e=0.19'
PVI 1419+90.00 ELEV. 442.26
PVI 1419+00.00 ELEV. 439.15
PVT 1421+50.00 ELEV. 447.80
ELEV. 451.41
2.63%
3.46%
3.61%
1.18% LT. DT. GR.
4.88% LT. DT. GR.
FL LT. = 434.00
FL RT. = 428.82
+00.00 LT. 441.32
+00.00 LT. 434.59
+50.00 LT. 434.00
ELEV. 451.41
VC=850.00'
K=152
e=-5.94'
PVC 1424+00.00 ELEV. 456.82
FL LT. = 448.16
FL RT. = 445.77
1.81% RT. DT. GR.
+50.00 RT. 443.00
+00.00 RT. 445.71
PVI 1428+25.00 ELEV. 472.16
ELEV. 466.64
PROFILE GRADE
-1.98%
EXISTING GROUND

460 455 450 445 440 435 430 425 420 415

480 475 470 465 460 455 450 445 440

1415+00 1416+00 1417+00 1418+00 1419+00 1420+00 1421+00 1422+00 1423+00 1424+00 1425+00 1426+00 1427+00 1428+00 1429+00 1430+00

Leonard.Speed 9/23/2016 2:9:55 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	320	888

(2) PLAN & PROFILE - STA. 1430+00 TO END PROJECT

STA. 1430+84.00 INSTALL
18"X 24' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH=
65 CU. YDS.

STA. 1432+24.00 IN PLACE
18"X 40' C.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 50' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
35 CU. YDS.

STA. 1435+10.00 CONSTRUCT
DIKE IN DITCH ON LT.

SOUTH FORK AUTO RANCH

PARKING

EXIST. R/W

CONST. LIMITS

PROP R/W

PETIT DRIVE

PAVED

C.L. HIGHWAY 70

BIKE TRAIL

CONST. LIMITS

EXIST. R/W

C.L. HWY. 70
P.I. 1434+96.35
Δ = 11°10'20.1" RT.
D = 1°45'00"
T = 320.22'
L = 638.41'
P.C. = 1431+76.13
P.T. = 1438+14.54
e = 0.049 '/'
Ls = 540'

STA. 1434+85.73 IN PLACE
24"X 110' R.C. PIPE CULVERT
WITH HDWLS. LT. AND RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND 12' LT. AND 24' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES.
Q50=23.2 CFS DA=3 ACRES
24" R.C. PIPE = 44 LIN. FT.
24" FES = 2 EACH

STA. 1438+48.41 IN PLACE
18"X 40' C.M. PIPE CULVERT
IN MEDIAN TURNAROUND
REMOVE AND CONSTRUCT
18"X 52' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH SES. LT. & RT.

C.L. HWY. 70 STA. 1438+45.00 =
C.L. FRONTAGE RD. STA. 330+00.00

STA. 1437+60.00
END JOB CA0610
BEGIN OVERLAY

STA. 1440+46.25 IN PLACE
24"X 57' R.C. PIPE CULVERT
RETAIN

STA. 1440+46.25 IN PLACE
24"X 59' R.C. PIPE CULVERT
W/ DROP INLET
RETAIN

STA. 1440+42.50
END OVERLAY

100' TRANSITION TO MATCH EXISTING

STA. 1434+83.94 RT.
2.5 CU. YDS.
DUMPED RIPRAP

PAVEMENT TRANSITION

PAVEMENT OBLITERATION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
9-25-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STA. 1428+58.80 BEGIN SUPERELEVATION LT.
STA. 1433+58.80 MAX SUPERELEVATION LT. (0.020'/')
STA. 1433+60.00 MATCH EXISTING LT.

STA. 1431+00.00 BEGIN SUPERELEVATION RT.
STA. 1432+90.00 MAX SUPERELEVATION RT. (0.049'/')
STA. 1435+30.00 MAX SUPERELEVATION RT. (0.049'/')
STA. 1437+60.00 END SUPERELEVATION RT. MATCH EXISTING

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
1434+00.00	1435+00.00	LT. =	100 LIN. FT.	6'-0"	66.67

PROFILE GRADE
EXISTING GROUND
ELEV. 466.64
-1.98%
VC=850.00'
K=52
e=-5.94'
PVI 1432+50.00
ELEV. 463.75
PVI 1433+60.00
ELEV. 461.57
PVI 1434+90.00
ELEV. 460.00
PVI 1435+50.00
ELEV. 458.85
PVI 1436+60.00
ELEV. 456.50
PVI 1437+50.00
ELEV. 454.73
-1.75%
-1.55%
-1.77%
-3.09% LT. DT. GR.
5.67% DT. GR.
5.67% LT. DT. GR.
+00.00 LT. 457.85
+00.00 LT. 455.25
+83.94 LT. 455.16
+00.00 LT. 456.16
FL RT. = 449.05
FL LT. = 455.25
FL = 450.66
FL = 449.83
100' TRANSITION TO MATCH EXISTING

480 475 470 465 460 455 450 445 440 435

1430+00 1431+00 1432+00 1433+00 1434+00 1435+00 1436+00 1437+00 1438+00 1439+00 1440+00 1441+00 1442+00 1443+00 1444+00 1445+00

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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	321	888
				(2) CROSSGATE CHURCH DRIVE				

CROSSGATE CHURCH DRIVE
P.I. = 17+44.03
Δ = 26°00'00.0" LT.
D = 28°00'00"
T = 47.24'
L = 92.86'
P.C. = 16+96.79
P.T. = 17+89.65
NO SUPER

CROSSGATE CHURCH DRIVE
P.I. = 18+47.03
Δ = 26°00'00.0" RT.
D = 30°00'00"
T = 44.09'
L = 86.67'
P.C. = 18+02.93
P.T. = 18+89.60
NO SUPER

STA. 17+60.00
BEGIN CROSSGATE CHURCH DRIVE

C.L. CROSSGATE CHURCH DRIVE

STA. 18+59.00, 43' LT. CONSTRUCT
4'X4' X H=5'-3" TYPE E JUNCTION BOX
TIE TO EXIST. 30"X 105' R.C. PIPE
CULVERT
INSTALL 30"X 63' R.C. PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
WITH 30" FES
30" R.C. PIPE = 105 LIN. FT.
30" FES = 1EACH

STA. 18+80.00 IN PLACE
TYPE C CURB INLET LT.
WITH 30"X63' R.C. PIPE OUTLET
AND 30"X13' R.C. PIPE INLET
REMOVE CURB INLET, 30" R.C. PIPE OUTLET
AND 25' OF 30" R.C. PIPE INLET.
INSTALL 4'X2.5' X 8'-3" TYPE C CURB
INLET WITH 4' EXTENSION AND
18"X 59' R.C. PIPE OUTLET
CONNECTING TO CURB INLET
AT STA. 19+40.50 LT.
(CLASS III) (TYPE 3 BEDDING)
18" R.C. PIPE = 59 LIN. FT.

STA. 18+80.00 IN PLACE
TYPE C CURB INLET RT.
WITH 30"X81' R.C. PIPE OUTLET
REMOVE AND INSTALL
4'X2.5' X H=7'-3" TYPE C CURB INLET
WITH 4' EXTENSION AND
18"X 57' R.C. PIPE OUTLET
CONNECTING TO CURB INLET
AT STA. 19+40.50 RT.
(CLASS III) (TYPE 3 BEDDING)
18" R.C. PIPE = 57 LIN. FT.

STA. 19+43.00 IN PLACE
TYPE C CURB INLET WITH
36"X51' R.C. PIPE OUTLET
WITH FES LT.
REMOVE

STA. 19+63.00 IN PLACE
TYPE C CURB INLET RT. WITH
42"X115' R.C. PIPE OUTLET
WITH FES LT. AND
36"X51' R.C. PIPE INLET
WITH FES RT.
REMOVE

STA. 19+40.50 INSTALL
4'X2.5' X H=7'3" TYPE C CURB INLET
WITH 8' EXTENSION AND
36"X14' R.C. PIPE INLET WITH FES RT.
AND 36"X82' R.C. PIPE OUTLET
CONNECTING TO 4'X2.5'X H=6'-3"
TYPE C CURB INLET WITH
8' EXTENSION AND 36"X14' R.C. PIPE
OUTLET (CLASS III) (TYPE 3 BEDDING)
WITH FES LT.
36" R.C. PIPE = 110 LIN. FT.
36" FES = 2 EACH

STA. 20+00.00
END CROSSGATE CHURCH DRIVE

CROSSGATE CHURCH DRIVE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-15-2016

REFER TO SURVEY CONTROL DETAILS FOR
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EXISTING GROUND
(6.5' OFFSET FROM C.L.)

PVI 17+60.00
ELEV. 497.71

PVI 19+10.50
ELEV. 482.62

PVI 19+25.50
ELEV. 481.63

PVI 19+40.50
ELEV. 481.33

PVI 19+55.50
ELEV. 481.72

PVI 19+70.50
ELEV. 482.80

10.03%
-6.60%
-2.00%
2.60%
1.20%
1.20%

PROFILE GRADE

C.L. HWY. 70

50' TRANS.
TO EXIST.

FL OUT LT. = 477.50
FL OUT RT. = 478.50

FL IN LT. = 474.00
FL IN RT. = 475.00

FL LT. = 472.41
FL RT. = 475.46

SEE CROSS SECTIONS FOR ADDITIONAL INFORMATION.

530 520 510 500 490 480 470 460 450 440

17+00 18+00 19+00 20+00

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WORKSPACE: Leonard.Speed
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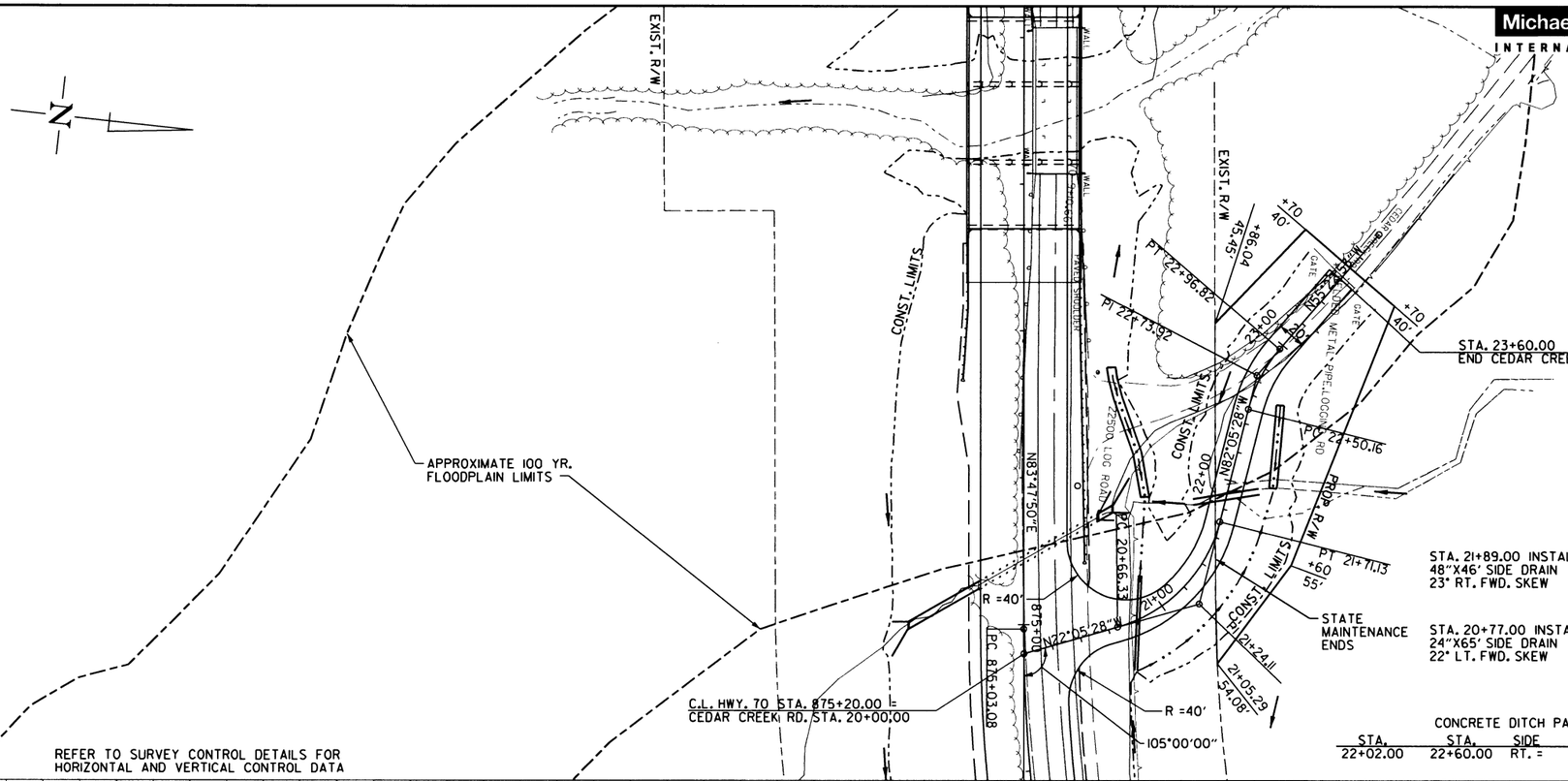
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	322	888

(2) CEDAR CREEK ROAD



CEDAR CREEK ROAD
P.I. = 21+24.11
Δ = 60°00'00.0" LT.
D = 57°15'00"
T = 57.78'
L = 104.80'
P.C. = 20+66.33
P.T. = 21+71.13
NO SUPER

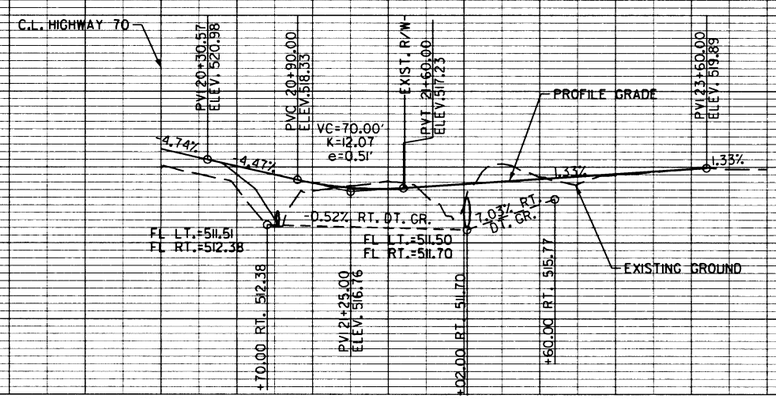
CEDAR CREEK ROAD
P.I. = 22+73.92
Δ = 26°42'34.9" RT.
D = 57°15'00"
T = 23.76'
L = 46.65'
P.C. = 22+50.16
P.T. = 22+96.82
NO SUPER

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
22+02.00	22+60.00	RT. =	58 LIN. FT.	6'- 0"	38.67

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-25-2016

CEDAR CREEK ROAD



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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	323	888
				(2)	COUNTY ROAD 1381			

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

STA. 20+79.00 IN PLACE
24"x32' C.M. PIPE CULVERT
REMOVE & INSTALL
24"x51' SIDE DRAIN
12° LT. FWD. SKEW

S89°12'15"E

21+24.59
45'

21+90
45'

STA.21+80.00
END COUNTY ROAD 1381

R =40'

PROP. R/W

CONST. LIMITS

N=21+00

N3°12'15"W

22'

21+90
35'

R =20'

R =20'

16'

R =40'

21+04.31
36.31'

STATE MAINTENANCE ENDS

104°00'00"

C.L. HWY 70 STA. 958+40.00 =
COUNTY ROAD 1381 STA. 20+00.00

STA. 21+37.00
CONSTRUCT APPROACH ON RT. =
15 CU. YDS.

CONST. LIMITS

EXIST. R/W

960+00

EXIST. R/W

COUNTY ROAD 1381

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

VC=30.00'
K=10.64
e=-0.11'

PVI 20+30.40
ELEV. 480.12

PVI 20+60.00
ELEV. 478.39

PVC 20+80.00
ELEV. 476.66

C.L. HIGHWAY 70

-1.25%

-5.85%

PVC 20+45.00
ELEV. 479.27

PVT 20+75.00
ELEV. 477.09

PROFILE GRADE

EXIST. R/W

PVI 21+25.00
ELEV. 472.75

VC=90.00'
K=11.30
e=0.90'

PVT 21+70.00
ELEV. 472.44

PVI 21+80.00
ELEV. 472.37

0.70%

EXISTING GROUND

FL LT.= 471.81
FL RT.= 469.32

490
480
470
460

19+00
20+00
21+00
22+00
23+00

Leonard.Speed 9/23/2016 2:20:39 PM
WORKSPACE: Leonard.Speed
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Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	324	888
				(2)	LONSDALE CUTOFF & HIGHWAY 128			

LONSDALE CUTOFF
STA. 9+33.61 IN PLACE
14"X 32' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18"X 59' SIDE DRAIN
5° LT. FWD. SKEW
Q10=12.2 CFS DA=2 ACRES

C.L. LONSDALE CUTOFF
P.I. 7+00.33
Δ = 49°26'06.9" LT.
D = 32°00'00"
T = 82.42'
L = 154.49'
P.C. = 6+17.91
P.R.C. = 7+72.39
NO SUPER

C.L. LONSDALE CUTOFF
P.I. 8+83.61
Δ = 49°57'26.1" RT.
D = 24°00'00"
T = 111.21'
L = 208.16'
P.R.C. = 7+72.39
P.T. = 9+80.55
NO SUPER

C.L. HWY. 70 STA. 1028+63.91 =
C.L. LONSDALE CUTOFF STA. 10+00.00 =
C.L. HWY. 128 STA. 10+00.00

STA. 14+44.98 IN PLACE
18"X58' C.M. PIPE CULVERT
RETAIN AND EXTEND 23' LT. IN STAGE 1
PLUG AND ABANDON AFTER STAGE 2
18" R.C. PIPE = 23 LIN. FT.

STA. 18+63.00 IN PLACE
18"X 31' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE & INSTALL
18"X 35' PIPE CULVERT
LT. SIDE DRAIN.
CONST. APPROACH
5 CU. YDS.

STA. 14+14.32 CONSTRUCT
24"X93' R.C. PIPE CULVERT
15° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=20.6 CFS DA=18 ACRES

STATE MAINTENANCE ENDS
STA. 6+50.00
BEGIN LONSDALE CUTOFF
C.L. LONSDALE CUTOFF
STA. 18+00.00
END HWY. 128
C.L. HWY. 128
PROP. R/W
CONST. LIMITS
EXIST. R/W
PAVED SHOULDER
BRUSH
EXIST. R/W
PROP. R/W
CONST. LIMITS
EXIST. R/W
CONST. LIMITS
100' TRANSITION TO MATCH EXISTING
50' TRANSITION TO MATCH EXISTING
PAVEMENT TRANSITION
113.67' TAPER
P.I. 20+49.63

STATE OF ARKANSAS
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No.10887
SCOTT P. THORNSBERRY
9-23-2016

LONSDALE CUTOFF & HIGHWAY 128

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

LONSDALE CUTOFF
PVI 6+50.00 ELEV. 522.18
PVC 7+30.00 ELEV. 519.05
-3.92%
VC=240.00'
K=43
e=1.66'
PROFILE GRADE
PVI 8+50.00 ELEV. 514.35
EXISTING GROUND
PVT 9+70.00 ELEV. 516.31
PVI 9+70.50 ELEV. 516.31
2.00%
1.63%
FL RT.=512.17
FL LT.=508.32

HWY. 128
C.L. HWY. 70
PVI 10+28.50 ELEV. 516.30
PVC 10+50.00 ELEV. 514.95
2.00%
6.60%
VC=750.00'
K=96
e=7.31'
PROFILE GRADE
EXISTING GROUND
-6.60%
FL LT.=488.84
FL RT.=488.12
1.20%
PVI 14+25.00 ELEV. 490.20
PVT 18+00.00 ELEV. 494.70
1.13%
100' VERT. TRANS. TO MATCH EXIST.

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WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	325	888
				(2) HIGHWAY 88				

CONST. LIMITS

EXIST. R/W

STA. 39+02.54 CONSTRUCT
24"X 109' R.C. PIPE CULVERT
34° RT. FWD SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q10=3.9 CFS DA=1 ACRE

HWY. 88
P.I. 37+99.60
Δ = 29°18'43.3" LT.
D = 20°00'00"
T = 74.92'
L = 146.56'
P.C. = 37+24.68
P.T. = 38+71.24
MATCH EXIST. SUPER

HWY. 88
P.I. 39+30.07
Δ = 28°58'51.8" LT.
D = 57°15'00"
T = 25.86'
L = 50.62'
P.C. = 39+04.21
P.T. = 39+54.83
MATCH EXIST. SUPER

C.L. HWY. 70 STA. 1099+15.00 =
C.L. HWY. 88 STA. 40+00.00

CN=0% FILL

DITCH

PC 39+04.21

PT 38+71.24

PC 37+24.68

POB 35+94.18

STA. 38+00.00
BEGIN HWY. 88

R =75'

95°00'00"

R =100'

N11°42'09"E

88 SOUTH

S66°28'13"E

PI 39+30.07

N46°40'57"E

N75°59'41"E

EXISTING R/W

36+00

37+00

38+00

39+00

M90+00

M95+00

22'

16'

R =20'

C.L. HWY. 88

N89°02'16"E

100°22'

STA. 37+00.00

STA. 38+00.00

100' TRANS. TO MATCH EXIST.

STA. 37+69.50 IN PLACE
24"X 41' C.M. PIPE CULVERT
RETAIN

HWY. 88
STA. 38+05 IN PLACE
12"X 44' C.M. PIPE CULVERT
RT. SIDE DRAIN
RETAIN
CONSTRUCT APPROACH = 10 CU. YDS.

LOW WIRE LINE BURIED

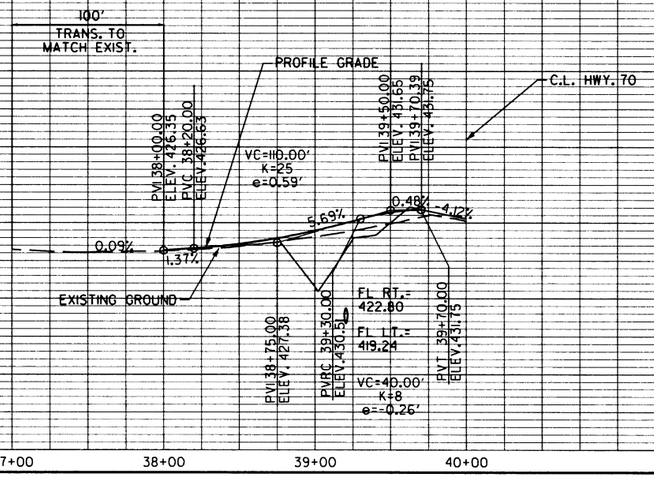
BIKE TRAIL

POND

PAVEMENT TRANSITION

HWY. 88

REFER TO SURVEY CONTROL DETAILS FOR
HORIZONTAL AND VERTICAL CONTROL DATA



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

Leonard Speed 9/23/2016 2:21:03 PM
WORKSPACE: Leonard Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	326	888
				(2)	NANCE ROAD			

REMOVAL AND DISPOSE OF FENCE
STA. 106 +88 TO STA. 108 +14 LT. OF CL. = 156 LIN. FT.
STA. 107 +01 TO STA. 107 +71 RT. OF CL. = 91 LIN. FT.

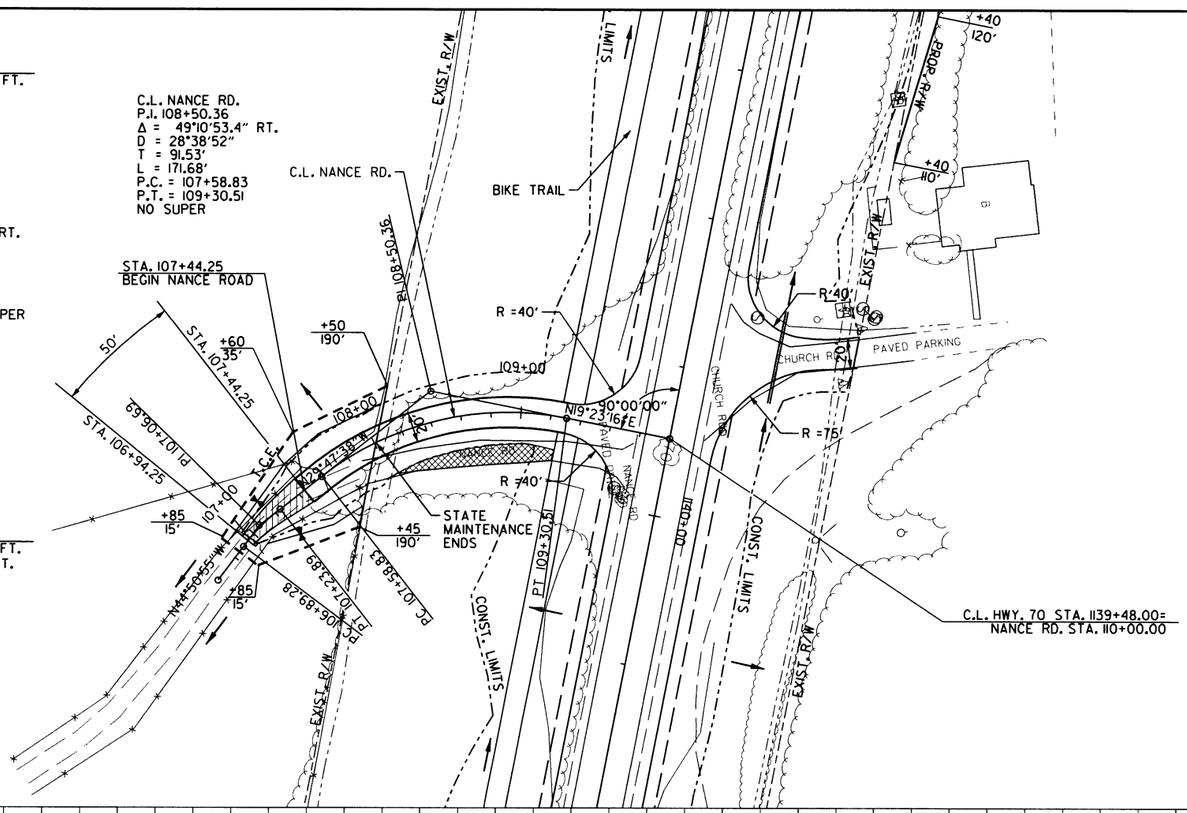
FENCE (TYPE A)
STA. 106 +88 TO STA. 108 +14 LT. OF CL. = 138 LIN. FT.
STA. 107 +01 TO STA. 107 +71 RT. OF CL. = 70 LIN. FT.

PAVEMENT TRANSITION

PAVEMENT OBLITERATION

C.L. NANCE RD.
P.I. 108+50.36
Δ = 49°10'53.4" RT.
D = 28°38'52"
T = 91.53'
L = 171.68'
P.C. = 107+58.83
P.T. = 109+30.51
NO SUPER

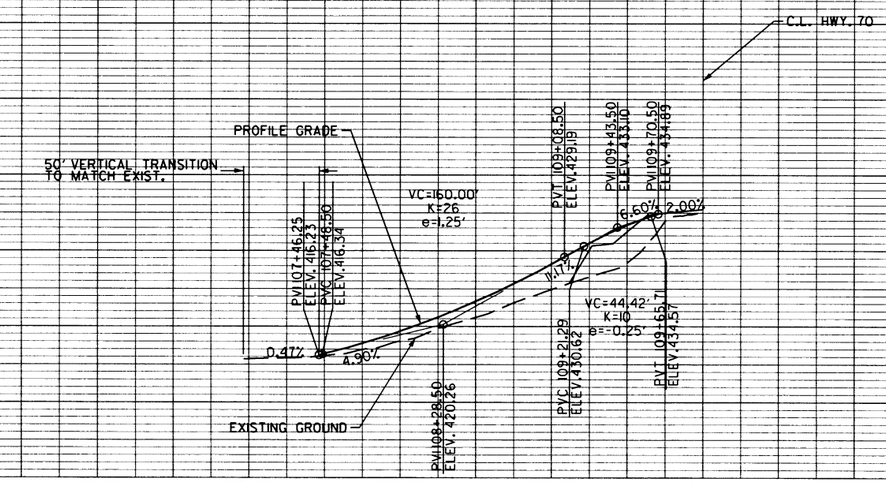
C.L. NANCE RD.
P.I. 107+06.69
Δ = 15°03'17.7" RT.
D = 43°30'00"
T = 17.40'
L = 34.61'
P.C. = 106+89.28
P.T. = 107+23.89
MATCH EXIST. SUPER



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-25-2016

NANCE ROAD

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA



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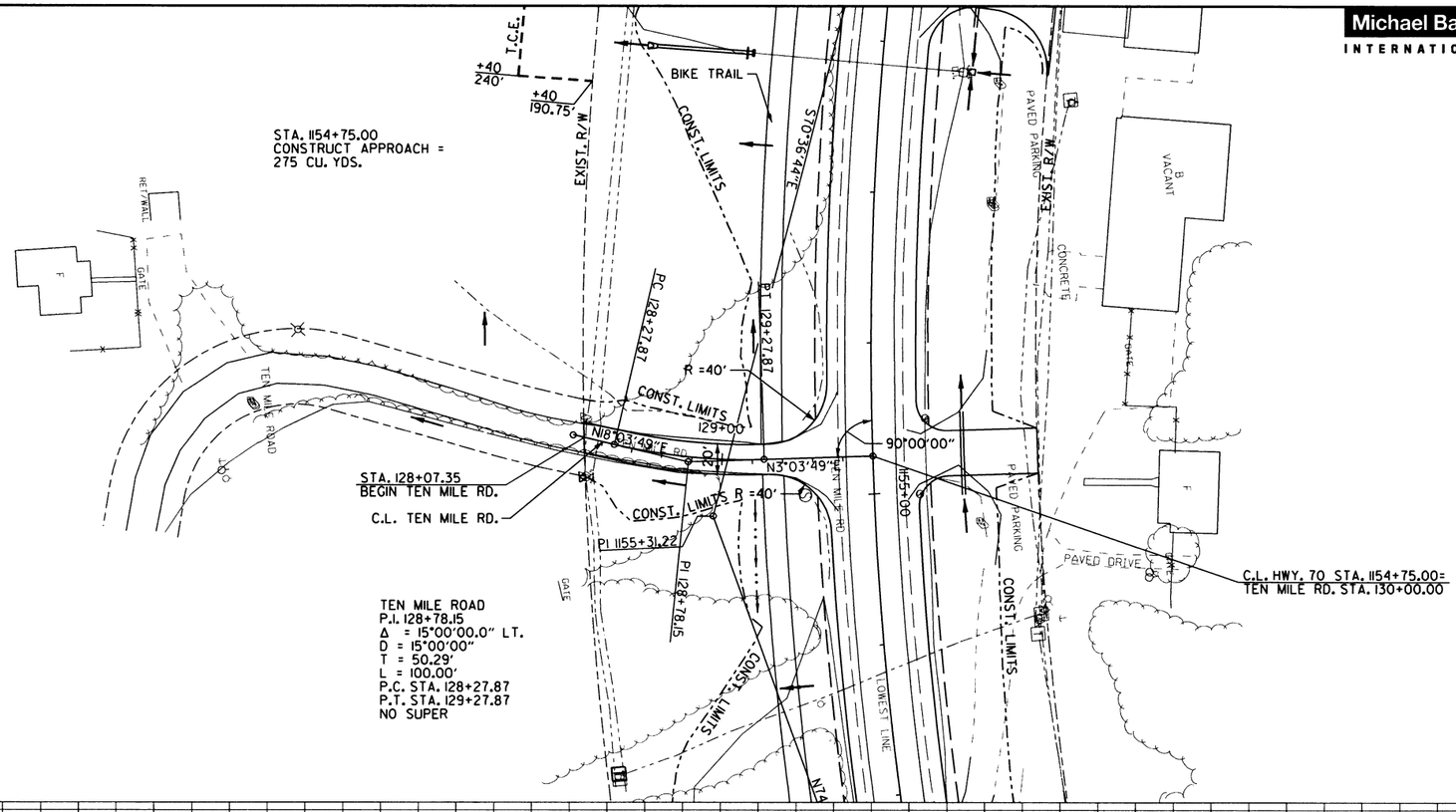
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	327	888
(2)	TEN MILE ROAD			

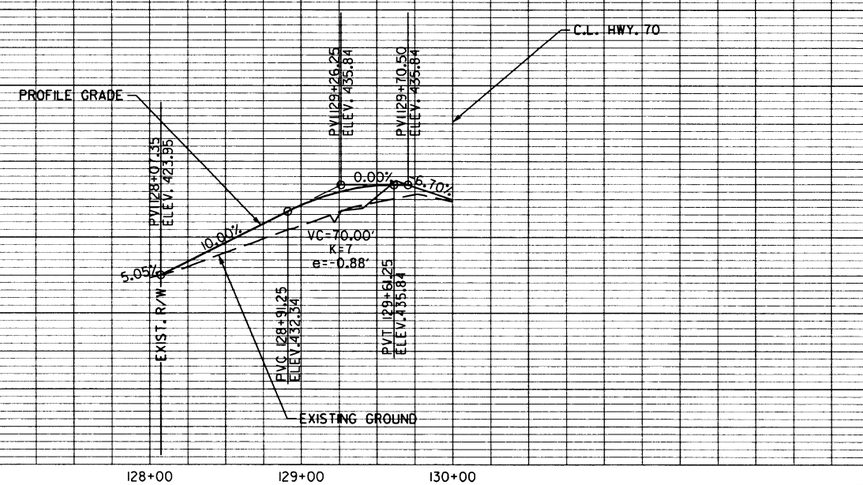


STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY

TEN MILE ROAD

9-25-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA



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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	328	888
(2)	NARROWS ROAD			

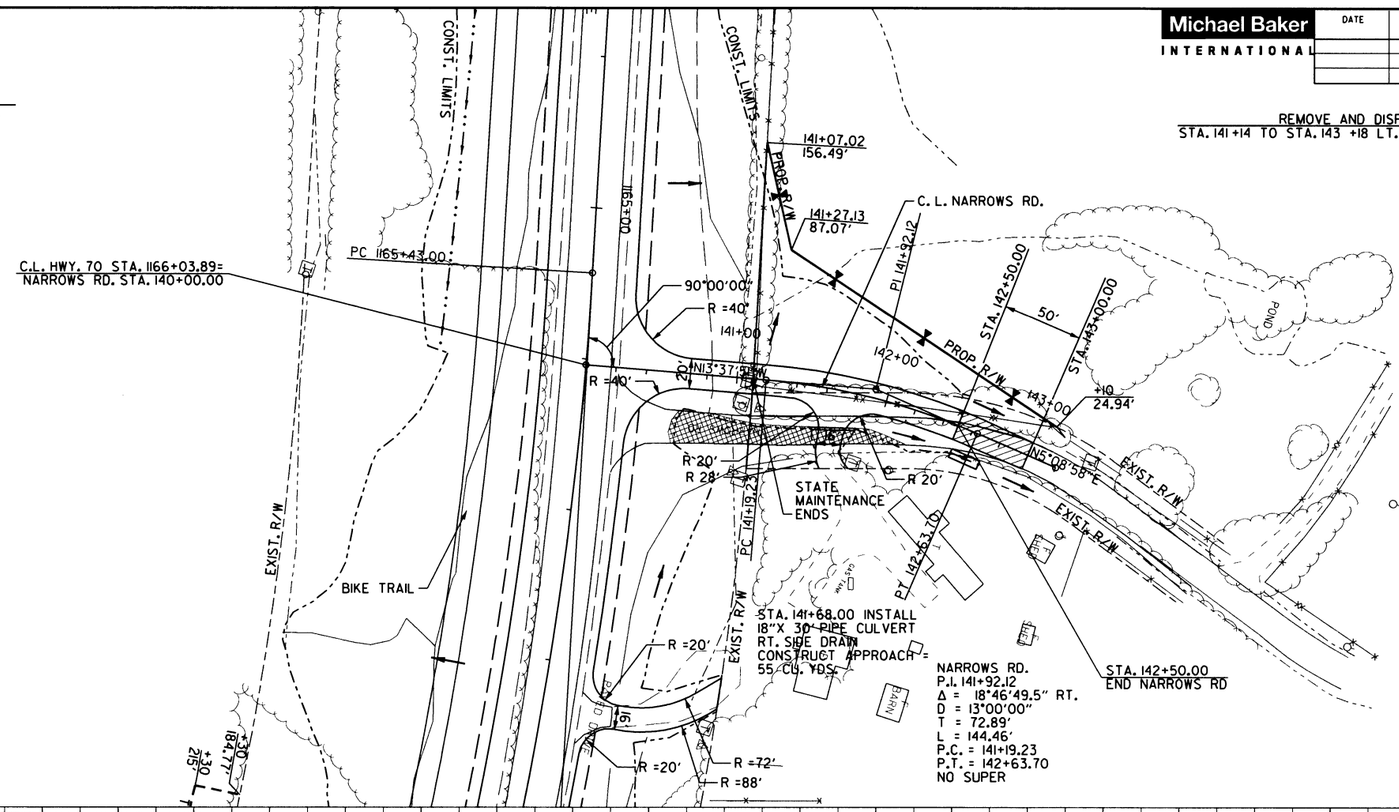
REMOVAL AND DISPOSAL OF FENCE
STA. 141+27 TO STA. 143 +18 LT. OF CL. = 221 LIN. FT.

REMOVE AND DISPOSE OF FENCE
STA. 141+14 TO STA. 143 +18 LT. OF CL. = 208 LIN. FT.

FENCE (TYPE A)
STA. 141+27 TO STA. 143 +18 LT. OF CL. = 221 LIN. FT.

CONCRETE DITCH PAVING (TYPE B)

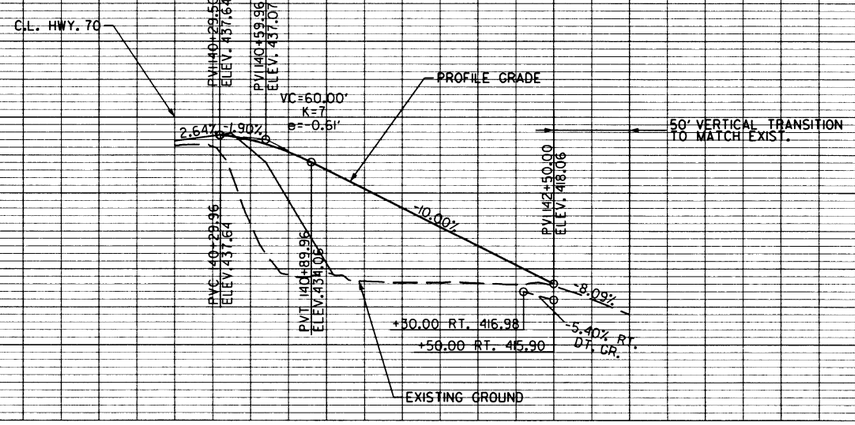
STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
142+30.00	142+50.00	RT. =	20 LIN. FT.	6'-0"	13.33



PAVEMENT TRANSITION

PAVEMENT OBLITERATION

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-25-2016

NARROWS RD.

Leonard.Speed 9/23/2016 2:2h:36 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	329	888

(2) BROWNING ACCESS ROAD

BROWNING ACCESS RD.
STA. 205+67.00 IN PLACE
12"X 24' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 54' PIPE CULVERT
LT. SIDE DRAIN
5° RT. FWD. SKEW.
QIO=7.7 CFS DA=2 ACRES

STA. 205+89.00 IN PLACE
12"X24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
65 CU. YDS.

BROWNING ACCESS
P.I. 206+06.63
Δ = 78°41'47.5" RT.
D =143°14'22"
T = 32.80'
L = 54.94'
P.C. = 205+73.84
P.T. = 206+28.78
NO SUPER

STA. 206+30.00 IN PLACE
12"X24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X39' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
25 CU. YDS.

BROWNING ACCESS
P.I. 208+05.54
Δ = 4°52'18.9" RT.
D = 2°00'00"
T = 121.87'
L = 243.60'
P.C. = 206+83.67
P.T. = 209+27.27
NO SUPER

STA. 208+91.00 INSTALL
18"X41' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
35 CU. YDS.

STA. 209+90.00 INSTALL
18"X41' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
30 CU. YDS.

STA. 211+50.00 INSTALL
18"X42' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
30 CU. YDS.

BROWNING ACCESS
P.I. 213+36.10
Δ = 30°12'49.8" LT.
D = 6°00'00"
T = 257.78'
L = 503.56'
P.C. = 210+78.31
P.T. = 215+81.88
NO SUPER

STA. 212+98.00 INSTALL
18"X36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
15 CU. YDS.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
216+08.00	216+50.00	LT. =	42 LIN. FT.	6'- 0"	28.00

NOTE:
DRIVEWAY RADIUS RETURNS ARE 20' (TYP.) UNLESS NOTED OTHERWISE.
DRIVEWAYS ARE 16' WIDE UNLESS NOTED OTHERWISE.

C.L. BROWNING ROAD STA. 211+25.26=
C.L. BROWNING ACCESS RD. STA. 217+25.52

C.L. HWY. 70 STA. 1218+67.06=
BROWNING ACCESS RD. STA. 205+00.00

C.L. HWY. 70 STA. 1230+43.86=
BROWNING RD. STA. 210+00.00

BROWNING ACCESS ROAD

STATE OF ARKANSAS
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9-23-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

	GUARDRAIL (TYPE A)	TERMINAL ANCHOR POST (TYPE I)
STA. 207+10.00 TO STA. 214+60.00 RT. OF C.L. BROWNING RD. ACCESS =	700 LIN. FT.	2 EACH

PROFILE GRADE
EXISTING GROUND
C.L. BROWNING RD.
C.L. HWY. 70
PVI 205+30.53 ELEV. 389.34
PVC 205+70.00 ELEV. 390.65
PVI 205+70.00 ELEV. 392.31
PVI 205+20.00 ELEV. 392.3
PVT 206+70.00 ELEV. 397.08
PVC 206+90.00 ELEV. 398.99
PVI 208+40.00 ELEV. 413.30
PVT 209+90.00 ELEV. 414.84
PVC 211+50.00 ELEV. 416.49
PVI 211+80.00 ELEV. 416.80
PVT 212+10.00 ELEV. 418.27
PVC 212+90.00 ELEV. 422.19
PVI 213+80.00 ELEV. 425.60
PVT 214+70.00 ELEV. 418.50
PVC 214+80.00 ELEV. 417.60
PVI 215+70.00 ELEV. 409.60
PVT 216+50.00 ELEV. 409.94
PVI 217+14.39 ELEV. 410.20
FL RT.=386.30
FL LT.=380.61
6.92%
3.33%
5.41%
1.03%
4.90%
2.00%
4.40% LT. DT. GR.
0.49%
3.59%
VC=100.00' K=16 e=0.78'
VC=300.00' K=35 e=-3.19'
VC=60.00' K=16 e=0.29'
VC=80.00' K=13 e=-3.13'
VC=180.00' K=19 e=2.13'
LT. 405.65
LT. 407.50
+08.00
+50.00
430
420
410
400
390
380
205+00
206+00
207+00
208+00
209+00
210+00
211+00
212+00
213+00
214+00
215+00
216+00
217+00
218+00

Leonard.Speed 9/23/2016 2:12:46 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	330	888
(2)	FAIRPLAY RD. AND BROWNING RD. WEST			

FAIRPLAY ROAD
STA. 209+37.48 IN PLACE
16"X 38' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18"X 60' PIPE CULVERT
RT. SIDE DRAIN
16° RT. FWD. SKEW
Q10=0.9 CFS DA=0.2 ACRES

STA. 207+40.00
CONSTRUCT APPROACH ON LT. =
10 CU. YDS.

STA. 208+19.00
CONSTRUCT APPROACH ON RT. =
10 CU. YDS.

BROWNING ROAD
STA. 210+59.80 IN PLACE
16"X 40' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 44' PIPE CULVERT
LT. SIDE DRAIN
4° RT. FWD SKEW
Q10=3.0 CFS DA=0.5 ACRES

C.L. BROWNING RD.
P.I. STA. 211+31.96
Δ = 49°25'07.2" RT.
D = 57°15'00"
T = 46.05'
L = 86.32'
P.C. = 210+85.91
P.T. = 211+72.23
NO SUPER

PAVEMENT OVERLAY & TRANSITION

PAVEMENT OBLITERATION

FAIRPLAY RD.
P.I. 207+41.58
Δ = 26°47'12.7" RT.
D = 57°17'45"
T = 23.81'
L = 46.75'
P.C. = 207+17.77
P.T. = 207+64.52
NO SUPER

FAIRPLAY RD.
P.I. 209+13.64
Δ = 62°07'24.3" LT.
D = 57°17'45"
T = 60.23'
L = 108.43'
P.C. = 208+53.41
P.T. = 209+61.83
NO SUPER

C.L. HWY. 70 STA. 1230+43.86=
BROWNING RD. STA. 210+00.00=
FAIRPLAY RD. STA. 210+00.00

STATE OF ARKANSAS
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SCOTT P. THORNSBERRY
9-23-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

FAIRPLAY ROAD

BROWNING ROAD WEST

Leonard.Speed 9/23/2016 2:21:57 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: 9/23/2016

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	331	888

SMITH FORD ROAD

SMITH FORD ROAD
P.I. 300+92.56
Δ = 68°41'16.5" LT.
D = 70°00'00"
T = 55.93'
L = 98.13'
PC = 300+36.63
PT = 301+34.76
NO SUPER

STATE MAINTENANCE ENDS
STA. 302+60.65
END SMITH FORD RD.

STA. 303+10.00
STA. 302+60.00

REMOVAL AND DISPOSAL OF FENCE
STA. 301+81 TO STA. 303 +00 LT. OF CL. = 134 LIN. FT.

FENCE (TYPE A)
STA. 301+81 TO STA. 303 +00 RT. OF CL. = 134 LIN. FT.

STA. 1399+09.30
(SMITH FORD RD. TEMP CONN.)
INSTALL
18"X 113' TEMP. SIDE DRAIN
68° LT. FWD. SKEW
CONSTRUCT APPROACH =
745 CU. YDS.

SMITH FORD RD.
TEMP. CONNECTION

C.L. HWY. 70 STA. 1399+09.30 =
SMITH FORD RD. TEMP. CONN. STA. 0+00.00

C.L. HWY. 70 STA. 1400+60.00=
SMITH FORD RD. STA. 300+00.00

REMOVE AND DISPOSE OF FENCE
STA. 301+81 TO STA. 303 +00 RT. OF CL. = 121 LIN. FT.

PAVEMENT TRANSITION

BIKE TRAIL

EXIST. R/W

CONST. LIMITS

PROP. R/W

SMITH FORD ROAD

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-15-2016

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL AND VERTICAL CONTROL DATA

C.L. HWY. 70

PROFILE GRADE

EXISTING GROUND

PVI 300+30.53 ELEV. 401.03

PVI 300+88.9 ELEV. 402.07

PVC 300+51.41 ELEV. 401.05

PVI 301+46.41 ELEV. 396.52

PVC 301+98.63 ELEV. 391.10

PVI 302+28.63 ELEV. 388.10

PVI 302+58.63 ELEV. 387.11

PVI 302+60.65 ELEV. 387.04

VC=115.00'
K=10
e=-1.69'

VC=60.00'
K=9
e=0.50'

1.78%

-10.00%

3.29%

3.42%

3.39%

50'

VERT. TRANSITION TO MATCH EXISTING

420
410
400
390
380
370

300+00
301+00
302+00
303+00
304+00

Leonard.Speed 9/23/2016 2:22:09 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	332	888
(2)	FRONTAGE ROAD			

C.L. FRONTAGE ROAD
P.I. 332+31.56
Δ = 108°53'08.7" RT.
D = 65°00'00"
T = 123.32'
L = 167.52'
PC = 331+08.24
PT = 332+75.76
NO SUPER

STA. 332+62 INSTALL
18"x32' PIPE CULVERT
LT. SIDE DRAIN.
CONST. APPROACH =
30 CU. YDS

STA. 333+33
CONST. APPROACH ON LT. =
140 CU. YDS

STA. 334+57 INSTALL
18"x42' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH =
80 CU. YDS

STA. 336+23 IN PLACE
18"X24' STEEL PIPE CULVERT
LT. SIDE DRAIN
REMOVE & INSTALL
18"x38' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH =
30 CU. YDS

C.L. FRONTAGE ROAD
P.I. 335+48.01
Δ = 20°03'34.8" LT.
D = 13°15'00"
T = 76.48'
L = 151.39'
PC = 334+71.53
PT = 336+22.92
NO SUPER

STA. 330+86 IN PLACE
18"X30' C.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 330+80 IN PLACE
24"X41' R.C. PIPE CULVERT
REMOVE AND INSTALL
24"X86' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.

PAVEMENT TRANSITION

PAVEMENT OBLITERATION

EXIST. R/W
CONST. LIMITS
PROP. R/W
CONST. LIMITS
PARKING
BIKE TRAIL
DRIVE
PAVED
TAPER
C.L. FRONTAGE ROAD
C.L. HWY. 70 STA. 1438+45.00=
FRONTAGE RD. STA. 330+00.00
STA. 336+05.20
END FRONTAGE RD.
BOX WIRE
EXIST. R/W
CONST. LIMITS

R =75'
R =69'
R =20'
332+00
333+00
334+00
335+00
336+00
337+00
1435+00
1440+00
1445+00
S76°07'45"E
S64°57'25"E
N25°02'35"E
90°00'00"
S66°07'51"E
S79°46'36"E
PI 1434+98
PT 1438+14.54
PI 335+48.01
PC 1444+33.13
PT 1449+68.76
POE 1449+80.05
PI 1446+83.49
50'
+51.30

REFER TO SURVEY CONTROL DETAILS FOR
HORIZONTAL AND VERTICAL CONTROL DATA

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	LENGTH	"W"	SQ.YDS.
330+80.00	331+31.00	LT.=	51 LN. FT.	6'- 0"	34.00
330+80.00	332+66.00	RT.=	186 LN. FT.	6'- 0"	124.00

C.L. HWY. 70
PVI 330+41.43
ELEV. 452.40
PVC 330+75.00
ELEV. 452.75
VC=50.00'
K=22
e=0.14'
PVT 331+25.00
ELEV. 453.85
PROFILE GRADE
PVI 333+40.00
ELEV. 461.00
50' VERTICAL TRANS. TO MATCH EXIST.
PVT 336+25.20
ELEV. 459.85
VC=80.00'
K=12
e=-0.68'
PVC 333+00.00
ELEV. 459.67
PVT 333+80.00
ELEV. 459.62
EXISTING GROUND
1.88%
1.02%
3.33%
4.6% RIGHT DITCH GRADE
3.45%
1.52%
FL LT.=447.50
FL RT.=446.50
PVI 331+00.00
ELEV. 453.00
+31.00 LT. 451.15
+80.00 LT. 447.50
+80.00 RT. 446.50
+66.00 RT. 455.08
470
460
450
440
329+00
330+00
331+00
332+00
333+00
334+00
335+00
336+00
337+00
338+00

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-25-2016

FRONTAGE ROAD

Leonard.Speed 9/23/2016 2:22:20 PM
WORKSPACE: Leonard.Speed
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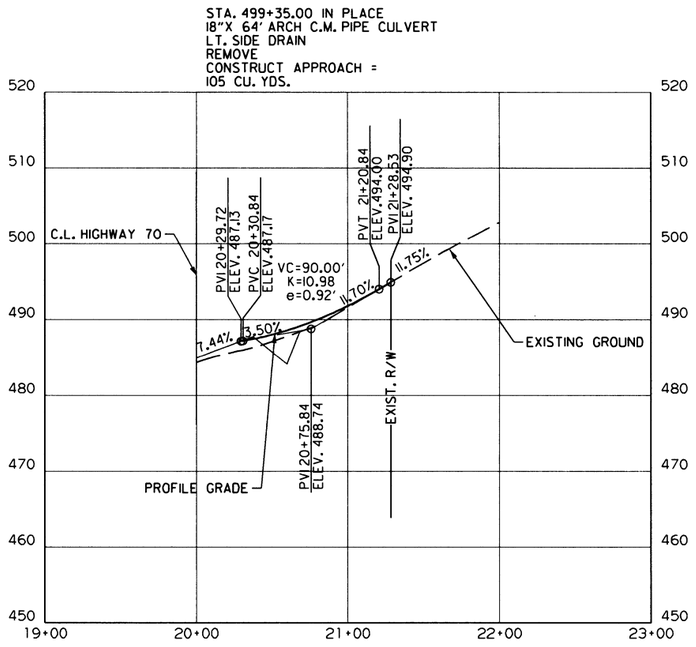
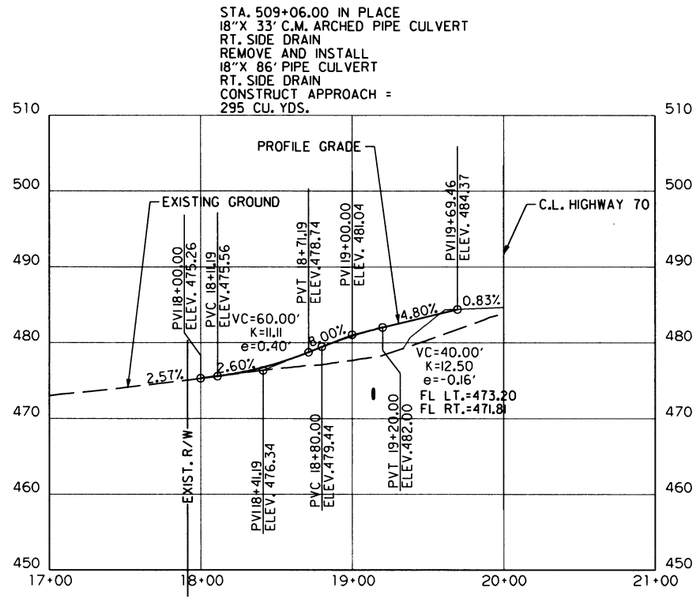
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

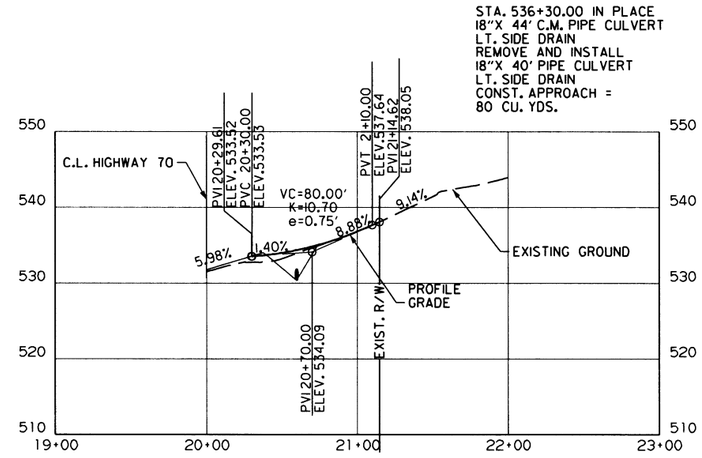
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	333	888
				(2)	SIDE ROAD PROFILES			



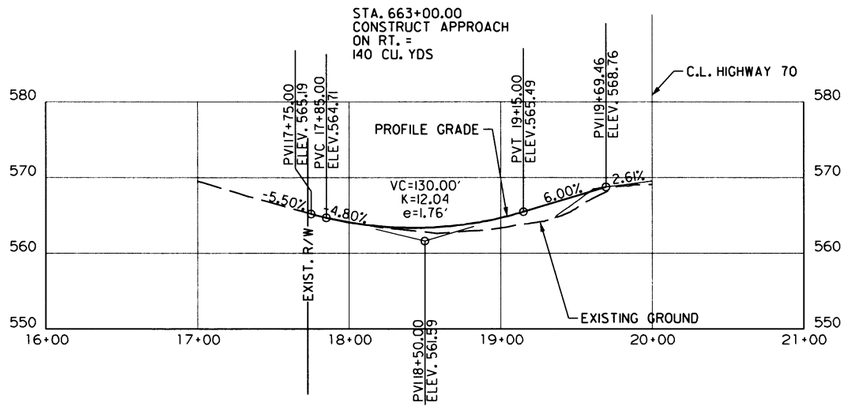
BRATTON DR.
STA. 499+35.00



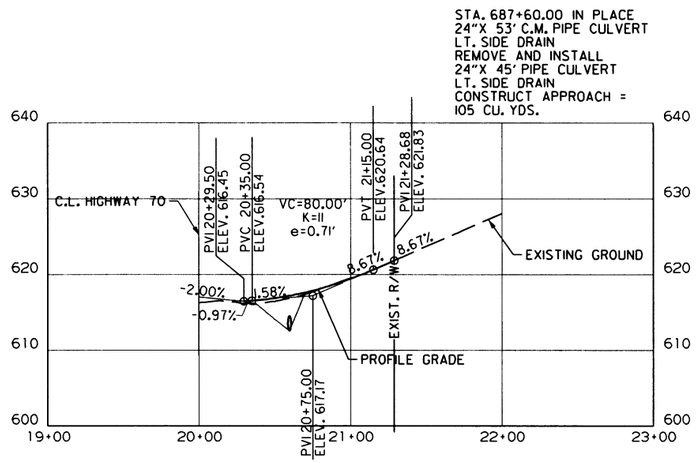
BARTEE TRAIL
STA. 509+06.00



JAVA ROAD TURNOUT LT.
STA. 536+30.00



BOEKAH STREET
STA. 663+00.00



OHANA TERRACE
STA. 687+60.00

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

SIDE ROAD PROFILES

Leonard.Speed 9/23/2016 2:22:31PM
WORKSPACE: Leonard.Speed
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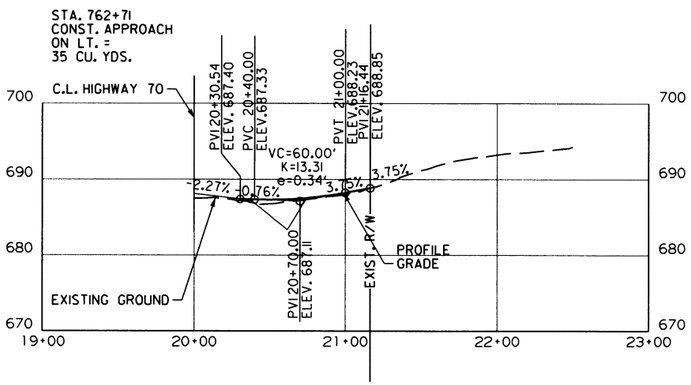
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

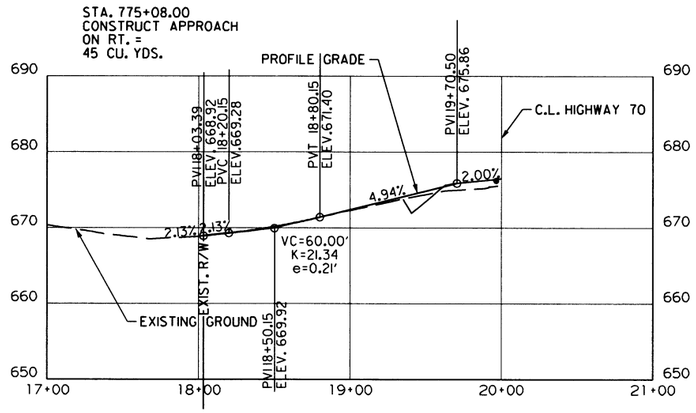
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	334	888

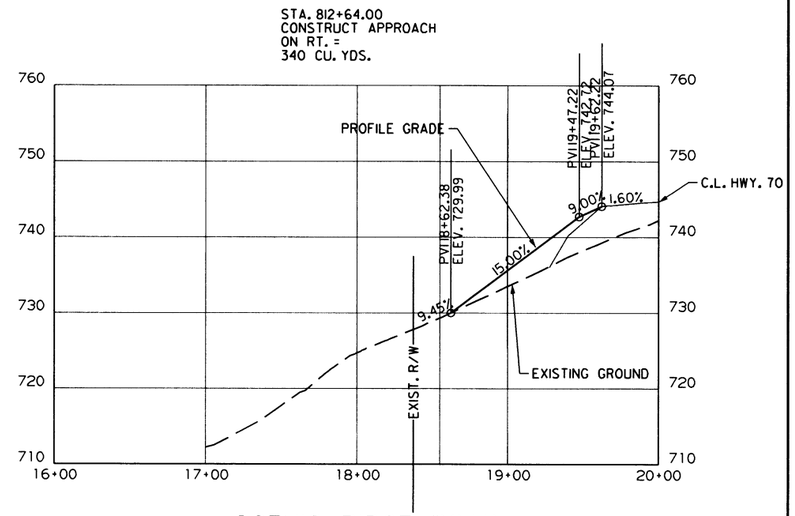
(2) SIDE ROAD PROFILES



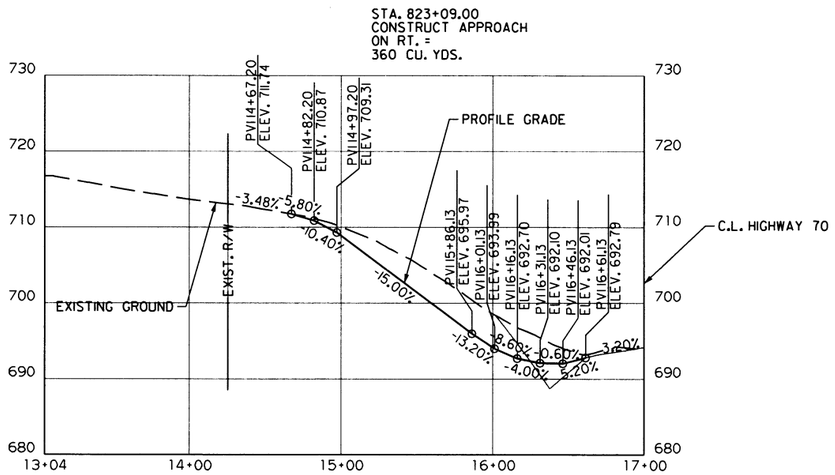
PAYTON PLACE TURNOUT LT.
STA. 762+71.00



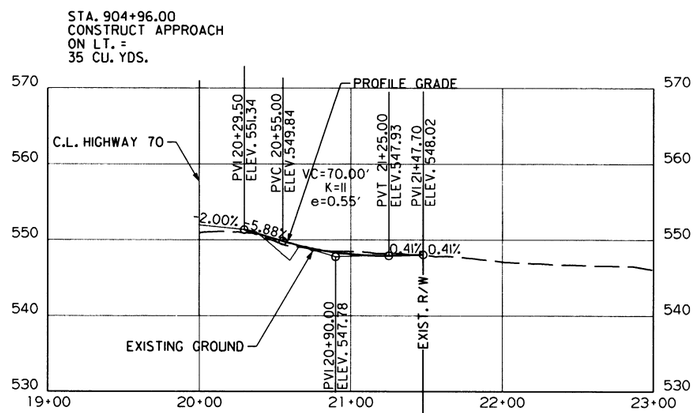
CLOUD 9 DRIVE
STA. 775+08.00



SCENIC RIDGE ROAD
STA. 812+64.00



SUMMIT RIDGE ROAD
STA. 823+09.00



COUNTY ROAD 369
STA. 904+96.00

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

SIDE ROAD PROFILES

Leonard.Speed 9/23/2016 2:22:32 PM
WORKSPACE: Leonard.Speed
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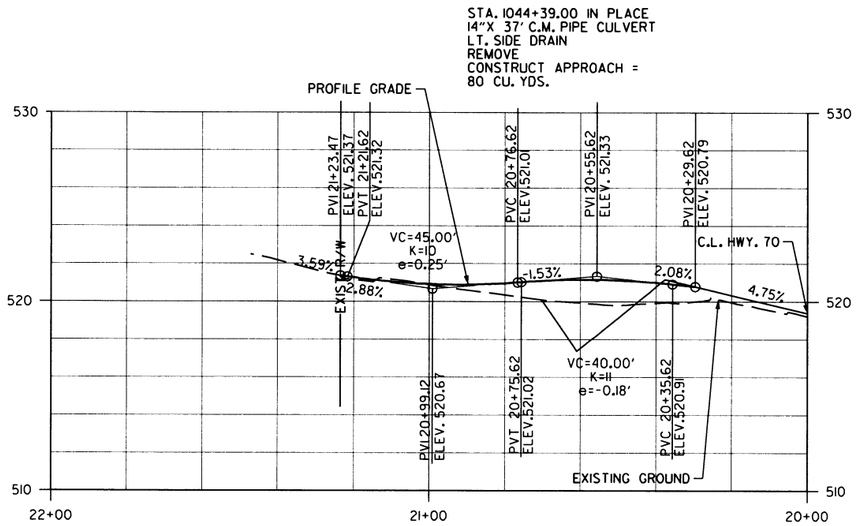
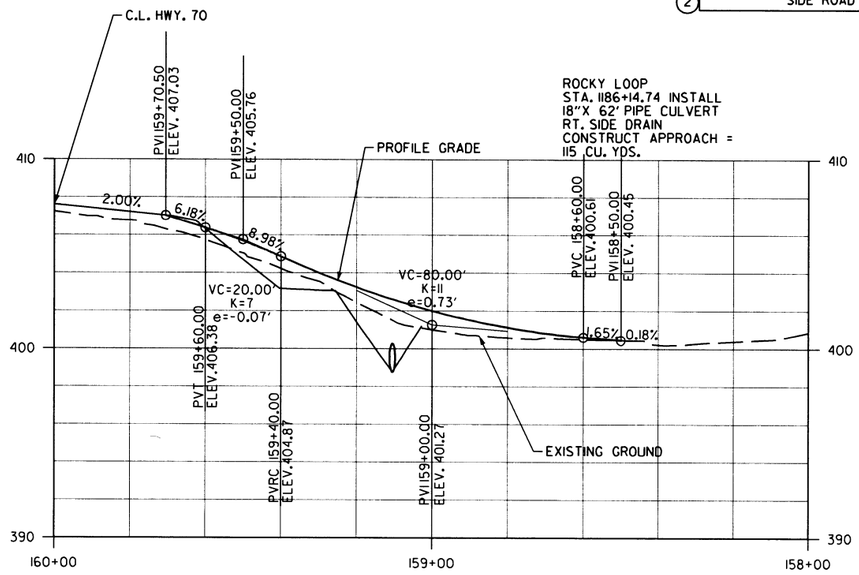
REVISED DATE: ##REVDATE##

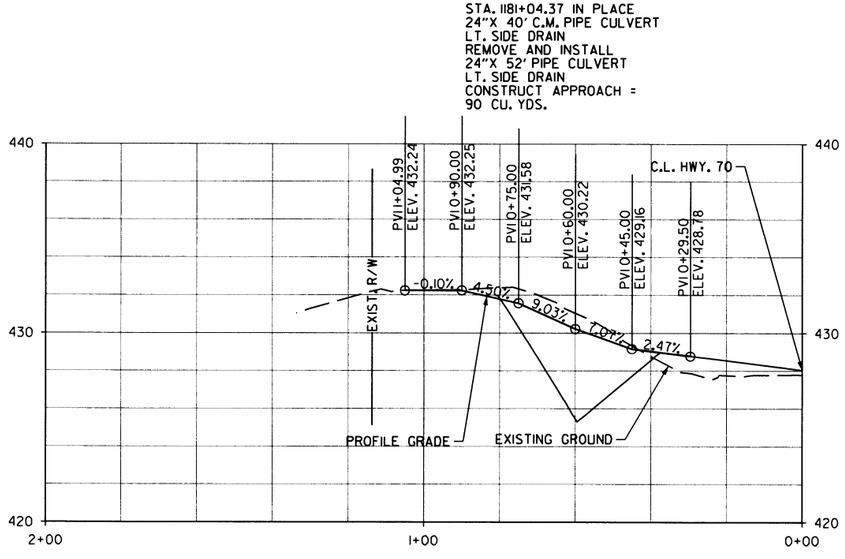
Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	335	888
					(2)	SIDE ROAD PROFILES			



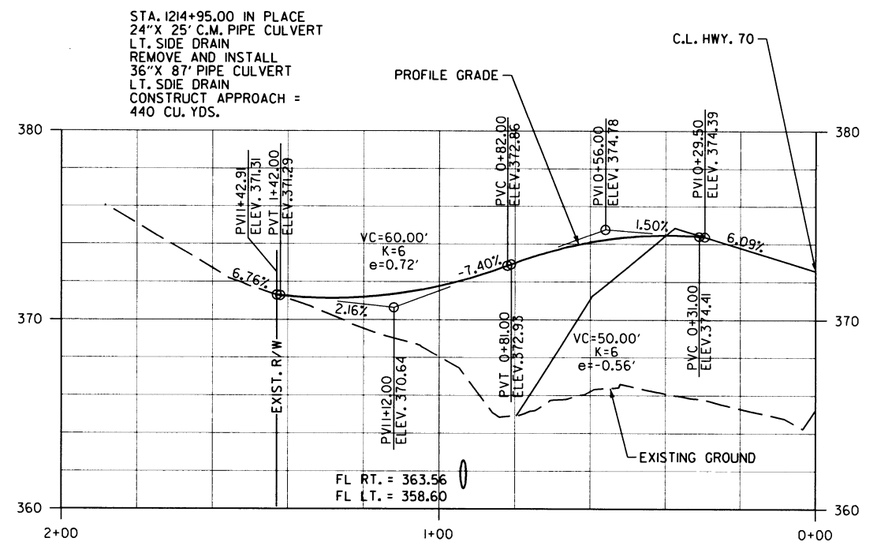
COUNTY ROAD 1379 TURNOUT LT.
STA. 1044+39.00



ROCKY LOOP
STA. 1186+14.74



BECK LANE TURNOUT LT.
STA. 1181+04.37



HOLLOWOA ROAD TURNOUT LT.
STA. 1214+95.00

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 10887
SCOTT P. THORNSBERRY
9-23-2016

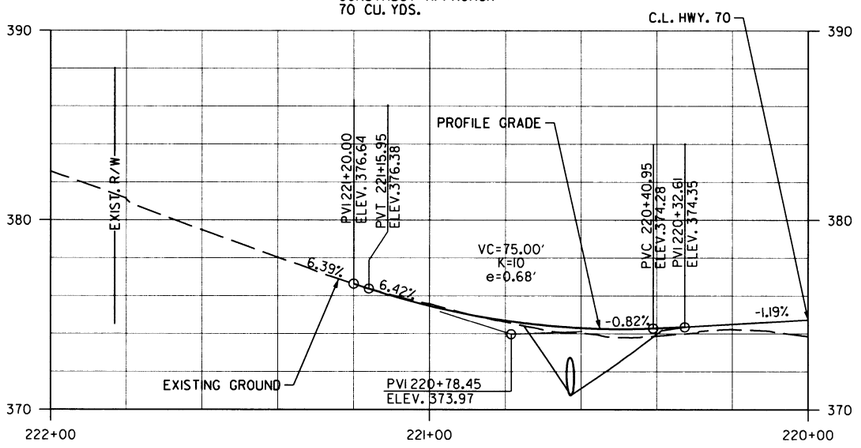
SIDE ROAD PROFILES

Leonard.Speed 9/23/2016 2:22:42 PM
WORKSPACE: Leonard.Speed
c:\pwdl-local\baker_projects\leonard.speed\d0271682\r06l377.l6a_PP_00l.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

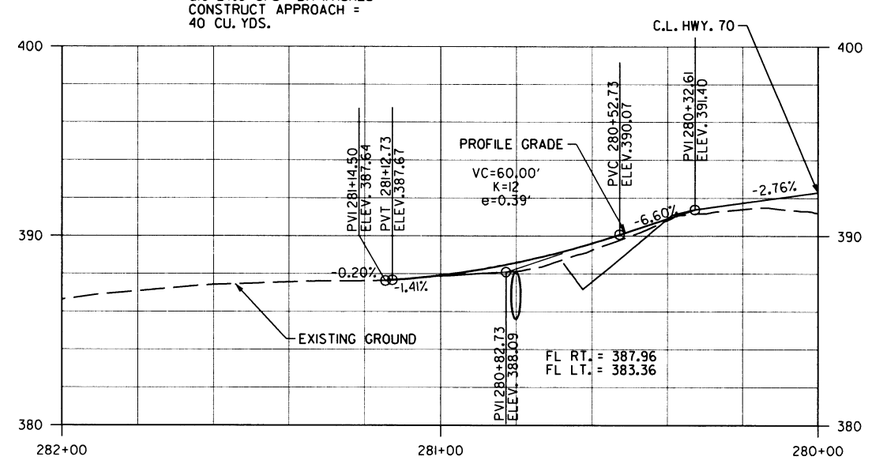
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	336	888
				(2)	SIDE ROAD PROFILES			

BROWNING ROAD
STA. 220+66.57 IN PLACE
24"X 23' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 55' PIPE CULVERT
LT. SIDE DRAIN
20° LT. FWD. SKEW
Q10=10.8 CFSDA=2 ACRES
CONSTRUCT APPROACH =
70 CU. YDS.



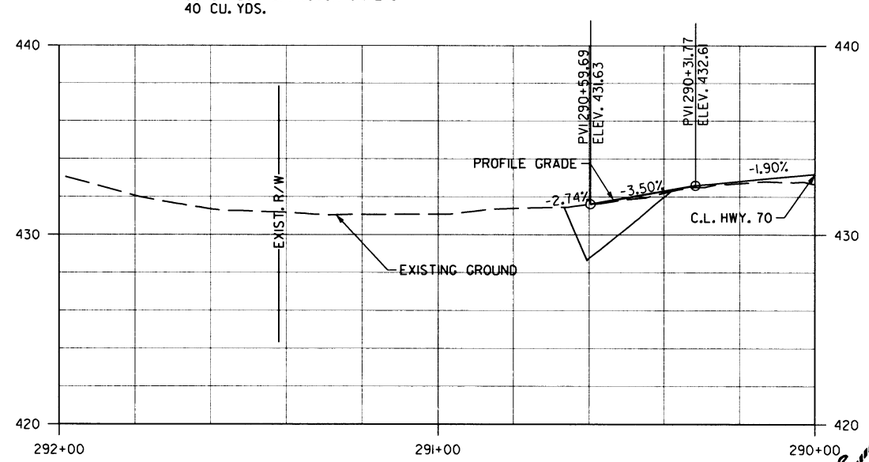
BROWNING EAST
STA. 1246+70.00

ELLIOT RD.
STA. 280+80.00 IN PLACE
24"X 35' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
30"X 60' PIPE CULVERT
LT. SIDE DRAIN
35° LT. FWD. SKEW
Q10=27.0 CFS DA=11 ACRES
CONSTRUCT APPROACH =
40 CU. YDS.



ELLIOT ROAD TURNOUT LT.
STA. 1362+80.94

STA. 1378+76.96
CONSTRUCT APPROACH ON LT. =
40 CU. YDS.



HIGHPOINT DRIVE
STA. 1378+76.96

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
9-23-2016

SIDE ROAD PROFILES

Leonard.Speed 9/23/2016 2:22:43 PM
WORKSPACE: Leonard.Speed
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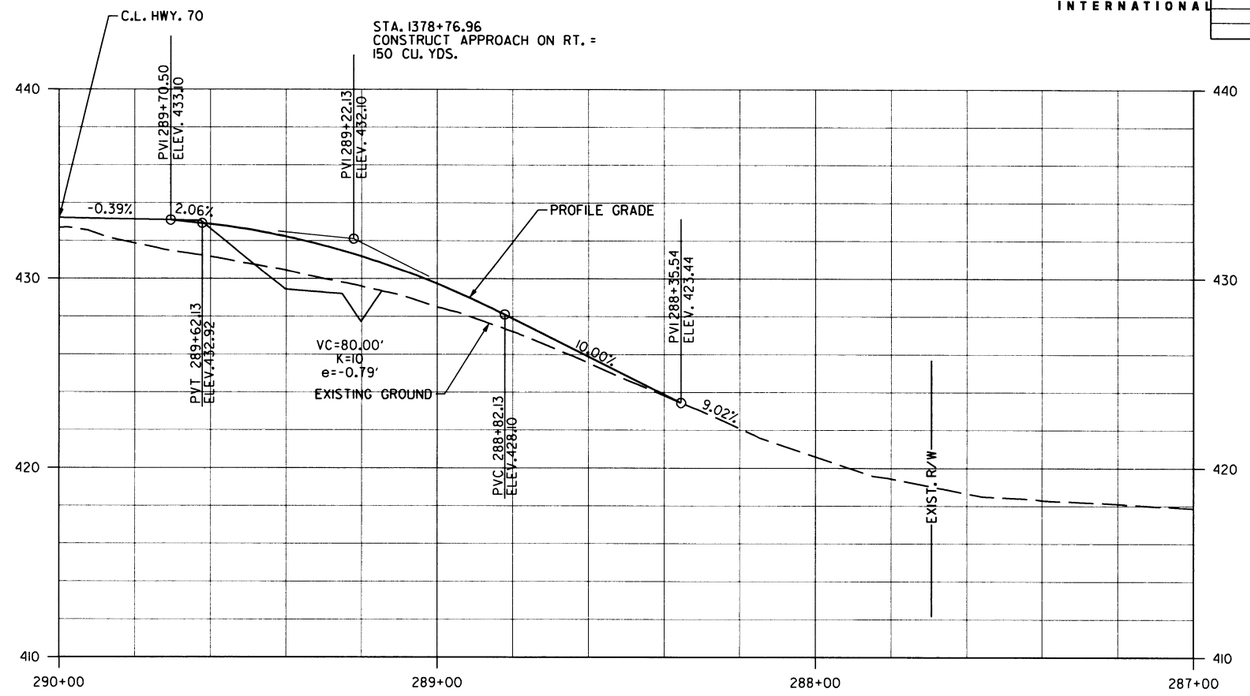
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

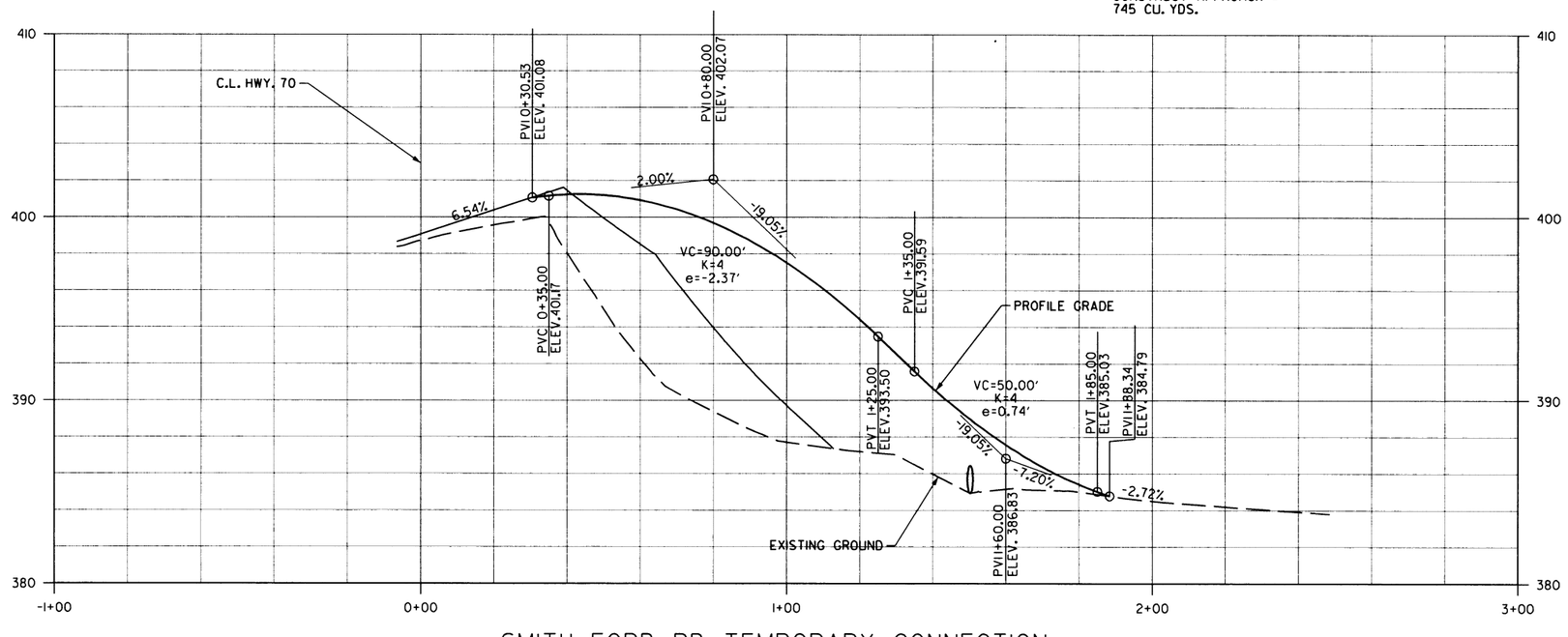
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	337	888

(2) SIDE ROAD PROFILES



OLD 88 ROAD
STA. 1378+76.96

STA. 1399+09.30 INSTALL
18" X 113' TEMP. SIDE DRAIN
68° LT. FWD. SKEW
CONSTRUCT APPROACH =
745 CU. YDS.



SMITH FORD RD. TEMPORARY CONNECTION
STA. 1399+09.30

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
9-23-2016

SIDE ROAD PROFILES

Leonard.Speed 9/23/2016 2:22:43 PM
WORKSPACE: Leonard.Speed
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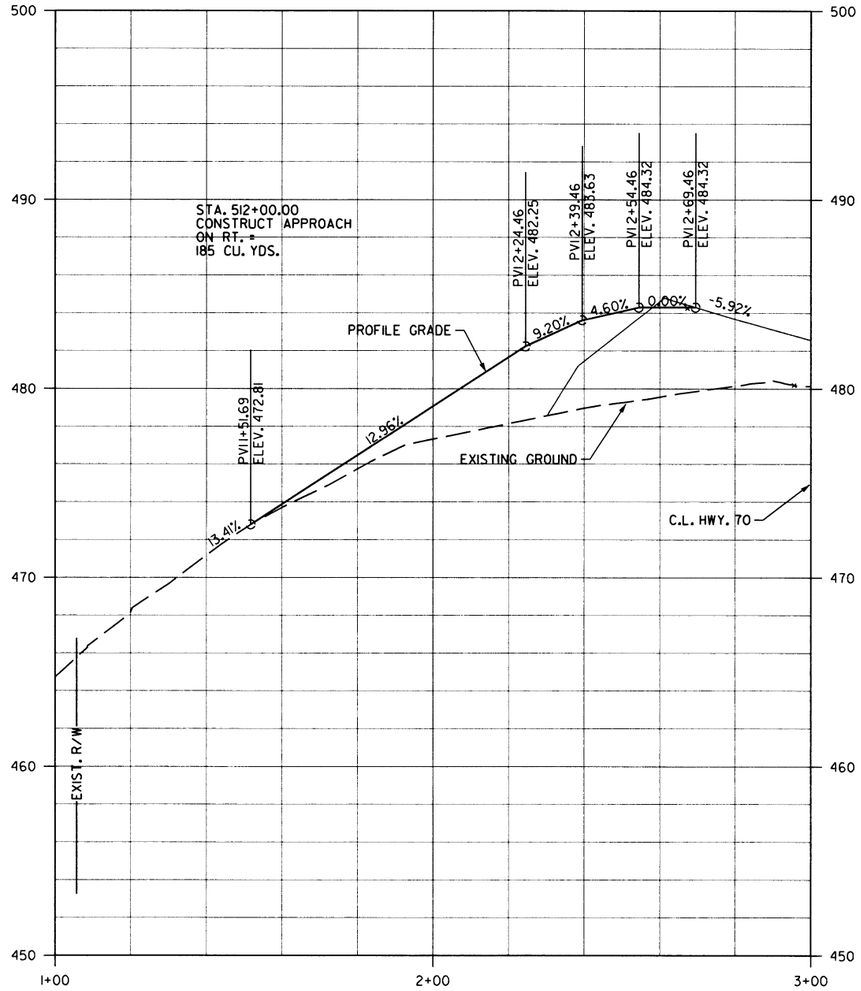
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	338	888
					(2)	DRIVEWAY PROFILES			



DRIVEWAY STA. 512+00 RT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 10887
SCOTT P. THORNSBERRY
9-15-16

DRIVEWAY PROFILES

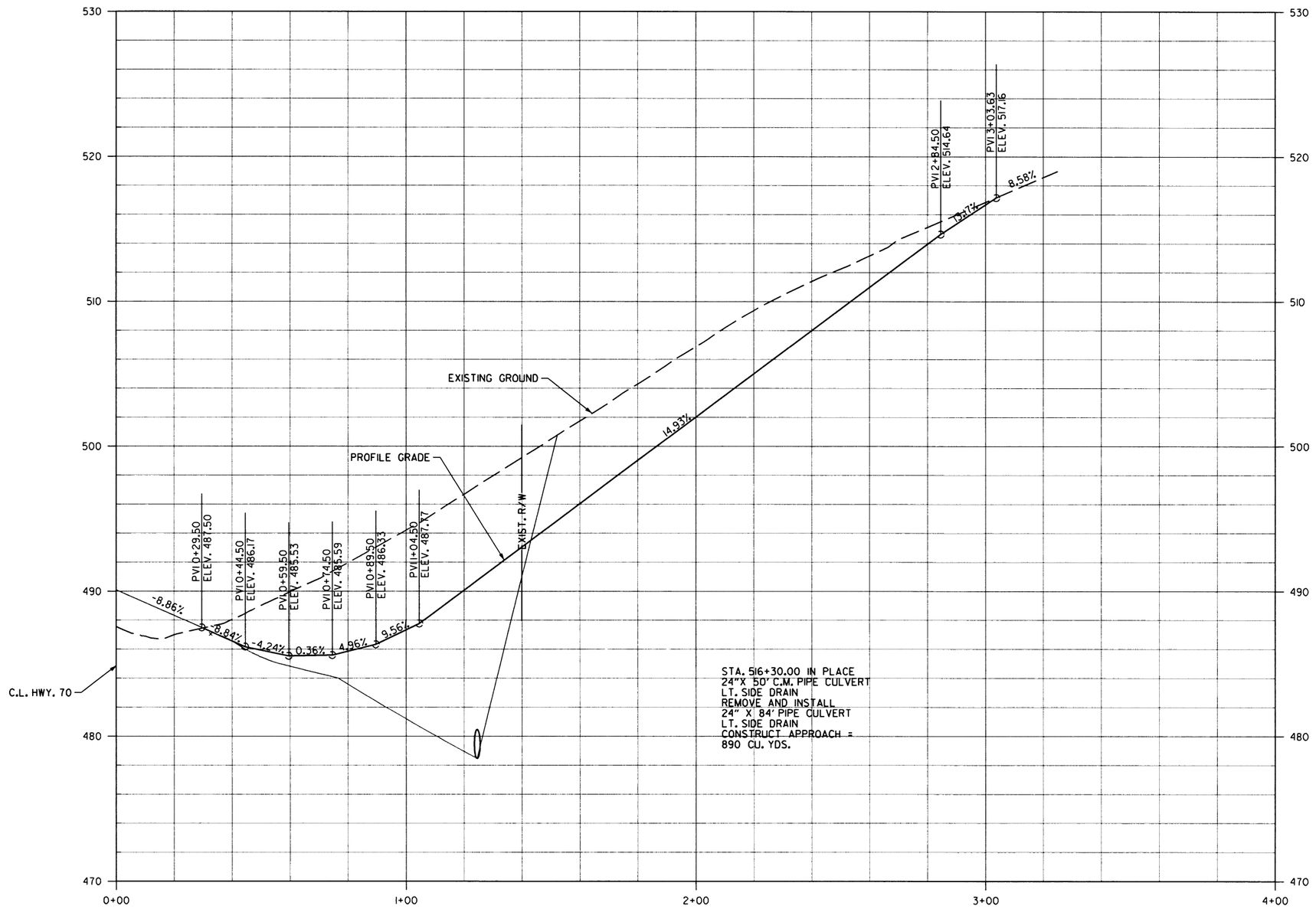
Leonard.Speed 9/23/2016 2:22:53 PM
WORKSET: Leonard.Speed
DGN: d:\projects\leonard.speed\d0271744\r-CA0606.17_PP_DWY_01.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	339	888

(2) DRIVEWAY PROFILES



DRIVEWAY STA. 516+30 LT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

DRIVEWAY PROFILES

LeonardSpeed 9/23/2016 2:22:54 PM
\\MBKSPACE\Leonard Speed
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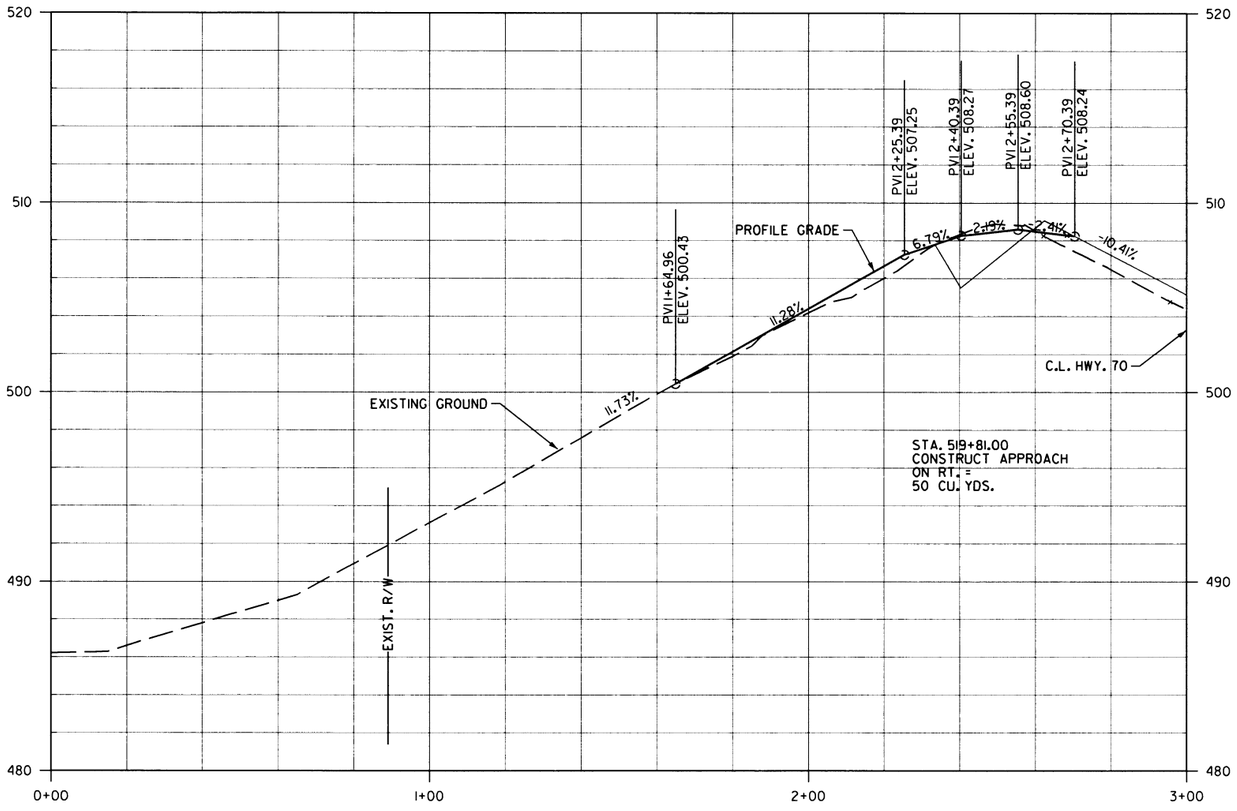
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

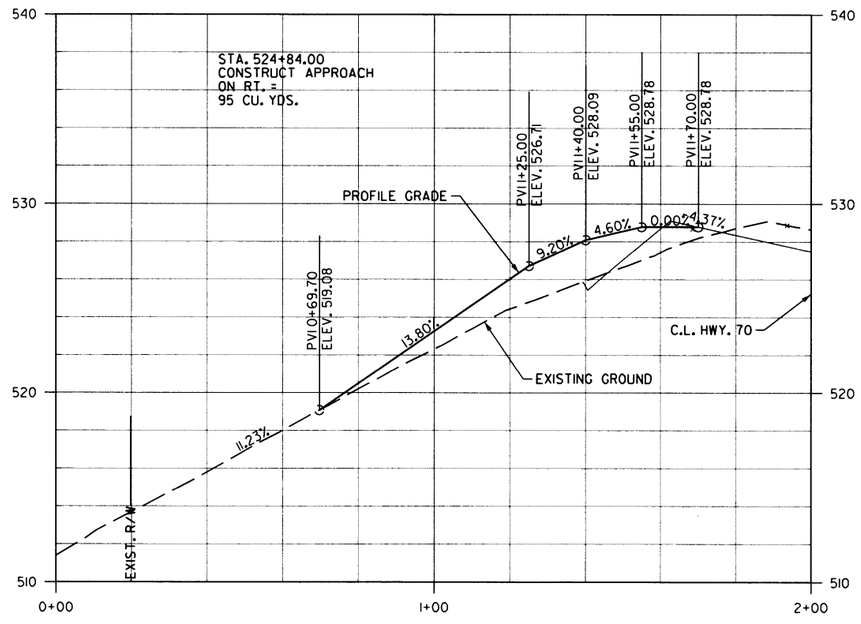
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	340	888

(2) DRIVEWAY PROFILES



DRIVEWAY STA. 519+81 RT.



DRIVEWAY STA. 524+84 RT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 10887
SCOTT P. THORNSBERRY
9-25-2016

DRIVEWAY PROFILES

LeonardSpeed 9/23/2016 2:22:54 PM
WORKSPACE: LeonardSpeed
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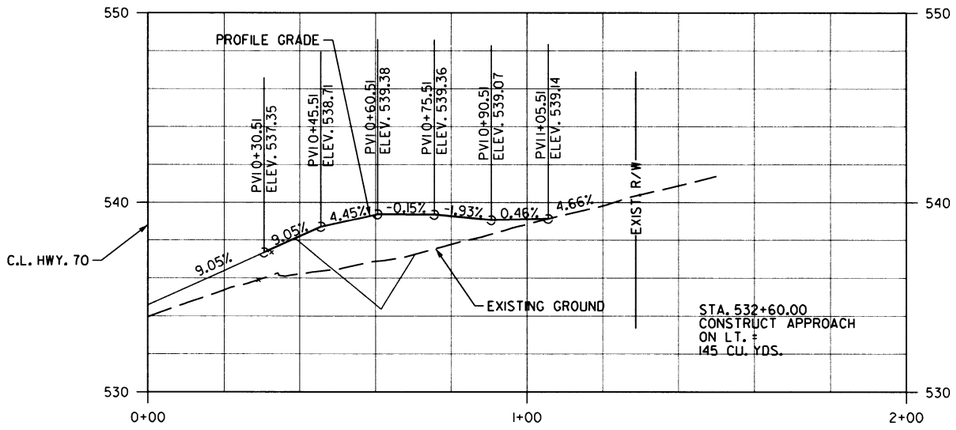
REVISED DATE: $$REVDATE$$

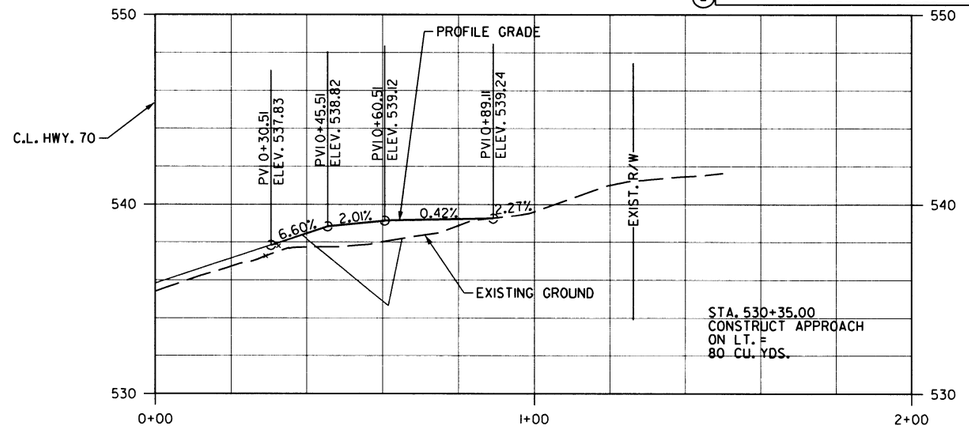
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	341	888

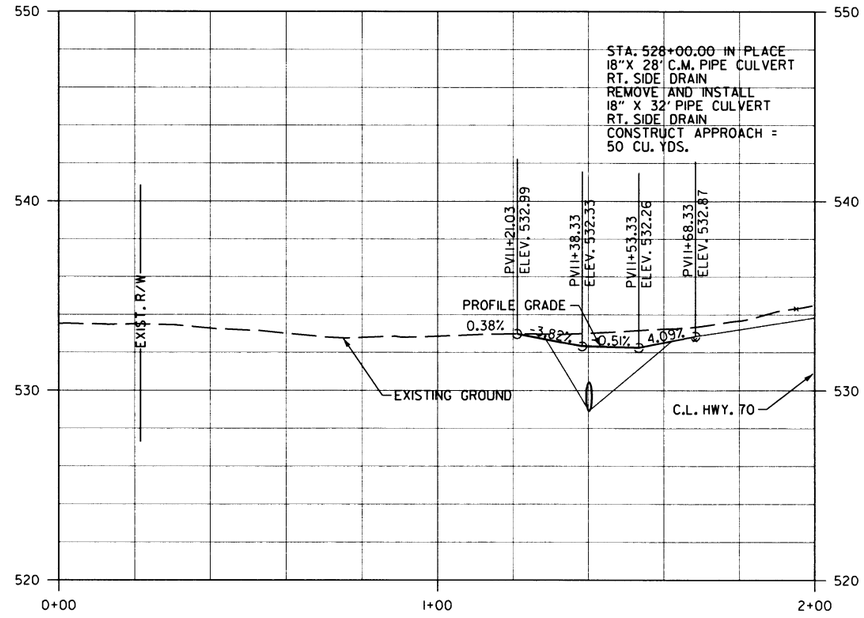
(2) DRIVEWAY PROFILES



DRIVEWAY STA. 532+60 LT.
(JAGUAR TRAIL)



DRIVEWAY STA. 530+35 LT.



DRIVEWAY STA. 528+00 RT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
9-25-2016

DRIVEWAY PROFILES

Leonard.Speed 9/23/2016 2:22:54 PM
WORKSPACE: Leonard.Speed
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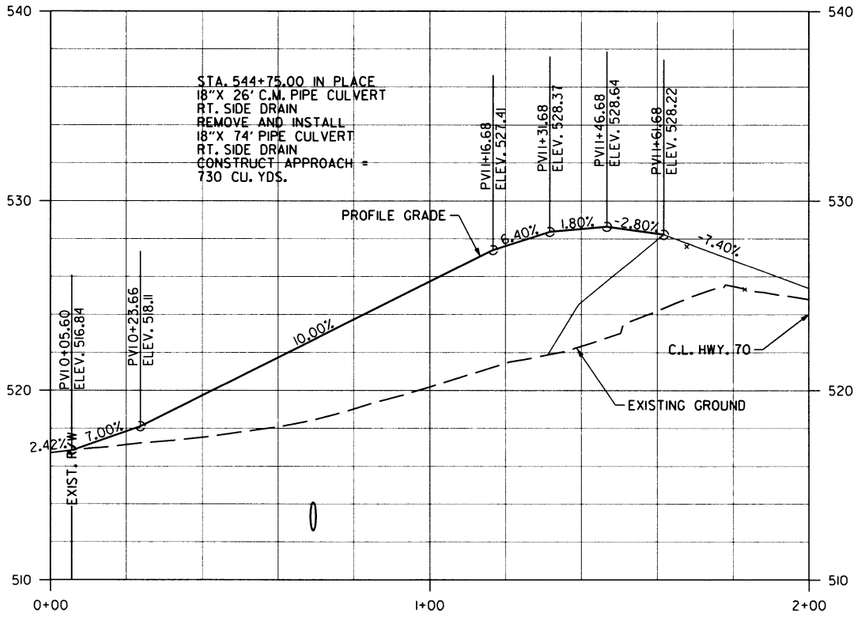
REVISED DATE: $$REVDATE$$

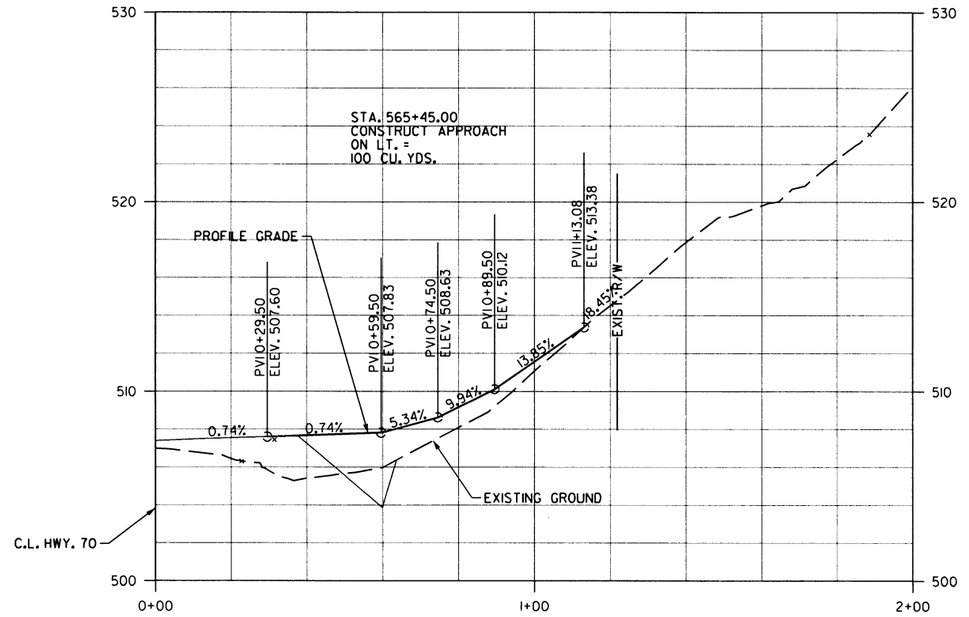
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	342	888

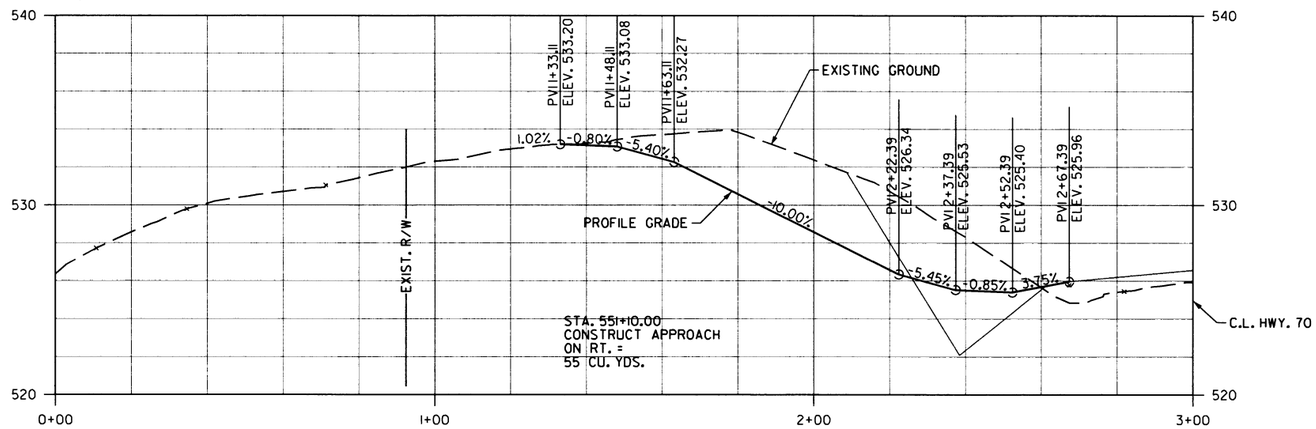
(2) DRIVEWAY PROFILES



DRIVEWAY STA. 544+75 RT.



DRIVEWAY STA. 565+45 LT.



DRIVEWAY STA. 551+10 RT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

DRIVEWAY PROFILES

Leonard.Speed 9/23/2016 2:22:55 PM
WORKSPACE: Leonard.Speed
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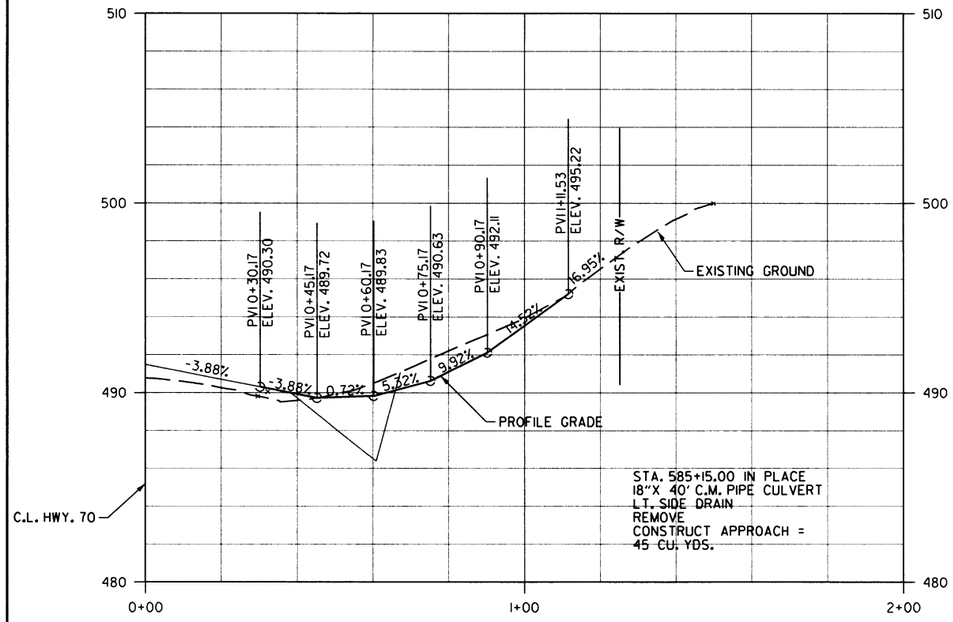
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

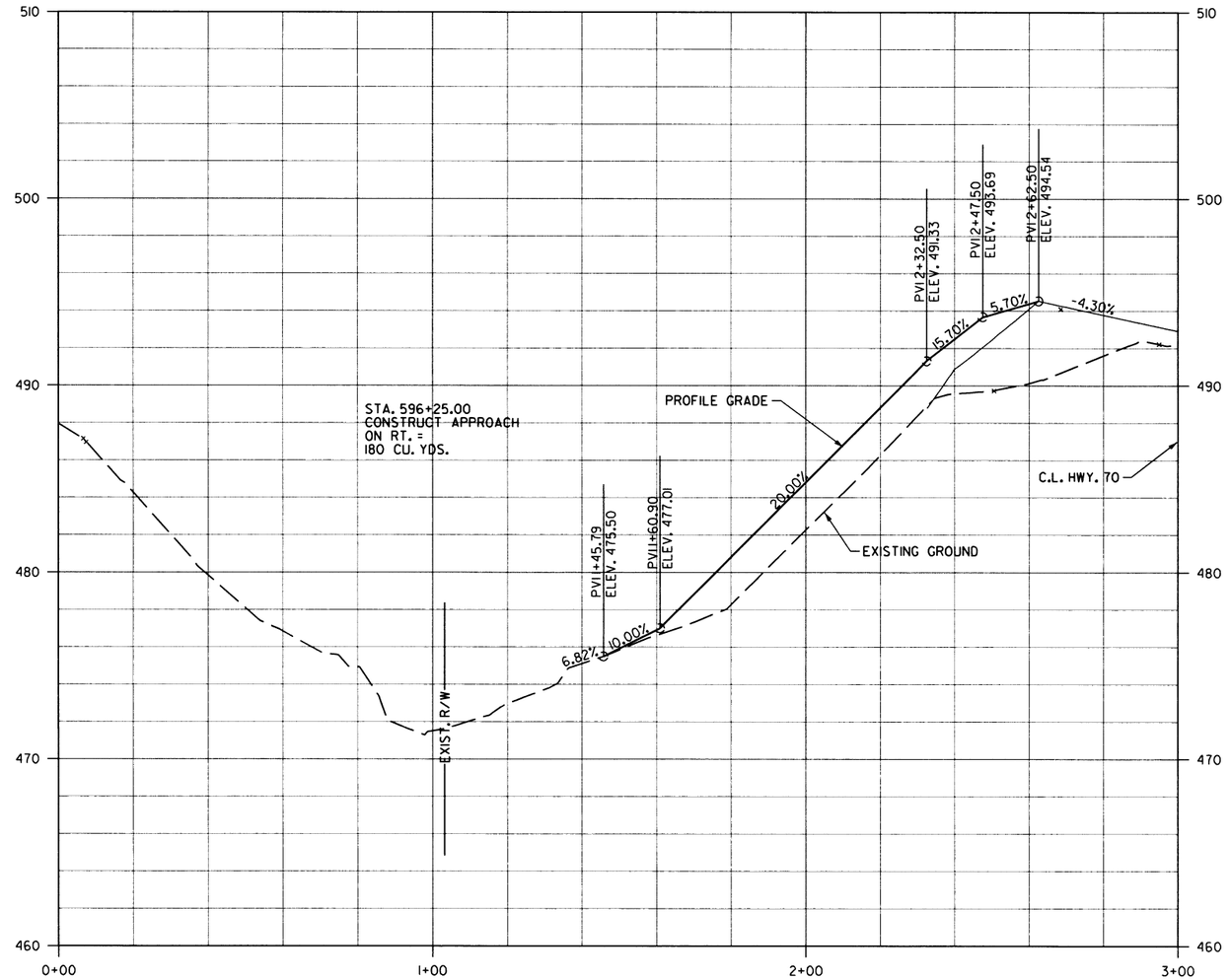
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	CA0610		343	888

(2) DRIVEWAY PROFILES



DRIVEWAY STA. 585+15 LT.



DRIVEWAY STA. 596+25 RT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No. 10887
SCOTT P. THORNSBERRY
9-23-2016

DRIVEWAY PROFILES

Leonard.Speed 9/23/2016 2:22:55 PM
WORKSPACE: Leonard.Speed
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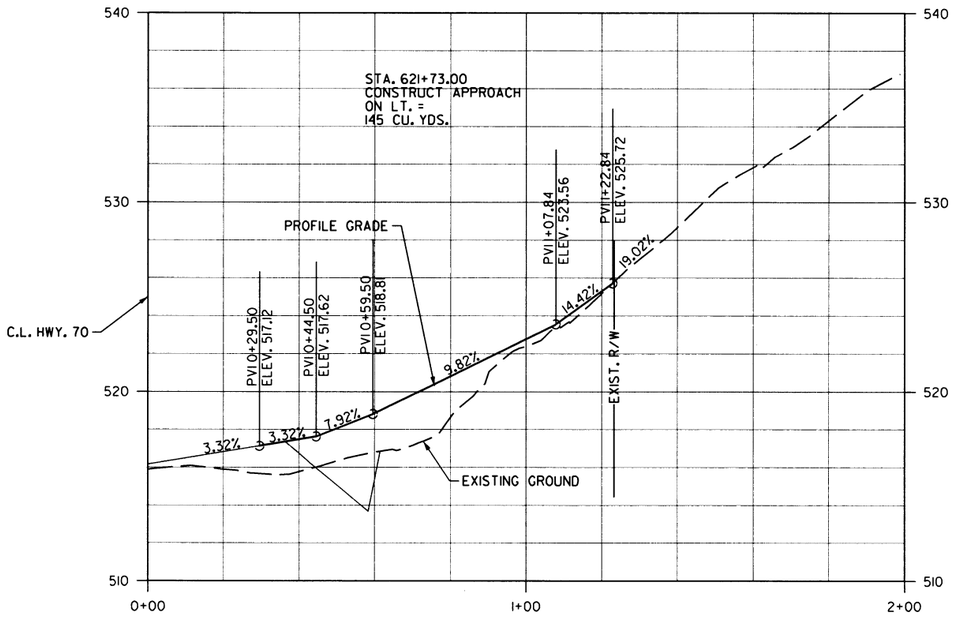
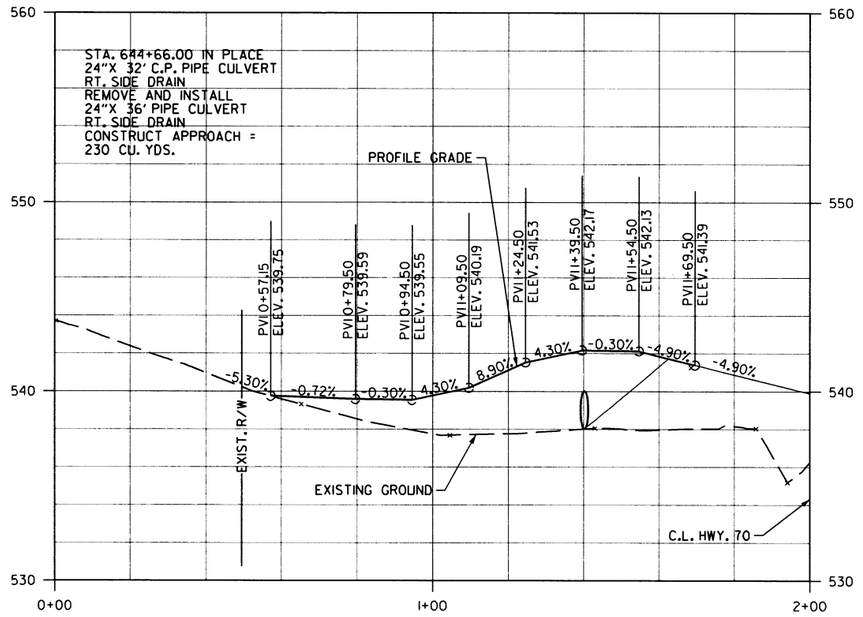
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

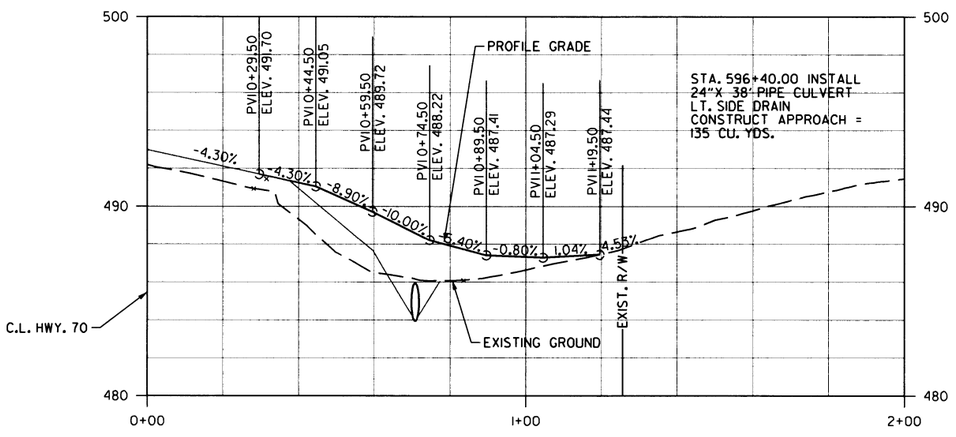
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	344	888
				(2)	DRIVEWAY PROFILES			



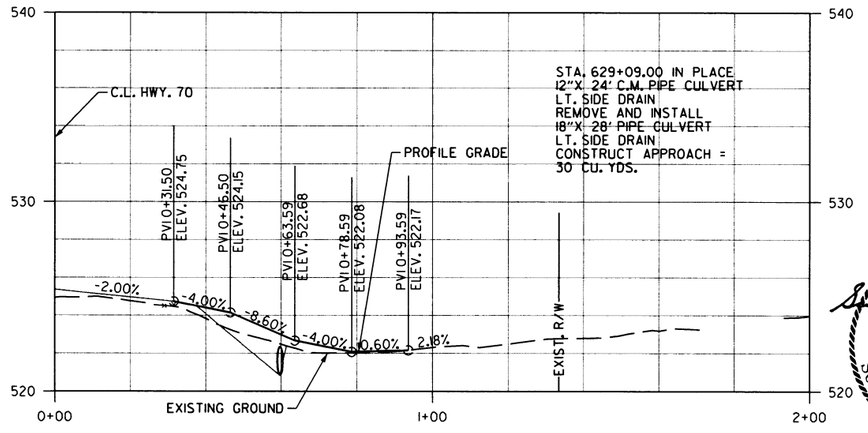
DRIVEWAY STA. 621+73 LT.



DRIVEWAY STA. 644+66 RT.



DRIVEWAY STA. 596+40 LT.



DRIVEWAY STA. 629+09 LT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-26-2016

DRIVEWAY PROFILES

Leonard Speed 9/23/2016 2:22:55 PM
WORKSPACE: Leonard Speed
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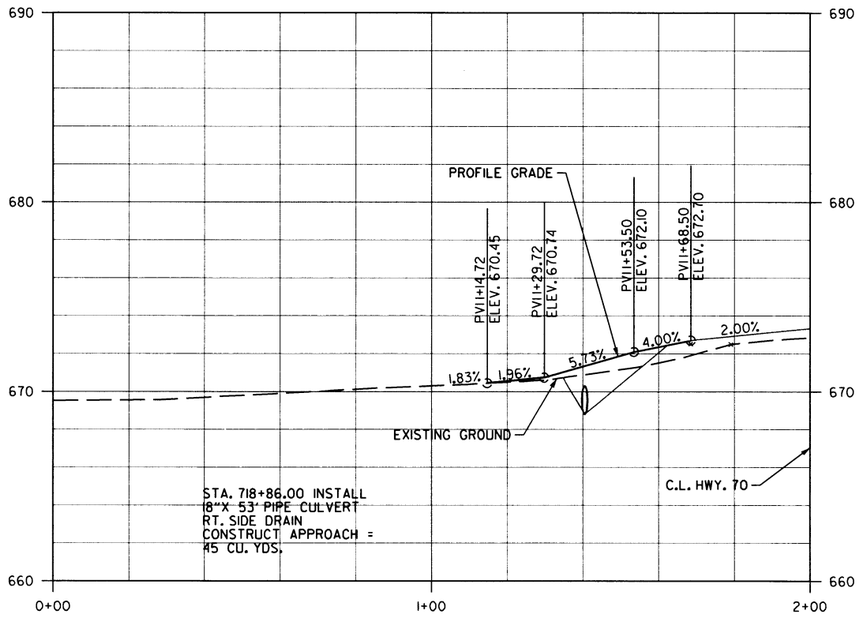
REVISED DATE: $$REVDATE$$

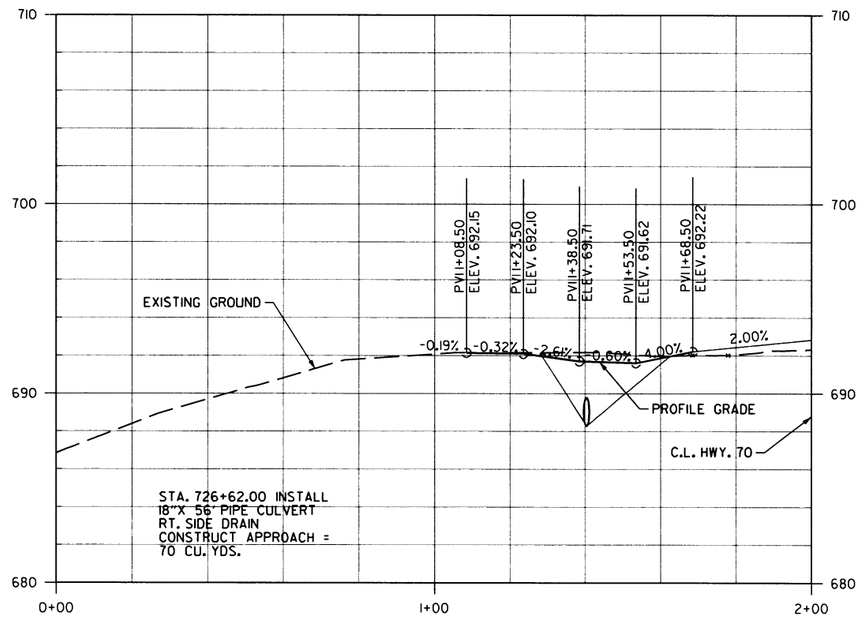
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	345	888

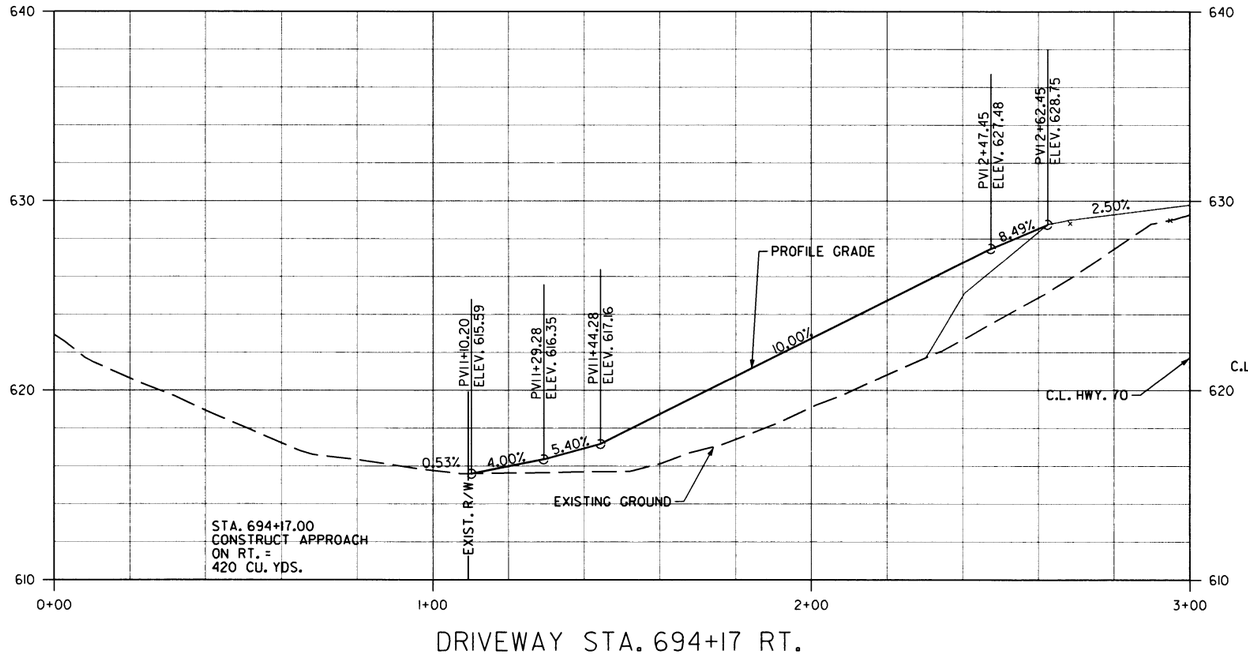
(2) DRIVEWAY PROFILES



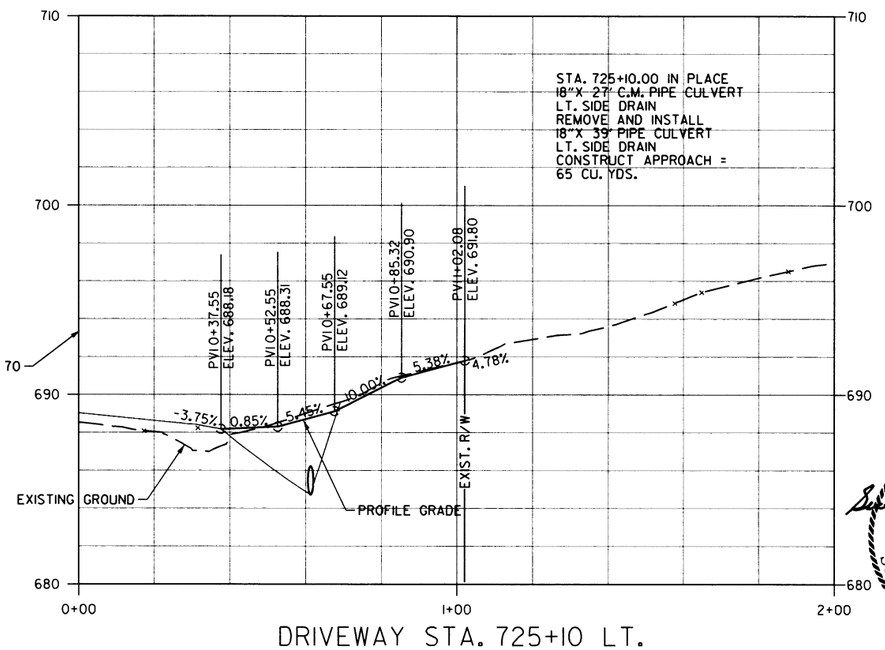
DRIVEWAY STA. 718+86 RT.



DRIVEWAY STA. 726+62 RT.



DRIVEWAY STA. 694+17 RT.



DRIVEWAY STA. 725+10 LT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-26-2016

DRIVEWAY PROFILES

Leonard Speed 9/23/2016 2:22:56 PM
WORKSPACE: Leonard Speed
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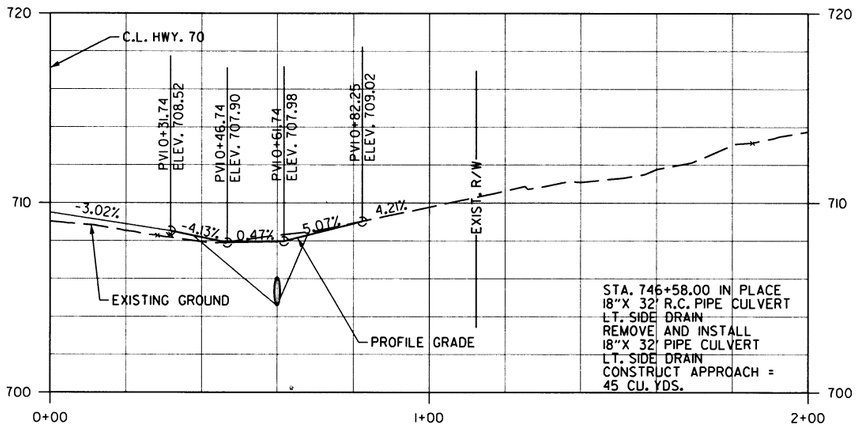
REVISED DATE: **REVDATE**

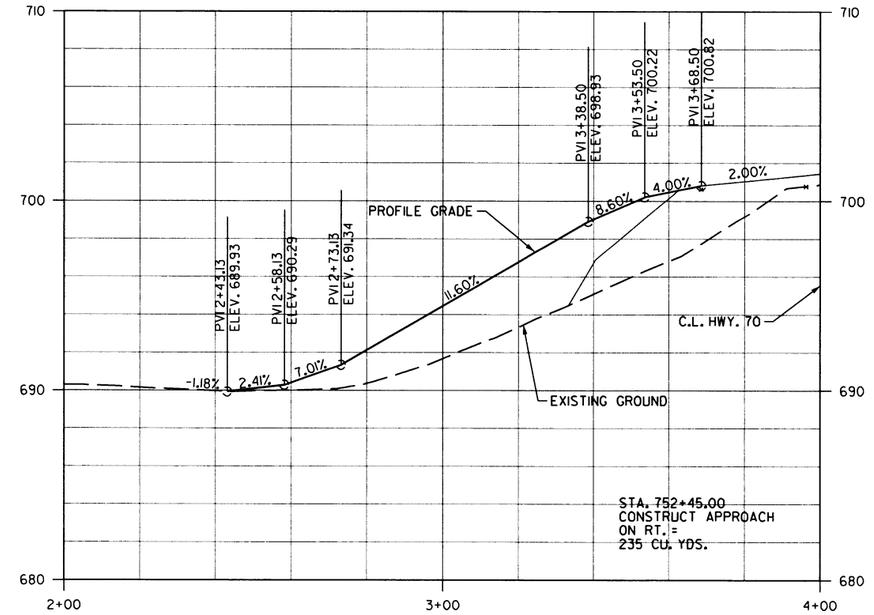
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	346	888

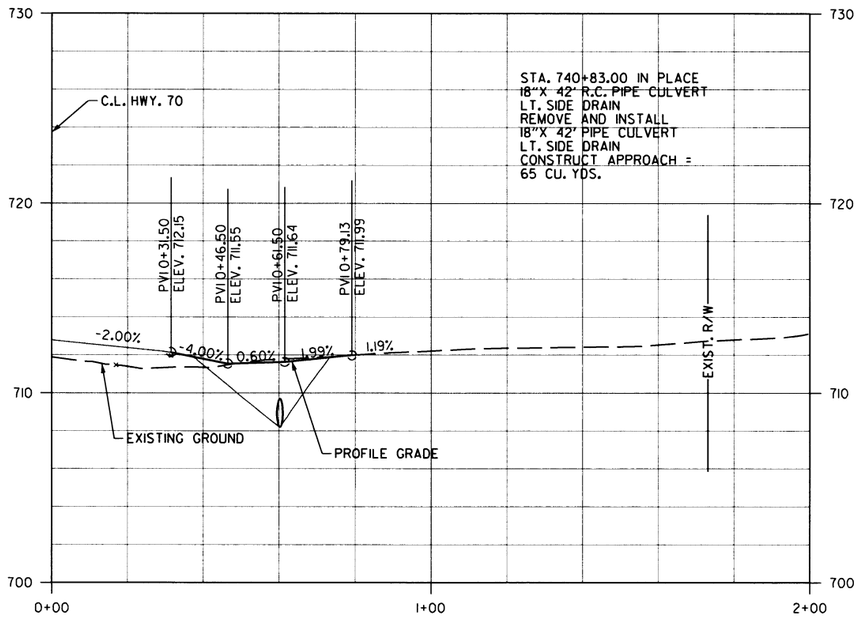
(2) DRIVEWAY PROFILES



DRIVEWAY STA. 746+58 LT.



DRIVEWAY STA. 752+45 RT.



DRIVEWAY STA. 740+83 LT.

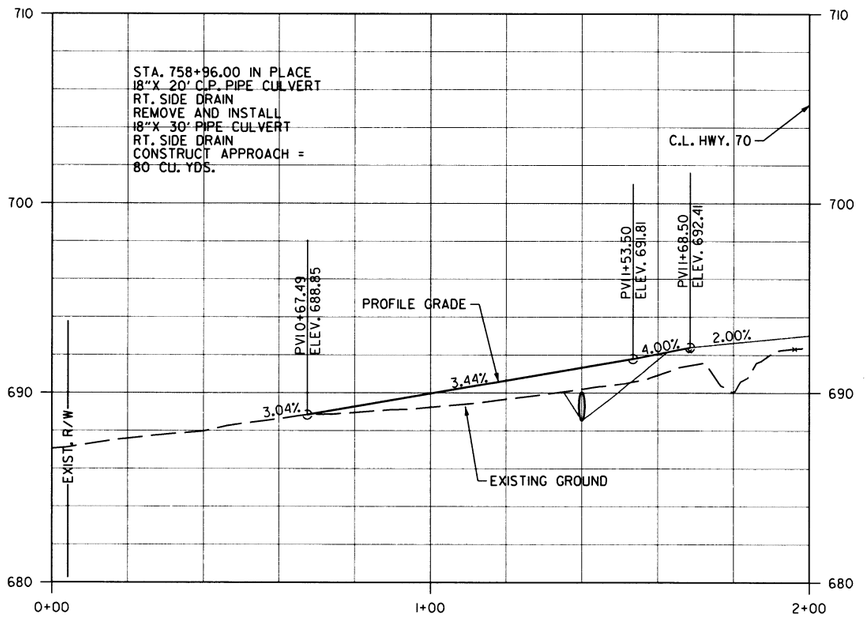
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

DRIVEWAY PROFILES

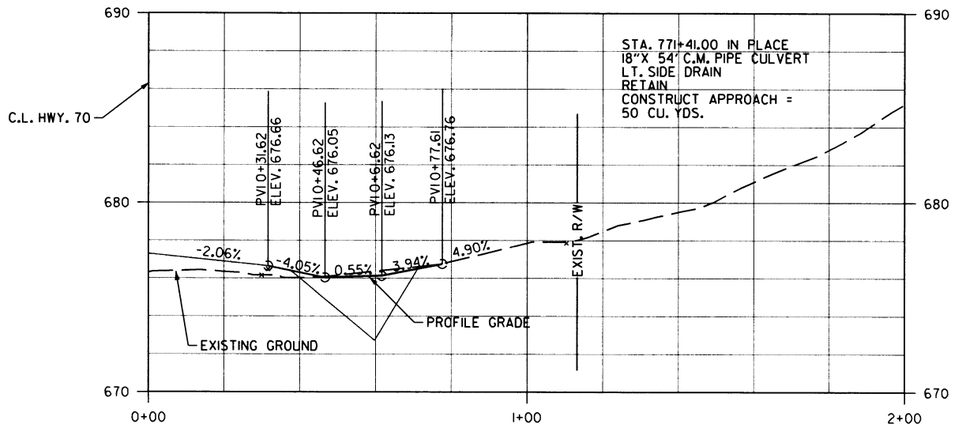
Leonard.Speed 9/23/2016 2:22:56 PM
WORKSPACE: Leonard.Speed
c:\pwdl-local\baker_projects\leonard.speed\d0217744\r-CA0606_17_PP_DWY_01.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

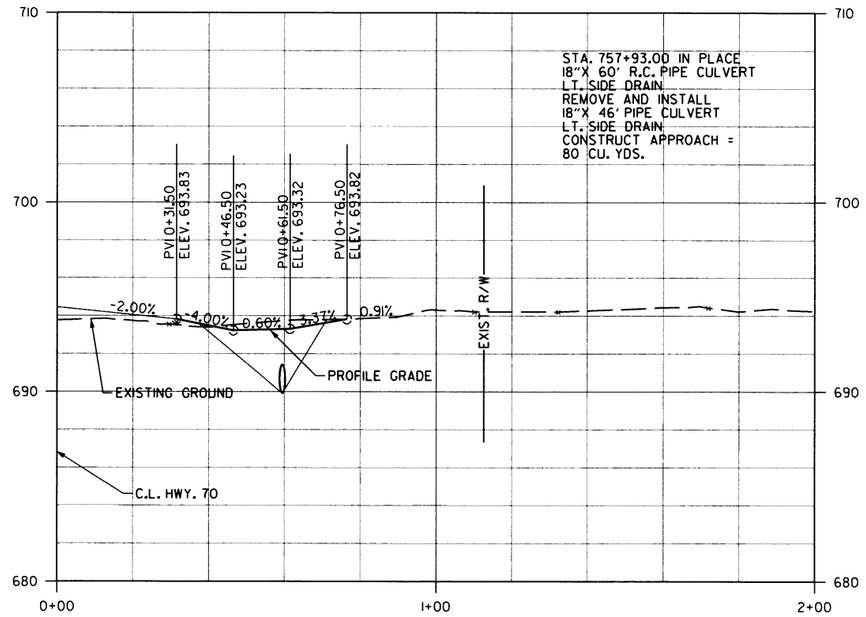
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	347	888
				(2)	DRIVEWAY PROFILES			



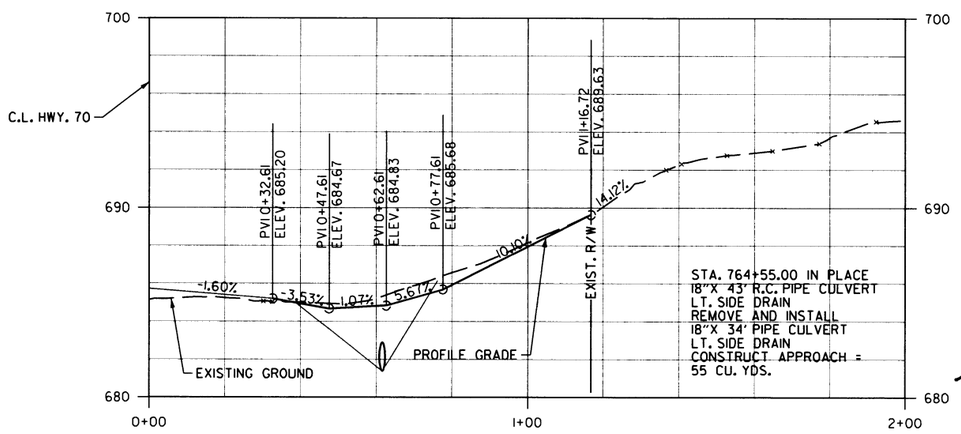
DRIVEWAY STA. 758+96 RT.



DRIVEWAY STA. 771+41 LT.



DRIVEWAY STA. 757+93 LT.



DRIVEWAY STA. 764+55 LT.

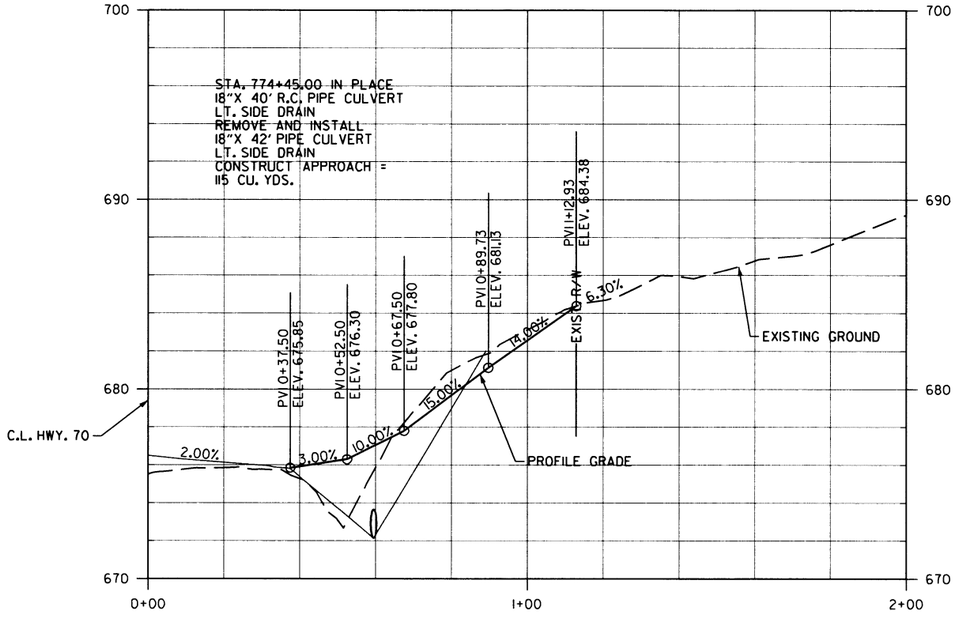
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-15-2016

DRIVEWAY PROFILES

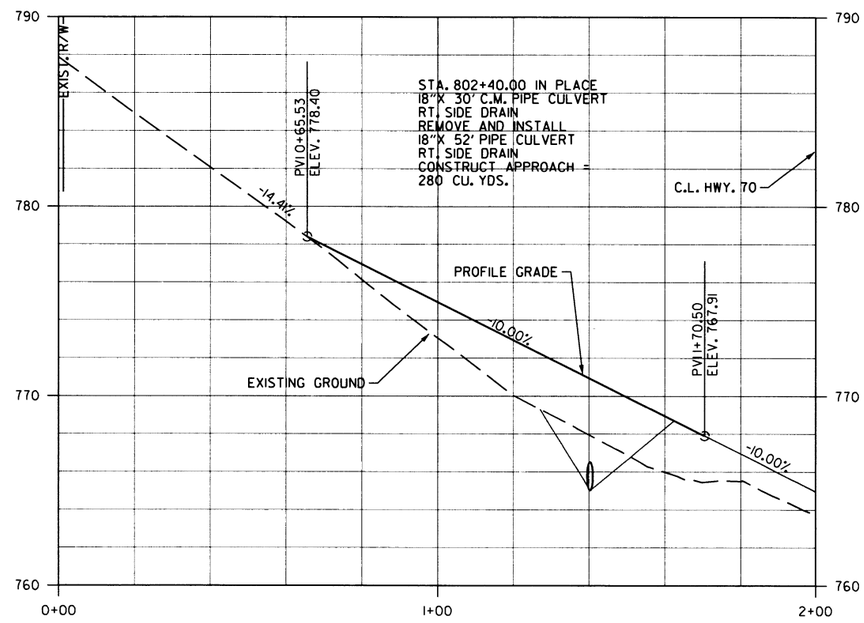
LeonardSpeed 9/23/2016 2:22:56 PM
WORKSPACE: LeonardSpeed
C:\Dwg\Michael Baker Projects\leonardspeed\d027t744\r-CA0606.17_PP_DWY.01.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

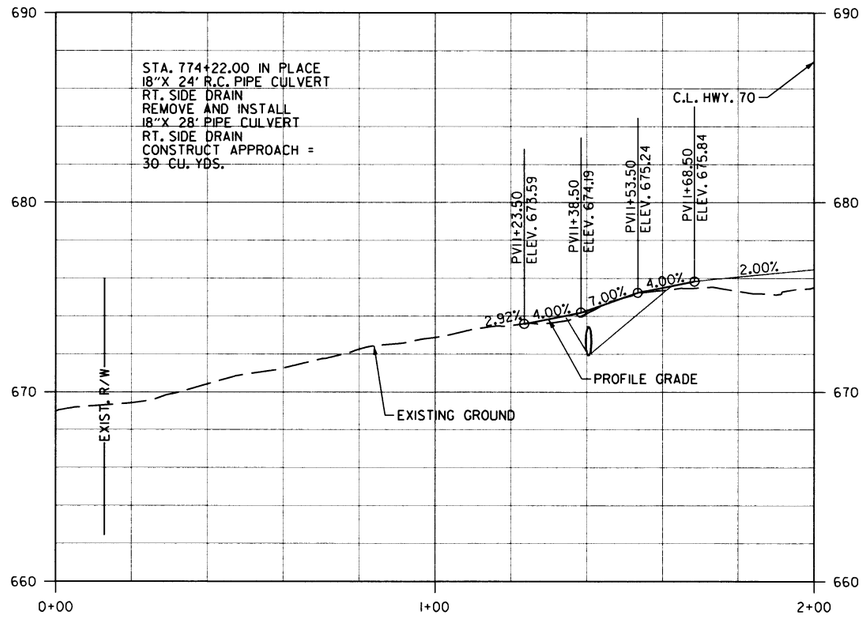
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	348	888
				(2)	DRIVEWAY PROFILES			



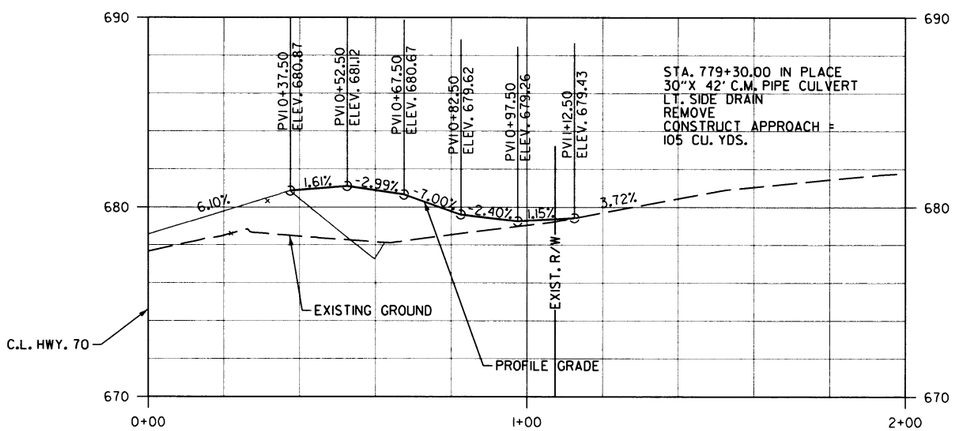
DRIVEWAY STA. 774+45 LT.



DRIVEWAY STA. 802+40 RT.



DRIVEWAY STA. 774+22 RT.



DRIVEWAY STA. 779+30 LT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

DRIVEWAY PROFILES

Leonard.Speed 9/23/2016 2:22:57 PM
WORKSPACE: Leonard.Speed
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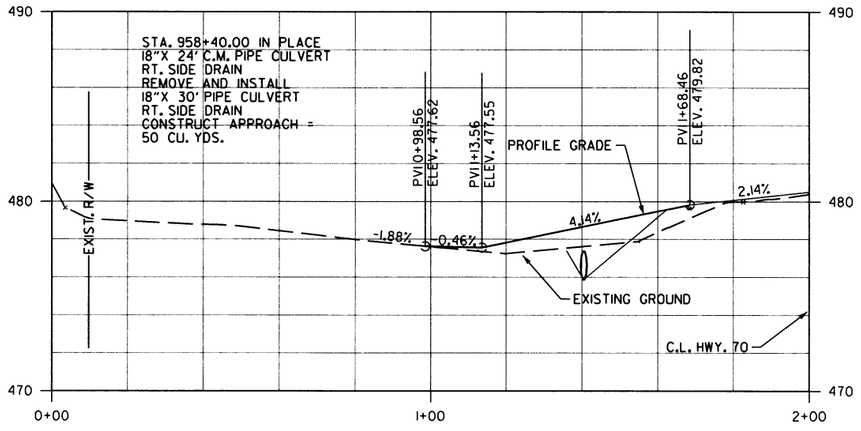
REVISED DATE: ##REVDATE##

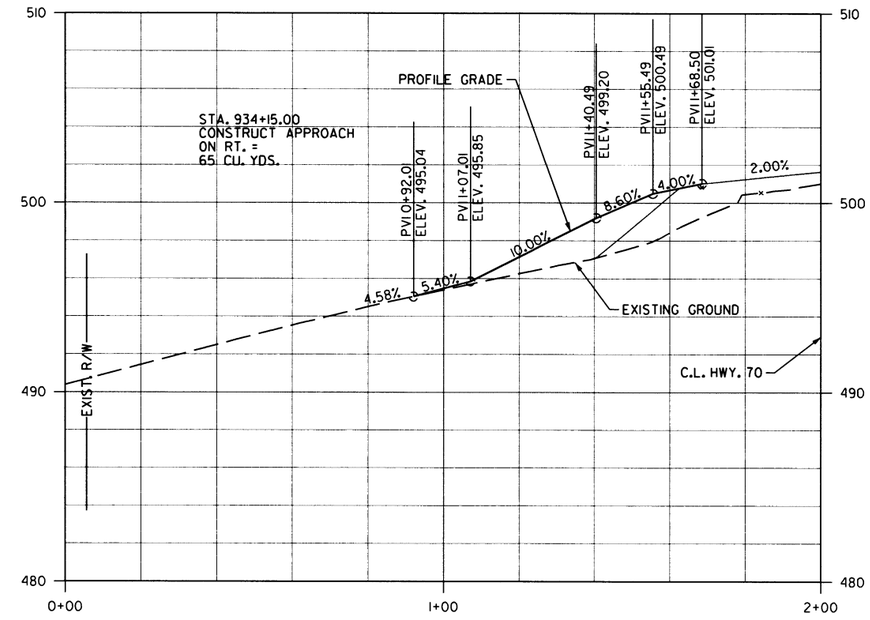
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	349	888

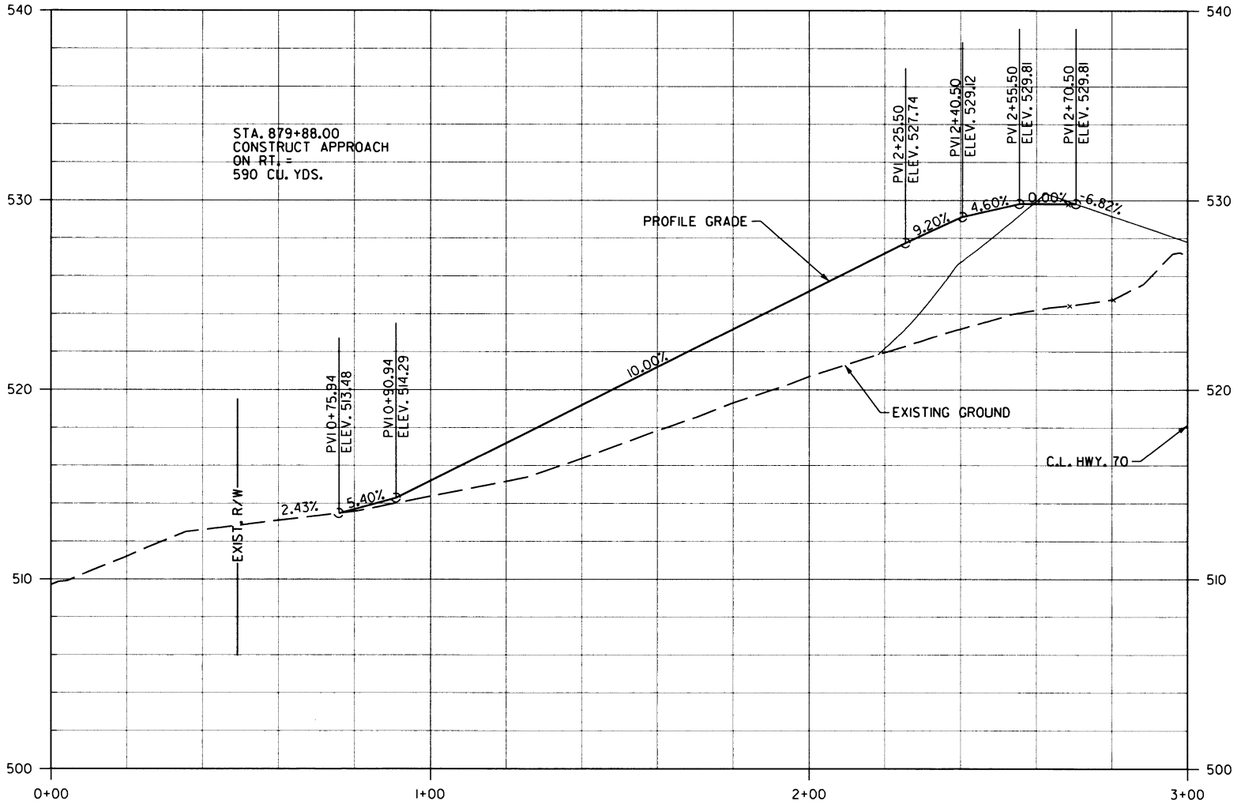
(2) DRIVEWAY PROFILES



DRIVEWAY STA. 958+40 RT.



DRIVEWAY STA. 934+15 RT.



DRIVEWAY STA. 879+88 RT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-28-2016

DRIVEWAY PROFILES

Leonard.Speed 9/23/2016 2:22:57 PM
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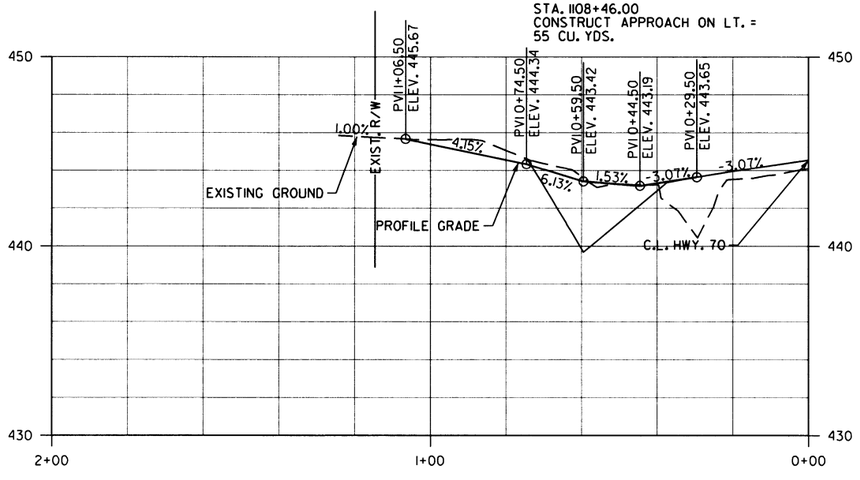
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

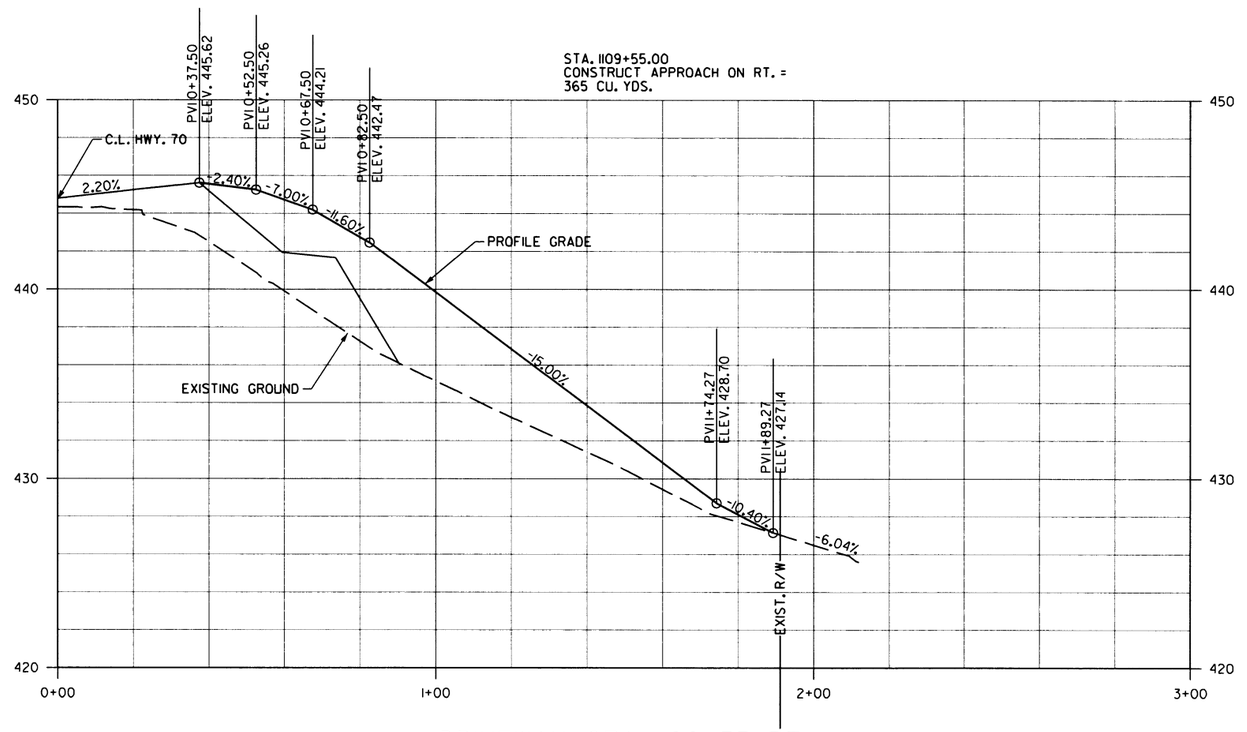
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	CA0610		350	888

(2) DRIVEWAY PROFILES



DRIVEWAY STA. 1108+46 LT.



DRIVEWAY STA. 1109+55 RT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No. 10887
SCOTT P. THORNSBERRY
9-25-2016

DRIVEWAY PROFILES

Leonard.Speed 9/23/2016 2:23:07 PM
WORKSPACE: Leonard.Speed
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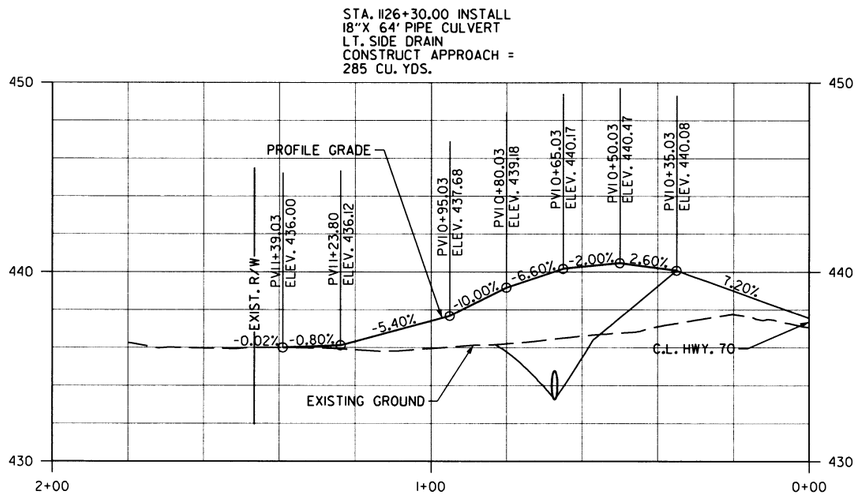
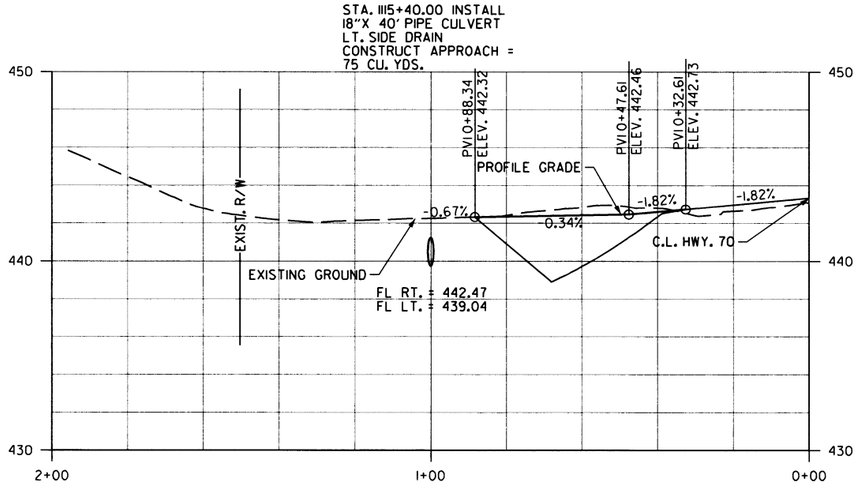
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

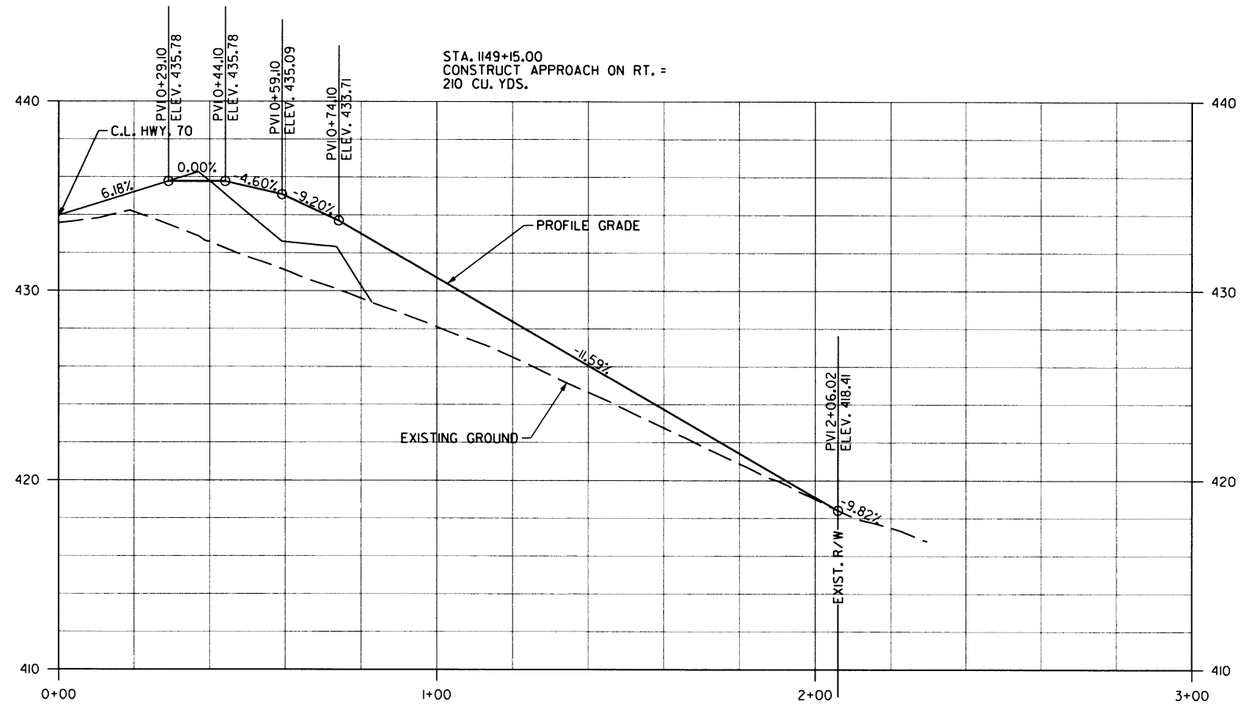
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	351	888
				(2)	DRIVEWAY PROFILES			



DRIVEWAY STA. 1126+30 LT.



DRIVEWAY STA. 1115+40 LT.



DRIVEWAY STA. 1149+15 RT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No. 10887
SCOTT P. THORNSBERRY
9-23-2016

DRIVEWAY PROFILES

Leonard.Speed 9/23/2016 2:23:08 PM
WORKSPACE: Leonard.Speed
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REVISED DATE: $$REVDATE$$

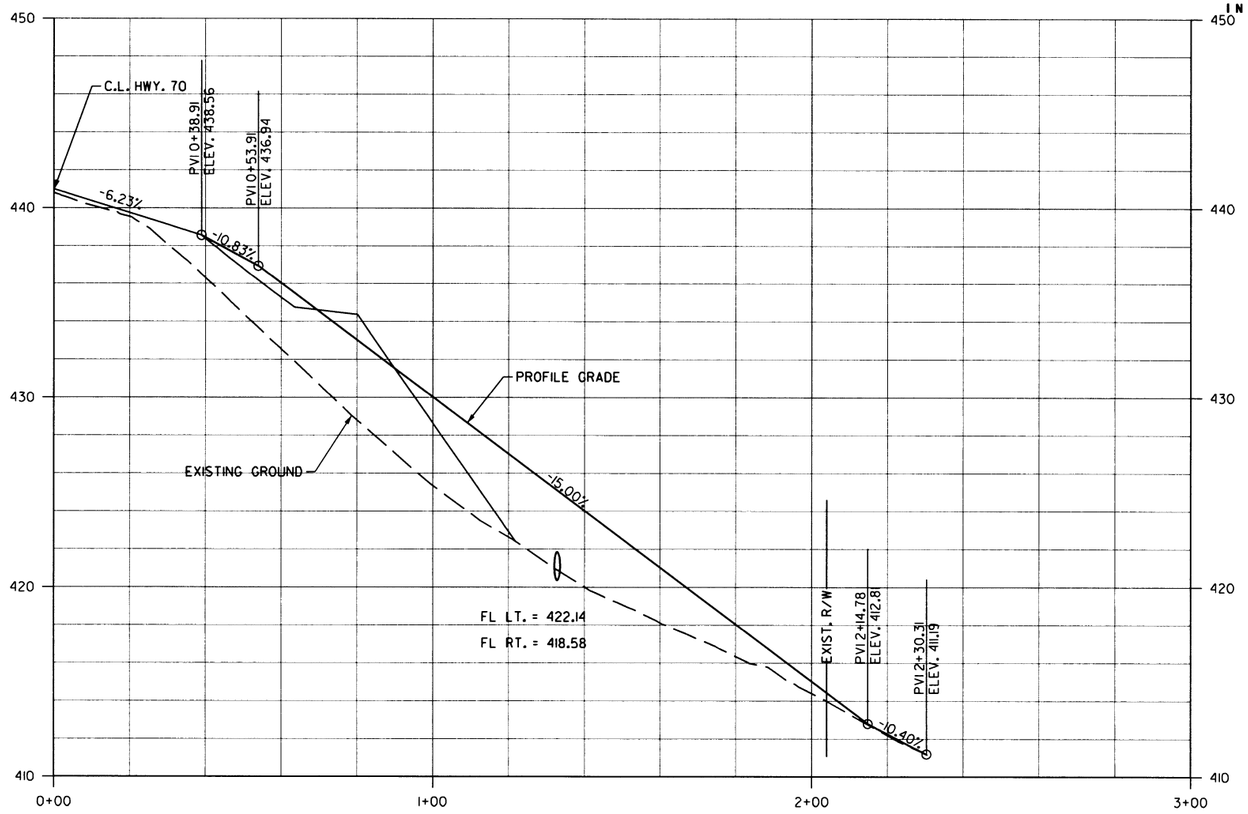
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	352	888

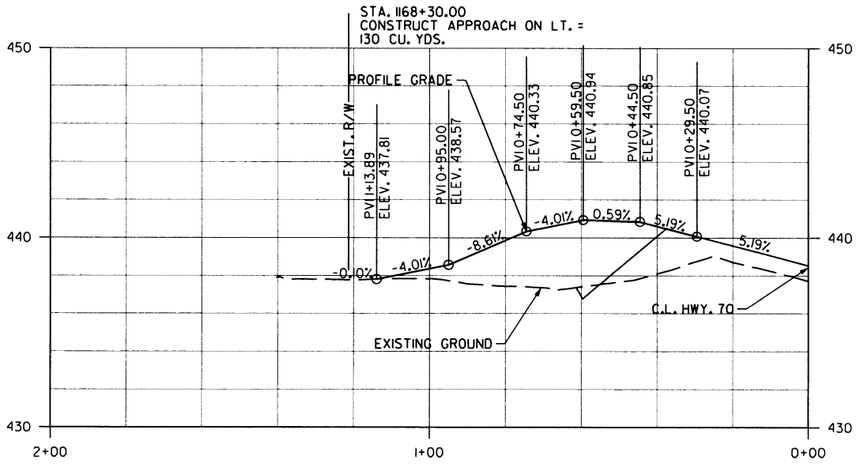
(2) DRIVEWAY PROFILES

STA. 1170+40.00 IN PLACE
18"X 21' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18"X 66' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
285 CU. YDS.



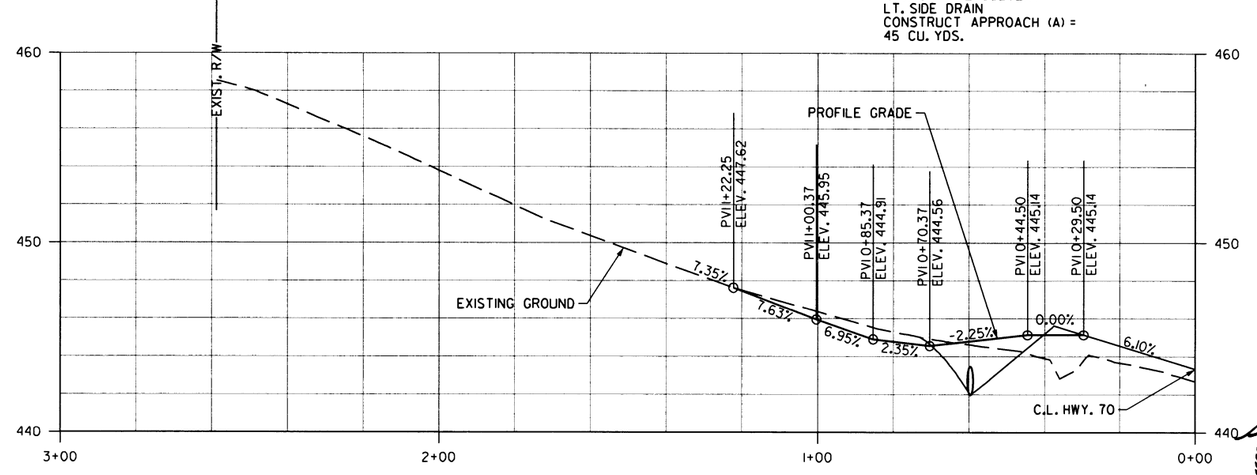
DRIVEWAY STA. 1170+40 RT.

STA. 1168+30.00
CONSTRUCT APPROACH ON LT. =
130 CU. YDS.



DRIVEWAY STA. 1168+30 LT.

STA. 1175+56.00 IN PLACE
12"X 28" C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 57' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH (A) =
45 CU. YDS.



DRIVEWAY STA. 1175+56A LT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.10887
SCOTT P. THORNSBERRY
9-23-2016

DRIVEWAY PROFILES

Leonard.Speed 9/23/2016 2:23:08 PM
WORKSPACE: Leonard.Speed
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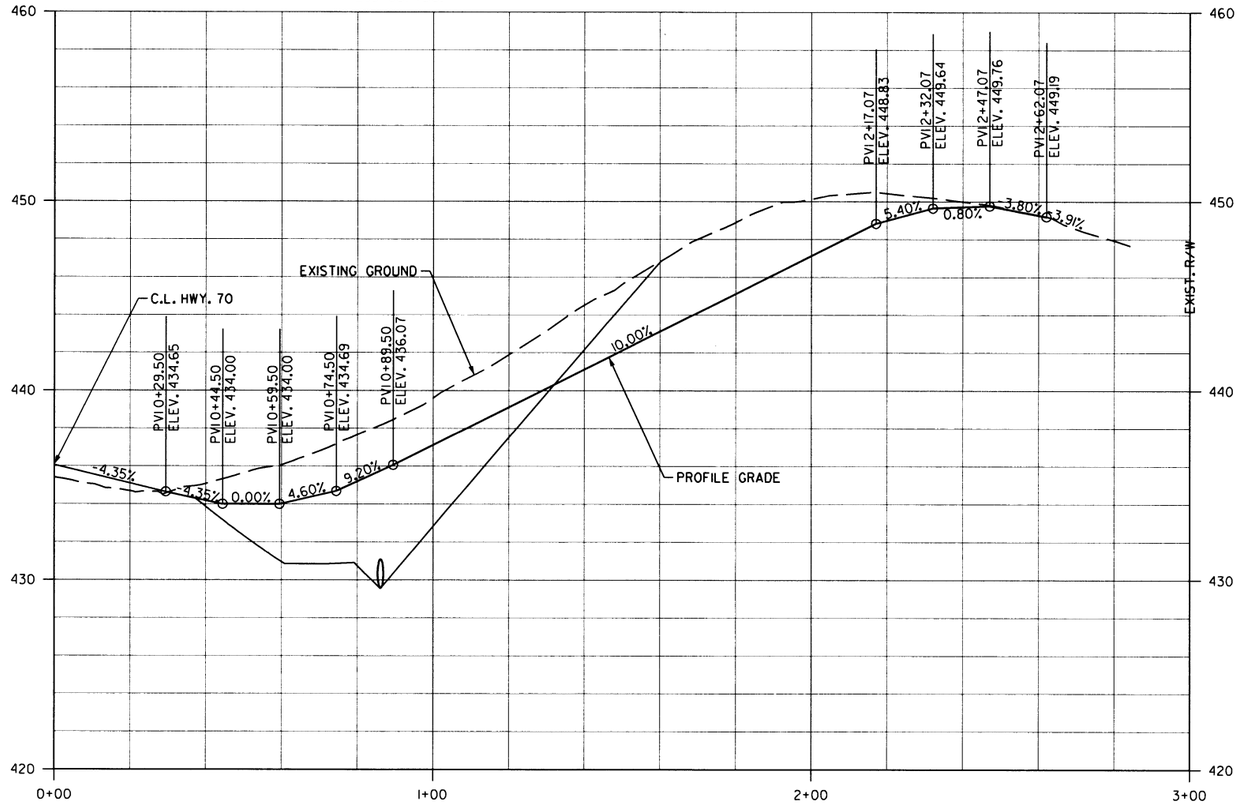
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	353	888

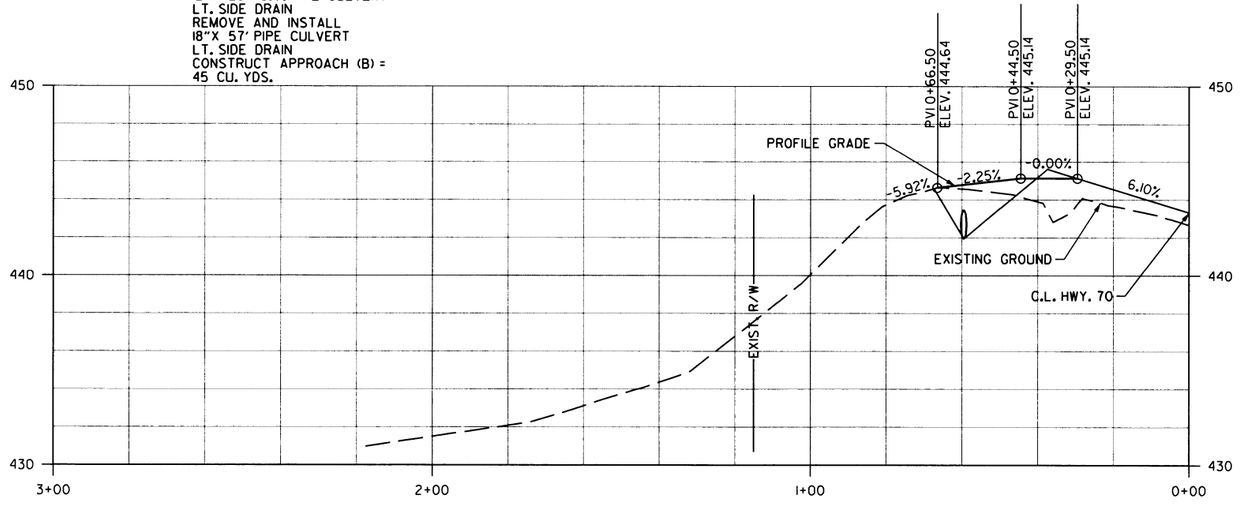
(2) DRIVEWAY PROFILES

STA. 1179+00.00 IN PLACE
12"X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18"X 41' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
295 CU. YDS.



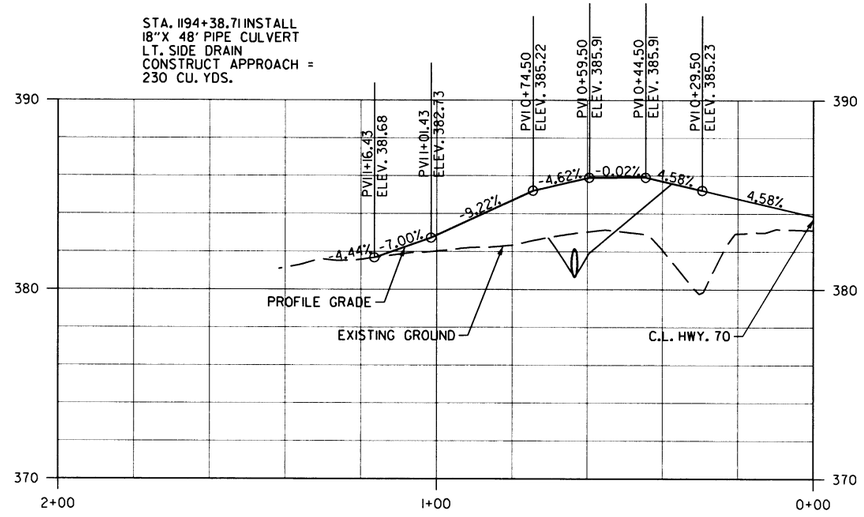
DRIVEWAY STA. 1179+00 RT.

STA. 1175+56.00 IN PLACE
12"X 28" C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 57' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH (B) =
45 CU. YDS.



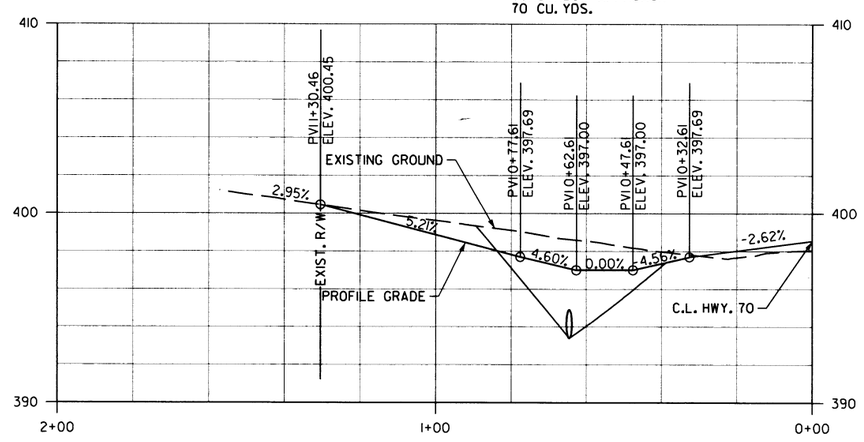
DRIVEWAY STA. 1175+56B LT.

STA. 1194+38.71 INSTALL
18"X 48' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
230 CU. YDS.



DRIVEWAY STA. 1194+38.71 LT.

STA. 1189+30.00 INSTALL
18"X 51' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
70 CU. YDS.



DRIVEWAY STA. 1189+30 LT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-23-2016

DRIVEWAY PROFILES

LeonardSpeed 9/23/2016 2:23:08 PM
WORKSPACE: LeonardSpeed
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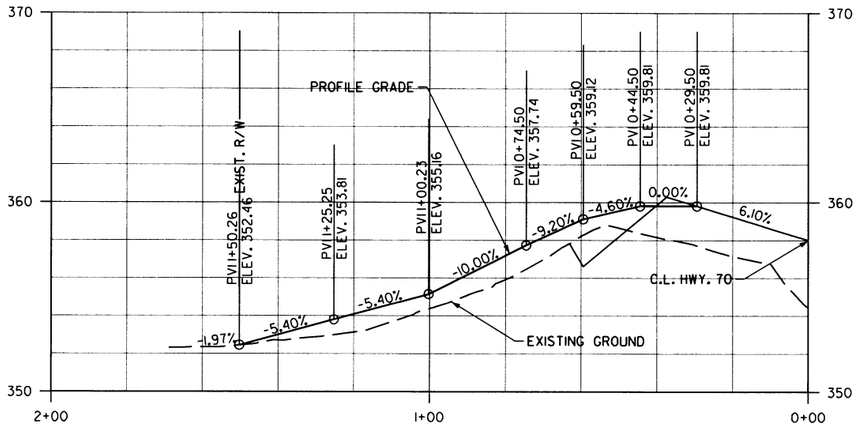
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	354	888

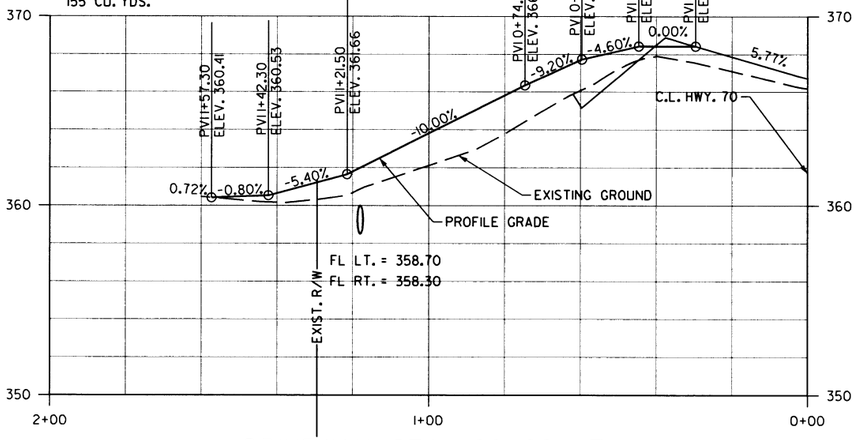
(2) DRIVEWAY PROFILES

STA. 1202+80.00
CONSTRUCT APPROACH ON LT. =
110 CU. YDS.



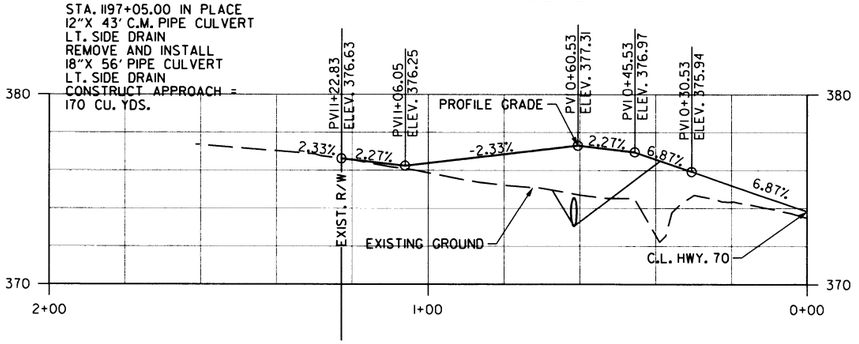
DRIVEWAY STA. 1202+80 LT.

STA. 1198+92.00 IN PLACE
12"X 18' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
155 CU. YDS.



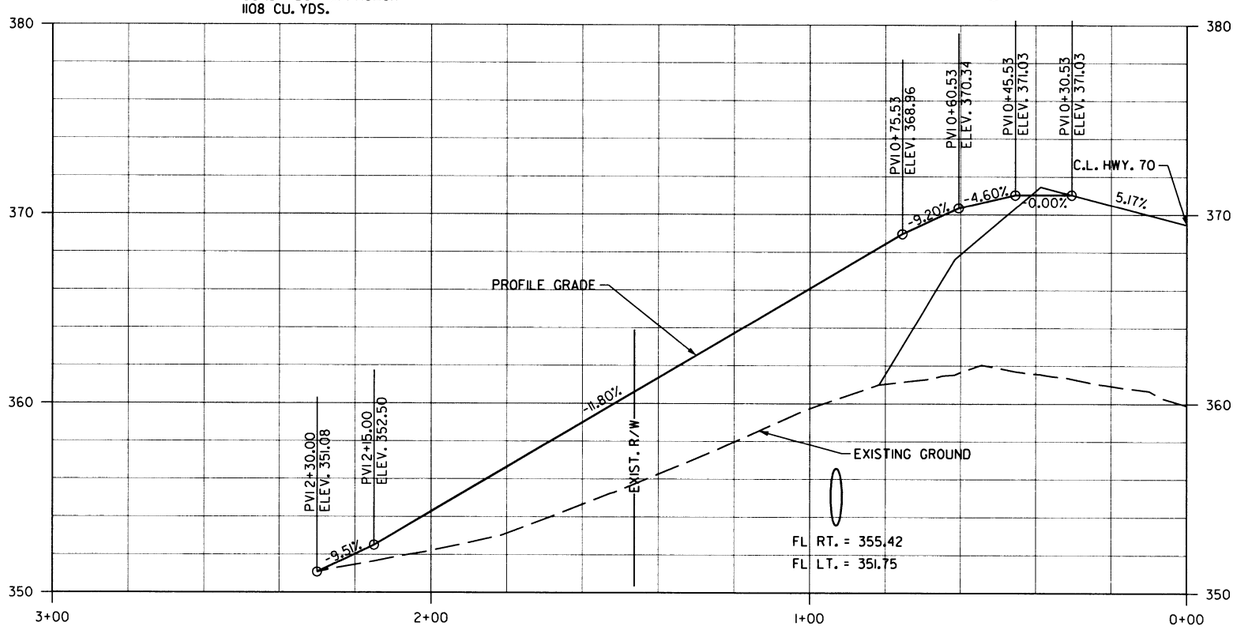
DRIVEWAY STA. 1198+92 LT.

STA. 1197+05.00 IN PLACE
12"X 43' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 56' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
170 CU. YDS.



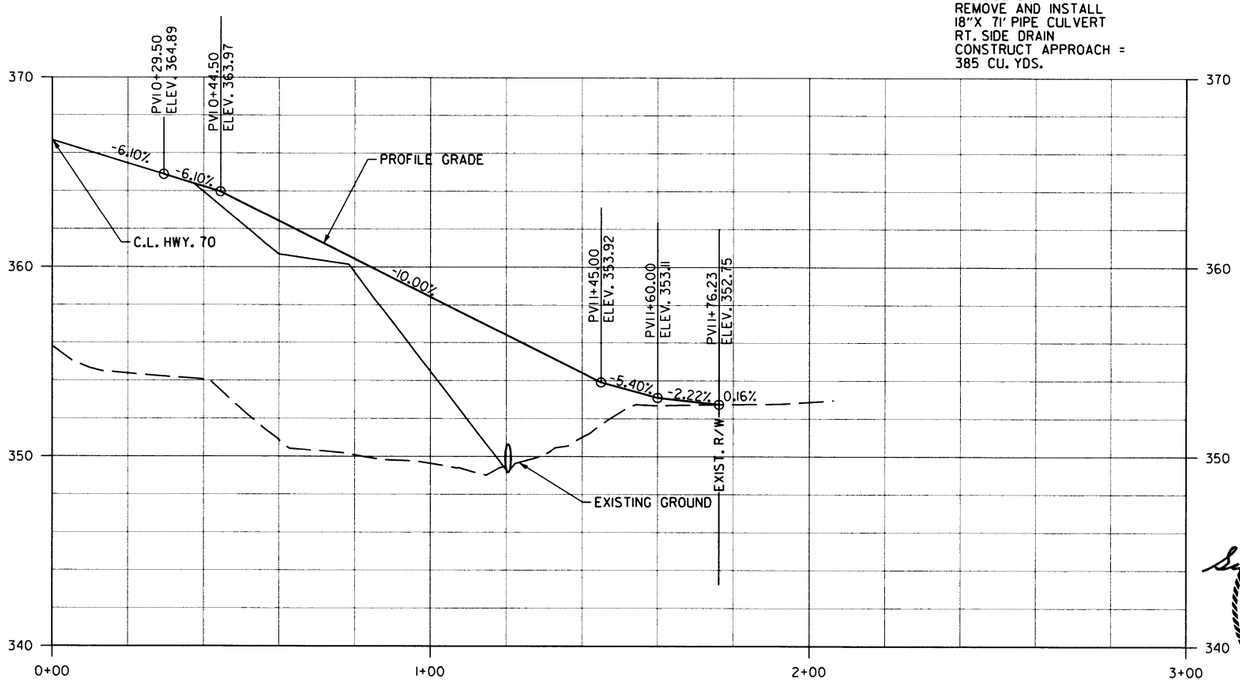
DRIVEWAY STA. 1197+05 LT.

STA. 1213+96.00 IN PLACE
36"X 70' C.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
36"X 110' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
1108 CU. YDS.



DRIVEWAY STA. 1213+96 LT.

STA. 1212+87.00 IN PLACE
18"X 25' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18"X 71' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
385 CU. YDS.



DRIVEWAY STA. 1212+87 RT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 10887
SCOTT P. THORNSBERRY
9-25-2016

DRIVEWAY PROFILES

Leonard.Speed 9/23/2016 2:23:09 PM
WORKSPACE: Leonard.Speed
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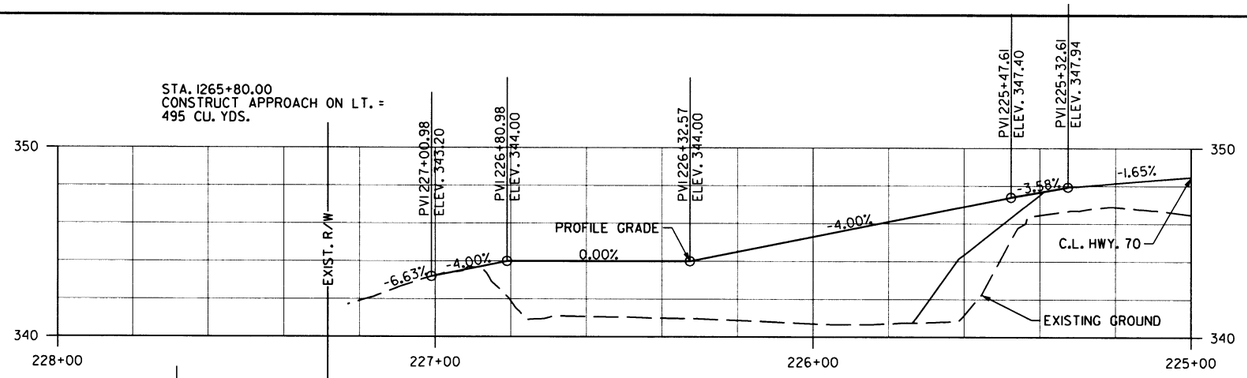
REVISED DATE: $$REVDATE$$

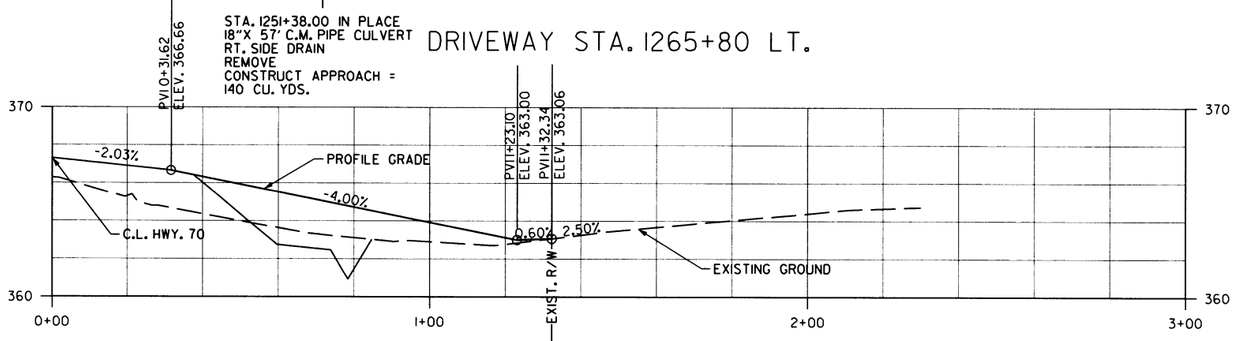
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	355	888

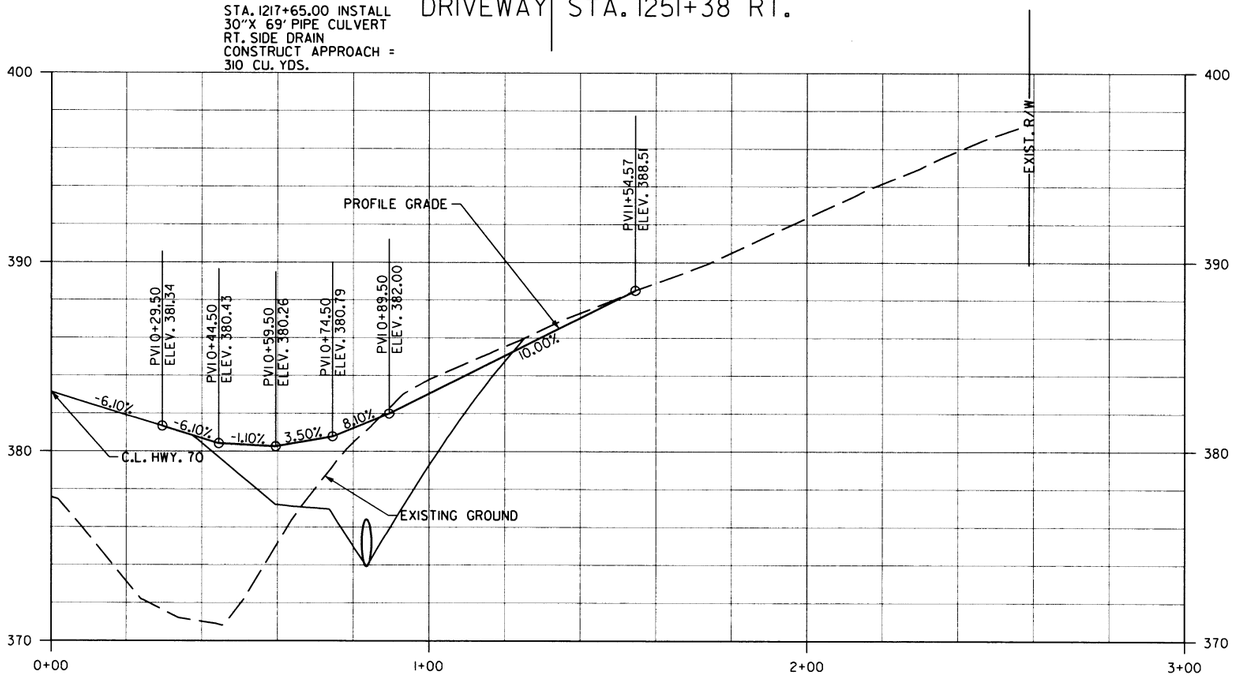
(2) DRIVEWAY PROFILES



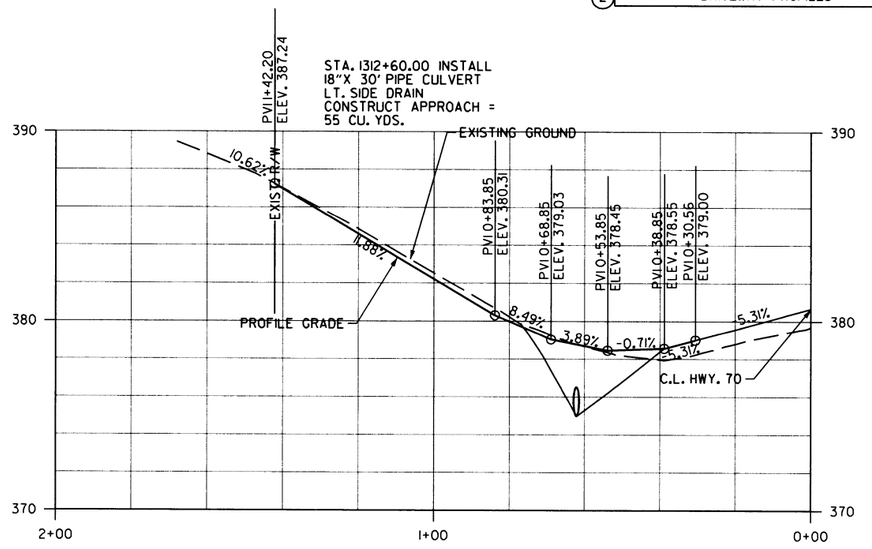
DRIVEWAY STA. 1265+80 LT.



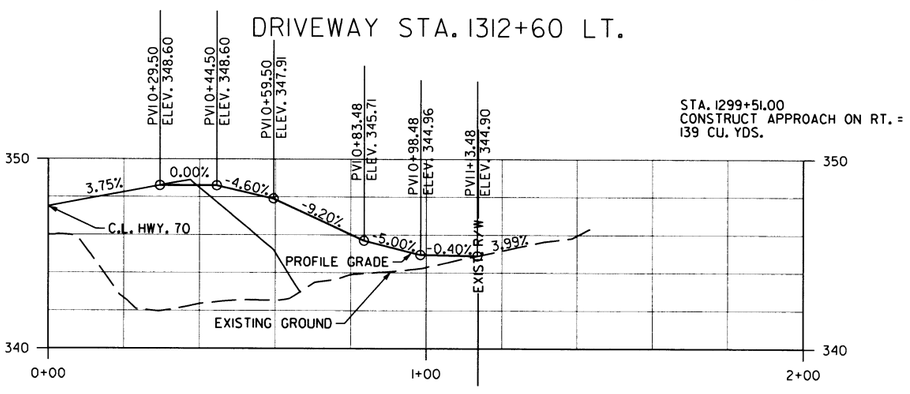
DRIVEWAY STA. 1251+38 RT.



DRIVEWAY STA. 1217+65 RT.



DRIVEWAY STA. 1312+60 LT.



DRIVEWAY STA. 1299+51RT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
9-25-2006

DRIVEWAY PROFILES

Leonard.Speed 9/23/2006 2:23:09 PM
WORKSPACE: Leonard.Speed
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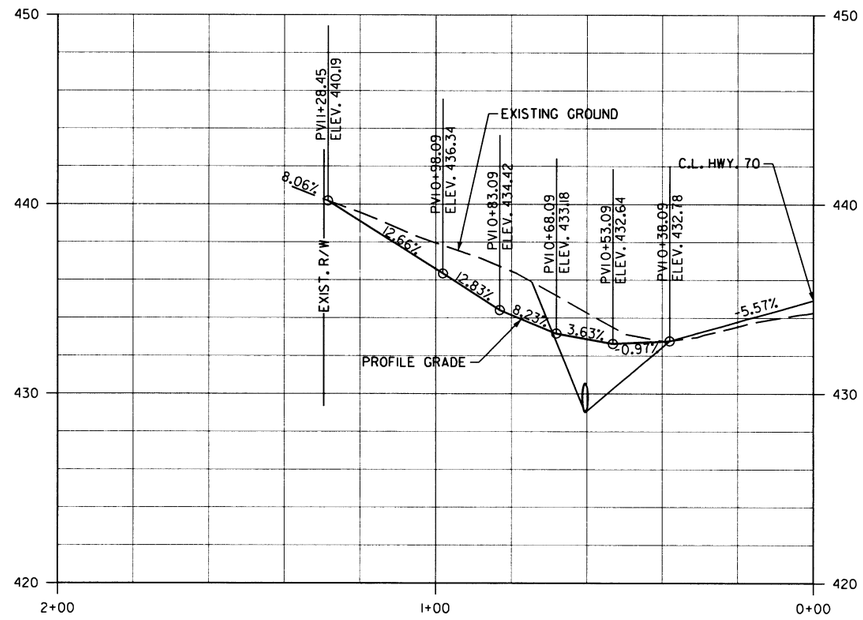
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

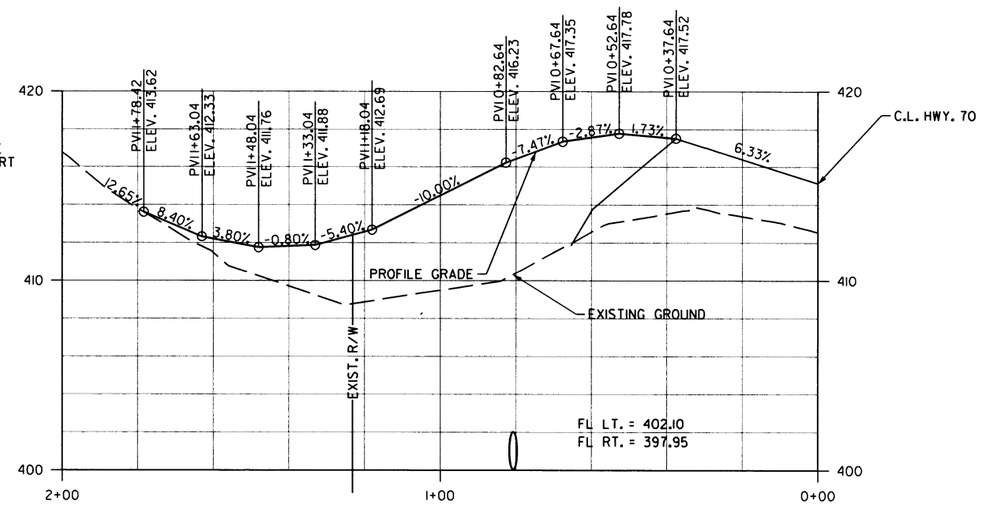
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	356	888
				(2)	DRIVEWAY PROFILES			



STA. 1417+03.00 IN PLACE
12"X 50' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
50 CU. YDS.

DRIVEWAY STA. 1417+03 LT.

STA. 1386+34.00 IN PLACE
24"X 60' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 65' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
491 CU. YDS.



DRIVEWAY STA. 1386+34 LT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
9-25-2016

DRIVEWAY PROFILES

LeonardSpeed 9/21/2016 2:23:09 PM
WORKSPACE: Leonard.dgnlib
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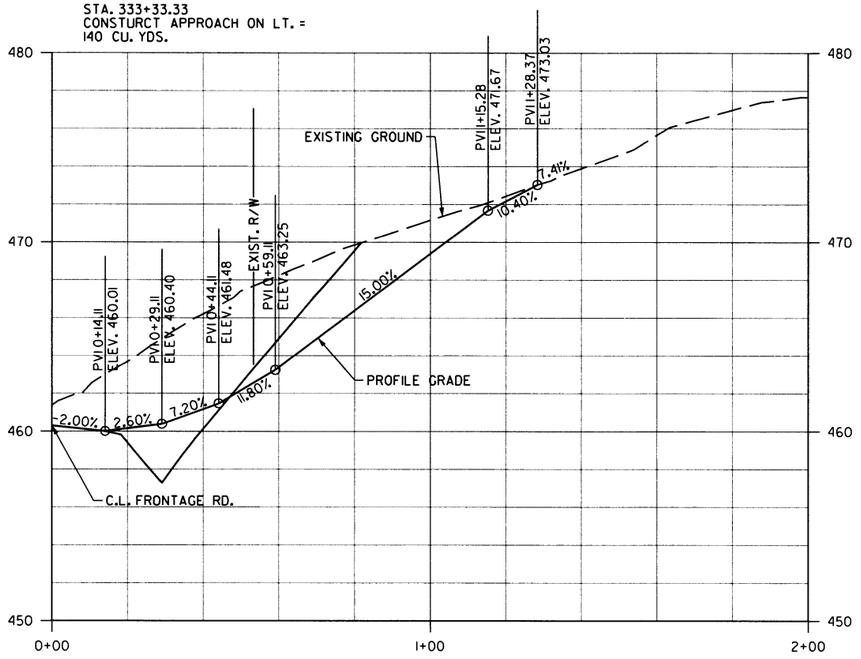
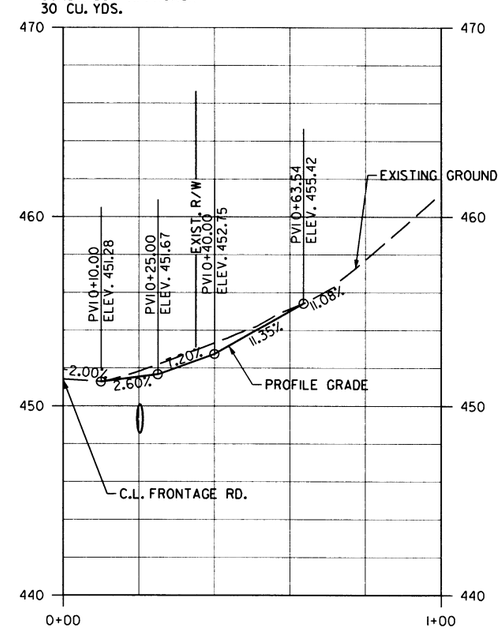
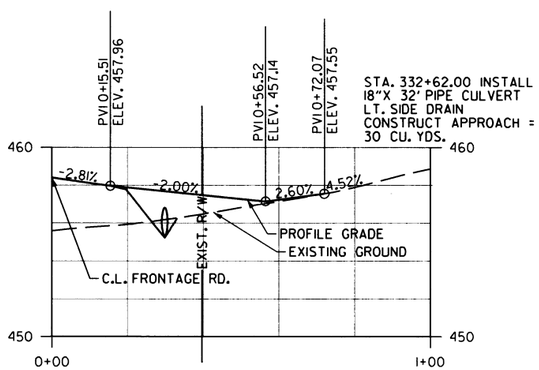
REVISED DATE: $$REVDATE$$



DRIVEWAY FRONTAGE RD. STA. 333+33 LT.



DRIVEWAY FRONTAGE RD. STA. 336+23 LT.



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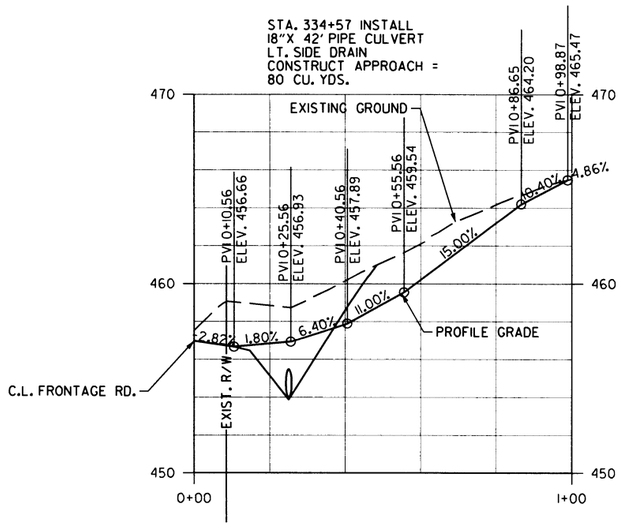


DRIVEWAY FRONTAGE RD. STA. 334+57 LT.

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	357	888

(2) DRIVEWAY PROFILES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

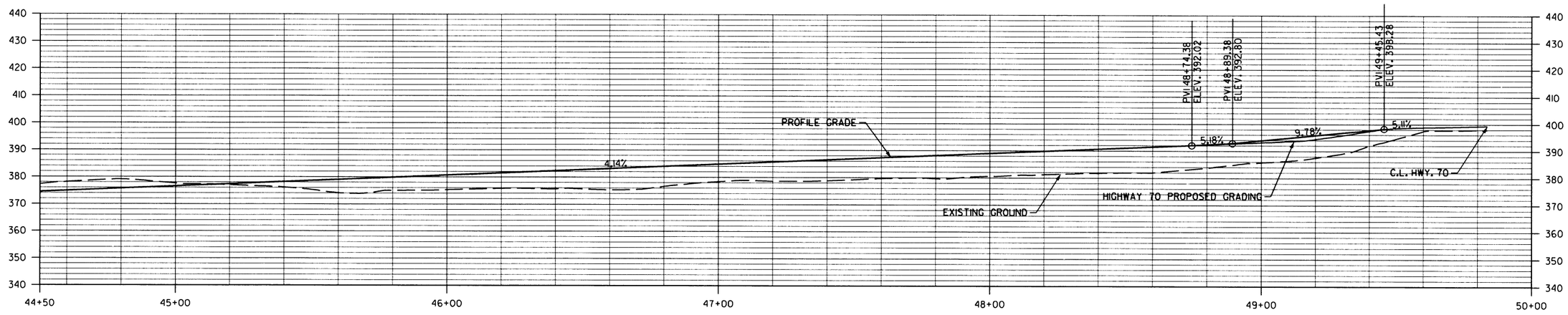
DRIVEWAY PROFILES

LeonardSpeed 9/23/2016 2:23:10 PM
WORKSHARE Leonard Speed
c:\pw\81-local\baker_projects\leonard.speed\d0271682\r061377.17.DWY.001.dgn
REVISED DATE: **REVDATE**

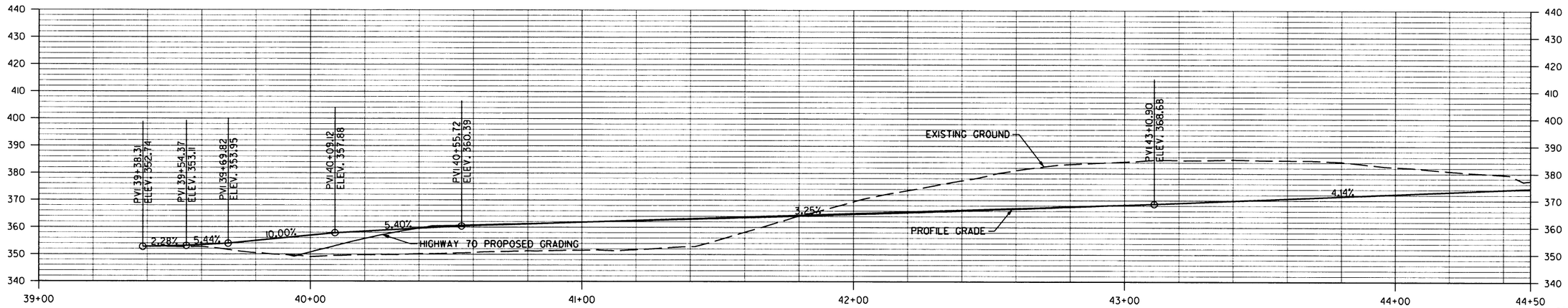
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	358	888

(2) DRIVEWAY PROFILES



TEMPORARY DRIVE 1222+00



TEMPORARY DRIVE 1222+00

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
9-23-2016

DRIVEWAY PROFILES

Leonard.Speed 9/23/2016 2:23:10 PM
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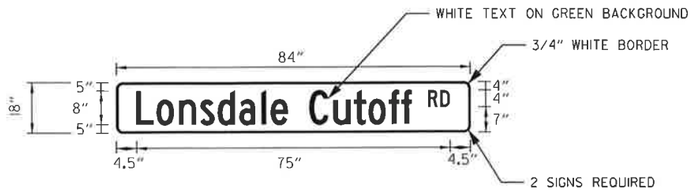
REVISED DATE: $$REVDATE$$

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-07-2016				6	ARK.			
				JOB NO.		CA0610	359	888

(2) TRAFFIC SIGNAL SUMMARY OF QUANTITIES & NOTES

OVERHEAD STREET NAME SIGN DETAILS

TYPCIAL OVERHEAD STREET NAME MARKER
MAST ARM MOUNTED



NOTES:

1. REFLECTIVE SHEETING SHALL COMPLY WITH ASTM 4956 TYPE 8 OR TYPE 9 REFLECTIVE SHEETING. SHEETING AND LEGEND SHALL BE APPLIED IN SUCH A MANNER TO PROVIDE WRINKLE AND BUBBLE FREE SURFACES. APPLICATION OF SHEET IS CAUSE FOR REJECTION OF MATERIALS DUE TO WORKMANSHIP.

2. ALUMINUM SIGN BLANK SHALL BE ALLOY 6061-T6 OR 5052-H38. THE ALUMINUM SIGN SHALL ALSO BE ANODIZED. THE ALUMINUM SHEETING SHALL BE 0.100 INCH NOMINAL THICKNESS AND OF THE SIZE SHOWN WITH 1.5" CORNER RADII. PRIOR TO FABRICATION OF THE SIGNS, THE LAYOUT SHALL FIRST BE APPROVED BY AN AGENT OF THE CITY OF LONSDALE.

3. SEE STD. DETAIL SHEET FOR MORE INFORMATION FOR MOUNTING ON MAST ARM ASSEMBLY.

4. THE CLEARVIEW 5-W-R FONT SHALL BE USED FOR ALL LETTERS.

5. USE 8" UPPER CASE, 8" LOWER CASE, AND 4" SUB AND SUPER SCRIPT TEXT SIZES.

6. STREET NAME "LONSDALE CUTOFF RD" ON POLES A AND C.

SUMMARY OF QUANTITIES

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	
SP&701	ACTUATED CONTROLLER TS2-TYPE 2 (8 PHASES)	1	EACH	
703	FLASHING BEACON CONTROLLER	2	EACH	
704	FEEDER WIRE	1265	LIN.FT.	
704	VEHICLE DETECTOR - RACK MOUNT	1	EACH	
SP&706	TRAFFIC SIGNAL HEAD, LED, (1 SECTION, 1 WAY)	4	EACH	
SP&706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	10	EACH	
SP&706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	2	EACH	
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	913	LIN.FT.	
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	200	LIN.FT.	
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	715	LIN.FT.	
709	GALVANIZED STEEL CONDUIT (1.25")	30	LIN.FT.	
709	GALVANIZED STEEL CONDUIT (1.5")	35	LIN.FT.	
710	NON-METALLIC CONDUIT (1.25")	55	LIN.FT.	
710	NON-METALLIC CONDUIT (2")	910	LIN.FT.	
710	NON-METALLIC CONDUIT (3")	480	LIN.FT.	
711	CONCRETE PULL BOX (TYPE 1 HD)	6	EACH	
711	CONCRETE PULL BOX (TYPE 2 HD)	5	EACH	
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (28')	1	EACH	
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (54')	1	EACH	
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (56')	2	EACH	
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (62')	1	EACH	
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (68')	1	EACH	
SP&733	VEHICLE DETECTOR RACK (20 CHANNEL)	1	EACH	
733	VIDEO CABLE	1610	LIN.FT.	
SP&733	VIDEO DETECTOR (CLR)	7	EACH	*
733	VIDEO MONITOR (CLR)	1	EACH	
SP&733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	4	EACH	*
SP	LOOP WIRING CLASS III (1C/16 A.W.G.)	490	LIN.FT.	
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G)	115	LIN.FT.	
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G, E.G.C.)	646	LIN.FT.	
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G, E.G.C.)	245	LIN.FT.	
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	960	LIN.FT.	
SP	LED LUMINAIRE ASSEMBLY	4	EACH	
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	3	EACH	
SP	18" STREET NAME SIGN	2	EACH	

* ONE ADDITIONAL VIDEO DETECTOR AND ONE ADDITIONAL VIDEO PROCESSOR, EDGE CARD, SHALL BE PROVIDED FOR FUTURE USE.

TRAFFIC SIGNAL NOTES

1. PERFORM ELECTRICAL WORK IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 (2014) NATIONAL ELECTRICAL CODE, NFPA 101 (2012) LIFE SAFETY CODE, STATE ELECTRICAL CODE AND LOCAL ELECTRICAL CODE.

2. EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (EGC) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND EGC TO GROUND LUG OF CONTROL CABINET AND TO POLE GROUND. ENSURE THAT ONLY ONE NEUTRAL-TO-GROUND BOND EXISTS IN THE SYSTEM AND THAT IT IS AT THE MAIN BREAKER.

3. ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER), GALVANIZED STEEL SERVICE RISER, METER LOOP (IF REQUIRED), AND WEATHERHEAD AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. IF THE SERVICE POINT IS OVER 10 FEET FROM THE CONTROLLER, THE CONTRACTOR SHALL PROVIDE AND INSTALL A SEPARATE TWO CIRCUIT EXTERNAL BREAKER (SECONDARY BREAKER) ON OR NEAR THE TRAFFIC SIGNAL CONTROLLER CABINET AND SHALL INSTALL CONDUIT, ELECTRICAL SERVICE WIRE (2c/#6 USE RATED, WITH GROUND TYPICAL), AND PERFORM WIRING TO TAP INTO THE CITY 5/32 S MAIN BREAKER AS PART OF THIS CONTRACT. CONDUIT IS PAID FOR AS A SEPARATE ITEM OF THIS CONTRACT. TWO CIRCUIT BREAKERS, CONSIDERED SUBSIDIARY TO THE CONTROL EQUIPMENT, ARE NEEDED WHERE STREET LIGHTING IS INCLUDED. AS PART OF THE SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2c/#12 AWG UF RATED, TYPICAL) SHALL BE KEPT FROM THE CIRCUIT SERVING THE TRAFFIC SIGNAL CONTROL EQUIPMENT FROM THE POINT OF TIE-IN AT THE SECONDARY BREAKER PROVIDED BY THE CONTRACTOR.

4. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE.

5. TRAFFIC CONTROLLER CABINET AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO THE CONTROLLER.

6. CONTROLLER CABINET SHALL BE WIRED SUCH THAT DURING FLASH OPERATIONS POWER TO THE LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS.

7. ALL PARTS OF THIS INSTALLATION SHALL BE IN ACCORDANCE WITH THE ARKANSAS HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARDS AND DETAILS AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITIONS.

8. CONDUIT INSTALLED UNDER ROADWAY SURFACES SHALL BE INSTALLED BY PUSHING OR BORING METHODS. IF THE ENGINEER DETERMINES THIS IS NOT FEASIBLE, THEN A TRENCHING METHOD AS SHOWN IN THE DETAILS MAY BE USED.

9. TRAFFIC SIGNAL POLES SHALL BE GALVANIZED. BACKPLATES SHALL BE SUPPLIED FOR ALL SIGNAL HEADS.

10. PAVEMENT MARKING SHOWN FOR REFERENCE ONLY. SEE PAVEMENT MARKING PLAN SHEETS.

11. FOUNDATION FOR ALL POLES SHALL BE EXTENDED IF NECESSARY TO ACCOMMODATE THE REQUIREMENTS FOR SIGNAL HEAD CLEARANCE ABOVE ROADWAY ONLY AT LOCATIONS WHERE THE GROUND ELEVATION AT THE POLE IS BELOW THE ELEVATION OF THE ROADWAY (SEE NOTES ON SPECIAL DETAILS). PAYMENT WILL BE INCLUDED IN SECTION 714, AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

12. ALL BOXES SHALL BE (TYPE 2 HD) UNLESS OTHERWISE INDICATED. ALL CONDUIT SHALL BE 3" DIAMETER UNLESS SPECIFIED ON PLANS.

13. CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.

14. LUMINAIRE ASSEMBLIES SHALL BE OF THE FULL CUTOFF TYPE.

15. HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER. EACH DETECTOR OUTPUT SHALL INPUT THE CONTROLLER THROUGH A SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTUATE THE ASSOCIATED PHASE. COMBINATION (COMB.) DETECTORS SHALL ALSO BE PROGRAMMED TO PROVIDE VEHICLE COUNT/OCCUPANCY DATA.

16. TO DETERMINE UTILITY CLEARANCES ABOVE THE TRAFFIC SIGNAL POLE, REFER TO THE POLE SCHEDULE FOR VERTICAL SHAFT HEIGHT. WHERE THE POLE SCHEDULE INDICATES THAT A LUMINAIRE ARM WILL BE USED, 38 FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE LUMINAIRE ARM. WHERE THE POLE SCHEDULE INDICATES A TRAFFIC SIGNAL POLE WITHOUT A LUMINAIRE ARM, A HEIGHT OF 21' SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL 6 FEET SHOULD BE USED DIRECTLY ABOVE "VIDEO DETECTOR" AT LOCATIONS SHOWN ON THE SIGNAL PLANS.

17. THE DESIRABLE MINIMUM DISTANCE FROM THE FACE OF ROADWAY CURB OR SHOULDER EDGE TO THE FACE OF NON-BREAKAWAY POLE OR OBSTRUCTION IS 6 FEET. REFER TO TRAFFIC SIGNAL PLANS FOR SPECIFIC LOCATION OF POLES, CONTROLLER AND ANY OTHER NON-BREAKAWAY OBSTRUCTIONS. REFER TO "DESIGN PARAMETERS, MINIMUM CLEAR ZONE DISTANCE" FOR MINIMUM DISTANCE FROM THE EDGE OF TRAVELED WAY TO THE FACE OF A NON-BREAKAWAY POLE OR OBSTRUCTION. TRAFFIC SIGNAL POLES OR ANY OTHER NON-BREAKAWAY OBSTRUCTION SHALL NOT BE INSTALLED WITHIN THE CLEAR ZONE.

18. AS DETERMINED BY THE ENGINEER, FOUNDATION EMBEDMENT MAY BE DECREASED BY A MAXIMUM OF TWO FEET IF COMPETENT ROCK IS ENCOUNTERED PRIOR TO ACHIEVING PLAN EMBEDMENT AND AT LEAST HALF OF THE REMAINING PLAN EMBEDMENT LENGTH IS KEYED INTO COMPETENT ROCK.

19. CONNECTION OF TRAFFIC SIGNAL DISPLAY TO FIELD WIRING SHALL UTILIZE AN APPROVED TERMINAL STRIP BEHIND HAND-HOLE COVER AT BASE OF POLE. TERMINAL STRIP SHALL PROVIDE PROTECTION TO PREVENT EXPOSURE TO THE PUBLIC IN THE EVENT THAT POLE COVER IS MISSING. PAYMENT FOR TERMINAL STRIPS SHALL BE INCLUDED IN ITEM 714-TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION.

20. CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO IMSA STANDARDS.

21. ONE VIDEO PROGRAMMING MODULE SHALL BE PROVIDED FOR AIMING AND SETUP OF DETECTORS IF THE VIDEO SYSTEM CANNOT BE ADJUSTED THROUGH HARDWARE AND SOFTWARE PROVIDED BY ITEMS WITHIN THE JOB.

22. TRAFFIC SIGNAL CONTRACTOR MUST NOTIFY RESIDENT ENGINEER OR ASSIGNED DEPARTMENT PROJECT INSPECTOR EACH DAY PRIOR TO SIGNAL RELATED WORK. NO WORK ON TRAFFIC SIGNALS WILL BE ALLOWED OR APPROVED WITHOUT THIS PRIOR NOTIFICATION.

23. ALL STEEL POLES SHALL BE DESIGNED TO MEET THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

24. DOOR PANEL TEST PUSH BUTTONS SHALL ACTUATE INDICATED PHASES. DETECTOR ASSIGNMENTS AND/OR SIDE PANEL JUMPERS MAY REQUIRE MODIFICATION.

25. ALL SYSTEM DETECTOR RACKS AND ASSOCIATED EQUIPMENT SHALL BE PROTECTED BY THE MAIN CONTROLLER CABINET SURGE PROTECTION.

SIGNAL PLANS

LOCATION:	HWY. 70 AT HWY. 128
CITY:	LONSDALE
COUNTY:	GARLAND
DISTRICT:	06 SCALE: AS SHOWN DRAWN BY: KMC

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-07-2016				6	ARK.			
				JOB NO.		CA0610	360	888
				(2) SIGNALIZATION PLANS (HWY. 70 AT HWY. 128)				

PHASING DIAGRAM

SIGNAL FACES

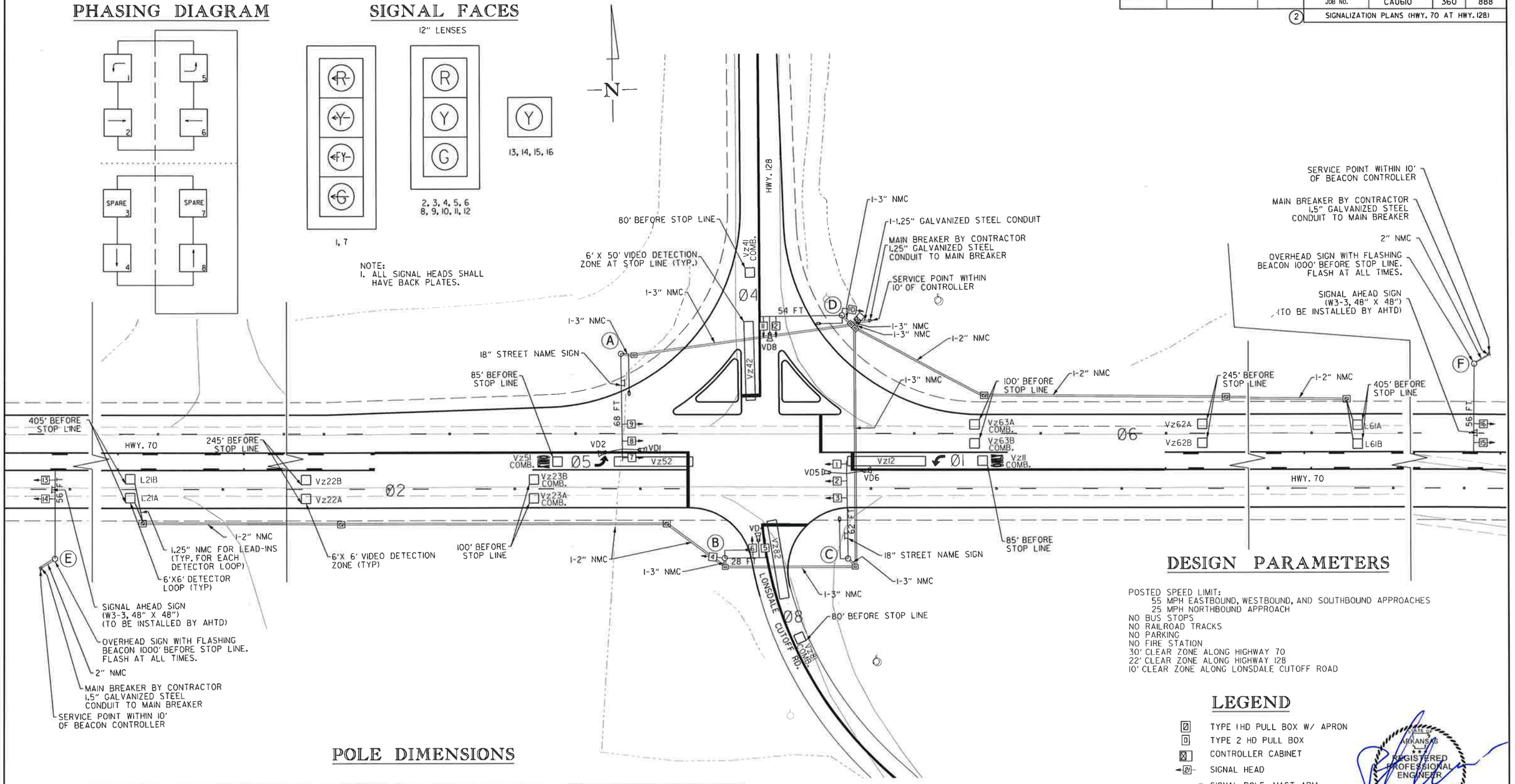
12" LENSES

1, 7

2, 3, 4, 5, 6
8, 9, 10, 11, 12

13, 14, 15, 16

NOTE:
1. ALL SIGNAL HEADS SHALL HAVE BACK PLATES.



POLE DIMENSIONS

POLE	MAST ARM(S) LENGTH	MAST ARM(S) ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)	VERTICAL SHAFT LENGTH	LUM. ARM LENGTH	LUM. ARM(S) ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)	STATION HWY. 70	OFFSET	NORTHING	EASTING
A	68 FT	270 DEGREES	35'-0"	25'-0"	270 DEGREES	1027+69.92	74.66' LT	2001053.3154	1068155.0997
B	28 FT	270 DEGREES	35'-0"	15'-0"	270 DEGREES	1028+40.88	61.45' RT	2000916.2365	1068224.1578
C	62 FT	180 DEGREES	35'-0"	25'-0"	180 DEGREES	1029+09.62	61.37' RT	2000915.3612	1068292.8876
D	54 FT	180 DEGREES	35'-0"	15'-0"	180 DEGREES	1029+10.98	96.79' LT	2001073.4867	1068296.4444
E	56 FT	180 DEGREES	21'-0"	--	--	1018+18.00	61.50' RT	2000930.3935	1067201.3761
F	56 FT	180 DEGREES	21'-0"	--	--	1039+00.00	61.50' LT	2001024.3338	1069285.4094

DESIGN PARAMETERS

POSTED SPEED LIMIT:
55 MPH EASTBOUND, WESTBOUND, AND SOUTHBOUND APPROACHES
25 MPH NORTHBOUND APPROACH
NO BUS STOPS
NO RAILROAD TRACKS
NO PARKING
NO FIRE STATION
30' CLEAR ZONE ALONG HIGHWAY 70
22' CLEAR ZONE ALONG HIGHWAY 128
10' CLEAR ZONE ALONG LONSDALE CUTOFF ROAD

LEGEND

- TYPE 1HD PULL BOX W/ APRON
- TYPE 2 HD PULL BOX
- CONTROLLER CABINET
- SIGNAL HEAD
- SIGNAL POLE, MAST ARM AND LUMINAIRE ARM
- NMC - NON-METALLIC CONDUIT
- VIDEO DETECTOR

0 30 60 120

SCALE IN FEET

NOTE: ADDITIONAL 0.5" NMC REQUIRED FROM CONTROLLER AND POLE TO NEAREST PULL BOX. REFER TO STANDARD DRAWING SD-6, HEAVY DUTY PULLBOX. THE COST OF THE 0.5" NMC IS INCLUDED IN ITEM NO. 701 OR 714, RESPECTIVELY.

SIGNAL PLANS

LOCATION:	HWY. 70 AT HWY. 128
CITY:	LONSDALE
COUNTY:	GARLAND
DISTRICT:	06 SCALE: AS SHOWN DRAWN BY: KMC

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-07-2016				6	ARK.			
				JOB NO.		CA0610	361	888
				(2) SIGNALIZATION PLANS (HWY. 70 AT HWY. 128)				

PHASING DIAGRAM

SIGNAL FACES

DESIGN PARAMETERS

POSTED SPEED LIMIT:
55 MPH EASTBOUND, WESTBOUND, AND SOUTHBOUND APPROACHES
25 MPH NORTHBOUND APPROACH
NO BUS STOPS
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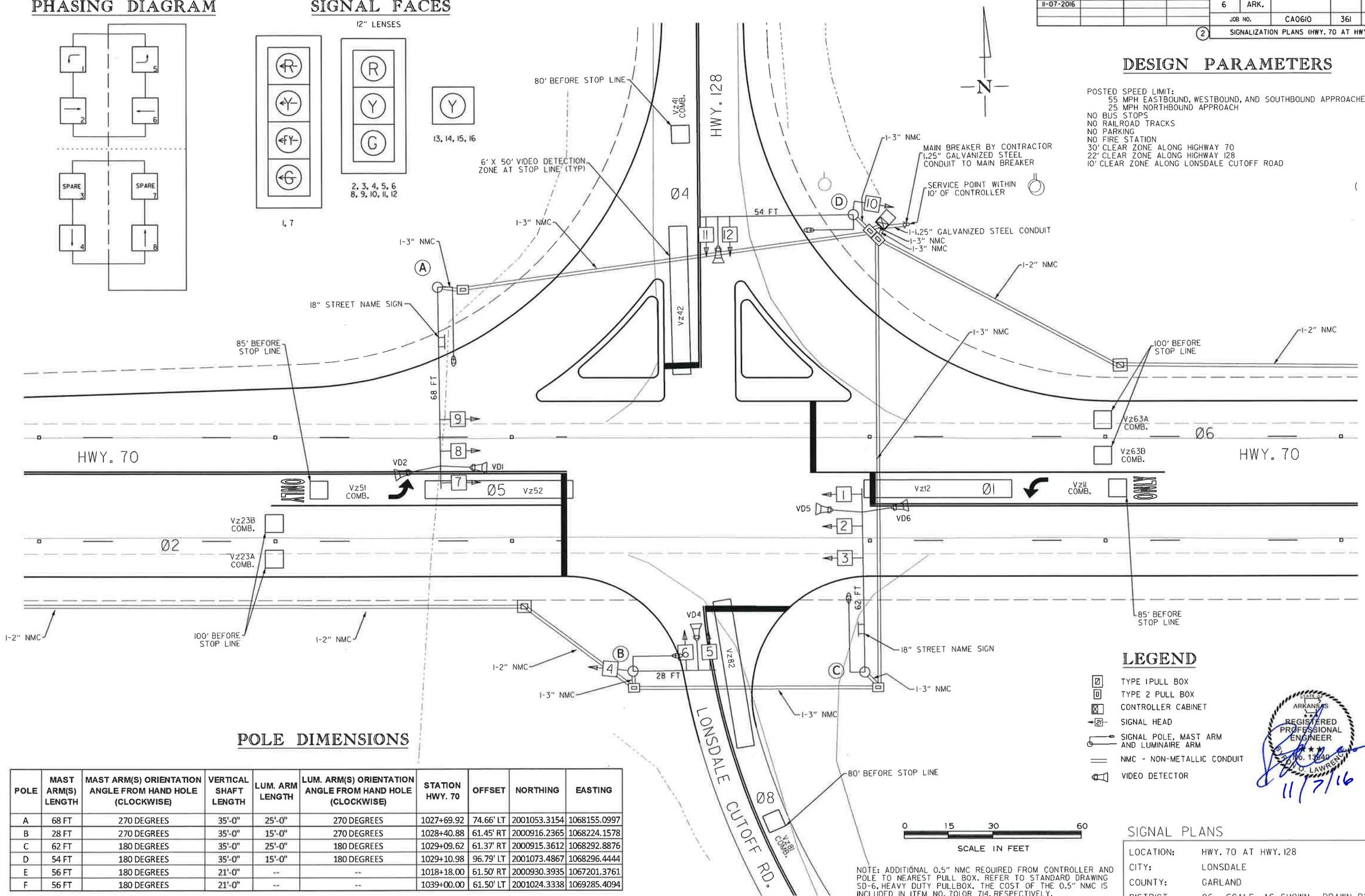

POLE DIMENSIONS

POLE	MAST ARM(S) LENGTH	MAST ARM(S) ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)	VERTICAL SHAFT LENGTH	LUM. ARM LENGTH	LUM. ARM(S) ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)	STATION HWY. 70	OFFSET	NORTHING	EASTING
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F	56 FT	180 DEGREES	21'-0"	--	--	1039+00.00	61.50' LT	2001024.3338	1069285.4094

LEGEND

- TYPE 1 PULL BOX
- TYPE 2 PULL BOX
- CONTROLLER CABINET
- SIGNAL HEAD
- SIGNAL POLE, MAST ARM AND LUMINAIRE ARM
- NMC - NON-METALLIC CONDUIT
- VIDEO DETECTOR

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 13240
TODD O. LAWRENCE
11/7/16

0 15 30 60
SCALE IN FEET

NOTE: ADDITIONAL 0.5" NMC REQUIRED FROM CONTROLLER AND POLE TO NEAREST PULL BOX. REFER TO STANDARD DRAWING SD-6, HEAVY DUTY PULLBOX. THE COST OF THE 0.5" NMC IS INCLUDED IN ITEM NO. 701 OR 714, RESPECTIVELY.

SIGNAL PLANS

LOCATION:	HWY. 70 AT HWY. 128
CITY:	LONSDALE
COUNTY:	GARLAND
DISTRICT:	06 SCALE: AS SHOWN DRAWN BY: KMC

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-07-2016				6	ARK.			
				JOB NO.		CA0610	362	888
				(2)	SIGNALIZATION PLANS (HWY. 70 AT HWY. 128)			

TYPICAL WIRING INCLUDES:

1. SEPARATE 5C/#14 AWG FROM EACH 3 SEC SIGNAL HEAD TO BASE OF POLE.

2. SEPARATE 7C/#14 AWG FROM EACH 4 SEC SIGNAL HEAD TO BASE OF POLE.

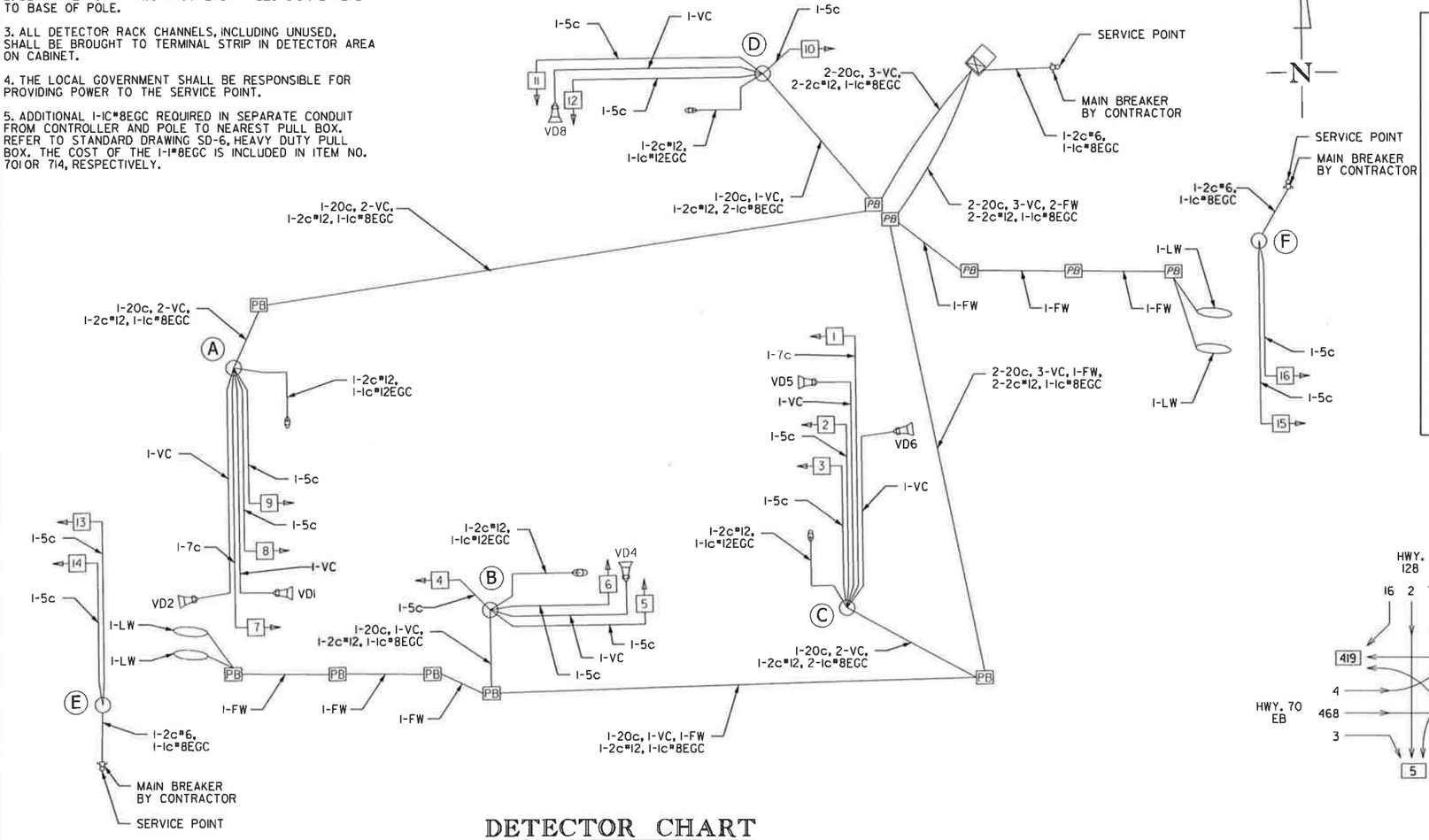
3. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA ON CABINET.

4. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.

5. ADDITIONAL 1-IC#8EGC REQUIRED IN SEPARATE CONDUIT FROM CONTROLLER AND POLE TO NEAREST PULL BOX. REFER TO STANDARD DRAWING SD-6, HEAVY DUTY PULL BOX. THE COST OF THE 1-1#8EGC IS INCLUDED IN ITEM NO. 701 OR 714, RESPECTIVELY.

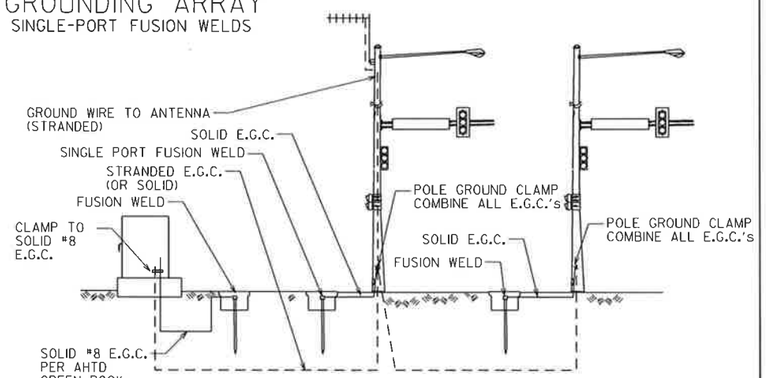
WIRING DIAGRAM

NOT TO SCALE

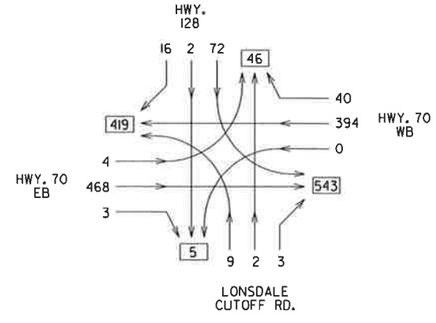


GROUNDING ARRAY

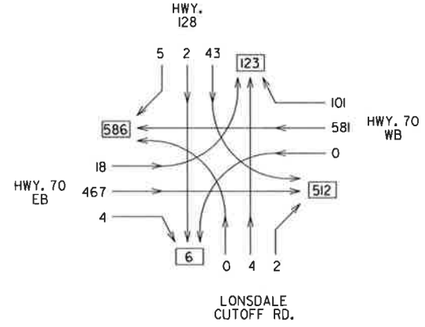
SINGLE-PORT FUSION WELDS



TRAFFIC FLOW DIAGRAMS



HWY. 70 AT HWY. 128/LONSDALE CUTOFF RD.
2014 AM PEAK HOUR VOLUMES



HWY. 70 AT HWY. 128/LONSDALE CUTOFF RD.
2014 PM PEAK HOUR VOLUMES

DETECTOR CHART

DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS			VIDEO DET. TUBE LENGTH	COMMENT
DETECTOR I.D. #	DIRECTION & LOCATION	TYPE	DET. #	CAB. TRM. #	AMP CHN. #	CON INP. #	LOCAL PHS.	LOCAL SYS. DET. #	MSTR. SYS. DET. #		
Vz11	WB LEFT FAR	COMB.			1	V9	1	1		23"	VD1
Vz12	WB LEFT NEAR	LOCAL			2	V1	1			23"	VD1
L21A & L21B	EB ADVANCED	LOCAL	2		-	V3	2			--	LOOP
Vz22A & Vz22B	EB FAR	LOCAL			5	V2	2			74"	VD2
Vz23A & Vz23B	EB NEAR	COMB.			6	V10	2	2		23"	VD5
Vz41	SB FAR	COMB.			9	V12	4	4		23"	VD4
Vz42	SB NEAR	LOCAL			10	V4	4			23"	VD4
Vz51	EB LEFT FAR	COMB.			7	V13	5	5		23"	VD5
Vz52	EB LEFT NEAR	LOCAL			8	V5	5			23"	VD5
L61A & L61B	WB ADVANCED	LOCAL	6		-	V7	6			--	LOOP
Vz62A & Vz62B	WB FAR	LOCAL			3	V6	6			74"	VD6
Vz63A & Vz63B	WB NEAR	COMB.			4	V14	6	6		23"	VD1
Vz81	NB FAR	COMB.			11	V16	8	8		23"	VD8
Vz82	NB NEAR	LOCAL			12	V8	8			23"	VD8

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICLE INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

SPARE AMP. CHN. # = 13, 14, 15, 16, 19 & 20

INTERVAL CHART

SIGNAL FACES	INTERSECTION INTERVALS										FLASH SEQ.
	1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	4+8	CLR.	
1	~~G~~	*	~~FY~~	***	~~G~~	*	~~FY~~	***	~~R~~	~~R~~	~~R~~
2,3,4	R	R	R	R	G	**	G	**	R	R	R
5,6	R	R	R	R	R	R	R	G	Y	R	
7	~~G~~	*	~~G~~	*	~~FY~~	***	~~FY~~	***	~~R~~	~~R~~	~~R~~
8,9,10	R	R	G	**	R	R	G	**	R	R	R
11,12	R	R	R	R	R	R	R	R	G	Y	R
13,14,15,16	FY	FY	FY	FY	FY	FY	FY	FY	FY	FY	B

* DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE
** DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
*** DENOTES FLASHING YELLOW ARROW OR YELLOW BALL DEPENDING ON NEXT PHASE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13640
BYRON D. LAWRENCE
Nov. 7, 2016

SIGNAL PLANS

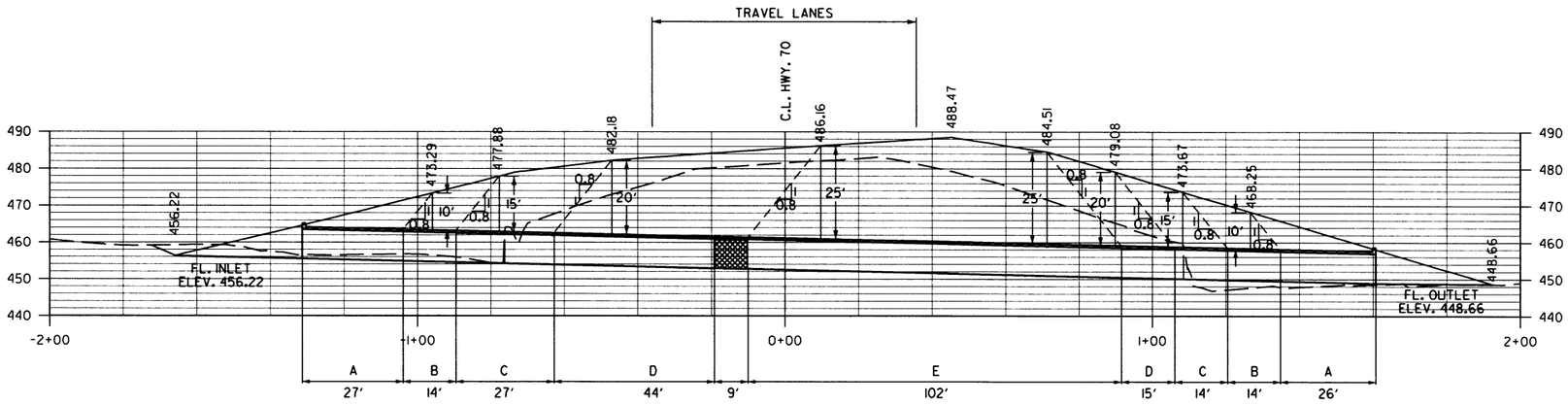
LOCATION:	HWY. 70 AT HWY. 128
CITY:	LONSDALE
COUNTY:	GARLAND
DISTRICT:	06 SCALE: AS SHOWN DRAWN BY: KMC

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

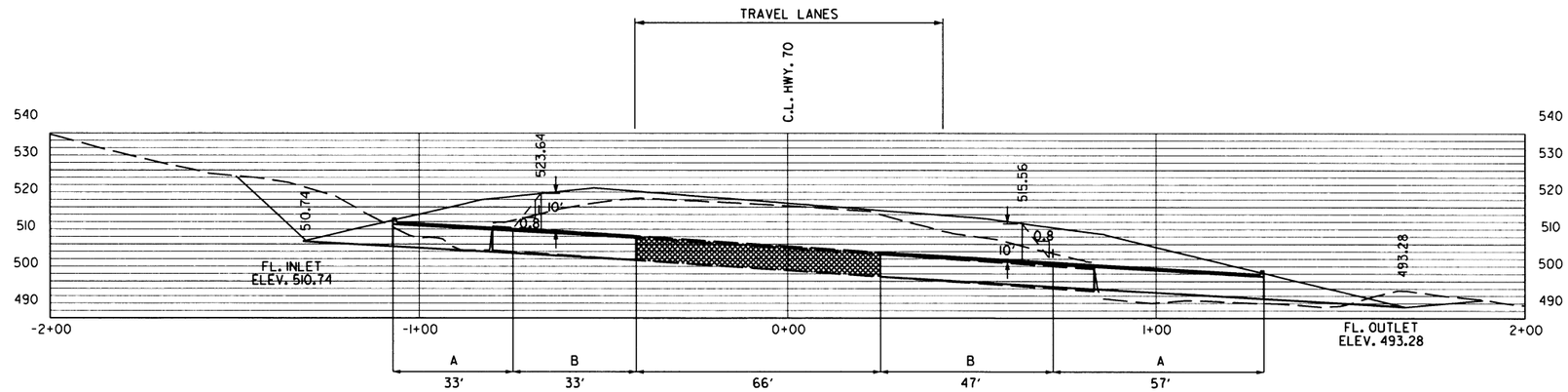
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	363	888

(2) CULVERT DIAGRAM



HWY. 70 STA. 514+34.54 - CULVERT SECTION

6' X 8' X 292' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.



HWY. 70 STA. 560+61.72 - CULVERT SECTION

4' X 6' X 236' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 10887
SCOTT P. THORNSBERRY
9-25-2016

CULVERT DIAGRAM

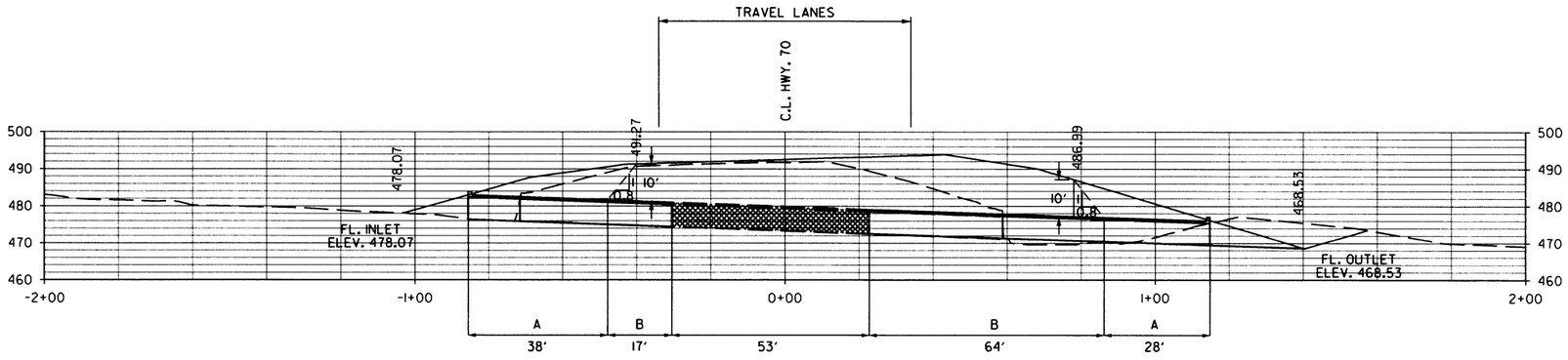
Leonard.Speed 9/23/2016 2:24:02 PM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0217744\r-CA0606_18_CD_MAIN.01.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

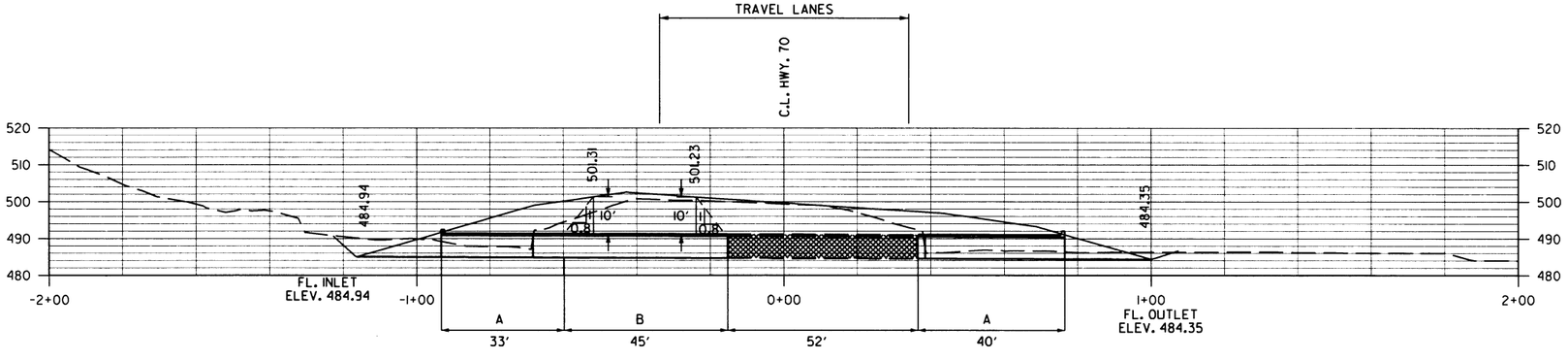
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	364	888

(2) CULVERT DIAGRAM



HWY. 70 STA. 585+86.26 - CULVERT SECTION

4' X 6' X 200' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.



HWY. 70 STA. 611+36.13 CULVERT SECTION

4' X 6' X 170' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No. 10887
SCOTT P. THORNSBERRY
9-25-2016

CULVERT DIAGRAM

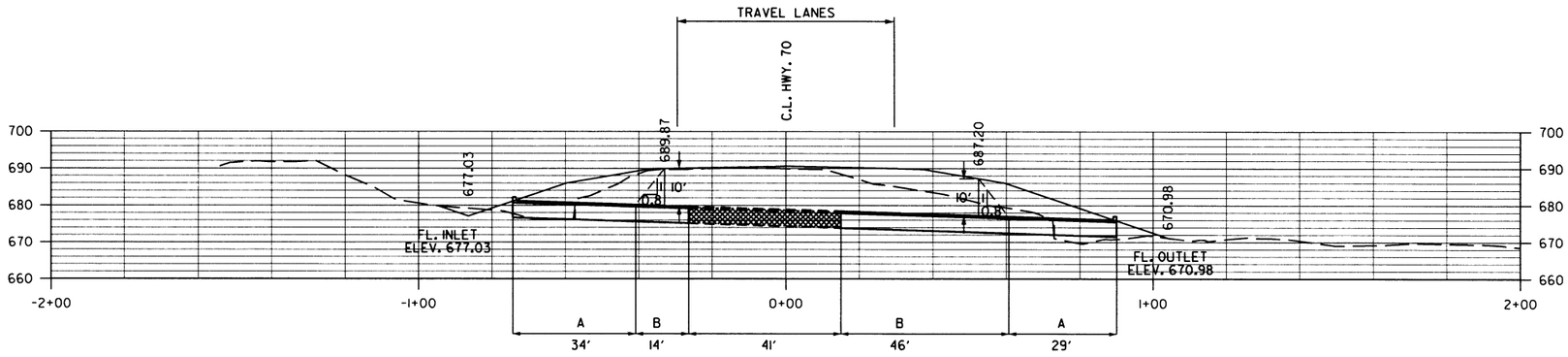
Leonard.Speed 9/23/2016 2:24:03 PM
WORKSPACE: Leonard.Speed
C:\pw\bl.local\baker_projects\leonard.speed\d0271744\rCA0606.18.CD.MAIN.01.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	365	888

(2) CULVERT DIAGRAM



HWY. 70 STA. 760+80.24 - CULVERT SECTION

4' X 4' X 164' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
9-25-2016

CULVERT DIAGRAM

Leonard.Speed 9/23/2016 2:24:03 PM
WORKSPACE: Leonard.Speed
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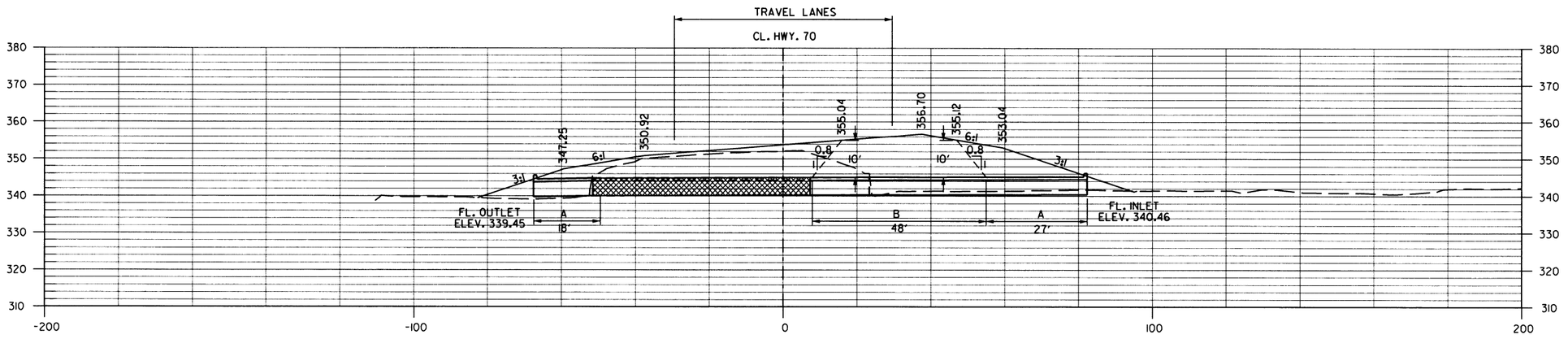
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

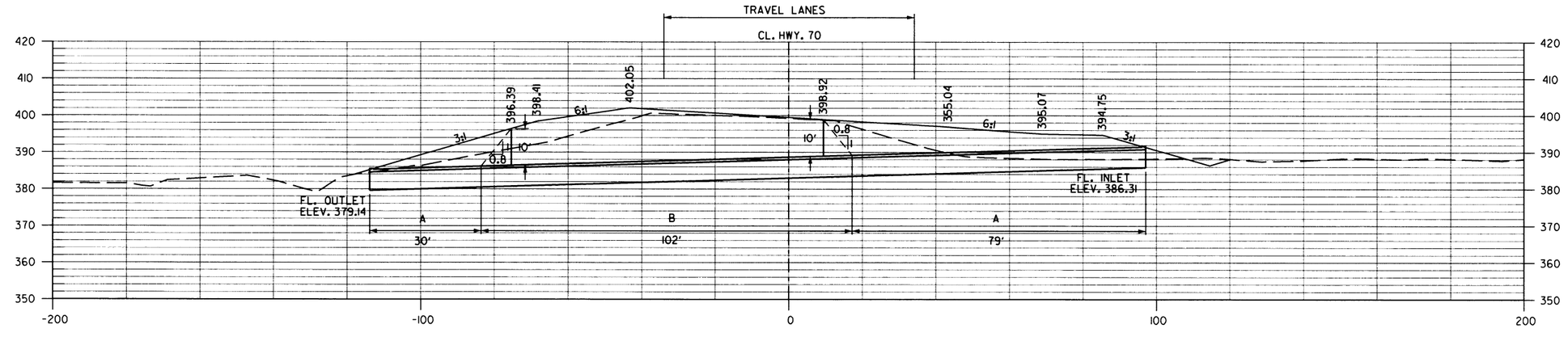
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	366	888

(2) CULVERT DIAGRAM



HWY. 70 STA. 1303+64.00 - CULVERT SECTION

DBL. 8' x 4' x 150' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.



HWY. 70 STA. 1397+50.00 - CULVERT SECTION

7' x 5' x 211' R.C. BOX CULVERT
30° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
9-26-2016

CULVERT DIAGRAM

Leonard.Speed 9/23/2016 2:24:13 PM
WORKSPACE: Leonard.Speed
C:\pwdi_local\baker_projects\leonard.speed\d0271682\R0061377.18_CD_MAIN_01.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	367	888

① A7135 - LAYOUT - 58872

For R/W Data, see Rdwy. plans.

NOTE: Use Type CI Approach Slab and Type C Approach Gutters ("W"=10'-0" left side, "W"=6'-0" right side) at both ends of bridge.

CEDAR CREEK

Billboards

Overhead Utility Lines

Toe of Fill Slope

Test Hole (typ.)

Existing Br. No. 02944 (to be removed)

C.L. Bridge

C.L. Lanes

C.L. Median

N69°24'00"E

Profile Grade Line

Approx. 0.3 mi. to Jct. U.S. 70B

Tan. Dist = 319.57' along C.L. Median

Top of Cut

Toe of Cut

Excavate to ① Elev. 462.0

Excavate to ① Elev. 450.0

Approx. 10.0 mi. to Jct. S.H. 128

Tan. Dist = 1881.1' along C.L. Median

24'-0" Pavement

10'-0" Shdr.

6'-0" Shdr.

2.0% Slope

12'-0"

43'-2" Out to Out

40'-0" Clear Roadway

39'-0"

1'-5" Conc. Parapet

Exist. Ditch Paving

① The Contractor shall excavate the existing embankments as shown. Approx. 238 cubic yards of excavation.

Existing Br. No. 07135 (to be retained)

12" Water Line

Gas Line

Pressurized Sewer Line

Culvert

Exist. Ditch Paving

PLAN

NOTE: All bridge stations are shown along C.L. Median. All elevations shown are along C.L. Bridge.

Total Length of Bridge = 317'-2"

1'-1" | 315'-0" Continuous Composite W-Beam Unit (84'-84'-84'-63') | 1'-1"

Beg. Bridge Sta. 480+71.92 Elev. 468.52

End Bridge Sta. 483+89.08 Elev. 456.59

C.L. 2" Poured Silicone Joint

Slope Intercept Sta. 480+61.92

Slope Intercept Sta. 483+98.08

Proposed grade line along C.L. Bridge.

Existing Ground Line along C.L. Bridge.

Conc. Parapet Railing

For Guardrail, see Roadway Plans.

C.L. Brg. Sta. 480+57.00 — C.L. Deck Elev. 464.65 — C.L. Deck @ C.L. — Bent to Low Seat of Cap = 4'-7⅛"

C.L. Brg. Sta. 482+41.00 — C.L. Deck Elev. 461.28 — C.L. Deck @ C.L. — Bent to Low Seat of Cap = 4'-11⅛" — 25.4' Low Steel ③ to Design H.W.

C.L. Brg. Sta. 483+25.00 — C.L. Deck Elev. 458.42 — C.L. Deck @ C.L. — Bent to Low Seat of Cap = 4'-8⅛" — C.L. Deck to Low Steel ③ = 4'-3⅜"

9' Piles — Exp. — Fix. — Exp. — 12' Piles

34'-0" — 30'-0" — Elev. 426.01 — Elev. 396.01

34'-6" — 19'-0" — Elev. 403.14 — Elev. 422.14

050 Design H.W. Elev. 427.0

29'-6" — 19'-0" — Elev. 424.24 — Elev. 405.24

Bent No. 1 2 3 4 5

ELEVATION

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	② NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	2,790	426.6	427.0
Base	100	3,450	427.2	427.5
Extreme	500	5,420	428.4	428.8
Overtopping	>500	-	-	-

② Unconstricted water surface without structures or roadway approaches.
Drainage area = 3.9 square miles.
Historical H.W. Elev. = 424.0 ft.
0100 Backwater Elev. for existing structures = 427.5 ft.

③ Proposed Low Bridge Chord Elev. = 452.36 ft. @ Sta. 483+87.00.

-4.625% — 850' V.C. — +1.569%

P.V.I. Sta. 485+40.00 Elev. 447.15

VERTICAL CURVE DATA

Along Profile Grade Line (P.G.L.)

NOTE: For Soil Borings and General Notes, see Dwg. No. 58873.

STATE OF ARKANSAS
Charlock R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-6-16
CHARLES R. ELLIS
BRIDGE ENGINEER

PRINT DATE: 10/5/2016

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER CEDAR CREEK
HOT SPRINGS - I-30 (WIDENING) (S)
GARLAND COUNTY

ROUTE 70 SEC. 09

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 12/1/15 FILENAME: bca0610xl_ll.dgn
CHECKED BY: BHS DATE: 10/5/16 SCALE: 1"=30'
DESIGNED BY: KWY DATE: 12/15

BRIDGE NO. A7135 DRAWING NO. 58872

BORING LEGEND

AI-SHALE - Highly Weathered, Soft, Gray
BI-SHALE - Highly Weathered, Medium Hard, Gray
CI-SHALE WITH FREQUENT SANDSTONE PARTINGS AND SEAMS - Slightly Weathered, Hard, Moderate Dip, Gray
DI-SHALE - Slightly Weathered, Hard, Moderate Dip, Frequent Fractures, Gray
EI-SANDSTONE - Slightly Weathered, Cemented, Moderate Dip, Frequent Fractures, Light Gray
FI-SHALE WITH FREQUENT SANDSTONE PARTINGS, SEAMS, AND LAYERS - Unweathered, Hard, Moderate Dip, Gray
GI-SHALE AND SANDSTONE INTERBEDDED - Unweathered, Hard, Moderate Dip, Occasional Calcite Veins, Occasional Fractures, Gray
HI-Wet, Medium Dense, Gray Gravel (Rock Fragments) with Clay
JI-SANDSTONE - Slightly Weathered, Well Cemented, Moderate Dip, Frequent Fractures, Occasional Quartz Veins, Light Gray
KI-SHALE WITH OCCASIONAL SANDSTONE SEAMS AND LAYERS - Unweathered, Hard, Moderate Dip, Gray
LI-SANDSTONE - Unweathered, Well Cemented, Moderate Dip, Frequent Fractures, Occasional Calcite Veins, Light Gray
MI-SANDSTONE WITH OCCASIONAL SHALE SEAMS AND LAYERS - Unweathered, Well Cemented, Moderate Dip, Occasional Fractures, Light Gray
NI-SHALE WITH OCCASIONAL SANDSTONE SEAMS AND LAYERS - Unweathered, Hard, Moderate Dip, Occasional Fractures, Gray
PI-Moist, Medium Stiff, Dark Gray Silty Clay with Some Gravel (Rock Fragments)
QI-SANDSTONE - Slightly Weathered, Well Cemented, Slightly Calcareous, Moderate Dip, Light Gray
RI-SHALE WITH FREQUENT SANDSTONE SEAMS AND LAYERS - Unweathered, Hard, Moderate Dip, Gray
SI-SANDSTONE - Unweathered, Well Cemented, Moderate Dip, Occasional Quartz Veins, Light Gray
TI-SANDSTONE - Unweathered, Well Cemented, Moderate Dip, Frequent Fractures, Frequent Quartz Veins, Light Gray
UI-SHALE WITH FREQUENT SANDSTONE PARTINGS - Unweathered, Hard, Moderate Dip, Gray
VI-SHALE WITH SANDSTONE INTERBEDDED - Unweathered, Hard, Moderate Dip, Gray
WI-SHALE WITH OCCASIONAL SANDSTONE PARTINGS - Unweathered, Hard, Moderate Dip, Gray
XI-SHALE - Weathered, Medium Hard, Dark Gray
YI-SHALE - Slightly Weathered, Medium Hard, Moderate Dip, Occasional Fractures, Dark Gray
ZI-SANDSTONE - Slightly Weathered, Well Cemented, Moderate Dip, Occasional Fractures, Light Gray
A2-SHALE - Slightly Weathered, Medium Hard, Moderate Dip, Dark Gray
B2-SHALE WITH FREQUENT SANDSTONE SEAMS - Unweathered, Hard, Moderate Dip, Dark Gray
C2-SANDSTONE WITH FREQUENT SHALE SEAMS - Unweathered, Well Cemented, Moderate Dip, Light Gray
D2-SHALE WITH FREQUENT SANDSTONE SEAMS AND LAYERS - Unweathered, Hard, Moderate Dip, Dark Gray
E2-SHALE - Unweathered, Hard, Moderate Dip, Dark Gray
F2-Clay with Cobbles and Boulders
G2-SHALE - Medium Hard, Dark Gray
H2-SANDSTONE - Slightly Weathered, Well Cemented, Moderate Dip, Frequent Quartz Veins, Light Gray
J2-SHALE WITH OCCASIONAL SANDSTONE LAYERS - Slightly Weathered, Medium Hard, Moderate Dip, Occasional Quartz Veins, Dark Gray
K2-SHALE WITH FREQUENT SANDSTONE SEAMS - Unweathered, Hard, Moderate Dip, Frequent Fractures, Dark Gray
L2-SANDSTONE WITH FREQUENT SHALE SEAMS AND LAYERS - Unweathered, Well Cemented, Moderate Dip, Occasional Quartz Veins, Light Gray
M2-SANDSTONE AND SHALE INTERBEDDED - Unweathered, Well Cemented, Moderate Dip, Gray
N2-Moist, Loose, Brown and Gray Sand with Some Gravel (Rock Fragments)
P2-Moist, Loose, Brown and Gray Sand with Gravel (Rock Fragments)
Q2-SHALE WITH OCCASIONAL SANDSTONE SEAMS - Highly Weathered, Soft, Gray
R2-SHALE WITH OCCASIONAL SANDSTONE SEAMS - Slightly Weathered, Medium Hard, Moderate Dip, Gray
S2-SANDSTONE - Weathered, Well Cemented, Moderate Dip, Light Gray
T2-SANDSTONE - Weathered, Well Cemented, Moderate Dip, Frequent Fractures, Light Gray
U2-SHALE - Slightly Weathered, Hard, Moderate Dip, Gray
V2-SANDSTONE - Slightly Weathered, Cemented, Moderate Dip, Frequent Quartz and Calcite Veins, Frequent Fractures, Light Gray
W2-SHALE - Unweathered, Hard, Frequent Fractures, Moderate Dip, Gray
X2-SHALE - Unweathered, Hard, Moderate Dip, Occasional Calcite Veins, Occasional Fractures, Gray
Y2-SANDSTONE - Unweathered, Well Cemented, Moderate Dip, Light Gray
Z2-SHALE - Unweathered, Hard, Moderate Dip, Gray

"N" VALUES

Sta. 480+73 - 8' Right of Centerline Bridge
4.7- 5.7, N=42
9.7- 10.1, N=60(5")
11.2- 11.2, N=60(0")

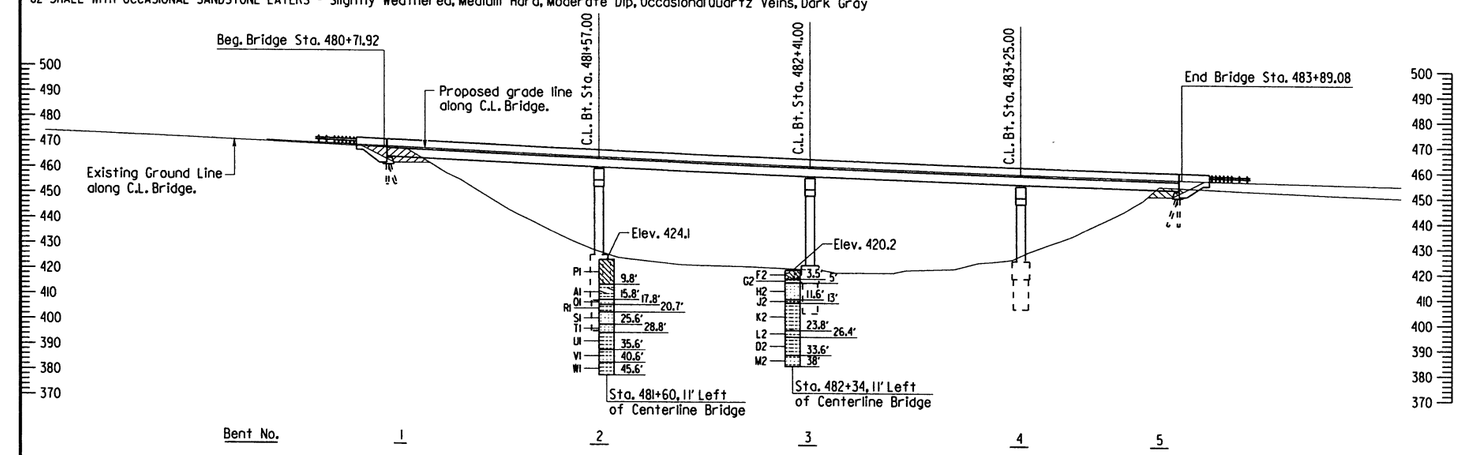
Sta. 481+58 - 11' Right of Centerline Bridge
3.8- 4.8, N=11
8.8- 9.8, N=13
14.0- 14.0, N=30(0")

Sta. 481+60 - 11' Left of Centerline Bridge
3.8- 4.8, N=7
10.3- 11.3, N=33
15.8- 15.8, N=60(0")

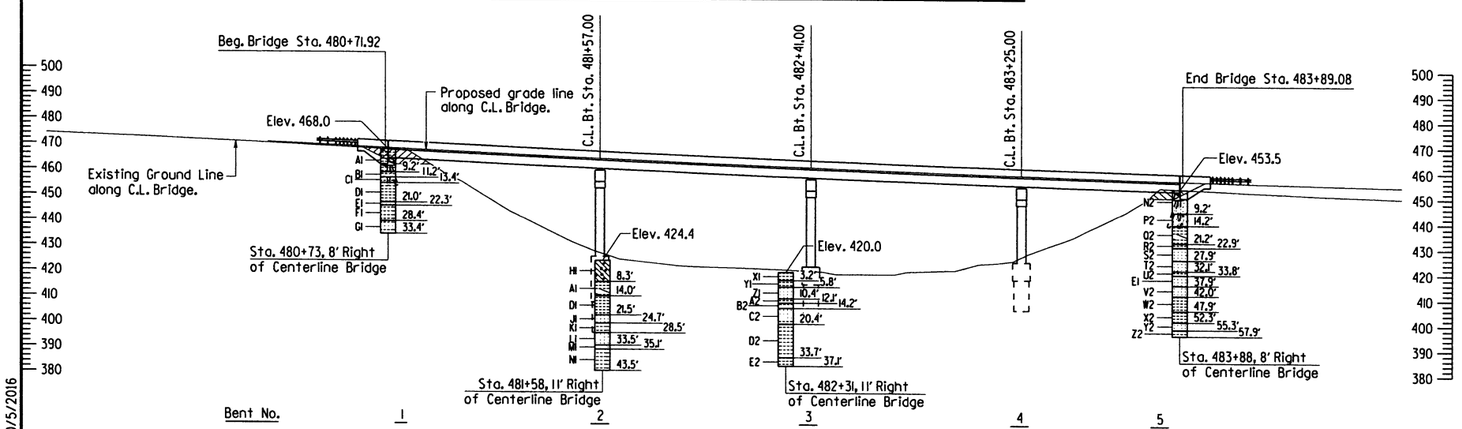
Sta. 482+31 - 11' Right of Centerline Bridge
3.2- 3.2, N=20(0")

Sta. 482+34 - 11' Left of Centerline Bridge
3.5- 3.8, N=60(3")

Sta. 483+88 - 8' Right of Centerline Bridge
4.7- 5.7, N=10
9.7- 10.7, N=10
14.7- 15.7, N=13
19.7- 20.7, N=32



ELEVATION OF SOIL BORINGS LEFT OF CENTERLINE BRIDGE



ELEVATION OF SOIL BORINGS RIGHT OF CENTERLINE BRIDGE

480+00 481+00 482+00 483+00 484+00 485+00

PRINT DATE: 10/5/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	368	888
				A7135 - LAYOUT - 58873				

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on the Survey Control Data Sheets.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable Supplemental Specifications and Special Provisions. Unless otherwise noted, Section and Subsection refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition (2012) with 2013 Interims.

LIVE LOADING: HL-93

SEISMIC PERFORMANCE ZONE: I S_{DI}=0.070 SITE CLASS = B

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: All piling shall be HP12x53 (Grade 50) and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 95 tons per pile and into the material designated as Shale on the boring legend. Piling shall be driven after excavation to bottom of cap is complete. Minimum penetration shall be 8' below bottom of cap for all piles. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual pile lengths are to be determined in the field. The Contractor shall use approved steel H-Pile driving points on all piles.

PREBORING: Preboring is required for all piles in Bent 1 and may be required in Bent 4 if the minimum penetration of 8' below bottom of cap is not achieved. Preboring shall be to a minimum 3' into material designated as Shale on the boring legend. The actual size and depth of preboring shall be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free of debris prior to driving piles and backfilling which may require the use of temporary casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of the rock and the remaining length backfilled in accordance with Subsection 805.08(a). Any related cost for backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring".

DRILLED SHAFTS: Drilled shafts in Bents 2 thru 4 shall be constructed in accordance with Special Provision Job No. CA0610 "Drilled Shaft Foundations". Drilled shafts shall be socketed a minimum of 12' into material designated as Shale or Sandstone on the boring legend. No adjustment to plan tip elevations shall be made without prior approval from the Engineer.

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed in accordance with Special Provision Job No. CA0610 "Nondestructive Testing of Drilled Shafts".

TEXTURED COATING FINISH: Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. CA0610 "Textured Coating Finish" and in accordance with Subsection 802.19(b)(3). Class 1 Protective Surface Treatment shall not be applied on surfaces where Class 3 Textured Coating Finish is specified.

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

DETAIL DRAWINGS	DRAWING NOS.
Bent 1	58874 & 58876
Intermediate Bents	58877 & 58878
Bent 5	58875 & 58876
315'-0" Cont. Comp. W-Beam Unit	58879-58884
Poured Silicone Joint	58884
Elastomeric Bearings	58885
Standard General Notes	55006
Steel Piling	55020
Type C Approach Gutters	55030C
Type CI Approach Slab	55040CI

EXISTING BRIDGE: Existing Bridge No. 02944 (Log Mile 3.23) is 33.5' wide (28.0' roadway) and 302.2' long. The superstructure consists of six simple span units with a concrete deck supported on steel beams. The substructure consists of a spread footing end bent on one end and a steel piling end bent on the other. The intermediate bents are multi-columns with spread footings and a webwall constructed between the columns.

REMOVAL AND SALVAGE: Existing Bridge No. 02944 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor except the following which shall remain the property of the Department:

Heavy Bridge Section of the Maintenance Division is to receive five W36x150 steel beams, twenty C15x33.9 steel diaphragms and ten bearings. Heavy Bridge shall be notified prior to removal to determine which pieces they wish to salvage. This material shall be delivered to 11300 West Baseline Road, Little Rock, AR, 72209. District 6 Bridge Crews are to receive the remaining twenty five W36x150 steel beams. This material shall be delivered to 411 Shamburger Lane, Little Rock, AR, 72206.

The Contractor shall coordinate with the Engineer for removal and delivery of salvaged material. Payment for this work shall be considered incidental to "Removal of Existing Bridge Structure (Site No.1)".

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-6-16
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER CEDAR CREEK
HOT SPRINGS - I-30 (WIDENING) (S)
GARLAND COUNTY

ROUTE 70 SEC. 09

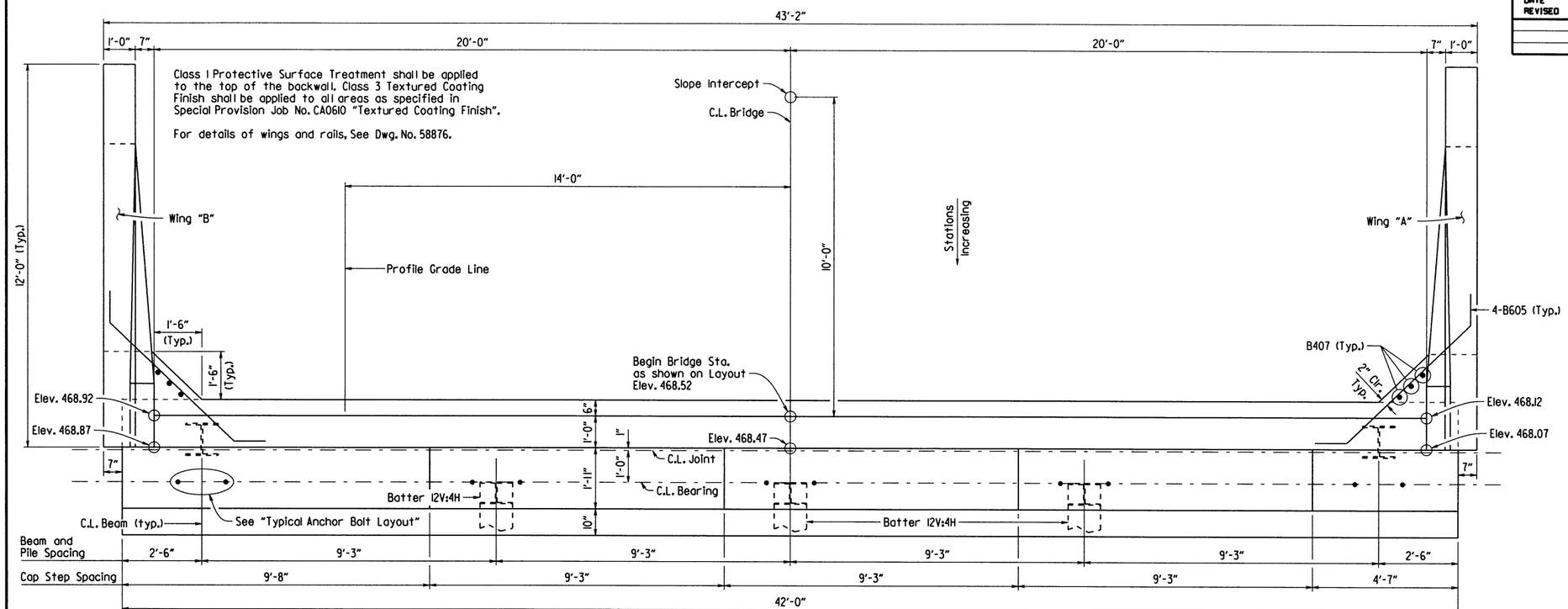
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 12/10/15 FILENAME: bca0610xl_ll.dgn
CHECKED BY: BHS DATE: 10/5/16 SCALE: 1"=30'
DESIGNED BY: KWY DATE: 12/16

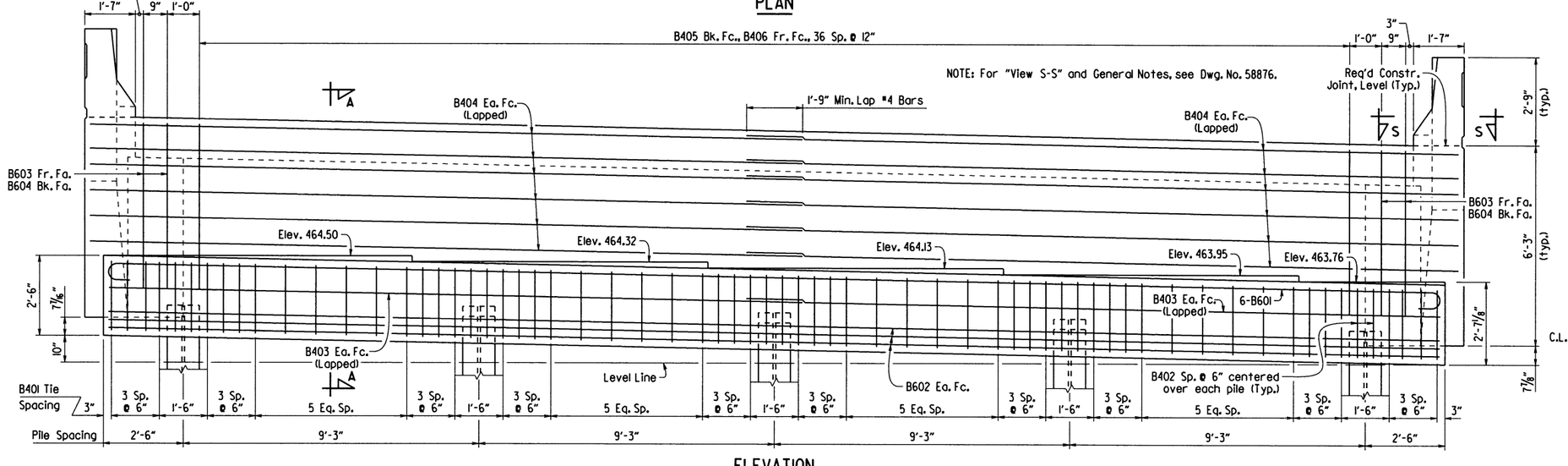
BRIDGE NO. A7135
DRAWING NO. 58873

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	369	888

1 A7135 - END BENT DETAILS - 58874

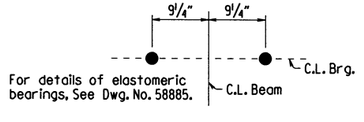


PLAN



ELEVATION

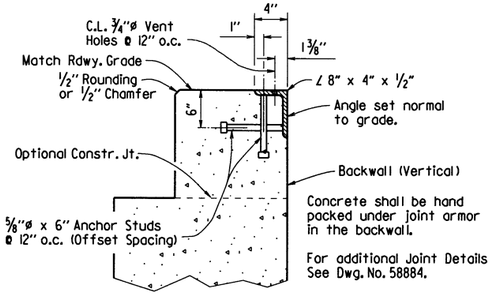
Looking Back



For details of elastomeric bearings, See Dwg. No. 58885.

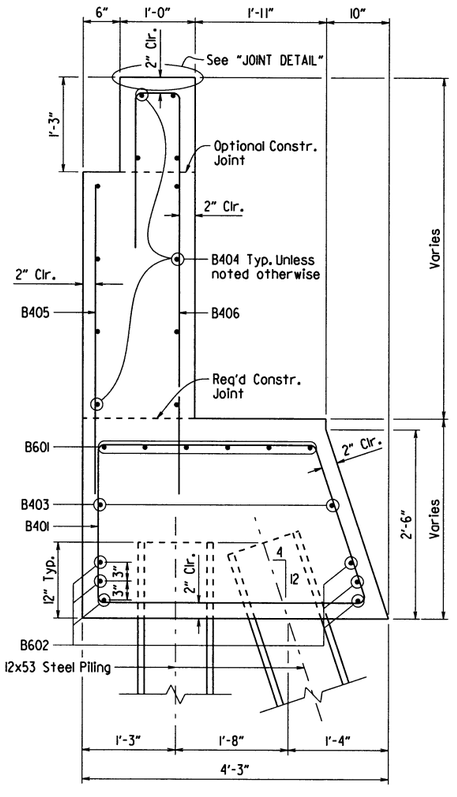
TYPICAL ANCHOR BOLT LAYOUT

No Scale



JOINT DETAIL

No Scale



SECTION A-A

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-6-16
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF BENT 1
CEDAR CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

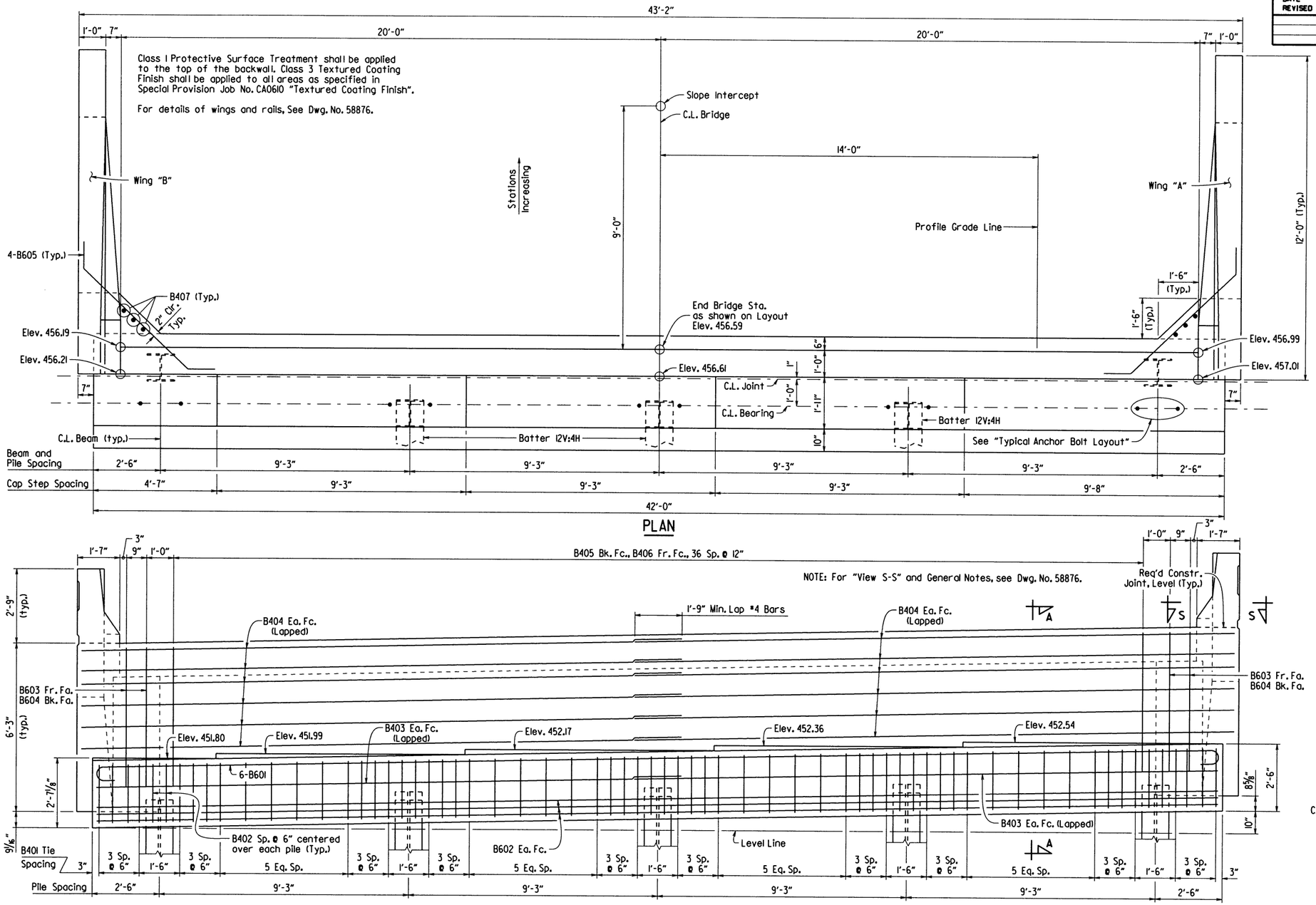
DRAWN BY: BHS DATE: 4/22/2016 FILENAME: bca0610_b1.dgn
CHECKED BY: CMW DATE: 10/5/16 SCALE: 1/2" = 1'-0" or As Shown
DESIGNED BY: BHS DATE: 4/2016

BRIDGE NO. A7135 DRAWING NO. 58874

PRINT DATE: 10/5/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	370	888

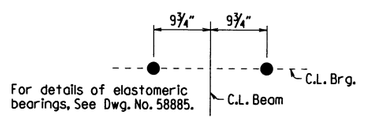
(1) A7135 - END BENT DETAILS - 58875



PLAN

ELEVATION

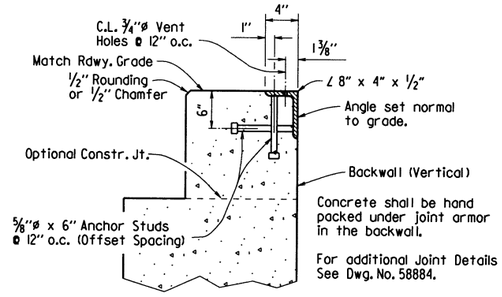
Looking Ahead



For details of elastomeric bearings, See Dwg. No. 58885.

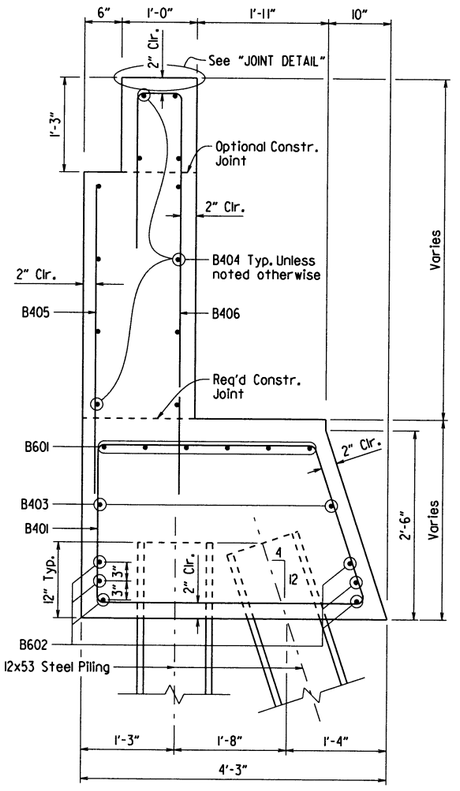
TYPICAL ANCHOR BOLT LAYOUT

No Scale



JOINT DETAIL

No Scale



SECTION A-A

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-6-16
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF BENT 5 CEDAR CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 4/22/2016 FILENAME: bca0610_bl.dgn

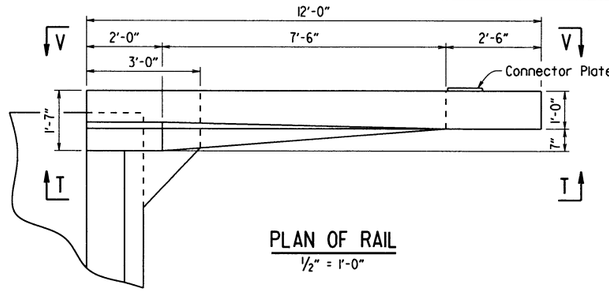
CHECKED BY: CMW DATE: 10/5/16 SCALE: 1/2" = 1'-0" or As Shown

DESIGNED BY: BHS DATE: 4/2016

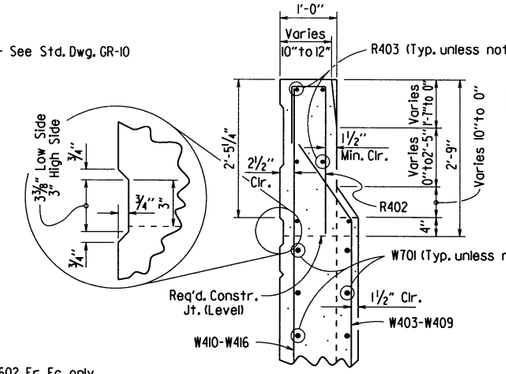
BRIDGE NO. A7135 DRAWING NO. 58875

PRINT DATE: 10/5/2016

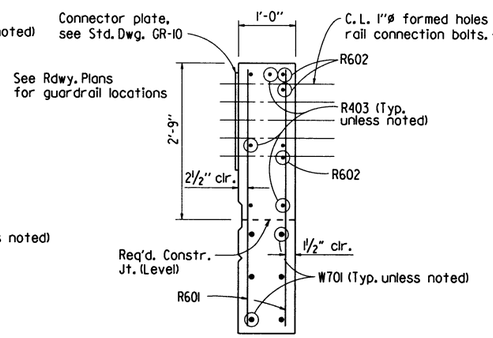
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	371	888
				①	A7135 - END BENT DETAILS - 58876			



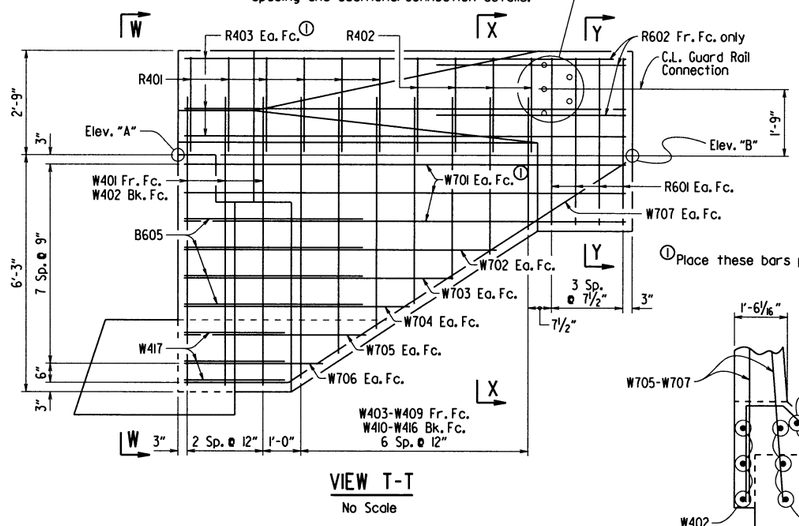
PLAN OF RAIL
1/2" = 1'-0"



SECTION X-X
3/4" = 1'-0"

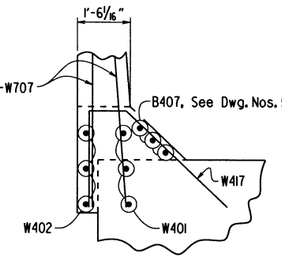


SECTION Y-Y
3/4" = 1'-0"

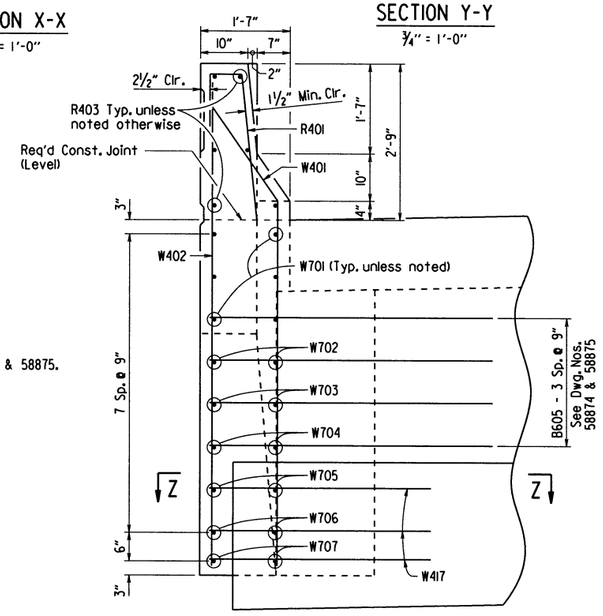


VIEW T-T
No Scale

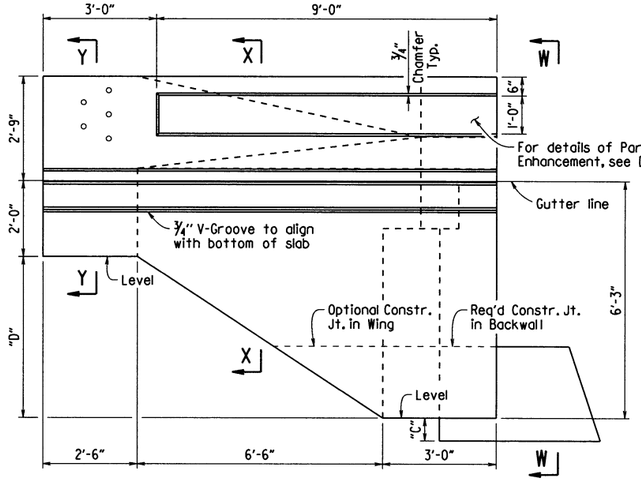
① Place these bars parallel to grade.



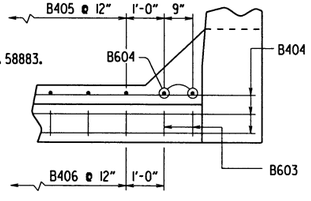
SECTION Z-Z
No Scale



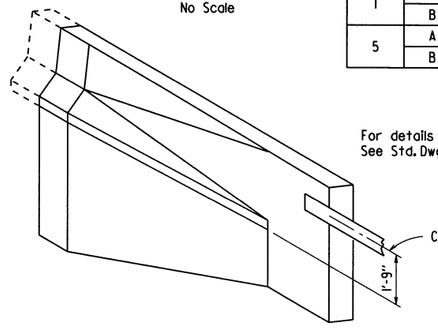
VIEW W-W
No Scale



VIEW V-V
No Scale



VIEW S-S
Wing "A" Shown, Wing "B" Similar
1/2" = 1'-0"



THREE DIMENSIONAL VIEW OF WING & RAIL
No Scale

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	56	11'-9"	2"
B402	10	7'-5"	2"
B403	4	21'-9"	Str.
B404	24	22'-4"	Str.
B405	37	3'-11"	Str.
B406	37	7'-9"	2"
B407	6	4'-8"	Str.
B601	6	43'-0"	4 1/2"
B602	6	41'-8"	Str.
B603	4	8'-8"	4 1/2"
B604	4	4'-5"	Str.
B605	8	7'-5"	4 1/2"
R401	12	3'-11"	2"
R402	8	4'-0"	2"
R403	12	11'-8"	Str.
R601	16	4'-5"	Str.
R602	6	5'-0"	Str.
W401	6	8'-4"	2"
W402	6	8'-8"	Str.
W403-W409	2 Each	Var. "G" to "H"	2"
W410-W416	2 Each	Var. "J" to "K"	Str.
W417	6	7'-7"	2"
W701	12	11'-8"	Str.
W702	4	"L"	Str.
W703	4	"M"	Str.
W704	4	"N"	Str.
W705	4	"P"	Str.
W706	4	"Q"	Str.
W707	4	13'-1"	5 1/4"

BENDING DIAGRAMS

Dimensions are out to out of bars.

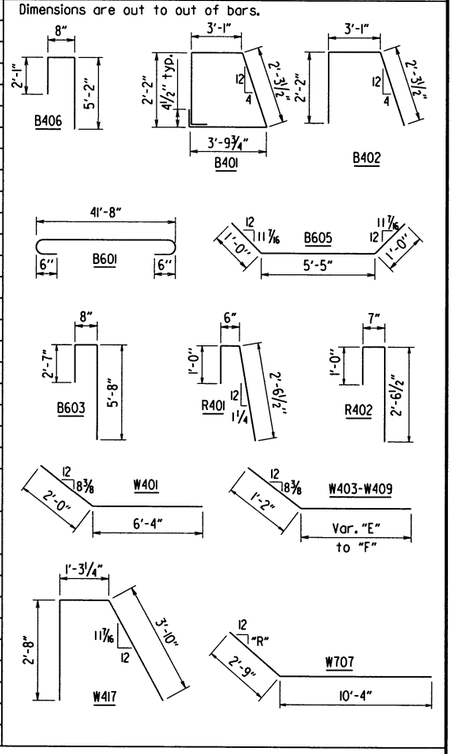


TABLE OF VARIABLES

Bent	Wing	Elev. "A"	Elev. "B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"	"M"	"N"	"P"	"Q"	"R"
1	A	468.07	468.63	7 7/8"	4'-9 3/4"	6'-3"	2'-1"	7'-5"	3'-3"	8'-7"	4'-5"	7'-7"	6'-7"	5'-7"	4'-7"	3'-7"	8 1/8
	B	468.87	469.43	7 1/16"	4'-9 3/4"												
5	A	457.01	456.70	8 5/8"	3'-11 1/4"	6'-1"	2'-3"	7'-3"	3'-5"	8'-4"	4'-7"	8'-8"	7'-5"	6'-2"	4'-11"	3'-8"	7 1/4
	B	456.21	455.90	9 1/16"	3'-11 1/4"												

GENERAL NOTES

For Standard General Notes, See Std. Dwg. No. 55006.

All piling shall be Grade 50.

For Details of Steel Piling, See Std. Dwg. No. 55020.

No portion of the backwall shall be poured before the beams are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the deck pour has been made. Refer to the "Expansion Device Installation" note on Dwg. No. 58884.

For additional information see Layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-6-16
CHARLES R. ELLIS
BRIDGE ENGINEER

COMMON DETAILS OF BENTS 1 AND 5 CEDAR CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

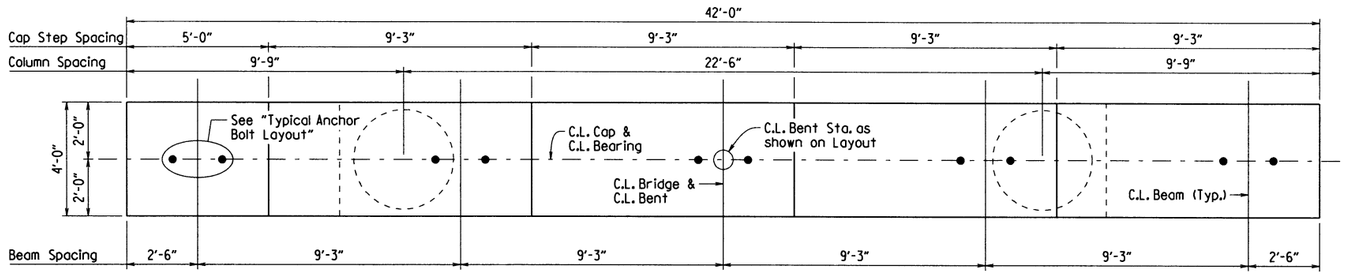
DRAWN BY: BHS DATE: 4/26/2016 FILENAME: bca0610_b1.dgn
CHECKED BY: CMW DATE: 10/5/16 SCALE: As Shown
DESIGNED BY: BHS DATE: 7/2016

BRIDGE NO. A7135 DRAWING NO. 58876

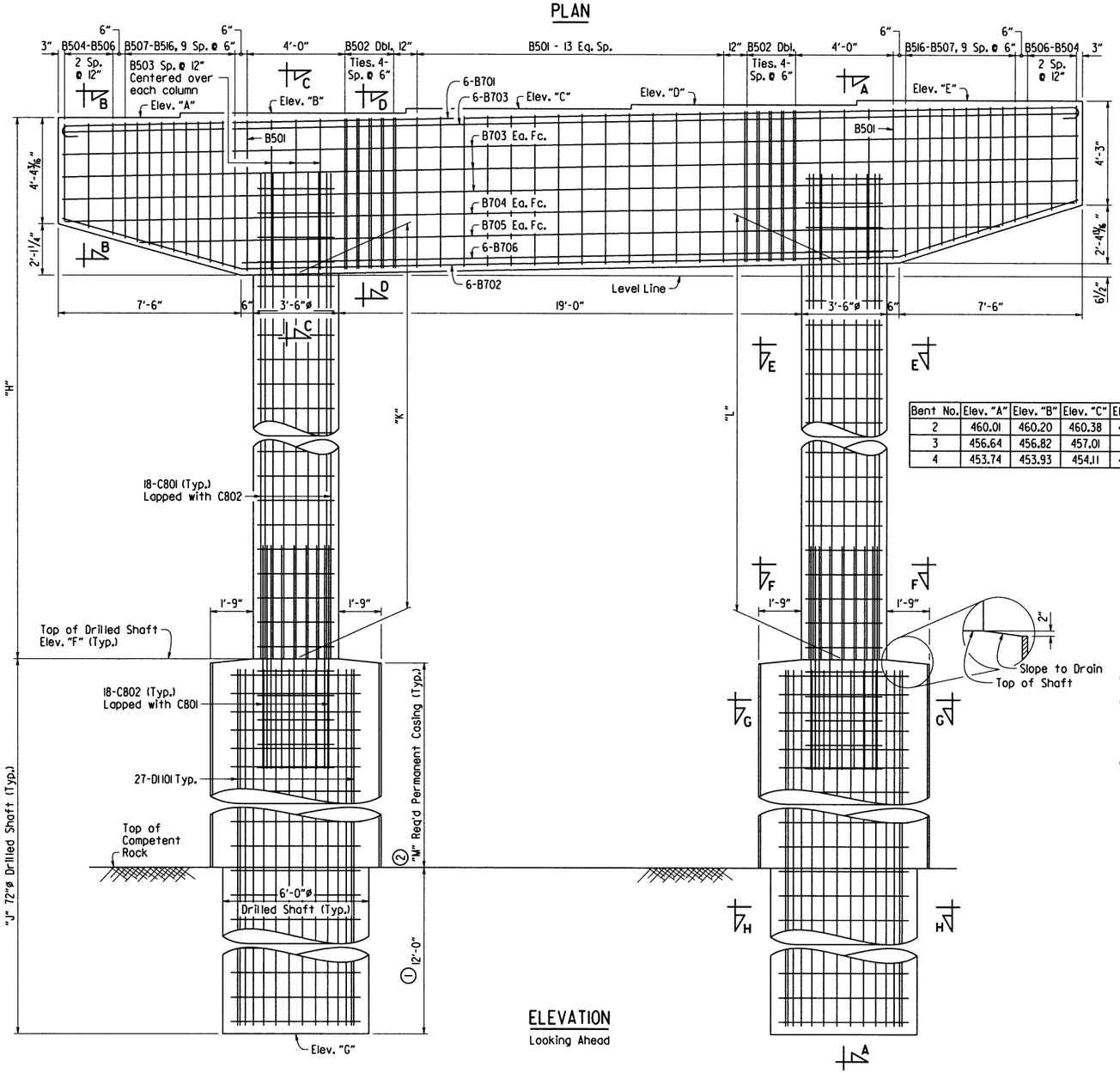
PRINT DATE: 10/5/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	372	888

(1) A7135 - INTERMEDIATE BENTS - 58877

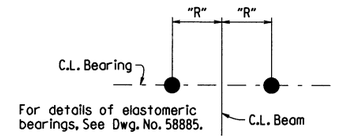


PLAN



ELEVATION

Looking Ahead



TYPICAL ANCHOR BOLT LAYOUT

No Scale

TABLE OF VARIABLES

Bent No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	Elev. "F"	Elev. "G"	"H"	"J"	"K"	"L"	"M"	"N"	"P"	"R"
2	460.01	460.20	460.38	460.57	460.75	426.01	396.01	34'-0"	30'-0"	27'-7⅛"	28'-0½"	18'-0"	27	25	12¼"
3	456.64	456.82	457.01	457.19	457.38	422.14	403.14	34'-6"	19'-0"	28'-1⅛"	28'-6⅝"	7'-0"	28	14	10¼"
4	453.74	453.93	454.11	454.30	454.48	424.24	405.24	29'-6"	19'-0"	23'-1⅛"	23'-6⅝"	7'-0"	23	14	10¼"

General Notes:

For Standard General Notes, See Std. Dwg. No. 55006.

For Sections B-B Thru H-H, See Dwg. No. 58878.

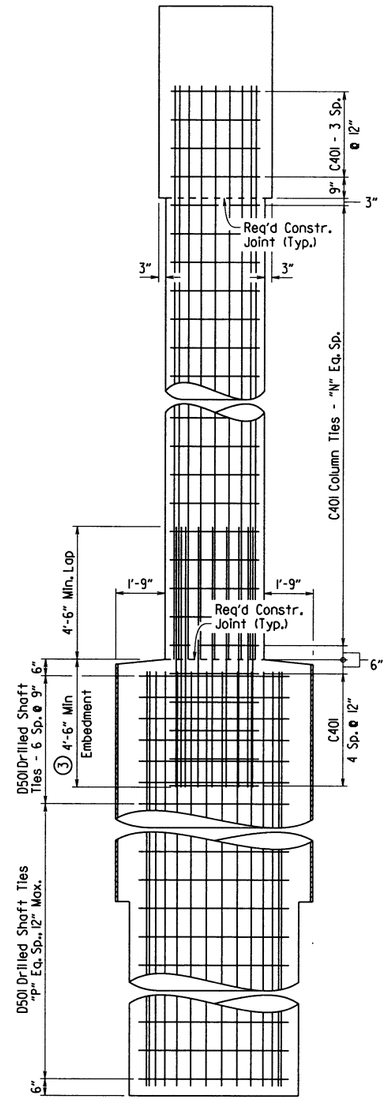
Drilled shafts and permanent casing shall conform to Special Provision Job No. CA0610 "Drilled Shaft Foundations" and shall be paid for at the unit bid price for "Drilled Shaft (72" Dia.)" and "Permanent Steel Casing (84" Dia.)".

For additional information, See Layout.

(1) Minimum penetration into competent rock below permanent casing.

(2) Length of Permanent Casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. CA0610 "Drilled Shaft Foundations". Permanent casing shall not extend below top of competent rock without approval from the Engineer.

(3) The column reinforcing cage, consisting of bars C802 and C401, may be placed before or after concrete placement in the shaft is complete. Vibration of concrete in the top 10 feet of the shaft will be needed to ensure the consolidation of the concrete around the reinforcing steel and to insert the column reinforcing cage. The contractor will be responsible for obtaining satisfactory results.



SECTION A-A

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-6-16
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS
CEDAR CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

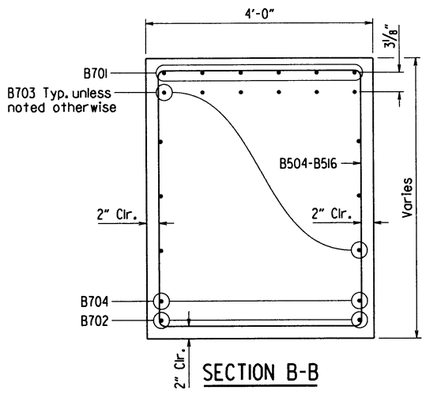
DRAWN BY: BHS DATE: 4/19/2016 FILENAME: bca0610_b2.dgn
CHECKED BY: JMN DATE: 10/6/16 SCALE: ⅜" = 1'-0" or As Shown
DESIGNED BY: BHS DATE: 4/2016

BRIDGE NO. A7135 DRAWING NO. 58877

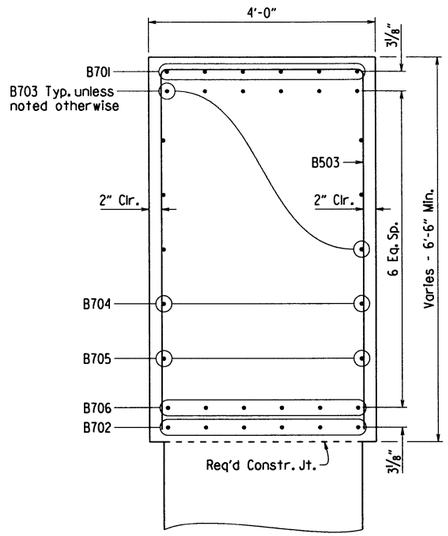
PRINT DATE: 10/6/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	373	888

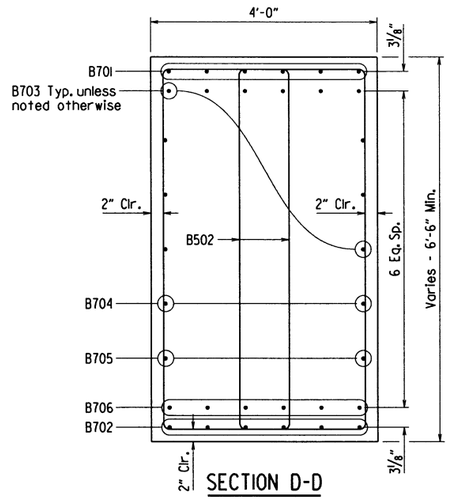
(1) A7135 - INTERMEDIATE BENTS - 58878



SECTION B-B



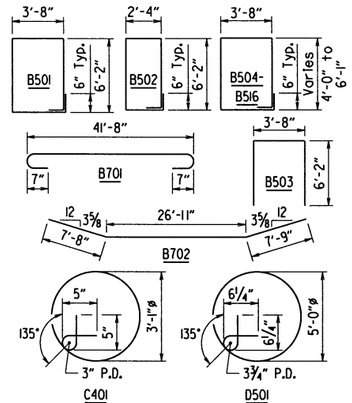
SECTION C-C



SECTION D-D

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B501	16	20'-2"	2½"	
B502	20	17'-6"	2½"	
B503	6	15'-10"	2½"	
B504-B516	2 Ea.	Var. 15'-10" to 20'-0"	2½"	
B701	6	43'-4"	5¼"	
B702	6	42'-4"	5¼"	
B703	12	41'-8"	Str.	
B704	2	41'-5"	Str.	
B705	2	35'-4"	Str.	
B706	6	28'-8"	Str.	
C401	"A"	10'-9"	3"	
C801	36	"C"	Str.	
C802	36	9'-0"	Str.	
(1) D501	"B"	17'-1"	3¾"	
(1) D1101	54	"D"	Str.	

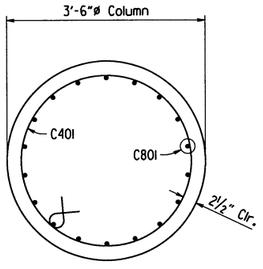


Dimensions are out to out of bars.

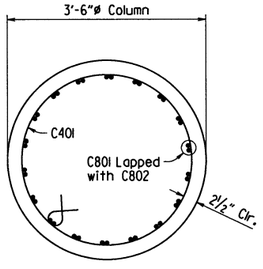
(1) Non-pay item. Subsidiary to Special Provision Job No. CA0610 "Drilled Shaft Foundations".

TABLE OF VARIABLES

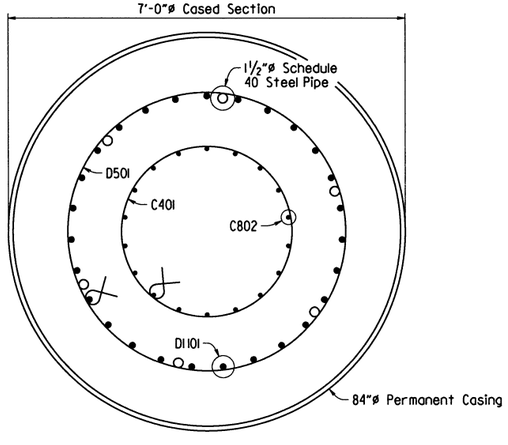
Bent No.	"A"	"B"	"C"	"D"
2	74	64	31'-10"	29'-6"
3	76	42	32'-4"	18'-6"
4	66	42	27'-4"	18'-6"



SECTION E-E



SECTION F-F



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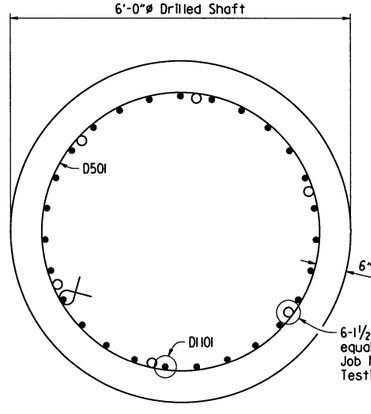


SECTION H-H

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-6-16
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS
CEDAR CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 4/19/2016 FILENAME: bca0610_b2.dgn
CHECKED BY: CSMN DATE: 10/5/16 SCALE: 3/4" = 1'-0"
DESIGNED BY: BHS DATE: 4/2016

BRIDGE NO. A7135 DRAWING NO. 58878

PRINT DATE: 10/5/2016

Class I Protective Surface Treatment shall be applied to the Roadway Surface only. Class 3 Textured Coating finish shall be applied to areas as specified in Special Provision Job No. CA0610 "Textured Coating Finish".

At the Contractor's option, two straight epoxy coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

Bar positions or clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices per Subsection 804.06.

Slab Reinforcing:

Longitudinal: S401E in top and bottom (Placed as shown)
S601E, S602E or S603E placed as shown over interior supports (See "REINFORCING PLAN & SLAB POURING SEQUENCE", Dwg. No. 58882)

Transverse: S502E @ 12" o.c. bent up over beams — Alternate
S501E @ 12" o.c. in top, S402E @ 12" o.c. in bottom
S503E @ 6" o.c. in top of overhang (bundled with #5 bars)

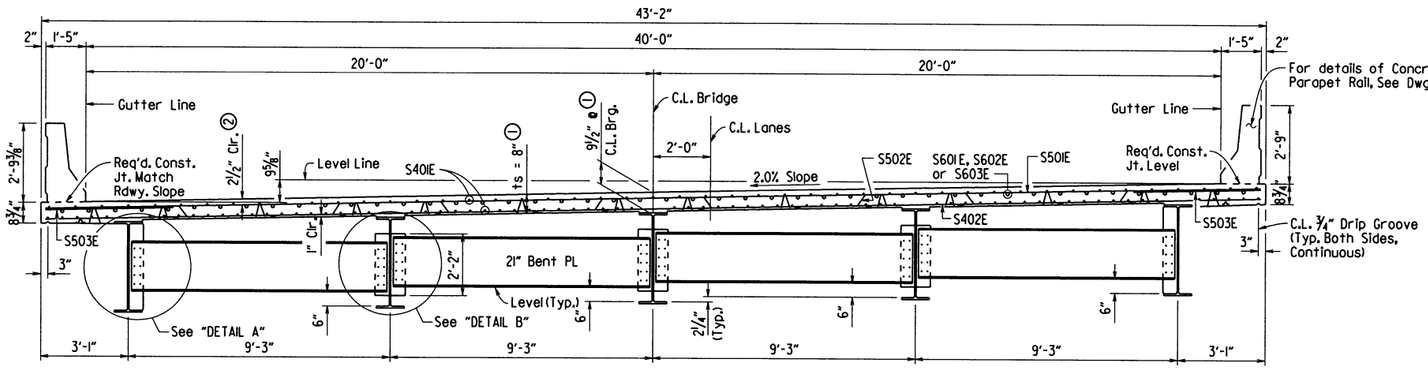
① See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE"

② Tolerance: Minus = 1/4"
Plus = Amount of slab thickening used to meet slab thickness tolerance - See "Adjustment For Slab Thickness Tolerance"

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	374	888

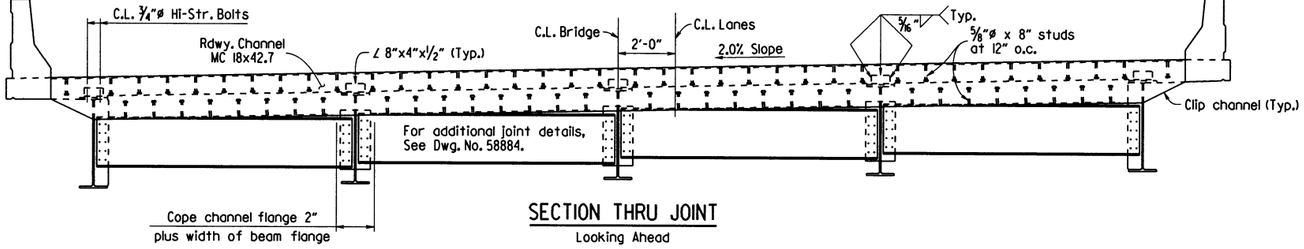
① A7135 - SPAN DETAILS - 58879



TYPICAL ROADWAY SECTION

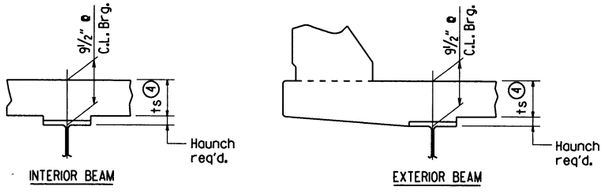
Looking Ahead

EXPANSION DEVICE:
Rdwy. Channel MC 18 X 42.7
Conn. ∠'s 8" X 4" X 1/2"
Detail Device 1/8" high and provide 1/4" shims using 2 - 1/16" PL's and 1 - 1/8" PL



SECTION THRU JOINT

Looking Ahead



④ Tolerance when removable deck forming is used is +1/2", -1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

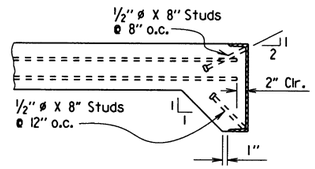
ts = slab thickness as shown in "TYPICAL ROADWAY SECTION".

Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance : Minimum - occurs when top flange contacts bottom reinforcing steel; Maximum - top flange thickness plus 1 3/4". No increase in concrete and structural steel quantities will be made to maintain tolerances.

Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

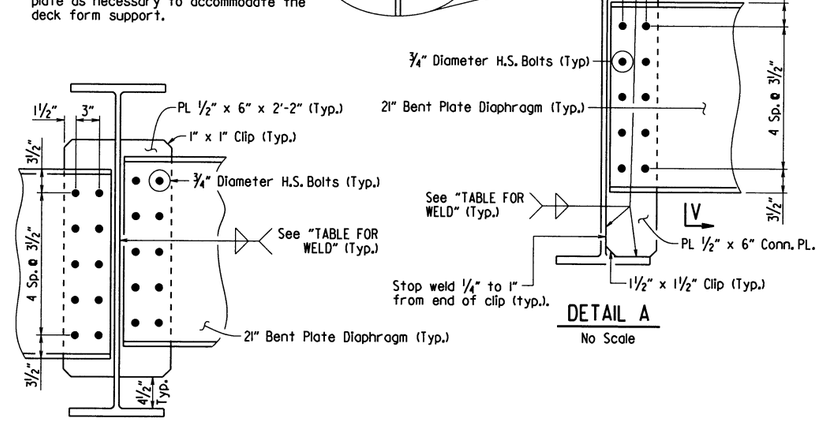


As an alternate to 5/8" ø studs, 1/2"ø x 8" studs spaced as shown may be used. Use weight of 5/8"ø stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

No Scale

③ If permanent steel bridge deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form support.

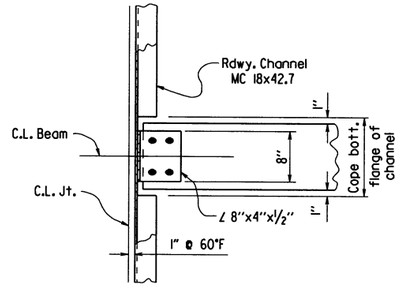


DETAIL A

No Scale

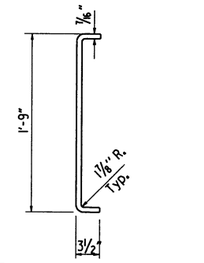
DETAIL B

No Scale



CHANNEL CONNECTION DETAIL

No Scale



Typ. cross-section for all 21" bent plate diaphragms.

SECTION V-V

No Scale

TABLE FOR WELD

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To 3/4" Inclusive	1/4"	
Over 3/4"	5/16"	

When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-6-16
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 6
DETAILS OF 315'-0" CONTINUOUS COMPOSITE W-BEAM UNIT CEDAR CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

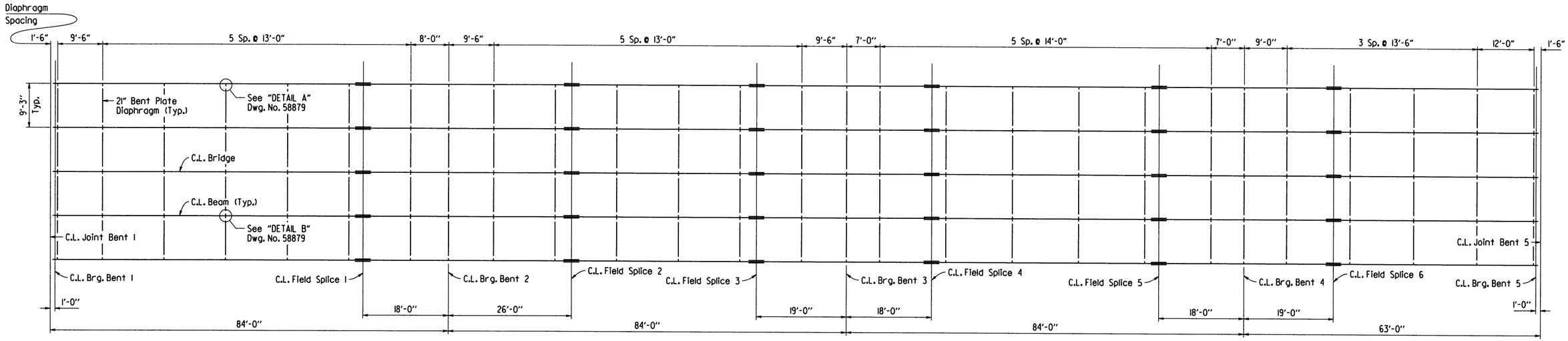
DRAWN BY: CGP DATE: 3/2016
CHECKED BY: BHS DATE: 10/5/16
DESIGNED BY: BHS DATE: 2/2016

FILENAME: bca0610xl_sl.dgn
SCALE: 3/8" = 1'-0" or As Shown

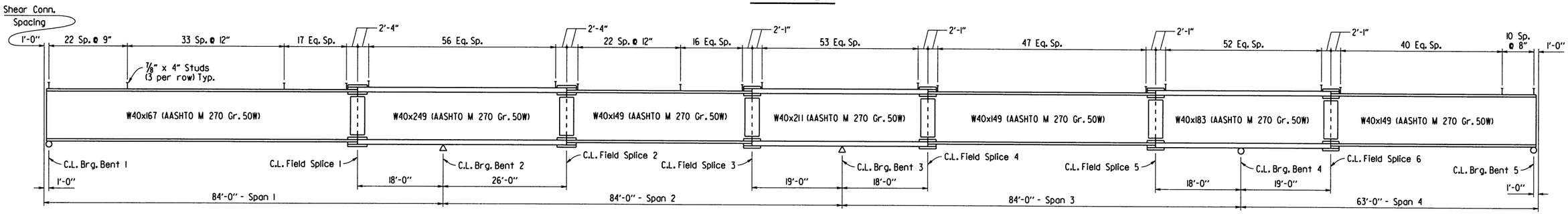
BRIDGE NO. A7135
DRAWING NO. 58879

PRINT DATE: 10/5/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	375	888
				①		A7135 - SPAN DETAILS - 58880		



FRAMING PLAN



BEAM ELEVATION

No Scale

Notes:

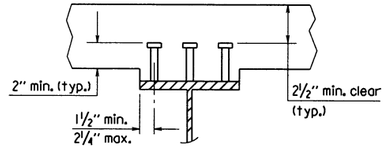
All Structural Steel shall be AASHTO M 270, Gr. 50W unless otherwise noted, and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W).

For details of field splices, see Dwg. No. 58881.

Bolted field splices may be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.

For Standard General Notes, See Std. Dwg. No. 55006.

For additional information, See Layout.



Stud Shear Connectors shown shall be 7/8"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

SHEAR CONNECTOR DETAIL

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-6-16
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 6
DETAILS OF 315'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
CEDAR CREEK

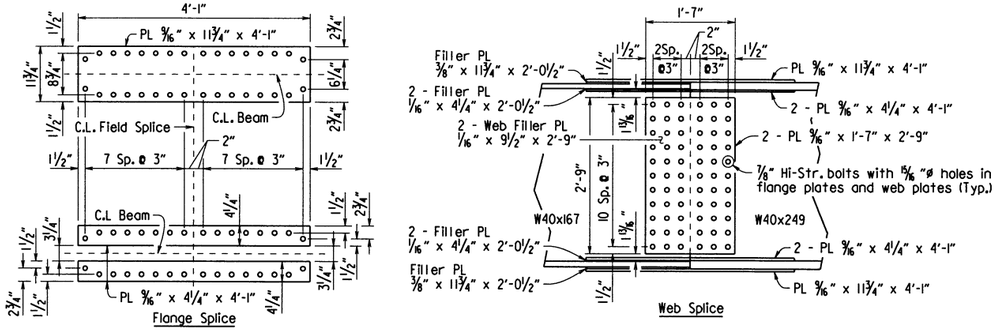
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

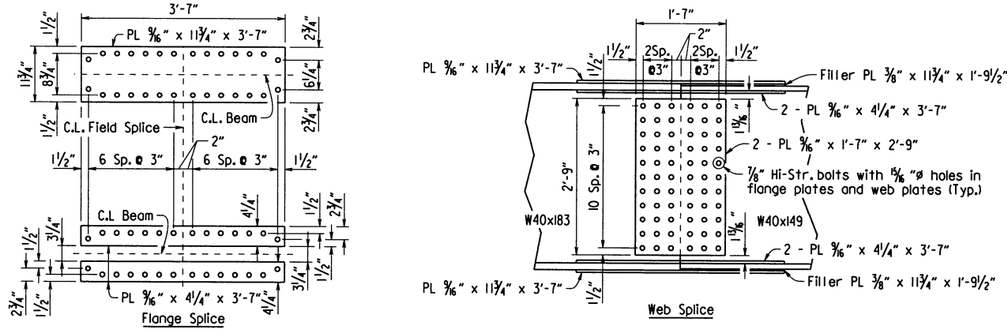
DRAWN BY: CGP DATE: 3/2016
CHECKED BY: BHS DATE: 10/5/16
DESIGNED BY: BHS DATE: 2/2016
FILENAME: bca0610xl_sl.dgn
SCALE: 1/2" = 1'-0" or As Shown
BRIDGE NO. A7135
DRAWING NO. 58880

PRINT DATE: 10/5/2016

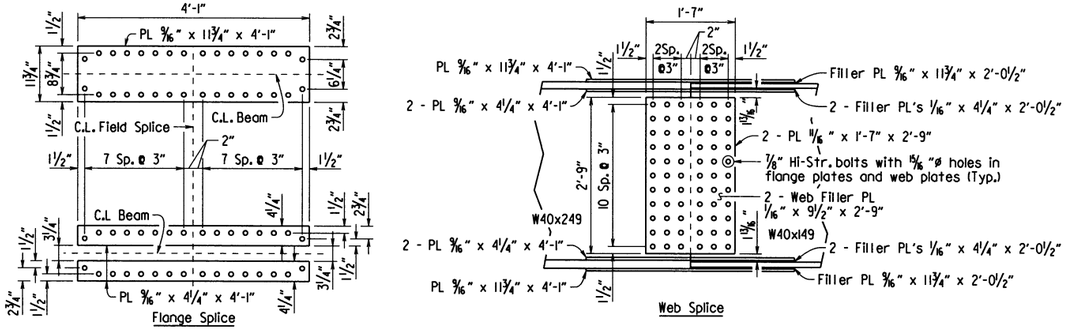
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	376	888
				①		A7135 - SPAN DETAILS - 58881		



DETAILS OF FIELD SPLICE 1



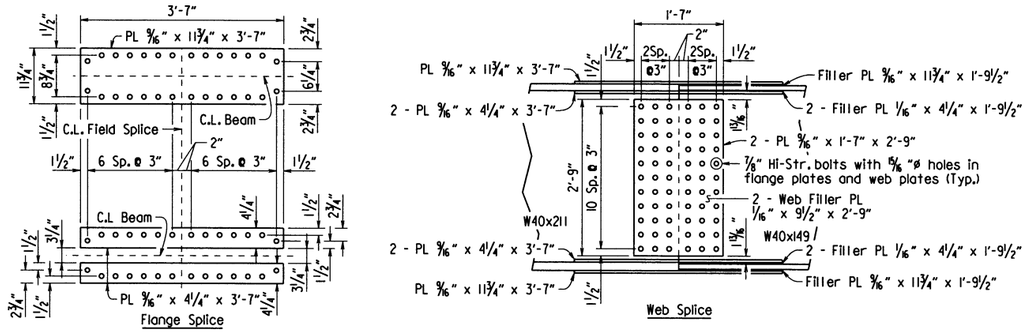
DETAILS OF FIELD SPLICES 5 & 6



DETAILS OF FIELD SPLICE 2

FIELD SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS

No Scale



DETAILS OF FIELD SPLICES 3 & 4

PRINT DATE: 10/7/2016

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-7-16
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 6
DETAILS OF 315'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
CEDAR CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 3/2016 FILENAME: bca0610xl_sl.dgn
CHECKED BY: DATE: SCALE: 3/4" = 1'-0"
DESIGNED BY: DATE:

BRIDGE NO. A7135 DRAWING NO. 58881

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	377	888
				(1) A7135 - SPAN DETAILS - 58882				

(F) C.L. Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" From Top of Slab.

(P) C.L. Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab.

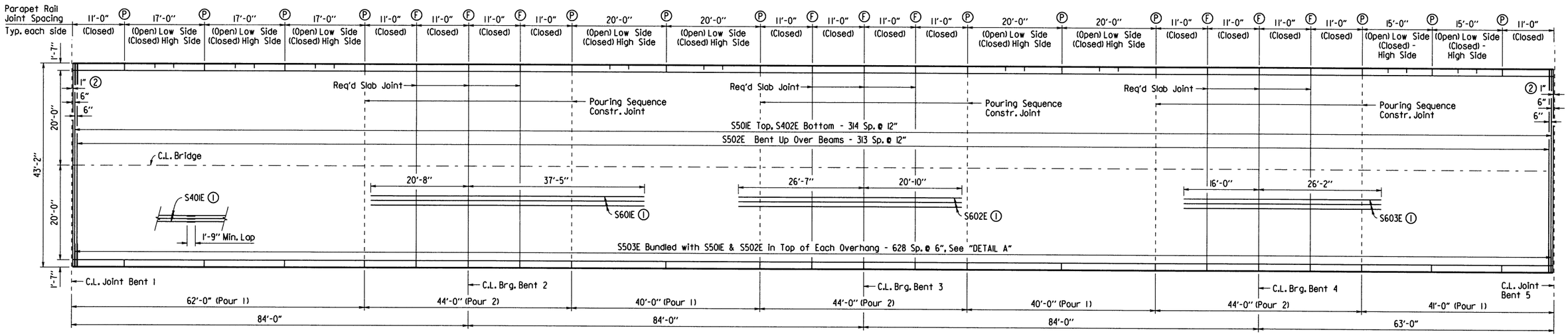


TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Int. Beam	Ext. Beam	Int. Beam	Ext. Beam	Int. Beam	Ext. Beam
1	0	0	0	0	0	0	0
	0.1	0.100	0.093	0.648	0.543	0.682	0.597
	0.2	0.184	0.171	1.197	1.003	1.260	1.102
	0.3	0.243	0.226	1.578	1.322	1.662	1.454
	0.4	0.269	0.251	1.751	1.468	1.844	1.615
	0.5	0.263	0.245	1.709	1.432	1.800	1.577
	0.6	0.227	0.211	1.474	1.235	1.553	1.360
	0.7	0.169	0.157	1.100	0.922	1.160	1.015
	0.8	0.102	0.095	0.669	0.561	0.705	0.619
	0.9	0.041	0.038	0.273	0.229	0.288	0.252
2	0	0	0	0	0	0	0
	0.1	-0.009	-0.009	-0.081	-0.067	-0.085	-0.074
	0.2	0.003	0.004	-0.022	-0.018	-0.022	-0.017
	0.3	0.025	0.024	0.100	0.085	0.107	0.097
	0.4	0.046	0.044	0.229	0.194	0.243	0.217
	0.5	0.058	0.055	0.305	0.258	0.323	0.287
	0.6	0.056	0.053	0.297	0.251	0.315	0.279
	0.7	0.041	0.039	0.210	0.177	0.223	0.198
	0.8	0.019	0.019	0.086	0.073	0.092	0.083
	0.9	0.002	0.002	-0.010	-0.007	-0.010	-0.007
3	0	0	0	0	0	0	0
	0.1	0.024	0.022	0.177	0.148	0.186	0.161
	0.2	0.063	0.059	0.450	0.376	0.473	0.413
	0.3	0.104	0.096	0.733	0.613	0.771	0.672
	0.4	0.134	0.124	0.941	0.787	0.989	0.863
	0.5	0.145	0.134	1.015	0.849	1.067	0.932
	0.6	0.134	0.124	0.938	0.785	0.986	0.861
	0.7	0.105	0.097	0.728	0.608	0.766	0.669
	0.8	0.063	0.059	0.441	0.369	0.464	0.405
	0.9	0.024	0.022	0.165	0.138	0.174	0.152
	0	0	0	0	0	0	0

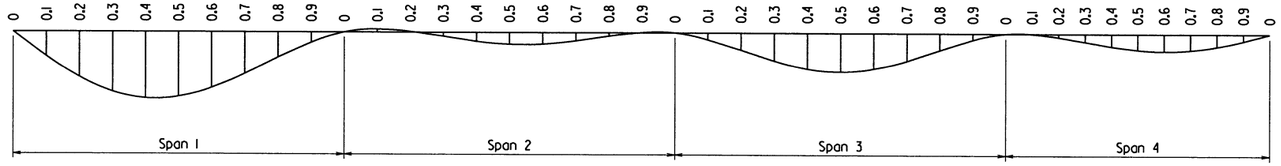
Note: Camber for dead load deflection plus vertical curve +/- 1/4" tolerance. Deflections shown are along C.L. Beam from a chord from C.L. Bearing to C.L. Bearing. Negative sign (-) indicates point above chord. Vertical curve corrections not included.

REINFORCING PLAN & SLAB POURING SEQUENCE

(1) Placed as shown in "TYPICAL ROADWAY SECTION", Dwg. No. 58879

(2) Measured C.L. Joint to Face of Channel

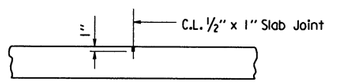
Pours with the same number may be placed simultaneously or separately. All pours (1) must be placed before pours (2) can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between the end of a pour and the start of an adjacent pour. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing. Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.



DEAD LOAD DEFLECTION DIAGRAM

No Scale

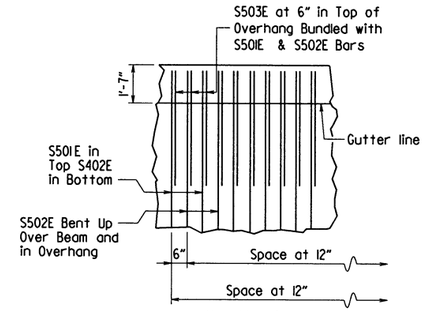
Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Int. Beam	Ext. Beam	Int. Beam	Ext. Beam	Int. Beam	Ext. Beam
4	0	0	0	0	0	0	0
	0.1	0.001	0.001	0.004	0.003	0.004	0.003
	0.2	0.013	0.012	0.086	0.072	0.090	0.079
	0.3	0.030	0.028	0.204	0.171	0.214	0.187
	0.4	0.048	0.044	0.324	0.271	0.340	0.297
	0.5	0.060	0.056	0.414	0.346	0.435	0.379
	0.6	0.065	0.061	0.450	0.377	0.473	0.413
	0.7	0.061	0.057	0.422	0.353	0.443	0.386
	0.8	0.047	0.044	0.328	0.275	0.344	0.301
	0.9	0.026	0.024	0.180	0.151	0.189	0.165
	0	0	0	0	0	0	0



Use Type 3 or 4 Joint Sealer. See Subsections 501.02 (h) and 501.05 (j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before parapet railing is be poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck from gutterline to gutterline. Slab joints and pouring sequence construction joints shall align with parapet open joints at the gutterline.

SLAB JOINT DETAIL

No Scale



DETAIL A

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-6-16
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 4 OF 6
DETAILS OF 315'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
CEDAR CREEK

ROUTE SEC.

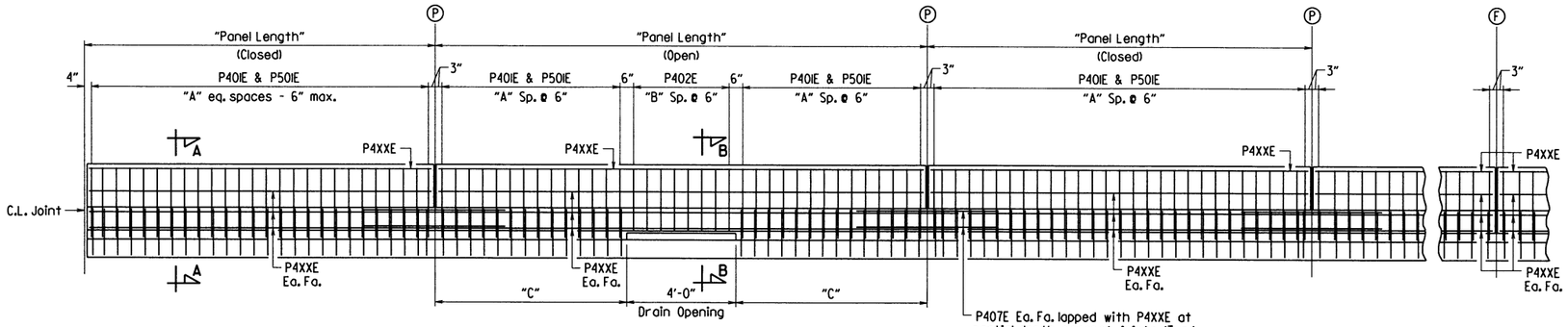
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 3/2016 FILENAME: bca0610xl_sl.dgn
CHECKED BY: BHS DATE: 10/5/16 SCALE: 1/2" = 1'-0" or As Shown
DESIGNED BY: BHS DATE: 2/2016

BRIDGE NO. A7135 DRAWING NO. 58882

PRINT DATE: 10/5/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	378	888
				①	A7135 - SPAN DETAILS - 58883			

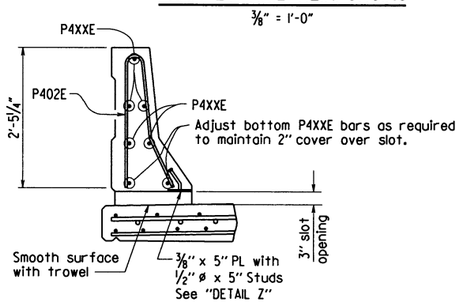


PARAPET RAIL REINFORCING

3/8" = 1'-0"

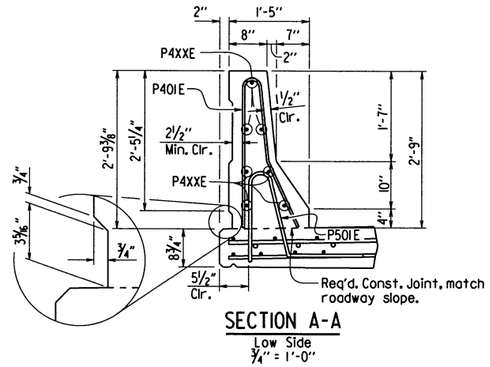
Ⓕ C.L. Full-Depth Parapet Joint (1/4" to 1" max.) as shown in "Reinforcing Plan & Pouring Sequence", Dwg. No. 58882. Stop 4" from top of slab.

Ⓟ C.L. Partial-Depth Parapet Joint (1/4" to 1" max.) as shown in "Reinforcing Plan & Pouring Sequence", Dwg. No. 58882. Stop 1'-2" from top of slab.



SECTION B-B

¾" = 1'-0"

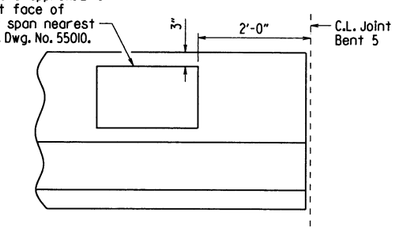


SECTION A-A

Low Side

¾" = 1'-0"

Place Type D Bridge Name Plate approx. 2'-0" from C.L. Joint on the front face of parapet rail on left side of span nearest the end of Bridge. See Std. Dwg. No. 55010.



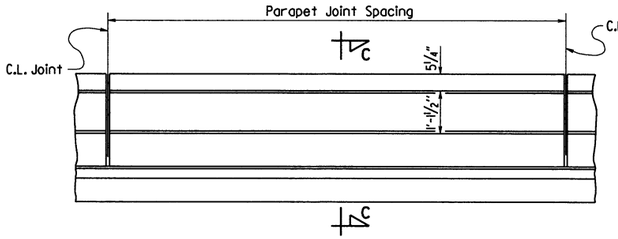
NAME PLATE DETAIL

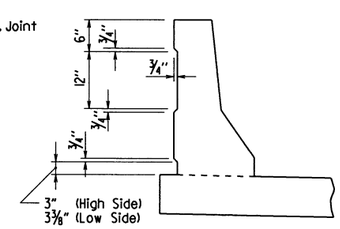
¾" = 1'-0"

TABLE OF VARIABLES

Panel Length	Panel Type	"A"	"B"	"C"	P4XXE
11'-0"	Closed	21	-	-	P403E
15'-0"	Closed	29	-	-	P404E
15'-0"	Open	20	7	5'-6"	P404E
17'-0"	Closed	33	-	-	P405E
17'-0"	Open	24	7	6'-6"	P405E
20'-0"	Closed	39	-	-	P406E
20'-0"	Open	30	7	8'-0"	P406E

For location of panels, see "Reinforcing Plan & Pouring Sequence" Dwg. No. 58882





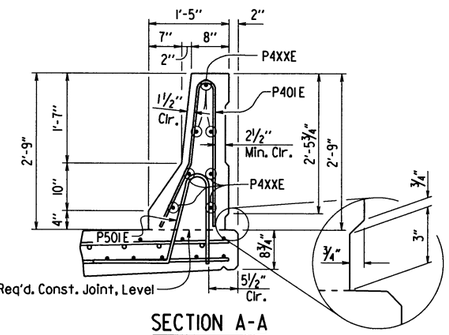
DETAILS OF PARAPET ENHANCEMENT

Outside Face Of Rail

No Scale

SECTION C-C

No Scale



SECTION A-A

High Side

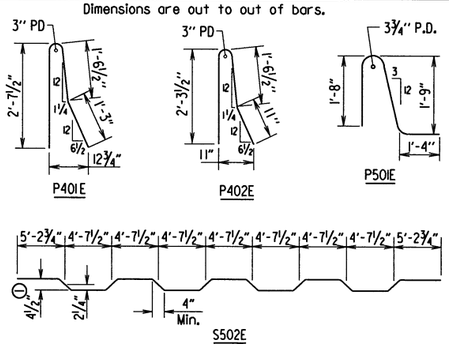
¾" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
P401E	1,180	5'-6"	2"
P402E	80	4'-10"	2"
P403E	196	10'-8"	Str.
P404E	28	14'-8"	Str.
P405E	42	16'-8"	Str.
P406E	56	19'-8"	Str.
P407E	104	5'-6"	Str.
P501E	1,180	4'-10"	3¾"
S401E	1,080	36'-7"	Str.
S402E	315	42'-10"	Str.
S501E	315	42'-10"	Str.
S502E	314	43'-8"	3"
S503E	1,258	4'-10"	Str.
S601E	46	58'-1"	Str.
S602E	46	47'-5"	Str.
S603E	46	42'-2"	Str.

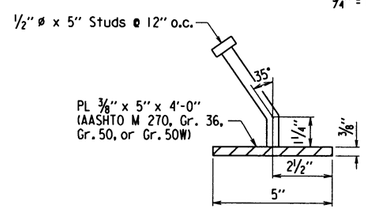
BENDING DIAGRAMS

Dimensions are out to out of bars.



① ½" Over tolerance
No Under tolerance

All bars with an "E" suffix shall be Epoxy Coated.

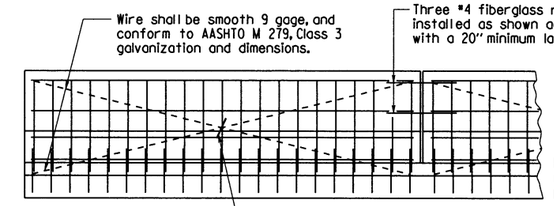


DETAIL Z

No Scale

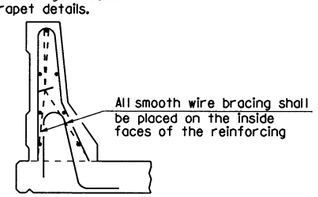
The surfaces of the ⅜" plates which will not be in contact with concrete shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M 270, Gr. 50W)."

Parapet studs shall be 5" long., granular flux filled, solid fluxed or equal, and automatically end welded to the plate. Studs and plates shall meet the requirements of Section 807 and shall be measured and paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)."



All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Unless otherwise noted, exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish in place of a Class 2, Rubbed Finish.



DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-6-16
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 6
DETAILS OF 315'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
CEDAR CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 3/2016 FILENAME: bca0610xl_sl.dgn
CHECKED BY: BHS DATE: 10/5/16 SCALE: As Shown
DESIGNED BY: BHS DATE: 2/2016

BRIDGE NO. A7135 DRAWING NO. 58883

PRINT DATE: 10/5/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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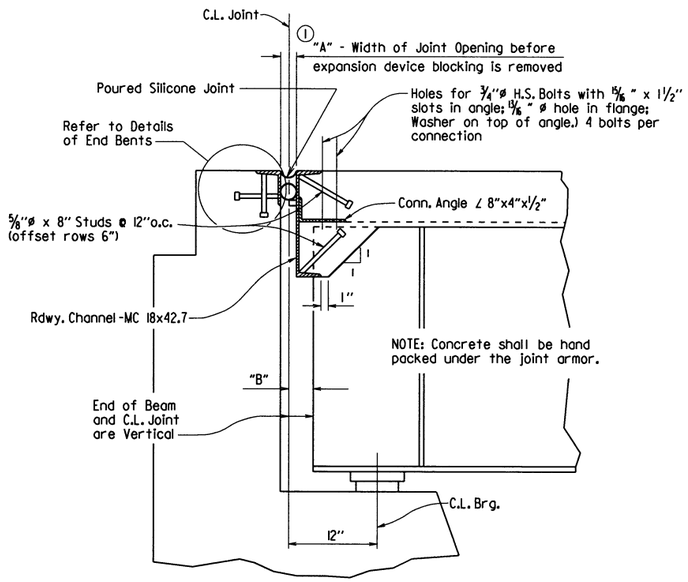
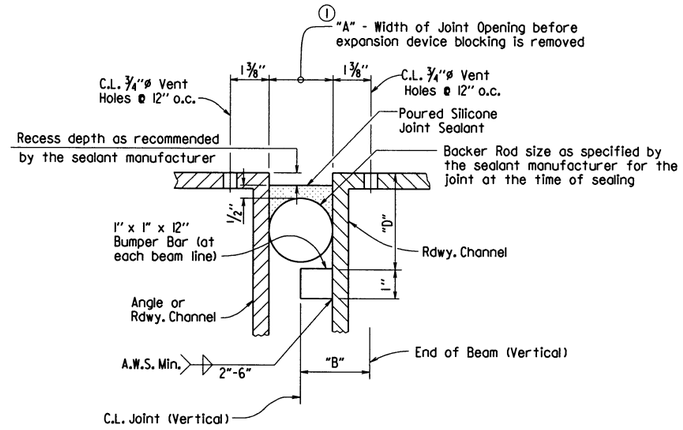
				JOB NO.		CA0610	379	888
				① A7135 - SPAN DETAILS - 58884				



SECTION THRU JOINT AT BENTS 1 & 5



DETAIL OF POURED SILICONE JOINT SEAL

SILICONE JOINT DATA

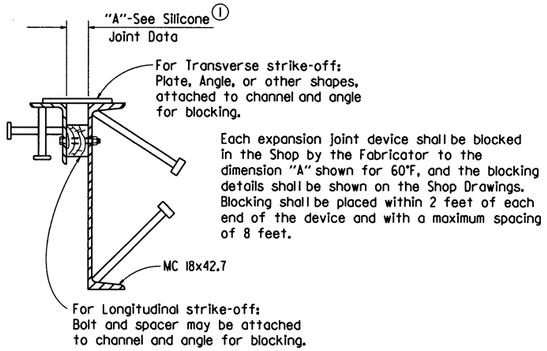
Bent Number	"A" Width Perpendicular to Joint at 24 Hour Average Temperature ① Of:			"B" Perpendicular to Joint at 60°F	Bumper Plate Size	"D"
	40°F	60°F	80°F			
1 & 5	2¼"	2"	1¾"	2¼"±	1" x 1"	5"

① The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

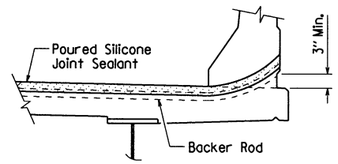
NOTES:
The temperature limitations recommended by the sealant manufacturer shall be observed. The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80°F.

Use an appropriately sized backer rod at the depth shown in the manufacturer's literature based on the joint width at the time of sealing. Except as noted, do not install more backer rod that can be sealed in the same day.

The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.



DETAILS FOR BLOCKING
EXPANSION JOINT DEVICE



JOINT SEAL PLACEMENT AT CURB

EXPANSION DEVICE INSTALLATION

The Contractor may elect to install the expansion device for the end bents using one of the following two alternatives:

1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams are erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, the opening adjusted for temperature, and the backwall constructed.

2) The backwall shall be poured to the optional construction joint after beams are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-6-16
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 6 OF 6
DETAILS OF 315'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
CEDAR CREEK

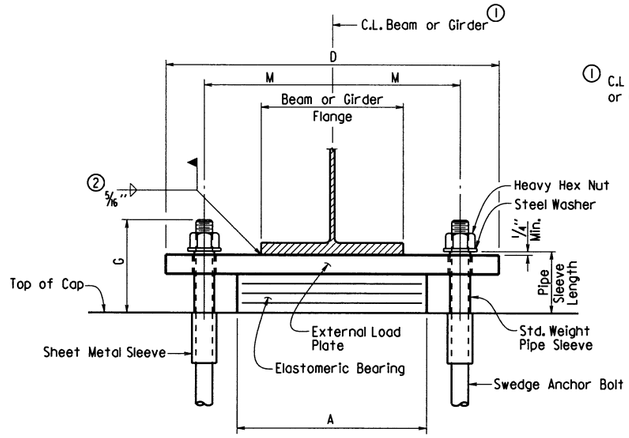
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 3/2016 FILENAME: bca0610xl_sl.dgn
CHECKED BY: BHS DATE: 10/5/16 SCALE: No Scale
DESIGNED BY: BHS DATE: 2/2016
BRIDGE NO. A7135 DRAWING NO. 58884

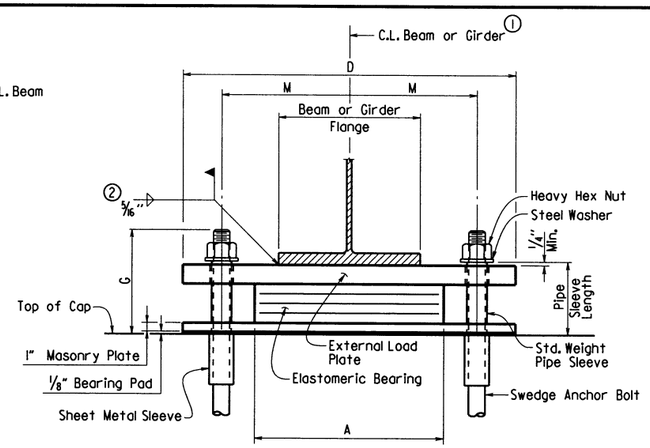
PRINT DATE: 10/5/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	380	888
				① A7135 - ELASTO BRGS. - 58885				

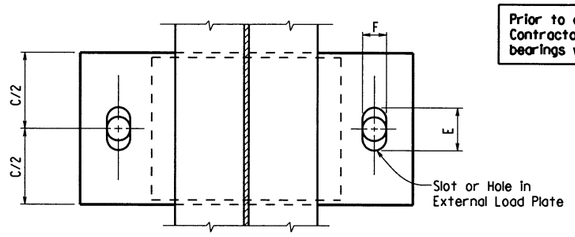


FRONT VIEW - AT BENT NOS. 1 - 4

① C.L Elastomeric Pad shall be aligned with C.L. Beam or Girder.

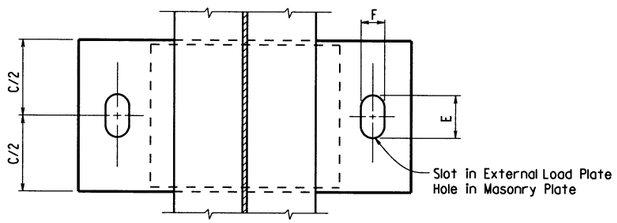


FRONT VIEW - AT BENT NO. 5

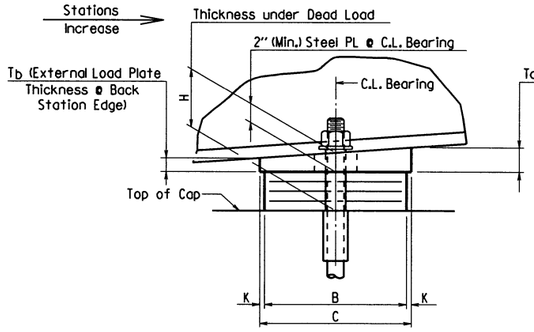


PLAN VIEW - AT BENT NOS. 1 - 4

Prior to erection of the beams or girders, the Contractor shall verify the orientation of the bearings with respect to Ta and Tb.



PLAN VIEW - AT BENT NO. 5

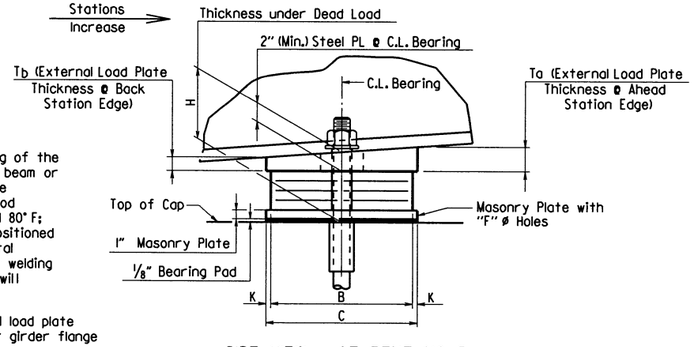


SIDE VIEW - AT BENT NOS. 1 - 4

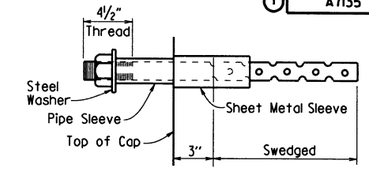
The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in the "Table of Fabricator Variables".

② Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam or girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.



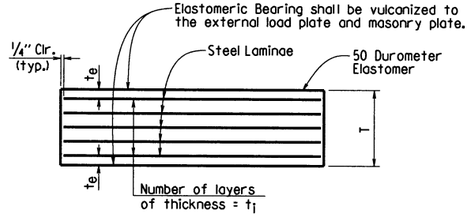
SIDE VIEW - AT BENT NO. 5



ANCHOR BOLT DETAIL

Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50W)"



t_e = Thickness of elastomer cover on top and bottom of pad

t_i = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings".

External load plates and masonry plates shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

External load plates and masonry plates shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with Subsection 808.03. Other surfaces shall be blast cleaned in accordance with Subsection 807.84(b) for painted steel and 807.84(e) for unpainted Grade 50W steel.

Anchor Bolts, Washers and Nuts shall conform to Subsection 807.07. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)". External load plates, masonry plates and 1/8" bearing pads will not be measured or paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

Bearings shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

③ Maximum Design Load = Service I Limit State

④ Dimension "E" applies to External Load Plates only. "F" ø Holes shall be used in Masonry Plates.

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION BENT NO(S).	LOCATION BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	③ MAXIMUM DESIGN LOAD (KIPS)	ELASTOMERIC PAD G	ELASTOMERIC PAD H	ELASTOMERIC PAD A	ELASTOMERIC PAD B	ELASTOMERIC PAD N	ELASTOMERIC PAD t_i	ELASTOMERIC PAD t_e	ELASTOMERIC PAD NO. & THICKNESS OF STEEL LAMINAE	ELASTOMERIC PAD T	EXTERNAL LOAD PLATE C	EXTERNAL LOAD PLATE D	EXTERNAL LOAD PLATE ④ E	EXTERNAL LOAD PLATE F	EXTERNAL LOAD PLATE K	EXTERNAL LOAD PLATE M	EXTERNAL LOAD PLATE T_a	EXTERNAL LOAD PLATE T_b	ANCHOR BOLT (ø x L)	ANCHOR BOLT GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
A7135	1	All	Exp.	5	128	7 1/8"	4 3/8"	14"	9"	3	1/2"	1/4"	4 @ 12 ga.	2 3/16"	10"	24"	4 1/4"	2 1/4"	1/2"	9 1/4"	1.77"	2.23"	1 1/2" x 24"	55	1 3/4" x 4 5/8"	3" x 7"	3"
	2	All	Fix.	5	291	7 3/8"	3 11/16"	19"	12"	2	1/2"	1/4"	3 @ 12 ga.	1 13/16"	13"	31"	3 1/8"	3 1/8"	1/2"	12 1/4"	1.72"	2.28"	2 1/4" x 33"	55	2 1/2" x 4 1/8"	4" x 7"	4"
	3	All	Fix.	5	254	7 3/8"	3 11/16"	15"	15"	2	1/2"	1/4"	3 @ 12 ga.	1 13/16"	16"	27"	3 1/8"	3 1/8"	1/2"	10 1/4"	1.70"	2.30"	2 1/4" x 33"	55	2 1/2" x 4 1/8"	4" x 7"	4"
	4	All	Exp.	5	247	7 5/8"	4 3/8"	15"	13"	3	1/2"	1/4"	4 @ 12 ga.	2 3/16"	14"	27"	5 1/4"	3 1/8"	1/2"	10 1/4"	1.78"	2.22"	2" x 32"	55	2 1/2" x 4 5/8"	4" x 7"	3 3/4"
	5	All	Exp.	5	105	10"	6 11/16"	14"	9"	5	1/2"	1/4"	6 @ 12 ga.	3 5/8"	10"	26"	6 1/8"	3 1/8"	1/2"	9 3/4"	1.87"	2.13"	2" x 32"	55	2 1/2" x 7"	4" x 7"	3 3/4"

PRINT DATE: 10/5/2016

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-6-16
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS CEDAR CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

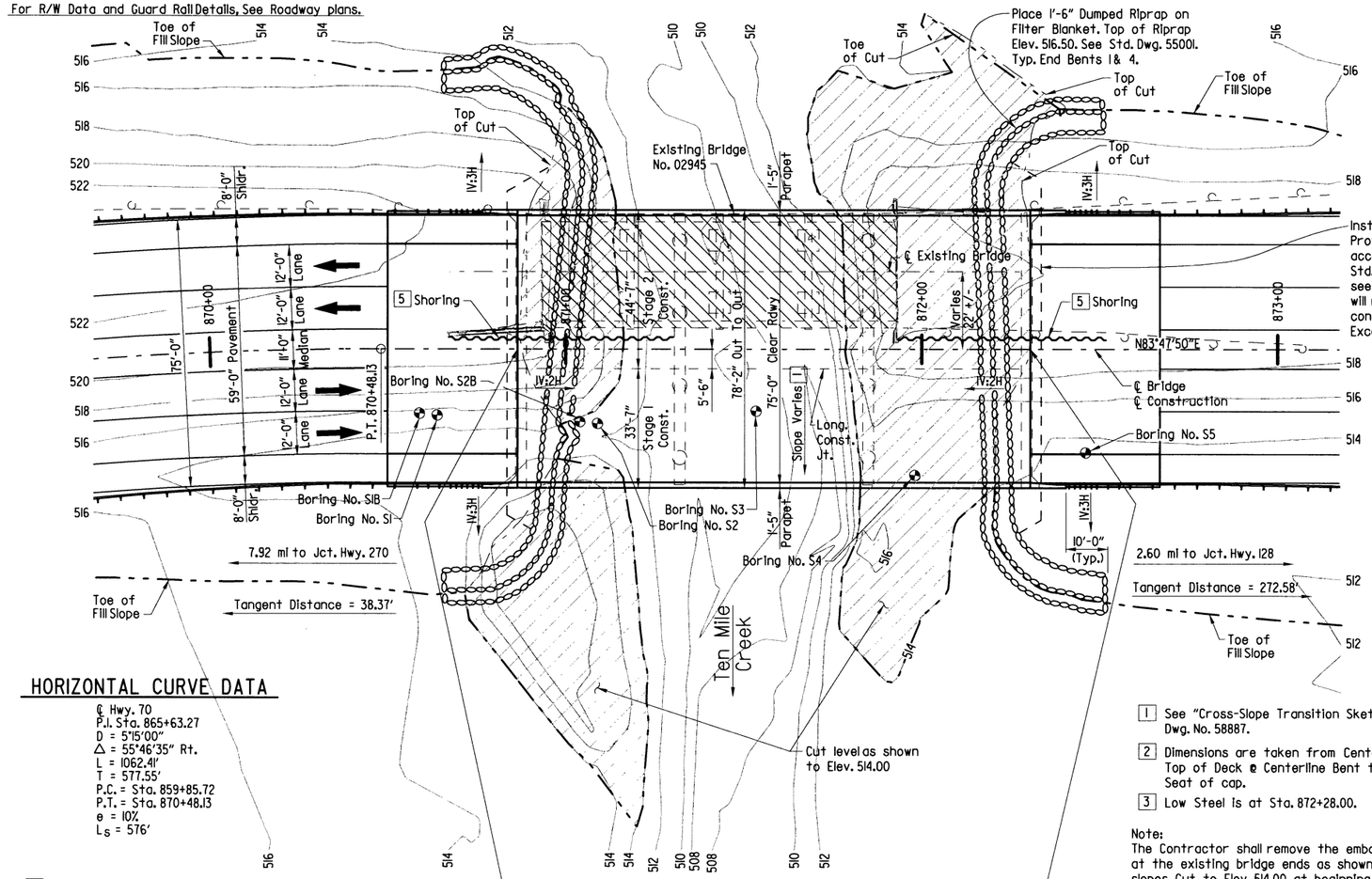
DRAWN BY: BHS DATE: 7/7/2016 FILENAME: bca0610_el.dgn

CHECKED BY: DHP DATE: 10/5/16 SCALE: No Scale

DESIGNED BY: BHS DATE: 2/2016

BRIDGE NO. A7135 DRAWING NO. 58885

For R/W Data and Guard Rail Details, See Roadway plans.



1 See "Cross-Slope Transition Sketch", Dwg. No. 58887.

2 Dimensions are taken from Centerline Top of Deck ℄ Centerline Bent to Low Seat of cap.

3 Low Steel is at Sta. 872+28.00.

Note:
The Contractor shall remove the embankment at the existing bridge ends as shown using IV:2H slopes. Cut to Elev. 514.00 at beginning of bridge and to Elev. 514.00 at end of bridge. Approx. 1,090 cu. yds. of excavation.

7 Drilled shafts may require the use of temporary steel casing to facilitate construction. See SP Job No. CA0610 "Drilled Shaft Foundations."

Note:
Use Type Special Approach Slab and Type C Approach Gutters ("w" = 8'-0") at both ends of bridge, See Dwg. No. 58936 and Std. Dwg. No. 55030C.

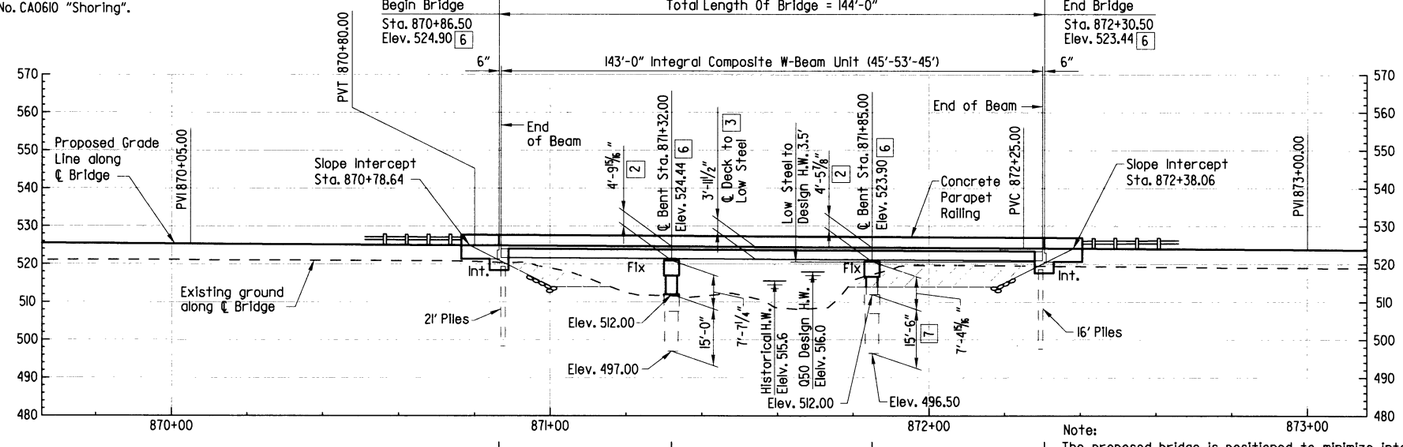
Note:
For Soil Borings, Cross-Slope Transition Sketch, and Vertical Curve Data, See Dwg. No. 58887.

HORIZONTAL CURVE DATA

℄ Hwy. 70
P.I. Sta. 865+63.27
D = 5°15'00"
△ = 55°46'35" Rt.
L = 1062.41'
T = 577.55'
P.C. = Sta. 859+85.72
P.T. = Sta. 870+48.13
e = 10%
L_s = 576'

PLAN

5 Shoring may be required during construction. Payment for this work, if required, shall be considered subsidiary to the pay item "Unclassified Excavation for Structures - Bridge" or "Class S Concrete - Bridge". See SP Job No. CA0610 "Shoring".



ELEVATION

Note:
6 Elevations shown are finished grade at top of deck along ℄ Bridge - See Cross-Slope Transition Sketch, Dwg. No. 58887

Note:
The proposed bridge is positioned to minimize interference with the existing substructure. The Contractor shall verify the location of the existing substructure before constructing the new substructure. Any adjustments necessary to fit the proposed bridge shall be submitted to the Engineer for approval.

GENERAL NOTES

BENCH MARK: Chiseled "X" in northwest wing of Bridge No. 02945, 41.8' ± left of Station 870+93±, Elev. 521.4.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Construction Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: 2012 AASHTO LRFD Bridge Design Specifications, with current Interim Specifications.

LIVE LOADING: HL93
SEISMIC ZONE: 1 SDI = 0.07 Site Class = B

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A, Gr, 60)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi

BORING LOGS: Boring Logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: Piling in Bents 1 & 4 shall be HP 12x53 Gr. 50 and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 95 tons and into material designated as moderately hard to hard shale on the boring legend. Piles at Bents 1 & 4 shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual lengths are to be determined in the field. The Contractor shall use approved steel H-pile driving points.

PREBORING: Preboring is required for all piles in Bent 1 and Bent 4. Preboring shall be to a minimum 5' into material designated as moderately hard to hard shale on the boring legend. The actual size and depth of preboring shall be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free of debris prior to driving piles and backfilling which may require the use of temporary casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to within 10' of the bottom of end bent cap, and the remaining 10' shall be backfilled with sand or pea gravel. The cost of any backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring."

DRILLED SHAFTS: Foundations for intermediate bents shall consist of Drilled Shafts. All Drilled Shafts shall be founded into moderately hard to hard shale and to the minimum rock penetrations and tip elevations shown in the plans. No adjustments in the Plan Tip Elevations shall be made without prior approval from the Engineer. Methods of construction of the drilled shafts shall be in accordance with SP Job No. CA0610 "Drilled Shaft Foundations". Any casing used as a means for construction of the drilled shafts, such as to prevent caving, to exclude groundwater, or provide shoring shall not extend below top of rock. The Contractor must obtain approval from the Engineer for any deviation from this requirement.

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed in accordance with SP Job No. CA0610 "Nondestructive Testing of Drilled Shafts".

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

DETAIL DRAWINGS:	DRAWING NO(S).
End Bents	58890 - 58892
Intermediate Bents	58893 - 58895
143'-0" Integral Composite W-Beam Unit	58896 - 58901
Type Special Approach Slabs	58936
Type C Approach Gutters	55030C

EXISTING BRIDGE: Existing Bridge No. 02945 (log 10.66) is 33.5' wide and 100' long and consists of 4-25' concrete slab spans supported by 2-column concrete bents on spread footings.

REMOVAL AND SALVAGE: After the Stage 1 Construction of the new bridge is open to traffic, existing Bridge No. 02945 shall be removed in accordance with Section 205 of the Standard Specifications. All material from the existing bridge shall become the property of the Contractor.

STAGED CONSTRUCTION: The proposed bridge will be built in stages in order to maintain traffic during construction. For staging details, see Dwg. Nos. 58888 & 58889.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	4 NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	2604	515.6	516.0
Base	100	3090	515.7	516.4
Extreme	500	4370	517.3	517.1
Overtopping	>500	>500	>500	>500

4 Unconstricted water surface without structure or roadway approaches.

Q100 backwater elevation for existing structure = 520.52 feet.
Proposed Low Bridge Chord Elevation = 519.51 feet.

Drainage area = 3.12 square miles.
Historical H.W. Elev. = 515.6 Feet (from 1955 Construction plans)
Elevation is prior to existing bridge and channel realignment.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

Stephen F. Harper 9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	381	888
				1	07398 - LAYOUT - 58886			

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER TEN MILE CREEK WEST
HOT SPRINGS - I-30 (WIDENING) (S)
GARLAND AND SALINE COUNTIES
ROUTE 70 SECTION 9 & 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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DESIGNED BY: SFH DATE: 9/15 SCALE: 1"=20'
BRIDGE NO. 07398
DRAWING NO. 58886

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REVISED DATE:

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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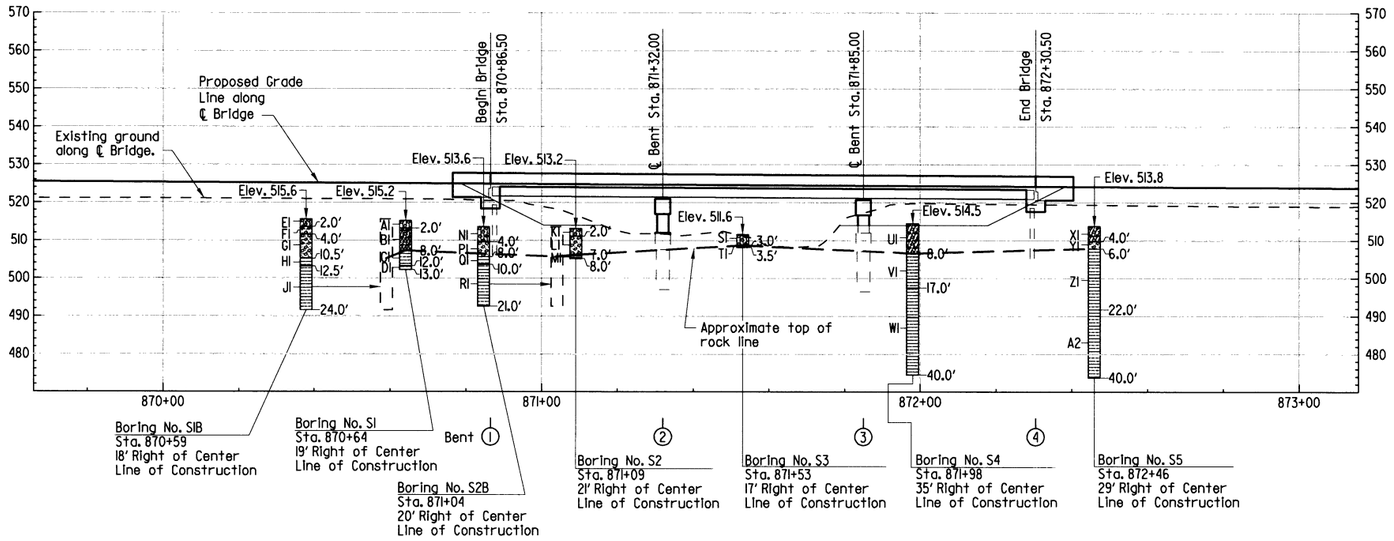


ELEVATION OF SOIL BORINGS

BORING LEGEND

A1- Brown silty fine sand w/fine to coarse gravel and sandstone cobbles (fill for access)
B1- Loose gray and brown sandy fine to coarse gravel, silty clay, wet - medium dense at 4 to 6 ft - dense below 6 ft
C1- Low hardness to moderately hard tan and gray weathered shale
D1- Moderately hard dark gray shale w/sandstone partings - auger refusal at 13ft
E1- Brown silty fine sand w/fine to coarse sandstone gravel and fragments and cobbles (fill for access)
F1- Dense brown sandy fine to coarse gravel
G1- Dense tan sandy fine to coarse gravel, slightly silty - water at 4ft - with some coarse gravel and cobbles below 6ft
H1- Low hardness to moderately hard tan and gray weathered shale
J1- Moderately hard dark gray shale, carbonaceous w/very close sandstone partings, seams and inclusions, fractured
K1-Loose brown silty fine sand w/fine to coarse sandstone fragments, fine gravel and cobbles (fill for access)
L1- Medium dense brown sandy fine to coarse gravel w/sandy clay pockets
M1- Low hardness tan and dark gray weathered shale - auger refusal at 8ft
N1- Brown silty fine sand w/fine to coarse sandstone fragments, fine gravel and cobbles (fill for access) - water at 3ft
P1- Dense brown sandy fine to coarse gravel - coarse gravel and cobbles below 6ft
Q1- Moderately hard tan and dark gray weathered shale
R1- Moderately hard dark gray and very dark gray shale, carbonaceous w/close sandstone seams and quartz veins (limited recovery in both core runs)
S1- Loose brown fine to coarse sandy fine to coarse gravel and sandstone cobbles w/some sandy clay (fill for access)
T1- Low hardness tan and dark gray weathered shale - auger refusal at 3.5ft
U1- Medium dense brown clayey fine to coarse sand and fine to coarse gravel (fill) - water at 6ft
V1- Moderately hard tan and very dark gray slightly weathered arenaceous shale, carbonaceous w/close sandstone partings and quartz inclusions - with pyrite seams and inclusions below 13 ft
W1- Moderately hard to hard dark gray shale w/close quartz veins and inclusions and sandstone partings
X1- Medium dense brown clayey fine to coarse sand and shale fragments and fine to coarse gravel (fill)
Y1- Dense brown sandy fine to coarse gravel
Z1- Moderately hard tan and very dark gray slightly weathered shale, carbonaceous w/occasional quartz inclusions and close sandstone seams and partings - auger refusal at 7ft - core barrel plugged at 15ft, no recovery
A2- Moderately hard to hard very dark gray shale, carbonaceous w/occasional quartz inclusions and veins

"N" VALUES

Boring No. S1B
Sta. 870+59 - 18' Right of Center Line of Construction

2.5 - 2.9	N=50/5"
4.0 - 4.5	N=50/5"
6.0 - 6.4	N=50/4"

Boring No. S1
Sta. 870+64 - 19' Right of Center Line of Construction

0.5 - 1.5	N=7
2.5 - 3.5	N=5
4.5 - 5.5	N=19
6.5 - 7.5	N=32

Boring No. S2B
Sta. 871+04 - 20' Right of Center Line of Construction

0.5 - 1.5	N=19
2.5 - 2.9	N=50/5"
4.5 - 5.3	N=50/9"
6.5 -	N=30/0"
9.0 -	N=30/0"

Boring No. S2
Sta. 871+09 - 21' Right of Center Line of Construction

0.5 - 1.5	N=7
4.5 - 5.5	N=13
6.5 - 7.5	N=37

Boring No. S3
Sta. 871+53 - 17' Right of Center Line of Construction

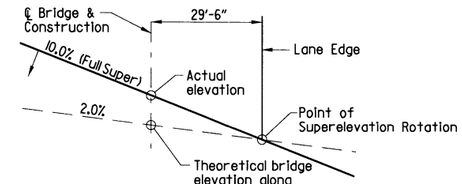
0.0 - 0.5	N=8
2.5 - 3.5	N=24

Boring No. S4
Sta. 871+98 - 35' Right of Center Line of Construction

0.5 - 1.5	N=21
2.5 - 3.5	N=19
4.5 - 5.5	N=26
6.5 - 6.7	N=50/2"
9.0 -	N=25/0"
24.0 -	N=25/0"
29.0 -	N=25/0"
34.0 -	N=25/0"
39.0 -	N=25/0"

Boring No. S5
Sta. 872+46 - 29' Right of Center Line of Construction

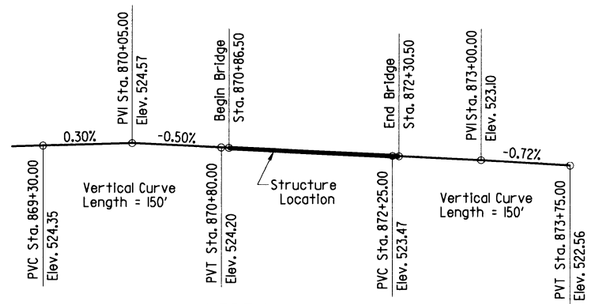
0.5 - 1.5	N=15
2.5 - 3.5	N=20
4.5 - 5.5	N=43
6.0 -	N=25/0"
9.0 -	N=25/0"
14.0 -	N=25/0"
19.0 -	N=25/0"
24.0 -	N=25/0"
29.0 -	N=25/0"
34.0 -	N=25/0"
39.0 -	N=25/0"



Sta. 867+69.70 to Sta. 872+30.50
(Superelevation Transition)

CROSS-SLOPE TRANSITION SKETCH

Looking Ahead



VERTICAL CURVE DATA

Theoretical Elevation along ℄ Construction & ℄ Bridge - See "Cross-Slope Transition Sketch".

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER TEN MILE CREEK WEST
HOT SPRINGS - I-30 (WIDENING) (S)
GARLAND AND SALINE COUNTIES
ROUTE 70 SECTION 9 & 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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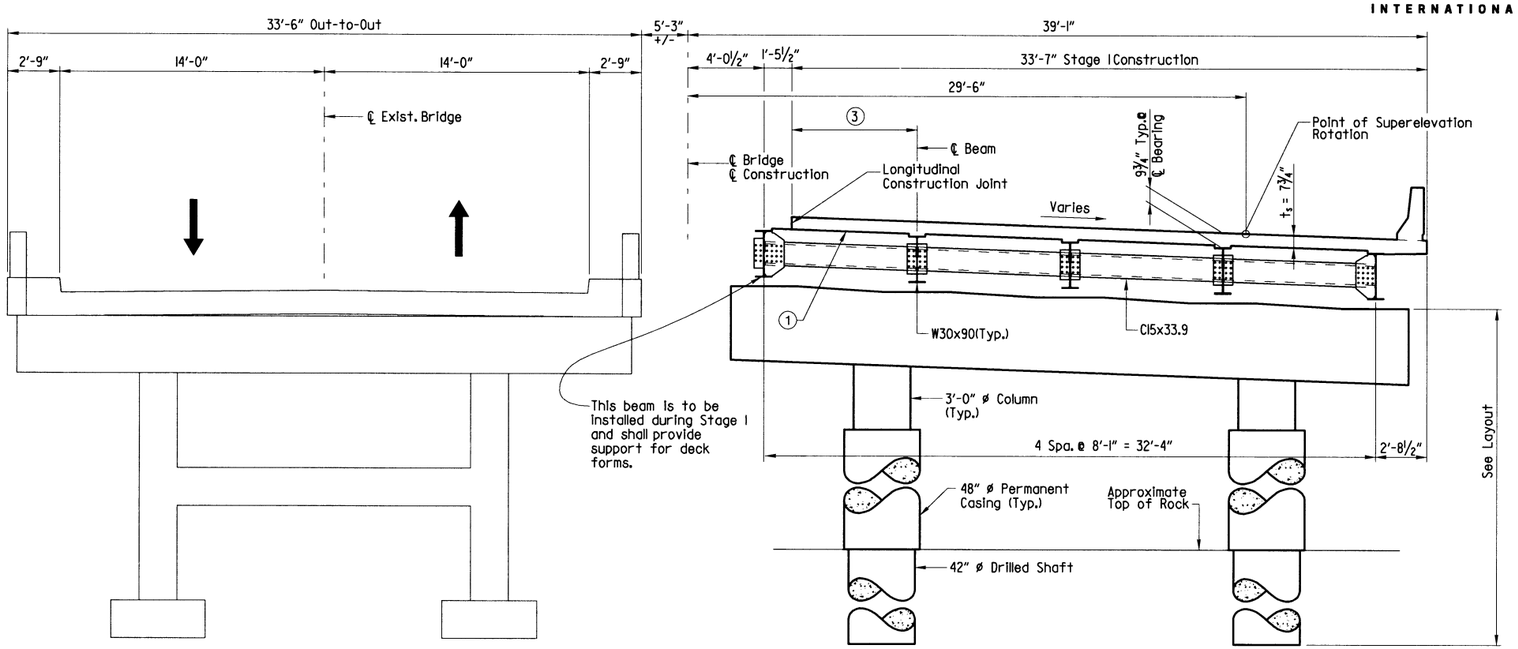
				JOB NO.		CA0610	383	888

(1) 07398 - TYPICAL SECTION - 58888



STAGE 1 CONSTRUCTION

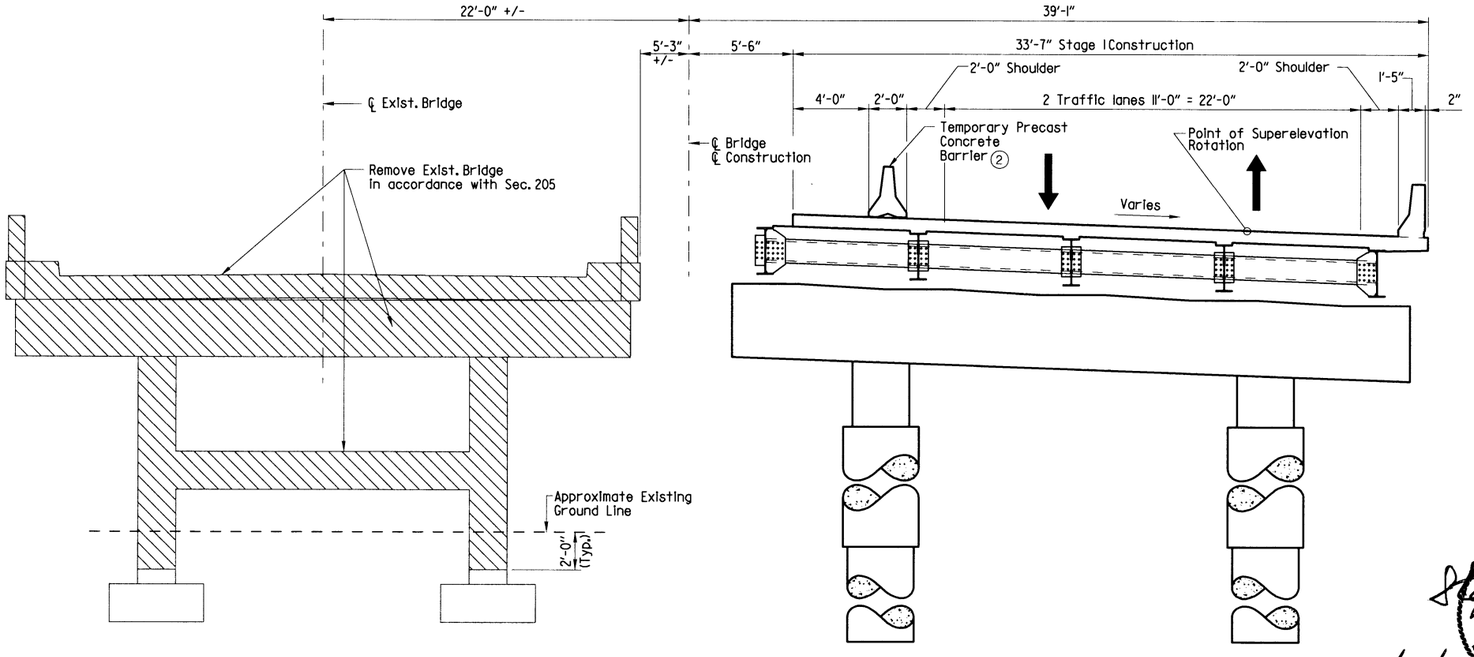
(Looking Forward)
¼" = 1'-0"

(1) Install Deck Form full width to facilitate Stage 2 Deck construction.

(2) For Details of Temporary Barrier, See Std. Dwg. TC-4. Connect the Temporary Barrier to the deck using the "Barrier Stabilization Detail" as shown on Std. Dwg. TC-4.

(3) Construction vehicles shall not travel beyond the centerline of Beam.

Note:
Details which relate to Maintanance of Traffic are shown on the bridge plans for information only. See Roadway Plans for Maintenance of Traffic.



STAGE 2 DEMOLITION

(Looking Forward)
¼" = 1'-0"

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No. 14501
STEPHEN F. HARPER

9/23/16

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SHEET 1 OF 2
TYPICAL SECTION AND STAGED CONSTRUCTION
TEN MILE CREEK WEST
HOT SPRINGS - I-30 (WIDENING) (S)
GARLAND AND SALINE COUNTIES
ROUTE 70 SECTION 9 & 10

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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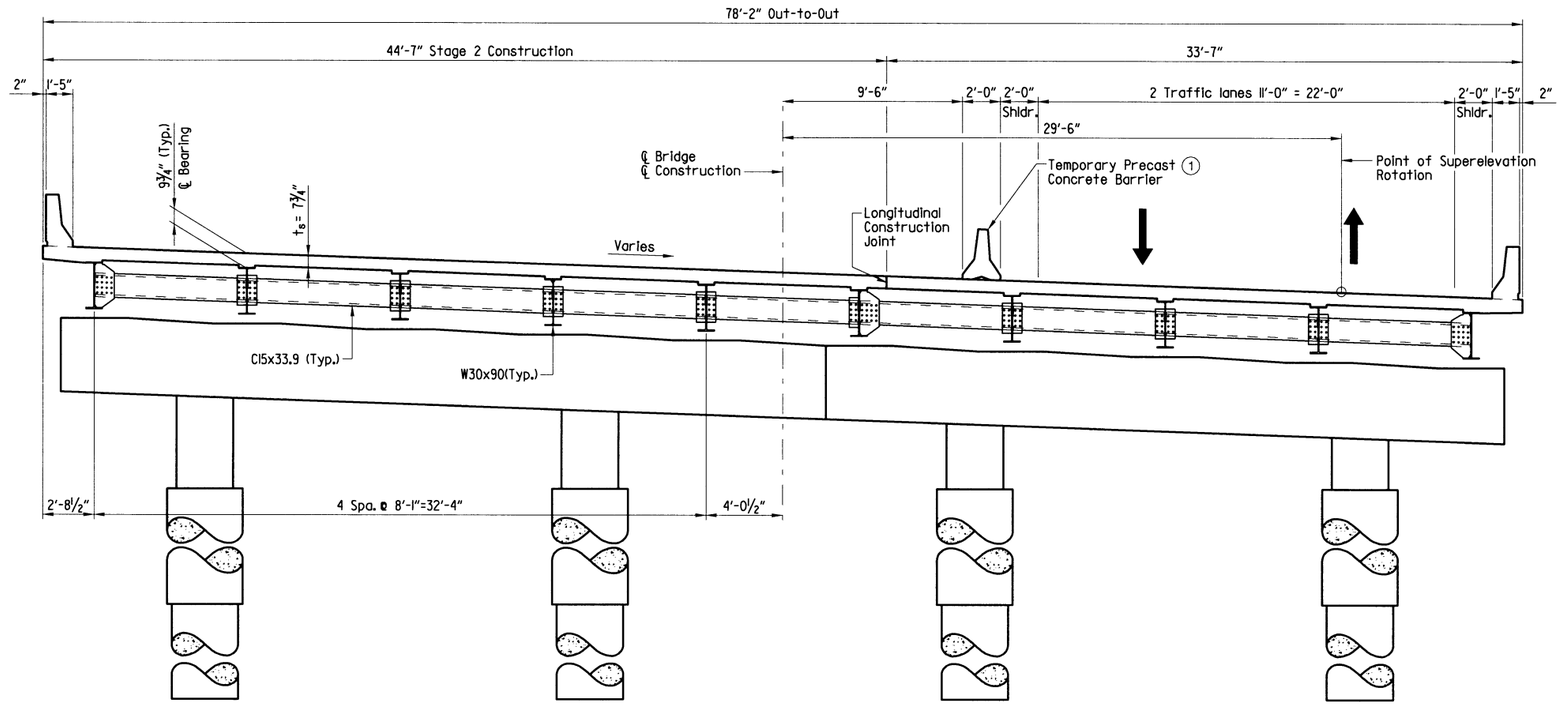
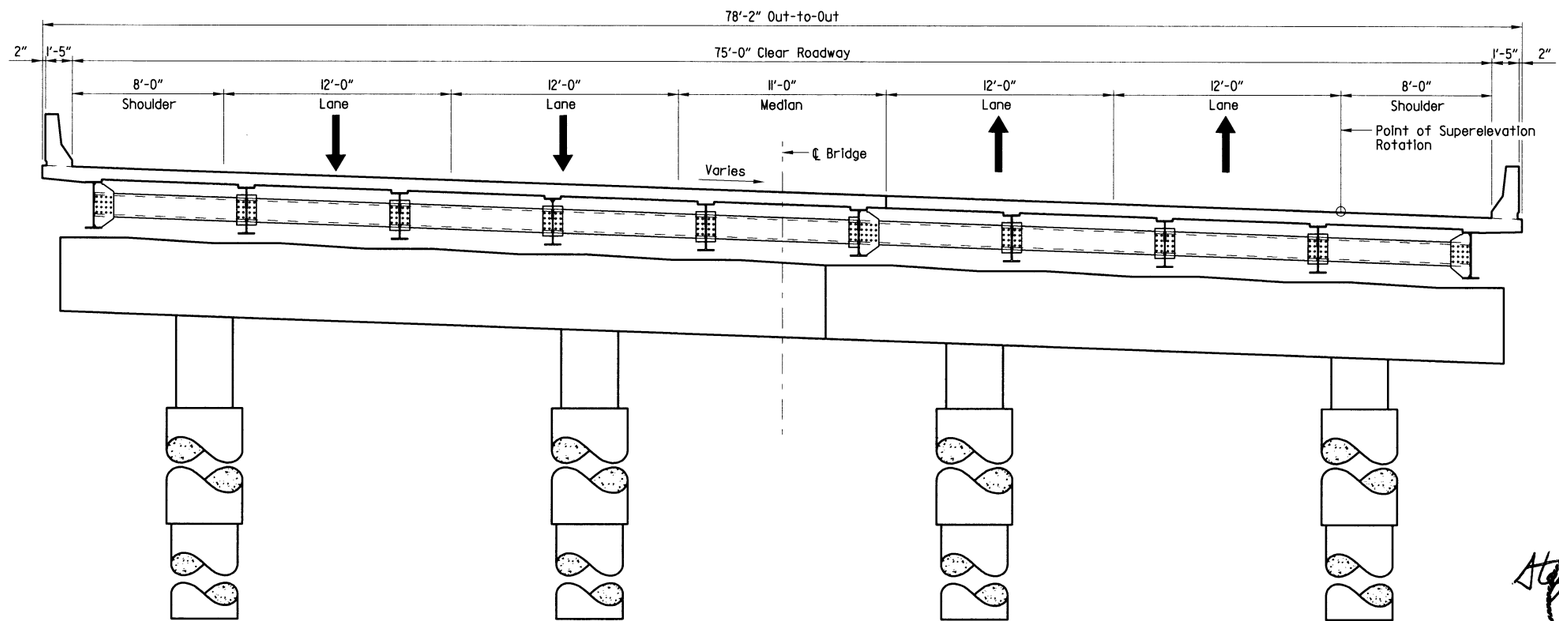
				6	ARK.			
				JOB NO.		CA0610	384	888

(1) 07398 - TYPICAL SECTION - 58889



STAGE 2 CONSTRUCTION
(Looking Forward on Survey)
¼" = 1'-0"



COMPLETED SECTION
(Looking Forward on Survey)
¼" = 1'-0"

(1) For Details of Temporary Barrier, See Std. Dwg. TC-4. Connect the Temporary Barrier to the deck using the "Barrier Stabilization Detail" as shown on Std. Dwg. TC-4.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 2 OF 2
TYPICAL SECTION AND
STAGED CONSTRUCTION
TEN MILE CREEK WEST
HOT SPRINGS - I-30 (WIDENING) (S)
GARLAND AND SALINE COUNTIES
ROUTE 70 SECTION 9 & 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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NOTE:
Class I Protective Surface Treatment shall be applied to the Roadway surface, and to the Roadway Face & Top of the Concrete Parapet Rails.

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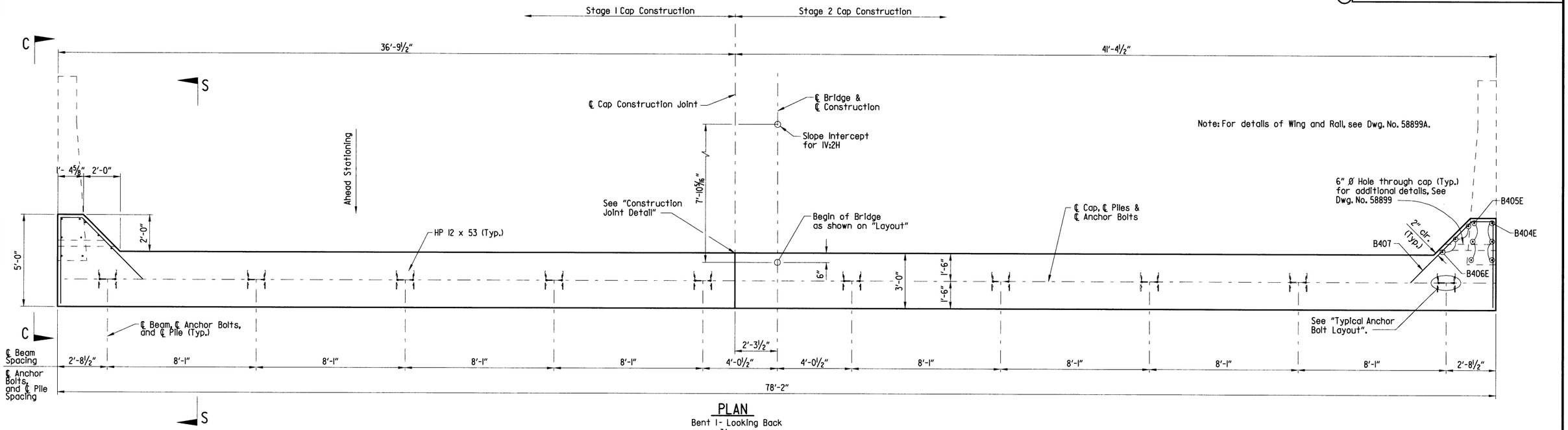
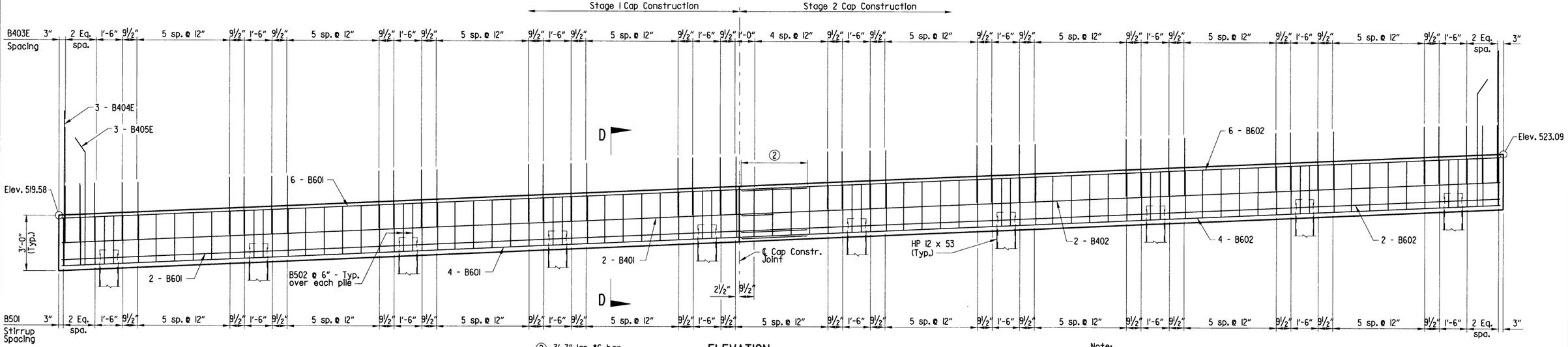
				JOB NO.		CA0610	385	888

(1) 07398 - END BENT DETAILS - 58890

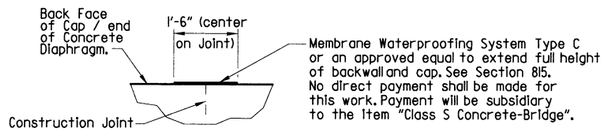


PLAN
Bent 1- Looking Back
⅜"=1'-0"



② 3'-7" lap #6 bar
1'-9" lap #4 bar

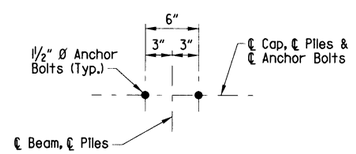
ELEVATION
Bent 1- Looking Back
⅜"=1'-0"



CONSTRUCTION JOINT DETAIL
No Scale

Note:
For View C-C and View S-S, see Dwg. No. 58899A.

For Section D-D, see Dwg. No. 58892.



TYPICAL ANCHOR BOLT LAYOUT
No Scale

Note:
For Details of Anchor Bolt & 1" plates, see Dwg. No. 58898.

STATE OF ARKANSAS
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No.14501
STEPHEN F. HARPER

9/23/16
BRIDGE ENGINEER
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SHEET 1 OF 3

END BENT DETAILS
TEN MILE CREEK WEST
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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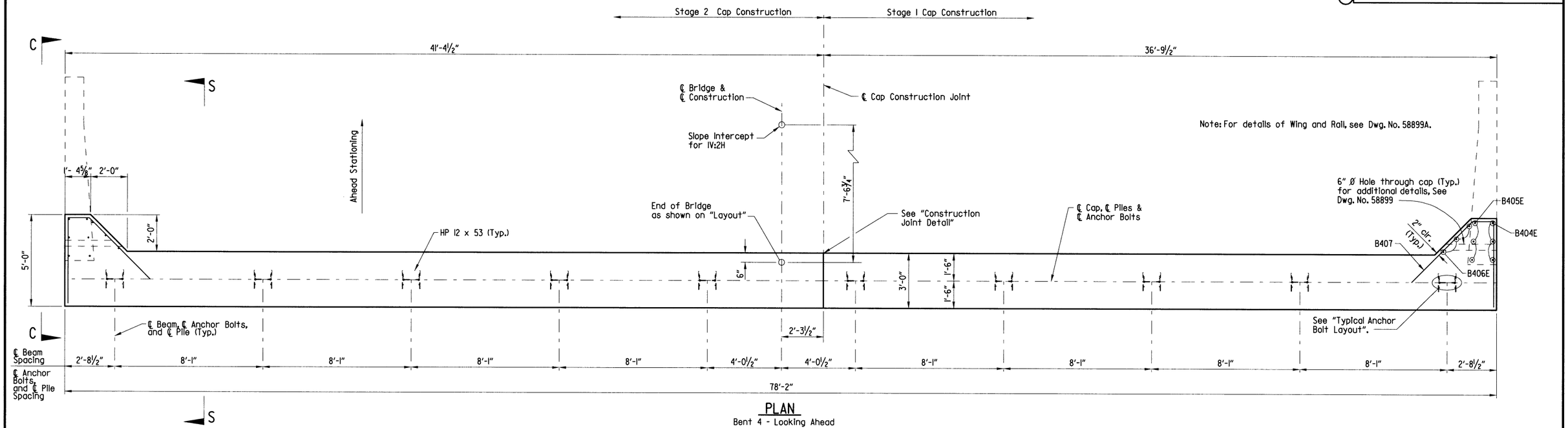
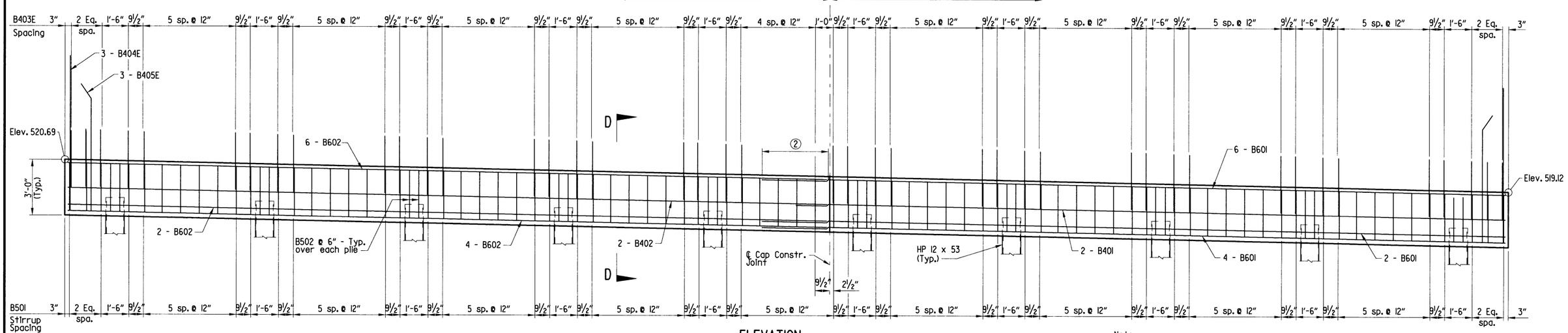
					6	ARK.			
					JOB NO.		CA0610	386	888
					(1)	07398 - END BENT DETAILS - 58891			

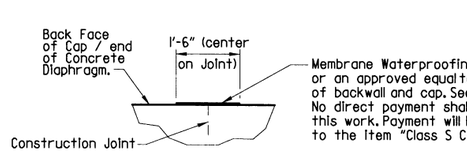
NOTE:
Class I Protective Surface Treatment shall be applied to the Roadway surface, and to the Roadway Face & Top of the Concrete Parapet Rails.



PLAN
Bent 4 - Looking Ahead
⅜"=1'-0"



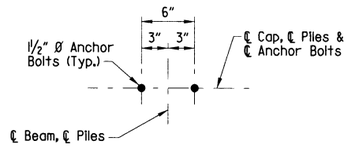
ELEVATION
Bent 4 - Looking Ahead
⅜"=1'-0"



CONSTRUCTION JOINT DETAIL
No Scale

Note:
For View C-C and View S-S, see Dwg. No. 58899A.

For Sections D-D, see Dwg. No. 58892.



TYPICAL ANCHOR BOLT LAYOUT
No Scale

Note:
For Details of Anchor Bolt & 1" plates, see Dwg. No. 58898.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

9/23/16
BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 2 OF 3
END BENT DETAILS
TEN MILE CREEK WEST
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	WEG	DATE:	04/16
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DESIGNED BY:	SFH	DATE:	04/16
BRIDGE NO. 07398			

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DATE	DATE FILMED	DATE REVISED	DATE FILMED

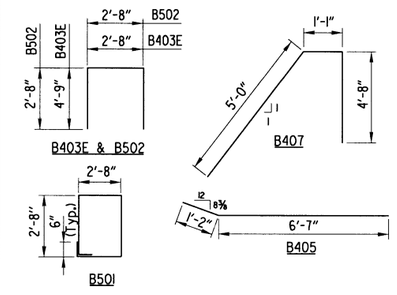
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	387	888

(1) 07398 - END BENT DETAILS - 58892

BAR LIST-PER BENT

MARK	NO. REQ'D.	LENGTH	PIN DIA.
B401	2	39'-3"	Str.
B402	2	41'-1"	Str.
B403E	78	12'-0"	2"
B404E	6	8'-11"	Str.
B405E	6	7'-9"	2"
B406E	6	4'-11"	Str.
B407	8	10'-7"	2"
B501	78	11'-2"	2½"
B502	20	7'-9½"	2½"
B601	12	40'-5"	Str.
B602	12	41'-1"	Str.

BENDING DIAGRAMS
Dimensions are out to out of bars.



Note: All bars designated with an "E" suffix are to be epoxy coated

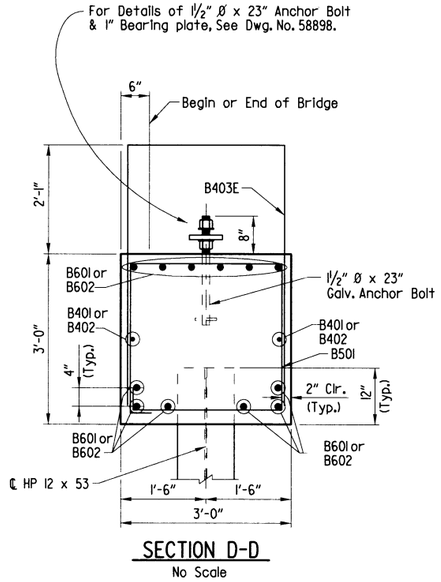
GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M322, Type A with Mill Test Reports, Grade 60 (yield strength = 60,000 psi.).

For additional information, see Layout.

Granular backfill & pipe underdrain required behind end bent cap. See Dwg. No. 58899.



SECTION D-D
No Scale

SHEET 3 OF 3

END BENT DETAILS
TEN MILE CREEK WEST
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16
BRIDGE ENGINEER
PRINT DATE: 9/23/2016

DRAWN BY:	WEG	DATE:	04/16	FILENAME: bCA0610x2_ax3.dgn
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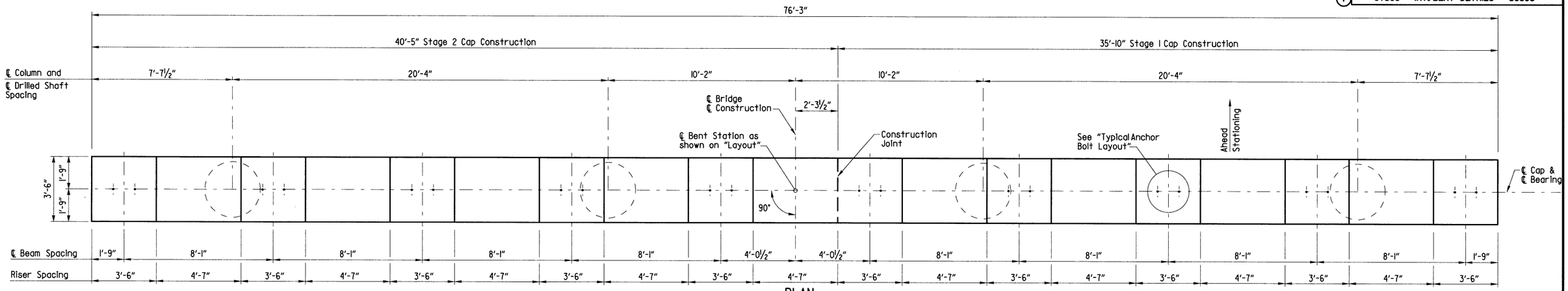
REVISED DATE:

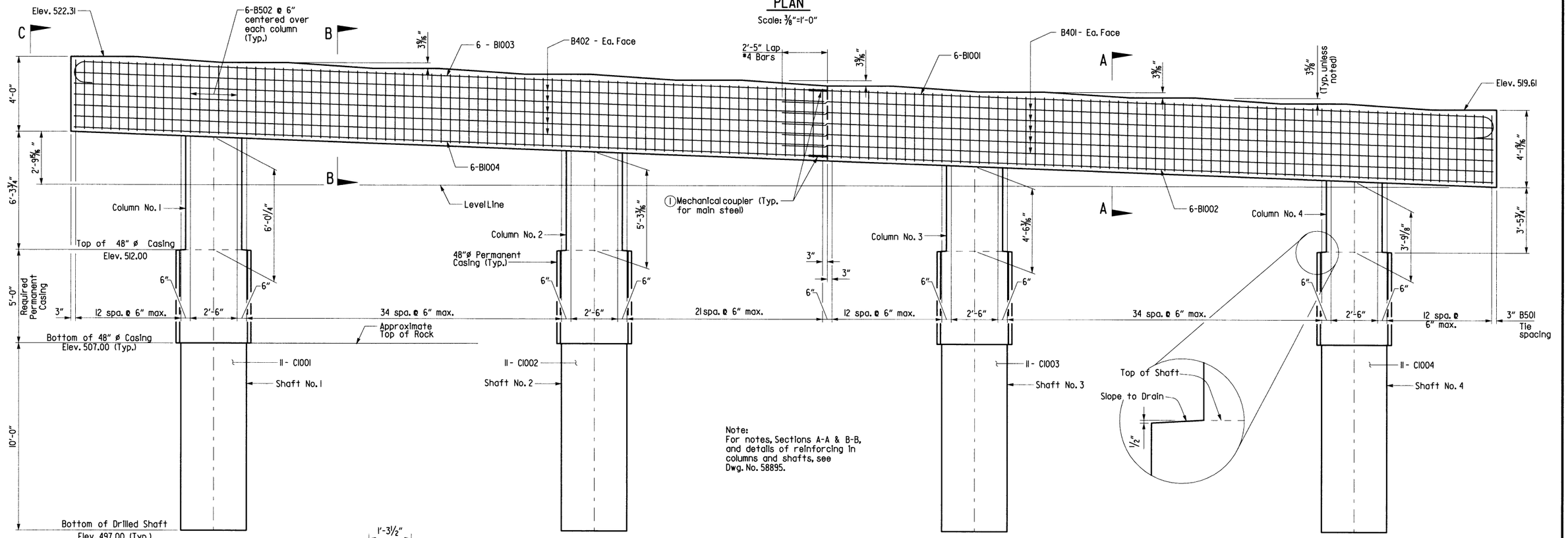
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	388	888

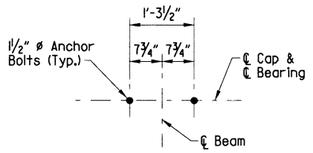
(1) 07398 - INT. BENT DETAILS - 58893



PLAN
Scale: 3/8"=1'-0"



Note:
For notes, Sections A-A & B-B, and details of reinforcing in columns and shafts, see Dwg. No. 58895.



TYPICAL ANCHOR BOLT LAYOUT
No Scale
Note: For additional Anchor Bolt Details, See Dwg. No. 58898.

ELEVATION
Bent 2 - Looking Forward
Scale: 3/8"=1'-0"

(1) The mechanical rebar splices shall be an approved type in accordance with the AHTD Qualified Products List (QPL) and shall maintain clearances shown.

The cost of mechanical rebar splices shall not be measured for separate payment but shall be considered subsidiary to the item "Reinforcing Steel- Bridge (Grade 60)". Mechanical splices shall develop at least 125% of the specified yield strength of the reinforcing steel.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 1 OF 3
DETAILS OF INTERMEDIATE BENTS 2 AND 3
TEN MILE CREEK WEST
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LAS DATE: 06/16 FILENAME: bCA0610x2_bxl.dgn
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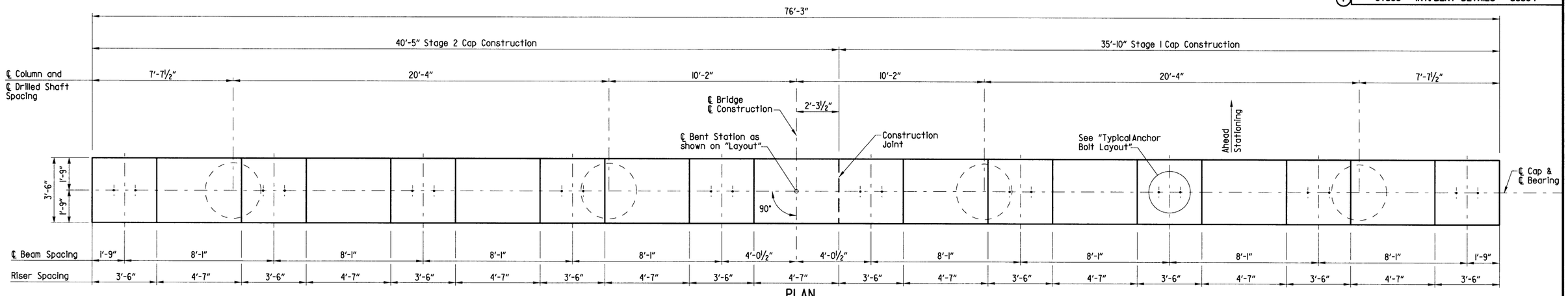
REVISED DATE:

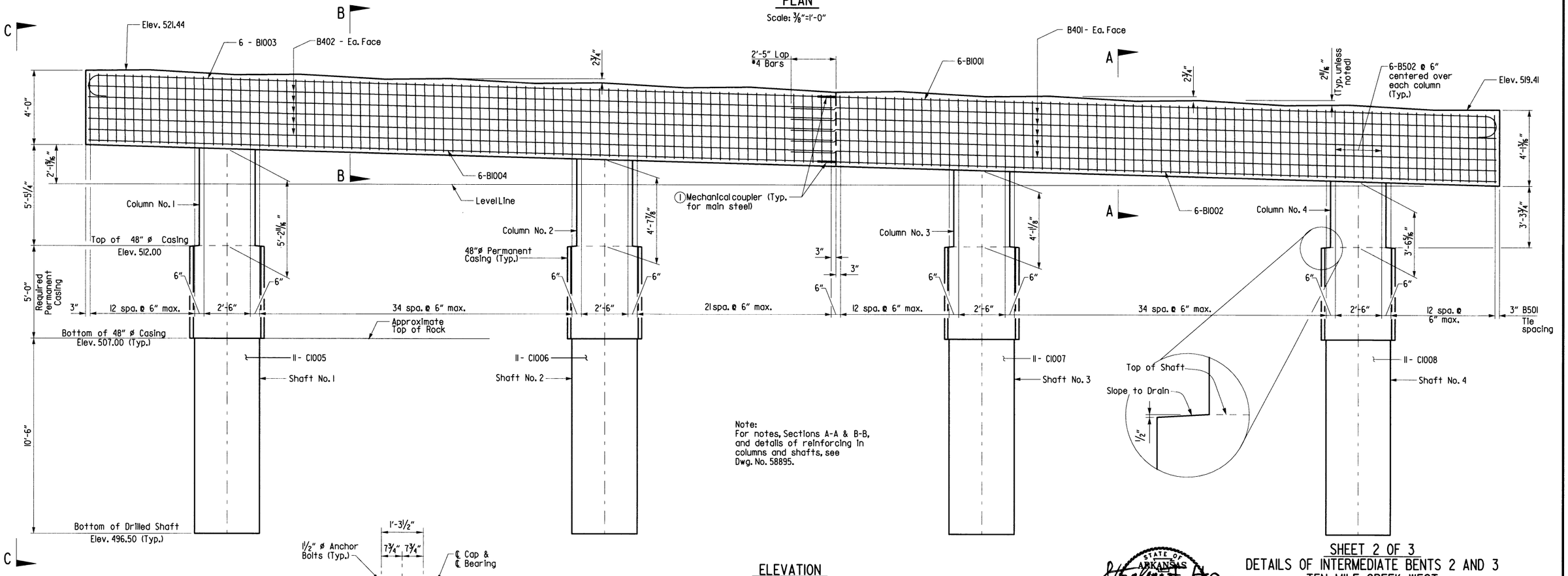
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	389	888

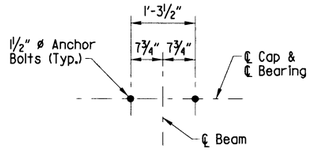
(1) 07398 - INT. BENT DETAILS - 58894



PLAN
Scale: ⅜"=1'-0"



Note:
For notes, Sections A-A & B-B, and details of reinforcing in columns and shafts, see Dwg. No. 58895.



TYPICAL ANCHOR BOLT LAYOUT
No Scale
Note: For additional Anchor Bolt Details, See Dwg. No. 58898.

ELEVATION
Bent 3 - Looking Forward
Scale: ⅜"=1'-0"

(1) The mechanical rebar splices shall be an approved type in accordance with the AHTD Qualified Products List (QPL) and shall maintain clearances shown.

The cost of mechanical rebar splices shall not be measured for separate payment but shall be considered subsidiary to the item "Reinforcing Steel- Bridge (Grade 60)". Mechanical splices shall develop at least 125% of the specified yield strength of the reinforcing steel.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

9/23/16
BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 2 OF 3
DETAILS OF INTERMEDIATE BENTS 2 AND 3
TEN MILE CREEK WEST
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LAS DATE: 06/16 FILENAME: bCA0610x2_bx2.dgn
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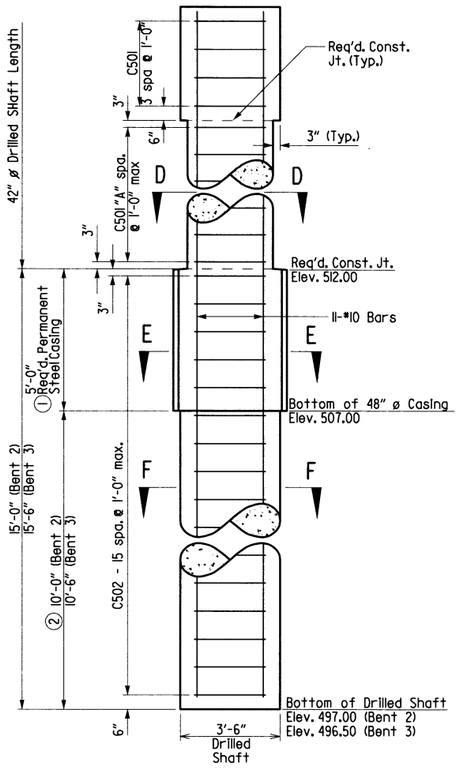
REVISED DATE:

Michael Baker INTERNATIONAL

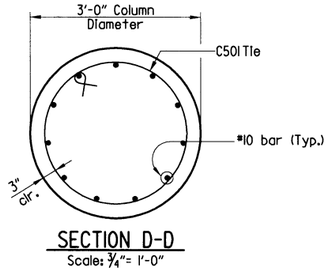
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	390	888

(1) 07398 - INT. BENT DETAILS - 58895



VIEW C-C
Scale: 3/8"= 1'-0"



SECTION D-D
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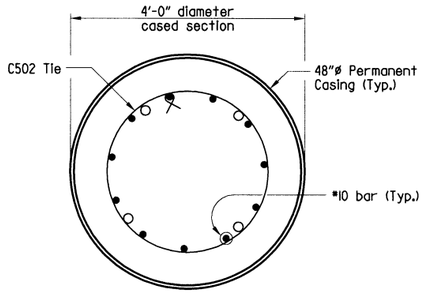

SECTION E-E
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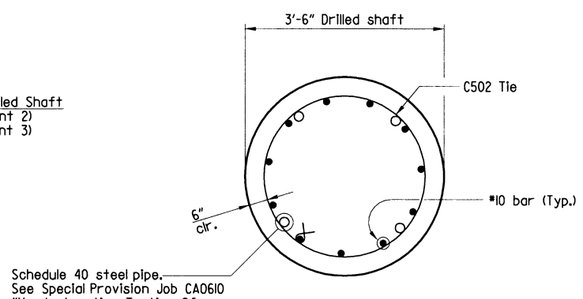
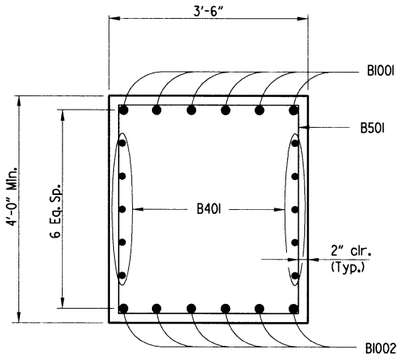
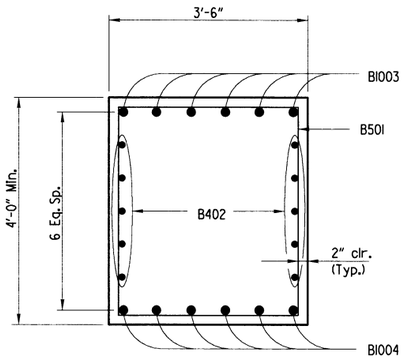


SECTION F-F
Scale: 3/4"= 1'-0"



SECTION A-A
Scale: 3/4"= 1'-0"



SECTION B-B
Scale: 3/4"= 1'-0"

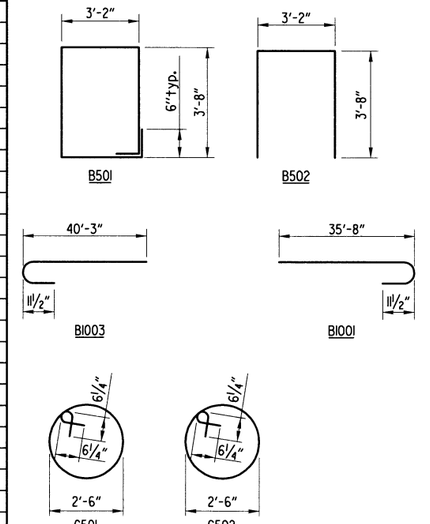
BAR LIST - PER BENT

	MARK	NO. REQ'D.	LENGTH	P.D.
	B401	10	38'-1"	Str.
	B402	10	40'-3"	Str.
	B501	131	14'-2"	2½"
	B502	24	10'-4"	2½"
(4)	B1001	6	37'-1"	10"
(4)	B1002	6	35'-8"	Str.
(4)	B1003	6	41'-8"	10"
(4)	B1004	6	40'-3"	Str.
	C501	"B"	9'-3"	3¾"
(3)	C502	64	9'-3"	3¾"
(3)	C1001	11	24'-7"	Str.
(3)	C1002	11	23'-10"	Str.
(3)	C1003	11	23'-1"	Str.
(3)	C1004	11	22'-4"	Str.
(3)	C1005	11	24'-3"	Str.
(3)	C1006	11	23'-8"	Str.
(3)	C1007	11	23'-2"	Str.
(3)	C1008	11	22'-7"	Str.

Bent 2
Bent 3

BENDING DIAGRAMS

Dimensions are out to out of bars.



(3) Non-Pay Item - Subsidary to Pay Item "Drilled Shaft (42" Dia.)".

(4) Lengths shown are from end of bar to the required construction joint. Individual lengths shall be determined in the field based on the type of mechanical rebar splice used.

GENERAL NOTES

Concrete in the cap and column shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi., and shall be poured in the dry. Concrete in the drilled shaft shall be Class S as modified by SP Job No. CA0610 "Drilled Shaft Foundations". All exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi.) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Top reinforcing bars shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information see layout.

Drilled shafts shall conform to SP Job No. CA0610 "Drilled Shaft Foundations".

(1) Length of Permanent Casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. CA0610 "Drilled Shaft Foundations". Permanent casing shall not extend below top of competent rock without approval from the Engineer.

(2) Minimum penetration into competent rock below permanent casing.

TABLE OF VARIABLES

	"A"				"B"
	Col. No. 1	Col. No. 2	Col. No. 3	Col. No. 4	
Bent 2	6	6	5	4	41
Bent 3	5	5	4	4	38

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

9/23/16
BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 3 OF 3

DETAILS OF INTERMEDIATE BENTS 2 AND 3

TEN MILE CREEK WEST
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LAS DATE: 06/16 FILENAME: bCA0610x2_bx3.dgn
CHECKED BY: SFH DATE: 06/16
DESIGNED BY: SFH DATE: 06/16 SCALE: As Shown
BRIDGE NO. 07398 DRAWING NO. 58895

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REVISED DATE:

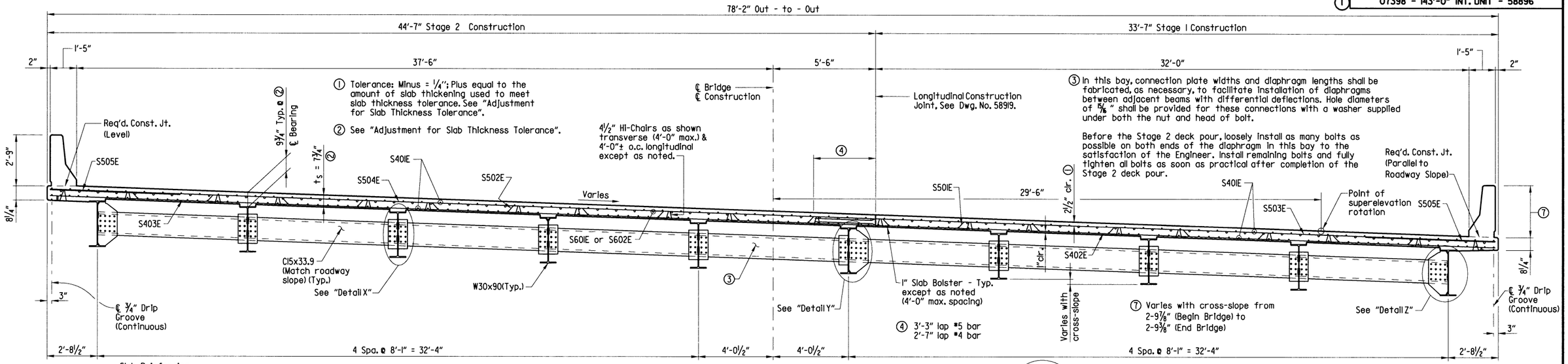
Note: At the Contractors option, in lieu of providing bars S501E or S502E, one epoxy coated #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S501E and S502E. Bars in top and bottom shall be epoxy coated.

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	391	888

(1) 07398 - 143'-0" INT. UNIT - 58896



① Tolerance: Minus = ¼"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".

② See "Adjustment for Slab Thickness Tolerance".

③ In this bay, connection plate widths and diaphragm lengths shall be fabricated, as necessary, to facilitate installation of diaphragms between adjacent beams with differential deflections. Hole diameters of ⅝" shall be provided for these connections with a washer supplied under both the nut and head of bolt.

Before the Stage 2 deck pour, loosely install as many bolts as possible on both ends of the diaphragm in this bay to the satisfaction of the Engineer. Install remaining bolts and fully tighten all bolts as soon as practical after completion of the Stage 2 deck pour.

④ 3'-3" lap #5 bar
2'-7" lap #4 bar

⑦ Varies with cross-slope from 2-9⅞" (Begin Bridge) to 2-9⅜" (End Bridge)

TYPICAL ROADWAY SECTION

(Looking Forward)
⅜" = 1'-0"

Slab Reinforcing

Transverse: S501E @ 12" o.c. bent up over beams and lapped with opposite S502E
S402E @ 12" o.c. in bottom and lapped with opposite S403E — Alternate
S503E @ 12" o.c. in top and lapped with opposite S504E
S505E @ 6" o.c. under each parapet bundled w/ #5 in top @ both gutterlines

Longitudinal: S401E placed as shown in top and bottom
S601E placed as shown over Int. supports
S602E placed as shown at end bents

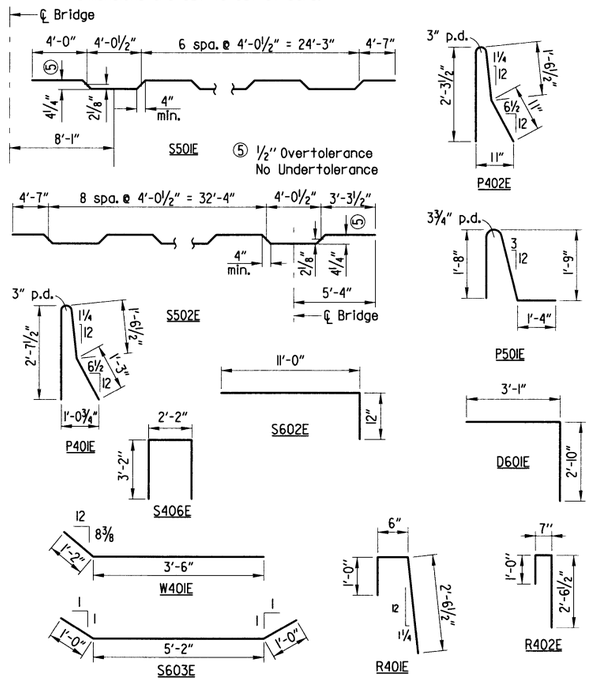
Note: All bars designated with an "E" suffix are to be epoxy coated

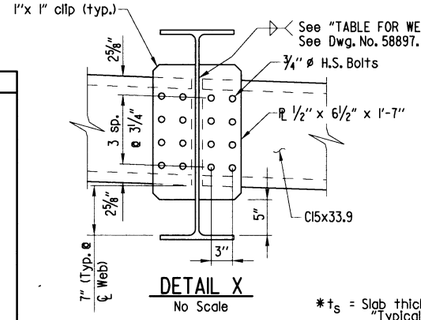
BAR LIST

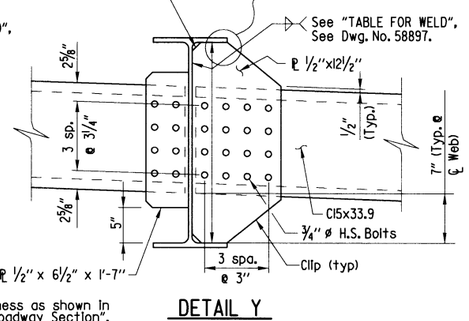
MARK	NO. REQ'D.	LENGTH	P.D.
D601E	144	5'-9"	4½"
S401E	860	38'-0"	Str.
S402E	144	36'-3"	Str.
S403E	144	44'-4"	Str.
S404E	6	39'-5"	Str.
S405E	6	41'-1"	Str.
S406E	156	8'-4"	2"
S501E	143	37'-9"	3"
S502E	143	45'-4"	3"
S503E	144	36'-10"	Str.
S504E	144	44'-4"	Str.
S505E	574	7'-0"	Str.
S601E	156	33'-0"	Str.
S602E	156	11'-10"	4½"
S603E	12	7'-2"	4½"
P401E	544	5'-6"	3"
P402E	32	4'-10"	3"
P403E	72	5'-6"	Str.
P404E	56	9'-8"	Str.
P405E	28	14'-8"	Str.
P406E	28	10'-2"	Str.
P407E	28	11'-2"	Str.
P408E	28	14'-8"	Str.
P501E	544	4'-10"	3¾"
R401E	16	3'-11"	2"
R402E	16	4'-0"	2"
R403E	24	9'-8"	Str.
R404E	24	3'-10"	Str.
R601E	32	5'-11"	Str.
R602E	12	5'-0"	Str.
W401E	20	4'-8"	2"
W402E	20	5'-11"	Str.
W701E	40	12'-2"	Str.

BENDING DIAGRAMS

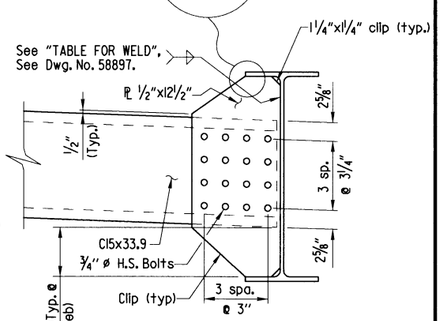
Dimensions are out to out of bars.

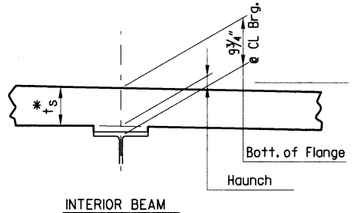


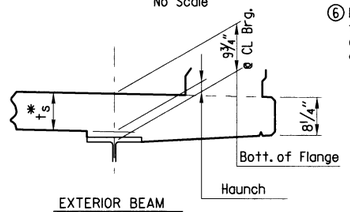




Note: Stop welds ¼" to 1" from clip







*ts = Slab thickness as shown in "Typical Roadway Section".

⑥ If permanent steel bridge deck forms are used, the fabricator shall clip plates as necessary to accomodate the deck form supports.

Note:
Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

NOTES:
Haunch dimension may very within the following limits to maintain the grade and slab thickness tolerance; Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1¾". No increase in concrete and structural steel quantities will be made to maintain tolerances.

Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 1 OF 7

DETAILS OF 143'-0" INTEGRAL W-BEAM UNIT TEN MILE CREEK WEST

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	WEG	DATE:	04/16
CHECKED BY:	SFH	DATE:	05/16
DESIGNED BY:	SFH	DATE:	04/16

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SCALE: ⅜" = 1'-0"
BRIDGE NO. 07398
DRAWING NO. 58896

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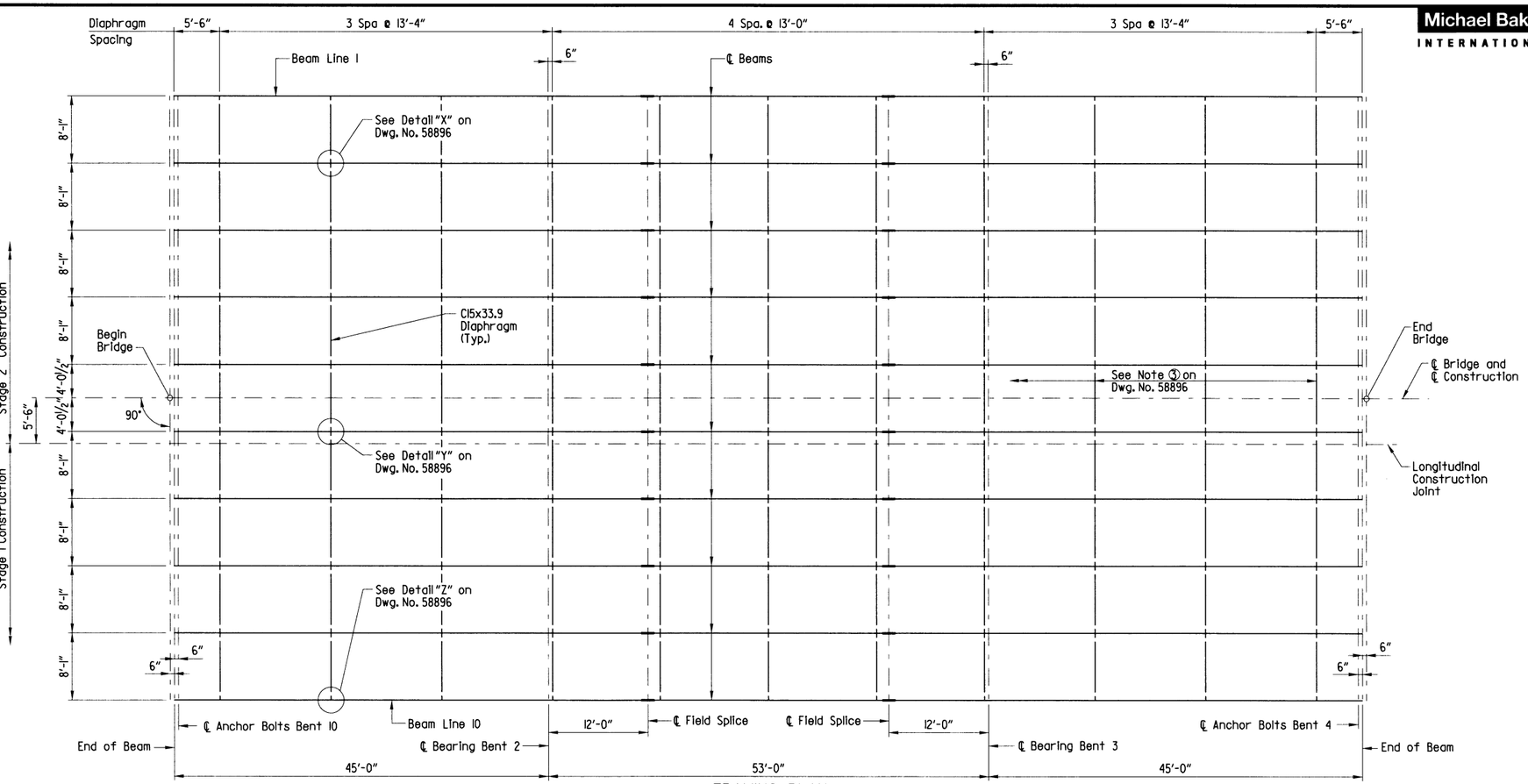
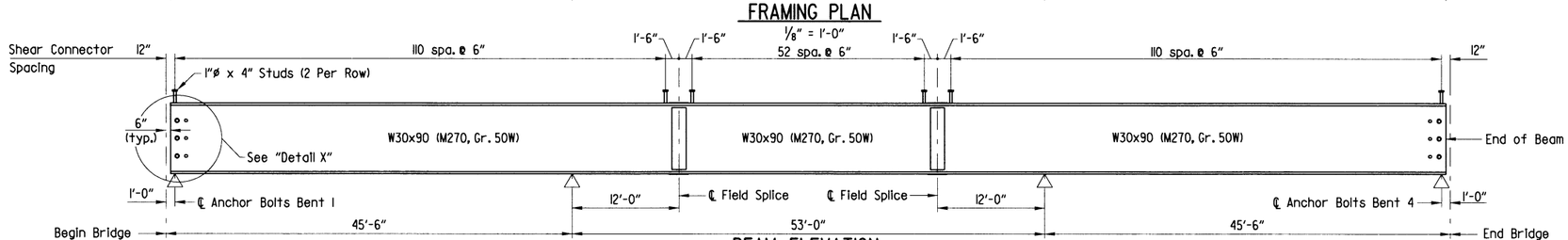
REVISED DATE:



FRAMING PLAN



BEAM ELEVATION

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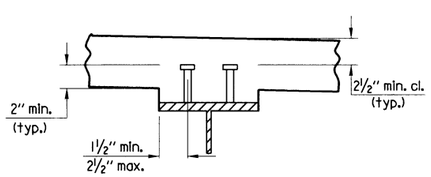
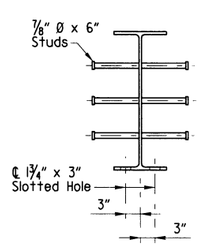


Stud Shear Connectors shown shall be 1"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

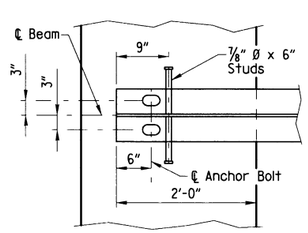
SHEAR CONNECTOR DETAIL

No Scale



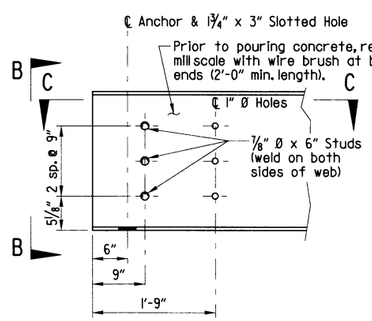
VIEW B-B

No Scale



SECTION C-C

No Scale



DETAIL X

No Scale

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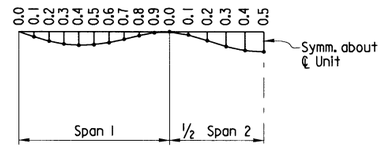
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	392	888
				(1) 07398 - 143'-0" INT. UNIT - 58897				

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel	Structural Steel + Slab	Structural Steel + Slab + Parapet
1	0	0.000	0.000	0.000
	0.1	0.016	0.116	0.127
	0.2	0.029	0.213	0.234
	0.3	0.039	0.281	0.308
	0.4	0.043	0.311	0.341
	0.5	0.041	0.301	0.330
	0.6	0.035	0.258	0.282
	0.7	0.026	0.188	0.206
	0.8	0.015	0.107	0.117
	0.9	0.005	0.036	0.039
2	0	0.000	0.000	0.000
	0.1	0.004	0.029	0.032
	0.2	0.014	0.103	0.113
	0.3	0.025	0.183	0.201
	0.4	0.033	0.243	0.266
	0.5	0.036	0.264	0.289

℄ Unit

Note: This Table is symmetrical about the ℄ of the Unit.



DEAD LOAD DEFLECTION DIAGRAM

Note:
Camber for Dead Load Deflection plus Vertical curve ± ¼" tolerances. Deflections shown are a chord from ℄ Bearing to ℄ Bearing. Vertical curve corrections not included. Negative sign (-) indicates point above chord.

TABLE FOR WELD

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	5/16"	

NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

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SHEET 2 OF 7

DETAILS OF 143'-0" INTEGRAL W-BEAM UNIT TEN MILE CREEK WEST

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY: WEG DATE: 04/16
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DESIGNED BY: SFH DATE: 04/16
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BRIDGE NO. 07398
DRAWING NO. 58897

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				JOB NO.		CA0610	393	888
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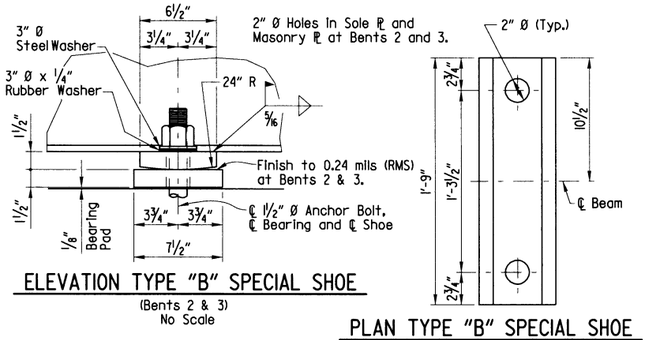
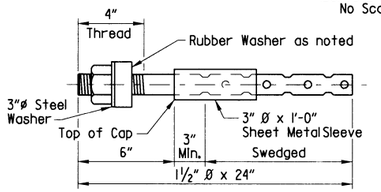


ELEVATION TYPE "B" SPECIAL SHOE

(Bents 2 & 3)
No Scale

PLAN TYPE "B" SPECIAL SHOE

(Bents 2 & 3)
No Scale



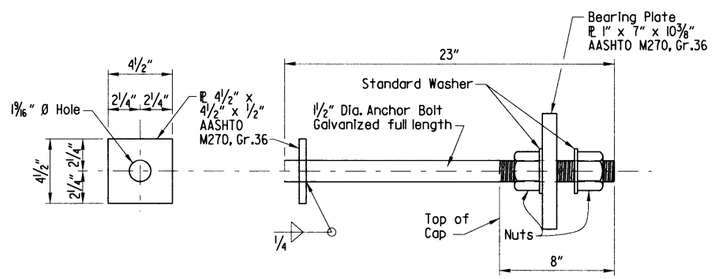
Note:
Plates for Type "B" Special Shoes shall be AASHTO Gr. 50W

Anchor Bolts, Nuts and Washers to be according to Subsection 807.07. Indentations shall be circular with rounded bottoms and staggered as shown above. Rubber washer shall be closed cell expanded rubber, meeting the requirements of ASTM D1056 - 85 2B2 E2, and shall be considered subsidiary to the item of "Structural Steel In Beam Spans (M270, Gr.50W)". Anchor Bolts, Nuts and Washers shall be paid for at the unit price bid for "Structural Steel In Beam Spans (M270, Gr.50W)". Anchor Bolts shall be Grade 55.

Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required. If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into masonry. Bolts placed in drilled holes shall be set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel In Beam Spans (M270, Gr.50W)".

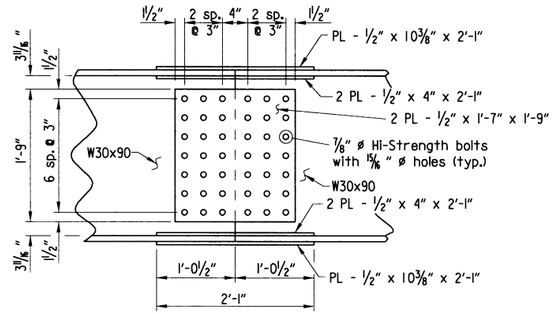
ANCHOR BOLT DETAIL FOR INTERMEDIATE BENTS

(Bents 2 & 3)
No Scale



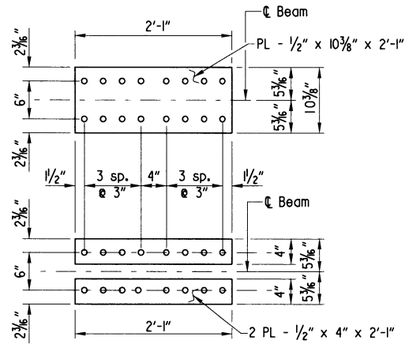
ANCHOR BOLT DETAIL FOR END BENTS

(Bents 1 & 4)
No Scale



DETAIL OF BOLTED FIELD SPLICES

1" = 1'-0"



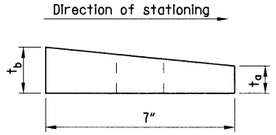
TYP. FLANGE SPLICE DETAIL

1" = 1'-0"

Note:
Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.

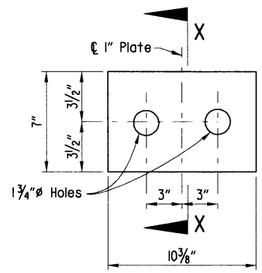
All field splice bolts shall be ⅞" ø HI-strength bolts.
All holes for splice bolts shall be 15/16 " ø .
All field splice plates shall be AASHTO M270 Gr. 50W steel.

Direction of stationing



SECTION X-X

No Scale



BEARING PLATE DETAIL

No Scale

Anchor bolts shall comply with AASHTO M314, Grade 55, with Supplementary Requirement S1, and galvanized according to subsection 807.07. Nuts for bolts shall be as specified in subsection 807.07. Plates, anchor bolts, nuts and washers shall be paid for at the unit price bid for "Structural Steel In Beam Spans (M270, Gr.50W)"

Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.

END BENT 1 AND 4 BEARING PLATE BEVELS

Beam Line	t_a	t_b
1	0.943"	1.057"
2	0.948"	1.052"
3	0.953"	1.047"
4	0.958"	1.042"
5	0.963"	1.037"
6	0.967"	1.033"
7	1.000"	1.000"
8	1.000"	1.000"
9	1.000"	1.000"
10	1.000"	1.000"

Note:
For beam locations, see "Framing Plan" on Dwg. No. 58897.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 3 OF 7

DETAILS OF
143'-0" INTEGRAL W-BEAM UNIT
TEN MILE CREEK WEST

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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DRAWING NO. 58898

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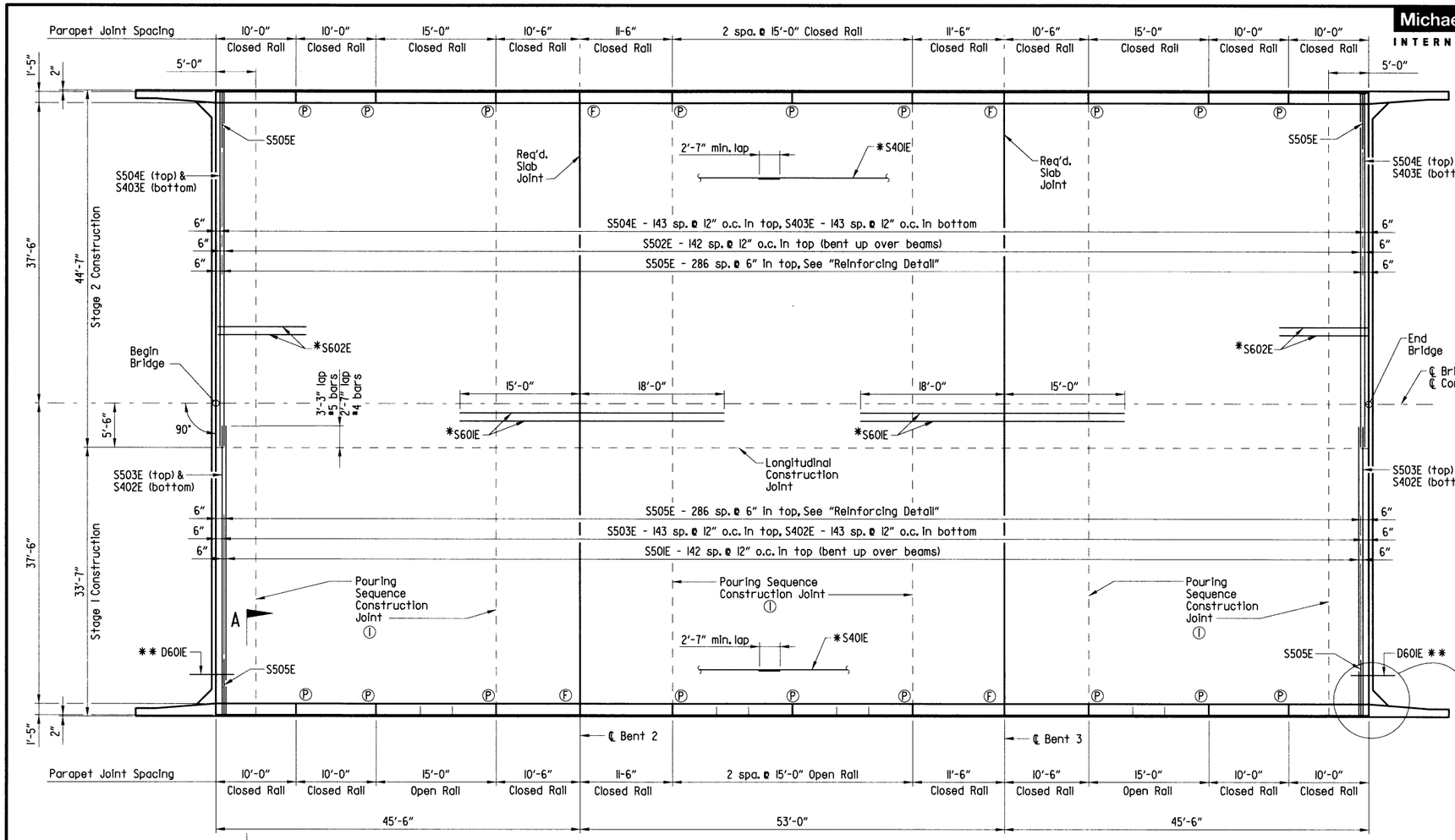
				JOB NO.		CA0610	394	888
				(1)	07398 - 143'-0" INT. UNIT - 58899			



REINFORCING PLAN

1/8"= 1'-0"

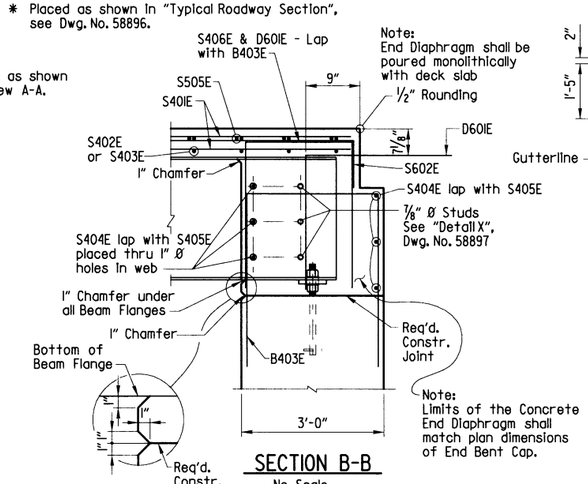
(P) Partial depth parapet joint at this location. (Stop 1'-2" above top of slab)

(F) Full depth parapet joint at this location. (Stop 4" above top of slab)

* Placed as shown in "Typical Roadway Section", see Dwg. No. 58896.

VIEW A-A

No Scale



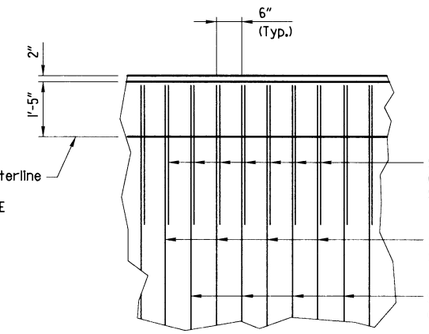
Note:
End Diaphragm shall be poured monolithically with deck slab

Note:
Limits of the Concrete End Diaphragm shall match plan dimensions of End Bent Cap.

SECTION B-B

No Scale

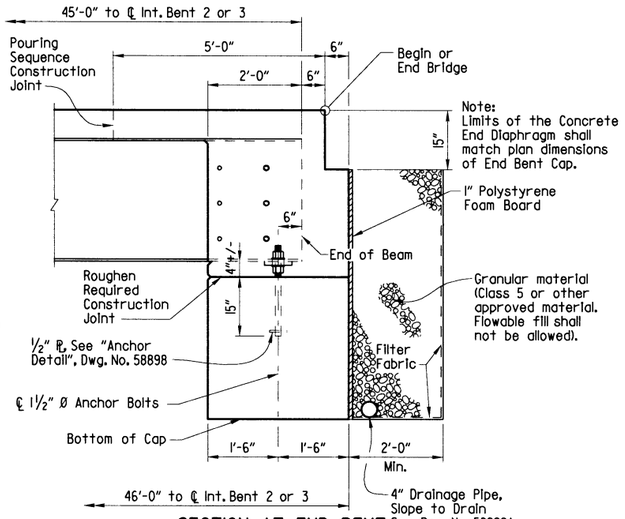
Note:
Construction joints are based on Alternate I Pouring Sequence. See Dwg. No. 58901.



REINFORCING DETAIL

No Scale

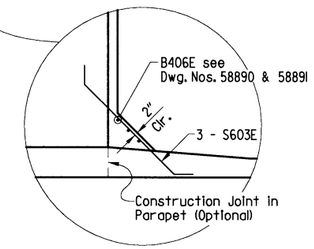
Note:
Rails and wings are included in span construction and are included in span quantities.



SECTION AT END BENT

No Scale

Note:
For additional details of pipe underdrain see Std. Dwg. PU-1 and Section 611. Pipe underdrains, outlet protectors, granular materials, drain pipe, filter fabric and polystrene foam board will not be measured or paid for separately, but will be considered subsidiary to the unit price bid for "Unclassified Excavation for Structures-Bridge".



(1) For Pouring Sequence Construction Joint Detail, See Dwg. No. 58919.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
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SHEET 4 OF 7
DETAILS OF
143'-0" INTEGRAL W-BEAM UNIT
TEN MILE CREEK WEST
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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DRAWING NO. 58899

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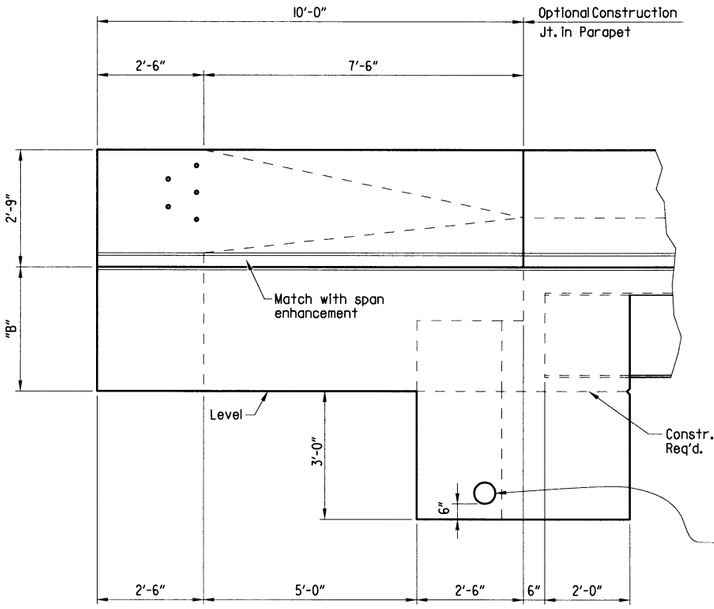
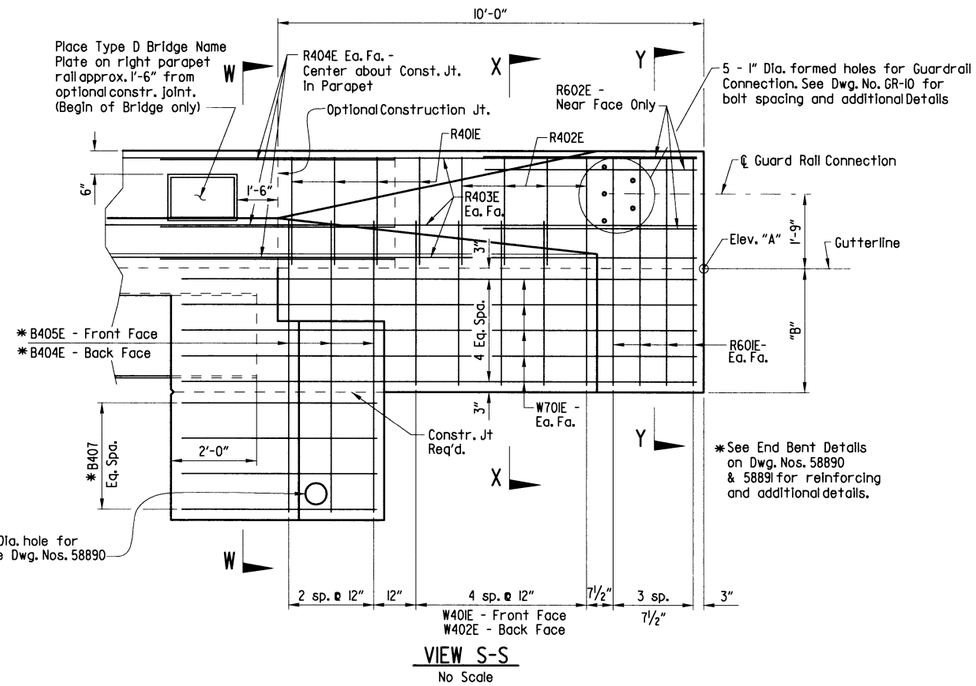
JOB NO.		CA0610	395	888

(1) 07398 - END BENT DETAILS - 58899A



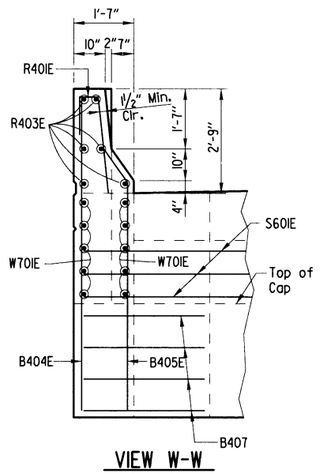
VIEW C-C
No Scale



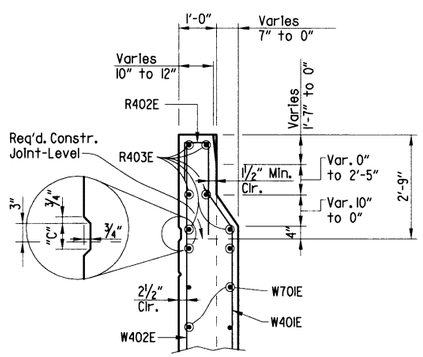
VIEW S-S
No Scale

TABLE OF VARIABLES

	Bent 1/L	Bent 1/R	Bent 4/L	Bent 4/R
Elev. "A"	526.75	523.25	524.02	522.78
"B"	3'-7 5/16"	3'-8 1/16"	3'-3 5/16"	3'-7 5/16"
"C"	3"	3 1/8"	3"	3 1/8"



VIEW W-W
No Scale



SECTION X-X
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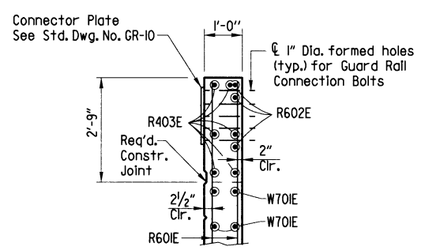

SECTION Y-Y
No Scale

SHEET 5 OF 7

DETAILS OF
143'-0" INTEGRAL W-BEAM UNIT
TEN MILE CREEK WEST
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

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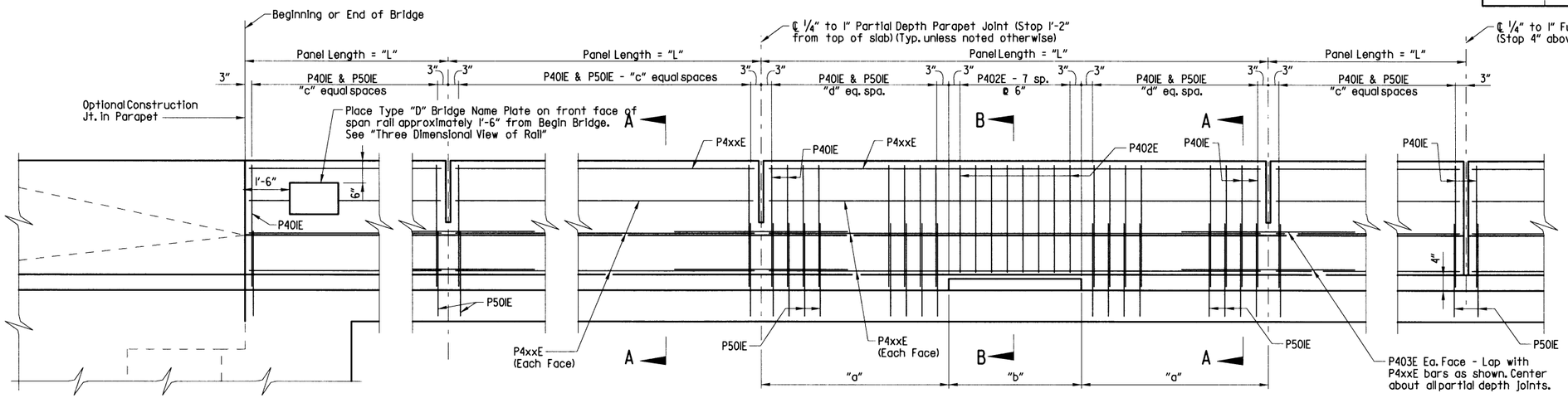
6	ARK.			
JOB NO.		CA0610	396	888

(1) 07398 - 143'-0" INT. UNIT - 58900



TYPICAL END PANEL | TYPICAL CLOSED PANEL PARAPET RAIL | TYPICAL OPEN PANEL PARAPET RAIL | TYPICAL FULL DEPTH JOINT

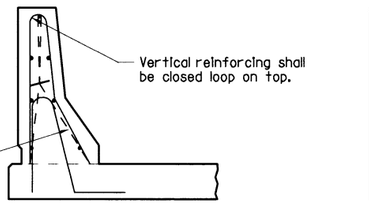
ELEVATION - CONCRETE PARAPET RAIL

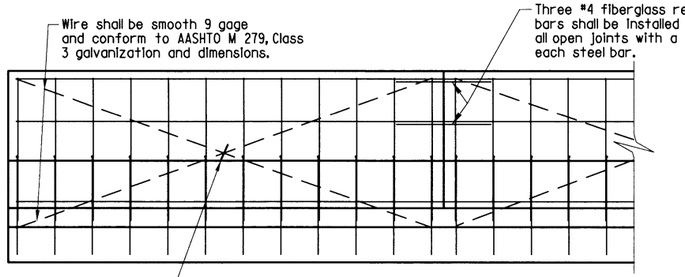
(As viewed from roadway side of Parapet)

PARAPET RAIL VARIABLES

Panel Length "L"	Panel Type	"a"	"b"	"c"	"d"	P4xxE Bars
10'-0"	closed	-----	-----	19	-----	P404E
15'-0"	closed	-----	-----	29	-----	P405E
10'-6"	closed	-----	-----	20	-----	P406E
11'-6"	closed	-----	-----	22	-----	P407E
15'-0"	open	5'-6"	4'-0"	-----	10	P408E

Note:
For location of full and partial depth parapet joints, see Dwg. No. 58899.

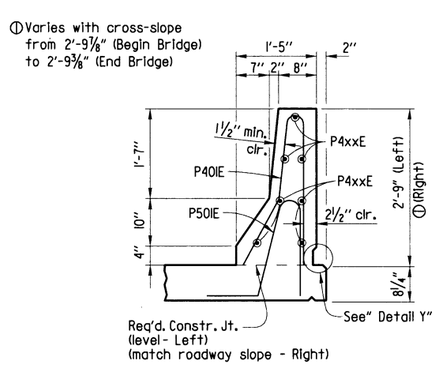




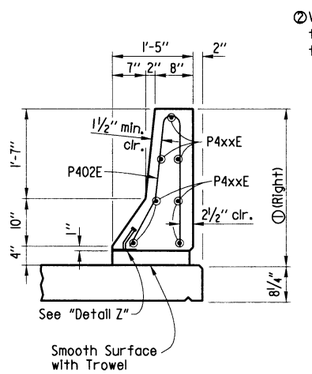
The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

All panels shall be braced as shown to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

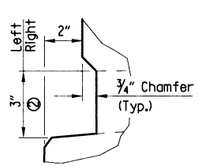
DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL



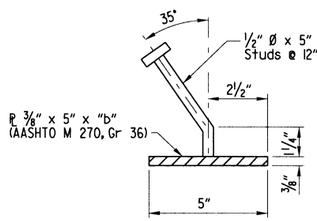
SECTION A-A



SECTION B-B

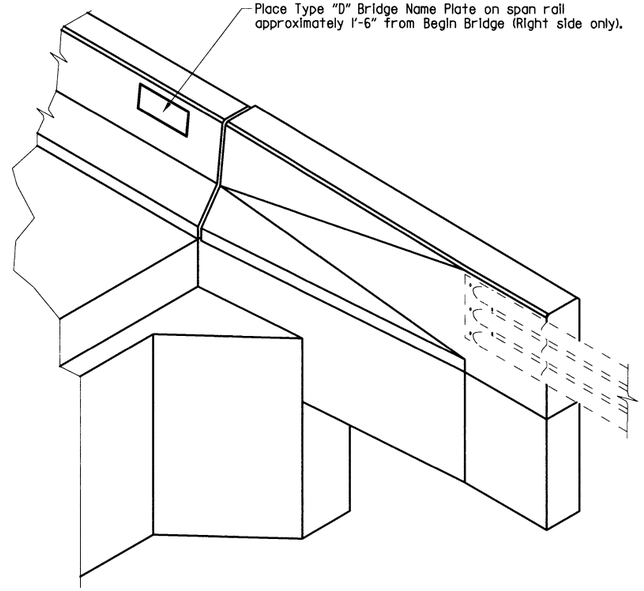


DETAIL Y



DETAIL Z

Note:
Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "Structural Steel In Beam Spans (M 270, Gr. 50W)".
The surfaces of the 3/8" plates which will not be in contact with concrete shall be painted in accordance with Section 638 or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidary to "Structural Steel In Beam Spans (M270, Gr 50W)"



THREE DIMENSIONAL VIEW OF RAIL & END BENT

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 6 OF 7
DETAILS OF 143'-0" INTEGRAL W-BEAM UNIT TEN MILE CREEK WEST
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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REVISED DATE:

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	397	888
				07398 - 143'-0" INT. UNIT - 58901				

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition.

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c = 4,000 psi
Reinforcing Steel (AASHTO M31 or M322, Type A, Gr. 60)	fy = 60,000 psi
Structural Steel (M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (M 270, Gr. 36)	Fy = 36,000 psi

CONCRETE:
Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted. All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Standard Drawing No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck forms are used.

Concrete in Bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The concrete deck shall be given a tine finish in accordance with the Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam or girder. When permitted, the use of a longitudinal strike-off will require that a vertical camber adjustment be made in the strike-off to account for the future dead-load deflection due to any railings, median barrier, and sidewalks.

REINFORCING STEEL:
All reinforcing steel shall conform to AASHTO M31 or M322, Type A, with mill test reports and shall be epoxy coated, Grade 60. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL:
All structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with Subsection 807.84. Structural steel completely embedded in concrete may be AASHTO M 270, Grade 36 unless otherwise noted.

Drawings show general features of design only. Shop Drawings shall be made in accordance with the specifications, submitted and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to he Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

Beams and field splice plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50W)".

All beams shall be assembled in the shop as specified in Section 807.54 and blocked in their true position with webs horizontal in groups as specified in Subsection 807.54(b)(2). The camber, length of sections, distance between bearings, and the openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Flange field splice plates for main members shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

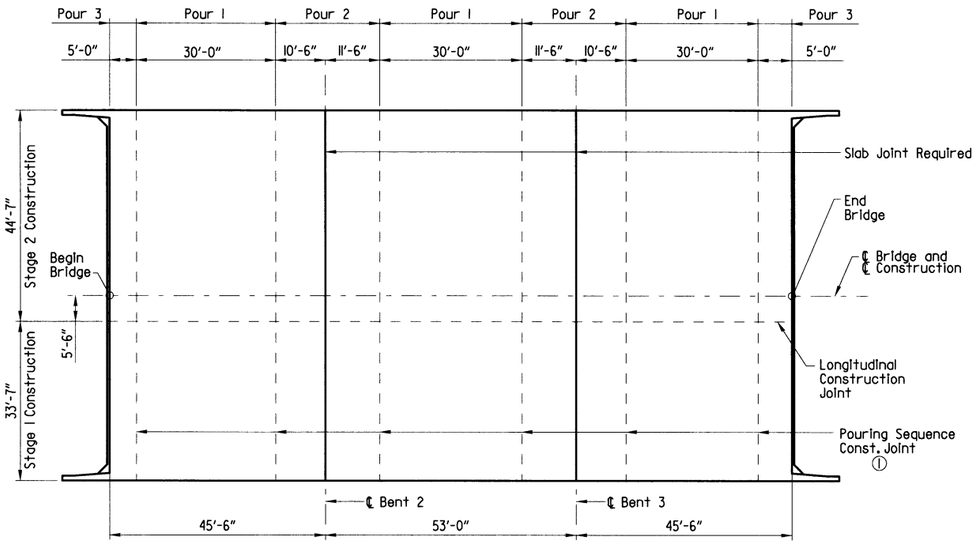
All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching false work support devices of screed rail supports to the structural steel that do not exceed the limitations of Subsection 802.13 will not require approval prior to construction. All welding shall conform to Subsection 807.26

Unless otherwise noted, field connections shall be bolted with ¾" ø high-strength bolts using 15/16" ø open holes. Holes for ¾" ø high-strength bolts may be 15/16" ø if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

Steel diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck unless otherwise noted.

All shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with recommendations of the Manufacturer.

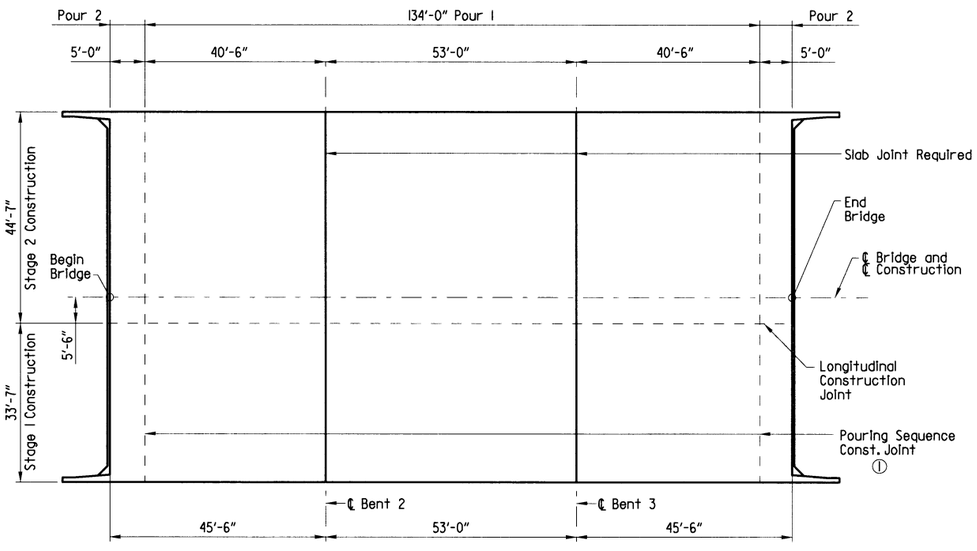
Bearings shall be seated in accordance with Section 807.66. This work and material will not be paid for directly but will be considered subsidiary to Item "Structural Steel in Beam Spans (M 270, Gr. 50W)



POURING SEQUENCE - ALTERNATE 1

No Scale

NOTE: For each stage of construction, pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. Pours (2) must be placed before Pours (3) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 72 hours shall elapse between completion of the deck and the pouring of the railing. Any railing pours made before the entire slab unit for each stage of construction has been placed must be approved by the Bridge Engineer. The contractor must obtain approval from the Bridge Engineer for any deviations from the pouring sequence.



POURING SEQUENCE - ALTERNATE 2

No Scale

NOTE: For each stage of construction, pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 72 hours shall elapse between completion of the deck and the pouring of the railing. Any railing pours made before the entire slab unit for each stage of construction has been placed must be approved by the Bridge Engineer. The contractor must obtain approval from the Bridge Engineer for any deviations from the pouring sequence.

① For Pouring Sequence Construction Joint Detail, See Dwg. No. 58919.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER ★★★ No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 7 OF 7
DETAILS OF 143'-0" INTEGRAL W-BEAM UNIT TEN MILE CREEK WEST

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

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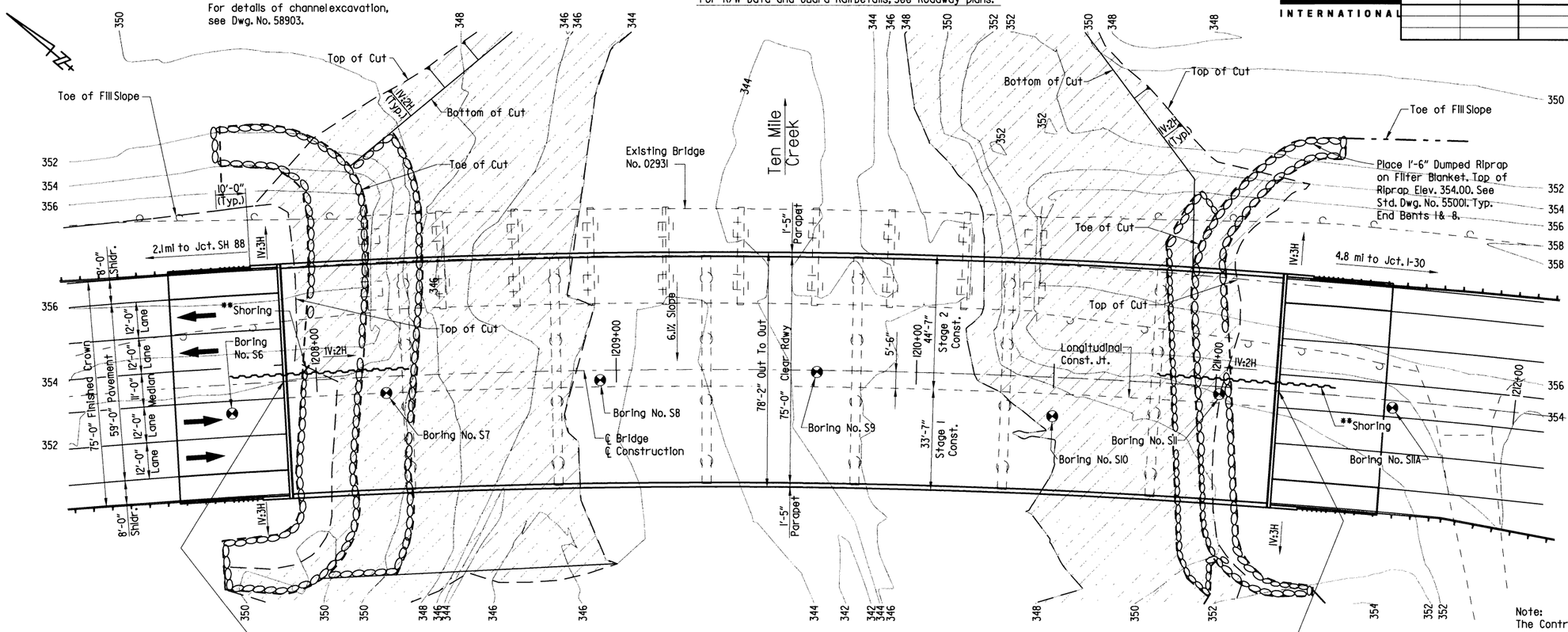
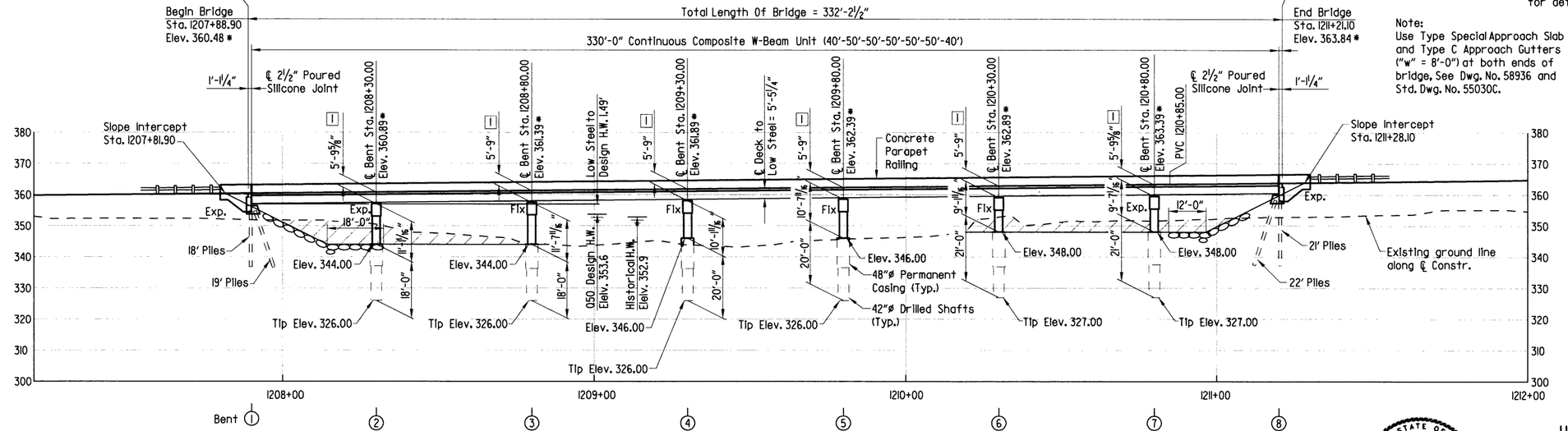
6	ARK.			
JOB NO.		CA0610	398	888
07366 - LAYOUT - 58902				

Note:
For details of channel excavation, see Dwg. No. 58903.

For R/W Data and Guard Rail Details, See Roadway plans.



PLAN



ELEVATION

[1] Dimensions are taken from Centerline Top of deck ℄ Centerline Bent to low Seat of cap.

HORIZONTAL CURVE DATA

℄ Hwy. 70
P.I. Sta. 1209+90.54
D = 2°15'00"
△ = 62°42'59" Rt.
L = 2787.40'
T = 1551.83'
P.C = 1194+38.71
P.T. = 1222+26.10
e = 6.1%
Ls = 540'

Note:
℄ Bridge is on a 2° 15' Curve right. Longitudinal lines shall be constructed on curves concentric w/℄ Bridge. Stations, elevations, and span lengths are shown along ℄ Bridge. ℄ Bents at the intermediate Bents and ℄ Joint at End Bents are on radial lines.

**Shoring may be required during construction. Payment for this work, if required, shall be considered subsidiary to the pay item "Unclassified Excavation for Structures - Bridge" or "Class S Concrete - Bridge". See SP Job No. CA0610 "Shoring".

Note:
The proposed bridge is positioned to avoid interference with the existing substructure. The Contractor shall verify the location of the existing substructure before constructing the new substructure. Any adjustments necessary to fit the proposed bridge shall be submitted to the Engineer for approval.

Note:
The Contractor shall remove the embankment at the existing bridge ends as shown using 1V:2H slopes. Cut to Elev. 344.00 at beginning of bridge and to Elev. 348.00 at end of bridge. See Dwg. No. 58903 for details.

Note:
Use Type Special Approach Slab and Type C Approach Gutters ("w" = 8'-0") at both ends of bridge, See Dwg. No. 58936 and Std. Dwg. No. 55030C.

Note:
*Elevations shown are actual elevations at top of deck along ℄ Bridge - See Cross-Slope Sketch, Dwg. No. 58903.

For Soil Borings, See Dwg. No. 58904.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 1 OF 3
LAYOUT OF BRIDGE OVER TEN MILE CREEK
HOT SPRINGS - I-30 (WIDENING) (S)
GARLAND AND SALINE COUNTIES
ROUTE 70 SECTION 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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GENERAL NOTES

BENCH MARK: Chiseled "X" in southwest wing of Bridge No. 02931, 17.5' + left of Station 1208+19+.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Construction Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: 2012 AASHTO LRFD Bridge Design Specifications, with current Interim Specifications.

LIVE LOADING: HL93
SEISMIC ZONE: 1 SDI = 0.128 Site Class = C

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M31 or M322, Type A, Gr, 60)	fy = 60,000 psi
Structural Steel (AASHTO M270, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M270, Gr. 50W)	Fy = 50,000 psi

BORING LOGS: Boring Logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: Piling in Bents 1 & 8 shall be HP 12x53 (Grade 50) and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 95 tons and into material designated as moderately hard to hard shale on the boring legend. Piles at Bents 1& 8 shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual lengths are to be determined in the field. The Contractor shall use approved steel H-pile driving points.

DRILLED SHAFTS: Foundations for intermediate bents shall consist of the Drilled Shafts. All Drilled Shafts shall be founded into moderately hard to hard shale and to the minimum rock penetrations and tip elevations shown in the plans. No adjustments in the Plan Tip Elevations shall be made without prior approval from the Engineer. Methods of construction of the drilled shafts shall be in accordance with SP Job No. CA0610 "Drilled Shaft Foundations". Any casing used as a means for construction of the drilled shafts, such as to prevent caving, to exclude groundwater, or provide shoring shall not extend below top of rock. the Contractor must obtain approval from the Engineer for any deviation from this requirement.

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed in accordance with SP Job No. CA0610 "Nondestructive Testing of Drilled Shafts".

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

EXISTING BRIDGE: Existing Bridge No. 02931 (log 2.27) is 33.5' wide and 225' long and consists of 9-25' concrete slab spans supported by 2-column concrete bents on spread footings. The centerline of the existing bridge is approximately 38' downstream from the proposed centerline of construction. Plans of the existing bridge can be obtained upon request from the Construction Contract Procurement Section of the Program Management Division.

REMOVAL AND SALVAGE: After the Stage 1 Construction of the new bridge is open to traffic, existing Bridge No. 02931 shall be removed in accordance with Section 205 of the Standard Specifications. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans

STAGED CONSTRUCTION: The proposed bridge will be built in stages in order to maintain traffic during construction. For staging details, see Dwg. Nos. 58905 and 58906.

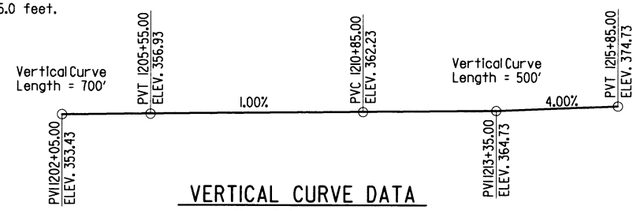
DETAIL DRAWINGS:	DRAWING NO(S).
End Bents	58907 - 58910
Intermediate Bents	58911 & 58912
Elastomeric Bearings	58913
330'-0" Continuous Composite W-Beam Unit	58914 - 58921
Type C Approach Gutters	55030C

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	*NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	8852	352.9	353.6
Base	100	10449	353.6	354.2
Extreme	500	14573	354.7	355.6
Overtopping	>500	>500	>500	>500

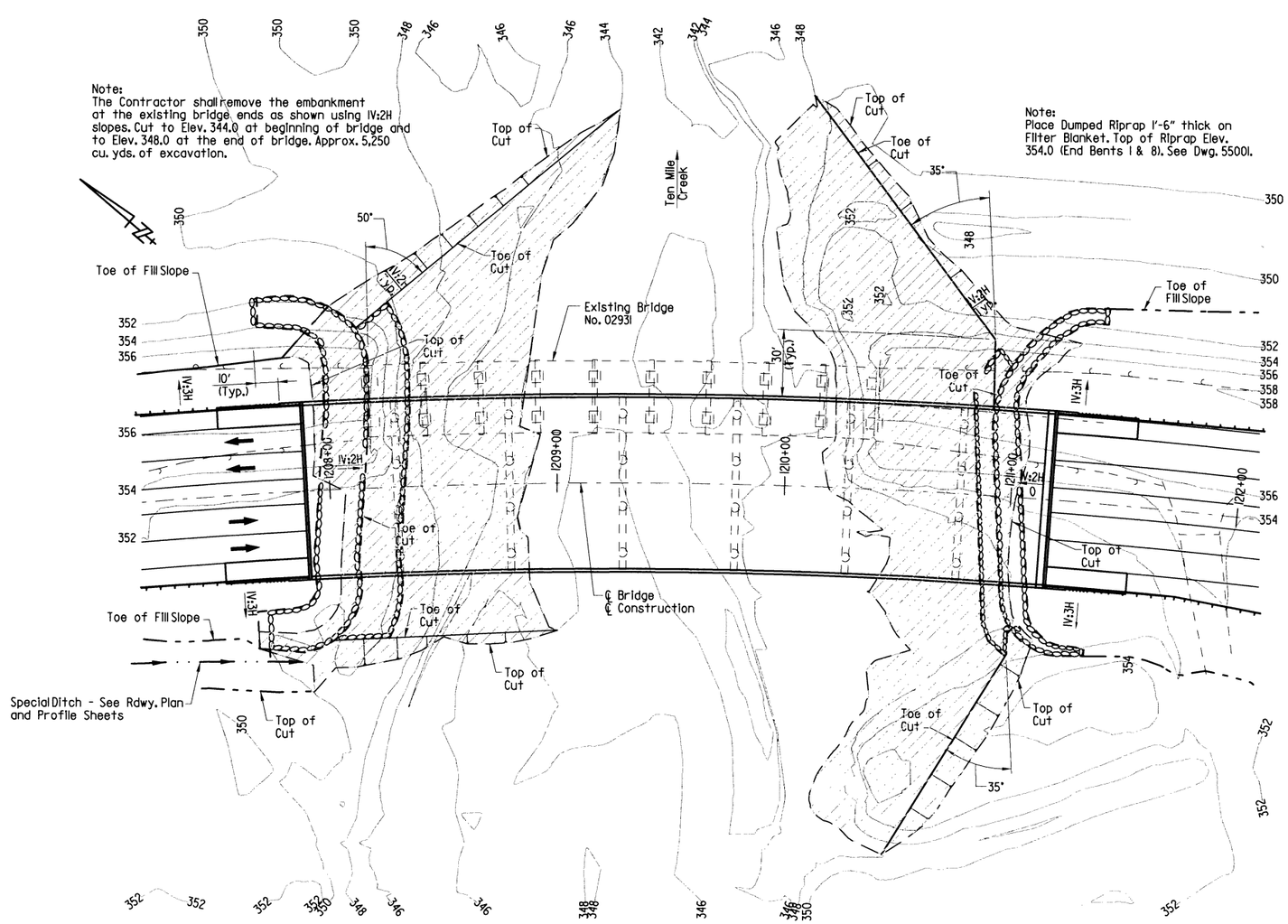
* Unconstricted water surface without structure or roadway approaches.

Q100 backwater elevation for existing structure = 354.50 feet.
Proposed Low Bridge Chord Elevation = 355.0 feet.
Drainage area = 21.9 square miles.
Historical H.W. Elev. = 352.9 ft.

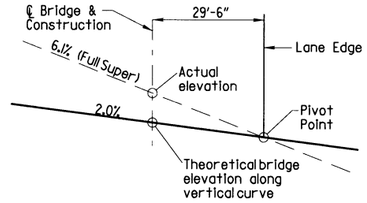


VERTICAL CURVE DATA

Along ℄ Construction
Theoretical Elevation along ℄ Construction & ℄ Bridge.



LOCATION SKETCH



CROSS-SLOPE SKETCH

Looking Ahead

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(1) 07366 - LAYOUT - 58903

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16
BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 2 OF 3
LAYOUT OF BRIDGE OVER TEN MILE CREEK
HOT SPRINGS - I-30 (WIDENING) (S)
GARLAND AND SALINE COUNTIES
ROUTE 70 SECTION 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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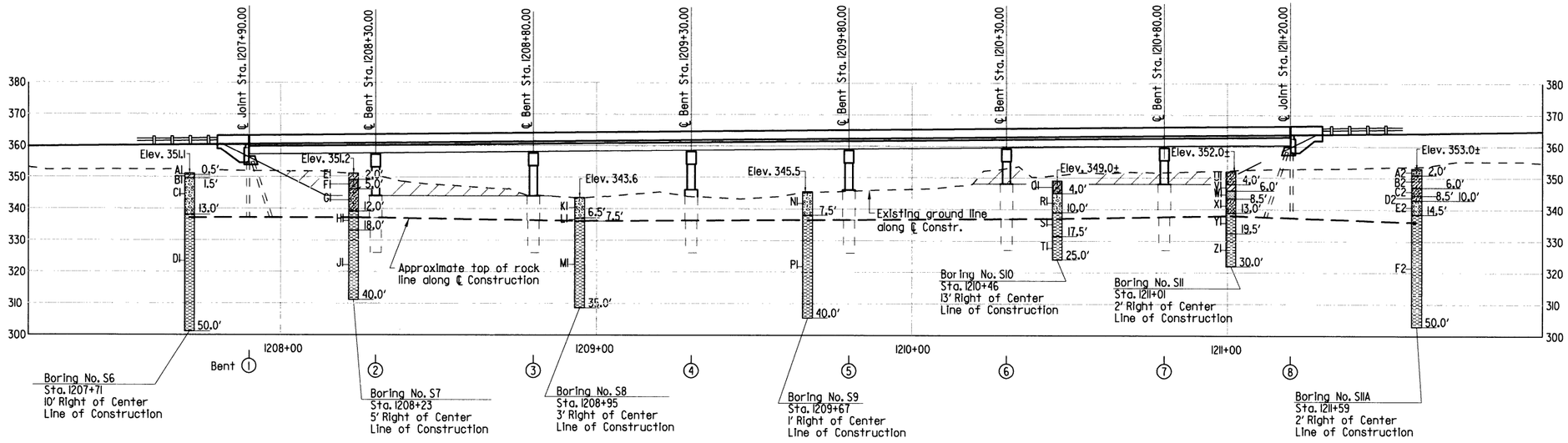

ELEVATION OF SOIL BORINGS

BORING LEGEND

A1- Soft brown clayey silt w/surface organics
B1- Very stiff brown fine sandy clay
C1- Medium dense brown sandy fine gravel, slightly clayey - with some coarse gravel at 8 to 10 ft
D1- Moderately hard dark gray shale - with completely weathered pockets to 14 ft - moderately hard to hard below 14ft
E1- Medium Dense Tan Clayey Fine to Coarse Gravel(fill)
F1- Stiff Tan and Brown Silty Clay with Shale Fragments and Fine to Coarse Gravel(fill)
G1- Medium Dense Brown Clayey fine to medium Sand with Fine to Coarse Gravel- Water at 6.5 Feet
H1- Moderately Hard Dark Gray Shale, Slightly Weathered with Some Quartz Veins
J1- Moderately Hard to Hard Dark Gray Shale - with Closely Spaced Very Thin Quartz Veins from 20 to 22.5 Feet
K1- Medium Dense Brown Sandy Fine to Coarse Gravel- Water at 2 Feet
L1- Low Hardness Brown and Dark Gray Highly Weathered Shale
M1- Moderately Hard to Hard Dark Gray Shale with Very Close Calcite Partings, Flat Bedded
N1- Medium Dense Brown Sandy Fine to Coarse Gravel, Slightly Clayey with Occasional Cobbles - Water at 7 Feet
P1- Moderately Hard Dark Gray Shale - with Completely Weathered Zones to 8.5 Feet - Moderately Hard to Hard Below 14 Feet
Q1- Stiff Brown Silty Clay with Shale Fragments (fill) - with Fine to Coarse Gravel and Occasional Cobbles and Shale Fragments Below 2 Feet
R1- Dense Brown Silty Fine to Coarse Gravel, Sandy - Loose to Medium Dense Below 6 Feet - Water at 7 Feet
S1- Moderately Hard Very Dark Gray Shale, Carbonaceous, Flat Bedded with Closely Spaced Quartz Veins and Occasional Sandstone Inclusions
T1- Moderately Hard to Hard Dark Gray Shale, Flat Bedded with Closely Spaced Quartz Veins and Occasional Sandstone Inclusions
U1- Medium dense brown clayey fine to coarse gravel, sandy w/occasional shale fragments (fill)
V1- Firm tan and gray fine sandy clay (fill)
W1- Loose gray silty fine to coarse sand w/a little fine gravel(fill)
X1- Loose to medium dense brown clayey fine to coarse gravel, sandy
Y1- Moderately hard very dark gray shale, carbonaceous, flat bedded w/closely bedded quartz veins and occasional sandstone inclusions
Z1- Moderately hard to hard dark gray shale, flat bedded w/closely bedded quartz veins and occasional sandstone inclusions
A2- Medium dense tan silty fine to coarse sand w/fine to coarse gravel(fill)
B2- Dense brown and tan clayey fine sand w/fine to coarse gravel(fill) - medium dense, gray with shale fragments below 4 ft
C2- Dense tan and gray clayey fine to coarse sand w/fine gravel and trace organics
D2- Stiff tan silty clay w/trace fine gravel
E2- Dense brown fine to coarse gravel, sandy
F2- Low hardness dark gray shale - moderately hard to hard below 18 ft

"N" VALUES

Boring No. S6
Sta. 1207+71 - 10' Right of Center Line of Construction

0.5-	1.5	N=26
2.5-	3.5	N=13
4.5-	5.5	N=11
6.5-	7.5	N=16
9.0-	10.0	N=20
13.0-		N=30/0"

Boring No. S7
Sta. 1208+23 - 5' Right of Center Line of Construction

0.5-	1.5	N=26
2.5-	3.5	N=10
4.5-	5.5	N=19
6.5-	7.5	N=14
9.0-	10.0	N=22
14.0-	14.3	N=50/3"
18.0-		N=25/0"

Boring No. S8
Sta. 1208+95 - 3' Right of Center Line of Construction

0.5-	1.5	N=17
2.5-	3.5	N=26
7.5-		N=25/0"

Boring No. S9
Sta. 1209+67 - 1' Right of Center Line of Construction

0.5-	1.5	N=14
7.5-	7.6	N=50/1"
14.0-		N=30/0"

Boring No. S10
Sta. 1210+46 - 13' Right of Center Line of Construction

0.5-	1.5	N=19
2.5-	3.5	N=15
4.5-	5.5	N=37
6.5-	7.5	N=10
13.5-		N=30/0"

Boring No. S11
Sta. 1211+01 - 2' Right of Center Line of Construction

0.5-	1.5	N=22
2.5-	3.5	N=15
4.5-	5.5	N=7
6.5-	7.5	N=8
9.0-	10.0	N=10
13.0-		N=30/0"

Boring No. S11A
Sta. 1211+59 - 2' Right of Center Line of Construction

0.5-	1.5	N=15
2.5-	3.5	N=38
4.5-	5.5	N=11
6.5-	7.5	N=31
9.0-	10.0	N=15
14.0-	15.0	N=44
18.5-		N=25/0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 3 OF 3

LAYOUT OF BRIDGE OVER
TEN MILE CREEK
HOT SPRINGS - I-30 (WIDENING) (S)
GARLAND AND SALINE COUNTIES
ROUTE 70 SECTION 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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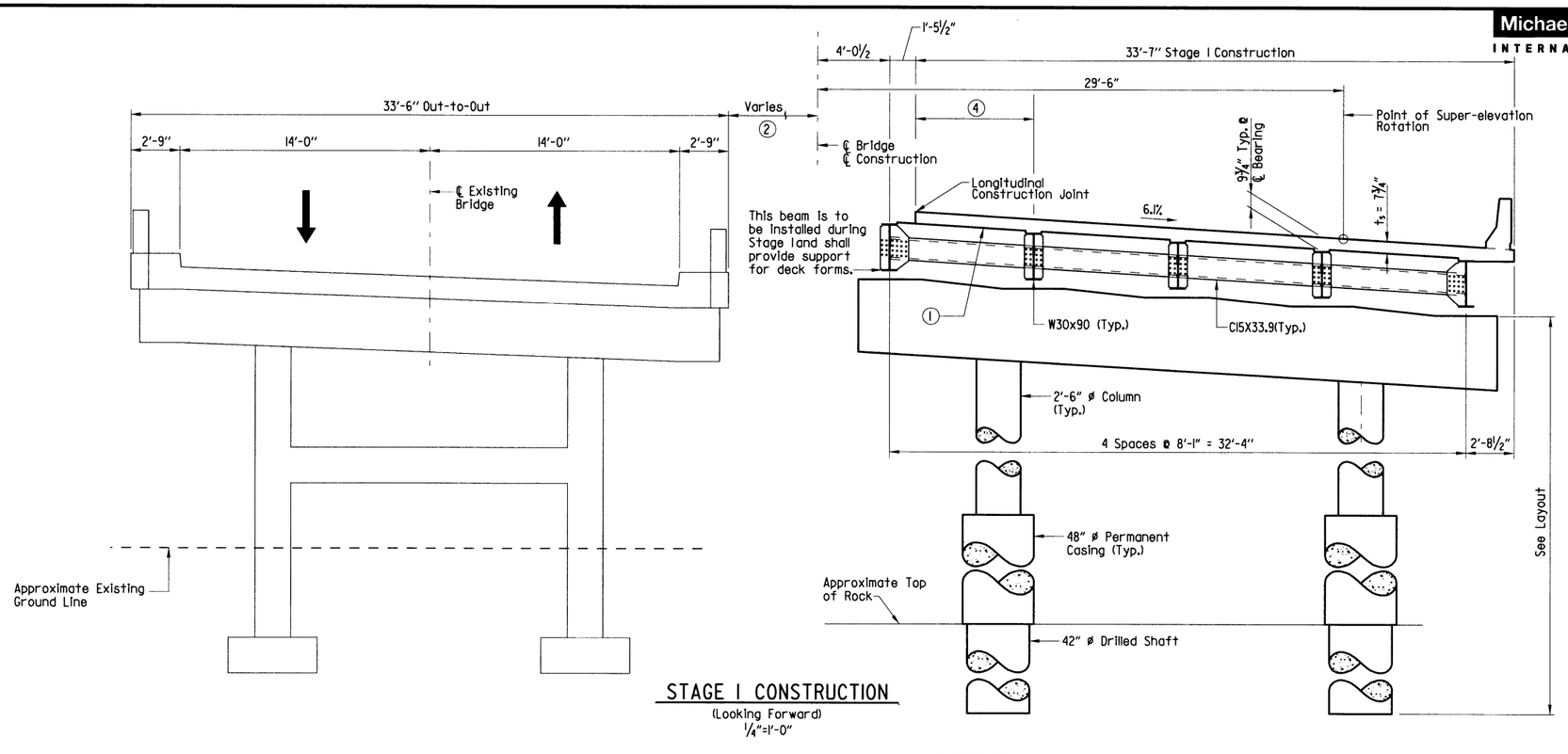
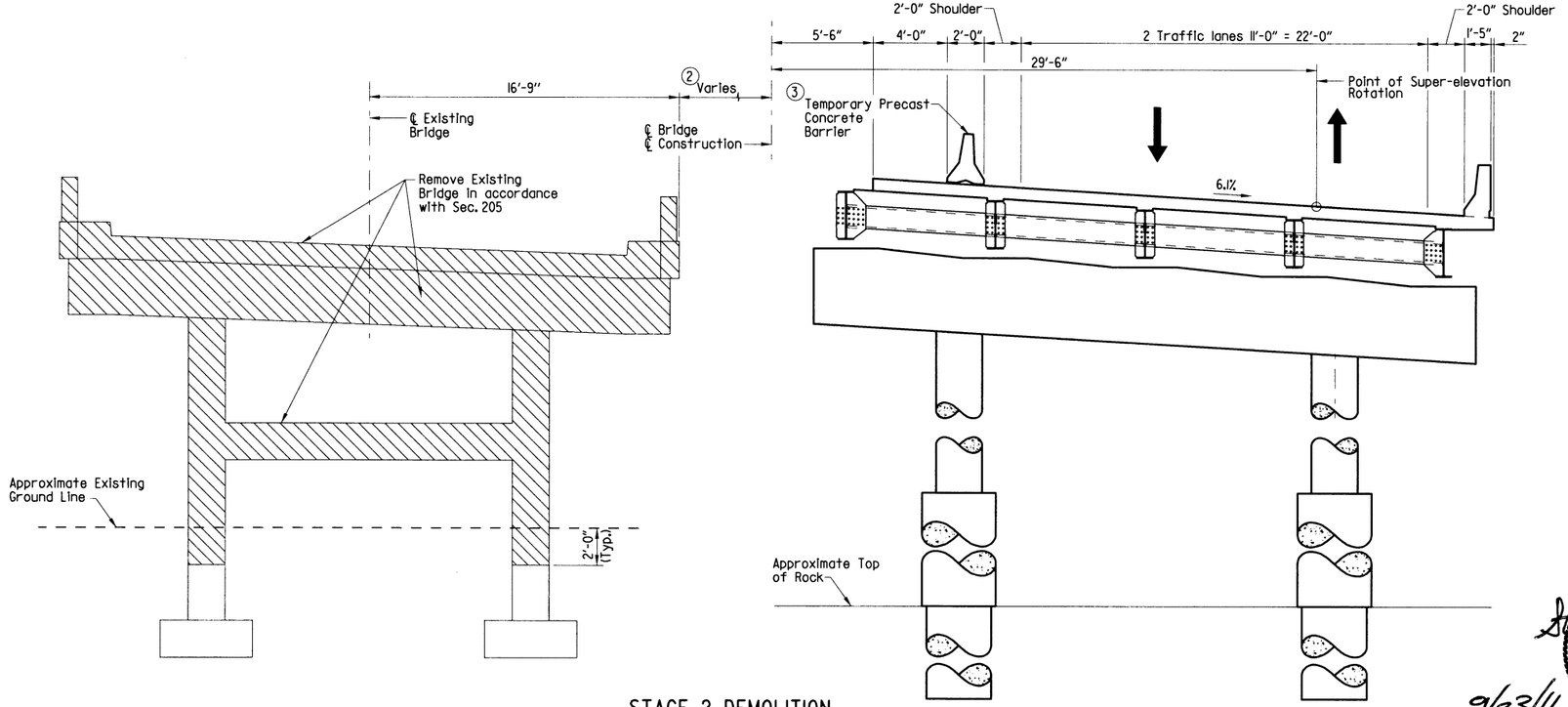
(1) 07366 - TYPICAL SECTION - 58905



STAGE 1 CONSTRUCTION
(Looking Forward)
1/4"=1'-0"



STAGE 2 DEMOLITION
(Looking Forward)
1/4"=1'-0"

(1) Install Deck Form full width to facilitate Stage 2 Deck construction.

(2) Dimension varies from 21'-4" to 20'-9" due to different horizontal curvature in existing and proposed alignments.

(3) For details of temporary barrier, see Std. Dwg. TC-4. Connect the temporary barrier to the deck using the "Barrier Stabilization Detail" as shown on Std. Dwg. TC-4.

(4) Construction vehicles shall not travel beyond the centerline of beam.

Note: Details which relate to maintenance of traffic are shown on the bridge plans for information only. See roadway plans for maintenance of traffic.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 1 OF 2
TYPICAL SECTION AND STAGED CONSTRUCTION
TEN MILE CREEK
HOT SPRINGS - I-30 (WIDENING) (S)
GARLAND AND SALINE COUNTIES
ROUTE 70 SECTION 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: MAD/WDM DATE: 02/15 FILENAME: bCA0610x3_lx4.dgn
CHECKED BY: SFH DATE: 03/15
DESIGNED BY: HL DATE: 08/14 SCALE: As Noted
BRIDGE NO. 07366 DRAWING NO. 58905

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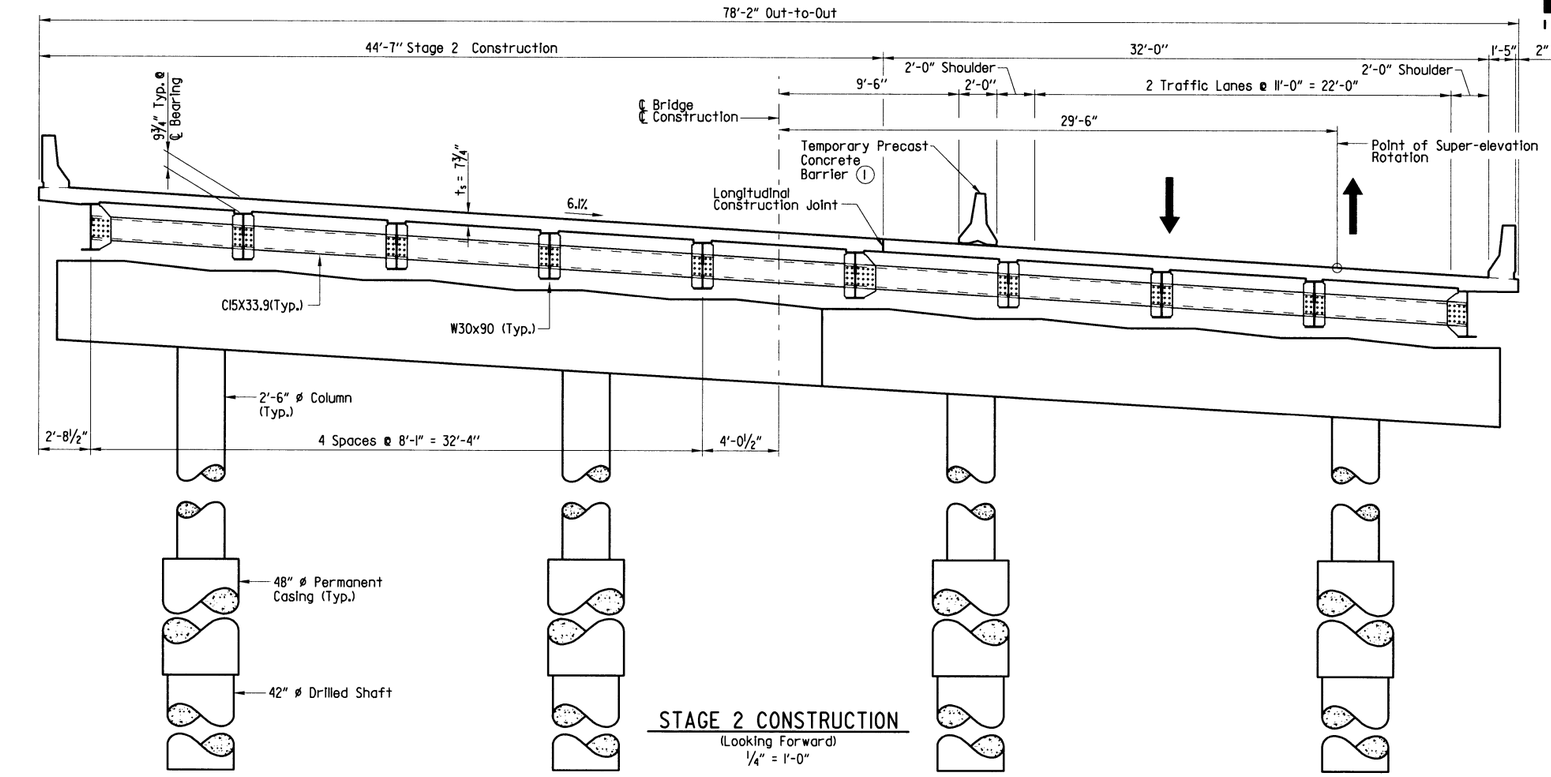
REVISED DATE:

Michael Baker INTERNATIONAL

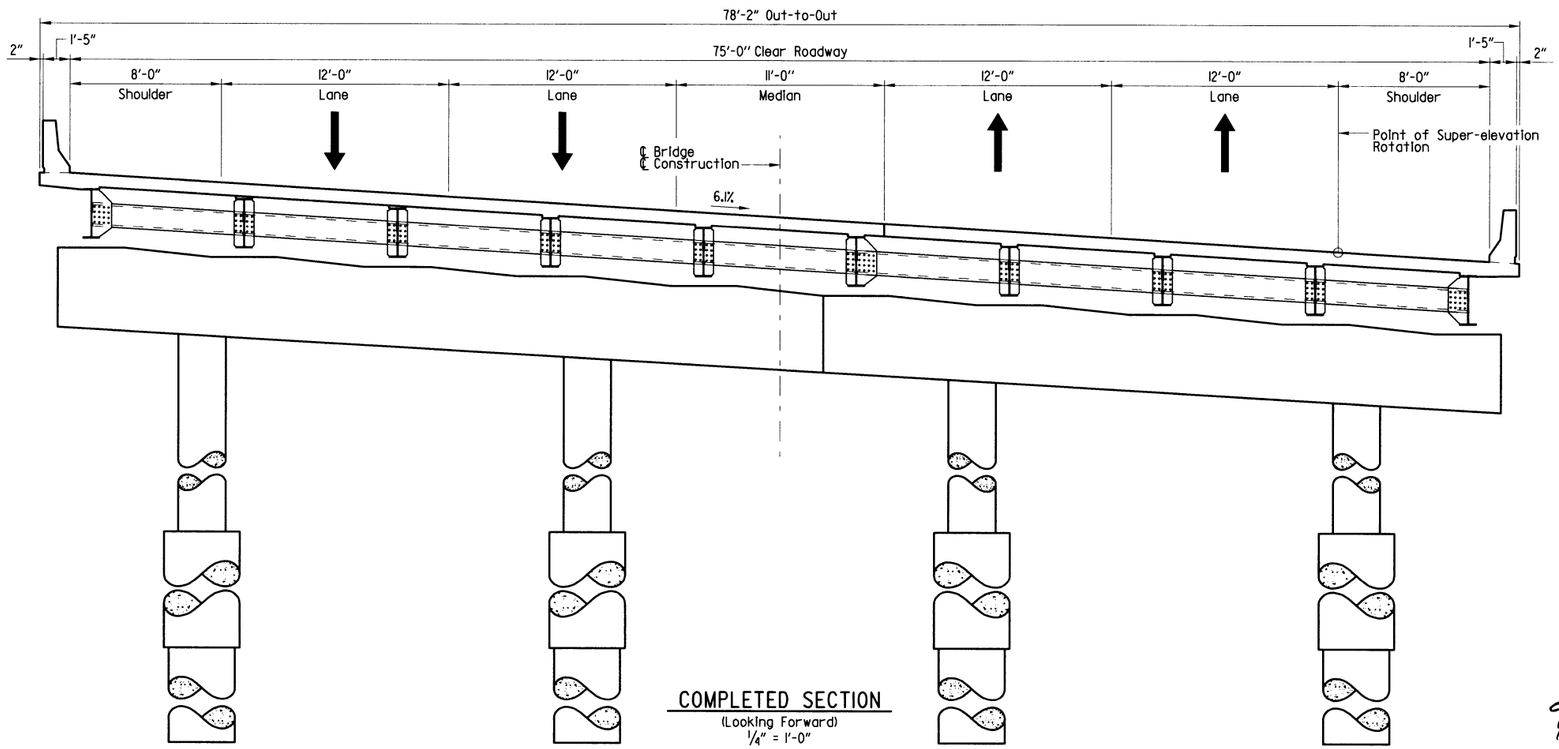
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	402	888

(1) 07366 - TYPICAL SECTION - 58906



STAGE 2 CONSTRUCTION
(Looking Forward)
¼" = 1'-0"

(1) For details of temporary barrier, see Std. Dwg. TC-4. Connect the temporary barrier to the deck using the "Barrier Stabilization Detail" as shown on Std. Dwg. TC-4.



COMPLETED SECTION
(Looking Forward)
¼" = 1'-0"

SHEET 2 OF 2
TYPICAL SECTION AND
STAGED CONSTRUCTION
TEN MILE CREEK
HOT SPRINGS - I-30 (WIDENING) (S)
GARLAND AND SALINE COUNTIES
ROUTE 70 SECTION 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

DRAWN BY: MAD DATE: 01/15
CHECKED BY: SFH DATE: 03/15
DESIGNED BY: HL DATE: 08/15
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BRIDGE NO. 07366
DRAWING NO. 58906

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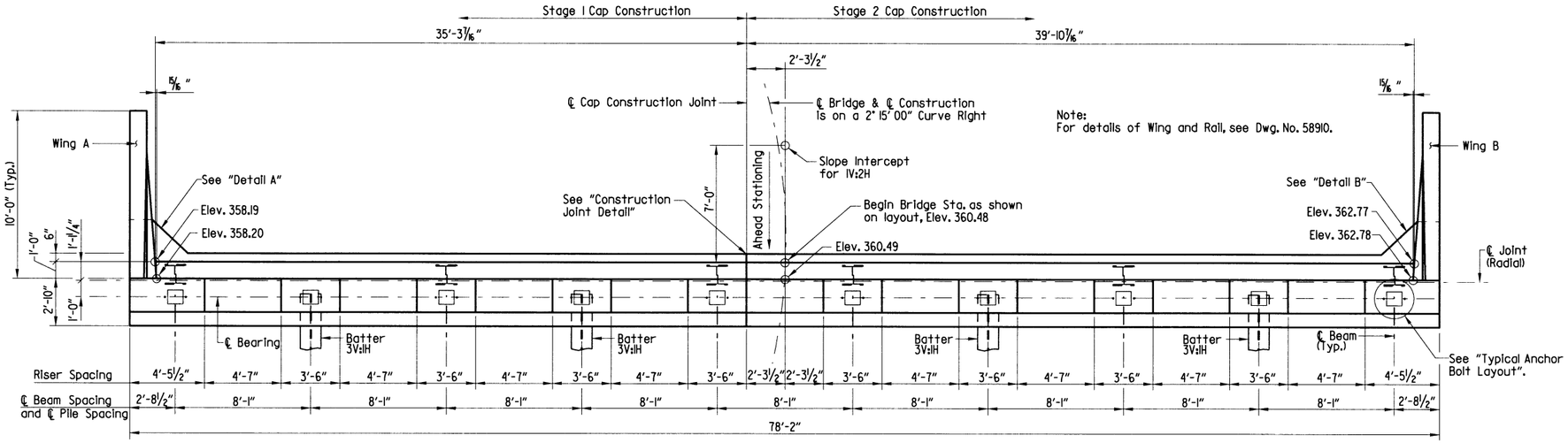
REVISED DATE:

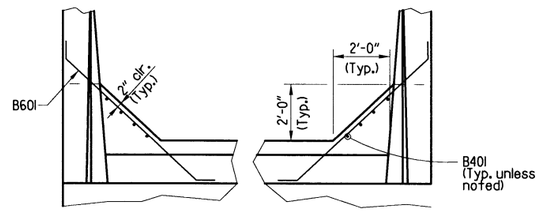
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	403	888
				(1)	07366 - END BENT DETAILS - 58907			

NOTE:
Class I Protective Surface Treatment shall be applied to the to the top of the backwall and to the Roadway face and top of the Wing Rails.

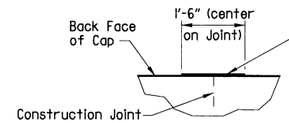


PLAN
1/4"=1'-0"

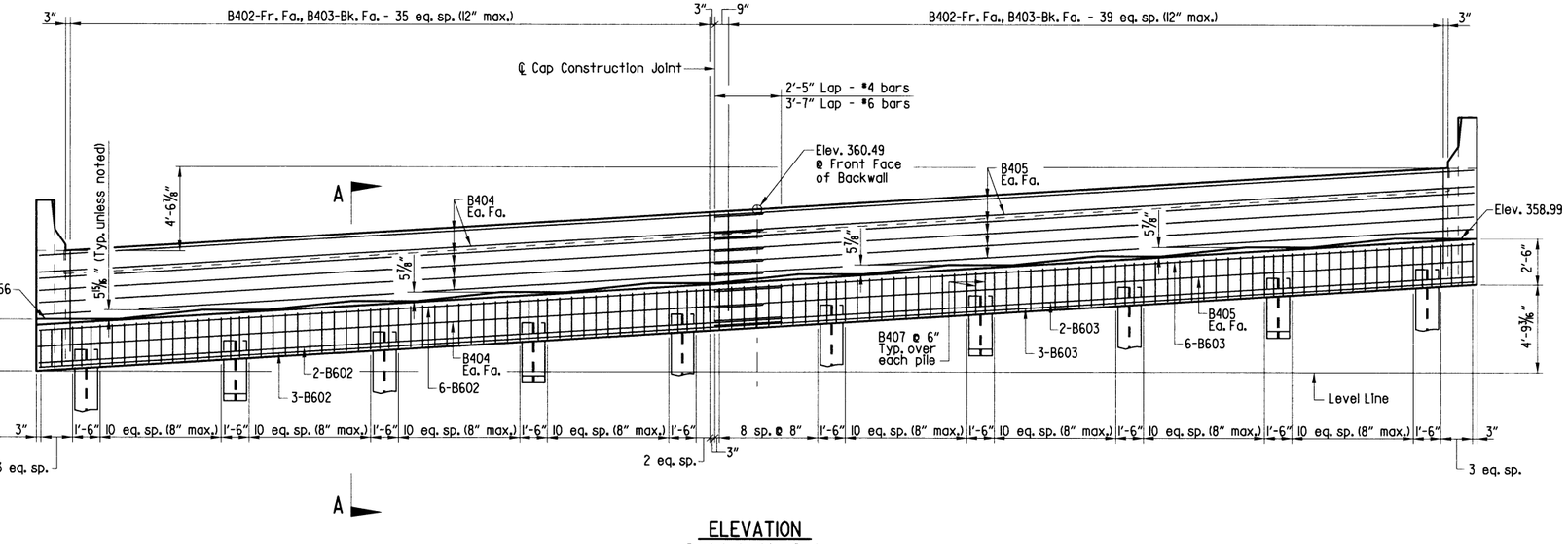


DETAIL A
No Scale

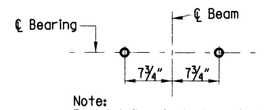
DETAIL B
No Scale



CONSTRUCTION JOINT DETAIL
No Scale



ELEVATION
Bent 1- Looking Back
1/4"=1'-0"



Note:
For details of elastomeric bearings, see Dwg. No. 58913.

TYPICAL ANCHOR BOLT LAYOUT
No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

9/23/16
BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 1 OF 4
END BENT DETAILS
TEN MILE CREEK
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: MAD/JRM DATE: 4/15
CHECKED BY: SFH DATE: 9/15
DESIGNED BY: HL DATE: 3/15
BRIDGE NO. 07366
FILENAME: bCA0610x3_axl.dgn
SCALE: As Noted
DRAWING NO. 58907

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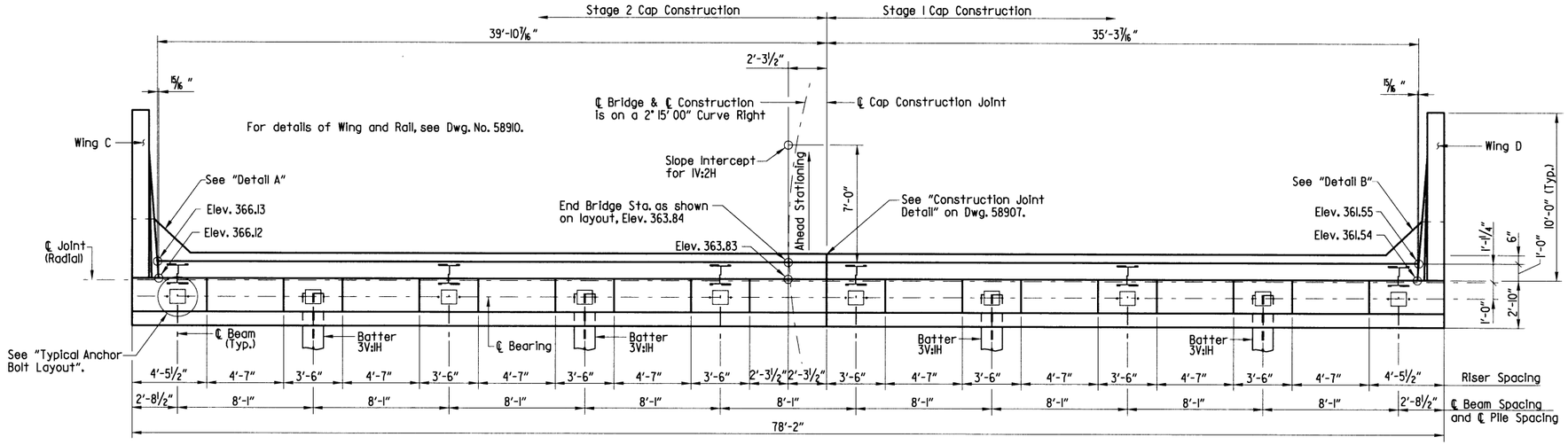
REVISED DATE:

Michael Baker INTERNATIONAL

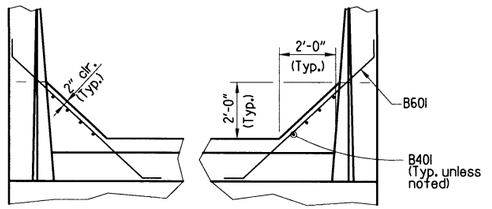
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	404	888

(1) 07366 - END BENT DETAILS - 58908

NOTE:
Class 1 Protective Surface Treatment shall be applied to the to the top of the backwall and to the Roadway face and top of the Wing Rails.

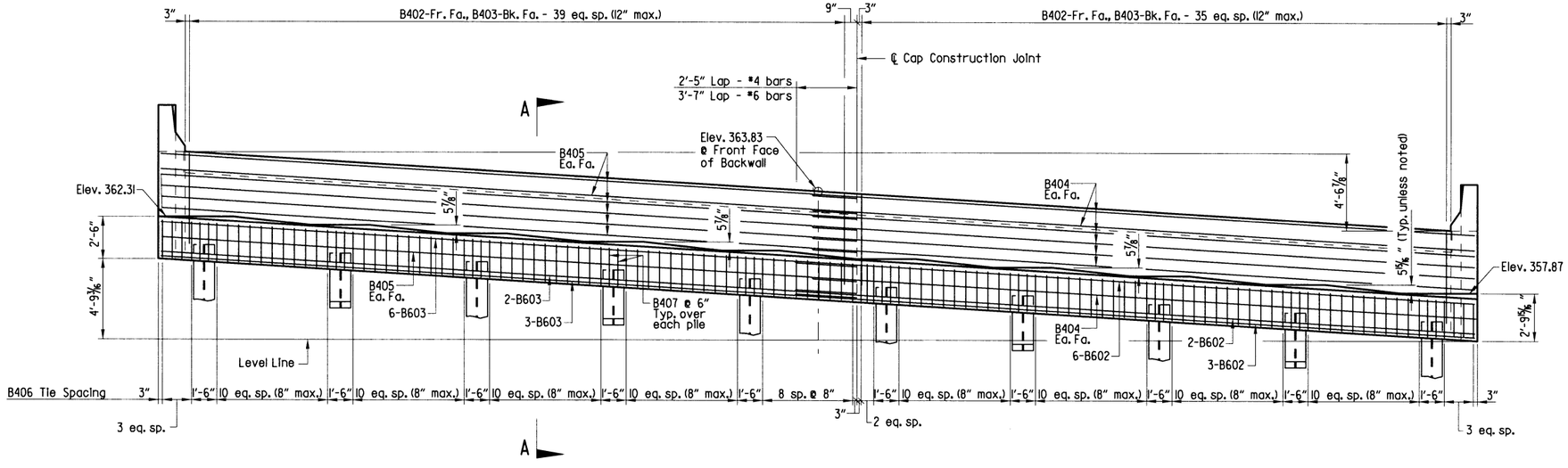


PLAN
1/4"=1'-0"

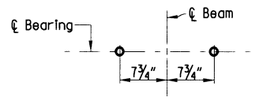


DETAIL A
No Scale

DETAIL B
No Scale



ELEVATION
Bent 8 - Looking Ahead
1/4"=1'-0"



Note:
For details of elastomeric bearings. see Dwg. No. 58913.

TYPICAL ANCHOR BOLT LAYOUT
No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HAPPER

9/23/16
BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 2 OF 4
END BENT DETAILS
TEN MILE CREEK
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: MAD/JRM DATE: 4/15
CHECKED BY: SFH DATE: 9/15
DESIGNED BY: HL DATE: 3/15
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SCALE: As Noted
BRIDGE NO. 07366
DRAWING NO. 58908

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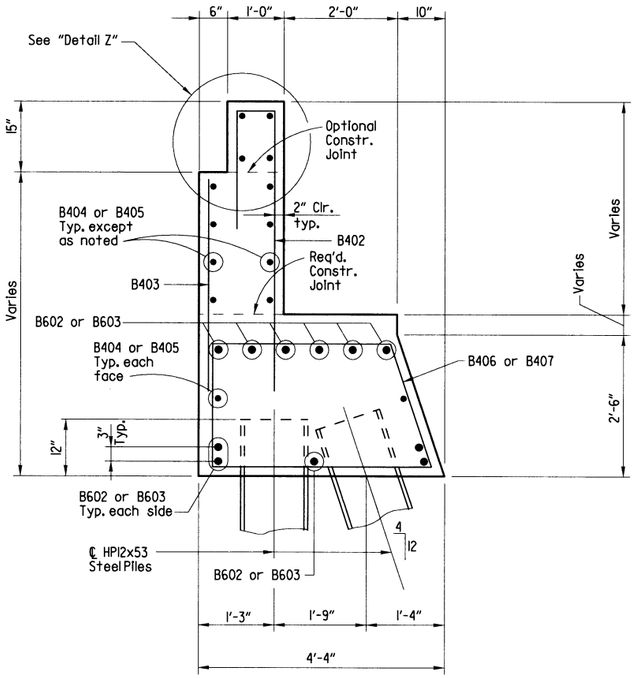
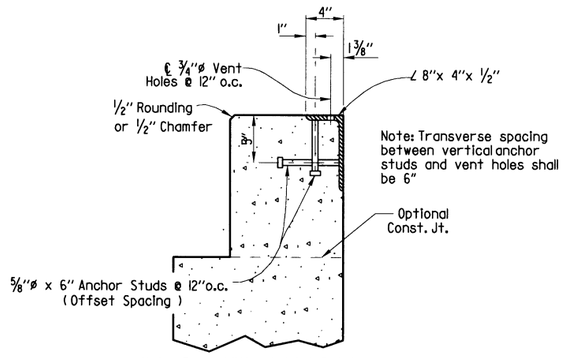
REVISED DATE:



SECTION A-A

3/4" = 1'-0"



Note: For additional Joint Details, see Dwg. No. 58922.

DETAIL Z

No Scale

Note: Concrete shall be hand packed under the joint armor in the backwall.

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

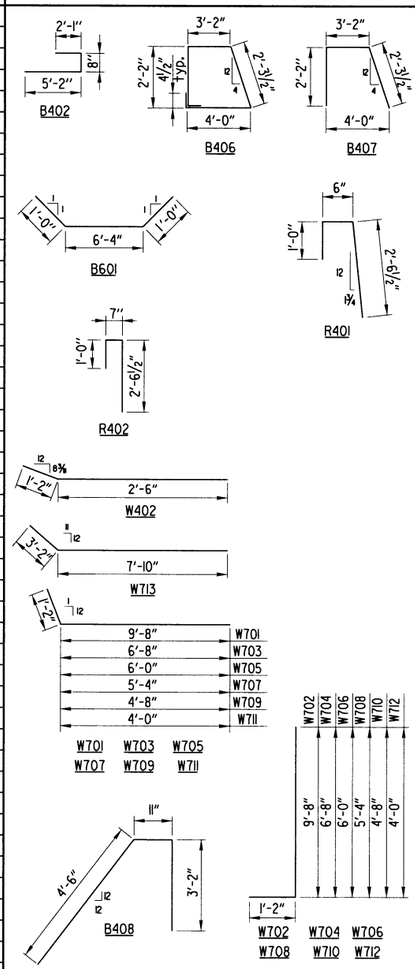
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	405	888

(1) 07366 - END BENT DETAILS - 58909

BAR LIST-PER BENT

MARK	NO. REQ'D.	LENGTH	PIN DIA.
B401	8	4'-9"	Str.
B402	76	7'-9"	2"
B403	76	3'-11"	Str.
B404	14	39'-3"	Str.
B405	14	41'-2"	Str.
B406	108	12'-0"	2"
B407	20	7'-6"	2"
B408	8	8'-5"	2"
B601	6	8'-4"	4 1/2"
B602	11	40'-5"	Str.
B603	11	41'-2"	Str.
R401	8	3'-11"	2"
R402	8	4'-0"	2"
R403	12	9'-8"	Str.
R601	6	5'-0"	Str.
W401	16	5'-8"	Str.
W402	14	3'-8"	2"
W403	14	4'-10"	Str.
W404	4	4'-10"	Str.
W405	4	3'-8"	Str.
W406	4	2'-6"	Str.
W407	16	4'-5"	Str.
W701	8	10'-8"	5 1/4"
W702	8	10'-8"	5 1/4"
W703	2	7'-8"	5 1/4"
W704	2	7'-8"	5 1/4"
W705	2	7'-0"	5 1/4"
W706	2	7'-0"	5 1/4"
W707	2	6'-4"	5 1/4"
W708	2	6'-4"	5 1/4"
W709	2	5'-8"	5 1/4"
W710	2	5'-8"	5 1/4"
W711	2	5'-0"	5 1/4"
W712	2	5'-0"	5 1/4"
W713	4	11'-0"	5 1/4"

BENDING DIAGRAMS
Dimensions are out to out of bars.



GENERAL NOTES:

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M322, Type A with Mill Test Reports, Grade 60 (yield strength = 60,000 psi.).

Structural steel in end bents shall be M270, Gr. 50W unless otherwise noted and shall be paid for "Structural Steel in Beam Spans (M270, Gr. 50W)".

All pilling shall be Grade 50, Fy = 50 ksi.

For additional information, see Layout.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 3 OF 4
END BENT DETAILS
TEN MILE CREEK
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: JRM DATE: 4/15
CHECKED BY: SFH DATE: 9/15
DESIGNED BY: HL DATE: 3/15
FILENAME: bCA0610x3_ax3.dgn
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BRIDGE NO. 07366
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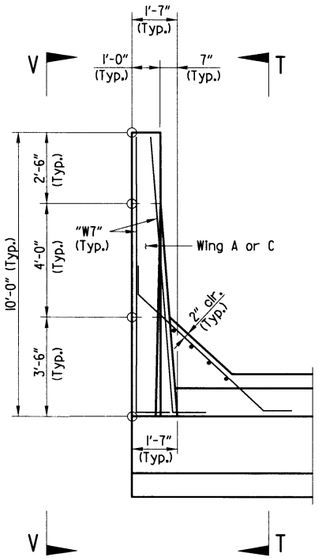
REVISED DATE:

Michael Baker INTERNATIONAL

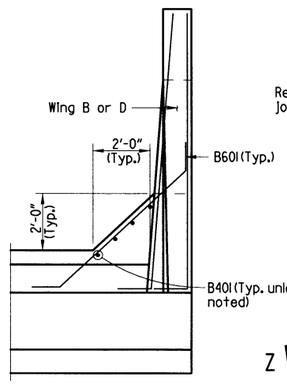
DATE	DATE FILMED	DATE REVISED	DATE FILMED

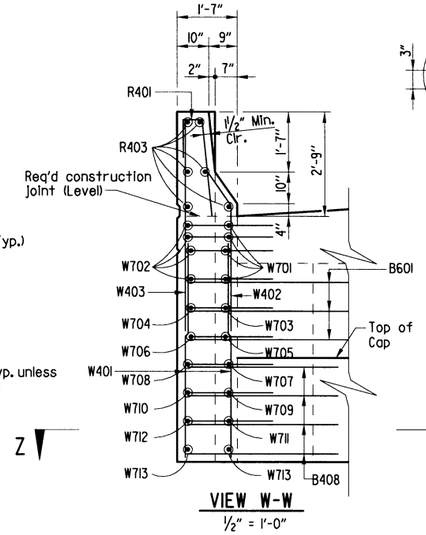
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	406	888

(1) 07366 - END BENT DETAILS - 58910

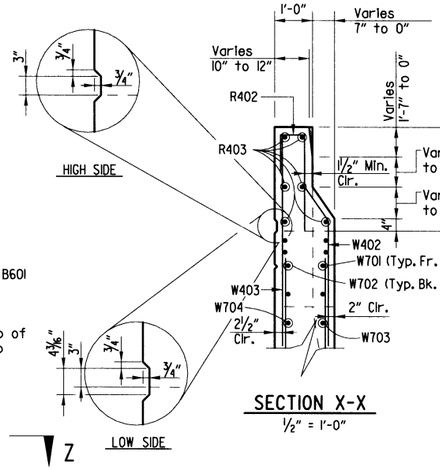


PLAN OF WINGS
3/8" = 1'-0"

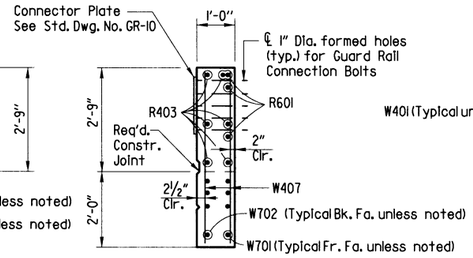




VIEW W-W
1/2" = 1'-0"



SECTION X-X
1/2" = 1'-0"



SECTION Y-Y
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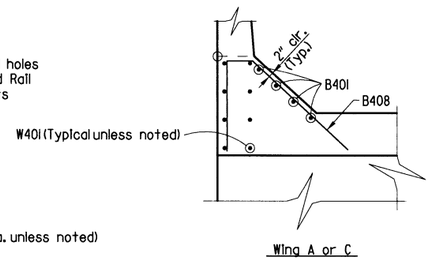
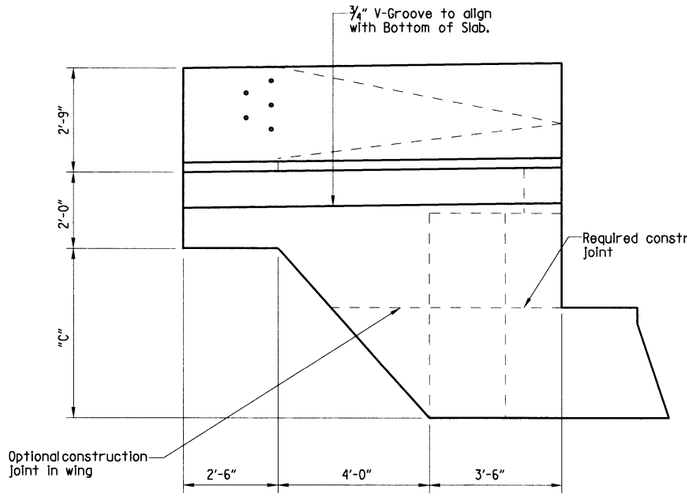
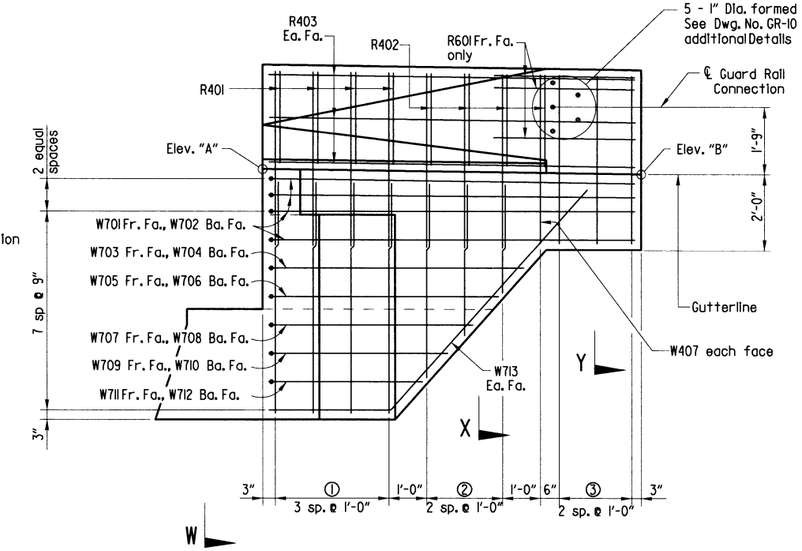


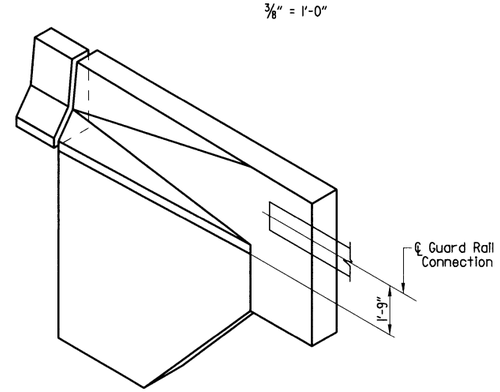
SECTION Z-Z
3/8" = 1'-0"



VIEW V-V
1/2" = 1'-0"



VIEW T-T
1/2" = 1'-0"



THREE DIMENSIONAL VIEW
WING RAIL AND PARAPET
No Scale

TABLE OF VARIABLES

	Wing A	Wing B	Wing C	Wing D
Elev. "A"	358.20	362.78	366.12	361.54
Elev. "B"	358.07	362.71	366.27	361.63
"C"	4'-4 1/16"	4'-2 5/8"	4'-5 5/16"	4'-7 1/16"

(1) W401 spliced with W402 Fr. Fa.
W401 spliced with W403 Bk. Fa.

(2) W404 - W406 spliced with W402 Fr. Fa.
W404 - W406 spliced with W403 Bk. Fa.

(3) W407 each face

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
STEPHEN F. HARPER
No. 14501

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 4 OF 4
END BENT DETAILS
TEN MILE CREEK
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: JRM DATE: 4/15 FILENAME: bCA0610x3_ax4.dgn
CHECKED BY: SFH DATE: 9/15
DESIGNED BY: HL DATE: 3/15 SCALE: As Noted
BRIDGE NO. 07366 DRAWING NO. 58910

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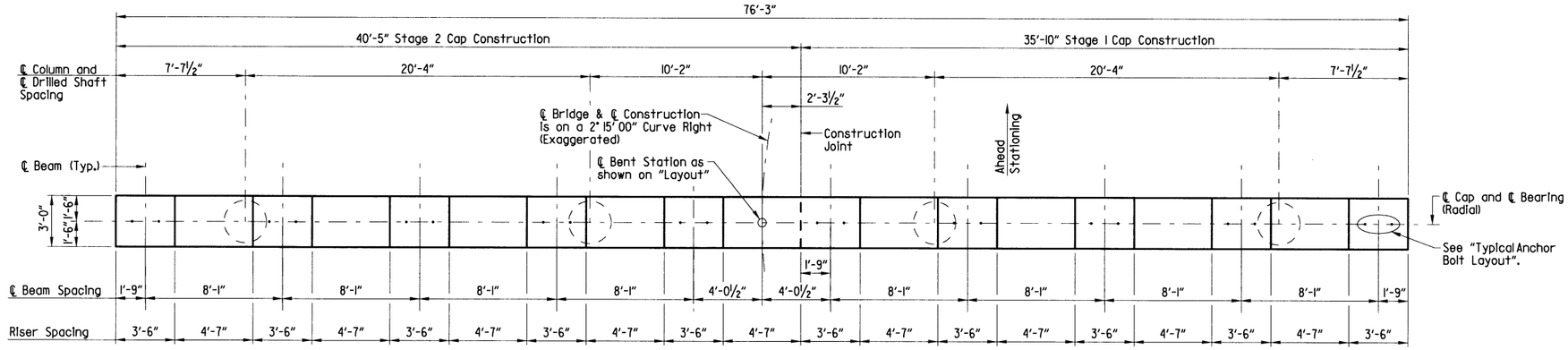
REVISED DATE:

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

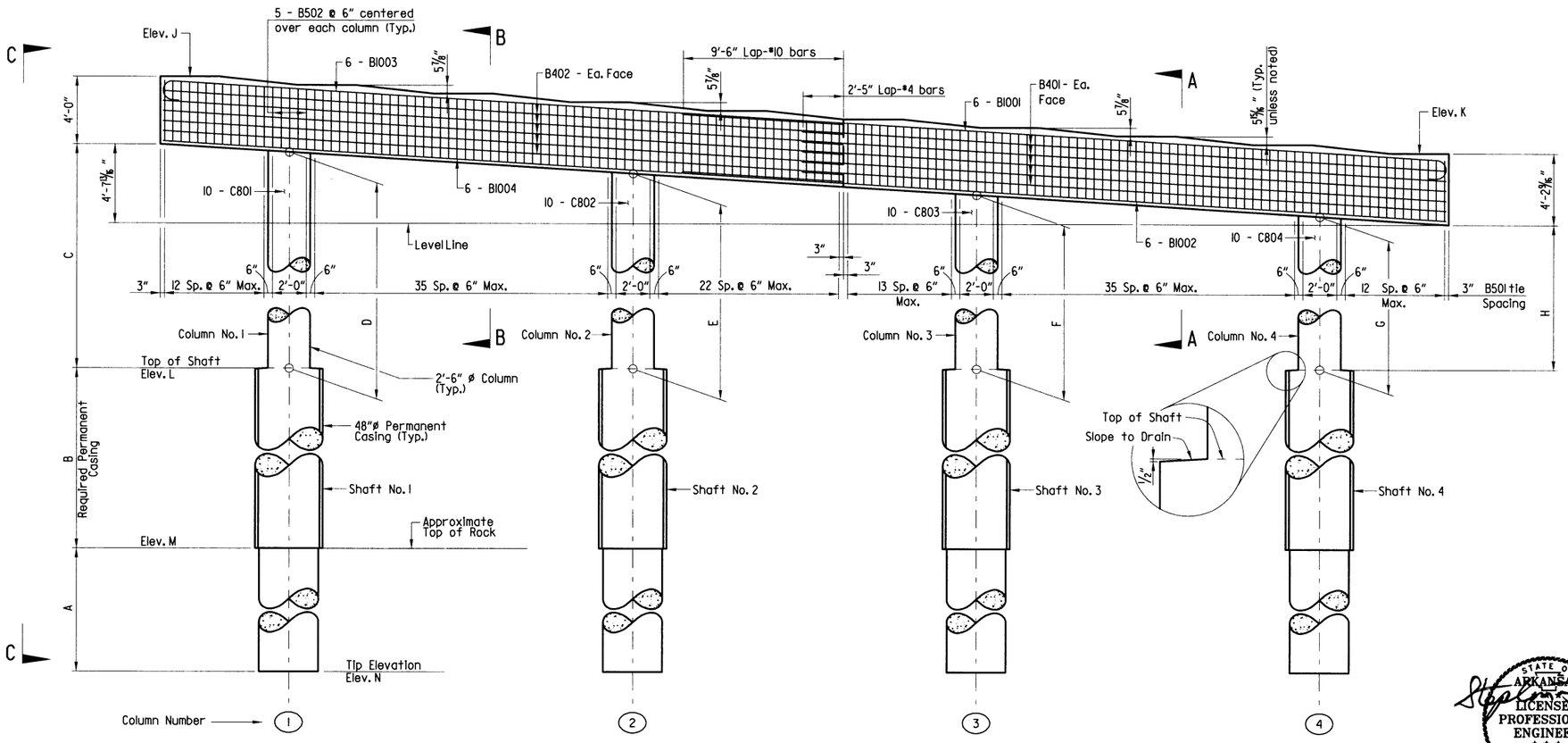
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	407	888

(1) 07366 - INTERMEDIATE BENT DETAILS - 58911

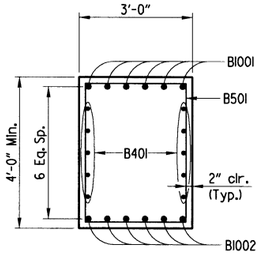


PLAN
Scale: ¼"=1'-0"

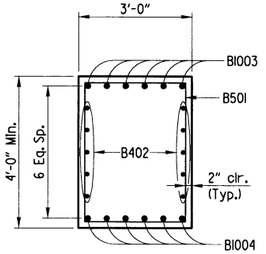
Note:
For "Table Of Variables" see Dwg. No. 58912.



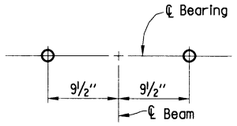
ELEVATION
(Looking Forward)
Scale: ¼"=1'-0"



SECTION A-A
Scale: ½"=1'-0"



SECTION B-B
Scale: ½"=1'-0"



TYPICAL ANCHOR BOLT LAYOUT
No Scale

For Details of Elastomeric Bearings, see Dwg. No. 58913.

Note:
For notes see Dwg. No. 58912.

Note:
For details of reinforcing in columns and shafts, see Dwg. No. 58912.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS 2 THRU 7
TEN MILE CREEK
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: MAD DATE: 02/15 FILENAME: bCA0610x3_bxl.dgn
CHECKED BY: SFH DATE: 09/15
DESIGNED BY: HL DATE: 04/15 SCALE: As Shown
BRIDGE NO. 07366 DRAWING NO. 58911

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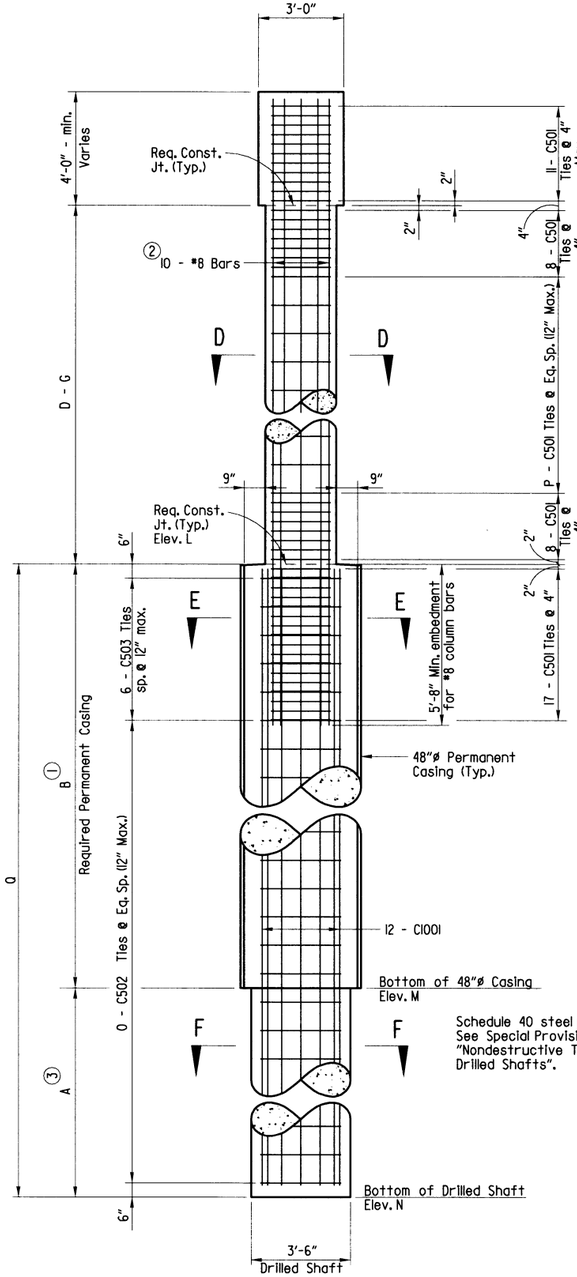
REVISED DATE:

Michael Baker INTERNATIONAL

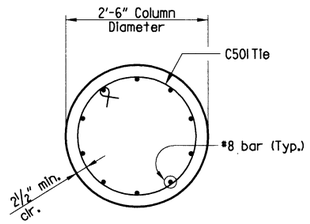
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	408	888

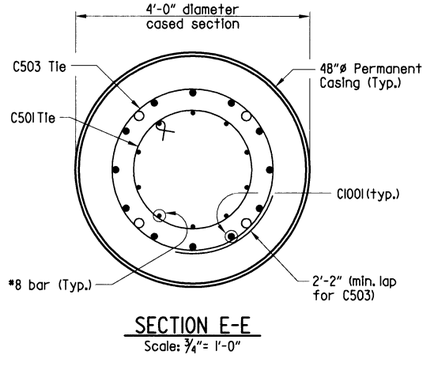
(1) 07366 - INTERMEDIATE BENT DETAILS - 58912



VIEW C-C
Scale: 3/8"= 1'-0"



SECTION D-D
Scale: 3/4"= 1'-0"



SECTION E-E
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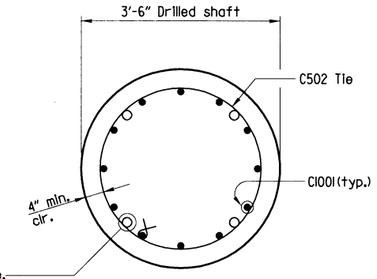


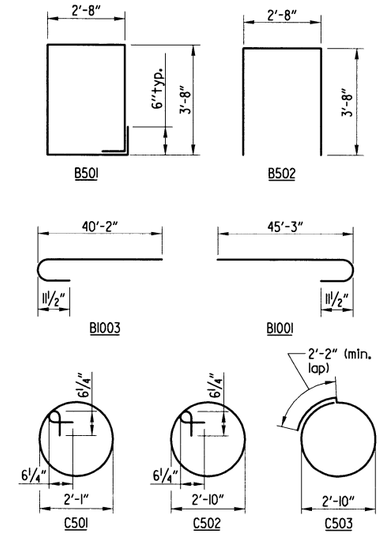
SECTION F-F
Scale: 3/4"= 1'-0"

BAR LIST - PER BENT

MARK	NO. REQ'D. Bent 2	Bent 3	Bent 4	Bent 5	Bent 6	Bent 7	LENGTH Bent 2	Bent 3	Bent 4	Bent 5	Bent 6	Bent 7	P.D.
B401	10	10	10	10	10	10	38'-2"	38'-2"	38'-2"	38'-2"	38'-2"	38'-2"	Str.
B402	10	10	10	10	10	10	40'-2"	40'-2"	40'-2"	40'-2"	40'-2"	40'-2"	Str.
B501	135	135	135	135	135	135	13'-2"	13'-2"	13'-2"	13'-2"	13'-2"	13'-2"	2½"
B502	20	20	20	20	20	20	9'-10"	9'-10"	9'-10"	9'-10"	9'-10"	9'-10"	2½"
B1001	6	6	6	6	6	6	46'-8"	46'-8"	46'-8"	46'-8"	46'-8"	46'-8"	10"
B1002	6	6	6	6	6	6	45'-3"	45'-3"	45'-3"	45'-3"	45'-3"	45'-3"	Str.
B1003	6	6	6	6	6	6	41'-7"	41'-7"	41'-7"	41'-7"	41'-7"	41'-7"	10"
B1004	6	6	6	6	6	6	40'-2"	40'-2"	40'-2"	40'-2"	40'-2"	40'-2"	Str.
C501	195	196	191	193	187	189	7'-11"	7'-11"	7'-11"	7'-11"	7'-11"	7'-11"	3¾"
(4) C502	52	52	60	60	64	64	10'-3"	10'-3"	10'-3"	10'-3"	10'-3"	10'-3"	3¾"
(4) C503	24	24	24	24	24	24	10'-11"	10'-11"	10'-11"	10'-11"	10'-11"	10'-11"	----
C801	10	10	10	10	10	10	20'-6"	21'-1"	19'-7"	20'-1"	18'-7"	19'-0"	Str.
C802	10	10	10	10	10	10	19'-3"	19'-11"	18'-5"	18'-11"	17'-5"	17'-9"	Str.
C803	10	10	10	10	10	10	18'-0"	18'-8"	17'-2"	17'-8"	16'-2"	16'-6"	Str.
C804	10	10	10	10	10	10	16'-10"	17'-5"	15'-11"	16'-5"	14'-11"	15'-4"	Str.
(4) C1001	48	48	48	48	48	48	17'-4"	17'-4"	19'-4"	19'-4"	20'-4"	20'-4"	Str.

BENDING DIAGRAMS

Dimensions are out to out of bars.



(4) Non-Pay Item - Subsidiary to Pay Item Drilled Shaft (42" Diameter).

TABLE OF VARIABLES

	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P *Col. No. 1	*Col. No. 2	*Col. No. 3	*Col. No. 4	Q
Bent 2	11'-0"	7'-0"	11'-6 5/16"	11'-0 3/4"	9'-9 5/16"	8'-6 5/16"	7'-4 1/16"	6'-10 1/2"	359.53	355.09	344.00	337.00	326.00	13	7	5	4	3	18'-0"
Bent 3	10'-0"	8'-0"	12'-0 5/16"	11'-7 5/16"	10'-4 1/16"	9'-1 5/16"	7'-10 11/16"	7'-5 1/8"	360.08	355.64	344.00	336.00	326.00	13	7	6	4	3	18'-0"
Bent 4	10'-0"	10'-0"	10'-6 5/16"	10'-1 5/16"	8'-10 7/16"	7'-7 3/16"	6'-4 11/16"	5'-11 1/8"	360.58	356.14	346.00	336.00	326.00	15	6	4	3	2	20'-0"
Bent 5	11'-0"	9'-0"	11'-0 5/16"	10'-7 5/16"	9'-4 1/16"	8'-1 9/16"	6'-10 11/16"	6'-5 1/8"	361.08	356.64	346.00	337.00	326.00	15	6	5	4	2	20'-0"
Bent 6	10'-0"	11'-0"	9'-6 5/16"	9'-1 5/16"	7'-10 7/16"	6'-7 3/16"	5'-4 11/16"	4'-11 1/8"	361.58	357.14	348.00	337.00	327.00	16	5	3	2	1	21'-0"
Bent 7	11'-0"	10'-0"	10'-0 5/16"	9'-6 3/4"	8'-3 5/16"	7'-0 5/16"	5'-10 1/16"	5'-4 1/2"	362.03	357.59	348.00	338.00	327.00	16	5	4	3	1	21'-0"

*Note
Column numbers as indicated on Dwg. No. 58911

GENERAL NOTES

Concrete in the cap and column shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi., and shall be poured in the dry. Concrete in the drilled shaft shall be Class S as modified by SP Job No. CA0610 "Drilled Shaft Foundations". All exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi.) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Top reinforcing bars shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information see layout.

Drilled shafts shall conform to SP Job No. CA0610 "Drilled Shaft Foundations".

(1) Length of Permanent Casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. CA0610 "Drilled Shaft Foundations". Permanent casing shall not extend below top of competent rock without approval from the Engineer.

(2) The column reinforcing cage, consisting of bars C501, C801, C802, C803, and C804, may be placed before or after concrete placement in the shaft is complete. Vibration of concrete in the top ten feet of the shaft will be needed to ensure the consolidation of the concrete around the reinforcing steel and to insert the column reinforcing cage. The contractor will be responsible for obtaining satisfactory results.

(3) Minimum penetration into competent rock below permanent casing.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 2 OF 2

DETAILS OF INTERMEDIATE BENTS 2 THRU 7

TEN MILE CREEK
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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CHECKED BY: SFH DATE: 9/15
DESIGNED BY: HL DATE: 3/15 SCALE: As Shown
BRIDGE NO. 07366 DRAWING NO. 58912

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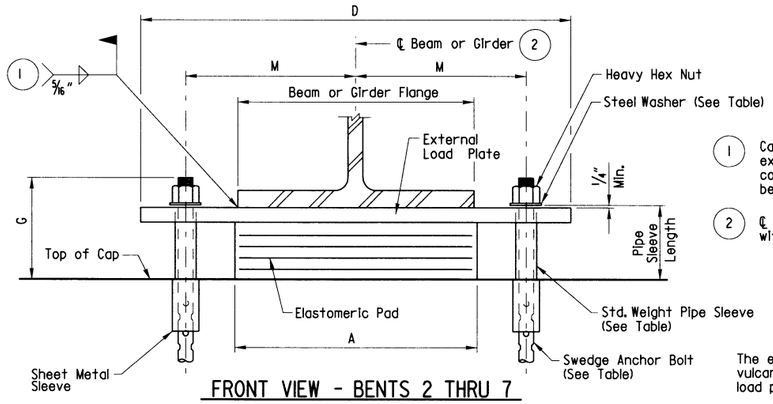
REVISED DATE:

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

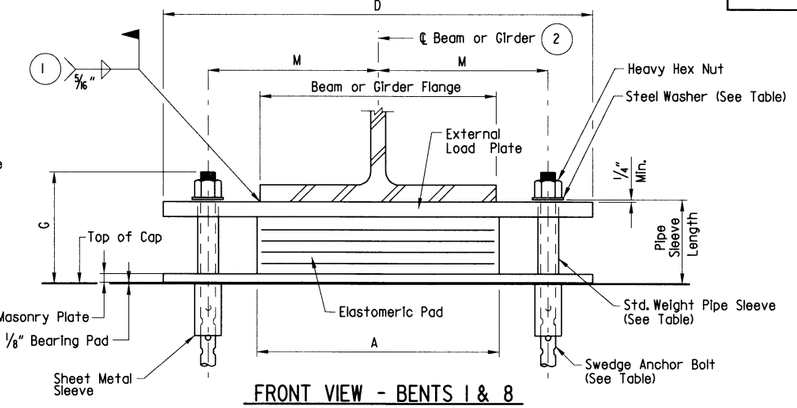
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	409	888
(1)	07366 - ELAST. BEARINGS - 58913			



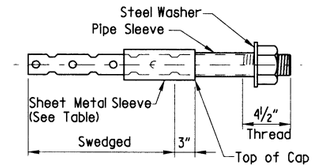
FRONT VIEW - BENTS 2 THRU 7

(1) Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.

(2) ℄ Elastomeric pad shall be aligned with ℄ Beam or Girder.



FRONT VIEW - BENTS 1 & 8

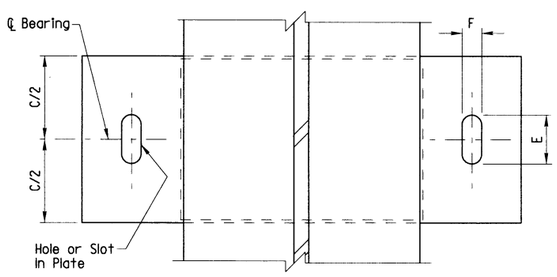


ANCHOR BOLT DETAIL

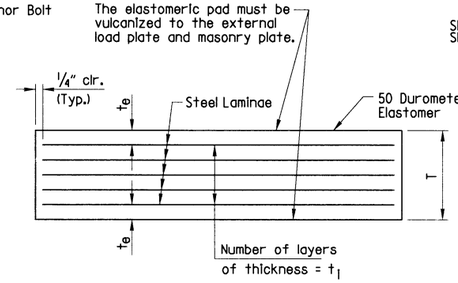
NOTE:

Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the masonry. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the Item "Structural Steel in Beam Spans (M 270, Gr. 50W).

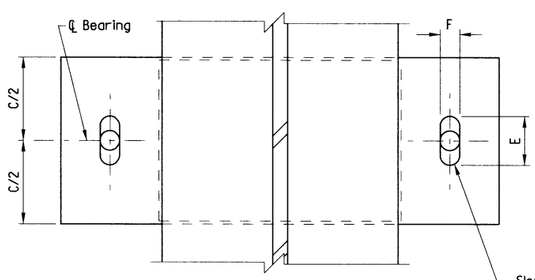


PLAN VIEW - BENTS 2 THRU 7

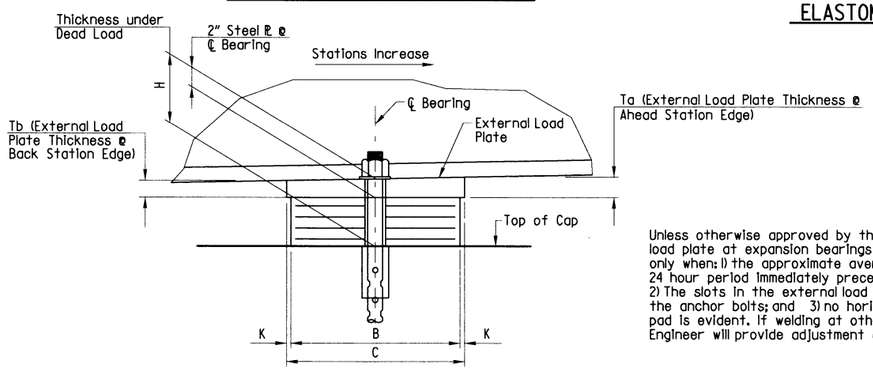


t_1 = thickness of elastomer between steel laminae
t_e = thickness of elastomer cover on top and bottom of pad
N = number of elastomer layers of thickness t_1

ELASTOMERIC BEARING

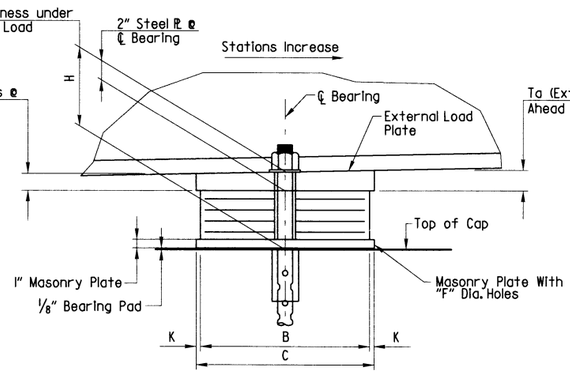


PLAN VIEW - BENTS 1 & 8



SIDE VIEW - BENTS 2 THRU 7

Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam or girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40°F and 80°F. 2) The slots in the external load plates are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.



SIDE VIEW - BENTS 1 & 8

Note: The direction of bevel of the external load plate may not be accurately depicted with respect to "Ta" & "Tb" values shown in the "Table of Fabricator Variables".

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings".

External load plates and masonry plates shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

External load plates and masonry plates shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with Subsection 808.03. Other surfaces shall be blast cleaned in accordance with Subsection 807.84(b) for painted steel and 807.84(e) for unpainted Grade 50W steel.

Anchor Bolts, Washers and Nuts shall conform to Subsection 807.07. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)". External load plates, masonry plates and 1/8" bearing pads will not be measured or paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

Bearings with masonry plates shall be seated in accordance with Subsection 807.66. Bearings without masonry plates shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION			BEARING TYPE	NO. OF BEARINGS EACH BENT	• MAXIMUM DESIGN LOAD (kips)	ELASTOMERIC PAD							EXTERNAL LOAD PLATE								ANCHOR BOLT			
	BENT NO(S).	UNIT	BEAM OR GIRDER NO.				G	H	A	B	N	t_1	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT (Ø x L)	GRADE	PIPE SLEEVE SIZE (Ø x L)	SHEET METAL SLEEVE SIZE (Ø x L)	STEEL WASHER SIZE (O.D.)
07366	Bent 1	330'	All	Exp.	10	70.7	8 7/8"	6 1/16"	11"	9"	4	1/2"	1/4"	5 ℮ 12ga.	3"	10"	21"	4 7/8"	2 1/4"	1/2"	7 3/4"	2.05"	1.95"	1 1/2" x 26"	55	1 1/2" x 5 3/16"	3" x 9"	3"
	Bents 2 & 7	330'	All	Exp.	10	160.6	7 1/2"	4 3/8"	14"	12"	3	1/2"	1/4"	4 ℮ 12ga.	2 1/16"	13"	25"	4 3/4"	2 5/8"	1/2"	9 1/2"	2.07"	1.93"	1 3/4" x 28"	55	2" x 4 5/8"	4" x 9"	3 3/8"
	Bents 3 - 6	330'	All	Fix	10	164.3	6 1/8"	3 3/4"	14"	12"	2	1/2"	1/4"	3 ℮ 12ga.	1 11/16"	13"	25"	2 5/8"	2 5/8"	1/2"	9 1/2"	2.07"	1.93"	1 3/4" x 27"	55	2" x 4"	4" x 9"	3 3/8"
	Bent 8	330'	All	Exp.	10	70.7	8 7/8"	6 1/16"	11"	9"	4	1/2"	1/4"	5 ℮ 12ga.	3"	10"	21"	4 7/8"	2 1/4"	1/2"	7 3/4"	2.06"	1.94"	1 1/2" x 26"	55	1 1/2" x 5 3/16"	3" x 9"	3"

•Maximum Load = Service I Limit State.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

DETAILS OF ELASTOMERIC BEARINGS
TEN MILE CREEK
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: WDM / MAD DATE: 03/15
CHECKED BY: SFH DATE: 09/15
DESIGNED BY: HL DATE: 03/15
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REVISED DATE:

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DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	410	888
(1) 07366 - 330'-0" CONT. UNIT - 58914				

Slab Reinforcing

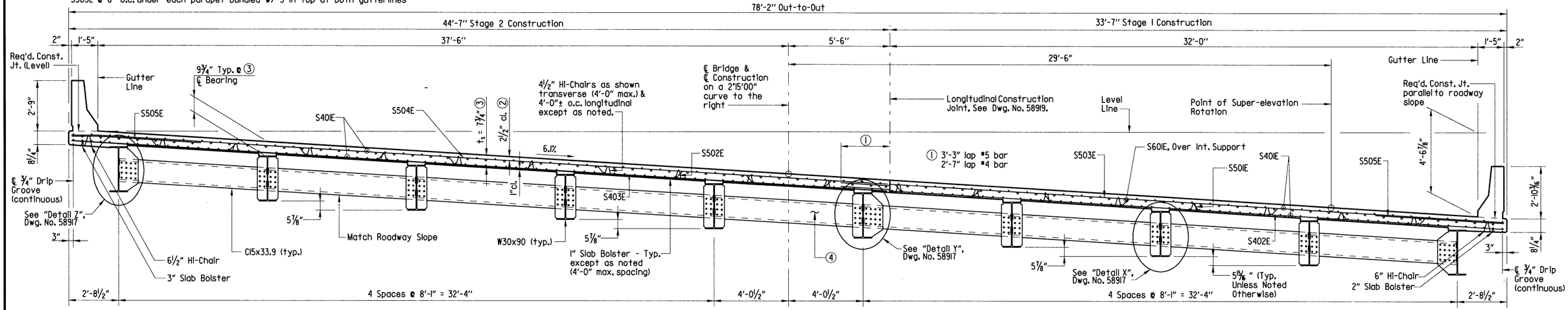
Longitudinal: S401E placed as shown in top and bottom
S601E placed as shown over int. supports,
see "Reinforcing Plan & Pouring Sequence"
Dwg. Nos. 58918 and 58919.

Transverse: S501E @ 12" o.c. bent up over beams and lapped with opposite S502E
S402E @ 12" o.c. in bottom and lapped with opposite S403E — Alternate
S503E @ 12" o.c. in top and lapped with opposite S504E
S505E @ 6" o.c. under each parapet bundled w/#5 in top at both gutterlines

Note: At the Contractors option, in lieu of providing bars S501E or S502E, one epoxy coated #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S501E and S502E. Bars in top and bottom shall be epoxy coated.

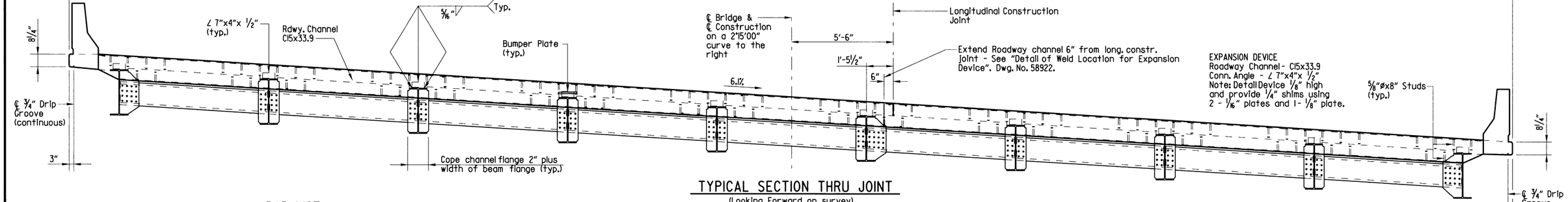
Note: Class I Protective Surface Treatment shall be applied to the Roadway Surface and to the Face & Top of the Concrete Parapet Rail.

Note: For field welding limitations, see Dwg. No. 58921 and Subsection 807.26 of the Standard Specifications.



TYPICAL ROADWAY SECTION

(Looking Forward on survey)
⅜" = 1'-0"



TYPICAL SECTION THRU JOINT

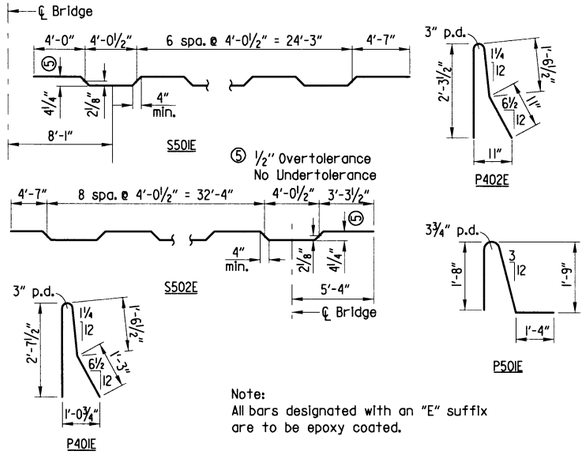
(Looking Forward on survey)
⅜" = 1'-0"

BAR LIST

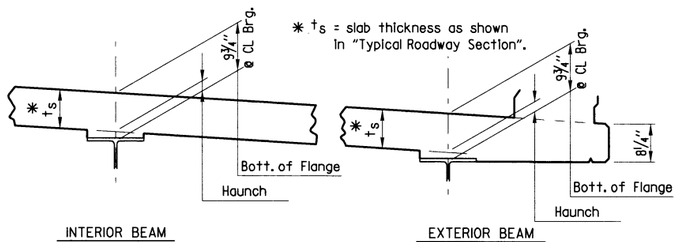
MARK	NO. REQ'D.	LENGTH	P.D.
S401E	1935	39'-7"	Str.
S402E	330	36'-3"	Str.
S403E	330	44'-4"	Str.
S501E	329	37'-9"	3"
S502E	329	45'-4"	3"
S503E	330	36'-11"	Str.
S504E	330	44'-4"	Str.
S505E	1318	7'-0"	Str.
S601E	468	36'-0"	Str.
P401E	1252	5'-6"	3"
P402E	80	4'-10"	3"
P403E	168	5'-6"	Str.
P404E	224	9'-8"	Str.
P405E	14	9'-1"	Str.
P406E	14	10'-3"	Str.
P407E	70	15'-0"	Str.
P408E	70	14'-3"	Str.
P501E	1252	4'-10"	3¾"

BENDING DIAGRAMS

Dimensions are out to out of bars.



Note:
All bars designated with an "E" suffix are to be epoxy coated.



Note:
Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

NOTES:
Haunch dimension may very within the following limits to maintain the grade and slab thickness tolerance; Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1½". No increase in concrete and structural steel quantities will be made to maintain tolerances.

Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

② Tolerance: Minus = ¼"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance.

③ See "Adjustment for Slab Thickness Tolerance".

④ In this bay, connection plate widths and diaphragm lengths shall be fabricated, as necessary, to facilitate installation of diaphragms between adjacent beams with differential deflections. Hole diameters of 15/16" shall be provided for these connections with a washer supplied under both the nut and head of bolt.

Before the Stage 2 deck pour, loosely install as many bolts as possible on both ends of the diaphragm in this bay to the satisfaction of the Engineer. Install remaining bolts and fully tighten all bolts as soon as practical after completion of the Stage 2 deck pour.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER

9/23/16
BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 1 OF 8

DETAILS OF 330'-0" CONTINUOUS W-BEAM UNIT TEN MILE CREEK

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY: WDM DATE: 04/15 FILENAME: bCA0610x3_sxl.dgn
CHECKED BY: SFH DATE: 09/15
DESIGNED BY: HL DATE: 02/15 SCALE: As Noted
BRIDGE NO. 07366 DRAWING NO. 58914

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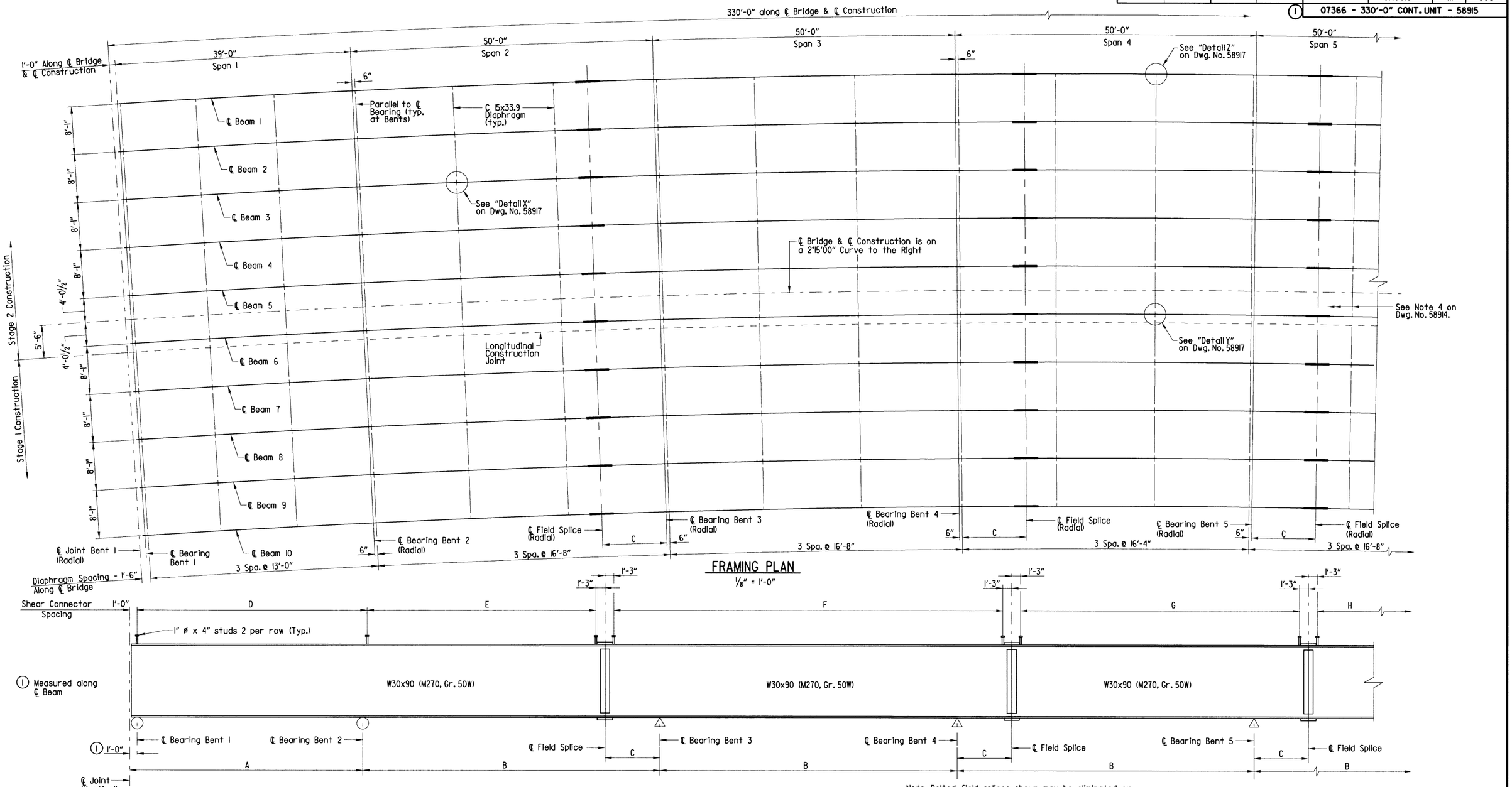
REVISED DATE:

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	411	888

(1) 07366 - 330'-0" CONT. UNIT - 58915



FRAMING PLAN

1/8" = 1'-0"

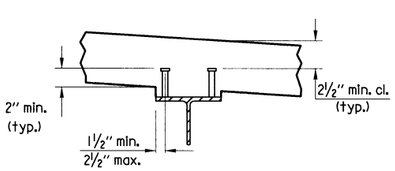
BEAM ELEVATION

No Scale

Note: For Table of Beam Variables, see Dwg. No. 58917.

Note: Beams are on curves concentric with ℄ Bridge. Mid-span diaphragms are on radial lines. Diaphragms located at bents are parallel to ℄ Bearing.

Note: Bolted field splices shown may be eliminated or shop splices may be substituted with approval of the Engineer. Payment will be made on the basis of plan quantities.



SHEAR CONNECTOR DETAIL

No Scale

Stud Shear Connectors shown shall be 1"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. ⅞"ø studs may be used in place of the 1"ø studs shown at the ratio of 1.306 - ⅞"ø studs in place of one 1"ø stud. 1"ø studs will be used as basis for measurement of structural steel in shear connectors.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER

PRINT DATE: 9/23/2016

SHEET 2 OF 8

DETAILS OF 330'-0" CONTINUOUS W-BEAM UNIT TEN MILE CREEK

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY:	MAD	DATE:	04/15	FILENAME:	bCA0610x3_sx2.dgn
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DESIGNED BY:	HL	DATE:	03/15	SCALE:	As Shown

BRIDGE NO. 07366 DRAWING NO. 58915

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REVISED DATE:

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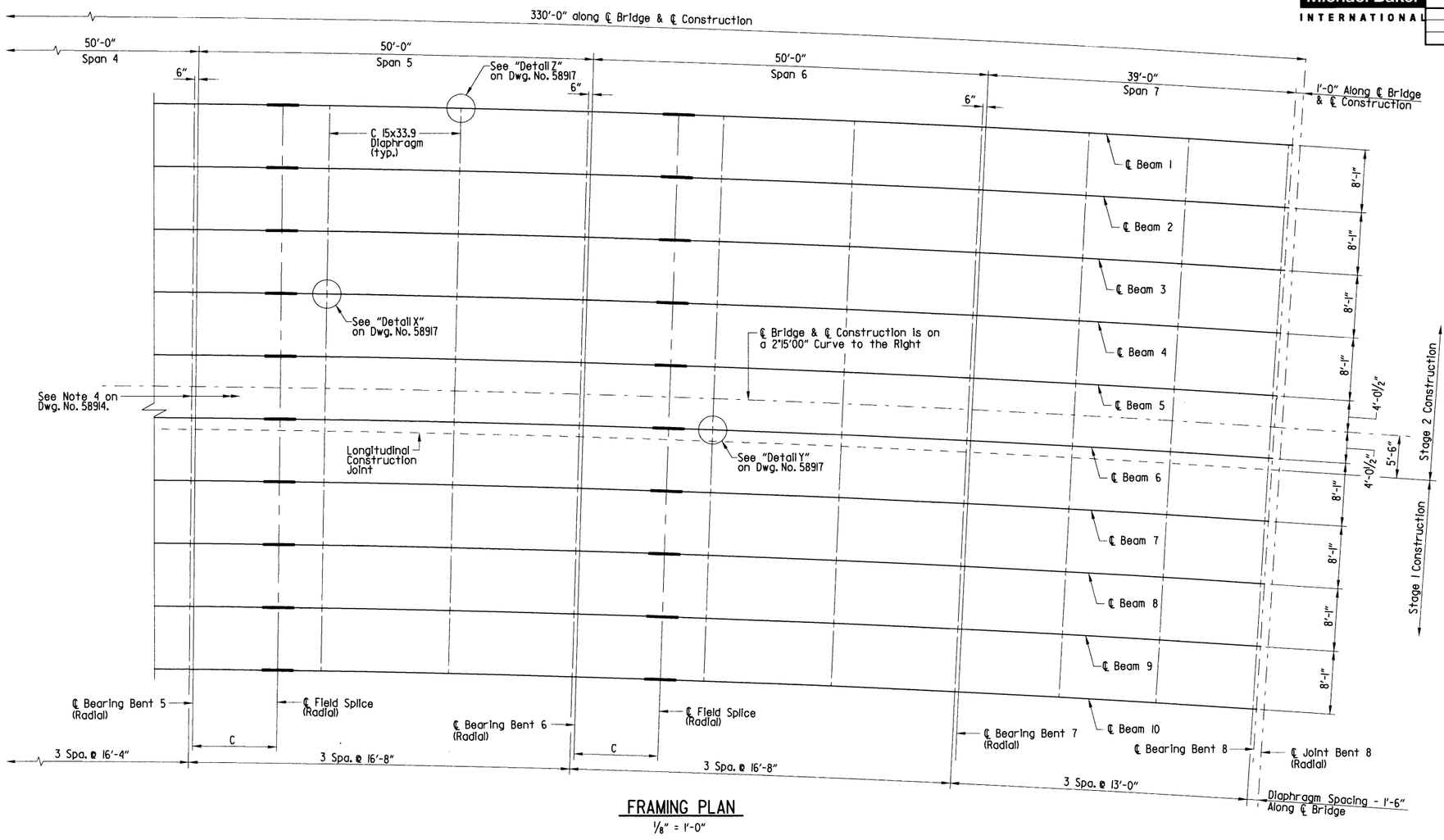
DATE	DATE FILMED	DATE REVISED	DATE FILMED

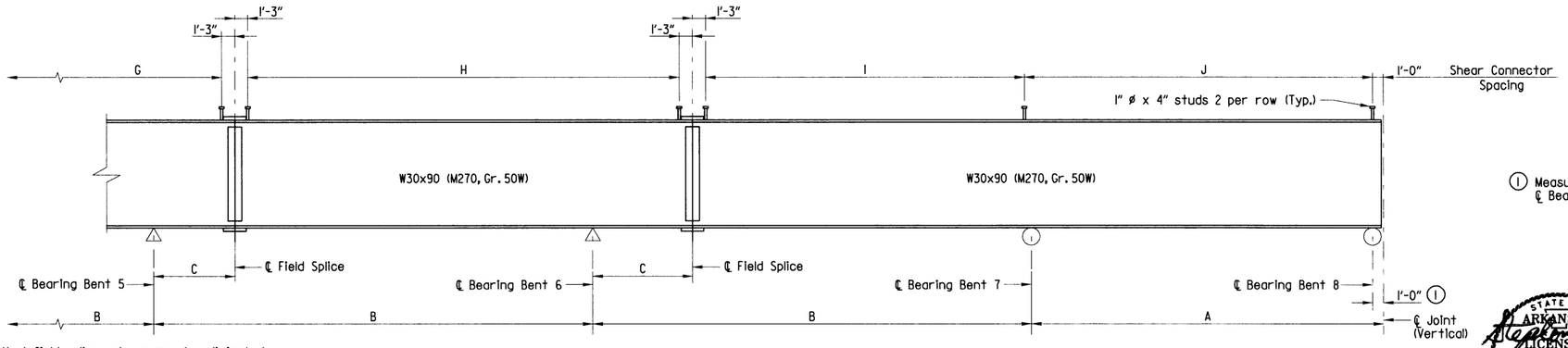
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	412	888

(1) 07366 - 330'-0" CONT. UNIT - 58916



FRAMING PLAN

1/8" = 1'-0"



BEAM ELEVATION

No Scale

Note: For Table of Beam Variables, see Dwg. No. 58917.

Note: Bolted field splices shown may be elminated or shop splices may be substituted with approval of the Engineer. Payment will be made on the basis of plan quantities.

Note: Beams are on curves concentric with ℄ Bridge. Mid-span diaphragms are on radial lines. Diaphragms located at bents are parallel to ℄ Bearing.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 3 OF 8

DETAILS OF
330'-0" CONTINUOUS W-BEAM UNIT
TEN MILE CREEK
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	MAD	DATE:	04/15	FILENAME: bCA0610x3_sx3.dgn
CHECKED BY:	SFH	DATE:	09/15	
DESIGNED BY:	HL	DATE:	03/15	SCALE: As Shown

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REVISED DATE:

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DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
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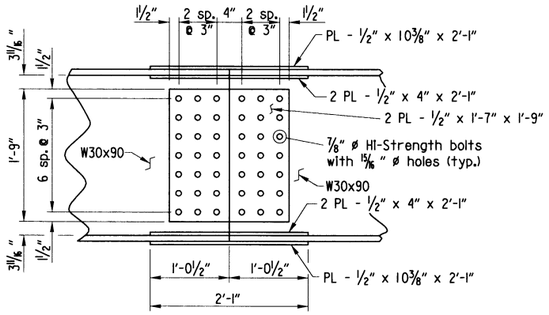
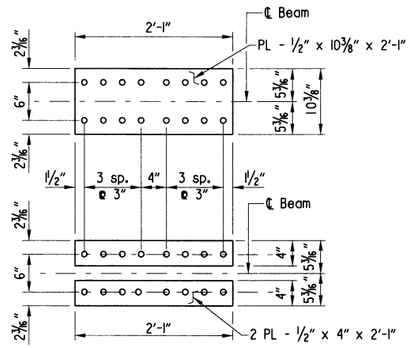


DETAIL OF BOLTED FIELD SPLICES

1" = 1'-0"



TYP. FLANGE SPLICE DETAIL

1" = 1'-0"

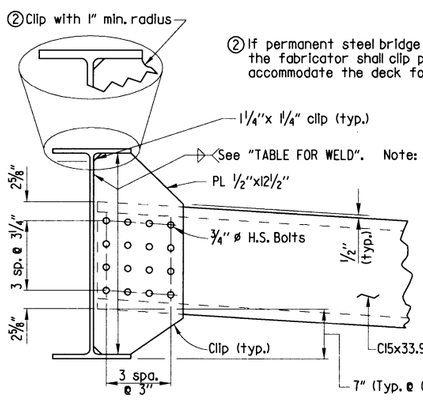
Note:
Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.

All field splice bolts shall be ⅞" ø HI-strength bolts.
All holes for splice bolts shall be 15/16" ø .
All field splice plates shall be AASHTO M270 Gr. 50W steel.

TABLE FOR WELD

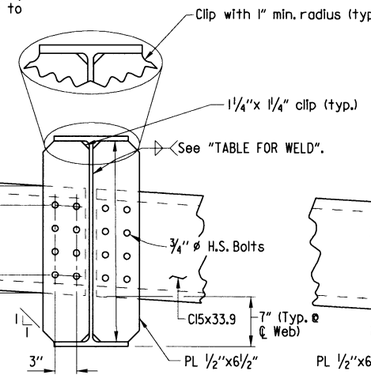
Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	5/16"	

NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.



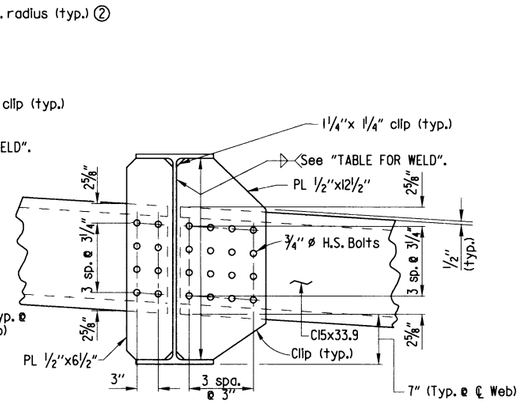
DETAIL Z

No Scale



DETAIL X

No Scale



DETAIL Y

No Scale

TABLE OF BEAM VARIABLES

	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"	"J"
Beam 1	40'-6⅞"	50'-8⅜"	11'-1⅞"	68 Spa. @ 7"	77 Eq. Spa.	142 Eq. Spa.	97 Eq. Spa.	97 Eq. Spa.	78 Eq. Spa.	67 Spa. @ 7"
Beam 2	40'-5⅝"	50'-6¹¹/₁₆"	11'-1⅞"	67 Spa. @ 7"	78 Eq. Spa.	141 Eq. Spa.	97 Eq. Spa.	97 Eq. Spa.	76 Eq. Spa.	68 Spa. @ 7"
Beam 3	40'-3⅜"	50'-4¾"	11'-1¹/₁₆"	68 Spa. @ 7"	76 Eq. Spa.	141 Eq. Spa.	96 Eq. Spa.	96 Eq. Spa.	76 Eq. Spa.	68 Spa. @ 7"
Beam 4	40'-2⅛"	50'-2⅞"	11'-0⅝"	68 Spa. @ 7"	75 Eq. Spa.	140 Eq. Spa.	96 Eq. Spa.	96 Eq. Spa.	75 Eq. Spa.	68 Spa. @ 7"
Beam 5	40'-0¾"	50'-0⅝"	11'-0⅜"	67 Spa. @ 7"	75 Eq. Spa.	140 Eq. Spa.	96 Eq. Spa.	96 Eq. Spa.	76 Eq. Spa.	67 Spa. @ 7"
Beam 6	39'-11¼"	49'-11¹/₁₆"	10'-11⅝"	67 Spa. @ 7"	76 Eq. Spa.	139 Eq. Spa.	95 Eq. Spa.	95 Eq. Spa.	76 Eq. Spa.	67 Spa. @ 7"
Beam 7	39'-9¹¹/₁₆"	49'-9⅛"	10'-11⅜"	67 Spa. @ 7"	75 Eq. Spa.	139 Eq. Spa.	95 Eq. Spa.	95 Eq. Spa.	75 Eq. Spa.	67 Spa. @ 7"
Beam 8	39'-8⅜"	49'-7¼"	10'-10⅝"	66 Spa. @ 7"	76 Eq. Spa.	138 Eq. Spa.	95 Eq. Spa.	95 Eq. Spa.	76 Eq. Spa.	66 Spa. @ 7"
Beam 9	39'-6¹¹/₁₆"	49'-5⅝"	10'-10⅜"	64 Spa. @ 7"	78 Eq. Spa.	138 Eq. Spa.	94 Eq. Spa.	94 Eq. Spa.	75 Eq. Spa.	66 Spa. @ 7"
Beam 10	39'-5⅛"	49'-3⅞"	10'-10⅛"	66 Spa. @ 7"	75 Eq. Spa.	137 Eq. Spa.	94 Eq. Spa.	94 Eq. Spa.	75 Eq. Spa.	66 Spa. @ 7"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 4 OF 8

DETAILS OF
330'-0" CONTINUOUS W-BEAM UNIT
TEN MILE CREEK
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: MAD DATE: 04/15 FILENAME: bCA0610x3_sx4.dgn
CHECKED BY: SFH DATE: 09/15
DESIGNED BY: HL DATE: 03/15 SCALE: As Shown
BRIDGE NO. 07366 DRAWING NO. 58917

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REVISED DATE:

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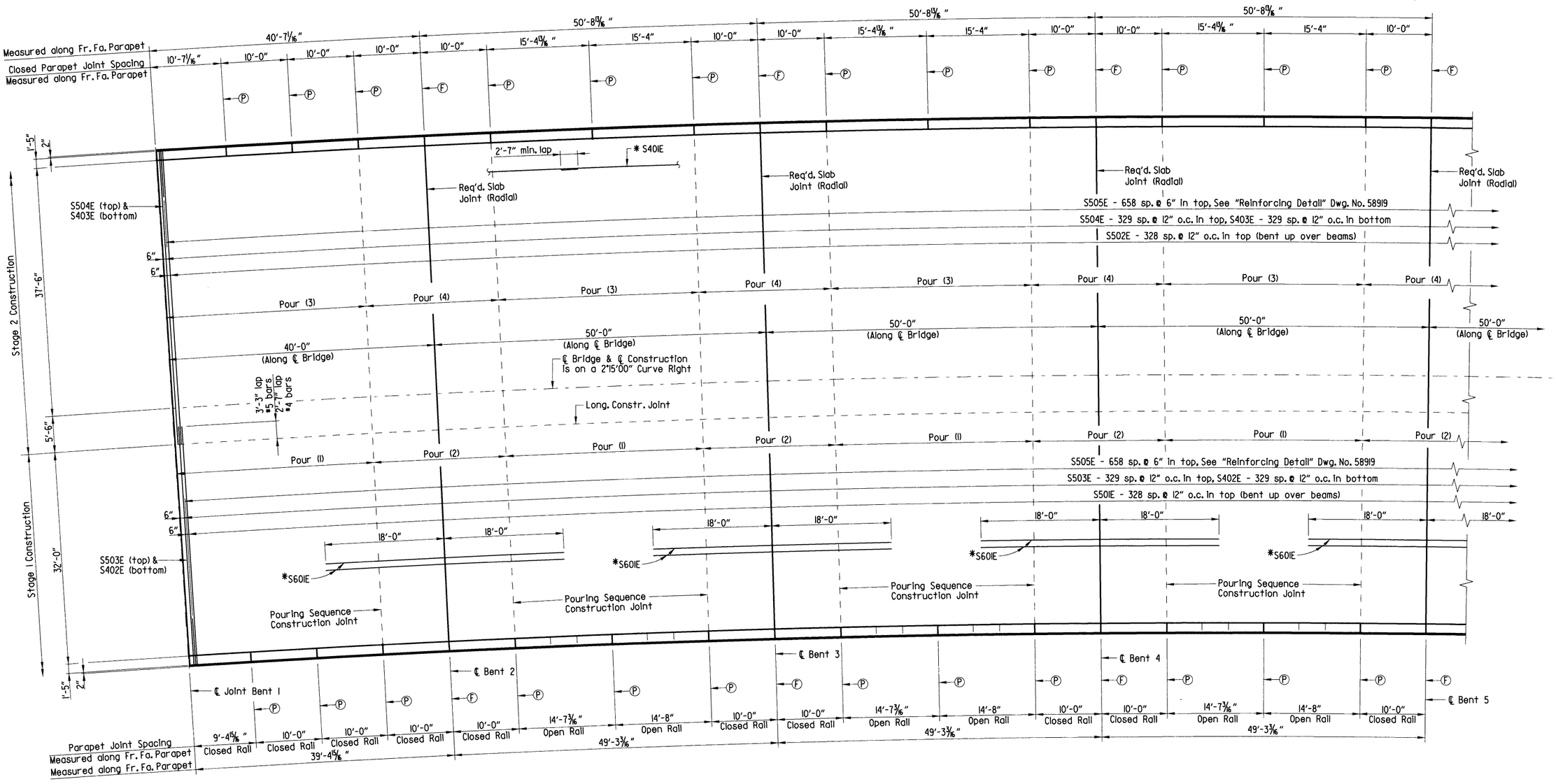
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	414	888

(1) 07366 - 330'-0" CONT. UNIT - 58918



REINFORCING PLAN AND POURING SEQUENCE

1/8"= 1'-0"

Notes:

All transverse reinforcing shall be placed on radial lines. Spacing is measured along ℄ Bridge unless noted otherwise.

All longitudinal lines and reinforcing steel shall be placed on curves concentric with the ℄ Bridge.

Required slab joints and pouring sequence construction joints shall align with open joints at the front face of the parapets.

NOTE: For each stage of construction, pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) and all Pours (3) must be placed before Pours (4) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 72 hours shall elapse between completion of the deck and the pouring of the railing. Any railing pours made before the entire slab unit for each stage of construction has been placed must be approved by the Engineer.

The Contractor must obtain approval from the Engineer for any deviations from the pouring Sequence shown.

Ⓕ Full-Depth Parapet Joint at this location. (Stop 4" above top of slab)

Ⓟ Partial-Depth Parapet Joint at this location. (Stop 1'-2" above top of slab)

* Placed as shown in "Typical Roadway Section", see Dwg. No. 58914.

Note: For "Slab Joint Detail", see Dwg. No. 58919.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 5 OF 8

DETAILS OF
330'-0" CONTINUOUS W-BEAM UNIT
TEN MILE CREEK
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	WDM	DATE:	03/15
CHECKED BY:	SFH	DATE:	09/15
DESIGNED BY:	HL	DATE:	02/15

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DRAWING NO. 58918

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				JOB NO.		CA0610	415	888
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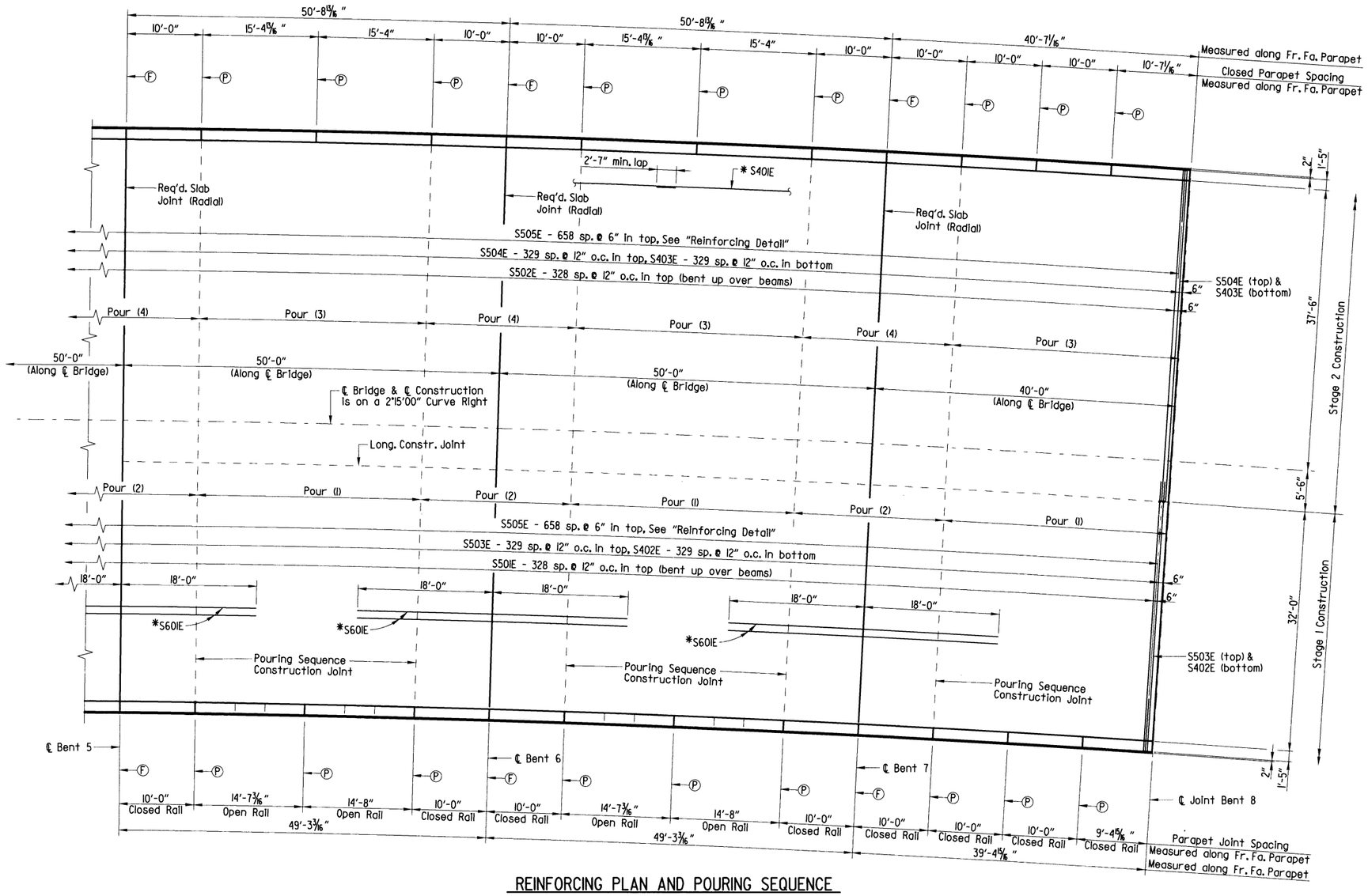


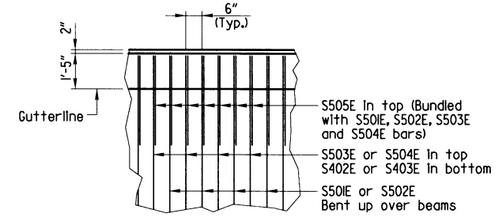
REINFORCING PLAN AND POURING SEQUENCE

1/8"= 1'-0"

Ⓕ Full depth parapet joint at this location. (Stop 4" above top of slab)

Ⓟ Partial depth parapet joint at this location. (Stop 1'-2" above top of slab)

* Placed as shown in "Typical Roadway Section", see Dwg. No. 58914.



REINFORCING DETAIL

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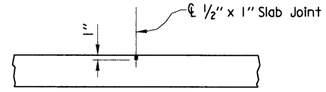
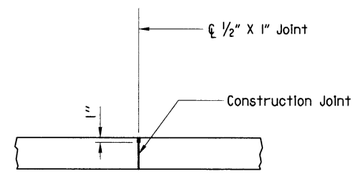


Use Type 3 or 4 Joint Sealer. See Subsections 501.02 (h) and 501.05 (j). Backer rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck from gutterline to gutterline.

SLAB JOINT DETAIL

No Scale



Use 1/2" X 1" Type 3 or 4 Joint Sealer. See Subsections 501.02 (h) and 501.05 (j). Backer rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal must be gray or other color similar to concrete

LONGITUDINAL CONSTRUCTION JOINT

No Scale

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 6 OF 8

DETAILS OF
330'-0" CONTINUOUS W-BEAM UNIT
TEN MILE CREEK
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: WDM DATE: 03/15 FILENAME: bCA0610x3_sx6.dgn
CHECKED BY: SFH DATE: 09/15
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BRIDGE NO. 07366 DRAWING NO. 58919

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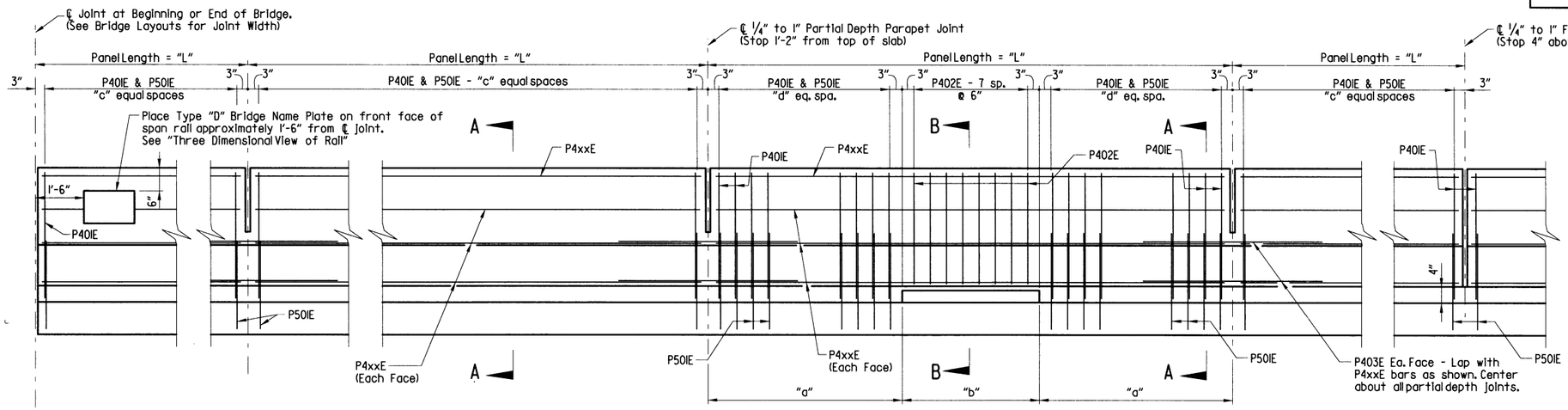
REVISED DATE:

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	416	888

(1) 07366 - 330'-0" CONT. UNIT - 58920



TYPICAL END PANEL

TYPICAL CLOSED PANEL PARAPET RAIL

TYPICAL OPEN PANEL PARAPET RAIL

TYPICAL FULL DEPTH JOINT

ELEVATION - CONCRETE PARAPET RAIL

(As viewed from roadway side of Parapet)

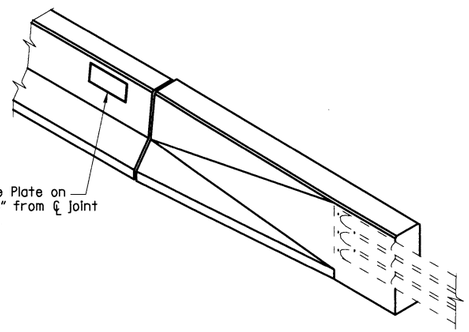
PARAPET RAIL VARIABLES

Panel Length "L"	Panel Type	"a"	"b"	"c"	"d"	P4xxE Bars
10'-0"	closed	-----	-----	19	-----	P404E
9'-4 15/16"	closed	-----	-----	18	-----	P405E
10'-7 1/16"	closed	-----	-----	21	-----	P406E
15'-4"	closed	-----	-----	30	-----	P407E
15'-4 15/16"	closed	-----	-----	30	-----	P407E
14'-7 3/16"	open	5'-3 5/8"	4'-0"	-----	10	P408E
14'-8"	open	5'-4"	4'-0"	-----	10	P408E

Note:
For location of full and partial depth parapet joints, see Dwg. Nos. 58918 and 58919.

The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

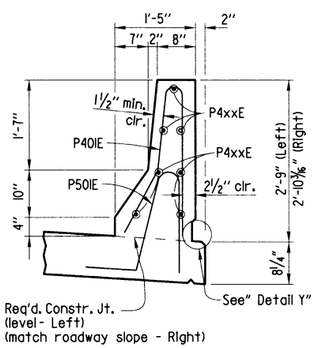
All panels shall be braced as shown to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.



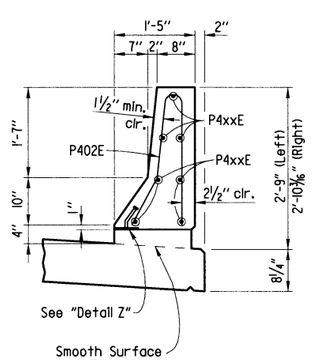
THREE DIMENSIONAL VIEW OF RAIL

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

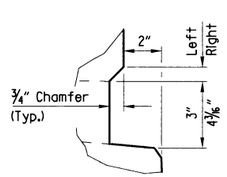
Note: Left denotes Left Side Parapet Rail looking ahead of survey.
Right denotes Right Side Parapet Rail looking ahead of survey.



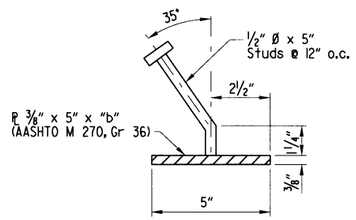
SECTION A-A



SECTION B-B



DETAIL Y



DETAIL Z

Note:
Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".
The surfaces of the 3/8" plates which will not be in contact with concrete shall be painted in accordance with Section 638 or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidary to "Structural Steel in Beam Spans (M270, Gr 50W)"

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 7 OF 8
DETAILS OF
330'-0" CONTINUOUS W-BEAM UNIT
TEN MILE CREEK
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: MAD DATE: 8/14 FILENAME: bCA0610x3_sx7.dgn
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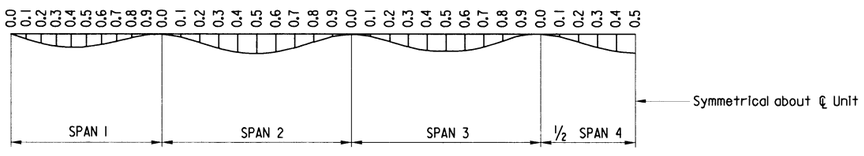
REVISED DATE:

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel	Structural Steel + Slab	Structural Steel + Slab + Parapet
1	0	0	0	0
	0.1	0.009	0.064	0.070
	0.2	0.016	0.117	0.128
	0.3	0.020	0.153	0.167
	0.4	0.022	0.167	0.183
	0.5	0.021	0.159	0.174
	0.6	0.018	0.133	0.145
	0.7	0.013	0.092	0.101
	0.8	0.007	0.048	0.052
	0.9	0.002	0.012	0.013
2	0	0	0	0
	0.1	0.005	0.038	0.041
	0.2	0.015	0.108	0.118
	0.3	0.024	0.179	0.196
	0.4	0.031	0.230	0.252
	0.5	0.033	0.248	0.270
	0.6	0.031	0.227	0.248
	0.7	0.023	0.174	0.190
	0.8	0.014	0.101	0.111
	0.9	0.005	0.033	0.036
3	0	0	0	0
	0.1	0.004	0.029	0.031
	0.2	0.013	0.092	0.101
	0.3	0.021	0.160	0.176
	0.4	0.028	0.211	0.230
	0.5	0.031	0.229	0.251
	0.6	0.028	0.212	0.231
	0.7	0.022	0.162	0.177
	0.8	0.013	0.094	0.102
	0.9	0.004	0.029	0.032
4	0	0	0	0
	0.1	0.004	0.031	0.034
	0.2	0.013	0.097	0.106
	0.3	0.022	0.166	0.182
	0.4	0.029	0.217	0.237
	0.5	0.032	0.235	0.257

← Symmetrical about ℄ Unit

NOTE:
Camber for Dead Load Deflection plus Vertical curve ± 1/4" tolerances.
Deflections shown are a chord from ℄ Bearing to ℄ Bearing. Vertical curve corrections not included. Negative sign (-) indicates point above chord.



DEAD LOAD DEFLECTION DIAGRAM

NO SCALE

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REVISED DATE:

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	417	888

(1) 07366 - 330'-0" CONT. UNIT - 58921

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition.

MATERIALS AND STRENGTHS:
Class S(AE) Concrete — f'c = 4,000 psi
Reinforcing Steel (AASHTO M31 or M322, Type A, Gr. 60) — fy = 60,000 psi
Structural Steel (M 270, Gr. 50W) — Fy = 50,000 psi
Structural Steel (M 270, Gr. 36) — Fy = 36,000 psi

CONCRETE:
Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted. All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Standard Drawing No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Use of longitudinal screed is not permitted on any span of a bridge deck with horizontal curvature.

Concrete in Bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The concrete deck shall be given a tine finish in accordance with the Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam or girder. When permitted, the use of a longitudinal strike-off will require that a vertical camber adjustment be made in the strike-off to account for the future dead-load deflection due to any railings, median barrier, and sidewalks.

REINFORCING STEEL:
All reinforcing steel shall conform to AASHTO M31 or M322, Type A, with mill test reports and shall be epoxy coated, Grade 60. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL:
All structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel In Beam Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with Subsection 807.84. Structural steel completely embedded in concrete may be AASHTO M 270, Grade 36 unless otherwise noted.

Drawings show general features of design only. Shop Drawings shall be made in accordance with the specifications, submitted and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

Beams and field splice plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel In Beam Spans (M 270, Gr. 50W)".

All beams shall be assembled in the shop as specified in Section 807.54 and blocked in their true position with webs horizontal in groups as specified in Subsection 807.54(b)(2). The camber, length of sections, distance between bearings, and the openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of 1/4" +/- is allowed for camber.

Flange field splice plates for main members shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching false work support devices of screed rail supports to the structural steel that do not exceed the limitations of Subsection 802.13 will not require approval prior to construction. All welding shall conform to Subsection 807.26

Unless otherwise noted, field connections shall be bolted with 3/4" ø high-strength bolts using 15/16" ø open holes. Holes for 3/4" ø high-strength bolts may be 7/8" ø if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

Steel diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck unless otherwise noted.

All shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with recommendations of the Manufacturer.

Bearings shall be seated in accordance with Section 807.66. This work and material will not be paid for directly but will be considered subsidiary to item "Structural Steel In Beam Spans (M 270, Gr. 50W)

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
STEPHEN F. HARPER
No. 14501

9/23/16
BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 8 OF 8
DETAILS OF
330'-0" CONTINUOUS W-BEAM UNIT
TEN MILE CREEK
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

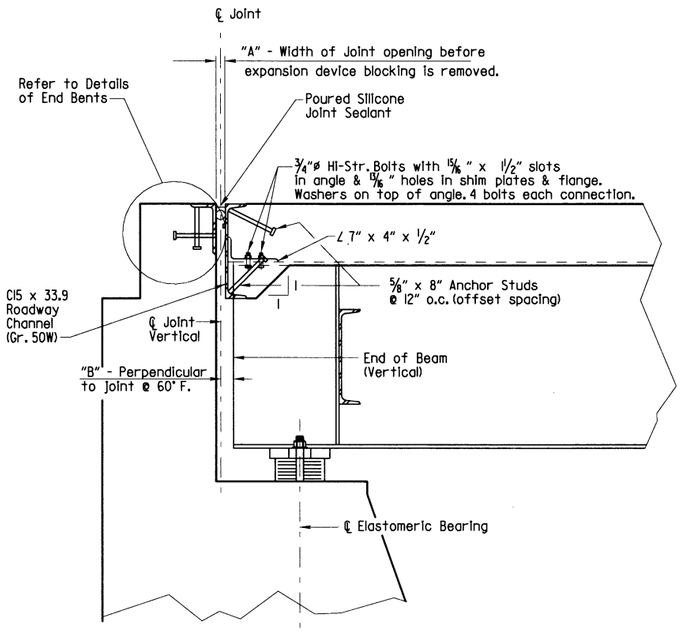
DRAWN BY: MAD DATE: 4/15
CHECKED BY: SFH DATE: 9/15
DESIGNED BY: HL DATE: 4/15
FILENAME: bCA0610x3_sx8.dgn
SCALE: No Scale
BRIDGE NO. 07366
DRAWING NO. 58921

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

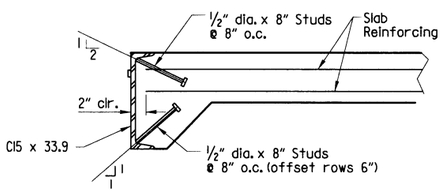
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	418	888

(1) 07366 - SPAN DETAILS - 58922



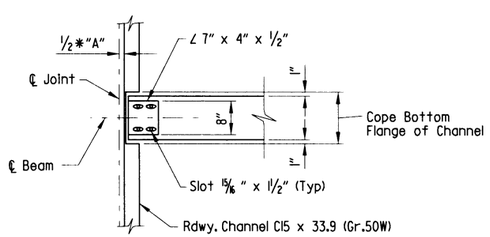
SECTION THRU JOINT AT END BENTS

Note: Detail expansion device ⅛" high and provide ¼" shims using 2-1/16" plates and 1-⅛" plate.

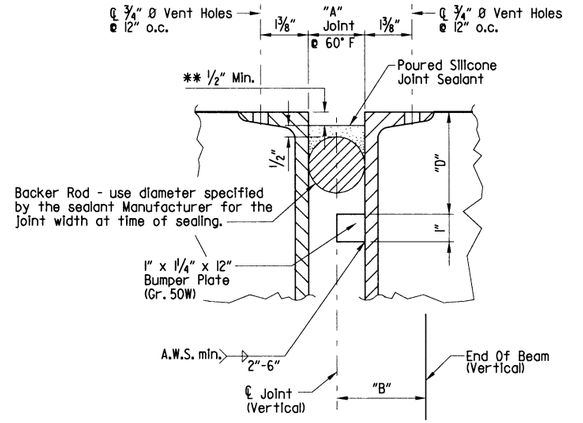


DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

Note:
As an alternate to 5/8"ø studs, ½"ø x8" studs spaced as shown may be used. Use weight of 5/8"ø stud as basis of measurement of structural steel in anchors.



TYPICAL CHANNEL CONNECTION DETAIL



DETAIL OF POURED SILICONE JOINT

Note: Concrete shall be hand packed under the joint armor in the span and backwall.

SILICONE JOINT DATA

Bridge Location	Bent Nos.	"A" Joint Width Perpendicular To Joint 24 Hour Average Temperature* Of :			"B" Perpendicular To Joint @ 60°F	"D"
		40°F	60°F	80°F		
Ten Mile Creek	1 & 8	2¾"	2½"	2¼"	2½"±	5"

*The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

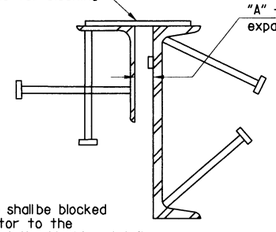
NOTES:
The temperature limitations recommended by the sealant manufacturer shall be observed. The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80° F.

Use an appropriately size backer rod at the depth shown in the manufacturer's literature based on the joint width at the time of sealing. Unless otherwise noted, do not install more backer rod than can be sealed in the same day.

The Contractor shall verify separation of the backer rod for the joint material after the joint material has set.

Backer rods shall be extended beyond length of poured joint in Stage 1 so that the two pieces can be properly spliced together prior to installing sealant for Stage 2. Manufacturer's recommendations shall be followed to prevent sealant from "running out of the joint" during stage construction.

For Transverse Strike-off:
Plate, angle, or other shapes, attached to channel and angle for blocking



Note:
Each expansion joint device shall be blocked in the shop by the Fabricator to the dimension shown for 60°F, and the blocking details shall be shown on the Shop Drawings. Blocking shall be placed within 2'-0" of each end of the device and with a maximum spacing of 8'-0".

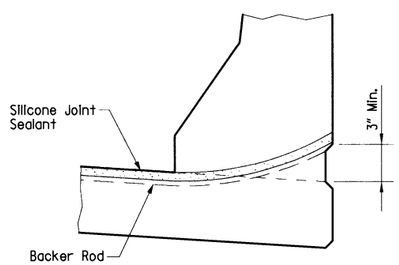
EXPANSION DEVICE INSTALLATION

The Contractor may elect to install the expansion device using one of the following two alternatives.

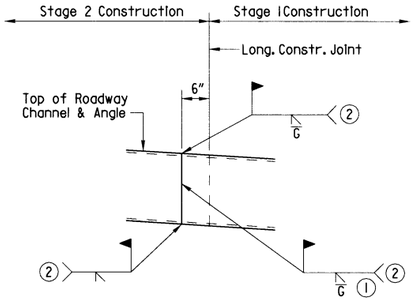
1. The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, the opening adjusted for temperature, and the backwall constructed.

2. The backwall shall be poured to the optional construction joint after beams are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature. Backfill shall not be placed behind the backwall until the deck concrete on the adjacent span has been placed.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE



JOINT SEAL PLACEMENT AT CURB



DETAIL OF WELD LOCATION FOR EXPANSION DEVICE

(1) Grind flush from top of deck to top of bumper plate.

(2) Weld after Stage 1 pour and prior to Stage 2 pour.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

DETAILS OF POURED SILICONE JOINT TEN MILE CREEK

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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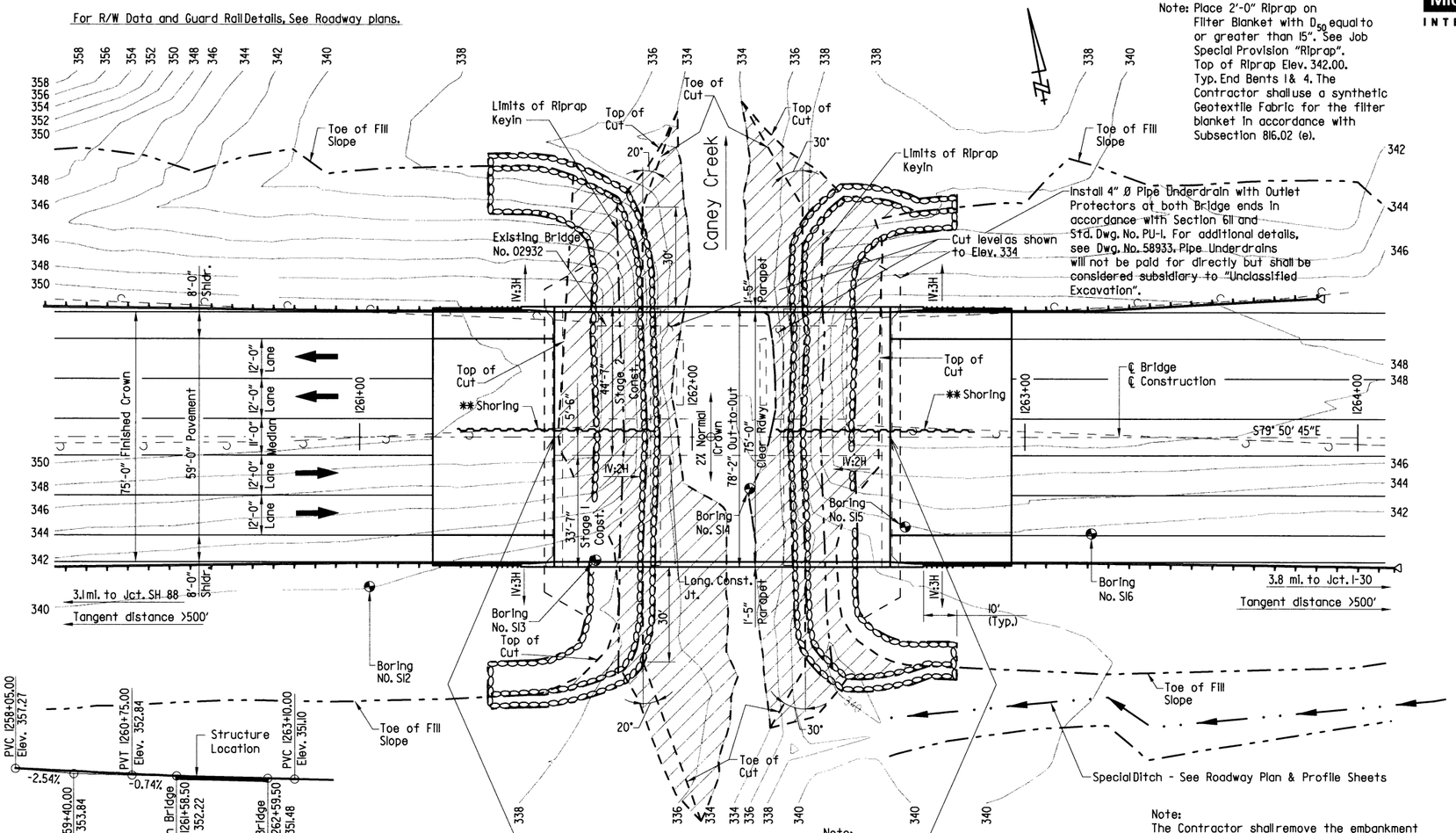
REVISED DATE:

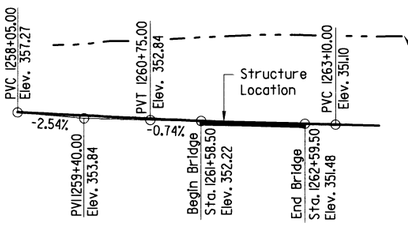
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	419	888
				07367 - LAYOUT - 58923				

For R/W Data and Guard Rail Details, See Roadway plans.



PLAN



Vertical Curve Length = 270'

VERTICAL CURVE DATA

Along ℄ Construction

Note:
Stations and Elevations are along ℄ Bridge.
Elevations shown are at working point.

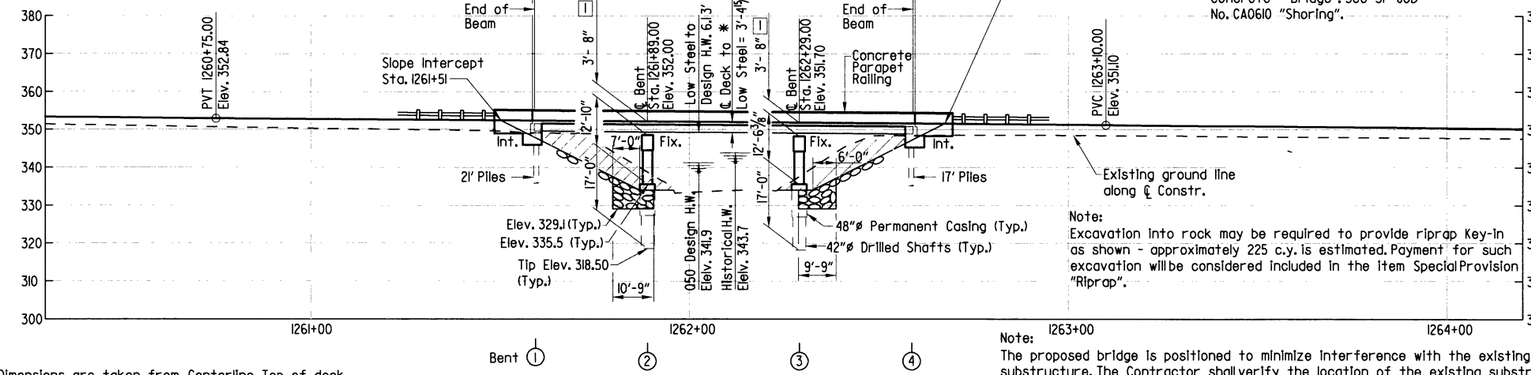
* Measured from Working Point at ℄ Bridge and ℄ Construction. See "Rounding Detail" On Dwg. No. 58931.

Note:
Use Type Special Approach Slab and Type C Approach Gutters ("W" = 8'-0") at both ends of bridge, see Dwg. No. 58936 & Std. Dwg. 55030C.

Note:
For Soil Borings, See Dwg. No. 58924.

Note:
The Contractor shall remove the embankment at the existing bridge ends as shown using 1V:2H slopes. Cut to Elev. 334.00 at beginning of bridge and to Elev. 334.00 at end of bridge. Approx. 1,460 cu. yds. of excavation.

** Shoring may be required during construction. Payment for this work, if required, shall be considered subsidiary to the pay item "Unclassified Excavation for Structures - Bridge" or "Class S Concrete - Bridge". See SP Job No. CA0610 "Shoring".



ELEVATION

1 Dimensions are taken from Centerline Top of deck ℄ Centerline Bent to low Seat of cap.

Note:
Excavation into rock may be required to provide riprap Key-In as shown - approximately 225 c.y. is estimated. Payment for such excavation will be considered included in the item Special Provision "Riprap".

Note:
The proposed bridge is positioned to minimize interference with the existing substructure. The Contractor shall verify the location of the existing substructure before constructing the new substructure. Any adjustments necessary to fit the proposed bridge shall be submitted to the Engineer for approval.

GENERAL NOTES

BENCH MARK: 60D Nail, 51.27' left of Station 1261+97.86, Elevation 349.83.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Construction Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: 2012 AASHTO LRFD Bridge Design Specifications, with current Interim Specifications.

LIVE LOADING: HL93
SEISMIC ZONE: 1 SDI= 0.128 Site Class = C

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M31 or M322, Type A, Gr, 60)	fy = 60,000 psi
Structural Steel (AASHTO M270, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M270, Gr. 50W)	Fy = 50,000 psi

BORING LOGS: Boring Logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: Piling in Bents 1 & 4 shall be HP 12x53 (Grade 50) and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 95 tons and into material designated as moderately hard to hard shale on the boring legend. Piles at Bents 1 & 4 shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual lengths are to be determined in the field. The Contractor shall use approved steel H-pile driving points.

PREBORING: Preboring is required for all piles in Bent 1 and Bent 4. Preboring shall be to a minimum 5' into material designated as moderately hard to hard shale on the boring legend. The actual size and depth of preboring shall be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free of debris prior to driving piles and backfilling which may require the use of temporary casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to within 10' of the bottom of end bent cap, and the remaining 10' shall be backfilled with sand or pea gravel. The cost of any backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring."

DRILLED SHAFTS: Foundations for intermediate bents shall consist of the Drilled Shafts. All Drilled Shafts shall be founded into moderately hard to hard shale and to the minimum rock penetrations and tip elevations shown in the plans. No adjustments in the Plan Tip Elevations shall be made without prior approval from the Engineer. Methods of construction of the drilled shafts shall be in accordance with SP Job No. CA0610 "Drilled Shaft Foundations". Any casing used as a means for construction of the drilled shafts, such as to prevent caving, to exclude groundwater, or provide shoring shall not extend below top of rock. the Contractor must obtain approval from the Engineer for any deviation from this requirement. If Contractor chooses to excavate for and place riprap key-in prior to completion of Drilled Shafts, adequate block-out of all material around each drilled shaft shall be provided to allow construction of shafts in accordance with the plans and Special Provision Job No. CA0610 "Drilled Shaft Foundations".

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed in accordance with SP Job No. CA0610 "Nondestructive Testing of Drilled Shafts".

BRIDGE DECK: The concrete bridge deck shall be given a fine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

DETAIL DRAWINGS:	DRAWING NO(S).
End Bents	58927 & 58928
Intermediate Bents	58929 & 58930
100'-0" Integral Composite W-Beam Unit	58931- 58935
Type Special Approach Slabs	58936
Type C Approach Gutters	55030C

EXISTING BRIDGE: Existing Bridge No. 02932 (log 3.29) is 33.5' wide and 75' long and consists of 3-25' concrete slab spans supported by 2-column concrete bents on spread footings. The centerline of the existing bridge is approximately 19' downstream from the proposed centerline of construction. Plans of the existing bridge can be obtained upon request from the Construction Contract Procurement Section of the Program Management Division.

REMOVAL AND SALVAGE: After the Stage 1 Construction of the new bridge is open to traffic, existing Bridge No. 02932 shall be removed in accordance with Section 205 of the Standard Specifications. All material from the existing bridge shall become the property of the Contractor.

STAGED CONSTRUCTION: The proposed bridge will be built in stages in order to maintain traffic during construction. For staging details, see Dwg. Nos. 58925 & 58926.

MAINTENANCE OF TRAFFIC: See Roadway Plans

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER 9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER CANEY CREEK
HOT SPRINGS - I-30 (WIDENING) (S)
GARLAND AND SALINE COUNTIES
ROUTE 70 SECTION 10

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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CHECKED BY: SFH DATE: 03/15
DESIGNED BY: HL DATE: 08/15 SCALE: 1" = 20'
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REVISED DATE:

Michael Baker INTERNATIONAL

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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	420	888
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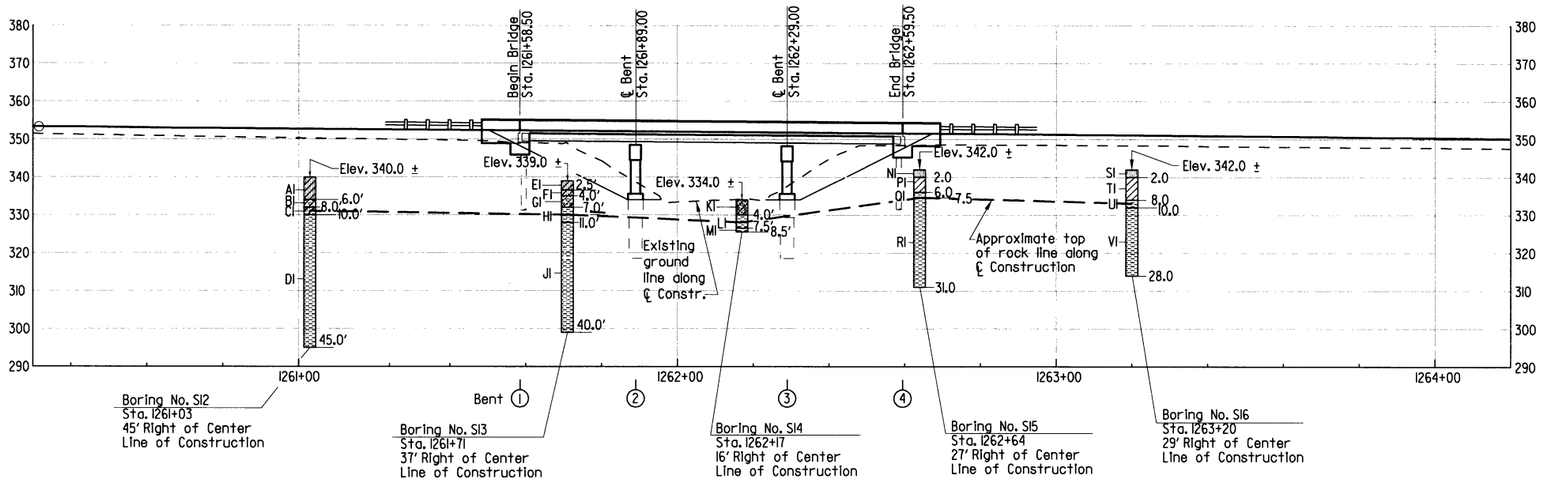

ELEVATION OF SOIL BORINGS

BORING LEGEND

AI- Firm brown silty clay, slightly sandy w/ferrous stains and nodules - stiff below 2 ft
BI- Very stiff brown fine sandy clay w/novaculite fragments
CI- Moderately hard tan and dark gray weathered shale
DI- Moderately hard to hard dark gray shale w/quartz veins and inclusions and very close sandstone partings and seams - auger refusal at 11 ft - quartz layer from 20-21 ft - quartz vein 21.1 ft - less quartz below 25 ft
EI- Stiff gray and brown silty clay w/moderately weathered shale seams and novaculite fragments (fill)
FI- Stiff brown silty clay, slightly sandy w/some organics
GI- Very stiff brown fine sandy clay w/shale and novaculite fragments
HI- Low hardness dark gray shale - moderately hard below 8 ft - auger refusal at 11 ft
JI- Moderately hard to hard dark gray shale w/close quartz inclusions and close sandstone partings, +/- 30° dip - very close inter bedded sandstone and shale from 20 - 20.5 ft
KI- Stiff brown fine sandy clay w/a little fine to coarse gravel- with more gravel below 2 ft
LI- Low hardness tan and dark gray weathered shale - moderately hard below 6 ft
MI- Moderately hard to hard dark gray shale - auger refusal at 8.5 ft
NI- Loose tan and brown silt, slightly sandy w/trace fine gravel and trace organics (fill)
PI- Firm dark brown fine sandy clay w/trace organics - slightly sandy w/ht ferrous nodules below 4ft - with trace fine gravel below 4.5 ft
QI- Moderately hard tan, light gray and dark gray moderately weathered shale
RI- Moderately hard dark gray shale - moderately hard to hard below 13ft - auger refusal at 31ft in hard shale
SI- Medium dense tan fine sandy silt, slightly clayey w/trace fine gravel and shale fragments (fill)
TI- Stiff light gray and tan fine sandy clay w/trace fine gravel- with trace coarse gravel below 4 ft - tan and reddish tan with some coarse gravel below 6ft
UI- Moderately hard light gray and dark gray moderately weathered shale
VI- Moderately hard dark gray shale - auger refusal at 28 ft in hard shale

"N" VALUES

Boring No. SI2
Sta. 1261+03- 45' Right of Center Line of Construction

0.5-	1.5	N=9
2.5-	3.5	N=13
4.5-	5.5	N=16
6.5-	7.5	N=28
9.0-	9.1	N=50/1"
14.0-		N=25/0"

Boring No. SI3
Sta. 1261+71- 37' Right of Center Line of Construction

0.5-	1.5	N=14
2.5-	3.5	N=15
4.5-	5.5	N=26
6.5-	7.5	N=33
9.0-	9.3	N=50/3"
14.0-		N=25/0"

Boring No. SI4
Sta. 1262+17- 16' Right of Center Line of Construction

0.5-	1.5	N=10
2.5-	3.5	N=15
4.5-	5.5	N=26
6.0-	6.2	N=50/2"
8.0-		N=25/0"

Boring No. SI5
Sta. 1262+64- 27' Right of Center Line of Construction

0.5-	1.5	N=6
2.5-	3.5	N=9
4.0-	5.0	N=15
6.0-	6.7	N=50/8"
7.5-	7.6	N=50/1"
13.0-	13.1	N=50/1"
19.0-		N=25/0"
24.0-	24.1	N=50/1"
29.0-		N=25/0"

Boring No. SI6
Sta. 1263+20- 29' Right of Center Line of Construction

0.5-	1.5	N=19
2.5-	3.5	N=20
4.5-	5.5	N=22
6.5-	7.1	N=50/7"
9.0-	9.3	N=50/4"
14.0-	14.1	N=50/1"
19.0-		N=25/0"

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	*NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	2986	339.6	341.9
Base	100	3595	340.0	342.9
Extreme	500	5202	341.3	345.0
Overtopping	>500	>500	>500	>500

* Unconstricted water surface without structure or roadway approaches.

Q100 backwater elevation for existing structure = 343.67 feet.
Proposed Low Bridge Chord Elevation = 348.07 feet.

Drainage area = 3.66 square miles.

Historical H.W. Elev. = 343.7 ft.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER
CANEY CREEK
HOT SPRINGS - I-30 (WIDENING) (S)
GARLAND AND SALINE COUNTIES
ROUTE 70 SECTION 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: JRM DATE: 02/14 FILENAME: bCA0610x4_lx2.dgn
CHECKED BY: SFH DATE: 03/15
DESIGNED BY: HL DATE: 08/14 SCALE: 1" = 20'
BRIDGE NO. 07367 DRAWING NO. 58924

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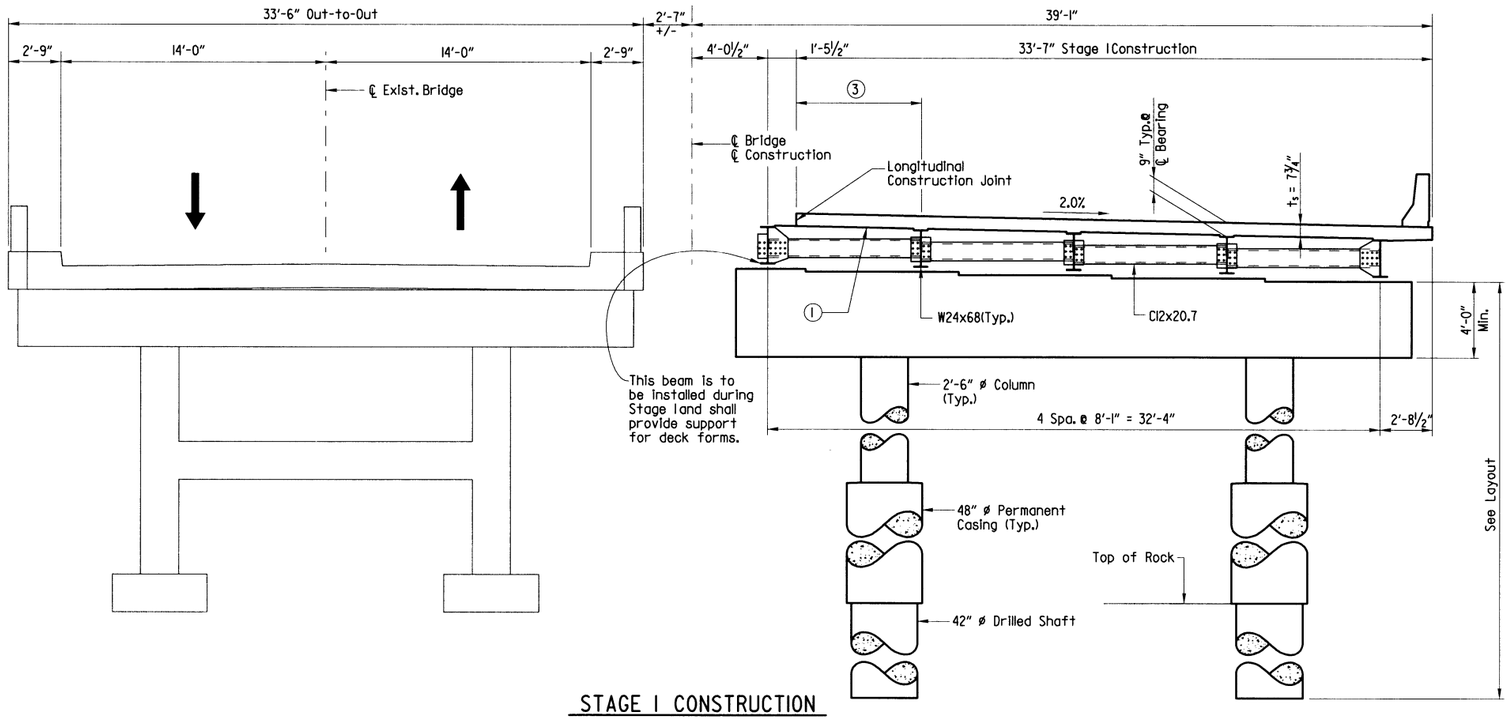
REVISED DATE:

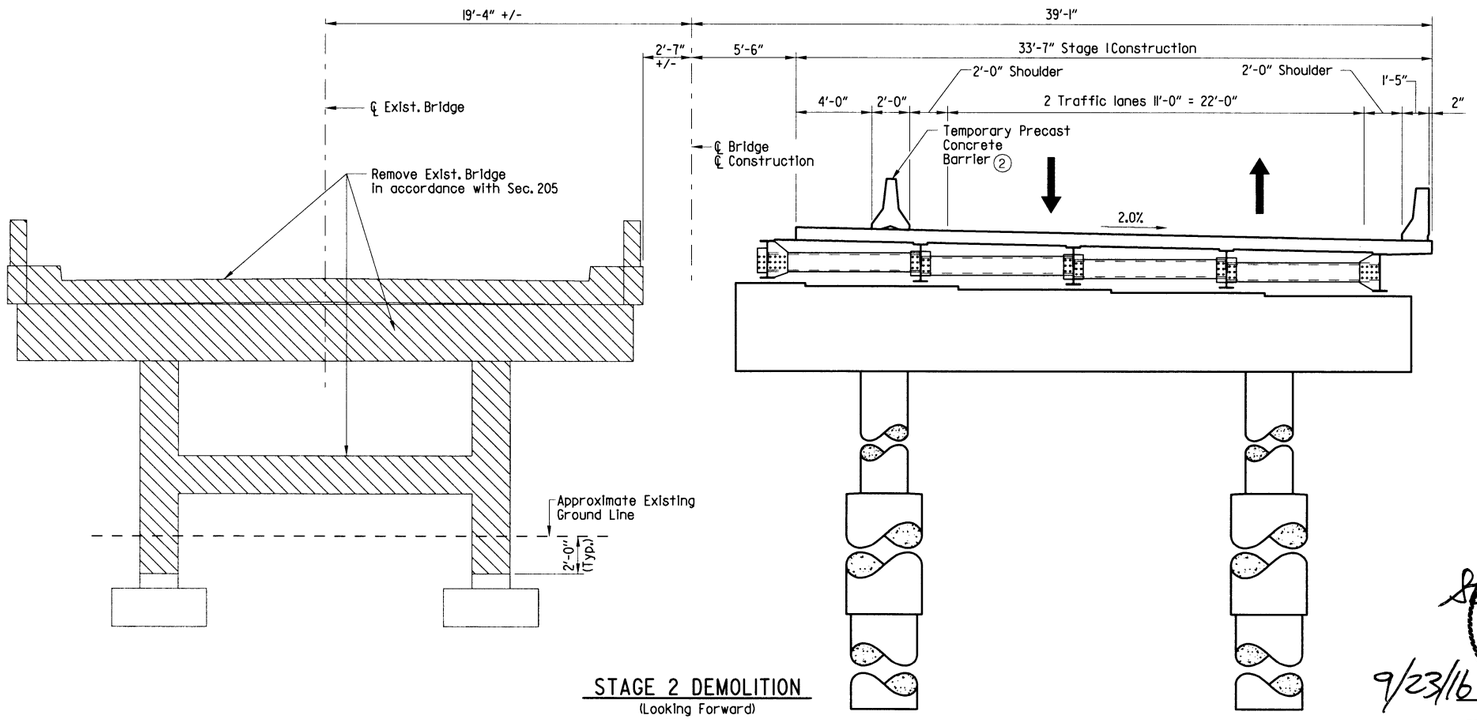
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	421	888
				(1)	07367 - TYPICAL SECTION - 58925			



STAGE 1 CONSTRUCTION

(Looking Forward)
¼" = 1'-0"



STAGE 2 DEMOLITION

(Looking Forward)
¼" = 1'-0"

① Install Deck Form full width to facilitate Stage 2 Deck construction.

② For details of temporary barrier, see Std. Dwg. TC-4. Connect the temporary barrier to the deck using the "Barrier Stabilization Detail" as shown on Std. Dwg. TC-4.

③ Construction vehicles shall not travel beyond the centerline of Beam.

Note:
Details which relate to Maintanance of Traffic are shown on the bridge plans for information only. See Roadway Plans for Maintenance of Traffic.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 1 OF 2
TYPICAL SECTION AND STAGED CONSTRUCTION
CANEY CREEK
HOT SPRINGS - I-30 (WIDENING) (S)
GARLAND AND SALINE COUNTIES
ROUTE 70 SECTION 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: WDM DATE: 08/14 FILENAME: bCA0610x4_lx3.dgn
CHECKED BY: SFH DATE: 03/15
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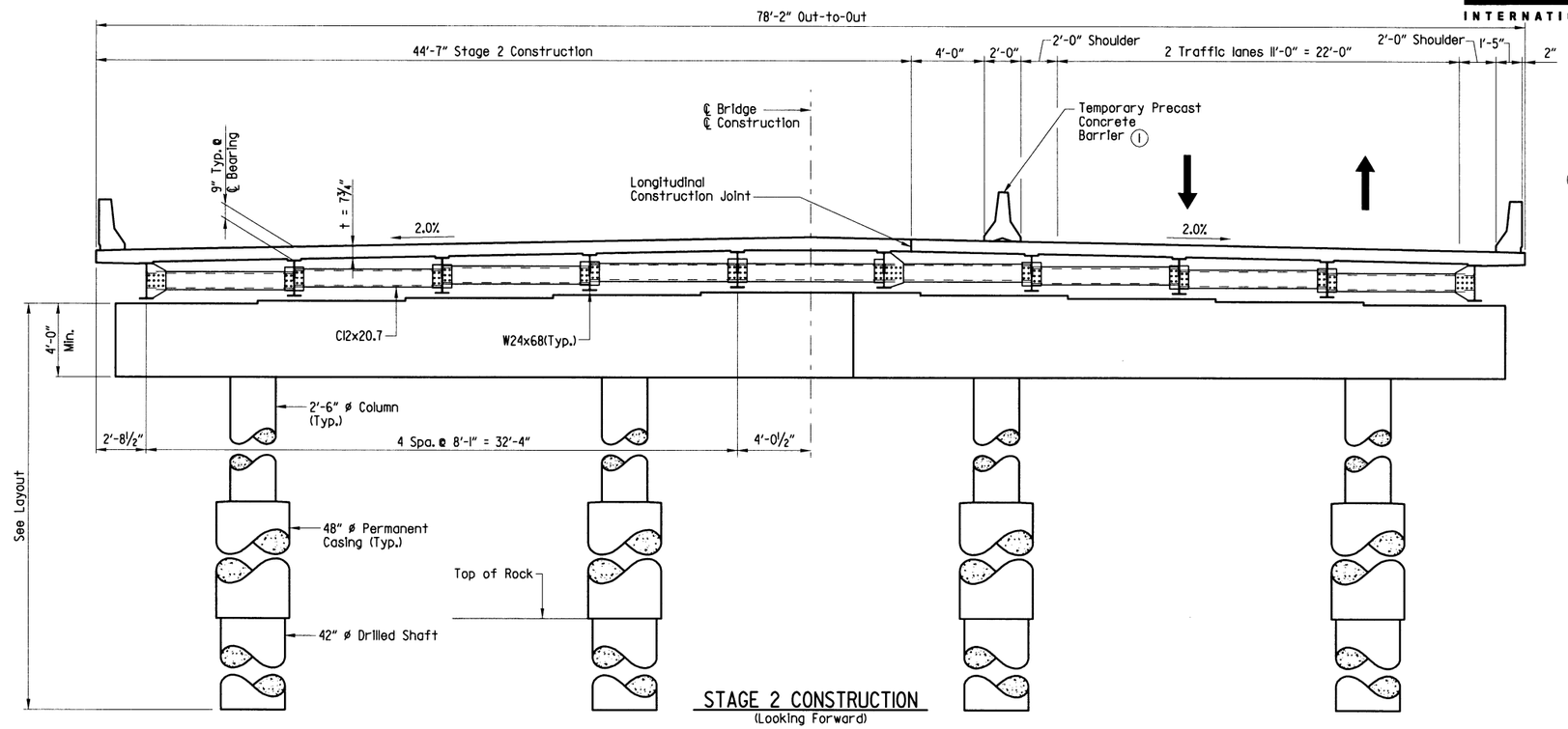
REVISED DATE:

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

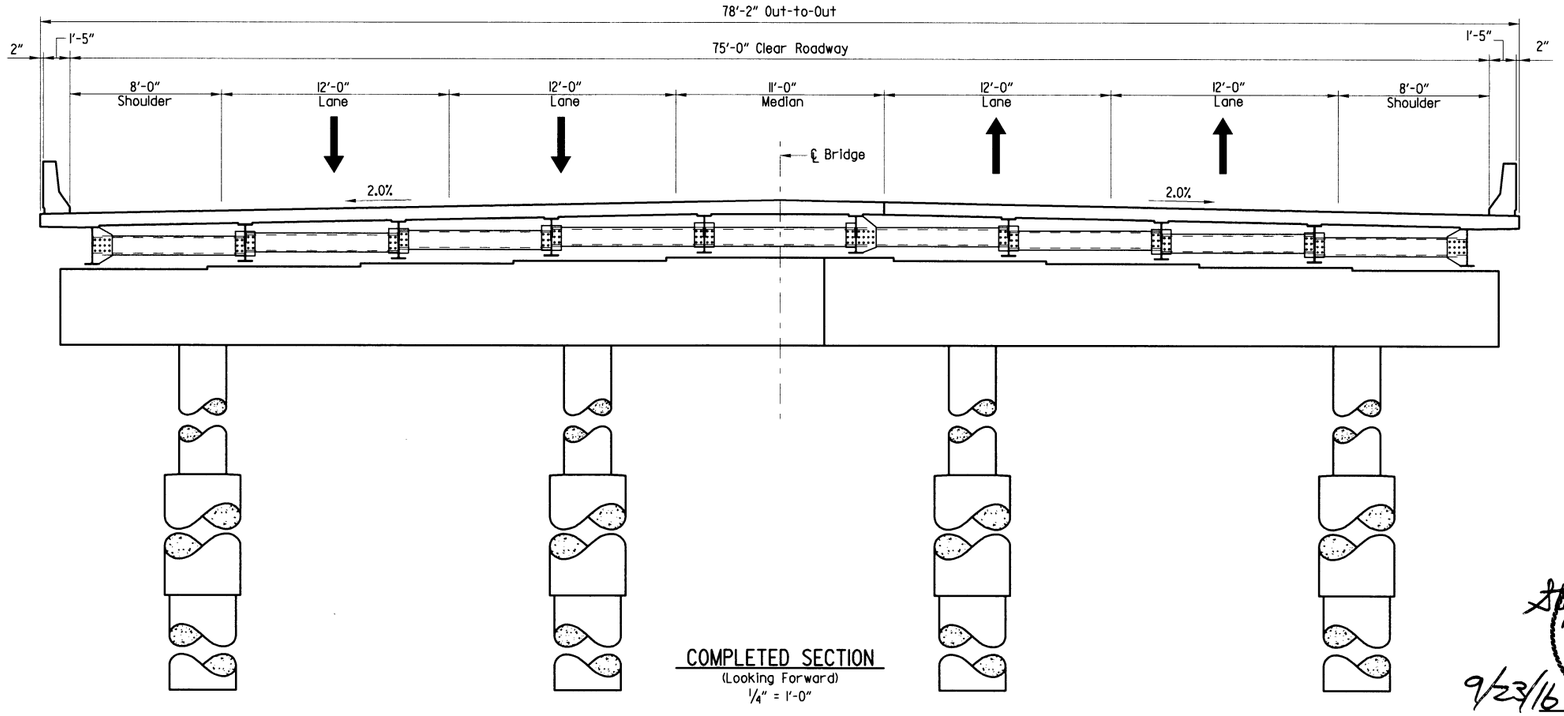
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	422	888

(1) 07367 - TYPICAL SECTION - 58926



STAGE 2 CONSTRUCTION
(Looking Forward)
¼" = 1'-0"

(1) For details of temporary barrier, see Std. Dwg. TC-4. Connect the temporary barrier to the deck using the "Barrier Stabilization Detail" as shown on Std. Dwg. TC-4.



COMPLETED SECTION
(Looking Forward)
¼" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 2 OF 2
TYPICAL SECTION AND STAGED CONSTRUCTION
CANEY CREEK
HOT SPRINGS - I-30 (WIDENING) (S)
GARLAND AND SALINE COUNTIES
ROUTE 70 SECTION 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: WDM DATE: 08/14 FILENAME: bCA0610x4_lx4.dgn
CHECKED BY: SFH DATE: 03/15
DESIGNED BY: HL DATE: 08/14 SCALE: As Noted
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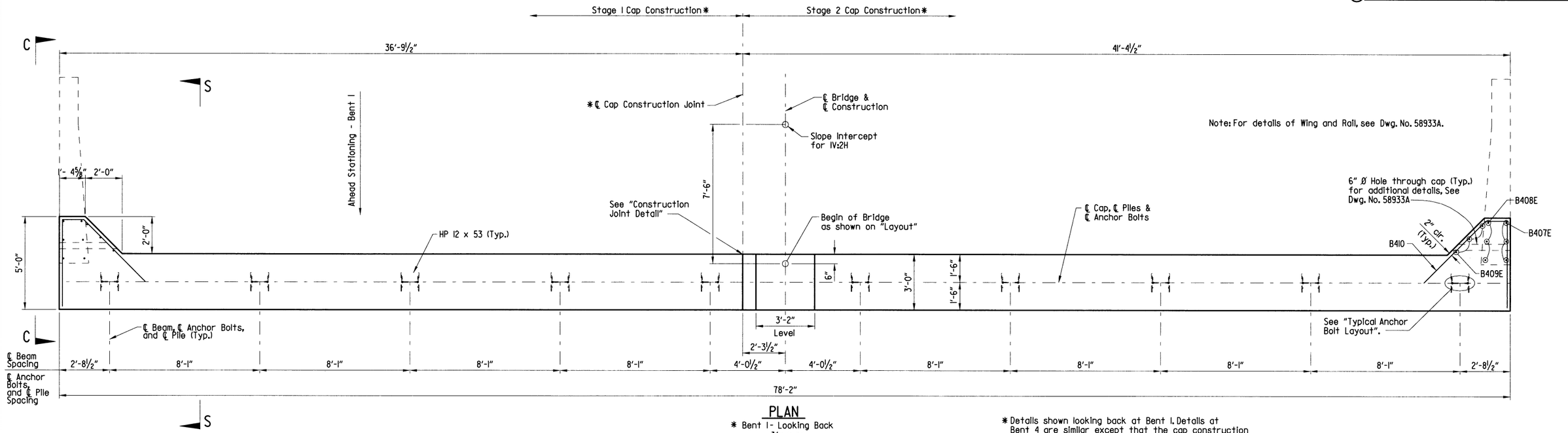
REVISED DATE:

Michael Baker INTERNATIONAL

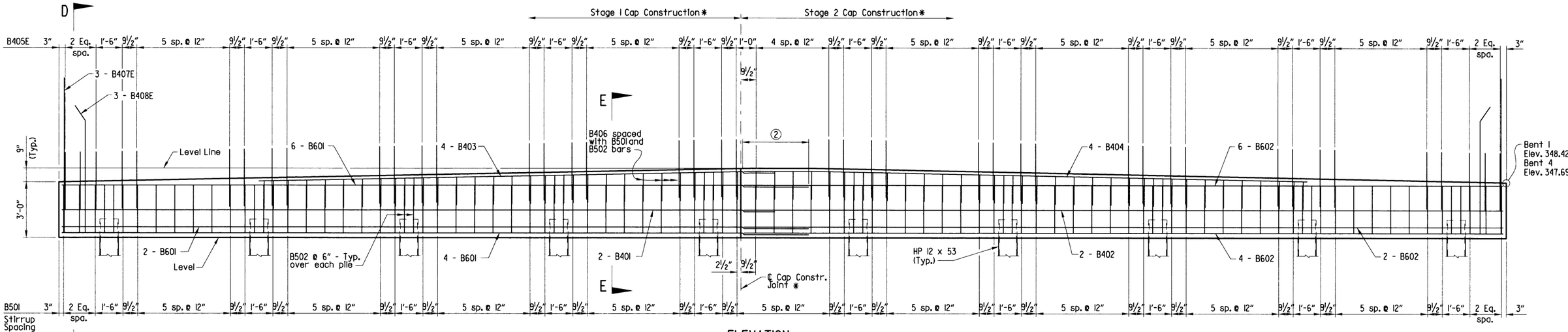
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	423	888
				(1)	07367 - END BENT DETAILS - 58927			

NOTE:
Class I Protective Surface Treatment shall be applied to the Roadway surface, and to the Roadway Face & Top of the Concrete Parapet Rails.



PLAN
* Bent I- Looking Back
⅜"=1'-0"

*Details shown looking back at Bent I. Details at Bent 4 are similar except that the cap construction joint is mirrored about the ℄ Bridge. See Dwg. No. 58928.

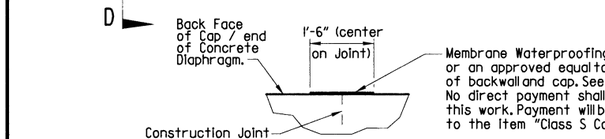


ELEVATION
* Bent I- Looking Back
⅜"=1'-0"

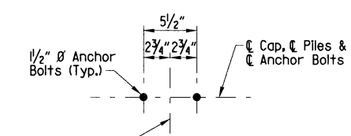
② 3'-7" lap #6 bar
1'-9" lap #4 bar

Note:
For View C-C and View S-S, see Dwg. No. 59933A,
For Sections D-D & E-E, see Dwg. No. 58928.

Note:
For Details of Anchor Bolt & 1" plates, see Dwg. No. 58932.



CONSTRUCTION JOINT DETAIL
No Scale



TYPICAL ANCHOR BOLT LAYOUT
No Scale

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16
BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET I OF 2
END BENT DETAILS
CANEY CREEK
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	WEG	DATE:	4/22/15	FILENAME: bCA0610x4_axl.dgn
CHECKED BY:	SFH	DATE:	9/24/15	
DESIGNED BY:	HL	DATE:	4/15/15	SCALE: ⅜" = 1'-0"

BRIDGE NO. 07367
DRAWING NO. 58927

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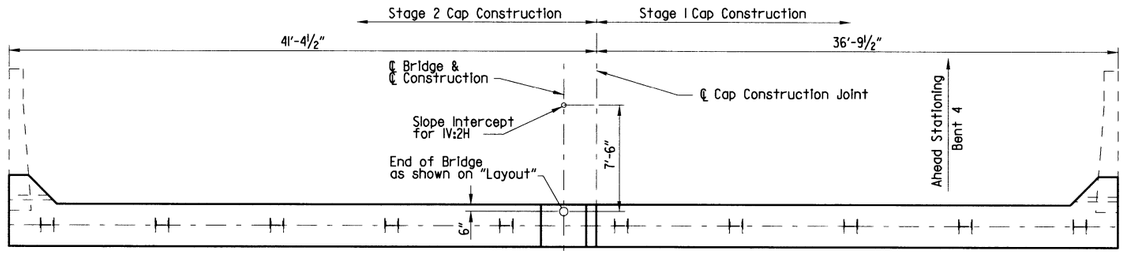
REVISED DATE:

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	424	888
					(1)	07367 - END BENT DETAILS - 58928			



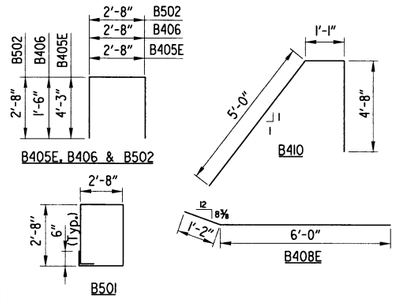
PLAN

Bent 4 - Looking Ahead

3/16"=1'-0"

BAR LIST-PER BENT

MARK	NO. REQ'D.	LENGTH	PIN DIA.	BENDING DIAGRAMS Dimensions are out to out of bars.
B401	2	39'-3"	Str.	
B402	2	41'-1"	Str.	
B403	4	27'-11"	Str.	
B404	4	30'-5"	Str.	
B405E	78	11'-0"	2"	
B406	70	5'-6"	2"	
B407E	6	8'-5"	Str.	
B408E	6	7'-2"	2"	
B409E	6	4'-6"	Str.	
B410	8	10'-7"	2"	
B501	78	11'-2"	2½"	
B502	20	7'-9½"	2½"	
B601	12	40'-5"	Str.	
B602	12	41'-1"	Str.	



Note: All bars designated with an "E" suffix are to be epoxy coated

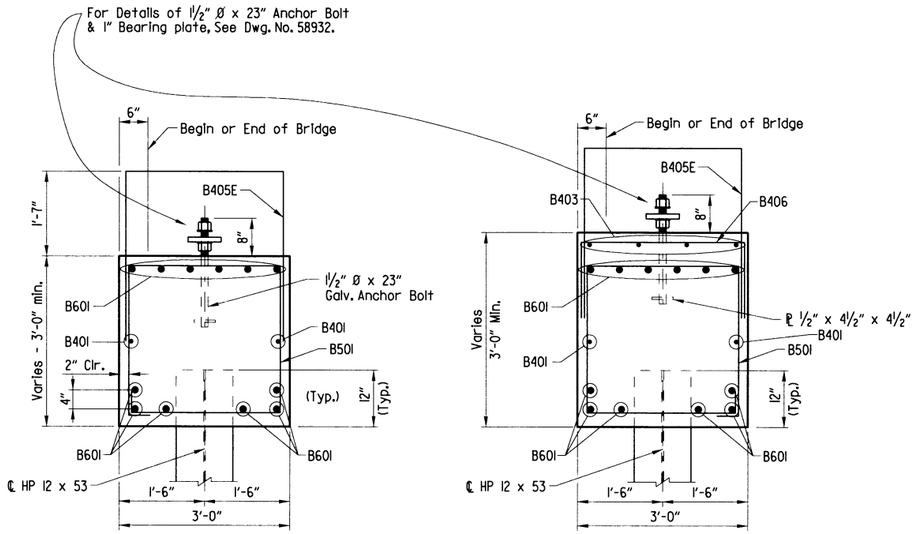
GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M322, Type A with Mill Test Reports, Grade 60 (yield strength = 60,000 psi.).

For additional information, see Layout.

Granular backfill & pipe underdrain required behind end bent cap. See Dwg. No. 58933.



SECTION D-D

No Scale

SECTION E-E

No Scale

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER

PRINT DATE: 9/23/2016

SHEET 2 OF 2

END BENT DETAILS

CANEY CREEK

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY: WEG DATE: 4/22/15 FILENAME: bCA0610x4_ax2.dgn

CHECKED BY: SFH DATE: 9/24/15

DESIGNED BY: HL DATE: 4/15/15 SCALE: No Scale

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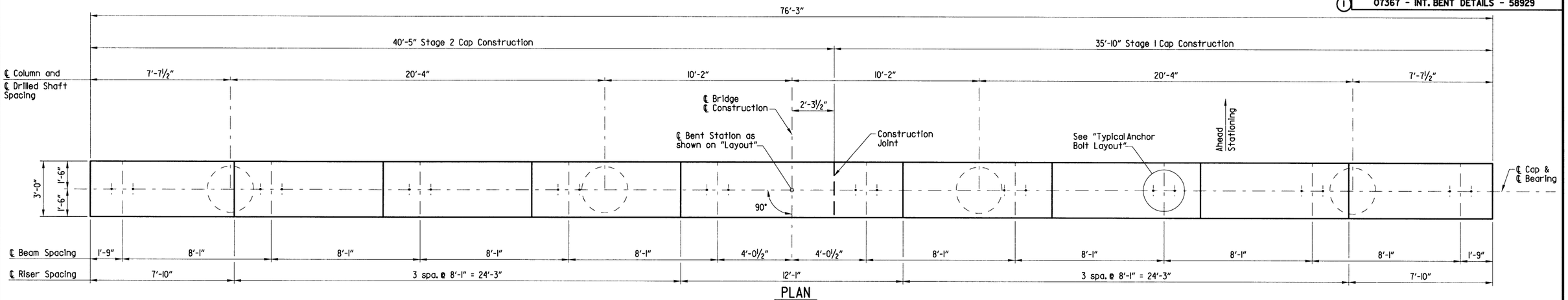
REVISED DATE:

Michael Baker INTERNATIONAL

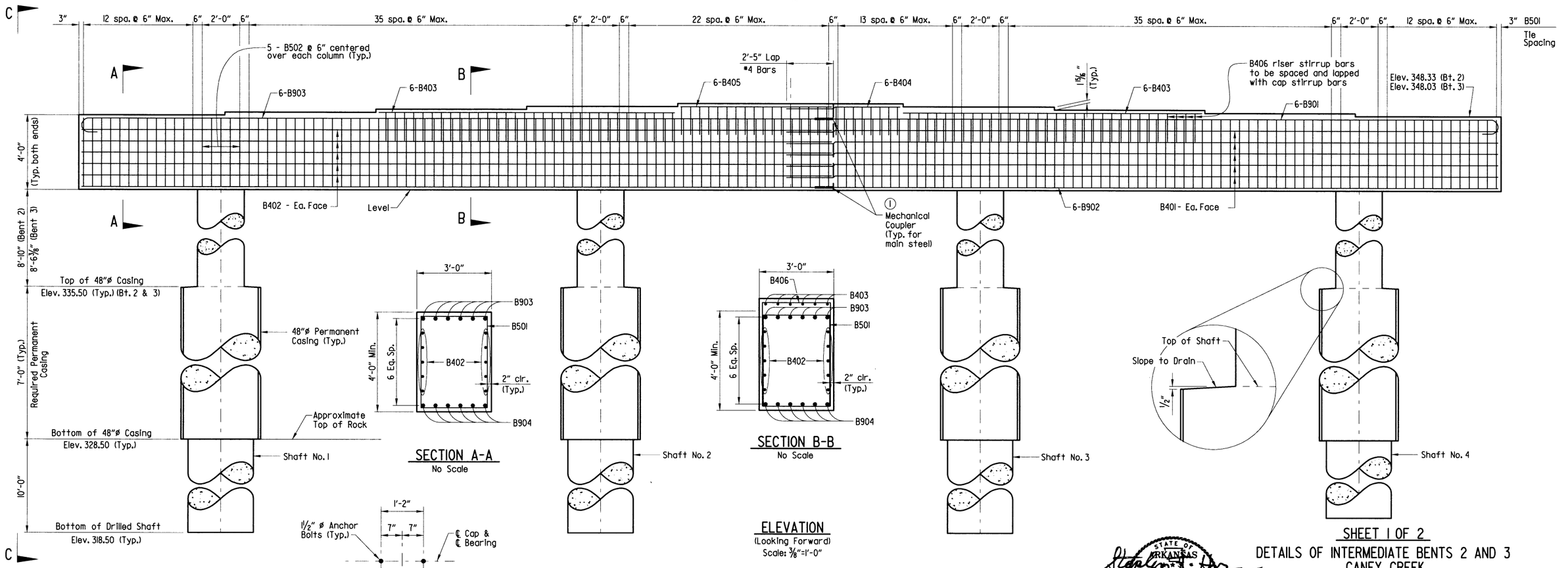
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	425	888

(1) 07367 - INT. BENT DETAILS - 58929



PLAN
Scale: ⅜"=1'-0"



(1) The mechanical rebar splices shall be an approved type in accordance with the AHTD Qualified Products List (QPL) and shall maintain clearances shown.

The cost of mechanical rebar splices shall not be measured for separate payment but shall be considered subsidiary to the item "Reinforcing Steel- Bridge (Grade 60)". Mechanical splices shall develop at least 125% of the specified yield strength of the reinforcing steel.

STATE OF ARKANSAS
STEPHEN F. HARPER
LICENSED PROFESSIONAL ENGINEER
No.14501

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 1 OF 2

DETAILS OF INTERMEDIATE BENTS 2 AND 3
CANEY CREEK
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	WEG	DATE:	4/27/15
CHECKED BY:	SFH	DATE:	9/28/15
DESIGNED BY:	HL	DATE:	4/20/15

FILENAME: bCA0610x4_bxl.dgn
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BRIDGE NO. 07367
DRAWING NO. 58929

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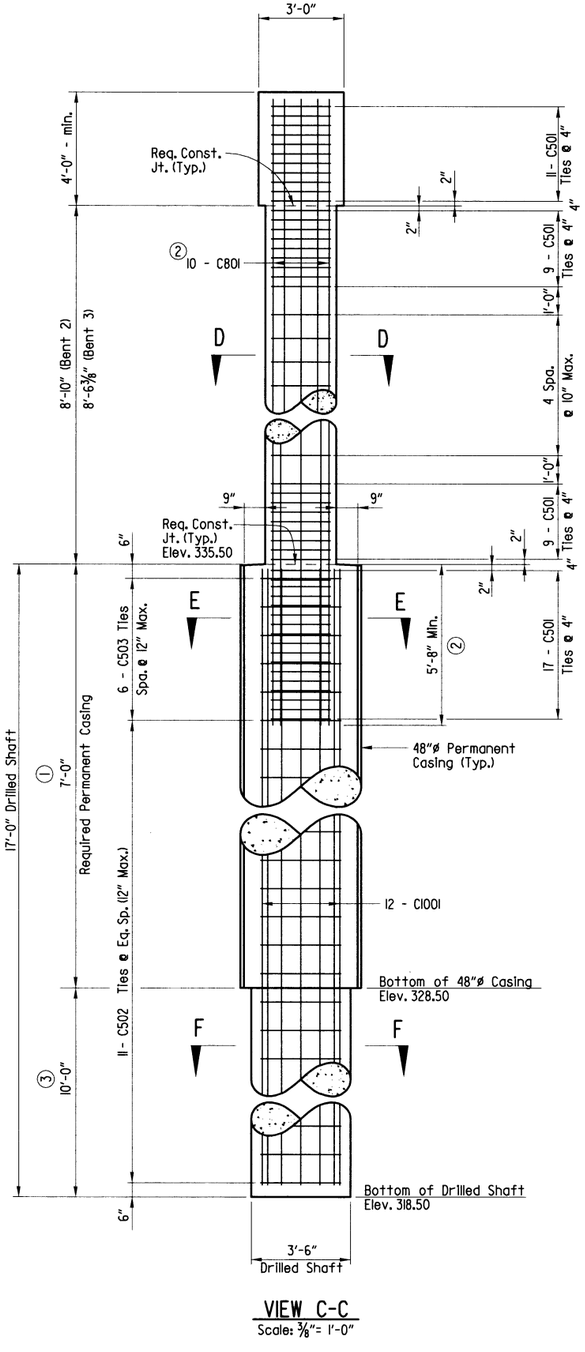
REVISED DATE:

Michael Baker INTERNATIONAL

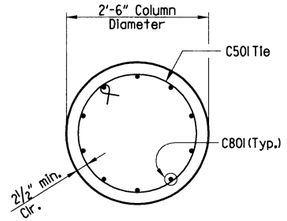
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	426	888

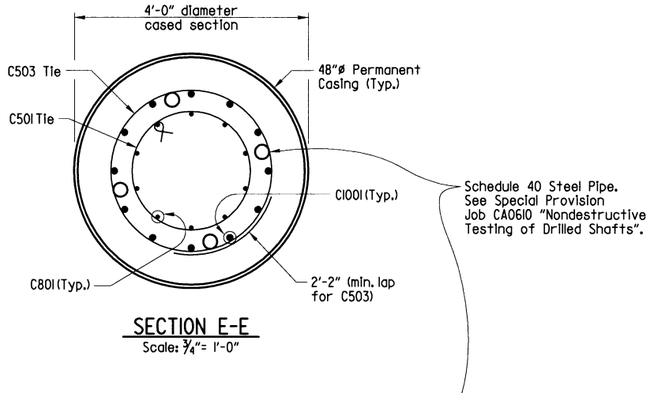
(1) 07367 - INT. BENT DETAILS - 58930



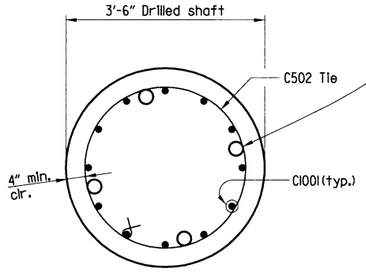
VIEW C-C
Scale: 3/8"= 1'-0"



SECTION D-D
Scale: 3/4"= 1'-0"



SECTION E-E
Scale: 3/4"= 1'-0"



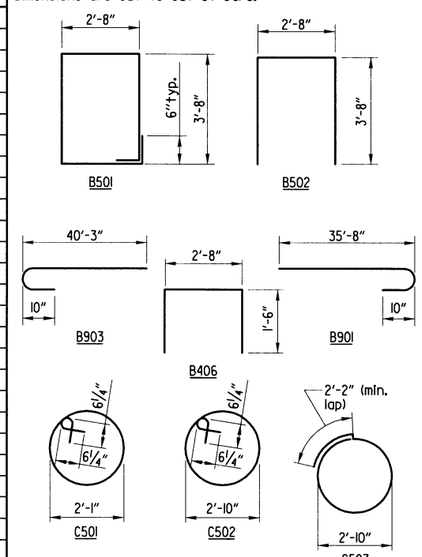
SECTION F-F
Scale: 3/4"= 1'-0"

BAR LIST - PER BENT

	MARK	NO. REQ'D.	LENGTH	P.D.
	B401	10	38'-1"	Str.
	B402	10	40'-3"	Str.
	B403	12	16'-0"	Str.
	B404	6	6'-0"	Str.
	B405	6	8'-2"	Str.
	B406	89	5'-6"	2"
	B501	135	13'-2"	2 1/2"
	B502	20	9'-10"	2 1/2"
(5)	B901	6	36'-11"	9"
(5)	B902	6	35'-8"	Str.
(5)	B903	6	41'-6"	9"
(5)	B904	6	40'-3"	Str.
	C501	204	7'-11"	3 3/4"
(4)	C502	44	10'-3"	3 3/4"
(4)	C503	24	10'-11"	-
	C801	40	18'-4"	Str.
(4)	C1001	48	16'-8"	Str.

BENDING DIAGRAMS

Dimensions are out to out of bars.



(4) Non-Pay Item - Subsidary to Pay Item "Drilled Shaft (42" Dia.)".

(5) Lengths shown are from end of bar to the required construction joint. Individual lengths shall be determined in the field based on the type of mechanical rebar splice used.

GENERAL NOTES

Concrete in the cap and column shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi., and shall be poured in the dry. Concrete in the drilled shaft shall be Class S as modified by SP Job No. CA0610 "Drilled Shaft Foundations". All exposed corners to be chamfered 3/4" unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi.) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Top reinforcing bars shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

Mechanical rebar splices shall be listed on the approved QPL.

For additional information see layout.

Drilled shafts shall conform to SP Job No. CA0610 "Drilled Shaft Foundations".

(1) Length of Permanent Casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. CA0610 "Drilled Shaft Foundations". Permanent casing shall not extend below top of competent rock without approval from the Engineer.

(2) The column reinforcing cage, consisting of bars C501 and C801, may be placed before or after concrete placement in the shaft is complete. Vibration of concrete in the top ten feet of the shaft will be needed to ensure the consolidation of the concrete around the reinforcing steel and to insert the column reinforcing cage. The contractor will be responsible for obtaining satisfactory results.

(3) Minimum penetration into competent rock below permanent casing.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 2 OF 2

DETAILS OF INTERMEDIATE BENTS 2 AND 3
CANEY CREEK
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	WEG	DATE:	4/27/15
CHECKED BY:	SFH	DATE:	9/29/15
DESIGNED BY:	HL	DATE:	4/20/15

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SCALE: As Noted
BRIDGE NO. 07367
DRAWING NO. 58930

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WORKSPACE: Leonard.Speed
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REVISED DATE:

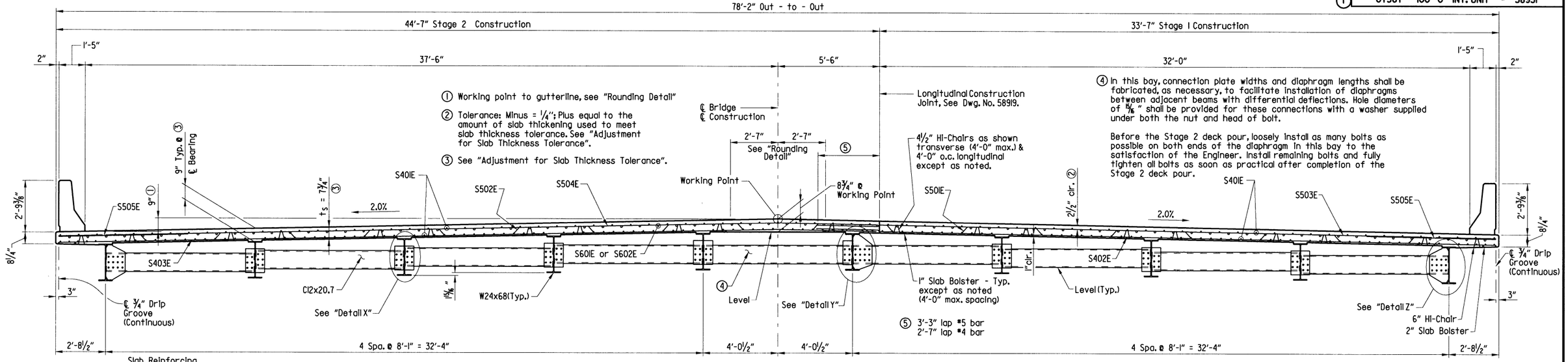
Note: At the Contractors option, in lieu of providing bars S501E or S502E, one epoxy coated #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S501E and S502E. Bars in top and bottom shall be epoxy coated.

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	427	888

(1) 07367 - 100'-0" INT. UNIT - 58931



TYPICAL ROADWAY SECTION

(Looking Forward)
3/8" = 1'-0"

Slab Reinforcing

Transverse: S501E @ 12" o.c. bent up over beams and lapped with opposite S502E
S402E @ 12" o.c. in bottom and lapped with opposite S403E — Alternate
S503E @ 12" o.c. in top and lapped with opposite S504E
S505E @ 6" o.c. under each parapet bundled w/ #5 in top @ both gutterlines

Longitudinal: S401E placed as shown in top and bottom
S601E placed as shown over Int. supports
S602E placed as shown at end bents

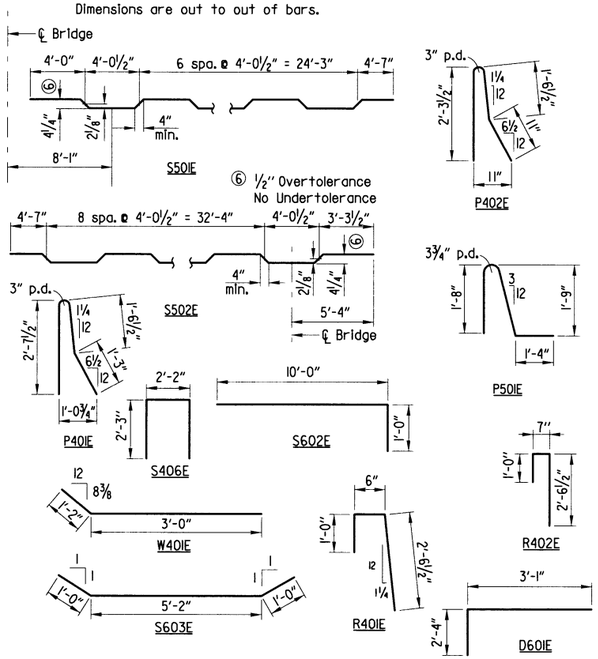
Note: All bars designated with an "E" suffix are to be epoxy coated

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
D601E	144	5'-3"	4 1/2"
S401E	645	35'-4"	Str.
S402E	101	36'-3"	Str.
S403E	101	44'-4"	Str.
S404E	6	39'-5"	Str.
S405E	6	41'-1"	Str.
S406E	156	6'-6"	2"
S501E	100	37'-9"	3"
S502E	100	45'-4"	3"
S503E	101	36'-10"	Str.
S504E	101	44'-4"	Str.
S505E	402	7'-0"	Str.
S601E	156	20'-0"	Str.
S602E	156	10'-10"	4 1/2"
S603E	12	7'-2"	4 1/2"
P401E	376	5'-6"	3"
P402E	32	4'-10"	3"
P403E	48	5'-6"	Str.
P404E	14	21'-8"	Str.
P405E	28	13'-2"	Str.
P406E	56	8'-2"	Str.
P407E	28	8'-8"	Str.
P501E	376	4'-10"	3 3/4"
R401E	16	3'-11"	2"
R402E	16	4'-0"	2"
R403E	24	9'-8"	Str.
R404E	24	3'-10"	Str.
R601E	32	5'-4"	Str.
R602E	12	5'-0"	Str.
W401E	20	4'-2"	2"
W402E	20	5'-5"	Str.
W701E	40	12'-2"	Str.

BENDING DIAGRAMS

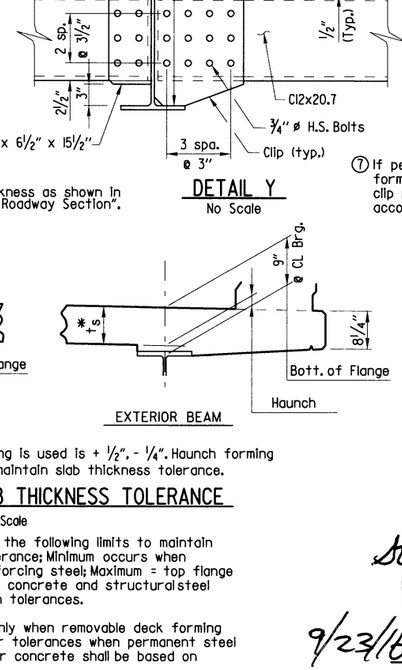
Dimensions are out to out of bars.



DETAIL X

No Scale

*t_s = Slab thickness as shown in "Typical Roadway Section".

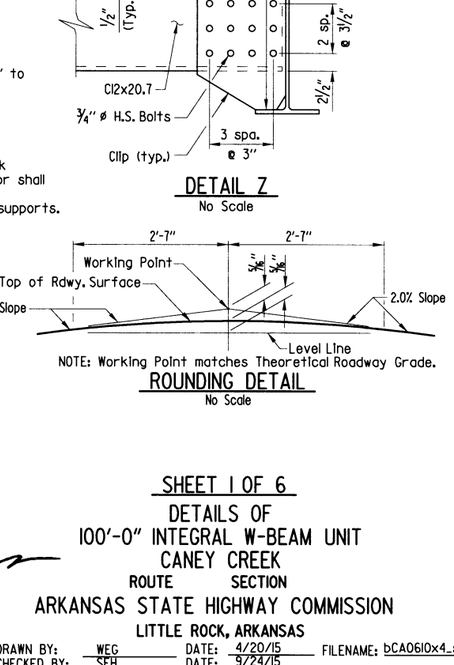


DETAIL Y

No Scale

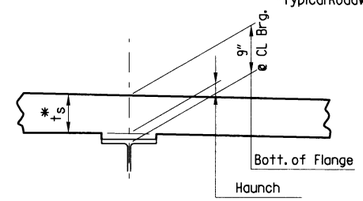
Note: Stop welds 1/4" to 1" from clip

⑦ If permanent steel bridge deck forms are used, the fabricator shall clip plates as necessary to accommodate the deck form supports.



DETAIL Z

No Scale



INTERIOR BEAM

EXTERIOR BEAM

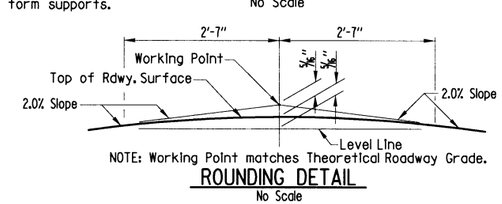
Note:
Tolerance when removable deck forming is used is + 1/2", - 1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

NOTES:
Haunch dimension may very within the following limits to maintain the grade and slab thickness tolerance; Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1 3/4". No increase in concrete and structural steel quantities will be made to maintain tolerances.

Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

No Scale

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

Stephen F. Harper

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 1 OF 6

DETAILS OF 100'-0" INTEGRAL W-BEAM UNIT CANEY CREEK

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	WEG	DATE:	4/20/15
CHECKED BY:	SFH	DATE:	9/24/15
DESIGNED BY:	HL	DATE:	4/15/15
BRIDGE NO. 07367			

FILENAME: bCA0610x4_sxl.dgn
SCALE: 3/8" = 1'-0"
DRAWING NO. 58931

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WORKSPACE: Leonard.Speed
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REVISED DATE:

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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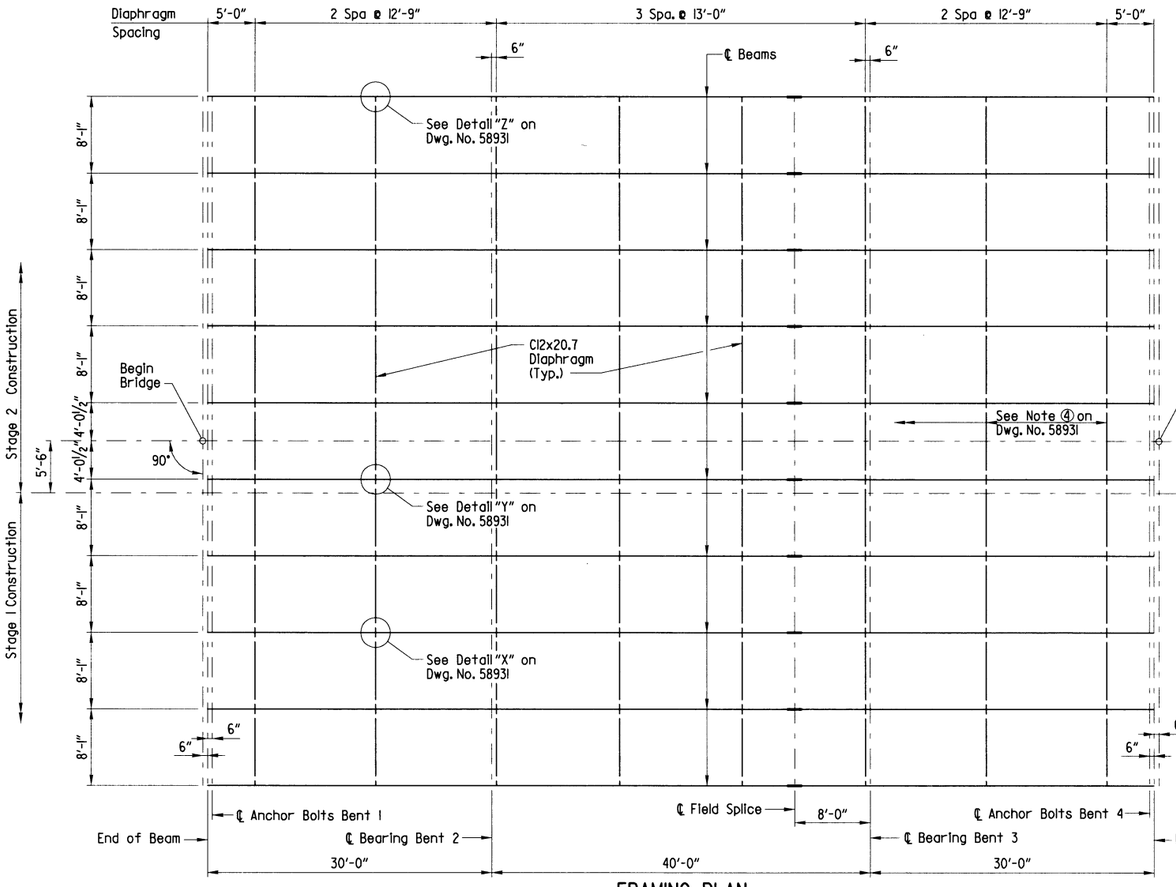
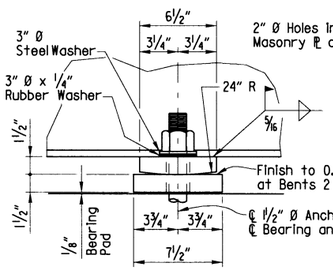
				JOB NO.		CA0610	428	888
				(1) 07367 - 100'-0" INT. UNIT - 58932				



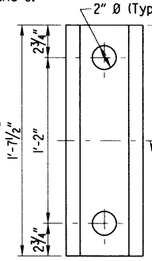
FRAMING PLAN

1/8" = 1'-0"



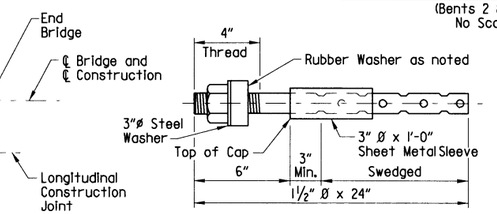
ELEVATION TYPE "B" SPECIAL SHOE

(Bents 2 & 3)
No Scale



PLAN TYPE "B" SPECIAL SHOE

(Bents 2 & 3)
No Scale



Note:
Plates for Type "B" Special Shoes shall be AASHTO Gr. 50W

Anchor Bolts, Nuts and Washers to be according to Subsection 807.07. Indentations shall be circular with rounded bottoms and staggered as shown above. Rubber washer shall be closed cell expanded rubber, meeting the requirements of ASTM D1056 - 85 2B2 E2, and shall be considered subsidiary to the item of "Structural Steel in Beam Spans (M270, Gr.50W)". Anchor Bolts, Nuts and Washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr.50W)". Anchor Bolts shall be Grade 55.

Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required. If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into masonry. Bolts placed in drilled holes shall be set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M270, Gr.50W)".

ANCHOR BOLT DETAIL FOR INTERMEDIATE BENTS

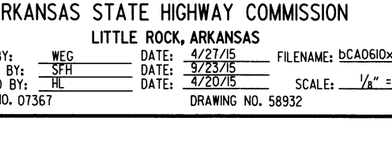
(Bents 2 & 3)
No Scale

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel	Structural Steel + Slab	Structural Steel + Slab + Parapet
1	0	0.000	0.000	0.000
	0.1	0.003	0.032	0.034
	0.2	0.006	0.059	0.062
	0.3	0.008	0.076	0.080
	0.4	0.008	0.080	0.085
	0.5	0.008	0.074	0.078
	0.6	0.006	0.058	0.061
	0.7	0.004	0.036	0.037
	0.8	0.001	0.013	0.014
	0.9	0.000	-0.002	-0.003
2	0	0.000	0.000	0.000
	0.1	0.004	0.042	0.045
	0.2	0.011	0.108	0.114
	0.3	0.018	0.172	0.182
	0.4	0.022	0.218	0.231
	0.5	0.024	0.235	0.248

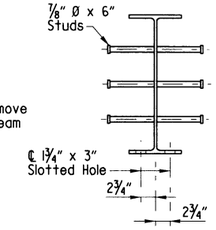
℄ Unit

Note: This Table is symmetrical about the ℄ of the Unit.



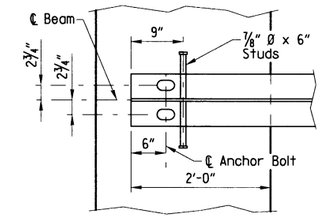
DEAD LOAD DEFLECTION DIAGRAM

Note:
Camber for Dead Load Deflection plus Vertical curve ± ¼" tolerances. Deflections shown are a chord from ℄ Bearing to ℄ Bearing. Vertical curve corrections not included. Negative sign (-) indicates point above chord.



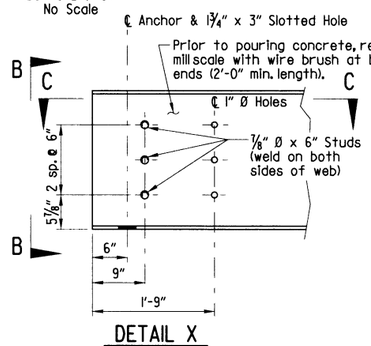
VIEW B-B

No Scale



SECTION C-C

No Scale



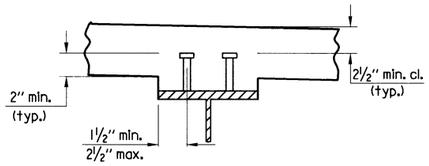
DETAIL X

No Scale

TABLE FOR WELD

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	5/16"	

NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.



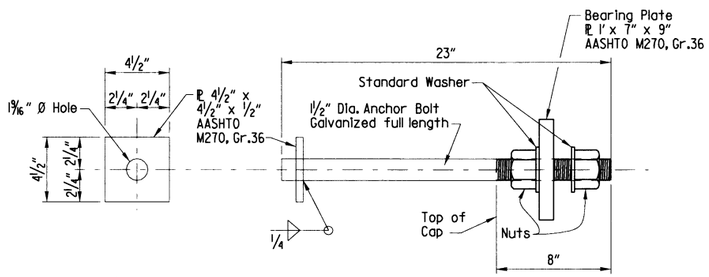
BEAM ELEVATION

No Scale

Stud Shear Connectors shown shall be 1"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

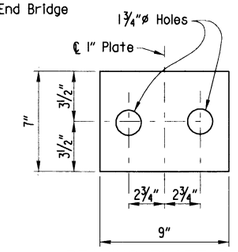
SHEAR CONNECTOR DETAIL

No Scale



ANCHOR BOLT DETAIL FOR END BENTS

(Bents 1 & 4)
No Scale



BEARING PLATE DETAIL

No Scale

Anchor bolts shall comply with AASHTO M314, Grade 55, with Supplementary Requirement S1, and galvanized according to subsection 807.07. Nuts for bolts shall be as specified in subsection 807.07. Plates, anchor bolts, nuts and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr.50W)"

Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 2 OF 6

DETAILS OF
100'-0" INTEGRAL W-BEAM UNIT
CANEY CREEK
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	WEG	DATE:	4/27/15
CHECKED BY:	SFH	DATE:	9/23/15
DESIGNED BY:	HL	DATE:	4/20/15

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SCALE: ⅛" = 1'-0"
BRIDGE NO. 07367
DRAWING NO. 58932

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REVISED DATE:

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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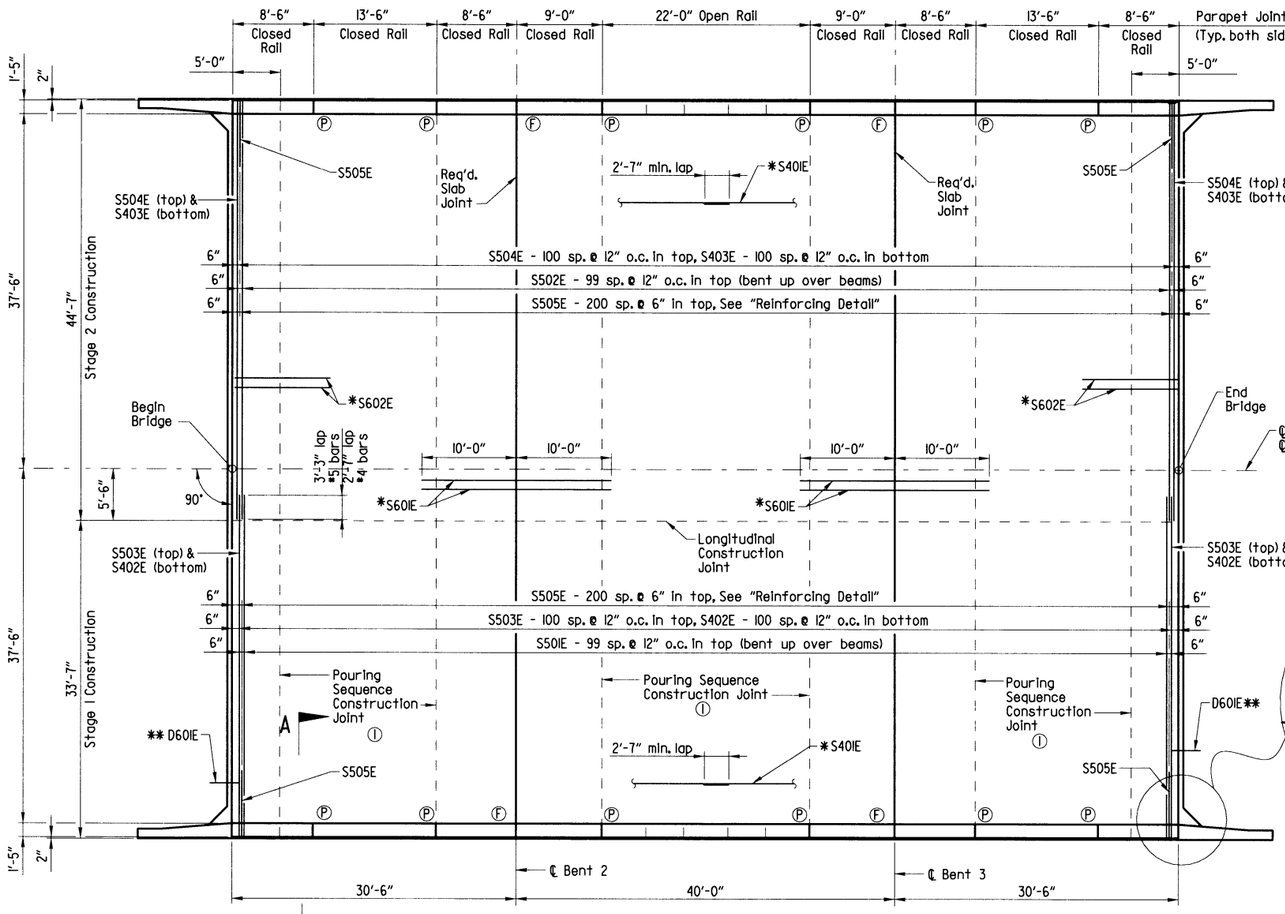
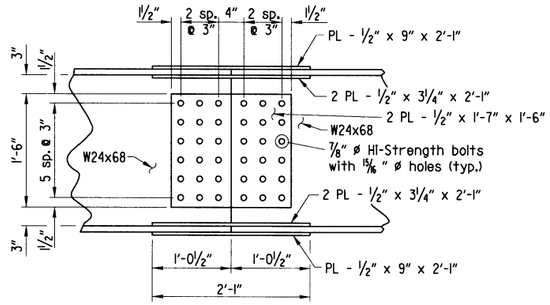


REINFORCING PLAN

1/8"= 1'-0"

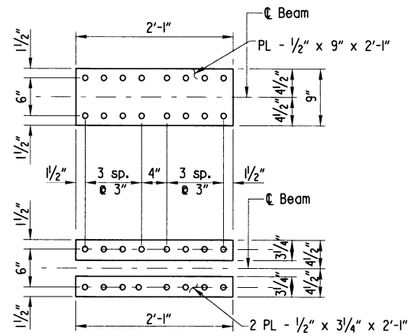
Ⓟ Partial depth parapet joint at this location. (Stop 1'-2" above top of slab)
Ⓕ Full depth parapet joint at this location. (Stop 4" above top of slab)
* Placed as shown in "Typical Roadway Section", see Dwg. No. 58931.
** Placed as shown in VIEW A-A.



DETAIL OF BOLTED FIELD SPLICES

1/4" = 1'-0"

Note:
Construction Joints are based on Alternate 1 Pouring Sequence. See Dwg. No. 58935.



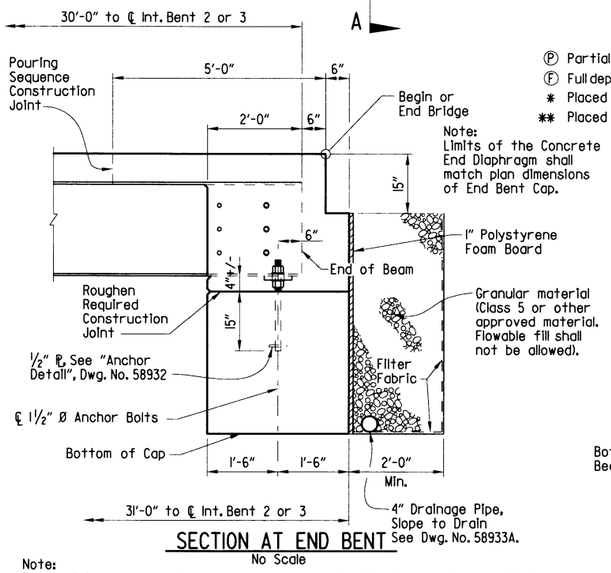
TYP. FLANGE SPLICE DETAIL

1/4" = 1'-0"

Note:
Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.

All field splice bolts shall be ⅞" ø HI-strength bolts.
All holes for splice bolts shall be 15/16" ø .
All field splice plates shall be AASHTO M270 Gr. 50W steel.

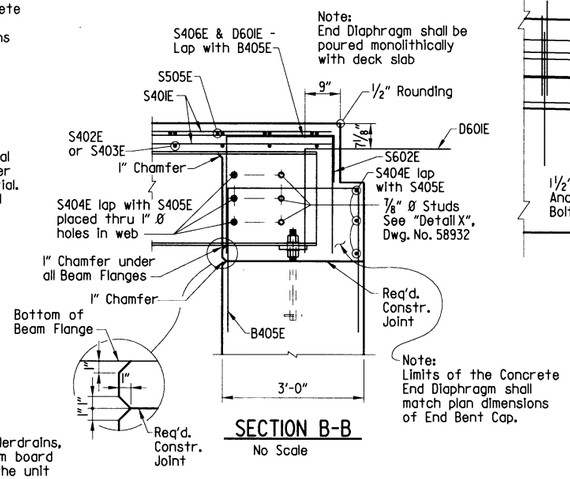
① For Pouring Sequence Construction Joint Detail, See Dwg. No. 58919.



SECTION AT END BENT

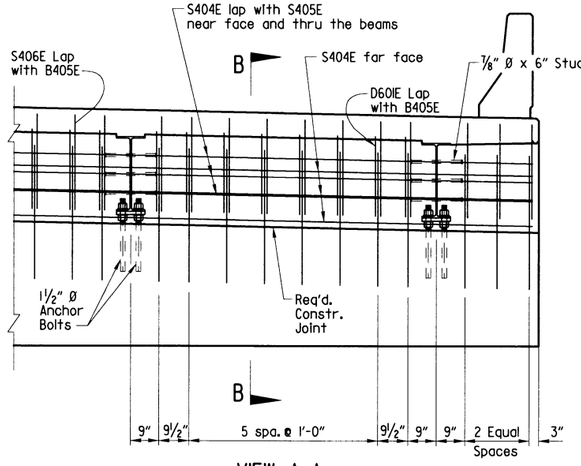
No Scale

Note:
For additional details of pipe underdrain see Std. Dwg. PU-1 and Section 611. Pipe underdrains, outlet protectors, granular materials, drain pipe, filter fabric and polystrene foam board will not be measured or paid for separately, but will be considered subsidiary to the unit price bid for "Unclassified Excavation for Structures-Bridge".



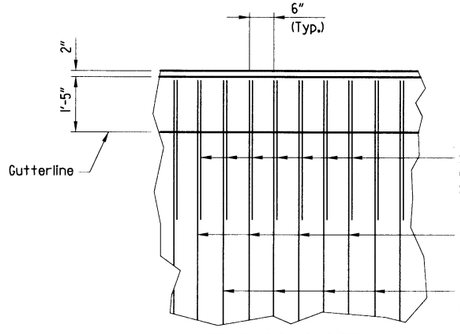
SECTION B-B

No Scale



VIEW A-A

No Scale



REINFORCING DETAIL

No Scale

Note:
Rails and wings are included in span construction and are included in span quantities.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 3 OF 6

DETAILS OF 100'-0" INTEGRAL W-BEAM UNIT CANEY CREEK

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY:	WEG	DATE:	4/20/15	FILENAME:	bCA0610x4_sx3.dgn
CHECKED BY:	SFH	DATE:	9/24/15		
DESIGNED BY:	HL	DATE:	4/15/15	SCALE:	As Shown
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REVISED DATE:

Michael Baker INTERNATIONAL

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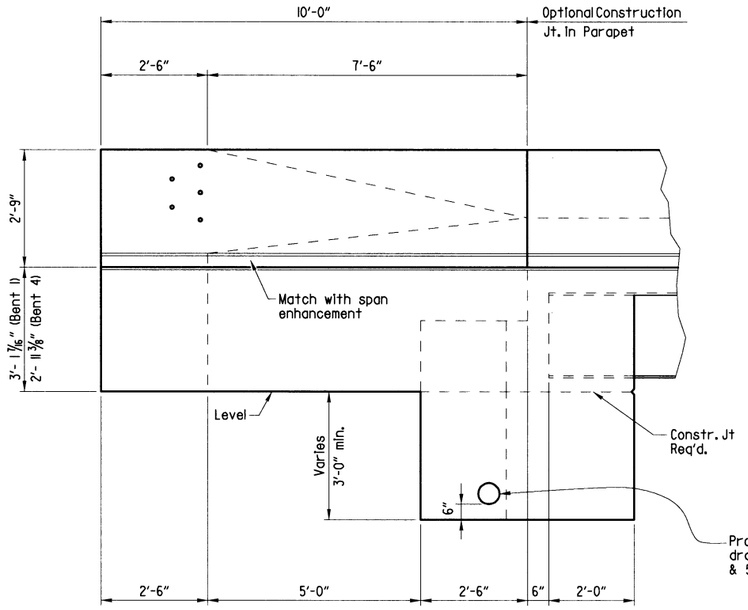
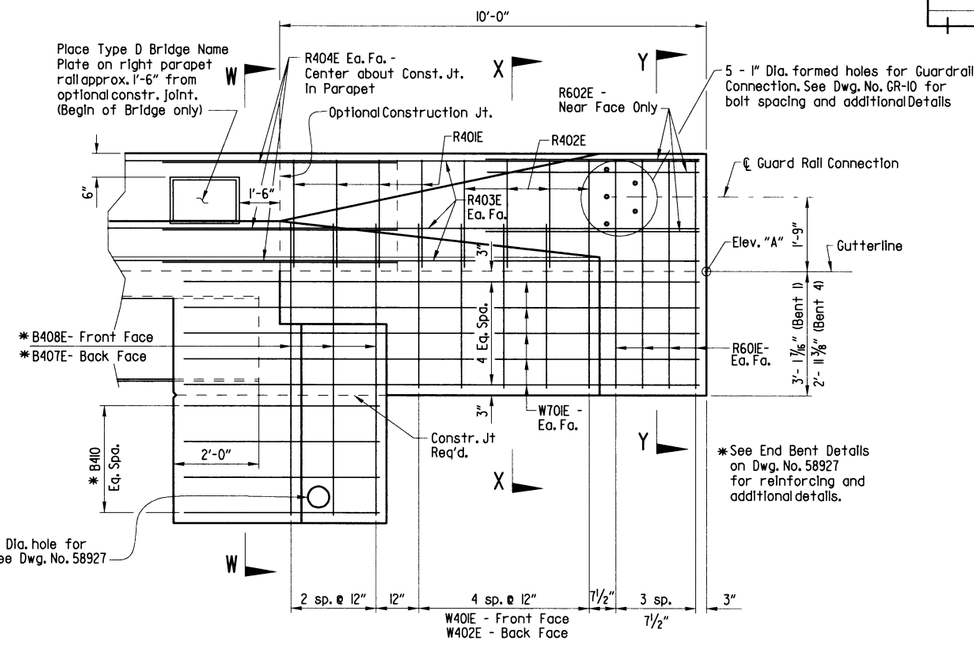


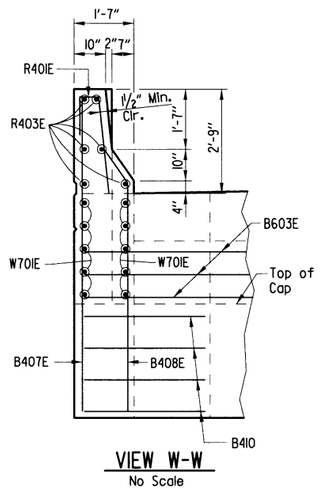
VIEW C-C
No Scale



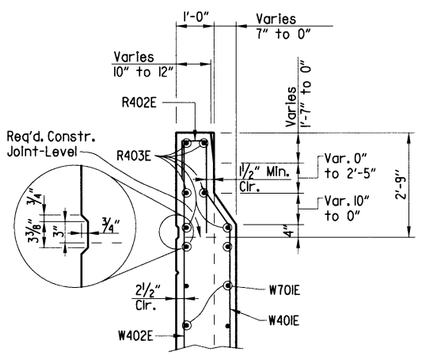
VIEW S-S
No Scale

TABLE OF VARIABLES

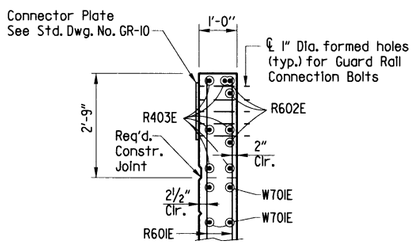
	Bent 1	Bent 4
Elev. "A"	351.54	350.64



VIEW W-W
No Scale



SECTION X-X
No Scale



SECTION Y-Y
No Scale

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 4 OF 6
DETAILS OF
100'-0" INTEGRAL W-BEAM UNIT
CANEY CREEK
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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CHECKED BY: SFH DATE: 9/24/15
DESIGNED BY: HL DATE: 4/15/15 SCALE: As Shown
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REVISED DATE:

Michael Baker INTERNATIONAL

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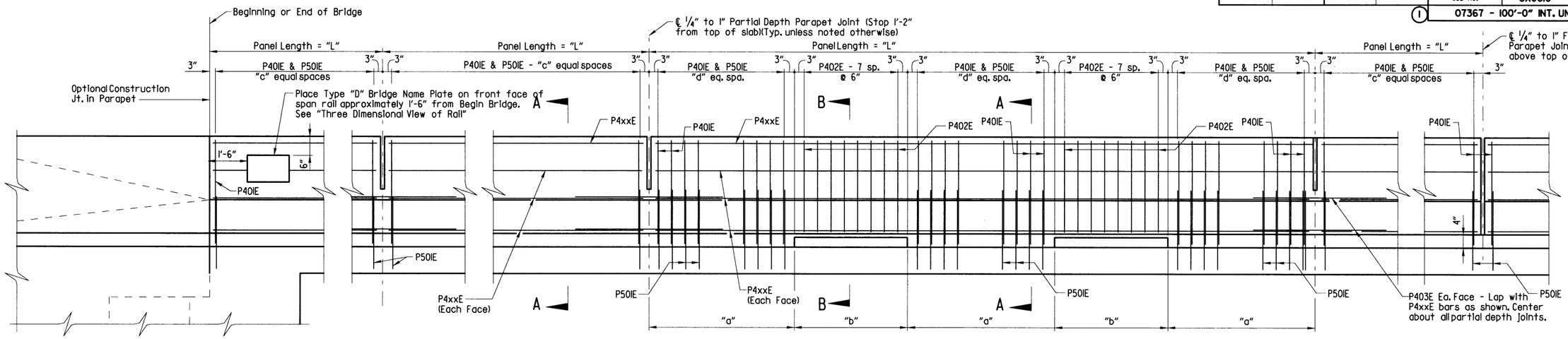


TYPICAL END PANEL

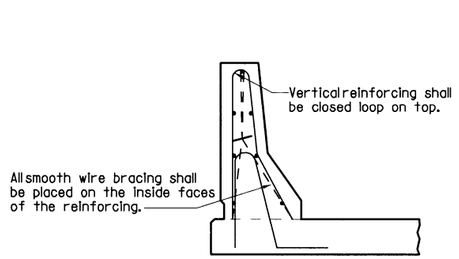
TYPICAL CLOSED PANEL PARAPET RAIL

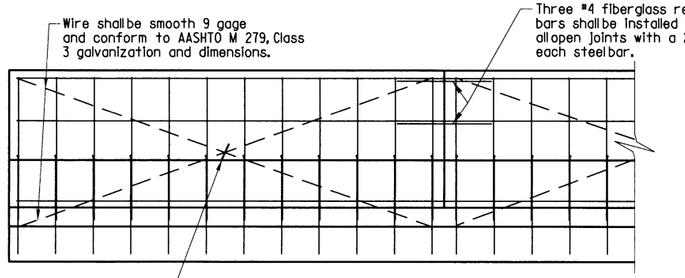
TYPICAL OPEN PANEL PARAPET RAIL

TYPICAL FULL DEPTH JOINT

ELEVATION - CONCRETE PARAPET RAIL

(As viewed from roadway side of Parapet)

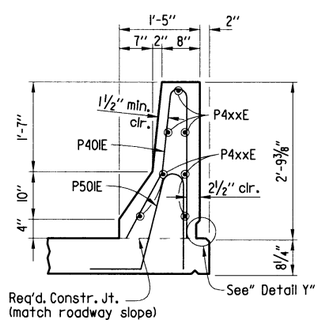




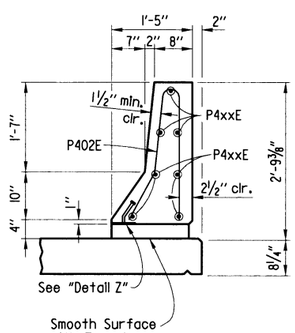
The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

All panels shall be braced as shown to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

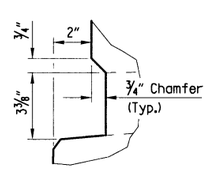
DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL



SECTION A-A



SECTION B-B

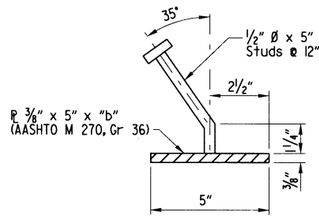


DETAIL Y

Note:
For location of full and partial depth parapet joints, see Dwg. No. 58933.

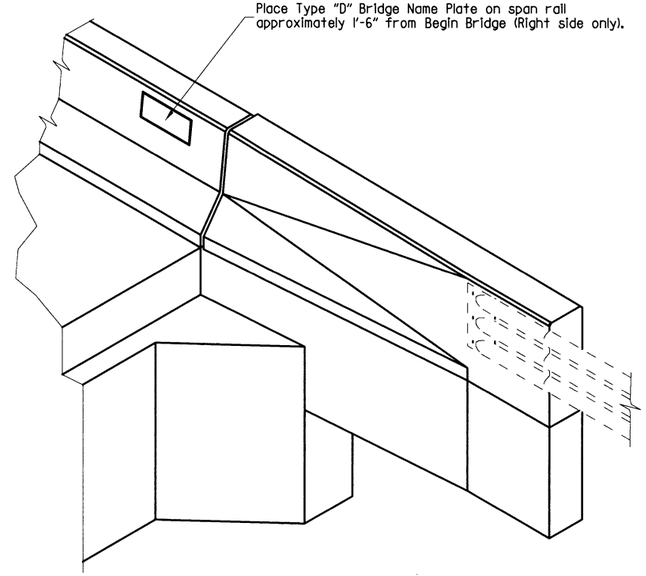
PARAPET RAIL VARIABLES

Panel Length "L"	Panel Type	"a"	"b"	"c"	"d"	P4xxE Bars
8'-6"	closed	-----	-----	16	-----	P406E
13'-6"	closed	-----	-----	26	-----	P405E
9'-0"	closed	-----	-----	17	-----	P407E
22'-0"	open	4'-8"	4'-0"	-----	9	P404E



DETAIL Z

Note:
Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". The surfaces of the ⅜" plates which will not be in contact with concrete shall be painted in accordance with Section 638 or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M270, Gr 50W)"



THREE DIMENSIONAL VIEW OF RAIL & END BENT

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 5 OF 6
DETAILS OF
100'-0" INTEGRAL W-BEAM UNIT
CANEY CREEK
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: WEG DATE: 4/24/15 FILENAME: bCA0610x4_sx5.dgn
CHECKED BY: SFH DATE: 9/18/15
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BRIDGE NO. 07367
DRAWING NO. 58934

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REVISED DATE:

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	432	888
				07367 - 100'-0" INT. UNIT - 58935				

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition.

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c = 4,000 psi
Reinforcing Steel (AASHTO M31 or M322, Type A, Gr. 60)	fy = 60,000 psi
Structural Steel (M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (M 270, Gr. 36)	Fy = 36,000 psi

CONCRETE:
Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted. All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Standard Drawing No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Concrete in Bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The concrete deck shall be given a tine finish in accordance with the Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam or girder. When permitted, the use of a longitudinal strike-off will require that a vertical camber adjustment be made in the strike-off to account for the future dead-load deflection due to any railings, median barrier, and sidewalks.

REINFORCING STEEL:
All reinforcing steel shall conform to AASHTO M31 or M322, Type A, with mill test reports and shall be epoxy coated, Grade 60. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL:
All structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with Subsection 807.84. Structural steel completely embedded in concrete may be AASHTO M 270, Grade 36 unless otherwise noted.

Drawings show general features of design only. Shop Drawings shall be made in accordance with the specifications, submitted and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to he Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

Beams and field splice plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50W)".

All beams shall be assembled in the shop as specified in Section 807.54 and blocked in their true position with webs horizontal in groups as specified in Subsection 807.54(b)(2). The camber, length of sections, distance between bearings, and the openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Flange field splice plates for main members shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

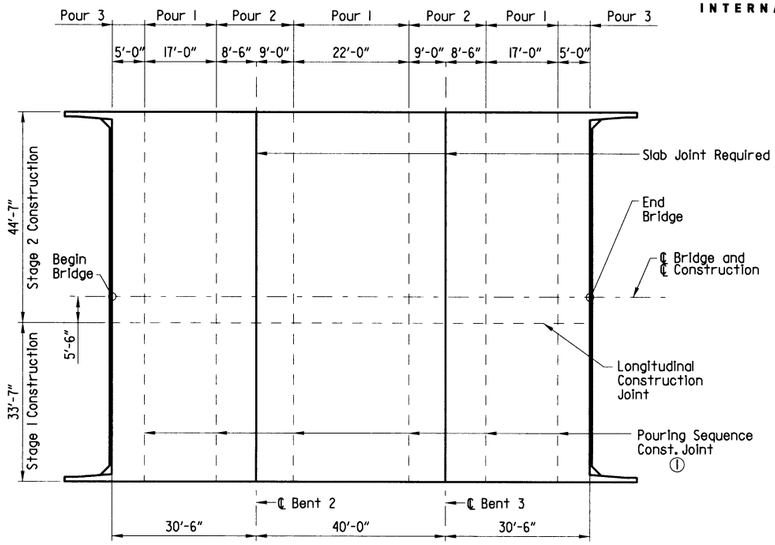
All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching false work support devices of screed rail supports to the structural steel that do not exceed the limitations of Subsection 802.13 will not require approval prior to construction. All welding shall conform to Subsection 807.26

Unless otherwise noted, field connections shall be bolted with ¾" ø high-strength bolts using 15/16" ø open holes. Holes for ¾" ø high-strength bolts may be 7/8" ø if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

Steel diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck unless otherwise noted.

All shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with recommendations of the Manufacturer.

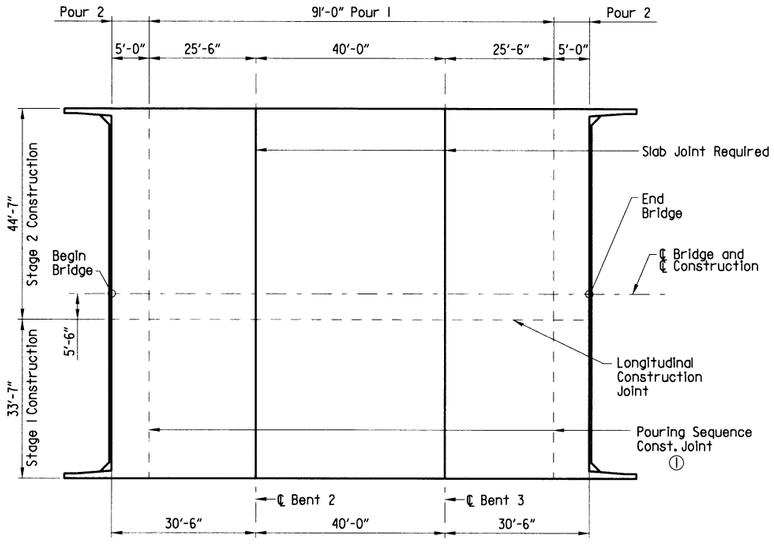
Bearings shall be seated in accordance with Section 807.66. This work and material will not be paid for directly but will be considered subsidiary to item "Structural Steel in Beam Spans (M 270, Gr. 50W)



POURING SEQUENCE - ALTERNATE 1

No Scale

NOTE: For each stage of construction, pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. Pours (2) must be placed before Pours (3) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 72 hours shall elapse between completion of the deck and the pouring of the railing. Any railing pours made before the entire slab unit has been placed must be approved by the Bridge Engineer. The contractor must obtain approval from the Bridge Engineer for any deviations from the pouring sequence.



POURING SEQUENCE - ALTERNATE 2

No Scale

NOTE: For each stage of construction, pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 72 hours shall elapse between completion of the deck and the pouring of the railing. Any railing pours made before the entire slab unit has been placed must be approved by the Bridge Engineer. The contractor must obtain approval from the Bridge Engineer for any deviations from the pouring sequence.

① For Pouring Sequence Construction Joint Detail, See Dwg. No. 58919.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

SHEET 6 OF 6
DETAILS OF
100'-0" INTEGRAL W-BEAM UNIT
CANEY CREEK
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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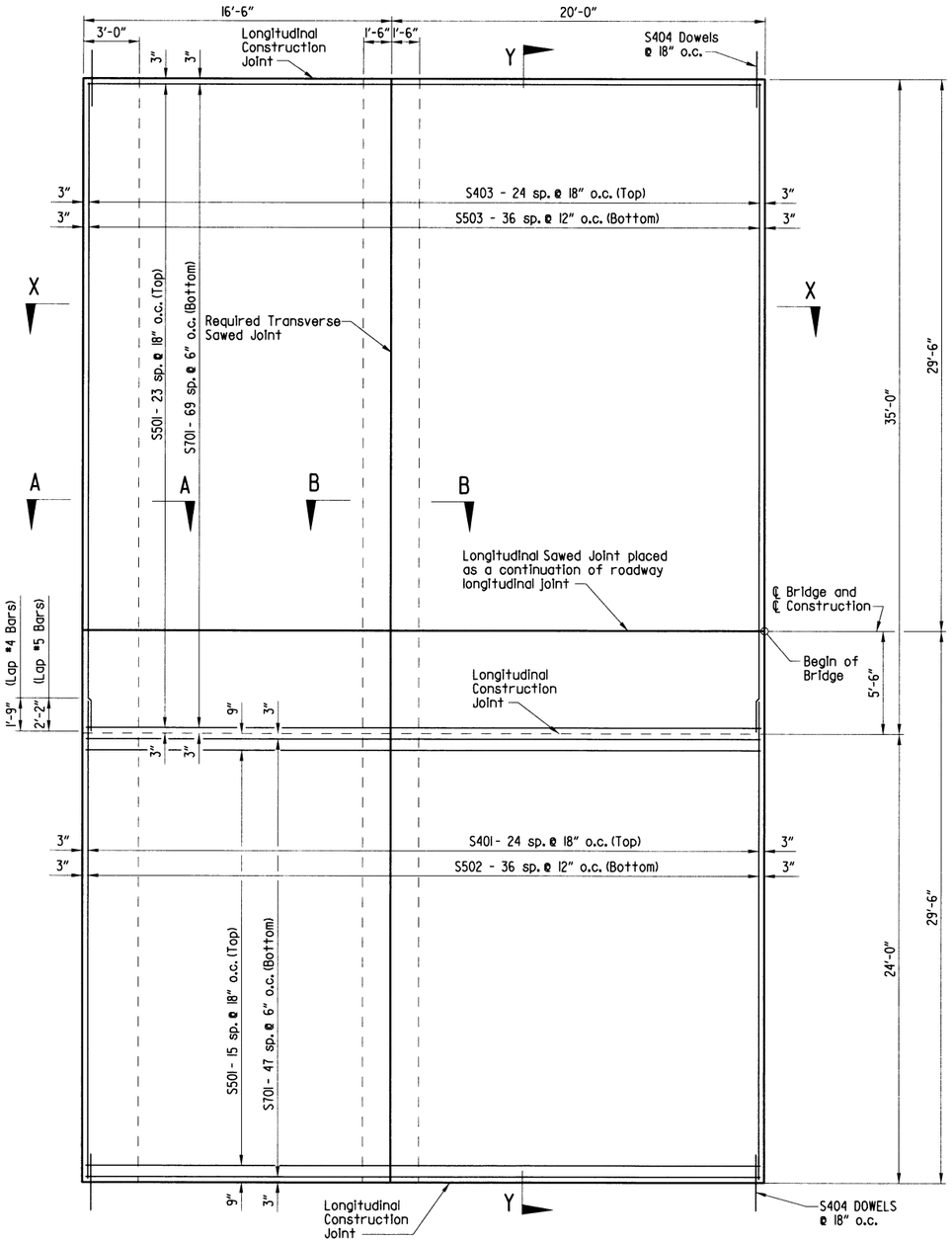
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	433	888

(1) 07398, 07366 & 07367 - APPROACH SLAB - 58936



PLAN - APPROACH SLAB

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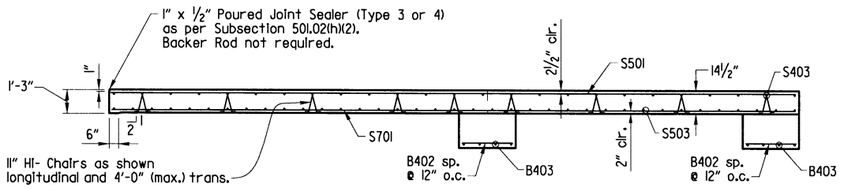
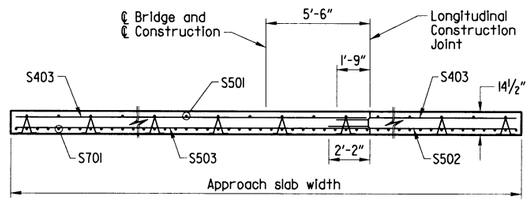
(Shown for Begin Bridge - End Bridge similar)



SECTION X-X

(No Scale)

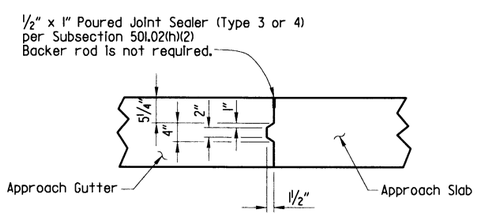


SECTION Y-Y

(No Scale)

Notes:
At Bridge No. 07366 construct slab & Gutters on arcs concentric to C.L. Median. Place longitudinal bars on arcs concentric to C.L. Median. Place transverse bars radially.

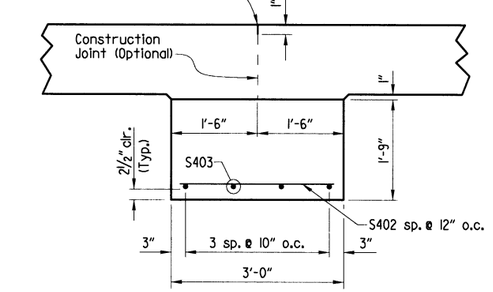
½" x 1" Poured Joint Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

(No Scale)

½" x 1" Poured Joint Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



SECTION B-B

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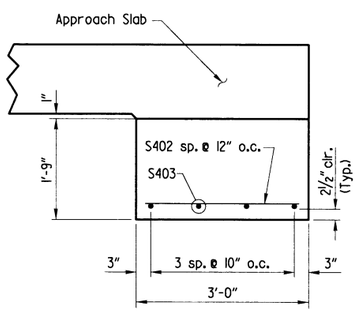

SECTION A-A

(No Scale)

BAR LIST FOR ONE TYPE SPECIAL APPROACH SLAB

Mark	No. Req'd	Length	P.D.
S401	25	25'-9"	Str.
S402	61	2'-8"	Str.
S403	25	34'-8"	Str.
S404	50	3'-0"	Str.
S501	40	35'-8"	Str.
S502	37	26'-2"	Str.
S503	37	34'-8"	Str.
S701	118	36'-2"	Str.

QUANTITIES FOR ONE TYPE SPECIAL APPROACH SLAB

Length (ft.)	Reinforcing Steel (lbs.)	Concrete (cubic yds)
36'-6"	13,777	120.42

GENERAL NOTES

Concrete shall be Class S(AE) (f'c = 4,000 psi).

Reinforcement Steel shall conform to AASHTO M31 or M322, Type A with Mill Test Reports, Gr. 60 (fy = 60,000 psi).

Approach Slabs will be measured and paid for in accordance with Section 504 of the Standard Specifications.

Surface finish for Approach Slabs to match that used on the bridge deck.

This Dwg. applies to Bridge Nos. 07398, 07366 & 07367

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

Stephen F. Harper

9/23/16

BRIDGE ENGINEER
PRINT DATE: 9/23/2016

DETAILS OF TYPE SPECIAL APPROACH SLAB

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

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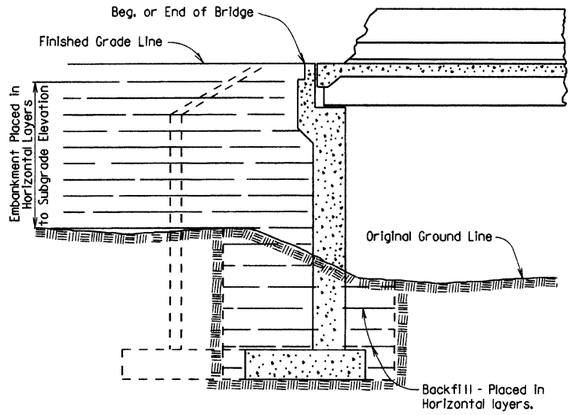
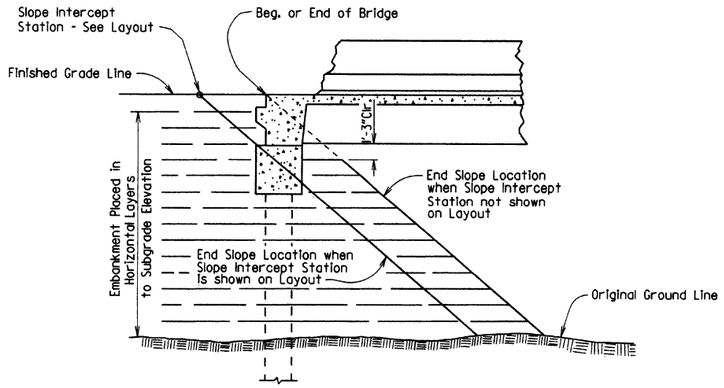
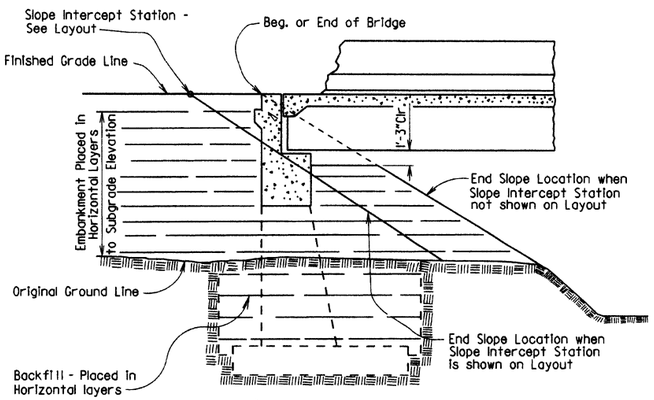


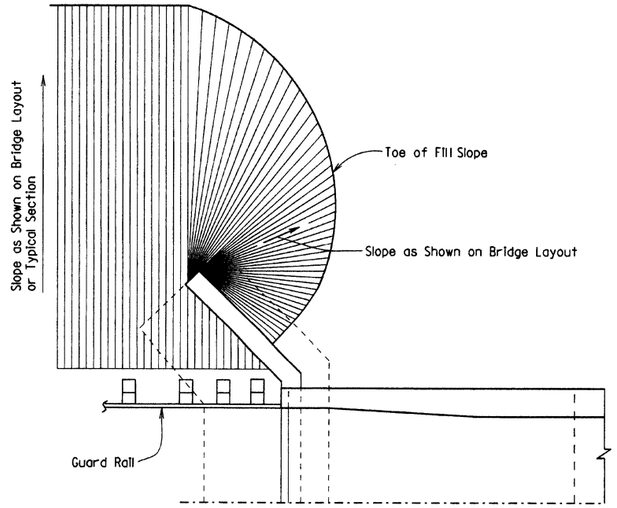
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



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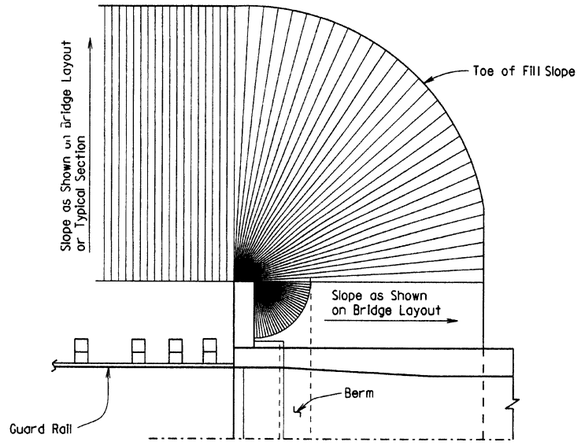
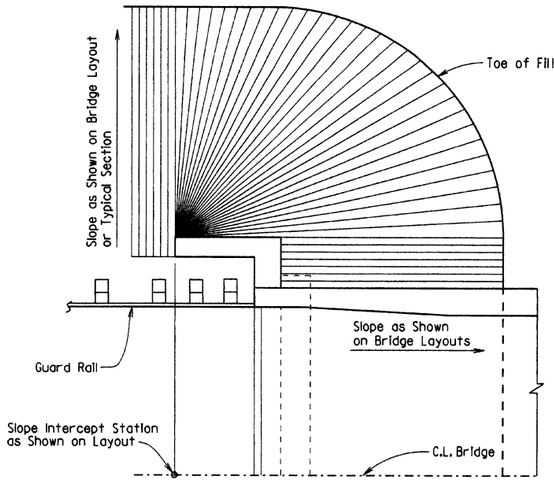
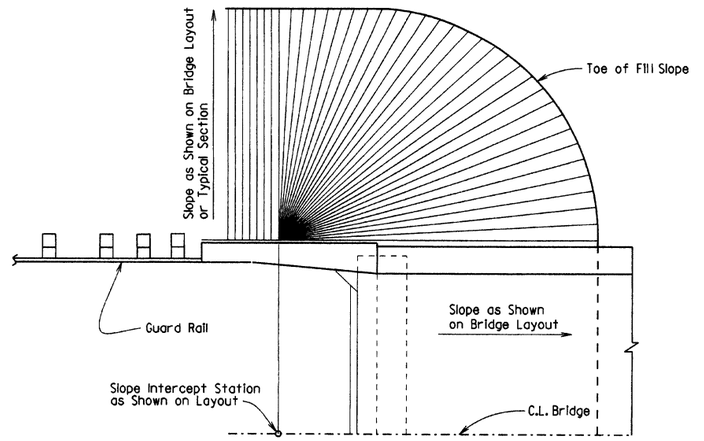


SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 6 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to Subsections 210.09, 210.10 and 801.08 for construction requirements.

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: -

DRAWING NO. 55000

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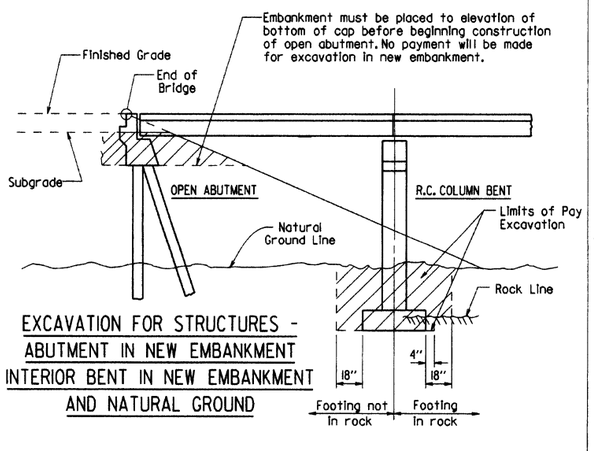
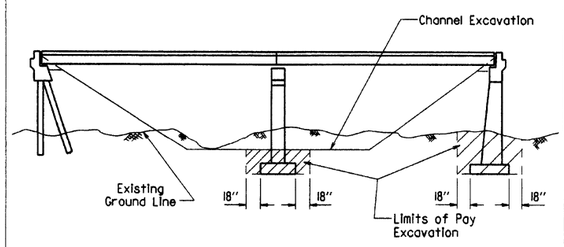
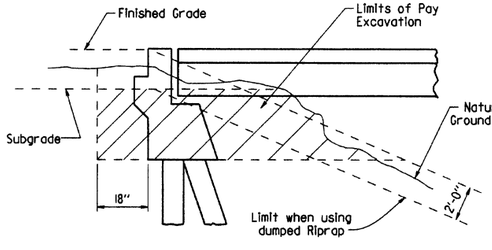


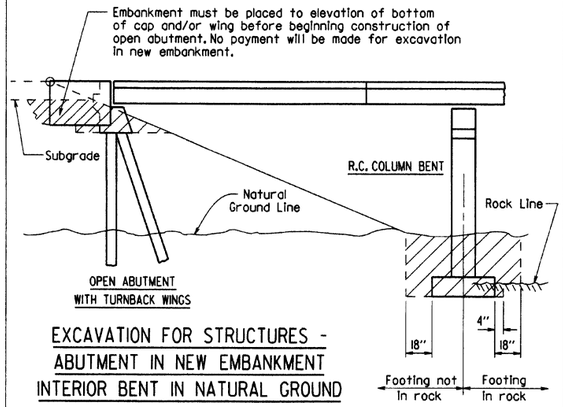
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



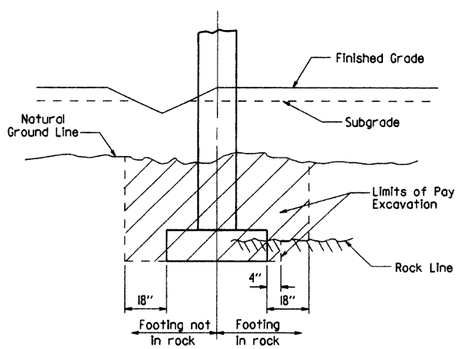
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



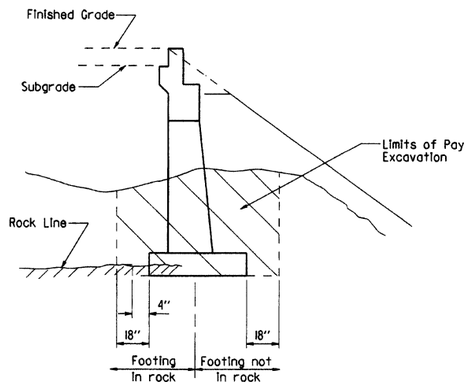
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



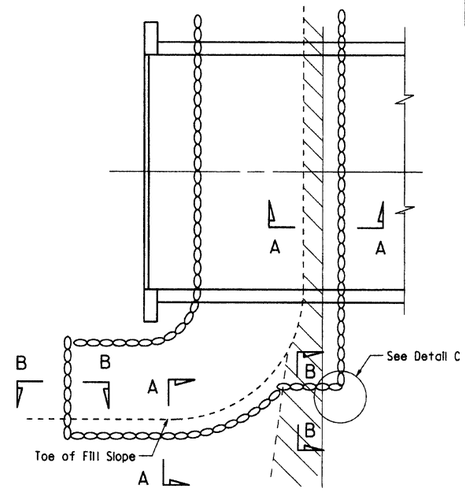
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



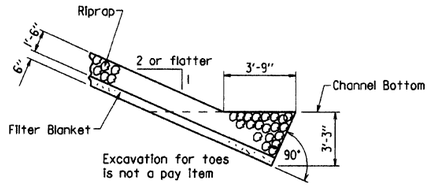
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



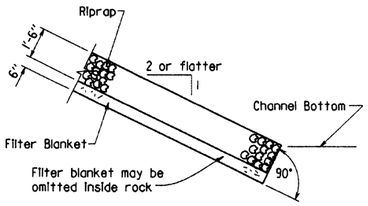
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



PLAN OF DUMPED RIPRAP



SECTION A-A
(Toe Excavation In Soil)

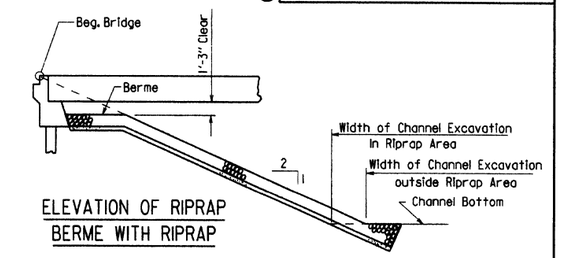


SECTION A-A
(Toe Excavation In Rock)

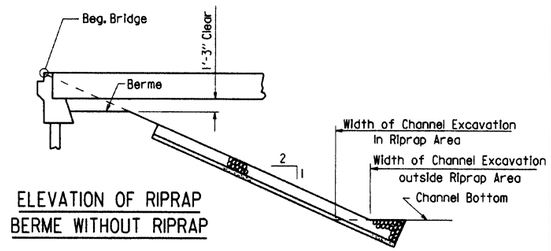
Note : Use this type of toe when rock is encountered which is in a stable condition.

Note : In lieu of an aggregate filter blanket, a synthetic fiber geotextile fabric complying with the requirements of Subsection 816.02(e) may be used.

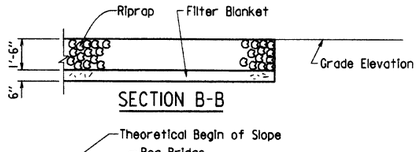
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



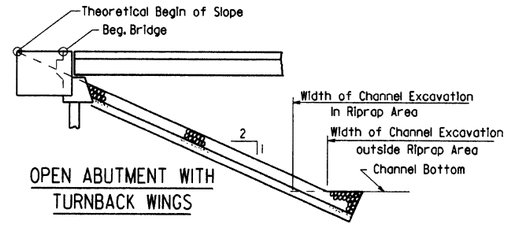
ELEVATION OF RIPRAP BERME WITH RIPRAP



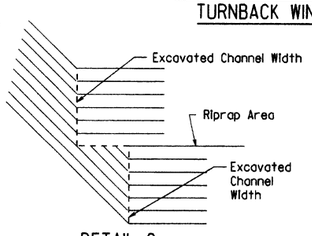
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn

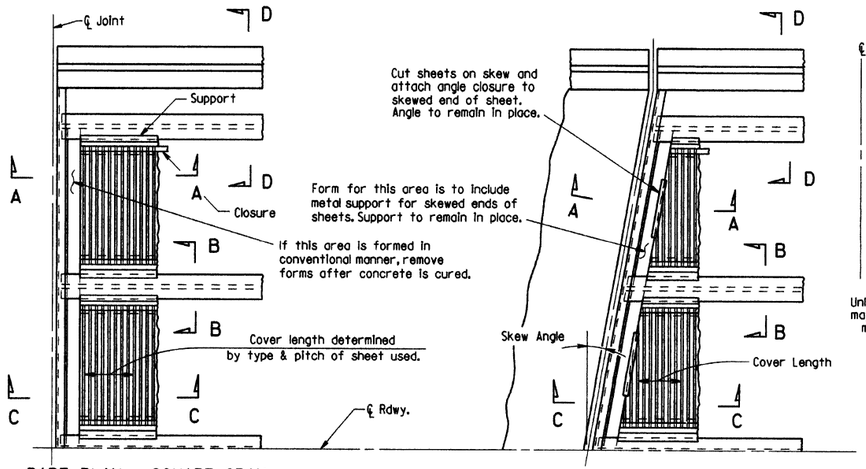
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: _____

DRAWING NO. 55001

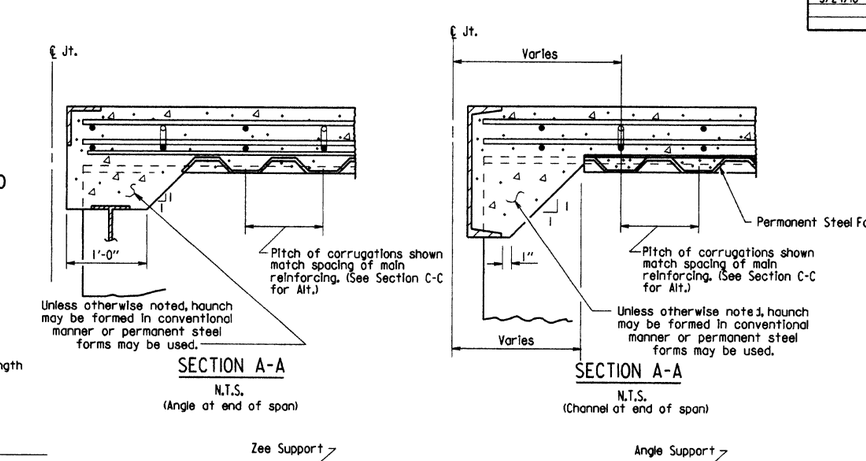
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.		436	
				JOB NO.				

① BRIDGE DECK FORMS 55005



PART PLAN - SQUARE SPAN

3/8" = 1'-0"



PART PLAN - SKEWED SPAN

3/8" = 1'-0"

SECTION A-A

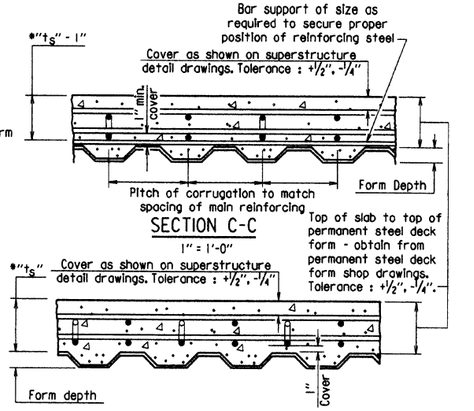
N.T.S.

(Angle at end of span)

SECTION A-A

N.T.S.

(Channel at end of span)



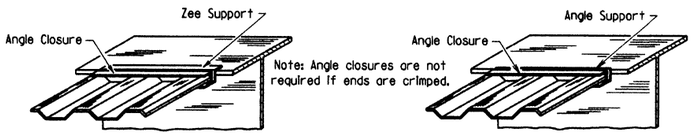
SECTION C-C

1" = 1'-0"

SECTION C-C - ALTERNATE

1" = 1'-0"

(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

*t_s = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

Permanent steel deck forms may be used at the Contractor's option and shall be at no additional cost to the Department. Such use may result in changes to the dead load deflection of the girder. Any cost for adjustments due to a change in the dead load deflection will be borne by the Contractor. Payment for deck concrete and structural steel will not be increased due to use of permanent steel deck forms.

Permanent steel deck forms shall conform to Subsection 802.14(b). Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Engineer before work of forming the bridge deck is started.

Welding of form supports to the tension flange of steel girders will be permitted only in areas where shear connectors are used. When welding is not allowed, the method of fastening Z or ∠ supports to the flange must be approved by the Engineer.

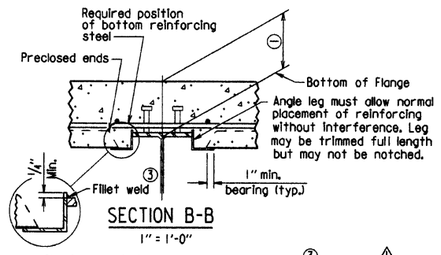
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

When the pitch of form corrugations match the reinforcing spacing, transversely align form sheets across the bridge to maintain the correct orientation of continuous reinforcing bars in the corrugations.

Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

High chairs shall be sized to support the top mat of reinforcing at the proper position. High chairs shall be placed at locations shown on the detail drawings.

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions.

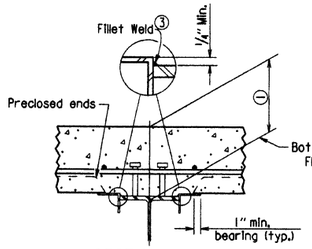


SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

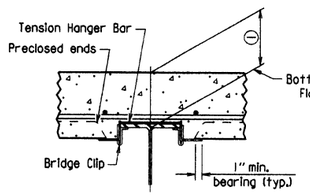
③ Minimum welds ⅛" x 1" @ 18". More weld may be required; maximum length per weld = 1½" (typ.)



SECTION B-B

1" = 1'-0"

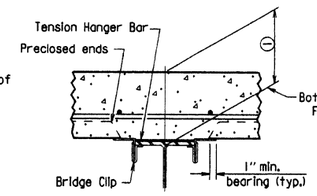
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

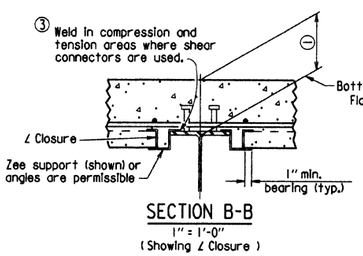
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

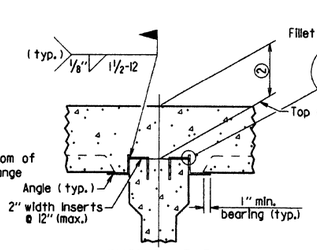
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

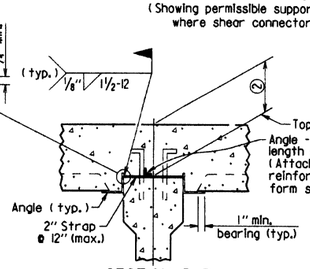


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)



SECTION B-B

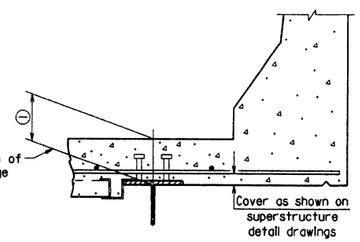
(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_s + 1¾" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

② Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top of girder or the support angle leg contacts the bottom reinforcing steel; Maximum - value shown on the superstructure detail drawings when removable forms are used. See Section C-C for slab thickness tolerance between adjacent girder flanges.



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

⚠ Revised weld dimension by KWY, Ck'd. by BEF, 3/24/16.

STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55005.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NONE

DESIGNED BY: STD. DATE: —

DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-1-14				6	ARK.		437	
1-14-15				JOB NO.				

① TYPE D NAME PLATE 55010

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	
Line 2	Relief	Railroad	River	Highway 5
Line 3		Overpass	Relief	

21½"

2½"

Center of Cast Lug

2½"

LINE 1
LINE 2
LINE 3

ARKANSAS HIGHWAY COMMISSION
DICK TRAMMEL - CHAIR
TOM SCHUECK - VICE CHAIR
ROBERT S. MOORE, JR.
FRANK D. SCOTT, JR.
DALTON A. "ALEC" FARMER, JR.
DIRECTOR - SCOTT E. BENNETT
DEPUTY DIRECTOR/CHIEF OPERATING OFFICER - LORIE H. TUDOR
DEPUTY DIRECTOR/CHIEF ENGINEER - EMANUEL BANKS

CONTRACTOR
COMPANY NAME
YEAR

2½"

Center of Cast Lug

2½"

2½"

Center of Cast Lug

XXXXX

XXXXX

Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20
HL-93

Place the name of the company awarded the construction contract here using 1/8" raised letters and numerals 3/8" high. Example : ABCD CONSTRUCTION, INC.

Place the Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example : 2001

Place the Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples : A1234
05432

TYPICAL BRIDGE NAME PLATE

Face of Concrete

Alternate attachments may be used provided such attachments are submitted and approval secured before fabrication is begun.

1/4"

2½"

3/8"

2"

13"

8"

1/2" (Typ.)

1/8"

1/4"

3/8"

GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812.

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 9/16" x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered.

The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

② Revised Chair and Vice Chair
Added New Commissioner

1-14-15 KDH Checked By: CRE

① Revised Deputy Director/
Chief Engineer
Added Deputy Director/
Chief Operating Officer

12-1-14 KDH Checked By: CRE

STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55010

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.		438	
				JOB NO.				
				①		STEEL H-PILES		55020

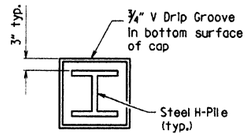
GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.

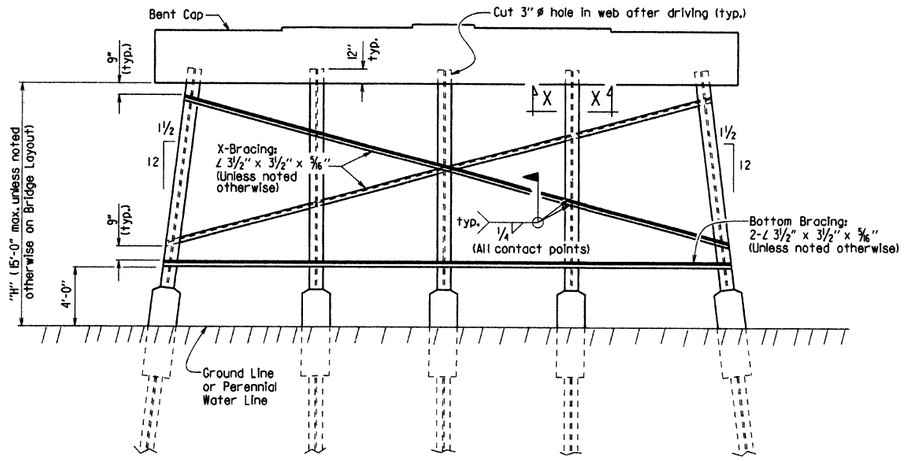
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

Steel H-Piles that extend above the ground and are not protected by pile encasement shall be painted in accordance with Subsection 805.02.

Brackets, lugs, cap plates, pile tips, driving points, pile painting, splicing and welding shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



VIEW X-X



Notes:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under Item 807.

Unless noted otherwise, omit X-Bracing when "H" is less than 8 feet.

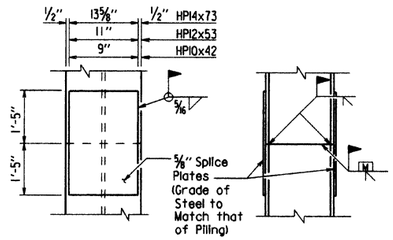
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

When required on the Bridge Layout sheet, pile encasements shall be constructed. See Notes and Details for H-Pile Encasements.

Omit all bracing (and V-groove in cap) when pile encasement is extended to bottom of bent cap.

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)



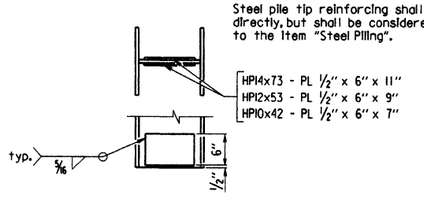
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

⚠ H-pile splicers manufactured by Associated Pile and Fitting Corporation, LB Foster Piling, Skyline Steel or equivalent may be used in lieu of the "Typical Splice Details" shown. H-pile splicers shall match the same grade of steel specified for the piling and shall be welded to the pile with a ⅝" fillet weld around the entire perimeter of the splice. Flanges shall be welded with a complete penetration groove weld complying with AASHTO/AWS Joint Designation B-U4a or B-U4b. All welding shall conform to Subsection 807.26 of the AHTD Standard Specifcations for Highway Construction (2014 Edition).

Notes:
Steel pile tip reinforcing not required when approved H-Pile driving points are used.

Steel pile tip reinforcing shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

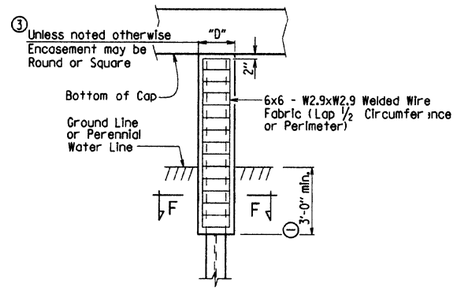
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

All concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

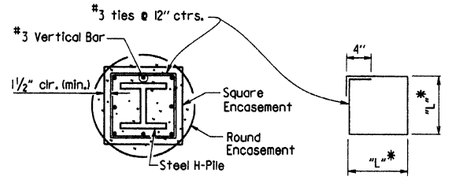
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

Concrete, welded wire fabric or reinforcing steel and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

④ (Shown with Encasement to Bottom of Cap)

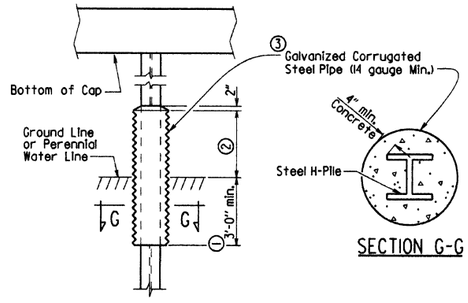


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

Pile Size	"D" Square Encsmt.	"D" Round Encsmt.	"L"*
HP10x42	1'-7"	2'-0"	1'-4"
HP12x53	1'-8"	2'-2"	1'-5"
HP14x73	1'-11"	2'-6"	1'-8"



SECTION G-G

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

① Unless otherwise noted on Bridge Layout.

② 3'-0" minimum or as shown on Bridge Layout.

③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1½" and a minimum clearance of 1¼" from the pile.

④ Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

⚠ Added alternate method of splicing H-piles and revised pile encasement note.
3/24/2016 AMS

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on March 24, 2016. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

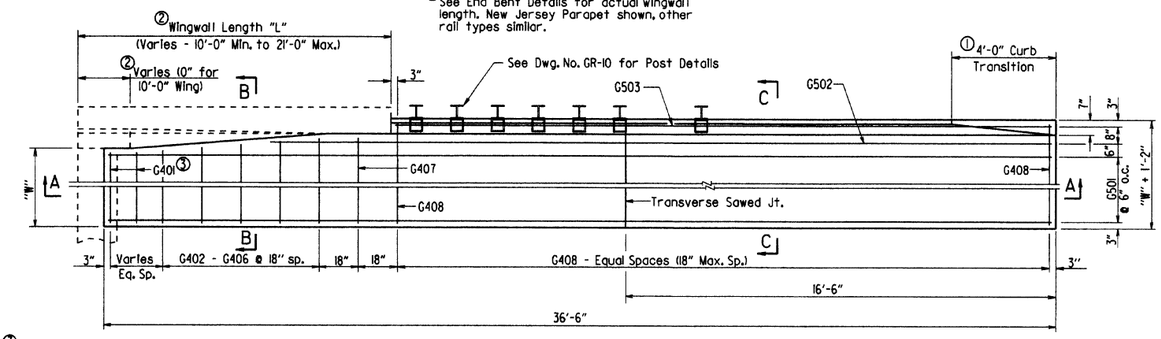
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55020.dgn
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

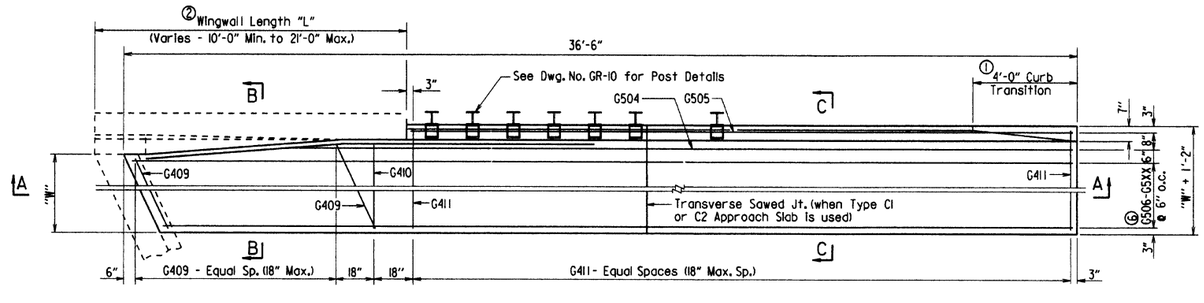
DRAWING NO. 55020

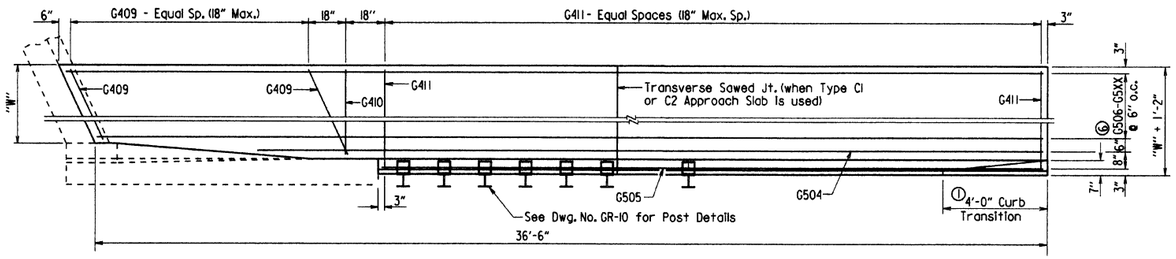
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		439	
				JOB NO.				
				①	TYPE C GUTTERS		55030C	



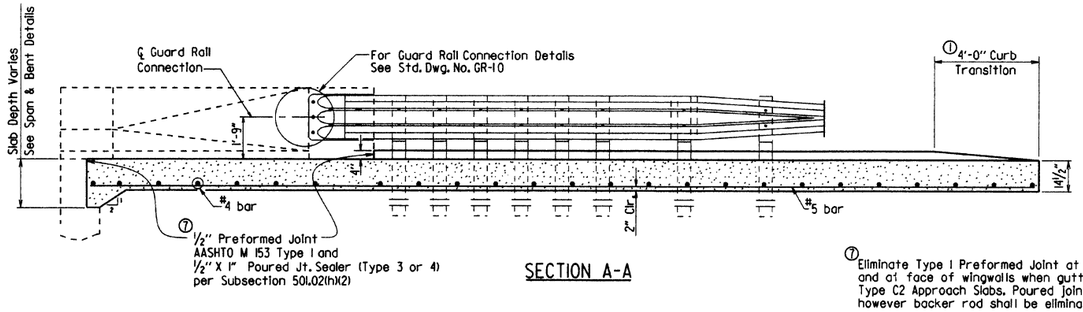
③Provide G401 bars @ 18" max. spacing. Number of G401 bars vary with wingwall length. No G401 bars required for 10'-0" wingwalls.

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE

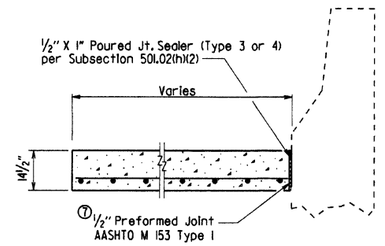


SECTION A-A

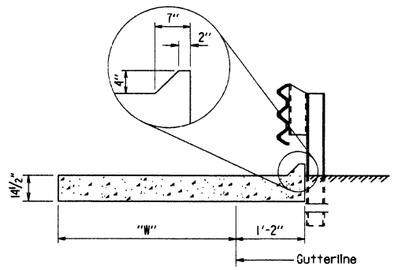
⑦Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type C2 Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

①Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

BAR LIST FOR ONE TYPE C GUTTER

	Mark	No. Req'd. for Width "W" 4'-0"	6'-0"	8'-0"	10'-0"	Length
Square Bridge	G401	④	④	④	④	"W"- 4"
	G402-G406	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	"W"+3"
	G408	④	④	④	④	"W"+ 10"
	G501	8	12	16	20	36'-2"
	G502	1	1	1	1	(41'-11") - "L"
	G503	1	1	1	1	(37'-2") - "L"
Skewed Bridge	G409	④	④	④	④	⑤
	G410	1	1	1	1	"W"+3"
	G411	④	④	④	④	"W"+ 10"
	G504	1	1	1	1	⑤
	G505	1	1	1	1	⑤
	G506 - G5XX ⑥	1 each	1 each	1 each	1 each	⑤

④No. Req'd. varies with Skew and Wingwall Length.

⑤Bar Lengths vary with Skew and Wingwall Length.

⑥G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'
G525 for "W" = 10'

QUANTITIES FOR ONE SQUARE APPROACH GUTTER
(FOR INFORMATION ONLY)

"W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
4	445	8.30
6	630	11.55
8	810	14.80
10	995	18.10

Quantities are based on "L" = 10'-0".

Note:
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Gutters will be measured and paid for in accordance with Section 504.

STANDARD DETAILS FOR TYPE C APPROACH GUTTERS

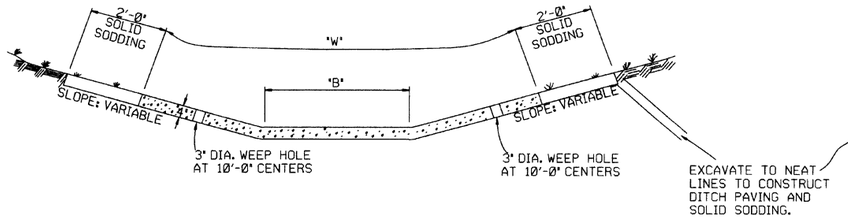
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030c.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: ⅜" = 1'-0" or As Shown
DESIGNED BY: STD. DATE:

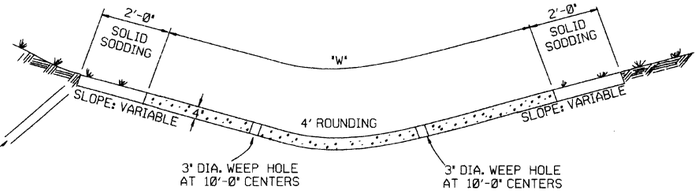
DRAWING NO. 55030C

REFER TO TABULATION OF QUANTITIES FOR "W" & "B" DIMENSIONS



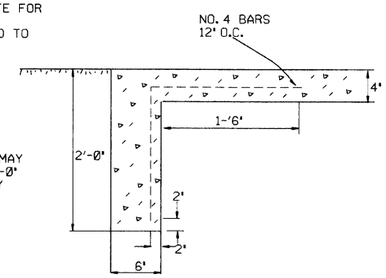
TYPE A

REFER TO TABULATION OF QUANTITIES FOR "W" DIMENSIONS



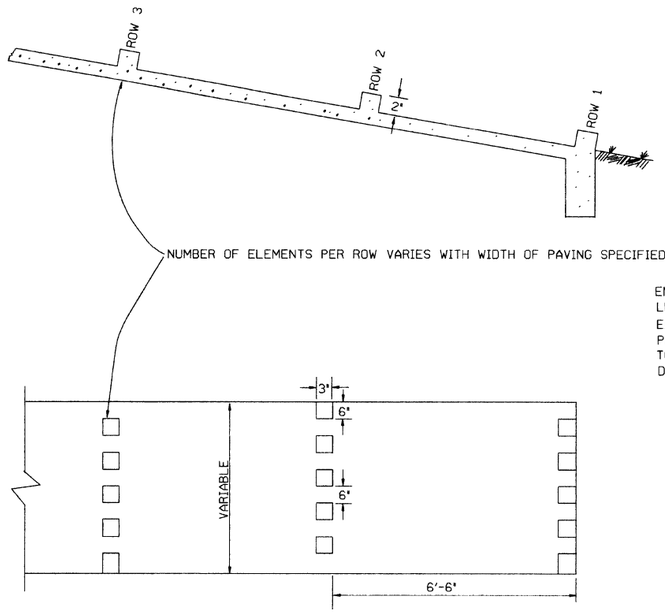
TYPE B

THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR "CONCRETE DITCH PAVING."



TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

TOE WALL DETAIL FOR CONCRETE DITCH PAVING



ENERGY DISSIPATORS
(NO SCALE)

ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 7%. THE DISSIPATORS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE UNCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.

SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

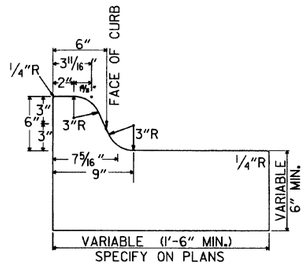
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

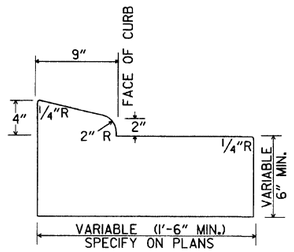
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

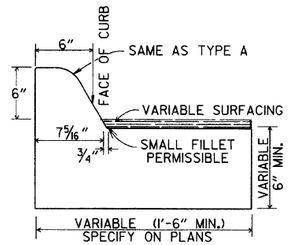
STANDARD DRAWING CDP-1



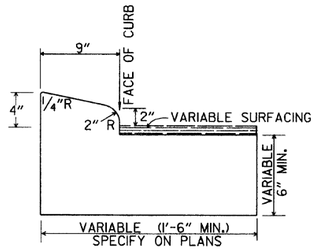
TYPE A



TYPE B-1



TYPE C



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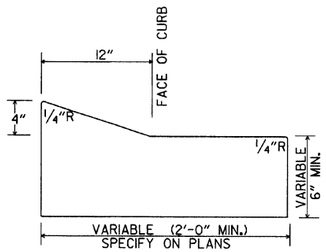
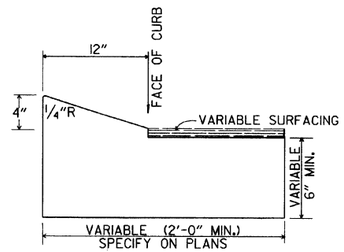
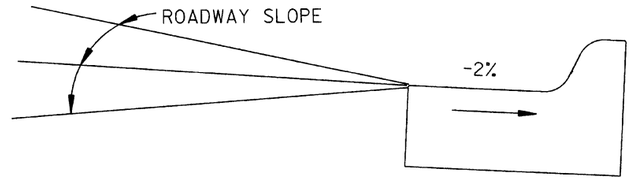


TYPE E-1



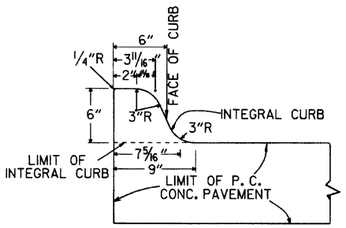
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

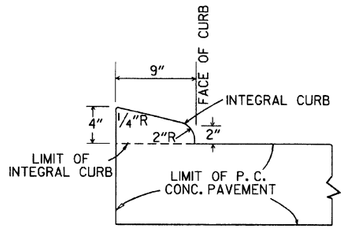


DETAIL OF GUTTER SLOPE

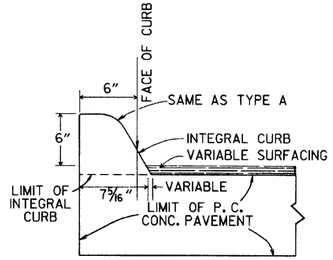
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

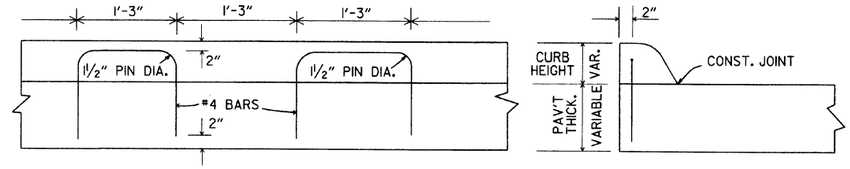


TYPE B



TYPE C

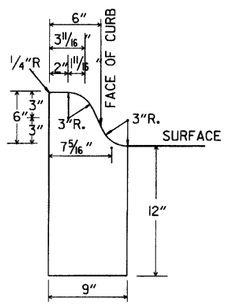
INTEGRAL CURB



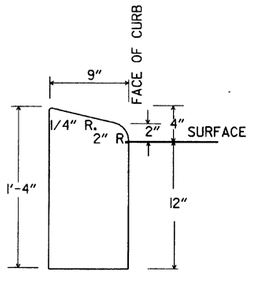
LONGITUDINAL SECTION

ELEVATION

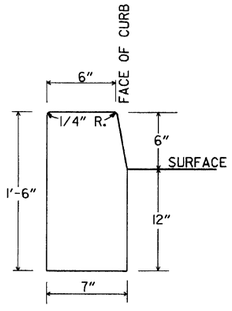
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



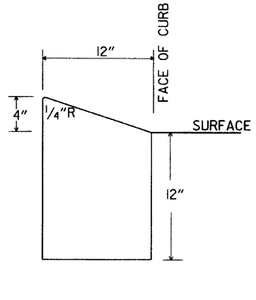
TYPE A



TYPE B

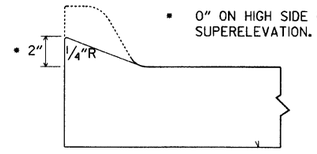


TYPE D



TYPE E

CONCRETE CURB



NOTE: USE MODIFIED CURB AS SPECIFIED ON STD. DR-1. COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR CURB AND GUTTER SPECIFIED.

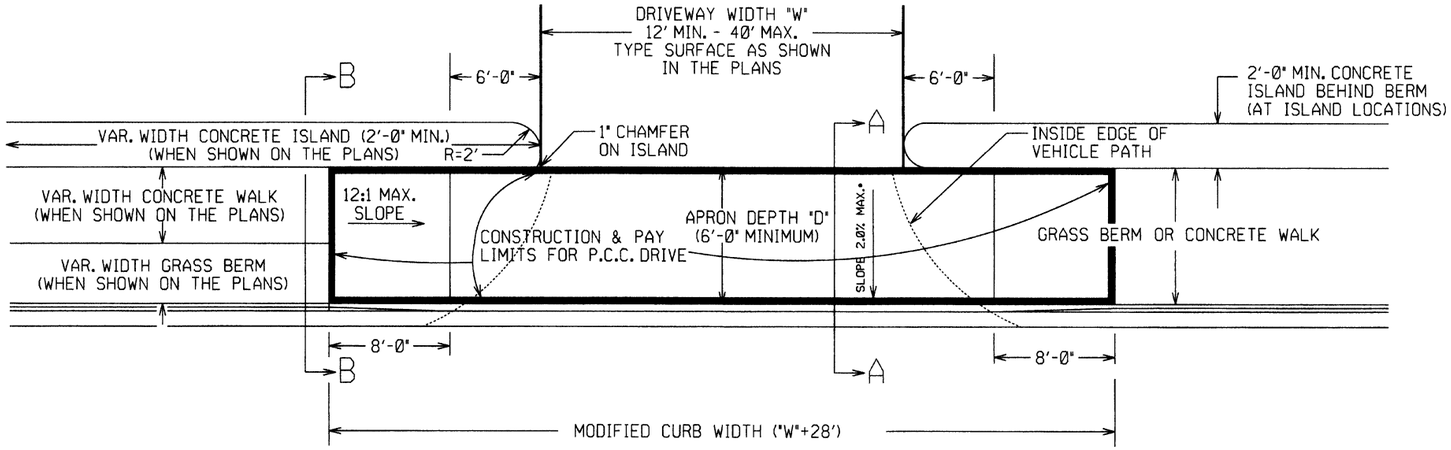
DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIBLE DEPTH TYPE A & B 1	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	500-11-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72

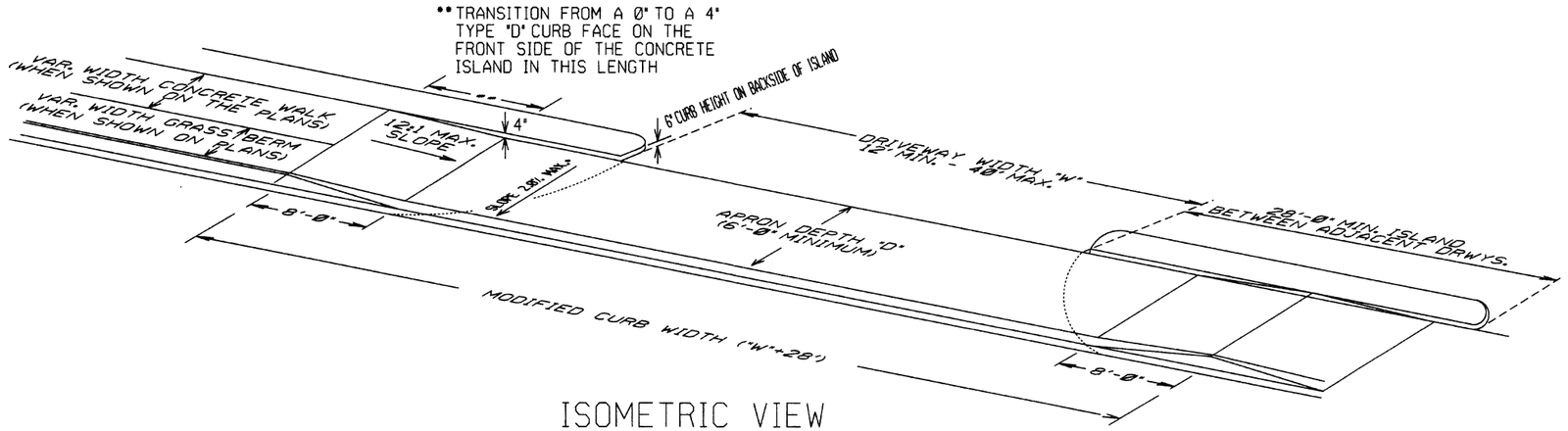
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

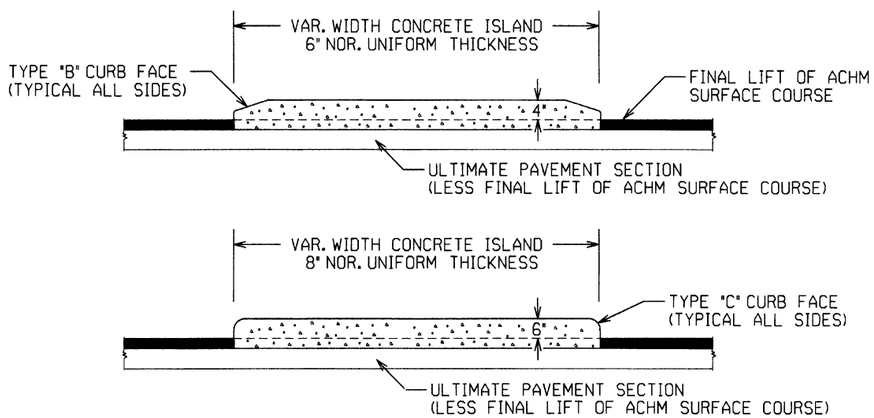
STANDARD DRAWING CG-1



PLAN VIEW

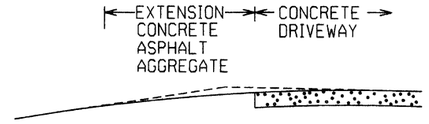


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

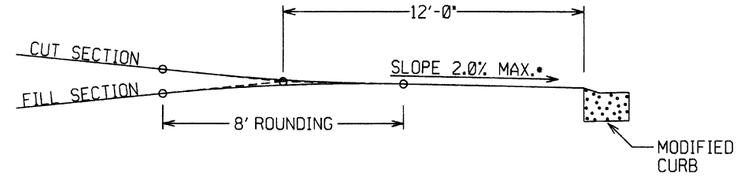
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

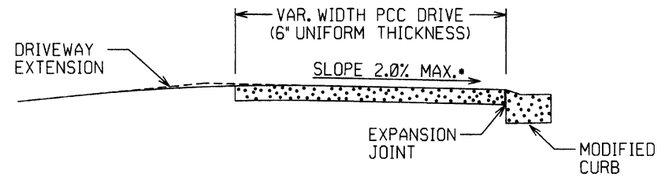
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

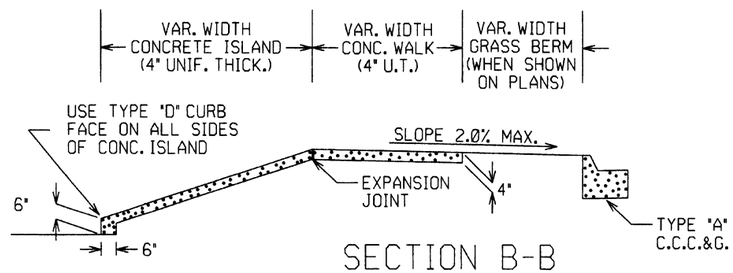


DRIVEWAY VERTICAL ALIGNMENT DETAILS

• NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



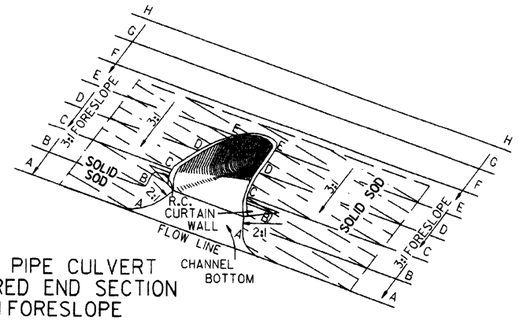
SECTION A-A



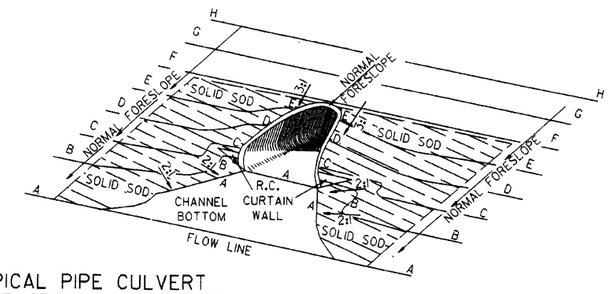
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
2-27-14		REVISED PLAN & ISOMETRIC VIEW
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

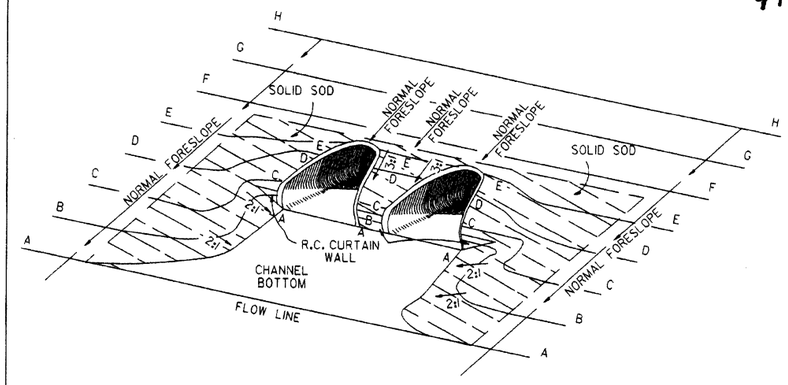
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

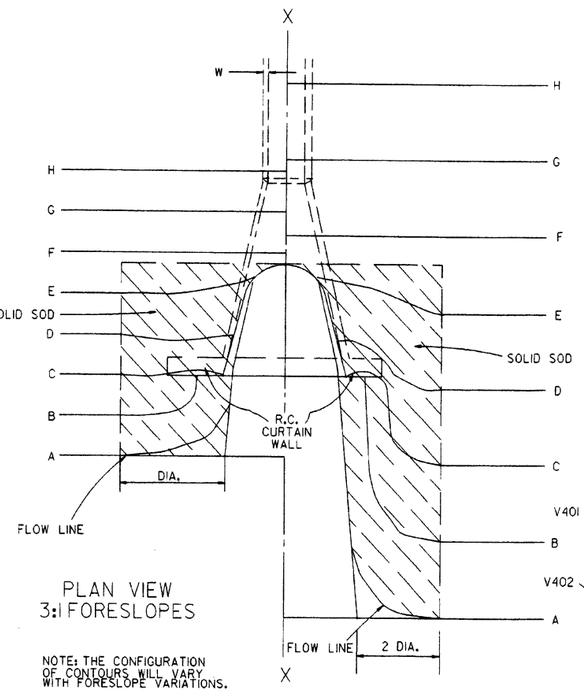
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1½"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9½"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 .	H402 NO.	V401 L	V401 NO.	V402 L	V402 NO.	DOUBLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	H403 L	H403 NO.	V401 L	V401 NO.	V402 L	V402 NO.
18"	7'-8"	2	1'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

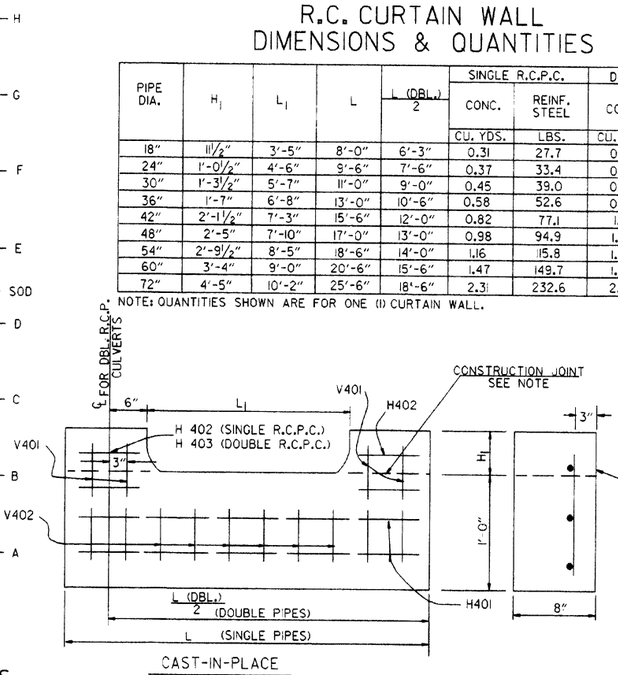
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

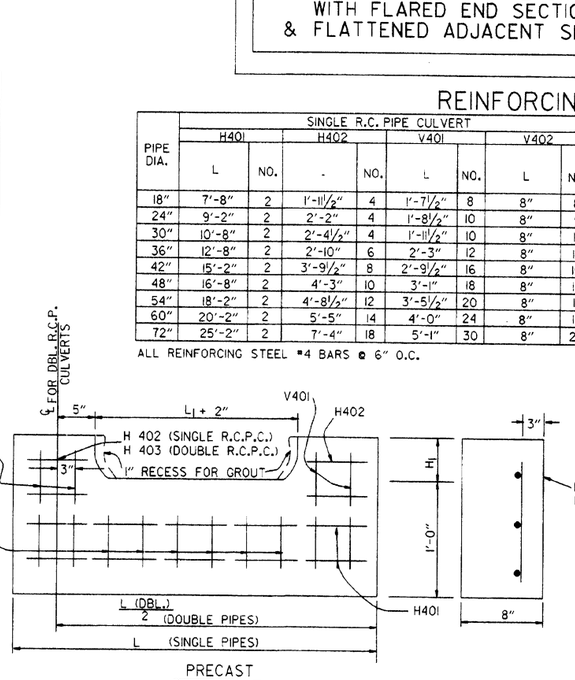
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



CAST-IN-PLACE

NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



PRECAST

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

R.C. CURTAIN WALL DETAILS

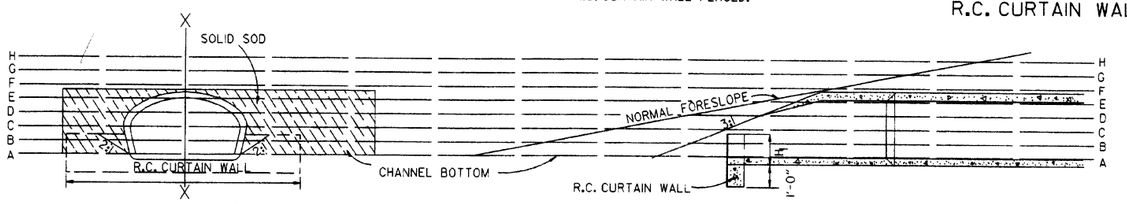
SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C. 3:1	4:1	6:1	DOUBLE R.C.P.C. 3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

NOTE: QUANTITIES SHOWN ABOVE ARE FOR ONE (1) END OF F.E.S.

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 × 3 W10 × W10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

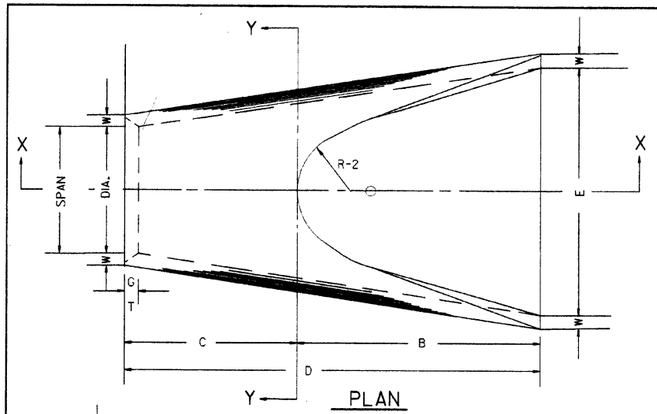
SECTIONAL VIEW "X-X"

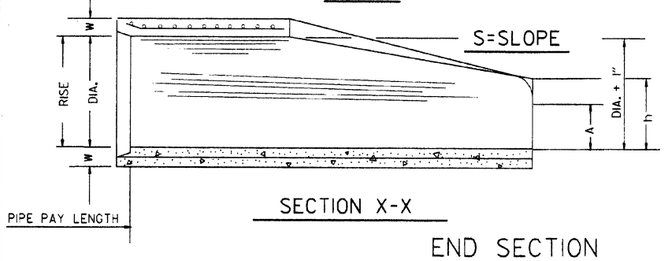
DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	10-18-96
10-12-95	CORRECTED SPELLING	
11-3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT., STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1



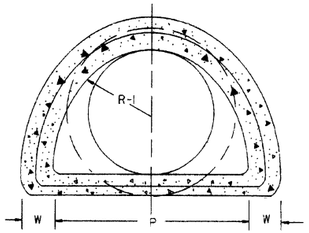


SECTION X-X

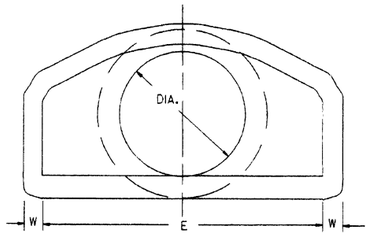
END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. ± 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33 3/16"	16 13/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4 5/8"
36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1¾"	6'-0"	3:1	37"	47 1/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-5"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅛"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 5/16"	24"	5"	13250	4'-6"



SECTION Y-Y



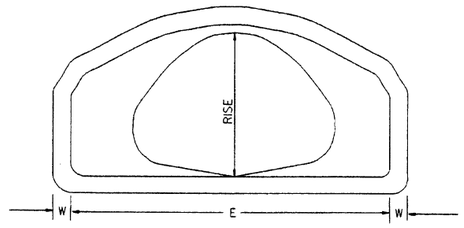
END VIEW

NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

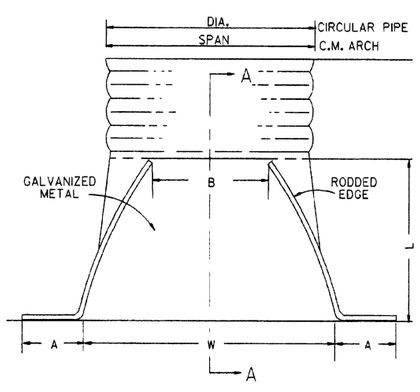
ARCH PIPE

EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 1/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 1/16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54 5/16"	22"	3½"	2½:1
42	51⅛	51	31 5/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2½:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 1/16"	24"	5"	2½:1

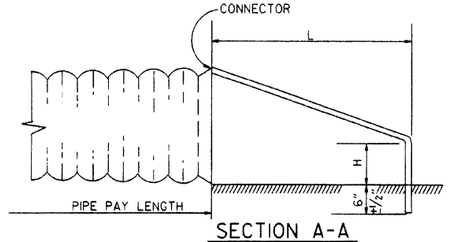
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



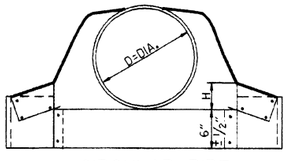
END VIEW
CONCRETE ARCH PIPE



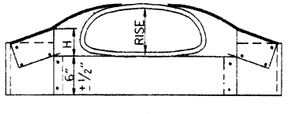
PLAN



SECTION A-A



CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

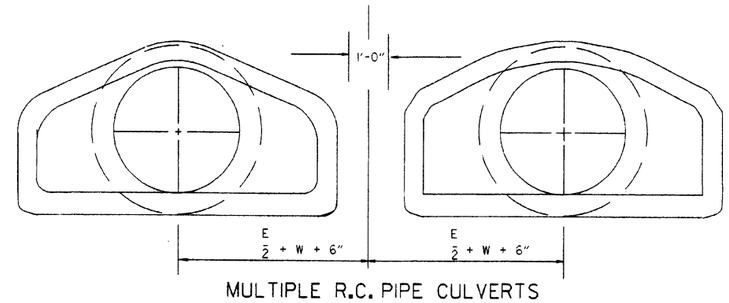
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

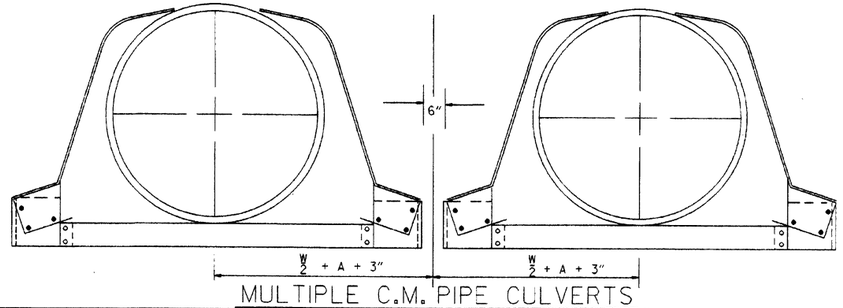
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2¼:1	12
60"	71	47	18	33	12	77	114	2¼:1	12

NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

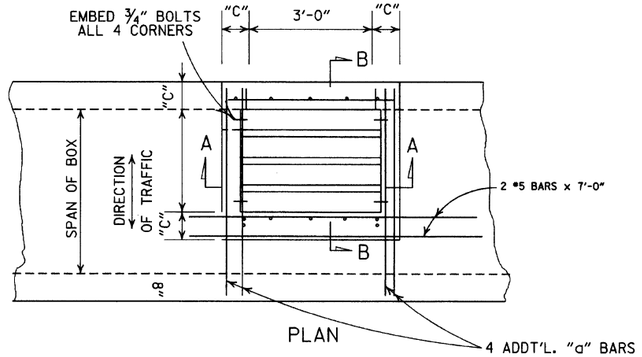
DATE	REVISION	APPROVED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

ARKANSAS STATE HIGHWAY COMMISION

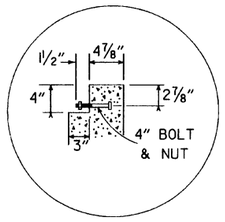
FLARED END SECTION

STANDARD DRAWING FES-2

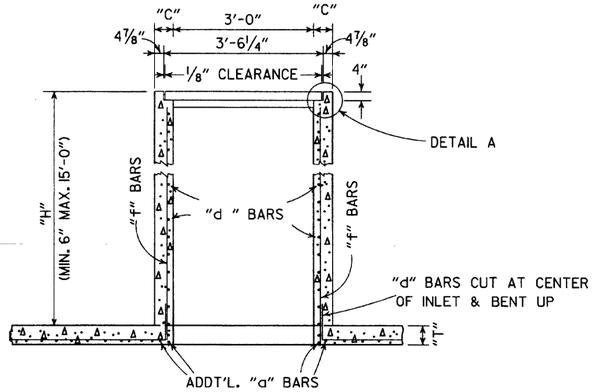
stdfes2.dgn



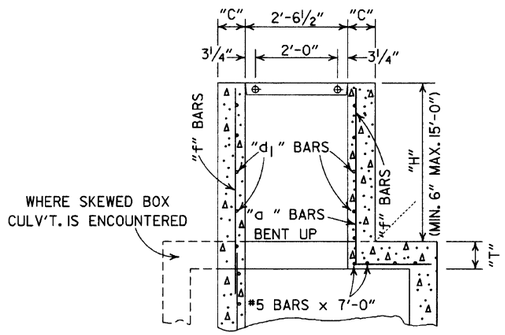
PLAN



DETAIL A



SECTION A-A

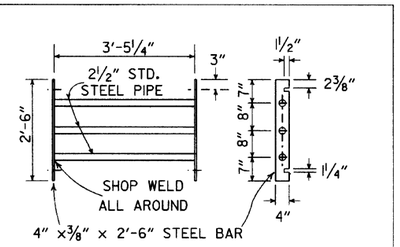


SECTION B-B

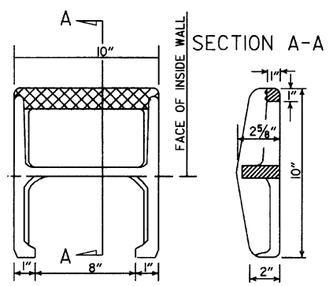
NOTE: ADDT'L.REINF. STEEL TO BE INCLUDED IN UNIT PRICE BID PER TYPE "TM" D.I.

DIMENSIONS & REINF. BARS FOR D.I. TO BE THE SAME AS THOSE SHOWN ON APPLICABLE STD. BARREL DRAWING FOR R.C. BOX CULVERTS.

DROP INLET TYPE "TM" FOR REINFORCED CONC. BOX CULVERTS



GRATE DETAIL



APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET

GENERAL NOTES:

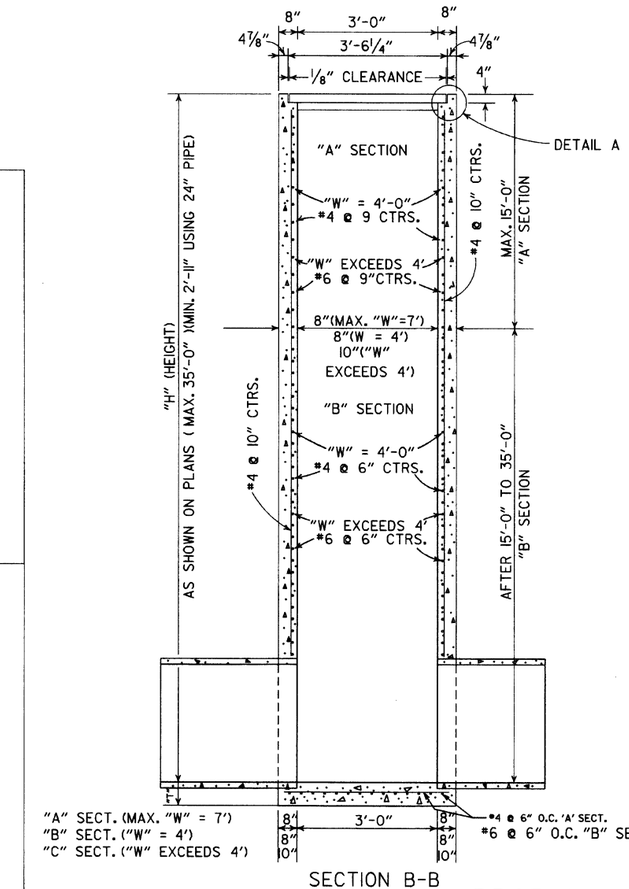
1. STEEL PIPE FOR GRATES AND BOLTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 807. BOLTS SHALL CONFORM TO ONE OF THE FOLLOWING: ASTM A193, GRADE B8 CLASS 1 OR 2, ASTM A307 OR AASHTO M 164.
2. STEEL PIPE FOR GRATES SHALL BE "STANDARD WEIGHT" PIPE CONFORMING TO ASTM A53 NATIONAL STANDARD PIPE.
3. BOLTS, NUTS, WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 232 OR AASHTO M 298, CLASS 40 OR 50.
4. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
5. ALL #4 AND #5 REINFORCING BARS TO HAVE 1½" COVER. LARGER SIZES TO HAVE 2" COVER.
6. THE COMPLETE PIPE GRATE SHALL BE PAINTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TABLE OF "W" DIMENSIONS

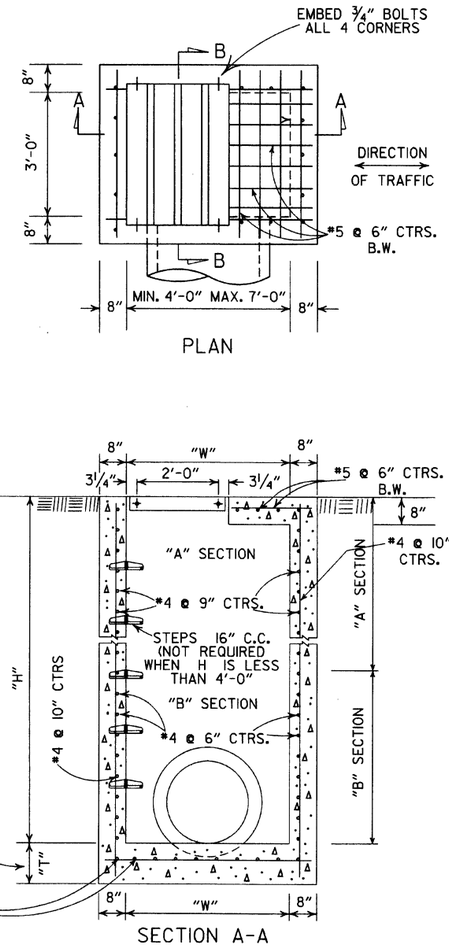
445

I.D. PIPE	SKEW OF CROSS DRAIN		
	STRAIGHT	30°	45°
	"W"	"W"	"W"
24"	4'-0"	4'-0"	4'-0"
30"	4'-0"	4'-0"	4'-5"
36"	4'-0"	4'-3"	5'-3"
42"	4'-3"	4'-11"	6'-1"
48"	4'-10"	5'-7"	6'-11"

NOTE: DIMENSIONS SHOWN ABOVE ARE FOR PIPES INTERSECTING DROP INLET ON ONE SIDE ONLY. FOR SKEWED PIPES INTERSECTING BOTH SIDES OF DROP INLET "W" WILL NEED TO BE INCREASED OR AXIS OF INTERSECTING PIPES WILL NEED TO BE SHIFTED.



SECTION B-B



SECTION A-A

DROP INLET(TYPE RM)

8-22-02	ADDED & REVISED DIMENSION TO SECTION A-A	
1-12-00	CORRECTED DIMENSION ON SECTION B-B	
11-06-97	ADDED DIMENSION TO SECTION A-A	
10-18-96	REVISED ASTM REF. TO AASHTO AND ADDED NOTE TO TABLE OF "W" DIMENSIONS	
10-1-92	ADDED DIRECTION OF TRAFFIC	10-1-92
8-15-91	ADDED NOTE ABOUT PAINTING OF GRATE	8-15-91
11-30-89	ALTERED DETAIL A	11-30-89
7-15-88	REVISED STEP DETAIL,TM & RM D.I. & GRATE DETAIL	719-7-15-88
10-2-72	REVISED AND REDRAWN	542-10-2-72
REVISED		DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS

STANDARD DRAWING FPC-9D

4'-0" LENGTH DROP INLET

PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0" CLASS A CONC. CU. YDS.	HEIGHT 5'-0" REINF. STEEL POUNDS	PLUS OR MINUS PER LIN. FT. OF HEIGHT CLASS A CONC. CU. YDS.	PLUS OR MINUS PER LIN. FT. OF HEIGHT REINF. STEEL POUNDS
18"	2'-6"	1.77	156	0.28	22
24"	2'-6"	1.79	156	0.28	22
30"	3'-2"	2.39	205	0.30	26
36"	3'-8"	2.63	236	0.32	28
42"	4'-4"	2.95	250	0.34	30
48"	4'-10"	3.21	265	0.36	32

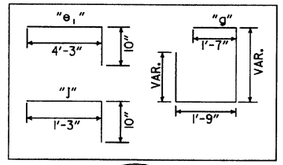
NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

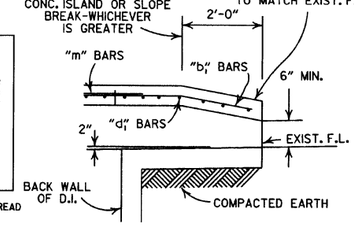
DROP INLET EXTENSION

4'-0" CLASS A CONC. CU. YDS.	4'-0" REINF. STEEL POUNDS	8'-0" CLASS A CONC. CU. YDS.	8'-0" REINF. STEEL POUNDS
0.58	38	0.87	72
DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.			
0.04	3		

DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET		
INSIDE DIA. PIPE	CLASS A CONC.	REINF. STEEL
INCHES	CU. YDS.	POUNDS
18	0.05	2
24	0.09	3
30	0.13	4
42	0.24	8

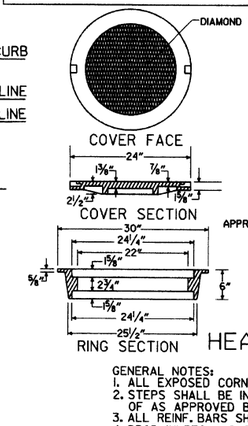
BAR DIAGRAM





BACK OPENING

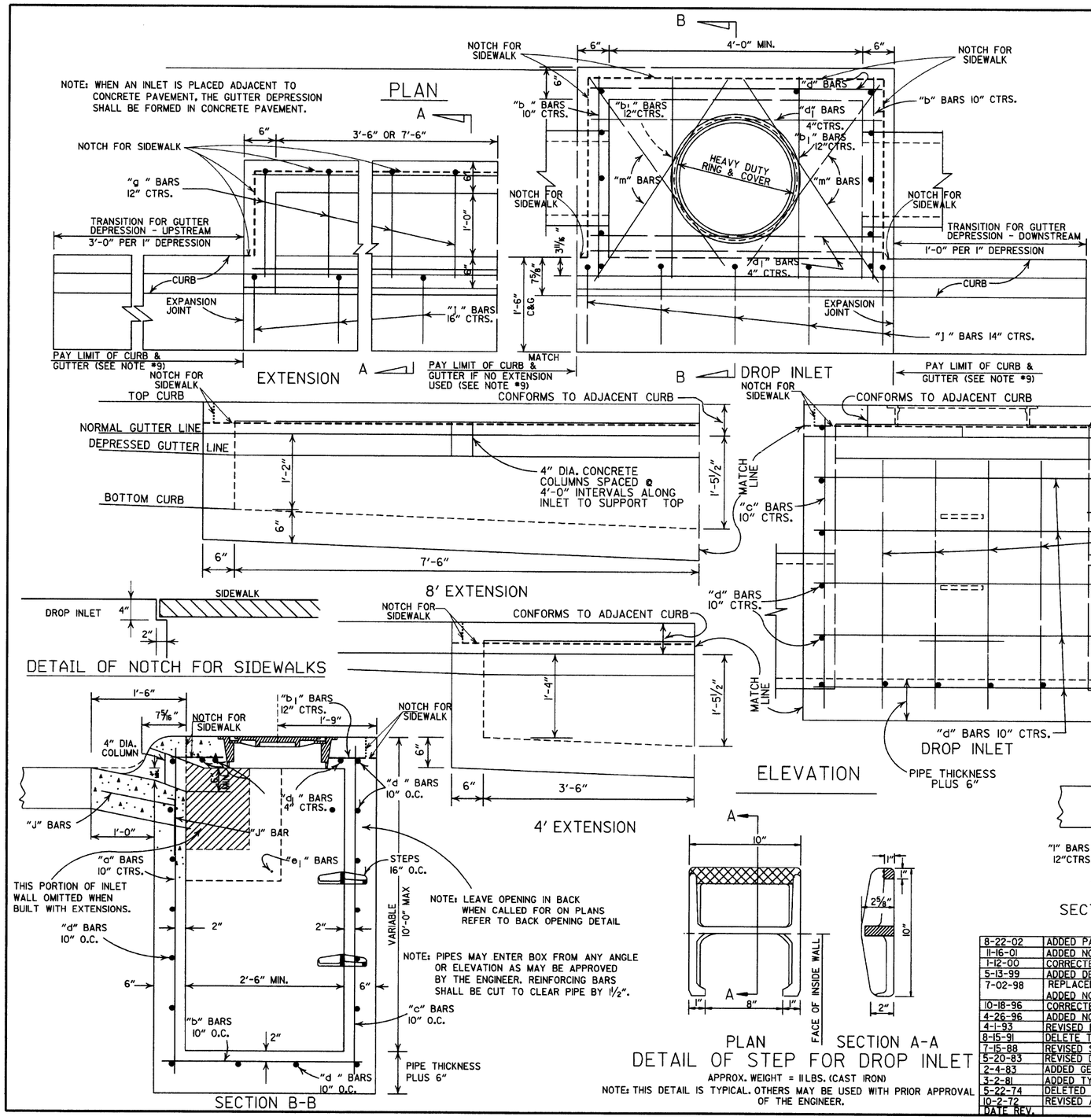
WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).



APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

GENERAL NOTES:
1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
3. ALL REINF. BARS SHALL BE #4 AND HAVE 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
6. WHEN PLANS CALL FOR DROP INLET OVER 10'-0" HIGH, FLOOR AND WALLS SHALL BE CONSTRUCTED AS SHOWN FOR TYPE "RM" DROP INLET (F.P.C.-9D).
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
9. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
10. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
11. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

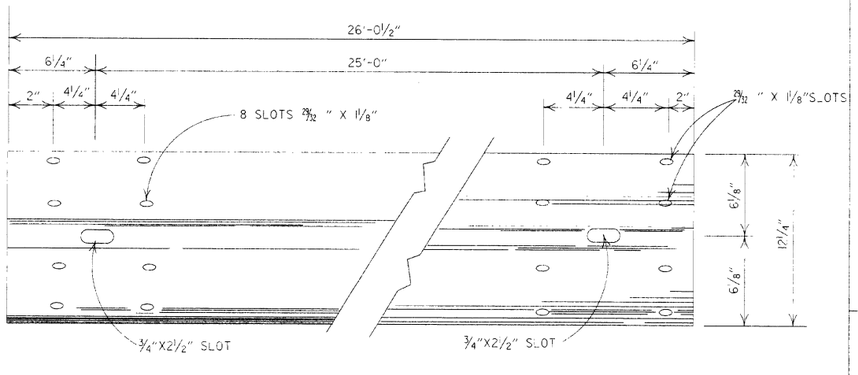


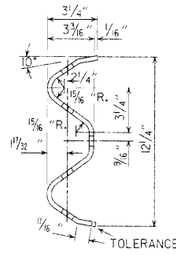
DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER ADDED NOTES 9,10,&11	
10-18-96	CORRECTED SPELLING	
4-26-96	ADDED NOTE 8 & REVISED (4')(8') EXTENSION TITLES	10-18-96
4-1-93	REVISED BACK OPENING & NOTE	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS (TYPE C)

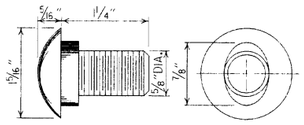
STANDARD DRAWING FPC-9E



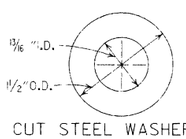


DETAILS OF W-BEAM GUARD RAIL

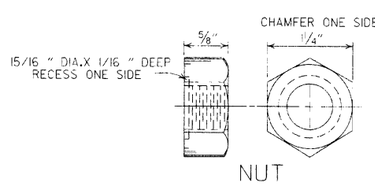
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



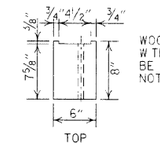
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

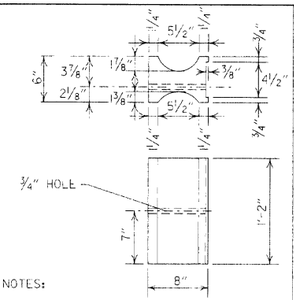


NUT



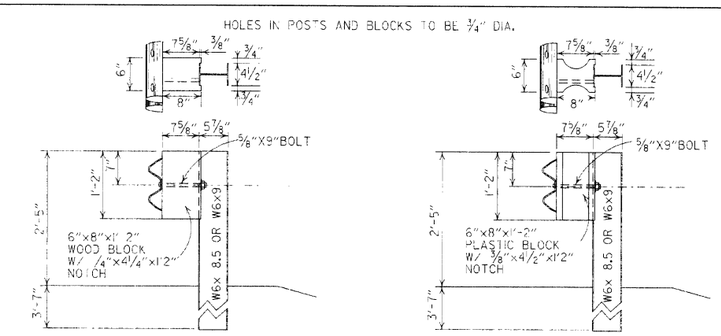
WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

WOOD BLOCKOUT (W-BEAM)

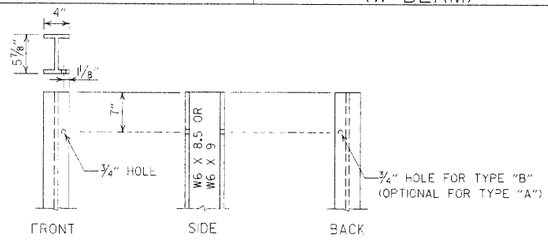


NOTES:
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

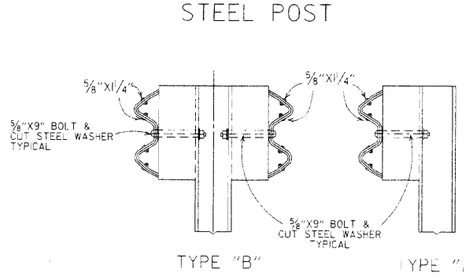
PLASTIC BLOCKOUT (W-BEAM)



DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



STEEL POST



DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.

WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO.1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO.1 1350 # SOUTHERN PINE.

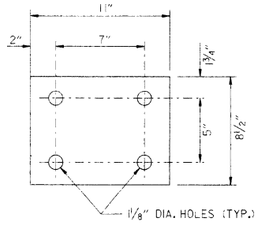
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
1-12-00	ADDED PLASTIC BLOCKOUT	
8-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
4-3-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
6-2-94	ADDED ALT. STEEL POST SIZE	
8-5-93	REVISED STEEL POST SIZE	8-5-93
10-1-92	REDRAWN & REVISED	10-1-92
8-15-91	REVISED WASHER NOTE	8-15-91
8-2-90	REV. GEN. NOTE & DEPHT OF ANC. POST IN ROCK	8-2-90
7-15-88	REVISED SECTION 3 & GENERAL NOTES	
3-4-88	REV. ANCHOR POST, ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-3-87	REDRAWN & REVISED	802-10-9-87

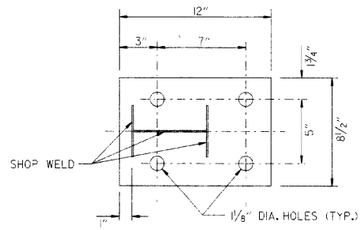
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8

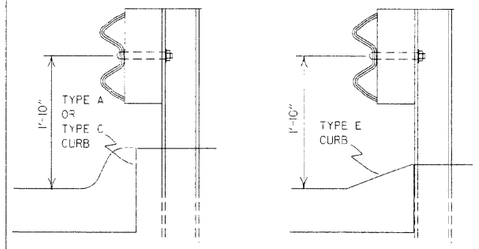


WASHER PLATE



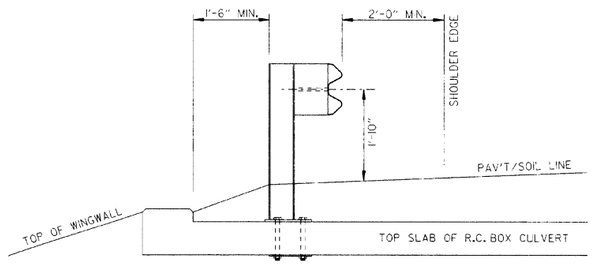
BASE PLATE

Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.

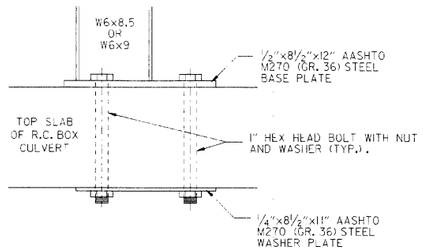


DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.

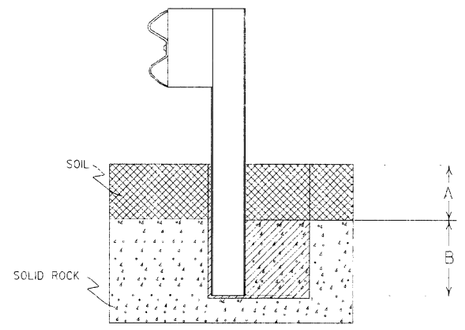


SECTION A-A

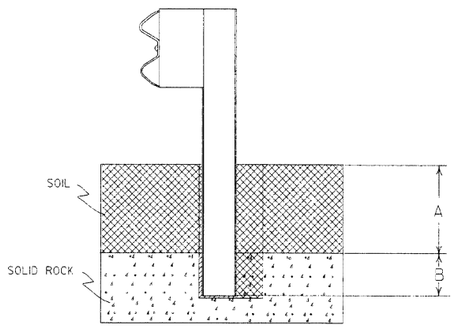


DETAIL OF CONNECTION

Case 1

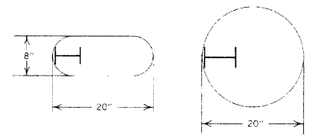


Case 2



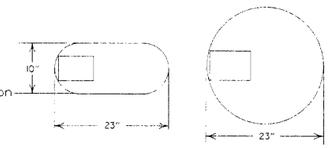
Plan View Steel Posts

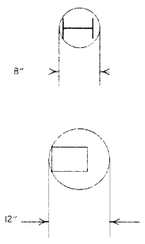
Either hole configuration acceptable



Plan View Wood Posts

Either hole configuration acceptable





Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

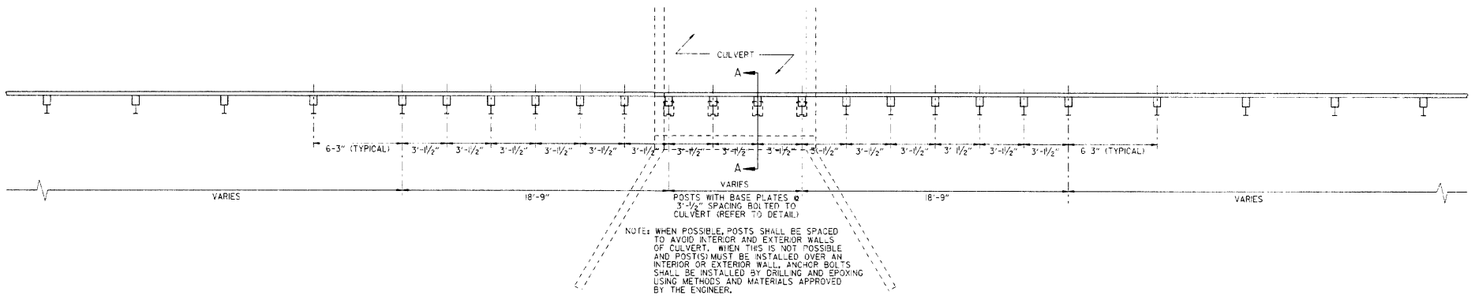
Zone A:
Backfill according to Section 617.03(a).

Zone B:
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.

Notes: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

Zone A & B:
Backfill according to Section 617.03(a).

DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)



PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DWG. GR-8.

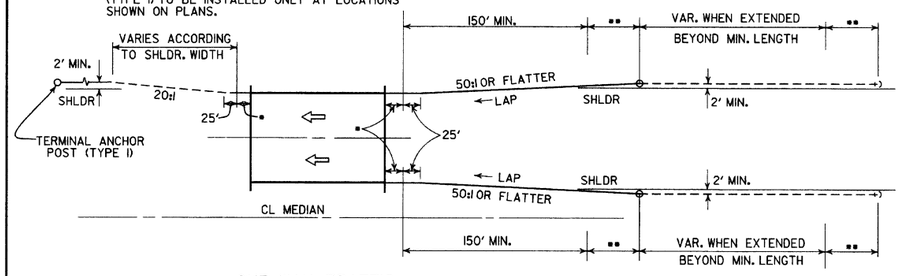
DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
4-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
1-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS, ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS	
3-30-00	REMOVED CONCRETE INSERT ANCHOR	
8-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADD. DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULV'T. DELETED DET. OF STEEL LINE POST CONN.& ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK	
4-3-96	PLACED ARROWS AT CJT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
6-2-94	REVISED ALTERNATE POST SIZE	
8-5-93	REVISED STEEL POST SIZE	
10-1-92	REDRAWN & REVISED	10-1-92
8-2-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
1-15-88	CONFORMED TO 1988 SPECS	
3-4-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-9-87	REDRAWN & REVISED	803-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

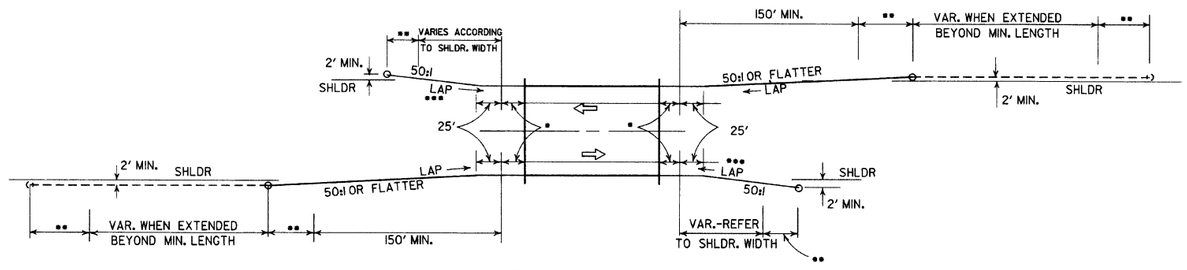
STANDARD DRAWING GR-8A

NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

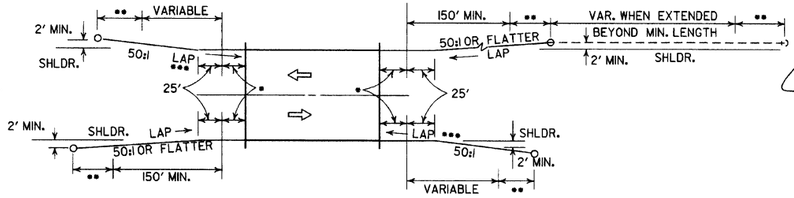
••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

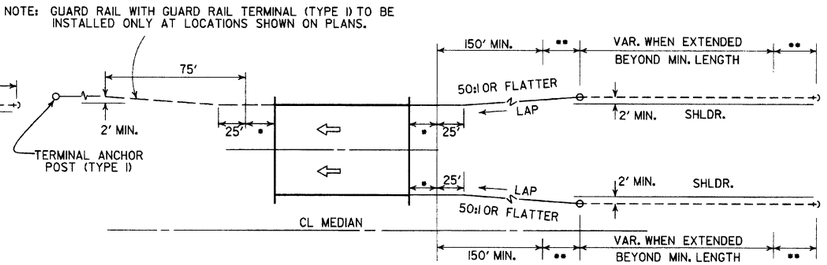
METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

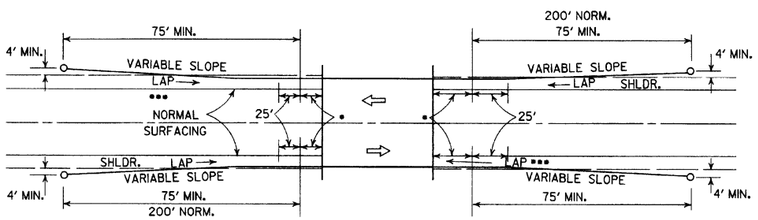
NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



LEGEND

- • THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

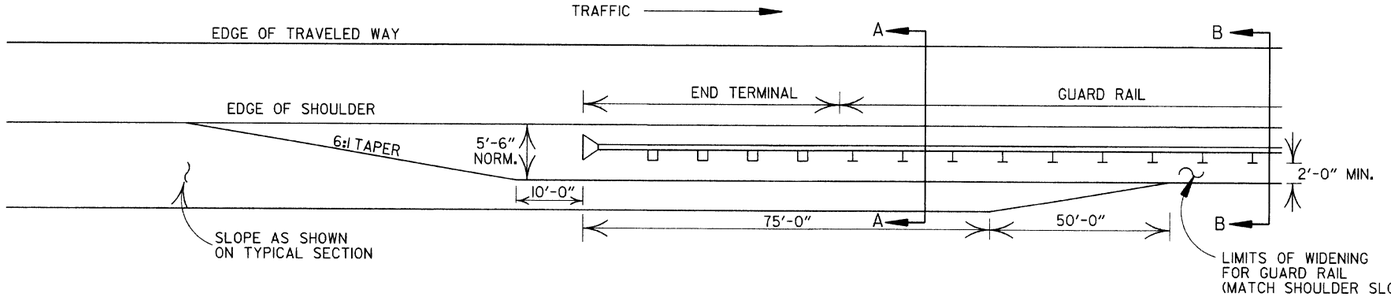
METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

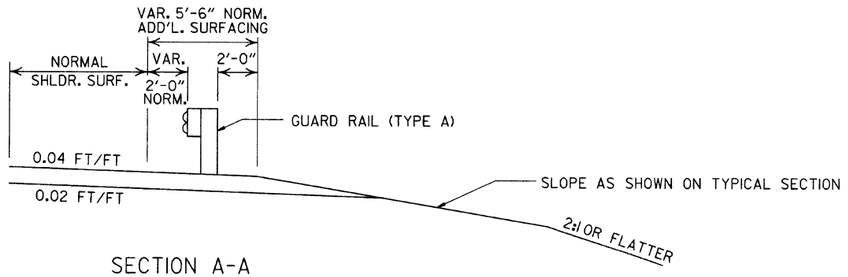
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION

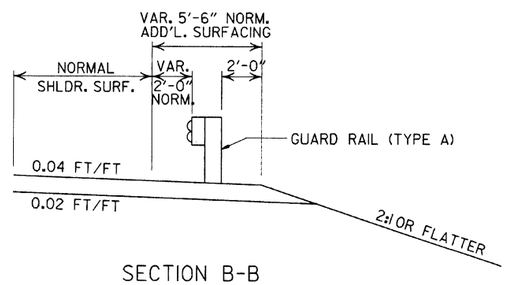
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





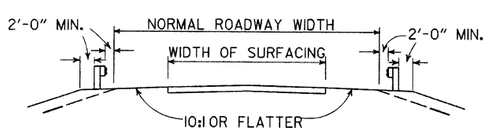
SECTION A-A



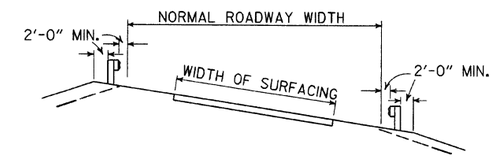
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.

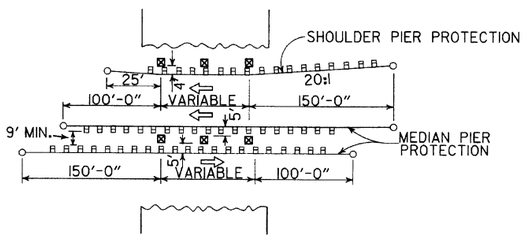


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



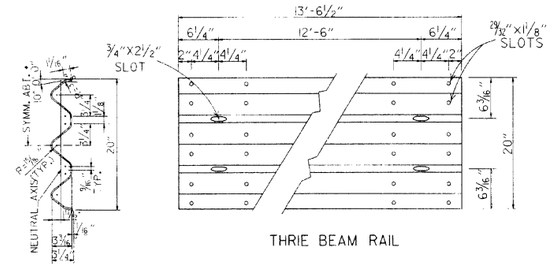
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

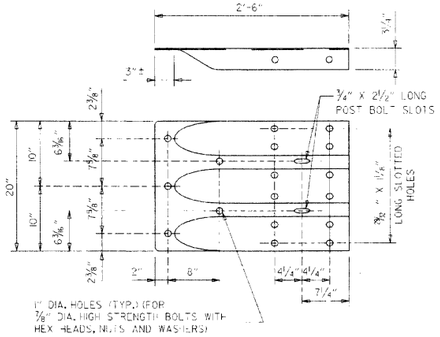
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A

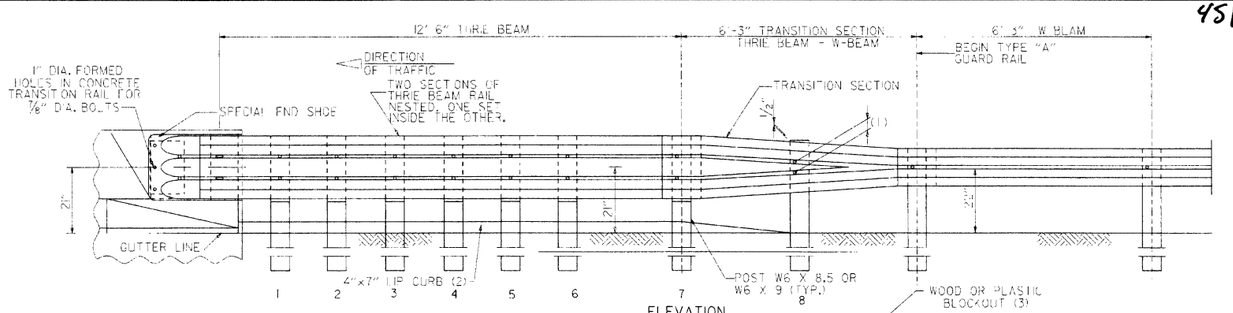


THRIE BEAM RAIL

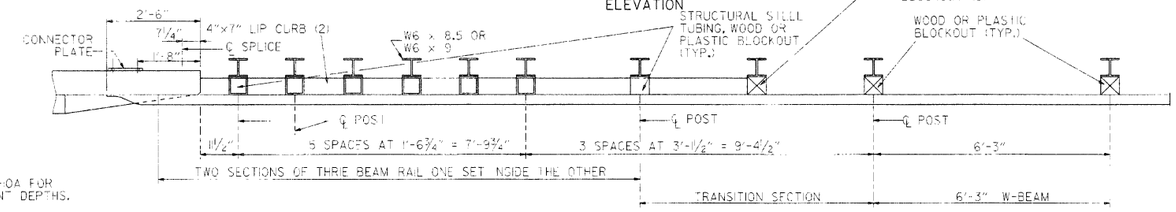
SECTION THRU THRIE BEAM RAIL



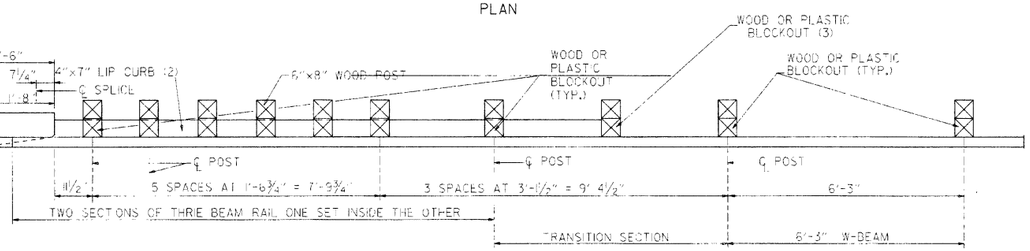
SPECIAL END SHOE



ELEVATION

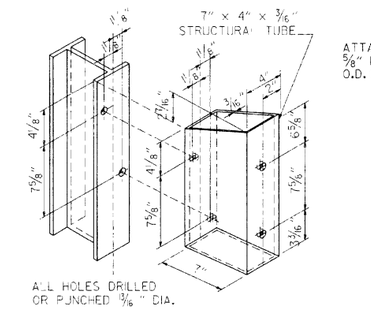


PLAN



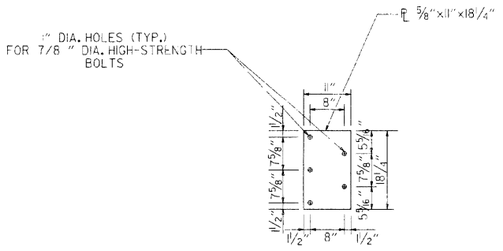
PLAN

(1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
(2) REFER TO APPROACH GUTTER DETAILS.
(3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.



STRUCTURAL STEEL TUBING BLOCKOUT DETAIL

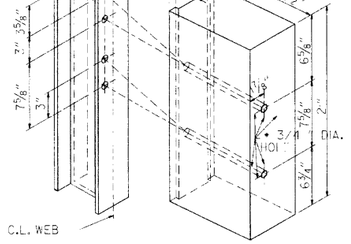
ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.



CONNECTOR PLATE

NOTE:
SEE STANDARD DRAWING GR-0A FOR GUARD RAIL POST EMBEDMENT DEPTHS.

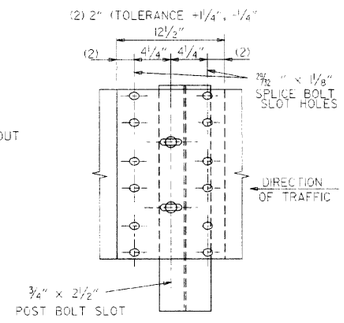
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.9 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



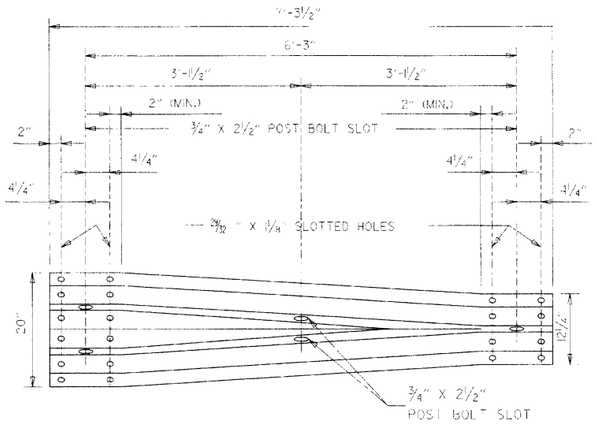
ALL HOLES ⅜" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL
FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



THRIE BEAM RAIL SPLICE AT POST



TRANSITION SECTION

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE II.

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

ALL LAP SPLICES, NCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-11.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 #) OR NO. 1 1350 # SOUTHERN PINE.

REFER TO STD. DRWG. GR-10A FOR POST DETAILS.

USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

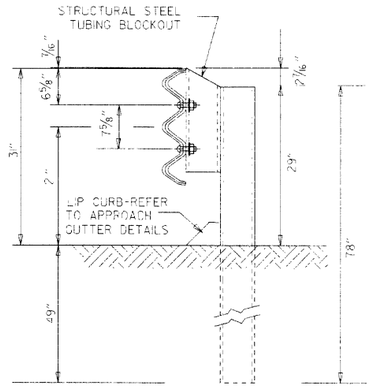
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF W-BEAM 1"	
11-29-07	ADDED PLASTIC BLOCKOUTS	
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
11-8-04	REVISED GENERAL NOTES	
10-9-03	REVISED GENERAL NOTES	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED NOTE (2)	
6-29-00	MOVED DIMENSION LINES	
5-18-00	ADDED NOTE	
3-30-00	DRAWN & ISSUED	

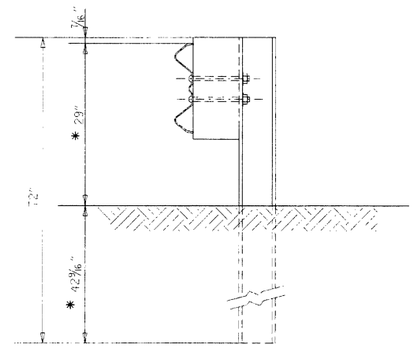
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

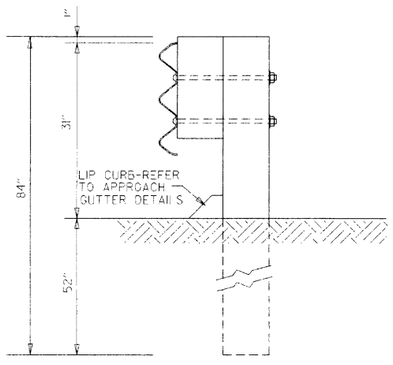


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

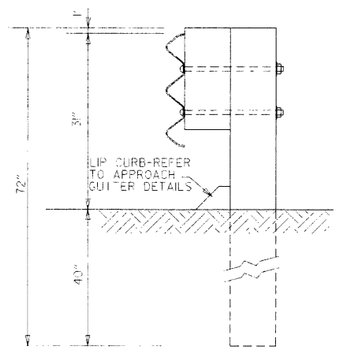


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

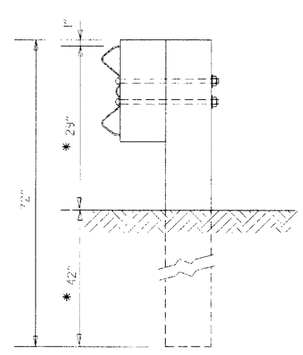
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUTS & WOOD POSTS
POSTS 1-6



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUT & WOOD POST
POST 7



W-BEAM TO THRIE BEAM
TRANSITION RAIL WITH WOOD OR
PLASTIC BLOCKOUT & WOOD POST
POST 8

GENERAL NOTES:

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

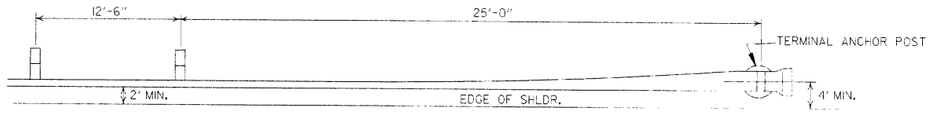
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO.1 (1350 f SOUTHERN PINE.

ARKANSAS STATE HIGHWAY COMMISSION

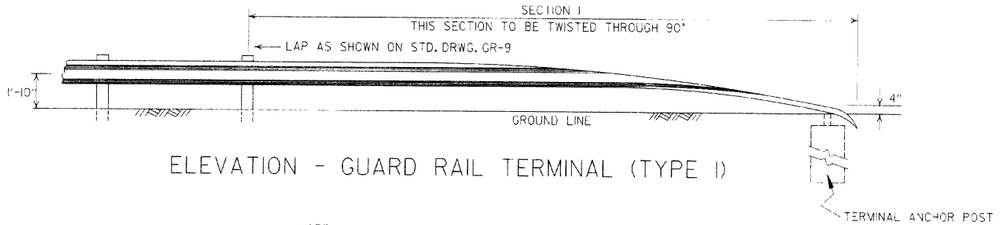
GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

DATE	REVISION	DATE FILM
7-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
8-22-02	REVISED LIP CURB NOTE	
3-30-00	DRAWN & ISSUED	

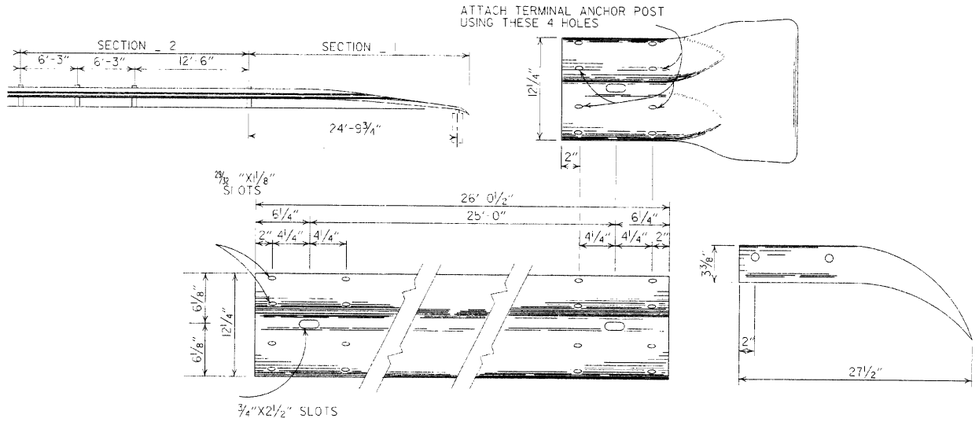


PLAN - GUARD RAIL TERMINAL (TYPE I)



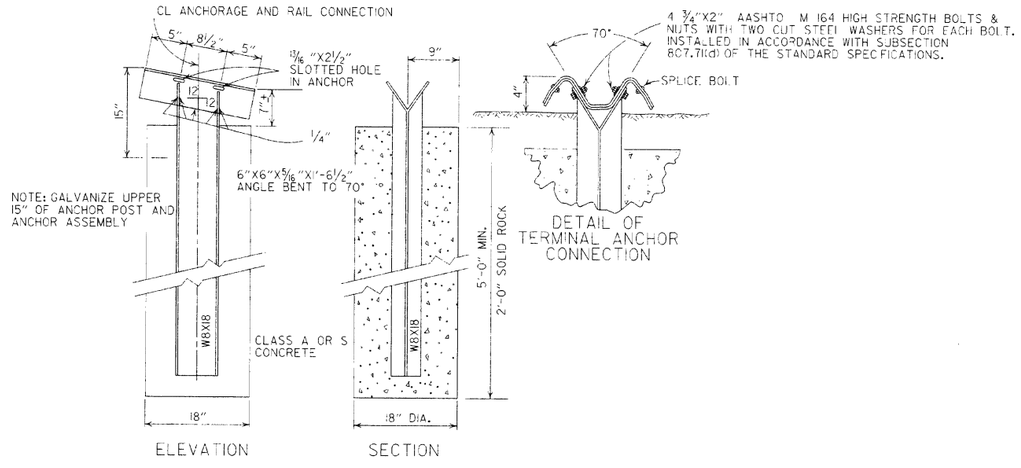
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

NOTE:
SECTIONS I AND 2 OF GUARD RAIL TERMINAL SHALL BE PAID FOR AT THE PRICE BID PER LINEAR FOOT OF THE TYPE OF GUARD RAIL SPECIFIED.



SECTION

TERMINAL SECTION



NOTE: RAIL MEMBERS MAY BE BOLTED TO ANGLE AT TERMINAL ANCHOR AND THE TWO ASSEMBLIES POSITIONED TO PROPER ALIGNMENT PRIOR TO PLACING CONCRETE AROUND 8 WF 17 POST IF CONTRACTOR SO DESIRES.

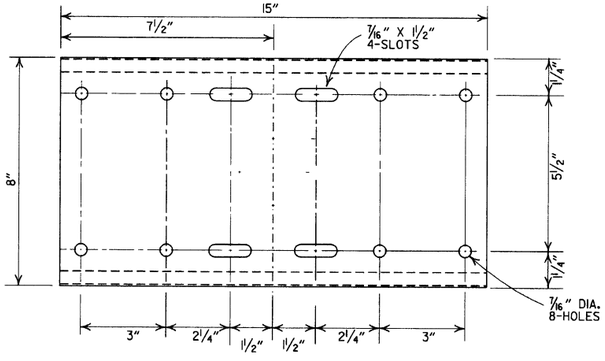
DETAIL OF TERMINAL ANCHOR POST (TYPE I)

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL "I"	
6-26-97	REVISED LAP NOTE	
10-8-96	REVISED ASTM REF. TO AASHTO	
11-3-94	DIMENSION TERMINAL DETAIL	
11-11-92	ADDED NOTE FOR PAYMENT	11-11-92
10-1-92	DRAWN & ISSUED	10-1-92

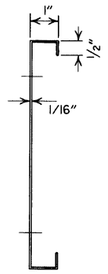
ARKANSAS STATE HIGHWAY COMMISSION

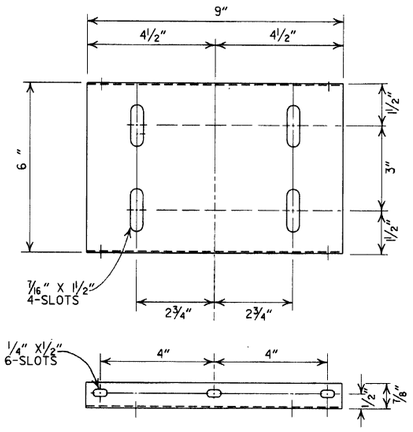
GUARD RAIL DETAILS

STANDARD DRAWING GR1-1

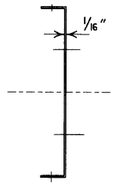


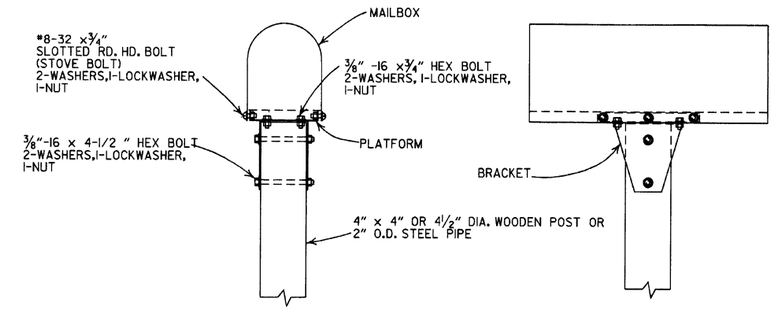
SHELF



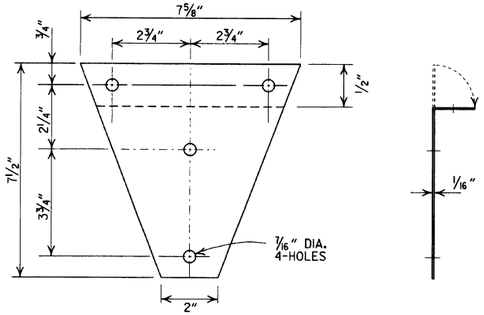


PLATFORM





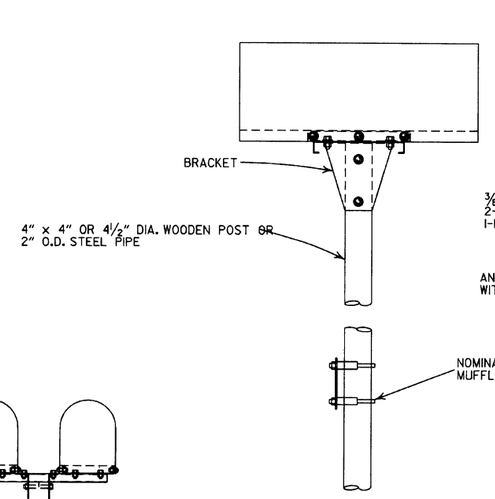
SINGLE INSTALLATION



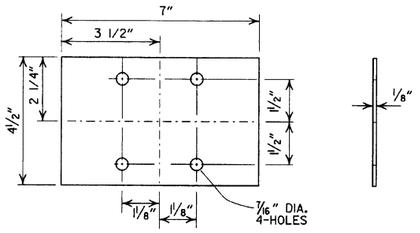
BRACKET

GENERAL NOTES

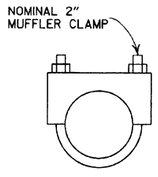
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



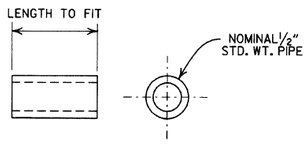
DOUBLE INSTALLATION



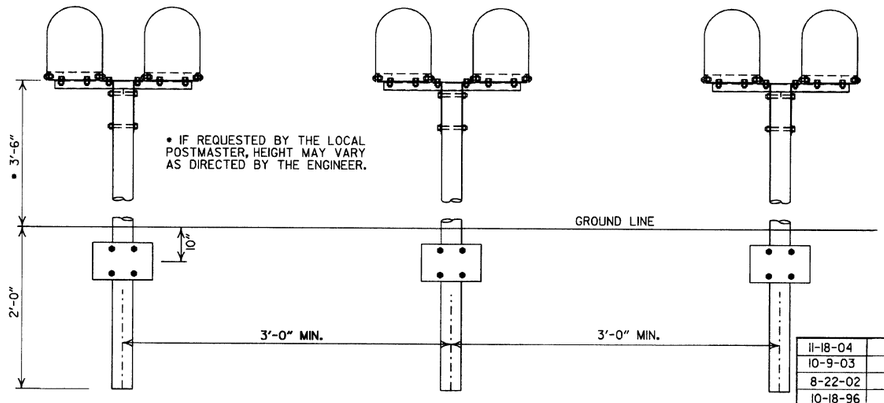
ANTI-TWIST PLATE



CLAMP



SPACER



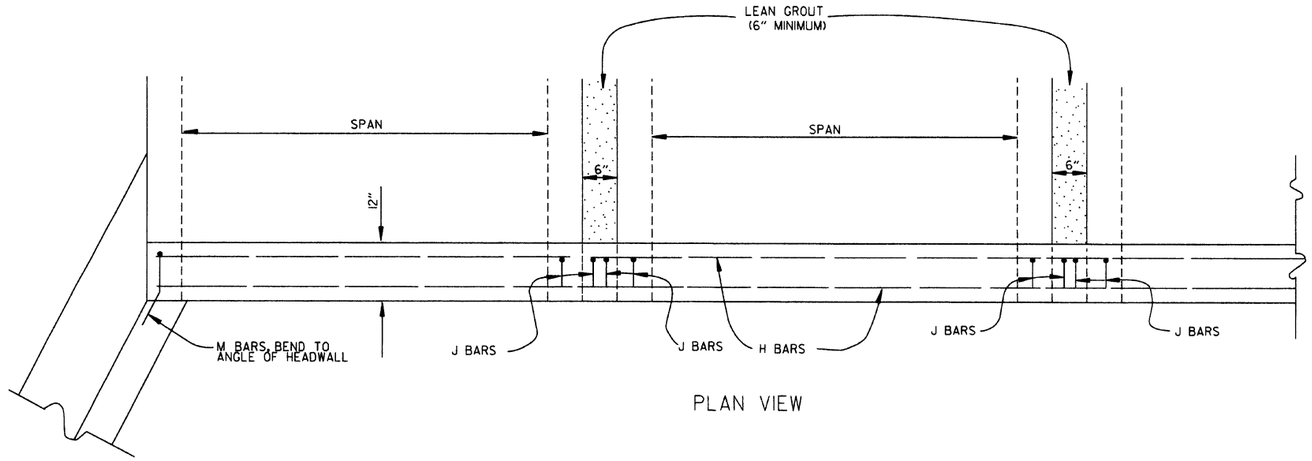
SPACING FOR MULTIPLE POST INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

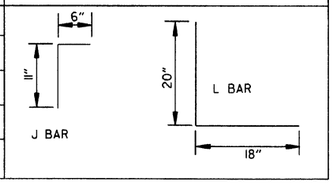
STANDARD DRAWING MB-1



PLAN VIEW

BAR LIST

BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	*	
I	*	#4	*	
J	*	#4	1'-5"	
L	*	#4	3'-2"	
M	*	#4	1'-8"	



* NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT

GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE WING DRAWING. STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

ALL EXPOSED CORNERS TO HAVE ¾" CHAMFERS.

WINGWALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, MEMBRANE WATERPROOFING, DRAINAGE FILL MATERIAL, GEOTEXTILE FILTER FABRIC, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.

LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS:
PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85.
SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS.
THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE.
THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

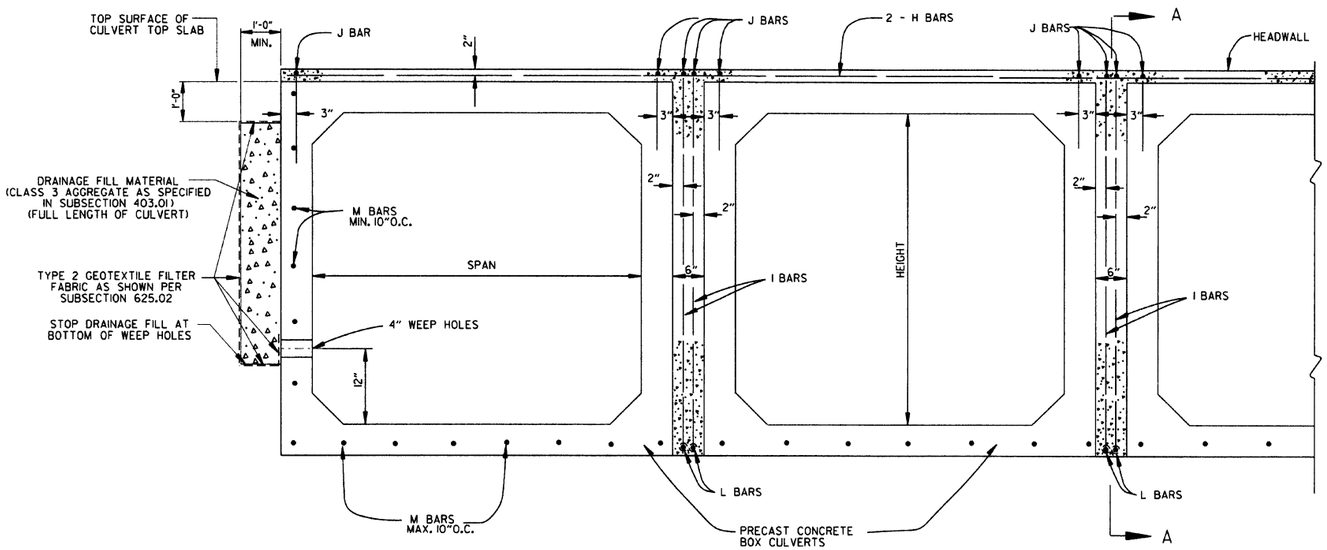
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

IN OUTER BARRELS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" IN THE ASSEMBLED CULVERT AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

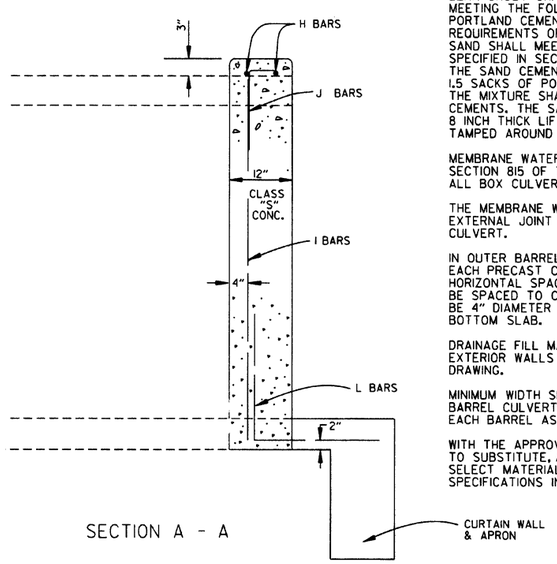
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT. SEE DETAILS ON THIS DRAWING.

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT). ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.



END VIEW



SECTION A - A

DATE	REVISION	DATE FILMED
1-28-15	REVISED GEOTEXTILE FABRIC PLACEMENT	
12-15-11	ADDED NOTE & DTLS FOR WEEP HOLE AND DRAINAGE FILL	
10-15-09	ADDED GENERAL NOTE	
11-10-05	REVISED SPACING OF "M" BARS	
4-10-03	REVISED GENERAL NOTES	
10-18-96	CORRECTED AASHTO REF.	
10-1-92	ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91	ADDED NOTE FOR LEAN GROUT	
11- 8-90	REVISED FOR 1991 SPECS	
11-30-89	ISSUED; JABE	

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31 7/16	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M206.

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

EQUIV. DIA.	AASHTO M 207	
	SPAN	RISE
INCHES	INCHES	
18	23	14
24	30	19
27	34	22
30	38	24
33	42	27
36	45	29
39	49	32
42	53	34
48	60	38
54	68	43
60	76	48
66	83	53
72	91	58
78	98	63
84	106	68

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M207.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SUBSECTION 606.03.(f)(1).

NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

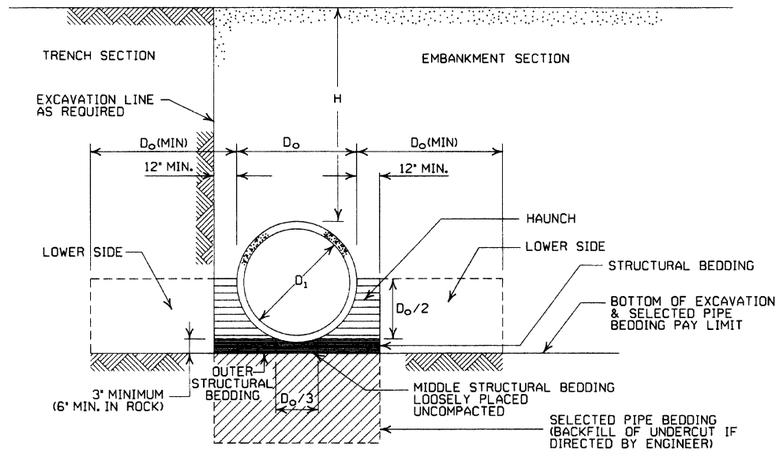
- LEGEND -

D_1 = NORMAL INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
▨ = UNDISTURBED SOIL

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL*
TYPE 3**	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

* SM-3 WILL NOT BE ALLOWED.

** MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

1. MATERIAL IN THE HAUNCH AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. FOR TRENCHES WITH WALLS OF NATURAL SOIL, THE DENSITY OF THE SOIL IN THE LOWER SIDE ZONE SHALL BE AS FIRM AS THE 95% DENSITY REQUIRED FOR THE HAUNCH. IF THE EXISTING SOIL DOES NOT MEET THIS CRITERIA, IT SHALL BE REMOVED AND RECOMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OF MATERIAL USED.
3. FOR EMBANKMENTS, THE MATERIAL IN THE LOWER SIDE ZONE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

MINIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
INSTALLATION TYPE	TYPE 1 OR 2	TYPE 3	ALL	ALL
PIPE ID (IN.)	FEET			
12-15	2	2.5	2	1
18-24	2.5	3	2	1
27-33	3	4	2	1
36-42	3.5	5	2	1
48	4.5	5.5	2	1
54-60	5	7	2	1
66-78	6	8	2	1
84-108	7.5	8	2	1

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2 OR TYPE 3	2.5	1.5

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2	13	21
TYPE 3	10	16

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM		
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM		
15	17x13	3	0.064	2	15	0.060	2	15
18	21x15	3	0.064	2	15	0.060	2	15
21	24x18	3	0.064	2.25	15	0.060	2.25	15
24	28x20	3	0.064	2.5	15	0.075	2.5	15
30	35x24	3	0.079	3	12	0.075	3	12
36	42x29	3½	0.079	3	12	0.105	3	12
42	49x33	4	0.079	3	12	0.105	3	12
48	57x38	5	0.109	3	13	0.135	3	13
54	64x43	6	0.109	3	14	0.135	3	14
60	71x47	7	0.138	3	15	0.164	3	15
66	77x52	8	0.168	3	15			
72	83x57	9	0.168	3	15			
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM					
				INSTALLATION TYPE 2	INSTALLATION TYPE 1			
36	40x31	5	0.079	3	2	12	15	
42	46x36	6	0.079	3	2	13	15	
48	53x41	7	0.079	3	2	13	15	
54	60x46	8	0.079	3	2	13	15	
60	66x51	9	0.079	3	2	13	15	
66	73x55	12	0.079	3	2	15	15	
72	81x59	14	0.079	3	2	15	15	
78	87x63	14	0.079	3	2	15	15	
84	95x67	16	0.109	3	2	15	15	
90	103x71	16	0.109	3	2	15	15	
96	112x75	18	0.109	3	2	15	15	
102	117x79	18	0.109	3	2	15	15	
108	128x83	18	0.138	3	2	15	15	

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. COMPLETE STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT EXCEED 24 INCHES OR 1/3 THE SIZE OF THE PIPE, WHICHEVER IS LESS.

NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL ③

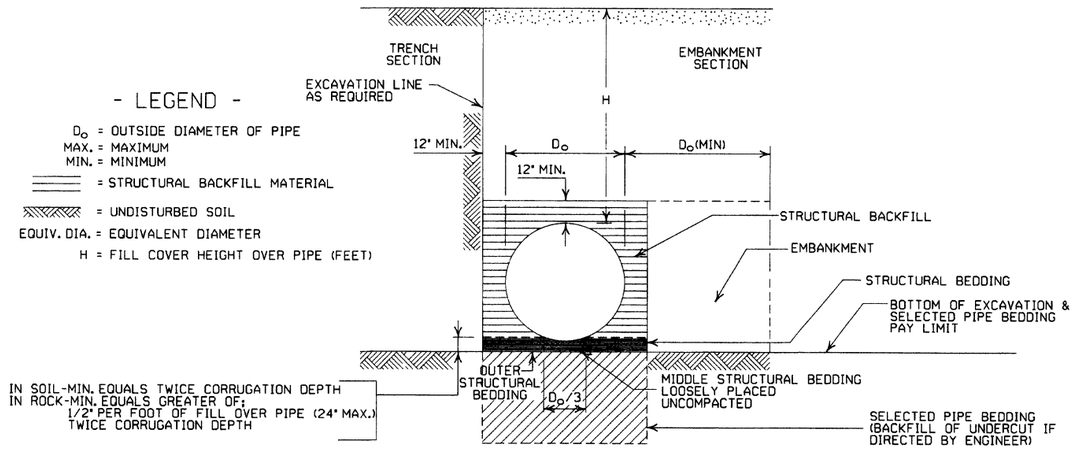
③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8

- LEGEND -

D_o = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM
= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL
EQUIV. DIA. = EQUIVALENT DIAMETER
H = FILL COVER HEIGHT OVER PIPE (FEET)



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

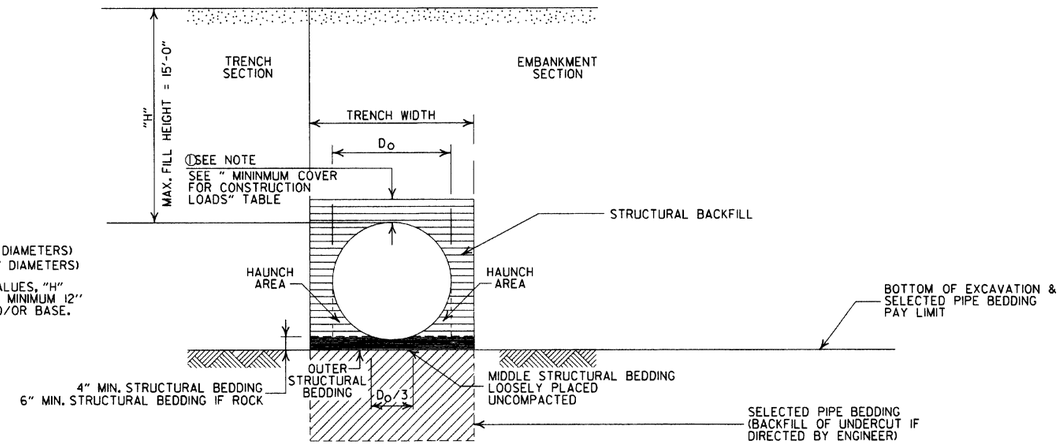
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
Ø = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT
(HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF PVC PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"

MULTIPLE INSTALLATION OF PVC PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

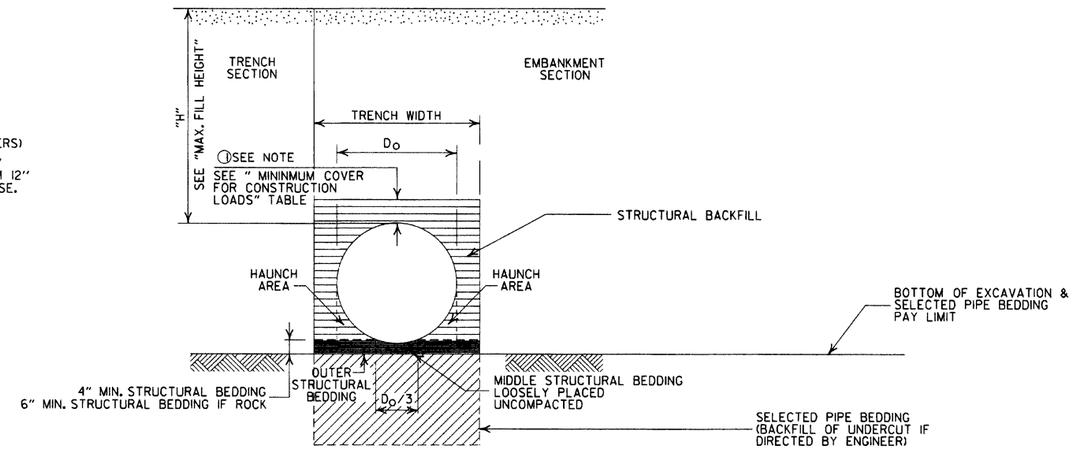
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

① NOTE:
12" MIN. (18" - 36" DIAMETERS)
MINIMUM COVER VALUE, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
18" THRU 36"	2'-0"	2'-6"	3'-0"	3'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
D_O = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

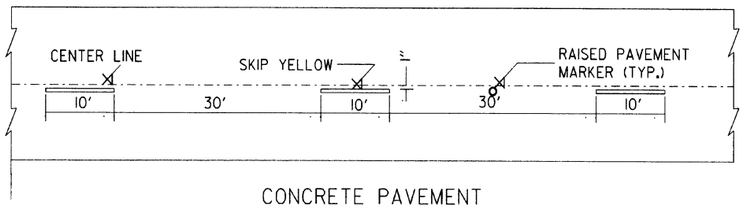
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

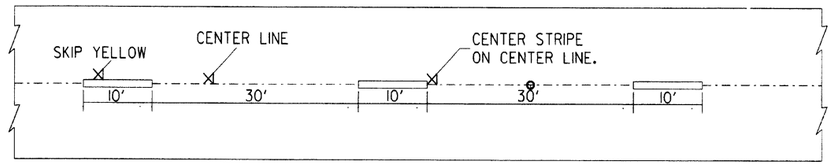
PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.

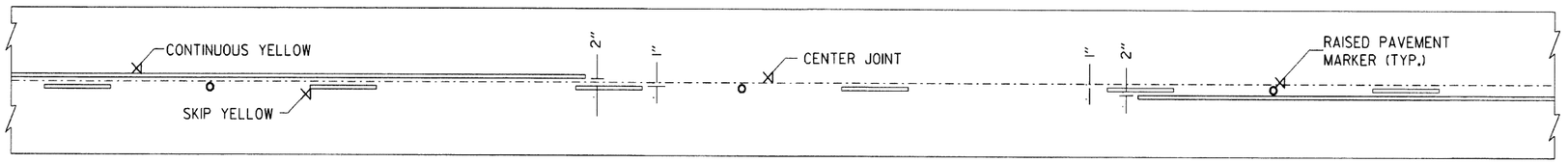


CONCRETE PAVEMENT

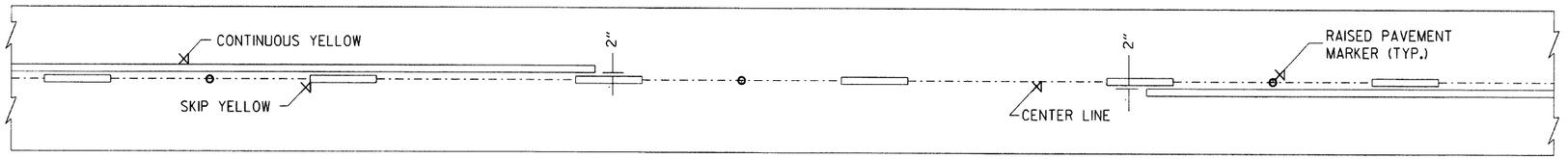


ASPHALT PAVEMENT

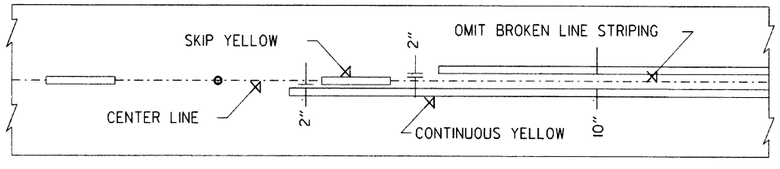
BROKEN LINE STRIPING



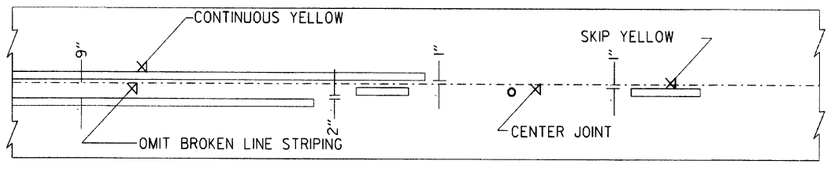
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

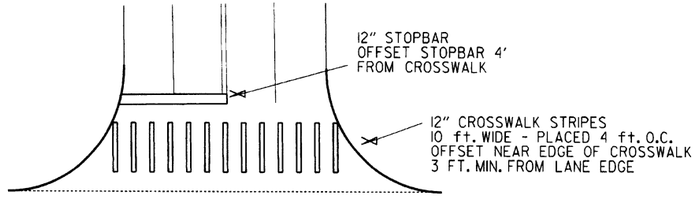


ASPHALT PAVEMENT



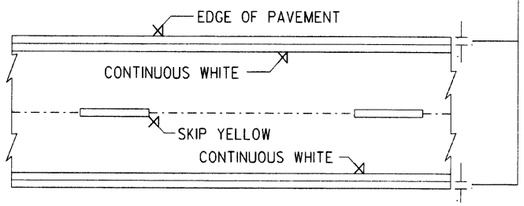
CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

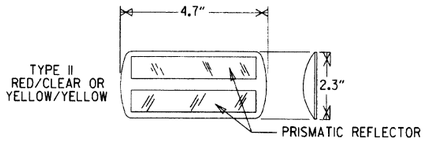


CROSSWALK AND STOPBAR DETAILS

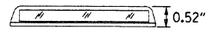
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING



NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

NOTE:
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

DATE	REVISION	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80
		FILMED

ARKANSAS STATE HIGHWAY COMMISSION

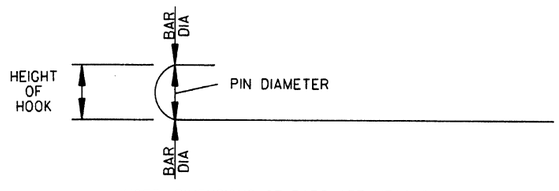
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

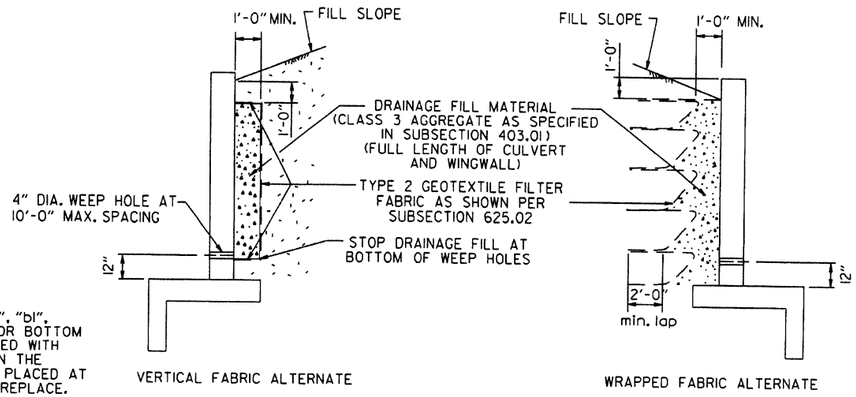
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

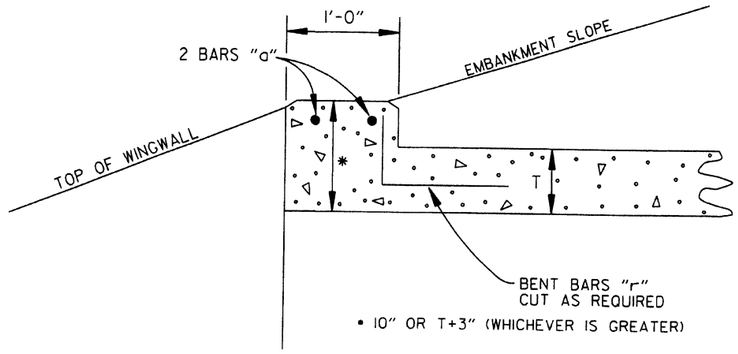
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

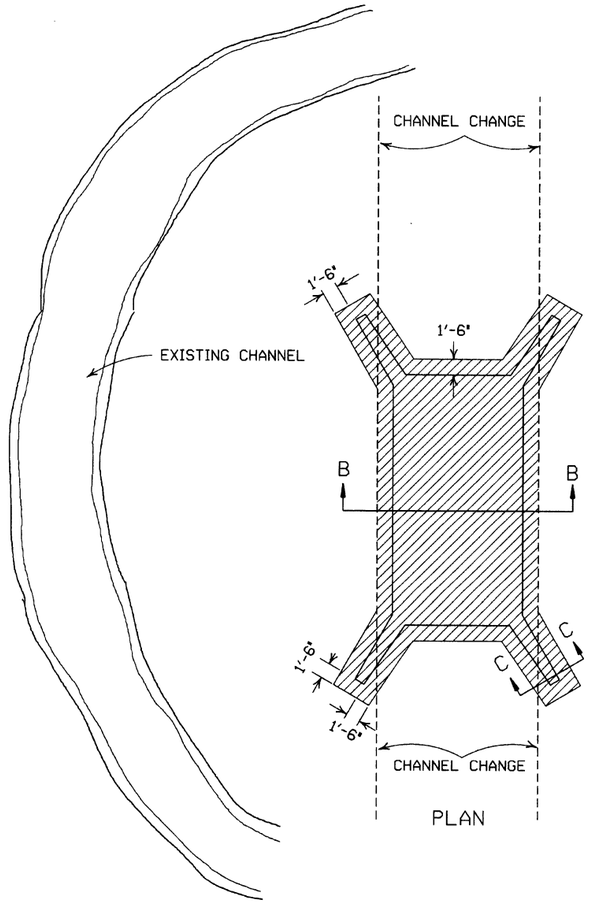
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
7/26/12	REV. DRAINAGE FILL MATERIAL & DETAIL	
12/15/11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

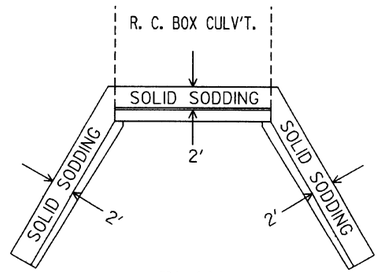
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

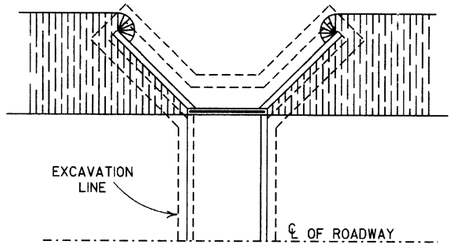
SOLID SODDING



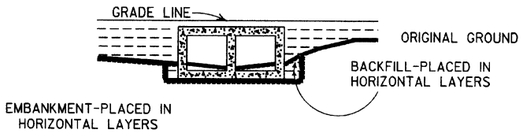
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

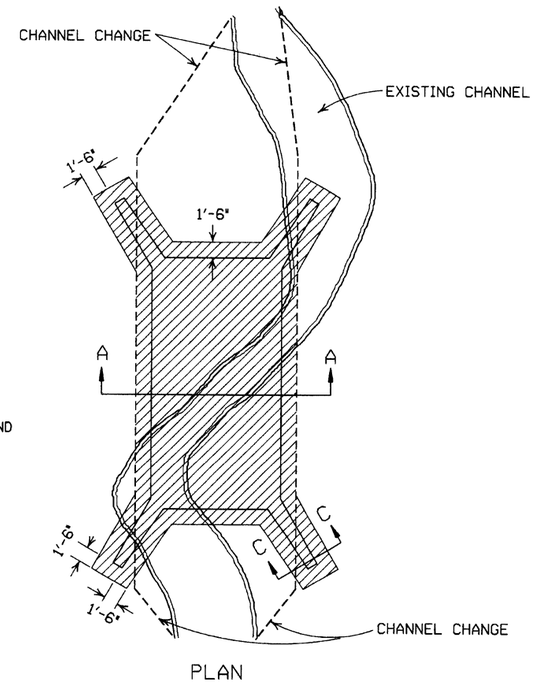


PLAN

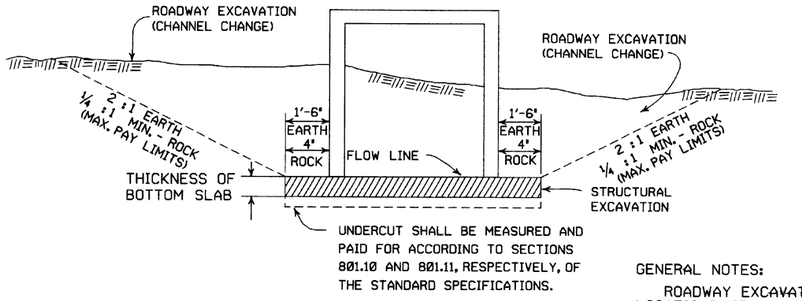


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

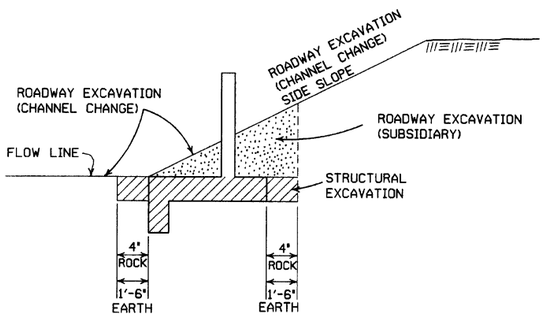


PLAN

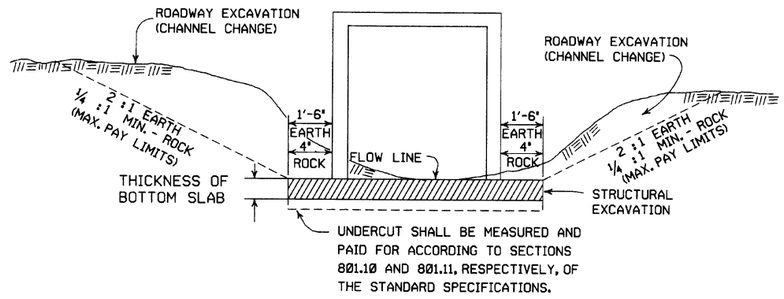


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

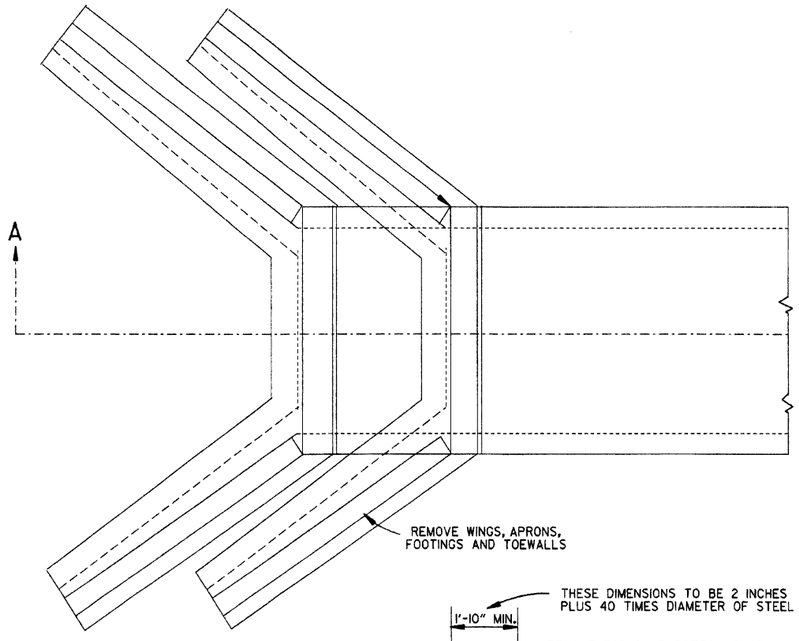
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

DATE	REVISION	FILMED
11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES	674-1-4-83
	AND ADDED MAXIMUM PAY	
	LIMIT NOTES.	
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

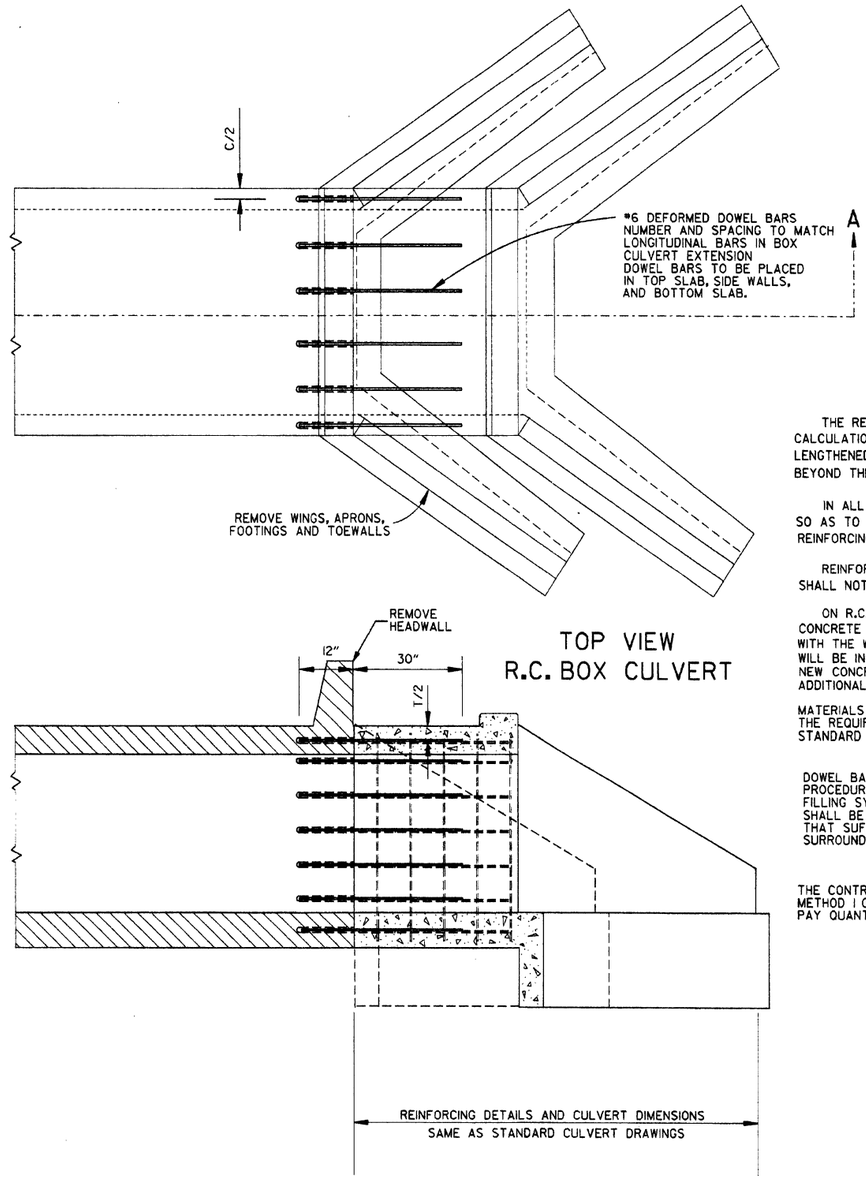
EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

STANDARD DRAWING RCB-2



TOP VIEW
R.C. BOX CULVERT

SECTION A-A
METHOD 1



TOP VIEW
R.C. BOX CULVERT

SECTION A-A
METHOD 2

GENERAL NOTES

	USE FOR METHOD
THE RESIDENT ENGINEER WILL MAKE INDIVIDUAL CALCULATIONS OF QUANTITIES FOR EACH STRUCTURE LENGTHENED, MAKING NO ALLOWANCE FOR OVERBREAKAGE BEYOND THE LINES INDICATED.	1
IN ALL INSTANCES CONCRETE SHALL BE REMOVED SO AS TO PERMIT FULL 40 DIAMETER SPLICE OF REINFORCING STEEL.	1
REINFORCING STEEL REMOVED FROM EXISTING STRUCTURE SHALL NOT BE REUSED IN CONSTRUCTING EXTENSION.	1&2
ON R.C. BOX CULVERTS THAT HAVE AN EXISTING CONCRETE APRON; THE CONCRETE APRON SHALL BE REMOVED WITH THE WINGS. THE COST OF REMOVING ALL OLD CONCRETE WILL BE INCLUDED IN THE PRICE BID PER CUBIC YARD FOR NEW CONCRETE OF THE CLASS SPECIFIED AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.	1&2
MATERIALS FOR SECURING DOWEL BARS SHALL MEET THE REQUIREMENTS OF SECTION 507.02 OF THE STANDARD SPECIFICATIONS.	2
DOWEL BARS SHALL BE INSTALLED AS FOLLOWS: THE DRILLING PROCEDURE SHALL BE APPROVED BY THE ENGINEER, THE FILLING SYSTEM SHALL BE APPROVED BY THE ENGINEER. AND SHALL BE AN INJECTION-TYPE SYSTEM WHICH WILL INSURE THAT SUFFICIENT MATERIAL IS INJECTED SO IT COMPLETELY SURROUNDS THE BARS AND FILLS THE HOLES.	2
THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER METHOD 1 OR METHOD 2. REGARDLESS OF WHICH METHOD IS USED, PAY QUANTITIES WILL BE CALCULATED BASED ON METHOD 1.	1&2

NOTE:
NO PART OF THIS STANDARD IS TO BE USED FOR ANY DETAILS RELATIVE TO NEW CONSTRUCTION.

SEE STANDARD DRAWING LISTED IN TABULATION OF STRUCTURES FOR ALL NEW CONSTRUCTION DETAILS.

DATE	REVISION	DATE FILM
10-12-95	CHANGED DRAWING # FROM 144-A	
4-1-93	ADDED GENERAL NOTE	
10-1-92	ADDED ALT. METHOD OF EXTENSION	
11-30-89	REDRAWN	
1-4-83	ELIMINATED CONCRETE CLASS	
12-20-56	RETRACED	

ARKANSAS STATE HIGHWAY COMMISSION

METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS

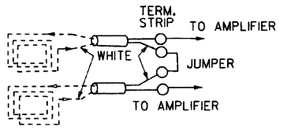
STANDARD DRAWING RCB-3

LOOP DETECTOR INSTALLATION AND TESTING

NOTES:

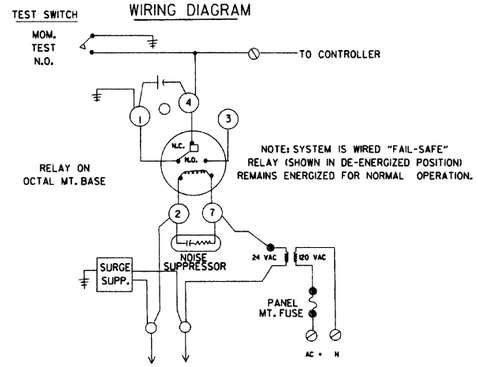
1. LOOPS WITH A PERIMETER GREATER THAN 40' SHALL HAVE TWO TURNS. LOOPS WITH A PERIMETER LESS THAN OR EQUAL TO 40' SHALL HAVE THREE TURNS, UNLESS OTHERWISE NOTED ON THE PLANS. QUADRUPOLE LOOPS SHALL BE TWO TURNS (2-4-2 CONFIGURATION) UNLESS OTHERWISE NOTED.
2. LOOP AND FEEDER WIRE SHALL BE CONTINUOUS WITHOUT SPLICES EXCEPT AT THE LOOP/FEEDER WIRE SPLICE AS SHOWN. SPLICE SHALL BE ROSIN SOLDERED AND WATERPROOFED WITH AN ACCEPTED SPLICE KIT. DRAIN WIRE SHALL BE GROUNDED IN CABINET AND INSULATED AT LOOP TO FEEDER SPLICE.
3. THE LOOP TO FEEDER SPLICE, FEEDER JACKET AND JACKET OF LOOP WIRE IN DUCT SHALL BE COMPLETELY SEALED AND WATERPROOFED.
4. CONTRACTOR MAY MAKE CONNECTIONS TO SIGNAL CABLE AND LOOP TO FEEDER CONNECTION AT TERMINAL STRIPS MOUNTED TO POLE INSIDE HAND HOLD COVER AS SHOWN IN DETAIL. TERMINALS MUST BE EASILY ACCESSIBLE, BUT PROTECTED AGAINST ACCIDENTAL CONTACT. CONNECTION OF POWER CARRYING CIRCUITS MUST BE SEPARATED FROM LOOP OR LOGIC CIRCUITS. ALL CONNECTIONS TO TERMINAL STRIPS SHALL UTILIZE SPADE LUGS OR AS APPROVED BY THE ENGINEER.
5. EACH LOOP SHALL HAVE A SEPARATE "FEEDER WIRE" UNLESS OTHERWISE NOTED. ALL FEEDER WIRES SHALL BE LABELED AS TO LOOP NUMBER AS DESIGNATED ON THE PLANS.
6. ALL LOOP WIRE ENTERING PULL BOXES SHALL BE ENCLOSED IN CONDUIT. EACH LOOP WIRE SHALL ENTER PULL BOX OR POLE BASE THROUGH A SEPARATE PIECE OF ONE INCH (1"Ø) CONDUIT.
7. LOOP WIRE FROM LOOP TO CONDUIT IS NOT TWISTED. LOOP WIRE IN THE CONDUIT MUST BE TWISTED TWO TO FIVE TURNS PER FOOT.
8. WARRANTY PERIOD FOR LOOPS SHALL NOT COMMENCE UNTIL TESTED BY THE CONTRACTOR AND ACCEPTED BY THE ENGINEER. CONTRACTOR SHALL PERFORM TEST AND PROVIDE A RECORD TO THE ENGINEER AS LISTED IN THE DETECTOR LOOP TESTING PROCEDURE.
9. UNLESS OTHERWISE APPROVED BY THE ENGINEER, BACKER ROD SHALL BE INSTALLED IN SHORT SECTIONS SPACED NOT MORE THAN 18" APART AND WEDGED INTO SLOT TO HOLD CABLE IN PLACE. CABLE SHALL BE TOTALLY ENCAPSULATED IN SEALER.
10. "HOT POUR" SEALER SHALL NOT BE ALLOWED WITH 705-LOOP WIRING IN DUCT.
11. WHERE UNDERGROUND SPLICES OF SIGNAL CABLE ARE REQUIRED, CONNECTIONS SHALL BE SOLDERED AND COMPLETELY WATERPROOFED TO THE SATISFACTION OF THE ENGINEER. WATERPROOFING SHALL EXTEND A MINIMUM OF TWO INCHES PAST THE SIGNAL CABLE JACKET AND SHALL COMPLETELY COVER ALL INDIVIDUAL CONDUCTORS OF THE SIGNAL CABLE. WATERPROOFING DOES NOT APPLY TO CONNECTIONS MADE IN POLE BASES.
12. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE. ONLY ONE NEUTRAL IS REQUIRED FOR PEDESTRIAN SIGNALS. A SEPARATE 5C (TYPICAL) IS PROVIDED FOR PEDESTRIAN PUSH BUTTONS.
13. TRAFFIC CONTROLLER CABINET AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO CONTROLLER. CONTROLLER CABINET SHALL BE WIRED SUCH POWER TO LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS DURING FLASH OPERATION.

SERIES CONNECTED LOOPS

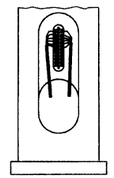


WIND LOOPS COUNTERCLOCKWISE; TAG WIRE EXITING SLOT AND TIE TO WHITE LEAD OF FEEDER WIRE; WHEN LOOPS ARE TIED TO SAME VEHICLE DETECTOR, SERIES CONNECT IN CABINET AS SHOWN.

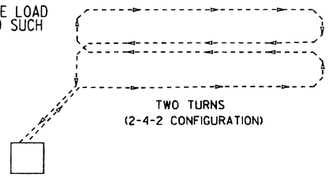
TRAFFIC SIGNAL PRE-EMPTION INTERFACE WIRING DIAGRAM



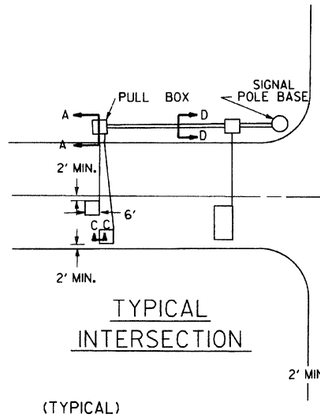
HANDHOLE TERMINAL

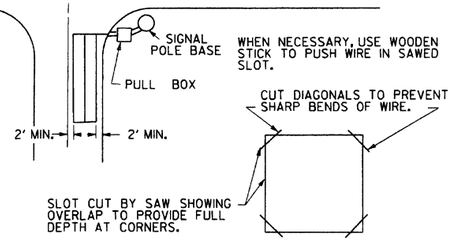


QUADRUPOLE LOOP



TYPICAL INTERSECTION





TRENCHING DETAIL

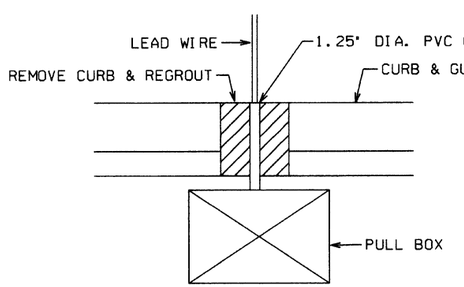
(FOR SAW CUT TRENCH IN ROADWAY)

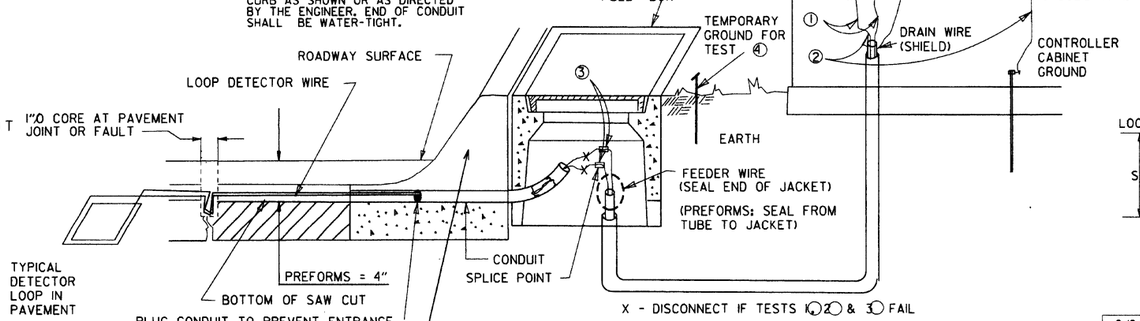
TYPICAL PROCEDURE FOR DETECTOR LOOP TESTING

1. DISCONNECT AND TEST CONTINUITY (< 10 OHMS) IF CONTINUITY IS BAD, GO TO TEST 3
2. TEST INSULATION (@ 500 VOLT TEST > 10 MEG-OHM)

   IF TESTS 1& 2 ARE GOOD, NO FURTHER TESTING IS NECESSARY. RECORDED RESULTS CONSIST OF TESTS 1& 2 FROM CONTROL CABINET WITH FEEDER WIRE CONNECTED TO LOOP.
3. OPEN SPLICE (DO NOT BREAK CONNECTION) REPEAT TEST 1& 2 IF TEST 3 IS BAD, GO TO TEST 4
4. BREAK SPLICE, INSTALL JUMPER IN CABINET, REPEAT TESTS 1& 2 SEPARATELY FOR FEEDER AND FOR LOOP

FAILURES TYPICALLY RESULT FROM BROKEN WIRE IN PAVEMENT, FAULTY INSULATION OF LOOP OR FEEDER WIRE, OR POORLY INSULATED SPLICE CONNECTION.





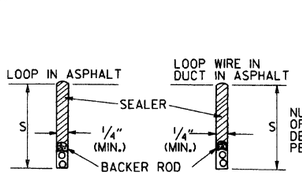
SECTION A-A

1'-6" CONCRETE COMBINATION CURB AND GUTTER

SPECIAL NOTE

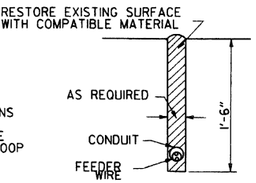
IF FEEDER WIRE JACKET IS LEFT UNSEALED AND WATER IS ALLOWED TO ENTER JACKET, CONTRACTOR WILL BE REQUIRED TO REPLACE FEEDER AT NO COST TO THE DEPARTMENT.

TYPICAL SECTIONS FOR PULSE AND PRESENCE LOOP DETECTORS



SECTION C-C

S=2 1/2" IN ASPHALT
S=1 1/2" IN CONCRETE



SECTION D-D

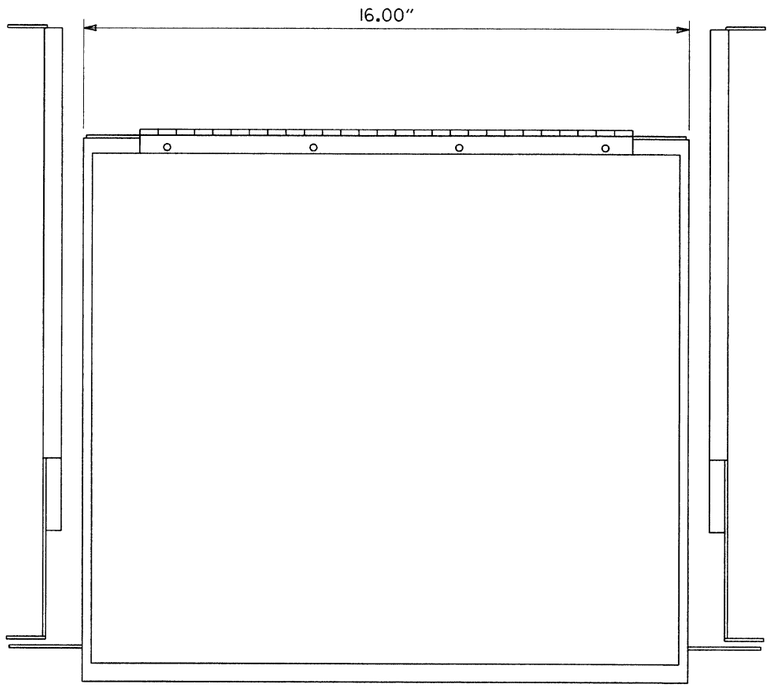
DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
5-17-01	REVISED	
4-11-01	REVISED	
2-4-00	REVISED PRE-EMPTION TEST SWITCH	
11-18-98	REVISED NOTES	
11-21-95	ISSUED	

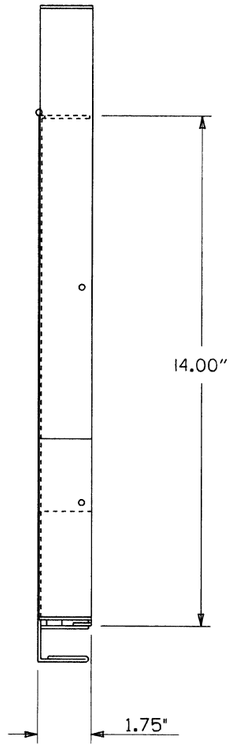
ARKANSAS STATE HIGHWAY COMMISSION

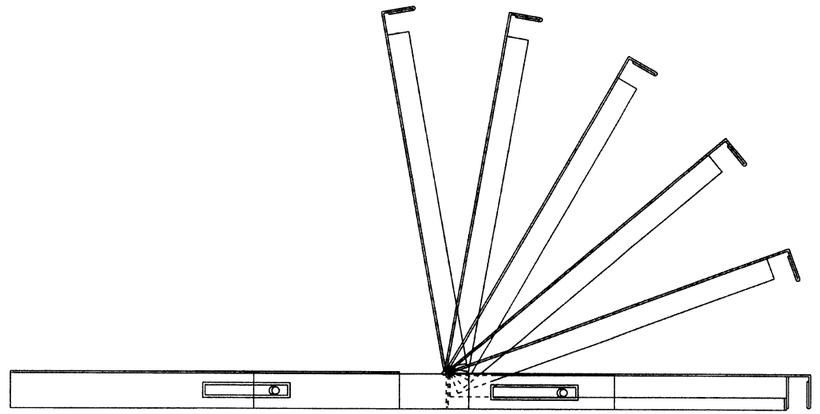
LOOP DETECTOR INSTALLATION

STANDARD DRAWING SD-4

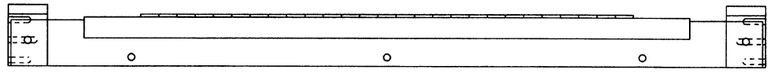
DRAWER PLAN VIEW



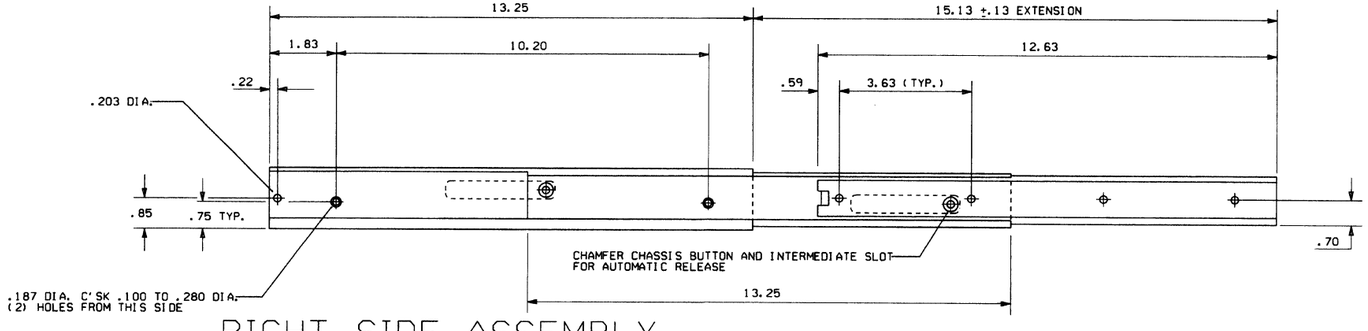




NOTES:
1. RIGHT HAND SLIDE SHOWN, LEFT SLIDE OPPOSITE.
2. GENERAL DEVICES (CC3002-99-0102) OR EQUAL AND CONTAINS (1) RIGHT HAND SLIDE ASSEMBLY, (1) LEFT HAND SLIDE ASSEMBLY.
3. ALL HARDWARE NECESSARY TO FASTEN SLIDE ASSEMBLY TO UNDERSIDE OF CONTROLLER SHELF SHALL BE INCLUDED.



FRONT VIEW



RIGHT SIDE ASSEMBLY

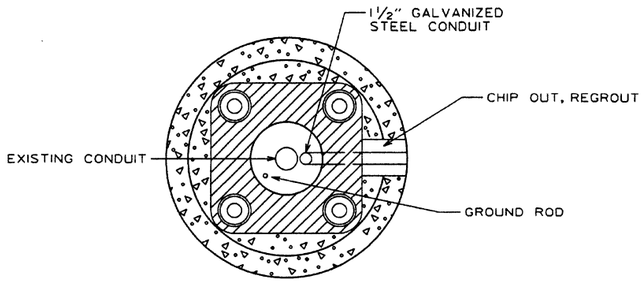
DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
6-15-05	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

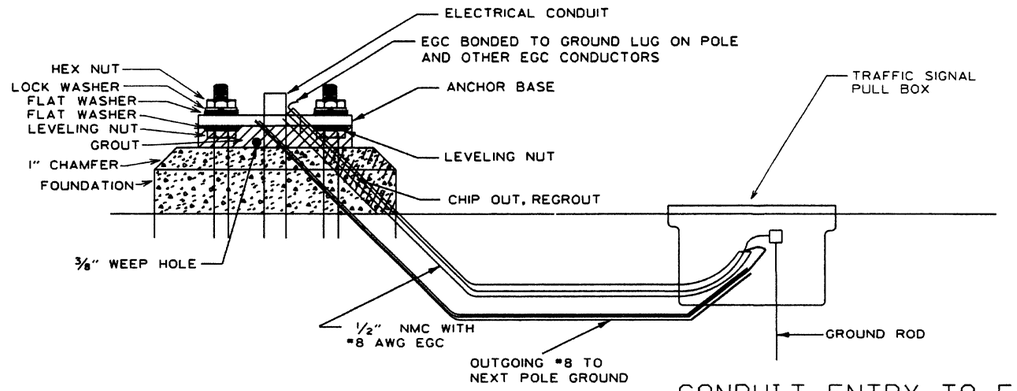
CONTROLLER CABINET
UTILITY DRAWER

STANDARD DRAWING SD-5

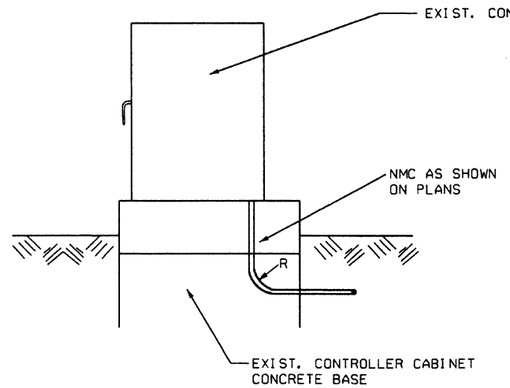
CONDUIT ENTRY TO EXISTING POLE BASE



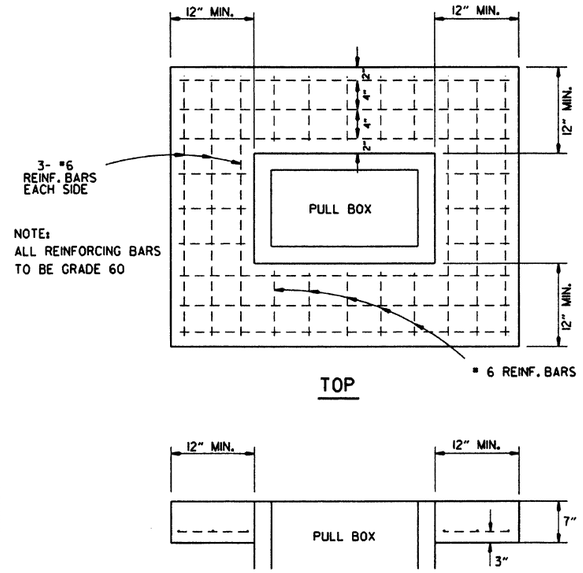
ANCHOR BASE



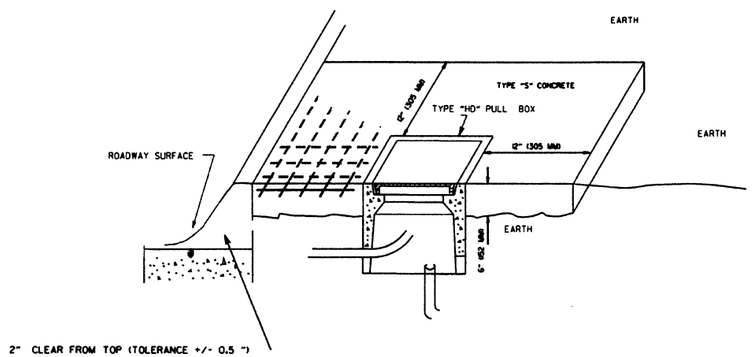
CONDUIT ENTRY TO EXISTING CONTROLLER CABINET



NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.



TYPE "HD" CONCRETE PULL BOX DETAIL



NOTE: ALL TYPE 1 AND TYPE 2 HD PULL BOXES ARE INSTALLED WITH AN APRON OF CONCRETE 12" (305 MM) WIDE AND 7" (178 MM) IN DEPTH. ALL PAYMENT SHALL BE INCLUDED IN THE PRICE OF THE TYPE HD PULL BOX. PULL BOX SHALL BE INSTALLED FLUSH TO SURROUNDING GRADE UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. THE CONCRETE SHALL BE CLASS "S." THREE #6 REINFORCING BARS IN THE APRON ON ALL SIDES OF THE PULL BOX IS REQUIRED IN CONCRETE.

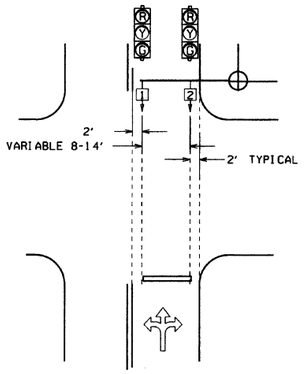
DATE	REVISION	DATE FILM
9-2-15	REVISED PULL BOX DEPTH	
9-12-13	ISSUED AS STANDARD DRAWING	
5-21-09	REVISED GROUNDING	
7-31-08	ADDED & REVISED CONDUIT ENTRY	
6-23-04	REVISED CLEARANCE AT CURB ENTRY	
1-4-02	ADDED REINFORCING TO BOX APRON	
7-2-01	REVISED	
12-27-99	REVISED NOTES	
11-18-98	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

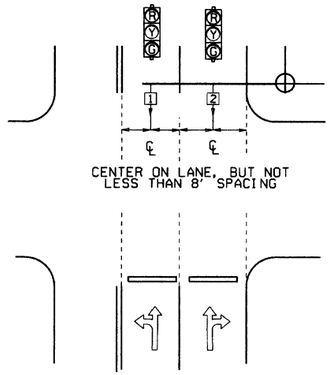
HEAVY DUTY PULL BOX

STANDARD DRAWING SD-6

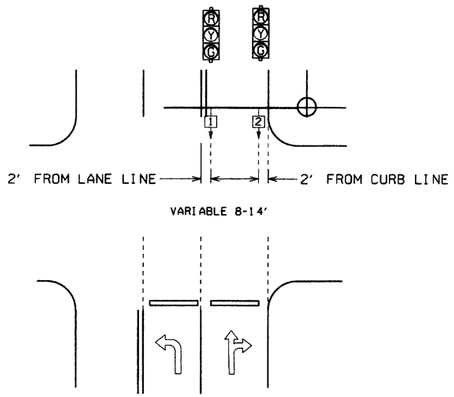
(A)



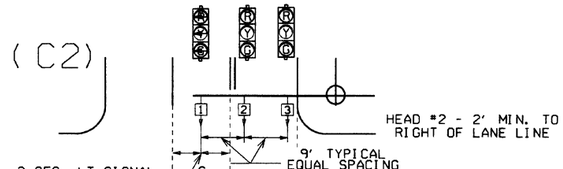
(B)



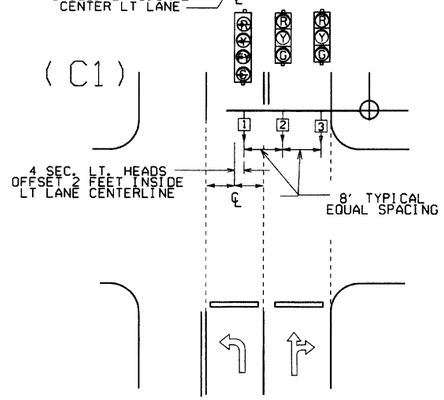
(C)



(C2)



(C1)



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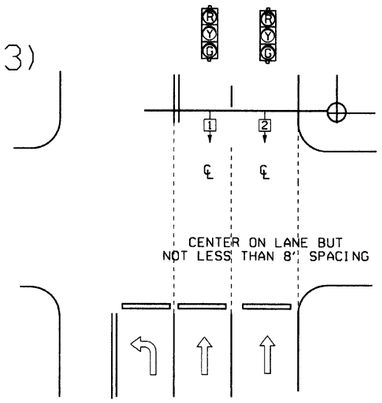
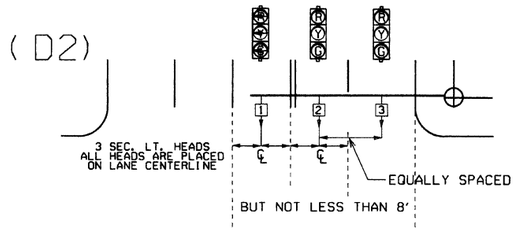
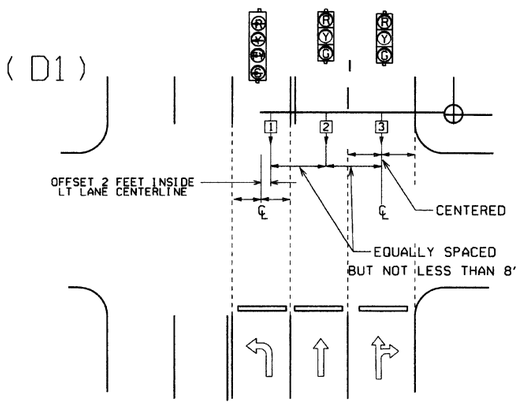


(D2)

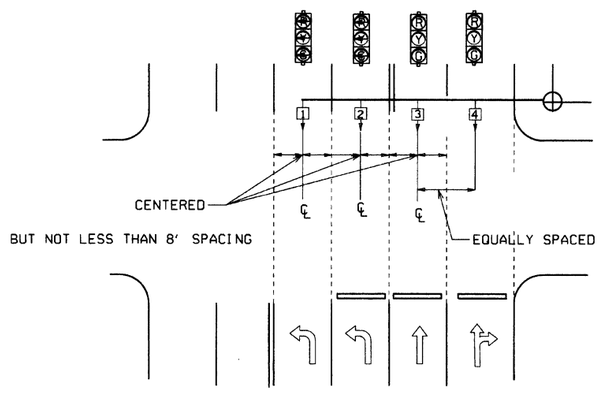


(D1)



NOTE: WHERE LEFT TURN HEAD (HEAD 1 ON D1 AND D2) IS NOT CALLED FOR ON PLANS, MAST ARM LENGTH MAY STILL BE ALLOWED FOR FUTURE INSTALLATION. HEADS FOR THROUGH MOVEMENTS SHALL STILL BE ALIGNED WITH THROUGH LANES AS SHOWN ON DETAILS.

(E)



℄ = CENTER OF LANE FROM APPROACH SIDE

GENERAL NOTES:

1. FOUR SECTION 'PROTECTED/PERMISSIVE' LEFT TURN HEADS SHOULD BE PLACED A MINIMUM OF TWO (2') FEET TO THE RIGHT OF THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

2. THREE SECTION 'PROTECTED' LEFT TURN HEADS SHOULD BE PLACED ON THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

3. WHEN IT IS NECESSARY TO PLACE POLES OTHER THAN AS SHOWN ON PLAN SHEET(S) RESULTING IN MAST ARM EXTENDING MORE THAN TWO FEET PAST (TO THE LEFT OF) THE CENTERLINE OF THE APPROACHING LEFT TURN LANE, MAST ARM SHALL BE CUT TO APPROPRIATE LENGTH AS DETERMINED BY THE ENGINEER, AND A NEW END CAP PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THIS PRIOR TO INSTALLING THE MAST ARM IF ADDITIONAL COMPENSATION IS REQUIRED.

4. SIGNAL HEAD SPACING SHALL, IN NO CASE, BE LESS THAN EIGHT (8') FEET BETWEEN HEADS ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH.

5. ALL SIGNAL HEADS SHOWN ON THIS DETAIL SHEET SHALL BE LOCATED ACCORDING TO THE DIMENSIONS SHOWN IN RELATION TO THE APPROACH SIDE OF THE INTERSECTION.

6. MAXIMUM MOUNTING HEIGHT OF SIGNAL FACES LOCATED BETWEEN 40 FEET AND 53 FEET FROM STOP BAR SHALL BE IN ACCORDANCE WITH FIGURE 4D-1 OF 2009 MUTCD.

9-12-13	ISSUED AS STANDARD DRAWING	
3-11-10	2009 MUTCD	
12-9-99	ISSUED	
DATE	REVISION	DATE FILM

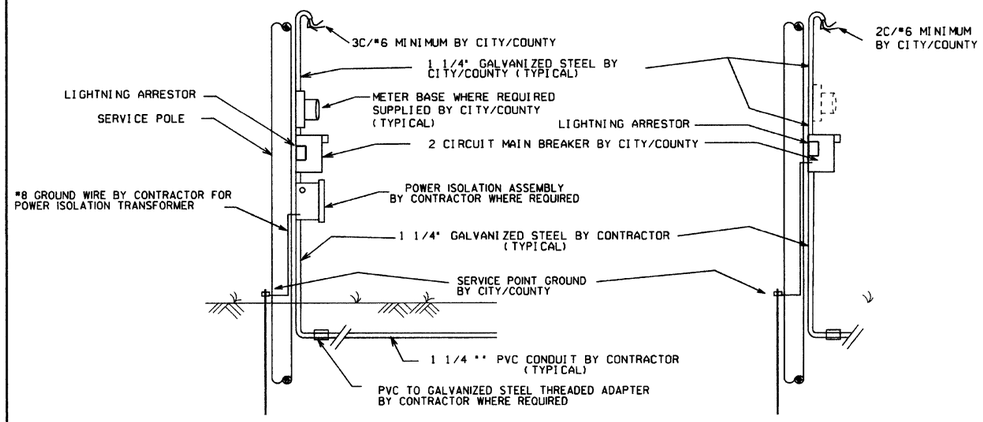
ARKANSAS STATE HIGHWAY COMMISSION

SIGNAL HEAD PLACEMENT

STANDARD DRAWING SD-8

MAIN BREAKER NOT NEAR CONTROLLER CABINET SECONDARY REQUIRED

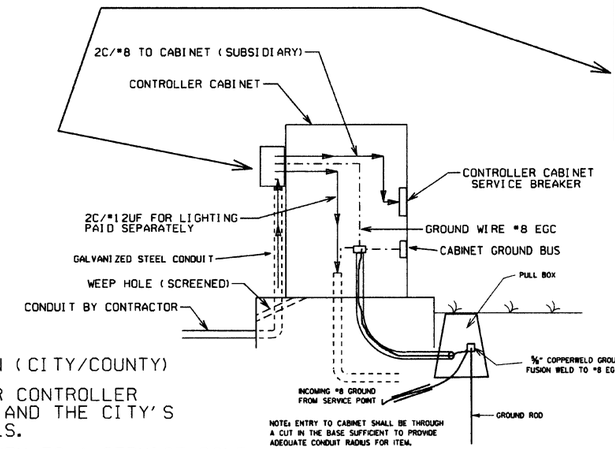
WITH POWER ISOLATION ASSEMBLY

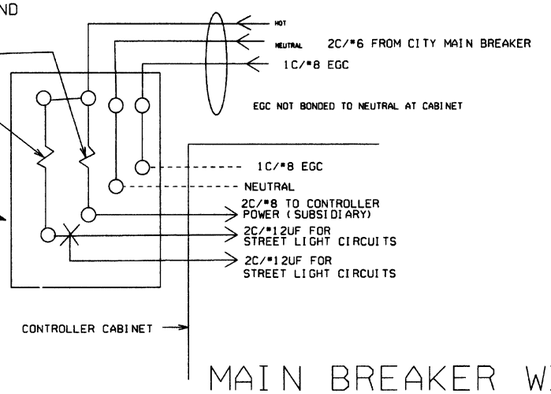


WITHOUT POWER ISOLATION ASSEMBLY

GROUND ROD-A 10' X ⅝" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND ½" NMC SHALL BE INCLUDED IN ITEM 701. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

SECONDARY BREAKER BY CONTRACTOR (SUBSIDIARY)





MAIN BREAKER WIRING (TYPICAL)

NOTES TO CONTRACTOR AND AGENCY RESPONSIBLE FOR MAINTENANCE OF THE INTERSECTION (CITY/COUNTY)

ELECTRICAL SERVICE TYPICALLY FALLS INTO TWO CATEGORIES: MAIN BREAKER NEAR CONTROLLER CABINET; AND MAIN BREAKER NOT NEAR CONTROLLER CABINET. THE CONTRACTOR'S AND THE CITY'S OR COUNTY'S RESPONSIBILITY VARIES ACCORDINGLY AS INDICATED ON THESE DETAILS.

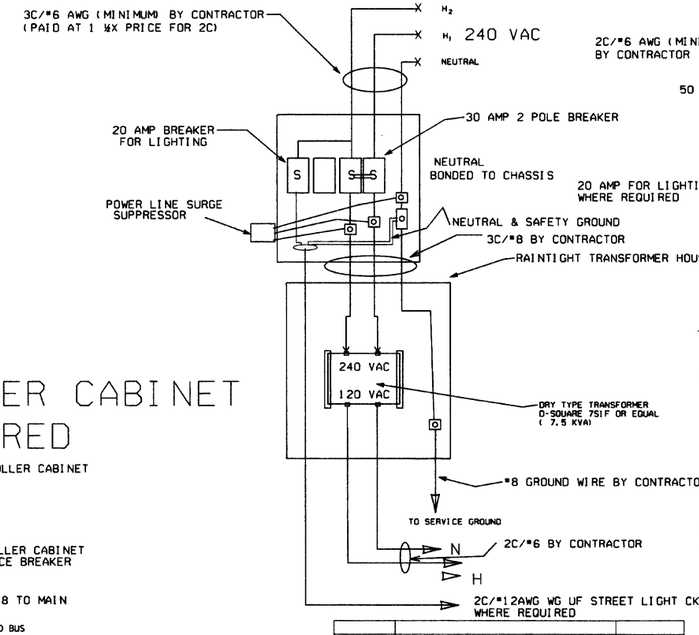
1. ALL SITUATIONS: ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER) AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. SERVICE POINT INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 18" BELOW GROUND LINE, TWO CIRCUIT MAIN BREAKER, LIGHTNING ARRESTOR, POWER ISOLATION ASSEMBLY WHERE REQUIRED, METER LOOP IF REQUIRED BY LOCAL UTILITY, ELECTRICAL CONDUCTORS AND WEATHERHEAD. WHERE STREET LIGHTING IS INCLUDED AS PART OF SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2C/#12 AWG UF RATED, TYPICAL) SHALL BE KEPT SEPARATE FROM THE CIRCUIT SERVING TRAFFIC SIGNAL. SERVICE WIRE AND WIRING FROM THE CONTROLLER TO MAIN BREAKER IS PROVIDED BY THE CONTRACTOR AS A PART OF THIS CONTRACT. WIRE AND WIRING FROM MAIN BREAKER, AND CONNECTION TO THE UTILITY IS THE RESPONSIBILITY OF THE CITY/COUNTY.

2. MAIN BREAKER NOT NEAR CONTROLLER CABINET: THE MAIN BREAKER ASSEMBLY, GALVANIZED STEEL CONDUIT, WEATHERHEAD AND WIRE ABOVE MAIN BREAKER AND CONNECTION TO THE UTILITY SHALL BE PROVIDED BY CITY/COUNTY. CONTRACTOR SHALL PROVIDE AS PART OF CONTRACT SECONDARY BREAKER, CONDUIT, WIRE AND WIRING TO THE MAIN BREAKER.

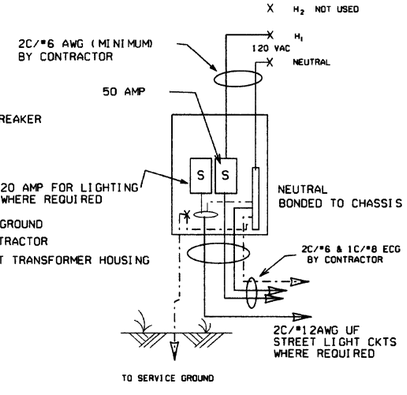
3. MAIN BREAKER NEAR CONTROLLER CABINET: ALL COMPONENTS OF THE SERVICE POINT WITH THE EXCEPTION OF THE WIRE AND WIRING ABOVE THE MAIN BREAKER IS FURNISHED AND INSTALLED BY THE CONTRACTOR. WIRING FROM MAIN BREAKER INCLUDING CONNECTION TO THE UTILITY, IS THE RESPONSIBILITY OF THE CITY/COUNTY. IF METER LOOP IS REQUIRED, METER BASE AND HARDWARE IS PROVIDED BY THE CITY/COUNTY AND INSTALLED BY THE CONTRACTOR.

SERVICE GROUND IS TYPICALLY TIED TO NEUTRAL AT THE MAIN BREAKER. AS SUCH, CONTROLLER GROUND IS NOT TIED TO NEUTRAL AT SECONDARY BREAKER OR IN CONTROLLER CABINET.

WITH POWER ISOLATION ASSEMBLY
4 CIRCUIT MAIN BREAKER

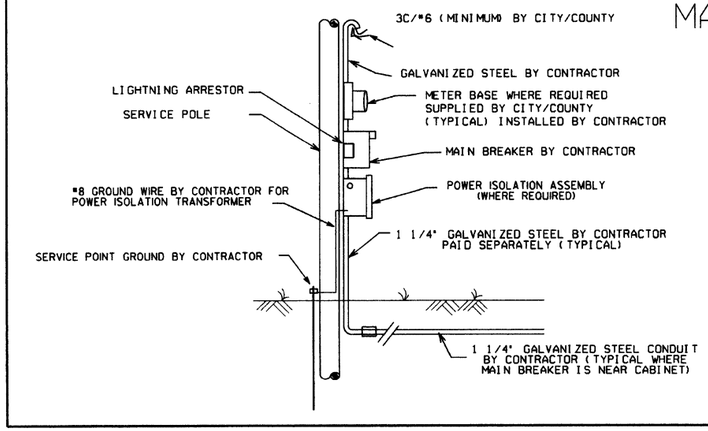


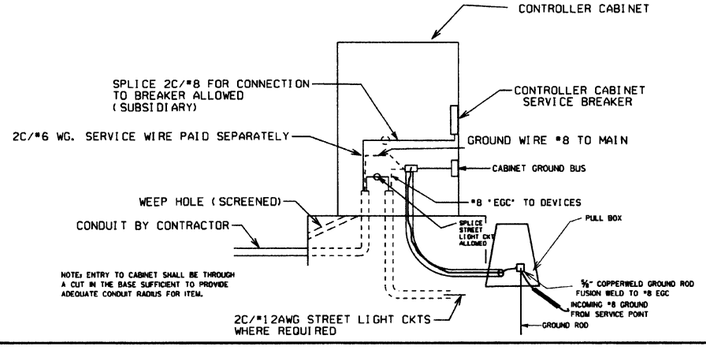
WITHOUT POWER ISOLATION ASSEMBLY
2 CIRCUIT MAIN BREAKER



NOTE: ELECTRICAL GROUND CONDUCTOR (ECG) ADDED 3-3-2003. CONSISTING OF A 1C/#8AWG CU GREEN WIRE AS PER NATIONAL ELECT. CODES.

MAIN BREAKER NEAR CONTROLLER CABINET SECONDARY NOT REQUIRED





DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
4-18-13	ADDED LIGHTNING ARRESTOR	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
3-3-03	ADDED EGC NOTE	
9-26-01	REVISED	
12-27-99	REVISED	
7-28-99	REVISED	
2-5-99	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

SERVICE POINT

STANDARD DRAWING SD-9

NOTES, PED AND TRAFFIC SIGNAL HEAD SIGNS: EACH ITEM "TRAFFIC SIGNAL HEAD (4 SEC., 1-WAY)" SHALL INCLUDE A SPECIAL SIGN AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD UNLESS REMOVED WITHIN THE SIGNAL PLAN NOTES.

EACH ITEM "TRAFFIC SIGNAL HEAD (3 SEC., 1-WAY)" TO BE USED AS A LEFT TURN INDICATION ONLY SHALL INCLUDE A SIGN (R10-10) AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD.

EACH PEDESTRIAN PUSHBUTTON SHALL HAVE ONE R10-3E SIGN ATTACHED TO THE POLE ABOVE THE BUTTON. ALL SIGN FACES SHALL BE CONSTRUCTED OF HIGH INTENSITY SHEETING (TYPE III) WITH SILKSCREEN LEGEND AND BORDER.

ALL SIGN BLANKS SHALL BE CONSTRUCTED OF ALUMINUM ALLOY (ASTM DESIGNATION B-209. ALLOY 5052-H38) WITH THICKNESS OF 0.100 INCH.

GENERAL NOTES:

1. MAST ARM POLES SHALL BE MOUNTED A MINIMUM OF 4 FT. BEHIND CURB OR SHOULDER.

2. OCTAGONAL POLES AND ARMS MEETING THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS CAN BE INSTALLED IN LIEU OF ROUND. ALL POLES AND ARMS IN A JOB MUST BE THE SAME SHAPE.

3. MINIMUM STRUCTURAL REQUIREMENTS: DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

USE FATIGUE CATEGORY I FOR ALL STRUCTURES ON ROUTES WHERE THE SPEED LIMIT IS 65 MPH AND GREATER AT THE STRUCTURE LOCATION AND ON ROUTES WHERE SPEED LIMIT IS GREATER THAN 45 MPH WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY II FOR STRUCTURES ON ROUTES WITH A SPEED LIMIT LESS THAN 65 MPH AND GREATER THAN 45 MPH WITH ARMS LESS THAN 60' AND ROUTES WITH SPEED LIMITS OF 45 MPH AND LESS WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY III FOR ALL STRUCTURES WHERE SPEED LIMIT IS 45 MPH AND LESS AND ARMS LESS THAN 60'.

CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION) WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

BASE WIND SPEED: 90 MPH.

STEEL MEMBERS CONSIDERED MAIN LOAD CARRYING MEMBERS WITH A THICKNESS GREATER THAN 1/2" SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

DEAD LOAD: AS A MINIMUM, DESIGN SHALL BE BASED ON THE FIXED ATTACHMENTS SHOWN BELOW OR AS MODIFIED IN THE PLANS.

ALL SIGNAL HEADS TO BE ONE WAY, 12 INCH, AND HAVE 5 IN. BACK PLATES:

HEADS AT END OF ARM - ONE 4 SEC., 85 LB., 16.0 SQ. FT. ONE SIGN MOUNTED 3 FT. FROM SIGNAL = 2' X 0" X 2' = 6"; 20 LB. REMAINING HEADS SPACED A 8 FT. = 3 SEC., 56 LB., TWO 5 SEC):
14.4 SQ. FT. DESIGN TO ACCOMMODATE (INCLUDING
2 HEADS FOR ARMS 10 TO 16 FT.
2 HEADS FOR ARMS 10 TO 16 FT., INCLUDING LB.
3 HEADS FOR 18 TO 24 FT. ARMS;
4 HEADS FOR OVER 26 FT. ARMS.

STREET NAME SIGN -- 72" X 18", 36 LB., MOUNTED SUCH THAT OUTSIDE EDGE IS NOT GREATER THAN 12 FT. FROM POLE. DEPENDING UPON POSITION OF SIGNAL HEAD ADJACENT TO POLE, SIGN MAY OVERLAP POLE SHAFT ROADWAY LUMINAIRES (WHERE REQUIRED ON PLAN SHEET) = VARIABLE ARM LENGTH (MAX.), 3.3 SQ. FT., 75 LB. PED SIGNALS -- TWO 2 SEC. 12 INCH MOUNTED 8 FT. FROM BASE OF POLE.
POST MOUNTED 3 SEC. SIGNAL HEAD AT 10 FT. ON SIDE OF POLE.

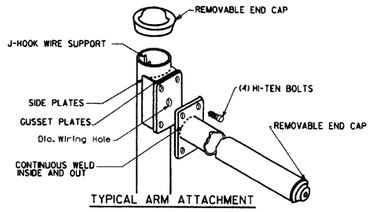
4. POLE/MAST ARM CAP -- POLE AND MAST ARMS CAPS SHALL BE PROVIDED, FABRICATED OF EITHER STEEL OR CAST ALUMINUM.

5. HAND HOLE -- HAND HOLES SHALL BE 4 X 6 INCHES FOR STANDARD, AND 3 X 5 INCHES FOR PED POLES. MINIMUM PLACED APPROXIMATELY 12 INCHES FROM BASE, AND SHALL BE FIXED WITH A BOLT DOWN COVER. A VACUUM FORMED ABS COVER IS AN ACCEPTABLE ALTERNATE TO STEEL. POLES GREATER THAN 21 FT. IN HEIGHT (FOR ROADWAY LUMINAIRE ATTACHMENT) SHALL INCLUDE A HAND HOLD WITHIN 12 INCHES OF MAST ARM(S) ATTACHMENT(S).

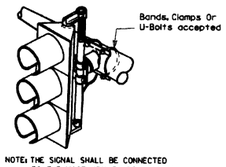
6. POLE/MAST ARM TAPER AND SLOPE - AVERAGE TAPER OF SIGNAL ARMS AND POLE SHALL BE 0.125 TO 0.15 INCHES PER FT.

MAST ARM CENTERLINE ANGLE AT ATTACHMENT POINT WITH POLE SHALL MAINTAIN NOT LESS THAN 0.5 DEGREES OR MORE THAN 4 DEGREES POSITIVE SLOPE WITH A LINE PERPENDICULAR TO THE POLE CENTERLINE. THE ARM SHALL MAINTAIN A POSITIVE AFTER IT IS PLACED UNDER LOAD.

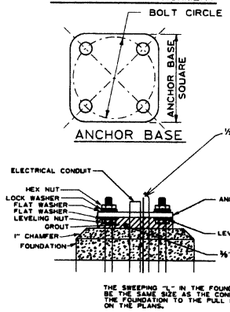
7. NUT COVERS - EACH POLE SHALL INCLUDE A BOLT DOWN NUT COVER FOR EACH ANCHOR BOLT.

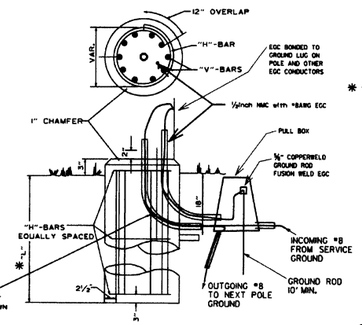


TYPICAL ARM ATTACHMENT



NOTE: THE SIGNAL SHALL BE CONNECTED TO THE MAST ARM BY BRACKETING AS DIRECTED BY THE ENGINEER.



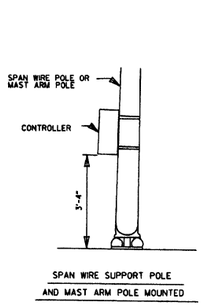


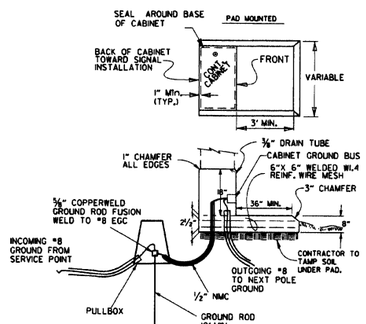
THE GROUND ROD SHALL BE FUSION WELDED TO A 1C/#8 A.W.G. SOLID COPPER GROUND WIRE. ATTACHMENT TO THE PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. THE ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX.

TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING. ALL REINFORCING STEEL SHALL BE GRADE 40 MIN.

ARM LENGTH	FDN. DIAMETER	DEPTH "L" *	STEEL VERT.	STEEL HORZ.	STEEL O/C.
PED	30"	7'-0"	12-#7 (6'-6")	10-#4	8.44"
2' to 12'	30"	10'-6"	12-#7 (10'-0")	15-#4	8.42"
over 12' to 20'	30"	11'-6"	12-#7 (11'-0")	16-#4	8.66"
over 20' to 35'	36"	12'-6"	13-#8 (12'-0")	17-#4	8.88"
over 35' to 50'	36"	13'-6"	13-#8 (13'-0")	19-#4	8.56"
over 50' to 72'	42"	14'-6"	18-#8 (14'-0")	20-#4	8.74"
Twins to 20'	30"	16'-0"	12-#6 (15'-6")	22-#4	8.76"
Twins over 20' to 44'	36"	16'-0"	13-#8 (15'-6")	22-#4	8.76"
Twins over 44' to 50'	42"	16'-0"	18-#8 (15'-6")	22-#4	8.76"
Twins over 50' to 72'	42"	16'-6"	18-#8 (16'-0")	23-#4	8.64"





CONTROLLER CABINET MOUNTING DETAILS

UNLESS OTHERWISE DIRECTED BY THE ENGINEER, CABINET ORIENTATION SHALL BE SUCH THAT THE BACK OF THE CABINET IS PARALLEL TO THE STREET AND POSITIONED TO ALLOW VISIBILITY OF THE SIGNAL DISPLAY WHILE OBSERVING THE CONTROLLER FRONT PANEL.

8. GROUND ROD - A 10' X 5/8" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND 1/2" NMC SHALL BE INCLUDED IN ITEM 714 FOR SIGNAL POLES AND ITEM 701 FOR THE CONTROLLER. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

9. POLE BASE/FOUNDATION - ANCHOR BOLTS SHALL INCLUDE AS A MINIMUM, ONE LEVELING NUT, TWO FLAT WASHERS, ONE LOCK WASHER, AND ONE HEX. NUT. PERIMETER OF ANCHOR BASE SHALL BE GROUTED WITH A 1/4" WEEP HOLE. ALL CONCRETE SHALL BE CLASS "S" OR GREATER.

10. CONCRETE - ALL CONCRETE FOR CONTROLLER CABINET AND POLE FOUNDATIONS SHALL BE CLASS "S" OR GREATER.

11. PEDESTRIAN PHASES - PEDESTRIAN MOVEMENTS SHALL BE PUSH BUTTON ACTUATED AND CONCURRENTLY TIMED, UNLESS OTHERWISE INDICATED ON THE PLAN SHEET(S). FURNISHING AND INSTALLING PED PUSH SWITCH SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM PEDESTRIAN SIGNAL HEAD.

SIGNAL OPERATION NOTES:

FLASHING OPERATION - PRIOR TO NORMAL OPERATION, SIGNAL SHALL BE FLASHED FOR A PERIOD OF 3 TO 5 WORK DAYS OR AS DIRECTED BY THE ENGINEER. SIGNAL SHALL BE PLACED IN OPERATION ONLY ON A REGULAR WORK DAY, EXCEPT FRIDAY.

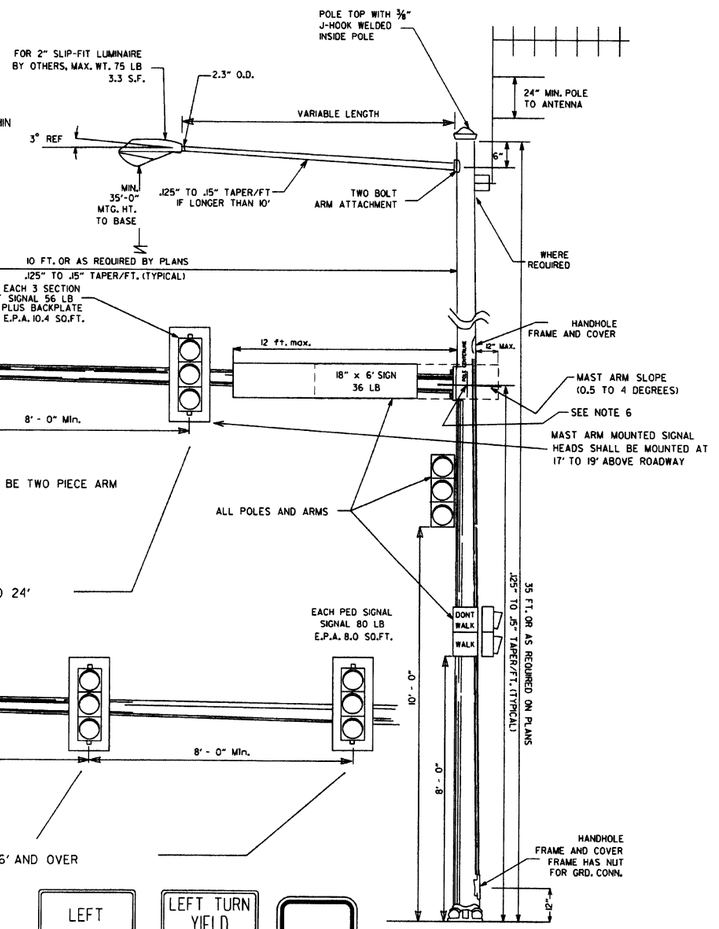
THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD, AT THE TIME INTERSECTION IS PLACED IN PERMANENT OPERATION, THE FLASH SEQUENCE SHALL THEN BE RETURNED TO THAT INDICATED ON THE PLAN SHEETS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE ALTERATIONS IN FLASH SEQUENCE.

SPECIAL NOTE: 90 MPH WIND ZONE DESIGN, SEE NOTE 3. MINIMUM STRUCTURAL REQUIREMENTS.

* WHEN THE GROUND ELEVATION AT THE POLE IS LOWER THAN THE ROADWAY ELEVATION, THE LENGTH OF FOUNDATION ABOVE THE GROUND MAY BE INCREASED TO PROVIDE THE REQUIRED SIGNAL HEAD CLEARANCE ABOVE THE ROADWAY. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 18" OR LESS, NO INCREASE IN DEPTH "L" WILL BE REQUIRED. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 5'-6" OR LESS, INCREASE DEPTH "L" BY 1'-0". FOR LENGTHS GREATER THAN 5'-6", DEPTH "L" SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER. LONGITUDINAL REINFORCING, AS SHOWN IN THE TABLE, SHALL BE PROVIDED FOR THE LENGTH OF THE EXTENDED SHAFT AND #4 TIES SHALL BE PROVIDED AT A SPACING NOT TO EXCEED 9" ON CENTERS. PAYMENT WILL BE IN ACCORDANCE WITH SECTION 714 OF THE STANDARD SPECIFICATIONS.

** IN LIEU OF DESIGNING THE STRUCTURE TO RESIST PERIODIC GALLOPING, A VIBRATORY MITIGATION DEVICE MAY BE PROVIDED BY THE POLE MANUFACTURER. THE VIBRATORY MITIGATION DEVICE SHALL BE AN ANTI-GALLOPING PANEL CONSISTING OF A 60"X16"X0.125" SIGN BLANK MOUNTED NEAR THE END OF THE MAST ARM NOT TO EXCEED ONE QUARTER OF THE LENGTH OF THE MAST ARM FROM THE END OF THE MAST ARM WITH THE LONG AXIS OF THE PANEL COLLINEAR WITH THE LONG AXIS OF THE MAST ARM. THE PANEL SHOULD BE MOUNTED AT SUCH A HEIGHT AS TO PROVIDE AT LEAST 6" CLEAR FROM THE TOP OF ANY SIGNAL ASSEMBLY OR SIGN PANEL LOCATED ON THE MAST ARM WITHIN THE LENGTH OF THE ANTI-GALLOPING PANEL.

TRUCK-INDUCED GUST LOADS SHALL BE EXCLUDED FOR FATIGUE DESIGN FOR ALL STRUCTURES EXCEPT MAST ARMS MOUNTED OVER FACILITIES WITH POSTED SPEEDS OF 65 MPH OR GREATER AT THE LOCATION OF THE STRUCTURE.

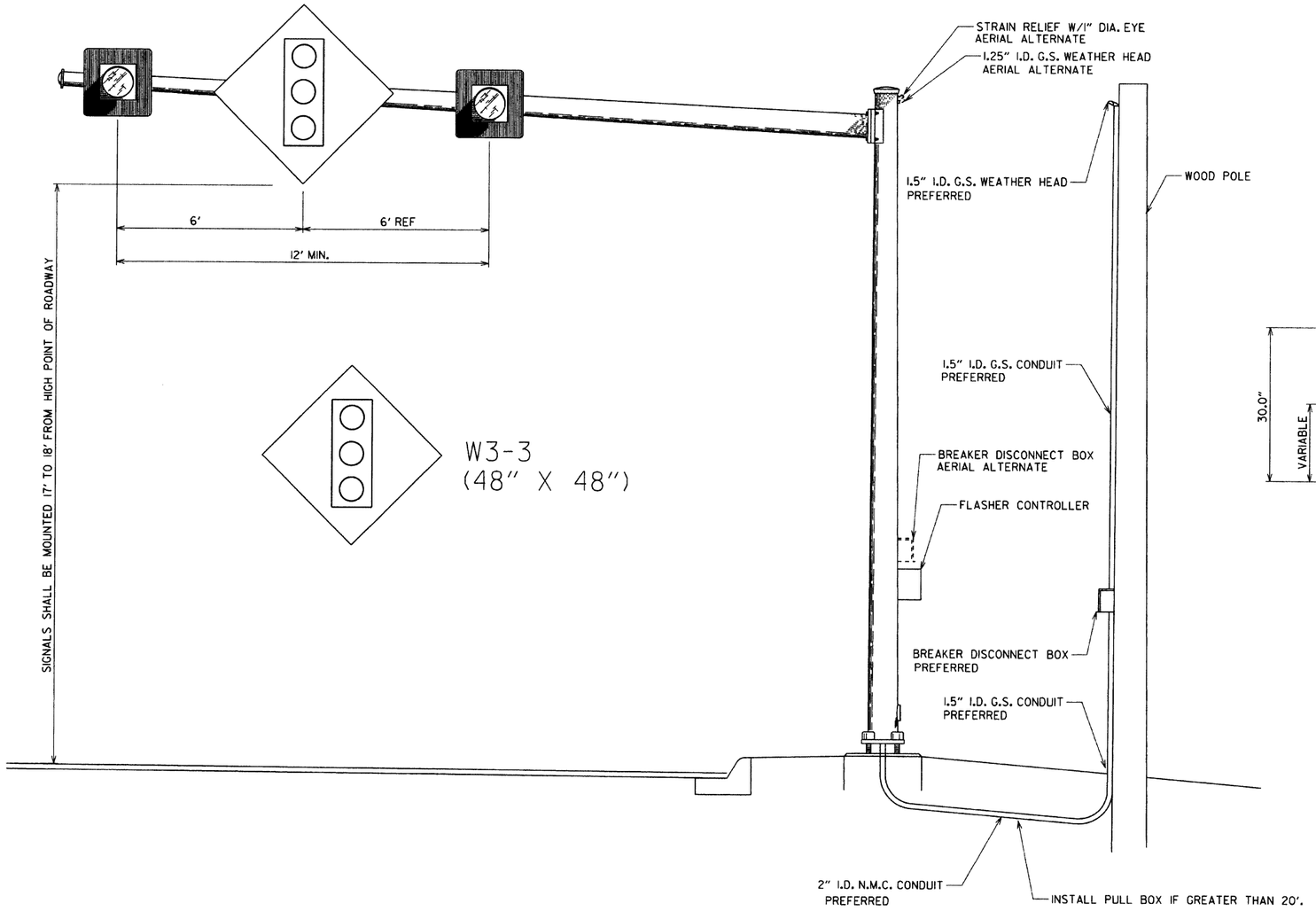


DATE	REVISION	DATE FILM
2-27-14	REVISED NOTES.	
9-12-13	ISSUED AS STANDARD DRAWING	
7-21-11	REVISED YIELD SIGNAL HEADS	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
4-25-08	ADDED VIBRATORY MITIGATION DEVICE & NOTES	
4-18-08	REVISED AASHTO NOTES	
4-17-08	REVISED TO 2001 AASHTO STANDARDS	
10-12-04	REVISED CABINET ORIENTATION	
6-23-04	REVISED	
5-11-04	REV. NOTE 3/AASHTO REQUIREMENTS	
6-18-01	REV. NOTES & POLE MAST ARM SLOPE	
4-11-01	REVISED POLE TAPERS	
4-25-00	REV. NOTES & SIGNAL HEAD PLACEMENT	
11-22-99	REVISED FOUNDATION DETAILS	
11-17-98	REVISED DETAILS AND NOTES	
11-21-95	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

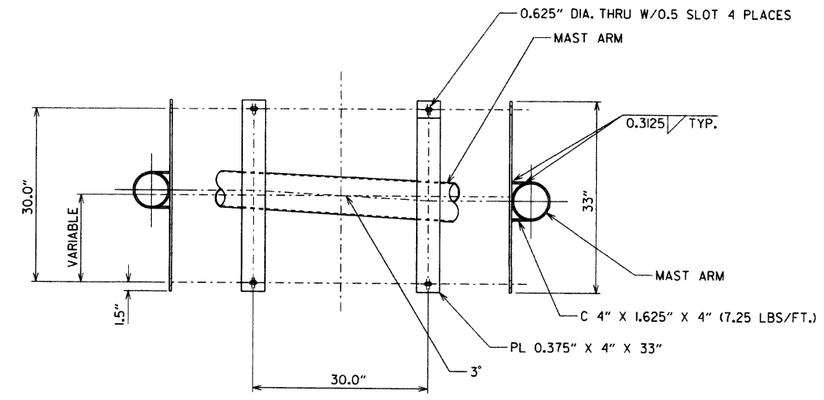
STEEL POLE WITH MAST ARM

STANDARD DRAWING SD-11



NOTES

1. THE SIGN MOUNTING BRACKET SHALL BE SUBSIDIARY TO THE PAY ITEM - TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION.
2. MAST ARM, POLE, HARDWARE, AND MOUNTING BRACKET SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 714.
3. A COMMERCIALLY MANUFACTURED MOUNTING PLATE OR BRACKET MAY BE SUBMITTED FOR APPROVAL IN LIEU OF THE MOUNTING PLATE SHOWN.
4. EACH SIGNAL HEAD SHALL HAVE A SEPARATE 5 CONDUCTOR SIGNAL CABLE.



MOUNTING BRACKET

N.T.S.

OVERHEAD SIGN MOUNTING DETAILS

N.T.S.

DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
4-17-08	MINOR REVISIONS	
6-21-06	REVISED	
4-14-03	REVISED	
7-14-95	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

OVERHEAD SIGN DETAILS
(OVERHEAD SIGN MOUNTED ON STEEL POLE WITH MAST ARM)

STANDARD DRAWING SD-16

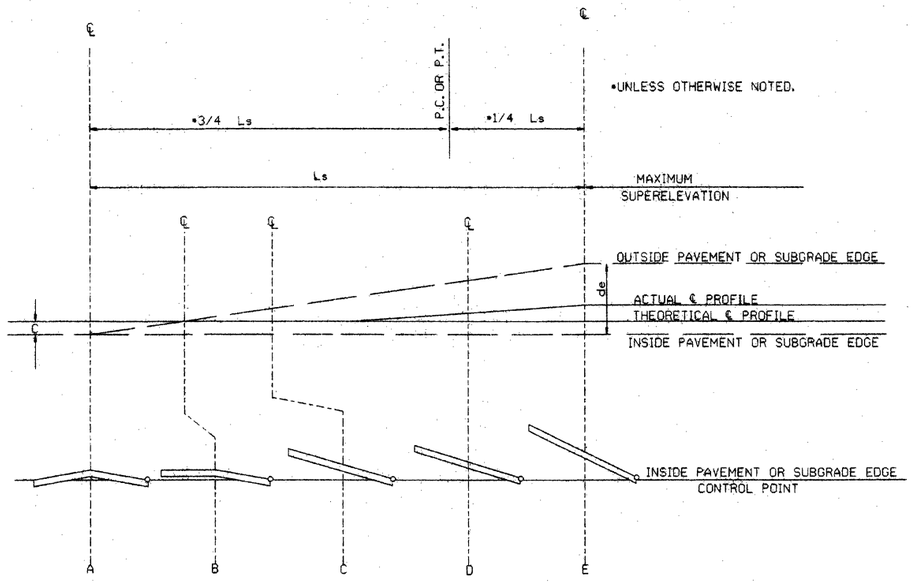
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N. C.			N. C.			N. C.			N. C.			N. C.			N. C.		
0° 30′	N. C.			N. C.			N. C.			N. C.			N. C.			N. C.		
0° 45′	N. C.			N. C.			R. C.			0.022			0.023			0.028		
1° 00′	N. C.			N. C.			0.021			0.026			0.030			0.037	275	300
1° 15′	N. C.			R. C.			0.026			0.032			0.037	250	300	0.046		
1° 30′	N. C.			0.021			0.031	200		0.037	225	300	0.043			0.054		
1° 45′	N. C.			0.025			0.036			0.043			0.049			0.062		
2° 00′	R. C.			0.028	175		0.040			0.048			0.055			0.070		
2° 15′	R. C.			0.031			0.045		250	0.053			0.061			0.078	300	350
2° 30′	0.021			0.034			0.049			0.058			0.067			0.085	315	
2° 45′	0.023			0.037		200	0.053			0.063			0.072			0.091	335	
3° 00′	0.025	150		0.040			0.057			0.067	230		0.077	260		0.096	350	400
3° 15′	0.027			0.043			0.061			0.072	245		0.082	275		0.098	360	
3° 30′	0.029			0.046			0.065	205		0.076	255		0.086	285		0.100	360	
3° 45′	0.031			0.049			0.069	215		0.080	265		0.090	295				
4° 00′	0.033			0.051			0.072	225		0.083	270		0.093	305	350			
4° 30′	0.037			0.056			0.078	240		0.087	280		0.096	315				
5° 00′	0.040			0.061			0.083	250		0.091	295	350	0.098	320				
5° 30′	0.043			0.066	185		0.088	260		0.094	300							
6° 00′	0.046			0.070	190		0.092	270	300	0.096	305							
6° 30′	0.050			0.074	200		0.095	280		0.100	315							
7° 00′	0.053			0.078	210		0.098	285										
7° 30′	0.056			0.081	215		0.099	290										
8° 00′	0.058			0.084	220		0.100	290										
8° 30′	0.061			0.087	225	250												
9° 00′	0.063			0.089	230													
10° 00′	0.068	160		0.094	235													
11° 00′	0.072	170		0.097	250													
12° 00′	0.076	175		0.099	250													
13° 00′	0.080	180		0.100	250													
14° 00′	0.083	190																
15° 00′	0.086	195																
16° 00′	0.089	200																
17° 00′	0.091	200																
18° 00′	0.093	205																
19° 00′	0.095	210																
20° 00′	0.097	215	250															
21° 00′	0.098	215																
22° 00′	0.099	215																
23° 00′	0.099	215																
24° 00′	0.100	220																

D MAX = 24° 45′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 3° 30′

ABBREVIATIONS

NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
e - RATE OF SUPERELEVATION (FT. PER FT.)
Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
C - NORMAL CROWN (FT.)



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

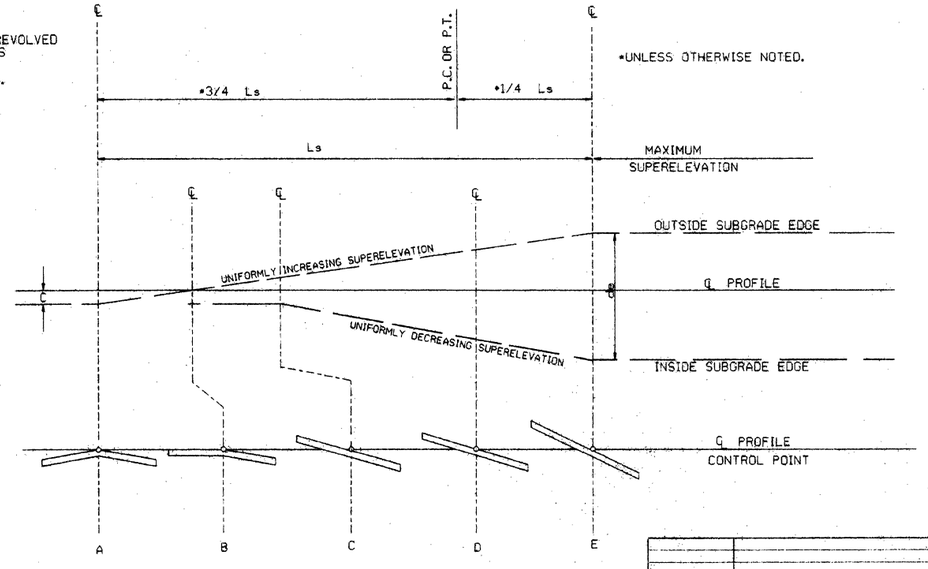
GENERAL NOTES

1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:

3 LANE UNDIVIDED - - - - - +20%
4 LANE UNDIVIDED - - - - - +50%
5 LANE UNDIVIDED - - - - - +80%
6 LANE UNDIVIDED - - - - - +100%

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

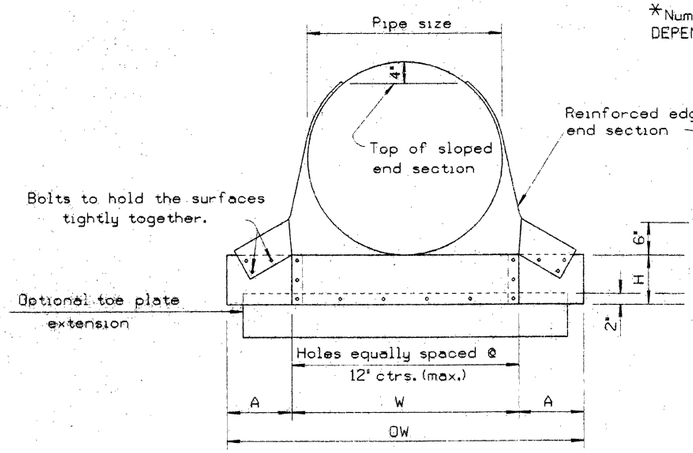
DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

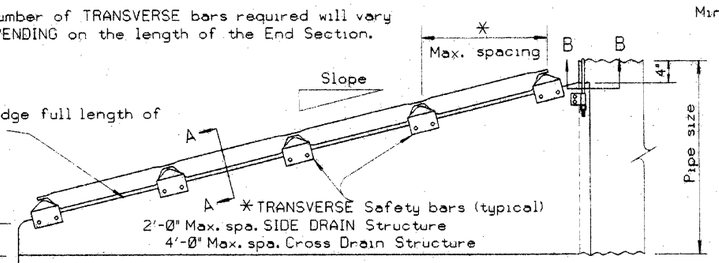
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

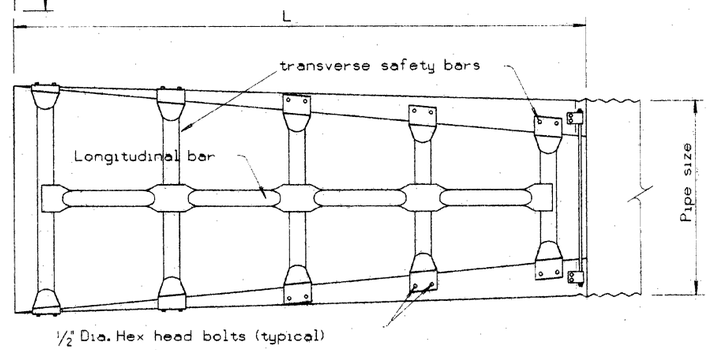
FILE STDSE2.DGN



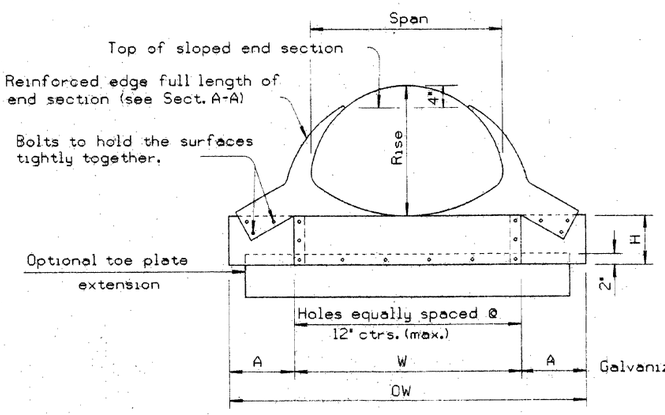
FRONT VIEW CIRCULAR PIPE



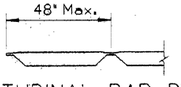
SIDE ELEVATION CIRCULAR OR ARCH SECTION



TOP VIEW CIRCULAR OR ARCH SECTION

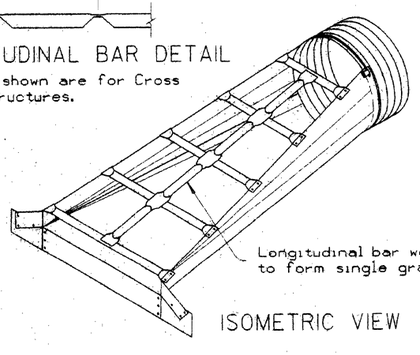


FRONT VIEW ARCH PIPE

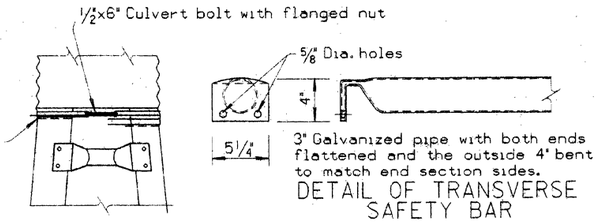


LONGITUDINAL BAR DETAIL

Note: Bars shown are for Cross Drain Structures.



ISOMETRIC VIEW



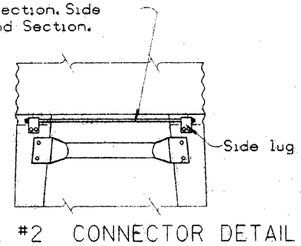
TYPE #1 CONNECTOR DETAIL

For 15" thru 24" pipe

3" Galvanized pipe with both ends flattened and the outside 4" bent to match end section sides.

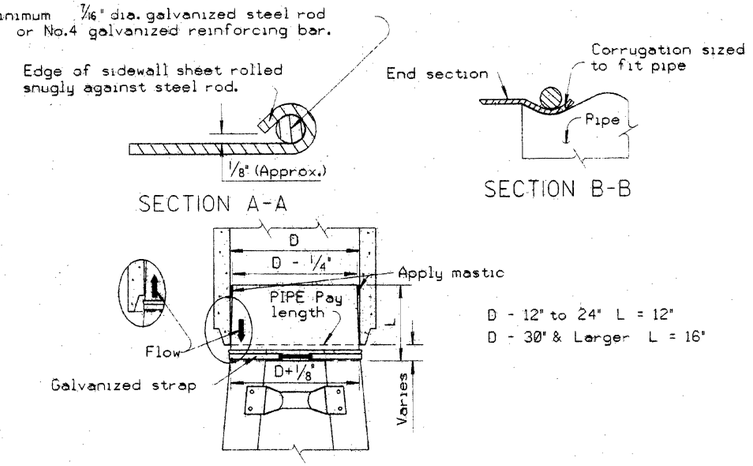
DETAIL OF TRANSVERSE SAFETY BAR

½" Threaded rod with flanged nuts. Form over top of end section. Side lugs to be bolted to End Section.



TYPE #2 CONNECTOR DETAIL

For 30" and larger round pipes & 21"x15" thru 64"x43" arch pipes



Note: Metal end section to be firmly wedged INTO PIPE END BEFORE BACKFILLING PIPE.

(Tapered sleeve to be 12 Ga. smooth galvanized steel in accordance with AASHTO M 218.)

STEEL END SECTION FOR CONCRETE PIPE
(Alternate for Concrete End Section)

GENERAL NOTES

End sections shall be fabricated from galvanized steel meeting the requirements of SUBSECTION 606.02(c)(1) OF THE STANDARD SPECIFICATIONS.
When specified optional toe plate extension shall be punched and bolted to end section apron lip with ⅜" diameter galvanized bolts. Steel for toe plate extension shall be same gauge as end section.
Dimensions shall be overall width less 6" by 8" high.
Attachment to circular pipes 15" through 24" diameter shall be made with Type #1 straps. All other sizes shall be attached with Type #2 rods and lugs.
Safety bars shall be fabricated from steel pipe meeting the requirements of ASTM A-53 Schedule 40 Specifications. Safety bars shall be hot dipped galvanized after fabrication.
All work and materials required for construction and installation of safety end section shall be included in the PRICE BID EACH FOR SAFETY END SECTIONS FOR PIPE CULVERTS.
Longitudinal and transverse bars will be required for cross drain structures when span is greater than 30", no safety bars will be REQUIRED FOR 30" SPAN OR LESS WHEN USED ON CROSS DRAIN STRUCTURES.
Transverse bars will be required for all sizes of side drain structures.
Class 1 safety end sections shall be end sections with a 4:1 slope.
Class 2 safety end sections shall be end sections with a 6:1 slope.

SAFETY END SECTIONS FOR ARCH PIPES													SAFETY END SECTIONS FOR CIRCULAR PIPES								
Equv. Dia.	Nom. W.W. Area Sq Ft	Pipe Arch Span (In.)	Pipe Arch Rise (In.)	Min. Gauge End Sect.	Dimensions in Inches A	H	W	OW	Slope	L (In)	Slope	L (In)	Pipe Dia.	Min. Gauge Ends	Dimensions in Inches A 1"Tol	H 1"Tol	W 2"Tol	OW	L Dimensions in Inches Slope	L	Slope	L
18"	1.6	21	15	16	8	6	27	43	4:1	20	6:1	30	15"	16	8	6	21	37	4:1	20	6:1	30
21"	2.2	24	18	16	8	6	30	46	4:1	32	6:1	48	18"	16	8	6	24	40	4:1	32	6:1	48
24"	2.9	28	20	16	8	6	34	50	4:1	40	6:1	60	21"	16	8	6	27	43	4:1	44	6:1	66
30"	4.5	35	24	14	12	9	41	65	4:1	56	6:1	84	24"	16	8	6	30	46	4:1	56	6:1	84
36"	6.5	42	29	12	12	9	48	72	4:1	76	6:1	114	30"	12	12	9	36	60	4:1	80	6:1	120
42"	8.9	49	33	12	16	12	55	87	4:1	92	6:1	138	36"	12	12	9	42	66	4:1	104	6:1	156
48"	11.6	57	38	12	16	12	63	95	4:1	112	6:1	168	42"	12	16	12	48	80	4:1	128	6:1	192
54"	14.7	64	43	12	16	12	70	102	4:1	132	6:1	198	48"	12	16	12	54	86	4:1	152	6:1	228
60"	18.1	71	47	12	16	12	77	109	4:1	148	6:1	222	54"	12	16	12	60	92	4:1	176	6:1	264
72"	26.0	83	57	12	16	12	89	121	4:1	188	6:1	282	60"	12	16	12	66	98	4:1	200	6:1	300

DATE	REVISION	DATE FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
8-15-91	DRAWN & ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

SAFETY END SECTION FOR CIRCULAR AND ARCH PIPES

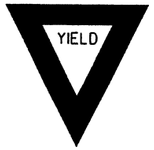
STANDARD DRAWING SES-1

FILE stdsesi.dgn

R1-1

STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

W3-5

STD. 36"X36"
EXPWY. 48"X48"
FWY. 48"X48"

W3-5a

STD. 36"X36"
EXPWY. 48"X48"
FWY. 48"X48"

R4-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

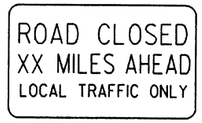
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2

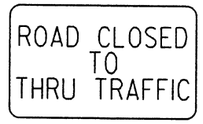
48"X30"

R11-3A



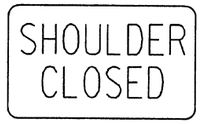
60"X30"

R11-4



60"X30"

RSP-1



48"X30"

W1-1

STD. 36"X36"
FWY. 48"X48"

W1-2

STD. 36"X36"
FWY. 48"X48"

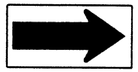
W1-3

STD. 48"X48"

W1-4

STD. 48"X48"

W1-6



STD. 48"X24"
SPECIAL 60"X30"

W1-8

STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

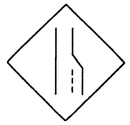
W3-1

STD. 36"X36"
SPECIAL 48"X48"

W3-2

STD. 36"X36"
SPECIAL 48"X48"

W4-2



STD. 36"X36"
FWY. 48"X48"

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

EXPWY. 36"X36"
FWY. 48"X48"

W9-2

STD. 36"X36"
FWY. 48"X48"

W13-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

STD. 36"X36"
FWY. 48"X48"

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

W1-4b

STD. 48"X48"

R56-1

STD. 18"X18"

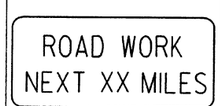
W8-11

STD. 36"X36"
FWY. 48"X48"

W8-9

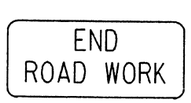
STD. 36"X36"
FWY. 48"X48"

G20-1



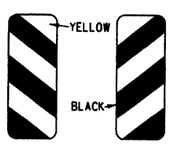
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

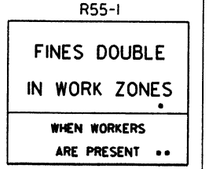
M4-9

STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1



36"X60"
• USE 6" C LETTERS
•• USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	½ MILE
1000 FT	¾ MILE
1500 FT	1 MILE
	AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.

2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.

3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.

• 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.

• 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.

6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.

7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.

8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.

9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.

10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

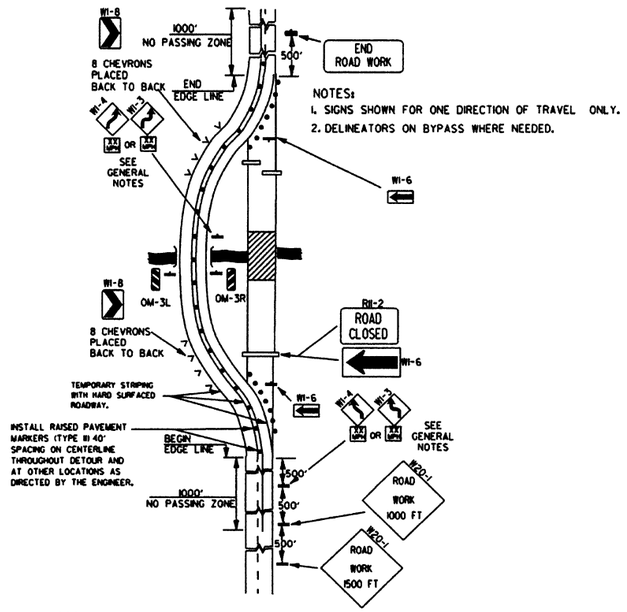
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

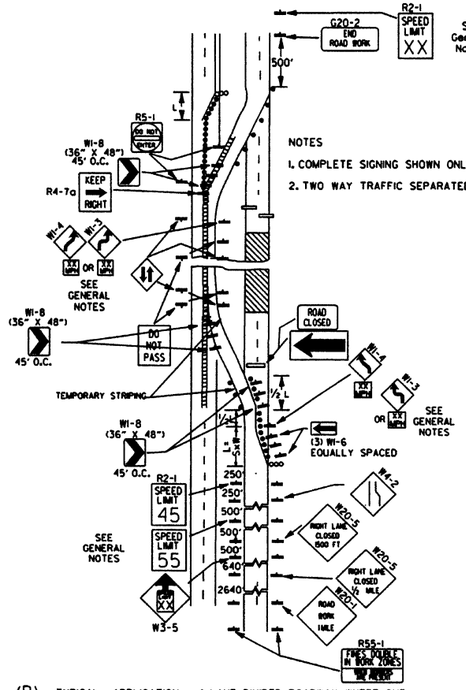
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



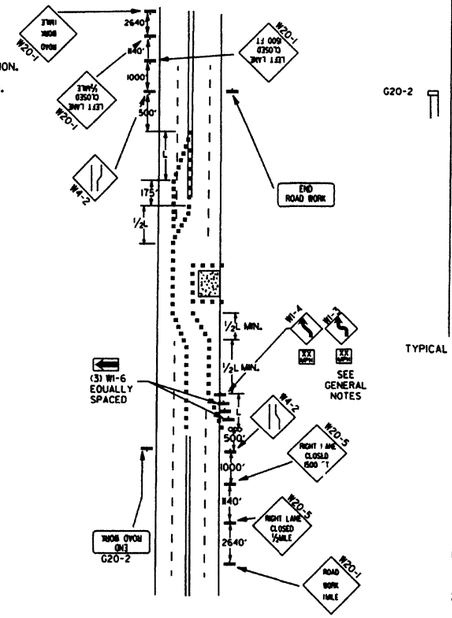
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

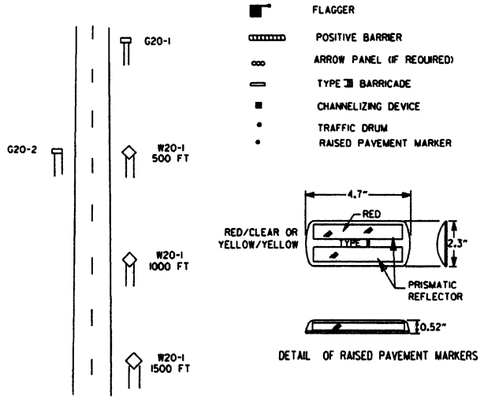


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

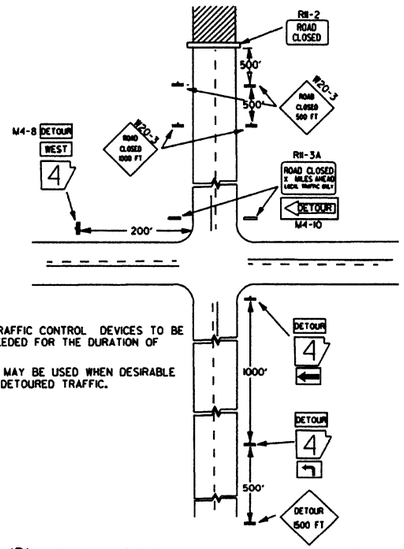
L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

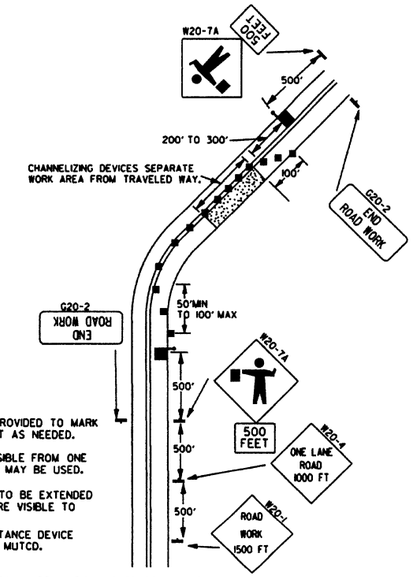
GENERAL NOTES:

1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.



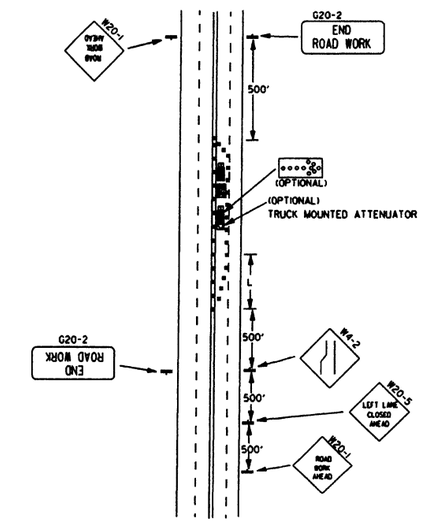
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



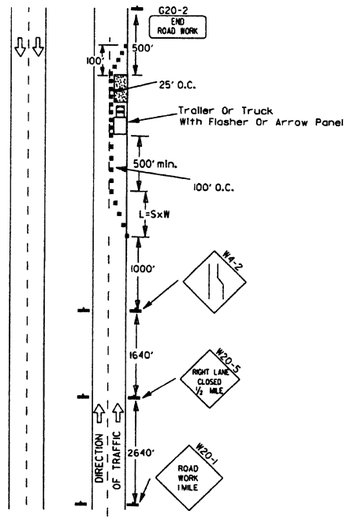
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-8-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

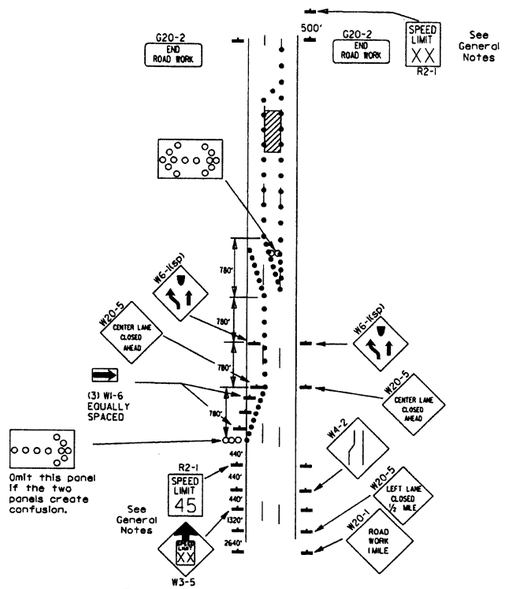
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

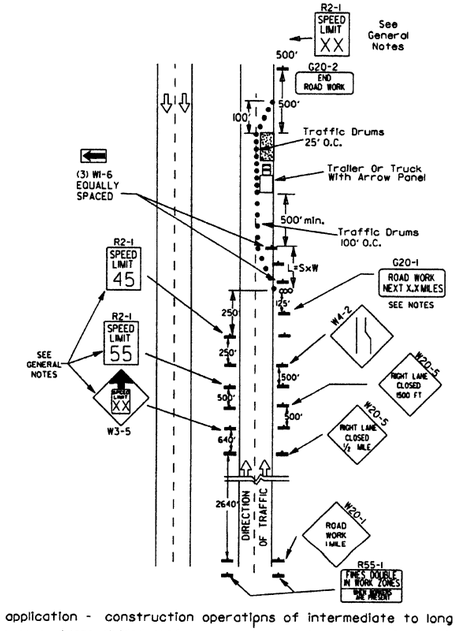
STANDARD DRAWING TC-2



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



(B) Typical application - 3-lane oneway roadway where center lane is closed.



(C) Typical application - construction operatipns of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

KEY:

ooo Arrow Panel (if Required)

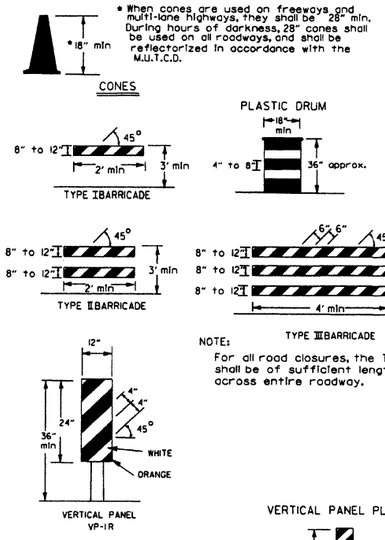
■ Channelizing Device

● Traffic drum

GENERAL NOTES:

1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

Channelizing devices



NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.

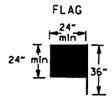
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

* When shown on the plans concrete barrier will be used.

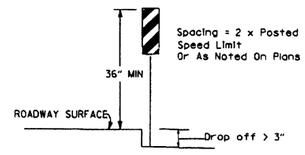
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

FLAG

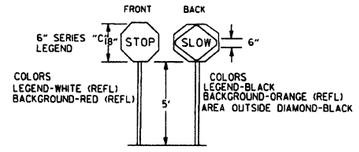


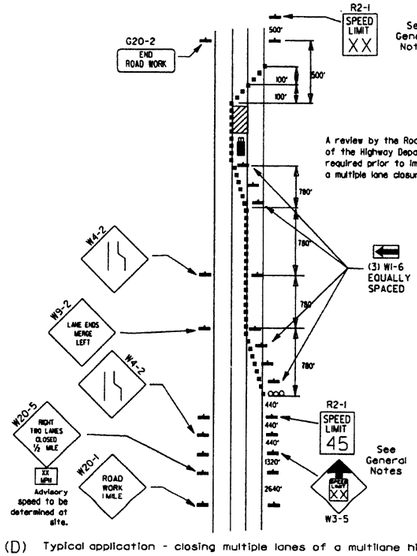
Flag shall be of good grade red material

VERTICAL PANEL PLACEMENT



STOP SLOW PADDLE





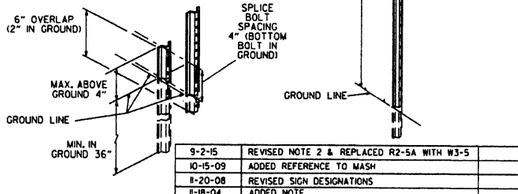
(D) Typical application - closing multiple lanes of a multilane highway.

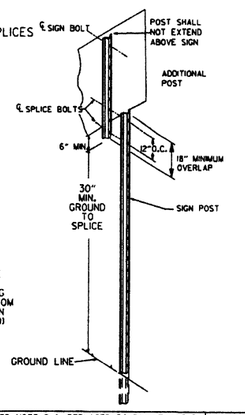
NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.

DETAIL OF SPLICES





DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

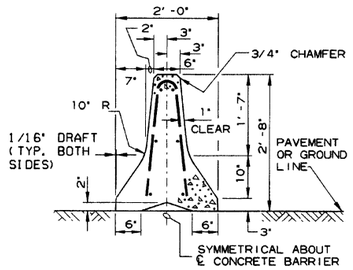
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

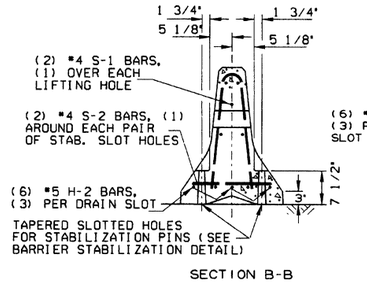
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT

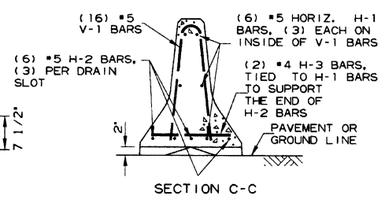
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1'-6", 1" MIN. CLEAR TO BAR; 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9", 2 3/16" R, 12°, 9 1/2", 4 3/8", 2'-1 3/8"



SECTION A-A



SECTION B-B

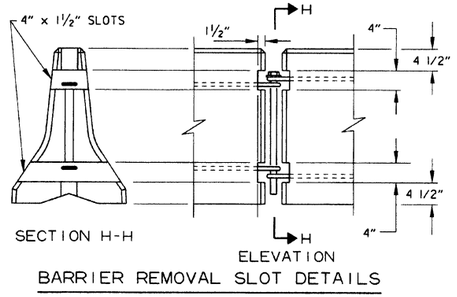


SECTION C-C

VIEW D-D

VIEW D'-D'

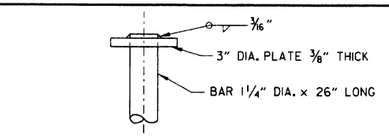
ELEVATION



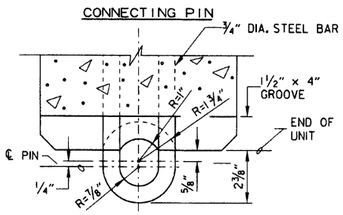
SECTION H-H

ELEVATION

BARRIER REMOVAL SLOT DETAILS

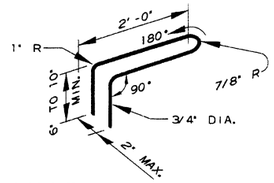


CONNECTING PIN

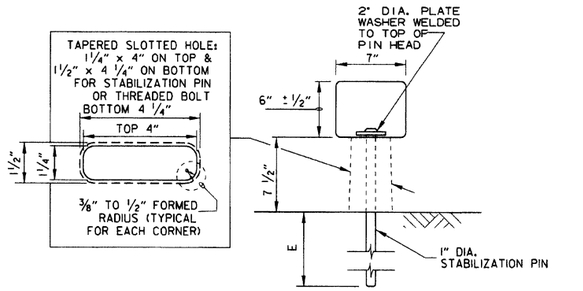


SECTION E-E

CONNECTION DETAILS



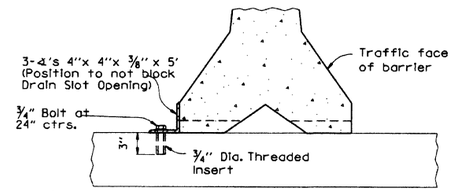
CONNECTION LOOP



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

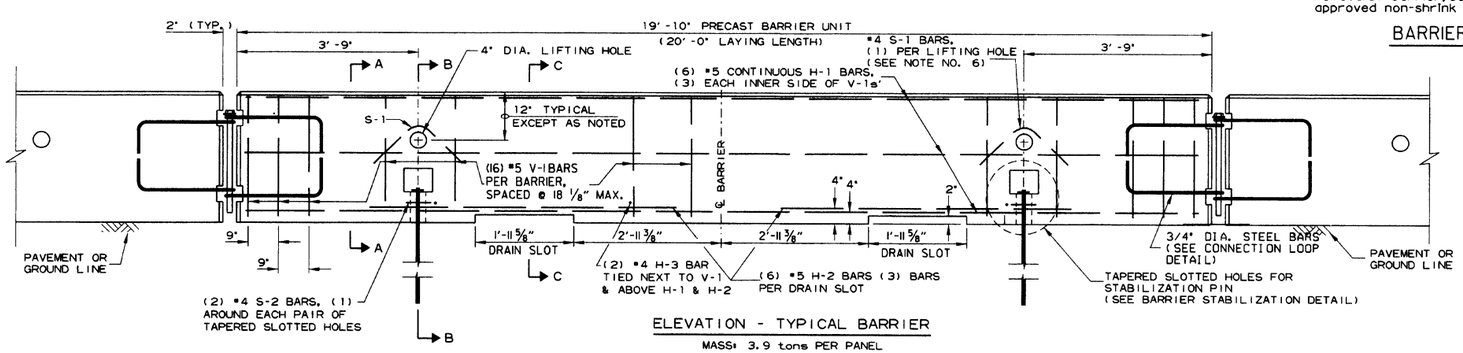
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



NOTE: 3/4" Threaded inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

BARRIER STABILIZATION DETAIL

BRIDGE DECKS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

General Notes

(1) The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.

(2) Materials shall meet the following minimum requirements:
Concrete: 2500 psi compressive strength at 28 days.
Reinforcing Steel: AASHTO M 31 or M 53, Grade 60
Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin.
Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.

In applications where barrier walls within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers.
Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices.
Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.

(3) Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.

(4) Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.

(5) Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.

(6) A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

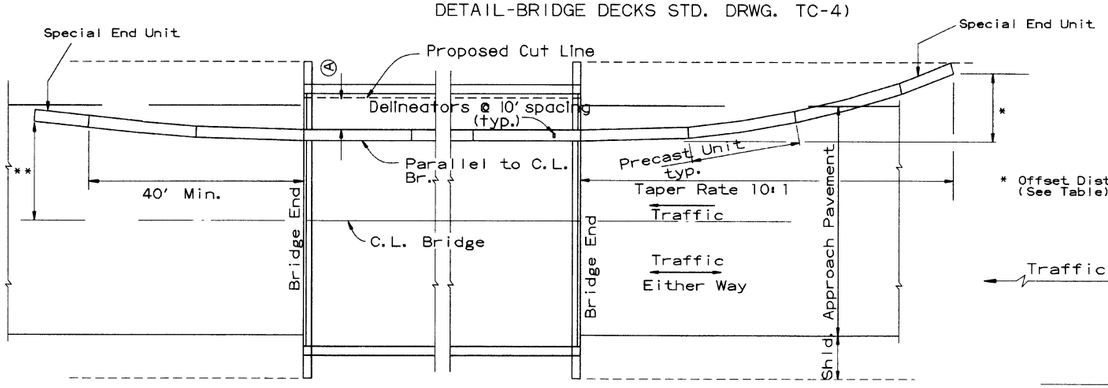
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)

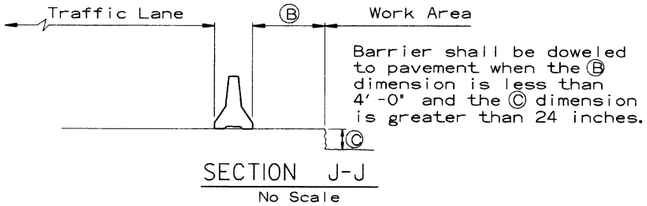


BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

* Offset Distance (See Table)

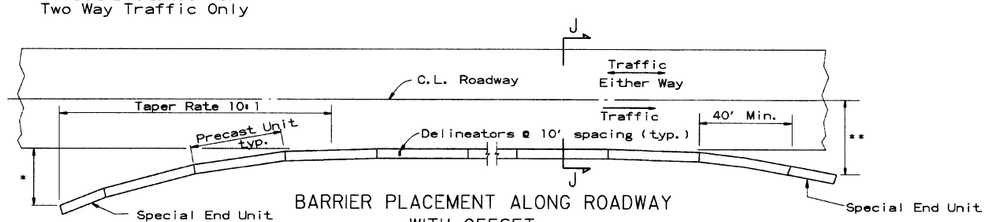
** Offset Distance for Two Way Traffic Only



Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

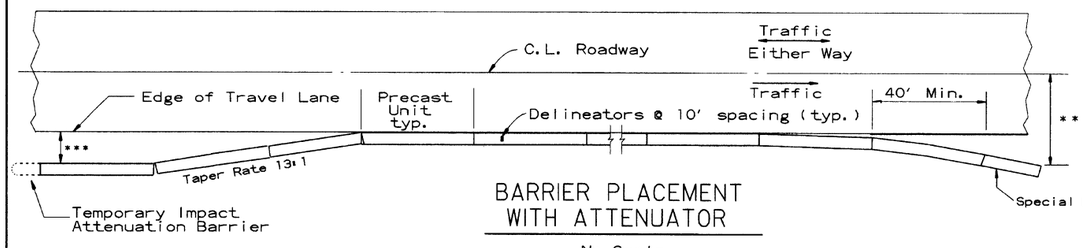
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

Speed (MPH)	Offset Distance (FT.)
≤ 45	12
> 45	18

If offset distance is not attainable, then see "Barrier Placement With Attenuator" Detail shown below.

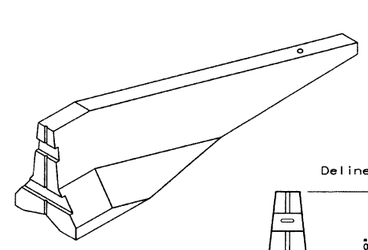


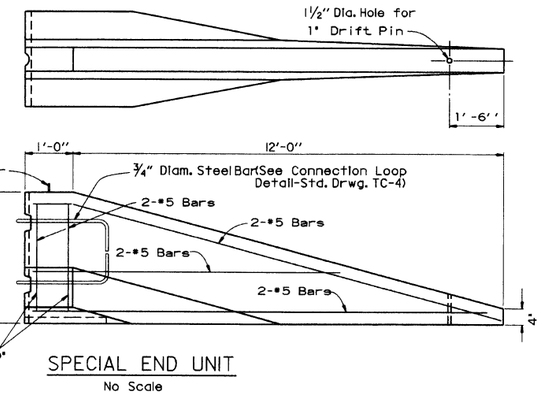
BARRIER PLACEMENT WITH ATTENUATOR

No Scale

*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

** Offset Distance For Two Way Traffic Only





SPECIAL END UNIT

No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

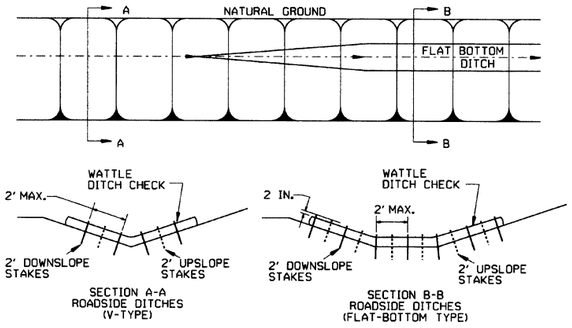
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

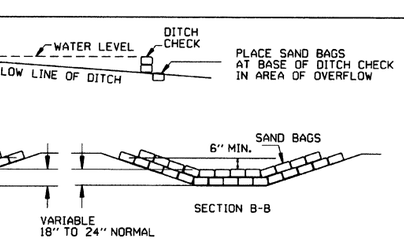
STANDARD DRAWING TC-5

GENERAL NOTES

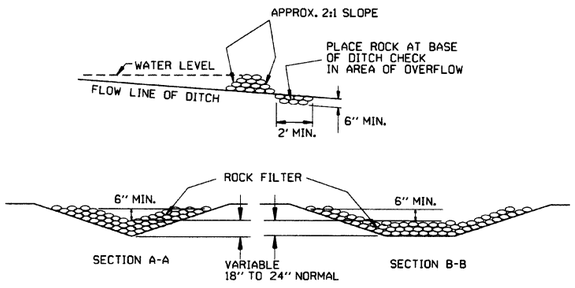
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



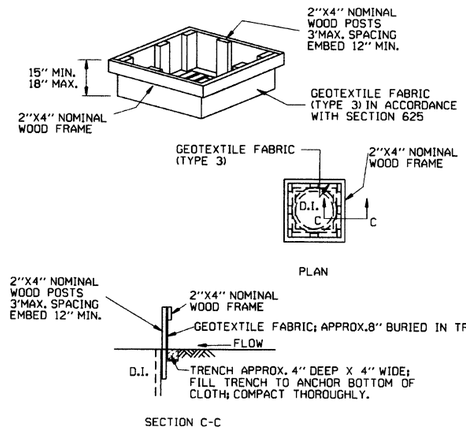
WATTLE DITCH CHECK (E-1)



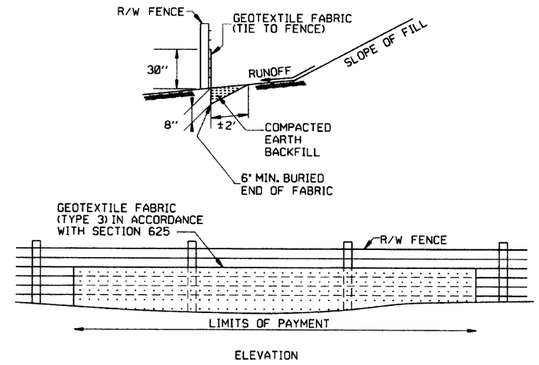
SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



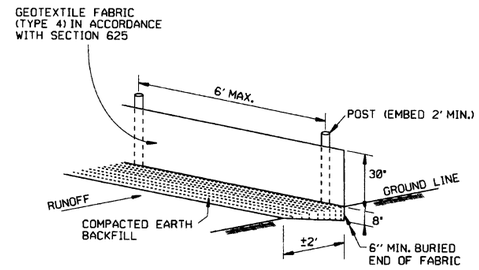
DROP INLET SILT FENCE (E-7)



SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)

GENERAL NOTES

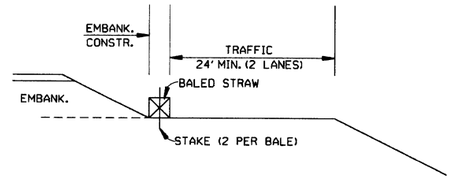
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



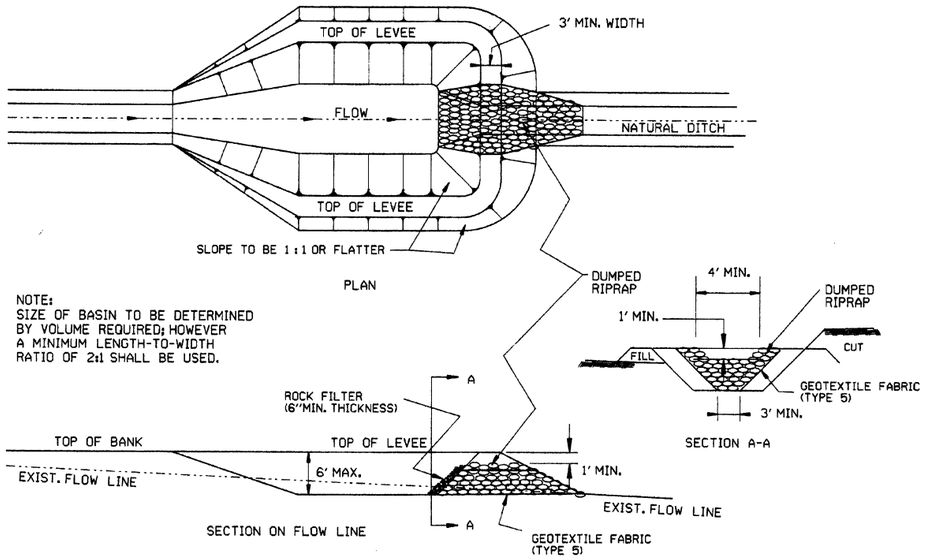
BALED STRAW FILTER BARRIER (E-2)

DATE	REVISION	FILMED
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
6-2-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
4-1-93	REDRAWN	
10-1-92	REDRAWN	
8-2-76	ISSUED R.D.M.	298-7-28-76

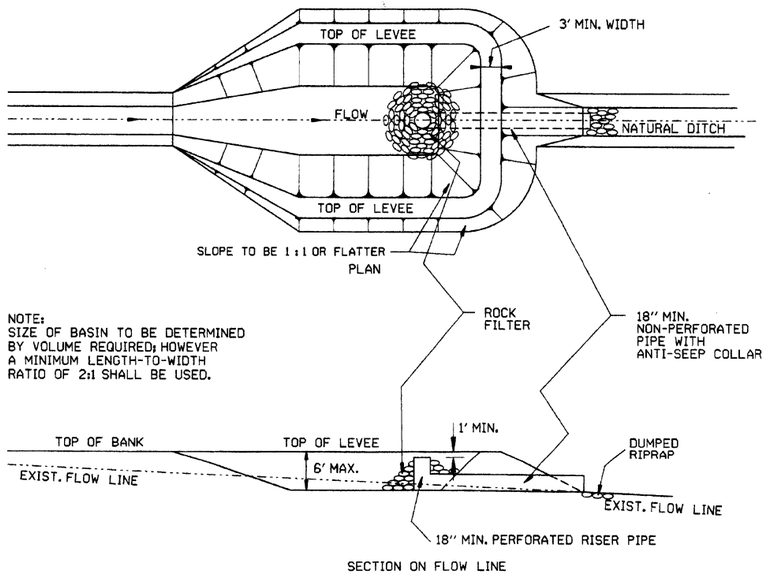
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

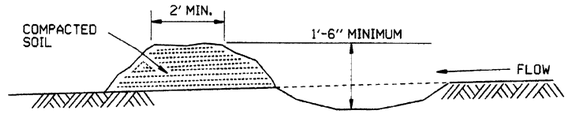
STANDARD DRAWING TEC-1



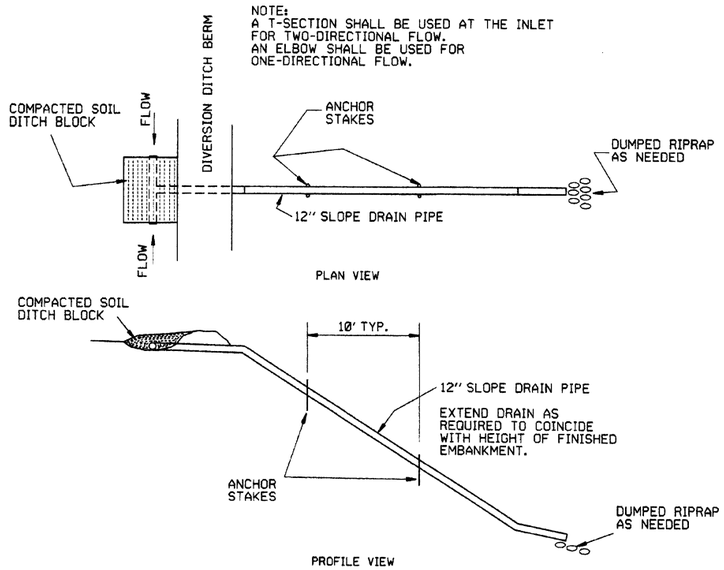
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



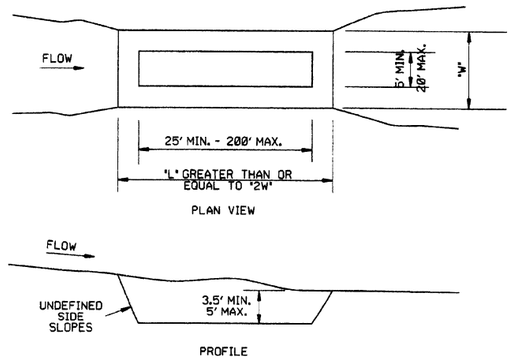
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

DATE	REVISION	FILMED
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13	
4-1-93	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

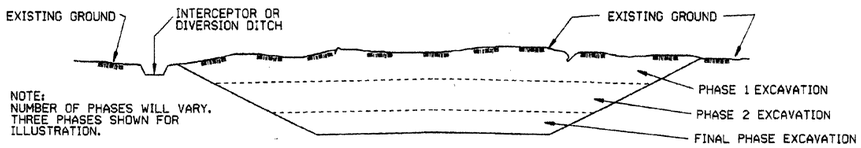
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES , DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



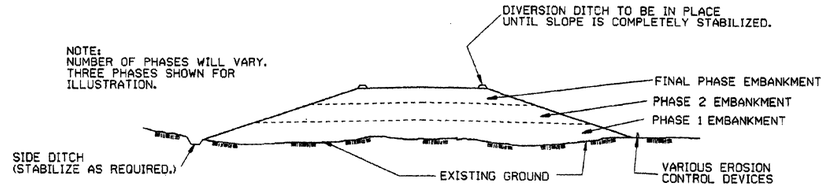
GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES, CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

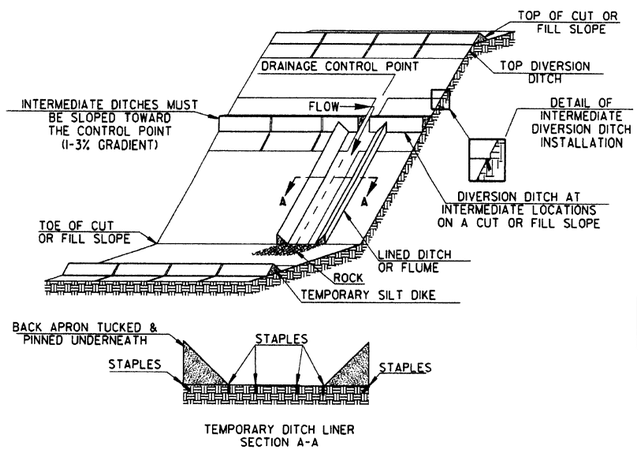
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

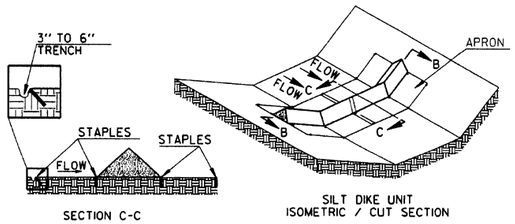
TEMPORARY EROSION CONTROL DEVICES

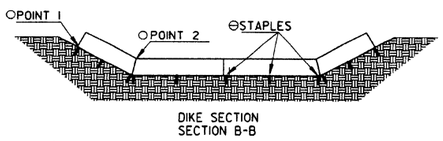
STANDARD DRAWING TEC-3

stdtec3.dgn



TRIANGULAR SILT DIKE INSTALLATION
FOR
DIVERSION DITCH AND/OR DITCH LINER

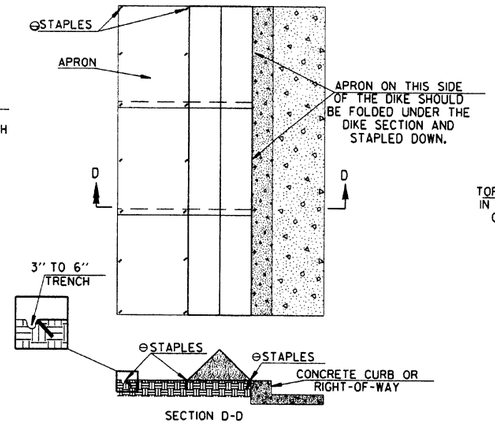




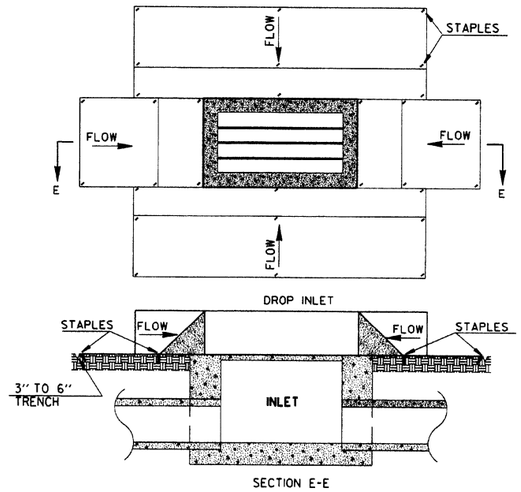
TRIANGULAR SILT DIKE INSTALLATION
FOR
ROADWAY DITCH OR DRAINAGE DITCH

○ POINT "1" MUST BE HIGHER THAN POINT "2" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

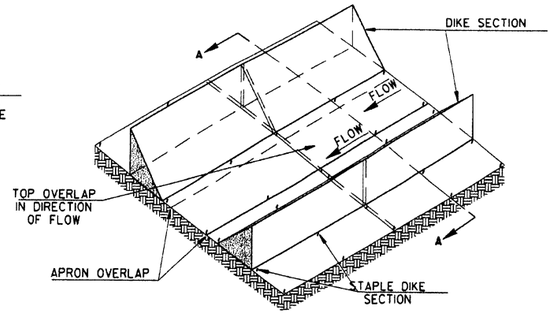
⊖ STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE UNIT AS SHOWN ON THE DIAGRAM.



TRIANGULAR SILT DIKE INSTALLATION
FOR
CONTINUOUS BARRIER



TRIANGULAR SILT DIKE INSTALLATION
FOR
DROP INLETS



TRIANGULAR SILT DIKE INSTALLATION
FOR
TEMPORARY DITCH LINER

GENERAL NOTES

1. THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND MAINTAINING THE TRIANGULAR SILT DIKE. THE DIKES SHALL BE USED AS A CONTINUOUS LINE BARRIER AT THE TOE OF SLOPE OR ACROSS THE ROADWAY DITCH TO CONTAIN SEDIMENT AND MINIMIZE EROSION, OR AS DIRECTED BY THE ENGINEER. THESE DIKES SHALL BE INSTALLED AND LOCATED AS SOON AS CONSTRUCTION WILL ALLOW OR AS DIRECTED BY THE ENGINEER.

2. TRIANGULAR SILT DIKE SHALL BE TRIANGULAR SHAPED HAVING A HEIGHT OF AT LEAST 8" TO 10" IN THE CENTER WITH EQUAL SIDES AND A 16" TO 20" BASE. THE TRIANGULAR SHAPED INNER MATERIAL SHALL BE URETHANE FOAM. THE OUTER COVER SHALL BE A WOVEN GEOTEXTILE FABRIC PLACED AROUND THE INNER MATERIAL & ALLOWED TO EXTEND BEYOND BOTH SIDES OF THE TRIANGLE 24" TO 36". THIS FABRIC SHOULD BE MILDEW RESISTANT, ROT-PROOF AND RESISTANT TO HEAT AND ULTRAVIOLET RADIATION MEETING REQUIREMENTS FOR SEDIMENT CONTROL IN AASHTO M288. THE DIKES SHALL BE ATTACHED TO THE GROUND WITH WIRE STAPLES. THE STAPLES SHALL BE NO. 11 GAUGE WIRE AND BE AT LEAST 6" TO 8" LONG. STAPLES SHALL BE PLACED AS SHOWN ON THESE DETAILS.

   THE CONTRACTOR SHALL INSPECT ALL DIKES AFTER EACH RAINFALL EVENT OF AT LEAST 0.5" OR GREATER. ANY DEFICIENCIES OR DAMAGE SHALL BE REPAIRED BY THE CONTRACTOR. ACCUMULATED SILT OR DEBRIS SHALL BE REMOVED AND RELOCATED AS DIRECTED BY THE ENGINEER. IF THE DIKES ARE DAMAGED OR INADVERTENTLY MOVED DURING THE SILT REMOVAL PROCESS, THE CONTRACTOR SHALL IMMEDIATELY REPLACE AFTER DAMAGE OCCURS.

3. ACCEPTED TRIANGULAR SILT DIKE, MEASURED AS PROVIDED ABOVE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR TRIANGULAR SILT DIKE. PRICE BID WILL INCLUDE THE COST OF FURNISHING THE DIKES, INSTALLING, MAINTAINING AND REMOVAL WHEN DIRECTED BY THE ENGINEER.

SYMBOLOGY
SYMBOL TO BE USED TO DENOTE DEVICE ON PLANS

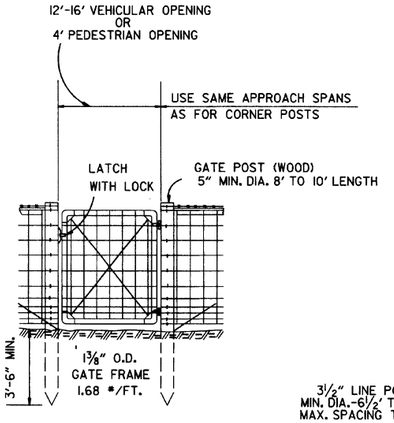
NOTE: SILT DIKE SHOULD ONLY BE USED FOR DROP INLETS IN SUMP LOCATIONS.

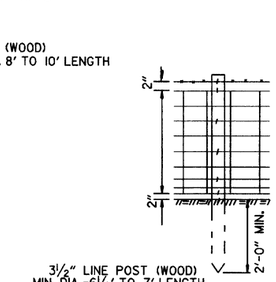
DATE	REVISION	FILMED
7-26-12	REVISED GENERAL NOTE 2.	
12-15-11	ISSUED	

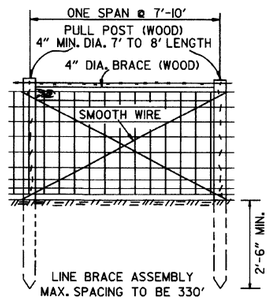
ARKANSAS STATE HIGHWAY COMMISSION

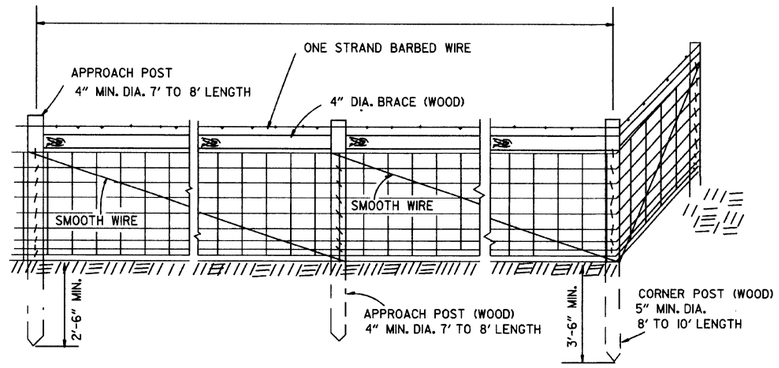
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-4



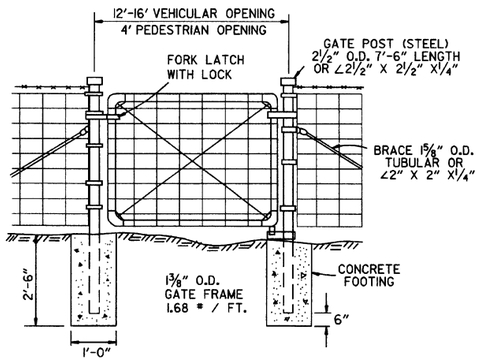


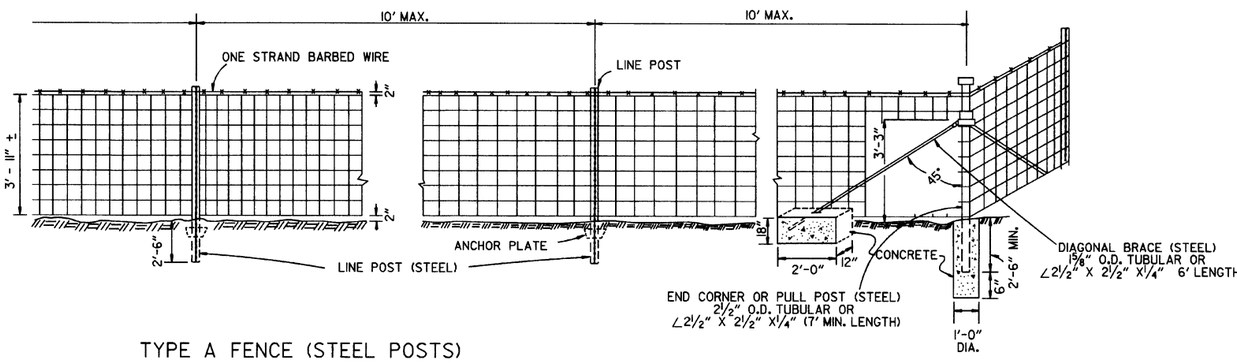




NOTE: STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE A FENCE (WOOD POSTS)





TYPE A FENCE (STEEL POSTS)

GENERAL NOTES:

STEEL LINE POSTS SHALL BE GALVANIZED, 7 FT. IN LENGTH.

TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK).

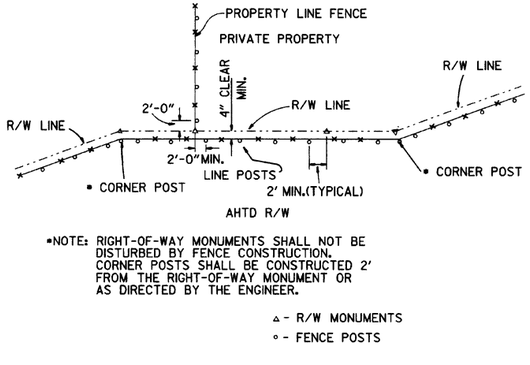
THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF WOOD LINE POSTS OF 7' LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

GATE HINGES AND LATCHES WITH LOCKS TO BE OF A TYPE APPROVED BY THE ENGINEER. DRIVEWAY GATES, EITHER SINGLE 12' OR 16' OR DOUBLE 6' TO 8' OPENINGS OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE FOR USE BY MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON THE PLANS OR AS DESIGNATED BY THE ENGINEER.

AT STREAM CROSSINGS THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF BANK TO THE BRIDGE STRUCTURE, A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFIEICNT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO THE BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

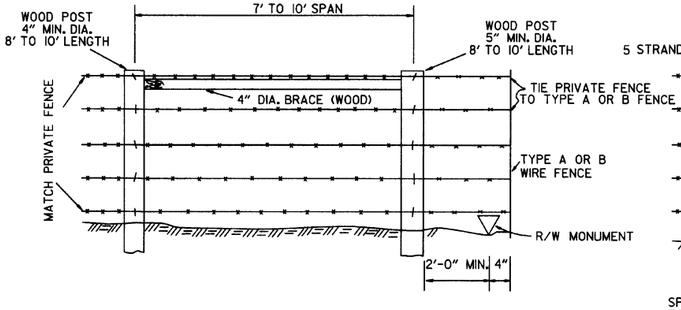
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD"; AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRE A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.



*NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

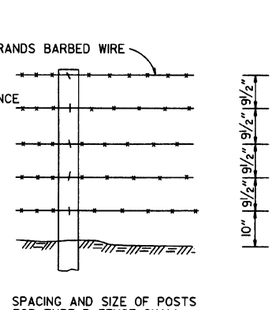
△ - R/W MONUMENTS
○ - FENCE POSTS

RIGHT-OF-WAY FENCE LOCATION



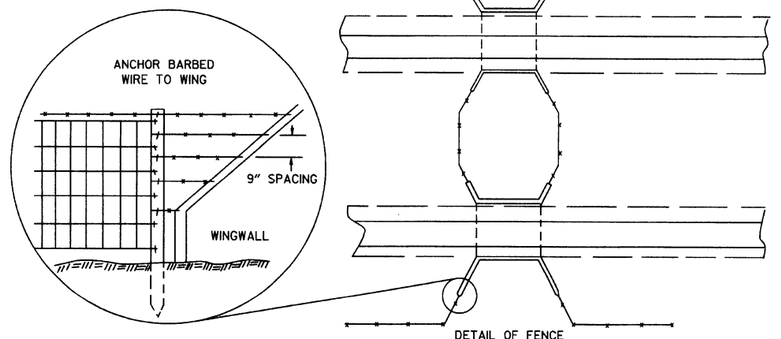
WHERE EXISTING PRIVATE FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN WITH TYPE A FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.

PRIVATE FENCE TERMINAL INSTALLATION



SPACING AND SIZE OF POSTS FOR TYPE B FENCE SHALL BE THE SAME AS TYPE A FENCE.

TYPE B FENCE



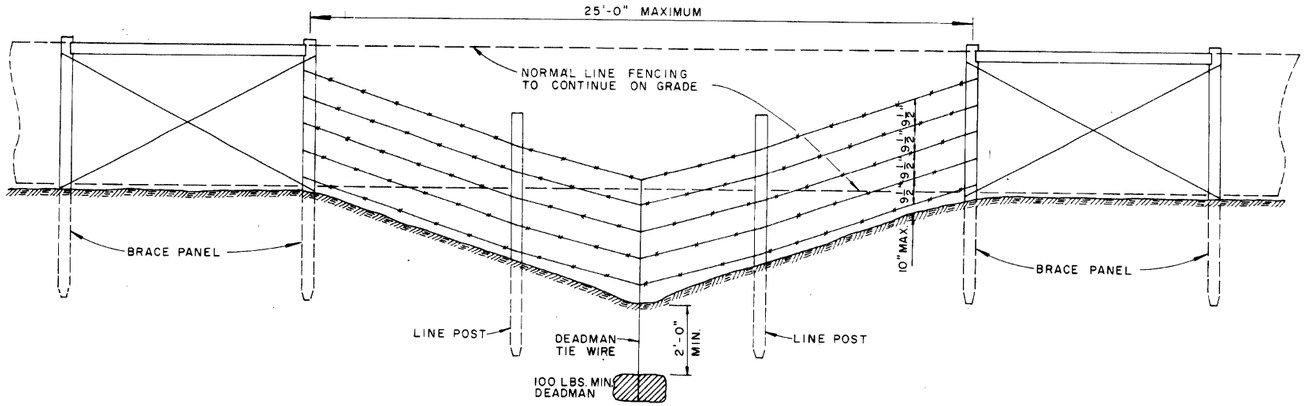
DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

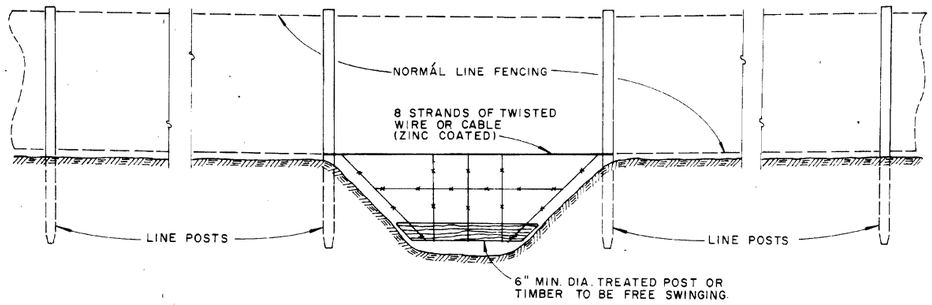
DATE	REVISION	DATE FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	ADDED CORNER POST NOTE	6-2-94
8-5-93	REVISED R-O-W LOCATION DETAIL	8-5-93
10-1-92	ADDED STAPLE NOTE	
8-2-90	REV'D PULL POST LENGTH	
11-30-89	DELETED CLASS CONC.	
7-15-88	ADDED SPLICE NOTES	
7-15-88	ADDED HEIGHT DIMENSION	
4-3-87	REVISED VARIOUS NOTES	
	AND GENERAL NOTES	
11-1-84	MAX. POST SPACING	
1-4-83	MIN. DIA. LINE POST	
10-2-72	REVISED & REDRAWN	

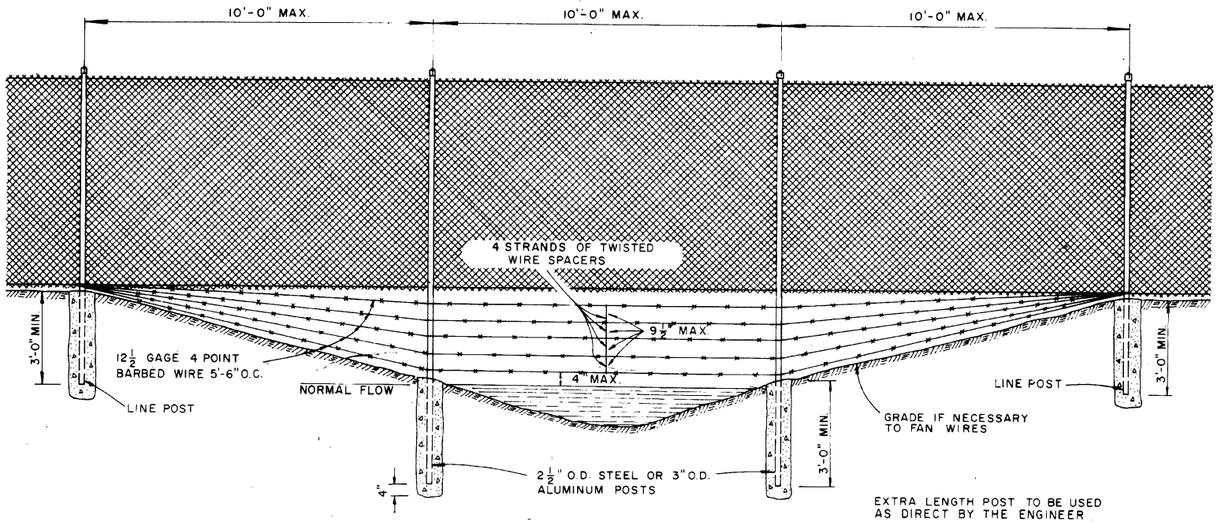
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE A AND B

STANDARD DRAWING WF-1







GENERAL NOTES:

THESE INSTALLATIONS TO BE USED WHERE NORMAL FENCING INSTALLATION WOULD CAUSE THE COLLECTING OF DRIFT IN THE CHANNEL OR THE DEPRESSION WILL NOT PERMIT NORMAL INSTALLATION. INSTALLATIONS WILL BE MADE ONLY WHERE DIRECTED BY THE ENGINEER.

WHEN A FENCE LINE APPROACHES A DITCH, GULLY OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP OFF THAT THE FENCE MAY BE STRUNG TO THE POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.

IN TERRAIN OF SUCH EXTREME IRREGULARITY THAT MINOR GRADING WILL NOT BE FEASIBLE, THE NORMAL FENCE SHALL CONTINUE ON GRADE AND THE GULLIES OR DEPRESSIONS TREATED BY AUXILIARY FENCES AS SHOWN.

PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

DATE	REVISION	DATE FILM'D.
4-20-79	REVISED TOP RAIL & TENSION WIRE	696-4-20-79
10-2-72	REVISED & REDRAWN	529 10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

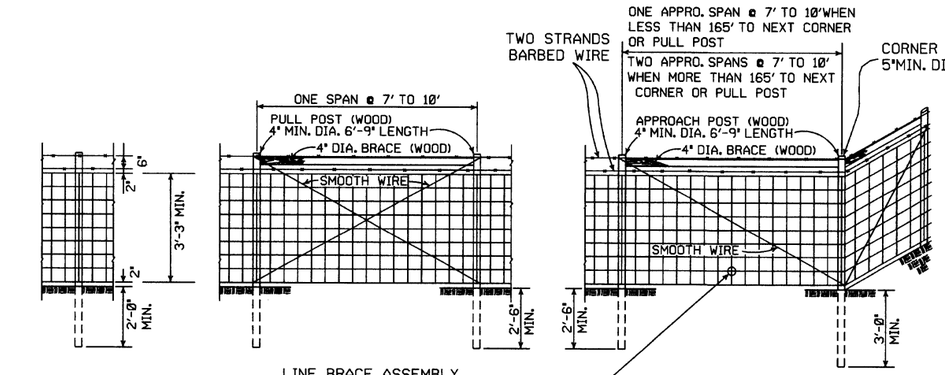
WIRE FENCE WATER GAPS

STANDARD DRAWING

WF-2

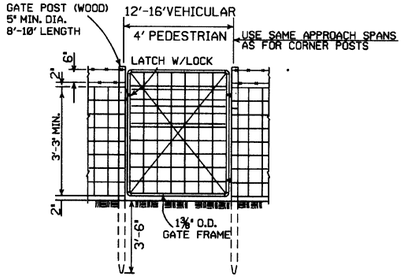
1M—11-71—67001—PPABC

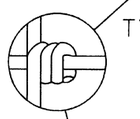
TYPE C FENCE (WOOD POSTS)



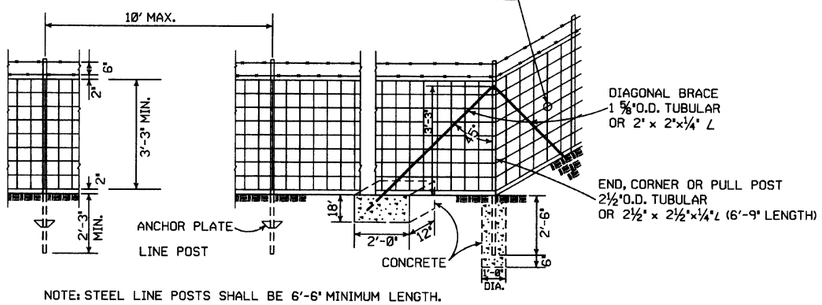
LINE POST
3" MIN. DIA. 6'-3" LENGTH
MAX. SPACING TO BE 10'-0"

LINE BRACE ASSEMBLY
MAX. SPACING TO BE 330'

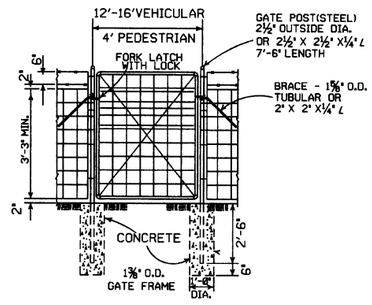


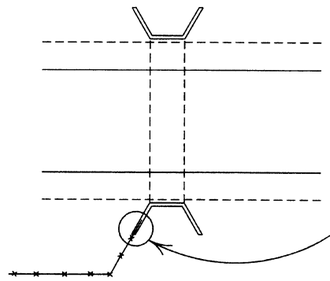


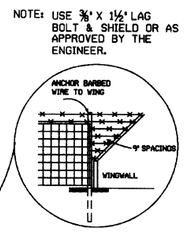
OTHER APPROVED TIES WILL BE PERMITTED



NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.







DETAIL OF FENCE CONSTRUCTION
AT LARGE CULVERTS
(5' IN HEIGHT AND OVER)

GENERAL NOTES:

STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED. TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE.
AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS SHALL BE - 1" TO +2".
TUBULAR POSTS MUST BE PAINTED OR GALVANIZED.

THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF TIMBER LINE POSTS OF 7 FOOT LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED BY THE ENGINEER.

AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

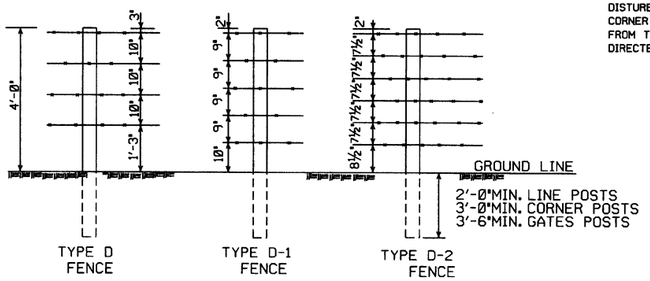
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE 'EYE METHOD' AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE 'WESTERN UNION METHOD' AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

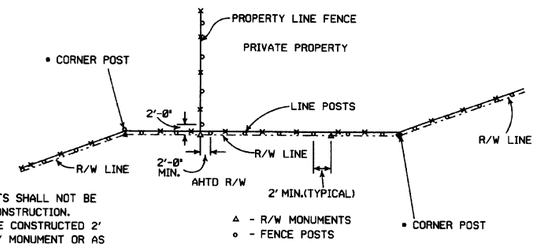
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE C FENCE (STEEL POSTS)

4 STRANDS BARBED WIRE (D)
5 STRANDS BARBED WIRE (D-1)
6 STRANDS BARBED WIRE (D-2)

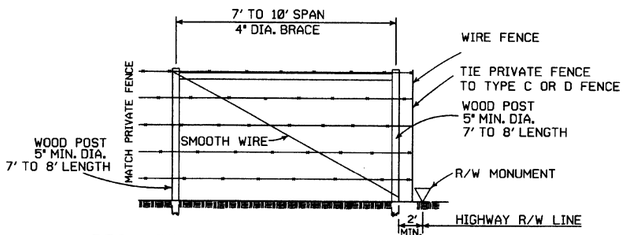


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.

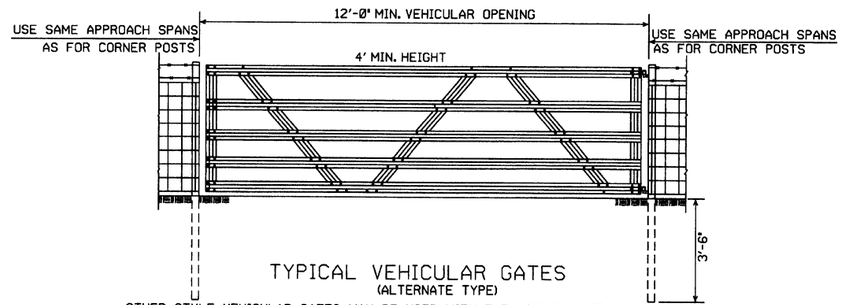


• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION
WHERE EXISTING FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN IN TYPE C FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.



TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)
OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
THE METHOD OF SECURING GATE (LATCH AND/OR LOCK) SHALL MEET THE APPROVAL OF THE ENGINEER.

DATE	REVISION	FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
7-15-88	ADDED SPLICE NOTE	700-7-15-88
10-30-87	GENERAL REVISIONS	549-10-30-87
11-1-84	MAX. POST SPACING MIN. WIRE GAUGE	507-11-1-84
1-4-83	MIN. DIA. LINE POST	648-1-4-83
3-2-81	TOLERANCE FOR POST LENGTH	722-3-2-81
12-1-72	ADDED D-1 & FENCE INSTALLATION	564-12-1-72
10-2-72	REVISED AND REDRAWN	540-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE C AND D

STANDARD DRAWING WF-4

BAR LIST FOR VARIOUS SECTIONS OF BARREL

"a" bars: STRAIGHT – In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall-Each. "b" bars: BENT – See Diagram at Right – In Top and Bottom Slabs of Barrel, Alternate with "a" bars. "d" bars: STRAIGHT – Longitudinal in Top Slab of Barrel. "d1" bars: STRAIGHT – Longitudinal in Sidewalls. "e" bars: STRAIGHT – Longitudinal in Bottom Slab of Barrel. "f" bars: STRAIGHT – Verticals in Sidewalls.

Section & Bar Group	Length of Sections	Depth of Cover D	Clear Span S	Clear Height H	"a" Size	"a" Spacing	"a" No. Req'd 3:1	"a" No. Req'd 4:1	"a" Length	"b" Size	"b" Spacing	"b" No. Req'd 3:1	"b" No. Req'd 4:1	"b" Length	"b" X	"d" Size	"d" Spacing	"d" No. Req'd	"d" Length	"d1" Size	"d1" Spacing	"d1" No. Req'd	"d1" Length	"e" Size	"e" Spacing	"e" No. Req'd	"e" Length	"f" Size	"f" Spacing	"f" No. Req'd 3:1	"f" No. Req'd 4:1	"f" Length
SECTION "A" & BAR GROUP "A"	3:1 = 22'-0"; 4:1 = 32'-0"	0' TO 10'-0"	1 @ 4'	3'	#4	12"	48	68	4'-9"	#4	12"	44	64	5'-7"	4'-8½"	#4	12"	5	33'-3" for 32'-0" Section	#4	12"	6	33'-3" for 32'-0" Section	#4	12"	5	34'-3" for 32'-0" Section	#4	12"	44	64	3'-10"
				4'			48	68	4'-9"			44	64	5'-7"	4'-8½"			5				8				5				44	64	4'-10"
				5'			48	68	4'-9"			44	64	5'-7"	4'-8½"			5				10				5				44	64	5'-10"
				6'			48	68	4'-11"			44	64	5'-9"	4'-10½"			5				12				5				44	64	6'-10"
			1 @ 5'	3'	#5	12"	48	68	5'-9"	#5	12"	44	64	6'-8"	5'-8½"	#4	12"	6		#4	12"	6		#4	12"	6		#4	12"	44	64	3'-11"
				4'			48	68	5'-9"			44	64	6'-8"	5'-8½"			6				8				6				44	64	4'-11"
				5'			48	68	5'-9"			44	64	6'-8"	5'-8½"			6				10				6				44	64	5'-11"
				6'			48	68	5'-11"			44	64	6'-10"	5'-10½"			6				12				6				44	64	6'-11"
				7'			48	68	6'-0"			44	64	6'-11"	5'-11½"			6				14				6			10"	54	78	7'-11"
			1 @ 6'	4'	#5	12"	48	68	6'-9"	#6	12"	44	64	7'-10"	6'-8"	#4	12"	7		#4	12"	8		#4	12"	7		#4	12"	44	64	5'-0"
				5'			48	68	6'-9"			44	64	7'-10"	6'-8"			7				10				7				44	64	6'-0"
				6'			48	68	6'-11"			44	64	8'-0"	6'-10"			7				12				7				44	64	7'-0"
				7'			48	68	7'-0"			44	64	8'-1"	6'-11"			7				14				7			10"	54	78	8'-0"
				8'			48	68	7'-1"			44	64	8'-2"	7'-0"			7				16				7		#5	11"	48	70	9'-0"
SECTION "B" & BAR GROUP "B"	3:1 = 11'-0"; 4:1 = 16'-0"	10'-0" TO 15'-0"	1 @ 4'	3'	#4	12"	22	32	4'-9"	#5	12"	22	32	5'-8"	4'-8½"	#4	12"	5		#4	12"	6		#4	12"	5		#4	12"	22	32	3'-10"
				4'			22	32	4'-9"			22	32	5'-8"	4'-8½"			5				8				5				22	32	4'-10"
				5'			22	32	4'-9"			22	32	5'-8"	4'-8½"			5				10				5				22	32	5'-10"
				6'			22	32	4'-11"			22	32	5'-10"	4'-10½"			5				12				5			10"	28	40	6'-10"
			1 @ 5'	3'	#5	12"	22	32	5'-9"	#6	12"	22	32	6'-10"	5'-8"	#4	12"	6		#4	12"	6		#4	12"	6		#4	12"	22	32	3'-11"
				4'			22	32	5'-9"			22	32	6'-10"	5'-8"			6				8				6				22	32	4'-11"
				5'			22	32	5'-9"			22	32	6'-10"	5'-8"			6				10				6				22	32	5'-11"
				6'			22	32	5'-11"			22	32	7'-0"	5'-10"			6				12				6			11"	24	36	6'-11"
				7'			22	32	6'-0"			22	32	7'-1"	5'-11"			6				14				6		#5	12"	22	32	7'-11"
			1 @ 6'	4'	#6	12"	22	32	6'-9"	#6	12"	22	32	7'-10"	6'-8"	#4	12"	7		#4	12"	8		#4	12"	7		#4	12"	22	32	5'-1"
				5'			22	32	6'-9"			22	32	7'-10"	6'-8"			7				10				7				22	32	6'-1"
				6'			22	32	6'-11"			22	32	8'-0"	6'-10"			7				12				7			10"	28	40	7'-1"
				7'			22	32	7'-0"			22	32	8'-1"	6'-11"			7				14				7		#5	11"	24	34	8'-1"
				8'			22	32	7'-1"			22	32	8'-2"	7'-0"			7				16				7		#6	12"	22	32	9'-1"
SECTION "C" & BAR GROUP "C"	3:1 = 11'-0"; 4:1 = 16'-0"	15'-0" TO 20'-0"	1 @ 4'	3'	#5	12"	22	32	4'-9"	#6	12"	22	32	5'-8"	4'-8½"	#4	12"	5	34'-3" for 33'-0" Length Section	#4	12"	6	34'-3" for 33'-0" Length Section	#4	12"	5	34'-3" for 33'-0" Length Section	#4	12"	22	32	3'-10"
				4'			22	32	4'-9"			22	32	5'-8"	4'-8½"			5				8				5				22	32	4'-10"
				5'			22	32	4'-9"			22	32	5'-8"	4'-8½"			5				10				5			10"	28	40	5'-10"
				6'			22	32	4'-11"			22	32	5'-10"	4'-10½"			5				12				5		#5	12"	22	32	6'-10"
			1 @ 5'	3'	#5	11"	24	36	5'-9"	#6	11"	24	34	6'-10"	5'-8"	#4	12"	6		#4	12"	6		#4	12"	6		#4	12"	22	32	4'-0"
				4'			24	36	5'-9"			24	34	6'-10"	5'-8"			6				8				6				22	32	5'-0"
				5'			24	36	5'-9"			24	34	6'-10"	5'-8"			6				10				6			11"	24	36	6'-0"
				6'			24	36	5'-11"			24	34	7'-0"	5'-10"			6				12				6		#5	12"	22	32	7'-0"
				7'			24	36	6'-0"			24	34	7'-1"	5'-11"			6				14				6		#6	12"	22	32	8'-0"
			1 @ 6'	4'	#6	11"	24	36	6'-9"	#6	11"	24	34	7'-10"	6'-8"	#4	12"	7		#4	12"	8		#4	12"	7		#4	12"	22	32	5'-2"
				5'			24	36	6'-9"			24	34	7'-10"	6'-8"			7				10				7				22	32	6'-2"
				6'			24	36	6'-11"			24	34	8'-0"	6'-10"			7				12				7		#5	12"	22	32	7'-2"
				7'			24	36	7'-0"			24	34	8'-1"	6'-11"			7				14				7		#6	12"	22	32	8'-2"
				8'			24	36	7'-1"			24	34	8'-2"	7'-0"			7				16				7			10"	26	38	9'-2"
SECTION "D" & BAR GROUP "D"	3:1 = 11'-0"; 4:1 = 16'-0"	20'-0" TO 25'-0"	1 @ 4'	3'	#5	11"	24	36	4'-9"	#5	11"	24	34	5'-8"	4'-8½"	#4	12"	5		#4	12"	6		#4	12"	5		#4	12"	22	32	3'-11"
				4'			24	36	4'-9"			24	34	5'-8"	4'-8½"			5				8				5				22	32	4'-11"
				5'			24	36	4'-9"			24	34	5'-8"	4'-8½"			5				10				5		#5	12"	22	32	5'-11"
				6'			24	36	4'-11"			24	34	5'-10"	4'-10½"			5				12				5			10"	26	38	6'-11"
			1 @ 5'	3'	#6	12"	22	32	5'-9"	#6	12"	22	32	6'-10"	5'-8"	#4	12"	6		#4	12"	6		#4	12"	6		#4	12"	22	32	4'-1"
				4'			22	32	5'-9"			22	32	6'-10"	5'-8"			6				8				6				22	32	5'-1"
				5'			22	32	5'-9"			22	32	6'-11"	5'-9"			6				10				6			11"	24	34	6'-1"
				6'			22	32	5'-11"			22	32	7'-1"	5'-11"			6				12				6		#5	11"	24	34	7'-1"
				7'			22	32	6'-1"			22	32	7'-2"	6'-0"			6				14				6		#6	12"	22	32	8'-1"
			1 @ 6'	4'	#7	12"	22	32	6'-9"	#6	12"	22	32	7'-10"	6'-8"	#4	12"	7		#4	12"	8		#4	12"	7		#4	12"	22	32	5'-4"
				5'			22	32	6'-10"			22	32	7'-11"	6'-9"			7				10				7				22	32	6'-4"
				6'			22	32	6'-11"			22	32	8'-1"	6'-11"			7				12				7		#5	12"	22	32	7'-4"
				7'			22	32	7'-1"			22	32	8'-2"	7'-0"			7				14				7		#6	12"	22	32	8'-4"
				8'			22	32	7'-2"			22	32	8'-4"	7'-2"			7				16				7			10"	26	40	9'-4"
SECTION "E" & BAR GROUP "E"	3:1 = 11'-0"; 4:1 = 16'-0"	25'-0" TO 30'-0"	1 @ 4'	3'	#6	12"	22	32	4'-9"	#5	12"	22	32	5'-8"	4'-8½"	#4	12"	5		#4	12"	6		#4	12"	5		#4	12"	22	32	4'-0"
				4'			22	32	4'-9"			22	32	5'-8"	4'-8½"			5				8				5				22	32	5'-0"
				5'			22	32	4'-10"			22	32	5'-9"	4'-9½"			5				10				5		#5	12"	22	32	6'-0"
				6'			22	32	5'-0"			22	32	5'-11"	4'-11½"			5				12				5		#6	12"	22	32	7'-0"
			1 @ 5'	3'	#6	11"	24	34	5'-9"	#6	11"	24	36	6'-10"	5'-8"	#4	12"	6		#4	12"	6		#4	12"	6		#4	12"	22	32	4'-3"
				4'			24	34	5'-9"			24	36	6'-10"	5'-8"			6				8				6				22	32	5'-3"
				5'			24	37	5'-10"			24	36	7'-0"	5'-10"			6				10				6			10"	28	40	6'-3"
				6'			24	34	6'-0"			24	36	7'-2"	6'-0"			6				12				6		#5	11"	24	36	7'-3"
				7'			24	34	6'-2"			24	36	7'-3"	6'-1"			6				14				6		#6	11"	24	34	8'-3"
			1 @ 6'	4'	#7	11"	24	34	6'-9"	#6	11"	24	36	7'-10"	6'-8"	#4	11"	8		#4	12"	8		#4	11"	8		#4	12"	22	32	5'-5"
				5'			24	34	6'-11"			24	36	8'-0"	6'-10"			8				10				8			11"	24	36	6'-5"
				6'			24	34	7'-1"			24	36	8'-2"	7'-0"			8				12				8		#5	12"	22	32	7'-5"
				7'			24	34	7'-2"			24	36	8'-4"	7'-2"			8				14				8		#6	12"	22	32	8'-5"
				8'			24	34	7'-4"			24	36	8'-5"	7'-3"			8				16				8			10"	26	38	9'-5"
SECTION "F" & BAR GROUP "F"	3:1 = 11'-0"; 4:1 = 16'-0"	30'-0" TO 35'-0"	1 @ 4'	3'	#6	13"	20	30	4'-9"	#6	13"	20	30	5'-10"	4'-8"	#4	12	5		#4	12"	6		#4	12"	5		#4	12"	22	32	4'-1"
				4'			20	30	4'-9"			20	30	5'-10"	4'-8"			5				8				5				22	32	5'-1"
				5'			20	30	4'-11"			20	30	6'-0"	4'-10"			5				10				5		#5	12"	22	32	6'-1"
				6'			20	30	5'-1"			20	30	6'-2"	5'-0"			5				12				5		#6	12"	22	32	7'-1"
			1 @ 5'	3'	#7	12"	22	32	5'-9"	#6	12"	22	32	6'-10"	5'-8"	#4	10½"	7		#4	12"	6		#4	10½"	7		#4	12"	22	32	4'-4"
				4'			22	32	5'-9"			22	32	6'-11"	5'-9"			7				8				7				22	32	5'-4"
				5'			22	32	5'-11"			22	32	7'-1"	5'-11"			7				10				7			10"	26	36	6'-4"
				6'			22	32	6'-1"			22	32	7'-3"	6'-1"			7				12				7		#5	11"	24	34	7'-4"
				7'			22	32	6'-3"			22	32	7'-4"	6'-2"			7				14				7		#6	11"	24	36	8'-4"
	Varies with Length of Barrel	30'-0"	1 @ 6'	4'	#7	12"	Varies with Length of Barrel	Varies with Length of Barrel	6'-10"	#7	12"	Varies with Length of Barrel	Varies with Length of Barrel	8'-1"	6'-9"	#4	9½"	9	Varies with Length of Barrel	#4	12"	8	Varies with Length of Barrel	#4	9½"	9	Varies with Length of Barrel	#4	12"	Varies with Length of Barrel	Varies with Length of Barrel	5'-7"
				5'					7'-0"					8'-3"	6'-11"			9				10				9			10"			6'-7"
				6'					7'-2"					8'-5"	7'-1"			9				12				9		#5	12"			7'-7"
				7'					7'-4"					8'-7"	7'-3"			9				14				9		#6	12"			8'-7"
				8'					7'-5"					8'-8"	7'-4"			9				16				9			10"			9'-7"
SECTION "G" & BAR GROUP "G"	Varies with Length of Barrel	35'-0" TO 40'-0"	1 @ 4'	3'	#6	12"			4'-9"	#6	12"			5'-10"	4'-8"	#4	10½"	6		#4	12"	6		#4	10½"	6		#4	12"			4'-2"
				4'					4'-10"					5'-11"	4'-9"			6				8				6						5'-2"
				5'					5'-0"					6'-1"	4'-11"			6				10				6		#5	12"			6'-2"
				6'					5'-2"					6'-3"	5'-1"			6				12				6		#6	12"			7'-2"
			1 @ 5'	3'	#7	11"			5'-9"	#6	11"			6'-10"	5'-8"	#4	10½"	7		#4	12"	6		#4	10½"	7		#4	12"			4'-5"
				4'					5'-10"					7'-0"	5'-10"			7				8				7						5'-5"
				5'					6'-0"					7'-2"	6'-0"			7				10				7			10"			6'-5"
				6'					6'-2"					7'-4"	6'-2"			7				12				7		#5	11"			7'-5"
				7'					6'-4"					7'-5"	6'-3"			7				14				7		#6	11"			8'-5"

NOTE:- Bars for each Section to be marked with the Section Letter, thus for Section B, the bars should be marked Ba, Bb, Bd, Bd1, Be and Bf.

Designed By:- W.C.H. 9-5-62 Checked By:- R.W.S. 11-8-62
Drawn By:- W.C.H. 10-10-62 Checked By:- J.E.M. 11-12-62
Quantities By:- W.C.H. 11-7-62 Checked By:- J.E.M. 11-16-62

DIMENSIONS / QUANTITIES

Max. Design Depth of Cover D	Clear Span S	Clear Height H	Sq. Ft. Opening A	Overall Width OW	Thickness of Top Slab T	Thickness of Sidewalls C	Thickness of Bottom Slab B	Overall Height OH	Class S Conc. per Lin. Ft. of Barrel (Cu. Yd.)	Reinforcing Steel per Lin. Ft. of Barrel (Lb.)	Additional per Lap (Lb.)	Additional Two Headwalls & Aprons (Lb.)
SECTION "A" – 10'-0"	1 @ 4'	3'	12	5'-0"	6½"	6"	6½"	4'-1"	0.312	29.62	13.36	51.44
		4'	16	5'-0"		6"		5'-1"	0.349	32.29	15.03	51.44
		5'	20	5'-0"		6"		6'-1"	0.386	34.96	16.70	51.44
		6'	24	5'-2"		7"		7'-1"	0.467	38.08	18.37	52.33
	1 @ 5'	3'	15	6'-0"	7"	6"	7"	4'-2"	0.370	43.16	15.03	79.37
		4'	20	6'-0"		6"		5'-2"	0.407	45.83	16.70	79.37
		5'	25	6'-0"		6"		6'-2"	0.444	48.50	18.37	79.37
		6'	30	6'-2"		7"		7'-2"	0.526	51.87	20.04	80.77
		7'	35	6'-3"		7½"		8'-2"	0.594	57.00	21.71	81.46
	1 @ 6'	4'	24	7'-0"	7½"	6"	7½"	5'-3"	0.472	58.99	18.37	93.29
		5'	30	7'-0"		6"		6'-3"	0.509	61.66	20.04	93.29
		6'	36	7'-2"		7"		7'-3"	0.591	65.18	21.71	94.68
		7'	42	7'-3"		7½"		8'-3"	0.660	70.41	23.38	95.37
		8'	48	7'-4"		8"		9'-3"	0.735	79.83	25.05	96.07
SECTION "B" – 15'-0"	1 @ 4'	3'	12	5'-0"	6½"	6"	6½"	4'-1"	0.312	33.98	13.36	
		4'	16	5'-0"		6"		5'-1"	0.349	36.65	15.03	
		5'	20	5'-0"		6"		6'-1"	0.386	39.32	16.70	
		6'	24	5'-2"		7"		7'-1"	0.467	44.39	18.37	
	1 @ 5'	3'	16	6'-0"	7"	6"	7"	4'-2"	0.370	49.78	15.03	
		4'	20	6'-0"		6"		5'-2"	0.407	52.45	16.70	
		5'	25	6'-0"		6"		6'-2"	0.444	55.12	18.37	
		6'	30	6'-2"		7"		7'-2"	0.526	59.48	20.04	
		7'	35	6'-3"		7½"		8'-2"	0.594	67.68	21.71	
	1 @ 6'	4'	24	7'-0"	8"	6"	8¼"	5'-4¼"	0.499	65.30	18.37	
		5'	30	7'-0"		6"		6'-4¼"	0.536	66.63	20.04	
		6'	36	7'-2"		7"		7'-4¼"	0.619	73.53	21.71	
		7'	42	7'-3"		7½"		8'-4¼"	0.688	82.41	23.38	
		8'	48	7'-4"		8"		9'-4¼"	0.763	93.19	25.05	
SECTION "C" – 20'-0"	1 @ 4'	3'	12	5'-0"	6½"	6"	6¾"	4'-1¼"	0.316	37.54	13.36	
		4'	16	5'-0"		6"		5'-1¼"	0.353	40.21	15.03	
		5'	20	5'-0"		6"		6'-1¼"	0.390	44.44	16.70	
		6'	24	5'-2"		7"		7'-1¼"	0.471	51.38	18.37	
	1 @ 5'	3'	15	6'-0"	7½"	6"	7¾"	4'-3¼"	0.394	52.85	15.03	
		4'	20	6'-0"		6"		5'-3¼"	0.431	55.52	16.70	
		5'	25	6'-0"		6"		6'-3¼"	0.468	58.92	18.37	
		6'	30	6'-2"		7"		7'-3¼"	0.550	67.04	20.04	
		7'	35	6'-3"		7½"		8'-3¼"	0.618	78.27	21.71	
	1 @ 6'	4'	24	7'-0"	8½"	6"	9"	5'-5½"	0.526	69.39	18.37	
		5'	30	7'-0"		6"		6'-5½"	0.563	72.06	20.04	
		6'	36	7'-2"		7"		7'-5½"	0.646	81.20	21.71	
		7'	42	7'-3"		7½"		8'-5½"	0.716	92.67	23.38	
		8'	48	7'-4"		8"		9'-5½"	0.791	103.06	25.05	
SECTION "D" – 25'-0"	1 @ 4'	3'	12	5'-0"	6¾"	6"	7¼"	4'-2"	0.327	39.63	13.36	
		4'	16	5'-0"		6"		5'-2"	0.364	42.30	15.03	
		5'	20	5'-0"		6"		6'-2"	0.401	49.41	16.70	
		6'	24	5'-2"		7"		7'-2"	0.483	55.14	18.37	
	1 @ 5'	3'	15	6'-0"	8"	6"	8½"	4'-4½"	0.417	55.28	15.03	
		4'	20	6'-0"		6"		5'-4½"	0.454	57.95	16.70	
		5'	25	6'-0½"		6¼"		6'-4½"	0.501	61.61	18.37	
		6'	30	6'-2½"		7¼"		7'-4½"	0.585	71.20	20.04	
		7'	35	6'-4"		8"		8'-4½"	0.668	81.45	21.71	
	1 @ 6'	4'	24	7'-0"	9¼"	6"	9¾"	5'-7"	0.559	72.95	18.37	
		5'	30	7'-1"		6½"		6'-7"	0.616	76.21	20.04	
		6'	36	7'-2½"		7¼"		7'-7"	0.691	85.22	21.71	
		7'	42	7'-4"		8"		8'-7"	0.776	97.23	23.38	
		8'	48	7'-5½"		8¾"		9'-7"	0.869	108.02	25.05	
SECTION "E" – 30'-0"	1 @ 4'	3'	12	5'-0"	7¼"	6"	7¾"	4'-3"	0.343	42.12	13.36	
		4'	16	5'-0"		6"		5'-3"	0.380	44.79	15.03	
		5'	20	5'-1"		6½"		6'-3"	0.436	52.39	16.70	
		6'	24	5'-3"		7½"		7'-3"	0.521	63.09	18.37	
	1 @ 5'	3'	15	6'-0"	8¾"	6"	9¼"	4'-6"	0.444	58.94	15.03	
		4'	20	6'-0"		6"		5'-6"	0.481	61.61	16.70	
		5'	25	6'-1½"		6¾"		6'-6"	0.549	66.77	18.37	
		6'	30	6'-3½"		7¾"		7'-6"	0.637	75.68	20.04	
		7'	35	6'-5"		8½"		8'-6"	0.724	88.37	21.71	
	1 @ 6'	4'	24	7'-0"	10"	6"	10½"	5'-8½"	0.591	79.04	20.04	
		5'	30	7'-2"		7"		6'-8½"	0.669	83.78	21.71	
		6'	36	7'-4"		8"		7'-8½"	0.760	92.53	23.38	
		7'	42	7'-5½"		8¾"		8'-8½"	0.850	104.59	25.05	
		8'	48	7'-7"		9½"		9'-8½"	0.949	115.61	26.72	
SECTION "F" – 35'-0"	1 @ 4'	3'	12	5'-0"	7¾"	6"	8¼"	4'-4"	0.358	45.49	13.36	
		4'	16	5'-0"		6"		5'-4"	0.395	48.16	15.03	
		5'	20	5'-2"		7"		6'-4"	0.471	56.32	16.70	
		6'	24	5'-4"		8"		7'-4"	0.560	67.17	18.37	
	1 @ 5'	3'	15	6'-0"	9¼"	6"	9¾"	4'-7"	0.463	63.18	16.70	
		4'	20	6'-0½"		6¼"		5'-7"	0.509	66.11	18.37	
		5'	25	6'-2½"		7¼"		6'-7"	0.588	71.65	20.04	
		6'	30	6'-4½"		8¼"		7'-7"	0.679	80.70	21.71	
		7'	35	6'-6"		9"		8'-7"	0.770	93.59	23.38	
	1 @ 6'	4'	24	7'-1"	10¾"	6½"	11¼"	5'-10"	0.641	85.81	21.71	
		5'	30	7'-3"		7½"		6'-10"	0.724	91.60	23.38	
		6'	36	7'-5"		8½"		7'-10"	0.818	99.56	25.05	
		7'	42	7'-7"		9½"		8'-10"	0.925	112.23	26.72	
		8'	48	7'-8½"		10¼"		9'-10"	1.030	123.01	28.39	
SECTION "G" – 40'-0"	1 @ 4'	3'	12	5'-0"	8¼"	6"	8¾"	4'-5"	0.373	49.38	15.03	
		4'	16	5'-1"		6½"		5'-5"	0.427	52.56	16.70	
		5'	20	5'-3"		7½"		6'-5"	0.507	60.85	18.37	
		6'	24	5'-5"		8½"		7'-5"	0.599	71.86	20.04	
	1 @ 5'	3'	15	6'-0"	9¾"	6"	10¼"	4'-8"	0.481	67.30	16.70	
		4'	20	6'-1½"		6¾"		5'-8"	0.595	70.89	18.37	
		5'	25	6'-3½"		7¾"		6'-8"	0.628	76.56	20.04	
		6'	30	6'-5½"		8¾"		7'-8"	0.723	85.78	21.71	
		7'	35	6'-7"		9½"		8'-8"	0.817	98.84	23.38	

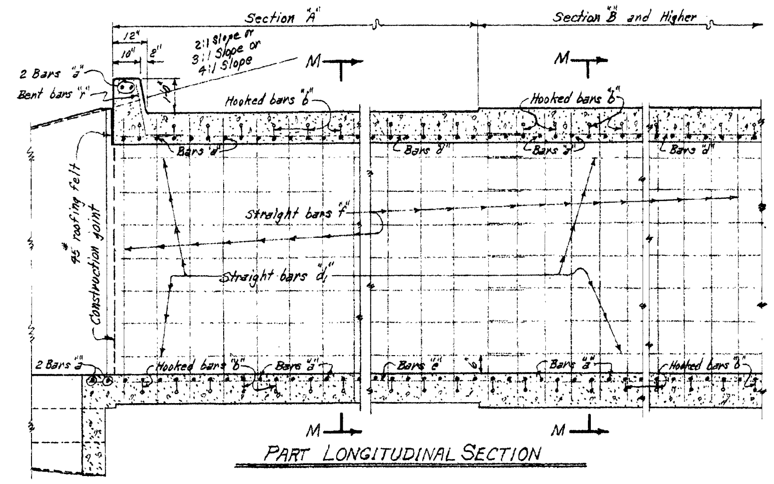
NOTE: For details of wings and bar lists, see Drawing Nos. W-X002-1, W-X003-1, and W-X004-1.

Bar Size	Pin Diam.	K	Add for 2 Hooks	Bars "b"
#4	2"	4"	0'-10½"	
#5	2½"	4½"	0'-11½"	
#6	3"	5"	1'-2"	
#7	3½"	5¾"	1'-4"	

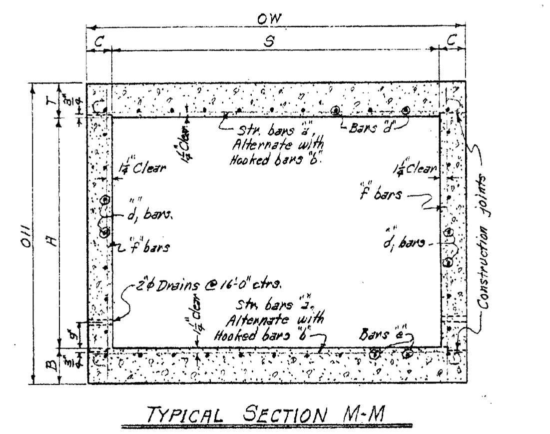
NOTE:- Dimensions are to centers of bars.

DOWEL BARS FOR TWO HEADWALLS

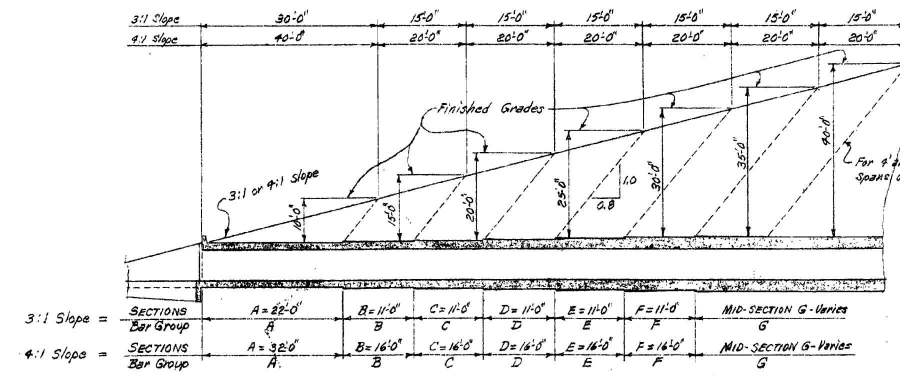
Span	Size	Spacing	No. Req'd	Length	X	Bars "r" Dowel bars in Headwalls
4'	#4	11"	12	2'-5"	1'-2½"	
5'	#4	11½"	14	2'-6"	1'-3"	
6'	#4	12"	16	2'-7"	1'-3½"	



PART LONGITUDINAL SECTION



TYPICAL SECTION M-M



TYPICAL LONGITUDINAL SECTION-SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections, with Bar Groups to be shown on Cross Section Sheets.

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

Depths of Cover	End Sections A	B	C	D	E	F	Mid-Section and Bar Group
5.0' to 9.5'	✓						A
10.0' to 14.5'	✓						B
15.0' to 19.5'	✓	✓					C
20.0' to 24.5'	✓	✓	✓				D
25.0' to 29.5'	✓	✓	✓	✓			E
30.0' to 34.5'	✓	✓	✓	✓	✓		F
35.0' to 40.0'	✓	✓	✓	✓	✓	✓	G

LENGTH OF SECTIONS FOR SKEWED CULVERTS

Skew Angle	Sec. of Skew Angle	3:1 Slopes Sections A	3:1 Slopes Sections B,C,D,E, or F	4:1 Slopes Sections A	4:1 Slopes Sections B,C,D,E, or F
0°	1.0	22.0'	11.0'	32.0'	16.0'
15°	1.0353	22.776'	11.388'	33.129'	16.564'
30°	1.1547	25.403'	12.702'	36.950'	18.475'
45°	1.4142	31.113'	15.556'	45.255'	22.627'

GENERAL NOTES:-
- CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
- REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
- BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diameters.
- CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls and slabs shall be only where shown on plans.
- SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

NOTE:- This drawing to be used in conjunction with Standard Drawing Nos. W-X002-1, W-X003-1 and W-X004-1.

DESIGN LIVE LOAD
H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" Ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200 #/□"
Reinforcing Steel 20,000 #/□"

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

4', 5' & 6' SPANS SINGLES — 3:1 OR 4:1 SLOPES OVER 5'-0" COVER

STANDARD DRAWING NO. R-100X-X1

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			496	
JOB No.					

BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH - TWO 30° SKEWED ENDS.

"a" bars: STRAIGHT – In Top and Bottom Slabs of Barrel. "a₁" bars ▼: STRAIGHT – In Top and Bottom Slab of Barrel - (Four of each Length).

DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	"a" SIZE	"a" SPACING	"a" NO. REQ'D	"a" LENGTH	"a₁" SIZE	"a₁" SPACING	"a₁" NO. REQ'D	"a₁" LENGTH MAX.	"a₁" LENGTH MIN.
0'-0" TO 5'-0" MAXIMUM	1 @ 4'	2'	#5	13"	108	4'-9"	#5	13"	4	2'-11"	—
		3'			108	4'-9"			4	"	—
		4'			108	4'-9"			4	"	—
		5'			108	4'-9"			4	"	—
		6'			108	4'-11"			4	3'-1"	—
	1 @ 5'	3'	#6	13"	108	5'-9"	#6	13"	4	3'-11"	—
		4'			108	5'-9"			4	"	—
		5'			108	5'-9"			4	"	—
		6'			108	5'-11"			4	4'-1"	—
		7'			108	6'-0"			4	4'-2"	—
	1 @ 6'	3'	#6	12"	114	6'-9"	#6	12"	8	5'-0"	3'-3"
		4'			114	6'-9"			8	"	"
		5'			114	6'-9"			8	"	"
		6'			114	6'-11"			8	5'-2"	3'-5"
		7'			114	7'-0"			8	5'-8"	3'-6"
		8'			114	7'-1"			8	5'-4"	3'-7"
	1 @ 7'	4'	#6	11"	124	7'-9"	#6	11"	12	6'-2"	3'-0"
		5'			124	7'-9"			12	"	"
		6'			124	7'-11"			12	6'-4"	3'-2"
		7'			124	8'-0"			12	6'-5"	3'-3"
		8'			124	8'-1"			12	6'-6"	3'-4"
		9'			124	8'-3"			12	6'-8"	3'-6"
	1 @ 8'	4'	#7	12"	112	8'-9"	#7	12"	12	7'-0"	3'-6"
		5'			112	8'-11"			12	7'-2"	3'-8"
		6'			112	8'-11"			12	"	"
		7'			112	9'-0"			12	7'-3"	3'-9"
		8'			112	9'-1"			12	7'-4"	3'-10"
		9'			112	9'-3"			12	7'-6"	4'-0"
		10'			112	9'-5"			16	7'-8"	2'-5"
	1 @ 9'	5'	#7	11"	122	9'-11"	#7	11"	16	8'-4"	3'-7"
		6'			122	10'-0"			16	8'-5"	3'-8"
		7'			122	10'-0"			16	"	"
		8'			122	10'-1"			16	8'-6"	3'-9"
		9'			120	10'-3"			20	8'-8"	2'-4"
		10'			120	10'-5"			20	8'-10"	2'-6"
		11'			120	10'-7"			20	9'-0"	2'-8"
	1 @ 10'	5'	#7	12"	110	10'-11"	#7	12"	16	9'-2"	3'-11"
		6'			110	11'-0"			16	9'-3"	4'-0"
		7'			110	11'-0"			16	"	"
		8'			110	11'-1"			20	9'-4"	2'-4"
		9'			110	11'-3"			20	9'-6"	2'-6"
		10'			110	11'-5"			20	9'-8"	2'-8"
		11'			110	11'-7"			20	9'-10"	2'-10"
		12'			110	11'-9"			20	10'-0"	3'-0"
	1 @ 11'	6'	#7	11"	118	12'-1"	#7	11"	24	10'-6"	2'-7"
		7'			118	12'-1"			24	"	"
		8'			118	12'-1"			24	"	"
		9'			118	12'-3"			24	10'-8"	2'-9"
		10'			118	12'-5"			24	10'-10"	2'-11"
		11'			118	12'-7"			24	11'-0"	3'-1"
		12'			118	12'-9"			24	11'-2"	3'-3"
	1 @ 12'	6'	#8	12"	108	13'-1"	#8	12"	24	11'-4"	2'-7"
		7'			108	13'-1"			24	"	"
		8'			108	13'-1"			24	"	"
		9'			108	13'-3"			24	11'-6"	2'-9"
		10'			108	13'-5"			24	11'-8"	2'-11"
		11'			108	13'-7"			24	11'-10"	3'-1"
		12'			106	13'-9"			24	12'-0"	3'-3"

"b" bars: BENT - See Diagrams below – In Top and Bottom Slabs of Barrel - hooked. Alternate with "a" bars. "b₁" bars ▼: In Top and Bottom Slabs of Barrel - one end hooked. (Four of each Length) Alternate with "a₁" bars.

S	H	"b" SIZE	"b" SPACING	"b" NO. REQ'D	"b" LENGTH	"b" X	"b₁" SIZE	"b₁" SPACING	"b₁" NO. REQ'D	"b₁" LENGTH MAX.	"b₁" LENGTH MIN.	"b₁" X MAX.	"b₁" X MIN.
1 @ 4'	2'	#6	13"	108	5'-10"	4'-8"	#6	13"	4	4'-5"	—	3'-10"	—
	3'			108	5'-10"	"			4	"	—	"	—
	4'			108	5'-10"	"			4	"	—	"	—
	5'			108	5'-10"	"			4	"	—	"	—
	6'			108	6'-0"	4'-10"			8	4'-8"	2'-8"	4'-0"	2'-1"
1 @ 5'	3'	#6	13"	106	6'-10"	5'-8"	#6	13"	8	5'-5"	3'-6"	4'-10"	2'-11"
	4'			106	6'-10"	"			8	"	"	"	"
	5'			106	6'-10"	"			8	"	"	"	"
	6'			106	7'-0"	5'-10"			8	5'-7"	3'-8"	5'-0"	3'-1"
	7'			106	7'-1"	5'-11"			8	5'-8"	3'-9"	5'-1"	3'-2"
1 @ 6'	3'	#6	12"	114	7'-10"	6'-8"	#6	12"	12	6'-5"	2'-11"	5'-10"	2'-4"
	4'			114	7'-10"	"			12	"	"	"	"
	5'			114	7'-10"	"			12	"		"	"
	6'			114	8'-0"	6'-10"			12	6'-7"	3'-1"	6'-0"	2'-6"
	7'			114	8'-1"	6'-11"			12	6'-8"	3'-2"	6'-1"	2'-7"
	8'			114	8'-2"	7'-0"			12	6'-9"	3'-3"	6'-2"	2'-8"
1 @ 7'	4'	#6	11"	122	8'-10"	7'-8"	#6	11"	12	7'-6"	4'-4"	6'-11"	3'-9"
	5'			122	8'-10"	"			12	"	"	"	"
	6'			122	9'-0"	7'-10"			16	7'-8"	2'-11"	7'-1"	2'-4"
	7'			122	9'-1"	7'-11"			16	7'-9"	3'-0"	7'-2"	2'-5"
	8'			122	9'-2"	8'-0"			16	7'-10"	3'-1"	7'-3"	2'-6"
	9'			122	9'-4"	8'-2"			16	8'-0"	3'-3"	7'-5"	2'-8"
1 @ 8'	4'	#6	12"	112	9'-10"	8'-8"	#6	12"	16	8'-5"	3'-2"	7'-10"	2'-7"
	5'			112	10'-0"	8'-10"			16	8'-7"	3'-4"	8'-0"	2'-9"
	6'			112	10'-0"	"			16	"	"	"	"
	7'			112	10'-1"	8'-11"			16	8'-8"	3'-5"	8'-1"	2'-10"
	8'			112	10'-2"	9'-0"			16	8'-9"	3'-6"	8'-2"	2'-11"
	9'			112	10'-4"	9'-2"			16	8'-11"	3'-8"	8'-4"	3'-1"
	10'			110	10'-6"	9'-4"			16	9'-1"	3'-10"	8'-6"	3'-3"
1 @ 9'	5'	#6	11"	120	11'-0"	9'-10"	#6	11"	20	9'-8"	3'-4"	9'-1"	2'-9"
	6'			120	11'-1"	9'-11"			20	9'-9"	3'-5"	9'-2"	2'-10"
	7'			120	11'-1"	9'-11"			20	"	"	"	"
	8'			120	11'-2"	10'-0"			20	9'-10"	3'-6"	9'-3"	2'-11"
	9'			120	11'-4"	10'-2"			20	10'-0"	3'-8"	9'-5"	3'-1"
	10'			120	11'-6"	10'-4"			20	10'-2"	3'-10"	9'-7"	3'-3"
	11'			120	11'-8"	10'-6"			20	10'-4"	4'-0"	9'-9"	3'-5"
1 @ 10'	5'	#7	12"	110	12'-2"	10'-10"	#7	12"	20	10'-8"	3'-8"	10'-0"	3'-0"
	6'			110	12'-3"	10'-11"			20	10'-9"	3'-9"	10'-1"	3'-1"
	7'			110	12'-3"	"			20	"	"	"	"
	8'			110	12'-4"	11'-0"			20	10'-10"	3'-10"	10'-2"	3'-2"
	9'			108	12'-6"	11'-2"			20	11'-0"	4'-0"	10'-4"	3'-4"
	10'			108	12'-8"	11'-4"			20	11'-2"	4'-2"	10'-6"	3'-6"
	11'			108	12'-10"	11'-6"			20	11'-4"	4'-4"	10'-8"	3'-8"
	12'			108	13'-0"	11'-8"			20	11'-6"	4'-6"	10'-10"	3'-10"
1 @ 11'	6'	#7	11"	118	13'-4"	12'-0"	#7	11"	24	11'-11"	4'-0"	11'-3"	3'-4"
	7'			118	13'-4"	"			24	"	"	"	"
	8'			118	13'-4"	"			24	"	"	"	"
	9'			118	13'-6"	12'-2"			24	12'-1"	4'-2"	11'-5"	3'-6"
	10'			116	13'-8"	12'-4"			24	12'-3"	4'-4"	11'-7"	3'-8"
	11'			116	13'-10"	12'-6"			24	12'-5"	4'-6"	11'-9"	3'-10"
	12'			116	14'-0"	12'-8"			24	12'-7"	4'-8"	11'-11"	4'-0"
1 @ 12'	6'	#7	12"	106	14'-4"	13'-0"	#7	12"	24	12'-10"	4'-1"	12'-2"	3'-5"
	7'			106	14'-4"	"			24	"	"	"	"
	8'			106	14'-4"	"			24	"	"	"	"
	9'			106	14'-6"	13'-2"			24	13'-0"	4'-3"	12'-4"	3'-7"
	10'			106	14'-8"	13'-4"			24	13'-2"	4'-5"	12'-6"	3'-9"
	11'			106	14'-10"	13'-6"			24	13'-4"	4'-7"	12'-8"	3'-11"
	12'			106	15'-0"	13'-8"			24	13'-6"	4'-9"	12'-10"	4'-1"

"d" bars: STRAIGHT – Longitudinal in Top Slab of Barrel. "d₁" bars: Longitudinal in Sidewalls. "e" bars: Longitudinal in Bottom Slab of Barrel. "f" bars: STRAIGHT – Verticals in Sidewalls. "k₁" bars ▼: STRAIGHT – In Bottom of Headwall. "k₂" bars ▼: In Top of Headwall and Apron (2 Each).

S	H	"d" SIZE	"d" SPACING	"d" NO. REQ'D	"d" LENGTH	"d₁" SIZE	"d₁" SPACING	"d₁" NO. REQ'D	"d₁" LENGTH	"e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTH	"f" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	"k₁" SIZE	"k₁" NO. REQ'D	"k₁" LENGTH	"k₂" SIZE	"k₂" NO. REQ'D	"k₂" LENGTH
1 @ 4'	2'	#5	10½"	6	2 @ 30'-8" for 60'-0" Length Barrel. (1'-8" Lap)	#4	12"	4	2 @ 30'-6" for 60'-0" Length Barrel. (1'-3" Lap)	#4	12"	5	2 @ 31'-8" for 60'-0" Length Barrel. (1'-3" Lap)	#4	12"	120	2'-11"	#5	6	5'-6"	#5	8	6'-8"
	3'			6				6				5				120	3'-11"		6	"		8	"
	4'			6				8				5				120	4'-11"		6	"		8	"
	5'			6				10				5				120	5'-11"		6	"		8	"
	6'			6				12				5				120	6'-11"		6	5'-8"		8	6'-10"
1 @ 5'	3'	#5	10½"	7		#4	12"	6		#4	12"	6		#4	12"	120	4'-0"	#6	6	6'-8"	#6	8	7'-10"
	4'			7				8				6				120	5'-0"		6	"		8	"
	5'			7				10				6				120	6'-0"		6	"		8	"
	6'			7				12				6				120	7'-0"		6	6'-10"		8	8'-0"
	7'			7				14				6				120	8'-0"		6	6'-11"		8	8'-1"
1 @ 6'	3'	#5	10½"	8		#4	12"	6		#4	12"	7		#4	12"	120	4'-1"	#6	6	7'-10"	#6	8	9'-0"
	4'			8				8				7				120	5'-1"		6	"		8	"
	5'			8				10				7				120	6'-1"		6	"		8	"
	6'			8				12				7				120	7'-1"		6	8'-0"		8	9'-2"
	7'			8				14				7				120	8'-1"		6	8'-1"		8	9'-3"
	8'			8				16				7		#5	12"	120	9'-1"		6	8'-2"		8	9'-4"
1 @ 7'	4'	#5	10½"	9		#4	12"	8		#4	12"	8		#4	12"	120	5'-2"	#6	6	9'-0"	#6	8	10'-2"
	5'			9				10				8				120	6'-2"		6	"		8	"
	6'			9				12				8				120	7'-2"		6	9'-2"		8	10'-4"
	7'			9				14				8				120	8'-2"		6	9'-3"		8	10'-5"
	8'			9				16				8			10"	144	9'-2"		6	9'-4"		8	10'-6"
	9'			9				18				8		#5	12"	120	10'-2"		6	9'-6"		8	10'-8"
1 @ 8'	4'	#5	10"	11		#4	12"	8		#4	12"	9		#4	12"	120	5'-4"	#7	6	10'-1"	#7	8	11'-3"
	5'			11				10				9				120	6'-4"		6	10'-4"		8	11'-6"
	6'			11				12				9				120	7'-4"		6	"		8	"
	7'			11				14				9				120	8'-4"		6	10'-5"		8	11'-7"
	8'			11				16				9			10"	144	9'-4"		6	10'-6"		8	11'-8"
	9'			11				18				9		#5	12"	120	10'-4"		6	10'-8"		8	11'-10"
	10'			11				20				9			11"	132	11'-4"		6	10'-11"		8	12'-0"
1 @ 9'	5'	#5	10"	12		#4	12"	10		#4	12"	10		#4	12"	120	6'-5"	#7	6	11'-5"	#7	8	12'-7"
	6'			12				12				10				120	7'-5"		6	11'-7"		8	12'-9"
	7'			12				14				10				120	8'-5"		6	"		8	"
	8'			12				16				10			10"	144	9'-5"		6	11'-8"		8	12'-10"
	9'			12				18				10		#5	12"	120	10'-5"		6	11'-10"		8	13'-0"
	10'			12				20				10			11"	132	11'-5"		6	12'-1"		8	13'-2"
	11'			12				22				10			10"	144	12'-5"		6	12'-3"		8	13'-5"
1 @ 10'	5'	#5	10"	13		#4	12"	10		#4	12"	11		#4	12"	120	6'-6"	#7	6	12'-7"	#7	8	13'-9"
	6'			13				12				11				120	7'-6"		6	12'-8"		8	13'-10"
	7'			13				14				11				120	8'-6"		6	"		8	"
	8'			13				16				11			10"	144	9'-6"		6	12'-10"		8	14'-0"
	9'			13				18				11		#5	12"	120	10'-6"		6	13'-0"		8	14'-2"
	10'			13				20				11			11"	132	11'-6"		6	13'-2"		8	14'-4"
	11'			13				22				11			10"	144	12'-6"		6	13'-5"		8	14'-6"
	12'			13				24				11		#6	12"	120	13'-6"		6	13'-7"		8	14'-9"
1 @ 11'	6'	#5	9½"	15		#4	12"	12		#4	12"	12		#4	12"	120	7'-7"	#7	6	14'-0"	#7	8	15'-1"
	7'			15				14				12				120	8'-7"		6	"		8	"
	8'			15				16				12			10"	144	9'-7"		6	"		8	"
	9'			15				18				12		#5	12"	120	10'-7"		6	14'-2"		8	15'-4"
	10'			15				20				12			11"	132	11'-7"		6	14'-4"		8	15'-6"
	11'			15				22				12			10"	144	12'-7"		6	14'-7"		8	15'-8"
	12'			15				24				12		#6	12"	120	13'-7"		6	14'-9"		8	15'-11"
1 @ 12'	6'	#5	9½"	16		#4	12"	12		#4	12"	13		#4	12"	120	7'-9"	#8	6	15'-1"	#8	8	16'-3"
	7'			16				14				13				120	8'-9"		6	"		8	"
	8'			16				16				13			10"	144	9'-9"		6	"		8	"
	9'			16				18				13		#5	12"	120	10'-9"		6	15'-4"		8	16'-6"
	10'			16				20				13			11"	132	11'-9"		6	15'-6"		8	16'-8"
	11'			16				22				13			10"	144	12'-9"		6	15'-8"		8	16'-10"
	12'			16				24				13		#6	12"	120	13'-9"		6	15'-11"		8	17'-0"

▼ These bars are in the skewed portion of barrel only. The length of "a₁" bars and overall length X of "b₁" bars vary by 1'-11" for 13" spacing, 1'-9" for 12" spacing and 1'-7" for 11" spacing.

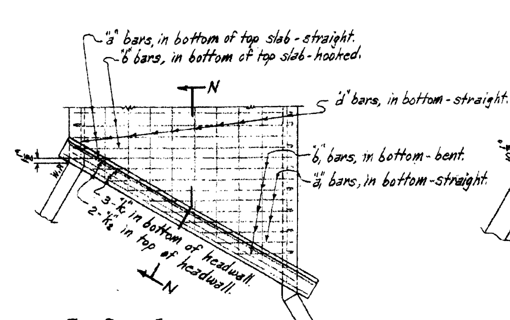
BAR SIZE	PIN DIAM.	K	ADD FOR HOOKS	BENDING DIAGRAMS FOR BARS "b" & "b₁"
#6	3"	5"	1'-2"	2 Hooks – "b" bars
#7	3½"	5¾"	1'-4"	2 Hooks – "b" bars
#6	3"	5"	0'-7"	1 Hook – "b₁" bars
#7	3½"	5¾"	0'-8"	1 Hook – "b₁" bars

NOTE:- Dimensions are to centers of bars. ("b" and "b₁")

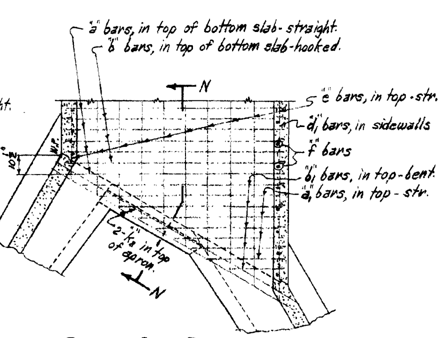
DOWEL BARS FOR TWO HEADWALLS

Dowel bars "r" in Two Headwalls.

SPAN	SIZE	SPACING	NO. REQ'D	LENGTH	X
4'	#4	12"±	12	2'-6"	1'-3"
5'	#4	12"±	16	2'-7"	1'-3½"
6'	#4	12"±	18	2'-8"	1'-4"
7'	#4	12"±	20	2'-9"	1'-4½"
8'	#4	12"±	22	2'-11"	1'-5½"
9'	#4	12"±	26	3'-0"	1'-6"
10'	#4	12"±	28	3'-1"	1'-6½"
11'	#4	12"±	30	3'-2"	1'-7"
12'	#4	12"±	32	3'-3"	1'-7½"

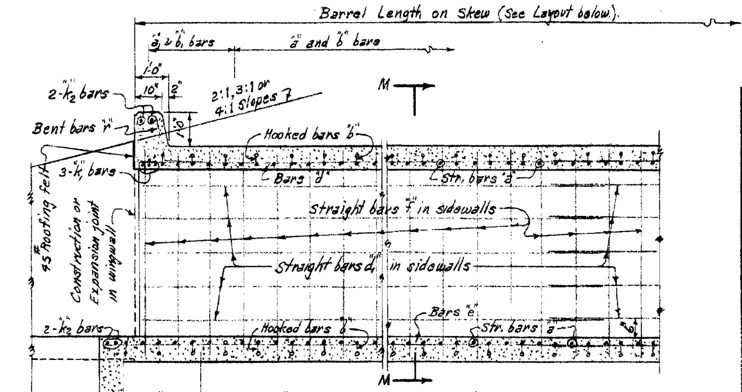


TOP SLAB REINFORCING
PART PLAN AT END OF CULVERT

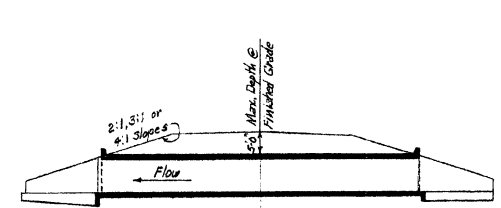


BOTTOM SLAB REINFORCING
PART PLAN AT END OF CULVERT

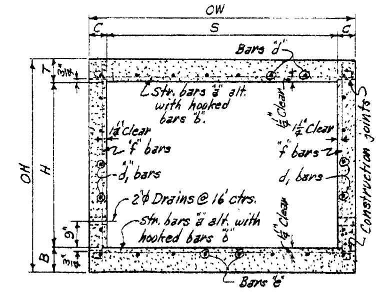
NOTE:- For Details of Standard Wings and bar lists, see Drawing No. W-X302-1 or W-X302-2; W-X303-1 or W-X303-2, and W-X304-1 or W-X304-2. Also W-X30.



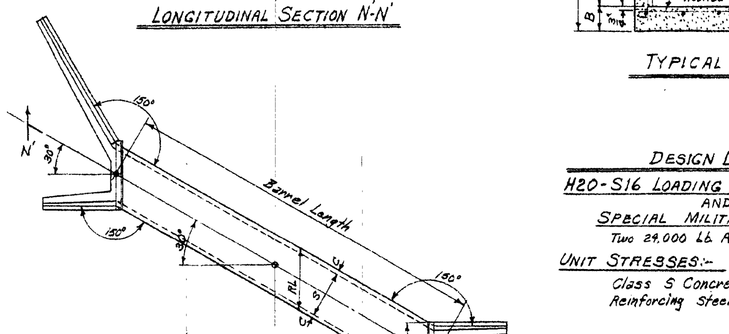
SECTION N-N



LONGITUDINAL SECTION N-N'



TYPICAL SECTION M-M



LAYOUT OF SINGLE BARREL CULVERT
30° SKEW LEFT FORWARD
30° Skew Right Forward is reversed.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs

UNIT STRESSES:-
Class S Concrete (n=10) 1200 #/□"
Reinforcing Steel 20,000 #/□"

Note:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X302-1 or W-X302-2, W-X303-1 or W-X303-2, and W-X304-1 or W-X304-2. Also W-X30.

GENERAL NOTES

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diameters min.
CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls and slabs shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

MAX. DESIGN DEPTH OF COVER D	CLEAR SPANS S	CLEAR HEIGHT H	SQ. FT. OPENING A	OVERALL WIDTH OW	THICKNESS OF TOP SLAB T	THICKNESS OF SIDEWALLS C	THICKNESS OF BOTTOM SLAB B	OVERALL HEIGHT OH	ROADWAY LENGTH RL	LENGTH OF HEADWALLS K	* CLASS S CONC. PER LIN. FT. OF BARREL Cu.Yd.	TOTAL FOR 60'-0" LENGTH OF BARREL LB.	PER LIN. FT. OF BARREL LB.	ADDITIONAL PER LAP LB.
5'-0"	1 @ 4'	2'	8	5'-0"	7"	6"	6½"	3'-1½"	5'-9¼"	6'-11⅛"	0.282	2622	41.99	17.95
		3'	12	5'-0"		6"		4'-1½"	"	"	0.319	2784	44.16	19.62
		4'	16	5'-0"		6"		5'-1½"	"	"	0.356	2946	46.83	21.29
		5'	20	5'-0"		6"		6'-1½"	"	"	0.394	3107	49.50	22.96
		6'	24	5'-2"		7"		7'-1½"	5'-11⅝"	7'-1½"	0.474	3335	52.96	24.63
	1 @ 5'	3'	15	6'-0"	7½"	6"	7"	4'-2½"	6'-11⅞"	8'-1"	0.380	3541	55.55	22.19
		4'	20	6'-0"		6"		5'-2½"	"	"	0.417	3703	58.23	23.86
		5'	25	6'-0"		6"		6'-2½"	"	"	0.454	3865	60.90	25.53
		6'	30	6'-2"		7"		7'-2½"	7'-1⅛"	8'-3⅛"	0.535	4091	64.49	27.20
		7'	35	6'-3"		7½"		8'-2½"	7'-2⅝"	8'-4½"	0.604	4283	67.63	28.87
	1 @ 6'	3'	18	7'-0"	8"	6"	7½"	4'-3½"	8'-1"	9'-2⅞"	0.446	4221	66.29	24.76
		4'	24	7'-0"		6"		5'-3½"	"	"	0.483	4383	68.96	26.43
		5'	30	7'-0"		6"		6'-3½"	"	"	0.520	4545	71.64	28.10
		6'	36	7'-2"		7"		7'-3½"	8'-3⅛"	9'-5⅛"	0.602	4772	75.31	29.77
		7'	42	7'-3"		7½"		8'-3½"	8'-4½"	9'-6⅜"	0.671	4966	78.48	31.44
		8'	48	7'-4"		8"		9'-3½"	8'-5⅝"	9'-7½"	0.746	5570	88.47	33.11
	1 @ 7'	4'	28	8'-0"	8½"	6"	8½"	5'-5"	9'-2⅞"	10'-4⅜"	0.568	5146	81.32	29.01
		5'	35	8'-0"		6"		6'-5"	"	"	0.605	5307	84.00	30.68
		6'	42	8'-2"		7"		7'-5"	9'-5¼"	10'-7"	0.688	5558	87.76	32.35
		7'	49	8'-3"		7½"		8'-5"	9'-6¼"	10'-8⅛"	0.757	5755	90.98	34.02
		8'	56	8'-4"		8"		9'-5"	9'-7½"	10'-9⅜"	0.832	6100	96.65	35.69
		9'	63	8'-6"		9"		10'-5"	9'-9⅜"	10'-11⅜"	0.946	6644	105.59	37.36
	1 @ 8'	4'	32	9'-0"	9½"	6"	9½"	5'-7"	10'-4⅜"	11'-6½"	0.676	6114	95.26	33.32
		5'	40	9'-2"		7"		6'-7"	10'-7"	11'-8⅞"	0.754	6357	99.12	34.99
		6'	48	9'-2"		7"		7'-7"	"	"	0.797	6518	101.79	36.66
		7'	56	9'-3"		7½"		8'-7"	10'-8¼"	11'-10"	0.867	6720	105.05	38.33
		8'	64	9'-4"		8"		9'-7"	10'-9⅜"	11'-11¼"	0.942	7070	110.81	40.00
		9'	72	9'-6"		9"		10'-7"	10'-11⅝"	12'-1½"	1.057	7627	119.92	41.67
		10'	80	9'-8"		10"		11'-7"	11'-2"	12'-3¾"	1.184	8043	126.67	43.34
	1 @ 9'	5'	45	10'-2"	10"	7"	10"	6'-8"	11'-8⅞"	12'-10¾"	0.844	7356	114.72	37.56
		6'	54	10'-3"		7½"		7'-8"	11'-10"	13'-0"	0.910	7564	118.04	39.23
		7'	63	10'-3"		7½"		8'-8"	"	"	0.957	7725	120.71	40.90
		8'	72	10'-4"		8"		9'-8"	11'-11½"	13'-1"	1.033	8081	126.54	42.57
		9'	81	10'-6"		9"		10'-8"	12'-1½"	13'-3⅛"	1.148	8625	135.80	44.24
		10'	90	10'-8"		10"		11'-8"	12'-3⅞"	13'-5¾"	1.276	9063	142.68	45.91
		11'	99	10'-10"		11"		12'-8"	12'-6½"	13'-8"	1.416	9526	150.40	47.58
	1 @ 10'	5'	50	11'-2"	10½"	7"	11"	6'-9½"	12'-10¾"	14'-0½"	0.957	8359	130.64	40.13
		6'	60	11'-3"		7½"		7'-9½"	12'-11⅞"	14'-1⅜"	1.024	8567	133.99	41.80
		7'	70	11'-3"		7½"		8'-9½"	"	"	1.071	8729	136.66	43.47
		8'	80	11'-4"		8"		9'-9½"	13'-1"	14'-3"	1.147	9110	142.55	45.14
		9'	90	11'-6"		9"		10'-9½"	13'-3⅜"	14'-5¼"	1.263	9634	151.32	46.81
		10'	100	11'-8"		10"		11'-9½"	13'-5¾"	14'-7½"	1.391	10,019	158.89	48.48
		11'	110	11'-10"		11"		12'-9½"	13'-8"	14'-9¾"	1.532	10,547	166.71	50.15
		12'	120	12'-0"		12"		13'-9½"	13'-10⅛"	15'-0¼"	1.685	11,278	178.67	51.82
	1 @ 11'	6'	66	12'-4"	11"	8"	11½"	7'-10½"	14'-2⅞"	15'-4¾"	1.153	9888	155.16	46.12
		7'	77	12'-4"		8"		8'-10½"	"	"	1.202	10,049	157.83	47.79
		8'	88	12'-4"		8"		9'-10½"	"	"	1.252	10,364	163.06	49.46
		9'	99	12'-6"		9"		10'-10½"	14'-5¼"	15'-7"	1.368	10,952	172.60	51.13
		10'	110	12'-8"		10"		11'-10½"	14'-7½"	15'-9¼"	1.497	11,349	179.70	52.80
		11'	121	12'-10"		11"		12'-10½"	14'-9⅞"	15'-11⅝"	1.638	11,927	187.67	54.47
		12'	132	13'-0"		12"		13'-10½"	15'-0⅛"	16'-2"	1.792	12,569	199.79	56.14
	1 @ 12'	6'	72	13'-4"	11¾"	8"	12¼"	8'-0"	15'-4¾"	16'-6½"	1.284	11,081	172.20	48.69
		7'	84	13'-4"		8"		9'-0"	"	"	1.333	11,243	174.87	50.36
		8'	96	13'-4"		8"		10'-0"	"	"	1.383	11,561	180.15	52.03
		9'	108	13'-6"		9"		11'-0"	15'-7⅛"	16'-9"	1.500	12,162	189.85	53.70
		10'	120	13'-8"		10"		12'-0"	15'-9⅜"	16'-11¼"	1.630	12,625	197.07	55.37
		11'	132	13'-10"		11"		13'-0"	15'-11⅝"	17'-1½"	1.772	13,113	205.16	57.04
		12'	144	14'-0"		12"		14'-0"	16'-2"	17'-3¾"	1.926	13,795	217.45	58.71

* For remainder of quantities see Std. Wing Drawings listed at left.
Total steel quantities listed above include one lap of longitudinal bars.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

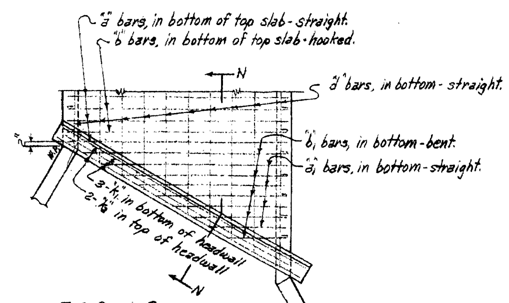
DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS 30° SKEW

4, 5, 6, 7, 8, 9, 10, 11 & 12' SPANS SINGLES
2:1, 3:1 OR 4:1 SLOPES UNDER 5'-0" COVER

STANDARD DRAWING NO. R-130X-0

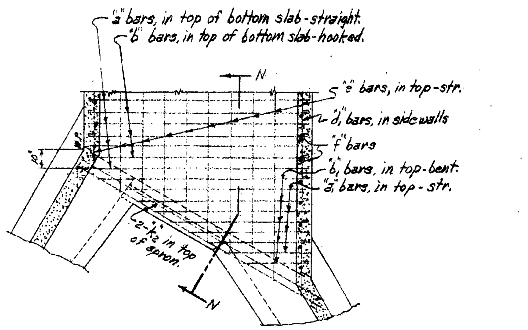
Designed by:- W.C.H. 1-28-63 Checked by:- R.H.S. 5-8-63
Drawn by:- W.C.H. 2-24-64 Checked by:-
Quantities by:- W.C.H. 4-2-64 Checked by:-

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			487	
JOB No.					



TOP SLAB REINFORCING

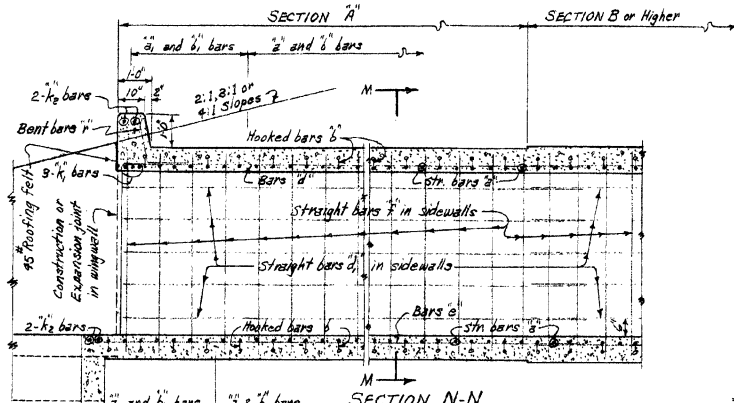
PART PLAN AT END OF CULVERT



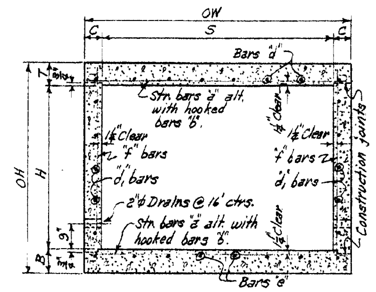
BOTTOM SLAB REINFORCING

PART PLAN AT END OF CULVERT

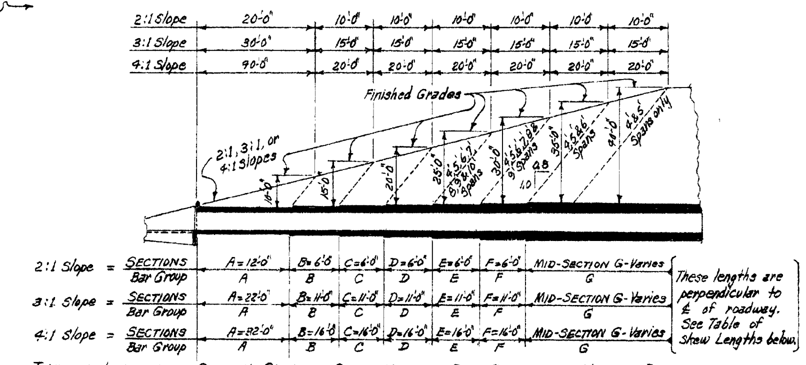
NOTE:- The "d", "d1" and "e" bars vary in length. They should extend 1'-9" min. into SECTION "B".



SECTION N-N

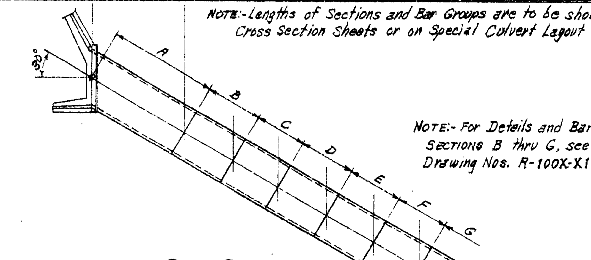


TYPICAL SECTION M-M



TYPICAL LONGITUDINAL SECTION - SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.



PART PLAN

NOTE:- For Details and Bar Lists for Sections B thru G, see Barrel Drawing Nos. R-100X-X1 or R-100X-X2.

LENGTH OF SECTIONS ON 30° SKEW

SLOPE	2:1		3:1		4:1	
SECTIONS	A	B, C, D, E & F	A	B, C, D, E & F	A	B, C, D, E & F
LENGTHS	13'-10¼"	6'-11⅛"	25'-4¾"	12'-8⅜"	36'-11¼"	18'-5¾"

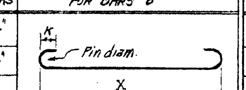
NOTE:- Minimum ℄ Length of SECTION "A" on 30° Skew = (0.288675 OW + 2").

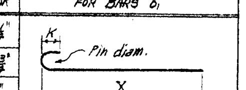
SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0' to 24.5'	A	B	C				D
25.0' to 29.5'	A	B	C	D			E
30.0' to 34.5'	A	B	C	D	E		F
35.0' to 40.0'	A	B	C	D	E	F	G

OR ALT.

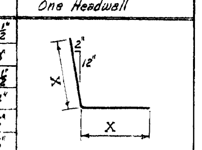
DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0' to 24.5'	A	2@C					D
25.0' to 29.5'	A	B	2@D				E
30.0' to 34.5'	A	2@C		2@E			F
35.0' to 40.0'	A	B	2@D		2@F		G

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM FOR BARS "b"
#4	2"	4"	0'-10½"	
#5	2½"	4¼"	0'-11½"	
#6	3"	5"	1'-2"	
#7	3½"	5¾"	1'-4"	

BAR SIZE	PIN DIAM.	K	ADD FOR 1 HOOK	BENDING DIAGRAM FOR BARS "b1"
#4	2"	4"	0'-5¼"	
#5	2½"	4¼"	0'-5¾"	
#6	3"	5"	0'-7"	
#7	3½"	5¾"	0'-8"	

NOTE:- Dimensions are to centers of bars. ("b" and "b1")

DOWEL BARS FOR ONE HEADWALL

SPAN	SIZE	SPACING	No. REQ'D	LENGTH	X	Dowel bars "r" in One Headwall
4'	#4	12"±	6	2'-5"	1'-2½"	
5'	#4	12"±	8	2'-6"	1'-3"	
6'	#4	12"±	9	2'-7"	1'-3½"	
7'	#4	12"±	10	2'-8"	1'-4"	
8'	#4	12"±	11	2'-10"	1'-5"	
9'	#4	12"±	13	3'-0"	1'-6"	
10'	#4	12"±	14	3'-2"	1'-7"	

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961

AND

SPECIAL MILITARY LOADING

Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-

Class S Concrete (n=10) 1200#/□"

Reinforcing Steel 20,000#/□"

MAX. DESIGN DEPTH OF COVER	CLEAR SPANS	CLEAR HEIGHT	SQ.FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	ROADWAY LENGTH	LENGTH OF HEADWALL	CLASS S CONCRETE, BARREL ONLY 2:1	3:1	4:1	REINFORCING STEEL, BARREL, APRON AND HEADWALL 2:1	3:1	4:1
D	S	H	A	OW	T	C	B	OH	RL	K	CU.YD.	CU.YD.	CU.YD.	LB.	LB.	LB.
SECTION "A" = 10'-0"	1 @ 4'	2'	8	6'-0"	6½"	6"	6½"	3'-1"	5'-9¼"	6'-11⅛"	3.81	6.98	10.16	453	764	1074
		3'	12	5'-0"		6"		4'-1"	"	"	4.32	7.92	11.53	492	834	1175
		4'	16	5'-0"		6"		5'-1"	"	"	4.84	8.86	12.89	531	904	1276
		5'	20	5'-0"		6"		6'-1"	"	"	5.35	9.80	14.26	571	975	1377
		6'	24	5'-2"		7"		7'-1"	5'-11⅝"	7'-1½"	6.47	11.86	17.25	614	1053	1492
	1 @ 5'	3'	15	6'-0"	7"	6"	7"	4'-2"	6'-11⅛"	8'-1"	5.13	9.40	13.67	687	1183	1693
		4'	20	6'-0"		6"		5'-2"	"	"	5.64	10.34	15.03	726	1253	1794
		5'	25	6'-0"		6"		6'-2"	"	"	6.15	11.28	16.40	765	1323	1895
		6'	30	6'-2"		7"		7'-2"	7'-1½"	8'-3¼"	7.29	13.36	19.43	816	1413	2024
		7'	35	6'-3"		7½"		8'-2"	7'-2⅝"	8'-4½"	8.23	15.09	21.94	893	1525	2171
	1 @ 6'	3'	18	7'-0"	7½"	6"	7½"	4'-3"	8'-1"	9'-2⅞"	6.03	11.05	16.07	894	1538	2192
		4'	24	7'-0"		6"		5'-3"	"	"	6.54	11.99	17.44	934	1609	2293
		5'	30	7'-0"		6"		6'-3"	"	"	7.05	12.93	18.80	973	1679	2394
		6'	36	7'-2"		7"		7'-3"	8'-3⅛"	9'-5⅛"	8.19	15.01	21.83	1027	1773	2529
		7'	42	7'-3"		7½"		8'-3"	8'-4⅛"	9'-6⅜"	9.14	16.76	24.38	1105	1908	2727
		8'	48	7'-4"		8"		9'-3"	8'-5⅜"	9'-7⅝"	10.18	18.67	27.15	1242	2156	3080
	1 @ 7'	4'	28	8'-0"	8"	6"	8½"	5'-4½"	9'-2⅞"	10'-4¾"	7.70	14.12	20.54	1054	1815	2565
		5'	35	8'-0"		6"		6'-4½"	"	"	8.22	15.06	21.90	1094	1885	2666
		6'	42	8'-2"		7"		7'-4½"	9'-5¼"	10'-7"	9.35	17.14	24.93	1147	1979	2800
		7'	49	8'-3"		7½"		8'-4½"	9'-6⅛"	10'-8⅛"	10.31	18.89	27.48	1210	2088	2956
		8'	56	8'-4"		8"		9'-4½"	9'-7½"	10'-9⅜"	11.35	20.80	30.25	1282	2263	3234
		9'	63	8'-6"		9"		10'-4½"	9'-9⅜"	10'-11⅜"	12.93	23.69	34.46	1432	2484	3525
	1 @ 8'	4'	32	9'-0"	8½"	6"	9½"	5'-6"	10'-4⅞"	11'-6¼"	8.98	16.46	23.94	1293	2219	3141
		5'	40	9'-2"		7"		6'-6"	10'-7"	11'-8⅜"	10.04	18.41	26.78	1362	2329	3294
		6'	48	9'-2"		7"		7'-6"	"	"	10.65	19.53	28.41	1401	2400	3395
		7'	56	9'-3"		7½"		8'-6"	10'-8¼"	11'-10"	11.61	21.28	30.95	1438	2474	3506
		8'	64	9'-4"		8"		9'-6"	10'-9⅜"	11'-11¼"	12.66	23.21	33.76	1584	2735	3884
		9'	72	9'-6"		9"		10'-6"	10'-11⅝"	12'-1½"	14.24	26.11	37.97	1683	2907	4128
		10'	80	9'-8"		10"		11'-6"	11'-2"	12'-3¾"	15.99	29.31	42.63	1789	3089	4398
	1 @ 9'	5'	45	10'-2"	9½"	7"	10½"	6'-8"	11'-8⅞"	12'-10¾"	11.69	21.43	31.18	1674	2840	4221
		6'	54	10'-3"		7½"		7'-8"	11'-10"	13'-0"	12.61	23.11	33.61	1792	3096	4416
		7'	63	10'-3"		7½"		8'-8"	"	"	13.26	24.30	35.35	1831	3166	4517
		8'	72	10'-4"		8"		9'-8"	11'-11⅛"	13'-1"	14.31	26.23	38.16	1981	3435	4905
		9'	81	10'-6"		9"		10'-8"	12'-1½"	13'-3¼"	15.91	29.15	42.40	2085	3615	5161
		10'	90	10'-8"		10"		11'-8"	12'-3⅞"	13'-5¾"	17.68	32.41	47.13	2196	3806	5445
		11'	99	10'-10"		11"		12'-8"	12'-6⅛"	13'-8"	19.62	35.96	52.30	2357	4104	5869
	1 @ 10'	5'	50	11'-2"	10½"	7"	11½"	6'-10"	12'-10⅞"	14'-0⅛"	13.49	24.74	35.98	1980	3417	4898
		6'	60	11'-3"		7½"		7'-10"	12'-11⅞"	14'-1⅛"	14.44	26.46	38.49	2047	3522	5042
		7'	70	11'-3"		7½"		8'-10"	"	"	15.07	27.63	40.19	2103	3621	5183
		8'	80	11'-4"		8"		9'-10"	13'-1"	14'-3"	16.14	29.59	43.03	2224	3852	5524
		9'	90	11'-6"		9"		10'-10"	13'-3⅜"	14'-5¼"	17.75	32.53	47.32	2298	3981	5658
		10'	100	11'-8"		10"		11'-10"	13'-5¾"	14'-7¼"	19.52	35.78	52.05	2445	4231	6024
		11'	110	11'-10"		11"		12'-10"	13'-8"	14'-9¾"	21.47	39.36	57.25	2609	4534	6455
		12'	120	12'-0"		12"		13'-10"	13'-10¼"	15'-0¼"	23.61	43.27	62.94	2758	4790	6817

* For remainder of quantities see Std. Wing and Barrel Drawings listed below. Total steel quantities listed above include one lap of longitudinal bars.

NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X302-1 or W-X302-2, W-X303-1 or W-X303-2, and W-X304-1 or W-X304-2. Also W-X30.
For Barrels of 4, 5 & 6 Spans, See Drawing No. R-100X-X1.
For Barrels of 7, 8, 9 & 10 Spans, See Drawing No. R-100X-X2.

BAR LIST FOR SECTION "A" ON 30° SKEW - ONE END ONLY.

SECTION "A" & BAR GROUP "A". LENGTH OF SECTION: 2:1 = 13'-10¼", 3:1 = 25'-4¾", 4:1 = 36'-11¼". DEPTH OF COVER (D): 0'-0" TO 10'-0" MAXIMUM.

"a" bars: STRAIGHT - In Top and Bottom Slabs of Barrel. "a1" bars ▼: STRAIGHT - In Top and Bottom Slab of Barrel - (Two of each Length.) "b" bars: BENT - See Diagrams at Right - In Top and Bottom Slabs of Barrel - hooked. Alternate with "a" bars.

CLEAR SPAN S	CLEAR HEIGHT H	"a" SIZE	"a" SPACING	"a" NUMBER REQ'D 2:1	3:1	4:1	"a" LENGTH	"a1" SIZE	"a1" SPACING	"a1" No. REQ'D	"a1" LENGTH MAX.	"a1" LENGTH MIN.	"b" SIZE	"b" SPACING	"b" NUMBER REQ'D 2:1	3:1	4:1	"b" LENGTH	"b" X
1 @ 4'	2'	#4	12"	27	49	73	4'-9"	#4	12"	2	3'-0"	—	#4	12"	25	49	71	5'-7"	4'-8½"
	3'			27	49	73	"			2	"	—			25	49	71	"	"
	4'			27	49	73	"			2	"	—			25	49	71	"	"
	5'			27	49	73	"			2	"	—			25	49	71	"	"
	6'			27	49	73	4'-11"			2	3'-2"	—			25	49	71	5'-9"	4'-10½"
1 @ 5'	3'	#5	12"	25	49	73	5'-9"	#5	12"	4	4'-0"	2'-3"	#5	12"	25	47	71	6'-8"	5'-8½"
	4'			25	49	73	"			4	"	"			25	47	71	"	"
	5'			25	49	73	"			4	"	"			25	47	71	"	"
	6'			25	49	73	5'-11"			4	4'-2"	2'-5"			25	47	71	6'-10"	5'-10½"
	7'			25	49	73	6'-0"			4	4'-3"	2'-6"			25	47	71	6'-11"	5'-11½"
1 @ 6'	3'	#5	12"	25	49	71	6'-9"	#5	12"	4	5'-0"	3'-3"	#6	12"	25	47	71	7'-10"	6'-8"
	4'			25	49	71	"			4	"	"			25	47	71	"	"
	5'			25	49	71	"			4	"	"			25	47	71	"	"
	6'			25	49	71	6'-11"			4	5'-2"	3'-5"			25	47	71	8'-0"	6'-10"
	7'			25	49	71	7'-0"			4	5'-3"	3'-6"			25	47	71	8'-1"	6'-11"
	8'			25	49	71	7'-1"			4	5'-4"	3'-7"			25	47	71	8'-2"	7'-0"
1 @ 7'	4'	#5	12"	25	47	71	7'-9"	#5	12"	6	6'-0"	2'-6"	#6	12"	23	47	69	8'-10"	7'-8"
	5'			25	47	71	"			6	"	"			23	47	69	"	"
	6'			25	47	71	7'-11"			6	6'-2"	2'-8"			23	47	69	9'-0"	7'-10"
	7'			25	47	71	8'-0"			6	6'-3"	2'-9"			23	47	69	9'-1"	7'-11"
	8'			25	47	71	8'-1"			6	6'-4"	2'-10"			23	47	69	9'-2"	8'-0"
	9'			25	47	71	8'-3"			6	6'-6"	3'-0"			23	47	69	9'-4"	8'-2"
1 @ 8'	4'	#6	12"	25	47	71	8'-9"	#6	12"	6	7'-0"	3'-6"	#6	12"	23	47	69	9'-10"	8'-8"
	5'			25	47	71	8'-11"			6	7'-2"	3'-8"			23	47	69	10'-0"	8'-10"
	6'			25	47	71	"			6	"	"			23	47	69	"	"
	7'			25	47	71	9'-0"			6	7'-3"	3'-9"			23	47	69	10'-1"	8'-11"
	8'			25	47	71	9'-1"			6	7'-4"	3'-10"			23	47	69	10'-2"	9'-0"
	9'			25	47	71	9'-3"			6	7'-6"	4'-0"			23	47	69	10'-4"	9'-2"
	10'			25	47	71	9'-5"			6	7'-8"	4'-2"			23	47	69	10'-6"	9'-4"
1 @ 9'	5'	#6	11"	25	51	75	9'-11"	#6	11"	8	8'-4"	3'-7"	#7	11"	25	49	75	11'-2"	9'-10"
	6'			25	51	75	10'-0"			8	8'-5"	3'-8"			25	49	75	11'-3"	9'-11"
	7'			25	51	75	"			8	"	"			25	49	75	"	"
	8'			25	51	75	10'-1"			8	8'-6"	3'-9"			25	49	75	11'-4"	10'-0"
	9'			25	51	75	10'-3"			8	8'-8"	3'-11"			25	49	75	11'-6"	10'-2"
	10'			25	51	75	10'-5"			8	8'-10"	4'-1"			25	49	75	11'-8"	10'-4"
	11'			25	51	75	10'-7"			8	9'-0"	4'-3"			25	49	75	11'-10"	10'-6"
1 @ 10'	5'	#7	12"	23	45	69	10'-11"	#7	12"	10	9'-2"	2'-2"	#7	12"	21	45	69	12'-2"	10'-10"
	6'			23	45	69	11'-0"			10	9'-3"	2'-3"			21	45	69	12'-3"	10'-11"
	7'			23	45	69	"			10	"	"			21	45	69	"	"
	8'			23	45	69	11'-1"			10	9'-4"	2'-4"			21	45	69	12'-4"	11'-0"
	9'			23	45	69	11'-3"			10	9'-6"	2'-6"			21	45	67	12'-6"	11'-2"
	10'			23	45	69	11'-5"			10	9'-8"	2'-8"			21	45	67	12'-8"	11'-4"
	11'			23	45	69	11'-7"			10	9'-10"	2'-10"			21	45	67	12'-10"	11'-6"
	12'			23	45	69	11'-9"			10	10'-0"	3'-0"			21	45	67	13'-0"	11'-8"

"b1" bars ▼: BENT - See Diagrams at Right - In Top and Bottom Slabs of Barrel - one end hooked. (Two of each Length) Alternate with "a1" bars. "d" bars: STRAIGHT - Longitudinal in Top Slab of Barrel. "d1" bars: STRAIGHT - Longitudinal in Sidewalls. "e" bars: STRAIGHT - Longitudinal in Bottom Slab of Barrel. "f" bars: STRAIGHT - Verticals in Sidewalls. "k1" bars ▼: STRAIGHT - In Bottom of Headwall. "k2" bars ▼: STRAIGHT - In Top of Headwall and Apron. (2 Each)

CLEAR SPAN S	CLEAR HEIGHT H	"b1" SIZE	"b1" SPACING	"b1" No. REQ'D	"b1" LENGTH MAX.	"b1" LENGTH MIN.	"b1" X MAX.	"b1" X MIN.	"d" SIZE	"d" SPACING	"d" No. REQ'D	"d1" SIZE	"d1" SPACING	"d1" No. REQ'D	"e" SIZE	"e" SPACING	"e" No. REQ'D	"f" SIZE	"f" SPACING	"f" NUMBER REQ'D 2:1	3:1	4:1	"f" LENGTH	"k1" SIZE	"k1" No. REQ'D	"k1" LENGTH	"k2" SIZE	"k2" No. REQ'D	"k2" LENGTH
1 @ 4'	2'	#4	12"	4	4'-3"	2'-6"	3'-10"	2'-1"	#4	12"	5	#4	12"	4	#4	12"	5	#4	12"	28	51	74	2'-10"	#5	3	5'-6"	#5	4	6'-8"
	3'			4	"	"	"	"			5			6			5			28	51	74	3'-10"		3	"		4	"
	4'			4	"	"	"	"			5			8			5			28	51	74	4'-10"		3	"		4	"
	5'			4	"	"	"	"			5			10			5			28	51	74	5'-10"		3	"		4	"
	6'			4	4'-5"	2'-8"	4'-0"	2'-3"			5			12			5			28	51	74	6'-10"		3	5'-8"		4	6'-10"
1 @ 5'	3'	#5	12"	4	5'-4"	3'-7"	4'-10"	3'-1"	#4	12"	6	#4	12"	6	#4	12"	6	#4	12"	28	51	74	3'-11"	#5	3	6'-8"	#5	4	7'-10"
	4'			4	"	"	"	"			6			8			6			28	51	74	4'-11"		3	"		4	"
	5'			4	"	"	"	"			6			10			6			28	51	74	5'-11"		3	"		4	"
	6'			4	5'-6"	3'-9"	5'-0"	3'-3"			6			12			6			28	51	74	6'-11"		3	6'-10"		4	8'-0"
	7'			4	5'-7"	3'-10"	5'-1"	3'-4"			6			14			6		10"	34	61	89	7'-11"		3	6'-11"		4	8'-1"
1 @ 6'	3'	#6	12"	6	6'-5"	2'-11"	5'-10"	2'-4"	#4	12"	7	#4	12"	6	#4	12"	7	#4	12"	28	51	74	4'-0"	#5	3	7'-10"	#5	4	9'-0"
	4'			6	"	"	"	"			7			8			7			28	51	74	5'-0"		3	"		4	"
	5'			6	"	"	"	"			7			10			7			28	51	74	6'-0"		3	"		4	"
	6'			6	6'-7"	3'-1"	6'-0"	2'-6"			7			12			7			28	51	74	7'-0"		3	8'-0"		4	9'-2"
	7'			6	6'-8"	3'-2"	6'-1"	2'-7"			7			14			7		10"	34	61	89	8'-0"		3	8'-1"		4	9'-3"
	8'			6	6'-9"	3'-3"	6'-2"	2'-8"			7			16			7	#5	11"	31	56	81	9'-0"		3	8'-2"		4	9'-4"
1 @ 7'	4'	#6	12"	6	7'-5"	3'-11"	6'-10"	3'-4"	#4	12"	8	#4	12"	8	#4	12"	8	#4	12"	28	51	74	5'-1"	#6	3	9'-0"	#6	4	10'-2"
	5'			6	"	"	"	"			8			10			8			28	51	74	6'-1"		3	"		4	"
	6'			6	7'-7"	4'-1"	7'-0"	3'-6"			8			12			8			28	51	74	7'-1"		3	9'-2"		4	10'-4"
	7'			6	7'-8"	4'-2"	7'-1"	3'-7"			8			14			8		11"	31	56	81	8'-1"		3	9'-3"		4	10'-5"
	8'			6	7'-9"	4'-3"	7'-2"	3'-8"			8			16			8	#5	12"	28	51	74	9'-1"		3	9'-4"		4	10'-6"
	9'			6	7'-11"	4'-5"	7'-4"	3'-10"			8			18			8		11"	31	56	81	10'-1"		3	9'-6"		4	10'-8"
1 @ 8'	4'	#6	12"	8	8'-5"	3'-2"	7'-10"	2'-7"	#4	12"	9	#4	12"	8	#4	12"	9	#4	12"	28	51	74	5'-3"	#6	3	10'-1"	#6	4	11'-3"
	5'			8	8'-7"	3'-4"	8'-0"	2'-9"			9			10			9			28	51	74	6'-3"		3	10'-4"		4	11'-6"
	6'			8	"	"	"	"			9			12			9			28	51	74	7'-3"		3	"		4	"
	7'			8	8'-8"	3'-5"	8'-1"	2'-10"			9			14			9			28	51	74	8'-3"		3	10'-5"		4	11'-7"
	8'			8	8'-9"	3'-6"	8'-2"	2'-11"			9			16			9	#5	12"	28	51	74	9'-3"		3	10'-6"		4	11'-8"
	9'			8	8'-11"	3'-8"	8'-4"	3'-1"			9			18			9		11"	31	56	81	10'-3"		3	10'-8"		4	11'-10"
	10'			8	9'-1"	3'-10"	8'-6"	3'-3"			9			20			9		10"	34	61	89	11'-3"		3	10'-11"		4	12'-0"
1 @ 9'	5'	#7	11"	10	9'-9"	3'-5"	9'-1"	2'-9"	#4	12"	10	#4	12"	10	#4	12"	10	#4	12"	28	51	74	6'-5"	#6	3	11'-5"	#6	4	12'-7"
	6'			10	9'-10"	3'-6"	9'-2"	2'-10"			10			12			10			28	51	74	7'-5"		3	11'-7"		4	12'-9"
	7'			10	"	"	"	"			10			14			10			28	51	74	8'-5"		3	"		4	"
	8'			10	9'-11"	3'-7"	9'-3"	2'-11"			10			16			10	#5	12"	28	51	74	9'-5"		3	11'-8"		4	12'-10"
	9'			10	10'-1"	3'-9"	9'-5"	3'-1"			10			18			10		11"	31	56	81	10'-5"		3	11'-10"		4	13'-0"
	10'			10	10'-3"	3'-11"	9'-7"	3'-3"			10			20			10		10"	34	61	89	11'-5"		3	12'-1"		4	13'-2"
	11'			10	10'-5"	4'-1"	9'-9"	3'-5"			10			22			10	#6	12"	28	51	74	12'-5"		3	12'-3"		4	13'-5"
1 @ 10'	5'	#7	12"	10	10'-8"	3'-8"	10'-0"	3'-0"	#4	12"	11	#4	12"	10	#4	12"	11	#4	12"	28	51	74	6'-7"	#7	3	12'-7"	#7	4	13'-9"
	6'			10	10'-9"	3'-9"	10'-1"	3'-1"			11			12			11			28	51	74	7'-7"		3	12'-8"		4	13'-10"
	7'			10	"	"	"	"			11			14			11		11"	31	56	81	8'-7"		3	"		4	"
	8'			10	10'-10"	3'-10"	10'-2"	3'-2"			11			16			11	#5	12"	28	51	74	9'-7"		3	12'-10"		4	14'-0"
	9'			10	11'-0"	4'-0"	10'-4"	3'-4"			11			18			11			28	51	74	10'-7"		3	13'-0"		4	14'-2"
	10'			10	11'-2"	4'-2"	10'-6"	3'-6"			11			20			11		10"	34	61	89	11'-7"		3	13'-2"		4	14'-4"
	11'			10	11'-4"	4'-4"	10'-8"	3'-8"			11			22			11	#6	12"	28	51	74	12'-7"		3	13'-5"		4	14'-6"
	12'			10	11'-6"	4'-6"	10'-10"	3'-10"			11			24			11		11"	31	56	81	13'-7"		3	13'-7"		4	14'-9"

"d" bars LENGTH: 4:1 = 38'-8", 3:1 = 27'-1", 2:1 = 15'-6"; Lengths Vary - Average Length.
"d1" bars LENGTH: 4:1 = 38'-8", 3:1 = 27'-1", 2:1 = 15'-6"; Lengths Vary - Average Length.
"e" bars LENGTH: 4:1 = 39'-10", 3:1 = 28'-3", 2:1 = 16'-8"; Lengths Vary - Average Length.

▼ These bars are in the skewed portion of barrel only. The length of "a1" bars and overall length X of "b1" bars vary by 1'-9" for 12" spacing and 1'-7" for 11" spacing.

GENERAL NOTES

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls and slabs shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

30° SKEW - SECTIONS "A" ONLY

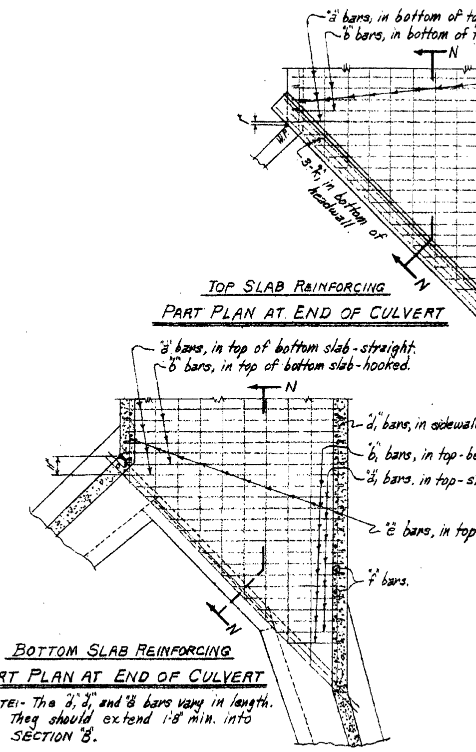
4, 5, 6, 7, 8, 9 & 10 SPANS SINGLES

2:1, 3:1 OR 4:1 SLOPES OVER 5'-0" COVER

STANDARD DRAWING NO. R-130X-1

Designed by:- W.C.H. 9-5-62
Drawn by:- W.C.H. 1-24-64
Quantities by:- W.C.H. 4-21-64
Checked by:- R.H.S. 11-8-62
Checked by:-
Checked by:-

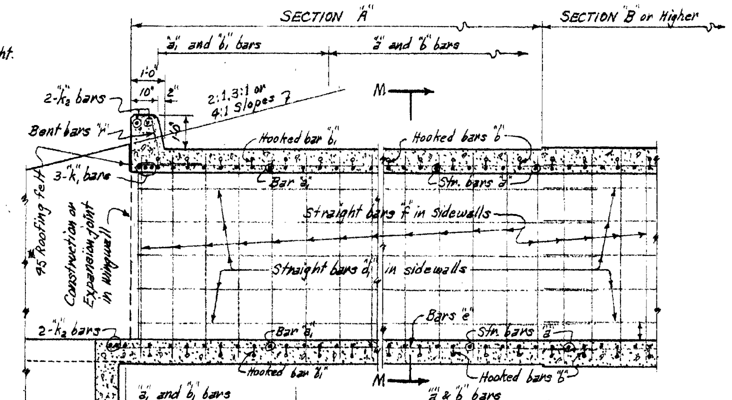
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			489	
JOB No.					



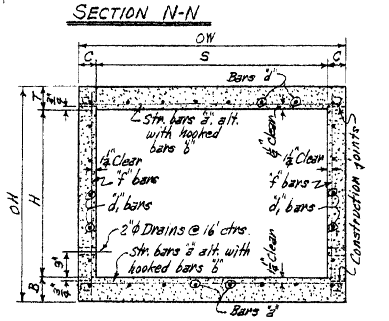
TOP SLAB REINFORCING
PART PLAN AT END OF CULVERT

BOTTOM SLAB REINFORCING
PART PLAN AT END OF CULVERT

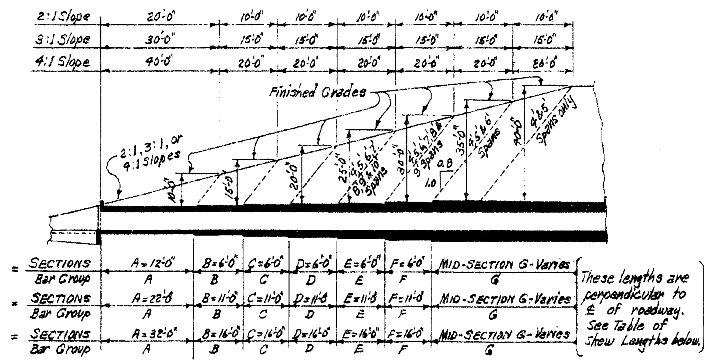
NOTE:- The "d", "d1" and "e" bars vary in length. They should extend 1'-8" min. into SECTION "B".



SECTION N-N

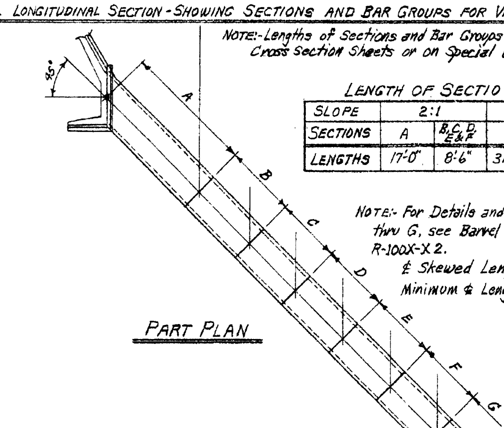


TYPICAL SECTION M-M



TYPICAL LONGITUDINAL SECTION - SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.



PART PLAN

LENGTH OF SECTIONS ON 45° SKEW

SLOPE	2:1		3:1		4:1	
SECTIONS	A	B, C, D, E & F	A	B, C, D, E & F	A	B, C, D, E & F
LENGTHS	17'-0"	8'-6"	31'-1½"	15'-6¾"	45'-3"	22'-7½"

NOTE:- For Details and Bar Lists for SECTIONS B thru G, see Barrel Drawing Nos. R-100X-X1 or R-100X-X2.
℄ Skewed Length of A = 1.41421 x A.
Minimum ℄ Length on Skew = (0.5 OW + 1").

BAR LIST FOR SECTION "A" ON 45° SKEW - ONE END ONLY.

Section & Bar Group: SECTION "A" & BAR GROUP "A". Length of Section: 2:1 = 17'-0", 3:1 = 31'-1½", 4:1 = 45'-3". Depth of Cover (D): 0'-0" TO 10'-0" MAXIMUM.

"a" bars — STRAIGHT — In Top and Bottom Slabs of Barrel. ▼"a1" bars — STRAIGHT — In Top and Bottom Slab of Barrel (Two of each Length). "b" bars — BENT - See Diagrams at Right — In Top and Bottom Slabs of Barrel - hooked. Alternate with "a" bars. ▼"b1" bars — BENT — In Top and Bottom Slabs of Barrel - one end hooked. (Two of each Length) Alternate with "a1" bars.

Clear Span S	Clear Height H	"a" Size	"a" Spacing	"a" No. Req'd 2:1	"a" 3:1	"a" 4:1	"a" Length	"a1" Size	"a1" Spacing	"a1" No. Req'd	"a1" Length Max.	"a1" Length Min.	"b" Size	"b" Spacing	"b" No. Req'd 2:1	"b" 3:1	"b" 4:1	"b" Length	"b" X	"b1" Size	"b1" Spacing	"b1" No. Req'd	"b1" Length Max.	"b1" Length Min.	"b1" X Max.	"b1" X Min.
1 @ 4'	2'	#4	12"	31	59	87	4'-9"	#4	12"	4	3'-9"	2'-9"	#4	12"	29	59	87	5'-7"	4'-8½"	#4	12"	6	4'-7"	2'-7"	4'-2"	2'-2"
	3'			31	59	87	"			4	"	"			29	59	87	"	"			6	"		"	
	4'			31	59	87	"			4	"	"			29	59	87	"	"			6	"		"	
	5'			31	59	87	"			4	"	"			29	59	87	"	"			6	"		"	
	6'			31	59	87	4'-11"			4	3'-11"	2'-11"			29	57	87	5'-9"	4'-10½"			6	4'-9"	2'-9"	4'-4"	2'-4"
1 @ 5'	3'	#5	12"	29	59	87	5'-9"	#5	12"	6	4'-9"	2'-9"	#5	12"	29	57	85	6'-8"	5'-8½"	#5	12"	8	5'-8"	2'-8"	5'-2"	2'-2"
	4'			29	59	87	"			6	"	"			29	57	85	"	"			8	"	"	"	"
	5'			29	59	87	"			6	"	"			29	57	85	"	"			8	"	"	"	
	6'			29	57	87	5'-11"			6	4'-11"	2'-11"			29	57	85	6'-10"	5'-10½"			8	5'-10"	2'-10"	5'-4"	2'-4"
	7'			29	57	87	6'-0"			6	5'-0"	3'-0"			29	57	85	6'-11"	5'-11½"			8	5'-11"	2'-11"	5'-5"	2'-5"
1 @ 6'	3'	#5	12"	29	57	85	6'-9"	#5	12"	8	5'-9"	2'-9"	#6	12"	27	57	85	7'-10"	6'-8"	#6	12"	10	6'-9"	2'-9"	6'-2"	2'-2"
	4'			29	57	85	"			8	"	"			27	57	85	"	"			10	"	"	"	"
	5'			29	57	85	"			8	"	"			27	57	85	"	"			10	"	"	"	"
	6'			29	57	85	6'-11"			8	5'-11"	2'-11"			27	55	85	8'-0"	6'-10"			10	6'-11"	2'-11"	6'-4"	2'-4"
	7'			29	57	85	7'-0"			8	6'-0"	3'-0"			27	55	85	8'-1"	6'-11"			10	7'-0"	3'-0"	6'-5"	2'-5"
	8'			29	57	85	7'-1"			8	6'-1"	3'-1"			27	55	85	8'-2"	7'-0"			10	7'-1"	3'-1"	6'-6"	2'-6"
1 @ 7'	4'	#5	12"	27	57	85	7'-9"	#5	12"	10	6'-9"	2'-9"	#6	12"	27	55	83	8'-10"	7'-8"	#6	12"	12	7'-9"	2'-9"	7'-2"	2'-2"
	5'			27	57	85	"			10	"	"			27	55	83	"	"			12	"	"	"	"
	6'			27	55	85	7'-11"			10	6'-11"	2'-11"			27	55	83	9'-0"	7'-10"			12	7'-11"	2'-11"	7'-4"	2'-4"
	7'			27	55	85	8'-0"			10	7'-0"	3'-0"			27	55	83	9'-1"	7'-11"			12	8'-0"	3'-0"	7'-5"	2'-5"
	8'			27	55	85	8'-1"			10	7'-1"	3'-1"			27	55	83	9'-2"	8'-0"			12	8'-1"	3'-1"	7'-6"	2'-6"
	9'			27	55	83	8'-3"			10	7'-3"	3'-3"			27	55	83	9'-4"	8'-2"			12	8'-3"	3'-3"	7'-8"	2'-8"
1 @ 8'	4'	#6	12"	27	55	83	8'-9"	#6	12"	12	7'-9"	2'-9"	#6	12"	27	55	83	9'-10"	8'-8"	#6	12"	14	8'-9"	2'-9"	8'-2"	2'-2"
	5'			27	55	83	8'-11"			12	7'-11"	2'-11"			27	53	83	10'-0"	8'-10"			14	8'-10"	2'-10"	8'-3"	2'-3"
	6'			27	55	83	"			12	"	"			27	53	83	"	"			14	"	"	"	"
	7'			27	55	83	9'-0"			12	8'-0"	3'-0"			27	53	83	10'-1"	8'-11"			14	8'-11"	2'-11"	8'-4"	2'-4"
	8'			27	55	83	9'-1"			12	8'-1"	3'-1"			27	53	83	10'-2"	9'-0"			14	9'-0"	3'-0"	8'-5"	2'-5"
	9'			27	55	83	9'-3"			12	8'-3"	3'-3"			27	53	81	10'-4"	9'-2"			14	9'-2"	3'-2"	8'-7"	2'-7"
	10'			27	55	83	9'-5"			14	8'-5"	2'-5"			27	53	81	10'-6"	9'-4"			14	9'-4"	3'-4"	8'-9"	2'-9"
1 @ 9'	5'	#6	11"	27	59	89	9'-11"	#6	11"	16	9'-0"	2'-7"	#7	11"	27	57	89	11'-2"	9'-10"	#7	11"	16	10'-1"	3'-8"	9'-5"	3'-0"
	6'			27	59	89	10'-0"			16	9'-1"	2'-8"			27	57	89	11'-3"	9'-11"			16	10'-2"	3'-9"	9'-6"	3'-1"
	7'			27	59	89	"			16	"	"			27	57	89	"	"			16	"	"	"	"
	8'			27	59	89	10'-1"			16	9'-2"	2'-9"			27	57	89	11'-4"	10'-0"			16	10'-3"	3'-10"	9'-7"	3'-2"
	9'			27	59	89	10'-3"			16	9'-4"	2'-11"			27	57	89	11'-6"	10'-2"			18	10'-5"	3'-1"	9'-9"	2'-5"
	10'			27	59	89	10'-5"			16	9'-6"	3'-1"			27	57	87	11'-8"	10'-4"			18	10'-7"	3'-3"	9'-11"	2'-7"
	11'			27	57	89	10'-7"			16	9'-8"	3'-3"			27	57	87	11'-10"	10'-6"			18	10'-9"	3'-5"	10'-1"	2'-9"
1 @ 10'	5'	#7	12"	25	53	82	10'-11"	#7	12"	16	9'-11"	2'-11"	#7	12"	23	51	81	12'-2"	10'-10"	#7	12"	18	11'-0"	3'-0"	10'-4"	2'-4"
	6'			25	53	82	11'-0"			16	10'-0"	3'-0"			23	51	81	12'-3"	10'-11"			18	11'-1"	3'-1"	10'-5"	2'-5"
	7'			25	53	82	"			16	"	"			23	51	81	"	"			18	"	"	"	"
	8'			25	53	82	11'-1"			16	10'-1"	3'-1"			23	51	81	12'-4"	11'-0"			18	11'-2"	3'-2"	10'-6"	2'-6"
	9'			25	53	82	11'-3"			16	10'-3"	3'-3"			23	51	79	12'-6"	11'-2"			18	11'-4"	3'-4"	10'-8"	2'-8"
	10'			25	53	82	11'-5"			18	10'-5"	2'-5"			23	51	79	12'-8"	11'-4"			18	11'-6"	3'-6"	10'-10"	2'-10"
	11'			23	53	82	11'-7"			18	10'-7"	2'-7"			23	51	79	12'-10"	11'-6"			18	11'-8"	3'-8"	11'-0"	3'-0"
	12'			23	53	82	11'-9"			18	10'-9"	2'-9"			23	51	79	13'-0"	11'-8"			18	11'-10"	3'-10"	11'-2"	3'-2"

"d" bars — STRAIGHT — Longitudinal in Top Slab of Barrel; Length: Lengths Vary - Average Length: 2:1 = 18'-7", 3:1 = 32'-9", ⊙4:1 = 46'-10". "d1" bars — Longitudinal in Sidewalls; Length: Lengths Vary - Average Length: 2:1 = 18'-7", 3:1 = 32'-9", ⊙4:1 = 46'-10". "e" bars — Longitudinal in Bottom Slab of Barrel; Length: Lengths Vary - Average Length: 2:1 = 19'-11", 3:1 = 34'-1", ⊙4:1 = 48'-2". "f" bars — STRAIGHT — Verticals in Sidewalls. ▼"k1" bars — STRAIGHT — In Bottom of Headwall. ▼"k2" bars — In Top of Headwall and Apron. (2 Each).

Clear Span S	Clear Height H	"d" Size	"d" Spacing	"d" No. Req'd	"d1" Size	"d1" Spacing	"d1" No. Req'd	"e" Size	"e" Spacing	"e" No. Req'd	"f" Size	"f" Spacing	"f" No. Req'd 2:1	"f" 3:1	"f" 4:1	"f" Length	"k1" Size	"k1" No. Req'd	"k1" Length	"k2" Size	"k2" No. Req'd	"k2" Length
1 @ 4'	2'	#4	12"	5	#4	12"	4	#4	12"	5	#4	12"	35	63	91	2'-10"	#5	3	6'-9"	#5	4	8'-10"
	3'			5			6			5			35	63	91	3'-10"		3	"		4	"
	4'			5			8			5			35	63	91	4'-10"		3	"		4	"
	5'			5			10			5			35	63	91	5'-10"		3	"		4	"
	6'			5			12			5			35	63	91	6'-10"		3	6'-11"		4	9'-0"
1 @ 5'	3'	#4	12"	6	#4	12"	6	#4	12"	6	#4	12"	35	63	91	3'-11"	#6	3	8'-1"	#6	4	10'-3"
	4'			6			8			6			35	63	91	4'-11"		3	"		4	"
	5'			6			10			6			35	63	91	5'-11"		3	"		4	"
	6'			6			12			6			35	63	91	6'-11"		3	8'-4"		4	10'-5"
	7'			6			14			6		10"	41	75	109	7'-11"		3	8'-5"		4	10'-7"
1 @ 6'	3'	#4	12"	7	#4	12"	6	#4	12"	7	#4	12"	35	63	91	4'-0"	#6	3	9'-6"	#6	4	11'-7"
	4'			7			8			7			35	63	91	5'-0"		3	"		4	"
	5'			7			10			7			35	63	91	6'-0"		3	"		4	"
	6'			7			12			7			35	63	91	7'-0"		3	9'-9"		4	11'-10"
	7'			7			14			7		10"	41	75	109	8'-0"		3	9'-10"		4	12'-0"
	8'			7			16			7	#5	11"	38	69	99	9'-0"		3	10'-0"		4	12'-1"
1 @ 7'	4'	#4	12"	8	#4	12"	8	#4	12"	8	#4	12"	35	63	91	5'-1"	#7	3	10'-11"	#7	4	13'-0"
	5'			8			10			8			35	63	91	6'-1"		3	"		4	"
	6'			8			12			8			35	63	91	7'-1"		3	11'-2"		4	13'-3"
	7'			8			14			8		11"	38	69	99	8'-1"		3	11'-3"		4	13'-5"
	8'			8			16			8	#5	12"	35	63	91	9'-1"		3	11'-4"		4	13'-6"
	9'			8			18			8		11"	38	69	99	10'-1"		3	11'-7"		4	13'-9"
1 @ 8'	4'	#4	12"	9	#4	12"	8	#4	12"	9	#4	12"	35	63	91	5'-3"	#7	3	12'-4"	#7	4	14'-5"
	5'			9			10			9			35	63	91	6'-3"		3	12'-7"		4	14'-8"
	6'			9			12			9			35	63	91	7'-3"		3	"		4	"
	7'			9			14			9			35	63	91	8'-3"		3	12'-8"		4	14'-10"
	8'			9			16			9	#5	12"	35	63	91	9'-3"		3	12'-10"		4	14'-11"
	9'			9			18			9		11"	38	69	99	10'-3"		3	13'-0"		4	15'-2"
	10'			9			20			9		10"	41	75	109	11'-3"		3	13'-3"		4	15'-5"
1 @ 9'	5'	#4	12"	10	#4	12"	10	#4	12"	10	#4	12"	35	63	91	6'-5"	#8	3	14'-0"	#8	4	16'-1"
	6'			10			12			10			35	63	91	7'-5"		3	14'-1"		4	16'-3"
	7'			10			14			10			35	63	91	8'-5"		3	"		4	"
	8'			10			16			10	#5	12"	35	63	91	9'-5"		3	14'-2"		4	16'-4"
	9'			10			18			10		11"	38	69	99	10'-5"		3	14'-5"		4	16'-7"
	10'			10			20			10		10"	41	75	109	11'-5"		3	14'-8"		4	16'-10"
	11'			10			22			10	#6	12"	35	63	91	12'-5"		3	14'-11"		4	17'-0"
1 @ 10'	5'	#4	12"	11	#4	12"	10	#4	12"	11	#4	12"	35	63	91	6'-7"	#8	3	15'-5"	#8	4	17'-6"
	6'			11			12			11			35	63	91	7'-7"		3	15'-6"		4	17'-8"
	7'			11			14			11		11"	38	69	99	8'-7"		3	"		4	"
	8'			11			16			11	#5	12"	35	63	91	9'-7"		3	15'-7"		4	17'-9"
	9'			11			18			11			35	63	91	10'-7"		3	15'-10"		4	18'-0"
	10'			11			20			11		10"	41	75	109	11'-7"		3	16'-1"		4	18'-3"
	11'			11			22			11	#6	12"	35	63	91	12'-7"		3	16'-4"		4	18'-5"
	12'			11			24			11		11"	38	69	99	13'-7"		3	16'-7"		4	18'-8"

▼ These bars are in the skewed portion of barrel only. The length of "a1" bars and overall length "X" of "b1" bars vary by 1'-0" for 12" spacing and 0'-11" for 11" spacing.

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTHS OF COVER	A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0' to 24.5'	A	B	C				D
25.0' to 29.5'	A	B	C	D			E
30.0' to 34.5'	A	B	C	D	E		F
35.0' to 40.0'	A	B	C	D	E	F	G

(Columns A–F: SECTIONS & BAR GROUPS FOR END SECTIONS)

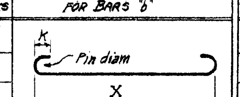
OR ALT.

DEPTHS OF COVER	A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0' to 24.5'	A	2@C					D
25.0' to 29.5'	A	B	2@D				E
30.0' to 34.5'	A	2@C		2@E			F
35.0' to 40.0'	A	B	2@D		2@F		G

(Columns A–F: SECTIONS & BAR GROUPS FOR END SECTIONS)

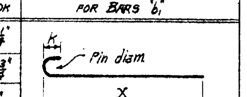
BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS
#4	2"	4"	0'-10½"
#5	2½"	4¼"	0'-11½"
#6	3"	5"	1'-2"
#7	3½"	5¾"	1'-4"

BENDING DIAGRAM FOR BARS "b"



BAR SIZE	PIN DIAM.	K	ADD FOR 1 HOOK
#4	2"	4"	0'-5¼"
#5	2½"	4¼"	0'-5¾"
#6	3"	5"	0'-7"
#7	3½"	5¾"	0'-8"

BENDING DIAGRAM FOR BARS "b1"

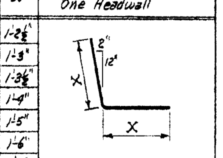


NOTE:- Dimensions are to centers of bars. ("b" and "b1")

DOWEL BARS FOR ONE HEADWALL

SPAN	SIZE	SPACING	No. REQ'D	LENGTH	X
4'	#4	12"±	8	2'-5"	1'-2½"
5'	#4	12"±	9	2'-6"	1'-3"
6'	#4	12"±	11	2'-7"	1'-3½"
7'	#4	12"±	12	2'-8"	1'-4"
8'	#4	12"±	14	2'-10"	1'-5"
9'	#4	12"±	15	3'-0"	1'-6"
10'	#4	12"±	17	3'-2"	1'-7"

Dowel bars "r" in One Headwall



To longitudinal bars of 4:1 slopes add one splice for each "d", "d1" and "e" bar. (1'-3" lap).

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200 #/□"
Reinforcing Steel 20,000 #/□"

SECTION "A" = 10'-0"

MAX. DESIGN DEPTH OF COVER	CLEAR SPANS	CLEAR HEIGHT	SQ.FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	ROADWAY LENGTH	LENGTH OF HEADWALL	* CLASS S CONCRETE, BARREL ONLY 2:1	3:1	4:1	* REINFORCING STEEL, BARREL, APRON AND HEADWALL 2:1	3:1	4:1
D	S	H	A	OW	T	C	B	OH	RL	K	CU.YD.	CU.YD.	CU.YD.	LB.	LB.	LB.
10'-0"	1 @ 4'	2'	8	5'-0"	6½"	6"	6½"	3'-1"	7'-0⅞"	9'-0⅞"	4.67	8.56	12.44	555	931	1321
		3'	12	5'-0"		6"		4'-1"	"	"	5.30	9.71	14.12	593	1017	1446
		4'	16	5'-0"		6"		5'-1"	"	"	5.93	10.86	15.79	641	1103	1571
		5'	20	5'-0"		6"		6'-1"	"	"	6.56	12.01	17.47	690	1189	1696
		6'	24	5'-2"		7"		7'-1"	7'-3⅝"	9'-3⅝"	7.94	14.54	21.18	747	1282	1843
	1 @ 5'	3'	15	6'-0"	7"	6"	7"	4'-2"	8'-5⅞"	10'-5⅞"	6.29	11.52	16.74	867	1485	2106
		4'	20	6'-0"		6"		5'-2"	"	"	6.92	12.67	18.42	915	1571	2216
		5'	25	6'-0"		6"		6'-2"	"	"	7.55	13.82	20.09	964	1657	2341
		6'	30	6'-2"		7"		7'-2"	8'-8⅝"	10'-8⅝"	8.94	16.37	23.80	1026	1755	2515
		7'	35	6'-3"		7½"		8'-2"	8'-10⅛"	10'-10⅛"	10.10	18.49	26.88	1114	1917	2753
	1 @ 6'	3'	18	7'-0"	7½"	6"	7½"	4'-3"	9'-10⅜"	11'-10⅜"	7.40	13.54	19.68	1108	1922	2729
		4'	24	7'-0"		6"		5'-3"	"	"	8.02	14.69	21.36	1156	2008	2854
		5'	30	7'-0"		6"		6'-3"	"	"	8.65	15.84	23.03	1205	2094	2979
		6'	36	7'-2"		7"		7'-3"	10'-1⅝"	12'-1⅝"	10.05	18.39	26.74	1271	2187	3146
		7'	42	7'-3"		7½"		8'-3"	10'-3"	12'-3"	11.22	20.54	29.86	1361	2352	3389
		8'	48	7'-4"		8"		9'-3"	10'-4½"	12'-4½"	12.50	22.88	33.26	1532	2657	3836
	1 @ 7'	4'	28	8'-0"	8"	6"	8½"	5'-4½"	11'-3¾"	13'-3¾"	9.45	17.30	25.13	1339	2275	3214
		5'	35	8'-0"		6"		6'-4½"	"	"	10.08	18.46	26.83	1387	2361	3339
		6'	42	8'-2"		7"		7'-4½"	11'-6⅝"	13'-6½"	11.48	21.01	30.54	1455	2463	3508
		7'	49	8'-3"		7½"		8'-4½"	11'-8"	13'-8"	12.65	23.16	33.67	1530	2597	3698
		8'	56	8'-4"		8"		9'-4½"	11'-9⅜"	13'-9½"	13.92	25.49	37.06	1623	2812	4044
		9'	63	8'-6"		9"		10'-4½"	12'-0¼"	14'-0¼"	15.86	29.04	42.22	1803	3094	4391
	1 @ 8'	4'	32	9'-0"	8½"	6"	9½"	5'-6"	12'-8¾"	14'-8¾"	11.02	20.17	29.32	1643	2769	3915
		5'	40	9'-2"		7"		6'-6"	12'-11½"	14'-11½"	12.33	22.57	32.81	1711	2859	4088
		6'	48	9'-2"		7"		7'-6"	"	"	13.07	23.94	34.80	1759	2945	4213
		7'	56	9'-3"		7½"		8'-6"	13'-1"	15'-1"	14.25	26.08	37.92	1820	3049	4364
		8'	64	9'-4"		8"		9'-6"	13'-2½"	15'-2½"	15.54	28.45	41.36	2001	3372	4830
		9'	72	9'-6"		9"		10'-6"	13'-5¼"	15'-5¼"	17.48	32.00	46.52	2117	3582	5095
		10'	80	9'-8"		10"		11'-6"	13'-8"	15'-8"	19.62	35.92	52.22	2249	3814	5440
	1 @ 9'	5'	45	10'-2"	9½"	7"	10½"	6'-8"	14'-4½"	16'-4½"	14.35	26.27	38.19	2228	3793	5398
		6'	54	10'-3"		7½"		7'-8"	14'-6"	16'-6"	15.47	28.32	41.18	2291	3903	5556
		7'	63	10'-3"		7½"		8'-8"	"	"	16.27	29.79	43.30	2339	3989	5681
		8'	72	10'-4"		8"		9'-8"	14'-7⅜"	16'-7⅜"	17.56	32.15	46.74	2525	4321	6160
		9'	81	10'-6"		9"		10'-8"	14'-10⅛"	16'-10⅛"	19.52	35.73	51.95	2662	4556	6486
		10'	90	10'-8"		10"		11'-8"	15'-1"	17'-1"	21.69	39.72	57.74	2809	4809	6808
		11'	99	10'-10"		11"		12'-8"	15'-3⅞"	17'-3⅞"	24.07	44.07	64.07	3012	5134	7321
	1 @ 10'	5'	50	11'-2"	10½"	7"	11½"	6'-10"	15'-9½"	17'-9½"	16.56	30.32	44.07	2505	4252	6096
		6'	60	11'-3"		7½"		7'-10"	15'-11"	17'-11"	17.71	32.43	47.15	2569	4363	6257
		7'	70	11'-3"		7½"		8'-10"	"	"	18.50	33.86	49.23	2635	4484	6428
		8'	80	11'-4"		8"		9'-10"	16'-0⅜"	18'-0⅜"	19.81	36.26	52.72	2807	4787	6869
		9'	90	11'-6"		9"		10'-10"	16'-3⅛"	18'-3⅛"	21.78	39.87	57.97	2901	4998	7048
		10'	100	11'-8"		10"		11'-10"	16'-6"	18'-6"	23.95	43.86	63.76	3077	5264	7506
		11'	110	11'-10"		11"		12'-10"	16'-8⅞"	18'-8⅞"	26.35	48.24	70.14	3253	5647	8098
		12'	120	12'-0"		12"		13'-10"	16'-11⅝"	18'-11⅝"	28.97	53.04	77.11	3429	5957	8480

(Header groups: BARREL DIMENSIONS; * QUANTITIES - ONE SECTION "A")

* For remainder of quantities see Std. Wing and Barrel Drawings listed below. Total steel quantities listed above include one lap of longitudinal bars, plus an add'l lap for 4:1 slopes.

GENERAL NOTES

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls and slabs shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X452-1 or W-X452-2; W-X453-1 or W-X453-2, and W-X454-1 or W-X454-2. Also W-X45.
For Barrels of 4', 5' & 6' Spans, See Drawing No. R-100X-X1.
For Barrels of 7', 8', 9' & 10' Spans, See Drawing No. R-100X-X2.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS
FOR
REINFORCED CONCRETE BOX CULVERTS
45° SKEW SECTIONS "A" ONLY

4', 5', 6', 7', 8', 9' & 10' SPANS SINGLES
2:1, 3:1 OR 4:1 SLOPES OVER 5'-0" COVER

STANDARD DRAWING NO. R-145X-1

Designed by:- W.C.H. 9-5-62
Drawn by:- W.C.H. 8-10-64
Quantities by:- W.C.H. 10-22-64
Checked by:- R.H.S. 11-8-62
Checked by:-
Checked by:-

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			489	
JOB No.					

BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH

Depth of Cover D: 0'-0" TO 5'-0" MAXIMUM.

"a" bars — STRAIGHT — In Top and Bottom Slab of Barrel. 2 Add'l in Apron and Headwall.- Each.
"b" bars — BENT - See Diagram below. — In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars.

Clear Span S	Clear Height H	"a" Size	"a" Spacing	"a" No. Req'd 3:1	"a" No. Req'd 4:1	"a" Length	"b" Size	"b" Spacing	"b" No. Req'd 3:1	"b" No. Req'd 4:1	"b" Length	"b" X	"b" Y	"b" Z
2 @ 4'	2'	#5	12"	128	128	9'-5"	#5	12"	59	59	10'-6"	0'-3"	2'-2½"	3'-4"
	3'			128	128	9'-5"			59	59	10'-6"	0'-3"	2'-2½"	3'-4"
	4'			128	128	9'-5"			59	59	10'-6"	0'-3"	2'-2½"	3'-4"
	5'			128	128	9'-5"			59	59	10'-6"	0'-3"	2'-2½"	3'-4"
	6'			128	128	9'-8"			59	59	10'-9"	0'-3"	2'-3½"	3'-5"
2 @ 5'	3'	#6	12"	128	128	11'-5"	#5	12"	59	59	12'-7"	0'-3½"	2'-7½"	4'-1"
	4'			128	128	11'-5"			59	59	12'-7"	0'-3½"	2'-7½"	4'-1"
	5'			128	128	11'-5"			59	59	12'-7"	0'-3½"	2'-7½"	4'-1"
	6'			128	128	11'-8"			59	59	12'-10"	0'-3½"	2'-8½"	4'-2"
	7'			128	128	11'-10"			59	59	13'-0"	0'-3½"	2'-9½"	4'-2½"
2 @ 6'	3'	#6	11"	140	140	13'-5"	#5	11"	65	65	14'-7"	0'-4"	3'-0½"	4'-10"
	4'			140	140	13'-5"			65	65	14'-7"	0'-4"	3'-0½"	4'-10"
	5'			140	140	13'-5"			65	65	14'-7"	0'-4"	3'-0½"	4'-10"
	6'			140	140	13'-8"			65	65	14'-10"	0'-4"	3'-1½"	4'-11"
	7'			140	140	13'-10"			65	65	15'-0"	0'-4"	3'-2½"	4'-11½"
	8'			140	140	13'-11"			65	65	15'-1"	0'-4"	3'-2½"	5'-0"
2 @ 7'	4'	#6	12"	128	128	15'-5"	#6	12"	59	59	16'-9"	0'-4½"	3'-5"	5'-7"
	5'			128	128	15'-5"			59	59	16'-9"	0'-4½"	3'-5"	5'-7"
	6'			128	128	15'-8"			59	59	17'-0"	0'-4½"	3'-6"	5'-8"
	7'			128	128	15'-10"			59	59	17'-2"	0'-4½"	3'-7"	5'-8½"
	8'			128	128	15'-11"			59	59	17'-3"	0'-4½"	3'-7"	5'-9"
	9'			128	128	16'-2"			59	59	17'-6"	0'-4½"	3'-8"	5'-10"
2 @ 8'	4'	#6	11"	140	140	17'-5"	#6	11"	65	65	18'-10"	0'-5"	3'-10"	6'-4"
	5'			140	140	17'-8"			65	65	19'-1"	0'-5"	3'-11"	6'-5"
	6'			140	140	17'-8"			65	65	19'-1"	0'-5"	3'-11"	6'-5"
	7'			140	140	17'-10"			65	65	19'-3"	0'-5"	4'-0"	6'-5½"
	8'			140	140	17'-11"			65	65	19'-4"	0'-5"	4'-0"	6'-6"
	9'			140	140	18'-2"			65	65	19'-7"	0'-5"	4'-1"	6'-7"
	10'			140	140	18'-5"			65	65	19'-10"	0'-5"	4'-2"	6'-8"
2 @ 9'	5'	#6	11"	140	140	19'-8"	#6	11"	65	65	21'-1"	0'-5½"	4'-4"	7'-2"
	6'			140	140	19'-10"			65	65	21'-3"	0'-5½"	4'-5"	7'-2½"
	7'			140	140	19'-10"			65	65	21'-3"	0'-5½"	4'-5"	7'-2½"
	8'			140	140	19'-11"			65	65	21'-4"	0'-5½"	4'-5"	7'-3"
	9'			140	140	20'-2"			65	65	21'-7"	0'-5½"	4'-6"	7'-4"
	10'			140	140	20'-5"			65	65	21'-10"	0'-5½"	4'-7"	7'-5"
	11'			140	140	20'-7"			65	65	22'-0"	0'-5½"	4'-7"	7'-6"
2 @ 10'	5'	#7	12"	128	128	21'-8"	#6	12"	59	59	23'-2"	0'-6"	4'-9"	7'-11"
	6'			128	128	21'-10"			59	59	23'-4"	0'-6"	4'-10"	7'-11½"
	7'			128	128	21'-10"			59	59	23'-4"	0'-6"	4'-10"	7'-11½"
	8'			128	128	21'-11"			59	59	23'-5"	0'-6"	4'-10"	8'-0"
	9'			128	128	22'-2"			59	59	23'-8"	0'-6"	4'-11"	8'-1"
	10'			128	128	22'-5"			59	59	23'-11"	0'-6"	5'-0"	8'-2"
	11'			128	128	22'-7"			59	59	24'-1"	0'-6"	5'-0"	8'-3"
	12'			128	128	22'-9"			59	59	24'-3"	0'-6"	5'-0"	8'-4"
2 @ 11'	6'	#7	12"	128	128	23'-11"	#6	12"	59	59	25'-5"	0'-6½"	5'-3"	8'-9"
	7'			128	128	23'-11"			59	59	25'-5"	0'-6½"	5'-3"	8'-9"
	8'			128	128	23'-11"			59	59	25'-5"	0'-6½"	5'-3"	8'-9"
	9'			128	128	24'-2"			59	59	25'-8"	0'-6½"	5'-4"	8'-10"
	10'			128	128	24'-5"			59	59	25'-11"	0'-6½"	5'-5"	8'-11"
	11'			128	128	24'-7"			59	59	26'-1"	0'-6½"	5'-5"	9'-0"
	12'			128	128	24'-9"			59	59	26'-3"	0'-6½"	5'-5"	9'-1"
2 @ 12'	6'	#7	11"	140	140	25'-11"	#6	11"	65	65	27'-5"	0'-7"	5'-8"	9'-6"
	7'			140	140	25'-11"			65	65	27'-5"	0'-7"	5'-8"	9'-6"
	8'			140	140	25'-11"			65	65	27'-5"	0'-7"	5'-8"	9'-6"
	9'			140	140	26'-2"			65	65	27'-8"	0'-7"	5'-9"	9'-7"
	10'			140	140	26'-5"			65	65	27'-11"	0'-7"	5'-10"	9'-8"
	11'			140	140	26'-7"			65	65	28'-1"	0'-7"	5'-10"	9'-9"
	12'			140	140	26'-9"			65	65	28'-3"	0'-7"	5'-10"	9'-10"

"b2" bars — BENT - See Diagram below. — In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars.
"c" bars — STRAIGHT — In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars.

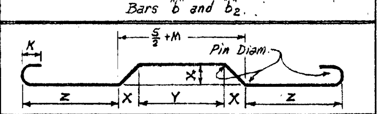
Clear Span S	Clear Height H	"b2" Size	"b2" Spacing	"b2" No. Req'd 3:1	"b2" No. Req'd 4:1	"b2" Length	"b2" X	"b2" Y	"b2" Z	"c" Size	"c" Spacing	"c" No. Req'd 3:1	"c" No. Req'd 4:1	"c" Length
2 @ 4'	2'	#5	12"	59	59	10'-6"	0'-2½"	2'-3½"	3'-4"	#5	12"	120	120	4'-8"
	3'			59	59	10'-6"	0'-2½"	2'-3½"	3'-4"			120	120	4'-8"
	4'			59	59	10'-6"	0'-2½"	2'-3½"	3'-4"			120	120	4'-8"
	5'			59	59	10'-6"	0'-2½"	2'-3½"	3'-4"			120	120	4'-8"
	6'			59	59	10'-9"	0'-2½"	2'-4½"	3'-5"			120	120	4'-9"
2 @ 5'	3'	#5	12"	59	59	12'-6"	0'-3"	2'-8½"	4'-1"	#6	12"	120	120	5'-8"
	4'			59	59	12'-6"	0'-3"	2'-8½"	4'-1"			120	120	5'-8"
	5'			59	59	12'-6"	0'-3"	2'-8½"	4'-1"			120	120	5'-8"
	6'			59	59	12'-9"	0'-3"	2'-9½"	4'-2"			120	120	5'-9"
	7'			59	59	12'-11"	0'-3"	2'-10½"	4'-2½"			120	120	5'-10"
2 @ 6'	3'	#5	11"	65	65	14'-7"	0'-4"	3'-0½"	4'-10"	#6	11"	132	132	6'-8"
	4'			65	65	14'-7"	0'-4"	3'-0½"	4'-10"			132	132	6'-8"
	5'			65	65	14'-7"	0'-4"	3'-0½"	4'-10"			132	132	6'-8"
	6'			65	65	14'-10"	0'-4"	3'-1½"	4'-11"			132	132	6'-9"
	7'			65	65	15'-0"	0'-4"	3'-2½"	4'-11½"			132	132	6'-10"
	8'			65	65	15'-1"	0'-4"	3'-2½"	5'-0"			132	132	6'-10"
2 @ 7'	4'	#6	12"	59	59	16'-9"	0'-4½"	3'-5"	5'-7"	#6	12"	120	120	7'-8"
	5'			59	59	16'-9"	0'-4½"	3'-5"	5'-7"			120	120	7'-8"
	6'			59	59	17'-0"	0'-4½"	3'-6"	5'-8"			120	120	7'-9"
	7'			59	59	17'-2"	0'-4½"	3'-7"	5'-8½"			120	120	7'-10"
	8'			59	59	17'-3"	0'-4½"	3'-7"	5'-9"			120	120	7'-10"
	9'			59	59	17'-6"	0'-4½"	3'-8"	5'-10"			120	120	7'-11"
2 @ 8'	4'	#6	11"	65	65	18'-10"	0'-5"	3'-10"	6'-4"	#6	11"	132	132	8'-8"
	5'			65	65	19'-1"	0'-5"	3'-11"	6'-6"			132	132	8'-9"
	6'			65	65	19'-1"	0'-5"	3'-11"	6'-5"			132	132	8'-9"
	7'			65	65	19'-3"	0'-5"	4'-0"	6'-5½"			132	132	8'-10"
	8'			65	65	19'-4"	0'-5"	4'-0"	6'-6"			132	132	8'-10"
	9'			65	65	19'-7"	0'-5"	4'-1"	6'-7"			132	132	8'-11"
	10'			65	65	19'-10"	0'-5"	4'-2"	6'-8"			132	132	9'-0"
2 @ 9'	5'	#6	11"	65	65	21'-1"	0'-5¾"	4'-3½"	7'-2"	#6	11"	132	132	9'-9"
	6'			65	65	21'-3"	0'-5¾"	4'-4½"	7'-2½"			132	132	9'-10"
	7'			65	65	21'-3"	0'-5¾"	4'-4½"	7'-2½"			132	132	9'-10"
	8'			65	65	21'-4"	0'-5¾"	4'-4½"	7'-3"			132	132	9'-10"
	9'			65	65	21'-7"	0'-5¾"	4'-5½"	7'-4"			132	132	9'-11"
	10'			65	65	21'-10"	0'-5¾"	4'-6½"	7'-5"			132	132	10'-0"
	11'			65	65	22'-0"	0'-5¾"	4'-6½"	7'-6"			132	132	10'-0"
2 @ 10'	5'	#6	12"	59	59	23'-2"	0'-6½"	4'-8"	7'-11"	#7	12"	120	120	10'-9"
	6'			59	59	23'-4"	0'-6½"	4'-9"	7'-11½"			120	120	10'-10"
	7'			59	59	23'-4"	0'-6½"	4'-9"	7'-11½"			120	120	10'-10"
	8'			59	59	23'-5"	0'-6½"	4'-9"	8'-0"			120	120	10'-10"
	9'			59	59	23'-8"	0'-6½"	4'-10"	8'-1"			120	120	10'-11"
	10'			59	59	23'-11"	0'-6½"	4'-11"	8'-2"			120	120	11'-0"
	11'			59	59	24'-1"	0'-6½"	4'-11"	8'-3"			120	120	11'-0"
	12'			59	59	24'-3"	0'-6½"	4'-11"	8'-4"			120	120	11'-0"
2 @ 11'	6'	#6	12"	59	59	25'-6"	0'-7½"	5'-1"	8'-9"	#7	12"	120	120	11'-10"
	7'			59	59	25'-6"	0'-7½"	5'-1"	8'-9"			120	120	11'-10"
	8'			59	59	25'-6"	0'-7½"	5'-1"	8'-9"			120	120	11'-10"
	9'			59	59	25'-9"	0'-7½"	5'-2"	8'-10"			120	120	11'-11"
	10'			59	59	26'-0"	0'-7½"	5'-3"	8'-11"			120	120	12'-0"
	11'			59	59	26'-2"	0'-7½"	5'-3"	9'-0"			120	120	12'-0"
	12'			59	59	26'-4"	0'-7½"	5'-3"	9'-1"			120	120	12'-0"
2 @ 12'	6'	#6	11"	65	65	27'-7"	0'-8½"	5'-5"	9'-6"	#7	11"	132	132	12'-10"
	7'			65	65	27'-7"	0'-8½"	5'-5"	9'-6"			132	132	12'-10"
	8'			65	65	27'-7"	0'-8½"	5'-5"	9'-6"			132	132	12'-10"
	9'			65	65	27'-10"	0'-8½"	5'-6"	9'-7"			132	132	12'-11"
	10'			65	65	28'-1"	0'-8½"	5'-7"	9'-8"			132	132	13'-0"
	11'			65	65	28'-3"	0'-8½"	5'-7"	9'-9"			132	132	13'-0"
	12'			65	65	28'-5"	0'-8½"	5'-7"	9'-10"			132	132	13'-0"

"d" bars — STRAIGHT — Longitudinal in Top Slab of Barrel. Length: 2 @ 30'-8" for 60'-0" Length Barrel (1'-8" Lap)
"d1" bars — STRAIGHT — Longitudinal in Sidewalls and Division Walls. Length: 2 @ 30'-6" for 60'-0" Length Barrel (1'-3" Lap)
"e" bars — STRAIGHT — Longitudinal in Bottom Slab of Barrel. Length: 2 @ 31'-6" for 60'-0" Length Barrel (1'-3" Lap)
"f" bars — STRAIGHT — Vertical in Sidewalls and Division Walls.

Clear Span S	Clear Height H	"d" Size	"d" Spacing	"d" No. Req'd	"d1" Size	"d1" Spacing	"d1" No. Req'd	"e" Size	"e" Spacing	"e" No. Req'd	"f" Size	"f" Spacing	"f" No. Req'd 3:1	"f" No. Req'd 4:1	"f" Length
2 @ 4'	2'	#5	12"	14	#4	12"	8	#4	12"	14	#4	12"	240	240	2'-10"
	3'			14			12			14			240	240	3'-10"
	4'			14			16			14			240	240	4'-10"
	5'			14			20			14			240	240	5'-10"
	6'			14			24			14			240	240	6'-10"
2 @ 5'	3'	#5	11½"	16	#4	12"	12	#4	12"	16	#4	12"	240	240	3'-11"
	4'			16			16			16			240	240	4'-11"
	5'			16			20			16			240	240	5'-11"
	6'			16			24			16			240	240	6'-11"
	7'			16			28			16			240	240	7'-11"
2 @ 6'	3'	#5	11½"	18	#4	12"	12	#4	12"	18	#4	12"	240	240	4'-0"
	4'			18			16			18			240	240	5'-0"
	5'			18			20			18			240	240	6'-0"
	6'			18			24			18			240	240	7'-0"
	7'			18			28			18			240	240	8'-0"
	8'			18			32			18		10"	288	288	9'-0"
2 @ 7'	4'	#5	11½"	20	#4	12"	16	#4	12"	20	#4	12"	240	240	5'-1"
	5'			20			20			20			240	240	6'-1"
	6'			20			24			20			240	240	7'-1"
	7'			20			28			20			240	240	8'-1"
	8'			20			32			20		10"	288	288	9'-1"
	9'			20			36			20	#5	12"	240	240	10'-1"
2 @ 8'	4'	#5	11½"	23	#4	12"	16	#4	12"	22	#4	12"	240	240	5'-2"
	5'			23			20			22			240	240	6'-2"
	6'			23			24			22			240	240	7'-2"
	7'			23			28			22			240	240	8'-2"
	8'			23			32			22		10"	288	288	9'-2"
	9'			23			36			22	#5	12"	240	240	10'-2"
	10'			23			40			22		11"	264	264	11'-2"
2 @ 9'	5'	#5	11½"	26	#4	12"	20	#4	12"	25	#4	12"	240	240	6'-3"
	6'			26			24			25			240	240	7'-3"
	7'			26			28			25			240	240	8'-3"
	8'			26			32			25		10"	288	288	9'-3"
	9'			26			36			25	#5	12"	240	240	10'-3"
	10'			26			40			25		11"	264	264	11'-3"
	11'			26			44			25		10"	288	288	12'-3"
2 @ 10'	5'	#5	11½"	28	#4	12"	20	#4	12"	27	#4	12"	240	240	6'-4"
	6'			28			24			27			240	240	7'-4"
	7'			28			28			27			240	240	8'-4"
	8'			28			32			27		10"	288	288	9'-4"
	9'			28			36			27	#5	12"	240	240	10'-4"
	10'			28			40			27		11"	264	264	11'-4"
	11'			28			44			27		10"	288	288	12'-4"
	12'			28			48			27	#6	12"	240	240	13'-4"
2 @ 11'	6'	#5	11½"	30	#4	12"	24	#4	12"	29	#4	12"	240	240	7'-6"
	7'			30			28			29			240	240	8'-6"
	8'			30			32			29		10"	288	288	9'-6"
	9'			30			36			29	#5	12"	240	240	10'-6"
	10'			30			40			29		11"	264	264	11'-6"
	11'			30			44			29		10"	288	288	12'-6"
	12'			30			48			29	#6	12"	240	240	13'-6"
2 @ 12'	6'	#5	11½"	32	#4	12"	24	#4	12"	31	#4	12"	240	240	7'-7"
	7'			32			28			31			240	240	8'-7"
	8'			32			32			31		10"	288	288	9'-7"
	9'			32			36			31	#5	12"	240	240	10'-7"
	10'			32			40			31		11"	264	264	11'-7"
	11'			32			44			31		10"	288	288	12'-7"
	12'			32			48			31	#6	12"	240	240	13'-7"

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS
#5	2½"	4¼"	0'-11½"
#6	3"	5"	1'-2"

BENDING DIAGRAM FOR Bars "b" and "b2".

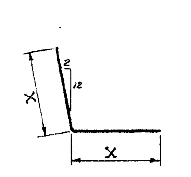


NOTE:- Dimensions are to centers of bars. (Bars "b" and "b2")

DOWEL BARS FOR TWO HEADWALLS

Bars "r" — Dowel bars in Headwalls.

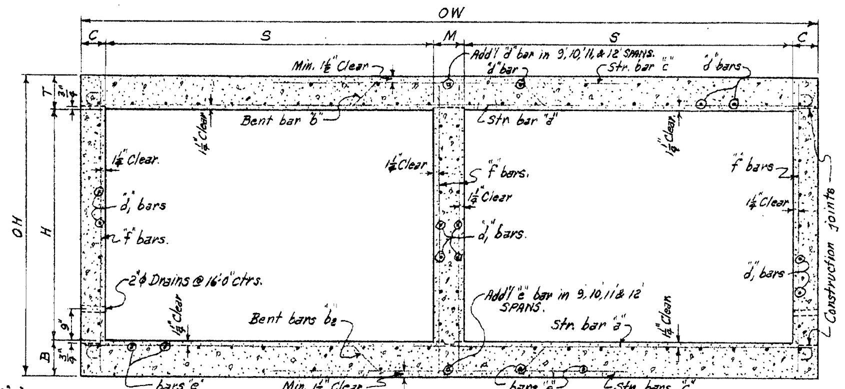
2 SPANS @	SIZE	SPACING	NO. REQ'D	LENGTH	X
4'	#4	12"±	20	2'-5"	1'-2½"
5'	#4	12"±	24	2'-6"	1'-3"
6'	#4	12"±	28	2'-7"	1'-3½"
7'	#4	12"±	32	2'-8"	1'-4"
8'	#4	12"±	36	2'-9"	1'-4½"
9'	#4	12"±	40	2'-10"	1'-5"
10'	#4	12"±	46	2'-11"	1'-5½"
11'	#4	12"±	50	3'-0"	1'-6"
12'	#4	12"±	54	3'-1"	1'-6½"



DIMENSIONS / QUANTITIES

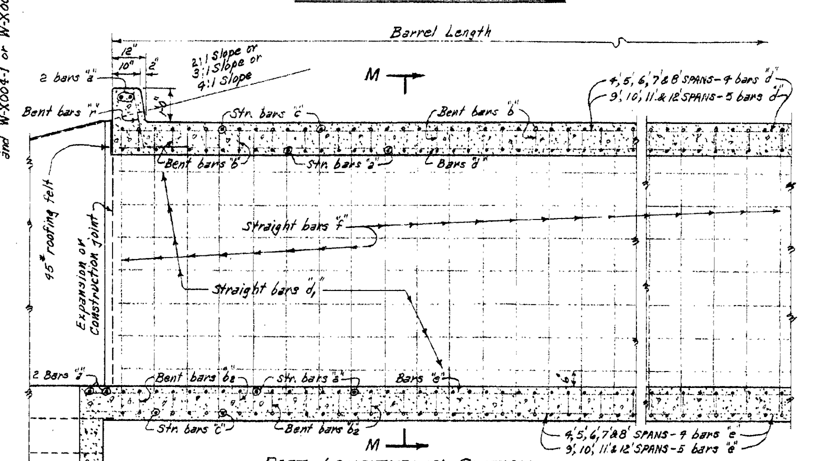
Barrel Dimensions and Unit Quantities. Max. Design Depth of Cover D: 5'-0"

Clear Spans S	Clear Height H (ft)	Sq. Ft. Opening A	Overall Width OW	Thickness of Top Slab T	Thickness of Sidewalls C	Thickness of Division Wall M	Thickness of Bottom Slab B	Overall Height OH	Class S Conc. per Lin. Ft. of Barrel (Cu. Yd.)	Reinforcing Steel per Lin. Ft. of Barrel (Lb.)	Additional per Lap (Lb.)	Additional Two Headwalls & Aprons (Lb.)
2 @ 4'	2'	16	9'-8"	6½"	6"	8"	6"	3'-0½"	0.496	88.15	42.71	129.56
	3'	24	9'-8"		6"	8"		4'-0½"	0.558	93.49	46.05	129.56
	4'	32	9'-8"		6"	8"		5'-0½"	0.620	98.84	49.39	129.56
	5'	40	9'-8"		6"	8"		6'-0½"	0.682	104.18	52.73	129.56
	6'	48	9'-11"		7"	9"		7'-0½"	0.809	110.74	56.07	131.65
2 @ 5'	3'	30	11'-8"	7"	6"	8"	6½"	4'-1½"	0.671	123.34	51.19	198.64
	4'	40	11'-8"		6"	8"		5'-1½"	0.733	128.68	54.53	198.64
	5'	50	11'-8"		6"	8"		6'-1½"	0.795	134.03	57.87	198.64
	6'	60	11'-11"		7"	9"		7'-1½"	0.922	140.89	61.21	201.64
	7'	70	12'-1"		7½"	10"		8'-1½"	1.044	147.34	64.55	203.65
2 @ 6'	3'	36	13'-8"	7½"	6"	8"	7½"	4'-3"	0.818	148.50	56.34	233.58
	4'	48	13'-8"		6"	8"		5'-3"	0.880	153.85	59.68	233.58
	5'	60	13'-8"		6"	8"		6'-3"	0.941	159.19	63.02	233.58
	6'	72	13'-11"		7"	9"		7'-3"	1.070	166.20	66.36	236.59
	7'	84	14'-1"		7½"	10"		8'-3"	1.192	172.74	69.70	238.59
	8'	96	14'-2"		8"	10"		9'-3"	1.298	183.36	73.04	239.59
2 @ 7'	4'	56	15'-8"	8"	6"	8"	8"	5'-4"	1.021	178.15	64.83	268.97
	5'	70	15'-8"		6"	8"		6'-4"	1.082	183.49	68.17	268.97
	6'	84	15'-11"		7"	9"		7'-4"	1.212	190.59	71.51	271.97
	7'	98	16'-1"		7½"	10"		8'-4"	1.334	197.19	74.85	273.98
	8'	112	16'-2"		8"	10"		9'-4"	1.440	207.89	78.19	274.98
	9'	126	16'-5"		9"	11"		10'-4"	1.616	225.25	81.53	277.98
2 @ 8'	4'	64	17'-8"	8½"	6"	8"	8½"	5'-5"	1.174	210.37	71.71	304.80
	5'	80	17'-11"		7"	9"		6'-5"	1.295	217.63	75.05	307.81
	6'	96	17'-11"		7"	9"		7'-5"	1.366	222.97	78.39	307.81
	7'	112	18'-1"		7½"	10"		8'-5"	1.489	229.68	81.73	309.81
	8'	128	18'-2"		8"	10"		9'-5"	1.595	240.97	85.07	310.81
	9'	144	18'-5"		9"	11"		10'-5"	1.772	258.08	88.41	313.82
	10'	160	18'-8"		10"	12"		11'-5"	1.967	271.07	91.75	316.82
2 @ 9'	5'	90	19'-11"	9"	7"	9"	9¼"	6'-6¼"	1.477	239.37	82.77	345.42
	6'	108	20'-1"		7½"	10"		7'-6¼"	1.594	246.08	86.11	347.43
	7'	126	20'-1"		7½"	10"		8'-6¼"	1.671	251.43	89.45	347.43
	8'	144	20'-2"		8"	10"		9'-6¼"	1.778	262.26	92.79	348.43
	9'	162	20'-5"		9"	11"		10'-6¼"	1.956	279.95	96.13	351.43
	10'	180	20'-8"		10"	12"		11'-6¼"	2.152	292.97	99.47	354.43
	11'	198	20'-10"		11"	12"		12'-6¼"	2.328	306.86	102.81	356.44
2 @ 10'	5'	100	21'-11"	9½"	7"	9"	10"	6'-7½"	1.674	279.64	87.92	479.99
	6'	120	22'-1"		7½"	10"		7'-7½"	1.792	286.50	91.26	482.71
	7'	140	22'-1"		7½"	10"		8'-7½"	1.869	291.85	94.60	482.71
	8'	160	22'-2"		8"	10"		9'-7½"	1.976	302.77	97.94	484.08
	9'	180	22'-5"		9"	11"		10'-7½"	2.155	320.74	101.28	488.16
	10'	200	22'-8"		10"	12"		11'-7½"	2.352	333.99	104.62	492.25
	11'	220	22'-10"		11"	12"		12'-7½"	2.529	348.01	107.96	494.98
	12'	240	23'-0"		12"	12"		13'-7½"	2.718	370.23	111.30	497.70
2 @ 11'	6'	132	24'-2"	10"	8"	10"	11"	7'-9"	2.048	309.36	96.41	530.03
	7'	154	24'-2"		8"	10"		8'-9"	2.128	314.70	99.75	530.03
	8'	176	24'-2"		8"	10"		9'-9"	2.208	325.12	103.09	530.03
	9'	198	24'-5"		9"	11"		10'-9"	2.388	343.25	106.43	534.12
	10'	220	24'-8"		10"	12"		11'-9"	2.586	356.57	109.77	538.21
	11'	242	24'-10"		11"	12"		12'-9"	2.764	370.67	113.11	540.93
	12'	264	25'-0"		12"	12"		13'-9"	2.954	393.05	116.45	543.66
2 @ 12'	6'	144	26'-2"	10½"	8"	10"	12"	7'-10½"	2.299	353.31	101.55	576.43
	7'	168	26'-2"		8"	10"		8'-10½"	2.379	358.65	104.89	576.43
	8'	192	26'-2"		8"	10"		9'-10½"	2.459	369.12	108.23	576.43
	9'	216	26'-5"		9"	11"		10'-10½"	2.640	387.52	111.57	580.52
	10'	240	26'-8"		10"	12"		11'-10½"	2.840	401.07	114.91	584.60
	11'	264	26'-10"		11"	12"		12'-10½"	3.018	415.31	118.25	587.33
	12'	288	27'-0"		12"	12"		13'-10½"	3.208	437.88	121.59	590.05

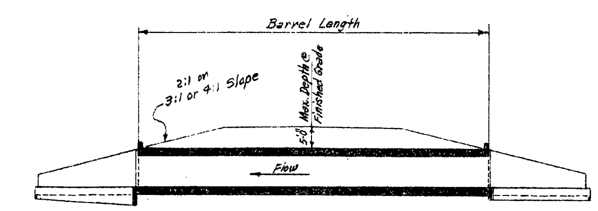


TYPICAL SECTION M-M

NOTE:- For details of wings and bar lists, see Drawing Nos. W-X002-1 or W-X002-2, W-X003-1 or W-X003-2, and W-X004-1 or W-X004-2.



PART LONGITUDINAL SECTION



LONGITUDINAL SECTION

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.

BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diameters.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division walls and slabs shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X003-1 or W-X003-2 and W-X004-1 or W-X004-2. Also Drawing Nos. W-X002-1 or W-X002-2.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF STANDARD BARREL SECTIONS
FOR
REINFORCED CONCRETE BOX CULVERTS
4,5,6,7,8,9,10,11 & 12 SPANS — 3:1 OR 4:1 SLOPES
DOUBLES — UNDER 5'-0" COVER
STANDARD DRAWING NO. R-200X-O.

Designed by: W.C.H. 1-17-63. Checked by: F.H.S. 5-14-63
Drawn by: W.C.H. 2-15-63. Checked by: F.H.S. 5-24-63
Quantities by: W.C.H. 2-19-63. Checked by: F.H.S. 5-24-63

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			490	
JOB No.					

BAR LIST FOR VARIOUS SECTIONS OF BARREL

SECTION & BAR GROUP	LENGTHS OF SECTION	DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	"a" bars STRAIGHT — In Top and Bottom Slab of Barrel & Add'l in Apron and Headwall - Each. (SIZE, SPACING, NUMBER REQ'D 3:1 / 4:1, LENGTH)	"b" bars BENT - See Diagram at Right. In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars. (SIZE, SPACING, NUMBER REQ'D 3:1 / 4:1, LENGTH, X, Y, Z)	"b2" bars BENT - See Diagram at Right. In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars. (SIZE, SPACING, NUMBER REQ'D 3:1 / 4:1, LENGTH, X, Y, Z)	"c" bars STRAIGHT — In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars. (SIZE, SPACING, NUMBER REQ'D 3:1 / 4:1, LENGTH)	"d" bars STRAIGHT — Longitudinal in Top Slab of Barrel (SIZE, SPACING, NO. REQ'D, LENGTH)	"d1" bars STRAIGHT — Longitudinal in Sidewalls and Division Wall (SIZE, SPACING, NO. REQ'D, LENGTH)	"e" bars STRAIGHT — Longitudinal in Bottom Slab of Barrel (SIZE, SPACING, NO. REQ'D, LENGTH)	"f" bars STRAIGHT — Vertical in Sidewalls and Division Walls (SIZE, SPACING, NUMBER REQ'D 3:1 / 4:1, LENGTH)

NOTE:- Bars for each Section to be marked with the Section letter, thus for Section B, the bars should be marked Ba, Bb, Bb2, Bc, Bd, Bd1, Be and Bf.

DIMENSIONS / QUANTITIES

MAX. DESIGN DEPTH OF COVER D	CLEAR SPANS S	CLEAR HEIGHT H	SQ. FT. OPENING A	OVERALL WIDTH OW	THICKNESS OF TOP SLAB T	THICKNESS OF SIDEWALLS C	THICKNESS OF DIVISION WALL M	THICKNESS OF BOTTOM SLAB B	OVERALL HEIGHT OH	CLASS S CONC. PER LIN. FT. OF BARREL CU.YD.	REINFORCING STEEL PER LIN. FT. OF BARREL LB.	ADDITIONAL PER LAP LB.	ADDITIONAL TWO HEADWALLS & APRONS LB.
SECTION "A" = 10'-0"	2 @ 4'	3'	24	9'-8"	6"	6"	8"	6"	4'-0"	0.543	70.19	33.40	100.20
		4'	32	9'-8"		6"	8"		5'-0"	0.606	75.53	36.74	100.20
		5'	40	9'-8"		6"	8"		6'-0"	0.667	80.87	40.08	100.20
		6'	48	9'-11"		7"	9"		7'-0"	0.793	86.99	43.42	101.54
	2 @ 5'	3'	30	11'-8"	6½"	6"	8"	6½"	4'-1"	0.653	97.61	36.74	121.13
		4'	40	11'-8"		6"	8"		5'-1"	0.715	102.96	40.08	121.13
		5'	50	11'-8"		6"	8"		6'-1"	0.777	108.30	43.42	121.13
		6'	60	11'-11"		7"	9"		7'-1"	0.907	114.77	46.76	122.47
		7'	70	12'-1"		7½"	10"		8'-1"	1.025	132.68	50.10	123.36
	2 @ 6'	4'	48	13'-8"	7¼"	6"	8"	7¾"	5'-3"	0.880	116.47	43.42	142.51
		5'	60	13'-8"		6"	8"		6'-3"	0.941	121.81	46.76	142.51
		6'	72	13'-11"		7"	9"		7'-3"	1.070	128.26	50.10	143.84
		7'	84	14'-1"		7½"	10"		8'-3"	1.192	146.43	53.44	144.73
		8'	96	14'-2"		8"	10"		9'-3"	1.298	156.97	56.78	145.18
SECTION "B" = 15'-0"	2 @ 4'	3'	24	9'-8"	6"	6"	8"	6½"	4'-0½"	0.558	76.27	33.40	
		4'	32	9'-8"		6"	8"		5'-0½"	0.620	81.61	36.74	
		5'	40	9'-8"		6"	8"		6'-0½"	0.682	86.95	40.08	
		6'	48	9'-11"		7"	9"		7'-0½"	0.809	103.34	43.42	
	2 @ 5'	3'	30	11'-8"	7"	6"	8"	7½"	4'-2½"	0.707	98.03	36.74	
		4'	40	11'-8"		6"	8"		5'-2½"	0.769	103.37	40.08	
		5'	50	11'-8"		6"	8"		6'-2½"	0.831	108.71	43.42	
		6'	60	11'-11"		7"	9"		7'-2½"	0.959	118.88	46.76	
		7'	70	12'-1"		7½"	10"		8'-2½"	1.081	136.22	50.10	
	2 @ 6'	4'	48	13'-8"	8"	6"	8"	8½"	5'-4½"	0.943	123.00	43.42	
		5'	60	13'-8"		6"	8"		6'-4½"	1.005	128.35	46.76	
		6'	72	13'-11"		7"	9"		7'-4½"	1.135	138.68	50.10	
		7'	84	14'-1"		7½"	10"		8'-4½"	1.257	156.92	53.44	
		8'	96	14'-2"		8"	10"		9'-4½"	1.363	177.09	56.78	
SECTION "C" = 20'-0"	2 @ 4'	3'	24	9'-8"	6½"	6"	8"	7"	4'-1½"	0.588	80.51	33.40	
		4'	32	9'-8"		6"	8"		5'-1½"	0.650	85.85	36.74	
		5'	40	9'-8"		6"	8"		6'-1½"	0.711	99.95	40.08	
		6'	48	9'-11"		7"	9"		7'-1½"	0.839	110.39	43.42	
	2 @ 5'	3'	30	11'-8"	7¾"	6"	8"	8¼"	4'-4"	0.761	104.24	36.74	
		4'	40	11'-8"		6"	8"		5'-4"	0.823	109.59	40.08	
		5'	50	11'-8"		6"	8"		6'-4"	0.885	118.18	43.42	
		6'	60	11'-11"		7"	9"		7'-4"	1.014	132.11	46.76	
		7'	70	12'-1"		7½"	10"		8'-4"	1.137	154.69	50.10	
	2 @ 6'	4'	48	13'-8"	8¾"	6"	8"	9¼"	5'-6"	1.006	140.89	43.42	
		5'	60	13'-8"		6"	8"		6'-6"	1.068	149.57	46.76	
		6'	72	13'-11"		7"	9"		7'-6"	1.199	163.94	50.10	
		7'	84	14'-1"		7½"	10"		8'-6"	1.323	187.03	53.44	
		8'	96	14'-2"		8"	10"		9'-6"	1.429	207.21	56.78	
SECTION "D" = 25'-0"	2 @ 4'	3'	24	9'-8"	7"	6"	8"	7½"	4'-2½"	0.618	82.12	33.40	
		4'	32	9'-8"		6"	8"		5'-2½"	0.680	87.46	36.74	
		5'	40	9'-8"		6"	8"		6'-2½"	0.741	103.92	40.08	
		6'	48	9'-11"		7"	9"		7'-2½"	0.870	122.24	43.42	
	2 @ 5'	3'	30	11'-8"	8¼"	6"	8"	8¾"	4'-5"	0.797	110.96	36.74	
		4'	40	11'-8"		6"	8"		5'-5"	0.859	116.31	40.08	
		5'	50	11'-8½"		6¼"	8"		6'-5"	0.931	130.90	43.42	
		6'	60	11'-11"		7"	9"		7'-5"	1.051	152.23	46.76	
		7'	70	12'-2"		8"	10"		8'-5"	1.200	166.70	50.10	
	2 @ 6'	4'	48	13'-8"	9½"	6"	8"	10"	5'-7½"	1.069	149.04	43.42	
		5'	60	13'-9"		6½"	8"		6'-7½"	1.152	158.19	46.76	
		6'	72	13'-11½"		7½"	9"		7'-7½"	1.275	175.12	50.10	
		7'	84	14'-2"		8"	10"		8'-7½"	1.414	196.10	53.44	
		8'	96	14'-3½"		8¾"	10"		9'-7½"	1.539	223.89	56.78	
SECTION "E" = 30'-0"	2 @ 4'	3'	24	9'-8"	7½"	6"	8"	8"	4'-3½"	0.648	86.09	33.40	
		4'	32	9'-8"		6"	8"		5'-3½"	0.709	91.43	36.74	
		5'	40	9'-9"		6½"	8"		6'-3½"	0.791	108.33	40.08	
		6'	48	10'-0"		7½"	9"		7'-3½"	0.923	126.86	43.42	
	2 @ 5'	3'	30	11'-8"	9"	6"	8"	9½"	4'-6½"	0.851	119.82	36.74	
		4'	40	11'-8"		6"	8"		5'-6½"	0.913	125.16	40.08	
		5'	50	11'-9½"		6¾"	8"		6'-6½"	1.005	140.27	43.42	
		6'	60	12'-0"		7½"	9"		7'-6½"	1.130	161.92	46.76	
		7'	70	12'-3"		8½"	10"		8'-6½"	1.283	182.00	50.10	
	2 @ 6'	4'	48	13'-8"	10¼"	6"	8"	10¾"	5'-9"	1.133	158.71	43.42	
		5'	60	13'-10"		7"	8"		6'-9"	1.236	168.46	46.76	
		6'	72	14'-1"		8"	9"		7'-9"	1.376	186.18	50.10	
		7'	84	14'-3½"		8¾"	10"		8'-9"	1.520	207.22	53.44	
		8'	96	14'-5"		9½"	10"		9'-9"	1.650	235.72	56.78	
SECTION "F" = 35'-0"	2 @ 4'	3'	24	9'-8"	8"	6"	8"	8½"	4'-4½"	0.677	90.83	33.40	
		4'	32	9'-8"		6"	8"		5'-4½"	0.739	96.17	36.74	
		5'	40	9'-10"		7"	8"		6'-4½"	0.840	113.57	40.08	
		6'	48	10'-1"		8"	9"		7'-4½"	0.976	132.32	43.42	
	2 @ 5'	3'	30	11'-8"	9½"	6"	8"	10"	4'-7½"	0.887	126.75	36.74	
		4'	40	11'-9"		6½"	8"		5'-7½"	0.966	132.52	40.08	
		5'	50	11'-10"		7"	8"		6'-7½"	1.052	147.79	43.42	
		6'	60	12'-1"		8"	9"		7'-7½"	1.190	169.71	46.76	
		7'	70	12'-4"		9"	10"		8'-7½"	1.347	190.02	50.10	
	2 @ 6'	4'	48	13'-9"	11"	6½"	8"	11½"	5'-10½"	1.214	170.52	43.42	
		5'	60	13'-11"		7½"	8"		6'-10½"	1.321	180.40	46.76	
		6'	72	14'-2"		8½"	9"		7'-10½"	1.465	198.42	50.10	
		7'	84	14'-5"		9½"	10"		8'-10½"	1.628	220.08	53.44	
		8'	96	14'-6½"		10½"	10"		9'-10½"	1.763	248.46	56.78	
SECTION "G" = 40'-0"	2 @ 4'	3'	24	9'-8"	8½"	6"	8"	9"	4'-5½"	0.707	96.47	33.40	
		4'	32	9'-9"		6½"	8"		5'-5½"	0.786	102.16	36.74	
		5'	40	9'-11"		7½"	8"		6'-5½"	0.891	119.78	40.08	
		6'	48	10'-2"		8½"	9"		7'-5½"	1.031	138.77	43.42	
	2 @ 5'	3'	30	11'-8"	10"	6"	8"	10½"	4'-8½"	0.923	134.77	36.74	
		4'	40	11'-9"		6½"	8"		5'-8½"	1.003	141.90	40.08	
		5'	50	11'-11"		7½"	8"		6'-8½"	1.109	156.47	43.42	
		6'	60	12'-2"		8½"	9"		7'-8½"	1.251	178.70	46.76	
		7'	70	12'-5"		9½"	10"		8'-8½"	1.412	199.25	50.10	

DOWEL BARS FOR TWO HEADWALLS

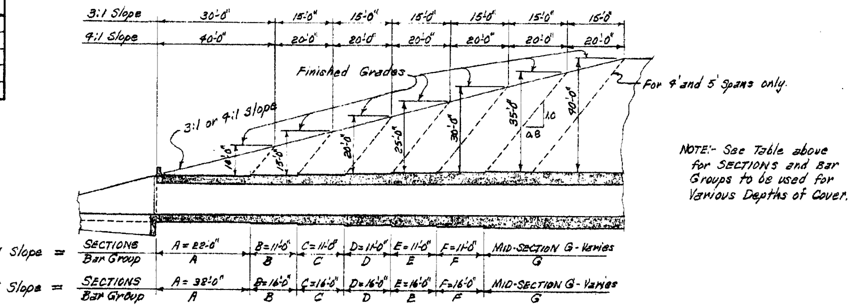
SPAN	SIZE	SPACING	NO. REQ'D	LENGTH	X	Bars "r" Dowel bars in Headwalls
4'	#4	12"	20	2'-4"	1'-2"	
5'	#4	12"	24	2'-5"	1'-2½"	
6'	#4	12"	28	2'-6"	1'-3"	

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM FOR BARS "b" and "b2"
#4	2"	4"	0'-10½"	
#5	2½"	4¼"	0'-11½"	
#6	3"	5"	1'-2"	

NOTE:- Dimensions are to centers of bars. (b & b2)

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

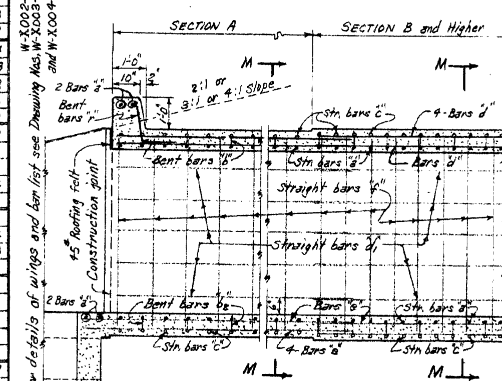
DEPTHS OF COVER	END SECTIONS A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	✓						A
10.0' to 14.5'	✓						B
15.0' to 19.5'	✓	✓					C
20.0' to 24.5'	✓	✓	✓				D
25.0' to 29.5'	✓	✓	✓	✓			E
30.0' to 34.5'	✓	✓	✓	✓	✓		F
35.0' to 90.0'	✓	✓	✓	✓	✓	✓	G



NOTE:- See Table above for Sections and Bar Groups to be used for Various Depths of Cover.

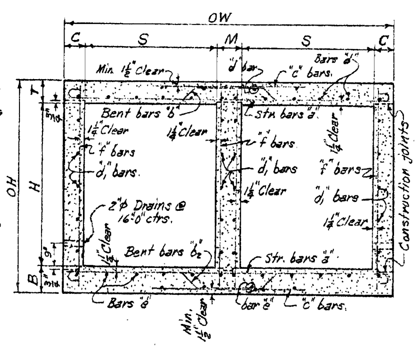
TYPICAL LONGITUDINAL SECTION-SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections, with Bar Groups to be shown on Cross Section Sheets.



NOTE:- For details of wings and bar list see Drawing Nos. W-X002-1, W-X003-1 and W-X004-1.

PART LONGITUDINAL SECTION



TYPICAL SECTION M-M

LENGTH OF SECTIONS FOR SKEWED CULVERTS

SKEW ANGLE	SEC. OF SKEW ANGLE	3:1 SLOPES SECTIONS A	3:1 SLOPES SECTIONS B,C,D,E OR F	4:1 SLOPES SECTIONS A	4:1 SLOPES SECTIONS B,C,D,E OR F
0°	1.0	22.0'	11.0'	32.0'	16.0'
15°	1.0353	22.776'	11.388	33.129'	16.564'
30°	1.1547	25.403'	12.702'	36.950'	18.475'
45°	1.4142	31.113'	15.556'	45.255'	22.627'

GENERAL NOTES

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.

BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 38'-0". Lap longitudinal bars 30 diameters.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division wall and slabs shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961

AND

SPECIAL MILITARY LOADING

Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-

Class S Concrete (n=10) 1200 #/□"

Reinforcing Steel 20,000 #/□"

NOTE:- This drawing to be used in conjunction with Standard Drawing Nos. W-X002-1, W-X003-1 and W-X004-1.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

4', 5' & 6' SPANS DOUBLES — 3:1 OR 4:1 SLOPES OVER 5'-0" COVER

STANDARD DRAWING NO. R-200X-X1

Designed by:- W.C.H. 9-17-62 Checked by:- RAS 11-12-62

Drawn by:- W.C.H. 10-15-62 Checked by:- RAS 11-19-62

Quantities by:- W.C.H. 11-9-62 Checked by:- RAS 11-20-62

Reshot 3-5-93

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			491	
JOB No.					

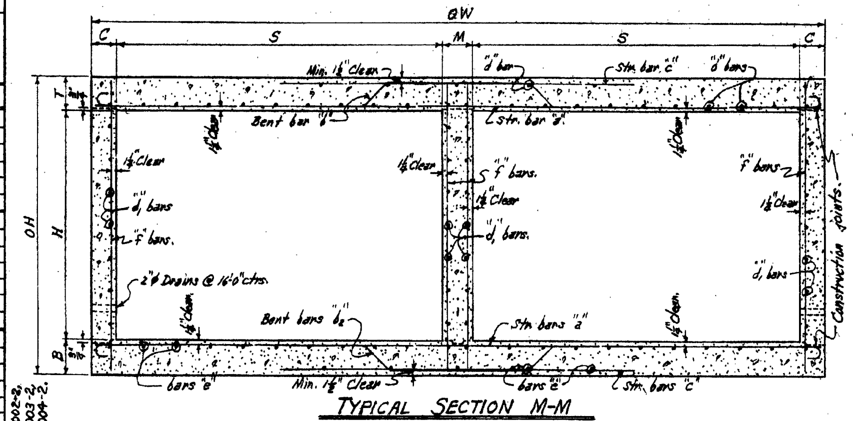
BAR LIST FOR VARIOUS SECTIONS OF BARREL

SECTION & BAR GROUP	LENGTHS OF SECTION	DEPTH OF COVER (D)	CLEAR SPAN (S)	CLEAR HEIGHT (H)	"a" bars – STRAIGHT: In Top and Bottom Slab of Barrel & Add'l in Apron and Headwall - Each (Size, Spacing, Number Req'd 3:1 / 4:1, Length)	"b" bars – BENT - See Diagram below: In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars (Size, Spacing, Number Req'd 3:1 / 4:1, Length, X, Y, Z)	"b2" bars – BENT - See Diagram below: In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars (Size, Spacing, Number Req'd 3:1 / 4:1, Length, X, Y, Z)	"c" bars – STRAIGHT: In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars (Size, Spacing, Number Req'd 3:1 / 4:1, Length)	"d" bars – Longitudinal in Top Slab of Barrel (Size, Spacing, No. Req'd, Length)	"d1" bars – Longitudinal in Sidewalls and Division Walls (Size, Spacing, No. Req'd, Length)	"e" bars – Longitudinal in Bottom Slab of Barrel (Size, Spacing, No. Req'd, Length)	"f" bars – Vertical in Sidewalls and Division Walls (Size, Spacing, Number Req'd 3:1 / 4:1, Length)

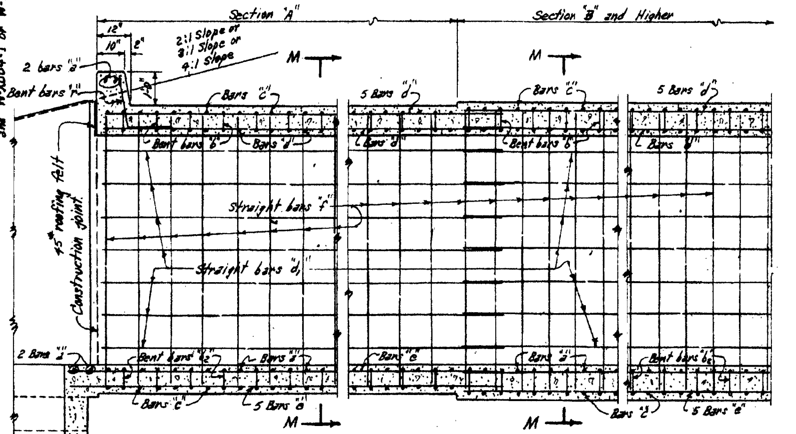
NOTE:- Bars for each Section to be marked with the Section letter, thus for Section B, the bars should be marked Ba, Bb, Bb2, Bc, Bd, Bd1, Be and Bf.

DIMENSIONS / QUANTITIES

MAX. DESIGN DEPTH OF COVER D	CLEAR SPANS S	CLEAR HEIGHT H	SQ. FT. OPENING A	OVERALL WIDTH OW	THICKNESS OF TOP SLAB T	THICKNESS OF SIDEWALLS C	THICKNESS OF DIVISION WALL M	THICKNESS OF BOTTOM SLAB B	OVERALL HEIGHT OH	CLASS S CONC. PER LIN. FT. OF BARREL (CU.YD.)	REINFORCING STEEL PER LIN. FT. OF BARREL (LB.)	ADDITIONAL PER LAP (LB.)	ADDITIONAL TWO HEADWALLS & APRONS (LB.)
SECTION "A" - 10'-0"	2 @ 8'	5'	80	17'-11"	9¾"	7"	9"	9¾"	6'-7"	1.406	181.08	55.11	250.28
		6'	96	17'-11"		7"	9"		7'-7"	1.477	186.42	58.45	250.28
		7'	112	18'-1"		7½"	10"		8'-7"	1.601	197.32	61.79	251.67
		8'	128	18'-2"		8"	10"		9'-7"	1.707	216.14	65.13	252.37
		9'	144	18'-5"		9"	11"		10'-7"	1.886	229.56	68.47	254.46
		10'	160	18'-8"		10"	12"		11'-7"	2.082	250.08	71.81	256.54
	2 @ 10'	6'	120	22'-1"	10¾"	7½"	10"	11½"	7'-10¼"	1.979	245.98	65.13	315.55
		7'	140	22'-1"		7½"	10"		8'-10¼"	2.057	265.91	68.47	315.55
		8'	160	22'-2"		8"	10"		9'-10¼"	2.164	271.47	71.81	316.25
		9'	180	22'-5"		9"	11"		10'-10¼"	2.345	288.86	75.15	318.34
		10'	200	22'-8"		10"	12"		11'-10¼"	2.544	308.86	78.49	320.42
		11'	220	22'-10"		11"	12"		12'-10¼"	2.722	326.26	81.83	321.81
		12'	240	23'-0"		12"	12"		13'-10¼"	2.913	346.24	85.17	323.20
	2 @ 12'	6'	144	26'-2"	12½"	8"	10"	13½"	8'-2"	2.581	335.91	71.81	383.92
		7'	168	26'-2"		8"	10"		9'-2"	2.662	341.25	75.15	383.92
		8'	192	26'-2"		8"	10"		10'-2"	2.742	361.47	78.49	383.92
		9'	216	26'-5"		9"	11"		11'-2"	2.925	379.59	81.83	386.00
		10'	240	26'-8"		10"	12"		12'-2"	3.128	401.38	85.17	388.09
		11'	264	26'-10"		11"	12"		13'-2"	3.308	418.23	88.51	389.48
		12'	288	27'-0"		12"	12"		14'-2"	3.500	448.85	91.85	390.87
SECTION "B" - 15'-0"	2 @ 8'	5'	80	17'-11"	10¼"	7"	9"	10¾"	6'-9"	1.516	191.78	55.11	
		6'	96	17'-11"		7"	9"		7'-9"	1.587	197.13	58.45	
		7'	112	18'-1"		7½"	10"		8'-9"	1.712	216.41	61.79	
		8'	128	18'-2"		8"	10"		9'-9"	1.819	236.83	65.13	
		9'	144	18'-5"		9"	11"		10'-9"	1.999	257.15	68.47	
		10'	160	18'-8"		10"	12"		11'-9"	2.198	275.52	71.81	
	2 @ 10'	6'	120	22'-1"	12"	7½"	10"	13"	8'-1"	2.167	273.01	65.13	
		7'	140	22'-1"		7½"	10"		9'-1"	2.244	291.60	68.47	
		8'	160	22'-2"		8"	10"		10'-1"	2.352	312.64	71.81	
		9'	180	22'-5"		9"	11"		11'-1"	2.535	327.68	75.15	
		10'	200	22'-8"		10"	12"		12'-1"	2.737	352.57	78.49	
		11'	220	22'-10"		11"	12"		13'-1"	2.916	373.76	81.83	
		12'	240	23'-0"		12"	12"		14'-1"	3.108	399.33	85.17	
	2 @ 12'	6'	144	26'-2"	14¼"	8"	10"	15"	8'-5¼"	2.849	369.91	71.81	
		7'	168	26'-2"		8"	10"		9'-5¼"	2.924	383.42	75.15	
		8'	192	26'-2"		8"	10"		10'-5¼"	3.004	419.52	78.49	
		9'	216	26'-5"		9"	11"		11'-5¼"	3.190	431.74	81.83	
		10'	240	26'-8"		10"	12"		12'-5¼"	3.395	461.14	85.17	
		11'	264	26'-10"		11"	12"		13'-5¼"	3.577	485.07	88.51	
		12'	288	27'-0"		12"	12"		14'-5¼"	3.771	510.58	91.85	
SECTION "C" - 20'-0"	2 @ 8'	5'	80	17'-11"	11¼"	7"	9"	11¾"	6'-11"	1.627	208.87	55.11	
		6'	96	17'-11½"		7¼"	9"		7'-11"	1.710	208.65	58.45	
		7'	112	18'-1½"		7¾"	10"		8'-11"	1.838	231.57	61.79	
		8'	128	18'-2½"		8¼"	10"		9'-11"	1.947	258.58	65.13	
		9'	144	18'-5½"		9¼"	11"		10'-11"	2.130	276.52	68.47	
		10'	160	18'-8½"		10¼"	12"		11'-11"	2.331	318.47	71.81	
	2 @ 10'	6'	120	22'-2"	13½"	8"	10"	14¼"	8'-3¾"	2.380	320.35	65.13	
		7'	140	22'-2"		8"	10"		9'-3¾"	2.460	339.19	68.47	
		8'	160	22'-3"		8½"	10"		10'-3¾"	2.572	365.04	71.81	
		9'	180	22'-6"		9½"	11"		11'-3¾"	2.760	389.39	75.15	
		10'	200	22'-8½"		10½"	12"		12'-3¾"	2.948	413.08	78.49	
		11'	220	22'-10"		11"	12"		13'-3¾"	3.110	446.06	81.83	
		12'	240	23'-0"		12"	12"		14'-3¾"	3.303	475.09	85.17	
	2 @ 12'	6'	144	26'-2"	16"	8"	10"	16½"	8'-8½"	3.106	426.82	75.15	
		7'	168	26'-2"		8"	10"		9'-8½"	3.186	448.87	78.49	
		8'	192	26'-3½"		8¾"	10"		10'-8½"	3.316	473.02	81.83	
		9'	216	26'-6"		9½"	11"		11'-8½"	3.492	498.31	86.17	
		10'	240	26'-8½"		10½"	12"		12'-8½"	3.682	531.56	88.51	
		11'	264	26'-10½"		11½"	12"		13'-8½"	3.867	556.63	91.85	
		12'	288	27'-0½"		12½"	12"		14'-8½"	4.064	605.99	95.19	
SECTION "D" - 25'-0"	2 @ 8'	5'	80	17'-11"	12¼"	7"	9"	12¾"	7'-1"	1.737	216.88	55.11	
		6'	96	18'-0½"		7½"	9"		8'-1"	1.846	226.87	58.45	
		7'	112	18'-3"		8¼"	10"		9'-1"	1.992	250.52	61.79	
		8'	128	18'-4½"		9¼"	10"		10'-1"	2.122	273.89	65.13	
		9'	144	18'-7"		10"	11"		11'-1"	2.295	300.76	68.47	
		10'	160	18'-10"		11"	12"		12'-1"	2.503	326.17	71.81	
	2 @ 10'	6'	120	22'-2"	14½"	8"	10"	15½"	8'-5¾"	2.517	341.89	65.13	
		7'	140	22'-3"		8½"	10"		9'-5¾"	2.686	365.08	68.47	
		8'	160	22'-4½"		9½"	10"		10'-5¾"	2.758	388.08	71.81	
		9'	180	22'-7½"		10½"	11"		11'-5¾"	2.952	412.78	75.15	
		10'	200	22'-10½"		11½"	12"		12'-5¾"	3.165	446.12	78.49	
		11'	220	23'-0"		12"	12"		13'-5¾"	3.334	489.97	81.83	
		12'	240	23'-1½"		12¾"	12"		14'-5¾"	3.512	518.78	85.17	
	2 @ 12'	6'	144	26'-2"	17½"	8"	10"	18"	8'-11½"	3.349	465.12	78.49	
		7'	168	26'-3½"		8¾"	10"		9'-11½"	3.475	489.73	81.83	
		8'	192	26'-5"		9½"	10"		10'-11½"	3.610	513.90	85.17	
		9'	216	26'-8"		10½"	11"		11'-11½"	3.811	539.78	88.51	
		10'	240	26'-10½"		11½"	12"		12'-11½"	4.009	578.93	91.85	
		11'	264	27'-0½"		12½"	12"		13'-11½"	4.202	619.28	95.19	
		12'	288	27'-2½"		13½"	12"		14'-11½"	4.407	649.51	98.53	

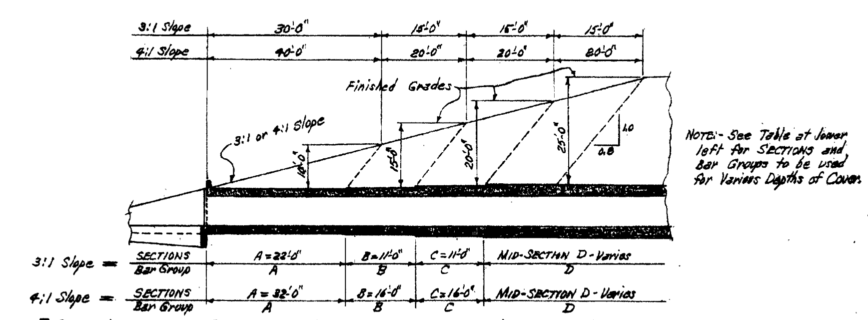


TYPICAL SECTION M-M



PART LONGITUDINAL SECTION

NOTE:- For details of wings and bar lists, see Drawing Nos. W-X002-1 or W-X002-2, W-X003-1 or W-X003-2, and W-X004-1 or W-X004-2.



TYPICAL LONGITUDINAL SECTION-SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections, with Bar Groups to be shown on Cross Section Sheets.

NOTE:- See Table at lower left for SECTIONS and Bar Groups to be used for Various Depths of Cover.

NOTE:- This drawing to be used in conjunction with Standard Drawing Nos. W-X003-1 or W-X003-2, and W-X004-1 or W-X004-2. Also Drawing Nos. W-X002-1 or W-X002-2. To use this Drawing for skewed culverts, multiply the length of each section by the secant of the skew angle. For 15° by 1.0353, for 30° by 1.1547, and for 45° by 1.4142.

REVISIONS:-
Wing Drwg. Nos.- W.C.H. 1-14-63.

CLASS S CONCRETE

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS
#6	3"	5"	1'-1½"
#7	3½"	5⅜"	1'-3⅜"
#8	4"	6½"	1'-6"

BENDING DIAGRAM FOR BARS "b" and "b2"

NOTE:- Dimension are to centers of bars. ("b" and "b2").

DOWEL BARS FOR TWO HEADWALLS — Bars "r" Dowel bars in Headwalls

S	SIZE	SPACING	NO. REQ'D	LENGTH	X
8'	#4	12½	36	3'-0"	1'-6"
10'	#4	12½	46	3'-2"	1'-7"
12'	#4	12"	54	3'-6"	1'-9"

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C	MID-SECTION AND BAR GROUP
5.0' to 9.5'	✓			A
10.0' to 14.5'	✓			B
15.0' to 19.5'	✓	✓		C
20.0' to 25.0'	✓	✓	✓	D

GENERAL NOTES:-
CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diameters.
CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division walls and slabs shall be only where shown on plans
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD
H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200 #/□"
Reinforcing Steel 20,000 #/□"

ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS
8', 10' & 12' SPANS — 3:1 OR 4:1 SLOPES
DOUBLES — OVER 5'-0" COVER
STANDARD DRAWING No. R-200X-X2

Designed by: W.C. Haigh 6-26-62 — Checked by: R.H.S. 7-16-62
Drawn by: W.C. Haigh 7-6-62 — Checked by: R.H.S. 7-20-62
Quantities by: W.C. Haigh 7-5-62 — Checked by: R.H.S. 7-18-62

RESHOT 3-5-93 410 ~~161~~

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			492	
JOB No.					

BAR LIST FOR VARIOUS SECTIONS OF BARREL

NOTE:- Bars for each Section to be marked with the Section letter, thus for Section B. the bars should be marked Ba, Bb, Bb2, Bc, Bd, Bd1, Be and Bf.

Section & Bar Group	Length of Section	Depth of Cover D	Clear Span S	Clear Height H	"a" bars – STRAIGHT: In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall - Each. (Size, Spacing, Number Req'd 2:1, 3:1, 4:1, Length)	"b" bars – BENT - See Diagram at Right. In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars. (Size, Spacing, Number Req'd 2:1, 3:1, 4:1, Length, X, Y, Z)	"b2" bars – BENT - See Diagram at Right. In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars. (Spacing, Number Req'd 2:1, 3:1, 4:1, Length, X, Y, Z)	"c" bars – STRAIGHT: In Top and Bottom Slabs of Barrel. Alternate with "b" and "b2" bars (Size, Spacing, Number Req'd 2:1, 3:1, 4:1, Length)	"d" bars – STRAIGHT: Longitudinal in Top Slab of Barrel (Size, Spacing, No. Req'd, Length)	"d1" bars – STRAIGHT: Longitudinal in Sidewalls and Division Wall (Size, Spacing, No. Req'd, Length)	"e" bars – STRAIGHT: Longitudinal in Bottom Slab of Barrel (Size, Spacing, No. Req'd, Length)	"f" bars – STRAIGHT: Vertical in Sidewalls and Division Wall (Size, Spacing, Number Req'd 2:1, 3:1, 4:1, Length)
"A"	2:1=12'-0", 3:1=22'-0" & 4:1=32'-0"	0' to 10'-0"	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
"B"	2:1=6'-0", 3:1=11'-0" & 4:1=16'-0"	10'-0" to 15'-0"	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
"C"	2:1=6'-0", 3:1=11'-0" & 4:1=16'-0"	15'-0" to 20'-0"	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
"D"	2:1=6'-0", 3:1=11'-0" & 4:1=16'-0"	20'-0" to 25'-0"	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
"E"	2:1=6'-0", 3:1=11'-0" & 4:1=16'-0"	25'-0" to 30'-0"	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
"F"	2:1=6'-0", 3:1=11'-0" & 4:1=16'-0"	30'-0" to 35'-0"	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
"G"	Varies with Length of Barrel	35'-0" to 40'-0"	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

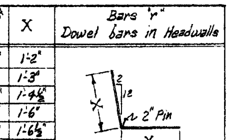
DIMENSIONS / QUANTITIES

Max. Design Depth of Cover D	Clear Span S	Clear Height H	Sq. Ft. Opening A	Overall Width OW	Thickness of Top Slab T	Thickness of Sidewalls C	Thickness of Division Wall M	Thickness of Bottom Slab B	Overall Height OH	Class S Conc. per Lin. Ft. of Barrel Cu.Yd.	Reinforcing Steel per Lin. Ft. of Barrel Lb.	Additional per Lap Lb.	Additional Two Headwalls & Aprons Lb.
Sect. "A" = 10'-0"	2@ 4'	2'	16	9'-8"	6"	6"	8"	6"	3'-0"	0.481	64.84	30.06	100.20
	6'	3'	36	13'-8"	7¼"	6"	8"	7¾"	4'-3"	0.818	111.13	40.08	142.51
	7'	4'	56	15'-8"	8¼"	6"	8"	8¾"	5'-5"	1.069	146.69	48.43	169.23
	8'	4'	64	17'-8"	9¼"	6"	8"	9¾"	5'-7"	1.283	174.36	51.77	248.20
	9'	5'	90	19'-11"	10"	7"	9"	10¾"	6'-8¾"	1.630	222.02	58.45	279.89
	10'	5'	100	21'-11"	10¾"	7"	9"	11½"	6'-10¼"	1.860	239.47	61.79	309.93
Sect. "B" = 15'-0"	4'	2'	16	9'-8"	6"	6"	8"	6½"	3'-0½"	0.496	70.92	30.06	100.20
	6'	3'	36	13'-8"	8"	6"	8"	8½"	4'-4½"	0.881	117.66	40.08	142.51
	7'	4'	56	15'-8"	9¼"	6"	8"	9¾"	5'-7"	1.166	158.40	48.43	215.48
	8'	4'	64	17'-8"	10¼"	6"	8"	10¾"	5'-9"	1.392	184.82	51.77	248.20
	9'	5'	90	19'-11"	11¼"	7"	9"	12"	6'-11¼"	1.784	231.32	58.45	279.89
	10'	5'	100	21'-11"	12"	7"	9"	13"	7'-1"	2.046	266.19	61.79	309.93
Sect. "C" = 20'-0"	4'	2'	16	9'-8"	6½"	6"	8"	7"	3'-1½"	0.526	75.16	30.06	
	6'	3'	36	13'-8"	8¾"	6"	8"	9¼"	4'-6"	0.944	135.54	40.08	
	7'	4'	56	15'-8"	10"	6"	8"	11"	5'-9"	1.262	167.88	48.43	
	8'	4'	64	17'-8"	11½"	6"	8"	11¾"	5'-11"	1.501	185.52	51.77	
	9'	5'	90	19'-11"	12½"	7"	9"	13"	7'-1½"	1.922	264.06	58.45	
	10'	5'	100	21'-11"	13½"	7"	9"	14¼"	7'-3¾"	2.232	312.66	61.79	
Sect. "D" = 25'-0"	4'	2'	16	9'-8"	7"	6"	8"	7½"	3'-2½"	0.556	76.77	30.06	
	6'	3'	36	13'-8"	9½"	6"	8"	10"	4'-7½"	1.008	143.69	40.08	
	7'	4'	56	15'-8"	11"	6"	8"	12"	5'-11"	1.359	179.01	48.43	
	8'	4'	64	17'-8"	12¼"	6"	8"	12¾"	6'-1"	1.610	207.78	51.77	
	9'	5'	90	19'-11"	13½"	7"	9"	14"	7'-3½"	2.045	282.97	58.45	
	10'	5'	100	21'-11"	14½"	7"	9"	15¼"	7'-5¾"	2.367	332.82	61.79	
Section "E" = 30'-0"	4'	2'	16	9'-8"	7½"	6"	8"	8"	3'-3½"	0.586	80.74	30.06	
	6'	3'	36	13'-8"	10¼"	6"	8"	10¾"	4'-9"	1.071	153.37	40.08	
	7'	4'	56	15'-8"	11¾"	6"	8"	12¾"	6'-0½"	1.432	194.56	48.43	
	8'	4'	64	17'-8"	13¼"	6"	8"	13¾"	6'-3"	1.719	213.16	51.77	
	8'	5'	80	17'-11"	13¼"	7"	9"	13¾"	7'-3"	1.898	249.86	55.11	
	8'	6'	96	18'-1"	13¼"	8"	9"	13¾"	8'-3"	1.970	259.58	58.45	
	8'	7'	112	18'-4"	13¼"	9"	10"	13¾"	9'-3"	2.133	285.12	61.79	
	8'	8'	128	18'-5½"	13¼"	9¾"	10"	13¾"	10'-3"	2.267	306.38	65.13	
	8'	9'	144	18'-8½"	13¼"	10¾"	11"	13¾"	11'-3"	2.462	311.22	68.47	
	8'	10'	160	18'-11½"	13¼"	11¾"	12"	13¾"	12'-3"	2.676	330.48	71.81	
	9'	5'	90	19'-11½"	14½"	7¼"	9"	15¼"	7'-5¾"	2.195	309.98	61.79	
	9'	6'	108	20'-2½"	14½"	8¼"	10"	15¼"	8'-5¾"	2.346	328.50	65.13	
	9'	7'	126	20'-4"	14½"	9"	10"	15¼"	9'-5¾"	2.472	340.24	68.47	
	9'	8'	144	20'-6"	14½"	10"	10"	15¼"	10'-5¾"	2.623	369.24	71.81	
	9'	9'	162	20'-9"	14½"	11"	11"	15¼"	11'-5¾"	2.822	399.24	75.15	
	9'	10'	180	21'-0"	14½"	12"	12"	15¼"	12'-5¾"	3.039	432.64	78.49	
	9'	11'	198	21'-2"	14½"	13"	12"	15¼"	13'-5¾"	3.234	457.98	81.83	
	10'	5'	100	22'-0"	15¾"	7½"	9"	16½"	7'-8¼"	2.560	362.51	65.13	
	10'	6'	120	22'-2½"	15¾"	8¼"	10"	16½"	8'-8¼"	2.701	374.49	68.47	
	10'	7'	140	22'-4½"	15¾"	9¼"	10"	16½"	9'-8¼"	2.849	394.55	71.81	
	10'	8'	160	22'-6"	15¾"	10"	10"	16½"	10'-8¼"	2.980	418.46	75.15	
	10'	9'	180	22'-9"	15¾"	11"	11"	16½"	11'-8¼"	3.181	443.76	78.49	
	10'	10'	200	23'-0"	15¾"	12"	12"	16½"	12'-8¼"	3.400	477.76	81.83	
Section "F" = 35'-0"	4'	2'	16	9'-8"	8"	6"	8"	8½"	3'-4½"	0.616	85.48	30.06	
	6'	3'	36	13'-8"	11"	6"	8"	11½"	4'-10½"	1.134	164.67	40.08	
	7'	4'	56	15'-9"	12¾"	6½"	8"	13¼"	6'-2"	1.523	200.29	48.43	
	7'	5'	70	15'-11"	12¾"	7½"	8"	13¼"	7'-2"	1.632	208.93	51.77	
	7'	6'	84	16'-1½"	12¾"	8¼"	9"	13¼"	8'-2"	1.766	226.92	55.11	
	7'	7'	98	16'-4½"	12¾"	9¼"	10"	13¼"	9'-2"	1.930	249.13	58.45	
	7'	8'	112	16'-6½"	12¾"	10¼"	10"	13¼"	10'-2"	2.081	278.69	61.79	
	7'	9'	126	16'-9½"	12¾"	11¼"	11"	13¼"	11'-2"	2.278	326.17	65.13	
	8'	4'	64	17'-9"	14"	6½"	8"	14½"	6'-4½"	1.821	252.47	51.77	
	8'	5'	80	18'-0"	14"	7½"	9"	14½"	7'-4½"	1.954	263.98	55.11	
	8'	6'	96	18'-2"	14"	8½"	9"	14½"	8'-4½"	2.079	278.90	58.45	
	8'	7'	112	18'-5"	14"	9½"	10"	14½"	9'-4½"	2.247	304.81	61.79	
	8'	8'	128	18'-7"	14"	10½"	10"	14½"	10'-4½"	2.400	326.84	65.13	
	8'	9'	144	18'-10"	14"	11½"	11"	14½"	11'-4½"	2.601	358.06	68.47	
	8'	10'	160	19'-1"	14"	12½"	12"	14½"	12'-4½"	2.821	393.31	71.81	
	9'	5'	90	20'-0½"	15¼"	7¾"	9"	16¼"	7'-7¾"	2.342	350.00	65.13	
	9'	6'	108	20'-3½"	15¼"	8¾"	10"	16¼"	8'-7¾"	2.498	366.96	68.47	
	9'	7'	126	20'-5½"	15¼"	9¾"	10"	16¼"	9'-7¾"	2.642	383.26	71.81	
	9'	8'	144	20'-7½"	15¼"	10¾"	10"	16¼"	10'-7¾"	2.799	408.60	75.15	
	9'	9'	162	20'-10½"	15¼"	11¾"	11"	16¼"	11'-7¾"	3.004	439.25	78.49	
Section "G" = 40'-0"	4'	2'	16	9'-8"	8½"	6"	8"	9"	3'-5½"	0.646	91.13	30.06	
	6'	3'	36	13'-8"	11¾"	6"	8"	12¼"	5'-0"	1.198	172.84	40.08	
	6'	4'	48	13'-9½"	11¾"	6½"	8"	12¼"	6'-0"	1.287	180.14	43.42	
	6'	5'	60	13'-11½"	11¾"	7½"	8"	12¼"	7'-0"	1.397	188.82	46.76	
	6'	6'	72	14'-2½"	11¾"	8½"	9"	12¼"	8'-0"	1.543	210.71	50.10	
	6'	7'	84	14'-5½"	11¾"	9½"	10"	12¼"	9'-0"	1.708	233.98	53.44	
	6'	8'	96	14'-7½"	11¾"	10½"	10"	12¼"	10'-0"	1.861	260.14	56.78	
	7'	4'	56	15'-10"	13½"	7"	8"	14"	6'-3½"	1.615	230.01	48.43	
	7'	5'	70	16'-0"	13½"	8"	8"	14"	7'-3½"	1.728	238.92	51.77	
	7'	6'	84	16'-3"	13½"	9"	9"	14"	8'-3½"	1.879	257.98	55.11	
	7'	7'	98	16'-6"	13½"	10"	10"	14"	9'-3½"	2.049	280.74	58.45	
	7'	8'	112	16'-8"	13½"	11"	10"	14"	10'-3½"	2.205	310.73	61.79	
	7'	9'	126	16'-11"	13½"	12"	11"	14"	11'-3½"	2.408	343.64	65.13	
	8'	4'	64	17'-11"	15"	7½"	8"	15½"	6'-6½"	1.971	278.70	55.11	
	8'	5'	80	18'-2"	15"	8½"	9"	15½"	7'-6½"	2.111	290.77	58.45	
	8'	6'	96	18'-4"	15"	9½"	9"	15½"	8'-6½"	2.244	305.81	61.79	
	8'	7'	112	18'-7"	15"	10½"	10"	15½"	9'-6½"	2.419	332.29	65.13	
	8'	8'	128	18'-9"	15"	11½"	10"	15½"	10'-6½"	2.580	357.68	68.47	
	8'	9'	144	19'-0"	15"	12½"	11"	15½"	11'-6½"	2.789	386.44	71.81	
	8'	10'	160	19'-3"	15"	13½"	12"	15½"	12'-6½"	3.016	422.26	75.15	

DOWEL BARS FOR TWO HEADWALLS

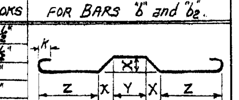
Span	Size	Spacing	No. Req'd	Length	X
4'	#4	12"	20	2'-4"	1'-2"
6'	#4	12"	28	2'-6"	1'-3"
7'	#4	12"	32	2'-9"	1'-4½"
8'	#4	12"	36	3'-0"	1'-6"
9'	#4	12"	40	3'-1"	1'-6½"
10'	#4	12"	44	3'-2"	1'-7"

Bars "r" Dowel bars in Headwalls



Bar Size	Pin Diam.	K	Add for 2 Hooks
#4	2	4"	0'-10½"
#5	2½"	4½"	0'-11½"
#6	3"	5"	1'-2"
#7	3½"	5¾"	1'-4"
#8	4"	6½"	1'-6"

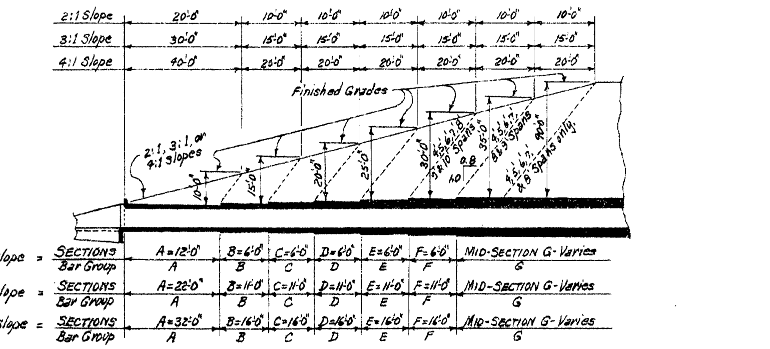
BENDING DIAGRAM FOR BARS "b" and "b2".



NOTE:- Dimensions are to centers of bars (b & b2).

LENGTH OF SECTIONS FOR SKEWED CULVERTS

Skew Angle	Sec. of Skew Angle	2:1 Slopes Sections A	2:1 Slopes Sections B,C,D,E or F	3:1 Slopes Sections A	3:1 Slopes Sections B,C,D,E or F	4:1 Slopes Sections A	4:1 Slopes Sections B,C,D,E or F
0°	1.0	12.0'	6.0'	22.0'	11.0'	32.0'	16.0'
15°	1.0353	12.424'	6.212'	22.776'	11.388'	33.129'	16.564'
30°	1.1547	13.856'	6.928'	25.403'	12.702'	36.950'	18.475'
45°	1.4142	16.970'	8.485'	31.113'	15.556'	45.255'	22.627'



TYPICAL LONGITUDINAL SECTION - SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

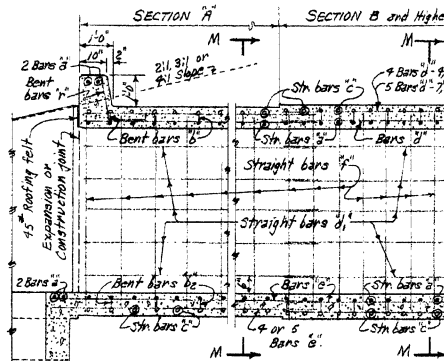
NOTE:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

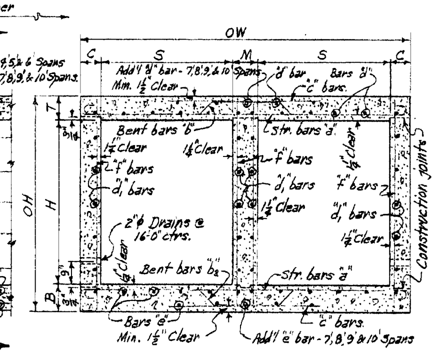
Depths of Cover	A	B	C	D	E	F	Mid-Section and Bar Group
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0' to 24.5'	A	B	C				D
25.0' to 29.5'	A	B	C	D			E
30.0' to 34.5'	A	B	C	D	E		F
35.0' to 40.0'	A	B	C	D	E	F	G

OR ALT.

Depths of Cover	A	B	C	D	E	F	Mid-Section and Bar Group
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0' to 24.5'	A	2@C					D
25.0' to 29.5'	A	B	2@D				E
30.0' to 34.5'	A	2@C		2@E			F
35.0' to 40.0'	A	B	2@D		2@F		G



PART LONGITUDINAL SECTION



TYPICAL SECTION M-M

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961

AND

SPECIAL MILITARY LOADING

Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-

Class S Concrete (n=10) 1200#/□"

Reinforcing Steel 20000#/□"

NOTE:-
This drawing to be used in conjunction with Std. Wing Drawing Nos. W-X002-1 or W-X002-2, W-X003-1 or W-X003-2, & W-X004-1 or W-X004-2.

GENERAL NOTES

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.

BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diam. min.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division wall and slabs shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

ADD'L 4, 6, 7, 8, 9 & 10' SPANS DOUBLES

2:1, 3:1 OR 4:1 SLOPES OVER 5'-0" COVER

STANDARD DRAWING NO. R-200X-X4

Designed by:- W.C.H. 12-31-64. Checked by:-
Drawn by:- W.C.H. 1-8-65. Checked by:-
Quantities by:- W.C.H. 1-19-65. Checked by:-

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			493	
JOB No.					

BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH - TWO 30° SKEWED ENDS

D = Depth of Cover: 0'-0" to 5'-0" Maximum. S = Clear Span. H = Clear Height.

"a" bars: Straight – In Top and Bottom Slab of Barrel. "a1" bars (▼): Straight – In Top and Bottom Slab of Barrel - (Four of each Length). "b" bars: Bent - See Diagrams below – In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars.

S	H	a Size	a Spacing	a No. Req'd	a Length	a1 Size	a1 Spacing	a1 No. Req'd	a1 Length Max.	a1 Length Min.	b Size	b Spacing	b No. Req'd	b Length	b X	b Y	b Z
2 @ 4'	2'	#5	12"	112	9'-5"	#5	12"	16	7'-8"	2'-5"	#5	12"	54	10'-6"	0'-3"	2'-2½"	3'-4"
	3'			112	9'-5"			16	"	"			54	10'-6"	"	"	"
	4'			112	9'-5"			16	"	"			54	10'-6"	"	"	"
	5'			112	9'-5"			16	"	"			54	10'-6"	"	"	"
	6'			112	9'-8"			16	7'-11"	2'-8"			54	10'-9"	0'-3"	2'-3½"	3'-5"
2 @ 5'	3'	#6	12"	110	11'-5"	#6	12"	20	9'-8"	2'-8"	#5	12"	53	12'-7"	0'-3½"	2'-7½"	4'-1"
	4'			110	11'-5"			20	"	"			53	12'-7"	"	"	"
	5'			110	11'-5"			20	"	"			53	12'-7"	"	"	"
	6'			110	11'-8"			20	9'-11"	2'-11"			53	12'-10"	"	2'-8½"	4'-2"
	7'			110	11'-10"			20	10'-1"	3'-1"			53	13'-0"	0'-3½"	2'-9½"	4'-2½"
2 @ 6'	3'	#6	11"	118	13'-5"	#6	11"	24	11'-10"	3'-11"	#5	11"	56	14'-7"	0'-4"	3'-0½"	4'-10"
	4'			118	13'-5"			24	"	"			56	14'-7"	"	"	"
	5'			118	13'-5"			24	"	"			56	14'-7"	"	"	"
	6'			118	13'-8"			28	12'-1"	2'-7"			56	14'-10"	"	3'-1½"	4'-11"
	7'			118	13'-10"			28	12'-3"	2'-9"			56	15'-0"	"	3'-2½"	4'-11½"
	8'			118	13'-11"			28	12'-4"	2'-10"			56	15'-1"	0'-4"	"	5'-0"
2 @ 7'	4'	#6	12"	106	15'-5"	#6	12"	28	13'-8"	3'-2"	#6	12"	50	16'-9"	0'-4½"	3'-5"	5'-7"
	5'			106	15'-5"			28	"	"			50	"	"	"	"
	6'			106	15'-8"			28	13'-11"	3'-5"			50	17'-0"	"	3'-6"	5'-8"
	7'			106	15'-10"			28	14'-1"	3'-7"			50	17'-2"	"	3'-7"	5'-8½"
	8'			106	15'-11"			28	14'-2"	3'-8"			50	17'-3"	"	"	5'-9"
	9'			106	16'-2"			28	14'-5"	3'-11"			50	17'-6"	0'-4½"	3'-8"	5'-10"
2 @ 8'	4'	#6	11"	112	17'-5"	#6	11"	36	15'-10"	3'-2"	#6	11"	54	18'-10"	0'-5"	3'-10"	6'-4"
	5'			112	17'-8"			36	16'-1"	3'-5"			54	19'-1"	"	3'-11"	6'-5"
	6'			112	17'-8"			36	"	"			54	19'-1"	"	"	"
	7'			112	17'-10"			36	16'-3"	3'-7"			54	19'-3"	"	4'-0"	6'-5½"
	8'			112	17'-11"			36	16'-4"	3'-8"			54	19'-4"	"	"	6'-6"
	9'			112	18'-2"			36	16'-7"	3'-11"			53	19'-7"	"	4'-1"	6'-7"
	10'			112	18'-5"			36	16'-10"	4'-2"			53	19'-10"	0'-5"	4'-2"	6'-8"

"b1" bars (▼): Bent – In Bottom of Top Slab - some bent up over Division Wall - one end hooked. (2 of Each Length) Alternate with "a1" and "c" or "c1" bars. "b2" bars: Bent – In Top of Bottom Slab - bent down under Division Wall - hooked. Alternate with "a" and "c" bars.

S	H	b1 Size	b1 Spacing	b1 No. Req'd	b1 Length Max.	b1 Length Min.	b1 L Max.	b1 L Min.	b2 Size	b2 Spacing	b2 No. Req'd	b2 Length	b2 X	b2 Y	b2 Z
2 @ 4'	2'	#5	12"	6	9'-2"	3'-6"	8'-6"	3'-0"	#5	12"	56	10'-6"	0'-2½"	2'-3½"	3'-4"
	3'			6	"	"	"	"			56	10'-6"	"	"	"
	4'			6	"	"	"	"			56	10'-6"	"	"	"
	5'			6	"	"	"	"			56	10'-6"	"	"	"
	6'			6	9'-5"	3'-9"	8'-9"	3'-3"			56	10'-9"	0'-2½"	2'-4½"	3'-5"
2 @ 5'	3'	#5	12"	10	11'-2"	4'-0"	10'-6"	3'-6"	#5	12"	55	12'-6"	0'-3"	2'-8½"	4'-1"
	4'			10	"	"	"	"			55	12'-6"	"	"	"
	5'			10	"	"	"	"			55	12'-6"	"	"	"
	6'			10	11'-5"	4'-3"	10'-9"	3'-9"			55	12'-9"	"	2'-9½"	4'-2"
	7'			10	11'-7"	4'-5"	10'-11"	3'-11"			55	12'-11"	0'-3"	2'-10½"	4'-2½"
2 @ 6'	3'	#5	11"	14	13'-4"	3'-7"	12'-7"	3'-1"	#5	11"	58	14'-7"	0'-4"	3'-0½"	4'-10"
	4'			14	"	"	"	"			58	14'-7"	"	"	"
	5'			14	"	"	"	"			58	14'-7"	"	"	"
	6'			14	13'-7"	3'-10"	12'-10"	3'-4"			58	14'-10"	"	3'-1½"	4'-11"
	7'			14	13'-9"	4'-0"	13'-0"	3'-6"			58	15'-0"	"	3'-2½"	4'-11½"
	8'			14	13'-10"	4'-1"	13'-1"	3'-7"			58	15'-1"	0'-4"	"	5'-0"
2 @ 7'	4'	#6	12"	14	15'-4"	4'-7"	14'-6"	4'-0"	#6	12"	52	16'-9"	0'-4½"	3'-5"	5'-7"
	5'			14	"	"	"	"			52	"	"	"	"
	6'			16	15'-7"	3'-1"	14'-9"	2'-6"			52	17'-0"	"	3'-6"	5'-8"
	7'			16	15'-9"	3'-3"	14'-11"	2'-8"			52	17'-2"	"	3'-7"	5'-8½"
	8'			16	15'-10"	3'-4"	15'-0"	2'-9"			52	17'-3"	"	"	5'-9"
	9'			16	16'-1"	3'-7"	15'-3"	3'-0"			52	17'-6"	0'-4½"	3'-8"	5'-10"
2 @ 8'	4'	#6	11"	18	17'-6"	4'-6"	16'-7"	3'-11"	#6	11"	56	18'-10"	0'-5"	3'-10"	6'-4"
	5'			20	17'-9"	3'-2"	16'-10"	2'-7"			56	19'-1"	"	3'-11"	6'-5"
	6'			20	"	"	"	"			56	"	"	"	"
	7'			20	17'-11"	3'-4"	17'-0"	2'-9"			56	19'-3"	"	4'-0"	6'-5½"
	8'			20	18'-0"	3'-5"	17'-1"	2'-10"			56	19'-4"	"	"	6'-6"
	9'			20	18'-3"	3'-8"	17'-4"	3'-1"			55	19'-7"	"	4'-1"	6'-7"
	10'			20	18'-6"	3'-11"	17'-7"	3'-4"			55	19'-10"	0'-5"	4'-2"	6'-8"

"b3" bars (▼): Bent – In Top of Bottom Slab - some bent down under Division Wall - one end hooked. (2 of Each Length) Alternate with "a1" and "c" or "c1" bars. "c" bars: Straight – In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars. "c1" bars (▼): Straight – In Top and Bottom Slab of Barrel. Alt. with "b1" & "b3" bars. (Four of each Length.)

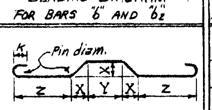
S	H	b3 Size	b3 Spacing	b3 No. Req'd	b3 Length Max.	b3 Length Min.	b3 L Max.	b3 L Min.	c Size	c Spacing	c No. Req'd	c Length	c1 Size	c1 Spacing	c1 No. Req'd	c1 Length Max.	c1 Length Min.
2 @ 4'	2'	#5	12"	6	9'-2"	3'-6"	8'-6"	3'-0"	#5	12"	116	4'-8"	#5	12"	4	3'-7"	—
	3'			6	"	"	"	"			116	4'-8"			4	"	—
	4'			6	"	"	"	"			116	4'-8"			4	"	—
	5'			6	"	"	"	"			116	4'-8"			4	"	—
	6'			6	9'-3"	3'-9"	8'-9"	3'-3"			116	4'-9"			4	3'-9"	—
2 @ 5'	3'	#5	12"	10	11'-2"	4'-0"	10'-6"	3'-6"	#6	12"	114	5'-8"	#6	12"	8	5'-1"	3'-4"
	4'			10	"	"	"	"			114	5'-8"			8	"	"
	5'			10	"	"	"	"			114	5'-8"			8	"	"
	6'			10	11'-5"	4'-3"	10'-9"	3'-9"			114	5'-9"			8	5'-3"	3'-6"
	7'			10	11'-7"	4'-5"	10'-11"	3'-11"			114	5'-10"			8	5'-4"	3'-7"
2 @ 6'	3'	#5	11"	14	13'-4"	3'-7"	12'-7"	3'-1"	#6	11"	126	6'-8"	#6	11"	8	5'-4"	3'-9"
	4'			14	"	"	"	"			126	6'-8"			8	"	"
	5'			14	"	"	"	"			126	6'-8"			8	"	"
	6'			14	13'-7"	3'-10"	12'-10"	3'-4"			126	6'-9"			8	5'-6"	3'-11"
	7'			14	13'-9"	4'-0"	13'-0"	3'-6"			126	6'-10"			8	5'-7"	4'-0"
	8'			14	13'-10"	4'-1"	13'-1"	3'-7"			126	6'-10"			8	5'-8"	4'-1"
2 @ 7'	4'	#6	12"	14	15'-4"	4'-7"	14'-6"	4'-0"	#6	12"	114	7'-8"	#6	12"	12	6'-4"	2'-10"
	5'			14	"	"	"	"			114	7'-8"			12	"	"
	6'			16	15'-7"	3'-1"	14'-9"	2'-6"			114	7'-9"			12	6'-6"	3'-0"
	7'			16	15'-9"	3'-3"	14'-11"	2'-8"			114	7'-10"			12	6'-7"	3'-1"
	8'			16	15'-10"	3'-4"	15'-0"	2'-9"			114	7'-10"			12	6'-8"	3'-2"
	9'			16	16'-1"	3'-7"	15'-3"	3'-0"			114	7'-11"			12	6'-10"	3'-4"
2 @ 8'	4'	#6	11"	18	17'-6"	4'-6"	16'-7"	3'-11"	#6	11"	120	8'-8"	#6	11"	16	8'-4"	3'-7"
	5'			20	17'-9"	3'-2"	16'-10"	2'-7"			120	8'-9"			16	8'-6"	3'-9"
	6'			20	"	"	"	"			120	8'-9"			16	"	"
	7'			20	17'-11"	3'-4"	17'-0"	2'-9"			120	8'-10"			16	8'-7"	3'-10"
	8'			20	18'-0"	3'-5"	17'-1"	2'-10"			120	8'-10"			16	8'-8"	3'-11"
	9'			20	18'-3"	3'-8"	17'-4"	3'-1"			120	8'-11"			16	8'-10"	4'-1"
	10'			20	18'-6"	3'-11"	17'-7"	3'-4"			124	9'-0"			16	7'-5"	2'-8"

"d" bars: Straight – Longitudinal in Top Slab of Barrel. "d1" bars: Straight – Longitudinal in Sidewalls and Division Wall. "e" bars: Straight – Longitudinal in Bottom Slab of Barrel. "f" bars: Straight – Verticals in Sidewalls and Division Wall. "k1" bars (▼): Straight – In Bottom of Headwalls. "k2" bars (▼): Straight – In Top of Headwalls and Aprons (2 Each).

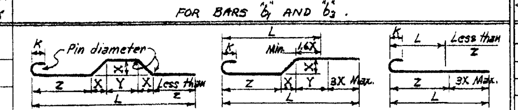
Length of d bars: 2 @ 30'-8" for 60'-0" Length Barrel (1'-8" Lap). Length of d1 bars: 2 @ 30'-6" for 60'-0" Length Barrel (1'-3" Lap). Length of e bars: 2 @ 31'-8" for 60'-0" Length Barrel (1'-3" Lap).

S	H	d Size	d Spacing	d No. Req'd	d1 Size	d1 Spacing	d1 No. Req'd	e Size	e Spacing	e No. Req'd	f Size	f Spacing	f No. Req'd	f Length	k1 Size	k1 No. Req'd	k1 Length	k2 Size	k2 No. Req'd	k2 Length
2 @ 4'	2'	#5	12"	14	#4	12"	8	#4	12"	14	#4	12"	240	2'-10"	#5	6	10'-11"	#5	8	12'-0"
	3'			14			12			14			240	3'-10"		6	"		8	"
	4'			14			16			14			240	4'-10"		6	"		8	"
	5'			14			20			14			240	5'-10"		6	"		8	"
	6'			14			24			14			240	6'-10"		6	11'-2"		8	12'-4"
2 @ 5'	3'	#5	11½"	16	#4	12"	12	#4	12"	16	#4	12"	240	3'-11"	#6	6	13'-2"	#6	8	14'-4"
	4'			16			16			16			240	4'-11"		6	"		8	"
	5'			16			20			16			240	5'-11"		6	"		8	"
	6'			16			24			16			240	6'-11"		6	13'-6"		8	14'-8"
	7'			16			28			16			240	7'-11"		6	13'-8"		8	14'-10"
2 @ 6'	3'	#5	11½"	18	#4	12"	12	#4	12"	18	#4	12"	240	4'-0"	#6	6	15'-6"	#6	8	16'-8"
	4'			18			16			18			240	5'-0"		6	"		8	"
	5'			18			20			18			240	6'-0"		6	"		8	"
	6'			18			24			18			240	7'-0"		6	15'-9"		8	16'-11"
	7'			18			28			19			240	8'-0"		6	16'-0"		8	17'-2"
	8'			18			32			18		10"	288	9'-0"		6	16'-1"		8	17'-3"
2 @ 7'	4'	#5	11½"	20	#4	12"	16	#4	12"	20	#4	12"	240	5'-1"	#6	6	17'-10"	#6	8	19'-0"
	5'			20			20			20			240	6'-1"		6	"		8	"
	6'			20			24			20			240	7'-1"		6	18'-1"		8	19'-3"
	7'			20			28			20			240	8'-1"		6	18'-3"		8	19'-5"
	8'			20			32			20		10"	288	9'-1"		6	18'-5"		8	19'-6"
	9'			20			36			20	#5	12"	240	10'-1"		6	18'-8"		8	19'-10"
2 @ 8'	4'	#5	11½"	23	#4	12"	16	#4	12"	22	#4	12"	240	5'-2"	#6	6	20'-1"	#6	8	21'-3"
	5'			23			20			22			240	6'-2"		6	20'-5"		8	21'-7"
	6'			23			24			22			240	7'-2"		6	"		8	"
	7'			23			28			22			240	8'-2"		6	20'-7"		8	21'-9"
	8'			23			32			22		10"	288	9'-2"		6	20'-8"		8	21'-10"
	9'			23			36			22	#5	12"	240	10'-2"		6	21'-0"		8	22'-2"
	10'			23			40			22		11"	264	11'-2"		6	21'-3"		8	22'-5"

Bar Size	Pin Diam.	K	Add for 2 Hooks	Bending Diagram for Bars "b" and "b2"
#5	2½"	4¼"	0'-11½"	
#6	3"	5"	1'-2"	

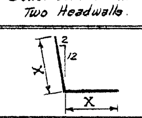


Bar Size	Pin Diam.	K	Add for 1 Hook	Bending Diagram for Bars "b1" and "b3"
#5	2½"	4¼"	0'-5¾"	
#6	3"	5"	0'-7"	



Span	Size	Spacing	No. Req'd	Length	X
4'	#4	12"±	24	2'-5"	1'-2½"
5'	#4	12"±	28	2'-6"	1'-3"
6'	#4	12"±	32	2'-7"	1'-3½"
7'	#4	12"±	36	2'-8"	1'-4"
8'	#4	12"±	42	2'-9"	1'-4½"

Dowel bars "r" in Two Headwalls.



NOTE:- Dimensions are to centers of bars (b, b1, b2, & b3). The X, Y & Z values for "b1" bars are same as for "b" bars and for "b3" bars same as for "b2" bars.

▼ These bars are in the skewed portion of barrel only. The length of "a1" and "c1" bars and overall length L of "b1" and "b3" bars vary by 1'-9" for 12" spacing and 1'-7" for 11" spacing.

In the regular portion of the barrel begin and end with a set of "a" & "c" bars. If the spacing is such that the last set of bars would be "b" & "b2" bars, use a set of "a" & "c" bars instead.

D Max. Design Depth of Cover	S Clear Spans	H Clear Height	A Sq. Ft. Opening	OW Overall Width	T Thickness of Top Slab	C Thickness of Sidewalls	M Thickness of Division Wall	B Thickness of Bottom Slab	OH Overall Height	RL Roadway Length	K Length of Headwalls	* Class S Conc. per Lin. Ft. of Barrel (Cu. Yd.)	Reinforcing Steel: Total for 60'-0" Length of Barrel (Lb.)	Per Lin. Ft. of Barrel (Lb.)	Additional per Lap (Lb.)
5'-0"	2 @ 4'	2'	16	9'-8"	6½"	6"	8"	6"	3'-0½"	11'-2"	12'-3¾"	0.496	5523	88.15	42.71
		3'	24	9'-8"		6"	8"		4'-0½"	"	"	0.558	5846	93.49	46.05
		4'	32	9'-8"		6"	8"		5'-0½"	"	"	0.620	6170	98.84	49.39
		5'	40	9'-8"		6"	8"		6'-0½"	"	"	0.682	6483	104.18	52.73
		6'	48	9'-11"		7"	9"		7'-0½"	11'-5⅜"	12'-7¼"	0.809	6897	110.74	56.07
	2 @ 5'	3'	30	11'-8"	7"	6"	8"	6½"	4'-1½"	13'-5¾"	14'-7½"	0.671	7818	123.34	51.19
		4'	40	11'-8"		6"	8"		5'-1½"	"	"	0.733	8142	128.68	54.53
		5'	50	11'-8"		6"	8"		6'-1½"	"	"	0.795	8465	134.03	57.87
		6'	60	11'-11"		7"	9"		7'-1½"	13'-9⅛"	14'-11"	0.922	8894	140.89	61.21
		7'	70	12'-1"		7½"	10"		8'-1½"	13'-11⅛"	15'-1⅛"	1.044	9291	147.34	64.55
	2 @ 6'	3'	36	13'-8"	7½"	6"	8"	7½"	4'-3"	15'-9⅜"	16'-11¼"	0.818	9398	148.50	56.34
		4'	48	13'-8"		6"	8"		5'-3"	"	"	0.880	9721	153.85	59.68
		5'	60	13'-8"		6"	8"		6'-3"	"	"	0.941	10,094	159.19	63.02
		6'	72	13'-11"		7"	9"		7'-3"	16'-0⅞"	17'-2¾"	1.070	10,496	166.20	66.36
		7'	84	14'-1"		7½"	10"		8'-3"	16'-3⅛"	17'-5"	1.192	10,903	172.74	69.70
		8'	96	14'-2"		8"	10"		9'-3"	16'-4½"	17'-6¼"	1.298	11,548	183.36	73.04
	2 @ 7'	4'	56	15'-8"	8"	6"	8"	8"	5'-4"	18'-1⅛"	19'-3"	1.021	11,081	178.15	64.83
		5'	70	15'-8"		6"	8"		6'-4"	"	"	1.082	11,405	183.49	68.17
		6'	84	15'-11"		7"	9"		7'-4"	18'-4½"	19'-6½"	1.212	12,069	190.59	71.51
		7'	98	16'-1"		7½"	10"		8'-4"	18'-6⅜"	19'-8¼"	1.334	12,479	197.19	74.85
		8'	112	16'-2"		8"	10"		9'-4"	18'-8"	19'-9¾"	1.440	13,084	207.89	78.19
		9'	126	16'-5"		9"	11"		10'-4"	18'-11¼"	20'-1⅛"	1.616	14,148	225.25	81.53
	2 @ 8'	4'	64	17'-8"	8½"	6"	8"	8½"	5'-5"	20'-4⅜"	21'-6¾"	1.174	13,251	210.37	71.71
		5'	80	17'-11"		7"	9"		6'-5"	20'-8⅛"	21'-10"	1.295	13,731	217.63	75.05
		6'	96	17'-11"		7"	9"		7'-5"	"	"	1.366	14,054	222.97	78.39
		7'	112	18'-1"		7½"	10"		8'-5"	20'-10⅝"	22'-0½"	1.489	14,402	229.68	81.73
		8'	128	18'-2"		8"	10"		9'-5"	20'-11⅜"	22'-1¼"	1.595	15,131	240.47	85.07
		9'	144	18'-5"		9"	11"		10'-5"	21'-3¼"	22'-5"	1.772	16,154	258.08	88.41
		10'	160	18'-8"		10"	12"		11'-5"	21'-6⅝"	22'-8½"	1.967	16,999	271.07	91.75

* For quanities in wings see Standard Wing Drawings listed below. Total steel quantities listed above include one lap of longitudinal bars.

GENERAL NOTES

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.

BAR LAP:- In computing the quantities of steel from the tables add one lap for each add'l 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diam. min.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division wall and slabs shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961

AND

SPECIAL MILITARY LOADING

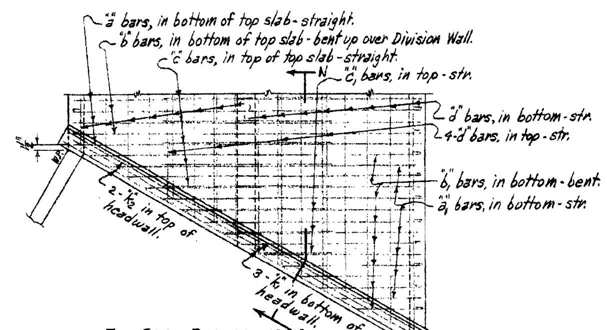
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-

Class S Concrete (n=10) 1200 #/□"

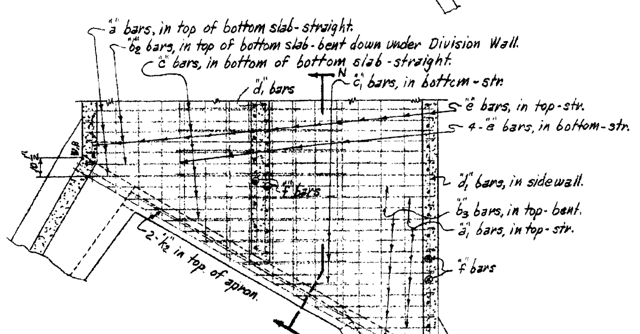
Reinforcing Steel 20,000 #/□"

NOTE:- For Details of Standard Wings and bar lists, see Drawing No. W-X302-1 or W-X302-2; W-X303-1 or W-X303-2, and W-X304-1 or W-X304-2. Also W-X30.



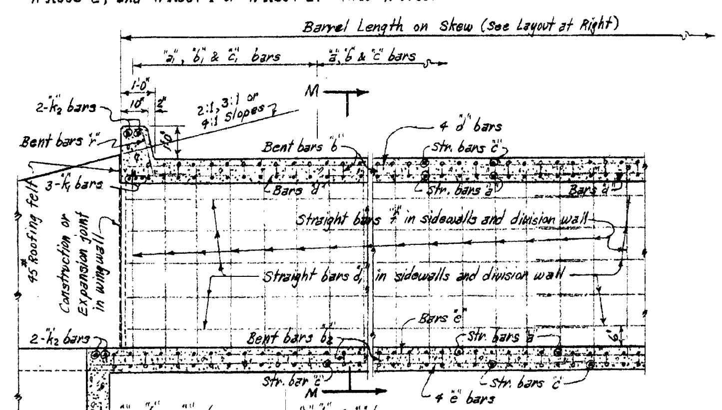
TOP SLAB REINFORCING

PART PLAN AT END OF CULVERT

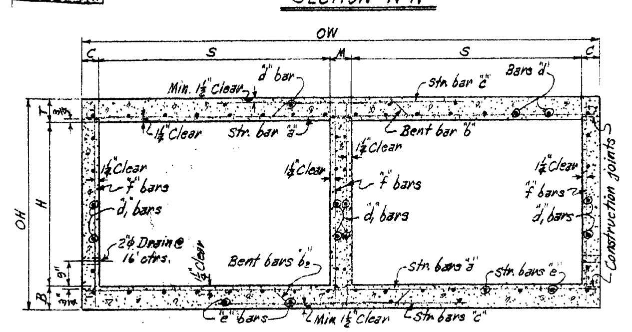


BOTTOM SLAB REINFORCING

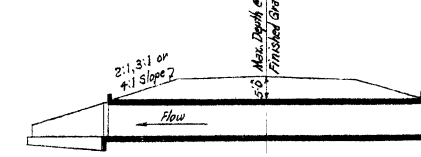
PART PLAN AT END OF CULVERT



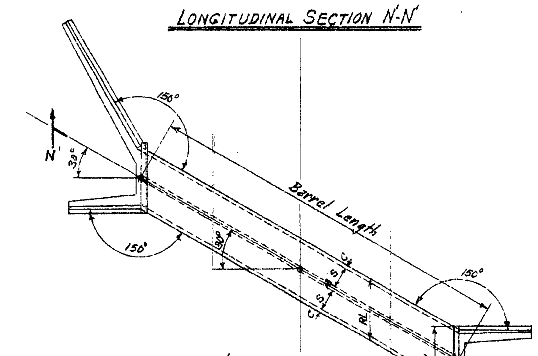
SECTION N-N



TYPICAL SECTION M-M



LONGITUDINAL SECTION N-N



LAYOUT OF DOUBLE BARREL CULVERT

30° SKEW LEFT FORWARD

30° Skew Right Forward is reversed

NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X302-1 or W-X302-2, W-X303-1 or W-X303-2, and W-X304-1 or W-X304-2. Also W-X30.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

30° SKEW

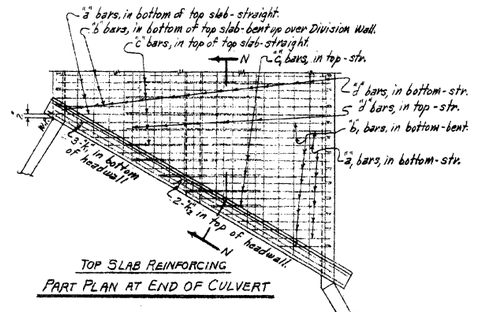
4', 5', 6', 7' AND 8' SPANS DOUBLES

2:1, 3:1 OR 4:1 SLOPES UNDER 5'-0" COVER

STANDARD DRAWING No. R-230X-01

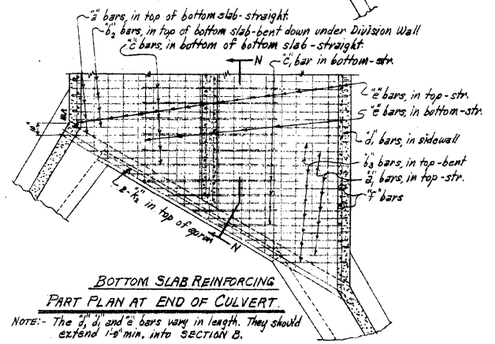
Designed by:- W.C.H. 1-17-63. Checked by:- R.H.S. 5-14-63
Drawn by:- W.C.H. 2-26-64 Checked by:-
Quantities by:- W.C.H. 4-3-64 Checked by:-

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			494	
JOB No.					



TOP SLAB REINFORCING

PART PLAN AT END OF CULVERT

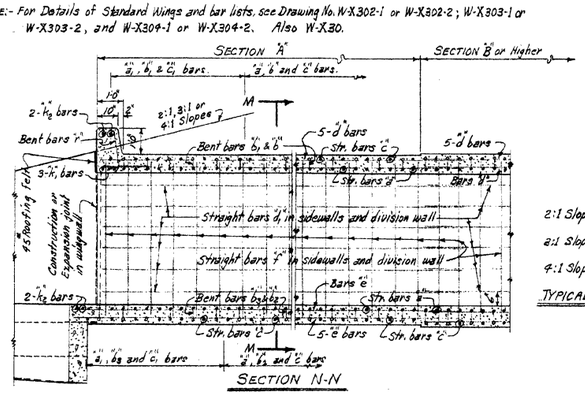


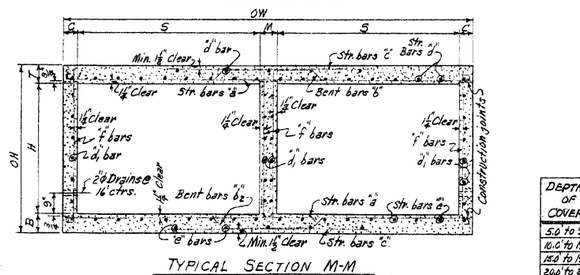
BOTTOM SLAB REINFORCING

PART PLAN AT END OF CULVERT

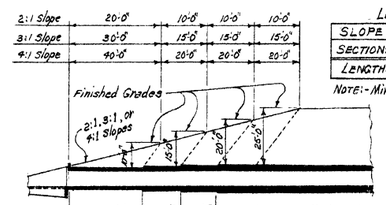
NOTE:- The "d", "d1" and "e" bars vary in length. They should extend 1'-9" min. into SECTION B.

NOTE:- For Details of Standard Wings and bar lists, see Drawing No. W-X302-1 or W-X302-2; W-X303-1 or W-X303-2, and W-X304-1 or W-X304-2. Also W-X30.





TYPICAL SECTION M-M



LENGTH OF SECTIONS ON 30° SKEW

SLOPE	2:1		3:1		4:1	
SECTIONS	A	B & C	A	B & C	A	B & C
LENGTHS	13'-10⅝"	6'-11⅝"	25'-4⅜"	12'-8⅜"	36'-11⅝"	18'-5⅜"

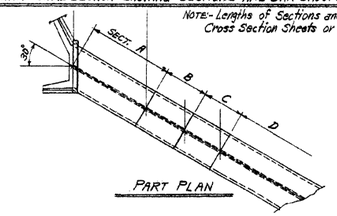
NOTE:- Minimum & Length of SECTION "A" on 30° Skew = (0.288675 CW + 2').

		A	B	C	D
2:1 Slope =	SECTIONS	A=12'-0"	B=6'-0"	C=6'-0"	MID-SECTION D-Varies
	Bar Group	A	B	C	D
3:1 Slope =	SECTIONS	A=22'-0"	B=11'-0"	C=11'-0"	MID-SECTION D-Varies
	Bar Group	A	B	C	D
4:1 Slope =	SECTIONS	A=32'-0"	B=16'-0"	C=16'-0"	MID-SECTION D-Varies
	Bar Group	A	B	C	D

These lengths are perpendicular to ℄ of roadway. See Table of Skew Lengths above.

TYPICAL LONGITUDINAL SECTION - SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.



PART PLAN

NOTE:- For Details and Bar Lists for SECTIONS B, C & D, see Barrel Drawing Nos. R-200X-X2 and R-200X-X3.

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C		MID-SECTION AND BAR GROUP
5.0' to 9.5'	A				A
10.0' to 14.5'	A				B
15.0' to 19.5'	A	B			C
20.0' to 25.0'	A	B	C		D

OR ALT.

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C		MID-SECTION AND BAR GROUP
5.0' to 9.5'	A				A
10.0' to 14.5'	A				B
15.0' to 19.5'	A	B			C
20.0' to 25.0'	A	2@C			D

BAR LIST FOR SECTION "A" ON 30° SKEW - ONE END ONLY.

SECTION & BAR GROUP	LENGTH OF SECTION	DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	"a" bars STRAIGHT In Top and Bottom Slab of Barrel. SIZE	"a1" bars STRAIGHT In Top and Bottom Slab of Barrel - (two of each Length) SIZE	"b" bars BENT - See Diagrams below. In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars. SIZE	"b1" bars BENT - See Diagrams below. In Bottom of Top Slab - some bent up over Division Wall - one end hooked. Alt. with "a1" and "c" or "c1" bars. SIZE	"b2" bars BENT - See Diagrams below. In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars. SIZE	"b3" bars BENT - See Diagrams below. In Top of Bottom Slab - some bent down under Division Wall - one end hooked. Alt. with "a1" and "c" or "c1" bars. SIZE	"c" bars STRAIGHT In Top and Bottom Slab of Barrel, Alternate with "b" and "b2" bars. SIZE	"c1" bars STRAIGHT In Top and Bottom Slab of Barrel. Alt. with "b1, b2, b3" bars. (Two of each Length) SIZE	"d" bars STRAIGHT Longitudinal in Top Slab of Barrel. SIZE	"d1" bars STRAIGHT Longitudinal in Sidewalls and Division Wall. SIZE	"e" bars STRAIGHT Longitudinal in Bottom Slab of Barrel. SIZE	"f" bars STRAIGHT Verticals in Sidewalls and Division Wall. SIZE	"k" bars STRAIGHT In Bottom of Headwall. SIZE	"k2" bars STRAIGHT In Top of Headwall and Apron. (2 Each) SIZE
					In Top and Bottom Slab of Barrel. SPACING	In Top and Bottom Slab of Barrel - (two of each Length) SPACING	In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars. SPACING	In Bottom of Top Slab - some bent up over Division Wall - one end hooked. Alt. with "a1" and "c" or "c1" bars. SPACING	In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars. SPACING	In Top of Bottom Slab - some bent down under Division Wall - one end hooked. Alt. with "a1" and "c" or "c1" bars. SPACING	In Top and Bottom Slab of Barrel, Alternate with "b" and "b2" bars. SPACING	In Top and Bottom Slab of Barrel. Alt. with "b1, b2, b3" bars. (Two of each Length) SPACING	Longitudinal in Top Slab of Barrel. SPACING	Longitudinal in Sidewalls and Division Wall. SPACING	Longitudinal in Bottom Slab of Barrel. SPACING	Verticals in Sidewalls and Division Wall. SPACING	In Bottom of Headwall. SPACING	In Top of Headwall and Apron. (2 Each) SPACING
					NUMBER REQ'D 2:1	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	NUMBER REQ'D LENGTH	NUMBER REQ'D LENGTH	X	Y	Z	LENGTH Max.	LENGTH Min.	L Max.	L Min.	NUMBER REQ'D 2:1	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	NUMBER REQ'D LENGTH	NUMBER REQ'D LENGTH Max.	NUMBER REQ'D LENGTH Min.	NUMBER REQ'D 2:1	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	NUMBER REQ'D LENGTH	NUMBER REQ'D	LENGTH	NUMBER REQ'D	LENGTH
SECTION "A" & BAR GROUP "A"	4:1 = 36'-11⅝"	0'-0" TO 10'-0" MAXIMUM	5'	5'	19 48 69 19'-8"	20 18'-1" 3'-10"	9 21 34 2'-2" 0'-6⅝"	11 19'-10" 3'-7" 18'-10" 3'-0"	10 22 35 2'-3" 0'-7⅛"	11 19'-11" 3'-7" 18'-10" 3'-0"	25 49 75 9'-9"	11 20'-1" 3'-9" 19'-0" 3'-2"	8 8'-5" 3'-9"	20	25	12'	56 102 148 6'-5"	4	25
			6'	6'	19 48 69 19'-10"	20 18'-3" 4'-0"	9 21 34 2'-4" " " 4'-3" 7'-2½"	11 20'-0" 3'-9" 19'-0" 3'-2"	" " " " 4'-4¼" 7'-2½"	11 20'-0" " " " "	25 49 75 9'-10"	11 " " " "	8 8'-6" 3'-9"	20	25		56 102 148 7'-5"		25
		2	7'	7'	19 48 69 19'-10"	20 18'-3" " "	9 21 34 2'-4" " " 4'-3" 7'-3"	11 20'-0" " " " "	" " " " 4'-4¼" 7'-3"	11 " " " " "	25 49 75 "	11 " " " " "	8 " " " "	20	25	10'	68 126 174 8'-5"	#5	25
		@ 9'	8'	8'	19 48 69 19'-11"	22 18'-4" 2'-6"	9 21 34 2'-5" " " 4'-4" 7'-4"	11 20'-1" 3'-10" 19'-1" 3'-3"	" " " " 4'-4¾" 7'-4"	11 20'-1" 3'-10" 19'-1" 3'-3"	25 49 75 9'-11"	11 20'-2" 3'-10" 19'-2" 3'-4"	8 8'-7" 3'-10"	20	25		56 102 148 8'-5"		25
			9'	9'	19 48 69 20'-2"	22 18'-7" 2'-9"	9 21 34 2'-5" " " 4'-4" 7'-5"	11 20'-4" 4'-1" 19'-4" 3'-6"	" " " " 4'-5" 7'-5"	11 20'-4" 4'-1" 19'-4" 3'-6"	25 49 75 10'-0"	11 20'-5" 4'-1" 19'-5" 3'-8"	8 8'-8" 3'-10"	20	25		56 102 148 9'-1"		25
			10'	10'	19 48 69 20'-5"	22 18'-10" 3'-0"	9 21 34 2'-1" " " 4'-5" 7'-5"	11 20'-7" 4'-4" 19'-7" 3'-9"	" " " " 4'-5¼" 7'-5"	11 20'-7" 4'-4" 19'-7" 3'-9"	25 49 75 "	11 20'-8" 4'-4" 19'-7" 3'-9"	8 8'-11" 4'-2"	20	25		56 102 148 9'-5"		25
			11'	11'	19 48 69 20'-7"	22 19'-0" 3'-2"	9 21 34 2'-2" " " 4'-5" 7'-6"	11 20'-9" 4'-6" 19'-9" 3'-11"	" " " " 4'-5¾" 7'-6"	11 20'-10" 4'-6" 19'-9" 3'-11"	25 49 75 "	11 20'-10" 4'-6" 19'-9" 3'-11"	8 9'-0" 4'-3"	20	25		56 102 148 10'-5"		25
			5'	5'	17 39 63 21'-8"	22 19'-11" 2'-5"	7 19 30 23'-2" 0'-7½" 4'-6½" 7'-11"	11 21'-10" 3'-10" 20'-9" 3'-3"	8 20 31 23'-3" 0'-8" 4'-5" 7'-11"	11 22'-0" 4'-0" 20'-11" 3'-5"	23 45 69 10'-9"	11 22'-1" 4'-1" 20'-11" 3'-5"	8 9'-2" 3'-11"	20	27		56 102 148 6'-7"		27
			6'	6'	17 39 63 21'-10"	22 20'-1" 2'-7"	7 19 30 23'-4" " " 5'-0" 8'-0"	11 22'-0" 4'-1" 21'-0" 3'-6"	" " " " 4'-6" 8'-0"	11 22'-1" 4'-1" 21'-0" 3'-6"	23 45 69 10'-10"	11 22'-2" 4'-2" 21'-0" 3'-6"	8 9'-4" 4'-1"	20	27		56 102 148 7'-3"		27
		2	7'	7'	17 39 63 21'-10"	22 20'-1" " "	7 19 30 23'-6" " " 5'-0" 8'-0"	11 22'-0" " " " "	" " " " 4'-6" 8'-0"	11 " " " " "	23 45 69 "	11 " " " " "	8 " " " "	20	27	10'	68 126 178 8'-9"		27
		@ 10'	8'	8'	17 39 63 22'-2"	22 20'-5" 2'-8"	7 19 30 23'-8" " " 5'-0½" 8'-1"	11 22'-1" 4'-1" 21'-1" 3'-6"	" " " " 4'-6½" 8'-1"	11 22'-2" 4'-2" 21'-1" 3'-6"	23 45 69 10'-11"	11 22'-3" 4'-2" 21'-1" 3'-6"	8 9'-5" 4'-2"	20	27		56 102 148 7'-9"		27
			9'	9'	17 39 63 22'-5"	22 20'-8" 2'-9"	7 19 30 23'-10" " " 5'-0½" 8'-2"	11 22'-3" 4'-2" 21'-2" 3'-6"	" " " " 4'-6½" 8'-2"	11 22'-4" 4'-2" 21'-2" 3'-6"	23 45 69 "	11 22'-5" 4'-2" 21'-2" 3'-6"	8 9'-7" 4'-3"	20	27		56 102 148 8'-1"		27
			10'	10'	17 39 63 22'-8"	22 20'-10" 2'-10"	7 19 30 24'-1" " " 5'-0½" 8'-3"	11 22'-5" 4'-3" 21'-3" 3'-7"	" " " " 4'-6½" 8'-3"	11 22'-6" 4'-3" 21'-3" 3'-7"	23 45 69 "	11 22'-7" 4'-3" 21'-3" 3'-7"	8 9'-10" 4'-5"	20	27		56 102 148 8'-5"		27
			11'	11'	17 39 63 22'-11"	22 21'-0" 3'-0"	7 19 30 24'-3" " " 5'-0½" 8'-4"	11 22'-7" 4'-3" 21'-4" 3'-7"	" " " " 4'-6½" 8'-4"	11 22'-8" 4'-3" 21'-4" 3'-7"	23 45 69 "	11 22'-9" 4'-3" 21'-4" 3'-7"	8 9'-11" 4'-6"	20	27		56 102 148 8'-9"		27
			12'	12'	17 39 63 23'-3"	22 21'-3" 3'-1"	7 19 30 24'-5" " " 5'-0½" 8'-4"	11 22'-9" 4'-3" 21'-5" 3'-7"	" " " " 4'-6½" 8'-4"	11 22'-10" 4'-3" 21'-5" 3'-7"	23 45 69 "	11 22'-11" 4'-3" 21'-5" 3'-7"	8 10'-0" 4'-7"	20	27		56 102 148 9'-1"		27
			6'	6'	15 39 61 23'-11"	24 22'-2" 2'-11"	7 18 30 25'-3" 0'-8" 5'-0" 8'-9"	12 24'-6" 4'-5" 23'-5" 3'-9"	8 19 31 25'-9" 0'-8½" 4'-10½" 8'-9"	12 24'-7" 4'-5" 23'-5" 3'-9"	21 45 67 11'-10"	12 24'-8" 4'-5" 23'-5" 3'-9"	10 10'-1" 3'-11"	26	29		56 102 148 7'-9"		29
			7'	7'	15 39 61 23'-11"	24 22'-2" "	7 18 30 25'-3" " " " "	12 24'-7" " " " "	8 19 31 " " " " "	12 " " " " "	21 45 67 "	12 " " " " "	10 " " "	26	29		56 102 148 8'-1"		29
			8'	8'	15 39 61 23'-11"	24 22'-5" 3'-2"	7 18 30 25'-11" " " 5'-1" 8'-10"	12 24'-8" 4'-8" 23'-8" 4'-0"	8 19 31 26'-0" " " 4'-11½" 8'-10"	12 24'-9" 4'-8" 23'-8" 4'-0"	21 45 67 11'-11"	12 24'-10" 4'-8" 23'-8" 4'-0"	10 11'-2" 4'-1"	26	29		56 102 148 8'-5"		29
			9'	9'	15 39 61 24'-3"	24 22'-8" 3'-5"	7 18 30 26'-7" " " 5'-2" 8'-11"	12 24'-11" 4'-8" 23'-11" 4'-0"	8 19 31 26'-5" " " 5'-0½" 9'-0"	12 24'-11" 4'-8" 23'-11" 4'-0"	21 45 67 12'-0"	12 25'-0" 4'-8" 23'-11" 4'-0"	10 11'-3" 4'-3"	26	29		56 102 148 8'-9"		29
			10'	10'	15 39 61 24'-6"	24 22'-10" 3'-7"	7 18 30 26'-10" " " 5'-2" 9'-0"	12 24'-11" 4'-8" 23'-11" 4'-0"	8 19 31 26'-7" " " 5'-0½" 9'-1"	13 24'-10" 3'-4" 23'-6" 2'-8"	21 45 67 "	13 24'-11" 3'-4" 23'-6" 2'-8"	10 11'-4" 4'-4"	26	29		56 102 148 9'-1"		29
			11'	11'	15 39 61 24'-9"	24 23'-0" 3'-9"	7 18 30 27'-2" " " 5'-2" 9'-1"	12 25'-0" 4'-8" 24'-0" 4'-0"	8 19 31 26'-9" " " 5'-0½" 9'-2"	13 25'-0" 3'-6" 23'-8" 2'-8"	21 45 67 "	13 25'-1" 3'-6" 23'-8" 2'-8"	10 11'-5" 4'-5"	26	29		56 102 148 9'-5"		29
			12'	12'	15 39 61 24'-9"	24 23'-0" 3'-9"	7 18 30 27'-6" " " 5'-2" 9'-1"	12 25'-1" 4'-8" 24'-1" 4'-0"	8 19 31 27'-0" " " 5'-0½" 9'-3"	13 25'-1" 3'-6" 23'-8" 2'-8"	21 45 67 "	13 25'-2" 3'-6" 23'-8" 2'-8"	10 11'-6" 4'-6"	26	29		56 102 148 9'-8"		29
			6'	6'	15 41 65 25'-11"	28 24'-4" 3'-9"	7 19 32 27'-8" 0'-8½" 5'-4½" 9'-6"	12 26'-3" 3'-7" 25'-1" 2'-11"	8 20 33 27'-10" 0'-8½" 5'-4½" 9'-6"	15 26'-3" 3'-7" 25'-1" 2'-11"	23 49 73 12'-10"	15 26'-4" 3'-7" 25'-1" 2'-11"	12 11'-8" 3'-7"	31	31		56 102 148 9'-11"		31
			7'	7'	15 41 65 25'-11"	28 24'-5" "	7 19 32 27'-9" " " " "	12 26'-4" " " " "	8 20 33 " " " " "	15 " " " " "	23 49 73 "	15 " " " " "	12 " " "	31	31		56 102 148 10'-3"		31
			8'	8'	15 41 65 26'-2"	28 24'-7" 4'-0"	7 19 32 27'-11" " " 5'-5½" 9'-7"	12 26'-5" 3'-10" 25'-4" 3'-2"	8 20 33 28'-0" " " 5'-5½" 9'-7"	15 26'-5" 3'-10" 25'-4" 3'-2"	23 49 73 12'-11"	15 26'-6" 3'-10" 25'-4" 3'-2"	12 11'-9" 3'-9"	31	31		56 102 148 10'-7"		31
			9'	9'	15 41 65 26'-5"	30 24'-10" 4'-1"	7 19 32 28'-2" " " 5'-5½" 9'-8"	12 26'-6" 4'-0" 25'-5" 3'-3"	8 20 33 28'-3" " " 5'-5½" 9'-8"	15 26'-6" 4'-0" 25'-5" 3'-3"	23 49 73 13'-0"	15 26'-7" 4'-0" 25'-5" 3'-3"	12 11'-10" 4'-0"	31	31		56 102 148 10'-11"		31
			10'	10'	15 41 65 26'-7"	30 25'-0" 4'-2"	7 19 32 28'-5" " " 5'-5½" 9'-9"	12 26'-7" 4'-0" 25'-6" 3'-3"	8 20 33 28'-5" " " 5'-5½" 9'-9"	15 26'-7" 4'-0" 25'-6" 3'-3"	23 49 73 "	15 26'-8" 4'-0" 25'-6" 3'-3"	12 11'-11" 4'-1"	31	31		56 102 148 11'-3"		31
			11'	11'	15 41 65 26'-9"	30 25'-2" 4'-2"	7 19 32 28'-8" " " 5'-5½" 9'-10"	12 26'-8" 4'-1" 25'-7" 3'-4"	8 20 33 28'-8" " " 5'-5½" 9'-10"	15 26'-8" 4'-1" 25'-7" 3'-4"	23 49 73 "	15 26'-9" 4'-1" 25'-7" 3'-4"	12 12'-0" 4'-2"	31	31		56 102 148 11'-6"		31
			12'	12'	15 41 65 26'-9"	30 25'-2" 4'-2"	7 19 32 28'-8" " " 5'-5½" 9'-10"	12 26'-9" 4'-1" 25'-8" 3'-4"	8 20 33 28'-8" " " 5'-5½" 9'-10"	15 26'-9" 4'-1" 25'-8" 3'-4"	23 49 73 "	15 26'-10" 4'-1" 25'-8" 3'-4"	12 12'-1" 4'-3"	31	31		56 102 148 11'-9"		31

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM FOR BARS "b" AND "b2"
#5	2½"	4½"	0'-11⅝"	Pin diam
#6	3"	5"	1'-2"	
#7	3½"	5½"	1'-4"	

BAR SIZE	PIN DIAM.	K	ADD FOR 1 HOOK	BENDING DIAGRAM FOR BARS "b1" AND "b3"
#5	2½"	4½"	0'-5⅜"	Pin diameter; Min. 1½"; Less than; 3X Max.
#6	3"	5"	0'-7"	
#7	3½"	5½"	0'-8"	

NOTE:- Dimensions are to centers of bars. (b, b1, b2 & b3). The X, Y & Z values for "b" bars are same as for "b" bars and for "b3" bars same as for "b2" bars.

SPAN	SIZE	SPACING	No. REQ'D	LENGTH	X	Dowel bars "k" in One Headwall.
9'	#4	12"	24	3'-1"	1'-4⅝"	k, 12", X
10'	#4	12"	26	3'-2"	1'-7"	
11'	#4	12"	29	3'-4"	1'-8"	
12'	#4	12"	31	3'-6"	1'-9"	

These bars are in the skewed portion of barrel only. The length of "a1" and "c1" bars and overall length L of "b1" and "b3" bars vary by 1'-9" for 12" spacing and 1'-7" for 11" spacing.

⊙ To Longitudinal bars of 9:1 Slopes add one splice for each "a1", "d1" and "e" bar. (1'-3" Lap)

* For remainder of quantities see Std. Wing and Barrel Drawings listed below. Total steel quantities listed above include one lap of longitudinal bars, plus an add'l lap for 4:1 slopes.

BARREL DIMENSIONS												* QUANTITIES - ONE SECTION "A"					
MAX. DESIGN DEPTH OF COVER	CLEAR SPANS	CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF DIVISION WALL	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	ROADWAY LENGTH	LENGTH OF HEADWALL	CLASS S CONCRETE BARREL ONLY			REINFORCING STEEL BARREL, APRON AND HEADWALL		
												2:1	3:1	4:1	2:1	3:1	4:1
D	S	H	A	OW	T	C	M	B	OH	RL	K	CU.YD.	CU.YD.	CU.YD.	LB.	LB.	LB.
SECTION "A" = 10'-0"	2 @ 9'	5'	90	19'-11"	10"	7"	9"	10½"	6'-8⅝"	25'-0"	24'-8⅝"	22.58	41.90	60.21	3488	5362	8640
		6'	108	20'-1"		7½"	10"		7'-8⅝"	23'-0"	22'-8⅝"	24.23	44.92	64.60	3591	6141	8899
		7'	126	20'-4"		7½"	10"		8'-8⅝"	"	"	25.30	46.37	67.45	3788	6405	9262
		8'	144	20'-7"		8"	10"		9'-8⅝"	23'-3"	22'-11⅝"	26.79	49.12	71.44	3963	6803	9859
		9'	162	20'-5"		9"	11"		10'-8⅝"	23'-6"	23'-2⅝"	28.27	53.46	78.05	4229	7276	10622
		10'	180	20'-8"		10"	12"		11'-8⅝"	23'-10"	23'-5⅝"	32.02	58.69	85.84	4642	7776	11249
		11'	198	20'-10"		11"	12"		12'-8⅝"	24'-2"	23'-8⅝"	34.98	63.21	91.94	4720	8269	11941
	2 @ 10'	5'	100	21'-11"	10½"	7"	9"	11½"	6'-11⅛"	25'-3"	25'-0½"	25.27	47.24	68.70	3796	6486	9321
		6'	120	22'-1"		7½"	10"		7'-10⅛"	25'-6"	25'-3½"	27.42	50.26	73.10	3851	6648	9583
		7'	140	22'-4"		7½"	10"		8'-10⅛"	"	"	28.50	52.24	75.98	3999	6936	9960
		8'	160	22'-7"		8"	10"		9'-10⅛"	25'-9"	25'-6½"	29.98	54.96	79.93	4221	7321	10546
		9'	180	22'-5"		9"	11"		10'-10⅛"	25'-10"	25'-7½"	32.09	59.55	86.62	4488	7808	11214
		10'	200	22'-8"		10"	12"		11'-10⅛"	26'-2"	25'-11½"	35.25	64.61	93.97	4790	8392	12006
		11'	220	22'-10"		11"	12"		12'-10⅛"	26'-6"	26'-3½"	37.71	69.13	100.54	5049	8786	12639
		12'	240	23'-0"		12"	12"		13'-10⅛"	26'-10"	26'-7½"	40.86	73.98	107.60	5354	9310	13363
	2 @ 11'	6'	132	24'-2"	11¾"	8"	10"	12⅝"	8'-0⅜"	27'-11"	27'-7⅛"	31.79	58.16	84.59	4670	8056	11502
		7'	154	24'-2"		8"	10"		9'-0⅜"	"	"	32.83	60.19	87.58	4784	8255	11790
		8'	176	24'-2"		8"	10"		10'-0⅜"	"	"	33.96	62.26	90.63	5033	8710	12454
		9'	198	24'-5"		9"	11"		11'-0⅜"	28'-3"	27'-11⅛"	36.98	66.87	97.26	5311	9202	13141
		10'	220	24'-8"		10"	12"		12'-0⅜"	28'-7"	28'-3⅛"	39.26	71.97	104.68	5695	9769	13947
		11'	242	24'-10"		11"	12"		13'-0⅜"	28'-10"	28'-7⅛"	41.74	76.52	111.29	5902	10219	14614
		12'	264	25'-0"		12"	12"		14'-0⅜"	29'-2"	28'-11⅛"	44.39	81.37	118.35	6351	10933	15715
	2 @ 12'	6'	144	26'-8"	12"	8"	10"	13⅛"	8'-2"	30'-3"	30'-0"	35.76	65.55	95.34	5394	9196	13120
		7'	168	26'-2"		8"	10"		9'-2"	"	"	36.88	67.60	98.33	5413	9336	13324
		8'	192	26'-2"		8"	10"		10'-2"	"	"	37.99	69.64	101.28	5700	9854	14081
		9'	216	26'-5"	12⅝"	9"	11"	13⅝"	11'-2"	30'-6"	31'-0"	40.52	74.28	108.04	5986	10360	14783
		10'	240	26'-8"		10"	12"		12'-2"	30'-9"	31'-3⅛"	43.34	79.44	115.56	6309	10926	15616
		11'	264	26'-10"		11"	12"		13'-2"	31'-1"	32'-1⅝"	46.83	84.01	122.19	6579	11385	16270
		12'	288	27'-0"		12"	12"		14'-2"	31'-5"	32'-4"	49.49	88.89	129.28	7095	12148	17385

GENERAL NOTES

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾ chamfers.

REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division wall and slabs shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961

AND

SPECIAL MILITARY LOADING

Two 24000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-

Class S Concrete (n=10) 1200 #/in²

Reinforcing Steel 20,000 #/in²

Note:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X302-1 or W-X302-2, W-X303-1 or W-X303-2, and W-X304-1 or W-X304-2. Also W-X30.

For Barrels of 10' and 12' Spans, See Drawing No. R-200X-X2.

For " " 9' and 11' Spans, " " No. R-200X-X3.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS

FOR

REINFORCED CONCRETE BOX CULVERTS

30° SKEW - SECTIONS "A" ONLY

9', 10', 11' AND 12' SPANS 2:1, 3:1 OR 4:1 SLOPES

DOUBLES OVER 5'-0" COVER

STANDARD DRAWING NO. R-230X-2

Designed by:- W.C.H. 1-29-63

Drawn by:- W.C.H. 1-30-64

Quantities by:- W.C.H. 4-28-64.

Checked by:- R.H.S. 5-29-63

Checked by:- 5-20-64

Checked by:-

62

FED. ROAD DIV.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			495	
JOB No.					

BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH - TWO 30° SKEWED ENDS

Depth of Cover (D): 0'-0" TO 5'-0" MAXIMUM

"a" bars – STRAIGHT – In Top and Bottom Slab of Barrel. "a₁" bars (▼) – STRAIGHT – In Top and Bottom Slab of Barrel – (Four of Each Length)

Clear Span S	Clear Height H	a Size	a Spacing	a No. Req'd	a Length	a₁ Size	a₁ Spacing	a₁ No. Req'd	a₁ Length Max.	a₁ Length Min.
3 @ 9'	5'	#6	11"	98	29'-5"	#6	11"	68	27'-10"	2'-6"
	6'			98	29'-8"			68	28'-1"	2'-9"
	7'			98	29'-8"			68	"	"
	8'			98	29'-9"			68	28'-2"	2'-10"
	9'			96	30'-1"			68	28'-6"	3'-2"
	10'			96	30'-5"			68	28'-10"	3'-6"
	11'			96	30'-7"			68	29'-0"	3'-8"
3 @ 10'	5'	#7	12"	86	32'-5"	#7	12"	68	30'-8"	2'-8"
	6'			86	32'-8"			68	30'-11"	2'-11"
	7'			86	32'-8"			68	"	"
	8'			86	32'-9"			68	31'-0"	3'-0"
	9'			86	33'-1"			68	31'-4"	3'-4"
	10'			86	33'-5"			68	31'-8"	3'-8"
	11'			86	33'-7"			68	31'-10"	3'-10"
	12'			86	33'-9"			68	32'-0"	4'-0"
3 @ 11'	6'	#7	11"	90	35'-9"	#7	11"	84	34'-2"	2'-6"
	7'			90	35'-9"			84	"	"
	8'			90	35'-9"			84	"	"
	9'			90	36'-1"			84	34'-6"	2'-10"
	10'			88	36'-5"			84	34'-10"	3'-2"
	11'			88	36'-7"			84	35'-0"	3'-4"
	12'			88	36'-9"			84	35'-2"	3'-6"
3 @ 12'	6'	#7	11"	86	38'-9"	#7	11"	88	37'-2"	3'-11"
	7'			86	38'-9"			88	"	"
	8'			86	38'-9"			88	"	"
	9'			86	39'-1"			92	37'-6"	2'-8"
	10'			86	39'-5"			92	37'-10"	3'-0"
	11'			84	39'-7"			92	38'-0"	3'-2"
	12'			84	39'-9"			92	38'-2"	3'-4"

"b" bars – BENT - See Diagrams below – In Bottom of Top Slab bent up over Division Walls - hooked. Alternate with "a" and "c" bars. "b₁" bars (▼) – In Bottom of Top Slab - some bent up over Division Walls - one end hooked. (2 of Each Length) Alternate with "a₁" and "c" or "c₁" bars.

S	H	b Size	b Spacing	b No. Req'd	b Length	b X	b Y	b Z	b₁ Size	b₁ Spacing	b₁ No. Req'd	b₁ Length Max.	b₁ Length Min.	b₁ L Max.	b₁ L Min.
3 @ 9'	5'	#6	11"	46	31'-2"	0'-5½"	4'-4"	7'-2"	#6	11"	34	29'-10"	3'-10"	28'-7"	3'-3"
	6'			46	31'-5"	"	4'-5"	7'-2½"			34	30'-1"	4'-1"	28'-10"	3'-6"
	7'			46	31'-5"	"	"	"			34	"	"	"	"
	8'			46	31'-6"	"	"	7'-3"			34	30'-2"	4'-2"	28'-11"	3'-7"
	9'			46	31'-10"	"	4'-6"	7'-4"			34	30'-6"	4'-6"	29'-3"	3'-11"
	10'			46	32'-2"	"	4'-7"	7'-5"			36	30'-10"	3'-3"	29'-7"	2'-8"
	11'			46	32'-4"	0'-5½"	"	7'-6"			36	31'-0"	3'-5"	29'-9"	2'-10"
3 @ 10'	5'	#6	11"	41	34'-3"	0'-6"	4'-9"	7'-11"	#6	12"	34	32'-10"	4'-1"	31'-6"	3'-6"
	6'			41	34'-6"	"	4'-10"	7'-11½"			34	33'-1"	4'-4"	31'-9"	3'-9"
	7'			41	34'-6"	"	"	"			34	"	"	"	"
	8'			41	34'-7"	"	"	8'-0"			34	33'-2"	4'-5"	31'-10"	3'-10"
	9'			40	34'-11"	"	4'-11"	8'-1"			34	33'-6"	4'-9"	32'-2"	4'-2"
	10'			40	35'-3"	"	5'-0"	8'-2"			36	33'-10"	3'-4"	32'-6"	2'-9"
	11'			40	35'-5"	"	"	8'-3"			36	34'-0"	3'-6"	32'-8"	2'-11"
	12'			40	35'-7"	0'-6"	5'-0"	8'-4"			36	34'-2"	3'-8"	32'-10"	3'-1"
3 @ 11'	6'	#6	11"	42	37'-8"	0'-6½"	5'-3"	8'-9"	#6	11"	42	36'-4"	3'-10"	34'-11"	3'-3"
	7'			42	37'-8"	"	"	"			42	"	"	"	"
	8'			42	37'-8"	"	"	"			42	"	"	"	"
	9'			42	38'-0"	"	5'-4"	8'-10"			42	36'-8"	4'-2"	35'-3"	3'-7"
	10'			42	38'-4"	"	5'-5"	8'-11"			42	37'-0"	4'-6"	35'-7"	3'-11"
	11'			42	38'-6"	"	"	9'-0"			42	37'-2"	4'-8"	35'-9"	4'-1"
	12'			42	38'-8"	0'-6½"	5'-5"	9'-1"			44	37'-4"	3'-3"	35'-11"	2'-8"
3 @ 12'	6'	#6	11"	40	40'-9"	0'-7"	5'-8"	9'-6"	#6	11"	46	39'-5"	3'-8"	37'-11"	3'-1"
	7'			40	40'-9"	"	"	"			46	"	"	"	"
	8'			40	40'-9"	"	"	"			46	"	"	"	"
	9'			40	41'-1"	"	5'-9"	9'-7"			46	39'-9"	4'-0"	38'-3"	3'-5"
	10'			40	41'-5"	"	5'-10"	9'-8"			46	40'-1"	4'-4"	38'-7"	3'-9"
	11'			40	41'-7"	"	"	9'-9"			46	40'-3"	4'-6"	38'-9"	3'-11"
	12'			40	41'-9"	0'-7"	5'-10"	9'-10"			46	40'-5"	4'-8"	38'-11"	4'-1"

"b₂" bars – BENT - See Diagrams below – In Top of Bottom Slab bent down under Division Walls - hooked. Alternate with "a" and "c" bars. "b₃" bars (▼) – In Top of Bottom Slab - some bent down under Division Walls - one end hooked. (2 of Each Length) Alternate with "a₁" and "c" or "c₁" bars.

S	H	b₂ Size	b₂ Spacing	b₂ No. Req'd	b₂ Length	b₂ X	b₂ Y	b₂ Z	b₃ Size	b₃ Spacing	b₃ No. Req'd	b₃ Length Max.	b₃ Length Min.	b₃ L Max.	b₃ L Min.
3 @ 9'	5'	#6	11"	48	31'-2"	0'-5½"	4'-4"	7'-2"	#6	11"	34	29'-10"	3'-10"	28'-7"	3'-3"
	6'			48	31'-5"	"	4'-5"	7'-2½"			34	30'-1"	4'-1"	28'-10"	3'-6"
	7'			48	31'-6"	"	"	"			34	"	"	"	"
	8'			48	31'-6"	"	"	7'-3"			34	30'-2"	4'-2"	28'-11"	3'-7"
	9'			48	31'-10"	"	4'-6"	7'-4"			34	30'-6"	4'-6"	29'-3"	3'-11"
	10'			48	32'-2"	"	4'-7"	7'-5"			36	30'-10"	3'-3"	29'-7"	2'-8"
	11'			48	32'-4"	0'-5½"	"	7'-6"			36	31'-0"	3'-5"	29'-9"	2'-10"
3 @ 10'	5'	#6	12"	43	34'-3"	0'-6"	4'-9"	7'-11"	#6	12"	34	32'-10"	4'-1"	31'-6"	3'-6"
	6'			43	34'-6"	"	4'-10"	7'-11½"			34	33'-1"	4'-4"	31'-9"	3'-9"
	7'			43	34'-6"	"	"	"			34	"	"	"	"
	8'			43	34'-7"	"	"	8'-0"			34	33'-2"	4'-5"	31'-10"	3'-10"
	9'			42	34'-11"	"	4'-11"	8'-1"			34	33'-6"	4'-9"	32'-2"	4'-2"
	10'			42	35'-3"	"	5'-0"	8'-2"			36	33'-10"	3'-4"	32'-6"	2'-9"
	11'			42	35'-5"	"	"	8'-3"			36	34'-0"	3'-6"	32'-8"	2'-11"
	12'			42	35'-7"	0'-6"	5'-0"	8'-4"			36	34'-2"	3'-8"	32'-10"	3'-1"
3 @ 11'	6'	#6	11"	44	37'-8"	0'-6½"	5'-3"	8'-9"	#6	11"	42	36'-4"	3'-10"	34'-11"	3'-3"
	7'			44	37'-8"	"	"	"			42	"	"	"	"
	8'			44	37'-8"	"	"	"			42	"	"	"	"
	9'			44	38'-0"	"	5'-4"	8'-10"			42	36'-8"	4'-2"	35'-3"	3'-7"
	10'			44	38'-4"	"	5'-5"	8'-11"			42	37'-0"	4'-6"	35'-7"	3'-11"
	11'			44	38'-6"	"	"	9'-0"			42	37'-2"	4'-8"	35'-9"	4'-1"
	12'			44	38'-8"	0'-6½"	5'-5"	9'-1"			44	37'-4"	3'-3"	35'-11"	2'-8"
3 @ 12'	6'	#6	11"	42	40'-9"	0'-7"	5'-8"	9'-6"	#6	11"	46	39'-5"	3'-8"	37'-11"	3'-1"
	7'			42	40'-9"	"	"	"			46	"	"	"	"
	8'			42	40'-9"	"	"	"			46	"	"	"	"
	9'			42	41'-1"	"	5'-9"	9'-7"			46	39'-9"	4'-0"	38'-3"	3'-5"
	10'			42	41'-5"	"	5'-10"	9'-8"			46	40'-1"	4'-4"	38'-7"	3'-9"
	11'			42	41'-7"	"	"	9'-9"			46	40'-3"	4'-6"	38'-9"	3'-11"
	12'			42	41'-9"	0'-7"	5'-10"	9'-10"			46	40'-5"	4'-8"	38'-11"	4'-1"

STRAIGHT: "c" bars – In Top and Bottom Slab of Barrel. Alternate with "b" and "b₂" bars. "c₁" bars (▼) – In Top and Bottom Slab of Barrel. Alt. with "b₁" & "b₃" bars. (Four of each Length). "d" bars – Longitudinal in Top Slab of Barrel. "d₁" bars – Longitudinal in Sidewalls and Division Walls.

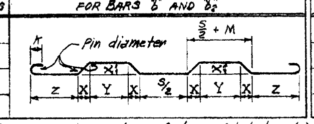
S	H	c Size	c Spacing	c No. Req'd	c Length	c₁ Size	c₁ Spacing	c₁ No. Req'd	c₁ Length Max.	c₁ Length Min.	d Size	d Spacing	d No. Req'd	d₁ Size	d₁ Spacing	d₁ No. Req'd
3 @ 9'	5'	#6	11"	110	19'-6"	#6	11"	40	18'-2"	3'-11"	#5	11½"	41	#4	12"	30
	6'			110	19'-8"			40	18'-4"	4'-1"			41			36
	7'			110	19'-8"			40	"	"			41			42
	8'			110	19'-8"			44	18'-5"	2'-7"			41			48
	9'			108	19'-10"			44	18'-8"	2'-10"			41			54
	10'			108	20'-0"			44	18'-11"	3'-1"			41			60
	11'			108	20'-0"			44	19'-0"	3'-2"			41			66
3 @ 10'	5'	#7	12"	98	21'-6"	#7	11"	44	20'-0"	2'-6"	#5	11½"	44	#4	12"	30
	6'			98	21'-8"			44	20'-2"	2'-8"			44			36
	7'			98	21'-8"			44	"	"			44			42
	8'			98	21'-8"			44	20'-3"	2'-9"			44			48
	9'			98	21'-10"			44	20'-6"	3'-0"			44			54
	10'			98	22'-0"			44	20'-9"	3'-3"			44			60
	11'			98	22'-0"			44	20'-10"	3'-4"			44			66
	12'			98	22'-0"			44	20'-11"	3'-5"			44			72
3 @ 11'	6'	#7	11"	102	23'-8"	#7	11"	56	23'-5"	2'-10"	#5	11½"	48	#4	12"	36
	7'			102	23'-8"			56	"	"			48			42
	8'			102	23'-8"			56	"	"			48			48
	9'			102	23'-10"			56	23'-8"	3'-1"			48			54
	10'			104	24'-0"			52	22'-4"	3'-4"			48			60
	11'			104	24'-0"			52	22'-5"	3'-5"			48			66
	12'			104	24'-0"			52	22'-6"	3'-6"			48			72
3 @ 12'	6'	#7	11"	102	25'-8"	#7	11"	56	24'-4"	3'-9"	#5	11½"	51	#4	12"	36
	7'			102	25'-8"			56	"	"			51			42
	8'			102	25'-8"			56	"	"			51			48
	9'			102	25'-10"			56	24'-7"	4'-0"			51			54
	10'			102	26'-0"			60	24'-10"	2'-8"			51			60
	11'			100	26'-0"			60	24'-11"	2'-9"			51			66
	12'			100	26'-0"			60	25'-0"	2'-10"			51			72

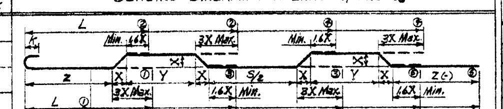
"d" bars Length: 2 @ 30'-8" for 60'-0" Length Barrel (1'-8" Lap).
"d₁" bars Length: 2 @ 30'-6" for 60'-0" Length Barrel (1'-3" Lap).

STRAIGHT: "e" bars – Longitudinal in Bottom Slab of Barrel. "f" bars – Verticals in Sidewalls and Division Walls. "k₁" bars (▼) – In Bottom of Headwalls. (3 of Each Length per Headwall). "k₂" bars (▼) – In Top of Headwalls and Aprons (2 Each).

S	H	e Size	e Spacing	e No. Req'd	f Size	f Spacing	f No. Req'd	f Length	k₁ Size	k₁ No. Req'd	k₁ Length Max.	k₁ Length Min.	k₂ Size	k₂ No. Req'd	k₂ Length
3 @ 9'	5'	#4	12"	40	#4	12"	360	6'-3"	#6	6	34'-0"	—	#6	8	35'-2"
	6'			40			360	7'-3"		6	34'-3"	—		8	35'-5"
	7'			40			360	8'-3"		6	"	—		8	"
	8'			40		10"	432	9'-3"		6	34'-4"	—		8	35'-6"
	9'			40	#5	12"	360	10'-3"		6	34'-9"	—		8	35'-11"
	10'			40		11"	396	11'-3"		6	35'-1"	—		8	36'-3"
	11'			40		10"	432	12'-3"		6	35'-4"	—		8	36'-6"
3 @ 10'	5'	#4	12"	43	#4	12"	360	6'-4"	#7	6	37'-5"	—	#7	8	38'-7"
	6'			43			360	7'-4"		6	37'-9"	—		8	38'-11"
	7'			43			360	8'-4"		6	"	—		8	"
	8'			43		10"	432	9'-4"		6	37'-10"	—		8	39'-0"
	9'			43	#5	12"	360	10'-4"		6	38'-2"	—		8	39'-4"
	10'			43		11"	396	11'-4"		6	38'-7"	—		8	39'-9"
	11'			43		10"	432	12'-4"		6	38'-9"	—		8	39'-11"
	12'			43	#6	12"	360	13'-4"		6	39'-0"	—		8	40'-2"
3 @ 11'	6'	#4	12"	46	#4	12"	360	7'-5"	※ #7	12	29'-2"	14'-6"	※ #7	16	22'-5"
	7'			46			360	8'-5"		12	"	"		16	"
	8'			46		10"	432	9'-5"		12	"	"		16	"
	9'			46	#5	12"	360	10'-5"		12	29'-4"	14'-9"		16	22'-7"
	10'			46		11"	396	11'-5"		12	29'-7"	14'-10"		16	22'-10"
	11'			46		10"	432	12'-5"		12	29'-9"	14'-11"		16	22'-11"
	12'			46	#6	12"	360	13'-5"		12	29'-10"	15'-0"		16	23'-0"
3 @ 12'	6'	#4	12"	49	#4	12"	360	7'-6"	※ #7	12	31'-5"	15'-9"	※ #7	16	24'-2"
	7'			49			360	8'-6"		12	"	"		16	"
	8'			49		10"	432	9'-6"		12	"	"		16	"
	9'			49	#5	12"	360	10'-6"		12	31'-7"	15'-11"		16	24'-4"
	10'			49		11"	396	11'-6"		12	31'-11"	16'-0"		16	24'-7"
	11'			49		10"	432	12'-6"		12	32'-0"	16'-1"		16	24'-8"
	12'			49	#6	12"	360	13'-6"		12	32'-2"	16'-2"		16	24'-9"

"e" bars Length: 2 @ 31'-8" for 60'-0" Length Barrel (1'-3" Lap).

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM FOR BARS "b" AND "b₂"
#6	3"	5"	1'-2"	

BAR SIZE	PIN DIAM.	K	ADD FOR 1 HOOK	BENDING DIAGRAM FOR BARS "b₁" AND "b₃"
#6	3"	5"	0'-7"	

NOTE:- Dimensions are to centers of bars. (b, b₁, b₂ & b₃). The X, Y & Z values for "b₁" bars are same as "b" bars, and for "b₃" bars same as for "b₂" bars.
①②-④⑤ Min. & Max. Lengths of L for bars "b₁" & "b₃" for each type bend.

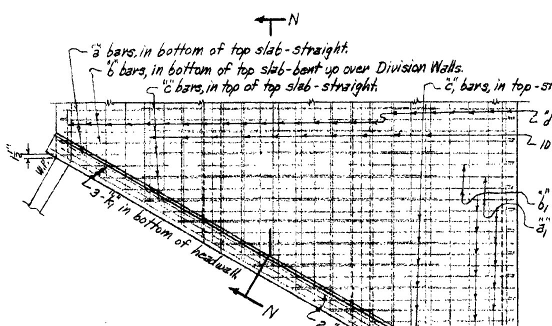
DOWEL BARS FOR TWO HEADWALLS

SPAN	SIZE	SPACING	NO. REQ'D	LENGTH	X	Dowel bars "r" in Two Headwalls.
9'	#4	12½	70	2'-10"	1'-5"	
10'	#4	12½	76	2'-11"	1'-5½"	
11'	#4	12½	84	3'-0"	1'-6"	
12'	#4	12½	92	3'-1"	1'-6½"	

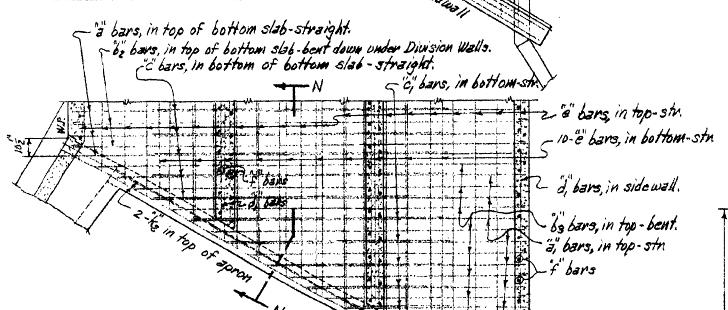
▼ These bars are in the skewed portion of barrel only. The length of "a₁" and "c₁" bars and overall length L of "b₁" and "b₃" bars vary by 1'-9" for 12" spacing and 1'-7" for 11" spacing.
※ These bars are spliced to make full length bars, "k₁" bars being spliced at alt. division walls and "k₂" bars at center of center span.

MAX. DESIGN DEPTH OF COVER	CLEAR SPANS	CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF DIVISION WALLS	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	ROADWAY LENGTH	LENGTH OF HEADWALLS	* CLASS S CONC. PER LIN. FT. OF BARREL	TOTAL FOR 60'-0" LENGTH OF BARREL	PER LIN. FT. OF BARREL	ADDITIONAL PER LAP
D	S	H	A	OW	T	C	M	B	OH	RL	K	CU. YD.	LB.	LB.	LB.
5'-0"	3 @ 9'	5'	135	29'-8"	9"	7"	9"	9"	6'-6"	34'-3⅛"	35'-5"	2.142	23,850	377.01	129.72
		6'	162	29'-11"		7½"	10"		7'-6"	34'-6⅛"	35'-8½"	2.310	24,313	387.21	134.73
		7'	189	29'-11"		7½"	10"		8'-6"	"	"	2.418	24,797	395.23	139.74
		8'	216	30'-0"		8"	10		9'-6"	34'-7⅜"	35'-9⅝"	2.556	25,791	411.21	144.75
		9'	243	30'-4"		9"	11"		10'-6"	35'-0⅜"	36'-2⅝"	2.796	27,406	437.60	149.76
		10'	270	30'-8"		10"	12"		11'-6"	35'-4⅜"	36'-6⅜"	3.062	28,684	457.00	154.77
		11'	297	30'-10"		11"	12"		12'-6"	35'-7⅛"	36'-9"	3.275	29,894	477.29	159.78
	3 @ 10'	5'	150	32'-8"	9½"	7"	9"	9½"	6'-7"	37'-9⅝"	38'-10⅝"	2.409	28,172	443.34	137.44
		6'	180	32'-11"		7½"	10"		7'-7"	38'-0⅝"	39'-2"	2.578	28,836	453.81	142.45
		7'	210	32'-11"		7½"	10"		8'-7"	"	"	2.686	29,321	461.83	147.46
		8'	240	33'-0"		8"	10"		9'-7"	38'-1⅛"	39'-3"	2.824	30,310	477.91	152.47
		9'	270	33'-4"		9"	11"		10'-7"	38'-5⅜"	39'-7⅜"	3.066	31,876	504.74	157.48
		10'	300	33'-8"		10"	12"		11'-7"	38'-10⅛"	40'-0⅛"	3.332	33,191	524.50	162.49
		11'	330	33'-10"		11"	12"		12'-7"	39'-0⅜"	40'-2⅜"	3.546	34,415	544.94	167.50
		12'	360	34'-0"		12"	12"		13'-7"	39'-3⅛"	40'-5"	3.772	36,918	577.67	172.51
	3 @ 11'	6'	198	36'-0"	10"	8"	10"	10"	7'-8"	41'-6⅝"	42'-8⅝"	2.889	33,264	522.98	151.91
		7'	231	36'-0"		8"	10"		8'-8"	"	"	3.000	33,749	531.00	156.92
		8'	264	36'-0"		8"	10"		9'-8"	"	"	3.111	34,687	546.56	161.93
		9'	297	36'-4"		9"	11"		10'-8"	41'-11⅝"	43'-1⅛"	3.354	36,403	573.79	166.94
		10'	330	36'-8"		10"	12"		11'-8"	42'-4⅛"	43'-6"	3.621	37,485	593.87	171.95
		11'	363	36'-10"		11"	12"		12'-8"	42'-6⅜"	43'-8⅝"	3.835	38,724	614.47	176.96
		12'	396	37'-0"		12"	12"		13'-8"	42'-8⅞"	43'-10⅞"	4.062	40,766	647.44	181.97
	3 @ 12'	6'	216	39'-0"	10½"	8"	10"	10½"	7'-9"	45'-0⅜"	46'-2¼"	3.194	35,625	560.85	159.63
		7'	252	39'-0"		8"	10"		8'-9"	"	"	3.306	36,110	568.87	164.64
		8'	288	39'-0"		8"	10"		9'-9"	"	"	3.417	37,052	584.50	169.65
		9'	324	39'-4"		9"	11"		10'-9"	45'-5"	46'-7"	3.660	38,798	611.85	174.66
		10'	360	39'-8"		10"	12"		11'-9"	45'-9⅝"	46'-11½"	3.929	40,150	631.98	179.67
		11'	396	39'-10"		11"	12"		12'-9"	46'-0"	47'-1⅜"	4.144	41,184	652.63	184.68
		12'	432	40'-0"		12"	12"		13'-9"	46'-2¼"	47'-4"	4.370	43,166	685.72	189.69

* For quantities in Wings see Standard Wing Drawings listed below.
Total steel quantities listed above include one lap of longitudinal bars.



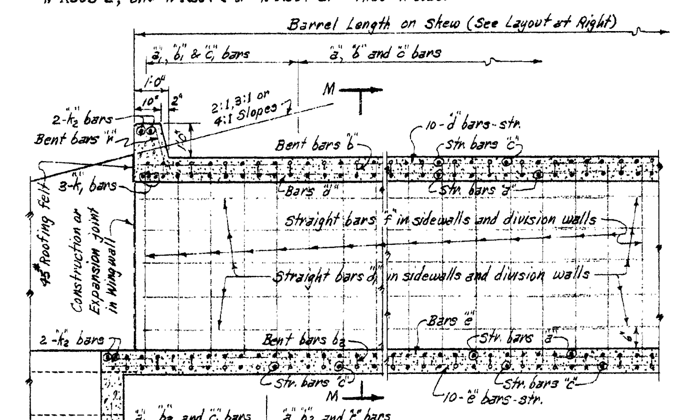
TOP SLAB REINFORCING
PART PLAN AT END OF CULVERT



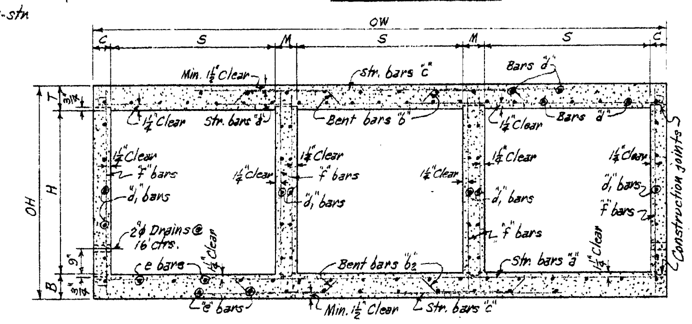
BOTTOM SLAB REINFORCING
PART PLAN AT END OF CULVERT

NOTE:- In the regular portion of the barrel begin and end with a set of "a" & "c" bars. If the spacing is such that the last set of bars would be "b" & "b₂" bars, use a set of "a" & "c" bars instead.

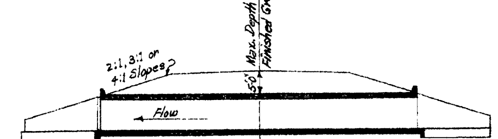
NOTE:- For Details of Standard Wings and bar lists, see Drawing No. W-X302-1 or W-X302-2; W-X303-1 or W-X303-2, and W-X304-1 or W-X304-2. Also W-X30.



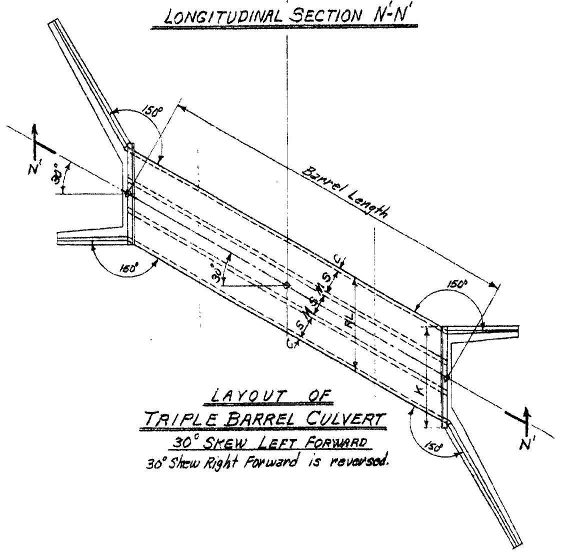
SECTION N-N



TYPICAL SECTION M-M



LONGITUDINAL SECTION N-N



LAYOUT OF
TRIPLE BARREL CULVERT
30° SKEW LEFT FORWARD
30° Skew Right Forward is reversed.

GENERAL NOTES

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
BAR LAPS:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 82'-0". Lap longitudinal bars 30 diameters min.
CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division walls and slabs shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD
H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X302-1 or W-X302-2, W-X303-1 or W-X303-2, and W-X304-1 or W-X304-2. Also W-X30.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS
FOR
REINFORCED CONCRETE BOX CULVERTS
30° SKEW

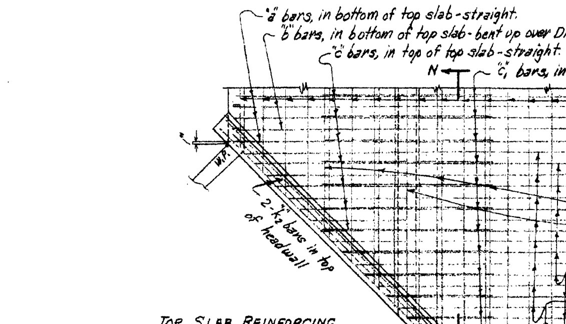
9', 10', 11' AND 12' SPANS — 2:1, 3:1 OR 4:1 SLOPES
TRIPLES — UNDER 5'-0" COVER

STANDARD DRAWING No. R-330X-02

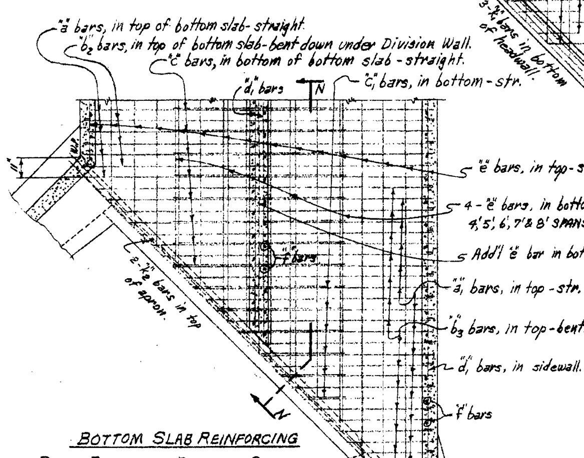
Designed by- W.C.H. 1-22-63. Checked by- R.H.S. 5-17-63
Drawn by- W.C.H. 3-29-63. Checked by-
Quantities by- W.C.H. 4-9-63. Checked by-

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			496	
JOB No.					

NOTE:- For Details of Standard Wings and bar lists, see Drawing No. W-X452-1 or W-X452-2, W-X453-1 or W-X453-2, and W-X454-1 or W-X454-2. Also W-X45.

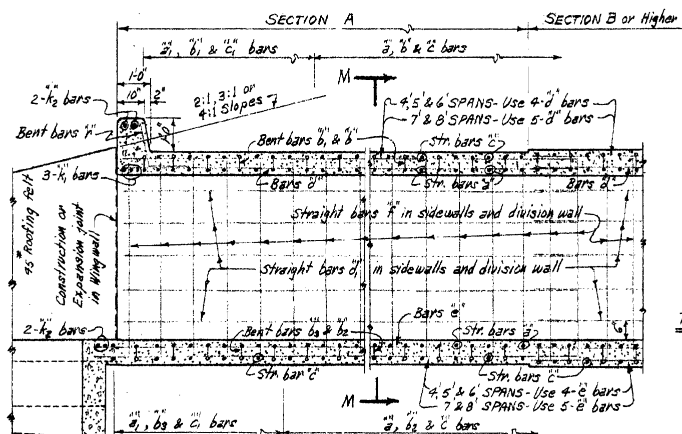


TOP SLAB REINFORCING
PART PLAN AT END OF CULVERT

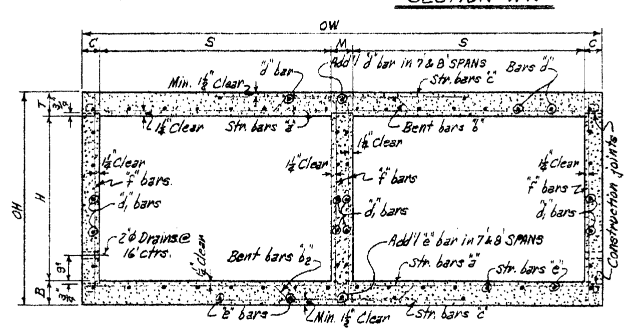


BOTTOM SLAB REINFORCING
PART PLAN AT END OF CULVERT

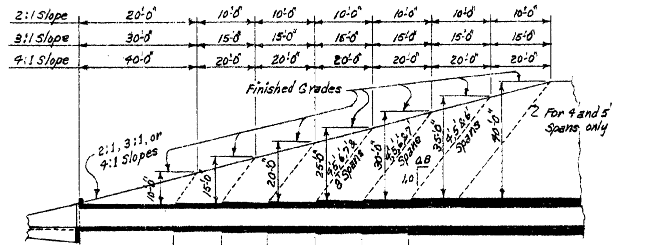
NOTE:- The "a1", "c1" and "d" bars vary in length. They should extend 1'-8" min. into SECTION B.



SECTION N-N



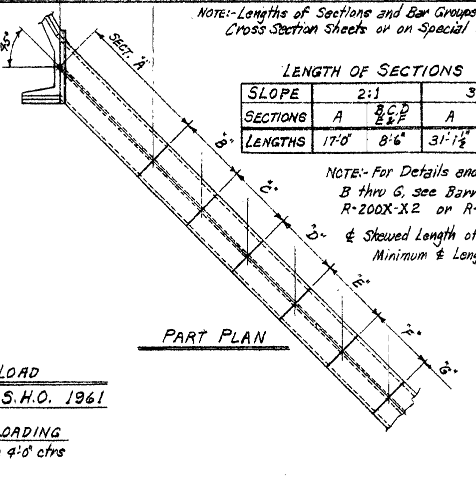
TYPICAL SECTION M-M



2:1 Slope =	SECTIONS	A = 12'-0"	B = 6'-0"	C = 6'-0"	D = 6'-0"	E = 6'-0"	F = 6'-0"	MID-SECTION G - Varies	These lengths are perpendicular to ℄ of roadway. See Table of Skew Lengths below.
	Bar Group	A	B	C	D	E	F	G	
3:1 Slope =	SECTIONS	A = 22'-0"	B = 11'-0"	C = 11'-0"	D = 11'-0"	E = 11'-0"	F = 11'-0"	MID-SECTION G - Varies	
	Bar Group	A	B	C	D	E	F	G	
4:1 Slope =	SECTIONS	A = 32'-0"	B = 16'-0"	C = 16'-0"	D = 16'-0"	E = 16'-0"	F = 16'-0"	MID-SECTION G - Varies	
	Bar Group	A	B	C	D	E	F	G	

TYPICAL LONGITUDINAL SECTION - SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.



PART PLAN

LENGTH OF SECTIONS ON 45° SKEW

SLOPE	2:1		3:1		4:1	
SECTIONS	A	B, C, D, E & F	A	B, C, D, E & F	A	B, C, D, E & F
LENGTHS	17'-0"	8'-6"	31'-1½"	15'-6¾"	45'-3"	22'-7⅝"

NOTE:- For Details and Bar Lists for SECTION B thru G, see Barrel Drawing Nos. R-200X-X1, R-200X-X2 or R-200X-X3.

℄ Skewed Length of A = 1.41421 A.
Minimum ℄ Length on skew = (0.5 OW + 1").

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs

UNIT STRESSES:-
Class S Concrete (n=10) 1200 #/□"
Reinforcing Steel 20,000 #/□"

MAX. DESIGN DEPTH OF COVER	CLEAR SPANS	CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF DIVISION WALL	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	ROADWAY LENGTH	LENGTH OF HEADWALL	* CLASS S CONCRETE, BARREL ONLY 2:1	3:1	4:1	REINFORCING STEEL, BARREL, APRON AND HEADWALL 2:1	3:1	4:1
D	S	H	A	OW	T	C	M	B	OH	RL	K	CU.YD.	CU.YD.	CU.YD.	LB.	LB.	LB.
SECTION "A" = 10'-0"	2 @ 4'	2'	16	9'-8"	6"	6"	8"	6"	3'-0"	13'-8"	15'-8"	8.18	14.97	21.77	1288	2203	3147
		3'	24	9'-8"		6"	8"		4'-0"	"	"	9.23	16.90	24.57	1384	2374	3397
		4'	32	9'-8"		6"	8"		5'-0"	"	"	10.28	18.83	27.38	1479	2545	3647
		5'	40	9'-8"		6"	8"		6'-0"	"	"	11.34	20.76	30.18	1575	2716	3897
		6'	48	9'-11"		7"	9"		7'-0"	14'-0¼"	16'-0¼"	13.48	24.68	35.88	1689	2916	4187
	2 @ 5'	3'	30	11'-8"	6½"	6"	8"	6½"	4'-1"	16'-6"	18'-6"	11.10	20.33	29.55	1935	3292	4712
		4'	40	11'-8"		6"	8"		5'-1"	"	"	12.16	22.25	32.35	2030	3463	4962
		5'	50	11'-8"		6"	8"		6'-1"	"	"	13.21	24.18	35.16	2126	3634	5212
		6'	60	11'-11"		7"	9"		7'-1"	16'-10¼"	18'-10¼"	15.37	28.14	40.91	2229	3855	5528
		7'	70	12'-1"		7½"	10"		8'-1"	17'-1"	19'-1"	17.42	31.90	46.38	2547	4408	6339
	2 @ 6'	3'	36	13'-8"	7¼"	6"	8"	7¾"	4'-3"	19'-3⅜"	21'-4"	13.91	25.46	37.01	2216	3777	5378
		4'	48	13'-8"		6"	8"		5'-3"	"	"	14.96	27.39	39.82	2312	3948	5628
		5'	60	13'-8"		6"	8"		6'-3"	"	"	16.00	29.29	42.58	2407	4119	5878
		6'	72	13'-11"		7"	9"		7'-3"	19'-8⅛"	21'-8¼"	18.19	33.30	48.42	2494	4337	6192
		7'	84	14'-1"		7½"	10"		8'-3"	19'-11"	21'-11"	20.26	37.10	53.94	2821	4899	7033
		8'	96	14'-2"		8"	10"		9'-3"	20'-0⅝"	22'-0½"	22.07	40.40	58.73	3017	5232	7536
	2 @ 7'	4'	56	15'-8"	8¼"	6"	8"	8¾"	5'-5"	22'-1⅞"	24'-1⅞"	18.17	33.27	48.37	2952	5018	7123
		5'	70	15'-8"		6"	8"		6'-5"	"	"	19.23	35.20	51.18	3048	5184	7873
		6'	84	15'-11"		7"	9"		7'-5"	22'-6⅜"	24'-6"	21.44	39.25	57.06	3125	5409	7696
		7'	98	16'-1"		7½"	10"		8'-5"	22'-9"	24'-9"	23.59	43.08	62.63	3467	5957	8555
		8'	112	16'-2"		8"	10"		9'-5"	22'-10⅝"	24'-10½"	25.33	46.38	67.42	3666	6296	9066
		9'	126	16'-5"		9"	11"		10'-5"	23'-2⅝"	25'-2½"	28.84	51.88	75.43	3914	6748	9632
	2 @ 8'	4'	64	17'-8"	9¼"	6"	8"	9¾"	5'-7"	24'-11⅞"	26'-11¾"	21.81	39.93	58.06	3415	5871	8461
		5'	80	17'-11"		7"	9"		6'-7"	25'-4"	27'-4"	23.90	43.76	63.62	3585	6237	8845
		6'	96	17'-11"		7"	9"		7'-7"	"	"	25.11	45.97	66.83	3680	6408	9095
		7'	112	18'-1"		7½"	10"		8'-7"	25'-6⅞"	27'-7"	27.22	49.83	72.44	3882	6667	9505
		8'	128	18'-2"		8"	10"		9'-7"	25'-8¼"	27'-8¼"	29.02	53.13	77.24	4154	7149	10,815
		9'	144	18'-5"		9"	11"		10'-7"	26'-0½"	28'-0½"	32.06	58.70	85.34	4401	7557	10,819
		10'	160	18'-8"		10"	12"		11'-7"	26'-4¾"	28'-4¾"	36.39	64.80	94.21	4847	8368	11,973

* For remainder of quantities see Std. Wing and Barrel Drawings listed below.

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTHS OF COVER	END SECTIONS A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0' to 24.5'	A	B	C				D
25.0' to 29.5'	A	B	C	D			E
30.0' to 34.5'	A	B	C	D	E		F
35.0' to 40.0'	A	B	C	D	E	F	G

OR ALT.

DEPTHS OF COVER	END SECTIONS A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0' to 24.5'	A	2@C					D
25.0' to 29.5'	A	B	2@D				E
30.0' to 34.5'	A	2@C		2@E			F
35.0' to 40.0'	A	B	2@D		2@F		G

BAR LIST FOR SECTION "A" ON 45° SKEW - ONE END ONLY.

SECTION "A" & BAR GROUP "A". LENGTH OF SECTION: 2:1 = 17'-0"; 3:1 = 31'-1½"; 4:1 = 45'-3". DEPTH OF COVER (D): 0'-0" TO 10'-0" MAXIMUM.

"a" bars — STRAIGHT — In Top and Bottom Slab of Barrel. "a1" bars — STRAIGHT — In Top and Bottom Slab of Barrel (Two of each Length). "b" bars — BENT - See Diagrams below — In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars.

S	H	a Size	a Spacing	a No. 2:1	a No. 3:1	a No. 4:1	a Length	a1 Size	a1 Spacing	a1 No. Req'd	a1 Length Max.	a1 Length Min.	b Size	b Spacing	b No. 2:1	b No. 3:1	b No. 4:1	b Length	X	Y	Z
2 @ 4'	2'	#4	13"	25	51	77	9'-5"	#4	13"	12	8'-4"	2'-11"	#4	13"	11	24	37	10'-5"	0'-2¾"	2'-1"	3'-5"
	3'			25	51	77	"			12	"	"			11	24	37	"	"	"	"
	4'			25	51	77	"			12	"	"			11	24	37	"	"	"	"
	5'			25	51	77	"			12	"	"			11	24	37	"	"	"	"
	6'			25	51	77	9'-8"			12	8'-7"	3'-2"			11	24	37	10'-8"	0'-2¾"	2'-2"	3'-6"
2 @ 5'	3'	#4	11"	27	57	87	11'-5"	#4	11"	18	10'-6"	3'-2"	#5	11"	12	27	43	12'-6"	0'-3"	2'-6½"	4'-2"
	4'			27	57	87	"			18	"	"			12	27	43	"	"	"	"
	5'			27	57	87	"			18	"	"			12	27	43	"	"	"	"
	6'			25	57	87	11'-8"			20	10'-9"	2'-6"			12	27	43	12'-9"	"	2'-7½"	4'-3"
	7'			25	57	87	11'-10"			20	10'-11"	2'-8"			12	27	43	12'-11"	0'-3"	2'-8½"	4'-3½"
2 @ 6'	3'	#4	12"	23	51	79	13'-5"	#4	12"	22	12'-5"	2'-5"	#5	12"	10	24	38	14'-7"	0'-3¾"	2'-11"	4'-11"
	4'			23	51	79	"			22	"	"			10	24	38	"	"	"	"
	5'			23	51	79	"			22	"	"			10	24	38	"	"	"	"
	6'			21	51	79	13'-8"			22	12'-8"	2'-8"			10	24	38	14'-10"	"	3'-0"	5'-0"
	7'			21	49	79	13'-10"			22	12'-10"	2'-10"			10	24	38	15'-0"	"	3'-1"	5'-0½"
	8'			21	49	79	13'-11"			22	12'-11"	2'-11"			10	24	38	15'-1"	0'-3¾"	3'-1"	5'-1"
2 @ 7'	4'	#4	12"	21	49	77	15'-5"	#4	12"	24	14'-5"	2'-5"	#6	12"	9	23	37	16'-10"	0'-4¾"	3'-4½"	5'-7"
	5'			21	49	77	"			26	"	"			9	23	37	"	"	"	"
	6'			19	49	77	15'-8"			26	14'-8"	2'-8"			9	23	37	17'-1"	"	3'-5½"	5'-8"
	7'			19	47	77	15'-10"			26	14'-10"	2'-10"			9	23	37	17'-3"	"	3'-6½"	5'-8½"
	8'			19	47	77	15'-11"			26	14'-11"	2'-11"			9	23	37	17'-4"	"	"	5'-9"
	9'			19	47	75	16'-2"			26	15'-2"	3'-2"			9	23	37	17'-7"	0'-4¾"	3'-7½"	5'-10"
2 @ 8'	4'	#5	13"	17	43	69	17'-5"	#5	13"	26	16'-4"	3'-4"	#6	13"	7	20	34	18'-10"	0'-5¾"	3'-7"	6'-5"
	5'			17	43	69	17'-8"			28	16'-7"	2'-6"			7	20	33	19'-1"	"	3'-8"	6'-6"
	6'			17	43	69	"			28	"	"			7	20	33	"	"	"	"
	7'			17	43	69	17'-10"			28	16'-9"	2'-8"			7	20	33	19'-3"	"	3'-9"	6'-6½"
	8'			17	43	69	17'-11"			28	16'-10"	2'-9"			7	20	33	19'-4"	"	"	6'-7"
	9'			17	43	69	18'-2"			28	17'-1"	3'-0"			7	20	33	19'-7"	"	3'-10"	6'-8"
	10'			17	43	69	18'-5"			28	17'-4"	3'-3"			7	20	33	19'-10"	0'-5¾"	3'-11"	6'-9"

"b1" bars — BENT — In Bottom of Top Slab - some bent up over Division Wall - one end hooked. Alternate with "a", and "c" or "c1" bars. "b2" bars — BENT — In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars.

S	H	b1 Size	b1 Spacing	b1 No. Req'd	b1 Length Max.	b1 Length Min.	b1 L Max.	b1 L Min.	b2 Size	b2 Spacing	b2 No. 2:1	b2 No. 3:1	b2 No. 4:1	b2 Length	X	Y	Z
2 @ 4'	2'	#4	13"	7	9'-5"	2'-9"	8'-10"	2'-4"	#4	13"	12	25	38	10'-5"	0'-2¾"	2'-1"	3'-5"
	3'			7	"	"	"	"			12	25	38	"	"	"	"
	4'			7	"	"	"	"			12	25	38	"	"	"	"
	5'			7	"	"	"	"			12	25	38	"	"	"	"
	6'			7	9'-8"	3'-0"	9'-1"	2'-7"			12	25	38	10'-8"	0'-2¾"	2'-2"	3'-6"
2 @ 5'	3'	#5	11"	10	11'-7"	3'-2"	10'-11"	2'-8"	#5	11"	13	28	44	12'-6"	0'-3"	2'-6½"	4'-2"
	4'			10	"	"	"	"			13	28	44	"	"	"	"
	5'			10	"	"	"	"			13	28	44	"	"	"	"
	6'			10	11'-10"	3'-5"	11'-2"	2'-11"			13	28	44	12'-9"	"	2'-7½"	4'-3"
	7'			10	12'-0"	3'-7"	11'-4"	3'-1"			13	28	44	12'-11"	0'-3"	2'-8½"	4'-3½"
2 @ 6'	3'	#5	12"	11	13'-7"	3'-4"	12'-10"	2'-10"	#5	12"	11	25	39	14'-7"	0'-4¾"	2'-10"	4'-11"
	4'			11	"	"	"	"			11	25	39	"	"	"	"
	5'			11	"	"	"	"			11	25	39	"	"	"	"
	6'			11	13'-10"	3'-7"	13'-1"	3'-1"			11	25	39	14'-10"	"	2'-11"	5'-0"
	7'			11	14'-0"	3'-9"	13'-3"	3'-3"			11	25	39	15'-0"	"	3'-0"	5'-0½"
	8'			11	14'-1"	3'-10"	13'-4"	3'-4"			11	25	39	15'-1"	0'-4¾"	3'-0"	5'-1"
2 @ 7'	4'	#6	12"	13	15'-9"	3'-5"	14'-10"	2'-10"	#6	12"	10	24	38	16'-10"	0'-5¾"	3'-3⅞"	5'-7"
	5'			13	"	"	"	"			10	24	38	"	"	"	"
	6'			13	16'-0"	3'-8"	15'-1"	3'-1"			10	24	38	17'-1"	"	3'-4⅞"	5'-8"
	7'			13	16'-2"	3'-10"	15'-3"	3'-3"			10	24	38	17'-3"	"	3'-5⅞"	5'-8½"
	8'			13	16'-3"	3'-11"	15'-4"	3'-4"			10	24	38	17'-4"	"	"	5'-9"
	9'			14	16'-6"	3'-2"	15'-7"	2'-7"			10	24	38	17'-7"	0'-5¾"	3'-6⅞"	5'-10"
2 @ 8'	4'	#6	13"	14	17'-9"	3'-4"	16'-10"	2'-9"	#6	13"	8	21	35	18'-11"	0'-6¾"	3'-6"	6'-5"
	5'			14	18'-0"	3'-7"	17'-1"	3'-0"			8	21	34	19'-2"	"	3'-7"	6'-6"
	6'			14	"	"	"	"			8	21	34	"	"	"	"
	7'			14	18'-2"	3'-9"	17'-3"	3'-2"			8	21	34	19'-4"	"	3'-8"	6'-6½"
	8'			14	18'-3"	3'-10"	17'-4"	3'-3"			8	21	34	19'-5"	"	"	6'-7"
	9'			15	18'-6"	3'-0"	17'-7"	2'-5"			8	21	34	19'-8"	"	3'-9"	6'-8"
	10'			15	18'-9"	3'-3"	17'-10"	2'-8"			8	21	34	19'-11"	0'-6¾"	3'-10"	6'-9"

"b3" bars — BENT — In Top of Bottom Slab - some bent down under Division Wall - one end hooked. Alternate with "a", and "c" or "c1" bars. "c" bars — STRAIGHT — In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars. "c1" bars — STRAIGHT — In Top and Bottom Slab of Barrel. Alt. with "b1" & "b3" bars. (Two of each Length)

S	H	b3 Size	b3 Spacing	b3 No. Req'd	b3 Length Max.	b3 Length Min.	b3 L Max.	b3 L Min.	c Size	c Spacing	c No. 2:1	c No. 3:1	c No. 4:1	c Length	c1 Size	c1 Spacing	c1 No. Req'd	c1 Length Max.	c1 Length Min.
2 @ 4'	2'	#4	13"	7	9'-5"	2'-9"	8'-10"	2'-4"	#5	13"	29	55	81	4'-8"	#5	13"	4	3'-10"	2'-9"
	3'			7	"	"	"	"			29	55	81	"			4	"	"
	4'			7	"	"	"	"			29	55	81	"			4	"	"
	5'			7	"	"	"	"			29	55	81	"			4	"	"
	6'			7	9'-8"	3'-0"	9'-1"	2'-7"			29	55	81	4'-9"			4	4'-0"	2'-11"
2 @ 5'	3'	#5	11"	10	11'-7"	3'-2"	10'-11"	2'-8"	#5	11"	33	63	93	5'-8"	#5	11"	6	4'-11"	3'-1"
	4'			10	"	"	"	"			33	63	93	"			6	"	"
	5'			10	"	"	"	"			33	63	93	"			6	"	"
	6'			10	11'-10"	3'-5"	11'-2"	2'-11"			31	63	93	5'-9"			8	5'-1"	2'-4"
	7'			10	12'-0"	3'-7"	11'-4"	3'-1"			31	63	93	5'-10"			8	5'-2"	2'-5"
2 @ 6'	3'	#5	12"	11	13'-7"	3'-4"	12'-10"	2'-10"	#6	12"	29	57	85	6'-8"	#6	12"	8	6'-1"	3'-1"
	4'			11	"	"	"	"			29	57	85	"			8	"	"
	5'			11	"	"	"	"			29	57	85	"			8	"	"
	6'			11	13'-10"	3'-7"	13'-1"	3'-1"			27	57	85	6'-9"			8	6'-3"	3'-3"
	7'			11	14'-0"	3'-9"	13'-3"	3'-3"			27	57	85	6'-10"			10	6'-4"	2'-4"
	8'			11	14'-1"	3'-10"	13'-4"	3'-4"			27	57	85	6'-10"			10	6'-5"	2'-5"
2 @ 7'	4'	#6	12"	13	15'-9"	3'-5"	14'-10"	2'-10"	#6	12"	29	57	85	7'-8"	#6	12"	8	6'-7"	2'-7"
	5'			13	"	"	"	"			29	57	85	"			8	"	"
	6'			13	16'-0"	3'-8"	15'-1"	3'-1"			27	57	85	7'-9"			8	6'-9"	2'-9"
	7'			13	16'-2"	3'-10"	15'-3"	3'-3"			27	55	85	7'-10"			8	6'-10"	2'-10"
	8'			13	16'-3"	3'-11"	15'-4"	3'-4"			27	55	85	7'-10"			8	6'-11"	2'-11"
	9'			14	16'-6"	3'-2"	15'-7"	2'-7"			27	55	83	7'-11"			8	7'-1"	3'-1"
2 @ 8'	4'	#6	13"	14	17'-10"	3'-4"	16'-10"	2'-9"	#7	13"	25	51	77	8'-8"	#7	13"	8	7'-8"	3'-4"
	5'			14	18'-1"	3'-7"	17'-1"	3'-0"			25	51	77	8'-9"			10	7'-10"	2'-5"
	6'			14	"	"	"	"			25	51	77	"			10	"	"
	7'			14	18'-3"	3'-9"	17'-3"	3'-2"			25	51	77	8'-10"			10	7'-11"	2'-6"
	8'			14	18'-4"	3'-10"	17'-4"	3'-3"			25	51	77	8'-10"			10	8'-0"	2'-7"
	9'			15	18'-7"	3'-0"	17'-7"	2'-5"			25	51	77	8'-11"			10	8'-2"	2'-9"
	10'			15	18'-10"	3'-3"	17'-10"	2'-8"			25	51	77	9'-0"			10	8'-4"	2'-11"

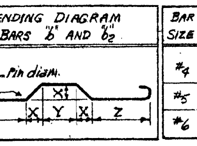
"d" bars — STRAIGHT — Longitudinal in Top Slab of Barrel. "d1" bars — STRAIGHT — Longitudinal in Sidewalls and Division Wall. "e" bars — STRAIGHT — Longitudinal in Bottom Slab of Barrel. "f" bars — STRAIGHT — Verticals in Sidewalls and Division Wall. "k1" bars — STRAIGHT — In Bottom of Headwall. "k2" bars — STRAIGHT — In Top of Headwall and Apron. (2 Each)

Lengths of "d" and "d1" bars: Lengths Vary - Ave. Lengths; 2:1 = 18'-7", 3:1 = 32'-9", ⊙ 4:1 = 46'-10". Lengths of "e" bars: Lengths Vary - Ave. Lengths; 2:1 = 19'-11", 3:1 = 34'-1", ⊙ 4:1 = 48'-2".

S	H	d Size	d Spacing	d No. Req'd	d1 Size	d1 Spacing	d1 No. Req'd	e Size	e Spacing	e No. Req'd	f Size	f Spacing	f No. 2:1	f No. 3:1	f No. 4:1	f Length	k1 Size	k1 No. Req'd	k1 Length	k2 Size	k2 No. Req'd	k2 Length
2 @ 4'	2'	#4	12"	14	#4	12"	8	#4	12"	14	#4	12"	69	125	182	2'-9"	#5	3	13'-3"	#5	4	15'-5"
	3'			14			12			14			69	125	182	3'-9"		3	"		4	"
	4'			14			16			14			69	125	182	4'-9"		3	"		4	"
	5'			14			20			14			69	125	182	5'-9"		3	"		4	"
	6'			14			24			14			69	125	182	6'-9"		3	13'-7"		4	15'-9"
2 @ 5'	3'	#4	12"	16	#4	12"	12	#4	12"	16	#4	12"	69	125	182	3'-10"	#6	3	16'-1"	#6	4	18'-3"
	4'			16			16			16			69	125	182	4'-10"		3	"		4	"
	5'			16			20			16			69	125	182	5'-10"		3	"		4	"
	6'			16			24			16			69	125	182	6'-10"		3	16'-5"		4	18'-7"
	7'			16			28			16	#5	12"	69	125	182	7'-10"		3	16'-8"		4	18'-10"
2 @ 6'	3'	#4	12"	18	#4	12"	12	#4	12"	18	#4	12"	69	125	182	4'-0"	#6	3	18'-11"	#6	4	21'-1"
	4'			18			16			18			69	125	182	5'-0"		3	"		4	"
	5'			18			20			18			69	125	182	6'-0"		3	"		4	"
	6'			18			24			18			69	125	182	7'-0"		3	19'-3"		4	21'-5"
	7'			18			28			18	#5	12"	69	125	182	8'-0"		3	19'-6"		4	21'-8"
	8'			18			32			18		11"	76	136	200	9'-0"		3	19'-7"		4	21'-9"
2 @ 7'	4'	#4	12"	21	#4	12"	16	#4	12"	21	#4	12"	69	125	182	5'-2"	#7	3	21'-9"	#7	4	23'-10"
	5'			21			20			21			69	125	182	6'-2"		3	"		4	"
	6'			21			24			21			69	125	182	7'-2"		3	22'-1"		4	24'-3"
	7'			21			28			21	#5	12"	69	125	182	8'-2"		3	22'-4"		4	24'-6"
	8'			21			32			21		11"	76	136	200	9'-2"		3	22'-5"		4	24'-7"
	9'			21			36			21		10"	83	151	218	10'-2"		3	22'-10"		4	24'-11"
2 @ 8'	4'	#4	12"	23	#4	12"	16	#4	12"	23	#4	12"	69	125	182	5'-4"	#7	3	24'-7"	#7	4	26'-8"
	5'			23			20			23			69	125	182	6'-4"		3	24'-11"		4	27'-1"
	6'			23			24			23			69	125	182	7'-4"		3	"		4	"
	7'			23			28			23		10"	83	151	218	8'-4"		3	25'-2"		4	27'-4"
	8'			23			32			23	#5	12"	69	125	182	9'-4"		3	25'-3"		4	27'-5"
	9'			23			36			23		11"	76	136	200	10'-4"		3	25'-8"		4	27'-9"
	10'			23			40			23	#6	12"	69	125	182	11'-4"		3	26'-0"		4	28'-1"

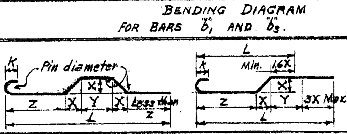
BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS
#4	2"	4"	0'-10½"
#5	2½"	4¼"	0'-11½"
#6	3"	5"	1'-2"

BENDING DIAGRAM FOR BARS "b" AND "b2"



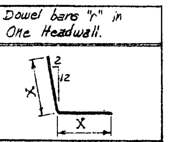
BAR SIZE	PIN DIAM.	K	ADD FOR 1 HOOK
#4	2"	4"	0'-5¼"
#5	2½"	4¼"	0'-5¾"
#6	3"	5"	0'-7"

BENDING DIAGRAM FOR BARS "b1" AND "b3".



SPAN	SIZE	SPACING	NO. REQ'D	LENGTH	X
4'	#4	12½"	14	2'-4"	1'-2"
5'	#4	12½"	17	2'-5"	1'-2½"
6'	#4	12½"	20	2'-6"	1'-3"
7'	#4	12½"	23	2'-8"	1'-4"
8'	#4	12½"	26	2'-10"	1'-5"

Dowel bars "r" in One Headwall.



NOTE:- Dimensions are to centers of bars (b, b1, b2, & b3). The X, Y & Z values for "b1" bars are same as for "b" bars and for "b3" bars same as for "b2" bars.

▼ These bars are in the skewed portion of barrel only.
The length of "a1" and "c1" bars and overall length "L" of "b1" and "b3" bars vary by 1'-1" for 13" spacing, 1'-0" for 12" spacing, and 0'-11" for 11" spacing.
⊙ To longitudinal bars of 4:1 slopes add one splice for each "d", "d1" and "e" bar. (1'-3" min. lap).

GENERAL NOTES

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division wall and slabs shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.
* Total steel quantities listed above include one lap of longitudinal bars, plus an additional lap for 4:1 slopes.

NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X452-1 or W-X452-2, W-X453-1 or W-X453-2, and W-X454-1 or W-X454-2. Also W-X45.
For Barrels of 4', 5' & 6' Spans, see Drawing No. R-200X-X1, of 7' Spans Drawing No. R-200X-X3, and of 8' Spans Drawing No. R-200X-X2.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

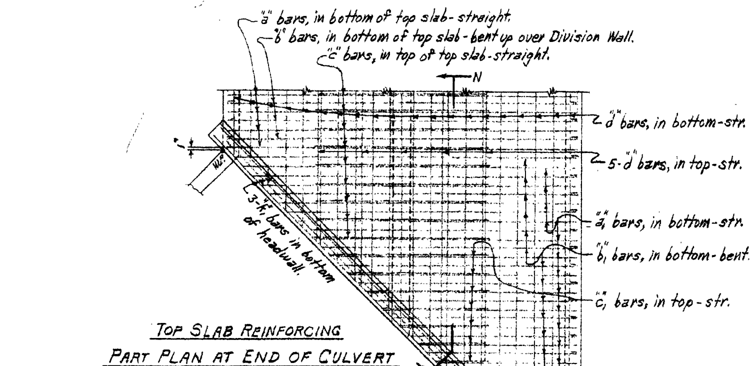
45° SKEW — SECTIONS "A" ONLY

4', 5', 6', 7' AND 8' SPANS — DOUBLES
2:1, 3:1 OR 4:1 SLOPES — OVER 5'-0" COVER

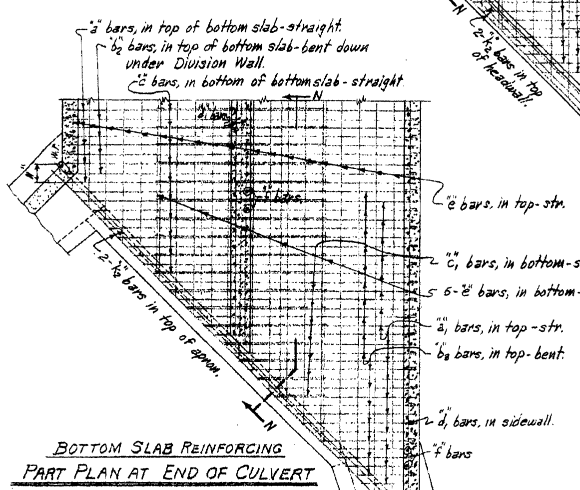
STANDARD DRAWING No. R-245X-1

Designed by:- W.C.H. 9-17-62 Checked by:- R.H.S. 11-12-62
Drawn by:- W.C.H. 8-12-64 Checked by:-
Quantities by:- W.C.H. 10-27-64 Checked by:-

NOTE:- For Details of Standard Wings and bar lists, see Drawing Nos. W-X452-1 or W-X452-2; W-453-1 or W-X453-2, and W-X454-1 or W-X454-2. Also W-X45.

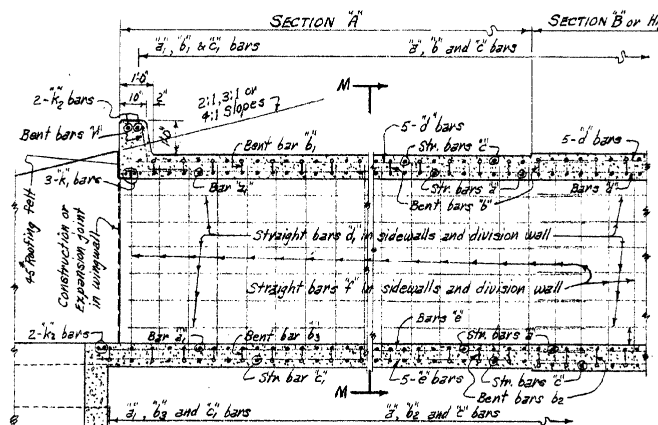


TOP SLAB REINFORCING
PART PLAN AT END OF CULVERT

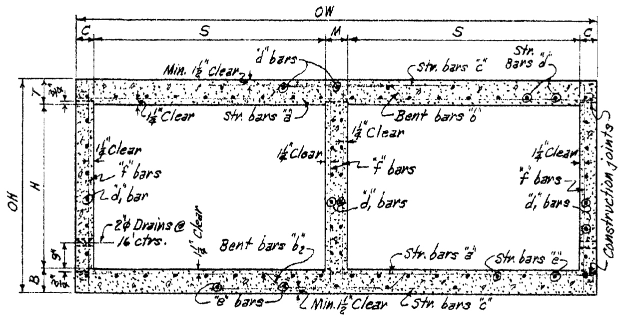


BOTTOM SLAB REINFORCING
PART PLAN AT END OF CULVERT

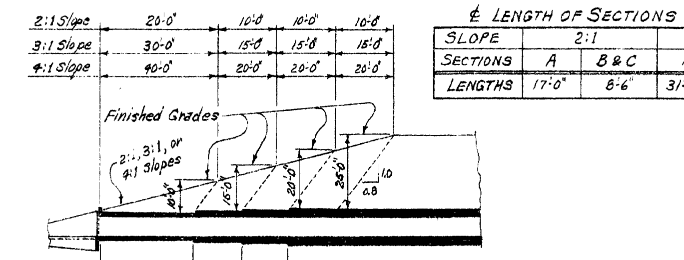
NOTE:- The "d", "d₁" and "e" bars vary in length. They should extend 1'-8" min. into SECTION "B".



SECTION N-N



TYPICAL SECTION M-M



2:1 Slope =	SECTIONS / Bar Group	A = 12'-0" / A	B = 6'-0" / B	C = 6'-0" / C	MID-SECTION D - Varies / D
3:1 Slope =	SECTIONS / Bar Group	A = 22'-0" / A	B = 11'-0" / B	C = 11'-0" / C	MID-SECTION D - Varies / D
4:1 Slope =	SECTIONS / Bar Group	A = 32'-0" / A	B = 16'-0" / B	C = 16'-0" / C	MID-SECTION D - Varies / D

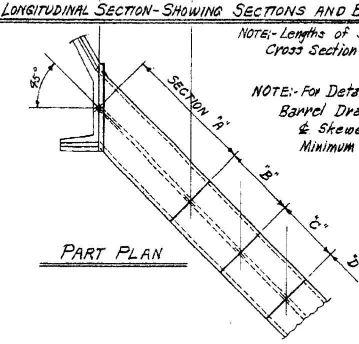
These lengths are perpendicular to ℄ of roadway. See Table of Skew Lengths above.

TYPICAL LONGITUDINAL SECTION - SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.

℄ LENGTH OF SECTIONS ON 45° SKEW

SLOPE	2:1		3:1		4:1	
SECTIONS	A	B & C	A	B & C	A	B & C
LENGTHS	17'-0"	8'-6"	31'-1½"	15'-6¾"	45'-3"	22'-7½"



PART PLAN

NOTE:- For Details and Bar Lists for SECTIONS B, C & D, see Barrel Drawing Nos. R-200X-X2 and R-200X-X3.
℄ Skewed Length of A = 1.41421 × A.
Minimum ℄ Length on Skew = (0.5 OW + 1").

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C		MID-SECTION AND BAR GROUP
5.0' to 9.5'	A				A
10.0' to 14.5'	A				B
15.0' to 19.5'	A	B			C
20.0 to 25.0	A	B	C		D

OR ALT.

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C		MID-SECTION AND BAR GROUP
5.0' to 9.5'	A				A
10.0' to 14.5'	A				B
15.0' to 19.5'	A	B			C
20.0 to 25.0	A	2@ C			D

BARREL DIMENSIONS / * QUANTITIES - ONE SECTION "A"

(D = MAX. DESIGN DEPTH OF COVER; S = CLEAR SPANS; H = CLEAR HEIGHT; A = SQ. FT. OPENING; OW = OVERALL WIDTH; T = THICKNESS OF TOP SLAB; C = THICKNESS OF SIDEWALLS; M = THICKNESS OF DIVISION WALL; B = THICKNESS OF BOTTOM SLAB; OH = OVERALL HEIGHT; RL = ROADWAY LENGTH; K = LENGTH OF HEADWALL. Class S Concrete – Barrel Only; Reinforcing Steel – Barrel, Apron and Headwall.)

D	S	H	A	OW	T	C	M	B	OH	RL	K	Conc. 2:1 Cu.Yd.	Conc. 3:1 Cu.Yd.	Conc. 4:1 Cu.Yd.	Steel 2:1 Lb.	Steel 3:1 Lb.	Steel 4:1 Lb.
SECTION "A" = 10'-0"	2 @ 9'	5'	90	19'-11"	10"	7"	9"	10¾"	6'-8¾"	28'-2"	30'-2"	27.71	50.73	73.76	4470	7570	10,752
		6'	108	20'-1"		7½"	10"		7'-8¾"	28'-4⅞"	30'-4⅞"	29.73	54.44	79.14	4664	7860	11,138
		7'	126	20'-1"		7½"	10"		8'-8¾"	"	"	31.04	56.83	82.63	4833	8173	11,590
		8'	144	20'-2"		8"	10"		9'-8¾"	28'-6¼"	30'-6¼"	32.88	60.20	87.51	4992	8609	12,249
		9'	162	20'-5"		9"	11"		10'-8¾"	28'-10½"	30'-10½"	35.92	65.77	95.61	5306	9177	13,061
		10'	180	20'-8"		10"	12"		11'-8¾"	29'-2¾"	31'-2¾"	39.29	71.93	104.57	5708	9865	14,051
		11'	198	20'-10"		11"	12"		12'-8¾"	29'-5½"	31'-5½"	42.31	77.47	112.63	6015	10,421	14,820
	2 @ 10'	5'	100	21'-11"	10¾"	7"	9"	11½"	6'-10¼"	31'-0"	33'-0"	31.62	57.89	84.17	4803	8,295	11,686
		6'	120	22'-1"		7½"	10"		7'-10¼"	31'-2¾"	33'-2¾"	32.64	61.60	89.55	4934	8522	12,008
		7'	140	22'-1"		7½"	10"		8'-10¼"	"	"	34.97	64.02	93.08	5104	8838	12,464
		8'	160	22'-2"		8"	10"		9'-10¼"	31'-4⅜"	33'-4⅜"	36.79	67.35	97.92	5204	9050	13,005
		9'	180	22'-5"		9"	11"		10'-10¼"	31'-8⅜"	33'-8⅜"	39.87	72.99	106.11	5731	9831	14,035
		10'	200	22'-8"		10"	12"		11'-10¼"	32'-0⅝"	34'-0⅝"	43.25	79.18	115.12	6133	10,521	14,921
		11'	220	22'-10"		11"	12"		12'-10¼"	32'-3½"	34'-3½"	46.27	84.72	123.17	6431	11,068	15,680
		12'	240	23'-0"		12"	12"		13'-10¼"	32'-6⅜"	34'-6⅜"	49.52	90.67	131.81	6693	11,552	16,332
	2 @ 11'	6'	132	24'-2"	11¾"	8"	10"	12½"	8'-0¼"	34'-2⅜"	36'-2"	38.93	71.28	103.62	6013	10,168	14,436
		7'	154	24'-2"		8"	10"		9'-0¼"	"	"	40.29	73.77	107.24	6194	10,402	14,780
		8'	176	24'-2"		8"	10"		10'-0¼"	"	"	41.67	76.29	110.91	6457	10,853	15,366
		9'	198	24'-5"		9"	11"		11'-0¼"	34'-6⅜"	36'-6⅜"	44.76	81.95	119.14	6801	11,579	16,456
		10'	220	24'-8"		10"	12"		12'-0¼"	34'-10⅝"	36'-10⅝"	48.18	88.21	128.24	7219	12,285	17,364
		11'	242	24'-10"		11"	12"		13'-0¼"	35'-1⅜"	37'-1⅜"	51.22	93.78	136.34	7524	12,825	18,139
		12'	264	25'-0"		12"	12"		14'-0¼"	35'-4⅜"	37'-4⅜"	54.47	99.72	144.98	7958	13,802	19,552
	2 @ 12'	6'	144	26'-2"	12½"	8"	10"	13½"	8'-2"	37'-0⅜"	39'-0"	43.88	80.83	116.79	6870	11,667	16,474
		7'	168	26'-2"		8"	10"		9'-2"	"	"	45.25	82.86	120.46	6966	11,840	16,724
		8'	192	26'-2"		8"	10"		10'-2"	"	"	46.61	85.34	124.08	7318	12,477	17,651
		9'	216	26'-5"		9"	11"		11'-2"	37'-4⅜"	39'-4⅜"	49.78	91.04	132.36	7658	13,083	18,388
		10'	240	26'-8"		10"	12"		12'-2"	37'-8⅜"	39'-8⅜"	53.18	97.36	141.54	7962	13,695	19,480
		11'	264	26'-10"		11"	12"		13'-2"	37'-11⅜"	39'-11⅜"	56.24	102.96	149.69	8317	14,286	20,259
		12'	288	27'-0"		12"	12"		14'-2"	38'-2⅜"	40'-2⅜"	59.50	108.94	158.38	8846	15,233	21,647

* For remainder of quantities see Std. Wing and Barrel Drawings listed below. Total steel quantities listed above include one lap of longitudinal bars, plus an add'l lap for 4:1 slopes and one add'l lap for half of bars for 3:1 slopes.

BAR LIST FOR SECTION "A" ON 45° SKEW - ONE END ONLY.

Section & Bar Group: SECTION "A" & BAR GROUP "A". Length of Section: 2:1 = 17'-0"; 3:1 = 31'-1½"; 4:1 = 45'-3". Depth of Cover (D): 0'-0" TO 10'-0" MAXIMUM.

"a" bars — STRAIGHT — In Top and Bottom Slab of Barrel. "a₁" bars — STRAIGHT — In Top and Bottom Slab of Barrel - (Two of each Length).

S	H	"a" Size	Spacing	No. 2:1	No. 3:1	No. 4:1	Length	"a₁" Size	Spacing	No. Req'd	Length Max.	Length Min.
2 @ 9'	5'	#5	11"	17	47	79	19'-8"	#5	11"	36	18'-9"	3'-2"
	6'			17	47	79	19'-10"			36	18'-11"	3'-4"
	7'			17	47	79	19'-10"			36	18'-11"	"
	8'			17	47	79	19'-11"			38	19'-0"	2'-6"
	9'			17	47	79	20'-2"			38	19'-3"	2'-9"
	10'			17	47	79	20'-5"			38	19'-6"	3'-0"
	11'			17	47	79	20'-7"			38	19'-8"	3'-2"
2 @ 10'	5'	#5	12"	13	43	71	21'-8"	#5	12"	38	20'-8"	2'-8"
	6'			13	43	71	21'-10"			38	20'-10"	2'-10"
	7'			13	43	71	21'-10"			38	20'-10"	"
	8'			13	41	71	21'-11"			38	20'-11"	2'-11"
	9'			13	41	71	22'-2"			38	21'-2"	3'-2"
	10'			13	41	69	22'-5"			40	21'-5"	2'-5"
	11'			13	41	69	22'-7"			40	21'-7"	2'-7"
	12'			13	41	69	22'-9"			40	21'-9"	2'-9"
2 @ 11'	6'	#5	12"	11	39	69	23'-11"	#5	12"	42	22'-11"	2'-11"
	7'			11	39	69	23'-11"			42	22'-11"	"
	8'			11	39	69	23'-11"			42	22'-11"	"
	9'			11	39	69	24'-2"			42	23'-2"	3'-2"
	10'			11	39	67	24'-5"			44	23'-5"	2'-5"
	11'			11	39	67	24'-7"			44	23'-7"	2'-7"
	12'			11	39	67	24'-9"			44	23'-9"	2'-9"
2 @ 12'	6'	#5	11"	11	41	73	25'-11"	#5	11"	50	25'-0"	3'-0"
	7'			11	41	73	25'-11"			50	25'-0"	"
	8'			11	41	73	25'-11"			50	25'-0"	"
	9'			11	41	71	26'-2"			50	25'-3"	3'-3"
	10'			9	41	71	26'-5"			52	25'-6"	2'-7"
	11'			9	41	71	26'-7"			52	25'-8"	2'-9"
	12'			9	41	71	26'-9"			52	25'-10"	2'-11"

"b" bars — BENT - See Diagrams below — In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars. "b₁" bars — In Bottom of Top Slab - some bent up over Division Wall - one end hooked. Alt. with "a₁" and "c₁" or "c" bars.

S	H	"b" Size	Spacing	No. 2:1	No. 3:1	No. 4:1	Length	X	Y	Z	"b₁" Size	Spacing	No. Req'd	Length Max.	Length Min.	L Max.	L Min.
2 @ 9'	5'	#6	11"	8	23	38	21'-2"	0'-6½"	4'-2"	7'-2"	#6	11"	19	20'-2"	3'-3"	19'-2"	2'-8"
	6'			8	23	38	21'-4"	"	4'-3"	7'-2½"			19	20'-4"	3'-5"	19'-4"	2'-10"
	7'			8	23	38	21'-4"	"	"	7'-2½"			19	20'-4"	"	"	"
	8'			7	23	38	21'-5"	"	"	7'-3"			19	20'-5"	3'-6"	19'-5"	2'-11"
	9'			7	23	38	21'-8"	"	4'-4"	7'-4"			19	20'-8"	3'-9"	19'-8"	3'-2"
	10'			7	23	38	21'-11"	"	4'-5"	7'-5"			20	20'-11"	3'-1"	19'-11"	2'-6"
	11'			7	23	38	22'-1"	0'-6½"	4'-5"	7'-6"			20	21'-1"	3'-3"	20'-1"	2'-8"
2 @ 10'	5'	#6	12"	6	20	34	23'-2"	0'-7½"	4'-6½"	7'-11"	#6	12"	19	22'-2"	3'-8"	21'-1"	3'-1"
	6'			6	20	34	23'-4"	"	4'-7½"	7'-11½"			19	22'-4"	3'-10"	21'-3"	3'-3"
	7'			6	20	34	23'-4"	"	"	"			19	22'-4"	"	"	"
	8'			6	20	34	23'-5"	"	"	8'-0"			19	22'-5"	3'-11"	21'-4"	3'-4"
	9'			6	20	34	23'-8"	"	4'-8½"	8'-1"			20	22'-8"	3'-2"	21'-7"	2'-7"
	10'			6	20	34	23'-11"	"	4'-9½"	8'-2"			20	22'-11"	3'-5"	21'-10"	2'-10"
	11'			6	20	34	24'-1"	"	4'-9½"	8'-3"			20	23'-1"	3'-7"	22'-0"	3'-0"
	12'			5	20	34	24'-3"	0'-7½"	4'-9½"	8'-4"			20	23'-3"	3'-9"	22'-2"	3'-2"
2 @ 11'	6'	#7	12"	5	19	33	25'-8"	0'-8"	5'-0"	8'-9"	#7	12"	21	24'-6"	4'-0"	23'-4"	3'-4"
	7'			5	19	33	25'-8"	"	"	"			21	24'-6"	"	"	"
	8'			5	19	33	25'-8"	"	"	"			21	24'-6"	"	"	"
	9'			5	19	33	25'-11"	"	5'-1"	8'-10"			22	24'-9"	3'-3"	23'-7"	2'-7"
	10'			5	19	33	26'-2"	"	5'-2"	8'-11"			22	25'-0"	3'-6"	23'-10"	2'-10"
	11'			5	19	33	26'-4"	"	5'-2"	9'-0"			22	25'-2"	3'-8"	24'-0"	3'-0"
	12'			4	19	33	26'-6"	0'-8"	5'-2"	9'-1"			22	25'-4"	3'-10"	24'-2"	3'-2"
2 @ 12'	6'	#7	11"	4	20	35	27'-8"	0'-8¾"	5'-4½"	9'-6"	#7	11"	26	26'-8"	3'-2"	25'-5"	2'-6"
	7'			4	20	35	27'-8"	"	"	"			26	26'-8"	"	"	"
	8'			4	20	35	27'-8"	"	"	"			26	26'-8"	"	"	"
	9'			4	20	35	27'-11"	"	5'-5½"	9'-7"			26	26'-11"	3'-5"	25'-8"	2'-9"
	10'			4	19	35	28'-2"	"	5'-6½"	9'-8"			26	27'-2"	3'-8"	25'-11"	3'-0"
	11'			4	19	35	28'-4"	"	5'-6½"	9'-9"			26	27'-4"	3'-10"	26'-1"	3'-2"
	12'			4	19	35	28'-6"	0'-8¾"	5'-6½"	9'-10"			26	27'-6"	4'-0"	26'-3"	3'-4"

"b₂" bars — BENT - See Diagrams below — In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars. "b₃" bars — In Top of Bottom Slab - some bent down under Division Wall - one end hooked. Alt. with "a₁" and "c" or "c₁" bars.

S	H	"b₂" Size	Spacing	No. 2:1	No. 3:1	No. 4:1	Length	X	Y	Z	"b₃" Size	Spacing	No. Req'd	Length Max.	Length Min.	L Max.	L Min.
2 @ 9'	5'	#6	11"	9	24	39	21'-3"	0'-7½"	4'-0½"	7'-2"	#6	11"	19	20'-3"	3'-3"	19'-2"	2'-8"
	6'			9	24	39	21'-5"	"	4'-1½"	7'-2½"			19	20'-5"	3'-5"	19'-4"	2'-10"
	7'			9	24	39	21'-5"	"	"	7'-2½"			19	"	"	"	"
	8'			8	24	39	21'-6"	"	"	7'-3"			19	20'-6"	3'-6"	19'-5"	2'-11"
	9'			8	24	39	21'-9"	"	4'-2½"	7'-4"			19	20'-9"	3'-9"	19'-8"	3'-2"
	10'			8	24	39	22'-0"	"	4'-3½"	7'-5"			20	21'-0"	3'-1"	19'-11"	2'-6"
	11'			8	24	39	22'-2"	0'-7½"	4'-3½"	7'-6"			20	21'-2"	3'-3"	20'-1"	2'-8"
2 @ 10'	5'	#6	12"	7	21	35	23'-3"	0'-8"	4'-5"	7'-11"	#6	12"	19	22'-2"	3'-8"	21'-1"	3'-1"
	6'			7	21	35	23'-5"	"	4'-6"	7'-11½"			19	22'-4"	3'-10"	21'-3"	3'-3"
	7'			7	21	35	"	"	"	"			19	"	"	"	"
	8'			7	21	35	23'-6"	"	"	8'-0"			19	22'-5"	3'-11"	21'-4"	3'-4"
	9'			7	21	35	23'-9"	"	4'-7"	8'-1"			20	22'-8"	3'-2"	21'-7"	2'-7"
	10'			7	21	35	24'-0"	"	4'-8"	8'-2"			20	22'-11"	3'-5"	21'-10"	2'-10"
	11'			7	21	35	24'-2"	"	4'-8"	8'-3"			20	23'-1"	3'-7"	22'-0"	3'-0"
	12'			6	21	35	24'-4"	0'-8"	4'-8"	8'-4"			20	23'-3"	3'-9"	22'-2"	3'-2"
2 @ 11'	6'	#7	12"	6	20	34	25'-9"	0'-8¾"	4'-10½"	8'-9"	#7	12"	21	24'-7"	4'-0"	23'-4"	3'-4"
	7'			6	20	34	"	"	"	"			21	"	"	"	"
	8'			6	20	34	"	"	"	"			21	"	"	"	"
	9'			6	20	34	26'-0"	"	4'-11½"	8'-10"			22	24'-10"	3'-3"	23'-7"	2'-7"
	10'			6	20	34	26'-3"	"	5'-0½"	8'-11"			22	25'-1"	3'-6"	23'-10"	2'-10"
	11'			6	20	34	26'-5"	"	5'-0½"	9'-0"			22	25'-3"	3'-8"	24'-0"	3'-0"
	12'			5	20	34	26'-7"	0'-8¾"	5'-0½"	9'-1"			22	25'-5"	3'-10"	24'-2"	3'-2"
2 @ 12'	6'	#7	11"	5	21	36	27'-9"	0'-9¾"	5'-2½"	9'-6"	#7	11"	26	26'-9"	3'-2"	25'-5"	2'-6"
	7'			5	21	36	"	"	"	"			26	"	"	"	"
	8'			5	21	36	"	"	"	"			26	"	"	"	"
	9'			5	21	36	28'-0"	"	5'-3½"	9'-7"			26	27'-0"	3'-5"	25'-8"	2'-9"
	10'			5	20	36	28'-3"	"	5'-4½"	9'-8"			26	27'-3"	3'-8"	25'-11"	3'-0"
	11'			5	20	36	28'-5"	"	5'-4½"	9'-9"			26	27'-5"	3'-10"	26'-1"	3'-2"
	12'			5	20	36	28'-7"	0'-9¾"	5'-4½"	9'-10"			26	27'-7"	4'-0"	26'-3"	3'-4"

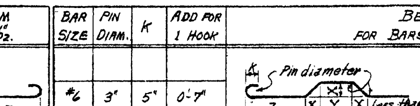
"c" bars — STRAIGHT — In Top and Bottom Slab of Barrel. Alternate with "b" and "b₂" bars. "c₁" bars — In Top and Bottom Slab of Barrel. Alt. with "b₁" & "b₃" bars. (Two of each Length.) "d" bars — Longitudinal in Top Slab of Barrel. "d₁" bars — Longitudinal in Sidewalls and Division Wall. "e" bars — Longitudinal in Bottom Slab of Barrel.

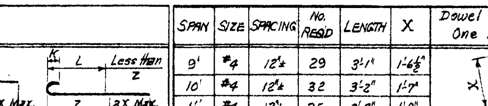
S	H	"c" Size	Spacing	No. 2:1	No. 3:1	No. 4:1	Length	"c₁" Size	Spacing	No. Req'd	Length Max.	Length Min.	"d" Size	Spacing	No. Req'd	"d₁" Size	Spacing	No. Req'd	"e" Size	Spacing	No. Req'd
2 @ 9'	5'	#7	11"	27	57	89	9'-9"	#7	11"	14	9'-3"	2'-10"	#4	12"	25	#4	12"	20	#4	12"	25
	6'			27	57	89	9'-10"			14	9'-4"	2'-11"			25			24			25
	7'			27	57	89	"			14	"	"			25			28			25
	8'			27	57	89	"			14	9'-5"	3'-0"			25			32			25
	9'			27	57	89	9'-11"			14	9'-7"	3'-2"			25			36			25
	10'			27	57	89	10'-0"			14	9'-9"	3'-4"			25			40			25
	11'			27	57	89	"			16	9'-10"	2'-6"			25			44			25
2 @ 10'	5'	#8	12"	23	53	81	10'-9"	#8	12"	16	10'-3"	3'-3"	#4	12"	27	#4	12"	20	#4	12"	27
	6'			23	53	81	10'-10"			16	10'-4"	3'-4"			27			24			27
	7'			23	53	81	"			16	"	"			27			28			27
	8'			23	51	81	"			18	10'-5"	2'-5"			27			32			27
	9'			23	51	81	10'-11"			18	10'-7"	2'-7"			27			36			27
	10'			23	51	79	11'-0"			18	10'-9"	2'-9"			27			40			27
	11'			23	51	79	"			18	10'-10"	2'-10"			27			44			27
	12'			23	51	79	"			18	10'-11"	2'-11"			27			48			27
2 @ 11'	6'	#8	12"	23	51	81	11'-10"	#8	12"	18	10'-11"	2'-11"	#4	12"	29	#4	12"	24	#4	12"	29
	7'			23	51	81	"			18	"	"			29			28			29
	8'			23	51	81	"			18	"	"			29			32			29
	9'			23	51	81	11'-11"			18	11'-1"	3'-1"			29			36			29
	10'			23	51	79	12'-0"			18	11'-3"	3'-3"			29			40			29
	11'			23	51	79	"			18	11'-4"	3'-4"			29			44			29
	12'			23	51	79	"			20	11'-5"	2'-5"			29			48			29
2 @ 12'	6'	#8	11"	25	55	87	12'-10"	#8	11"	22	12'-1"	2'-11"	#4	12"	31	#4	12"	24	#4	12"	31
	7'			25	55	87	"			22	"	"			31			28			31
	8'			25	55	87	"			22	"	"			31			32			31
	9'			25	55	85	12'-11"			22	12'-3"	3'-1"			31			36			31
	10'			23	55	85	13'-0"			22	12'-5"	3'-3"			31			40			31
	11'			23	55	85	"			22	12'-6"	3'-4"			31			44			31
	12'			23	55	85	"			24	12'-7"	2'-6"			31			48			31

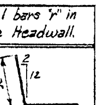
"d" bars ⊙ Length: Lengths Vary - Ave. Lengths: 2:1 = 18'-7", ⊙ 3:1 = 32'-9", ⊙ 4:1 = 46'-10".
"d₁" bars ⊙ Length: Lengths Vary - Ave. Lengths: 2:1 = 18'-7", ⊙ 3:1 = 32'-9", ⊙ 4:1 = 46'-10".
"e" bars ⊙ Length: Lengths Vary - Ave. Lengths: 2:1 = 19'-11", ⊙ 3:1 = 34'-1", ⊙ 4:1 = 48'-2".

"f" bars — STRAIGHT — Verticals in Sidewalls and Division Wall. "k₁" bars — STRAIGHT — In Bottom of Headwall. "k₂" bars — In Top of Headwall and Apron. (2 Each)

S	H	"f" Size	Spacing	No. 2:1	No. 3:1	No. 4:1	Length	"k₁" Size	No. Req'd	Length	"k₂" Size	No. Req'd	Length
2 @ 9'	5'	#4	12"	69	125	182	6'-5"	#8	3	27'-9"	#8	4	29'-10"
	6'			69	125	182	7'-5"		3	28'-0"		4	30'-1"
	7'		10"	82	150	218	8'-5"		3	"		4	"
	8'	#5	12"	69	125	182	9'-5"		3	28'-1"		4	30'-2"
	9'		10"	82	150	218	10'-5"		3	28'-6"		4	30'-7"
	10'	#6	12"	69	125	182	11'-5"		3	28'-10"		4	30'-11"
	11'		11"	75	137	198	12'-5"		3	29'-1"		4	31'-2"
2 @ 10'	5'	#4	12"	69	125	182	6'-7"	#8	3	30'-7"	#8	4	32'-8"
	6'			69	125	182	7'-7"		3	30'-10"		4	32'-11"
	7'		10"	82	150	218	8'-7"		3	"		4	"
	8'	#5	12"	69	125	182	9'-7"		3	30'-11"		4	33'-0"
	9'		10"	82	150	218	10'-7"		3	31'-4"		4	33'-5"
	10'	#6	12"	69	125	182	11'-7"		3	31'-8"		4	33'-9"
	11'		11"	75	137	198	12'-7"		3	31'-11"		4	34'-0"
	12'		10"	82	150	218	13'-7"		3	32'-1"		4	34'-2"
2 @ 11'	6'	#4	12"	69	125	182	7'-9"	#9	3	33'-9"	#9	4	35'-10"
	7'		11"	75	137	198	8'-9"		3	"		4	"
	8'	#5	12"	69	125	182	9'-9"		3	"		4	"
	9'		10"	82	150	218	10'-9"		3	34'-1"		4	36'-2"
	10'	#6	12"	69	125	182	11'-9"		3	34'-6"		4	36'-7"
	11'		11"	75	136	198	12'-9"		3	34'-8"		4	36'-10"
	12'		9"	91	166	242	13'-9"		3	34'-11"		4	37'-0"
2 @ 12'	6'	#4	12"	69	125	182	7'-11"	#9	3	36'-7"	#9	4	38'-8"
	7'			69	125	182	8'-11"		3	"		4	"
	8'	#5	12"	69	125	182	9'-11"		3	"		4	"
	9'		10"	82	150	218	10'-11"		3	36'-11"		4	39'-0"
	10'	#6	12"	69	125	182	11'-11"		3	37'-4"		4	39'-5"
	11'		11"	75	136	198	12'-11"		3	37'-7"		4	39'-8"
	12'		9"	92	166	242	13'-11"		3	37'-9"		4	39'-10"

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM FOR BARS "b" AND "b₂".
#6	3"	5"	1'-2"	
#7	3½"	5¾"	1'-4"	

BAR SIZE	PIN DIAM.	K	ADD FOR 1 HOOK	BENDING DIAGRAM FOR BARS "b₁" AND "b₃".
#6	3"	5"	0'-7"	
#7	3½"	5¾"	0'-8"	

SPAN	SIZE	SPACING	No. REQ'D	LENGTH	X	Dowel bars "r" in One Headwall.
9'	#4	12"±	29	3'-1"	1'-6½"	
10'	#4	12"±	32	3'-2"	1'-7"	
11'	#4	12"±	35	3'-4"	1'-8"	
12'	#4	12"±	38	3'-6"	1'-9"	

NOTE:- Dimensions are to centers of bars (b, b₁, b₂ & b₃). The X, Y & Z values for "b₁" bars are same as for "b" bars and for "b₃" bars same as for "b₂" bars.

◤ These bars are in the skewed portion of barrel only. The length of "a₁" and "c₁" bars and overall length "L" of "b₁" and "b₃" bars vary by 1'-0" for 12" spacing and 0'-11" for 11" spacing.
⊙ To Longitudinal bars of 4:1 slopes add one splice for each "d", "d₁" and "e" bars and for 3:1 slopes add one splice for for one-half of bars. (1'-8" Lap)

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n = 10) 1200 #/□"
Reinforcing Steel 20,000 #/□"

GENERAL NOTES

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division wall and slabs shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X452-1 or W-X452-2, W-X453-1 or W-X453-2, and W-X454-1 or W-X454-2. Also W-X45.
For Barrels of 10' and 12' Spans, see Drawing No. R-200X-X2.
For " " 9' and 11' Spans, " " No. R-200X-X3.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS
FOR
REINFORCED CONCRETE BOX CULVERTS
45° SKEW — SECTIONS "A" ONLY

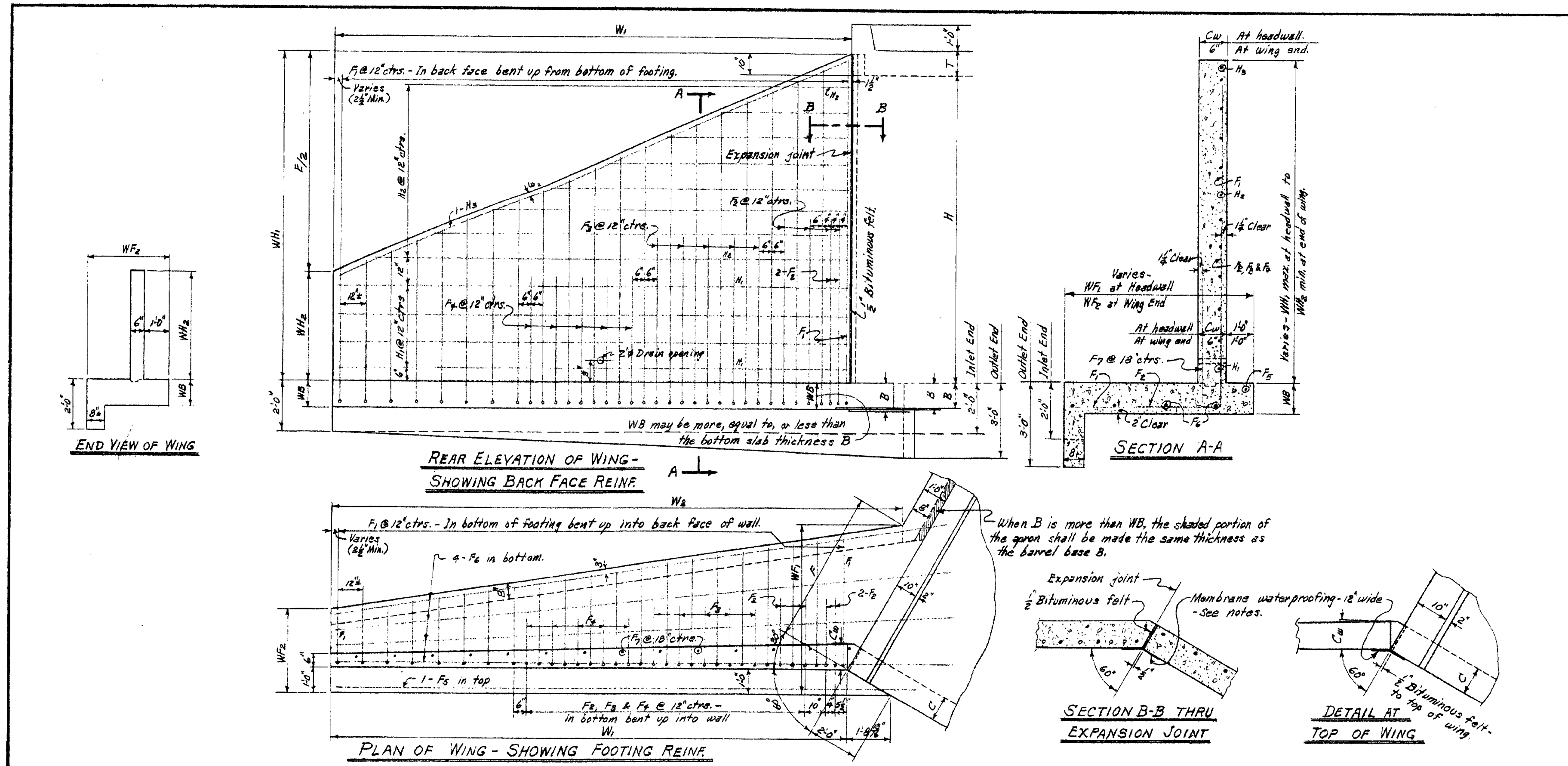
9', 10', 11' AND 12' SPANS DOUBLES
2:1, 3:1 OR 4:1 SLOPES OVER 5'-0" COVER

STANDARD DRAWING No. R-245X-2

Designed by:- W.C.H. 1-29-63 Checked by:- R.H.S. 5-29-63
Drawn by:- W.C.H. 6-29-62 Checked by:- 7-20-62
Quantities by:- W.C.H. 10-30-64 Checked by:-

RESHOT 3-4-93 457 ~~448~~

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			498	
JOB No.					



WING DIMENSIONS

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL = C	WINGWALL HEIGHTS: AT HEADWALL	WINGWALL HEIGHTS: AT END OF WING	WIDTHS OF WING FOOTINGS: AT HEADWALL	WIDTHS OF WING FOOTINGS: AT END OF WING	PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM HDWL. TO END OF WING	LENGTH OF WINGWALLS	INSIDE FOOTING DIMENSION	* QUANTITY PER WING CLASS S CONCRETE: INLET END	OUTLET END
H	WB	Cw	WH1	WH2	WF1	WF2	F	E	W1	W2	CU.YD.	CU.YD.
9'	10"	9"	9'-10"	3'-0"	5'-2"	2'-10½"	4'-3"	13'-8"	15'-9¾"	17'-0¼"	5.072	5.293
10'	11"	10"	10'-10"	3'-4"	5'-8"	3'-0"	4'-10"	15'-0"	17'-3¾"	18'-10¼"	6.466	6.711
11'	12"	11"	11'-10"	3'-8"	6'-2"	3'-1½"	5'-5"	16'-4"	18'-10¼"	20'-8¾"	8.104	8.372
12'	13"	12"	12'-10"	4'-0"	6'-8"	3'-3"	6'-0"	17'-8"	20'-4¾"	22'-6¼"	10.007	10.297

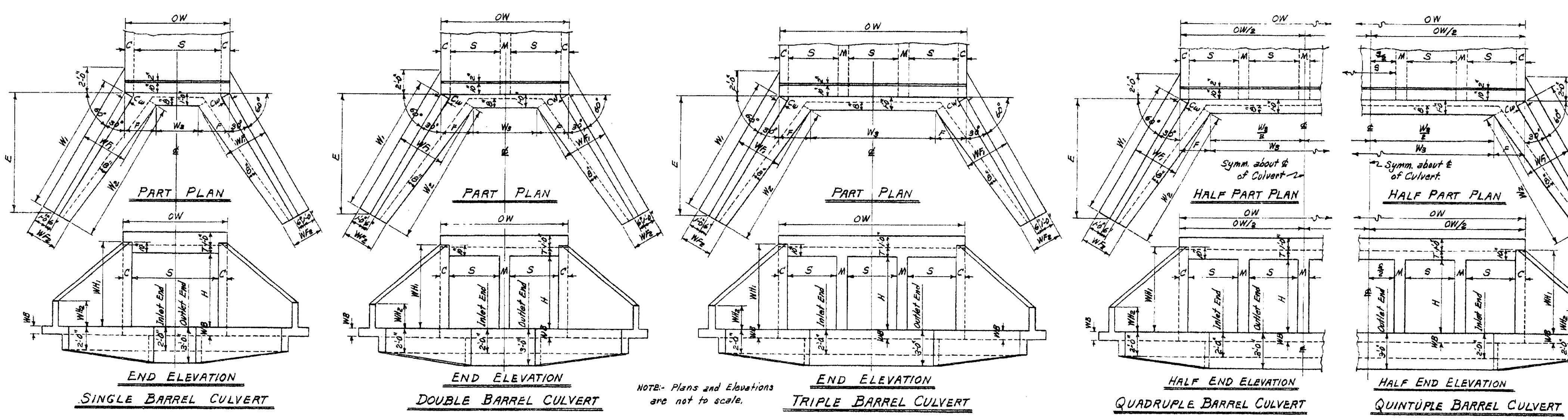
* Quantity per wing does not include headwall or that portion of apron or toewall for the length W3.

CLEAR SPAN	CLEAR HEIGHT	2 x FOOTING DIMENSION	W3 = (OW - 2F): SINGLE BARREL CULVERT OW	W3	DOUBLE BARREL CULVERT OW	W3	TRIPLE BARREL CULVERT OW	W3	QUADRUPLE BARREL CULVERT OW	W3	QUINTUPLE BARREL CULVERT OW	W3
S	H	2F	OW	W3	OW	W3	OW	W3	OW	W3	OW	W3
7'	9'	8'-6"	8'-6"	0'-0"	16'-5"	7'-11"	24'-4"	15'-10"	32'-3"	23'-9"	40'-2"	31'-8"
8'	9'	8'-6"	9'-6"	1'-0"	18'-5"	9'-11"	27'-4"	18'-10"	36'-3"	27'-9"	45'-2"	36'-8"
	10'	9'-8"	9'-8"	0'-0"	18'-8"	9'-0"	27'-8"	18'-0"	36'-8"	27'-0"	45'-8"	36'-0"
9'	9'	8'-6"	10'-6"	2'-0"	20'-5"	11'-11"	30'-4"	21'-10"	40'-3"	31'-9"	50'-2"	41'-8"
	10'	9'-8"	10'-8"	1'-0"	20'-8"	11'-0"	30'-8"	21'-0"	40'-8"	31'-0"	50'-8"	41'-0"
	11'	10'-10"	10'-10"	0'-0"	20'-10"	10'-0"	30'-10"	20'-0"	40'-10"	30'-0"	50'-10"	40'-0"
10'	9'	8'-6"	11'-6"	3'-0"	22'-5"	13'-11"	33'-4"	24'-10"	44'-3"	35'-9"	55'-2"	46'-8"
	10'	9'-8"	11'-8"	2'-0"	22'-8"	13'-0"	33'-8"	24'-0"	44'-8"	35'-0"	55'-8"	46'-0"
	11'	10'-10"	11'-10"	1'-0"	22'-10"	12'-0"	33'-10"	23'-0"	44'-10"	34'-0"	55'-10"	45'-0"
	12'	12'-0"	12'-0"	0'-0"	23'-0"	11'-0"	34'-0"	22'-0"	45'-0"	33'-0"	56'-0"	44'-0"
11'	9'	8'-6"	12'-6"	4'-0"	24'-5"	15'-11"	36'-4"	27'-10"	48'-3"	39'-9"		
	10'	9'-8"	12'-8"	3'-0"	24'-8"	15'-0"	36'-8"	27'-0"	48'-8"	39'-0"		
	11'	10'-10"	12'-10"	2'-0"	24'-10"	14'-0"	36'-10"	26'-0"	48'-10"	38'-0"		
	12'	12'-0"	13'-0"	1'-0"	25'-0"	13'-0"	37'-0"	25'-0"	49'-0"	37'-0"		
12'	9'	8'-6"	13'-6"	5'-0"	26'-5"	17'-11"	39'-4"	30'-10"	52'-3"	43'-9"		
	10'	9'-8"	13'-8"	4'-0"	26'-8"	17'-0"	39'-8"	30'-0"	52'-8"	43'-0"		
	11'	10'-10"	13'-10"	3'-0"	26'-10"	16'-0"	39'-10"	29'-0"	52'-10"	42'-0"		
	12'	12'-0"	14'-0"	2'-0"	27'-0"	15'-0"	40'-0"	28'-0"	53'-0"	41'-0"		

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL - FOR 4 WINGS ⊗	CLASS S CONCRETE - 4 WINGS (HEADWALLS, WINGWALLS, FOOTINGS, TOE WALLS AND APRONS): SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
S	H	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
7'	9'	9"	10"	1487.2	21.29	22.97	24.64	26.32	27.99
8'	9'	9"	10"	1487.2	21.51	23.41	25.28	27.18	29.06
	10'	10"	11"	1842.6	26.99	28.92	30.83	32.76	34.68
9'	9'	9"	10"	1487.2	21.73	23.85	25.93	28.04	30.13
	10'	10"	11"	1842.6	27.22	29.36	31.49	33.63	35.76
	11'	11"	12"	2196.1	33.67	35.88	37.98	40.14	42.29
10'	9'	9"	10"	1487.2	21.95	24.30	26.61	28.92	31.24
	10'	10"	11"	1842.6	27.44	29.81	32.14	34.48	36.84
	11'	11"	12"	2196.1	33.90	36.27	38.64	41.01	43.39
	12'	12"	13"	2766.4	41.40	43.80	46.19	48.58	50.98
11'	9'	9"	10"	1487.2	22.17	24.77	27.28	29.81	
	10'	10"	11"	1842.6	27.66	30.27	32.80	35.37	
	11'	11"	12"	2196.1	34.11	36.73	39.30	41.88	
	12'	12"	13"	2766.4	41.62	44.25	46.85	49.46	
12'	9'	9"	10"	1487.2	22.39	25.24	27.97	30.76	
	10'	10"	11"	1842.6	27.88	30.74	33.49	36.30	
	11'	11"	12"	2196.1	34.34	37.20	39.95	42.78	
	12'	12"	13"	2766.4	41.85	44.71	47.52	50.35	

⊗ For reinforcing steel in Headwalls and Aprons, See Details of Standard Barrel Sections for R.C. Box Culverts for the desired Span and Height.



GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, footings and sidewalls shall be only where shown on plans.

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three moppings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the expansion joints.

Payment for the membrane waterproofing and bituminous felt shall be included in unit price bid for Class S Concrete.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

BAR LIST FOR ONE WING — 4 REQUIRED

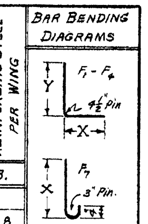
F1 – BENT: In bottom of footing, bent up into back face of wing. One bar of each length.
F2, F3, F4 – BENT: In bottom of footing, bent up into back face of wing. Alt. with F1 bars.
F5 – STRAIGHT: Longitudinal in top of wing footing heel.
F6 – STRAIGHT: Longitudinal in bottom of wing footing toe.
F7 – BENT: Footing dowels extending up into front face of wing.
H1 – STRAIGHT: Horizontal in back face of wing.
H2 – STRAIGHT: Horizontal in back face of wing. One bar of each length.
H3 – STRAIGHT: In back face of wing at top - on slope.

CLEAR HEIGHT H	F1 SIZE	F1 SPACING	F1 NO. REQ'D	F1 LENGTHS VARY MIN.	F1 LENGTHS VARY MAX.	F1 X MIN.	F1 X MAX.	F1 Y MIN.	F1 Y MAX.	F2 SIZE	F2 SPACING ⊙	F2 NO. REQ'D	F2 LENGTH	F2 X	F2 Y	F3 SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTH	F3 X	F3 Y	F4 SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTH	F4 X	F4 Y
9'	#5	12"	16	5'-3"	13'-10"	1'-7"	3'-8"	3'-9"	10'-3"	#5	12"	3	7'-6"	2'-1"	5'-6"	#4	12"	5	6'-6"	1'-10"	4'-9"	—	—	—	—	—	—
10'	#5	12"	18	5'-6"	15'-4"	1'-8"	4'-1"	3'-11"	11'-4"	#6	12"	2	8'-6"	2'-4"	6'-3"	#5	12"	3	7'-6"	2'-1"	5'-6"	#4	12"	5	6'-6"	1'-10"	4'-9"
11'	#5	12"	19	6'-4"	16'-10"	1'-10"	4'-6"	4'-7"	12'-5"	#6	12"	4	8'-6"	2'-4"	6'-3"	#5	12"	3	7'-6"	2'-1"	5'-6"	#4	12"	5	6'-6"	1'-10"	4'-9"
12'	#5	12"	21	6'-8"	18'-5"	1'-11"	5'-0"	4'-10"	13'-6"	#7	12"	4	9'-6"	2'-7"	7'-0"	#6	12"	5	8'-6"	2'-4"	6'-3"	#4	12"	5	6'-6"	1'-10"	4'-9"

CLEAR HEIGHT H	F5 SIZE	F5 NO. REQ'D	F5 LENGTH	F6 SIZE	F6 NO. REQ'D	F6 LENGTH	F7 SIZE	F7 SPACING	F7 NO. REQ'D	F7 LENGTH	F7 X	H1 SIZE	H1 SPACING	H1 NO. REQ'D	H1 LENGTH	H2 SIZE	H2 SPACING	H2 NO. REQ'D	H2 LENGTHS VARY MAX.	H2 LENGTHS VARY MIN.	H3 SIZE	H3 NO. REQ'D	H3 LENGTH	QUANTITY - REINFORCING STEEL PER WING LB.
9'	#4	1	18'-3"	#4	4	18'-6"	#4	18"	11	4'-0"	3'-6"	#4	12"	3	15'-6"	#4	12"	6	14'-4"	2'-8"	#4	1	16'-10"	371.8
10'	#4	1	19'-10"	#4	4	20'-6"	#4	18"	12	4'-4"	3'-10"	#4	12"	3	17'-0"	#4	12"	7	16'-8"	2'-8"	#4	1	18'-6"	460.7
11'	#4	1	21'-4"	#4	4	22'-6"	#4	18"	13	4'-8"	4'-2"	#4	12"	4	18'-7"	#4	12"	7	16'-8"	2'-8"	#4	1	20'-2"	549.0
12'	#4	1	22'-11"	#4	4	24'-6"	#4	18"	14	5'-0"	4'-6"	#4	12"	4	20'-1"	#4	12"	8	19'-0"	2'-8"	#4	1	21'-10"	691.6

⊙ Except as shown at headwall.

BAR BENDING DIAGRAMS



NOTE:- Dimensions are to bar centers.

NOTE:- This drawing to be used in conjunction with Standard Barrel Sections. Drawing Nos. as listed below.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-X2	R-200X-X2	R-300X-X2	R-400X-X2	
	R-200X-X3	R-300X-X3		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

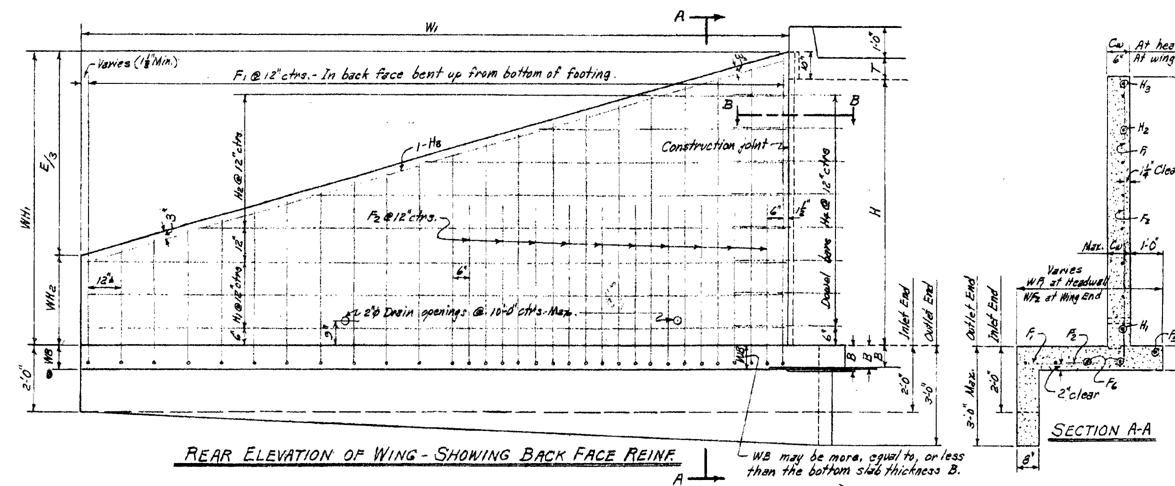
DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS

7', 8', 9', 10', 11' & 12' SPANS — 2:1 SLOPES
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER FOR H = 9'-0" & OVER

STANDARD DRAWING NO. W-X002-2

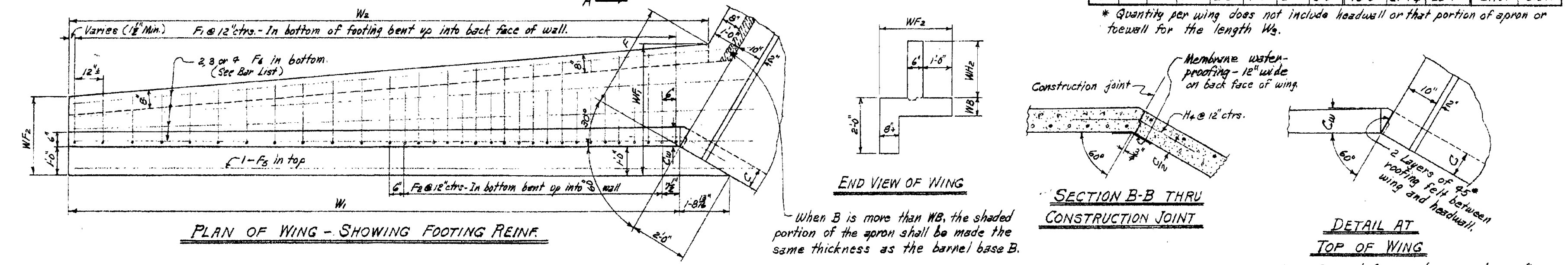
(2)

Designed By- W.C.H. 7-25-62. Checked By- J.E.M. 5-16-63
Drawn By- W.C.H. 4-19-63. Checked By- J.E.M. 5-10-63
Quantities By- W.C.H.



REAR ELEVATION OF WING - SHOWING BACK FACE REINF.

SECTION A-A



PLAN OF WING - SHOWING FOOTING REINF.

END VIEW OF WING

SECTION B-B THRU CONSTRUCTION JOINT

DETAIL AT TOP OF WING

NOTE:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

WING DIMENSIONS

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL = C	WINGWALL HEIGHTS AT HEADWALL	WINGWALL HEIGHTS AT END OF WING	WIDTHS OF WING FOOTINGS AT HEADWALL	WIDTHS OF WING FOOTINGS AT END OF WING	PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM HDWL TO END OF WING	LENGTH OF WINGWALLS	INSIDE FOOTING DIMENSION	* QUANTITY PER WING CLASS S CONCRETE INLET END	OUTLET END
H	WB	Cw	WH1	WH2	WF1	WF2	F	E	W1	W2	CU.YD.	CU.YD.
2'	7"	6"	2'-10"	0'-8"	2'-4"	2'-0"	0'-11¾"	6'-6"	7'-6"	7'-1½"	0.889	0.986
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1½"	1'-4⅜"	8'-6"	9'-9¾"	9'-7½"	1.338	1.466
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	1'-9"	10'-6"	12'-1½"	12'-1½"	1.868	2.027
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅝"	12'-6"	14'-5¼"	14'-7½"	2.478	2.668
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅝"	12'-6"	14'-5¼"	14'-7½"	2.582	2.772
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6¼"	14'-6"	16'-9"	17'-1½"	3.440	3.661
		7½"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6¼"	14'-6"	16'-9"	17'-1½"	3.511	3.732
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6¼"	14'-6"	16'-9"	17'-1½"	3.582	3.803
7'	8½"	7½"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1¼"	16'-6"	19'-0½"	19'-8¾"	4.505	4.758
		8"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1¼"	16'-6"	19'-0½"	19'-8¾"	4.597	4.851
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	18'-6"	21'-4¾"	22'-4"	5.761	6.097

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W3.

APRON DIMENSION W3

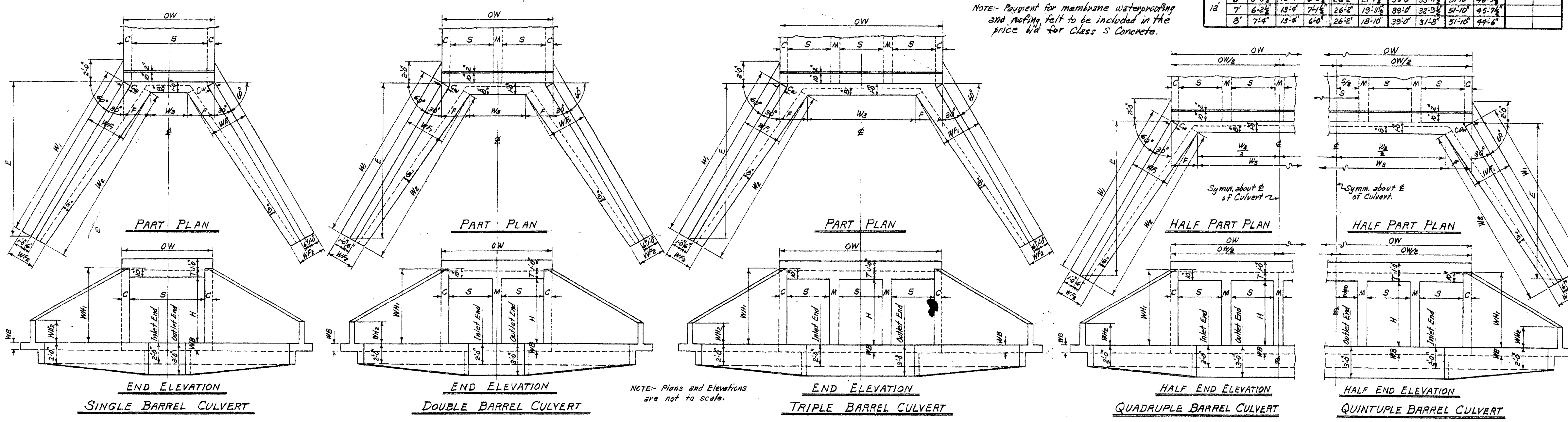
W3 = (OW - 2F)

CLEAR SPAN	CLEAR HEIGHT	2 x FOOTING DIMENSION	SINGLE BARREL CULVERT OW	W3	DOUBLE BARREL CULVERT OW	W3	TRIPLE BARREL CULVERT OW	W3	QUADRUPLE BARREL CULVERT OW	W3	QUINTUPLE BARREL CULVERT OW	W3
S	H	2F	OW	W3	OW	W3	OW	W3	OW	W3	OW	W3
4'	2'	1'-11½"	5'-0"	3'-0½"	9'-8"	7'-8½"	14'-4"	12'-4½"	19'-0"	17'-0½"	23'-8"	21'-8½"
	3'	2'-8¾"	5'-0"	2'-3¼"	9'-8"	6'-11¼"	14'-4"	11'-7¼"	19'-0"	16'-3¼"	23'-8"	20'-11¼"
	4'	3'-6"	5'-0"	1'-6"	9'-8"	6'-2"	14'-4"	10'-10"	19'-0"	15'-6"	23'-8"	20'-2"
	5'	4'-3¼"	5'-0"	0'-8¾"	9'-8"	5'-4¾"	14'-4"	10'-0¾"	19'-0"	14'-8¾"	23'-8"	19'-4¾"
	6'	5'-0½"	5'-2"	0'-1½"	9'-11"	4'-10½"	14'-8"	9'-7½"	19'-5"	14'-4½"	24'-2"	19'-1½"
5'	3'	2'-8¾"	6'-0"	3'-3¼"	11'-8"	8'-11¼"	17'-4"	14'-7¼"	23'-0"	20'-3¼"	28'-8"	25'-11¼"
	4'	3'-6"	6'-0"	2'-6"	11'-8"	8'-2"	17'-4"	13'-10"	23'-0"	19'-6"	28'-8"	25'-2"
	5'	4'-3¼"	6'-0"	1'-8¾"	11'-8"	7'-4¾"	17'-4"	13'-0¾"	23'-0"	18'-8¾"	28'-8"	24'-4¾"
	6'	5'-0½"	6'-2"	1'-1½"	11'-11"	6'-10½"	17'-8"	12'-7½"	23'-5"	18'-4½"	29'-2"	24'-1½"
	7'	6'-2½"	6'-3"	0'-0½"	12'-1"	5'-10½"	17'-11"	11'-8½"	23'-9"	17'-6½"	29'-7"	23'-4½"
6'	3'	2'-8¾"	7'-0"	4'-3¼"	13'-8"	10'-11¼"	20'-4"	17'-7¼"	27'-0"	24'-3¼"	33'-8"	30'-11¼"
	4'	3'-6"	7'-0"	3'-6"	13'-8"	10'-2"	20'-4"	16'-10"	27'-0"	23'-6"	33'-8"	30'-2"
	5'	4'-3¼"	7'-0"	2'-8¾"	13'-8"	9'-4¾"	20'-4"	16'-0¾"	27'-0"	22'-8¾"	33'-8"	29'-4¾"
	6'	5'-0½"	7'-2"	2'-1½"	13'-11"	8'-10½"	20'-8"	15'-7½"	27'-5"	22'-4½"	34'-2"	29'-1½"
	7'	6'-2½"	7'-3"	1'-0½"	14'-1"	7'-10½"	20'-11"	14'-8½"	27'-9"	21'-6½"	34'-7"	28'-4½"
	8'	7'-4"	7'-4"	0'-0"	14'-2"	6'-10"	21'-0"	13'-8"	27'-10"	20'-6"	34'-8"	27'-4"
7'	4'	3'-6"	8'-0"	4'-6"	15'-8"	12'-2"	23'-4"	19'-10"	31'-0"	27'-6"	38'-8"	35'-2"
	5'	4'-3¼"	8'-0"	3'-8¾"	15'-8"	11'-4¾"	23'-4"	19'-0¾"	31'-0"	26'-8¾"	38'-8"	34'-4¾"
	6'	5'-0½"	8'-2"	3'-1½"	15'-11"	10'-10½"	23'-8"	18'-7½"	31'-5"	26'-4½"	39'-2"	34'-1½"
	7'	6'-2½"	8'-3"	2'-0½"	16'-1"	9'-10½"	23'-11"	17'-8½"	31'-9"	25'-6½"	39'-7"	33'-4½"
	8'	7'-4"	8'-4"	1'-0"	16'-2"	8'-10"	24'-0"	16'-8"	31'-10"	24'-6"	39'-8"	32'-4"
8'	4'	3'-6"	9'-0"	5'-6"	17'-8"	14'-2"	26'-4"	22'-10"	35'-0"	31'-6"	43'-8"	40'-2"
	5'	4'-3¼"	9'-2"	4'-10¾"	17'-11"	13'-7¾"	26'-8"	22'-4¾"	35'-5"	31'-1¾"	44'-2"	39'-10¾"
	6'	5'-0½"	9'-2"	4'-1½"	17'-11"	12'-10½"	26'-8"	21'-7½"	35'-5"	30'-4½"	44'-2"	39'-1½"
	7'	6'-2½"	9'-3"	3'-0½"	18'-1"	11'-10½"	26'-11"	20'-8½"	35'-9"	29'-6½"	44'-7"	38'-4½"
	8'	7'-4"	9'-4"	2'-0"	18'-2"	10'-10"	27'-0"	19'-8"	35'-10"	28'-6"	44'-8"	37'-4"
9'	5'	4'-3¼"	10'-2"	5'-10¾"	19'-11"	15'-7¾"	29'-8"	25'-4¾"	39'-5"	35'-1¾"	49'-2"	44'-10¾"
	6'	5'-0½"	10'-3"	5'-2½"	20'-1"	15'-0½"	29'-11"	24'-10½"	39'-9"	34'-8½"	49'-7"	44'-6½"
	7'	6'-2½"	10'-3"	4'-0½"	20'-1"	13'-10½"	29'-11"	23'-8½"	39'-9"	33'-6½"	49'-7"	43'-4½"
	8'	7'-4"	10'-4"	3'-0"	20'-2"	12'-10"	30'-0"	22'-8"	39'-10"	32'-6"	49'-8"	42'-4"
10'	5'	4'-3¼"	11'-2"	6'-10¾"	21'-11"	17'-7¾"	32'-8"	28'-4¾"	43'-5"	39'-1¾"	54'-2"	49'-10¾"
	6'	5'-0½"	11'-3"	6'-2½"	22'-1"	17'-0½"	32'-11"	27'-10½"	43'-9"	38'-8½"	54'-7"	49'-6½"
	7'	6'-2½"	11'-3"	5'-0½"	22'-1"	15'-10½"	32'-11"	26'-8½"	43'-9"	37'-6½"	54'-7"	48'-4½"
	8'	7'-4"	11'-4"	4'-0"	22'-2"	14'-10"	33'-0"	25'-8"	43'-10"	36'-6"	54'-8"	47'-4"
11'	6'	5'-0½"	12'-4"	7'-3½"	24'-2"	19'-1½"	36'-0"	30'-11½"	47'-10"	42'-9½"		
	7'	6'-2½"	12'-4"	6'-1½"	24'-2"	17'-11½"	36'-0"	29'-9½"	47'-10"	41'-7½"		
	8'	7'-4"	12'-4"	5'-0"	24'-2"	16'-10"	36'-0"	28'-8"	47'-10"	40'-6"		
12'	6'	5'-0½"	13'-4"	8'-3½"	26'-2"	21'-1½"	39'-0"	33'-11½"	51'-10"	46'-9½"		
	7'	6'-2½"	13'-4"	7'-1½"	26'-2"	19'-11½"	39'-0"	32'-9½"	51'-10"	45'-7½"		
	8'	7'-4"	13'-4"	6'-0"	26'-2"	18'-10"	39'-0"	31'-8"	51'-10"	44'-6"		

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	⊗ REINFORCING STEEL - FOR 4 WINGS	CLASS S CONCRETE - 4 WINGS (HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS) SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
S	H	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
4'	2'	6"	7"	108.0	4.50	5.46	6.42	7.38	8.34
	3'	6"	7"	164.4	6.26	7.21	8.17	9.13	10.09
	4'	6"	7"	254.6	8.33	9.28	10.24	11.20	12.16
	5'	6"	7"	357.8	10.72	11.68	12.64	13.60	14.56
	6'	7"	8"	583.1	14.55	15.53	16.52	17.51	18.49
5'	3'	6"	7"	164.4	6.47	7.63	8.79	9.96	11.12
	4'	6"	7"	254.6	8.54	9.70	10.87	10.03	13.20
	5'	6"	7"	357.8	10.94	12.10	13.26	14.43	15.59
	6'	7"	8"	583.1	14.77	15.96	17.15	18.34	19.54
	7'	7½"	8½"	1134.6	18.94	20.16	21.37	22.59	23.80
6'	3'	6"	7"	164.4	6.68	8.06	9.42	10.80	12.18
	4'	6"	7"	254.6	8.75	10.14	11.49	12.87	14.25
	5'	6"	7"	357.8	11.15	12.53	13.89	15.27	16.65
	6'	7"	8"	583.1	14.98	16.39	17.78	19.18	20.59
	7'	7½"	8½"	1134.6	19.15	20.58	22.00	23.43	24.86
	8'	8"	9"	1425.6	24.09	25.53	26.96	28.39	29.83
7'	4'	6"	7"	254.6	8.97	10.58	12.15	13.76	15.35
	5'	6"	7"	357.8	11.36	12.97	14.54	16.15	17.75
	6'	7"	8"	583.1	15.20	16.82	18.42	20.04	21.66
	7'	7½"	8½"	1134.6	19.38	21.02	22.64	24.28	25.92
	8'	8"	9"	1425.6	24.32	25.97	27.60	29.25	30.89
8'	4'	6"	7"	254.6	9.19	11.03	12.82	14.65	16.45
	5'	7"	7"	357.8	12.03	13.89	15.70	17.55	19.36
	6'	7"	8"	583.1	15.42	17.27	19.09	20.93	22.75
	7'	7½"	8½"	1134.6	19.59	21.46	23.30	25.16	26.99
	8'	8"	9"	1425.6	24.54	26.41	28.24	30.11	31.96
9'	5'	7"	7"	357.8	12.26	14.34	16.37	18.45	20.47
	6'	7½"	8"	583.1	15.94	18.04	20.09	22.19	24.23
	7'	7½"	8½"	1134.6	19.81	21.91	23.96	26.06	28.10
	8'	8"	9"	1425.6	24.76	26.86	28.91	31.00	33.05
10'	5'	7"	7"	357.8	12.49	14.80	17.05	19.26	21.52
	6'	7½"	8"	583.1	16.17	18.50	20.77	22.99	25.28
	7'	7½"	8½"	1134.6	20.04	22.37	24.64	26.87	29.15
	8'	8"	9"	1425.6	24.98	27.31	29.58	31.81	34.10
11'	6'	8"	8"	583.1	16.69	19.27	21.76	24.23	
	7'	8"	8½"	1134.6	20.64	23.22	25.71	28.18	
	8'	8"	9"	1425.6	25.19	27.77	30.27	32.74	
12'	6'	8"	8"	583.1	16.92	19.75	22.45	25.18	
	7'	8"	8½"	1134.6	20.87	23.69	26.40	29.13	
	8'	8"	9"	1425.6	25.42	28.25	30.96	33.69	

⊗ For reinforcing steel in Headwalls and Aprons, See Details of Standard Barrel Sections for R.C. Box Culverts for the desired Span and Height.



PART PLAN — PART PLAN — PART PLAN — HALF PART PLAN — HALF PART PLAN

END ELEVATION — SINGLE BARREL CULVERT

END ELEVATION — DOUBLE BARREL CULVERT

NOTE:- Plans and Elevations are not to scale.

END ELEVATION — TRIPLE BARREL CULVERT

HALF END ELEVATION — QUADRUPLE BARREL CULVERT

HALF END ELEVATION — QUINTUPLE BARREL CULVERT

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

NOTE:- This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. as listed below.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-X1	R-200X-X1	R-300X-X1	R-400X-X1	R-500X-X1
R-100X-X2	R-200X-X2	R-300X-X2	R-400X-X2	
	R-200X-X3	R-300X-X3		

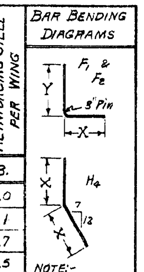
MEMBRANE:- A membrane waterproofing 12" wide, consisting of three moppings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints in wings.

BAR LIST FOR ONE WING - 4 REQUIRED

F1 — Bent — In bottom of footing, bent up into back face of wing. One bar of each length.
F2 — Bent — In bottom of footing, bent up into back face of wing. Alt. with F1 bars.
F5 — Straight — Longitudinal in top of wing footing heel.
F6 — Straight — Longitudinal in bottom of wing footing toe.
H1 — Straight — Horizontal in back face of wing.
H2 — Straight — Horizontal in back face of wing. One bar of each length.
H3 — Straight — In back face of wing at top - on slope.
H4 — Bent — Dowels thru construction joint at headwall.

CLEAR HEIGHT H	F1 SIZE	F1 SPACING	F1 NO. REQ'D	F1 LENGTHS VARY MIN.	F1 LENGTHS VARY MAX.	F1 X MIN.	F1 X MAX.	F1 Y MIN.	F1 Y MAX.	F2 SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTH	F2 X	F2 Y	F5 SIZE	F5 NO. REQ'D	F5 LENGTH	F6 SIZE	F6 NO. REQ'D	F6 LENGTH	H1 SIZE	H1 SPACING	H1 NO. REQ'D	H1 LENGTH	H2 SIZE	H2 SPACING	H2 NO. REQ'D	H2 LENGTHS VARY MAX.	H2 LENGTHS VARY MIN.	H3 SIZE	H3 NO. REQ'D	H3 LENGTH	H4 SIZE	H4 SPACING	H4 NO. REQ'D	H4 LENGTH	H4 X	QUANTITY REINFORCING STEEL PER WING LB.
2'	#3	12"	8	1'-6"	3'-10"	0'-8"	1'-0"	0'-11"	2'-11"	—	—	—	—	—	—	#3	1	9'-8"	#3	2	8'-6"	#3	12"	1	7'-2"	#3	12"	1	—	4'-0"	#3	1	7'-4"	#3	12"	2	2'-8"	1'-4"	27.0
3'	#3	12"	10	2'-2"	5'-2"	0'-10"	1'-3"	1'-5"	4'-0"	—	—	—	—	—	—	#3	1	12'-0"	#3	2	11'-0"	#3	12"	1	9'-6"	#3	12"	2	7'-6"	4'-0"	#3	1	9'-9"	#3	12"	3	2'-8"	1'-4"	41.1
4'	#3	12"	13	2'-4"	6'-6"	0'-11"	1'-7"	1'-6"	5'-0"	—	—	—	—	—	—	#3	1	14'-4"	#3	3	13'-6"	#3	12"	1	11'-10"	#3	12"	3	10'-11"	4'-0"	#3	1	12'-2"	#3	12"	4	2'-8"	1'-4"	63.7
5'	#3	12"	15	2'-11"	7'-10"	1'-1"	1'-11"	1'-11"	6'-0"	#3	12"	4	3'-6"	1'-1"	2'-6"	#3	1	16'-8"	#3	3	16'-0"	#3	12"	2	14'-2"	#3	12"	3	10'-11"	4'-0"	#3	1	14'-7"	#3	12"	5	2'-8"	1'-4"	89.5
6'	#4	12"	17	3'-6"	9'-3"	1'-2"	2'-3"	2'-5"	7'-1"	#3	12"	4	4'-6"	1'-4"	3'-3"	#3	1	19'-0"	#3	3	18'-6"	#3	12"	2	16'-6"	#3	12"	4	14'-4"	4'-0"	#3	1	17'-0"	#3	12"	6	2'-8"	1'-4"	145.8
7'	#4	12"	20	3'-9"	10'-9"	1'-3"	2'-9"	2'-7"	8'-1"	#4	12"	7	5'-6"	1'-7"	4'-0"	#4	1	21'-4"	#4	4	21'-0"	#4	12"	2	18'-9"	#4	12"	5	17'-9"	4'-0"	#4	1	19'-5"	#4	12"	7	3'-6"	1'-9"	283.7
8'	#4	12"	22	4'-4"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	10	6'-6"	1'-10"	4'-9"	#4	1	23'-8"	#4	4	23'-9"	#4	12"	3	21'-1"	#4	12"	5	17'-9"	4'-0"	#4	1	21'-10"	#4	12"	8	3'-6"	1'-9"	356.4

BAR BENDING DIAGRAMS



NOTE:- Dimensions are to bar centers.

REVISIONS:- Membrane added. 5-10-66 W.C.H.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 SLOPES

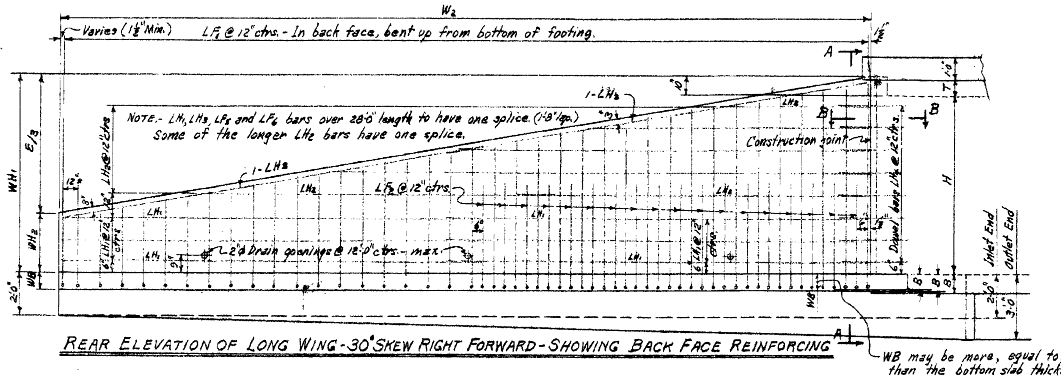
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X003-1

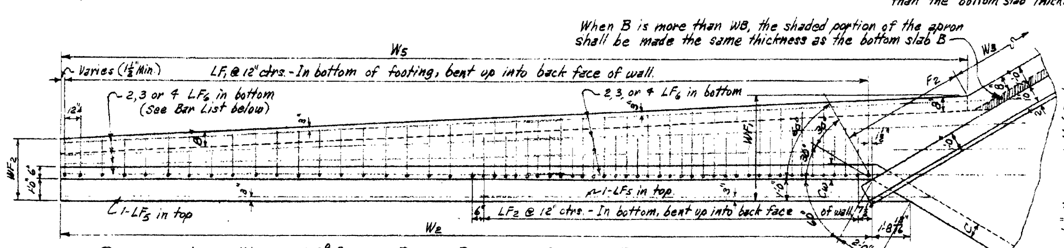
Designed By:- W.C.H. 8-20-62 Checked By:- R.H.S. 1-3-63
Drawn By:- W.C.H. 12-19-62 Checked By:- R.H.S. 1-31-63
Quantities By:- W.C.H. 12-19-62 Rechecked By:- R.H.S. 3-29-63

Reshot 3-8-93

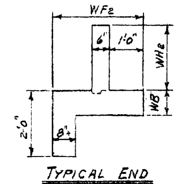
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			500	
JOB No.					



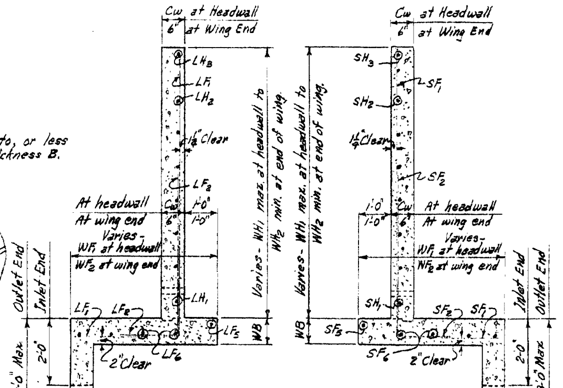
REAR ELEVATION OF LONG WING - 30° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING



PLAN OF LONG WING - 30° SKEW RIGHT FORWARD - SHOWING FOOTING REINFORCING

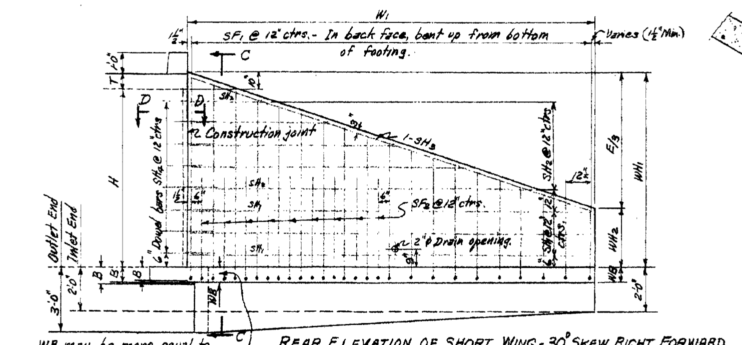


TYPICAL END VIEW OF WING

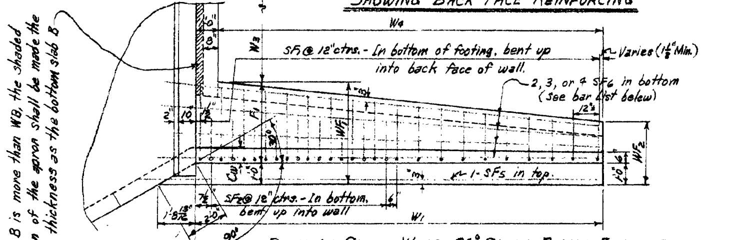


SECTION A-A

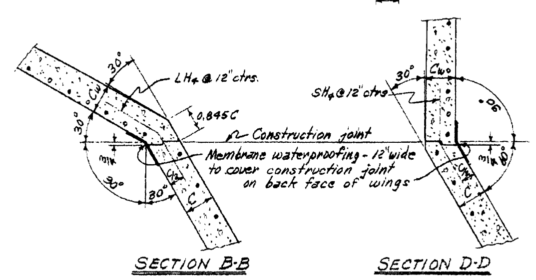
SECTION C-C



REAR ELEVATION OF SHORT WING - 30° SKEW RIGHT FORWARD SHOWING BACK FACE REINFORCING



PLAN OF SHORT WING - 30° SKEW RIGHT FORWARD SHOWING FOOTING REINFORCING

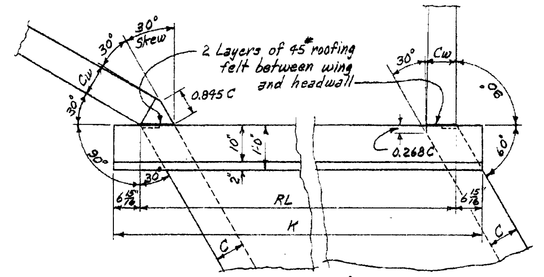


SECTION B-B

SECTION D-D

SECTIONS THRU CONSTRUCTION JOINTS

NOTE:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.



DETAILS AT TOP OF WINGS - 30° SKEW RIGHT FORWARD

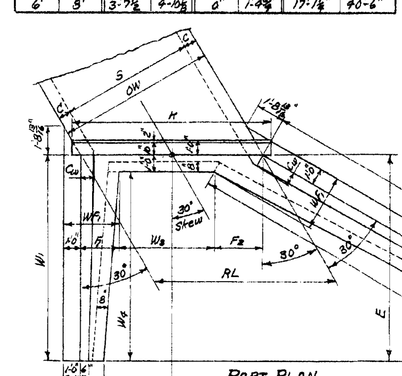
REGULAR WING DIMENSIONS - 3:1 SLOPES

Clear Height of Box	Thickness of Wing Footing	Thickness of Wing at Hdwl. = C	Wingwall Heights: At Headwall	Wingwall Heights: At End of Wing	Widths of Wing Footings: At Headwall	Widths of Wing Footings: At End of Wing	Footing Dimension - Parallel with Headwall: Short Wing	Footing Dimension - Parallel with Headwall: Long Wing	Perpendicular Dist. from Hdwl. to End of Wing	Lengths of Wingwalls: Short Wing	Lengths of Wingwalls: Long Wing	Inside Footing Dimension: Short Wing	Inside Footing Dimension: Long Wing	* Quantity per Wing, Class S Concrete, Inlet End: Short Wing	Inlet End: Long Wing	Outlet End: Short Wing	Outlet End: Long Wing
H	WB	Cw	WH1	WH2	WF1	WF2	F1	F2	E	W1	W2	W4	W5	CU.YD.	CU.YD.	CU.YD.	CU.YD.
2'	7"	6"	2'-10"	0'-8"	2'-4"	2'-0"	1'-4"	0'-11¼"	6'-6"	6'-6"	13'-0"	5'-6"	13'-3¾"	0.752	1.549	0.836	1.717
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1½"	1'-8"	1'-7¼"	8'-6"	8'-6"	17'-0"	7'-6"	17'-10¾"	1.130	2.340	1.239	2.565
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	2'-0"	2'-3¼"	10'-6"	10'-6"	21'-0"	9'-6"	22'-5½"	1.577	3.270	1.711	3.552
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-4"	2'-11¼"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0½"	2.093	4.341	2.252	4.680
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-4"	2'-11¼"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0½"	2.179	4.524	2.337	4.862
⊙ 6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-7¼"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7½"	2.908	6.024	3.092	6.419
		7½"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-7¼"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7½"	2.966	6.147	3.150	6.543
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-7¼"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7½"	3.025	6.272	3.208	6.667
⊙ 7'	8½"	7½"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-2"	4'-7¼"	16'-6"	16'-6"	33'-0"	15'-6"	36'-5¾"	3.811	7.895	4.019	8.350
		8"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-2"	4'-7¼"	16'-6"	16'-6"	33'-0"	15'-6"	36'-5¾"	3.887	8.057	4.095	8.512
⊙ 8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	5'-7¼"	18'-6"	18'-6"	37'-0"	17'-6"	41'-4¼"	4.874	10.097	5.107	10.612

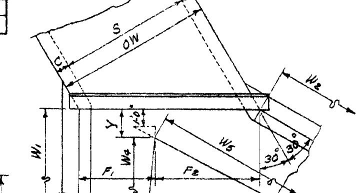
* Quantity per wing does not include headwall or that portion of apron or toewall for the length W3.
⊙ See Table "A" for special values of F1 & F2 and W4 & W5 for Single 4'x6', 5'x7' and 6'x8' Box Culverts.

TABLE "A" - DIMENSIONS FOR DETAIL "A"

S	H	F1	F2	W3	Y	W4	W5
4'	6'	2'-7⅞"	3'-3¾"	0"	1'-1⅞"	13'-4¼"	31'-3½"
5'	7'	3'-1⅝"	4'-1"	0"	1'-3¼"	15'-2¾"	35'-10¾"
6'	8'	3'-7½"	4'-10⅛"	0"	1'-4¾"	17'-1¼"	40'-6"

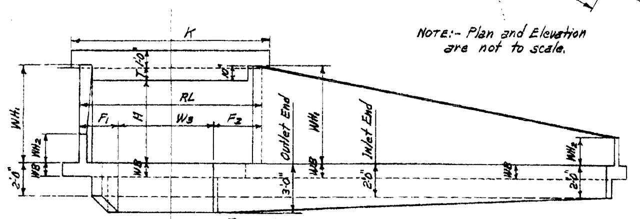


PART PLAN



DETAIL "A"

Note:- Plan and Elevation are not to scale.



END ELEVATION

SINGLE BARREL CULVERT - 30° SKEW RIGHT FORWARD

Details of Culvert with 30° Skew Left Forward is reversed, see Drawing No. W-X30.

TYPICAL WING DETAILS

NOTE:-
For remainder of General Plans and Elevations of Single, Double, Triple, Quadruple and Quintuple Span Culverts, see Std. Drawing No. W-X30.
For values of RL, K and W3 for each box, see above Std. also.

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three moppings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints of wings.

REVISIONS:- Membrane Added 5-10-66 W.C.H.

QUANTITIES

Clear Span	Clear Height	Thickness of Wing at Headwall	Thickness of Wing Footing	⊕ Reinforcing Steel - for 4 Wings	Class S Concrete - 4 Wings (Headwalls, Wingwalls, Footings, Toewalls and Aprons): Single Barrel Culvert	Double Barrel Culvert	Triple Barrel Culvert	Quadruple Barrel Culvert	Quintuple Barrel Culvert
S	H	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
4'	2'	6"	7"	141	5.80	6.90	8.01	9.12	10.23
	3'	6"	7"	213	8.08	9.18	10.29	11.40	12.51
	4'	6"	7"	327	10.78	11.88	12.99	14.10	15.21
	5'	6"	7"	460	13.90	15.00	16.11	17.22	18.32
	6'	7"	8"	762	18.85	19.99	21.13	22.27	23.41
5'	3'	6"	7"	213	8.33	9.67	11.01	12.36	13.70
	4'	6"	7"	327	11.03	12.36	13.71	15.06	16.40
	5'	6"	7"	460	14.14	15.48	16.83	18.17	19.52
	6'	7"	8"	762	19.11	20.48	21.86	23.24	24.62
	7'	7½"	8½"	1474	24.51	25.94	27.35	28.75	30.16
6'	3'	6"	7"	213	8.57	10.17	11.73	13.33	14.92
	4'	6"	7"	327	11.27	12.86	14.43	16.03	17.62
	5'	6"	7"	460	14.38	15.98	17.55	19.15	20.73
	6'	7"	8"	762	19.35	20.98	22.59	24.21	25.83
	7'	7½"	8½"	1474	24.79	26.44	28.08	29.73	31.38
	8'	8"	9"	1870	31.15	32.87	34.51	36.17	37.83
7'	4'	6"	7"	327	11.52	13.37	15.19	17.05	18.85
	5'	6"	7"	460	14.63	16.49	18.31	20.16	21.97
	6'	7"	8"	762	19.61	21.48	23.32	25.20	27.04
	7'	7½"	8½"	1474	25.05	26.94	28.82	30.71	32.59
	8'	8"	9"	1870	31.47	33.37	35.25	37.16	39.05
8'	4'	6"	7"	327	11.77	13.89	15.97	18.09	20.12
	5'	7"	7"	460	15.46	17.60	19.70	21.83	23.89
	6'	7"	8"	762	19.86	21.98	24.05	26.17	28.20
	7'	7½"	8½"	1474	25.30	27.46	29.58	31.73	33.81
	8'	8"	9"	1870	31.72	33.88	36.00	38.16	40.27
9'	5'	7"	7"	460	15.72	18.13	20.47	22.87	25.15
	6'	7½"	8"	762	20.50	22.93	25.29	27.71	30.01
	7'	7½"	8½"	1474	25.55	27.98	30.34	32.76	35.07
	8'	8"	9"	1870	31.97	34.39	36.76	39.18	41.49
10'	5'	7"	7"	460	15.98	18.65	21.25	23.80	26.42
	6'	7½"	8"	762	20.76	23.45	26.07	28.64	31.28
	7'	7½"	8½"	1474	25.81	28.50	31.12	33.70	36.34
	8'	8"	9"	1870	32.22	34.91	37.54	40.12	42.76
11'	6'	8"	8"	762	21.39	24.38	27.25	30.11	—
	7'	8"	8½"	1474	26.55	29.53	32.41	35.27	—
	8'	8"	9"	1870	32.47	35.45	38.33	41.19	—
12'	6'	8"	8"	762	21.66	24.93	28.05	31.20	—
	7'	8"	8½"	1474	26.81	30.08	33.21	36.36	—
	8'	8"	9"	1870	32.73	35.99	39.13	42.28	—

⊕ For reinforcing steel in Headwalls and Aprons, see Drawing Nos. of Barrel Sections listed below.

BAR LIST FOR ONE SHORT AND ONE LONG WING - 2 EACH REQUIRED

SF1 & LF1 — Bent — In bottom of footing, bent up into back face of wing. One bar (or two bars) of each length.
SF2 & LF2 — Bent — In bottom of footing, bent up into back face of wing. Alt. with F1 bars.
SF5 & LF5 — Straight — Longitudinal in top of wing footing heel.
SF6 & LF6 — Straight — Longitudinal in bottom of wing footing toe.

H	Short or Long	SF1 & LF1 Size	Spacing	No. Req'd	Lengths Vary Min.	Lengths Vary Max.	X Min.	X Max.	Y Min.	Y Max.	SF2 & LF2 Size	Spacing	No. Req'd	Length	X	Y	SF5 & LF5 Size	No. Req'd	Length	SF6 & LF6 Size	No. Req'd	Length
2'	Short	#3	12"	7	1'-7"	3'-11"	0'-8"	1'-0"	1'-0"	3'-0"	—	—	—	—	—	—	#3	1	9'-0"	#3	2	8'-0"
	Long	#3	12"	14	1'-5"	3'-11"	0'-8"	1'-0"	0'-10"	3'-0"	—	—	—	—	—	—	#3	1	15'-6"	#3	2	15'-6"
3'	Short	#3	12"	9	2'-1"	5'-3"	0'-10"	1'-4"	1'-4"	4'-0"	—	—	—	—	—	—	#3	1	11'-0"	#3	2	10'-6"
	Long	#3	12"	18	1'-11"	5'-3"	0'-10"	1'-4"	1'-2"	4'-0"	—	—	—	—	—	—	#3	1	19'-6"	#3	2	20'-2"
4'	Short	#3	12"	11	2'-6"	6'-7"	0'-11"	1'-8"	1'-8"	5'-0"	—	—	—	—	—	—	#3	1	13'-0"	#3	3	12'-0"
	Long	#3	12"	22	2'-4"	6'-6"	0'-11"	1'-7"	1'-6"	5'-0"	—	—	—	—	—	—	#3	1	23'-6"	#3	3	24'-10"
5'	Short	#3	12"	13	2'-11"	7'-11"	1'-0"	2'-0"	2'-0"	6'-0"	#3	12"	3	3'-6"	1'-1"	2'-6"	#3	1	15'-0"	#3	3	14'-0"
	Long	#3	12"	26	2'-9"	7'-10"	1'-0"	1'-11"	1'-10"	6'-0"	#3	12"	6	3'-6"	1'-1"	2'-6"	#3	1	27'-6"	#3	6	15'-7"
6'	Short	#4	12"	15	3'-6"	9'-4"	1'-2"	2'-4"	2'-5"	7'-1"	#3	12"	3	4'-6"	1'-4"	3'-3"	#3	1	17'-0"	#3	3	16'-0"
	Long	#4	12"	30	3'-4"	9'-3"	1'-2"	2'-3"	2'-3"	7'-1"	#3	12"	6	4'-6"	1'-4"	3'-3"	#3	2	16'-8"	#3	6	18'-0"
7'	Short	#4	12"	17	3'-11"	10'-10"	1'-3"	2'-10"	2'-9"	8'-1"	#4	12"	6	5'-6"	1'-7"	4'-0"	#4	1	19'-0"	#4	4	18'-0"
	Long	#4	12"	34	3'-9"	10'-8"	1'-3"	2'-8"	2'-7"	8'-1"	#4	12"	12	5'-6"	1'-7"	4'-0"	#4	2	18'-8"	#4	8	20'-4"
8'	Short	#4	12"	19	4'-6"	12'-5"	1'-5"	3'-4"	3'-2"	9'-2"	#4	12"	9	6'-6"	1'-10"	4'-9"	#4	1	21'-0"	#4	4	20'-0"
	Long	#4	12"	38	4'-4"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	18	6'-6"	1'-10"	4'-9"	#4	2	20'-8"	#4	8	22'-9"

SH1 & LH1 — Straight — Horizontal in back face of wing.
SH2 & LH2 — Straight — Horizontal in back face of wing. One bar of each length.*
SH3 & LH3 — Straight — In back face of wing at top - on slope.
SH4 & LH4 — Bent — Dowels thru construction joint at headwall.

H	Short or Long	SH1 & LH1 Size	Spacing	No. Req'd	Length	SH2 & LH2 Size	Spacing	No. Req'd	Lengths Vary Max.	Lengths Vary Min.	SH3 & LH3 Size	No. Req'd	Length	SH4 & LH4 Size	Spacing	No. Req'd	Length	X	Quantity: Reinforcing Steel per Wing - Lbs. Short Wing	Long Wing
2'	Short	#3	12"	1	6'-3"	#3	12"	1	—	3'-3"	#3	1	6'-7"	#3	12"	2	2'-8"	1'-4"	24.7	45.6
	Long	#3	12"	1	12'-8"	#3	12"	1	—	6'-6"	#3	1	12'-11"	#3	12"	2	"	"		
3'	Short	#3	12"	1	8'-3"	#3	12"	2	6'-3"	3'-3"	#3	1	8'-8"	#3	12"	3	"	"	37.0	69.5
	Long	#3	12"	1	16'-8"	#3	12"	2	12'-6"	6'-6"	#3	1	16'-11"	#3	12"	3	"	"		
4'	Short	#3	12"	1	10'-3"	#3	12"	3	9'-3"	3'-3"	#3	1	10'-9"	#3	12"	4	"	"	56.2	107.2
	Long	#3	12"	1	20'-8"	#3	12"	3	18'-6"	6'-6"	#3	1	21'-0"	#3	12"	4	"	"		
5'	Short	#3	12"	2	12'-3"	#3	12"	3	9'-3"	3'-3"	#3	1	12'-11"	#3	12"	5	"	"	78.0	152.2
	Long	#3	12"	2	24'-8"	#3	12"	3	18'-6"	6'-6"	#3	1	25'-1"	#3	12"	5	"	"		
6'	Short	#3	12"	2	14'-3"	#3	12"	4	12'-3"	3'-3"	#3	1	15'-0"	#3	12"	6	"	"	127.8	253.1
	Long	#3	12"	4	15'-2"	#3	12"	4	24'-6"	6'-6"	#3	2	15'-5"	#3	12"	6	2'-8"	1'-4"		
7'	Short	#4	12"	2	16'-3"	#4	12"	5	15'-3"	3'-3"	#4	1	17'-1"	#4	12"	7	3'-6"	1'-9"	267.0	489.8
	Long	#4	12"	4	17'-2"	#4	12"	5	*30'-6"	6'-6"	#4	2	17'-5"	#4	12"	7	"	"		
8'	Short	#4	12"	3	18'-3"	#4	12"	5	15'-3"	3'-3"	#4	1	19'-3"	#4	12"	8	"	"	312.9	622.3
	Long	#4	12"	6	19'-2"	#4	12"	5	*30'-6"	6'-6"	#4	2	19'-6"	#4	12"	8	3'-6"	1'-9"		

BAR BENDING DIAGRAM: SF1 & SF2, LF1 & LF2 (Y, X, 3" Pin); SH4 & LH4 (X, X, 7/12).

NOTE:- Dimensions are to bar centers.

NOTE:- Bars for short wing shall be marked with prefix letter "S", while those for long wing shall be marked with letter "L".

* Length without splice. Bars over 28'-0" length may be spliced (1'-8" lap).

GENERAL NOTES:-
CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.
CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

NOTE:-
This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos.-

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-130X-0	R-230X-01	R-330X-01	R-430X-01	R-530X-01
	R-230X-02	R-330X-02	R-430X-02	R-530X-02
R-130X-1	R-230X-1	R-330X-1	R-430X-1	R-530X-1
	R-230X-2	R-330X-2		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 30° SKEW

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 SLOPES.
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING No. W-X303-1

Designed By:- W.C.H. 5-13-63 Checked By:- [illegible] 8-13-63
Drawn By:- W.C.H. 7-26-63 Checked By:- [illegible]
Quantities By:- W.C.H. 1-7-64 Checked By:- DHT 7-15-64

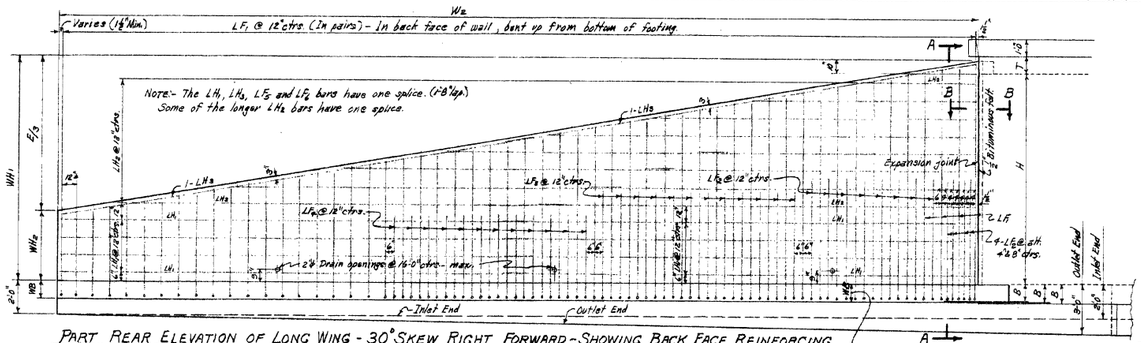
Reshot 3-8-93

396 ~~195~~

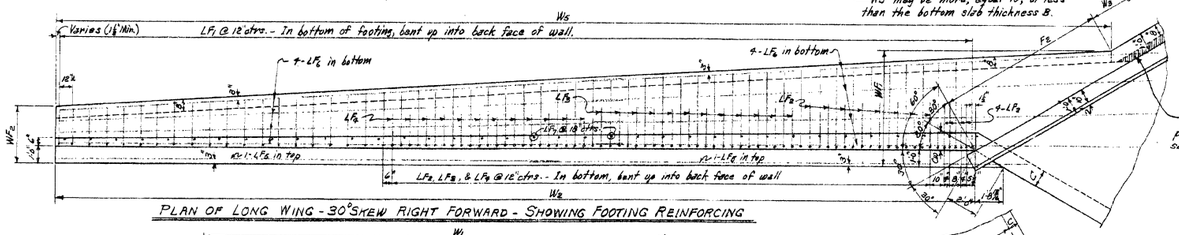
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			Sol	
JOB No.					

NOTE:- This drawing is to be used in conjunction with Standard Barrel Sections, Drawing Nos.-

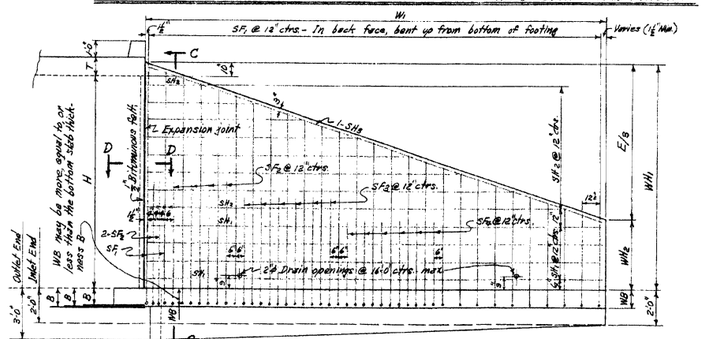
SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-130X-0	R-230X-01	R-330X-01	R-430X-01	R-530X-01
	R-230X-02	R-330X-02	R-430X-02	R-530X-02
R-130X-1	R-230X-1	R-330X-1	R-430X-1	R-530X-1
	R-230X-2	R-330X-2		



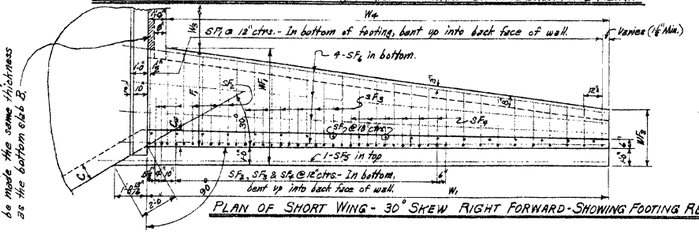
PART REAR ELEVATION OF LONG WING - 30° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING



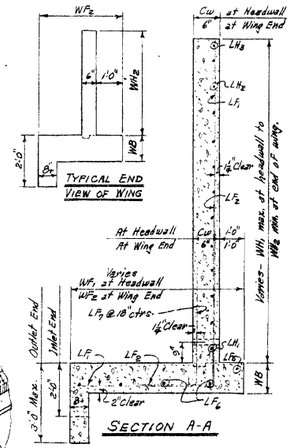
PLAN OF LONG WING - 30° SKEW RIGHT FORWARD - SHOWING FOOTING REINFORCING



REAR ELEVATION OF SHORT WING - 30° SKEW RIGHT FORWARD - SHOWING BACK FACE REINF.



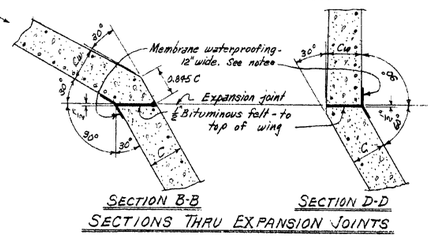
PLAN OF SHORT WING - 30° SKEW RIGHT FORWARD - SHOWING FOOTING REINF.



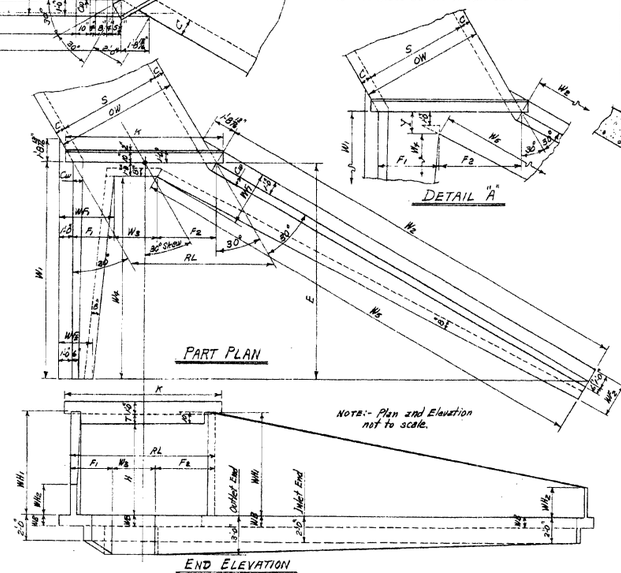
When B is more than WB, the shaded portion of the apron shall be made the same thickness as the bottom slab B.

TABLE "A" - DIMENSIONS FOR DETAIL "A".

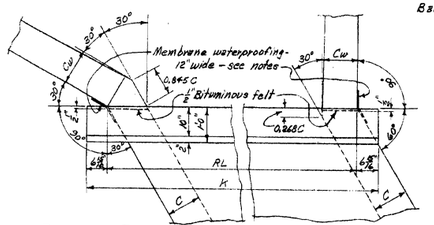
S	H	F1	F2	W3	Y	W4	W5
7'	8'	4'-1⅜"	5'-8¾"	0"	1'-5⅝"	18'-0⅝"	46'-2½"
8'	10'	4'-7⅝"	6'-6⅝"	0"	1'-6¾"	20'-11⅝"	53'-11"
9'	11'	5'-1⅞"	7'-5"	0"	1'-7⅞"	22'-10⅝"	58'-7⅝"
10'	11'	5'-2"	8'-4"	0"	1'-10⅝"	23'-5⅝"	55'-10"
10'	12'	5'-6⅝"	8'-3½"	0"	1'-8"	24'-10"	53'-6"
11'	12'	5'-7½"	9'-2⅝"	0"	1'-11⅝"	25'-9½"	60'-6½"



SECTIONS THRU EXPANSION JOINTS



SINGLE BARREL CULVERT - 30° SKEW RIGHT FORWARD
Details of Culvert with 30° Skew Left Forward is reversed, see Drawing No. W-X30.
TYPICAL WING DETAILS



DETAILS AT TOP OF WINGS - 30° SKEW RIGHT FORWARD

Note:-
For remainder of General Plans and Elevations of Single, Double, Triple, Quadruple and Quintuple Span Culverts, see Std. Drawing No. W-X30.
For values of RL, K and Ws for each box, see above Std. also.

REGULAR WING DIMENSIONS - 3:1 SLOPES

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT TOP	WINGWALL HEIGHTS AT HEADWALL	WINGWALL HEIGHTS AT END OF WING	WIDTHS OF WING FOOTINGS AT HEADWALL	WIDTHS OF WING FOOTINGS AT END OF WING	FOOTING DIMENSION PARALLEL WITH HEADWALL	PERPENDICULAR DIMENSION AT END OF WING	LENGTHS OF WINGWALLS		INSIDE FOOTING DIMENSIONS		* QUANTITY PER WING CLASS S CONCRETE			
													INLET END		OUTLET END	
H	WB	Cw	WH1	WH2	WF1	WF2	F1	F2	E		W1	W2	W3	W5	W3	W5
									SHORT WING	LONG WING	SHORT WING	LONG WING	SHORT WING	LONG WING	SHORT WING	LONG WING
													CU.YD.	CU.YD.	CU.YD.	CU.YD.
9'	10"	9"	8'-10"	8'-0"	5'-2"	2'-10½"	4'-2"	6'-7⅛"	20'-6"	20'-6"	41'-0"	19'-6"	46'-8¾"	6.339	18.125	6.598	13.701
10'	11"	10"	10'-10"	9'-8"	5'-8"	3'-0"	4'-5"	7'-1½"	22'-6"	22'-6"	45'-0"	21'-6"	51'-1"	8.085	16.781	8.369	17.367
11'	12"	11"	11'-10"	8'-8"	6'-2"	8'-1⅝"	5'-2"	8'-2⅝"	24'-6"	24'-6"	49'-0"	23'-6"	55'-11⅝"	10.137	20.967	10.445	21.663
12'	12"	12"	12'-10"	9'-0"	6'-8"	8'-9"	5'-8"	9'-2⅝"	26'-6"	26'-6"	53'-0"	26'-6"	60-3⅝"	12.520	25.885	12.853	26.641

* Quantity per wing does not include headwall or that portion of apron or stemwall for the length W3.
* See Table "A" for special values of F1 & F2 and W4 & W5 for Single 7'x8', 8'x10', 9'x11', 10'x11', 10'x12' and 11'x12' Box Culverts.

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	* STEEL - FOR 4 WINGS	CLASS S CONCRETE - 4 WINGS HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS					
					SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT	
S	H	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	
7'	9'	9"	10"	2823	40.26	42.29	44.21	46.15	48.08	
8'	9'	9"	10"	2823	40.61	42.79	44.96	47.15	49.32	
	10'	10"	11"	3594	51.09	53.69	55.66	57.87	60.08	
9'	9'	9"	10"	2823	40.86	43.31	45.71	48.18	50.55	
	10'	10"	11"	3594	51.97	53.98	56.40	58.87	61.33	
	11'	11"	12"	4286	63.77	66.93	69.91	71.91	73.88	
10'	9'	9"	10"	2823	41.11	43.89	46.48	49.11	51.78	
	10'	10"	11"	3594	51.72	54.95	57.15	59.85	62.57	
	11'	11"	12"	4286	64.19	66.94	69.67	72.90	75.14	
	12'	12"	13"	5394	78.98	81.95	84.21	86.96	89.73	
11'	9'	9"	10"	2823	41.36	44.36	47.26	50.15	——	
	10'	10"	11"	3594	51.97	54.99	57.91	60.86	——	
	11'	11"	12"	4286	64.44	67.46	70.43	73.41	——	
	12'	12"	13"	5394	78.99	81.97	84.98	87.99	——	
12'	9'	9"	10"	2823	41.62	44.90	48.06	51.23	——	
	10'	10"	11"	3594	52.28	55.53	58.71	61.90	——	
	11'	11"	12"	4286	64.70	68.00	71.19	74.42	——	
	12'	12"	13"	5394	79.20	82.50	85.74	89.01	——	

* For reinforcing steel in Headwalls and Aprons, see Drawing Nos. of Barrel Sections listed at top of sheet.

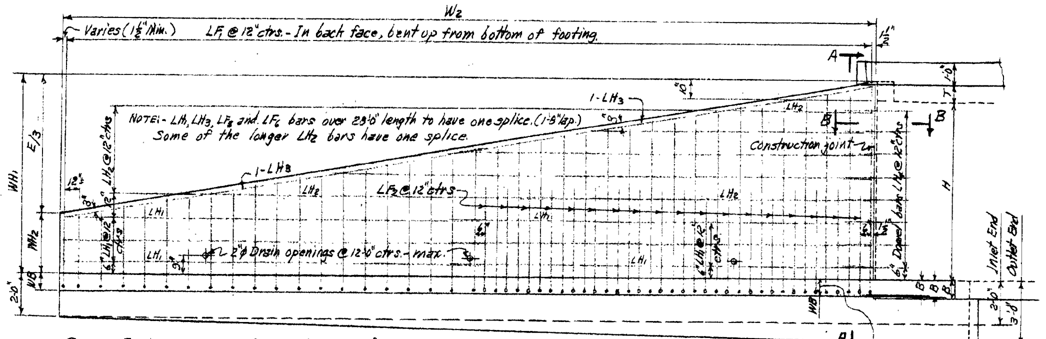
GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.
CONSTRUCTION JOINTS:- Construction joints between wingwalls, footings and sidewalls shall be only where shown on plans.
MEMBRANE:- A membrane waterproofing 12" wide, consisting of three moppings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the expansion joints.
Payment for the membrane waterproofing and bituminous felt shall be included in unit price bid for Class S Concrete.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.
UNIT STRESSES:-
Class S Concrete (n=10) 1200#/in²
Reinforcing Steel 20,000#/in²

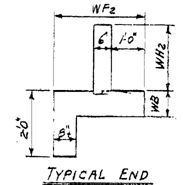
BAR LIST FOR ONE SHORT AND ONE LONG WING - 2 EACH REQUIRED

| CLEAR HEIGHT | WING LOCATION | SF1 & LF1 BENT: In bottom of footing, bent up into back face of wing. One bar (or two bars) of each length. | | | | | | SF2 & LF2 BENT: In bottom of footing, bent up into back face of wing. Alt. with F1 bars. | | | | | SF3 & LF3 BENT: In bottom of footing, bent up into back face of wing. Alt. with F1 bars. | | | | | SF4 & LF4 BENT: In bottom of footing, bent up into back face of wing. Alt. with F1 bars. | | | | | SF5 & LF5 STRAIGHT: Longitudinal in top of wing footing heel. | | | SF6 & LF6 STRAIGHT: Longitudinal in bottom of wing footing toe. | | | SF7 & LF7 BENT: Footing dowels extending up into front face of wing. | | | | SH1 & LH1 STRAIGHT: Horizontal in back face of wing. | | | | SH2 & LH2 STRAIGHT: Horizontal in back face of wing. One bar of each length.* | | | | SH3 & LH3 STRAIGHT: In back face of wing at top-on slope. | | | BAR BENDING DIAGRAMS | QUANTITY: REINFORCING STEEL PER WING - LBS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

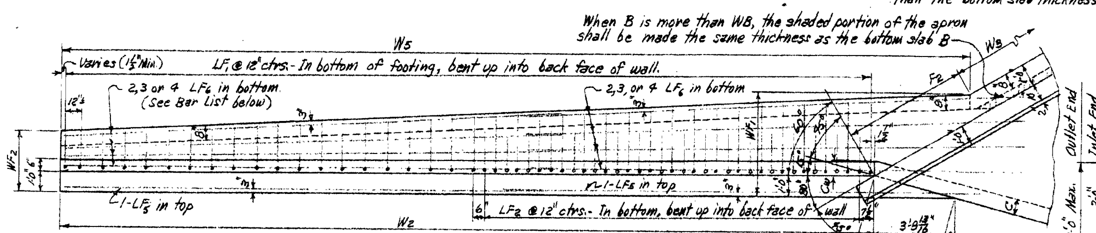
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			502	
JOB No.					



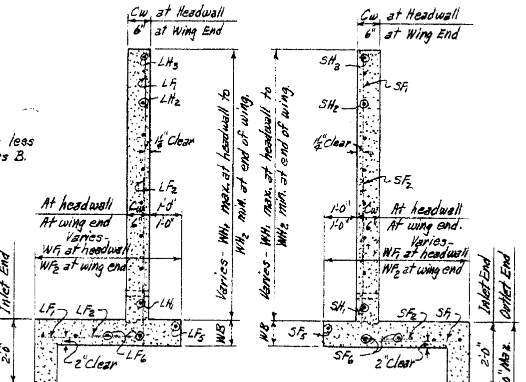
REAR ELEVATION OF LONG WING - 45° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING



TYPICAL END VIEW OF WING

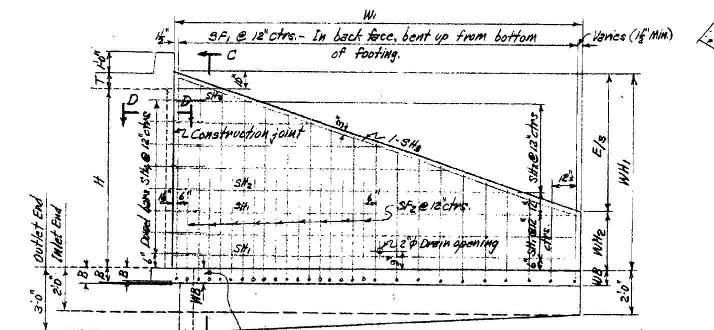


PLAN OF LONG WING - 45° SKEW RIGHT FORWARD - SHOWING FOOTING REINFORCING

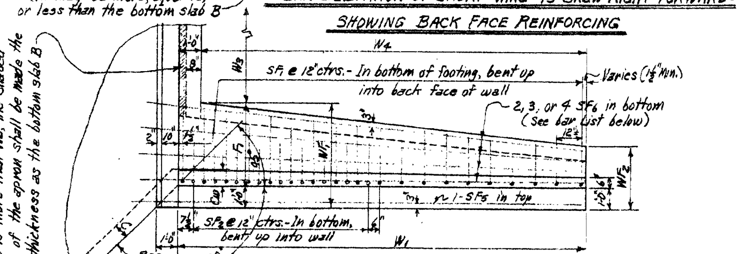


SECTION A-A

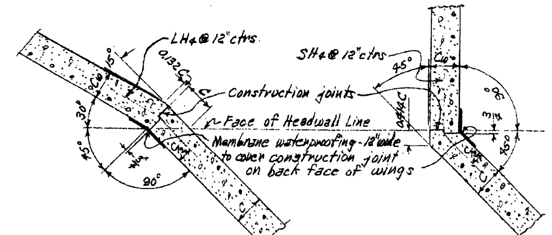
SECTION C-C



REAR ELEVATION OF SHORT WING - 45° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING



PLAN OF SHORT WING - 45° SKEW RIGHT FORWARD - SHOWING FOOTING REINFORCING

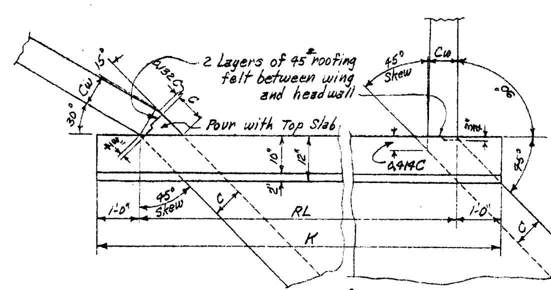


SECTION B-B

SECTION D-D

SECTIONS THRU CONSTRUCTION JOINTS

NOTE:- Payment for the membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.



DETAILS AT TOP OF WINGS - 45° SKEW RIGHT FORWARD

REGULAR WING DIMENSIONS - 3:1 SLOPES

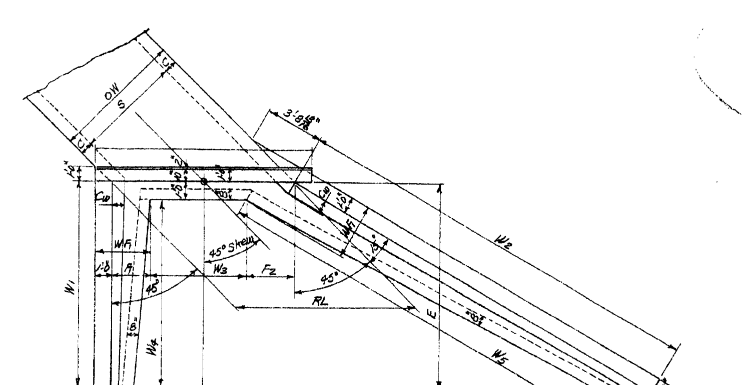
Clear Height of Box	Thickness of Wing Footing	Thickness of Wing at Hdwl. = C	Wingwall Heights: At Headwall	Wingwall Heights: At End of Wing	Widths of Wing Footings: At Headwall	Widths of Wing Footings: At End of Wing	Footing Dimension - Parallel with Headwall: Short Wing	Footing Dimension - Parallel with Headwall: Long Wing	Perpendicular Dist. from Hdwl. to End of Wing	Lengths of Wingwalls: Short Wing	Lengths of Wingwalls: Long Wing	Inside Footing Dimension: Short Wing	Inside Footing Dimension: Long Wing	* Quantity per Wing, Class S Concrete, Inlet End: Short Wing	Inlet End: Long Wing	Outlet End: Short Wing	Outlet End: Long Wing
H	WB	Cw	WH1	WH2	WF1	WF2	F1	F2	E	W1	W2	W4	W5	Cu.Yd.	Cu.Yd.	Cu.Yd.	Cu.Yd.
2'	7"	6"	2'-10"	0'-8"	2'-4"	2'-0"	1'-4"	0'-11¾"	6'-6"	6'-6"	13'-0"	5'-6"	13'-3¾"	0.743	1.572	0.827	1.741
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1½"	1'-8"	1'-7¾"	8'-6"	8'-6"	17'-0"	7'-6"	17'-10¾"	1.120	2.364	1.229	2.590
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	2'-0"	2'-3¾"	10'-6"	10'-6"	21'-0"	9'-6"	22'-5½"	1.567	3.295	1.700	3.577
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-4"	2'-11¾"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0½"	2.082	4.367	2.241	4.705
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-4"	2'-11¾"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0½"	2.166	4.551	2.325	4.889
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-7¾"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7½"	2.894	6.055	3.078	6.450
		7½"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-7¾"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7½"	2.952	6.180	3.135	6.575
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-7¾"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7½"	3.009	6.305	3.192	6.700
7'	8½"	7½"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-2"	4'-7½"	16'-6"	16'-6"	33'-0"	15'-6"	36'-5¾"	3.794	7.930	4.003	8.385
		8"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-2"	4'-7½"	16'-6"	16'-6"	33'-0"	15'-6"	36'-5¾"	3.870	8.093	4.078	8.598
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	5'-7¼"	18'-6"	18'-6"	37'-0"	17'-6"	41'-4¼"	4.855	10.136	5.088	10.651

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W_3.

QUANTITIES

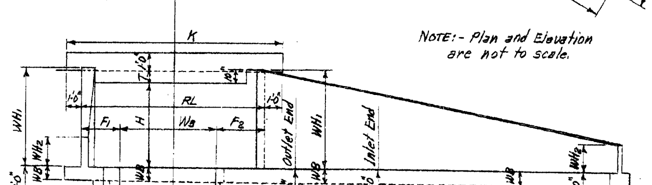
Clear Span	Clear Height	Thickness of Wing at Headwall	Thickness of Wing Footing	Reinforcing Steel ⊕ for 4 Wings	Class S Concrete - 4 Wings (Headwalls, Wingwalls, Footings, Toewalls and Aprons): Single Barrel Culvert	Double Barrel Culvert	Triple Barrel Culvert	Quadruple Barrel Culvert	Quintuple Barrel Culvert
S	H	Cw	WB	Lb.	Cu.Yd.	Cu.Yd.	Cu.Yd.	Cu.Yd.	Cu.Yd.
4'	2'	6"	7"	142	6.15	7.50	8.86	10.22	11.58
	3'	6"	7"	214	8.44	9.79	11.14	12.50	13.86
	4'	6"	7"	328	11.13	12.48	13.84	15.20	16.56
	5'	6"	7"	468	14.25	15.60	16.96	18.32	19.68
	6'	7"	8"	763	19.23	20.62	22.02	23.41	24.81
5'	3'	6"	7"	214	8.74	10.38	12.03	13.67	15.32
	4'	6"	7"	328	11.43	13.07	14.72	16.37	18.02
	5'	6"	7"	463	14.55	16.19	17.84	19.49	21.14
	6'	7"	8"	763	19.53	21.21	22.90	24.59	26.28
	7'	7½"	8½"	1475	24.98	26.69	28.41	30.14	31.86
6'	3'	6"	7"	214	9.03	10.99	12.91	14.86	16.79
	4'	6"	7"	328	11.73	13.69	15.60	17.56	19.48
	5'	6"	7"	463	14.85	16.80	18.72	20.68	22.60
	6'	7"	8"	763	19.83	21.82	23.79	25.78	27.76
	7'	7½"	8½"	1475	25.28	27.30	29.31	31.33	33.35
	8'	8"	9"	1872	31.70	33.74	35.75	37.79	39.81
7'	4'	6"	7"	328	12.04	14.31	16.54	18.81	21.02
	5'	6"	7"	463	15.15	17.43	19.65	21.93	24.13
	6'	7"	8"	763	20.14	22.44	24.69	26.99	29.24
	7'	7½"	8½"	1475	25.59	27.91	30.21	32.53	34.83
	8'	8"	9"	1872	32.02	34.35	36.66	38.99	41.31
8'	4'	6"	7"	328	12.35	14.95	17.49	20.08	22.57
	5'	7"	7"	463	16.05	18.67	21.24	23.86	26.37
	6'	7"	8"	763	20.45	23.07	25.64	28.26	30.77
	7'	7½"	8½"	1475	25.90	28.54	31.13	33.78	36.32
	8'	8"	9"	1872	32.33	34.97	37.56	40.21	42.80
9'	5'	7"	7"	463	16.37	19.32	22.18	25.02	27.91
	6'	7½"	8"	763	21.16	24.13	27.02	29.89	32.81
	7'	7½"	8½"	1475	26.21	29.18	32.08	34.94	37.86
	8'	8"	9"	1872	32.63	35.61	38.51	41.37	44.29
10'	5'	7"	7"	463	16.69	19.96	23.14	26.27	29.47
	6'	7½"	8"	763	21.48	24.77	27.99	31.13	34.36
	7'	7½"	8½"	1475	26.53	29.82	33.04	36.19	39.42
	8'	8"	9"	1872	32.95	36.25	39.46	42.62	45.85
11'	6'	8"	8"	763	22.18	25.83	29.35	32.84	——
	7'	8"	8½"	1475	27.39	30.99	34.51	38.01	——
	8'	8"	9"	1872	33.26	36.91	40.48	43.93	——
12'	6'	8"	8"	763	22.50	26.51	30.33	34.19	——
	7'	8"	8½"	1475	27.66	31.66	35.49	39.35	——
	8'	8"	9"	1872	33.58	37.58	41.41	45.27	——

⊕ For reinforcing steel in Headwalls and Aprons, see Drawing Nos. of Barrel Sections listed below.



PART PLAN

Note:- Plan and Elevation are not to scale.



END ELEVATION

SINGLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

Details of Culvert with 45° Skew Left Forward is reversed, see Drawing No. W-X45.

TYPICAL WING DETAILS

NOTE:-
For remainder of General Plans and Elevations of Single, Double, Triple, Quadruple and Quintuple Span Culverts, see Std. Drawing No. W-X45.
For values of RL, K and W_3 for each box, see above Std. also.

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three moppings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints in wings.

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

NOTE:-
This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos.-

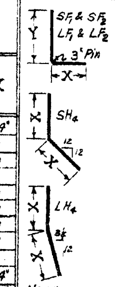
SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-145X-0	R-245X-01	R-345X-01	R-445X-01	R-545X-01
	R-245X-02	R-345X-02	R-445X-02	R-545X-02
R-145X-1	R-245X-1	R-345X-1	R-445X-1	
	R-245X-2	R-345X-2		

BAR LIST FOR ONE SHORT AND ONE LONG WING - 2 EACH REQUIRED

Clear Height	Wing Location	SF1 & LF1 (Bent; in bottom of footing, bent up into back face of wing. One bar (or two bars) of each length.): Size	Spacing	No. Req'd	Lengths Vary: Min.	Lengths Vary: Max.	X Min.	X Max.	Y Min.	Y Max.	SF2 & LF2 (Bent; in bottom of footing, bent up into back face of wing. Alt. with F1 bars): Size	Spacing	No. Req'd	Length	X	Y	SF5 & LF5 (Straight; longitudinal in top of wing footing heel): Size	No. Req'd	Length	SF6 & LF6 (Straight; longitudinal in bottom of wing footing toe): Size	No. Req'd	Length
H	Short or Long																					
2'	Short	#3	12"	7	1'-7"	3'-11"	0'-8"	1'-0"	1'-0"	3'-0"	—	—	—	—	—	—	#3	1	8'-4"	#3	2	8'-0"
	Long	#3	12"	14	1'-5"	3'-11"	0'-8"	1'-0"	0'-10"	3'-0"	—	—	—	—	—	—	#3	1	17'-6"	#3	2	15'-6"
3'	Short	#3	12"	9	2'-1"	5'-3"	0'-10"	1'-4"	1'-4"	4'-0"	—	—	—	—	—	—	#3	1	10'-4"	#3	2	10'-0"
	Long	#3	12"	18	1'-11"	5'-3"	0'-10"	1'-4"	1'-2"	4'-0"	—	—	—	—	—	—	#3	1	21'-6"	#3	2	20'-2"
4'	Short	#3	12"	11	2'-6"	6'-7"	0'-11"	1'-8"	1'-8"	5'-0"	—	—	—	—	—	—	#3	1	12'-4"	#3	3	12'-0"
	Long	#3	12"	22	2'-4"	6'-6"	0'-11"	1'-7"	1'-6"	5'-0"	—	—	—	—	—	—	#3	1	25'-6"	#3	3	24'-0"
5'	Short	#3	12"	13	2'-11"	7'-11"	1'-0"	2'-0"	2'-0"	6'-0"	#3	12"	3	3'-6"	1'-1"	2'-6"	#3	1	14'-4"	#3	3	14'-0"
	Long	#3	12"	26	2'-9"	7'-10"	1'-0"	1'-11"	1'-10"	6'-0"	#3	12"	6	3'-6"	1'-1"	2'-6"	#3	2	15'-8"	#3	6	15'-7"
6'	Short	#4	12"	15	3'-6"	9'-4"	1'-2"	2'-4"	2'-5"	7'-1"	#3	12"	3	4'-6"	1'-4"	3'-3"	#3	1	16'-4"	#3	3	16'-0"
	Long	#4	12"	30	3'-4"	9'-3"	1'-2"	2'-3"	2'-3"	7'-1"	#3	12"	6	4'-6"	1'-4"	3'-3"	#3	2	17'-8"	#3	6	18'-0"
7'	Short	#4	12"	17	3'-11"	10'-10"	1'-3"	2'-10"	2'-9"	8'-1"	#4	12"	6	5'-6"	1'-7"	4'-0"	#4	1	18'-4"	#4	4	18'-0"
	Long	#4	12"	34	3'-9"	10'-8"	1'-3"	2'-8"	2'-7"	8'-1"	#4	12"	12	5'-6"	1'-7"	4'-0"	#4	2	19'-8"	#4	8	20'-4"
8'	Short	#4	12"	19	4'-6"	12'-5"	1'-5"	3'-4"	3'-2"	9'-2"	#4	12"	9	6'-6"	1'-10"	4'-9"	#4	1	20'-4"	#4	4	20'-0"
	Long	#4	12"	38	4'-4"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	18	6'-6"	1'-10"	4'-9"	#4	2	21'-8"	#4	8	22'-9"

Clear Height	Wing Location	SH1 & LH1 (Straight; horizontal in back face of wing): Size	Spacing	No. Req'd	Length	SH2 & LH2 (Straight; horizontal in back face of wing. One bar of each length. ✱): Size	Spacing	No. Req'd	Lengths Vary: Max.	Lengths Vary: Min.	SH3 & LH3 (In back face of wing at top - on slope): Size	No. Req'd	Length	SH4 & LH4 (Bent; dowels thru construction joint at headwall): Size	Spacing	No. Req'd	Length	X	Quantity - Reinforcing Steel per Wing - Lbs.: Short Wing	Long Wing
H	Short or Long																			
2'	Short	#3	12"	1	6'-3"	#3	12"	1	—	3'-3"	#3	1	6'-7"	#3	12"	2	2'-8"	1'-4"	29.4	46.3
	Long	#3	12"	1	12'-8"	#3	12"	1	—	6'-6"	#3	1	12'-11"	#3	12"	2	"	"		
3'	Short	#3	12"	1	8'-3"	#3	12"	2	6'-3"	3'-3"	#3	1	8'-8"	#3	12"	3	"	"	36.8	70.3
	Long	#3	12"	1	16'-8"	#3	12"	2	12'-6"	6'-6"	#3	1	16'-11"	#3	12"	3	"	"		
4'	Short	#3	12"	1	10'-3"	#3	12"	3	9'-3"	3'-3"	#3	1	10'-9"	#3	12"	4	"	"	55.9	107.9
	Long	#3	12"	1	20'-8"	#3	12"	3	18'-6"	6'-6"	#3	1	21'-0"	#3	12"	4	"	"		
5'	Short	#3	12"	2	12'-3"	#3	12"	3	9'-3"	3'-3"	#3	1	12'-11"	#3	12"	5	"	"	72.7	153.7
	Long	#3	12"	2	24'-8"	#3	12"	3	18'-6"	6'-6"	#3	1	25'-1"	#3	12"	5	"	"		
6'	Short	#3	12"	2	14'-9"	#3	12"	4	12'-3"	3'-3"	#3	1	15'-0"	#3	12"	6	"	"	127.6	253.9
	Long	#3	12"	4	15'-2"	#3	12"	4	24'-6"	6'-6"	#3	2	15'-5"	#3	12"	6	2'-8"	1'-4"		
7'	Short	#4	12"	2	16'-3"	#4	12"	5	15'-3"	3'-3"	#4	1	17'-1"	#4	12"	7	3'-6"	1'-9"	246.5	491.1
	Long	#4	12"	4	17'-2"	#4	12"	5	✱30'-6"	6'-6"	#4	2	17'-5"	#4	12"	7	"	"		
8'	Short	#4	12"	3	19'-3"	#4	12"	5	15'-3"	3'-3"	#4	1	19'-3"	#4	12"	8	"	"	312.5	623.6
	Long	#4	12"	6	19'-2"	#4	12"	5	✱30'-6"	6'-6"	#4	2	19'-6"	#4	12"	8	3'-6"	1'-9"		

BAR BENDING DIAGRAM



NOTE:- Dimensions are to bar centers.

NOTE:- Bars for short wing shall be marked with prefix letter "S", while those for long wing shall be marked with letter "L".

✱ Length without splice. Bars over 28'-0" length may be spliced. (1'-8" lap)

REVISIONS:- Membrane Added. 5-10-66 W.C.H.

Designed By- W.C.H. 5-13-63 Checked By- J.S.M. 7-21-64
Drawn By- W.C.H. 6-5-64 Checked By- J.S.M. 7-21-64
Quantities By- W.C.H. 7-2-64 Checked By- J.S.M. 7-21-64

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

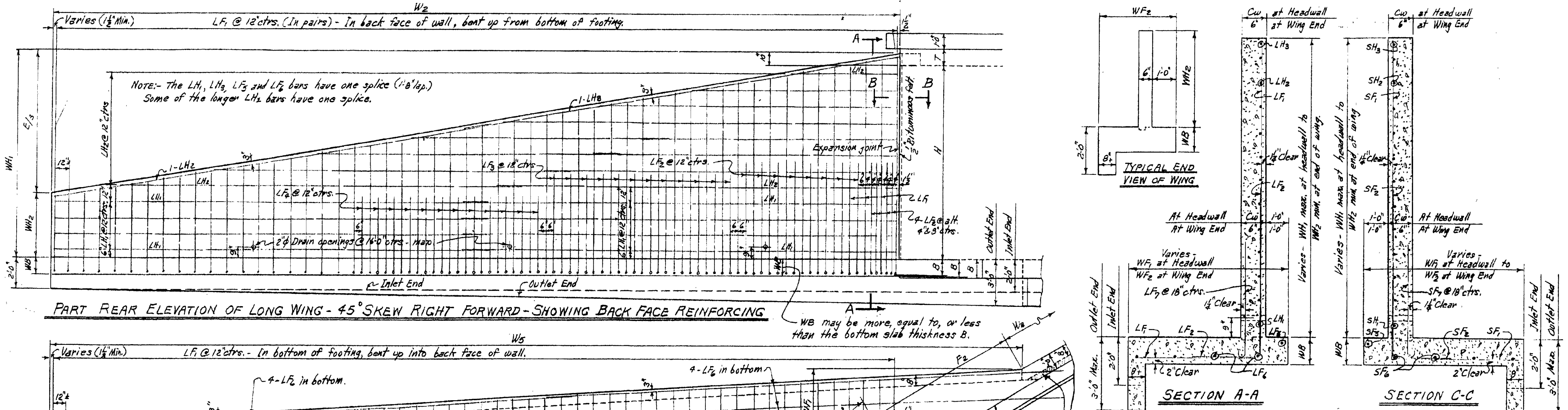
DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 45° SKEW

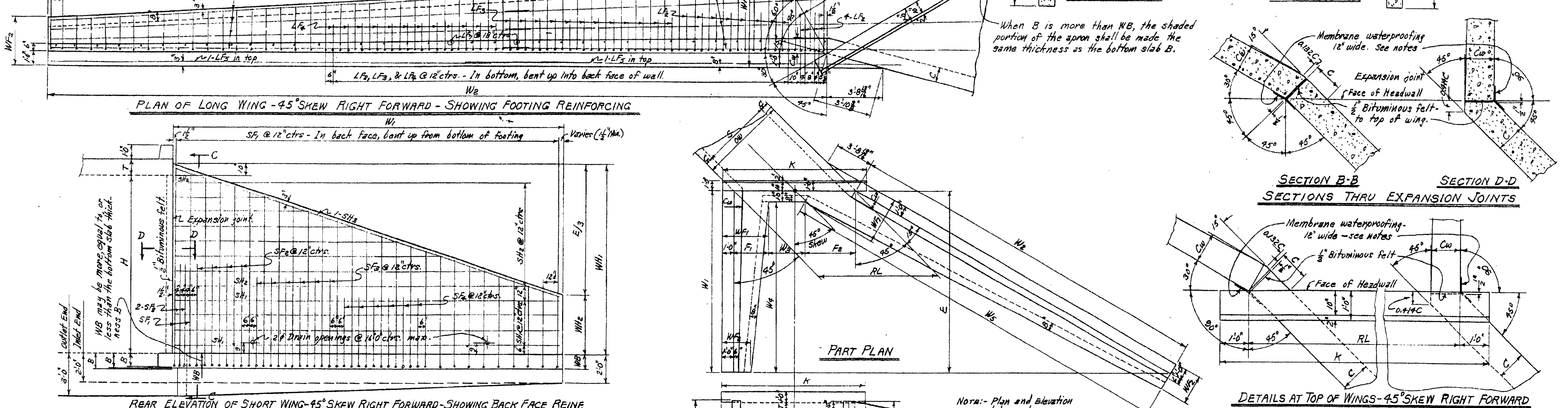
4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 SLOPES

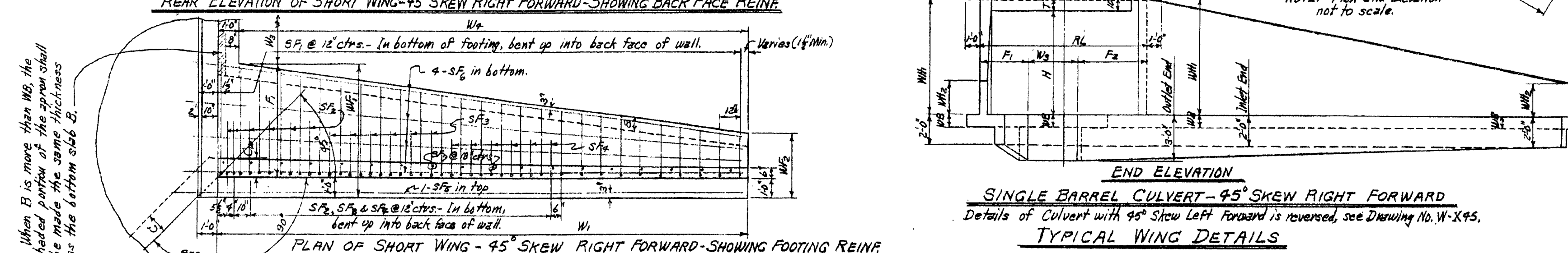
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING No. W-X453-1

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			503	
JOB No.					







SINGLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

Details of Culvert with 45° Skew Left Forward is reversed, see Drawing No. W-X45.

TYPICAL WING DETAILS

REGULAR WING DIMENSIONS - 3:1 SLOPES

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HDWL = C	WINGWALL HEIGHTS AT HEADWALL	WINGWALL HEIGHTS AT END OF WING	WIDTHS OF WING FOOTINGS AT HEADWALL	WIDTHS OF WING FOOTINGS AT END OF WING	FOOTING DIMENSION PARALLEL WITH HEADWALL SHORT WING	FOOTING DIMENSION PARALLEL WITH HEADWALL LONG WING	PERPENDICULAR DIST. FROM HDWL TO END OF WING	LENGTHS OF WINGWALLS SHORT WING	LENGTHS OF WINGWALLS LONG WING	INSIDE FOOTING DIMENSIONS SHORT WING	INSIDE FOOTING DIMENSIONS LONG WING	* QUANTITY PER WING CLASS S CONCRETE INLET END SHORT WING	INLET END LONG WING	OUTLET END SHORT WING	OUTLET END LONG WING
H	WB	Cw	WH1	WH2	WF1	WF2	F1	F2	E	W1	W2	W4	W5	CU.YD.	CU.YD.	CU.YD.	CU.YD.
9'	10"	9"	9'-10"	3'-0"	5'-2"	2'-10½"	4'-2"	6'-7¼"	20'-6"	20'-6"	41'-0"	19'-6"	46'-2½"	6.316	13.172	6.574	13.747
10'	11"	10"	10'-10"	3'-4"	5'-8"	3'-0"	4'-8"	7'-7¼"	22'-6"	22'-6"	45'-0"	21'-6"	51'-1"	8.056	16.786	8.339	17.422
11'	12"	11"	11'-10"	3'-8"	6'-2"	3'-1½"	5'-2"	8'-7¼"	24'-6"	24'-6"	49'-0"	23'-6"	55'-11½"	10.101	21.031	10.409	21.728
12'	13"	12"	12'-10"	4'-0"	6'-8"	3'-3"	5'-8"	9'-7¼"	26'-6"	26'-6"	53'-0"	25'-6"	60'-9¾"	12.476	25.961	12.810	26.717

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W_3.

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL ⊕ FOR 4 WINGS	CLASS S CONCRETE - 4 WINGS (HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS) SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
S	H	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
7'	9'	9"	10"	2831	40.92	43.30	45.66	48.03	50.40
8'	9'	9"	10"	2831	41.23	43.91	46.57	49.25	51.91
	10'	10"	11"	3546	51.85	54.58	57.29	60.02	62.73
9'	9'	9"	10"	2831	41.55	44.54	47.48	50.44	53.42
	10'	10"	11"	3546	52.17	55.20	58.21	61.22	64.25
	11'	11"	12"	4282	64.65	67.71	70.75	73.80	76.85
10'	9'	9"	10"	2831	41.86	45.18	48.42	51.65	54.92
	10'	10"	11"	3546	52.48	55.79	59.13	62.44	65.77
	11'	11"	12"	4282	64.97	68.33	71.68	75.03	78.39
	12'	12"	13"	5395	79.49	82.88	86.26	89.63	93.03
11'	9'	9"	10"	2831	42.16	45.84	49.39	52.92	—
	10'	10"	11"	3546	52.79	56.48	60.06	63.67	—
	11'	11"	12"	4282	65.28	68.97	72.61	76.26	—
	12'	12"	13"	5395	79.79	83.51	87.19	90.88	—
12'	9'	9"	10"	2831	42.48	46.51	50.37	54.25	—
	10'	10"	11"	3546	53.10	57.15	61.04	64.95	—
	11'	11"	12"	4282	65.59	69.64	73.54	77.50	—
	12'	12"	13"	5395	80.11	84.16	88.13	92.18	—

⊕ For reinforcing steel in Headwalls and Aprons, see Drawing Nos. of Barrel Sections listed at left below.

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, footings and sidewalls shall be only where shown on plans.

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three moppings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the expansion joints.

Payment for the membrane waterproofing and bituminous felt shall be included in unit price bid for Class S Concrete.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

UNIT STRESSES:-

Class S Concrete (n=10) 1200#/☐"
Reinforcing Steel 20,000#/☐"

NOTE:-
This drawing to be used in conjunction with standard Barrel Sections, Drawing Nos.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-145X-0	R-245X-01	R-345X-01	R-445X-01	R-545X-01
	R-245X-02	R-345X-02	R-445X-02	R-545X-02
R-145X-1	R-245X-1	R-345X-1	R-445X-1	
	R-245X-2	R-345X-2		

NOTE:-
For remainder of General Plans and Elevations of Single, Double, Triple, Quadruple and Quintuple span Culverts, see std. Drawing No. W-X45.
For values of RL, K and W_3 for each box, see above std. also.

BAR LIST FOR ONE SHORT AND ONE LONG WING - 2 EACH REQUIRED

SF1 & LF1 (Bent): In bottom of footing, bent up into back face of wing. One bar (or two bars) of each length.
SF2 & LF2, SF3 & LF3, SF4 & LF4 (Bent): In bottom of footing, bent up into back face of wing. Alt. with F1 bars.

H	SHORT OR LONG	SF1&LF1 SIZE	SPACING	No. REQ'D	LENGTHS VARY MIN.	LENGTHS VARY MAX.	X MIN.	X MAX.	Y MIN.	Y MAX.	SF2&LF2 SIZE	SPACING ⊙	No. REQ'D	LENGTH	X	Y	SF3&LF3 SIZE	SPACING	No. REQ'D	LENGTH	X	Y	SF4&LF4 SIZE	SPACING	No. REQ'D	LENGTH	X	Y
9'	Short	#5	12"	21	5'-0"	14'-0"	1'-6"	3'-10"	3'-7"	10'-3"	#5	12"	3	7'-6"	2'-1"	5'-6"	#4	12"	6	6'-6"	1'-10"	4'-9"	—	—	—	—	—	—
	Long	#5	12"	42	4'-10"	13'-9"	1'-6"	3'-7"	3'-5"	10'-3"	#5	12"	6	7'-6"	2'-1"	5'-6"	#4	12"	12	6'-6"	1'-10"	4'-9"	—	—	—	—	—	—
10'	Short	#5	12"	23	5'-7"	15'-7"	1'-8"	4'-4"	4'-0"	11'-4"	#6	12"	3	8'-6"	2'-4"	6'-3"	#5	12"	3	7'-6"	2'-1"	5'-6"	#4	12"	6	6'-6"	1'-10"	4'-9"
	Long	#5	12"	46	5'-5"	15'-4"	1'-8"	4'-1"	3'-10"	11'-4"	#6	12"	6	8'-6"	2'-4"	6'-3"	#5	12"	6	7'-6"	2'-1"	5'-6"	#4	12"	12	6'-6"	1'-10"	4'-9"
11'	Short	#5	12"	25	6'-1"	17'-2"	1'-9"	4'-10"	4'-5"	12'-5"	#6	12"	6	8'-6"	2'-4"	6'-3"	#5	12"	3	7'-6"	2'-1"	5'-6"	#4	12"	6	6'-6"	1'-10"	4'-9"
	Long	#5	12"	50	5'-11"	16'-10"	1'-9"	4'-6"	4'-3"	12'-5"	#6	12"	12	8'-6"	2'-4"	6'-3"	#5	12"	6	7'-6"	2'-1"	5'-6"	#4	12"	12	6'-6"	1'-10"	4'-9"
12'	Short	#5	12"	27	6'-8"	18'-9"	1'-11"	5'-4"	4'-10"	13'-6"	#7	12"	6	9'-6"	2'-7"	7'-0"	#6	12"	6	8'-6"	2'-4"	6'-3"	#4	12"	6	6'-6"	1'-10"	4'-9"
	Long	#5	12"	54	6'-6"	18'-4"	1'-11"	4'-11"	4'-8"	13'-6"	#7	12"	12	9'-6"	2'-7"	7'-0"	#6	12"	12	8'-6"	2'-4"	6'-3"	#4	12"	12	6'-6"	1'-10"	4'-9"

SF5 & LF5 (Straight): Longitudinal in top of wing footing heel. SF6 & LF6 (Straight): Longitudinal in bottom of wing footing toe. SF7 & LF7 (Bent): Footing dowels extending up into front face of wing. SH1 & LH1 (Straight): Horizontal in back face of wing. SH2 & LH2 (Straight): Horizontal in back face of wing. One bar of each length.* SH3 & LH3: In back face of wing at top - on slope.

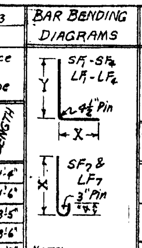
H	SHORT OR LONG	SF5&LF5 SIZE	No. REQ'D	LENGTH	SF6&LF6 SIZE	No. REQ'D	LENGTH	SF7&LF7 SIZE	SPACING	No. REQ'D	LENGTH	X	SH1&LH1 SIZE	SPACING	No. REQ'D	LENGTH	SH2&LH2 SIZE	SPACING	No. REQ'D	LENGTHS VARY MAX.	LENGTHS VARY MIN.	SH3&LH3 SIZE	No. REQ'D	LENGTH	QUANTITY REINFORCING STEEL PER WING - LBS. SHORT WING	LONG WING
9'	Short	#4	1	22'-4"	#4	4	22'-0"	#4	18"	14	4'-0"	3'-6"	#4	12"	3	20'-3"	#4	12"	6	18'-3"	3'-3"	#4	1	21'-4"	466.6	949.0
	Long	#4	2	23'-8"	#4	8	25'-2"	#4	18"	28	4'-0"	3'-6"	#4	12"	6	21'-2"	#4	12"	6	*36'-6"	6'-6"	#4	2	21'-6"		
10'	Short	#4	1	24'-4"	#4	4	24'-0"	#4	18"	16	4'-4"	3'-10"	#4	12"	3	22'-3"	#4	12"	7	21'-3"	3'-3"	#4	1	23'-5"	586.0	1187.0
	Long	#4	2	25'-8"	#4	8	27'-7"	#4	18"	31	4'-4"	3'-10"	#4	12"	6	23'-2"	#4	12"	7	*42'-6"	6'-6"	#4	2	23'-6"		
11'	Short	#4	1	26'-4"	#4	4	26'-0"	#4	18"	17	4'-8"	4'-2"	#4	12"	4	24'-3"	#4	12"	7	21'-3"	3'-3"	#4	1	25'-7"	708.5	1482.6
	Long	#4	2	27'-8"	#4	8	30'-1"	#4	18"	33	4'-8"	4'-2"	#4	12"	8	25'-2"	#4	12"	7	*42'-6"	6'-6"	#4	2	25'-7"		
12'	Short	#4	1	28'-4"	#4	4	28'-0"	#4	18"	18	5'-0"	4'-6"	#4	12"	4	26'-3"	#4	12"	8	24'-3"	3'-3"	#4	1	27'-8"	893.0	1809.7
	Long	#4	2	29'-8"	#4	8	32'-6"	#4	18"	36	5'-0"	4'-6"	#4	12"	8	27'-2"	#4	12"	8	*48'-6"	6'-6"	#4	2	27'-7"		

NOTE:- Bars for short wing to be marked with prefix letter "S", while those for long wing shall be marked with letter "L".

⊙ Except as shown at headwall.

* Lengths without splice. Bars over 28'-0" length may be spliced (1'-8" lap). Quantities include laps for LH_2 bars over 28'-0" length.

BAR BENDING DIAGRAMS



NOTE:- Dimensions are to bar centers.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 45° SKEW

7', 8', 9', 10', 11' & 12' SPANS
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES.
3:1 SLOPES
ALL DEPTHS OF COVER FOR H = 9'-0" & OVER

STANDARD DRAWING No. W-X453-2

Designed By:- W.C.H. 5-16-63
Drawn By:- W.C.H. 6-8-64
Quantities By:- W.C.H. 7-7-64
Checked By:- J.E.M. 7-20-64
Checked By:- J.E.M. 7-21-64

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	504	888

(2) CROSS SECTIONS

LT. LANES STA. 485+10.00
BEGIN SP. DITCH LT. 4.35%
ELEV. = 442.26

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =329 SQ. FT.
ST. 2 AREA CUT =0 SQ. FT.
ST. 2 AREA FILL =0 SQ. FT.

EXIST. R/W

442.96 447.06 454.27 454.32 454.40 453.99 448.96 447.58

2:1 GR 0.3% GR 4.0% 4:1 5.8 FT.

STA. 485+17.50 BEGIN SUPERELEVATION RT. (0.0294'/')

ST. 1 VOL. CUT =0 CU. YD.
ST. 1 VOL. FILL =91 CU. YD.
ST. 2 VOL. CUT =0 CU. YD.
ST. 2 VOL. FILL =0 CU. YD.

485+00.00

STA. 484+25.00
BEGIN SP. DITCH MED. -0.25%
ELEV. = 449.15

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =163 SQ. FT.
ST. 2 AREA CUT =0 SQ. FT.
ST. 2 AREA FILL =0 SQ. FT.

EXIST. R/W

447.38 455.61 456.07 456.59 456.21 449.79 449.71

2:1 GR 4.0% 2.0% 4.0% GR 3:1

ST. 1 VOL. CUT =208 CU. YD.
ST. 1 VOL. FILL =130 CU. YD.
ST. 2 VOL. CUT =0 CU. YD.
ST. 2 VOL. FILL =0 CU. YD.

484+00.00

STA. 484+00.11 BEGIN SUPERELEVATION LT.

END BRIDGE STA. 483+89.08
BRIDGE TOE OF SLOPE STA. 483+75.45

BRIDGE TOE OF SLOPE STA. 480+89.74
BEGIN BRIDGE STA. 480+71.92

ST. 1 AREA CUT =30 SQ. FT.
ST. 1 AREA FILL =0 SQ. FT.
ST. 2 AREA CUT =0 SQ. FT.
ST. 2 AREA FILL =0 SQ. FT.

EXIST. R/W

470.56 468.77 470.22 470.44 470.96 470.72 469.53 462.20

4:1 3:1 GR 2.0% 4.0% 5:1

ST. 1 VOL. CUT =0 CU. YD.
ST. 1 VOL. FILL =0 CU. YD.
ST. 2 VOL. CUT =0 CU. YD.
ST. 2 VOL. FILL =0 CU. YD.

EXIST. R/W

480+25.20

STA. 480+25.20 - BEGIN JOB CA0610

STA. 480+25 TO STA. 485+00

Leonard.Speed 9/23/2016 11:22:28 AM
WORKSPACE: Leonard.Speed
c:\Users\Leonard.Speed\Documents\Projects\Leonard.speed\d0211744\rCA0606.21.CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

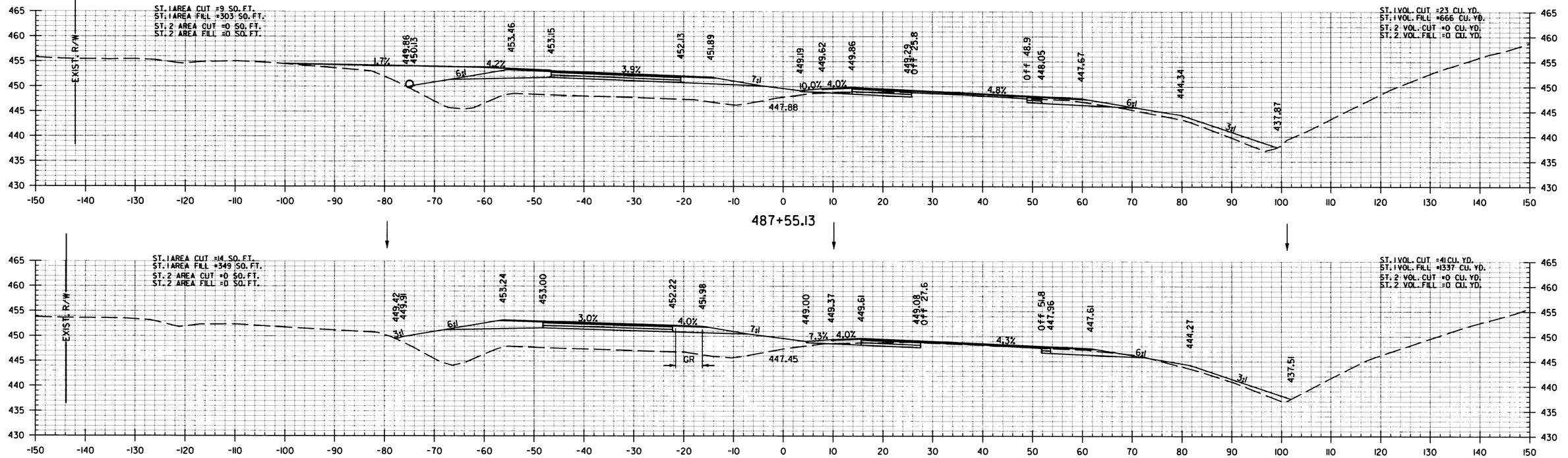
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	505	888

(2) CROSS SECTIONS

STA. 487+55.13 INSTALL
18"X 44' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH
ON LT. =
105 CU YDS.



STA. 486+00 TO STA. 487+55

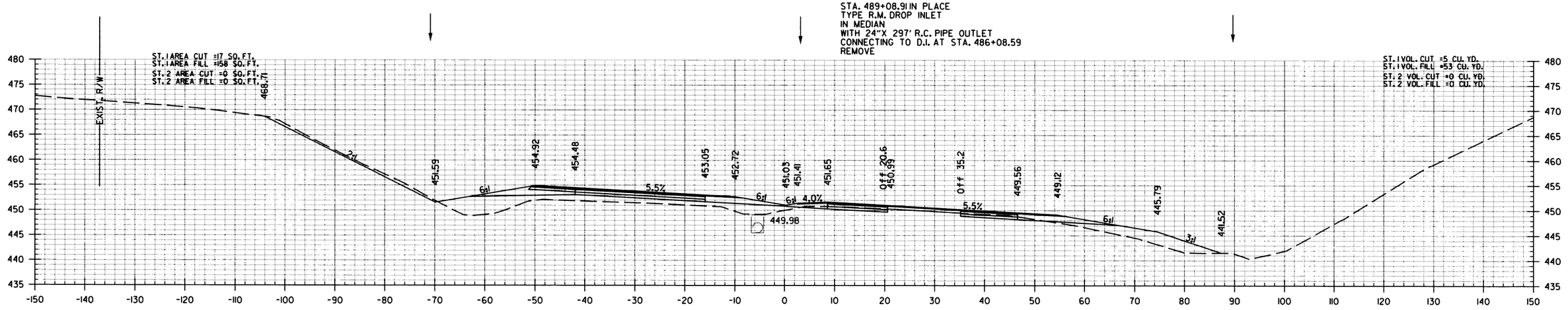
Leonard.Speed 9/23/2016 11:22:28 AM
WORKSPACE: Leonard.Speed
CONTENTS: Leonard.Speed
REVISED DATE: ##REVDATE##

C:\Users\leonard.speed\Projects\leonard.speed\d0271741\r_CA0606_21_CX_MAIN_001.dgn

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	506	888

(2) CROSS SECTIONS



STA. 488+00 TO STA. 489+09

Leonard.Speed 9/23/2016 11:22:29 AM
WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

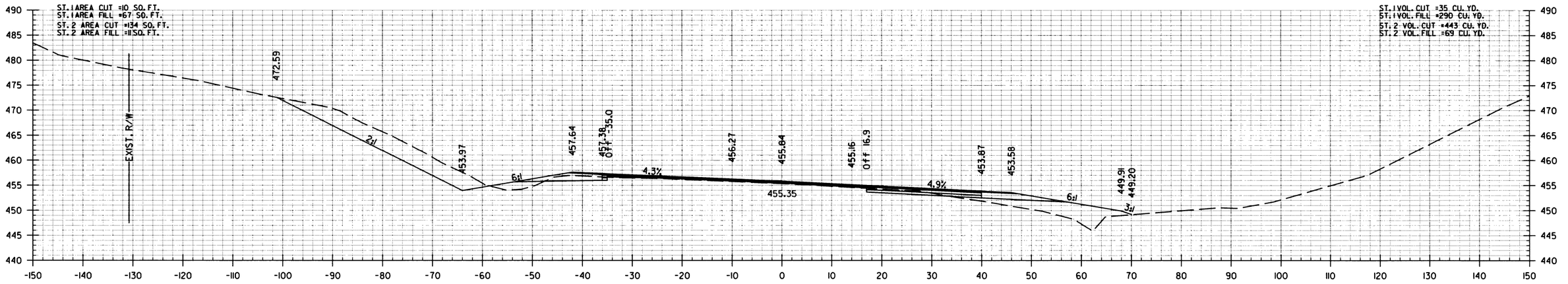
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

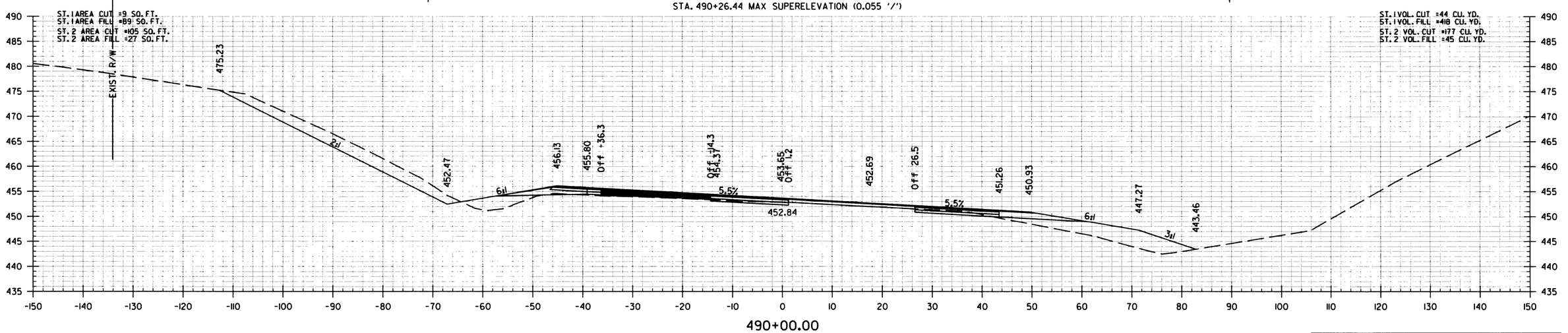
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	507	888

(2) CROSS SECTIONS

STA. 491+17.08
BEGIN SP. DITCH RT. 2.23%
ELEV. = 450.44



STA. 490+26.44 MAX SUPERELEVATION (0.055 '/')



STA. 490+00 TO STA. 491+00

LeonardSpeed 9/23/2016 11:22:29 AM
Workspace: Civil 3D Default
C:\Users\jbrown\Michael Baker International\Projects\Leonard Speed\d0217744\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	508	888
				(2)	CROSS SECTIONS			

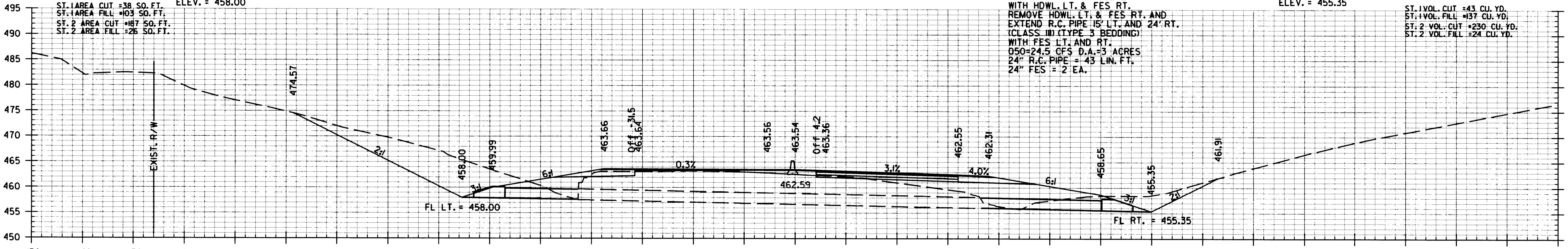
STA. 493+37.60
END SP. DITCH LT. -2.41%
BEGIN SP. DITCH LT. 4.24%
ELEV. = 458.00

STA. 493+37.60 IN PLACE
24"X 79' R.C. PIPE CULVERT
WITH HDWL. LT. & FES RT.
REMOVE HDWL. LT. & FES RT. AND
EXTEND R.C. PIPE 15' LT. AND 24' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=24.5 CFS D.A.=3 ACRES
24" R.C. PIPE = 43 LIN. FT.
24" FES = 2 EA.

STA. 493+37.60
END SP. DITCH RT. 2.23%
BEGIN SP. DITCH RT. 3.55%
ELEV. = 455.35

ST.1 AREA CUT =38 SQ. FT.
ST.1 AREA FILL =103 SQ. FT.
ST.2 AREA CUT =187 SQ. FT.
ST.2 AREA FILL =26 SQ. FT.

ST.1 VOL. CUT =43 CU. YD.
ST.1 VOL. FILL =137 CU. YD.
ST.2 VOL. CUT =230 CU. YD.
ST.2 VOL. FILL =24 CU. YD.

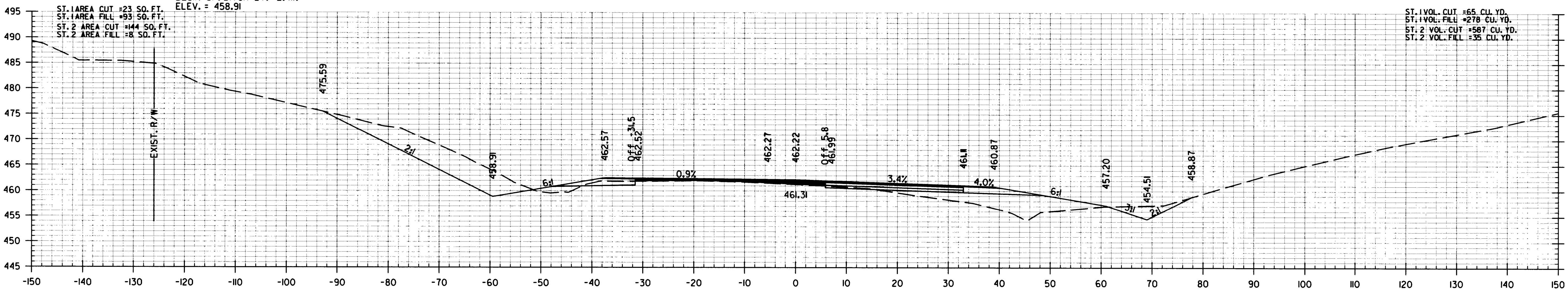


493+37.60

STA. 493+00.00
BEGIN SP. DITCH LT. -2.41%
ELEV. = 458.91

ST.1 AREA CUT =23 SQ. FT.
ST.1 AREA FILL =93 SQ. FT.
ST.2 AREA CUT =144 SQ. FT.
ST.2 AREA FILL =8 SQ. FT.

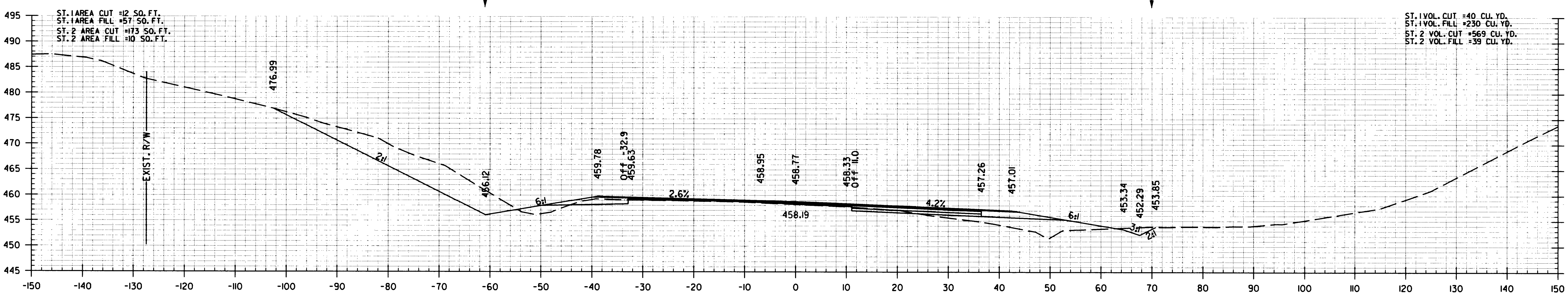
ST.1 VOL. CUT =65 CU. YD.
ST.1 VOL. FILL =278 CU. YD.
ST.2 VOL. CUT =587 CU. YD.
ST.2 VOL. FILL =35 CU. YD.



493+00.00

ST.1 AREA CUT =12 SQ. FT.
ST.1 AREA FILL =57 SQ. FT.
ST.2 AREA CUT =173 SQ. FT.
ST.2 AREA FILL =10 SQ. FT.

ST.1 VOL. CUT =40 CU. YD.
ST.1 VOL. FILL =230 CU. YD.
ST.2 VOL. CUT =569 CU. YD.
ST.2 VOL. FILL =39 CU. YD.



492+00.00

STA. 492+00 TO STA. 493+38

Leonard.Speed 9/23/2016 11:22:30 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0217474\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

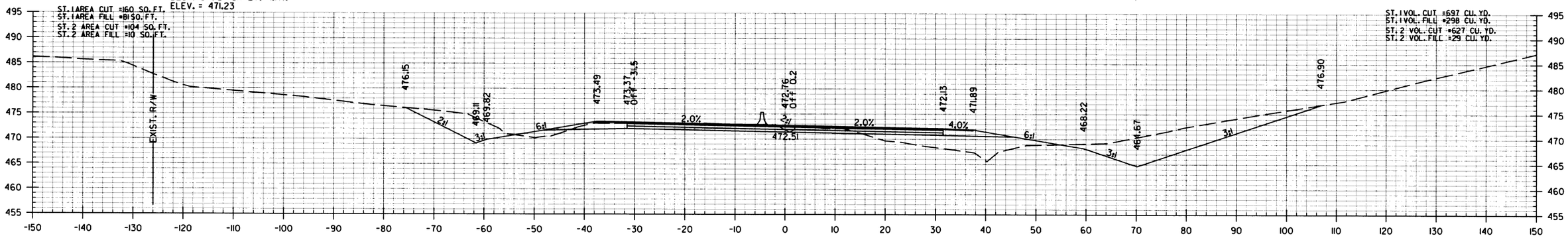
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	509	888

(2) CROSS SECTIONS

STA. 496+50.00
END SP. DITCH LT. 4.24%
BEGIN SP. DITCH LT. -1.17%
ELEV. = 471.23

ST. 1 AREA CUT =160 SQ. FT.
ST. 1 AREA FILL =81 SQ. FT.
ST. 2 AREA CUT =104 SQ. FT.
ST. 2 AREA FILL =10 SQ. FT.

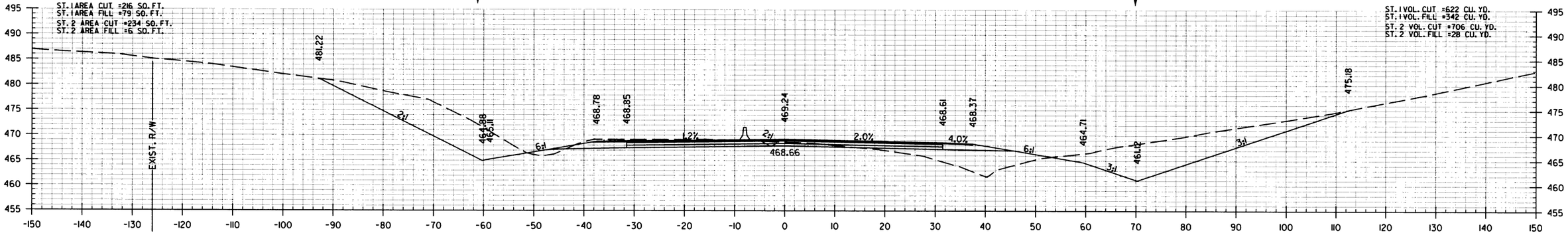
ST. 1 VOL. CUT =697 CU. YD.
ST. 1 VOL. FILL =298 CU. YD.
ST. 2 VOL. CUT =627 CU. YD.
ST. 2 VOL. FILL =29 CU. YD.



496+00.00

ST. 1 AREA CUT =216 SQ. FT.
ST. 1 AREA FILL =79 SQ. FT.
ST. 2 AREA CUT =234 SQ. FT.
ST. 2 AREA FILL =6 SQ. FT.

ST. 1 VOL. CUT =622 CU. YD.
ST. 1 VOL. FILL =342 CU. YD.
ST. 2 VOL. CUT =706 CU. YD.
ST. 2 VOL. FILL =28 CU. YD.

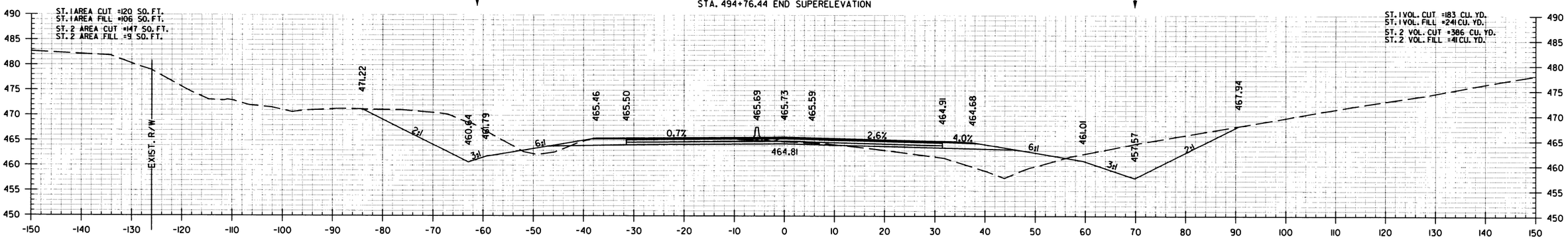


495+00.00

STA. 494+76.44 BEGIN SUPERELEVATION LT.
STA. 494+76.44 END SUPERELEVATION

ST. 1 AREA CUT =120 SQ. FT.
ST. 1 AREA FILL =106 SQ. FT.
ST. 2 AREA CUT =147 SQ. FT.
ST. 2 AREA FILL =9 SQ. FT.

ST. 1 VOL. CUT =183 CU. YD.
ST. 1 VOL. FILL =241 CU. YD.
ST. 2 VOL. CUT =386 CU. YD.
ST. 2 VOL. FILL =41 CU. YD.



494+00.00

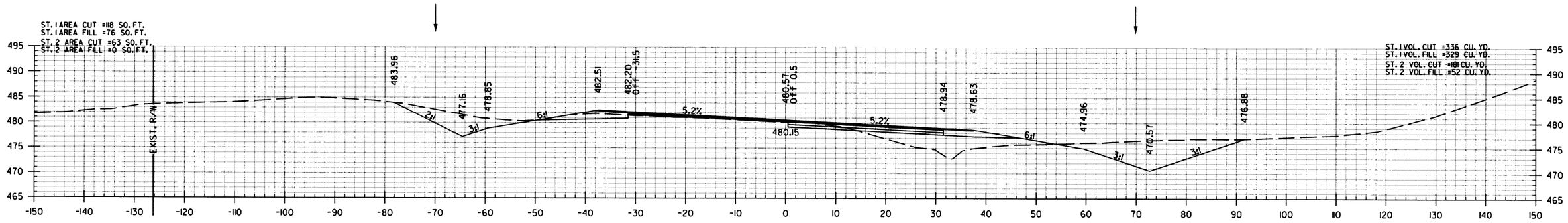
STA. 494+00 TO STA. 496+00

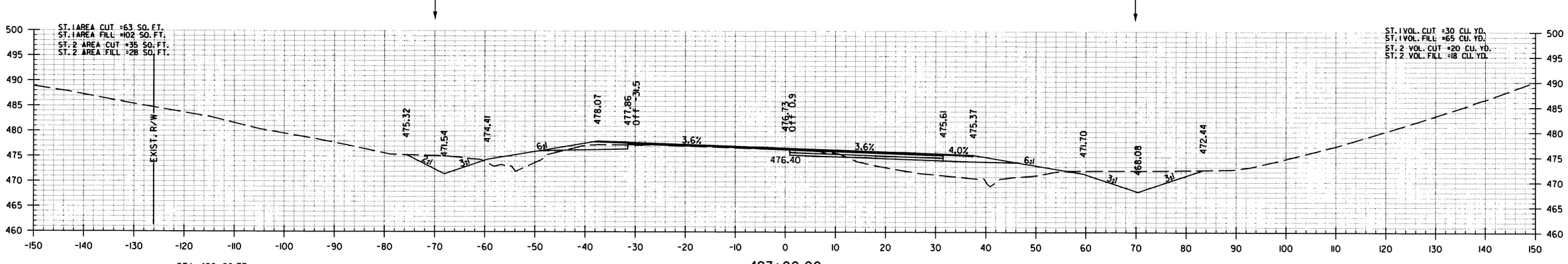
Leonard Speed 9/23/2016 11:22:31 AM
WORKSPACE: Leonard_Speed
c:\pwv8i-local\baker_projects\leonard_speed\d0217744\rCA0606_2i_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	510	888

(2) CROSS SECTIONS

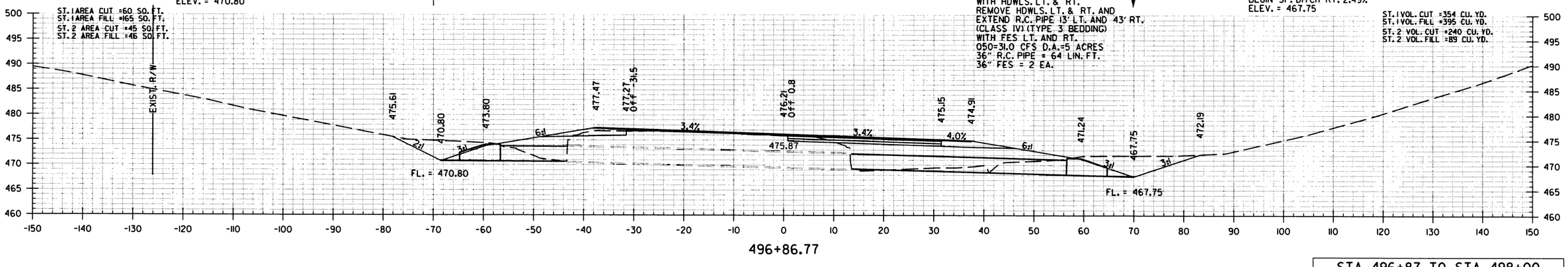




STA. 496+86.77
END SP. DITCH LT. -1.17%
BEGIN SP. DITCH LT. 5.62%
ELEV. = 470.80

STA. 496+86.77 IN PLACE
36"X 57' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 13' LT. AND 43' RT.
(CLASS IV) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=31.0 CFS D.A.=5 ACRES
36" R.C. PIPE = 64 LIN. FT.
36" FES = 2 EA.

STA. 496+86.77
END SP. DITCH RT. 3.55%
BEGIN SP. DITCH RT. 2.49%
ELEV. = 467.75



STA. 496+87 TO STA. 498+00

leonard.speed 9/23/2016 11:22:31 AM
WORKSET: c:\projects
c:\ow81-local\baker-projects\leonard.speed\d0271744\r-CA0606_2L-CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

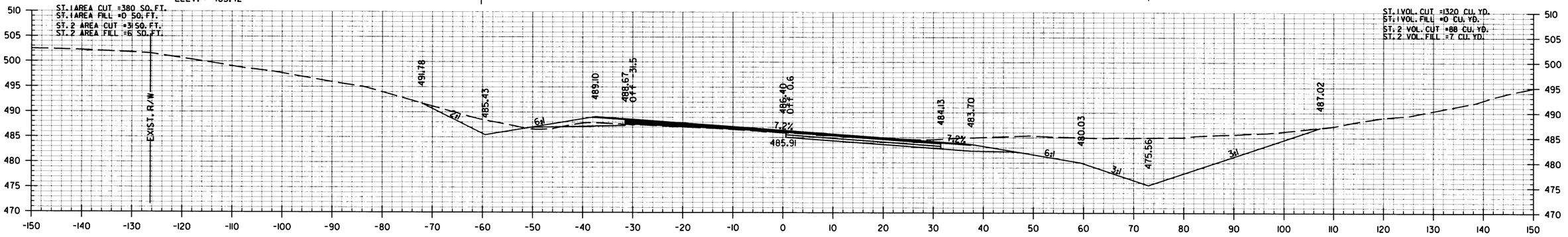
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	511	888

(2) CROSS SECTIONS

STA. 500+00.00
BEGIN SP. DITCH LT. -1.24%
ELEV. = 485.42

ST. 1 AREA CUT =380 SQ. FT.
ST. 1 AREA FILL =0 SQ. FT.
ST. 2 AREA CUT =31 SQ. FT.
ST. 2 AREA FILL =6 SQ. FT.

ST. 1 VOL. CUT =1320 CU. YD.
ST. 1 VOL. FILL =0 CU. YD.
ST. 2 VOL. CUT =88 CU. YD.
ST. 2 VOL. FILL =7 CU. YD.

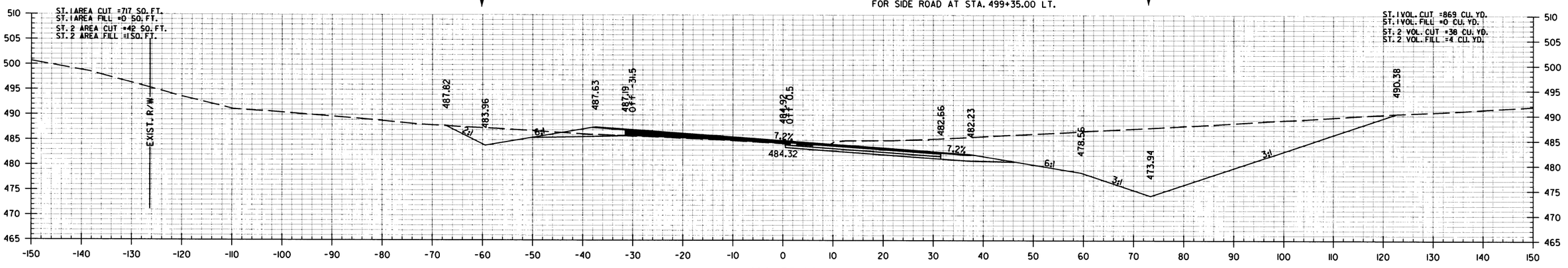


500+00.00

SEE SIDE ROAD PROFILES SHEETS
FOR SIDE ROAD AT STA. 499+35.00 LT.

ST. 1 AREA CUT =717 SQ. FT.
ST. 1 AREA FILL =0 SQ. FT.
ST. 2 AREA CUT =42 SQ. FT.
ST. 2 AREA FILL =150 SQ. FT.

ST. 1 VOL. CUT =869 CU. YD.
ST. 1 VOL. FILL =0 CU. YD.
ST. 2 VOL. CUT =38 CU. YD.
ST. 2 VOL. FILL =4 CU. YD.



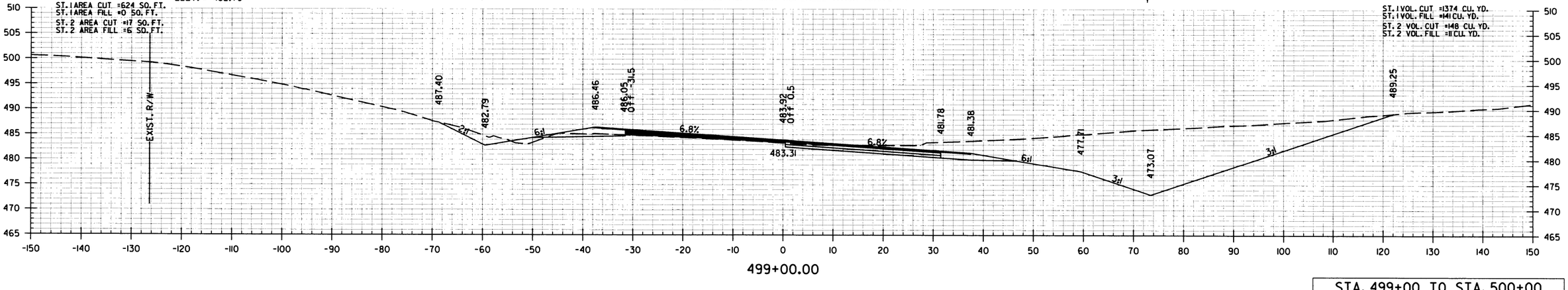
499+35.00

STA. 499+00.00
END SP. DITCH LT. 5.62%
ELEV. = 482.79

STA. 499+26.44 MAX SUPERELEVATION (0.072'/')

ST. 1 AREA CUT =624 SQ. FT.
ST. 1 AREA FILL =0 SQ. FT.
ST. 2 AREA CUT =17 SQ. FT.
ST. 2 AREA FILL =6 SQ. FT.

ST. 1 VOL. CUT =1374 CU. YD.
ST. 1 VOL. FILL =141 CU. YD.
ST. 2 VOL. CUT =148 CU. YD.
ST. 2 VOL. FILL =11 CU. YD.



499+00.00

STA. 499+00 TO STA. 500+00

Leonard.Speed 9/23/2016 11:22:32 AM
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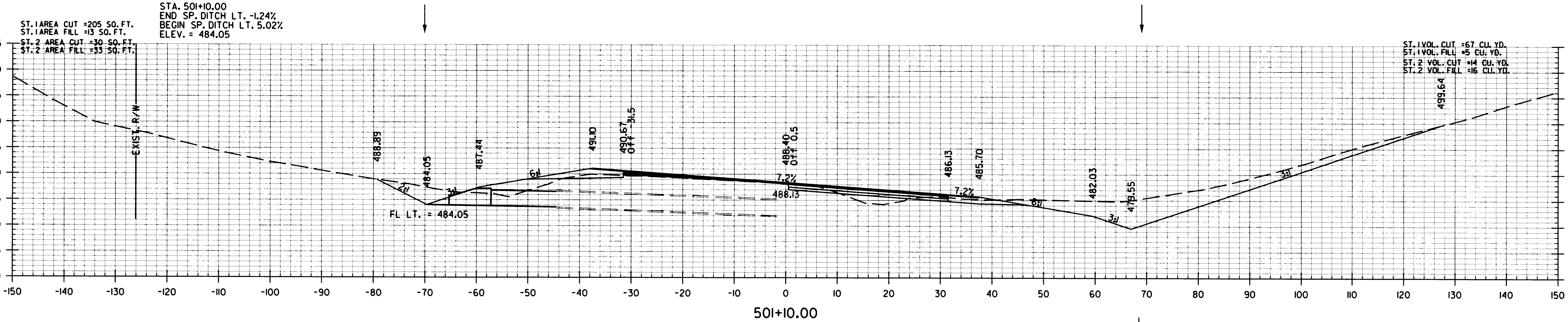
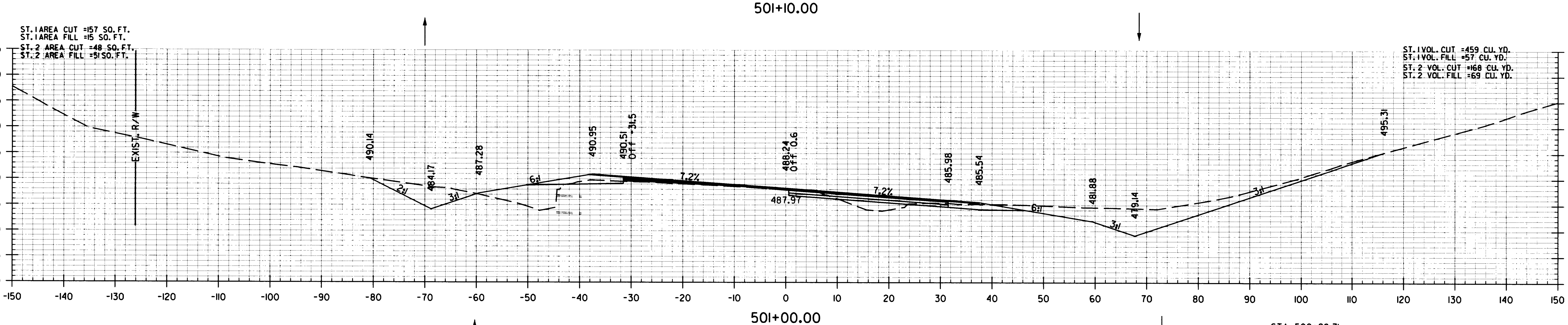
Drawing: C:\Projects\Leonard.Speed\d0217744\rCA0606_2i_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

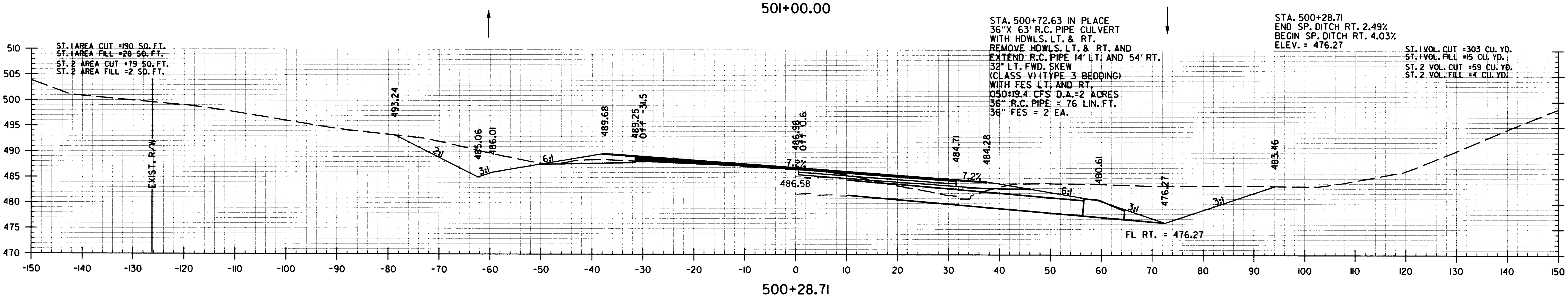
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	512	888

(2) CROSS SECTIONS







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REVISED DATE: $$REVDATE$$

STA. 500+29 TO STA. 501+10

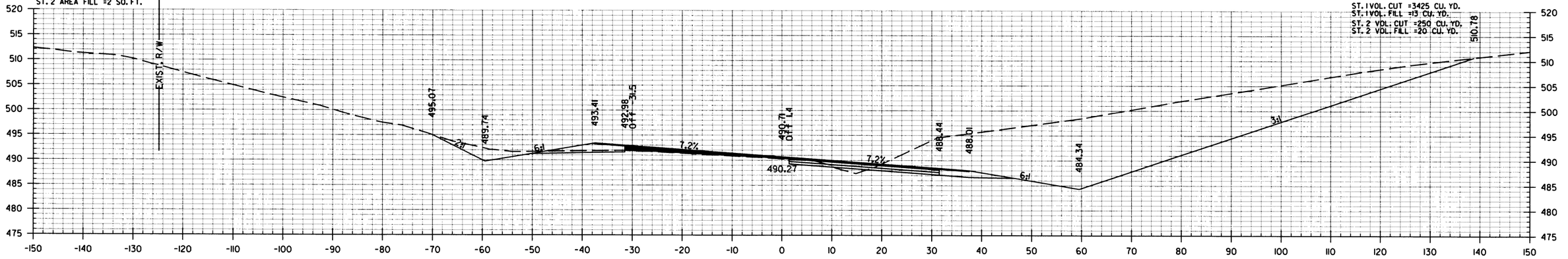
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	513	888

(2) CROSS SECTIONS

ST. 1 AREA CUT =938 SQ. FT.
ST. 1 AREA FILL =3 SQ. FT.
ST. 2 AREA CUT =26 SQ. FT.
ST. 2 AREA FILL =2 SQ. FT.

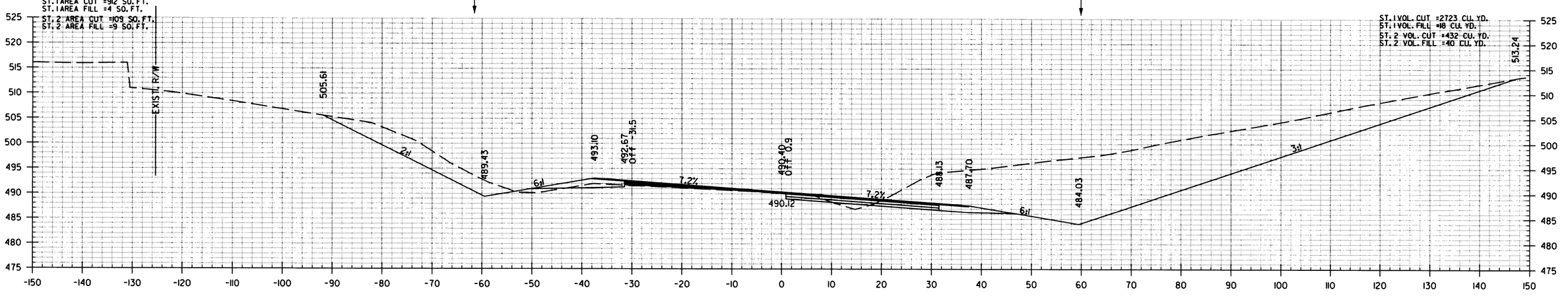
ST. 1 VOL. CUT =3425 CU. YD.
ST. 1 VOL. FILL =13 CU. YD.
ST. 2 VOL. CUT =250 CU. YD.
ST. 2 VOL. FILL =20 CU. YD.



504+00.00

ST. 1 AREA CUT =912 SQ. FT.
ST. 1 AREA FILL =4 SQ. FT.
ST. 2 AREA CUT =109 SQ. FT.
ST. 2 AREA FILL =9 SQ. FT.

ST. 1 VOL. CUT =2723 CU. YD.
ST. 1 VOL. FILL =18 CU. YD.
ST. 2 VOL. CUT =432 CU. YD.
ST. 2 VOL. FILL =40 CU. YD.



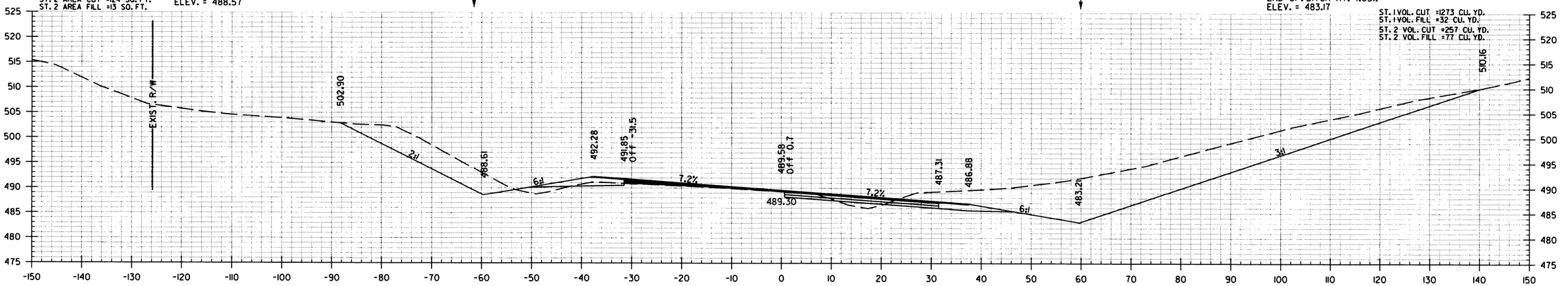
503+00.00

ST. 1 AREA CUT =559 SQ. FT.
ST. 1 AREA FILL =6 SQ. FT.
ST. 2 AREA CUT =124 SQ. FT.
ST. 2 AREA FILL =13 SQ. FT.

STA. 502+00.00
END SP. DITCH LT. 5.02%
ELEV. = 488.57

STA. 502+00.00
END SP. DITCH RT. 4.03%
ELEV. = 483.17

ST. 1 VOL. CUT =1273 CU. YD.
ST. 1 VOL. FILL =32 CU. YD.
ST. 2 VOL. CUT =257 CU. YD.
ST. 2 VOL. FILL =77 CU. YD.



502+00.00

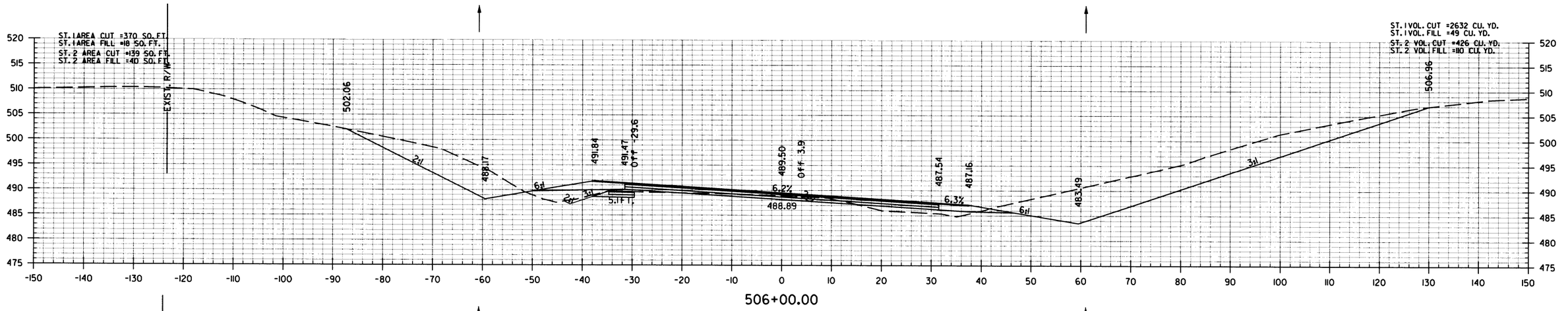
STA. 502+00 TO STA. 504+00

Leonard Speed 9/23/2016 11:22:33 AM
Workspace: Leonard Speed
C:\Users\bl-local\baker_projects\leonard.speed\d0217744\rCA0606.21.CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	514	888

(2) CROSS SECTIONS



STA. 504+22 TO STA. 506+00

LeonardSpeed 9/23/2006 11:22:33 AM
WORKSPACE=leonardSpeed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	515	888

(2) CROSS SECTIONS

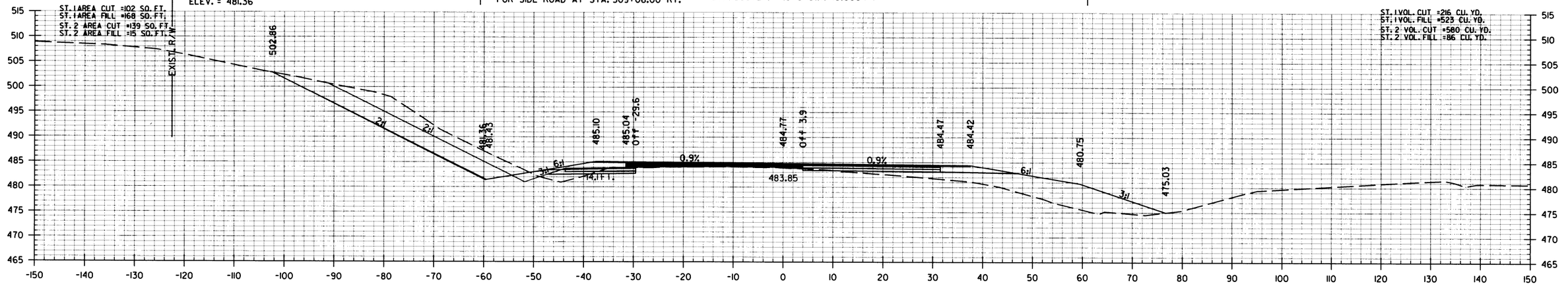
STA. 509+00.00
BEGIN SP. DITCH LT. -4.41%
ELEV. = 481.36

SEE SIDE ROAD PROFILES SHEETS
FOR SIDE ROAD AT STA. 509+06.00 RT.

STA. 509+27.41 NO CROWN (0.000'/')

ST. 1 AREA CUT =102 SQ. FT.
ST. 1 AREA FILL =168 SQ. FT.
ST. 2 AREA CUT =139 SQ. FT.
ST. 2 AREA FILL =15 SQ. FT.

ST. 1 VOL. CUT =216 CU. YD.
ST. 1 VOL. FILL =523 CU. YD.
ST. 2 VOL. CUT =580 CU. YD.
ST. 2 VOL. FILL =86 CU. YD.

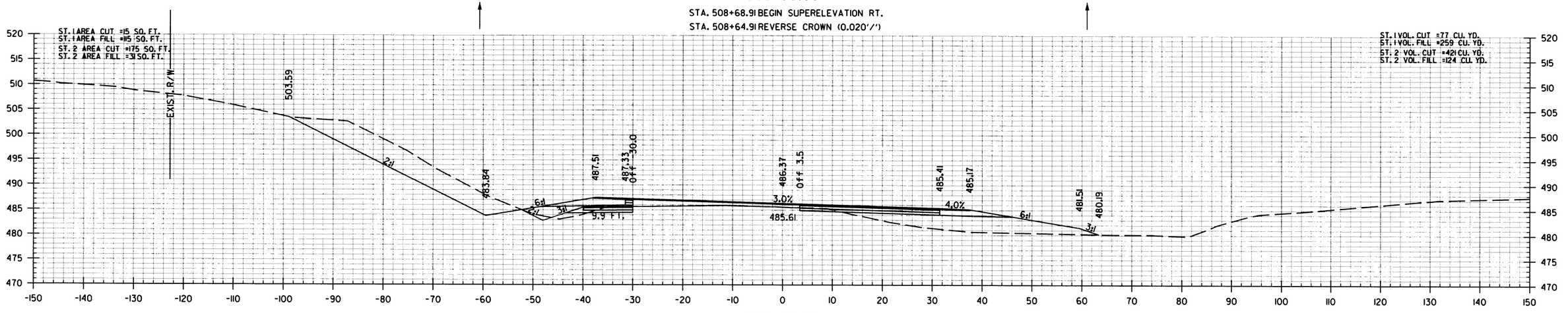


509+00.00

STA. 508+68.91 BEGIN SUPERELEVATION RT.
STA. 508+64.91 REVERSE CROWN (0.020'/')

ST. 1 AREA CUT =15 SQ. FT.
ST. 1 AREA FILL =115 SQ. FT.
ST. 2 AREA CUT =175 SQ. FT.
ST. 2 AREA FILL =31 SQ. FT.

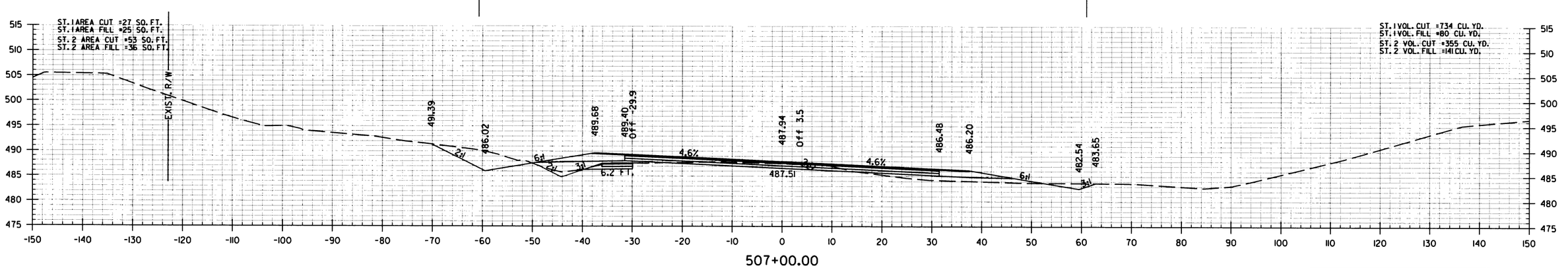
ST. 1 VOL. CUT =77 CU. YD.
ST. 1 VOL. FILL =259 CU. YD.
ST. 2 VOL. CUT =421 CU. YD.
ST. 2 VOL. FILL =124 CU. YD.



508+00.00

ST. 1 AREA CUT =27 SQ. FT.
ST. 1 AREA FILL =25 SQ. FT.
ST. 2 AREA CUT =53 SQ. FT.
ST. 2 AREA FILL =36 SQ. FT.

ST. 1 VOL. CUT =734 CU. YD.
ST. 1 VOL. FILL =80 CU. YD.
ST. 2 VOL. CUT =355 CU. YD.
ST. 2 VOL. FILL =141 CU. YD.



507+00.00

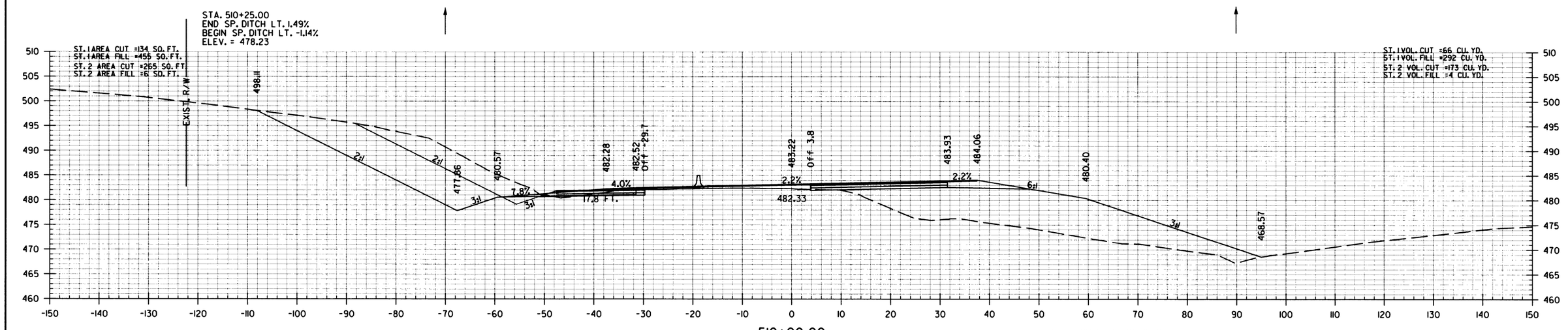
STA. 507+00 TO STA. 509+00

Leonard Speed 9/23/2016 11:22:34 AM
WORKSPACE: Leonard_Speed
Civil 3D Projects: C:\Users\lleonard\Projects\Leonard_Speed\d0211744\rCA0606_2i_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	516	888

(2) CROSS SECTIONS



Leonard.Speed 9/23/2016 11:22:34 AM
WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	517	888

(2) CROSS SECTIONS

STA. 513+00.00 IN PLACE
24"X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 30' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH =
95 CU. YDS.

ST. 1 AREA CUT =115 SQ. FT.
ST. 1 AREA FILL =832 SQ. FT.
ST. 2 AREA CUT =0 SQ. FT.
ST. 2 AREA FILL =110 SQ. FT.

ST. 1 VOL. CUT =876 CU. YD.
ST. 1 VOL. FILL =1863 CU. YD.
ST. 2 VOL. CUT =4 CU. YD.
ST. 2 VOL. FILL =466 CU. YD.

EXIST. R/W

16.4% 13.0% 11.0% 6.4% 1.8% -2.8% 7.4% 7.4% 6:1 3:1

477.81 476.90 480.57 481.01 483.33 485.65 486.10 482.43 480.37 466.59

29.3 FT.

513+00.00

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEWAY STA. 512+00.00 RT.

ST. 1 AREA CUT =358 SQ. FT.
ST. 1 AREA FILL =174 SQ. FT.
ST. 2 AREA CUT =2 SQ. FT.
ST. 2 AREA FILL =142 SQ. FT.

ST. 1 VOL. CUT =1205 CU. YD.
ST. 1 VOL. FILL =828 CU. YD.
ST. 2 VOL. CUT =24 CU. YD.
ST. 2 VOL. FILL =288 CU. YD.

EXIST. R/W

489.11 3:1 3:1 477.00 6:1 3:1 480.45 480.79 482.57 5.7% 5.7% 484.35 484.69 6:1 481.03 478.13 3:1

25.9 FT. 480.14

512+00.00

STA. 511+00.00
END SP. DITCH LT. -1.14%
ELEV. = 477.38

ST. 1 AREA CUT =292 SQ. FT.
ST. 1 AREA FILL =275 SQ. FT.
ST. 2 AREA CUT =1150. FT.
ST. 2 AREA FILL =13 SQ. FT.

ST. 1 VOL. CUT =789 CU. YD.
ST. 1 VOL. FILL =1348 CU. YD.
ST. 2 VOL. CUT =54 CU. YD.
ST. 2 VOL. FILL =35 CU. YD.

EXIST. R/W

493.95 2:1 477.38 3:1 6:1 481.05 481.29 4.0% 482.54 3.9% 483.78 484.02 6:1 480.35 472.23 3:1

22.1 FT. 480.75

511+00.00

STA. 511+00 TO STA. 513+00

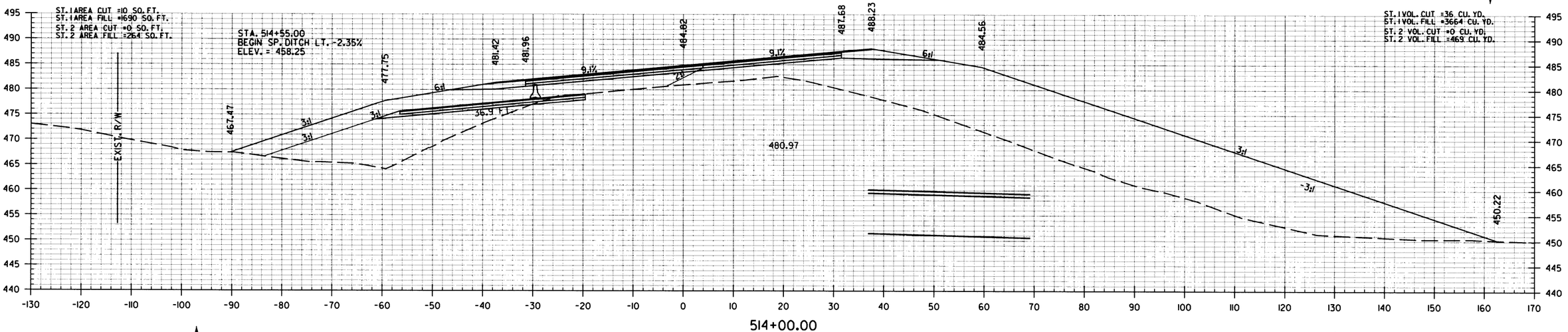
Leonard.Speed 9/23/2016 11:22:35 AM
WORKSPACE: Leonard.Speed
CONFIGURATION: C:\Projects\Leonard.Speed\d0217744\rCA0606_2i_CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	518	888
				(2) CROSS SECTIONS				

STA. 514+34.54 IN PLACE
6' X 8' X 185' R.C. BOX CULVERT
35° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
TEMP. EXTEND 50' LT. IN STAGE IA
REMOVE 119' RT. AND
EXTEND 171' RT. IN STAGE IB
REMOVE TEMP. EXTENSION AND
57' LT. AND EXTEND 112' LT. IN STAGE 2
Q50=608.5 CFS D.A.=273 ACRES
72" TEMP. PIPE CULVERT = 50 LIN. FT.

STA. 514+53.91 MAX SUPERELEVATION (0.100'/')



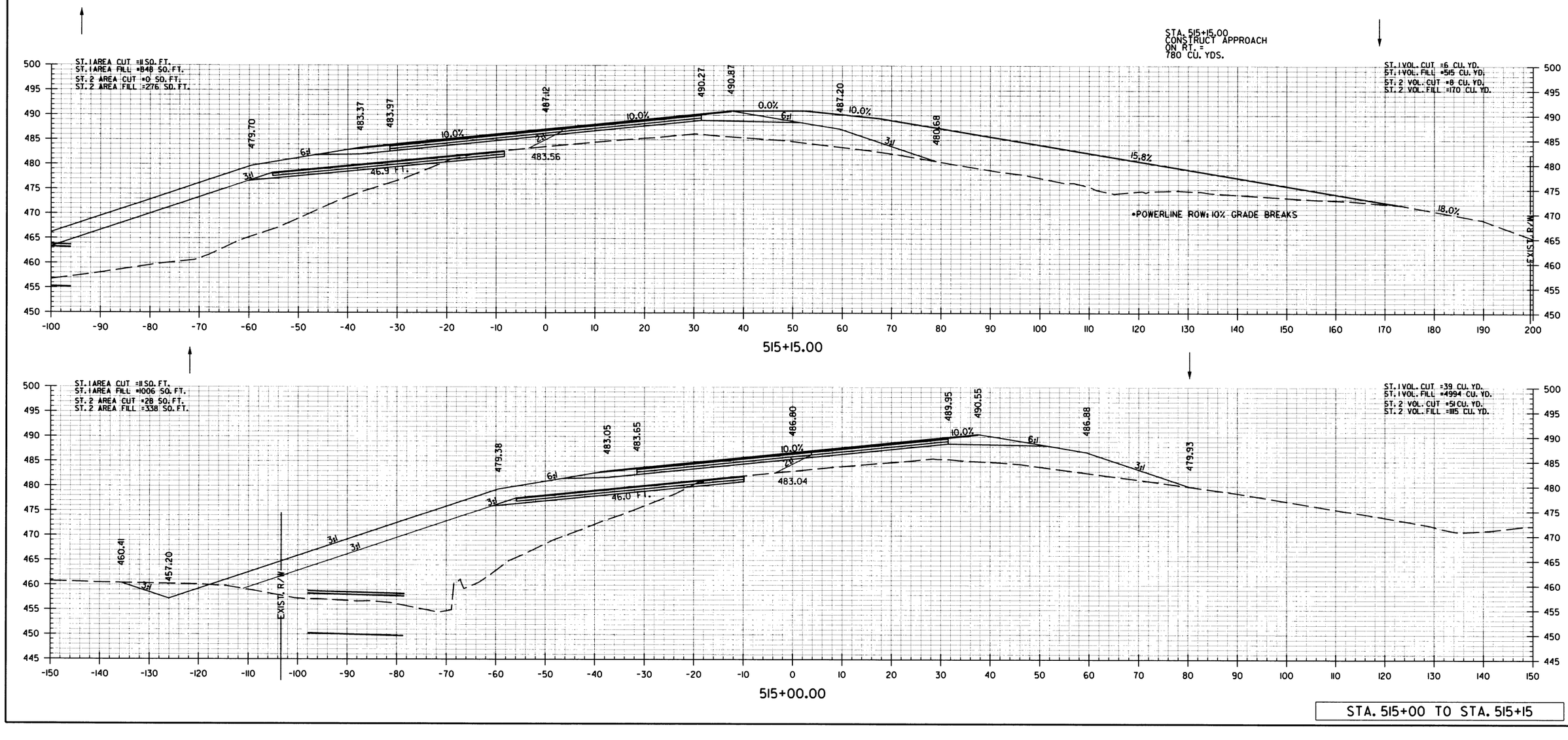
STA. 513+39 TO STA. 514+00

LeonardSpeed 9/23/2016 11:22:35 AM
WORKSPACE: LeonardSpeed
c:\Users\Michael Baker Projects\leonardspeed\d0211744\rCA0606.21.CX_MAIN.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	519	888

(2) CROSS SECTIONS



STA. 515+00 TO STA. 515+15

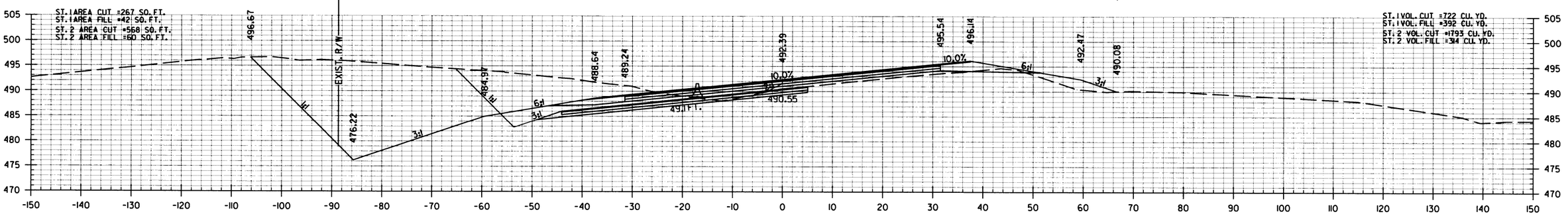
Leonard.Speed 9/23/2016 11:22:36 AM
WORKSPACE: Leonard.Speed
CONFIGURATION: Leonard.Speed
REVISED DATE: **REVDATE**
C:\Projects\Leonard.speed\d0211741\rCA0606_21_CX_MAIN_001.dgn

Michael Baker INTERNATIONAL

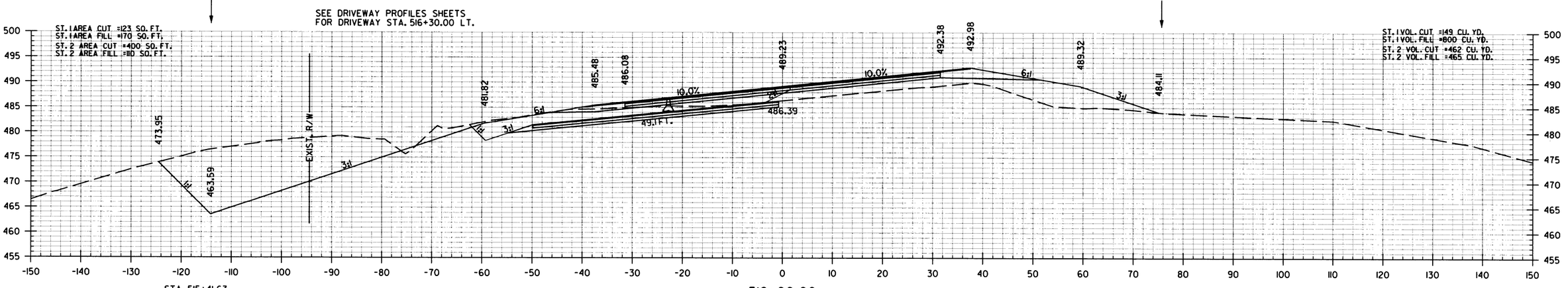
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	520	888

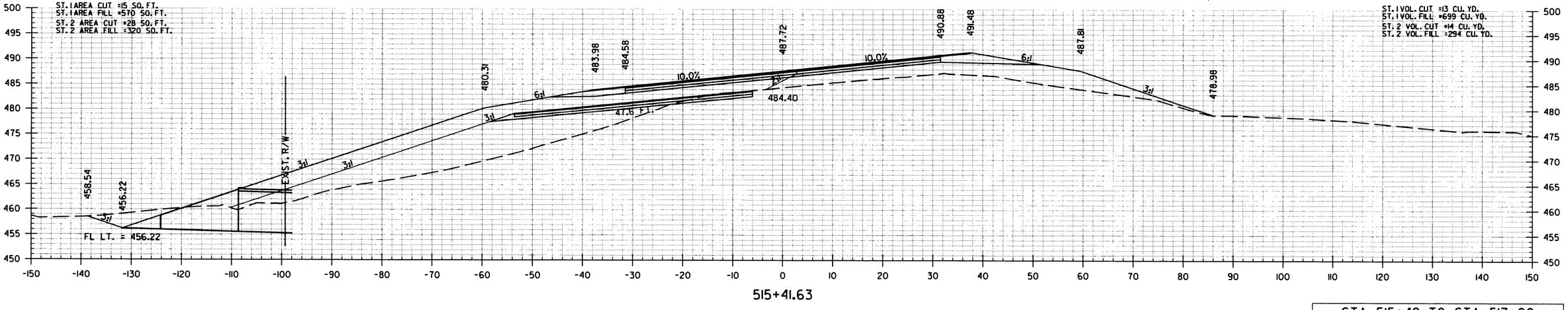
(2) CROSS SECTIONS



517+00.00



516+00.00



515+41.63

STA. 515+42 TO STA. 517+00

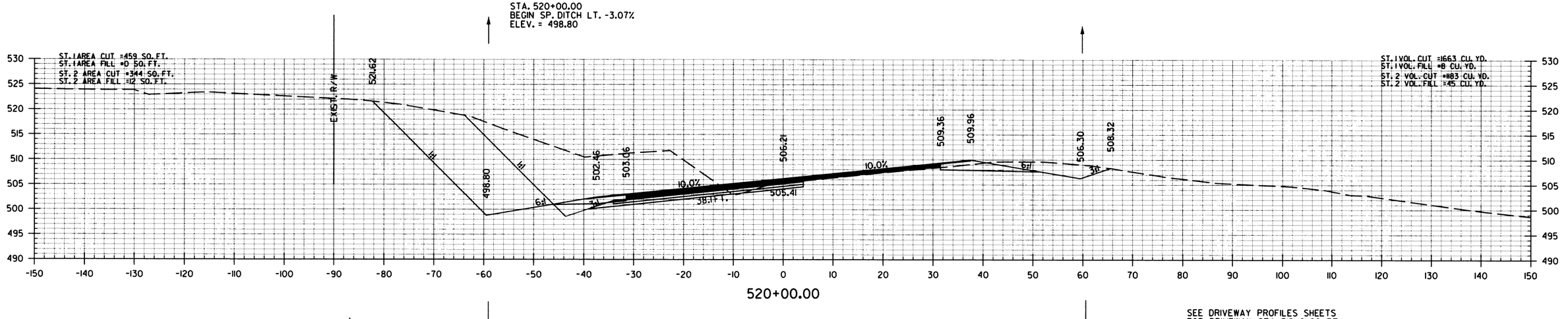
Leonard.Speed 9/23/2016 11:22:36 AM
WORK/PR-Documents/Projects\Leonard.Speed\d0211744\rCA0606.21.CX_MAIN.001.dgn
DESIGNED - Leonard.Speed
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	521	888

(2) CROSS SECTIONS



STA. 518+00 TO STA. 520+00

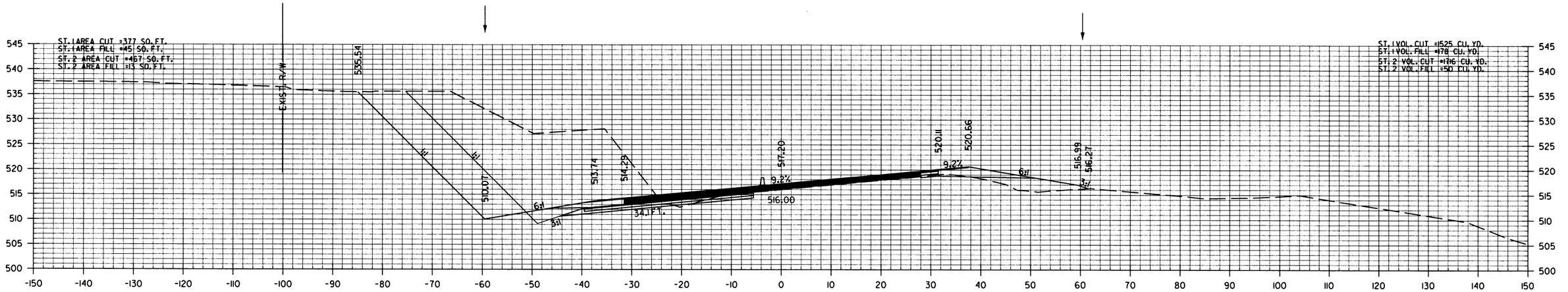
LeonardSpeed 9/23/2016 11:22:37 AM
WORKSPACE: LeonardSpeed
DRAWING: C:\Projects\Leonard.speed\d0271744\rCA0606_2i_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

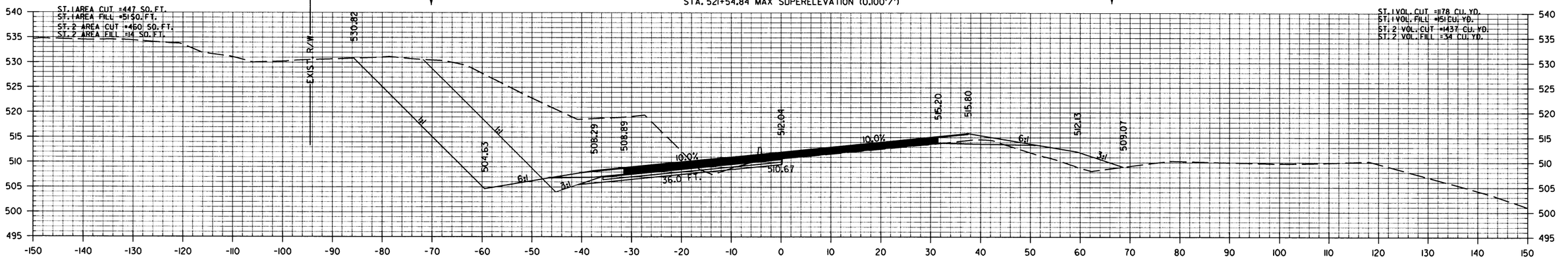
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	522	888

(2) CROSS SECTIONS



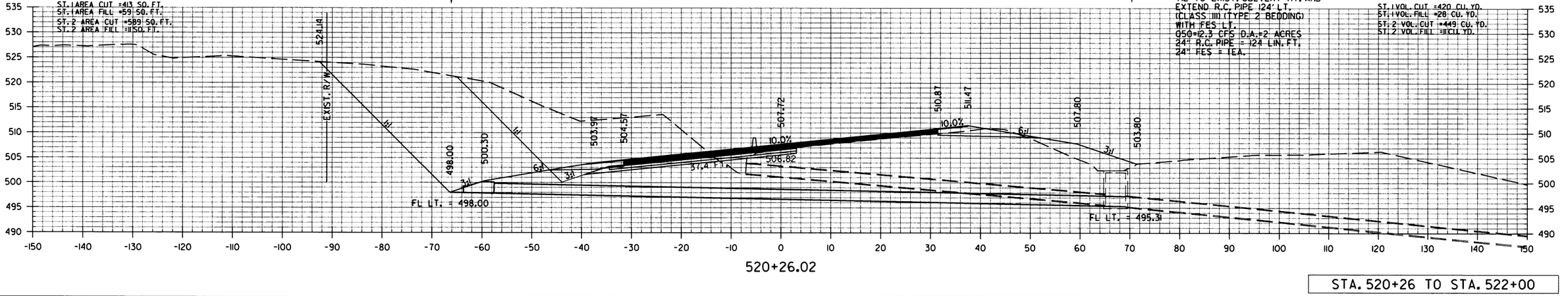
STA. 521+00.00
END SP. DITCH LT. 8.96%
ELEV. = 504.63

STA. 521+54.84 MAX SUPERELEVATION (0.100'/')



STA. 520+26.02
END SP. DITCH LT. -3.07%
BEGIN SP. DITCH LT. 8.96%
ELEV. = 498.00

STA. 520+26.02 IN PLACE
24"X 72' R.C. PIPE CULVERT
WITH HDWL. LT. AND DROP INLET RT.
REMOVE 72' LT. AND DROP INLET RT.
TIE TO EXIST. CULVERT RT. AND
EXTEND R.C. PIPE 124' LT.
(CLASS III) (TYPE 2 BEDDING)
WITH FES LT.
Q50=12.3 CFS D.A.=2 ACRES
24" R.C. PIPE = 124 LIN. FT.
24" FES = 1 EA.



STA. 520+26 TO STA. 522+00

Scott.Thornsberry 9/23/2016 1:43:43 PM
WORKSPACE: AHTD
c:\pwwbi-local\baker_projects\scott.thornsberry\d0271744\r-CA0606_21.CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	523	888

(2) CROSS SECTIONS

STA. 523+00 TO STA. 525+00

Leonard.Speed 9/23/2016 11:22:38 AM
WORKSPACE: Leonard.Speed
CONFIGURATION: C:\Projects\Leonard.speed\d0211744\rCA0606.2i.CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

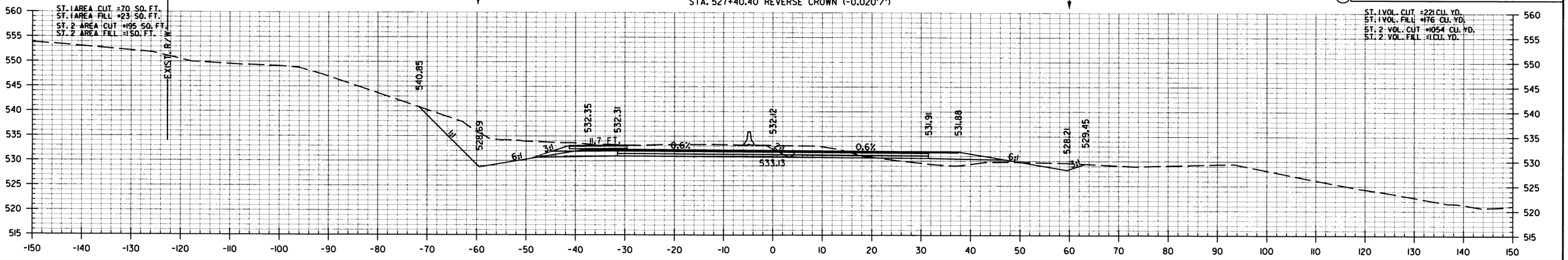
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	524	888

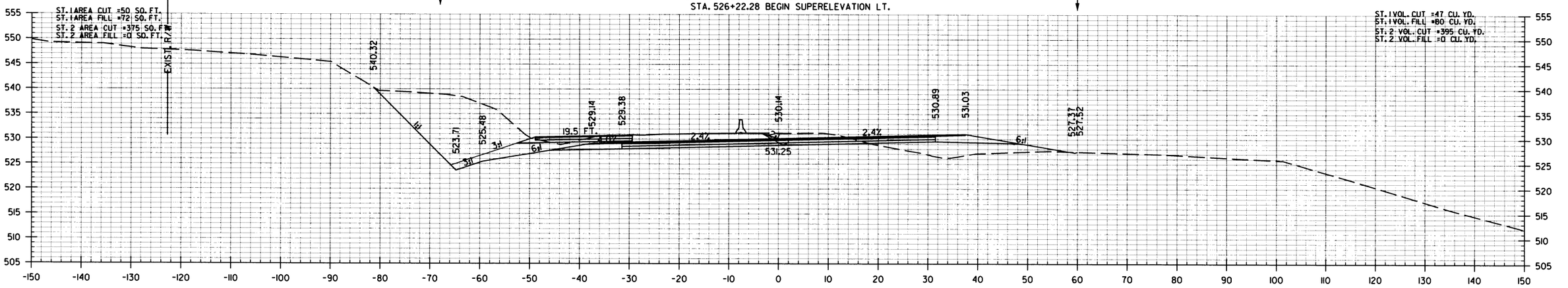
(2) CROSS SECTIONS

STA. 527+00.00
END SP. DITCH LT. 4.98%
ELEV. = 528.69

STA. 527+39.84 END SUPERELEVATION RT.
STA. 527+40.40 REVERSE CROWN (-0.020'/')



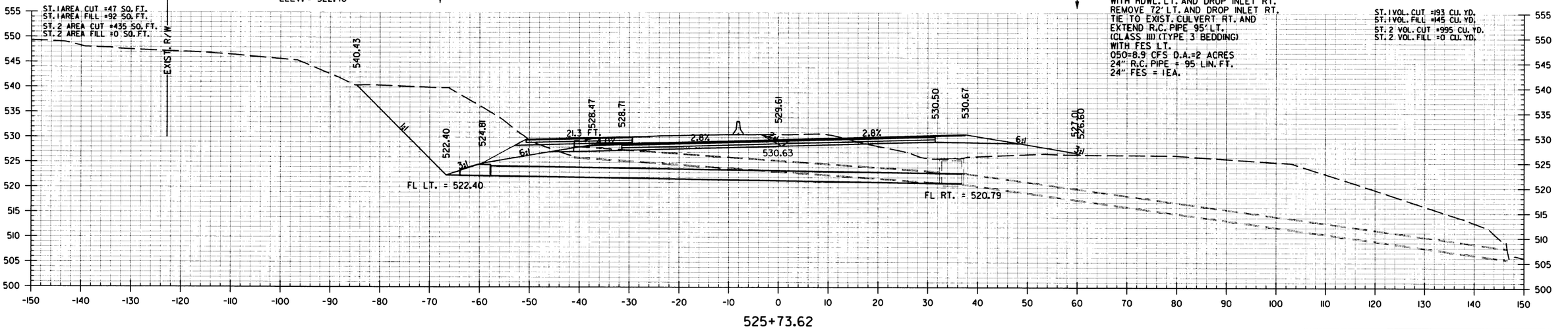
527+00.00
STA. 526+81.34 NO CROWN (0.000'/')
STA. 526+22.84 REVERSE CROWN (0.020'/')
STA. 526+22.28 BEGIN SUPERELEVATION LT.



526+00.00

STA. 525+73.62
END SP. DITCH LT. -7.49%
BEGIN SP. DITCH LT. 4.98%
ELEV. = 522.40

STA. 525+73.62 IN PLACE
24"X 72' R.C. PIPE CULVERT
WITH HDWL. LT. AND DROP INLET RT.
REMOVE 72' LT. AND DROP INLET RT.
TIE TO EXIST. CULVERT RT. AND
EXTEND R.C. PIPE 95' LT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT.
Q50=8.9 CFS D.A.=2 ACRES
24" R.C. PIPE = 95 LIN. FT.
24" FES = 1 EA.



525+73.62

STA. 525+74 TO STA. 527+00

Leonard.Speed 9/23/2016 11:22:39 AM
WORKSPACE: Leonard.Speed
CONTROL: C:\Projects\Leonard.Speed\d0217744\rCA0606.21.CX.MAIN.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	525	888

(2) CROSS SECTIONS

STA. 530+80.00
END SP. DITCH LT. -4.88%
BEGIN SP. DITCH LT. 0.99%
ELEV. = 532.85

ST. 1 AREA CUT =37 SQ. FT.
ST. 1 AREA FILL =9 SQ. FT.
ST. 2 AREA CUT =26 SQ. FT.
ST. 2 AREA FILL =57 SQ. FT.

EXIST. R/W

537.28 | 532.85 | 535.01 | 538.68 | 538.21 Off -28.6 | 535.77 Off 4.6 | 533.33 | 532.86 | 529.20 | 531.17

FL LT. = 532.85

7.7% 535.22 7.8%

STA. 531+16.38 IN PLACE
24"X 78' R.C. PIPE CULVERT
WITH HDWL. LT. AND DROP INLET RT.
REMOVE HDWL. LT. & D.I. RT. AND
EXTEND R.C. PIPE 15' LT.
AND INSERT 18' OF R.C. PIPE RT.
30° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT.
Q50=14.0 CFS D.A.=3 ACRES
24" R.C. PIPE = 33 LIN. FT.
24" FES = 1 EA.

ST. 1 VOL. CUT =415 CU. YD.
ST. 1 VOL. FILL =14 CU. YD.
ST. 2 VOL. CUT =82 CU. YD.
ST. 2 VOL. FILL =85 CU. YD.

530+80.00

STA. 530+40.00
BEGIN SP. DITCH LT. -4.88%
ELEV. = 534.80

ST. 1 AREA CUT =243 SQ. FT.
ST. 1 AREA FILL =150 SQ. FT.
ST. 2 AREA CUT =49 SQ. FT.
ST. 2 AREA FILL =0 SQ. FT.

EXIST. R/W

539.00 | 534.48 | 538.15 | 537.76 Off -27.8 | 535.75 Off 5.5 | 533.73 | 533.35 | 529.68 | 540.44

6.4% 535.46 6.4%

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEWAY STA. 530+35.00 LT.

ST. 1 VOL. CUT =1150 CU. YD.
ST. 1 VOL. FILL =7 CU. YD.
ST. 2 VOL. CUT =406 CU. YD.
ST. 2 VOL. FILL =11 CU. YD.

530+00.00

ST. 1 AREA CUT =378 SQ. FT.
ST. 1 AREA FILL =3 SQ. FT.
ST. 2 AREA CUT =170 SQ. FT.
ST. 2 AREA FILL =6 SQ. FT.

EXIST. R/W

548.80 | 535.22 | 536.89 | 536.61 | 535.43 | 533.65 | 533.36 | 529.70 | 542.95

4.7% 535.19 4.7%

ST. 1 VOL. CUT =983 CU. YD.
ST. 1 VOL. FILL =6 CU. YD.
ST. 2 VOL. CUT =638 CU. YD.
ST. 2 VOL. FILL =18 CU. YD.

529+00.00

ST. 1 AREA CUT =153 SQ. FT.
ST. 1 AREA FILL =0 SQ. FT.
ST. 2 AREA CUT =175 SQ. FT.
ST. 2 AREA FILL =4 SQ. FT.

EXIST. R/W

547.54 | 531.31 | 534.98 | 534.80 | 533.85 | 532.90 | 532.66 | 528.99 | 532.71

5.4 FT. 3.0% 534.51 4.0%

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEWAY STA. 528+00.00 RT.

ST. 1 VOL. CUT =412 CU. YD.
ST. 1 VOL. FILL =43 CU. YD.
ST. 2 VOL. CUT =684 CU. YD.
ST. 2 VOL. FILL =8 CU. YD.

528+00.00

STA. 528+00 TO STA. 530+80

Leonard Speed 9/23/2016 11:22:39 AM
W:\0606.2\cx_main\cad\Projects\leonard_speed\d0271744\rCA0606.2i_CX_MAIN_00i.dgn
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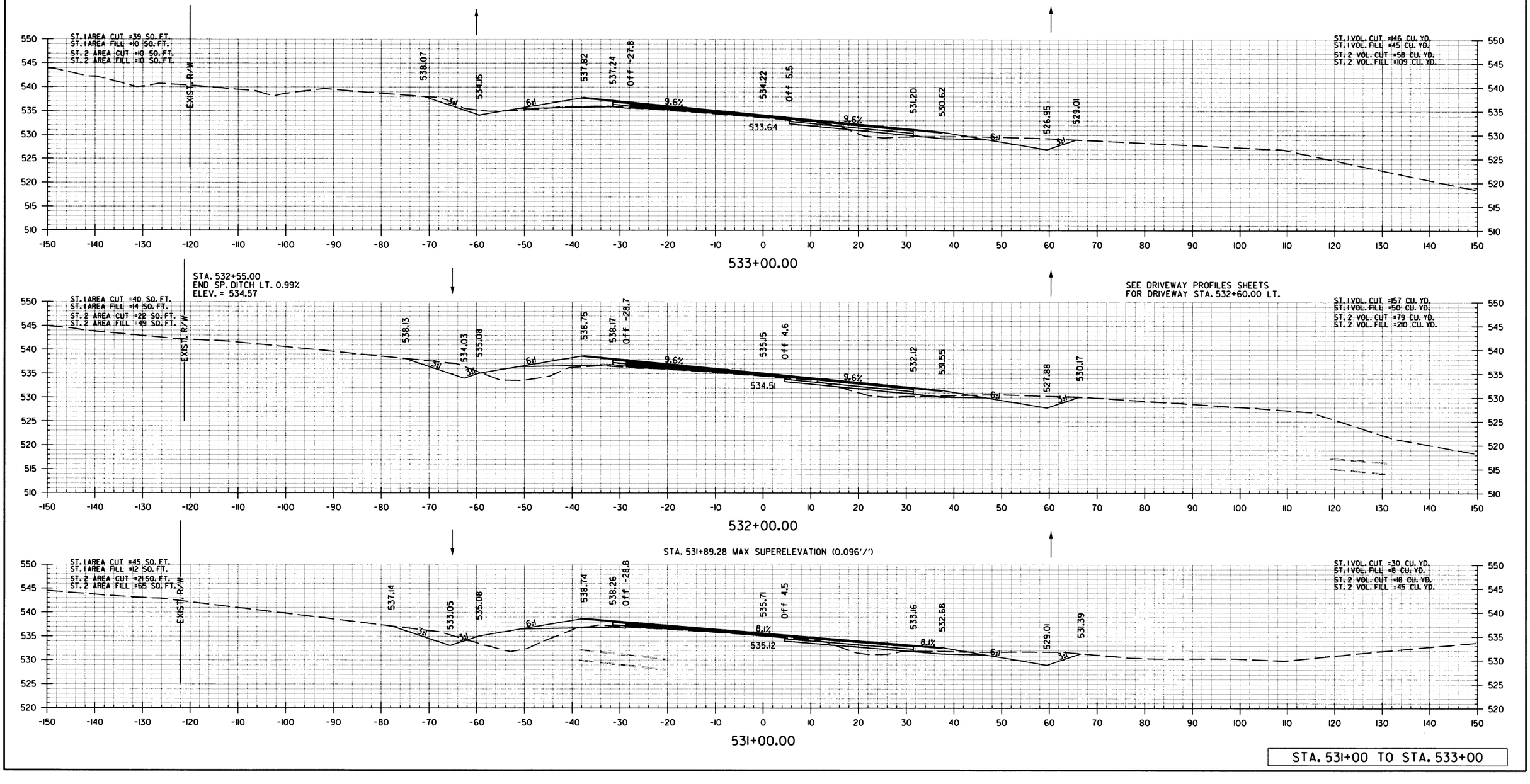
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	526	888

(2) CROSS SECTIONS



STA. 531+00 TO STA. 533+00

LeonardSpeed 9/23/2006 11:22:40 AM
WORKSPACE: Leonard_Speed
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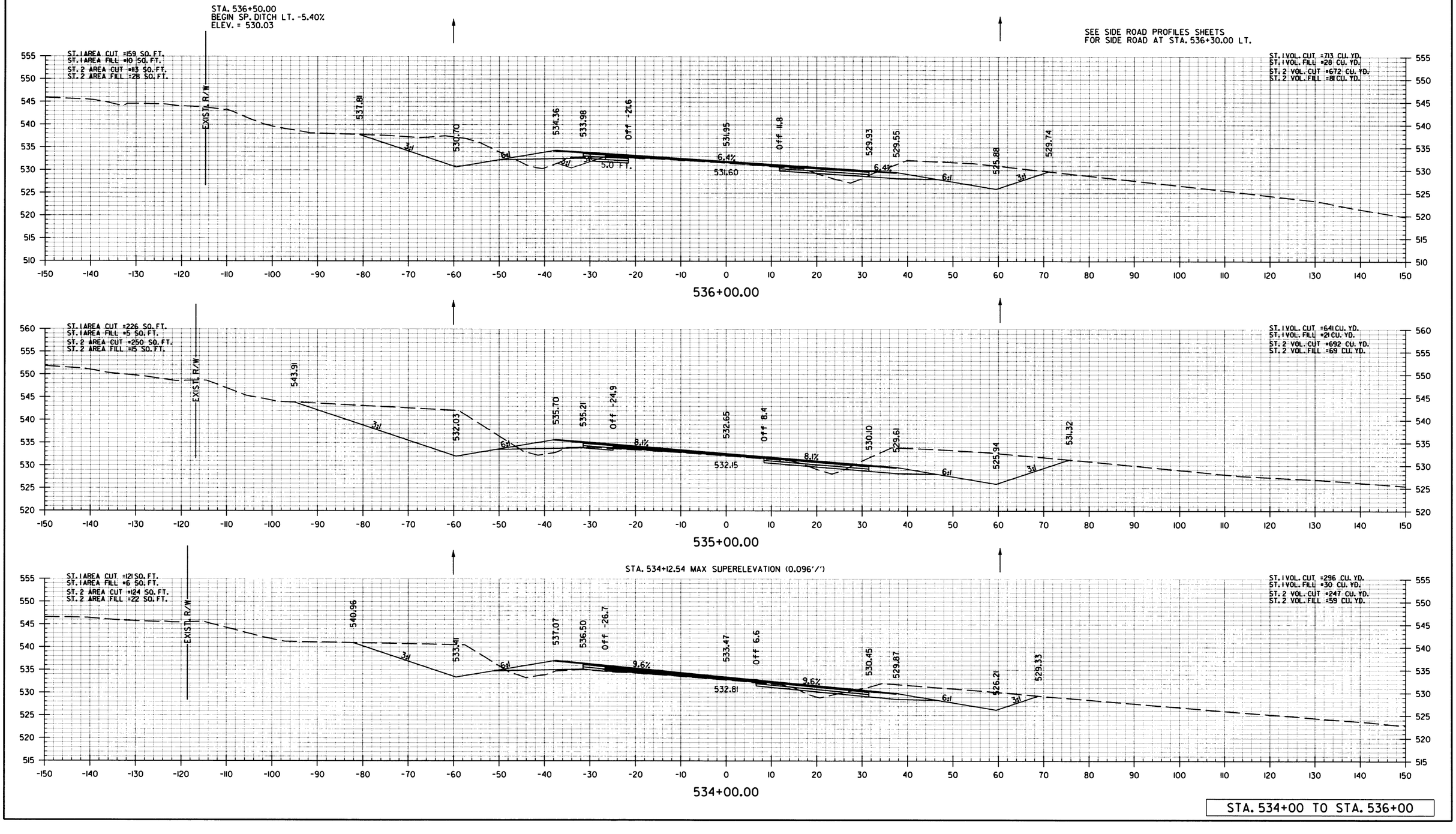
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	527	888

(2) CROSS SECTIONS



STA. 534+00 TO STA. 536+00

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WORKSET: Leonard Speed
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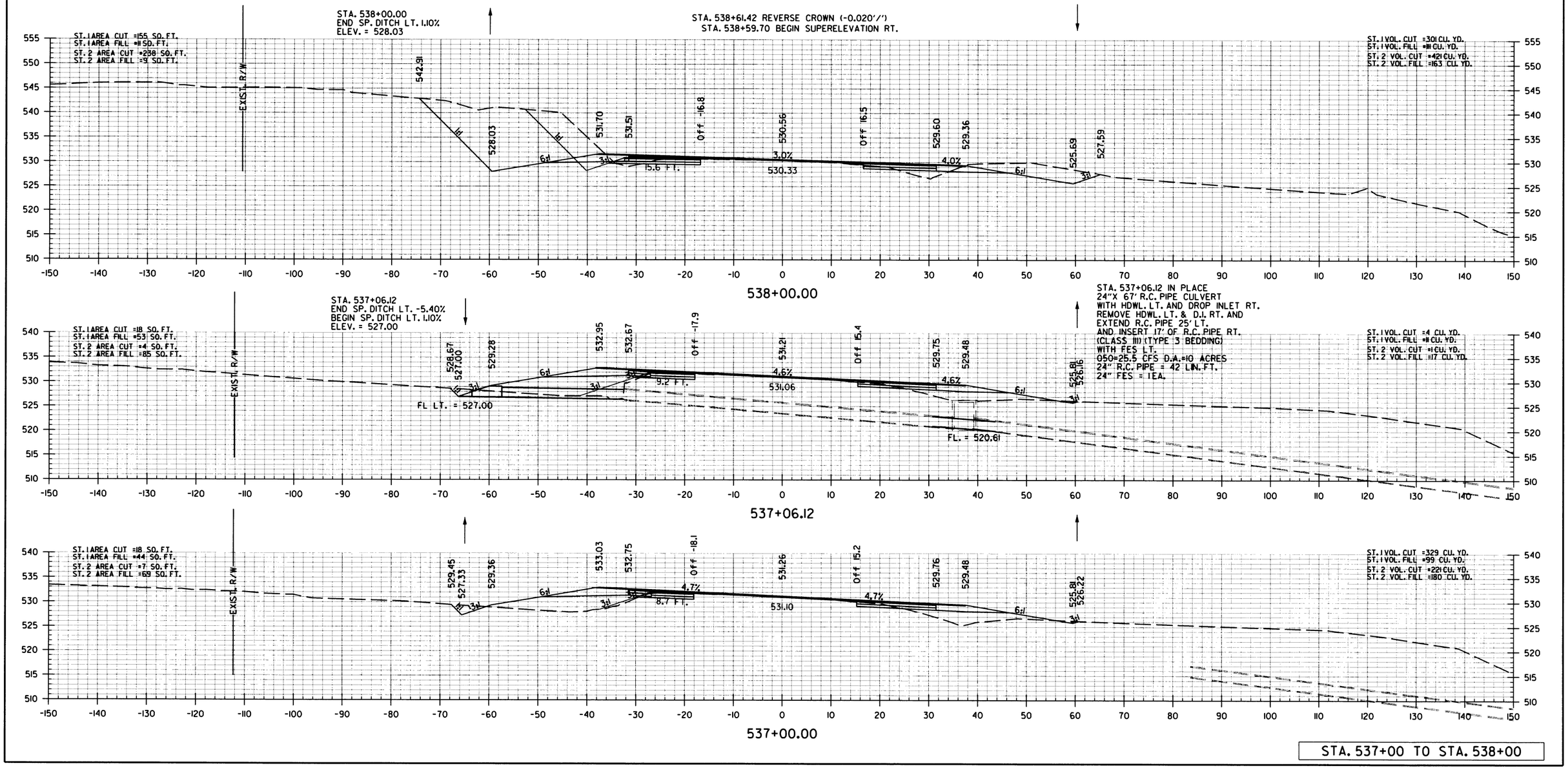
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	528	888

(2) CROSS SECTIONS



STA. 537+00 TO STA. 538+00

Leonard.Speed 9/23/2016 11:22:41 AM
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Civil\Michael Baker\Projects\Leonard.Speed\d0217144\rCA0606_2I_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	529	888

(2) CROSS SECTIONS

ST. 1 AREA CUT =97 SQ. FT.
ST. 1 AREA FILL =108 SQ. FT.
ST. 2 AREA CUT =225 SQ. FT.
ST. 2 AREA FILL =9 SQ. FT.

ST. 1 VOL. CUT =710 CU. YD.
ST. 1 VOL. FILL =241 CU. YD.
ST. 2 VOL. CUT =1017 CU. YD.
ST. 2 VOL. FILL =30 CU. YD.

EXIST. R/W

534.40 | 521.61 | 525.19 | 526.85 | 527.09 | Off -16.6 | 528.34 | Off 16.7 | 529.59 | 529.82 | 526.16 | 524.31

4.0% | 4.0%

527.86

19.9 FT.

1:1 | 6:1 | 3:1

541+00.00

STA. 540+00.00
BEGIN SP. DITCH LT. -2.76%
ELEV. = 524.36

ST. 1 AREA CUT =286 SQ. FT.
ST. 1 AREA FILL =22 SQ. FT.
ST. 2 AREA CUT =323 SQ. FT.
ST. 2 AREA FILL =7 SQ. FT.

ST. 1 VOL. CUT =1158 CU. YD.
ST. 1 VOL. FILL =70 CU. YD.
ST. 2 VOL. CUT =1222 CU. YD.
ST. 2 VOL. FILL =30 CU. YD.

EXIST. R/W

551.04 | 524.36 | 528.03 | 528.27 | Off -16.5 | 529.00 | Off 16.8 | 529.72 | 529.86 | 526.20 | 528.83

4.0% | 2.3% | 2.3%

528.75

20.0 FT.

1:1 | 6:1 | 3:1

540+00.00

STA. 539+81.26 REVERSE CROWN (+0.020'/')
STA. 539+79.54 END SUPERELEVATION LT.
STA. 539+20.48 NO CROWN (0.000'/')

ST. 1 AREA CUT =339 SQ. FT.
ST. 1 AREA FILL =16 SQ. FT.
ST. 2 AREA CUT =337 SQ. FT.
ST. 2 AREA FILL =9 SQ. FT.

ST. 1 VOL. CUT =916 CU. YD.
ST. 1 VOL. FILL =50 CU. YD.
ST. 2 VOL. CUT =1064 CU. YD.
ST. 2 VOL. FILL =33 CU. YD.

EXIST. R/W

552.49 | 526.41 | 530.07 | 530.03 | Off -16.8 | 529.81 | Off 16.5 | 529.60 | 529.56 | 529.89 | 529.82

0.7% | 0.7%

529.54

19.3 FT.

1:1 | 6:1 | 3:1

539+00.00

STA. 539+00 TO STA. 541+00

Leonard.Speed 9/23/2016 11:22:41 AM
W:\0606\Engineering\Roadway\Sheets
C:\Users\Baker.Projects\Leonard.speed\d0271744\rCA0606.21.CX.MAIN.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

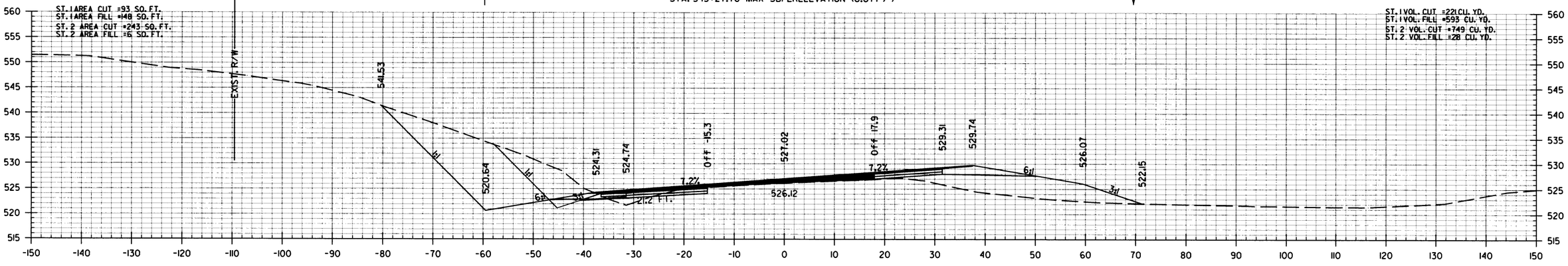
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	530	888

(2) CROSS SECTIONS

STA. 543+27.70 MAX SUPERELEVATION (0.077'/')

ST. 1 AREA CUT =93 SQ. FT.
ST. 1 AREA FILL =148 SQ. FT.
ST. 2 AREA CUT =243 SQ. FT.
ST. 2 AREA FILL =6 SQ. FT.

ST. 1 VOL. CUT =221 CU. YD.
ST. 1 VOL. FILL =593 CU. YD.
ST. 2 VOL. CUT =749 CU. YD.
ST. 2 VOL. FILL =28 CU. YD.

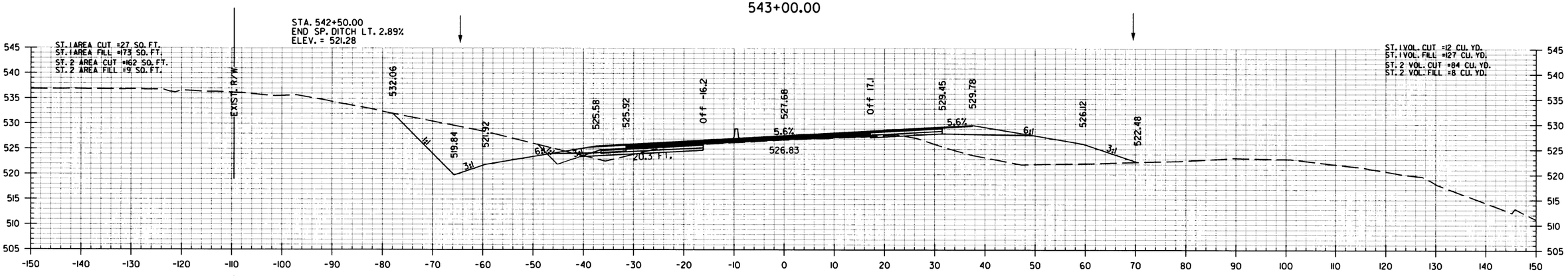


543+00.00

STA. 542+50.00
END SP. DITCH LT. 2.89%
ELEV. = 521.28

ST. 1 AREA CUT =27 SQ. FT.
ST. 1 AREA FILL =173 SQ. FT.
ST. 2 AREA CUT =162 SQ. FT.
ST. 2 AREA FILL =9 SQ. FT.

ST. 1 VOL. CUT =12 CU. YD.
ST. 1 VOL. FILL =127 CU. YD.
ST. 2 VOL. CUT =84 CU. YD.
ST. 2 VOL. FILL =8 CU. YD.



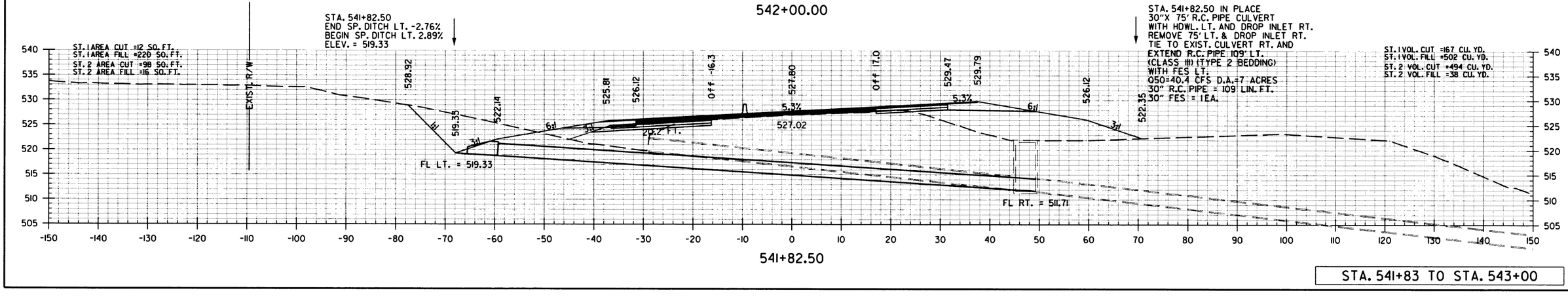
542+00.00

STA. 541+82.50
END SP. DITCH LT. -2.76%
BEGIN SP. DITCH LT. 2.89%
ELEV. = 519.33

ST. 1 AREA CUT =12 SQ. FT.
ST. 1 AREA FILL =220 SQ. FT.
ST. 2 AREA CUT =98 SQ. FT.
ST. 2 AREA FILL =16 SQ. FT.

STA. 541+82.50 IN PLACE
30"X 75' R.C. PIPE CULVERT
WITH HDWL. LT. AND DROP INLET RT.
REMOVE 75' LT. & DROP INLET RT.
TIE TO EXIST. CULVERT RT. AND
EXTEND R.C. PIPE 109' LT.
(CLASS III) (TYPE 2 BEDDING)
WITH FES LT.
Q50=40.4 CFS D.A.=7 ACRES
30" R.C. PIPE = 109 LIN. FT.
30" FES = 1EA.

ST. 1 VOL. CUT =167 CU. YD.
ST. 1 VOL. FILL =502 CU. YD.
ST. 2 VOL. CUT =494 CU. YD.
ST. 2 VOL. FILL =38 CU. YD.



541+82.50

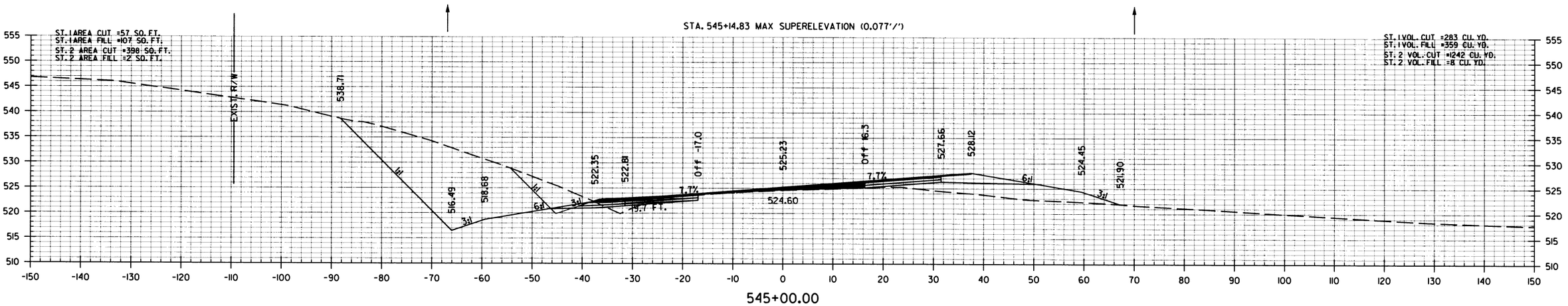
STA. 541+83 TO STA. 543+00

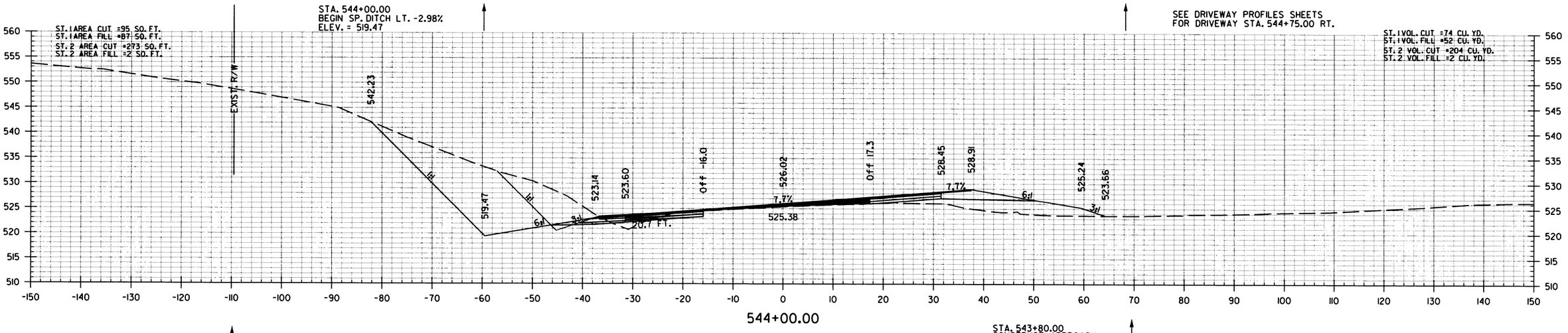
Leonard.Speed 9/23/2016 11:22:42 AM
WORKSPACE: Leonard.Speed
CONNECTION: Bentley ProjectWise Connect to Projects\leonard.speed\d0271741\rCA0606.21.CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

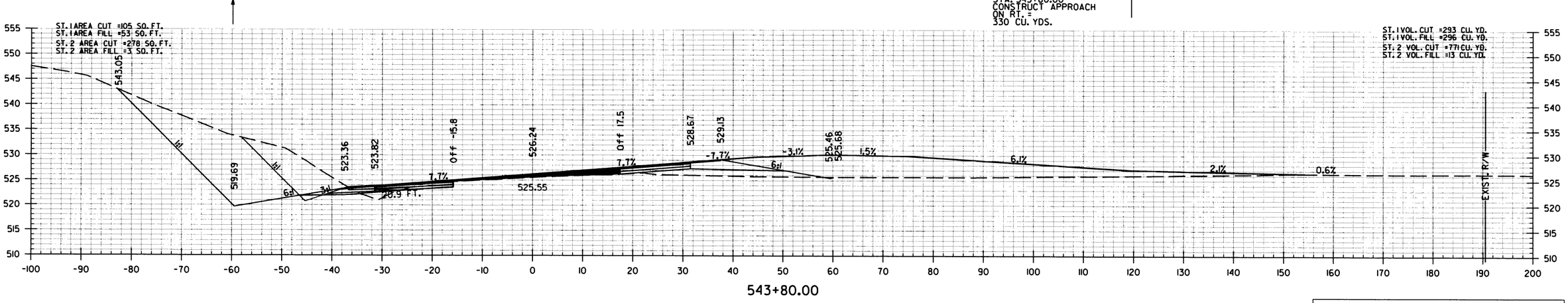
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	531	888

(2) CROSS SECTIONS







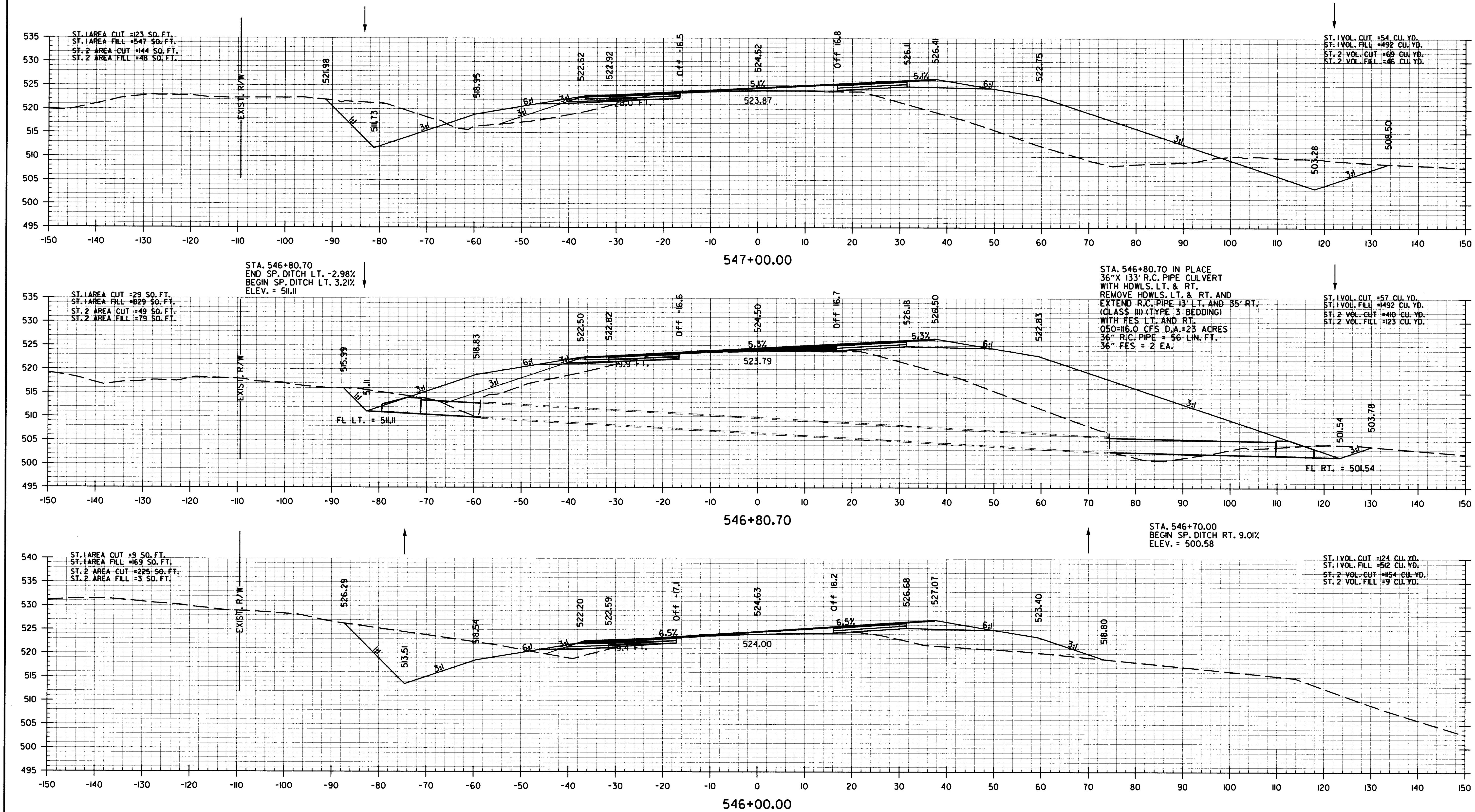
STA. 543+80 TO STA. 545+00

LeonardSpeed 9/23/2016 11:22:42 AM
WORKSPACE: Leonard_Speed
C:\Vwd81-local\baker_projects\leonard_speed\d0271744\rCA0606_2i_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	532	888

(2) CROSS SECTIONS



STA. 546+00 TO STA. 547+00

Leonard.Speed 9/23/2016 11:22:43 AM
WORKSPACE: Leonard.Speed
c:\pw\ol-local\baker_projects\leonard.speed\d0217174\CA0606_2L_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	533	888

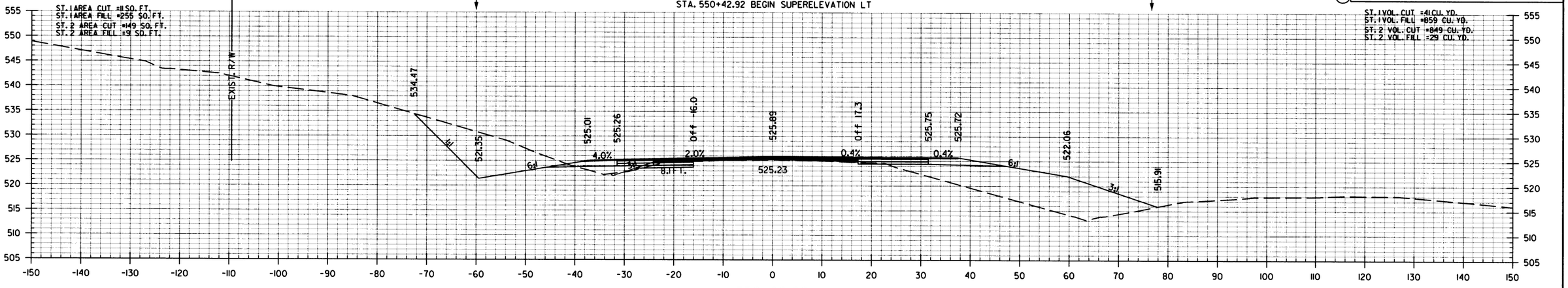
(2) CROSS SECTIONS

STA. 550+00.00
END SP. DITCH LT. 3.21%
ELEV. = 521.35

STA. 550+54.83 END SUPERELEVATION RT.
STA. 550+42.92 BEGIN SUPERELEVATION LT

ST. 1 AREA CUT =11 SQ. FT.
ST. 1 AREA FILL =255 SQ. FT.
ST. 2 AREA CUT =149 SQ. FT.
ST. 2 AREA FILL =9 SQ. FT.

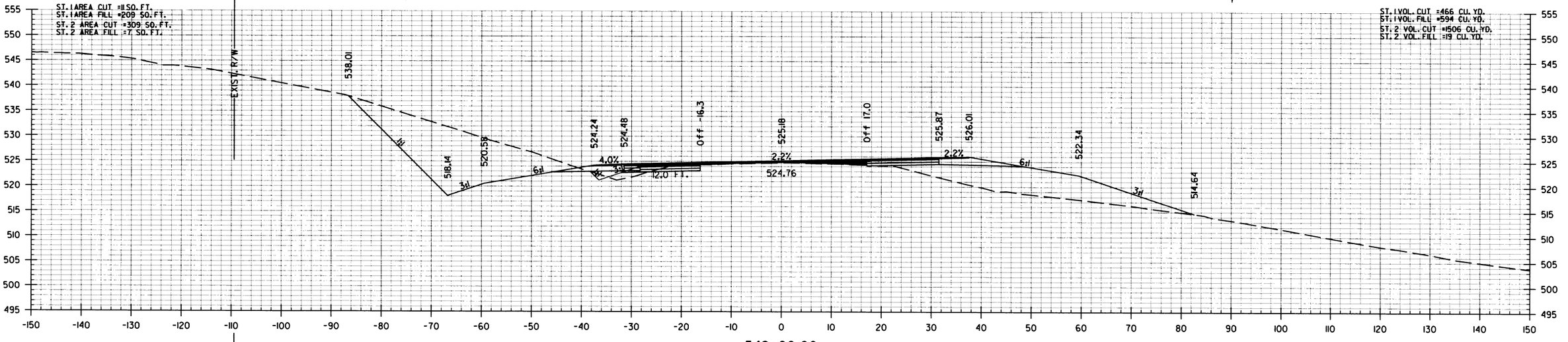
ST. 1 VOL. CUT =41 CU. YD.
ST. 1 VOL. FILL =859 CU. YD.
ST. 2 VOL. CUT =849 CU. YD.
ST. 2 VOL. FILL =29 CU. YD.



550+00.00

ST. 1 AREA CUT =11 SQ. FT.
ST. 1 AREA FILL =209 SQ. FT.
ST. 2 AREA CUT =309 SQ. FT.
ST. 2 AREA FILL =7 SQ. FT.

ST. 1 VOL. CUT =466 CU. YD.
ST. 1 VOL. FILL =594 CU. YD.
ST. 2 VOL. CUT =1506 CU. YD.
ST. 2 VOL. FILL =19 CU. YD.

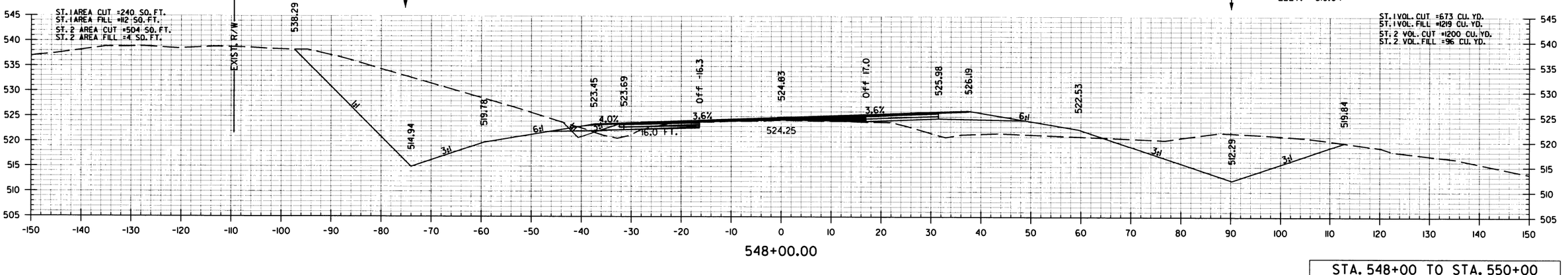


549+00.00

STA. 548+75.00
END SP. DITCH RT. 9.01%
ELEV. = 519.04

ST. 1 AREA CUT =240 SQ. FT.
ST. 1 AREA FILL =112 SQ. FT.
ST. 2 AREA CUT =504 SQ. FT.
ST. 2 AREA FILL =4 SQ. FT.

ST. 1 VOL. CUT =673 CU. YD.
ST. 1 VOL. FILL =1219 CU. YD.
ST. 2 VOL. CUT =1200 CU. YD.
ST. 2 VOL. FILL =96 CU. YD.



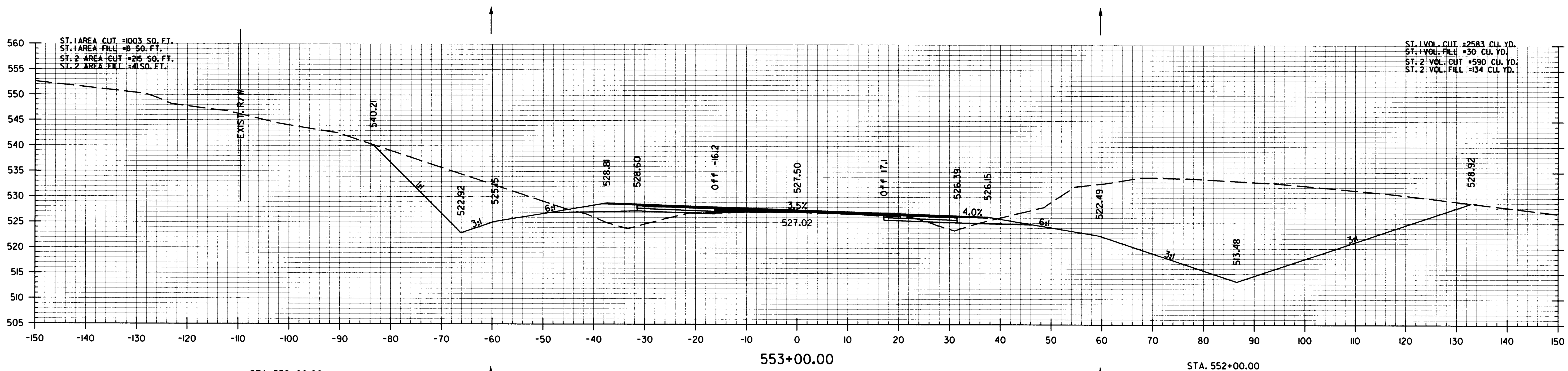
548+00.00

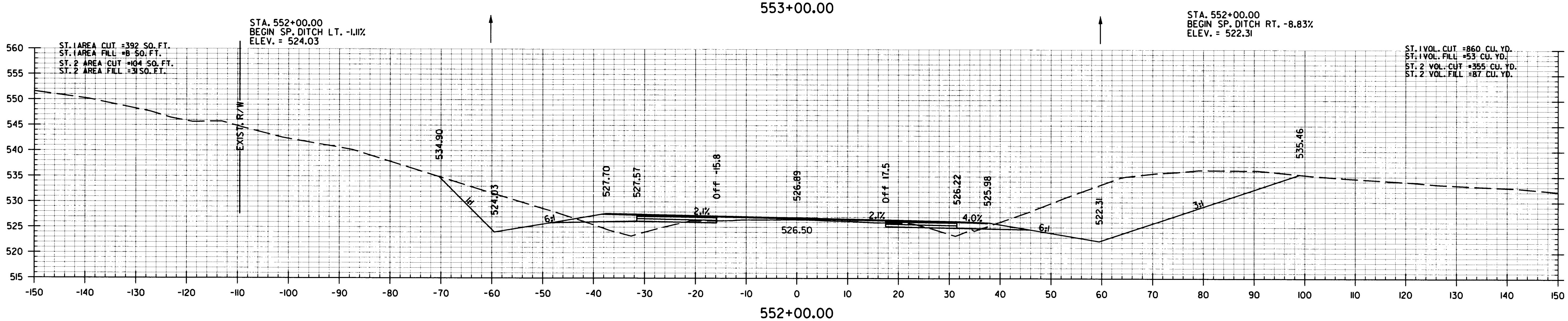
STA. 548+00 TO STA. 550+00

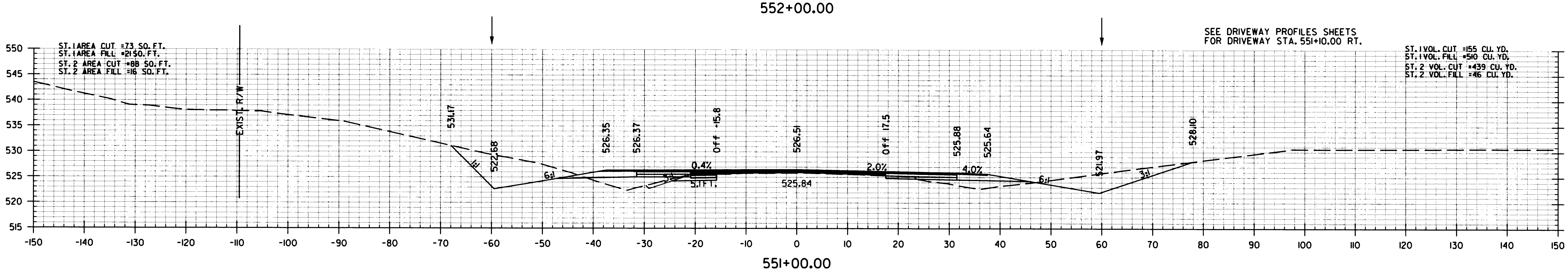
LeonardSpeed 9/23/2016 11:22:43 AM
WORKSPACE: LeonardSpeed
CONNECTION: C:\Users\jcarter\Documents\leonardspeed\d0271744\rCA0606_2i_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	534	888
				(2)	CROSS SECTIONS			







STA. 551+00 TO STA. 553+00

Leonard.Speed 9/23/2016 11:22:44 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271174\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: $REVDATE$

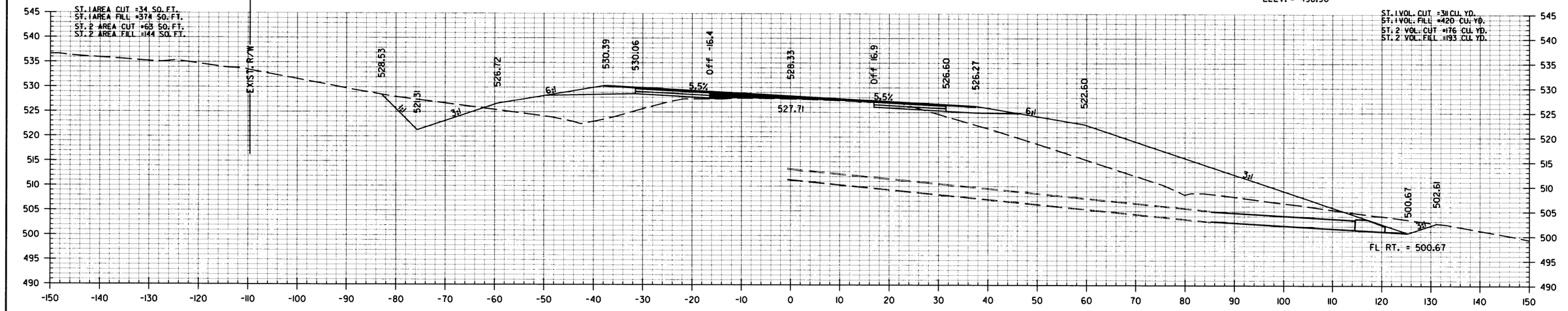
Michael Baker INTERNATIONAL

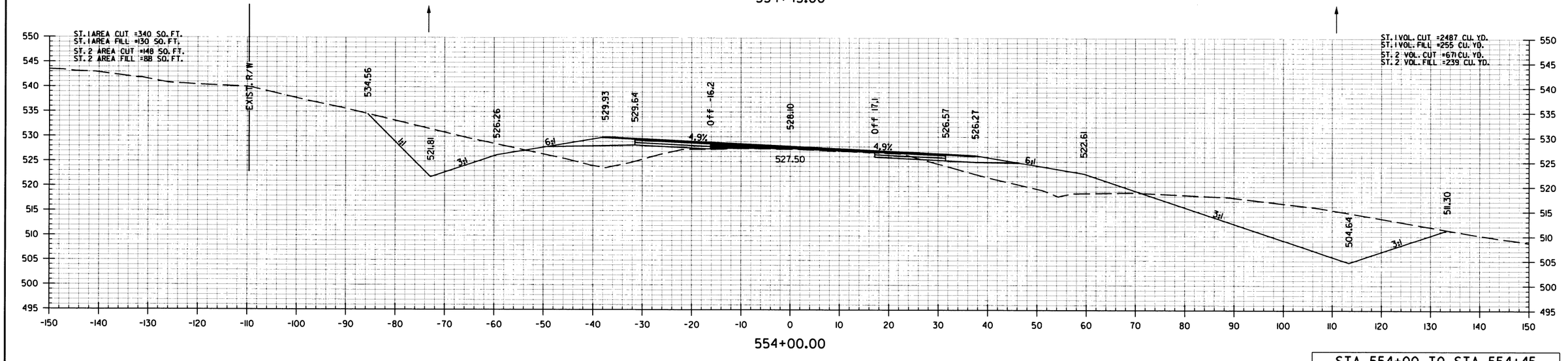
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	535	888

(2) CROSS SECTIONS

STA. 555+16.57 IN PLACE
24"X 155' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 29' LT. AND 34' RT.
29° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
050=28.9 CFS D.A.=6 ACRES
24" R.C. PIPE = 71 LIN. FT.
24" FES = 2 EA.

STA. 554+65.00
END SP. DITCH RT. -8.83%
ELEV. = 498.90





STA. 554+00 TO STA. 554+45

Leonard.Speed 9/23/2016 11:22:45 AM
WORKSPACE: Leonard.Speed
CONNECTION: Leonard.Speed - ts:\leonard.speed\d027174\r-CA0606_2_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

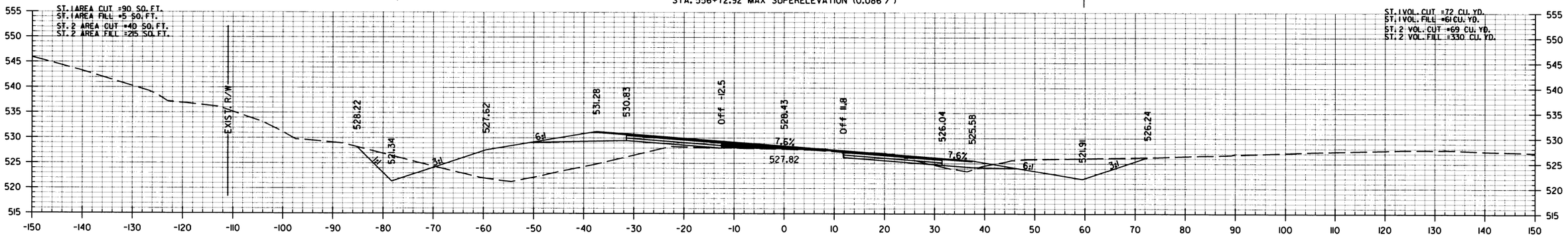
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

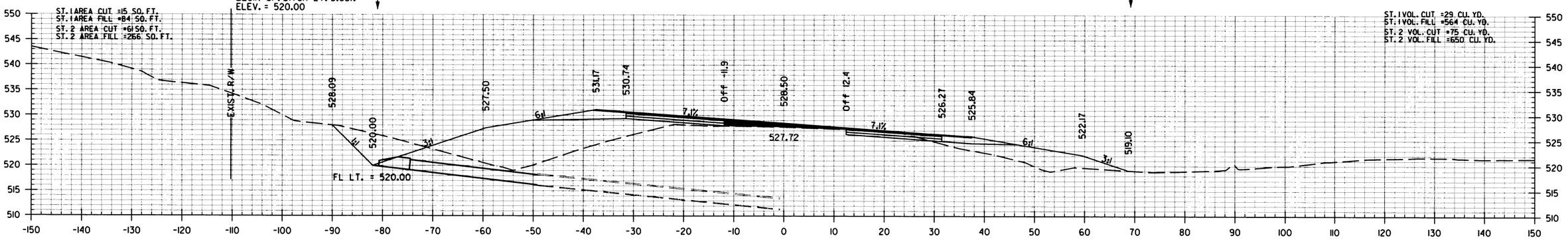
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	536	888

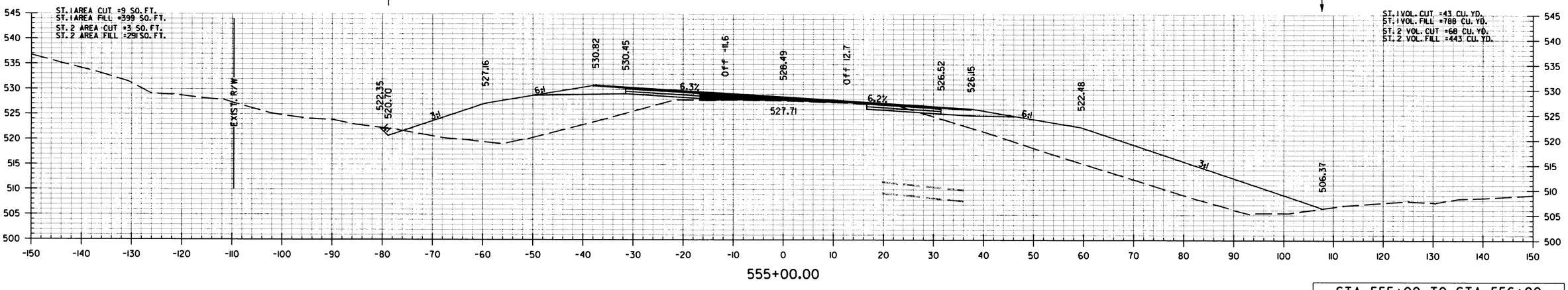
(2) CROSS SECTIONS

STA. 556+72.92 MAX SUPERELEVATION (0.086'/')



STA. 555+63.00
END SP. DITCH LT. -1.11%
BEGIN SP. DITCH LT. 3.63%
ELEV. = 520.00





STA. 555+00 TO STA. 556+00

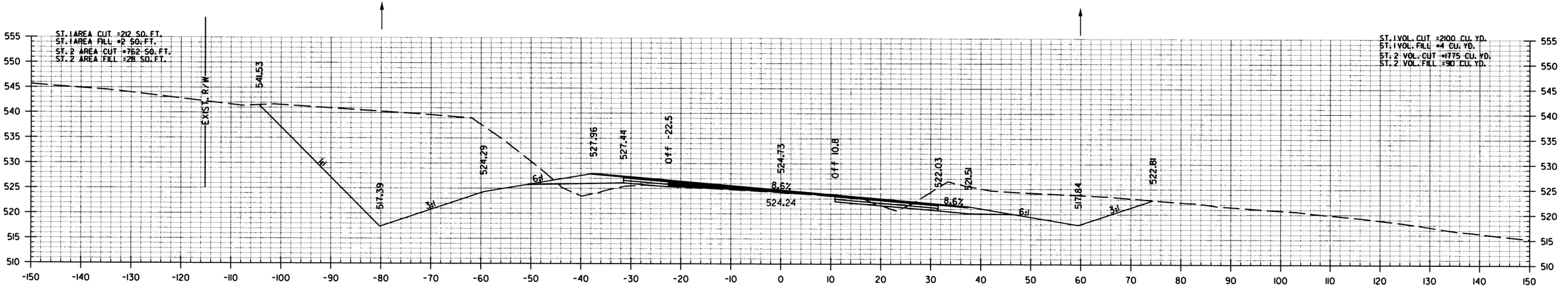
Leonard.Speed 9/23/2016 11:22:45 AM
WORKSPACE: Leonard.Speed
C:\Users\Leonard.Speed\Projects\Leonard.speed\d0217744\rCA0606.21.CX_MAIN.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

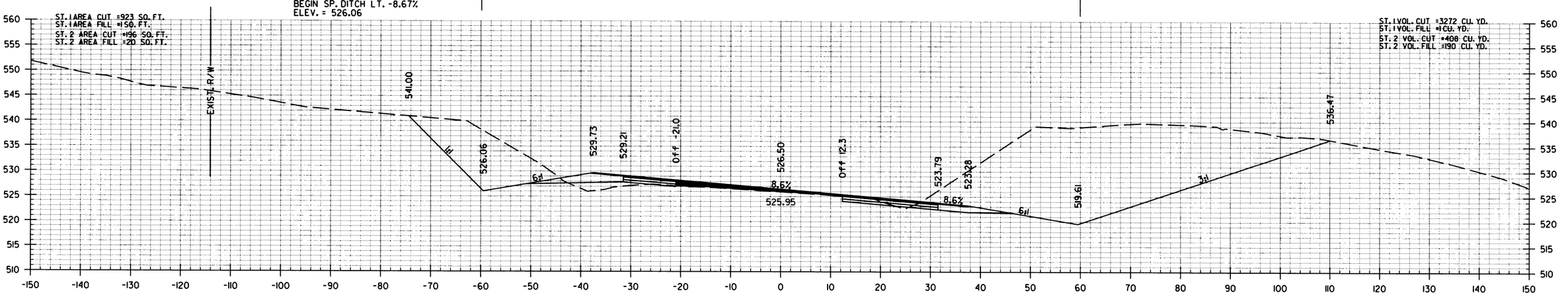
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	537	888

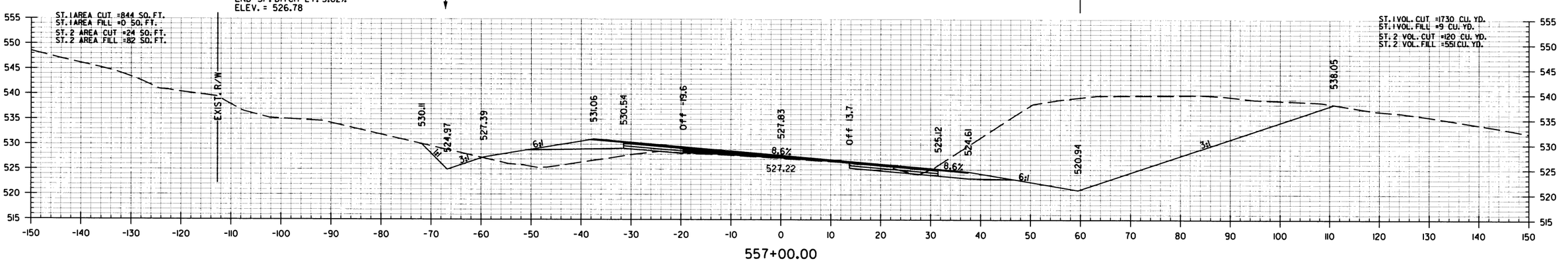
(2) CROSS SECTIONS



STA. 558+00.00
BEGIN SP. DITCH LT. -8.67%
ELEV. = 526.06



STA. 557+50.00
END SP. DITCH LT. 3.62%
ELEV. = 526.78



STA. 557+00 TO STA. 559+00

Leonard.Speed 9/23/2016 11:22:46 AM
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C:\Users\Public\Documents\Autodesk\Vault Projects\Leonard.Speed\d0217144\rCA0606.21.CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	538	888
				(2)	CROSS SECTIONS			

STA. 561+13.42 MAX SUPERELEVATION (0.086'/')

ST. 1 AREA CUT =135 SQ. FT.
ST. 1 AREA FILL =270 SQ. FT.
ST. 2 AREA CUT =157 SQ. FT.
ST. 2 AREA FILL =41 SQ. FT.

ST. 1 VOL. CUT =1562 CU. YD.
ST. 1 VOL. FILL =504 CU. YD.
ST. 2 VOL. CUT =333 CU. YD.
ST. 2 VOL. FILL =673 CU. YD.

EXIST. R/W
535.51
519.67
523.33
522.82
Off -22.9
520.11
519.31
Off 10.4
517.40
516.88
513.22
503.66
514.34
8.6%
6:1
3:1

561+00.00

STA. 560+10.24
END SP. DITCH LT. 0.00%
ELEV. = 510.74

STA. 560+61.72 IN PLACE
4' X 6' X 163' R.C. BOX CULVERT
45° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
REMOVE 39' LT. & 58' RT. AND
EXTEND 66' LT. & 104' RT.
Q50=215.0 CFS D.A.=46 ACRES

STA. 560+00.00
BEGIN SP. DITCH RT. -11.98%
ELEV. = 515.64

ST. 1 AREA CUT =708 SQ. FT.
ST. 1 AREA FILL =3 SQ. FT.
ST. 2 AREA CUT =12 SQ. FT.
ST. 2 AREA FILL =322 SQ. FT.

ST. 1 VOL. CUT =601 CU. YD.
ST. 1 VOL. FILL =2 CU. YD.
ST. 2 VOL. CUT =124 CU. YD.
ST. 2 VOL. FILL =205 CU. YD.

EXIST. R/W
514.05
510.74
522.09
525.76
525.24
Off -23.5
522.53
522.09
Off 9.8
519.82
519.3
515.64
527.58
8.6%
6:1
3:1

560+00.00

STA. 559+76.64
END SP. DITCH LT. -8.67%
BEGIN SP. DITCH LT. 0.00%
ELEV. = 510.74

ST. 1 AREA CUT =680 SQ. FT.
ST. 1 AREA FILL =1 SQ. FT.
ST. 2 AREA CUT =275 SQ. FT.
ST. 2 AREA FILL =153 SQ. FT.

ST. 1 VOL. CUT =1266 CU. YD.
ST. 1 VOL. FILL =4 CU. YD.
ST. 2 VOL. CUT =1472 CU. YD.
ST. 2 VOL. FILL =257 CU. YD.

EXIST. R/W
523.52
510.74
522.64
526.31
525.79
Off -23.4
523.08
522.64
Off 9.9
520.38
519.86
516.19
526.92
8.6%
6:1
3:1
FL LT. = 510.74

559+76.64

STA. 559+77 TO STA. 561+00

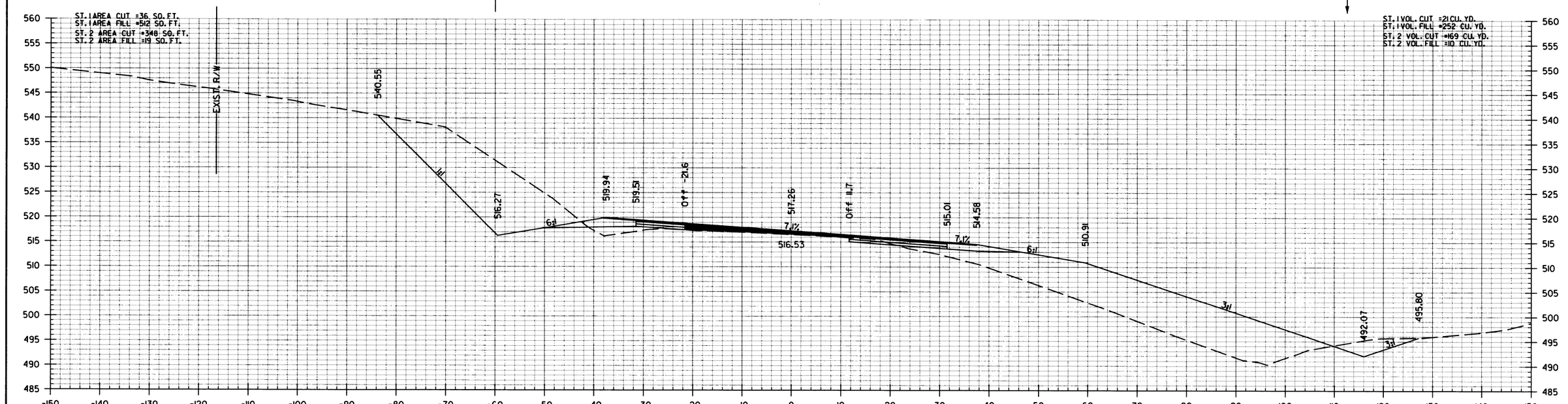
Leonard Speed 9/23/2016 11:22:47 AM
WORKSPACE: Leonard Speed
C:\pwv8i-local\baker_projects\leonard.speed\d0217141\rCA0606.21.CX_MAIN.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	539	888

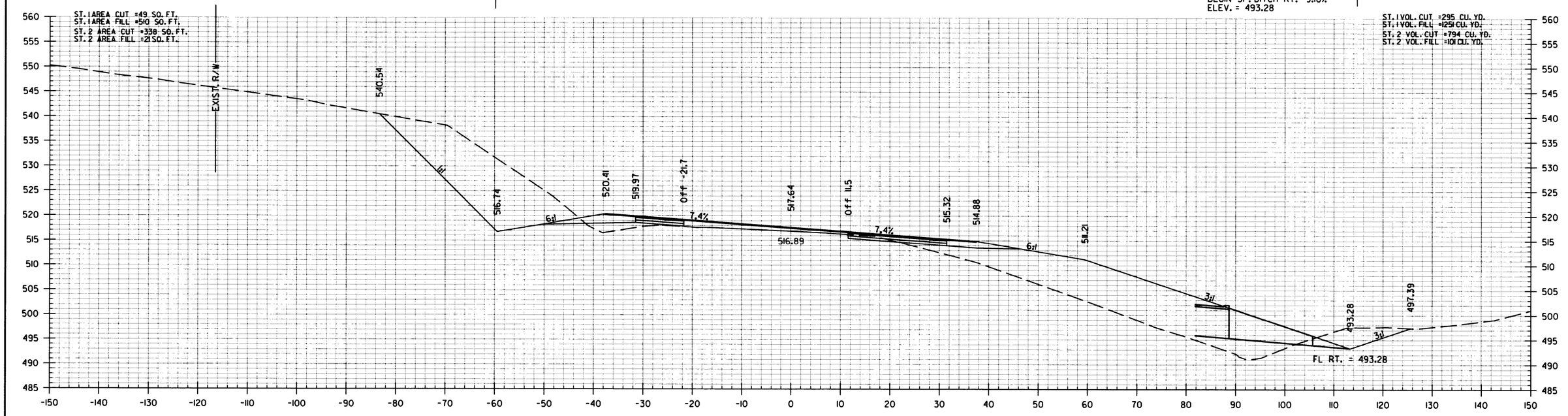
(2) CROSS SECTIONS

STA. 562+25.00
END SP. DITCH RT. -9.10%
ELEV. = 489.80



562+00.00

STA. 561+86.69
END SP. DITCH RT. -11.98%
BEGIN SP. DITCH RT. -9.10%
ELEV. = 493.28



561+86.69

STA. 561+87 TO STA. 562+00

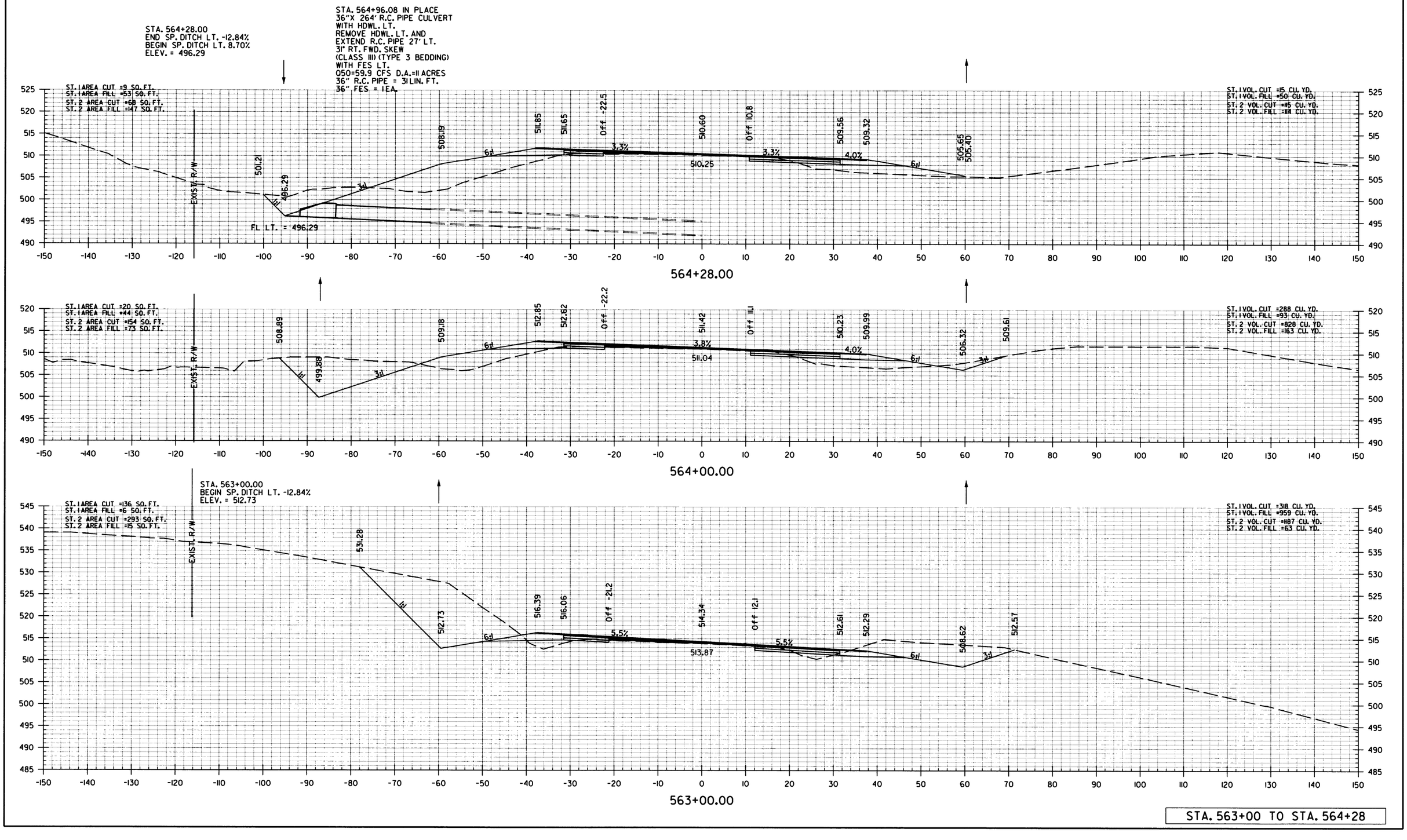
Leonard.Speed 9/23/2016 11:22:48 AM
WORKSITE: Leonard.Speed
C:\Users\Leonard.Speed\Projects\Leonard.Speed\d0211744\rCA0606.21.CX.MAIN.001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	540	888

(2) CROSS SECTIONS



STA. 563+00 TO STA. 564+28

Leonard.Speed 9/23/2016 11:22:49 AM
WORKSPACE: Leonard.Speed
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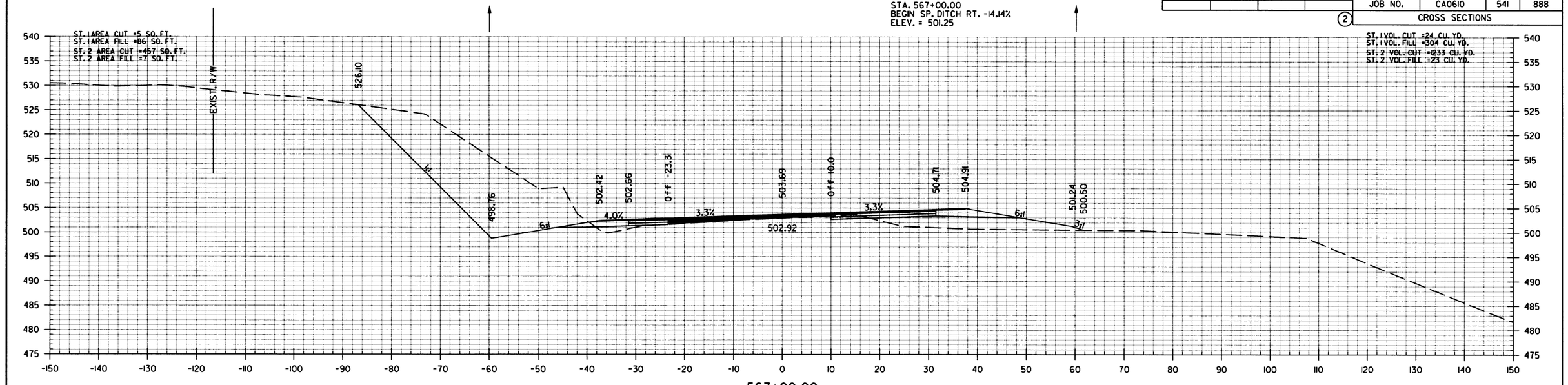
USER NAME = $$USERNAME$$
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	541	888

(2) CROSS SECTIONS



STA. 565+00 TO STA. 567+00

Leonard.Speed 9/23/2016 11:22:51 AM
WORKSPACE: Leonard.Speed
Current Drawing: C:\Projects\leonard.speed\d0271741\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	542	888

(2) CROSS SECTIONS

STA. 569+50.00
END SP. DITCH LT. 4.65%
ELEV. = 491.09

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =883 SQ. FT.
ST. 2 AREA CUT =29 SQ. FT.
ST. 2 AREA FILL =67 SQ. FT.

ST. 1 VOL. CUT =0 CU. YD.
ST. 1 VOL. FILL =183 CU. YD.
ST. 2 VOL. CUT =6 CU. YD.
ST. 2 VOL. FILL =18 CU. YD.

EXIST. R/W
493.34
488.76
492.64
496.31
496.70 Off -29.3
496.80 Off 4.0
500.89
501.29
497.62
497.49
473.29
6.7%
6.6%
1H
3H
6H

569+00.00

STA. 568+94.30
END SP. DITCH LT. -7.68%
BEGIN SP. DITCH LT. 4.65%
ELEV. = 488.50

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =855 SQ. FT.
ST. 2 AREA CUT =24 SQ. FT.
ST. 2 AREA FILL =102 SQ. FT.

STA. 568+94.30 IN PLACE
48"X 148' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 18' LT. AND 9' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=120.3 CFS D.A.=22 ACRES
48" R.C. PIPE = 31 LIN. FT.
48" FES = 2 EA.

STA. 568+94.30
END SP. DITCH RT. -14.14%
ELEV. = 473.78

ST. 1 VOL. CUT =465 CU. YD.
ST. 1 VOL. FILL =1738 CU. YD.
ST. 2 VOL. CUT =528 CU. YD.
ST. 2 VOL. FILL =198 CU. YD.

EXIST. R/W
492.75
488.50
492.81
496.48
496.87 Off -29.1
498.94 Off 4.2
501.00
501.39
497.72
497.66
473.78
FL LT. = 488.50
FL RT. = 473.78
6.5%
6.5%
1H
3H
6H

568+94.30

STA. 568+00.00
BEGIN SP. DITCH LT. -7.68%
ELEV. = 495.74

ST. 1 AREA CUT =266 SQ. FT.
ST. 1 AREA FILL =140 SQ. FT.
ST. 2 AREA CUT =278 SQ. FT.
ST. 2 AREA FILL =115 SQ. FT.

ST. 1 VOL. CUT =502 CU. YD.
ST. 1 VOL. FILL =419 CU. YD.
ST. 2 VOL. CUT =136 CU. YD.
ST. 2 VOL. FILL =33 CU. YD.

EXIST. R/W
514.41
495.74
499.40
499.70 Off -26.9
501.26 Off 6.4
502.82
503.12
499.45
500.34
492.73
487.11
4.9%
4.9%
1H
3H
6H

568+00.00

STA. 568+00 TO STA. 569+00

Leonard.Speed 9/23/2016 11:22:52 AM
WORKSPACE: Leonard.Speed
c:\projects\leonard.speed\data\leonard.speed\0027744\r\CA0606_2\CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	543	888

(2) CROSS SECTIONS

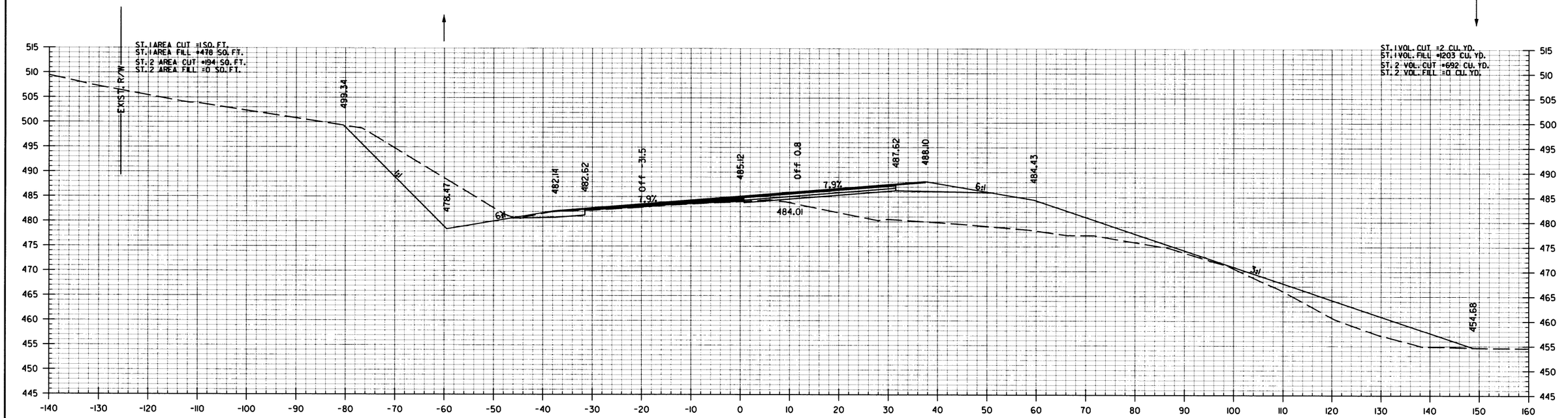
STA. 570+00 TO STA. 572+00

LeonardSpeed 9/21/2006 11:22:53 AM
WORKSPACE: Leonard Speed
c:\pw\ml-local\baker_projects\leonard.speed\d0217744\rCA0606.21.CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	544	888

(2) CROSS SECTIONS



STA. 573+00 TO STA. 574+00

LeonardSpeed 9/23/2016 11:22:54 AM
\\MBOSCAD1\Projects\Leonard Speed\
c:\pw\81-local\baker_projects\leonard.speed\d027l744\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

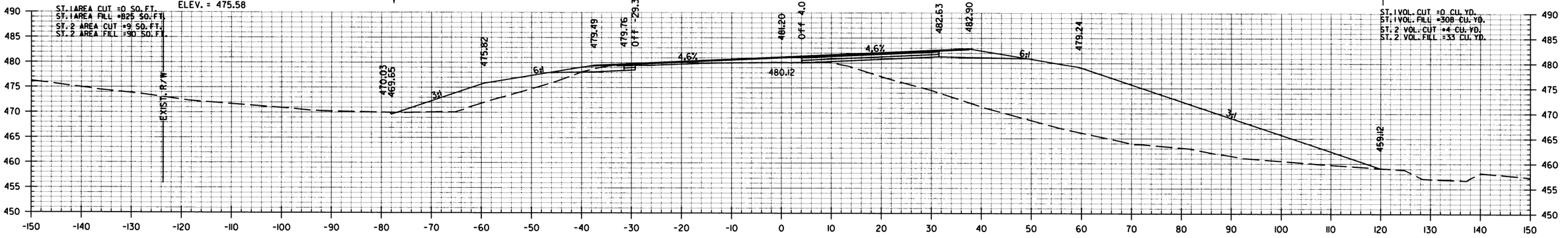
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	545	888
				(2)	CROSS SECTIONS			

STA. 576+50.00
END SP. DITCH LT. 11.86%
BEGIN SP. DITCH LT. -5.92%
ELEV. = 475.58

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =825 SQ. FT.
ST. 2 AREA CUT =9 SQ. FT.
ST. 2 AREA FILL =90 SQ. FT.

ST. 1 VOL. CUT =0 CU. YD.
ST. 1 VOL. FILL =308 CU. YD.
ST. 2 VOL. CUT =4 CU. YD.
ST. 2 VOL. FILL =33 CU. YD.



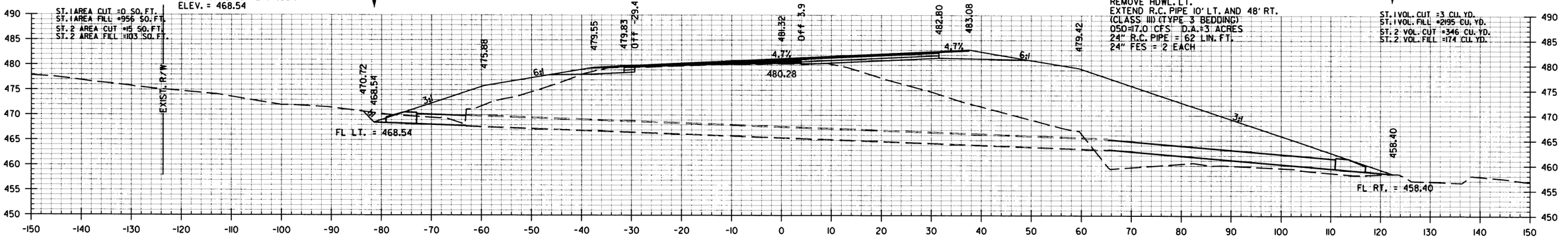
576+00.00

STA. 575+90.67
END SP. DITCH LT. -9.11%
BEGIN SP. DITCH LT. 11.86%
ELEV. = 468.54

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =956 SQ. FT.
ST. 2 AREA CUT =15 SQ. FT.
ST. 2 AREA FILL =103 SQ. FT.

STA. 575+90.67 IN PLACE
24"X 129' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT.
EXTEND R.C. PIPE 10' LT. AND 48' RT.
(CLASS III) (TYPE 3 BEDDING)
Q50=17.0 CFS D.A.=3 ACRES
24" R.C. PIPE = 62 LIN. FT.
24" FES = 2 EACH

ST. 1 VOL. CUT =3 CU. YD.
ST. 1 VOL. FILL =2195 CU. YD.
ST. 2 VOL. CUT =346 CU. YD.
ST. 2 VOL. FILL =174 CU. YD.

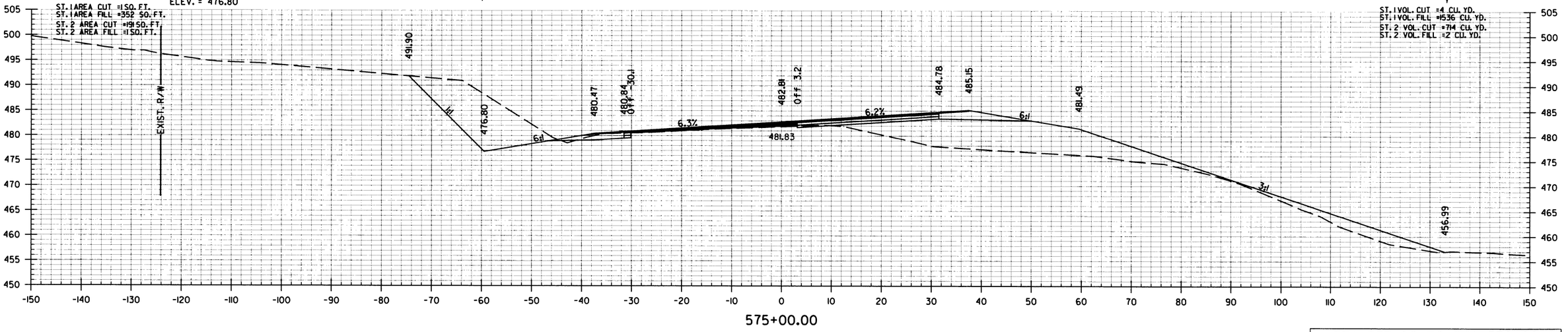


575+90.67

STA. 575+00.00
BEGIN SP. DITCH LT. -9.11%
ELEV. = 476.80

ST. 1 AREA CUT =150 SQ. FT.
ST. 1 AREA FILL =352 SQ. FT.
ST. 2 AREA CUT =191 SQ. FT.
ST. 2 AREA FILL =150 SQ. FT.

ST. 1 VOL. CUT =4 CU. YD.
ST. 1 VOL. FILL =1536 CU. YD.
ST. 2 VOL. CUT =714 CU. YD.
ST. 2 VOL. FILL =2 CU. YD.



575+00.00

STA. 575+00 TO STA. 576+00

Leonard.Speed 9/23/2016 11:22:55 AM
WORK\Active Projects\Leonard.Speed
Dgn=M:\Design\Active Projects\Leonard.speed\d0211741\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

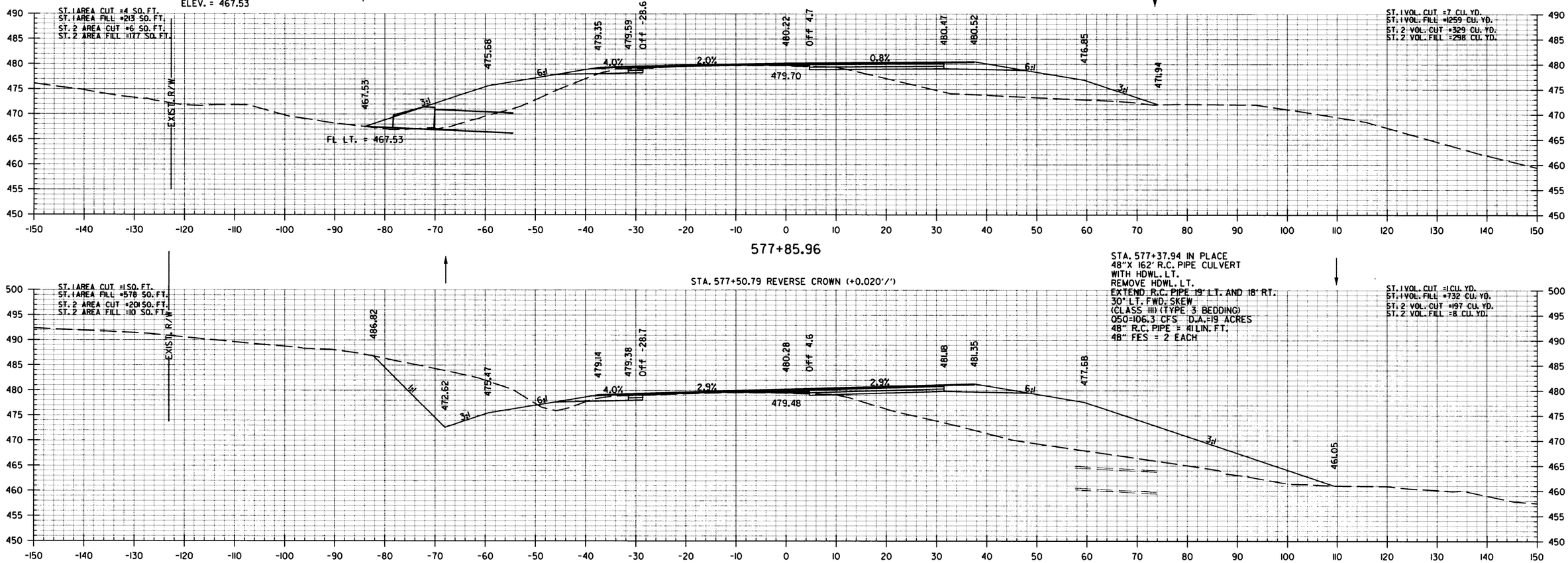
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	546	888

(2) CROSS SECTIONS

STA. 577+85.96
END SP. DITCH LT. -5.92%
ELEV. = 467.53

ST. 1 AREA CUT =4 SQ. FT.
ST. 1 AREA FILL =213 SQ. FT.
ST. 2 AREA CUT =6 SQ. FT.
ST. 2 AREA FILL =177 SQ. FT.

ST. 1 VOL. CUT =7 CU. YD.
ST. 1 VOL. FILL =1259 CU. YD.
ST. 2 VOL. CUT =329 CU. YD.
ST. 2 VOL. FILL =298 CU. YD.



577+85.96

STA. 577+50.79 REVERSE CROWN (+0.020'/')

ST. 1 AREA CUT =1 SQ. FT.
ST. 1 AREA FILL =578 SQ. FT.
ST. 2 AREA CUT =201 SQ. FT.
ST. 2 AREA FILL =10 SQ. FT.

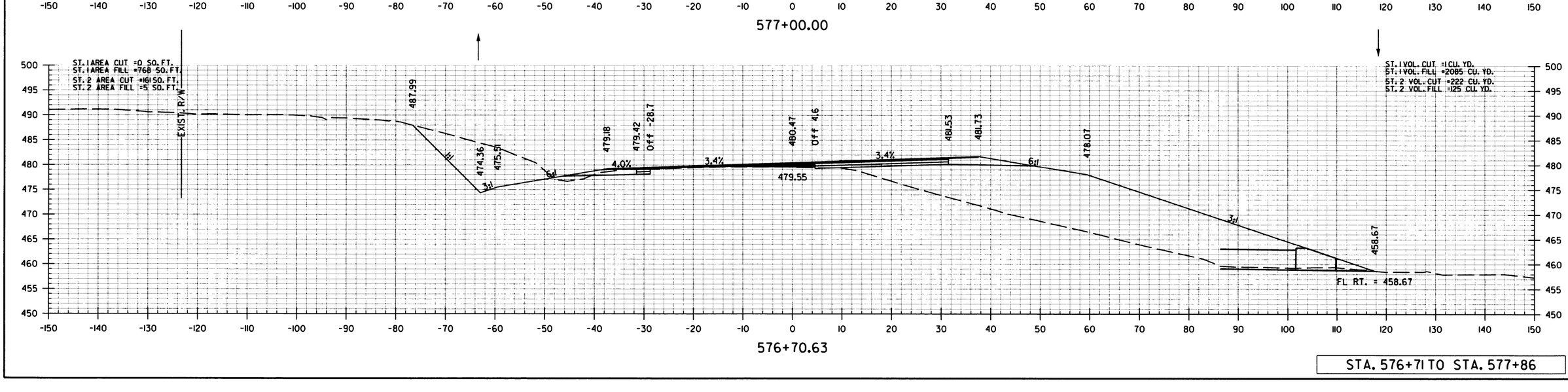
STA. 577+37.94 IN PLACE
48"X 162' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT.
EXTEND R.C. PIPE 19' LT. AND 18' RT.
30° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
Q50=106.3 CFS D.A.=19 ACRES
48" R.C. PIPE = 41 LIN. FT.
48" FES = 2 EACH

ST. 1 VOL. CUT =1 CU. YD.
ST. 1 VOL. FILL =732 CU. YD.
ST. 2 VOL. CUT =197 CU. YD.
ST. 2 VOL. FILL =8 CU. YD.

577+00.00

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =768 SQ. FT.
ST. 2 AREA CUT =161 SQ. FT.
ST. 2 AREA FILL =5 SQ. FT.

ST. 1 VOL. CUT =1 CU. YD.
ST. 1 VOL. FILL =2085 CU. YD.
ST. 2 VOL. CUT =222 CU. YD.
ST. 2 VOL. FILL =125 CU. YD.



576+70.63

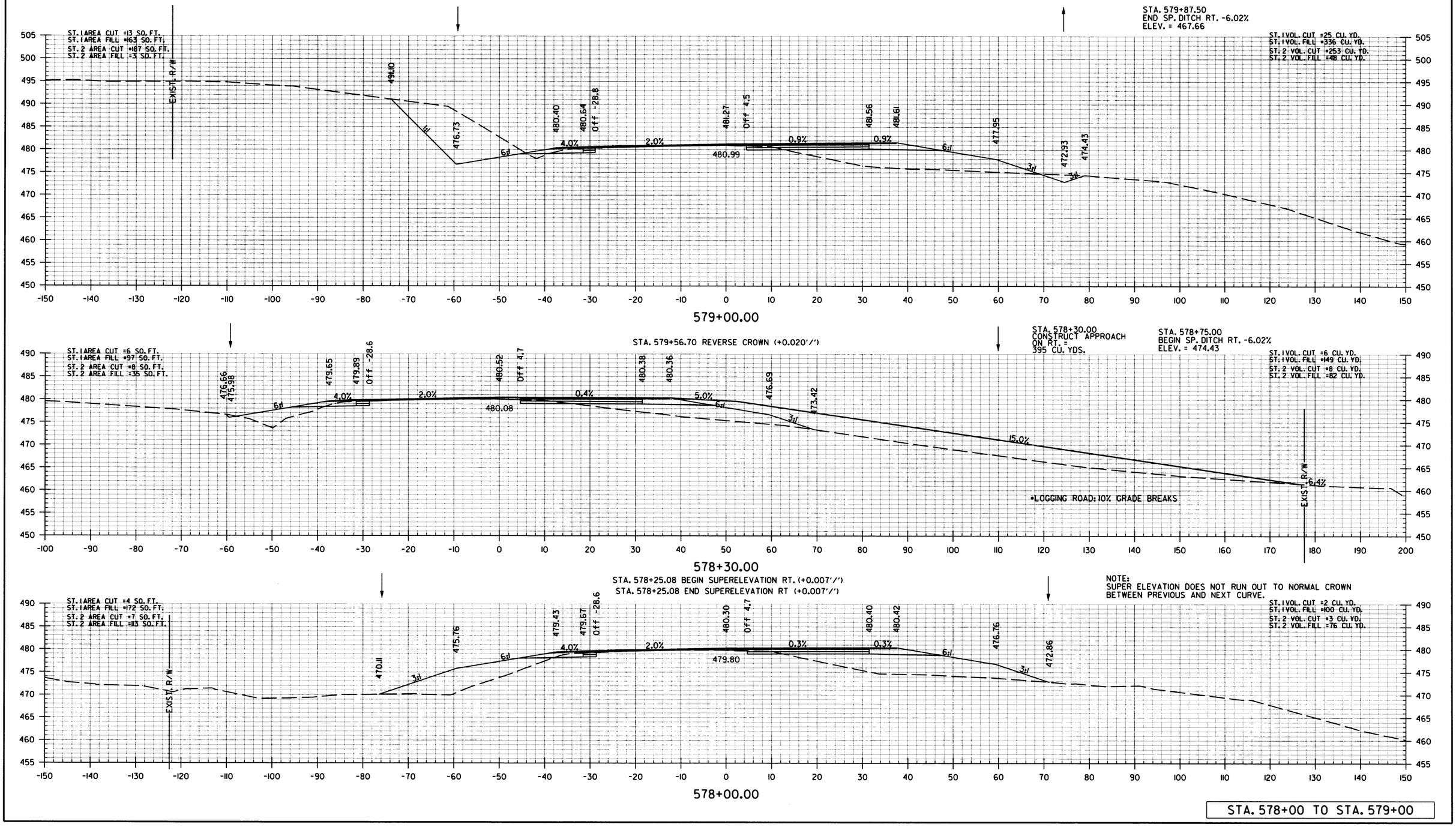
STA. 576+71 TO STA. 577+86

Leonard Speed 9/23/2016 11:22:57 AM
MKOWALSKI
C:\Users\mkowalski\Desktop\Projects\Leonard-speed\d0271744\r-CA0606.21.CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	547	888

(2) CROSS SECTIONS



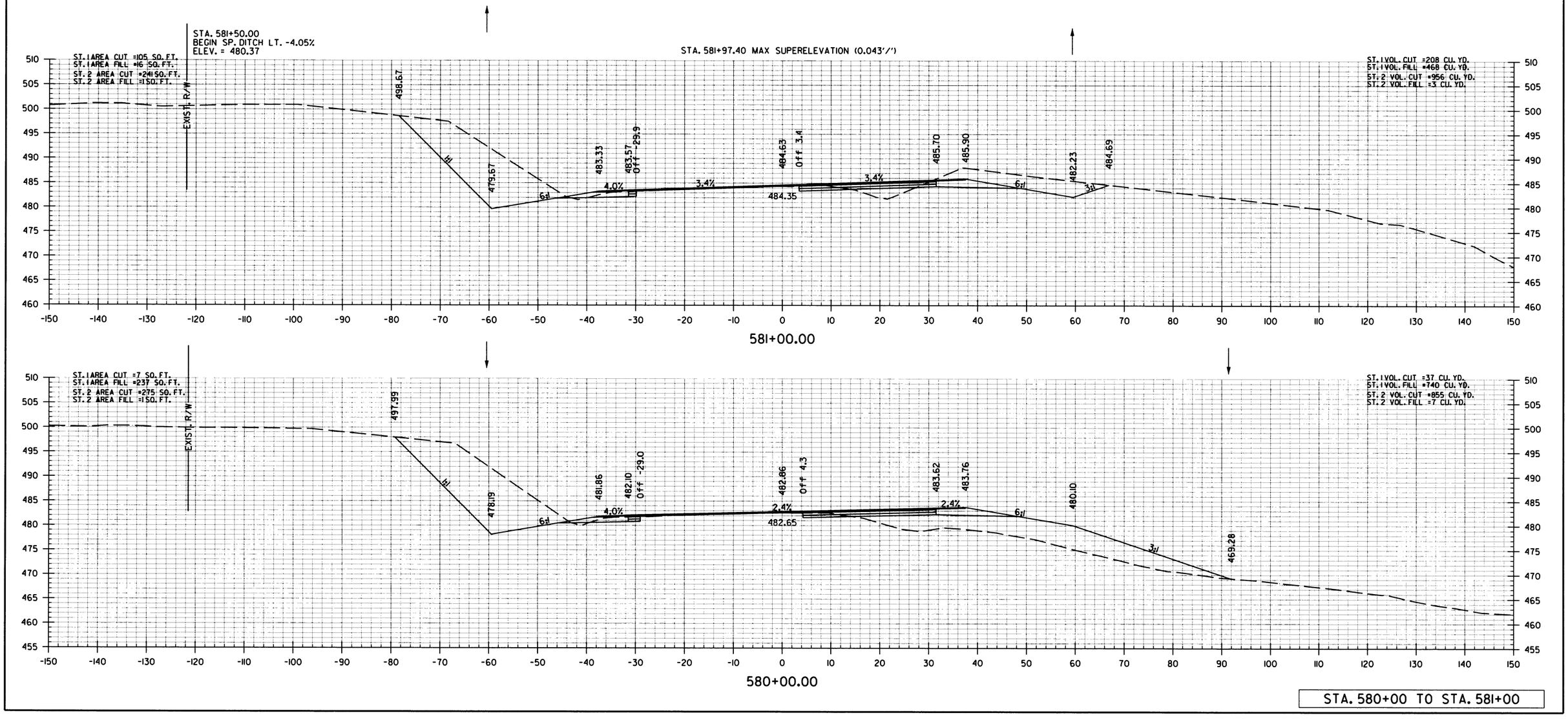
STA. 578+00 TO STA. 579+00

Leonard.Speed 9/23/206 11:22:58 AM
WORKSPACE: Leonard.Speed
COMPUTER: c:\Projects\leonard.speed\d0211744\rCA0606.21.CX.MAIN.001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	548	888

(2) CROSS SECTIONS



STA. 580+00 TO STA. 581+00

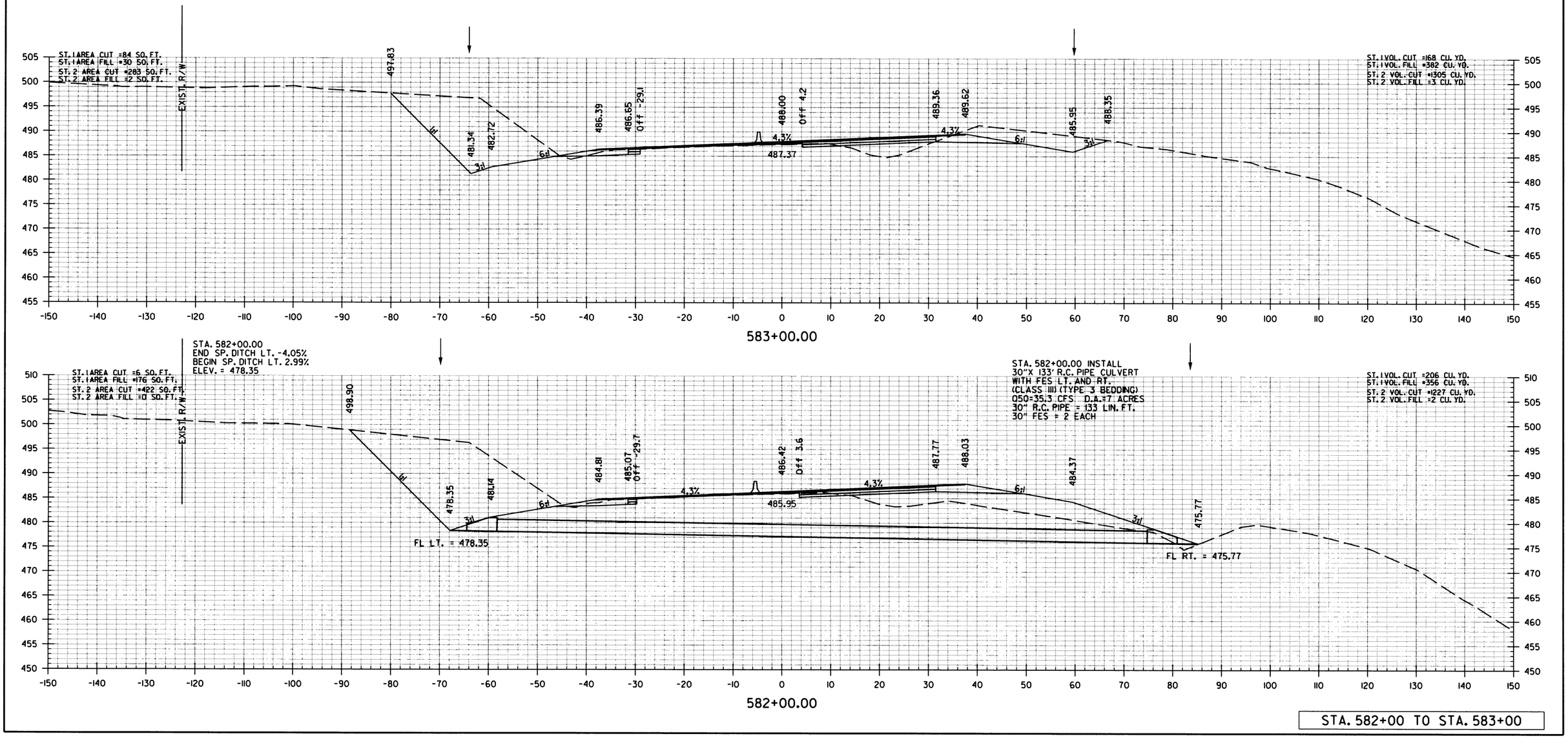
Leonard.Speed 9/23/2016 11:22:59 AM
W:\ENGR\Projects\Leonard.Speed\d027l744\r\CA0606_2_CX_MAIN_001.dgn
CURRENT USER: Leonard.Speed
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	549	888

(2) CROSS SECTIONS



STA. 582+00 TO STA. 583+00

Leonard Speed 9/23/2016 11:23:00 AM
Workspace: Leonard Speed
c:\pwdl-local\baker.prj\projects\leonard.speed\d0217741\rCA0606.21.CX_MAIN.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	550	888

(2) CROSS SECTIONS

STA. 585+86.26 IN PLACE
4' X 6' X 130' R.C. BOX CULVERT
30° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
REMOVE 41' LT. & 36' RT. AND
EXTEND 55' LT. & 32' RT.
Q50=323.4 CFS D.A.=93 ACRES

STA. 585+18.34
END SP. DITCH RT. 1.02%
BEGIN SP. DITCH RT. 12.77%
ELEV. = 468.53

ST. 1 VOL. CUT =61 CU. YD.
ST. 1 VOL. FILL =510 CU. YD.
ST. 2 VOL. CUT =32 CU. YD.
ST. 2 VOL. FILL =0 CU. YD.

ST. 1 AREA CUT =135 SQ. FT.
ST. 1 AREA FILL =787 SQ. FT.
ST. 2 AREA CUT =59 SQ. FT.
ST. 2 AREA FILL =0 SQ. FT.

EXIST. R/W

490.22 | 486.25 | 489.91 | 490.17 | Off -29.0 | 491.53 | Off 4.3 | 492.88 | 493.14 | 489.47 | 468.53 | 473.96

4.3% 4.3% 6:1 3:1 3:1 490.82

FL RT. = 468.53

585+18.34

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEWAY STA. 585+15.00 LT.

ST. 1 VOL. CUT =90 CU. YD.
ST. 1 VOL. FILL =1466 CU. YD.
ST. 2 VOL. CUT =481 CU. YD.
ST. 2 VOL. FILL =2 CU. YD.

ST. 1 AREA CUT =45 SQ. FT.
ST. 1 AREA FILL =716 SQ. FT.
ST. 2 AREA CUT =35 SQ. FT.
ST. 2 AREA FILL =0 SQ. FT.

EXIST. R/W

490.02 | 485.36 | 489.62 | 489.88 | Off -29.0 | 491.23 | Off 4.3 | 492.59 | 492.85 | 489.18 | 468.34 | 472.02

4.3% 4.3% 6:1 3:1 3:1 490.53

585+00.00

STA. 584+00.00
END SP. DITCH LT. 2.99%
ELEV. = 484.34

STA. 584+75.00
BEGIN SP. DITCH RT. 1.02%
ELEV. = 468.09

ST. 1 VOL. CUT =163 CU. YD.
ST. 1 VOL. FILL =196 CU. YD.
ST. 2 VOL. CUT =941 CU. YD.
ST. 2 VOL. FILL =4 CU. YD.

ST. 1 AREA CUT =4 SQ. FT.
ST. 1 AREA FILL =76 SQ. FT.
ST. 2 AREA CUT =225 SQ. FT.
ST. 2 AREA FILL =150 SQ. FT.

EXIST. R/W

500.09 | 484.34 | 488.01 | 488.26 | Off -29.1 | 489.62 | Off 4.2 | 490.97 | 491.23 | 487.56 | 487.05

4.3% 4.3% 6:1 3:1 488.95

584+00.00

STA. 584+00 TO STA. 585+18

Leonard Speed 9/23/2016 11:23:02 AM
M:\ROADWAY\Leonard Speed\Sheets\Leonard Speed\d027144\r-CA0606.21.CX.MAIN.00.dgn
C:\Users\81-local\baker.projects\Leonard Speed\d027144\r-CA0606.21.CX.MAIN.00.dgn
REVISED DATE: $$REVDATE$$

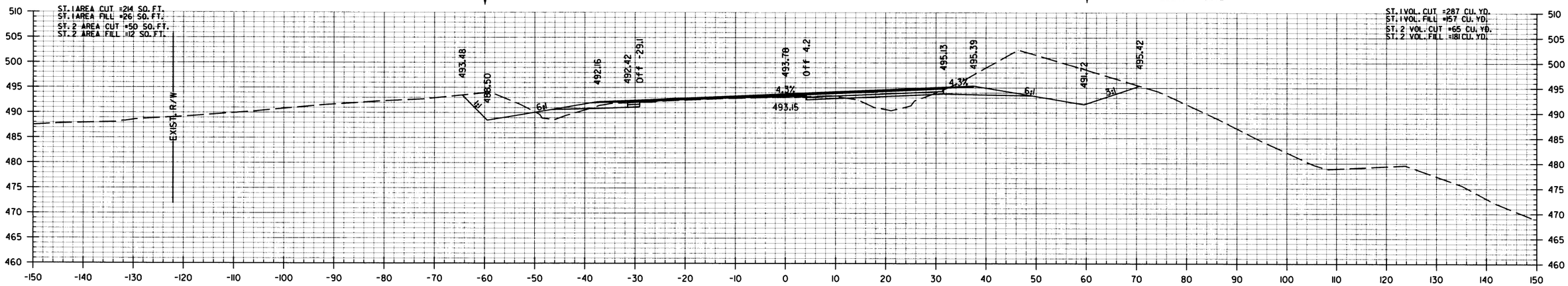
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	551	888
				(2)	CROSS SECTIONS			

STA. 587+00.00
END SP. DITCH RT. 12.77%
ELEV. = 491.72

ST. 1 AREA CUT =214 SQ. FT.
ST. 1 AREA FILL =26 SQ. FT.
ST. 2 AREA CUT =50 SQ. FT.
ST. 2 AREA FILL =12 SQ. FT.

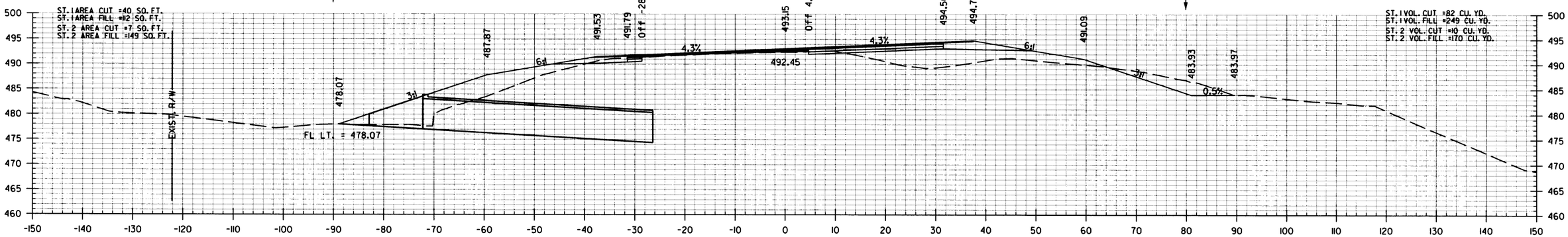
ST. 1 VOL. CUT =287 CU. YD.
ST. 1 VOL. FILL =157 CU. YD.
ST. 2 VOL. CUT =65 CU. YD.
ST. 2 VOL. FILL =181 CU. YD.



587+00.00

ST. 1 AREA CUT =40 SQ. FT.
ST. 1 AREA FILL =112 SQ. FT.
ST. 2 AREA CUT =7 SQ. FT.
ST. 2 AREA FILL =149 SQ. FT.

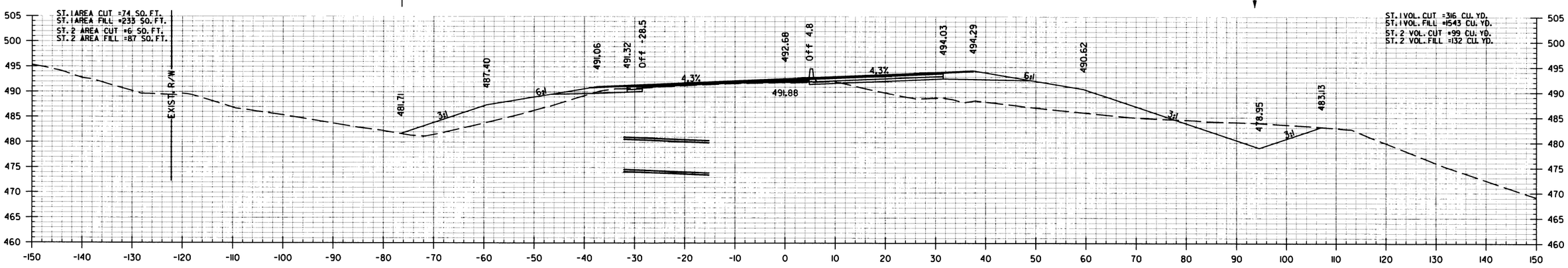
ST. 1 VOL. CUT =82 CU. YD.
ST. 1 VOL. FILL =249 CU. YD.
ST. 2 VOL. CUT =10 CU. YD.
ST. 2 VOL. FILL =170 CU. YD.



586+38.93

ST. 1 AREA CUT =74 SQ. FT.
ST. 1 AREA FILL =233 SQ. FT.
ST. 2 AREA CUT =6 SQ. FT.
ST. 2 AREA FILL =87 SQ. FT.

ST. 1 VOL. CUT =316 CU. YD.
ST. 1 VOL. FILL =1543 CU. YD.
ST. 2 VOL. CUT =99 CU. YD.
ST. 2 VOL. FILL =132 CU. YD.



586+00.00

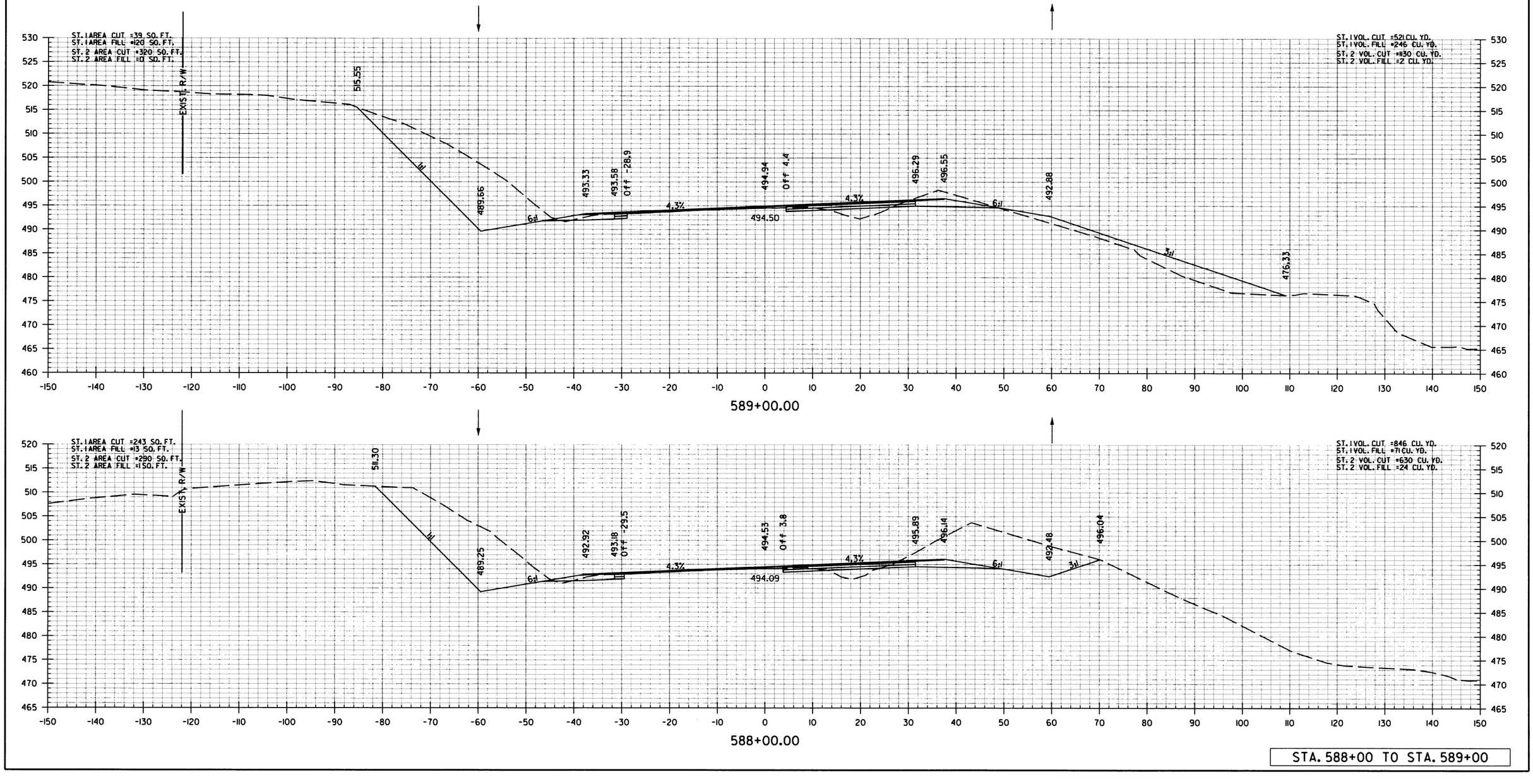
STA. 586+00 TO STA. 587+00

LeonardSpeed 9/23/2016 11:23:03 AM
WORKSET: Project Sheet
C:\Vault\Baker Projects\Leonard.speed\d0271741\rCA0606.21.CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	552	888

(2) CROSS SECTIONS



STA. 588+00 TO STA. 589+00

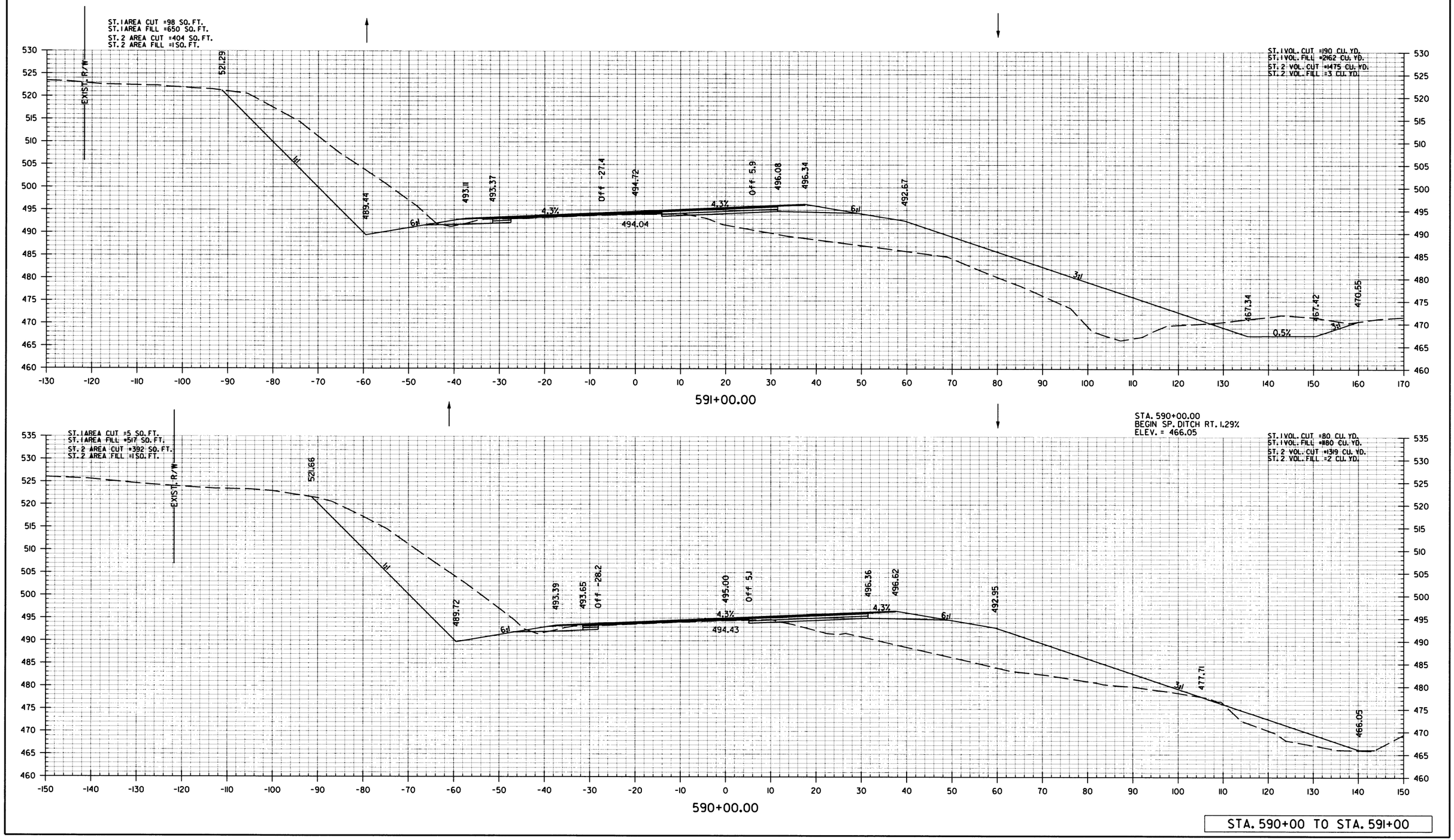
Leonard.Speed 9/23/2016 11:23:04 AM
WORKSPACE: Leonard.Speed
Current Drawing: C:\Projects\Leonard.Speed\d0217744\rCA0606.21.CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	553	888

(2) CROSS SECTIONS



STA. 590+00 TO STA. 591+00

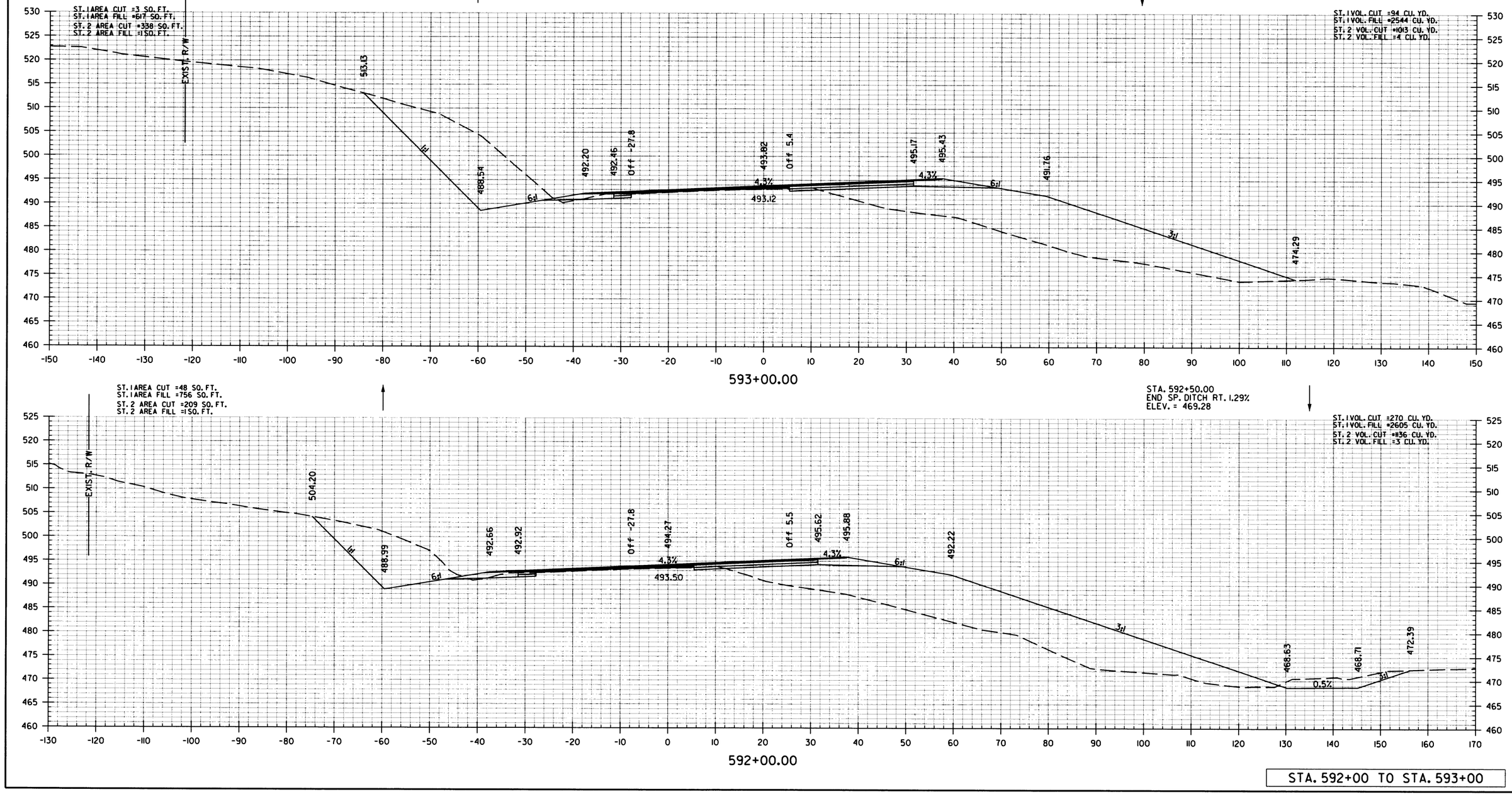
Leonard.Speed 9/23/2016 11:23:05 AM
WORKSPACE: Leonard.Speed
CONNECTION: Connection Objects\Leonard.speed\d0211744\rCA0606.2i.CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker
INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	554	888

(2) CROSS SECTIONS



STA. 592+00 TO STA. 593+00

Leonard.Speed 9/23/2016 11:23:07 AM
WORKSPACE: Leonard.Speed
CURRENT DRAWING: c:\projects\leonard.speed\d0211741\rCA0606.21.CX_MAIN.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	555	888

(2) CROSS SECTIONS

STA. 595+66.23
END SP. DITCH LT. -7.07%
BEGIN SP. DITCH LT. 1.28%
ELEV. = 483.00

ST. 1 AREA CUT =2 SQ. FT.
ST. 1 AREA FILL =312 SQ. FT.
ST. 2 AREA CUT =22 SQ. FT.
ST. 2 AREA FILL =104 SQ. FT.

EXIST. R/W

485.82 | 483.00 | 487.59 | 491.26 | 491.51 | Off -28.4 | 492.87 | Off 4.9 | 494.22 | 494.48 | 490.81 | 473.91

3:1 | 6:1 | 4.3% | 492.03 | 3:1

FL LT. = 483.00

STA. 595+66.23 IN PLACE
42"X 124' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 15' LT. AND 15' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
D50=125.7 CFS D.A.=24 ACRES
42" R.C. PIPE = 34 LIN. FT.
42" FES = 2 EA.

ST. 1 VOL. CUT =6 CU. YD.
ST. 1 VOL. FILL =562 CU. YD.
ST. 2 VOL. CUT =197 CU. YD.
ST. 2 VOL. FILL =145 CU. YD.

EXIST. DITCH FLOWLINE

FL RT. = 473.91

595+66.23

STA. 595+00.00
BEGIN SP. DITCH LT. -7.07%
ELEV. = 487.68

ST. 1 AREA CUT =3 SQ. FT.
ST. 1 AREA FILL =146 SQ. FT.
ST. 2 AREA CUT =139 SQ. FT.
ST. 2 AREA FILL =14 SQ. FT.

EXIST. R/W

504.06 | 487.68 | 491.35 | 491.60 | Off -28.2 | 492.96 | Off 5.1 | 494.31 | 494.57 | 490.91 | 488.26

3:1 | 6:1 | 4.3% | 492.17 | 4.3% | 6:1 | 3:1

ST. 1 VOL. CUT =9 CU. YD.
ST. 1 VOL. FILL =639 CU. YD.
ST. 2 VOL. CUT =885 CU. YD.
ST. 2 VOL. FILL =31 CU. YD.

595+00.00

ST. 1 AREA CUT =2 SQ. FT.
ST. 1 AREA FILL =199 SQ. FT.
ST. 2 AREA CUT =339 SQ. FT.
ST. 2 AREA FILL =3 SQ. FT.

EXIST. R/W

514.78 | 488.08 | 491.75 | 492.01 | Off -27.8 | 493.36 | Off 5.5 | 494.72 | 494.98 | 491.31 | 487.52

1:1 | 6:1 | 4.3% | 492.50 | 4.3% | 6:1 | 3:1

ST. 1 VOL. CUT =9 CU. YD.
ST. 1 VOL. FILL =151 CU. YD.
ST. 2 VOL. CUT =1253 CU. YD.
ST. 2 VOL. FILL =7 CU. YD.

594+00.00

STA. 594+00 TO STA. 595+66

Leonard Speed 9/23/2016 11:23:08 AM
W:\Work\Leonard Speed\Civil\Projects\Leonard Speed\d0211744\r-CA0606_2i_CX_MAIN_001.dgn
CivilWorks-Michael Baker International
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	556	888

(2) CROSS SECTIONS

STA. 598+00.00
END SP. DITCH LT. 1.28%
BEGIN SP. DITCH LT. 1.98%
ELEV. = 486.00

ST. 1 AREA CUT =150 SQ. FT.
ST. 1 AREA FILL =126 SQ. FT.
ST. 2 AREA CUT =10 SQ. FT.
ST. 2 AREA FILL =52 SQ. FT.

ST. 1 VOL. CUT =6 CU. YD.
ST. 1 VOL. FILL =426 CU. YD.
ST. 2 VOL. CUT =30 CU. YD.
ST. 2 VOL. FILL =188 CU. YD.

EXIST. R/W

489.05 486.00 488.55 492.22 492.48 Off -28.4 493.83 Off 4.9 495.19 495.45 491.78 490.30
4:1 3:1 6:1 4.3% 4.3% 6:1 3:1
492.84

598+00.00

ST. 1 AREA CUT =2 SQ. FT.
ST. 1 AREA FILL =104 SQ. FT.
ST. 2 AREA CUT =6 SQ. FT.
ST. 2 AREA FILL =50 SQ. FT.

ST. 1 VOL. CUT =8 CU. YD.
ST. 1 VOL. FILL =383 CU. YD.
ST. 2 VOL. CUT =39 CU. YD.
ST. 2 VOL. FILL =207 CU. YD.

EXIST. R/W

485.58 484.72 487.92 491.58 491.84 Off -28.1 493.19 Off 5.1 494.55 494.81 491.14 490.04
4:1 3:1 6:1 4.3% 4.3% 6:1 3:1
492.32

597+00.00

ST. 1 AREA CUT =2 SQ. FT.
ST. 1 AREA FILL =103 SQ. FT.
ST. 2 AREA CUT =15 SQ. FT.
ST. 2 AREA FILL =62 SQ. FT.

SEE DRIVEWAY PROFILES SHEETS FOR DRIVEWAY STA. 596+40.00 LT.

SEE DRIVEWAY PROFILES SHEETS FOR DRIVEWAY STA. 596+25.00 RT.

ST. 1 VOL. CUT =3 CU. YD.
ST. 1 VOL. FILL =260 CU. YD.
ST. 2 VOL. CUT =23 CU. YD.
ST. 2 VOL. FILL =104 CU. YD.

EXIST. R/W

485.41 483.43 487.61 491.27 491.53 Off -28.3 492.89 Off 5.0 494.24 494.50 490.83 489.37
4:1 3:1 3:1 6:1 4.3% 4.3% 6:1 3:1
492.06

596+00.00

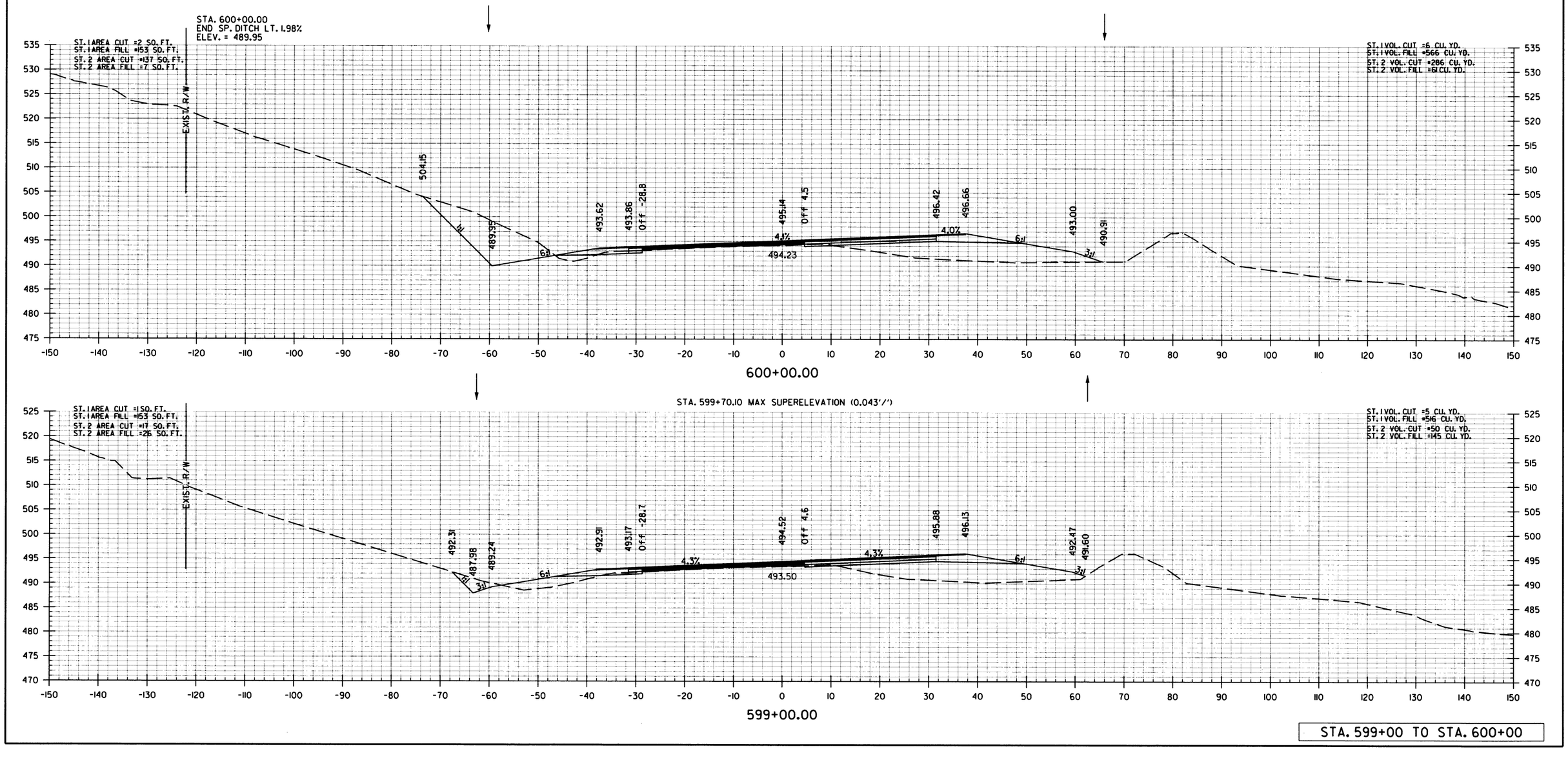
STA. 596+00 TO STA. 598+00

LeonardSpeed 9/23/2016 11:23:09 AM
WORKSPACE: c:\pwworking\d0217144\ar_ca0606_21_cx_main_001.dgn
CONFIGURATION: C:\Projects\leonardspeed\d0217144\ar_CA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	557	888

(2) CROSS SECTIONS

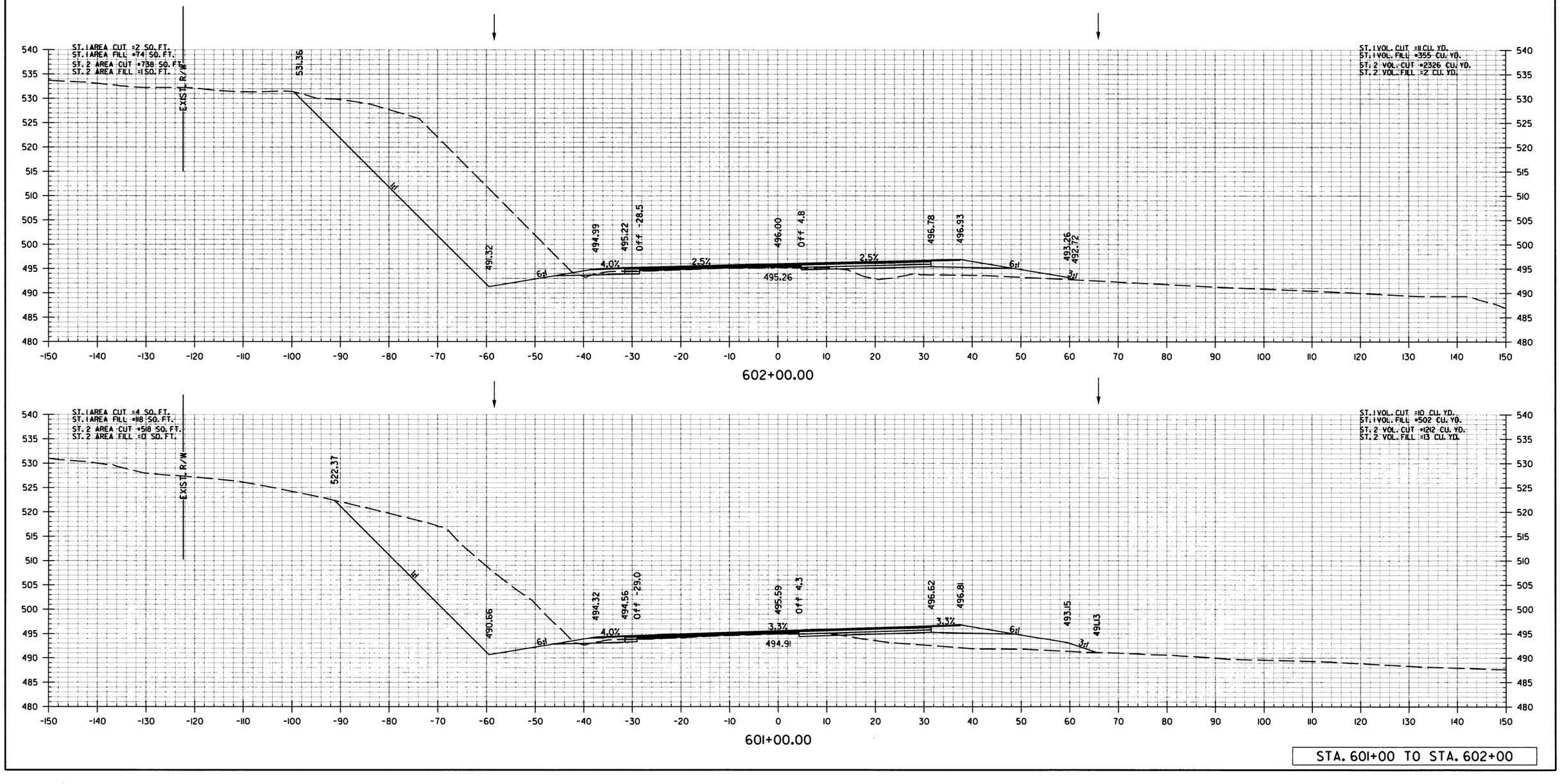


STA. 599+00 TO STA. 600+00

Leonard.Speed 9/23/2016 11:23:10 AM
WORKSPACE: Leonard.Speed
c:\projects\arkansas\leonard.speed\d0271744\r\CA0606_2L_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	558	888
				(2)	CROSS SECTIONS			



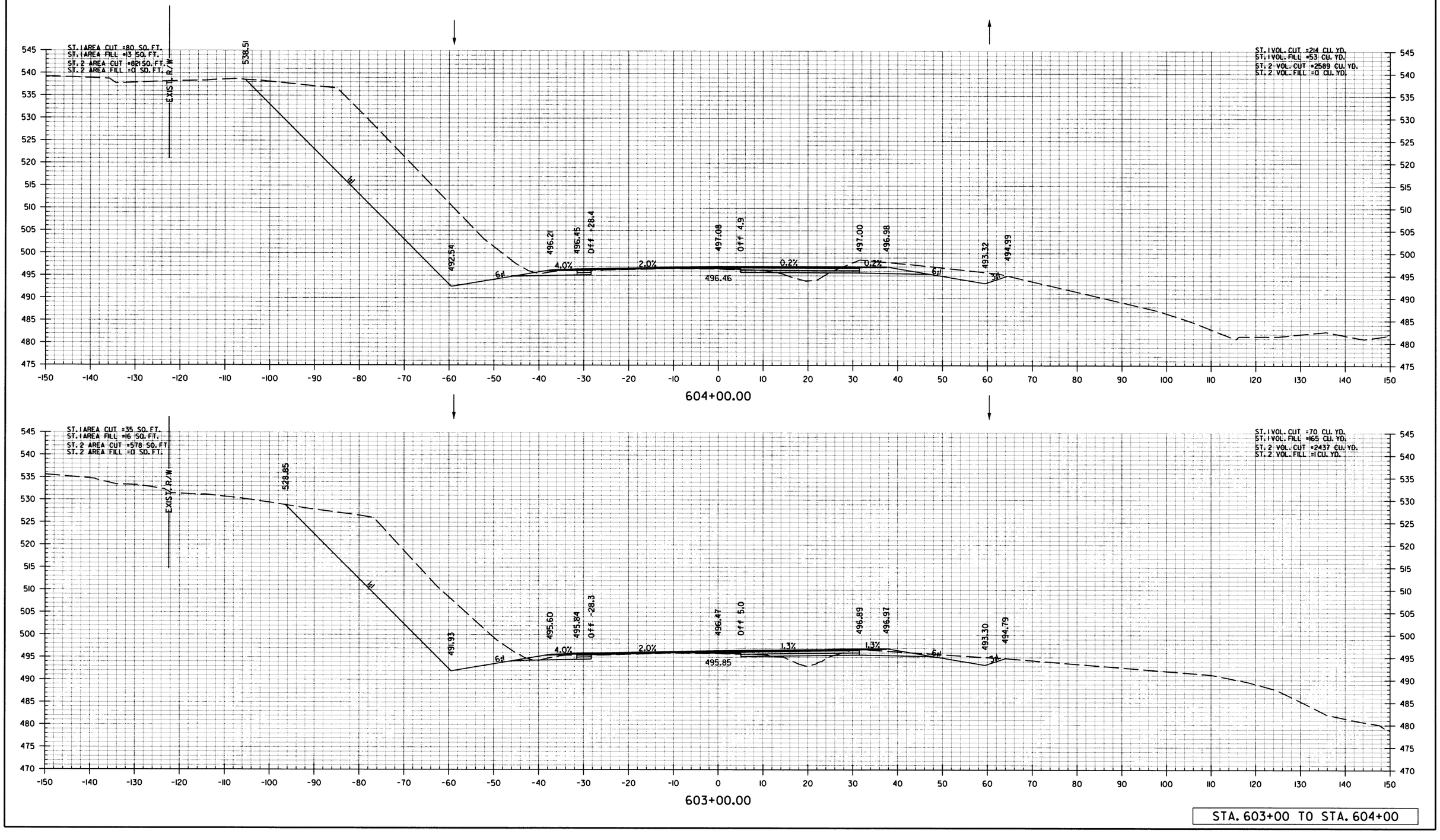
STA. 601+00 TO STA. 602+00

Leonard Speed 9/23/2016 11:23:11 AM
WORKSPACE: Leonard Speed
CURRENT DESIGN: C:\Projects\Leonard Speed\60211744\rCA0606_2i_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	559	888

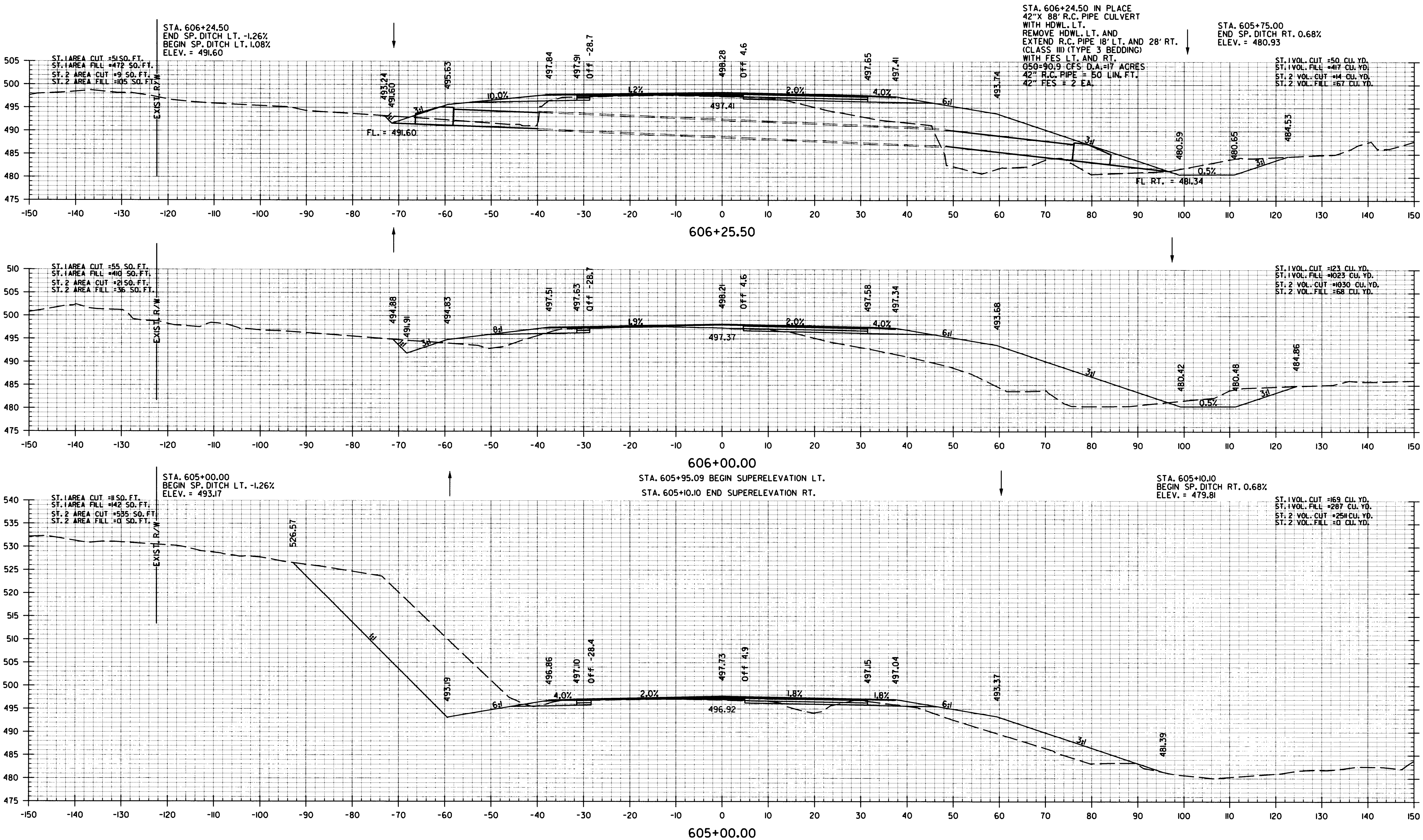
(2) CROSS SECTIONS



STA. 603+00 TO STA. 604+00

Leonard.Speed 9/23/2016 11:23:13 AM
WORKSET: Leonard.Speed
DGN: W:\Projects\Leonard.Speed\d0211744\r-CA0606.2i.CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	560	888
					(2)	CROSS SECTIONS			



Leonard.Speed 9/23/2016 11:23:14 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0211744\rCA0606_2L_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

STA. 605+00 TO STA. 606+26

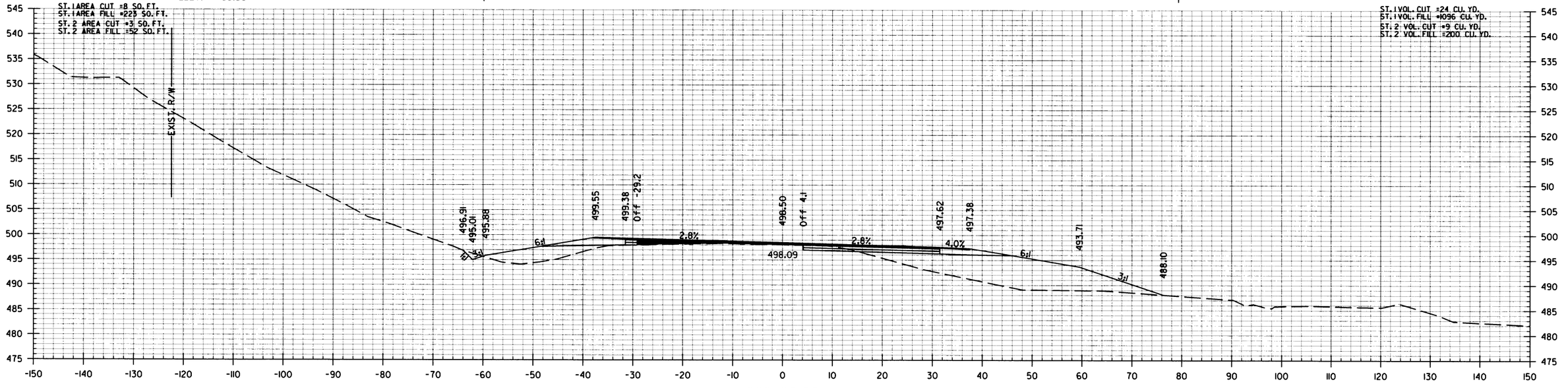
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	561	888
				(2)	CROSS SECTIONS			

STA. 608+50.00
END SP. DITCH LT. 2.59%
ELEV. = 496.30

ST. 1 AREA CUT =8 SQ. FT.
ST. 1 AREA FILL =223 SQ. FT.
ST. 2 AREA CUT =2 SQ. FT.
ST. 2 AREA FILL =52 SQ. FT.

ST. 1 VOL. CUT =24 CU. YD.
ST. 1 VOL. FILL =1096 CU. YD.
ST. 2 VOL. CUT =9 CU. YD.
ST. 2 VOL. FILL =200 CU. YD.

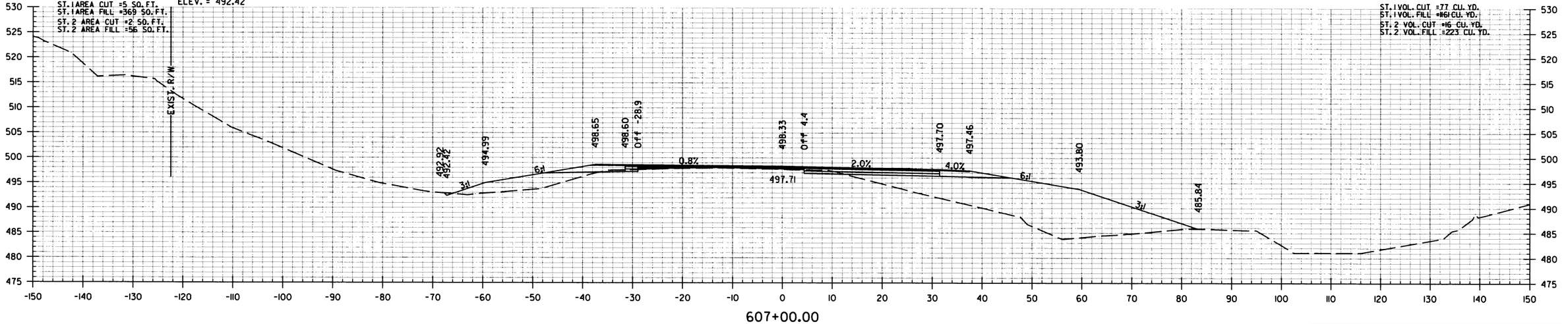


608+00.00

STA. 607+00.00
END SP. DITCH LT. 1.08%
BEGIN SP. DITCH LT. 2.59%
ELEV. = 492.42

ST. 1 AREA CUT =5 SQ. FT.
ST. 1 AREA FILL =369 SQ. FT.
ST. 2 AREA CUT =2 SQ. FT.
ST. 2 AREA FILL =56 SQ. FT.

ST. 1 VOL. CUT =77 CU. YD.
ST. 1 VOL. FILL =1161 CU. YD.
ST. 2 VOL. CUT =16 CU. YD.
ST. 2 VOL. FILL =223 CU. YD.



607+00.00

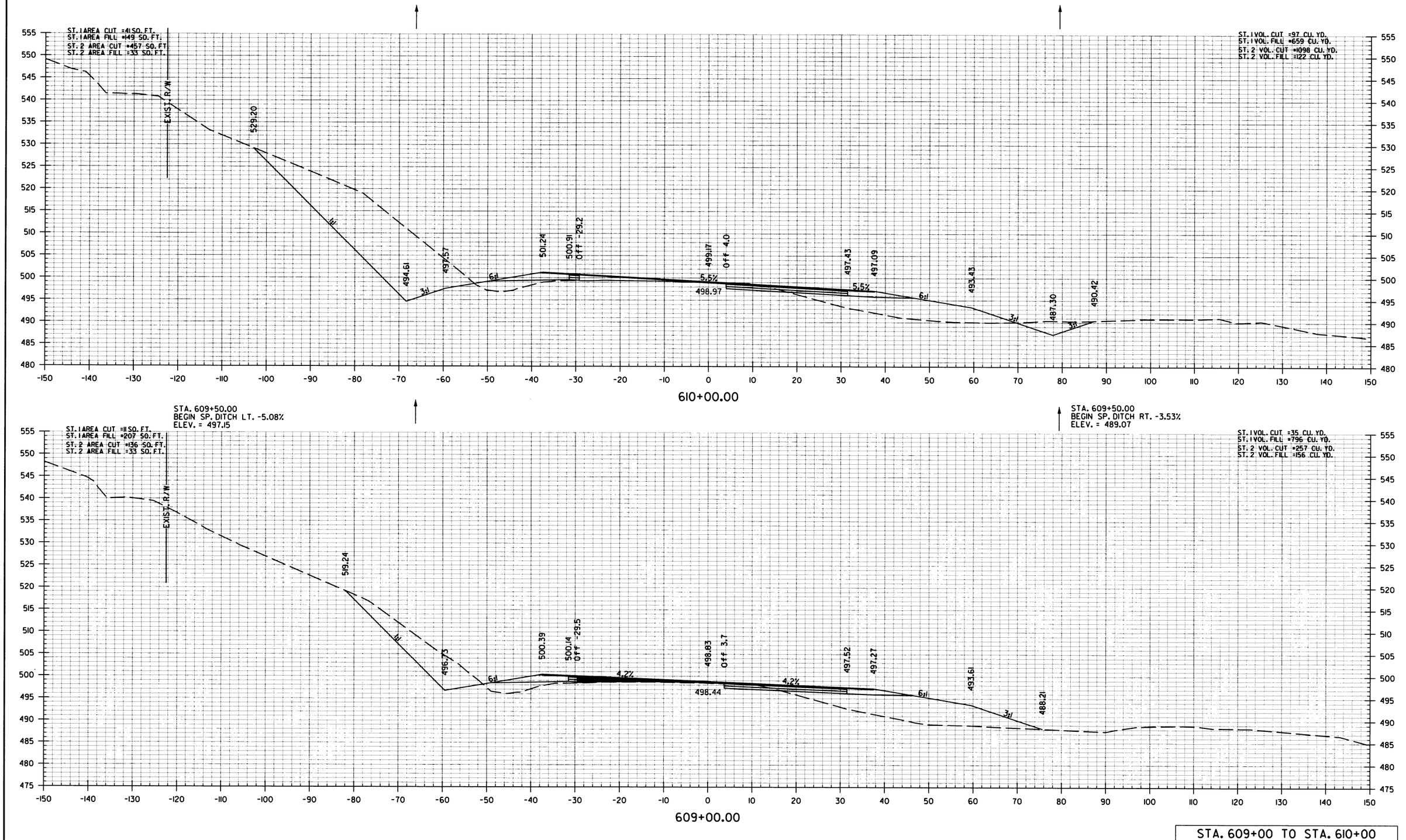
STA. 607+00 TO STA. 608+00

LeonardSpeed 9/23/2016 11:23:15 AM
\\BRSSCAD01\Projects\Leonard.speed\d0271741\r-CA0606.21_CX_MAIN_001.dgn
C:\Users\BI-local\baker projects\leonard.speed\d0271741\r-CA0606.21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	562	888

(2) CROSS SECTIONS



STA. 609+00 TO STA. 610+00

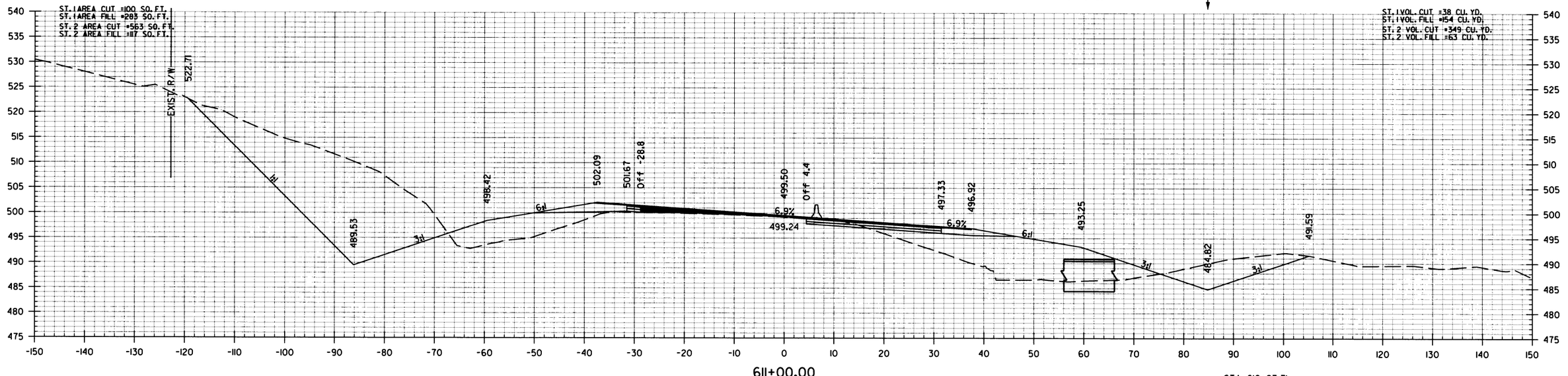
Leonard.Speed 9/23/2016 11:23:16 AM
WORKSPACE: Standard Sheet
C:\pw\81-local\baker_projects\leonard.speed\d0271744\vrCA0606_21_CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	563	888

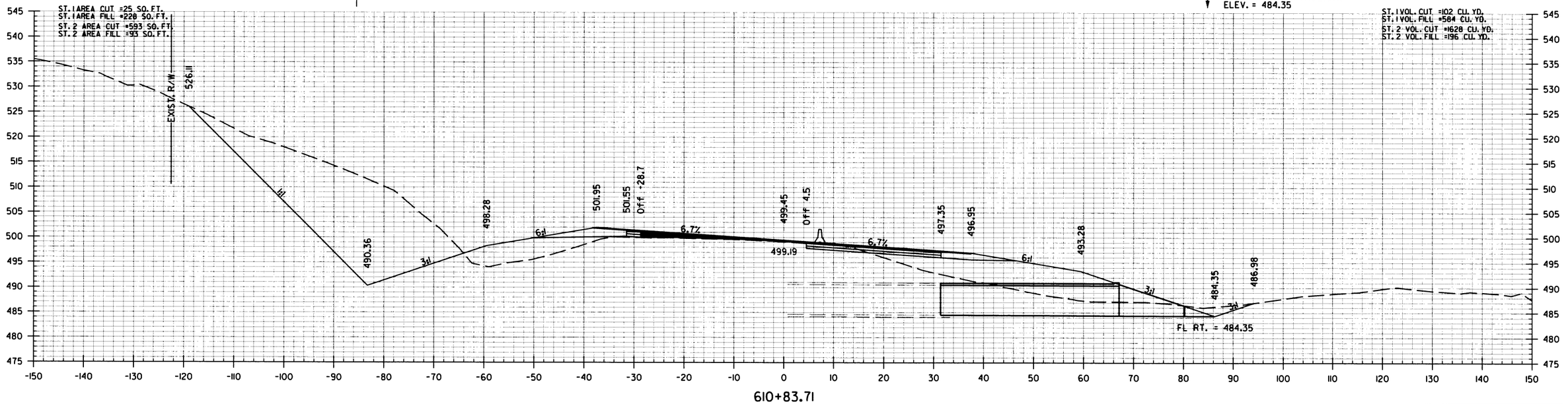
(2) CROSS SECTIONS

STA. 611+36.13 IN PLACE
4' X 6' X 107' R.C. BOX CULVERT
30° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
REMOVE 53' LT. & 0' RT. AND
EXTEND 78' LT. & 38' RT.
Q50=214.0 CFS D.A.=42 ACRES



611+00.00

STA. 610+83.71
END SP. DITCH RT. -3.53%
BEGIN SP. DITCH RT. 2.87%
ELEV. = 484.35



610+83.71

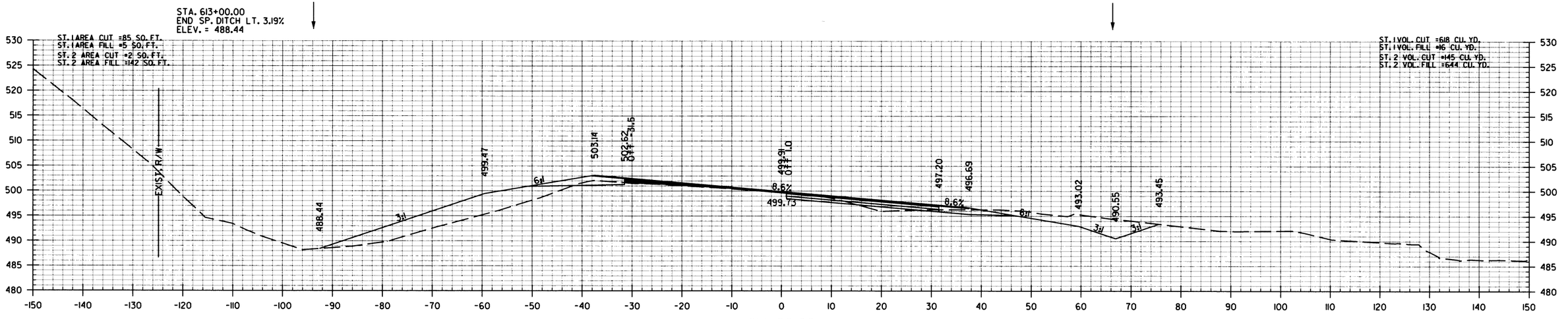
STA. 610+84 TO STA. 611+00

LeonardSpeed 9/23/2016 11:23:18 AM
WORKSPACE: Leonard Speed
CONFIGURATION: Projects\leonard_speed\d0271744\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	564	888

(2) CROSS SECTIONS



STA. 611+90 TO STA. 613+00

Leonard Speed 9/23/2016 11:23:19 AM
K:\SPD\Active\corridor_CS.dgn
c:\pwwise\local\baker_projects\leonard.speed\d0271744\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	565	888

(2) CROSS SECTIONS

STA. 615+50.00
BEGIN SP. DITCH LT. -4.30%
ELEV. = 500.77

ST. 1 AREA CUT =1150 SQ. FT.
ST. 1 AREA FILL =35 SQ. FT.
ST. 2 AREA CUT =0 SQ. FT.
ST. 2 AREA FILL =5150 SQ. FT.

EXIST. R/W

498.70
500.77
504.43
503.92
0 FF 3.5
501.21
0 FF 0.6
500.55
498.50
497.98
494.31
495.00

3:1 6:1 8.6% 8.6% 6:1 3:1

STA. 615+00.00
BEGIN SP. DITCH RT. -3.11%
ELEV. = 494.31

ST. 1 VOL. CUT =98 CU. YD.
ST. 1 VOL. FILL =72 CU. YD.
ST. 2 VOL. CUT =5 CU. YD.
ST. 2 VOL. FILL =303 CU. YD.

615+00.00

STA. 614+00.00
END SP. DITCH RT. 2.87%
ELEV. = 493.41

ST. 1 AREA CUT =42 SQ. FT.
ST. 1 AREA FILL =4 SQ. FT.
ST. 2 AREA CUT =3 SQ. FT.
ST. 2 AREA FILL =115 SQ. FT.

EXIST. R/W

491.86
499.86
503.53
503.01
0 FF 3.5
500.30
0 FF 0.7
500.06
497.59
497.08
493.41
495.96

3:1 6:1 8.6% 8.6% 6:1 3:1

ST. 1 VOL. CUT =234 CU. YD.
ST. 1 VOL. FILL =17 CU. YD.
ST. 2 VOL. CUT =9 CU. YD.
ST. 2 VOL. FILL =472 CU. YD.

614+00.00

STA. 614+00 TO STA. 615+00

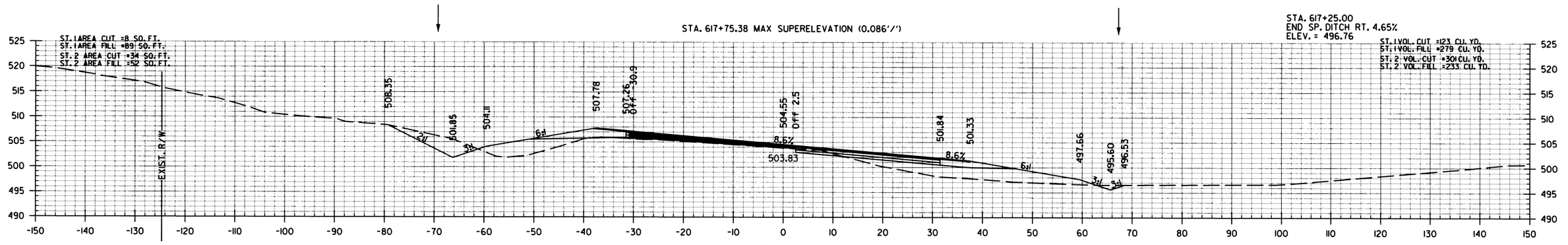
Leonard.Speed 9/23/2016 11:23:20 AM
W:\ARK\Active\CA0606.2\Leonard.Speed\Cross Sections\Leonard.Speed\v0271744\vrCA0606_2i_CX_MAIN_001.dgn
ORIGINAL DATE: $$CREATEDATE$$
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	566	888

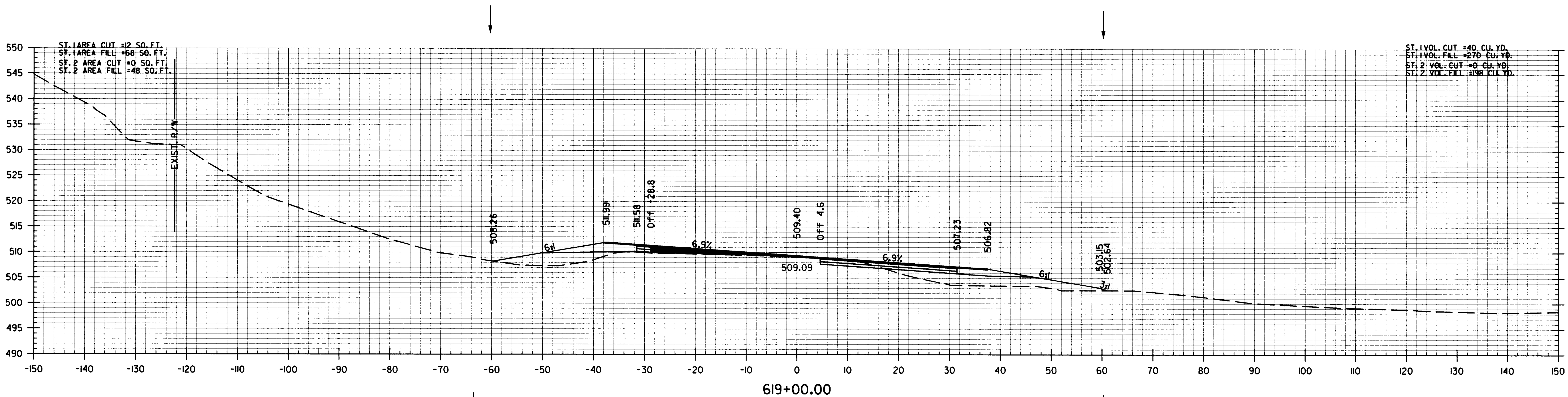
(2) CROSS SECTIONS

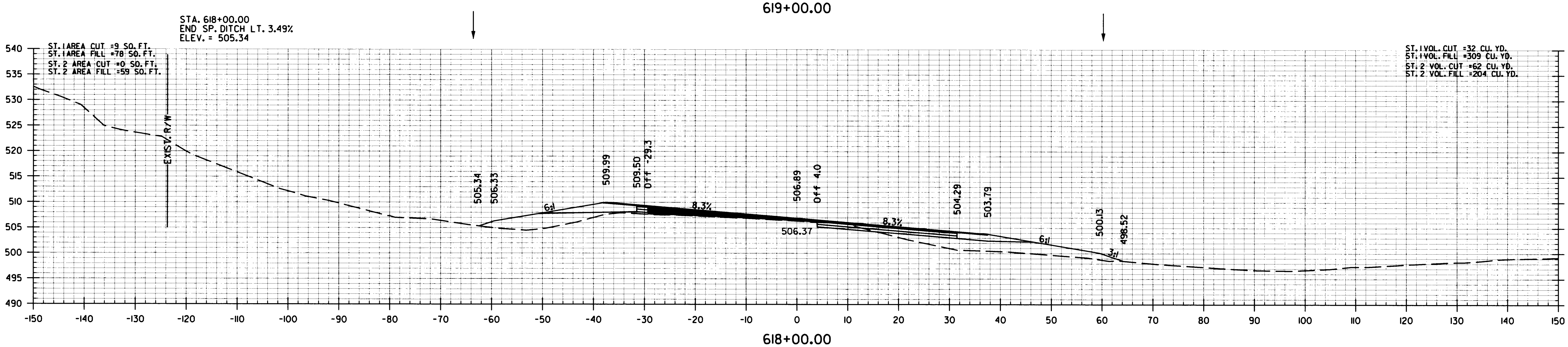


STA. 616+00 TO STA. 617+00

Leonard.Speed 9/23/2016 11:23:21 AM
WORKSPACE\Leonard.Speed
Connected Projects\Leonard.Speed\d0211744\rCA0606.21.CX.MAIN.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	567	888
				(2)	CROSS SECTIONS				





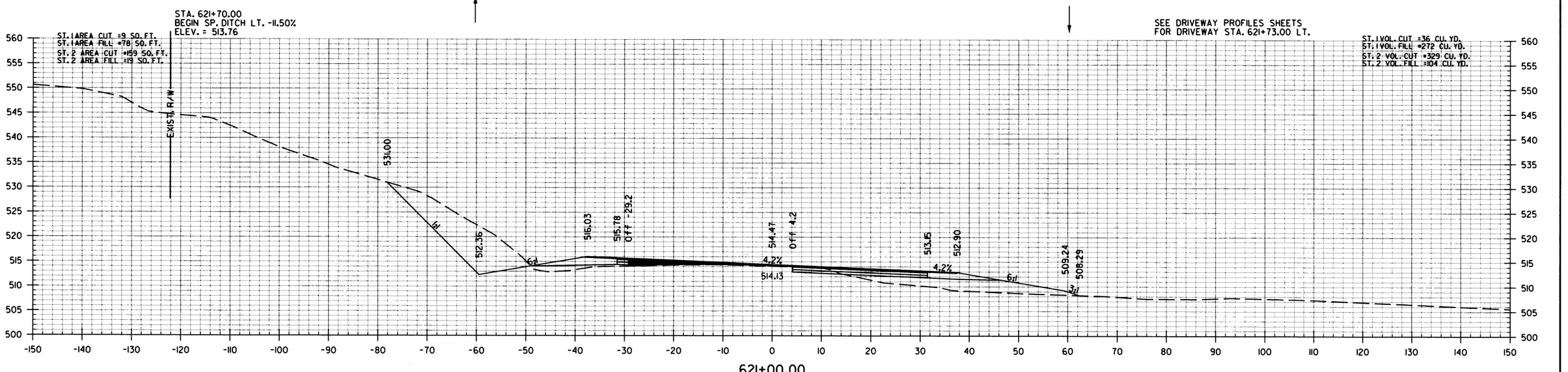
STA. 618+00 TO STA. 619+00

Leonard.Speed 9/23/2016 11:23:23 AM
WORKSPACE: Leonard.Speed
c:\pwdi-local\baker_projects\leonard.speed\d0271744\rCA0606.21.CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	568	888

(2) CROSS SECTIONS



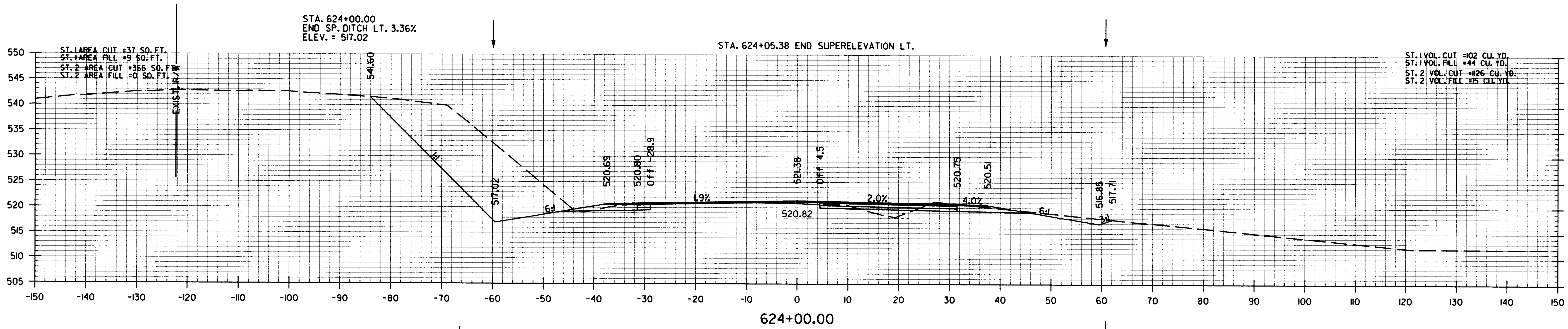
STA. 620+00 TO STA. 621+00

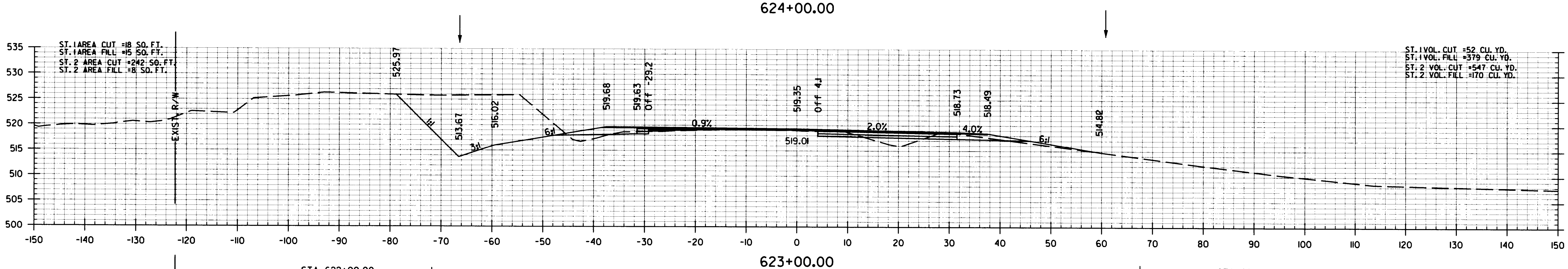
LeonardSpeed 9/23/2016 11:23:24 AM
WORKSPACE: Leonard_Speed
c:\Dwv81-local\baker_projects\leonard_speed\v0271744\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

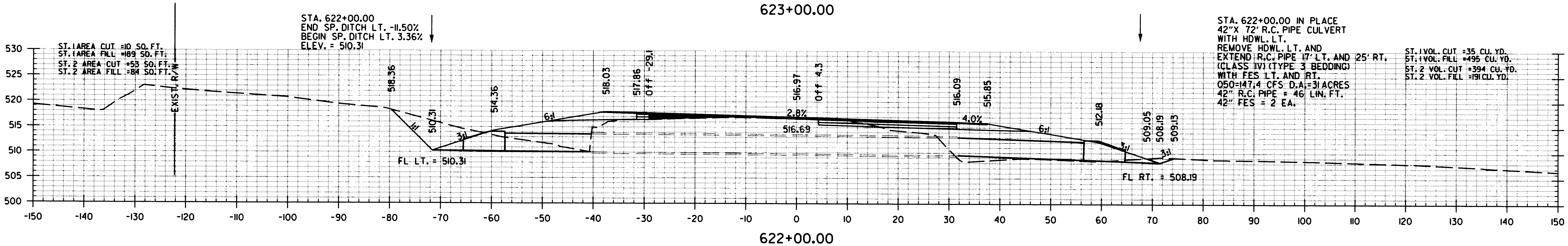
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	569	888

(2) CROSS SECTIONS







STA. 622+00 TO STA. 624+00

Leonard.Speed 9/23/2016 11:23:25 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0217174\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	570	888

(2) CROSS SECTIONS

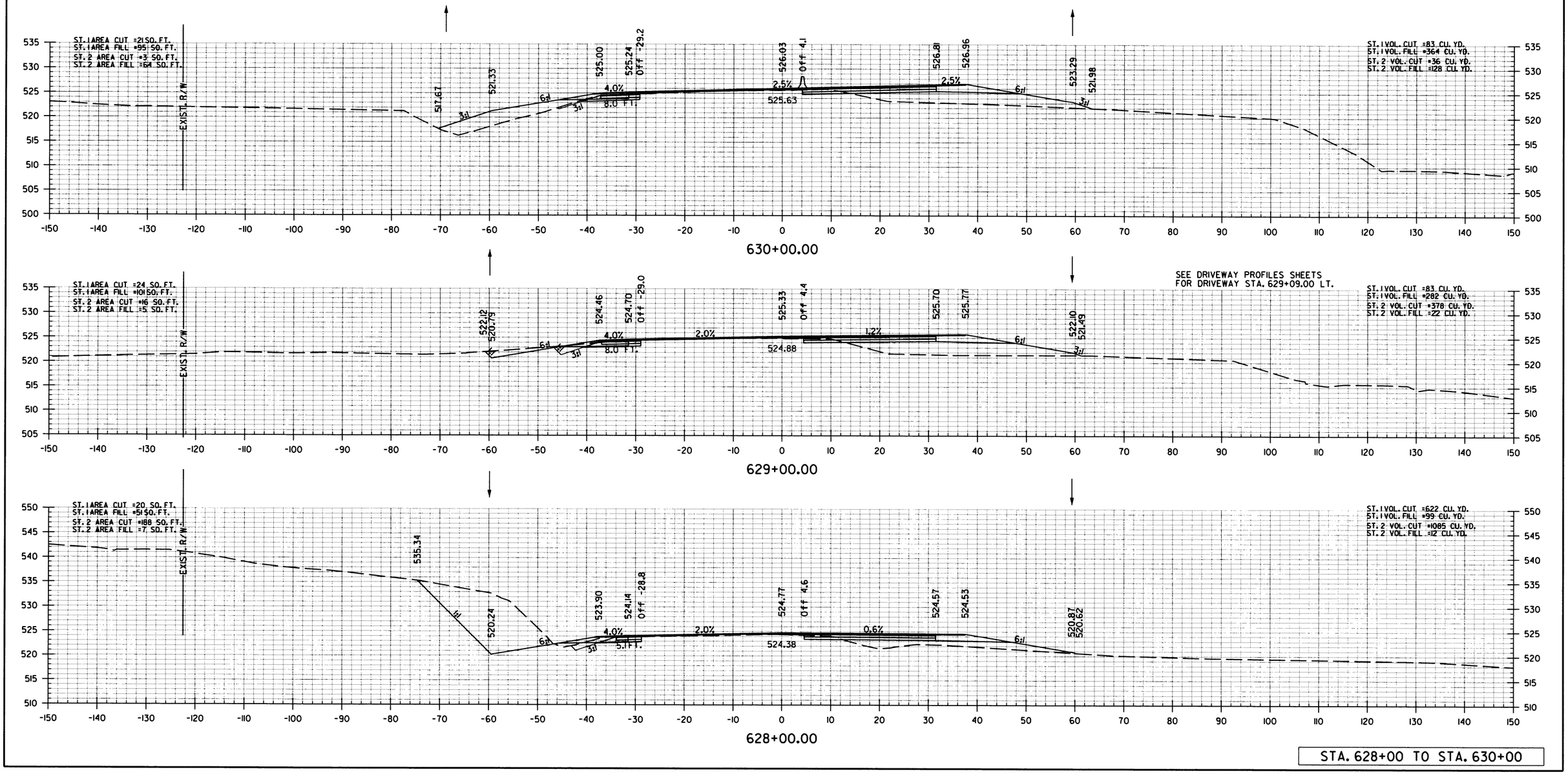
STA. 625+00 TO STA. 627+00

Leonard.Speed 9/23/2016 11:23:26 AM
WORKSPACE: Leonard.Speed
CONNECTION: Documents\leonard.speed\d0271744\rCA0606_2i_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	571	888

(2) CROSS SECTIONS



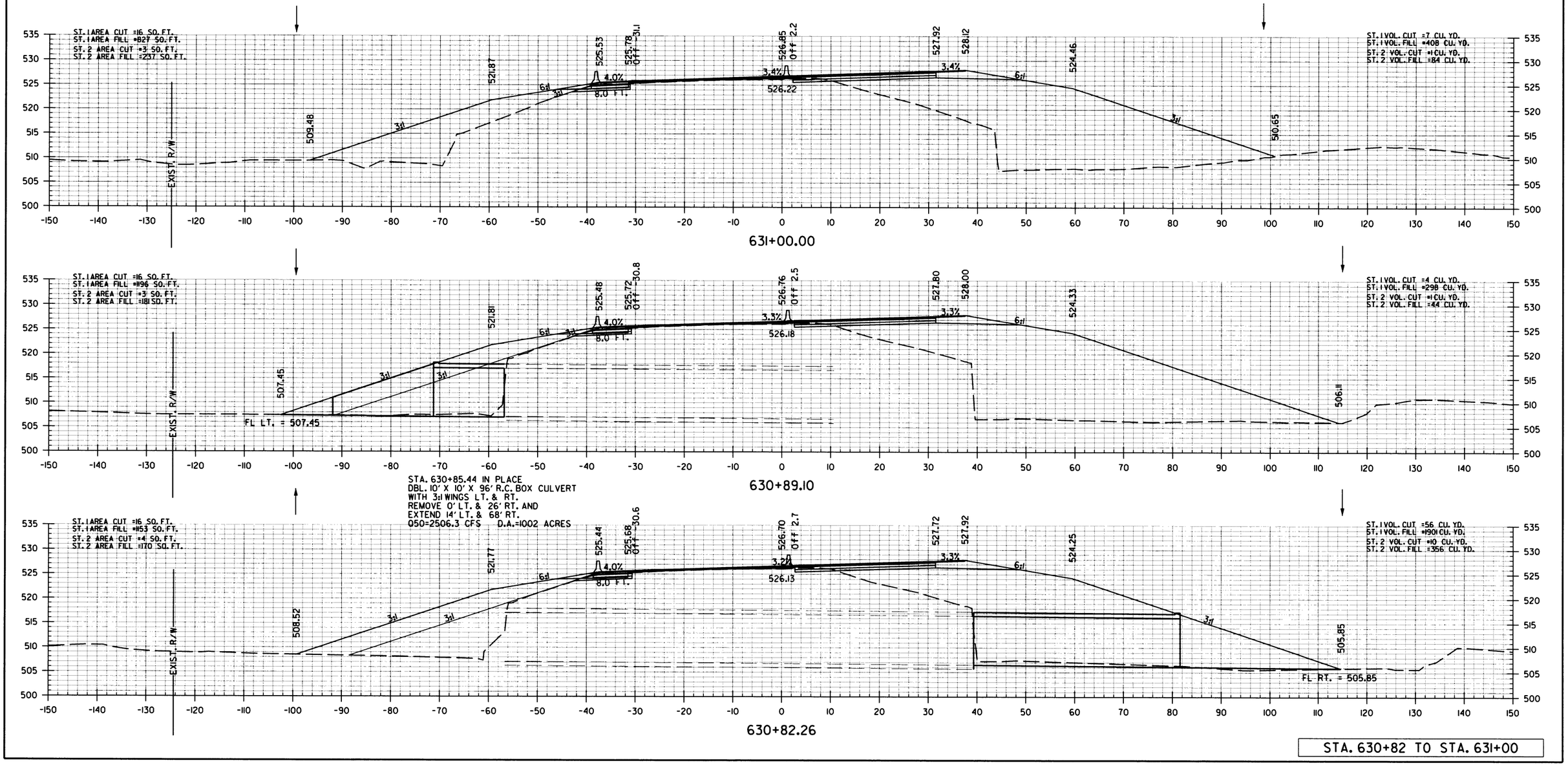
STA. 628+00 TO STA. 630+00

Leonard.Speed 9/23/2016 11:23:28 AM
WORKSPACE: Leonard.Speed
C:\Users\Leonard.Speed\Documents\Projects\Leonard.speed\d027f441v-CA0606.21.CX_MAIN_001.dgn
REVISED DATE1 ##REVDATE1##
REVISED DATE2 ##REVDATE2##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	572	888

(2) CROSS SECTIONS



STA. 630+82 TO STA. 631+00

Leonard.Speed 9/23/2016 11:23:29 AM
WORKSPACE: Leonard.Speed
CONTROL FILE: C:\Projects\Leonard.speed\d027l741\rCA0606_2i_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

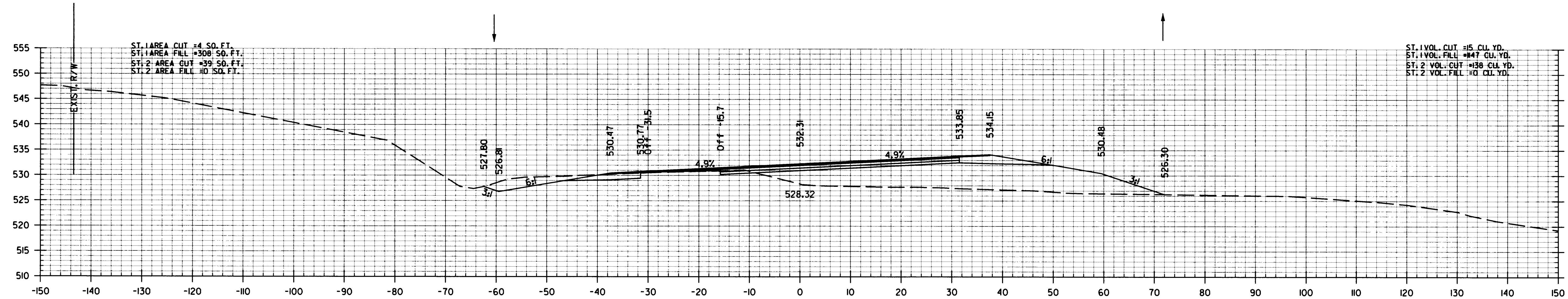
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	573	888

(2) CROSS SECTIONS

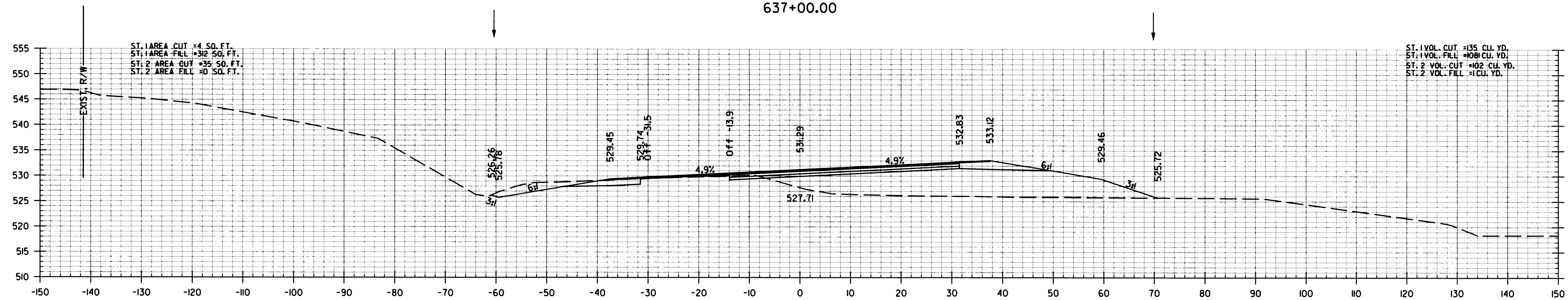
STA. 632+00 TO STA. 634+00

Leonard.Speed 9/23/2016 11:23:30 AM
WORKSPACE: Leonard.Speed
CONNECTION: Projects\leonard.speed\d0211744\rCA0606.21.CX_MAIN.001.dgn
REVISED DATE: ##REVDATE##

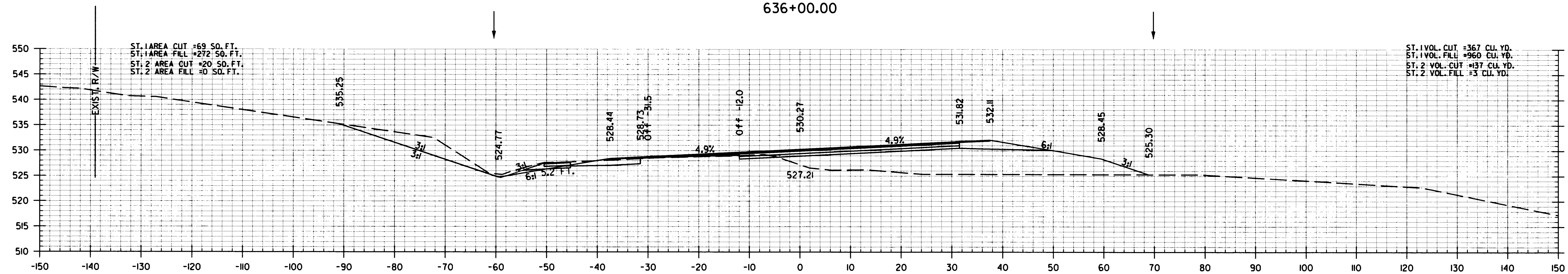
Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	574	888
					②	CROSS SECTIONS			



637+00.00



636+00.00



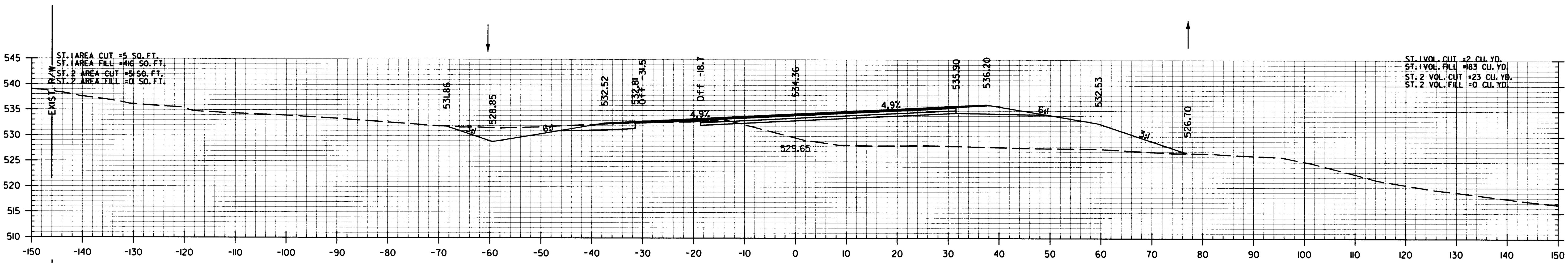
635+00.00

STA. 635+00 TO STA. 637+00

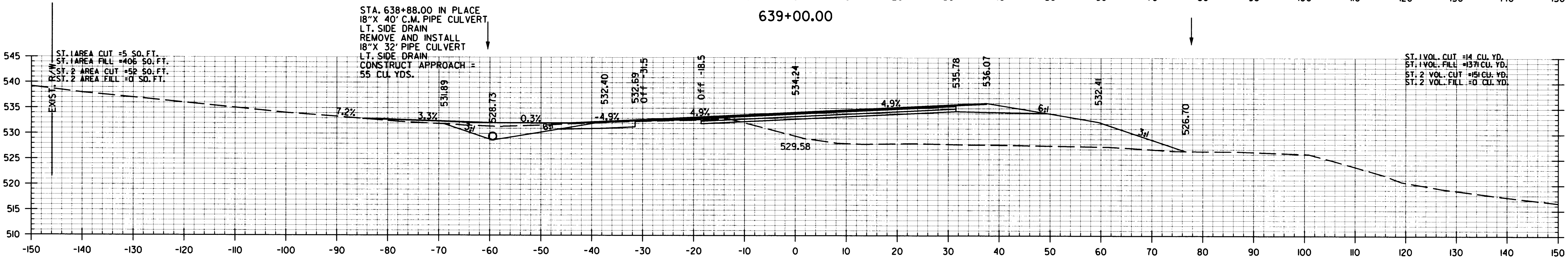
Leonard.Speed 9/23/2016 11:23:31 AM
WORKSPACE: Leonard.Speed
c:\pwv8i\local\baker_projects\leonard.speed\d0271741\rCA0606_21.CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

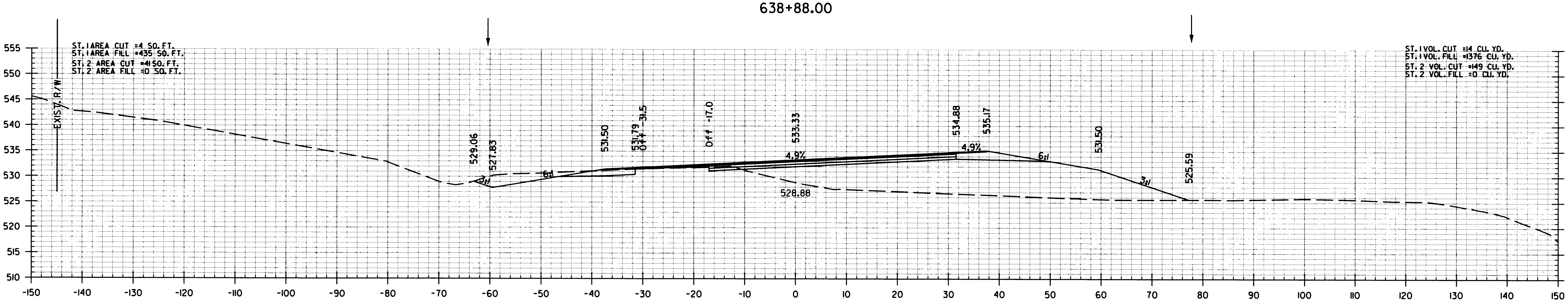
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	575	888
				(2) CROSS SECTIONS				



639+00.00



638+88.00



638+00.00

STA. 638+00 TO STA. 639+00

Leonard.Speed 9/23/2016 11:23:32 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271744\rCA0606_2L.CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	576	888

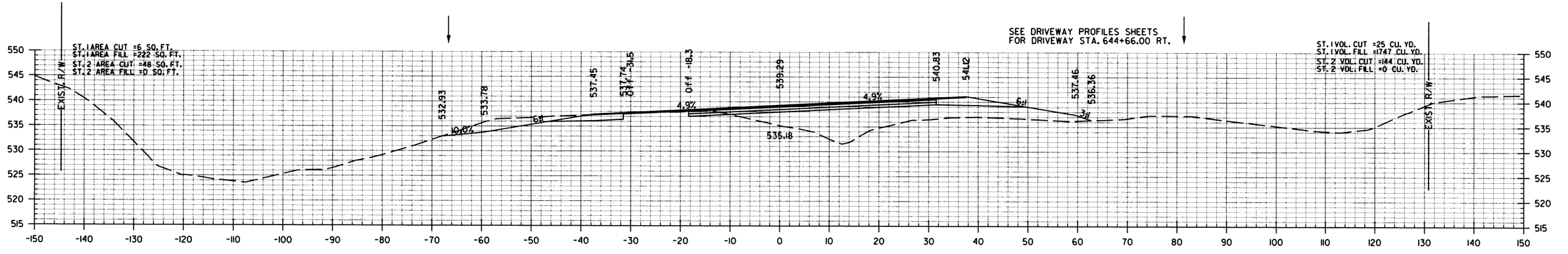
(2) CROSS SECTIONS

STA. 640+00 TO STA. 642+00

LeonardSpeed 9/23/2006 11:23:34 AM
WORKSPACE=leonardspeed
c:\pw\81-local\baker.prj\projects\leonardspeed\d0211744\r-CA0606_2i_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	577	888
				(2)	CROSS SECTIONS			



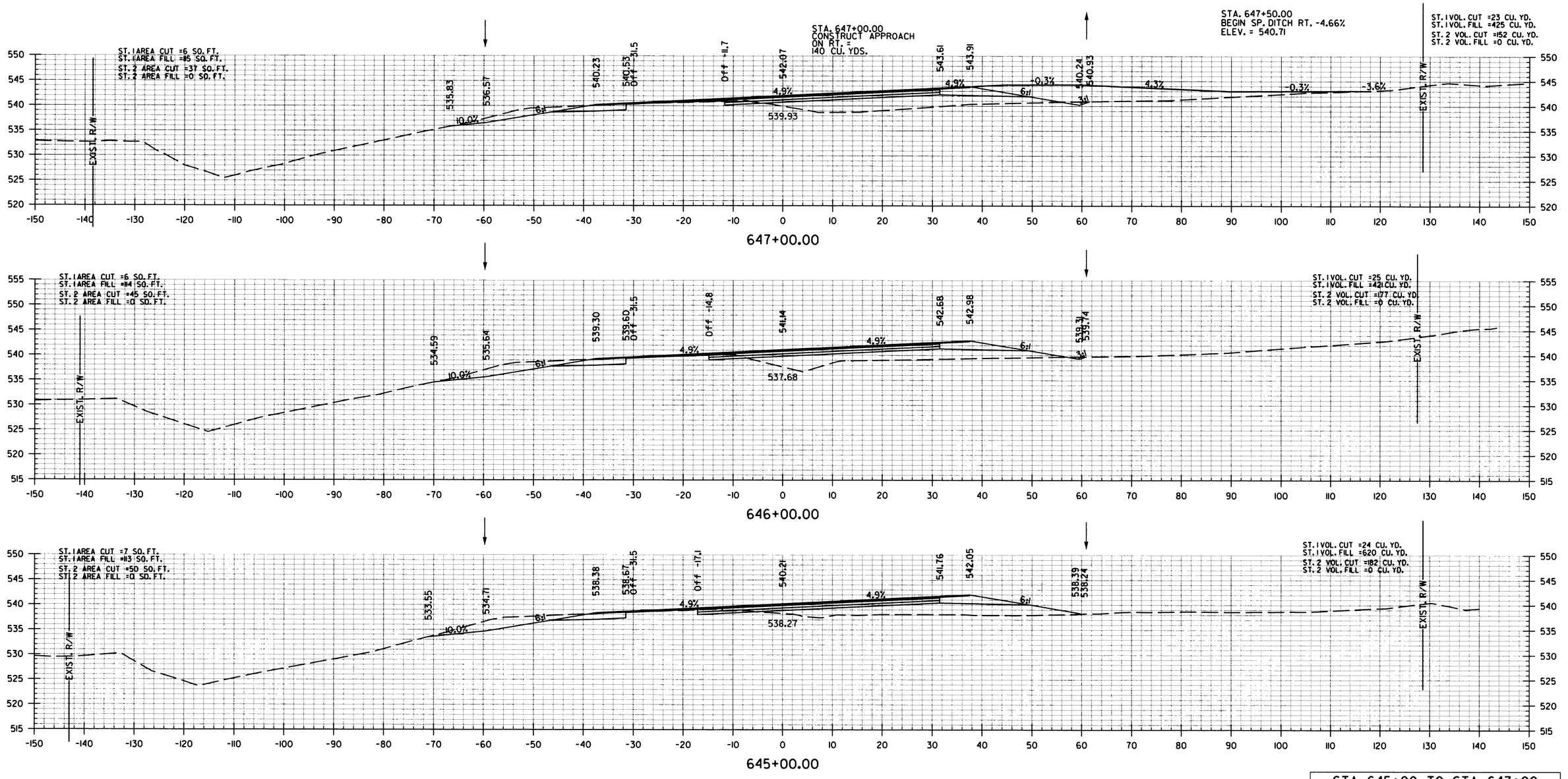
STA. 642+17 TO STA. 644+00

Leonard Speed 9/23/2016 11:23:35 AM
W:\0606.21 Leonard Speed\
c:\Users\81-local\baker.projects\leonard.speed\d0217741-r-CA0606.21-CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	578	888

(2) CROSS SECTIONS



STA. 645+00 TO STA. 647+00

Leonard.Speed 9/23/2016 11:23:36 AM
WORKSPACE: Leonard.Speed
C:\Users\mbaker\Documents\Projects\Leonard.speed\d0211744\rCA0606.21.CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

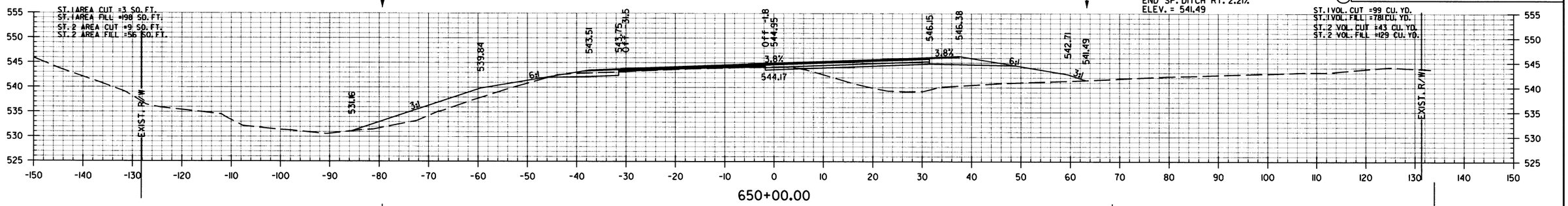
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	579	888

(2) CROSS SECTIONS

ST. 1 AREA CUT =3 SQ. FT.
ST. 1 AREA FILL =198 SQ. FT.
ST. 2 AREA CUT =9 SQ. FT.
ST. 2 AREA FILL =56 SQ. FT.

ST. 1 VOL. CUT =99 CU. YD.
ST. 1 VOL. FILL =781 CU. YD.
ST. 2 VOL. CUT =43 CU. YD.
ST. 2 VOL. FILL =129 CU. YD.

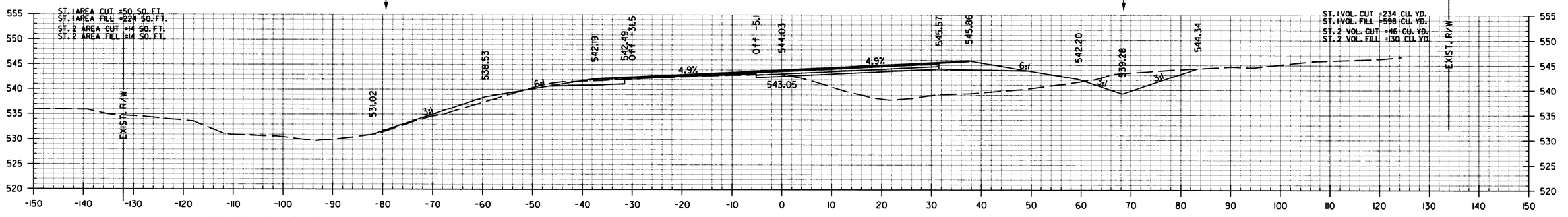
STA. 650+00.00
END SP. DITCH RT. 2.21%
ELEV. = 541.49



650+00.00

ST. 1 AREA CUT =50 SQ. FT.
ST. 1 AREA FILL =224 SQ. FT.
ST. 2 AREA CUT =14 SQ. FT.
ST. 2 AREA FILL =14 SQ. FT.

ST. 1 VOL. CUT =234 CU. YD.
ST. 1 VOL. FILL =598 CU. YD.
ST. 2 VOL. CUT =46 CU. YD.
ST. 2 VOL. FILL =130 CU. YD.



649+00.00

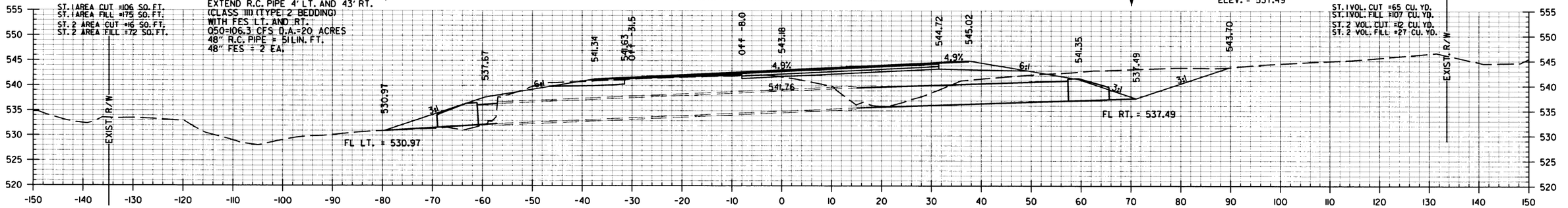
STA. 648+18.52 IN PLACE
48"X 72' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 4' LT. AND 43' RT.
(CLASS III (TYPE 2 BEDDING)
WITH FES LT. AND RT.
Q50=106.3 CFS D.A.=20 ACRES
48" R.C. PIPE = 51 LIN. FT.
48" FES = 2 EA.

STA. 648+99.41 MAX SUPERELEVATION (0.049'/')

STA. 648+19.00
END SP. DITCH RT. -4.66%
BEGIN SP. DITCH RT. 2.21%
ELEV. = 537.49

ST. 1 AREA CUT =106 SQ. FT.
ST. 1 AREA FILL =175 SQ. FT.
ST. 2 AREA CUT =16 SQ. FT.
ST. 2 AREA FILL =72 SQ. FT.

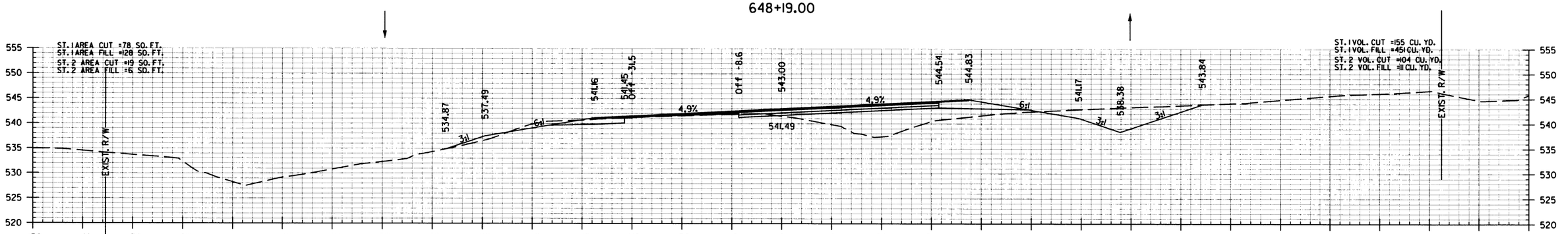
ST. 1 VOL. CUT =65 CU. YD.
ST. 1 VOL. FILL =107 CU. YD.
ST. 2 VOL. CUT =12 CU. YD.
ST. 2 VOL. FILL =27 CU. YD.



648+19.00

ST. 1 AREA CUT =78 SQ. FT.
ST. 1 AREA FILL =128 SQ. FT.
ST. 2 AREA CUT =19 SQ. FT.
ST. 2 AREA FILL =6 SD. FT.

ST. 1 VOL. CUT =155 CU. YD.
ST. 1 VOL. FILL =451 CU. YD.
ST. 2 VOL. CUT =104 CU. YD.
ST. 2 VOL. FILL =11 CU. YD.



648+00.00

STA. 648+00 TO STA. 650+00

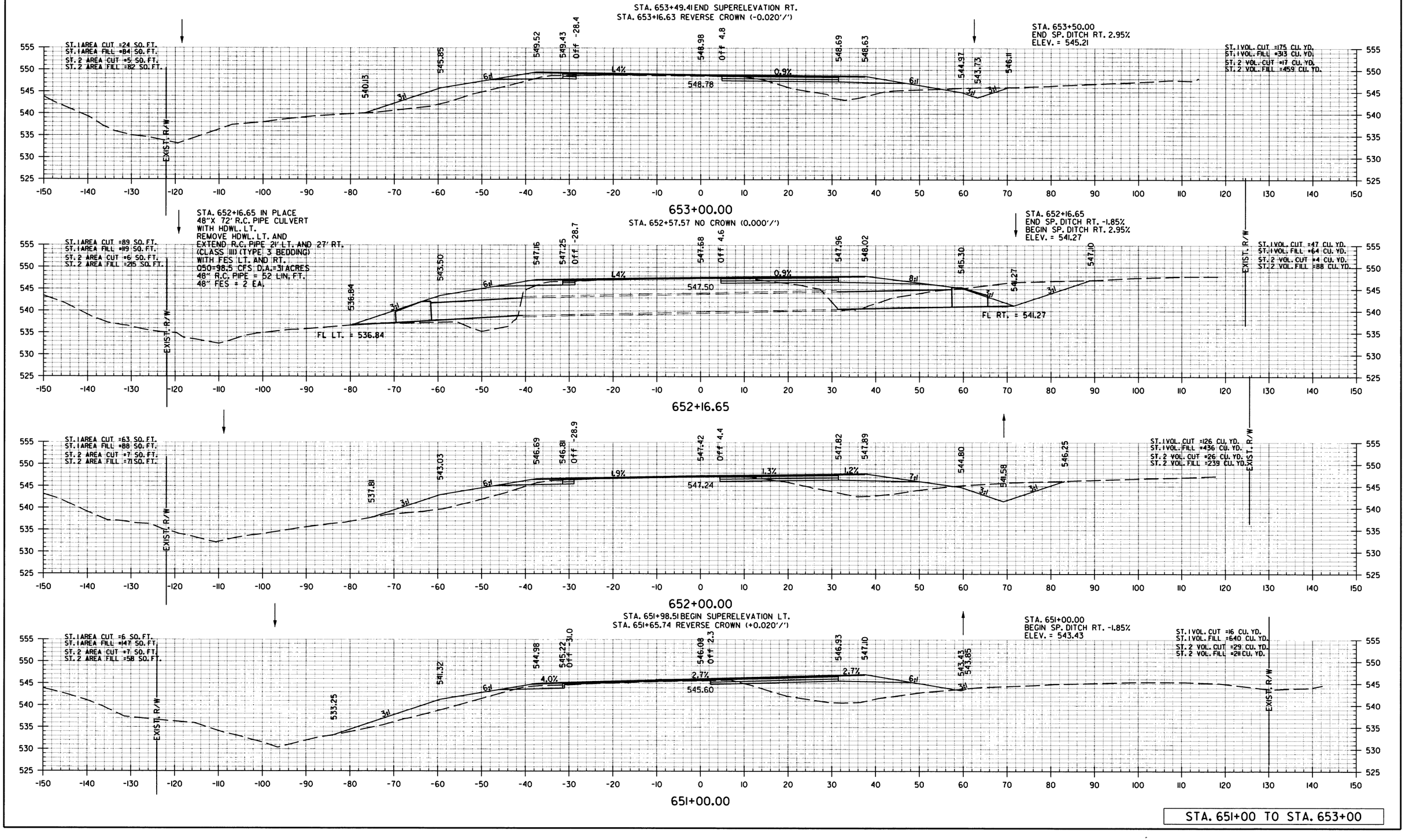
LeonardSpeed 9/23/2016 11:23:37 AM
MicroStation V8i (SELECTseries 3)
c:\dwv8i-local\baker_projects\leonard_speed\d0271744\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	580	888

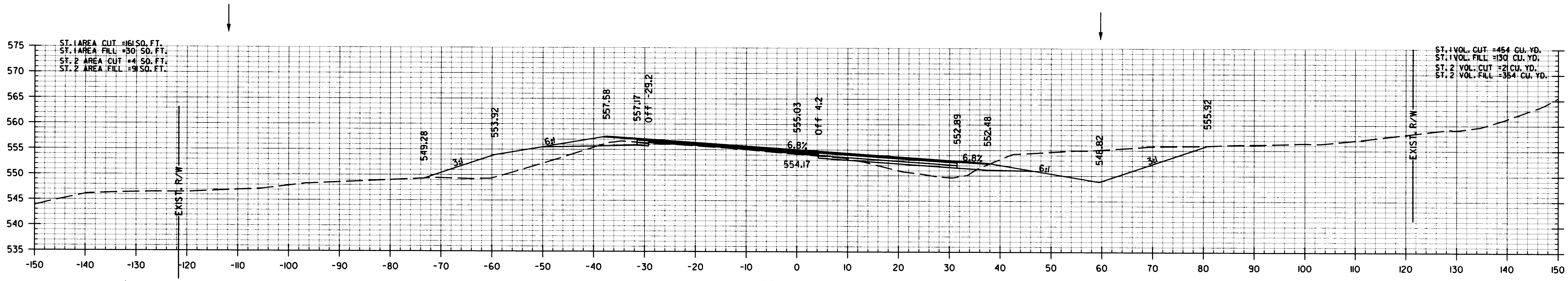
(2) CROSS SECTIONS



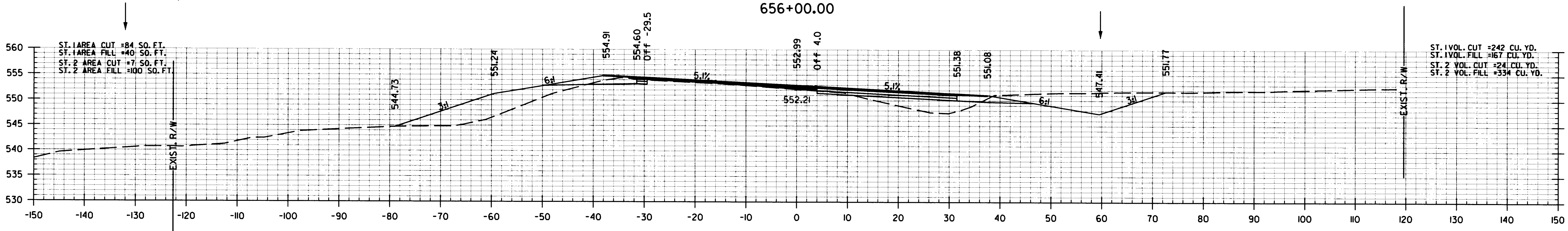
STA. 651+00 TO STA. 653+00

LeonardSpeed 9/23/2016 11:23:39 AM
WORKSPACE: LeonardSpeed
C:\pw\81-local\baker_projects\leonardspeed\d0217144\CA0606_2I_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

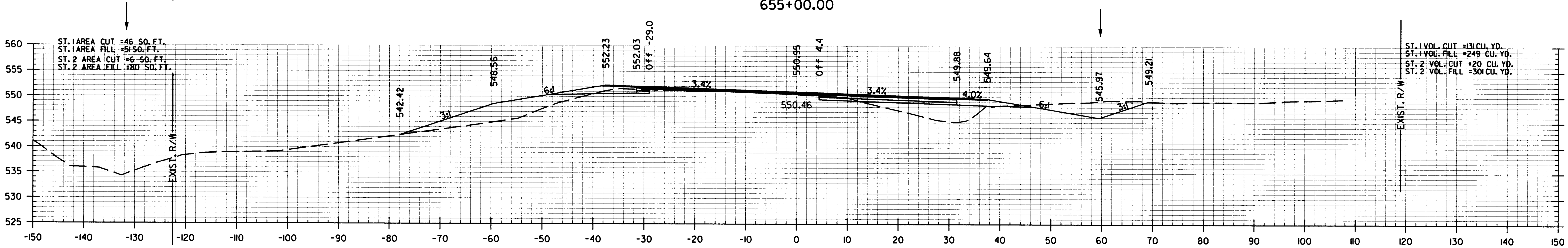
Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	581	888
				(2)	CROSS SECTIONS				



656+00.00



655+00.00



654+00.00

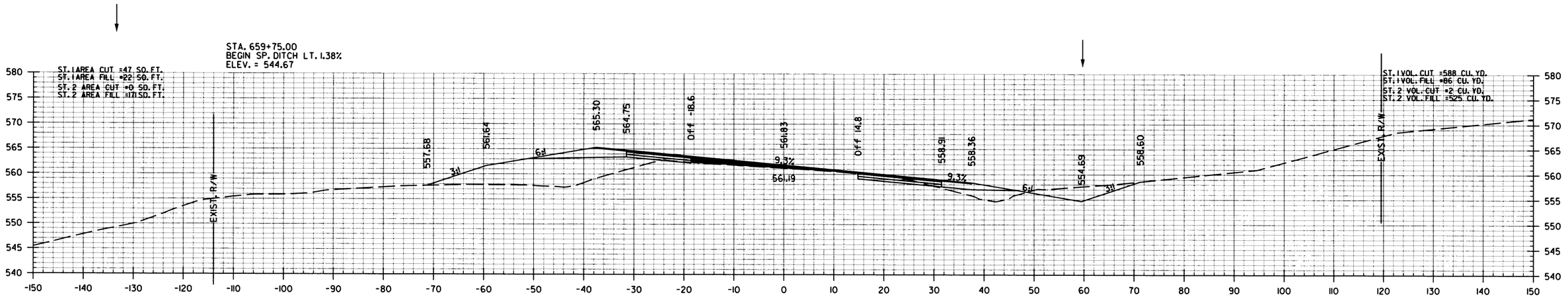
STA. 654+00 TO STA. 656+00

Leonard.Speed 9/23/2016 11:23:40 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	582	888

(2) CROSS SECTIONS



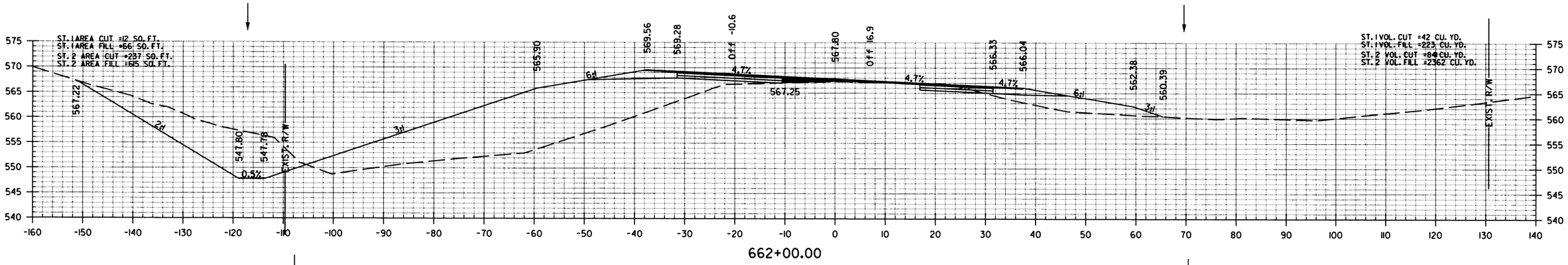
STA. 657+00 TO STA. 659+00

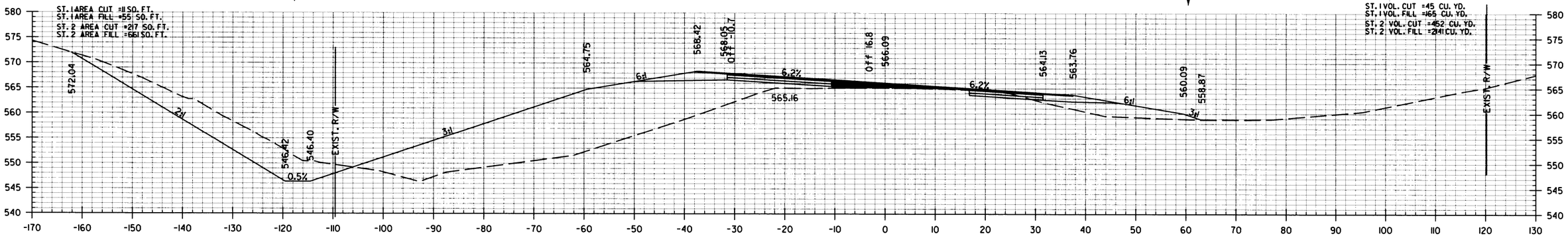
LeonardSpeed 9/23/2006 11:23:42 AM
WORKSPACE: Leonard_Speed
c:\Drw8i-local\baker_projects\leonard_speed\d0271144\r-CA0606_2L-CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

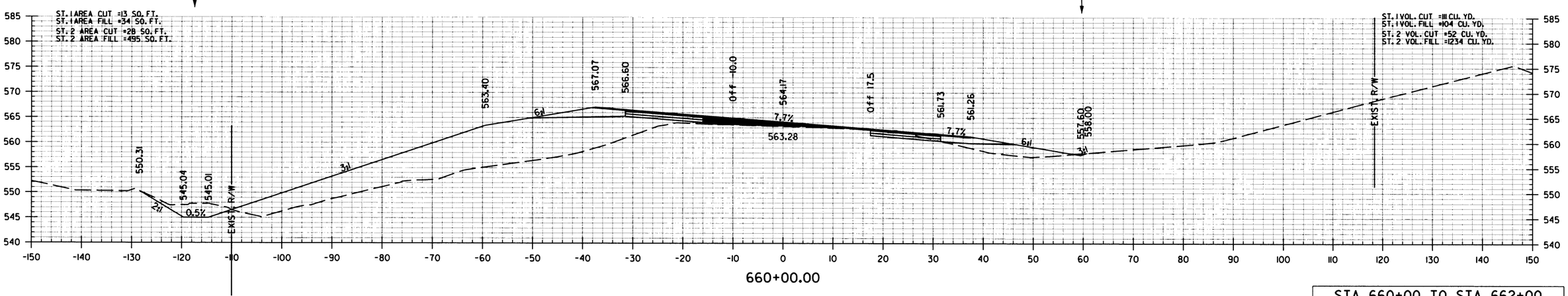
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	583	888

(2) CROSS SECTIONS





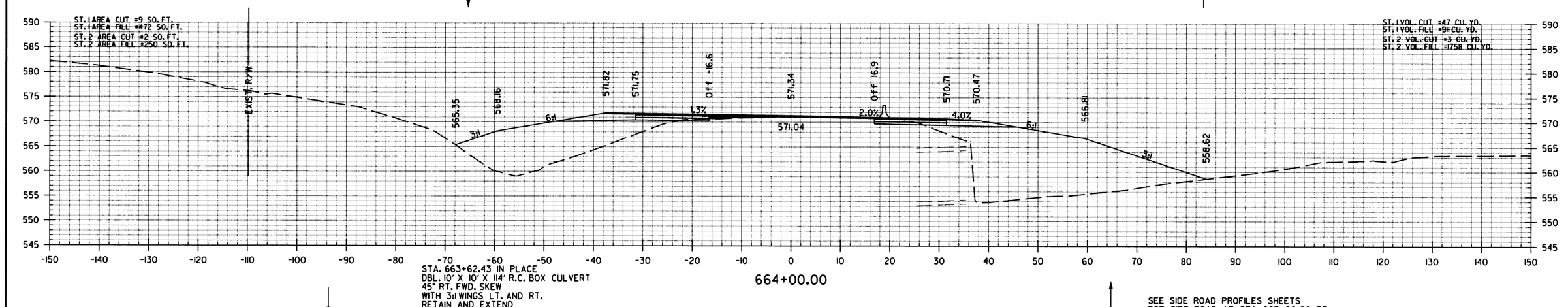


STA. 660+00 TO STA. 662+00

LeonardSpeed 9/23/2016 11:23:43 AM
K:\Projects\Leonard Speed\d027l744\r-CA0606_21.CX_MAIN_001.dgn
c:\Users\Baker_projects\leonard_speed\d027l744\r-CA0606_21.CX_MAIN_001.dgn
c:\pwwi81-local\baker_projects\leonard_speed\d027l744\r-CA0606_21.CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	584	888
				(2)	CROSS SECTIONS			

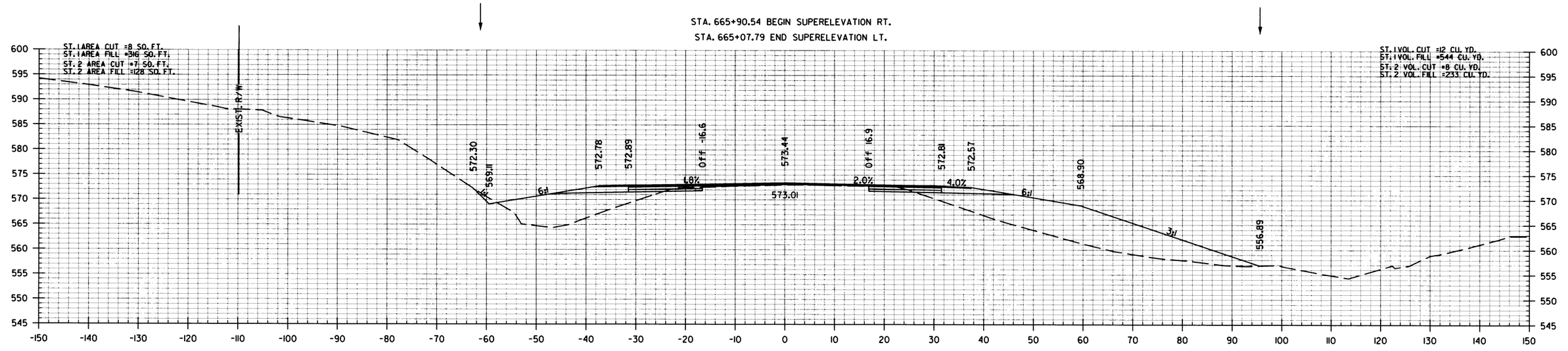


STA. 662+51 TO STA. 664+00

LeonardSpeed 9/23/2016 11:23:44 AM
WORKSPACE: Leonard_Speed
C:\Projects\Leonard_Speed\d027l744\r-CA0606_2i_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	585	888
				(2)	CROSS SECTIONS			



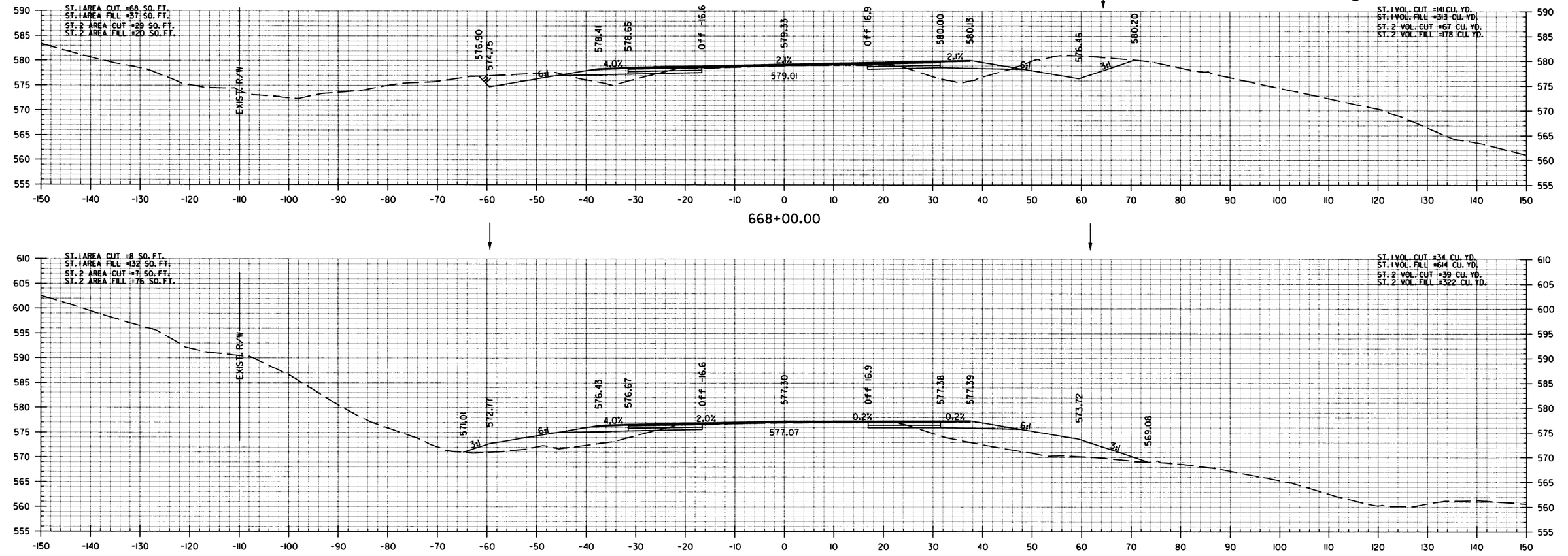
STA. 664+59 TO STA. 665+00

LeonardSpeed 9/23/2016 11:23:45 AM
W:\0027144\cadd\dgn\CA0606_21_CX_MAIN_001.dgn
c:\pwwl-local\baker_projects\leonardspeed\d0271144\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	586	888

(2) CROSS SECTIONS



STA. 666+00 TO STA. 668+00

Leonard,Speed 9/23/2016 11:23:47 AM
WORKSPACE=Corridor Design
c:\Dwg\81-local\baker-projects\leonard,speed\d027l744\r-CA0606_21.CX.MAIN.00l.dgn
REVISED DATE: $$REVDATE$$

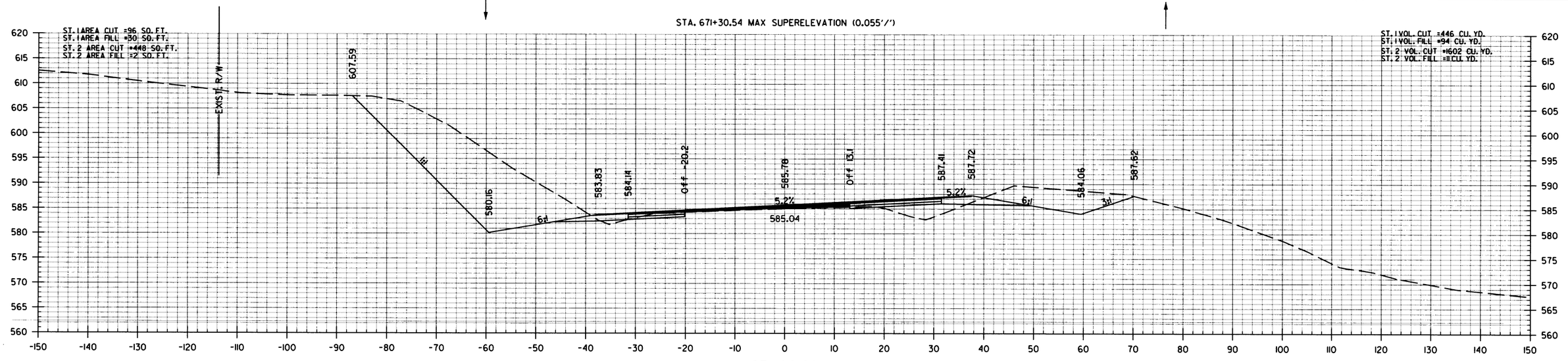
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

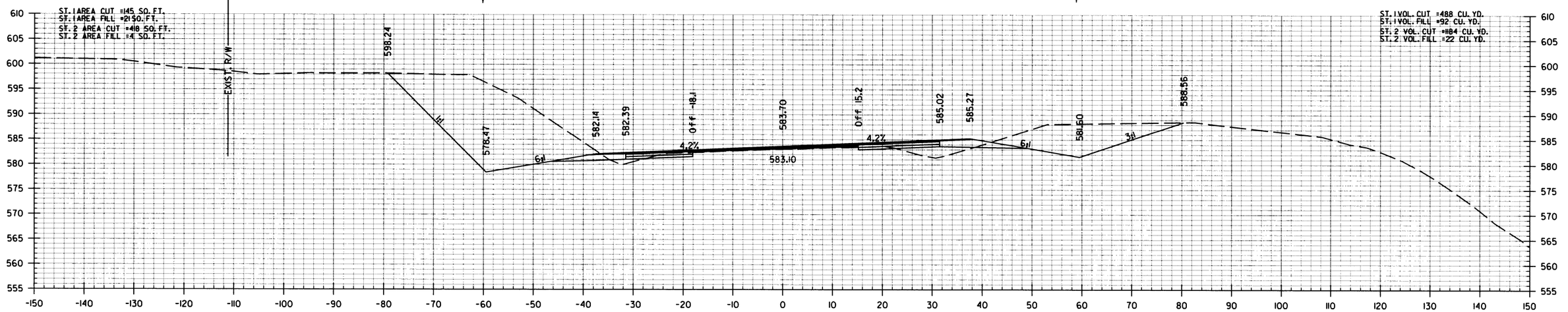
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	587	888

(2) CROSS SECTIONS

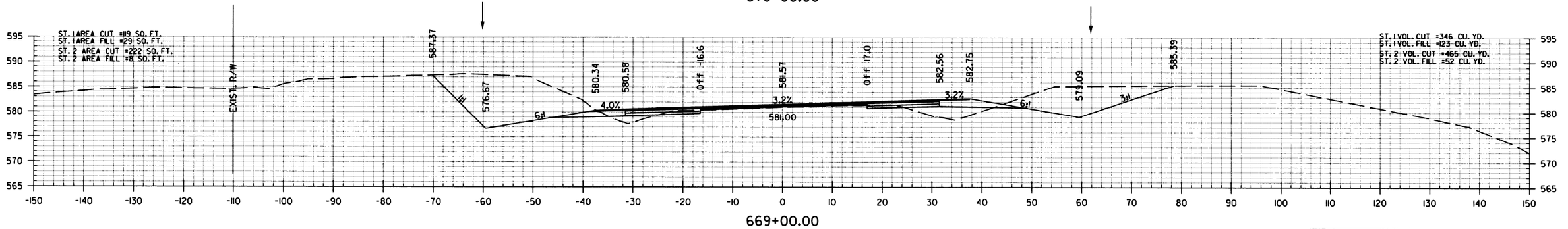
STA. 671+30.54 MAX SUPERELEVATION (0.055'/')



671+00.00



670+00.00



669+00.00

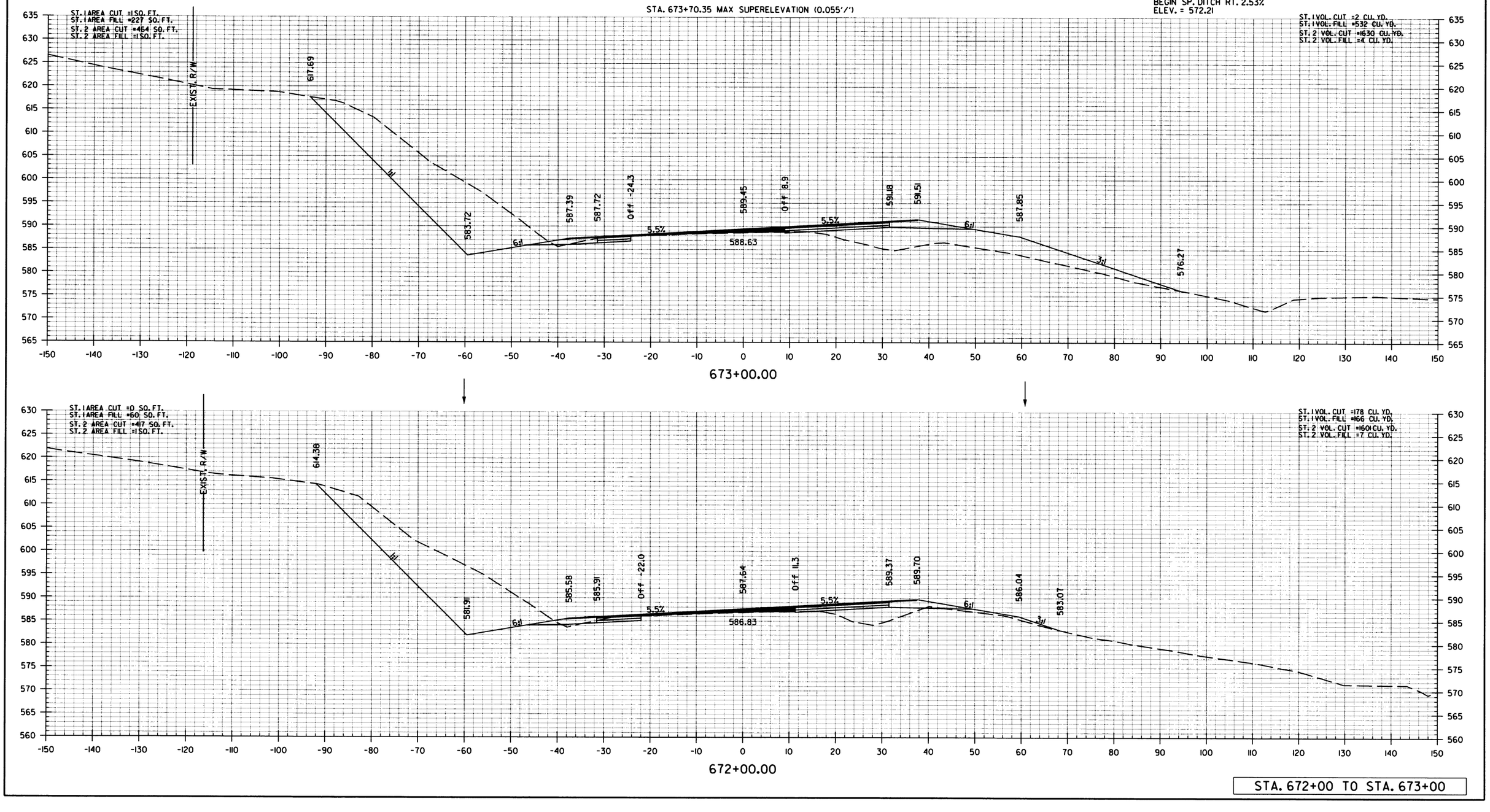
STA. 669+00 TO STA. 671+00

LeonardSpeed 9/23/2016 11:23:48 AM
WORKSPACE: LeonardSpeed
CONFIGURATION: C:\Projects\leonard_speed\d0271744\r-CA0606_2i_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	588	888

(2) CROSS SECTIONS

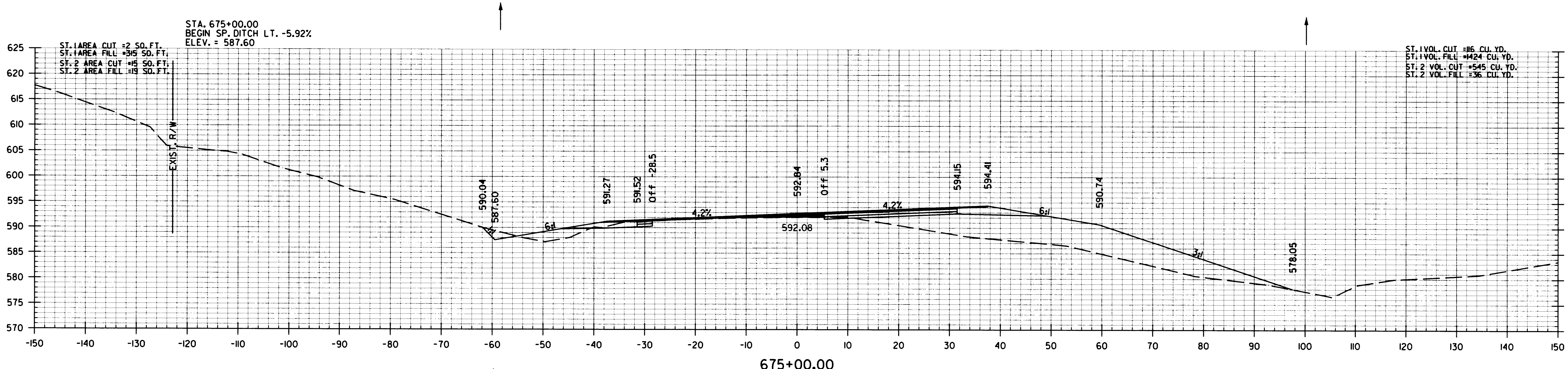


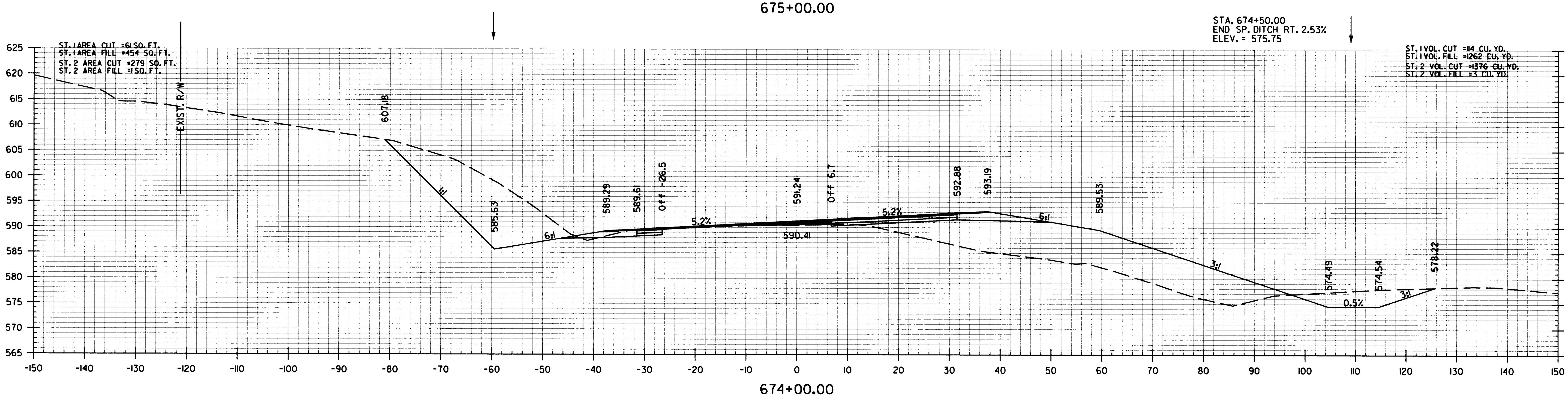
STA. 672+00 TO STA. 673+00

Leonard.Speed 9/23/2016 11:23:49 AM
WORKSPACE: Leonard-Speed
CONTAINER: C:\Projects\Leonard.speed\d0271741\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	589	888

(2) CROSS SECTIONS





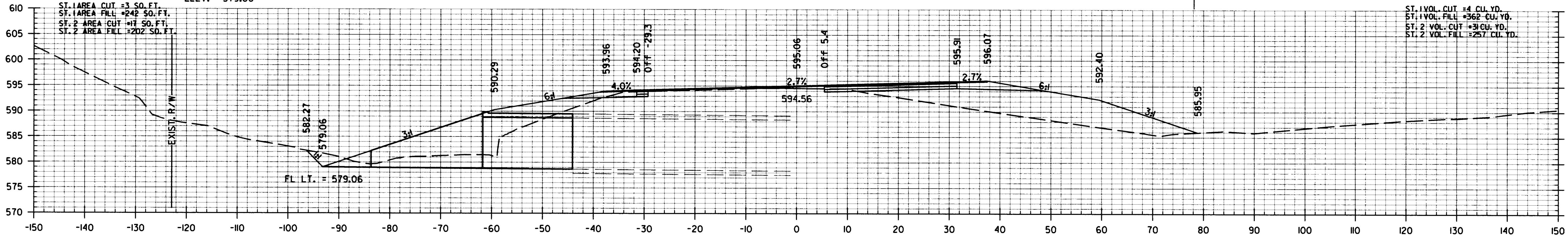
STA. 674+00 TO STA. 675+00

Leonard.Speed 9/23/2016 11:23:50 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0217144\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

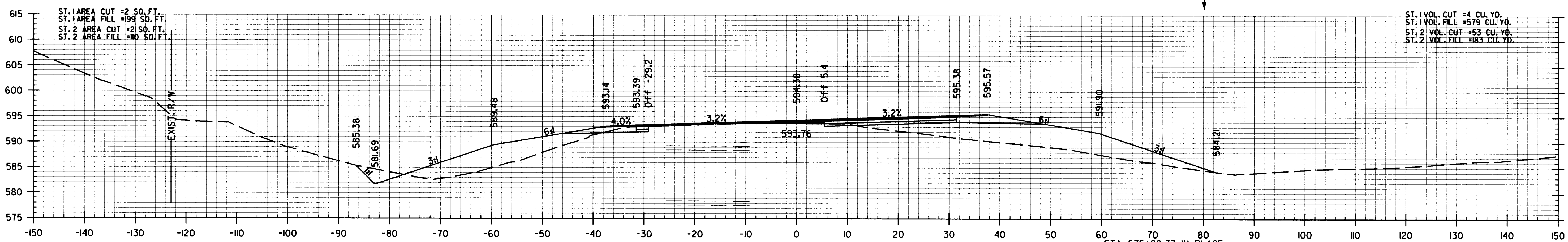
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	590	888
				(2)	CROSS SECTIONS			

STA. 676+44.37
END SP. DITCH LT. -5.92%
BEGIN SP. DITCH LT. 8.99%
ELEV. = 579.06

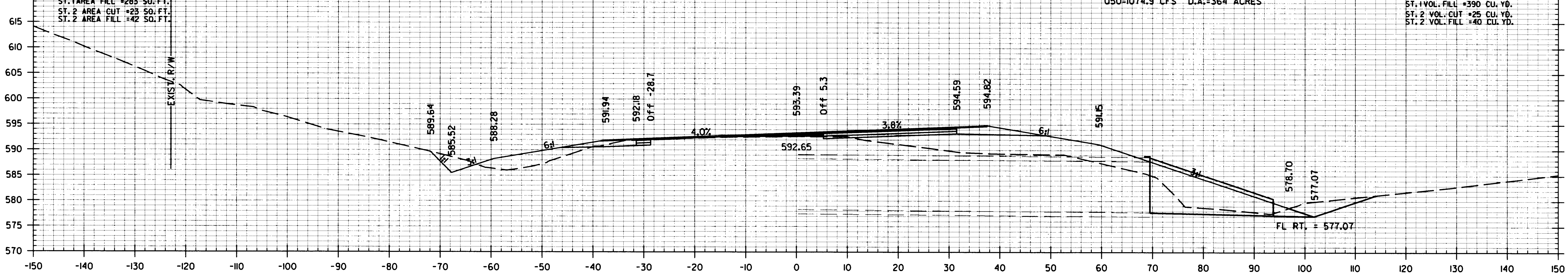


676+44.37



676+00.00

STA. 675+90.37 IN PLACE
10' X 10' X 130' R.C. BOX CULVERT
36° LT. FWD. SKEW
WITH 3:1 WINGS LT.
RETAIN AND EXTEND 20' LT.
CONSTRUCT 3:1 WINGS RT.
Q50=1074.9 CFS D.A.=364 ACRES



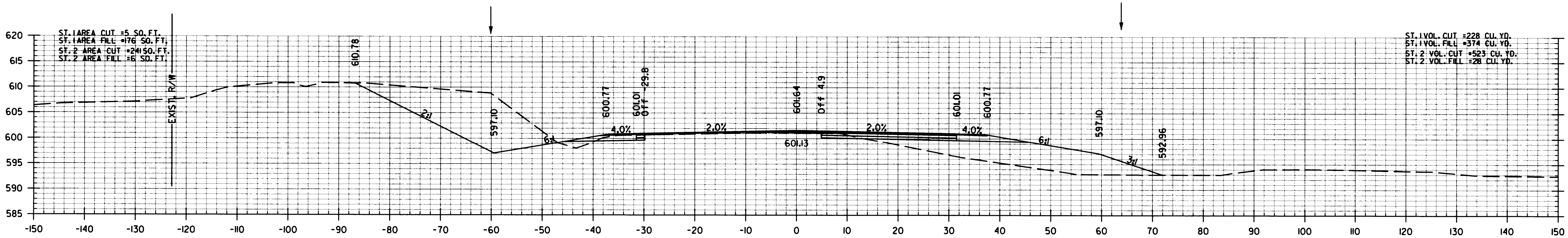
675+35.21

STA. 675+35 TO STA. 676+44

Leonard.Speed 9/23/2016 11:23:52 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0217414\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

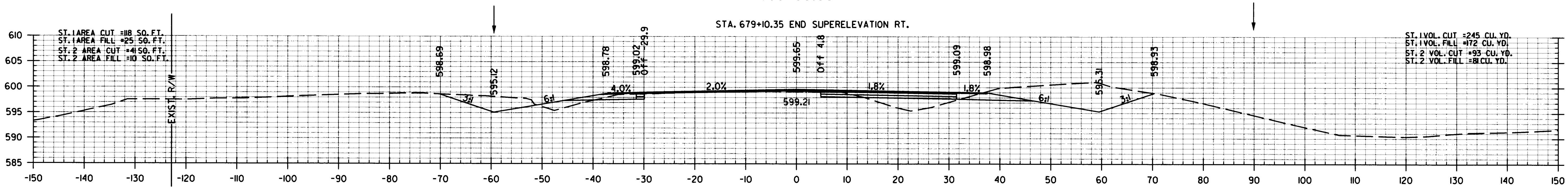
Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	591	888

(2) CROSS SECTIONS

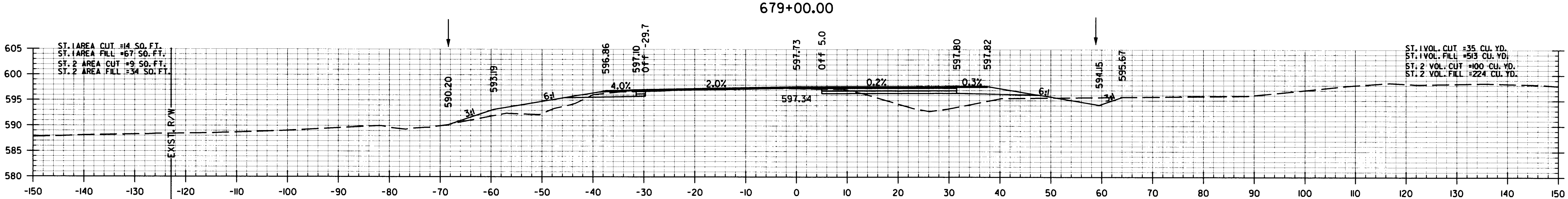


680+00.00

STA. 679+10.35 END SUPERELEVATION RT.

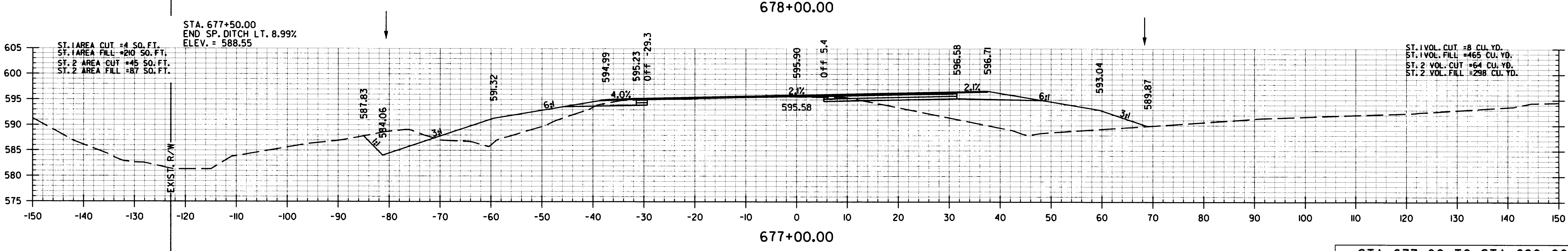


679+00.00



678+00.00

STA. 677+50.00
END SP. DITCH LT. 8.99%
ELEV. = 588.55



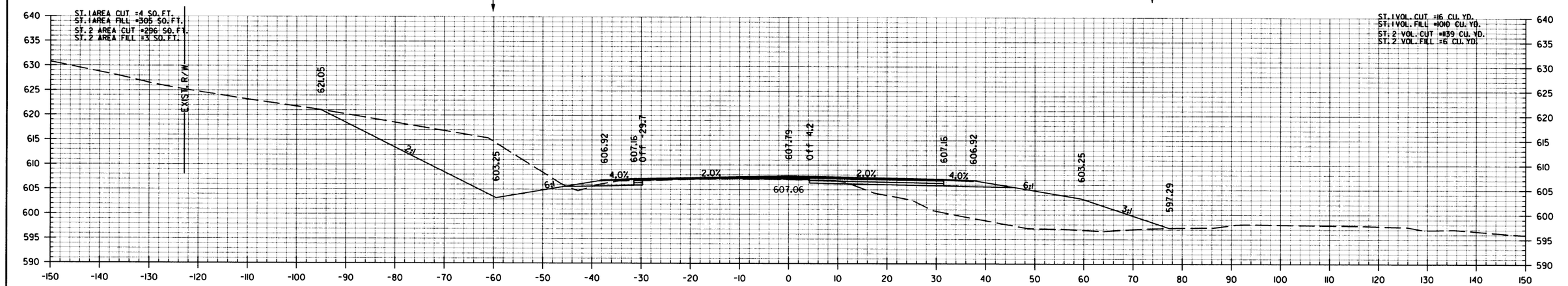
677+00.00

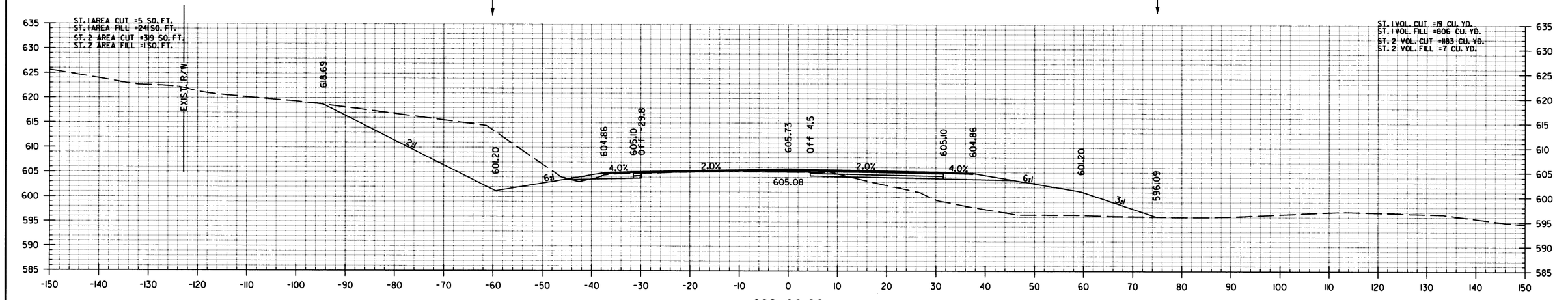
STA. 677+00 TO STA. 680+00

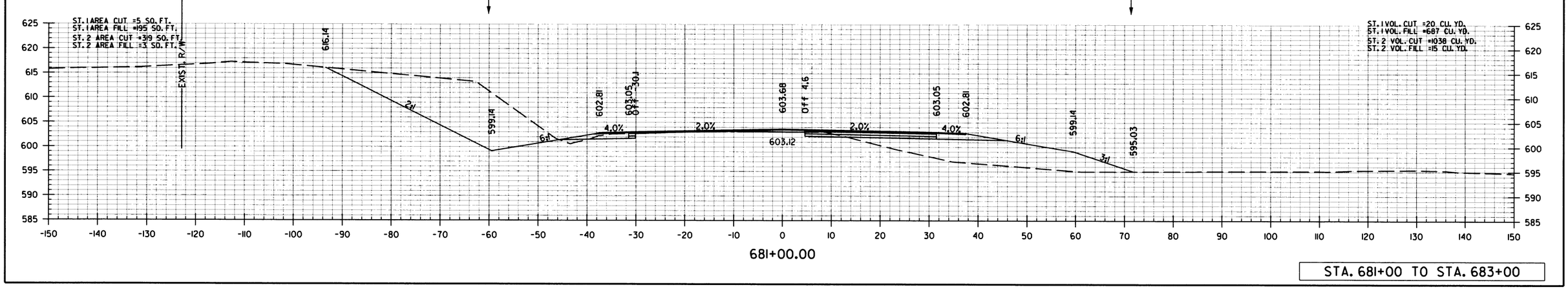
Leonard.Speed 9/23/2016 11:23:53 AM
WORKSPACE: Leonard.Speed
c:\pw\B-local\baker_projects\leonard.speed\d0271744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	592	888
				(2)	CROSS SECTIONS			







STA. 681+00 TO STA. 683+00

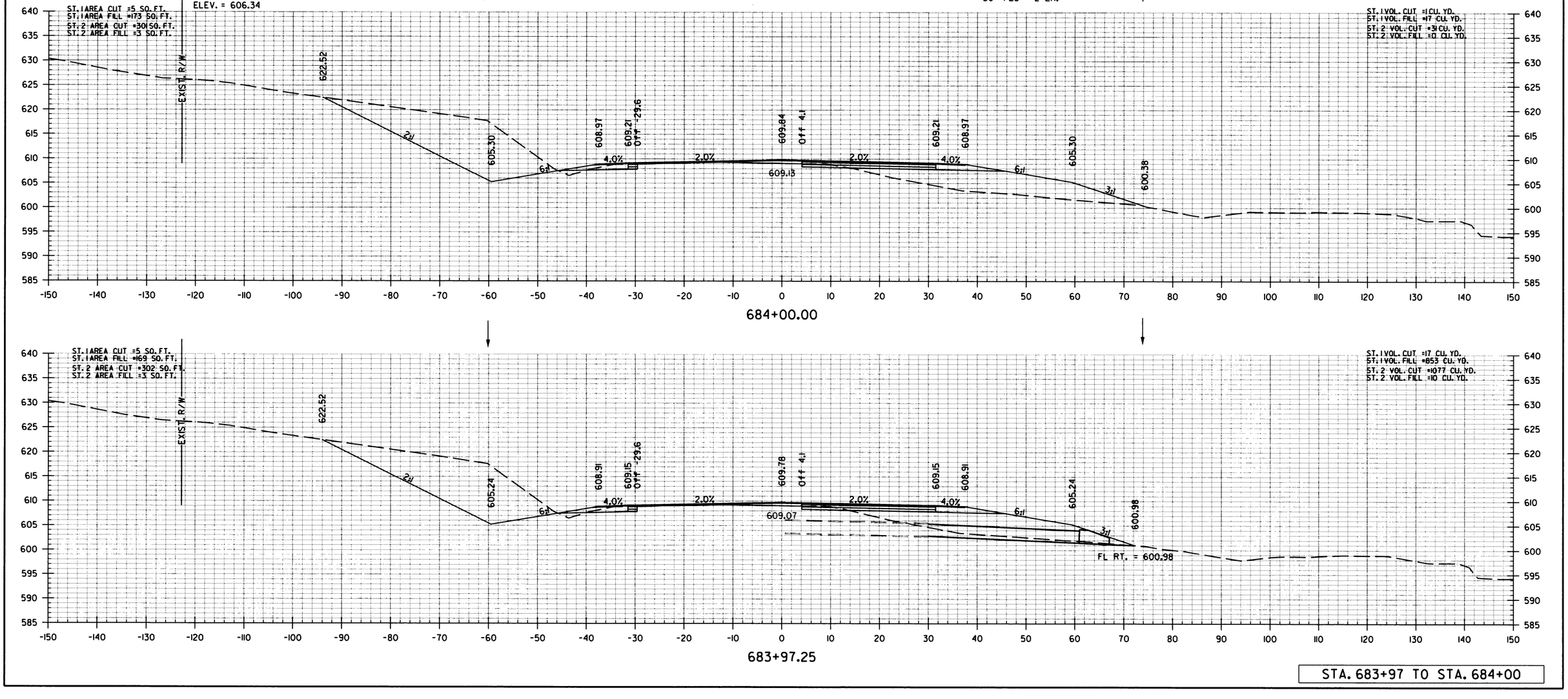
Leonard.Speed 9/23/2016 11:23:54 AM
WORKSPACE: Leonard.Speed
C:\Users\leonard.speed\Documents\leonard.speed\v0027744\r-CA0606_2i.CX.MAIN.001.dgn
DESIGNER: #$DESIGNER#$
REVISED DATE: #$REVDATE#$

Michael Baker
INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	593	888
				(2)	CROSS SECTIONS			

STA. 684+50.00
BEGIN SP. DITCH LT. -4.77%
ELEV. = 606.34

STA. 684+39.59 IN PLACE
30"X 83' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 21' LT. AND 37' RT.
30° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=36.1CFS D.A.=7 ACRES
30" R.C. PIPE = 62 LIN. FT.
30" FES = 2 EA.

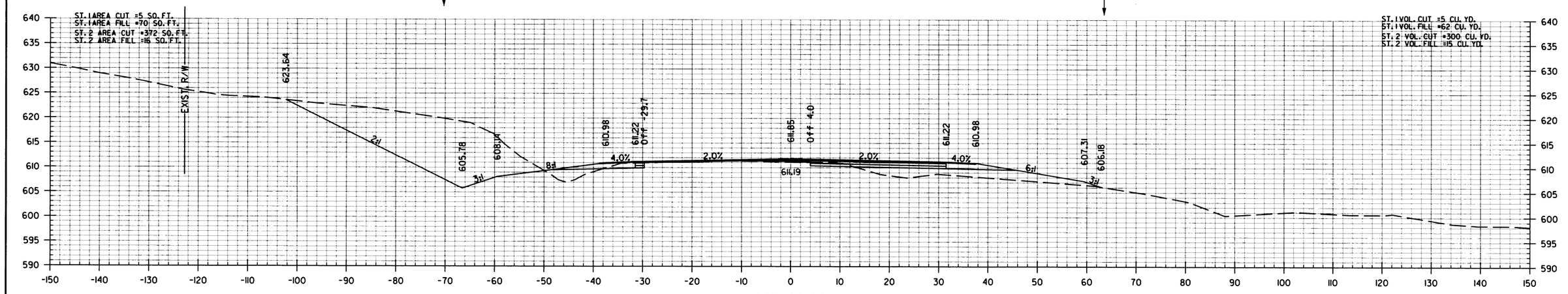


STA. 683+97 TO STA. 684+00

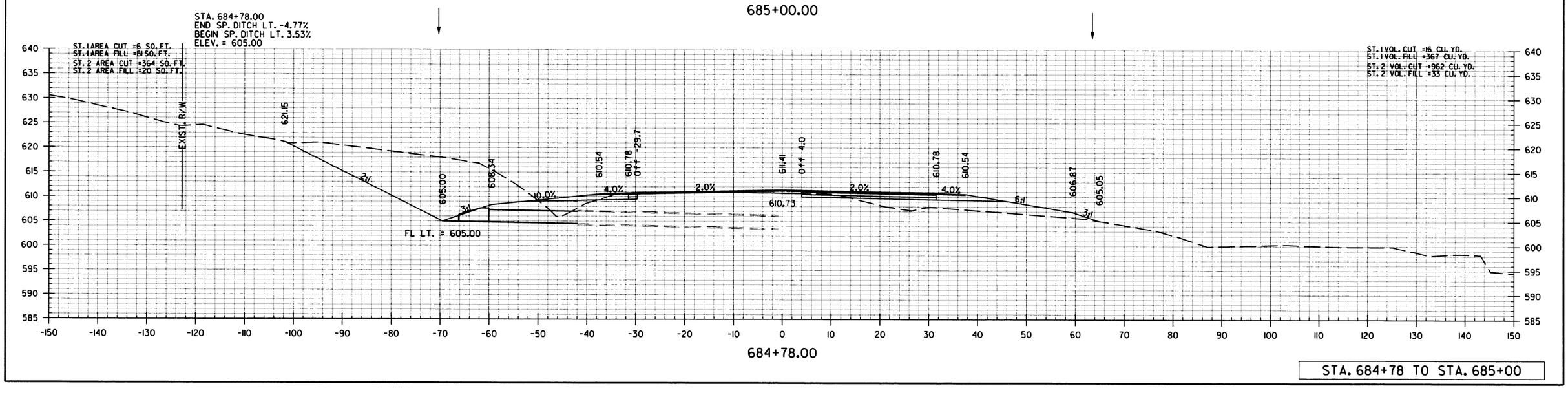
LeonardSpeed 9/23/2016 11:23:55 AM
MicroStation V8i (SELECTseries 3)
c:\vw8i-local\bdker.projects\leonardspeed\d0211744\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	594	888
				(2)	CROSS SECTIONS			



STA. 684+78.00
END SP. DITCH LT. -4.77%
BEGIN SP. DITCH LT. 3.53%
ELEV. = 605.00



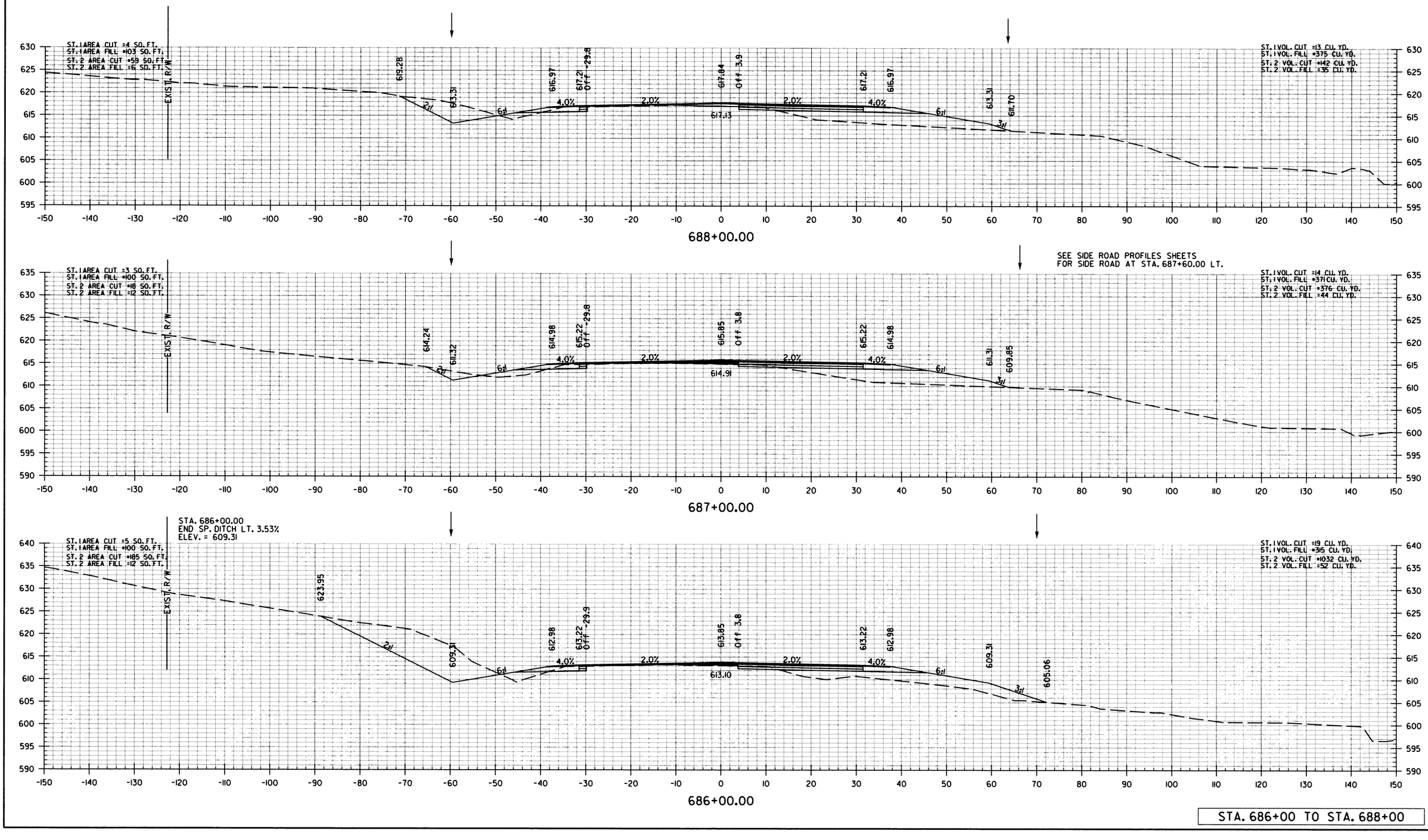
STA. 684+78 TO STA. 685+00

Leonard.Speed 9/23/2016 11:23:57 AM
WORKSPACE: Leonard.Speed
C:\Users\#USERNAME#\Documents\Leonard.speed\v0271744\r\CA0606_2i_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	595	888

(2) CROSS SECTIONS

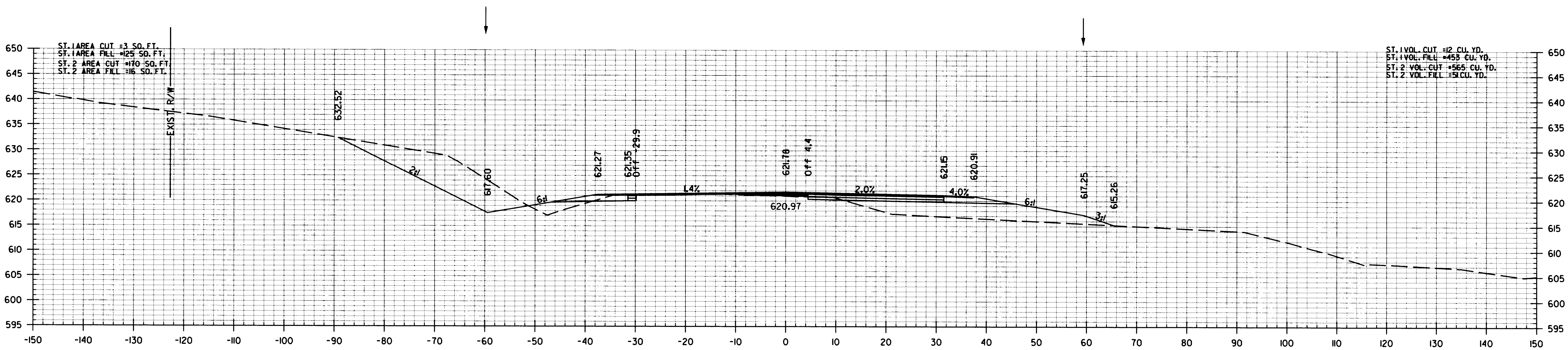


STA. 686+00 TO STA. 688+00

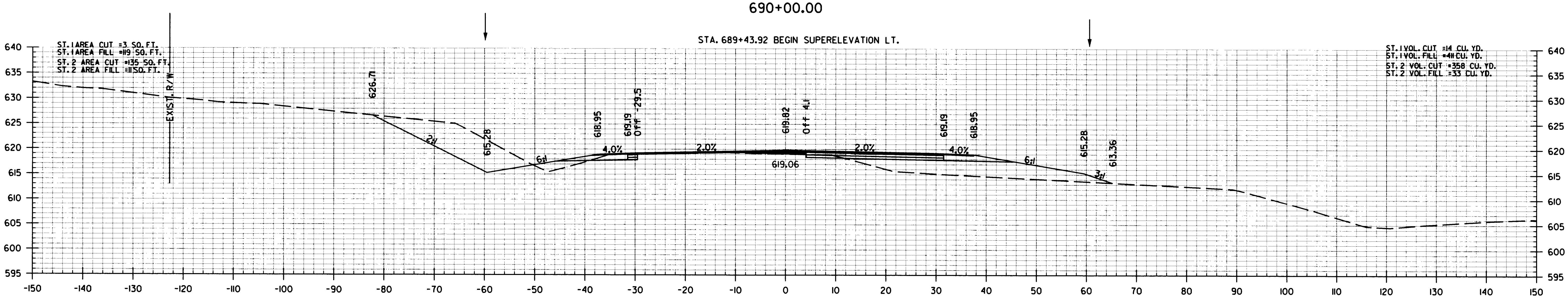
Leonard.Speed 9/23/2016 11:23:58 AM
W:\0060\0606.21\Design\Cad\Sheets\0606.21_CX_MAIN_001.dgn
C:\Users\Leonard.Speed\Documents\Projects\Leonard.Speed\d0211744\rCA0606_2L_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	596	888
				(2)	CROSS SECTIONS			



690+00.00



689+00.00

STA. 689+00 TO STA. 690+00

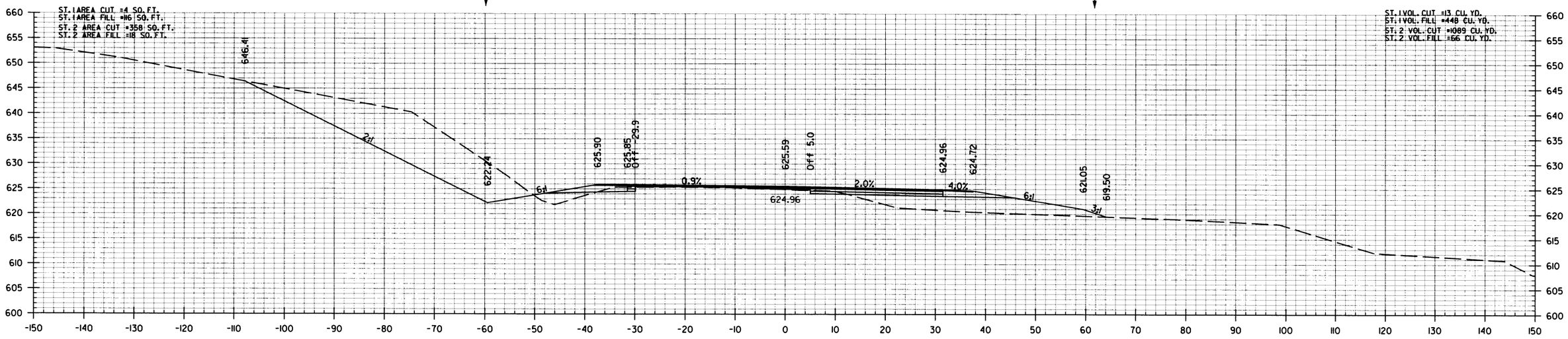
Leonard.Speed 9/23/2016 11:23:59 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271744\r-CA0606_21.CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

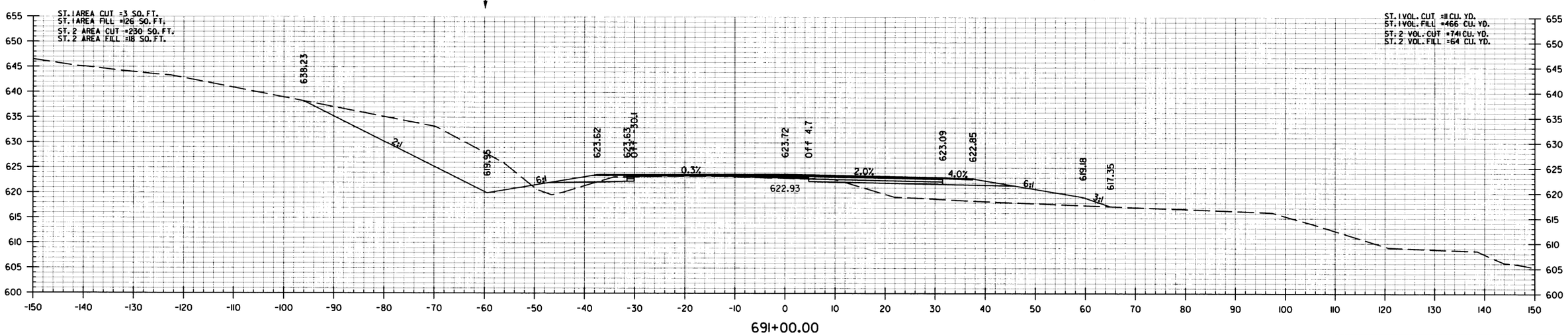
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	597	888

(2) CROSS SECTIONS





STA. 691+00 TO STA. 692+00

LeonardSpeed 9/23/2006 11:24:00 AM
WORKSPACE: Leonard_Speed
c:\pwwbi-local\baker_projects\leonard_speed\v0271744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	598	888

(2) CROSS SECTIONS

STA. 694+83.92 MAX SUPERELEVATION (0.030'/')

SEE DRIVEWAY PROFILES SHEETS FOR DRIVEWAY STA. 694+17.00 RT.

ST. 1 AREA CUT =4 SQ. FT.
ST. 1 AREA FILL =172 SQ. FT.
ST. 2 AREA CUT =29 SQ. FT.
ST. 2 AREA FILL =72 SQ. FT.

ST. 1 VOL. CUT =2 CU. YD.
ST. 1 VOL. FILL =104 CU. YD.
ST. 2 VOL. CUT =21 CU. YD.
ST. 2 VOL. FILL =30 CU. YD.

628.49 623.73 626.72 630.38 630.23 Off -29.2 629.43 Off 5.1 628.53 628.39 624.73 619.81
2:1 2:1 6:1 2.5% 628.86 4.0% 6:1 3:1

694+00.00

STA. 693+88.15
END SP. DITCH LT. -6.52%
BEGIN SP. DITCH LT. 5.25%
ELEV. = 623.11

STA. 693+88.15 IN PLACE
42"X 98' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 12' LT. AND 20' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=19.0 CFS D.A.=4 ACRES
42" R.C. PIPE = 36 LIN. FT.
42" FES = 2 EA.

ST. 1 AREA CUT =4 SQ. FT.
ST. 1 AREA FILL =301 SQ. FT.
ST. 2 AREA CUT =67 SQ. FT.
ST. 2 AREA FILL =66 SQ. FT.

ST. 1 VOL. CUT =16 CU. YD.
ST. 1 VOL. FILL =651 CU. YD.
ST. 2 VOL. CUT =681 CU. YD.
ST. 2 VOL. FILL =123 CU. YD.

629.91 623.11 626.45 630.12 629.97 Off -29.2 629.19 Off 5.2 628.41 628.17 624.50 615.74
2:1 3:1 6:1 2.5% 628.62 4.0% 6:1 3:1
FL LT. = 623.11 FL RT. = 615.74

693+88.15

STA. 693+50.00
BEGIN SP. DITCH LT. -6.52%
ELEV. = 625.60

ST. 1 AREA CUT =6 SQ. FT.
ST. 1 AREA FILL =98 SQ. FT.
ST. 2 AREA CUT =350 SQ. FT.
ST. 2 AREA FILL =10 SQ. FT.

ST. 1 VOL. CUT =18 CU. YD.
ST. 1 VOL. FILL =396 CU. YD.
ST. 2 VOL. CUT =134 CU. YD.
ST. 2 VOL. FILL =50 CU. YD.

646.82 624.49 628.16 628.04 Off -29.8 627.42 Off 4.8 626.79 626.55 622.89 621.12
2:1 6:1 2.0% 627.06 4.0% 6:1 3:1

693+00.00

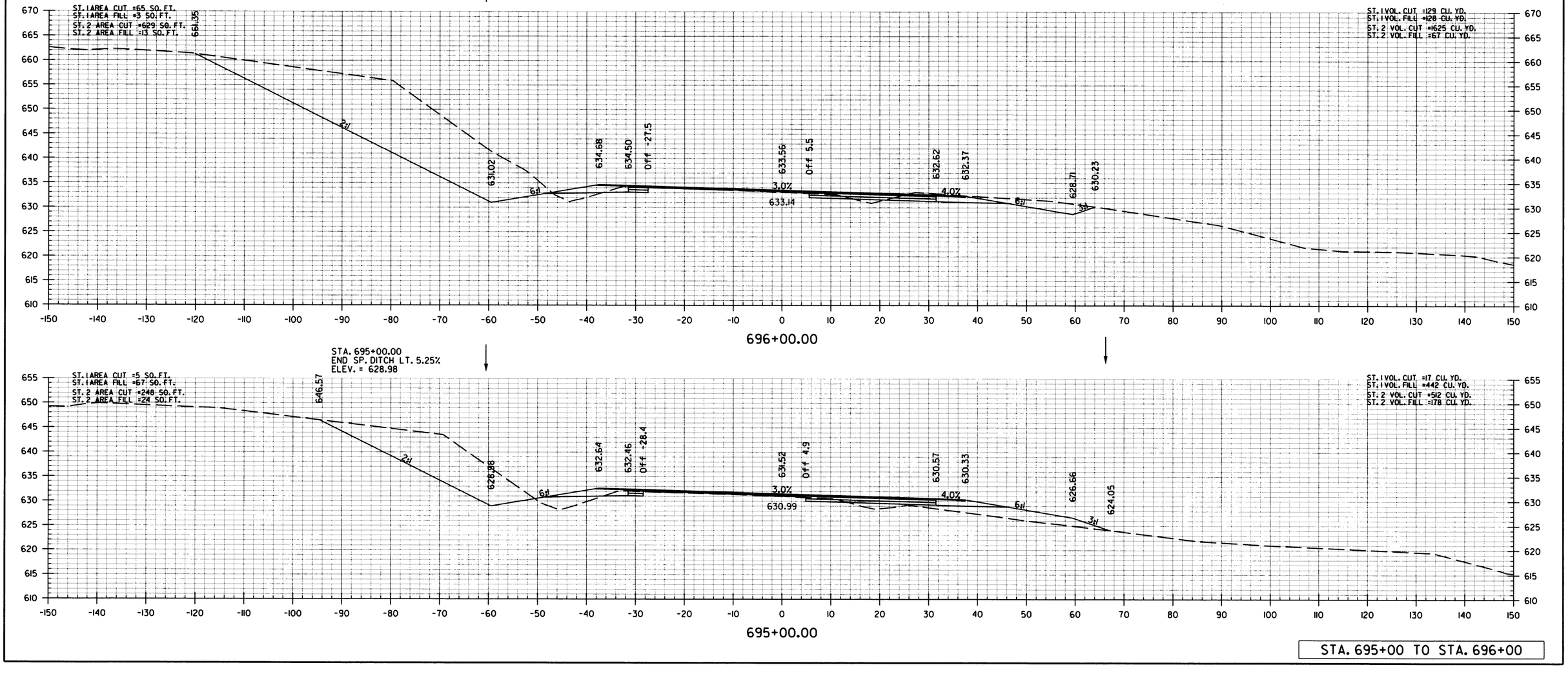
STA. 693+00 TO STA. 694+00

LeonardSpeed 9/23/2016 11:24:02 AM
Model: Default
c:\Users\81-local\Baker Projects\leonardspeed\d0271744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	599	888
(2)	CROSS SECTIONS			



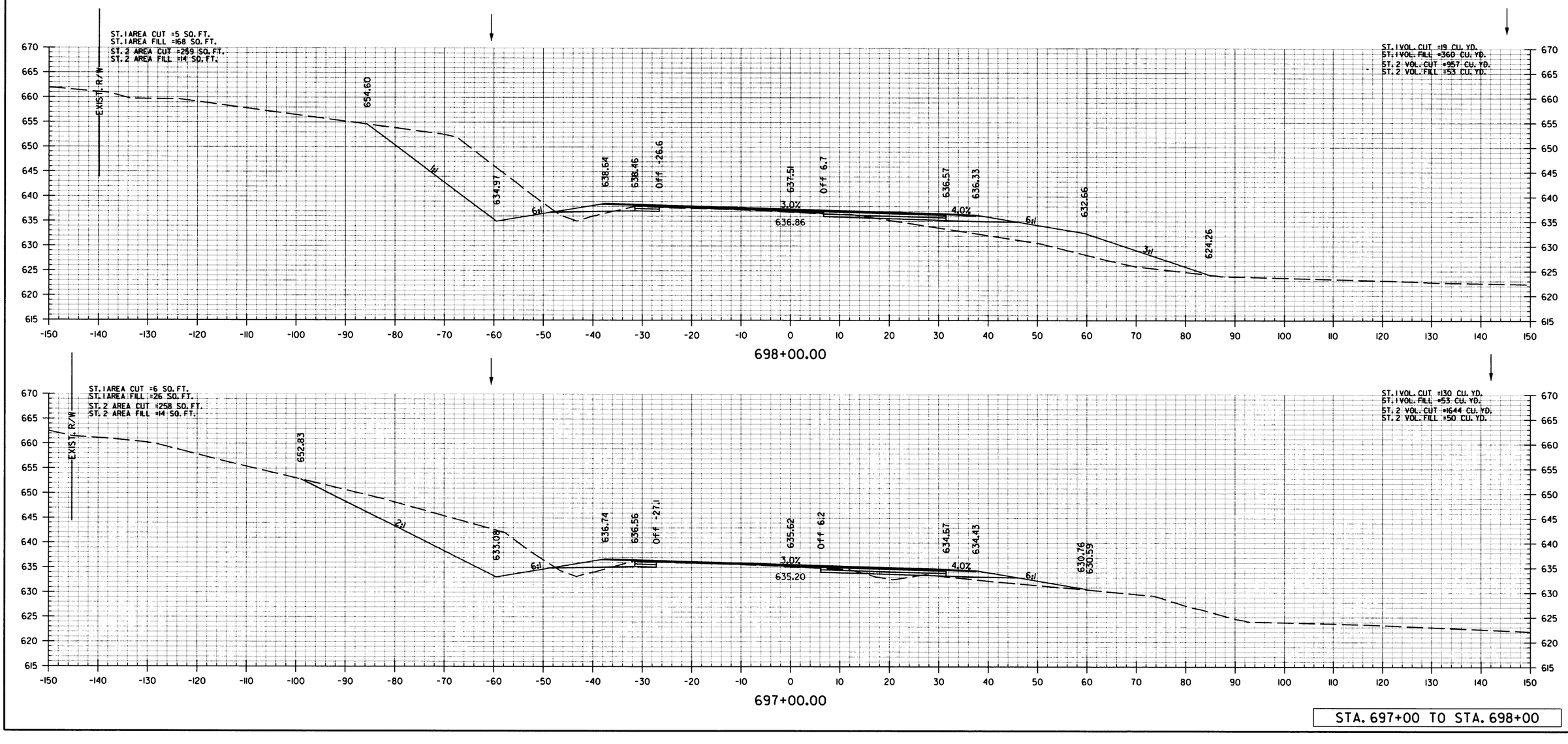
STA. 695+00 TO STA. 696+00

Leonard Speed 9/23/2016 11:24:03 AM
W:\0052\25\Roadway\Projects\Speed\Leonard Speed\Projects\Leonard_Speed\d0271744\r-CA0606_2i_CX_MAIN_001.dgn
USER:rbi-lockard
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	600	888

(2) CROSS SECTIONS



STA. 697+00 TO STA. 698+00

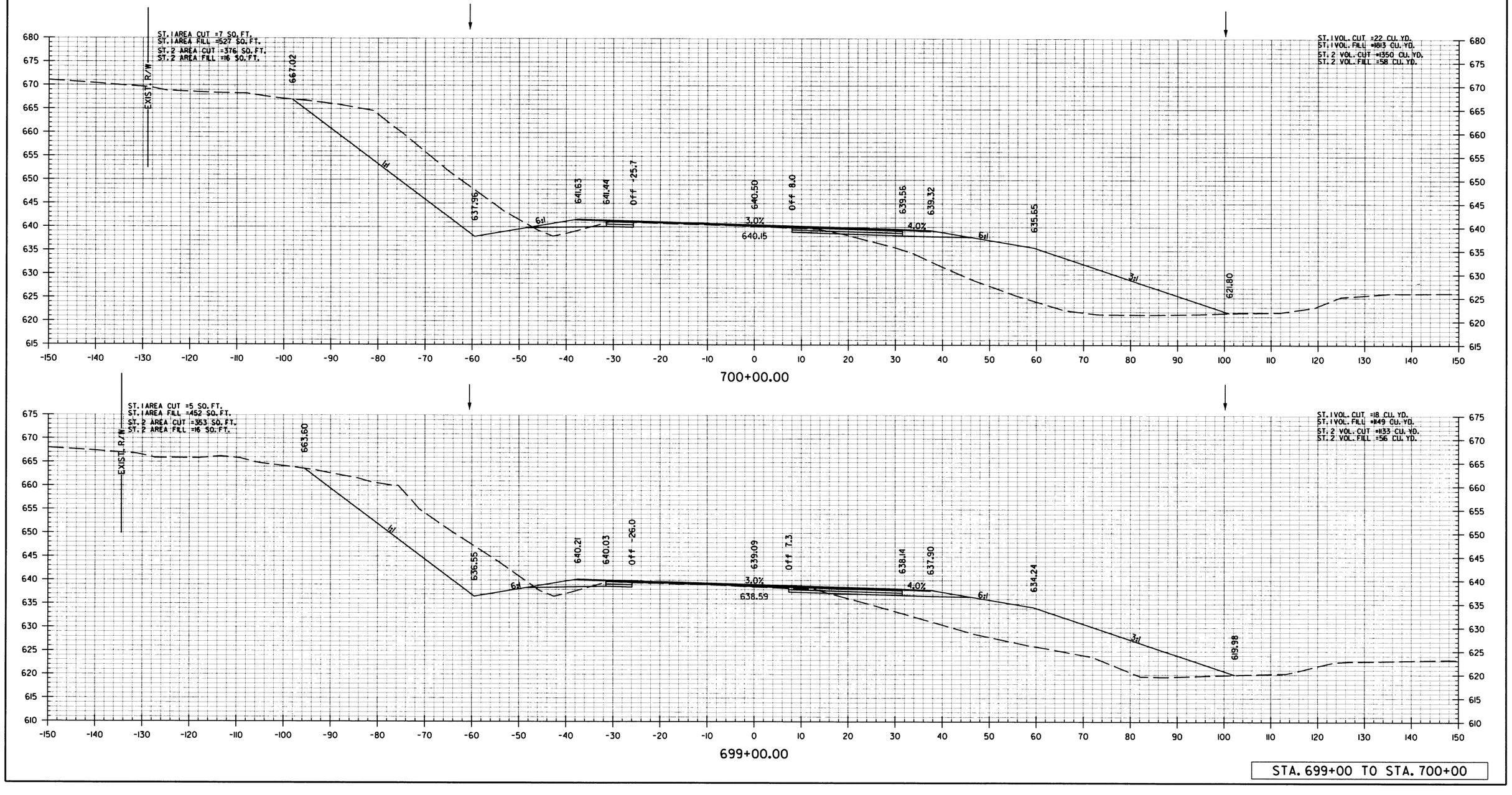
Leonard Speed 9/23/2016 11:24:04 AM
W:\0606.21_Leonard Speed\Design\Civil\Projects\Leonard Speed\d0211744\r-CA0606_21_CX_MAIN_001.dgn
CIVIL/Michael Baker Projects\Leonard Speed\d0211744\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	601	888

(2) CROSS SECTIONS



STA. 699+00 TO STA. 700+00

Leonard.Speed 9/23/2016 11:24:05 AM
WORKSPACE: Leonard.Speed
c:\users\speed\documents\leonard.speed\d0211744\rCA0606_2I_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

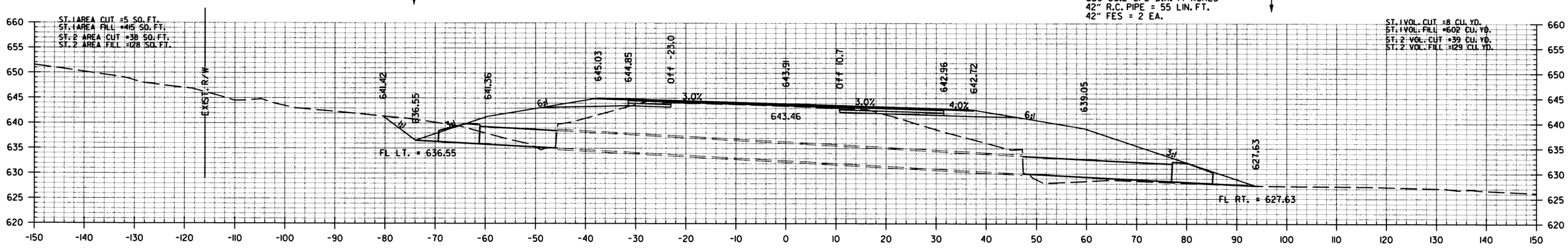
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	602	888

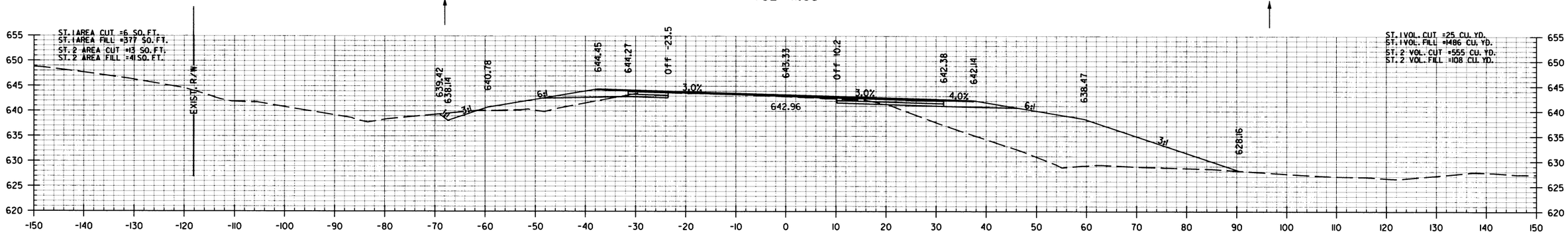
(2) CROSS SECTIONS

STA. 702+41.05
END SP. DITCH LT. -3.88%
BEGIN SP. DITCH LT. 4.44%
ELEV. = 636.55

STA. 702+41.05 IN PLACE
42"X 93' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 16' LT. AND 31' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=66.2 CFS D.A.=14 ACRES
42" R.C. PIPE = 55 LIN. FT.
42" FES = 2 EA.

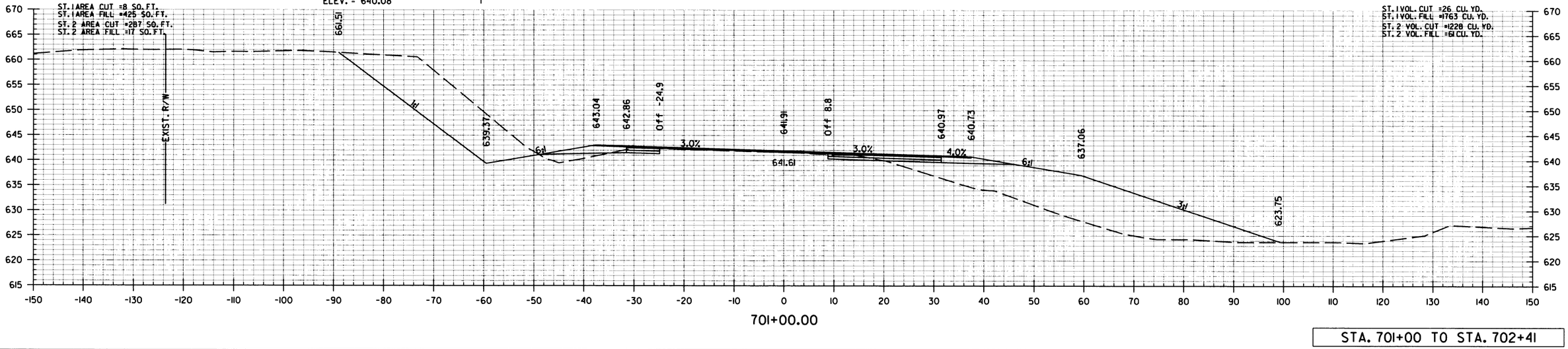


702+41.05



702+00.00

STA. 701+50.00
BEGIN SP. DITCH LT. -3.88%
ELEV. = 640.08



701+00.00

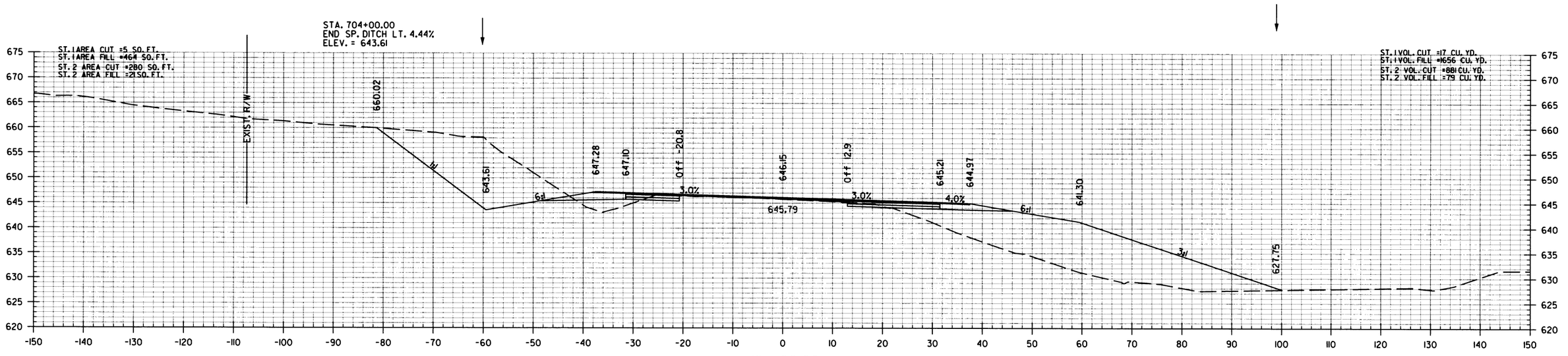
STA. 701+00 TO STA. 702+41

LeonardSpeed 9/23/2016 11:24:07 AM
W:\0606.21\Leonard Speed
C:\Users\bkeller\Documents\Projects\LeonardSpeed\d0271744\rCA0606_2L_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	603	888

(2) CROSS SECTIONS



STA. 703+00 TO STA. 704+00

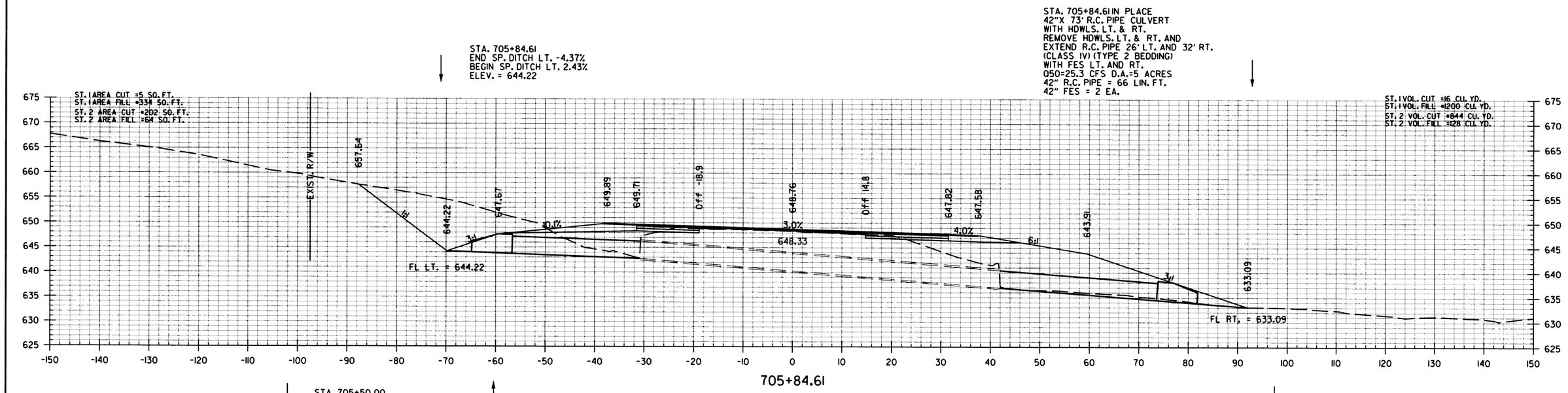
Leonard Speed 9/23/2016 11:24:08 AM
\\Mobile-server\Shared Documents\Projects\Leonard Speed\d0217744\r-CA0606.21.CX_MAIN_001.dgn
C:\Users\BI-local\bcker.projects\Leonard.speed\d0217744\r-CA0606.21.CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	604	888

(2) CROSS SECTIONS



STA. 705+00 TO STA. 705+85

Leonard.Speed 9/23/2016 11:24:27 AM
WORKSPACE: Leonard.Speed
C:\Users\Leonard.Speed\Documents\Projects\Leonard.Speed\d0211744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	605	888
				(2)	CROSS SECTIONS			

ST. 1 AREA CUT =7 SQ. FT.
ST. 1 AREA FILL =145 SQ. FT.
ST. 2 AREA CUT =22 SQ. FT.
ST. 2 AREA FILL =54 SQ. FT.

ST. 1 VOL. CUT =28 CU. YD.
ST. 1 VOL. FILL =353 CU. YD.
ST. 2 VOL. CUT =524 CU. YD.
ST. 2 VOL. FILL =141 CU. YD.

EXIST. R/W
650.74
647.84
649.12
652.79
652.53
Off -16.5
651.78
651.54
Off 17.2
650.94
650.70
647.03
641.12
2.7%
4.0%
6:1
3:1

708+00.00

STA. 707+75.00
END SP. DITCH LT. 2.43%
BEGIN SP. DITCH LT. -4.04%
ELEV. = 648.85

STA. 707+42.73 MAX SUPERELEVATION (0.030'/')

ST. 1 AREA CUT =8 SQ. FT.
ST. 1 AREA FILL =46 SQ. FT.
ST. 2 AREA CUT =251 SQ. FT.
ST. 2 AREA FILL =22 SQ. FT.

ST. 1 VOL. CUT =25 CU. YD.
ST. 1 VOL. FILL =536 CU. YD.
ST. 2 VOL. CUT =894 CU. YD.
ST. 2 VOL. FILL =107 CU. YD.

EXIST. R/W
662.15
647.02
647.87
651.53
651.35
Off -17.8
650.41
650.05
Off 15.9
649.46
649.22
645.55
643.68
3.0%
4.0%
6:1
3:1

707+00.00

ST. 1 AREA CUT =5 SQ. FT.
ST. 1 AREA FILL =243 SQ. FT.
ST. 2 AREA CUT =222 SQ. FT.
ST. 2 AREA FILL =36 SQ. FT.

ST. 1 VOL. CUT =3 CU. YD.
ST. 1 VOL. FILL =165 CU. YD.
ST. 2 VOL. CUT =121 CU. YD.
ST. 2 VOL. FILL =29 CU. YD.

EXIST. R/W
658.61
644.59
647.46
650.10
649.92
Off -18.8
648.98
648.56
Off 14.8
648.03
647.79
644.13
636.36
3.0%
4.0%
6:1
8:1
3:1

706+00.00

STA. 706+00 TO STA. 708+00

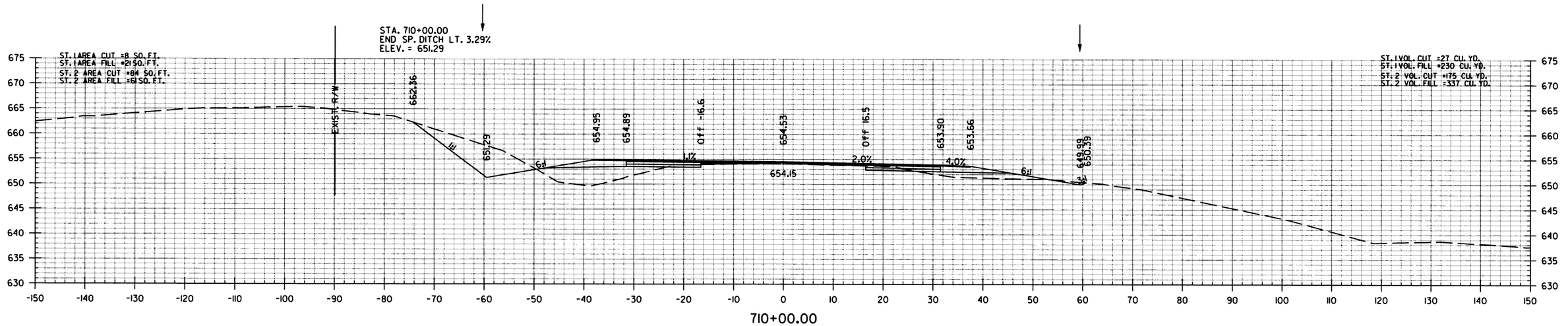
Leonard.Speed 9/23/2016 11:24:28 AM
W:\0606.2\Roadway\Projects\Leonard.Speed\d0211744\rCA0606.2i_CX_MAIN_001.dgn
Cadworx8i-localized projects\Leonard.Speed\d0211744\rCA0606.2i_CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	606	888

(2) CROSS SECTIONS



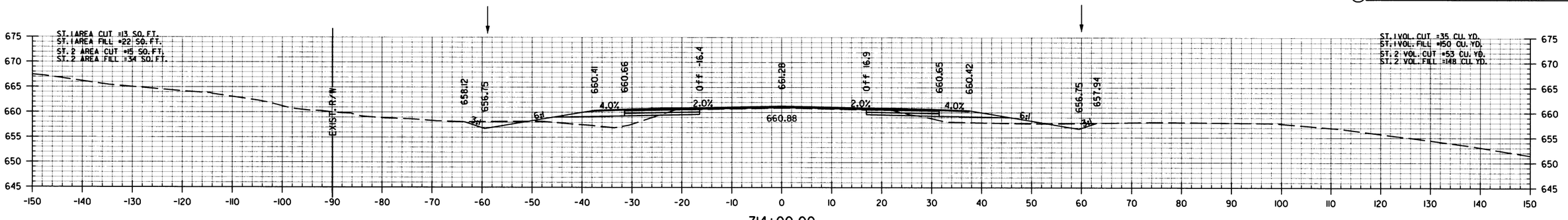
STA. 708+43 TO STA. 710+00

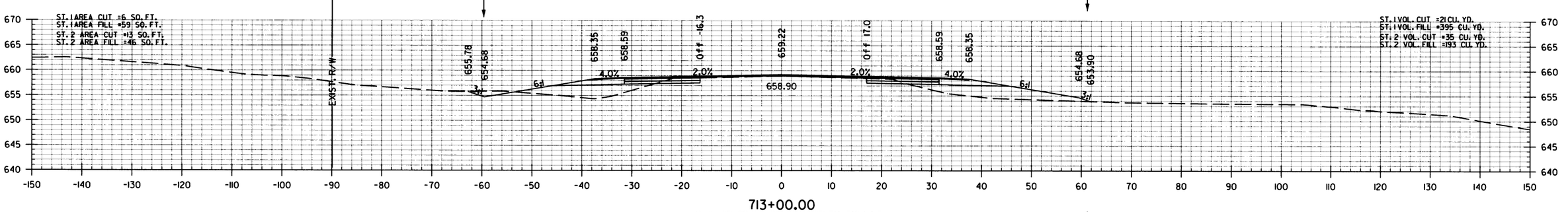
Leonard.Speed 9/23/2016 11:24:28 AM
WORKSPACE: Leonard.Speed
Drawing: C:\Projects\Leonard.Speed\d0217144\rCA0606_2i_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

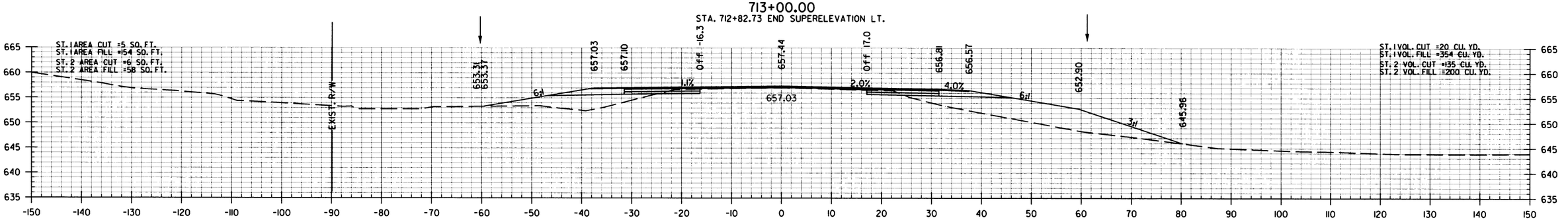
Michael Baker INTERNATIONAL

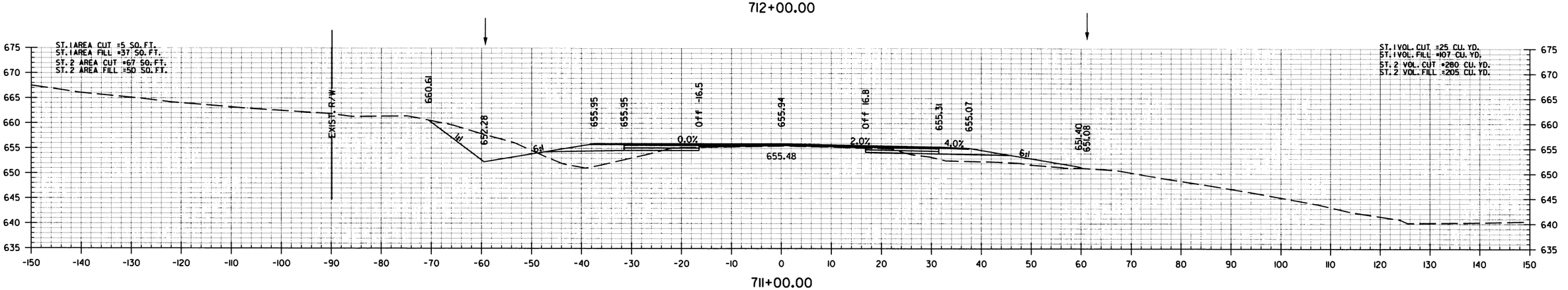
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	607	888

(2) CROSS SECTIONS









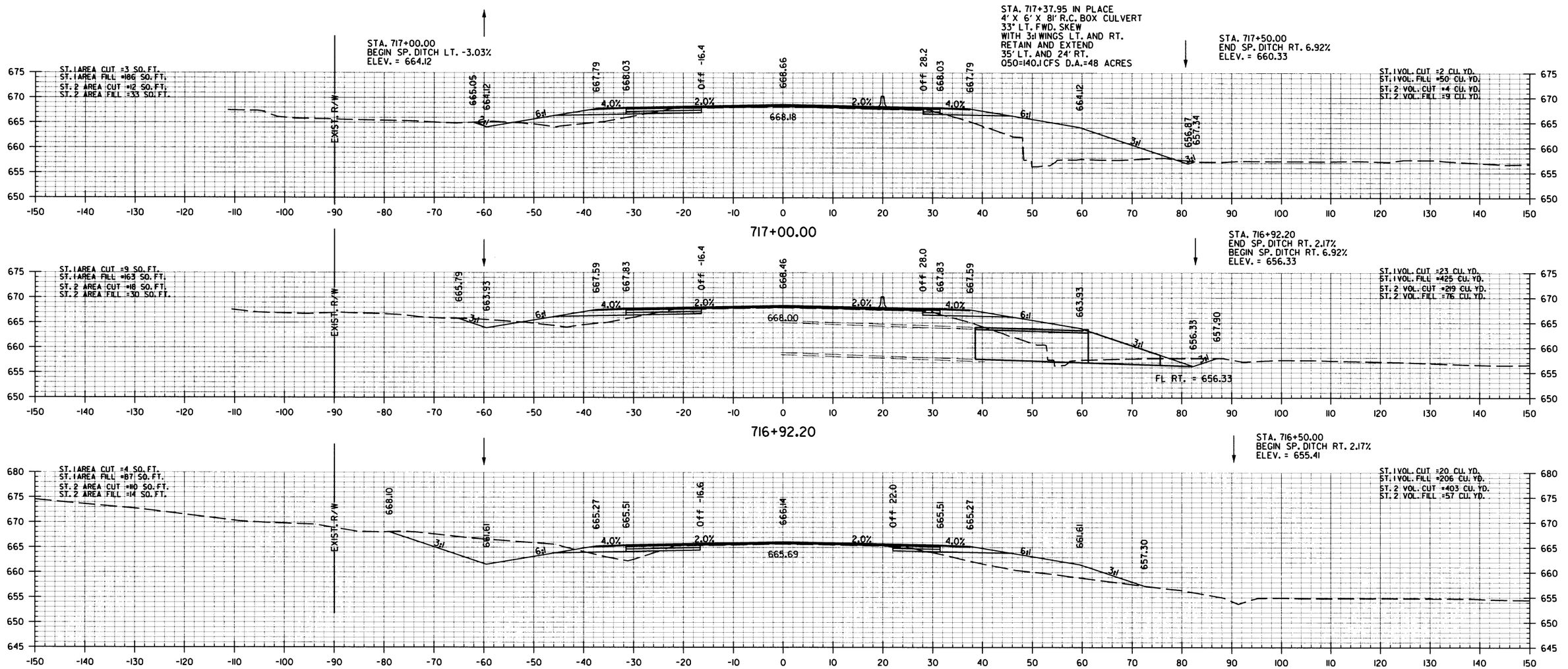
STA. 711+00 TO STA. 714+00

Leonard.Speed 9/23/2016 11:24:29 AM
WORKSPACE: Leonard.Speed
\\ewvolfpc01\Users\Baker\Projects\leonard.speed\d0211744\r-CA0606.21.CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	608	888

(2) CROSS SECTIONS

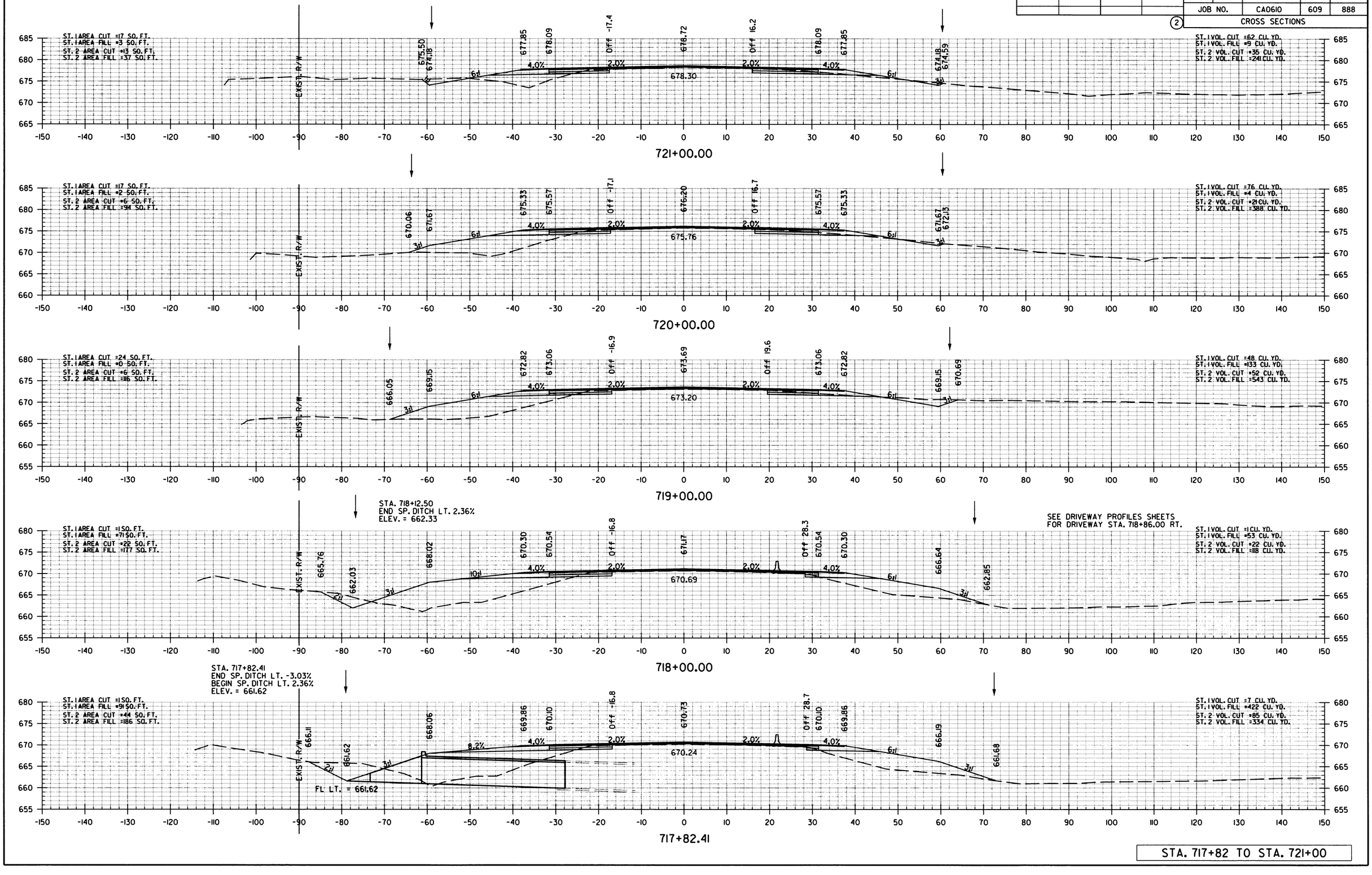


STA. 715+00 TO STA. 717+00

Leonard.Speed 9/23/2016 11:24:30 AM
WORKSPACE: Leonard.Speed
c:\projects\projects\leonard.speed\d0271744\r\CA0606_2i_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	609	888
				(2)	CROSS SECTIONS			



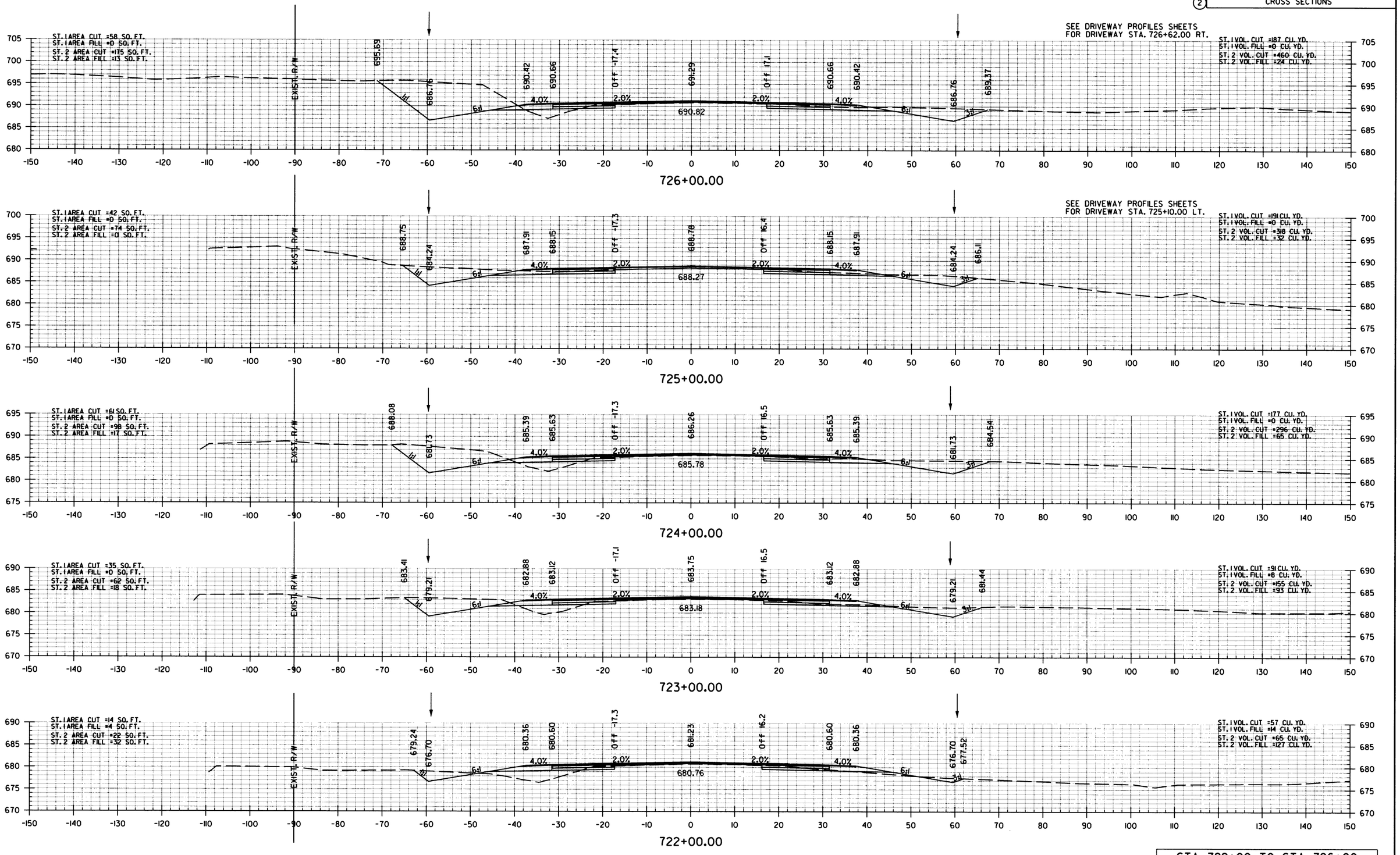
STA. 717+82 TO STA. 721+00

LeonardSpeed 9/23/2016 11:24:30 AM
WORKSPACE: Leonard Speed
c:\pw\ei-local\baker_projects\leonard_speed\d0217144\rCA0606_21.CX_MAIN.001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	610	888

(2) CROSS SECTIONS



STA. 722+00 TO STA. 726+00

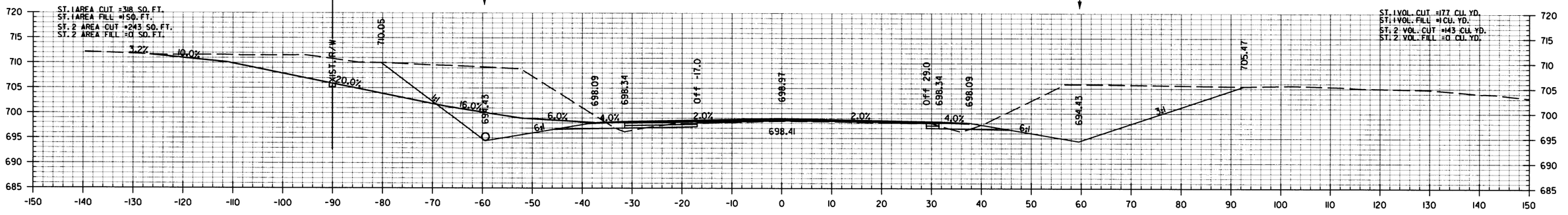
Leonard.Speed 9/23/2016 11:24:31 AM
WORKSPACE: Leonard.Speed
CONFIGURATION: C:\Projects\leonard.speed\d0217744\rCA0606_2i_CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

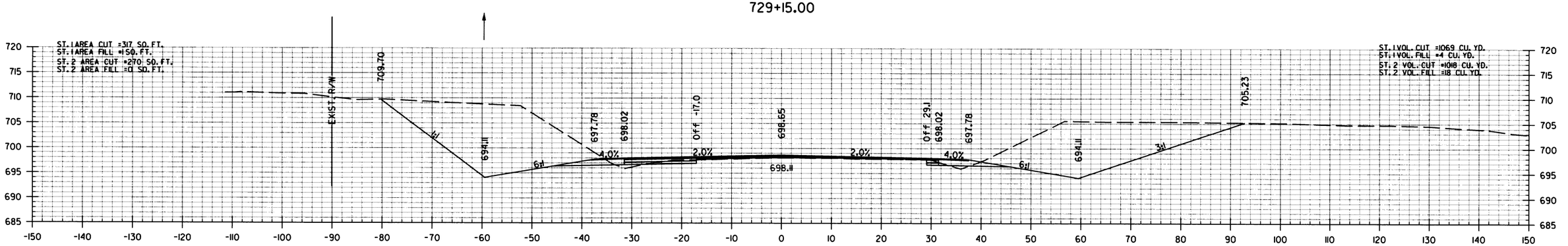
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	611	888

(2) CROSS SECTIONS

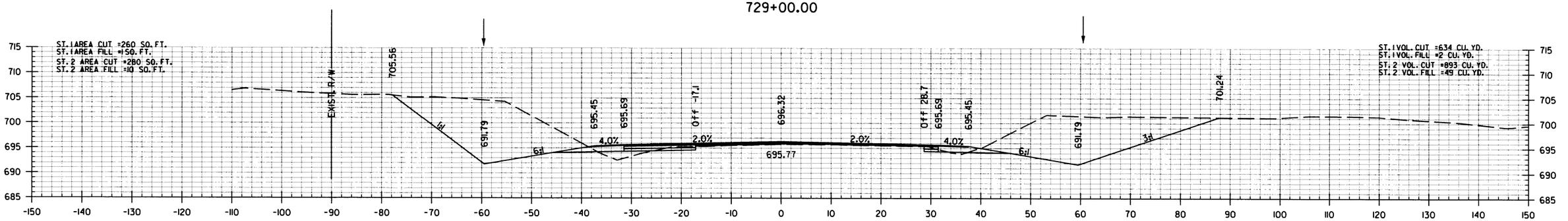
STA. 729+15.00 IN PLACE
18"X 40' C.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 50' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
115 CU. YDS.



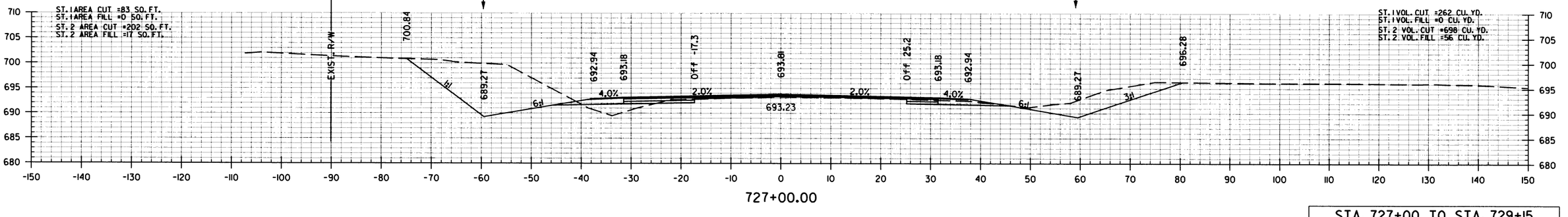
729+15.00



729+00.00



728+00.00



727+00.00

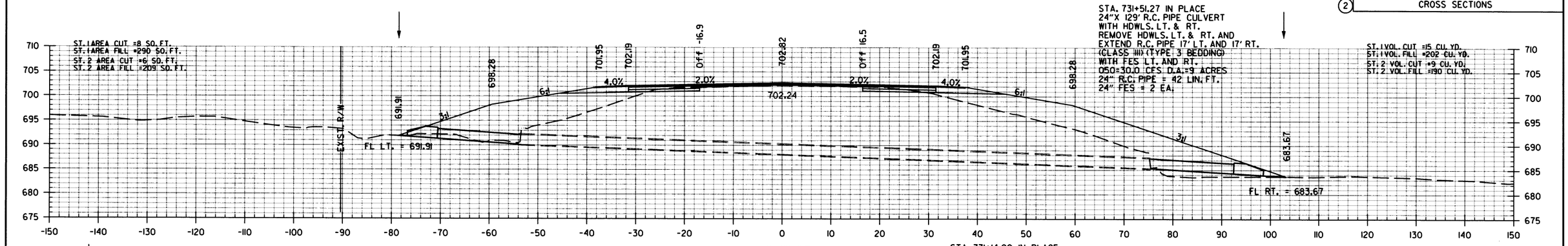
STA. 727+00 TO STA. 729+15

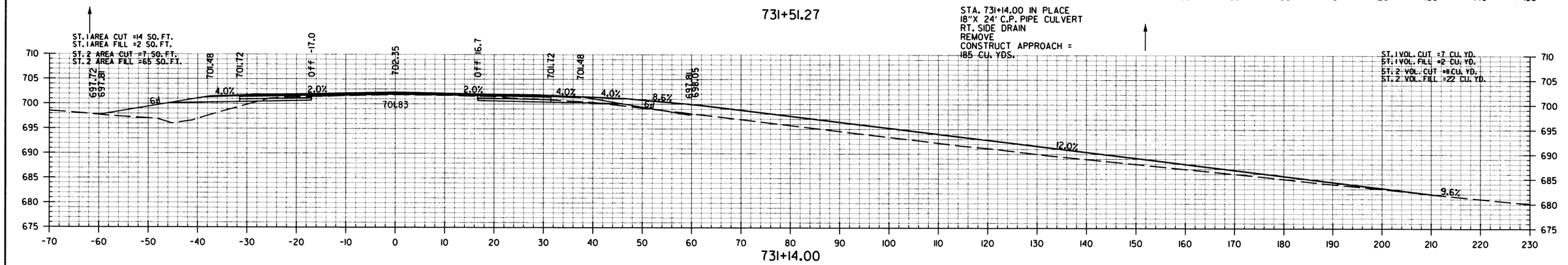
Leonard Speed 9/21/2006 11:24:32 AM
WORKSPACE: Leonard_Speed
c:\pw\bl-local\baker_projects\leonard.speed\d0211744\rCA0606.2L.CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

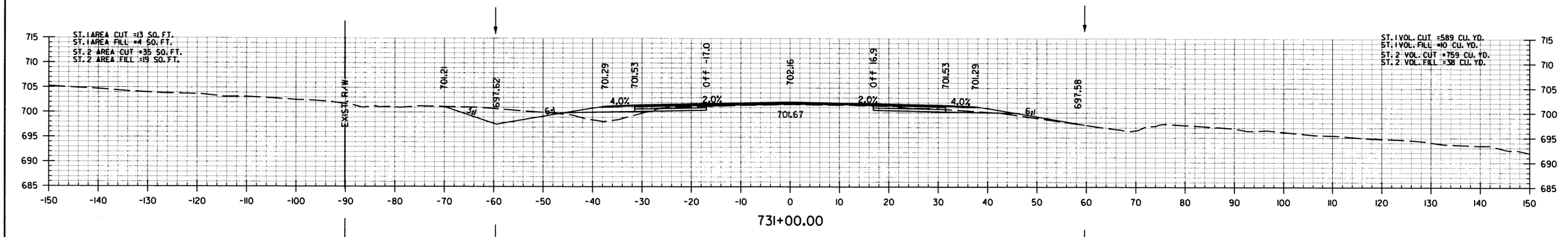
Michael Baker INTERNATIONAL

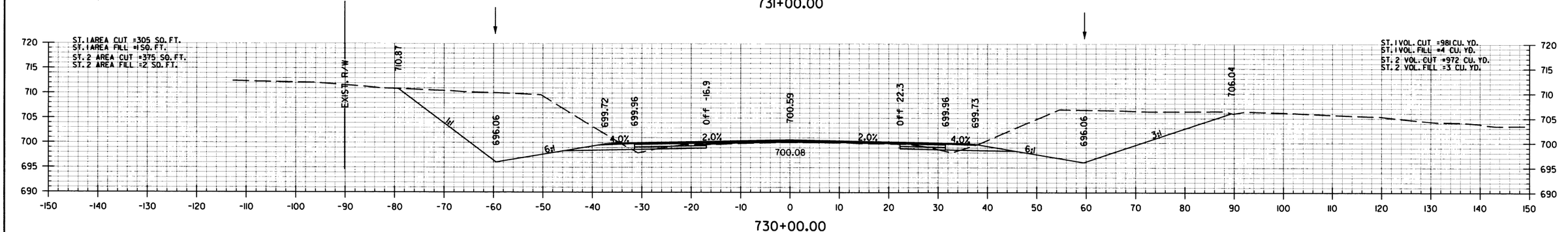
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	612	888

(2) CROSS SECTIONS







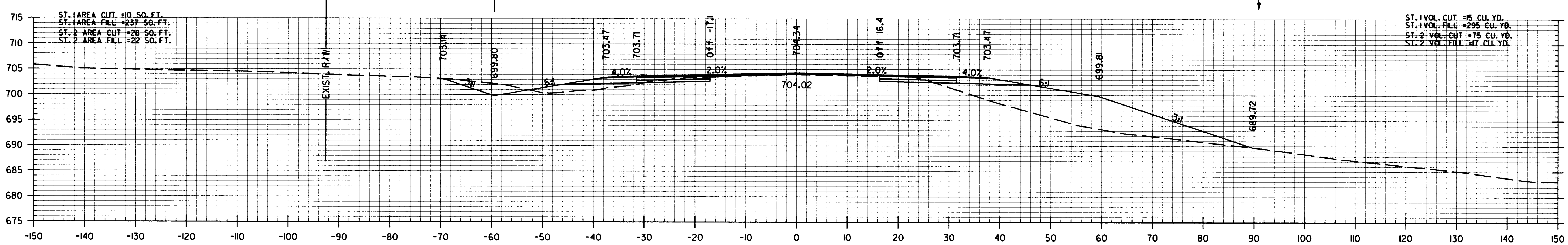


STA. 730+00 TO STA. 731+51

Leonard Speed 9/23/2016 11:24:32 AM
W:\Work_Projects\Speed_Project\Speed_Project\Leonard Speed\d0211744\r-CA0606.2_CX_MAIN_001.dgn
C:\Users\Bill.Cook\Desktop\Projects\Leonard Speed\d0211744\r-CA0606.2_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

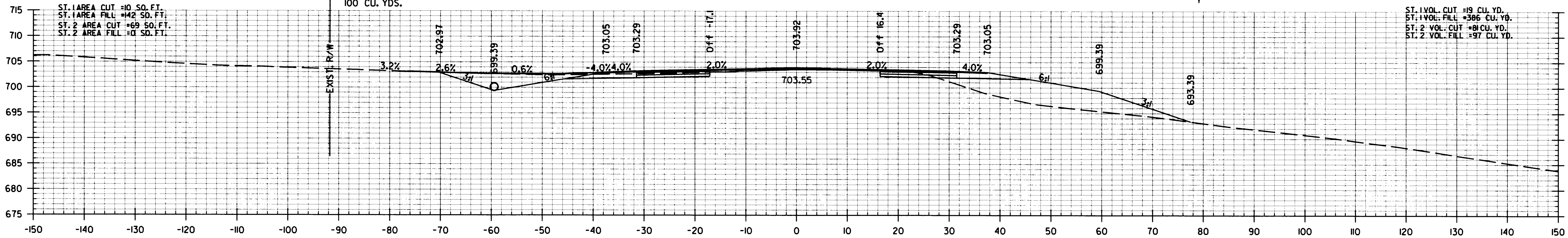
Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	613	888
					②	CROSS SECTIONS			

STA. 733+25.00
BEGIN SP. DITCH RT. -9.11%
ELEV. = 687.01

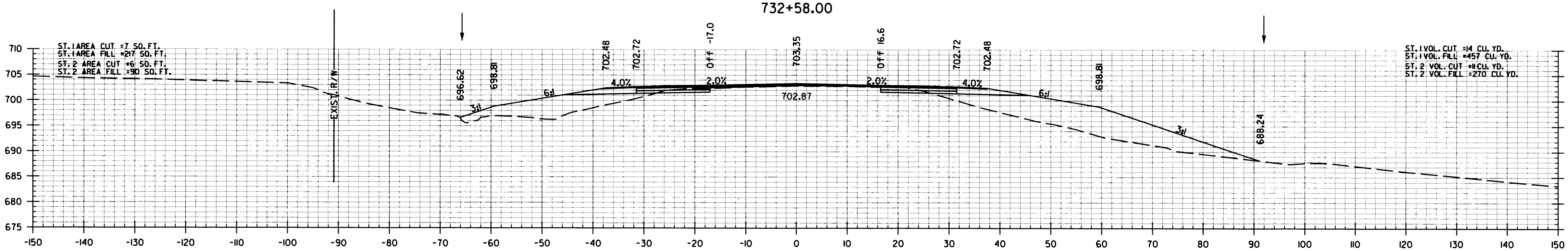


733+00.00

STA. 732+58.00 INSTALL
18"X 56' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
100 CU. YDS.



732+58.00



732+00.00

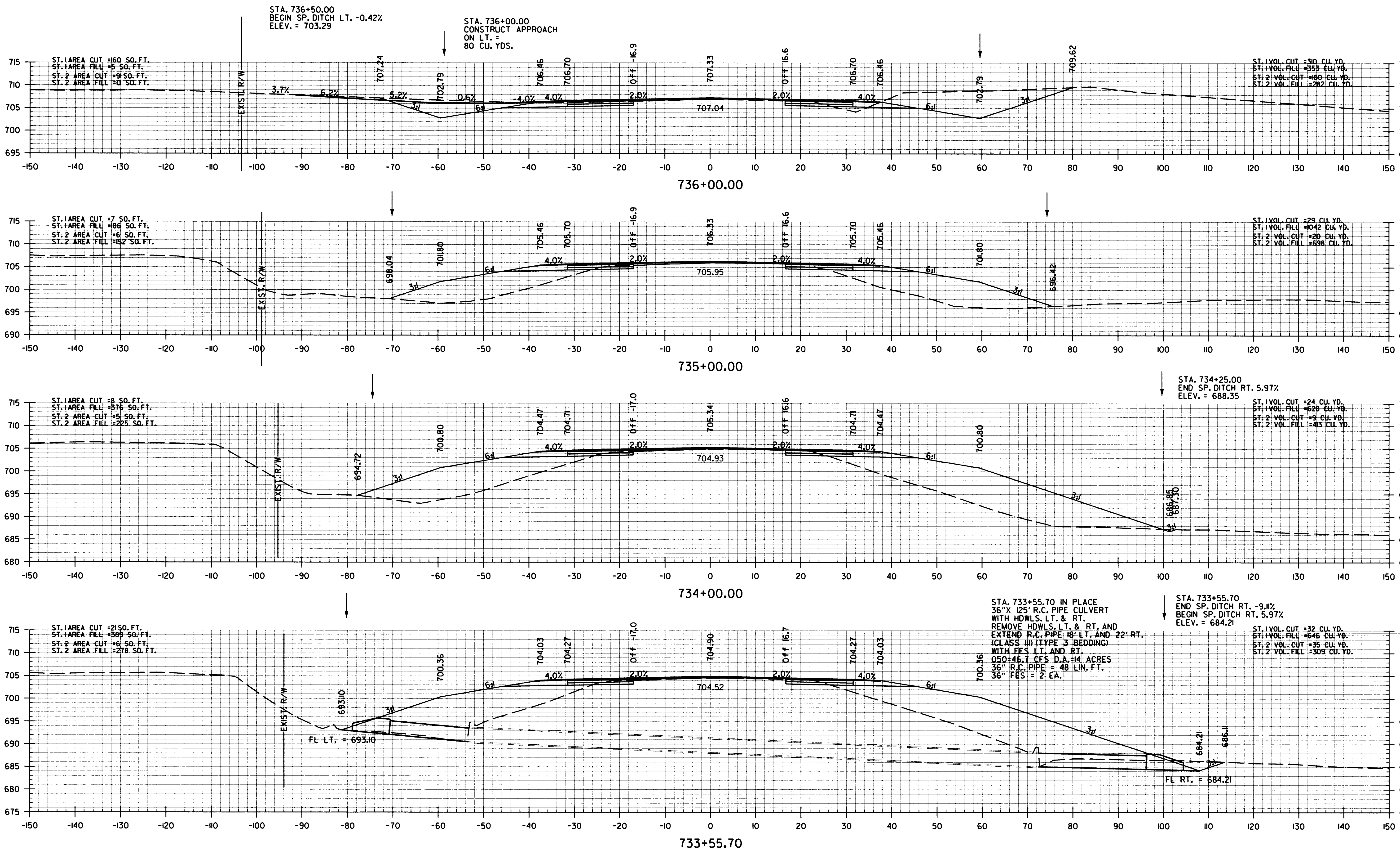
STA. 732+00 TO STA. 733+00

Leonard.Speed 9/23/2016 11:24:33 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271741\CA0606_2LCX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	614	888

(2) CROSS SECTIONS



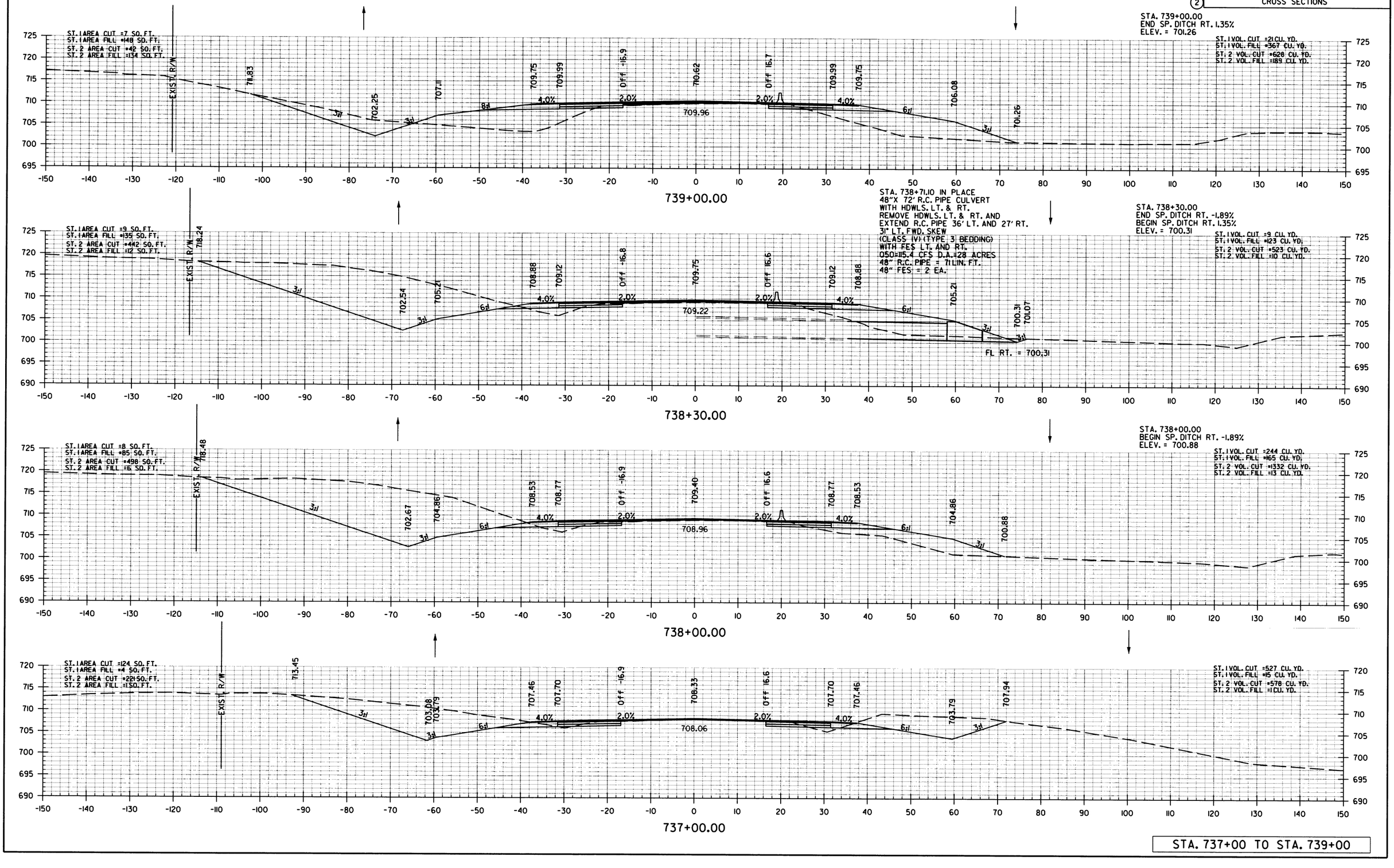
STA. 733+56 TO STA. 736+00

Leonard.Speed 9/23/2016 11:24:33 AM
WORKSPACE: Leonard.Speed
c:\pwwBI-local\baker_projects\leonard.speed\d0217744\rCA0606_21.CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	615	888

(2) CROSS SECTIONS



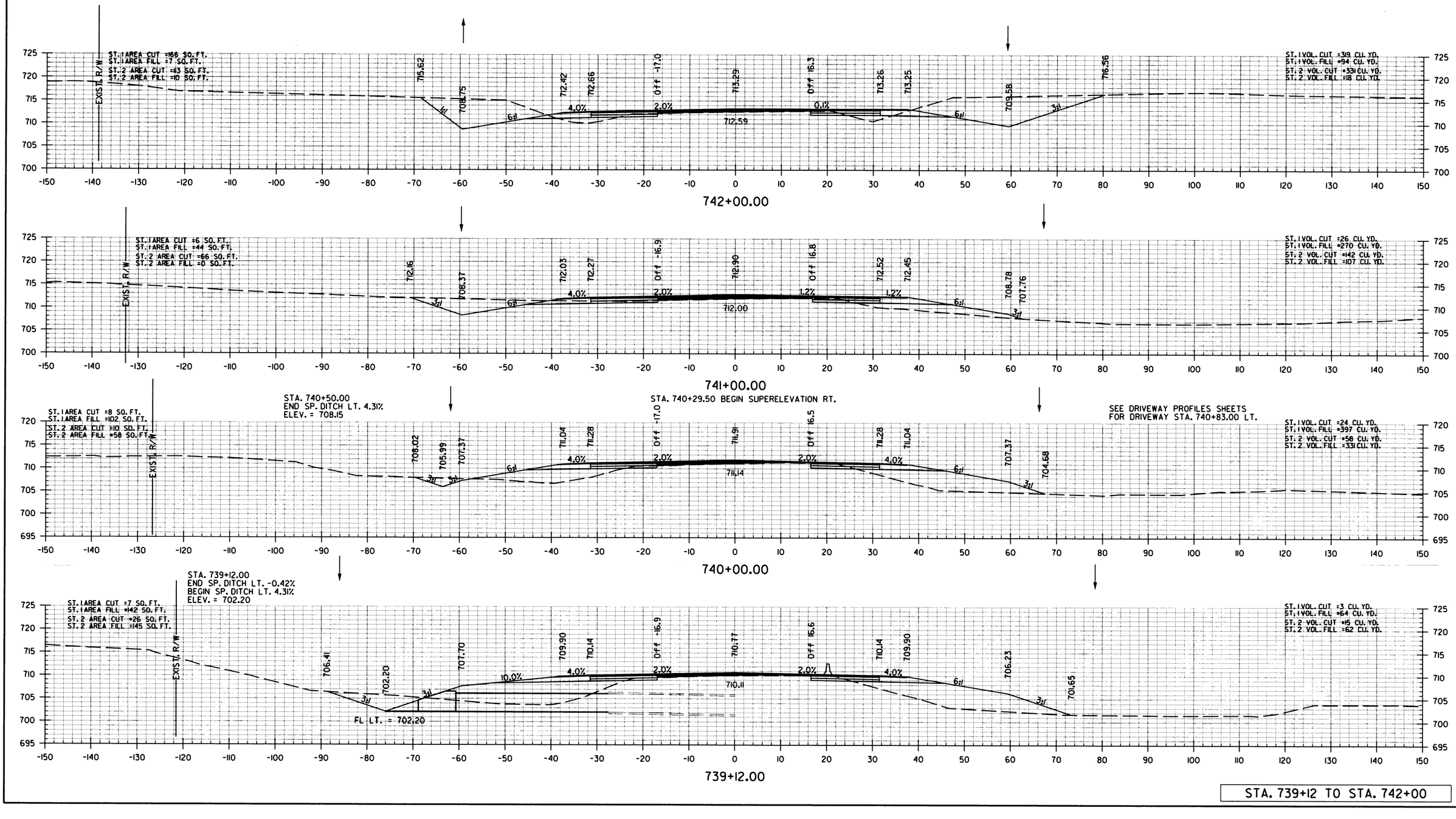
STA. 737+00 TO STA. 739+00

Leonard.Speed 9/23/2006 11:24:34 AM
WORKSPACE: Leonard.Speed
c:\pwwise-local\baker_projects\leonard.speed\d0217744\rCA0606_21.CX.MAIN.001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	616	888

(2) CROSS SECTIONS



STA. 739+12 TO STA. 742+00

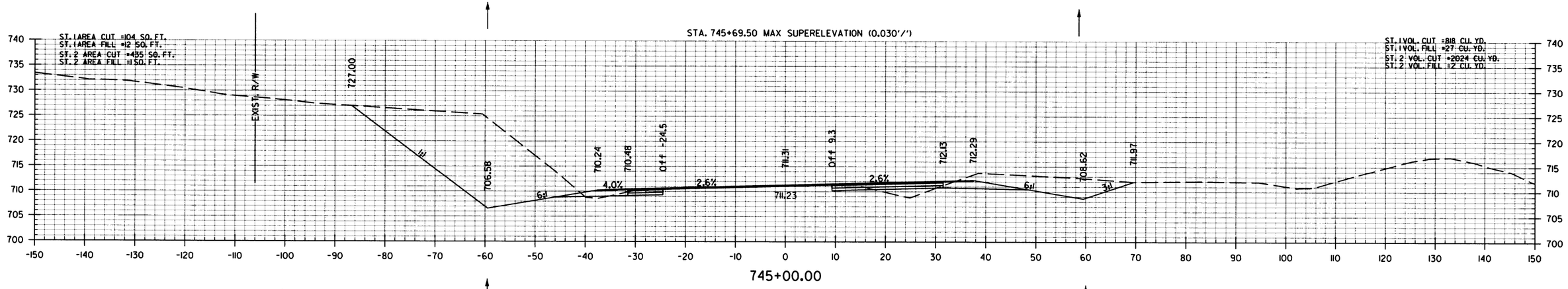
Leonard.Speed 9/23/2016 11:24:35 AM
WORKSPACE: Leonard.Speed
CONFIGURATION: Projects\Leonard.speed\d0271744\rCA0606.21.CX.MAIN.001.dgn
REVISED DATE: ##REVDATE##

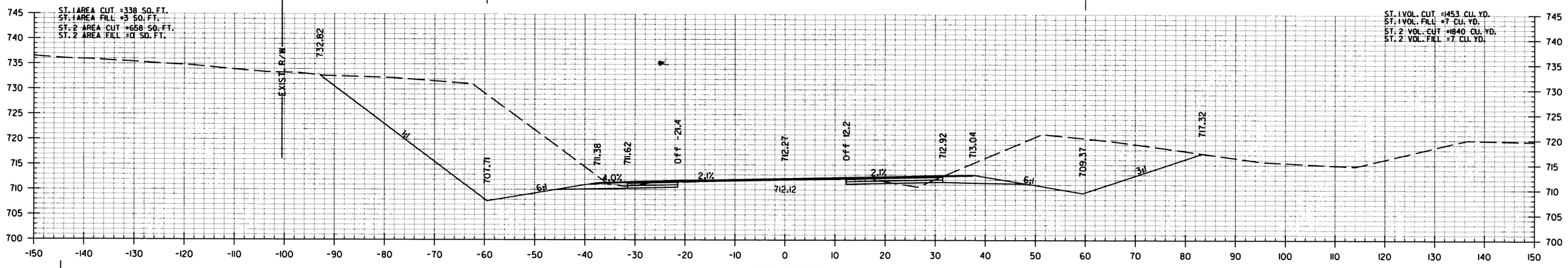
Michael Baker INTERNATIONAL

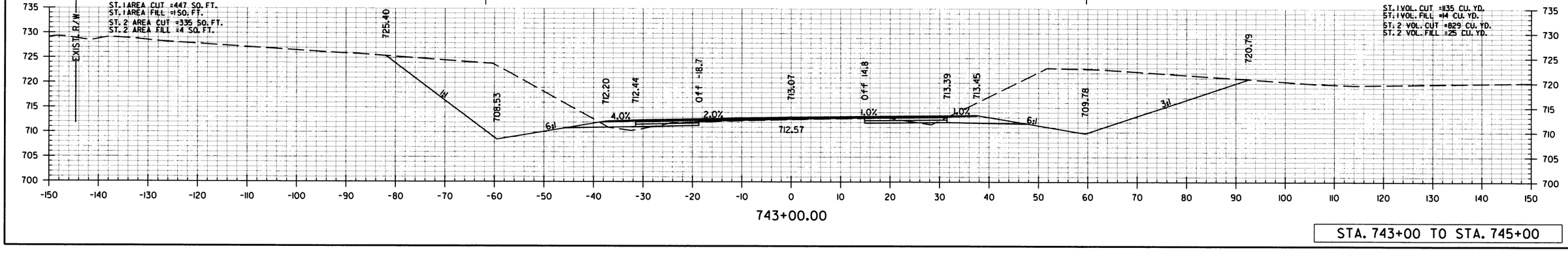
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	617	888
(2)	CROSS SECTIONS			

STA. 745+69.50 MAX SUPERELEVATION (0.030'/')







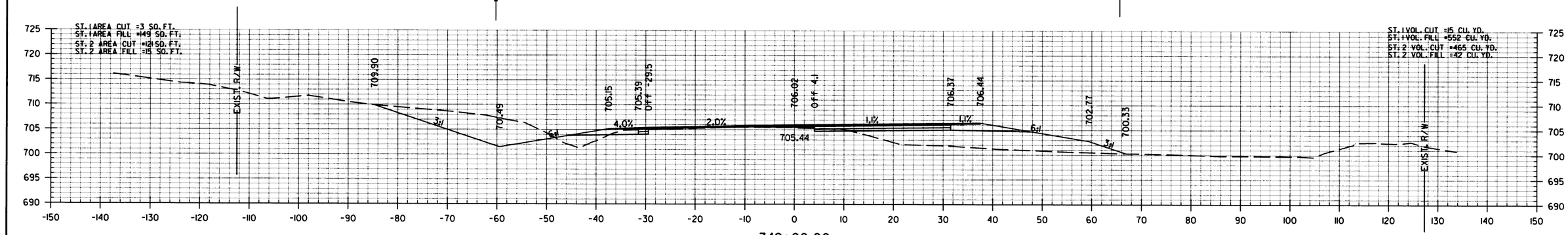
STA. 743+00 TO STA. 745+00

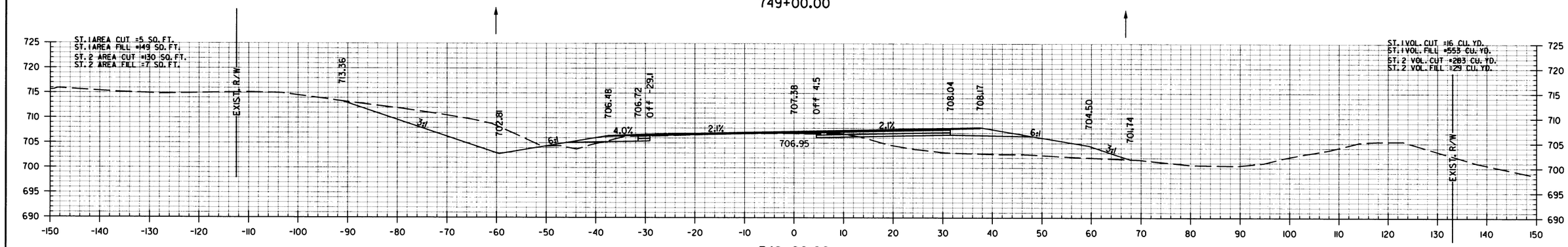
Leonard Speed 9/23/2006 11:24:35 AM
LOGIN: cbaker DGN: CA0606_21_CX_MAIN_001.dgn
c:\dwg\81-local\baker_projects\leonard_speed\d0271744\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

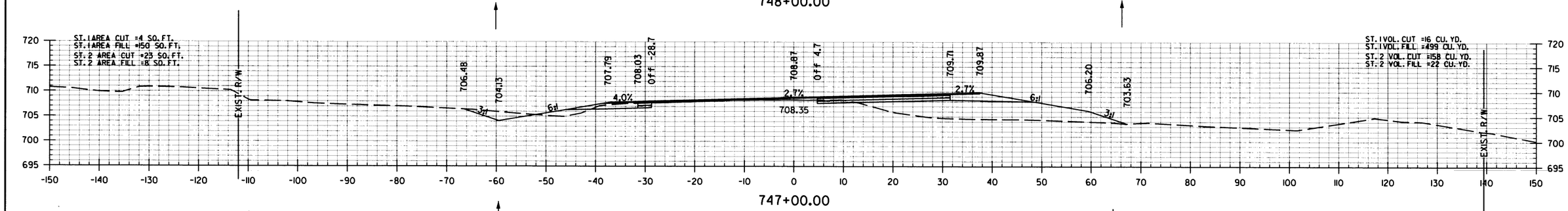
Michael Baker INTERNATIONAL

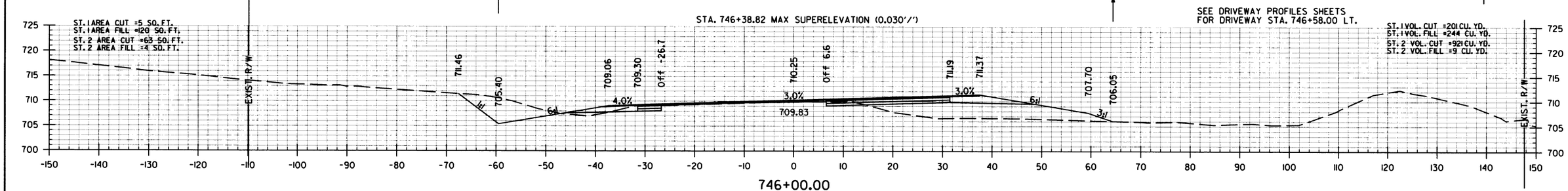
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	618	888

(2) CROSS SECTIONS







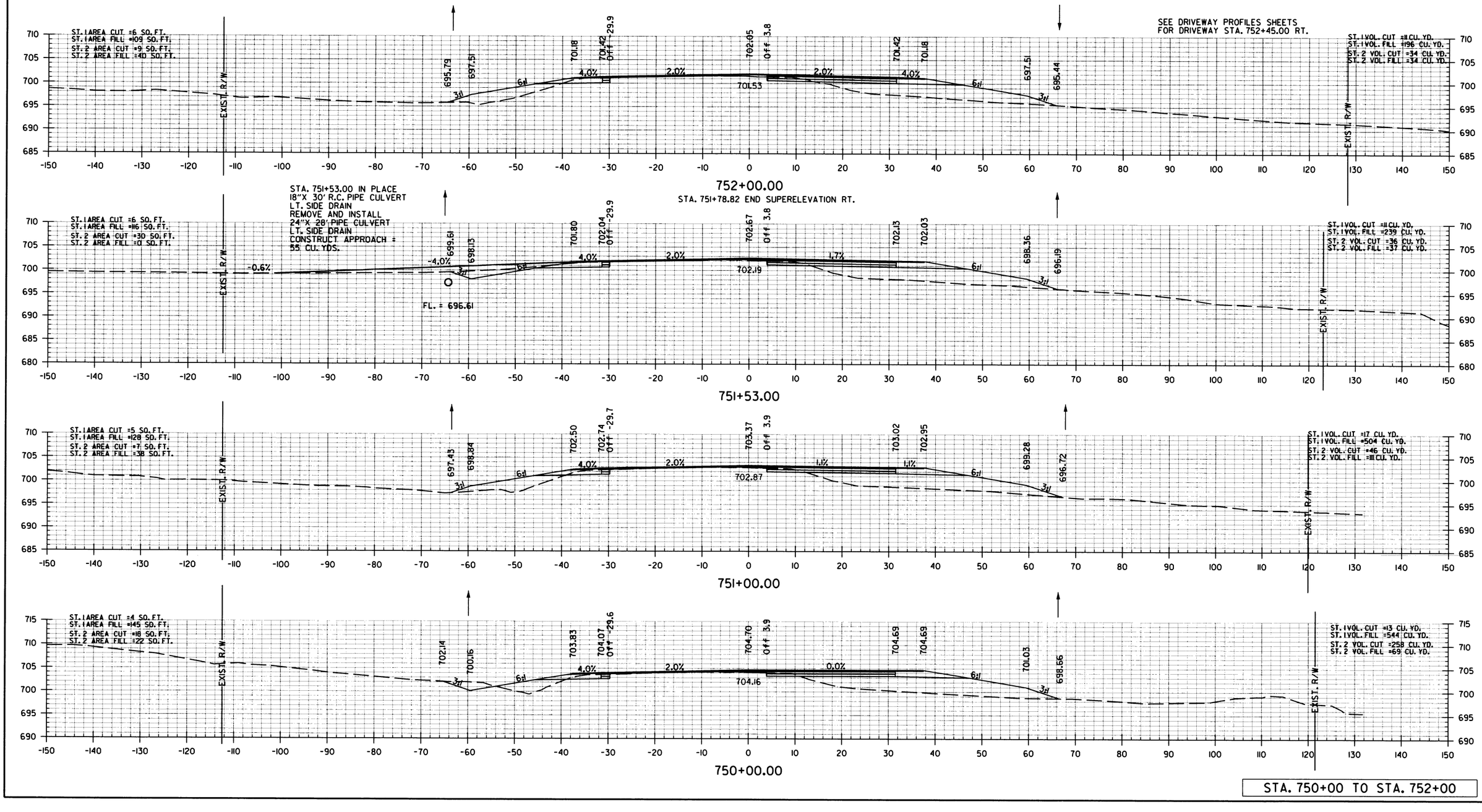


STA. 746+00 TO STA. 749+00

Leonard.Speed 9/23/2016 11:24:36 AM
WORKSPACE: Leonard.Speed
COMPANY: Michael Baker International
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

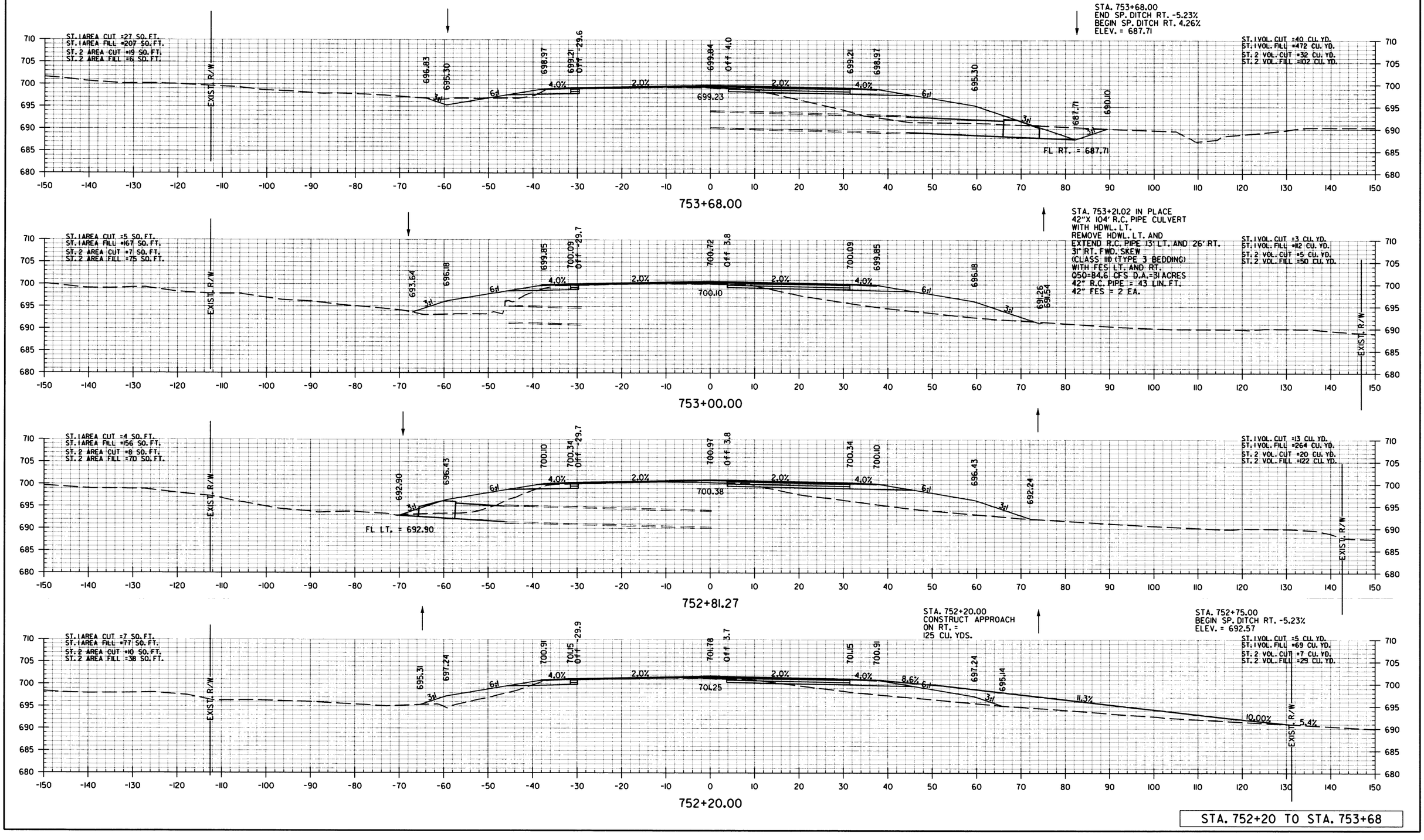
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	619	888
				(2)	CROSS SECTIONS			



Leonard.Speed 9/23/2016 11:24:36 AM
W:\Projects\Leonard.Speed\d0211744\r-CA0606.2\CX_MAIN_001.dgn
USER:Leonard.Speed
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	620	888
				(2)	CROSS SECTIONS			

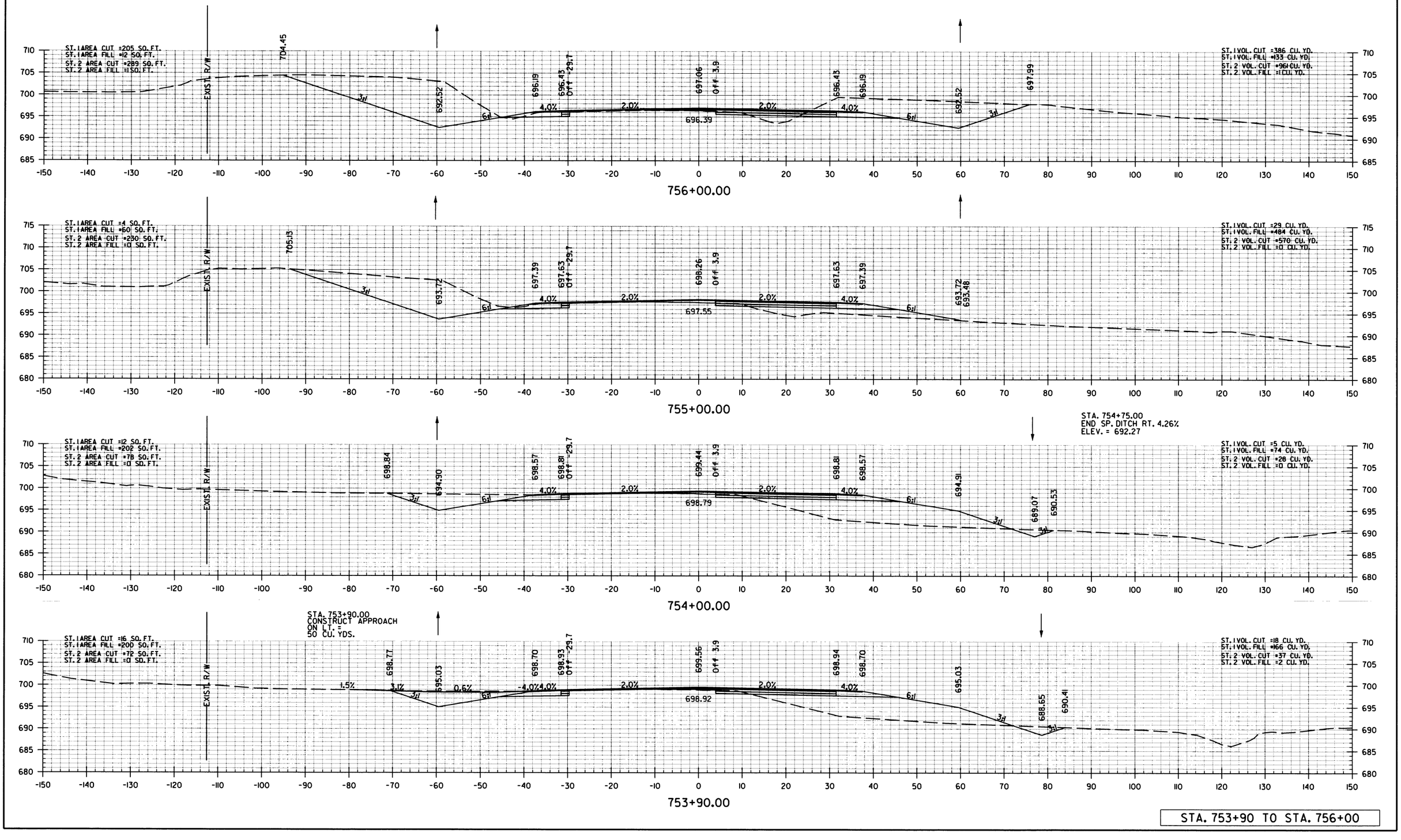


STA. 752+20 TO STA. 753+68

LeonardSpeed 9/23/2016 11:24:37 AM
MicroStation V8i (SELECTseries 3)
C:\Dwg81-local\baker_projects\leonard-speed\d0271744\rCA0606.2i.CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	621	888
				(2)	CROSS SECTIONS			



STA. 753+90 TO STA. 756+00

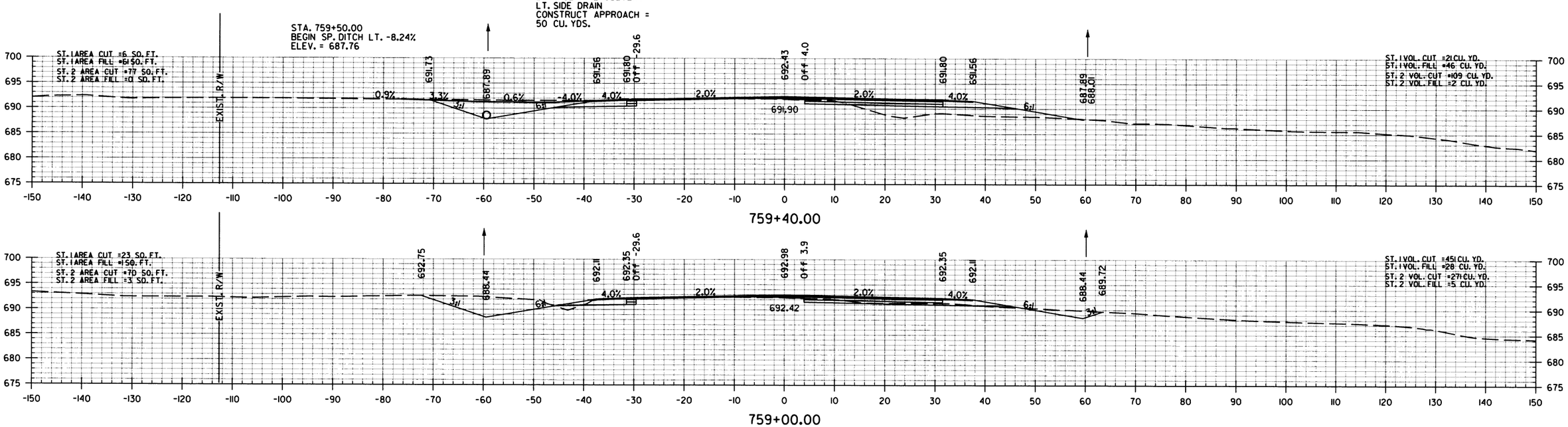
Leonard Speed 9/23/2006 11:24:37 AM
WORKSPACE: leonard_speed
C:\pw\81-local\baker_projects\leonard_speed\d0217144\r-CA0606.21.CX.MAIN.001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	622	888
				(2)	CROSS SECTIONS			

STA. 759+40.00 IN PLACE
18"X 63' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
50 CU. YDS.

STA. 759+50.00
BEGIN SP. DITCH LT. -8.24%
ELEV. = 687.76



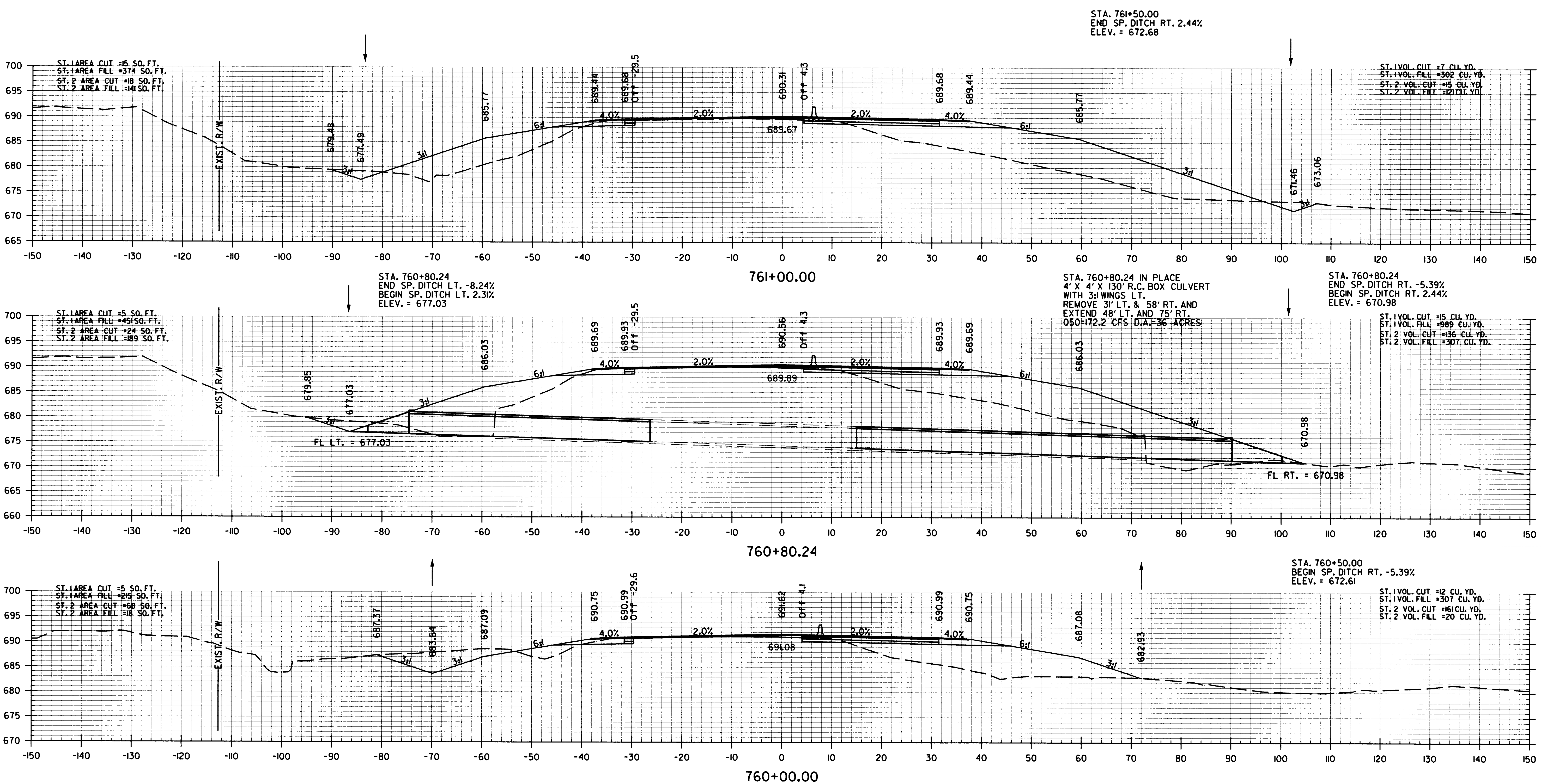
STA. 757+00 TO STA. 759+40

Leonard.Speed 9/23/2016 11:24:38 AM
WORKSPACE: Leonard.Speed
CONNECTION: Bentley ProjectWise Server:Projects
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	623	888

(2) CROSS SECTIONS



STA. 760+00 TO STA. 761+00

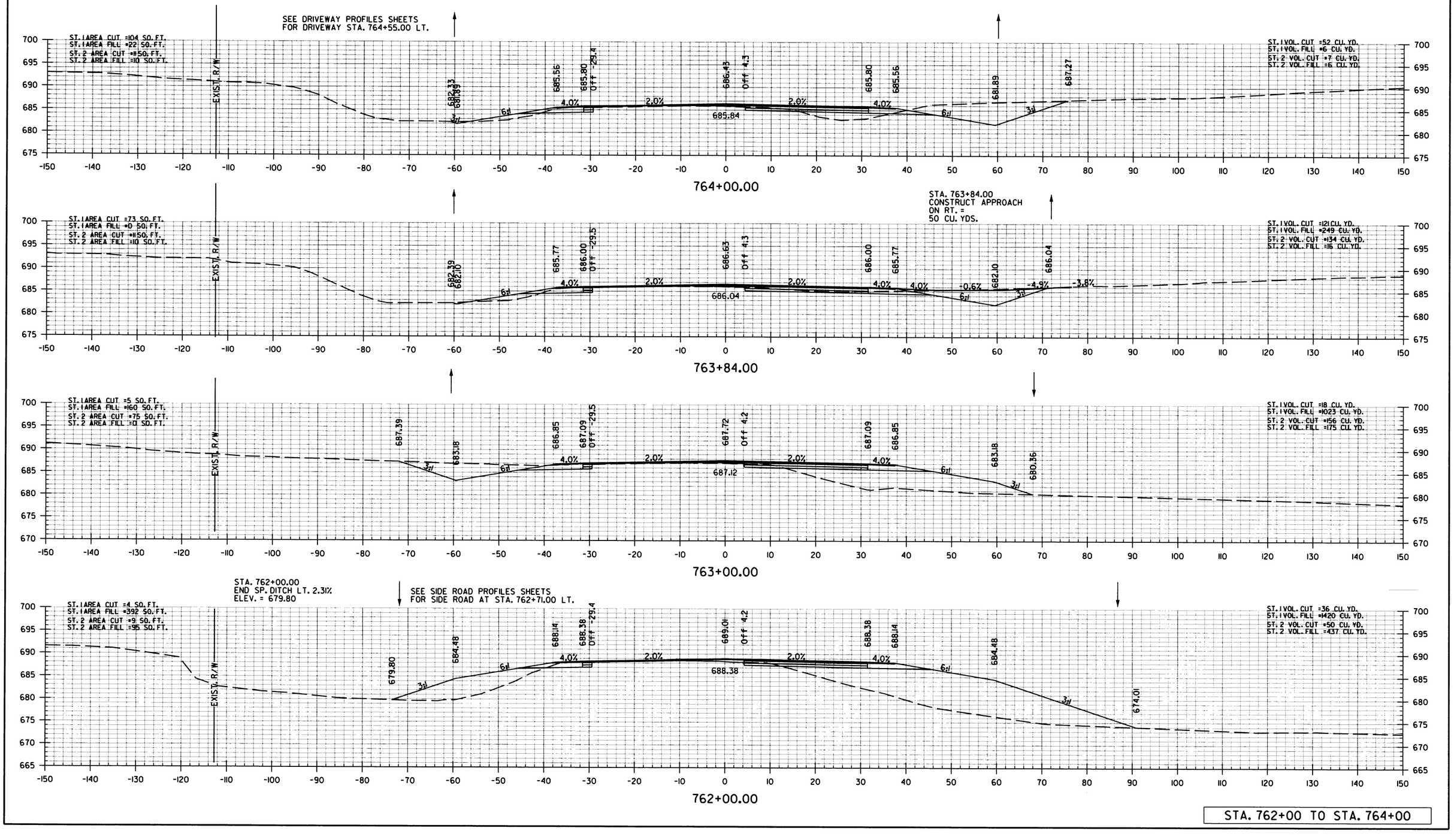
Leonard.Speed 9/23/2016 11:24:39 AM
WORKSPACE: Leonard.Speed
c:\pw8i-local\baker_projects\leonard.speed\d0271174\rCA0606_21.CX.MAIN.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	624	888

(2) CROSS SECTIONS



STA. 762+00 TO STA. 764+00

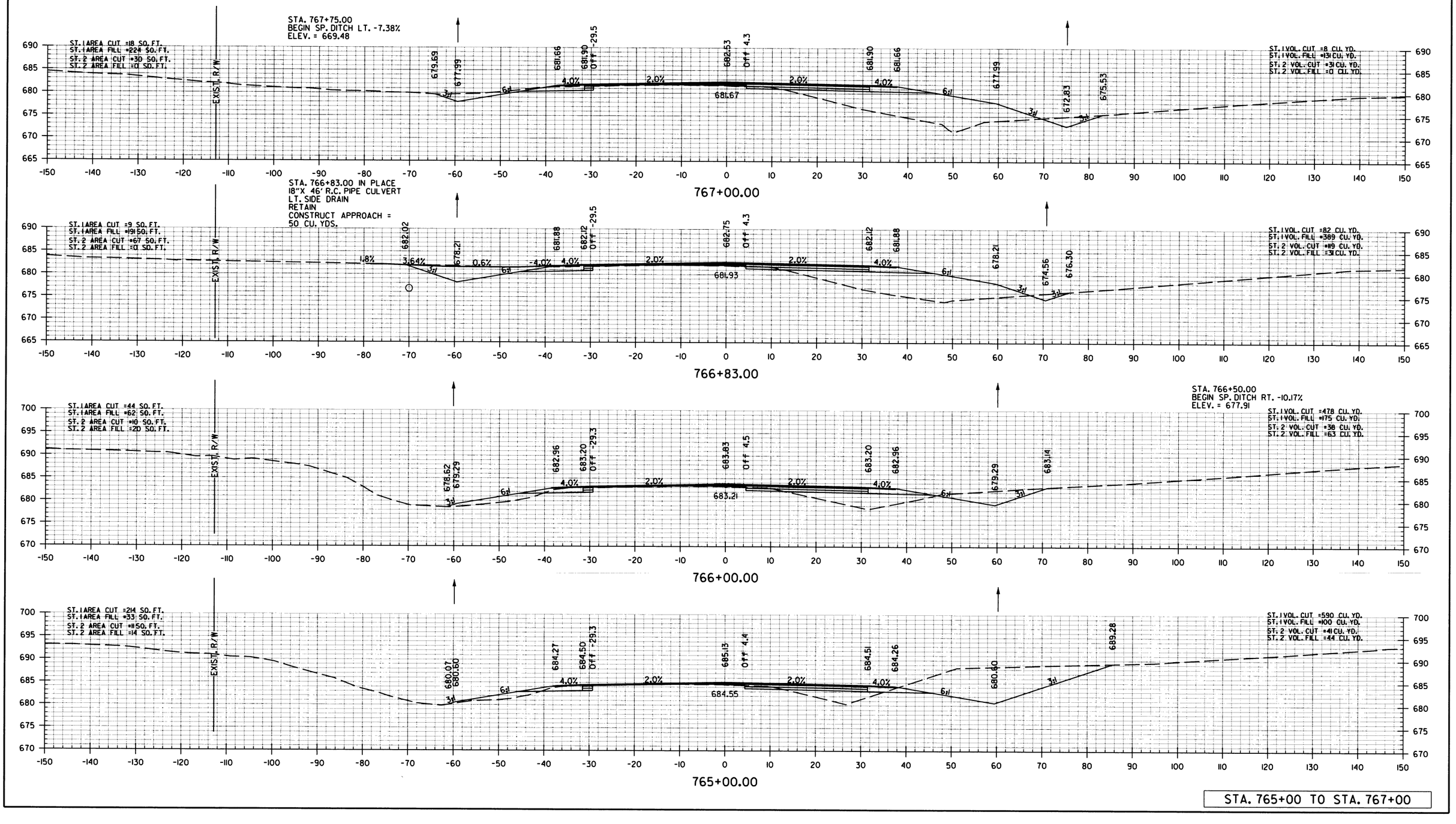
Leonard.Speed 9/23/2016 11:24:39 AM
WORKSPACE: Leonard.Speed
Current Working Directory: C:\Projects\Leonard.Speed\d0217441\rCA0606_2L_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	625	888

(2) CROSS SECTIONS



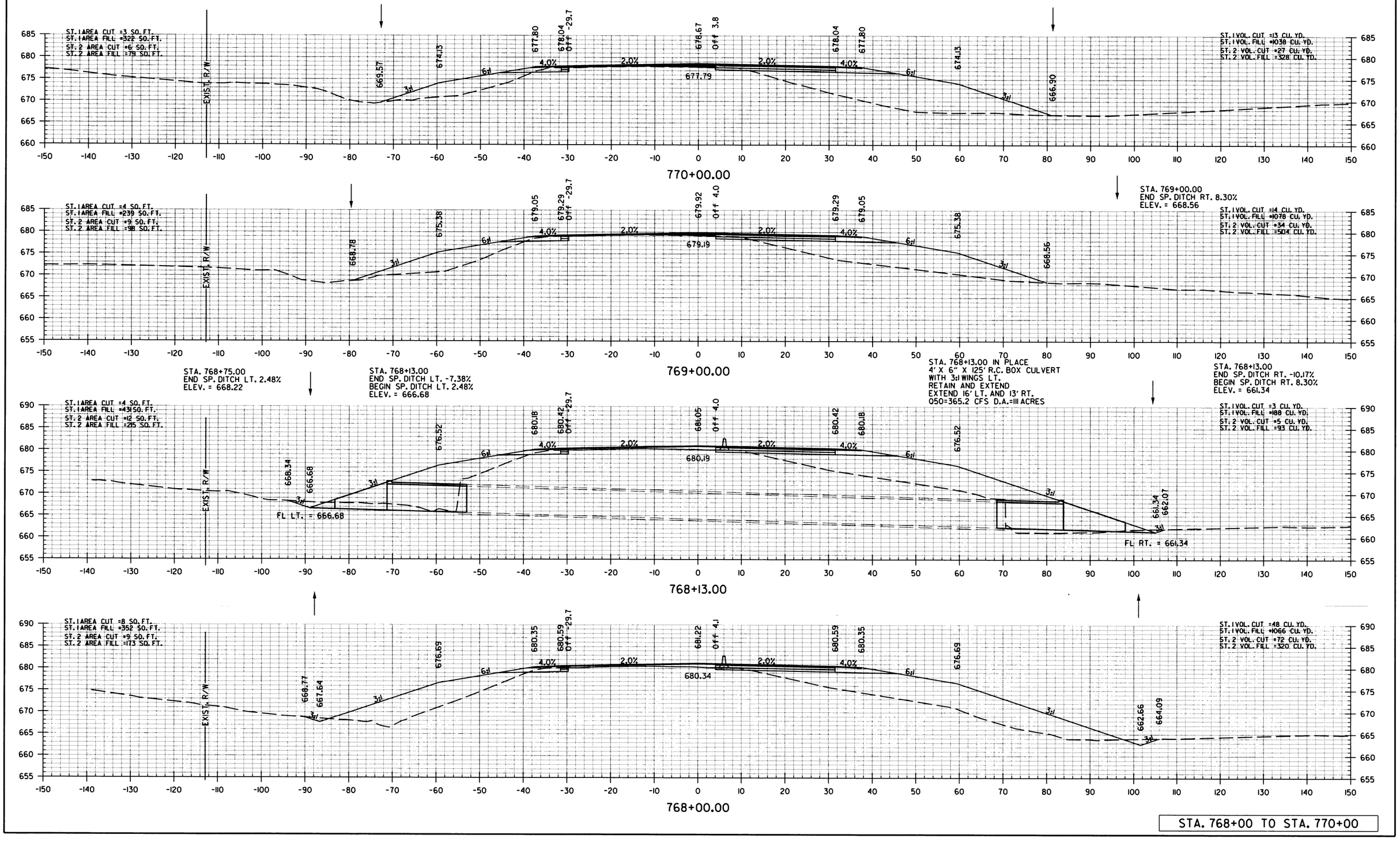
STA. 765+00 TO STA. 767+00

LeonardSpeed 9/23/2016 11:24:40 AM
WORKSPACE: LeonardSpeed
CONFIGURATION: Sheets\Leonard_speed\d0271741\rCA0606_21.CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	626	888

(2) CROSS SECTIONS

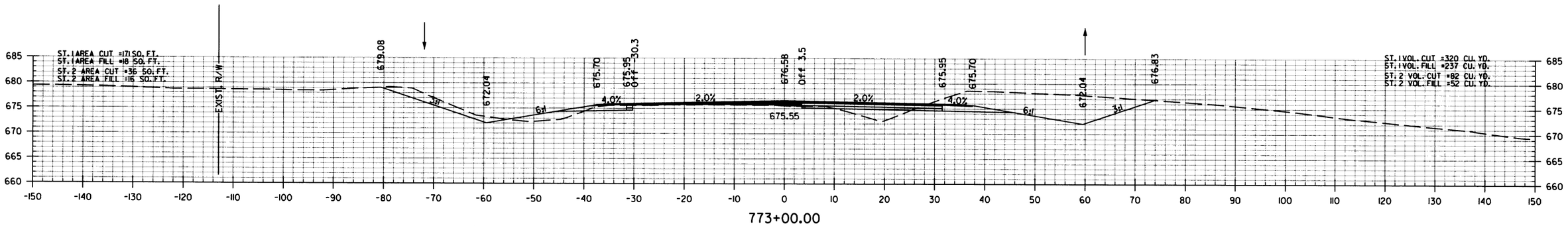


STA. 768+00 TO STA. 770+00

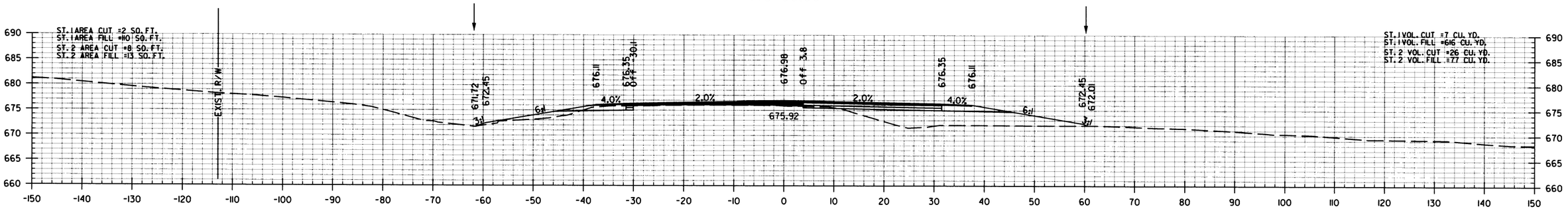
LeonardSpeed 9/23/2016 11:24:10 AM
k:\roads\ca0610\d027744\cad\sheets\ca0606_21_cx_main_001.dgn
c:\pwwi81~1\acadbker_projects\leonard_speed\d027744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

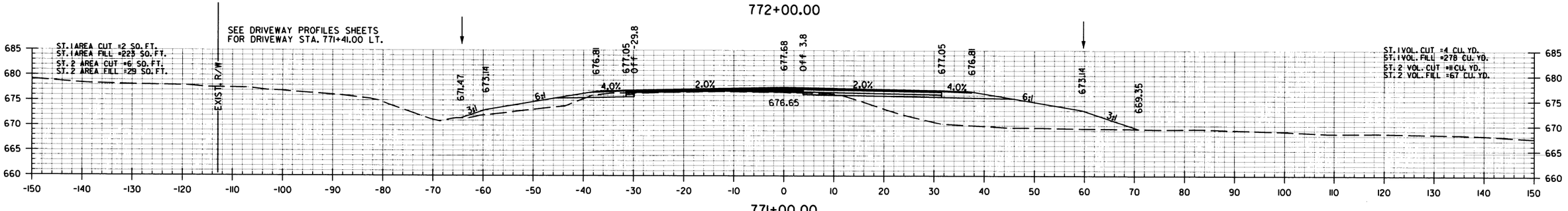
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	627	888
				(2)	CROSS SECTIONS			



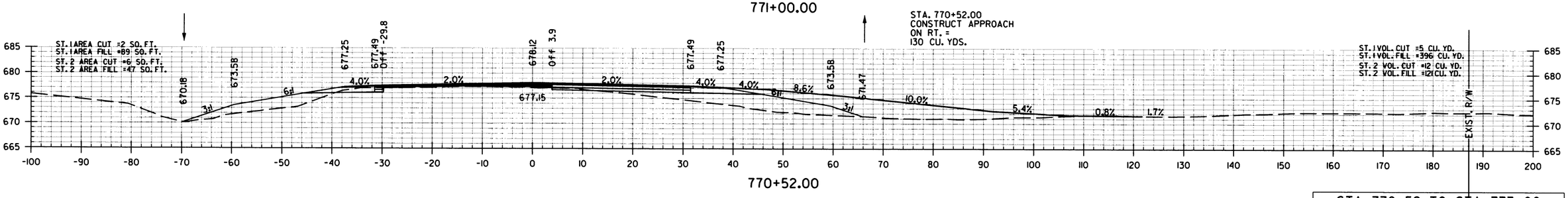
773+00.00



772+00.00



771+00.00



770+52.00

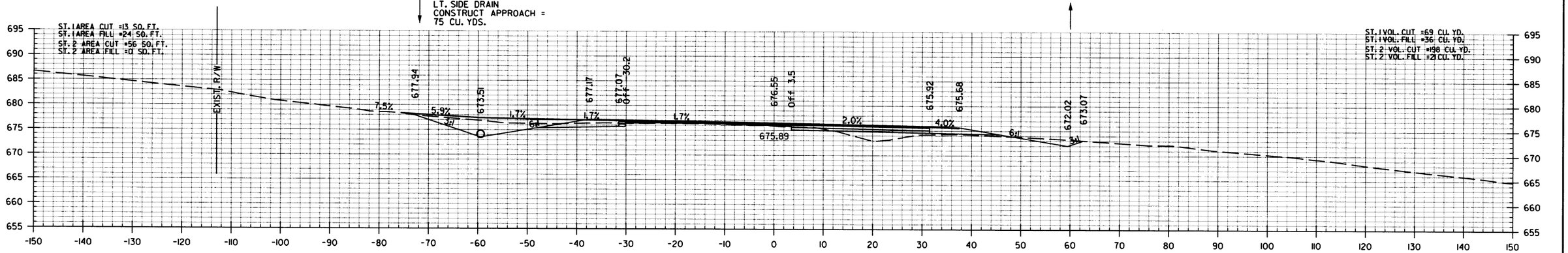
STA. 770+52 TO STA. 773+00

Leonard Speed 9/21/2016 11:24:41 AM
WORKSPACE: Leonard_Speed
C:\pw\dl-local\baker_projects\leonard.speed\d0217744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

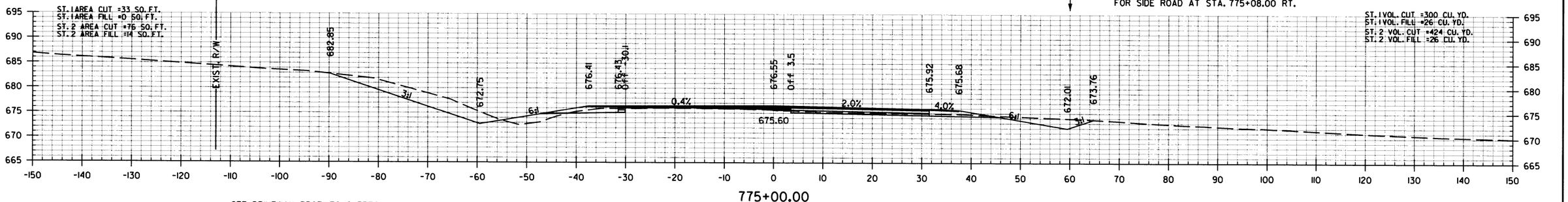
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	628	888
				(2)	CROSS SECTIONS			

STA. 775+81.00 IN PLACE
18"X 40' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
75 CU. YDS.



775+81.00

SEE SIDE ROAD PROFILES SHEETS
FOR SIDE ROAD AT STA. 775+08.00 RT.

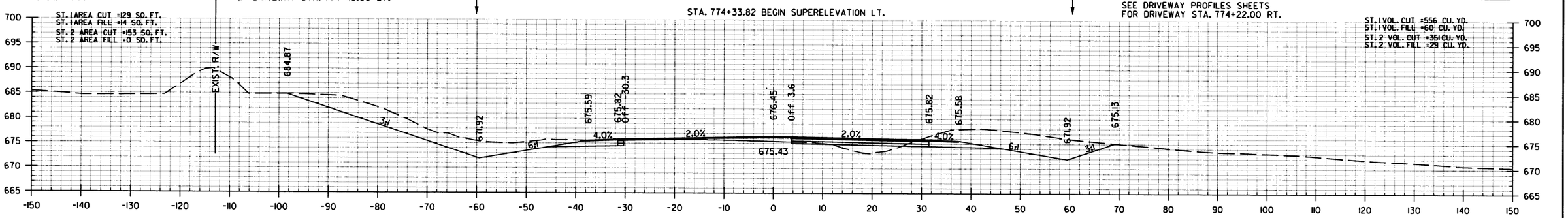


775+00.00

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEWAY STA. 774+45.00 LT.

STA. 774+33.82 BEGIN SUPERELEVATION LT.

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEWAY STA. 774+22.00 RT.



774+00.00

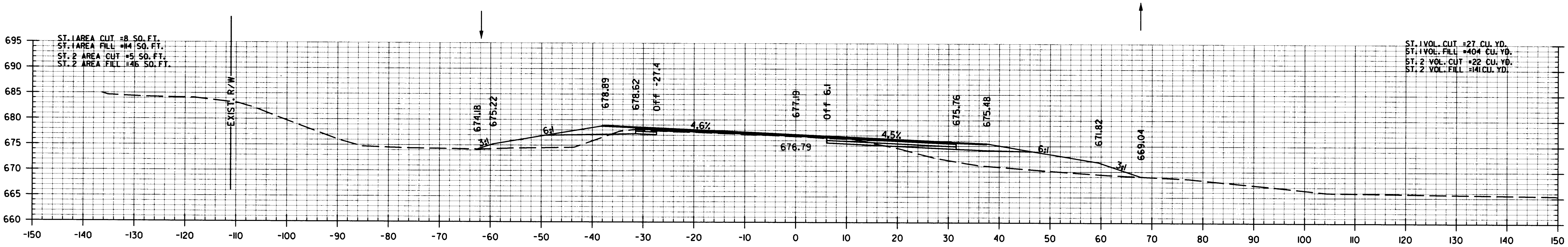
STA. 774+00 TO STA. 775+81

Leonard Speed 9/23/2016 11:24:41 AM
W:\0606.21 Leonard Speed\Projects\Leonard Speed\d0271744\r-CA0606.21.CX_MAIN_001.dgn
C:\Users\bjoker\Documents\Projects\Leonard Speed\d0271744\r-CA0606.21.CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

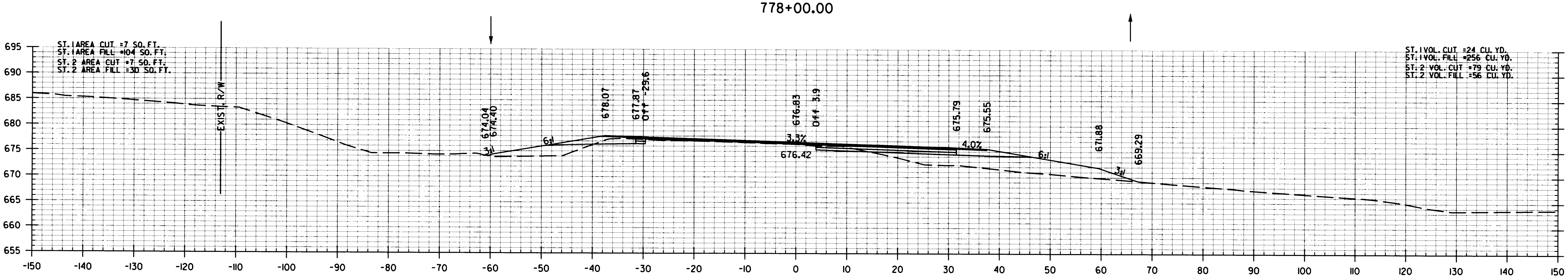
Michael Baker
INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	629	888

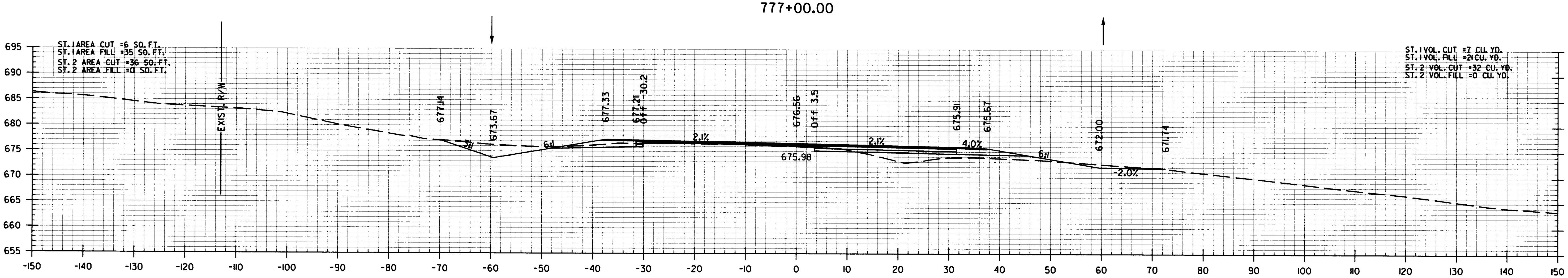
(2) CROSS SECTIONS



778+00.00



777+00.00



776+00.00

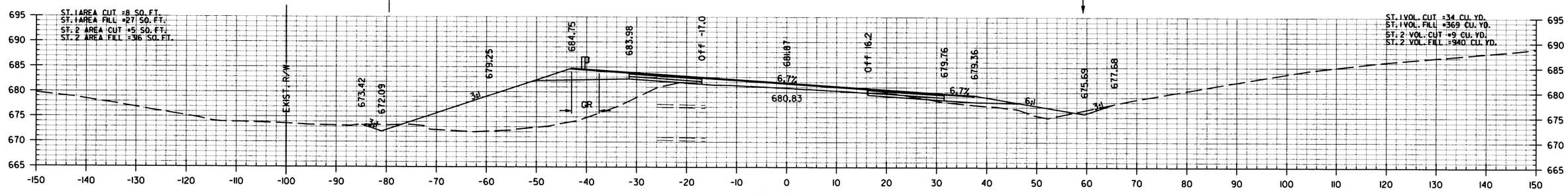
STA. 776+00 TO STA. 778+00

Leonard.Speed 9/23/2006 11:24:42 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d027174\rCA0606_2LCX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	630	888

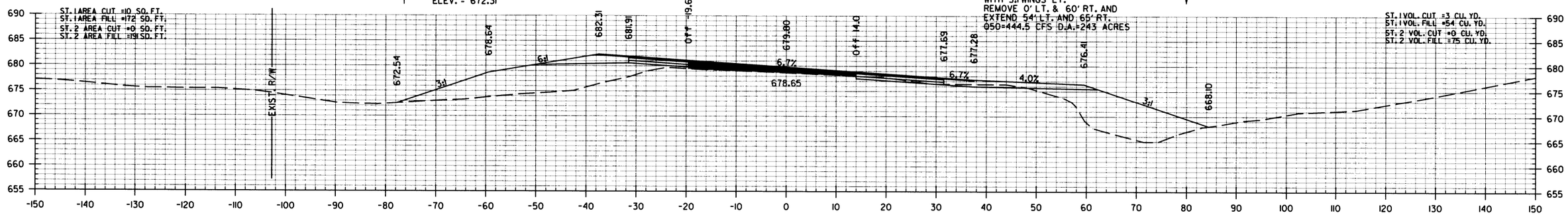
(2) CROSS SECTIONS



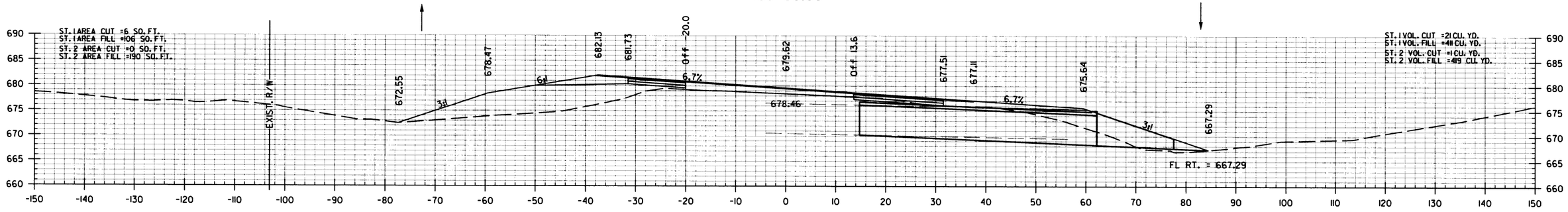
781+00.00

STA. 780+50.00
BEGIN SP. DITCH LT. -0.44%
ELEV. = 672.31

STA. 780+82.82 IN PLACE
DBL. 6' X 6' X 127' R.C. BOX CULVERT
44° LT. FWD. SKEW
WITH 3:1 WINGS LT.
REMOVE 0' LT. & 60' RT. AND
EXTEND 54' LT. AND 65' RT.
Q50=444.5 CFS D.A.=243 ACRES



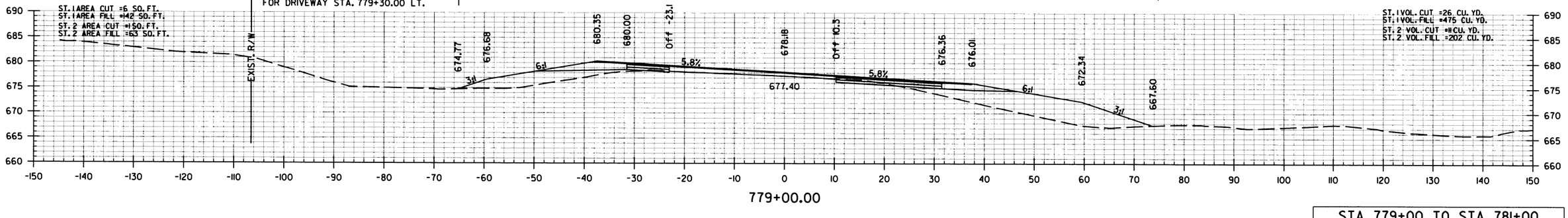
780+00.00



779+89.44

STA. 779+73.82 MAX SUPERELEVATION (0.067'/')

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEWAY STA. 779+30.00 LT.



779+00.00

STA. 779+00 TO STA. 781+00

Leonard.Speed 9/23/2016 11:24:42 AM
W:\ARK_SPEED\Leonard.Speed\Projects\leonard.speed\d0271744\r\CA0606_2L_CX_MAIN_001.dgn
DESIGNER: #$DESIGNER#$
REVISED DATE: #$REVDATE#$

Michael Baker INTERNATIONAL

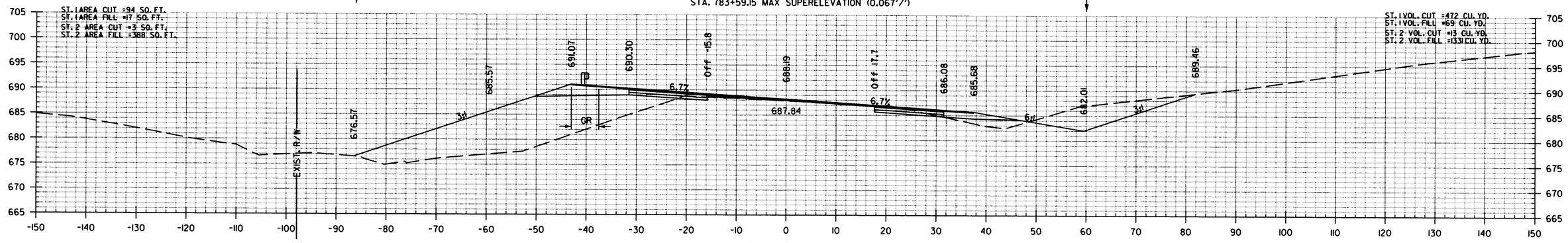
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	631	888

(2) CROSS SECTIONS

STA. 783+59.15 MAX SUPERELEVATION (0.067'/')

ST. 1 AREA CUT =94 SQ. FT.
ST. 1 AREA FILL =17 SQ. FT.
ST. 2 AREA CUT =3 SQ. FT.
ST. 2 AREA FILL =388 SQ. FT.

ST. 1 VOL. CUT =472 CU. YD.
ST. 1 VOL. FILL =69 CU. YD.
ST. 2 VOL. CUT =13 CU. YD.
ST. 2 VOL. FILL =1331 CU. YD.

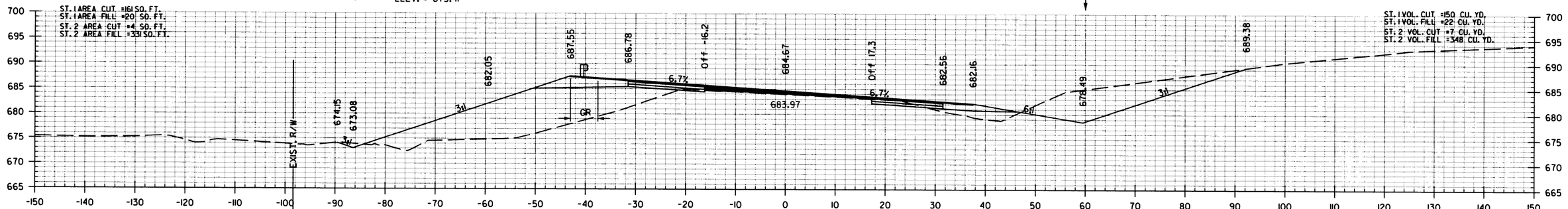


783+00.00

STA. 782+50.00
END SP. DITCH LT. 4.66%
ELEV. = 675.41

ST. 1 AREA CUT =161 SQ. FT.
ST. 1 AREA FILL =20 SQ. FT.
ST. 2 AREA CUT =4 SQ. FT.
ST. 2 AREA FILL =331 SQ. FT.

ST. 1 VOL. CUT =150 CU. YD.
ST. 1 VOL. FILL =22 CU. YD.
ST. 2 VOL. CUT =7 CU. YD.
ST. 2 VOL. FILL =348 CU. YD.

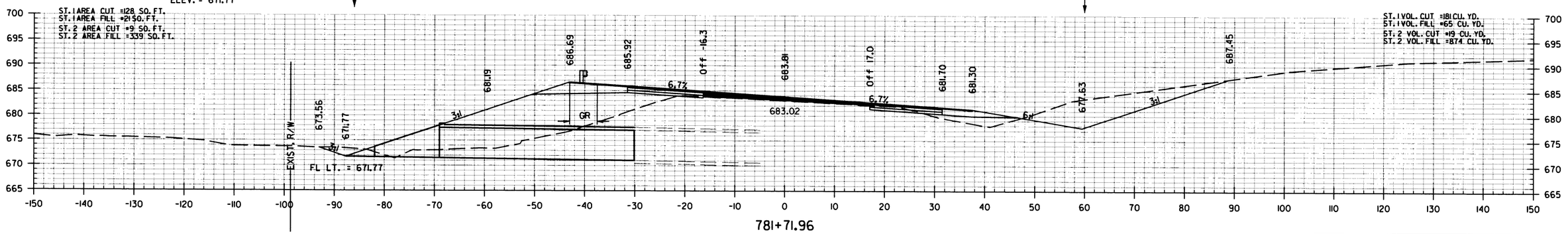


782+00.00

STA. 781+71.96
END SP. DITCH LT. -0.44%
BEGIN SP. DITCH LT. 4.66%
ELEV. = 671.77

ST. 1 AREA CUT =128 SQ. FT.
ST. 1 AREA FILL =21 SQ. FT.
ST. 2 AREA CUT =9 SQ. FT.
ST. 2 AREA FILL =339 SQ. FT.

ST. 1 VOL. CUT =181 CU. YD.
ST. 1 VOL. FILL =65 CU. YD.
ST. 2 VOL. CUT =19 CU. YD.
ST. 2 VOL. FILL =874 CU. YD.

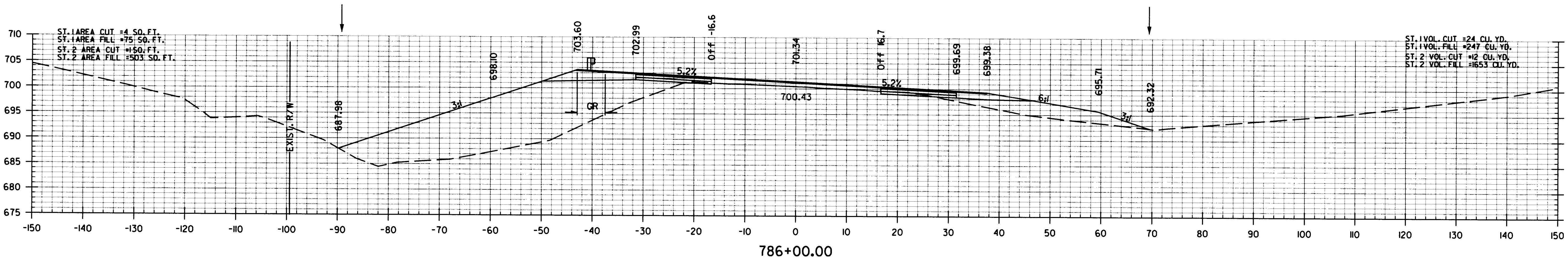


781+71.96

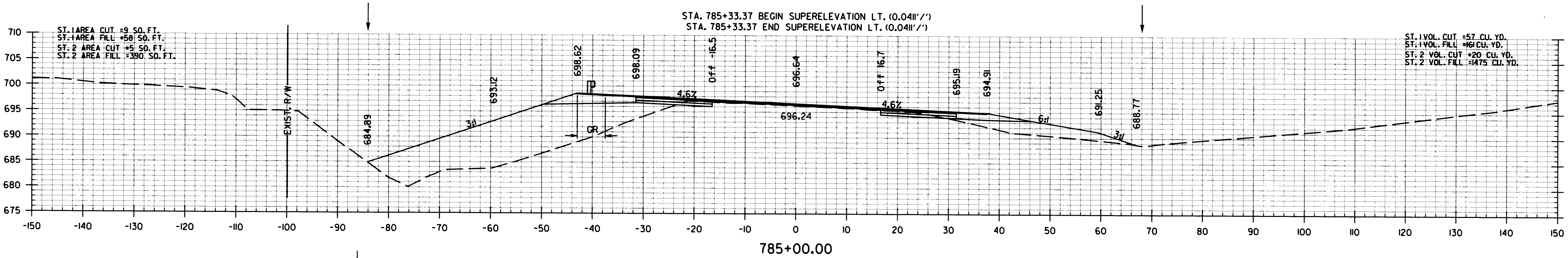
STA. 781+72 TO STA. 783+00

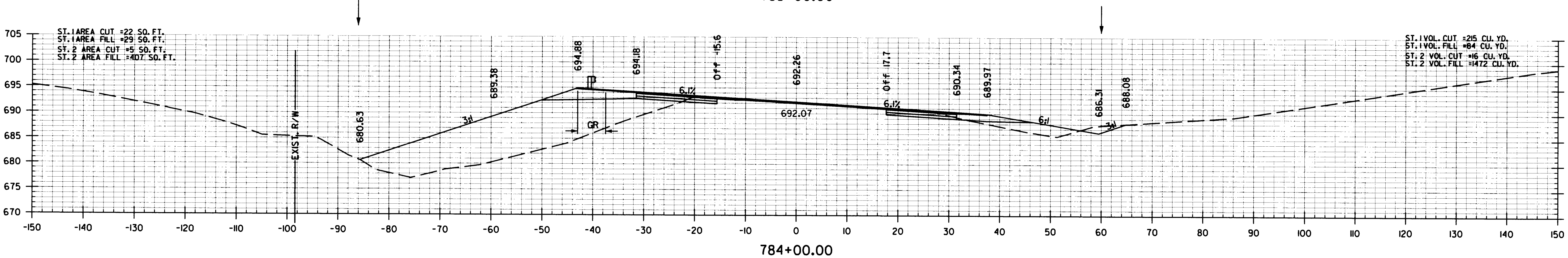
LeonardSpeed 9/23/2016 11:24:43 AM
WORKSPACE: LeonardSpeed
CONTAINER: C:\Projects\Leonard.speed\d0211744\rCA0606_2i_CX_MAIN_001.dgn
USER: #USER#
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	632	888
					(2)	CROSS SECTIONS			



STA. 785+33.37 BEGIN SUPERELEVATION LT. (0.0411'/')
STA. 785+33.37 END SUPERELEVATION LT. (0.0411'/')





Leonard.Speed 9/23/2006 11:24:44 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0217414\CA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

STA. 784+00 TO STA. 786+00

Michael Baker INTERNATIONAL

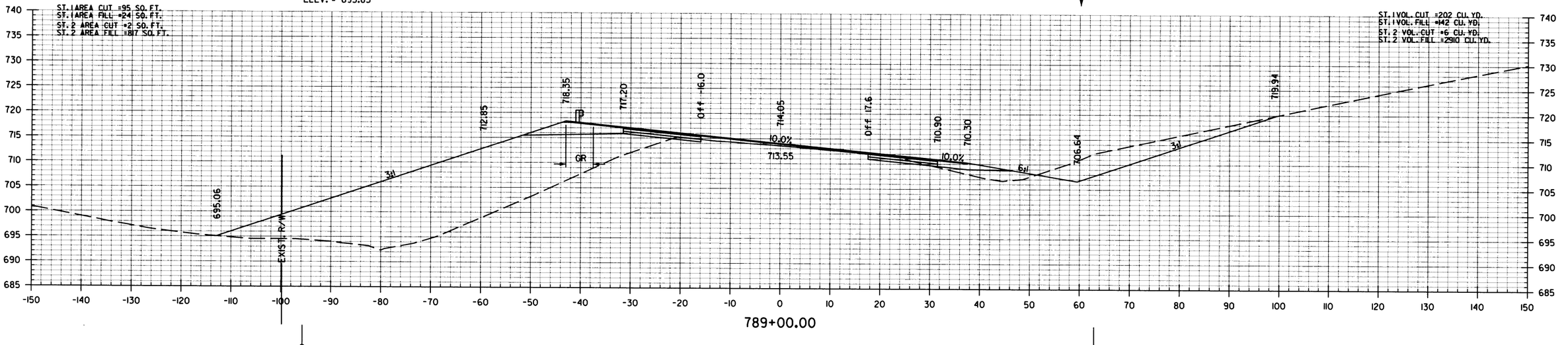
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	633	888

(2) CROSS SECTIONS

STA. 789+50.00
BEGIN SP. DITCH LT. 2.41%
ELEV. = 695.85

ST. 1 AREA CUT =95 SQ. FT.
ST. 1 AREA FILL =24 SQ. FT.
ST. 2 AREA CUT =2 SQ. FT.
ST. 2 AREA FILL =817 SQ. FT.

ST. 1 VOL. CUT =202 CU. YD.
ST. 1 VOL. FILL =142 CU. YD.
ST. 2 VOL. CUT =6 CU. YD.
ST. 2 VOL. FILL =2910 CU. YD.

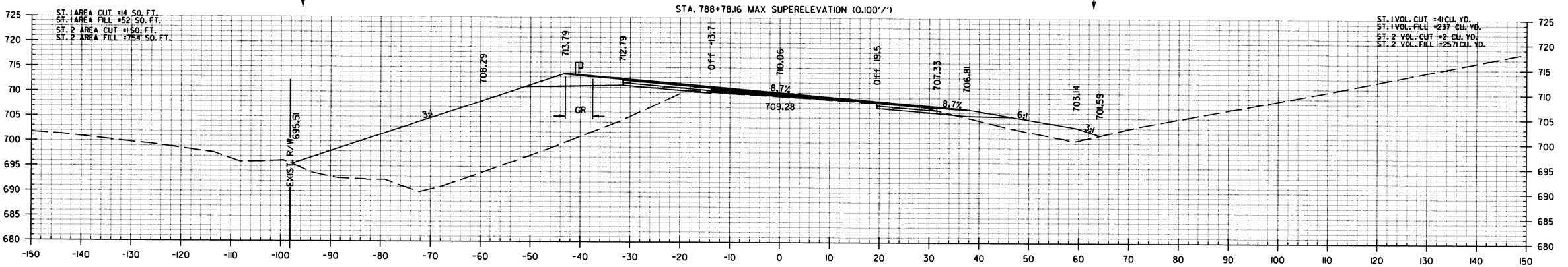


789+00.00

STA. 788+78.16 MAX SUPERELEVATION (0.100'/')

ST. 1 AREA CUT =14 SQ. FT.
ST. 1 AREA FILL =52 SQ. FT.
ST. 2 AREA CUT =150 SQ. FT.
ST. 2 AREA FILL =754 SQ. FT.

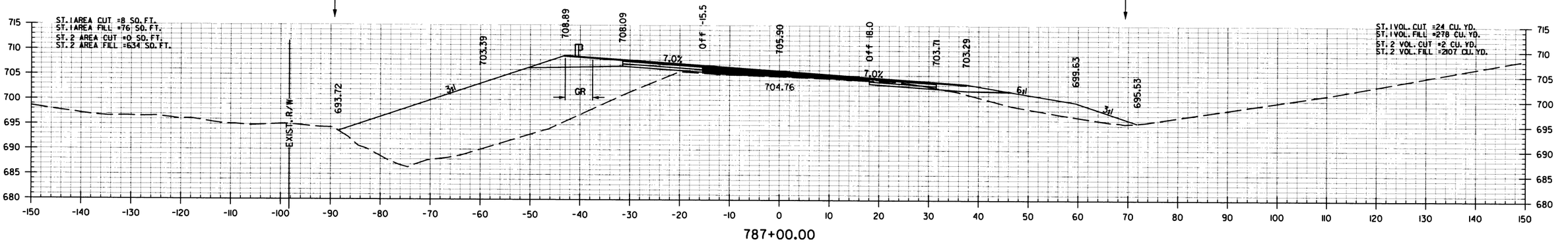
ST. 1 VOL. CUT =41 CU. YD.
ST. 1 VOL. FILL =237 CU. YD.
ST. 2 VOL. CUT =2 CU. YD.
ST. 2 VOL. FILL =2571 CU. YD.



788+00.00

ST. 1 AREA CUT =8 SQ. FT.
ST. 1 AREA FILL =76 SQ. FT.
ST. 2 AREA CUT =0 SQ. FT.
ST. 2 AREA FILL =634 SQ. FT.

ST. 1 VOL. CUT =24 CU. YD.
ST. 1 VOL. FILL =278 CU. YD.
ST. 2 VOL. CUT =2 CU. YD.
ST. 2 VOL. FILL =2107 CU. YD.



787+00.00

STA. 787+00 TO STA. 789+00

Leonard Speed 9/23/2006 11:24:45 AM
K:\MKS\Leonard Speed\Sheets\CA0606_21_CX_MAIN_001.dgn
c:\dgn81-local\baker_projects\leonard_speed\d0271744\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

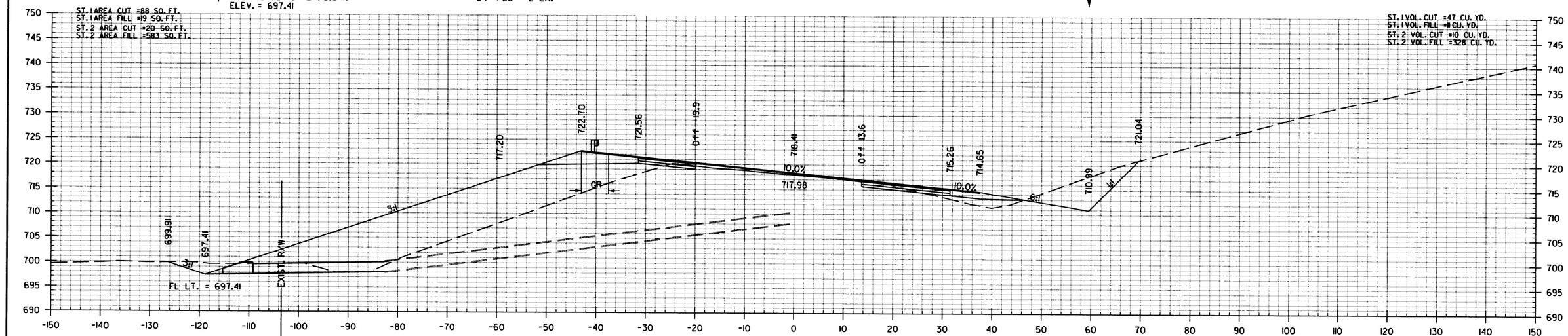
DATE	DATE FILMED	DATE REVISED	DATE FILMED

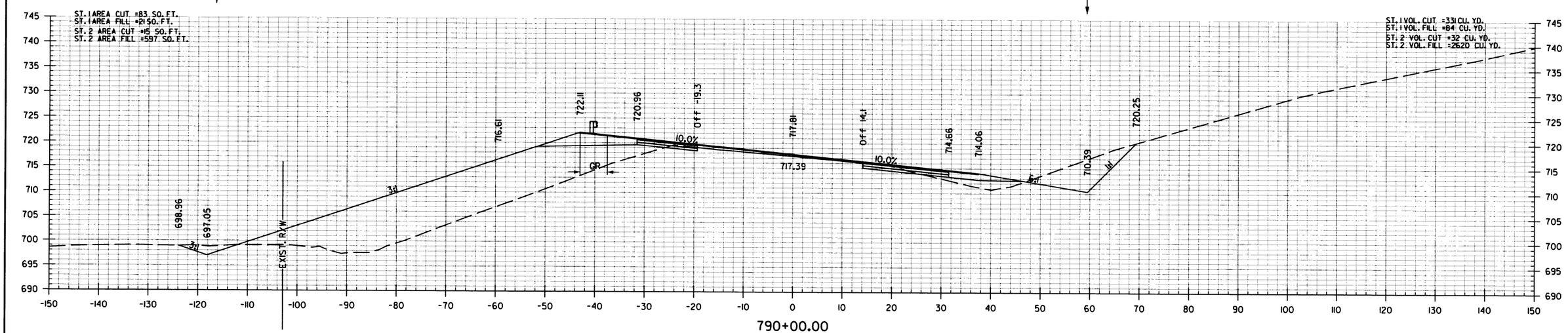
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	634	888

(2) CROSS SECTIONS

STA. 790+83.02 IN PLACE
24"X 139' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 32' LT. AND 29' RT.
30° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
050=15.3 CFS D.A.=2 ACRES
24" R.C. PIPE = 65 LIN. FT.
24" FES = 2 EA.

STA. 790+15.00
END SP. DITCH LT. 2.41%
BEGIN SP. DITCH LT. 5.64%
ELEV. = 697.41



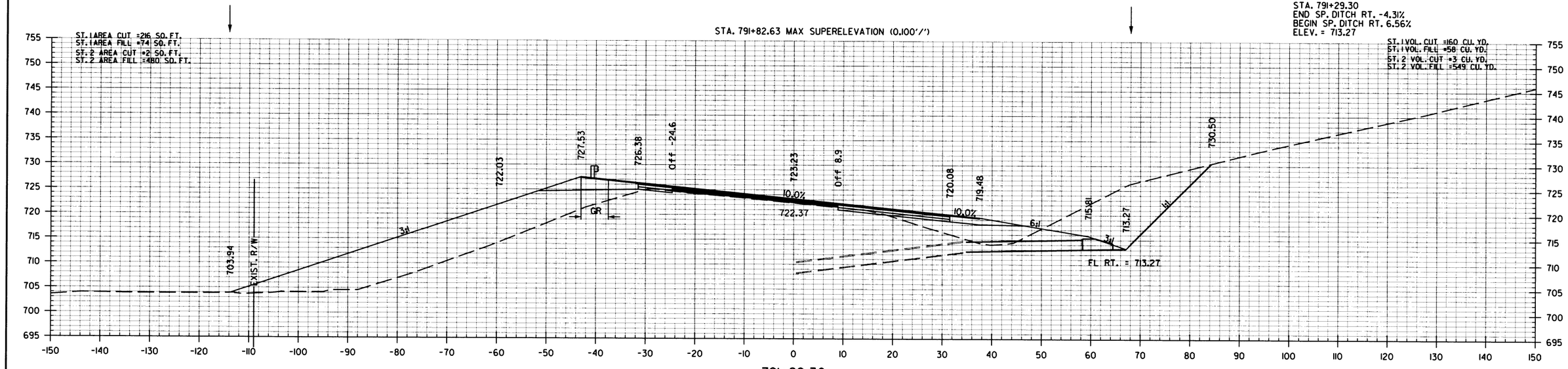


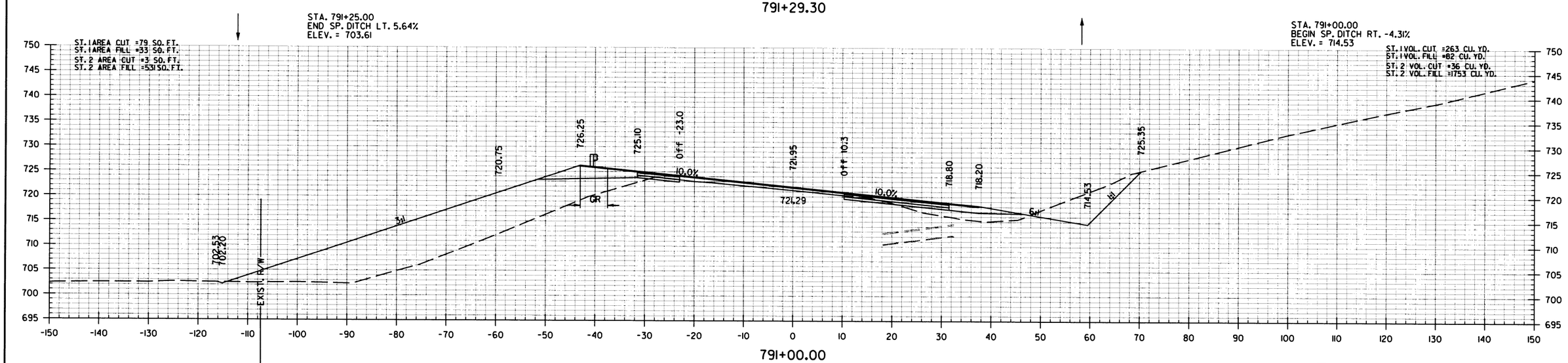
STA. 790+00 TO STA. 790+15

Leonard.Speed 9/23/2016 11:24:46 AM
W:\Work\Projects\Leonard.Speed\d0211744\r-CA0606.21.CX.MAIN.001.dgn
c:\Program Files\Bentley\Projects\Leonard.Speed\d0211744\r-CA0606.21.CX.MAIN.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker
INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	635	888
				(2)	CROSS SECTIONS			





STA. 791+00 TO STA. 791+29

leonard.speed 9/23/2016 11:24:48 AM
\\Mbkfs01\corporate\projects\leonard.speed\d0217141-rCA0606.21.CX_MAIN.001.dgn
c:\pw\81-local\baker.prj\projects\leonard.speed\d0217141-rCA0606.21.CX_MAIN.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

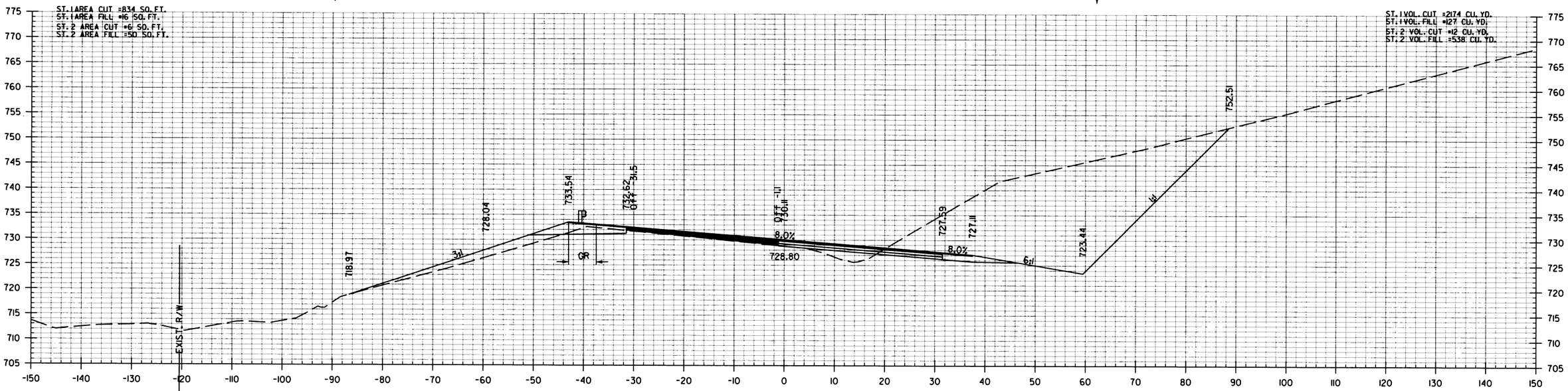
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	636	888

(2) CROSS SECTIONS

ST. 1 AREA CUT =834 SQ. FT.
ST. 1 AREA FILL =16 SQ. FT.
ST. 2 AREA CUT =6 SQ. FT.
ST. 2 AREA FILL =50 SQ. FT.

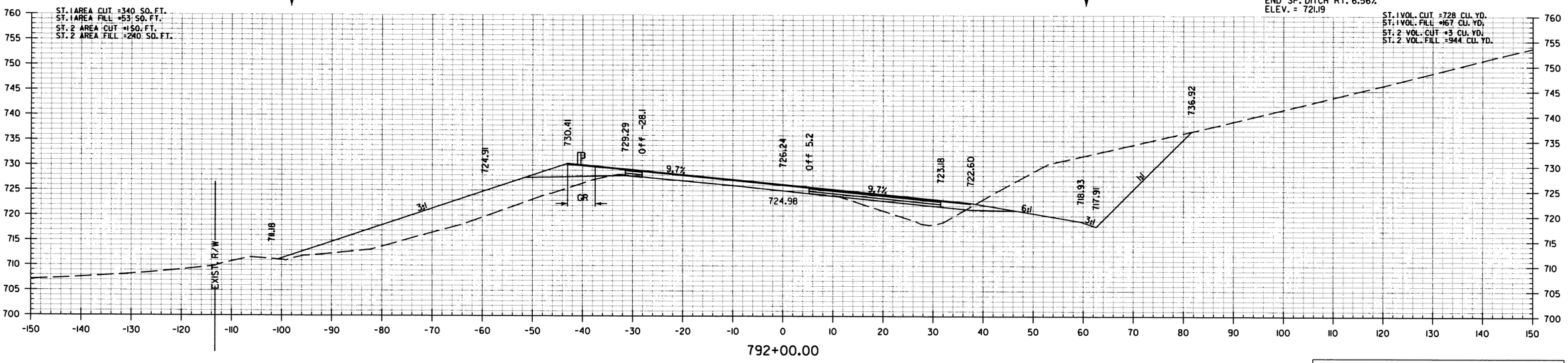
ST. 1 VOL. CUT =2174 CU. YD.
ST. 1 VOL. FILL =127 CU. YD.
ST. 2 VOL. CUT =12 CU. YD.
ST. 2 VOL. FILL =538 CU. YD.



STA. 792+50.00
END SP. DITCH RT. 6.56%
ELEV. = 721.19

ST. 1 AREA CUT =340 SQ. FT.
ST. 1 AREA FILL =53 SQ. FT.
ST. 2 AREA CUT =150 FT.
ST. 2 AREA FILL =240 SQ. FT.

ST. 1 VOL. CUT =728 CU. YD.
ST. 1 VOL. FILL =167 CU. YD.
ST. 2 VOL. CUT =3 CU. YD.
ST. 2 VOL. FILL =944 CU. YD.



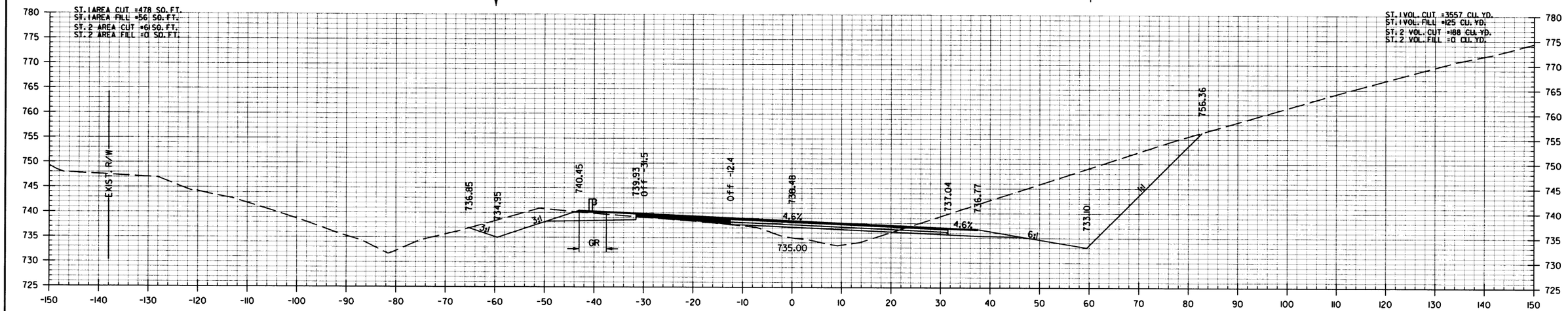
STA. 792+00 TO STA. 793+00

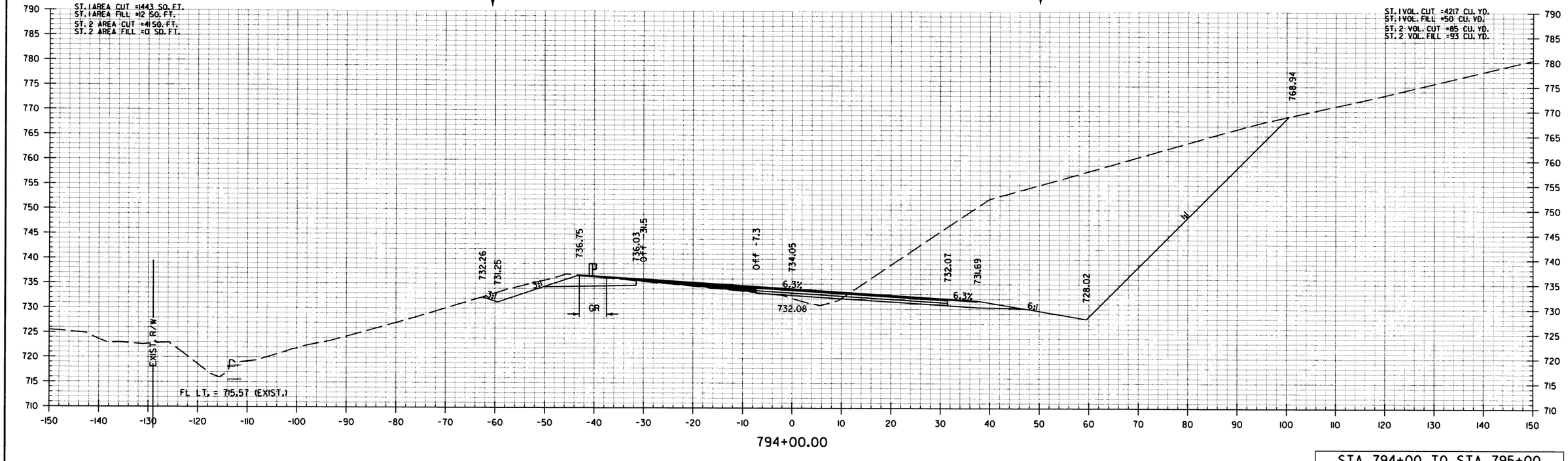
Leonard.Speed 9/23/2016 11:24:49 AM
WORKSET: Leonard.Speed
D:\Users\Leonard.Speed\Documents\Projects\Leonard.Speed\d0211744\rCA0606.21.CX.MAIN_001.dgn
CONTRACT: CA0606 REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	637	888

(2) CROSS SECTIONS



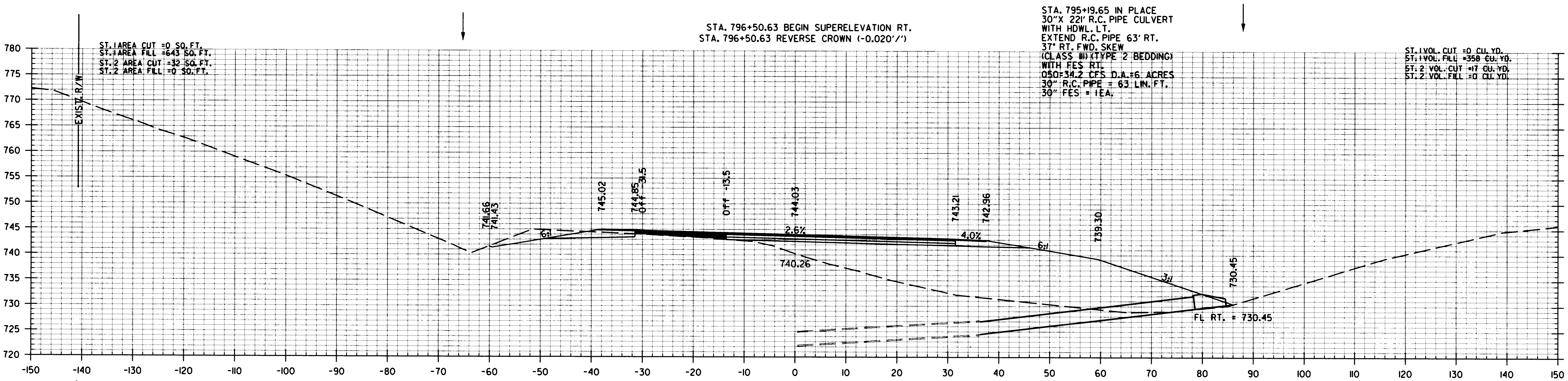


STA. 794+00 TO STA. 795+00

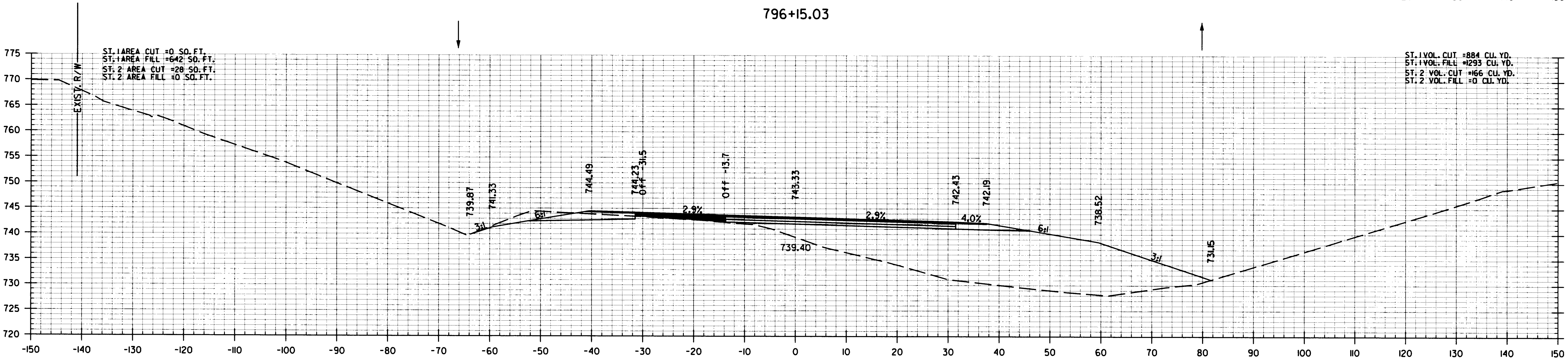
Leonard.Speed 9/23/2016 11:24:50 AM
WORKSPACE: Leonard.Speed
CONNECTION: Connection to Projects\leonard.speed\d0211744\rCA0606_2i_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	638	888

(2) CROSS SECTIONS



796+15.03



796+00.00

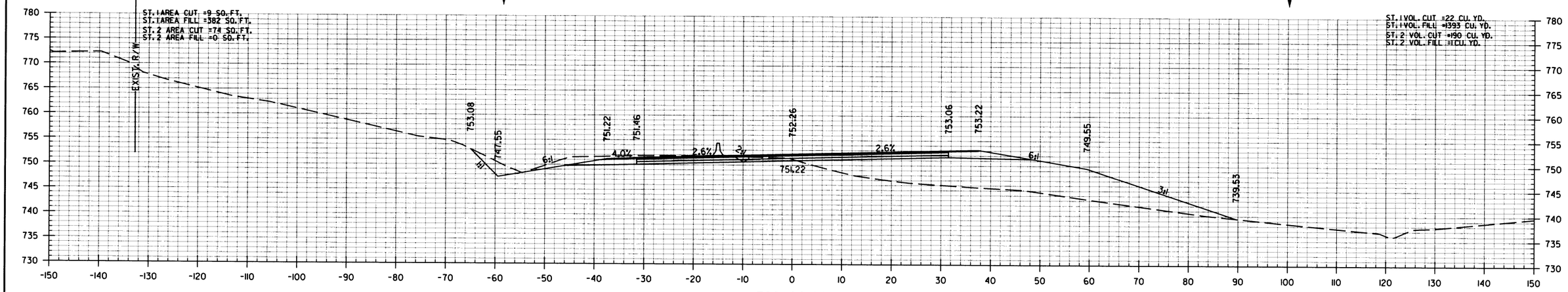
STA. 796+00 TO STA. 796+15

Leonard.Speed 9/23/2016 11:24:51 AM
WORKSPACE: Leonard.Speed
c:\pwv81-local\baker_projects\leonard.speed\d0271744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

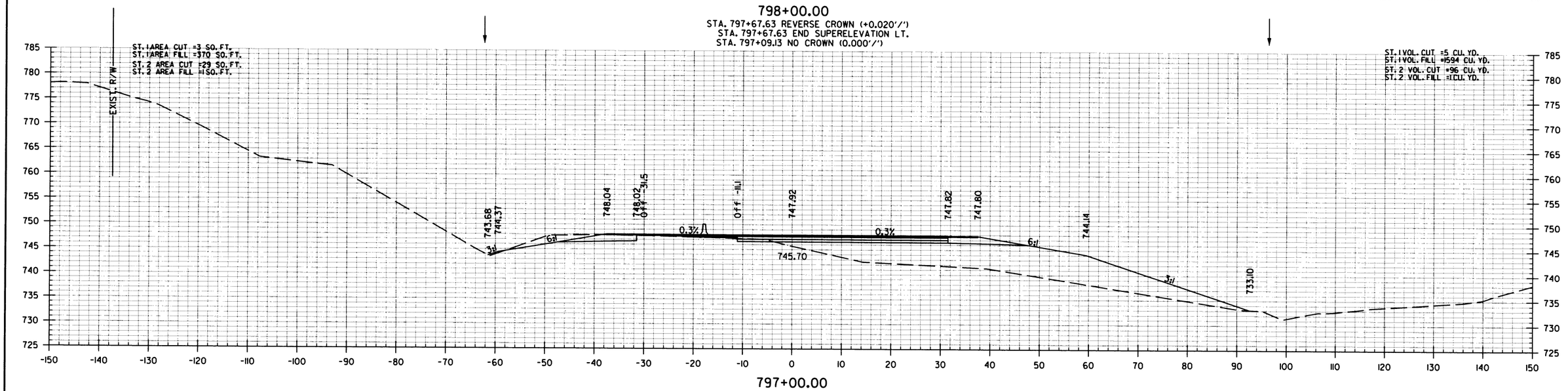
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	639	888
				(2)	CROSS SECTIONS			

STA. 798+75.00
BEGIN SP. DITCH RT. 4.15%
ELEV. = 739.87



798+00.00

STA. 797+67.63 REVERSE CROWN (+0.020'/')
STA. 797+67.63 END SUPERELEVATION LT.
STA. 797+09.13 NO CROWN (0.000'/')



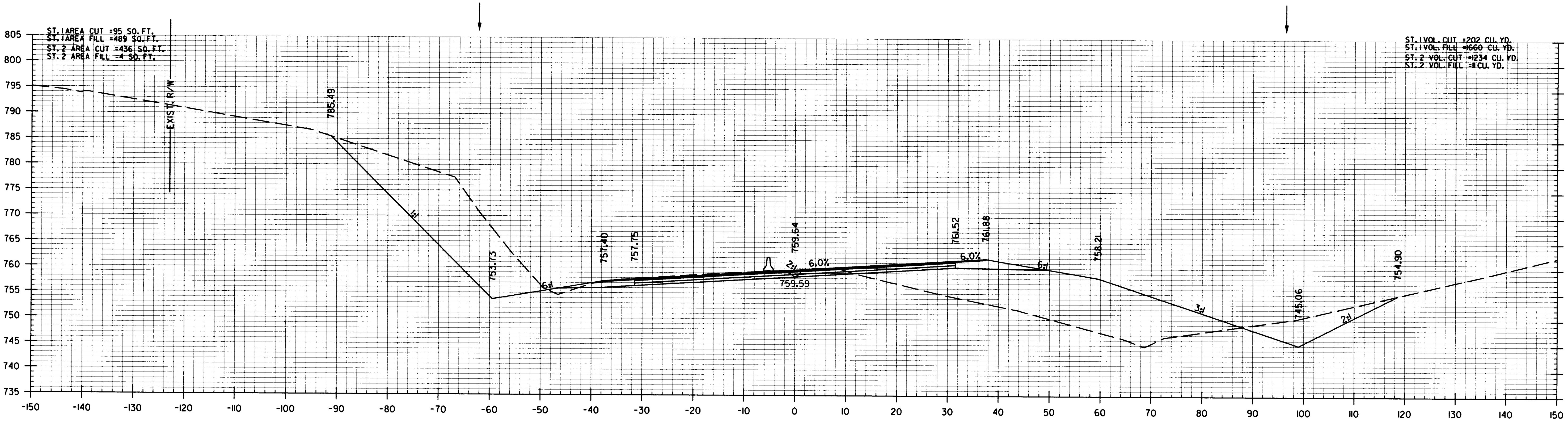
797+00.00

STA. 797+00 TO STA. 798+00

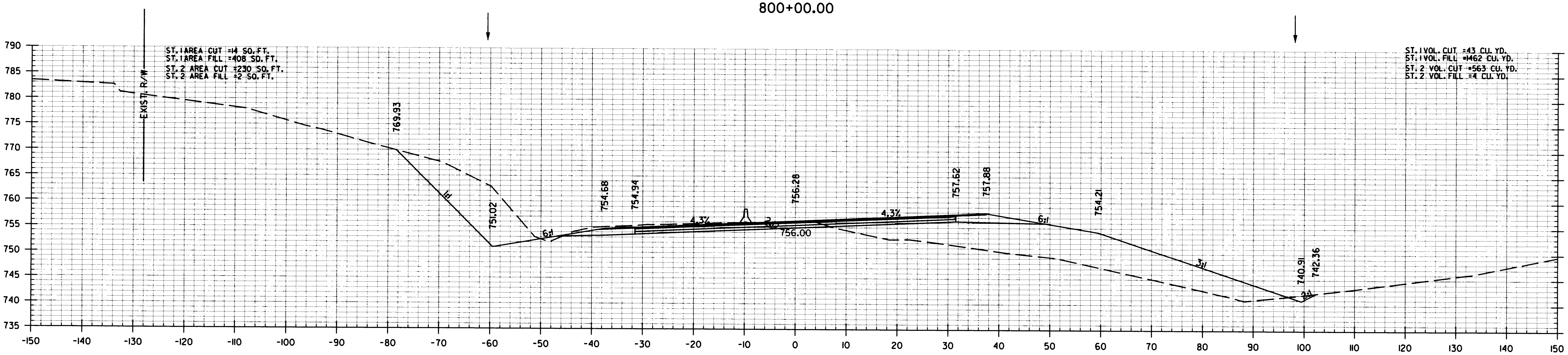
LeonardSpeed 9/23/2006 11:24:53 AM
WORKSPACE: Connector Roads
c:\pwwdl-local\baker_projects\leonardspeed\d0217141\rCA0606_2L_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	640	888

(2) CROSS SECTIONS



800+00.00



799+00.00

Leonard.Speed 9/23/2016 11:24:54 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271744\rCA0606_2LCX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

STA. 799+00 TO STA. 800+00

Michael Baker INTERNATIONAL

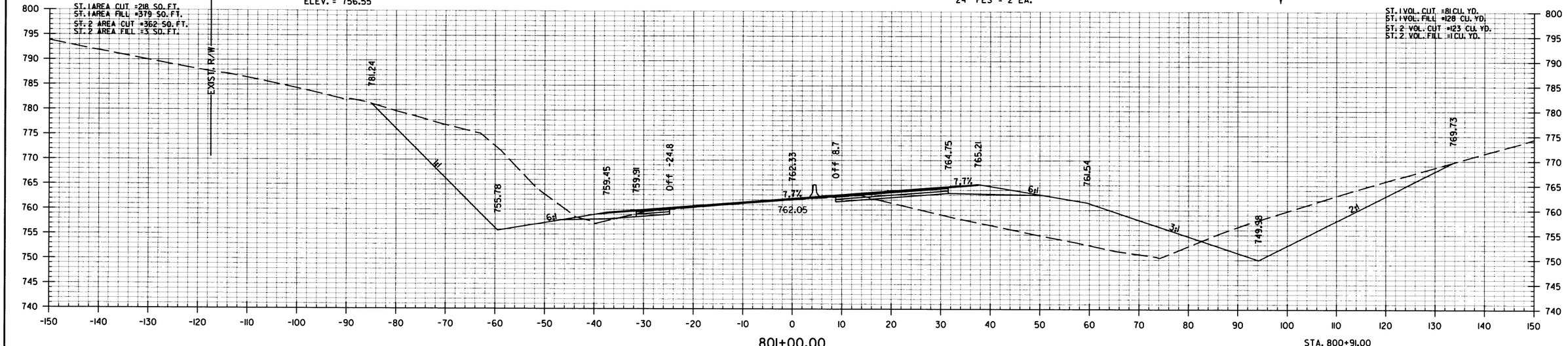
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	641	888

(2) CROSS SECTIONS

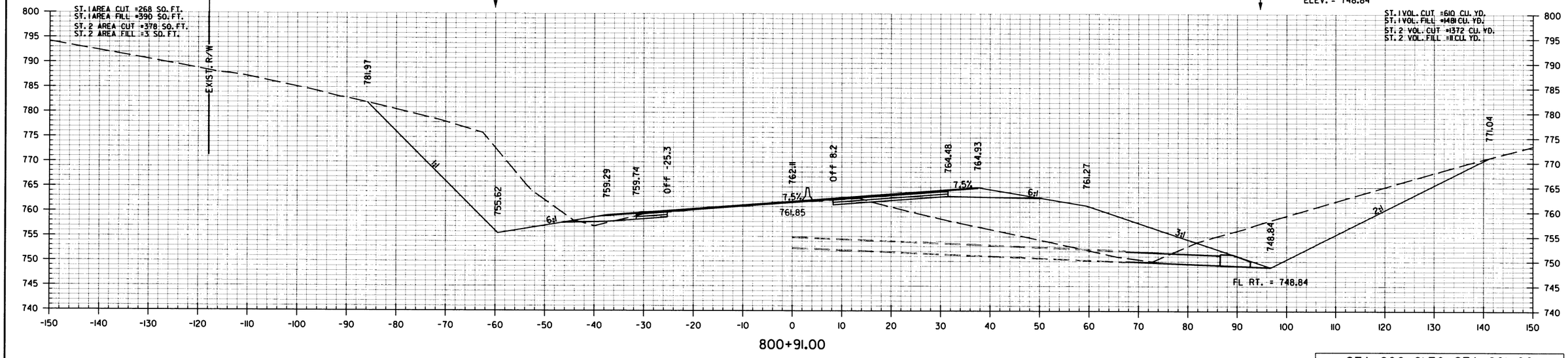
STA. 801+49.00 IN PLACE
24"X 120' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 31' LT. AND 24' RT.
31° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=13.6 CFS D.A.=3 ACRES
24" R.C. PIPE = 59 LIN. FT.
24" FES = 2 EA.

STA. 801+50.00
BEGIN SP. DITCH LT. -3.81%
ELEV. = 756.55



801+00.00

STA. 800+91.00
END SP. DITCH RT. 4.15%
BEGIN SP. DITCH RT. 12.66%
ELEV. = 748.84



800+91.00

STA. 800+91 TO STA. 801+00

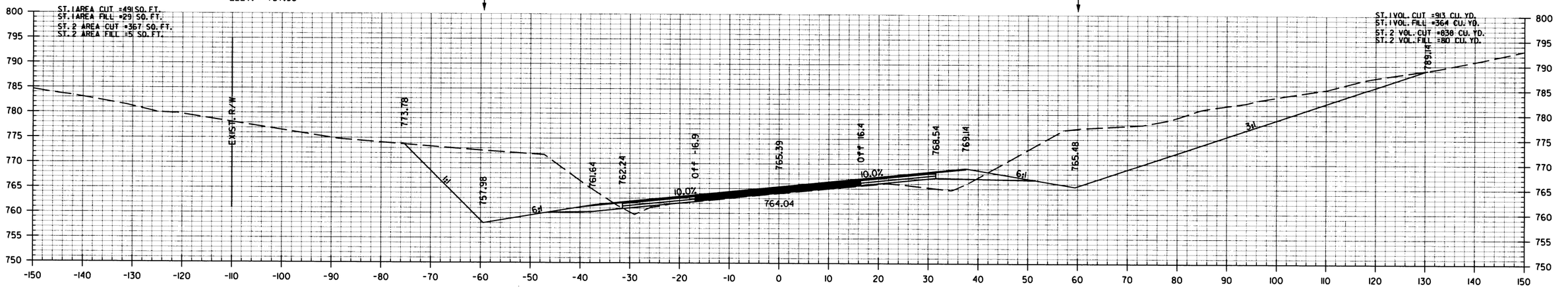
Leonard.Speed 9/23/2016 11:24:55 AM
WORKSPACE: Leonard.Speed
CONNECTION: Projects\Leonard.Speed\d0211741\rCA0606.21.CX_MAIN.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	642	888

(2) CROSS SECTIONS

STA. 803+00.00
END SP. DITCH LT. 2.99%
ELEV. = 757.98

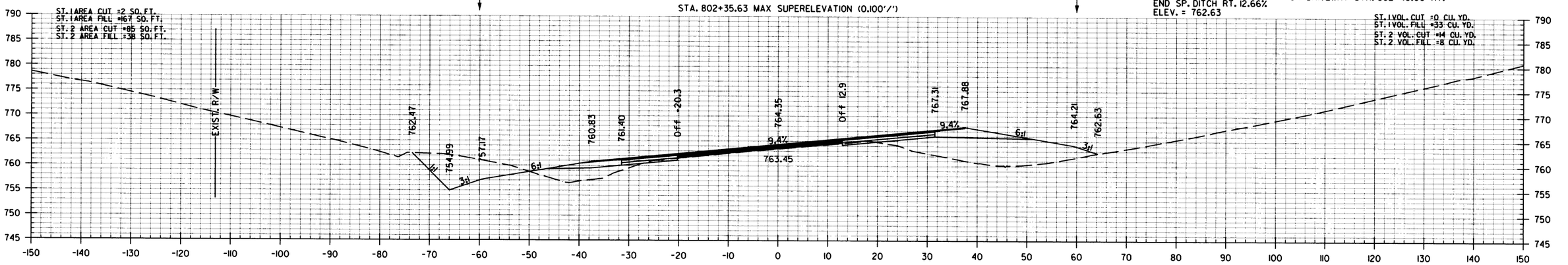


803+00.00

STA. 802+35.63 MAX SUPERELEVATION (0.100'/')

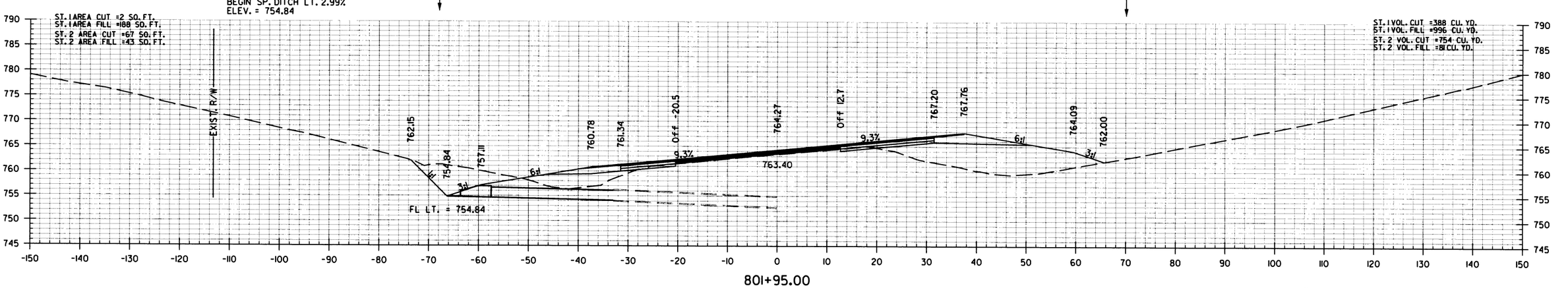
STA. 802+00.00
END SP. DITCH RT. 12.66%
ELEV. = 762.63

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEWAY STA. 802+40.00 RT.



802+00.00

STA. 801+95.00
END SP. DITCH LT. -3.81%
BEGIN SP. DITCH LT. 2.99%
ELEV. = 754.84



801+95.00

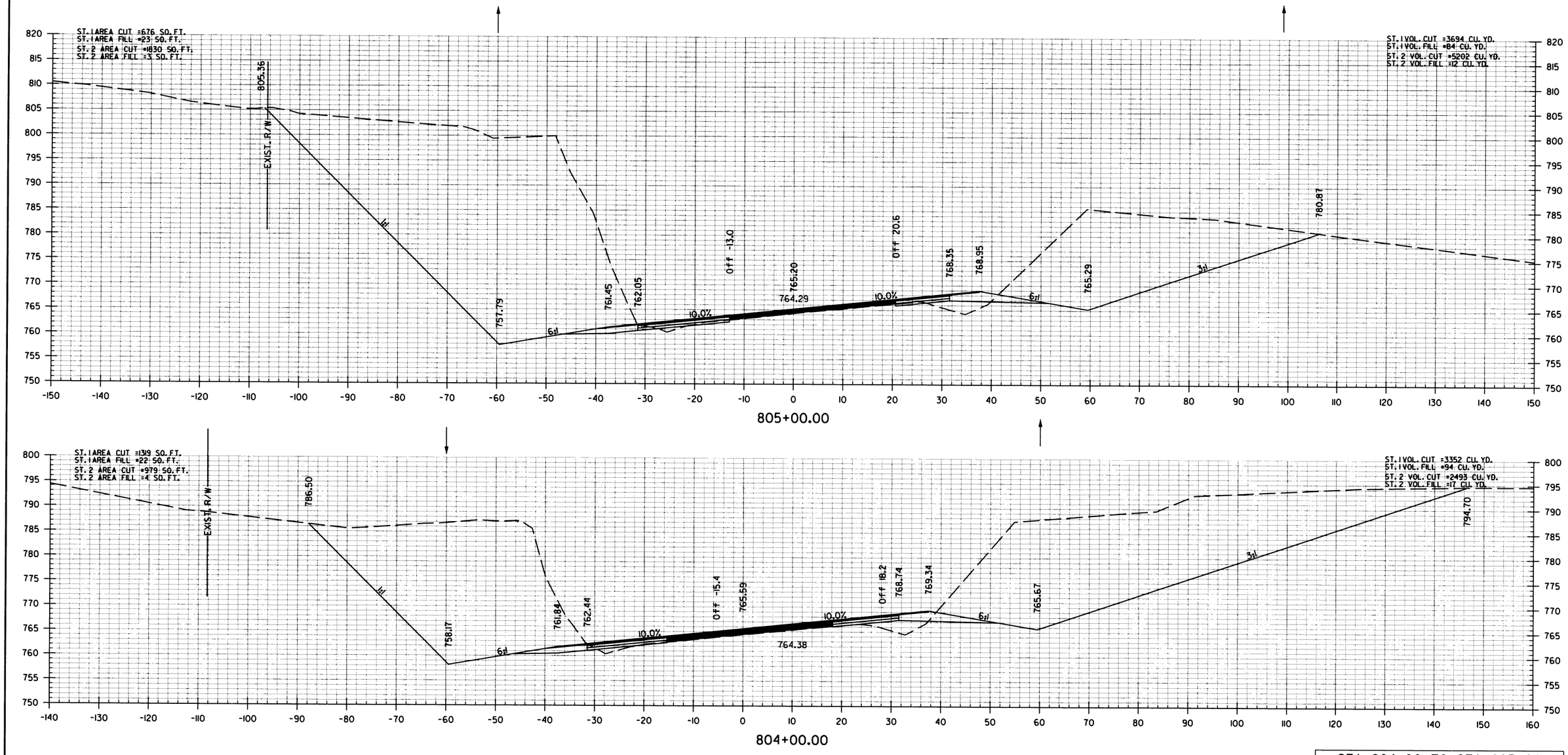
STA. 801+95 TO STA. 803+00

Leonard.Speed 9/23/2016 11:24:56 AM
WORKSPACE: Leonard.Speed
COMMENT: C:\Projects\Leonard.Speed\d0211744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE1##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	643	888

(2) CROSS SECTIONS



STA. 804+00 TO STA. 805+00

Leonard Speed 9/23/2016 11:24:58 AM
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C:\Users\bdkerr\Desktop\Projects\leonard_speed\d0271741\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	644	888

(2) CROSS SECTIONS

ST. 1 AREA CUT =1 SQ. FT.
ST. 1 AREA FILL =118 SQ. FT.
ST. 2 AREA CUT =2409 SQ. FT.
ST. 2 AREA FILL =5 SQ. FT.

ST. 1 VOL. CUT =1253 CU. YD.
ST. 1 VOL. FILL =261 CU. YD.
ST. 2 VOL. CUT =7850 CU. YD.
ST. 2 VOL. FILL =14 CU. YD.

820.35

EXIST. R/W

18'

757.31

6:1

760.97

761.57

Off -10.9

764.72

10.0%

763.67

Off 22.7

767.87

758.47

10.0%

6:1

764.81

3:1

760.21

806+00.00

STA. 806+00 TO STA. 806+00

Leonard.Speed 9/23/2016 11:24:59 AM
\\MKOWS-CIFS1\Projects\Leonard.Speed\d0271744\r-CA0606_2\CX_MAIN_001.dgn
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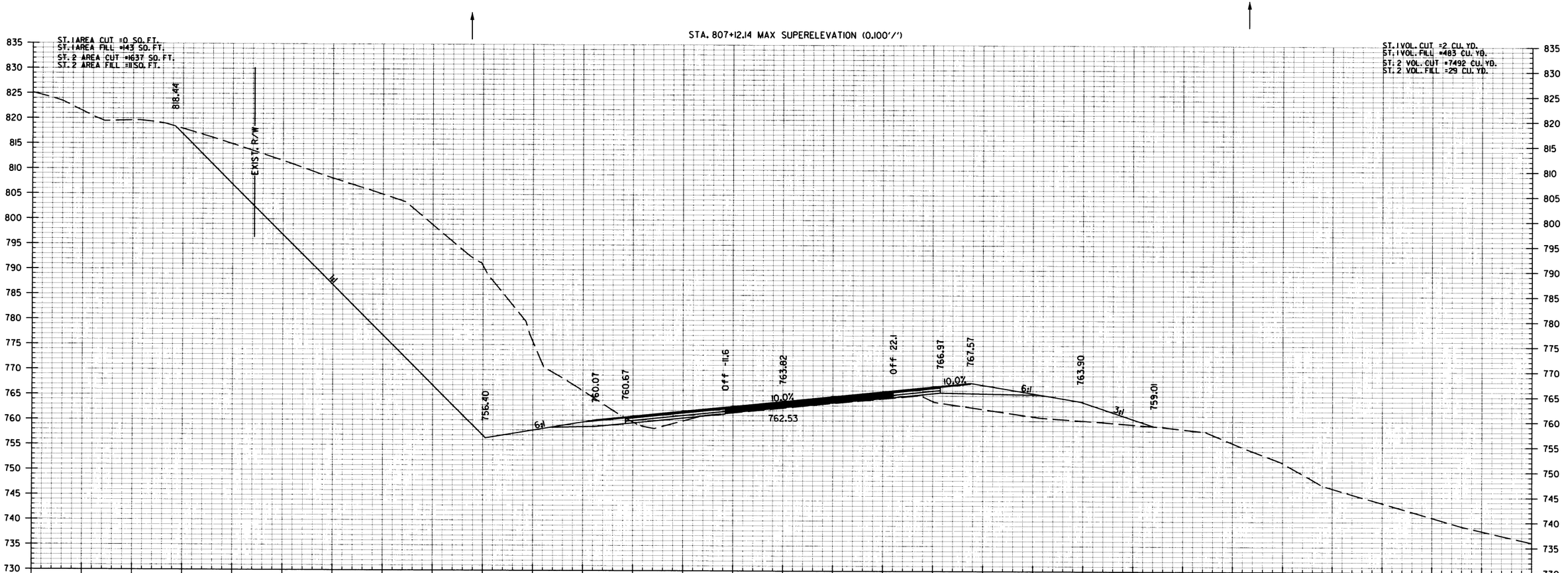
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	645	888
(2)	CROSS SECTIONS			



STA. 807+00 TO STA. 807+00

LeonardSpeed 9/23/2016 11:25:00 AM
WORKSPACE leonard45.dgn
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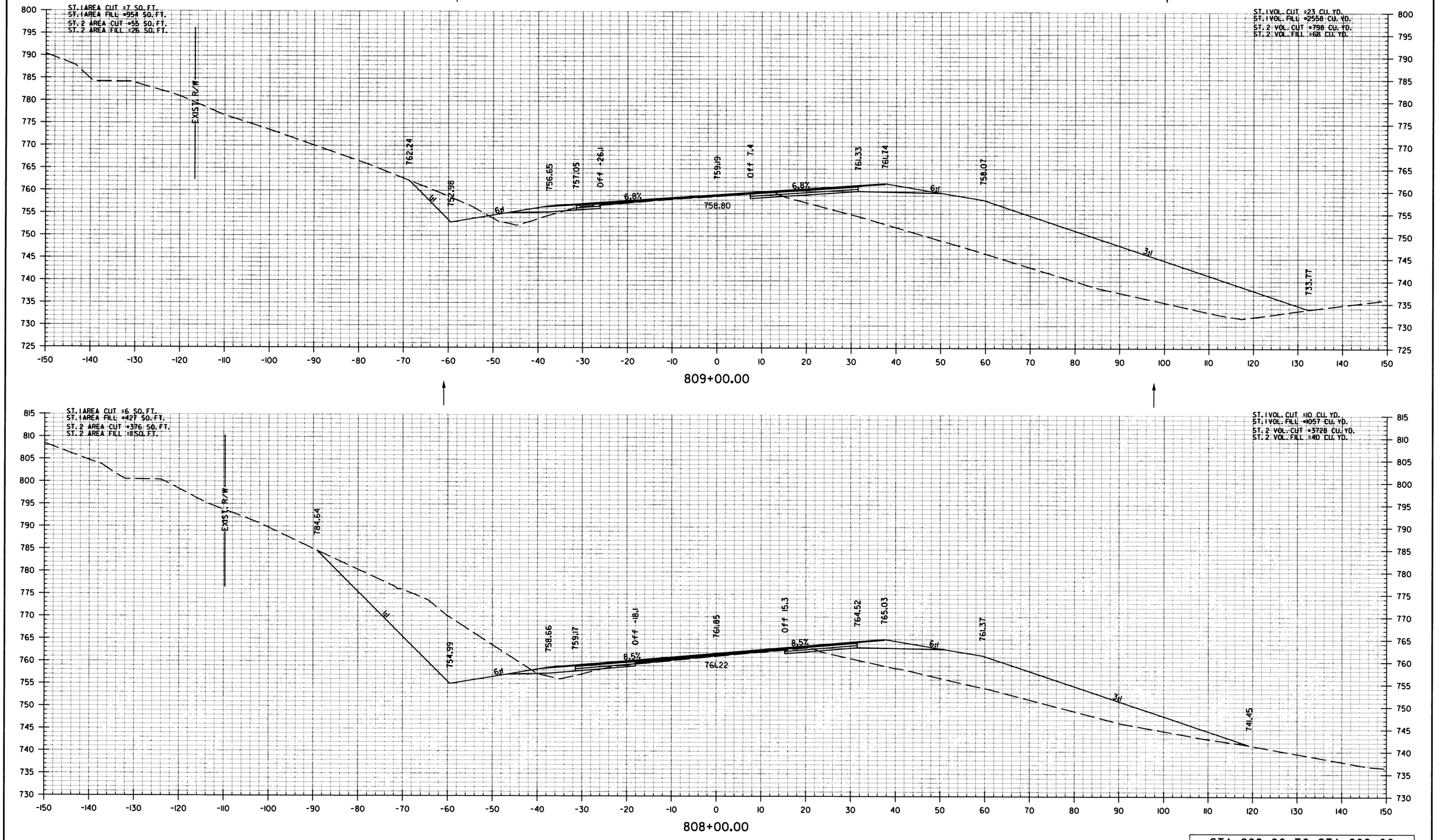
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	646	888

(2) CROSS SECTIONS



STA. 808+00 TO STA. 809+00

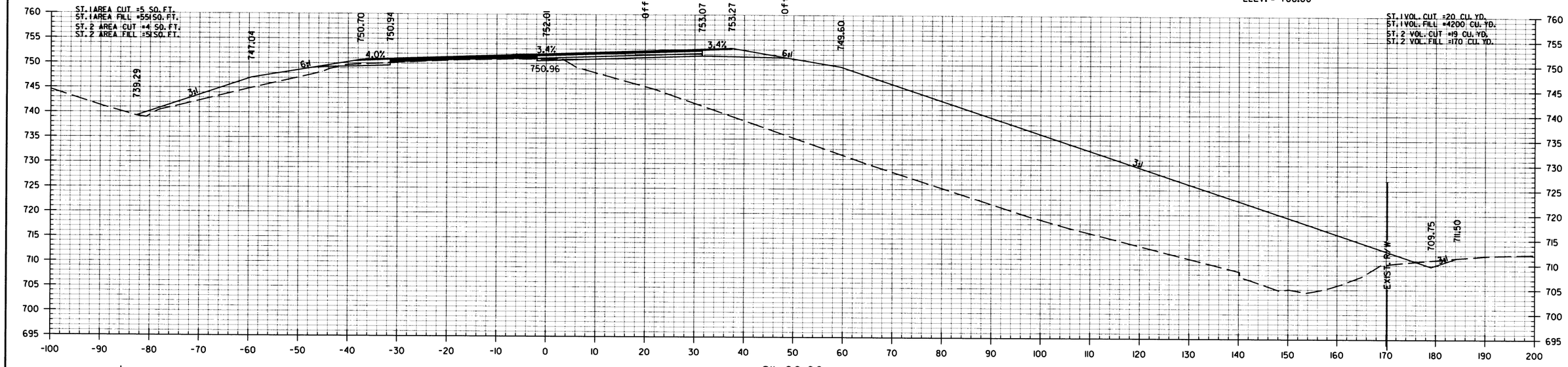
LeonardSpeed 9/23/2016 11:25:01 AM
leonard.speed@mbakercorp.com
d:\drawings\civil\baker projects\leonard.speed\d0217744\r-CA0606_2_CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	647	888
				(2)	CROSS SECTIONS			

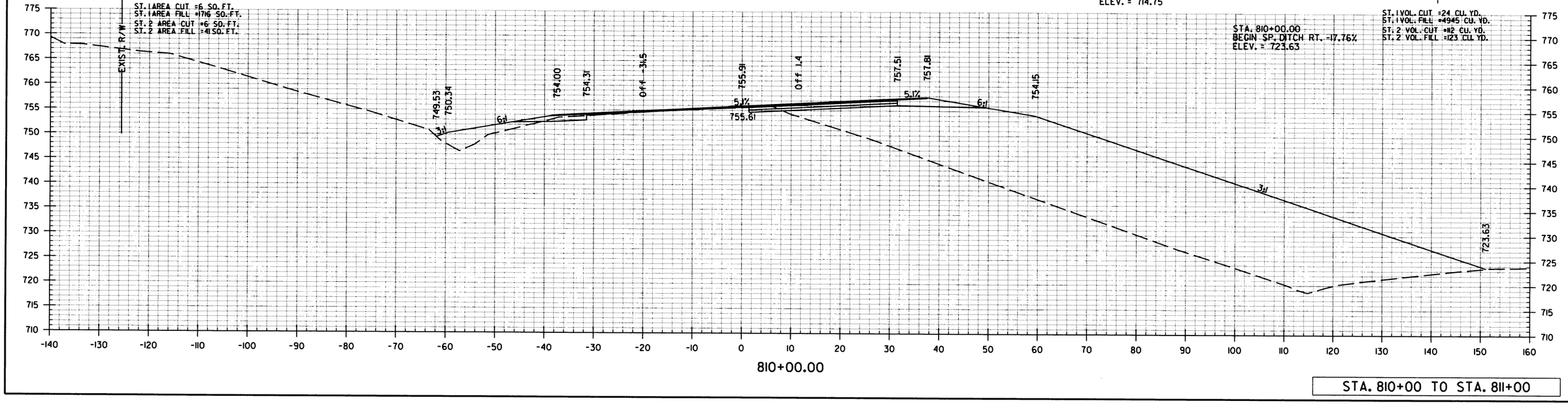
STA. 811+00.00
BEGIN SP. DITCH LT. -4.50%
ELEV. = 739.29

STA. 811+37.50
END SP. DITCH RT. -10.00%
BEGIN SP. DITCH RT. 15.12%
ELEV. = 706.00



STA. 810+50.00
END SP. DITCH RT. -17.76%
BEGIN SP. DITCH RT. -10.00%
ELEV. = 714.75

STA. 810+00.00
BEGIN SP. DITCH RT. -17.76%
ELEV. = 723.63



STA. 810+00 TO STA. 811+00

Leonard Speed 9/23/2016 11:25:03 AM
WORKSPACE: Workspace_CA0610
c:\pw\81-local\baker_projects\leonard.speed\d0271744\r-CA0606_21.CX.MAIN.001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	648	888
				(2)	CROSS SECTIONS			

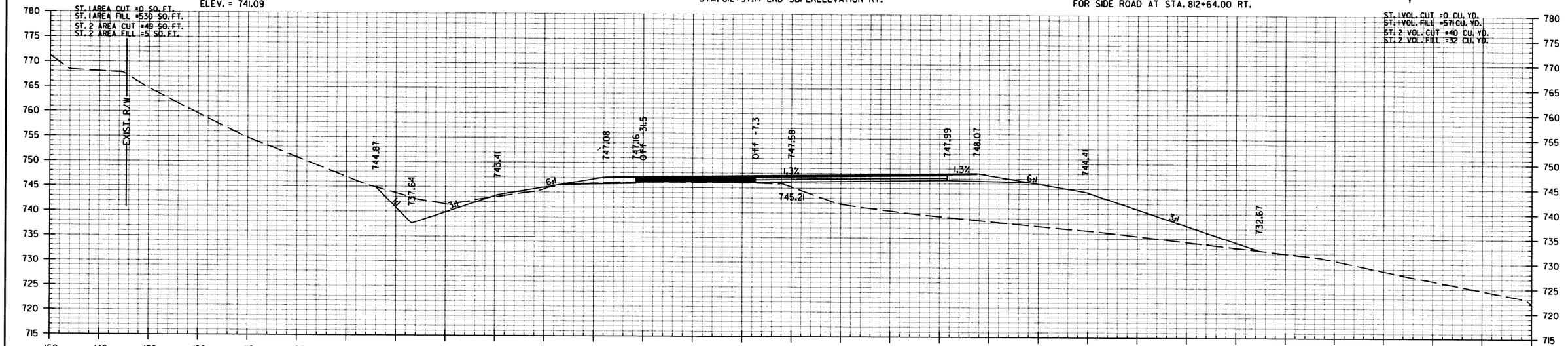
STA. 812+50.00
END SP. DITCH LT. 6.90%
ELEV. = 741.09

STA. 812+98.14 REVERSE CROWN (-0.020'/')
STA. 812+97.14 END SUPERELEVATION RT.

SEE SIDE ROAD PROFILES SHEETS
FOR SIDE ROAD AT STA. 812+64.00 RT.

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =530 SQ. FT.
ST. 2 AREA CUT =49 SQ. FT.
ST. 2 AREA FILL =5 SQ. FT.

ST. 1 VOL. CUT =0 CU. YD.
ST. 1 VOL. FILL =571 CU. YD.
ST. 2 VOL. CUT =40 CU. YD.
ST. 2 VOL. FILL =32 CU. YD.



812+00.00

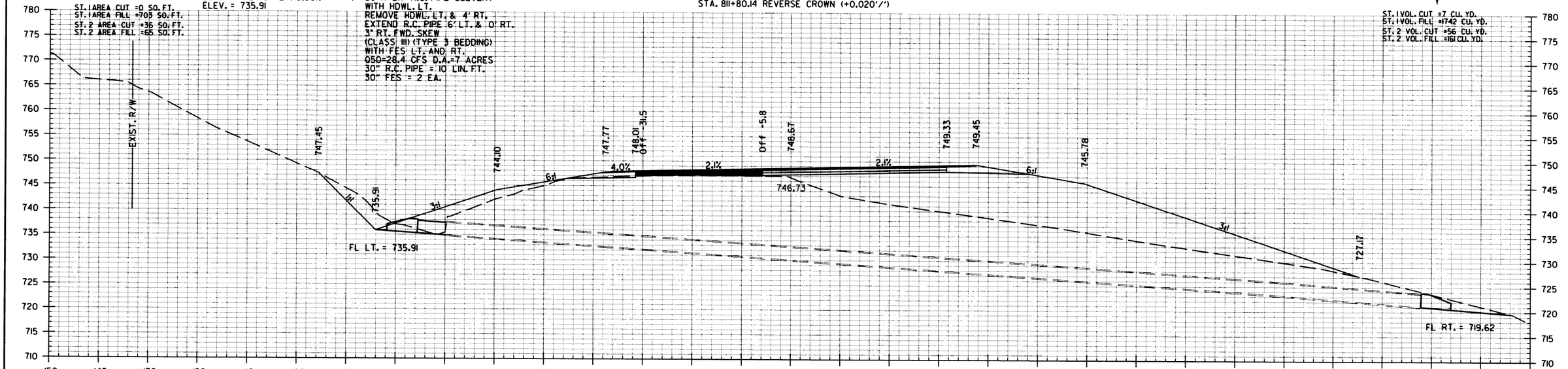
STA. 811+75.00
END SP. DITCH LT. -4.50%
BEGIN SP. DITCH LT. 6.90%
ELEV. = 735.91

STA. 811+79.55 IN PLACE
30"X 217' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. & 4' RT.
EXTEND R.C. PIPE 6' LT. & 0' RT.
3° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=28.4 CFS D.A.=7 ACRES
30" R.C. PIPE = 10 LIN. FT.
30" FES = 2 EA.

STA. 811+80.14 BEGIN SUPERELEVATION LT.
STA. 811+80.14 REVERSE CROWN (+0.020'/')

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =703 SQ. FT.
ST. 2 AREA CUT =36 SQ. FT.
ST. 2 AREA FILL =65 SQ. FT.

ST. 1 VOL. CUT =7 CU. YD.
ST. 1 VOL. FILL =1742 CU. YD.
ST. 2 VOL. CUT =56 CU. YD.
ST. 2 VOL. FILL =161 CU. YD.



811+75.00

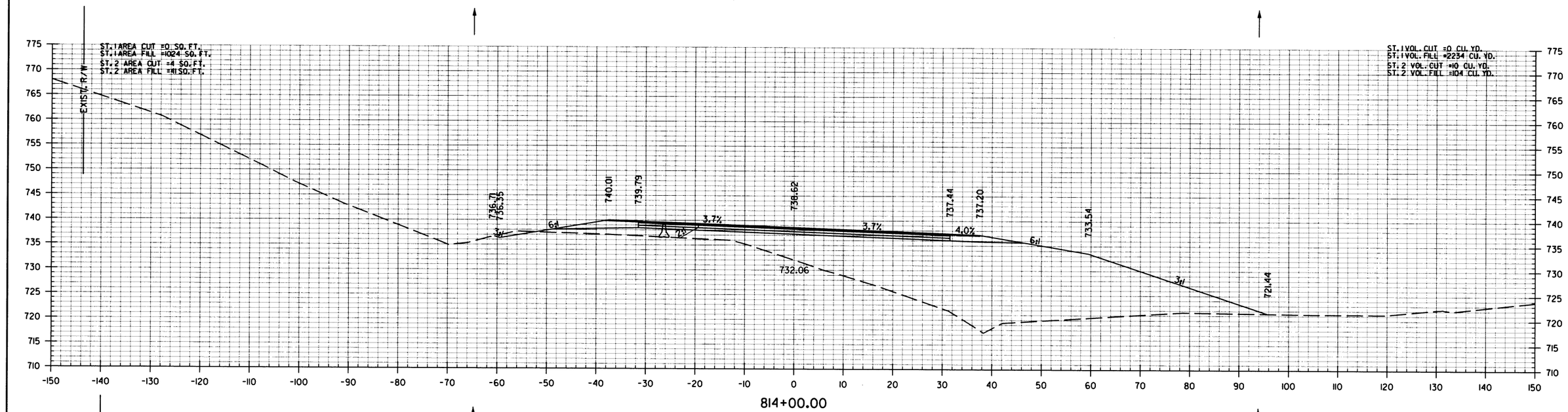
STA. 811+69.19
END SP. DITCH RT. 15.12%
ELEV. = 710.79

STA. 811+75 TO STA. 812+00

Leonard,Speed 9/23/2016 11:25:04 AM
WORKSPACE: \\conard\projects
c:\pw\81-local\baker_projects\leonard.speed\d0211744\vrCA0606.21.CX_MAIN_00.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0610		649	888
				(2)	CROSS SECTIONS			



STA. 813+00 TO STA. 814+00

Leonard.Speed 9/23/2016 11:25:06 AM
WORKSPACE: Leonard.Speed
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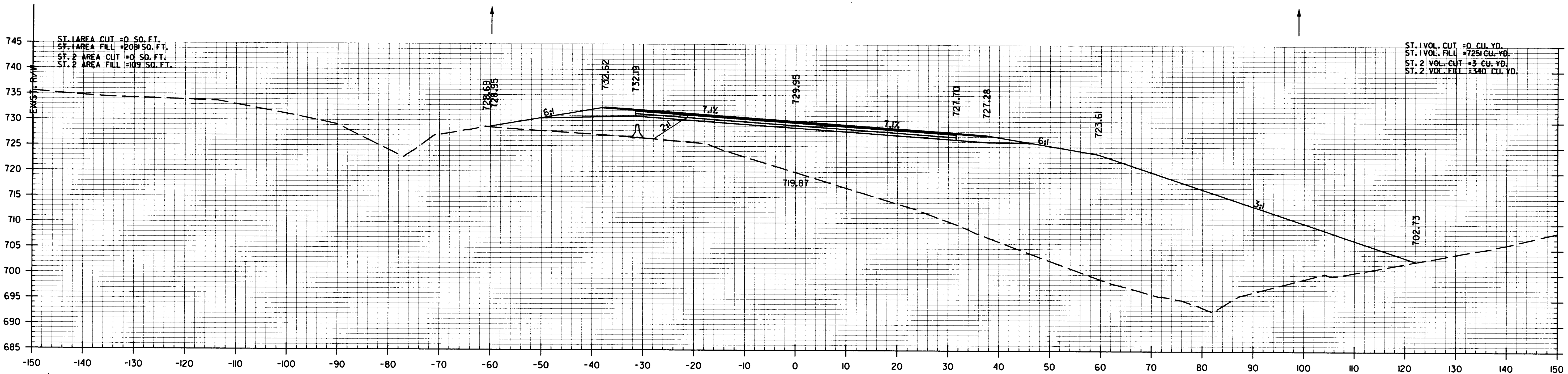
REVISED DATE: ##REVDATE##

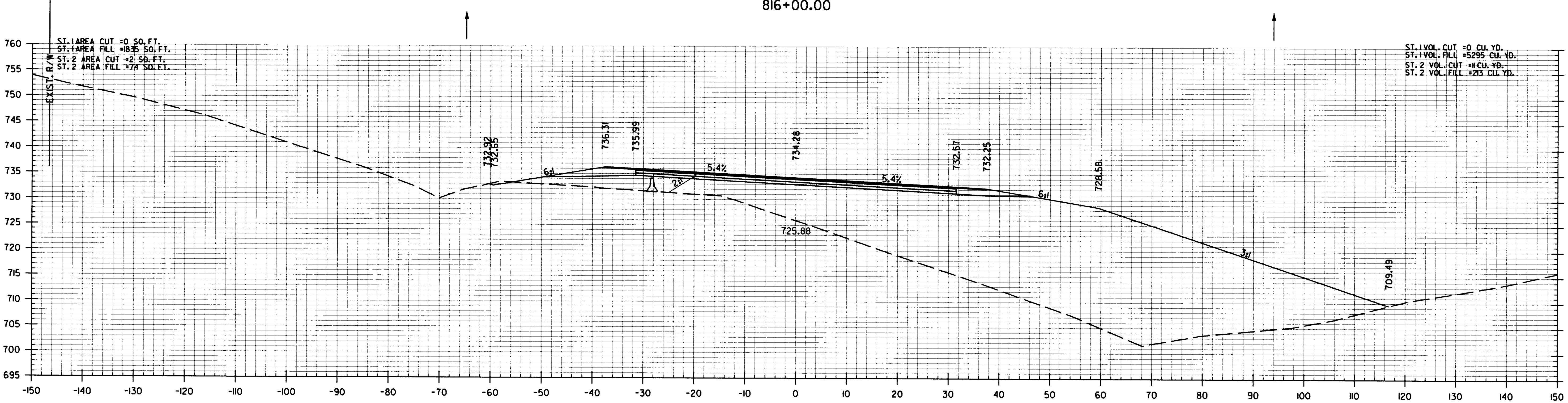
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	650	888

(2) CROSS SECTIONS



816+00.00



815+00.00

STA. 815+00 TO STA. 816+00

Leonard.Speed 9/23/2016 11:25:07 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0217174\CA0606_2L_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

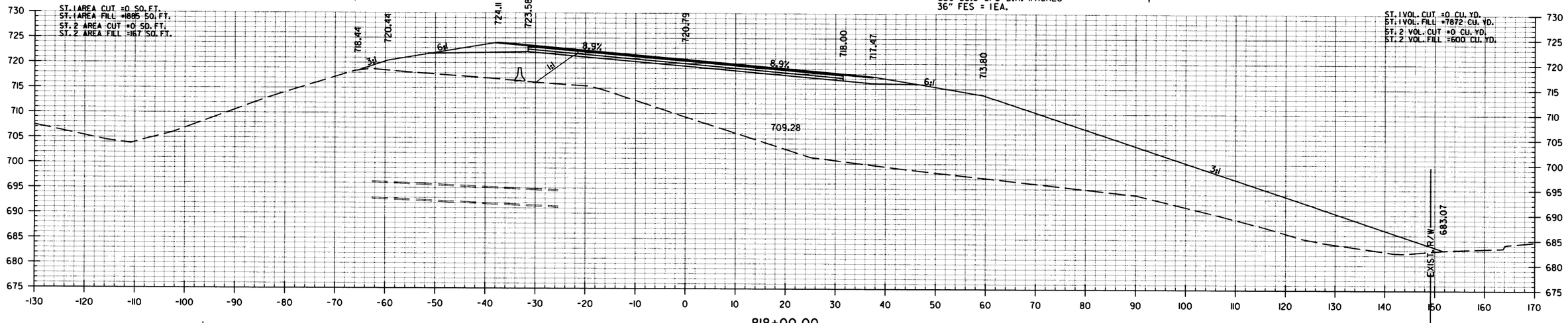
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	651	888
				(2)	CROSS SECTIONS			

STA. 818+24.23 IN PLACE
36"x 307' R.C. PIPE CULVERT
WITH HDWL. LT.
27° RT. FWD. SKEW
RETAIN AND INSTALL FES RT.
Q50=53.8 CFS D.A.=11 ACRES
36" FES = 1EA.

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =1885 SQ. FT.
ST. 2 AREA CUT =0 SQ. FT.
ST. 2 AREA FILL =167 SQ. FT.

ST. 1 VOL. CUT =0 CU. YD.
ST. 1 VOL. FILL =7872 CU. YD.
ST. 2 VOL. CUT =0 CU. YD.
ST. 2 VOL. FILL =600 CU. YD.

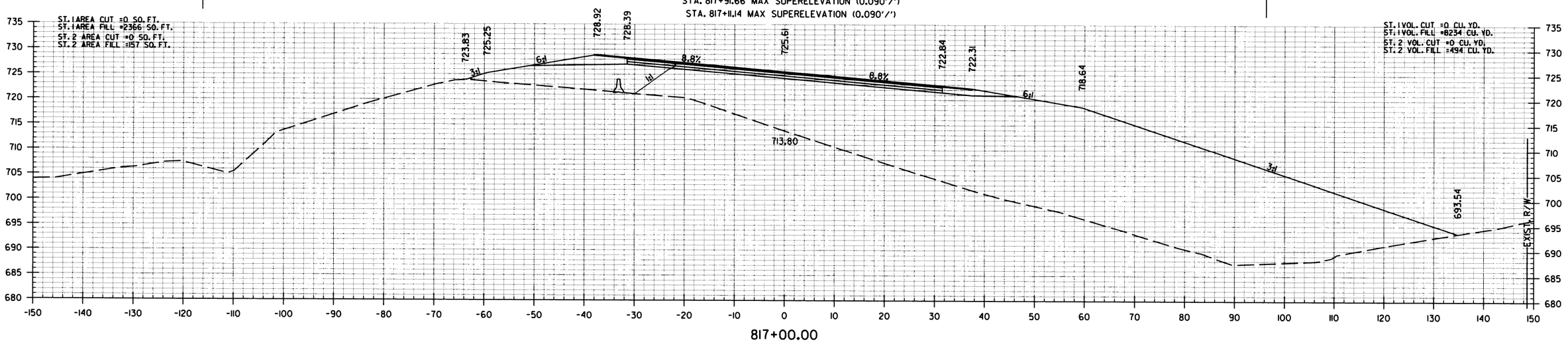


818+00.00

STA. 817+91.66 MAX SUPERELEVATION (0.090'/')
STA. 817+11.14 MAX SUPERELEVATION (0.090'/')

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =2366 SQ. FT.
ST. 2 AREA CUT =0 SQ. FT.
ST. 2 AREA FILL =157 SQ. FT.

ST. 1 VOL. CUT =0 CU. YD.
ST. 1 VOL. FILL =8234 CU. YD.
ST. 2 VOL. CUT =0 CU. YD.
ST. 2 VOL. FILL =494 CU. YD.



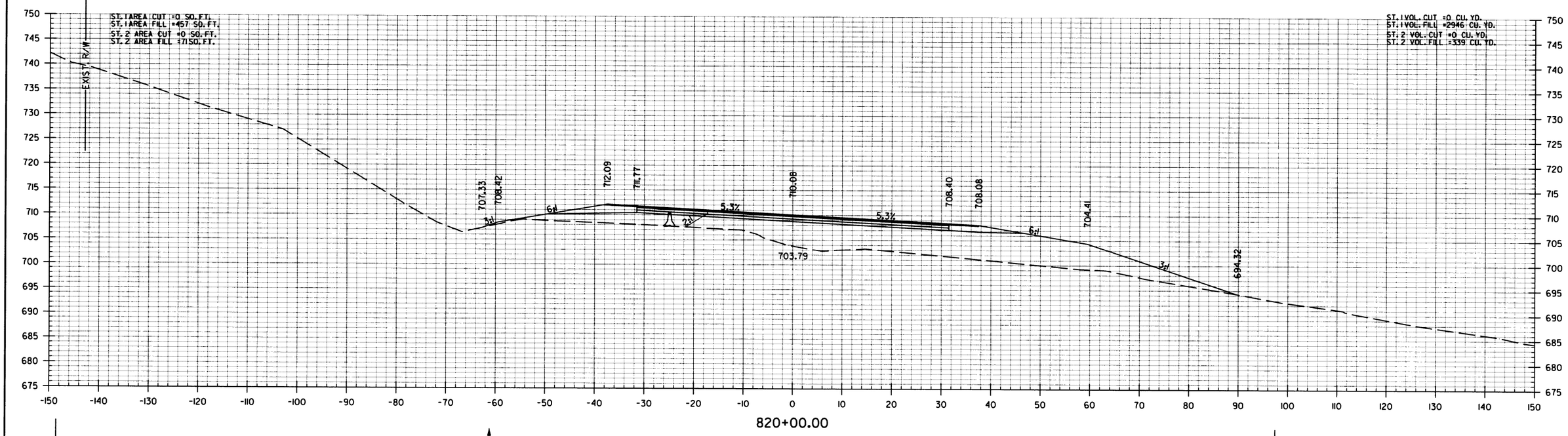
817+00.00

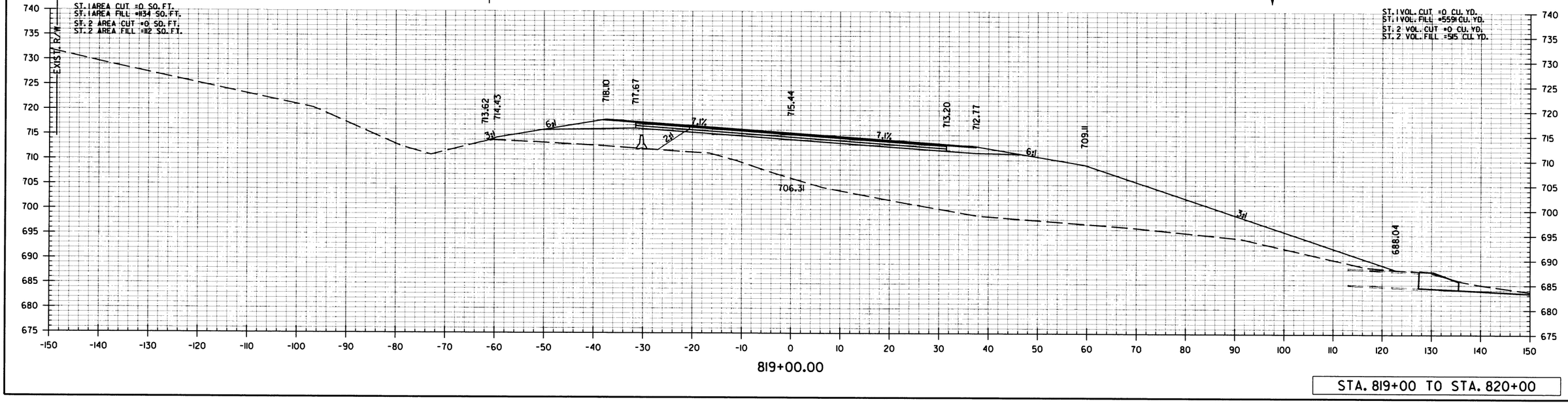
STA. 817+00 TO STA. 818+00

Leonard Speed 9/23/2016 11:25:08 AM
Workspace: Leonard Speed
c:\Users\bker_projects\Leonard_speed\d0211744\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	652	888
				(2)	CROSS SECTIONS			





STA. 819+00 TO STA. 820+00

Leonard Speed 9/27/2006 11:25:09 AM
WORKSPACE: leonard_speed
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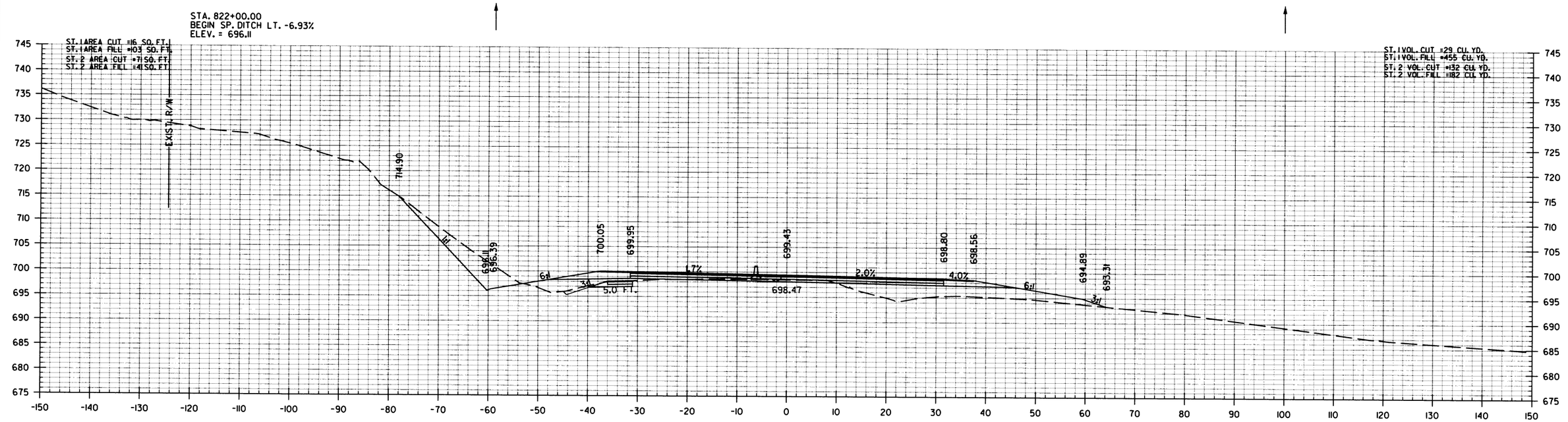
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	653	888

(2) CROSS SECTIONS



STA. 821+00 TO STA. 822+00

Leonard Speed 9/23/2016 11:25:11 AM
WORKSPACE: Leonard_Speed
c:\Users\Baker_Projects\Leonard_Speed\d0271744\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

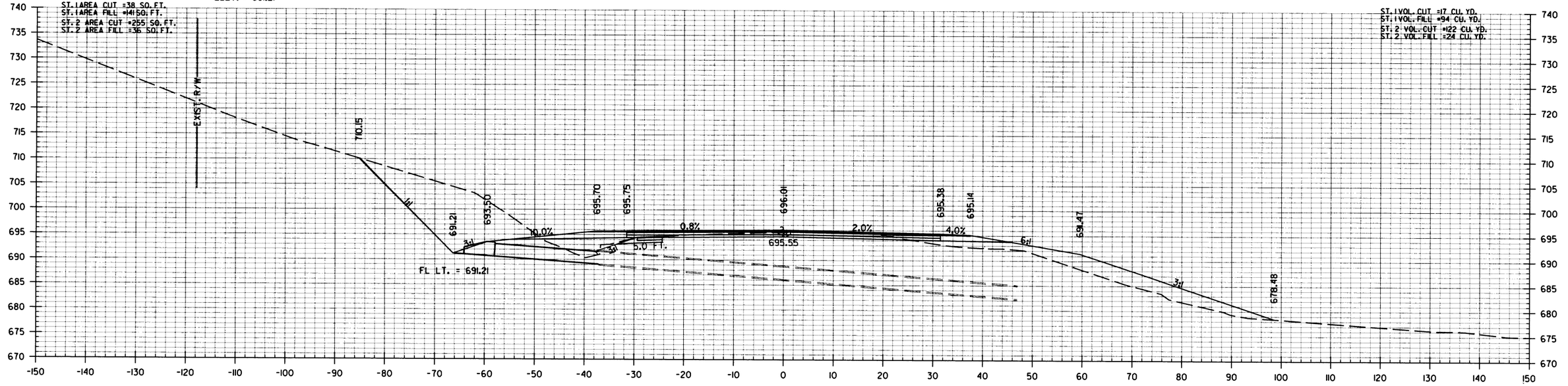
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	654	888
				(2)	CROSS SECTIONS			

STA. 822+70.75
END SP. DITCH LT. -6.93%
BEGIN SP. DITCH LT. 1.64%
ELEV. = 691.21

ST. 1 AREA CUT =38 SQ. FT.
ST. 1 AREA FILL =141 SQ. FT.
ST. 2 AREA CUT =255 SQ. FT.
ST. 2 AREA FILL =36 SQ. FT.

ST. 1 VOL. CUT =17 CU. YD.
ST. 1 VOL. FILL =94 CU. YD.
ST. 2 VOL. CUT =122 CU. YD.
ST. 2 VOL. FILL =24 CU. YD.

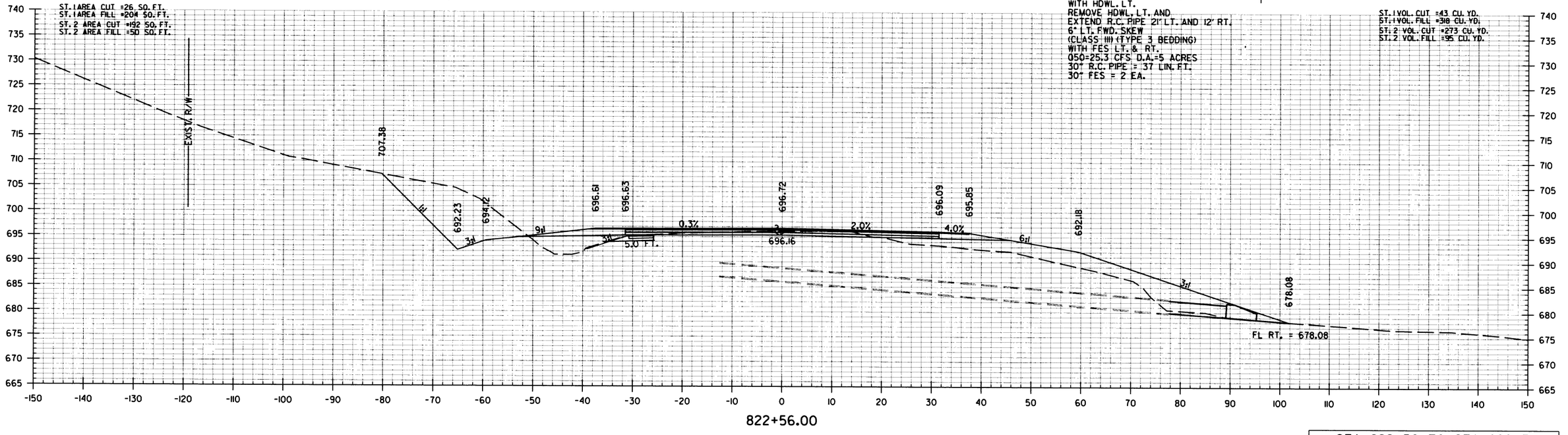


822+70.75

STA. 822+64.89 IN PLACE
30"X 115' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 21' LT. AND 12' RT.
6° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50=25.3 CFS D.A.=5 ACRES
30" R.C. PIPE = 37 LIN. FT.
30" FES = 2 EA.

ST. 1 AREA CUT =26 SQ. FT.
ST. 1 AREA FILL =204 SQ. FT.
ST. 2 AREA CUT =192 SQ. FT.
ST. 2 AREA FILL =50 SQ. FT.

ST. 1 VOL. CUT =43 CU. YD.
ST. 1 VOL. FILL =318 CU. YD.
ST. 2 VOL. CUT =273 CU. YD.
ST. 2 VOL. FILL =95 CU. YD.



822+56.00

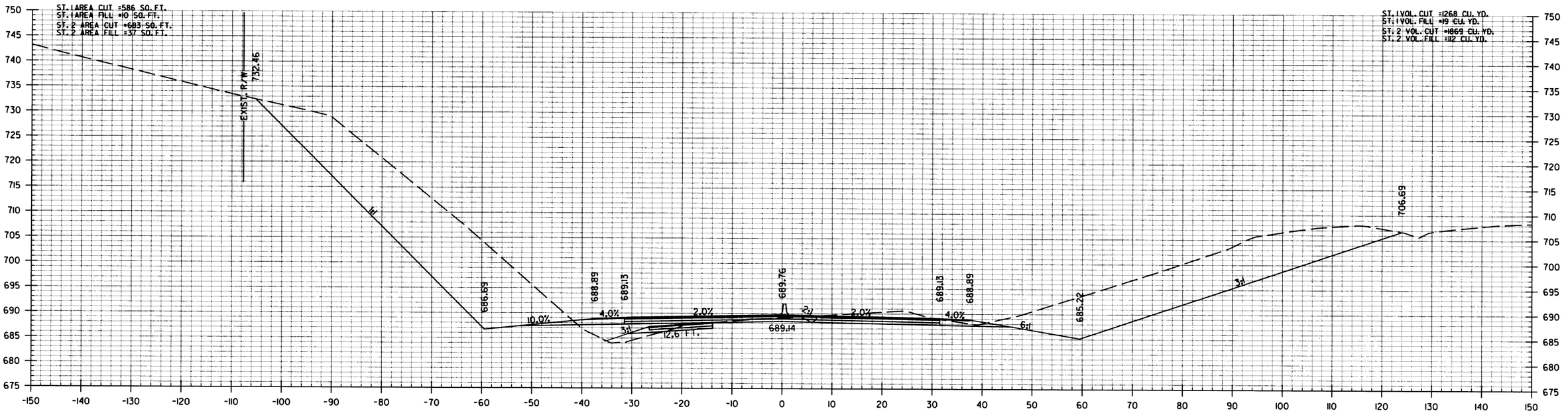
STA. 822+56 TO STA. 822+71

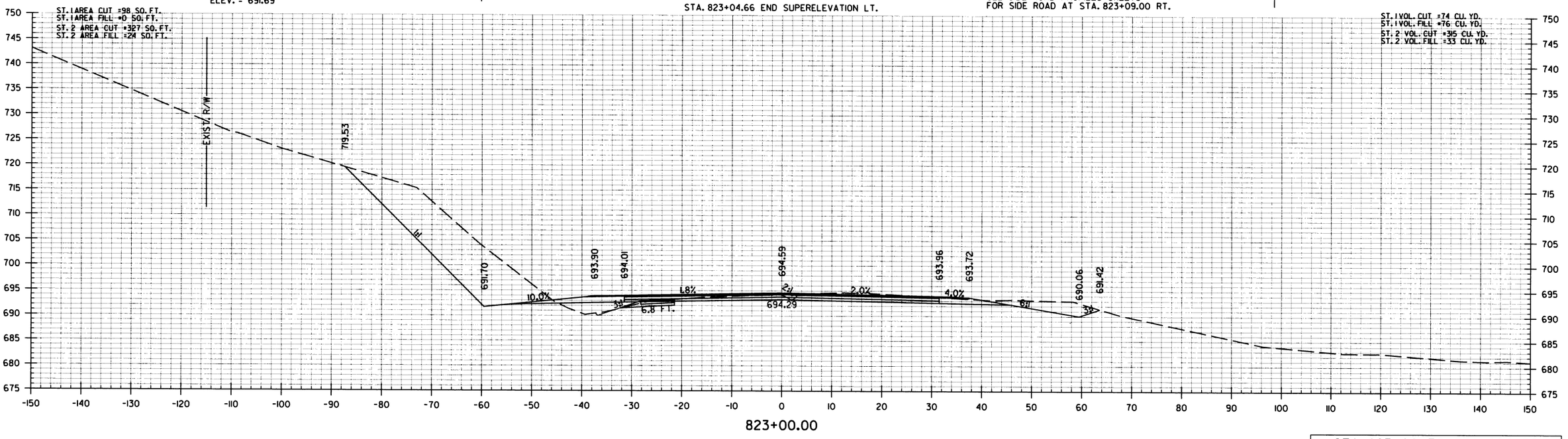
Leonard.Speed 9/23/2016 11:25:12 AM
W:\0606.21\Engineering\Contracts\Leonard.Speed\d0211744\rCA0606.21.CX.MAIN.001.dgn
d0211744 - Leonard Speed Contracts\Leonard.Speed\d0211744\rCA0606.21.CX.MAIN.001.dgn
cbowlin - Bowlin, Chad
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	655	888

(2) CROSS SECTIONS





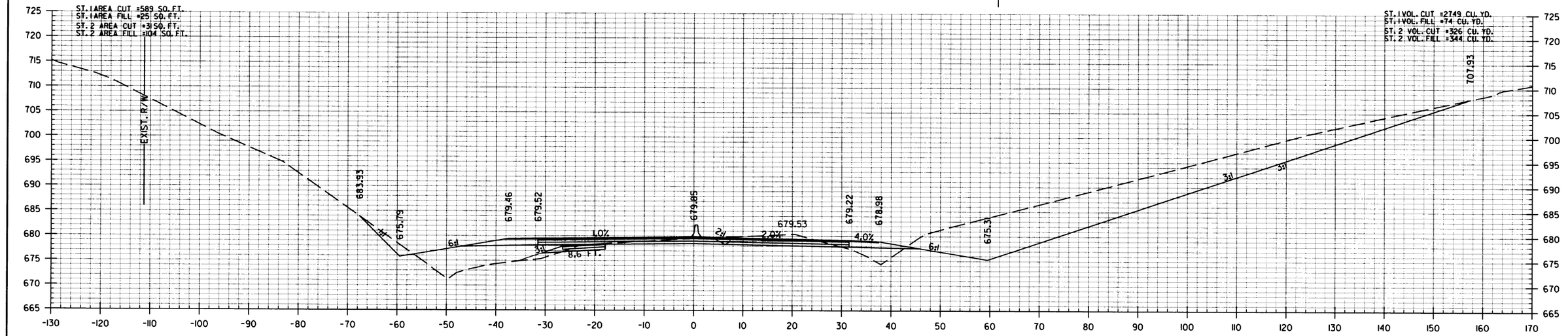
STA. 823+00 TO STA. 824+00

Leonard.Speed 9/23/2016 11:25:13 AM
WORKSPACE: Leonard.Speed
CONNECTION: Projects\Leonard.Speed\d027lT441\rCA0606.21.CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	656	888

(2) CROSS SECTIONS



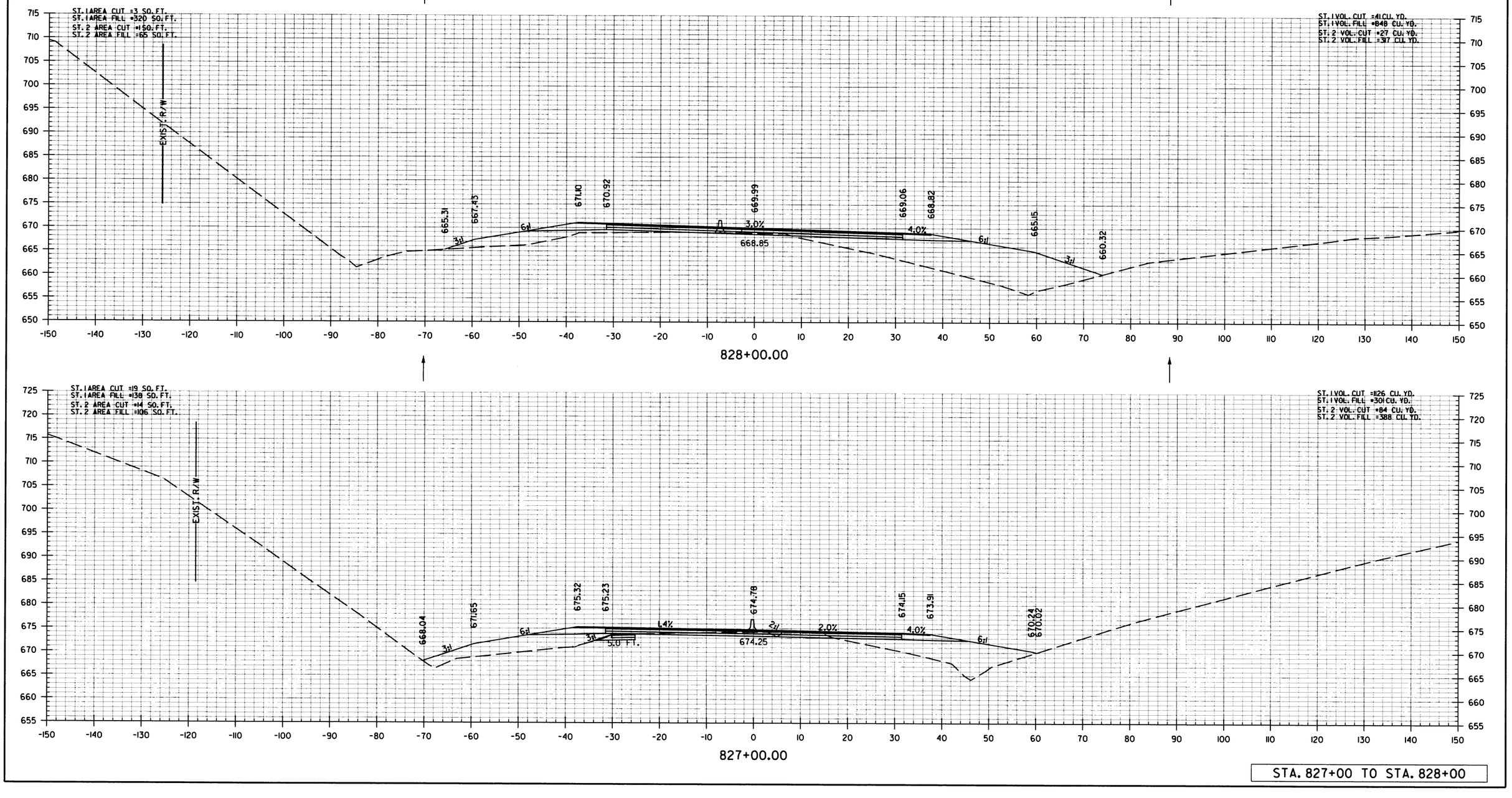
STA. 825+00 TO STA. 826+00

Leonard.Speed 9/23/2016 11:25:14 AM
WORKSPACE: Leonard.Speed
Current Drawing: C:\Projects\Leonard.Speed\d0217744\rCA0606.21.CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	657	888

(2) CROSS SECTIONS



STA. 827+00 TO STA. 828+00

LeonardSpeed 9/23/2016 11:25:15 AM
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

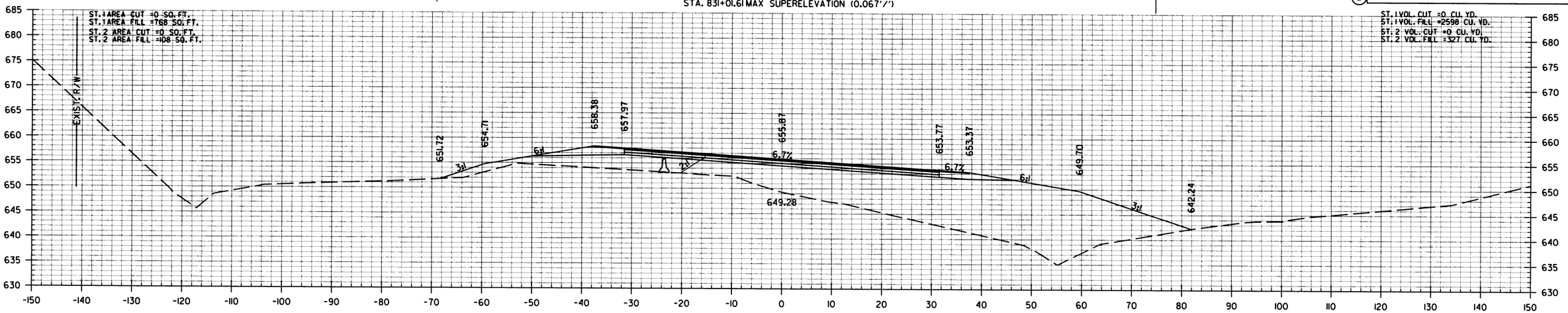
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	658	888

(2) CROSS SECTIONS

STA. 831+01.61 MAX SUPERELEVATION (0.067'/')

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =768 SQ. FT.
ST. 2 AREA CUT =0 SQ. FT.
ST. 2 AREA FILL =108 SQ. FT.

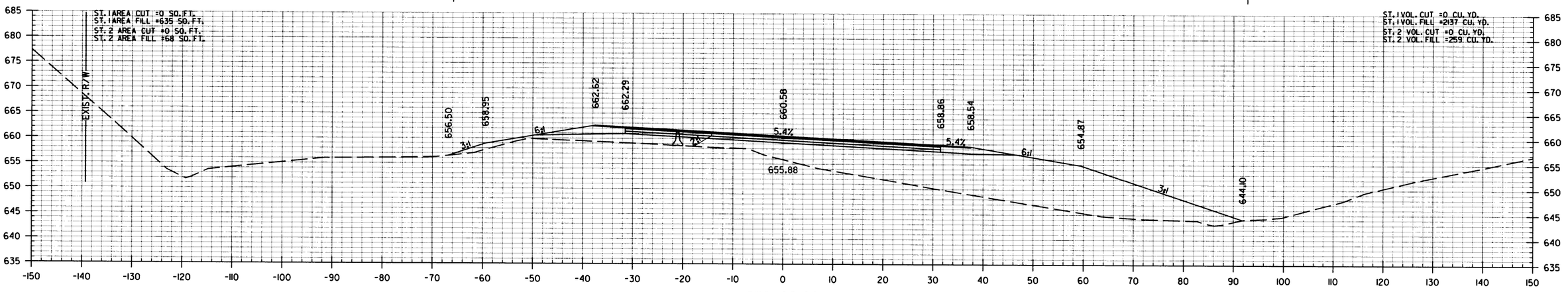
ST. 1 VOL. CUT =0 CU. YD.
ST. 1 VOL. FILL =2598 CU. YD.
ST. 2 VOL. CUT =0 CU. YD.
ST. 2 VOL. FILL =327 CU. YD.



831+00.00

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =635 SQ. FT.
ST. 2 AREA CUT =0 SQ. FT.
ST. 2 AREA FILL =68 SQ. FT.

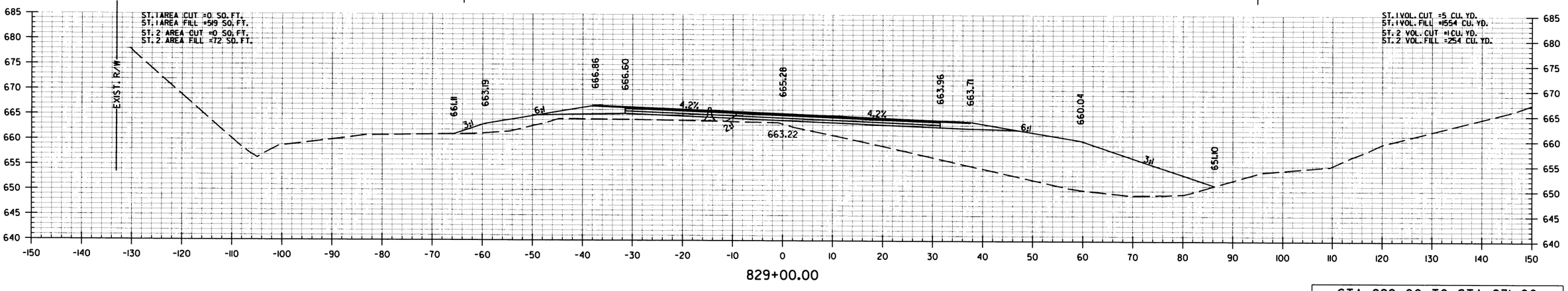
ST. 1 VOL. CUT =0 CU. YD.
ST. 1 VOL. FILL =2137 CU. YD.
ST. 2 VOL. CUT =0 CU. YD.
ST. 2 VOL. FILL =259 CU. YD.



830+00.00

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =549 SQ. FT.
ST. 2 AREA CUT =0 SQ. FT.
ST. 2 AREA FILL =72 SQ. FT.

ST. 1 VOL. CUT =5 CU. YD.
ST. 1 VOL. FILL =1554 CU. YD.
ST. 2 VOL. CUT =1 CU. YD.
ST. 2 VOL. FILL =254 CU. YD.



829+00.00

STA. 829+00 TO STA. 831+00

Leonard Speed 9/23/2016 11:25:17 AM
K:\Proj\CA0606\Design\Civil\Roadway\Sheets\CA0606_21_CX_MAIN_001.dgn
c:\pwwl81-local\baker_projects\leonard.speed\d0271744\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

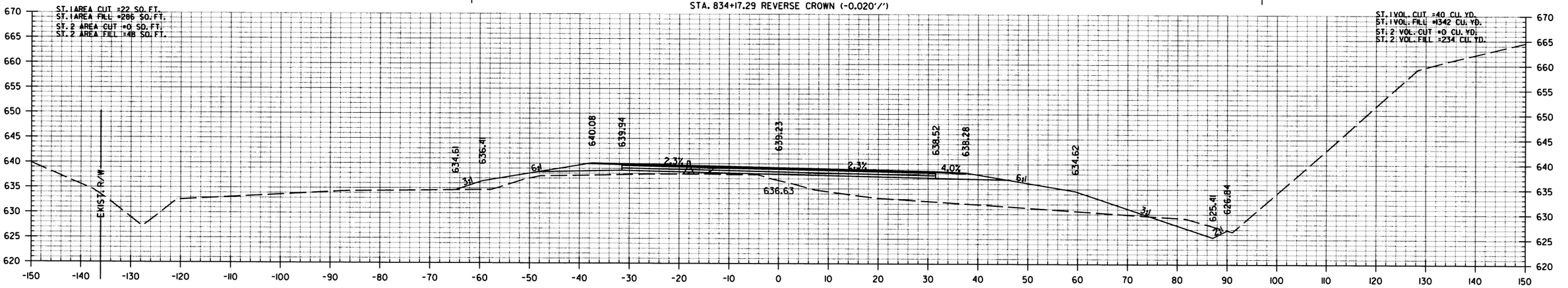
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	659	888
				(2)	CROSS SECTIONS			

STA. 834+36.41 BEGIN SUPERELEVATION RT.
STA. 834+17.29 REVERSE CROWN (-0.020'/')

ST. 1 AREA CUT =22 SQ. FT.
ST. 1 AREA FILL =286 SQ. FT.
ST. 2 AREA CUT =0 SQ. FT.
ST. 2 AREA FILL =48 SQ. FT.

ST. 1 VOL. CUT =40 CU. YD.
ST. 1 VOL. FILL =1342 CU. YD.
ST. 2 VOL. CUT =0 CU. YD.
ST. 2 VOL. FILL =234 CU. YD.

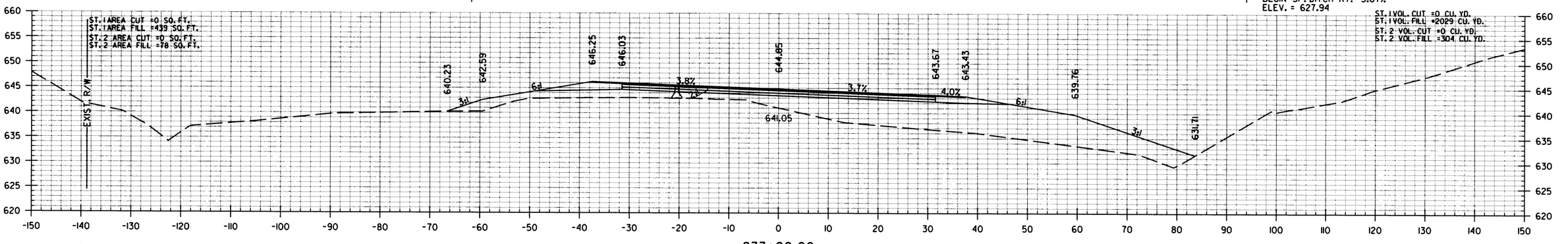


834+00.00

STA. 833+50.00
BEGIN SP. DITCH RT. -5.07%
ELEV. = 627.94

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =439 SQ. FT.
ST. 2 AREA CUT =0 SQ. FT.
ST. 2 AREA FILL =78 SQ. FT.

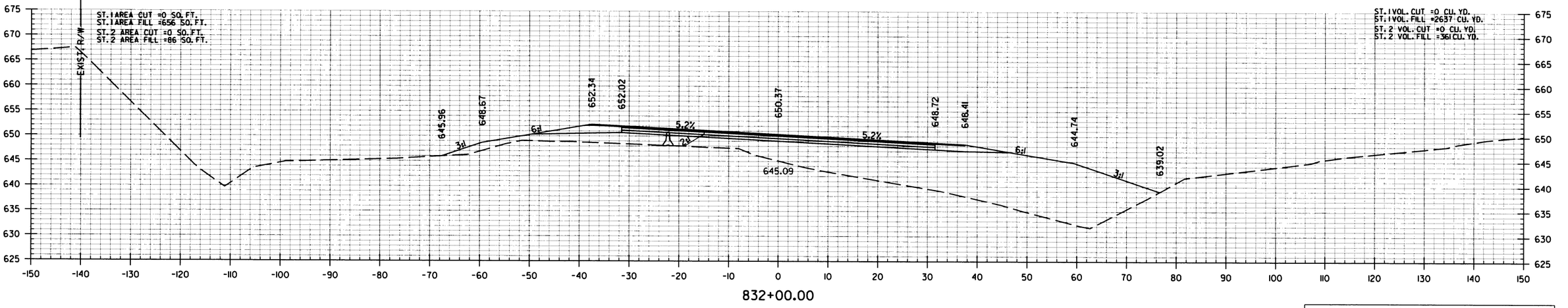
ST. 1 VOL. CUT =0 CU. YD.
ST. 1 VOL. FILL =2029 CU. YD.
ST. 2 VOL. CUT =0 CU. YD.
ST. 2 VOL. FILL =304 CU. YD.



833+00.00

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =656 SQ. FT.
ST. 2 AREA CUT =0 SQ. FT.
ST. 2 AREA FILL =86 SQ. FT.

ST. 1 VOL. CUT =0 CU. YD.
ST. 1 VOL. FILL =2637 CU. YD.
ST. 2 VOL. CUT =0 CU. YD.
ST. 2 VOL. FILL =361 CU. YD.



832+00.00

STA. 832+00 TO STA. 834+00

Leonard.Speed 9/23/2016 11:25:18 AM
WORKSPACE: Leonard.Speed
CONFIGURATION: C:\Projects\leonard.speed\d0217744\rCA0606_2i.CX.MAIN.001.dgn
REVISED DATE: **REVDATE**

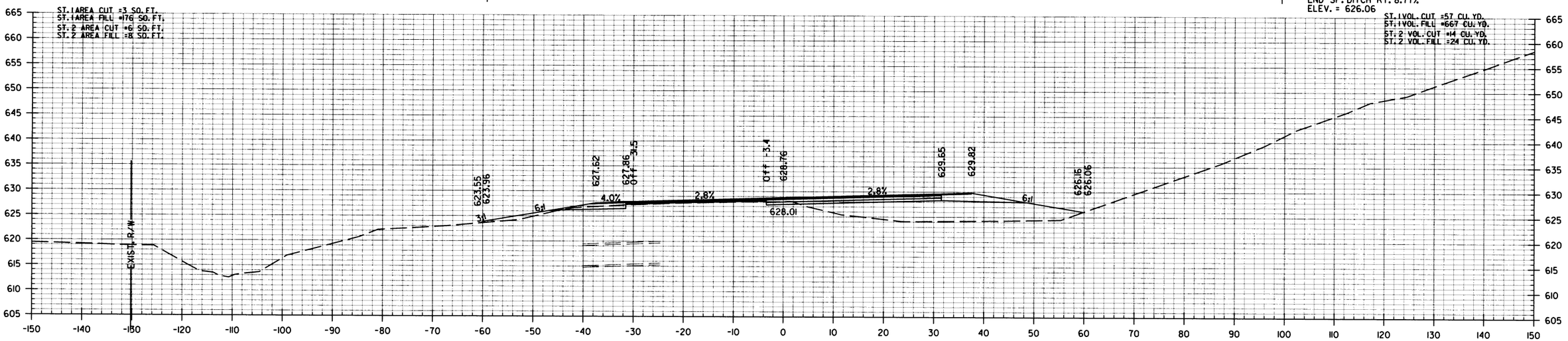
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	660	888
				(2)	CROSS SECTIONS			

ST. 1 AREA CUT =3 SQ. FT.
ST. 1 AREA FILL =176 SQ. FT.
ST. 2 AREA CUT =6 SQ. FT.
ST. 2 AREA FILL =8 SQ. FT.

STA. 836+00.00
END SP. DITCH RT. 8.77%
ELEV. = 626.06

ST. 1 VOL. CUT =57 CU. YD.
ST. 1 VOL. FILL =667 CU. YD.
ST. 2 VOL. CUT =14 CU. YD.
ST. 2 VOL. FILL =24 CU. YD.



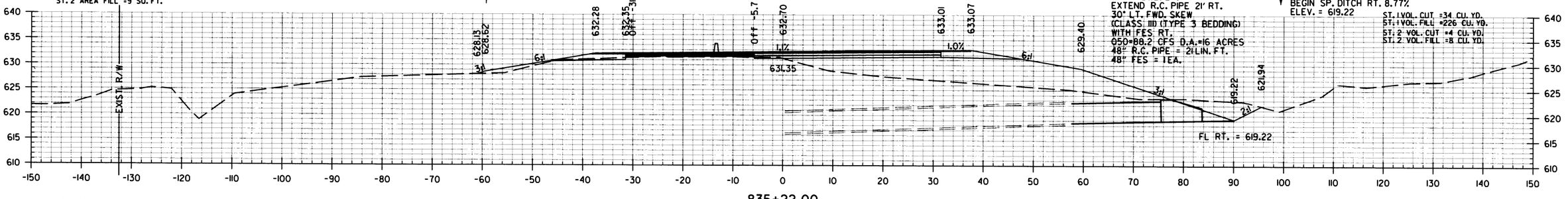
836+00.00
STA. 835+51.61 REVERSE CROWN (+0.020'/')
STA. 835+51.61 END SUPERELEVATION LT.

ST. 1 AREA CUT =36 SQ. FT.
ST. 1 AREA FILL =286 SQ. FT.
ST. 2 AREA CUT =3 SQ. FT.
ST. 2 AREA FILL =9 SQ. FT.

STA. 835+79.23 IN PLACE
48"X 167' R.C. PIPE CULVERT
WITH HDWL. LT.
EXTEND R.C. PIPE 21' RT.
30° LT. FWD. SKEW
(CLASS III (TYPE 3 BEDDING)
WITH FES RT.
Q50=88.2 CFS D.A.=16 ACRES
48" R.C. PIPE = 21 LIN. FT.
48" FES = 1EA.

STA. 835+22.00
END SP. DITCH RT. -5.07%
BEGIN SP. DITCH RT. 8.77%
ELEV. = 619.22

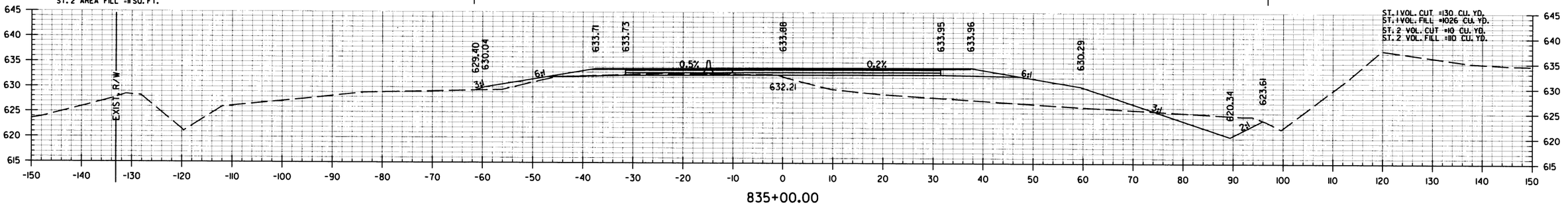
ST. 1 VOL. CUT =34 CU. YD.
ST. 1 VOL. FILL =226 CU. YD.
ST. 2 VOL. CUT =4 CU. YD.
ST. 2 VOL. FILL =8 CU. YD.



835+22.00

ST. 1 AREA CUT =48 SQ. FT.
ST. 1 AREA FILL =268 SQ. FT.
ST. 2 AREA CUT =5 SQ. FT.
ST. 2 AREA FILL =11 SQ. FT.

ST. 1 VOL. CUT =130 CU. YD.
ST. 1 VOL. FILL =1026 CU. YD.
ST. 2 VOL. CUT =10 CU. YD.
ST. 2 VOL. FILL =110 CU. YD.



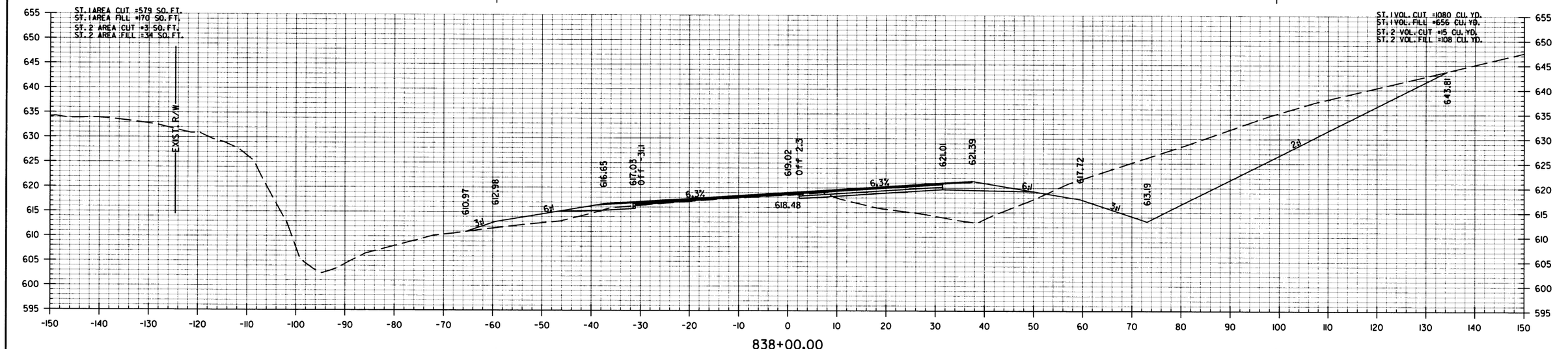
835+00.00

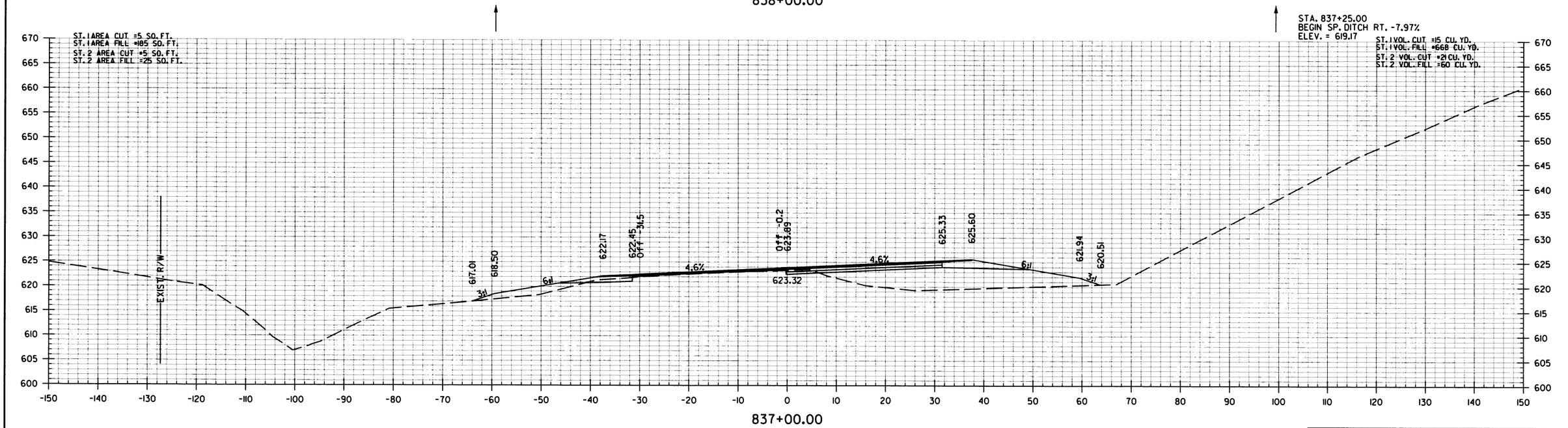
STA. 835+00 TO STA. 836+00

LeonardSpeed 9/23/2016 11:25:19 AM
MicroStation V8i (SELECTseries 3) (08.11.09.443)
c:\dww81~local\baker~1\projects\leonard_speed\d027l744\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	661	888
				(2)	CROSS SECTIONS			





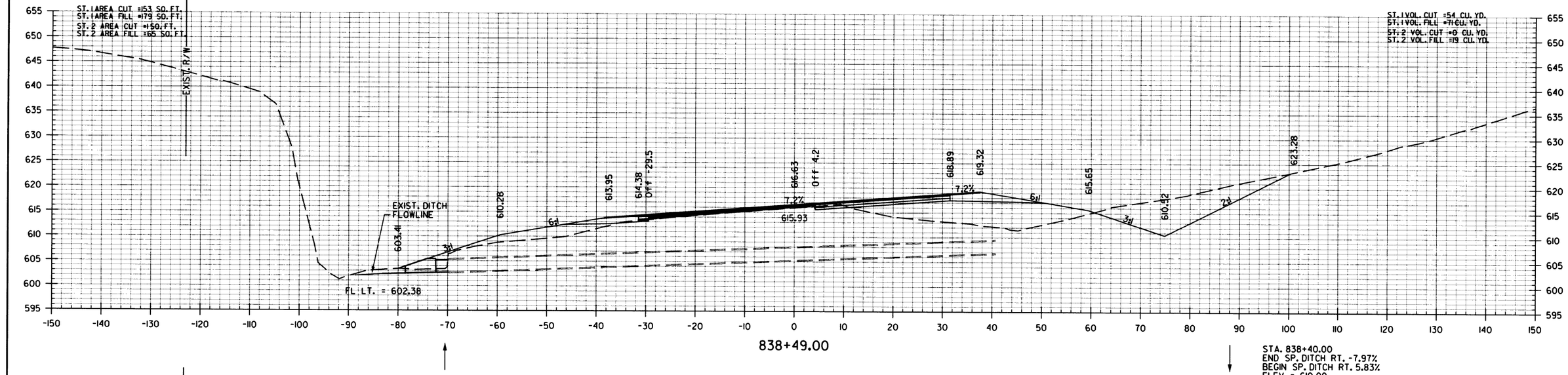
STA. 837+00 TO STA. 838+00

Leonard Speed 9/23/2016 11:25:20 AM
W:\0606.21 Leonard Speed\Projects\Leonard speed\d0271744\vr-CA0606.21_CX_MAIN_001.dgn
CIVIL\Roadway\Cross Sections\
REVISED DATE: **REVDATE**

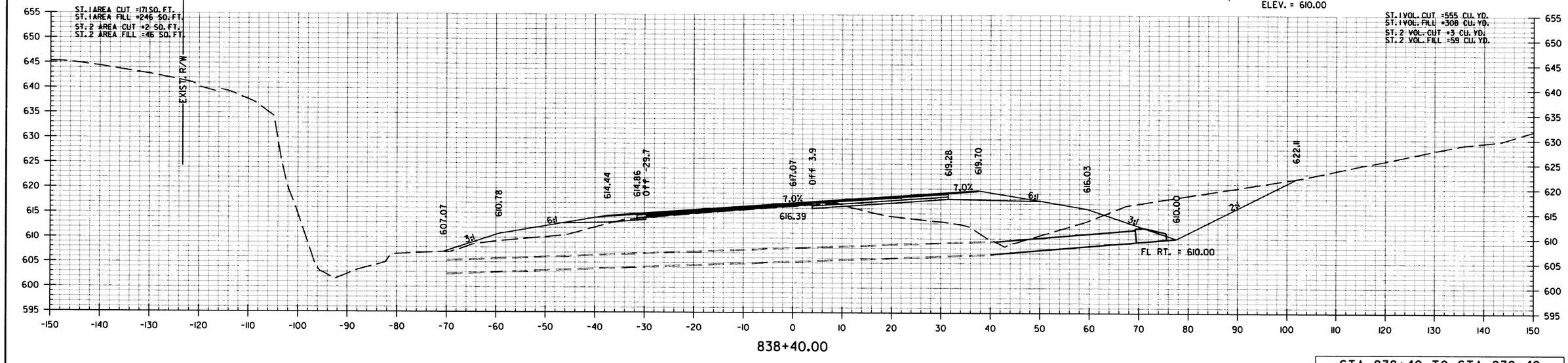
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	662	888
				(2)	CROSS SECTIONS			

STA. 838+44.16 IN PLACE
30"X III' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 3' LT. AND 29' RT.
4° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
050=20.7 CFS D.A.=4 ACRES
30" R.C. PIPE = 36 LIN. FT.
30" FES = 2 EA.



STA. 838+40.00
END SP. DITCH RT. -7.97%
BEGIN SP. DITCH RT. 5.83%
ELEV. = 610.00



STA. 838+40 TO STA. 838+49

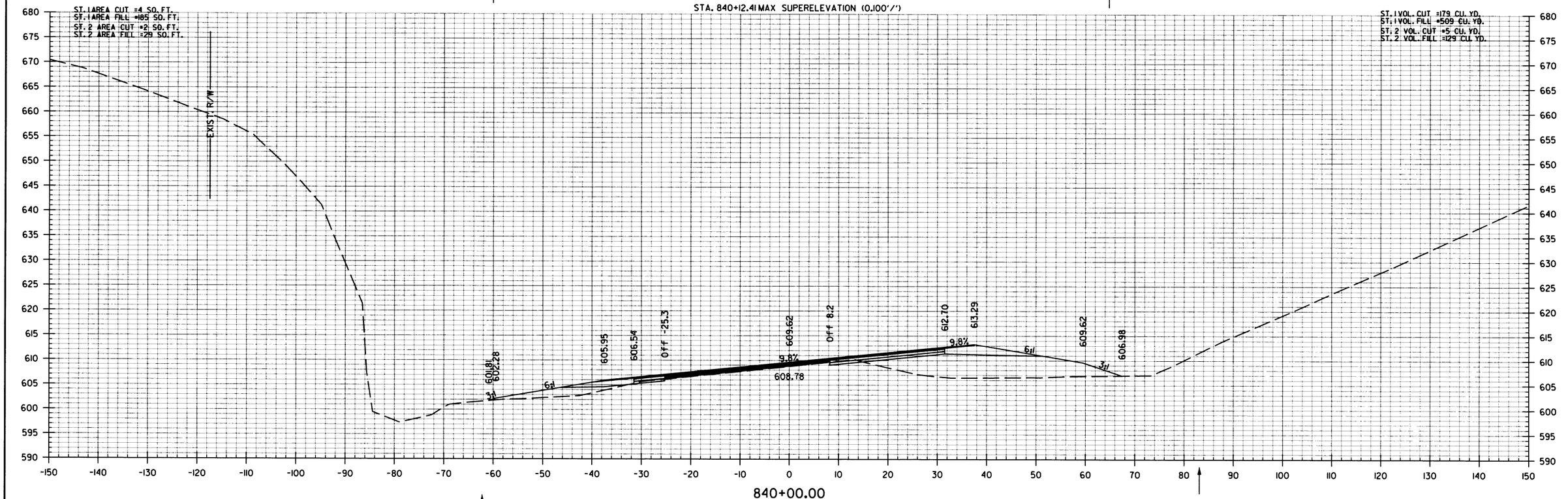
Leonard.Speed 9/23/2016 11:25:22 AM
WORKSPACE: Leonard.Speed
CONNECTION: Documents\leonard.speed\d027f744\rCA0606_2i.CX.MAIN.001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	663	888

(2) CROSS SECTIONS



STA. 839+00 TO STA. 840+00

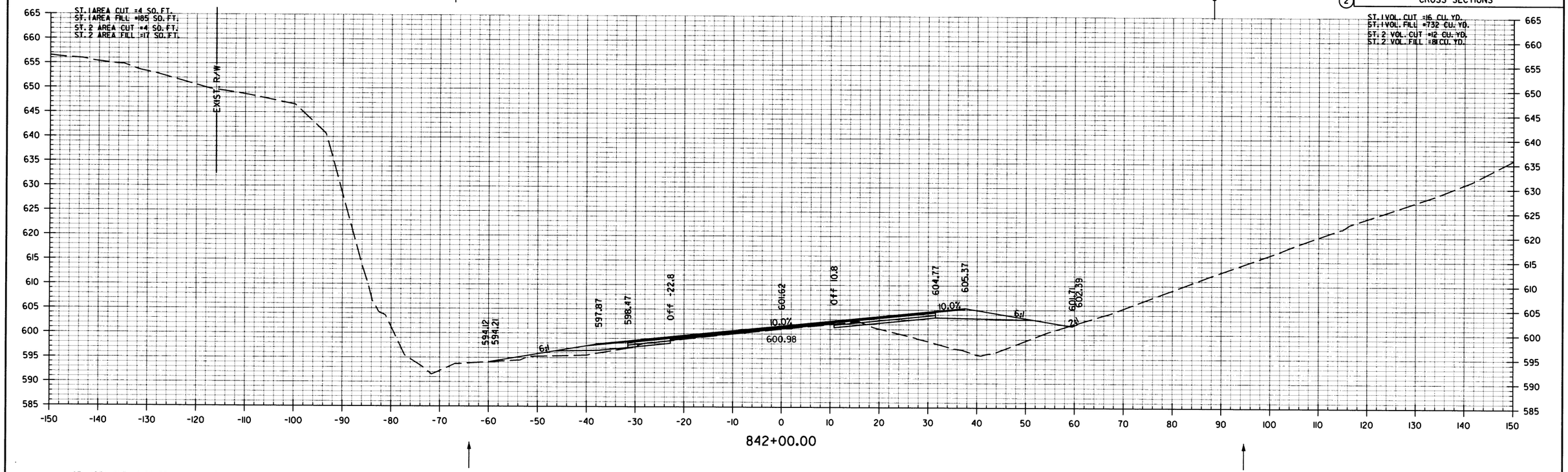
LeonardSpeed 9/23/2016 11:25:23 AM
WORKSPACE: Leonard_Speed
c:\pw\81-local\baker_projects\leonard.speed\d0211744\vr-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

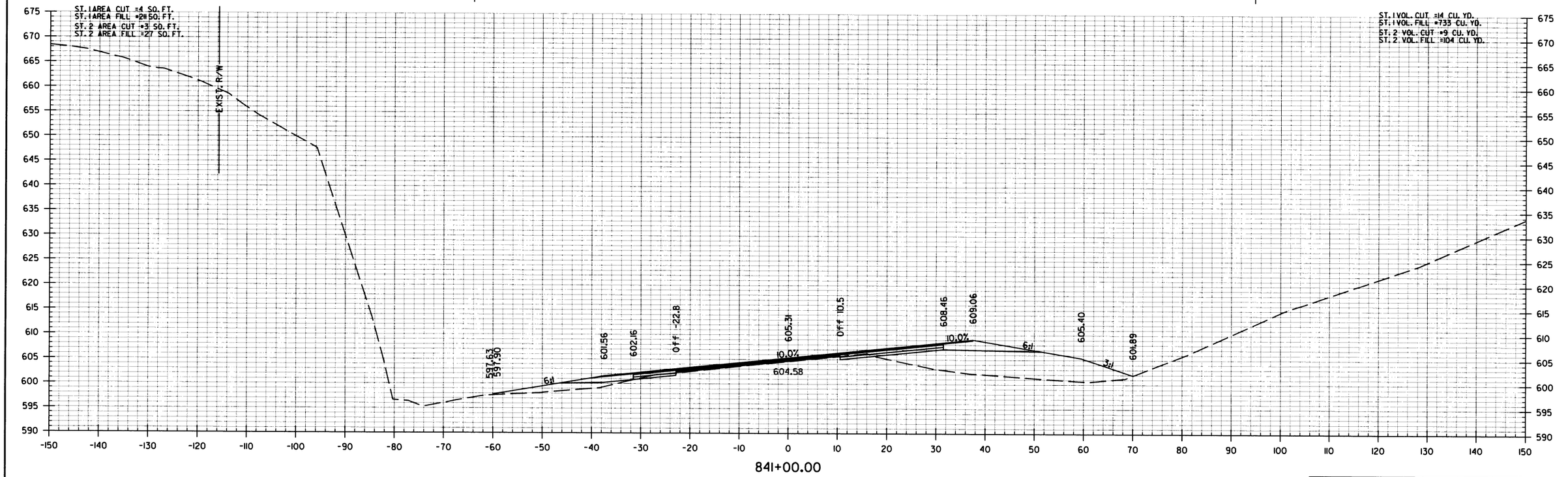
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	664	888

(2) CROSS SECTIONS





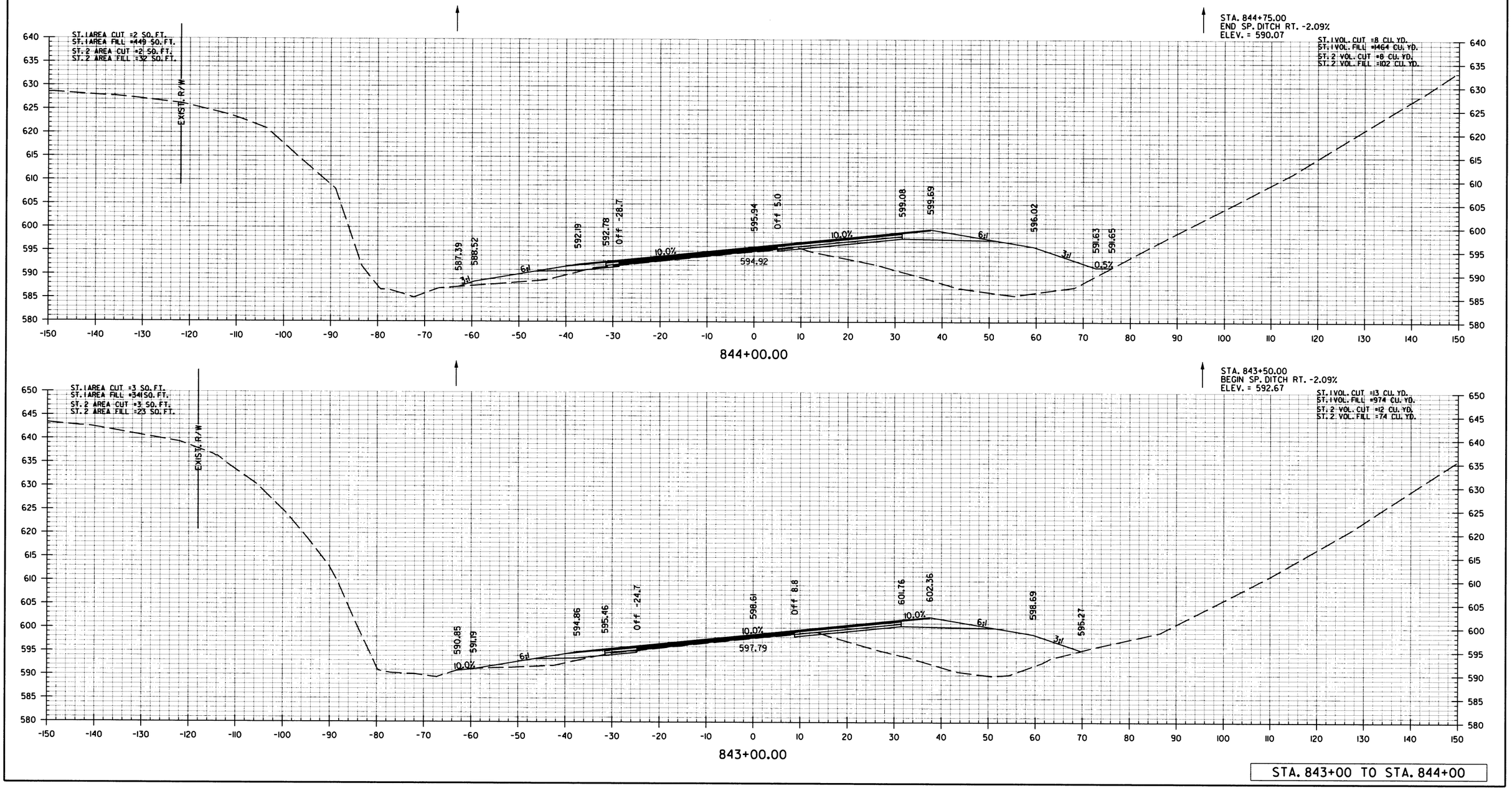
STA. 841+00 TO STA. 842+00

LeonardSpeed 9/23/2016 11:25:24 AM
WORKSPACE: Leonard_Speed
c:\pw\81-local\baker_projects\leonard_speed\d0271744\vr-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	665	888

(2) CROSS SECTIONS

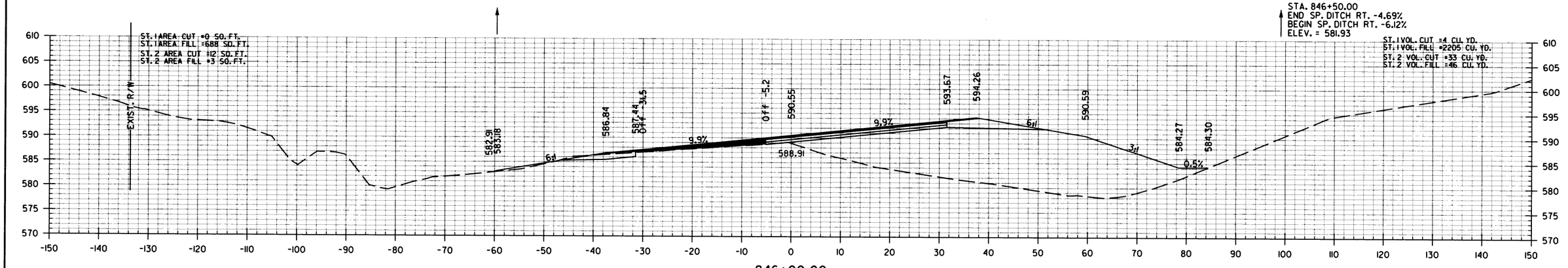


STA. 843+00 TO STA. 844+00

Leonard Speed 9/23/2016 11:25:25 AM
MicroStation V8i (SELECTseries 3)
c:\pw\81-local\baker.projects\leonard.speed\d0271741\r-CA0606.21.CX_MAIN_00.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	666	888
				(2)	CROSS SECTIONS			



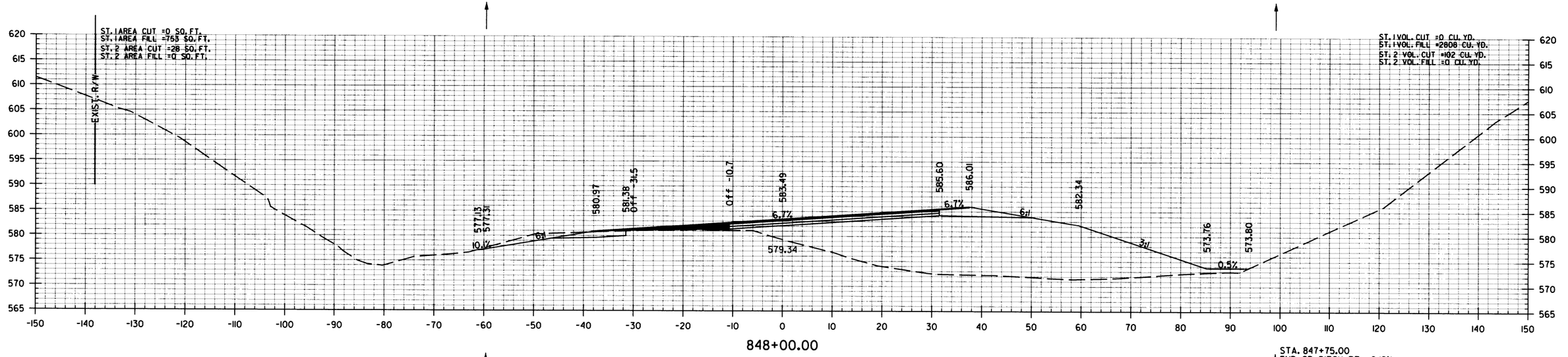
STA. 845+00 TO STA. 846+00

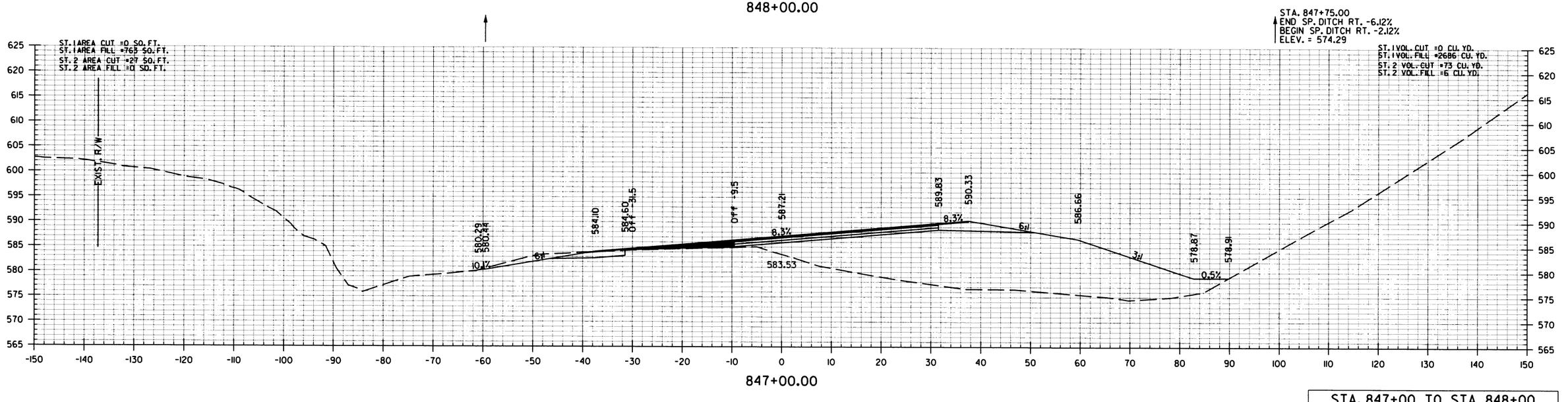
Leonard Speed 9/23/2016 11:25:26 AM
K:\Work\Corridor Design\Leonard Speed\
c:\pw\81-local\baker.dgnlib
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	667	888

(2) CROSS SECTIONS



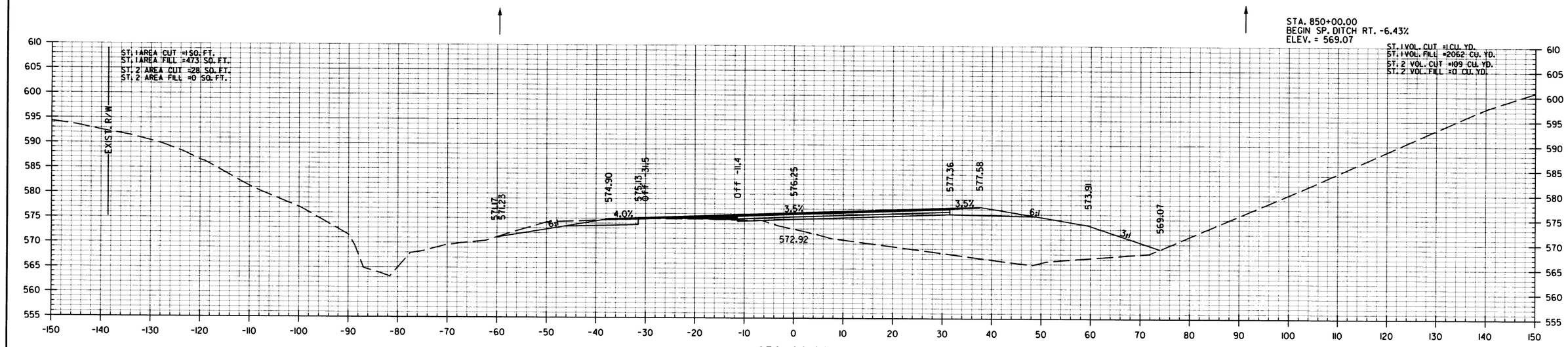


STA. 847+00 TO STA. 848+00

Leonard.Speed 9/23/2016 11:25:28 AM
WORKSPACE: Leonard.Speed
USER NAME: Leonard.Speed
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	668	888
				(2)	CROSS SECTIONS			



STA. 849+00 TO STA. 850+00

Leonard.Speed 9/23/2016 11:25:29 AM
W:\Work\Active Projects\Leonard.Speed\d0217744\r-CA0606.2i..CX_MAIN_001.dgn
Leonard.Speed
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

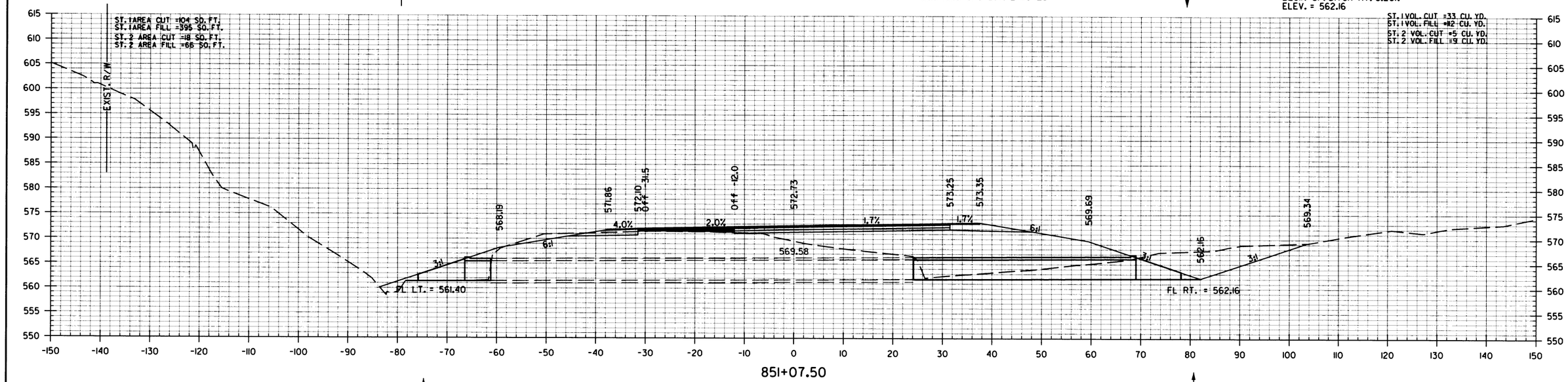
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	669	888

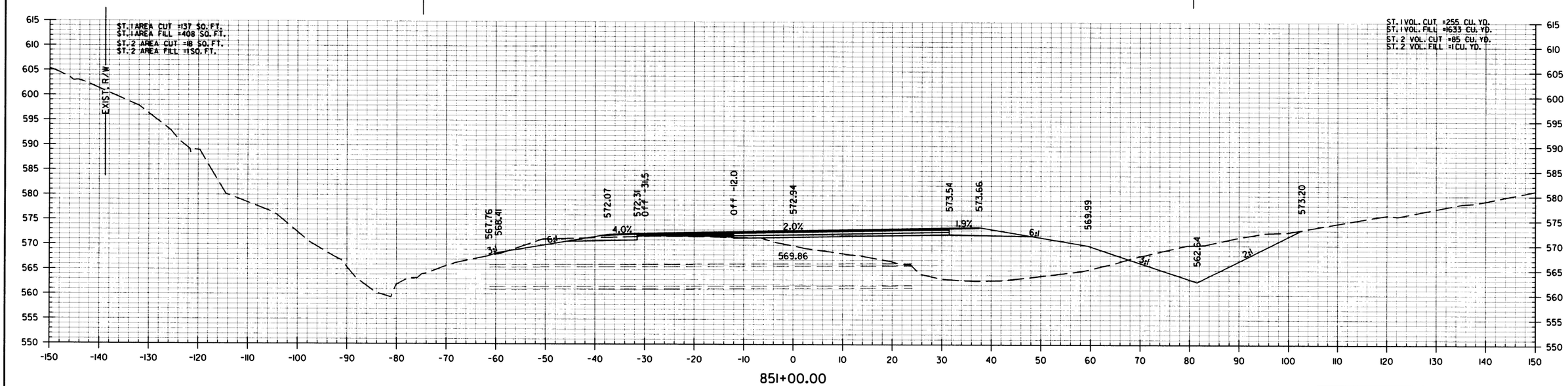
(2) CROSS SECTIONS

STA. 851+07.50 IN PLACE
DOUBLE 5' X 4' X 85' R.C. BOX CULVERT
WITH 3:1 WINGS LT.
RETAIN AND
EXTEND 4' LT. AND 44' RT.
Q50=101.5 CFS D.A.=21 ACRES

STA. 851+68.75
END SP. DITCH RT. 8.26%
ELEV. = 567.22

STA. 851+07.50
END SP. DITCH RT. -6.43%
BEGIN SP. DITCH RT. 8.26%
ELEV. = 562.16





STA. 851+00 TO STA. 851+08

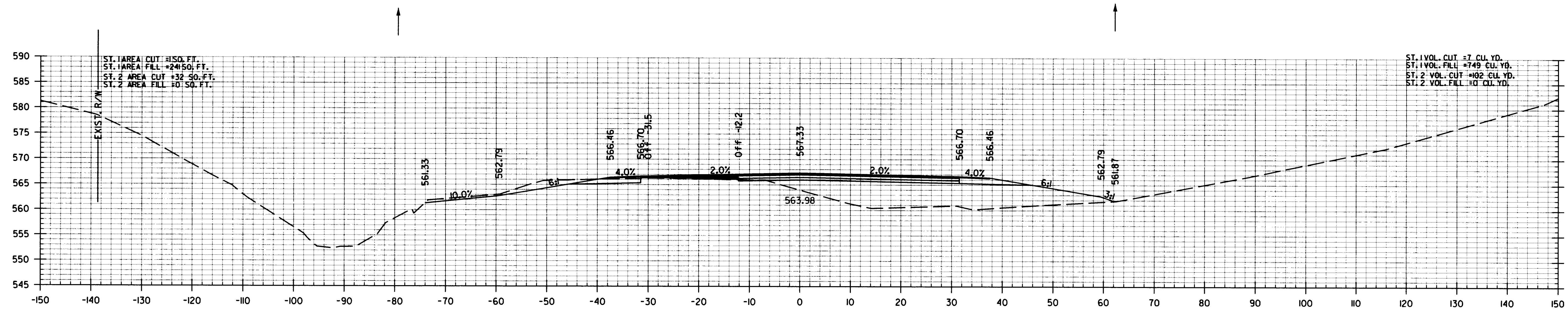
Leonard,Speed 9/23/2016 11:25:30 AM
WORKSPACE: Leonard,Speed
CLOSURE: Leonard,Speed
REVISED DATE: ##REVDATE##

C:\Projects\Leonard,Speed\d0271741\r-CA0606.21.CX_MAIN_001.dgn

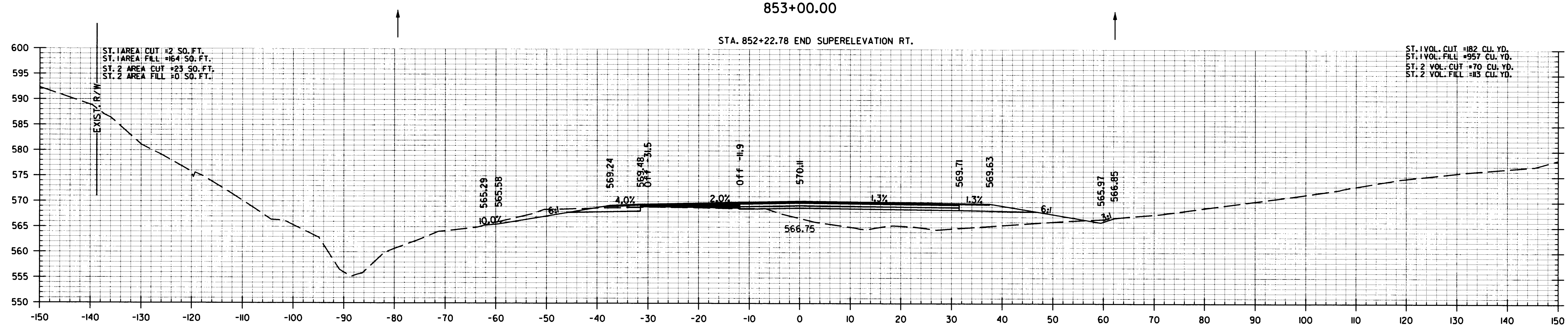
Michael Baker
INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	670	888

(2) CROSS SECTIONS



853+00.00



852+00.00

STA. 852+00 TO STA. 853+00

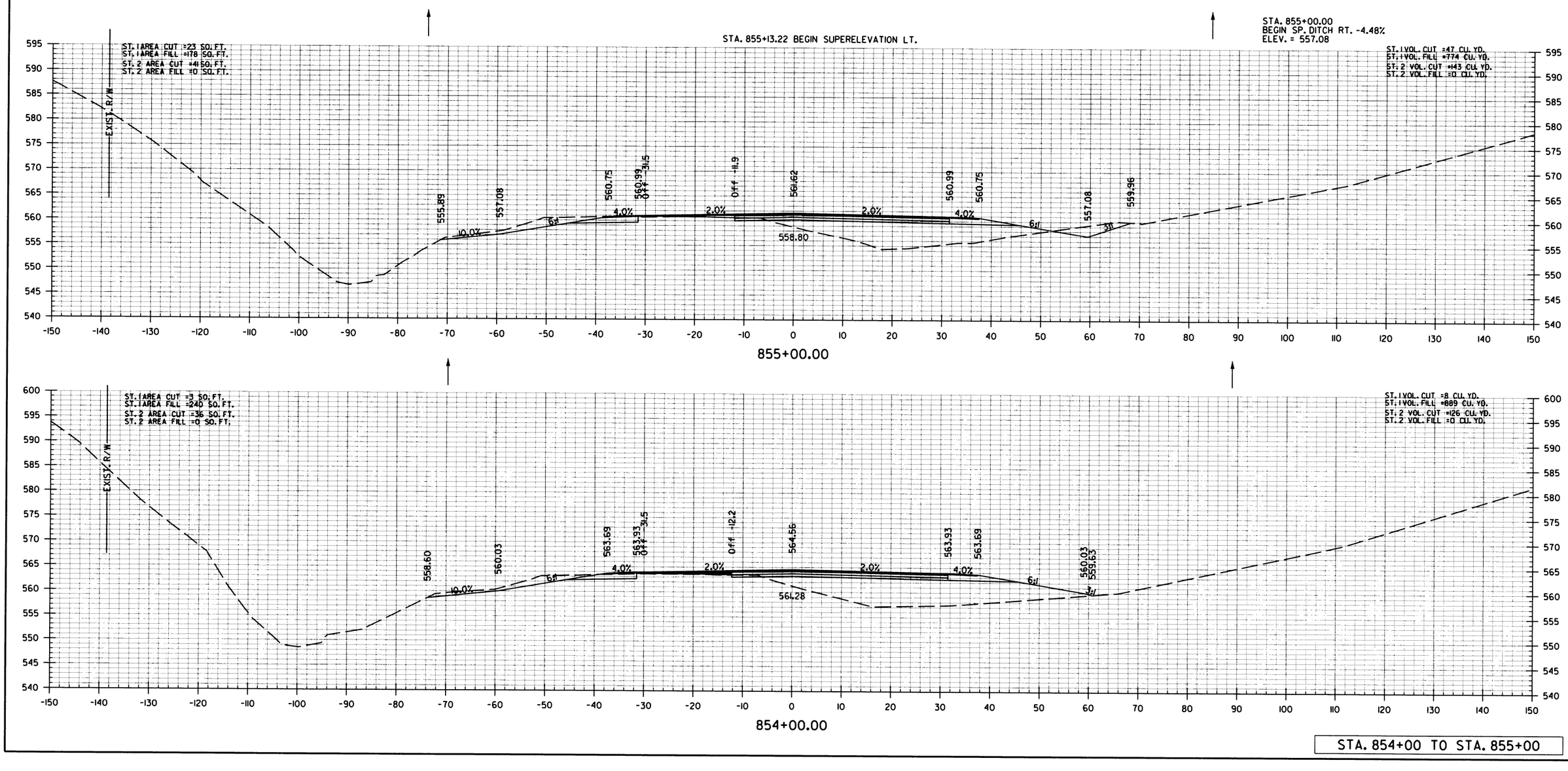
Leonard.Speed 9/23/2016 11:25:31 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	671	888

(2) CROSS SECTIONS



STA. 854+00 TO STA. 855+00

Leonard.Speed 9/23/2016 11:25:33 AM
WORKSPACE: Leonard.Speed
CONFIGURATION: Projects\Leonard.Speed\d0217f41\rCA0606.21.CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

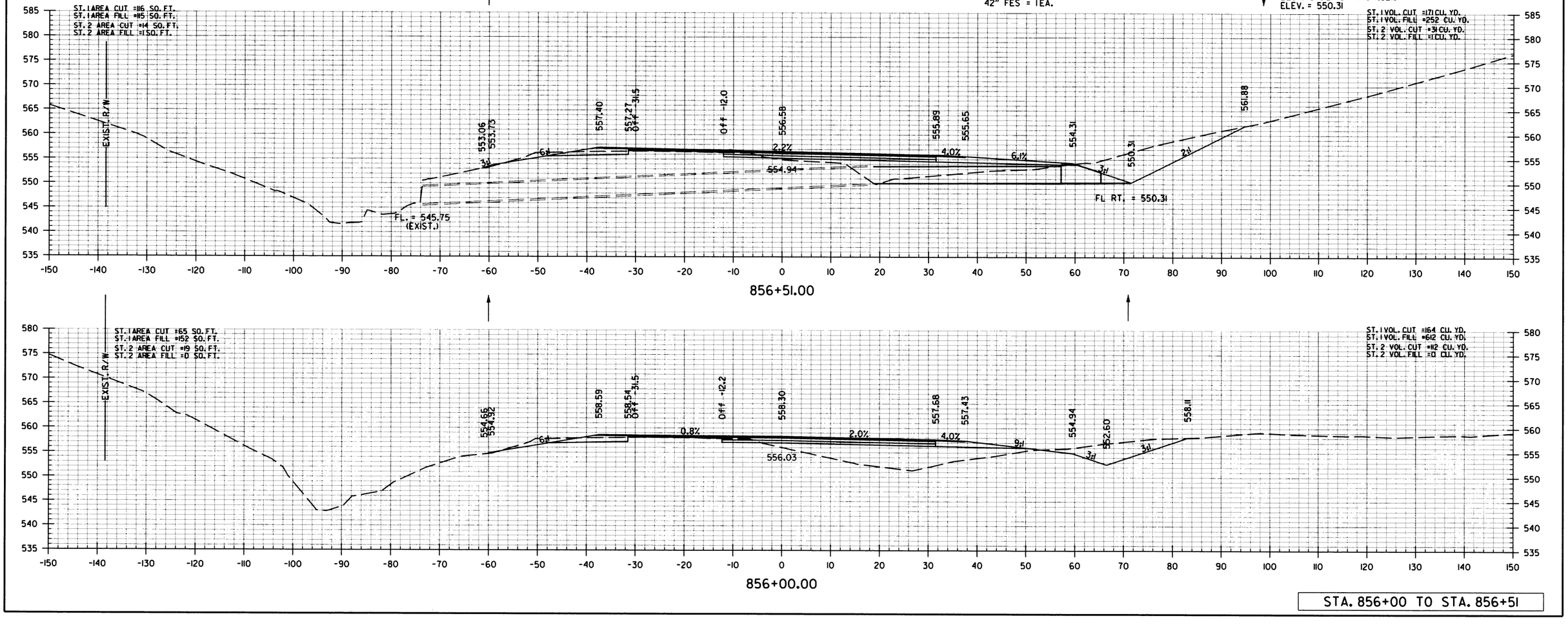
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	672	888

(2) CROSS SECTIONS

STA. 856+51.00 IN PLACE
42"X 92' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWL. RT. AND
EXTEND R.C. PIPE 39' RT.
(CLASS IV) (TYPE 3 BEDDING)
WITH FES RT.
Q50=47.0 CFS D.A.=10 ACRES
42" R.C. PIPE = 43 LIN. FT.
42" FES = 1EA.

STA. 856+80.00
END SP. DITCH RT. 7.92%
ELEV. = 552.61

STA. 856+51.00
END SP. DITCH RT. -4.48%
BEGIN SP. DITCH RT. 7.92%
ELEV. = 550.31



STA. 856+00 TO STA. 856+51

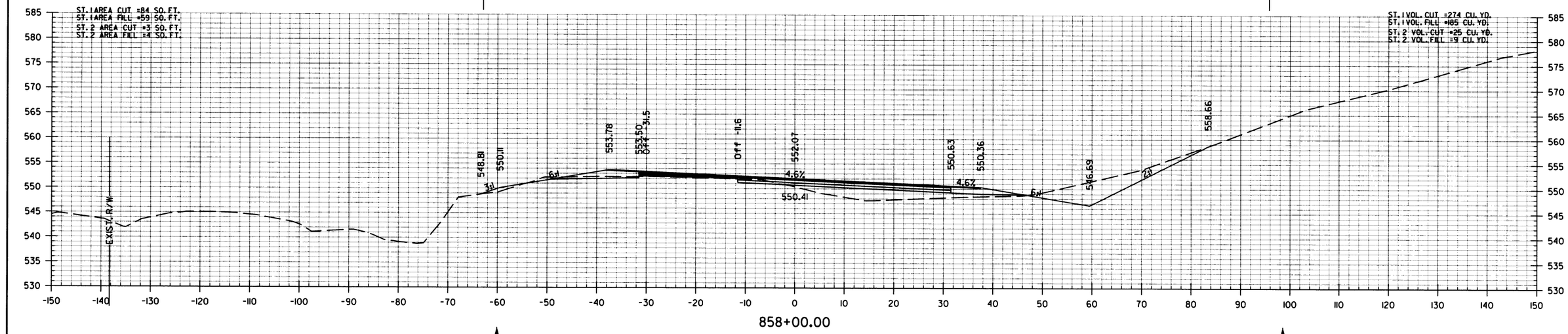
LeonardSpeed 9/23/2016 11:25:34 AM
WORKSPACE: K:\ow81-local\baker-projects\leonard-speed\d027l744\r-CA0606.21.CX.MAIN_001.dgn
REVISED DATE: $$REVDATE$$

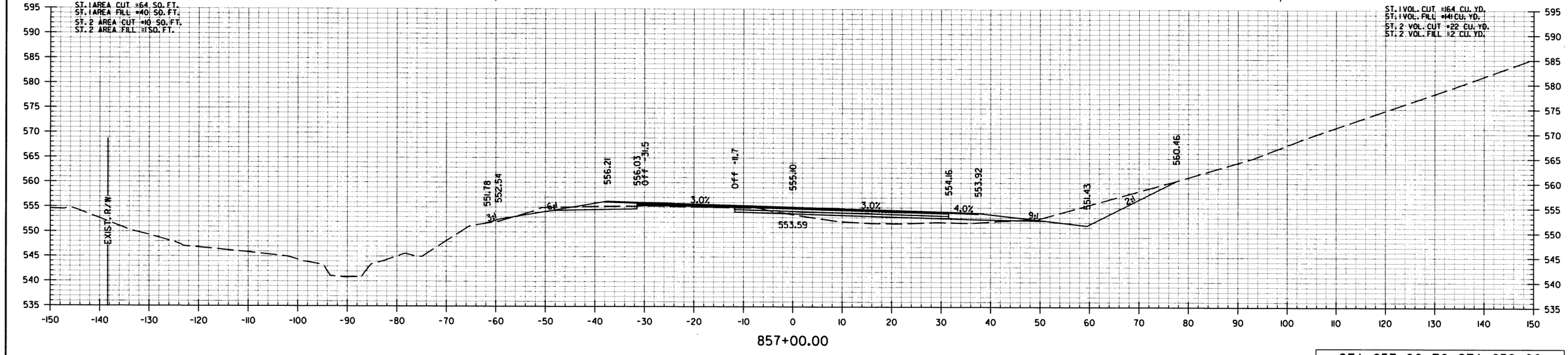
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	673	888

(2) CROSS SECTIONS





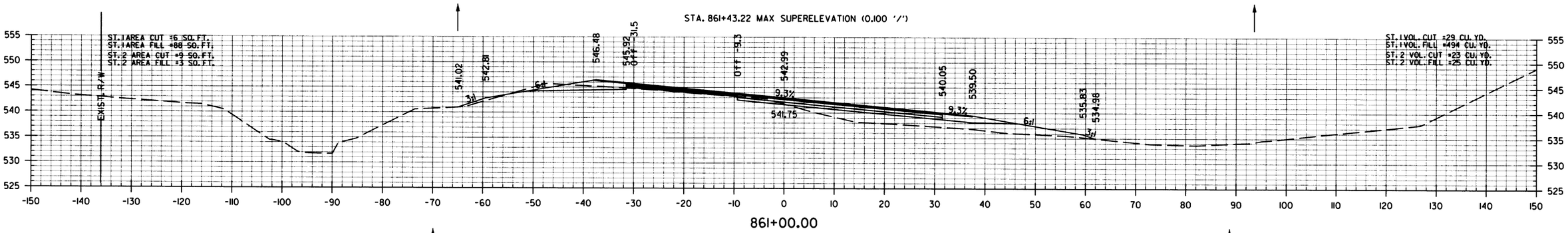
STA. 857+00 TO STA. 858+00

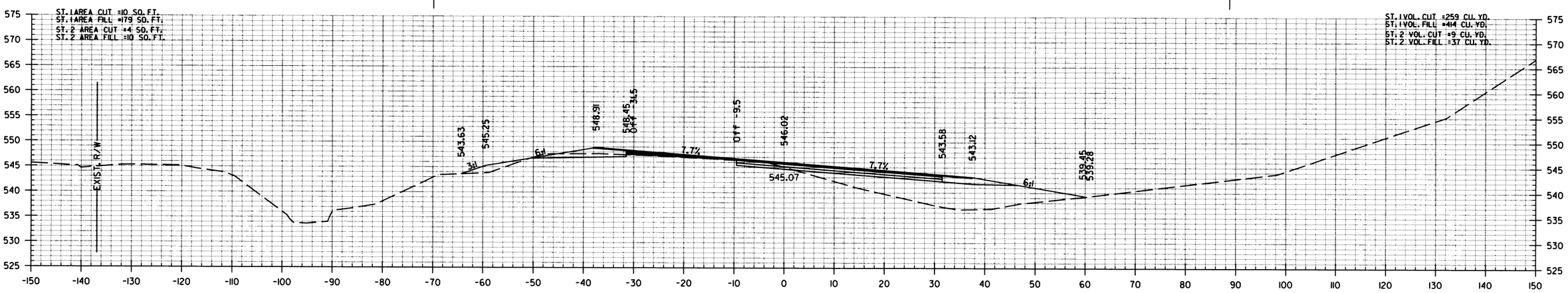
Leonard.Speed 9/23/2016 11:25:35 AM
WORKSPACE: Leonard.Speed
c:\projects\projects\projects\leonard.speed\d0211744\rCA0606_2\CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

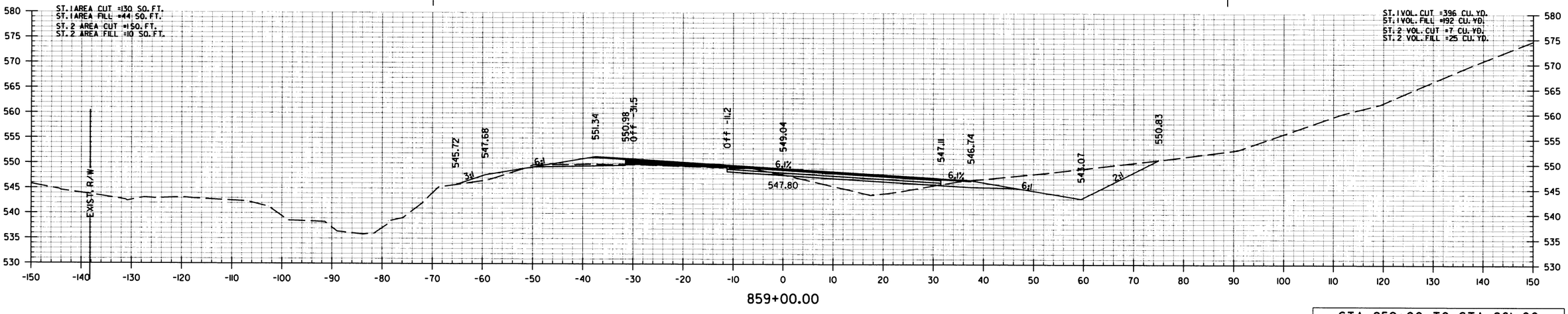
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	674	888

(2) CROSS SECTIONS







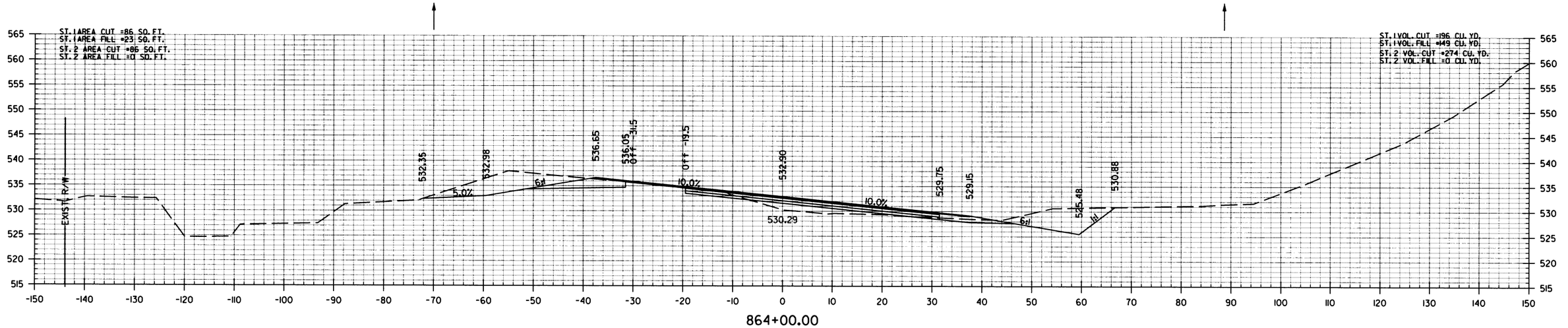
STA. 859+00 TO STA. 861+00

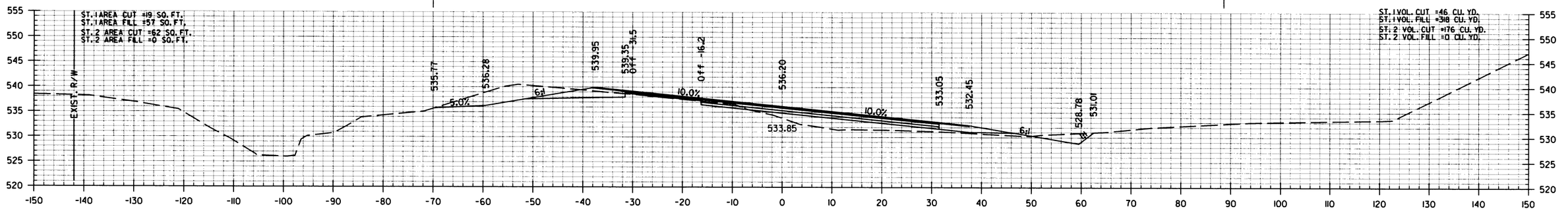
Leonard.Speed 9/23/2016 11:25:36 AM
WORKSPACE: Leonard.Speed
CONFIGURATION: Default
REVISED DATE: $$REVDATE$$
C:\Users\leonard.speed\d0211744\rCA0606_21_CX_MAIN_001.dgn

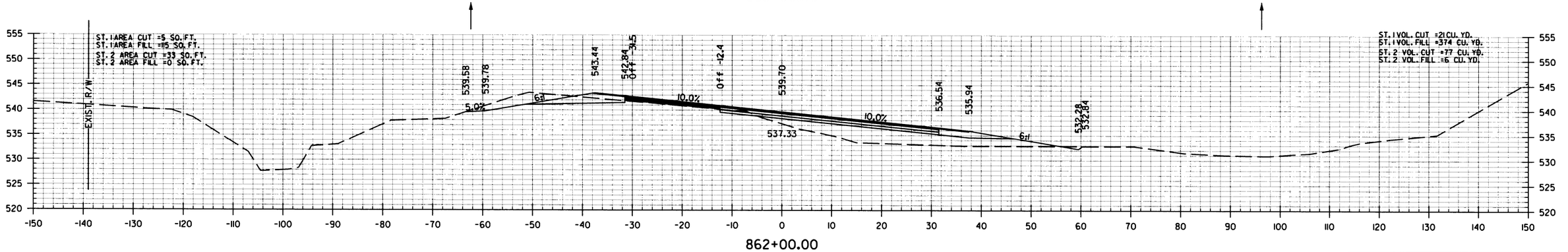
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	675	888

(2) CROSS SECTIONS







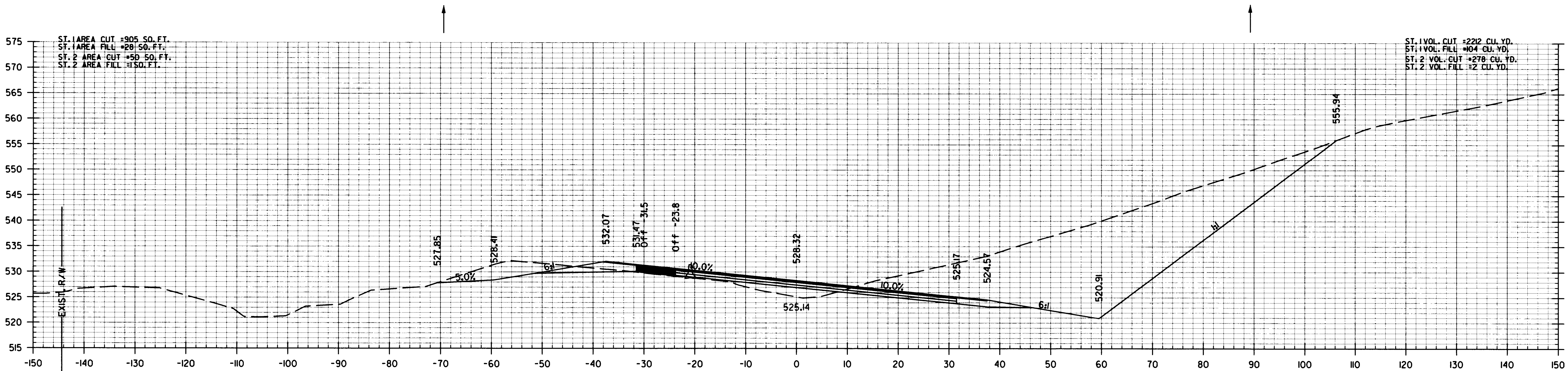
STA. 862+00 TO STA. 864+00

Leonard.Speed 9/23/2016 11:25:37 AM
WORKSPACE: Leonard.Speed
C:\Users\Leonard.Speed\Documents\Projects\Leonard.Speed\d0211744\rCA0606.21.CX.MAIN.001.dgn
REVISED DATE: ##REVDATE##

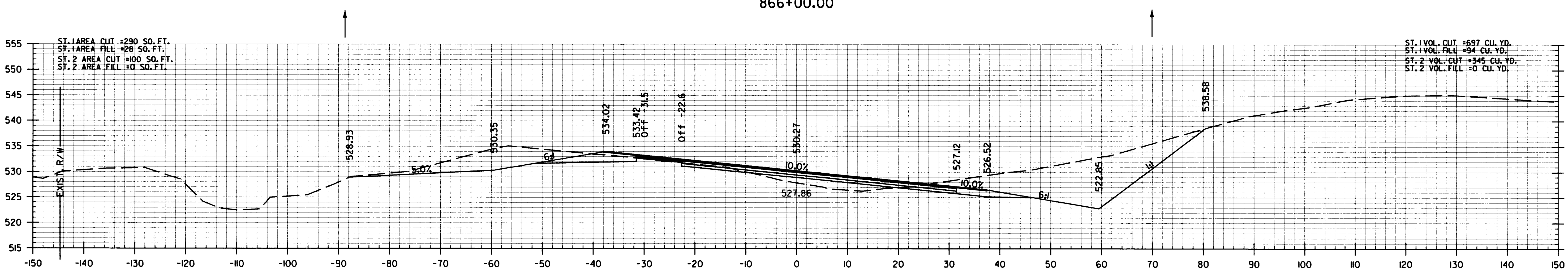
Michael Baker
INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	676	888

(2) CROSS SECTIONS



866+00.00

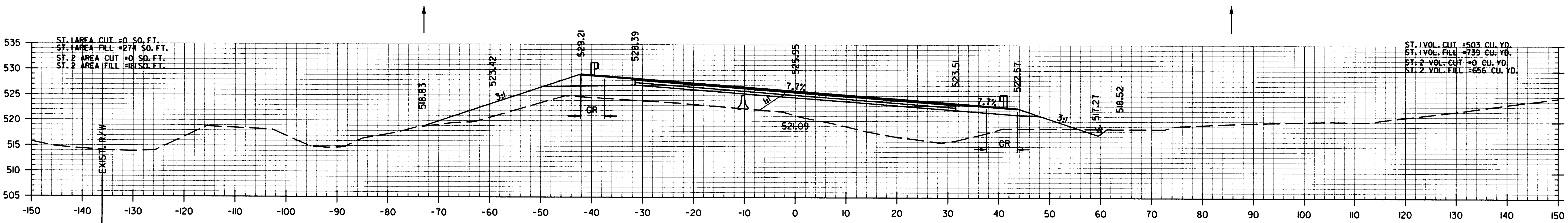


865+00.00

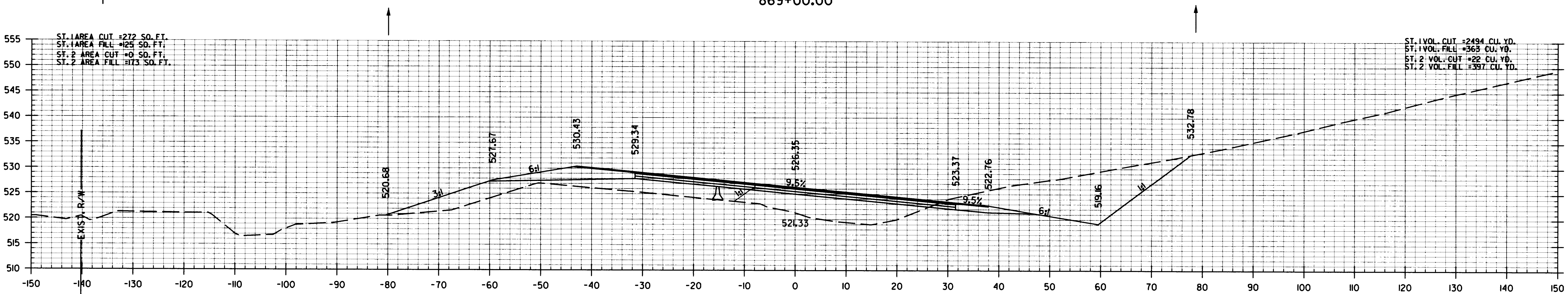
STA. 865+00 TO STA. 866+00

Leonard.Speed 9/23/2016 11:25:39 AM
WORKSPACE: Leonard.Speed
c:\pwwork\local\baker_projects\leonard.speed\d0271744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

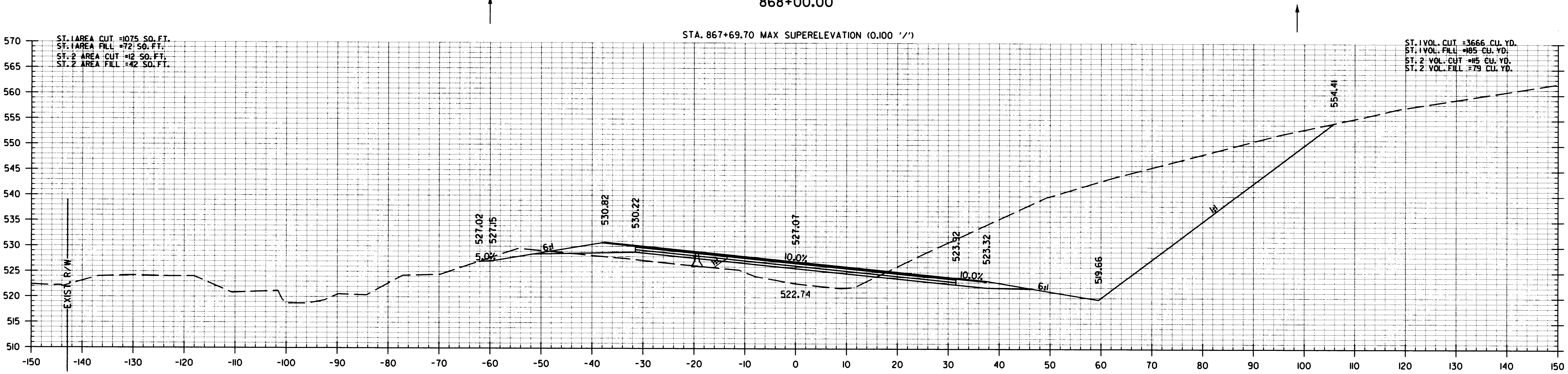
Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	677	888
					(2)	CROSS SECTIONS			



869+00.00



868+00.00



867+00.00

STA. 867+00 TO STA. 869+00

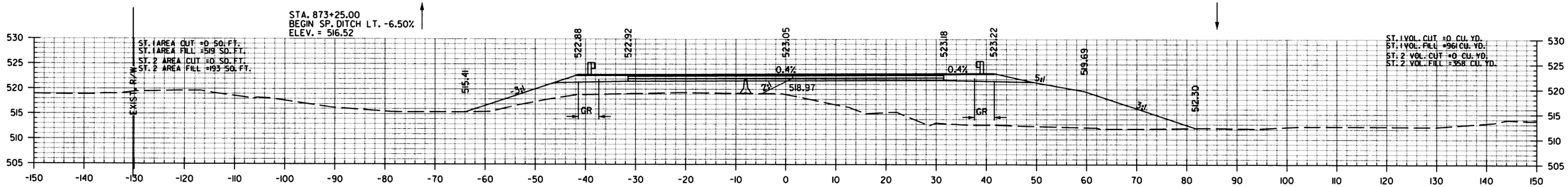
Leonard.Speed 9/23/2016 11:25:40 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	678	888

(2) CROSS SECTIONS

STA. 873+45.70 RT. REVERSE CROWN (+0.020'/')
STA. 873+45.70 END SUPERELEVATION LT.

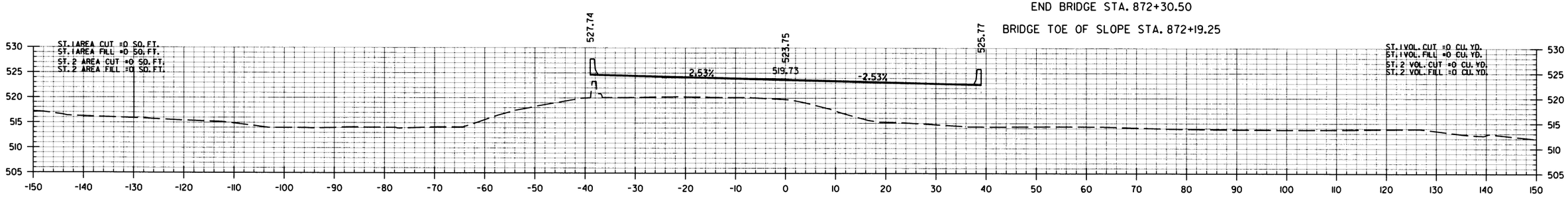


873+00.00

STA. 872+88.10 NO CROWN (0.000 '/')
STA. 872+30.50 BEGIN SUPERELEVATION RT.
STA. 872+30.50 REVERSE CROWN (-0.020'/')

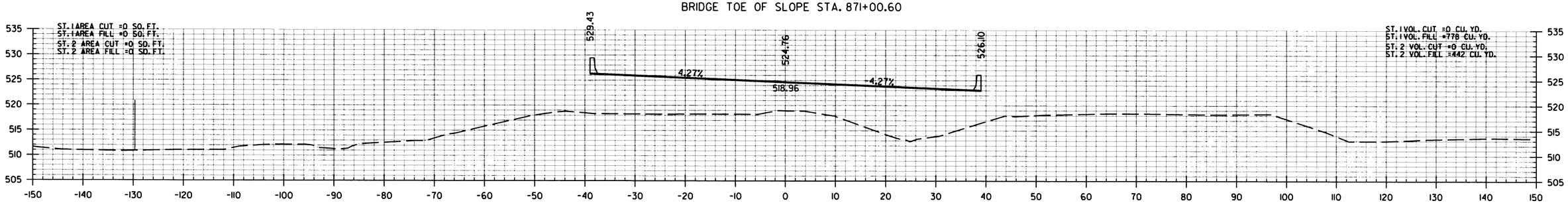
END BRIDGE STA. 872+30.50

BRIDGE TOE OF SLOPE STA. 872+19.25



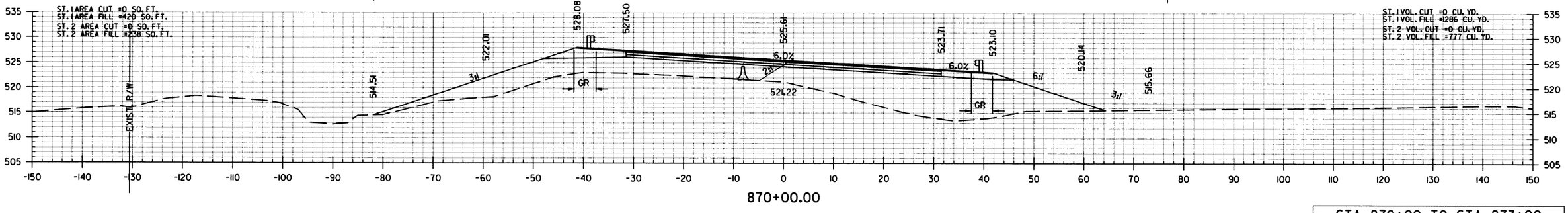
872+00.00

BRIDGE TOE OF SLOPE STA. 871+00.60



871+00.00

BEGIN BRIDGE STA. 870+86.50



870+00.00

STA. 870+00 TO STA. 873+00

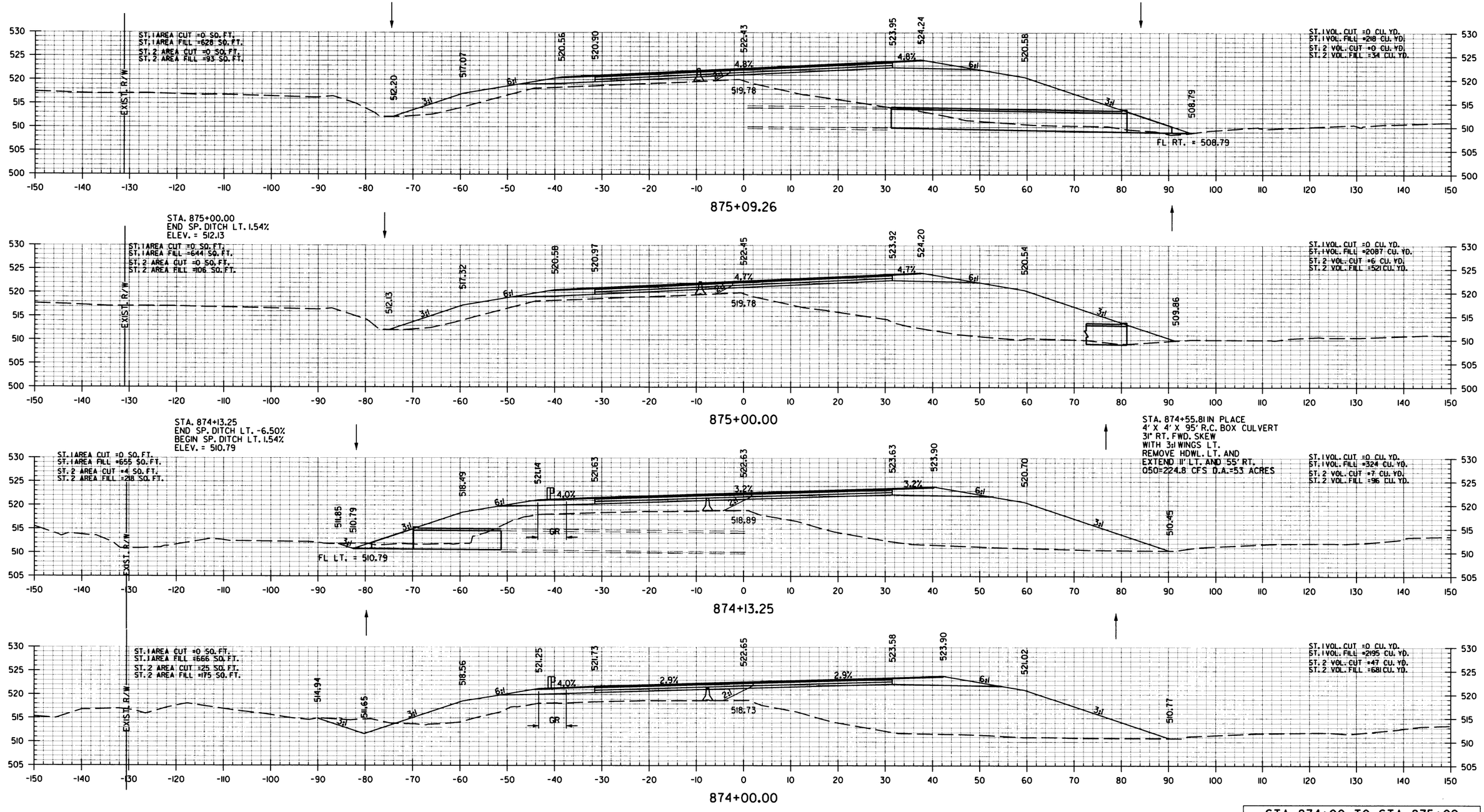
LeonardSpeed 9/23/2016 11:25:41 AM
WORKSPACE: Leonard_Speed
C:\Vdw81-local\baker_projects\leonard_speed\d021744vrCA0606_2LCX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	679	888

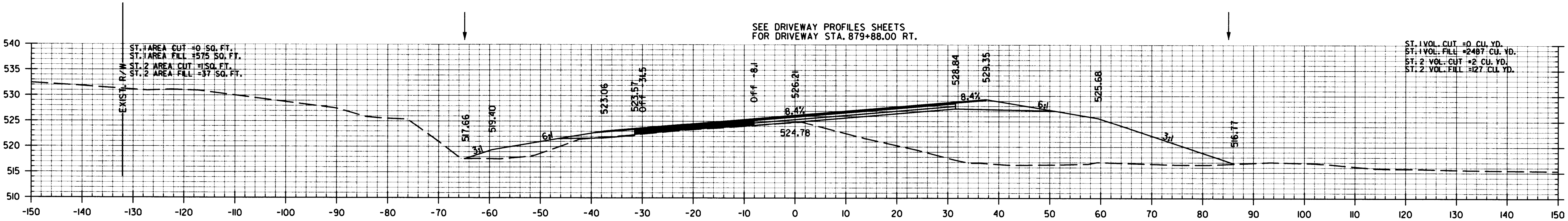
(2) CROSS SECTIONS



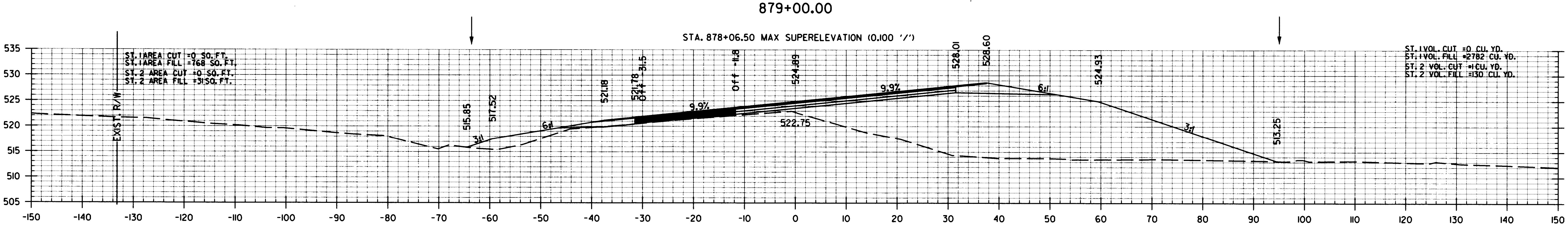
STA. 874+00 TO STA. 875+09

Leonard.Speed 9/23/2016 11:25:42 AM
WORKSPACE: Leonard.Speed
CONNECTION: Projects\Leonard.speed\d0211744\rCA0606.2i.CX.MAIN_001.dgn
REVISED DATE: ##REVDATE##

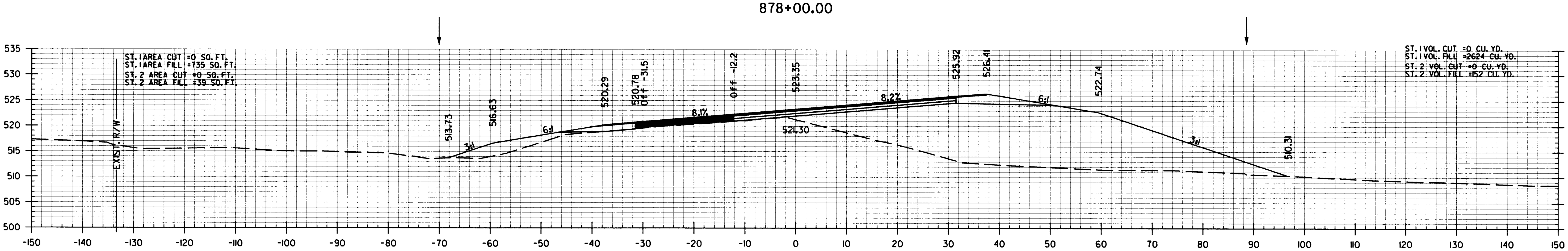
Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	680	888
					② CROSS SECTIONS				



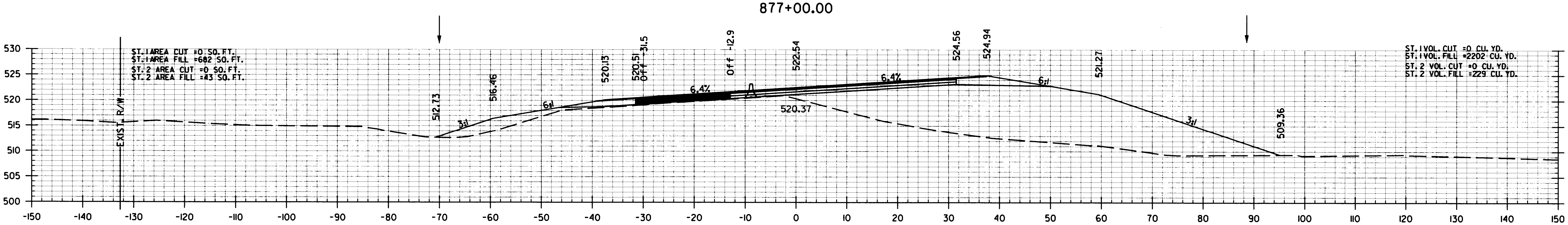
879+00.00



878+00.00



877+00.00



876+00.00

STA. 876+00 TO STA. 879+00

Leonard.Speed 9/23/2016 11:25:44 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271744\CA0606_2L_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

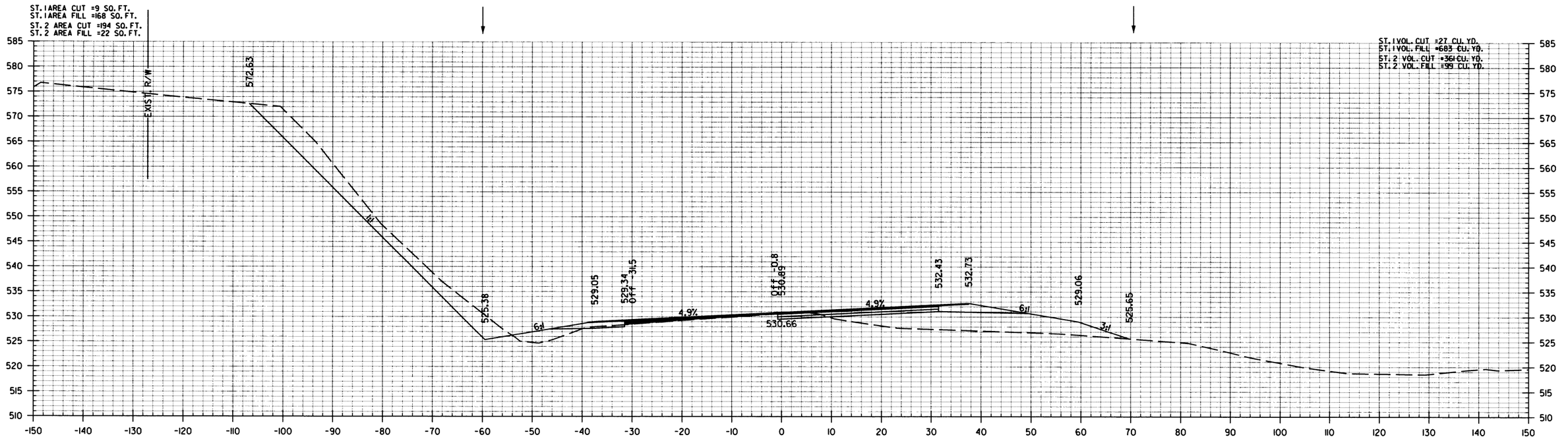
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	681	888

(2) CROSS SECTIONS

ST. 1 AREA CUT =9 SQ. FT.
ST. 1 AREA FILL =168 SQ. FT.
ST. 2 AREA CUT =194 SQ. FT.
ST. 2 AREA FILL =22 SQ. FT.

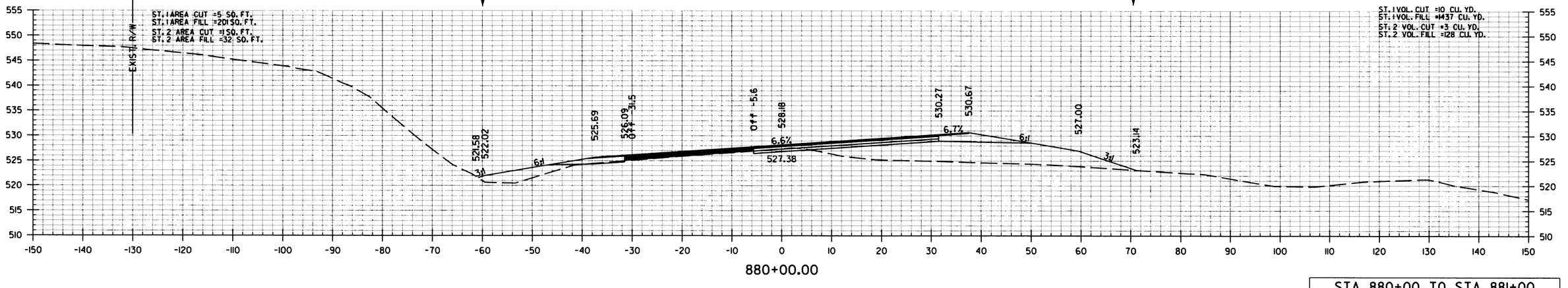
ST. 1 VOL. CUT =27 CU. YD.
ST. 1 VOL. FILL =683 CU. YD.
ST. 2 VOL. CUT =361 CU. YD.
ST. 2 VOL. FILL =39 CU. YD.



881+00.00

ST. 1 AREA CUT =5 SQ. FT.
ST. 1 AREA FILL =2015O. FT.
ST. 2 AREA CUT =150. FT.
ST. 2 AREA FILL =32 SQ. FT.

ST. 1 VOL. CUT =10 CU. YD.
ST. 1 VOL. FILL =1437 CU. YD.
ST. 2 VOL. CUT =3 CU. YD.
ST. 2 VOL. FILL =128 CU. YD.



880+00.00

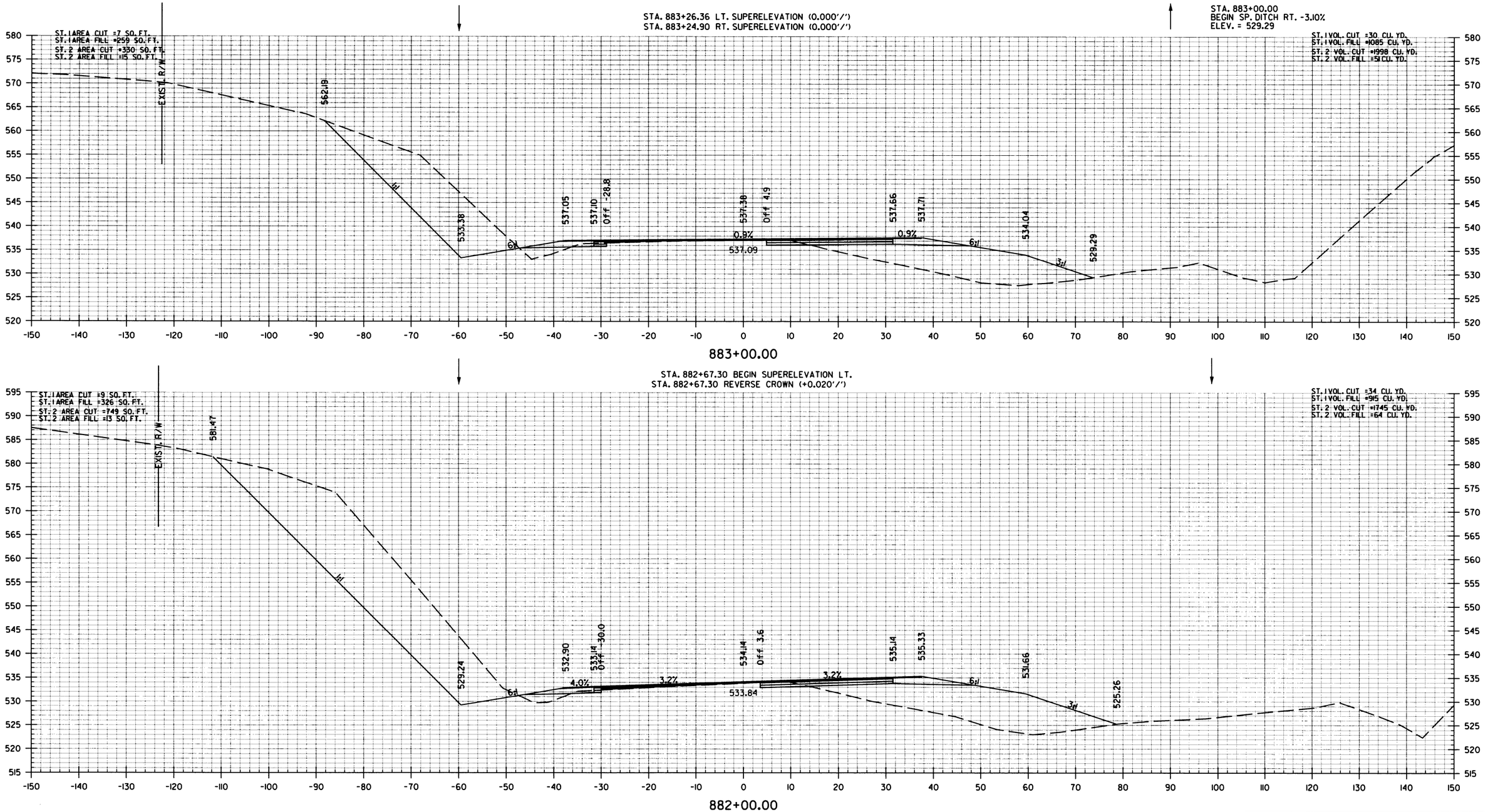
STA. 880+00 TO STA. 881+00

Leonard Speed 9/23/2016 11:25:45 AM
W:\0605\Design\Cad\Leonard Speed\Sheets\CA0606_2L_CX_MAIN_001.dgn
C:\Users\bjoker\Documents\Projects\Leonard Speed\d0271744\r-CA0606_2L_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	682	888

(2) CROSS SECTIONS



STA. 882+00 TO STA. 883+00

Leonard.Speed 9/23/2016 11:25:46 AM
WORKSPACE: Leonard.Speed
c:\pw\bl-local\baker_projects\leonard.speed\d0217744\r-CA0606_2L.CX_MAIN.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	683	888
				(2)	CROSS SECTIONS			

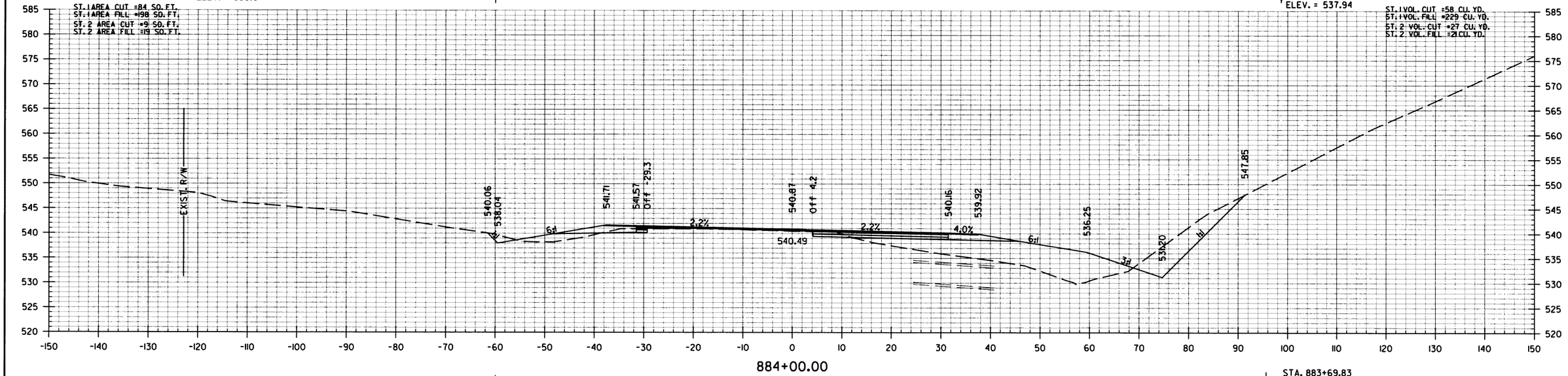
STA. 884+00.00
BEGIN SP. DITCH LT. -3.99%
ELEV. = 538.04

ST. 1 AREA CUT =84 SQ. FT.
ST. 1 AREA FILL =198 SQ. FT.
ST. 2 AREA CUT =9 SQ. FT.
ST. 2 AREA FILL =19 SQ. FT.

STA. 884+19.23 IN PLACE
4' X 4' X 110' R.C. BOX CULVERT
32° LT. FWD. SKEW
WITH 3:1 WINGS LT.
RETAIN AND EXTEND 21' LT. & 20' RT.
Q50=153.2 CFS D.A.=33 ACRES

STA. 884+50.00
END SP. DITCH RT. 13.48%
ELEV. = 537.94

ST. 1 VOL. CUT =58 CU. YD.
ST. 1 VOL. FILL =229 CU. YD.
ST. 2 VOL. CUT =27 CU. YD.
ST. 2 VOL. FILL =21 CU. YD.



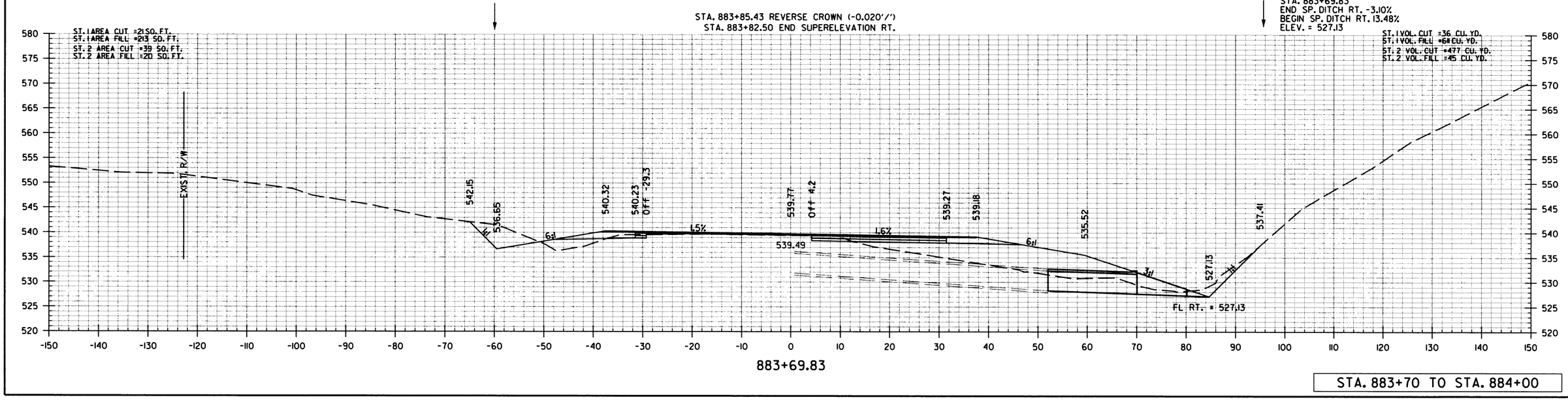
884+00.00

STA. 883+85.43 REVERSE CROWN (-0.020'/')
STA. 883+82.50 END SUPERELEVATION RT.

STA. 883+69.83
END SP. DITCH RT. -3.10%
BEGIN SP. DITCH RT. 13.48%
ELEV. = 527.13

ST. 1 AREA CUT =21 SQ. FT.
ST. 1 AREA FILL =213 SQ. FT.
ST. 2 AREA CUT =39 SQ. FT.
ST. 2 AREA FILL =20 SQ. FT.

ST. 1 VOL. CUT =36 CU. YD.
ST. 1 VOL. FILL =611 CU. YD.
ST. 2 VOL. CUT =477 CU. YD.
ST. 2 VOL. FILL =45 CU. YD.



883+69.83

STA. 883+70 TO STA. 884+00

Leonard.Speed 9/23/2016 11:25:47 AM
WORKSPACE: Leonard.Speed
C:\Users\Leonard.Speed\Documents\Leonard.Speed\d0217144\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

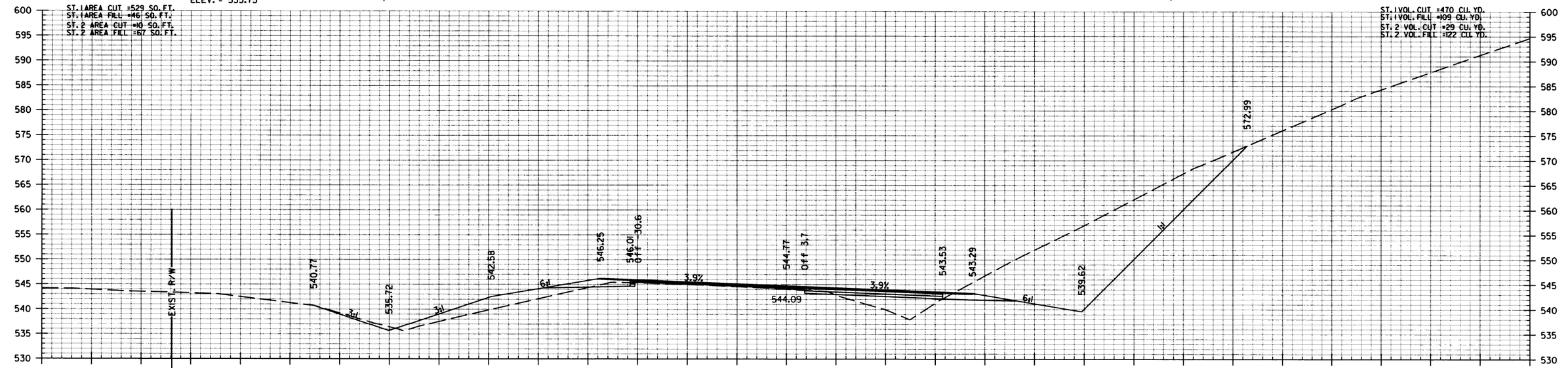
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	684	888

(2) CROSS SECTIONS

STA. 885+07.01
END SP. DITCH LT. 0.44%
ELEV. = 535.75

ST. 1 AREA CUT =529 SQ. FT.
ST. 1 AREA FILL =46 SQ. FT.
ST. 2 AREA CUT =10 SQ. FT.
ST. 2 AREA FILL =67 SQ. FT.

ST. 1 VOL. CUT =470 CU. YD.
ST. 1 VOL. FILL =109 CU. YD.
ST. 2 VOL. CUT =29 CU. YD.
ST. 2 VOL. FILL =122 CU. YD.

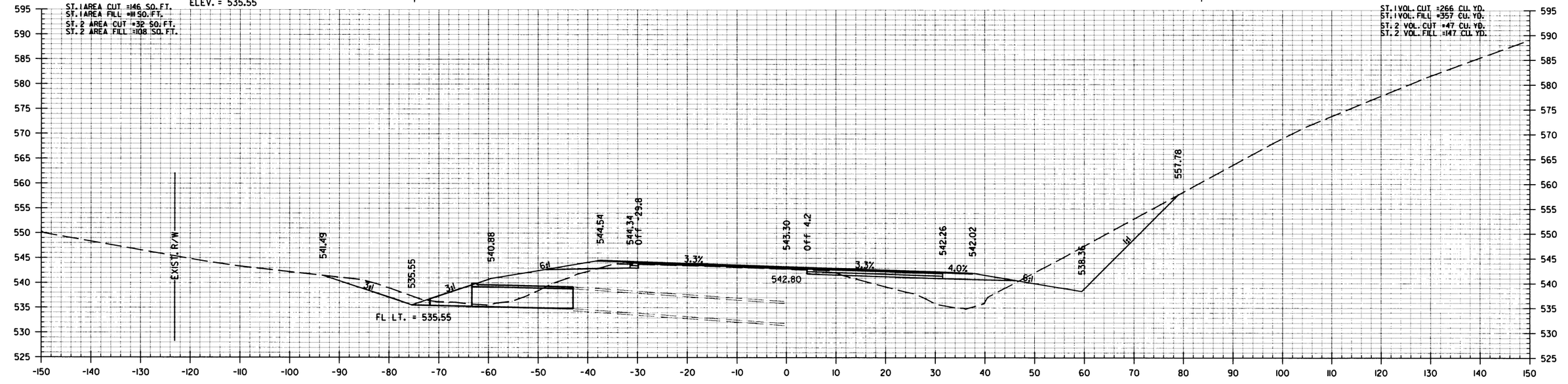


885+00.00

STA. 884+62.45
END SP. DITCH LT. -3.99%
BEGIN SP. DITCH LT. 0.44%
ELEV. = 535.55

ST. 1 AREA CUT =146 SQ. FT.
ST. 1 AREA FILL =111 SQ. FT.
ST. 2 AREA CUT =32 SQ. FT.
ST. 2 AREA FILL =108 SQ. FT.

ST. 1 VOL. CUT =266 CU. YD.
ST. 1 VOL. FILL =357 CU. YD.
ST. 2 VOL. CUT =47 CU. YD.
ST. 2 VOL. FILL =147 CU. YD.



884+62.45

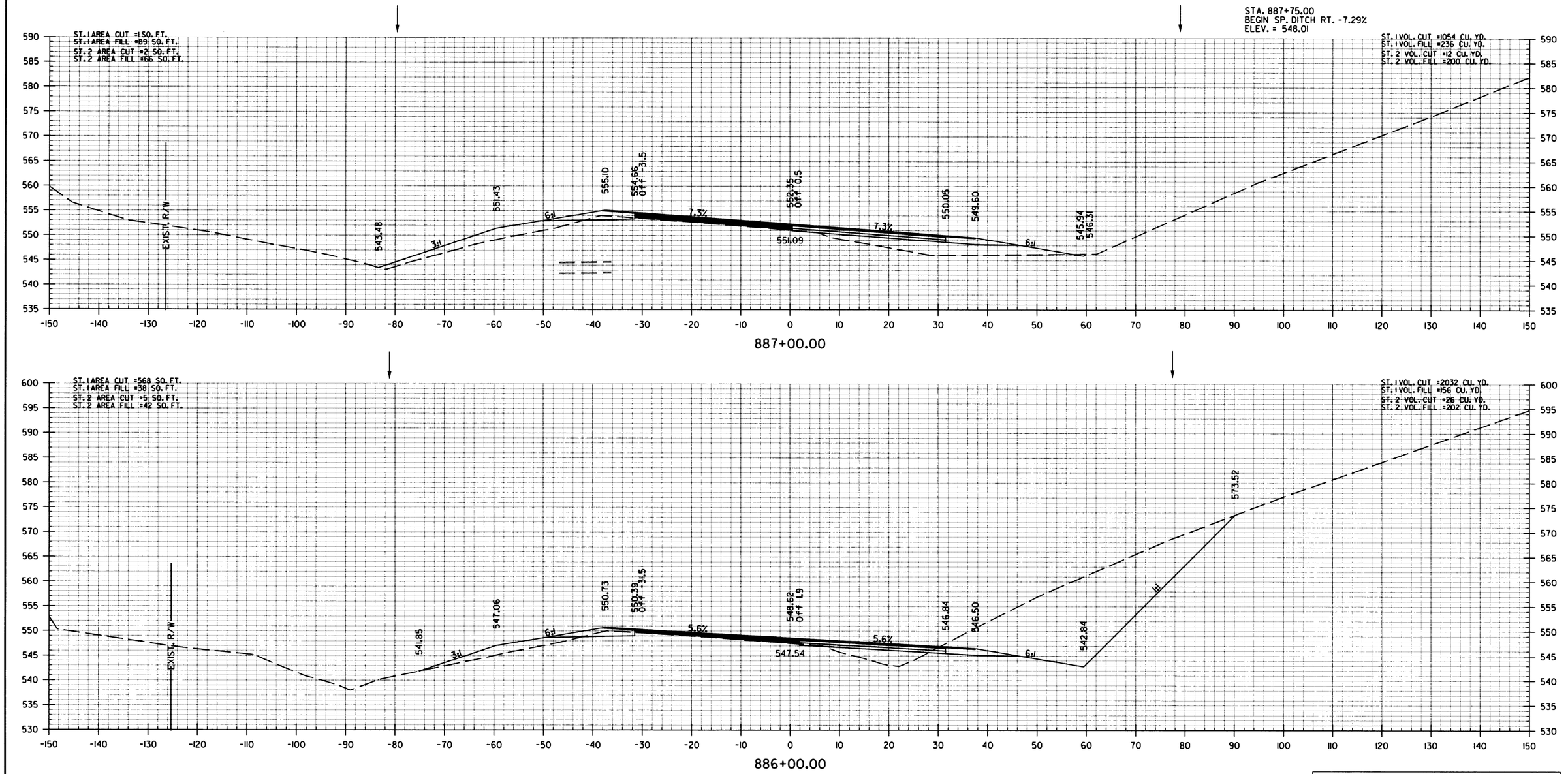
STA. 884+62 TO STA. 885+00

LeonordSpeed 9/23/2016 11:25:49 AM
\\WWW-FS01\Projects\Leonord.speed\d0271744\rCA0606_21.CX_MAIN.001.dgn
c:\Users\bbaker.MBAKER\Documents\Projects\Leonord.speed\d0271744\rCA0606_21.CX_MAIN.001.dgn
c:\Users\bbaker_projects\leonord.speed\d0271744\rCA0606_21.CX_MAIN.001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	685	888

(2) CROSS SECTIONS



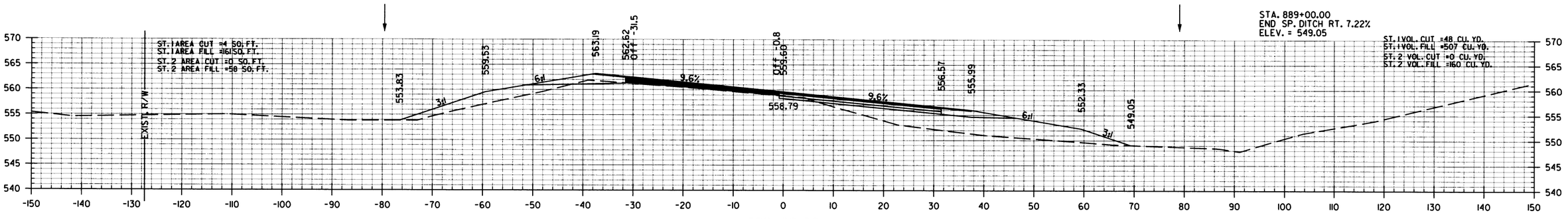
STA. 886+00 TO STA. 887+00

LeonardJSpeed 9/23/2006 11:25:50 AM
WORKSPACE: LeonardJSpeed
CURRENT WORKSET: Projects\LeonardJSpeed\d0271744\r\CA0606_2\CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	686	888

(2) CROSS SECTIONS

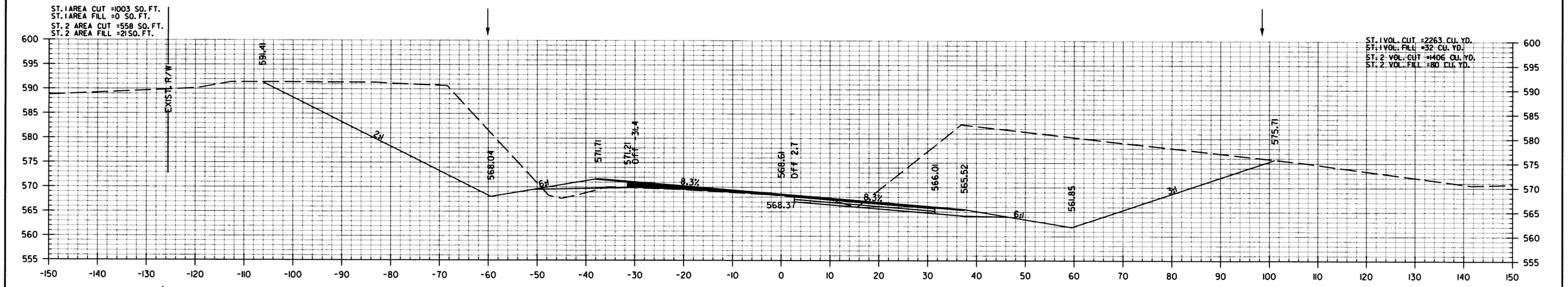


STA. 888+00 TO STA. 889+00

Leonard.Speed 9/23/2016 11:25:51 AM
WORKSPACE: Leonard.Speed
CONTAINER: c:\projects\leonard.speed\d0211744\r-CA0606.21.CX.MAIN.00i.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	687	888
				(2)	CROSS SECTIONS			



STA. 890+00 TO STA. 892+00

Leonard.Speed 9/23/2016 11:25:52 AM
WORKSPACE: Leonard.Speed
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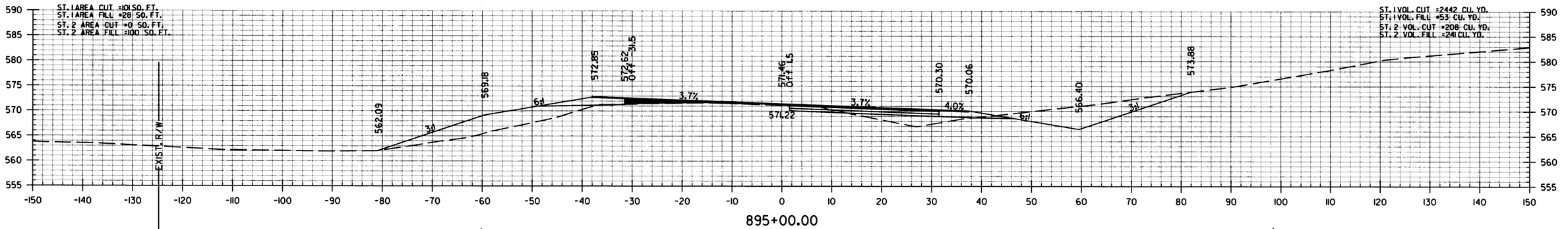
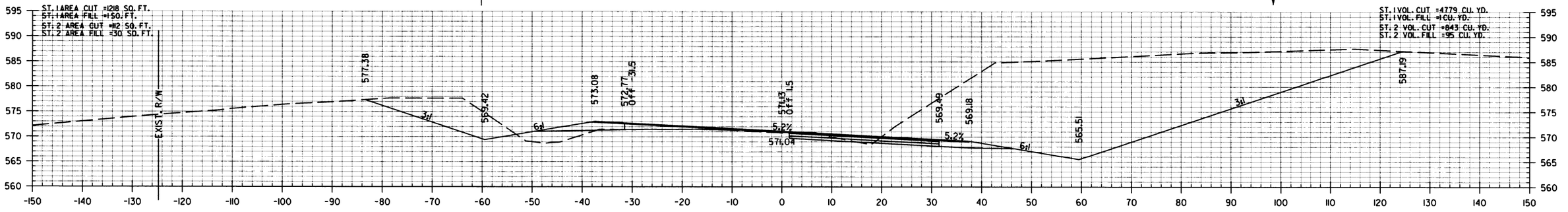
REVISED DATE: ##REVDATE##

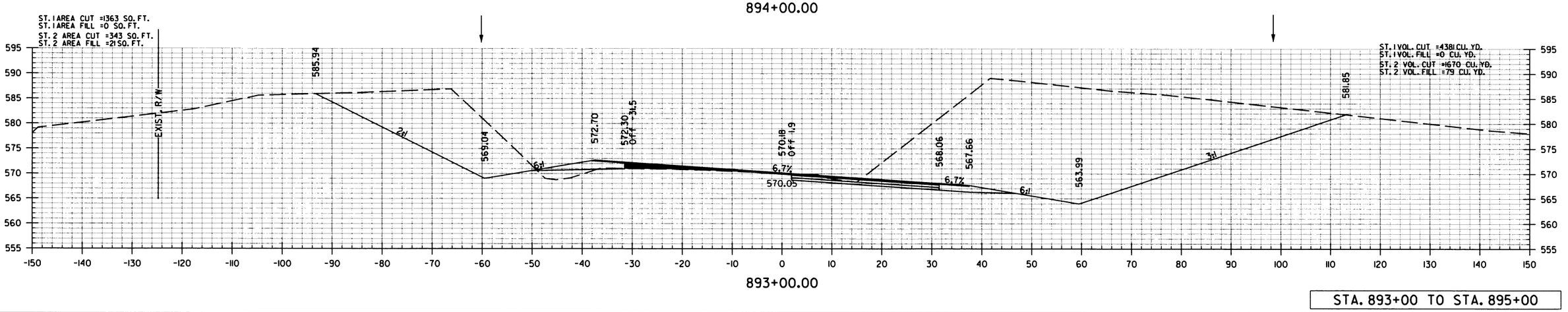
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	688	888

(2) CROSS SECTIONS







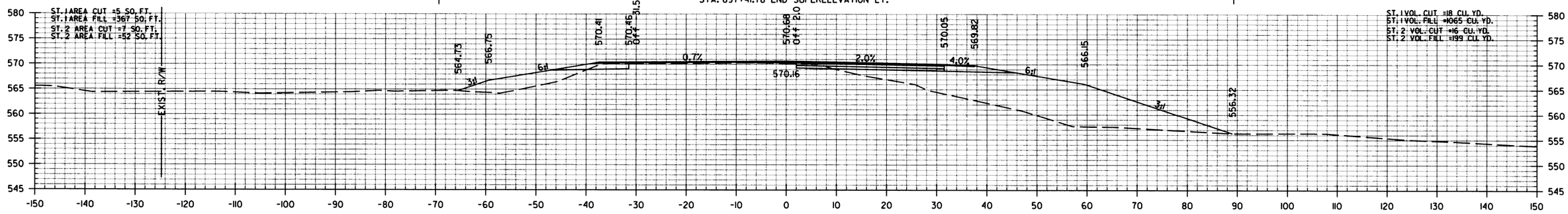
STA. 893+00 TO STA. 895+00

Leonard Speed 9/23/2016 11:25:54 AM
WORKSPACE: Leonard_Speed
c:\pw\dl-local\baker_projects\leonard.speed\d0217744\r-CA0606.21.CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

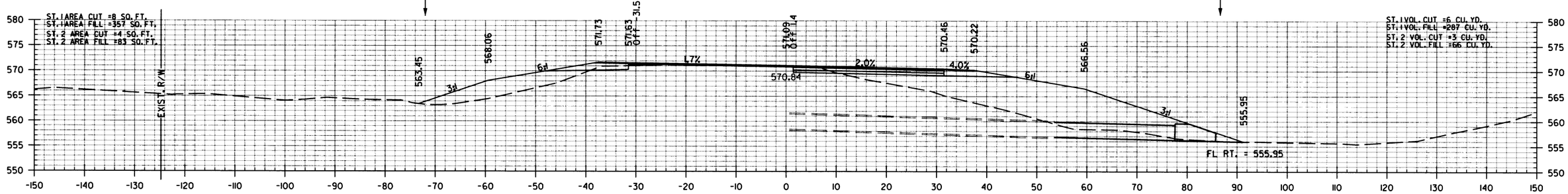
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	689	888
				(2)	CROSS SECTIONS			

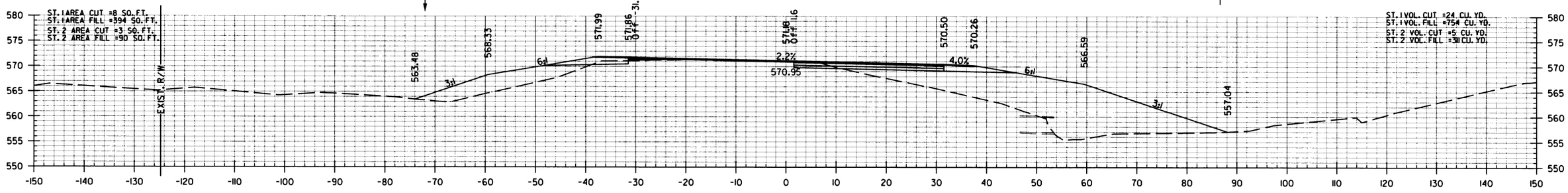
STA. 897+41.78 END SUPERELEVATION LT.



897+00.00

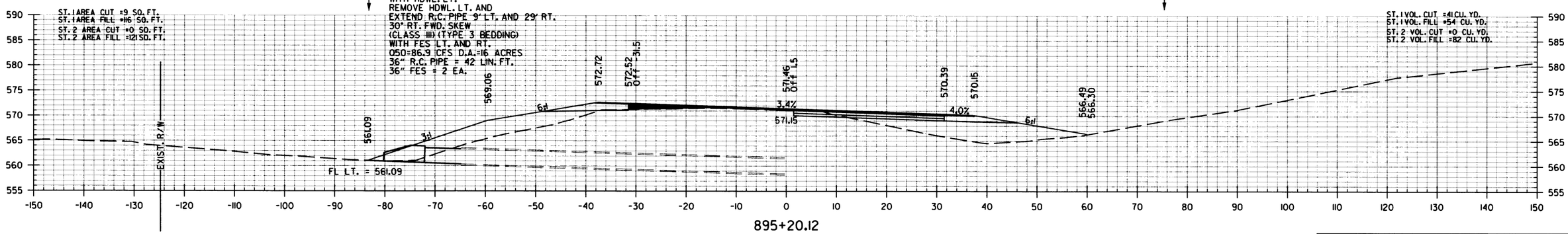


896+20.61



896+00.00

STA. 895+68.26 IN PLACE
36"X 136' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 9' LT. AND 29' RT.
30° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=86.9 CFS D.A.=16 ACRES
36" R.C. PIPE = 42 LIN. FT.
36" FES = 2 EA.



895+20.12

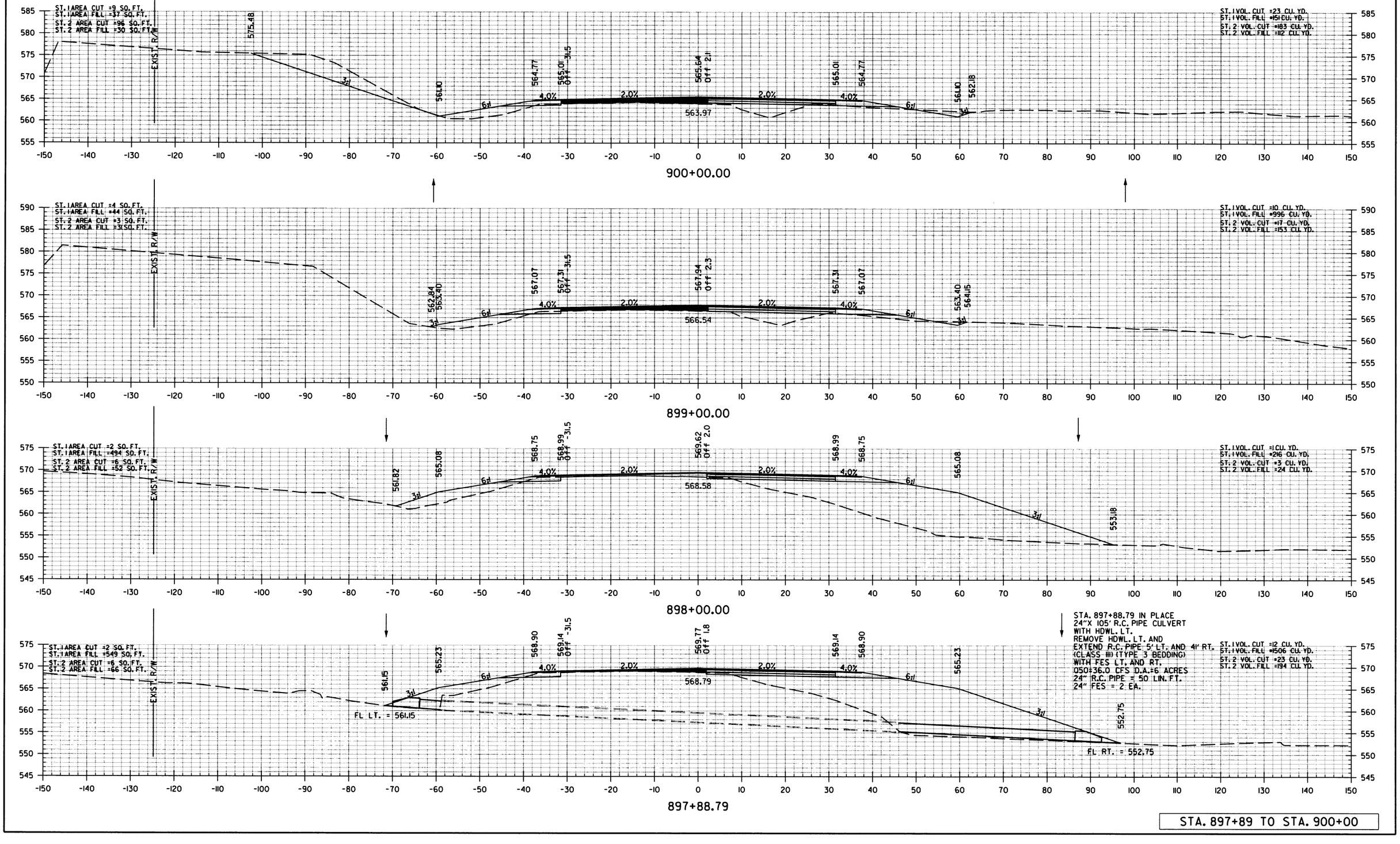
STA. 895+20 TO STA. 897+00

Leonard.Speed 9/23/2016 11:25:55 AM
WORKSPACE: c:\Leonard.Speed
CONFIG: C:\Projects\Leonard.Speed\d0271744\rCA0606_2t.CX.MAIN.001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	690	888

(2) CROSS SECTIONS

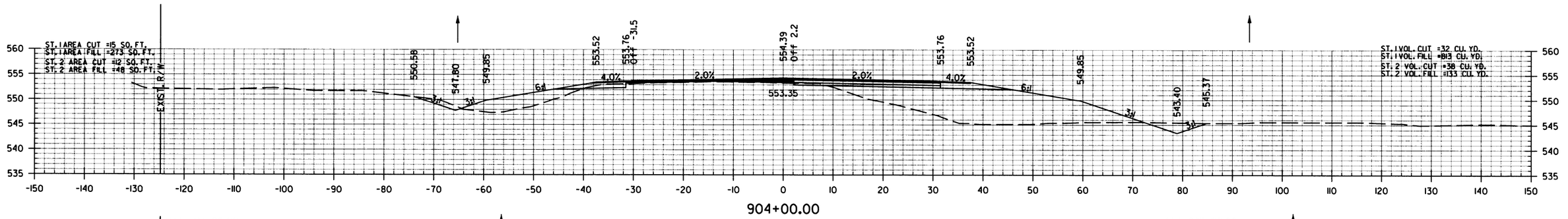


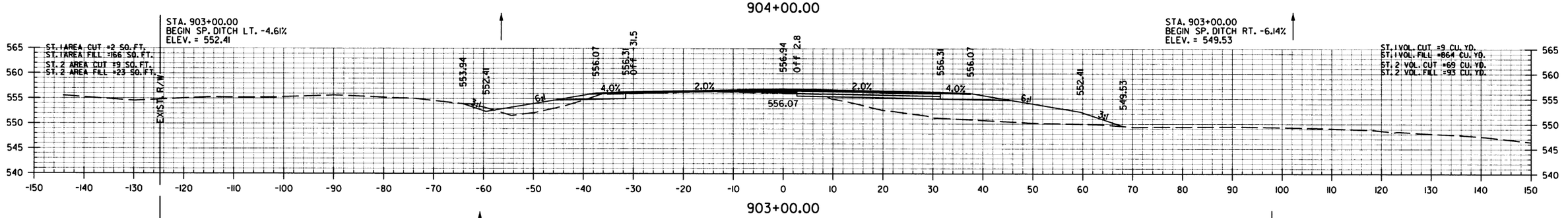
STA. 897+89 TO STA. 900+00

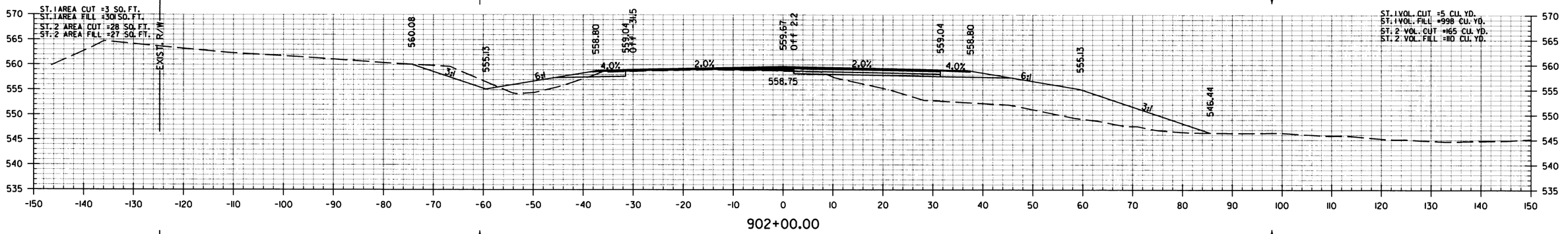
LeonardSpeed 9/23/2016 11:25:56 AM
WORKSPACE: Leonard_Speed
c:\pw\81-local\baker_projects\leonard_speed\d0271741\vCA0606_21_CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

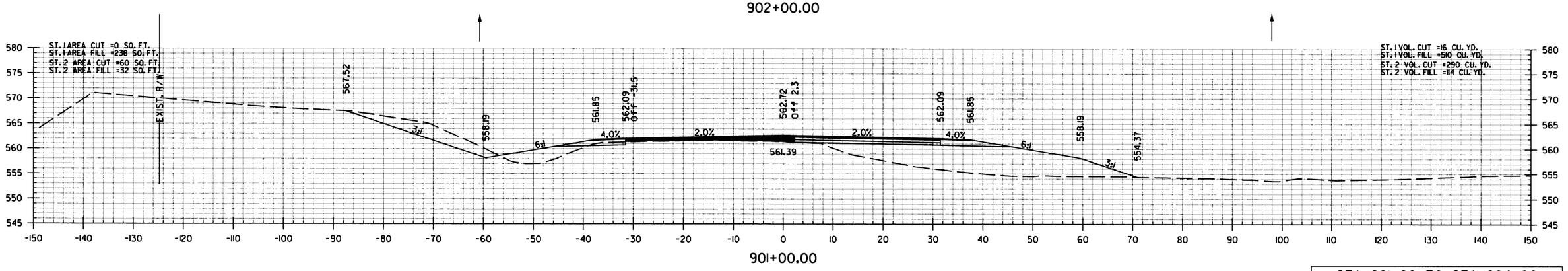
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	691	888
				(2)	CROSS SECTIONS			









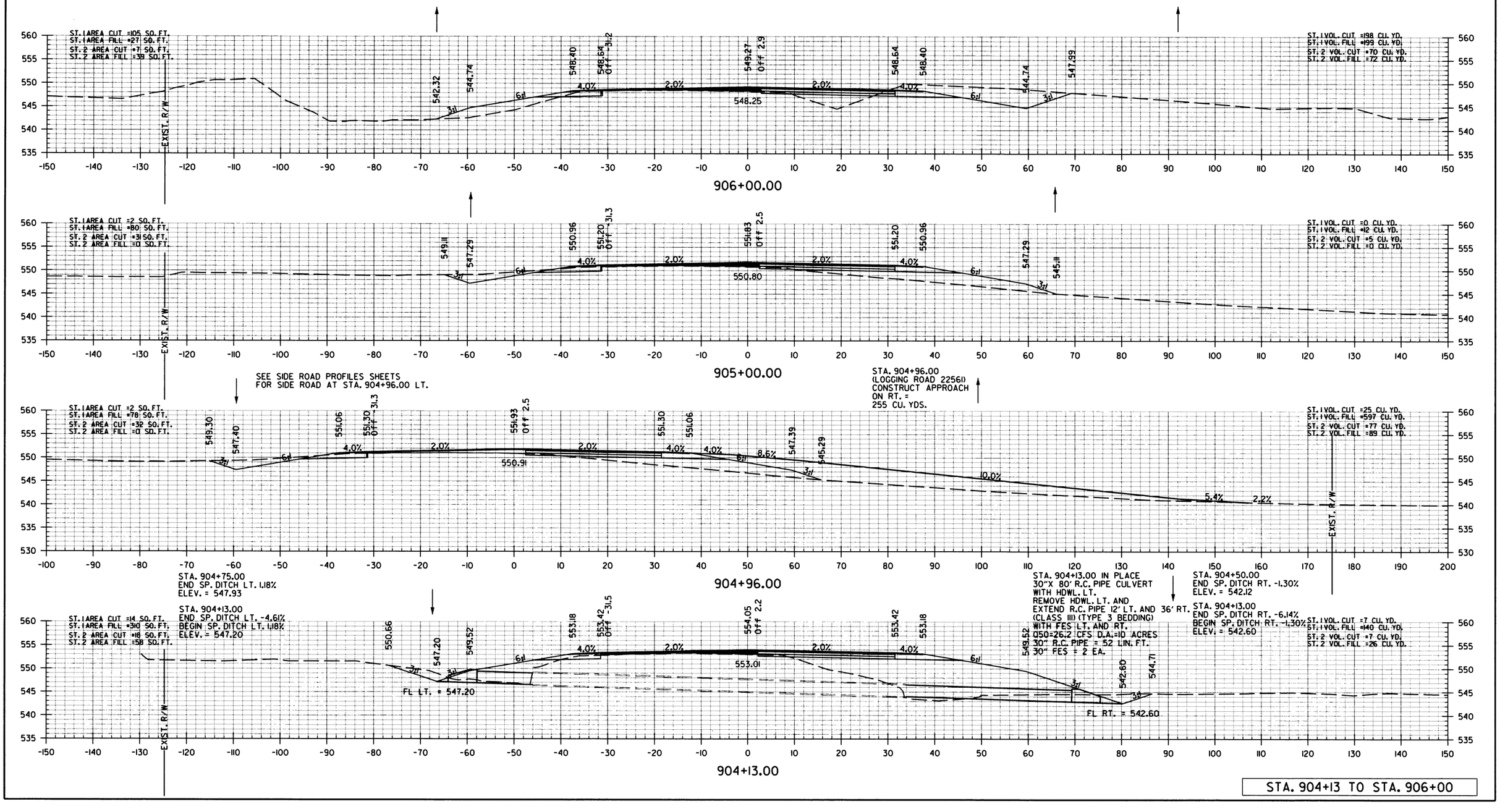
STA. 901+00 TO STA. 904+00

Leonard.Speed 9/23/2016 11:25:57 AM
WORKSPACE: Leonard.Speed
COMPUTER NAME: \\Projects\leonard.speed\d0211744\rCA0606.21.CX.MAIN.001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	692	888

(2) CROSS SECTIONS



STA. 904+13 TO STA. 906+00

Leonard.Speed 9/23/2016 11:25:58 AM
WORKSPACE: Leonard.Speed
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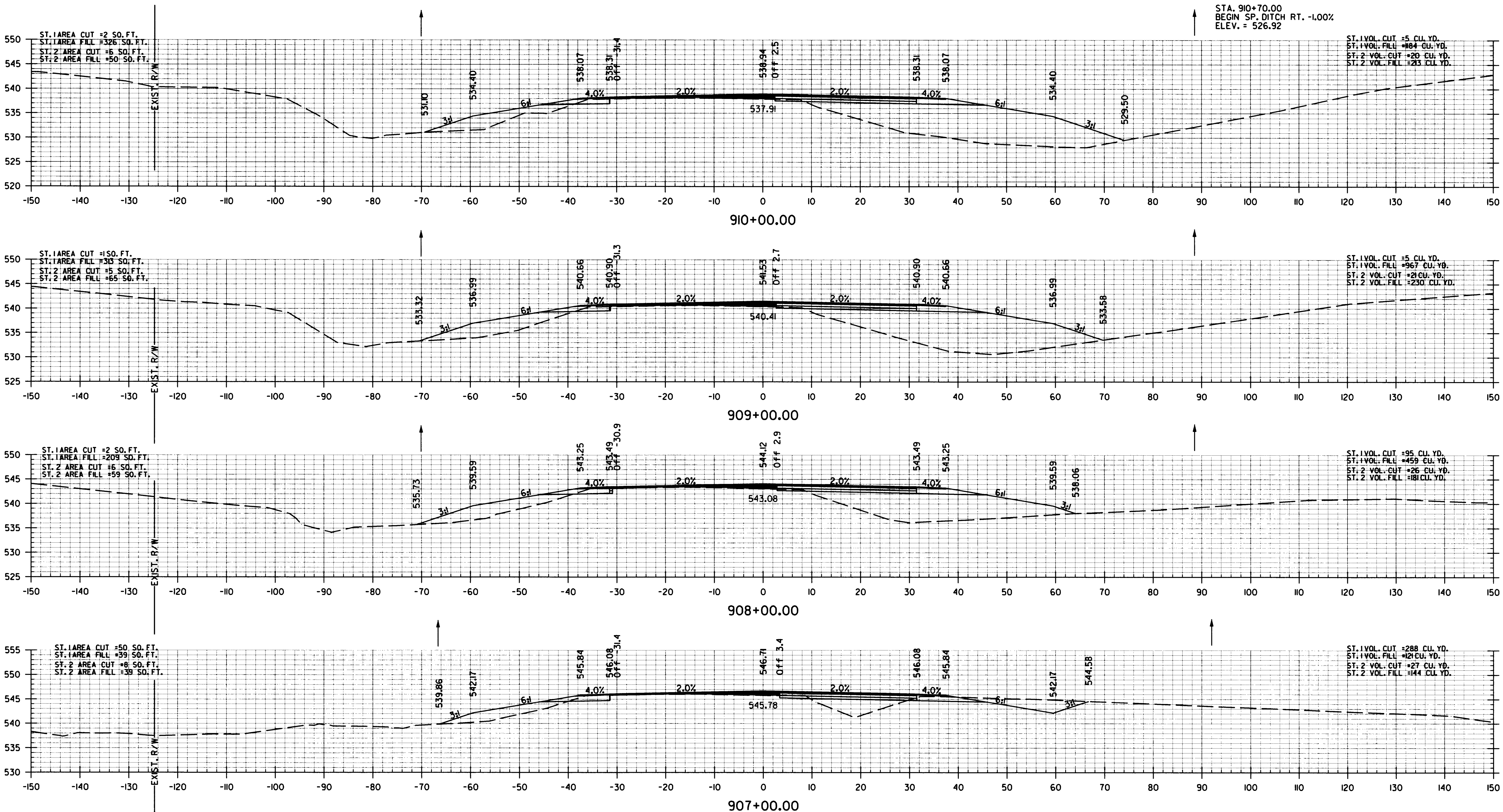
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	693	888

(2) CROSS SECTIONS



STA. 907+00 TO STA. 910+00

Leonard.Speed 9/23/2016 11:25:59 AM
WORKSPACE: Leonard.Speed
c:\pwwbl-local\baker_projects\leonard.speed\d0271744\rCA0606_2L.CX_MAIN_00.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

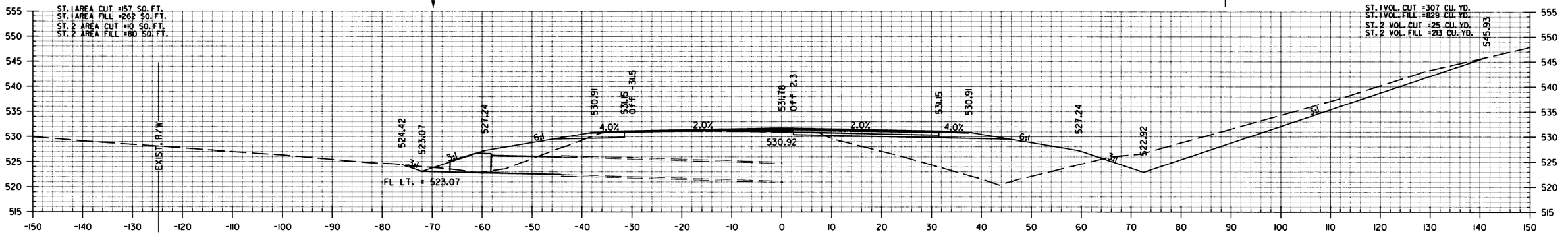
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	694	888

(2) CROSS SECTIONS

STA. 912+81.00
END SP. DITCH LT. -0.80%
BEGIN SP. DITCH LT. 7.06%
ELEV. = 523.07

ST. 1 AREA CUT =157 SQ. FT.
ST. 1 AREA FILL =262 SQ. FT.
ST. 2 AREA CUT =10 SQ. FT.
ST. 2 AREA FILL =80 SQ. FT.

ST. 1 VOL. CUT =307 CU. YD.
ST. 1 VOL. FILL =829 CU. YD.
ST. 2 VOL. CUT =25 CU. YD.
ST. 2 VOL. FILL =213 CU. YD.



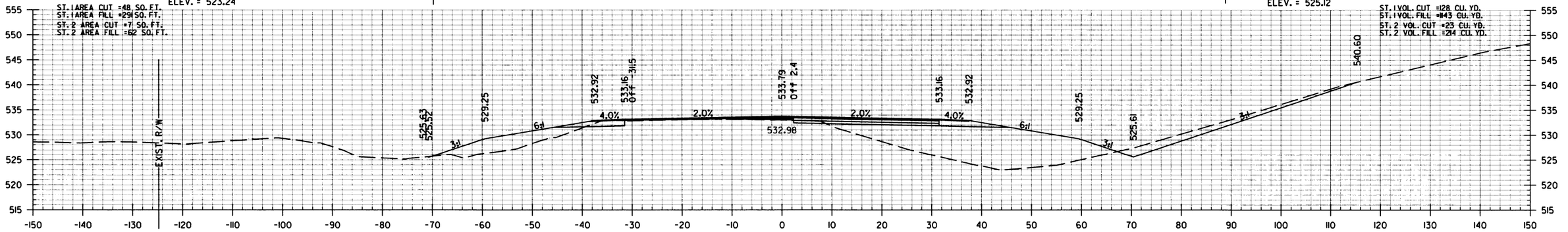
912+81.00

STA. 912+60.00
END SP. DITCH LT. -3.80%
BEGIN SP. DITCH LT. -0.80%
ELEV. = 523.24

ST. 1 AREA CUT =48 SQ. FT.
ST. 1 AREA FILL =291 SQ. FT.
ST. 2 AREA CUT =71 SQ. FT.
ST. 2 AREA FILL =62 SQ. FT.

STA. 912+50.00
END SP. DITCH RT. -1.00%
BEGIN SP. DITCH RT. -7.08%
ELEV. = 525.12

ST. 1 VOL. CUT =128 CU. YD.
ST. 1 VOL. FILL =443 CU. YD.
ST. 2 VOL. CUT =23 CU. YD.
ST. 2 VOL. FILL =214 CU. YD.

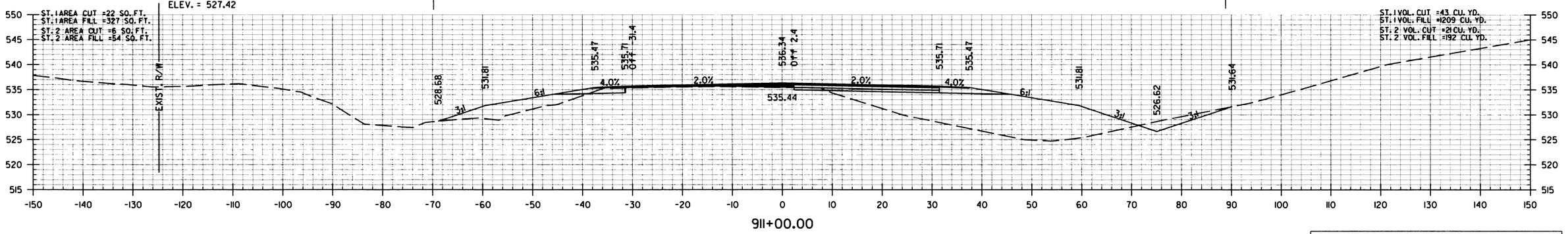


912+00.00

STA. 911+50.00
BEGIN SP. DITCH LT. -3.80%
ELEV. = 527.42

ST. 1 AREA CUT =22 SQ. FT.
ST. 1 AREA FILL =327 SQ. FT.
ST. 2 AREA CUT =6 SQ. FT.
ST. 2 AREA FILL =54 SQ. FT.

ST. 1 VOL. CUT =43 CU. YD.
ST. 1 VOL. FILL =1209 CU. YD.
ST. 2 VOL. CUT =21 CU. YD.
ST. 2 VOL. FILL =192 CU. YD.



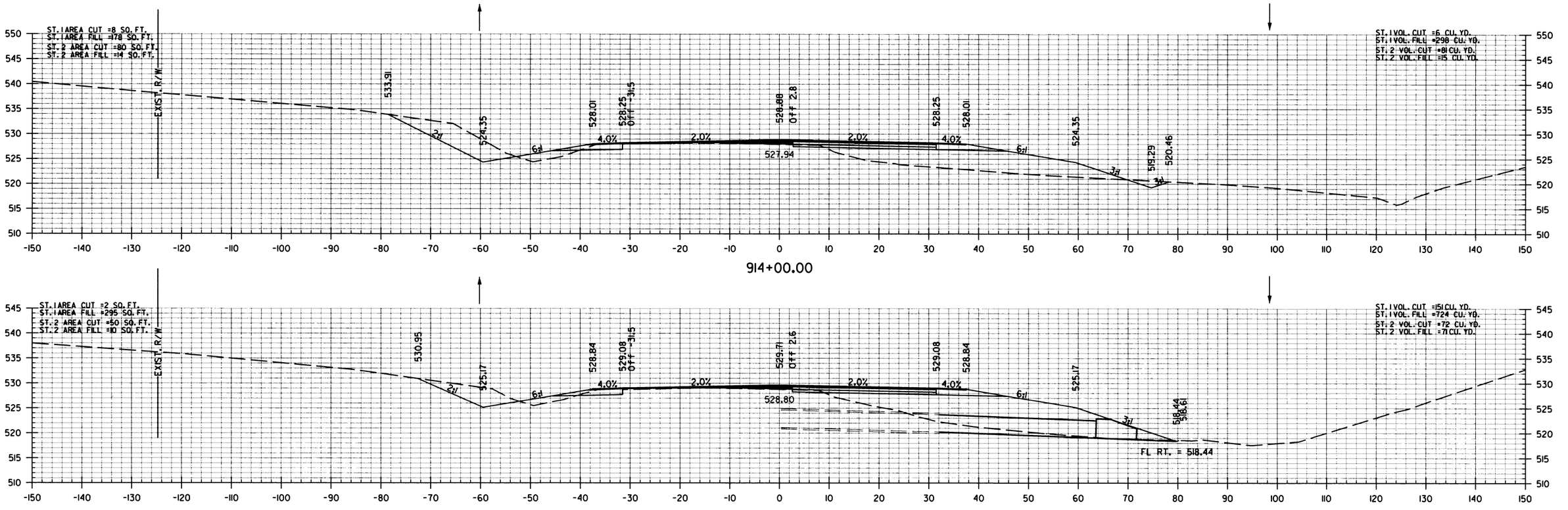
911+00.00

STA. 911+00 TO STA. 912+81

Leonard.Speed 9/23/2006 11:26:01 AM
WORKSPACE: Leonard.Speed
c:\pw\bl-local\baker_projects\leonard.speed\d027144\r-CA0606_21.CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	695	888
				(2)	CROSS SECTIONS			

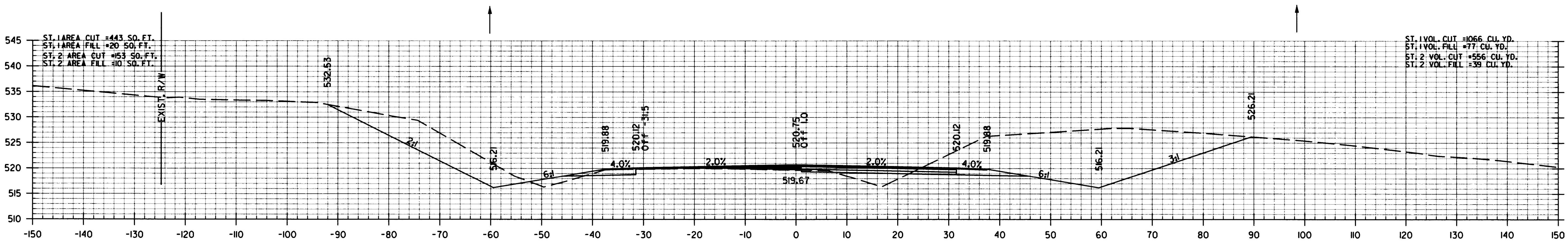


STA. 913+00 TO STA. 914+00

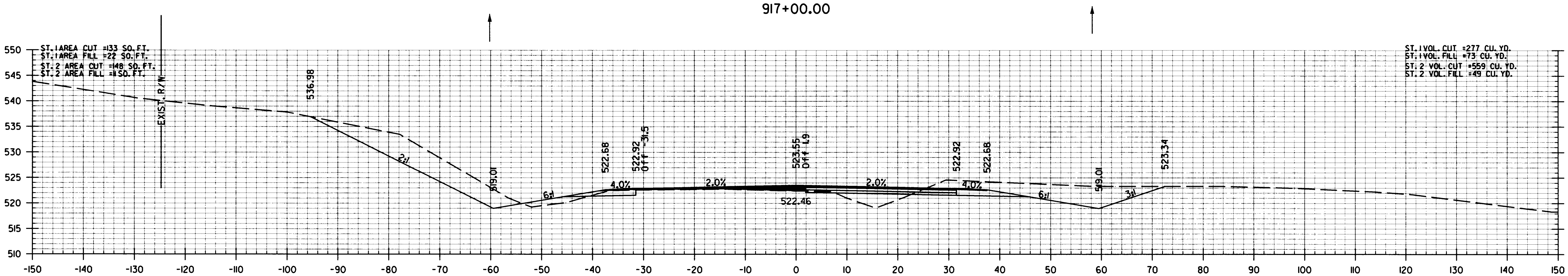
leonard.speed 9/23/2016 11:26:02 AM
\\mbkfs1\projects\leonard.speed\d0217744\r-CA0606.21-CX_MAIN_001.dgn
c:\Users\leonard.speed\Documents\Projects\leonard.speed\d0217744\r-CA0606.21-CX_MAIN_001.dgn
c:\Users\81-local\baker_projects\leonard.speed\d0217744\r-CA0606.21-CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	696	888

(2) CROSS SECTIONS

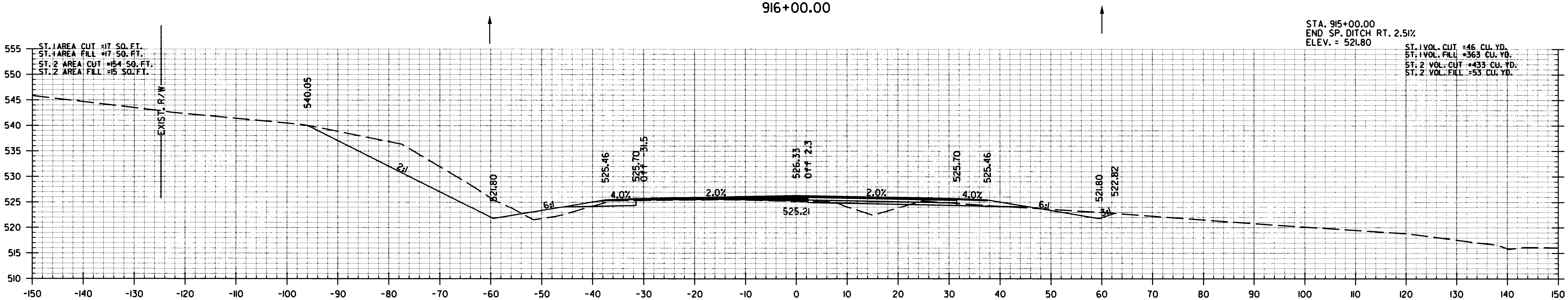


917+00.00



916+00.00

STA. 915+00.00
END SP. DITCH RT. 2.51%
ELEV. = 521.80



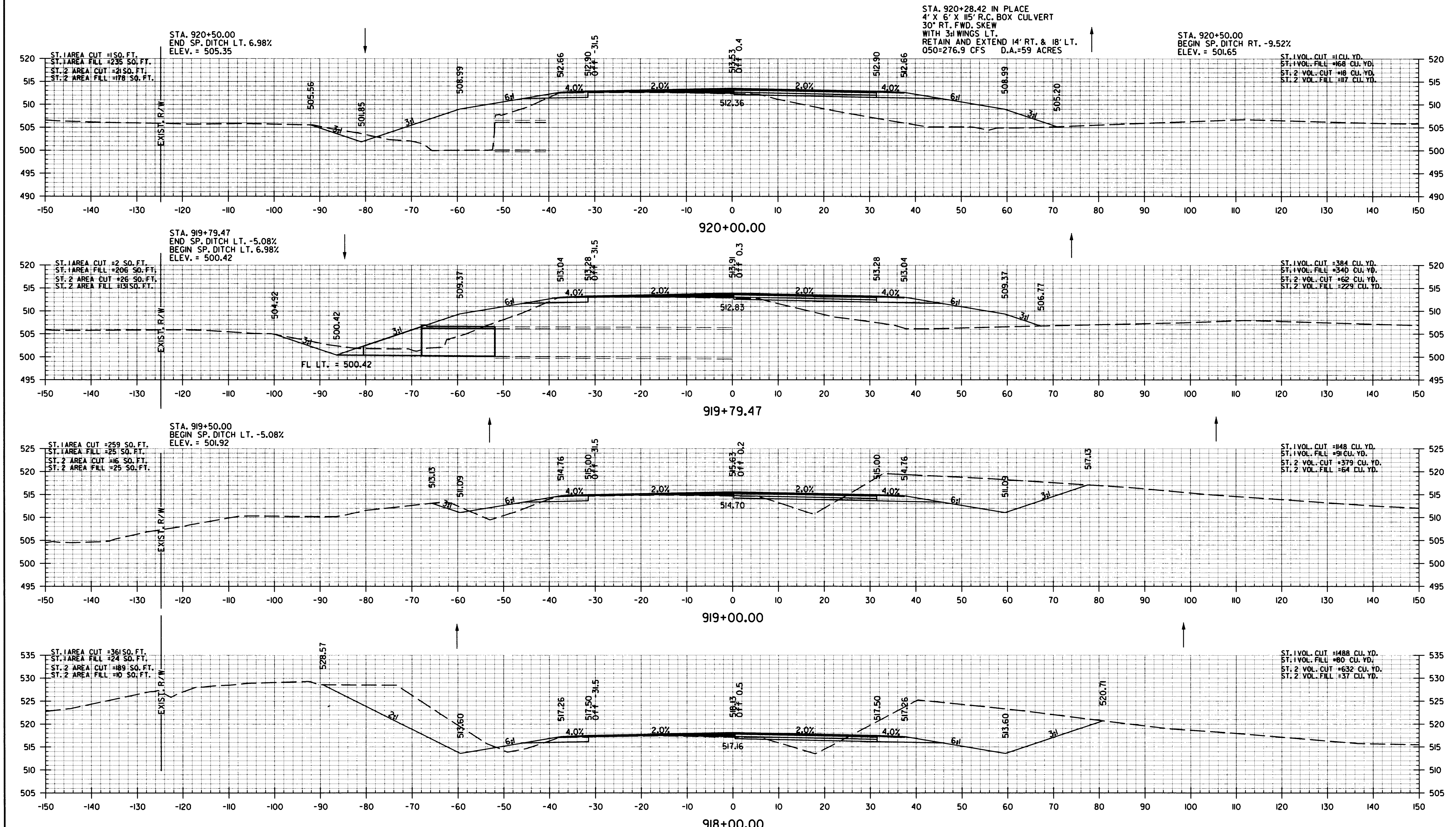
915+00.00

STA. 915+00 TO STA. 917+00

Leonard.Speed 9/23/2016 11:26:04 AM
WORKSPACE: Leonard.Speed
c:\pwv81-local\baker_projects\leonard.speed\d0271744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	697	888

(2) CROSS SECTIONS



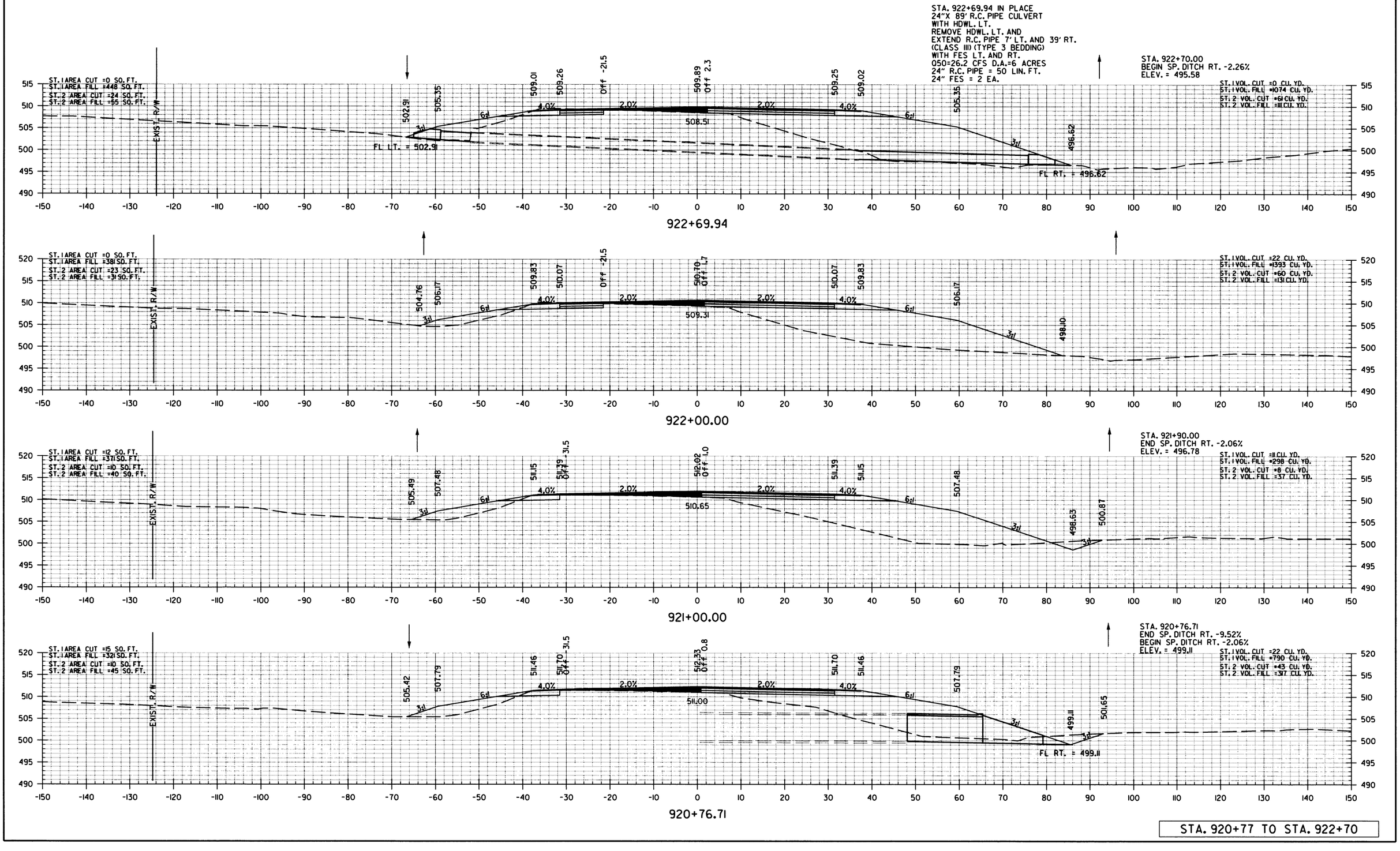
STA. 918+00 TO STA. 920+00

Leonard.Speed 9/23/2016 11:26:05 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	698	888

(2) CROSS SECTIONS



STA. 920+77 TO STA. 922+70

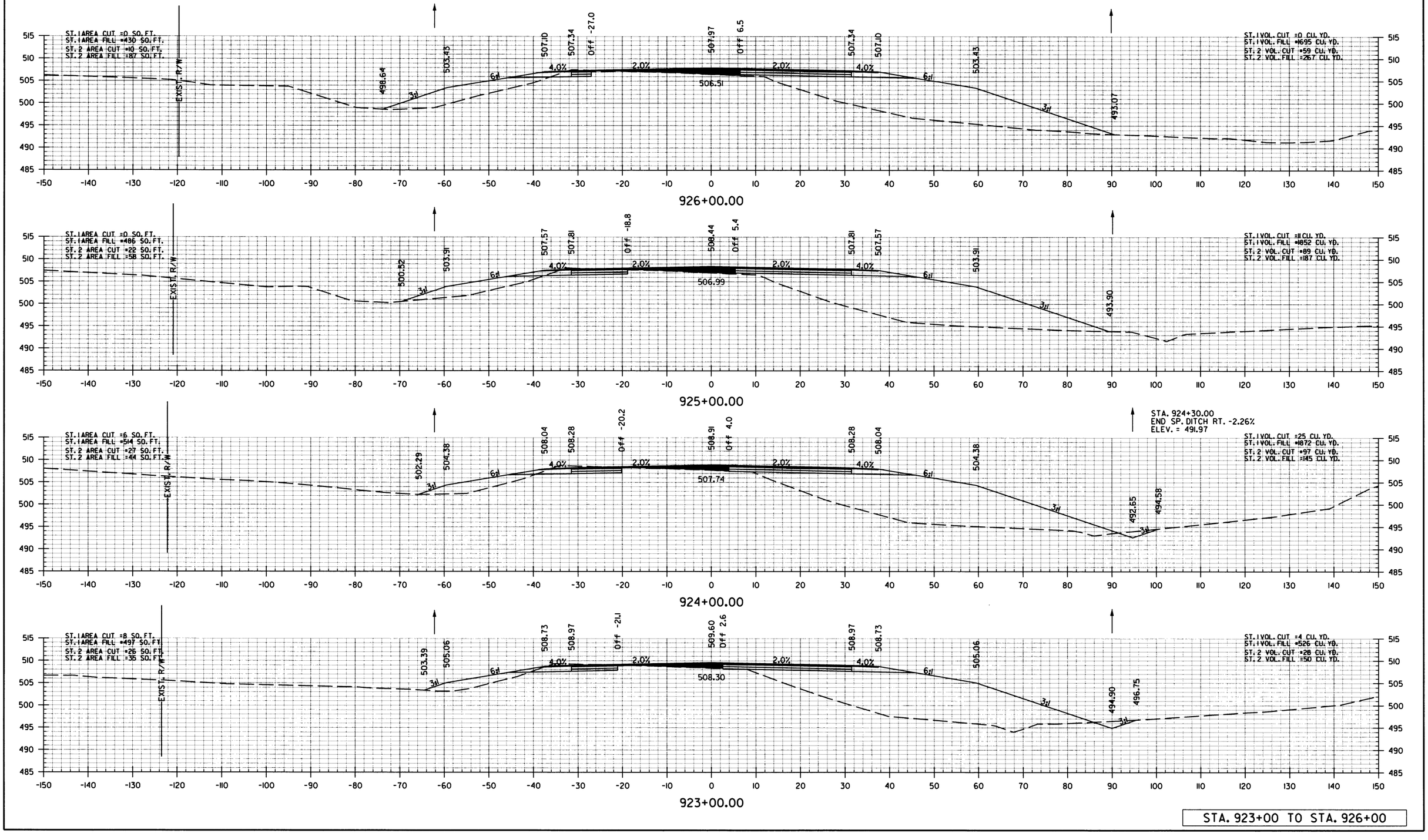
Leonard.Speed 9/23/2016 11:26:06 AM
WORKSPACE: Leonard.Speed
CONNECTION: Projects\leonard.speed\d027f144\rCA0606_21.CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	699	888

(2) CROSS SECTIONS



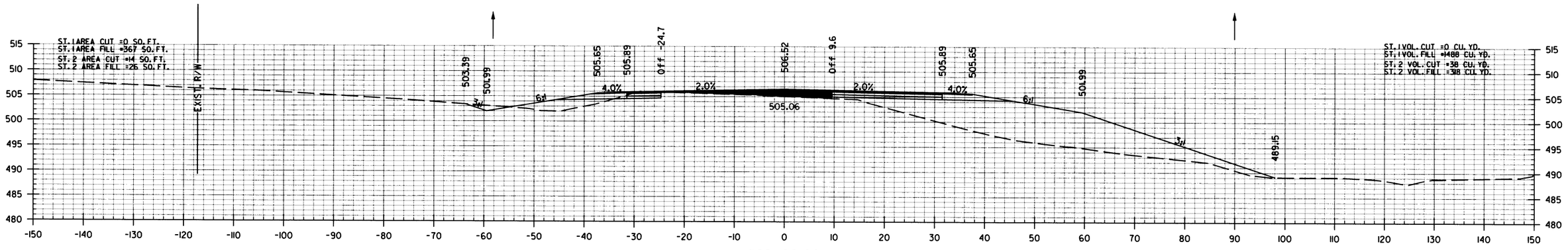
STA. 923+00 TO STA. 926+00

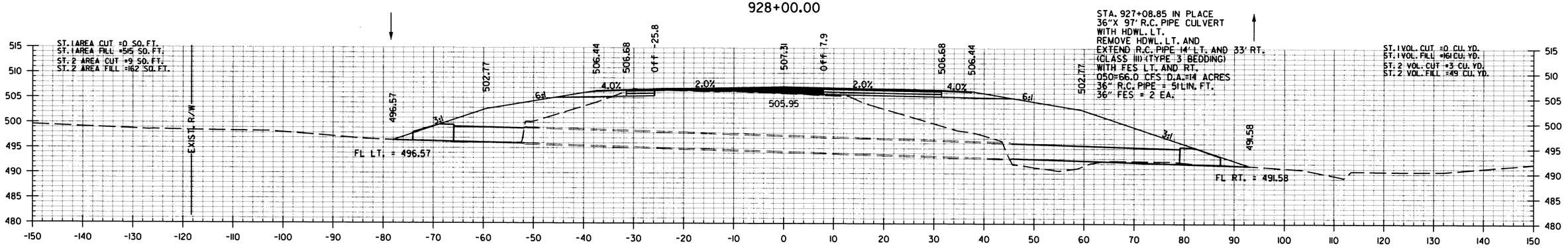
Leonard Speed 9/23/2006 11:26:08 AM
WORKSPACE: Leonard Speed
c:\pw\bl-local\baker_projects\leonard.speed\d0211744\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

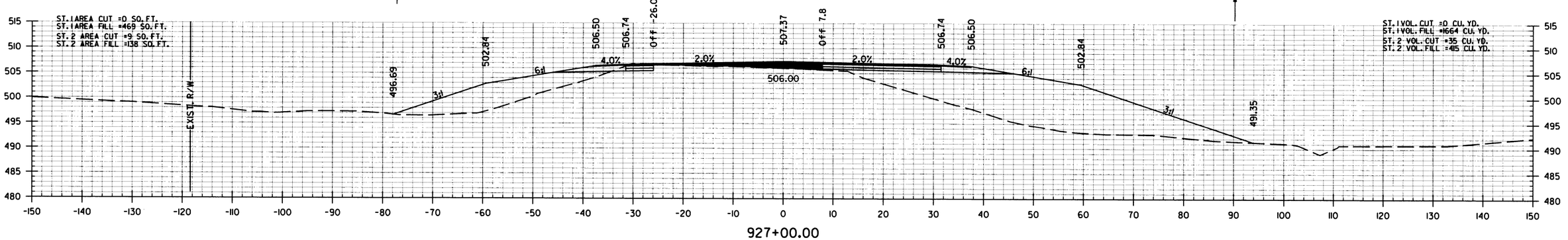
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	700	888

(2) CROSS SECTIONS



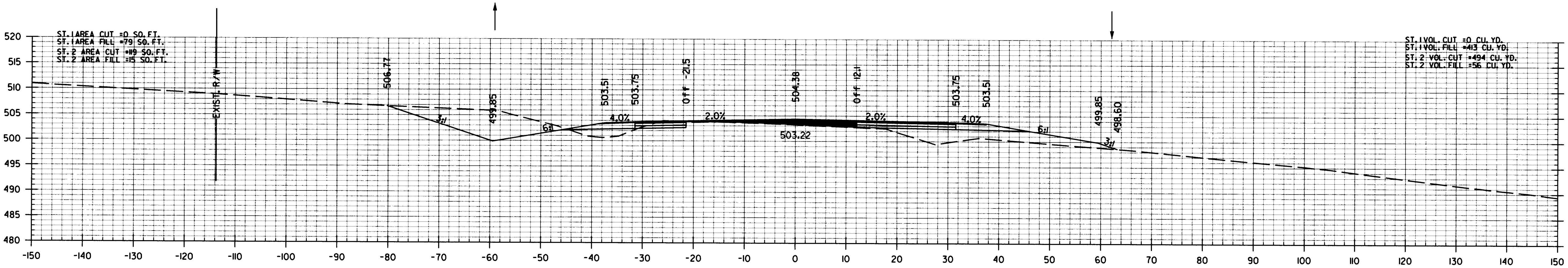




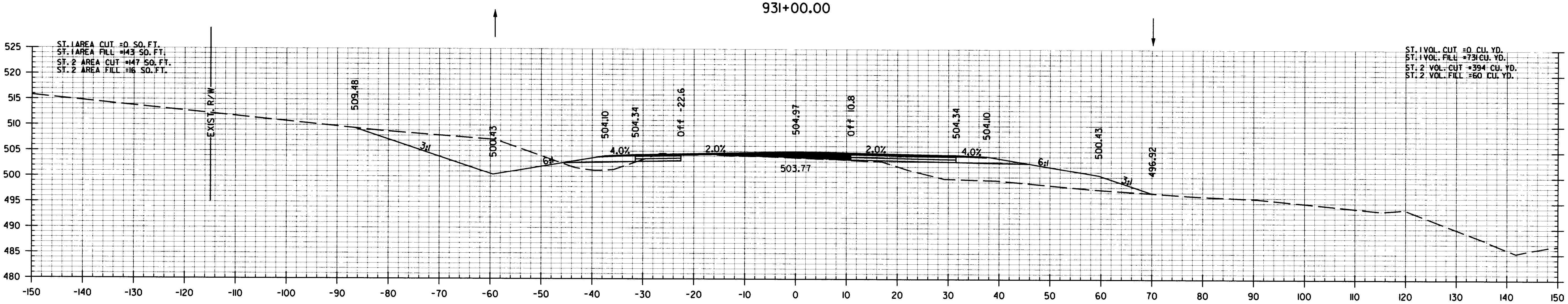
STA. 927+00 TO STA. 928+00

LeonardSpeed 9/23/2016 11:26:09 AM
WORKSPACE: LeonardSpeed
c:\pw\81-local\baker_projects\leonard.speed\d0217141\r-CA0606.21.CX_MAIN_001.dgn
REVISED DATE: ##REVDATE##

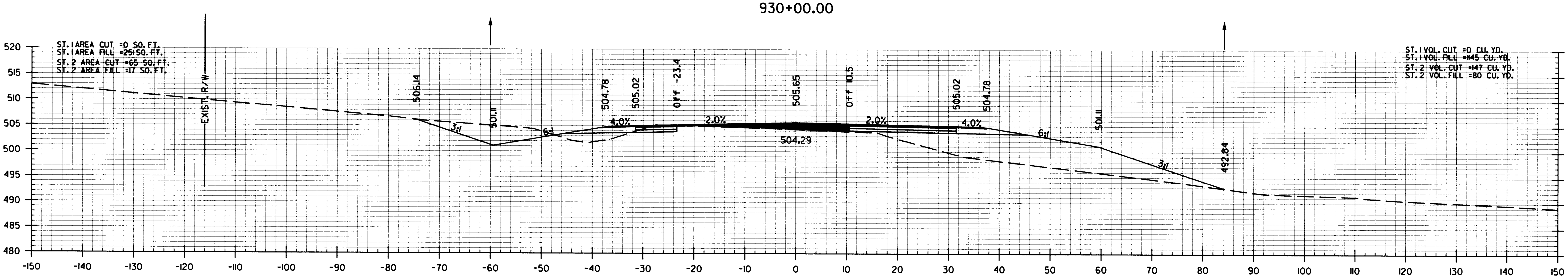
Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	701	888
				(2)	CROSS SECTIONS				



931+00.00



930+00.00



929+00.00

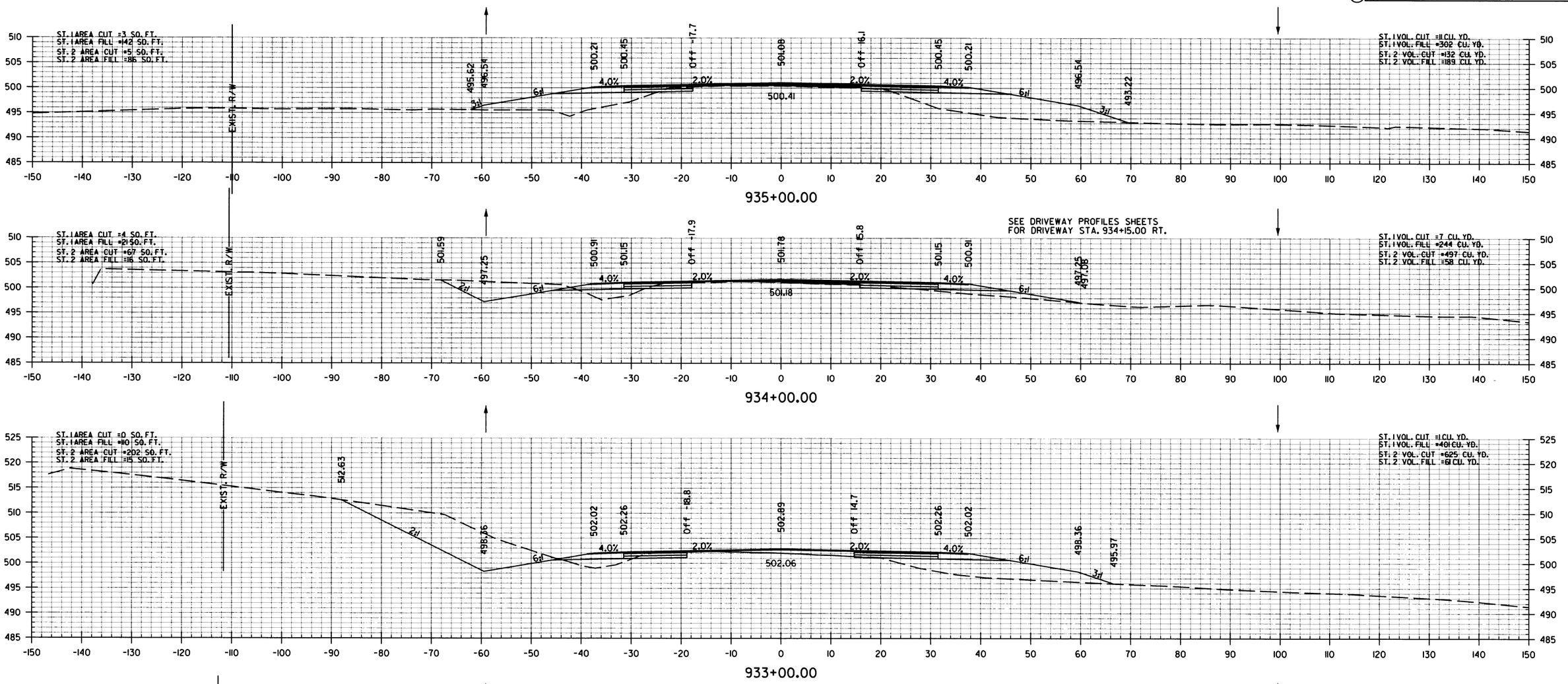
STA. 929+00 TO STA. 931+00

Leonard.Speed 9/23/2016 11:26:10 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	702	888

(2) CROSS SECTIONS



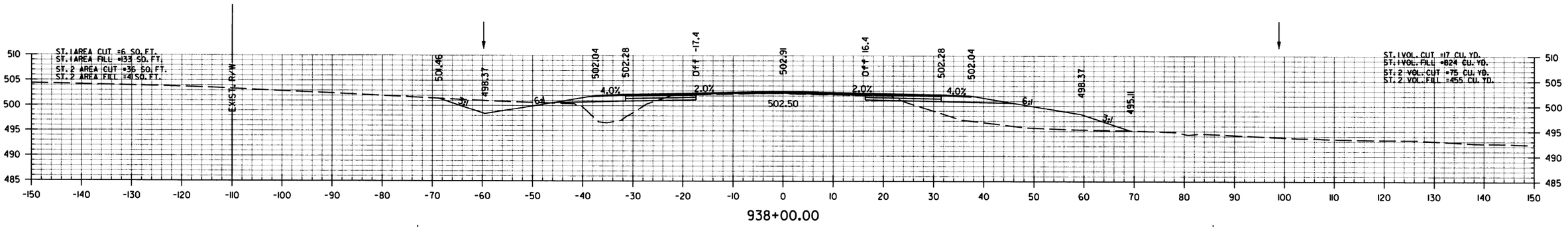
STA. 932+00 TO STA. 935+00

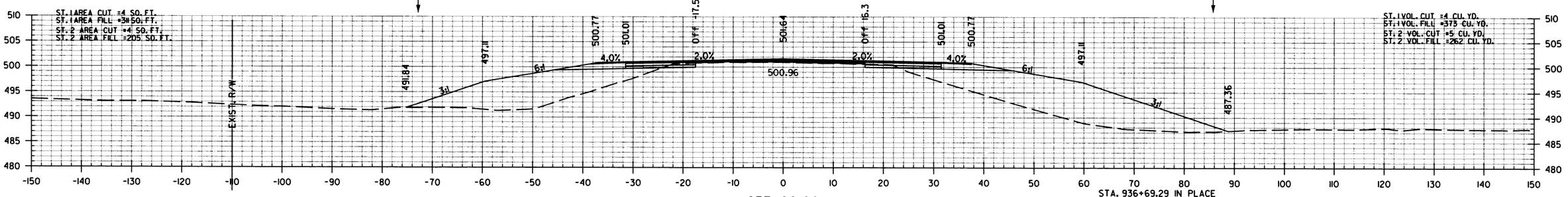
LeonardSpeed 9/23/2016 11:26:11 AM
K:\ROW\SURVEY\Leonard Speed\
c:\dgn\81-local\baker_projects\leonard_speed\d027l744\r-CA0606_21.CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

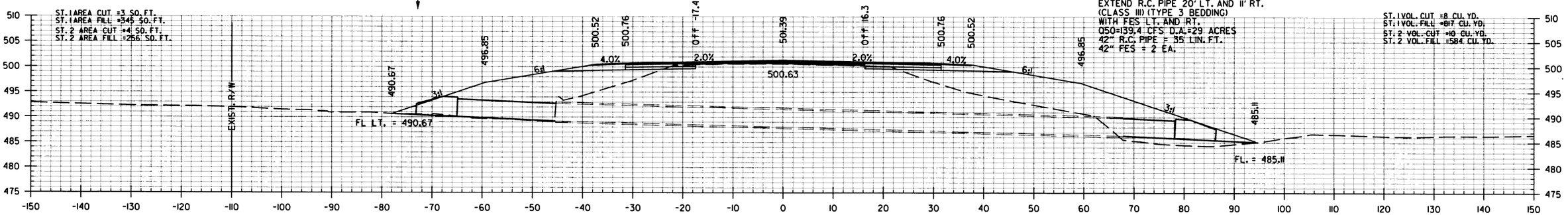
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	703	888

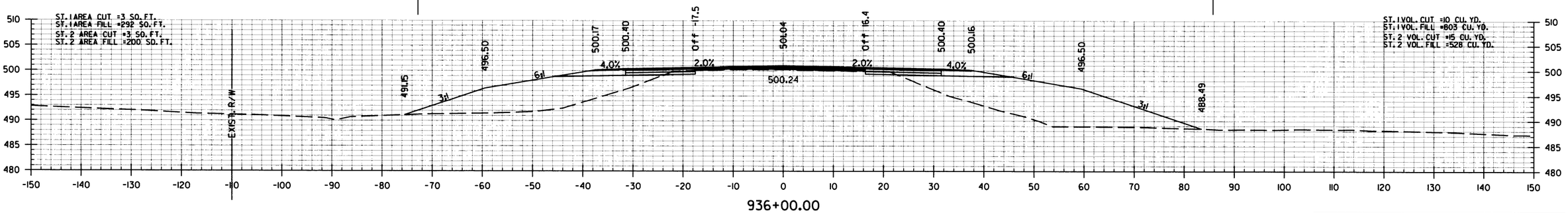
(2) CROSS SECTIONS





STA. 936+69.29 IN PLACE
42"X 113' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 20' LT. AND 11' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=139.4 CFS D.A.=29 ACRES
42" R.C. PIPE = 35 LIN. FT.
42" FES = 2 EA.





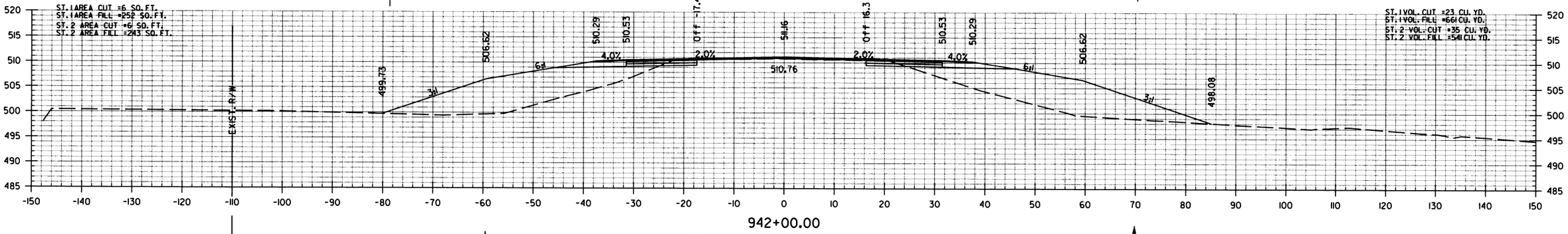
STA. 936+00 TO STA. 938+00

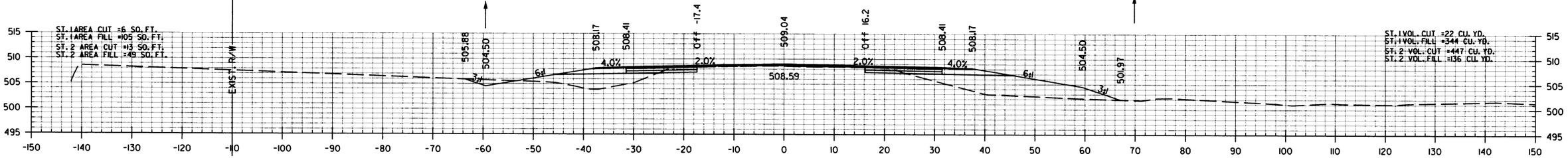
Leonard.Speed 9/23/2016 11:26:13 AM
WORKSPACE: Leonard.Speed
CURRENT PROJECT: C:\Users\leonard.speed\Documents\Leonard.speed\d027lT44\r\CA0606_2LCX_MAIN_001.dgn
REVISED DATE: **REVDATE**

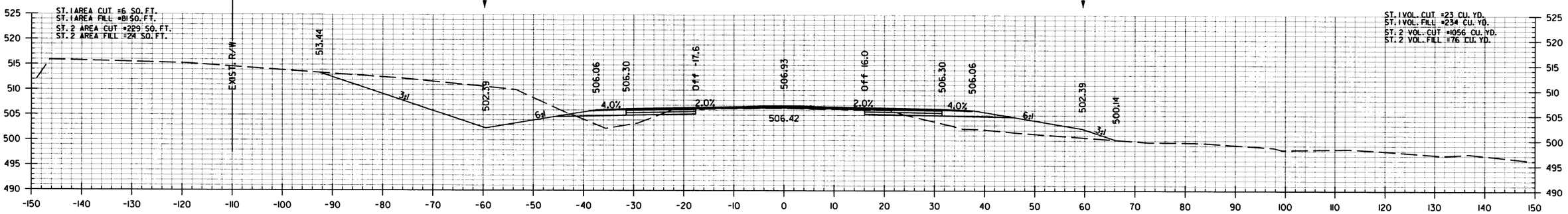
Michael Baker INTERNATIONAL

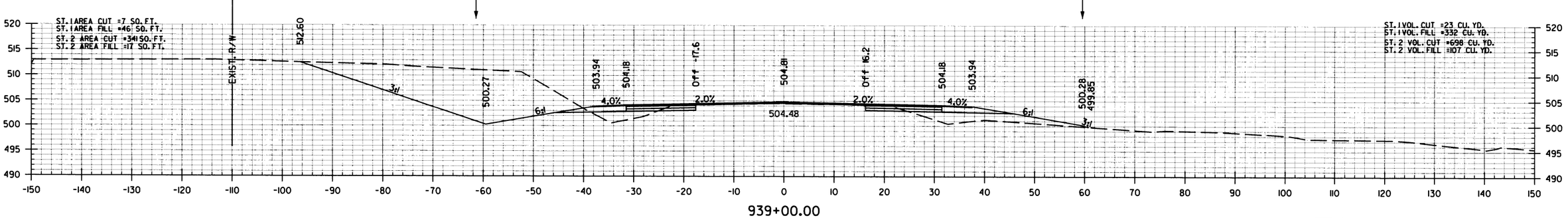
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	704	888

(2) CROSS SECTIONS









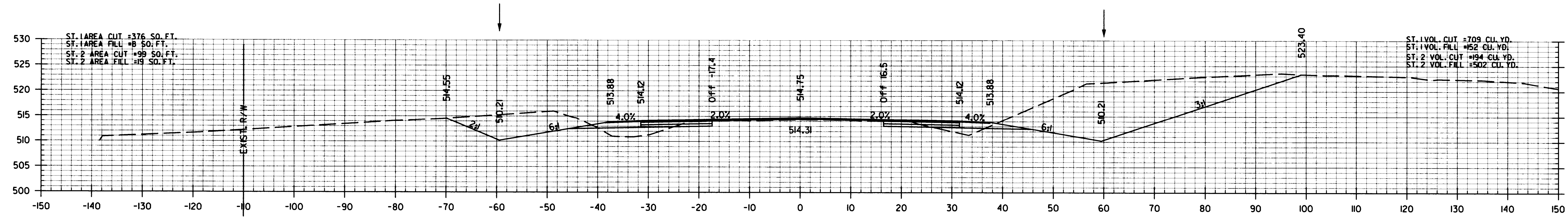
STA. 939+00 TO STA. 942+00

Leonard.Speed 9/23/2016 11:26:32 AM
WORKSPACE: Leonard.Speed
CONTAINER: C:\Projects\Leonard.speed\d027l744\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

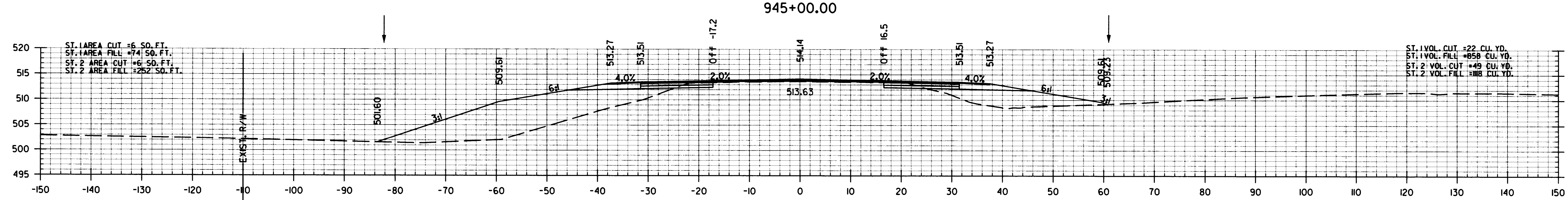
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	705	888

(2) CROSS SECTIONS

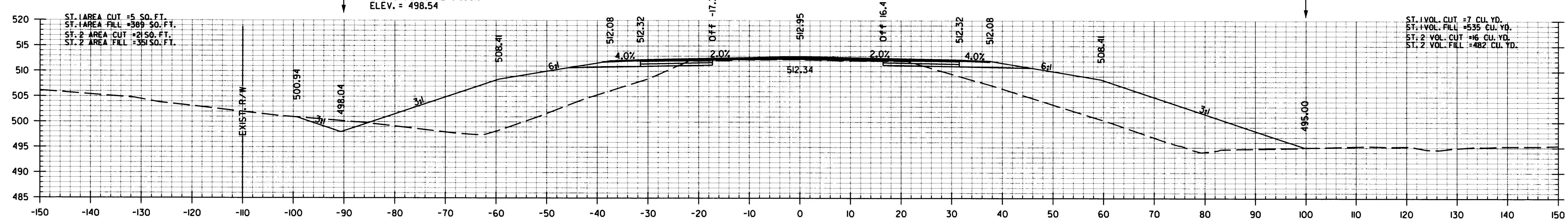


945+00.00



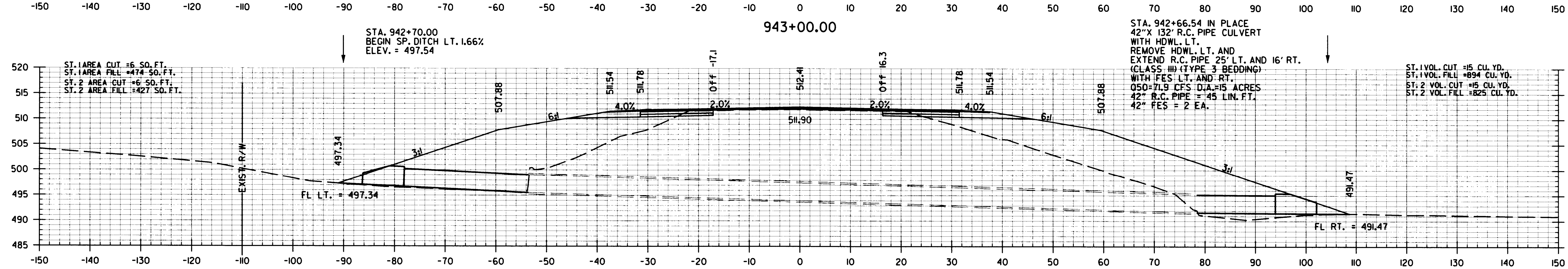
944+00.00

STA. 943+30.00
END SP. DITCH LT. 1.66%
ELEV. = 498.54



943+00.00

STA. 942+70.00
BEGIN SP. DITCH LT. 1.66%
ELEV. = 497.54



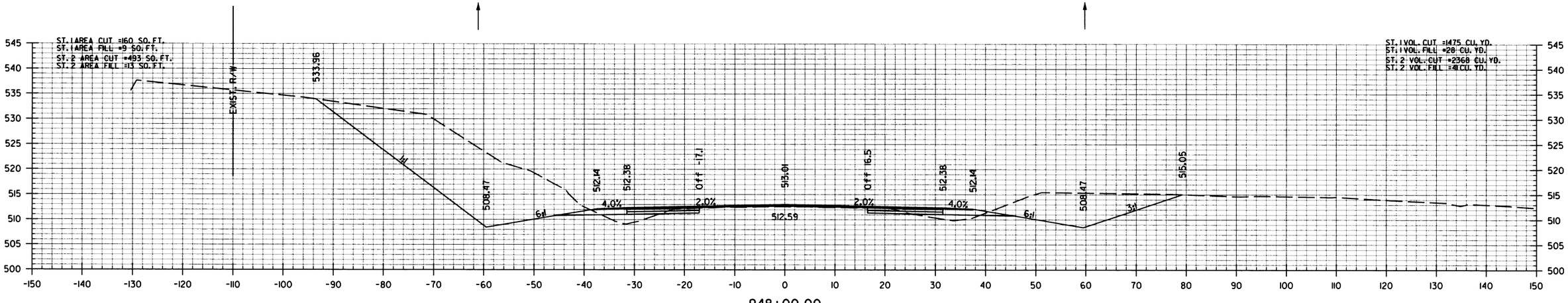
942+66.54

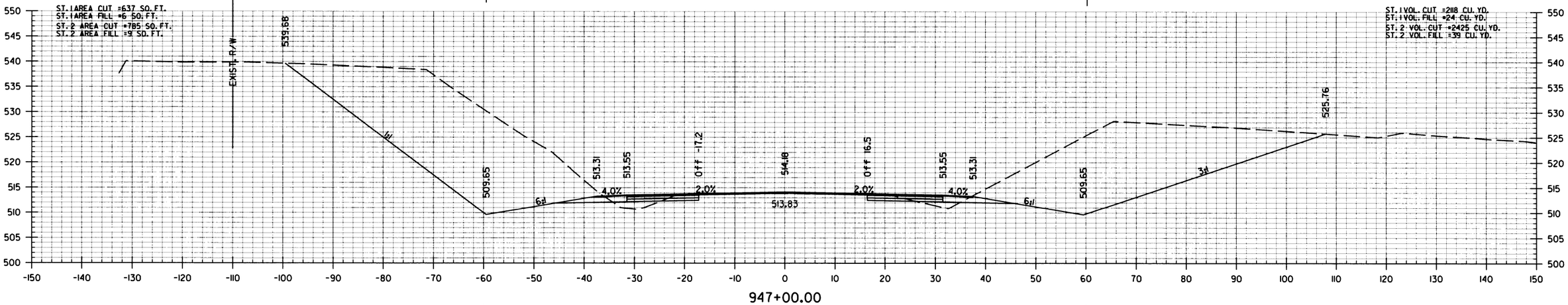
STA. 942+67 TO STA. 945+00

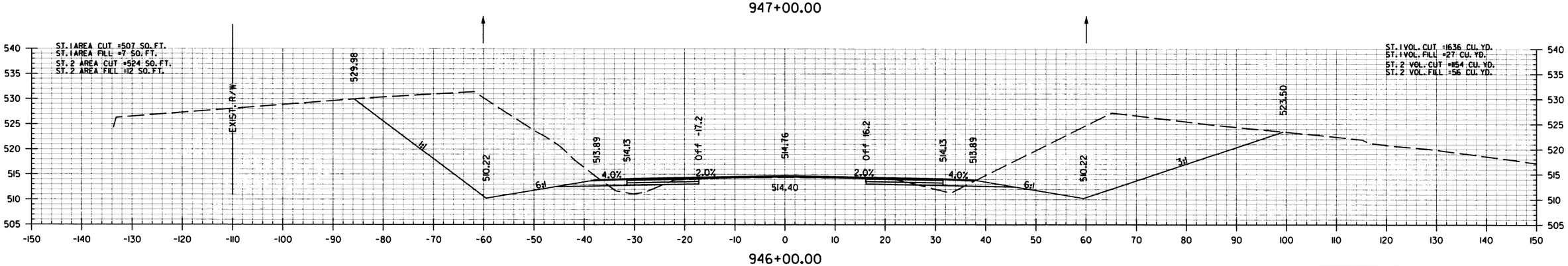
Leonard.Speed 9/23/2016 11:26:33 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	706	888
				(2)	CROSS SECTIONS			







STA. 946+00 TO STA. 948+00

LeonardSpeed 9/23/2016 11:26:34 AM
WORKSPACE: LeonardSpeed
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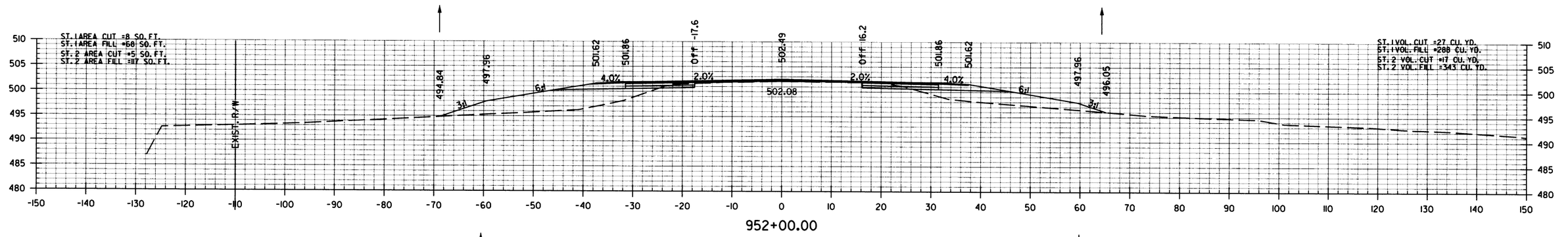
REVISED DATE: $$REVDATE$$

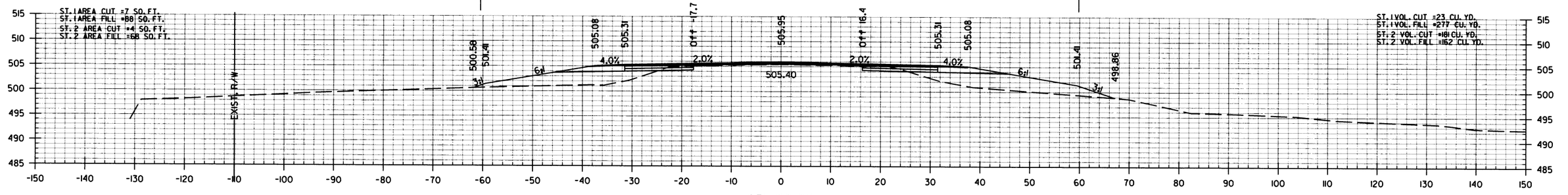
Michael Baker INTERNATIONAL

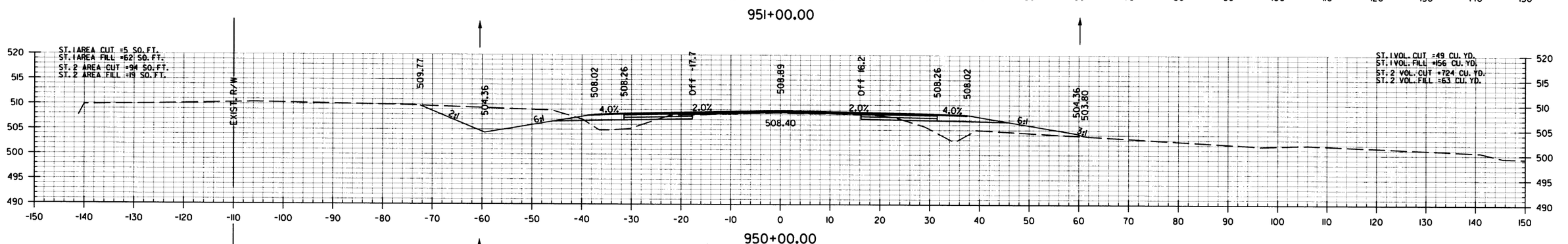
DATE	DATE FILMED	DATE REVISED	DATE FILMED

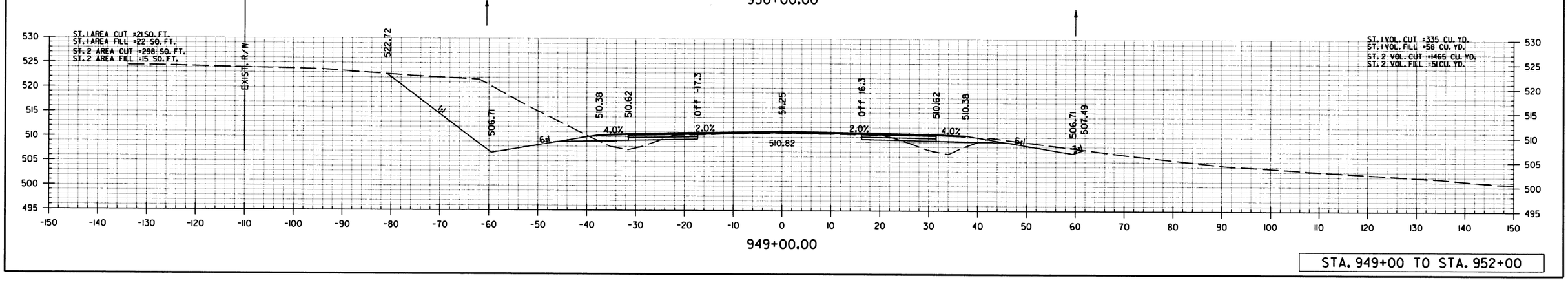
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	707	888

(2) CROSS SECTIONS









STA. 949+00 TO STA. 952+00

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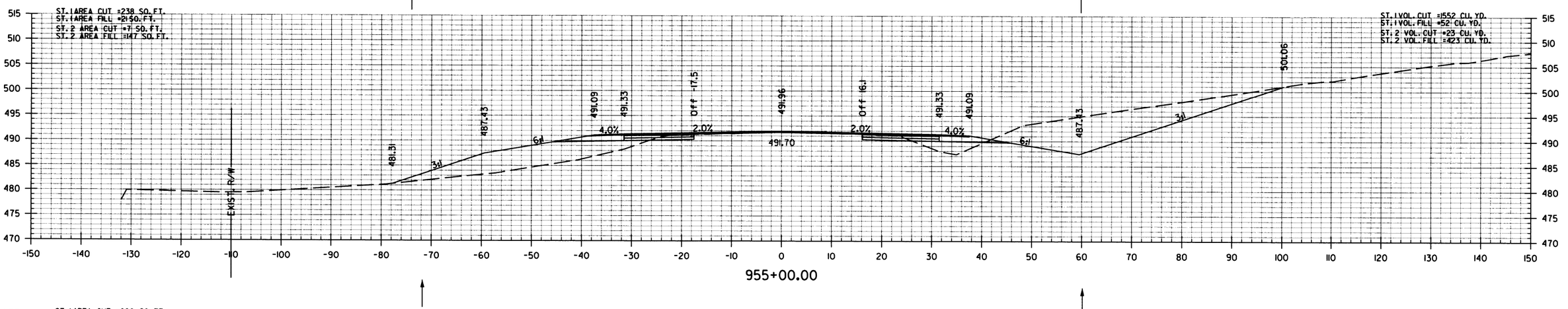
REVISED DATE: ##REVDATE##

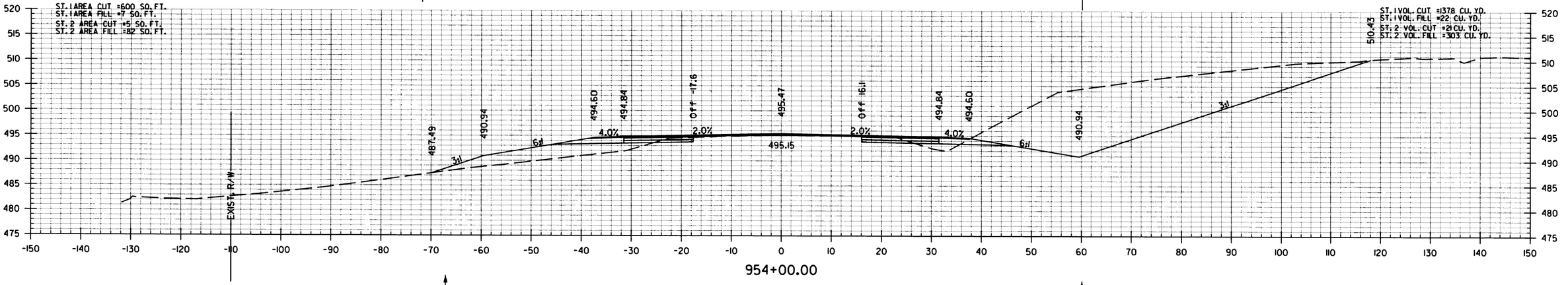
Michael Baker INTERNATIONAL

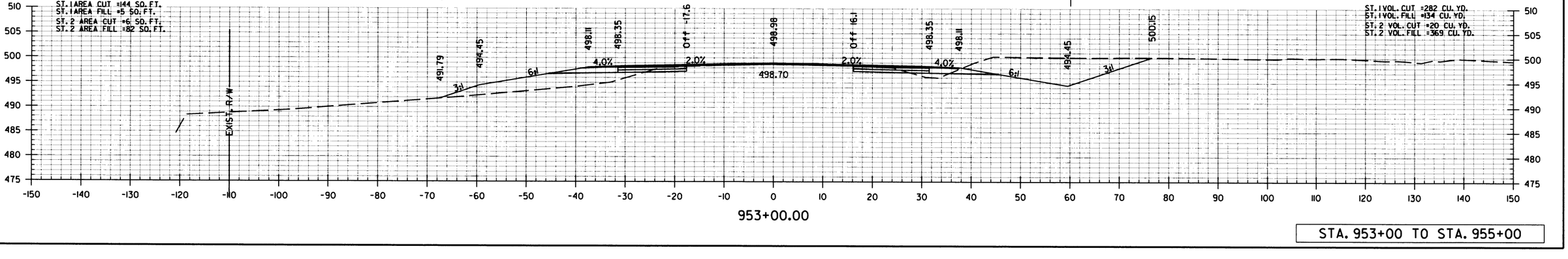
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	708	888

(2) CROSS SECTIONS







STA. 953+00 TO STA. 955+00

Leonprd:Speed 9/23/2006 11:26:35 AM
WORKSET: Leonard Speed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

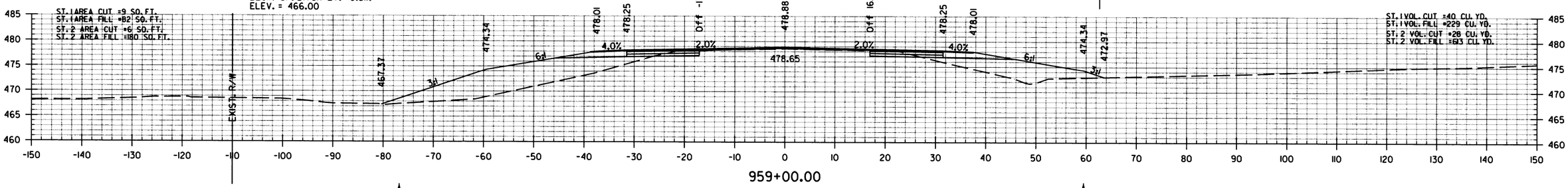
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	709	888

(2) CROSS SECTIONS

STA. 959+60.00
BEGIN SP. DITCH LT. -0.51%
ELEV. = 466.00

ST. 1 AREA CUT =9 SQ. FT.
ST. 1 AREA FILL =82 SQ. FT.
ST. 2 AREA CUT =6 SQ. FT.
ST. 2 AREA FILL =180 SQ. FT.

ST. 1 VOL. CUT =40 CU. YD.
ST. 1 VOL. FILL =229 CU. YD.
ST. 2 VOL. CUT =28 CU. YD.
ST. 2 VOL. FILL =63 CU. YD.

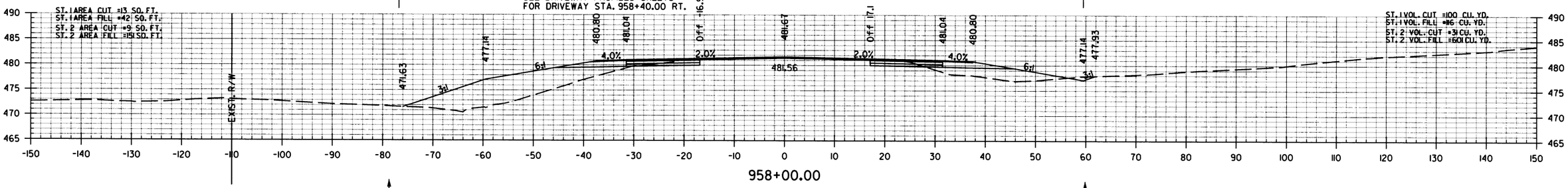


959+00.00

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEWAY STA. 958+40.00 RT.

ST. 1 AREA CUT =13 SQ. FT.
ST. 1 AREA FILL =42 SQ. FT.
ST. 2 AREA CUT =9 SQ. FT.
ST. 2 AREA FILL =151 SQ. FT.

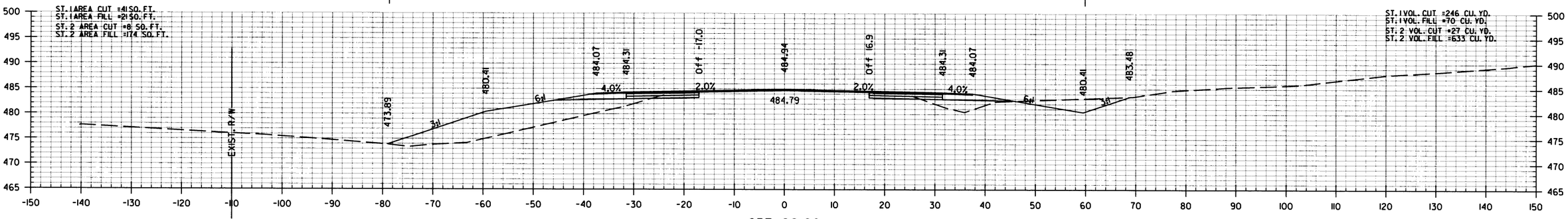
ST. 1 VOL. CUT =100 CU. YD.
ST. 1 VOL. FILL =86 CU. YD.
ST. 2 VOL. CUT =31 CU. YD.
ST. 2 VOL. FILL =601 CU. YD.



958+00.00

ST. 1 AREA CUT =41 SQ. FT.
ST. 1 AREA FILL =21 SQ. FT.
ST. 2 AREA CUT =8 SQ. FT.
ST. 2 AREA FILL =174 SQ. FT.

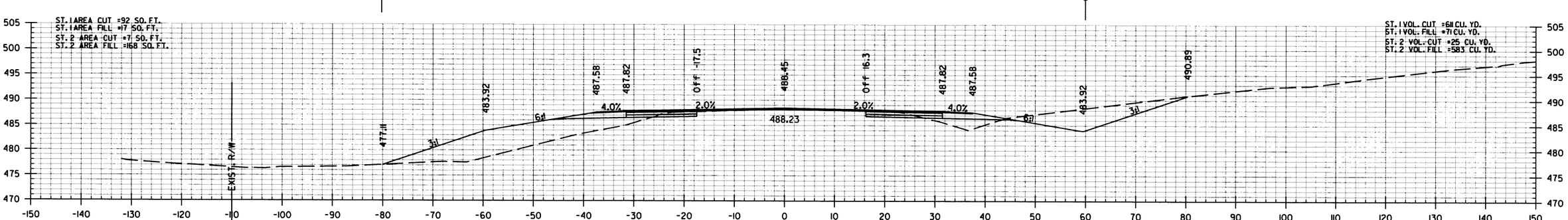
ST. 1 VOL. CUT =246 CU. YD.
ST. 1 VOL. FILL =70 CU. YD.
ST. 2 VOL. CUT =27 CU. YD.
ST. 2 VOL. FILL =633 CU. YD.



957+00.00

ST. 1 AREA CUT =92 SQ. FT.
ST. 1 AREA FILL =17 SQ. FT.
ST. 2 AREA CUT =7 SQ. FT.
ST. 2 AREA FILL =168 SQ. FT.

ST. 1 VOL. CUT =611 CU. YD.
ST. 1 VOL. FILL =71 CU. YD.
ST. 2 VOL. CUT =25 CU. YD.
ST. 2 VOL. FILL =583 CU. YD.



956+00.00

STA. 956+00 TO STA. 959+00

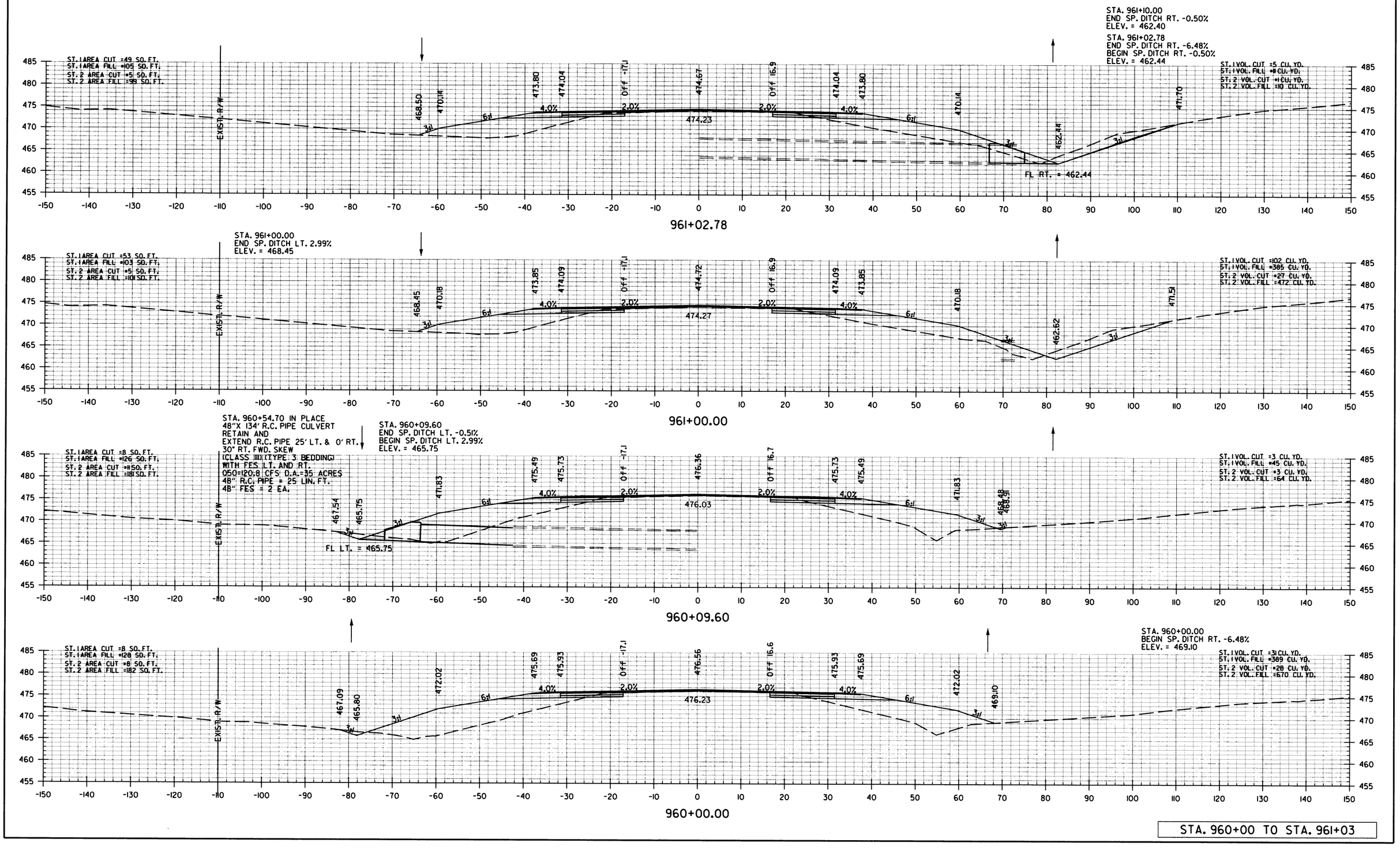
Leonard.Speed 9/23/2016 11:26:35 AM
WORKSPACE: Leonard.Speed
CONFIGURATION: C:\Projects\Leonard.speed\d0271741\r-CA0606.21.CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	710	888

(2) CROSS SECTIONS



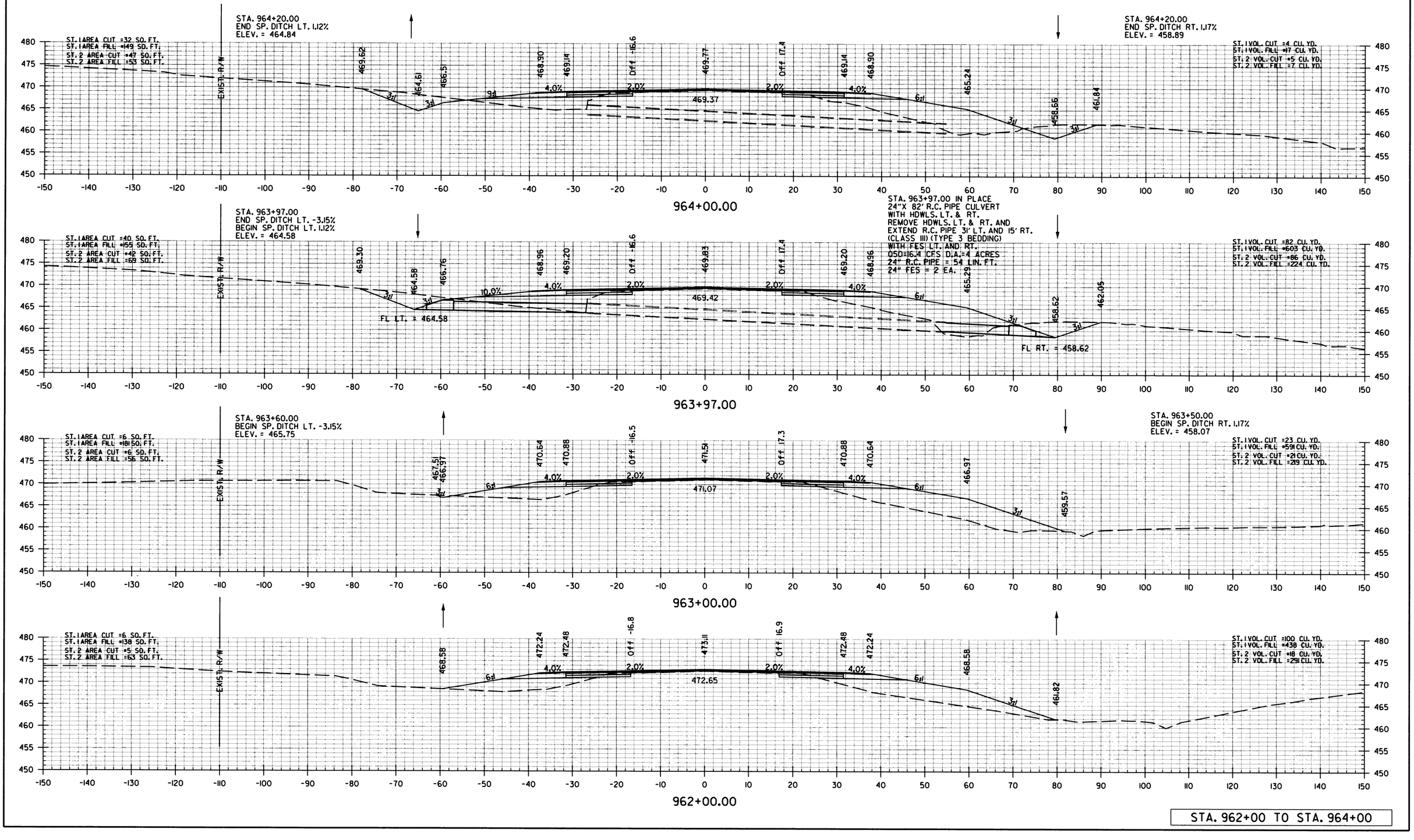
STA. 960+00 TO STA. 961+03

LeonardSpeed 9/23/2016 11:26:36 AM
WORKSPACE: LeonardSpeed
CONFIGURATION: C:\Projects\leonard.speed\d027lT44\r\CA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	711	888

(2) CROSS SECTIONS



STA. 962+00 TO STA. 964+00

LeonardSpeed 9/23/2016 11:26:36 AM
WORKSPACE: Leonard_Speed
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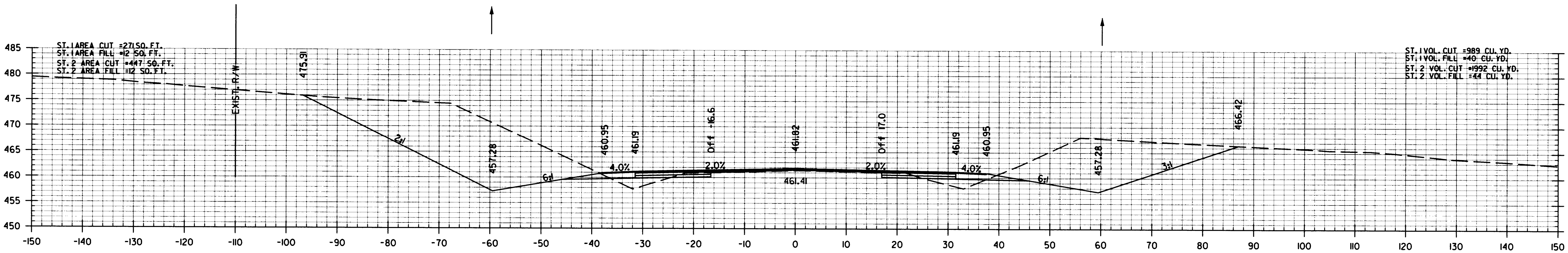
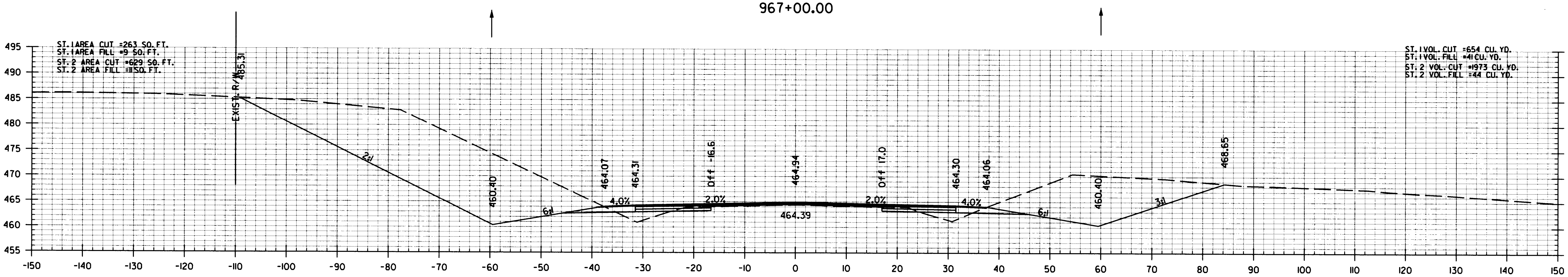
REVISED DATE: ##REVDATE##

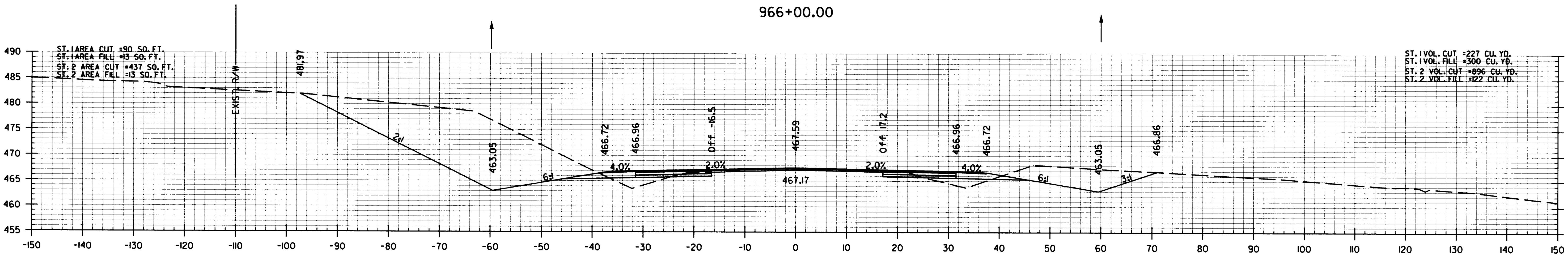
Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	712	888
					(2)	CROSS SECTIONS			



967+00.00



966+00.00



965+00.00

STA. 965+00 TO STA. 967+00

Leonard.Speed 9/23/2016 11:26:37 AM
WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

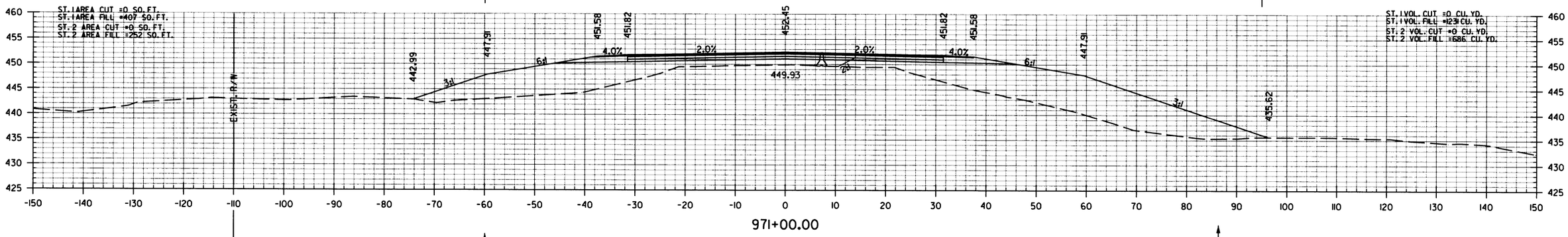
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

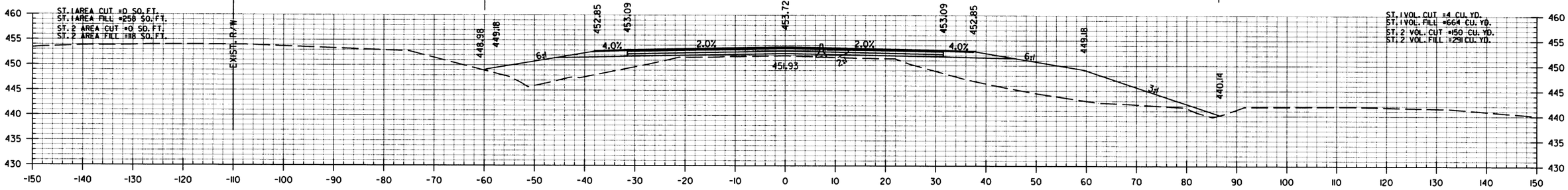
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	713	888

(2) CROSS SECTIONS

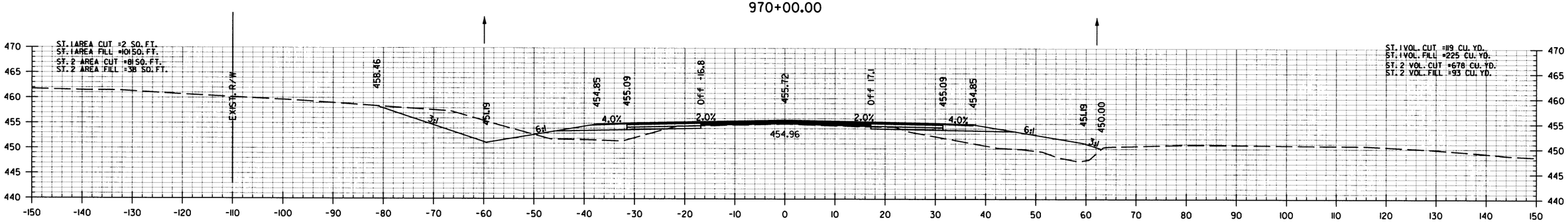
STA. 971+50.00
BEGIN SP. DITCH LT. -8.52%
ELEV. = 439.56



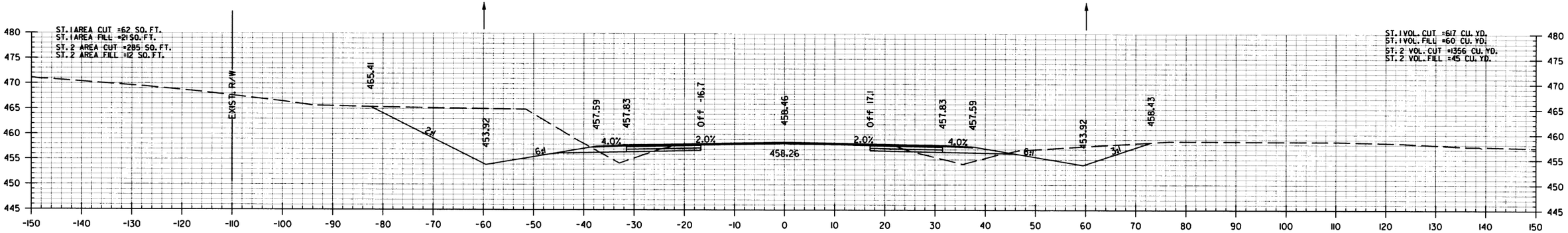
971+00.00



970+00.00



969+00.00



968+00.00

STA. 968+00 TO STA. 971+00

LeonardSpeed 9/23/2016 11:26:38 AM
\\MWSSTAFF1\Projects\Leonard Speed\
c:\pw\81-local\baker_projects\leonard.speed\d0271744\v-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

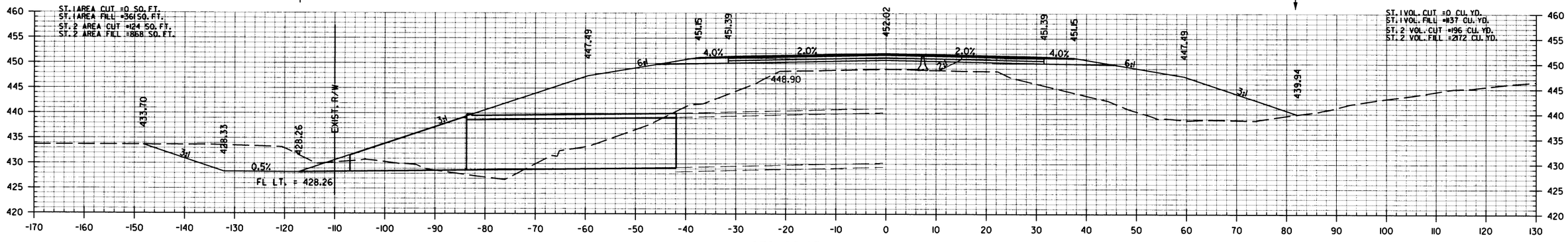
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	714	888
				(2)	CROSS SECTIONS			

STA. 972+82.63
END SP. DITCH LT. -8.52%
BEGIN SP. DITCH LT. -0.20%
ELEV. = 428.26

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =361 SQ. FT.
ST. 2 AREA CUT =124 SQ. FT.
ST. 2 AREA FILL =868 SQ. FT.

ST. 1 VOL. CUT =0 CU. YD.
ST. 1 VOL. FILL =137 CU. YD.
ST. 2 VOL. CUT =196 CU. YD.
ST. 2 VOL. FILL =272 CU. YD.

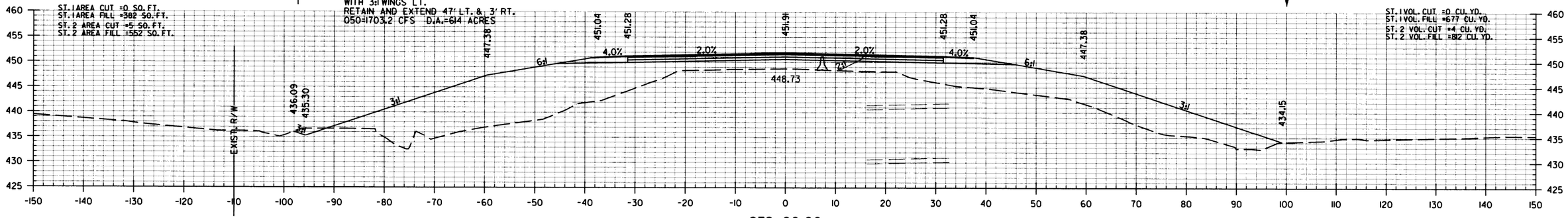


972+82.63

STA. 972+14.31 IN PLACE
10' X 10' X 128' R.C. BOX CULVERT
36° LT. FWD. SKEW
WITH 3:1 WINGS LT.
RETAIN AND EXTEND 47' LT. & 3' RT.
Q50=1703.2 CFS D.A.=614 ACRES

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =382 SQ. FT.
ST. 2 AREA CUT =5 SQ. FT.
ST. 2 AREA FILL =552 SQ. FT.

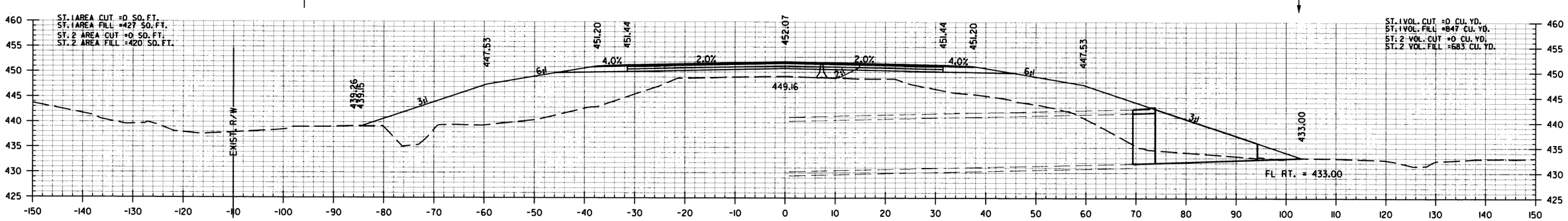
ST. 1 VOL. CUT =0 CU. YD.
ST. 1 VOL. FILL =677 CU. YD.
ST. 2 VOL. CUT =4 CU. YD.
ST. 2 VOL. FILL =812 CU. YD.



972+00.00

ST. 1 AREA CUT =0 SQ. FT.
ST. 1 AREA FILL =427 SQ. FT.
ST. 2 AREA CUT =0 SQ. FT.
ST. 2 AREA FILL =420 SQ. FT.

ST. 1 VOL. CUT =0 CU. YD.
ST. 1 VOL. FILL =847 CU. YD.
ST. 2 VOL. CUT =0 CU. YD.
ST. 2 VOL. FILL =683 CU. YD.



971+54.86

STA. 971+55 TO STA. 972+83

Leonard Speed 9/23/2016 11:26:38 AM
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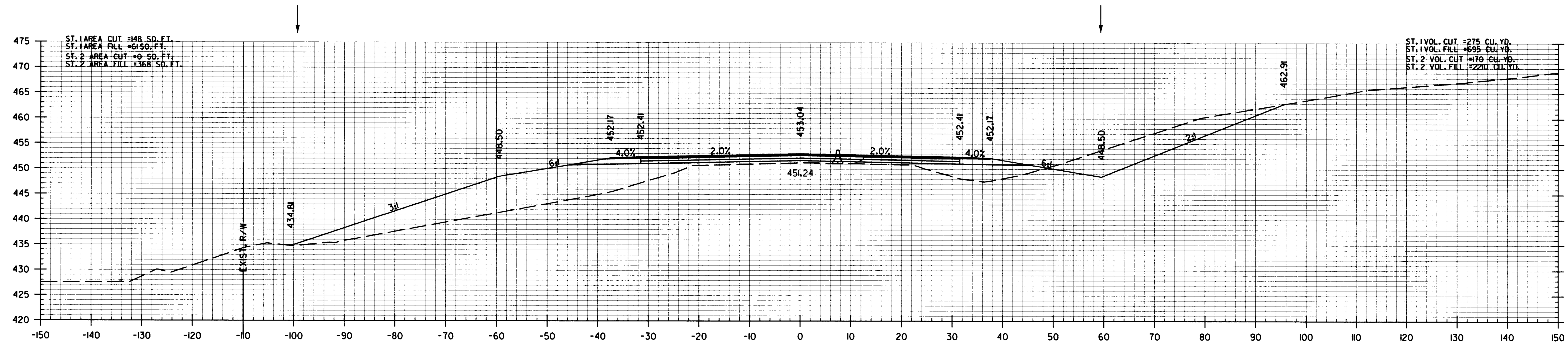
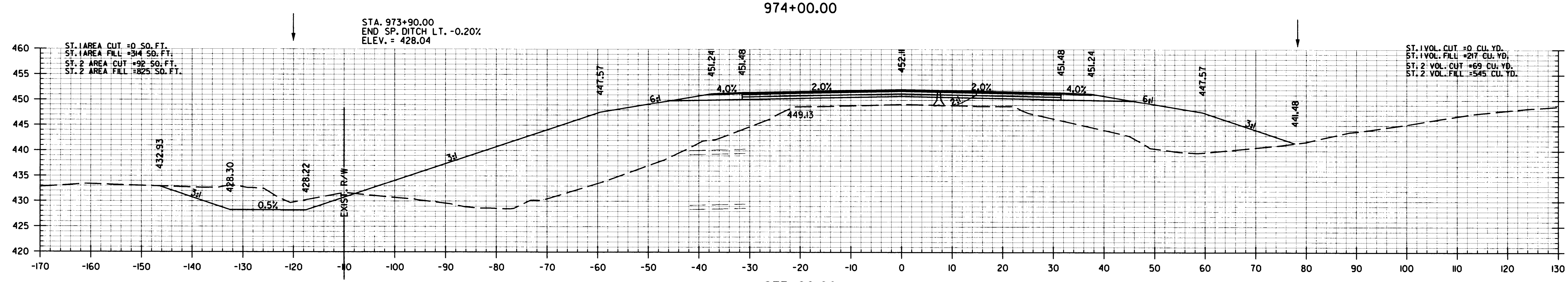
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	715	888

(2) CROSS SECTIONS



974+00.00



973+00.00

STA. 973+00 TO STA. 974+00

Leonard.Speed 9/23/2016 11:26:39 AM
WORKSPACE: Leonard.Speed
c:\pwv81-local\baker_projects\leonard.speed\d0271744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

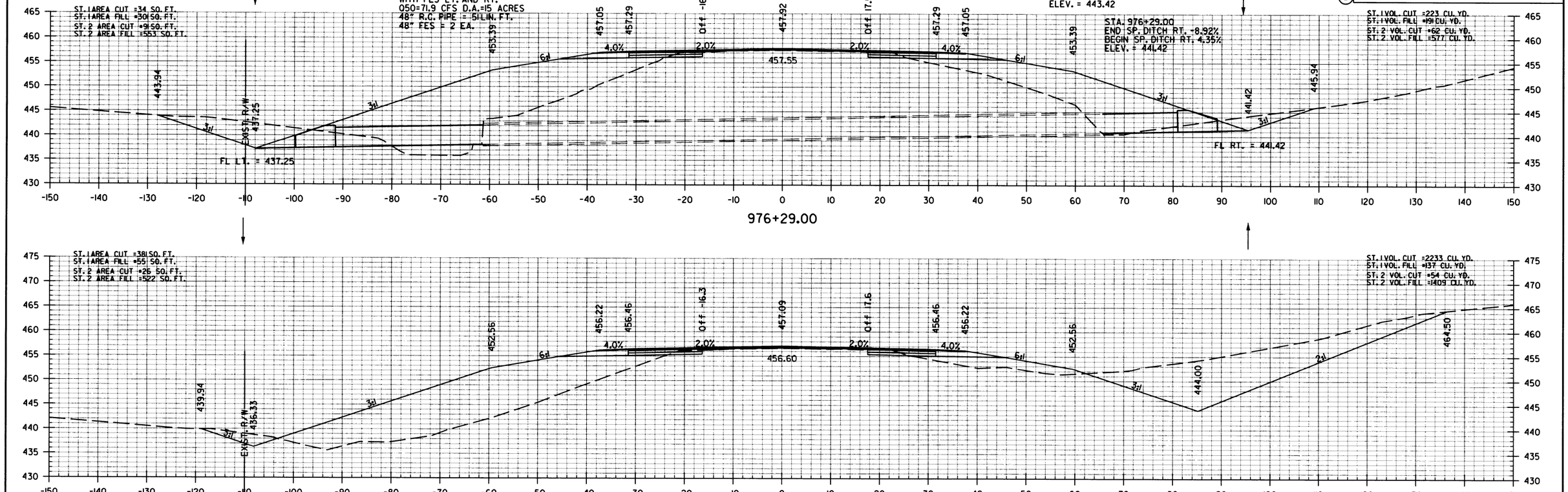
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	716	888

(2) CROSS SECTIONS

STA. 976+29.00
END SP. DITCH LT. 3.16%
BEGIN SP. DITCH LT. 9.93%
ELEV. = 437.25

STA. 976+29.00 IN PLACE
48"X 127' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 31' LT. AND 16' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=71.9 CFS D.A.=15 ACRES
48" R.C. PIPE = 51 LIN. FT.
48" FES = 2 EA.

STA. 976+75.00
END SP. DITCH RT. 4.35%
ELEV. = 443.42



STA. 975+00 TO STA. 976+29

LeonardSpeed 9/23/2016 11:26:39 AM
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C:\Users\bkeller\Documents\Projects\Leonard-speed\d0271744\rCA0606.21_CX_MAIN_001.dgn
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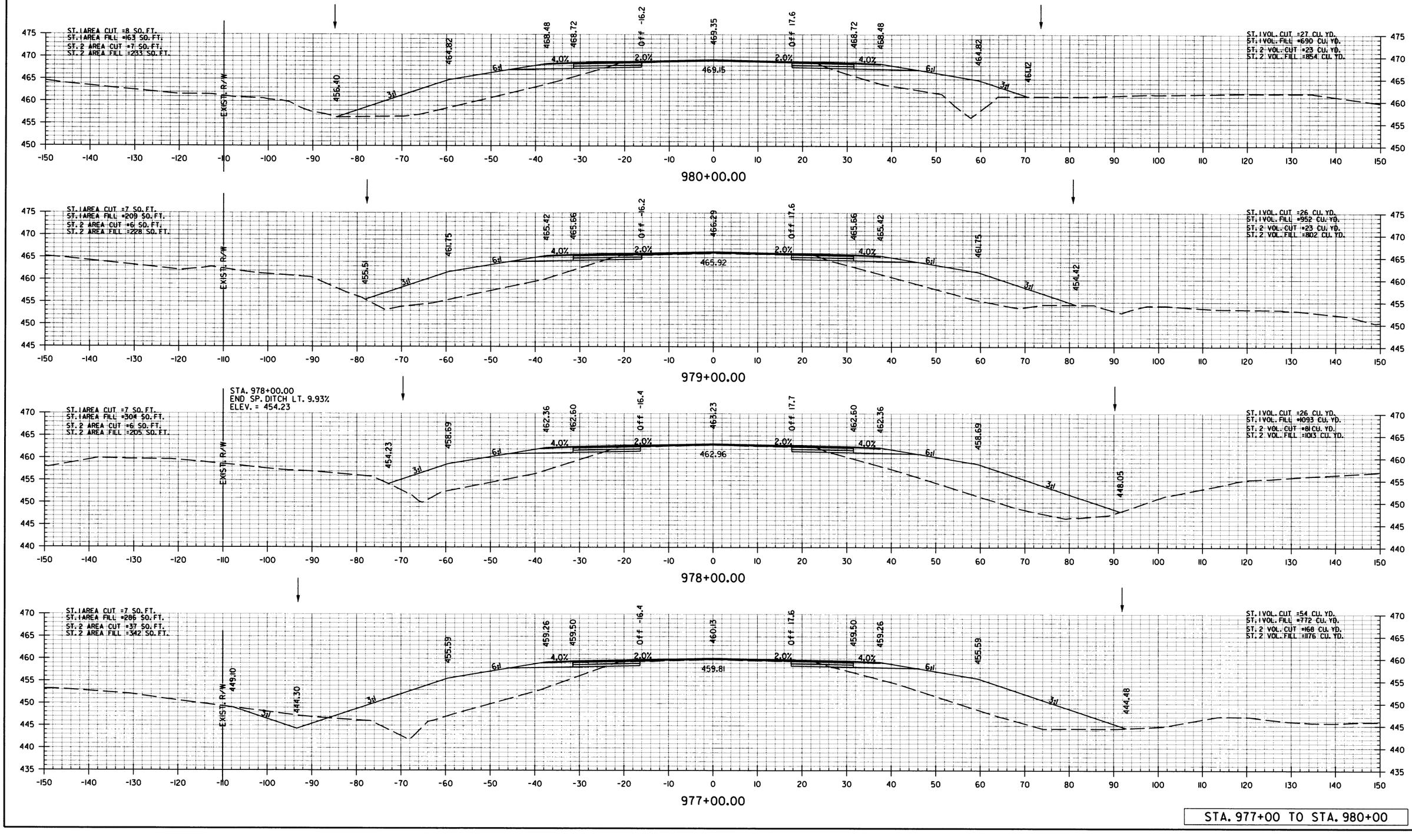
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	717	888
				(2)	CROSS SECTIONS			



STA. 977+00 TO STA. 980+00

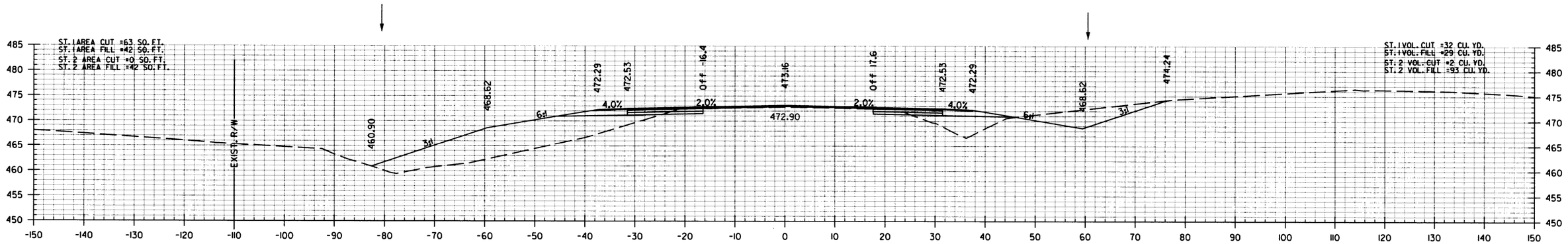
LeonardSpeed 9/23/2016 11:26:40 AM
WORKSPACE: Leonard_Speed
c:\pw\81-local\baker_projects\leonard_speed\d0271744\r-CA0606_21_CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

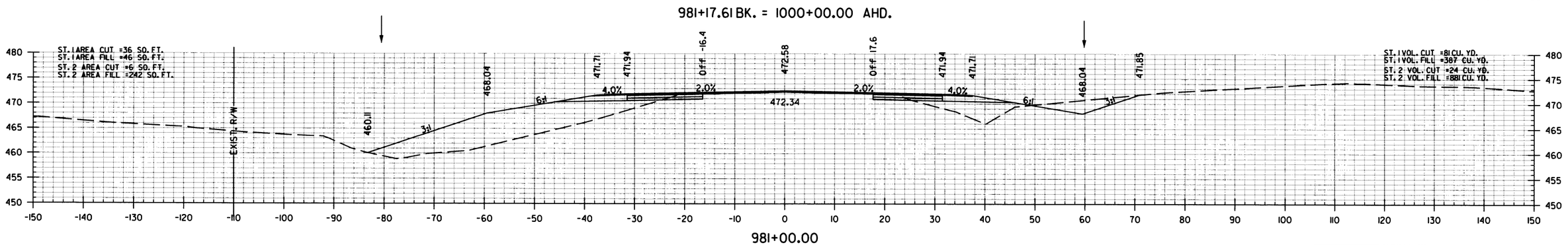
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	718	888

(2) CROSS SECTIONS



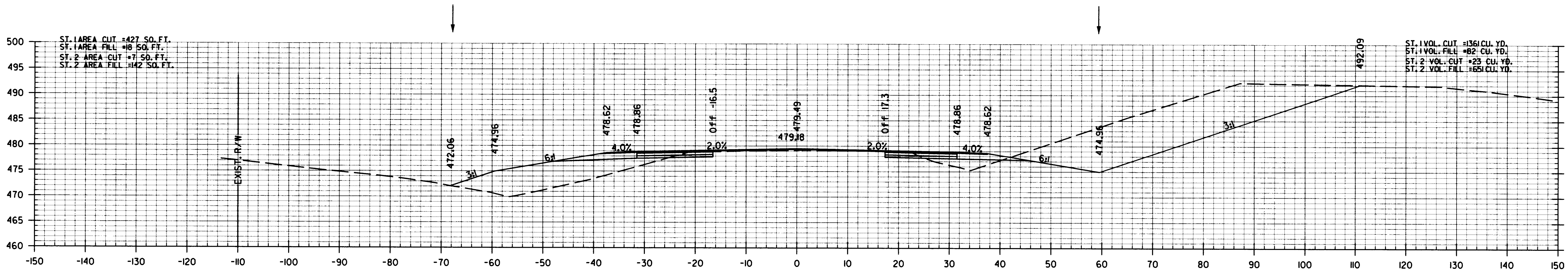


STA. 981+00 TO STA. 981+18

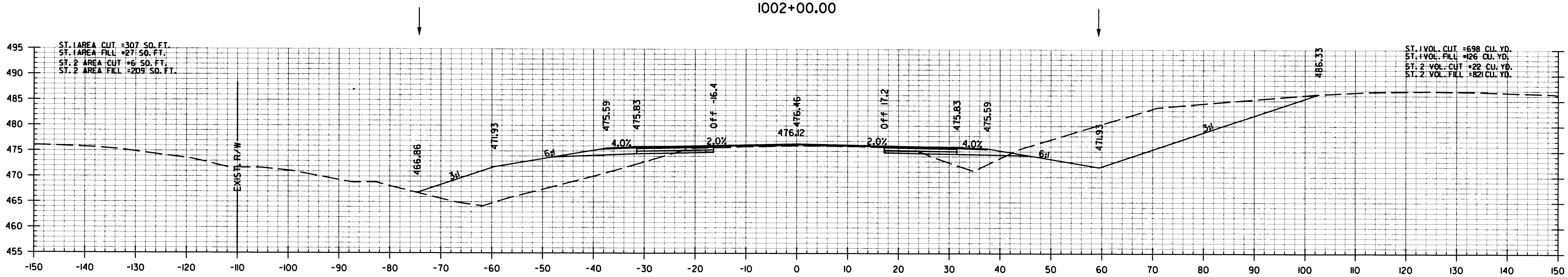
Leonard Speed 9/21/2006 11:26:40 AM
WORKSPACE: Leonard_Speed
c:\prv81-local\baker_projects\leonard_speed\0021744\rCA0606_21_CX_MAIN_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	719	888
				(2)	CROSS SECTIONS			



1002+00.00



1001+00.00

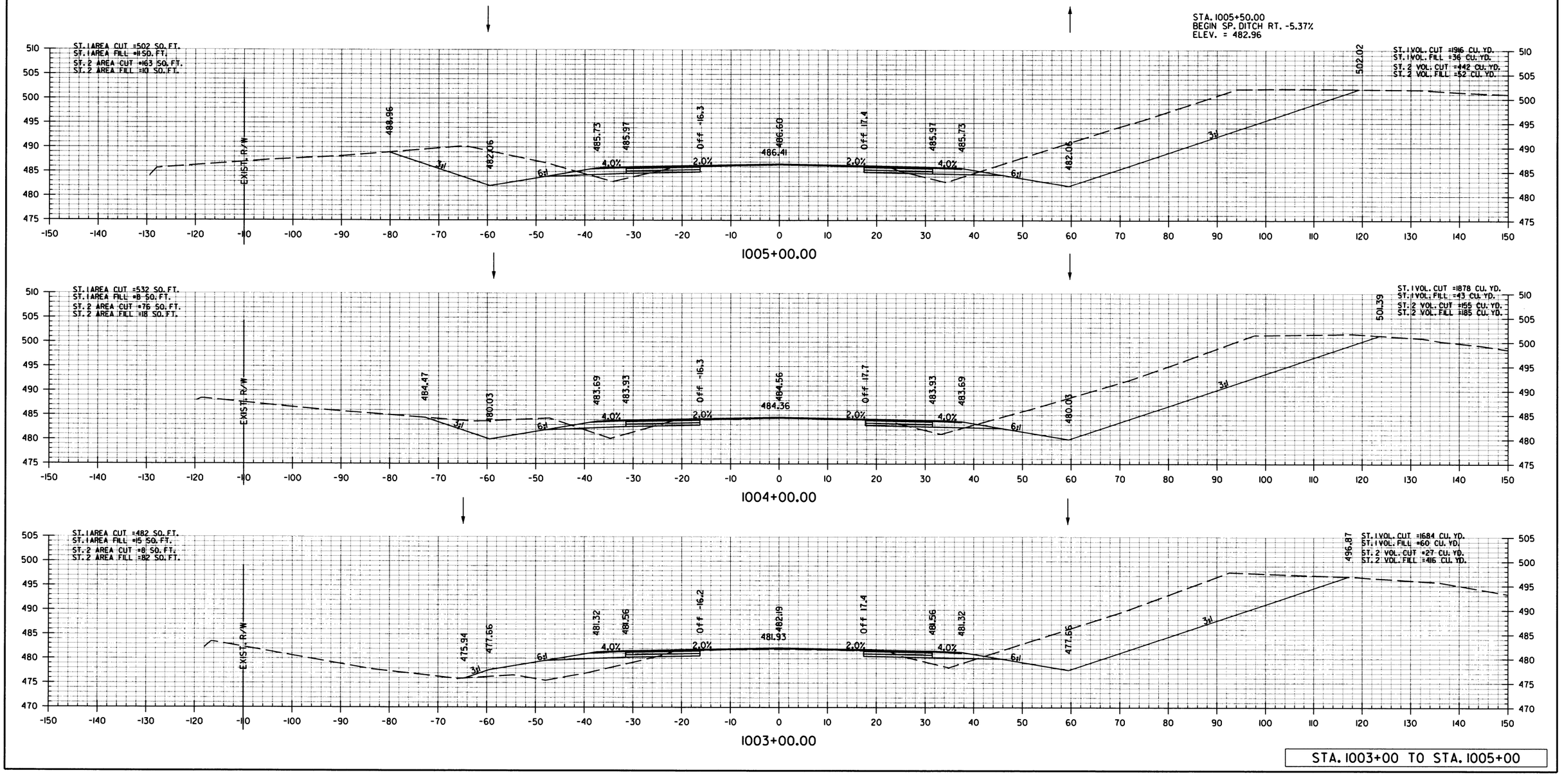
Leonard.Speed 9/23/2016 11:26:56 AM
WORKSPACE: Leonard.Speed
c:\pwwbi-local\baker_projects\leonard.speed\d0271682\r06137_21_CX_00.dgn
REVISED DATE: $$REVDATE$$

STA. 1001+00 TO STA. 1002+00

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	720	888

(2) CROSS SECTIONS



STA. 1003+00 TO STA. 1005+00

LeonardSpeed 9/23/2006 11:26:56 AM
WORKSPACE: Leonard_Speed
c:\pw\81-local\baker_projects\leonard.speed\d0271682\r-061377.21.CX.001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	721	888

(2) CROSS SECTIONS

STA. 1007+25.00
BEGIN SP. DITCH LT. 4.36%
ELEV. = 465.98

ST. 1 AREA CUT =23 SQ. FT.
ST. 1 AREA FILL =129 SQ. FT.
ST. 2 AREA CUT =4 SQ. FT.
ST. 2 AREA FILL =334 SQ. FT.

ST. 1 VOL. CUT =58 CU. YD.
ST. 1 VOL. FILL =205 CU. YD.
ST. 2 VOL. CUT =9 CU. YD.
ST. 2 VOL. FILL =462 CU. YD.

EXIST. R/W

1007+00.00

STA. 1006+98.10 IN PLACE
24"X 162' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 38' LT. AND 5' RT.
30° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=24.4 CFS DA=4 ACRES
24" R.C. PIPE=47 LIN. FT.
24" FES=2 EA.

STA. 1006+65.00
END SP. DITCH RT. 1.87%
BEGIN SP. DITCH RT. 6.49%
ELEV. = 477.75

ST. 1 VOL. CUT =312 CU. YD.
ST. 1 VOL. FILL =113 CU. YD.
ST. 2 VOL. CUT =12 CU. YD.
ST. 2 VOL. FILL =233 CU. YD.

ST. 1 AREA CUT =42 SQ. FT.
ST. 1 AREA FILL =99 SQ. FT.
ST. 2 AREA CUT =6 SQ. FT.
ST. 2 AREA FILL =181 SQ. FT.

EXIST. R/W

STA. 1006+51.66
END SP. DITCH RT. -5.37%
BEGIN SP. DITCH RT. 1.87%
ELEV. = 477.50

FL RT.=477.50

1006+51.66

ST. 1 AREA CUT =285 SQ. FT.
ST. 1 AREA FILL =19 SQ. FT.
ST. 2 AREA CUT =7 SQ. FT.
ST. 2 AREA FILL =63 SQ. FT.

ST. 1 VOL. CUT =1457 CU. YD.
ST. 1 VOL. FILL =57 CU. YD.
ST. 2 VOL. CUT =35 CU. YD.
ST. 2 VOL. FILL =135 CU. YD.

EXIST. R/W

1006+00.00

STA. 1006+00 TO STA. 1007+00

Leonard.Speed 9/23/2016 11:26:57 AM
K:\Work\Civil\Leonard.Speed\projects\leonard.speed\d0271682\r-06l377.2l.CX.00l.dgn
d:\cvpw\81-local\bake~1.pdc
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

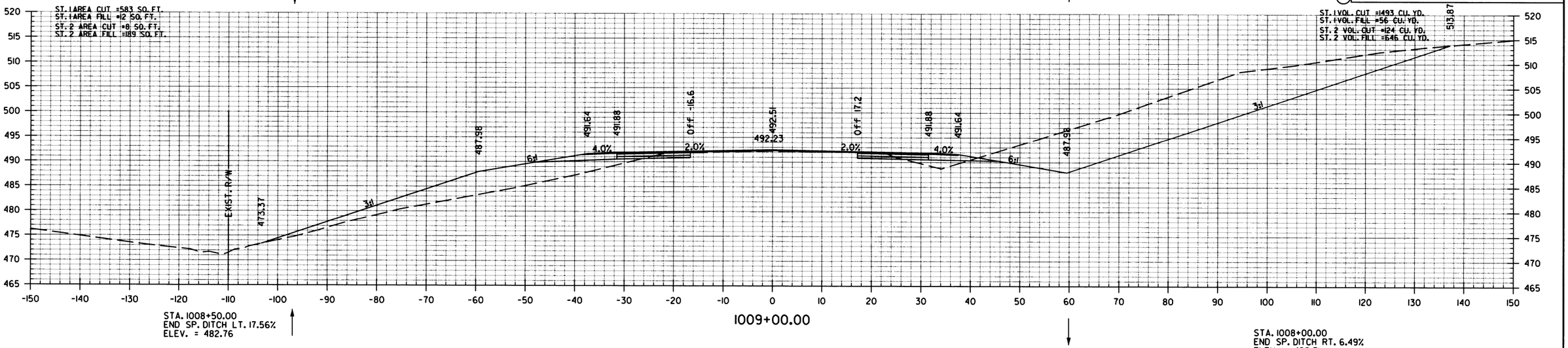
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	722	888

(2) CROSS SECTIONS

STA. 1009+50.00
BEGIN SP. DITCH LT. 3.84%
ELEV. = 476.06

ST. 1 AREA CUT =583 SQ. FT.
ST. 1 AREA FILL =12 SQ. FT.
ST. 2 AREA CUT =8 SQ. FT.
ST. 2 AREA FILL =189 SQ. FT.

ST. 1 VOL. CUT =1493 CU. YD.
ST. 1 VOL. FILL =56 CU. YD.
ST. 2 VOL. CUT =124 CU. YD.
ST. 2 VOL. FILL =646 CU. YD.



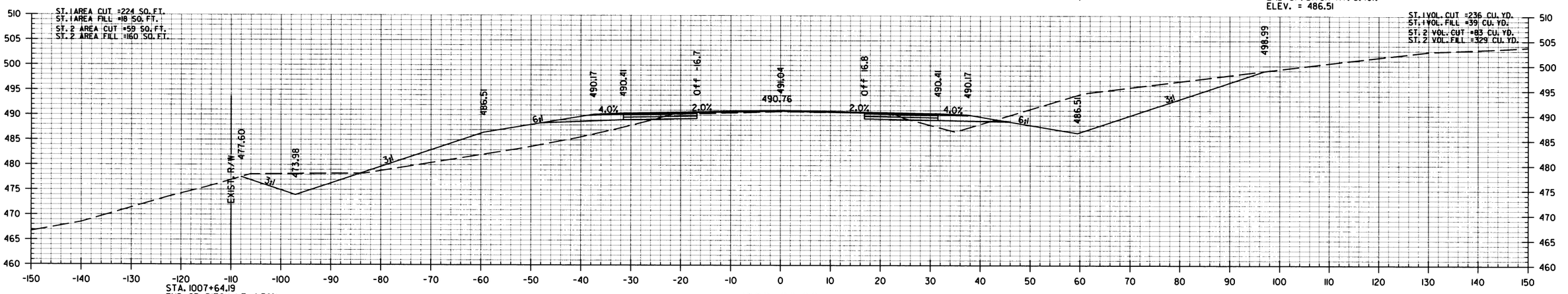
STA. 1008+50.00
END SP. DITCH LT. 17.56%
ELEV. = 482.76

1009+00.00

STA. 1008+00.00
END SP. DITCH RT. 6.49%
ELEV. = 486.51

ST. 1 AREA CUT =224 SQ. FT.
ST. 1 AREA FILL =18 SQ. FT.
ST. 2 AREA CUT =59 SQ. FT.
ST. 2 AREA FILL =160 SQ. FT.

ST. 1 VOL. CUT =236 CU. YD.
ST. 1 VOL. FILL =39 CU. YD.
ST. 2 VOL. CUT =83 CU. YD.
ST. 2 VOL. FILL =329 CU. YD.

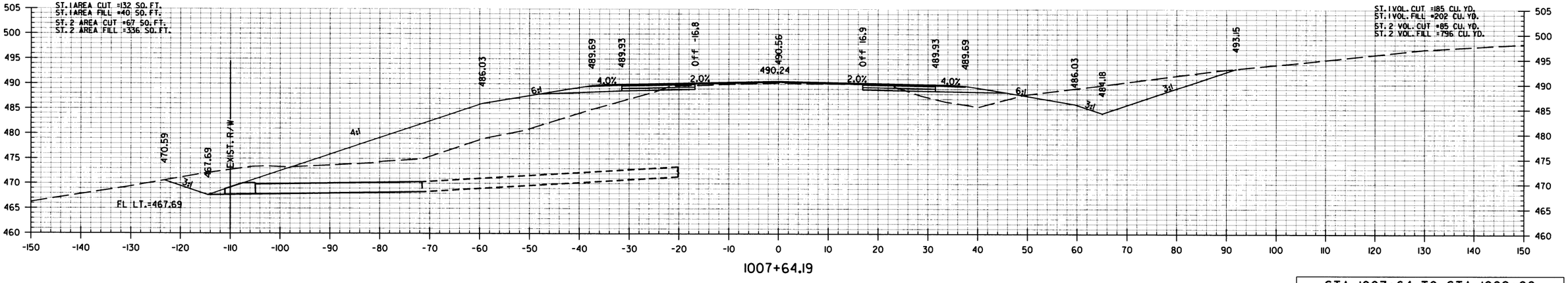


STA. 1007+64.19
END SP. DITCH LT. 4.36%
BEGIN SP. DITCH LT. 17.56%
ELEV. = 467.69

1008+00.00

ST. 1 AREA CUT =132 SQ. FT.
ST. 1 AREA FILL =40 SQ. FT.
ST. 2 AREA CUT =67 SQ. FT.
ST. 2 AREA FILL =336 SQ. FT.

ST. 1 VOL. CUT =185 CU. YD.
ST. 1 VOL. FILL =202 CU. YD.
ST. 2 VOL. CUT =85 CU. YD.
ST. 2 VOL. FILL =796 CU. YD.



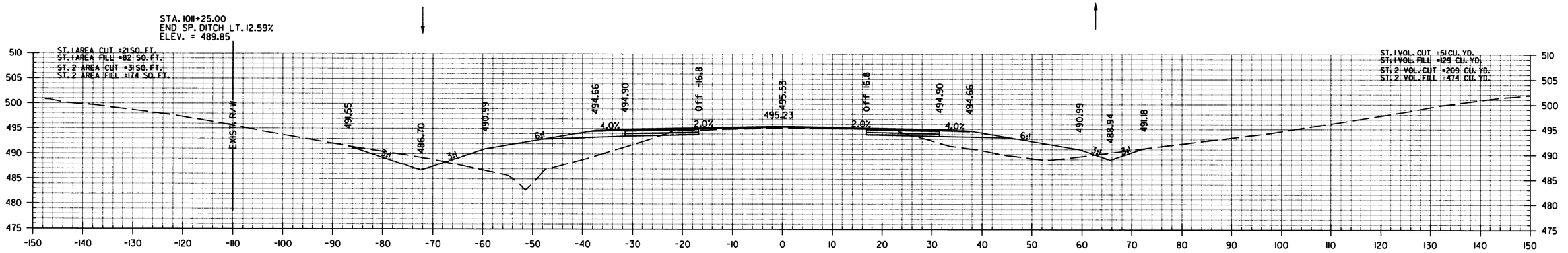
1007+64.19

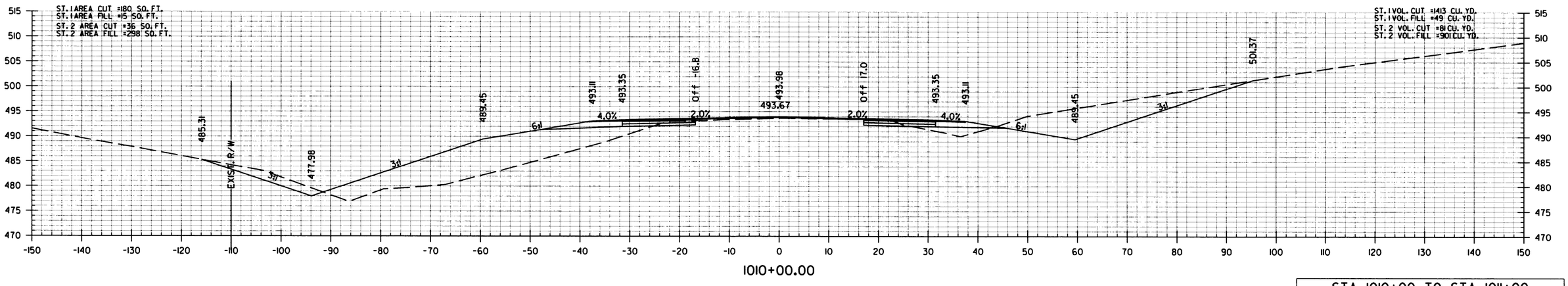
STA. 1007+64 TO STA. 1009+00

Leonard.Speed 9/23/2016 11:26:57 AM
WORKSPACE: Leonard.Speed
DGN: C:\Projects\Leonard.Speed\d0271682\r061377.21.CX.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	723	888
				(2)	CROSS SECTIONS			



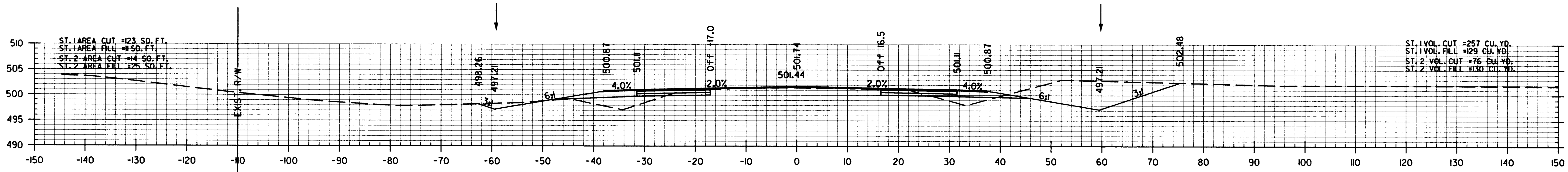


STA. 1010+00 TO STA. 1011+00

Leonard.Speed 9/23/2016 11:26:57 AM
Workspace: Leonard.Speed
Workspace Location: C:\Projects\Leonard.Speed\d0271682\r061377.21_CX_001.dgn
REVISED DATE: ##REVDATE##

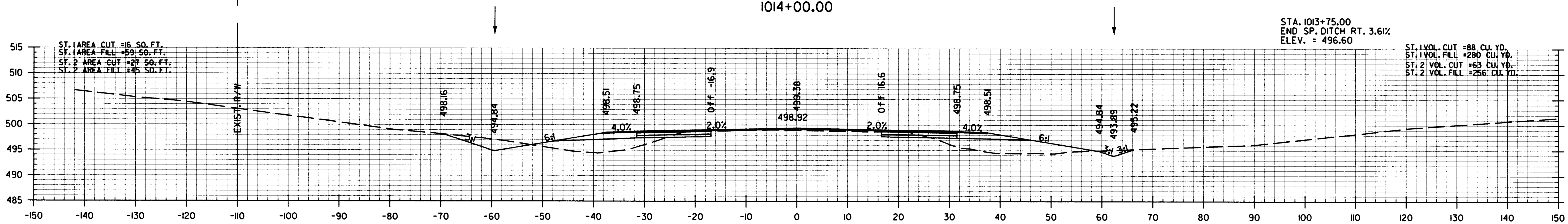
Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	724	888

(2) CROSS SECTIONS

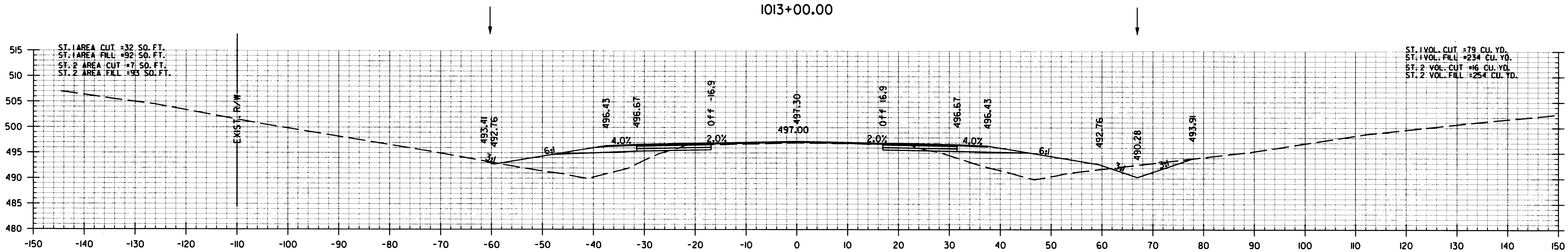


1014+00.00

STA. 1013+75.00
END SP. DITCH RT. 3.61%
ELEV. = 496.60

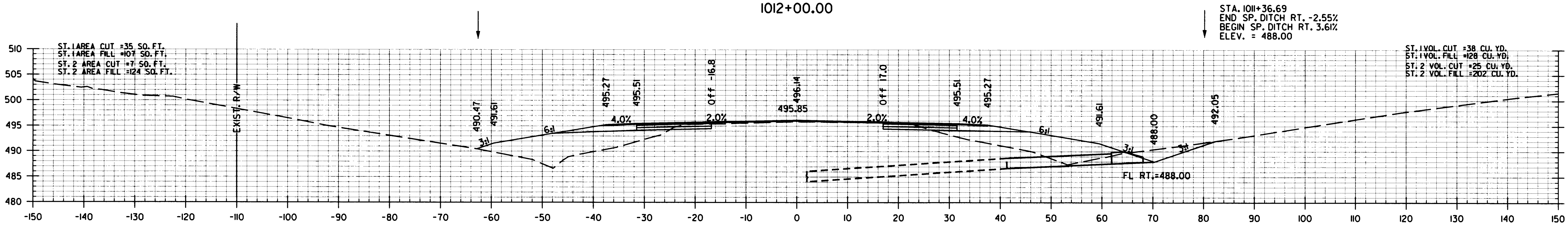


1013+00.00



1012+00.00

STA. 1011+36.69
END SP. DITCH RT. -2.55%
BEGIN SP. DITCH RT. 3.61%
ELEV. = 488.00



1011+36.69

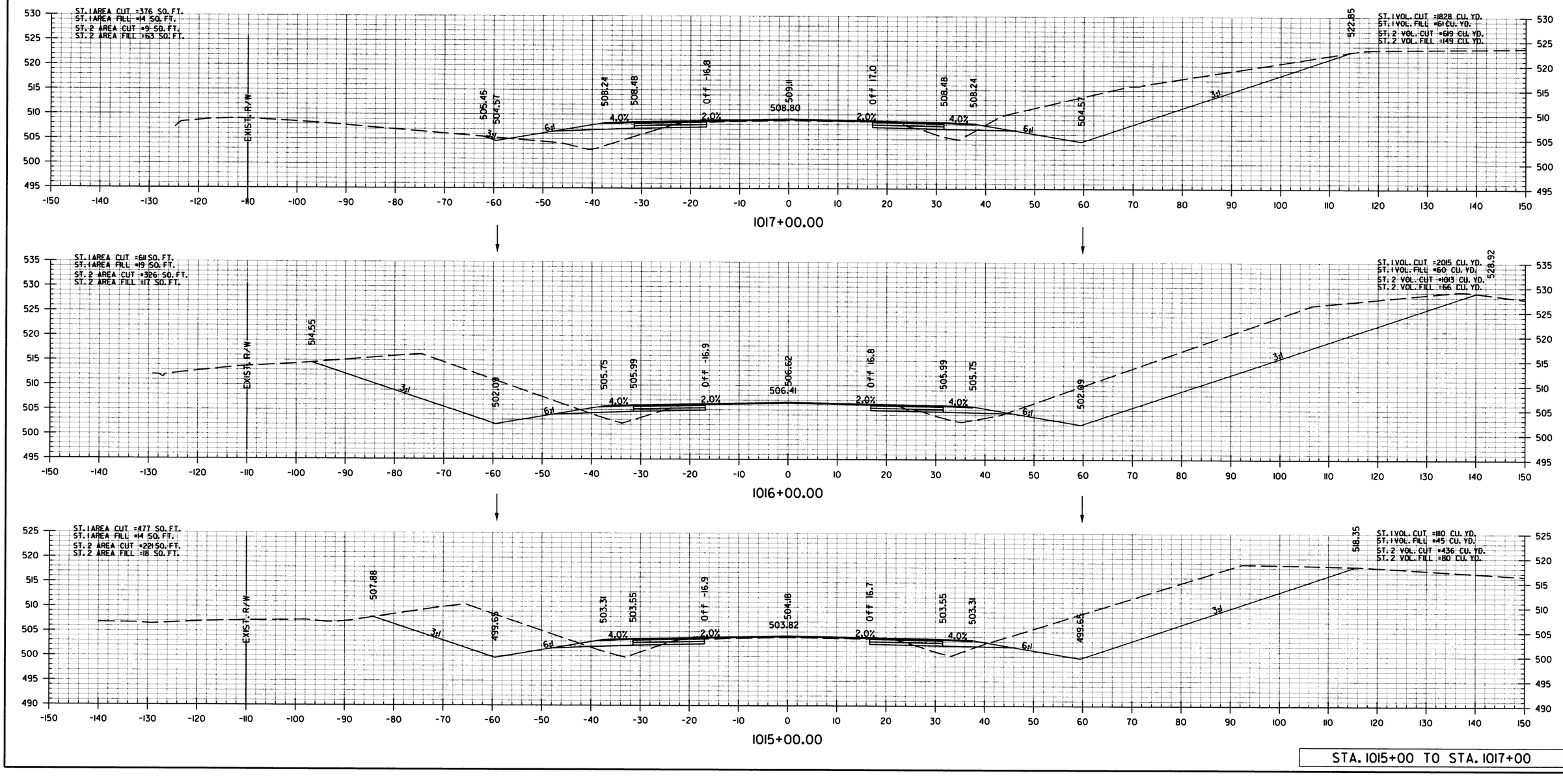
STA. 1011+37 TO STA. 1014+00

Leonard.Speed 9/23/2016 11:26:58 AM
WORKSPACE: Leonard.Speed
c:\pwwbl-local\baker_projects\leonard.speed\d0271682\r061377_21.CX_00.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	725	888

(2) CROSS SECTIONS



STA. 1015+00 TO STA. 1017+00

Leonard.Speed 9/23/2016 11:26:58 AM
WORKSPACE: Leonard.Speed
C:\Users\Leonard.Speed\Documents\Leonard.Speed\d0271682\r061377.2LCX_001.dgn
REVISED DATE: ##REVDATE##

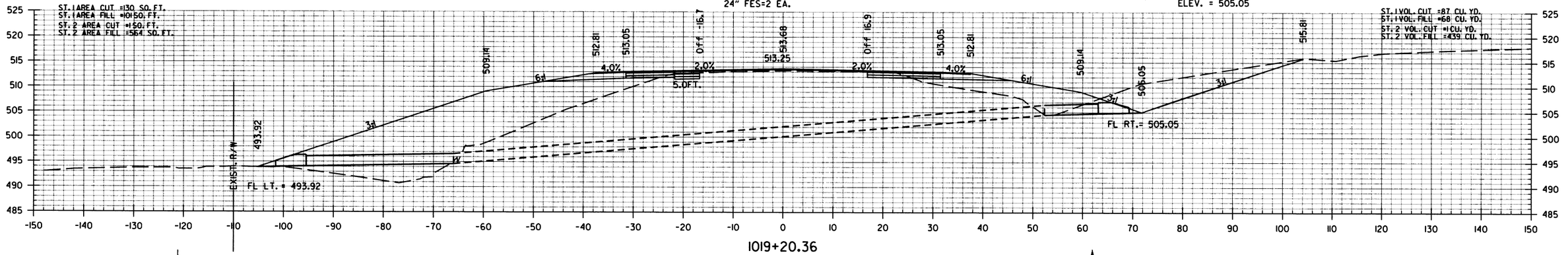
Michael Baker INTERNATIONAL

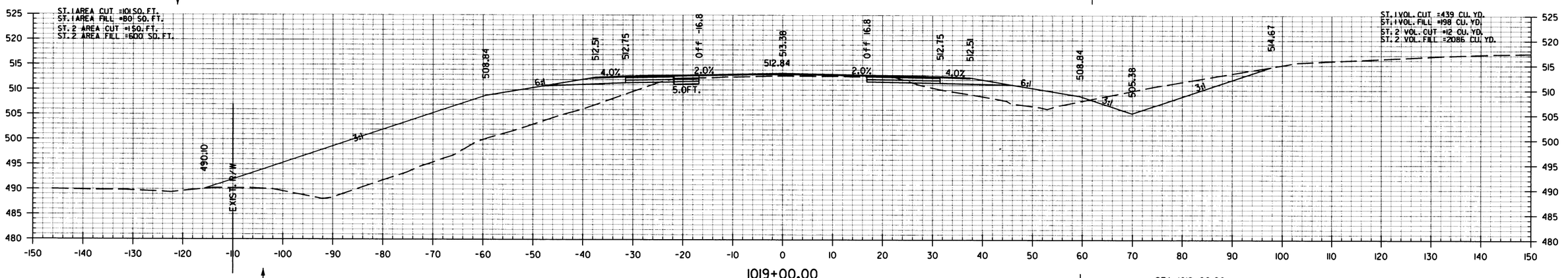
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	726	888

(2) CROSS SECTIONS

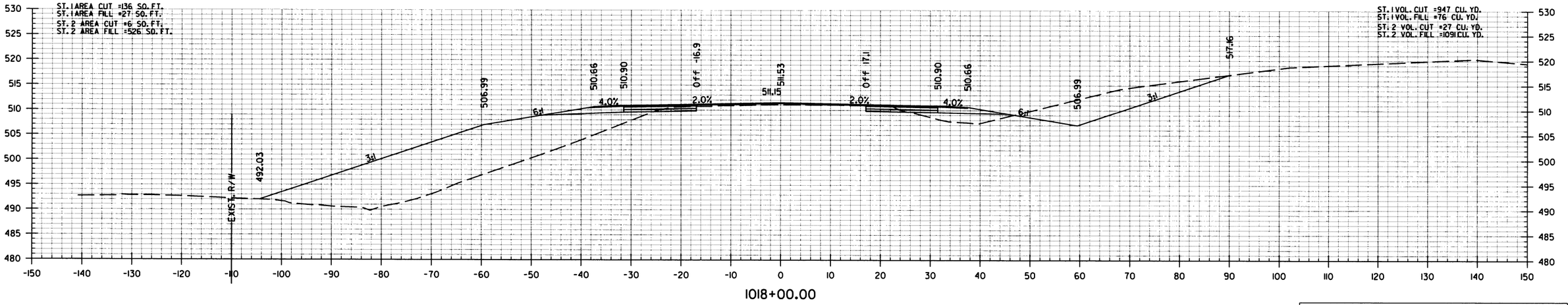
STA. 1019+20.36 IN PLACE
24"X 118' R.C. PIPE CULVERT
WITH HDWL. LT.
REMOVE HDWL. LT. AND
EXTEND R.C. PIPE 30' LT. AND 11' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=7.6 CFS DA=1 ACRE
24" R.C. PIPE=45 LIN. FT.
24" FES=2 EA.

STA. 1019+20.36
END SP. DITCH RT. -1.61%
BEGIN SP. DITCH RT. 5.18%
ELEV. = 505.05





STA. 1018+00.00
BEGIN SP. DITCH RT. -1.61%
ELEV. = 506.99

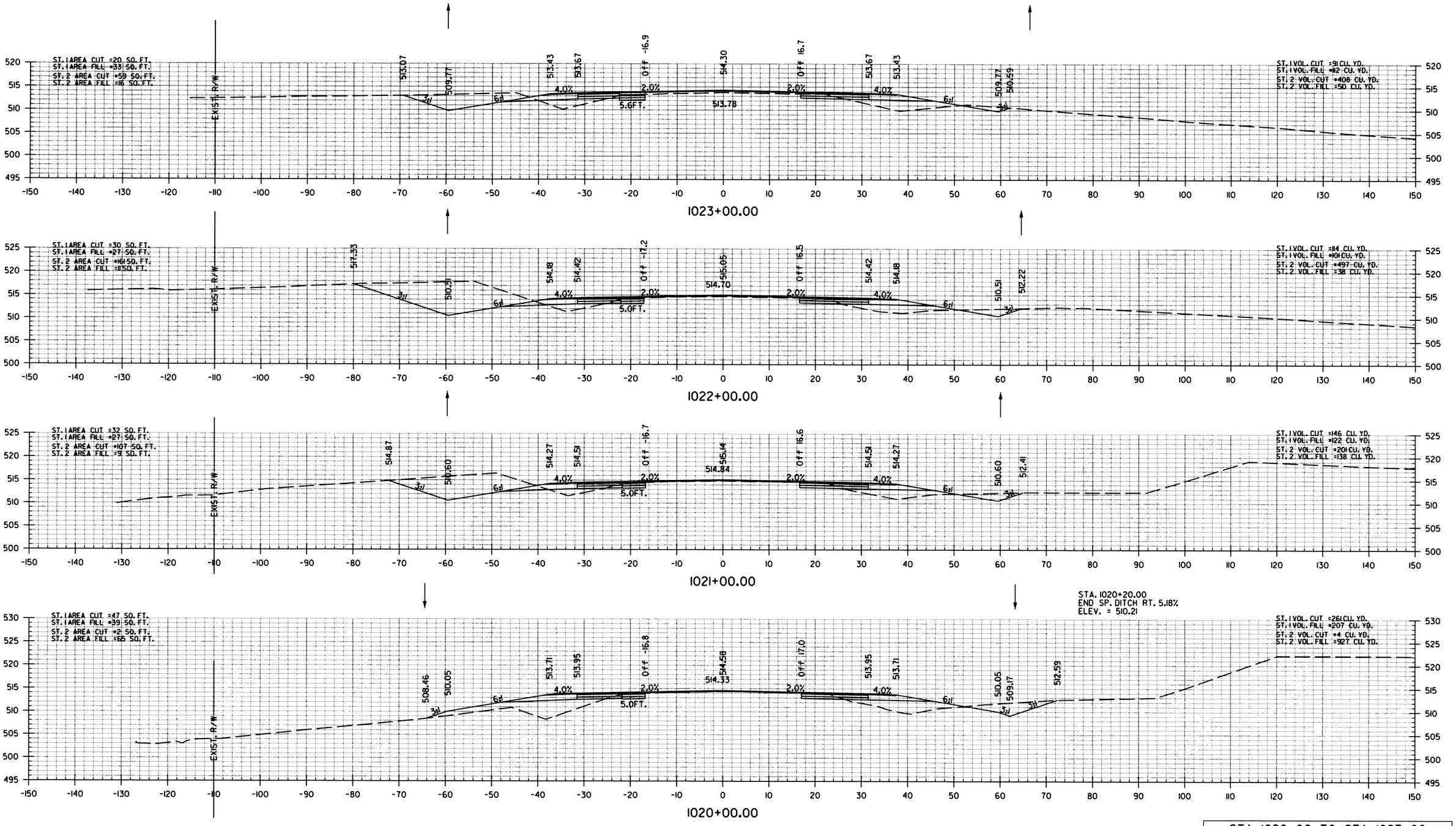


STA. 1018+00 TO STA. 1019+20

LeonardSpeed 9/23/2016 11:26:59 AM
W:\Roads\Highway Projects\Leonard Speed\d027682\r061377.21.CX.001.dgn
C:\Users\Bdickerson\Documents\Projects\Leonard Speed\d027682\r061377.21.CX.001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	727	888
				(2)	CROSS SECTIONS			

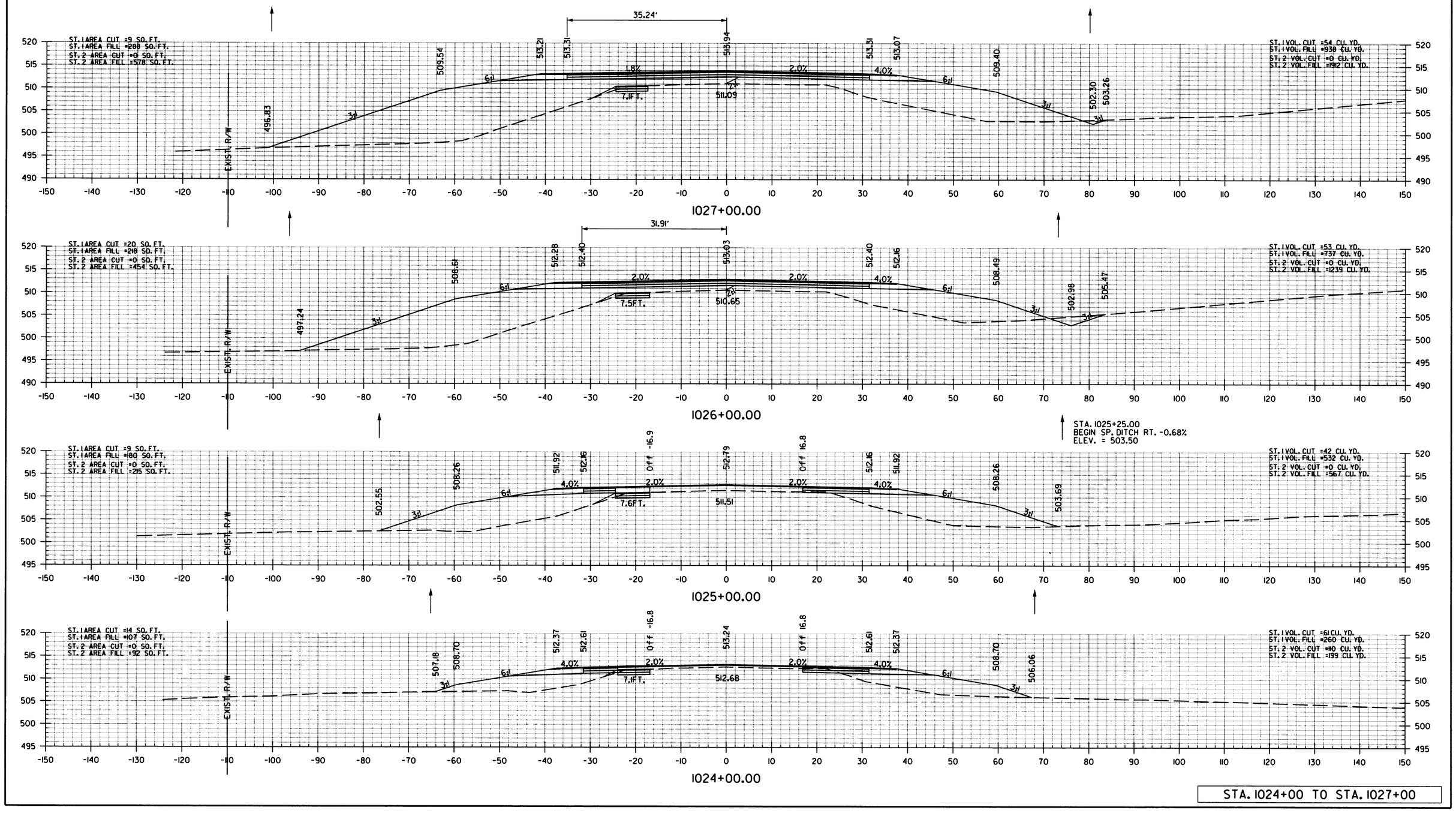


STA. 1020+00 TO STA. 1023+00

Leonard.Speed 9/23/2016 11:26:59 AM
WORKSPACE: Leonard.Speed
DGN: c:\Projects\Leonard.Speed\d0271682\r061377.21.CX.000.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	728	888
				(2)	CROSS SECTIONS			



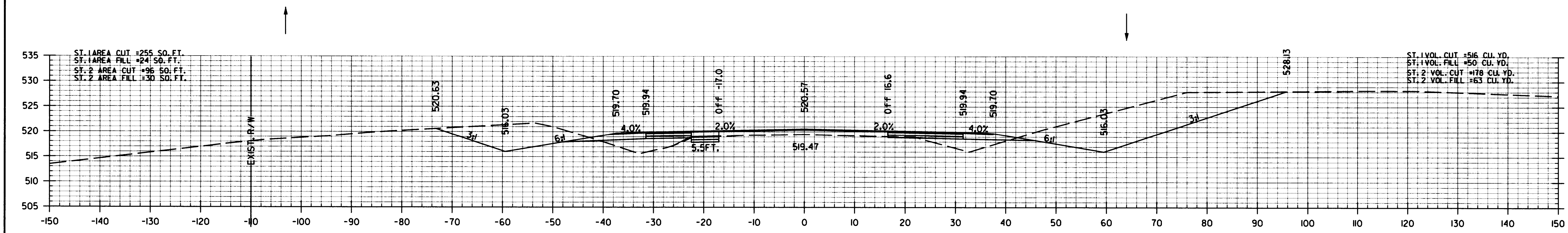
STA. 1024+00 TO STA. 1027+00

Leonard.Speed 9/23/2016 11:27:00 AM
WORKSPACE: Leonard.Speed
c:\pwworking\mbi\d0027682\Documents\Leonard.Speed\d0027682\r06l377_2L_CX_001.dgn
REVISED DATE: ##REVDATE##

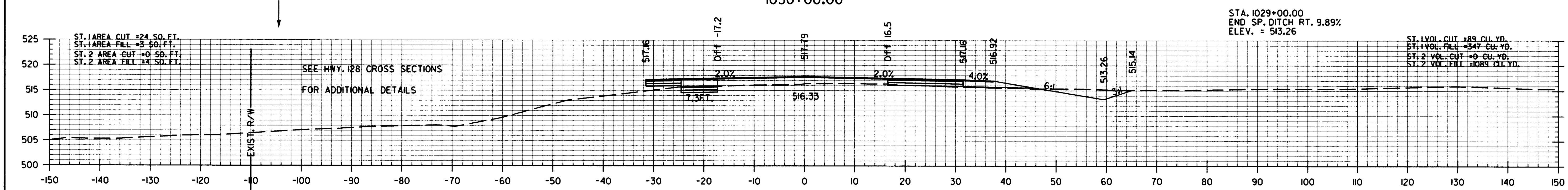
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	729	888

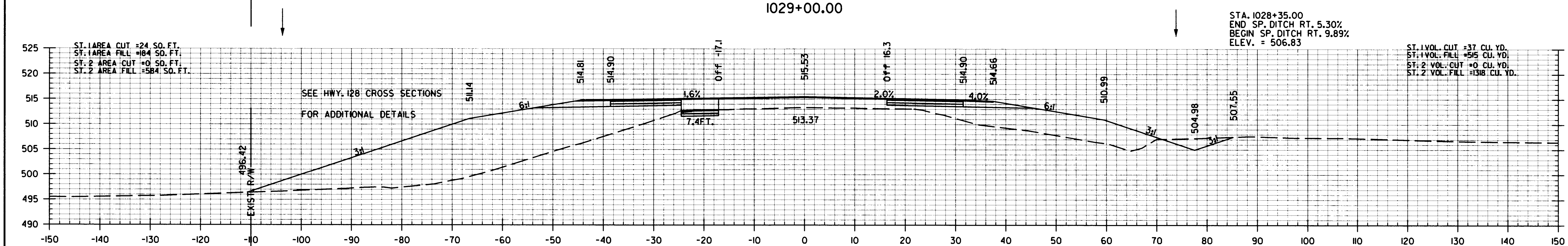
(2) CROSS SECTIONS



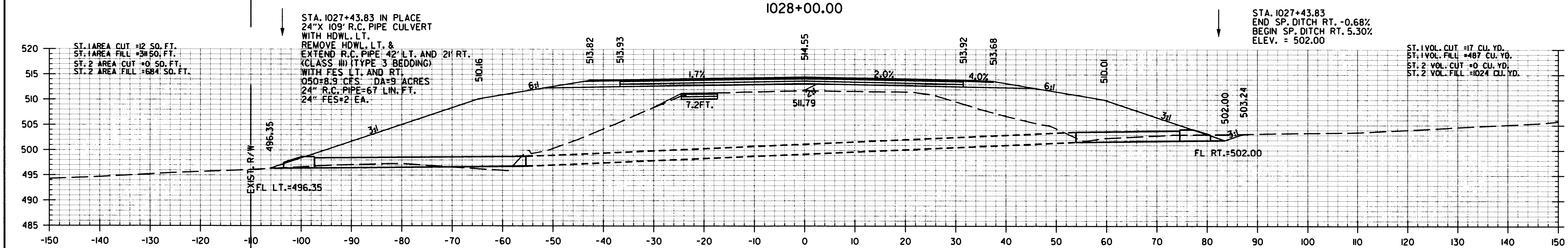
1030+00.00



1029+00.00



1028+00.00

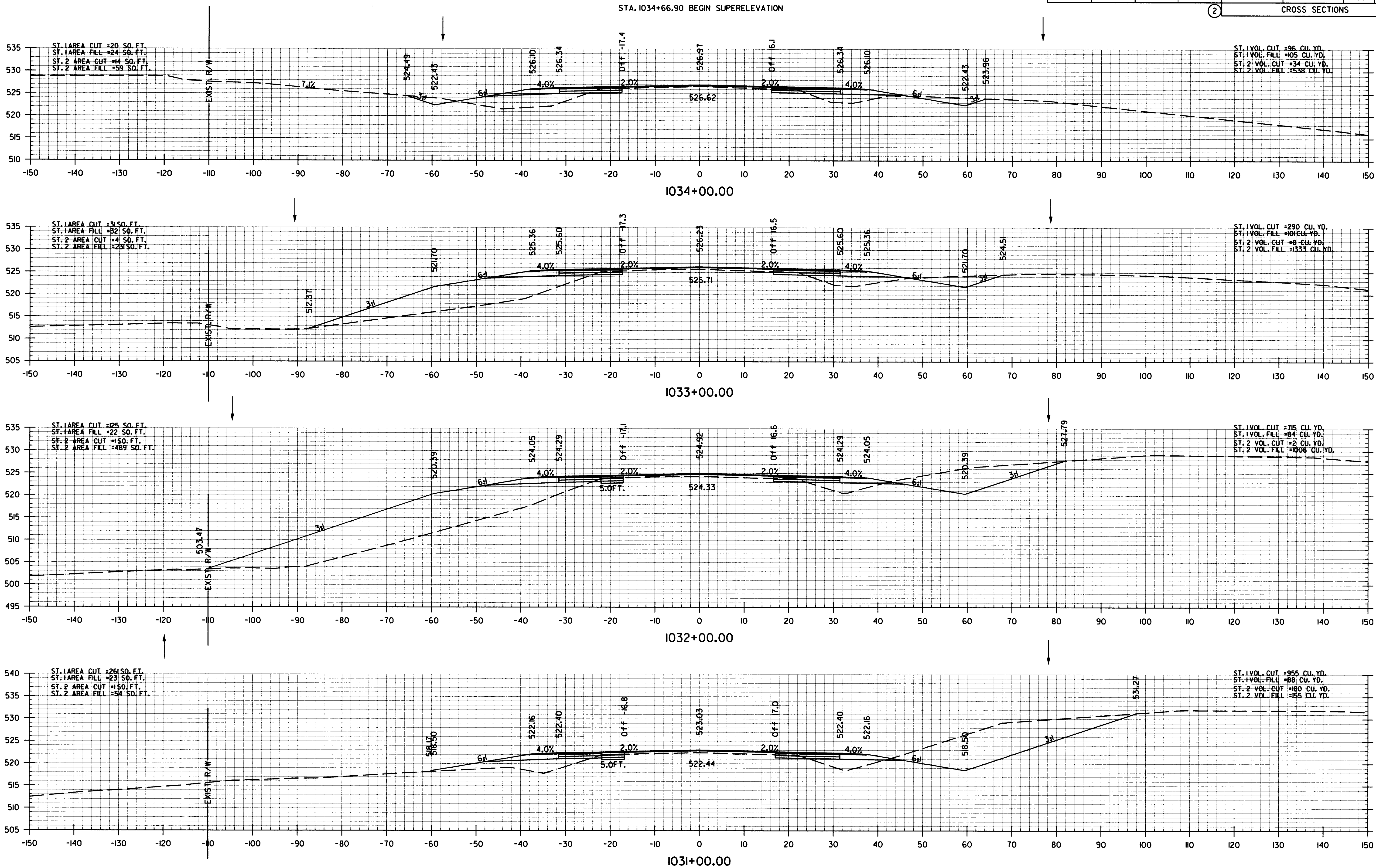


1027+43.83

STA. 1027+44 TO STA. 1030+00

Leonard.Speed 9/23/2016 11:27:00 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271682\r061377_2L_CX_00.dgn
REVISED DATE: $$REVDATE$$

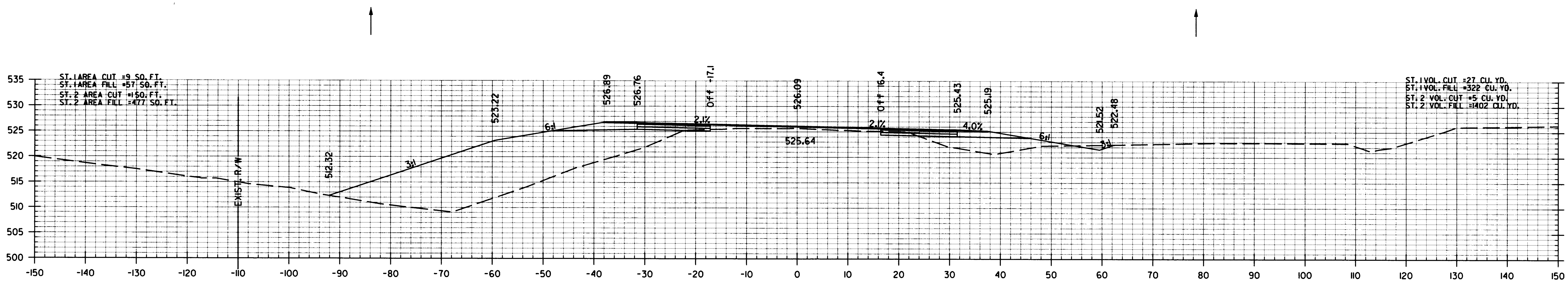
Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	730	888
					(2) CROSS SECTIONS				



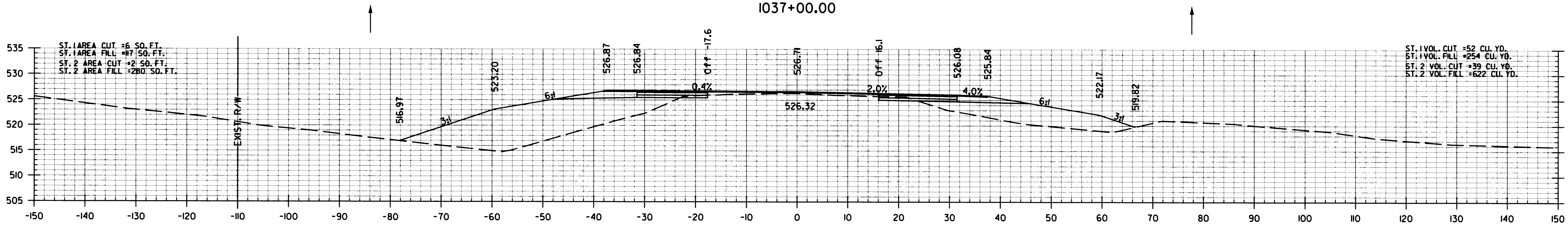
STA. 1031+00 TO STA. 1034+00

Leonard.Speed 9/23/2016 11:27:01 AM
WORKSPACE: Leonard.Speed
c:\pwv81-local\baker_projects\leonard.speed\d0271682\r061377_21_CX_001.dgn
REVISED DATE: $$REVDATE$$

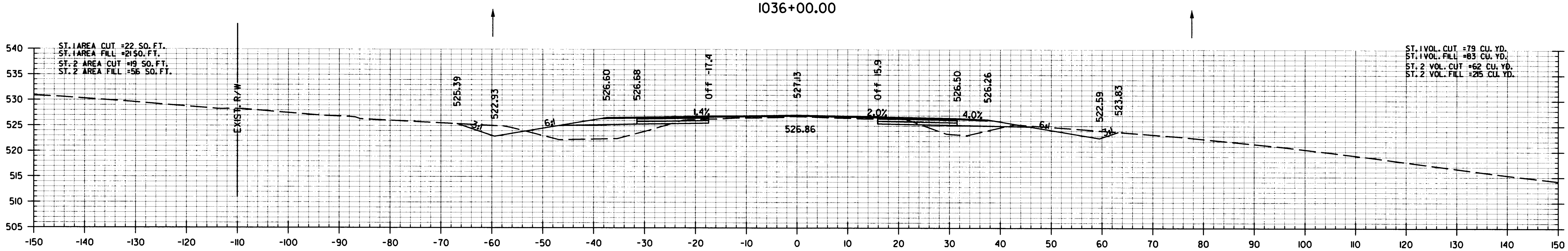
Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	731	888
					(2)	CROSS SECTIONS			



1037+00.00



1036+00.00



1035+00.00

STA. 1035+00 TO STA. 1037+00

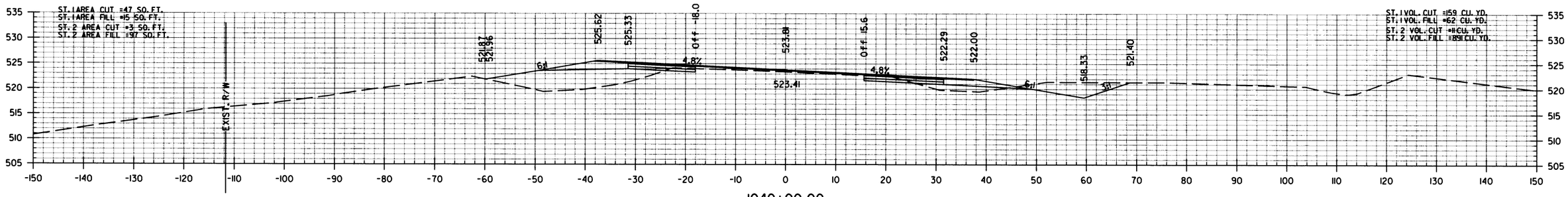
Leonard.Speed 9/23/2016 11:27:01 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271682\r-061377_21_CX_00.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

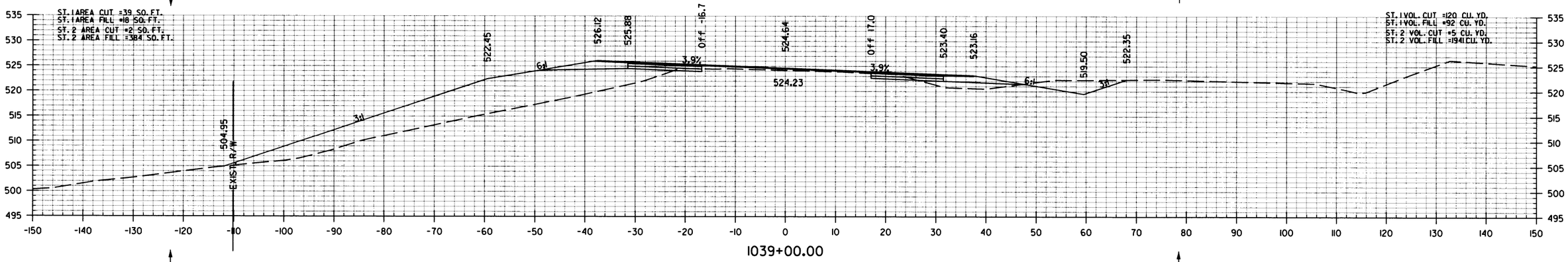
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	732	888

(2) CROSS SECTIONS

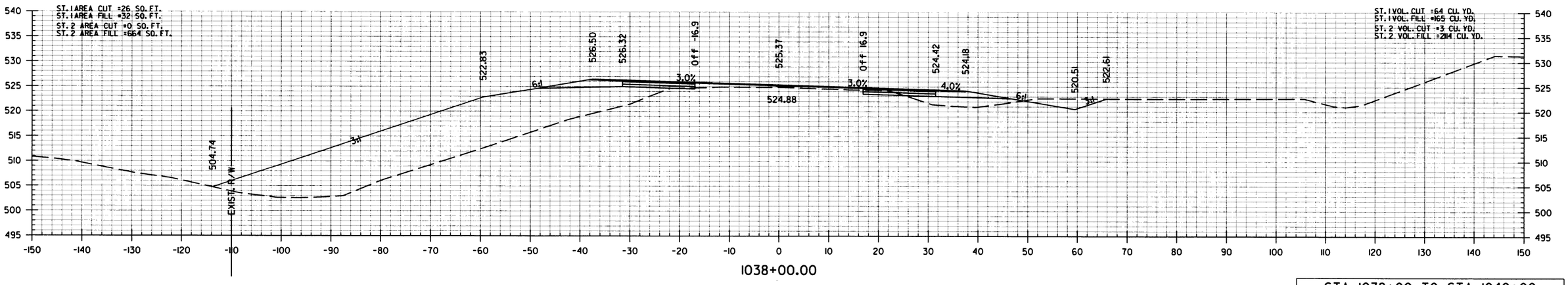
STA. 1040+06.90 MAX. SUPERELEVATION (0.049 '/')



1040+00.00



1039+00.00



1038+00.00

STA. 1038+00 TO STA. 1040+00

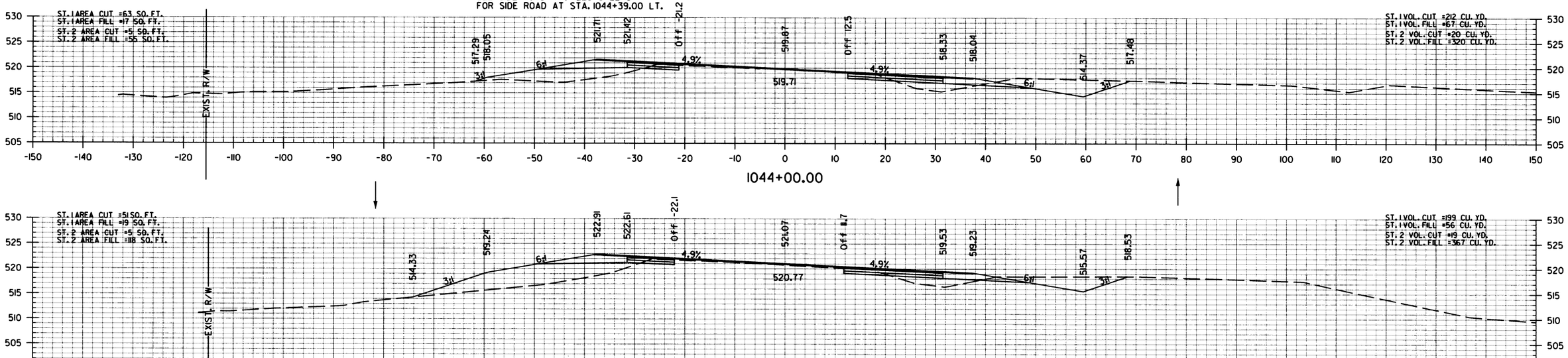
Leonard Speed 9/23/2016 11:27:02 AM
MicroStation V8i (SELECTseries 3)
c:\pw_v8i-local\baker_projects\leonard_speed\d0271682\r06137121_CX_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	733	888

(2) CROSS SECTIONS

SEE SIDE ROAD PROFILES SHEETS
FOR SIDE ROAD AT STA. 1044+39.00 LT.



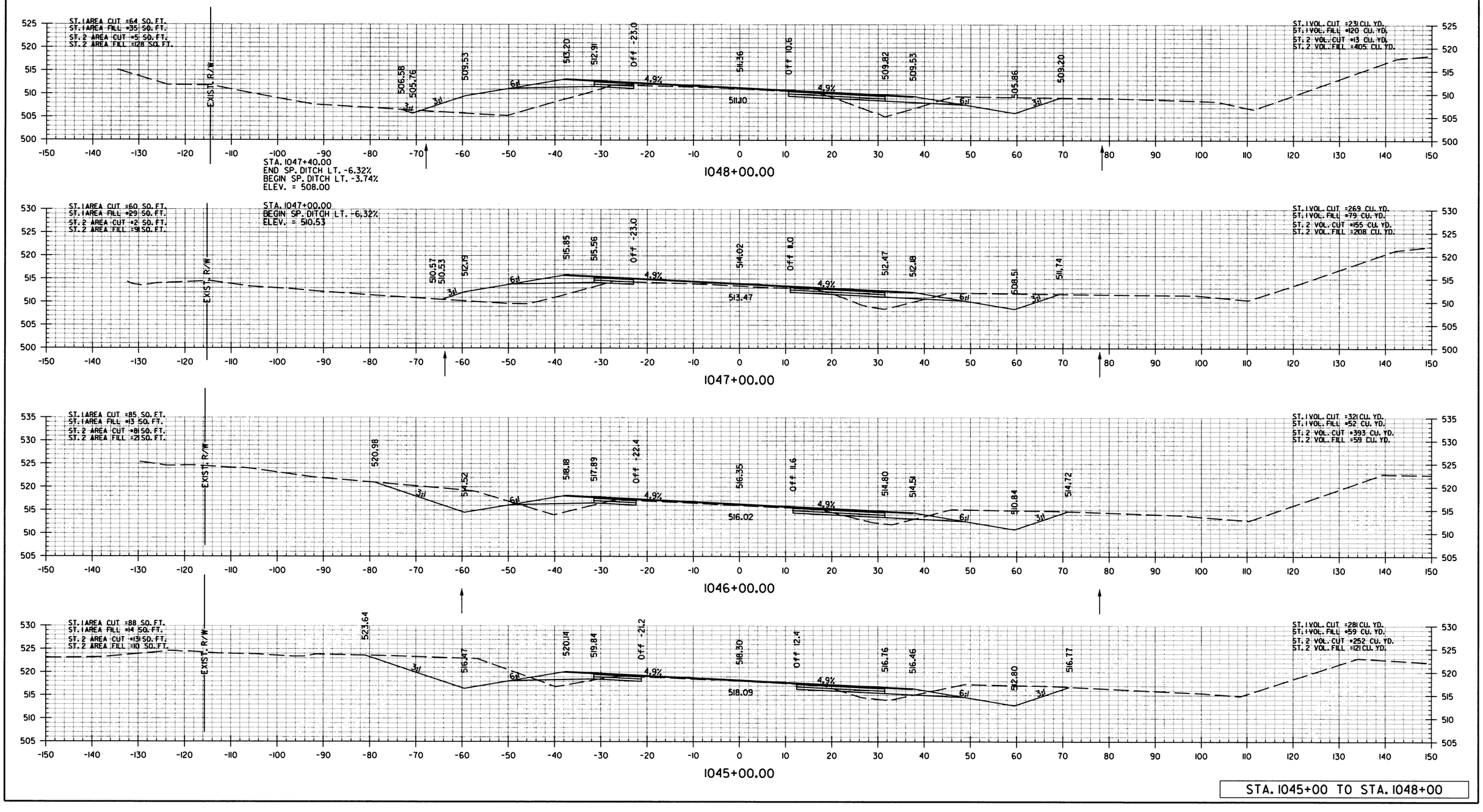
STA. 1041+00 TO STA. 1044+00

Leonard Speed 9/23/2016 11:27:02 AM
W:\0606\Leonard Speed\Design\Projects\Leonard_Speed\d0271682\r06377_21_CX_001.dgn
C:\Users\Baker\Desktop\Projects\Leonard_Speed\d0271682\r06377_21_CX_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	734	888

(2) CROSS SECTIONS



STA. 1045+00 TO STA. 1048+00

LeonardSpeed 9/23/2006 11:27:02 AM
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

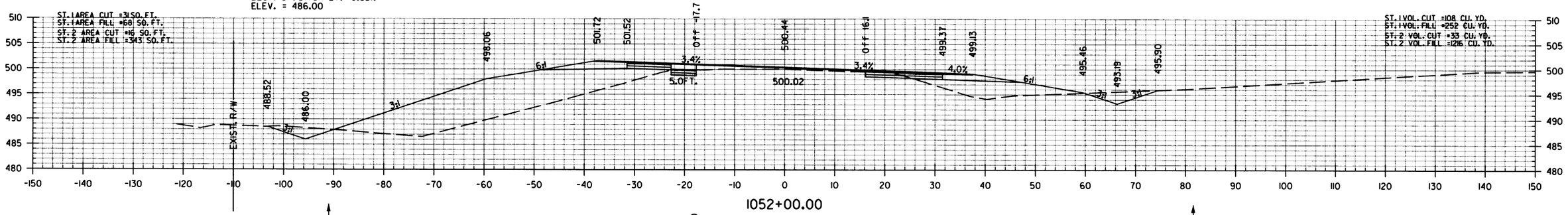
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	735	888

(2) CROSS SECTIONS

STA. 1052+00.00
END SP. DITCH LT. -5.50%
BEGIN SP. DITCH LT. -0.83%
ELEV. = 486.00

ST. 1 AREA CUT =31 SQ. FT.
ST. 1 AREA FILL =68 SQ. FT.
ST. 2 AREA CUT =16 SQ. FT.
ST. 2 AREA FILL =343 SQ. FT.

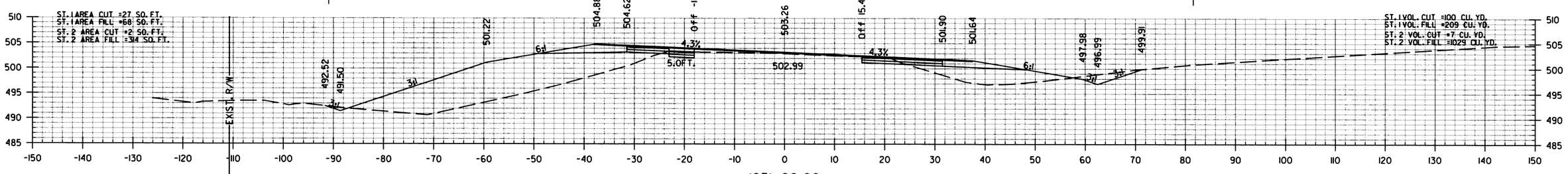
ST. 1 VOL. CUT =108 CU. YD.
ST. 1 VOL. FILL =252 CU. YD.
ST. 2 VOL. CUT =33 CU. YD.
ST. 2 VOL. FILL =1216 CU. YD.



1052+00.00

ST. 1 AREA CUT =27 SQ. FT.
ST. 1 AREA FILL =68 SQ. FT.
ST. 2 AREA CUT =2 SQ. FT.
ST. 2 AREA FILL =314 SQ. FT.

ST. 1 VOL. CUT =100 CU. YD.
ST. 1 VOL. FILL =209 CU. YD.
ST. 2 VOL. CUT =7 CU. YD.
ST. 2 VOL. FILL =1029 CU. YD.



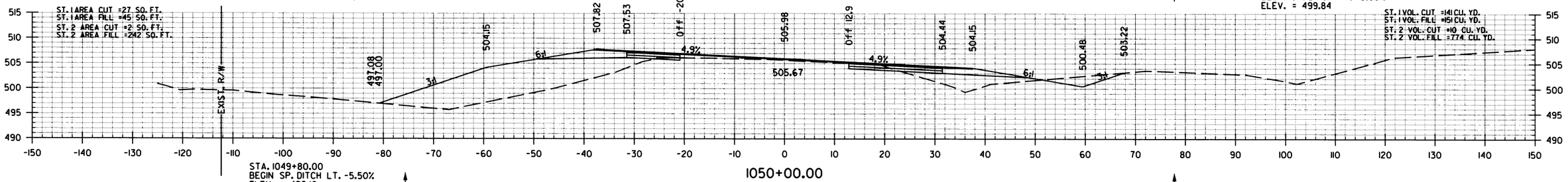
1051+00.00

STA. 1050+35.98 MAX. SUPERELEVATION (0.049 '/')

STA. 1050+25.00
BEGIN SP. DITCH RT. -3.80%
ELEV. = 499.84

ST. 1 AREA CUT =27 SQ. FT.
ST. 1 AREA FILL =45 SQ. FT.
ST. 2 AREA CUT =2 SQ. FT.
ST. 2 AREA FILL =242 SQ. FT.

ST. 1 VOL. CUT =141 CU. YD.
ST. 1 VOL. FILL =151 CU. YD.
ST. 2 VOL. CUT =10 CU. YD.
ST. 2 VOL. FILL =774 CU. YD.



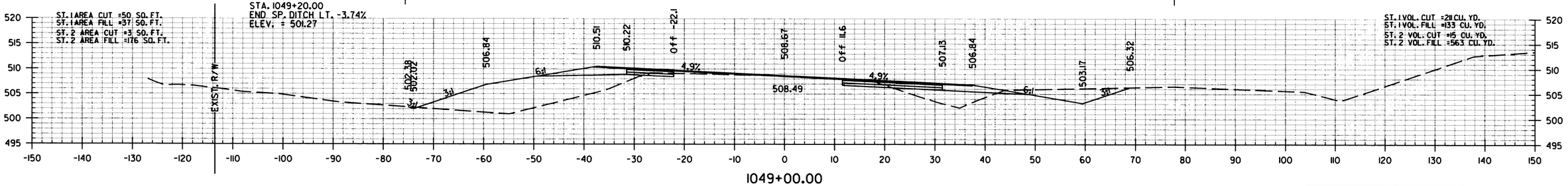
STA. 1049+80.00
BEGIN SP. DITCH LT. -5.50%
ELEV. = 498.10

1050+00.00

STA. 1049+20.00
END SP. DITCH LT. -3.74%
ELEV. = 501.27

ST. 1 AREA CUT =50 SQ. FT.
ST. 1 AREA FILL =37 SQ. FT.
ST. 2 AREA CUT =3 SQ. FT.
ST. 2 AREA FILL =176 SQ. FT.

ST. 1 VOL. CUT =211 CU. YD.
ST. 1 VOL. FILL =133 CU. YD.
ST. 2 VOL. CUT =15 CU. YD.
ST. 2 VOL. FILL =563 CU. YD.



1049+00.00

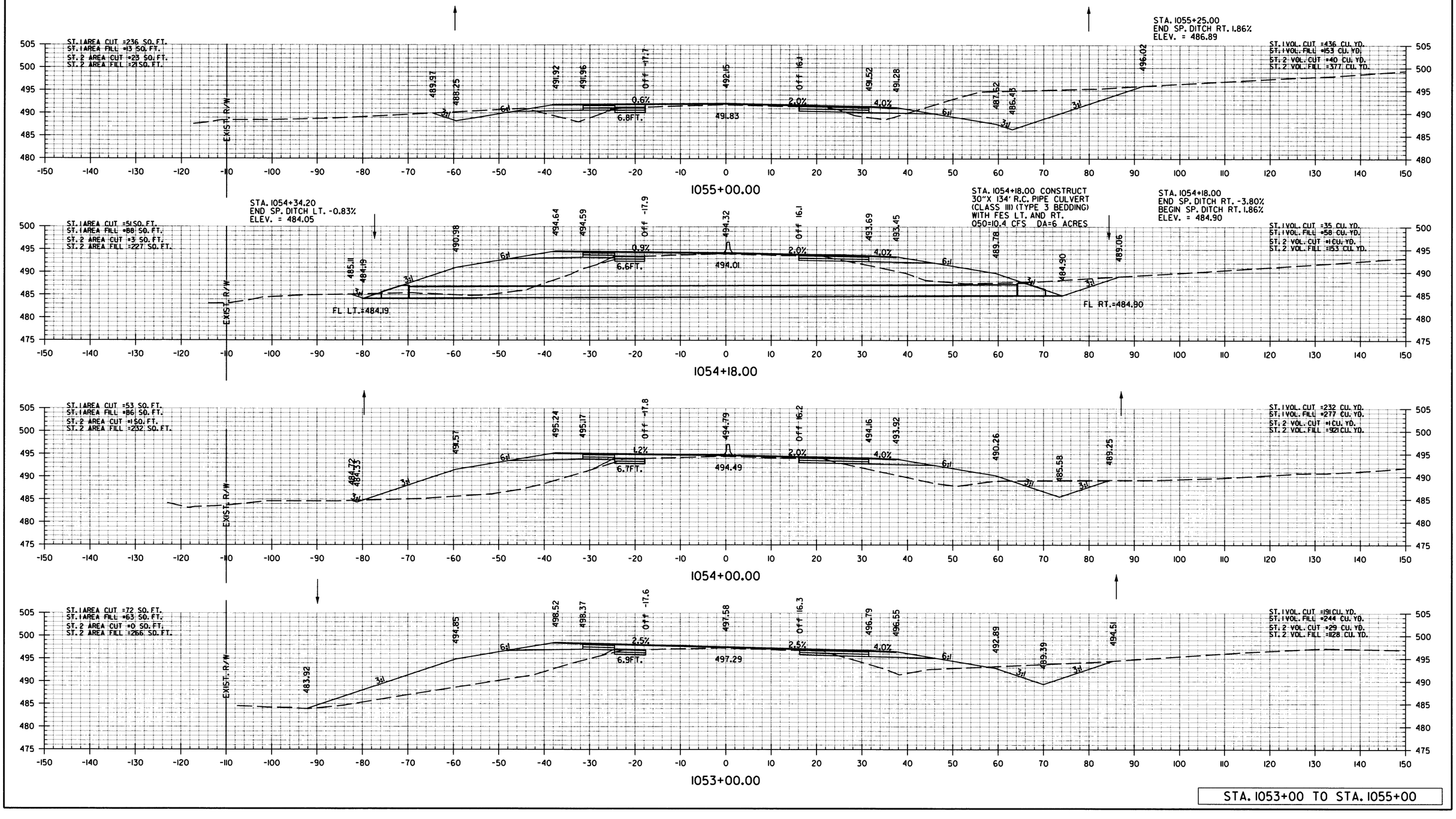
STA. 1049+00 TO STA. 1052+00

Leonard.Speed 9/23/2016 11:27:03 AM
W:\0606.01\Roadway\Sheets\Leonard.Speed\d0271682\r06137T.21.CX.001.dgn
Civil Workspace: c:\Projects\Leonard.Speed\
Civil Workset: Highway-Local Roads
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	736	888

(2) CROSS SECTIONS



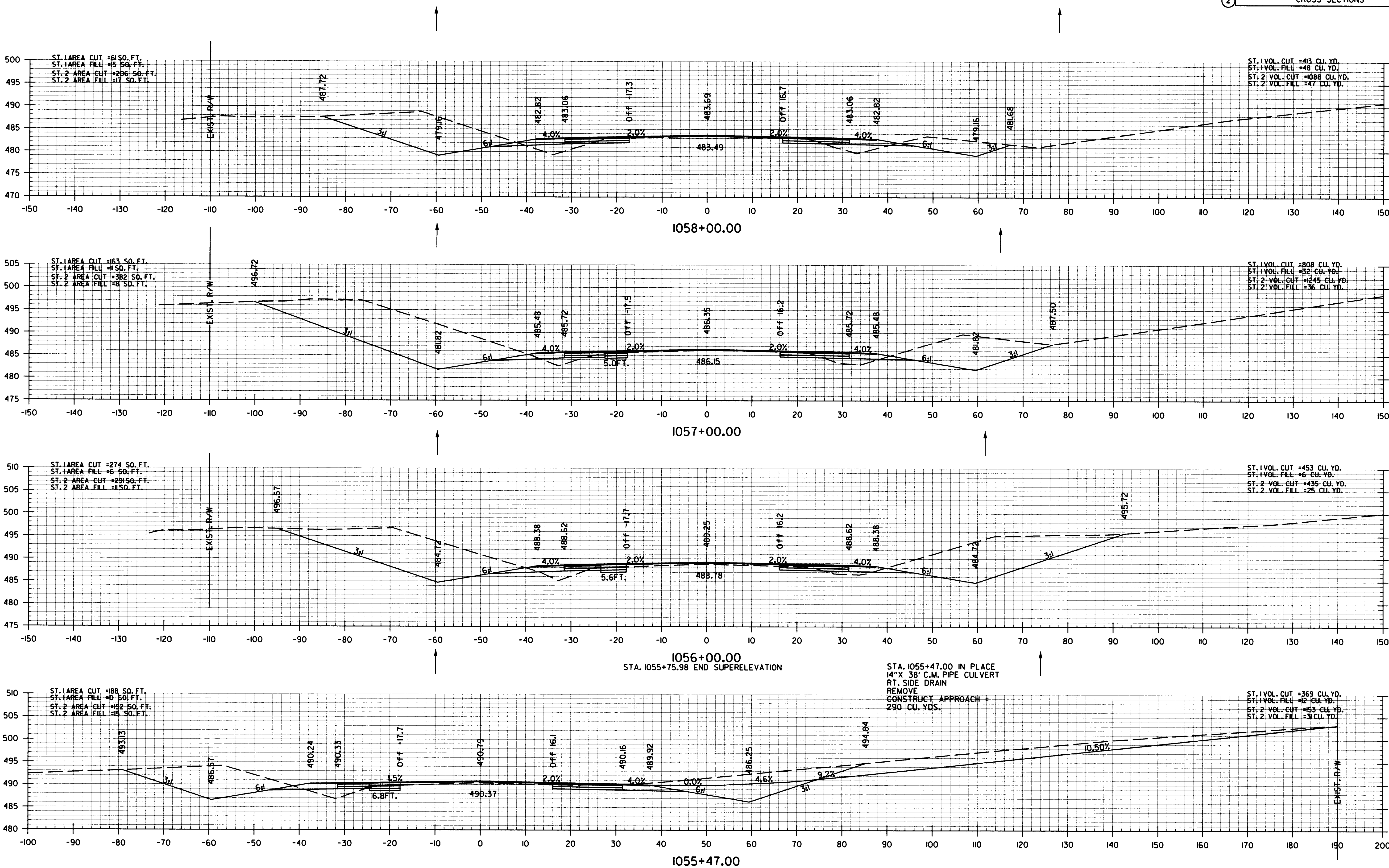
STA. 1053+00 TO STA. 1055+00

Leonard.Speed 9/23/2016 11:21:03 AM
WORKSPACE: Leonard.Speed
c:\pw\81-local\baker_projects\leonard.speed\d0216821\r061377.21.CX.001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	737	888

(2) CROSS SECTIONS



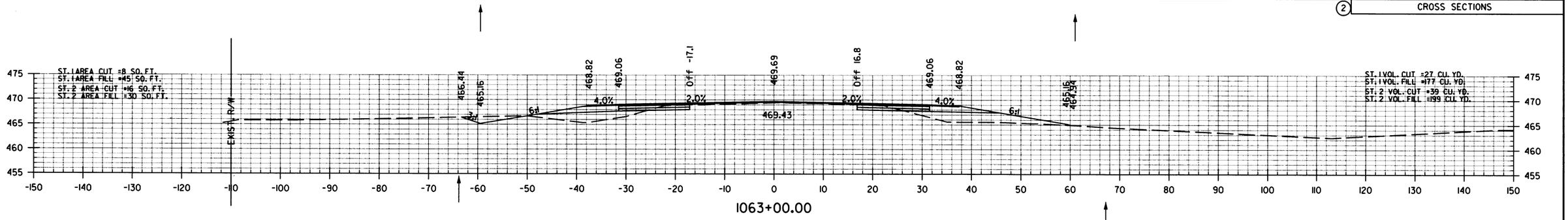
STA. 1055+47 TO STA. 1058+00

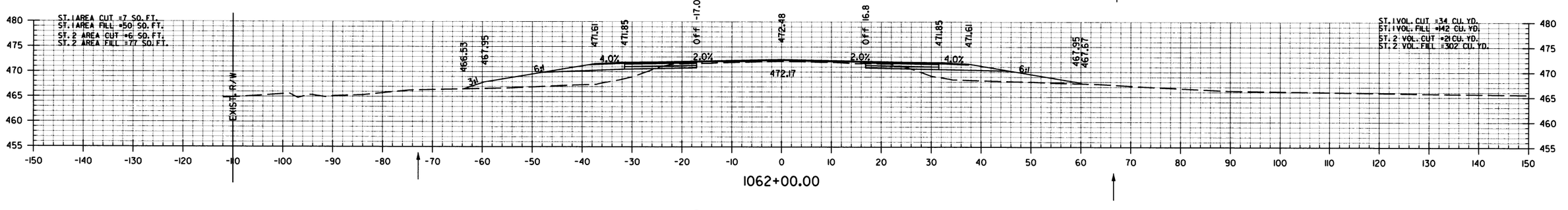
Leonard.Speed 9/23/2016 11:27:04 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271682\r-061377_21_CX_00.dgn
REVISED DATE: ##REVDATE##

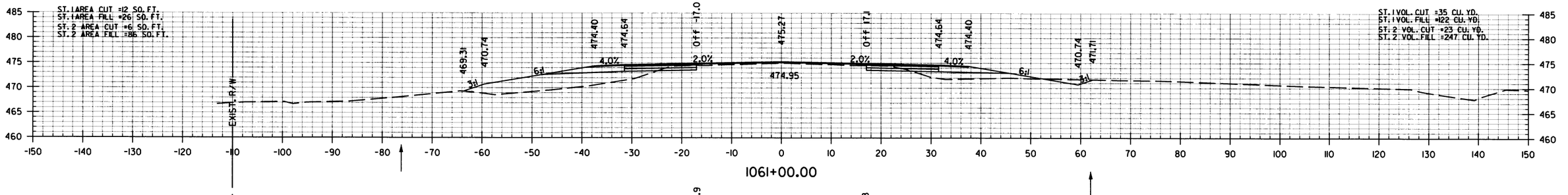
Michael Baker INTERNATIONAL

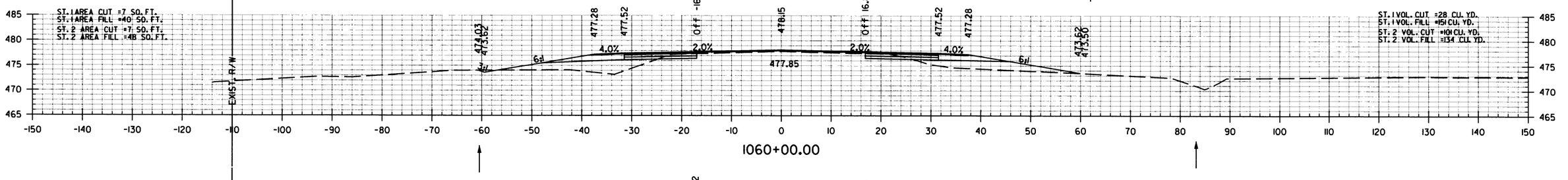
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	738	888

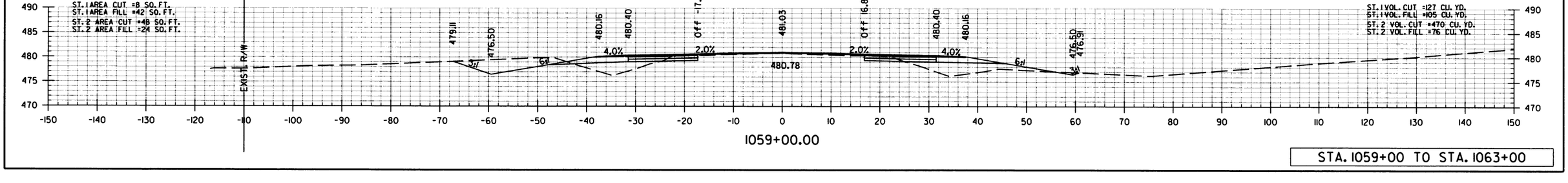
(2) CROSS SECTIONS











STA. 1059+00 TO STA. 1063+00

Leonard Speed 9/23/2016 11:27:04 AM
MBKSPEED Microstation V8i (SELECTseries 3)
c:\pw_wi-local\boker.projects\leonard.speed\d0271682\r06l371_21_CX_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	739	888

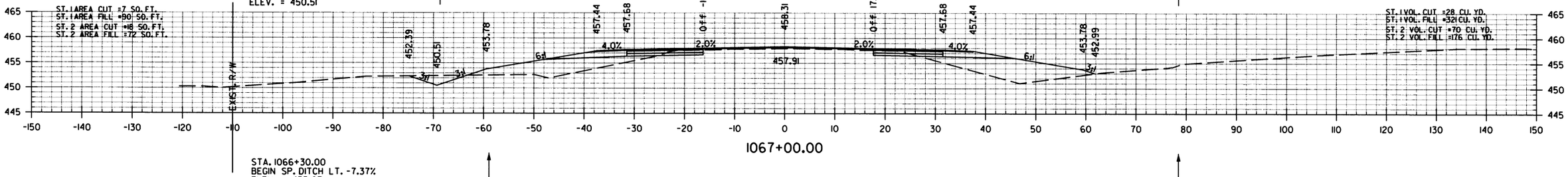
(2) CROSS SECTIONS

STA. 1067+00.00
END SP. DITCH LT. -7.37%
BEGIN SP. DITCH LT. -2.66%
ELEV. = 450.51

ST. 1 AREA CUT =7 SQ. FT.
ST. 1 AREA FILL =90 SQ. FT.
ST. 2 AREA CUT =18 SQ. FT.
ST. 2 AREA FILL =72 SQ. FT.

STA. 1067+50.00
BEGIN SP. DITCH RT. -3.49%
ELEV. = 451.50

ST. 1 VOL. CUT =28 CU. YD.
ST. 1 VOL. FILL =321 CU. YD.
ST. 2 VOL. CUT =70 CU. YD.
ST. 2 VOL. FILL =176 CU. YD.

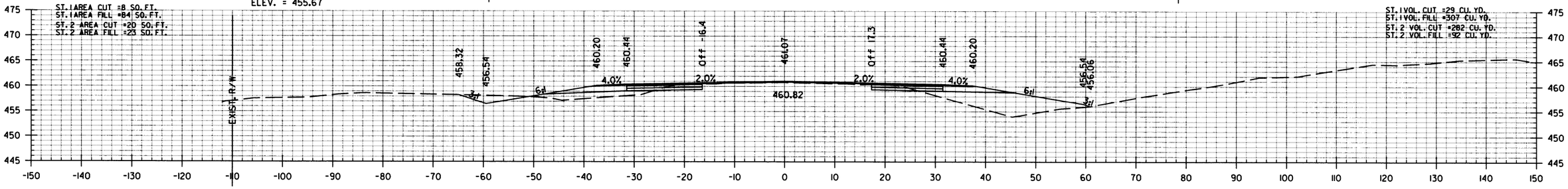


1067+00.00

STA. 1066+30.00
BEGIN SP. DITCH LT. -7.37%
ELEV. = 455.67

ST. 1 AREA CUT =8 SQ. FT.
ST. 1 AREA FILL =84 SQ. FT.
ST. 2 AREA CUT =20 SQ. FT.
ST. 2 AREA FILL =23 SQ. FT.

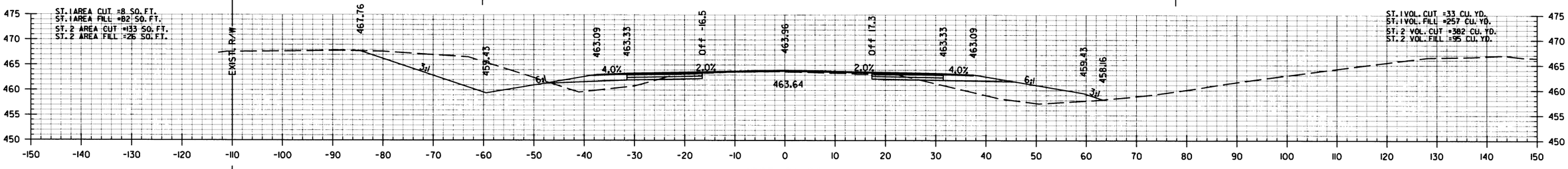
ST. 1 VOL. CUT =29 CU. YD.
ST. 1 VOL. FILL =307 CU. YD.
ST. 2 VOL. CUT =282 CU. YD.
ST. 2 VOL. FILL =92 CU. YD.



1066+00.00

ST. 1 AREA CUT =8 SQ. FT.
ST. 1 AREA FILL =82 SQ. FT.
ST. 2 AREA CUT =133 SQ. FT.
ST. 2 AREA FILL =26 SQ. FT.

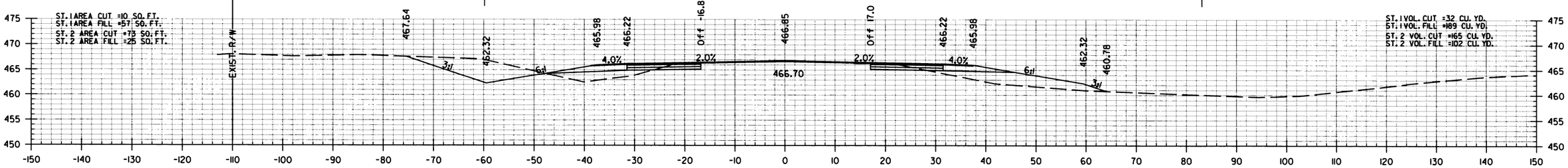
ST. 1 VOL. CUT =33 CU. YD.
ST. 1 VOL. FILL =257 CU. YD.
ST. 2 VOL. CUT =382 CU. YD.
ST. 2 VOL. FILL =95 CU. YD.



1065+00.00

ST. 1 AREA CUT =10 SQ. FT.
ST. 1 AREA FILL =57 SQ. FT.
ST. 2 AREA CUT =73 SQ. FT.
ST. 2 AREA FILL =25 SQ. FT.

ST. 1 VOL. CUT =32 CU. YD.
ST. 1 VOL. FILL =189 CU. YD.
ST. 2 VOL. CUT =165 CU. YD.
ST. 2 VOL. FILL =102 CU. YD.



1064+00.00

STA. 1064+00 TO STA. 1067+00

Leonard.Speed 9/23/2016 11:27:05 AM
WORKSPACE: Leonard.Speed
CONNECTION: Projects\Leonard.speed\d0276821\r061377.21.CX.001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

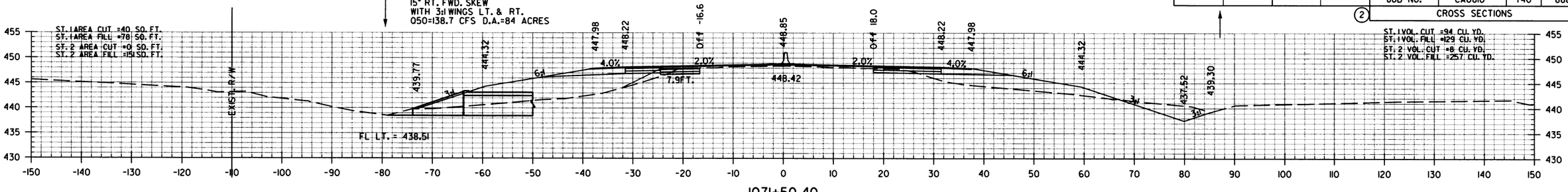
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	740	888

(2) CROSS SECTIONS

STA. 1071+70.00 CONSTRUCT
5' X 4' X 138' R.C. BOX CULVERT
15° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
050=138.7 CFS D.A.=84 ACRES

ST. 1 AREA CUT =40 SQ. FT.
ST. 1 AREA FILL =78 SQ. FT.
ST. 2 AREA CUT =0 SQ. FT.
ST. 2 AREA FILL =151 SQ. FT.

ST. 1 VOL. CUT =94 CU. YD.
ST. 1 VOL. FILL =129 CU. YD.
ST. 2 VOL. CUT =8 CU. YD.
ST. 2 VOL. FILL =257 CU. YD.

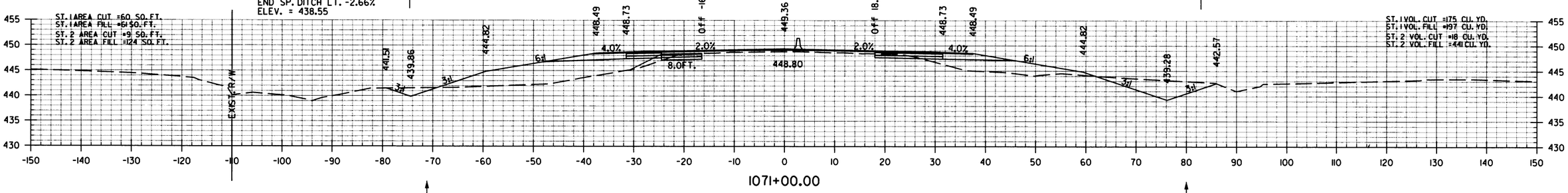


1071+50.40

STA. 1071+49.00
END SP. DITCH LT. -2.66%
ELEV. = 438.55

ST. 1 AREA CUT =60 SQ. FT.
ST. 1 AREA FILL =65 SQ. FT.
ST. 2 AREA CUT =9 SQ. FT.
ST. 2 AREA FILL =124 SQ. FT.

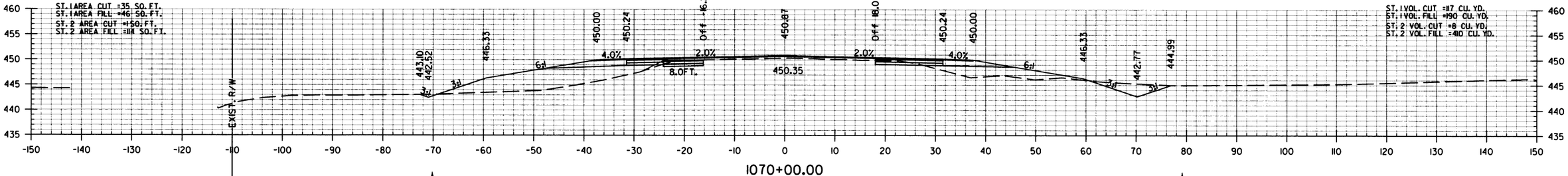
ST. 1 VOL. CUT =175 CU. YD.
ST. 1 VOL. FILL =197 CU. YD.
ST. 2 VOL. CUT =18 CU. YD.
ST. 2 VOL. FILL =441 CU. YD.



1071+00.00

ST. 1 AREA CUT =35 SQ. FT.
ST. 1 AREA FILL =46 SQ. FT.
ST. 2 AREA CUT =150 FT.
ST. 2 AREA FILL =114 SQ. FT.

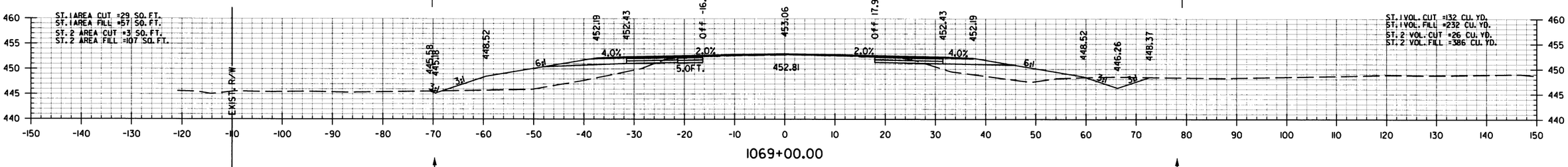
ST. 1 VOL. CUT =117 CU. YD.
ST. 1 VOL. FILL =190 CU. YD.
ST. 2 VOL. CUT =8 CU. YD.
ST. 2 VOL. FILL =410 CU. YD.



1070+00.00

ST. 1 AREA CUT =29 SQ. FT.
ST. 1 AREA FILL =57 SQ. FT.
ST. 2 AREA CUT =3 SQ. FT.
ST. 2 AREA FILL =107 SQ. FT.

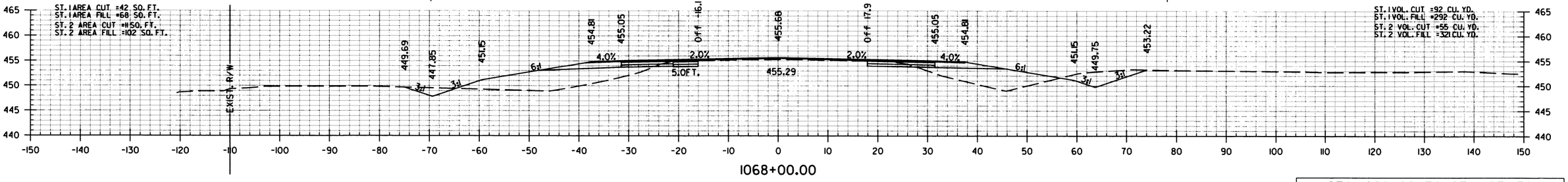
ST. 1 VOL. CUT =132 CU. YD.
ST. 1 VOL. FILL =232 CU. YD.
ST. 2 VOL. CUT =26 CU. YD.
ST. 2 VOL. FILL =386 CU. YD.



1069+00.00

ST. 1 AREA CUT =42 SQ. FT.
ST. 1 AREA FILL =68 SQ. FT.
ST. 2 AREA CUT =150 FT.
ST. 2 AREA FILL =102 SQ. FT.

ST. 1 VOL. CUT =92 CU. YD.
ST. 1 VOL. FILL =292 CU. YD.
ST. 2 VOL. CUT =55 CU. YD.
ST. 2 VOL. FILL =321 CU. YD.



1068+00.00

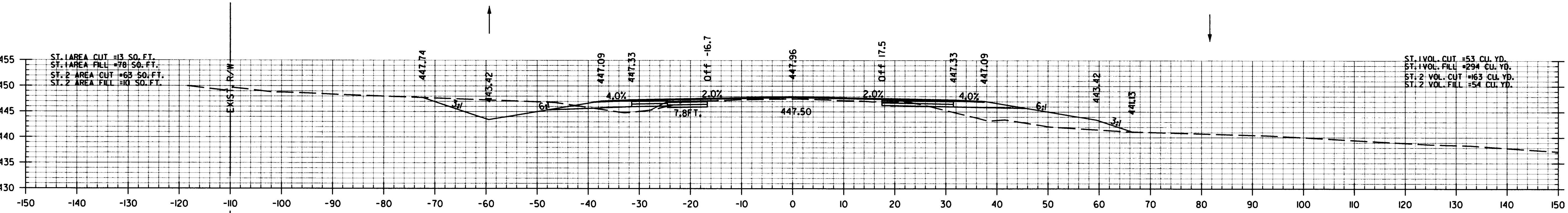
STA. 1068+00 TO STA. 1071+50

Leonard.Speed 9/23/2016 11:27:05 AM
WORKSPACE: Leonard.Speed
Cross Sections: C:\Projects\Leonard.speed\d0271682\r06377.21.CX.001.dgn
REVISED DATE: ##REVDATE##

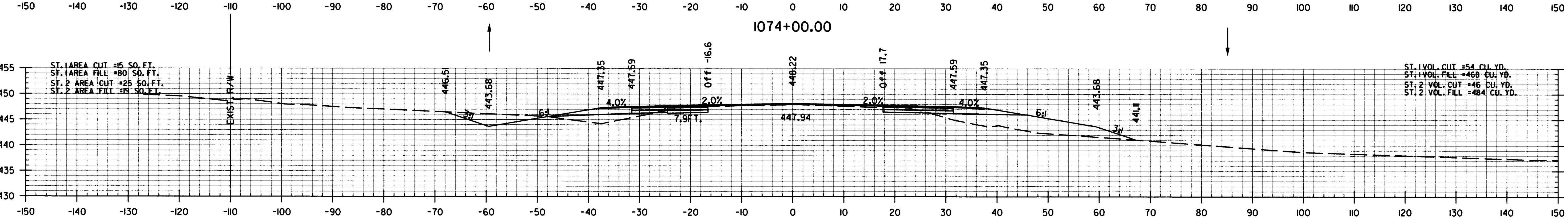
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	741	888

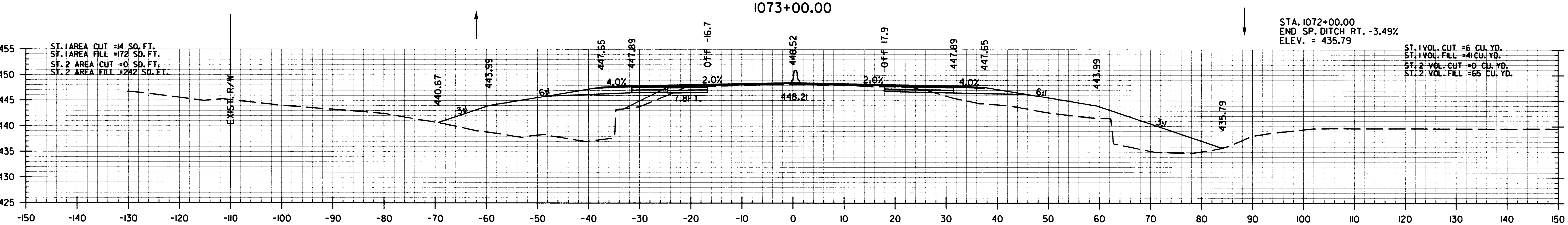
(2) CROSS SECTIONS



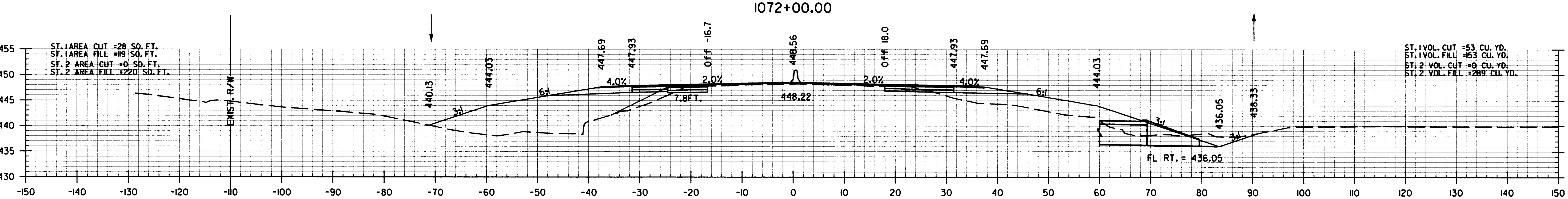
1074+00.00



1073+00.00



1072+00.00



1071+92.35

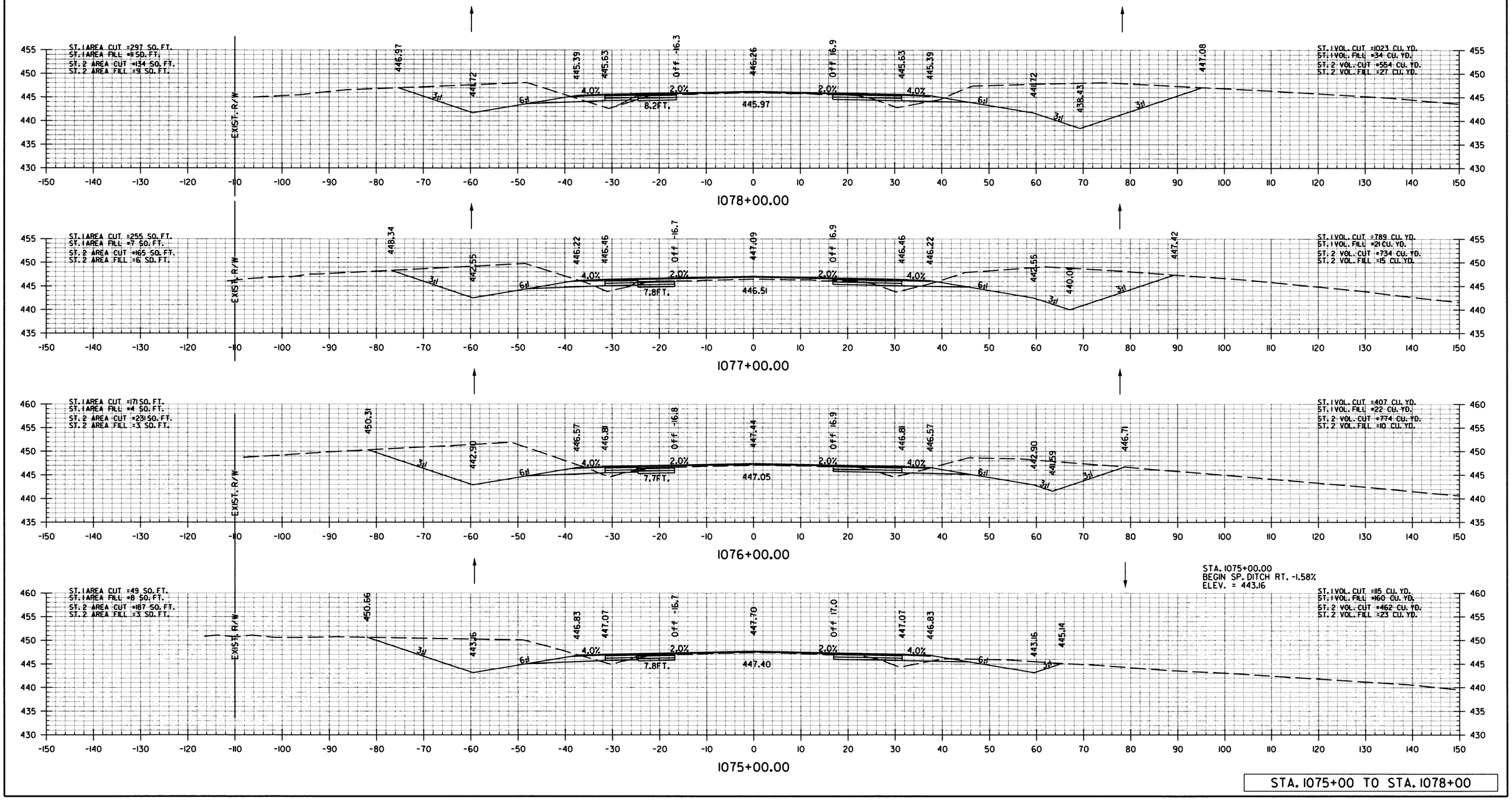
STA. 1071+92 TO STA. 1074+00

Leonard.Speed 9/23/2016 11:27:06 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271682\r061377_21_CX_00.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	742	888

(2) CROSS SECTIONS



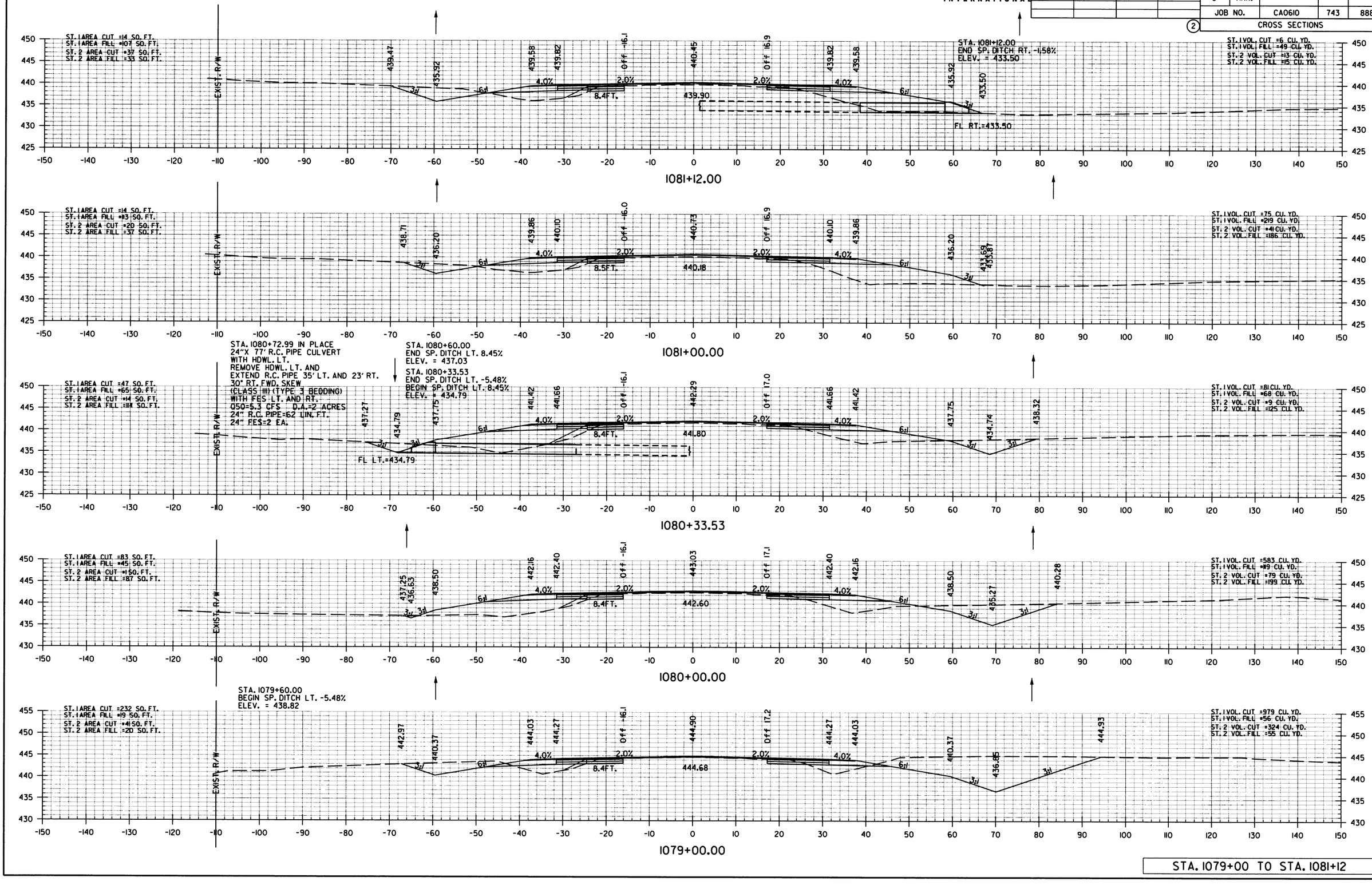
STA. 1075+00 TO STA. 1078+00

LeongrdSpeed 9/23/2006 11:27:06 AM
WORK\Civil\Leongrd\Speed\Projects\leongrdspeed\d0216821\r06l377.2\CX.00.dgn
CivilWorld-Corporate Projects
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	743	888

(2) CROSS SECTIONS



STA. 1079+00 TO STA. 1081+12

Leonard Speed 9/23/2016 11:27:07 AM
Workset: Leonard Speed
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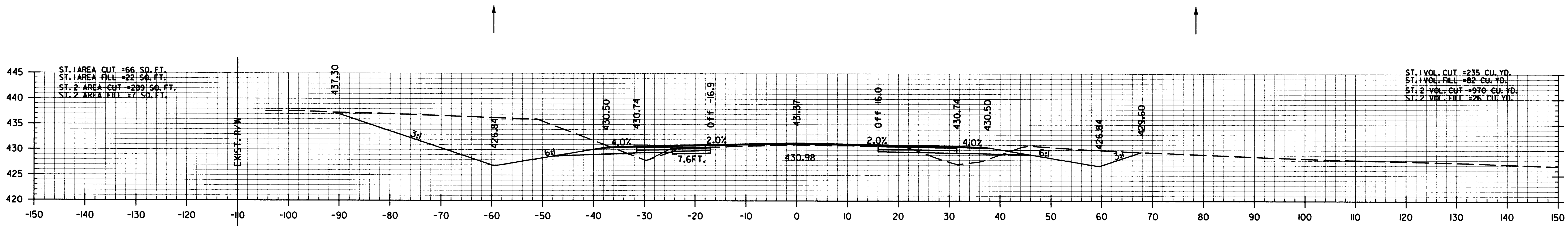
REVISED DATE: ##REVDATE##

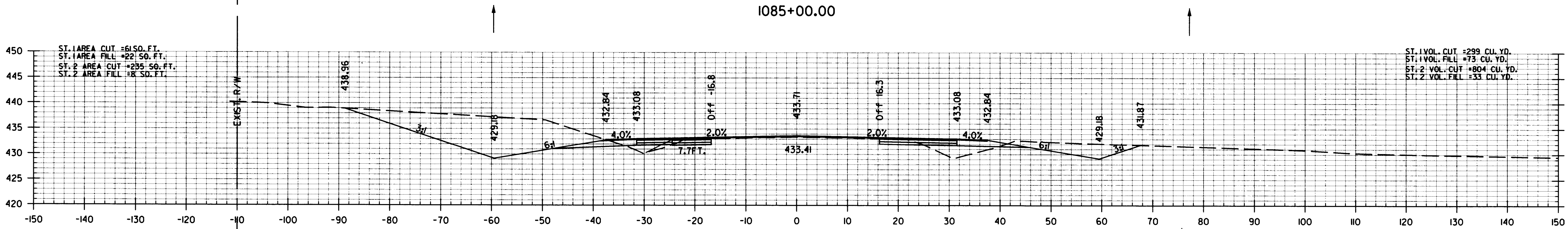
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0610		744	888

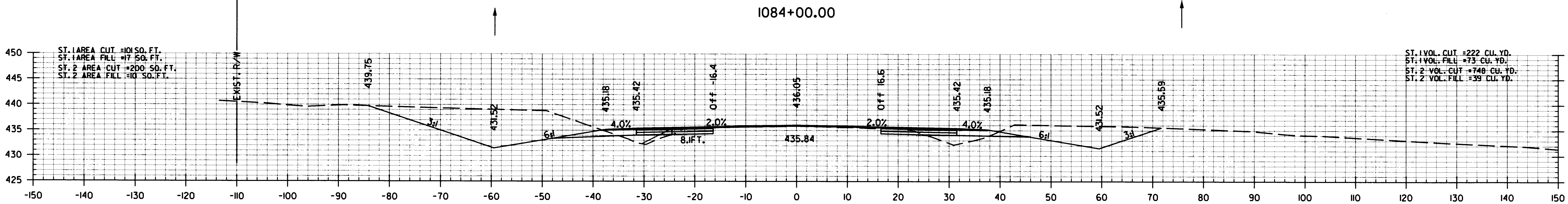
(2) CROSS SECTIONS



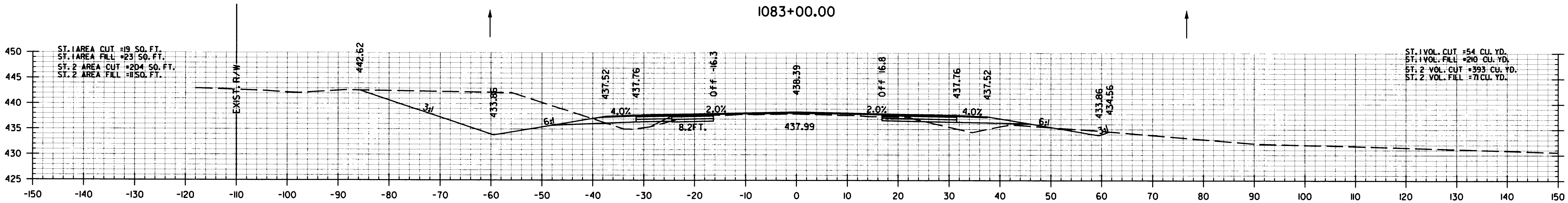
1085+00.00



1084+00.00



1083+00.00



1082+00.00

STA. 1082+00 TO STA. 1085+00

Leonard.Speed 9/23/2016 11:27:07 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271682\r-061377_21_CX_00.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

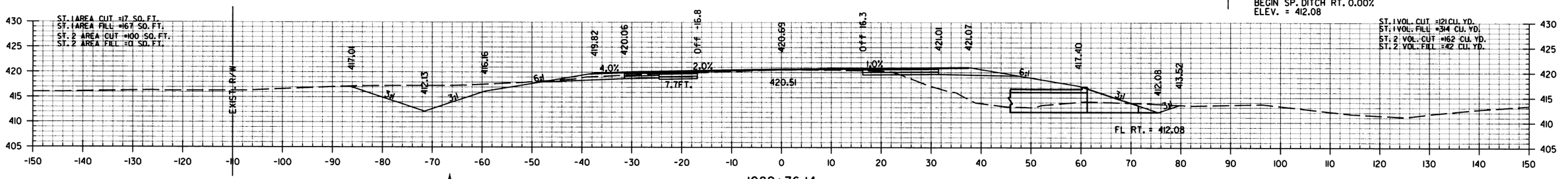
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	745	888

(2) CROSS SECTIONS

STA. 1089+76.14
END SP. DITCH RT. -4.14%
BEGIN SP. DITCH RT. 0.00%
ELEV. = 412.08

ST. 1 AREA CUT =17 SQ. FT.
ST. 1 AREA FILL =167 SQ. FT.
ST. 2 AREA CUT =100 SQ. FT.
ST. 2 AREA FILL =0 SQ. FT.

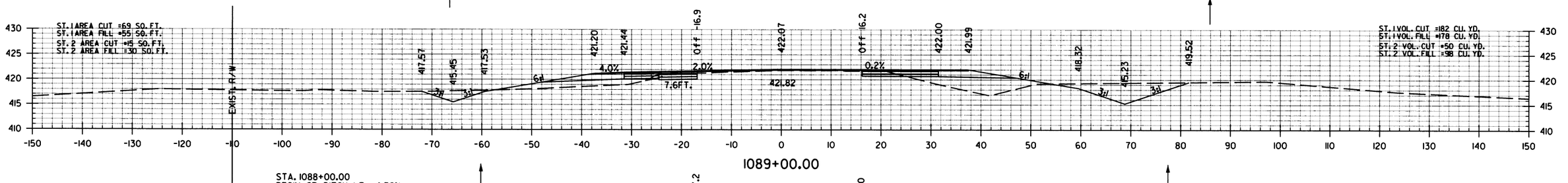
ST. 1 VOL. CUT =121 CU. YD.
ST. 1 VOL. FILL =314 CU. YD.
ST. 2 VOL. CUT =162 CU. YD.
ST. 2 VOL. FILL =42 CU. YD.



1089+76.14

ST. 1 AREA CUT =69 SQ. FT.
ST. 1 AREA FILL =55 SQ. FT.
ST. 2 AREA CUT =15 SQ. FT.
ST. 2 AREA FILL =30 SQ. FT.

ST. 1 VOL. CUT =182 CU. YD.
ST. 1 VOL. FILL =178 CU. YD.
ST. 2 VOL. CUT =50 CU. YD.
ST. 2 VOL. FILL =98 CU. YD.

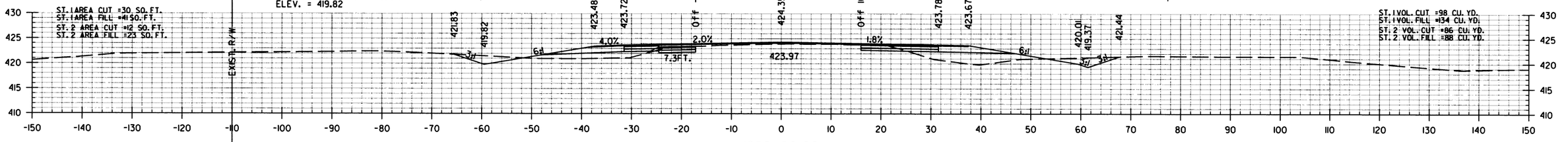


1089+00.00

STA. 1088+00.00
BEGIN SP. DITCH LT. -4.36%
ELEV. = 419.82

ST. 1 AREA CUT =30 SQ. FT.
ST. 1 AREA FILL =41 SQ. FT.
ST. 2 AREA CUT =12 SQ. FT.
ST. 2 AREA FILL =23 SQ. FT.

ST. 1 VOL. CUT =98 CU. YD.
ST. 1 VOL. FILL =134 CU. YD.
ST. 2 VOL. CUT =86 CU. YD.
ST. 2 VOL. FILL =88 CU. YD.



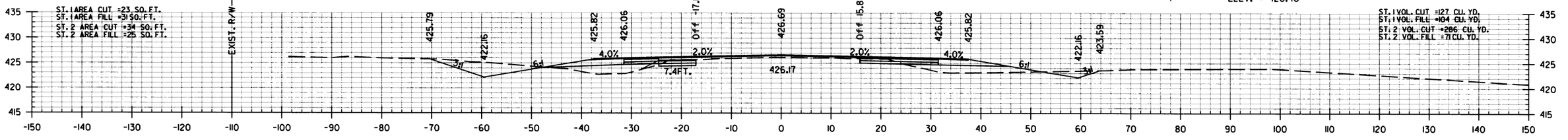
1088+00.00

STA. 1087+88.11 BEGIN SUPERELEVATION

STA. 1087+75.00
BEGIN SP. DITCH RT. -4.14%
ELEV. = 420.40

ST. 1 AREA CUT =23 SQ. FT.
ST. 1 AREA FILL =31 SQ. FT.
ST. 2 AREA CUT =34 SQ. FT.
ST. 2 AREA FILL =25 SQ. FT.

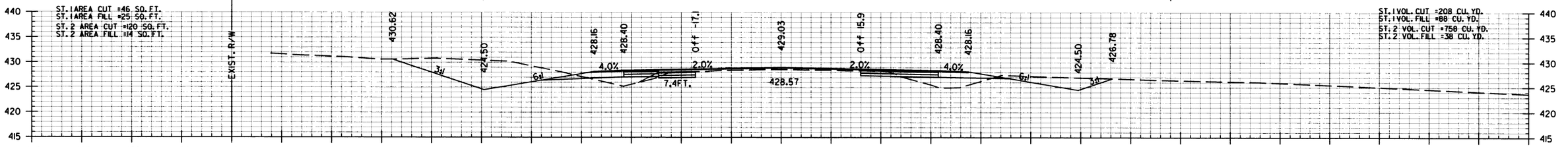
ST. 1 VOL. CUT =127 CU. YD.
ST. 1 VOL. FILL =104 CU. YD.
ST. 2 VOL. CUT =286 CU. YD.
ST. 2 VOL. FILL =71 CU. YD.



1087+00.00

ST. 1 AREA CUT =46 SQ. FT.
ST. 1 AREA FILL =25 SQ. FT.
ST. 2 AREA CUT =120 SQ. FT.
ST. 2 AREA FILL =14 SQ. FT.

ST. 1 VOL. CUT =208 CU. YD.
ST. 1 VOL. FILL =88 CU. YD.
ST. 2 VOL. CUT =758 CU. YD.
ST. 2 VOL. FILL =38 CU. YD.



1086+00.00

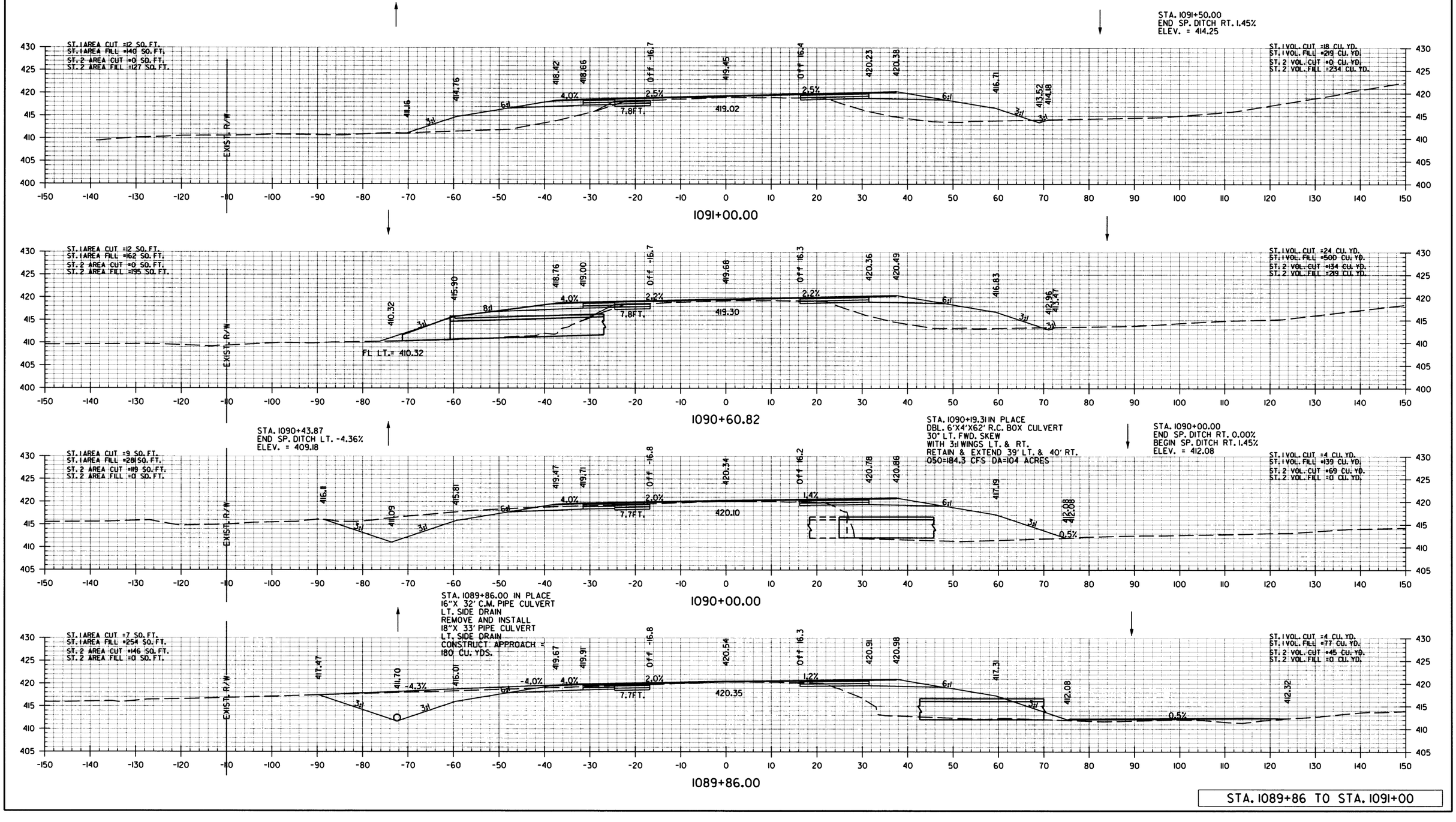
STA. 1086+00 TO STA. 1089+76

Leonard.Speed 9/23/2016 11:27:08 AM
W:\WORK\Leonard.Speed\projects\leonard.speed\d0276821\r061377.21.CX.001.dgn
MICHAEL BAKER CORP.
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	746	888

(2) CROSS SECTIONS



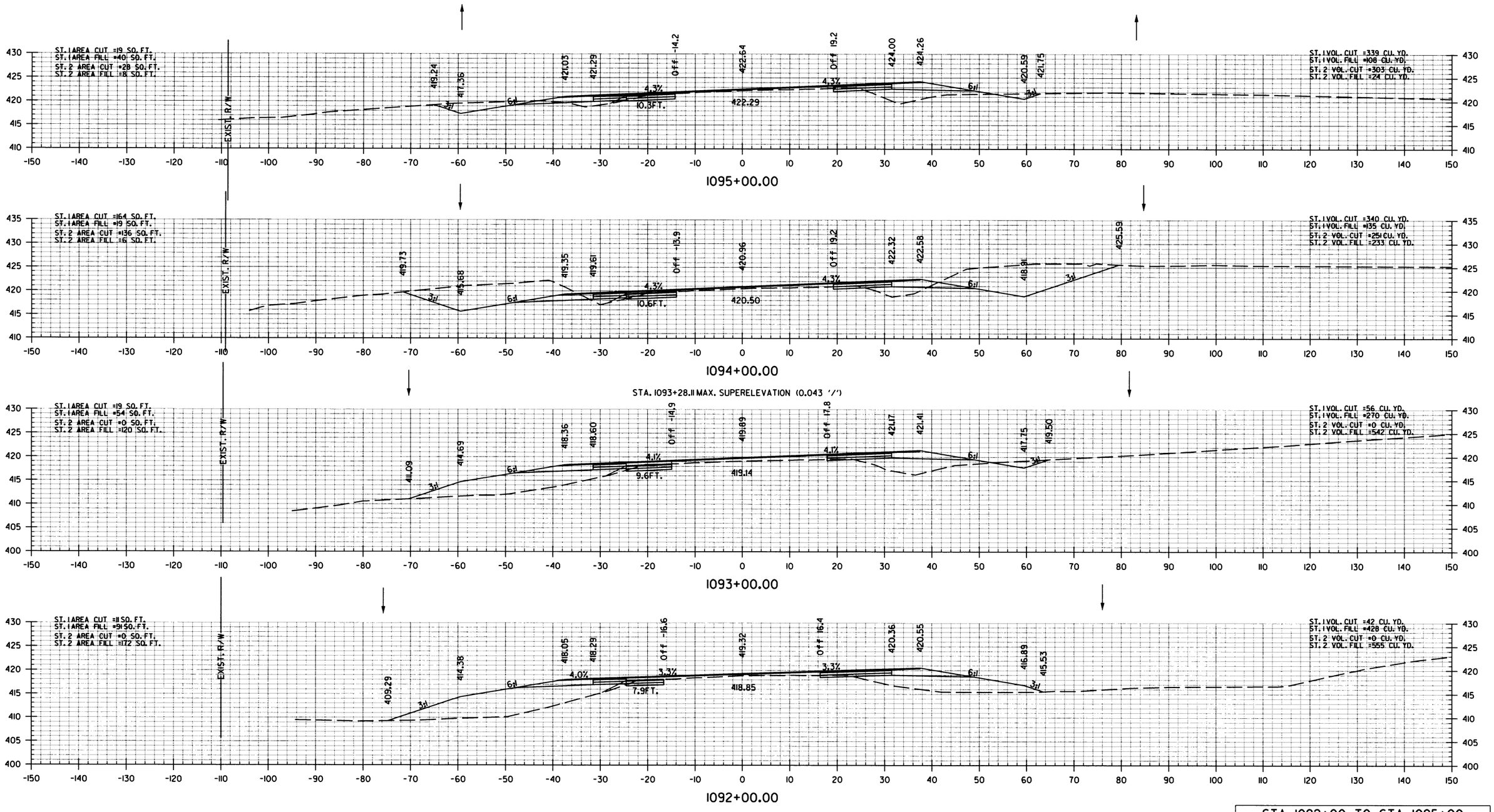
STA. 1089+86 TO STA. 1091+00

Leonard.Speed 9/23/2016 11:27:08 AM
WORKSPACE: Leonard.Speed
CURRENT DRAWING: C:\Projects\Leonard.speed\d0271682\r061377.2i.CX.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	747	888

(2) CROSS SECTIONS



STA. 1092+00 TO STA. 1095+00

Leonard.Speed 9/23/2006 11:27:09 AM
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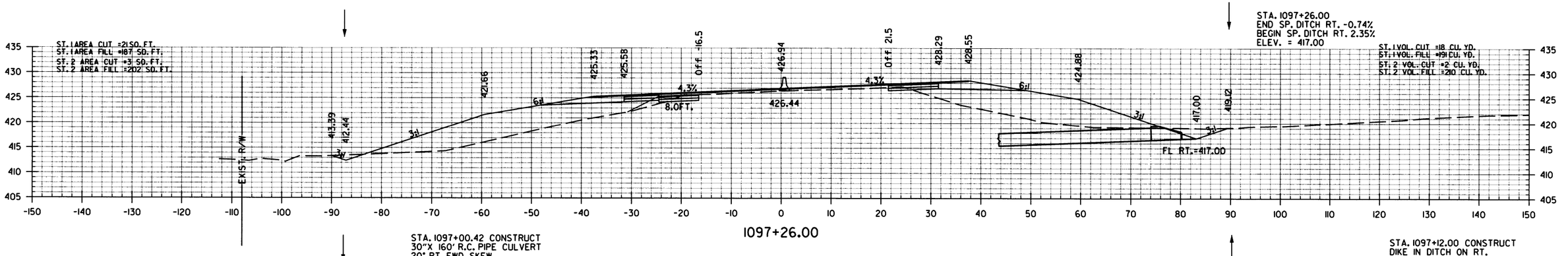
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	748	888

(2) CROSS SECTIONS



STA. 1096+00 TO STA. 1097+26

Leonard.Speed 9/23/2006 11:27:09 AM
WORKSPACE: Leonard.Speed
c:\pw\81-local\baker_projects\leonard.speed\v0271682\r-061377.2i.CX.001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	749	888

(2) CROSS SECTIONS

STA. 1101+00.00
END SP. DITCH LT. 4.37%
ELEV. = 428.76

STAGE 1 AREA CUT =79 SQ. FT.
STAGE 1 AREA FILL =7 SQ. FT.
STAGE 2 AREA CUT =274 SQ. FT.
STAGE 2 AREA FILL =7 SQ. FT.

STAGE 1 VOL. CUT =484 CU. YD.
STAGE 1 VOL. FILL =214 CU. YD.
STAGE 2 VOL. CUT =619 CU. YD.
STAGE 2 VOL. FILL =37 CU. YD.

EXIST. R/W

437.86 428.76 432.43 432.69 Off -19.0 434.04 433.62 Off 22.8 435.40 435.66 431.99 431.71 425.78 430.29

5.5FT.

1101+00.00

STAGE 1 AREA CUT =183 SQ. FT.
STAGE 1 AREA FILL =44 SQ. FT.
STAGE 2 AREA CUT =60 SQ. FT.
STAGE 2 AREA FILL =3 SQ. FT.

STAGE 1 VOL. CUT =674 CU. YD.
STAGE 1 VOL. FILL =96 CU. YD.
STAGE 2 VOL. CUT =165 CU. YD.
STAGE 2 VOL. FILL =185 CU. YD.

EXIST. R/W

428.15 424.40 426.86 430.53 430.79 Off -19.2 432.14 431.82 Off 22.4 433.50 433.76 430.09 429.81 423.43 428.62

5.3FT.

1100+00.00

ST. 1 AREA CUT =181 SQ. FT.
ST. 1 AREA FILL =8 SQ. FT.
ST. 2 AREA CUT =29 SQ. FT.
ST. 2 AREA FILL =86 SQ. FT.

ST. 1 VOL. CUT =406 CU. YD.
ST. 1 VOL. FILL =260 CU. YD.
ST. 2 VOL. CUT =93 CU. YD.
ST. 2 VOL. FILL =453 CU. YD.

EXIST. R/W

423.52 420.03 424.96 428.63 428.89 Off -18.3 430.24 429.92 Off 23.3 431.60 431.86 428.19 421.09 427.91

6.2FT.

1099+00.00

ST. 1 AREA CUT =38 SQ. FT.
ST. 1 AREA FILL =132 SQ. FT.
ST. 2 AREA CUT =21 SQ. FT.
ST. 2 AREA FILL =158 SQ. FT.

ST. 1 VOL. CUT =80 CU. YD.
ST. 1 VOL. FILL =438 CU. YD.
ST. 2 VOL. CUT =34 CU. YD.
ST. 2 VOL. FILL =494 CU. YD.

EXIST. R/W

418.29 415.67 423.06 426.73 426.99 Off -17.4 428.34 427.88 Off 22.6 429.70 429.96 426.29 418.74 421.81

7.1FT.

1098+00.00

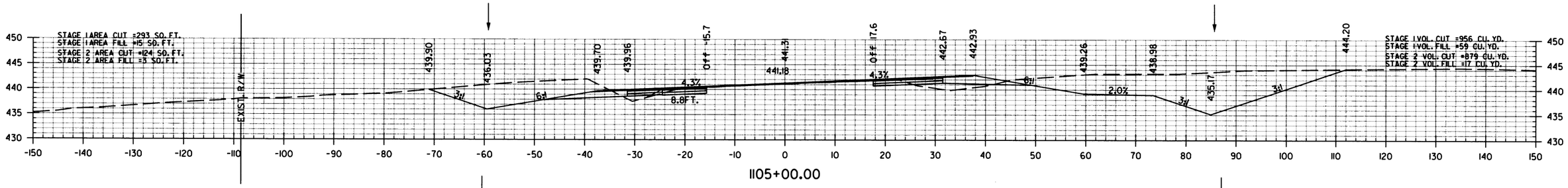
STA. 1098+00 TO STA. 1101+00

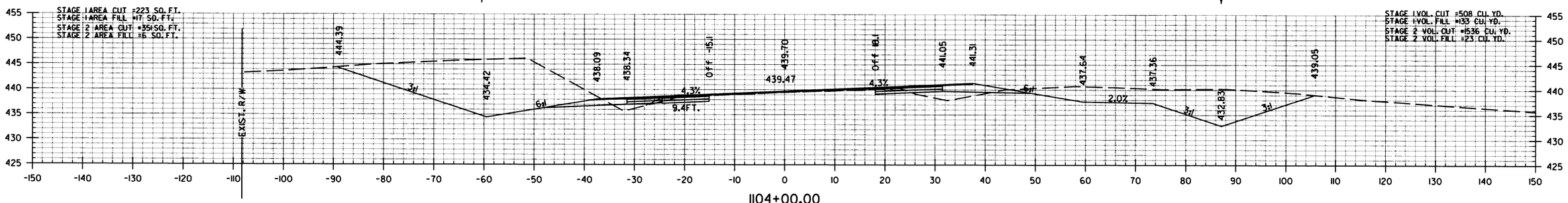
Leonard.Speed 9/23/2016 11:27:40 AM
W:\Work\Active Projects\Leonard.Speed\d0271682\r-061377.21.CX_000.dgn
Civil\Active Projects\Leonard.Speed
REVISED DATE: ##REVDATE##

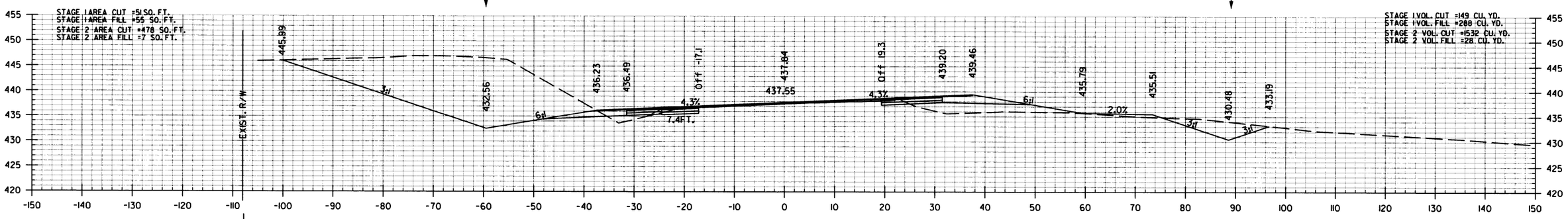
Michael Baker INTERNATIONAL

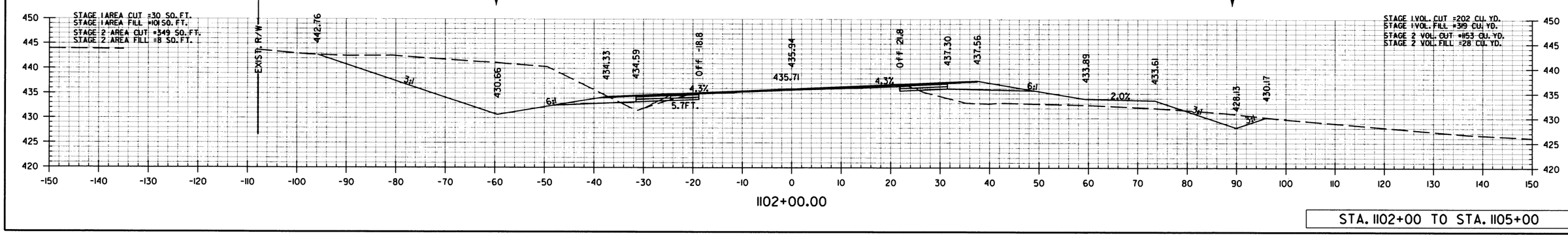
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	750	888

(2) CROSS SECTIONS









STA. 1102+00 TO STA. 1105+00

Leonard.Speed 9/23/2006 11:27:10 AM
WORKSPACE: Leonard.Speed
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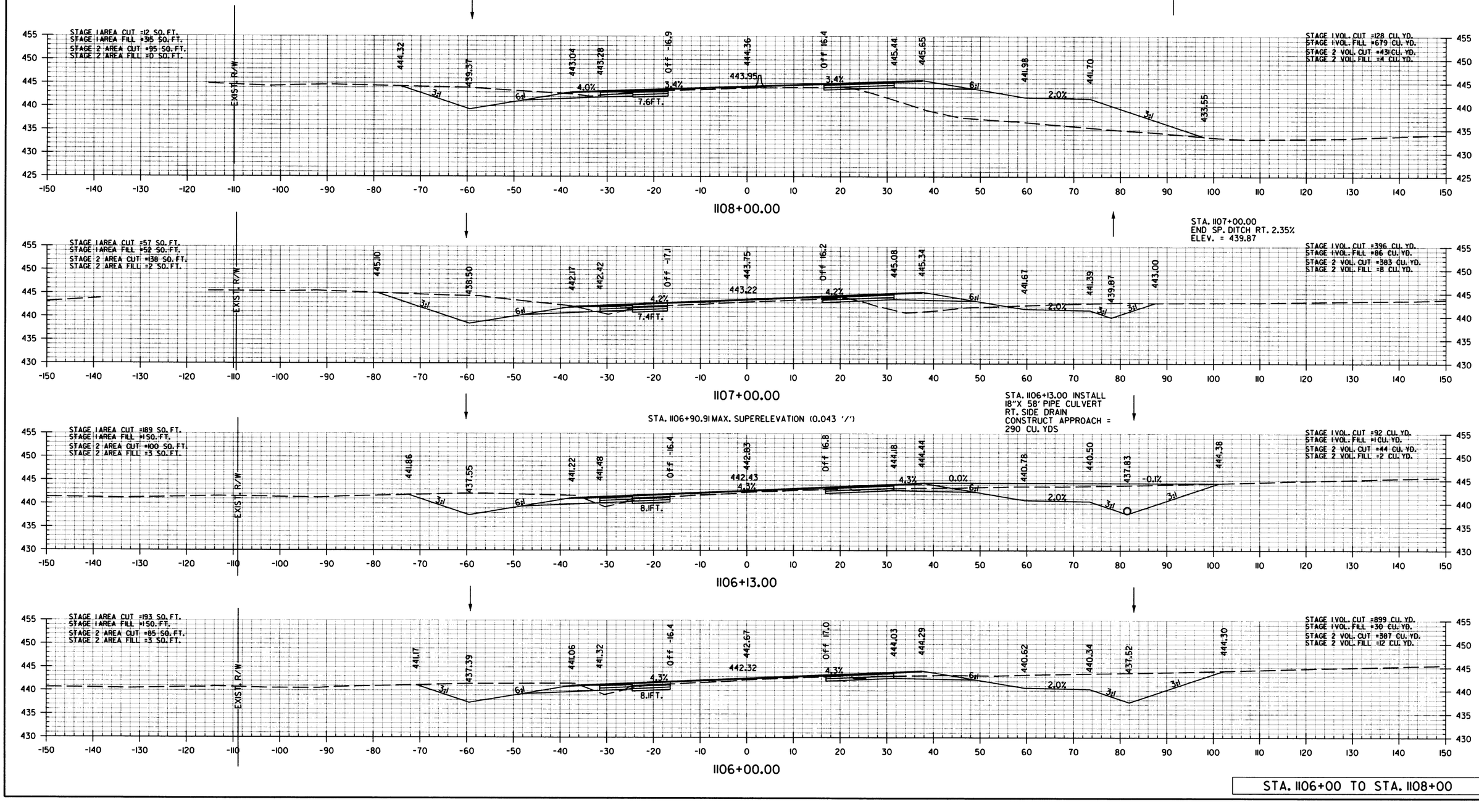
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	751	888
				(2)	CROSS SECTIONS			



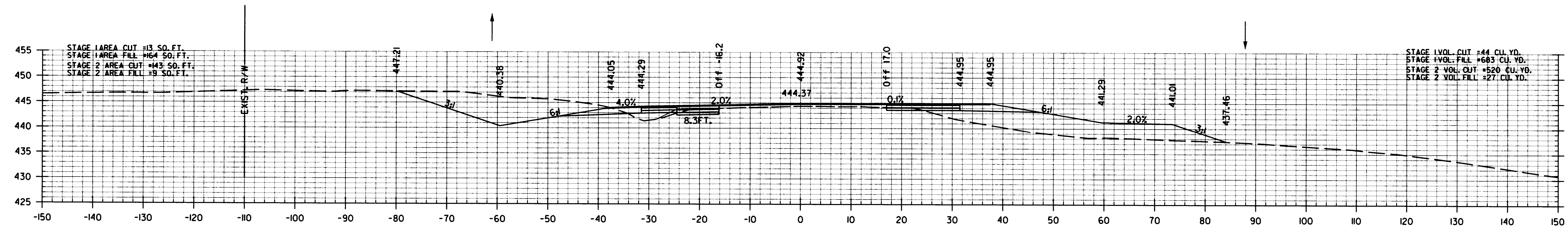
STA. 1106+00 TO STA. 1108+00

LeonardSpeed 9/23/2016 11:27:11 AM
W:\WORK\Projects\LeonardSpeed
CIVIL\Roadway\Sheets\Leonard_Speed_CrossSections.dwg
REVISED DATE: ##REVDATE##

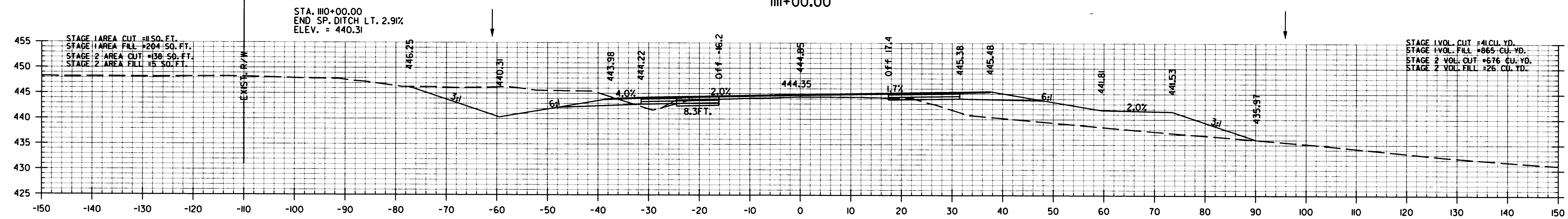
LeonardSpeed\Projects\Leonard_Speed\v0027682\v061377_2L_CX_001.dgn

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	752	888

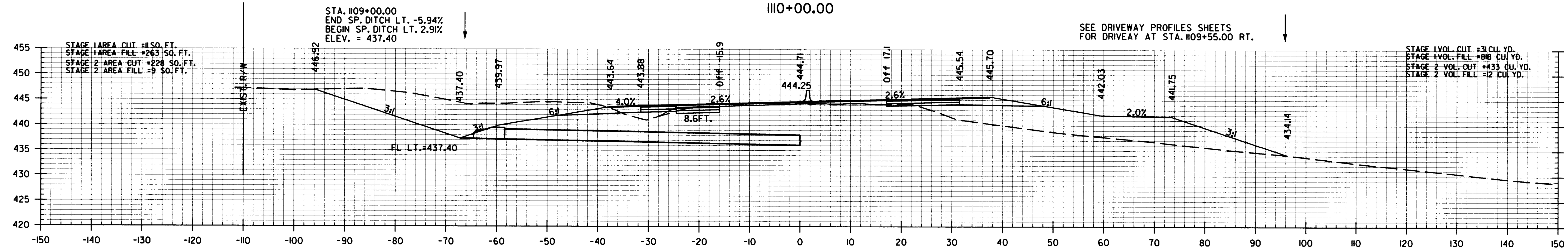
(2) CROSS SECTIONS



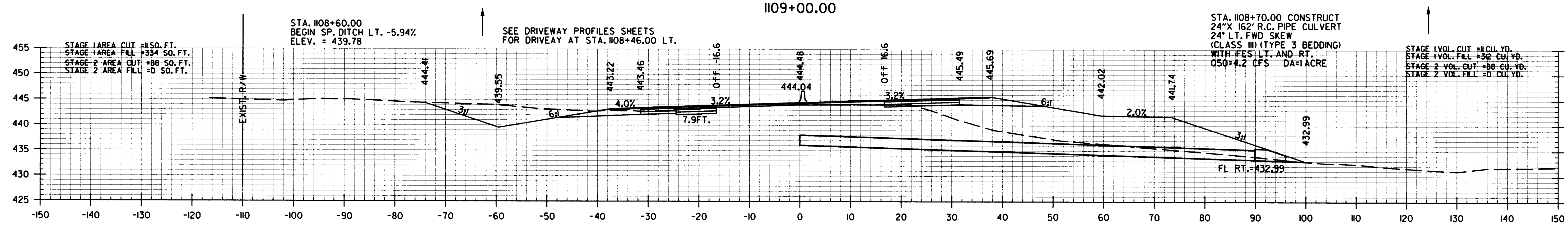
1111+00.00



1110+00.00



1109+00.00



1108+25.97

STA. 1108+26 TO STA. 1111+00

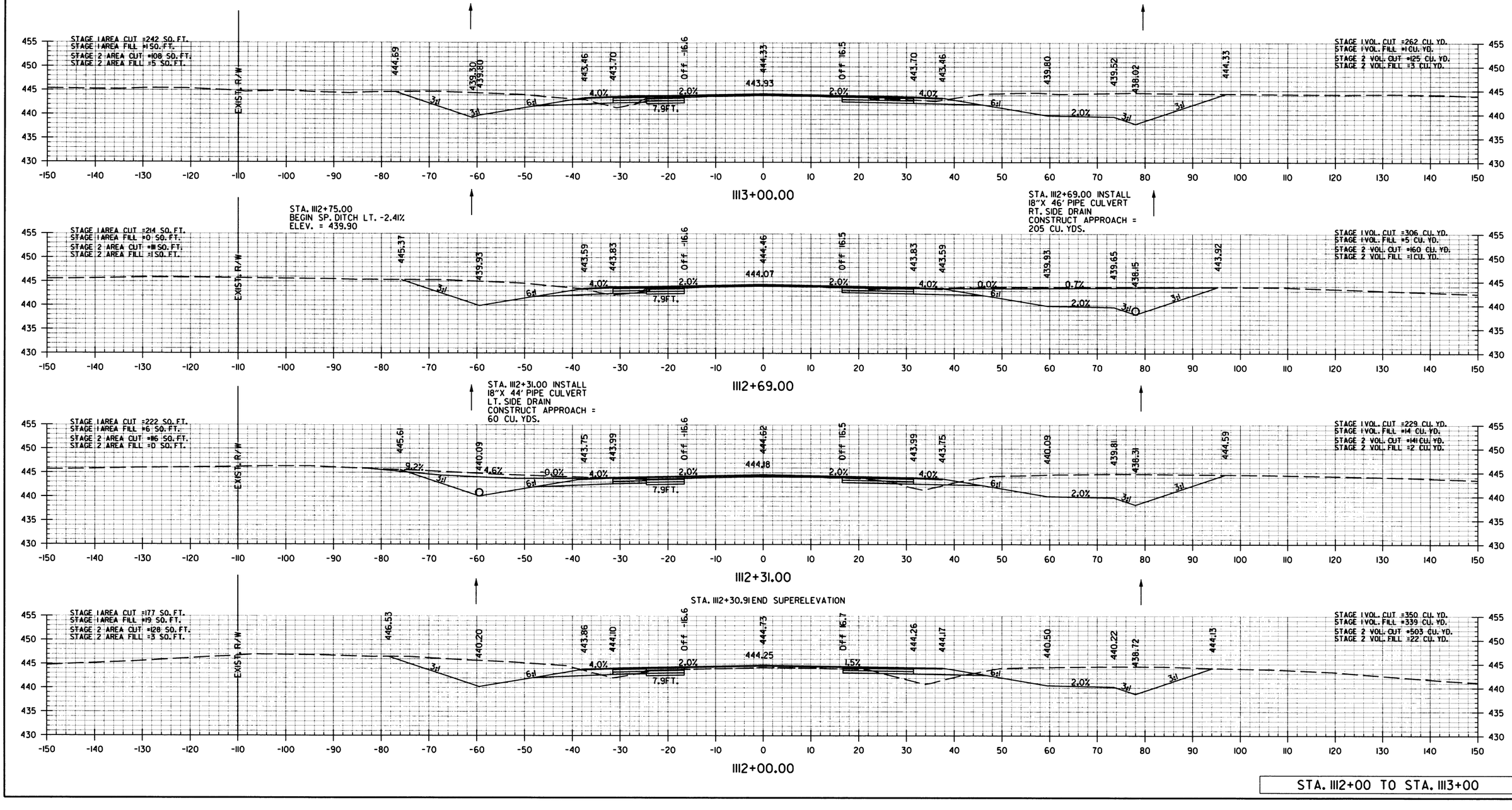
Leonard.Speed 9/23/2016 11:27:11 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271682\r061377_21_CX_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	753	888

(2) CROSS SECTIONS



STA. 111+00 TO STA. 111+30

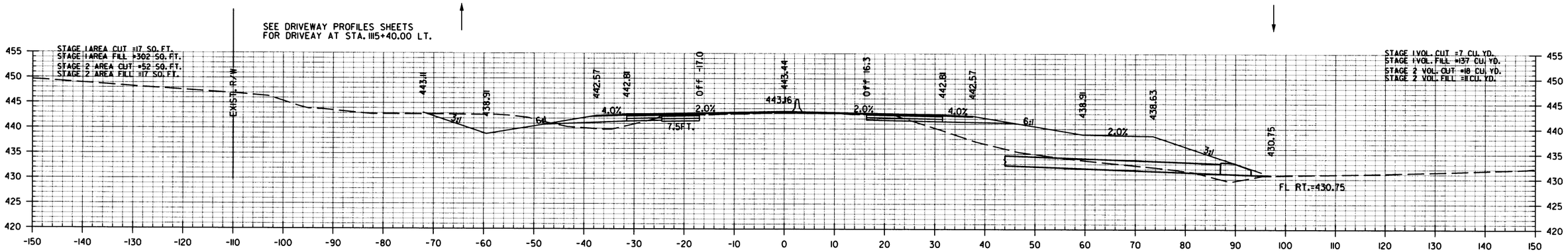
LeonardSpeed 9/21/2006 11:27:13 AM
M:\0061377.21\Leonard Speed\Civil\Cross Sections\
c:\Civil-local\baker.prc|ects\Leonard.speed\d0271682\r-061377.21.CX.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

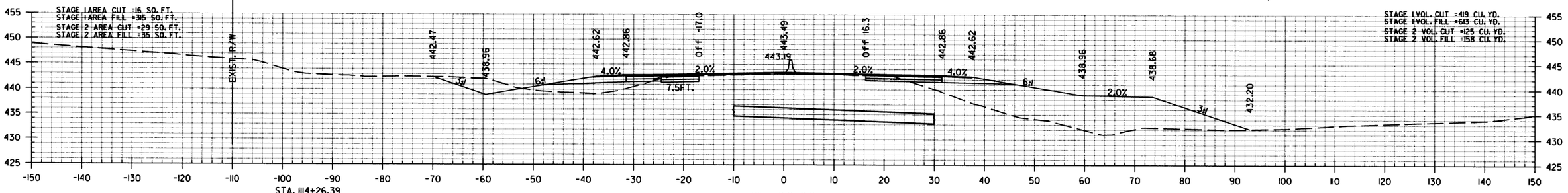
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	754	888

(2) CROSS SECTIONS

SEE DRIVEWAY PROFILES SHEETS FOR DRIVEAY AT STA. 1115+40.00 LT.



1115+11.95

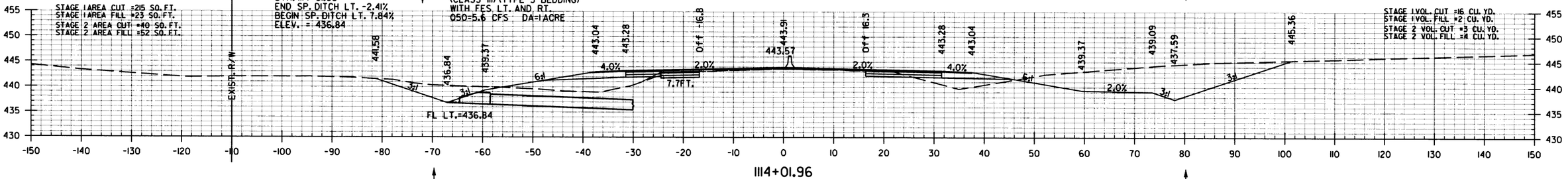


1115+00.00

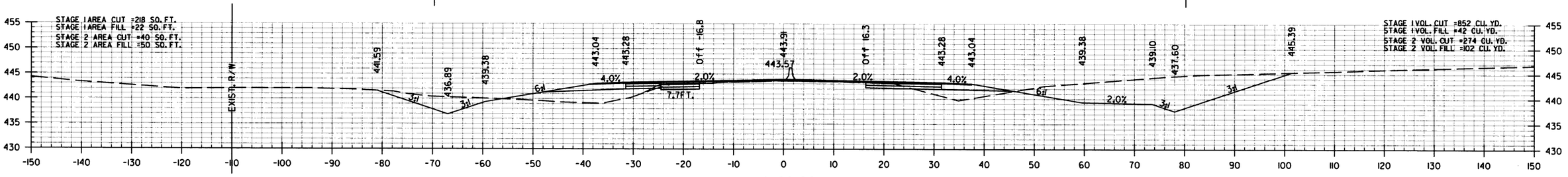
STA. 1114+26.39
END SP. DITCH LT. 7.84%
ELEV. = 438.76

STA. 1114+01.96
END SP. DITCH LT. -2.41%
BEGIN SP. DITCH LT. 7.84%
ELEV. = 436.84

STA. 1114+47.42 CONSTRUCT
24"X 179' R.C. PIPE CULVERT
34° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=5.6 CFS DA=1 ACRE



1114+01.96



1114+00.00

STA. 1114+00 TO STA. 1115+12

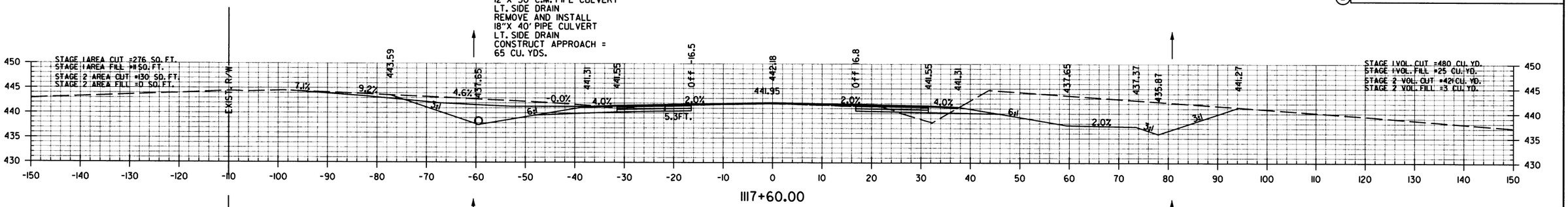
Leonard.Speed 9/23/2016 11:21:13 AM
WORKSPACE: Leonard.Speed
c:\pw\bl-local\baker_projects\leonard.speed\d0271682\r06l377_2l_CX_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

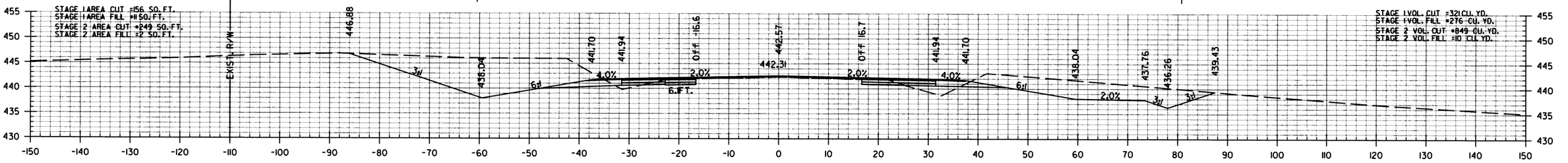
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	755	888

(2) CROSS SECTIONS

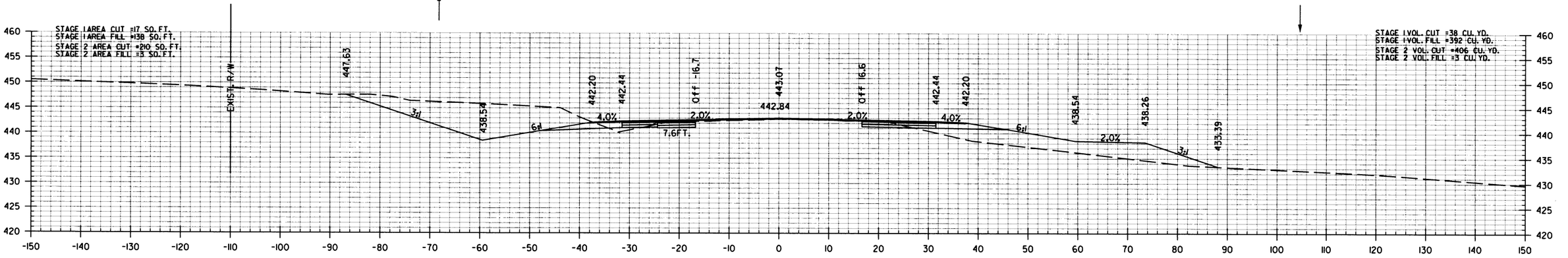
STA. 1117+60.00 IN PLACE
12"X 30' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
65 CU. YDS.



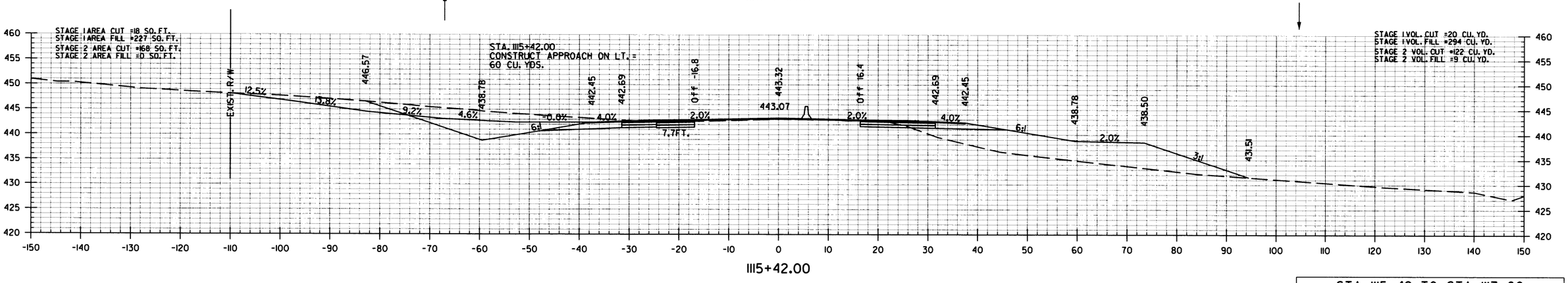
1117+60.00



1117+00.00



1116+00.00



1115+42.00

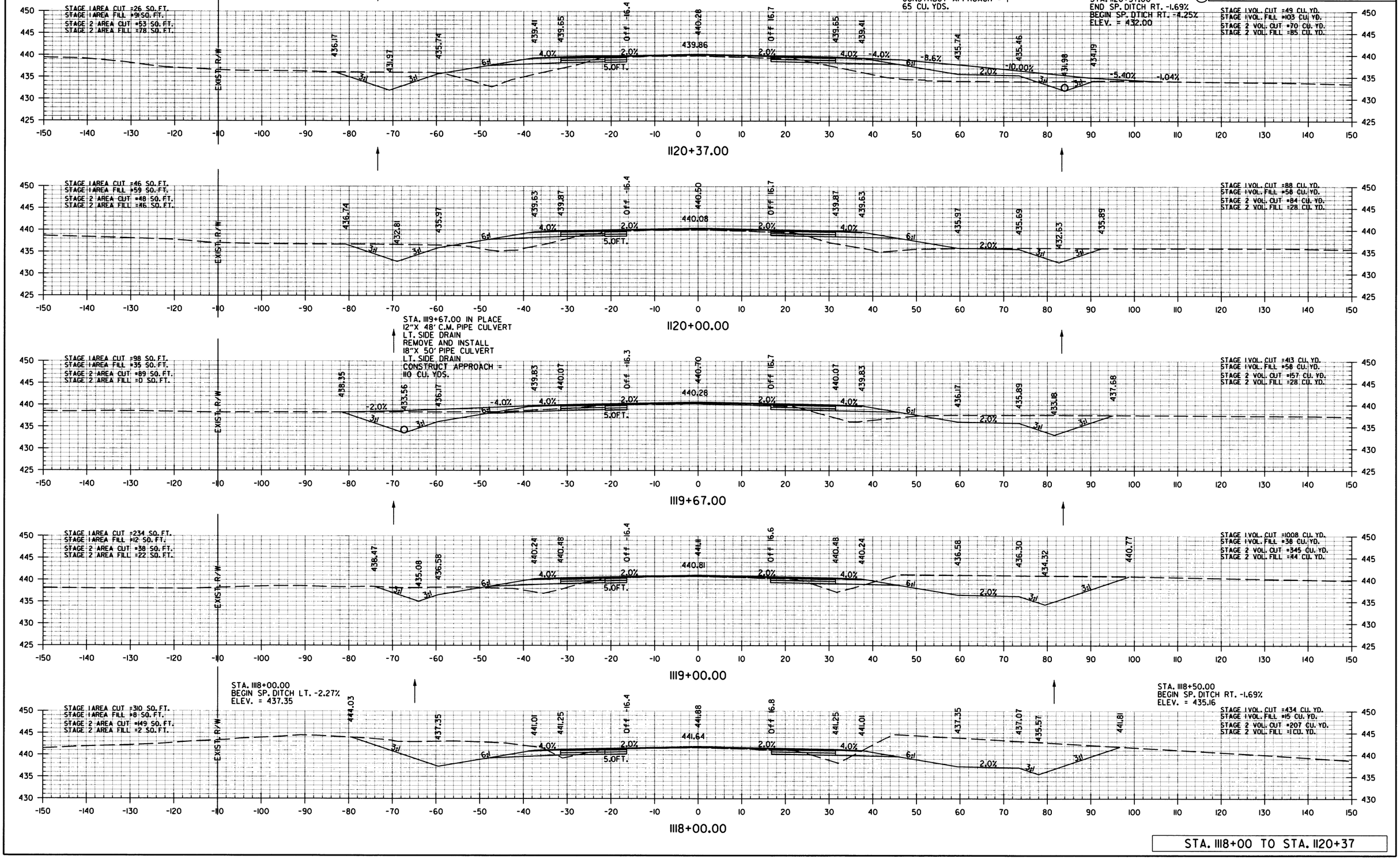
STA. 1115+42 TO STA. 1117+60

Leonard.Speed 9/23/2016 11:27:14 AM
WORKSPACE=c:\projects
CONFIG=Default
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	756	888

(2) CROSS SECTIONS



STA. 1118+00 TO STA. 1120+37

Leonard Speed 9/23/2006 11:27:15 AM
K:\ENGR\Projects\Leonard.speed\d0271682\r061377.21.CX.001.dgn
c:\vwv81-local\baker..projects\leonard.speed\d0271682\r061377.21.CX.001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	757	888

(2) CROSS SECTIONS

STAGE 1 AREA CUT =6 SQ. FT.
STAGE 1 AREA FILL =396 SQ. FT.
STAGE 2 AREA CUT =93 SQ. FT.
STAGE 2 AREA FILL =62 SQ. FT.

STAGE 1 VOL. CUT =13 CU. YD.
STAGE 1 VOL. FILL =579 CU. YD.
STAGE 2 VOL. CUT =137 CU. YD.
STAGE 2 VOL. FILL =100 CU. YD.

EXIST. R/W
441.36
431.22
436.04
439.70
439.64
Off -16.4
439.28
438.99
Off 16.7
438.65
438.41
434.75
434.47
425.05
6:1
3:1
1.7%
2.0%
4.0%

1122+00.00

STA. 1121+83.00
END SP. DITCH RT. -4.25%
ELEV. = 425.79

STAGE 1 AREA CUT =10 SQ. FT.
STAGE 1 AREA FILL =359 SQ. FT.
STAGE 2 AREA CUT =85 SQ. FT.
STAGE 2 AREA FILL =68 SQ. FT.

STAGE 1 VOL. CUT =33 CU. YD.
STAGE 1 VOL. FILL =632 CU. YD.
STAGE 2 VOL. CUT =166 CU. YD.
STAGE 2 VOL. FILL =166 CU. YD.

EXIST. R/W
439.91
432.68
435.87
439.54
439.54
Off -16.3
439.54
439.20
Off 16.9
438.91
438.67
435.00
434.72
426.83
427.97
FL RT.= 426.83
6:1
3:1
0.0%
2.0%
4.0%

1121+58.58

STA. 1121+02.92 IN PLACE
24"X 107' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT.
EXTEND R.C. PIPE 21' LT. AND 46' RT.
30° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
Q50=14.7 CFS DA=3 ACRES
24" R.C. PIPE=75 LIN. FT.
24" FES=2 EA.

STAGE 1 AREA CUT =21 SQ. FT.
STAGE 1 AREA FILL =224 SQ. FT.
STAGE 2 AREA CUT =67 SQ. FT.
STAGE 2 AREA FILL =85 SQ. FT.

STAGE 1 VOL. CUT =33 CU. YD.
STAGE 1 VOL. FILL =265 CU. YD.
STAGE 2 VOL. CUT =86 CU. YD.
STAGE 2 VOL. FILL =131 CU. YD.

EXIST. R/W
437.60
431.82
435.65
439.31
439.41
Off -16.4
439.09
439.49
Off 16.8
439.26
439.02
435.36
435.08
429.32
431.53
6:1
3:1
1.5%
2.0%
4.0%

1121+00.00

STA. 1120+61.32
END SP. DITCH LT. -2.27%
BEGIN SP. DITCH LT. 1.30%
ELEV. = 431.42

STA. 1120+83.10 BEGIN SUPERELEVATION

STAGE 1 AREA CUT =26 SQ. FT.
STAGE 1 AREA FILL =146 SQ. FT.
STAGE 2 AREA CUT =53 SQ. FT.
STAGE 2 AREA FILL =98 SQ. FT.

STAGE 1 VOL. CUT =23 CU. YD.
STAGE 1 VOL. FILL =107 CU. YD.
STAGE 2 VOL. CUT =48 CU. YD.
STAGE 2 VOL. FILL =79 CU. YD.

EXIST. R/W
436.26
431.42
435.59
439.26
439.50
Off -16.4
440.13
439.72
Off 16.7
439.50
439.26
435.59
435.31
430.97
433.09
FL LT.=431.42
6:1
3:1
4.0%
2.0%
5.0FT.

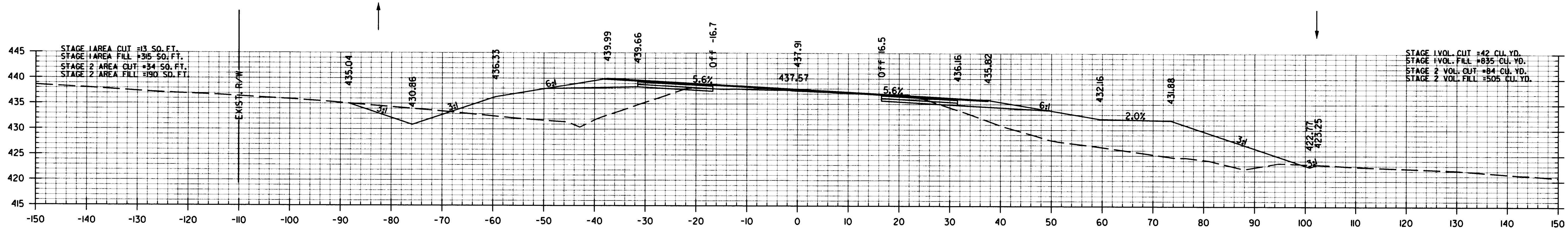
1120+61.32

STA. 1120+61 TO STA. 1122+00

Leonard.Speed 9/23/2016 11:27:16 AM
WORKSPACE: Leonard.Speed
CONFIGURATION: Default
REVISED DATE: $$REVDATE$$
C:\Users\leonard.speed\Documents\leonard.speed\d0271682\v-061377.2LCX.001.dgn

Michael Baker
INTERNATIONAL

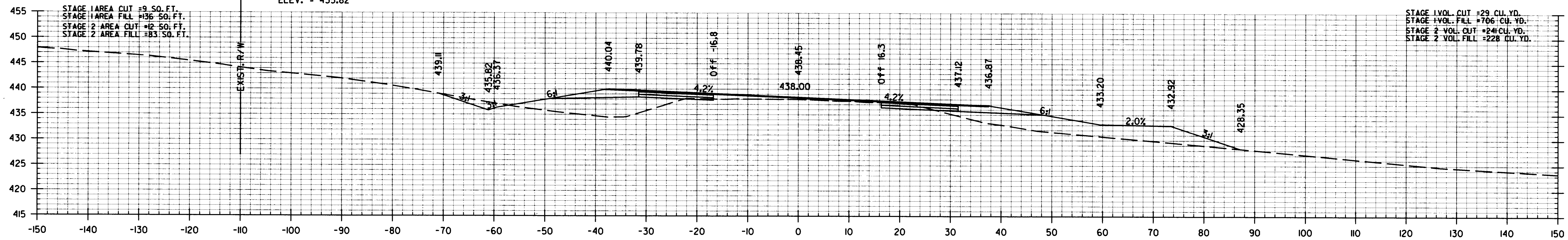
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	758	888
				(2) CROSS SECTIONS				



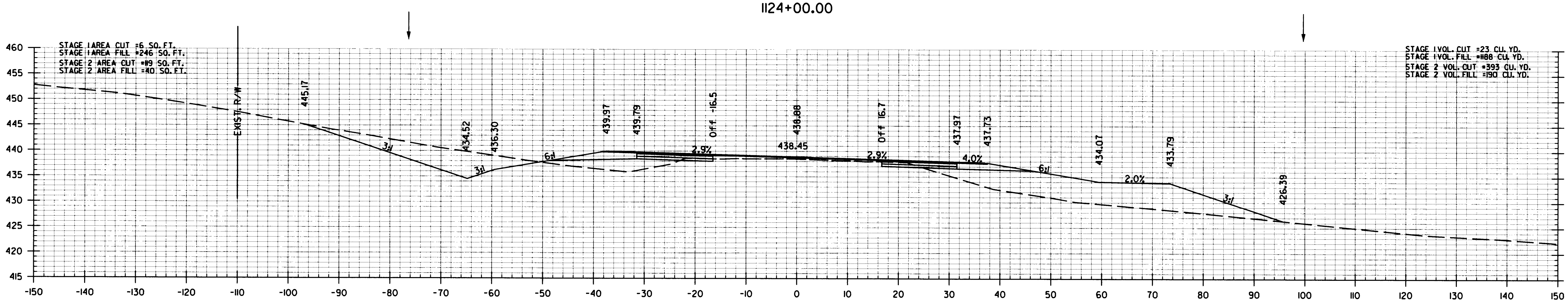
1125+00.00

STA. 1124+00.00
END SP. DITCH LT. 1.30%
BEGIN SP. DITCH LT. -4.95%
ELEV. = 435.82

STA. 1124+98.00
BEGIN SP. DITCH RT. 10.27%
ELEV. = 422.56



1124+00.00



1123+00.00

STA. 1123+00 TO STA. 1125+00

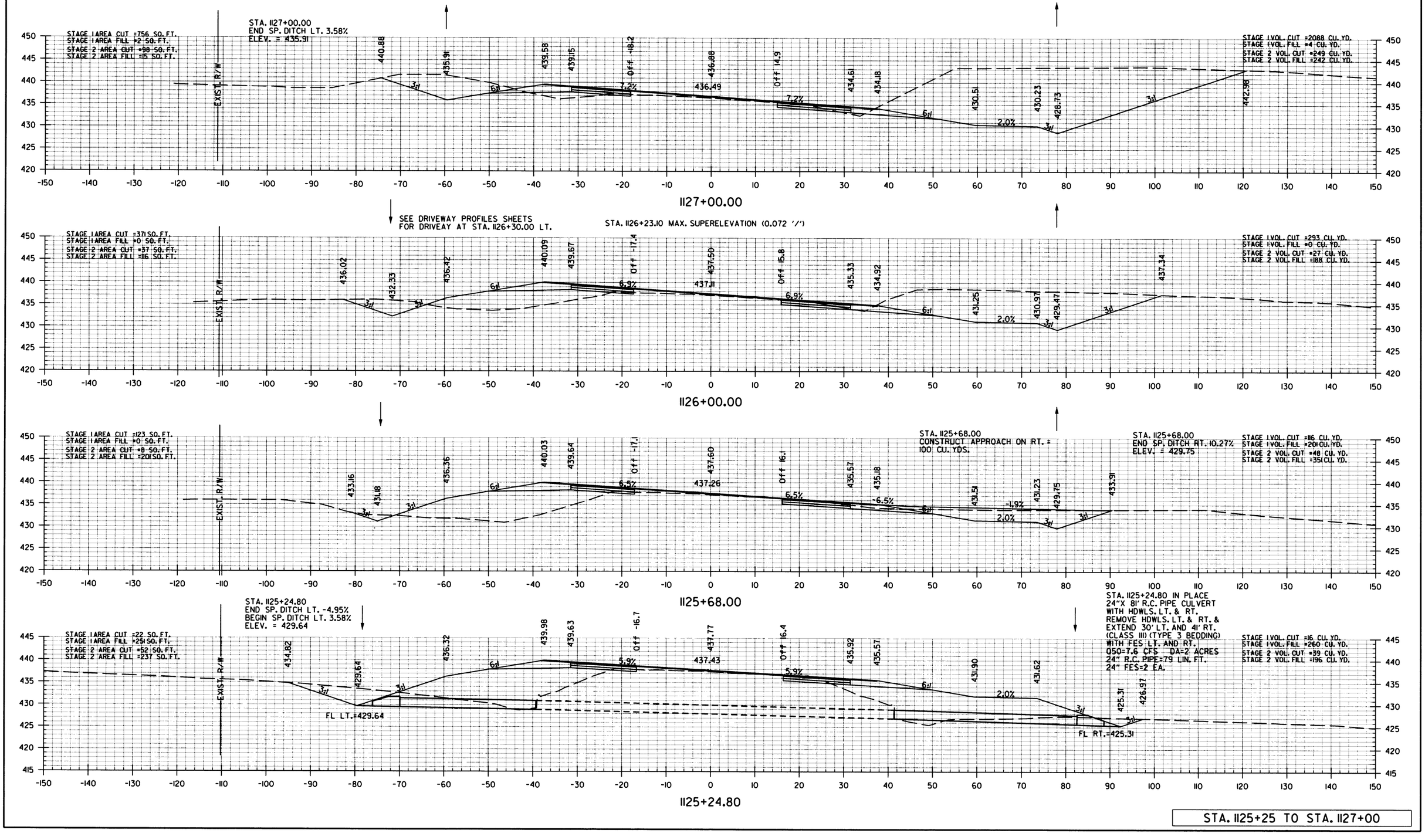
Leonard.Speed 9/23/2016 11:27:17 AM
WORKSPACE: Leonard.Speed
c:\pwv81-local\baker_projects\leonard.speed\d0271682\r061377_21_CX_00.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	759	888

(2) CROSS SECTIONS



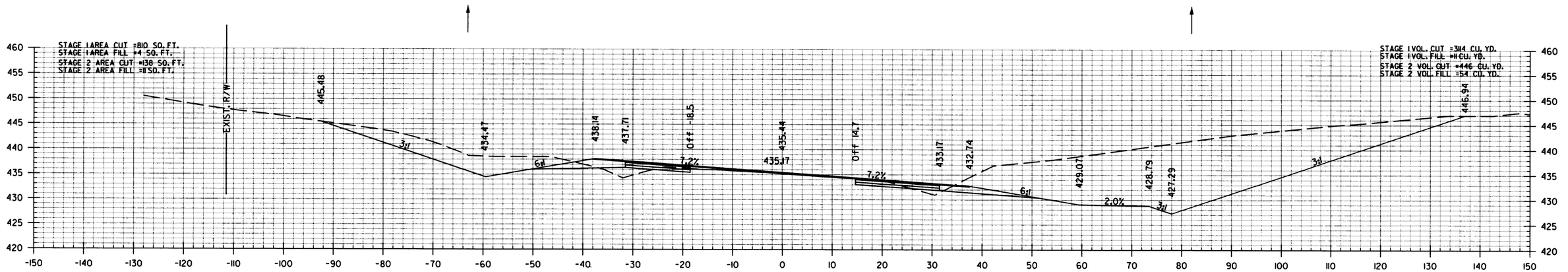
STA. 1125+25 TO STA. 1127+00

LeonardSpeed 9/23/2016 11:21:08 AM
MKSS\Projects\Leonard Speed\d0276821\r06377.21.CX.00.dgn
C:\pw\81-local\baker.projects\leonard.speed\d0276821\r06377.21.CX.00.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	760	888

(2) CROSS SECTIONS



STA. 1127+70 TO STA. 1129+00

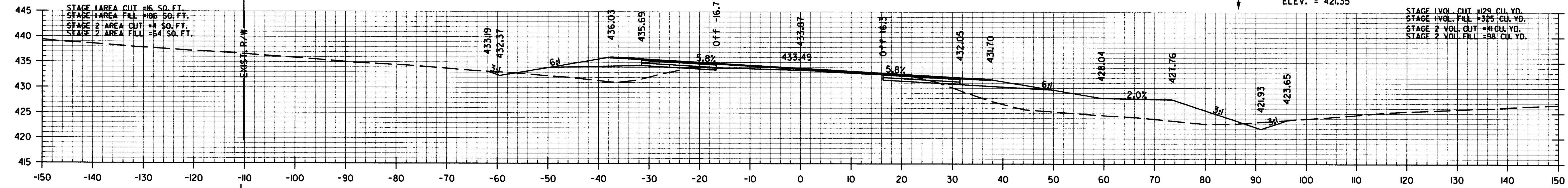
leonard.speed 9/23/2016 11:21:19 AM
K:\Roads\060377.21_CX\Sheets\
c:\dgn\81-local\baker_projects\leonard.speed\d0271682\r-060377_21_CX_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	761	888

② CROSS SECTIONS

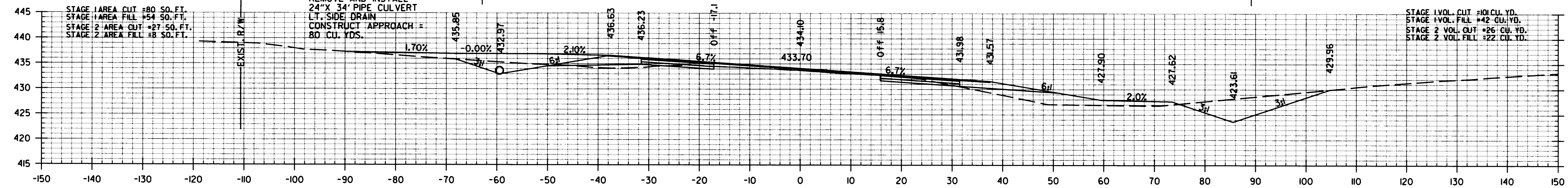
STA. 1132+00.00
BEGIN SP. DITCH LT. -3.80%
ELEV. = 432.37

STA. 1132+25.00
END SP. DITCH RT. -2.30%
ELEV. = 421.35

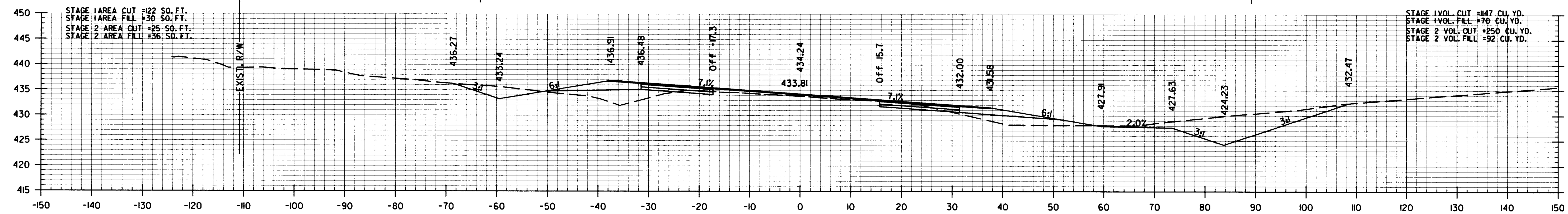


1132+00.00

STA. 1131+27.00 IN PLACE
24"X 25' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
80 CU. YDS.



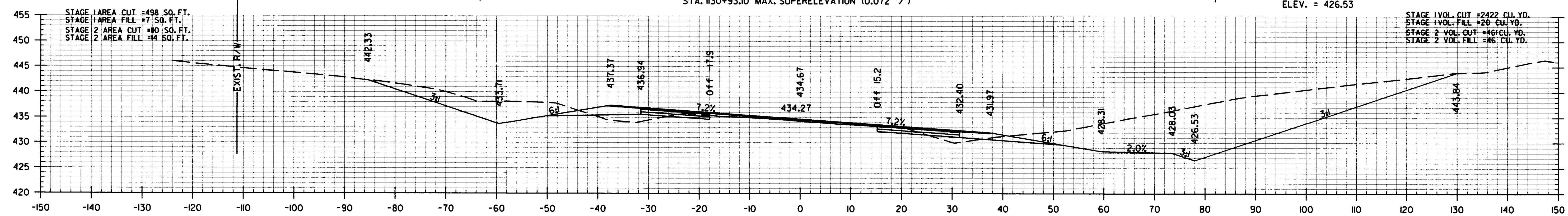
1131+27.00



1131+00.00

STA. 1130+93.10 MAX. SUPERELEVATION (0.072 '/')

STA. 1130+00.00
BEGIN SP. DITCH RT. -2.30%
ELEV. = 426.53



1130+00.00

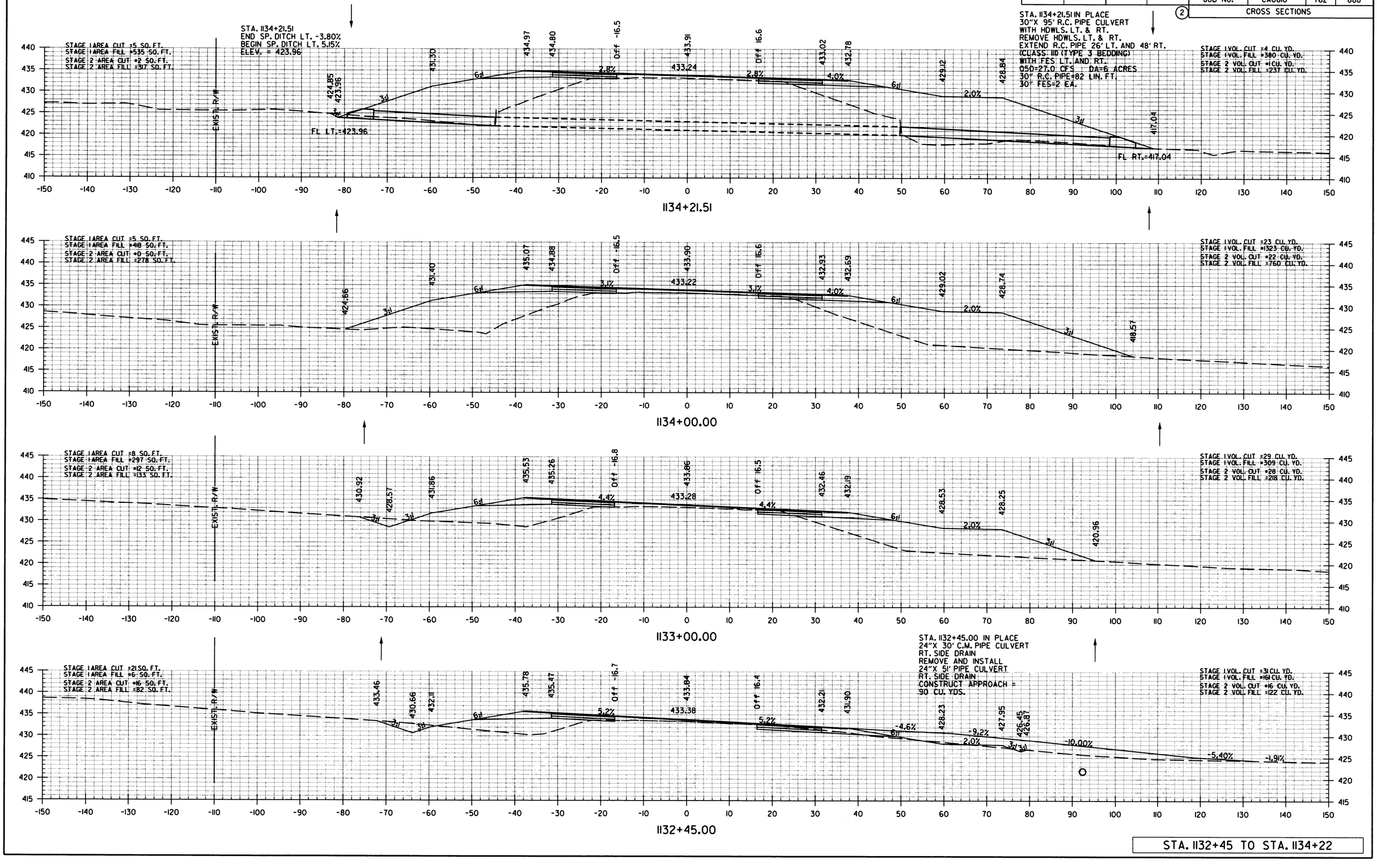
STA. 1130+00 TO STA. 1132+00

Leonard.Speed 9/23/2016 11:27:20 AM
WORKSPACE: Leonard.Speed
c:\pwwBI-local\baker_projects\leonard.speed\d0271682\r061377_21_CX_00.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	762	888

(2) CROSS SECTIONS



STA. 1132+45 TO STA. 1134+22

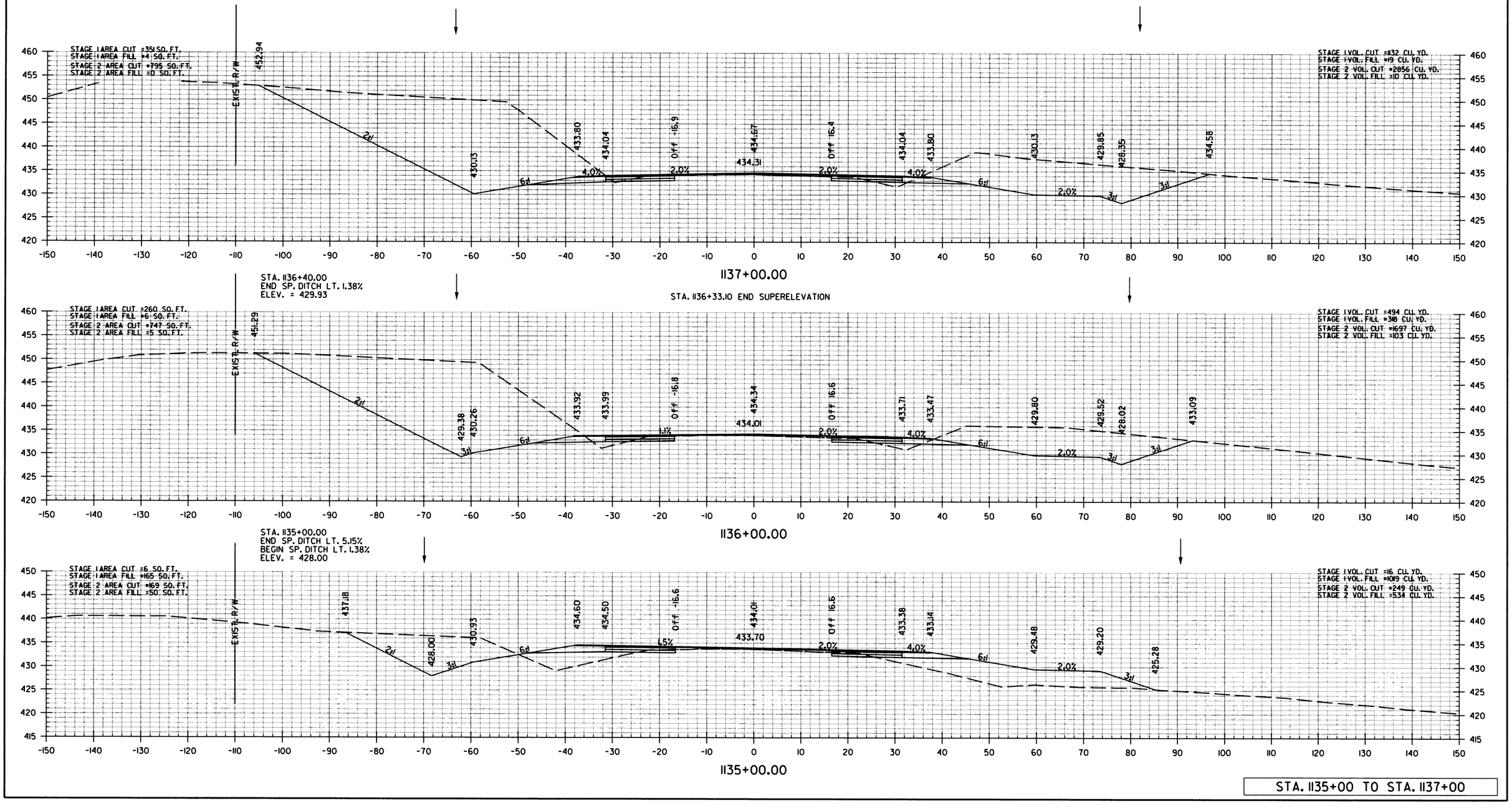
LeonardSpeed 9/23/2016 11:21:21 AM
N:\Projects\Leonard Speed\d0276821\r-061377.21.CX.001.dgn
CIVIL\PLOTTING\Projects\Leonard_speed\d0276821\r-061377.21.CX.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	763	888

(2) CROSS SECTIONS



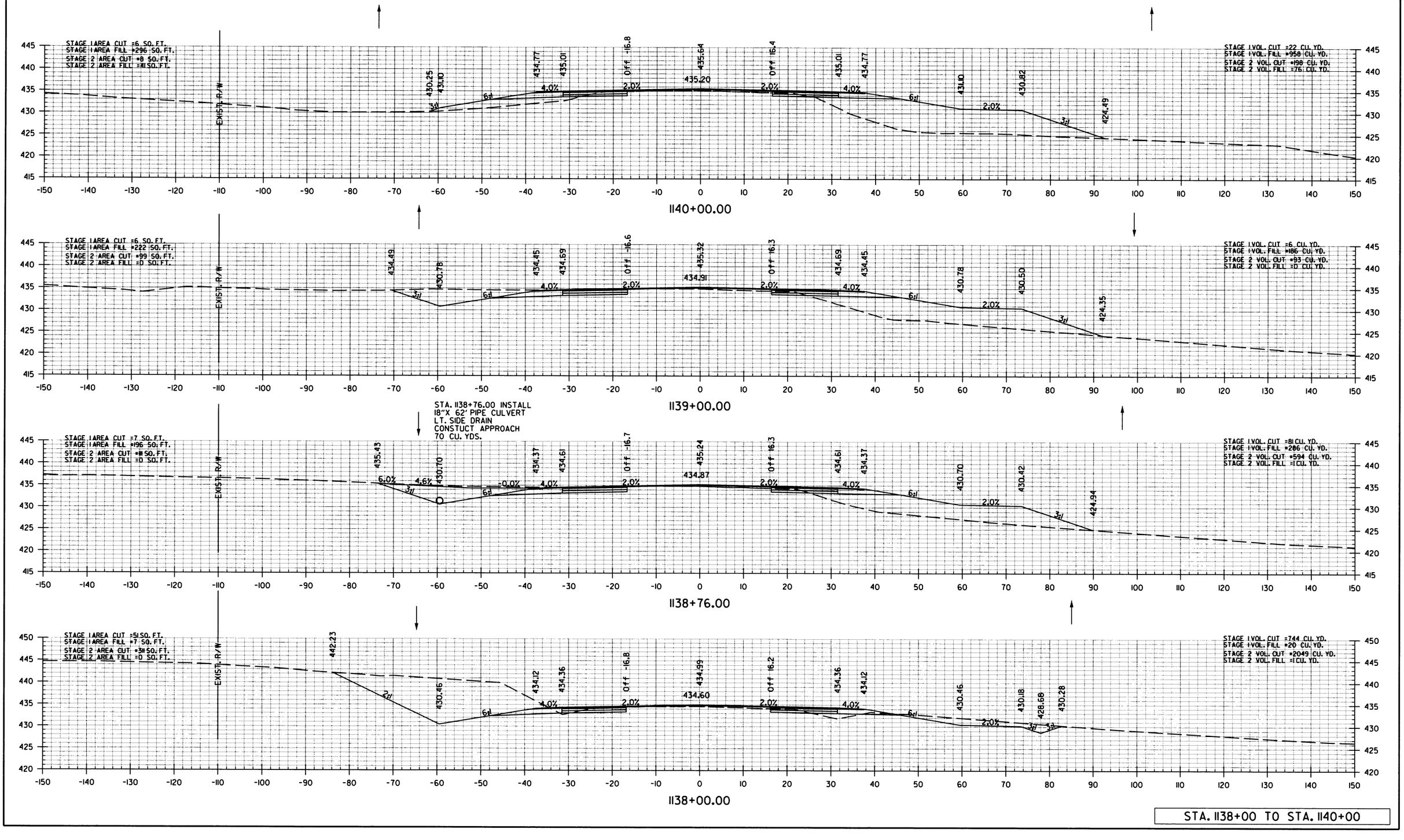
STA. 1135+00 TO STA. 1137+00

Leonard.Speed 9/23/2016 11:27:22 AM
WORKSPACE: Leonard.Speed
Current Drawing: C:\Projects\Leonard.speed\d0271682\r06377.21.CX.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	764	888

(2) CROSS SECTIONS



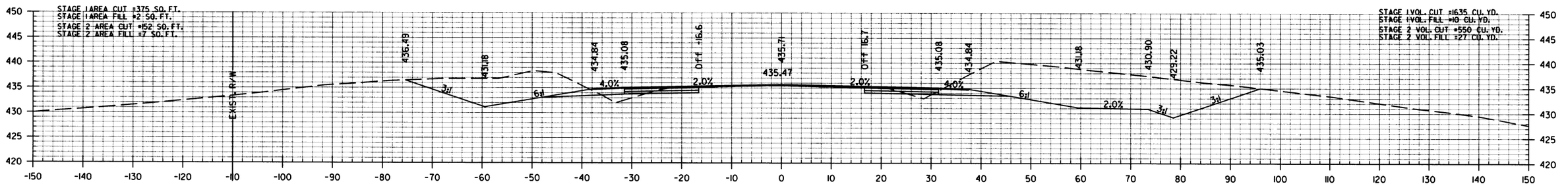
STA. 1138+00 TO STA. 1140+00

Leonard.Speed 9/23/2016 11:21:23 AM
WORKSPACE: Leonard.Speed
Drawing: C:\Projects\Leonard.Speed\d0271682\r06l377.2l.CX.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

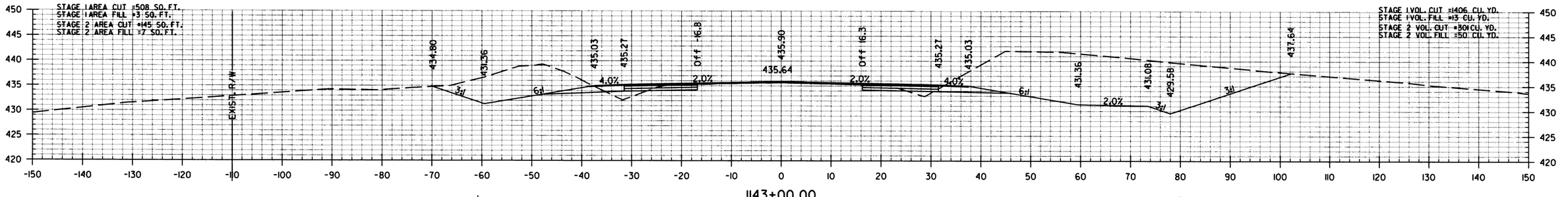
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	765	888
				(2)	CROSS SECTIONS			

STA. 1144+17.03 BEGIN SUPERELEVATION

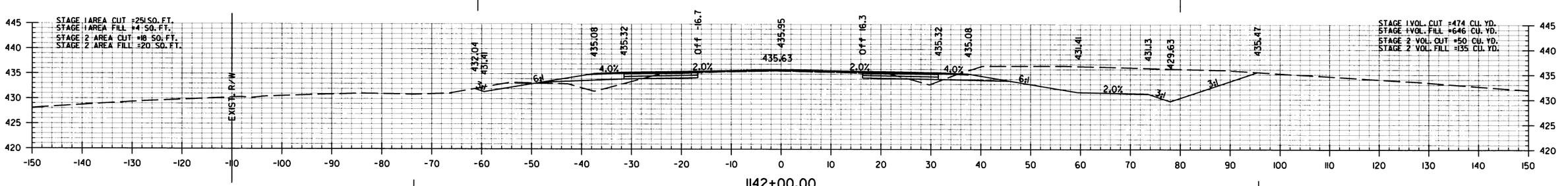


1144+00.00

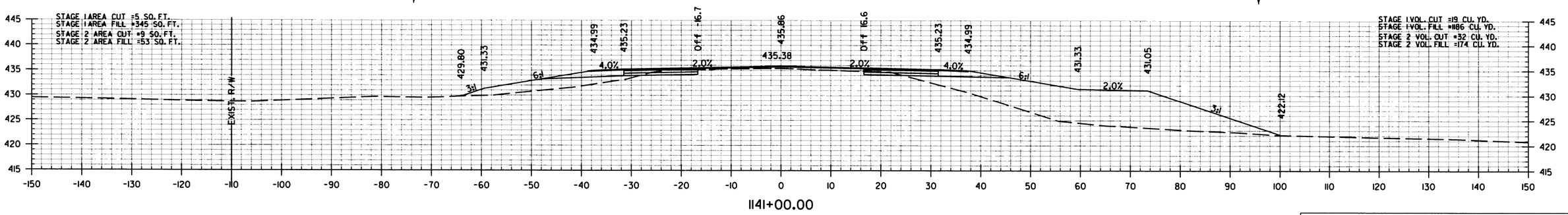
STA. 1143+75.00
BEGIN SP. DITCH RT. -0.97%
ELEV. = 429.46



1143+00.00



1142+00.00

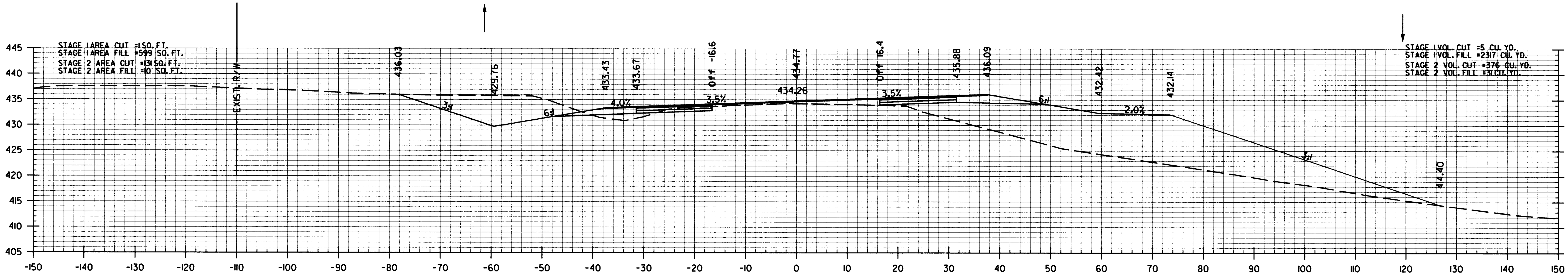


1141+00.00

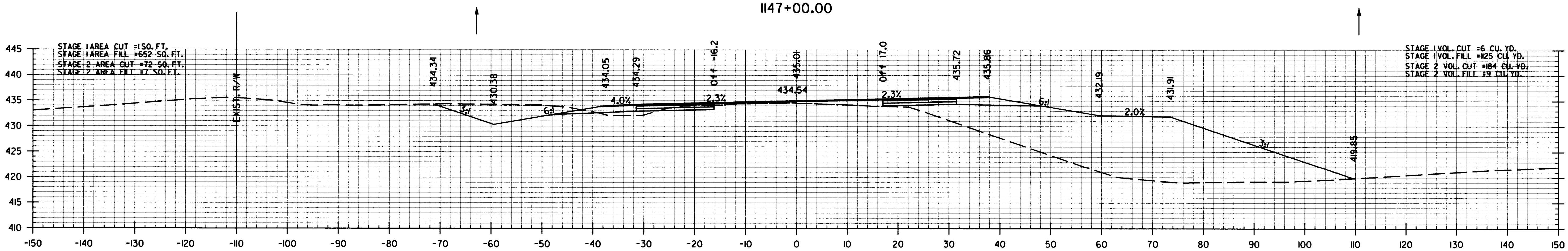
STA. 1141+00 TO STA. 1144+00

LeonardSpeed 9/23/2016 11:27:24 AM
WORKSPACE: Leonard_Speed
c:\pw\81-local\baker_projects\leonard_speed\d0271682\v-061377.21.CX.001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	766	888
					(2)	CROSS SECTIONS			

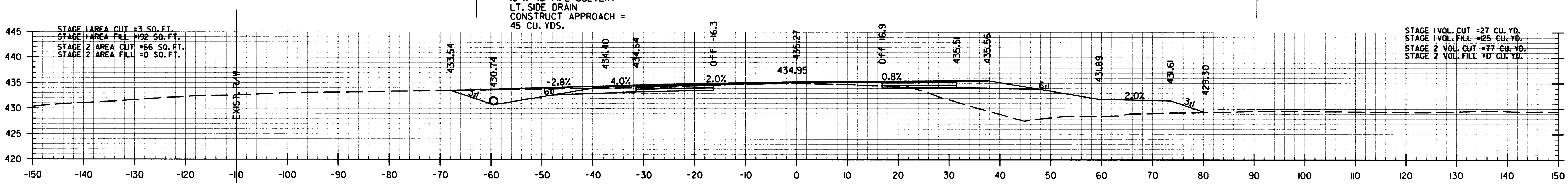


1147+00.00



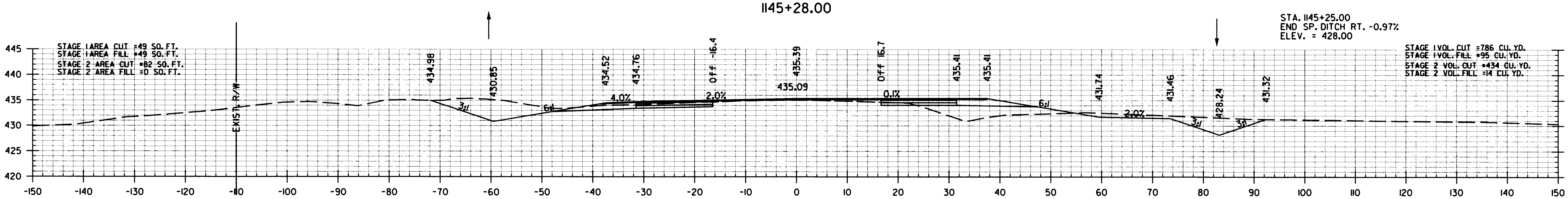
1146+00.00

STA. 1145+28.00 INSTALL
18"X 48' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
45 CU. YDS.



1145+28.00

STA. 1145+25.00
END SP. DITCH RT. -0.97%
ELEV. = 428.00



1145+00.00

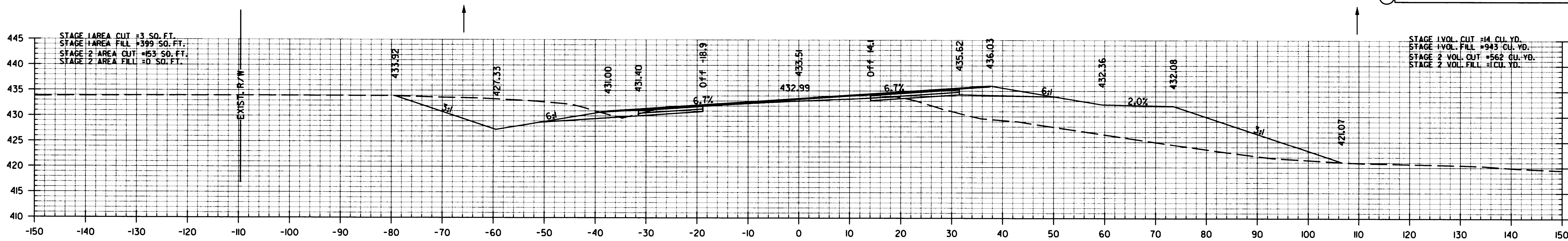
STA. 1145+00 TO STA. 1147+00

Leonard.Speed 9/23/2016 11:27:25 AM
WORKSPACE: Leonard.Speed
c:\pwwBl-local\baker_projects\leonard.speed\d0271682\r06377.2L.CX.00.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	767	888

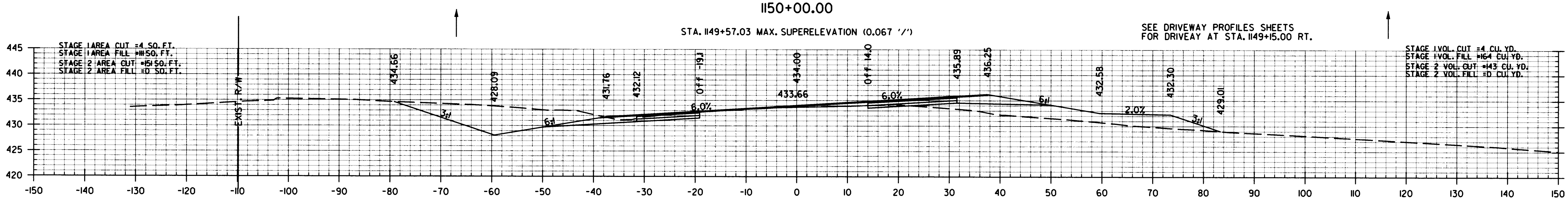
(2) CROSS SECTIONS



1150+00.00

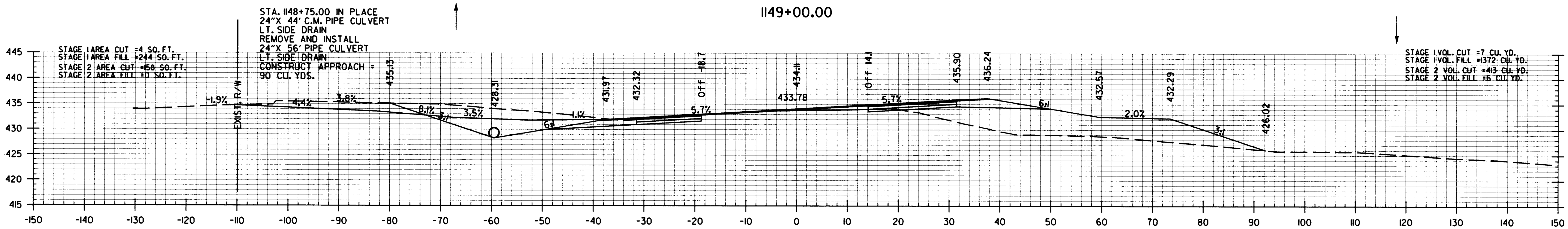
STA. 1149+57.03 MAX. SUPERELEVATION (0.067 '/')

SEE DRIVEWAY PROFILES SHEETS FOR DRIVEAY AT STA. 1149+15.00 RT.

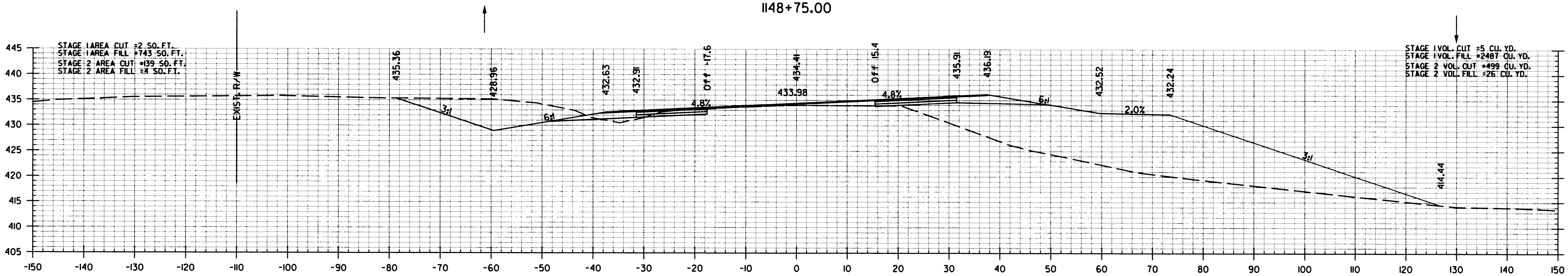


1149+00.00

STA. 1148+75.00 IN PLACE 24"X 44' C.M. PIPE CULVERT LT. SIDE DRAIN REMOVE AND INSTALL 24"X 56' PIPE CULVERT LT. SIDE DRAIN CONSTRUCT APPROACH = 90 CU. YDS.



1148+75.00



1148+00.00

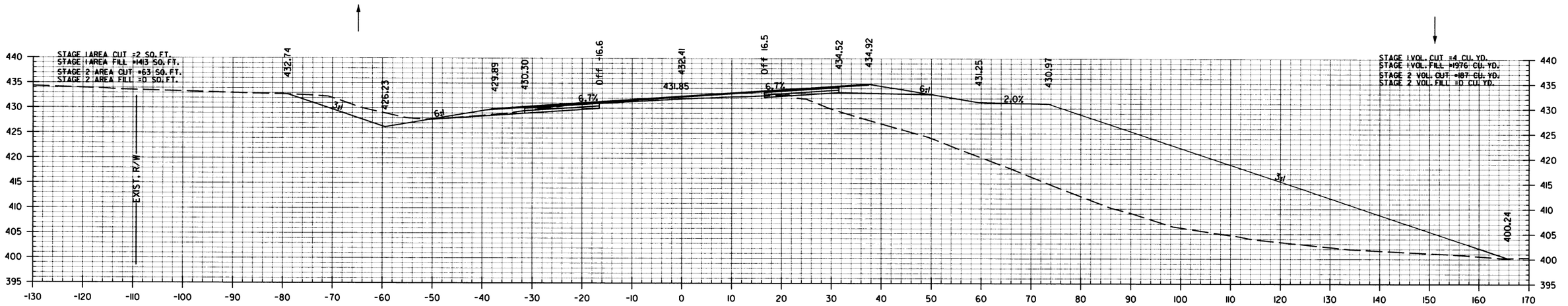
STA. 1148+00 TO STA. 1150+00

Leonard.Speed 9/23/2016 11:27:26 AM
WORKSPACE: Leonard.Speed
c:\pw\pwv8i-local\baker_projects\leonard.speed\d0271682\r06137.21.CX.00.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	768	888

(2) CROSS SECTIONS



STA. 1151+00 TO STA. 1152+00

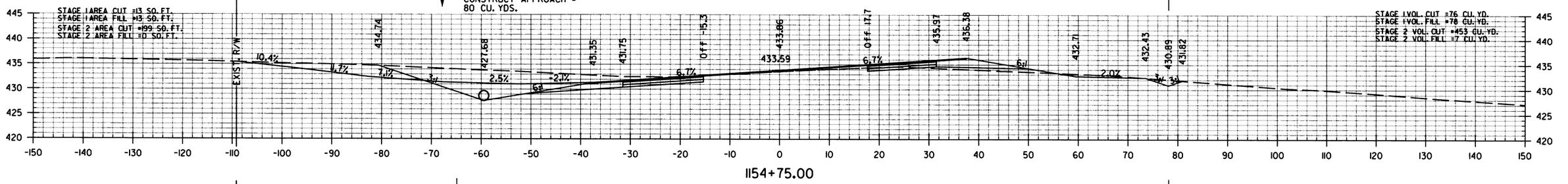
Leonard Speed 9/23/2016 11:27:27 AM
MicroStation V8i (SELECTseries 1) 08.11.07.443
c:\pw\8i-local\baker.prj\projects\leonard.speed.d0271682\r061377.21.CX_000.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

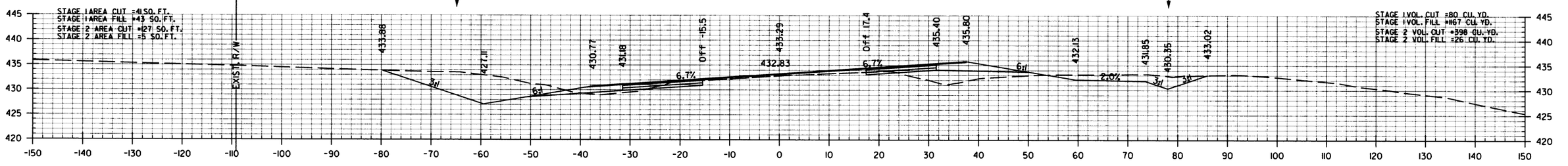
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	769	888

(2) CROSS SECTIONS

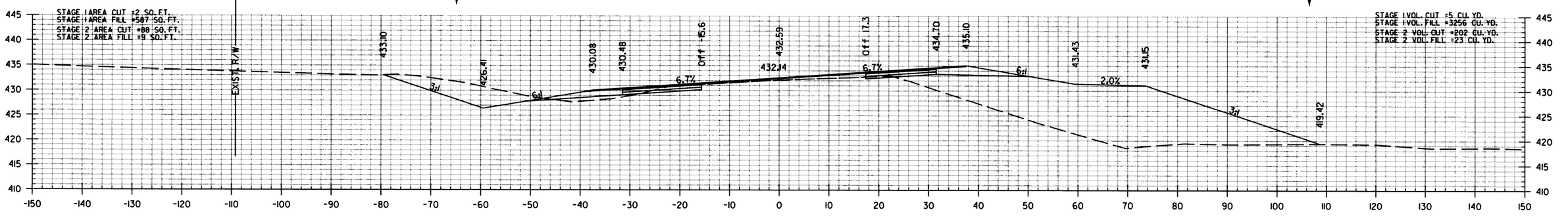
STA. 1154+75.00 IN PLACE
24"X 45' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 55' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
80 CU. YDS.



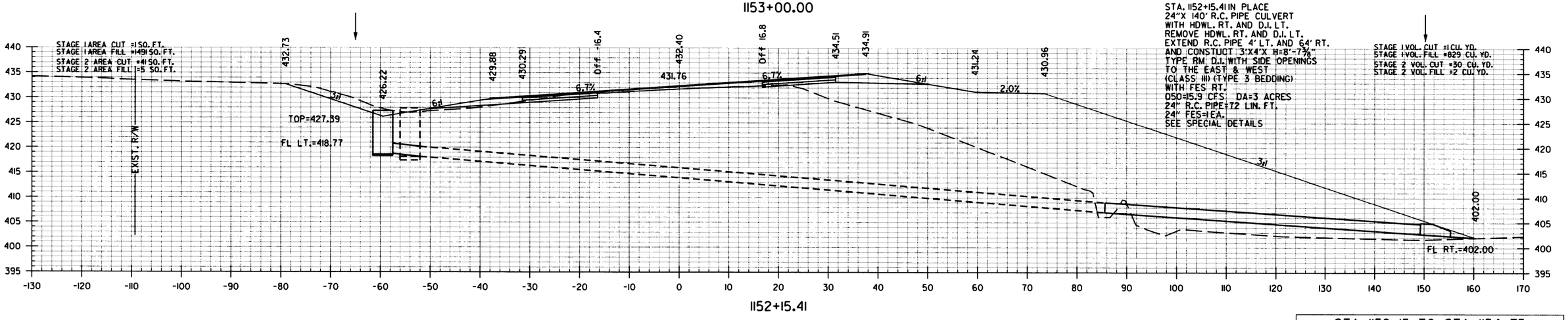
1154+75.00



1154+00.00



1153+00.00



1152+15.41

STA. 1152+15 TO STA. 1154+75

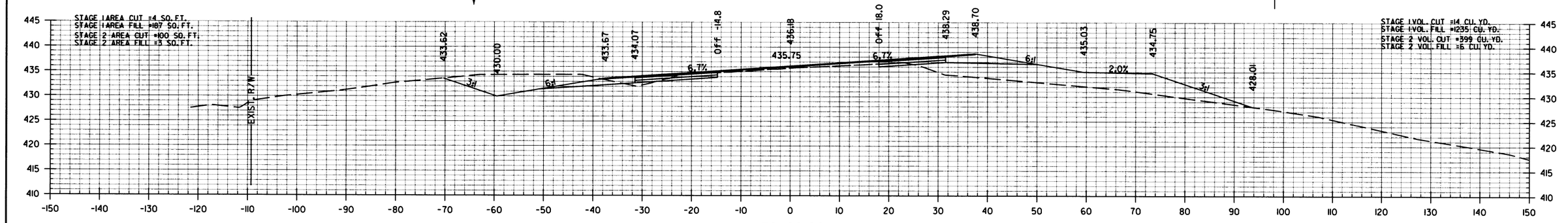
LeonardSpeed 9/23/2016 11:21:28 AM
WORKSPACE: LeonardSpeed
CONTAINER: C:\Projects\Leonard_Speed\002716B2\r061377_2L_CX_00L.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

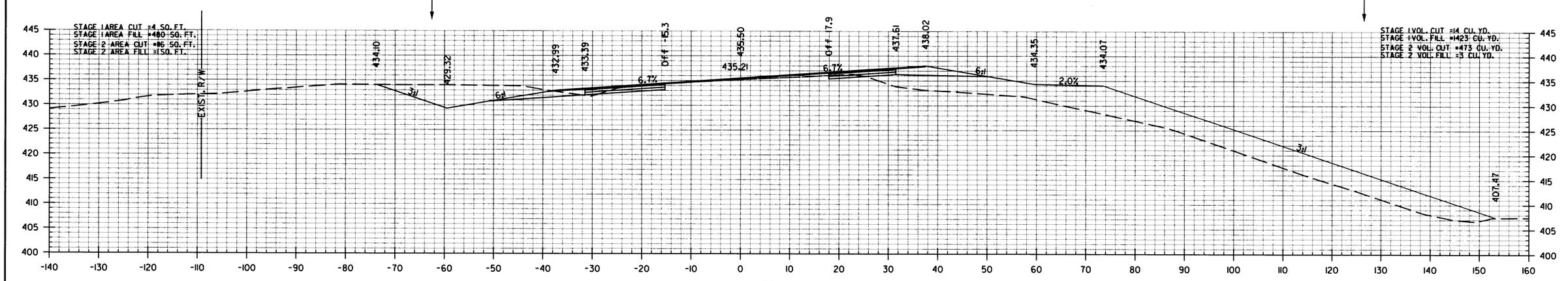
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	770	888

(2) CROSS SECTIONS

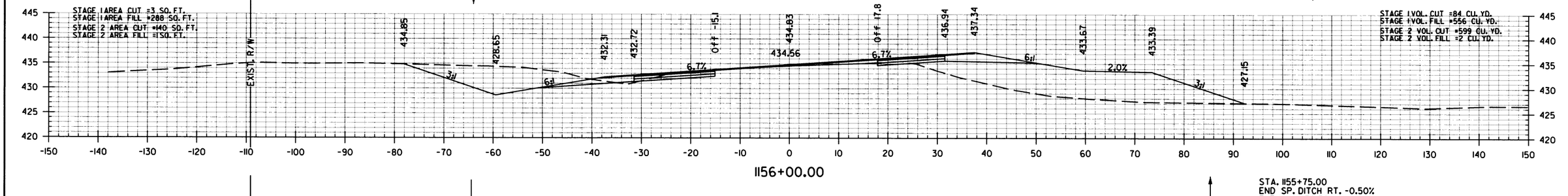
STA. 1158+30.29 MAX. SUPERELEVATION (0.067 '/')



1158+00.00

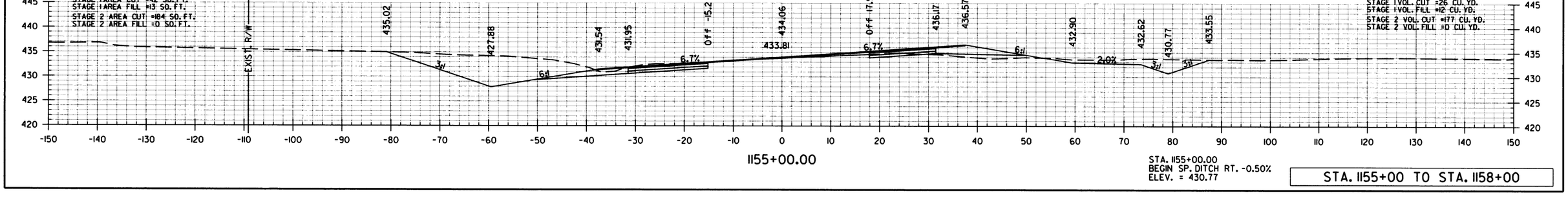


1157+00.00



1156+00.00

STA. 1155+75.00
END SP. DITCH RT. -0.50%
ELEV. = 430.39



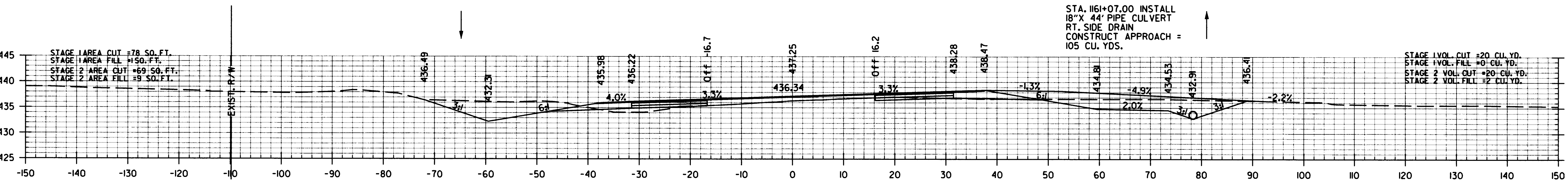
1155+00.00

STA. 1155+00.00
BEGIN SP. DITCH RT. -0.50%
ELEV. = 430.77

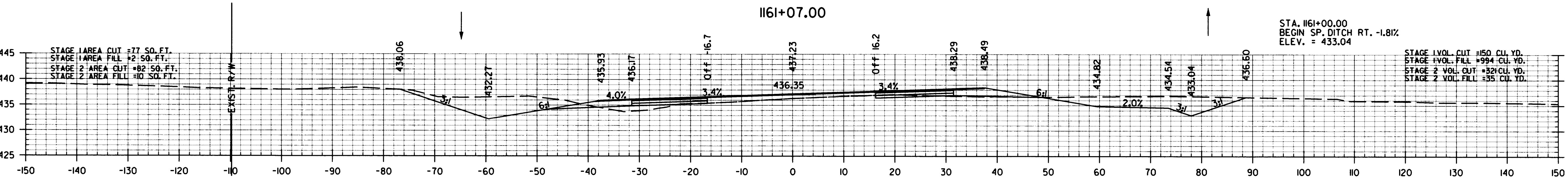
STA. 1155+00 TO STA. 1158+00

Leonard Speed 9/23/2016 11:27:29 AM
K:\Work\Corridor\Leonard Speed\d0271682\r-06377_2_CX_001.dgn
c:\Drw\81-local\baker_projects\leonard_speed\d0271682\r-06377_2_CX_001.dgn
REVISED DATE: ##REVDATE##

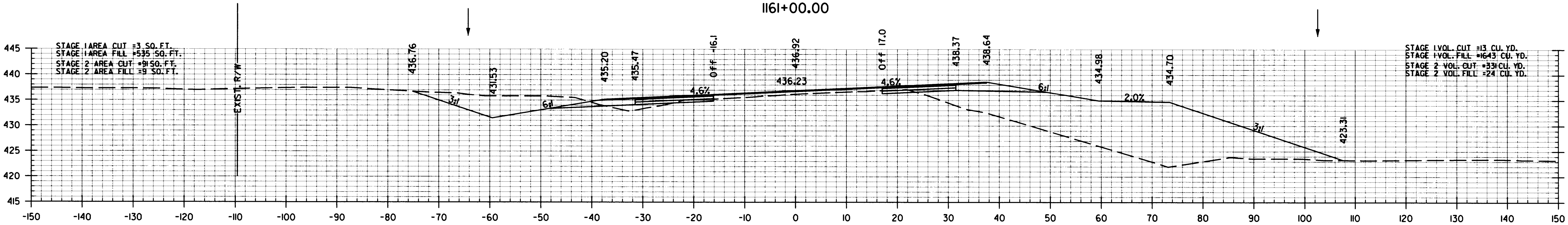
Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	771	888
					(2)	CROSS SECTIONS			



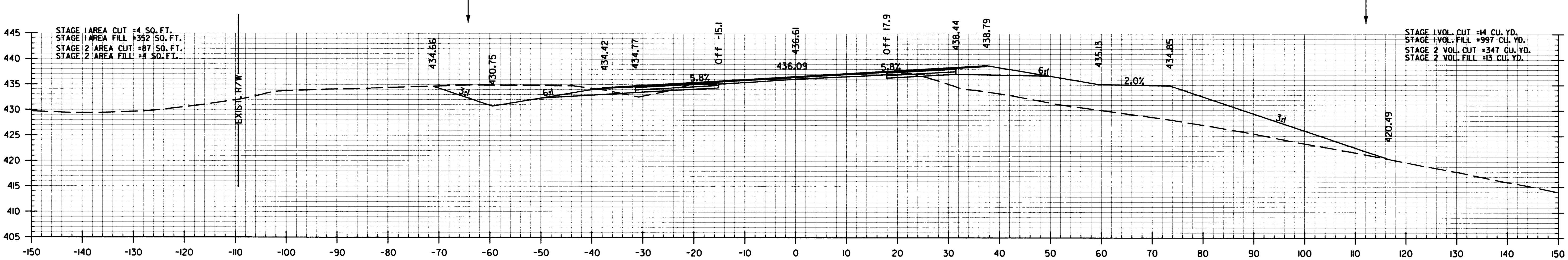
1161+07.00



1161+00.00



1160+00.00



1159+00.00

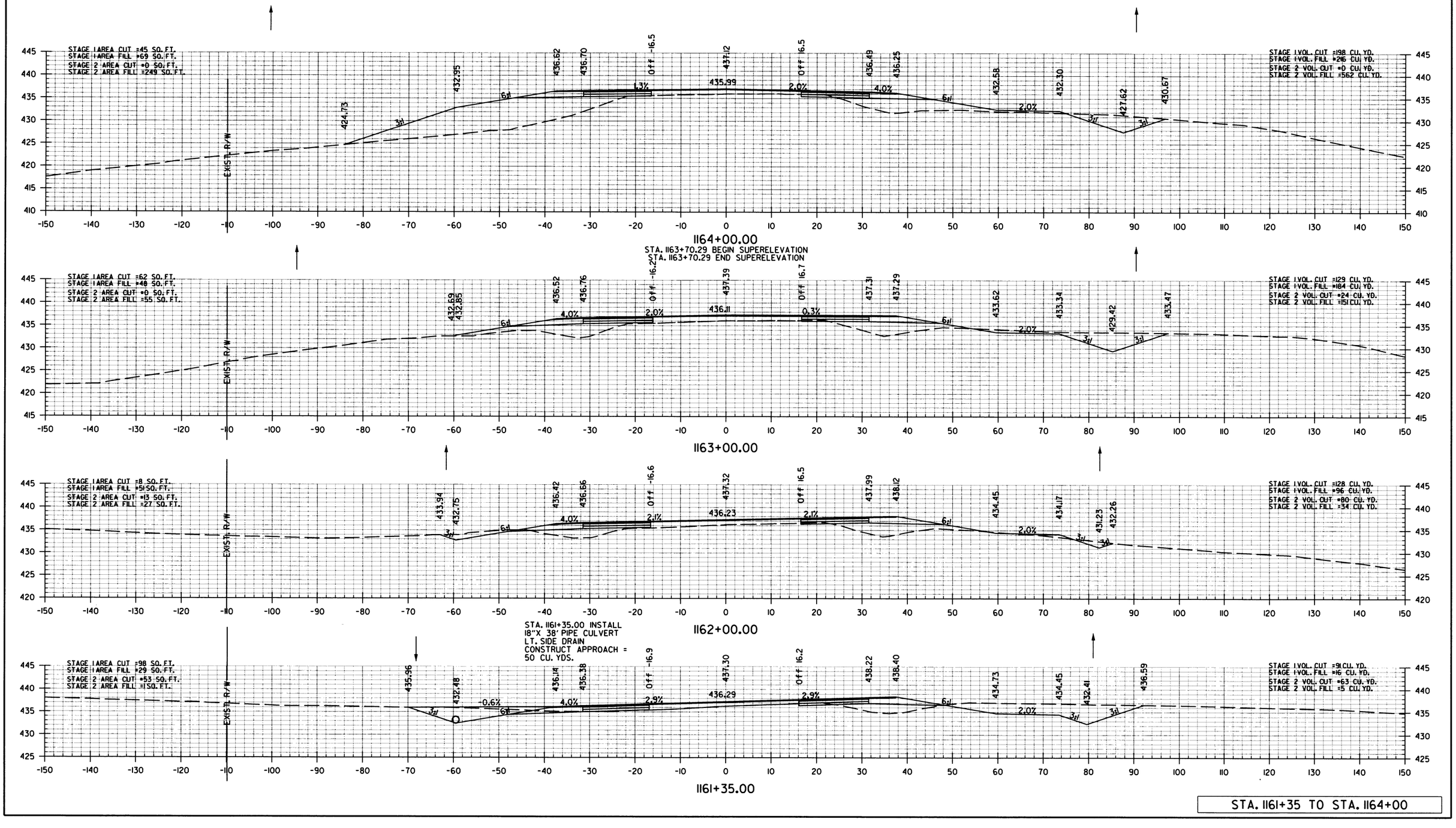
STA. 1159+00 TO STA. 1161+07

Leonard.Speed 9/23/2016 11:27:30 AM
WORKSPACE: Leonard.Speed
c:\pw\d-local\baker_projects\leonard.speed\d0271682\r061377.2L.CX.00.dgn
REVISED DATE: $REVDATE$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	772	888

(2) CROSS SECTIONS



STA. 1161+35 TO STA. 1164+00

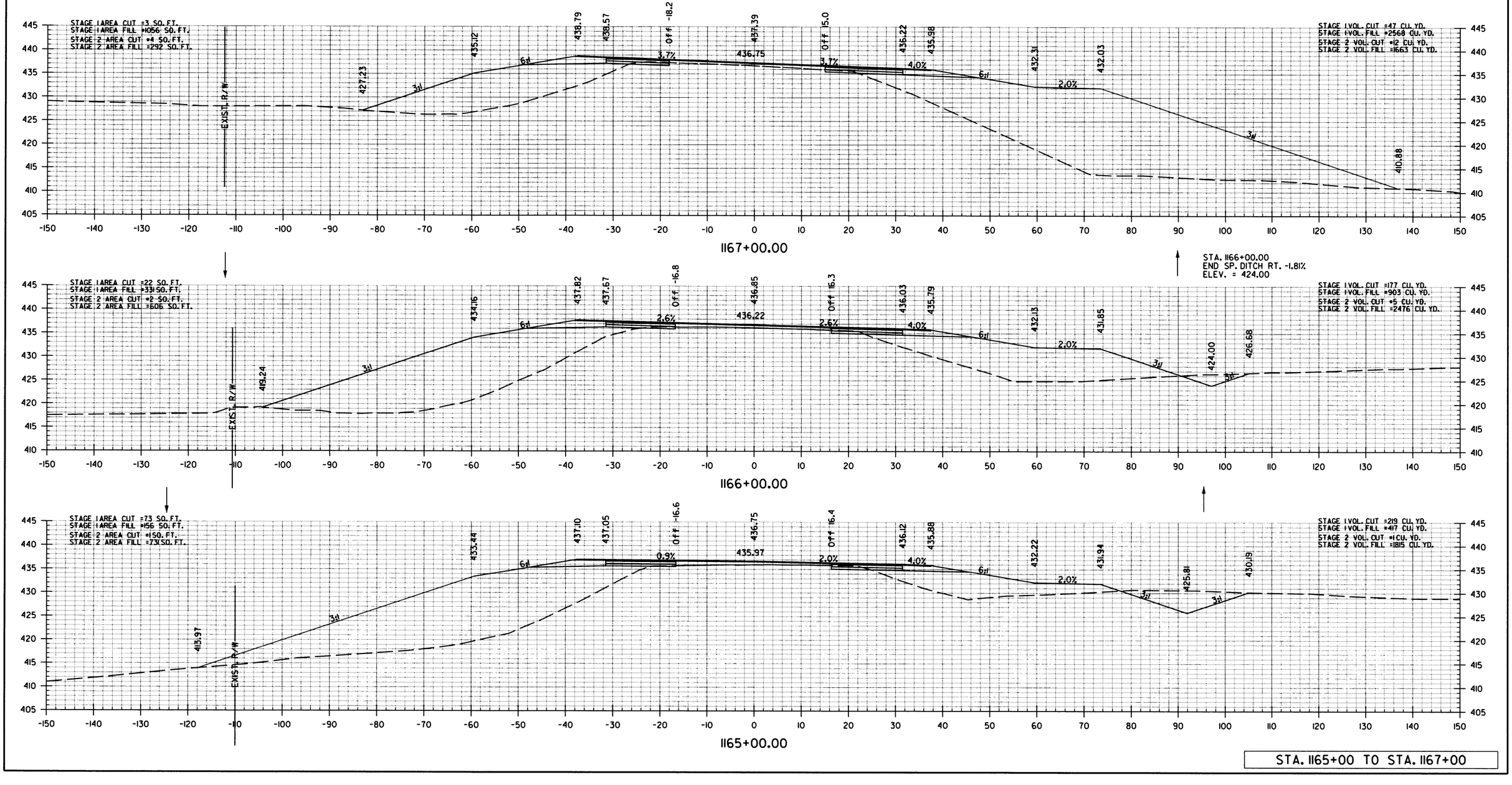
LeonardSpeed 9/23/2016 11:27:31 AM
WORKSPACE: Leonard_Speed
c:\pwwl01-local\baker_projects\leonard_speed\d0211682\r06377_21_CX_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	773	888

(2) CROSS SECTIONS



STA. 1165+00 TO STA. 1167+00

Leonard.Speed 9/23/2016 11:27:32 AM
WORKSPACE: Leonard.Speed
CONNECTION: Connect to Projects\Leonard.Speed\d0271682\r06377.2i.CX.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	774	888

(2) CROSS SECTIONS

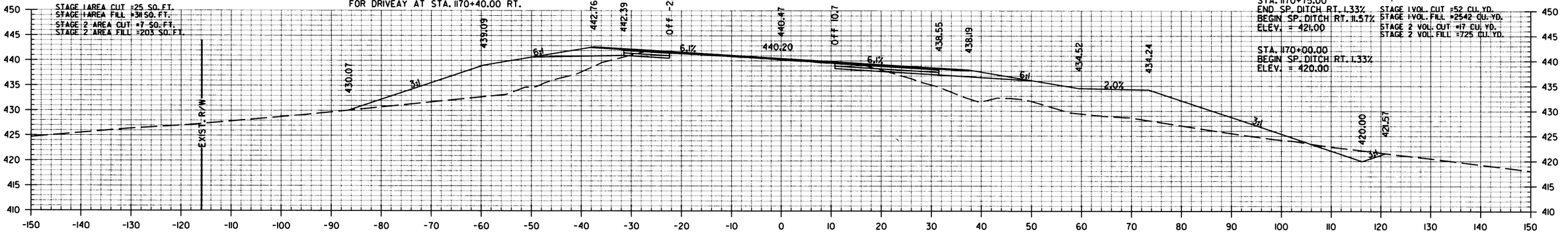
SEE DRIVEWAY PROFILES SHEETS FOR DRIVEAY AT STA. 1170+40.00 RT.

STAGE 1 AREA CUT =25 SQ. FT.
STAGE 1 AREA FILL =381 SQ. FT.
STAGE 2 AREA CUT =7 SQ. FT.
STAGE 2 AREA FILL =203 SQ. FT.

STA. 1170+75.00
END SP. DITCH RT. 1.33%
BEGIN SP. DITCH RT. 11.57%
ELEV. = 421.00

STA. 1170+00.00
BEGIN SP. DITCH RT. 1.33%
ELEV. = 420.00

STAGE 1 VOL. CUT =52 CU. YD.
STAGE 1 VOL. FILL =2542 CU. YD.
STAGE 2 VOL. CUT =17 CU. YD.
STAGE 2 VOL. FILL =725 CU. YD.

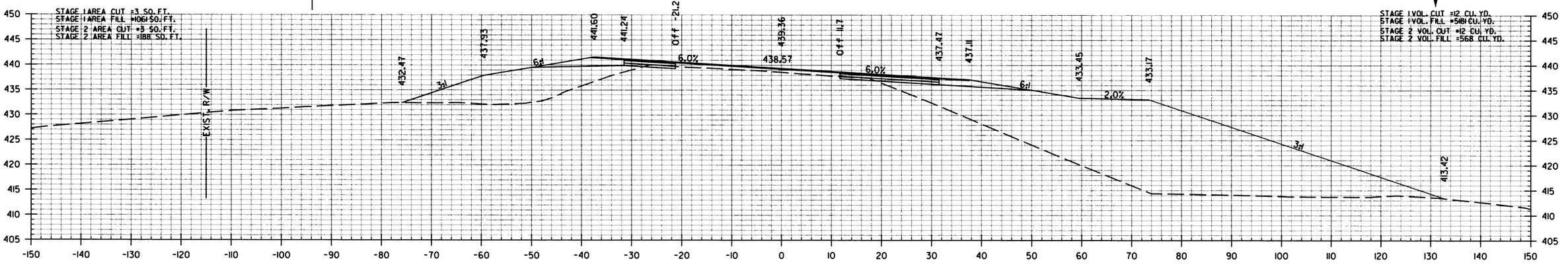


1170+00.00

STA. 1169+10.29 MAX. SUPERELEVATION (0.061'/')

STAGE 1 AREA CUT =3 SQ. FT.
STAGE 1 AREA FILL =1061 SQ. FT.
STAGE 2 AREA CUT =3 SQ. FT.
STAGE 2 AREA FILL =188 SQ. FT.

STAGE 1 VOL. CUT =12 CU. YD.
STAGE 1 VOL. FILL =581 CU. YD.
STAGE 2 VOL. CUT =12 CU. YD.
STAGE 2 VOL. FILL =568 CU. YD.

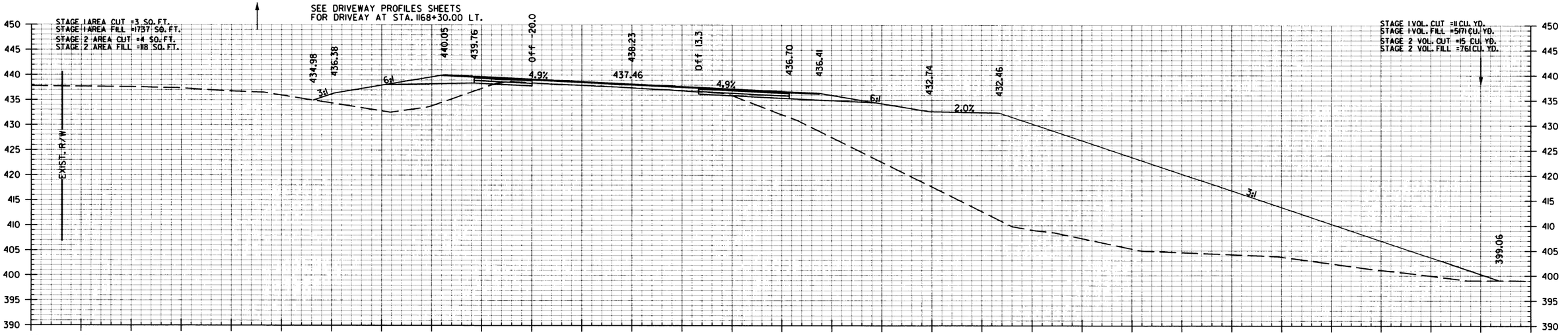


1169+00.00

SEE DRIVEWAY PROFILES SHEETS FOR DRIVEAY AT STA. 1168+30.00 LT.

STAGE 1 AREA CUT =3 SQ. FT.
STAGE 1 AREA FILL =1757 SQ. FT.
STAGE 2 AREA CUT =4 SQ. FT.
STAGE 2 AREA FILL =118 SQ. FT.

STAGE 1 VOL. CUT =11 CU. YD.
STAGE 1 VOL. FILL =5471 CU. YD.
STAGE 2 VOL. CUT =15 CU. YD.
STAGE 2 VOL. FILL =761 CU. YD.



1168+00.00

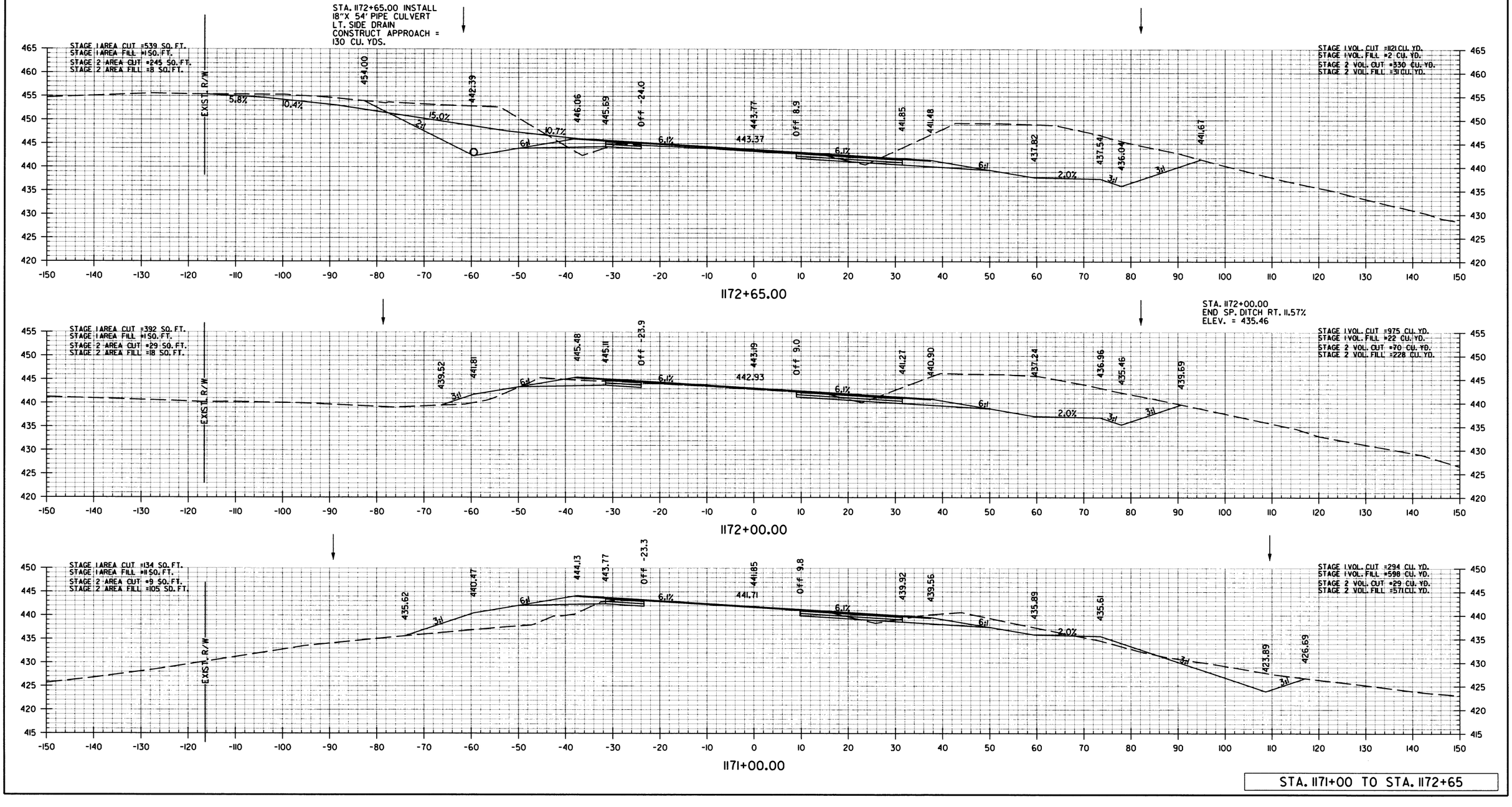
STA. 1168+00 TO STA. 1170+00

LeonardSpeed 9/23/2016 11:27:33 AM
\\WIN-SPEC-FILE\Projects\Leonard Speed\
CLOSEOUT\8-CADD\Projects\leonard.speed\d0271682\r-061377_2L-CX_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	775	888

(2) CROSS SECTIONS



STA. 1171+00 TO STA. 1172+65

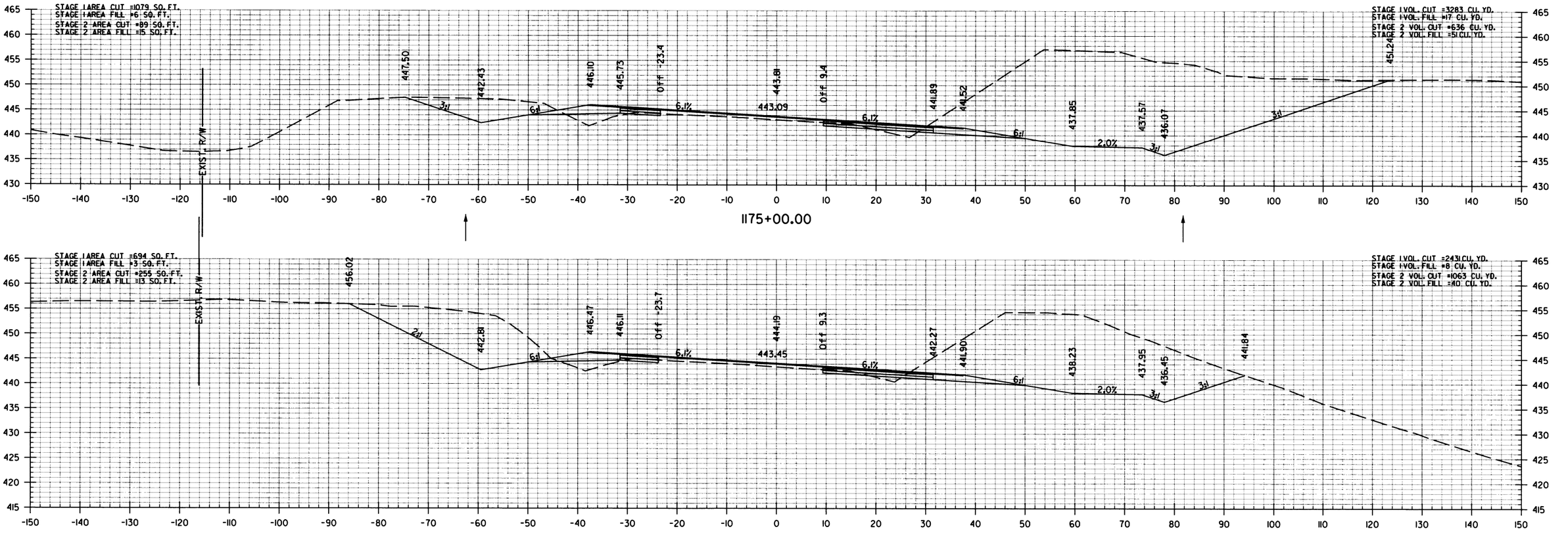
Leonard.Speed 9/23/2016 11:21:33 AM
WORKSPACE: Leonard.Speed
c:\users\mbaker\appdata\local\temp\acets\leonard.speed\v0027682\v-061377.21.CX.001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	776	888
				(2)	CROSS SECTIONS			

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEAY AT STA. 1175+56.00A LT.

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEAY AT STA. 1175+56.00B LT.



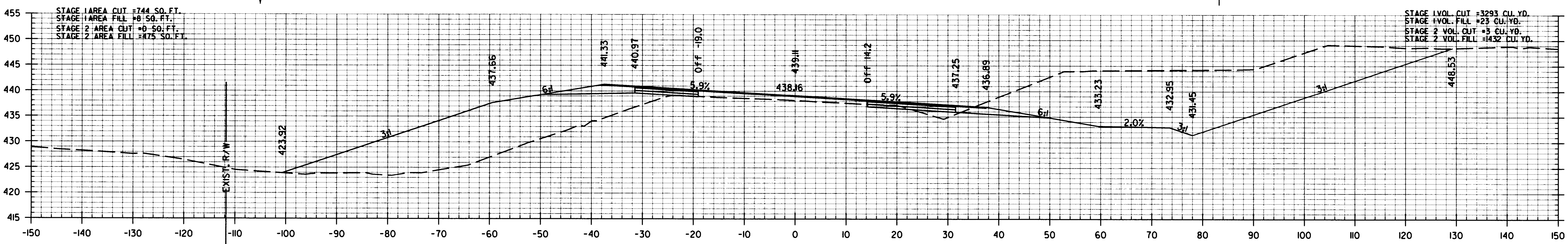
STA. 1173+00 TO STA. 1175+00

Leonard.Speed 9/23/2016 11:27:34 AM
WORKSPACE: Leonard.Speed
Current Working Directory: C:\Projects\Leonard.Speed\d0271682\r06377.21.CX.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

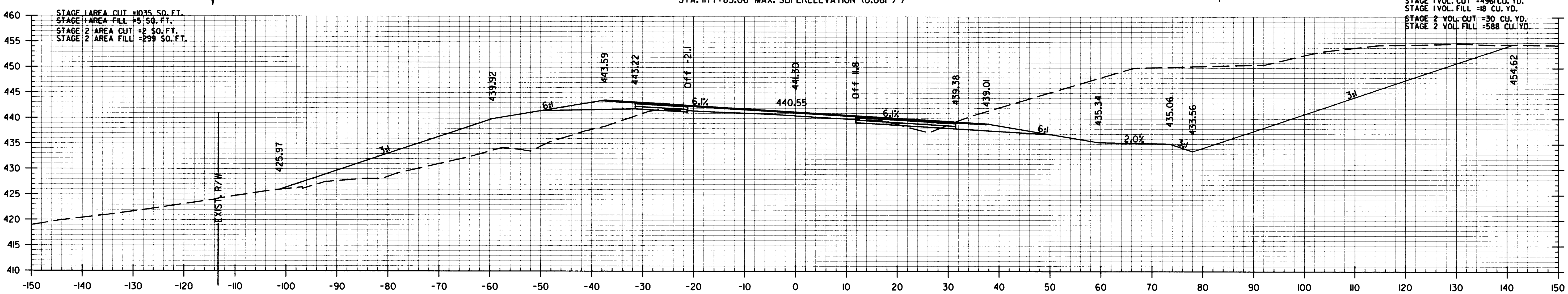
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	777	888

(2) CROSS SECTIONS

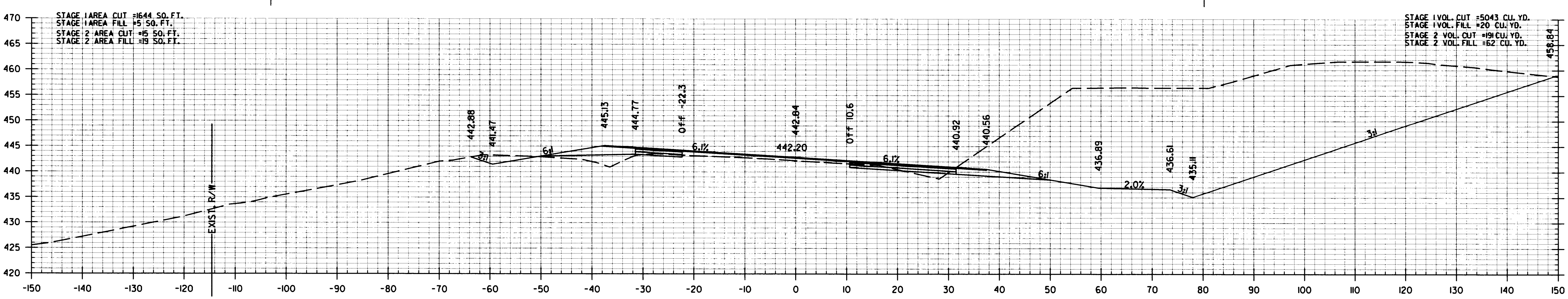


1178+00.00

STA. 1177+83.06 MAX. SUPERELEVATION (0.061'/')



1177+00.00



1176+00.00

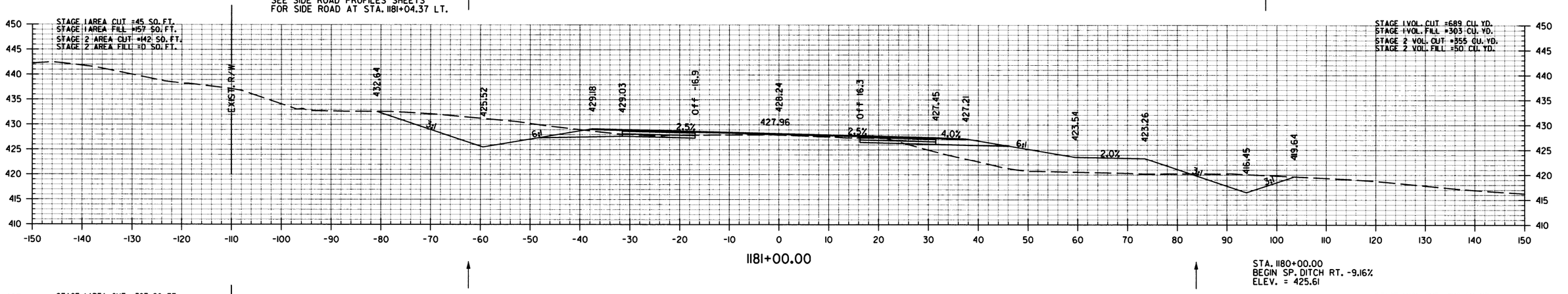
STA. 1176+00 TO STA. 1178+00

Leonard.Speed 9/23/2016 11:27:35 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271682\r061377_21_CX_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

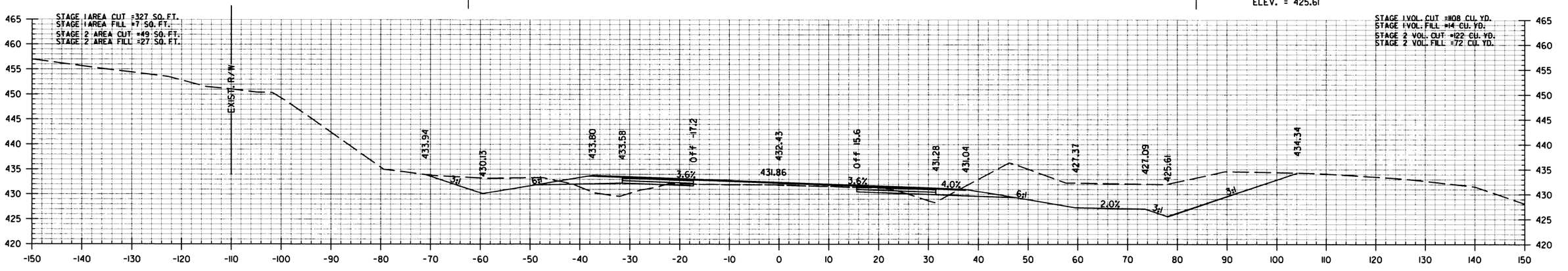
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	778	888
				(2)	CROSS SECTIONS			

SEE SIDE ROAD PROFILES SHEETS
FOR SIDE ROAD AT STA. 1181+04.37 LT.



1181+00.00

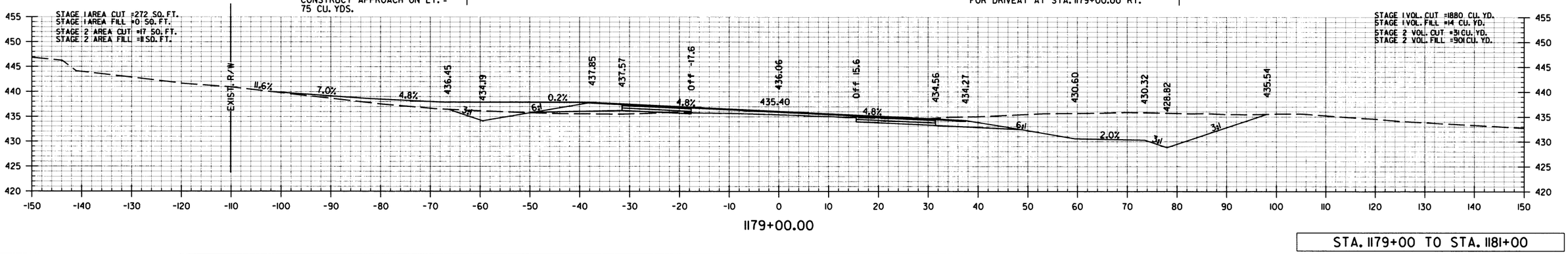
STA. 1180+00.00
BEGIN SP. DITCH RT. -9.16%
ELEV. = 425.61



1180+00.00

STA. 1179+00.00
CONSTRUCT APPROACH ON LT. =
75 CU. YDS.

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEAY AT STA. 1179+00.00 RT.



1179+00.00

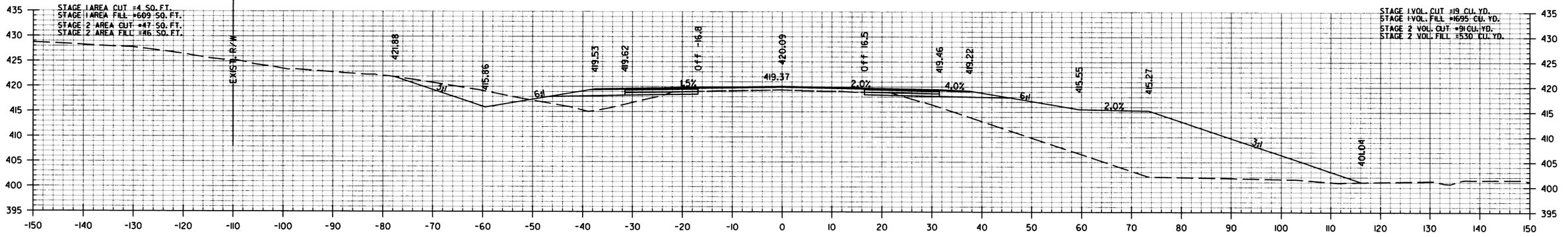
STA. 1179+00 TO STA. 1181+00

LeonardSpeed 9/23/2016 11:21:36 AM
MBKSPEARS Microstation V8i (SELECTseries 3)
c:\pwv8i-local\baker_projects\leonard_speed\d0211682\r06377_21_CX_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	779	888
				(2)	CROSS SECTIONS			

STA. 1183+23.06 END SUPERELEVATION



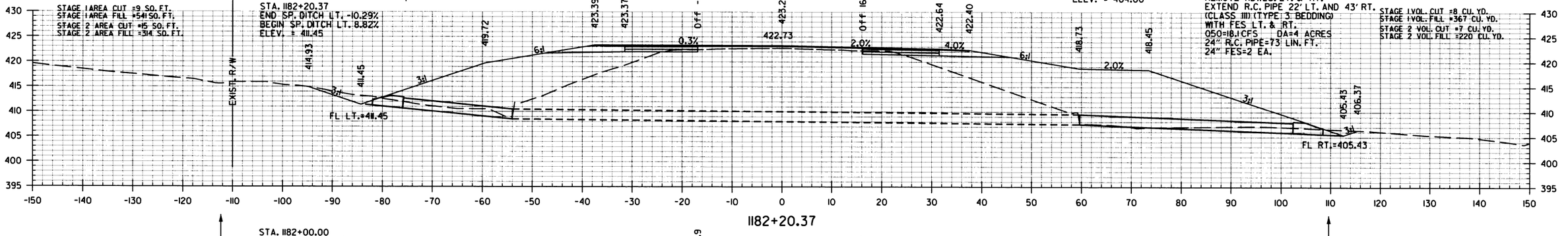
1183+00.00

STA. 1182+80.00
END SP. DITCH LT. 8.82%
ELEV. = 416.71

STA. 1182+20.37
END SP. DITCH LT. -10.29%
BEGIN SP. DITCH LT. 8.82%
ELEV. = 411.45

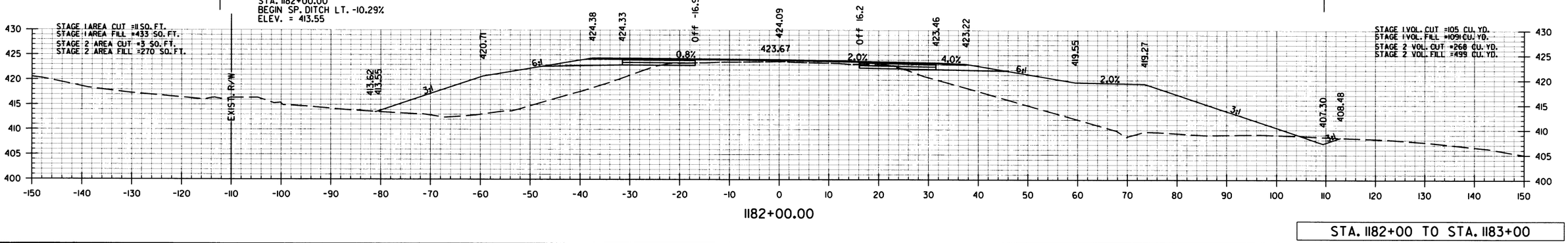
STA. 1182+36.00
END SP. DITCH RT. -9.16%
ELEV. = 404.00

STA. 1182+20.37 IN PLACE
24"X 113' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT.
EXTEND R.C. PIPE 22' LT. AND 43' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50=18.1 CFS DA=4 ACRES
24" R.C. PIPE=73 LIN. FT.
24" FES=2 EA.



1182+20.37

STA. 1182+00.00
BEGIN SP. DITCH LT. -10.29%
ELEV. = 413.55



1182+00.00

STA. 1182+00 TO STA. 1183+00

Leonard.Speed 9/23/2016 11:27:37 AM
WORKGROUP: Leonard.Speed
DGN: N:\Projects\Leonard.Speed\d0271682\r-061377.2\CX_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	780	888

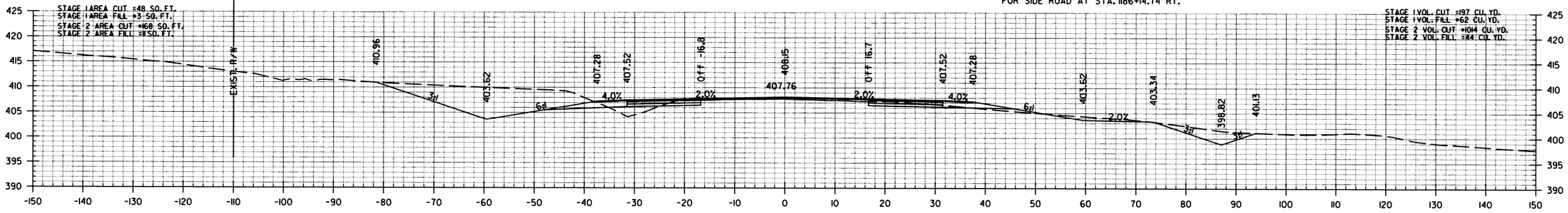
(2) CROSS SECTIONS

STA. 1186+00.00
BEGIN SP. DITCH LT. -4.42%
ELEV. = 403.62

SEE SIDE ROAD PROFILES SHEETS
FOR SIDE ROAD AT STA. 1186+14.74 RT.

STAGE 1 AREA CUT =48 SQ. FT.
STAGE 1 AREA FILL =3 SQ. FT.
STAGE 2 AREA CUT =168 SQ. FT.
STAGE 2 AREA FILL =11 SQ. FT.

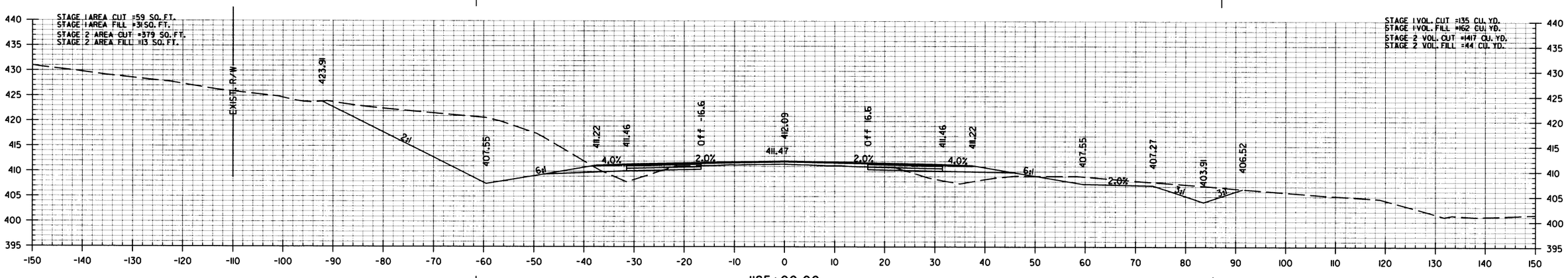
STAGE 1 VOL. CUT =197 CU. YD.
STAGE 1 VOL. FILL =62 CU. YD.
STAGE 2 VOL. CUT =1014 CU. YD.
STAGE 2 VOL. FILL =44 CU. YD.



1186+00.00

STAGE 1 AREA CUT =59 SQ. FT.
STAGE 1 AREA FILL =31 SQ. FT.
STAGE 2 AREA CUT =379 SQ. FT.
STAGE 2 AREA FILL =13 SQ. FT.

STAGE 1 VOL. CUT =135 CU. YD.
STAGE 1 VOL. FILL =162 CU. YD.
STAGE 2 VOL. CUT =1417 CU. YD.
STAGE 2 VOL. FILL =44 CU. YD.

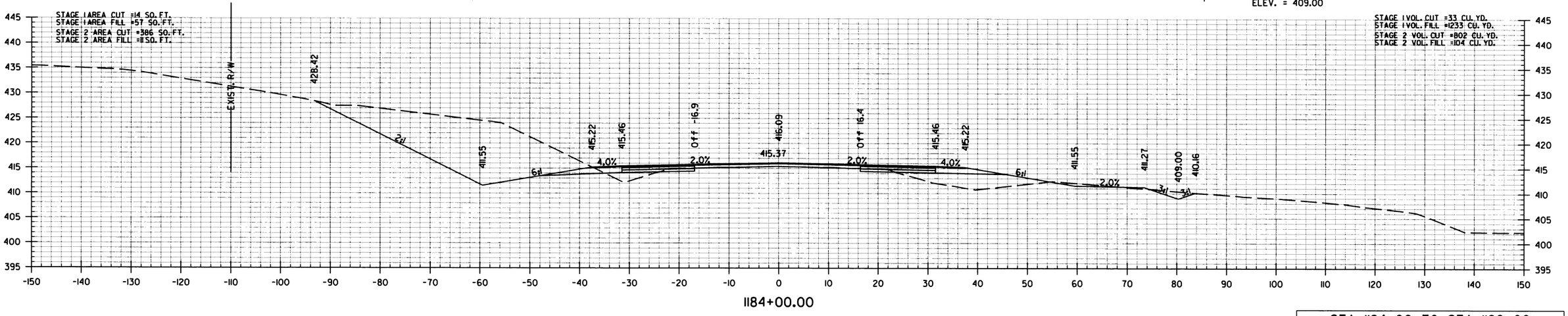


1185+00.00

STA. 1184+00.00
BEGIN SP. DITCH RT. -5.09%
ELEV. = 409.00

STAGE 1 AREA CUT =14 SQ. FT.
STAGE 1 AREA FILL =57 SQ. FT.
STAGE 2 AREA CUT =386 SQ. FT.
STAGE 2 AREA FILL =11 SQ. FT.

STAGE 1 VOL. CUT =33 CU. YD.
STAGE 1 VOL. FILL =1233 CU. YD.
STAGE 2 VOL. CUT =802 CU. YD.
STAGE 2 VOL. FILL =104 CU. YD.



1184+00.00

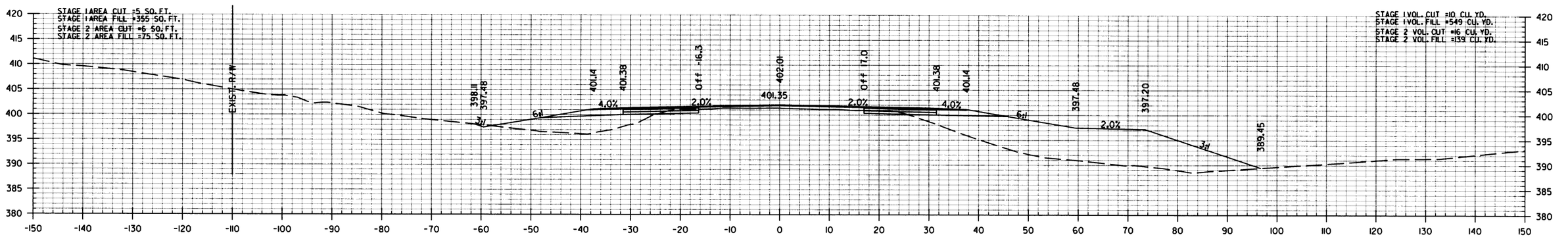
STA. 1184+00 TO STA. 1186+00

LeonardSpeed 9/21/2016 11:27:38 AM
WORKSPACE: Leonard_CS.dwg
C:\Dpw\81-loca\baker_projects\leonard_speed\d0271682\r-061377_21_CX_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	781	888

(2) CROSS SECTIONS



STA. 1187+00 TO STA. 1188+00

LeonardSpeed 9/23/2016 11:27:39 AM
WORKSET: Default
c:\dwv81-local\baker_projects\leonard_speed\v0271682\v-06377_21_CX_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	782	888

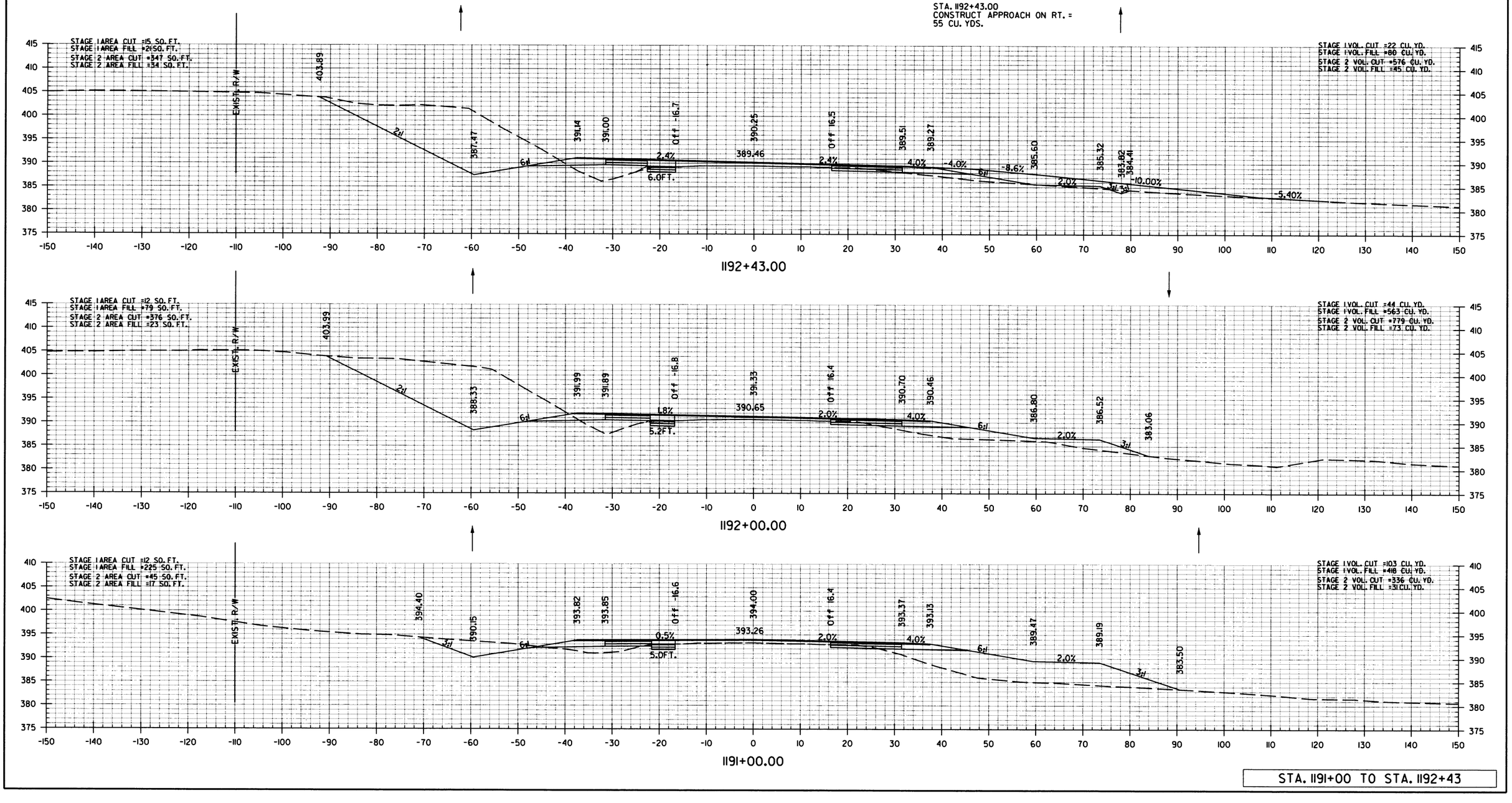
(2) CROSS SECTIONS

STA. 1188+19 TO STA. 1190+00

LeonardSpeed 9/23/2016 11:21:41 AM
WORKSPACE: LeonardSpeed
CONNECTION: C:\Projects\leonard.speed\d0216821r061317_2i_CX_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	783	888
				(2)	CROSS SECTIONS			



STA. 1191+00 TO STA. 1192+43

LeonardSpeed 9/23/2006 11:27:42 AM
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c:\pw_81-local\baker.projects\leonard.speed\d0271682\r06377.21.CX.00.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

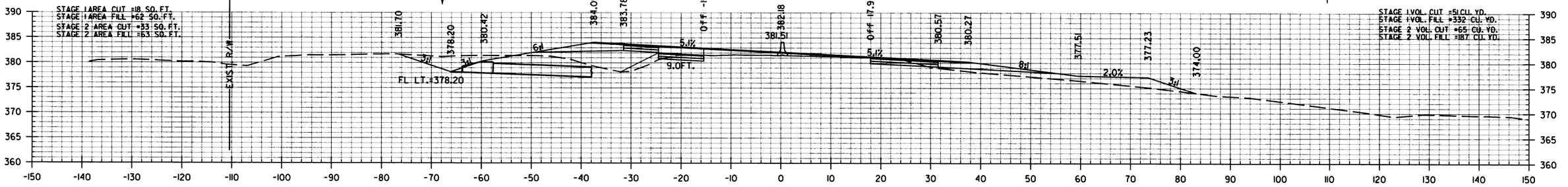
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	784	888

(2) CROSS SECTIONS

STA. 1194+85.00
END SP. DITCH LT. -5.86%
ELEV. = 378.20

STAGE I AREA CUT =18 SQ. FT.
STAGE I AREA FILL =62 SQ. FT.
STAGE 2 AREA CUT =33 SQ. FT.
STAGE 2 AREA FILL =63 SQ. FT.

STAGE I VOL. CUT =51 CU. YD.
STAGE I VOL. FILL =332 CU. YD.
STAGE 2 VOL. CUT =65 CU. YD.
STAGE 2 VOL. FILL =187 CU. YD.



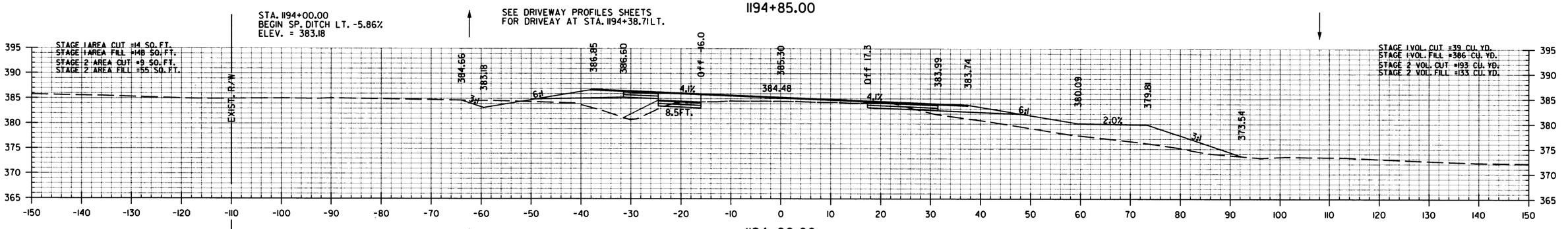
1194+85.00

STA. 1194+00.00
BEGIN SP. DITCH LT. -5.86%
ELEV. = 383.18

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEAY AT STA. 1194+38.71LT.

STAGE I AREA CUT =14 SQ. FT.
STAGE I AREA FILL =148 SQ. FT.
STAGE 2 AREA CUT =9 SQ. FT.
STAGE 2 AREA FILL =55 SQ. FT.

STAGE I VOL. CUT =39 CU. YD.
STAGE I VOL. FILL =386 CU. YD.
STAGE 2 VOL. CUT =193 CU. YD.
STAGE 2 VOL. FILL =133 CU. YD.

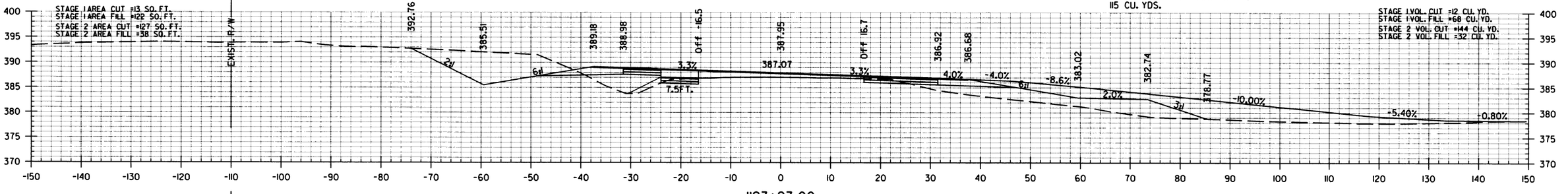


1194+00.00

STA. 1193+23.00
CONSTRUCT APPROACH ON RT. =
115 CU. YDS.

STAGE I AREA CUT =13 SQ. FT.
STAGE I AREA FILL =122 SQ. FT.
STAGE 2 AREA CUT =127 SQ. FT.
STAGE 2 AREA FILL =38 SQ. FT.

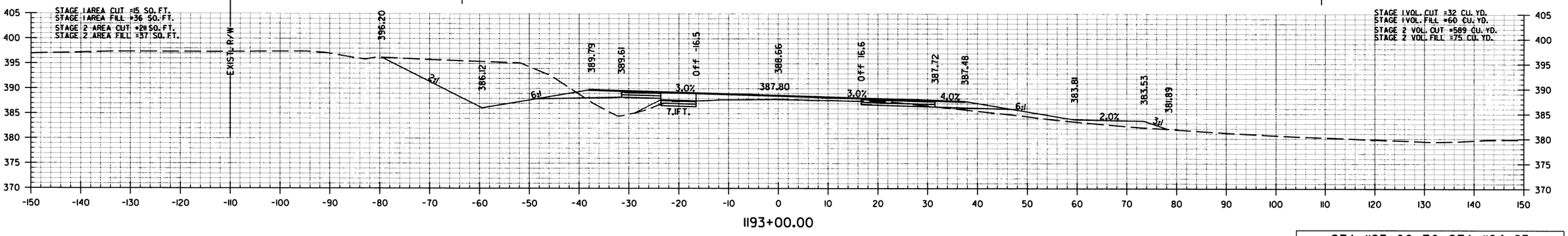
STAGE I VOL. CUT =12 CU. YD.
STAGE I VOL. FILL =68 CU. YD.
STAGE 2 VOL. CUT =144 CU. YD.
STAGE 2 VOL. FILL =32 CU. YD.



1193+23.00

STAGE I AREA CUT =15 SQ. FT.
STAGE I AREA FILL =36 SQ. FT.
STAGE 2 AREA CUT =218 SQ. FT.
STAGE 2 AREA FILL =57 SQ. FT.

STAGE I VOL. CUT =32 CU. YD.
STAGE I VOL. FILL =60 CU. YD.
STAGE 2 VOL. CUT =589 CU. YD.
STAGE 2 VOL. FILL =75 CU. YD.



1193+00.00

STA. 1193+00 TO STA. 1194+85

Leonard.Speed 9/23/2016 11:27:43 AM
WORKSPACE: Leonard.Speed
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	785	888

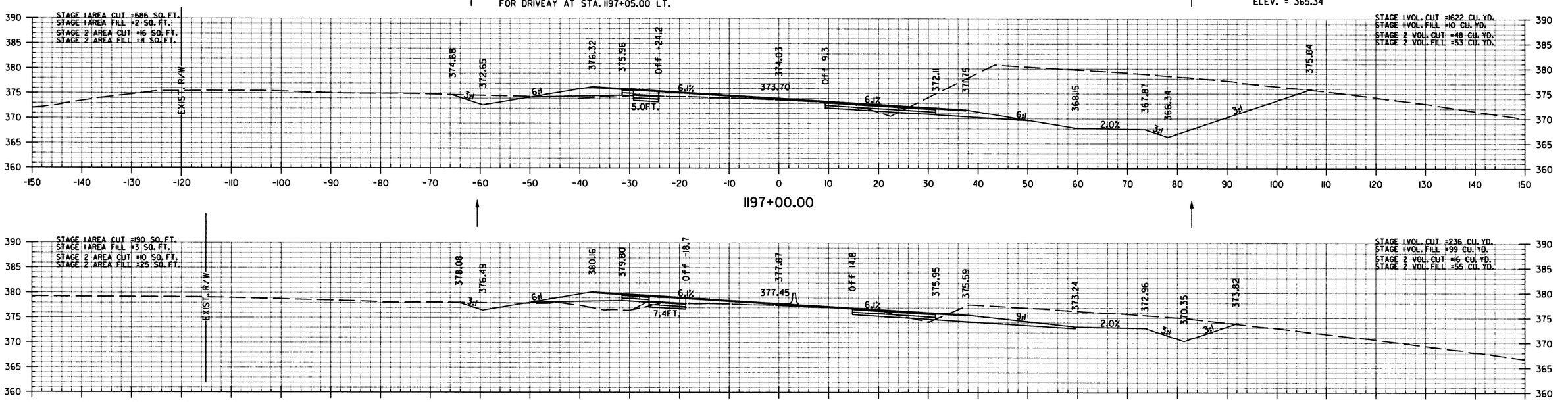
(2) CROSS SECTIONS

SEE DRIVEWAY PROFILES SHEETS FOR DRIVEAY AT STA. 1197+05.00 LT.

STA. 1197+25.00
END SP. DITCH RT. -4.01%
ELEV. = 365.34

STAGE 1 AREA CUT =686 SQ. FT.
STAGE 1 AREA FILL =2 SQ. FT.
STAGE 2 AREA CUT =16 SQ. FT.
STAGE 2 AREA FILL =1 SQ. FT.

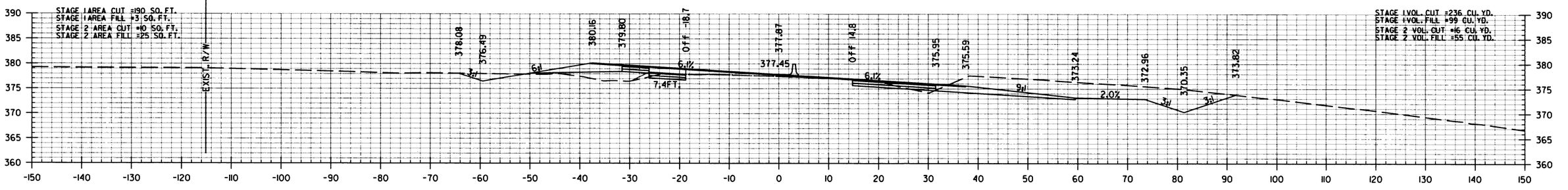
STAGE 1 VOL. CUT =1622 CU. YD.
STAGE 1 VOL. FILL =10 CU. YD.
STAGE 2 VOL. CUT =48 CU. YD.
STAGE 2 VOL. FILL =53 CU. YD.



1197+00.00

STAGE 1 AREA CUT =190 SQ. FT.
STAGE 1 AREA FILL =3 SQ. FT.
STAGE 2 AREA CUT =10 SQ. FT.
STAGE 2 AREA FILL =5 SQ. FT.

STAGE 1 VOL. CUT =236 CU. YD.
STAGE 1 VOL. FILL =99 CU. YD.
STAGE 2 VOL. CUT =16 CU. YD.
STAGE 2 VOL. FILL =55 CU. YD.

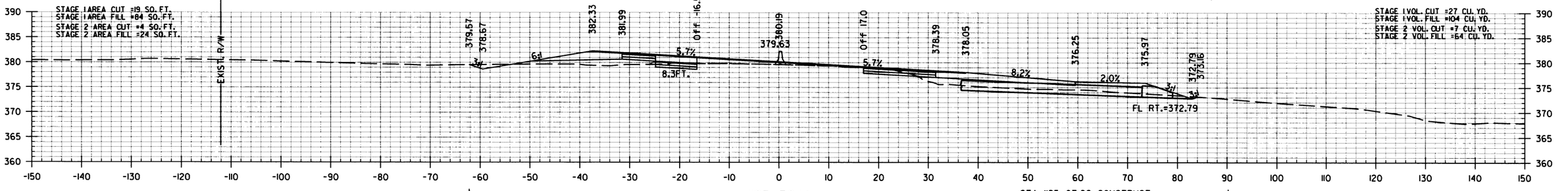


1196+00.00

STA. 1195+73.71 MAX. SUPERELEVATION (0.061'/')

STAGE 1 AREA CUT =19 SQ. FT.
STAGE 1 AREA FILL =84 SQ. FT.
STAGE 2 AREA CUT =4 SQ. FT.
STAGE 2 AREA FILL =24 SQ. FT.

STAGE 1 VOL. CUT =27 CU. YD.
STAGE 1 VOL. FILL =104 CU. YD.
STAGE 2 VOL. CUT =7 CU. YD.
STAGE 2 VOL. FILL =64 CU. YD.



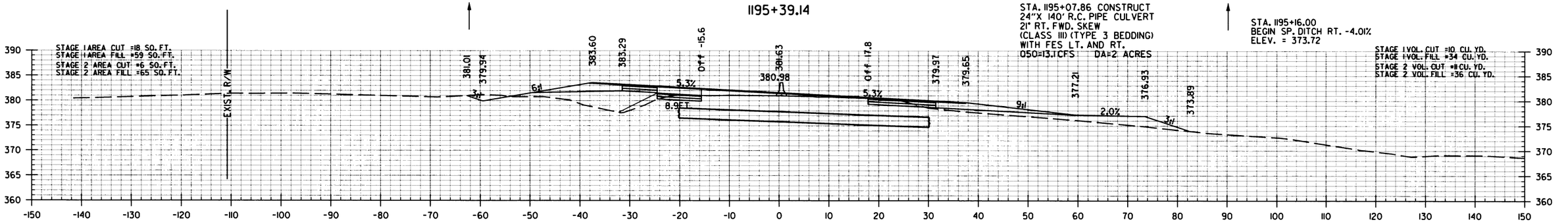
1195+39.14

STA. 1195+07.86 CONSTRUCT
24"X 140' R.C. PIPE CULVERT
21° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=13.1CFS DA=2 ACRES

STA. 1195+16.00
BEGIN SP. DITCH RT. -4.01%
ELEV. = 373.72

STAGE 1 AREA CUT =18 SQ. FT.
STAGE 1 AREA FILL =59 SQ. FT.
STAGE 2 AREA CUT =6 SQ. FT.
STAGE 2 AREA FILL =65 SQ. FT.

STAGE 1 VOL. CUT =10 CU. YD.
STAGE 1 VOL. FILL =34 CU. YD.
STAGE 2 VOL. CUT =1 CU. YD.
STAGE 2 VOL. FILL =36 CU. YD.



1195+00.00

STA. 1195+00 TO STA. 1197+00

Leonard.Speed 9/23/2016 11:27:44 AM
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USER:rlcook
REVISED DATE: ##REVDATE##

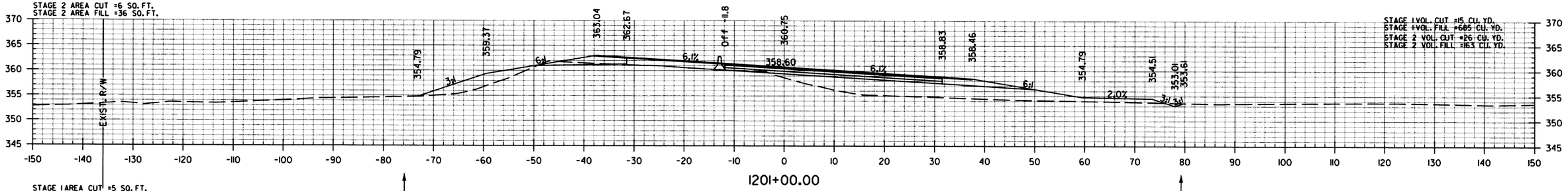
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	786	888

(2) CROSS SECTIONS

STAGE 1 AREA CUT =3 SQ. FT.
STAGE 1 AREA FILL =156 SQ. FT.
STAGE 2 AREA CUT =6 SQ. FT.
STAGE 2 AREA FILL =36 SQ. FT.

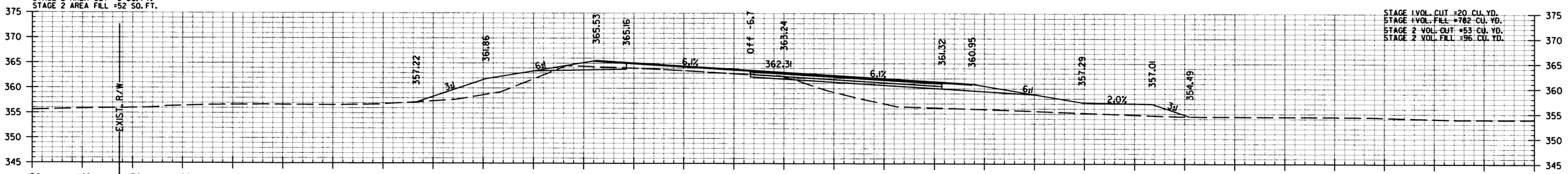
STAGE 1 VOL. CUT =15 CU. YD.
STAGE 1 VOL. FILL =685 CU. YD.
STAGE 2 VOL. CUT =26 CU. YD.
STAGE 2 VOL. FILL =163 CU. YD.



1201+00.00

STAGE 1 AREA CUT =5 SQ. FT.
STAGE 1 AREA FILL =214 SQ. FT.
STAGE 2 AREA CUT =8 SQ. FT.
STAGE 2 AREA FILL =52 SQ. FT.

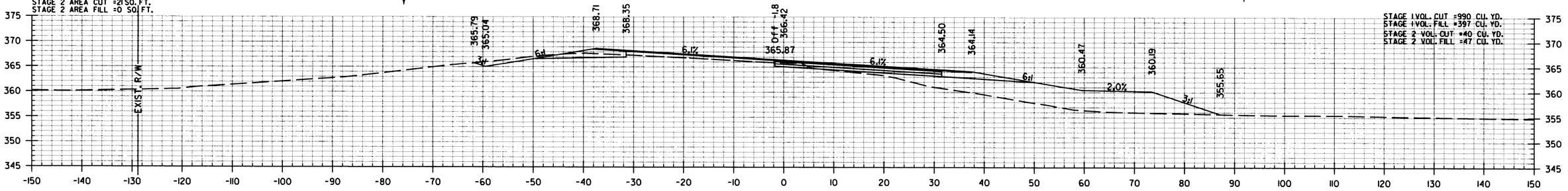
STAGE 1 VOL. CUT =20 CU. YD.
STAGE 1 VOL. FILL =782 CU. YD.
STAGE 2 VOL. CUT =53 CU. YD.
STAGE 2 VOL. FILL =96 CU. YD.



1200+00.00

STAGE 1 AREA CUT =6 SQ. FT.
STAGE 1 AREA FILL =208 SQ. FT.
STAGE 2 AREA CUT =21 SQ. FT.
STAGE 2 AREA FILL =0 SQ. FT.

STAGE 1 VOL. CUT =990 CU. YD.
STAGE 1 VOL. FILL =397 CU. YD.
STAGE 2 VOL. CUT =40 CU. YD.
STAGE 2 VOL. FILL =47 CU. YD.

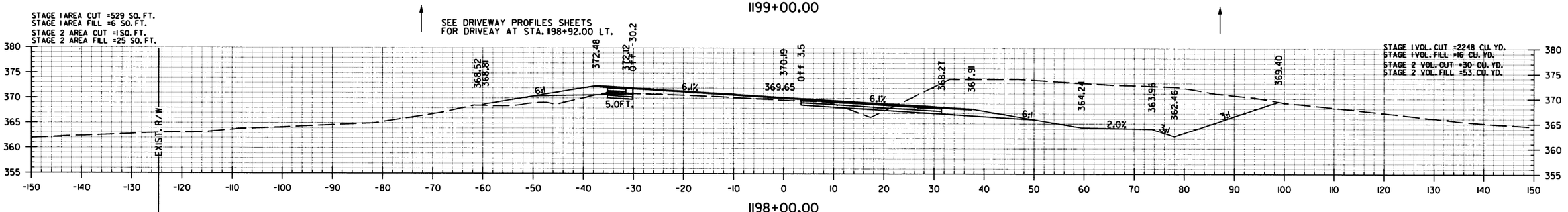


1199+00.00

STAGE 1 AREA CUT =529 SQ. FT.
STAGE 1 AREA FILL =6 SQ. FT.
STAGE 2 AREA CUT =1 SQ. FT.
STAGE 2 AREA FILL =25 SQ. FT.

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEAY AT STA. 1198+92.00 LT.

STAGE 1 VOL. CUT =2248 CU. YD.
STAGE 1 VOL. FILL =16 CU. YD.
STAGE 2 VOL. CUT =30 CU. YD.
STAGE 2 VOL. FILL =53 CU. YD.



1198+00.00

STA. 1198+00 TO STA. 1201+00

Leonard.Speed 9/23/2006 11:27:45 AM
WORKSPACE: Leonard.Speed
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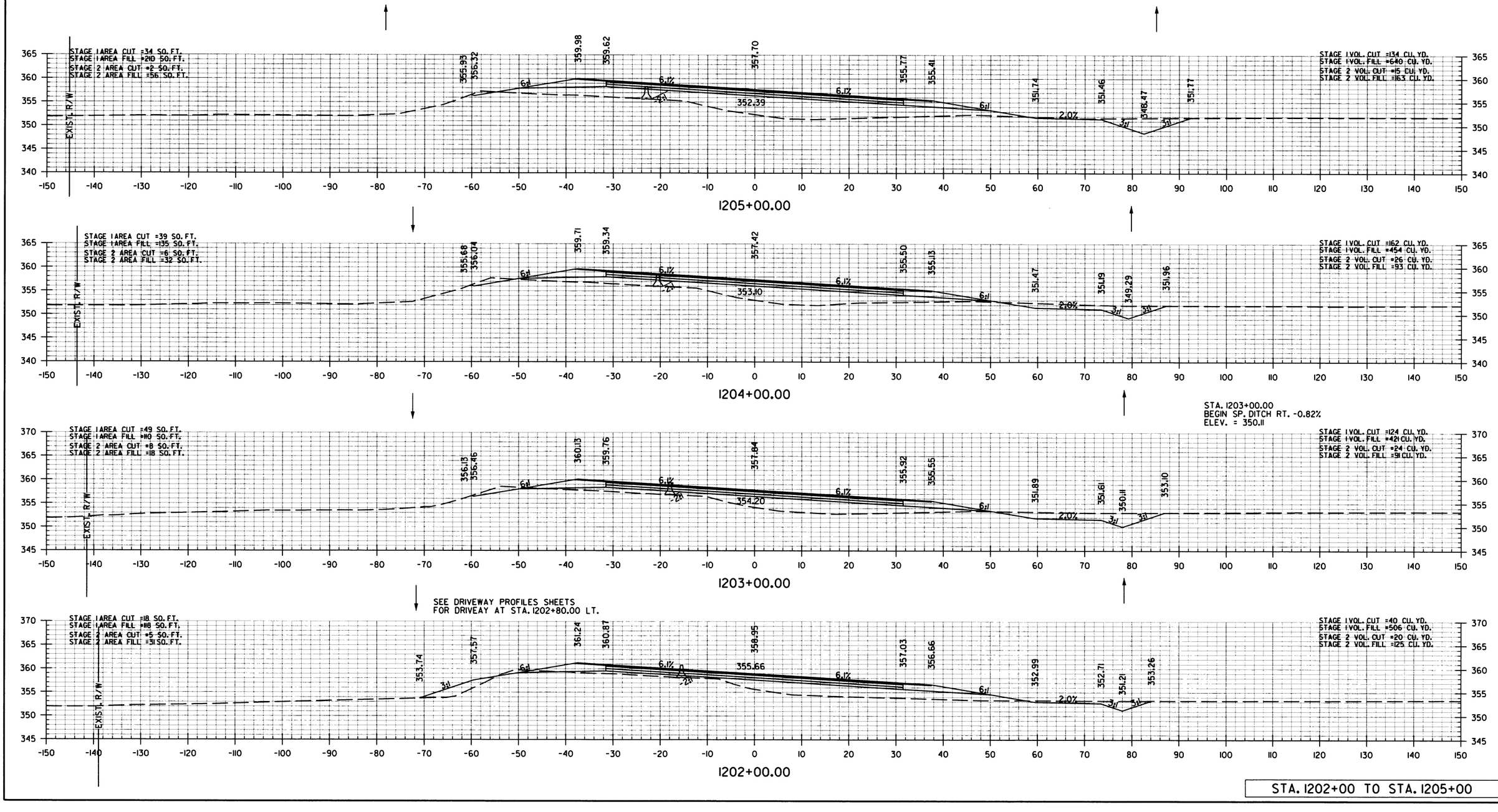
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	787	888

(2) CROSS SECTIONS



STA. 1202+00 TO STA. 1205+00

leonard.speed 9/23/2016 11:27:46 AM
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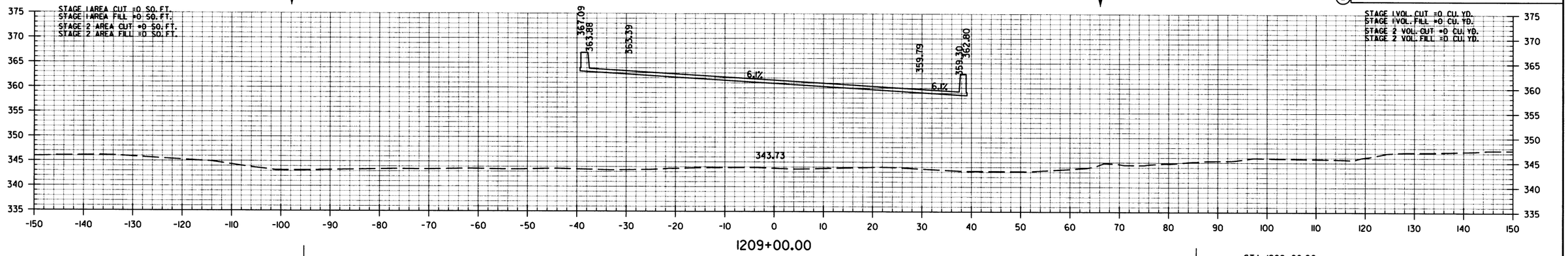
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	788	888

(2) CROSS SECTIONS



STA. 1206+00 TO STA. 1209+00

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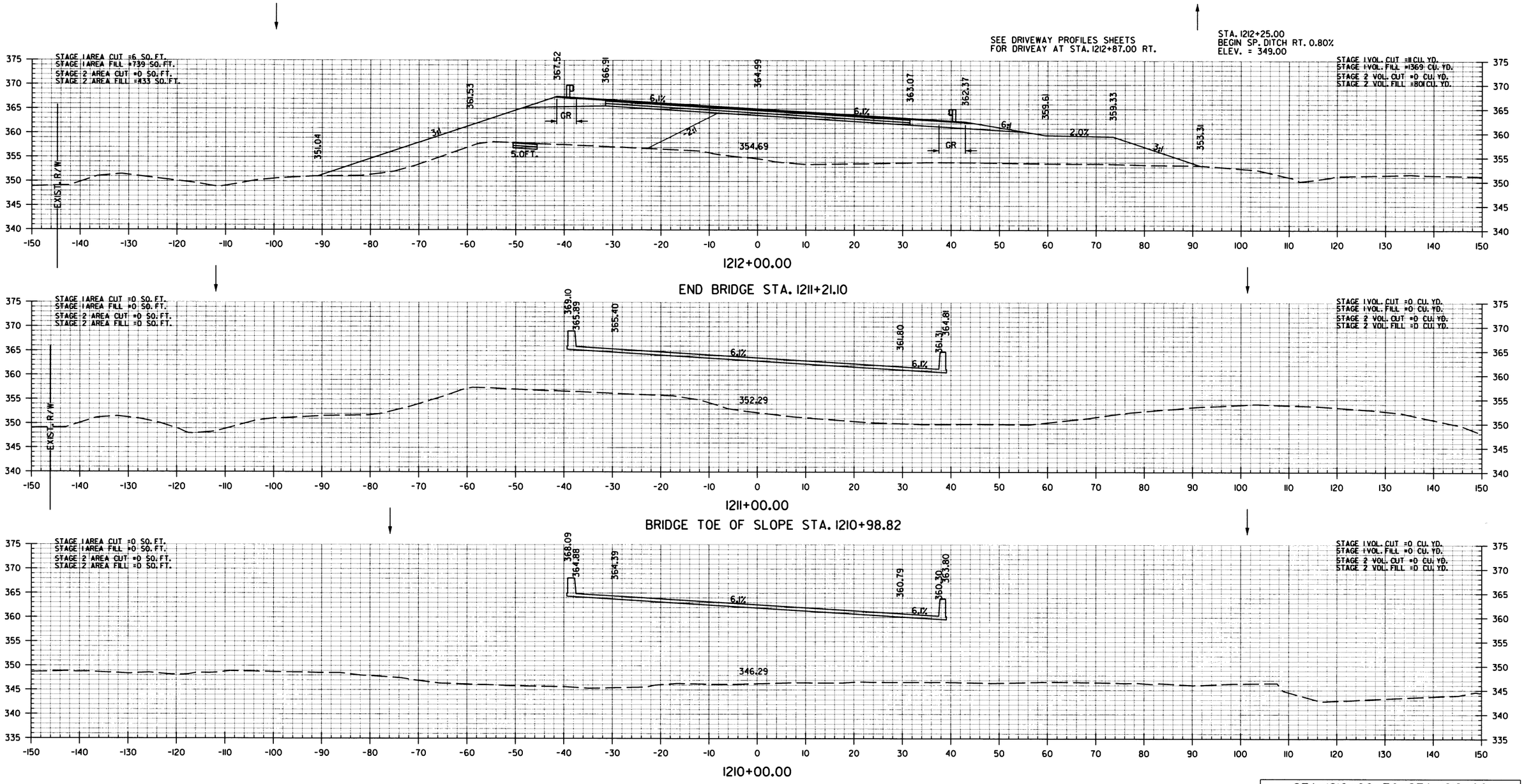
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	789	888
				(2)	CROSS SECTIONS			



STA. 1210+00 TO STA. 1212+00

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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

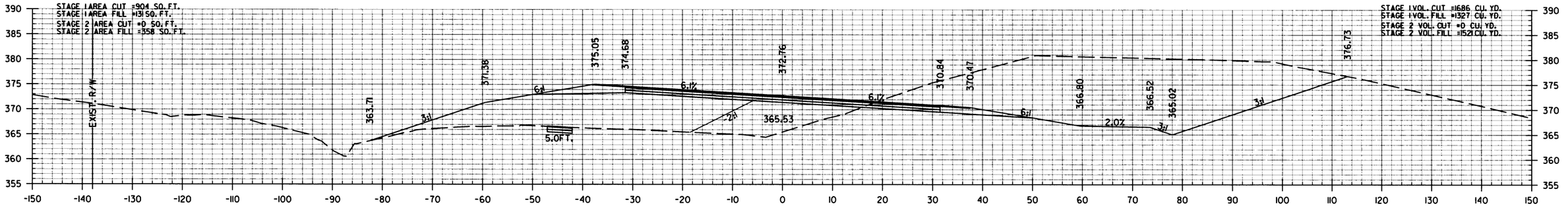
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	790	888

(2) CROSS SECTIONS

STA. 1215+80.00
BEGIN SP. DITCH LT. 2.53%
ELEV. = 366.41

STAGE 1 AREA CUT =904 SQ. FT.
STAGE 1 AREA FILL =1315 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =358 SQ. FT.

STAGE 1 VOL. CUT =1686 CU. YD.
STAGE 1 VOL. FILL =1327 CU. YD.
STAGE 2 VOL. CUT =0 CU. YD.
STAGE 2 VOL. FILL =1521 CU. YD.

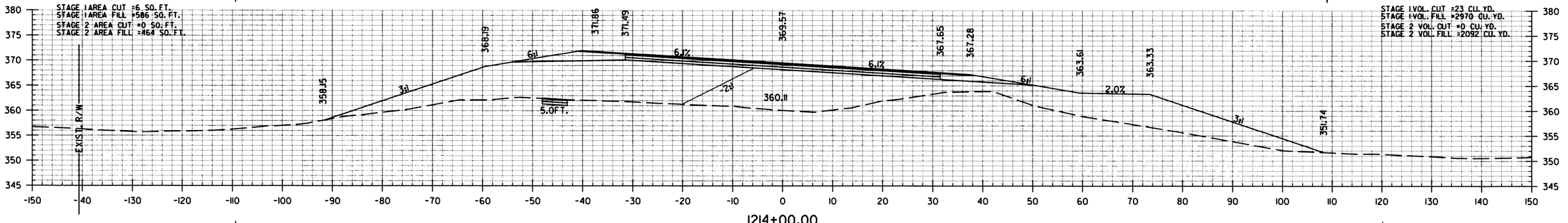


1215+00.00

SEE SIDE ROAD PROFILES SHEETS
FOR SIDE ROAD AT STA. 1214+95.00 LT.

STAGE 1 AREA CUT =6 SQ. FT.
STAGE 1 AREA FILL =586 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =464 SQ. FT.

STAGE 1 VOL. CUT =23 CU. YD.
STAGE 1 VOL. FILL =2970 CU. YD.
STAGE 2 VOL. CUT =0 CU. YD.
STAGE 2 VOL. FILL =2092 CU. YD.



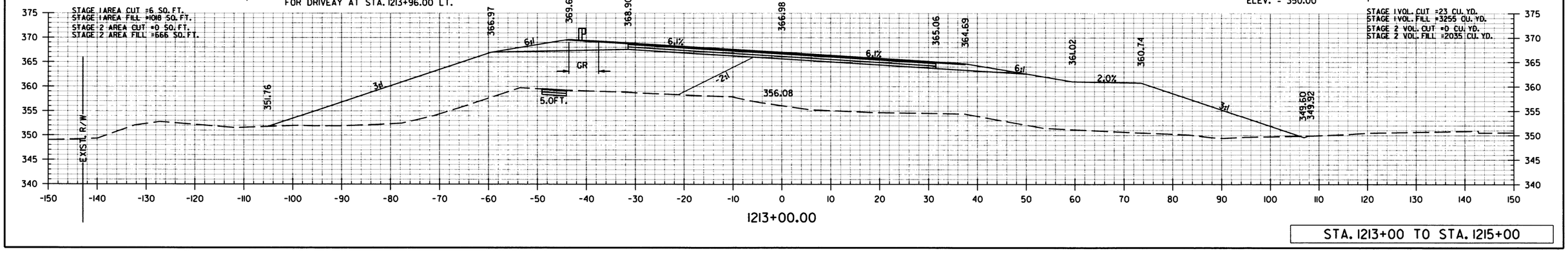
1214+00.00

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEWAY AT STA. 1213+96.00 LT.

STA. 1213+50.00
END SP. DITCH RT. 0.80%
ELEV. = 350.00

STAGE 1 AREA CUT =6 SQ. FT.
STAGE 1 AREA FILL =1018 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =666 SQ. FT.

STAGE 1 VOL. CUT =23 CU. YD.
STAGE 1 VOL. FILL =3255 CU. YD.
STAGE 2 VOL. CUT =0 CU. YD.
STAGE 2 VOL. FILL =2035 CU. YD.



1213+00.00

STA. 1213+00 TO STA. 1215+00

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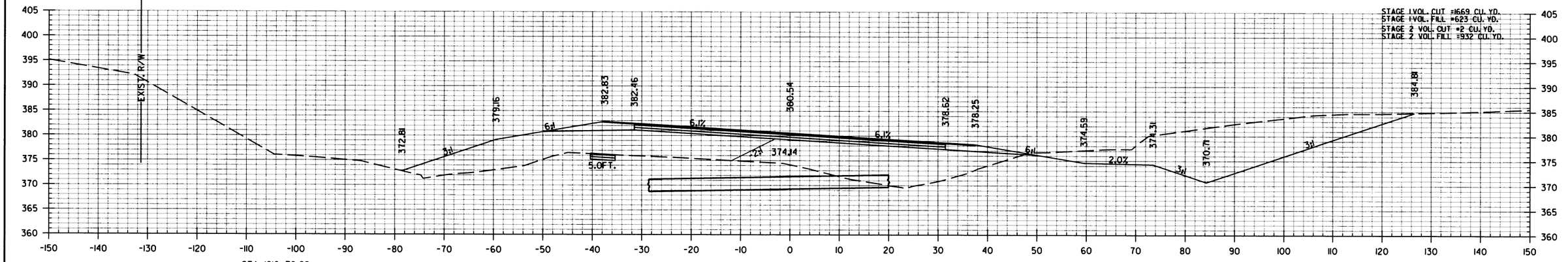
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	791	888
				(2)	CROSS SECTIONS			

STAGE 1 AREA CUT =416 SQ. FT.
STAGE 1 AREA FILL =304 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =339 SQ. FT.

STAGE 1 VOL. CUT =1669 CU. YD.
STAGE 1 VOL. FILL =623 CU. YD.
STAGE 2 VOL. CUT =2 CU. YD.
STAGE 2 VOL. FILL =932 CU. YD.



1217+00.00

STA. 1216+70.98
END SP. DITCH LT. 7.90%
ELEV. = 371.11

STA. 1216+26.40
END SP. DITCH LT. 2.53%
BEGIN SP. DITCH LT. 7.90%
ELEV. = 367.59

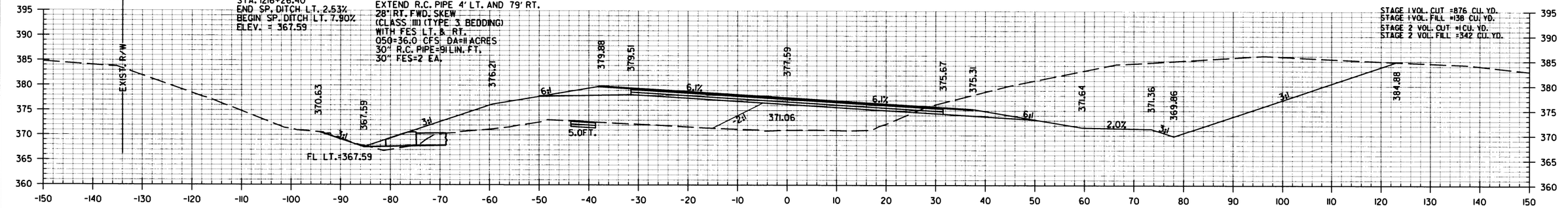
STA. 1216+70.37 IN PLACE
30"X 88' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT.
EXTEND R.C. PIPE 4' LT. AND 79' RT.
28° RT. FWD. SKEW
(CLASS III (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50=36.0 CFS DA=11 ACRES
30" R.C. PIPE=91 LIN. FT.
30" FES=2 EA.

STA. 1216+50.00
BEGIN SP. DITCH RT. -0.20%
ELEV. = 370.81

STA. 1216+50.00 CONSTRUCT
DIKE IN DITCH ON RT.

STAGE 1 AREA CUT =807 SQ. FT.
STAGE 1 AREA FILL =152 SQ. FT.
STAGE 2 AREA CUT =1 SQ. FT.
STAGE 2 AREA FILL =344 SQ. FT.

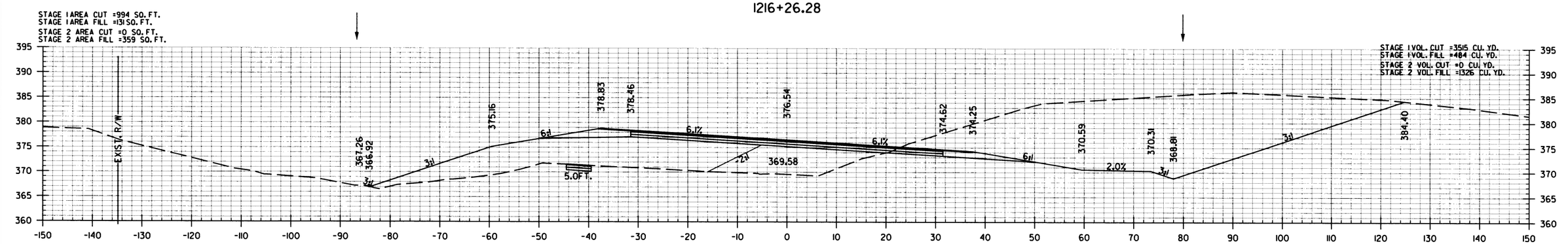
STAGE 1 VOL. CUT =876 CU. YD.
STAGE 1 VOL. FILL =138 CU. YD.
STAGE 2 VOL. CUT =1 CU. YD.
STAGE 2 VOL. FILL =342 CU. YD.



1216+26.28

STAGE 1 AREA CUT =994 SQ. FT.
STAGE 1 AREA FILL =131 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =359 SQ. FT.

STAGE 1 VOL. CUT =3515 CU. YD.
STAGE 1 VOL. FILL =484 CU. YD.
STAGE 2 VOL. CUT =0 CU. YD.
STAGE 2 VOL. FILL =1326 CU. YD.



1216+00.00

STA. 1216+00 TO STA. 1217+00

leonprofSpeed 9/23/2006 11:27:49 AM
leonprofSpeed
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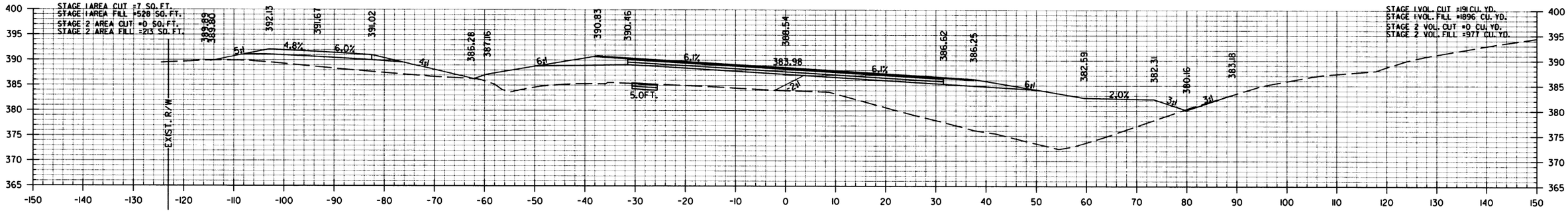
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	792	888

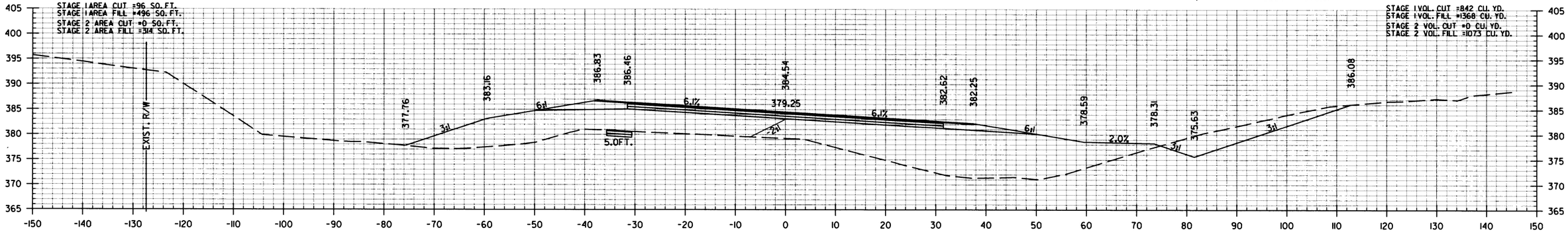
(2) CROSS SECTIONS

STA. 1219+00.56 MAX. SUPERELEVATION (0.061'/')



1219+00.00

STA. 1218+75.00
END SP. DITCH RT. 5.57%
BEGIN SP. DITCH RT. 1.40%
ELEV. = 379.81

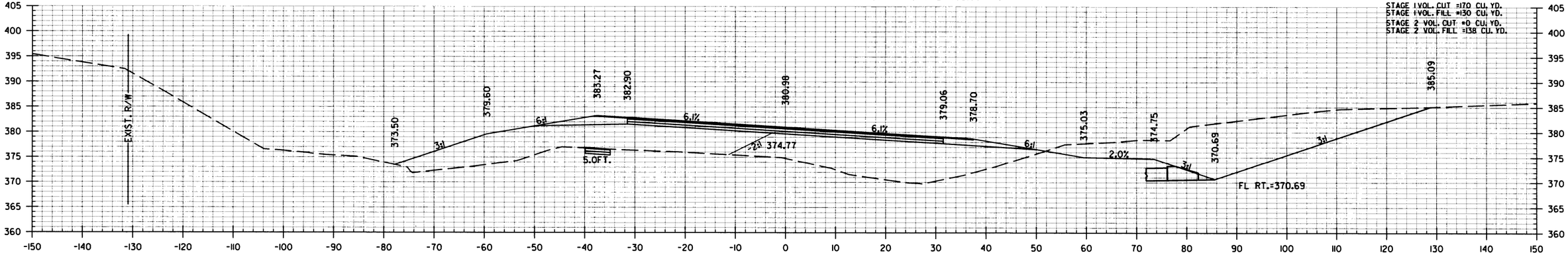


1218+00.00

STAGE 1 AREA CUT =415 SQ. FT.
STAGE 1 AREA FILL =334 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =337 SQ. FT.

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEAY AT STA. 1217+65.00 RT.

STA. 1217+11.23
END SP. DITCH RT. -0.20%
BEGIN SP. DITCH RT. 5.57%
ELEV. = 370.69



1217+11.04

STA. 1217+11 TO STA. 1219+00

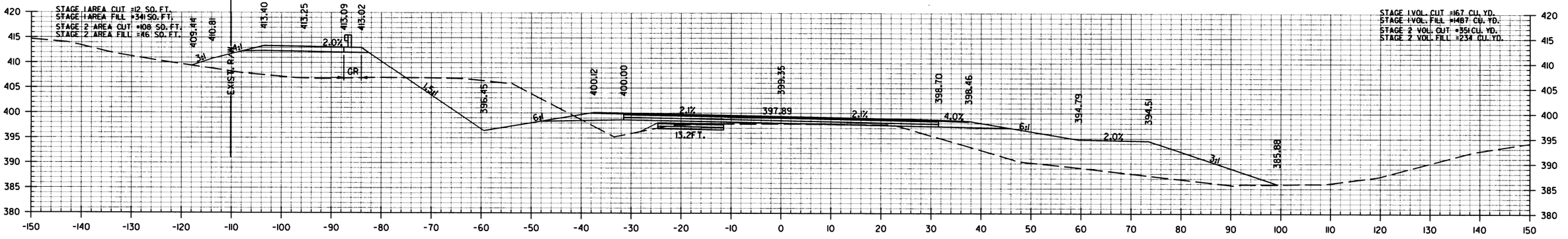
Leonard.Speed 9/23/2016 11:21:50 AM
WORKSPACE: Workspace1
c:\pw\81-local\baker_projects\leonard.speed\d0271682\r061377.21.CX.001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

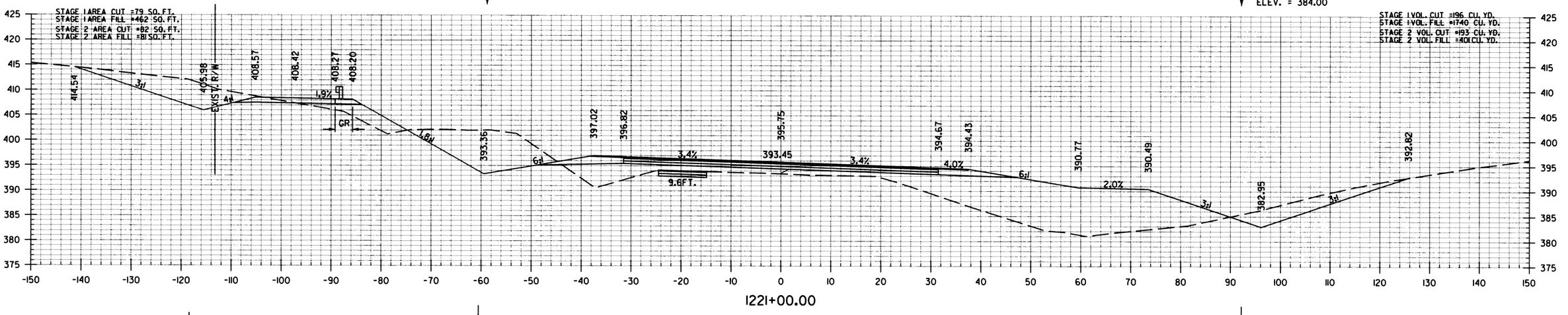
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	793	888

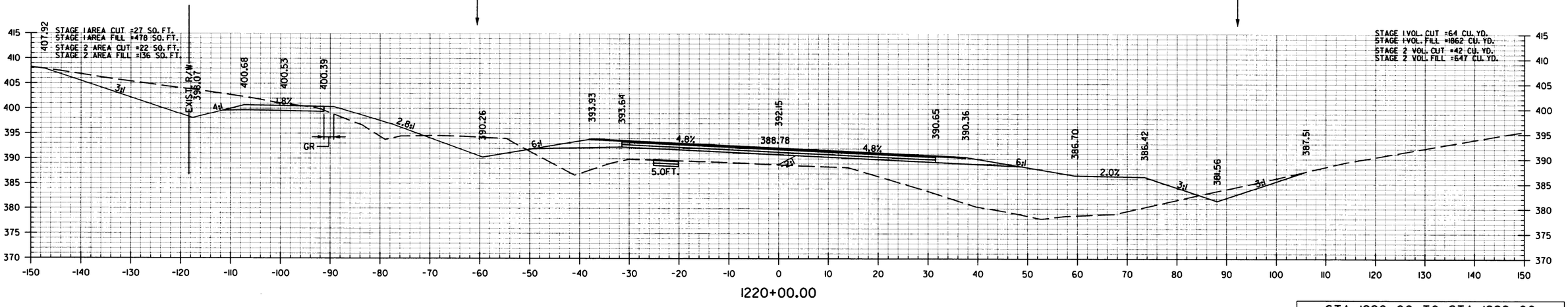
(2) CROSS SECTIONS

STA. 1222+84.81 RT. LANE (0.000 '/')
STA. 1222+78.12 LT. LANE (0.000 '/')
STA. 1222+16.67 BEGIN SUPERELEVATION RT.
STA. 1222+04.09 REVERSE CROWN (+0.020 '/')



STA. 1221+75.00
END SP. DITCH RT. 1.40%
ELEV. = 384.00





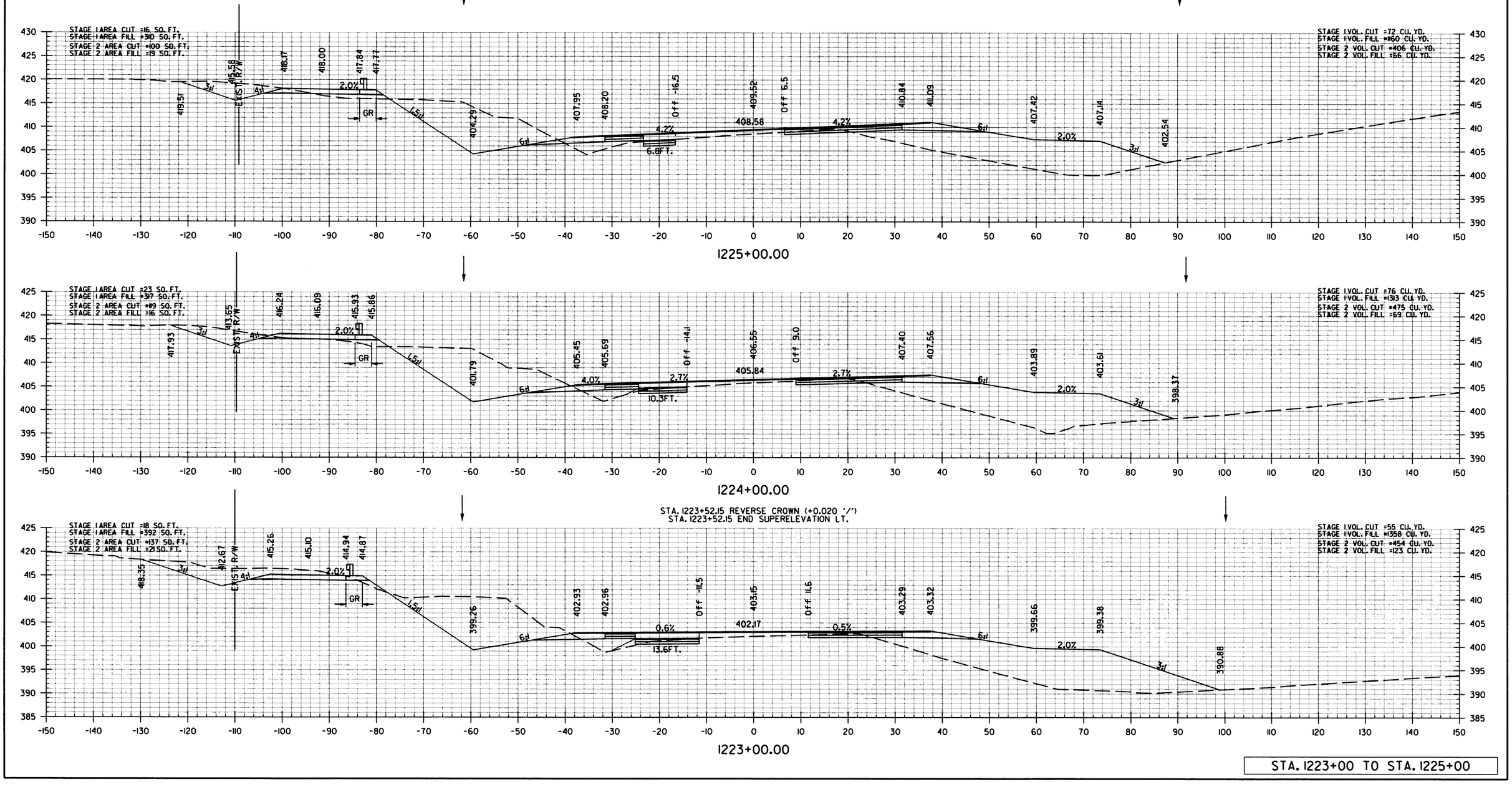
STA. 1220+00 TO STA. 1222+00

Leonard.Speed 9/23/2016 11:27:51 AM
WORKSPACE: Leonard.Speed
c:\workspace\projects\leonard.speed\v0027682\r06377.2i.CX.00i.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	794	888

(2) CROSS SECTIONS



STA. 1223+00 TO STA. 1225+00

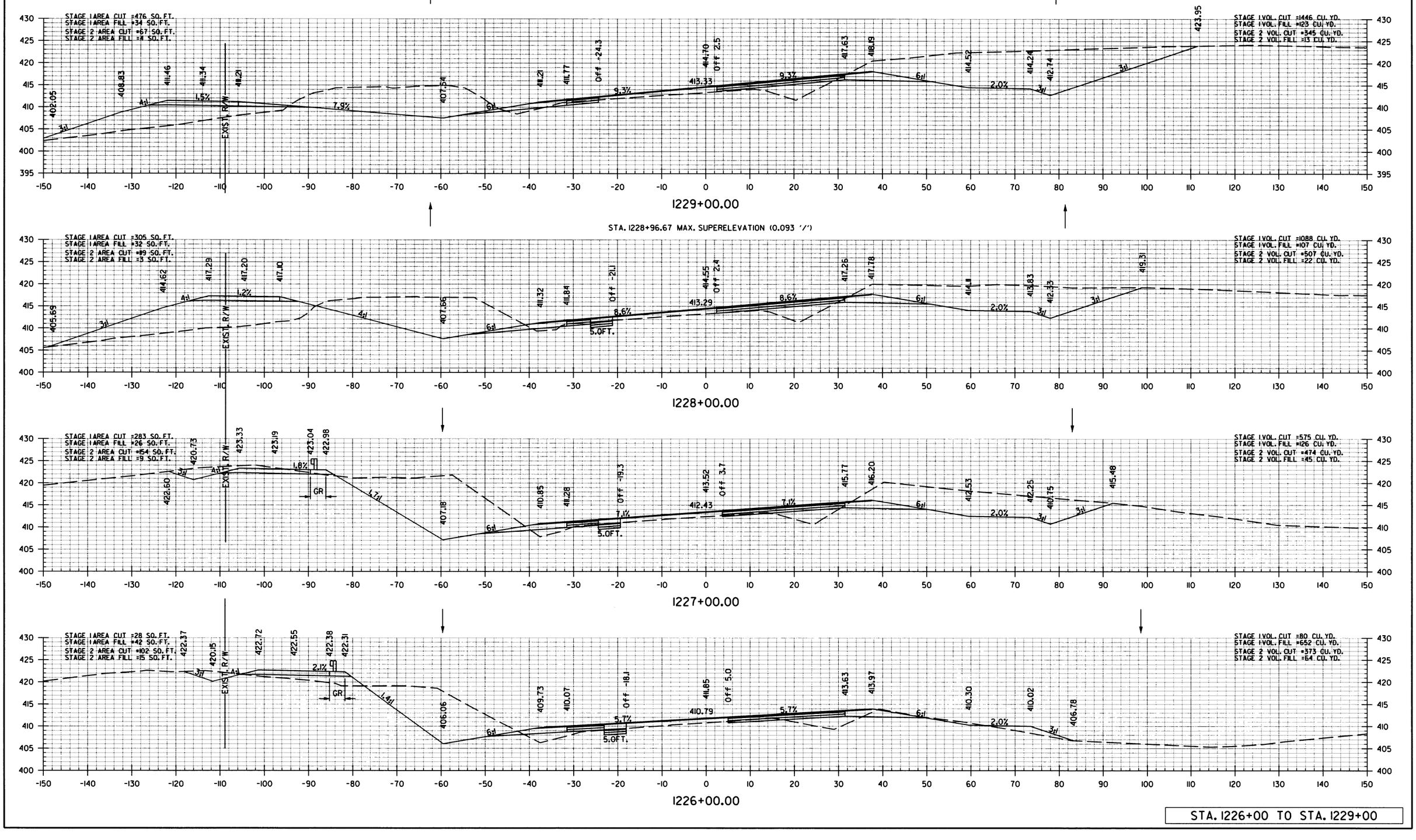
Leonard.Speed 9/23/2016 11:27:52 AM
WORKSPACE: Leonard.Speed
CONFIGURATION: Working Projects\Leonard.speed\d0217682\r06377.21.CX.00i.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	795	888

(2) CROSS SECTIONS



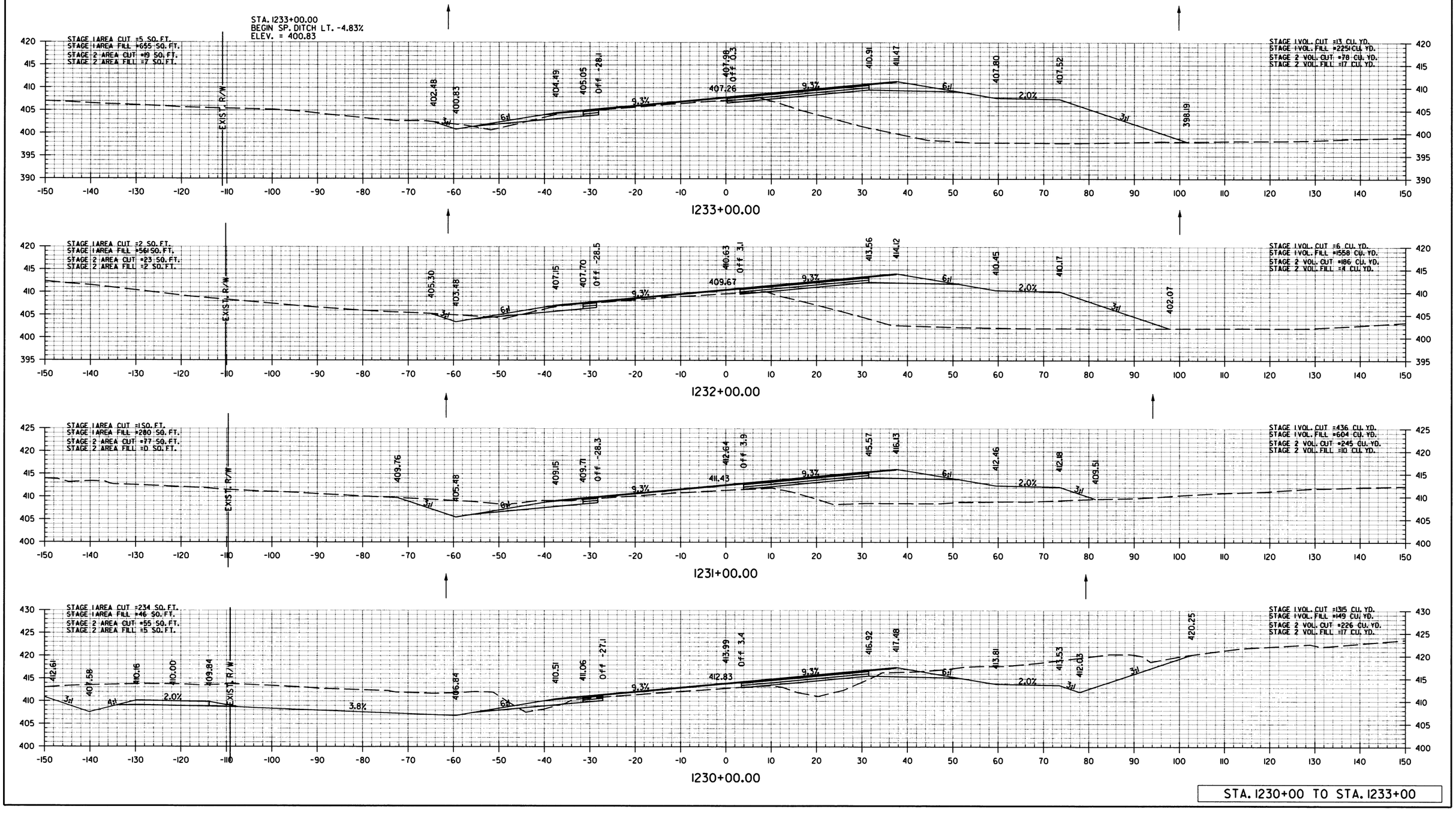
STA. 1226+00 TO STA. 1229+00

LeonardSpeed 9/23/2016 11:21:53 AM
WORKSPACE: LeonardSpeed
COMPUTER NAME: C:\Projects\Leonard_speed\d0276821\r-061377.21.CX.001.dgn
REVISED DATE1 ##REVDATE1##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	796	888

(2) CROSS SECTIONS



STA. 1230+00 TO STA. 1233+00

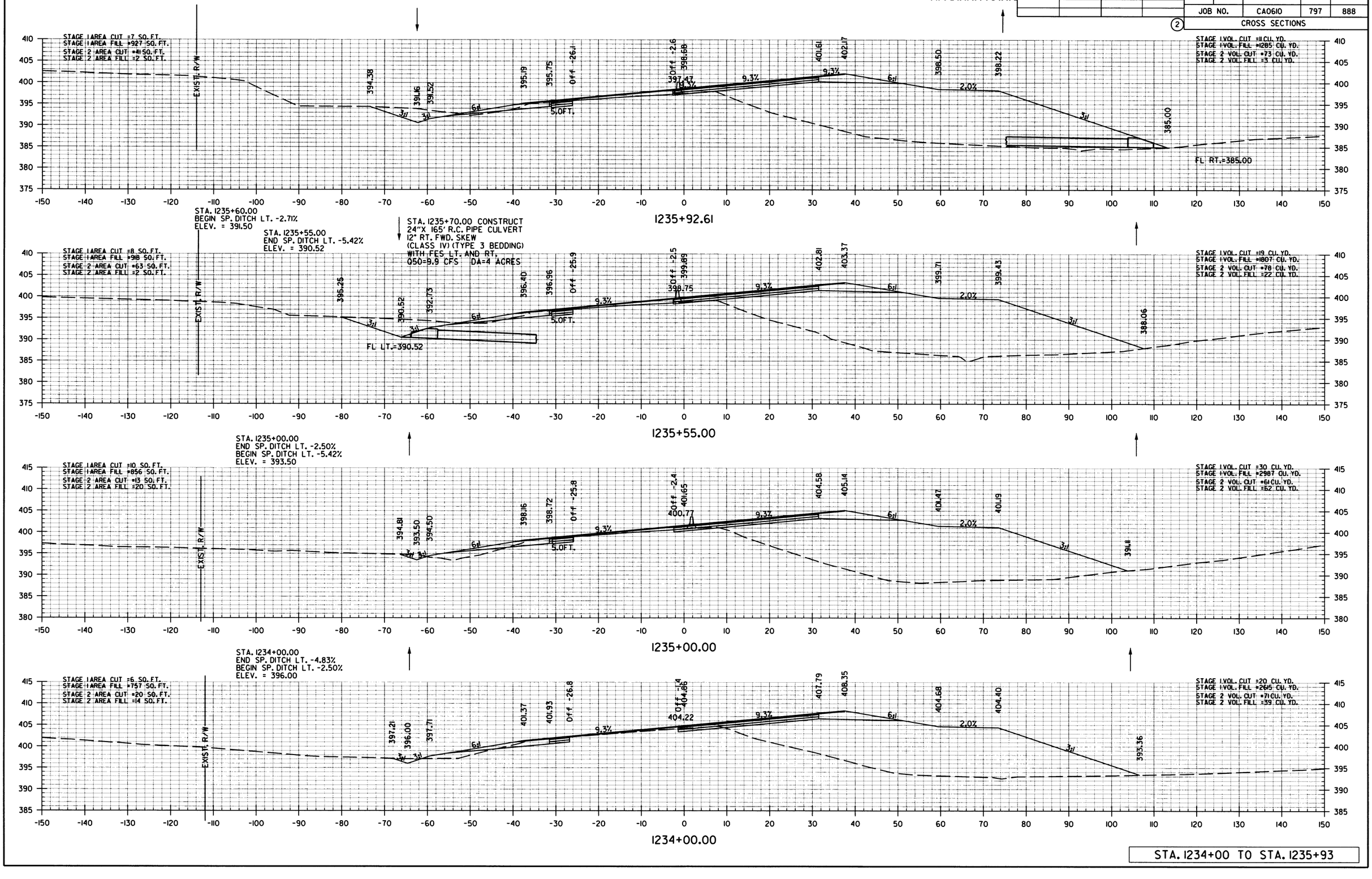
Leonard Speed 9/23/2016 11:27:54 AM
Workspace: Civil Workspace
c:\dgn\81-Hot Broker-Speed\projects\leonard_speed\d0271682\r-061377_2L_CX_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	797	888

(2) CROSS SECTIONS



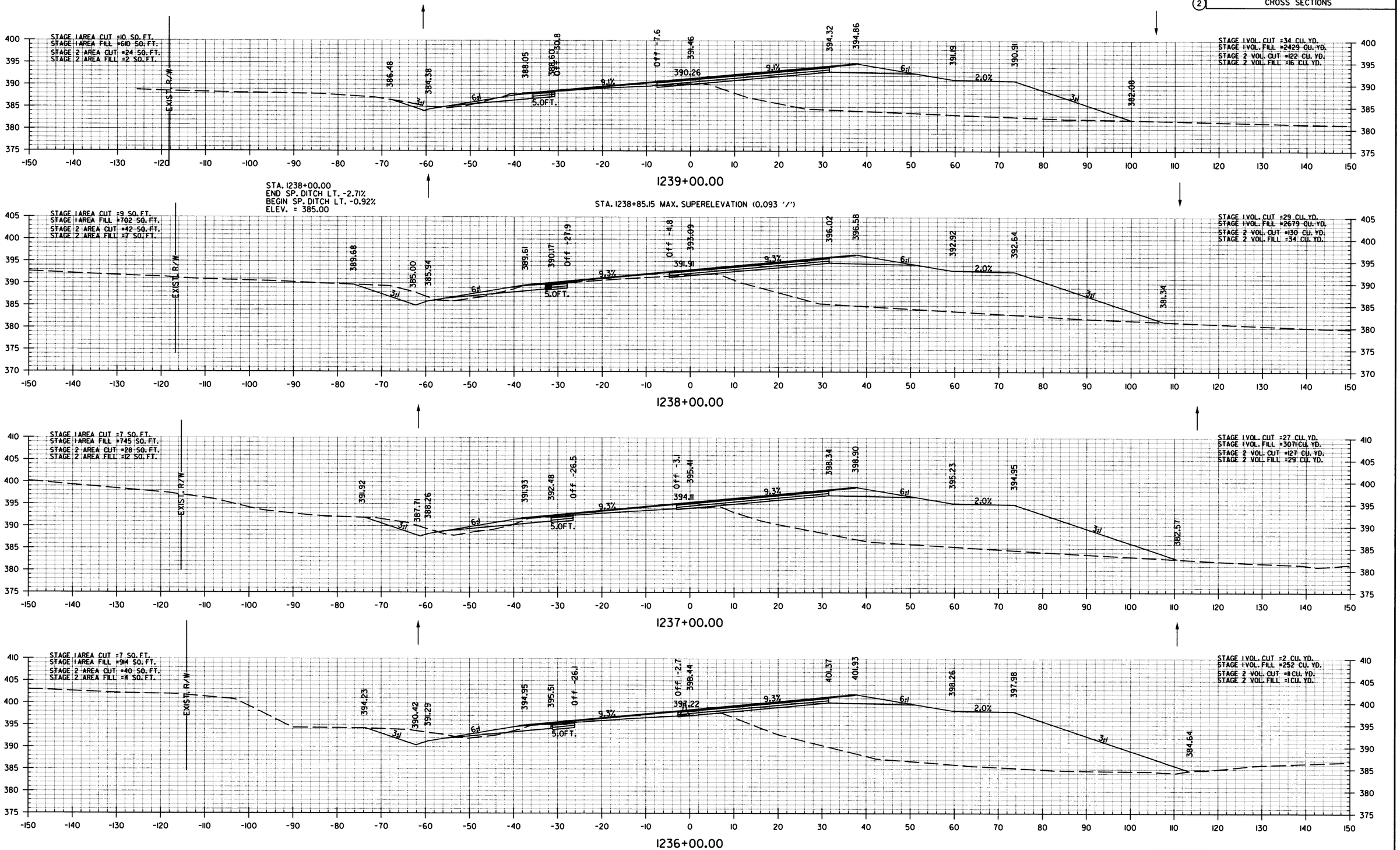
STA. 1234+00 TO STA. 1235+93

LeonardSpeed 9/23/2006 11:27:55 AM
WORKSPACE: LeonardSpeed
CONFIGURATION: Projects\leonard_speed\v0217682\r061377_2L_CX_00L.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	798	888

(2) CROSS SECTIONS



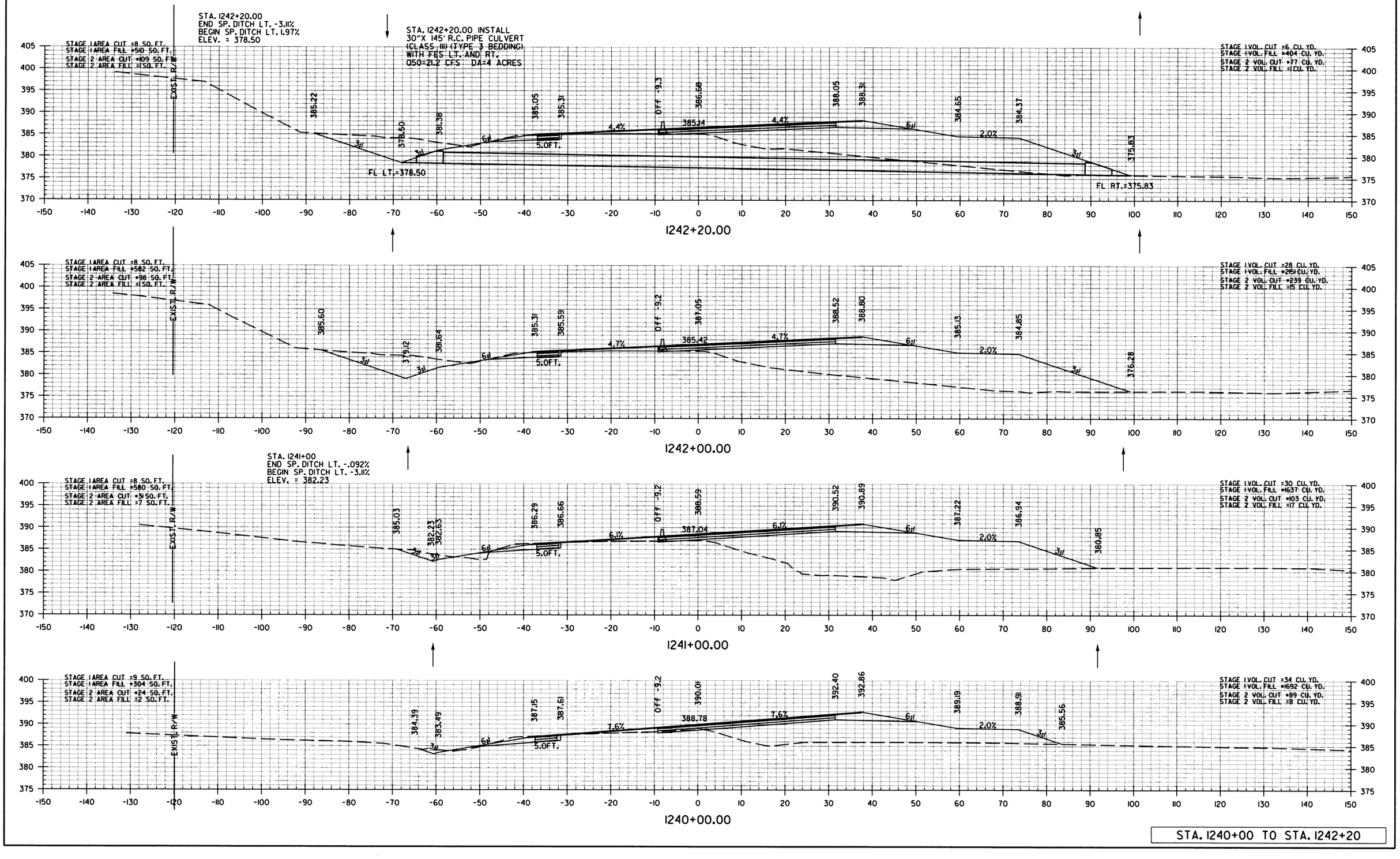
STA. 1236+00 TO STA. 1239+00

Leonard Speed 9/23/2016 11:21:56 AM
WORKSPACE: Corridor Civil 3D
c:\pw\bi-local\baker_projects\leonard.speed\d0276821\r06137.21.CX.001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	799	888

(2) CROSS SECTIONS



STA. 1240+00 TO STA. 1242+20

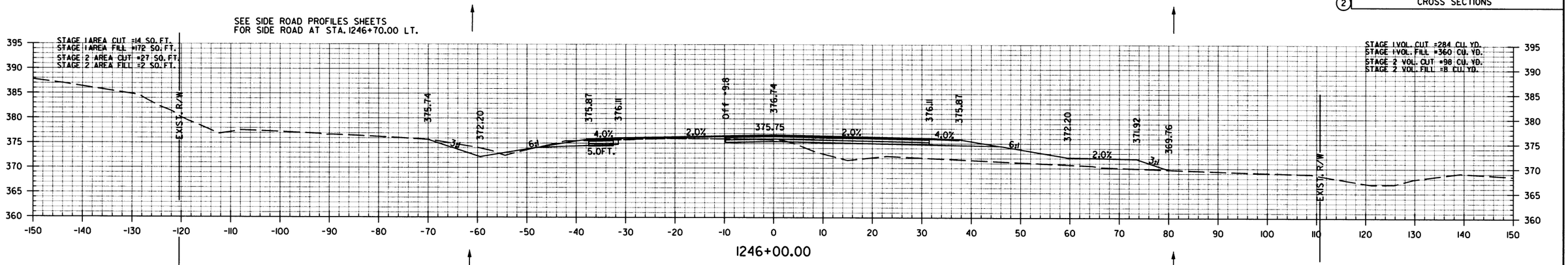
LeonardSpeed 9/23/2016 11:21:57 AM
K:\Projects\Leonard Speed\
c:\pw\81-local\baker.projects\leonard.speed\d0271682\r061377.21.CX.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	800	888

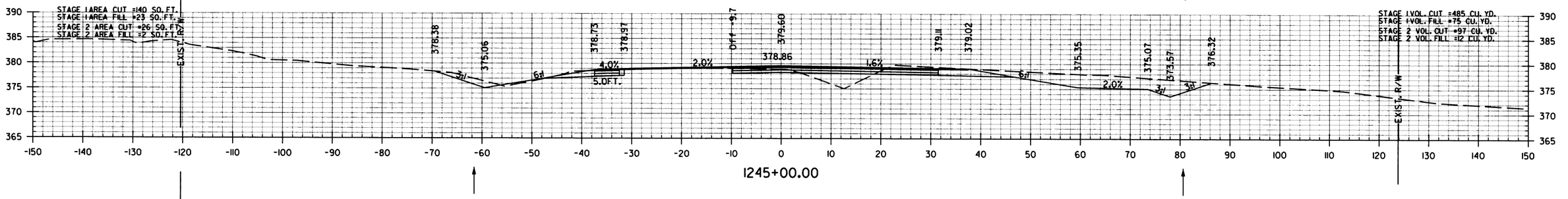
(2) CROSS SECTIONS

SEE SIDE ROAD PROFILES SHEETS
FOR SIDE ROAD AT STA. 1246+70.00 LT.

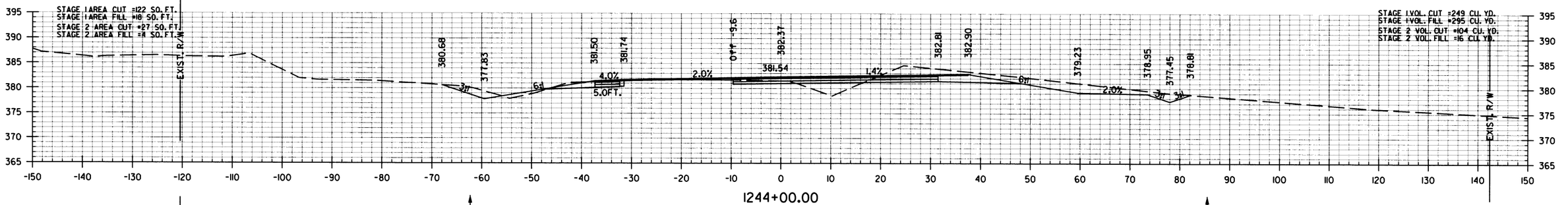


1246+00.00

STA. 1245+15.15 END SUPERELEVATION

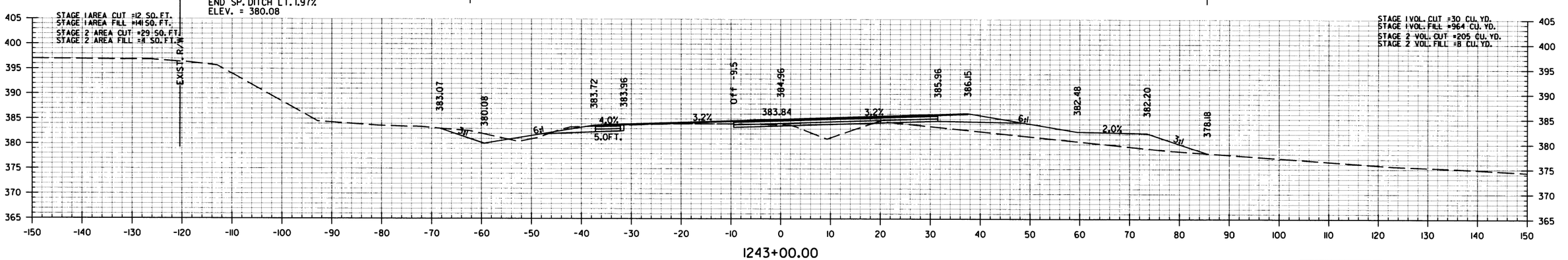


1245+00.00



1244+00.00

STA. 1243+00.00
END SP. DITCH LT. 1.97%
ELEV. = 380.08



1243+00.00

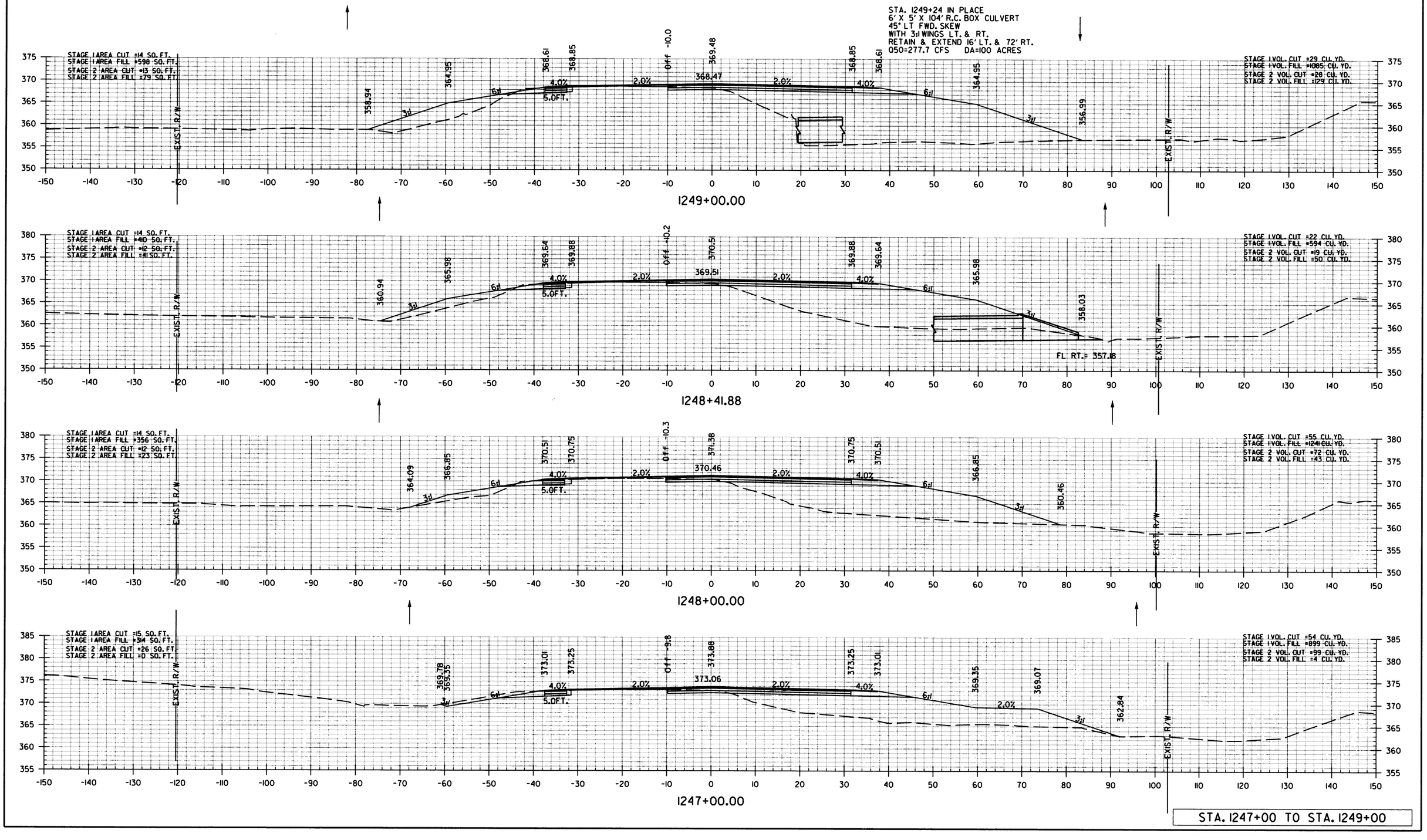
STA. 1243+00 TO STA. 1246+00

LeonardSpeed 9/23/2016 11:21:58 AM
KWOOLEY Leonard Speed.dgn
c:\pw\81-local\baker_projects\leonard.speed\d0271682\r061377.21.CX.001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	801	888

(2) CROSS SECTIONS



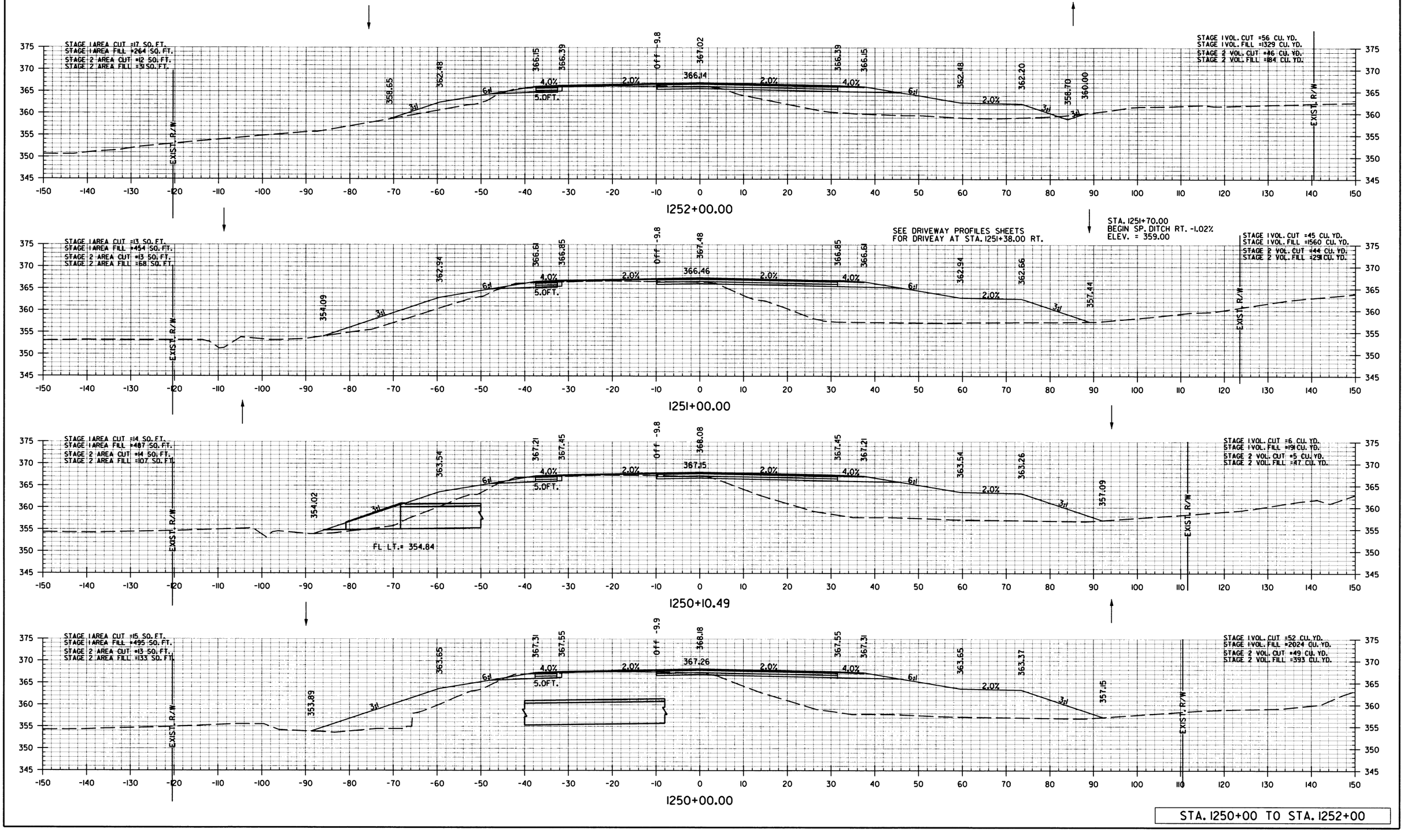
STA. 1247+00 TO STA. 1249+00

Leonard,Speed 9/23/2016 11:21:59 AM
WORKSPACE: Leonard,Speed
c:\pw\bl-local\baker_projects\leonard.speed\d0216821\r06377.21.CX.001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	802	888

(2) CROSS SECTIONS



LeonardSpeed 9/23/2016 11:28:00 AM
WORKSPACE: Leonard_Speed
C:\Vwv81-local\baker_projects\leonard_speed\d0271682\r06377_21_CX_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	803	888

(2) CROSS SECTIONS

STA. 1252+83 TO STA. 1255+00

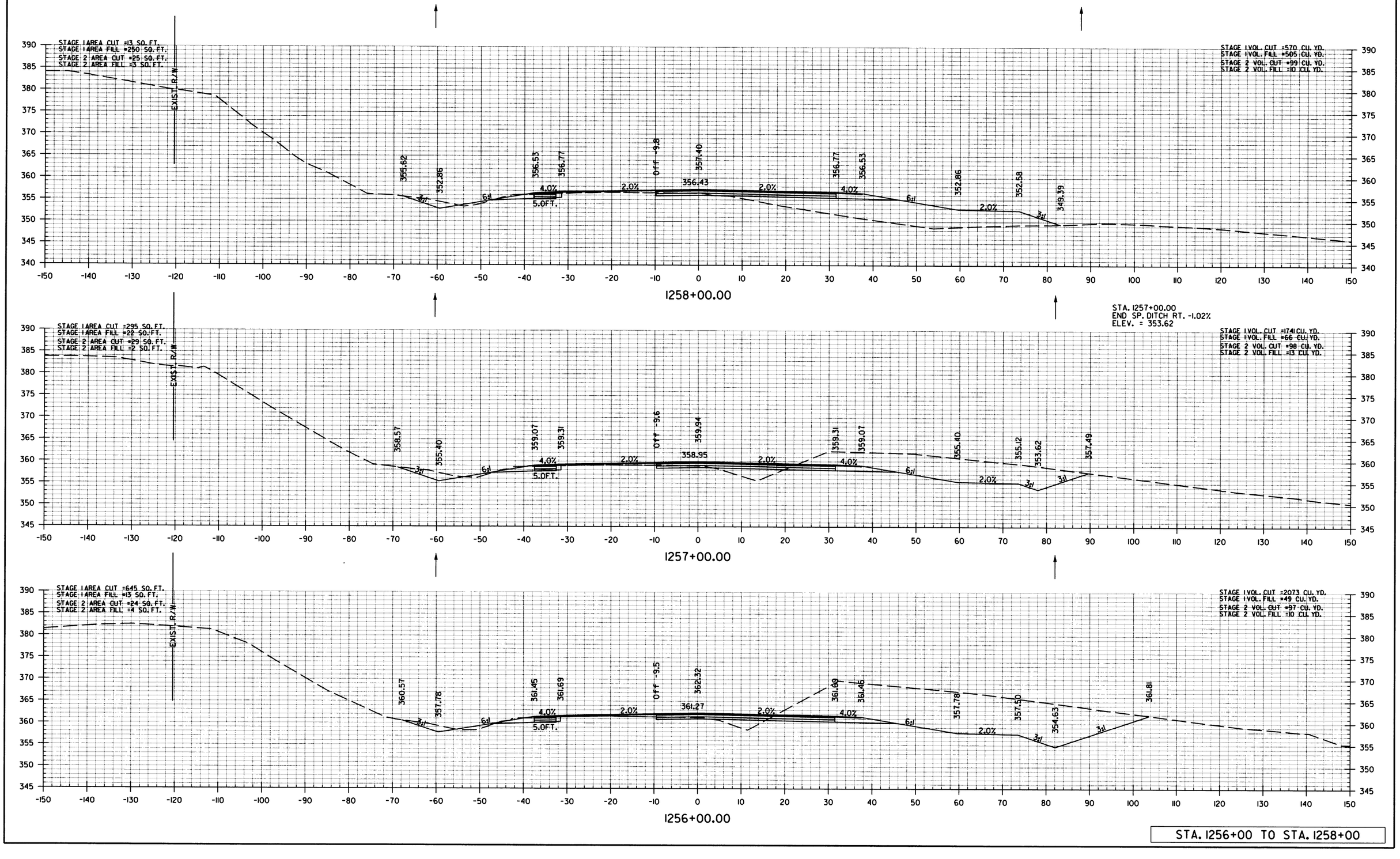
Leonard.Speed 9/23/2016 11:28:01 AM
K:\WORK\Projects\Leonard.Speed\d027682\r-06377.21.CX.001.dgn
COUNTY: Pulaski
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	804	888

(2) CROSS SECTIONS



STA. 1256+00 TO STA. 1258+00

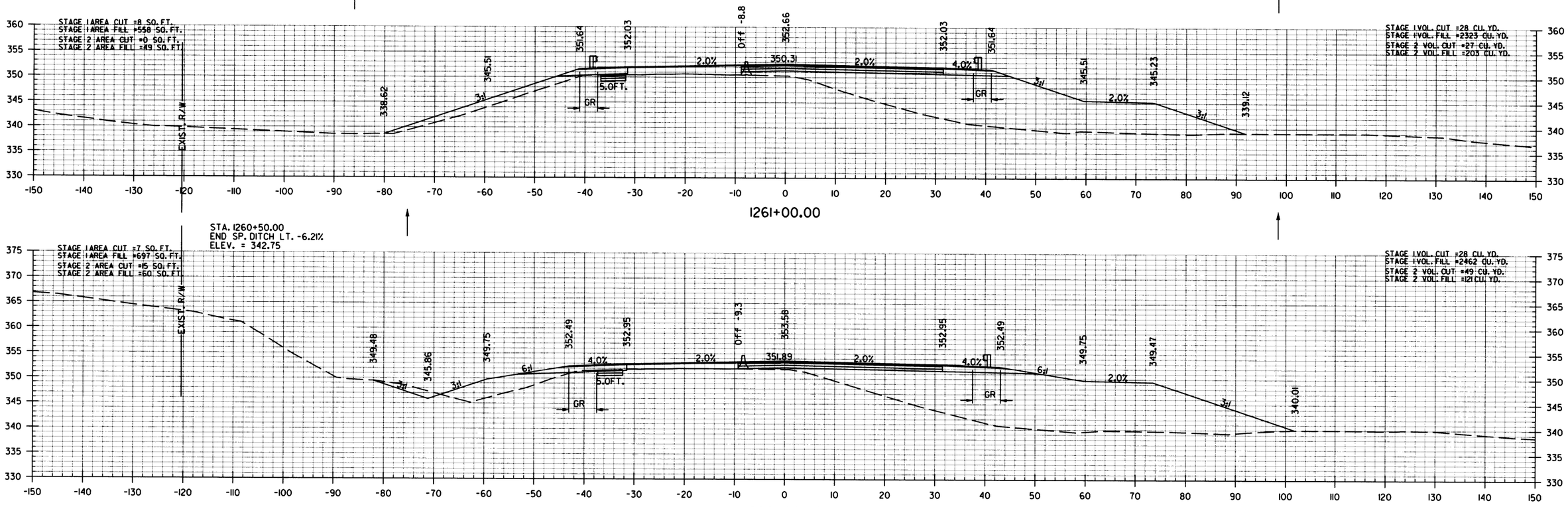
Leonard.Speed 9/23/2016 11:28:20 AM
WORKSPACE: Leonard.Speed
c:\pw\bl-local\baker_projects\leonard.speed\d0216682\r06377.21.CX.00.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	805	888
				(2)	CROSS SECTIONS			

BRIDGE TOE OF SLOPE STA. 1261+86.57

BEGIN BRIDGE STA. 1261+58.50



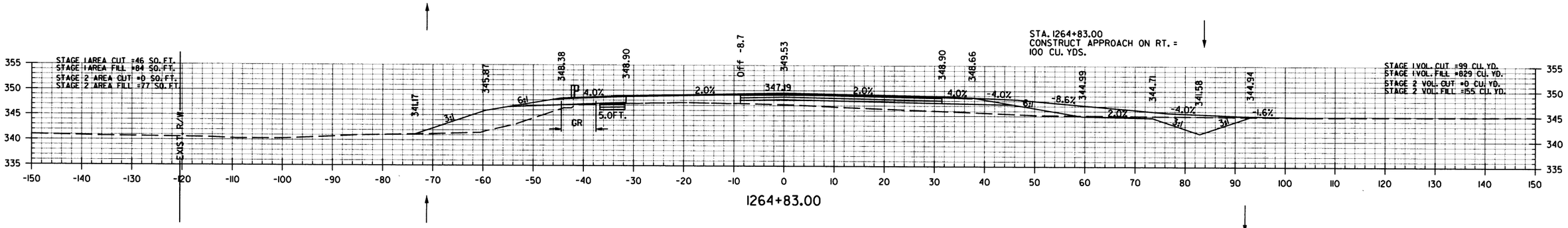
STA. 1259+00 TO STA. 1261+00

LeonardSpeed 9/23/2016 11:28:20 AM
WORKSPACE: Connected Workspace
c:\pw_01\local\baker.projects\leonardspeed.d0271682\r061371.21.CX.001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	806	888

(2) CROSS SECTIONS



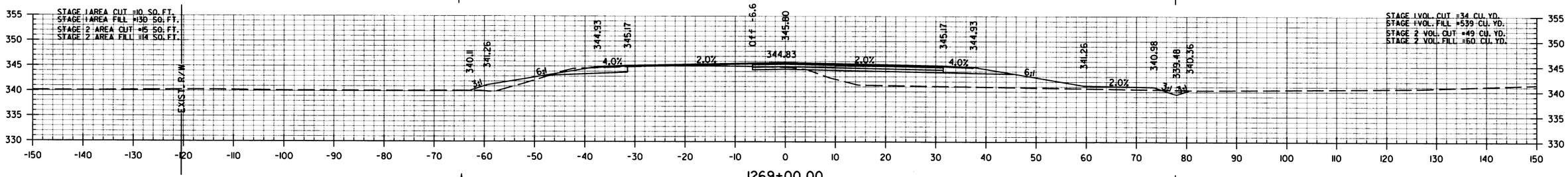
STA. 1262+00 TO STA. 1264+83

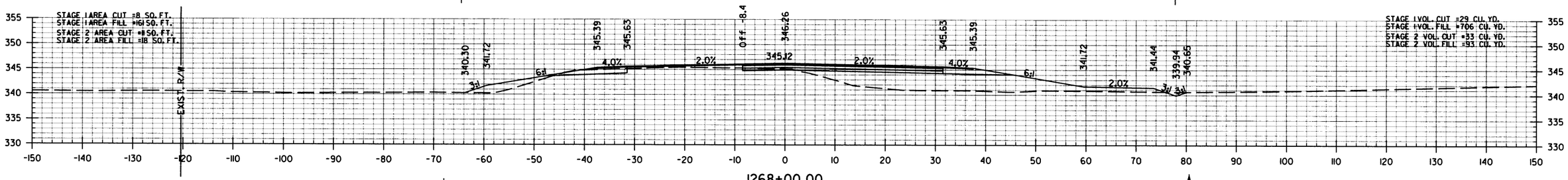
Leonard.Speed 9/23/2016 11:28:20 AM
WORKSPACE: Leonard.Speed
DRAWING: C:\Projects\Leonard.Speed\d0276821-r06377.21.CX.00.dgn
REVISED DATE: ##REVDATE##

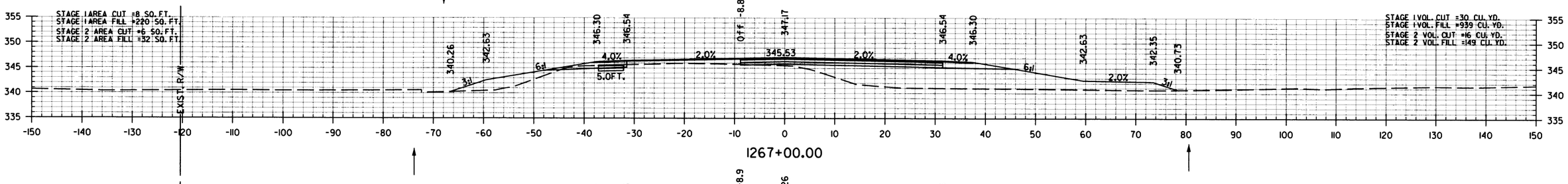
Michael Baker INTERNATIONAL

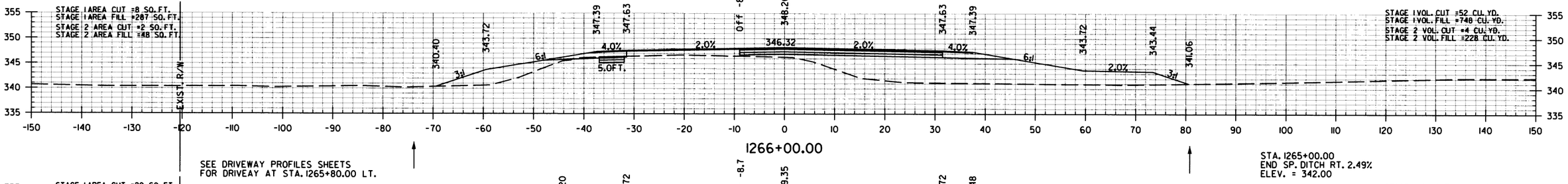
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	807	888

(2) CROSS SECTIONS



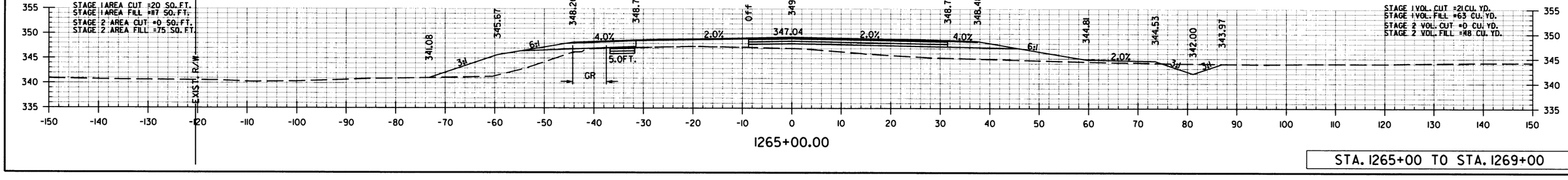






SEE DRIVEWAY PROFILES SHEETS FOR DRIVEAY AT STA. 1265+80.00 LT.

STA. 1265+00.00
END SP. DITCH RT. 2.49%
ELEV. = 342.00

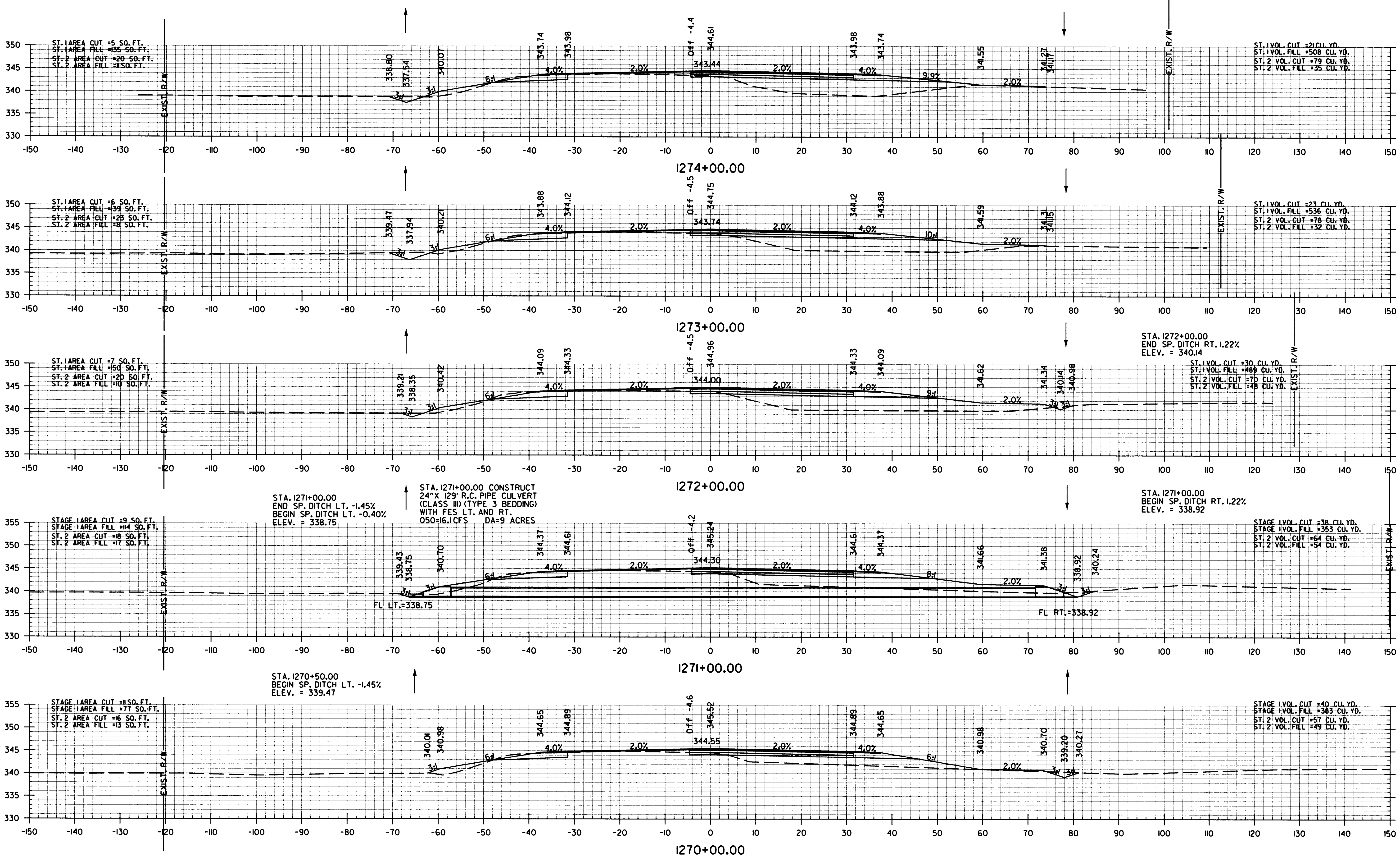


STA. 1265+00 TO STA. 1269+00

leonard.speed 9/23/2006 11:28:21 AM
MICHAEL BAKER JR, INC.
c:\dgn\8i-local\baker-projects\leonard.speed\v0271682\v-061377_2i_CX_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	808	888
				(2) CROSS SECTIONS				



Leonard.Speed 9/23/2016 11:28:21 AM
WORKSPACE: Leonard.Speed
c:\pw8-local\baker_projects\leonard.speed\d0271682\r06377_2LCX_00l.dgn
REVISED DATE: ##REVDATE##

STA. 1270+00 TO STA. 1274+00

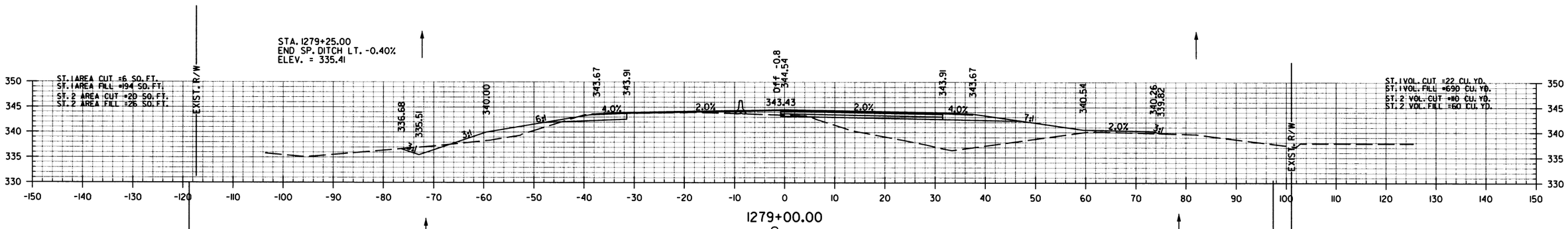
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	809	888
				(2)	CROSS SECTIONS			

STA. 1279+25.00
END SP. DITCH LT. -0.40%
ELEV. = 335.41

ST. 1 AREA CUT =6 SQ. FT.
ST. 1 AREA FILL =194 SQ. FT.
ST. 2 AREA CUT =20 SQ. FT.
ST. 2 AREA FILL =26 SQ. FT.

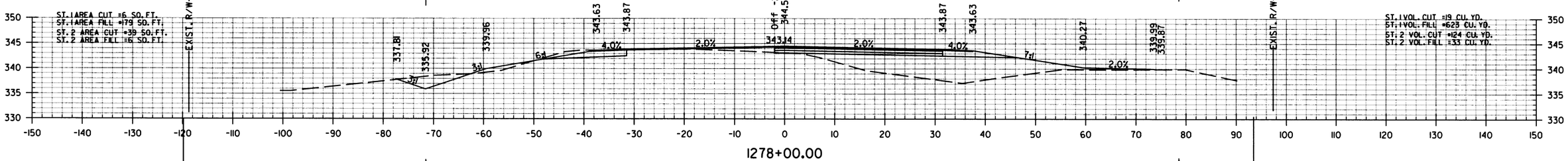
ST. 1 VOL. CUT =22 CU. YD.
ST. 1 VOL. FILL =690 CU. YD.
ST. 2 VOL. CUT =10 CU. YD.
ST. 2 VOL. FILL =60 CU. YD.



1279+00.00

ST. 1 AREA CUT =6 SQ. FT.
ST. 1 AREA FILL =179 SQ. FT.
ST. 2 AREA CUT =39 SQ. FT.
ST. 2 AREA FILL =6 SQ. FT.

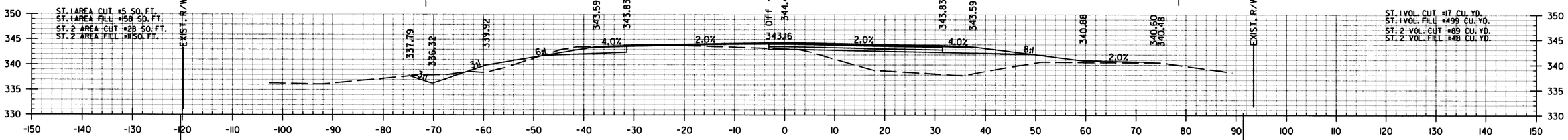
ST. 1 VOL. CUT =19 CU. YD.
ST. 1 VOL. FILL =628 CU. YD.
ST. 2 VOL. CUT =124 CU. YD.
ST. 2 VOL. FILL =33 CU. YD.



1278+00.00

ST. 1 AREA CUT =5 SQ. FT.
ST. 1 AREA FILL =158 SQ. FT.
ST. 2 AREA CUT =28 SQ. FT.
ST. 2 AREA FILL =11 SQ. FT.

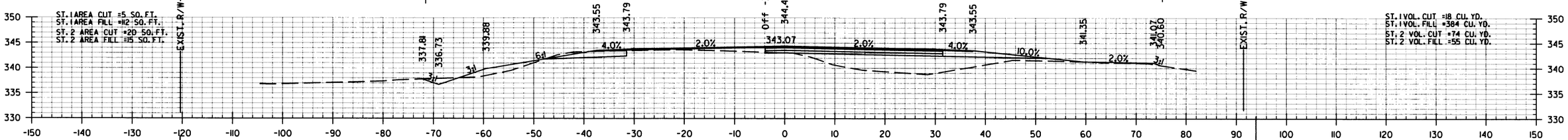
ST. 1 VOL. CUT =17 CU. YD.
ST. 1 VOL. FILL =499 CU. YD.
ST. 2 VOL. CUT =89 CU. YD.
ST. 2 VOL. FILL =48 CU. YD.



1277+00.00

ST. 1 AREA CUT =5 SQ. FT.
ST. 1 AREA FILL =112 SQ. FT.
ST. 2 AREA CUT =20 SQ. FT.
ST. 2 AREA FILL =15 SQ. FT.

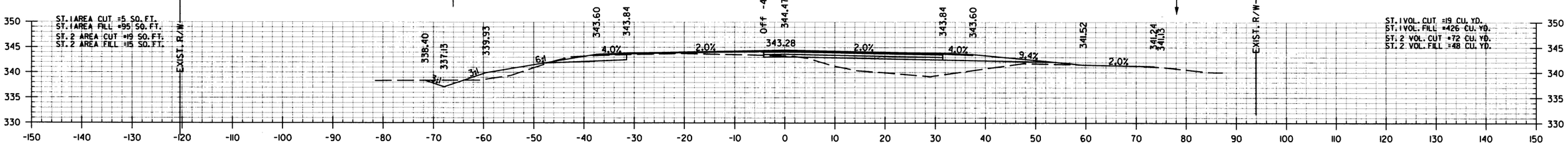
ST. 1 VOL. CUT =18 CU. YD.
ST. 1 VOL. FILL =384 CU. YD.
ST. 2 VOL. CUT =74 CU. YD.
ST. 2 VOL. FILL =55 CU. YD.



1276+00.00

ST. 1 AREA CUT =5 SQ. FT.
ST. 1 AREA FILL =95 SQ. FT.
ST. 2 AREA CUT =19 SQ. FT.
ST. 2 AREA FILL =15 SQ. FT.

ST. 1 VOL. CUT =19 CU. YD.
ST. 1 VOL. FILL =426 CU. YD.
ST. 2 VOL. CUT =72 CU. YD.
ST. 2 VOL. FILL =48 CU. YD.

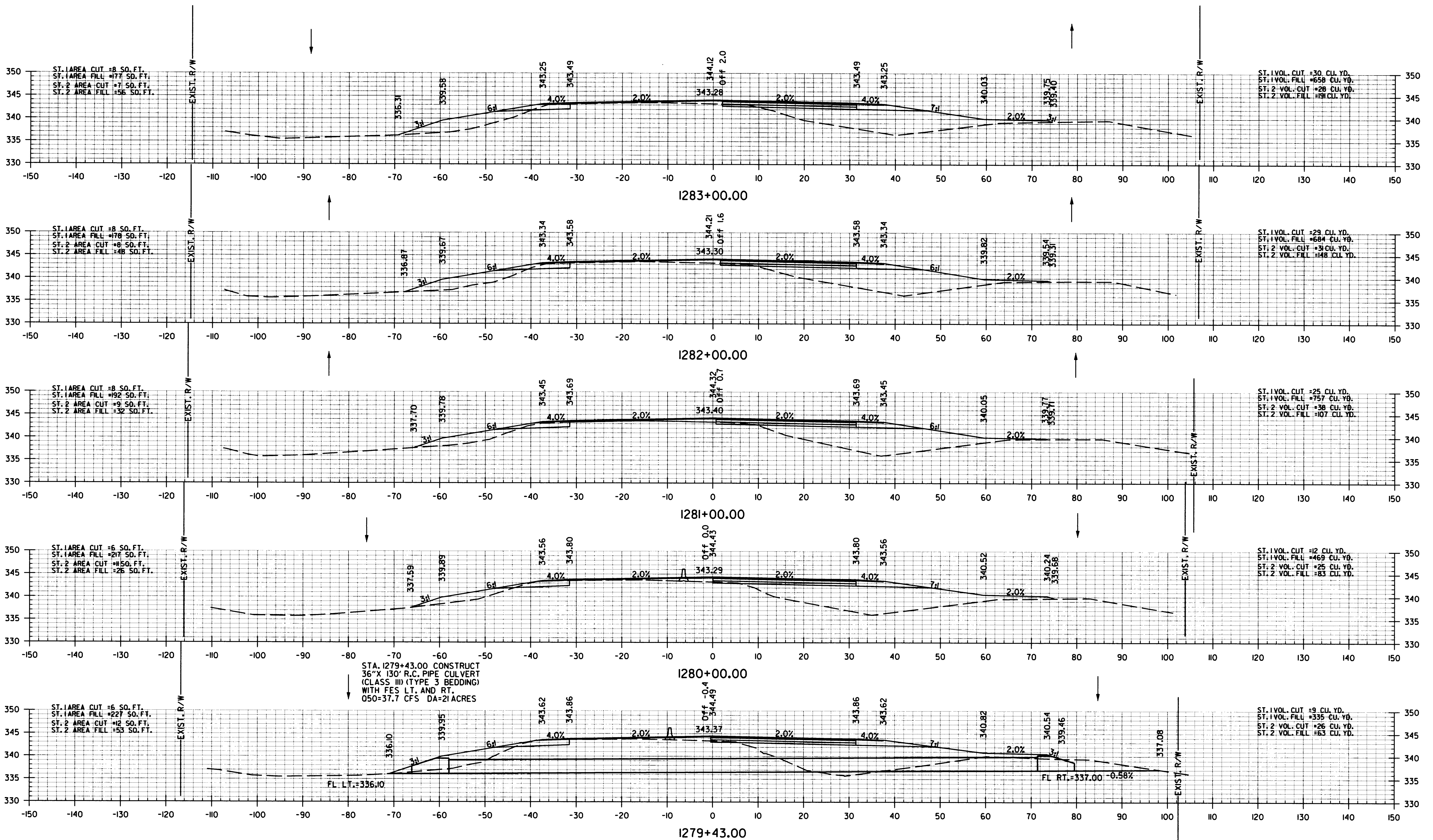


1275+00.00

STA. 1275+00 TO STA. 1279+00

LeonardSpeed 9/23/2016 11:28:22 AM
WORKSET: C:\Users\Leonard.Speed\Documents\Projects\Leonard.Speed\d0271682\r061377.21.CX.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	810	888
					(2)	CROSS SECTIONS			



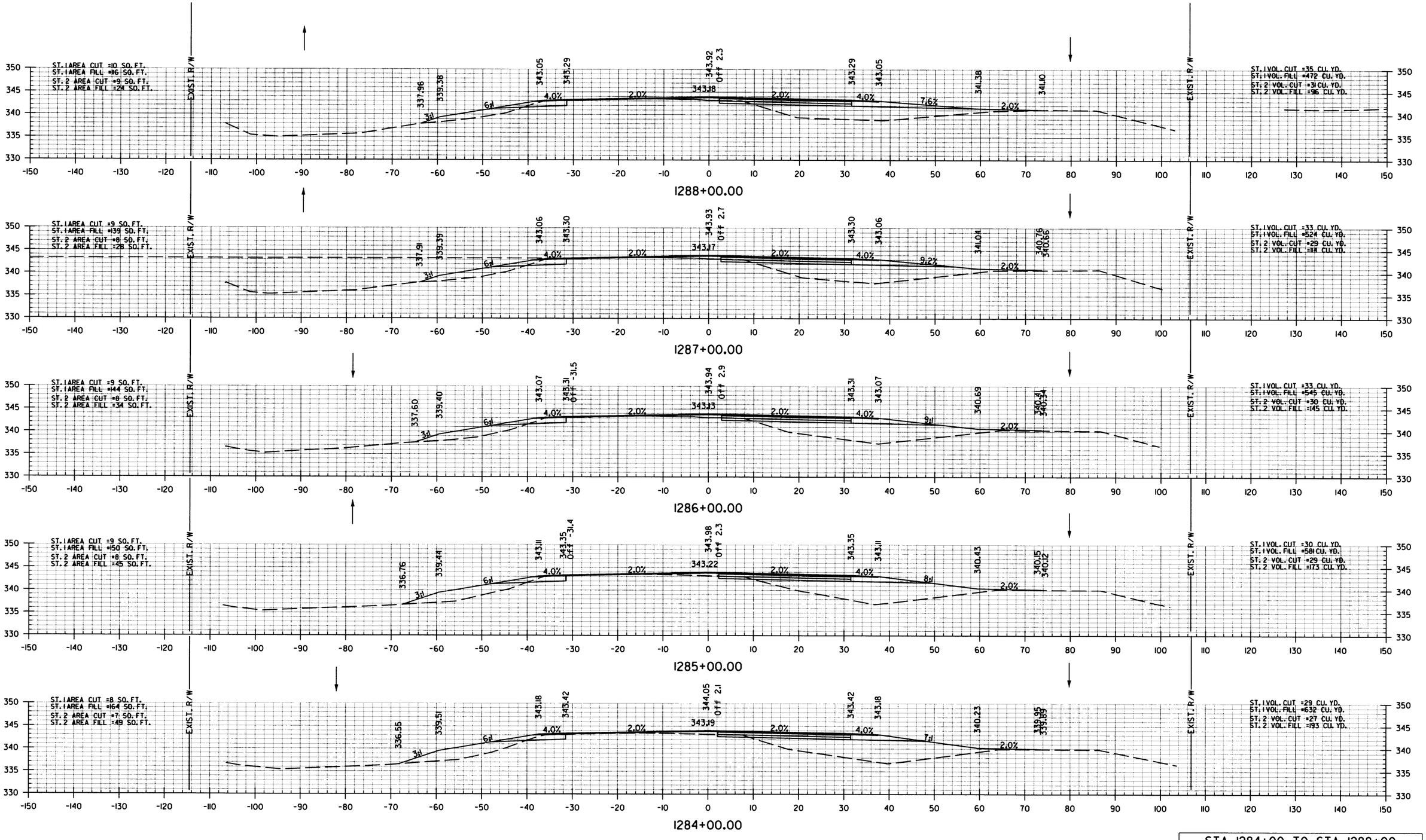
STA. 1279+43 TO STA. 1283+00

Leonard.Speed 9/23/2006 11:28:22 AM
WORKSPACE: Leonard.Speed
c:\pwwdl-local\baker_projects\leonard.speed\d0027682\r-061377_21_CX_00.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	811	888

(2) CROSS SECTIONS



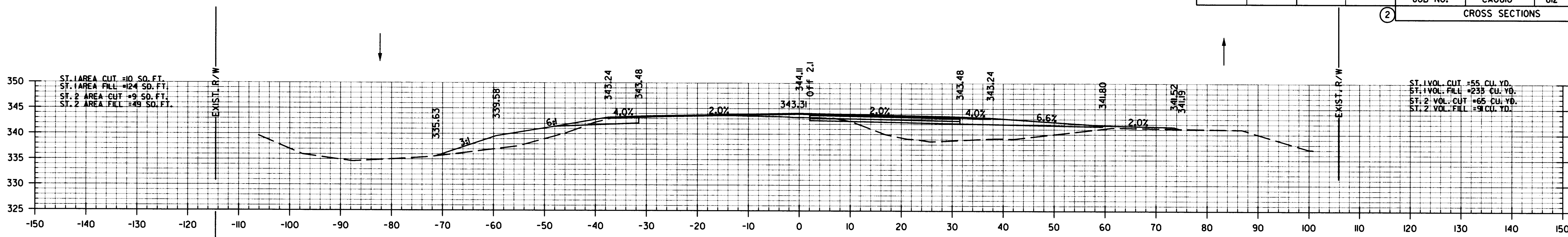
STA. 1284+00 TO STA. 1288+00

Leonard Speed 9/21/2006 11:28:23 AM
WORKSPACE: Leonard Speed
C:\Dgn\v8i-local\baker_projects\leonard_speed\d0271682\r061377.21.CX.000.dgn
REVISED DATE: $$REVDATE$$

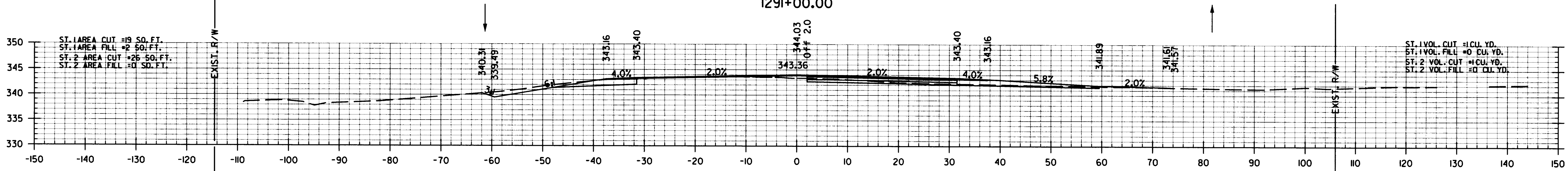
Michael Baker
INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	812	888

(2) CROSS SECTIONS

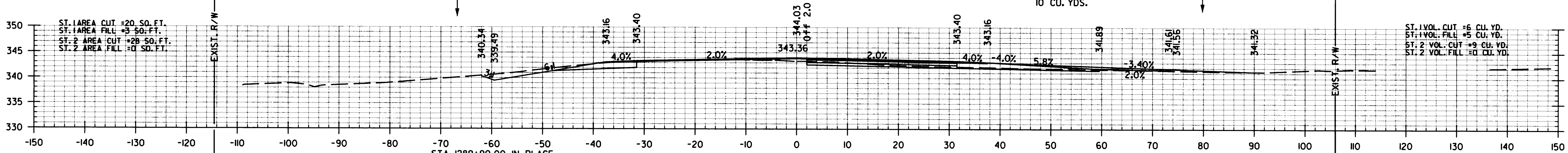


1291+00.00



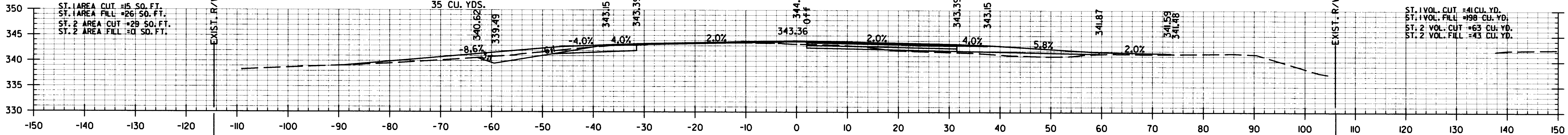
1290+00.00

STA. 1289+99.00
CONSTRUCT APPROACH ON RT. =
10 CU. YDS.

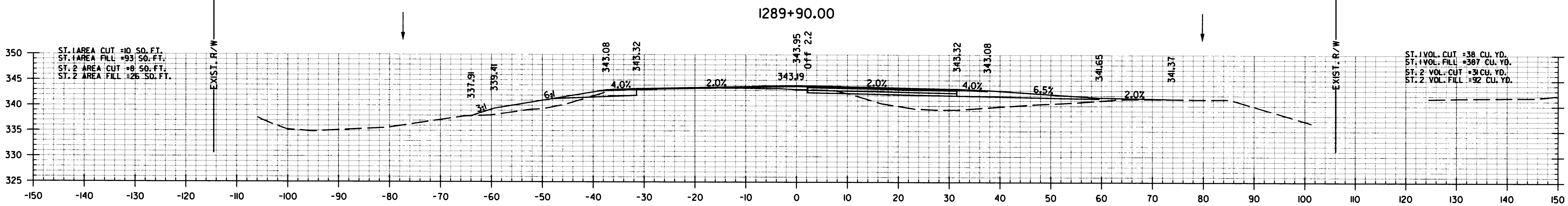


1289+99.00

STA. 1289+90.00 IN PLACE
24" X 25' R.C. PIPE CULVERT
LT. SIDE DRAIN
RETAIN
CONSTRUCT APPROACH =
35 CU. YDS.



1289+90.00



1289+00.00

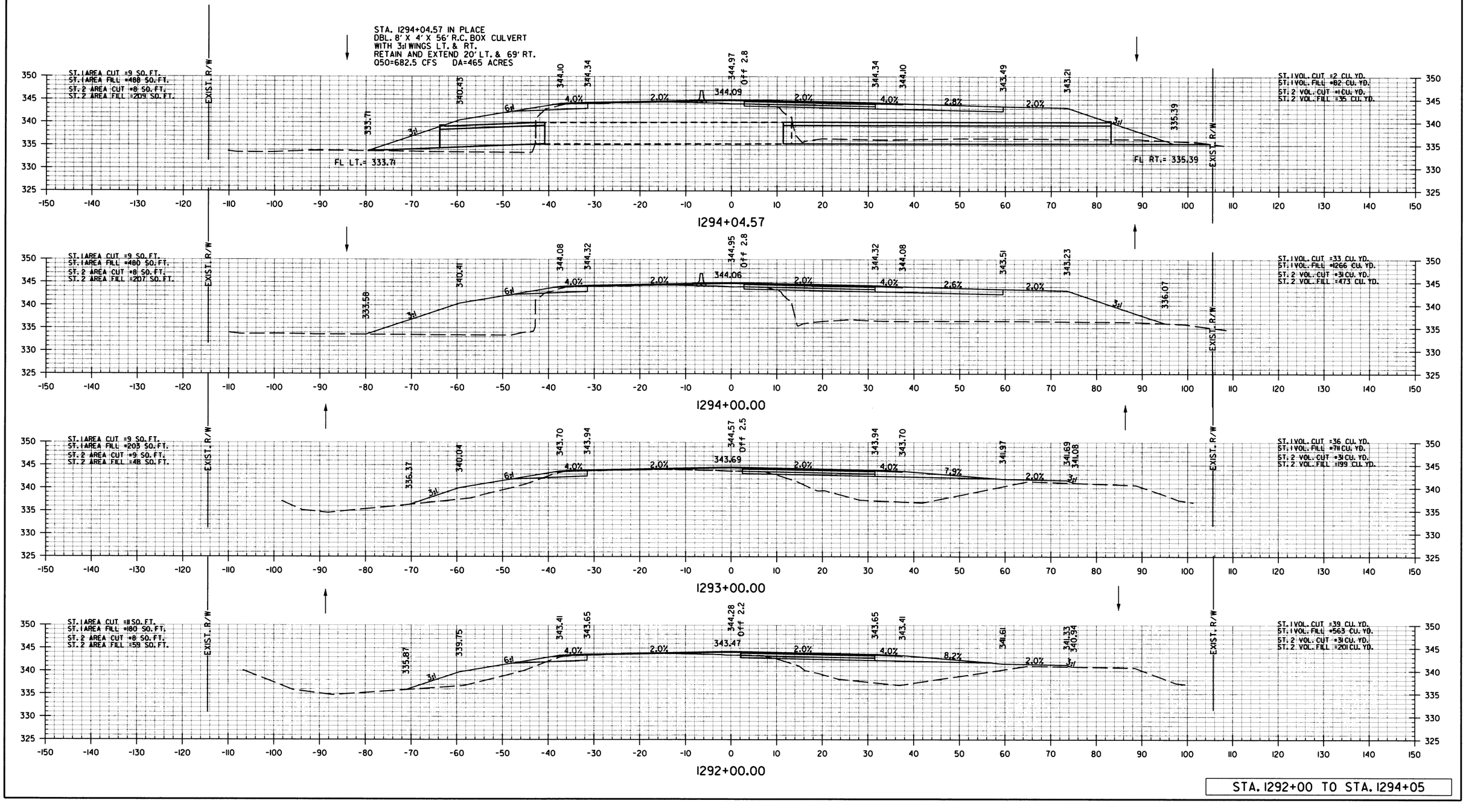
STA. 1289+00 TO STA. 1291+00

Leonard.Speed 9/23/2016 11:28:23 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271682\v061377_2L.CX.00.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	813	888

(2) CROSS SECTIONS



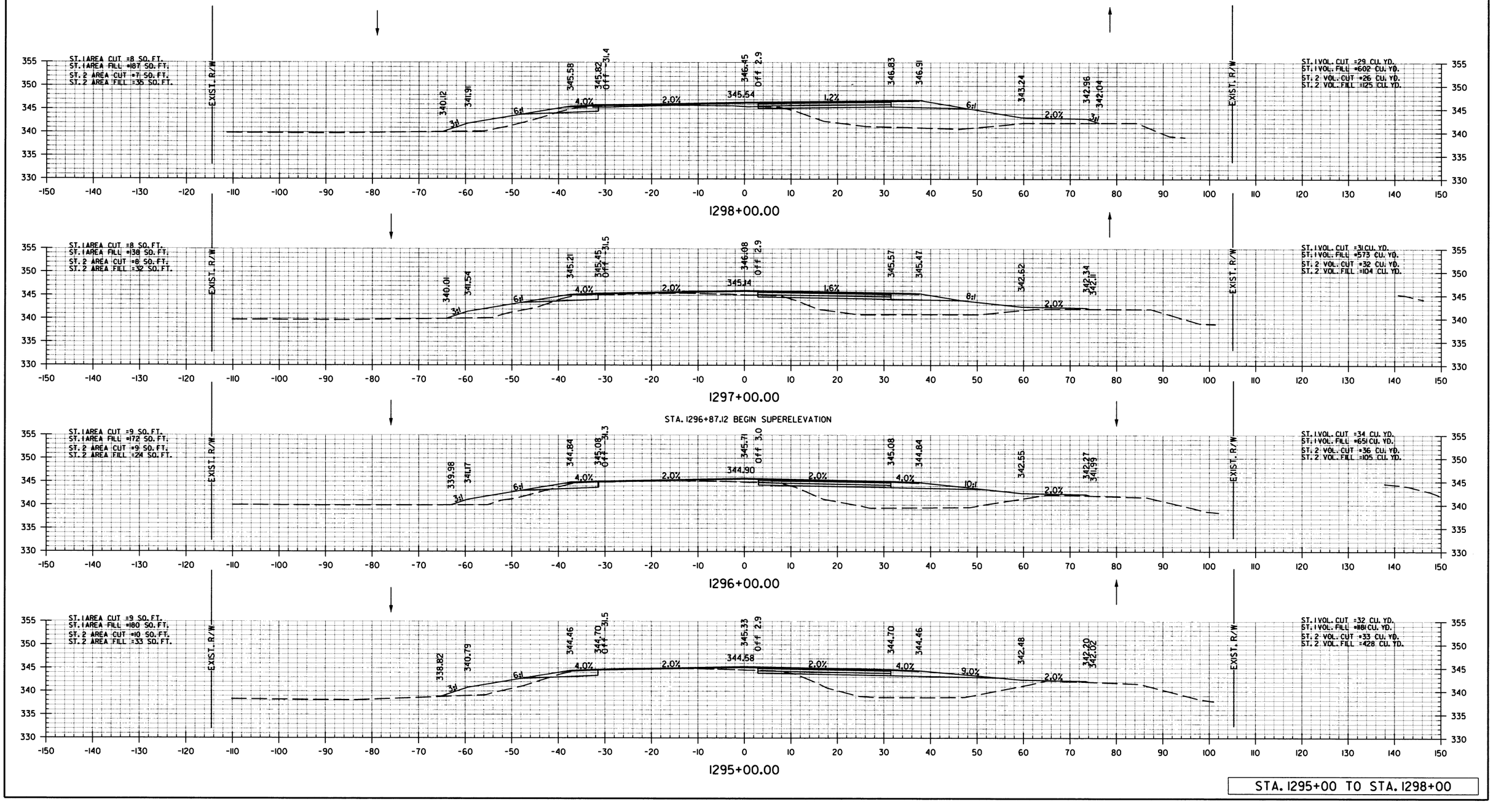
STA. 1292+00 TO STA. 1294+05

LeonardSpeed 9/23/2016 11:26:24 AM
WORKSPACE: leonardSpeed
c:\pw\81-local\baker_projects\leonard.speed\d0271682\r-061377.21.CX.001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	814	888

(2) CROSS SECTIONS



STA. 1295+00 TO STA. 1298+00

Leonard Speed 9/23/2006 11:28:24 AM
MicroStation V8 SELECTseries 1 (08.11.07.443)
c:\dgnv8i-local\baker_projects\leonard_speed\d0271682\r061377_21_CX_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	815	888
				(2)	CROSS SECTIONS			

STAGE 1 AREA CUT =2 SQ. FT.
STAGE 1 AREA FILL =429 SQ. FT.
STAGE 2 AREA CUT =10 SQ. FT.
STAGE 2 AREA FILL =16 SQ. FT.

STA. 1302+27.12 MAX. SUPERELEVATION (0.077 '/')

STA. 1302+50.00
BEGIN SP. DITCH RT. -0.47%
ELEV. = 341.00

STAGE 1 VOL. CUT =14 CU. YD.
STAGE 1 VOL. FILL =1325 CU. YD.
STAGE 2 VOL. CUT =44 CU. YD.
STAGE 2 VOL. FILL =56 CU. YD.

EXIST. R/W 343.18 343.83 347.50 347.94 350.24 Off 0.4 348.83 352.55 352.98 349.32 340.92 EXIST. R/W

7.3% 7.3% 6:1 6:1 3:1 3:1

1302+00.00

STAGE 1 AREA CUT =6 SQ. FT.
STAGE 1 AREA FILL =287 SQ. FT.
STAGE 2 AREA CUT =14 SQ. FT.
STAGE 2 AREA FILL =15 SQ. FT.

STAGE 1 VOL. CUT =23 CU. YD.
STAGE 1 VOL. FILL =880 CU. YD.
STAGE 2 VOL. CUT =41 CU. YD.
STAGE 2 VOL. FILL =78 CU. YD.

EXIST. R/W 341.80 342.83 346.49 346.85 348.70 Off 1.2 347.67 350.56 350.91 347.24 342.40 EXIST. R/W

5.9% 5.9% 6:1 6:1 3:1 3:1

1301+00.00

STAGE 1 AREA CUT =7 SQ. FT.
STAGE 1 AREA FILL =188 SQ. FT.
STAGE 2 AREA CUT =8 SQ. FT.
STAGE 2 AREA FILL =27 SQ. FT.

STAGE 1 VOL. CUT =26 CU. YD.
STAGE 1 VOL. FILL =790 CU. YD.
STAGE 2 VOL. CUT =26 CU. YD.
STAGE 2 VOL. FILL =121 CU. YD.

EXIST. R/W 341.08 342.51 346.17 346.44 347.85 Off 2.4 346.41 349.25 349.52 345.85 342.31 EXIST. R/W

4.5% 4.5% 6:1 6:1 3:1 3:1

1300+00.00

STAGE 1 AREA CUT =7 SQ. FT.
STAGE 1 AREA FILL =238 SQ. FT.
STAGE 2 AREA CUT =6 SQ. FT.
STAGE 2 AREA FILL =38 SQ. FT.

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEAY AT STA. 1299+51.00 RT.

STAGE 1 VOL. CUT =27 CU. YD.
STAGE 1 VOL. FILL =769 CU. YD.
STAGE 2 VOL. CUT =23 CU. YD.
STAGE 2 VOL. FILL =136 CU. YD.

EXIST. R/W 340.39 342.26 345.93 346.17 347.13 Off 2.7 345.83 348.08 348.26 344.60 344.32 339.79 EXIST. R/W

4.0% 3.0% 3.0% 2.0% 6:1 6:1 3:1 3:1

1299+00.00

STA. 1299+00 TO STA. 1302+00

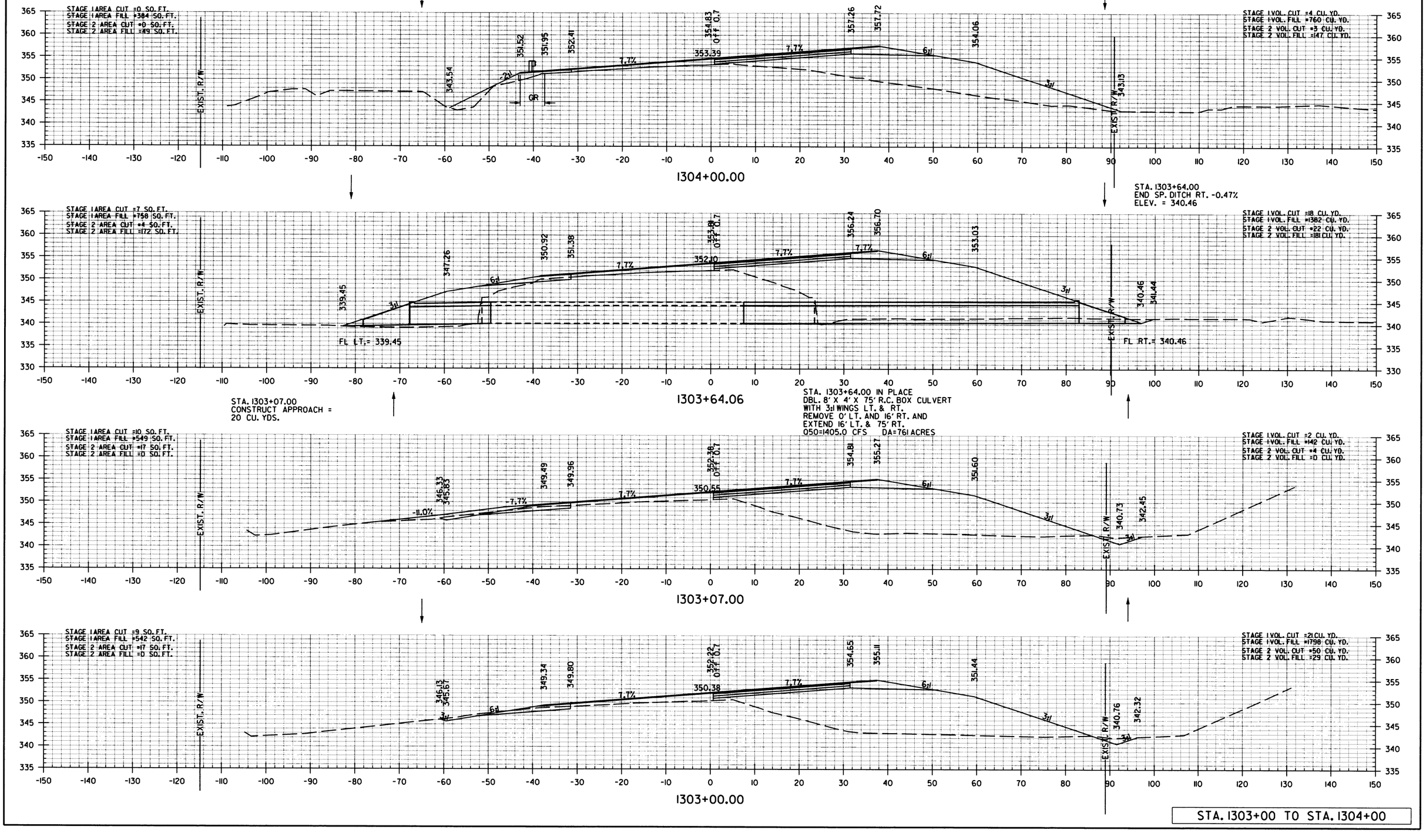
Leonard,Speed 9/23/2016 11:28:25 AM
\\mbnas01\projects\leonard,speed\d0216682\r061377.21.CX..001.dgn
c:\pwdi-local\baker.prj\acts\leonard,speed\d0216682\r061377.21.CX..001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	816	888

(2) CROSS SECTIONS



STA. 1303+00 TO STA. 1304+00

LeonardSpeed 9/23/2016 11:28:25 AM
WORKSPACE: Leonard Speed
c:\dwg\81-local\baker_projects\leonard_speed\v0021682\r06377_21_CX_00.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	817	888

(2) CROSS SECTIONS

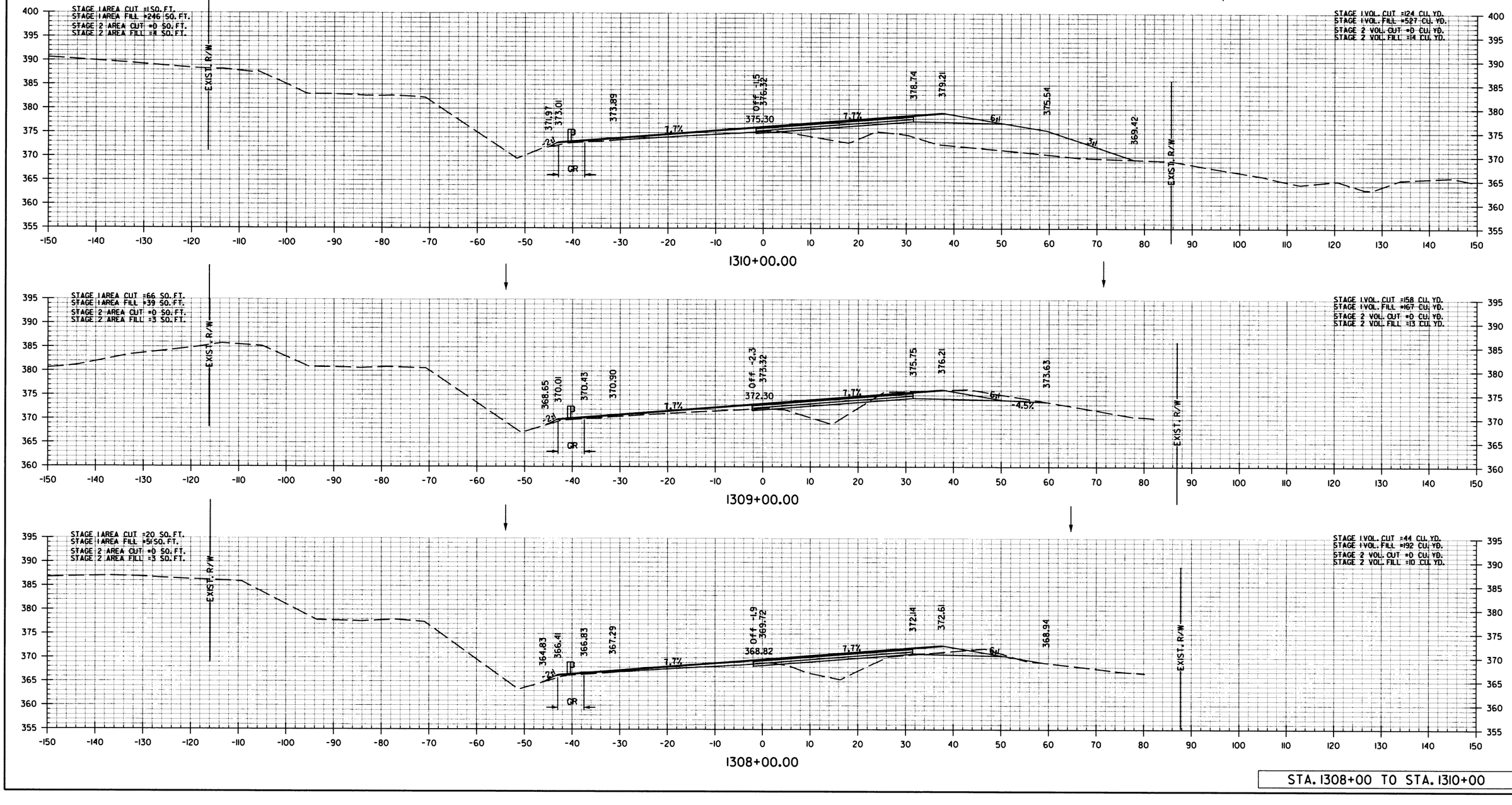
STA. 1305+00 TO STA. 1307+00

LeonardSpeed 9/23/2016 11:28:25 AM
WORKSPACE: LeonardSpeed
C:\Dgn\81-loca\baker_projects\leonard_speed\d0271682\r-06377_21_CX_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	818	888

(2) CROSS SECTIONS



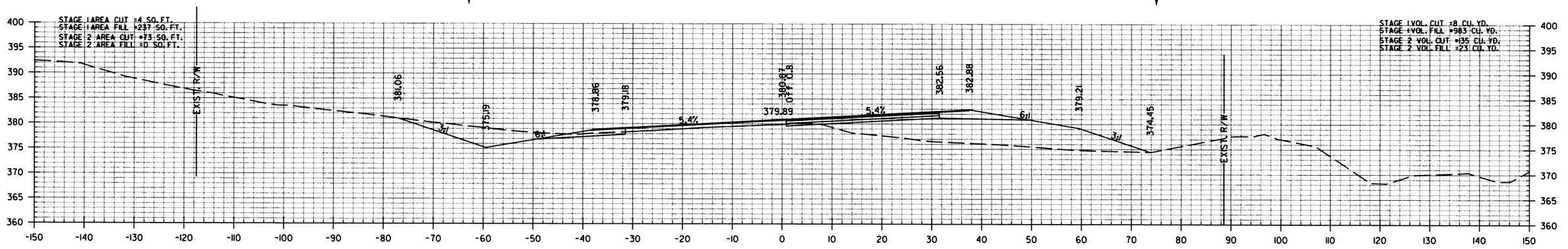
STA. 1308+00 TO STA. 1310+00

LeonardSpeed 9/23/2015 11:28:26 AM
WORKSPACE: Leonard_Speed
c:\pw_01\local\baker.projects\leonard.speed\d0271682\r-061371.21.CX.001.dgn
REVISED DATE: $$REVDATE$$

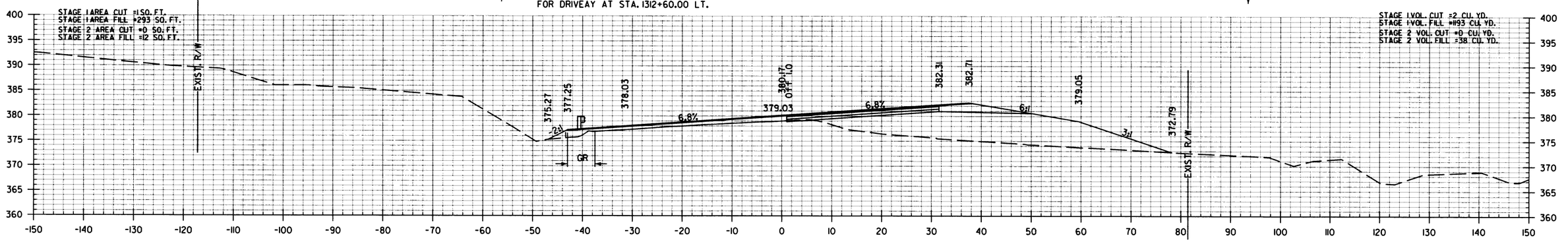
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	819	888

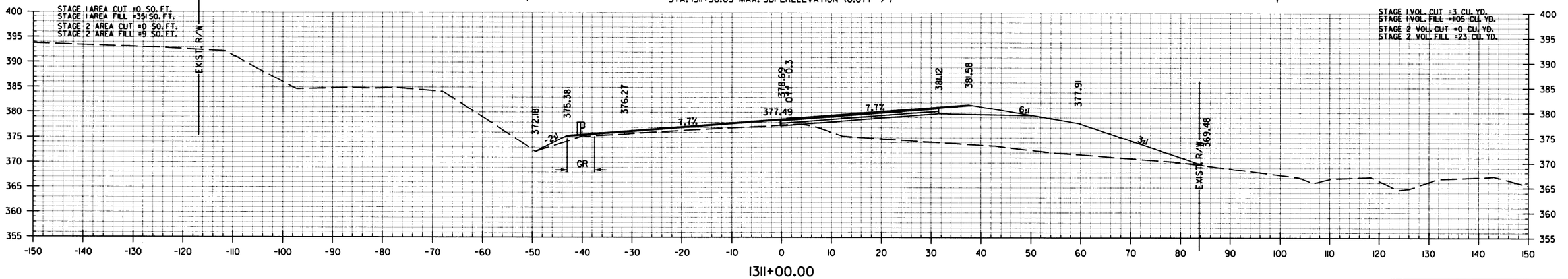
(2) CROSS SECTIONS



SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEAY AT STA. 1312+60.00 LT.



STA. 1311+36.03 MAX. SUPERELEVATION (0.077 '/')



STA. 1311+00 TO STA. 1313+00

Leonard Speed 9/23/2016 11:28:26 AM
k:\work\81-local\baker-projects\leonard_speed\d0276821\r06377_21_CX_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

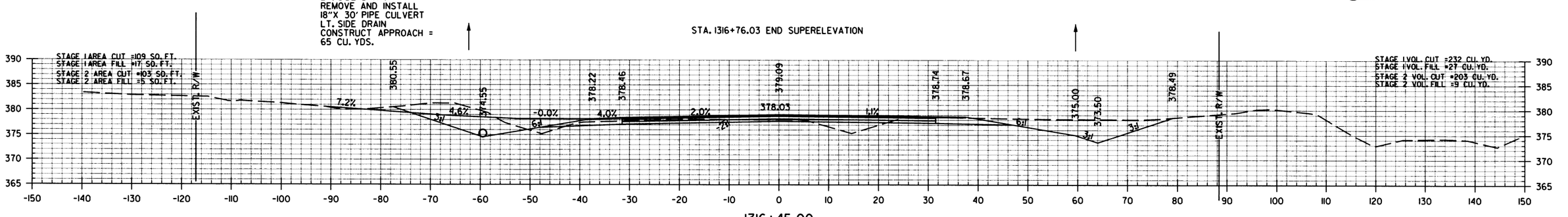
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	820	888

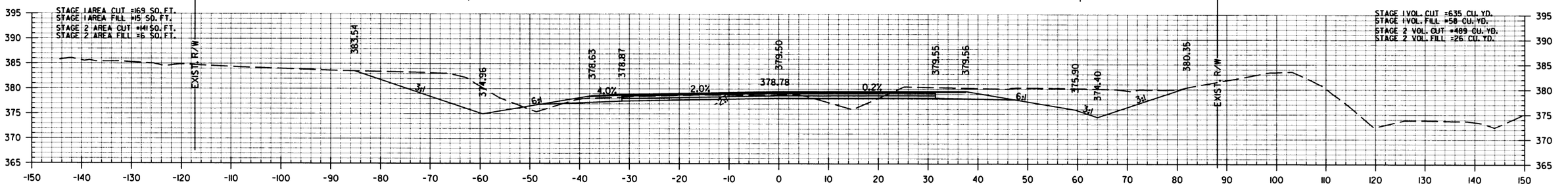
(2) CROSS SECTIONS

STA. 1316+45.00 IN PLACE
12" X 42' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
65 CU. YDS.

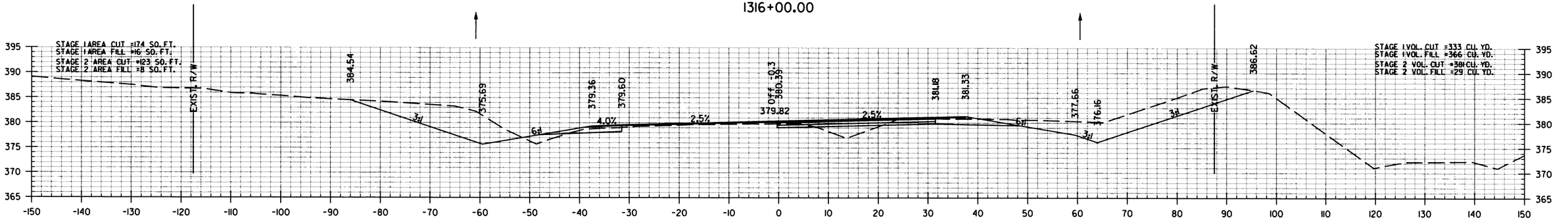
STA. 1316+76.03 END SUPERELEVATION



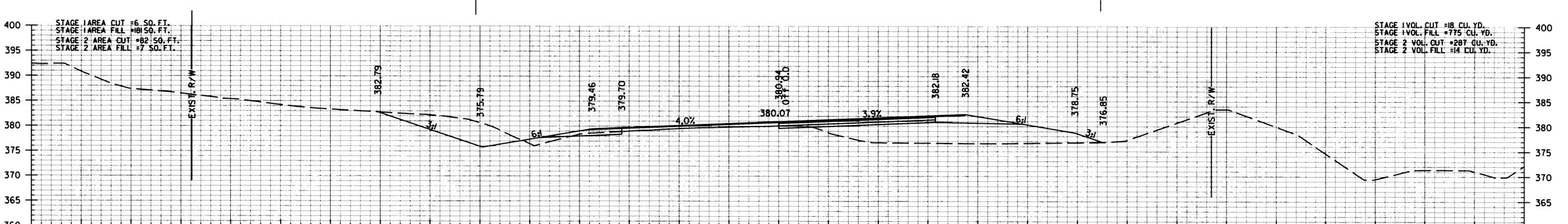
1316+45.00



1316+00.00



1315+00.00



1314+00.00

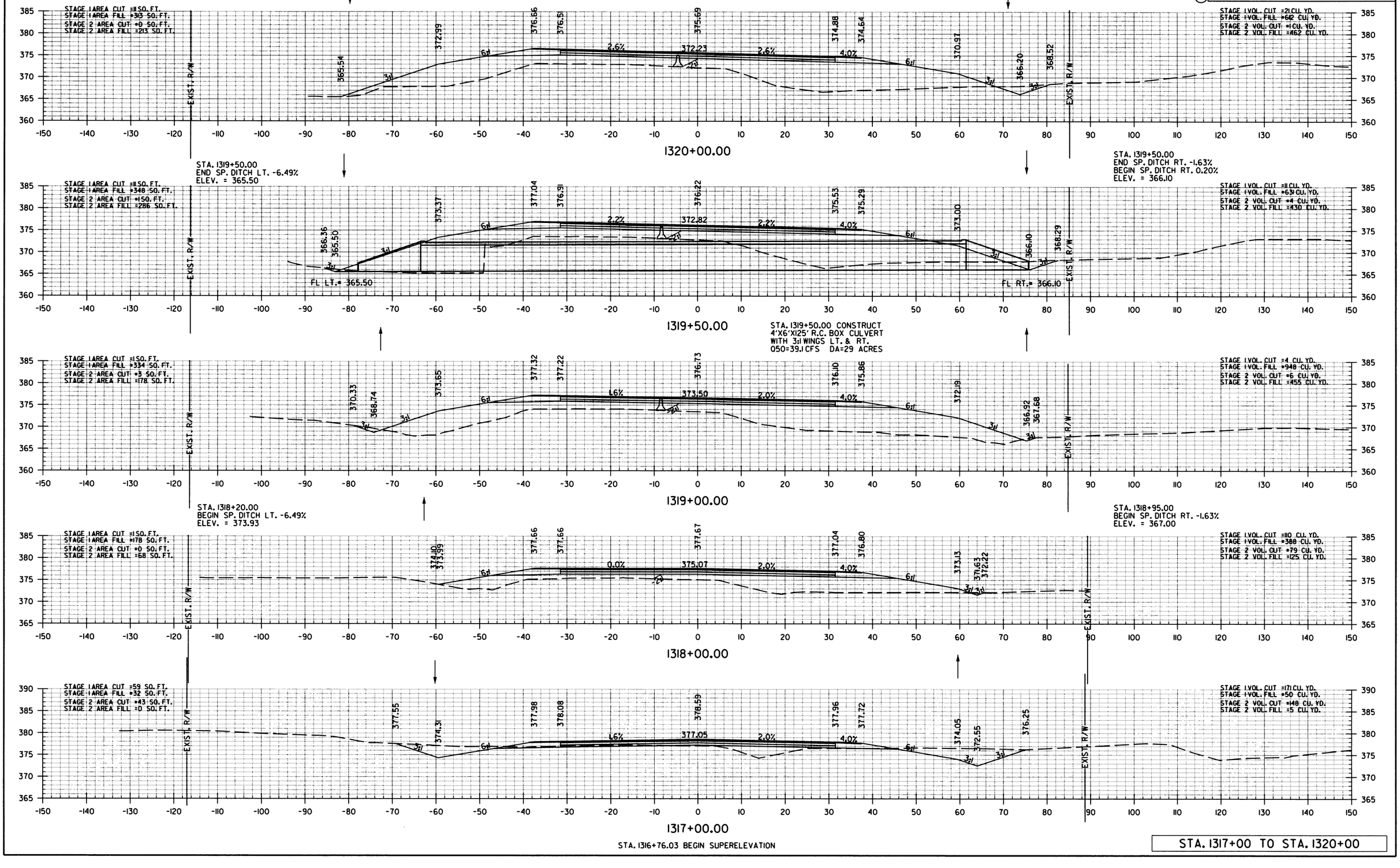
STA. 1314+00 TO STA. 1316+45

LeonardSpeed 9/23/2006 11:28:27 AM
WORKSPACE: Leonard_Speed
c:\pwwork\mcbaker_projects\leonard_speed\d0216821\r061377_21_CX_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	821	888

(2) CROSS SECTIONS



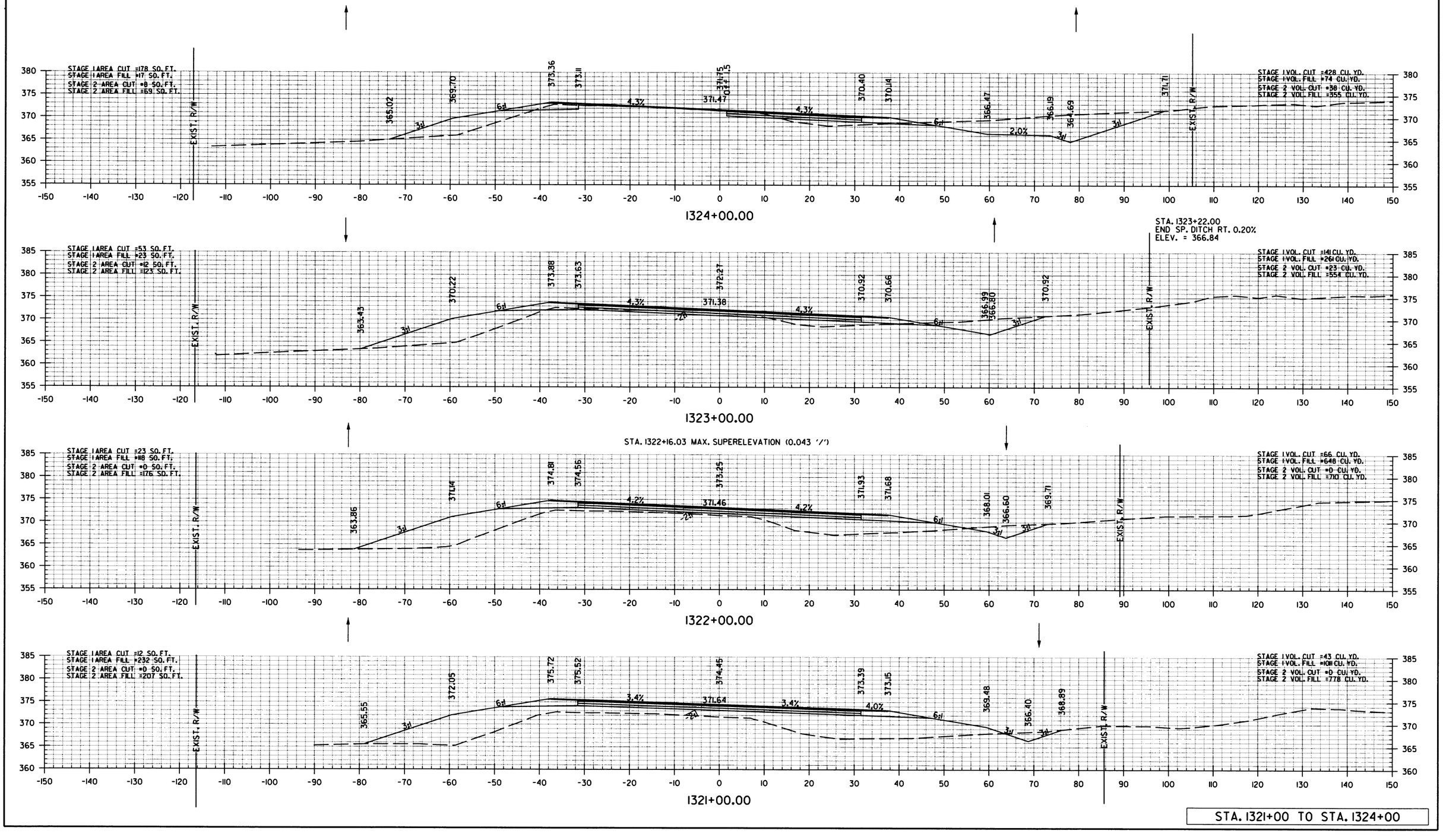
STA. 1316+76.03 BEGIN SUPERELEVATION

STA. 1317+00 TO STA. 1320+00

Leonard.Speed 9/23/2016 11:28:27 AM
WORKSPACE: Leonard.Speed
Current Drawing: C:\Projects\Leonard.speed\d0271682\r06377.21.CX.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	822	888
				(2)	CROSS SECTIONS			



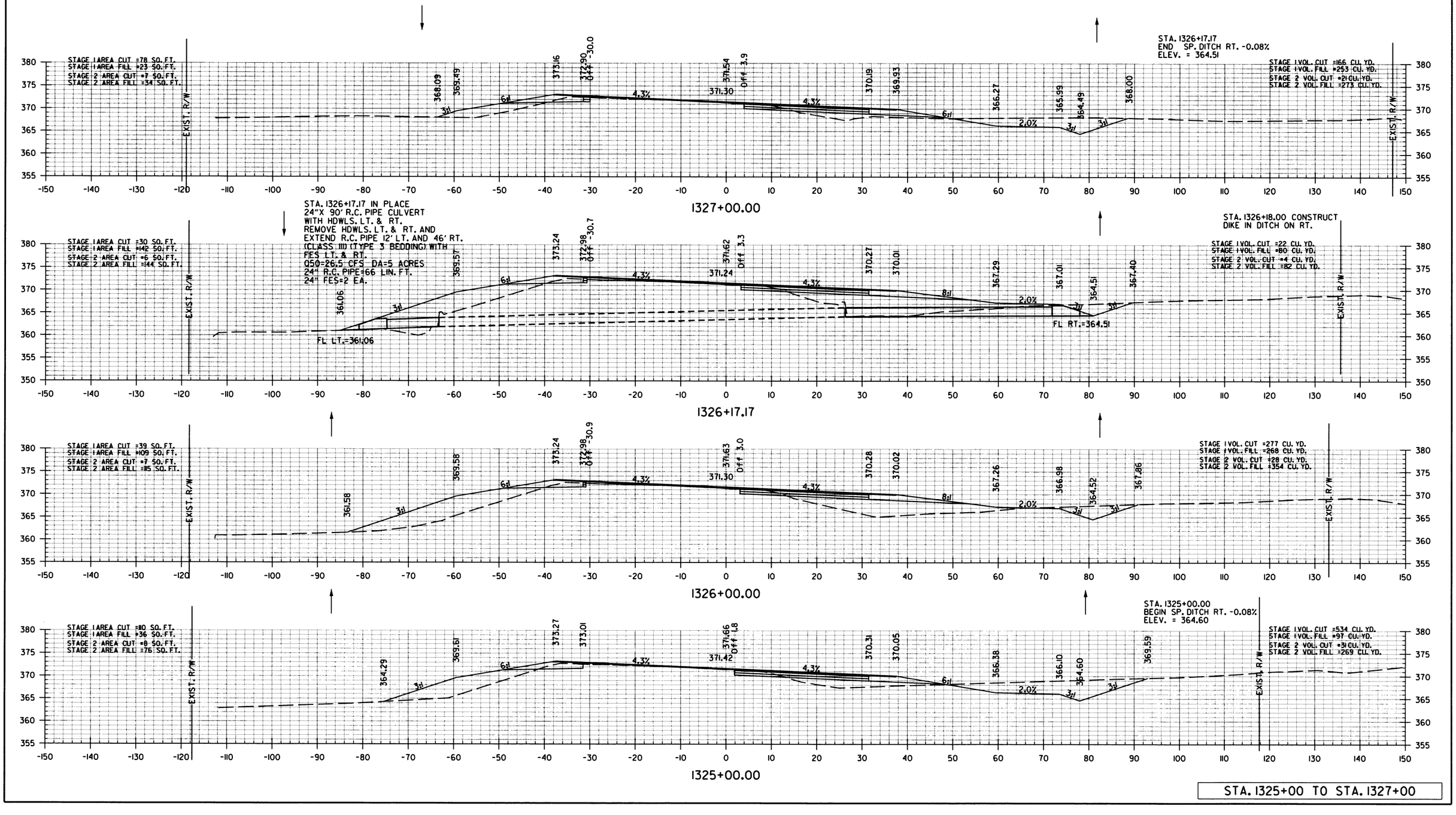
STA. 1321+00 TO STA. 1324+00

LeonardSpeed 9/23/2006 11:28:28 AM
WORKSPACE: LeonardSpeed
c:\pw\81-local\baker_projects\leonard.speed\d0271682\r06l377_2l_CX_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	823	888

(2) CROSS SECTIONS



STA. 1325+00 TO STA. 1327+00

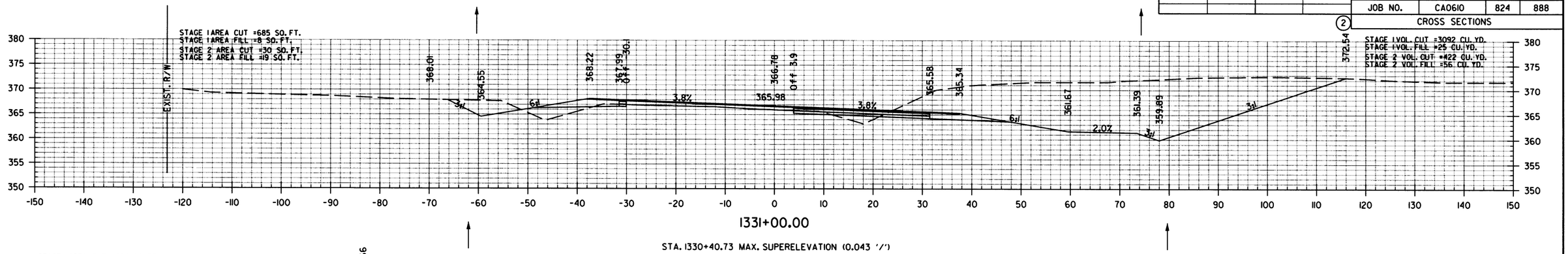
Leonard.Speed 9/23/2016 11:28:28 AM
WORKSPACE: Leonard.Speed
c:\prvt\81-local\baker_projects\leonard.speed\x0271682\r-061377_21_CX_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	824	888

(2) CROSS SECTIONS



STA. 1328+00 TO STA. 1331+00

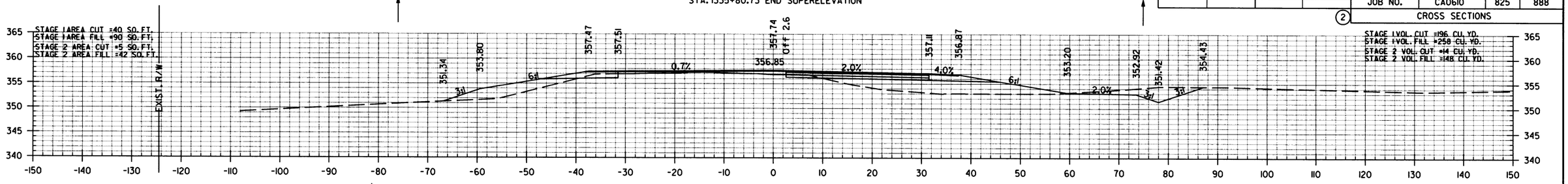
Leonard.Speed 9/23/2016 11:28:29 AM
WORKSPACE: Leonard.Speed
CONNECTION: Connection to Projects\Leonard.speed\d0271682\r06377.2i.CX.001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

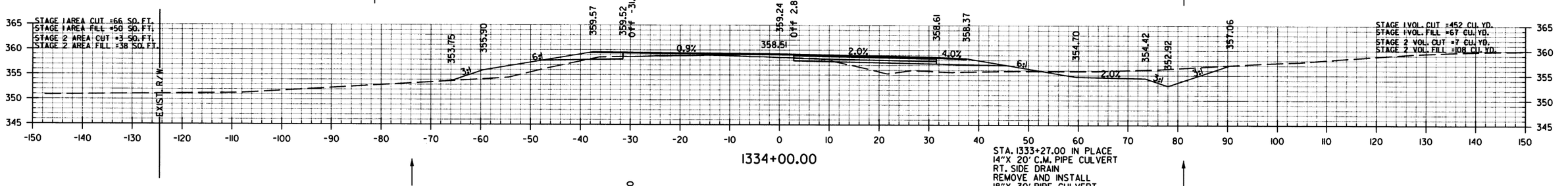
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	825	888

(2) CROSS SECTIONS

STA. 1335+80.73 END SUPERELEVATION

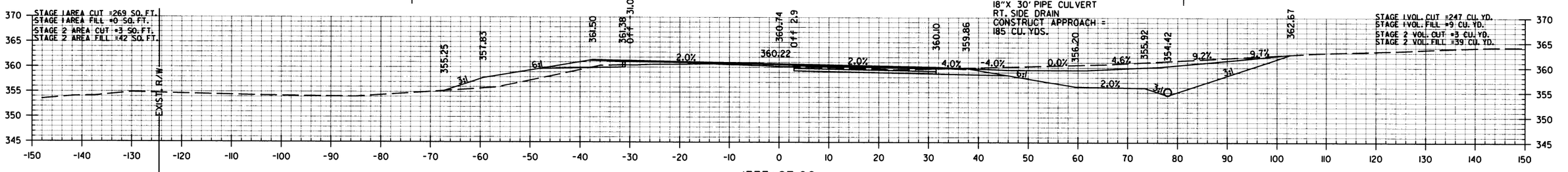


1335+00.00

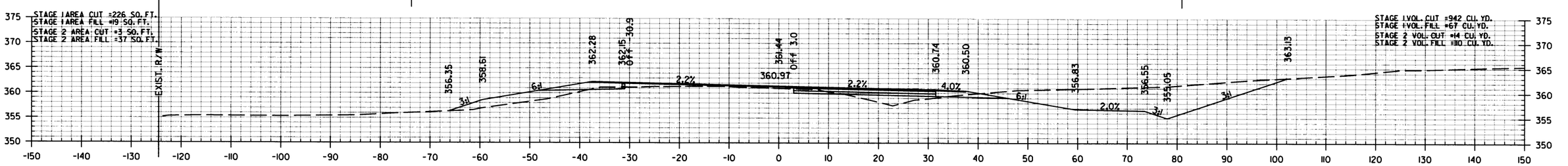


1334+00.00

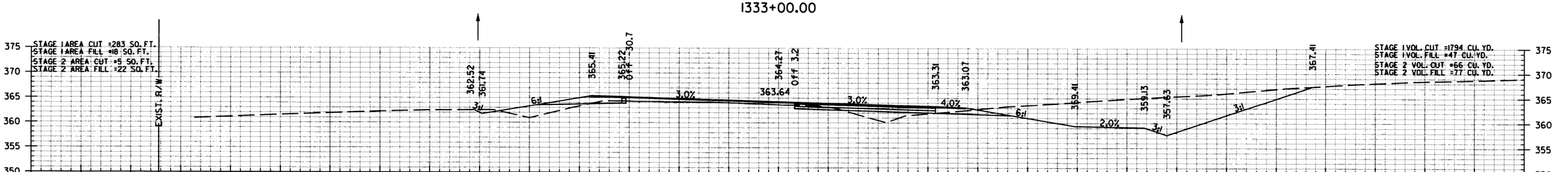
STA. 1333+27.00 IN PLACE
14"X 20' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18"X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
185 CU. YDS.



1333+27.00



1333+00.00



1332+00.00

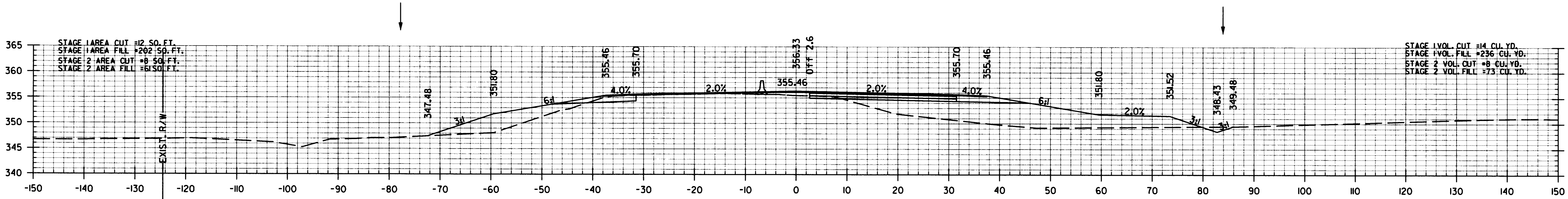
STA. 1332+00 TO STA. 1335+00

LeonardSpeed 9/27/2006 11:28:29 AM
K:\0605\CAD\Civil\Sheets\Cross Sections\
c:\pw\81-local\baker_projects\leonard.speed\d0271682\r-061377.21.CX.001.dgn
REVISED DATE: **REVDATE**

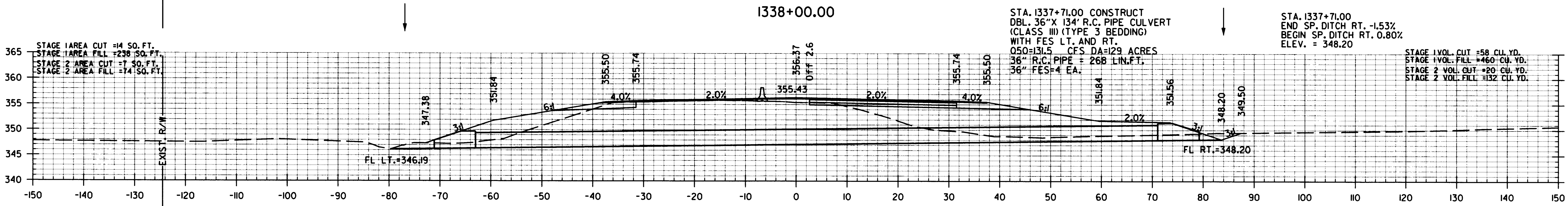
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	826	888

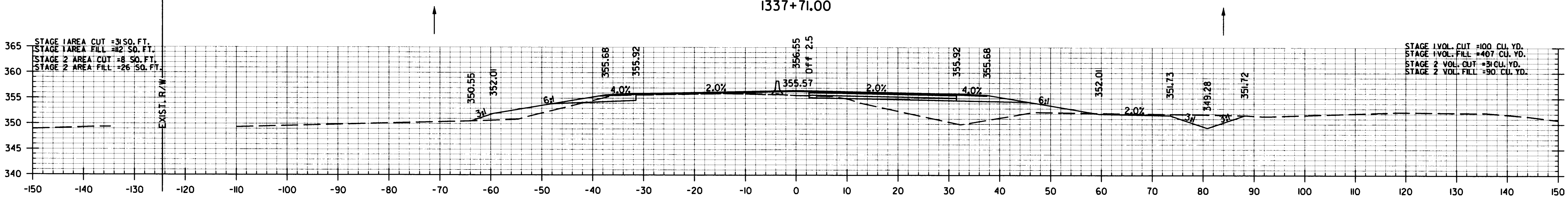
(2) CROSS SECTIONS



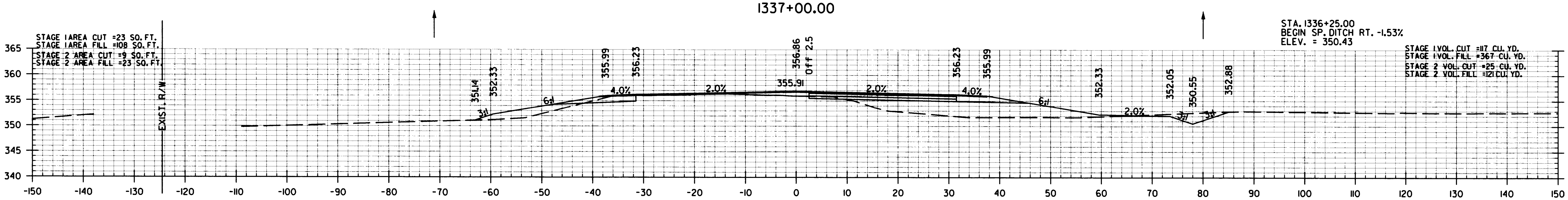
1338+00.00



1337+71.00



1337+00.00



1336+00.00

STA. 1336+00 TO STA. 1338+00

Leonard.Speed 9/23/2016 11:28:30 AM
WORKSPACE: Leonard.Speed
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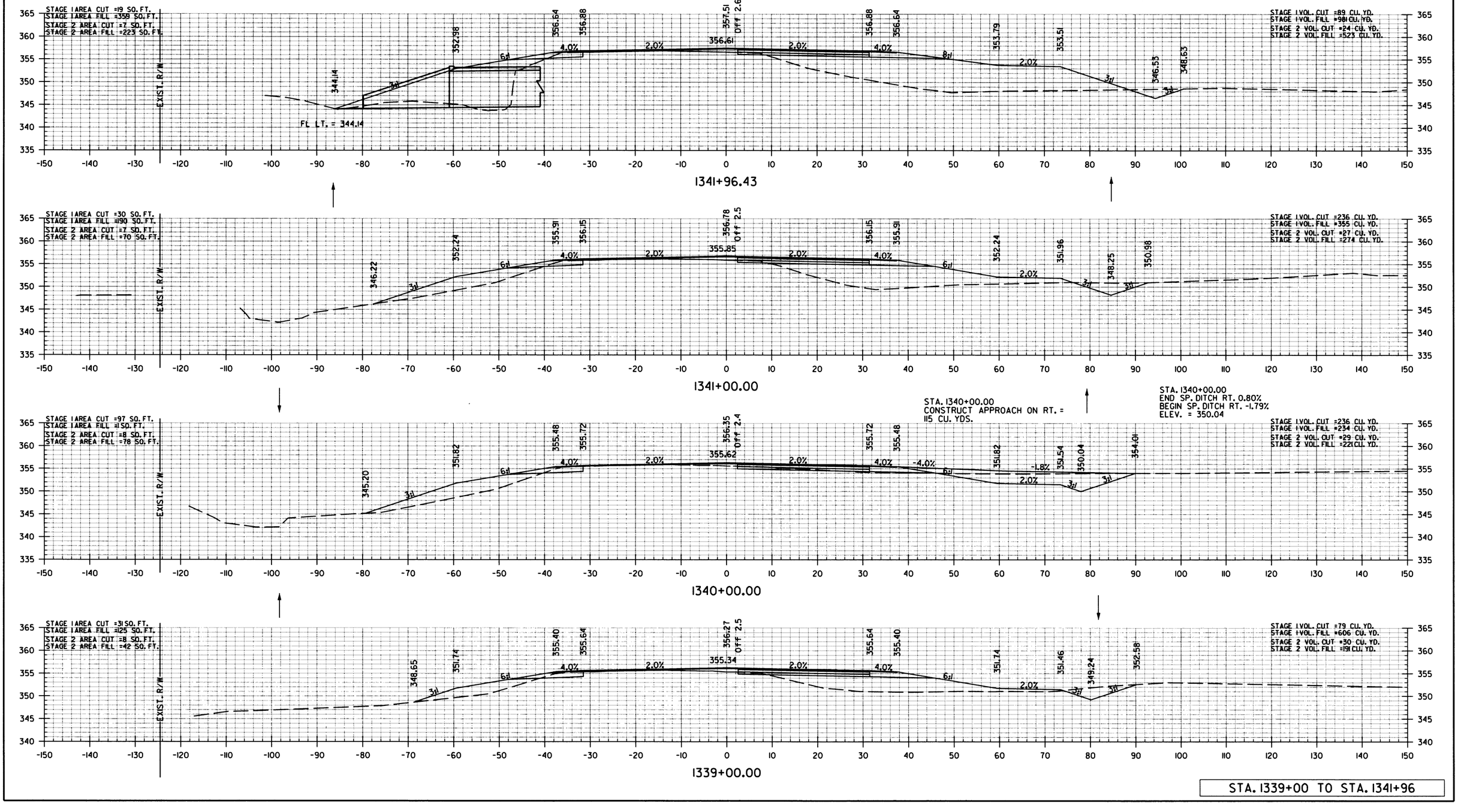
REVISED DATE: $REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	827	888

(2) CROSS SECTIONS



STA. 1339+00 TO STA. 1341+96

Leonard Speed 9/21/2006 11:28:30 AM
WORKSPACE: Leonard Speed
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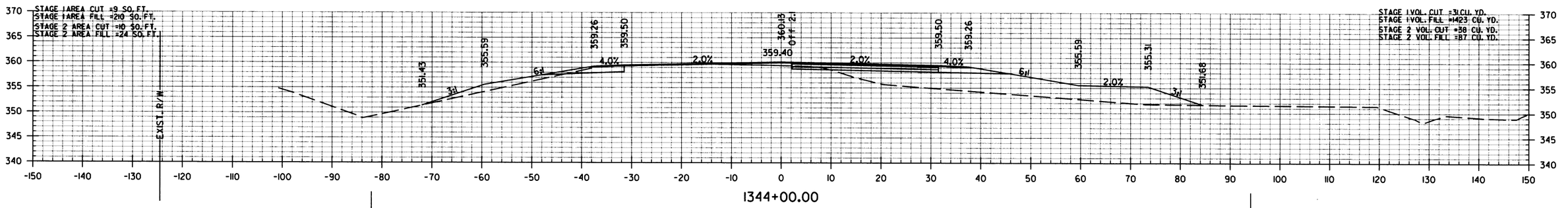
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	828	888

(2) CROSS SECTIONS



STA. 1342+00 TO STA. 1344+00

LeonardSpeed 9/23/2006 11:28:31 AM
WORKSPACE: Leonard_Speed
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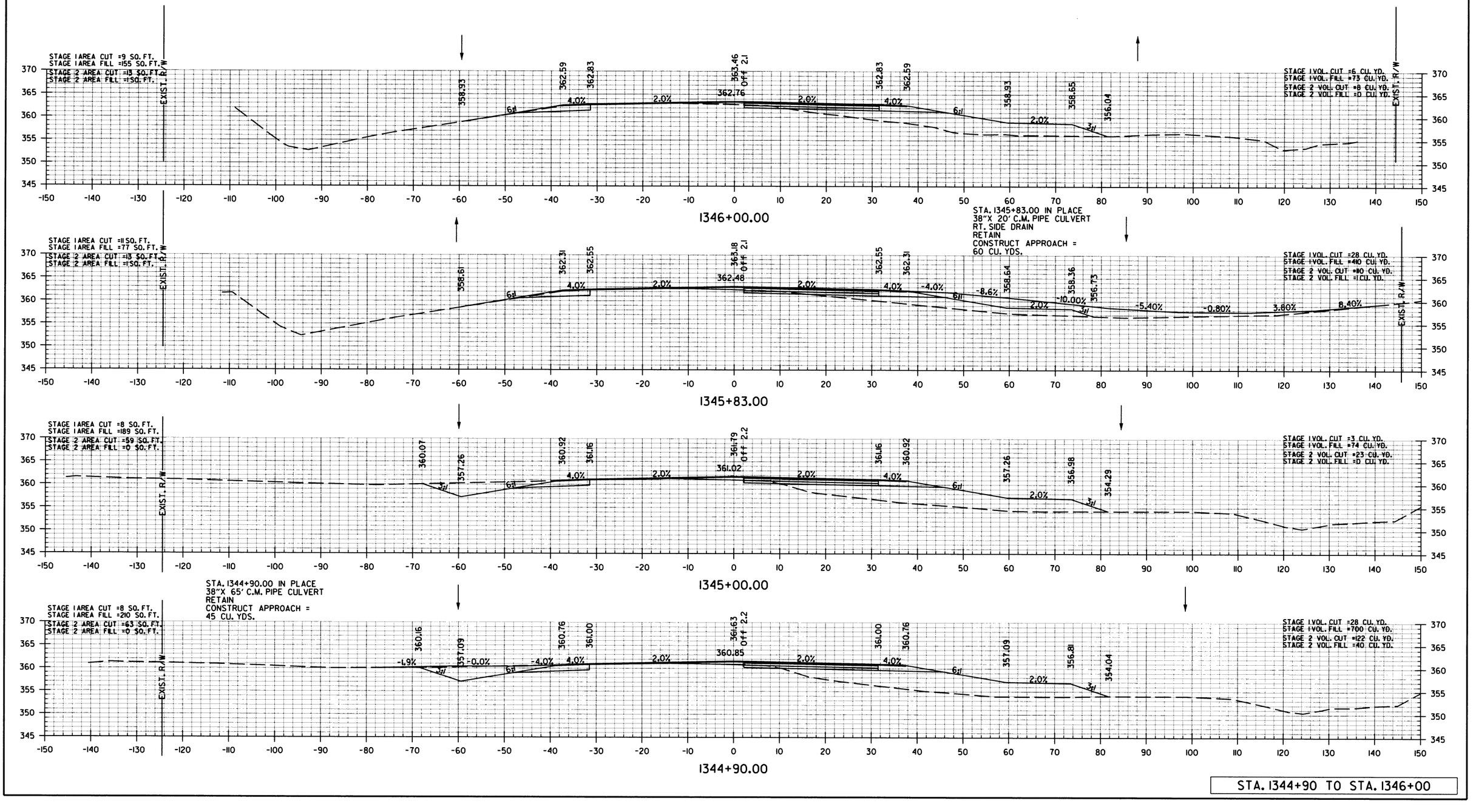
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	829	888

(2) CROSS SECTIONS



STA. 1344+90 TO STA. 1346+00

LeonardSpeed 9/23/2006 11:28:31 AM
WORKSPACE: Leonard_Speed
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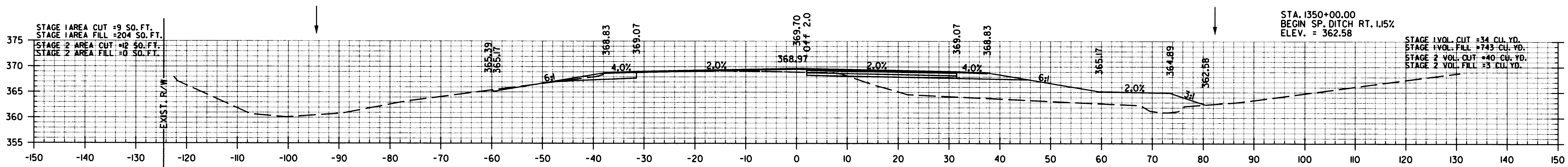
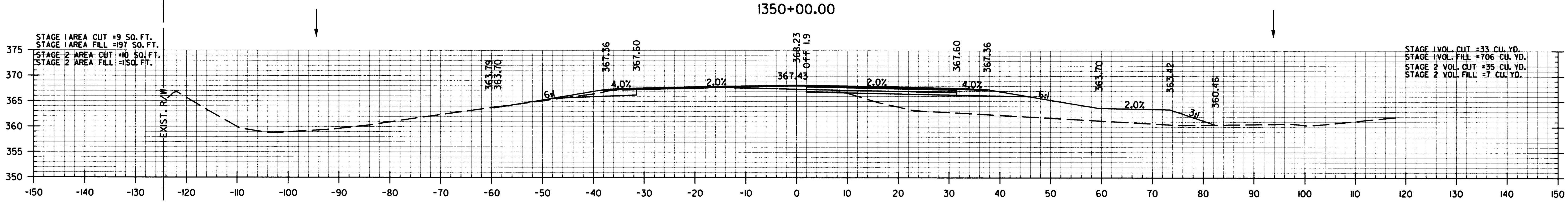
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	830	888

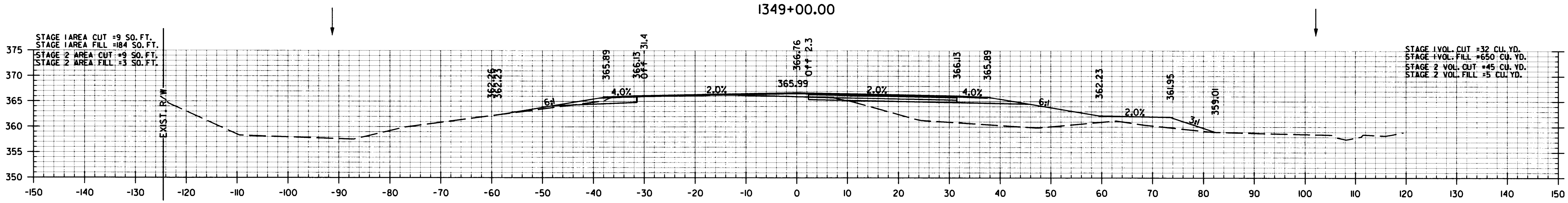
(2) CROSS SECTIONS



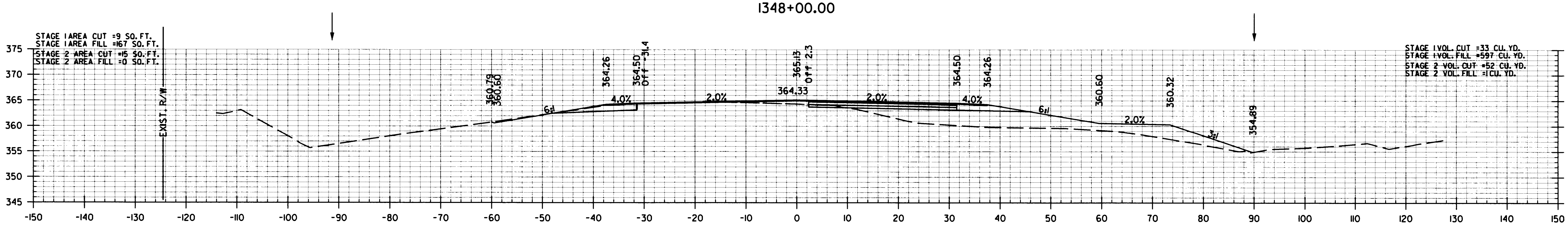
1350+00.00



1349+00.00



1348+00.00



1347+00.00

STA. 1347+00 TO STA. 1350+00

Leonard.Speed 9/23/2016 11:28:32 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271682\r061377_2L.CX_00.dgn
REVISED DATE: $$REVDATE$$

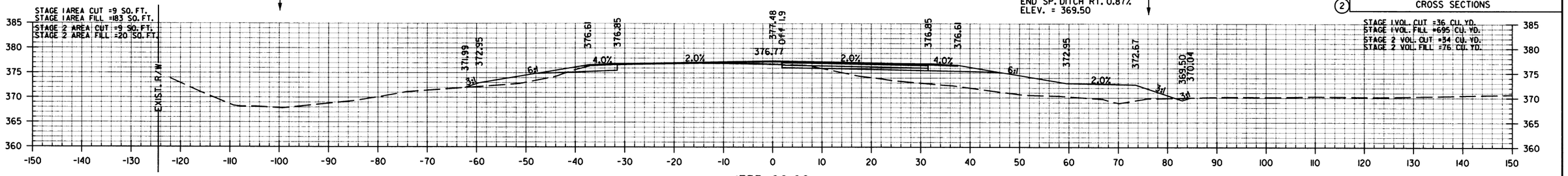
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

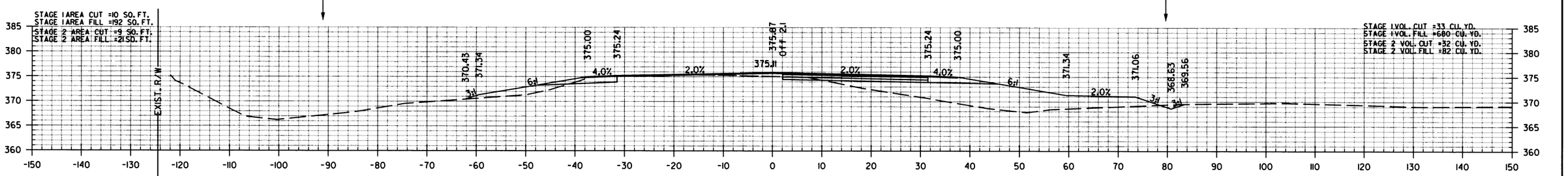
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	831	888

(2) CROSS SECTIONS

STA. 1355+00.00
END SP. DITCH RT. 0.87%
ELEV. = 369.50

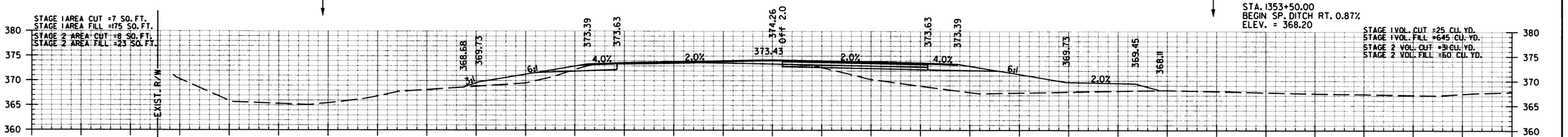


1355+00.00

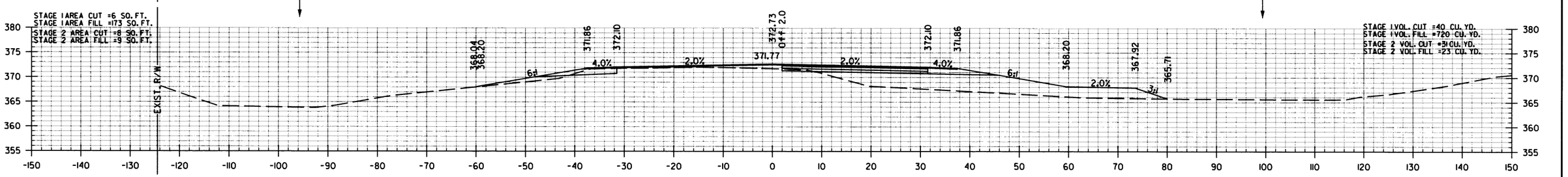


1354+00.00

STA. 1353+50.00
BEGIN SP. DITCH RT. 0.87%
ELEV. = 368.20

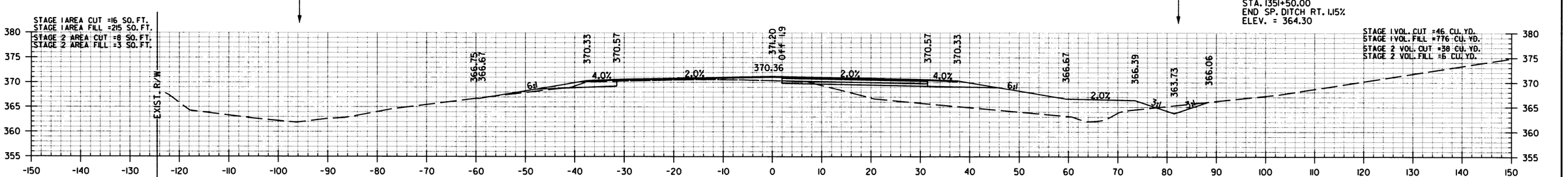


1353+00.00



1352+00.00

STA. 1351+50.00
END SP. DITCH RT. 1.15%
ELEV. = 364.30



1351+00.00

STA. 1351+00 TO STA. 1355+00

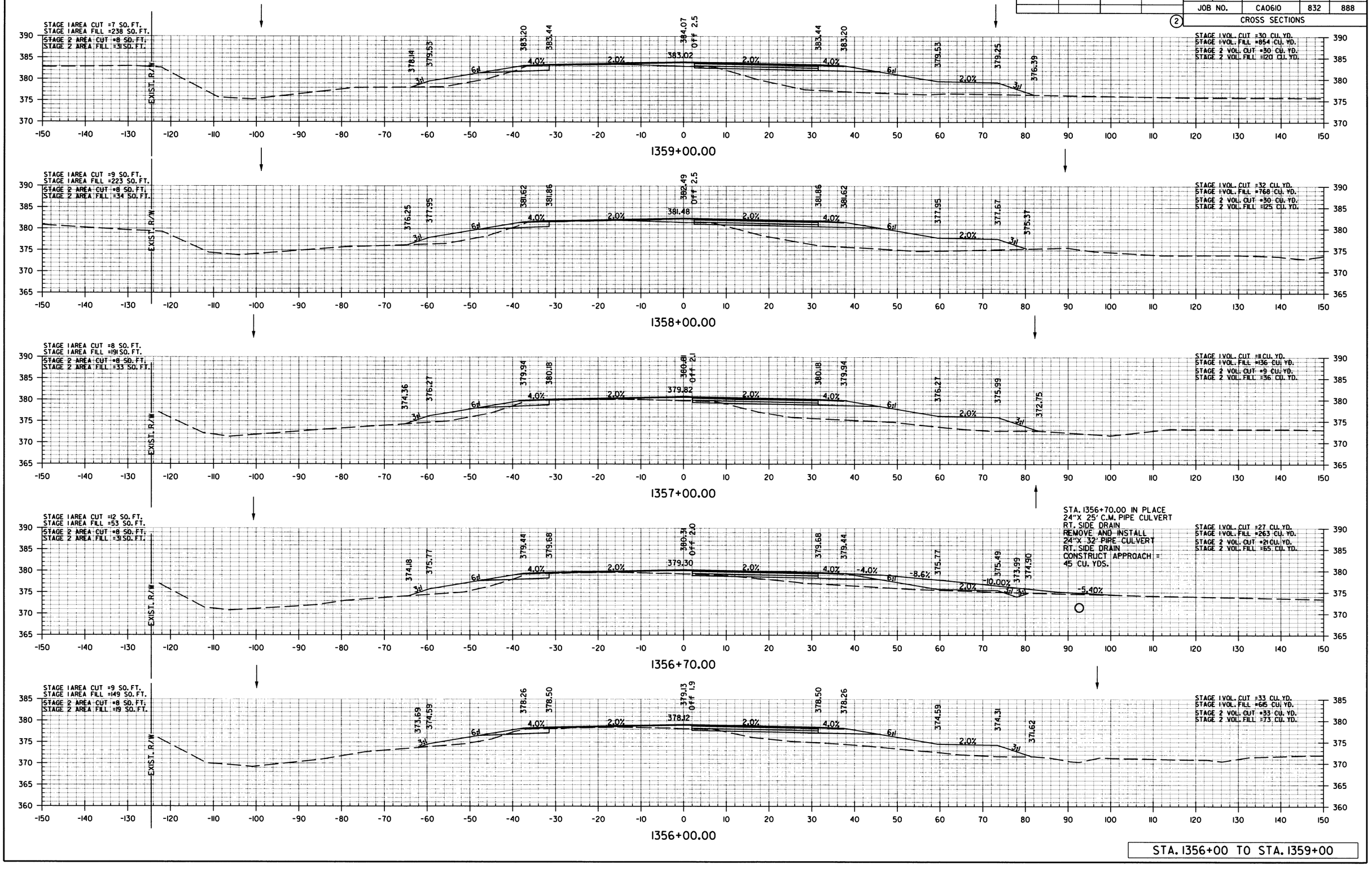
LeonardSpeed 9/23/2016 11:28:32 AM
Workset: Default
User: jcox
c:\dwg\81-local\baker_projects\leonard_speed\d0271682\r-061377_21_CX_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	832	888

(2) CROSS SECTIONS



STA. 1356+00 TO STA. 1359+00

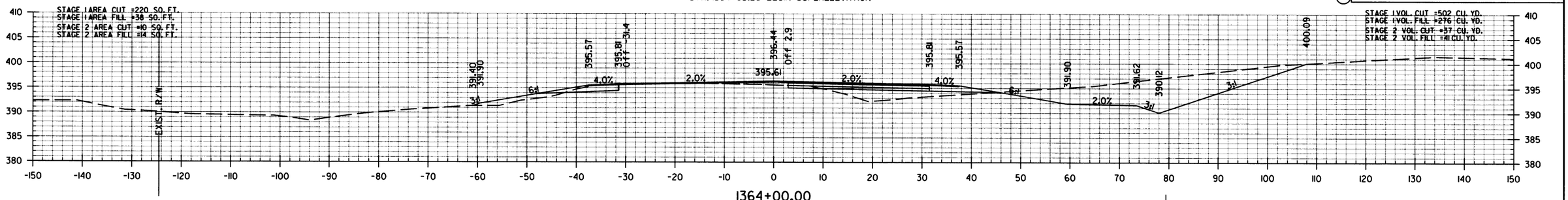
Leonard Speed 9/23/2016 11:28:33 AM
WORKSET: Leonard Speed
c:\dgn\81-local\baker_projects\leonard_speed\d0271682\r-061377_21_CX_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

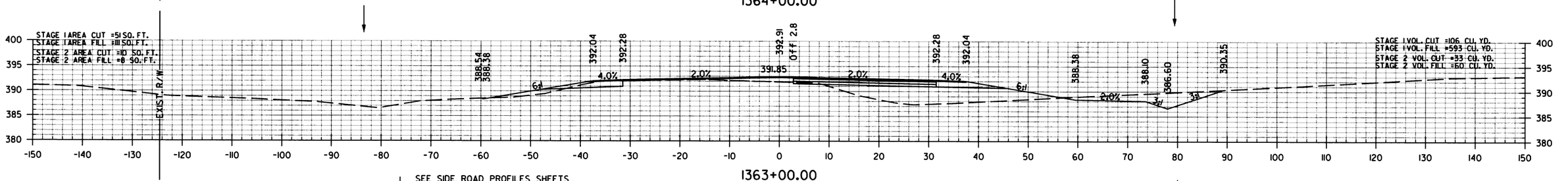
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	833	888

(2) CROSS SECTIONS

STA. 1364+03.26 BEGIN SUPERELEVATION

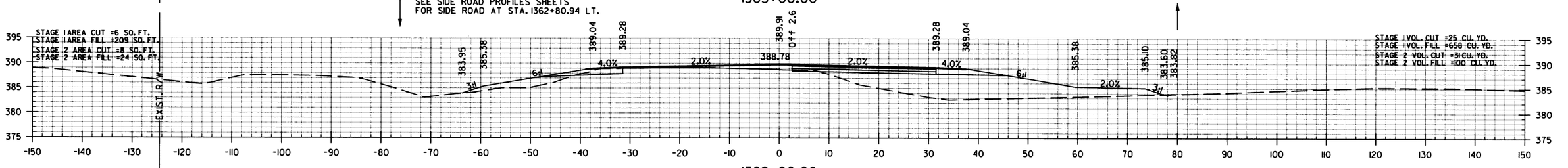


1364+00.00

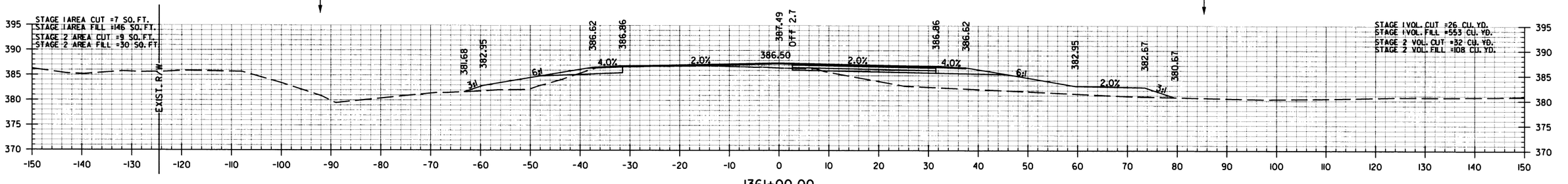


1363+00.00

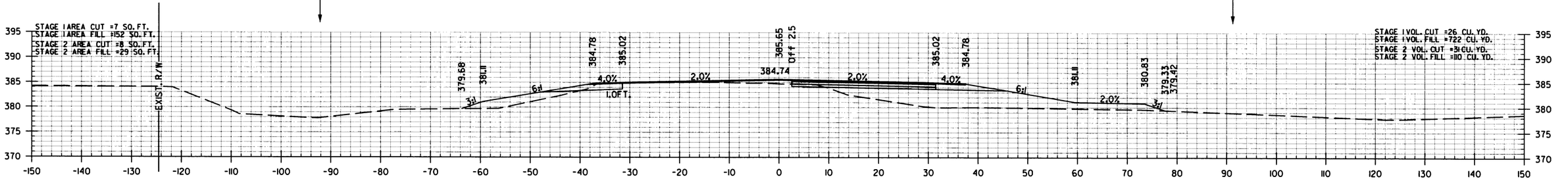
SEE SIDE ROAD PROFILES SHEETS
FOR SIDE ROAD AT STA. 1362+80.94 LT.



1362+00.00



1361+00.00



1360+00.00

STA. 1360+00 TO STA. 1364+00

Leonard.Speed 9/23/2016 11:28:33 AM
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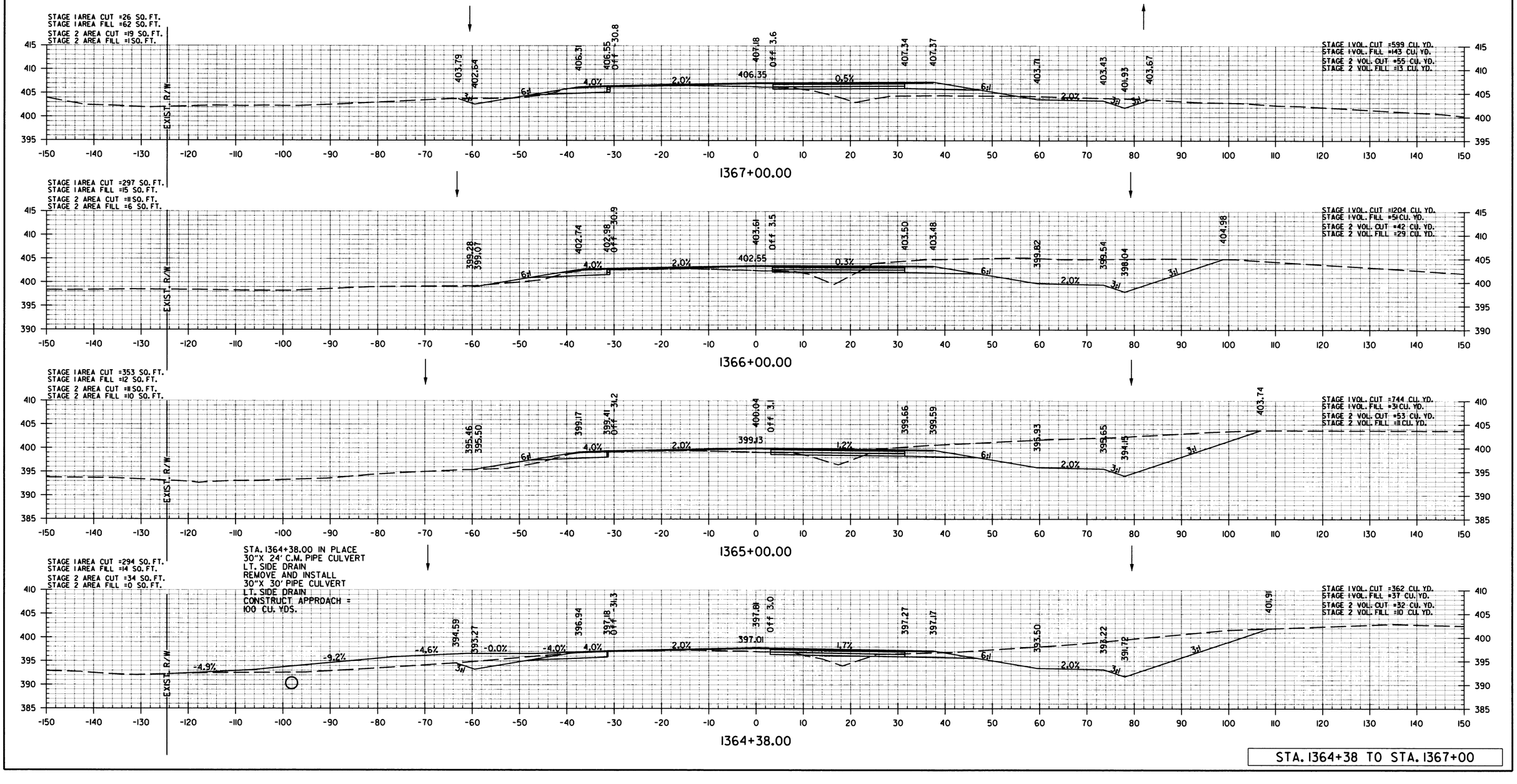
Civil\Roadway\Sheets\Leonard.Speed.d0271682.r-06137.21.CX.00.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	834	888

(2) CROSS SECTIONS



STA. 1364+38 TO STA. 1367+00

LeonardSpeed 9/23/2016 11:28:34 AM
WORKSPACE: LeonardSpeed
c:\pw\81-local\baker_projects\leonardspeed\d0271682\r06i377_21_CX_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

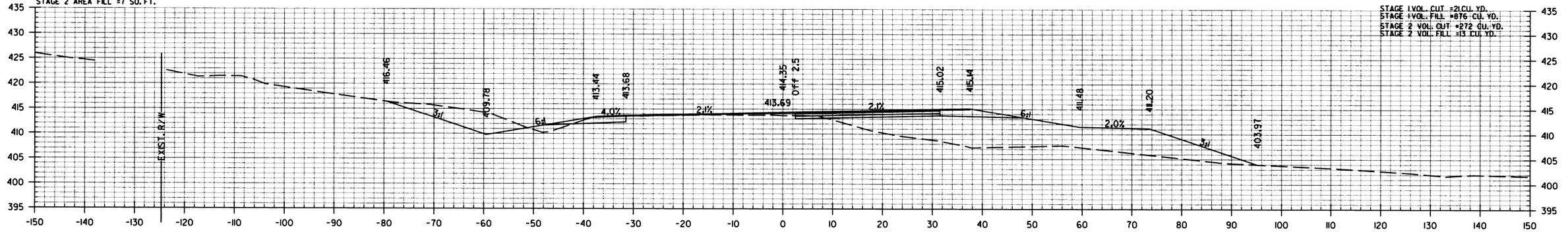
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	835	888

(2) CROSS SECTIONS

STAGE 1 AREA CUT =6 SQ. FT.
STAGE 1 AREA FILL =347 SQ. FT.
STAGE 2 AREA CUT =77 SQ. FT.
STAGE 2 AREA FILL =7 SQ. FT.

STA. 1369+43.26 MAX. SUPERELEVATION (0.023 '/')

STAGE 1 VOL. CUT =21 CU. YD.
STAGE 1 VOL. FILL =876 CU. YD.
STAGE 2 VOL. CUT =272 CU. YD.
STAGE 2 VOL. FILL =13 CU. YD.

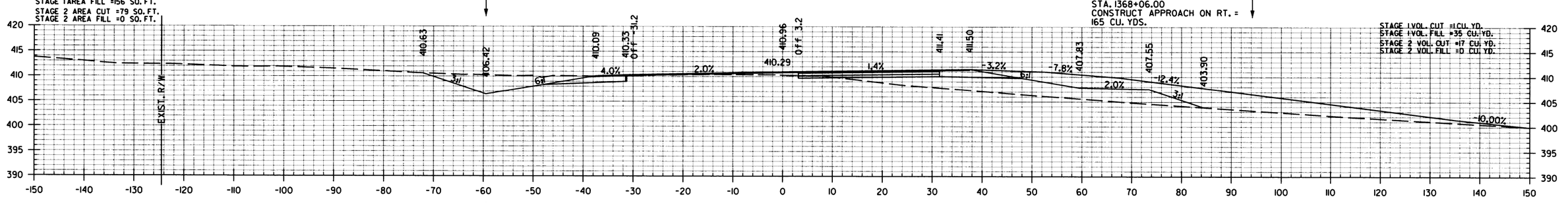


1369+00.00

STAGE 1 AREA CUT =6 SQ. FT.
STAGE 1 AREA FILL =156 SQ. FT.
STAGE 2 AREA CUT =79 SQ. FT.
STAGE 2 AREA FILL =0 SQ. FT.

STA. 1368+06.00
CONSTRUCT APPROACH ON RT. =
165 CU. YDS.

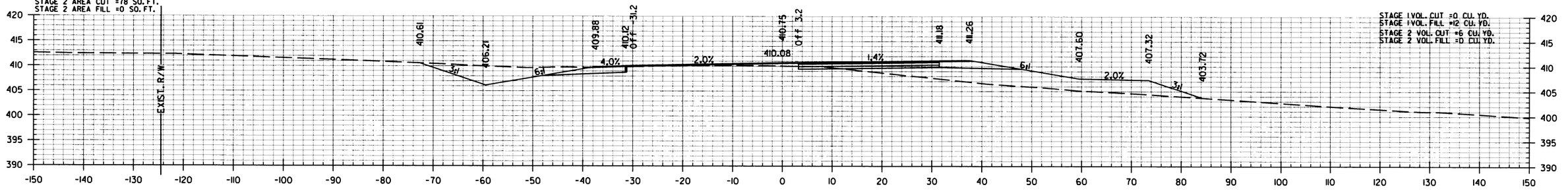
STAGE 1 VOL. CUT =1 CU. YD.
STAGE 1 VOL. FILL =35 CU. YD.
STAGE 2 VOL. CUT =17 CU. YD.
STAGE 2 VOL. FILL =0 CU. YD.



1368+06.00

STAGE 1 AREA CUT =6 SQ. FT.
STAGE 1 AREA FILL =159 SQ. FT.
STAGE 2 AREA CUT =78 SQ. FT.
STAGE 2 AREA FILL =0 SQ. FT.

STAGE 1 VOL. CUT =0 CU. YD.
STAGE 1 VOL. FILL =12 CU. YD.
STAGE 2 VOL. CUT =6 CU. YD.
STAGE 2 VOL. FILL =0 CU. YD.

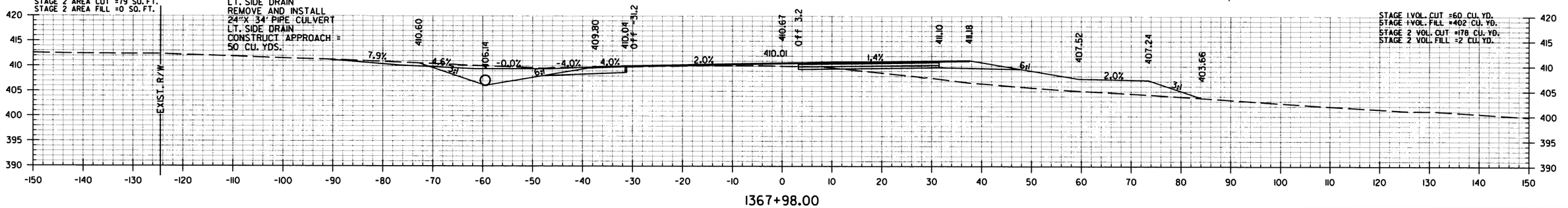


1368+00.00

STAGE 1 AREA CUT =6 SQ. FT.
STAGE 1 AREA FILL =159 SQ. FT.
STAGE 2 AREA CUT =79 SQ. FT.
STAGE 2 AREA FILL =0 SQ. FT.

STA. 1367+98.00 IN PLACE
24"X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
50 CU. YDS.

STAGE 1 VOL. CUT =60 CU. YD.
STAGE 1 VOL. FILL =402 CU. YD.
STAGE 2 VOL. CUT =178 CU. YD.
STAGE 2 VOL. FILL =2 CU. YD.



1367+98.00

STA. 1367+98 TO STA. 1369+00

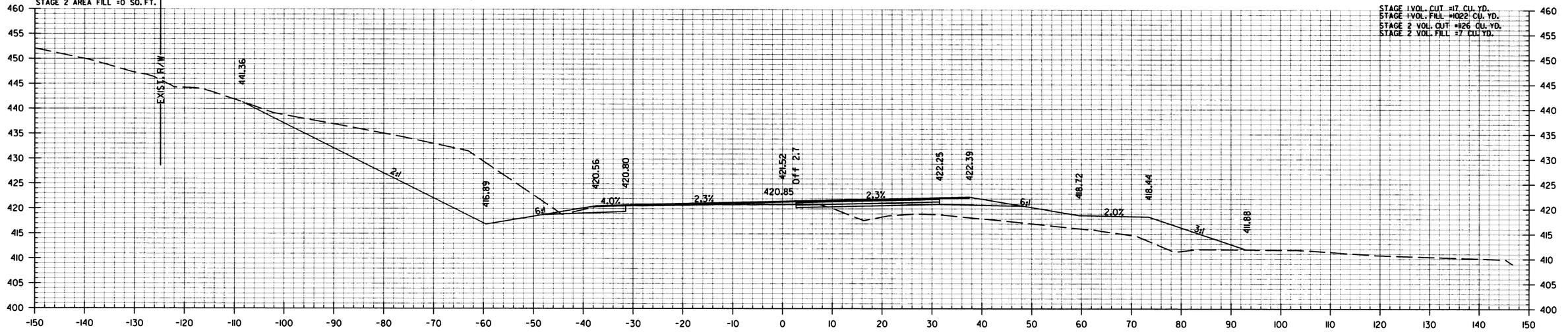
Leonard.Speed 9/23/2016 11:28:34 AM
W:\0606\Engineering\Projects\Leonard.Speed\d0271682\r-06377.21.CX.001.dgn
Civil\Roadway\Cross Sections
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	836	888
				(2)	CROSS SECTIONS			

STAGE 1 AREA CUT =4 SQ. FT.
STAGE 1 AREA FILL =231 SQ. FT.
STAGE 2 AREA CUT =426 SQ. FT.
STAGE 2 AREA FILL =0 SQ. FT.

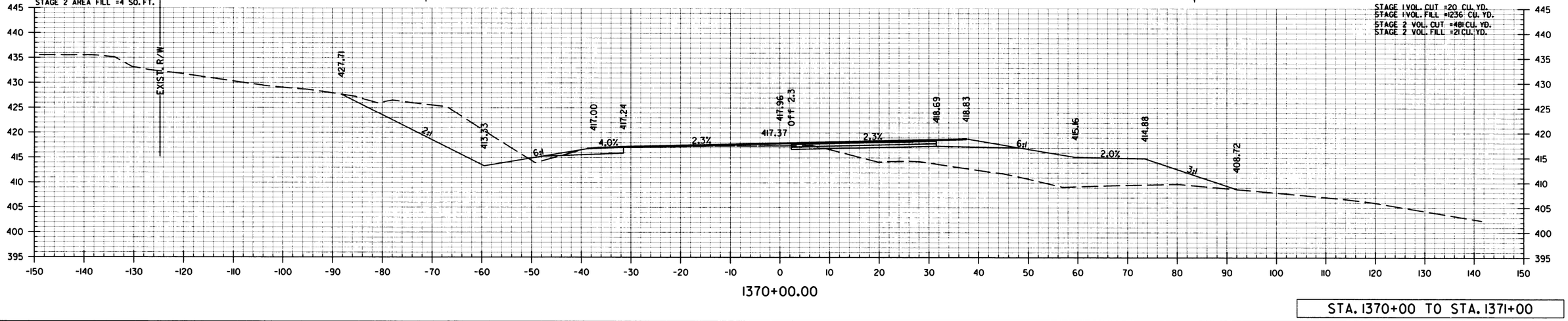
STAGE 1 VOL. CUT =17 CU. YD.
STAGE 1 VOL. FILL =1022 CU. YD.
STAGE 2 VOL. CUT =1126 CU. YD.
STAGE 2 VOL. FILL =7 CU. YD.



1371+00.00

STAGE 1 AREA CUT =5 SQ. FT.
STAGE 1 AREA FILL =320 SQ. FT.
STAGE 2 AREA CUT =183 SQ. FT.
STAGE 2 AREA FILL =4 SQ. FT.

STAGE 1 VOL. CUT =20 CU. YD.
STAGE 1 VOL. FILL =1236 CU. YD.
STAGE 2 VOL. CUT =481 CU. YD.
STAGE 2 VOL. FILL =21 CU. YD.



1370+00.00

STA. 1370+00 TO STA. 1371+00

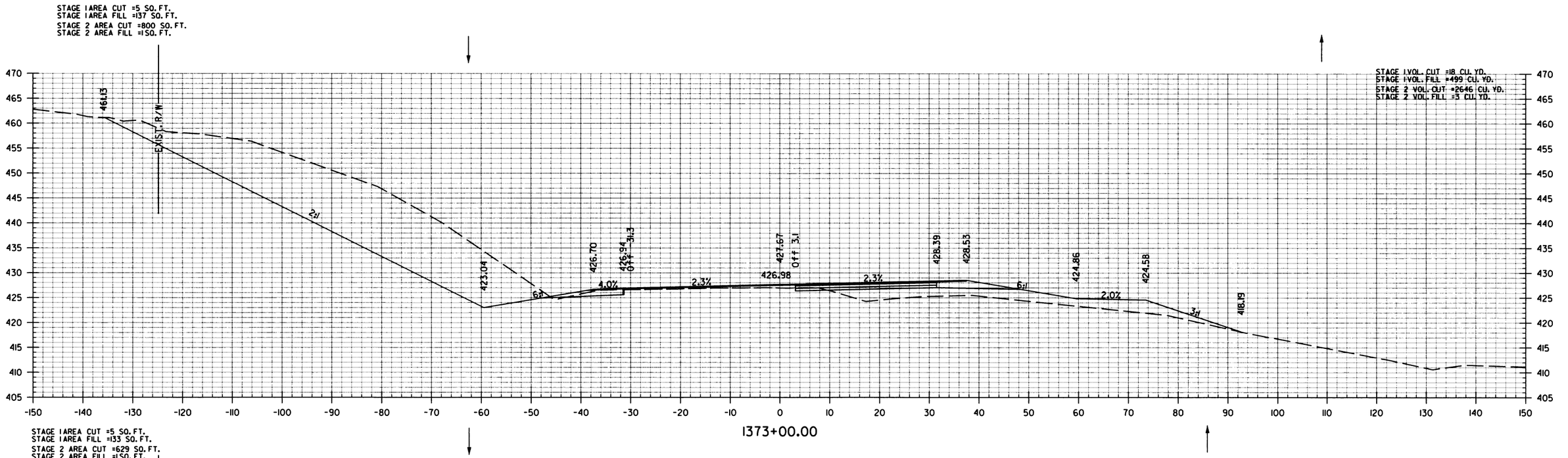
Leonard.Speed 9/23/2016 11:28:35 AM
WORKSPACE: Leonard.Speed
Current User: Leonard.Speed
REVISED DATE: ##REVDATE##

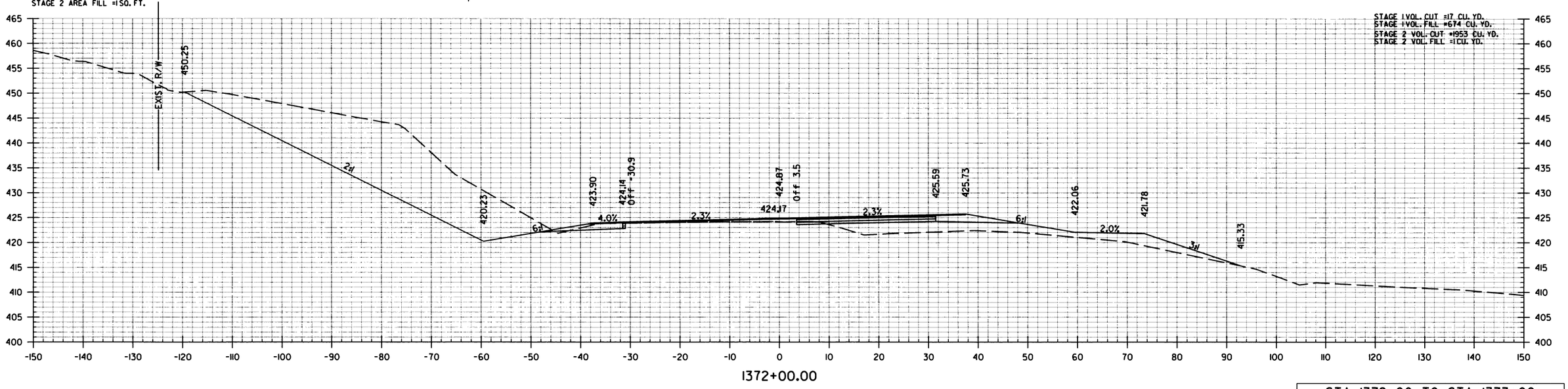
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	837	888

(2) CROSS SECTIONS





STA. 1372+00 TO STA. 1373+00

Leonard Speed 9/23/2016 11:28:35 AM
W:\KSA\CE\Leonard Speed\Projects\Leonard Speed\d0271682\r06377.21.CX.001.dgn
Owner: ARKANSAS STATE HIGHWAY COMMISSION
REVISED DATE: ##REVDATE##

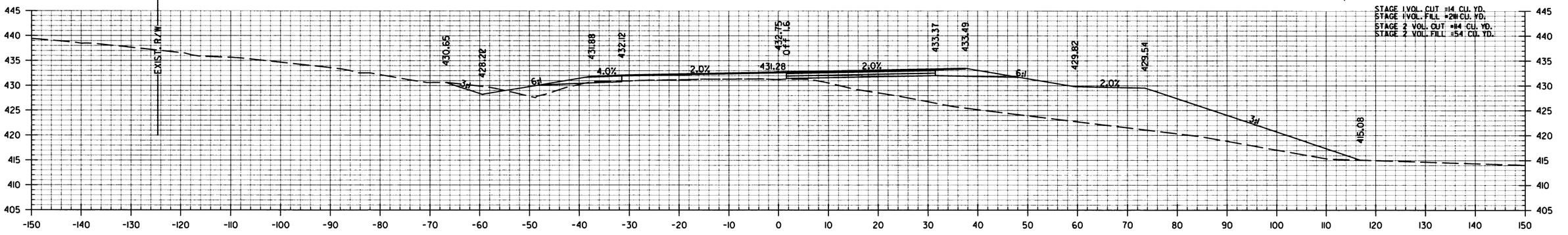
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	838	888

(2) CROSS SECTIONS

STAGE 1 AREA CUT =4 SQ. FT.
STAGE 1 AREA FILL =568 SQ. FT.
STAGE 2 AREA CUT =11 SQ. FT.
STAGE 2 AREA FILL =19 SQ. FT.

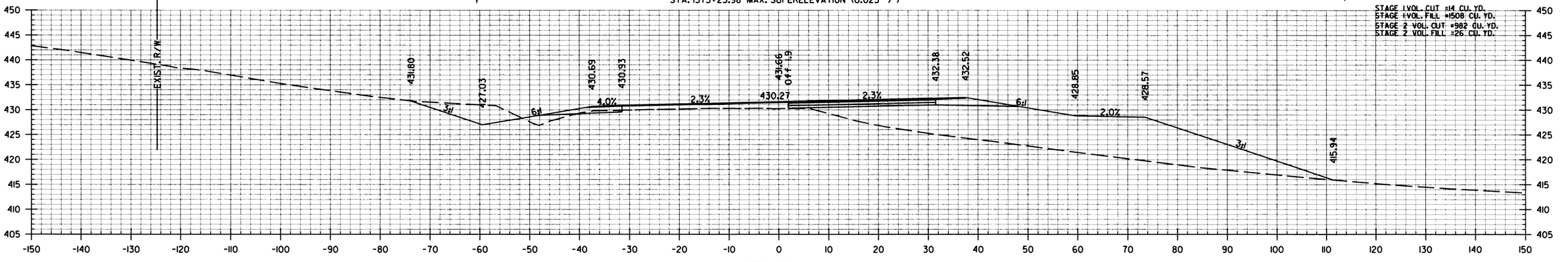
STA. 1376+00.00
BEGIN SP. DITCH LT. -2.44%
ELEV. = 428.21



1376+00.00

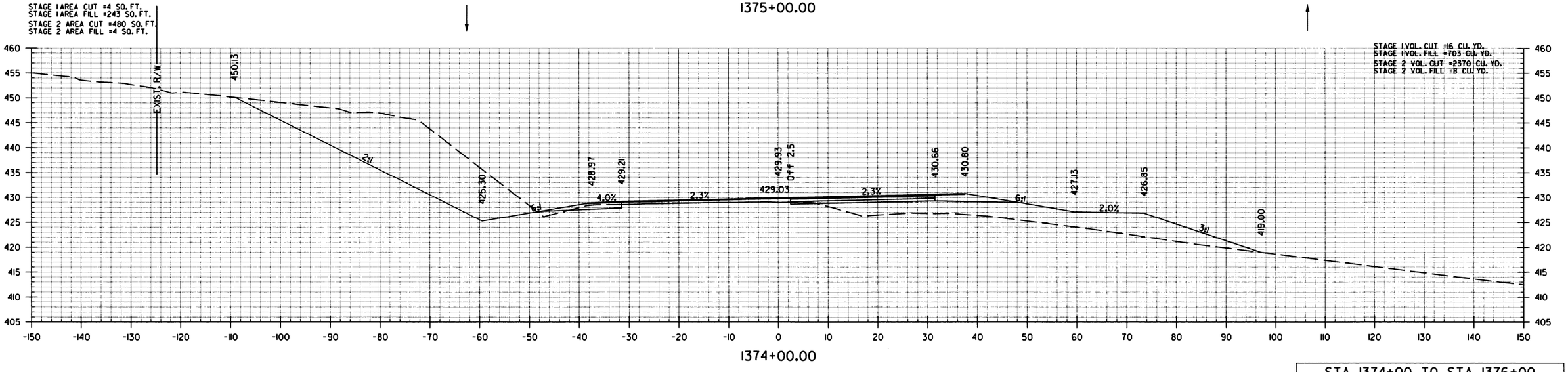
STAGE 1 AREA CUT =4 SQ. FT.
STAGE 1 AREA FILL =572 SQ. FT.
STAGE 2 AREA CUT =50 SQ. FT.
STAGE 2 AREA FILL =11 SQ. FT.

STA. 1375+25.98 MAX. SUPERELEVATION (0.023 '/')



1375+00.00

STAGE 1 AREA CUT =4 SQ. FT.
STAGE 1 AREA FILL =243 SQ. FT.
STAGE 2 AREA CUT =480 SQ. FT.
STAGE 2 AREA FILL =4 SQ. FT.



1374+00.00

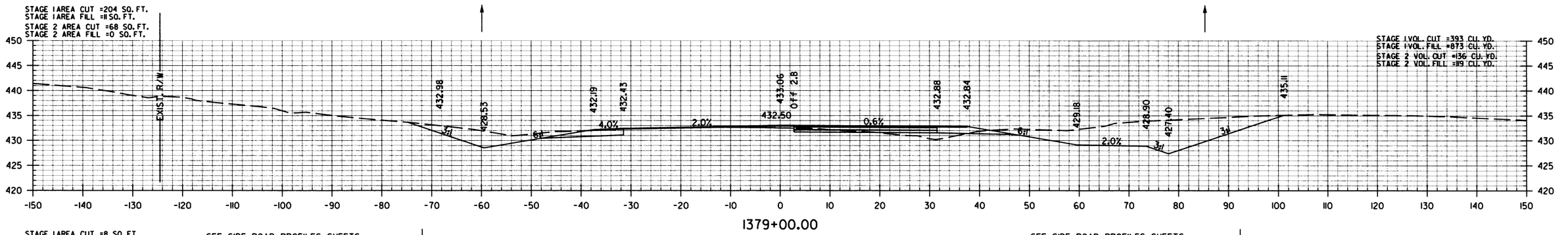
STA. 1374+00 TO STA. 1376+00

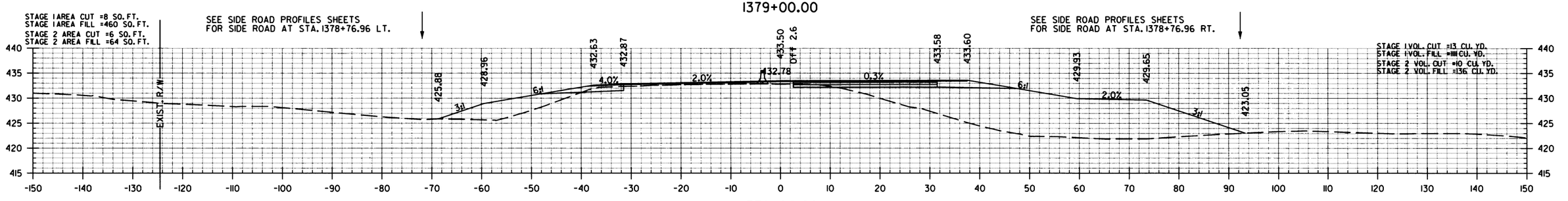
LeonardSpeed 9/23/2006 11:28:35 AM
WORKSPACE: Leonard_Speed
c:\pw\81-local\baker_projects\leonard_speed\v0027682\v-061377.21.CX.001.dgn
REVISED DATE: ##REVDATE##

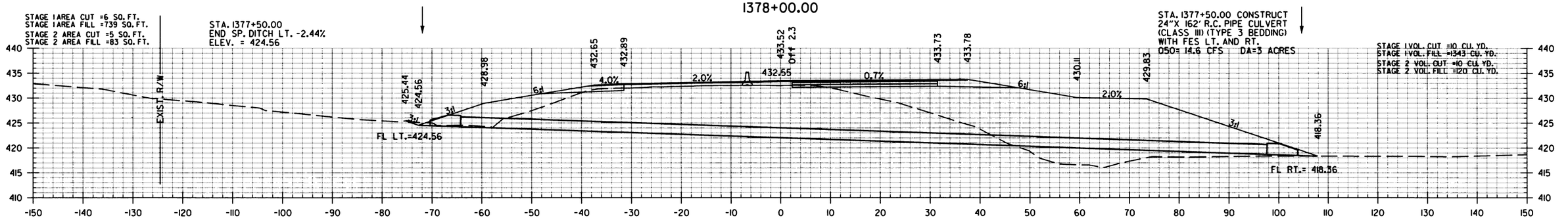
Michael Baker INTERNATIONAL

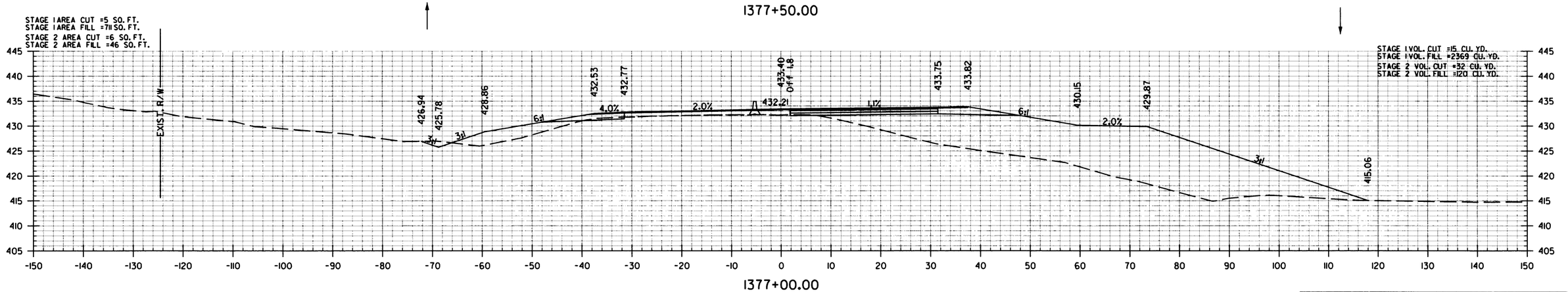
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	839	888

(2) CROSS SECTIONS









STA. 1377+00 TO STA. 1379+00

LeonardSpeed 9/23/2016 11:28:36 AM
WORKSPACE: LeonardSpeed
DGN: C:\Projects\Leonard\Speed\d0271682\r06377_21_CX_001.dgn
REVISED DATE: $$PREVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

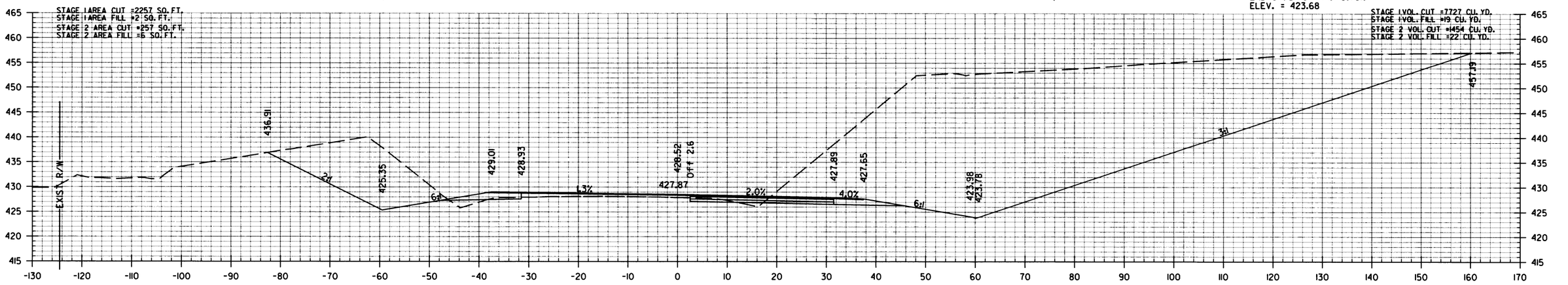
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	840	888

(2) CROSS SECTIONS

STA. 1382+12.50
END SP. DITCH RT. -0.76%
ELEV. = 423.68

STAGE I AREA CUT =2257 SQ. FT.
STAGE I AREA FILL =2 SQ. FT.
STAGE 2 AREA CUT =257 SQ. FT.
STAGE 2 AREA FILL =6 SQ. FT.

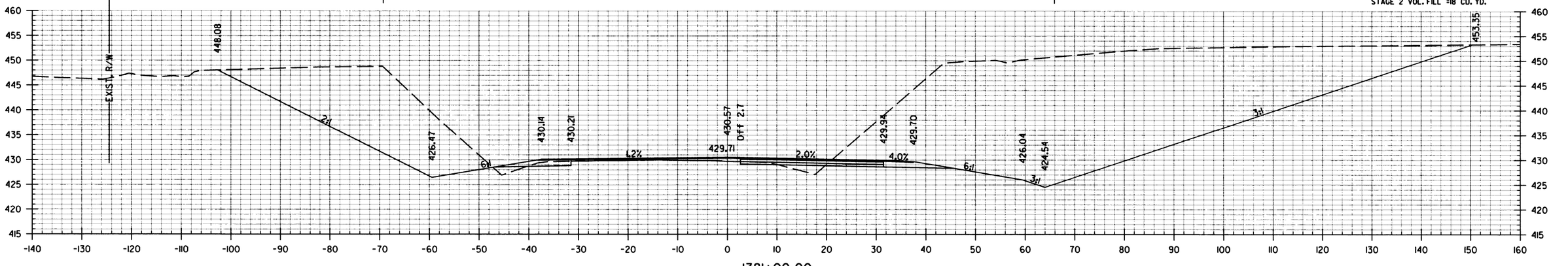
STAGE I VOL. CUT =7727 CU. YD.
STAGE I VOL. FILL =19 CU. YD.
STAGE 2 VOL. CUT =1454 CU. YD.
STAGE 2 VOL. FILL =22 CU. YD.



1382+00.00

STAGE I AREA CUT =1916 SQ. FT.
STAGE I AREA FILL =8 SQ. FT.
STAGE 2 AREA CUT =528 SQ. FT.
STAGE 2 AREA FILL =6 SQ. FT.

STAGE I VOL. CUT =5070 CU. YD.
STAGE I VOL. FILL =34 CU. YD.
STAGE 2 VOL. CUT =1552 CU. YD.
STAGE 2 VOL. FILL =18 CU. YD.



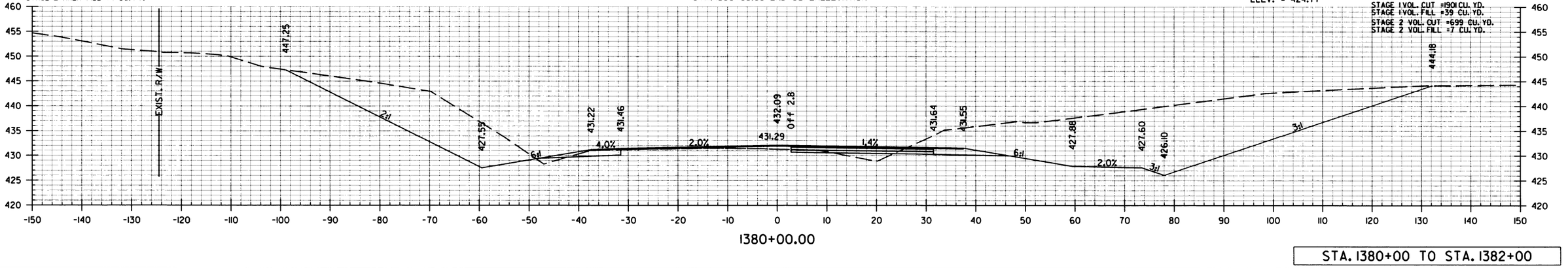
1381+00.00

STA. 1380+65.98 BEGIN SUPERELEVATION
STA. 1380+65.98 END SUPERELEVATION

STA. 1380+70.00
BEGIN SP. DITCH RT. -0.76%
ELEV. = 424.77

STAGE I AREA CUT =822 SQ. FT.
STAGE I AREA FILL =10 SQ. FT.
STAGE 2 AREA CUT =310 SQ. FT.
STAGE 2 AREA FILL =4 SQ. FT.

STAGE I VOL. CUT =1901 CU. YD.
STAGE I VOL. FILL =39 CU. YD.
STAGE 2 VOL. CUT =699 CU. YD.
STAGE 2 VOL. FILL =7 CU. YD.



1380+00.00

STA. 1380+00 TO STA. 1382+00

Leonard.Speed 9/23/2016 11:28:37 AM
WORKSPACE: Leonard.Speed
c:\pw\bi-local\baker_projects\leonard.speed\d0216821\r061377_21_CX_001.dgn
REVISED DATE: **REVDATE**

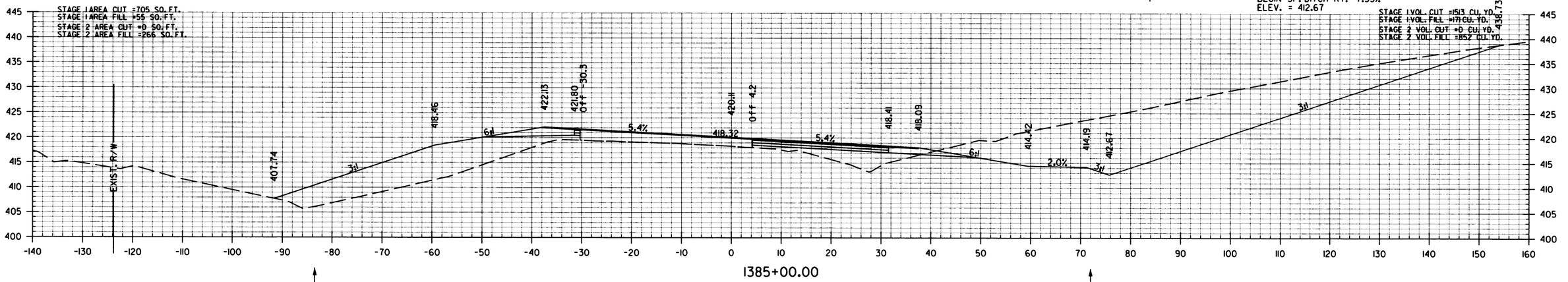
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	841	888
				(2)	CROSS SECTIONS			

STA. 1385+00.00
BEGIN SP. DITCH RT. -7.55%
ELEV. = 412.67

STAGE 1 AREA CUT =705 SQ. FT.
STAGE 1 AREA FILL =55 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =266 SQ. FT.

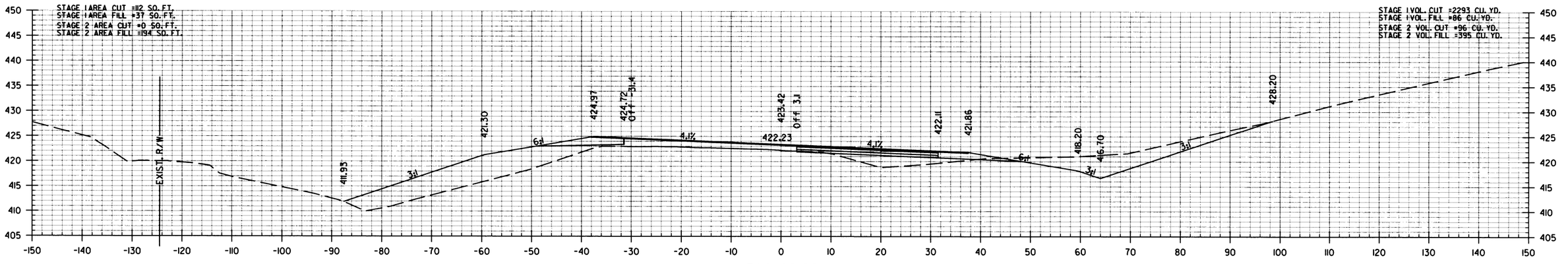
STAGE 1 VOL. CUT =1513 CU. YD.
STAGE 1 VOL. FILL =171 CU. YD.
STAGE 2 VOL. CUT =0 CU. YD.
STAGE 2 VOL. FILL =852 CU. YD.



1385+00.00

STAGE 1 AREA CUT =112 SQ. FT.
STAGE 1 AREA FILL =37 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =194 SQ. FT.

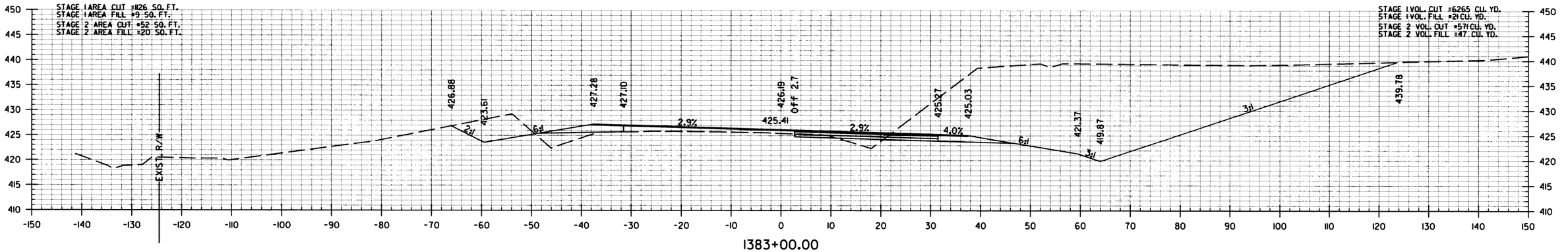
STAGE 1 VOL. CUT =2293 CU. YD.
STAGE 1 VOL. FILL =86 CU. YD.
STAGE 2 VOL. CUT =96 CU. YD.
STAGE 2 VOL. FILL =395 CU. YD.



1384+00.00

STAGE 1 AREA CUT =1126 SQ. FT.
STAGE 1 AREA FILL =9 SQ. FT.
STAGE 2 AREA CUT =52 SQ. FT.
STAGE 2 AREA FILL =20 SQ. FT.

STAGE 1 VOL. CUT =6265 CU. YD.
STAGE 1 VOL. FILL =21 CU. YD.
STAGE 2 VOL. CUT =571 CU. YD.
STAGE 2 VOL. FILL =47 CU. YD.



1383+00.00

STA. 1383+00 TO STA. 1385+00

Leonard Speed 9/23/2016 11:28:38 AM
WORKSPACE: Conceptual Road
c:\pw\81-local\baker_projects\leonard speed\d0271682\r061377.21.CX.00.dgn
REVISED DATE: $$REVDATE$$

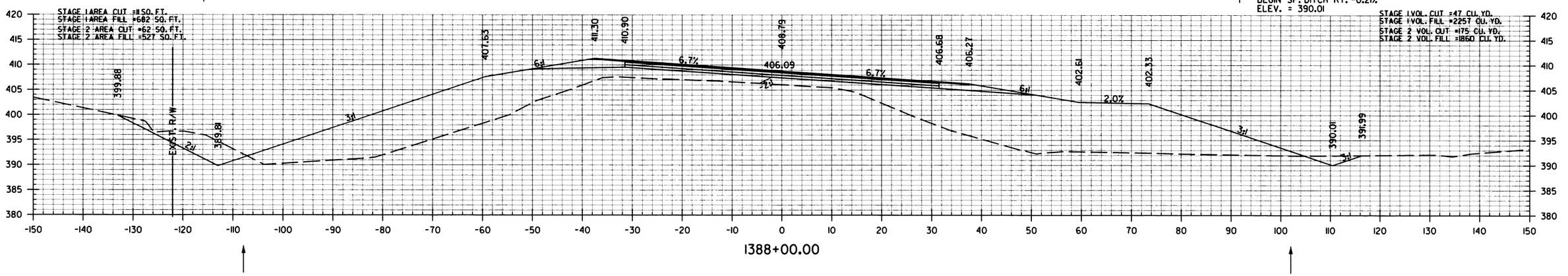
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	842	888
				(2)	CROSS SECTIONS			

STA. 1388+00.00
END SP. DITCH RT. -7.55%
BEGIN SP. DITCH RT. -0.21%
ELEV. = 390.01

STAGE 1 AREA CUT =11 SQ. FT.
STAGE 1 AREA FILL =682 SQ. FT.
STAGE 2 AREA CUT =62 SQ. FT.
STAGE 2 AREA FILL =527 SQ. FT.

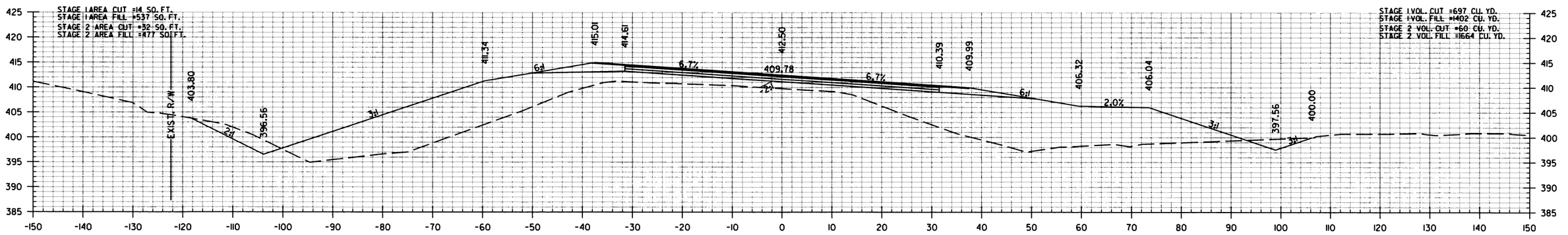
STAGE 1 VOL. CUT =47 CU. YD.
STAGE 1 VOL. FILL =2257 CU. YD.
STAGE 2 VOL. CUT =175 CU. YD.
STAGE 2 VOL. FILL =1860 CU. YD.



1388+00.00

STAGE 1 AREA CUT =14 SQ. FT.
STAGE 1 AREA FILL =537 SQ. FT.
STAGE 2 AREA CUT =32 SQ. FT.
STAGE 2 AREA FILL =477 SQ. FT.

STAGE 1 VOL. CUT =697 CU. YD.
STAGE 1 VOL. FILL =1402 CU. YD.
STAGE 2 VOL. CUT =60 CU. YD.
STAGE 2 VOL. FILL =1664 CU. YD.



1387+00.00

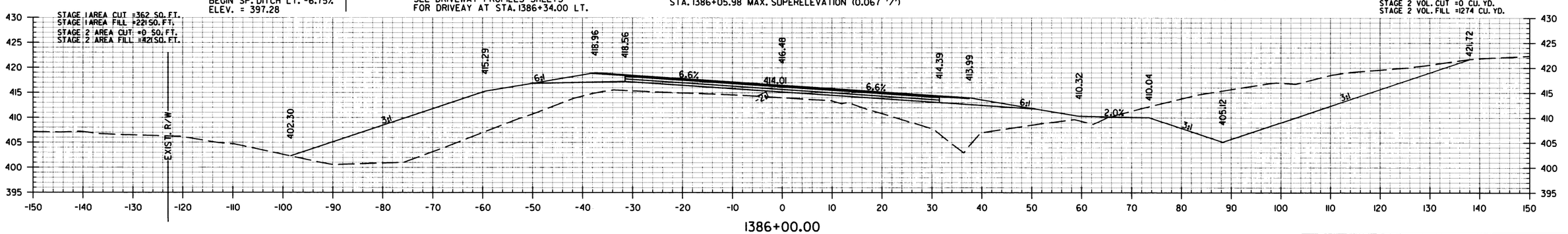
STA. 1386+89.45
BEGIN SP. DITCH LT. -6.75%
ELEV. = 397.28

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEAY AT STA. 1386+34.00 LT.

STA. 1386+05.98 MAX. SUPERELEVATION (0.067 '/')

STAGE 1 AREA CUT =362 SQ. FT.
STAGE 1 AREA FILL =2215 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =821 SQ. FT.

STAGE 1 VOL. CUT =1977 CU. YD.
STAGE 1 VOL. FILL =511 CU. YD.
STAGE 2 VOL. CUT =0 CU. YD.
STAGE 2 VOL. FILL =1274 CU. YD.



1386+00.00

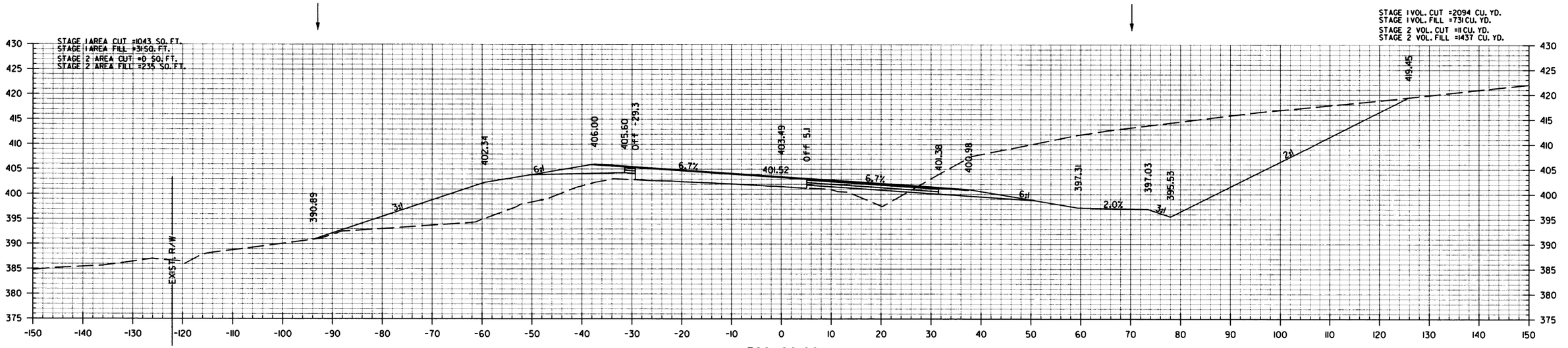
STA. 1386+00 TO STA. 1388+00

Leonard.Speed 9/23/2016 11:28:39 AM
W:\0606\377\Leonard.Speed\Projects\Leonard.Speed\d0216821\r061377.21.CX_001.dgn
c:\Users\Public\Documents\Bentley\Workspace\Projects\Leonard.Speed\d0216821\r061377.21.CX_001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	843	888

(2) CROSS SECTIONS

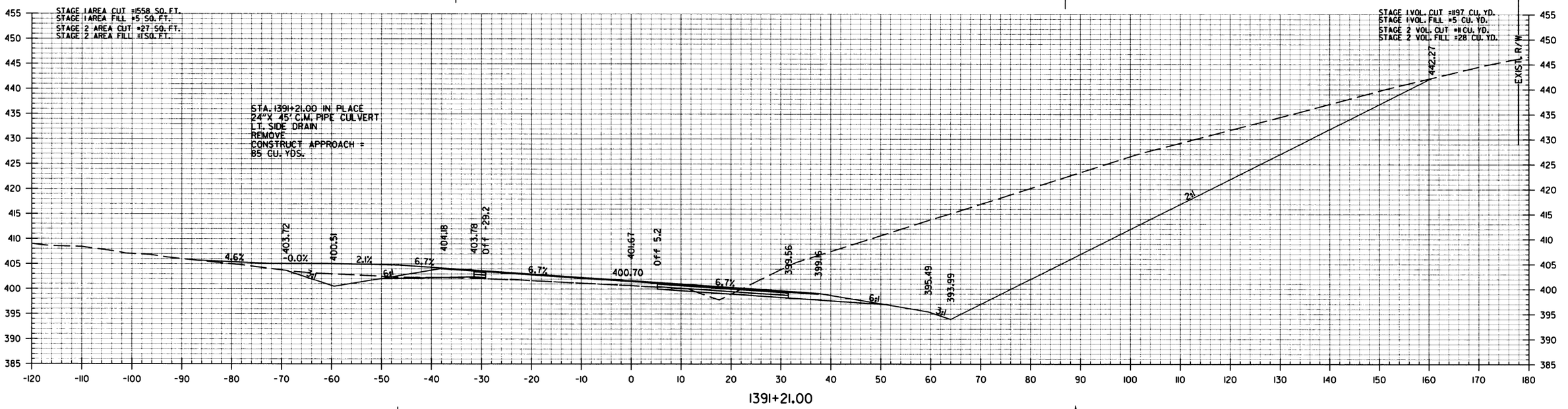


STA. 1388+53 TO STA. 1390+00

Leonard.Speed 9/23/2016 11:28:39 AM
WORKSPACE: Leonard.Speed
c:\pw\bl-local\baker_projects\leonard.speed\d0276821\r06377_21_CX_001.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	844	888
				(2)	CROSS SECTIONS			



STA. 1391+00 TO STA. 1391+21

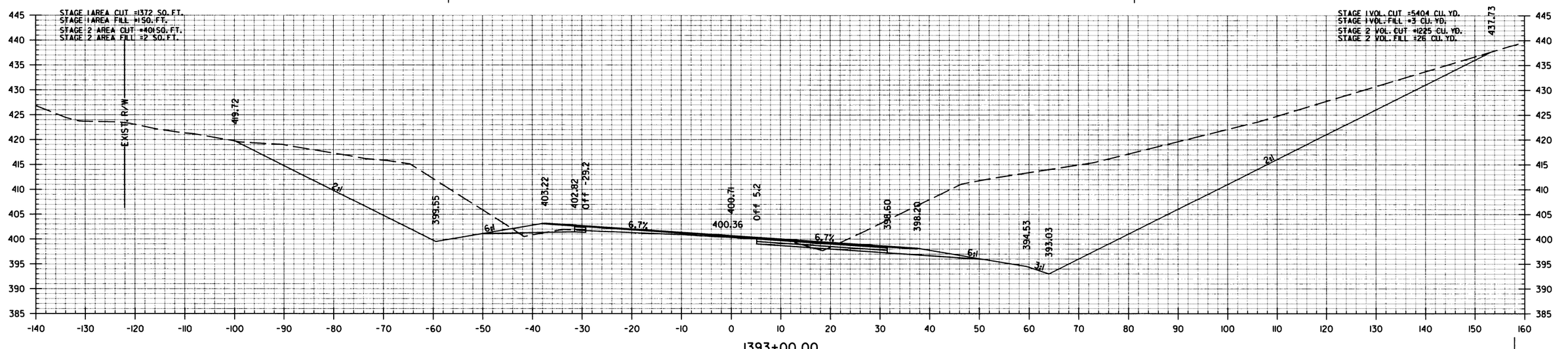
Leonard.Speed 9/23/2006 11:26:41 AM
WORKSPACE: Leonard.Speed
c:\pw\81-local\baker_project\leonard.speed\d0271682\r-061377_21_CX_001.dgn
REVISED DATE: **REVDATE**

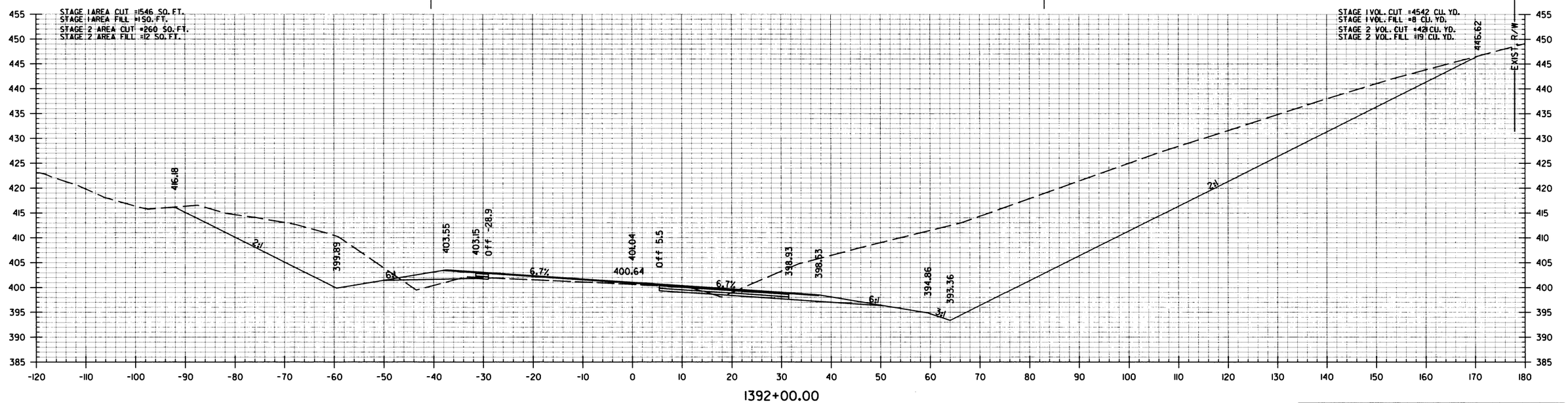
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	845	888

(2) CROSS SECTIONS



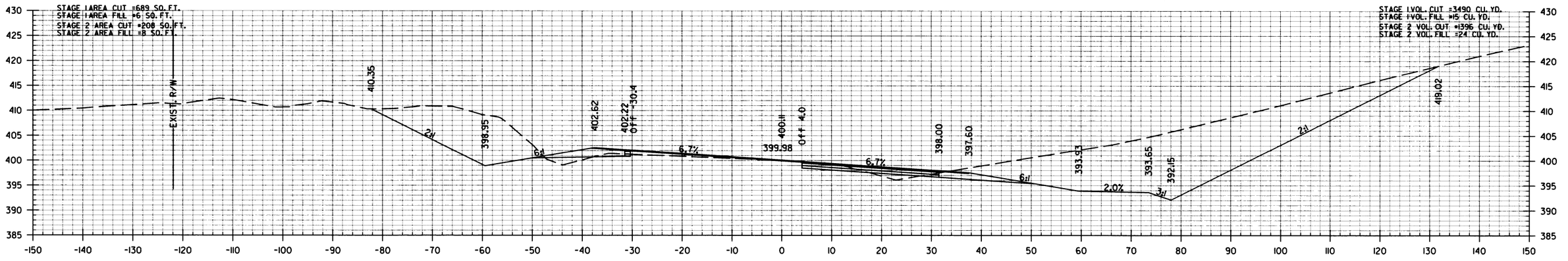


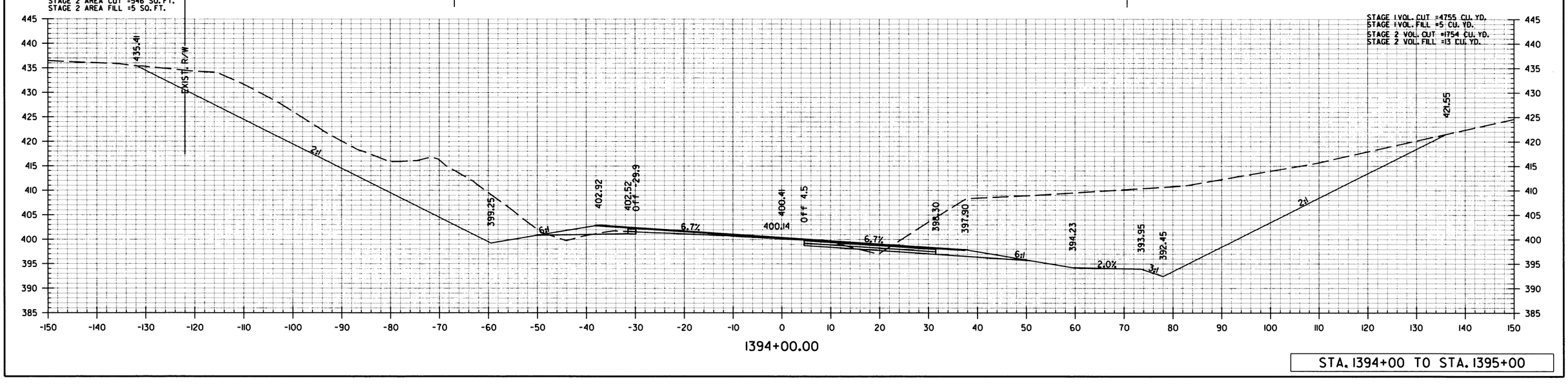
STA. 1392+00 TO STA. 1393+00

LeonardSpeed 9/23/2006 11:28:42 AM
WORKSPACE: Leonard Speed
c:\pwdi-local\baker_projects\leonard.speed\d0216B2\r06377.21.CX.001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	846	888
				(2)	CROSS SECTIONS			





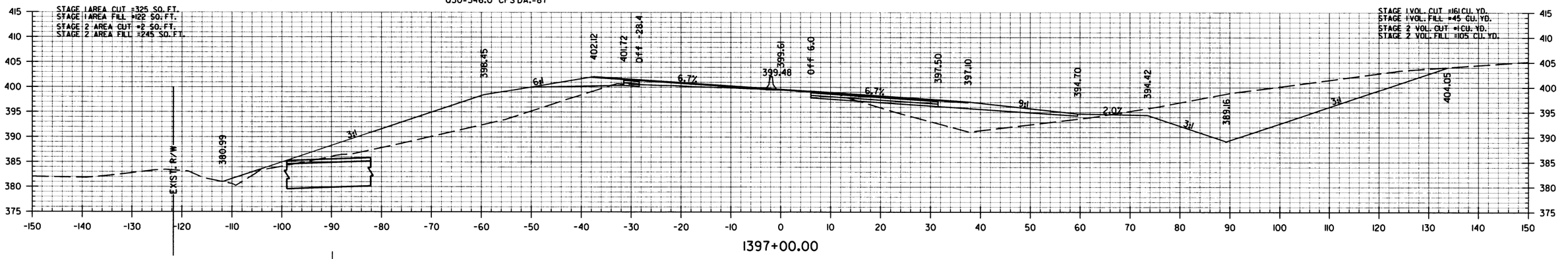
STA. 1394+00 TO STA. 1395+00

Leonard.Speed 9/23/2016 11:28:43 AM
WORKSPACE: Leonard.Speed
c:\pw\81-local\baker_projects\leonard.speed\d0216821\r06377_21_CX_001.dgn
REVISED DATE: **REVDATE**

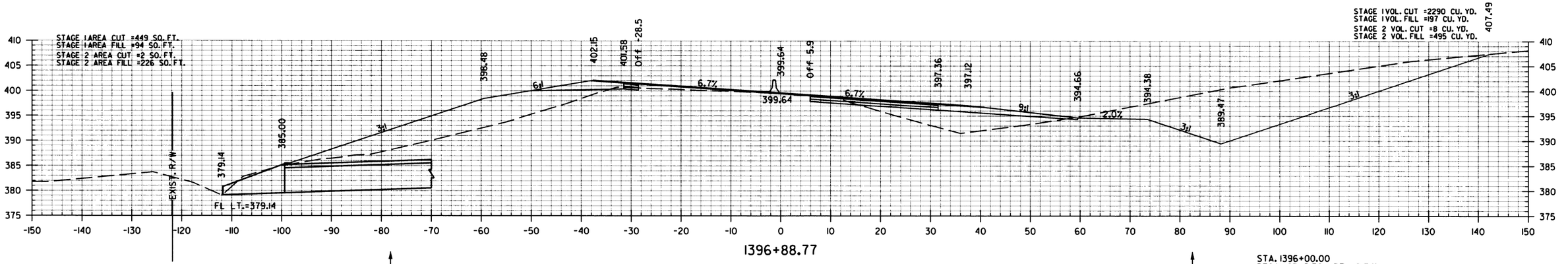
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	847	888
				(2)	CROSS SECTIONS			

STA. 1397+50 CONSTRUCT
7'X5'X 211' R.C. BOX CULVERT
30° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q50=346.0 CFS DA.=87

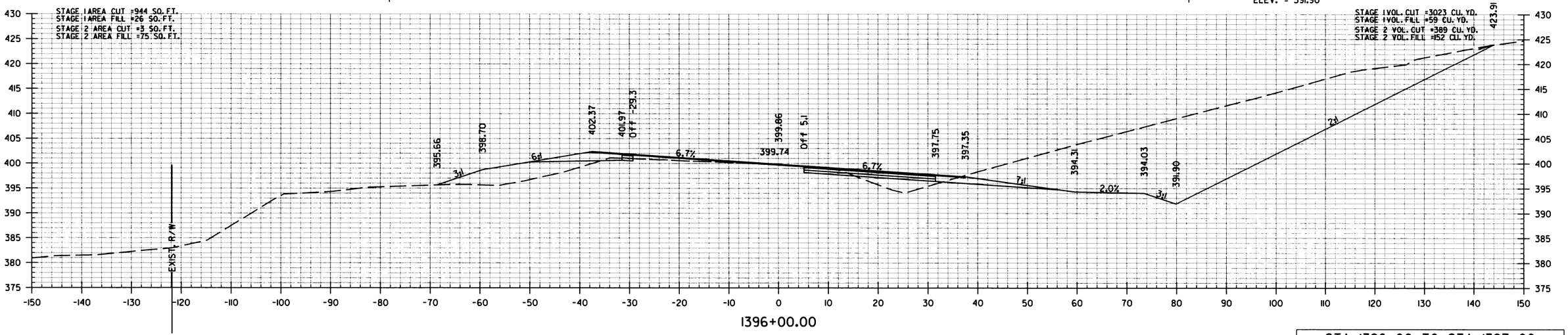


1397+00.00



1396+88.77

STA. 1396+00.00
BEGIN SP. DITCH RT. -2.74%
ELEV. = 391.90



1396+00.00

STA. 1396+00 TO STA. 1397+00

Leonard Speed 9/21/2006 11:28:43 AM
WORKSPACE: Leonard Speed
c:\pwwi-local\baker_projects\leonard_speed\d0216682\r-061377_21_CX_001.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	848	888

(2) CROSS SECTIONS

STAGE 1 AREA CUT =98 SQ. FT.
STAGE 1 AREA FILL =58 SQ. FT.
STAGE 2 AREA CUT =150 SQ. FT.
STAGE 2 AREA FILL =170 SQ. FT.

STAGE 1 VOL. CUT =218 CU. YD.
STAGE 1 VOL. FILL =537 CU. YD.
STAGE 2 VOL. CUT =5 CU. YD.
STAGE 2 VOL. FILL =725 CU. YD.

EXIST. R/W

390.95 397.79 401.46 401.05 Off -28.6 398.94 Off 5.8 396.83 396.43 393.77 393.49 389.21 394.84

3:1 6% 6.7% 6.7% 8% 2.0% 3:1 3:1

1400+00.00

SEE SIDE ROAD PROFILES SHEETS
FOR SIDE ROAD AT STA. 1399+09.30 LT.

STAGE 1 AREA CUT =20 SQ. FT.
STAGE 1 AREA FILL =232 SQ. FT.
STAGE 2 AREA CUT =150 SQ. FT.
STAGE 2 AREA FILL =2215 SQ. FT.

STAGE 1 VOL. CUT =74 CU. YD.
STAGE 1 VOL. FILL =1285 CU. YD.
STAGE 2 VOL. CUT =4 CU. YD.
STAGE 2 VOL. FILL =1337 CU. YD.

EXIST. R/W

387.44 397.95 401.62 401.22 Off -28.0 399.11 Off 6.4 398.75 397.00 396.50 394.43 394.15 387.73 389.79

3:1 6% 6.7% 6.7% 9.9% 2.0% 3:1 3:1

1399+00.00

STA. 1398+04.21
END SP. DITCH RT. -2.14%
BEGIN SP. DITCH RT. 1.48%
ELEV. = 386.31

STAGE 1 AREA CUT =22 SQ. FT.
STAGE 1 AREA FILL =492 SQ. FT.
STAGE 2 AREA CUT =150 SQ. FT.
STAGE 2 AREA FILL =532 SQ. FT.

STAGE 1 VOL. CUT =3 CU. YD.
STAGE 1 VOL. FILL =73 CU. YD.
STAGE 2 VOL. CUT =0 CU. YD.
STAGE 2 VOL. FILL =74 CU. YD.

EXIST. R/W

384.80 398.19 401.86 401.46 Off -27.8 399.35 Off 6.6 398.94 397.24 396.83 395.02 394.74 386.31 388.71

3:1 6% 6.7% 6.7% 8.2% 2.0% 3:1 3:1

FL RT. = 386.31

1398+04.21

STAGE 1 AREA CUT =22 SQ. FT.
STAGE 1 AREA FILL =440 SQ. FT.
STAGE 2 AREA CUT =2 SQ. FT.
STAGE 2 AREA FILL =112 SQ. FT.

STAGE 1 VOL. CUT =644 CU. YD.
STAGE 1 VOL. FILL =1040 CU. YD.
STAGE 2 VOL. CUT =6 CU. YD.
STAGE 2 VOL. FILL =1217 CU. YD.

EXIST. R/W

384.54 398.20 401.87 401.47 Off -27.8 399.36 Off 6.6 398.96 397.25 396.85 395.03 394.75 386.43 388.95

3:1 6% 6.7% 6.7% 8.2% 2.0% 3:1 3:1

1398+00.00

STA. 1398+00 TO STA. 1400+00

Leonard.Speed 9/23/2016 11:28:44 AM
WORKSPACE=c:\projects\leonard.speed\d0271682\r06377.21.CX.00.dgn
CONSTRUCTION=c:\projects\leonard.speed\d0271682\r06377.21.CX.00.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

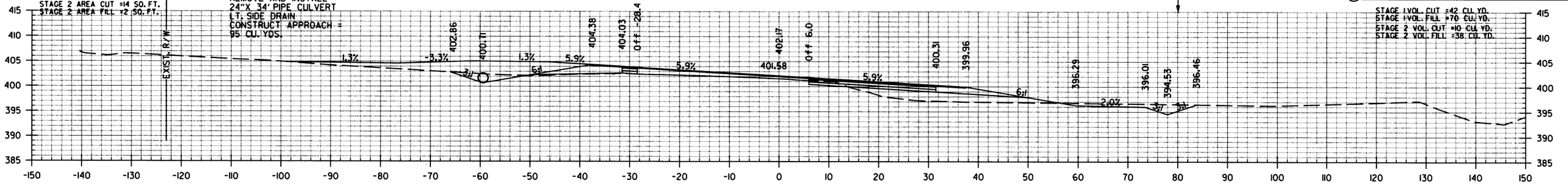
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	849	888

(2) CROSS SECTIONS

STA. 1403+39.00 IN PLACE
24"X 28' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
95 CU. YDS.

STAGE 1 AREA CUT =26 SQ. FT.
STAGE 1 AREA FILL =56 SQ. FT.
STAGE 2 AREA CUT =14 SQ. FT.
STAGE 2 AREA FILL =2 SQ. FT.

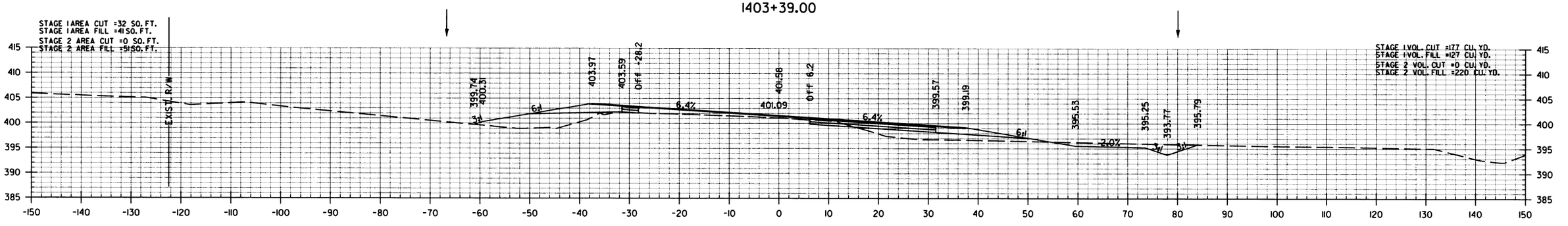
STAGE 1 VOL. CUT =42 CU. YD.
STAGE 1 VOL. FILL =70 CU. YD.
STAGE 2 VOL. CUT =10 CU. YD.
STAGE 2 VOL. FILL =38 CU. YD.



1403+39.00

STAGE 1 AREA CUT =32 SQ. FT.
STAGE 1 AREA FILL =41 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =51 SQ. FT.

STAGE 1 VOL. CUT =177 CU. YD.
STAGE 1 VOL. FILL =127 CU. YD.
STAGE 2 VOL. CUT =0 CU. YD.
STAGE 2 VOL. FILL =220 CU. YD.



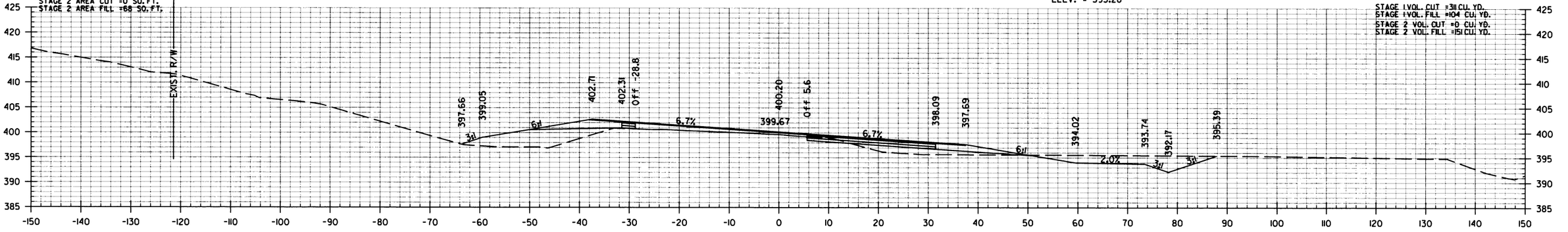
1403+00.00

STA. 1402+73.75 MAX. SUPERELEVATION (0.067 '/')

STA. 1402+75.00
END SP. DITCH RT. 1.48%
BEGIN SP. DITCH RT. 1.95%
ELEV. = 393.28

STAGE 1 AREA CUT =64 SQ. FT.
STAGE 1 AREA FILL =28 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =68 SQ. FT.

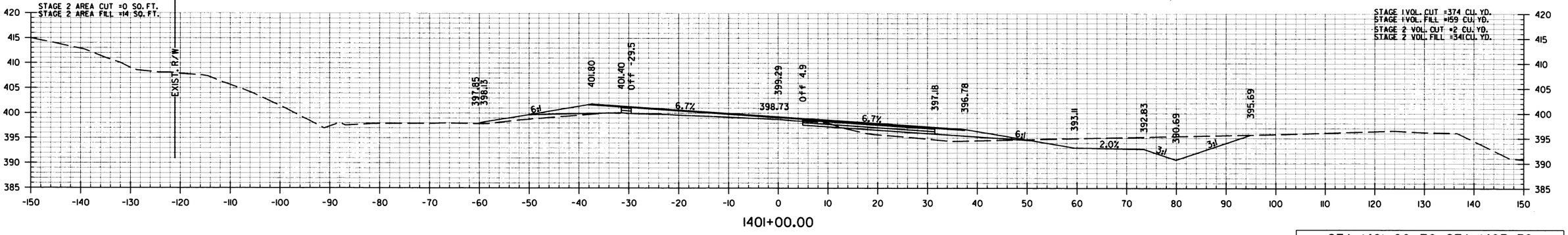
STAGE 1 VOL. CUT =311 CU. YD.
STAGE 1 VOL. FILL =104 CU. YD.
STAGE 2 VOL. CUT =0 CU. YD.
STAGE 2 VOL. FILL =151 CU. YD.



1402+00.00

STAGE 1 AREA CUT =104 SQ. FT.
STAGE 1 AREA FILL =28 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =14 SQ. FT.

STAGE 1 VOL. CUT =374 CU. YD.
STAGE 1 VOL. FILL =159 CU. YD.
STAGE 2 VOL. CUT =2 CU. YD.
STAGE 2 VOL. FILL =341 CU. YD.



1401+00.00

STA. 1401+00 TO STA. 1403+39

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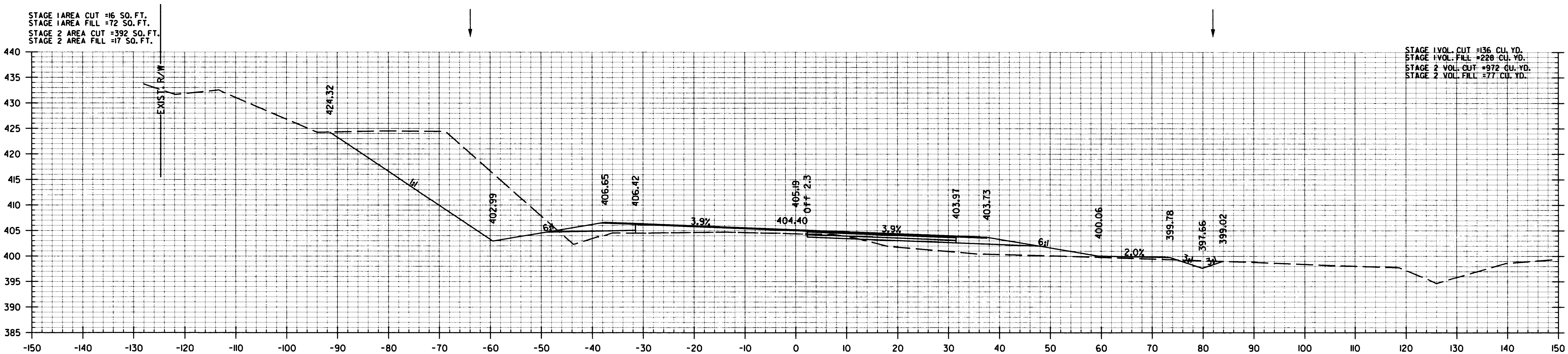
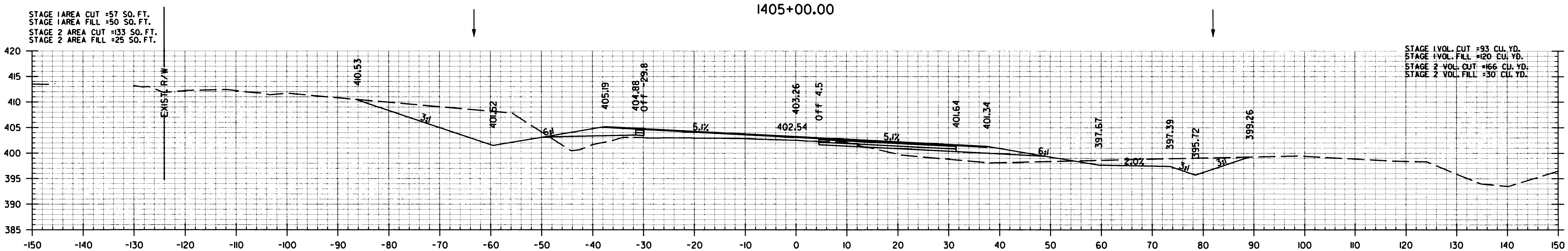
MicroStation Connect Edition
C:\Pw\81-Iocal\baker.projects\leonardspeed\d0271682\r06377_21.CX.001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	850	888
				②	CROSS SECTIONS				



1405+00.00



1404+00.00

STA. 1404+00 TO STA. 1405+00

Leonard.Speed 9/23/2016 11:28:46 AM
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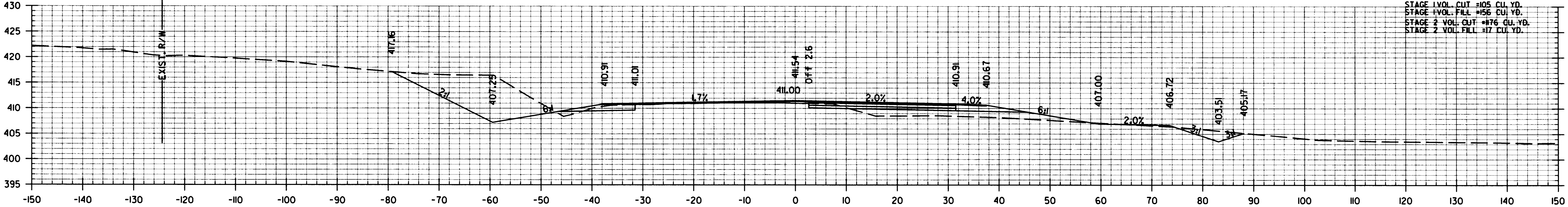
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	851	888
					(2)	CROSS SECTIONS			

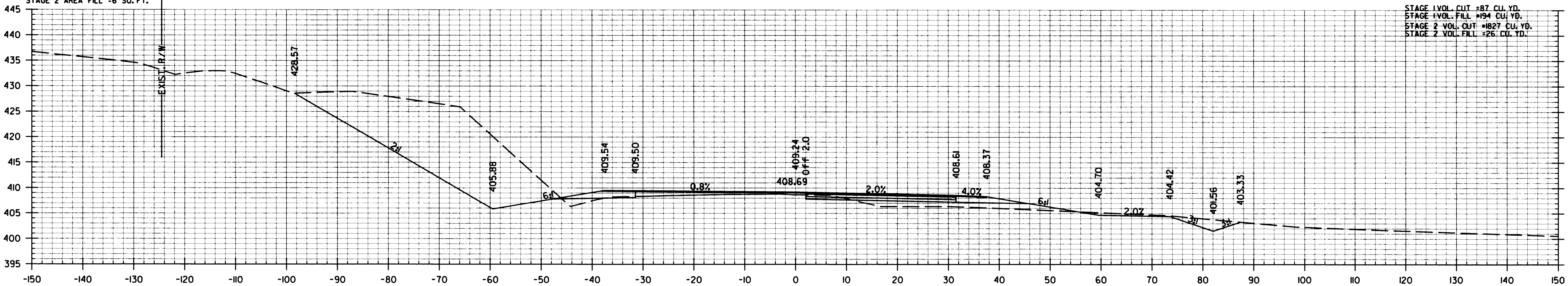
STAGE 1 AREA CUT =25 SQ.FT.
STAGE 1 AREA FILL =47 SQ.FT.
STAGE 2 AREA CUT =154 SQ.FT.
STAGE 2 AREA FILL =3 SQ.FT.

STA. 1408+13.75 END SUPERELEVATION



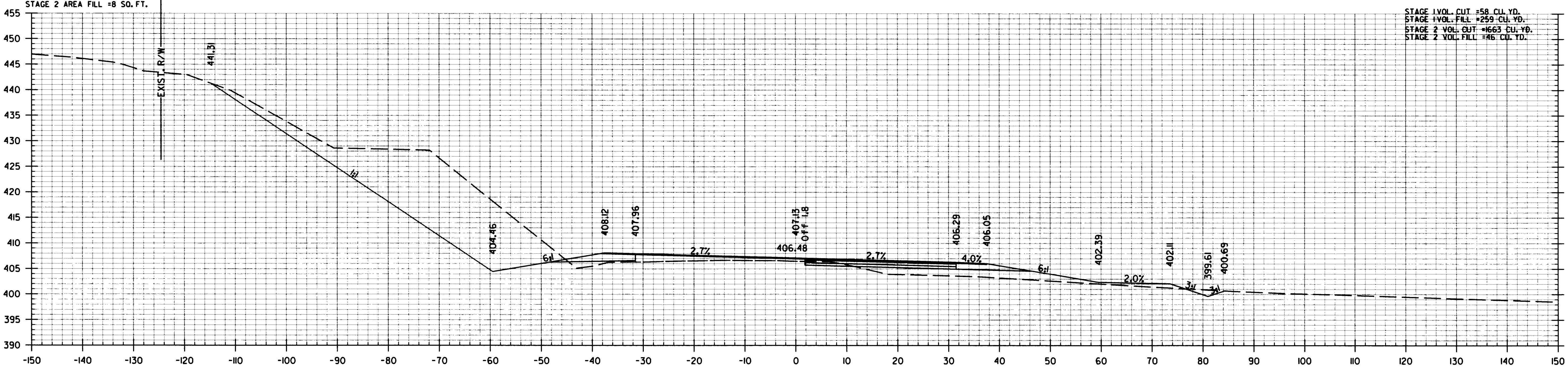
1408+00.00

STAGE 1 AREA CUT =32 SQ.FT.
STAGE 1 AREA FILL =38 SQ.FT.
STAGE 2 AREA CUT =481 SQ.FT.
STAGE 2 AREA FILL =6 SQ.FT.



1407+00.00

STAGE 1 AREA CUT =15 SQ.FT.
STAGE 1 AREA FILL =67 SQ.FT.
STAGE 2 AREA CUT =506 SQ.FT.
STAGE 2 AREA FILL =8 SQ.FT.



1406+00.00

STA. 1406+00 TO STA. 1408+00

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REVISED DATE: $REVDATE$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	852	888

(2) CROSS SECTIONS

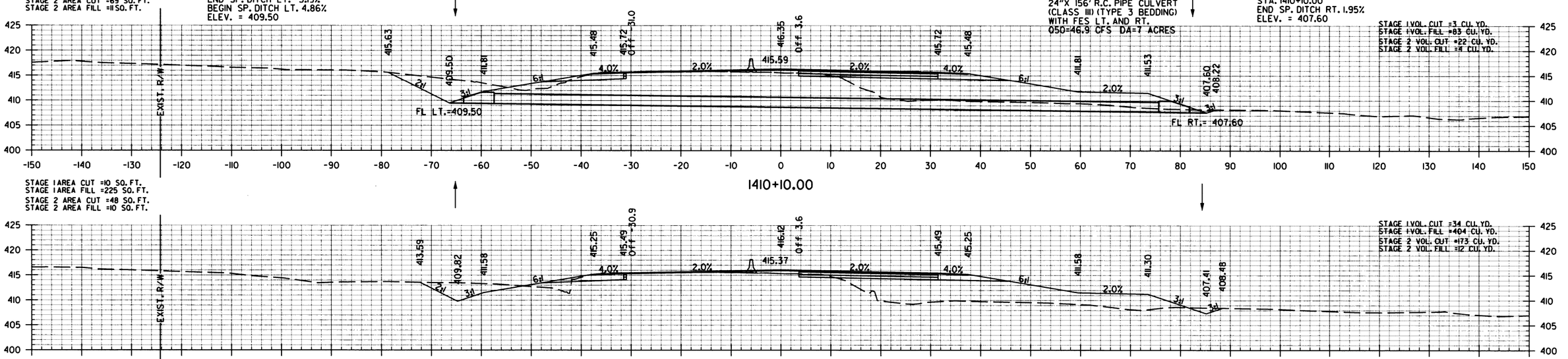
STAGE 1 AREA CUT =8 SQ. FT.
STAGE 1 AREA FILL =224 SQ. FT.
STAGE 2 AREA CUT =69 SQ. FT.
STAGE 2 AREA FILL =115 SQ. FT.

STA. 1410+10.00
END SP. DITCH LT. -3.19%
BEGIN SP. DITCH LT. 4.86%
ELEV. = 409.50

STA. 1410+10.00 CONSTRUCT 24"X 156' R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) WITH FES LT. AND RT.
Q50=46.9 CFS DA=7 ACRES

STA. 1410+10.00
END SP. DITCH RT. 1.95%
ELEV. = 407.60

STAGE 1 VOL. CUT =3 CU. YD.
STAGE 1 VOL. FILL =83 CU. YD.
STAGE 2 VOL. CUT =22 CU. YD.
STAGE 2 VOL. FILL =4 CU. YD.



1410+10.00

STAGE 1 AREA CUT =10 SQ. FT.
STAGE 1 AREA FILL =225 SQ. FT.
STAGE 2 AREA CUT =48 SQ. FT.
STAGE 2 AREA FILL =10 SQ. FT.

STAGE 1 VOL. CUT =34 CU. YD.
STAGE 1 VOL. FILL =404 CU. YD.
STAGE 2 VOL. CUT =173 CU. YD.
STAGE 2 VOL. FILL =12 CU. YD.

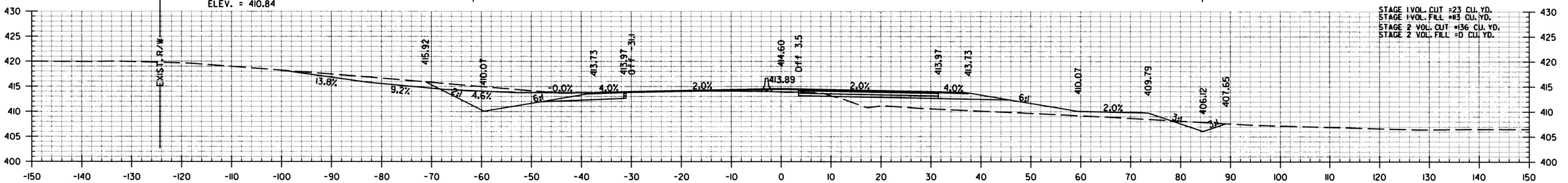
1410+00.00

STAGE 1 AREA CUT =17 SQ. FT.
STAGE 1 AREA FILL =106 SQ. FT.
STAGE 2 AREA CUT =93 SQ. FT.
STAGE 2 AREA FILL =0 SQ. FT.

STA. 1409+67.91
BEGIN SP. DITCH LT. -3.19%
ELEV. = 410.84

STA. 1409+34.00
CONSTRUCT APPROACH ON LT. = 60 CU. YDS.

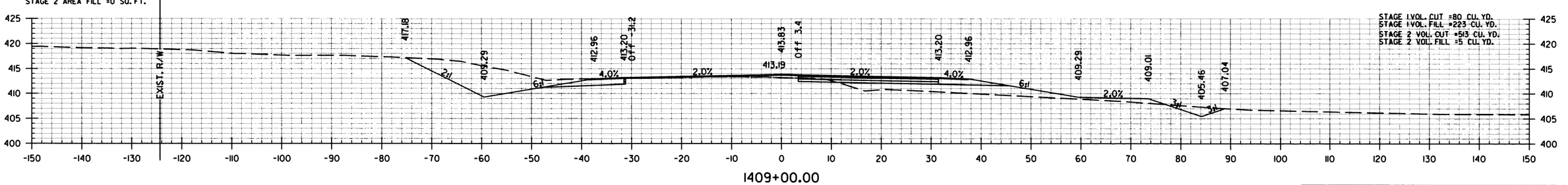
STAGE 1 VOL. CUT =23 CU. YD.
STAGE 1 VOL. FILL =113 CU. YD.
STAGE 2 VOL. CUT =136 CU. YD.
STAGE 2 VOL. FILL =0 CU. YD.



1409+34.00

STAGE 1 AREA CUT =19 SQ. FT.
STAGE 1 AREA FILL =74 SQ. FT.
STAGE 2 AREA CUT =123 SQ. FT.
STAGE 2 AREA FILL =0 SQ. FT.

STAGE 1 VOL. CUT =80 CU. YD.
STAGE 1 VOL. FILL =223 CU. YD.
STAGE 2 VOL. CUT =513 CU. YD.
STAGE 2 VOL. FILL =5 CU. YD.



1409+00.00

STA. 1409+00 TO STA. 1410+10

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REVISED DATE: **REVDATE**

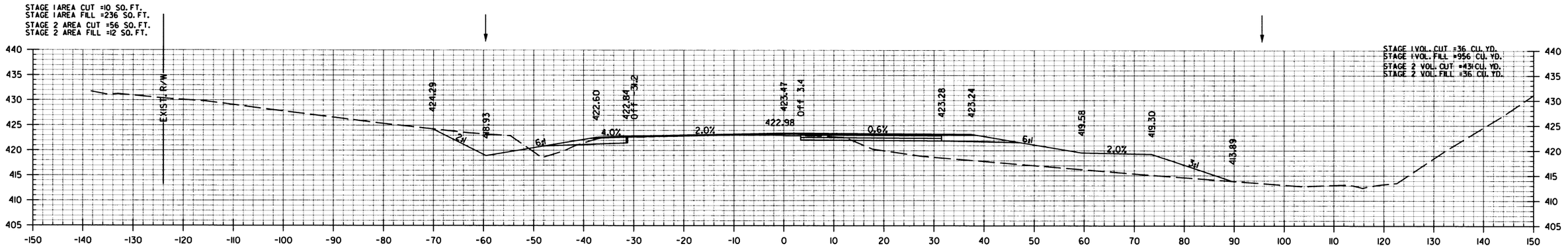
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	853	888

(2) CROSS SECTIONS

STAGE 1 AREA CUT =10 SQ. FT.
STAGE 1 AREA FILL =236 SQ. FT.
STAGE 2 AREA CUT =56 SQ. FT.
STAGE 2 AREA FILL =12 SQ. FT.

STAGE 1 VOL. CUT =36 CU. YD.
STAGE 1 VOL. FILL =956 CU. YD.
STAGE 2 VOL. CUT =431 CU. YD.
STAGE 2 VOL. FILL =36 CU. YD.

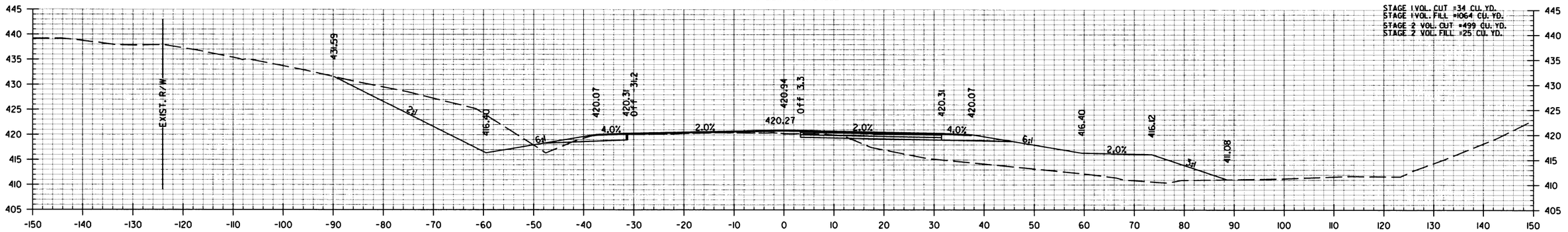


1413+00.00

STA. 1412+37.99 BEGIN SUPERELEVATION

STAGE 1 AREA CUT =9 SQ. FT.
STAGE 1 AREA FILL =280 SQ. FT.
STAGE 2 AREA CUT =177 SQ. FT.
STAGE 2 AREA FILL =8 SQ. FT.

STAGE 1 VOL. CUT =34 CU. YD.
STAGE 1 VOL. FILL =1064 CU. YD.
STAGE 2 VOL. CUT =499 CU. YD.
STAGE 2 VOL. FILL =25 CU. YD.

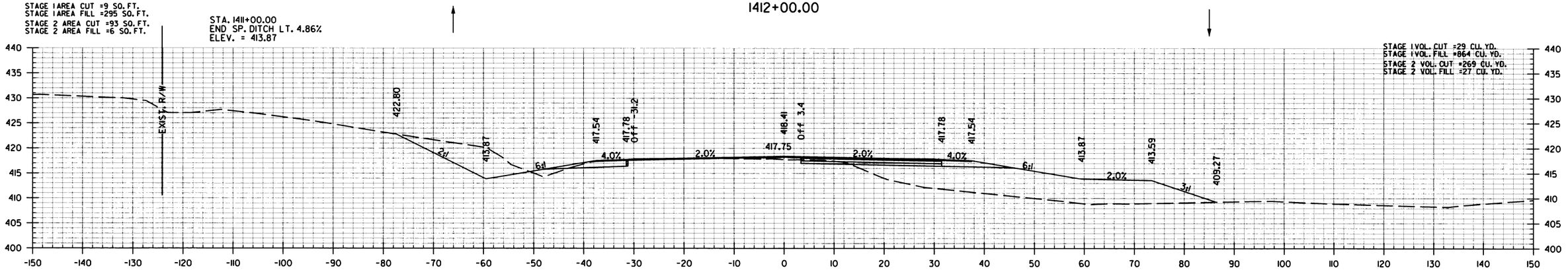


1412+00.00

STA. 1411+00.00
END SP. DITCH LT. 4.86%
ELEV. = 413.87

STAGE 1 AREA CUT =9 SQ. FT.
STAGE 1 AREA FILL =295 SQ. FT.
STAGE 2 AREA CUT =93 SQ. FT.
STAGE 2 AREA FILL =6 SQ. FT.

STAGE 1 VOL. CUT =29 CU. YD.
STAGE 1 VOL. FILL =864 CU. YD.
STAGE 2 VOL. CUT =269 CU. YD.
STAGE 2 VOL. FILL =27 CU. YD.



1411+00.00

STA. 1411+00 TO STA. 1413+00

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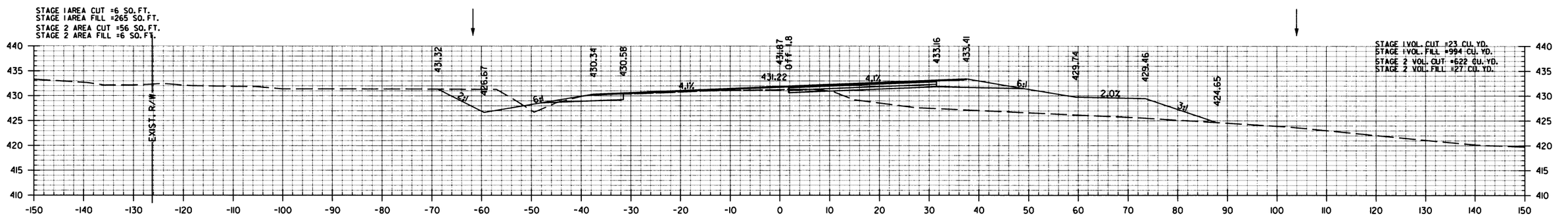
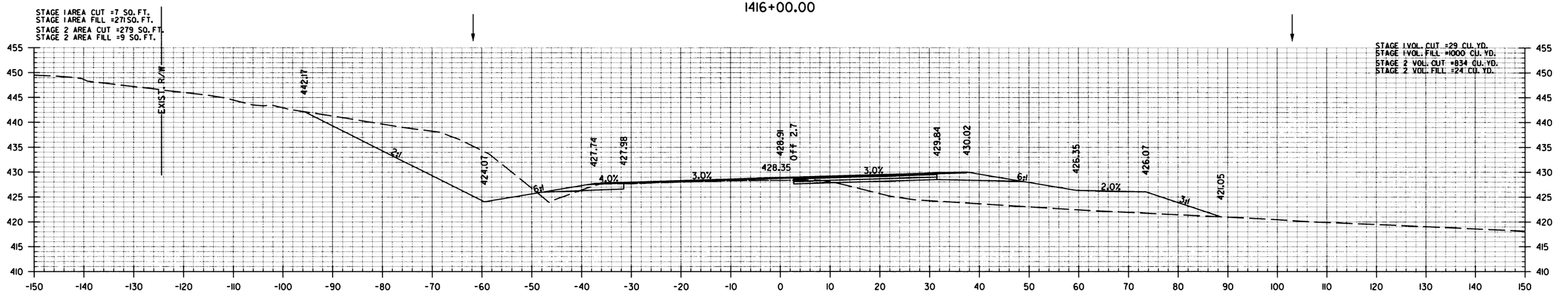
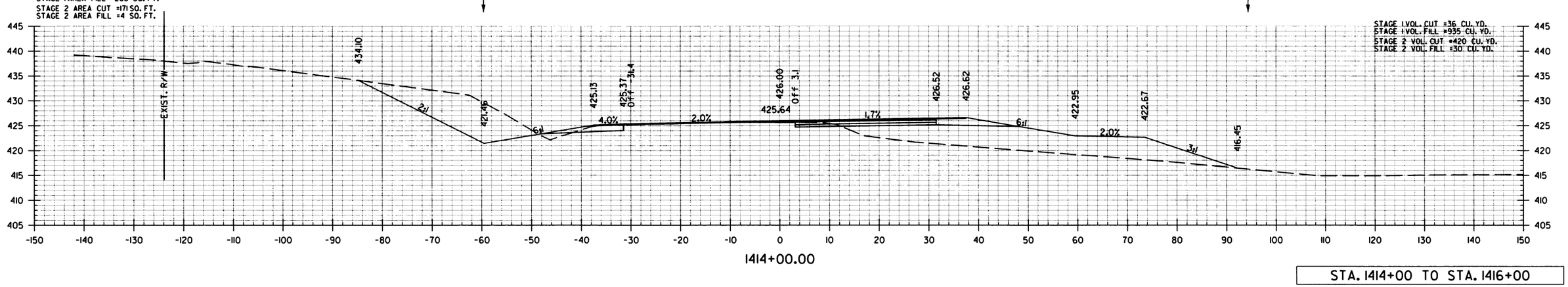
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	854	888
				(2)	CROSS SECTIONS			







STA. 1414+00 TO STA. 1416+00

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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

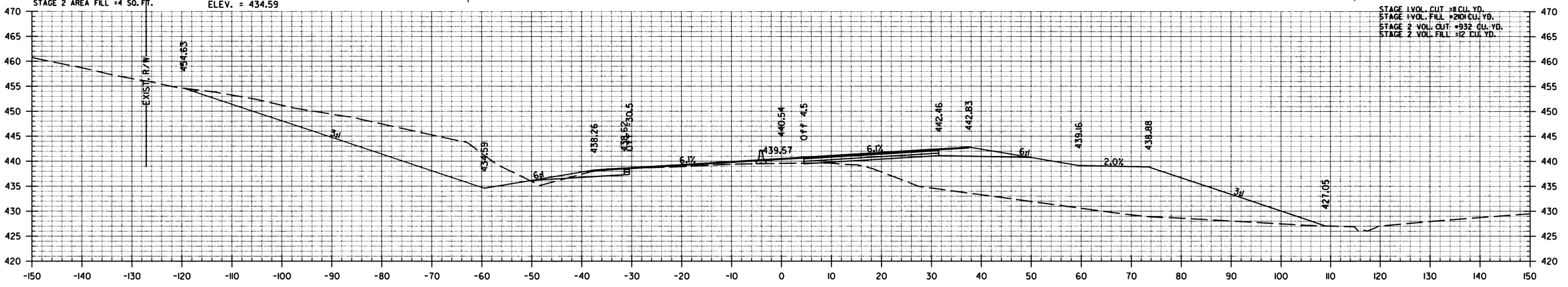
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	855	888

(2) CROSS SECTIONS

STAGE 1 AREA CUT =2 SQ. FT.
STAGE 1 AREA FILL =602 SQ. FT.
STAGE 2 AREA CUT =296 SQ. FT.
STAGE 2 AREA FILL =4 SQ. FT.

STA. 1419+00.00
BEGIN SP. DITCH LT. -1.18%
ELEV. = 434.59

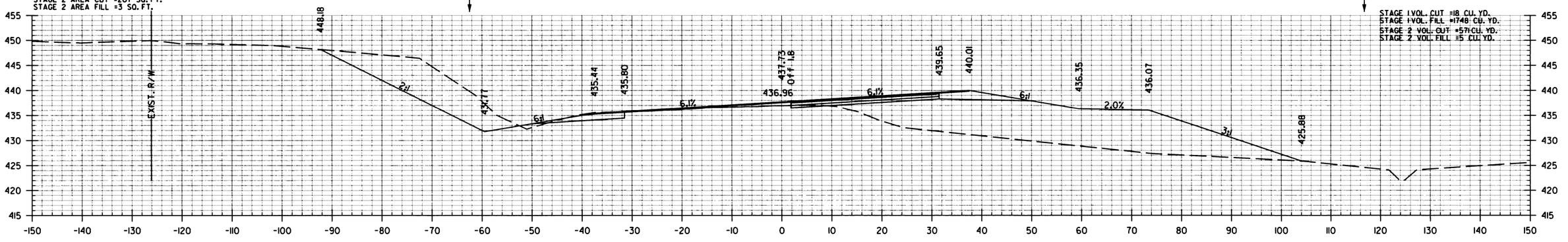
STAGE 1 VOL. CUT =11 CU. YD.
STAGE 1 VOL. FILL =2101 CU. YD.
STAGE 2 VOL. CUT =932 CU. YD.
STAGE 2 VOL. FILL =12 CU. YD.



1419+00.00

STAGE 1 AREA CUT =4 SQ. FT.
STAGE 1 AREA FILL =532 SQ. FT.
STAGE 2 AREA CUT =207 SQ. FT.
STAGE 2 AREA FILL =3 SQ. FT.

STAGE 1 VOL. CUT =18 CU. YD.
STAGE 1 VOL. FILL =1748 CU. YD.
STAGE 2 VOL. CUT =571 CU. YD.
STAGE 2 VOL. FILL =5 CU. YD.



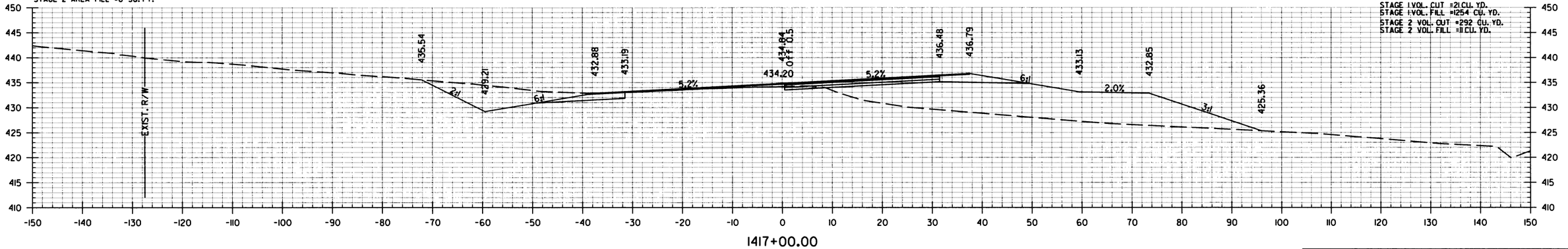
1418+00.00

STAGE 1 AREA CUT =6 SQ. FT.
STAGE 1 AREA FILL =412 SQ. FT.
STAGE 2 AREA CUT =101 SQ. FT.
STAGE 2 AREA FILL =0 SQ. FT.

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEAY AT STA. 1417+03.00 LT.

STA. 1417+77.99 MAX. SUPERELEVATION (0.061'/')

STAGE 1 VOL. CUT =21 CU. YD.
STAGE 1 VOL. FILL =1254 CU. YD.
STAGE 2 VOL. CUT =292 CU. YD.
STAGE 2 VOL. FILL =11 CU. YD.



1417+00.00

STA. 1417+00 TO STA. 1419+00

LeonardSpeed 9/23/2016 11:28:51 AM
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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

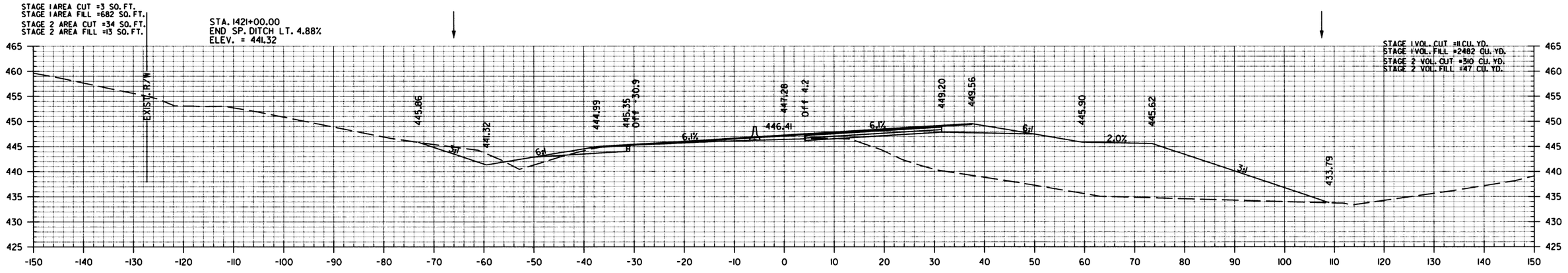
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	856	888

(2) CROSS SECTIONS

STAGE 1 AREA CUT =3 SQ. FT.
STAGE 1 AREA FILL =682 SQ. FT.
STAGE 2 AREA CUT =34 SQ. FT.
STAGE 2 AREA FILL =13 SQ. FT.

STA. 1421+00.00
END SP. DITCH LT. 4.88%
ELEV. = 441.32

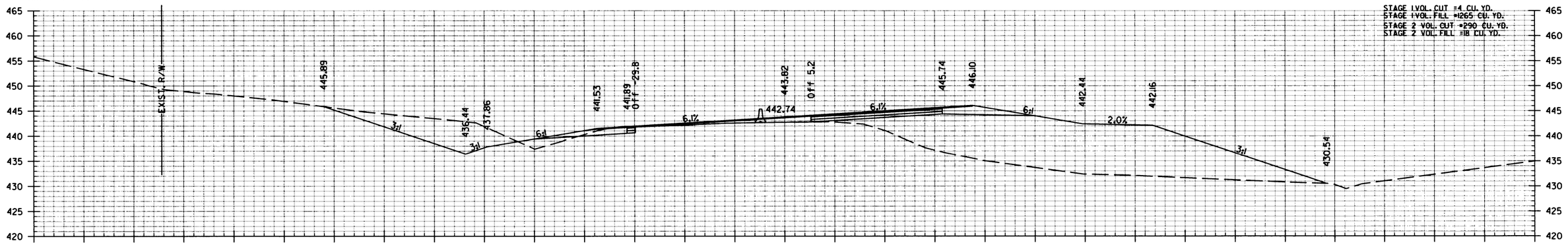
STAGE 1 VOL. CUT =11 CU. YD.
STAGE 1 VOL. FILL =2482 CU. YD.
STAGE 2 VOL. CUT =30 CU. YD.
STAGE 2 VOL. FILL =47 CU. YD.



1421+00.00

STAGE 1 AREA CUT =3 SQ. FT.
STAGE 1 AREA FILL =658 SQ. FT.
STAGE 2 AREA CUT =134 SQ. FT.
STAGE 2 AREA FILL =12 SQ. FT.

STAGE 1 VOL. CUT =4 CU. YD.
STAGE 1 VOL. FILL =1265 CU. YD.
STAGE 2 VOL. CUT =290 CU. YD.
STAGE 2 VOL. FILL =18 CU. YD.



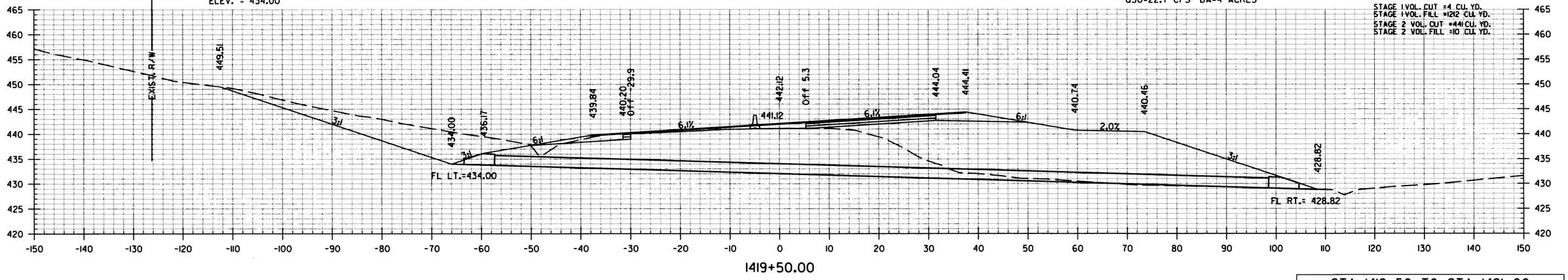
1420+00.00

STA. 1419+50.00 CONSTRUCT
24"X 167' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=22.7 CFS DA=4 ACRES

STAGE 1 AREA CUT =2 SQ. FT.
STAGE 1 AREA FILL =707 SQ. FT.
STAGE 2 AREA CUT =180 SQ. FT.
STAGE 2 AREA FILL =7 SQ. FT.

STA. 1419+50.00
END SP. DITCH LT. -1.18%
BEGIN SP. DITCH LT. 4.88%
ELEV. = 434.00

STAGE 1 VOL. CUT =4 CU. YD.
STAGE 1 VOL. FILL =1212 CU. YD.
STAGE 2 VOL. CUT =441 CU. YD.
STAGE 2 VOL. FILL =10 CU. YD.



1419+50.00

STA. 1419+50 TO STA. 1421+00

LeonardSpeed 9/23/2016 11:28:52 AM
W:\0027682\Leonard Speed\Design\Roadway\Sheets\
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REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

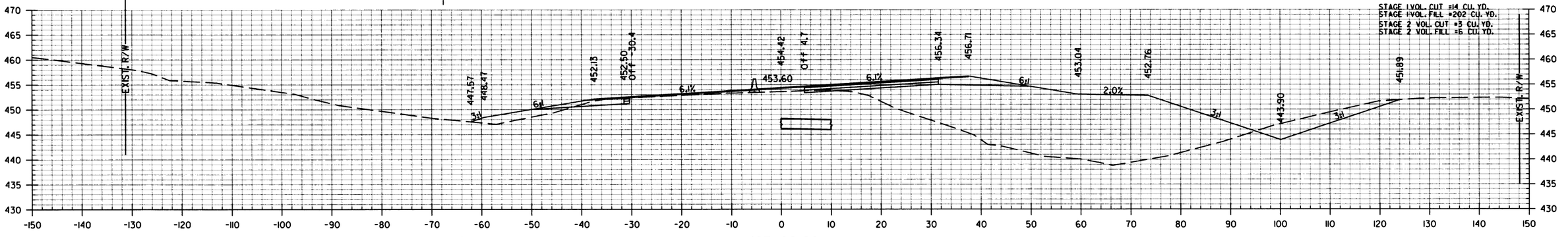
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	857	888
				(2)	CROSS SECTIONS			

STAGE 1 AREA CUT =58 SQ. FT.
STAGE 1 AREA FILL =729 SQ. FT.
STAGE 2 AREA CUT =10 SQ. FT.
STAGE 2 AREA FILL =24 SQ. FT.

STA. 1423+18.80 MAX. SUPERELEVATION (0.061'/')

STA. 1423+50.00 CONSTRUCT
24"X 179' R.C. PIPE CULVERT
30° LT. FWD SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=9.7 CFS DA=4 ACRES

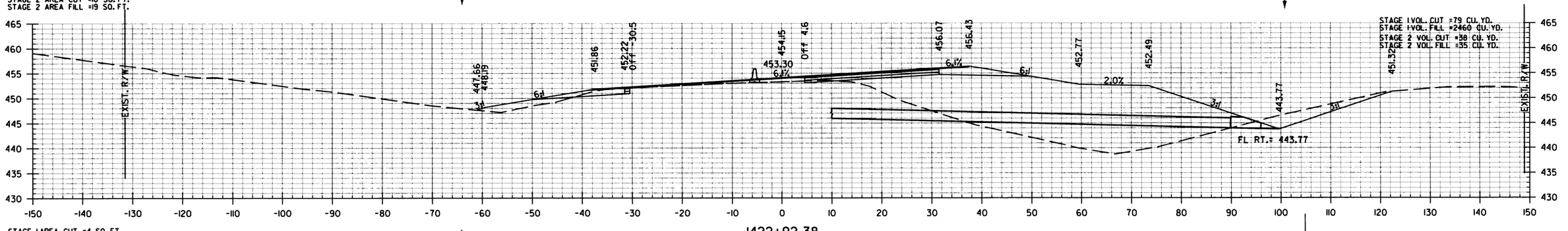
STAGE 1 VOL. CUT =14 CU. YD.
STAGE 1 VOL. FILL =202 CU. YD.
STAGE 2 VOL. CUT =3 CU. YD.
STAGE 2 VOL. FILL =6 CU. YD.



1423+00.00

STAGE 1 AREA CUT =43 SQ. FT.
STAGE 1 AREA FILL =703 SQ. FT.
STAGE 2 AREA CUT =10 SQ. FT.
STAGE 2 AREA FILL =19 SQ. FT.

STAGE 1 VOL. CUT =79 CU. YD.
STAGE 1 VOL. FILL =2460 CU. YD.
STAGE 2 VOL. CUT =38 CU. YD.
STAGE 2 VOL. FILL =55 CU. YD.

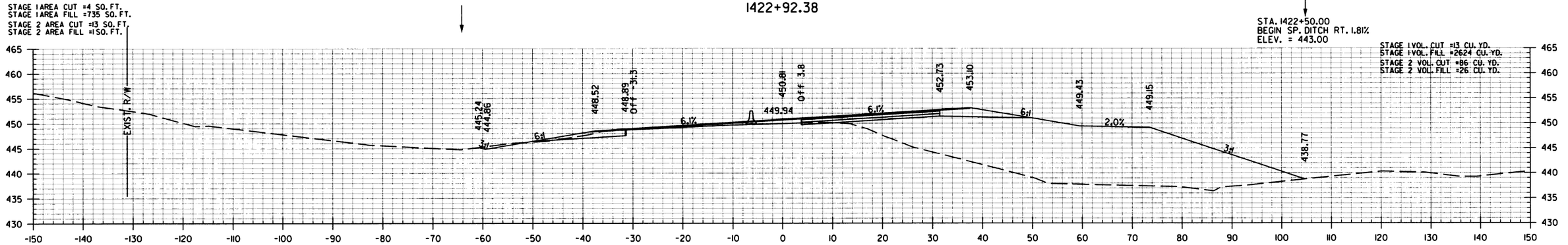


1422+92.38

STA. 1422+50.00
BEGIN SP. DITCH RT. 1.81%
ELEV. = 443.00

STAGE 1 AREA CUT =4 SQ. FT.
STAGE 1 AREA FILL =735 SQ. FT.
STAGE 2 AREA CUT =13 SQ. FT.
STAGE 2 AREA FILL =150 SQ. FT.

STAGE 1 VOL. CUT =13 CU. YD.
STAGE 1 VOL. FILL =2624 CU. YD.
STAGE 2 VOL. CUT =86 CU. YD.
STAGE 2 VOL. FILL =26 CU. YD.



1422+00.00

STA. 1422+00 TO STA. 1423+00

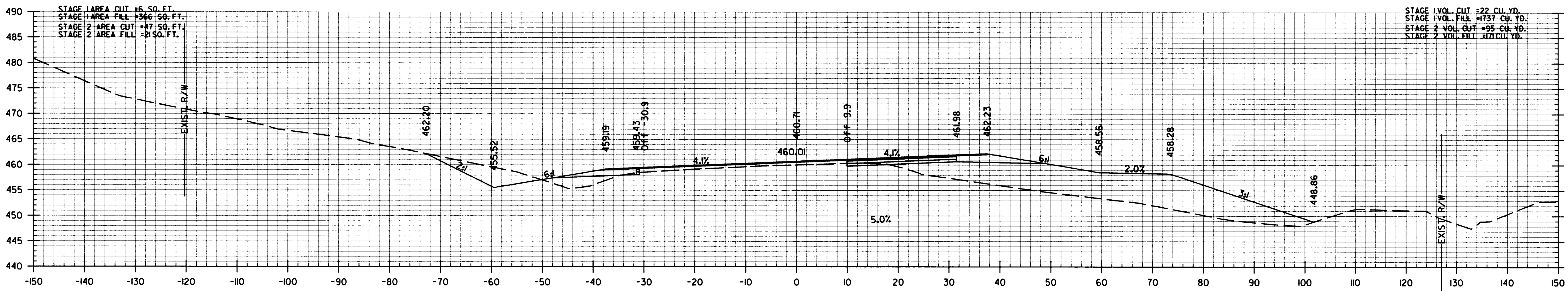
LeonardSpeed 9/23/2016 11:28:53 AM
WORKSPACE: Leonard.Speed
DGN: C:\Users\leonard.speed\Documents\Projects\leonard.speed\d0271682\r06377.2i.CX.00.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	858	888

(2) CROSS SECTIONS

STAGE 1 AREA CUT =6 SQ. FT.
STAGE 1 AREA FILL =366 SQ. FT.
STAGE 2 AREA CUT =47 SQ. FT.
STAGE 2 AREA FILL =21 SQ. FT.

STAGE 1 VOL. CUT =22 CU. YD.
STAGE 1 VOL. FILL =1737 CU. YD.
STAGE 2 VOL. CUT =95 CU. YD.
STAGE 2 VOL. FILL =171 CU. YD.

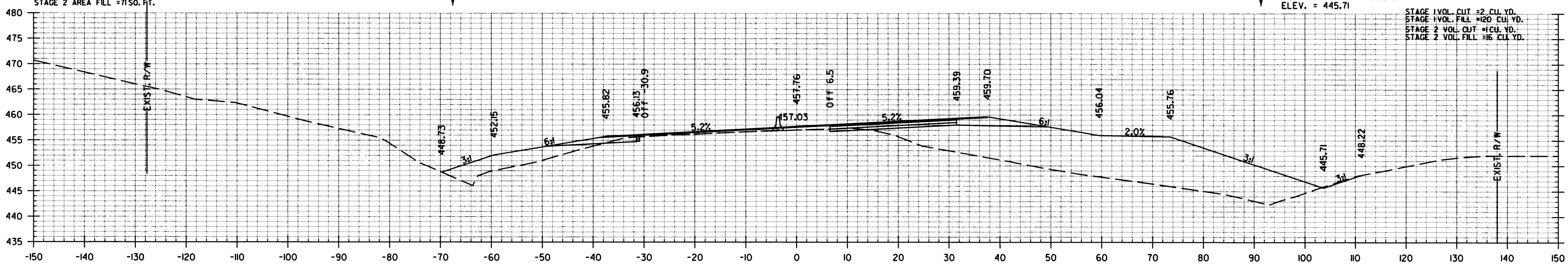


1425+00.00

STAGE 1 AREA CUT =6 SQ. FT.
STAGE 1 AREA FILL =572 SQ. FT.
STAGE 2 AREA CUT =4 SQ. FT.
STAGE 2 AREA FILL =71 SQ. FT.

STA. 1424+00.00
BEGIN SP. DITCH RT. 1.81%
ELEV. = 445.71

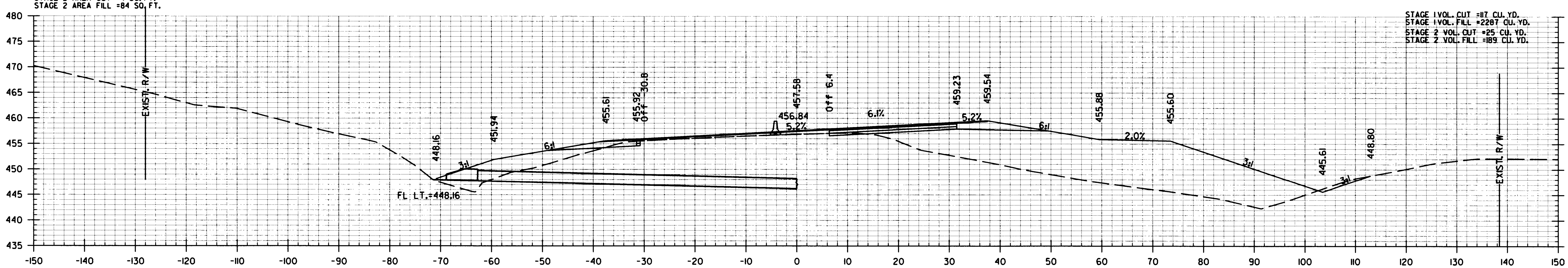
STAGE 1 VOL. CUT =2 CU. YD.
STAGE 1 VOL. FILL =120 CU. YD.
STAGE 2 VOL. CUT =1 CU. YD.
STAGE 2 VOL. FILL =16 CU. YD.



1424+00.00

STAGE 1 AREA CUT =9 SQ. FT.
STAGE 1 AREA FILL =580 SQ. FT.
STAGE 2 AREA CUT =4 SQ. FT.
STAGE 2 AREA FILL =84 SQ. FT.

STAGE 1 VOL. CUT =117 CU. YD.
STAGE 1 VOL. FILL =2287 CU. YD.
STAGE 2 VOL. CUT =25 CU. YD.
STAGE 2 VOL. FILL =189 CU. YD.



1423+94.36

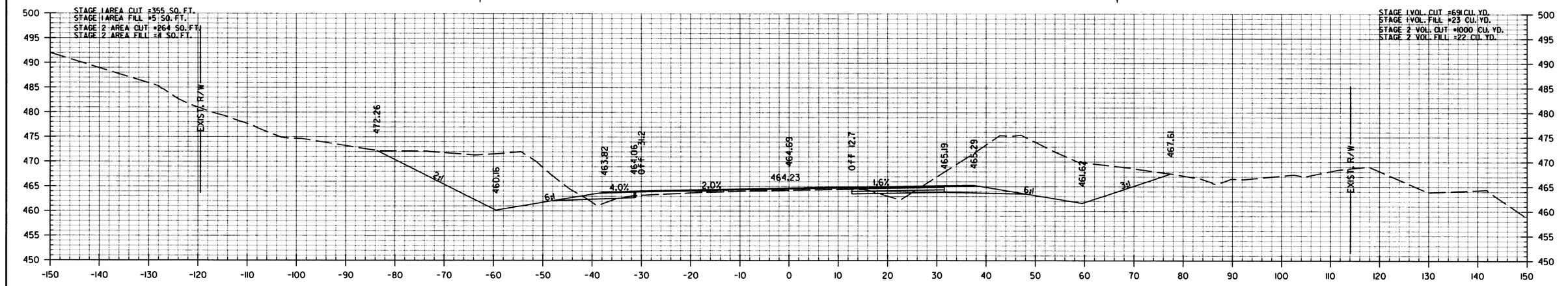
STA. 1423+94 TO STA. 1425+00

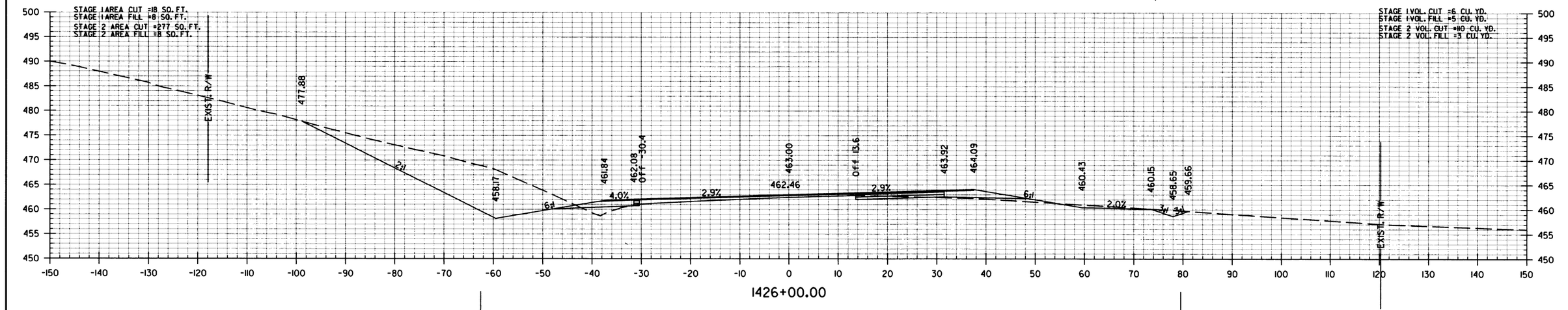
Leonard.Speed 9/23/2016 11:28:54 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271682\r061377.2L_CX_001.dgn
REVISED DATE: ##REVDATE##

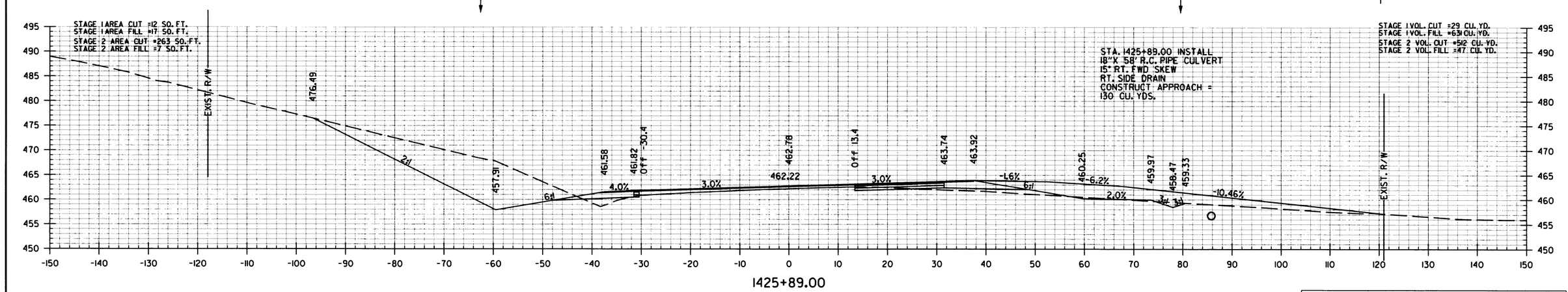
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	859	888

(2) CROSS SECTIONS







STA. 1425+89 TO STA. 1427+00

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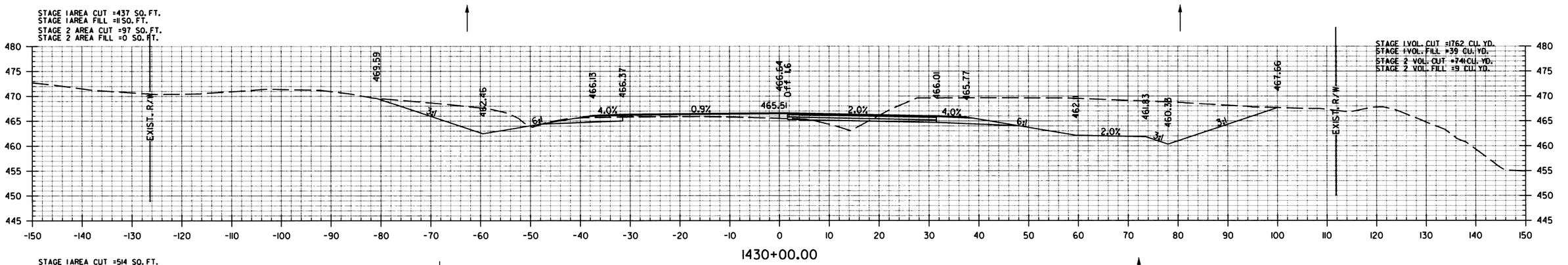
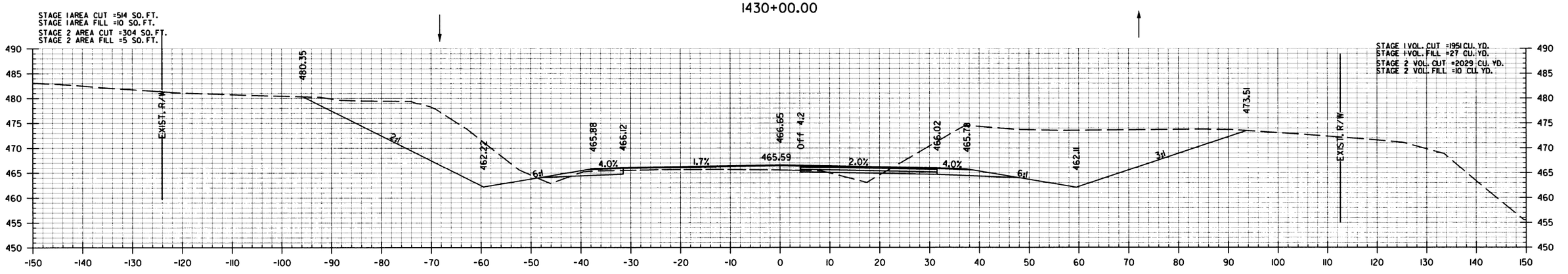
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

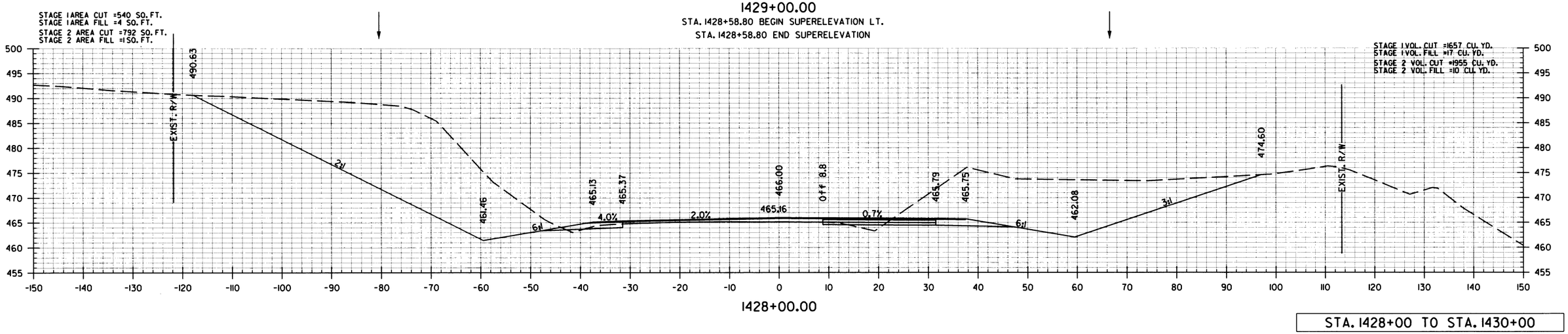
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	860	888
(2)	CROSS SECTIONS			





STA. 1428+58.80 BEGIN SUPERELEVATION LT.
STA. 1428+58.80 END SUPERELEVATION



STA. 1428+00 TO STA. 1430+00

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REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL

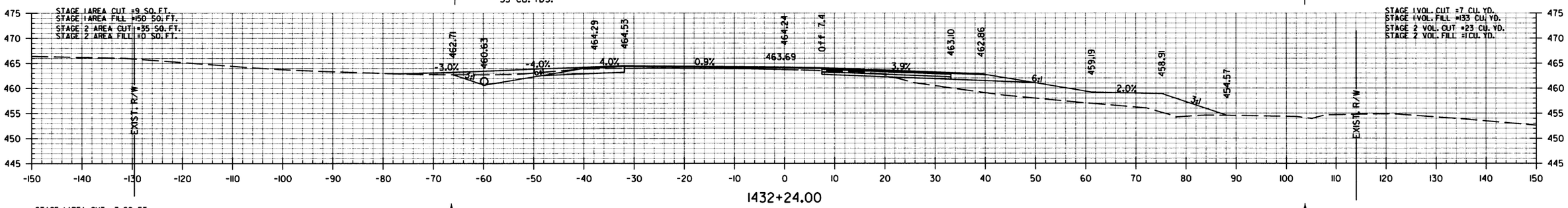
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	861	888

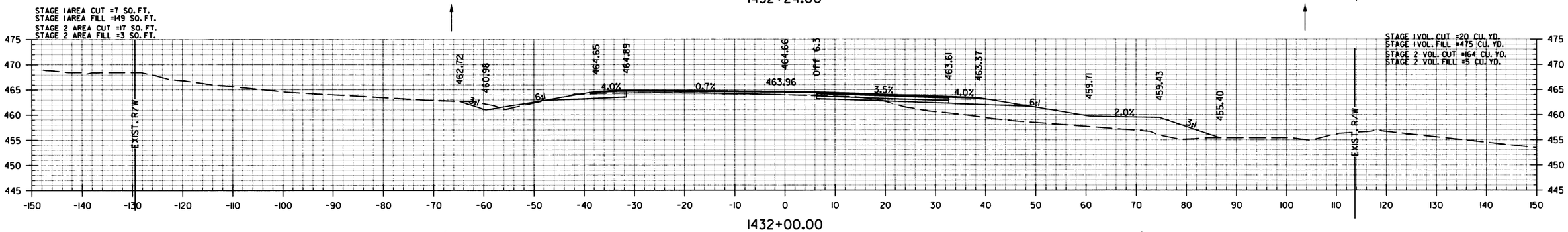
(2) CROSS SECTIONS

STA. 1432+24.00 IN PLACE
18"X 40' C.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 50' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
35 CU. YDS.

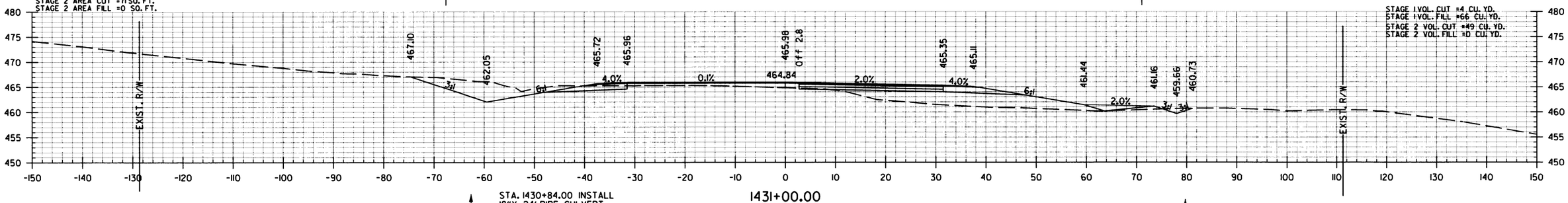
STA. 1432+90.00 MAX SUPERELEVATION RT. (0.049'/')



1432+24.00



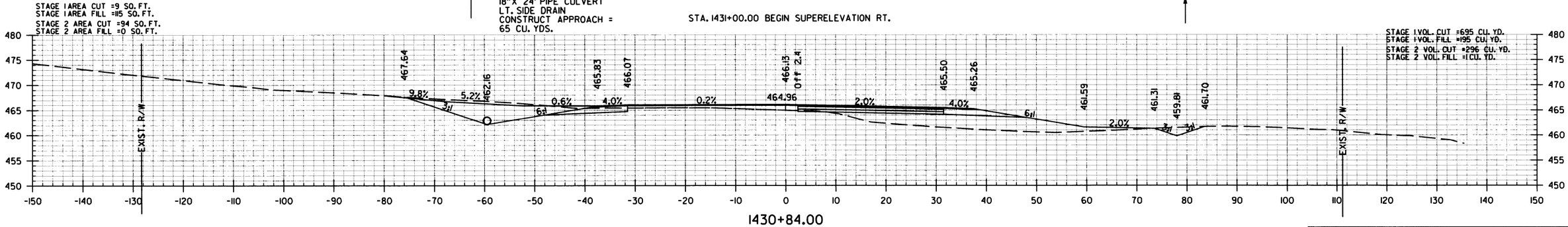
1432+00.00



STA. 1430+84.00 INSTALL
18"X 24' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
65 CU. YDS.

1431+00.00

STA. 1431+00.00 BEGIN SUPERELEVATION RT.



1430+84.00

STA. 1430+84 TO STA. 1432+24

LeonardSpeed 9/23/2016 11:28:57 AM
WORKSPACE: LeonardSpeed
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REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	862	888

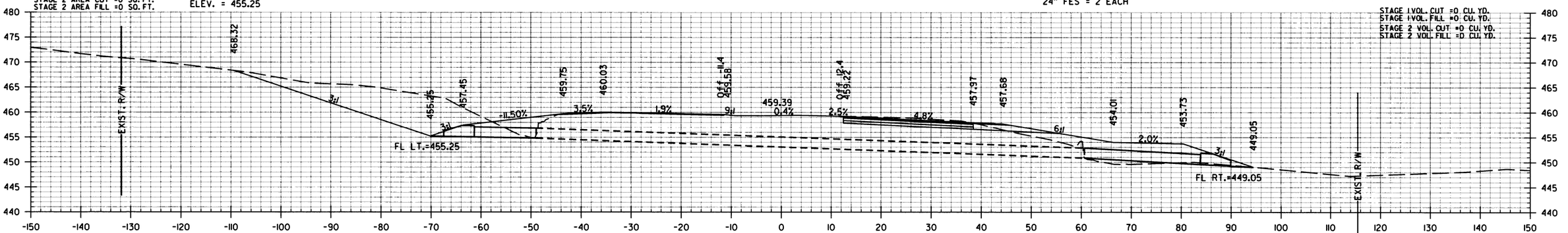
(2) CROSS SECTIONS

STA. 1434+85.73 IN PLACE
24"X 110' R.C. PIPE CULVERT
WITH HDWLS. LT. AND RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND 12' LT. AND 24' RT.
(CLASS III) (TYPE 3 BEDDING)
WITH FES.
050=23.2 CFSDA=3 ACRES
24" R.C. PIPE = 44 LIN. FT.
24" FES = 2 EACH

STAGE 1 AREA CUT =0 SQ. FT.
STAGE 1 AREA FILL =0 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =0 SQ. FT.

STA. 1434+83.94
END SP. DITCH LT. -3.09%
BEGIN SP. DITCH LT. 5.67%
ELEV. = 455.25

STAGE 1 VOL. CUT =0 CU. YD.
STAGE 1 VOL. FILL =0 CU. YD.
STAGE 2 VOL. CUT =0 CU. YD.
STAGE 2 VOL. FILL =0 CU. YD.

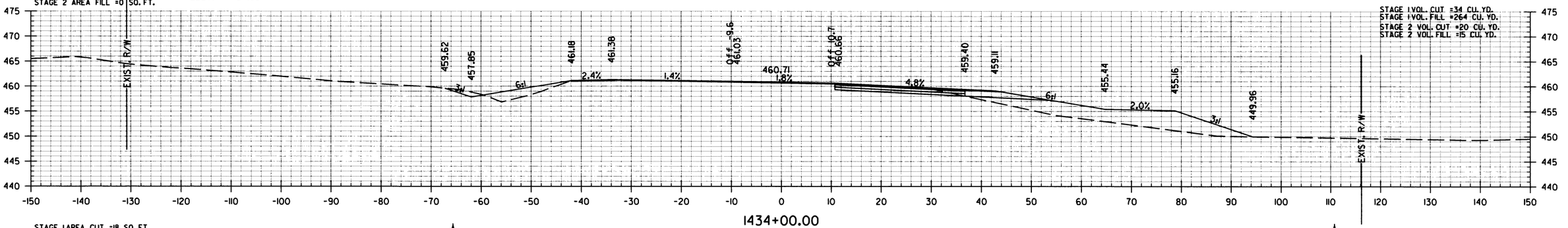


1434+83.94

STAGE 1 AREA CUT =0 SQ. FT.
STAGE 1 AREA FILL =0 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =0 SQ. FT.

STA. 1434+00.00
BEGIN SP. DITCH LT. -3.09%
ELEV. = 457.85

STAGE 1 VOL. CUT =34 CU. YD.
STAGE 1 VOL. FILL =264 CU. YD.
STAGE 2 VOL. CUT =20 CU. YD.
STAGE 2 VOL. FILL =15 CU. YD.

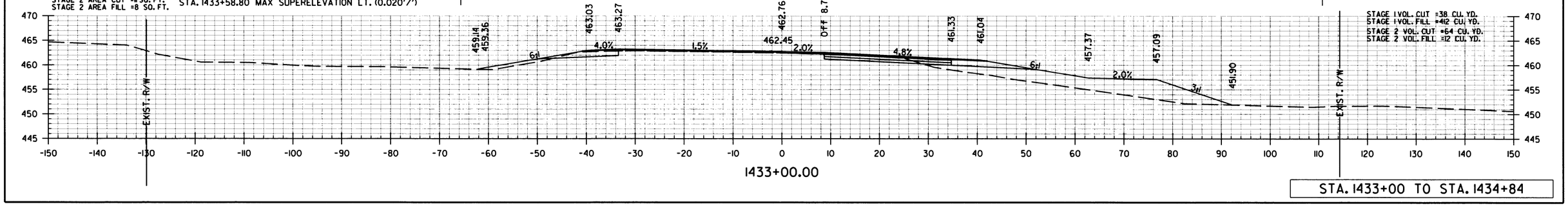


1434+00.00

STAGE 1 AREA CUT =18 SQ. FT.
STAGE 1 AREA FILL =142 SQ. FT.
STAGE 2 AREA CUT =8 SQ. FT.
STAGE 2 AREA FILL =8 SQ. FT.

STA. 1433+60.00 MATCH EXIST. SUPERELEVATION LT.
STA. 1433+58.80 MAX SUPERELEVATION LT. (0.020'/')

STAGE 1 VOL. CUT =38 CU. YD.
STAGE 1 VOL. FILL =412 CU. YD.
STAGE 2 VOL. CUT =64 CU. YD.
STAGE 2 VOL. FILL =12 CU. YD.



1433+00.00

STA. 1433+00 TO STA. 1434+84

LeonardSpeed 9/23/2006 11:28:58 AM
WORKSPACE: Leonard.Speed
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REVISED DATE: **REVDATE**

STA. 1438+48.41 IN PLACE
18"X 40' C.M. PIPE CULVERT
IN MEDIAN TURNAROUND
REMOVE AND CONSTRUCT
18"X 52' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH SES. LT. & RT.

STA. 1441+42.50 - END OVERLAY

STA. 1437+60.00 - END JOB 061377
BEGIN OVERLAY

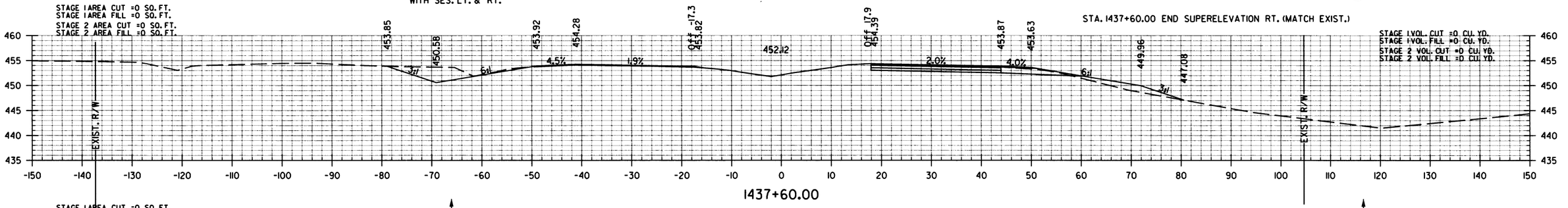
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	863	888
				(2)	CROSS SECTIONS			

STAGE 1 AREA CUT =0 SQ. FT.
STAGE 1 AREA FILL =0 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =0 SQ. FT.

STA. 1437+60.00 END SUPERELEVATION RT. (MATCH EXIST.)

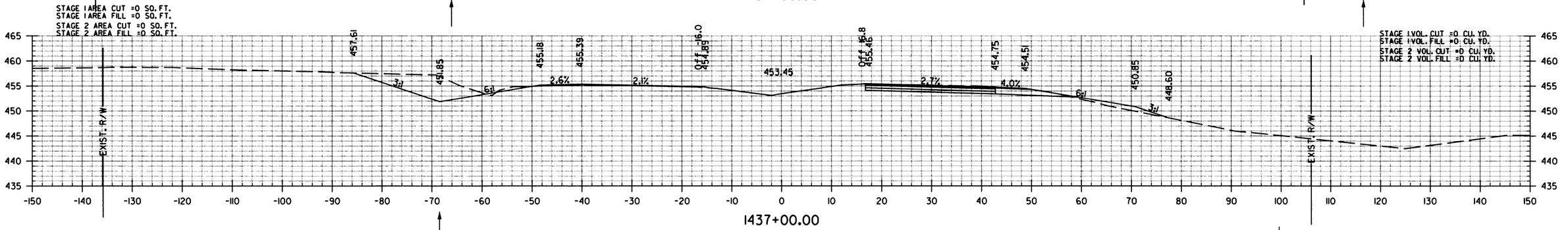
STAGE 1 VOL. CUT =0 CU. YD.
STAGE 1 VOL. FILL =0 CU. YD.
STAGE 2 VOL. CUT =0 CU. YD.
STAGE 2 VOL. FILL =0 CU. YD.



1437+60.00

STAGE 1 AREA CUT =0 SQ. FT.
STAGE 1 AREA FILL =0 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =0 SQ. FT.

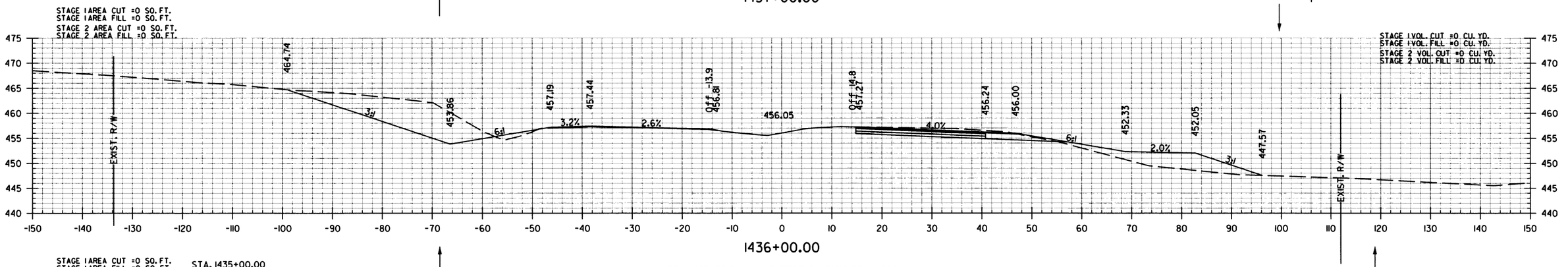
STAGE 1 VOL. CUT =0 CU. YD.
STAGE 1 VOL. FILL =0 CU. YD.
STAGE 2 VOL. CUT =0 CU. YD.
STAGE 2 VOL. FILL =0 CU. YD.



1437+00.00

STAGE 1 AREA CUT =0 SQ. FT.
STAGE 1 AREA FILL =0 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =0 SQ. FT.

STAGE 1 VOL. CUT =0 CU. YD.
STAGE 1 VOL. FILL =0 CU. YD.
STAGE 2 VOL. CUT =0 CU. YD.
STAGE 2 VOL. FILL =0 CU. YD.



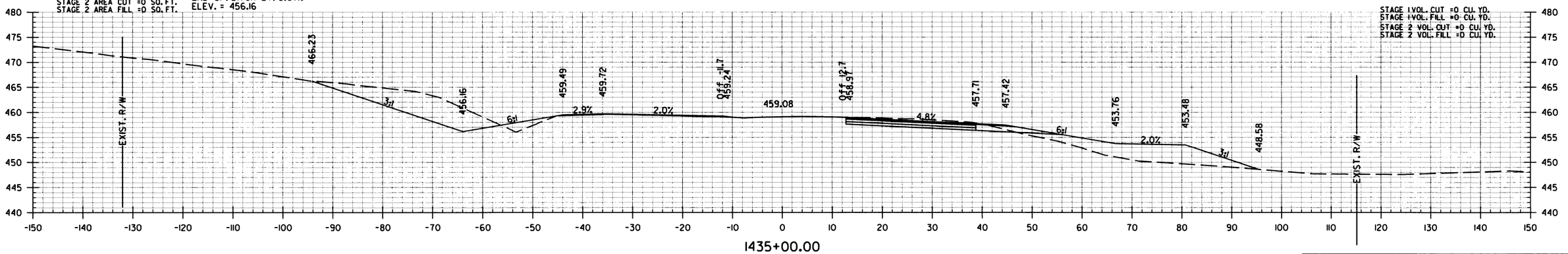
1436+00.00

STAGE 1 AREA CUT =0 SQ. FT.
STAGE 1 AREA FILL =0 SQ. FT.
STAGE 2 AREA CUT =0 SQ. FT.
STAGE 2 AREA FILL =0 SQ. FT.

STA. 1435+00.00
END SP. DITCH LT. 5.67%
ELEV. = 456.16

STA. 1435+30.00 MAX SUPERELEVATION RT. (0.049'/')

STAGE 1 VOL. CUT =0 CU. YD.
STAGE 1 VOL. FILL =0 CU. YD.
STAGE 2 VOL. CUT =0 CU. YD.
STAGE 2 VOL. FILL =0 CU. YD.



1435+00.00

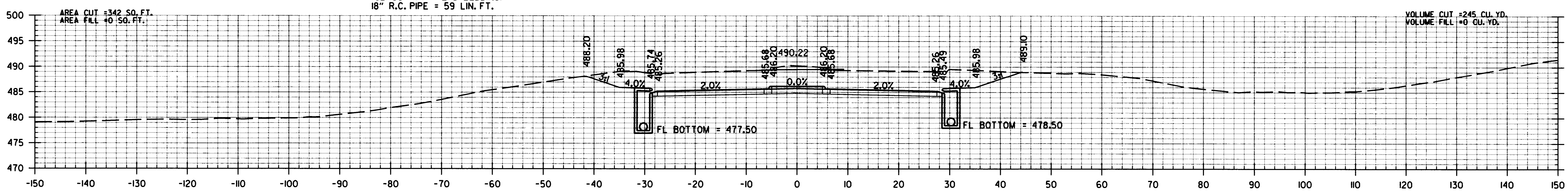
STA. 1435+00 TO STA. 1437+60

LeonardSpead 9/23/2016 11:28:59 AM
WORKSPACE: LeonardSpead
c:\pw\81-local\baker_projects\leonardspead\d0271682\r061377.21.CX.00.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	864	888
					②	CROSS SECTIONS			

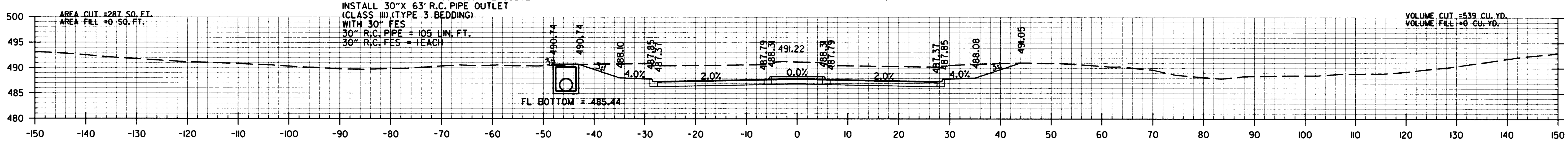
STA. 18+80.00 IN PLACE
TYPE C CURB INLET LT.
WITH 30"X63' R.C. PIPE OUTLET
AND 30"X131' R.C. PIPE INLET
REMOVE CURB INLET, 30" R.C. PIPE OUTLET
AND 25' OF 30" R.C. PIPE INLET.
INSTALL 4'X2.5' X 8'-3" TYPE C CURB
INLET WITH 4' EXTENSION AND
18"X 59' R.C. PIPE OUTLET
CONNECTING TO CURB INLET
AT STA. 19+40.50 LT.
(CLASS III) (TYPE 3 BEDDING)
18" R.C. PIPE = 59 LIN. FT.

STA. 18+80.00 IN PLACE
TYPE C CURB INLET RT.
WITH 30"X81' R.C. PIPE OUTLET
REMOVE AND INSTALL
4'X2.5' X H=7'-3" TYPE C CURB INLET
WITH 4' EXTENSION AND
18"X 57' R.C. PIPE OUTLET
CONNECTING TO CURB INLET
AT STA. 19+40.50 RT.
(CLASS III) (TYPE 3 BEDDING)
18" R.C. PIPE = 57 LIN. FT.

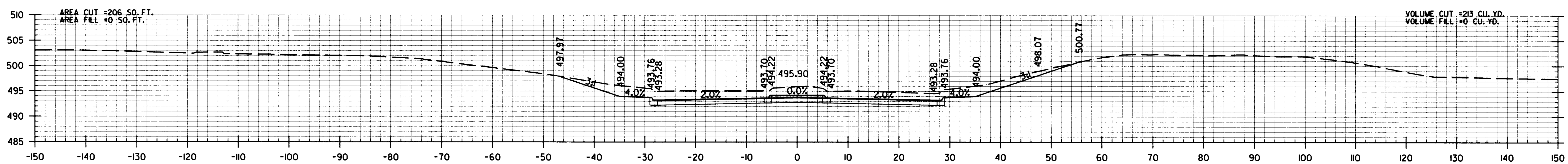


18+80.00

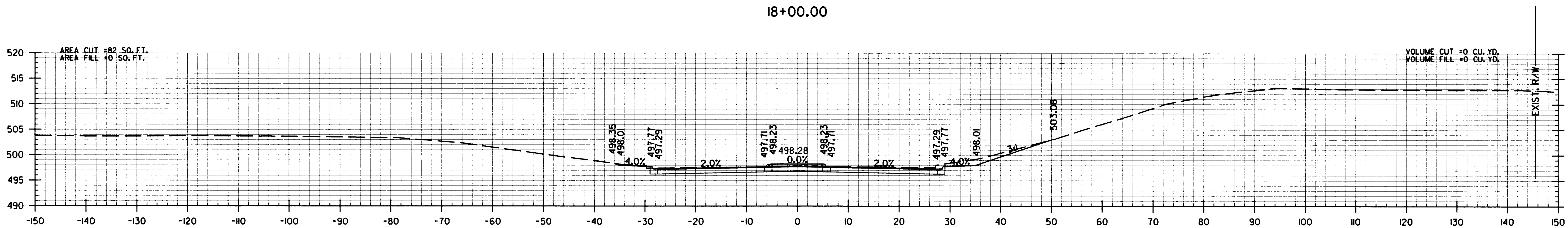
STA. 18+59.00, 43' LT. CONSTRUCT
4'X4' X H=5'-3" TYPE E JUNCTION BOX
TIE TO EXIST. 30"X 105' R.C. PIPE CULVERT
INSTALL 30"X 63' R.C. PIPE OUTLET
(CLASS III) (TYPE 3 BEDDING)
WITH 30" FES
30" R.C. PIPE = 105 LIN. FT.
30" R.C. FES = 1 EACH



18+59.00



18+00.00



17+60.00

CROSSGATE CHURCH DRIVE

STA. 17+60.00 BEGIN CROSSGATE CHURCH DRIVE

STA. 17+60 TO STA. 18+80

Leonard.Speed 9/23/2016 11:29:15 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0217144\r-CA0606_21_CX_MAIN_002.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

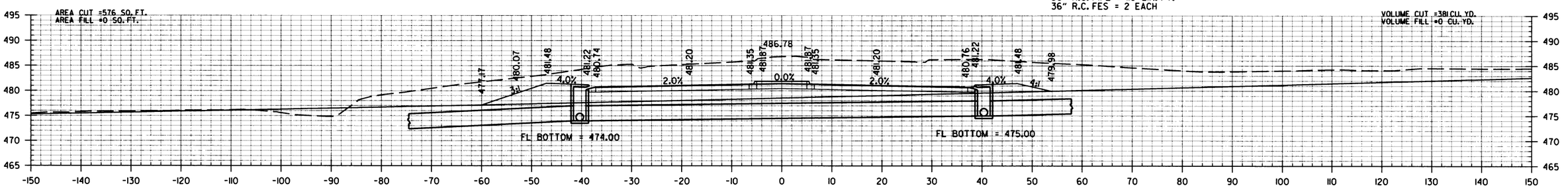
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	865	888

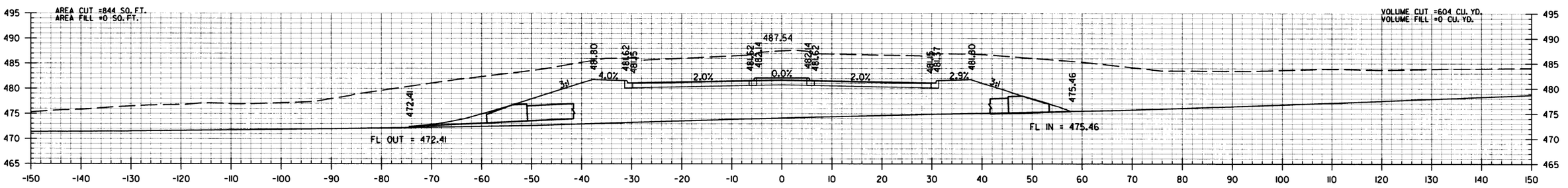
(2) CROSS SECTIONS

STA. 19+40.50 INSTALL
4'X2.5' X H=7'3" TYPE C CURB INLET
WITH 8' EXTENSION AND
36"X14' R.C. PIPE INLET WITH FES RT.
AND 36"X82' R.C. PIPE OUTLET
CONNECTING TO 4'X2.5'X H=6'-3"
TYPE C CURB INLET WITH
8' EXTENSION AND 36"X14' R.C. PIPE
OUTLET (CLASS III) (TYPE 3 BEDDING)
WITH FES LT.
36" R.C. PIPE = 110 LIN. FT.
36" R.C. FES = 2 EACH

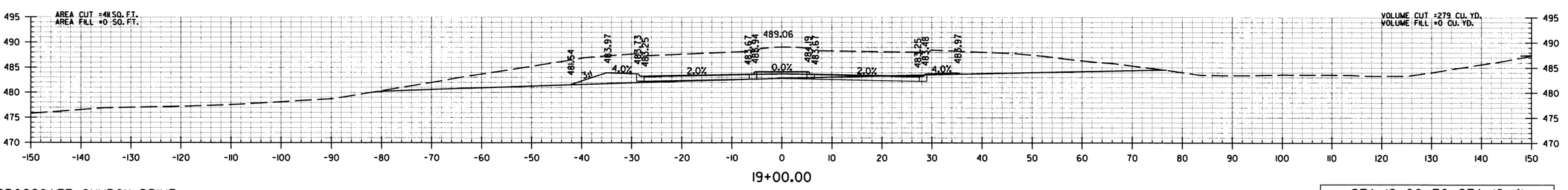
STA. 20+00.00 END CROSSGATE CHURCH DRIVE



19+40.50



19+26.00



19+00.00

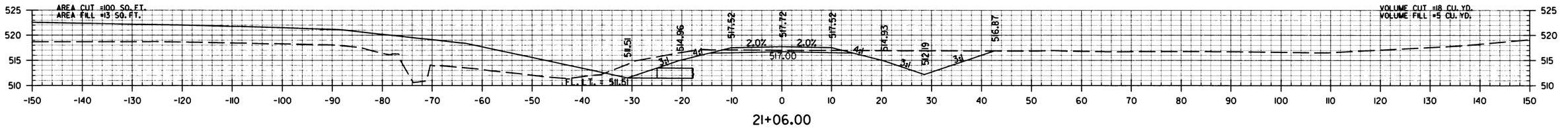
CROSSGATE CHURCH DRIVE

STA. 19+00 TO STA. 19+41

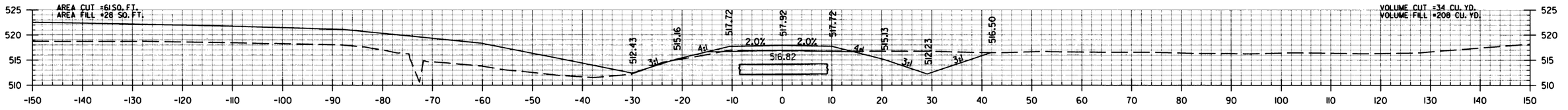
Leonard.Speed 9/23/2016 11:29:16 AM
WORKSPACE: Leonard.Speed
C:\Dgn\81.local\baker_projects\leonard.speed\d021T441\rCA0606_21_CX_MAIN_002.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	866	888
				(2)	CROSS SECTIONS			



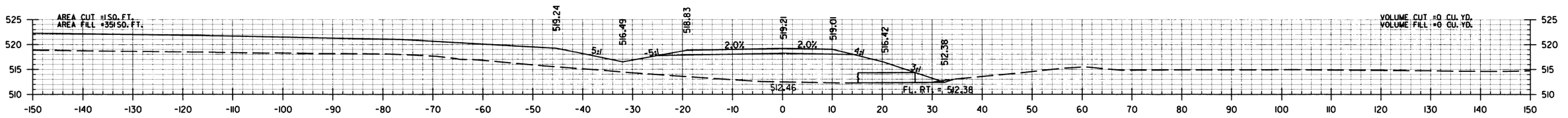
21+06.00



21+00.00

STA. 20+70.00
BEGIN SP. DT. RT. -0.52%
ELEV. = 512.38

STA. 20+77.00 INSTALL
24" X 65' SIDE DRAIN
22° LT. FWD. SKEW



20+70.25

STA. 20+30.57
BEGIN CEDAR CREEK ROAD

Leonard.Speed 9/23/2016 11:29:30 AM
WORKSPACE: Leonard.Speed
C:\Users\leonard.speed\Documents\Projects\Leonard.speed\d0217744\rCA0606_21.CX_MAIN_003.dgn
REVISED DATE: ##REVDATE##

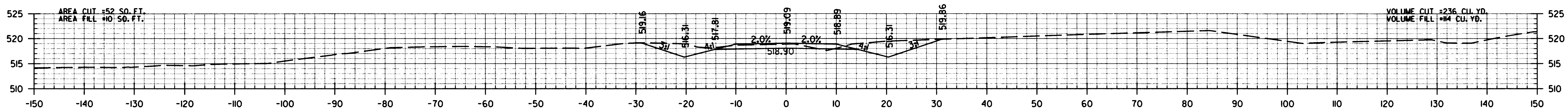
CEDAR CREEK ROAD

STA. 20+70 TO STA. 21+06

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	867	888
				②	CROSS SECTIONS			

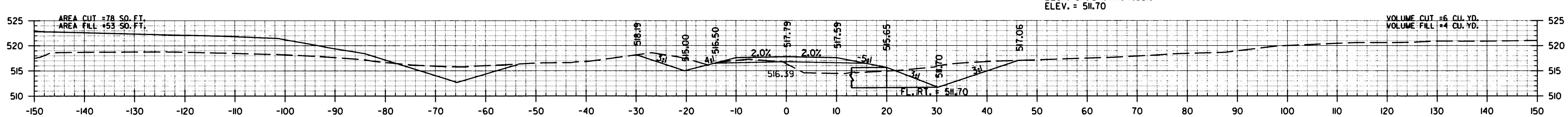
STA. 23+60.00
END CEDAR CREEK ROAD



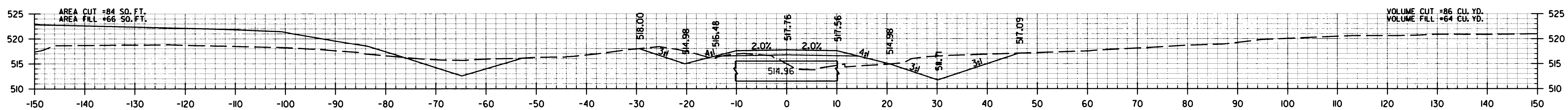
23+00.00

STA. 22+60.00
END SP. DT. RT. 7.03%
ELEV. = 515.77

STA. 22+02.00
END SP. DT. RT. -0.52%
BEGIN SP. DT. RT. 7.03%
ELEV. = 511.70

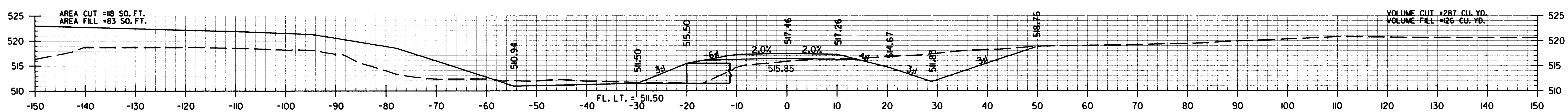


22+02.00



22+00.00

STA. 21+89.00 INSTALL
48" X 46' SIDE DRAIN
23° RT. FWD. SKEW



21+77.00

CEDAR CREEK ROAD

STA. 21+77 TO STA. 23+00

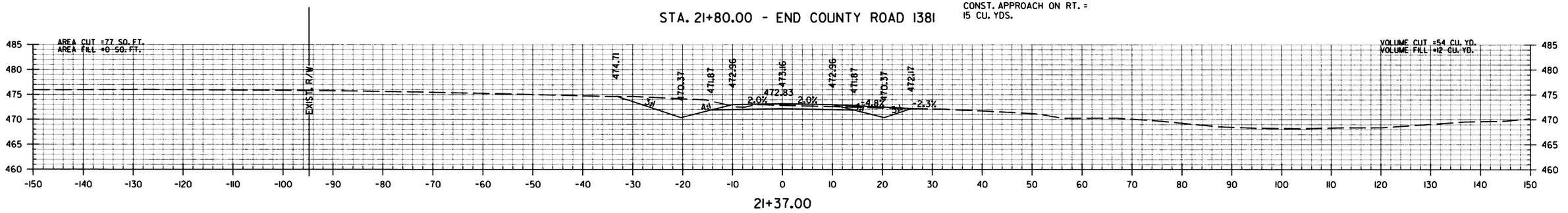
Leonard.Speed 9/23/2016 11:29:30 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271744\rCA0606_21_CX_MAIN_003.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

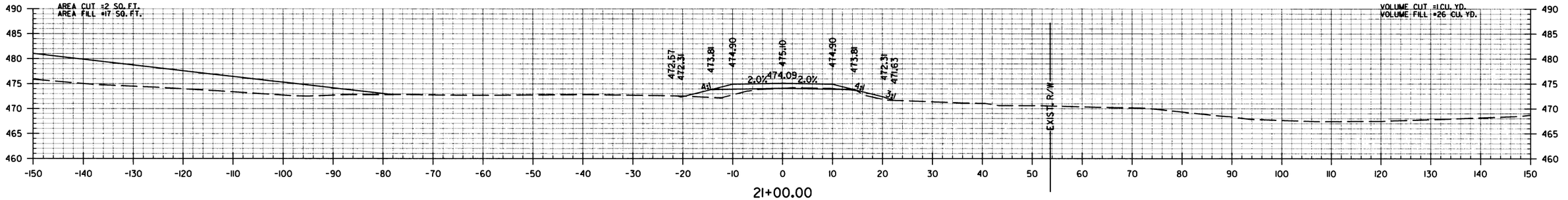
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	868	888
				(2)	CROSS SECTIONS			

STA. 21+80.00 - END COUNTY ROAD 1381

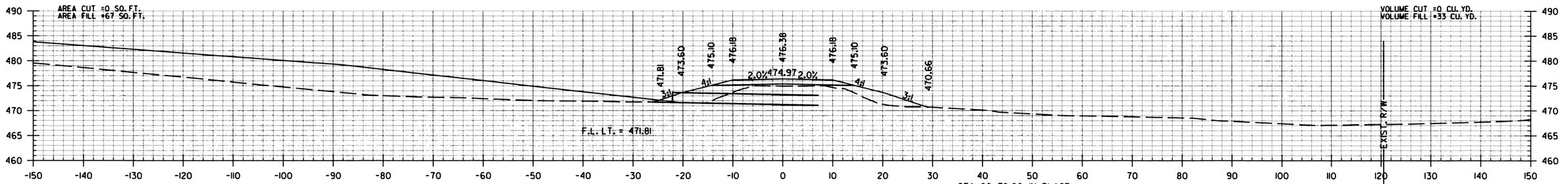
STA. 21+37.00
CONST. APPROACH ON RT. =
15 CU. YDS.



21+37.00

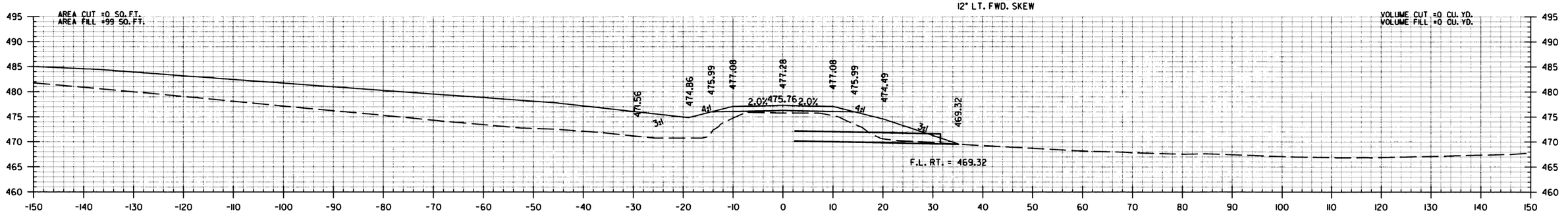


21+00.00



20+83.32

STA. 20+79.00 IN PLACE
24"x32' C.M. PIPE CULVERT
REMOVE & INSTALL
24"x51' SIDE DRAIN
12° LT. FWD. SKEW



20+72.71

COUNTY ROAD 1381

STA. 20+30.40 - BEGIN COUNTY ROAD 1381

STA. 20+73 TO STA. 21+37

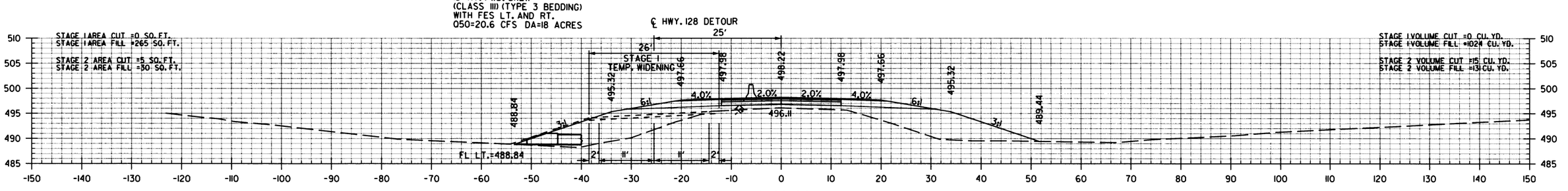
LeonardSpeed 9/23/2016 11:29:44 AM
WORKSPACE: Leonard_Speed
c:\pwwl81-local\baker_projects\leonard_speed\d0217744\rCA0606_21.CX.MAIN.004.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

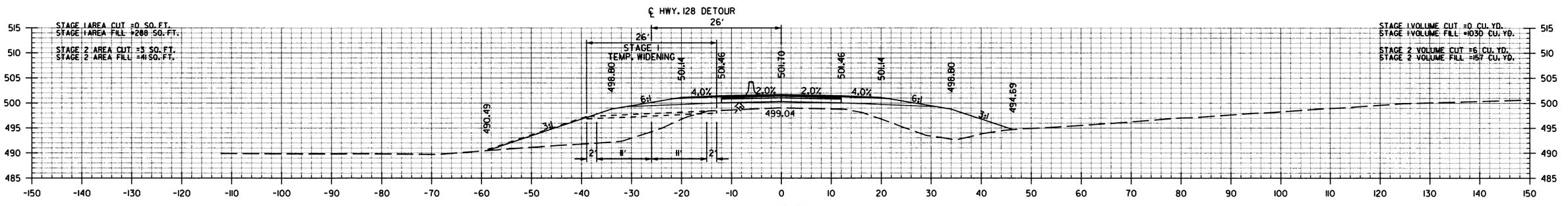
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	869	888

(2) CROSS SECTIONS

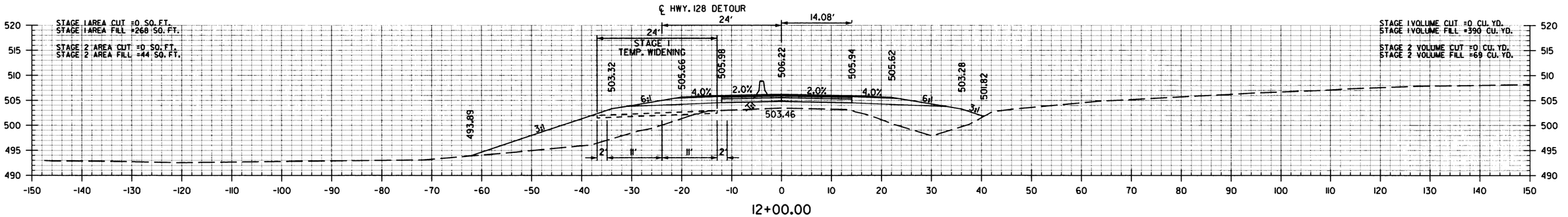
STA. 14+14.32 CONSTRUCT
24"X93' R.C. PIPE CULVERT
15° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=20.6 CFS DA=18 ACRES



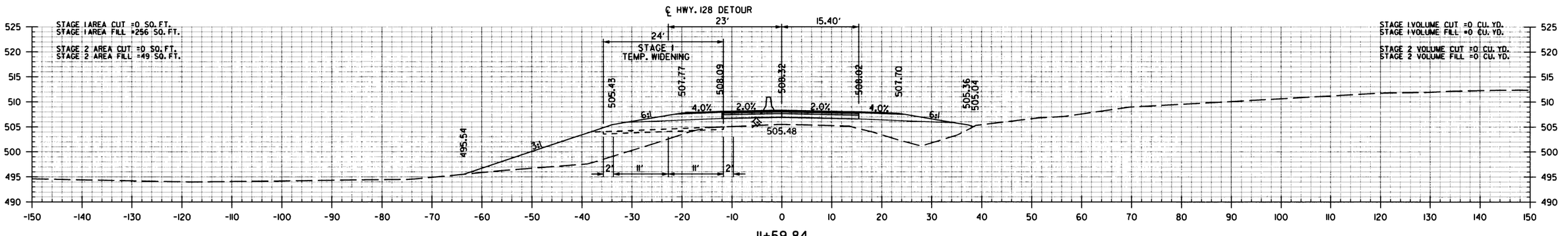
14+00.00



13+00.00



12+00.00



STA. 10+29.50 - BEGIN HWY 128

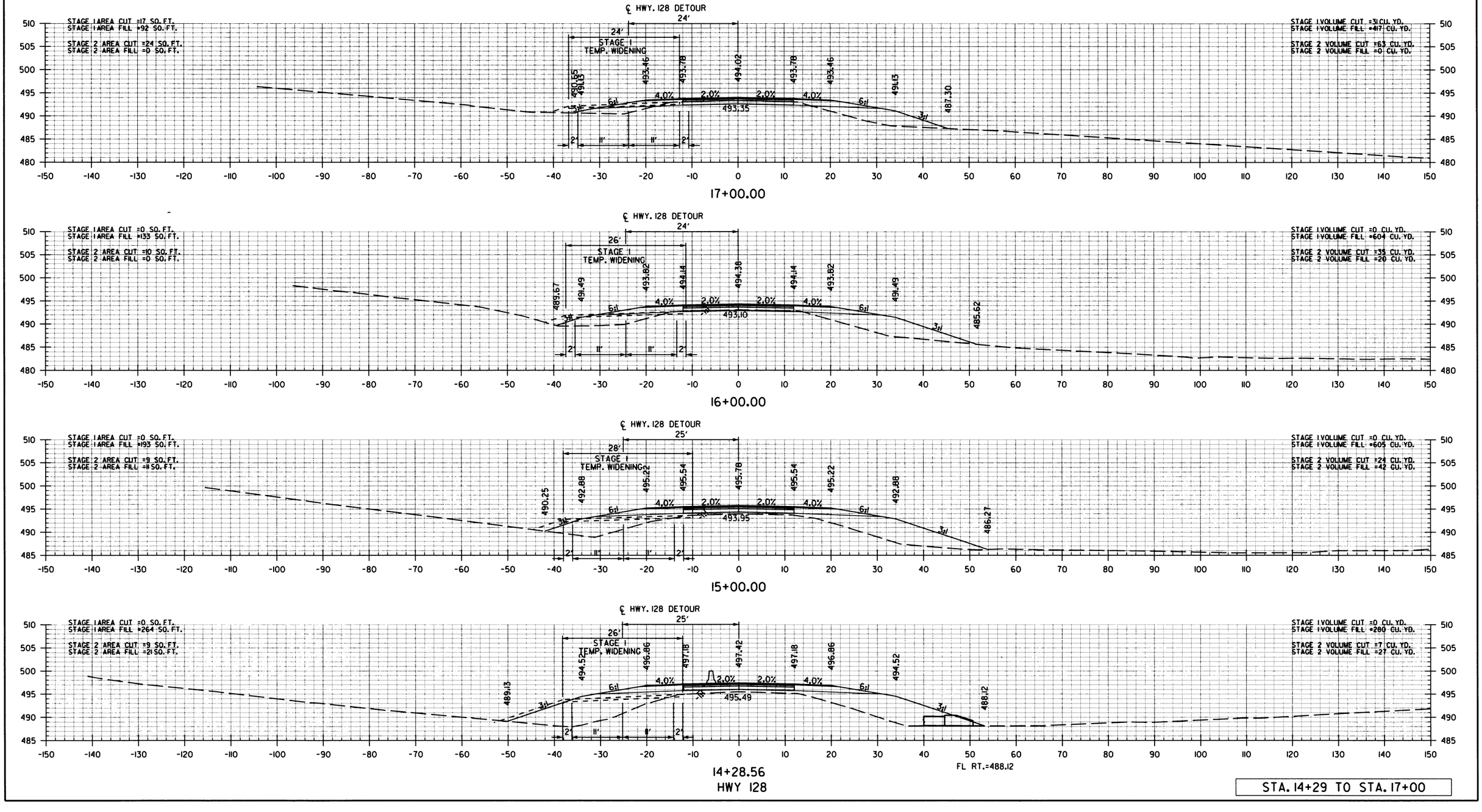
11+59.84
HWY 128

STA. 11+60 TO STA. 14+00

Leonard Speed 9/23/2016 11:29:57 AM
Workset: Default
c:\pwdl-local\baker.prj\acts\leonard speed\d0271682\r06177.21.CX.002.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	870	888
				(2)		CROSS SECTIONS		



STA. 14+29 TO STA. 17+00

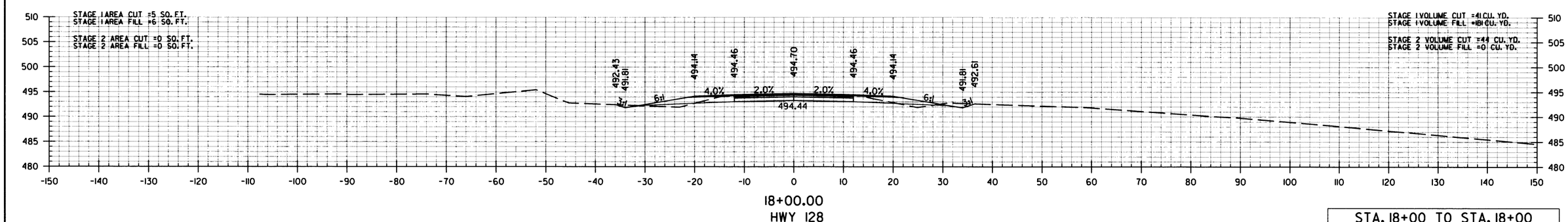
Leonard.Speed 9/23/2016 11:29:58 AM
WORKSPACE: Leonard.Speed
CONNECTION: Projects\Leonard.speed\d0271682\r06137.21.CX..002.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	871	888
				(2)	CROSS SECTIONS			

Leonard.Speed 9/23/2016 11:29:58 AM
WORKSET: Leonard.Speed
C:\Users\leonard.speed\Documents\Leonard.Speed\d027682\r06l377.2l.CX.002.dgn
DESIGNED DATE: $$DESIGNDATE$$
REVISED DATE: $$REVDATE$$

STA. 18+00.00 - END HWY 128



18+00.00
HWY 128

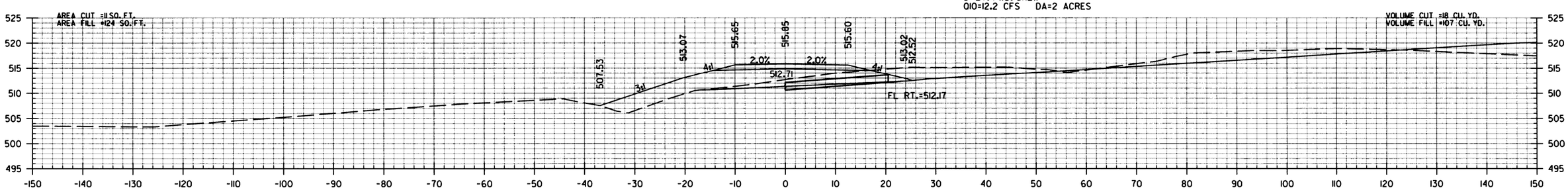
STA. 18+00 TO STA. 18+00

Michael Baker INTERNATIONAL

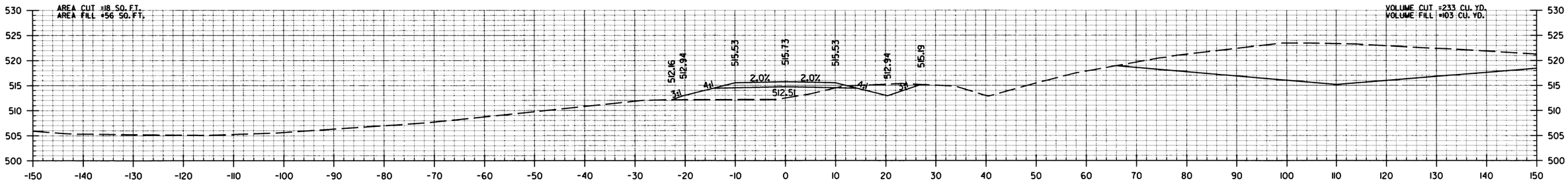
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	872	888

(2) CROSS SECTIONS

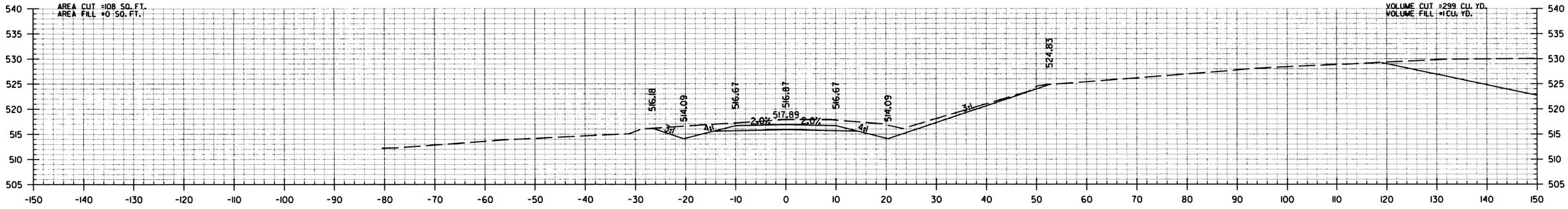
STA. 9+33.61 IN PLACE
14"X 32' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18"X 59' SIDE DRAIN
5° LT. FWD. SKEW
Q10=12.2 CFS DA=2 ACRES



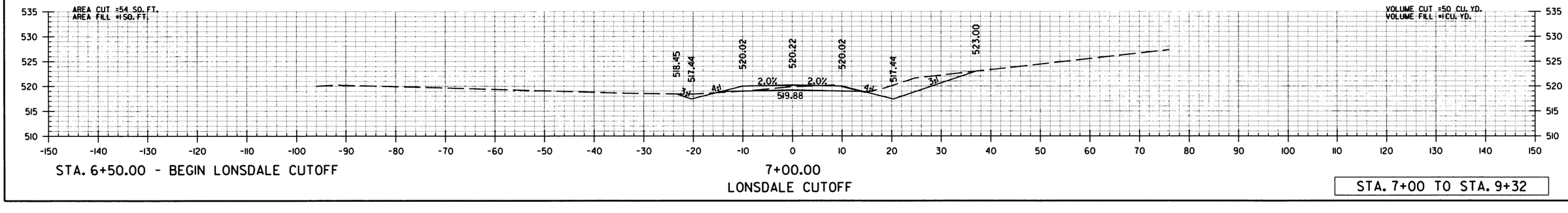
9+32.19



9+00.00



8+00.00



STA. 6+50.00 - BEGIN LONSDALE CUTOFF

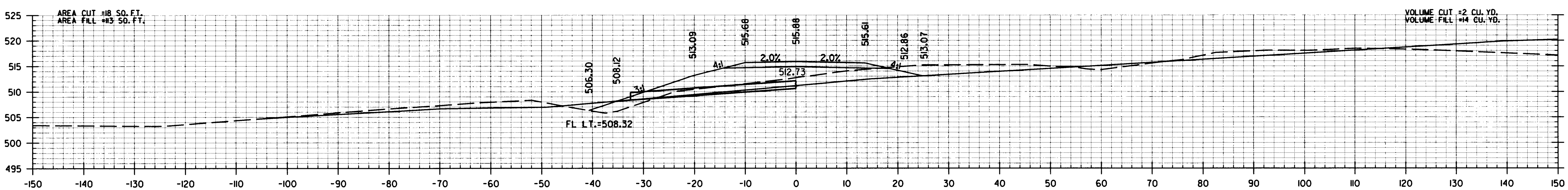
7+00.00
LONSDALE CUTOFF

STA. 7+00 TO STA. 9+32

LeonardSpeed 9/23/2016 11:30:07 AM
WORKSPACE: Leonard Speed
c:\pw\bl-local\baker_projects\leonard.speed\d0216682\r061377_2l_CX_003.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	873	888
					(2)	CROSS SECTIONS			

STA. 9+70.50 - END LONSDALE CUTOFF



9+35.33
LONSDALE CUTOFF

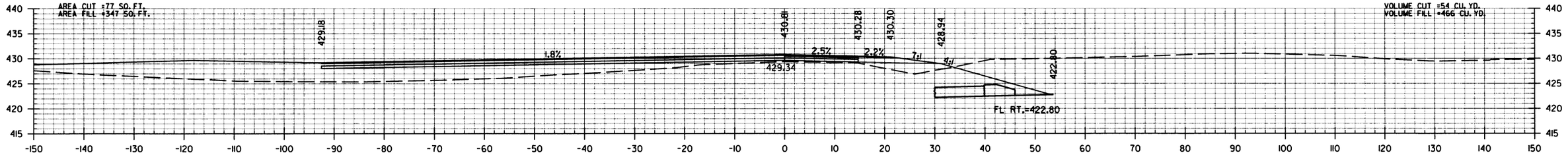
STA. 9+35 TO STA. 9+35

Leonard.Speed 9/23/2016 11:30:07 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271682\r061377_21_CX_003.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

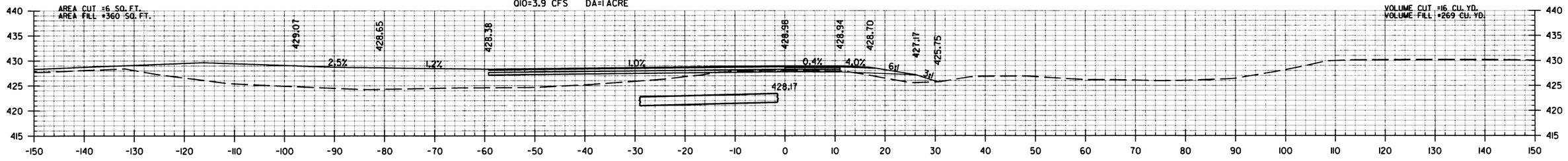
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	874	888
				(2)	CROSS SECTIONS			

STA. 39+70.39 - END HWY 88

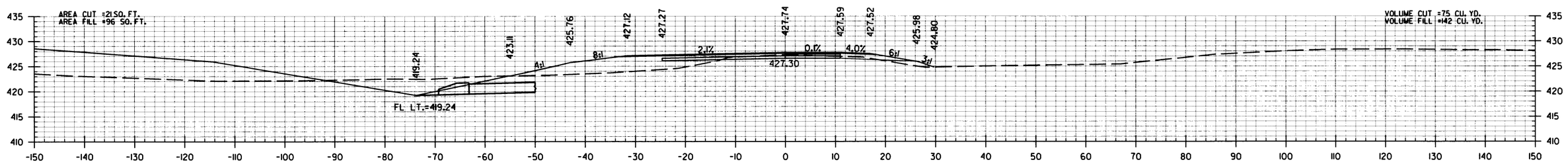


STA. 39+02.54 CONSTRUCT
24"X 109' R.C. PIPE CULVERT
34° RT. FWD SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q10=3.9 CFS DA=1 ACRE

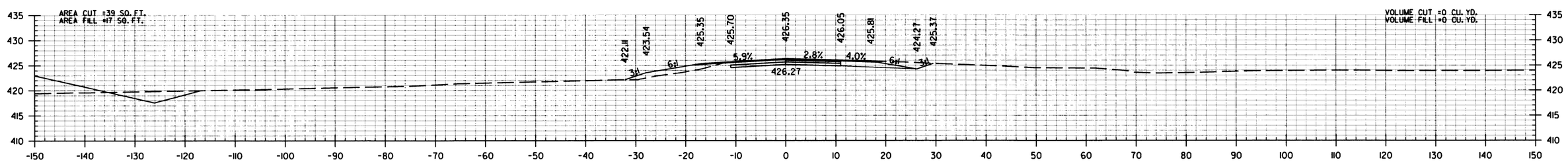
39+35.56



39+00.00



38+68.14



STA. 38+00.00 - BEGIN HWY 88

38+00.00
HWY 88

STA. 37+69.50 IN PLACE
24"X 41' C.M. PIPE CULVERT
RETAIN

STA. 38+00 TO STA. 39+36

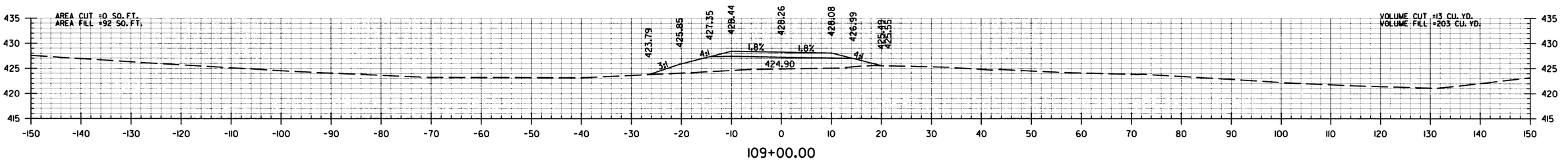
Leonard.Speed 9/23/2016 11:30:17 AM
WORKSPACE: Leonard.Speed
c:\pw\bi-local\baker_projects\leonard.speed\d0271682\r-06377.21.CX.004.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

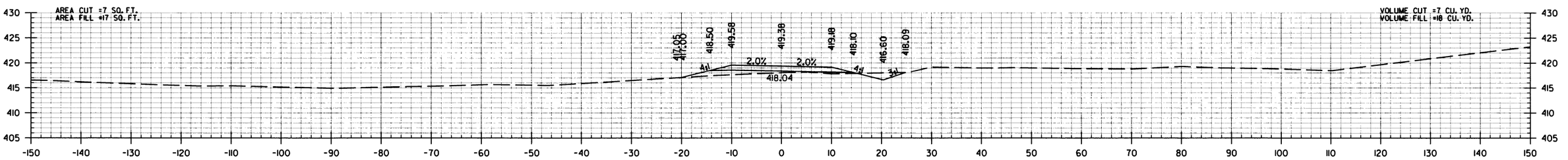
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	875	888

(2) CROSS SECTIONS

STA. 109+70.50 - END NANCE ROAD



109+00.00



STA. 107+44.25 - BEGIN NANCE ROAD

108+00.00
NANCE RD

STA. 108+00 TO STA. 109+00

Leonard.Speed 9/23/2016 11:30:26 AM
WORKSPACE: Leonard.Speed
c:\pw\bl-local\baker_projects\leonard.speed\d0271682\r061377.21.CX.005.dgn
REVISED DATE: $$REVDATE$$

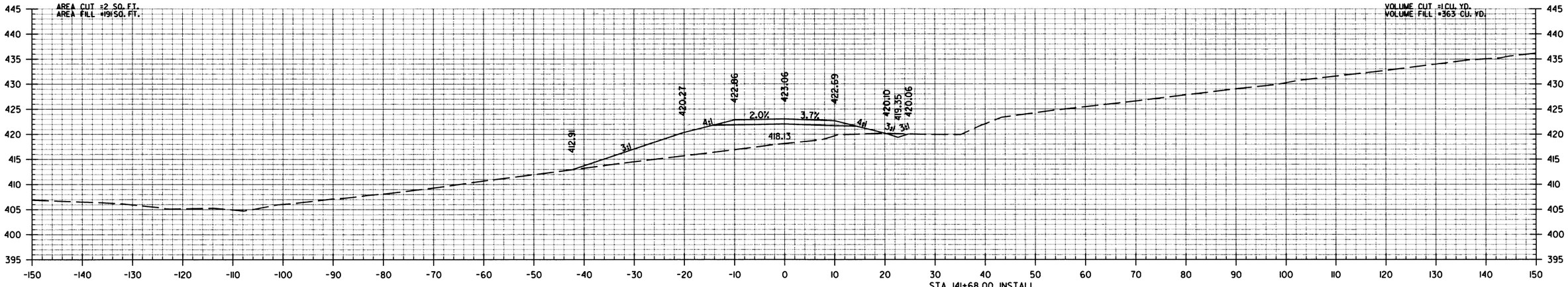
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	876	888

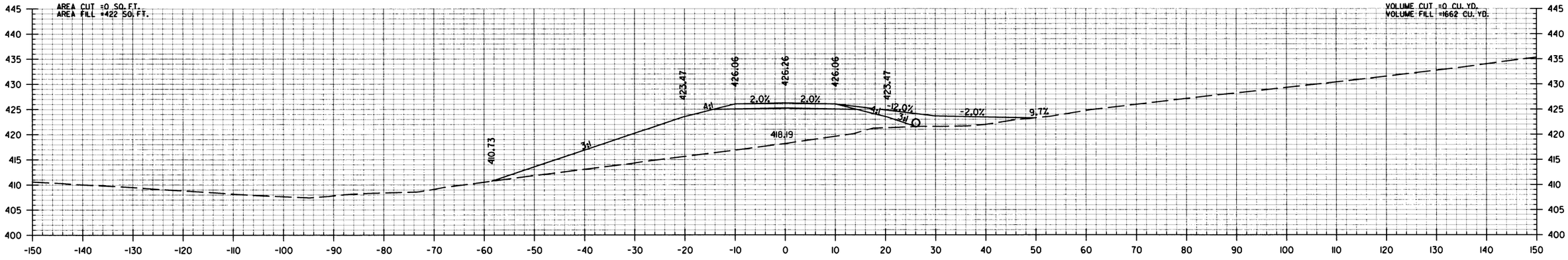
(2) CROSS SECTIONS

STA. 142+30.00
BEGIN SP. DITCH RT. -5.40%
ELEV. = 416.98

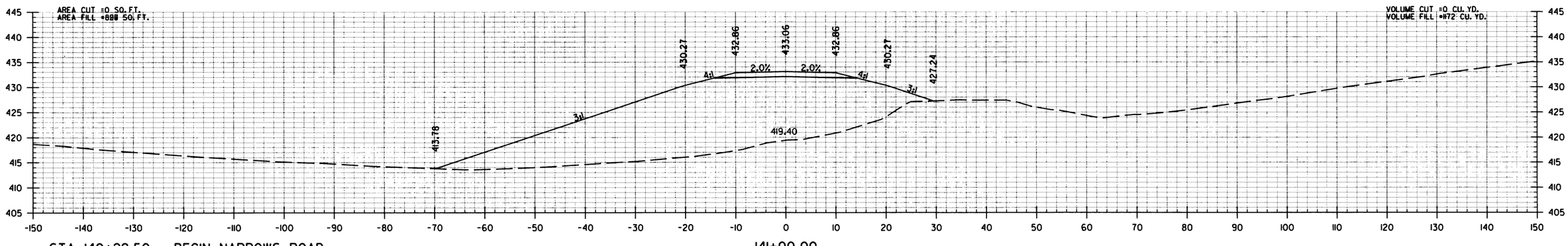


142+00.00

STA. 141+68.00 INSTALL
18"X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH =
55 CU. YDS.



141+68.00



STA. 140+29.50 - BEGIN NARROWS ROAD

141+00.00
NARROWS ROAD

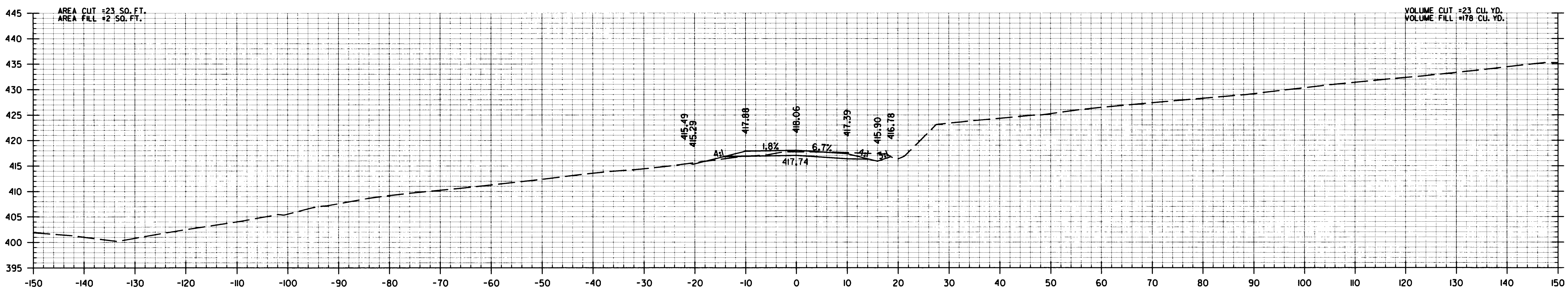
STA. 141+00 TO STA. 142+00

LeonardSpeed 9/23/2016 11:30:36 AM
Workspace: Corporate Standard
Workspace: C:\Users\Baker Projects\leonardspeed\d0211682\r061377_21_CX_006.dgn
REVISED DATE: **REVDATE**

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	877	888
					(2)	CROSS SECTIONS			

STA. 142+50.00 - END NARROWS ROAD

STA. 142+50.00
END SP. DITCH RT. -5.40%
ELEV. = 415.90



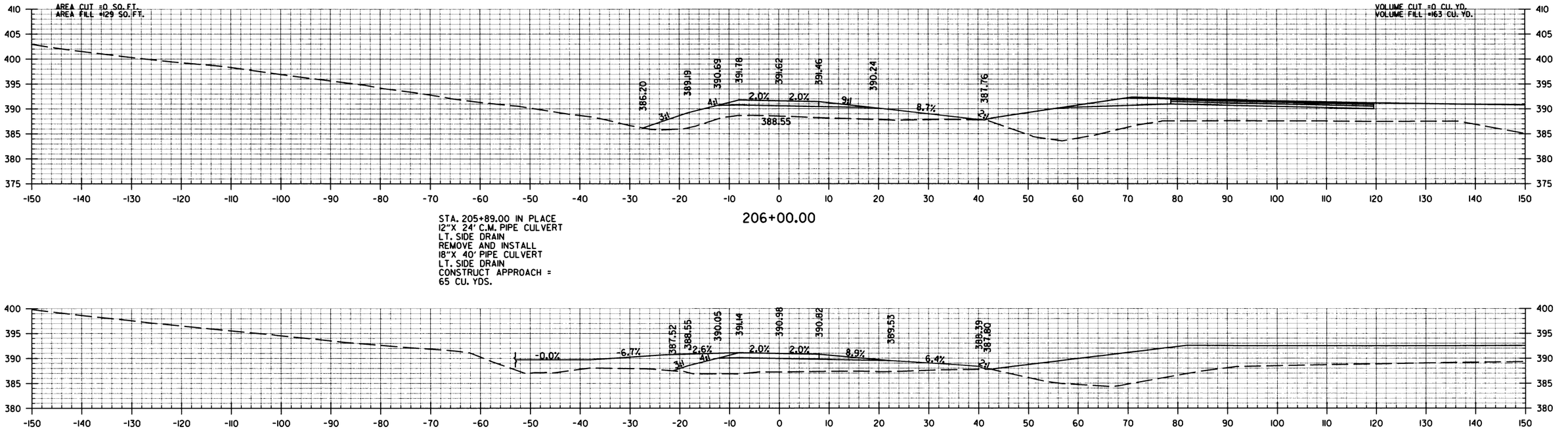
142+50.00
NARROWS ROAD

STA. 142+50 TO STA. 142+50

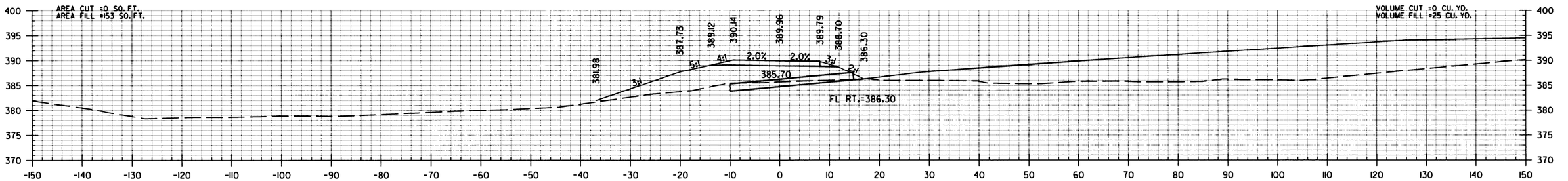
Leonard.Speed 9/23/2016 11:30:36 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271682\v-061377.21.CX.006.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

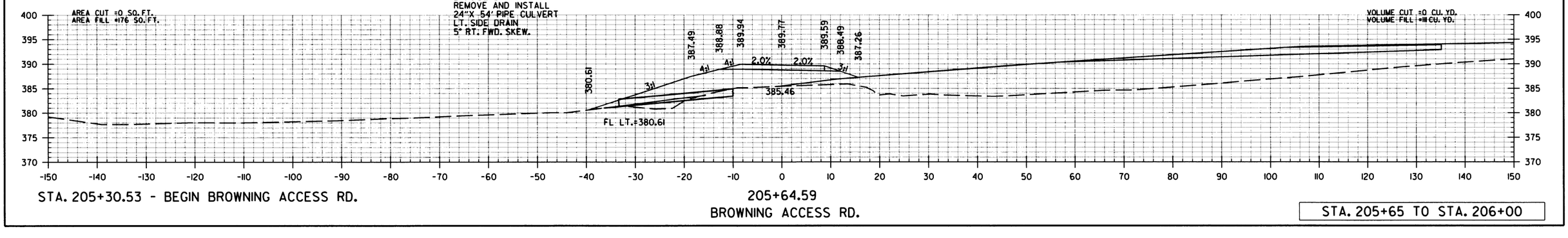
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	878	888
				(2)	CROSS SECTIONS			



STA. 205+89.00 IN PLACE
12"X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
65 CU. YDS.



BROWNING ACCESS RD.
STA. 205+67.00 IN PLACE
12"X 24' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24"X 54' PIPE CULVERT
LT. SIDE DRAIN
5° RT. FWD. SKEW.



STA. 205+30.53 - BEGIN BROWNING ACCESS RD.

STA. 205+65 TO STA. 206+00

Leonard.Speed 9/23/2016 11:30:51 AM
WORKSPACE: Leonard.Speed
c:\pw\bl-local\baker_projects\leonard.speed\v0216682\r-061377_21_CX_007.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	879	888
				(2)	CROSS SECTIONS			

AREA CUT =168 SQ. FT.
AREA FILL =25 SQ. FT.

VOLUME CUT =239 CU. YD.
VOLUME FILL =169 CU. YD.

406.98 397.50 399.00 400.09 399.93 399.77 398.70 390.09

3:1 3:1 2.0% 2.0% 400.68 3:1 3:1

207+00.00

STA. 206+30.00 IN PLACE
12"X24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X39' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
25 CU. YDS.

AREA CUT =17 SQ. FT.
AREA FILL =105 SQ. FT.

VOLUME CUT =9 CU. YD.
VOLUME FILL =130 CU. YD.

394.53 391.24 3.5% 392.74 393.82 393.66 393.50 392.37 387.79

3:1 4:1 2.0% 2.0% 390.76 6:1

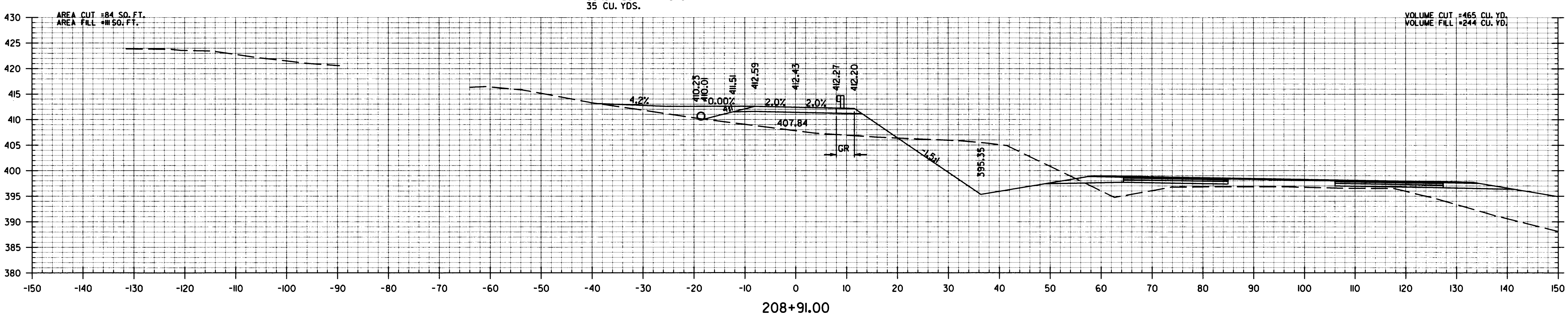
206+30.00
BROWNING ACCESS RD.

STA. 206+30 TO STA. 207+00

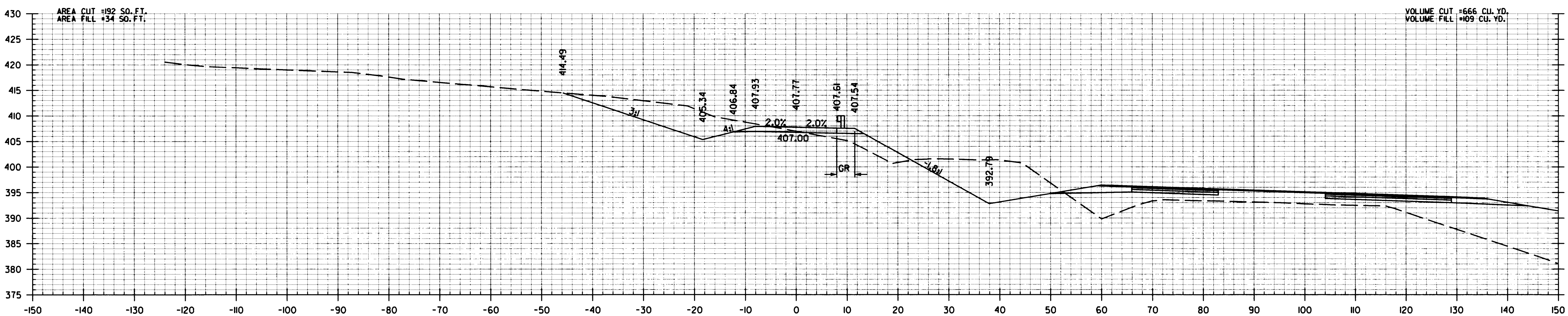
Leonard Speed 9/23/2016 11:30:51 AM
WORKSPACE: Leonard Speed
c:\pw\bl-local\baker_projects\leonard.speed\d0271682\r061377.21.CX.001.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	880	888
					(2)	CROSS SECTIONS			

STA. 208+91.00 INSTALL
18"X41' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
35 CU. YDS.



208+91.00



208+00.00
BROWNING ACCESS RD.

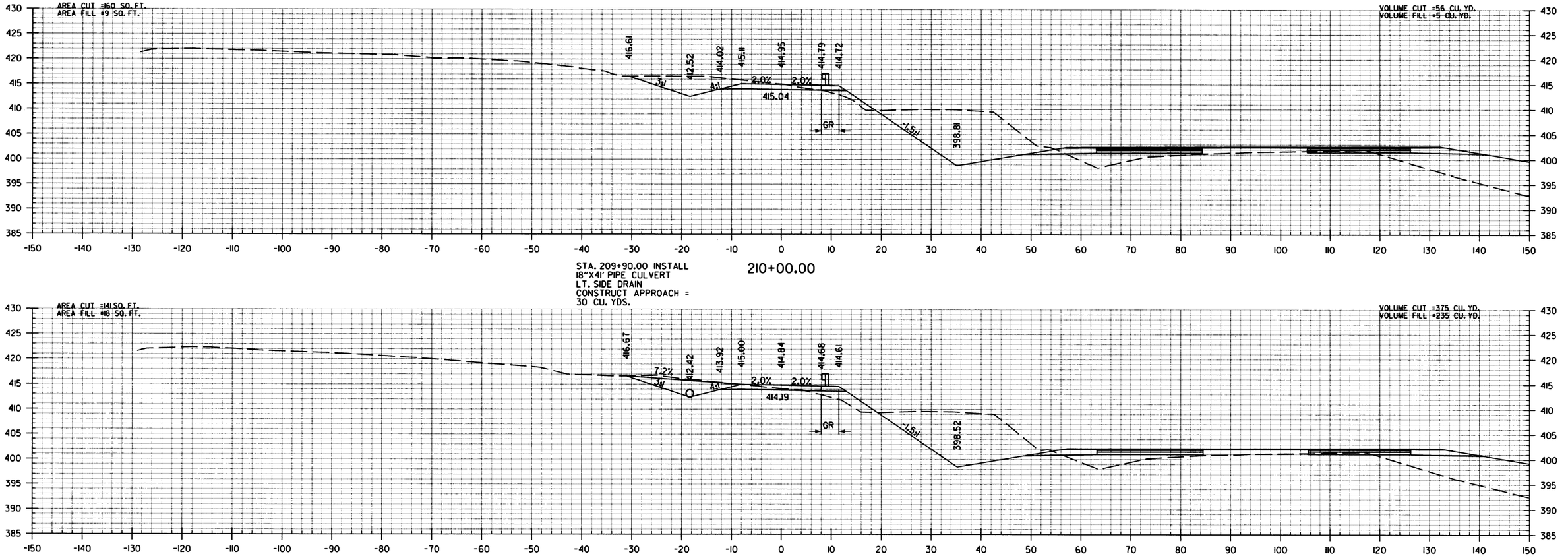
STA. 208+00 TO STA. 208+91

Leonard.Speed 9/23/2016 11:30:51 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271682\r061377_21_CX_007.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	881	888

(2) CROSS SECTIONS



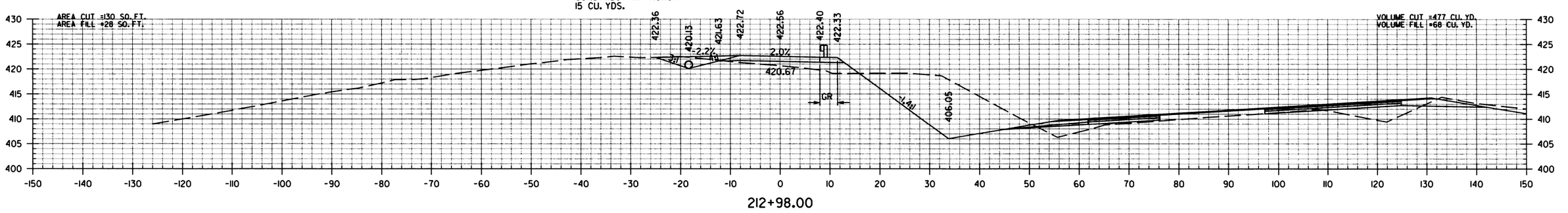
STA. 209+00 TO STA. 210+00

Leonard Speed 9/23/2016 11:30:52 AM
WORKSPACE: Leonard Speed
c:\pw\81-local\baker_projects\leonard.speed\d0216821r061377.21.CX.007.dgn
REVISED DATE: **REVDATE**

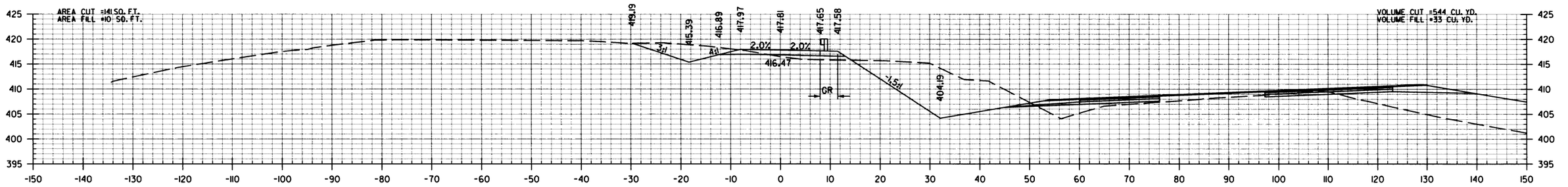
Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	882	888
				(2)	CROSS SECTIONS			

STA. 212+98.00 INSTALL
18"X36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
15 CU. YDS.

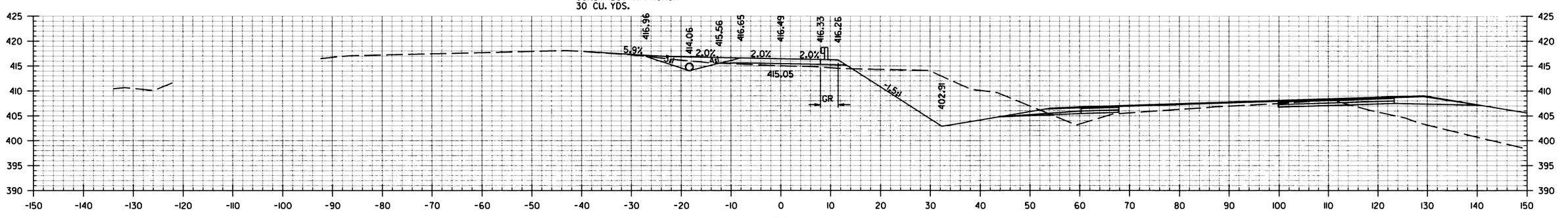


212+98.00

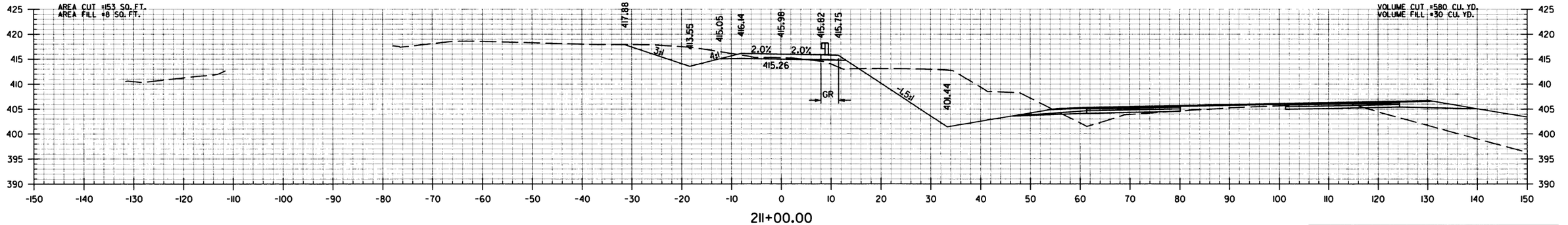


STA. 211+50.00 INSTALL
18"X42' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH =
30 CU. YDS.

212+00.00



211+50.00



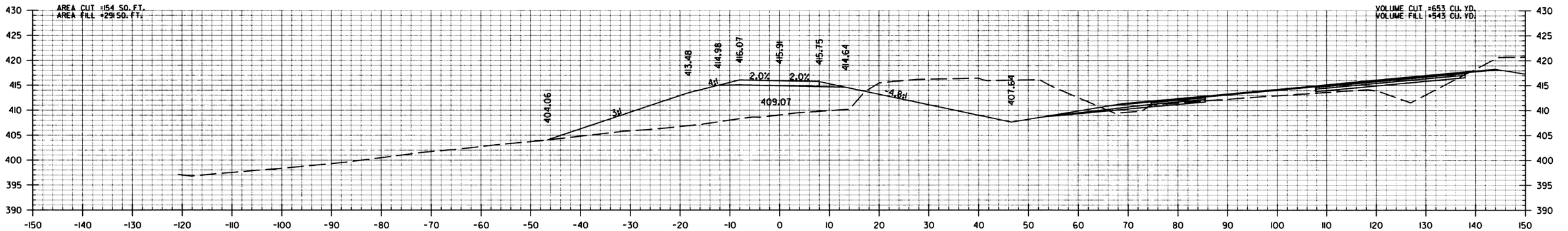
211+00.00
BROWNING ACCESS RD.

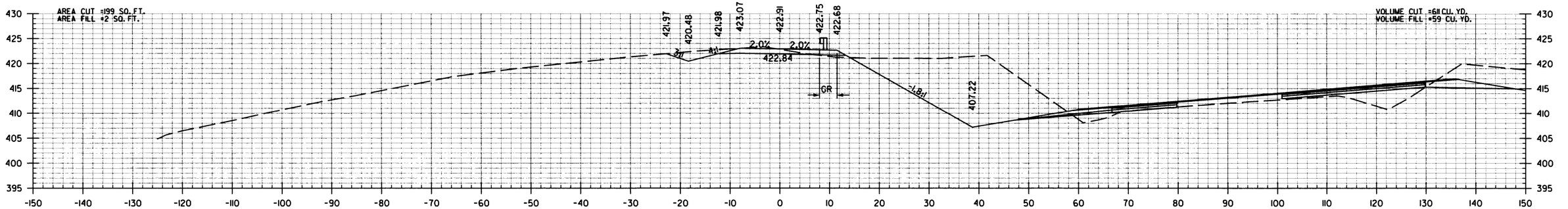
STA. 211+00 TO STA. 212+98

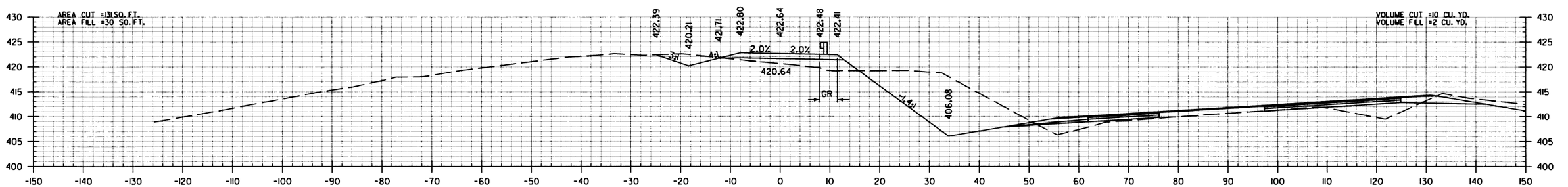
LeonardSpeed 9/23/2016 11:30:52 AM
WORKSPACE: LeonardSpeed
CONNECTION: Local Projects\Leonard.speed\d0271682\r061377.21.CX.007.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL

DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	883	888
				(2)	CROSS SECTIONS			







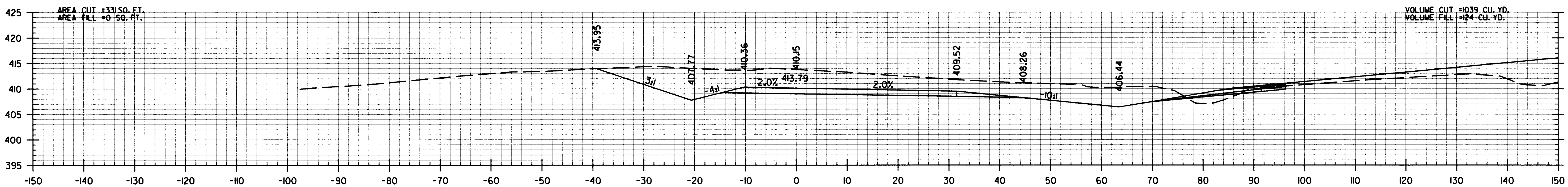
BROWNING ACCESS RD.

STA. 213+00 TO STA. 215+00

Leongrd,Speed 9/23/2016 11:30:52 AM
WORKSPACE: Leongrd,Speed
c:\projects\leongrd,speed\d0217682\r061317_21.CX_007.dgn
REVISED DATE: $$REVDATE$$

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	884	888
					(2)	CROSS SECTIONS			

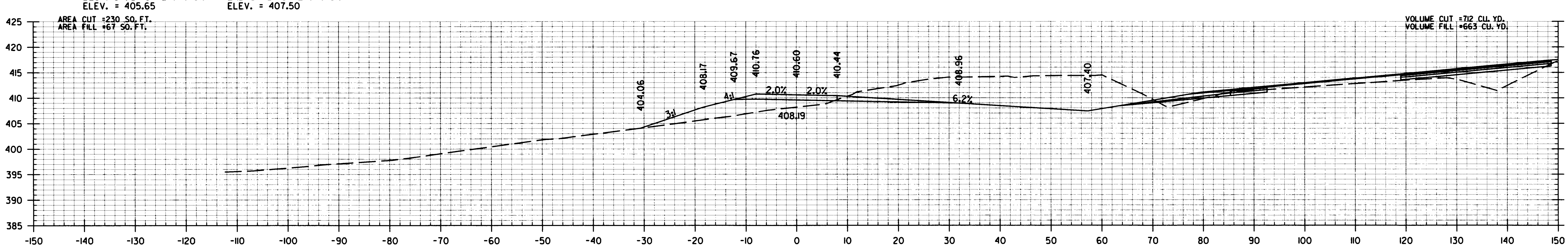
STA. 217+14.39 - END BROWNING ACCESS RD.



217+00.00

STA. 216+08.00
BEGIN SP. DITCH LT. 4.40%
ELEV. = 405.65

STA. 216+50.00
END SP DITCH LT. 4.40%
ELEV. = 407.50



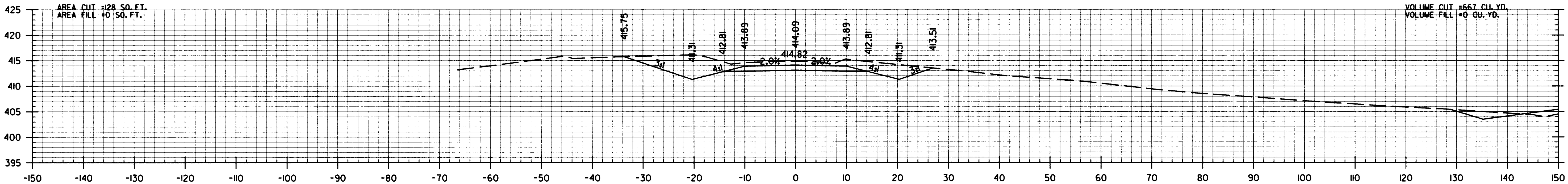
216+00.00
BROWNING ACCESS RD.

STA. 216+00 TO STA. 217+00

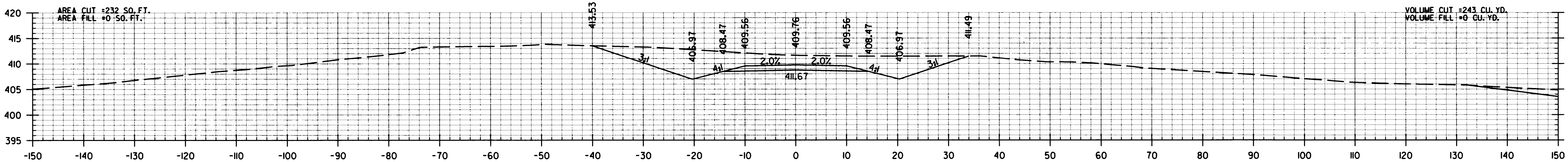
Leonard.Speed 9/23/2016 11:30:53 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271682\r-061377_21_CX_007.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL	DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		CA0610	885	888
					(2)	CROSS SECTIONS			

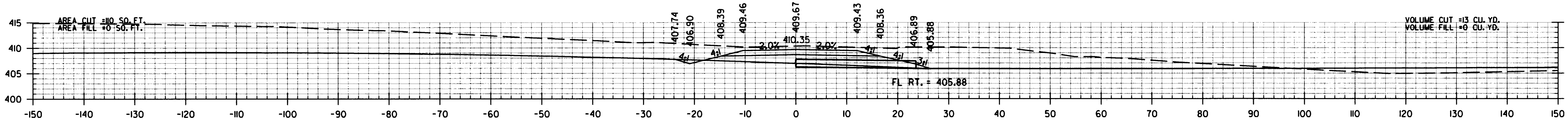
STA. 212+40.00 - END BROWNING ROAD WEST



212+00.00

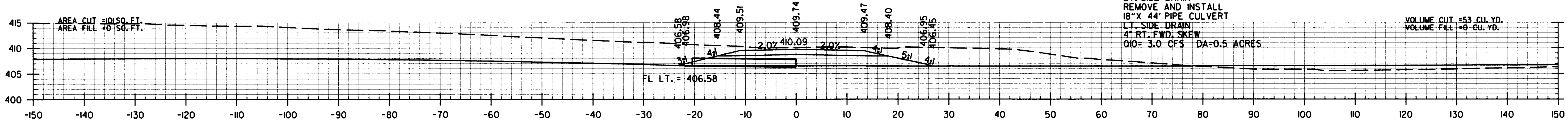


211+00.00



210+61.68

STA. 210+59.80 IN PLACE
16"X 40' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18"X 44' PIPE CULVERT
LT. SIDE DRAIN
4° RT. FWD. SKEW
Q10= 3.0 CFS DA=0.5 ACRES



STA. 210+29.57 - BEGIN BROWNING ROAD WEST

210+58.25
BROWNING ROAD WEST

STA. 210+58 TO STA. 212+00

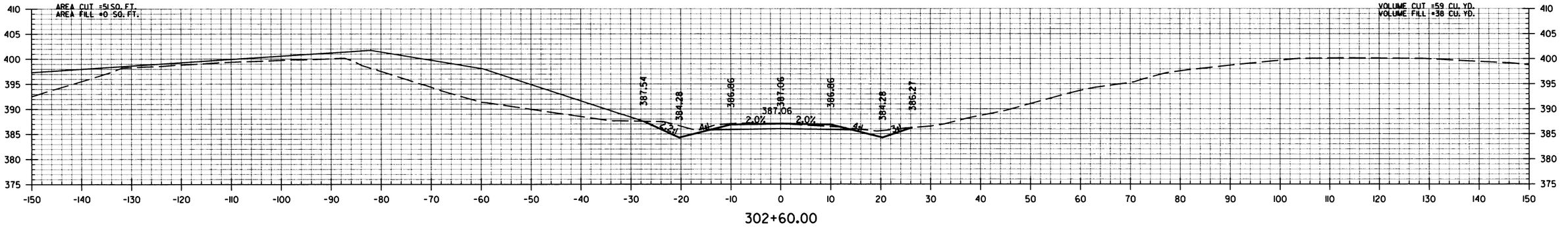
Leonard.Speed 9/23/2016 11:31:02 AM
WORKSPACE: Leonard.Speed
c:\pwv8i-local\baker_projects\leonard.speed\d0271682\r061377_21_CX_008.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

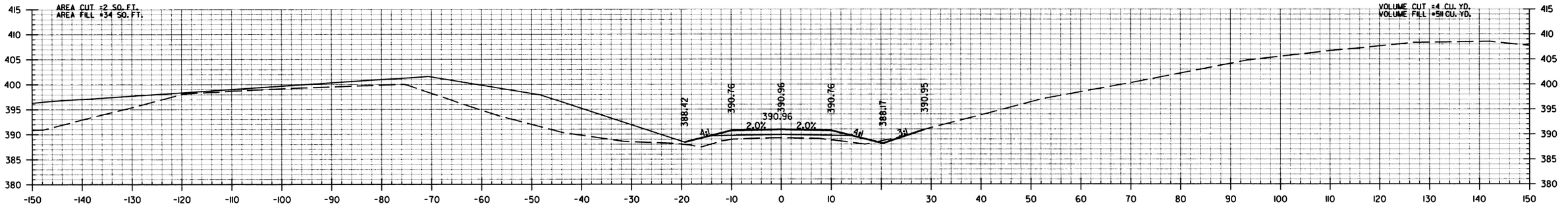
DATE	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0610	886	888
(2)	CROSS SECTIONS			

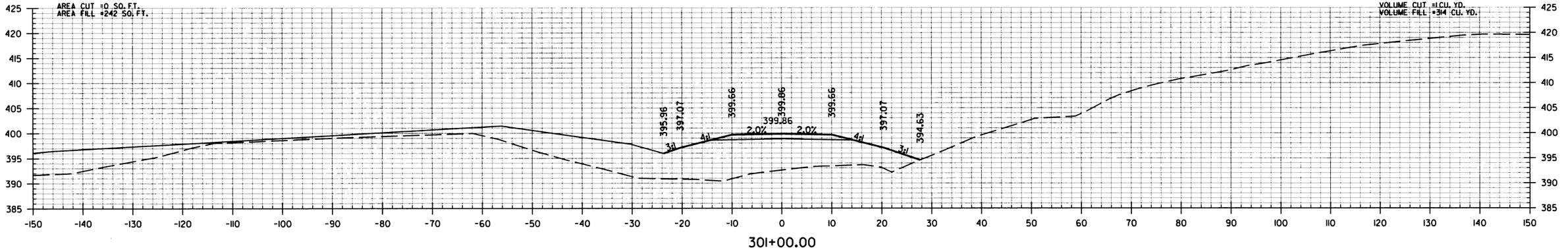
STA. 302+60.00 - END SMITH FORD ROAD



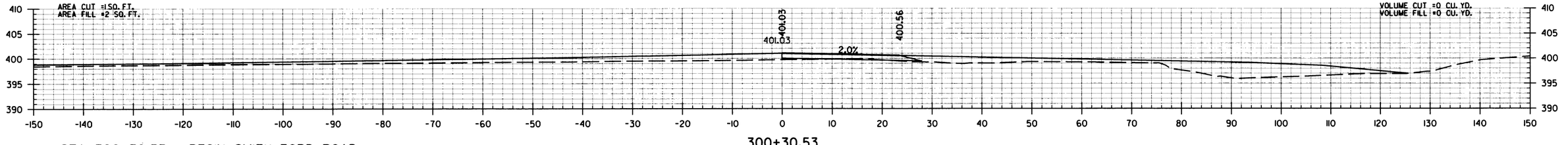
302+60.00



302+00.00



301+00.00



300+30.53

STA. 300+30.53 - BEGIN SMITH FORD ROAD

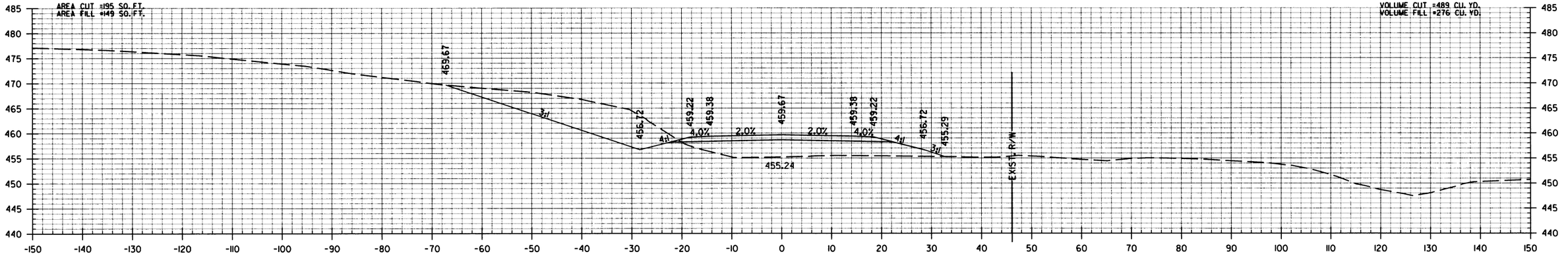
STA. 300+31 TO STA. 302+60

LeonardSpeed 9/23/2016 11:3ul3 AM
WORKSPACE\leonard\CAD\sheets
c:\pw\81-local\baker_projects\leonard.speed\d0271682\r061377_21_CX_009.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

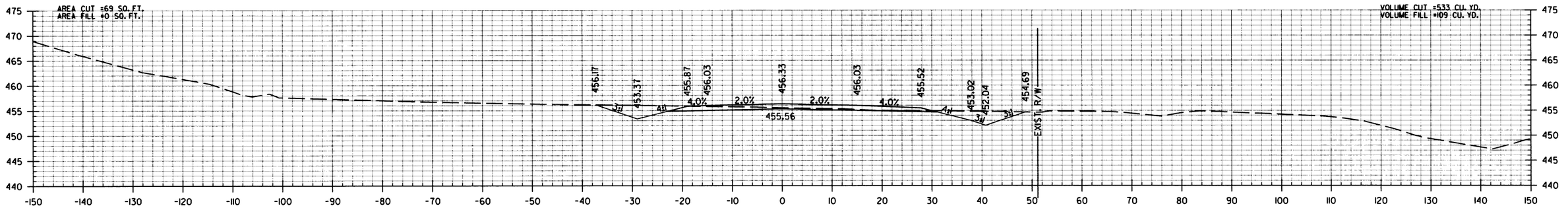
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	887	888
				(2)	CROSS SECTIONS			

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEWAY AT STA. 333+33.00 LT.

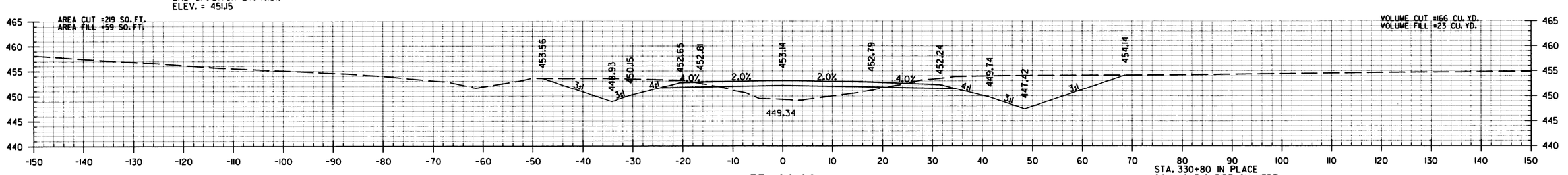


SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEWAY AT STA. 332+62.00 LT.

STA. 332+66.00
END SP. DITCH RT. 4.61%
ELEV. = 455.08



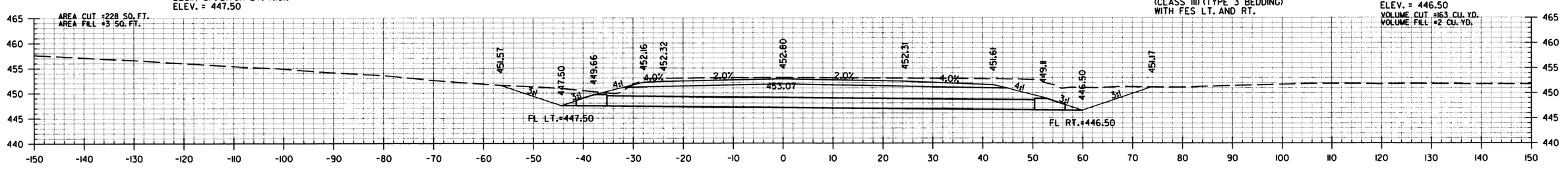
STA. 331+31.00
END SP. DITCH LT. 7.16%
ELEV. = 451.15



STA. 330+80 IN PLACE
24"X 41' R.C. PIPE CULVERT
REMOVE AND INSTALL
24"X 86' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. AND RT.

STA. 330+80.00
BEGIN SP. DITCH LT. 7.16%
ELEV. = 447.50

STA. 330+80.00
BEGIN SP. DITCH RT. 4.61%
ELEV. = 446.50



STA. 330+41.43 - BEGIN FRONTAGE ROAD

STA. 330+80 TO STA. 333+00

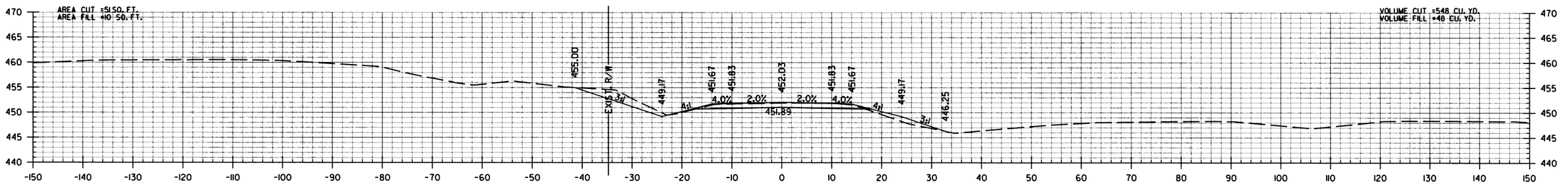
Leonard.Speed 9/23/2016 11:31:23 AM
WORKSPACE: Leonard.Speed
d:\projects\leonard.speed\d0276821\v-061377.21.cx.00.dgn
REVISED DATE: ##REVDATE##

Michael Baker INTERNATIONAL

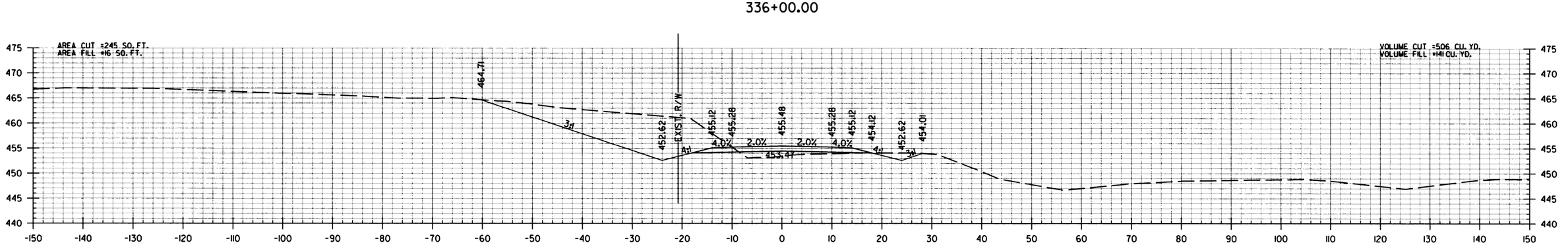
DATE	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0610	888	888
				(2)	CROSS SECTIONS			

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEWAY AT STA. 336+23.00 LT.

STA. 336+05.20 - END FRONTAGE ROAD

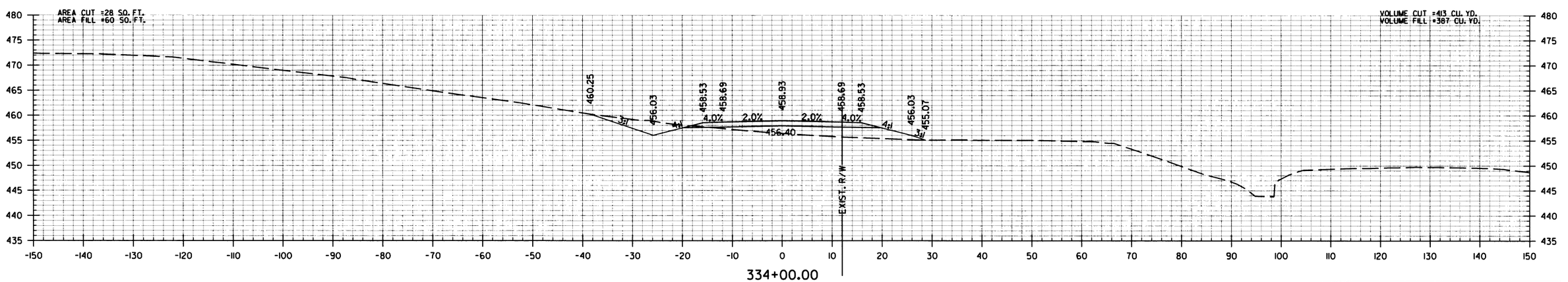


336+00.00



335+00.00

SEE DRIVEWAY PROFILES SHEETS
FOR DRIVEWAY AT STA. 334+57.00 LT.



334+00.00
FRONTAGE ROAD

STA. 334+00 TO STA. 336+00

Leonard Speed 9/23/2016 11:31:23 AM
WORKSPACE: Leonard Speed
CONNECTED PROJECT: C:\Projects\leonard speed\d0271682\r061377_21_CX_00.dgn
REVISED DATE: ##REVDATE##