DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/13/19				6	ARK.			
				JOB NO.		CA0704	1	299
				(2) HWY. 79 - SOUTH (WIDENING) (S)				

"A PARTIALLY CONTROLLED ACCESS FACILITY"

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

HWY. 79 - SOUTH (WIDENING) (S)

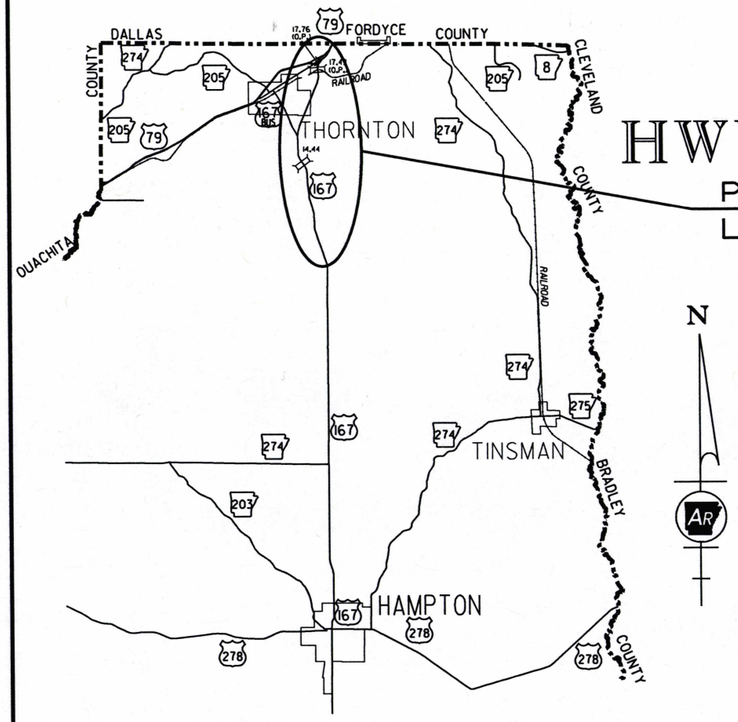
PROJECT LOCATION

CALHOUN COUNTY

ROUTE 167 SECTION 4

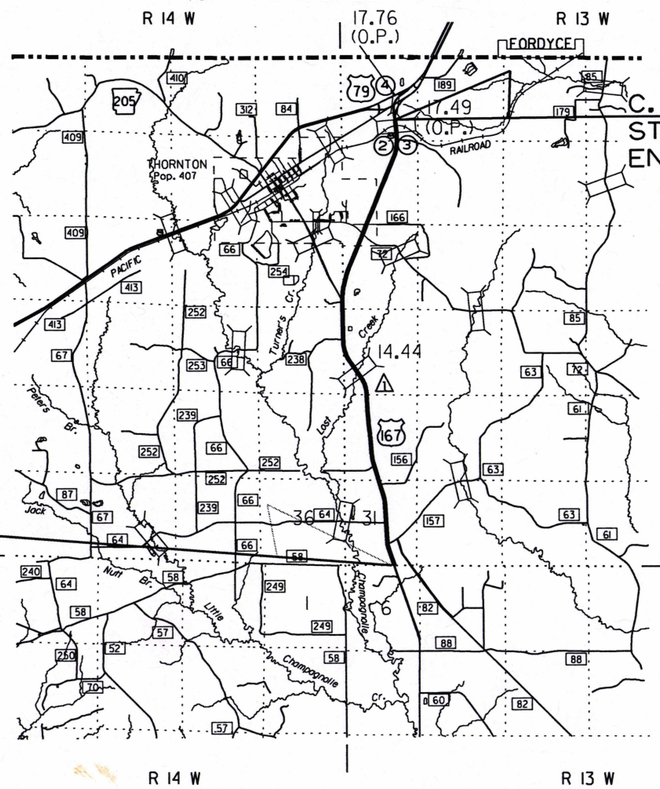
JOB CA0704

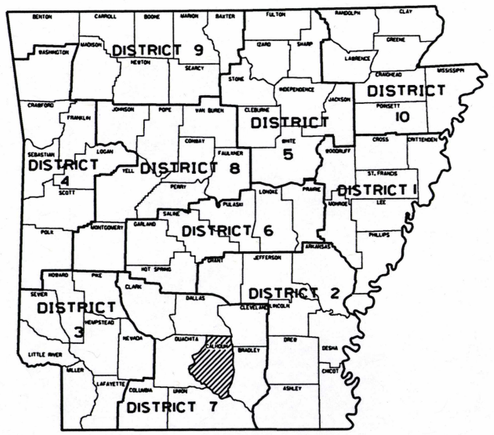
FEDERAL AID PROJ. ACNHPP-0007(25)



VICINITY MAP

NOT TO SCALE





ARK. HWY. DIST. NO. 7

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2039
2019 ADT	4000
2039 ADT	4900
2039 DHV	539
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	25%
DESIGN SPEED	60 MPH

STRUCTURE OVER 20'-0" SPAN

⚠ STA. 596+61 CONSTRUCT
TRI. 9'X 8'X 121' R.C. BOX CULVERT
W/3:1 WINGS LT. & RT.
TOTAL SPAN = 29'-11"
D.A. = 2.43 SQ. MI., Q50 = 966 C.F.S.

BRIDGE DATA

(2) STA. 756+93.92 BR. END
250'-0" CONTINUOUS COMP. W-BEAM
UNIT (70'-110'-70')
38'-0" CLEAR ROADWAY
TOTAL LENGTH = 252'-2"
BR. NO. A7400
STA. 759+46.08 BR. END

(3) STA. 757+08.92 BR. END
250'-0" CONTINUOUS COMP. W-BEAM
UNIT (70'-110'-70')
38'-0" CLEAR ROADWAY
TOTAL LENGTH = 252'-2"
BR. NO. B7400
STA. 759+61.08 BR. END

(4) STA. 770+63.18 BR. END IN PLACE
195'-0" STEEL STRINGER
30° RT. FWD. SKEW
22'-5" CLEAR ROADWAY
TOTAL LENGTH = 198'-0"
RETAIN EXISTING BRIDGE
REHABILITATE DECK AND RETROFIT GUARDRAIL
BR. NO. 03638
STA. 772+61.18 BR. END

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	W 33°42'48"	W 33°45'10"	W 33°47'27"
LONGITUDE	N 92°28'15"	N 92°28'47"	N 92°28'07"

LENGTH OF PROJECT CALCULATED ALONG C.L.

GROSS LENGTH OF	PROJECT	30000.00	FEET	OR	5.682	MILES
NET	ROADWAY	29519.92			5.591	MILES
NET	BRIDGES	480.08			0.091	MILES
NET	PROJECT	30000.00			5.682	MILES

P.E. JOB CA0704

APPROVED

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 7639
M.E. BANKS

11-13-19

DEPUTY DIRECTOR
AND CHIEF ENGINEER

7/31/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/22/20				6	ARK.			
3/5/20				JOB NO.		CA0704	2	299

(2) INDEX OF SHEETS AND STANDARD DRAWINGS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

3-5-2020

INDEX OF SHEETS

SHEET NO.		TITLE	BRIDGE NO.	DRWG.NO.
1		TITLE SHEET		
2		INDEX OF SHEETS AND STANDARD DRAWINGS		
3		GOVERNING SPECIFICATIONS AND GENERAL NOTES		
4 - 7		TYPICAL SECTIONS OF IMPROVEMENT		
8 - 20		SPECIAL DETAILS		
21 - 64		TEMPORARY EROSION CONTROL DETAILS		
65 - 90		MAINTENANCE OF TRAFFIC DETAILS		
91 - 103		PERMANENT PAVEMENT MARKING DETAILS		
104 - 110		QUANTITIES		
111		SCHEDULE OF BRIDGE QUANTITIES	A&B7400	59376
112 - 113		SUMMARY OF QUANTITIES AND REVISIONS		
114 - 125		SURVEY CONTROL DETAILS		
126 - 156		PLAN AND PROFILE SHEETS		
157		LAYOUT OF BRIDGE A HIGHWAY 167 OVER UNION PACIFIC RAILROAD	A7400	59377
158		LAYOUT OF BRIDGE B HIGHWAY 167 OVER UNION PACIFIC RAILROAD	B7400	59378
159		EXHIBIT A LAYOUT OF BRIDGES HIGHWAY 167 OVER UNION PACIFIC RAILROAD	A&B7400	59379
160		SOIL BORINGS BRIDGE A HIGHWAY 167 OVER UNION PACFIC RAILROAD	A7400	59380
161		SOIL BORINGS BRIDGE B HIGHWAY 167 OVER UNION PACFIC RAILROAD	B7400	59381
162		DETAILS OF END BENTS (SHEET 1 OF 4)	A&B7400	59382
163		DETAILS OF END BENTS (SHEET 2 OF 4)	A&B7400	59383
164		DETAILS OF END BENTS (SHEET 3 OF 4)	A&B7400	59384
165		DETAILS OF END BENTS (SHEET 4 OF 4)	A&B7400	59385
166		DETAILS OF INTERMEDIATE BENTS (SHEET 1 OF 2)	A&B7400	59386
167		DETAILS OF INTERMEDIATE BENTS (SHEET 2 OF 2)	A&B7400	59387
168		DETAILS OF ELASTOMERIC BEARINGS	A&B7400	59388
169		DETAILS OF 250'-0" CONTINUOUS W-BEAM UNIT (SHEET 1 OF 5)	A&B7400	59389
170		DETAILS OF 250'-0" CONTINUOUS W-BEAM UNIT (SHEET 2 OF 5)	A&B7400	59390
171		DETAILS OF 250'-0" CONTINUOUS W-BEAM UNIT (SHEET 3 OF 5)	A&B7400	59391
172		DETAILS OF 250'-0" CONTINUOUS W-BEAM UNIT (SHEET 4 OF 5)	A&B7400	59392
173		DETAILS OF 250'-0" CONTINOUS W-BEAM UNIT (SHEET 5 OF 5)	A&B7400	59393
174		DETAILS OF TYPE SPECIAL APPROACH SLAB	03638	59394
175		DETAILS OF JOINT REPAIR	03638	59395
176		LAYOUT OF OVERPASS OVER U.S. HWY. NO. 79 (FOR INFORMATION ONLY)	03638	11858
177 - 299		CROSS SECTIONS		

NOTE: CROSS SECTIONS NOT NORMALLY INCLUDED IN PLANS SOLD TO PROSPECTIVE BIDDERS, BUT MAY BE HAD UPON REQUEST.

BRIDGE STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	02-27-14
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	02-27-14
55002	STANDARD DETAILS FOR CONCRETE RIPRAP	02-27-14
55005	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	03-24-16
55006	STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES	09-02-15
55007	STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES	02-11-16
55008	STANDARD DETAILS FOR POURED SILICONE JOINTS	02-11-16
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	01-15-19
55018	STANDARD DETAILS FOR CHAIN LINK FENCE	02-11-16
55022	STANDARD DETAILS FOR CONCRETE PILES	03-24-16
55030C	STANDARD DETAILS FOR TYPE C APPROACH GUTTERS	02-27-14
55040C2	STANDARD DETAILS FOR TYPE C2 APPROACH SLAB	02-27-14

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
CG-1	CURBING DETAILS	11-29-07
DR-1	DETAILS OF DRIVEWAYS & ISLANDS	11-07-19
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
FPC-9D	DETAILS OF DROP INLETS	08-22-02
FPC-9N	DETAILS OF DROP INLETS AND SPILLWAY OUTLET	07-02-98
FPC-9S	DETAILS OF DROP INLET & JUNCTION BOX (TYPE ST)	07-26-12
GR-6	GUARD RAIL DETAILS	11-07-19
GR-7	GUARD RAIL DETAILS	11-07-19
GR-8	GUARD RAIL DETAILS	11-07-19
GR-9	GUARD RAIL DETAILS	11-07-19
GR-10	GUARD RAIL DETAILS	11-07-19
GR-11	GUARD RAIL DETAILS	11-07-19
GR-12	GUARD RAIL DETAILS	11-07-19
GR-13	CONCRETE BARRIER WALL (PIER PROTECTION TYPE A)	11-07-19
MB-1	MAILBOX DETAILS	11-18-04
PBC-1	PRECAST CONCRETE BOX CULVERTS	01-28-15
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	02-27-14
PCP-3	PLASTIC PIPE CULVERT (POLYPROPYLENE)	02-27-20
PM-1	PAVEMENT MARKING DETAILS	02-27-20
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
RCB-1	REINFORCED CONCRETE BOX CULVERT DETAILS	07-26-12
RCB-2	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	11-20-03
RCB-3	METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS	10-12-95
SE-1	TABLES AND METHOD OF SUPERELEVATION FOR ONE-WAY TRAFFIC	11-07-19
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	11-07-19
SI-1	DETAILS OF SPECIAL ITEMS	10-25-18
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	02-27-20
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
WF-1	WIRE FENCE TYPE A AND B	08-22-02
WF-2	WIRE FENCE WATER GAPS	04-20-79
WF-3	CHAIN LINK FENCE	11-17-10
WF-4	WIRE FENCE TYPE C AND D	08-22-02

8/1/2018

RCA0704.DGN

INDEX OF SHEETS AND STANDARD DRAWINGS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/22/20		3/13/20		6	ARK.			
2/10/20				JOB NO.		CA0704	3	299
2/24/20								

(2) GOVERNING SPECIFICATIONS AND GEN. NOTES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-12-2020

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 CA0704
FHWA-1273__ SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__ SUPPLEMENT - WAGE RATE DETERMINATION
100-3_____ CONTRACTOR'S LICENSE
100-4_____ DEPARTMENT NAME CHANGE
102-2_____ ISSUANCE OF PROPOSALS
108-1_____ LIQUIDATED DAMAGES
108-2_____ WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1_____ PROTECTION OF WATER QUALITY AND WETLANDS
210-1_____ UNCLASSIFIED EXCAVATION
303-1_____ AGGREGATE BASE COURSE
306-1_____ QUALITY CONTROL AND ACCEPTANCE
400-1_____ TACK COATS
400-4_____ DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5_____ PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6_____ LIQUID ANTI-STRIP ADDITIVE
404-3_____ DESIGN OF ASPHALT MIXTURES
410-1_____ CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2_____ DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
600-2_____ INCIDENTAL CONSTRUCTION
603-1_____ LANE CLOSURE NOTIFICATION
604-1_____ RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3_____ TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
605-1_____ CONCRETE DITCH PAVING
606-1_____ PIPE CULVERTS FOR SIDE DRAINS
617-1_____ GUARDRAIL TERMINAL (TYPE 2)
620-1_____ MULCH COVER
632-1_____ CONCRETE ISLAND
800-1_____ STRUCTURES
802-3_____ CONCRETE FOR STRUCTURES
804-2_____ REINFORCING STEEL FOR STRUCTURES
807-2_____ STEEL STRUCTURES
808-1_____ INSTALLATION OF ELASTOMERIC BEARINGS
808-2_____ ELASTOMERIC BEARINGS
JOB CA0704_ AIRPORT CLEARANCE REQUIREMENTS
JOB CA0704_ BIDDING REQUIREMENTS AND CONDITIONS
JOB CA0704_ BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB CA0704_ BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB CA0704_ CARGO PREFERENCE ACT REQUIREMENTS
JOB CA0704_ CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB CA0704_ CONSTRUCTION PROJECT INFORMATION SIGN
JOB CA0704_ COORDINATION OF WORK
JOB CA0704_ CULVERT CLEAN OUT
JOB CA0704_ DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB CA0704_ DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB CA0704_ ELECTRONIC DOCUMENT MANAGEMENT - CONNECTING ARKANSAS PROGRAM
JOB CA0704_ EMPLOYMENT REPORTING
JOB CA0704_ EXTENSION FOR PIPE CULVERTS
JOB CA0704_ FLEXIBLE BEGINNING OF WORK – CALENDAR DAY CONTRACT
JOB CA0704_ GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB CA0704_ INSURANCE, CONSTRUCTION, AND FLAGGING REQUIREMENTS ON RAILROAD PROPERTY
JOB CA0704_ MAINTENANCE OF TRAFFIC
JOB CA0704_ MANDATORY ELECTRONIC CONTRACT
JOB CA0704_ NESTING SITES OF MIGRATORY BIRDS
JOB CA0704_ PARTNERING REQUIREMENTS
JOB CA0704_ PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)
JOB CA0704_ PIPE CULVERTS
JOB CA0704_ PLASTIC PIPE
JOB CA0704_ POLYESTER POLYMER CONCRETE OVERLAY
JOB CA0704_ PROSECUTION AND PROGRESS WITH BID SCHEDULE
JOB CA0704_ REMOVING AND REPLACING TOPSOIL
JOB CA0704_ SHORING FOR CULVERTS
JOB CA0704_ SITE USE (A+C METHOD) - CALENDAR DAY CONTRACT
JOB CA0704_ SOIL STABILIZATION
JOB CA0704_ STORM WATER POLLUTION PREVENTION PLAN
JOB CA0704_ SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB CA0704_ UTILITY ADJUSTMENTS
JOB CA0704_ VALUE ENGINEERING
JOB CA0704_ WARM MIX ASPHALT
JOB CA0704_ WELLHEAD PROTECTION

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. THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
9. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
10. 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.
11. THIS PROJECT IS COVERED UNDER A NATIONWIDE 14 SECTION 404 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.

8/1/2018
RCA0704.DGN

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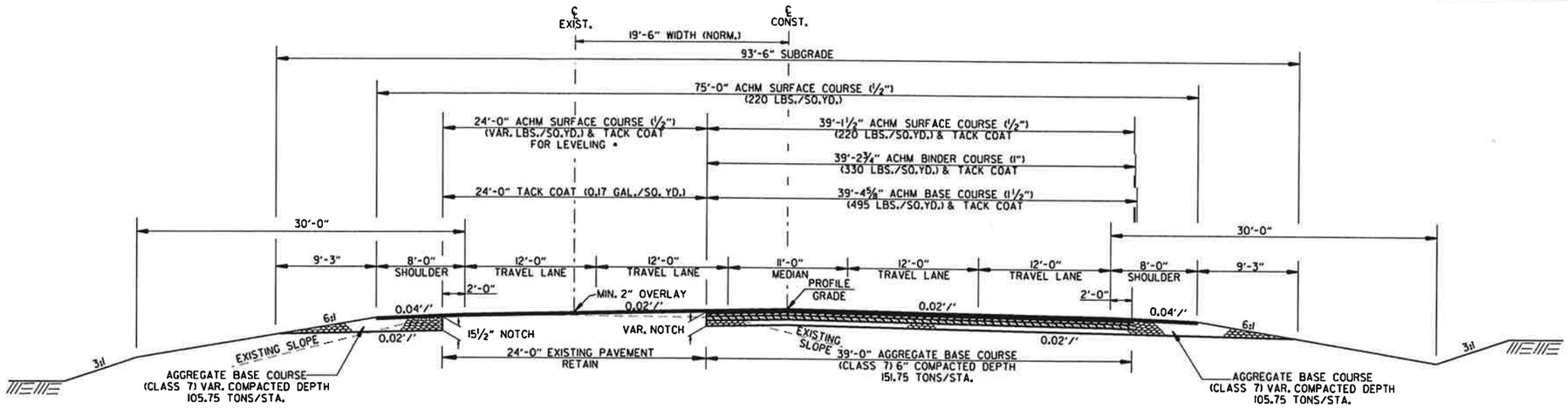
3/17/20				6	ARK.			
				JOB NO.		CA0704	4	299

(2) TYPICAL SECTIONS OF IMPROVEMENT

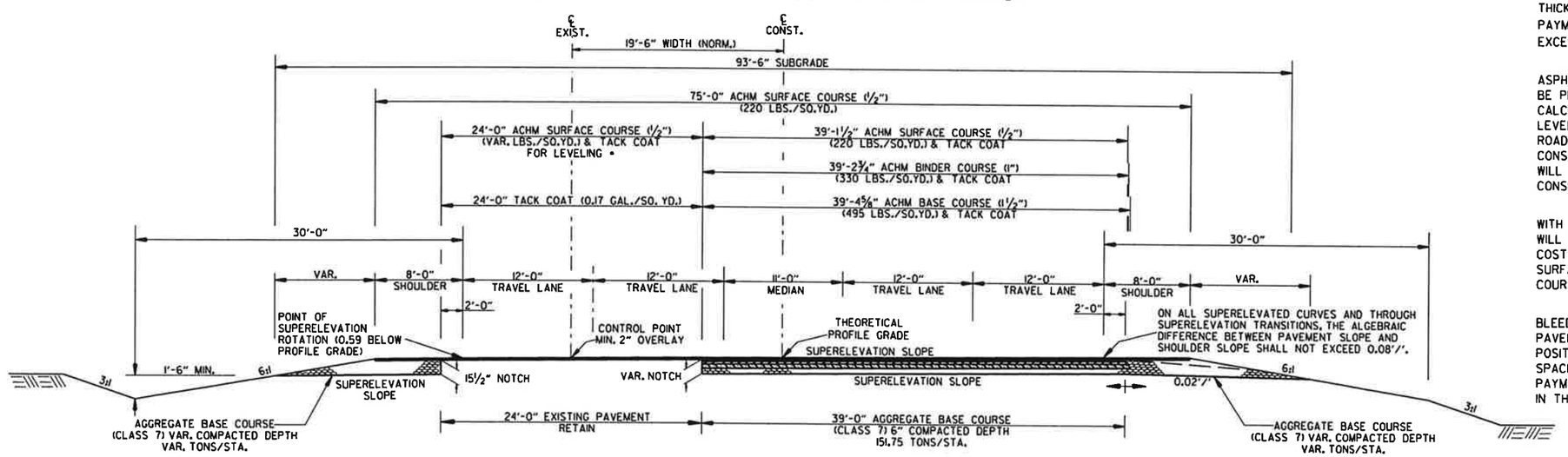
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-17-2020



* IF AND WHERE DIRECTED BY THE ENGINEER

NOTCH & WIDEN RIGHT
(REVERSE FOR LEFT NOTCH)

STA.	475+00.00	- STA.	479+55.58 RT.	NOTCH
STA.	494+39.63	- STA.	507+86.59 LT.	NOTCH
STA.	520+54.62	- STA.	533+46.35 LT.	NOTCH
STA.	547+27.12	- STA.	578+83.89 LT.	NOTCH
STA.	598+30.00	- STA.	601+88.61 RT.	NOTCH
STA.	621+32.91	- STA.	636+85.87 LT.	NOTCH
STA.	668+49.12	- STA.	738+79.17 LT.	NOTCH



* IF AND WHERE DIRECTED BY THE ENGINEER

SUPERELEVATED SECTION
NOTCH & WIDEN RIGHT NOTCH/LT. HAND CURVE
(REVERSE FOR LEFT NOTCH/RT. HAND CURVE)

STA.	479+55.58	TO STA.	494+39.63	
STA.	507+86.59	TO STA.	520+54.62	
STA.	533+46.35	TO STA.	547+27.12	
STA.	578+83.89	TO STA.	595+00.00	
STA.	601+88.61	TO STA.	621+32.91	
STA.	636+85.87	TO STA.	668+49.12	

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

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

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 TOLERANCE INDICTED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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 UNDER ROADWAY CONSTRUCTION CONTROL BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS PAY ITEMS.

WITH THE 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.

BLEEDER DITCHES - PRIOR TO AND DURING PLACEMENT OF PAVEMENT AT THE NOTCH, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) AND SPACING USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

8/1/2018

RCA0704.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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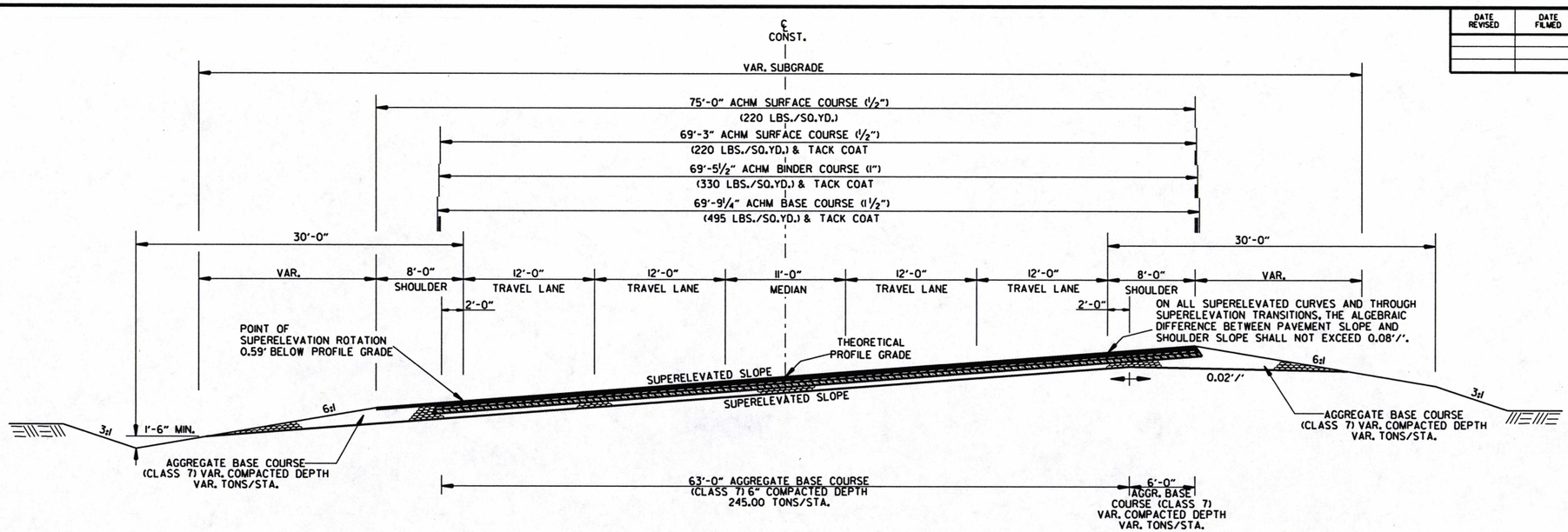
				6	ARK.			
				JOB NO.		CA0704	5	299

(2) TYPICAL SECTIONS OF IMPROVEMENT



FULL DEPTH SECTION

STA. 595+00.00 - STA. 598+30.00 - SUPER
(FULL DEPTH SHOULDER ON RT.)

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

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

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 TOLERANCE INDICTED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

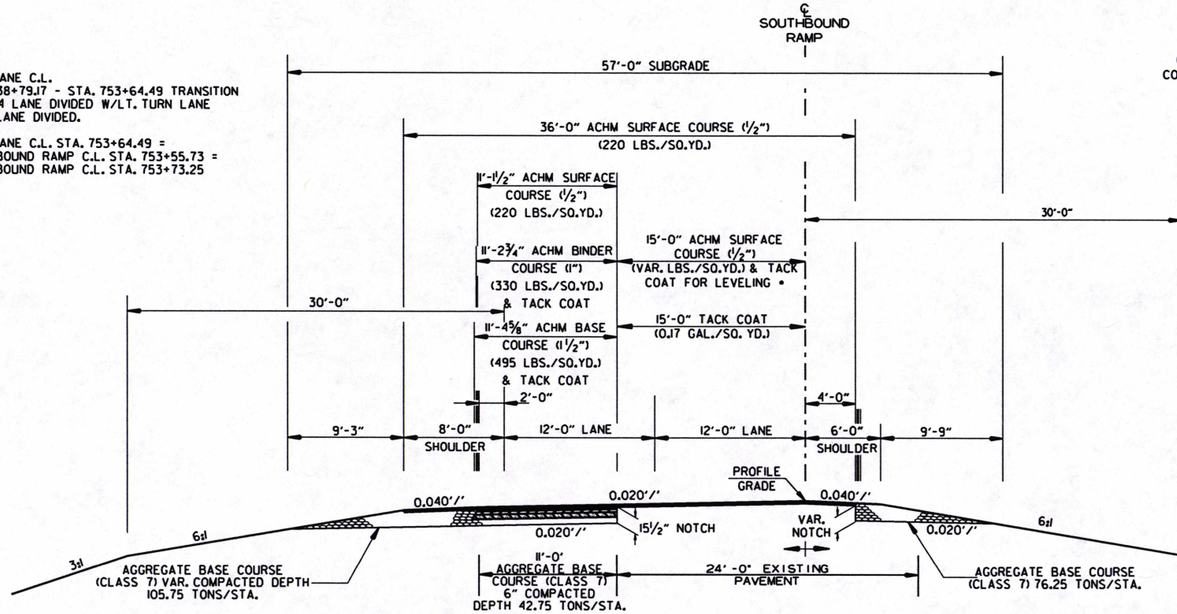
WITH THE APPROVAL OF THE ENGINEER. THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

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 UNDER ROADWAY CONSTRUCTION CONTROL BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS PAY ITEMS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

MAIN LANE C.L.
STA. 738+79.17 - STA. 753+64.49 TRANSITION FROM 4 LANE DIVIDED W/LT. TURN LANE TO 4 LANE DIVIDED.

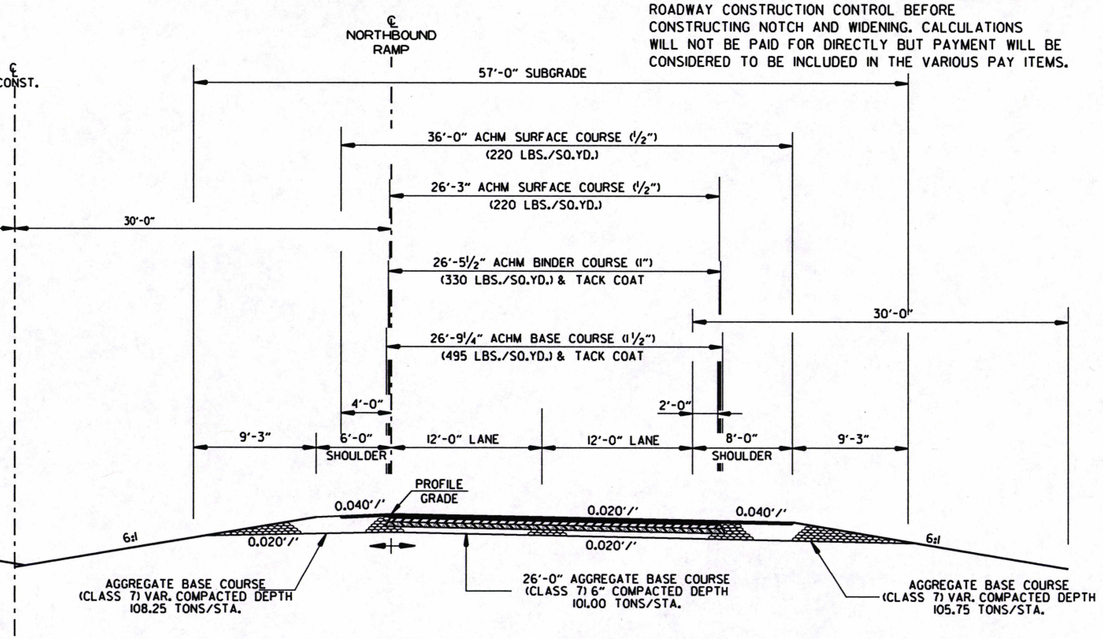
MAIN LANE C.L. STA. 753+64.49 = SOUTHBOUND RAMP C.L. STA. 753+55.73 = NORTHBOUND RAMP C.L. STA. 753+73.25



• IF AND WHERE DIRECTED BY THE ENGINEER

SOUTHBOUND RAMP

STA. 753+55.73 - STA. 754+00.00 S.B.



NORTHBOUND RAMP

STA. 753+73.25 - STA. 754+17.52 N.B.

NOTCH AND WIDEN/FULL DEPTH SECTION

TYPICAL SECTIONS OF IMPROVEMENT

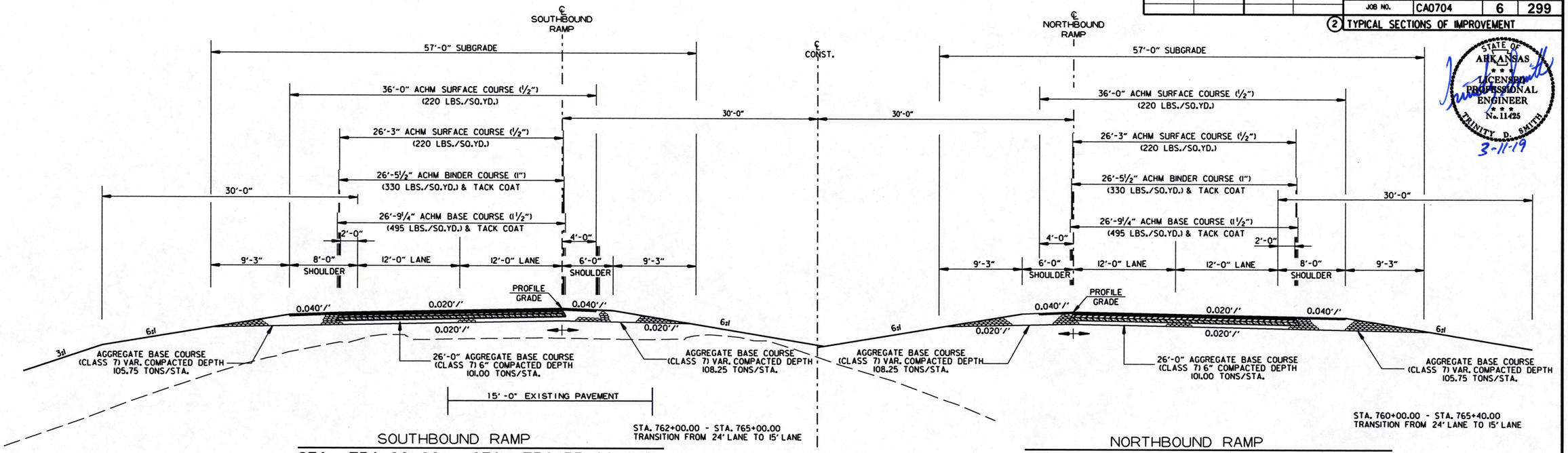
8/1/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	6	299

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



STA. 762+00.00 - STA. 765+00.00
TRANSITION FROM 24' LANE TO 15' LANE

STA. 760+00.00 - STA. 765+40.00
TRANSITION FROM 24' LANE TO 15' LANE

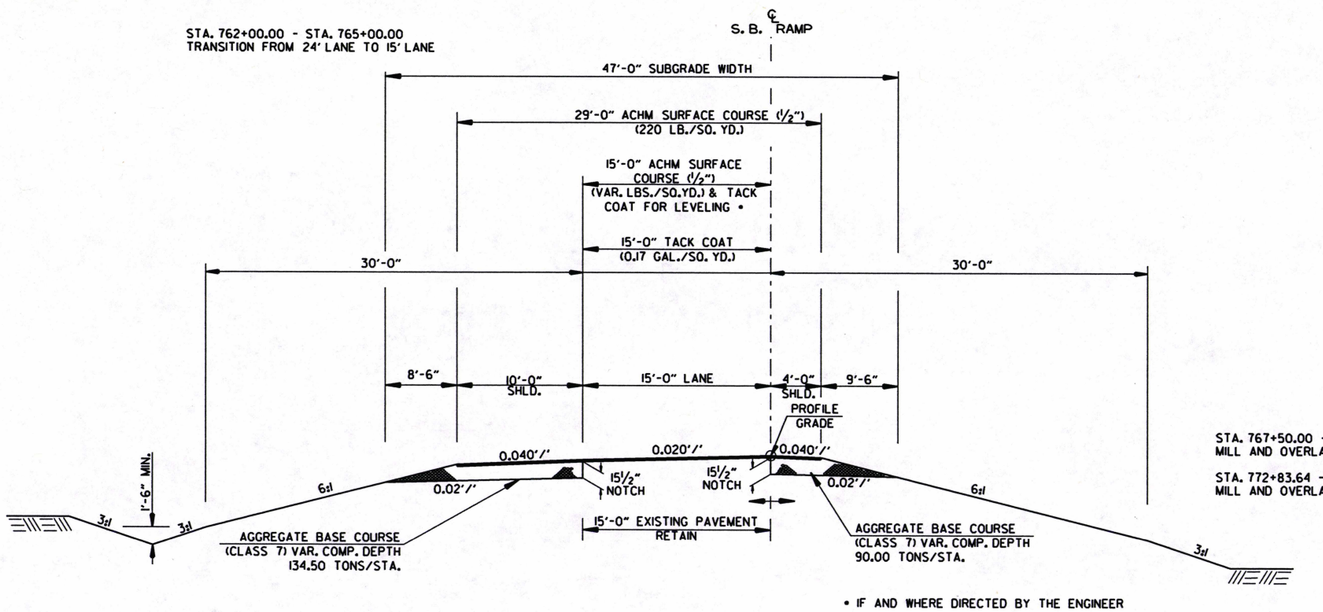
SOUTHBOUND RAMP

STA. 754+00.00 - STA. 756+55.92 S.B.
STA. 759+84.04 - STA. 762+00.00 S.B.

NORTHBOUND RAMP

STA. 754+17.52 - STA. 756+70.88 N.B.
STA. 759+99.06 - STA. 760+00.00 N.B.

FULL DEPTH SECTION



STA. 767+50.00 - STA. 770+17.90
MILL AND OVERLAY 29' LANE & SHOULDERS.

STA. 772+83.64 - STA. 775+00.00
MILL AND OVERLAY 36' LANE & SHOULDERS.

SOUTHBOUND RAMP - NOTCH AND WIDEN SECTION
(SHOWN IN DIRECTION OF STATIONING)
STA. 765+00.00 - STA. 767+50.00

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

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TYPICAL SECTIONS OF IMPROVEMENT

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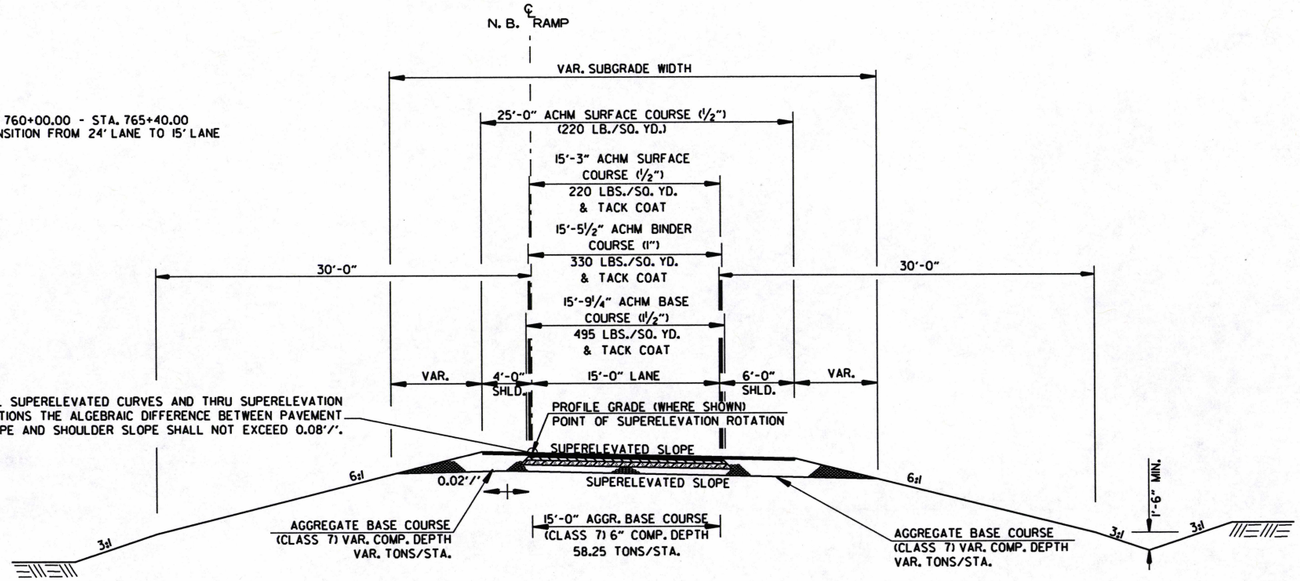
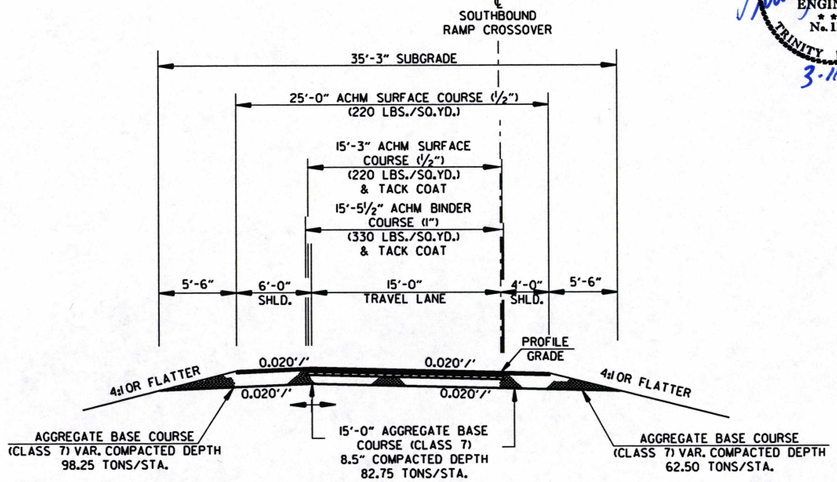
(2) TYPICAL SECTIONS OF IMPROVEMENT

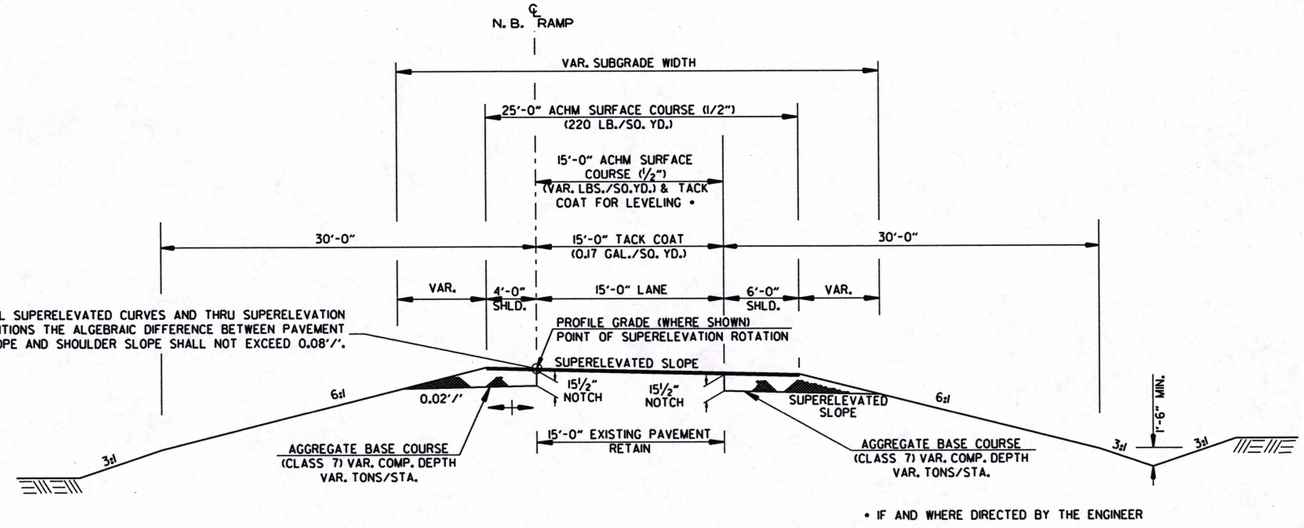
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



NORTHBOUND RAMP - FULL DEPTH SECTION
STA. 765+40.00 - STA. 766+00.00



SOUTHBOUND RAMP CROSSSOVER
(SHOWN IN DIRECTION OF STATIONING)
STA. 860+00.00 - STA. 868+59.47



• IF AND WHERE DIRECTED BY THE ENGINEER

NORTHBOUND RAMP - NOTCH AND WIDEN SECTION
STA. 766+00.00 - STA. 770+15.62 N.B.

NOTES:
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TYPICAL SECTIONS OF IMPROVEMENT

8/1/2018

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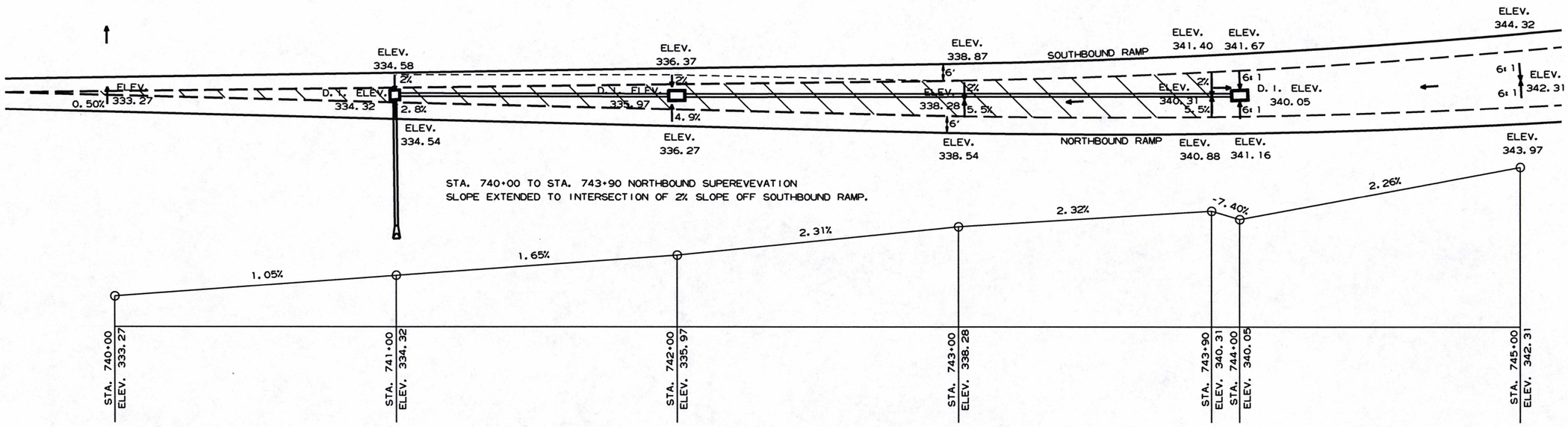
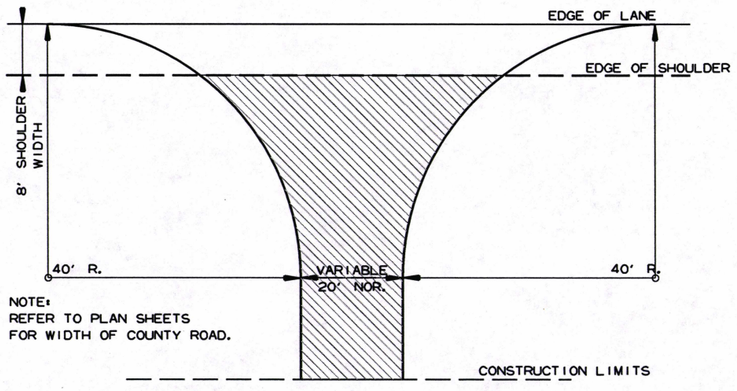
(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



STA. 740+00 TO STA. 743+90 NORTHBOUND SUPEREVEVATION SLOPE EXTENDED TO INTERSECTION OF 2% SLOPE OFF SOUTHBOUND RAMP.

DETAIL OF MEDIAN DRAINAGE

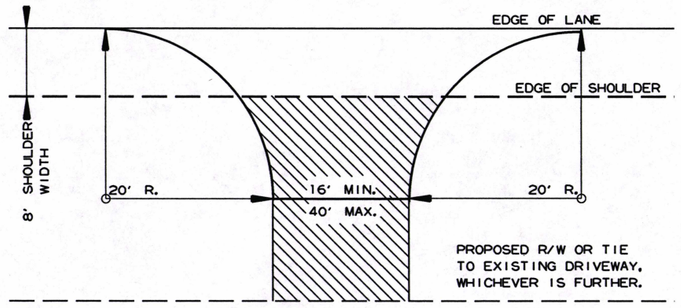


NOTE:
REFER TO PLAN SHEETS FOR WIDTH OF COUNTY ROAD.

DETAIL FOR COUNTY ROAD TURNOUTS
OPEN SHOULDER SECTION

NOTE: TURNOUTS SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

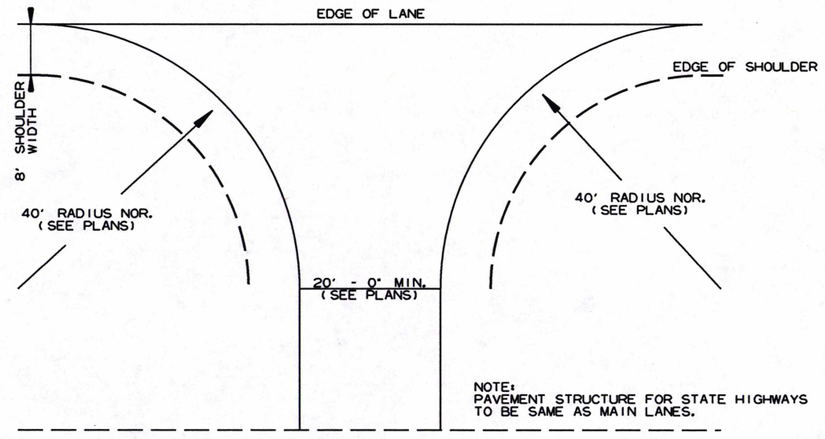
ACHM SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH



DETAIL FOR DRIVEWAY TURNOUTS
OPEN SHOULDER SECTION

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

ACHM SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT OR GRAVEL DRIVE EXISTING; OR 6" CONCRETE IF CONCRETE DRIVE EXISTING.



NOTE:
PAVEMENT STRUCTURE FOR STATE HIGHWAYS TO BE SAME AS MAIN LANES.

DETAIL OF TURNOUTS
ASPHALT STREETS, COUNTY ROADS
& STATE HIGHWAYS

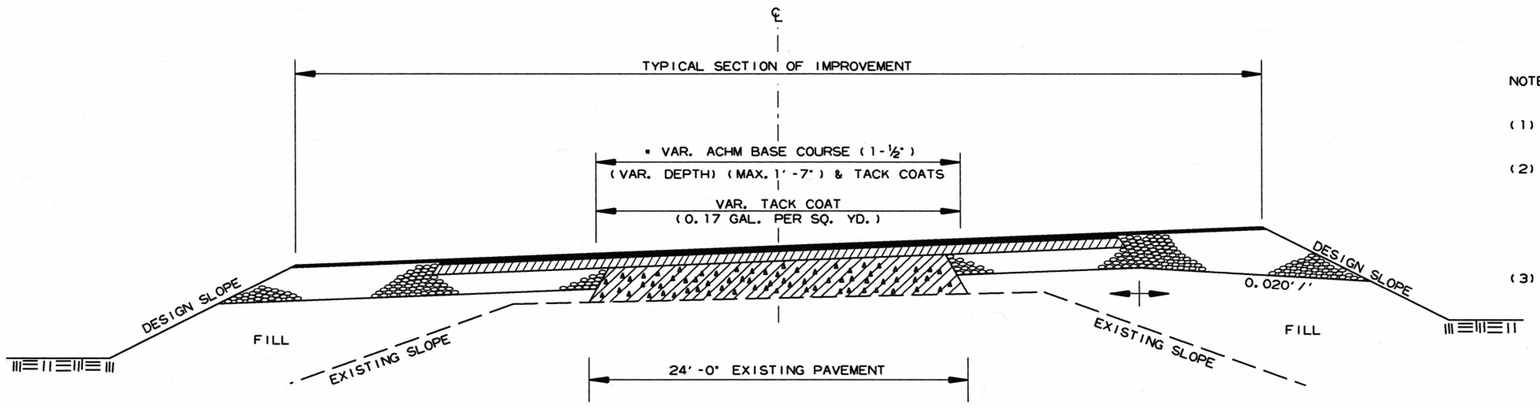
9/5/2018

RCA0704.DGN

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/22/20				6	ARK.			
				JOB NO.		CA0704	9	299

(2) SPECIAL DETAILS



* 7" AGGREGATE BASE COURSE (CLASS 7) TO BE REPLACED WITH ACHM BASE COURSE (1-½")

METHOD OF RAISING GRADE

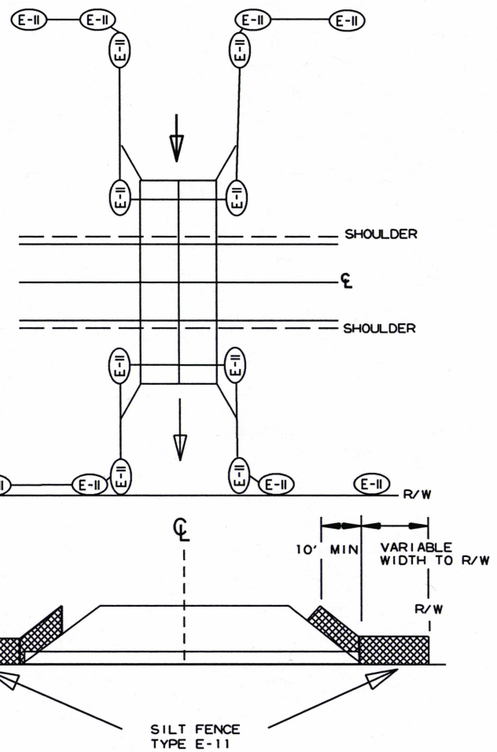
NOTES:

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

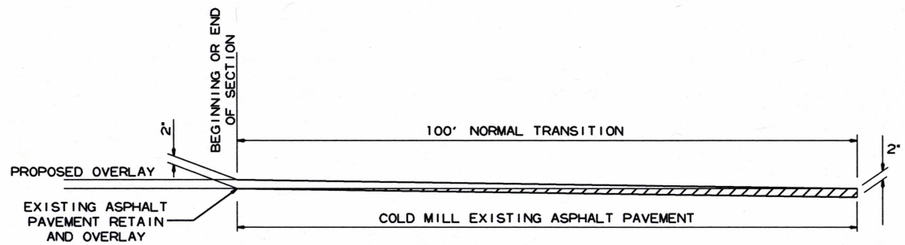
(2) QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.

(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.

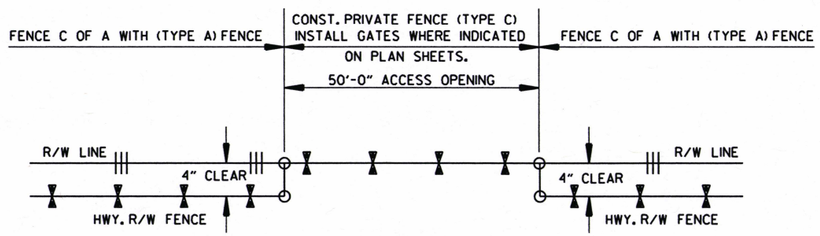
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-22-2020



DETAILS OF SILT FENCE AT CROSS DRAINS



DETAIL FOR TRANSITIONS

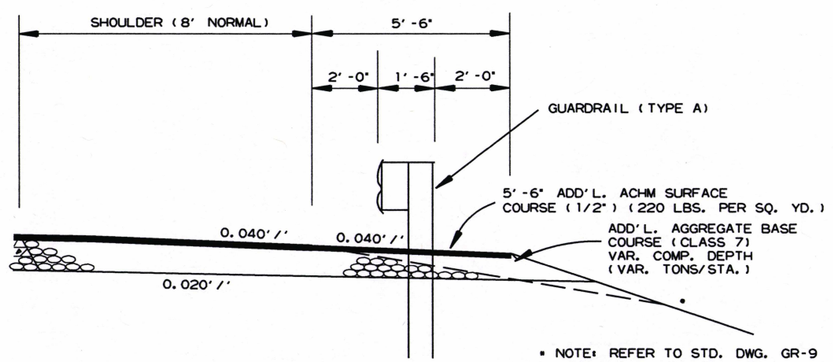


DETAIL OF ACCESS OPENINGS
(NO SCALE)



6.0" Radius, 1.3" Border, Black on Orange;
"Job XXXXXX" C 2K; "Start Date Mo Year" C 2K;
"Est Completion Mo Year" C 2K; "IDRIVE ARKANSAS.COM" Arial;

CONSTRUCTION PROJECT INFORMATION SIGN



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

WIDENING FOR GUARDRAIL

9/5/2018

RCA0704.DGN

SPECIAL DETAILS

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(2) SPECIAL DETAILS

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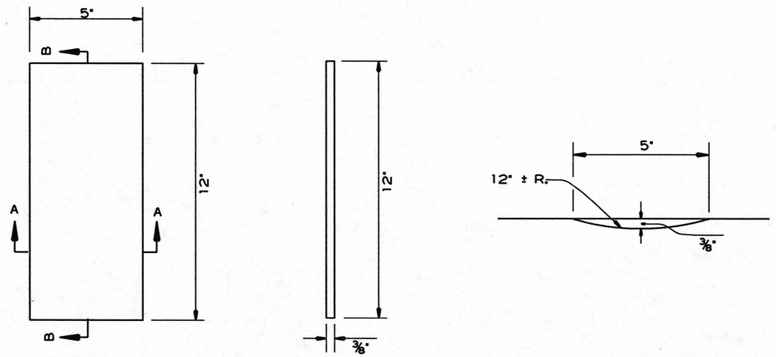
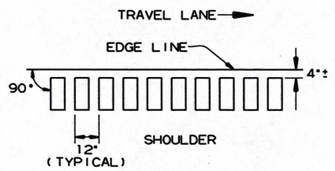
3-11-19

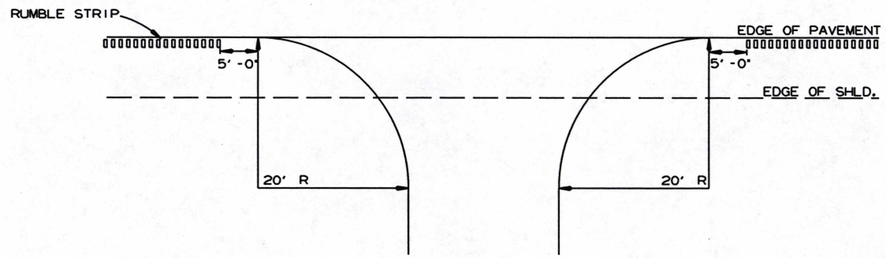


PLAN SECTION B-B SECTION A-A

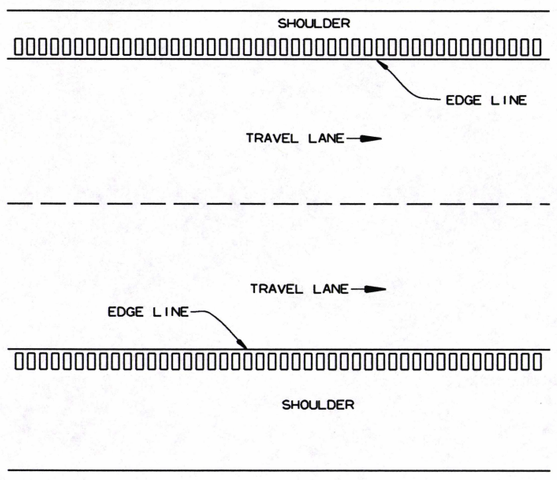
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



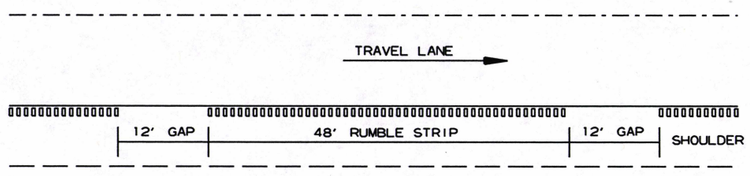
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

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.



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

9/5/2018

RCA0704.DGN

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(2) SPECIAL DETAILS

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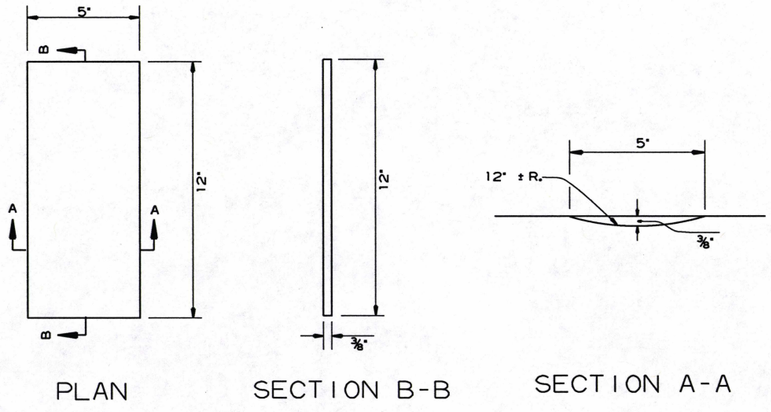
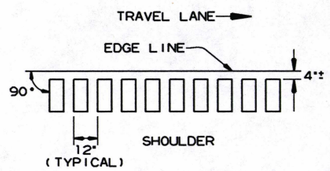
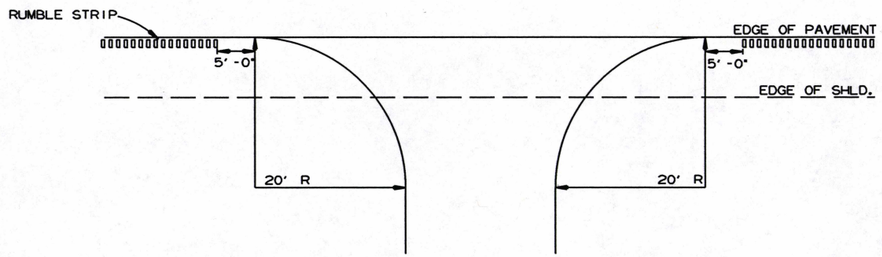
No. 11425
TRINITY D. SMITH
3-11-19



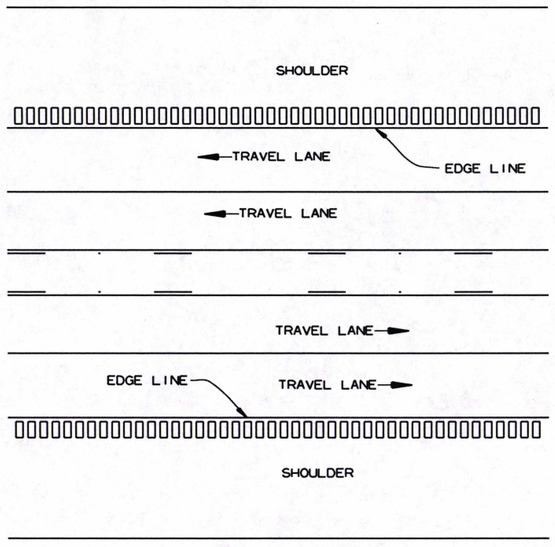
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

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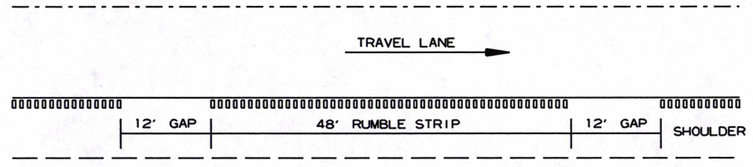
4. RUMBLE STRIPS SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE SHOULDER. PAYMENT SHALL ONLY INCLUDE THAT PORTION OF THE SHOULDER ON WHICH RUMBLE STRIPS HAVE BEEN CONSTRUCTED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR GAPS, DRIVEWAYS, TURNOUTS, OR OTHER PUBLIC ROAD INTERSECTIONS WHERE 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.



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

9/5/2018

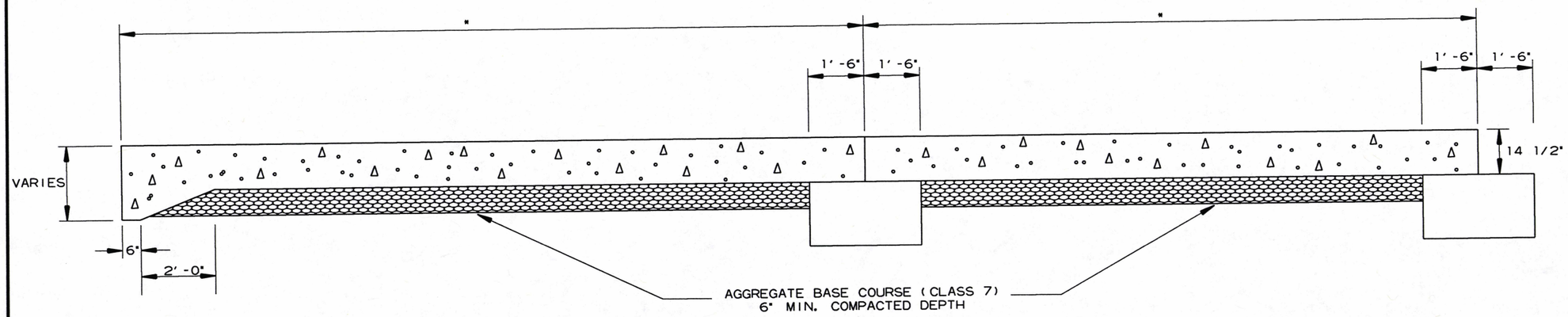
RCA0704.DGN

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	12	299

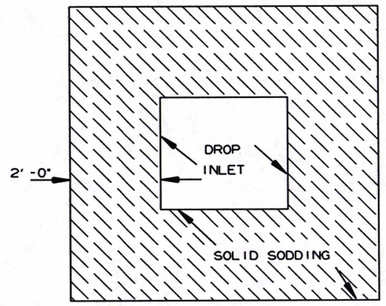
(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

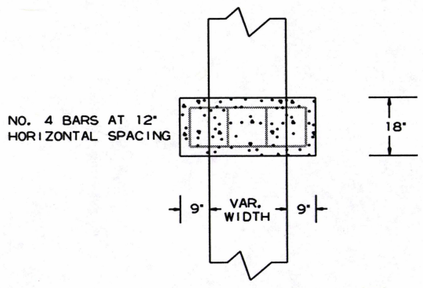


SPECIAL DETAIL OF APPROACH SLAB

* REFER TO BRIDGE DRAWINGS

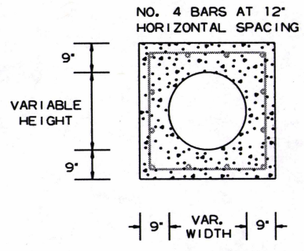


DETAIL FOR SOLID SODDING AROUND DROP INLETS

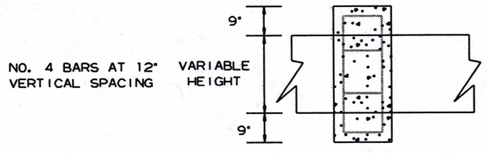


TOP VIEW

MIN 3" COVER

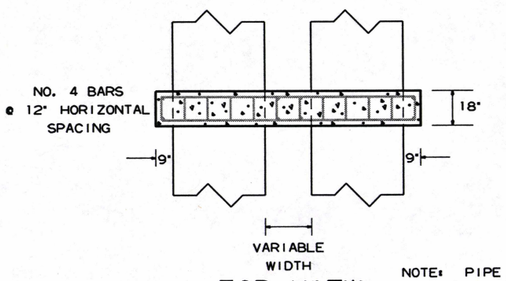


FRONT VIEW



SIDE VIEW

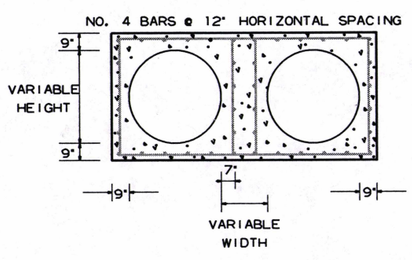
PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL



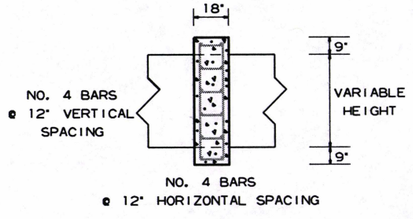
TOP VIEW

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

MIN. 3" COVER



FRONT VIEW



SIDE VIEW

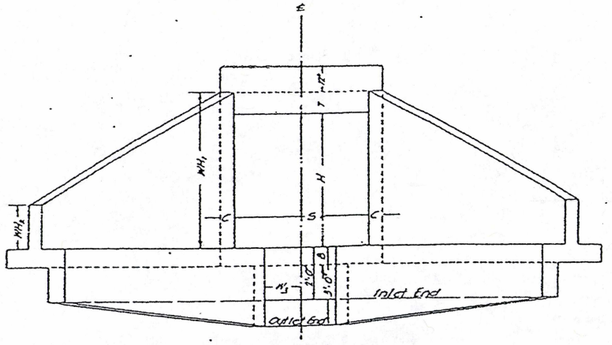
PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL

9/5/2018

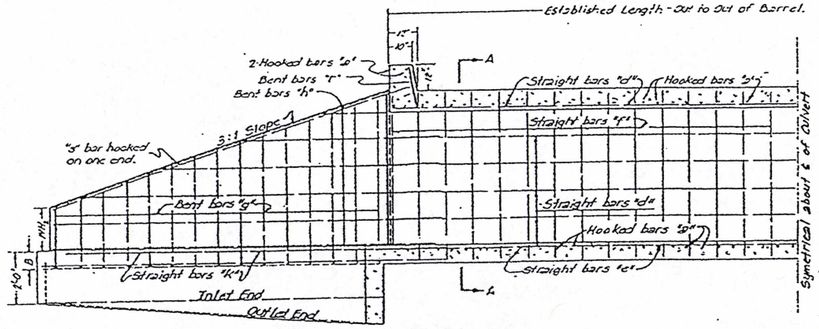
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	13	299

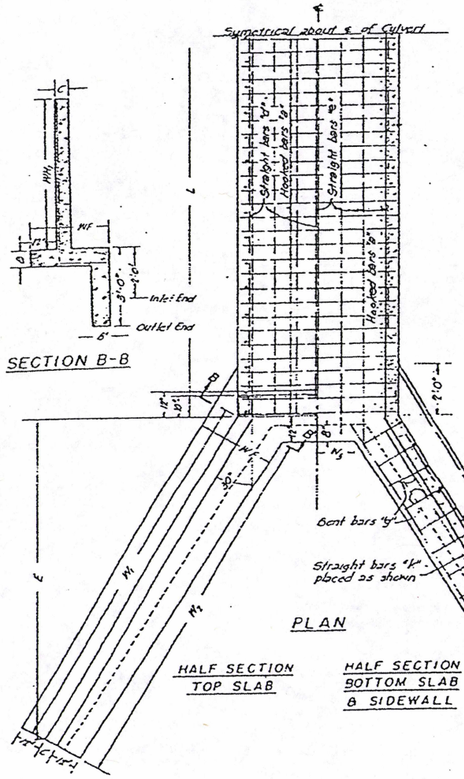
(2) SPECIAL DETAILS

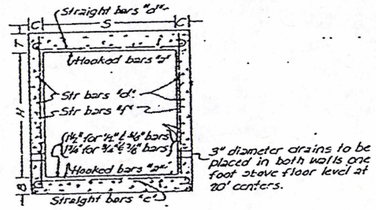


END ELEVATION



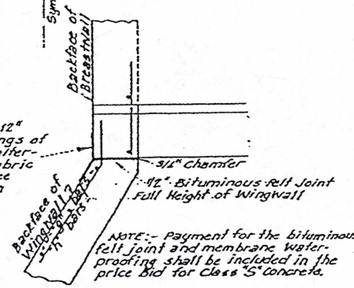
LONGITUDINAL SECTION





SECTION A-A

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 backface of abutment to cover expansion joint.



NOTE:- Payment for the bituminous felt joint and membrane waterproofing shall be included in the price Bid for Class 'S' concrete.

DETAIL OF EXPANSION JOINT
FOR CULVERTS WHEN HEIGHT "H" = 8' OR MORE
SCALE: 3/4" = 1'-0"

DIMENSIONS AND QUANTITIES

SPAN	HEIGHT	AREA OF OPENING SQ. FT.	MINIMUM DEPTH OF FOOTINGS	THICKNESS OF TOP SLAB	THICKNESS OF SIDE WALLS & INTERMEDIATE WALLS	THICKNESSES OF BOTTOM SLAB	WINGWALL HEIGHTS AT HEADWALL	WINGWALL HEIGHTS AT WING END	MAXIMUM WIDTH OF WING FOOTING	LENGTH OF WINGWALLS	INSIDE LENGTH OF WING FOOTING	FOOTING DIMENSION FROM ℄ OF BOX.	CONCRETE CU.YD. HEADWALLS, WINGWALLS & FOOTINGS	CONCRETE CU.YD. PER LINEAR FT. OF BARREL	STEEL L.B. HEADWALLS, WINGWALLS & FOOTINGS	STEEL L.B. PER LINEAR FT. OF BARREL	STEEL L.B. ADD'L STEEL FOR LAPS
S	H	A	D	T	C	B	WH1	WH2	WF	E	N1	W2	W3				
3	2	6		6"	6"	6"		2'-9"	1'-0"	2'-6"	5'-3"	0'-0⅞	0'-10⅞	3.65	0.853	736	25.26	13.4
	3	9	3'6"				6½"	3'-5"	1'-0"	2'-6"	6'-3"	0'-0⅞	0'-10⅞	5.86	0.830	352	27.97	15.6
	4	12						4'-0"	1'-0"	2'-6"	10'-3"	11'-10"	11'-6½"	0'-10⅛	7.71	0.567	461	30.67	17.8
4	2	8	3'6"	8"	8"	8"	7½"	2'-9"	1'-0"	2'-6"	5'-3"	5'-0⅞"	5'-5¾"	1'-4⅜"	4.02	0.329	246	31.22	15.6
	3	12						3'-9"	1'-0"	2'-6"	6'-3"	9'-6¾"	9'-5¾"	1'-9⅜"	6.30	0.346	363	33.93	17.8
	4	16						4'-9"	1'-6"	2'-6"	10'-3"	11'-10"	11'-6½"	1'-10⅛"	8.20	0.403	472	34.63	20.0
	6	24		9"	9"	9"		6'-9"	2'-0"	3'-6"	14'-3"	10'-5⅝"	10'-6⅜"	10'-5"	13.57	0.522	777	48.56	24.5
5	2	10	3'6"	8"	8"	8"	8½"	2'-10"	1'-0"	2'-6"	5'-6"	1'-4¾"	1'-6⅜"	1'-10⅛"	4.56	0.328	249	40.34	17.8
	3	15						3'-10"	1'-0"	2'-6"	8'-6"	3'-9⅜"	3'-4⅜"	1'-10⅛"	6.82	0.455	407	43.04	20.0
	4	20						4'-10"	1'-6"	2'-6"	10'-6"	12'-1⅞"	11'-10"	1'-10⅛"	8.78	0.472	513	45.75	22.3
	5	25						5'-10"	1'-6"	2'-9"	12'-6"	14'-5⅜"	14'-6¾"	1'-10⅛"	11.20	0.509	650	48.46	24.5
	7	35		9½"	9½"	9½"		7'-10"	2'-6"	3'-11"	18'-6"	19'-0⅝"	19'-2⅞"	0'-4"	19.17	0.662	1231	54.64	28.9
6	3	18	3'6"	8"	8"	8"	9½"	3'-8"	1'-0"	2'-6"	8'-6"	5'-9⅜"	5'-6¾"	2'-4⅜"	7.88	0.538	403	50.65	22.3
	4	24						4'-10"	1'-6"	2'-6"	10'-6"	11'-1⅞"	11'-10"	2'-4⅜"	9.28	0.569	527	53.68	24.5
	5	30		10½"	10½"	10½"		5'-10"	1'-6"	2'-11"	12'-6"	14'-5⅜"	15'-0⅜"	1'-10⅛"	11.80	0.606	666	56.93	26.7
	6	36						6'-10"	2'-0"	3'-5"	14'-6"	16'-9"	17'-0"	1'-4⅞"	15.76	0.691	825	63.39	28.9
	8	48		8"	8"	8"		8'-10"	2'-6"	4'-5"	18'-6"	21'-6"	22'-3"	0'-3⅝"	24.98	0.836	1500	72.76	33.4
8	7	56	3'6"	11½"	11½"	11½"	11"	8'-0"	2'-6"	4'-0"	17'-0"	20'-7¾"	20'-5⅜"	1'-8⅞"	22.58	0.966	1337	90.21	40.1
	8	64						9'-0"	2'-6"	4'-6"	19'-0"	21'-11"	22'-10⅜"	1'-2⅞"	27.07	1.043	1532	100.61	42.3
	10	80						11'-0"	3'-4"	5'-6"	23'-0"	26'-6⅜"	26'-11⅛"	0'-2⅞"	34.93	1.285	2229	109.51	46.8
10	8	80	3'6"	12½"	12½"	12½"	12½"	9'-0"	2'-6"	4'-6"	19'-0"	21'-11⅜"	22'-10⅛"	1'-2⅞"	27.64	1.210	1628	130.56	46.5
	10	100						11'-0"	3'-4"	5'-6"	23'-0"	26'-6⅜"	26'-11⅛"	1'-2⅞"	34.15	1.517	2490	139.76	49.0
	12	120						13'-0"	4'-0"	6'-6"	27'-0"	31'-1"	31'-5⅝"	0'-2⅞"	40.41	1.815	3811	150.33	53.4

LAP NOTE - In computing quantities of steel from the above table, add one Lap for culverts up to 50'-0" in length and one Lap for each additional 25'-0" in length.
SPECIFICATIONS:- Arkansas Standard Road and Bridge Specifications.
* REINFORCING STEEL:- To be deformed bars of structural or intermediate grade.
CHAMFER:- All exposed corners to have ¾" Chamfer.
CONCRETE:- All concrete to be Class 'S'
* Reinforcing Steel to be Deformed Bars of Intermediate or Rail Grade on all Interstate Highways.

STEEL SCHEDULE
For Culverts 30'-0" in Length - Out to Out of Barrel

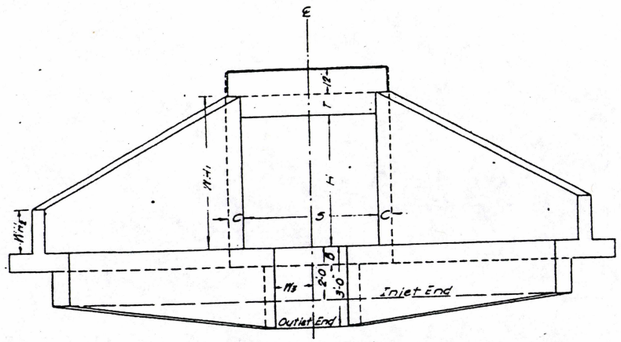
| SPAN | HEIGHT | "a" bars (3" for ½"ø & ⅝"ø bars; 2" for ¾"ø & ⅞"ø bars) SIZE | SPACING | NUMBER | LENGTH | "b" bars In each headwall, balance in Top and Bottom slab of barrel. SIZE | SPACING | NUMBER | LENGTH | "d" bars STRAIGHT In Bottom of Top Slab SIZE | SPACING | NUMBER | LENGTH | "e" bars In Sidewalls SIZE | SPACING | NUMBER | LENGTH | "f" bars In Top of Bottom Slab SIZE | SPACING | NUMBER | LENGTH | "f" bars STRAIGHT Vertical bars in Sidewalls SIZE | SPACING | NUMBER | LENGTH | "g" bars Vertical bars in back face of Wingwall bent into Bottom of footing SIZE | SPACING | NUMBER | LENGTH | X Min | X Max | Y Min | Y Max | "k" bars ½"ø bars @ 12" Ctrs. NUMBER | LENGTH | Z Min | Z Max | "K" bars ¼"ø bars STRAIGHT in Wing footings NUMBER | LENGTH | "f" bars ½"ø bars EXTRA Bent in Headwalls NUMBER | LENGTH | "s" bars ½"ø bars In Top of each Wingwall NUMBER | LENGTH | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	14	299

(2) SPECIAL DETAILS

STATE OF ARKANSAS * * * LICENSED PROFESSIONAL ENGINEER * * * No. 11425 TRINITY D. SMITH

3-11-19



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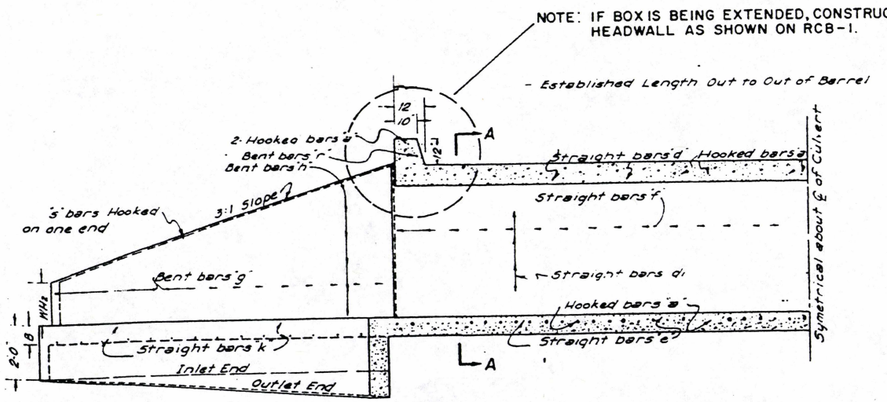
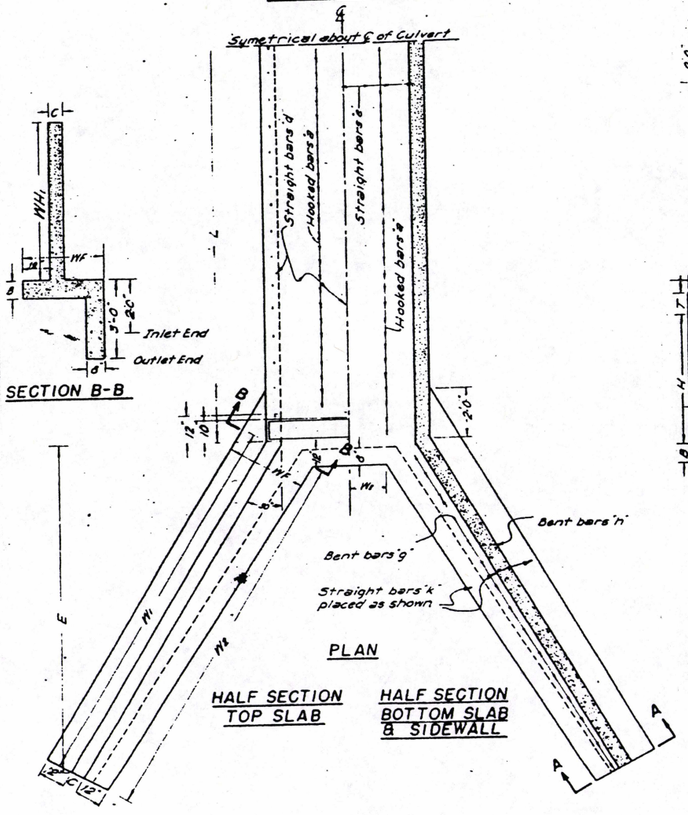


LONGITUDINAL SECTION



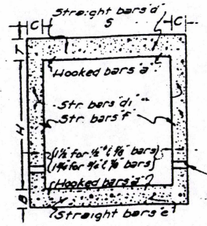
SECTION B-B

PLAN

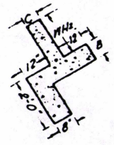
HALF SECTION TOP SLAB

HALF SECTION BOTTOM SLAB & SIDEWALL

Note- Angle of wingwalls may be varied to conform to the natural or proposed Inlet or Outlet Channel.

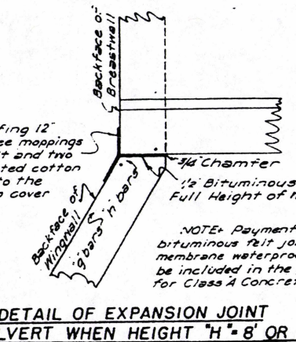


SECTION A-A



SECTION A-A

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 backface of abutment to cover expansion joint.



NOTE- Payment for the bituminous felt joint and membrane waterproofing shall be included in the price bid for Class A Concrete.

DETAIL OF EXPANSION JOINT FOR CULVERT WHEN HEIGHT "H" = 8' OR MORE

Scale 3/4" = 1'-0"

DIMENSIONS AND QUANTITIES

SPAN	HEIGHT	AREA OF OPENING SQ. FT.	MAXIMUM DEPTH OF COVER	THICKNESS OF TOP SLAB	THICKNESS OF WINGWALLS AT TOP	THICKNESS OF WINGWALLS AT BOTTOM	WINGWALL HEIGHTS AT HEADWALLS	WINGWALL HEIGHTS AT WING END	MAXIMUM WIDTH OF WING FOOTING	PERPENDICULAR DIST. FROM END OF WING TO FACE OF HEADWALL	LENGTH OF WINGWALLS	INSIDE LENGTH OF WING FOOTING	FOOTING DIMENSION FROM ℄ OF BOX	CONCRETE CU.YDS. HEADWALLS WINGWALLS & FOOTINGS	CONCRETE CU.YDS. PER LINEAR FOOT OF BARREL	STEEL LBS. HEADWALLS WINGWALLS & FOOTINGS	STEEL LBS. PER LINEAR FOOT OF BARREL	1001 STEEL FOR LAPS
S	H	A	D	T	C	B	WH1	WH2	WF	E	W							
							Ft	Ft	Ft	Ft	Ft							
3	2	6	16'	6½"	6"	6½"	2'-9"	1'-0"	2'-6"	5'-3"	6'-0¾"	5'-9¾"	0'-10½"	3.65	0.235	233	22.56	111
	3	9			6"		3'-9"	1'-0"	2'-6"	6'-3"	9'-6¾"	9'-2¾"	0'-10½"	5.86	0.272	350	25.27	134
	4	12			6"		4'-9"	1'-6"	2'-6"	10'-3"	11'-10"	11'-5½"	0'-10½"	7.71	0.309	459	27.97	156
4	2	8	13'	7½"	6"	7½"	2'-9"	1'-0"	2'-6"	5'-3"	7'-0¾"	6'-9¾"	1'-1½"	4.02	0.306	245	31.05	156
	3	12	13'		6"		3'-9"	1'-0"	2'-6"	6'-3"	9'-6¾"	9'-2¾"	1'-1½"	6.30	0.343	362	33.76	178
	4	16	13'		6"		4'-9"	1'-6"	2'-6"	10'-3"	11'-10"	11'-6½"	1'-1½"	8.20	0.380	471	36.46	200
	6A	24	11'		7"		6'-9"	2'-0"	3'-4½"	14'-3"	16'-5½"	16'-0½"	0'-5"	13.57	0.499	776	42.61	245
5	2	10	11'	8"	6"	8"	2'-10"	1'-0"	2'-6"	5'-6"	6'-1½"	6'-0¾"	1'-10½"	4.56	0.370	288	38.31	178
	3	15	11'		6"		3'-10"	1'-0"	2'-6"	8'-6"	9'-3½"	9'-0¾"	1'-10½"	6.78	0.446	512	43.77	223
	4	20	11'		6"		4'-10"	1'-0"	2'-6"	10'-6"	12'-1½"	11'-10"	1'-10½"	8.78	0.483	578	48.37	223
	5	25	11'		6"		5'-10"	1'-0"	2'-11"	12'-6"	14'-5½"	14'-0¾"	1'-10½"	11.20	0.631	658	56.47	264
	7	35	9'		7½"		7'-10"	2'-0"	3'-1"	16'-6"	18'-3½"	17'-11"	0'-0"	19.17	0.693	1231	58.63	264
6	3	10	9'	8"	6"	8"	3'-10"	1'-0"	2'-6"	8'-6"	9'-3½"	9'-0¾"	2'-4½"	7.28	0.500	402	50.41	223
	4	24	9'		6"		4'-10"	1'-0"	2'-6"	10'-6"	12'-1½"	11'-10"	2'-4½"	9.28	0.537	525	53.11	245
	5	30	9'		6"		5'-10"	1'-8"	2'-11"	12'-6"	14'-5½"	14'-0¾"	1'-10½"	11.30	0.574	663	55.82	267
	6	36	7'		7"		6'-10"	2'-0"	3'-5"	14'-6"	16'-9"	17'-0"	1'-4½"	15.76	0.657	824	58.55	289
	8	48	7'		8"		8'-10"	2'-8"	4'-5"	18'-6"	21'-4½"	22'-3"	0'-3½"	24.30	0.802	1499	72.69	334
8	7	56	7'	11"	7½"	11"	6'-0"	2'-4"	4'-0"	17'-0"	19'-7½"	20.3"	1'-8¾"	22.58	0.952	1337	84.24	401
	8	64	7'		8"		7'-0"	2'-8"	4'-6"	19'-0"	21'-11½"	22'-10½"	1'-2½"	27.97	1.029	1592	88.05	423
	10	80	7'		10"		9'-0"	3'-4"	5'-6"	23'-0"	26'-6¾"	28'-1½"	0'-2½"	43.33	1.274	2649	101.14	466
10	8	80	6'	13"	8"	13"	9'-0"	2'-8"	4'-6"	19'-0"	21'-11½"	22'-10½"	2'-2½"	30.05	1.305	1659	136.74	445
	10	100	6'		10"		11'-0"	3'-4"	5'-6"	23'-0"	26'-6¾"	28'-1½"	1'-2½"	46.74	1.553	2524	151.06	490
	12	120	6'		12"		13'-0"	4'-0"	6'-6"	27'-0"	31'-2"	33'-1½"	0'-2½"	69.22	1.852	3847	169.90	534

LAP NOTE - In computing quantities of Steel from the above table, add one lap for culverts up to 80'-0" in length and one lap for each additional 25'-0" in length.

SPECIFICATIONS: Arkansas Standard Road and Bridge Specifications.

* REINFORCING STEEL - To be deformed bars of structural or intermediate grade.

CHAMFER - All exposed corners to have ¾" Chamfer

CONCRETE - All concrete to be Class "A".

*Reinforcing Steel to be deformed bars of intermediate or rail grade on all Interstate Highways.

STEEL SCHEDULE

For Culverts 30'-0 in Length - Out to Out of Barrel

SPAN	HEIGHT	'a' bars (3" for ½" & #4 bars; 6" for ¾" & #6 bars; x in each headwall balance in Top and Bottom slab of barrel) SIZE	SPACING	NUMBER	LENGTH	x	'd' bars STRAIGHT In Bottom of Top Slab SIZE	SPACING	NUMBER	LENGTH	'di' bars STRAIGHT In Sidewalls SIZE	SPACING	NUMBER	LENGTH	'e' bars STRAIGHT In Top of Bottom Slab SIZE	SPACING	NUMBER	LENGTH	'f' bars STRAIGHT Vertical bars in Sidewalls SIZE	SPACING	NUMBER	LENGTH	'g' bars Vertical bars in back face of Wingwall bent into Bottom of Footing SIZE	SPACING	NUMBER	LENGTH (Varies)	X Min	X Max	Y Min	Y Max	'n' bars ½"ø bars @ 3" ctrs Horizontal bars in Wingwalls NUMBER	LENGTH (Varies)	Z Min	Z Max	'x' bars ½"ø bars STRAIGHT In Wing Footing NUMBER	LENGTH	'r' bars ½"ø bars @ 6" ctrs Dowels in Headwalls NUMBER	LENGTH	's' bars ½"ø bars In Top of each Wingwall NUMBER	LENGTH	Z
S	H																																								
3	2	#4	6"	6	12'-4"	4'-6"	3'-9"			4							4			62	2'-10"																					
	3			6	12'-4"	4'-6"	3'-9"	#5	12"	4	#4	12"	4		#5	12"	4		#4	12"	62	3'-10"	#5	12"	40	3'-5"	1'-3"	1'-3"	1'-3½"	3'-0½"	12	6'-3¾"	2'-6"	5'-9¾"	12	7'-9"	10	2'-11½"	4	7'-7⅛"	7'-1⅞"
	4			6	12'-4"	4'-6"	3'-9"			4							4			62	3'-10"			40	3'-11"	1'-3"	1'-3"	1'-4½"	3'-11⅛"	16	8'-4"	2'-6"	9'-3¾"	12	11'-1½"	10	2'-11½"	4	11'-2⅛"	10'-8½"
	6A			7	12'-4"	4'-6"	3'-9"			4							4			62	3'-10"			48	4'-7"	1'-3"	1'-3"	1'-5"	4'-11"	20	9'-5⅜"	2'-6"	11'-7"	12	13'-5⅛"	10	3'-5⅛"	4	13'-7⅛"	13'-1⅜"
4	2	#5	5"	8	14'-5"	5'-6"	4'-9"			6							6			62	3'-0"			28	3'-6"	1'-3"	1'-3"	1'-4½"	3'-1½"	12	6'-3¾"	2'-6"	5'-9¾"	12	7'-8"	12	3'-0½"	4	7'-7⅛"	7'-1⅞"
	3			10	14'-5"	5'-6"	4'-9"	#6	10"	6	#5	12"	6		#6	10"	6		#5	12"	62	4'-0"	#6	10"	40	4'-0"	1'-3"	1'-3"	1'-5¾"	4'-0½"	16	8'-4"	2'-6"	9'-3¾"	12	11'-1½"	12	3'-0½"	4	11'-2⅛"	10'-8½"
	4			14	14'-5"	5'-6"	4'-9"			6							6			62	5'-0"			48	4'-8"	1'-3"	1'-3"	1'-10"	5'-0"	20	9'-9⅜"	2'-6"	11'-7"	12	13'-5⅛"	12	3'-0½"	4	13'-7⅛"	13'-1⅜"
	6			20	14'-5"	5'-6"	4'-9"			6							6			62	7'-0"			68	6'-5⅜"	1'-4"	2'-1"	2'-3½"	7'-0⅛"	28	12'-11"	2'-6"	16'-2⅛"	12	18'-0¾"	12	3'-0½"	4	18'-4⅜"	17'-10⅝"
5	2	#6	7"	8	16'-6"	6'-6"	5'-9"			7							7			62	3'-1"			28	3'-7"	1'-3"	1'-3"	1'-6"	3'-2"	12	6'-7⅛"	2'-7½"	6'-1⅜"	14	7'-11½"	14	3'-1"	4	7'-10⅜"	7'-4⅜"
	3			10	16'-6"	6'-6"	5'-9"			7							7			62	4'-1"			40	4'-1"	1'-3"	1'-3"	1'-6½"	4'-1½"	16	8'-7⅛"	2'-7½"	9'-6⅜"	12	11'-5"	14	3'-1"	4	11'-6"	11'-0"
	4			14	16'-6"	6'-6"	5'-9"	#7	10"	7	#6	12"	7		#7	10"	7		#6	12"	62	5'-1"	#7	10"	52	4'-9"	1'-3"	1'-3"	1'-9"	5'-3"	20	10'-0⅜"	2'-7½"	11'-10⅜"	12	13'-8¾"	14	3'-1"	4	13'-10⅜"	13'-4⅜"
	5			20	16'-6"	6'-6"	5'-9"			7							7			62	6'-1"			60	5'-7½"	1'-3"	1'-6"	2'-2"	6'-2"	24	11'-7⅛"	2'-7½"	14'-2⅜"	12	16'-0⅛"	14	3'-1"	4	16'-3⅛"	15'-9⅛"
	7			28	16'-6"	6'-9"	6'-0"			7							12			62	8'-1"			80	7'-6⅛"	1'-4½"	2'-8"	2'-5"	8'-3"	32	14'-8⅝"	2'-7½"	18'-9⅝"	12	20'-8"	14	3'-1"	4	21'-1⅛"	20'-7⅛"
6	3	#6	6"	8	18'-6"	7'-6"	6'-9"			8							8			62	4'-3"			40	4'-2"	1'-3"	1'-3"	1'-7⅛"	4'-2⅜"	16	8'-7⅛"	2'-7½"	9'-6⅜"	12	11'-5"	16	3'-2"	4	11'-6"	11'-0"
	4			12	18'-6"	7'-6"	6'-9"			8							8			62	5'-3"			52	4'-10"	1'-3"	1'-3"	1'-10"	5'-4"	20	10'-0⅜"	2'-7½"	11'-10⅜"	12	13'-8¾"	16	3'-2"	4	13'-10⅜"	13'-4⅜"
	5			16	18'-6"	7'-6"	6'-9"	#7	10"	8	#6	12"	8		#7	10"	8		#6	12"	62	6'-3"	#7	10"	60	5'-8½"	1'-3"	1'-8"	2'-5"	6'-3"	24	11'-7⅛"	2'-7½"	14'-2⅜"	12	16'-0⅛"	16	3'-2"	4	16'-3⅛"	15'-9⅛"
	6			10	18'-6"	7'-9"	6'-11"			8							8			62	7'-3"			68	6'-6"	1'-4"	2'-2"	2'-7½"	7'-2⅜"	28	13'-2⅛"	2'-7½"	16'-6"	12	18'-4⅝"	16	3'-2"	4	18'-8½"	18'-2½"
	8			14	18'-6"	7'-10"	7'-1"			8							8			62	9'-3"	#7	12"	88	8'-6⅜"	1'-5"	3'-2"	3'-2¾"	9'-3⅜"	36	16'-2⅜"	2'-7½"	21'-1⅜"	12	22'-11⅛"	16	3'-2"	4	23'-6"	23'-0"
8	7	#6	5"	64	10'-5⅞"	8'-11⅛"				12							12			62	6'-7"			60	7'-10⅛"	1'-4½"	2'-9"	3'-1"	8'-7"	32	15'-3⅛"	3'-2¾"	19'-4⅝"	12	21'-2⅝"	20	3'-4"	4	21'-6⅛"	21'-2⅛"
	8	#7	5"	24	10'-6⅛"	9'-0⅛"	#6	#5	12"	12	#5	12"	12	29'-9 for 30'-0 Length	#6	12"	12	31'-3 for 30'-0 Length	#5	12"	62	9'-7"	#6	12"	80	8'-11½"	1'-5"	3'-3"	3'-5¾"	9'-6⅛"	36	16'-9⅝"	3'-2¾"	21'-8⅝"	12	23'-6½"	20	3'-4"	4	24'-1⅛"	23'-7⅛"
	10			64	10'-10⅛"	9'-4⅛"				12							12			62	11'-7"			120	10'-9"	1'-7"	4'-3"	4'-1"	11'-7"	44	19'-0⅛"	3'-2¼"	26'-3⅛"	12	28'-5"	20	3'-4"	4	28'-11"	28'-5"
10	8	#7	5"	100	12'-6¼"	11'-0⅛"				13							13			62	9'-11"			80	9'-0"	1'-5"	3'-3"	3'-3¼"	9'-0⅜"	32	14'-3⅜"	3'-2¼"	19'-7⅝"	12	24'-6⅜"	24	3'-4"	4	24'-10⅜"	24'-3¾"
	10	#8	5"	108	12'-10⅜"	11'-4⅜"	#7	#6	12"	13	#6	12"	13	31'-3 for 30'-0 Length	#7	12"	13	33'-3 for 30'-0 Length	#6	12"	74	11'-1"	#7	12"	100	10'-11"	1'-7"	4'-3"	4'-1"	11'-1"	44	19'-10⅝"	3'-2¼"	26'-9⅜"	12	28'-11"	24	3'-4"	4	28'-11"	28'-5"
	12			108	13'-2⅛"	11'-8⅞"				13							13			92	11'-11"			120	12'-10"	1'-9"	5'-3"	5'-3¾"	12'-10"	52	23'-0"	3'-2¼"	30'-11⅛"	12	32'-9⅝"	28	3'-4"	4	33'-3⅛"	33'-3⅛"

NOTE- Lengths given above do not include lap

REVISIONS	
Jan. 1957	Redrawn
Nov. 1957	Military Loading

A.A.S.H.O DESIGN LIVE LOADING H-20 S-16

UNIT STRESSES

Concrete (n-15) - 840 Lbs Per Sq. In.

Reinf. Steel (Str. Gr) - 18,000 Lbs. Per Sq. In.

SPECIAL MILITARY LOADING

Add'l Loading for Interstate Highways

2-24,000 Lb Axles @ 4'-0" Ctrs

Concrete (n-15) - 840 Lbs. per Sq. In.

Reinf. Steel (Int. or Rail) - 20000 Lbs. per Sq. In

SPECIAL DETAIL FOR REINFORCED CONCRETE BOX CULVERTS.

3' TO 10' SPAN

SINGLE

3:1 SLOPES OVER 3'-6" COVER

9/5/2018

RCA0704.DGN

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.		CA0704	15	299

① SPECIAL DETAILS

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
29'-11"	8'-0"	0'-9"	0'-8"	0	3:1	28'-4"	2'-0"	8'-10"	2'-8"	30	30	3'-2"	4'-3 7/8"	4'-3 7/8"	1'-4"	1'-4"	21'-0"	21'-0"	24'-0 3/8"	24'-0 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
13.29	1264

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 VARY			F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS VARY			F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY
WING A	4	12	21	L	Min	3'-10"	4	12	7	L	4'-11"		-	-	-	L	-		4	18	8	Min
					Max	10'-10"																2'-1"
				X	Min	0'-9"				X	1'-6"					X	-					Max
					Max	1'-11"																17'-5"
				Y	Min	3'-2"				Y	3'-6"					Y	-					
					Max	9'-0"																
WING B	4	12	21	L	Min	3'-10"	4	12	7	L	4'-11"		-	-	-	L	-		4	18	8	Min
					Max	10'-10"																2'-1"
				X	Min	0'-9"				X	1'-6"					X	-					Max
					Max	1'-11"																17'-5"
				Y	Min	3'-2"				Y	3'-6"					Y	-					
					Max	9'-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			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	18	4	20'-8"	4	18	14	L	Min	5'-6"	4	8	24'-10"	4	18	14	Min		4	18	2	Min	4	2	21'-5"	4	2	22'-10"	6	12	8	L	3'-4"	632
									Max	11'-3"												29'-0"												
								X	Min	2'-4"							2'-8"																	
									Max	2'-4"							Max					Max										X	1'-8"	
								Y	Min	3'-3"																								
									Max	9'-0"							3'-9"					29'-0"												
WING B	4	18	4	20'-8"	4	18	14	L	Min	5'-6"	4	8	24'-10"	4	18	14	Min		4	18	2	Min	4	2	21'-5"	4	2	22'-10"	6	12	8	L	3'-4"	632
									Max	11'-3"												29'-0"												
								X	Min	2'-4"							2'-8"																	
									Max	2'-4"							Max					Max										X	1'-8"	
								Y	Min	3'-3"																								
									Max	9'-0"							3'-9"					29'-0"												

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

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"

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 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-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.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-29-18
CHARLES R. ELLIS

TABULAR DATA BY: KAP DATE: 08/29/2018
CHECKED BY: DKS DATE: 8/29/2018

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINF. STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINF. STEEL "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINF. STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINF. STEEL "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINF. STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIB. REINF. STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIB. REINF. STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIB. REINF. STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIB. REINF. STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH
															Max				Max				Max				Max										Max				Max				Max			LONG				LONG
															Min				Min				Min				Min										Min				Min			SHORT				SHORT

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)."

"k1" HDWL BARS SIZE	"k1" HDWL BARS LENGTH	"k1" HDWL BARS NO. REQ'D	"k2" HDWL BARS SIZE	"k2" HDWL BARS LENGTH	"k2" HDWL BARS NO. REQ'D	"h" HDWL BARS SIZE	"h" HDWL BARS LENGTH	"h" HDWL BARS Y	"h" HDWL BARS NO. REQ'D

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINF. STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	"b" SIZE	"b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D	BOTTOM SLAB REINF. STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	"b1" SIZE	"b1" L	"f" SIZE	"f" L	"f" SPACING	"f" NO. REQ'D	SIDE WALL REINF. STEEL "f0" LENGTH = OH - 4" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. STEEL "f1" LENGTH = OH - 4" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIB. REINF. STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIB. REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIB. REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIB. REINF. STEEL "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D
D	S	H	T	B	C	W	OW	OH	SL	SIZE	L	SIZE	L	SIZE	L	SPACING	NO. REQ'D	SIZE	L	SIZE	L	SIZE	L	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	"h" HDWL BARS Y	"h" HDWL BARS LENGTH	"h" HDWL BARS NO. REQ'D
3"	39	4	0'-7"	1'-7"	31

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
0.27	72
TOTAL	
0.27	72

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.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINF. STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	"b" SIZE	"b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D	BOTTOM SLAB REINF. STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	"b1" SIZE	"b1" L	"f" SIZE	"f" L	"f" SPACING	"f" NO. REQ'D	SIDE WALL REINF. STEEL "f0" LENGTH = OH - 4" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. STEEL "f1" LENGTH = OH - 4" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIB. REINF. STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIB. REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIB. REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIB. REINF. STEEL "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D
D	S	H	T	B	C	W	OW	OH	SL	SIZE	L	SIZE	L	SIZE	L	SPACING	NO. REQ'D	SIZE	L	SIZE	L	SIZE	L	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D
A	5	9	8	9.5	9.5	9.5	8	29'-11"	9'-7"	121	4	29'-7"	8	30'-0"	7	29'-7"	17	85	4	29'-7"	4	29'-0"	4	29'-7"	12	121	5	7	414	9'-3"	4	12	484	9'-3"	4	11	65	4	11	65	4	11	18	4	12	32

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
316.85	42994

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 596+61

SPECIAL DETAILS

Ver. Lj14 bco0704_cl.dgn

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.		CA0704	16	299

① SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-29-18
CHARLES R. ELLIS

TABULAR DATA BY: KAP DATE: 08/29/2018
CHECKED BY: DKS DATE: 8/29/2018

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
29'-11"	8'-0"	0'-9"	0'-8"	0	3:1	28'-4"	2'-0"	8'-10"	2'-8"	30	30	3'-2"	4'-3 7/8"	4'-3 7/8"	1'-4"	1'-4"	21'-0"	21'-0"	24'-0 3/8"	24'-0 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
14.44	1264

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	21	L	Min	3'-10"	4	12	7	L 4'-11"	-	-	-	L -	4	18	8	Min	4	18	4	20'-8"	4	18	14	L Min 5'-6"			4	8	24'-10"	4	18	14	Min	4	18	2	Min	4	2	21'-5"	4	2	22'-10"	6	12	8	L 3'-4"		632
					Max	10'-10"												2'-1"								Max 11'-3"									2'-8"			29'-0"									
				X	Min	0'-9"				X 1'-6"				X -				Max								X Min 2'-4"									Max			Max							X 1'-8"		
					Max	1'-11"																				Max 2'-4"									2'-4"			29'-0"									
				Y	Min	3'-2"				Y 3'-6"				Y -				17'-5"								Y Min 3'-3"									3'-9"												
					Max	9'-0"																				Max 9'-0"												29'-0"									
WING B	4	12	21	L	Min	3'-10"	4	12	7	L 4'-11"	-	-	-	L -	4	18	8	Min	4	18	4	20'-8"	4	18	14	L Min 5'-6"			4	8	24'-10"	4	18	14	Min	4	18	2	Min	4	2	21'-5"	4	2	22'-10"	6	12	8	L 3'-4"		632
					Max	10'-10"												2'-1"								Max 11'-3"									2'-8"			29'-0"									
				X	Min	0'-9"				X 1'-6"				X -				Max								X Min 2'-4"									Max			Max							X 1'-8"		
					Max	1'-11"																				Max 2'-4"									2'-4"			29'-0"									
				Y	Min	3'-2"				Y 3'-6"				Y -				17'-5"								Y Min 3'-3"									3'-9"												
					Max	9'-0"																				Max 9'-0"												29'-0"									

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"

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

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINFORCING STEEL "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" 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	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH			Max / Min				Max / Min						Max / Min														Max / Min				Max / Min						LONG / SHORT						LONG / SHORT

"k1" HDWL BARS SIZE	"k1" HDWL BARS LENGTH	"k1" HDWL BARS NO. REQ'D	"k2" HDWL BARS SIZE	"k2" HDWL BARS LENGTH	"k2" HDWL BARS NO. REQ'D	"h" HDWL BARS SIZE	"h" HDWL BARS LENGTH	"h" HDWL BARS Y	"h" HDWL BARS NO, REQ'D

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

OUTLET SLOPE SECTION(S)

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	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	"f" SPACING	"f" NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	"h" HDWL BARS Y	"h" HDWL BARS LENGTH	"h" HDWL BARS NO. REQ'D
3"	39	4	0'-7"	1'-7"	31

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
TOTAL	
0.27	72

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
TRIPLE BARREL BOX CULVERT
Sta. 596+61

SPECIAL DETAILS

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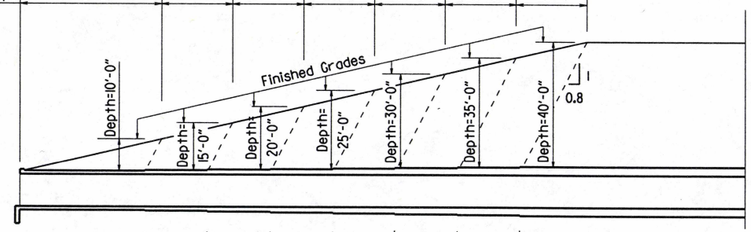
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	17	299

(1) SPECIAL DETAILS

2:1 Slope	20'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"							
3:1 Slope	30'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"							
4:1 Slope	40'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"							



Slope Section Length @ 2:1 Slope	A=12'-0"	B=6'-0"	C=6'-0"	D=6'-0"	E=6'-0"	F=6'-0"	G=6'-0"	Mid-Section Length - Varies
Slope Section Length @ 3:1 Slope	A=22'-0"	B=11'-0"	C=11'-0"	D=11'-0"	E=11'-0"	F=11'-0"	G=11'-0"	Mid-Section Length - Varies
Slope Section Length @ 4:1 Slope	A=32'-0"	B=16'-0"	C=16'-0"	D=16'-0"	E=16'-0"	F=16'-0"	G=16'-0"	Mid-Section Length - Varies

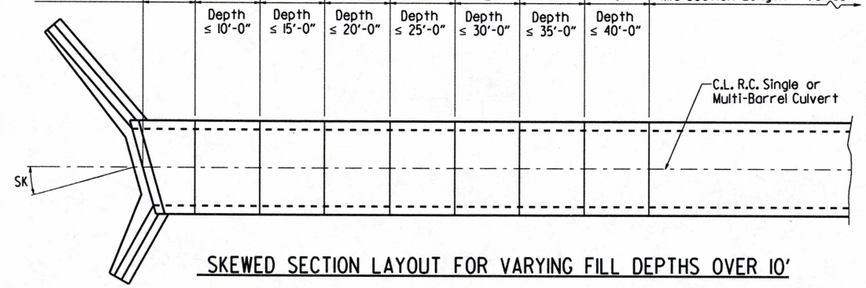
LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

Lengths for Non-Skewed Boxes

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

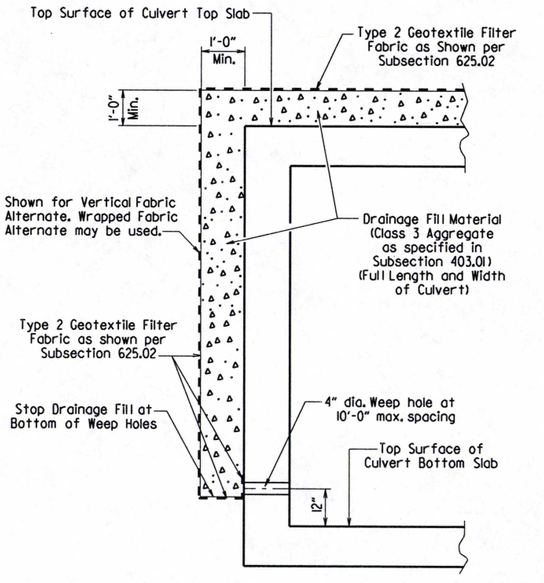
*LL = Skewed End Section Length - See "Skewed End Section Details" Length LL varies with skew angle, overall box width and fill depth and may eliminate the need for some slope section lengths as shown.

Section Length	*LL		C	D	E	F	G	Mid-Section Length - Varies
Section Length	*LL	B	C	D	E	F	G	Mid-Section Length - Varies
Section Length	*LL	A	B	C	D	E	F	G	Mid-Section Length - Varies
		Depth ≤ 10'-0"	Depth ≤ 15'-0"	Depth ≤ 20'-0"	Depth ≤ 25'-0"	Depth ≤ 30'-0"	Depth ≤ 35'-0"	Depth ≤ 40'-0"	



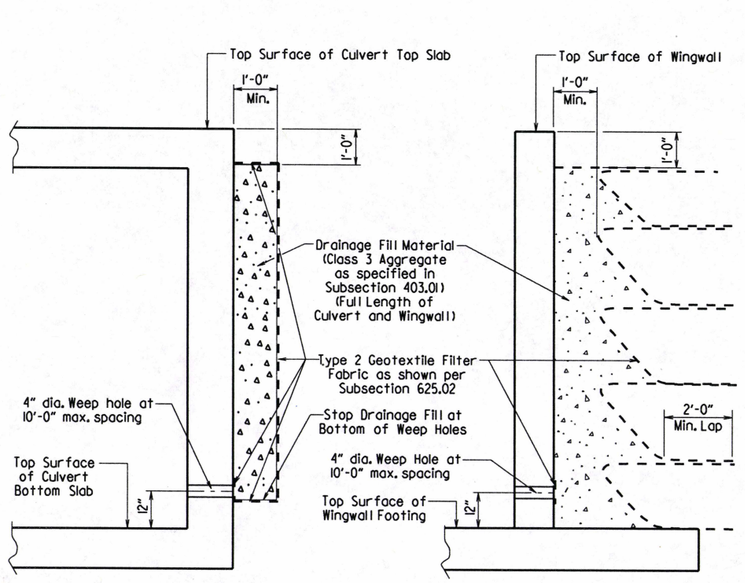
SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-29-18



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 ¾" 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" diameter and shall be placed 12" 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 1 Protective Surface Treatment shall be applied to the roadway surface and this work shall be paid for under the unit price bid for "Class 1 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.

SHEET 1 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

GENERAL NOTES &
LONGITUDINAL SECTION LENGTH SCHEDULE

SPECIAL DETAILS

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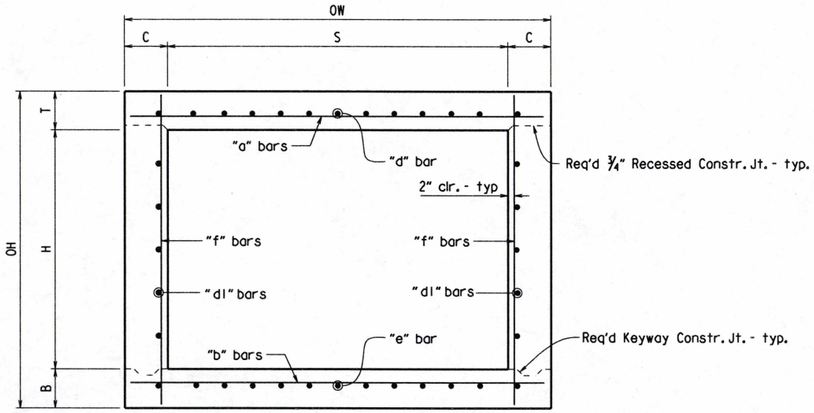
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	18	299

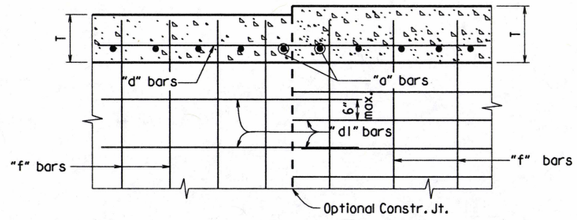
① SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-29-18
CHARLES R. ELLIS

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



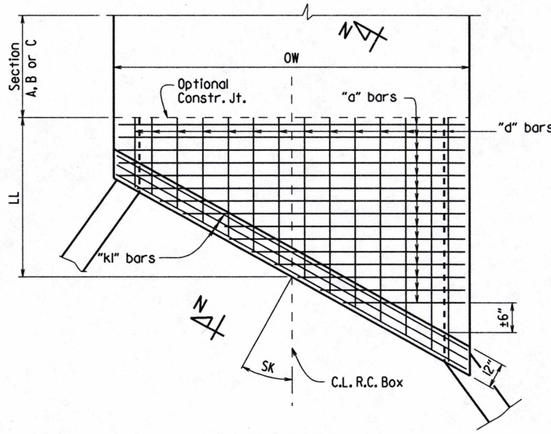
TYPICAL SECTION M-M



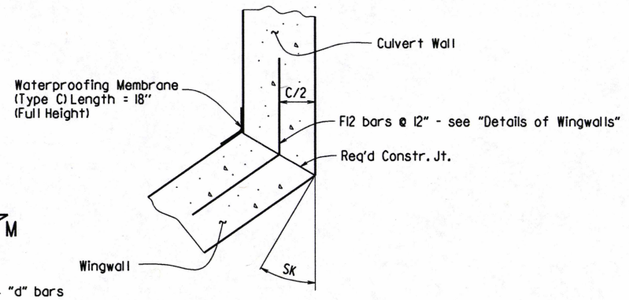
Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

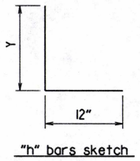


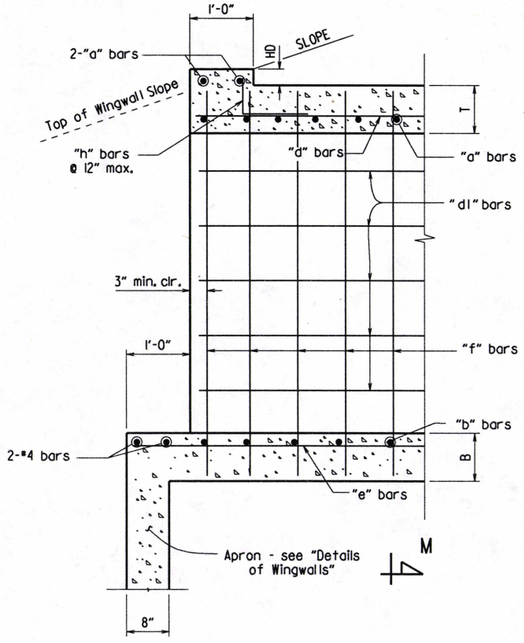
TOP SLAB REINFORCEMENT



WINGWALL ATTACHMENT

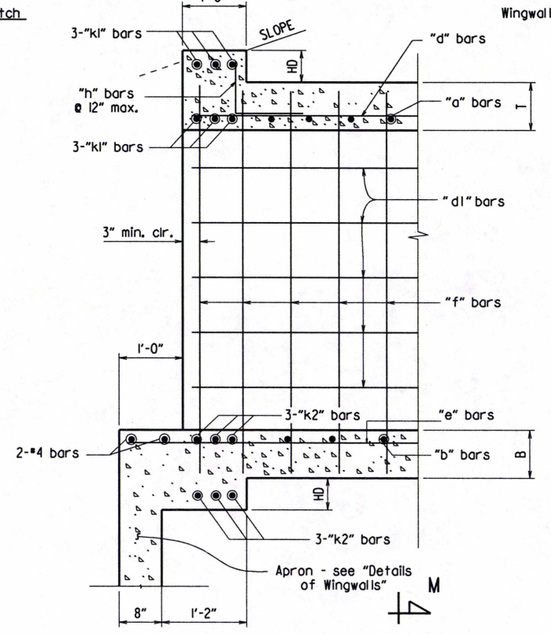
See "Details of Wingwalls" for additional information and wingwall details.





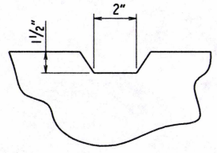
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



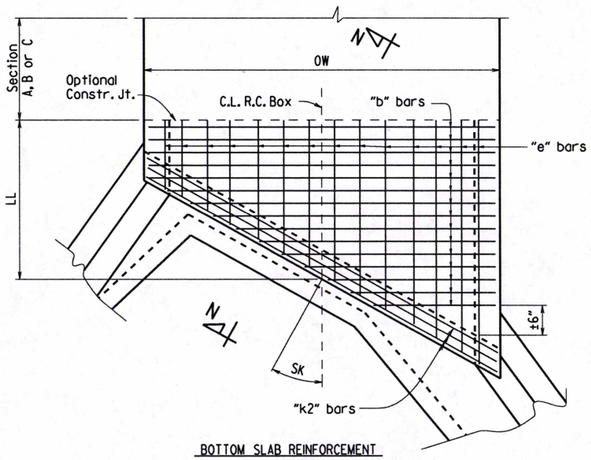
PART LONGITUDINAL SECTION N-N

(Skewed Ends)



TYPICAL KEYWAY DETAIL

(All Construction Joints)



BOTTOM SLAB REINFORCEMENT

SKEWED END SECTION DETAILS

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

DETAILS OF SINGLE BARREL
R.C. BOX CULVERT

SPECIAL DETAILS

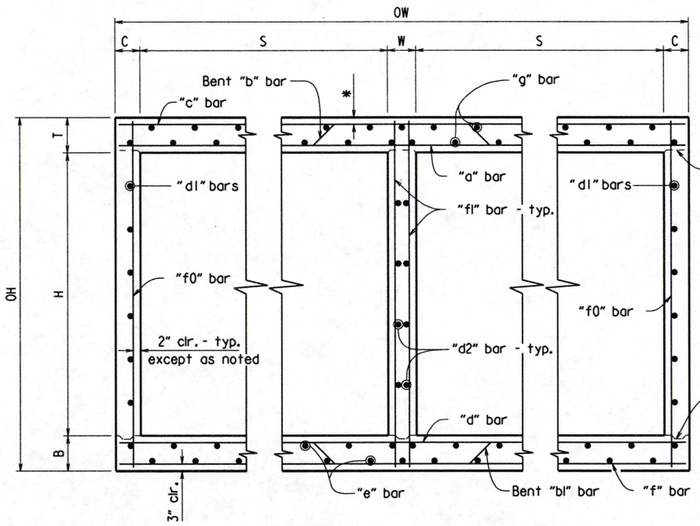
bca0704_culvert

DATE REVISED	DATE FILMED	REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	19	299

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.

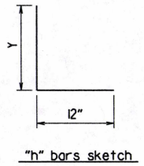
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



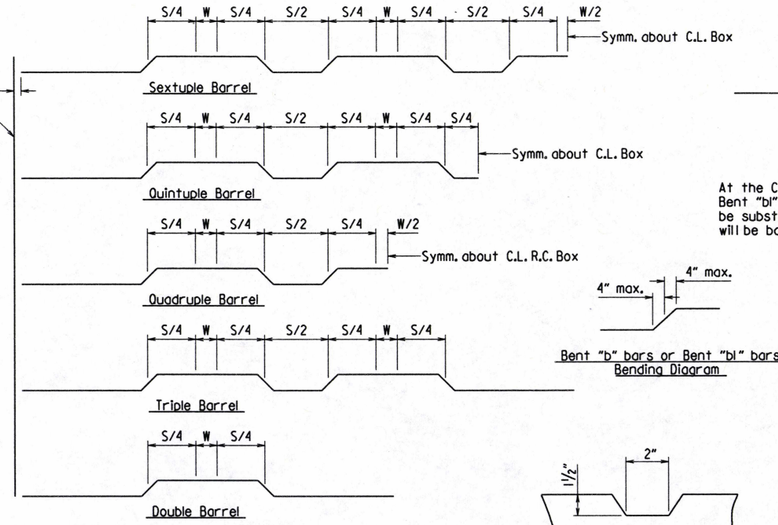
TYPICAL SECTION M-M

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

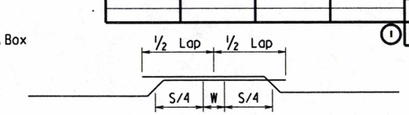
Bottom Slab
Straight "d" bars shall alternate with Bent "b1" bars in top.
Straight "f" bars shall alternate with Bent "b1" bars in bottom.



"h" bars sketch



Bent "b" bars or Bent "b1" bars sketch



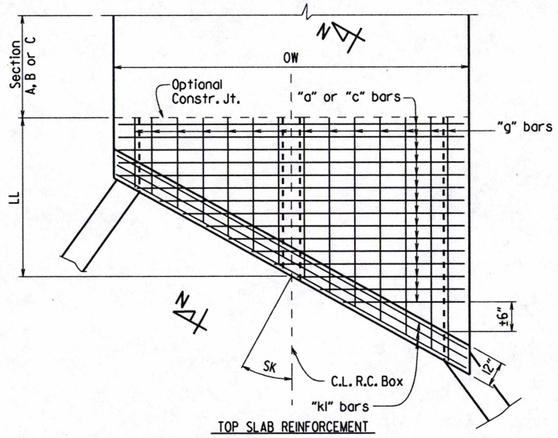
Lap Detail
For Bent "b" bars and Bent "b1" bars

At the Contractor's option in lieu of providing Bent "b" or Bent "b1" 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 "b1" bar.

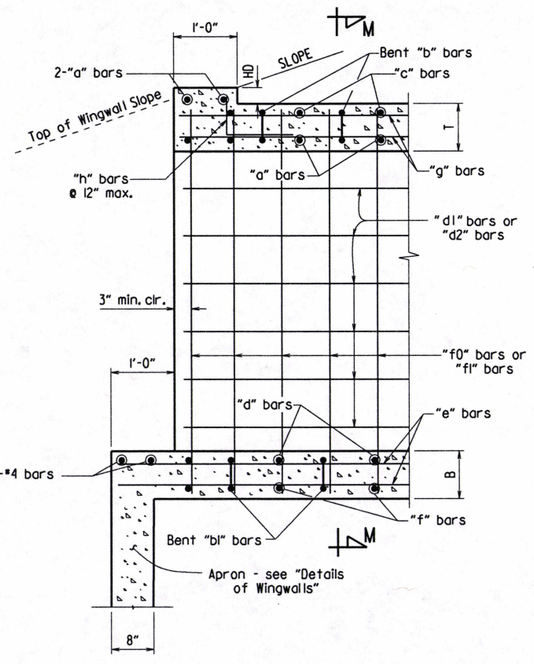
Bent "b" bars or Bent "b1" bars Bending Diagram

TYPICAL KEYWAY DETAIL

(All Construction Joints)

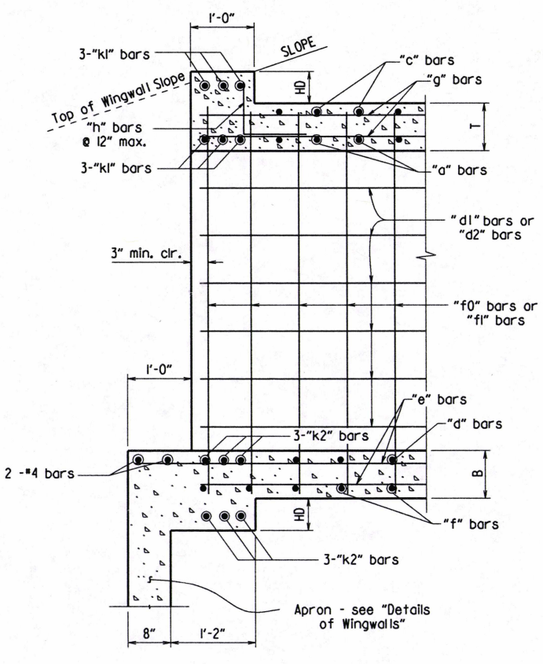


TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



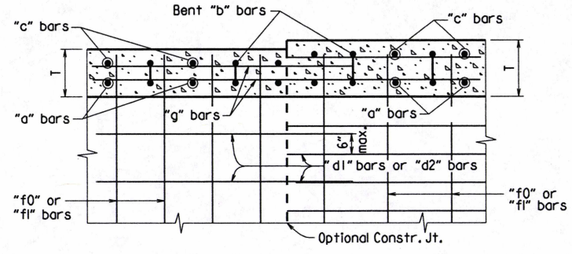
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

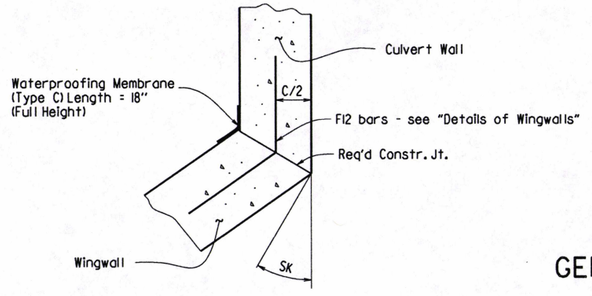
(Skewed Ends)



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

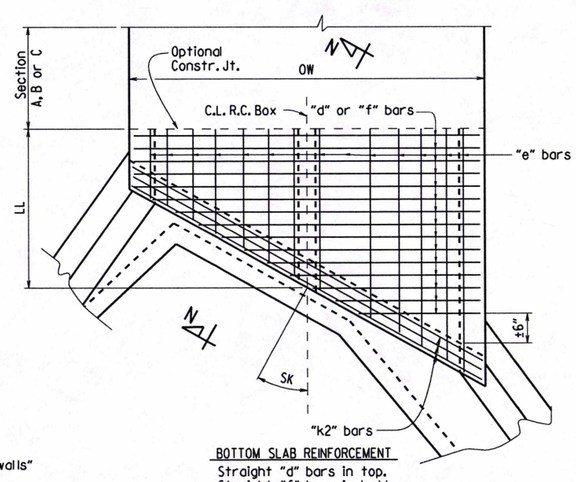
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

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. 9235
8-29-18
CHARLES R. ELLIS

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

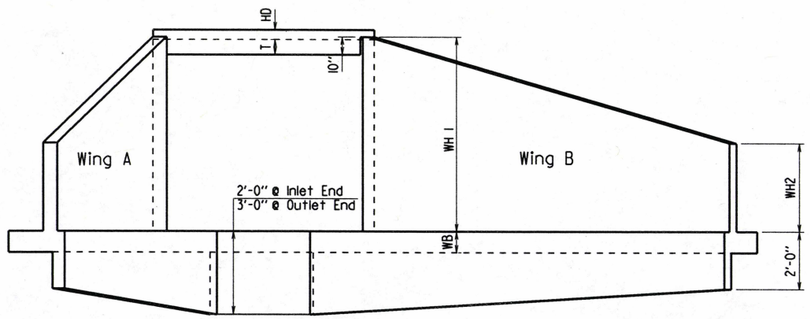
DETAILS OF MULTI-BARREL R.C. BOX CULVERT

SPECIAL DETAILS

bca0704_culvert

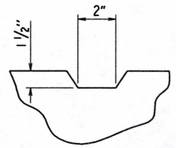
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	20	299

SPECIAL DETAILS



END ELEVATION

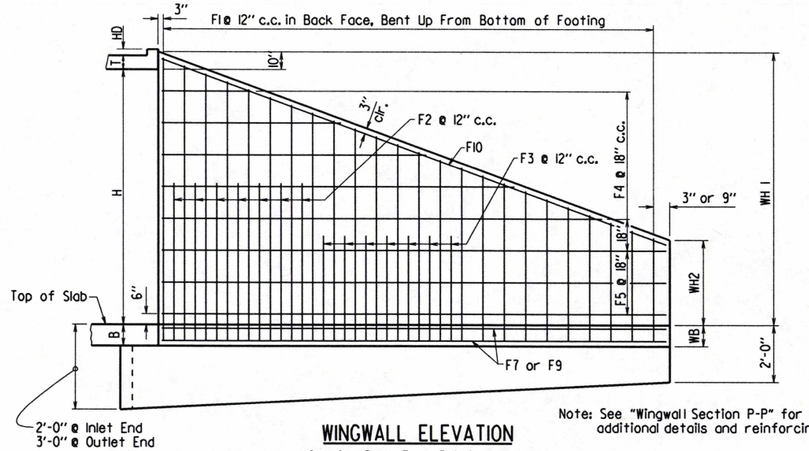
Flared Wingwalls Shown



TYPICAL KEYWAY DETAIL

All Construction Joints

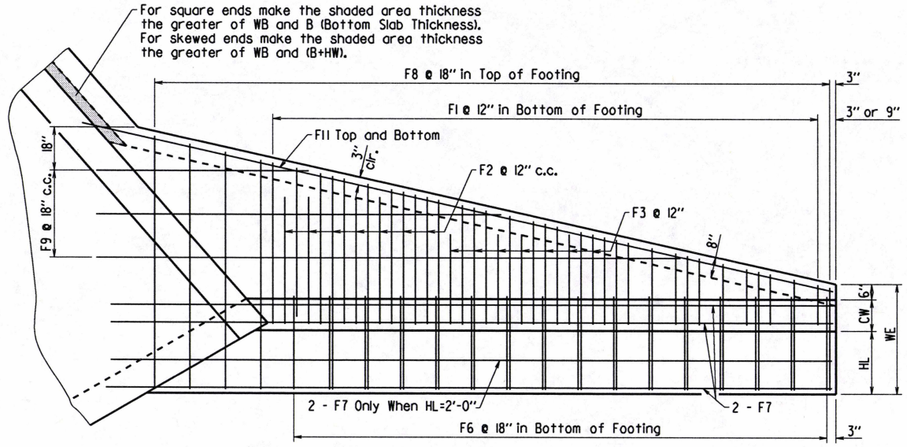
PART PLAN - FLARED WINGWALLS



WINGWALL ELEVATION

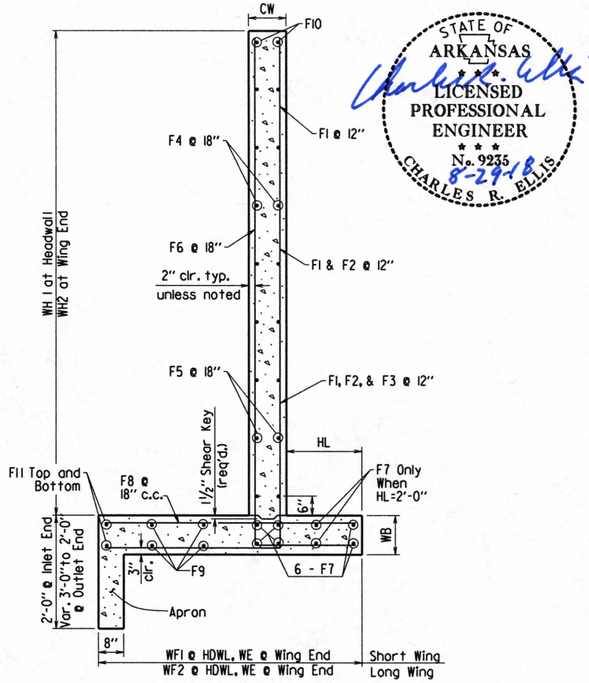
Showing Back Face Reinforcement

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

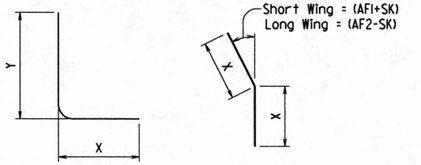


PLAN - FLARED WINGWALLS

Showing Footing Reinforcement



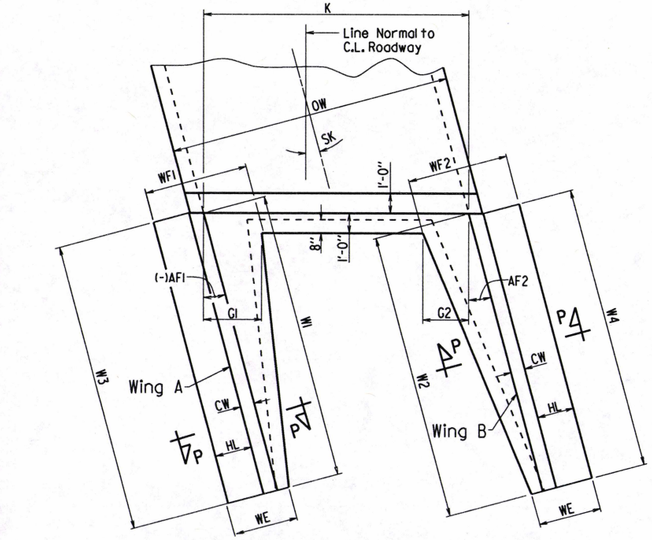
WINGWALL SECTION P-P



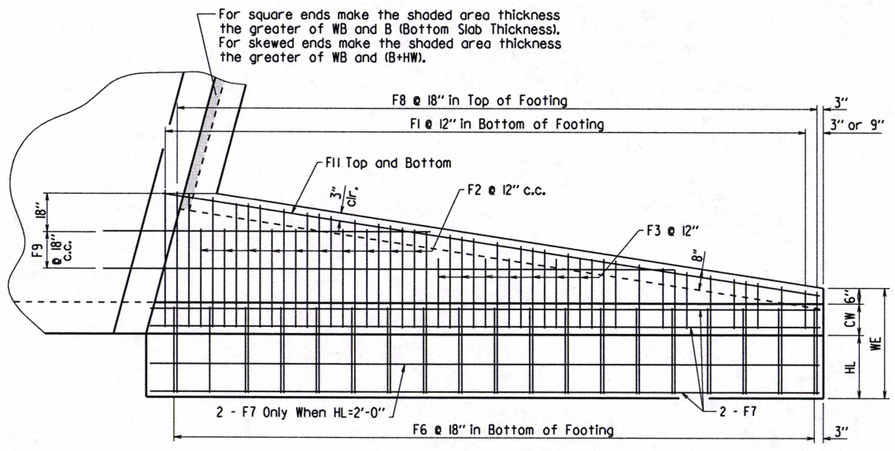
F1, F2, F3, & F6 BARS

*F12 BAR

*F12 is a straight bar for parallel wingwalls

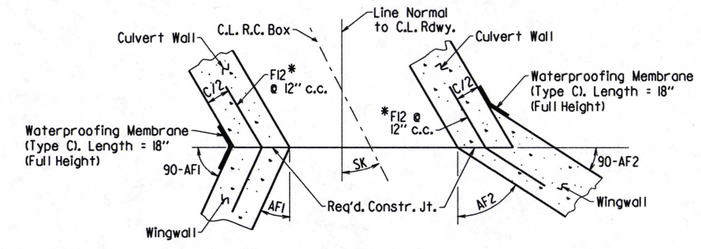


PART PLAN - PARALLEL WINGWALLS



PLAN - PARALLEL WINGWALLS

Showing Footing Reinforcement



CONSTRUCTION JOINTS

Flared Wingwalls Shown

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-29-18
CHARLES R. ELLIS

SHEET 4 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF WINGWALLS

SPECIAL DETAILS

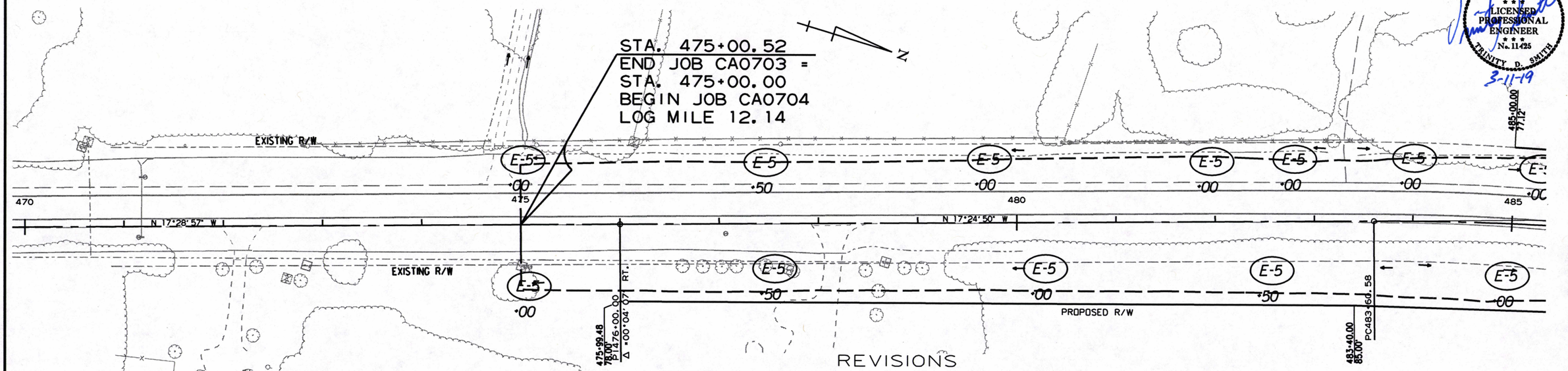
bca0704_culvert

QUANTITIES:
CLEARING AND GRUBBING STAGE
SILT FENCE E-11 = 22015 LIN. FT.
SAND BAG DITCH CHECKS E-5 = 3784 BAGS (172 LOCATIONS)

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	21	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

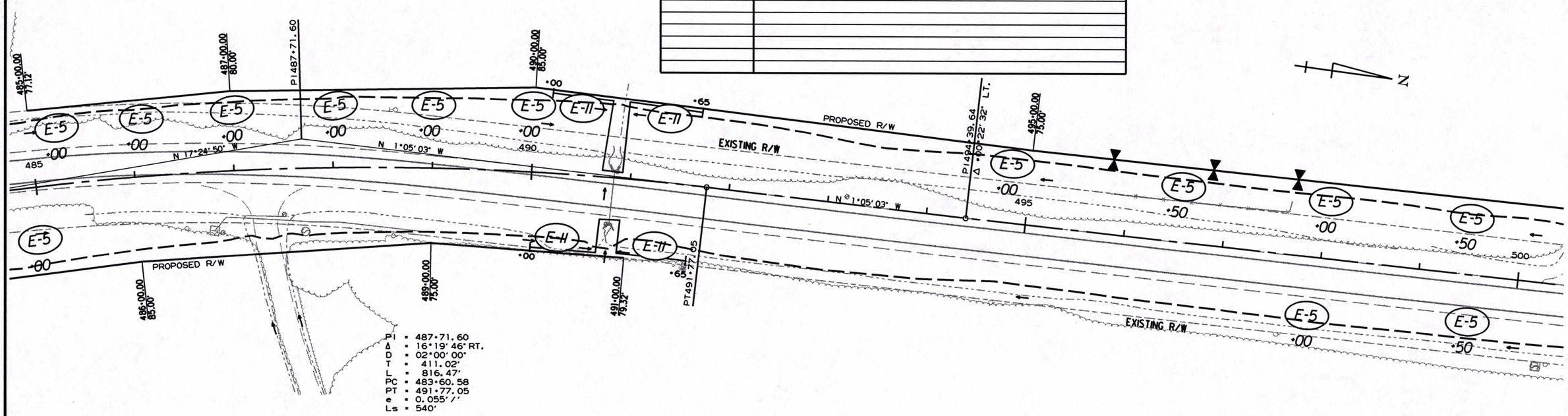


REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-11) = SILT FENCE



PI = 487+71.60
Δ = 16°19'46" RT.
D = 02°00'00"
T = 411.02'
L = 816.47'
PC = 483+60.58
PT = 491+77.05
e = 0.055'/'
Ls = 540'

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

9/7/2018

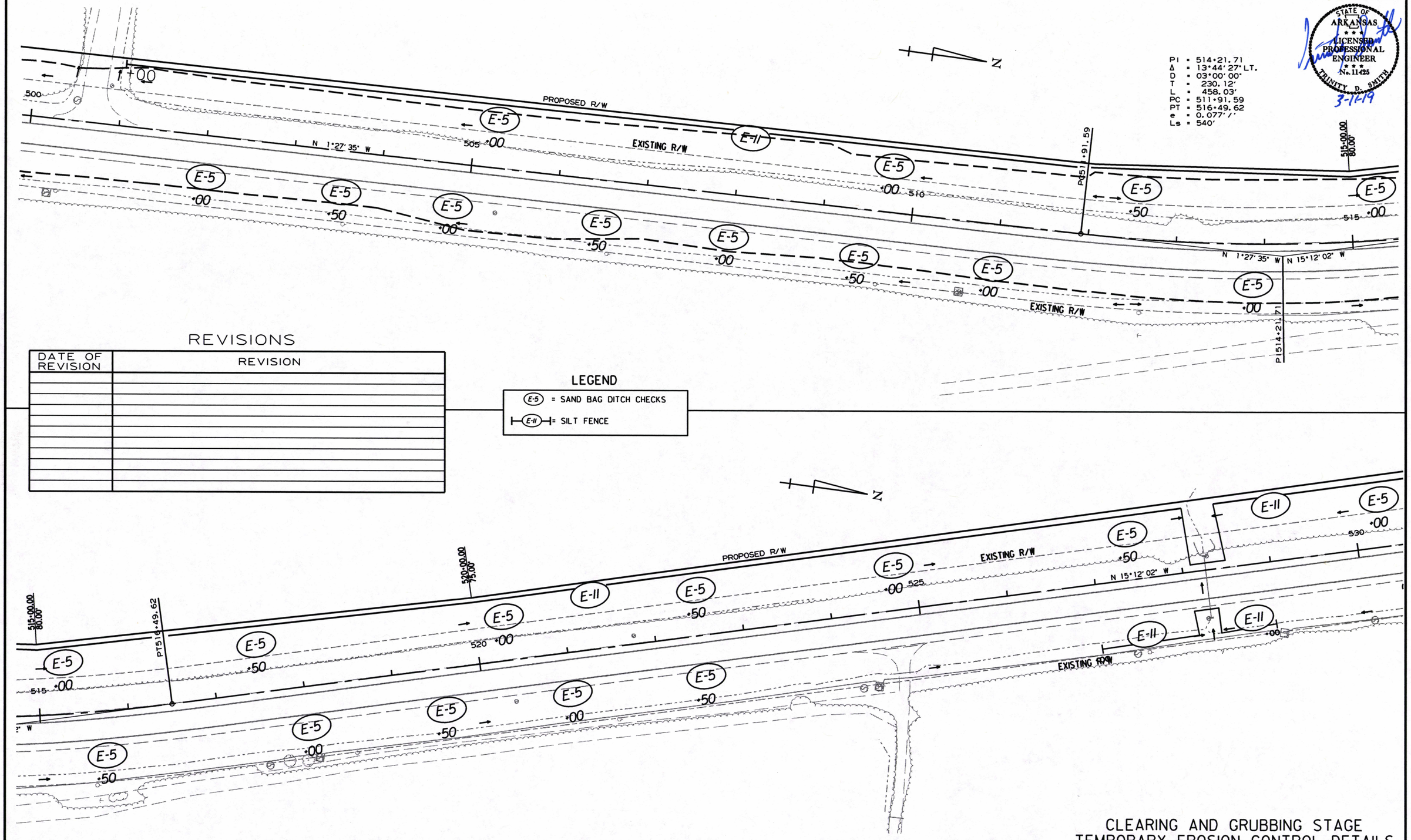
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	22	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-1-19

PI = 514+21.71
Δ = 13°44'27" LT.
D = 03°00'00"
T = 230.12'
L = 458.03'
PC = 511+91.59
PT = 516+49.62
e = 0.077'/'
Ls = 540'



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS

E-11 = SILT FENCE

9/7/2018

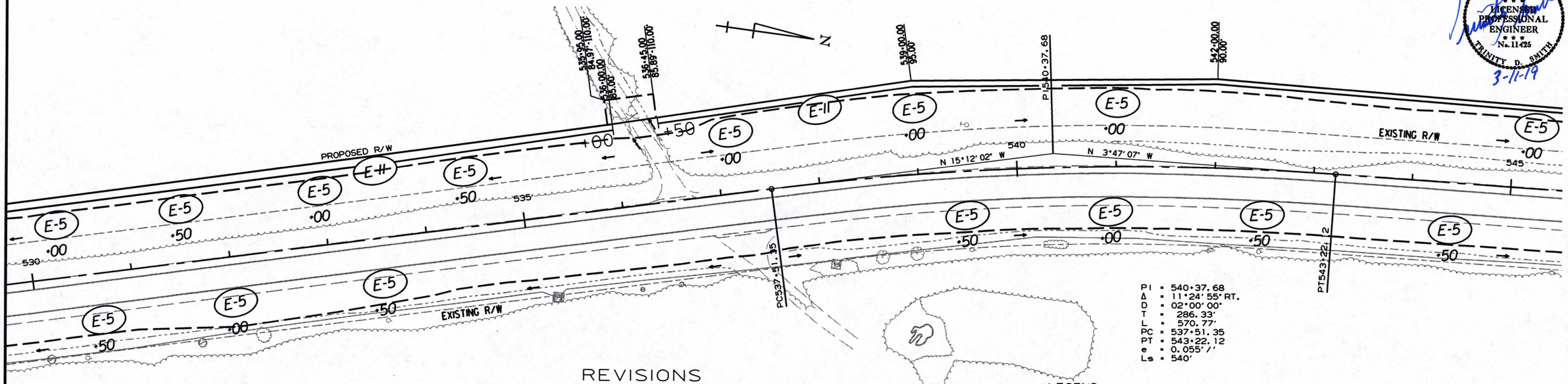
RCA0704.DGN

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	23	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



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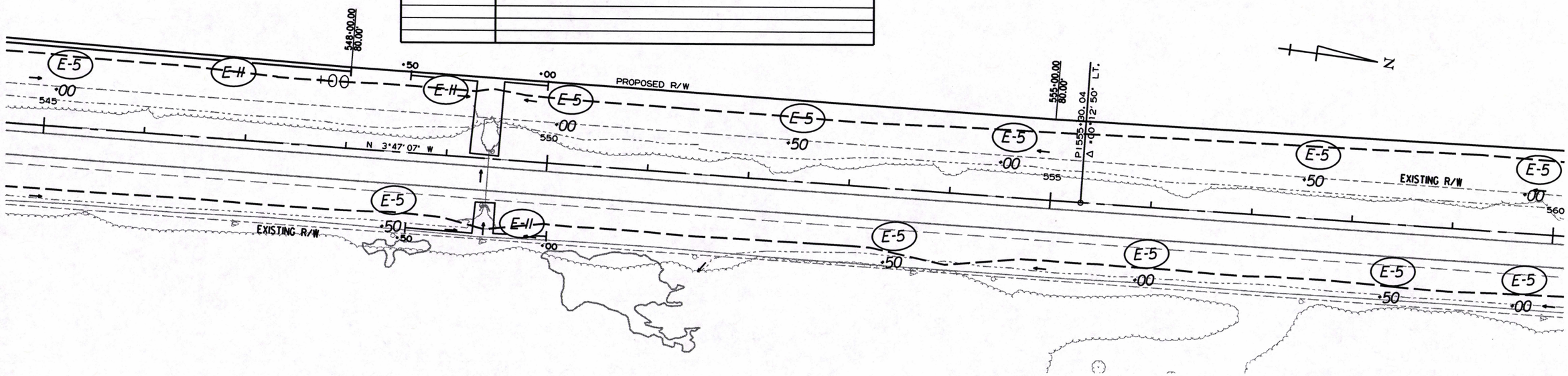
D = 02°00'00"
T = 286.33'
L = 570.77'
PC = 537+51.35
PT = 543+22.12
e = 0.055'/'
Ls = 540'

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS
E-11 = SILT FENCE



CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

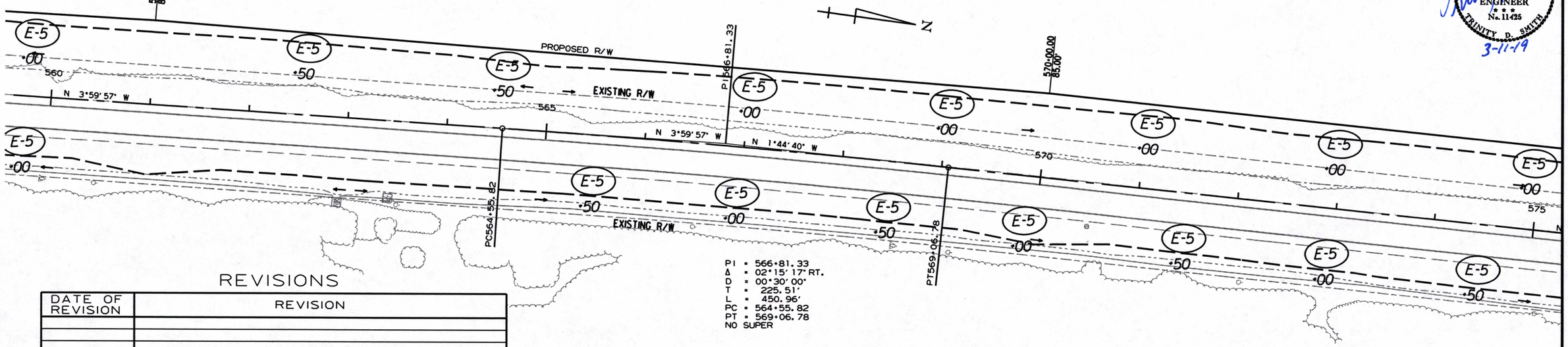
9/7/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	24	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



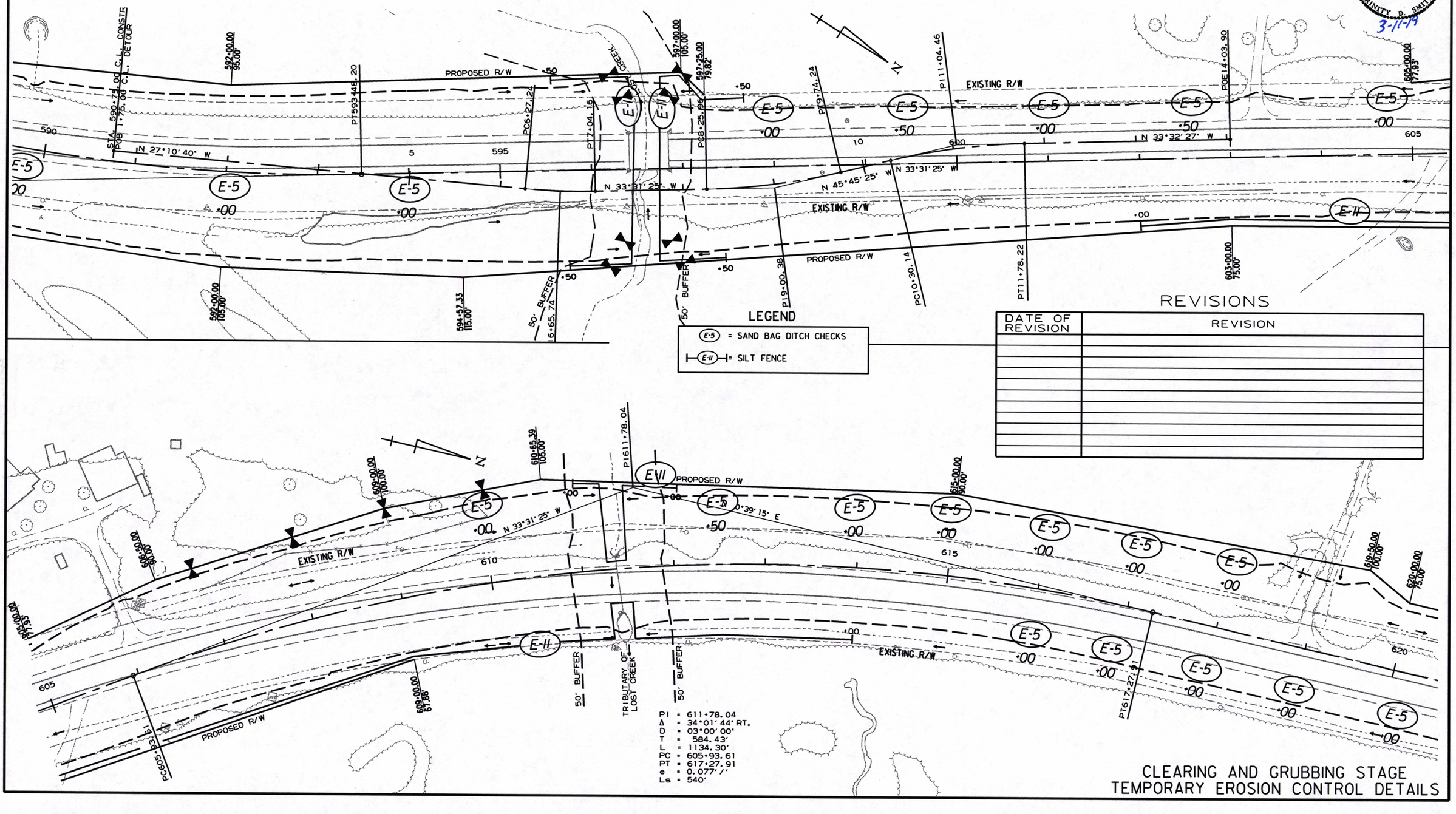
REVISIONS

DATE OF REVISION	REVISION

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	25	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-1-19



LEGEND

E-5 = SAND BAG DITCH CHECKS

E-II = SILT FENCE

PI = 611+78.04
Δ = 34°01'44" RT.
D = 03°00'00"
T = 584.43'
L = 1134.30'
PC = 605+93.61
PT = 617+27.91
e = 0.077'/'
Ls = 540'

REVISIONS

DATE OF REVISION	REVISION

9/7/2018

RCA0704.DGN

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	26	299

(2) TEMPORARY EROSION CONTROL DETAILS

REVISIONS

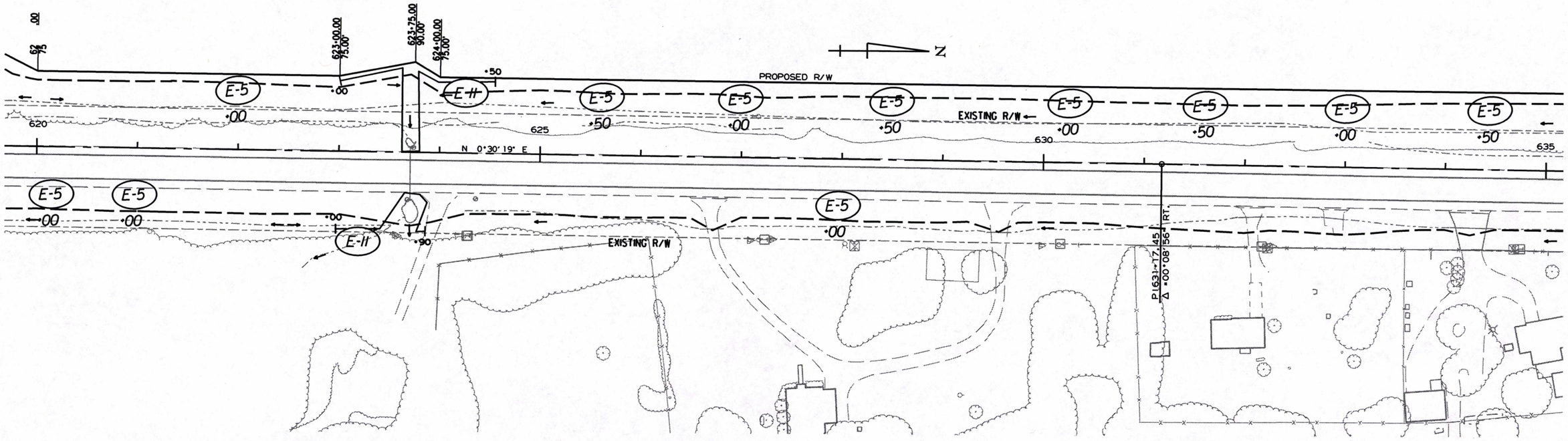
DATE OF REVISION	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS

(E-11) = SILT FENCE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

RCA0704.DGN 9/7/2018

REVISIONS

DATE OF REVISION	REVISION

LEGEND

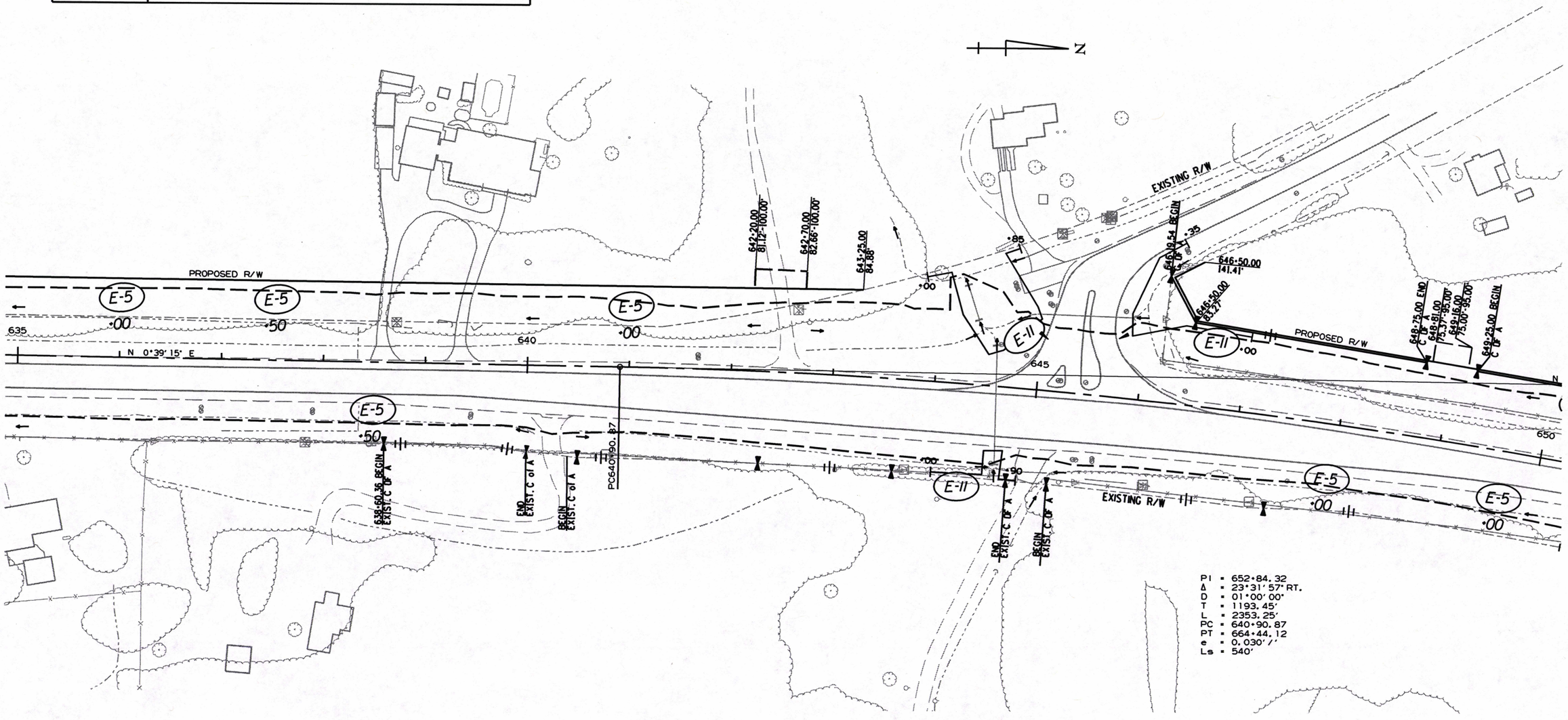
E-5 = SAND BAG DITCH CHECKS

E-11 = SILT FENCE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	27	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
* * *
LICENSED PROFESSIONAL ENGINEER
* * *
No. 11425
TRINITY D. SMITH
3-11-19



CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

9/7/2018

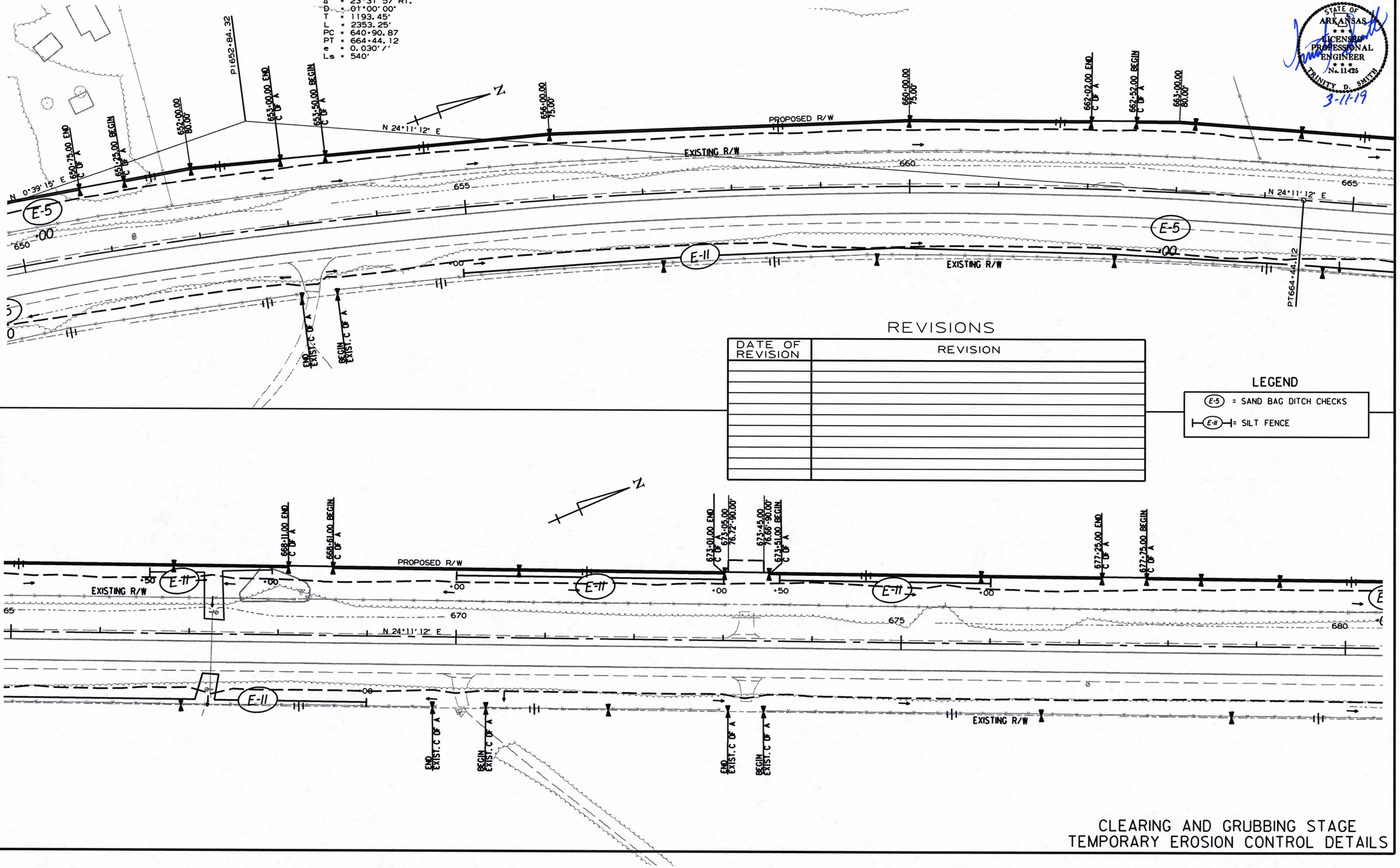
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	28	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

PI = 652+84.32
Δ = 23°31'57" RT.
D = 01°00'00"
T = 1193.45'
L = 2353.25'
PC = 640+90.87
PT = 664+44.12
e = 0.030'/'
Ls = 540'



REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS

(E-11) = SILT FENCE

9/7/2018

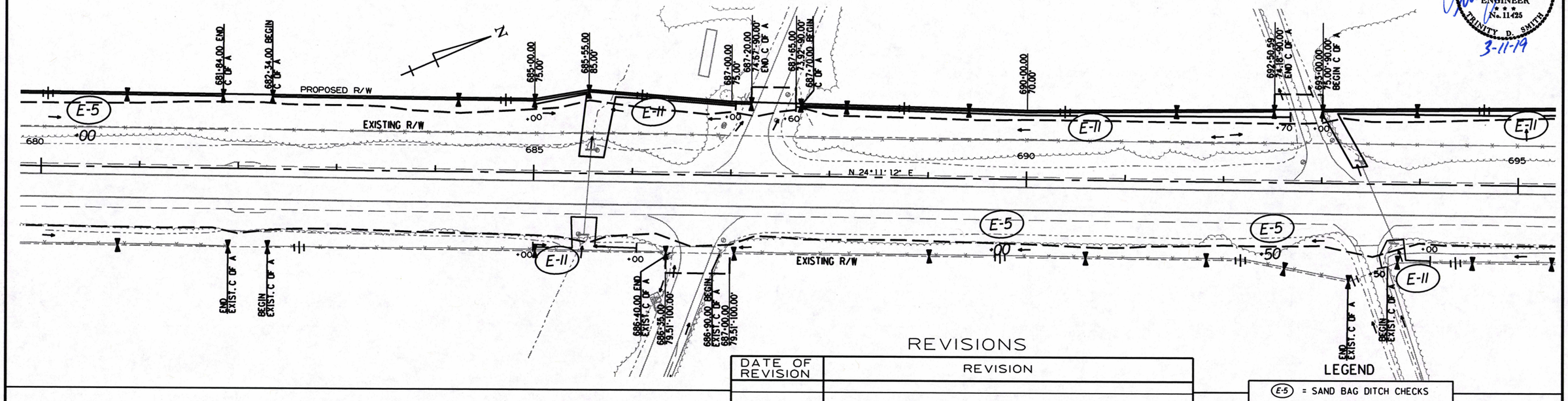
RCA0704.DGN

CLEARING AND GRUBBING STAGE TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	29	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



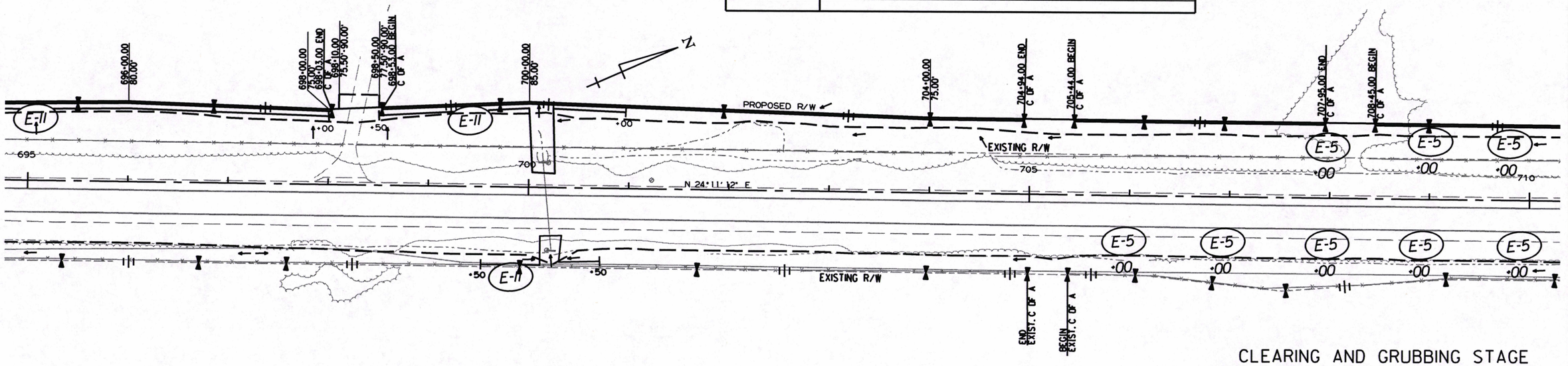
REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS

E-11 = SILT FENCE



CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

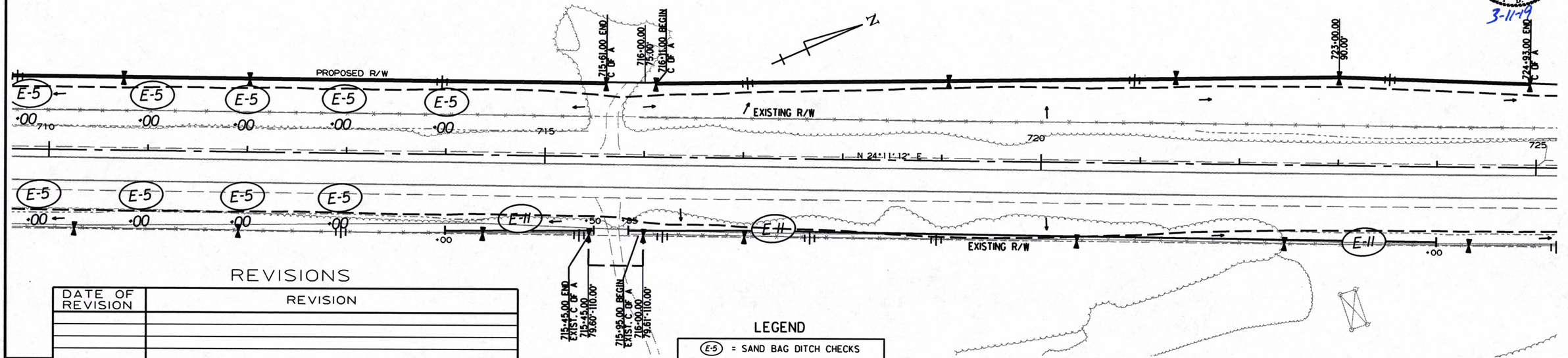
9/7/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	30	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

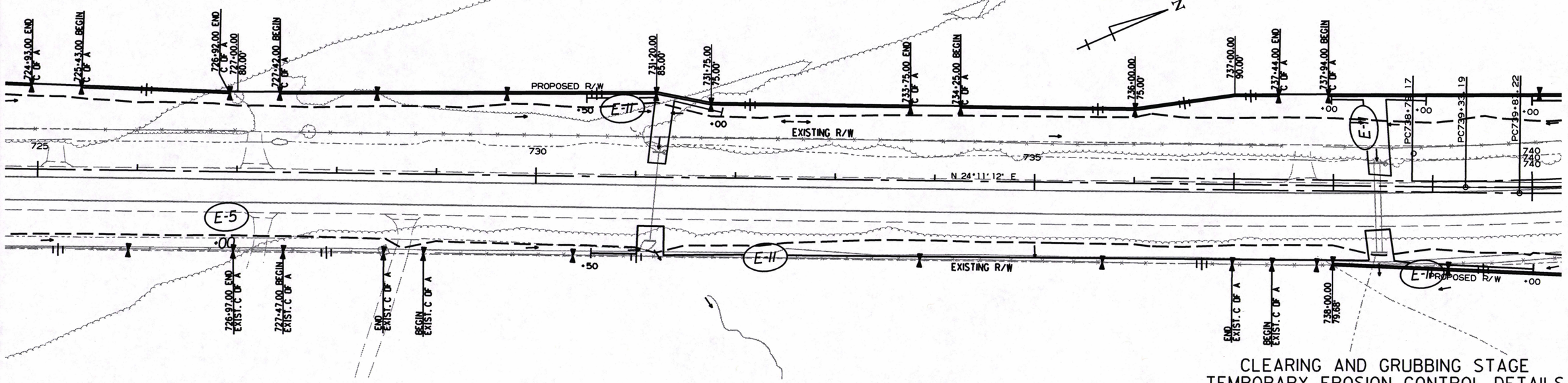
E-5 = SAND BAG DITCH CHECKS

E-11 = SILT FENCE

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'



CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

9/7/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	31	299

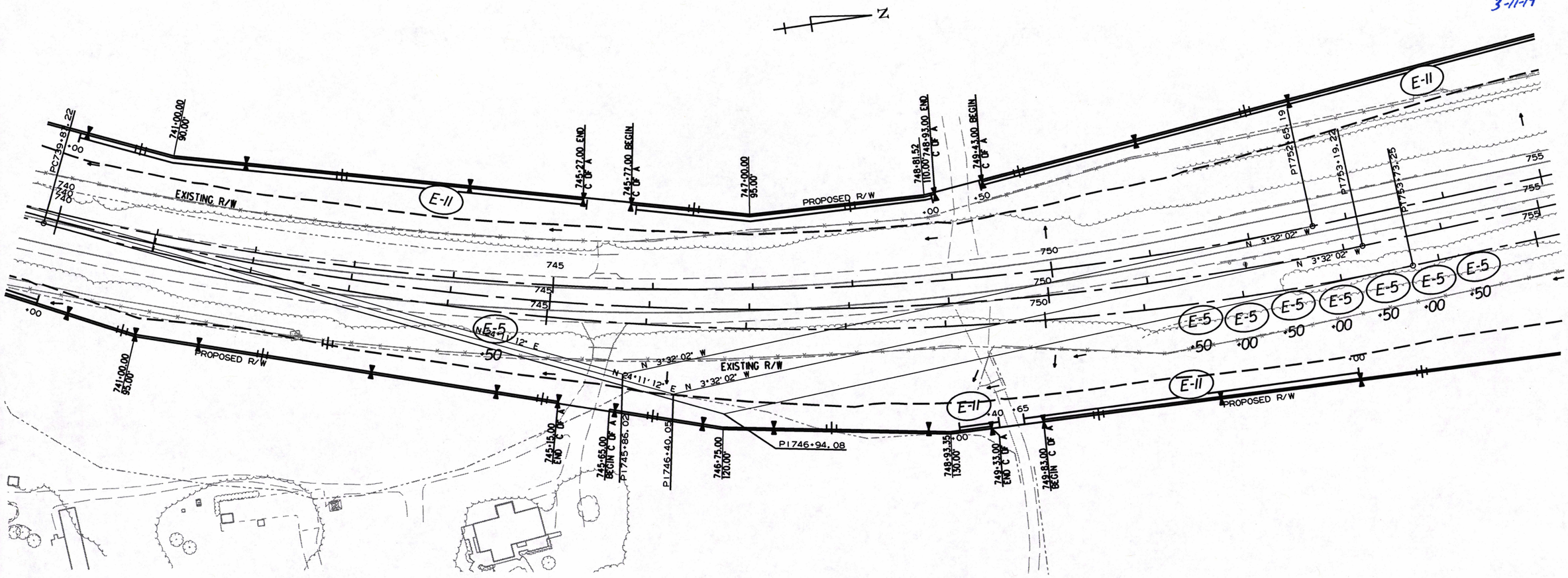
(2) TEMPORARY EROSION CONTROL DETAILS

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS

E-11 = SILT FENCE

9/7/2018

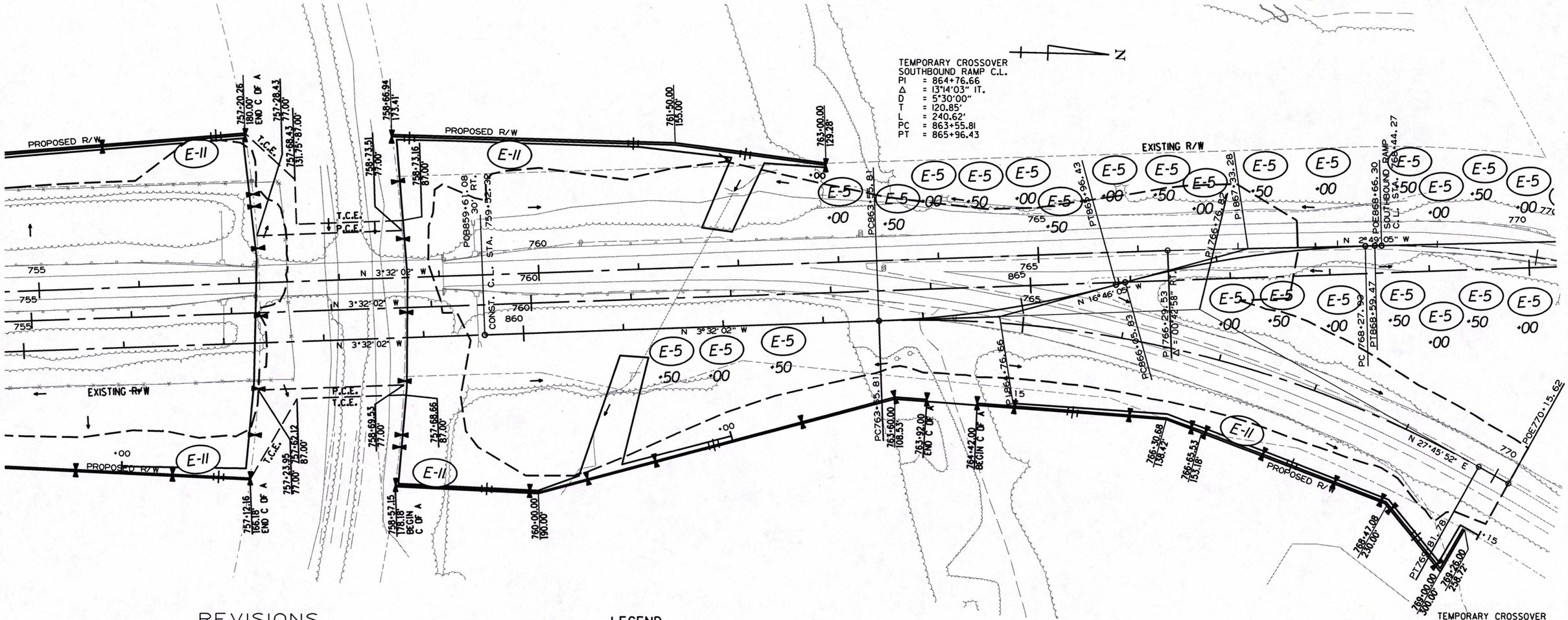
RCA0704.DGN

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	32	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
* * *
LICENSED PROFESSIONAL ENGINEER
* * *
No. 11425
TRINITY D. SMITH
3-11-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS

E-11 = SILT FENCE

9/7/2018

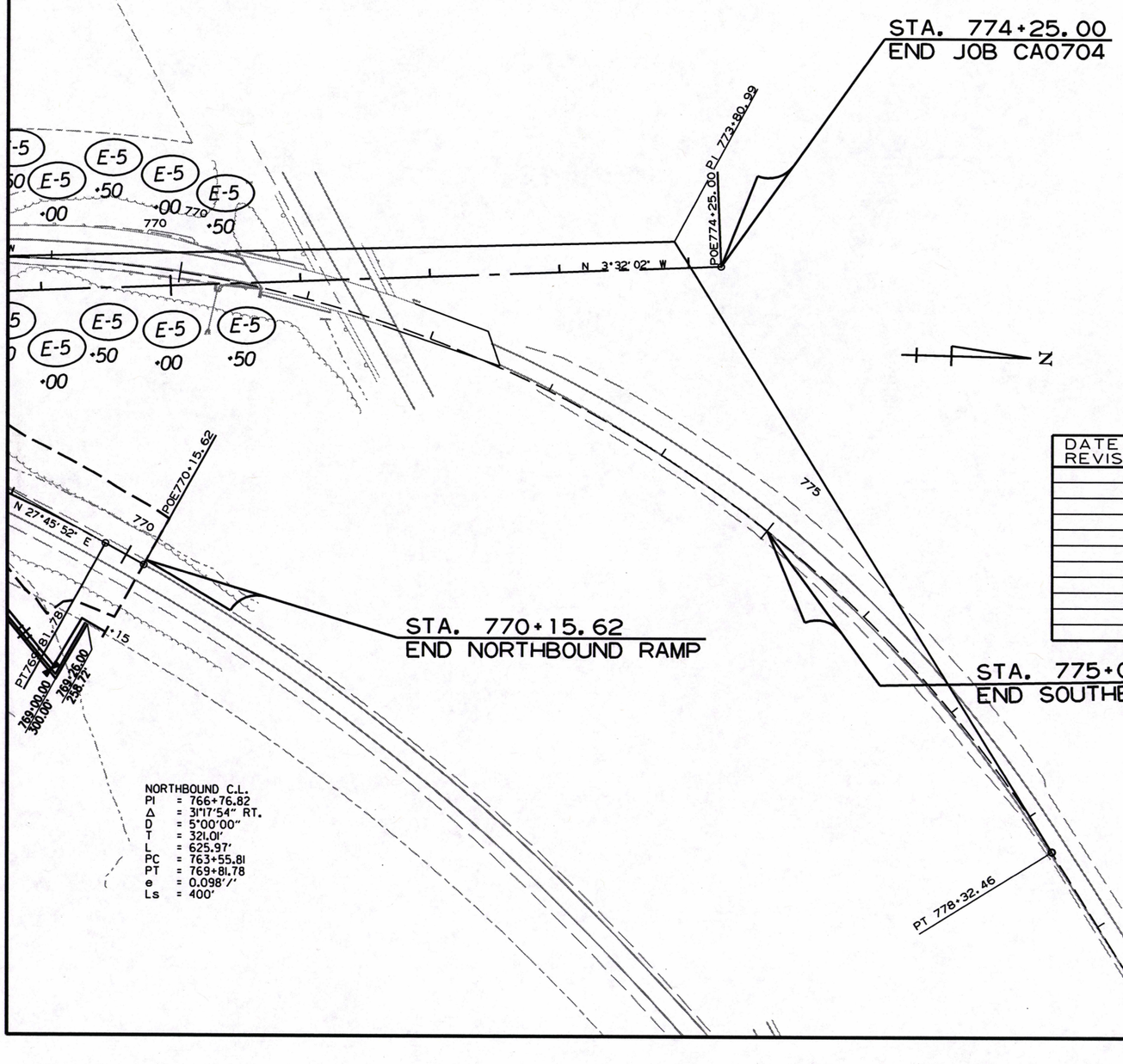
RCA0704.DGN

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	33	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS

(E-11) = SILT FENCE

9/7/2018

RCA0704.DGN

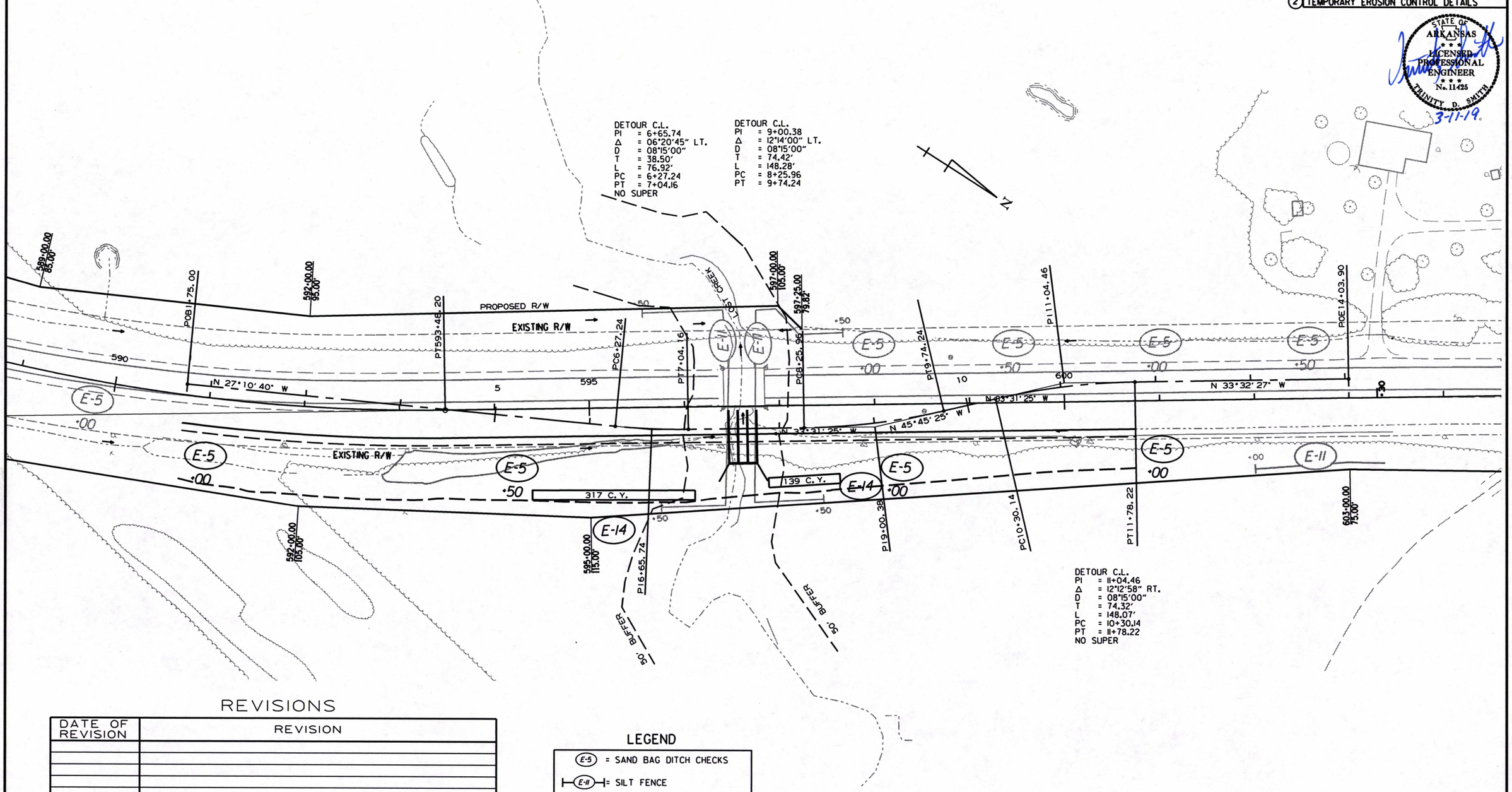
CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

QUANTITIES:
STAGE 1A
SAND BAG DITCH CHECKS E-5 = 88 BAGS (4 LOCATIONS)
SEDIMENT BASINS E-14 = 456 CY. YDS.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	34	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-11) = SILT FENCE
(E-14) XX CU FT = SEDIMENT BASIN

STAGE 1A
TEMPORARY EROSION CONTROL DETAILS

9/7/2018
RCA0704.DGN

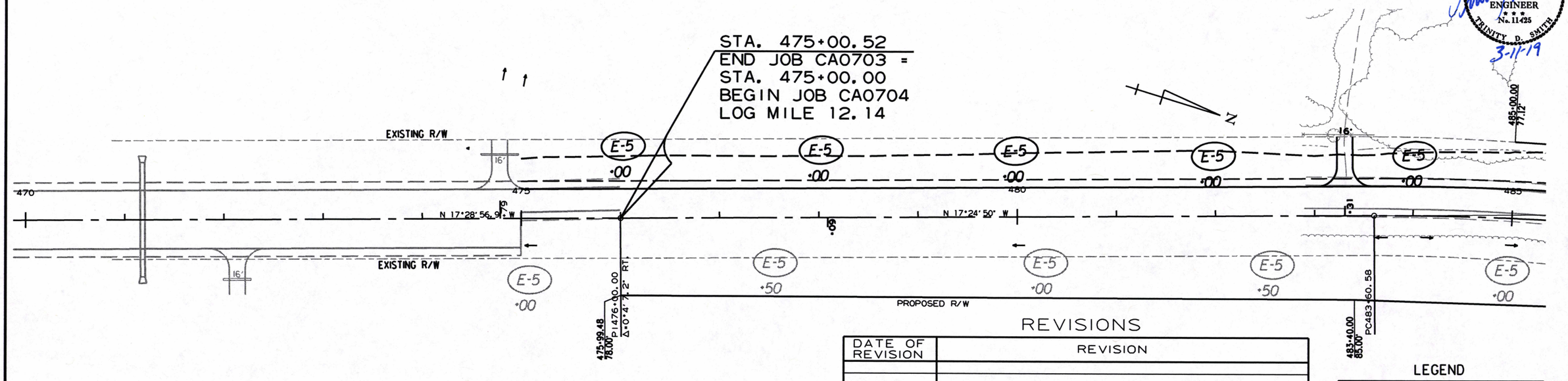
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	35	299

(2) TEMPORARY EROSION CONTROL DETAILS

QUANTITIES:
STAGE 1B
SAND BAG DITCH CHECKS E-5 = 2200 BAGS (100 LOCATIONS)
SEDIMENT BASINS E-14 = 3934 CY. YDS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

STA. 475+00.52
END JOB CA0703 =
STA. 475+00.00
BEGIN JOB CA0704
LOG MILE 12.14

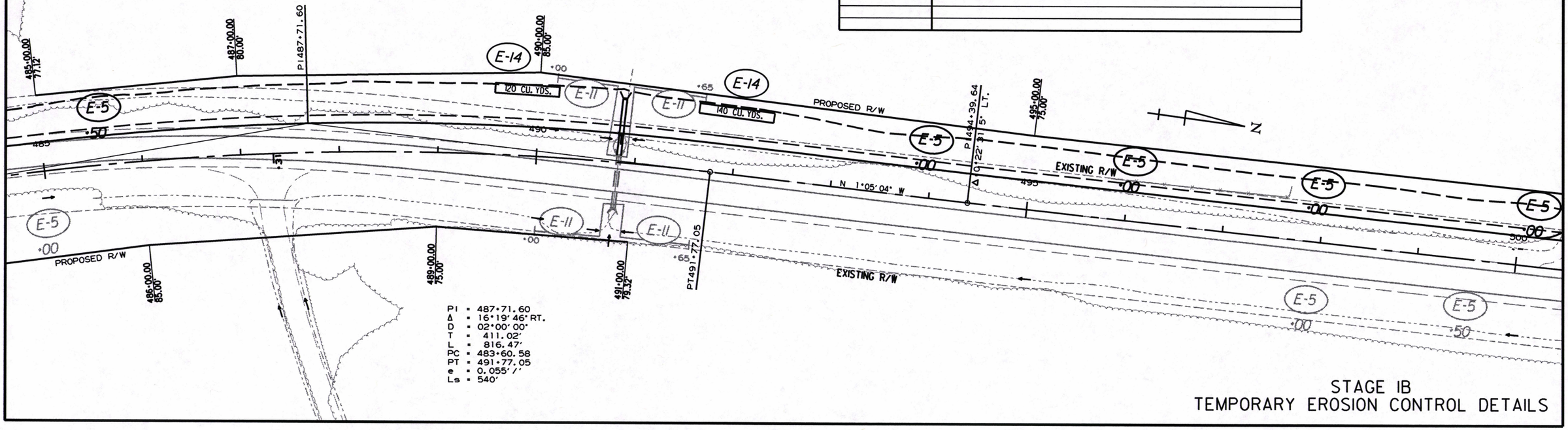


REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

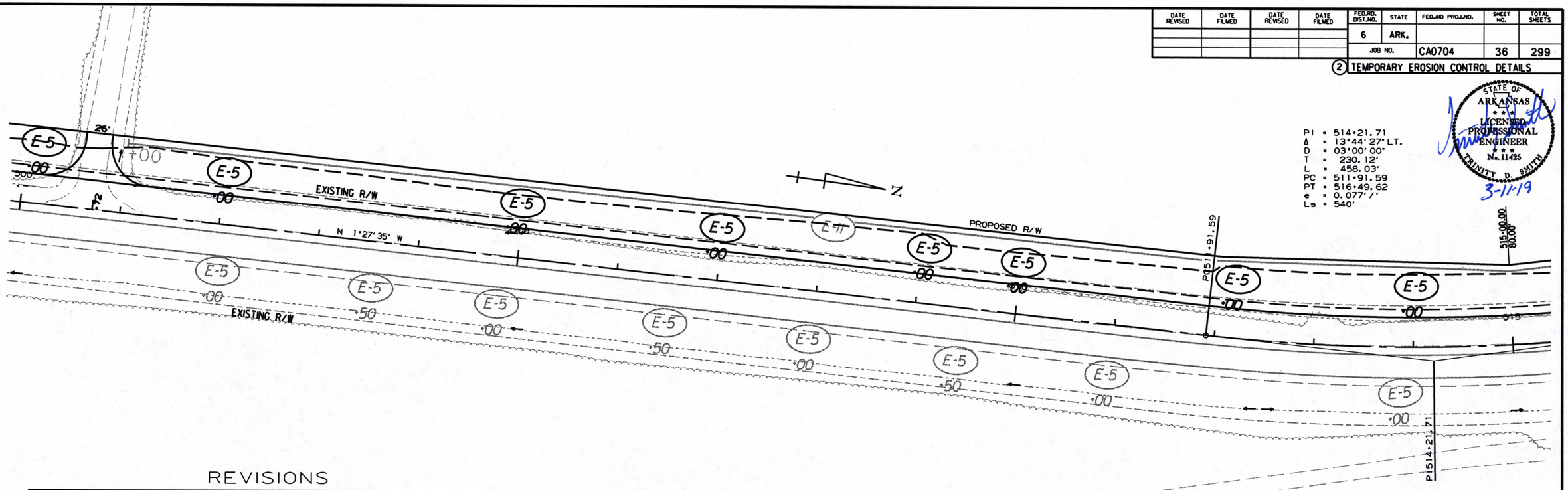


STAGE IB
TEMPORARY EROSION CONTROL DETAILS

9/7/2018
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	36	299

(2) TEMPORARY EROSION CONTROL DETAILS



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-11 = SILT FENCE
- E-14 = SEDIMENT BASIN (XX CU FT)

9/7/2018

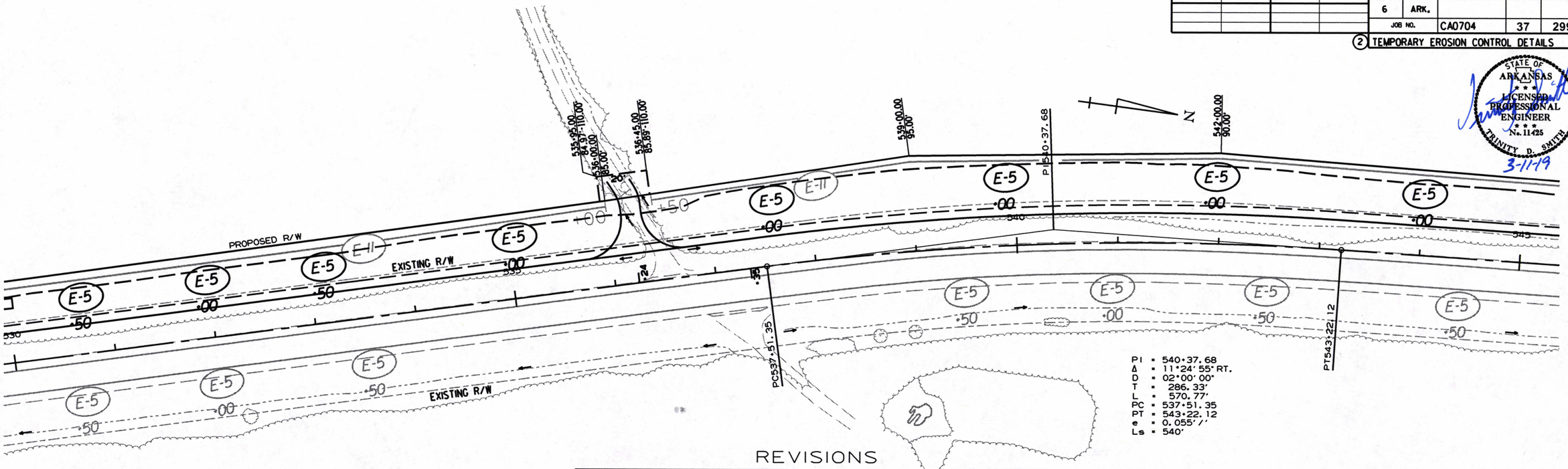
RCA0704.DGN

STAGE IB
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	37	299

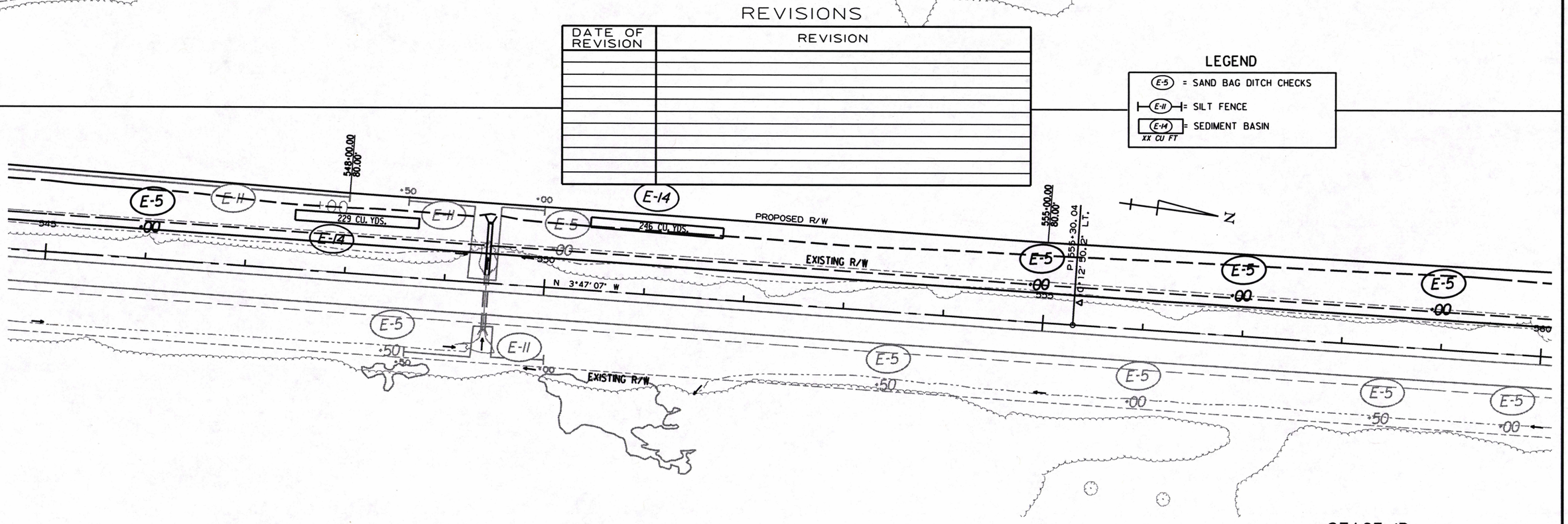
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



REVISIONS

DATE OF REVISION	REVISION



STAGE IB
TEMPORARY EROSION CONTROL DETAILS

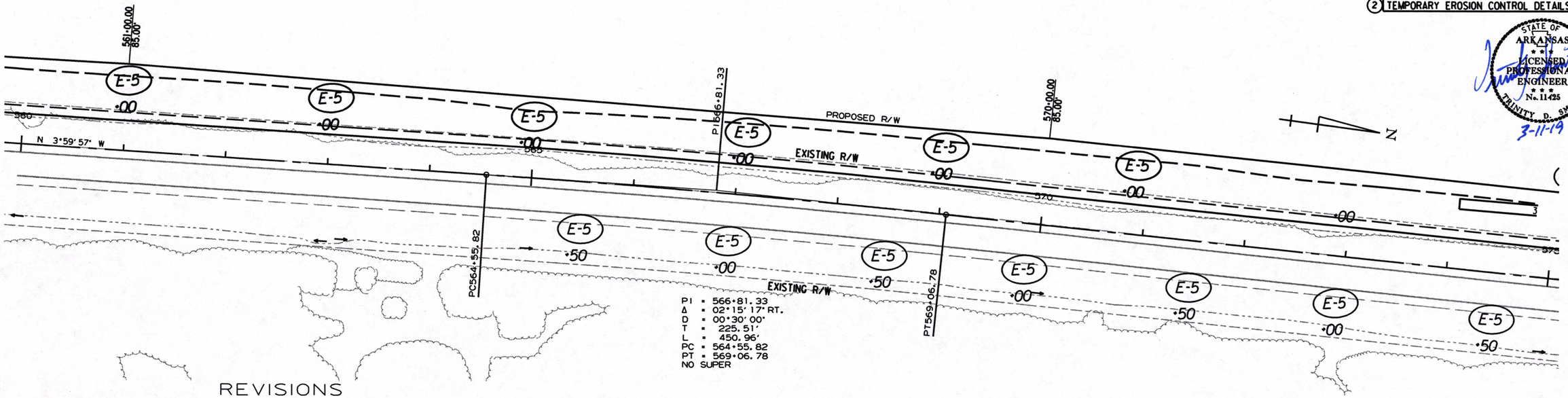
9/7/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	38	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

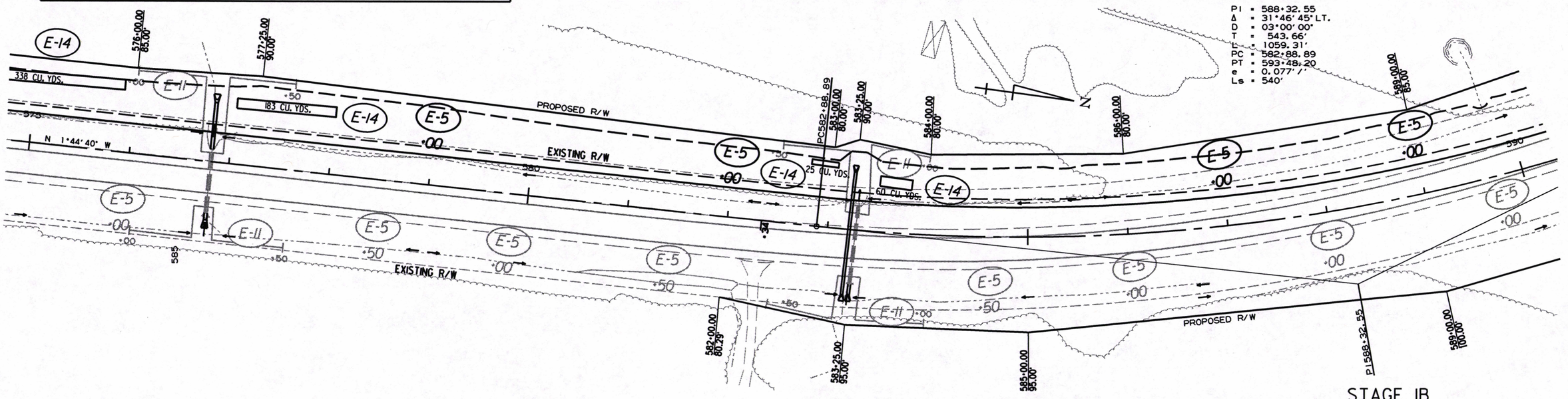


REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-11 = SILT FENCE
- E-14 = SEDIMENT BASIN (XX CU FT)



9/7/2018

RCA0704.DGN

STAGE IB
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	39	299

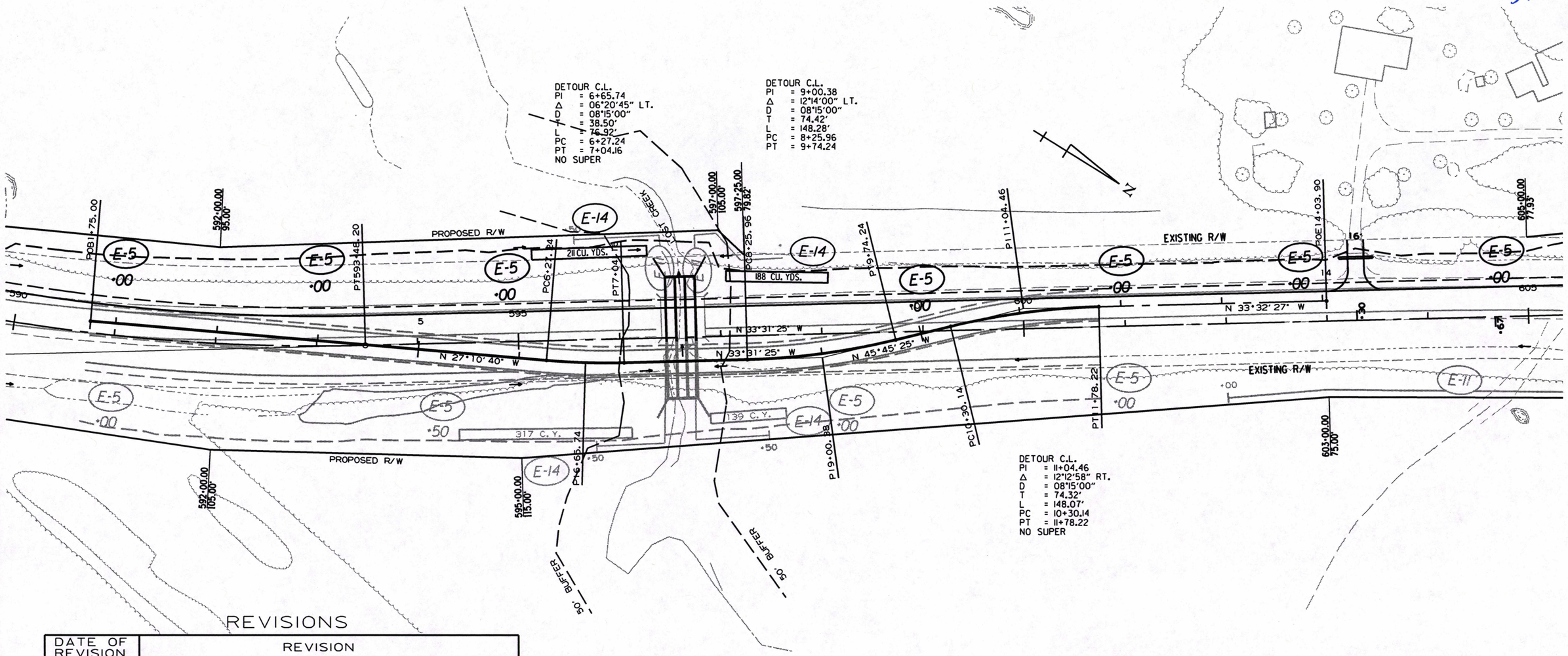
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

PI = 588+32.55
Δ = 31°46'45" LT.
D = 03°00'00"
T = 543.66'
L = 1059.31'
PC = 582+88.89
PT = 593+48.20
e = 0.077'/'
Ls = 540'

DETOUR C.L.
PI = 6+65.74
Δ = 06°20'45" LT.
D = 08°15'00"
T = 38.50'
L = 76.92'
PC = 6+27.24
PT = 7+04.16
NO SUPER

DETOUR C.L.
PI = 9+00.38
Δ = 12°14'00" LT.
D = 08°15'00"
T = 74.42'
L = 148.28'
PC = 8+25.96
PT = 9+74.24



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS
E-11 = SILT FENCE
E-14 = SEDIMENT BASIN
XX CU FT

DETOUR C.L.
PI = 11+04.46
Δ = 12°12'58" RT.
D = 08°15'00"
T = 74.32'
L = 148.07'
PC = 10+30.14
PT = 11+78.22
NO SUPER

STAGE IB
TEMPORARY EROSION CONTROL DETAILS

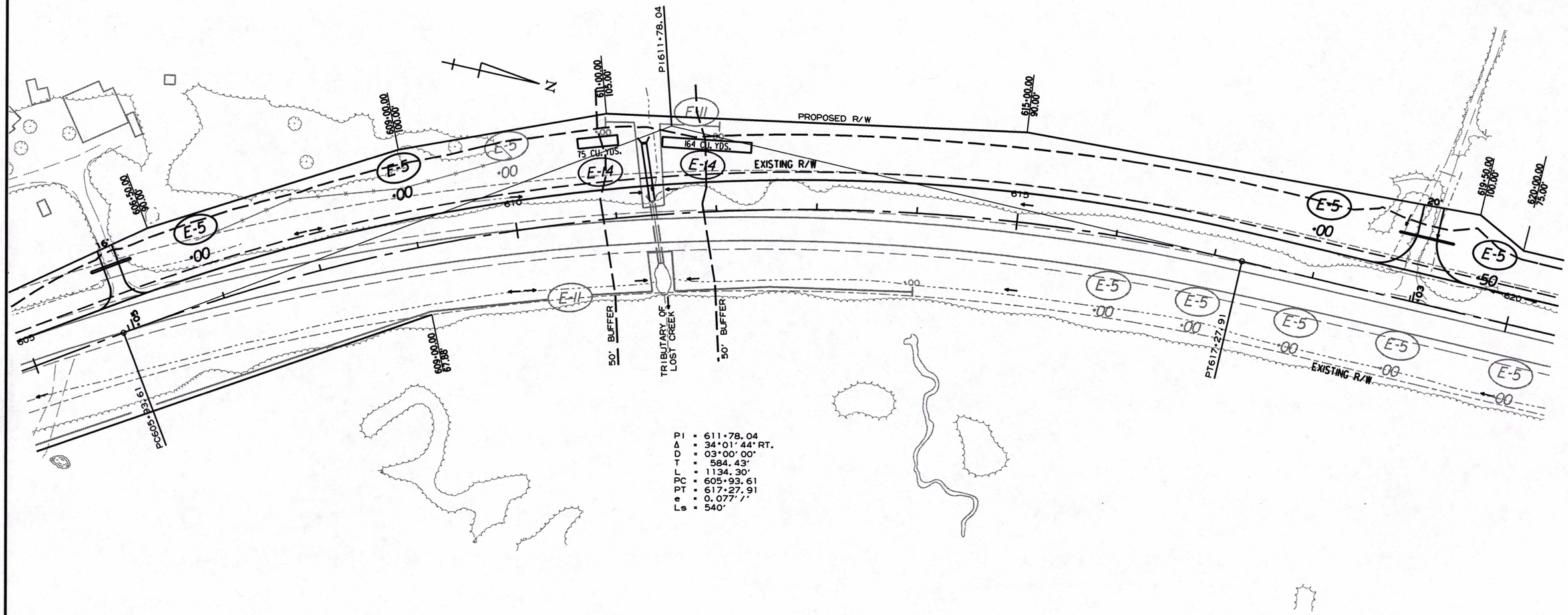
9/7/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	40	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



PI = 611+78.04
Δ = 34°01'44" RT.
D = 03°00'00"
T = 584.43'
L = 1134.30'
PC = 605+93.61
PT = 617+27.91
e = 0.077'/'
Ls = 540'

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS
E-11 = SILT FENCE
E-14 XX CU FT = SEDIMENT BASIN

STAGE IB
TEMPORARY EROSION CONTROL DETAILS

9/7/2018
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	41	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

620+00.00 75.00'
623+00.00 75.00'
623+75.00 90.00'
624+00.00 75.00'
642+20.00 81.12'-100.00'
642+70.00 82.86'-100.00'
643+25.00 84.88'
645+50.00 83.27'-141.41'
P.I. 631+17.45 Δ 0°8'55.7" RT.
PC640+90.87
PROPOSED R/W
EXISTING R/W
N 0°30'19" E
N 0°39'15" E
53 CU. YDS.
269 CU. YDS.
45 CU. YDS.
15 CU. YDS.
132 CU. YDS.

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS
E-11 = SILT FENCE
E-14 = SEDIMENT BASIN
XX CU FT

PI = 652+84.32
Δ = 23°31'57" RT.
D = 01°00'00"
T = 1193.45'
L = 2353.25'
PC = 640+90.87
PT = 664+44.12
e = 0.030'/'
Ls = 540'

STAGE IB
TEMPORARY EROSION CONTROL DETAILS

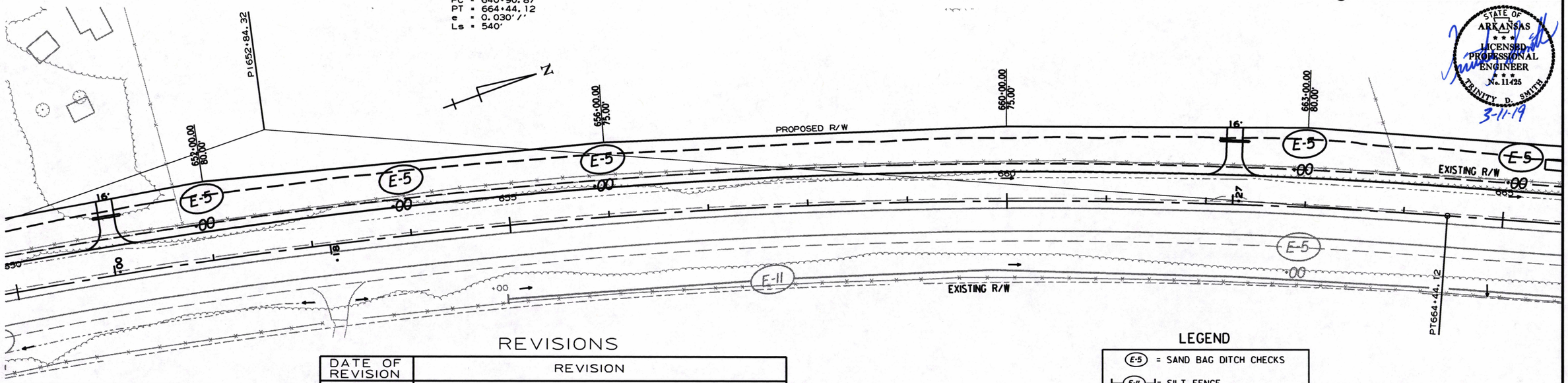
9/7/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	42	299

(2) TEMPORARY EROSION CONTROL DETAILS

PI = 652+84.32
Δ = 23°31'57" RT.
D = 01°00'00"
T = 1193.45'
L = 2353.25'
PC = 640+90.87
PT = 664+44.12
e = 0.030'/'
Ls = 540'



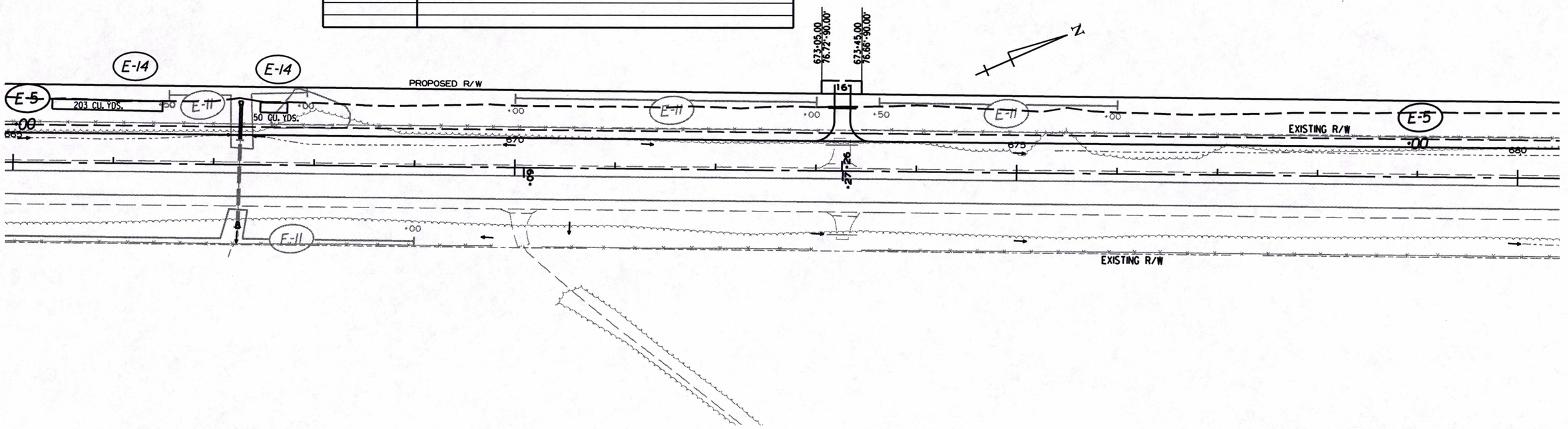
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS
E-11 = SILT FENCE
E-14 = SEDIMENT BASIN
XX CU FT



STAGE IB
TEMPORARY EROSION CONTROL DETAILS

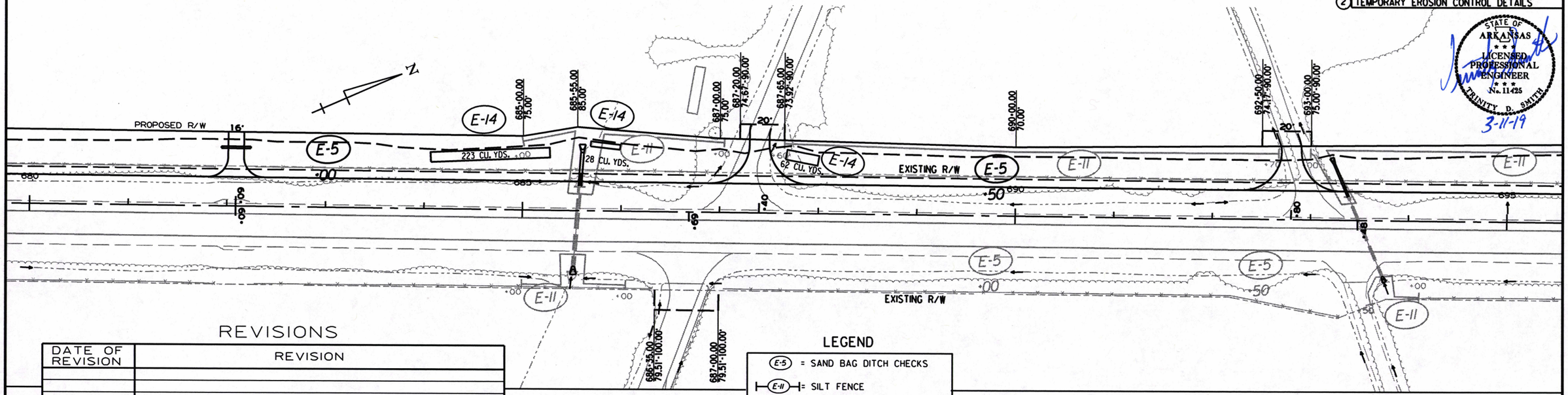
9/7/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	43	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

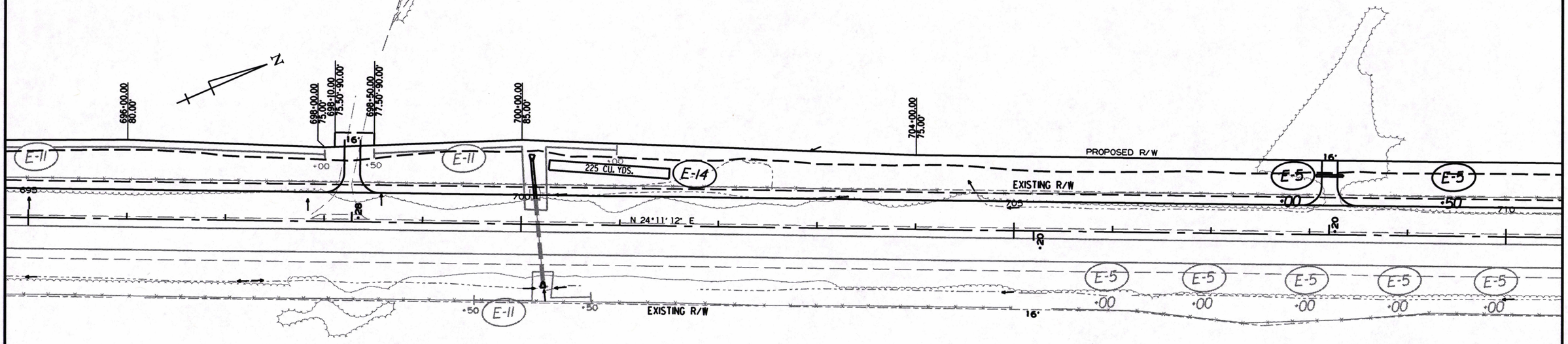


REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS
E-11 = SILT FENCE
E-14 = SEDIMENT BASIN
XX CU FT



STAGE IB
TEMPORARY EROSION CONTROL DETAILS

9/7/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	44	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-11 = SILT FENCE
- E-14 = SEDIMENT BASIN (XX CU FT)

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'

PROPOSED R/W
EXISTING R/W
258 CU. YDS.
142 CU. YDS.
362 CU. YDS.
STAGE 1B ENDS
STAGE 1C BEGINS

STAGE IB & IC TEMPORARY EROSION CONTROL DETAILS

9/7/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	45	299

(2) TEMPORARY EROSION CONTROL DETAILS

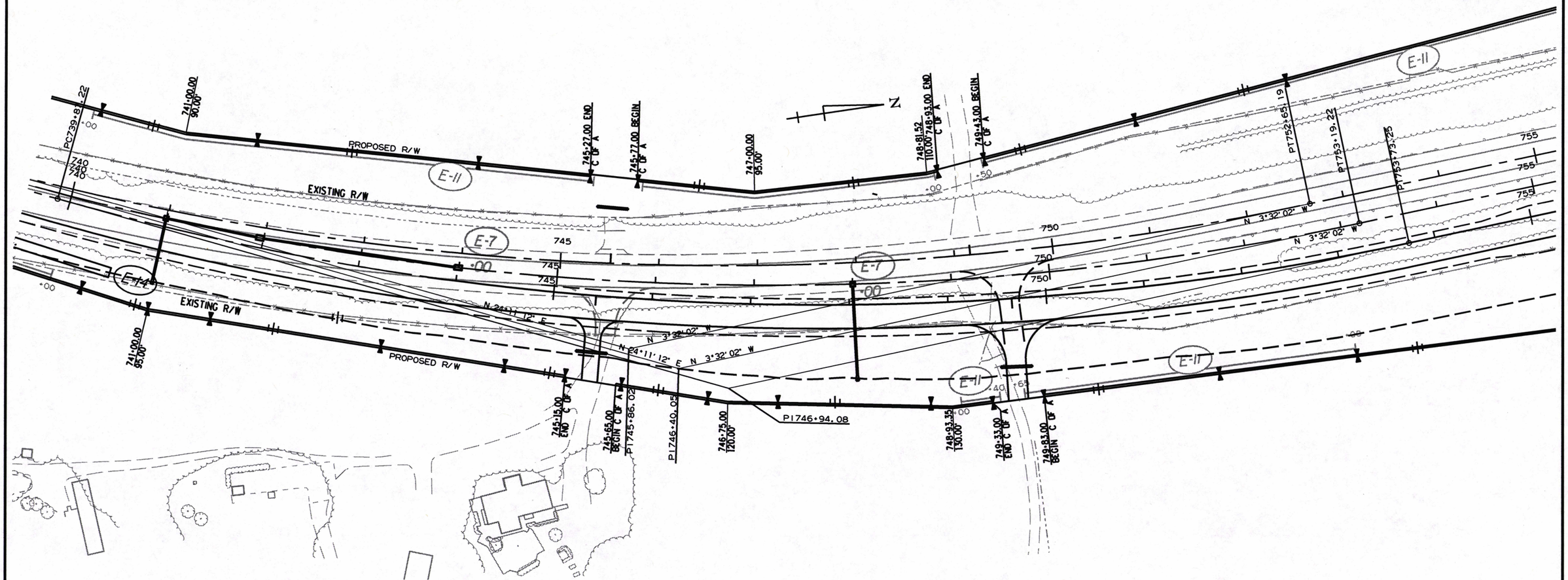
QUANTITIES:
STAGE 1C
SAND BAG DITCH CHECKS E-5 = 88 BAGS (4 LOCATIONS)
DROP INLET SILT FENCE E-7 = 50 LIN. FT. (2 LOCATIONS)
SEDIMENT BASINS E-14 = 362 CU. YDS.

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND
(E-5) = SAND BAG DITCH CHECKS
(E-11) = SILT FENCE
(E-14) = SEDIMENT BASIN
XX CU FT

STAGE 1C
TEMPORARY EROSION CONTROL DETAILS

9/7/2018
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	46	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 864+76.66
Δ = 13°14'03" LT.
D = 5°30'00"
T = 120.85'
L = 240.62'
PC = 863+55.81
PT = 865+96.43

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 867+33.28
Δ = 13°57'00" RT.
D = 5°30'00"
T = 127.45'
L = 253.64'
PC = 866+05.83
PT = 868+59.47

NORTHBOUND C.L.
PI = 766+76.82
Δ = 31°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS
E-11 = SILT FENCE
E-14 = SEDIMENT BASIN
xx CU FT

STAGE IC
TEMPORARY EROSION CONTROL DETAILS

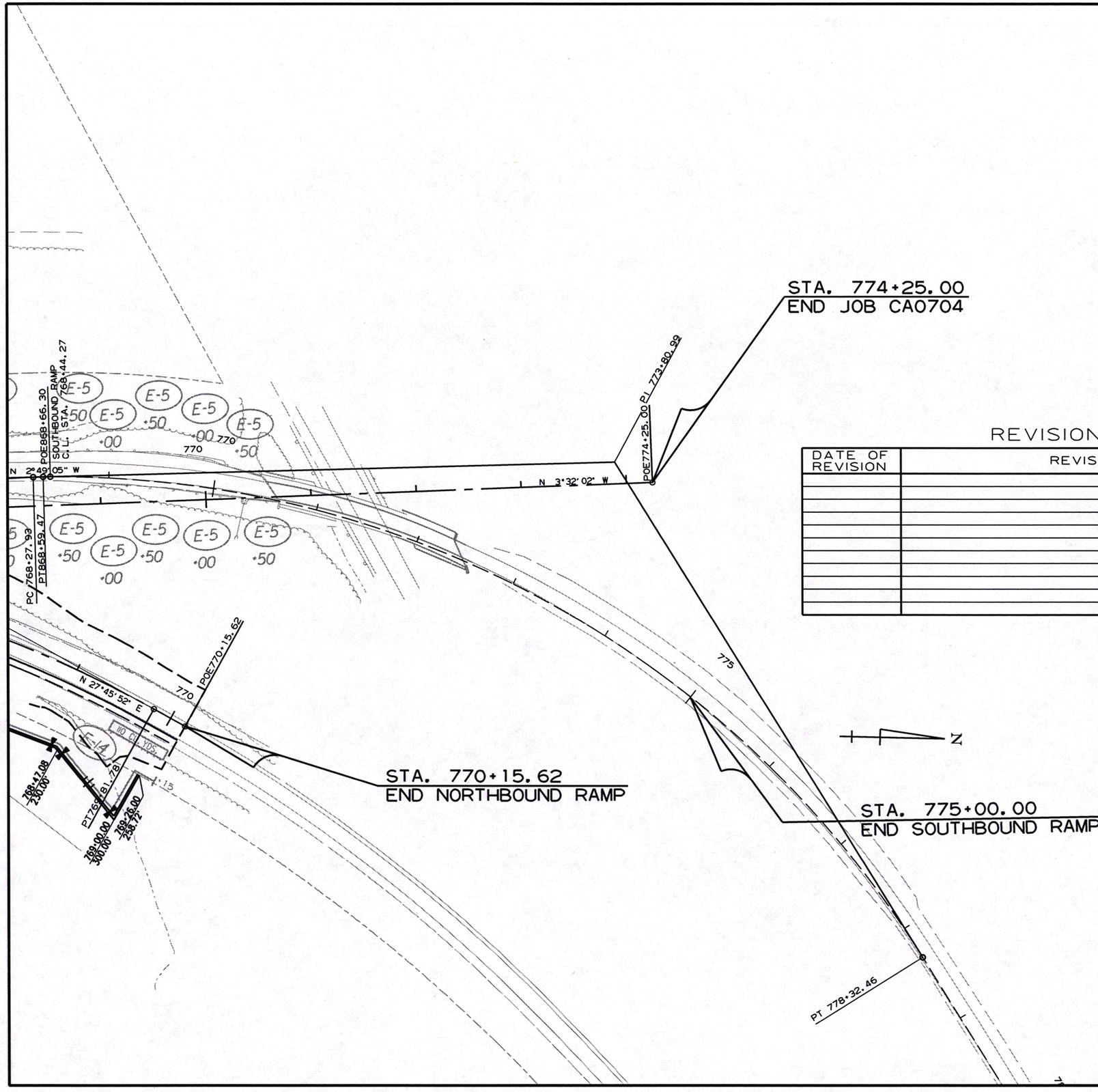
9/7/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	47	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS

(E-11) = SILT FENCE

STAGE IC
TEMPORARY EROSION CONTROL DETAILS

9/7/2018

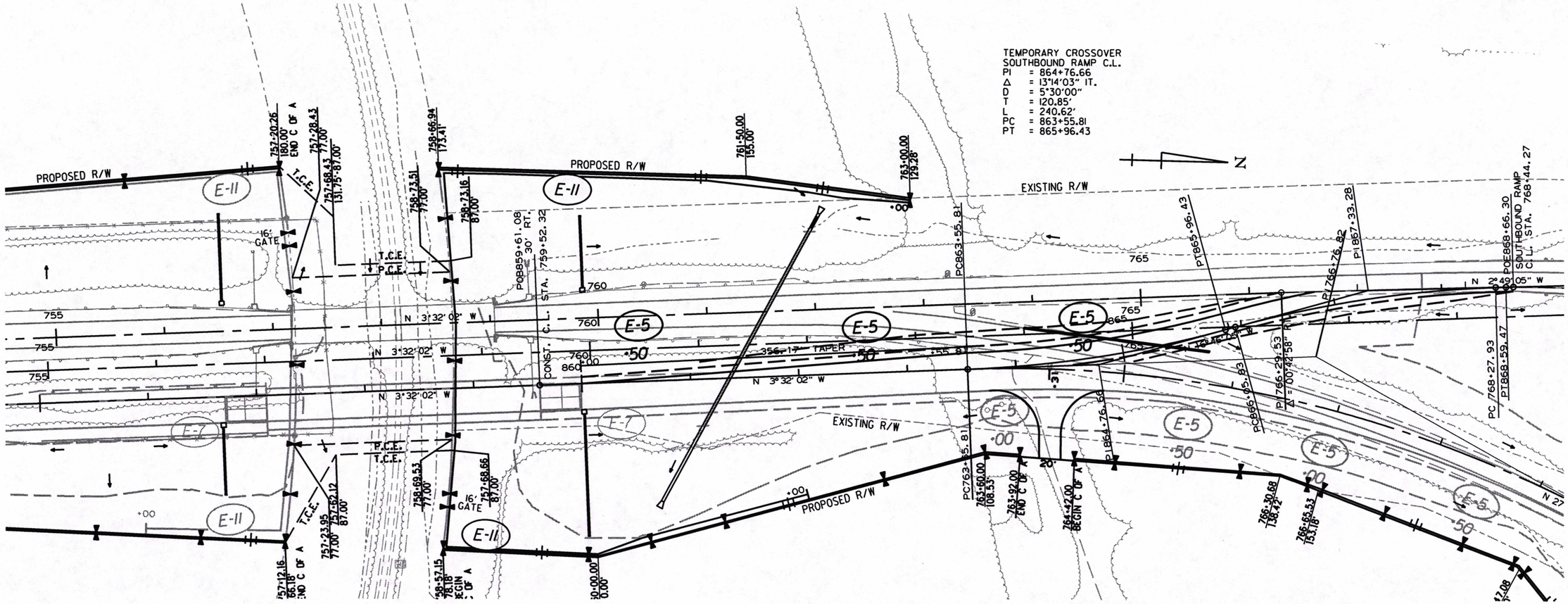
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	48	299

(2) TEMPORARY EROSION CONTROL DETAILS

QUANTITIES:
STAGE 1D
SAND BAG DITCH CHECKS E-5 = 66 BAGS (3 LOCATIONS)
SILT FENCE E-11 = 1115 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 864+76.66
Δ = 13°14'03" LT.
D = 5°30'00"
T = 120.85'
L = 240.62'
PC = 863+55.81
PT = 865+96.43

NORTHBOUND C.L.
PI = 766+76.82
Δ = 3°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 867+33.28
Δ = 13°57'00" RT.
D = 5°30'00"
T = 127.45'
L = 253.64'
PC = 866+05.83
PT = 868+59.47

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS

E-14 XX CU FT = SEDIMENT BASIN

9/7/2018

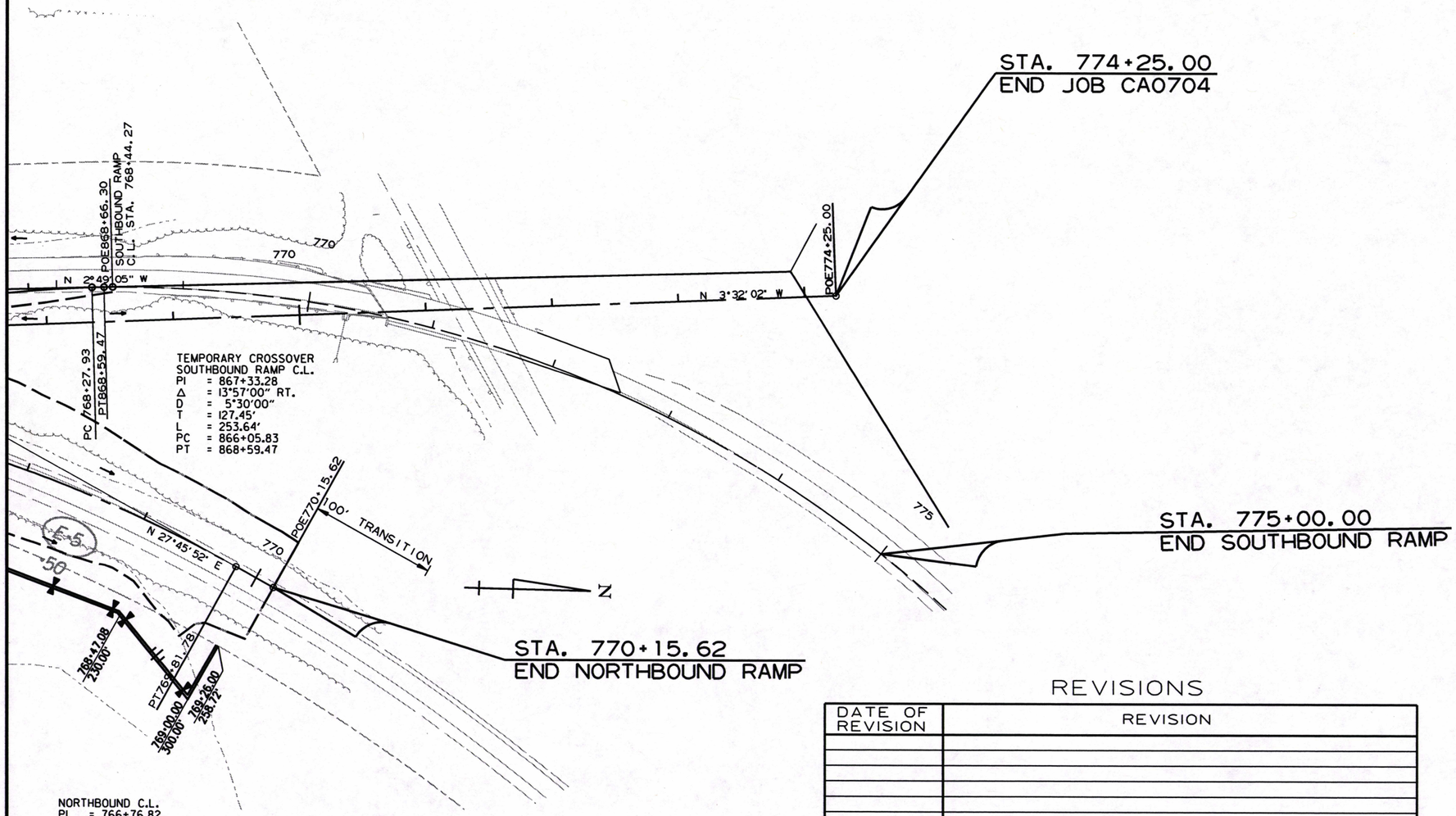
RCA0704.DGN

STAGE 1D
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	49	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS

(E-11) = SILT FENCE

9/7/2018

RCA0704.DGN

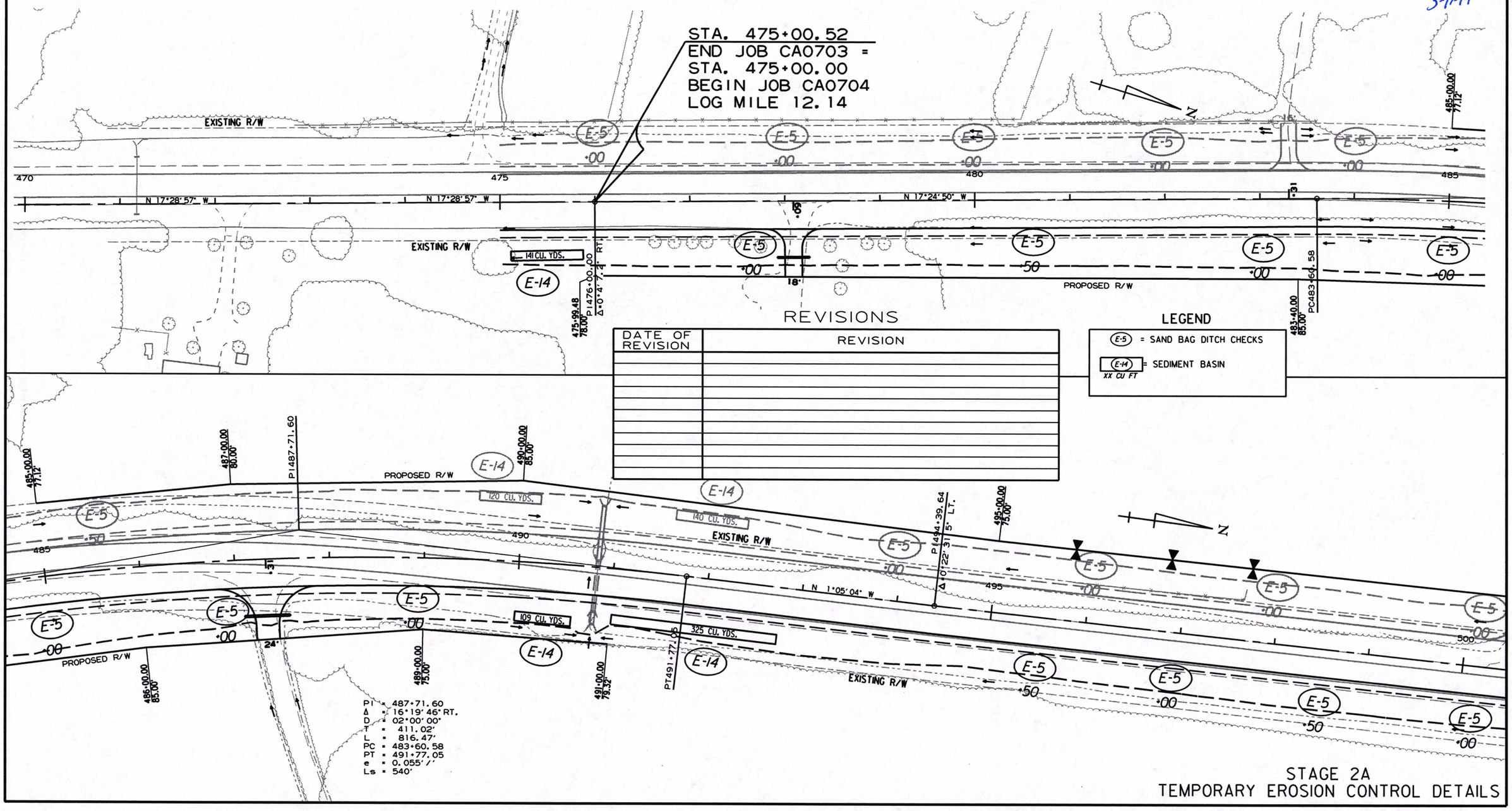
STAGE ID
TEMPORARY EROSION CONTROL DETAILS

QUANTITIES:
STAGE 2A
SAND BAG DITCH CHECKS E-5 = 2420 BAGS (110 LOCATIONS)
DROP INLET SILT FENCE E-7 = 50 LIN. FT. (2 LOCATIONS)
SILT FENCE E-11 = 6520 LIN. FT.
SEDIMENT BASINGS E-14 = 4768 CU. YDS.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	50	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS

(E-14) XX CU FT = SEDIMENT BASIN

STAGE 2A
TEMPORARY EROSION CONTROL DETAILS

9/7/2018

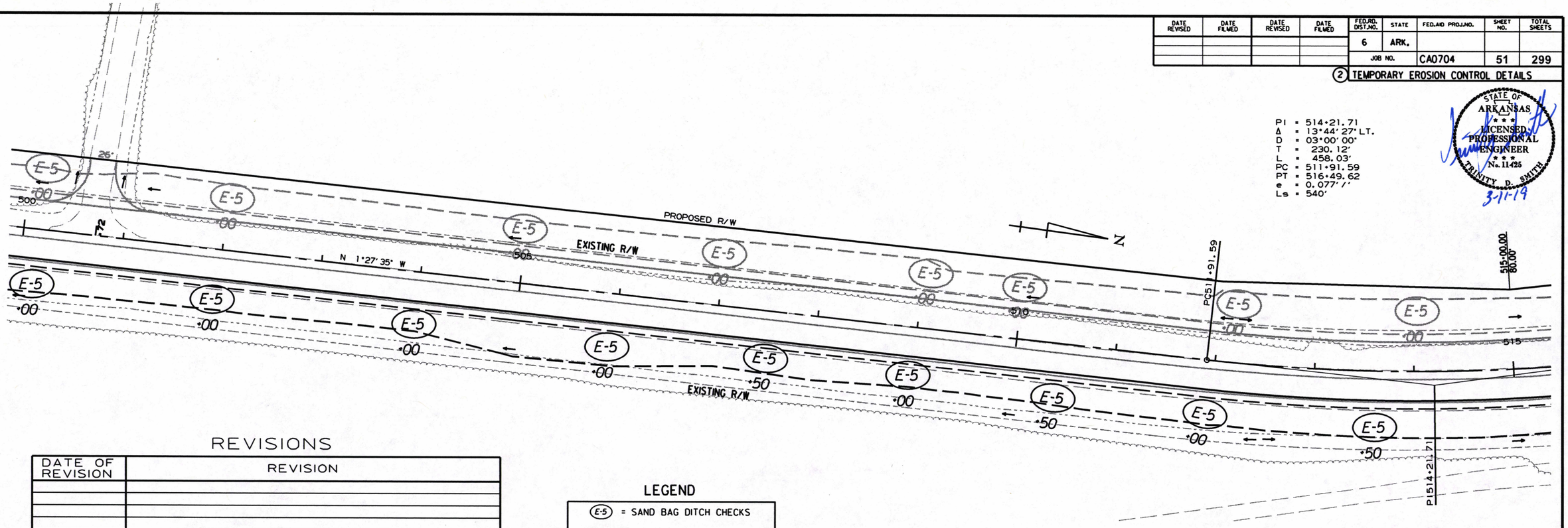
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	51	299

(2) TEMPORARY EROSION CONTROL DETAILS

PI = 514+21.71
Δ = 13°44'27" LT.
D = 03°00'00"
T = 230.12'
L = 458.03'
PC = 511+91.59
PT = 516+49.62
e = 0.077'/'
Ls = 540'

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-1-19



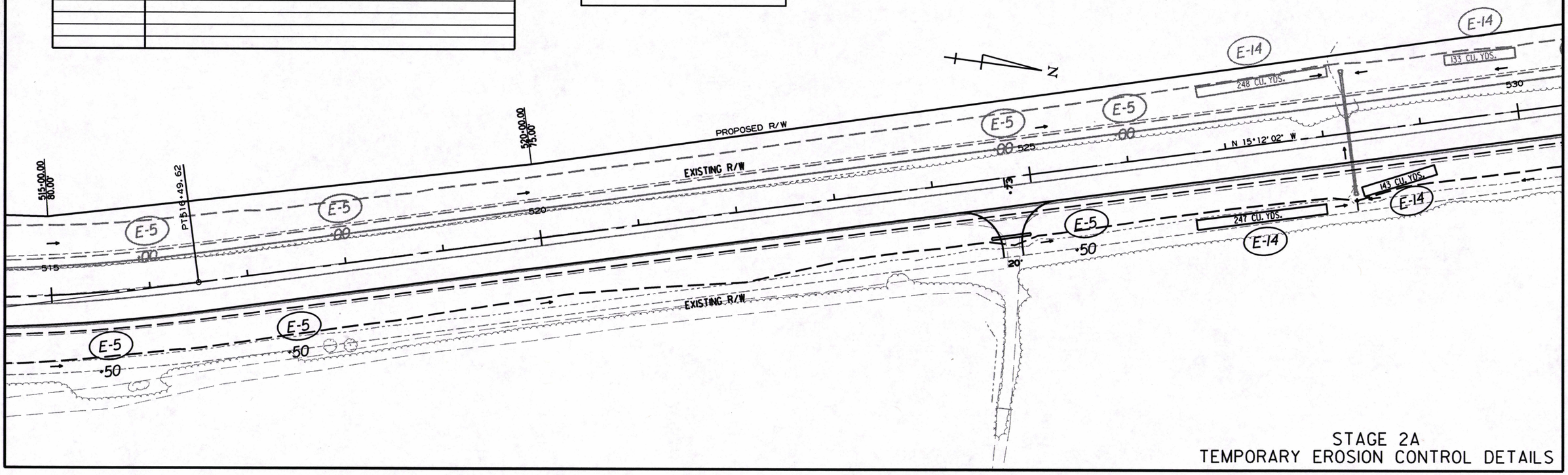
REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS

E-14 XX CU FT = SEDIMENT BASIN



STAGE 2A
TEMPORARY EROSION CONTROL DETAILS

9/7/2018

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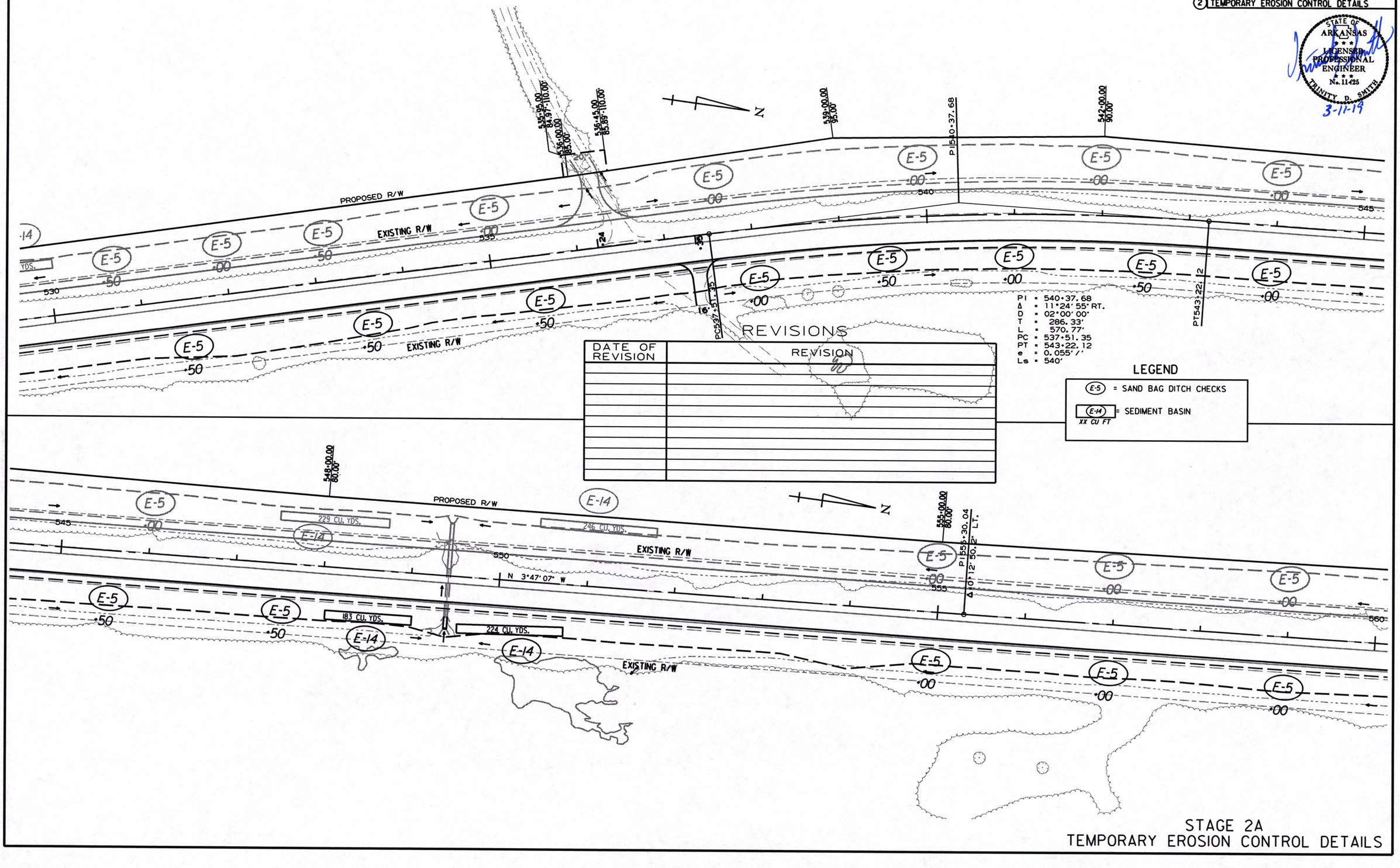
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	52	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



PI = 540+37.68
Δ = 11°24'55" RT.
D = 02°00'00"
T = 286.33'
L = 570.77'
PC = 537+51.35
PT = 543+22.12
e = 0.055'/'
Ls = 540'

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS

E-14 XX CU FT = SEDIMENT BASIN

STAGE 2A
TEMPORARY EROSION CONTROL DETAILS

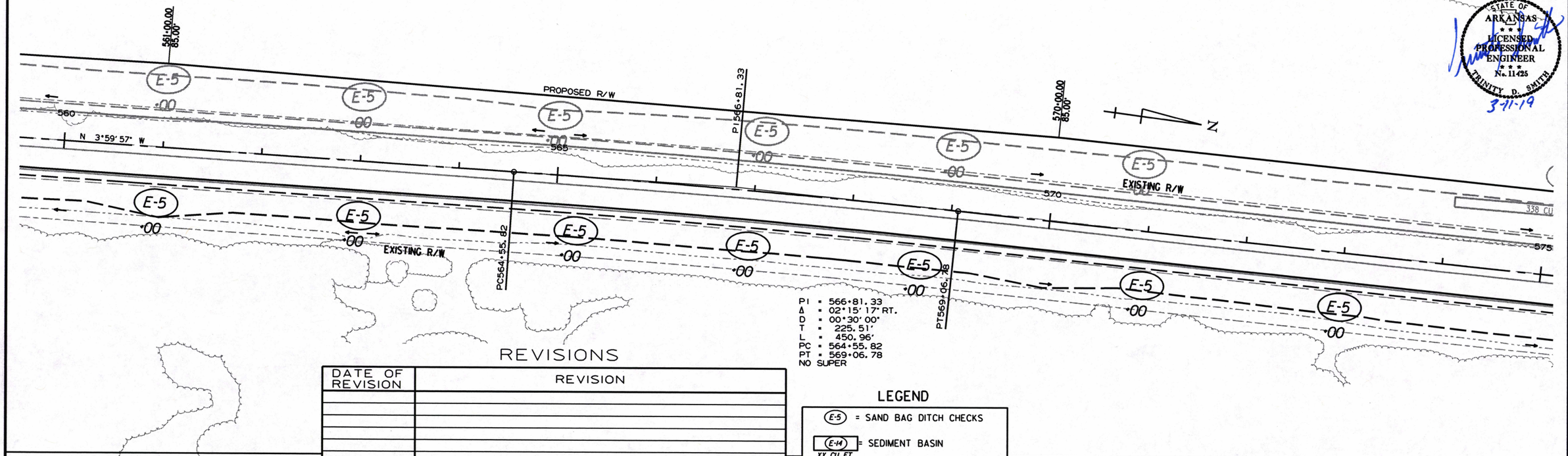
9/7/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	53	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



PI = 566+81.33
Δ = 02°15'17" RT.
D = 00°30'00"
T = 225.51'
L = 450.96'
PC = 564+55.82
PT = 569+06.78
NO SUPER

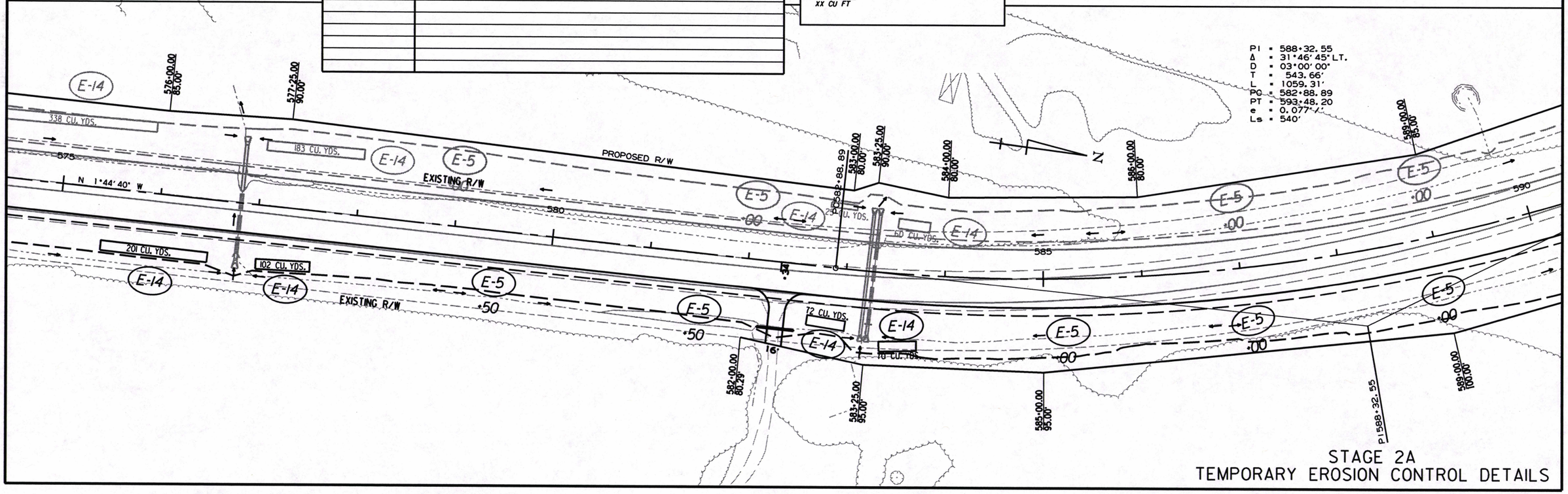
REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS

(E-14) = SEDIMENT BASIN
XX CU FT



PI = 588+32.55
Δ = 31°46'45" LT.
D = 03°00'00"
T = 543.66'
L = 1059.31'
PC = 582+88.89
PT = 593+48.20
e = 0.077'/'
Ls = 540'

STAGE 2A
TEMPORARY EROSION CONTROL DETAILS

9/7/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	54	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

PI = 588+32.55
Δ = 31°46'45" LT.
D = 03°00'00"
T = 543.66'
L = 1059.31'
PC = 582+88.89
PT = 593+48.20
e = 0.077'/'
Ls = 540'

592+00.00 95.00'
PT 593+48.20
597+00.00 105.00'
597+25.00 79.82'
605+00.00 77.93'
592+00.00 105.00'
594+57.33 115.00'
609+00.00 100.00'
610+65.39 105.00'
P.I. 611+78.04
615+00.00 90.00'
618+50.00 100.00'
620+00.00 75.00'
609+00.00 67.88'
PC 605+93.61
PT 617+27.91

PROPOSED R/W
EXISTING R/W
LOST CREEK
TRIBUTARY OF LOST CREEK
50' BUFFER
211 CU. YDS.
188 CU. YDS.
75 CU. YDS.
164 CU. YDS.
39 CU. YDS.
170 CU. YDS.
N 33°31'25" W

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-11 = SILT FENCE
- E-14 = SEDIMENT BASIN (XX CU FT)

9/7/2018

RCA0704.DGN

STAGE 2A
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	55	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS

E-14 = SEDIMENT BASIN
XX CU FT

PROPOSED R/W
EXISTING R/W
N 0°30' 19" E
N 0°39' 15" E
620-00.00 75.00'
623-00.00 75.00'
623+75.00 90.00'
624-00.00 75.00'
642+20.00 81.12'-100.00'
642+70.00 82.66'-100.00'
643+25.00 84.88'
646+19.54 BEGIN
646+50.00 141.41'
646+50.00 83.27'
648+75.00 END C OF A
648+81.00 75.37'-95.00'
649+16.00 75.00'-95.00'
649+25.00 BEGIN C OF A
638+60.35 BEGIN EXIST. C OF A
END EXIST. C OF A
BEGIN EXIST. C OF A
PC640+90.87
END EXIST. C OF A
BEGIN EXIST. C OF A
P.I. 631+17.42 Δ=0°8' 55.7" RT.
53 CU. YDS.
269 CU. YDS.
40 CU. YDS.
258 CU. YDS.
45 CU. YDS.
132 CU. YDS.
81 CU. YDS.
144 CU. YDS.

PI = 652+84.32
Δ = 23°31' 57" RT.
D = 01°00' 00"
T = 1193.45'
L = 2353.25'
PC = 640+90.87
PT = 654+44.12
e = 0.030'/'
Ls = 540'

STAGE 2A
TEMPORARY EROSION CONTROL DETAILS

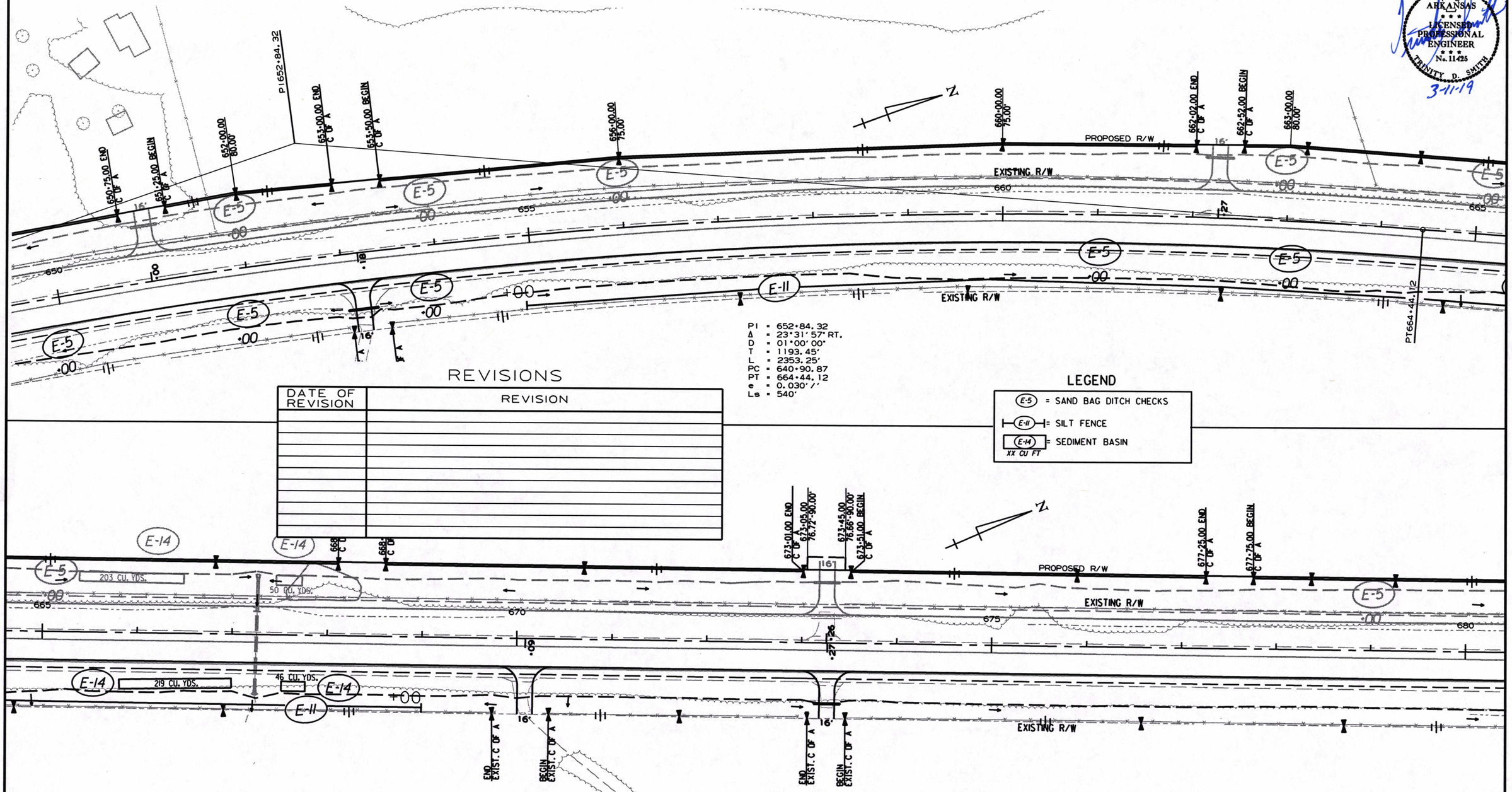
9/7/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	56	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



REVISIONS

DATE OF REVISION	REVISION

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	57	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS

E-14 XX CU FT = SEDIMENT BASIN

9/7/2018

RCA0704.DGN

STAGE 2A
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	58	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
3-11-19
TRINITY D. SMITH

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS

(E-14) = SEDIMENT BASIN
XX CU FT

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'

9/7/2018

RCA0704.DGN

STAGE 2A
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0704	59	299

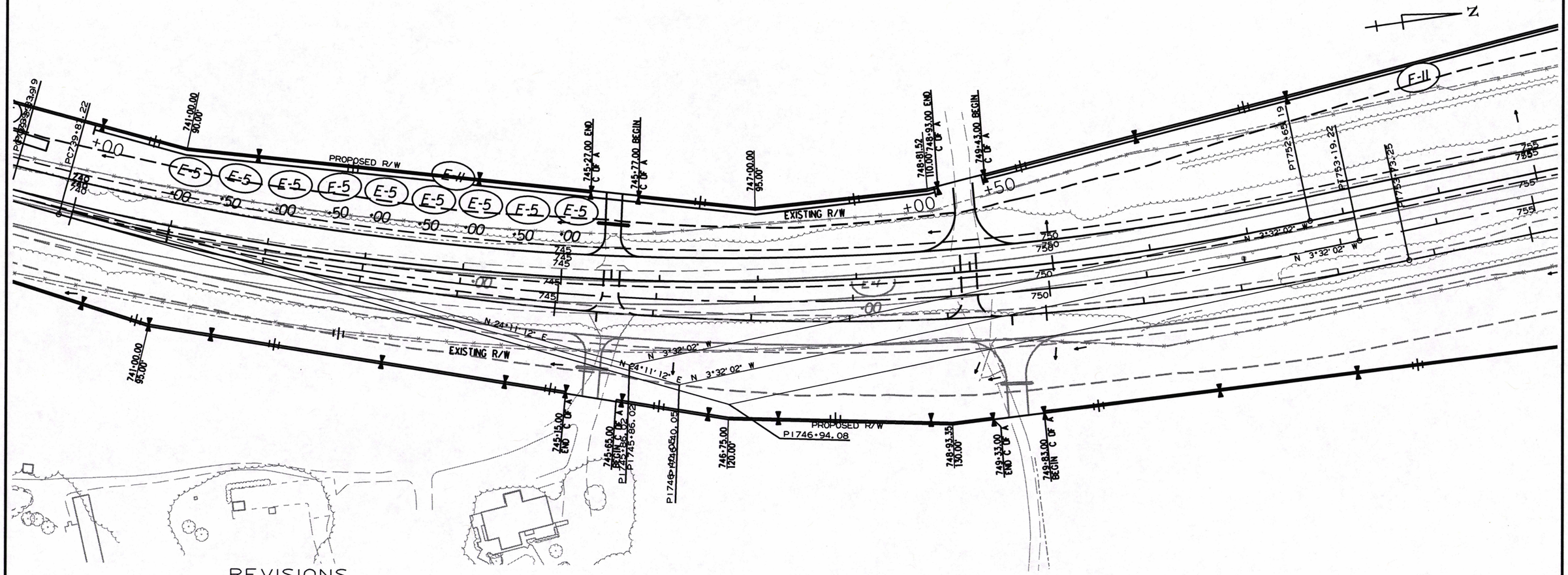
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS
E-11 = SILT FENCE
E-14 = SEDIMENT BASIN
XX CU FT

STAGE 2A
TEMPORARY EROSION CONTROL DETAILS

9/7/2018
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0704	60	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 864+76.66
Δ = 13°14'03" LT.
D = 5°30'00"
T = 120.85'
L = 240.62'
PC = 863+55.81
PT = 865+96.43

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 867+33.28
Δ = 13°57'00" RT.
D = 5°30'00"
T = 127.45'
L = 253.64'
PC = 866+05.83
PT = 868+59.47

NORTHBOUND C.L.
PI = 766+76.82
Δ = 31°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

REVISIONS

DATE OF REVISION	REVISION

LEGEND
- (E-5) = SAND BAG DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

STAGE 2A
TEMPORARY EROSION CONTROL DETAILS

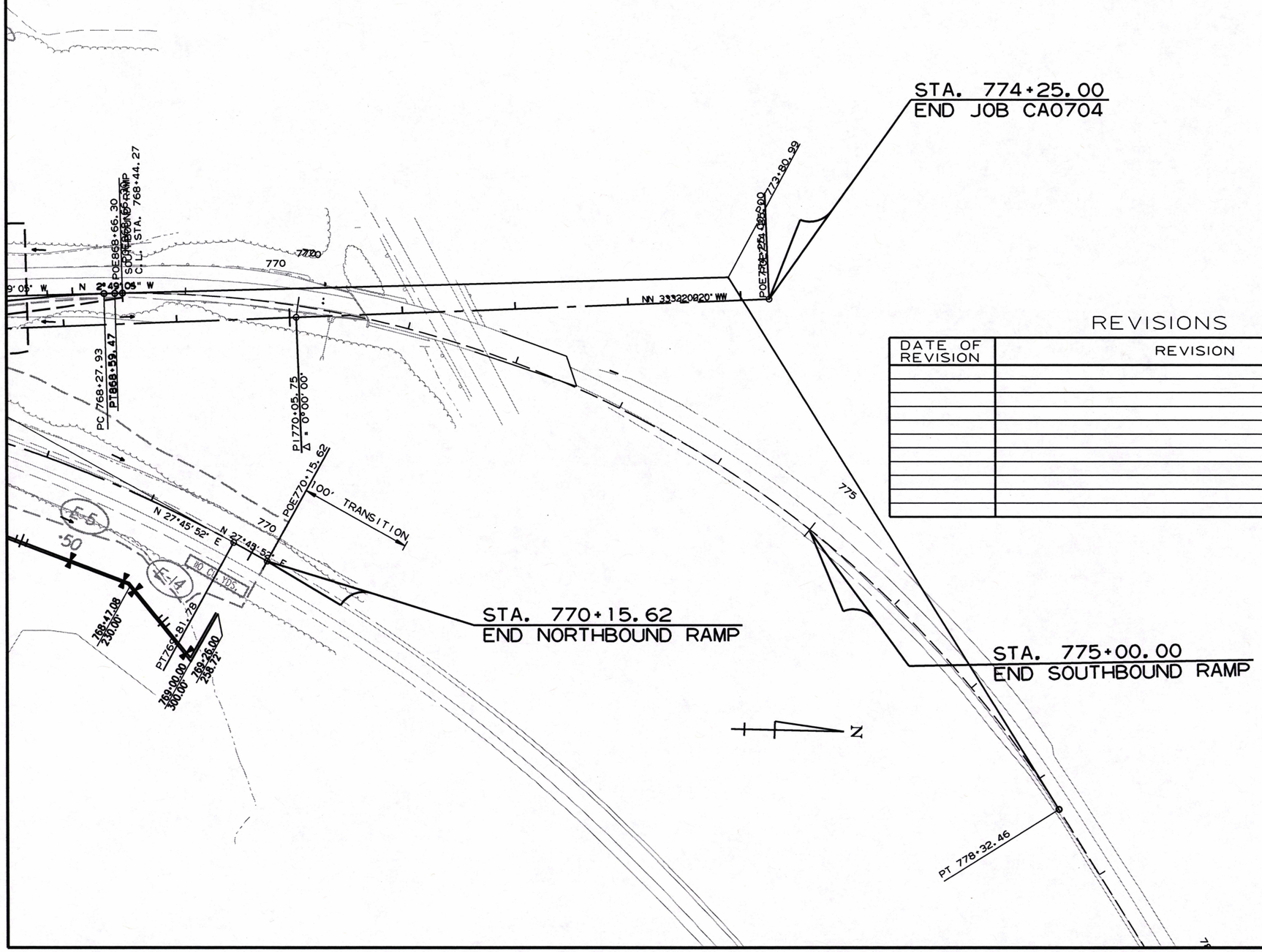
9/7/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	61	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS

(E-11) = SILT FENCE

9/7/2018

RCA0704.DGN

STAGE 2A
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	62	299

(2) TEMPORARY EROSION CONTROL DETAILS

QUANTITIES:
STAGE 2B
SAND BAG DITCH CHECKS E-5 = 44 BAGS (2 LOCATIONS)

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 864+76.66
Δ = 13°14'03" LT.
D = 5°30'00"
T = 120.85'
L = 240.62'
PC = 863+55.81
PT = 865+96.43

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 867+33.28
Δ = 13°57'00" RT.
D = 5°30'00"
T = 127.45'
L = 253.64'
PC = 866+05.83
PT = 868+59.47

NORTHBOUND C.L.
PI = 766+76.82
Δ = 31°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS

9/7/2018

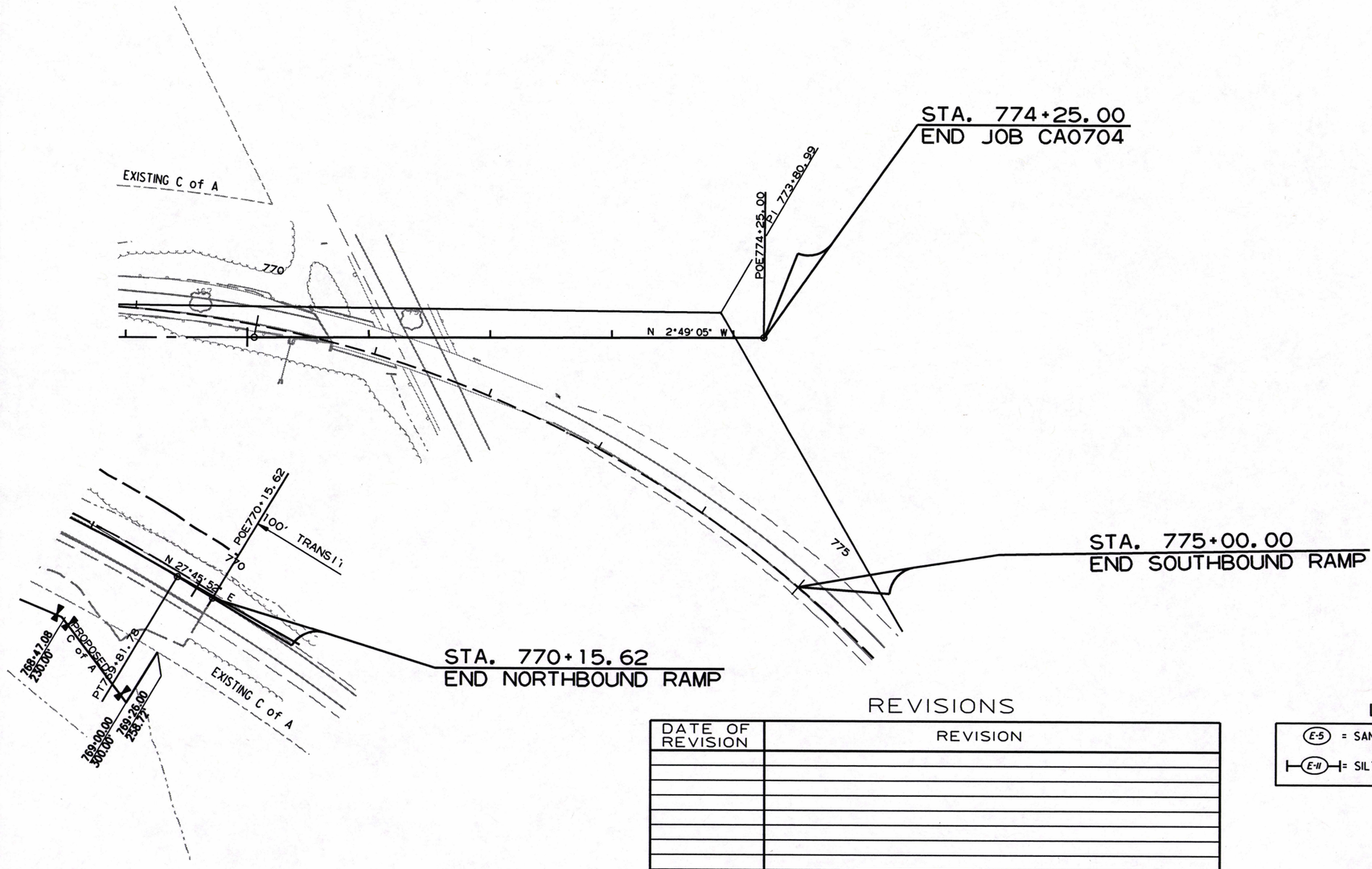
RCA0704.DGN

STAGE 2B
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	63	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS

(E-11) = SILT FENCE

9/7/2018

RCA0704.DGN

STAGE 2B
TEMPORARY EROSION CONTROL DETAILS

QUANTITIES:
STAGE 3A
SAND BAG DITCH CHECKS E-5 = 44 BAGS (2 LOCATIONS)
DROP INLET SILT FENCE E-7 = 50 LIN. FT. (2 LOCATIONS)
SILT FENCE E-11 = 480 LIN. FT.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	64	299

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

STA. 774+25.00
END JOB CA0704

STA. 775+00.00
END SOUTHBOUND RAMP

STA. 770+15.62
END NORTHBOUND RAMP

EXISTING C of A

POE 774+25.00
PI 773+80.99
N 3°32'02" W
775
PT 778+32.46
POE 784+91.30
MATCH LINE

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 867+33.28
Δ = 13°57'00" RT.
D = 5°30'00"
T = 127.45'
L = 253.64'
PC = 866+05.83
PT = 868+59.47

E-11 100
E-5 50
POE 768+44.28
E-5 50
PC 768+27.98
E-5 100
E-5 100
E-5 100
768+29.59
770
N 27°45'52" E
POE 770+15.62
PI 769+81.78
768+58.00
768+47.08
768+00.00
768+10.58
768+65.53
PROPOSED C of A

NORTHBOUND C.L.
PI = 766+76.82
Δ = 31°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

STAGE 3A
TEMPORARY EROSION CONTROL DETAILS

9/7/2018
RCA0704.DGN

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				6	ARK.			
				JOB NO.		CA0704	65	299

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCING:

STAGE IA:
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
UTILIZE VERTICAL PANELS AT THE NOTCH AT 60' O.C. SPACING.
CONSTRUCT RIGHT SIDE OF R.C. BOX CULVERT AT STA. 596+61.00.
NOTCH AND WIDEN RIGHT OF EXISTING ROADWAY BETWEEN STA. 578+83.89 - STA. 600+96.10.
PLACE CONSTRUCTION PAVEMENT MARKINGS ON FIRST LIFT OF SURFACE.

STAGE IB:
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
PERFORM LEVELING OPERATIONS WHERE APPLICABLE.
SHIFT TRAFFIC RIGHT ONTO DETOUR BETWEEN STA. 590+75.00 - STA. 600+96.10.
UTILIZE TRAFFIC DRUMS AT 120' O.C. SPACING AT EXISTING LANE EDGE ON LEFT.
UTILIZE VERTICAL PANELS AT THE NOTCH AT 60' O.C. SPACING.
NOTCH AND WIDEN LEFT OF EXISTING ROADWAY, CONSTRUCT DRIVES, AND STRUCTURES BETWEEN STA. 475+00.00 - STA. 736+16.64.
CONSTRUCT LEFT SIDE OF R.C. BOX CULVERT AT STA. 596+61.00.
PLACE CONSTRUCTION PAVEMENT MARKINGS ON FIRST LIFT OF SURFACE.

STAGE IC:
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
UTILIZE VERTICAL PANELS AT THE NOTCH AT 60' O.C. SPACING.
NOTCH AND WIDEN RIGHT OF EXISTING ROADWAY, CONSTRUCT DRIVES, AND STRUCTURES BETWEEN STA. 736+16.64 - STA. 770+15.62.
CONSTRUCT NORTHBOUND BRIDGE.
INSTALL GUARDRAIL ON NORTHBOUND RAILROAD BRIDGE.
UTILIZE TRAFFIC DRUMS AT 120' O.C. SPACING AT EXISTING LANE EDGE ON RIGHT.
PLACE CONSTRUCTION PAVEMENT MARKINGS ON FIRST LIFT OF SURFACE.

STAGE ID:
MAINTAIN TRAFFIC ON EXISTING ROADWAY AND SHIFT NORTHBOUND TRAFFIC TO NORTHBOUND RAMP BETWEEN STA. 736+16.64 TO STA. 770+15.62.
UTILIZE VERTICAL PANELS AT THE NOTCH AT 60' O.C. SPACING.
CONSTRUCT TEMPORARY CROSSOVER FOR SOUTHBOUND TRAFFIC BETWEEN STA. 759+52.32 - STA. 768+46.19.
PLACE CONSTRUCTION PAVEMENT MARKINGS ON CROSSOVER.
UTILIZE TRAFFIC DRUMS AT 120' O.C. SPACING AT EXISTING LANE EDGE ON LEFT OR RIGHT.

STAGE 2A:
MAINTAIN TRAFFIC ON EXISTING ROADWAY; SHIFT TRAFFIC BACK TO EXISTING ROADWAY BETWEEN STA. 590+75.00 - STA. 600+96.10 AND UTILIZE TEMPORARY CROSSOVER TO MAINTAIN SOUTHBOUND TRAFFIC.
UTILIZE TRAFFIC DRUMS AT 120' O.C. SPACING AT EXISTING LANE EDGE ON LEFT OR RIGHT, WHERE APPLICABLE.
UTILIZE VERTICAL PANELS AT THE NOTCH AT 60' O.C. SPACING.
NOTCH AND WIDEN RIGHT OF EXISTING ROADWAY, CONSTRUCT STRUCTURES AND DRIVES BETWEEN STA. 475+00.00 - STA. 736+16.64
NOTCH AND WIDEN LEFT OF EXISTING ROADWAY, CONSTRUCT STRUCTURES AND DRIVES BETWEEN STA. 736+16.64 - STA. 770+15.62
CONSTRUCT SOUTHBOUND BRIDGE.
INSTALL GUARDRAIL ON SOUTHBOUND RAILROAD BRIDGE.
PLACE CONSTRUCTION PAVEMENT MARKINGS ON FIRST LIFT OF SURFACE.

STAGE 2B:
MAINTAIN TRAFFIC ON EXISTING ROADWAY BETWEEN STA. 475+00.00 - STA. 736+16.64.
MAINTAIN TRAFFIC ON SOUTHBOUND CROSSOVER BETWEEN STA. 759+52.32 AND 768+46.19.
UTILIZE VERTICAL PANELS AT THE NOTCH AT 60' O.C. SPACING AT LANE EDGE ON LEFT OR RIGHT, WHERE APPLICABLE.
UTILIZE TRAFFIC DRUMS AT 120' O.C. SPACING AT EXISTING LANE EDGE ON LEFT OR RIGHT, WHERE APPLICABLE.
NOTCH AND WIDEN RIGHT OF SOUTHBOUND RAMP BETWEEN STA. 759+46.00 - STA. 762+90.89.
NOTCH AND WIDEN LEFT OF NORTHBOUND RAMP BETWEEN STA. 763+55.81 - STA. 770+15.62.
SHIFT TRAFFIC TO EXISTING ROADWAY AND OBLITERATE SOUTHBOUND CROSSOVER.
OBLITERATE EXISTING PAVEMENT, AS SHOWN ON PLANS.
NOTCH AND WIDEN RIGHT OF EXISTING SOUTHBOUND RAMP BETWEEN STA. 762+90.89 TO STA. 768+53.02.
NOTCH AND WIDEN LEFT OF NORTHBOUND RAMP BETWEEN STA. 759+52.32 - STA. 764+43.84.
PLACE CONSTRUCTION PAVEMENT MARKINGS ON FIRST LIFT OF SURFACE

STAGE 3A:
MAINTAIN TRAFFIC ON EXISTING ROADWAY AND NORTHBOUND RAMP.
CLOSE HWY. 79 SOUTHBOUND RAMP AND DETOUR SOUTHBOUND TRAFFIC TO HWY. 79B THRU THORNTON.
CONSTRUCT APPROACH SLABS & GUTTERS, DROP INLETS, CONCRETE DITCH PAVING, RETROFIT GUARDRAIL, AND APPLY POLYESTER POLYMER TO BRIDGE DECK, AS SHOWN ON BRIDGE PLANS.

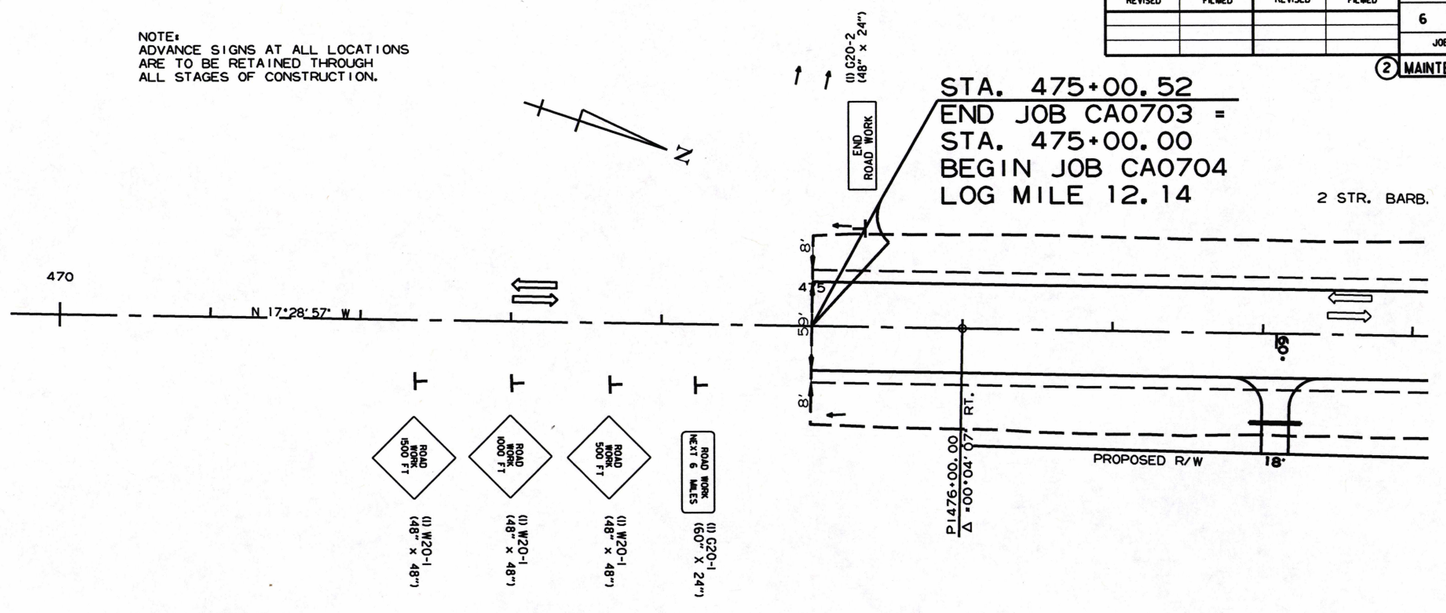
STAGE 3B:
INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.
REOPEN SOUTHBOUND RAMP AND SHIFT TRAFFIC ONTO FINAL TRAFFIC PATTERN.

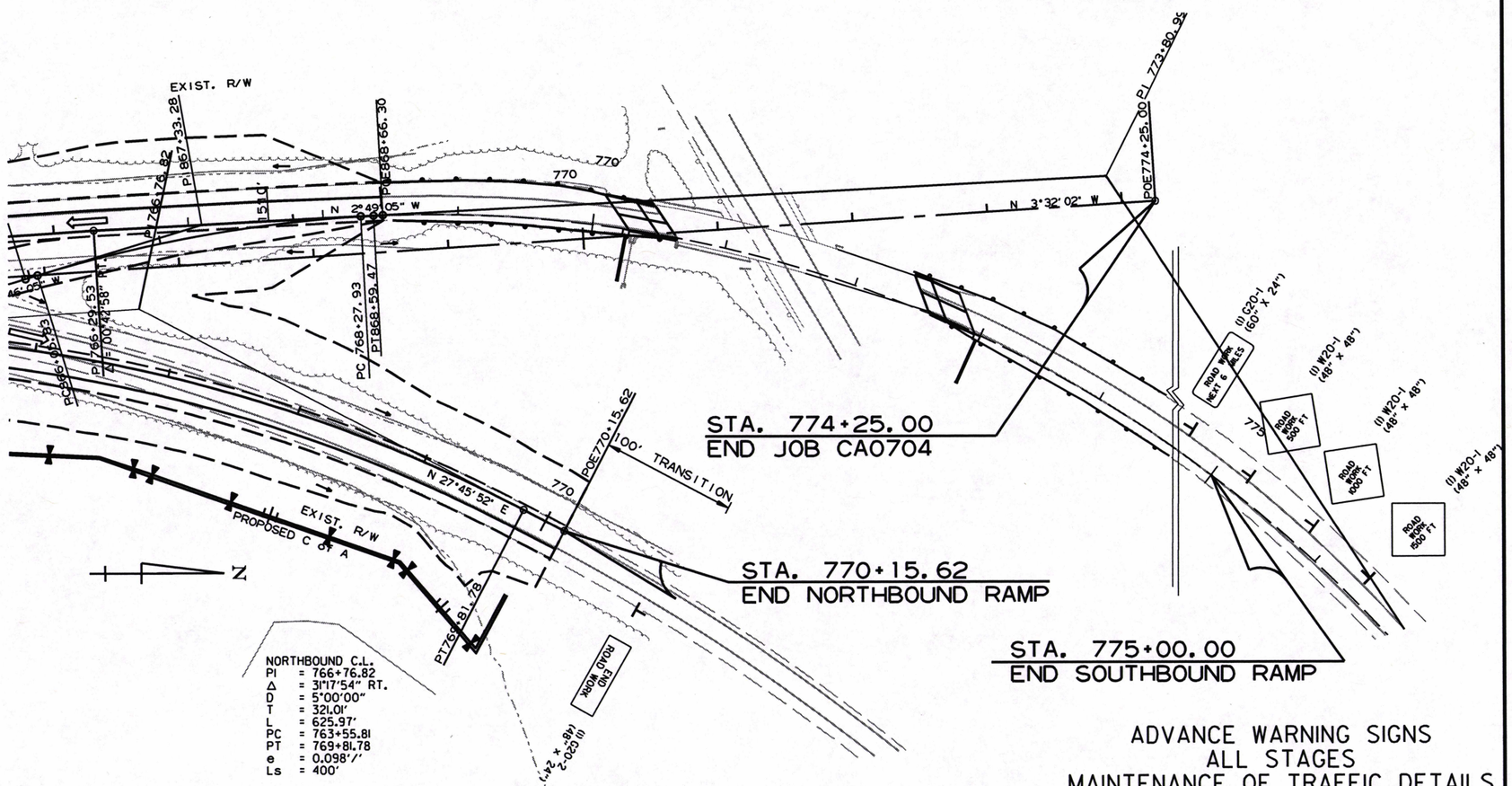
RIGHT SHOULDER CLOSED — (26) W21-5a (36" X 36")
IF AND WHERE DIRECTED BY THE ENGINEER. RETAIN THROUGH ALL STAGES.

DO NOT PASS — (26) R4-1 (24" X 30")
AT SAME LOCATIONS AS G20-1 AND AT HALF- MILE INTERVALS THROUGH LENGTH OF JOB. RETAIN THROUGH ALL STAGES.

(1) W20-1 (48" X 48") ROAD WORK AHEAD — ⊤ — ⊥ — END ROAD WORK (1) G20-2 (48" X 24")
LOCATIONS FOR STATE HIGHWAYS AND COUNTY ROADS. RETAIN THROUGH ALL STAGES.

NOTE:
ADVANCE SIGNS AT ALL LOCATIONS ARE TO BE RETAINED THROUGH ALL STAGES OF CONSTRUCTION.





ADVANCE WARNING SIGNS
ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

9/10/2018

RCA0704.DGN

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				6	ARK.			
				JOB NO.		CA0704	66	299

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

QUANTITIES:
STAGE 1A

VERTICAL PANELS @ 60' O.C. = 20 EACH

CONSTRUCTION PAVEMENT MARKINGS
STA. 590+75.00 TO STA. STA. 600+75.00
6" DBL. YELLOW = 1005 LIN. FT.
6" WHITE = 2010 LIN. FT.

RAISED PAVEMENT MARKINGS (TYPE II) (80' O.C.)
YELLOW/YELLOW = 13 EACH

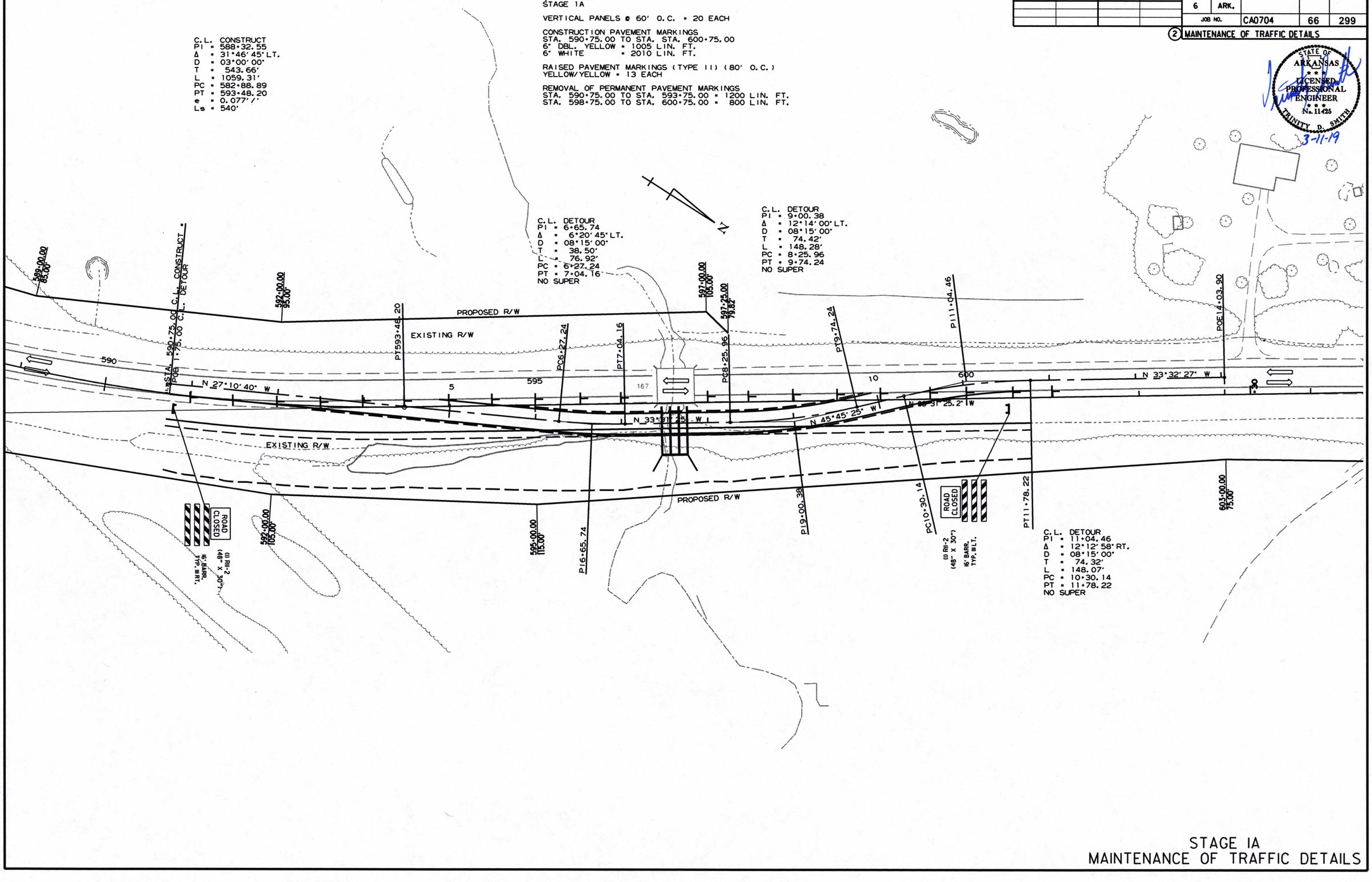
REMOVAL OF PERMANENT PAVEMENT MARKINGS
STA. 590+75.00 TO STA. 593+75.00 = 1200 LIN. FT.
STA. 598+75.00 TO STA. 600+75.00 = 800 LIN. FT.

C.L. CONSTRUCT
PI = 588+32.55
Δ = 31°46'45" LT.
D = 03°00'00"
T = 543.66'
L = 1059.31'
PC = 582+88.89
PT = 593+48.20
e = 0.077'/'
Ls = 540'

C.L. DETOUR
PI = 6+65.74
Δ = 6°20'45" LT.
D = 08°15'00"
T = 38.50'
L = 76.92'
PC = 6+27.24
PT = 7+04.16
NO SUPER

C.L. DETOUR
PI = 9+00.38
Δ = 12°14'00" LT.
D = 08°15'00"
T = 74.42'
L = 148.28'
PC = 8+25.96
PT = 9+74.24
NO SUPER

C.L. DETOUR
PI = 11+04.46
Δ = 12°12'58" RT.
D = 08°15'00"
T = 74.32'
L = 148.07'
PC = 10+30.14
PT = 11+78.22
NO SUPER



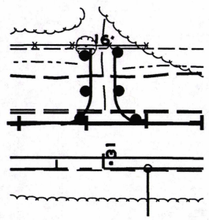
STAGE 1A
MAINTENANCE OF TRAFFIC DETAILS

RCA0704.DGN 9/10/2018

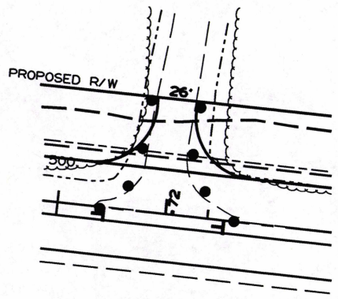
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	67	299

(2) MAINTENANCE OF TRAFFIC DETAILS

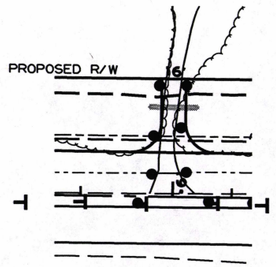
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



6 TRAFFIC DRUMS 10' O.C.
@ 4 LOCATIONS LT.
STA. 483+31 STA. 602+30
STA. 606+05 STA. 645+



8 TRAFFIC DRUMS 20' O.C.
@ 5 LOCATIONS LT.
STA. 500+72 STA. 536+24
STA. 619+03 STA. 687+40
STA. 692+80

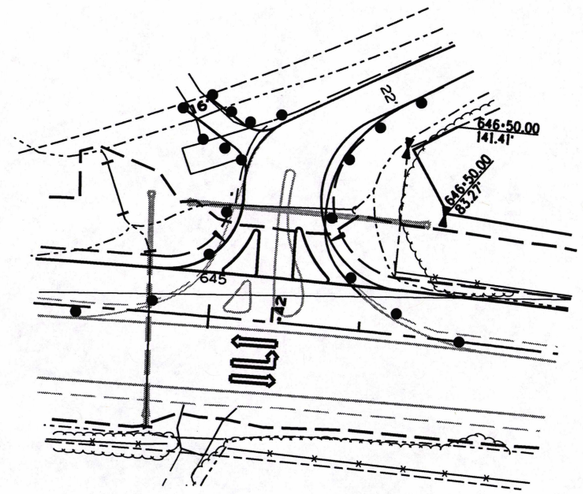


8 TRAFFIC DRUMS 10' O.C.
@ 12 LOCATIONS LT.
STA. 638+61 STA. 639+44
STA. 642+44 STA. 651+00
STA. 662+27 STA. 673+26
STA. 682+09 STA. 698+28
STA. 708+20 STA. 715+86
STA. 725+18 STA. 727+17

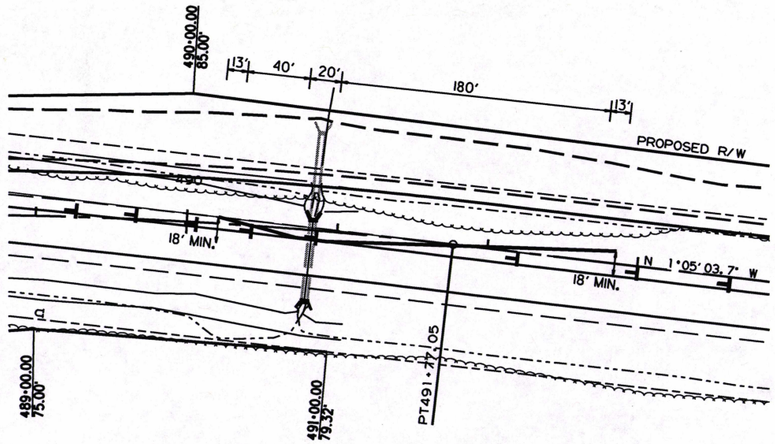
8 TRAFFIC DRUMS 10' O.C.
@ 3 LOCATIONS RT.
STA. 745+43 STA. 749+65
STA. 764+30

DRIVEWAY TRAFFIC DRUM DETAIL

NOTE: AT CLUSTERS OF TURNOUTS, TRAFFIC DRUMS MAY BE OMITTED BETWEEN TURNOUTS.

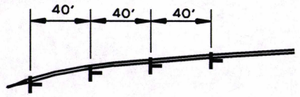


13 TRAFFIC DRUMS 20' O.C.
@ 1 LOCATIONS LT.
STA. 645+42

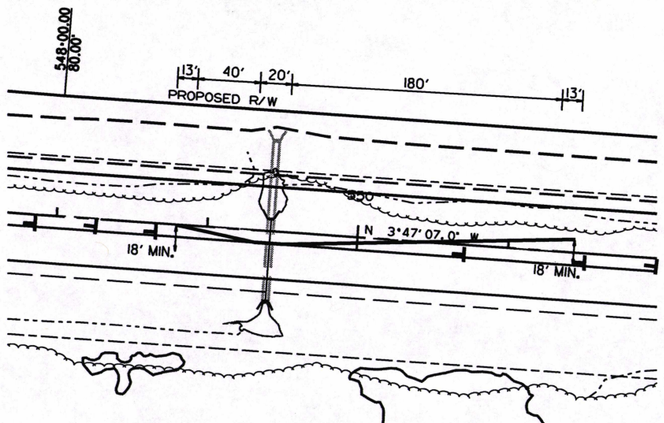


FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER
LT. OF EXISTING TRAFFIC = 286 LIN.FT.
INCLUDES (2) SPECIAL END UNITS

OM-3R = 4 EACH
OM-3L = 4 EACH

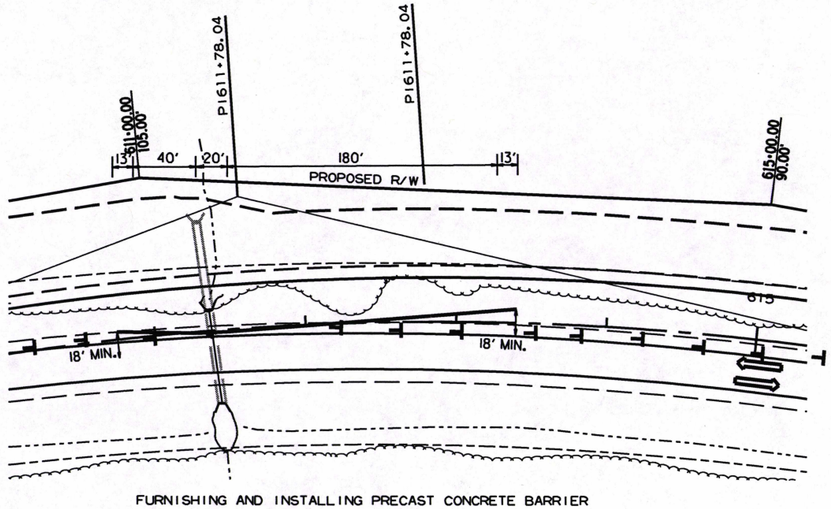


DETAIL OF OM-3 AT
ALL PCCB INSTALLATIONS
OM-3 RT ON ENTRANCE
OM-3 LT ON EXIT



FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER
LT. OF EXISTING TRAFFIC = 286 LIN.FT.
INCLUDES (2) SPECIAL END UNITS

OM-3R = 4 EACH
OM-3L = 4 EACH



FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER
LT. OF EXISTING TRAFFIC = 286 LIN.FT.
INCLUDES (2) SPECIAL END UNITS

OM-3R = 4 EACH
OM-3L = 4 EACH

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER DETAIL

STAGE IB
MAINTENANCE OF TRAFFIC DETAILS

9/10/2018

RCA0704.DGN

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				6	ARK.			
				JOB NO.		CA0704	68	299

(2) MAINTENANCE OF TRAFFIC DETAILS

QUANTITIES:
STAGE 1B, 1C & 1D

VERTICAL PANELS @ 60' O.C. = 176 EACH
TRAFFIC DRUMS @ 10' O.C. = 144 EACH
TRAFFIC DRUMS @ 20' O.C. = 53 EACH
TRAFFIC DRUMS @ 60' O.C. = 6 EACH

CONSTRUCTION PAVEMENT MARKINGS
STA. 475+00.00 TO STA. 590+75.00; STA. 600+75.00 TO STA. 757+20.00
STA. 759+05.00 TO STA. 762+69.00; STA. 762+69.00 TO STA. 768+44.28
STA. 768+44.28 TO STA. 770+49.09; STA. 772+72.86 TO STA. 774+25.00
STA. 762+69.00 TO STA. 770+15.62; STA. 863+00.00 TO STA. 868+66.30
6" DBL. YELLOW = 59578.58 LIN. FT.
6" WHITE = 60711.18 LIN. FT.

REMOVABLE CONSTRUCTION PAVEMENT MARKINGS
STA. 757+08.92 TO STA. 759+61.08
6" DBL. YELLOW = 504 LIN. FT.
6" WHITE = 504 LIN. FT.

RAISED PAVEMENT MARKINGS (TYPE II) (80' O.C.)
YELLOW/YELLOW = 372 EACH

FURNISHING AND INSTALLING PRECAST
CONCRETE BARRIER = 1430 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-1-19

STA. 475+00.52
END JOB CA0703 =
STA. 475+00.00
BEGIN JOB CA0704
LOG MILE 12.14

(1) G20-2 (48" x 24")
END ROAD WORK

EXISTING R/W

2 STR. BARB.

VERTICAL PANELS @ 60' O.C.

485+00.00
77.12' RT.

16'

8'

470

480

485

N 17°28'56.9" W

N 17°24'49.7" W

EXISTING R/W

PROPOSED R/W

ROAD WORK 1500 FT.
(1) W20-1 (48" x 48")

ROAD WORK 1000 FT.
(1) W20-1 (48" x 48")

ROAD WORK 500 FT.
(1) W20-1 (48" x 48")

475+99.48
78.00' RT.
PI 1476+00.00
Δ=0°4'7.2" RT.

483+40.00
85.00' RT.
PC 483+60.58

PI = 487+71.60
Δ = 16°19'46" RT.
D = 02°00'00"
T = 411.02'
L = 816.47'
PC = 483+60.58
PT = 491+77.05
e = 0.055'/'
Ls = 540'

9/10/2018

RCA0704.DGN

STAGE IB
MAINTENANCE OF TRAFFIC DETAILS

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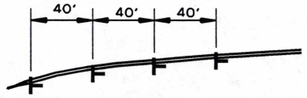
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



DETAIL OF OM-3 AT
ALL PCCB INSTALLATIONS
OM-3 RT ON ENTRANCE
OM-3 LT ON EXIT

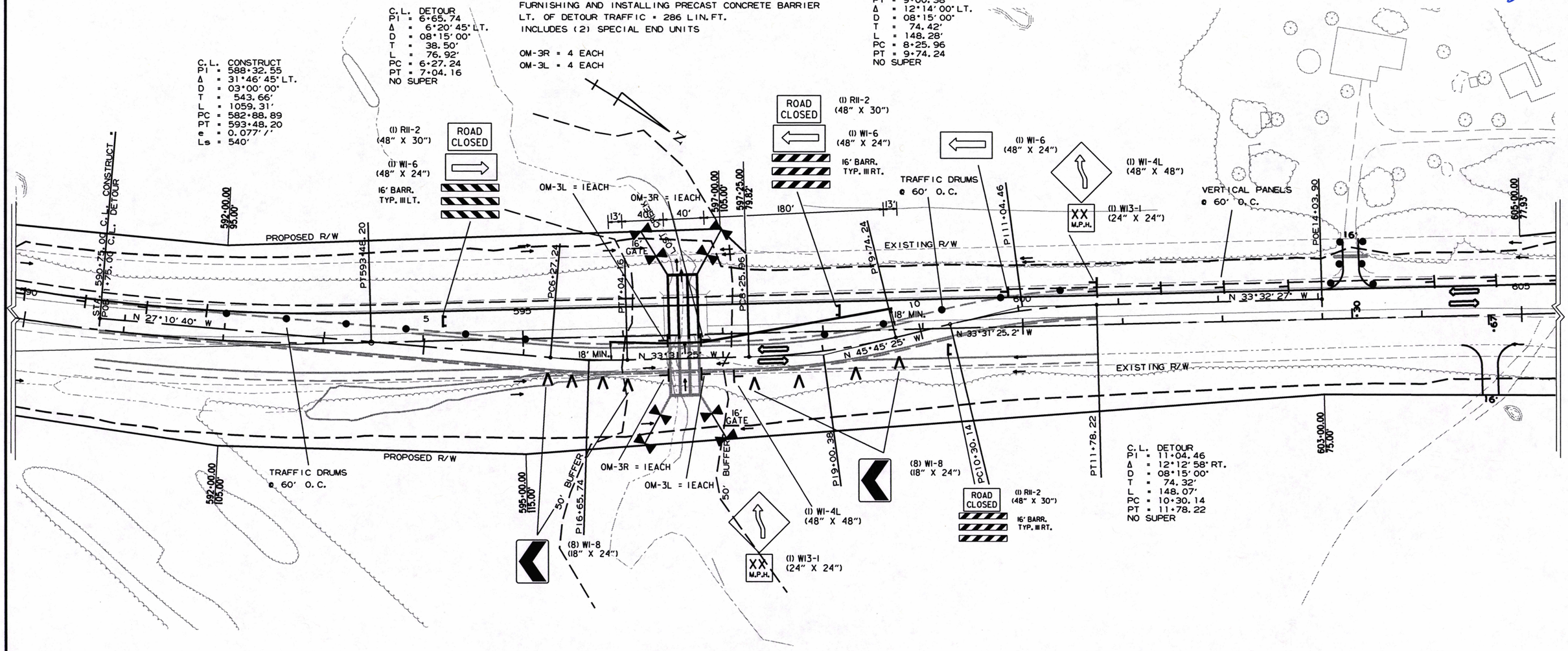
FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER
LT. OF DETOUR TRAFFIC = 286 LIN. FT.
INCLUDES (2) SPECIAL END UNITS

OM-3R = 4 EACH
OM-3L = 4 EACH

C.L. CONSTRUCT
PI = 588+32.55
Δ = 31°46'45" LT.
D = 03°00'00"
T = 543.66'
L = 1059.31'
PC = 582+88.89
PT = 593+48.20
e = 0.077'/'
Ls = 540'

C.L. DETOUR
PI = 6+65.74
Δ = 6°20'45" LT.
D = 08°15'00"
T = 38.50'
L = 76.92'
PC = 6+27.24
PT = 7+04.16
NO SUPER

C.L. DETOUR
PI = 9+00.38
Δ = 12°14'00" LT.
D = 08°15'00"
T = 74.42'
L = 148.28'
PC = 8+25.96
PT = 9+74.24
NO SUPER



STAGE IB
MAINTENANCE OF TRAFFIC DETAILS

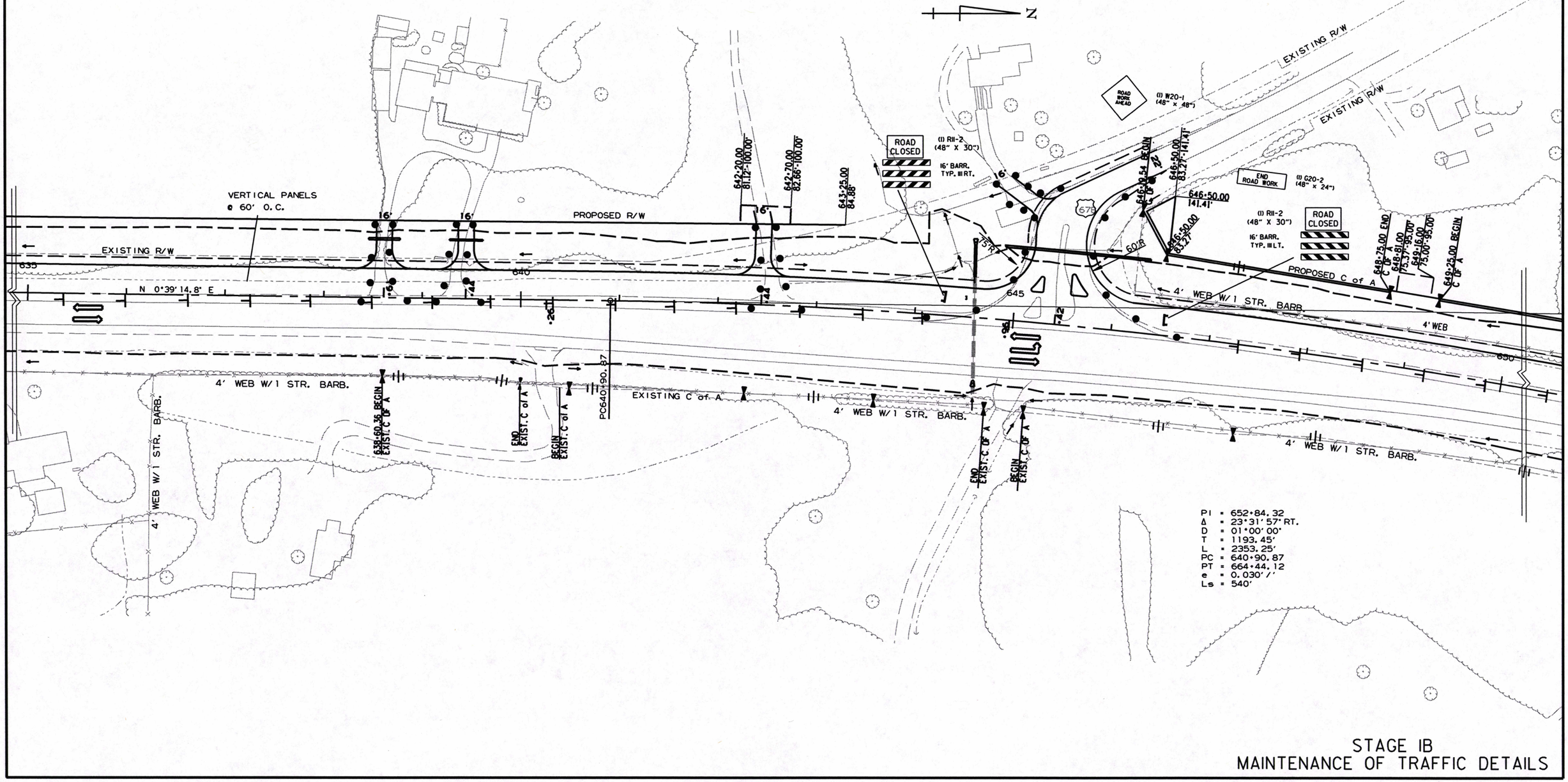
9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	70	299

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



STAGE IB
MAINTENANCE OF TRAFFIC DETAILS

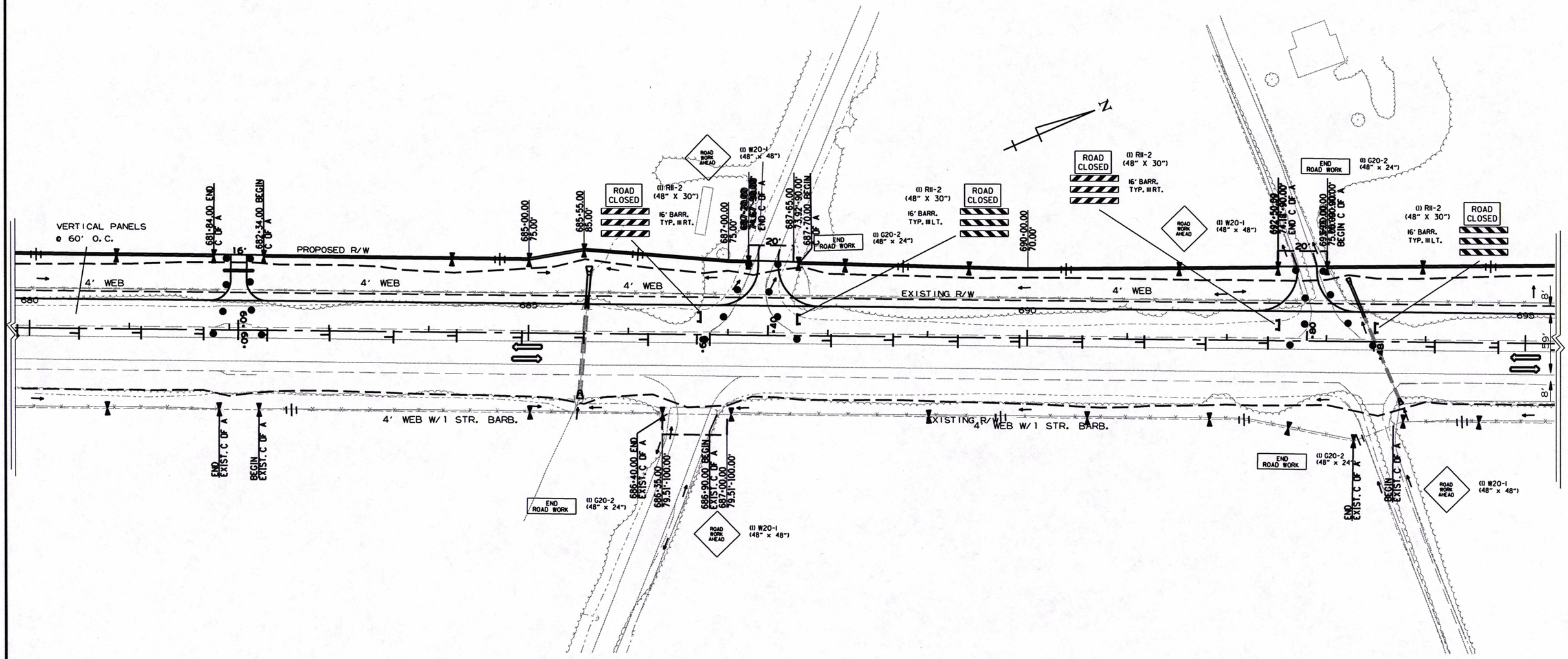
9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	71	299

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-1-19



STAGE IB
MAINTENANCE OF TRAFFIC DETAILS

9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	72	299

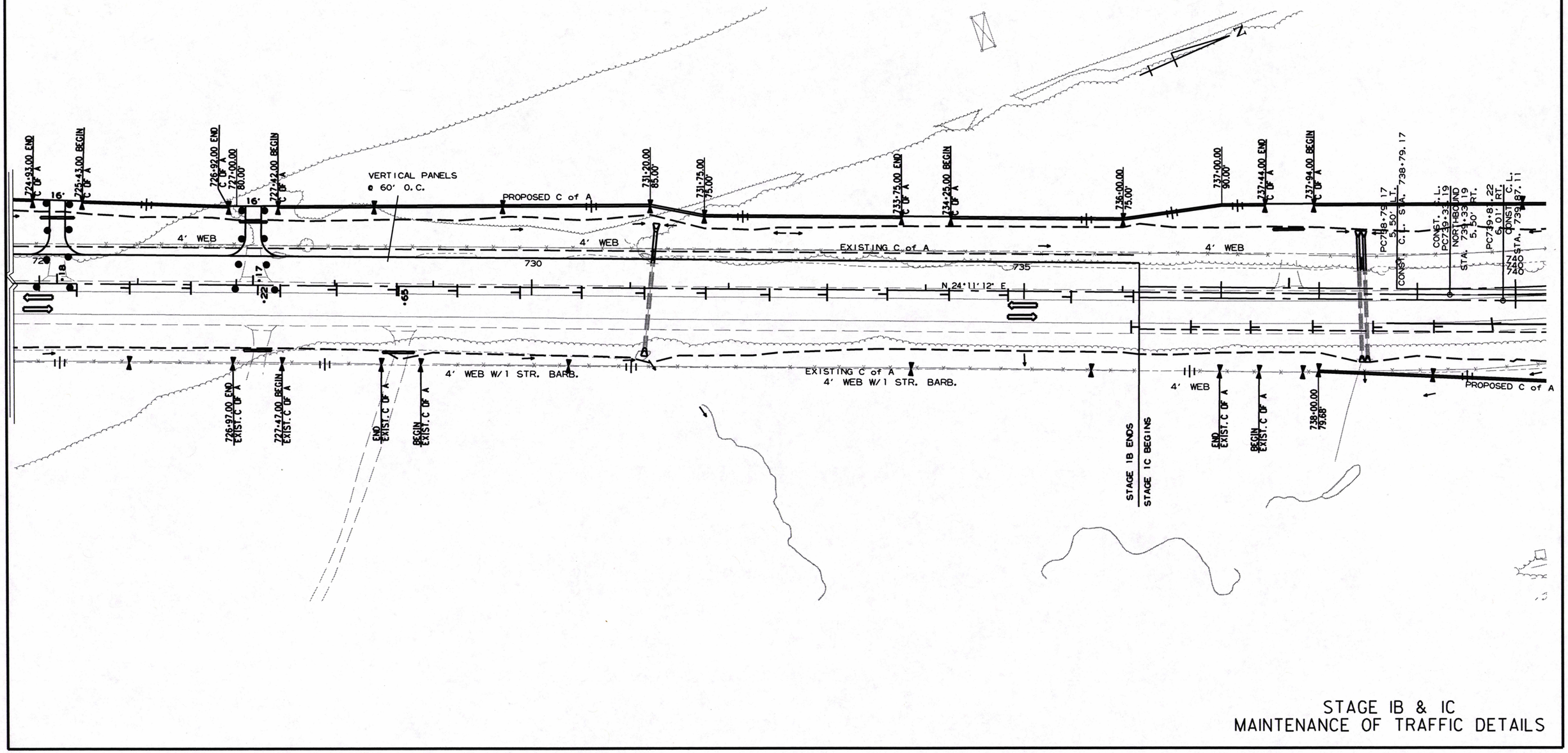
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'



STAGE IB & IC
MAINTENANCE OF TRAFFIC DETAILS

9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	73	299

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED
PROFESSIONAL
ENGINEER
No. 11425
TRINITY D. SMITH

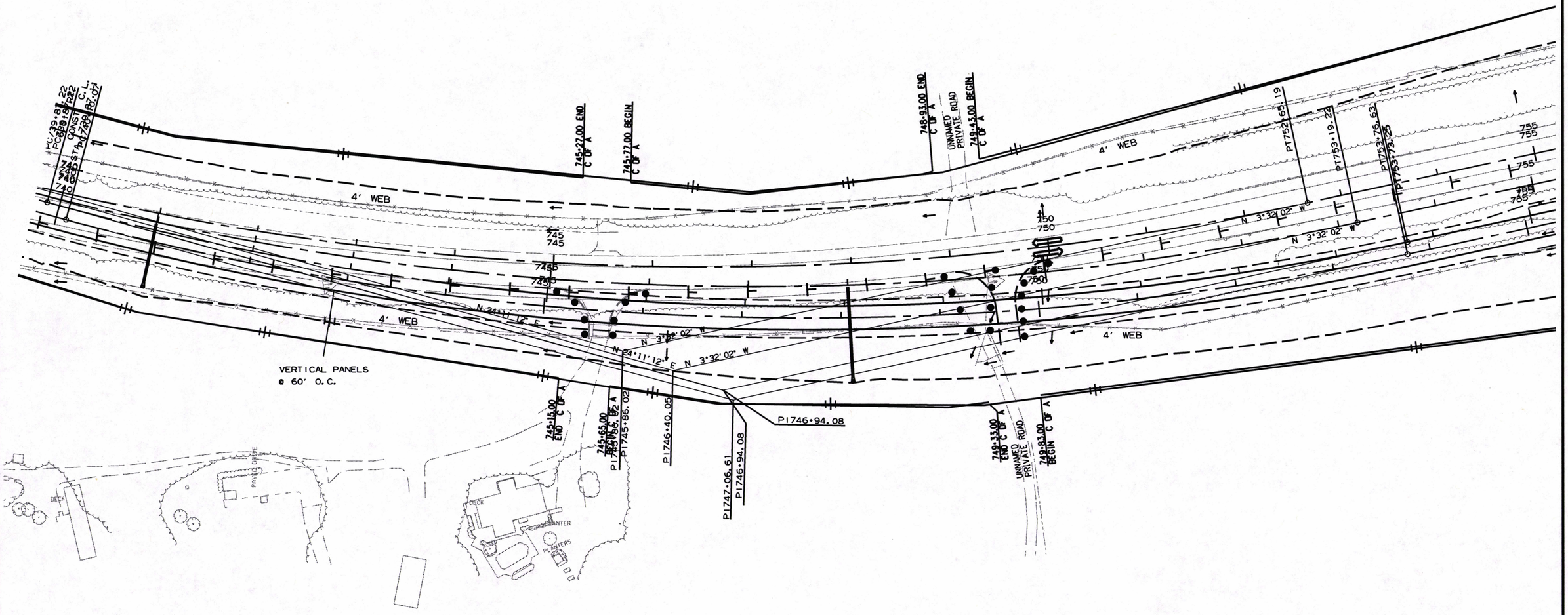
3-1-19

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'

N



STAGE IC
MAINTENANCE OF TRAFFIC DETAILS

9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	74	299

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

N

PROPOSED C of A

EXISTING C of A

752+20.26 BEGIN C OF A
180.00'
757+68.43 END C OF A
131.75'
757+28.43
77.00'
87.00'

758+73.51
77.00'
758+73.16
87.00'

758+66.94
173.41'

761+90.00
155.00'

763+00.00
129.28'

T.C.E.
P.C.E.

P.C.E.
T.C.E.

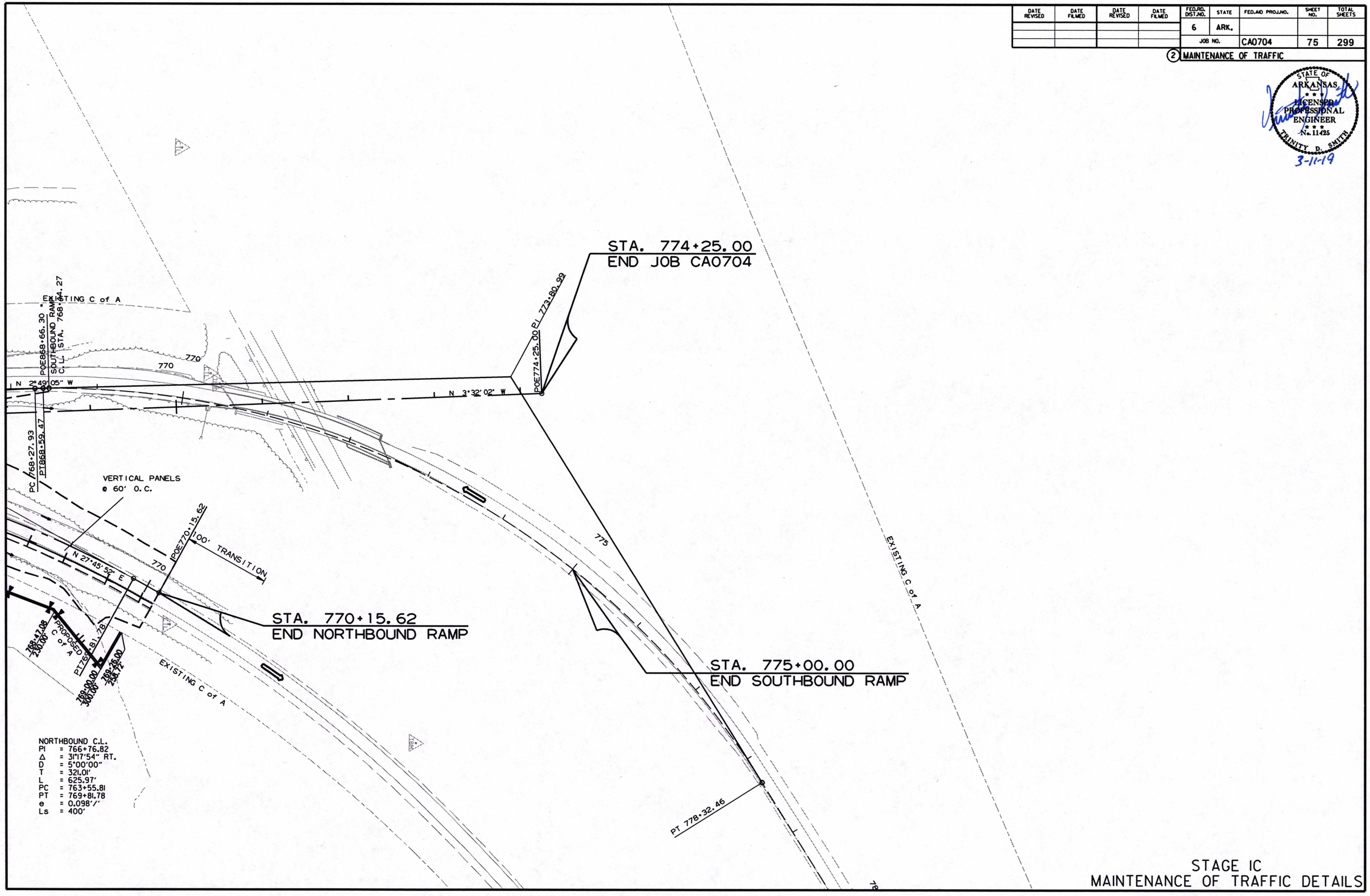
P.C.E.
T.C.E.

P.C.E.
T

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	75	299

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



STAGE IC
MAINTENANCE OF TRAFFIC DETAILS

9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	76	299

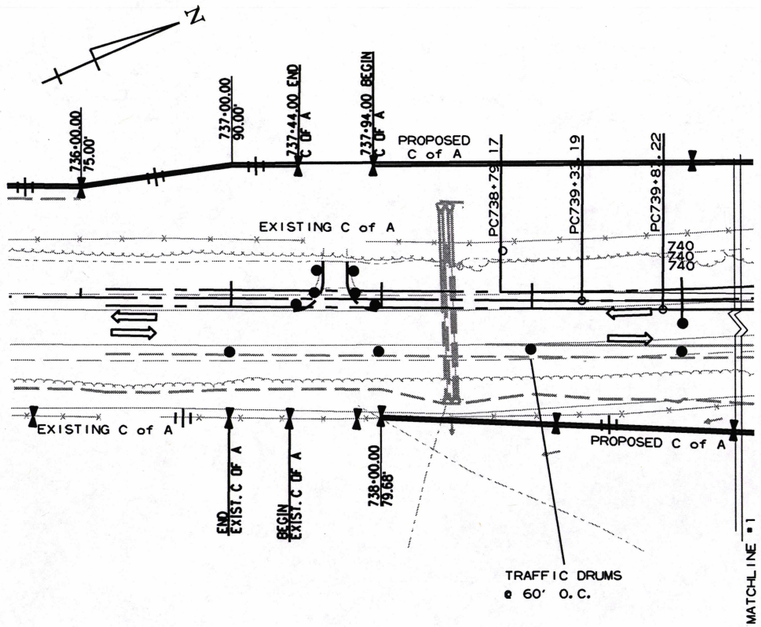
(2) MAINTENANCE OF TRAFFIC DETAILS

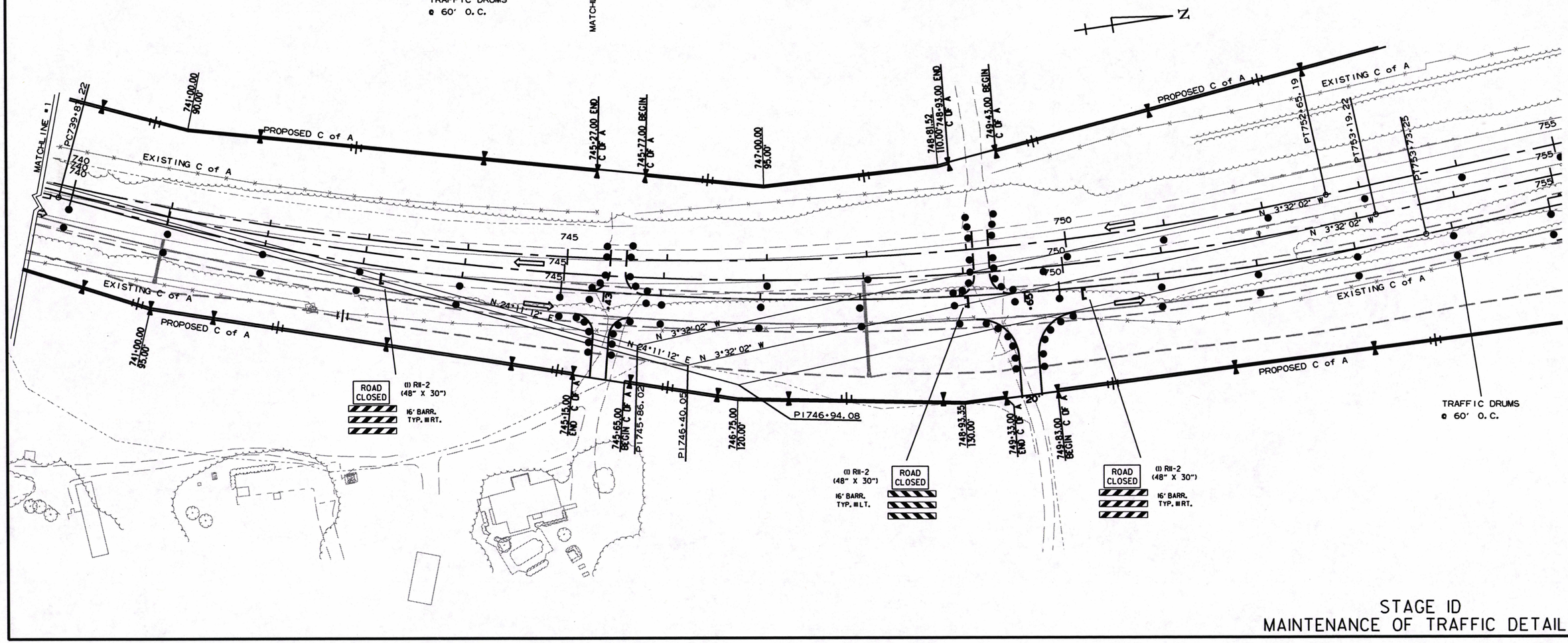
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'





9/10/2018

RCA0704.DGN

STAGE ID
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	77	299

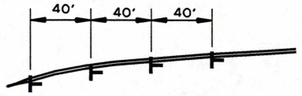
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
e = 0.048'/'
Ls = 300'

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'

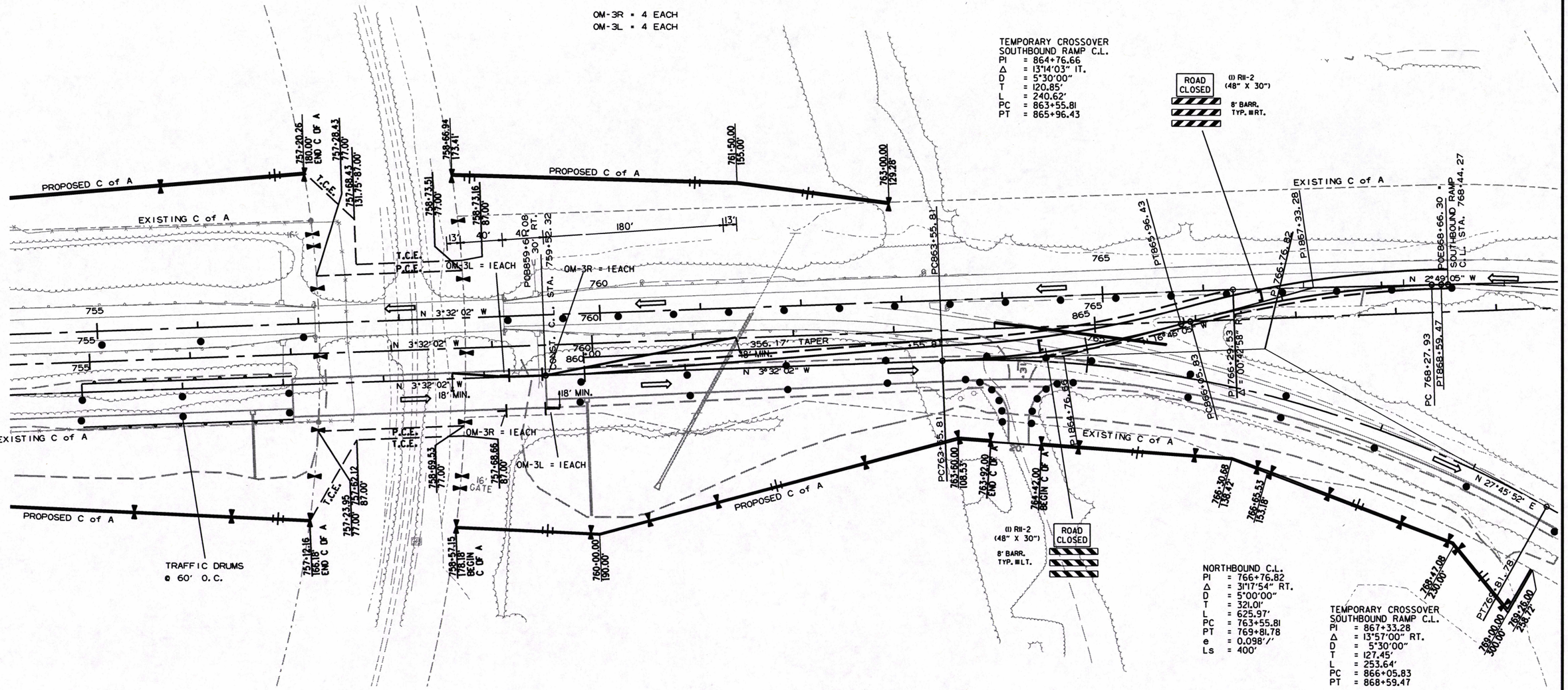


DETAIL OF OM-3 AT
ALL PCCB INSTALLATIONS
OM-3 RT ON ENTRANCE
OM-3 LT ON EXIT

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER
LT. OF DETOUR TRAFFIC = 286 LIN. FT.
INCLUDES (2) SPECIAL END UNITS

OM-3R = 4 EACH
OM-3L = 4 EACH

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 864+76.66
Δ = 13°14'03" LT.
D = 5°30'00"
T = 120.85'
L = 240.62'
PC = 863+55.81
PT = 865+96.43



NORTHBOUND C.L.
PI = 766+76.82
Δ = 31°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 867+33.28
Δ = 13°57'00" RT.
D = 5°30'00"
T = 127.45'
L = 253.64'
PC = 866+05.83
PT = 868+59.47

9/10/2018

RCA0704.DGN

STAGE ID
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	78	299

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

N

EXISTING C of A

STA. 774+25.00
END JOB CA0704

POE774+25.00 PI 773+80.99

N 3°32'02" W

POE868+66.30
SOUTHBOUND RAMP C.L. STA. 768+44.27

N 2°45'05" W

770

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 867+33.28
Δ = 13°57'00" RT.
D = 5°30'00"
T = 127.45'
L = 253.64'
PC = 866+05.83
PT = 868+59.47

PC 768+27.93
PT868+59.47

POE770+15.62

N 27°45'52" E

EXISTING C of A

PROPOSED C of A

768+41.08
230.00

PT769+81.72

769+00.00
300.00

769+46.00
238.72

STA. 770+15.62
END NORTHBOUND RAMP

TRAFFIC DRUMS
@ 60' O.C.

EXISTING C of A

775

STA. 775+00.00
END SOUTHBOUND RAMP

PT 778+32.46

780

STAGE ID
MAINTENANCE OF TRAFFIC DETAILS

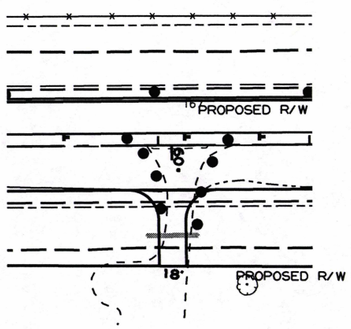
9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	79	299

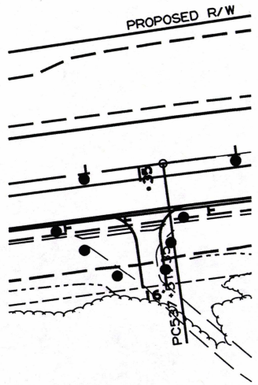
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



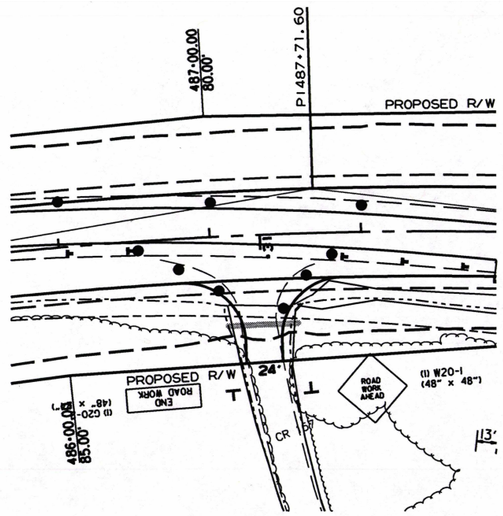
8 TRAFFIC DRUMS 10' O.C.
@ 3 LOCATIONS RT.
STA. 478+09 STA. 604+67
STA. 764+31

8 TRAFFIC DRUMS 10' O.C.
@ 13 LOCATIONS LT.
STA. 638+61 STA. 639+44
STA. 642+44 STA. 651+00
STA. 662+27 STA. 673+26
STA. 682+09 STA. 687+40
STA. 698+28 STA. 708+20
STA. 715+86 STA. 725+18
STA. 727+22

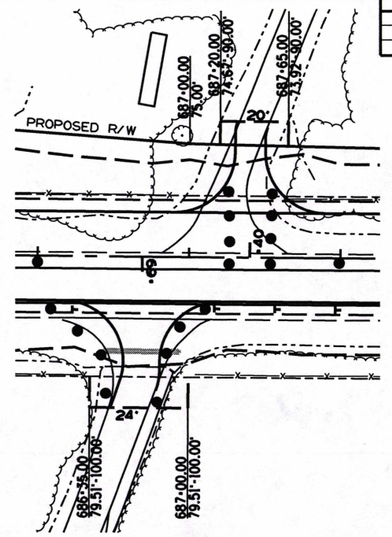


6 TRAFFIC DRUMS 10' O.C.
@ 19 LOCATIONS RT.
STA. 537+35 STA. 582+34
STA. 633+92 STA. 626+74
STA. 629+57 STA. 632+11
STA. 632+89 STA. 634+27
STA. 640+26 STA. 644+96
STA. 653+18 STA. 670+09
STA. 673+27 STA. 682+09
STA. 705+20 STA. 715+71
STA. 727+22 STA. 728+65
STA. 745+43

6 TRAFFIC DRUMS 10' O.C.
@ 6 LOCATIONS LT.
STA. 483+31 STA. 603+30
STA. 606+05 STA. 737+69
STA. 745+51 STA. 749+16

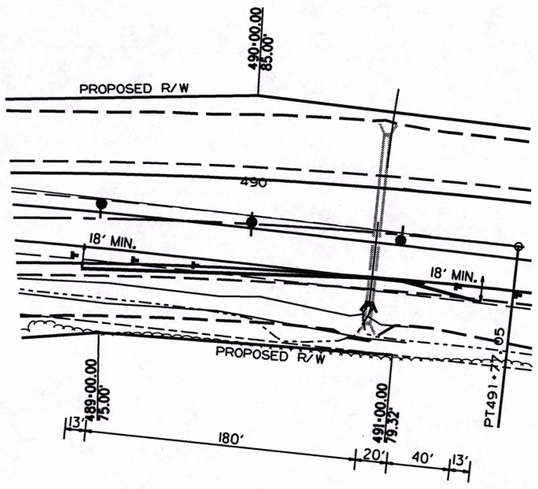


6 TRAFFIC DRUMS 20' O.C.
@ 19 LOCATIONS RT.
STA. 487+31 STA. 524+73
STA. 693+48



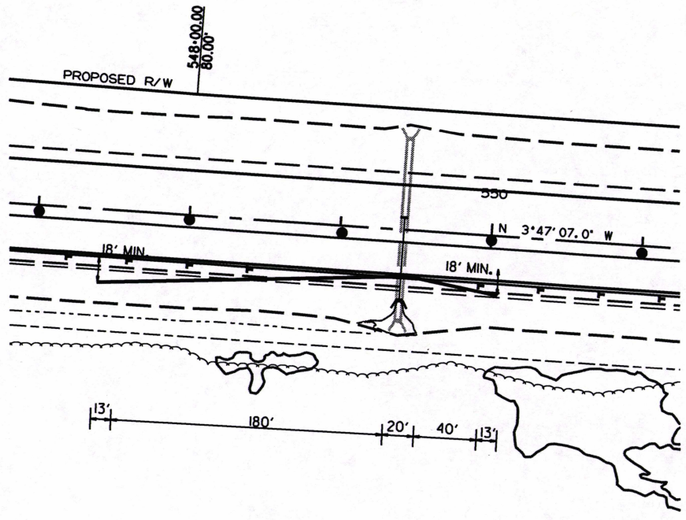
8 TRAFFIC DRUMS 20' O.C.
@ 1 LOCATIONS RT.
STA. 686+69

8 TRAFFIC DRUMS 20' O.C.
@ 4 LOCATIONS LT.
STA. 500+72 STA. 536+24
STA. 619+03 STA. 692+80



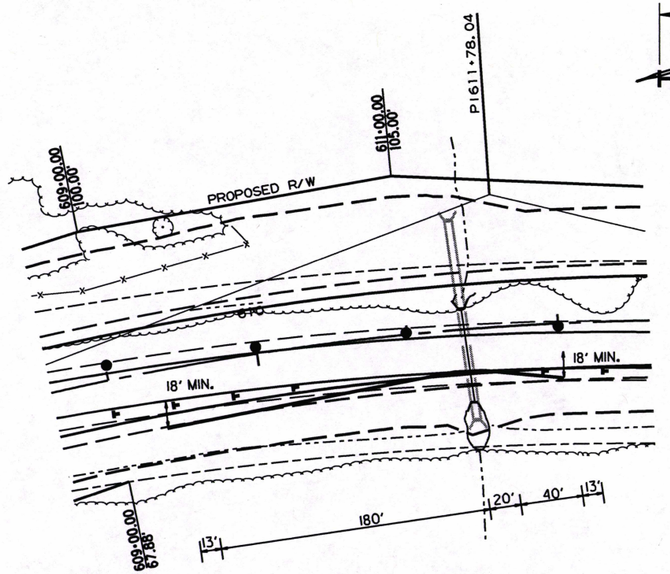
RELOCATING PRECAST CONCRETE BARRIER
RT. OF EXISTING TRAFFIC = 286 LIN. FT.
INCLUDES (2) SPECIAL END UNITS

OM-3R = 4 EACH
OM-3L = 4 EACH



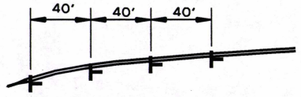
RELOCATING PRECAST CONCRETE BARRIER
RT. OF EXISTING TRAFFIC = 286 LIN. FT.
INCLUDES (2) SPECIAL END UNITS

OM-3R = 4 EACH
OM-3L = 4 EACH



RELOCATING PRECAST CONCRETE BARRIER
RT. OF EXISTING TRAFFIC = 286 LIN. FT.
INCLUDES (2) SPECIAL END UNITS

OM-3R = 4 EACH
OM-3L = 4 EACH



DETAIL OF OM-3 AT
ALL PCCB INSTALLATIONS
OM-3 RT ON ENTRANCE
OM-3 LT ON EXIT

STAGE 2A
MAINTENANCE OF TRAFFIC DETAILS

9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	80	299

(2) MAINTENANCE OF TRAFFIC DETAILS

QUANTITIES:
STAGE 2A & 2B

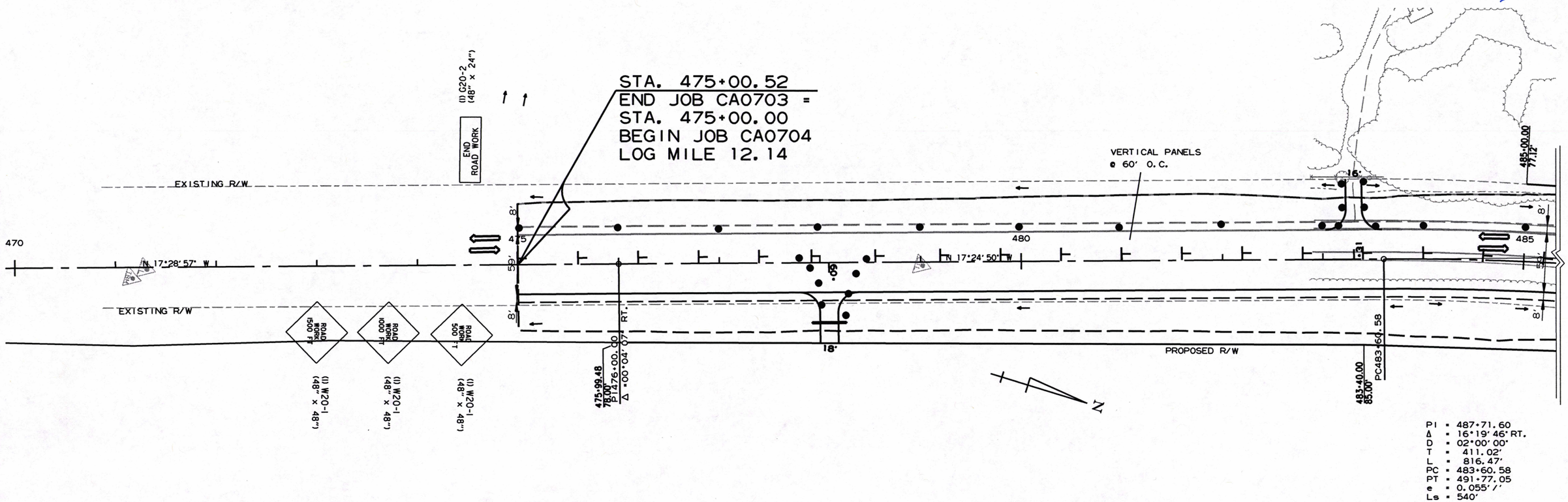
VERTICAL PANELS @ 60' O.C. = 176 EACH
TRAFFIC DRUMS @ 10' O.C. = 272 EACH
TRAFFIC DRUMS @ 20' O.C. = 89 EACH
TRAFFIC DRUMS @ 100' O.C. = 293 EACH

CONSTRUCTION PAVEMENT MARKINGS
STA. 475+00.00 TO STA. 757+08.92
STA. 759+61.08 TO STA. 759+88.04
6" DBL. YELLOW = 56502 LIN. FT.
6" WHITE = 60744 LIN. FT.

RAISED PAVEMENT MARKINGS (TYPE II) (80' O.C.)
YELLOW/YELLOW = 353 EACH

REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS
STA. 590+75.00 TO STA. 600+75.00 = 4000 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



PI = 487+71.60
Δ = 16°19'46" RT.
D = 02°00'00"
T = 411.02'
L = 816.47'
PC = 483+60.58
PT = 491+77.05
e = 0.055'/'
Ls = 540'

9/10/2018

RCA0704.DGN

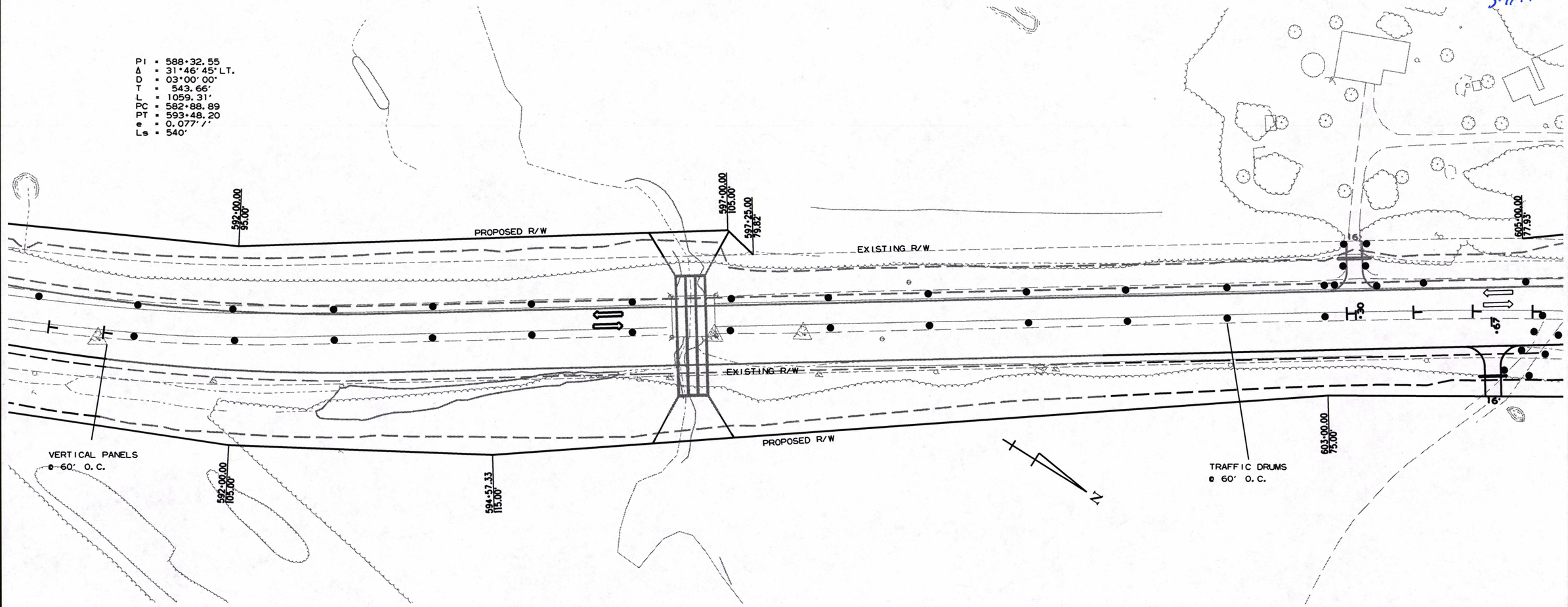
STAGE 2A
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	81	299

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

PI = 588+32.55
Δ = 31°46'45" LT.
D = 03°00'00"
T = 543.66'
L = 1059.31'
PC = 582+88.89
PT = 593+48.20
e = 0.077'/'
Ls = 540'



STAGE 2A
MAINTENANCE OF TRAFFIC DETAILS

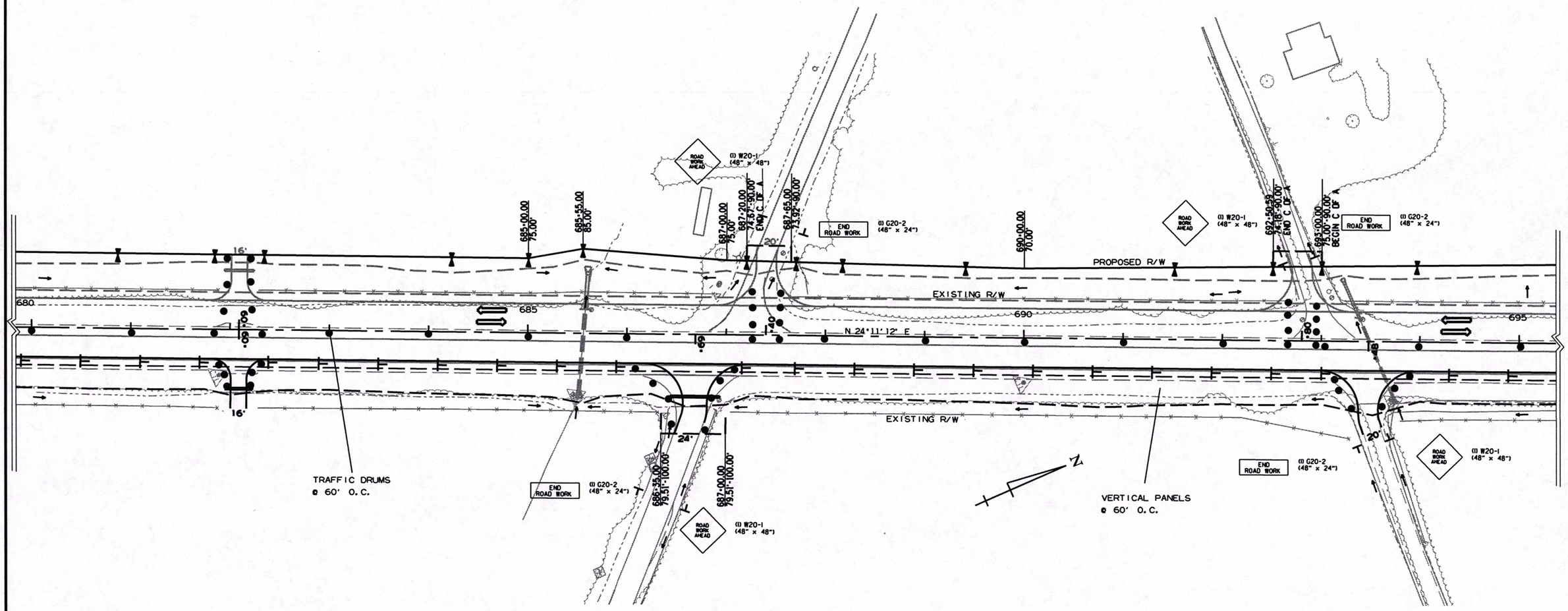
9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	82	299

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



STAGE 2A
MAINTENANCE OF TRAFFIC DETAILS

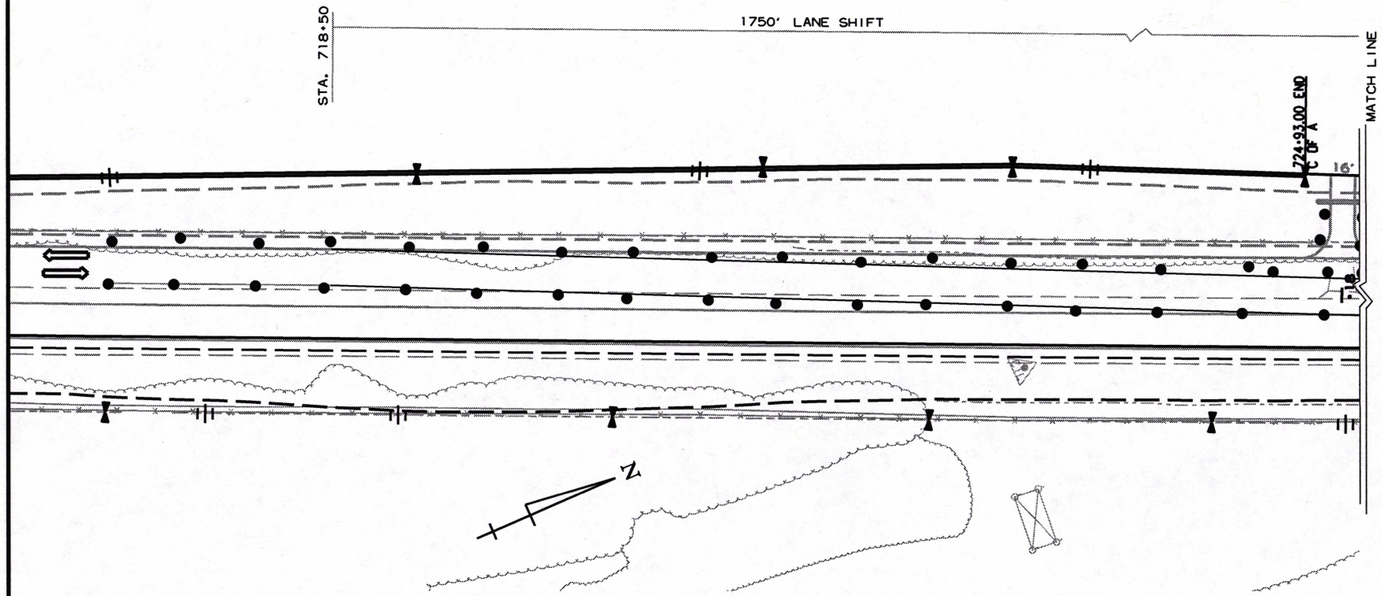
9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	83	299

(2) MAINTENANCE OF TRAFFIC DETAILS

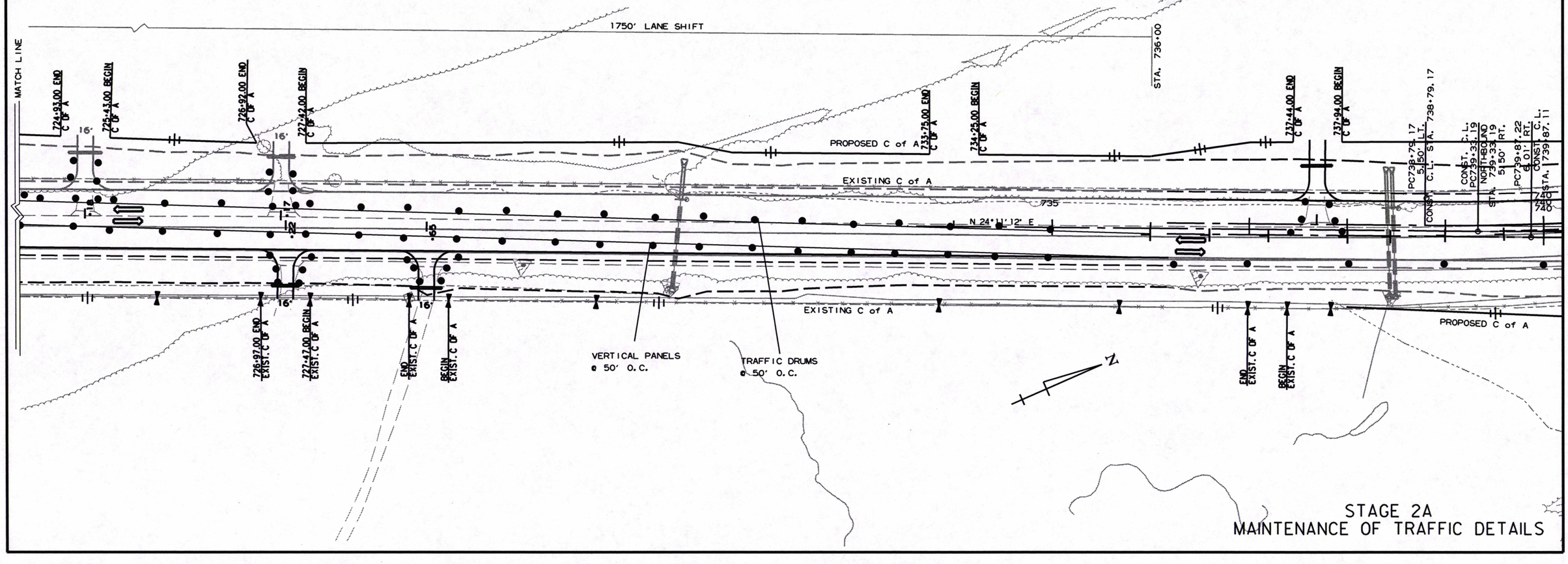
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'



STAGE 2A
MAINTENANCE OF TRAFFIC DETAILS

9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	84	299

(2) MAINTENANCE OF TRAFFIC DETAILS

QUANTITIES:

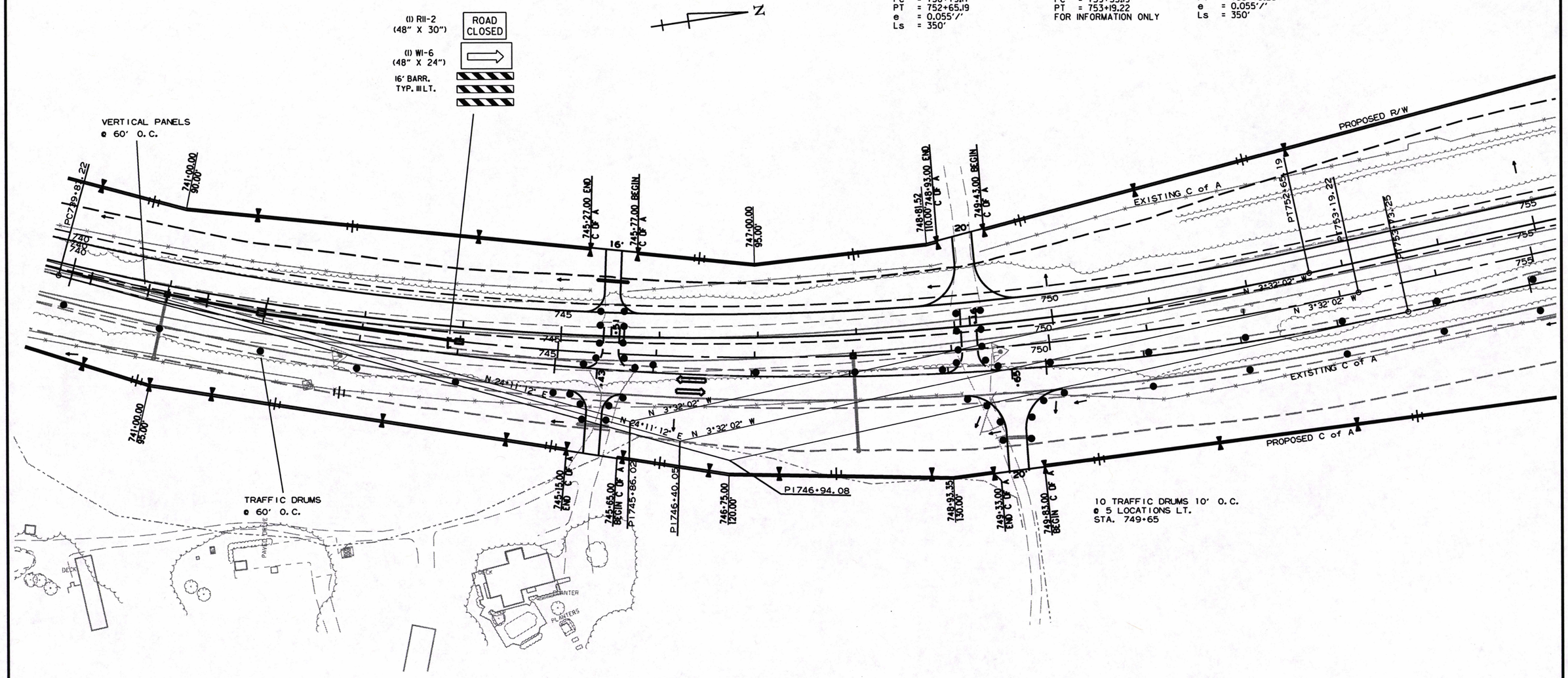
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS
STA. 736+16.62 TO STA. 745+00.00 = 3533.52 LIN. FT.
STA. 761+00.00 TO STA. 765+00.00 = 1600.00 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'



STAGE 2A
MAINTENANCE OF TRAFFIC DETAILS

9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	85	299

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

ROAD CLOSED
(1) R11-2 (48" X 30")
(1) W1-6 (48" X 24")
16' BARR. TYP. III RT.

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 864+76.66
Δ = 13°14'03" LT.
D = 5°30'00"
T = 120.85'
L = 240.62'
PC = 863+55.81
PT = 865+96.43

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 867+33.28
Δ = 13°57'00" RT.
D = 5°30'00"
T = 127.45'
L = 253.64'
PC = 866+05.83
PT = 868+59.47

NORTHBOUND C.L.
PI = 766+76.82
Δ = 31°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

PROPOSED C of A
TRAFFIC DRUMS @ 60' O.C.
16' GATE
T.C.E.
18' MIN.
CONST.
N 3°32'02" W
N 27°45'52" E
N 2°49'08" W
N 27°45'52" E
PC 768+27.93
PT 768+59.47
PC 762+55.81
PT 765+81.78
PC 763+00.00
PT 765+29.53
PC 766+65.83
PT 768+46.08
PC 768+66.30
PT 769+44.27
PC 770+15.62
PT 771+00.00
PC 865+96.43
PT 867+33.28
PC 866+76.82
PT 868+59.47
PC 863+75.81
PT 865+96.43
PC 859+61.08
PT 861+42.32
PC 859+30.00
PT 859+61.08
PC 860+00.00
PT 860+31.08
PC 860+76.66
PT 862+55.83
PC 861+00.00
PT 862+29.53
PC 861+46.08
PT 863+25.25
PC 861+66.30
PT 863+44.27
PC 862+15.62
PT 863+00.00
PC 762+00.00
PT 763+00.00
PC 760+00.00
PT 762+00.00
PC 758+57.15
PT 760+35.37
PC 757+12.16
PT 758+90.38
PC 752+20.26
PT 753+98.43
PC 758+66.94
PT 760+45.16
PC 758+73.51
PT 760+51.73
PC 757+68.43
PT 759+46.65
PC 758+73.16
PT 760+51.38
PC 757+23.95
PT 759+02.17
PC 757+68.66
PT 759+46.88
PC 758+69.53
PT 760+47.75
PC 757+68.43
PT 759+46.65
PC 758+66.94
PT 760+45.16
PC 758+73.51
PT 760+51.73

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	86	299

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

STA. 774+25.00
END JOB CA0704

N

POE 868+66.30
SOUTHBOUND RAMP
C/L
STA. 768+44.27

N 2° 49' 05" W

PC 768+27.93
PT 868+59.47

151'

770

POE 774+25.00 PI 773+80.99

N 3°32'02" W

POE 770+15.62

100' TRANSITION

N 27°45'52" E

768+47.08
230.00

PT 769+81.78

769+00.00
300.00

769+28.00
255.72

STA. 770+15.62
END NORTHBOUND RAMP

TRAFFIC DRUMS
@ 60' O.C.

NORTHBOUND C.L.
PI = 766+76.82
Δ = 31°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

775

STA. 775+00.00
END SOUTHBOUND RAMP

PT 778+32.46

780

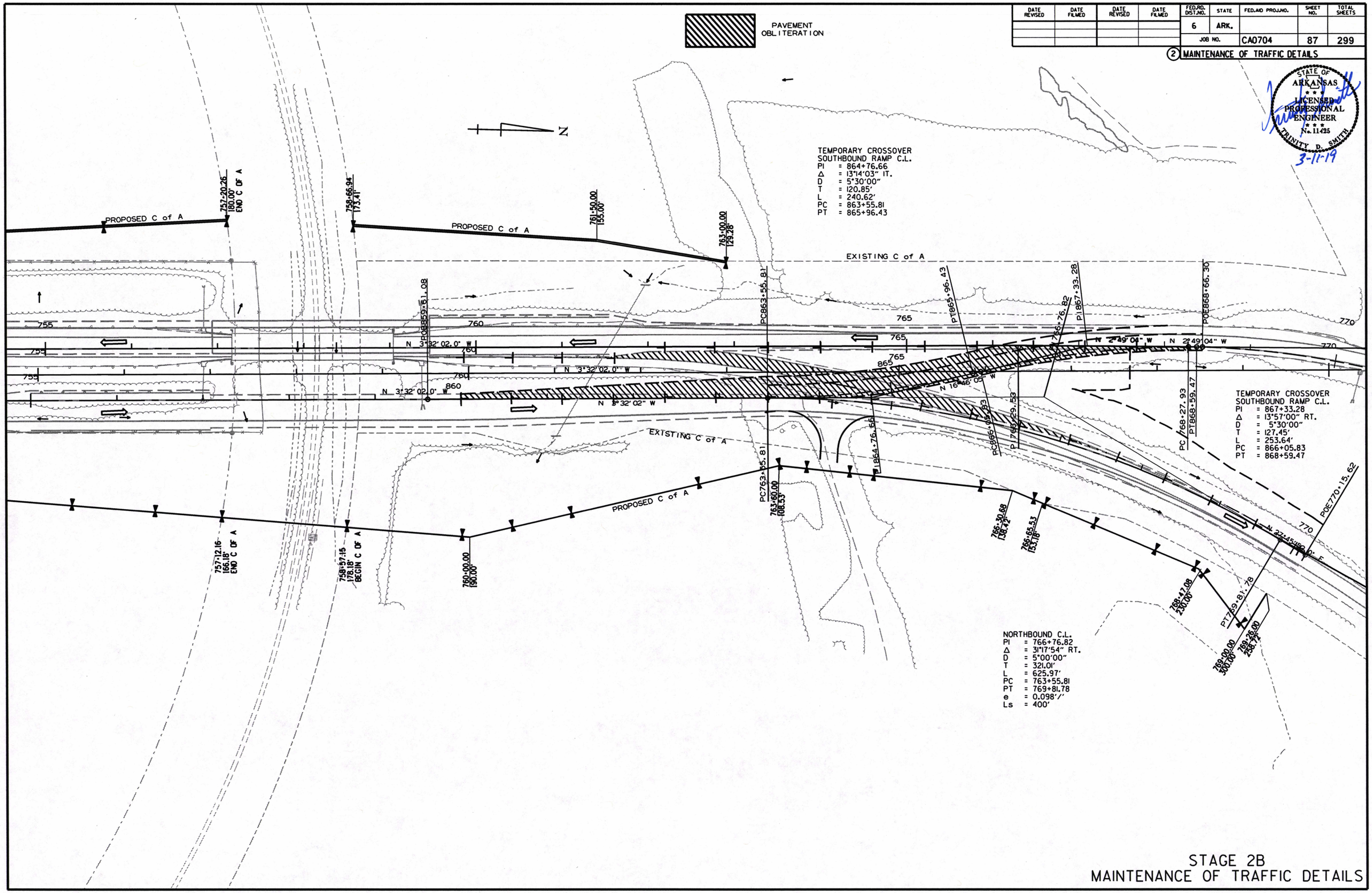
STAGE 2A
MAINTENANCE OF TRAFFIC DETAILS

9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	87	299

(2) MAINTENANCE OF TRAFFIC DETAILS



STAGE 2B
MAINTENANCE OF TRAFFIC DETAILS

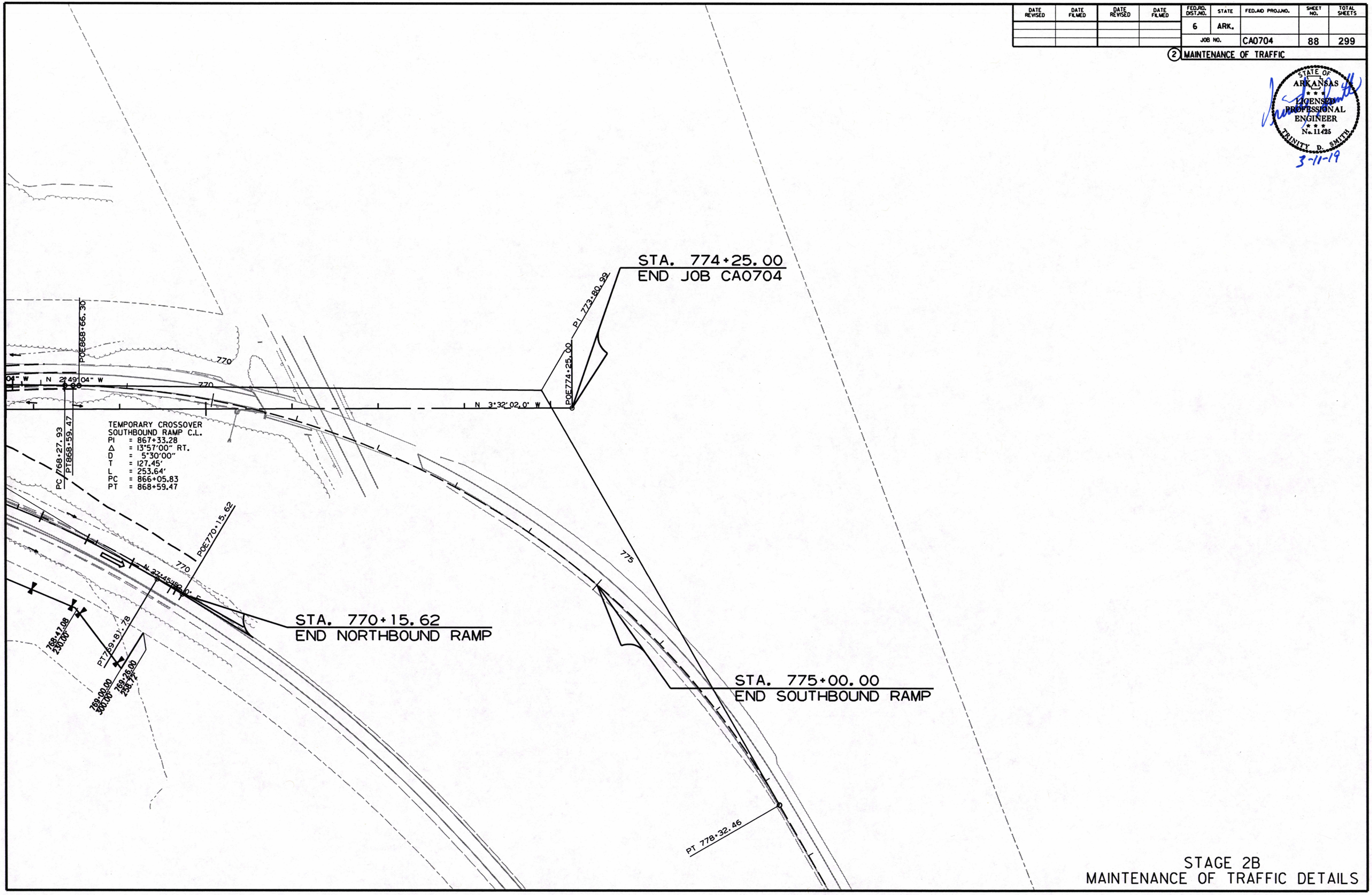
9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	88	299

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



STAGE 2B
MAINTENANCE OF TRAFFIC DETAILS

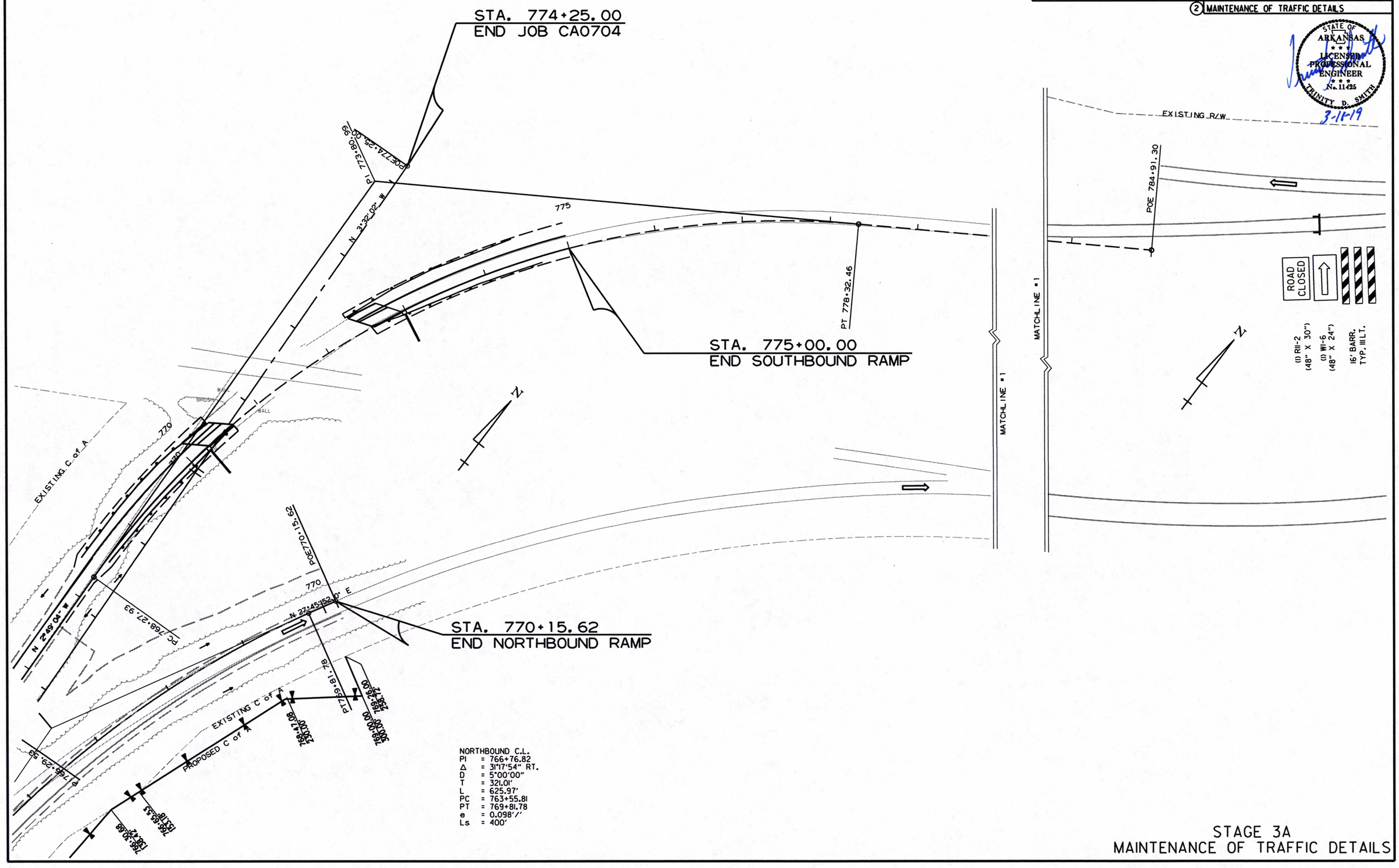
9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	89	299

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



NORTHBOUND C.L.
PI = 766+76.82
Δ = 31°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

STAGE 3A
MAINTENANCE OF TRAFFIC DETAILS

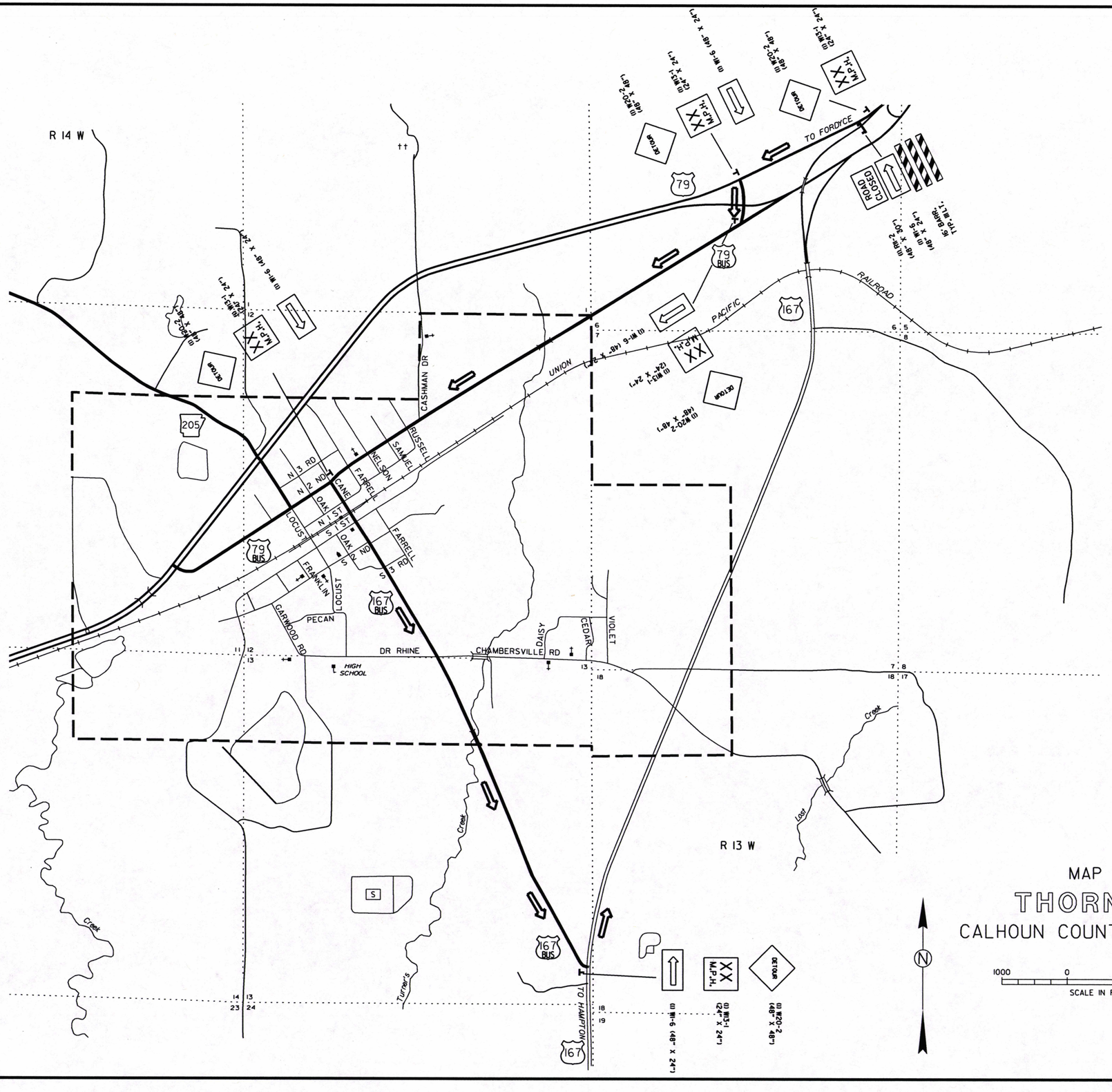
9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	90	299

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



MAP OF
THORNTON
CALHOUN COUNTY, ARKANSAS

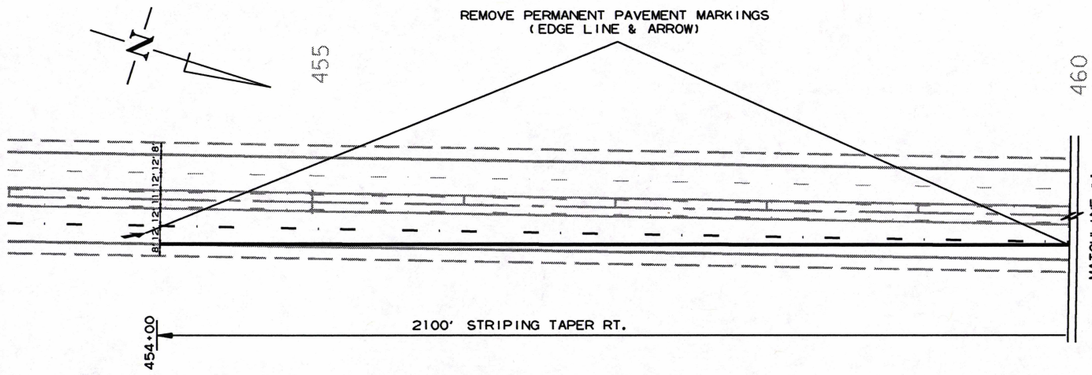
1000 0 1000 2000
SCALE IN FEET

STAGE 3A
MAINTENANCE OF TRAFFIC DETAILS

RCA0704.DGN 9/10/2018

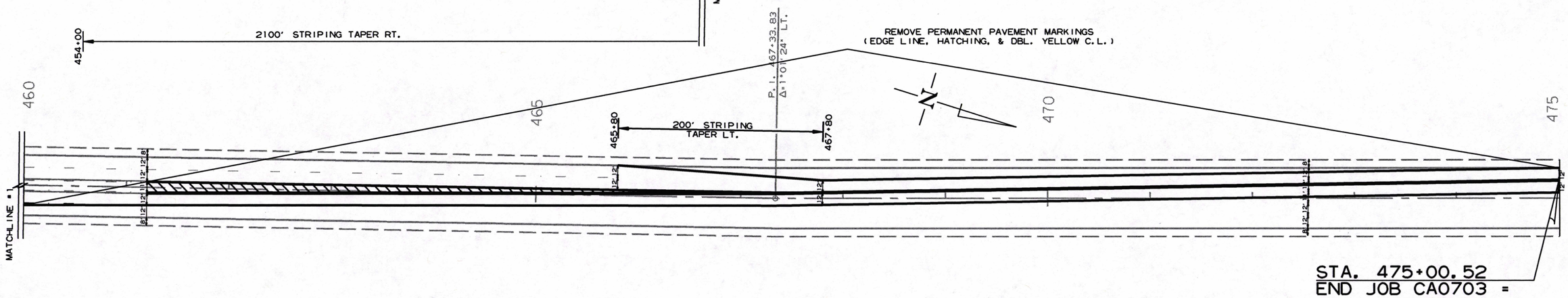
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	91	299

(2) PERMANENT PAVEMENT MARKING DETAILS



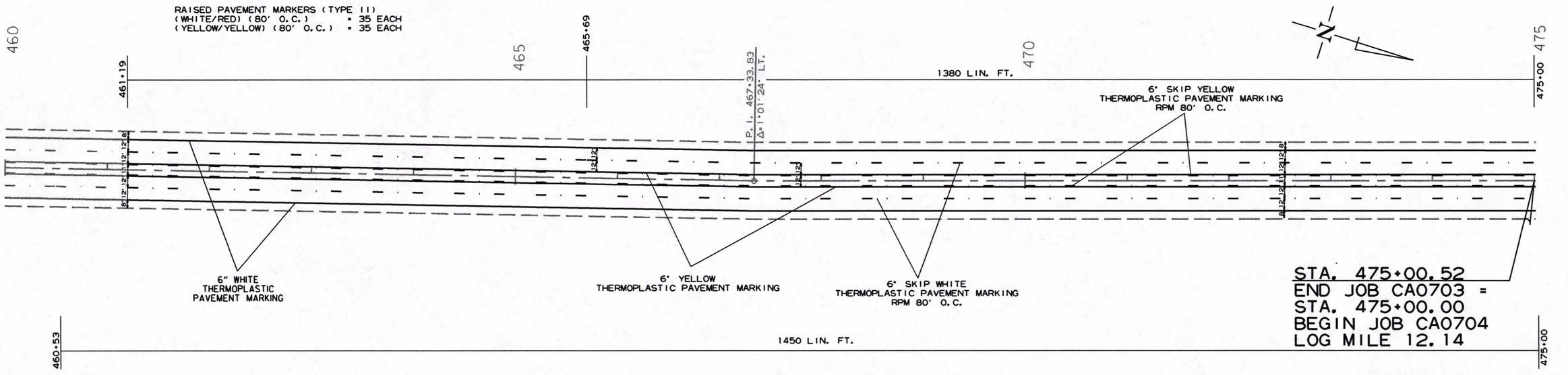
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 7360 LIN. FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS (ARROW) = 1 EACH

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



THERMOPLASTIC PAVEMENT MARKINGS
WHITE (6") = 3452.50 LIN. FT.
YELLOW (6") = 2762.00 LIN. FT.

RAISED PAVEMENT MARKERS (TYPE II)
(WHITE/RED) (80' O.C.) = 35 EACH
(YELLOW/YELLOW) (80' O.C.) = 35 EACH



BEGIN JOB PAVEMENT MARKING LAYOUT

PERMANENT PAVEMENT MARKING DETAILS

9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	92	299

(2) PERMANENT PAVEMENT MARKING DETAILS

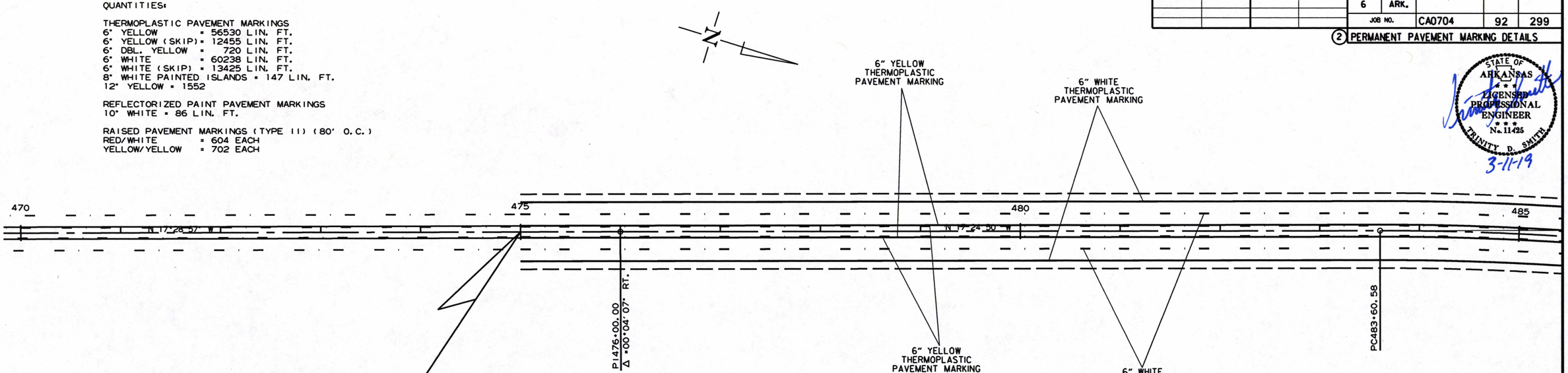
QUANTITIES:

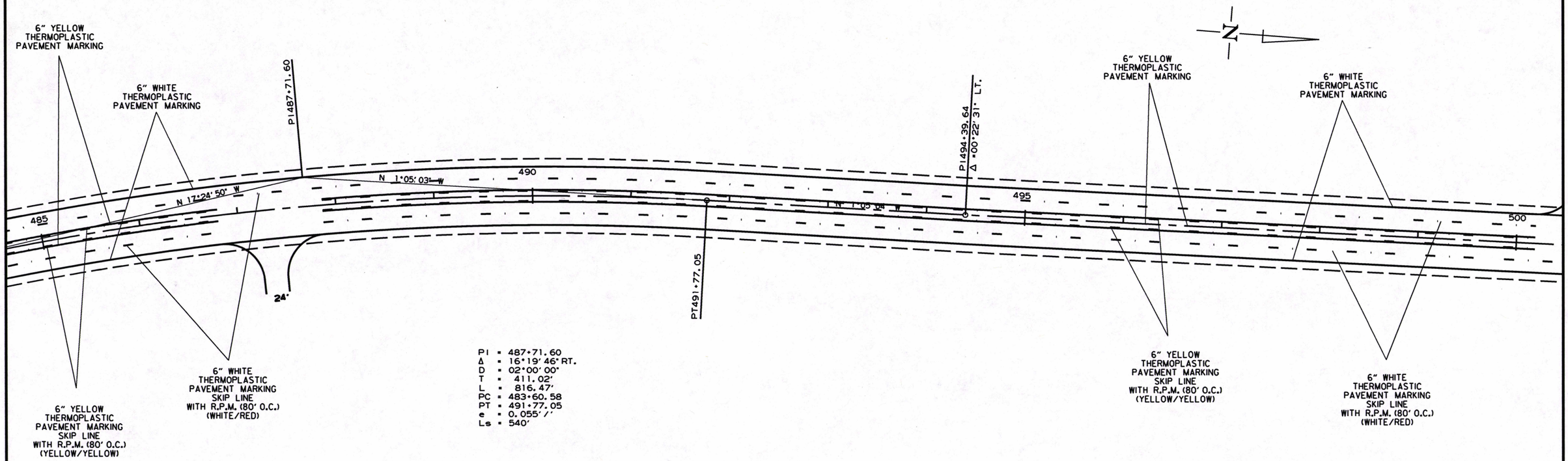
THERMOPLASTIC PAVEMENT MARKINGS
6" YELLOW = 56530 LIN. FT.
6" YELLOW (SKIP) = 12455 LIN. FT.
6" DBL. YELLOW = 720 LIN. FT.
6" WHITE = 60238 LIN. FT.
6" WHITE (SKIP) = 13425 LIN. FT.
8" WHITE PAINTED ISLANDS = 147 LIN. FT.
12" YELLOW = 1552

REFLECTORIZED PAINT PAVEMENT MARKINGS
10" WHITE = 86 LIN. FT.

RAISED PAVEMENT MARKINGS (TYPE II) (80' O.C.)
RED/WHITE = 604 EACH
YELLOW/YELLOW = 702 EACH

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19





9/10/2018

RCA0704.DGN

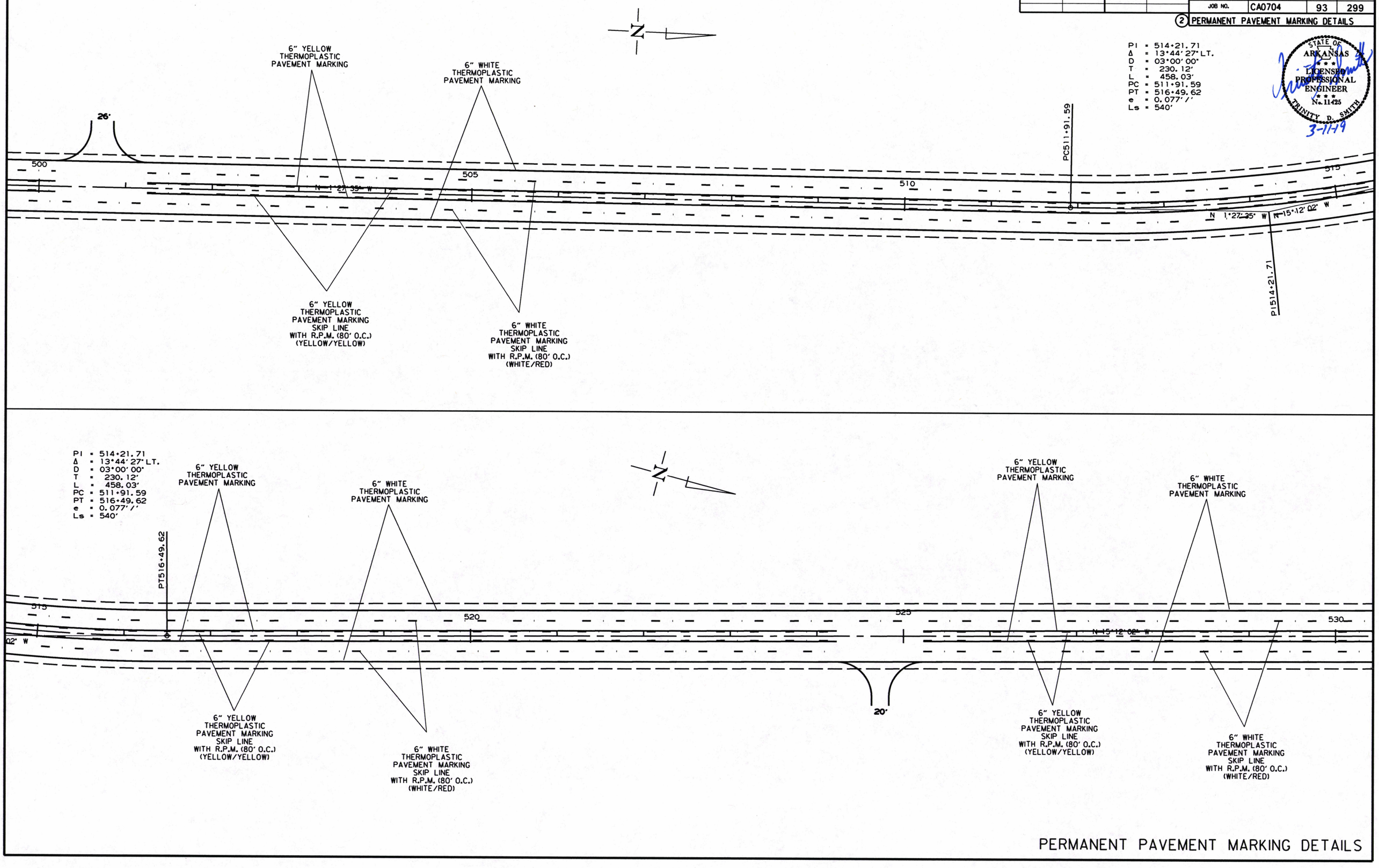
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	93	299

(2) PERMANENT PAVEMENT MARKING DETAILS

PI = 514+21.71
Δ = 13°44'27" LT.
D = 03°00'00"
T = 230.12'
L = 458.03'
PC = 511+91.59
PT = 516+49.62
e = 0.077'/'
Ls = 540'

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-1-19



9/10/2018

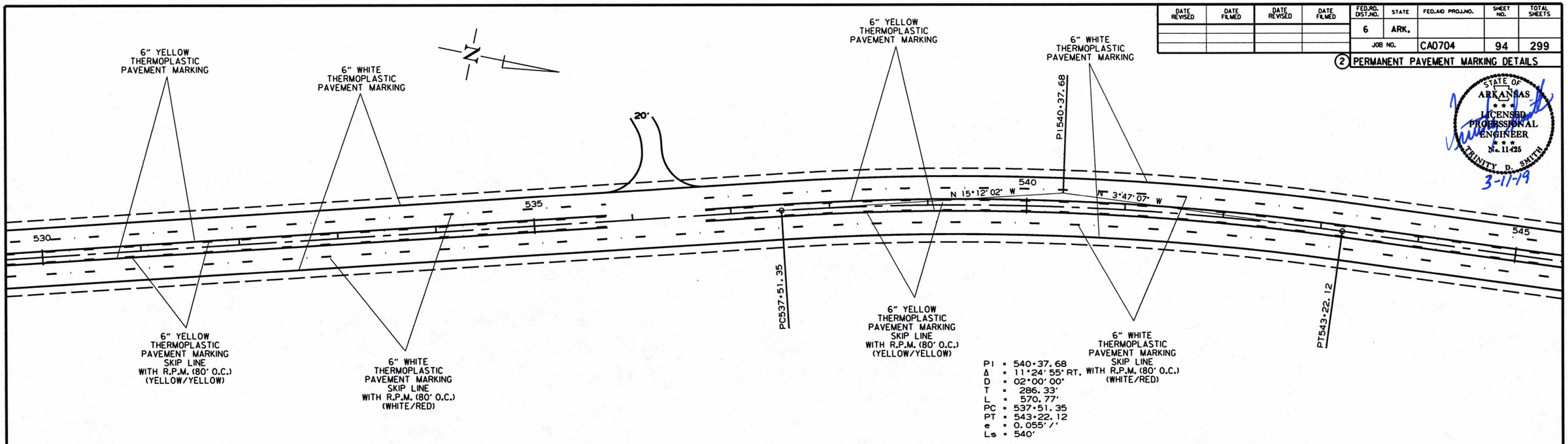
RCA0704.DGN

PERMANENT PAVEMENT MARKING DETAILS

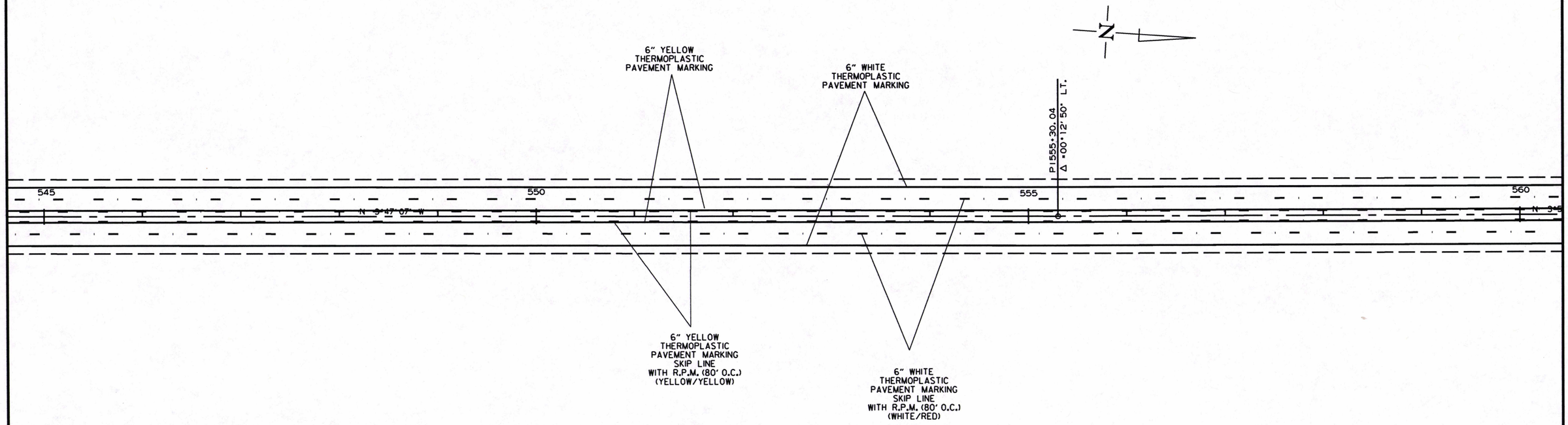
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	94	299

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



PI = 540+37.68
Δ = 11°24'55" RT.
D = 02°00'00"
T = 286.33'
L = 570.77'
PC = 537+51.35
PT = 543+22.12
e = 0.055'/'
Ls = 540'



9/10/2018

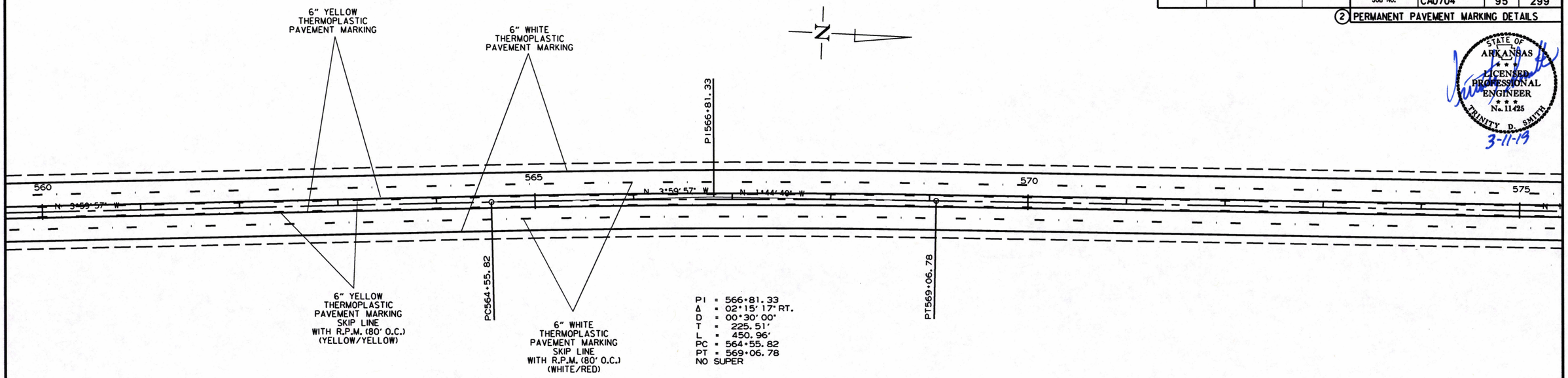
RCA0704.DGN

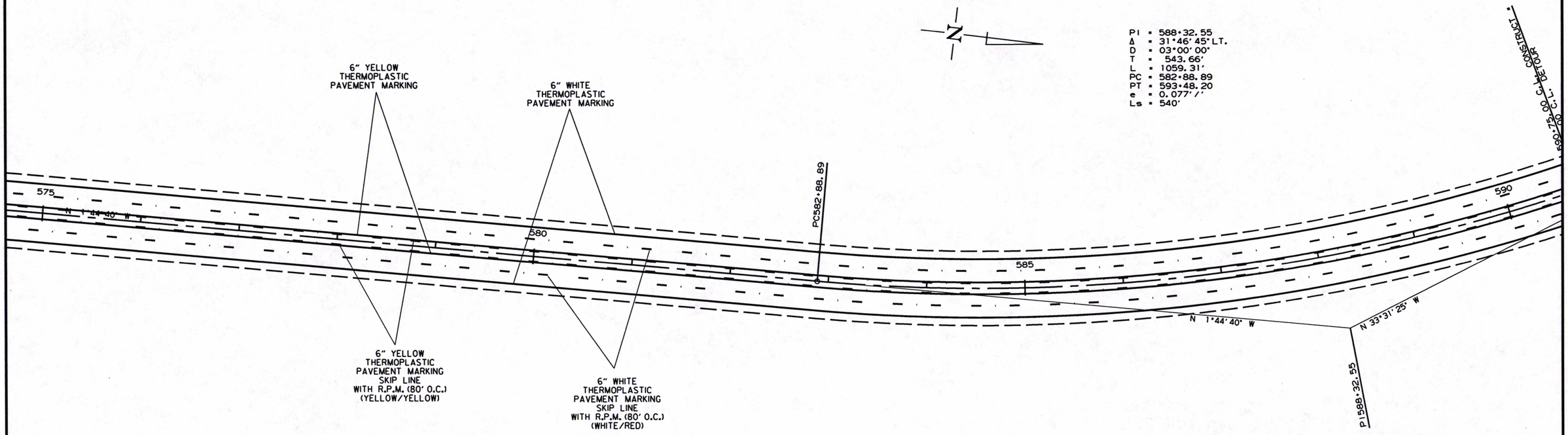
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	95	299

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19





PERMANENT PAVEMENT MARKING DETAILS

9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	96	299

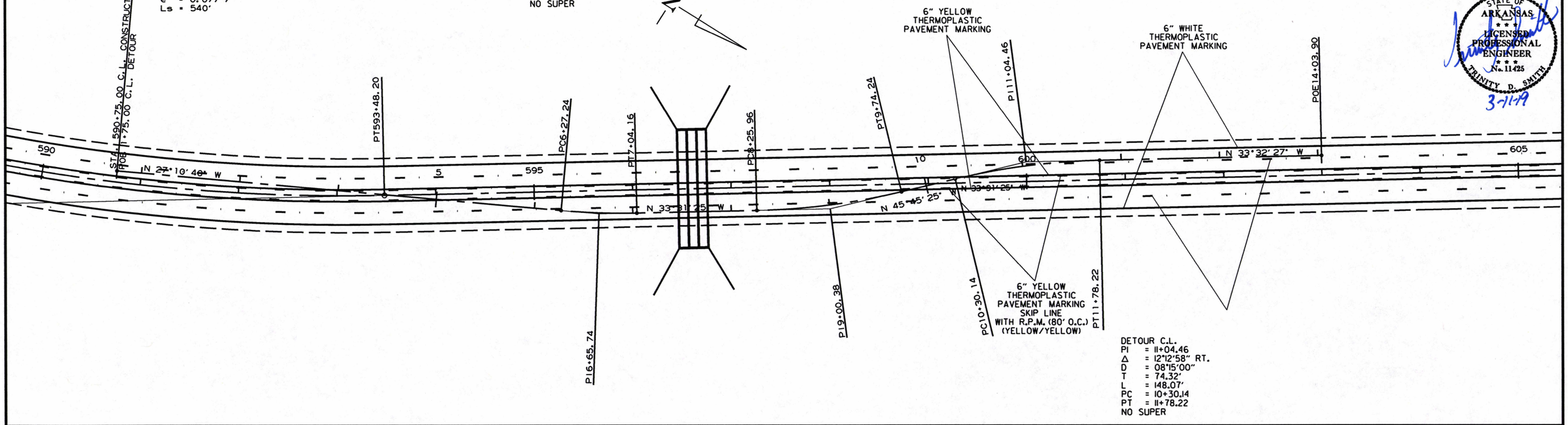
(2) PERMANENT PAVEMENT MARKING DETAILS

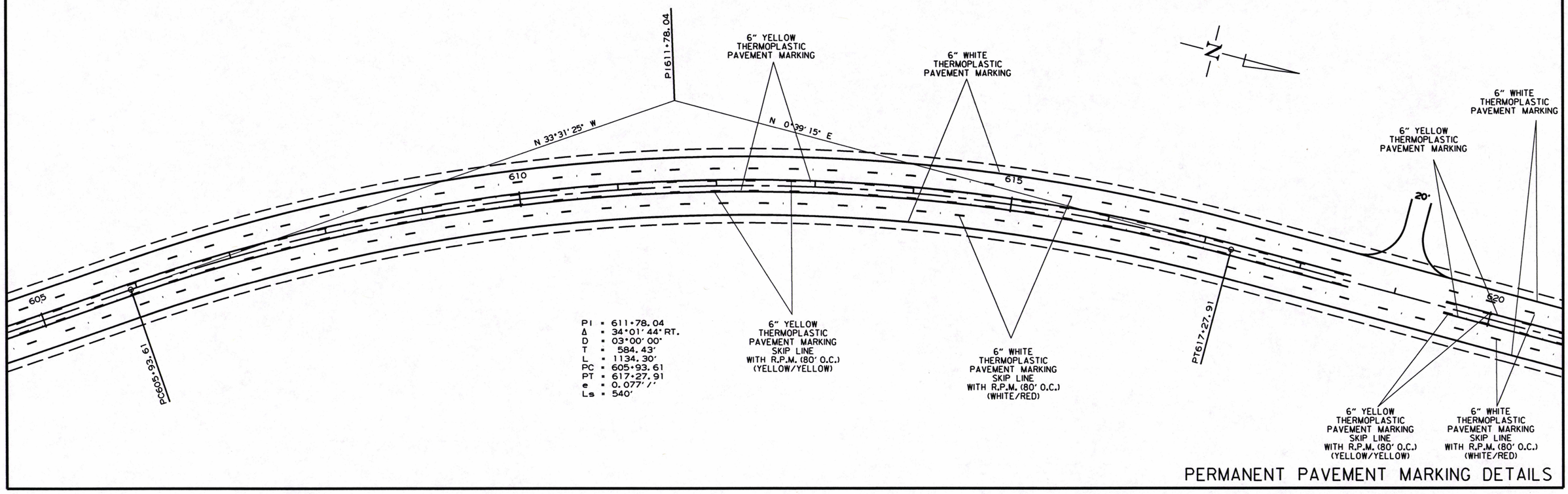
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-1-19

PI = 588+32.55
Δ = 31°46'45" LT.
D = 03°00'00"
T = 543.66'
L = 1059.31'
PC = 582+88.89
PT = 593+48.20
e = 0.077'/'
Ls = 540'

DETOUR C.L.
PI = 6+65.74
Δ = 06°20'45" LT.
D = 08°15'00"
T = 38.50'
L = 76.92'
PC = 6+27.24
PT = 7+04.16
NO SUPER

DETOUR C.L.
PI = 9+00.38
Δ = 12°14'00" LT.
D = 08°15'00"
T = 74.42'
L = 148.28'
PC = 8+25.96
PT = 9+74.24





PI = 611+78.04
Δ = 34°01'44" RT.
D = 03°00'00"
T = 584.43'
L = 1134.30'
PC = 605+93.61
PT = 617+27.91
e = 0.077'/'
Ls = 540'

9/10/2018

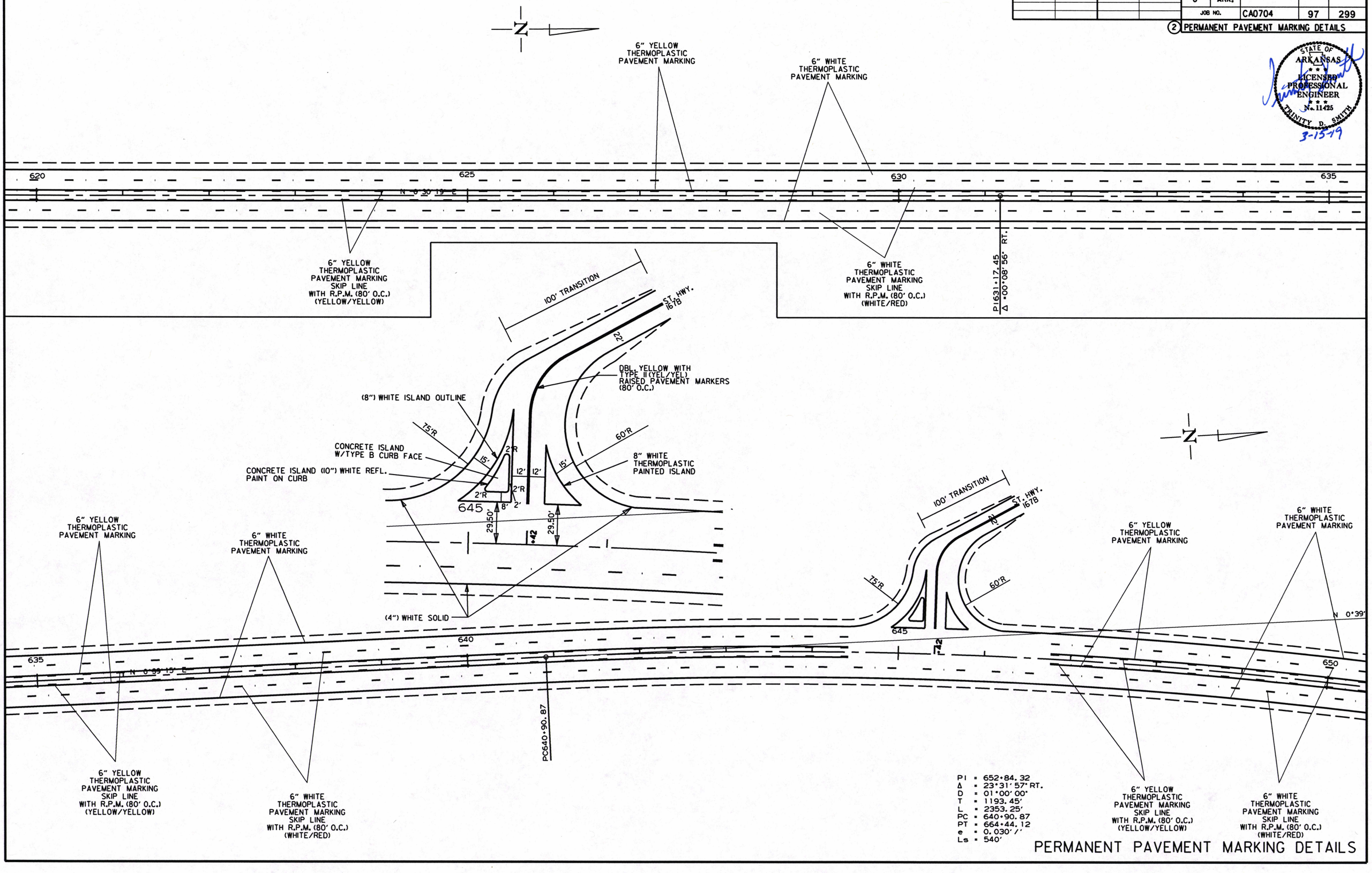
RCA0704.DGN

PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RO. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	97	299

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-15-19



PERMANENT PAVEMENT MARKING DETAILS

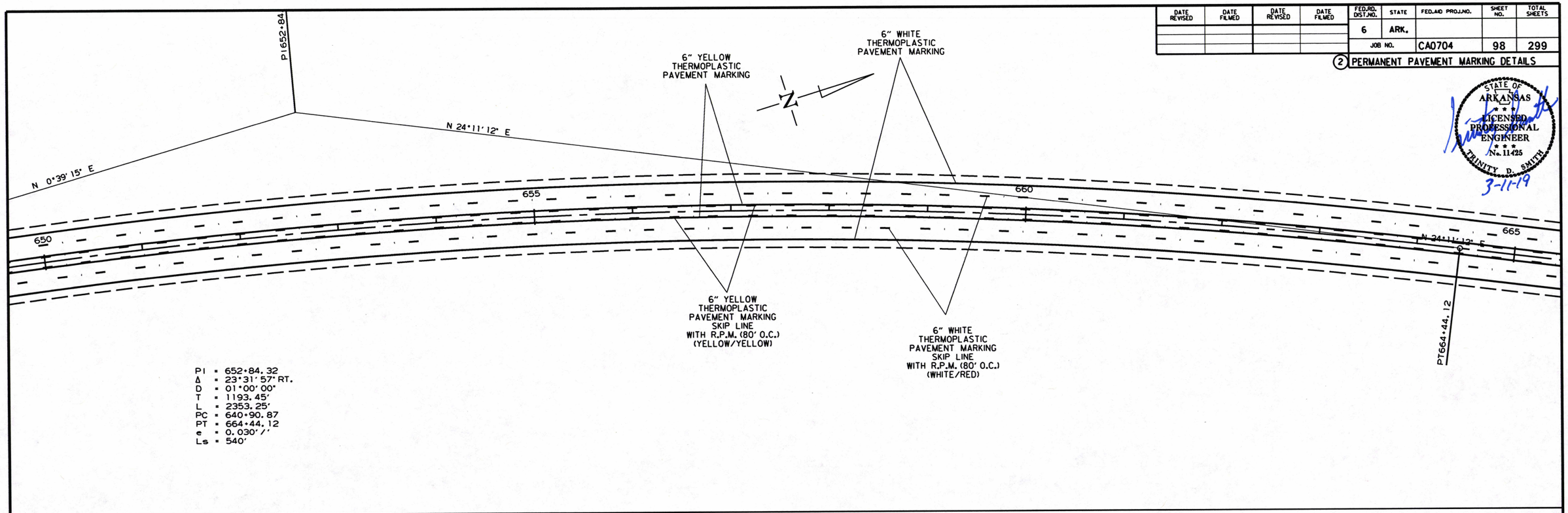
9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	98	299

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



PI = 652+84.32
Δ = 23°31' 57" RT.
D = 01°00' 00"
T = 1193.45'
L = 2353.25'
PC = 640+90.87
PT = 664+44.12
e = 0.030'/'
Ls = 540'

9/10/2018

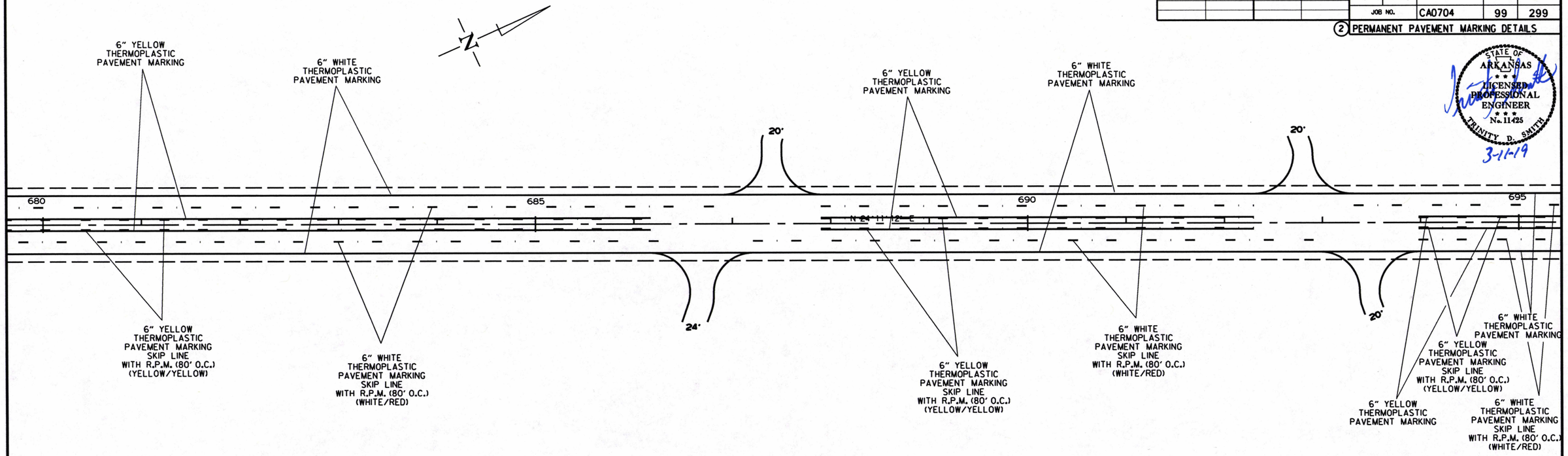
RCA0704.DGN

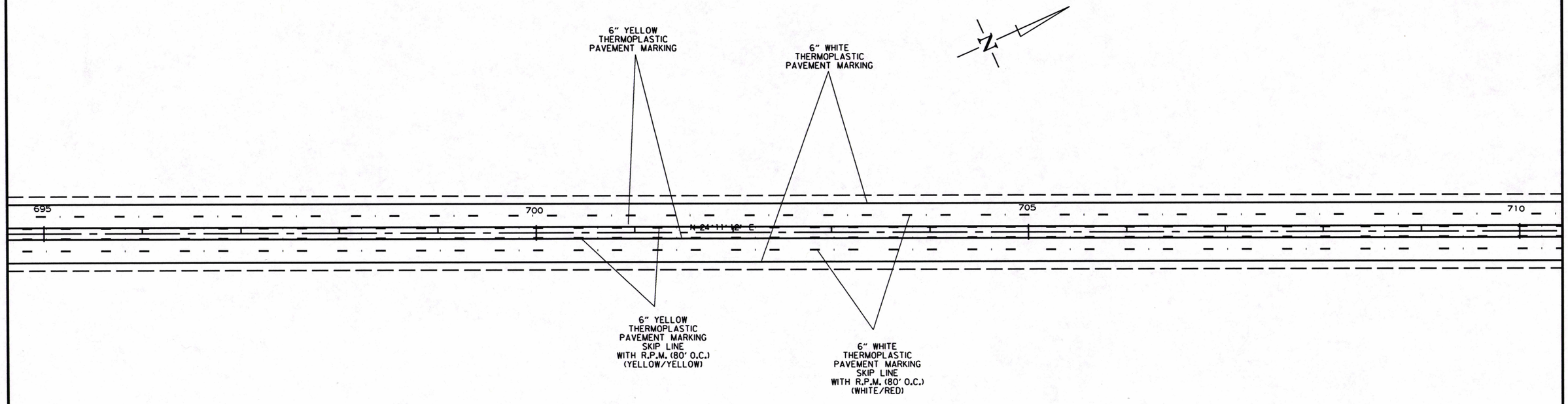
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	99	299

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-1-19





9/10/2018

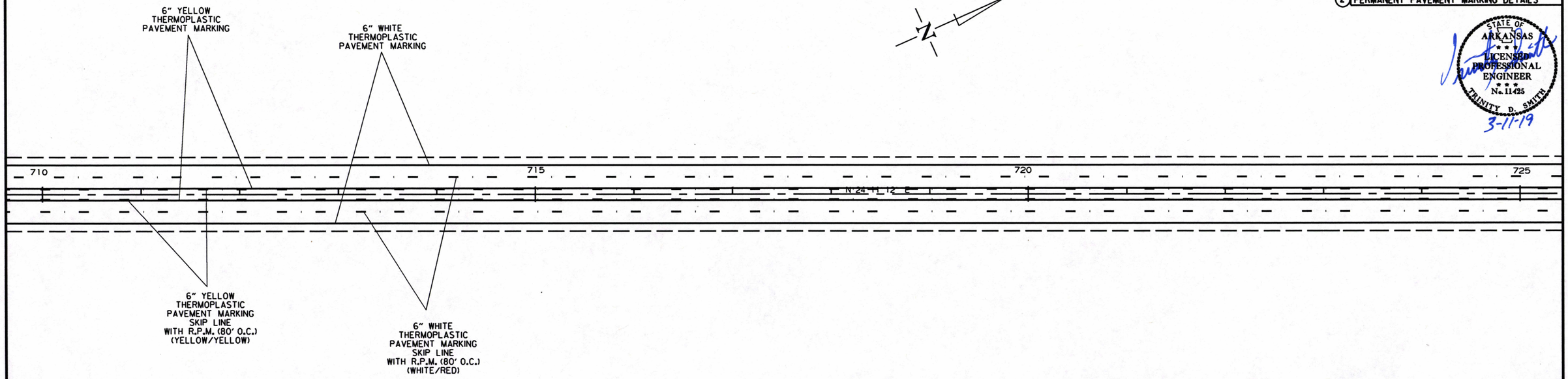
RCA0704.DGN

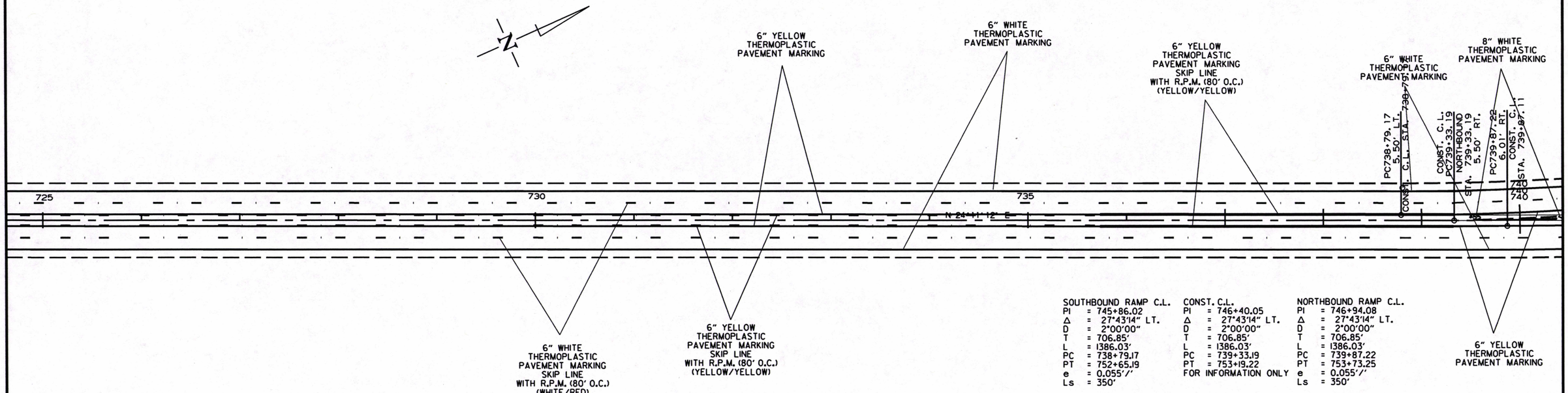
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	100	299

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19





SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'

9/10/2018

RCA0704.DGN

PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	101	299

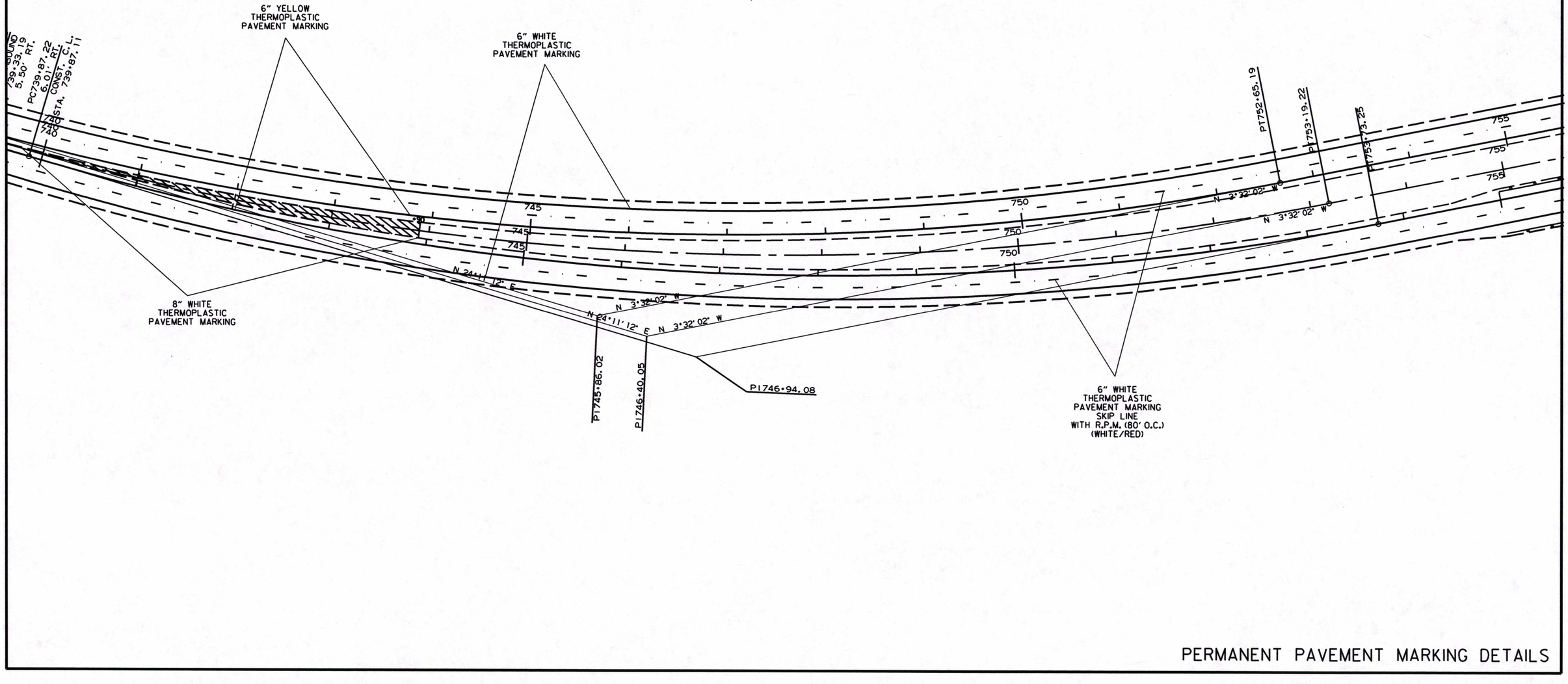
(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'



9/10/2018

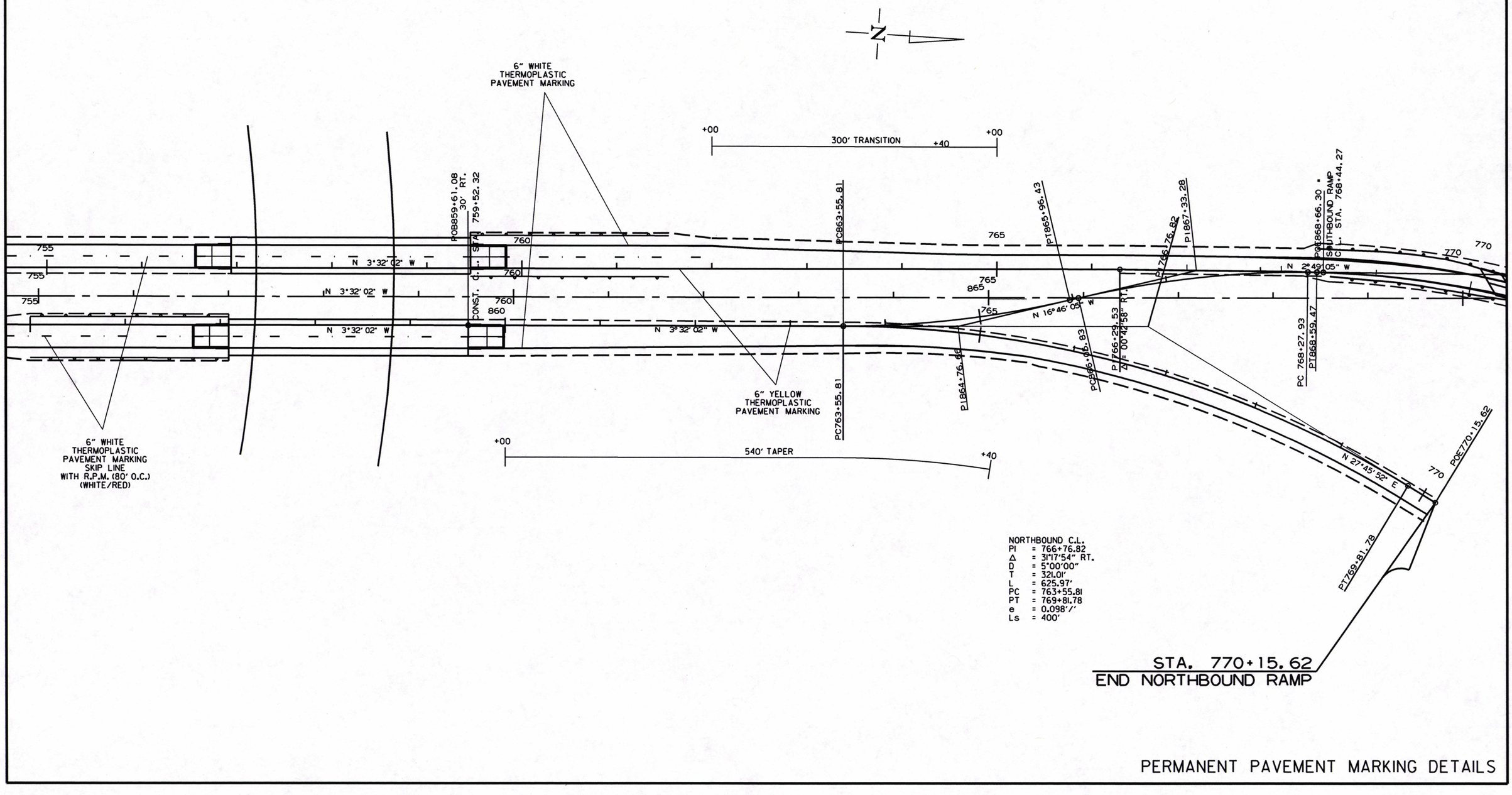
RCA0704.DGN

PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	102	299

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



PERMANENT PAVEMENT MARKING DETAILS

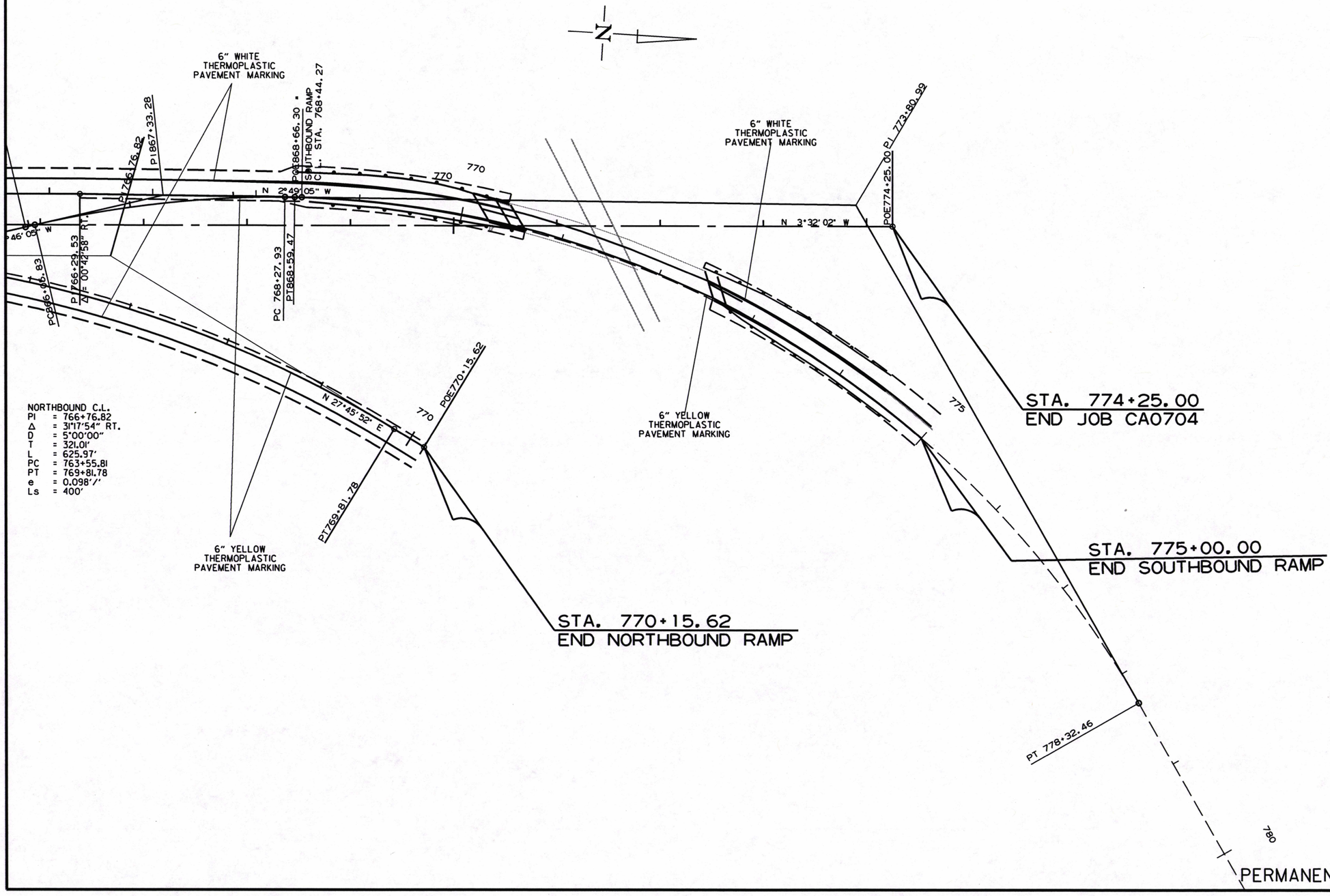
9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	103	299

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



PERMANENT PAVEMENT MARKING DETAILS

9/10/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	104	299

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	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
								TYPE II (WHITE/RED)	TYPE II (YELLOW/YELLOW)	6" WHITE	6" YELLOW	8" WHITE	12" YELLOW	10" WHITE
	LIN. FT. - EACH			LIN. FT.		LIN. FT.		EACH		LIN. FT.				
REMOVAL OF PERMANENT PAVEMENT MARKINGS	2000			2000										
CONSTRUCTION PAVEMENT MARKINGS	123305	117246			240551									
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		4000				4000								
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	1008						1008							
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)			604					604						
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)	385	353	702						1440					
THERMOPLASTIC PAVEMENT MARKING WHITE (6")			70425							70425				
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")			73663								73663			
THERMOPLASTIC PAVEMENT MARKING WHITE (8")			147									147		
THERMOPLASTIC PAVEMENT MARKING YELLOW (12")			1552										1552	
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10")			80											80
TOTALS:				**2000**	**240551**	**4000**	**1008**	**604**	**1440**	**70425**	**73663**	**147**	**1552**	**80**

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1A	STAGE 1B	STAGE 1C	STAGE 1D	STAGE 2A	STAGE 2B	STAGE 3A	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		CONSTRUCTION PROJECT INFORMATION SIGN UPDATE	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)
												NO.	SQ. FT.				RIGHT	LEFT				
			LIN. FT. - EACH											EACH	EACH				LIN. FT.		EACH	
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	2	2	2	2	2	32.0									
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	2	2	2	2	2	32.0									
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	2	2	2	2	2	32.0									
W20-1	ROAD WORK AHEAD	48"x48"	10	10	10	10	10	10	10	10	10	10	160.0									
G20-2	END ROAD WORK	48"x24"	12	12	12	12	12	12	12	12	12	12	96.0									
G20-1	ROAD WORK NEXT xx MILES	60"x24"	2	2	2	2	2	2	2	2	2	2	20.0									
W1-4AR	REVERSE CURVE RT.	48"x48"		2	2	2		2	2	2	2	2	32.0									
W1-4AL	REVERSE CURVE LT.	48"x48"	2	2		2	26	26	26	26	26	26	416.0									
W13-1	SPEED LIMIT (ADVISORY)	24"x24"		2			2	2	5	2	5	5	20.0									
R11-2	ROAD CLOSED	48"x30"	2	15		3	2		2		15	15	150.0									
W20-2	DETOUR	48"x48"							5		5	5	80.0									
OM-3L	OBJECT MARKER	12"x36"	4	12		4	12				12	12	36.0									
OM-3R	OBJECT MARKER	12"x36"	4	12		4	12				12	12	36.0									
W1-6	LARGE ARROW	48"x24"	3	3			2		6		6	6	48.0									
W1-8	CHEVRONS	18"x24"	16																			
R4-1	DO NOT PASS	24"x30"	26	26	26	26	26	26	26	26	26	26	130.0									
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	26																			
SPECIAL	CONSTRUCTION INFORMATION SIGN	96"X48"	2	2	2	2	2	2	2	2	2	2	64.0									
SP	CONSTRUCTION INFORMATION SIGN UPDATE													10								
	VERTICAL PANELS		20	176	176	176	176	34			176				176							
	TRAFFIC DRUMS			203			654				654					654						
	TYPE III BARRICADE-RT. (8')					1					1						8					
	TYPE III BARRICADE-LT. (8')					1					1							8				
	TYPE III BARRICADE-RT. (16')		1	7	1	2	1				7						112					
	TYPE III BARRICADE-LT. (16')		1	6	1	1	1		1	1	6							96				
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		286	858		286													1430			
	RELOCATING PRECAST CONCRETE BARRIER						858													858		
	TEMPORARY IMPACT ATTENUATION BARRIER		2	6		2	6														16	
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		2	6		2	6															16
TOTALS:													**1384.0**	**10**	**176**	**654**	**120**	**104**	**1430**	**858**	**16**	**16**

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.

8/1/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	105	299

(2) QUANTITIES

REMOVAL AND DISPOSAL OF CULVERTS & DROP INLETS

STATION	DESCRIPTION	PIPE CULVERTS	DROP INLETS
		EACH	EACH
478+15	18"X25' C.P. PIPE CULVERT ON RT.	1	
487+31	24"X41' C.M. PIPE CULVERT ON RT.	1	
524+73	30"X24' C.M. PIPE CULVERT ON RT.	1	
528+26	16"X71' R.C. PIPE CULVERT W/HDWLS.	1	
582+31	18"X25' R.C. PIPE CULVERT ON RT.	1	
603+30	24"X24' C.M. PIPE CULVERT ON LT.	1	
606+10	24"X40' C.M. PIPE CULVERT ON LT.	1	
618+95	18"X56' C.M. PIPE CULVERT ON LT.	1	
626+72	24"X24' C.M. PIPE CULVERT ON RT.	1	
629+56	24"X25' C.P. PIPE CULVERT ON RT.	1	
632+07	20"X25' R.C. PIPE CULVERT ON RT.	1	
632+88	15"X24' C.M. PIPE CULVERT ON RT.	1	
634+25	15"X38' R.C. PIPE CULVERT ON RT.	1	
638+59	24"X22' R.C. PIPE CULVERT ON LT.	1	
639+33	18"X25' C.M. PIPE CULVERT ON LT.	1	
644+32	24"X37' R.C. PIPE CULVERT ON LT.	1	
645+00	15"X35' C.M. PIPE CULVERT ON RT.	1	
645+41	24"X94' C.M. PIPE CULVERT ON LT.	1	
651+00	24"X25' C.P. PIPE CULVERT ON LT.	1	
662+27	15"X28' C.M. PIPE CULVERT ON LT.	1	
673+26	15"X32' C.M. PIPE CULVERT ON LT.	1	
673+27	15"X30' C.M. PIPE CULVERT ON RT.	1	
682+09	24"X32' C.M. PIPE CULVERT ON LT.	1	
682+09	24"X31' C.M. PIPE CULVERT ON RT.	1	
686+65	24"X41' C.M. PIPE CULVERT ON RT.	1	
705+20	24"X28' C.M. PIPE CULVERT ON RT.	1	
708+20	24"X28' C.M. PIPE CULVERT ON LT.	1	
725+18	24"X32' C.M. PIPE CULVERT ON LT.	1	
727+18	24"X32' C.M. PIPE CULVERT ON LT.	1	
727+25	24"X29' C.M. PIPE CULVERT ON RT.	1	
728+69	24"X28' C.M. PIPE CULVERT ON RT.	1	
731+19	36"X90' C.M. PIPE CULVERT W/HDWLS.	1	
737+69	24"X27' C.M. PIPE CULVERT ON LT.	1	
745+52	15"X28' C.M. PIPE CULVERT ON LT.	1	
745+54	15"X29' C.M. PIPE CULVERT ON RT.	1	
749+31	12"X19' STEEL PIPE CULVERT ON RT.	1	
749+37	12"X16' STEEL PIPE CULVERT ON RT.	1	
756+88	12"X40' C.M. PIPE CULVERT ON RT.	1	
756+90	8"X51' C.M. PIPE CULVERT ON LT.	1	
759+42	12"X29' C.M. PIPE CULVERT ON LT.	1	
759+43	10"X48' C.M. PIPE CULVERT ON RT.	1	
756+92	12" X 76' GALVANIZED PIPE CULVERT LT. OF EXISTING	1	
756+92	3' X 3' TYPE N DROP INLET LT. OF EXISTING		1
756+93	12" X 40' GALVANIZED PIPE CULVERT RT. OF EXISTING	1	
756+93	3' X 3' TYPE N DROP INLET LT. OF EXISTING		1
759+45	12" X 28' GALVANIZED PIPE CULVERT LT. OF EXISTING	1	
759+45	3' X 3' TYPE N DROP INLET LT. OF EXISTING		1
759+46	12" X 48' GALVANIZED PIPE CULVERT RT. OF EXISTING	1	
759+46	3' X 3' TYPE N DROP INLET LT. OF EXISTING		1
770+36	12" X 32' GALVANIZED PIPE CULVERT RT. OF EXISTING	1	
770+36	3' X 3' TYPE N DROP INLET RT. OF EXISTING		1
772+81	12" X 32' GALVANIZED PIPE CULVERT RT. OF EXISTING	1	
772+81	3' X 3' TYPE N DROP INLET RT. OF EXISTING		1
TOTALS:		47	6

NOTE: QUANTITY SHOWN ABOVE SHALL INCLUDE REMOVAL & DISPOSAL OF ALL HEADWALLS AND FLARED END SECTIONS IF APPLICABLE.

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
495+82	497+64	MAIN LANES ON LT.	195	
606+90	607+46	MAIN LANES ON LT.	321	
646+20	686+80	MAIN LANES ON LT.	4080	
687+65	692+80	MAIN LANES ON LT.	515	
693+20	698+15	MAIN LANES ON LT.	495	
698+28	704+23	MAIN LANES ON LT.	595	
704+64	708+00	MAIN LANES ON LT.	335	
708+39	715+60	MAIN LANES ON LT.	730	
715+95	724+99	MAIN LANES ON LT.	905	
725+38	727+10	MAIN LANES ON LT.	180	
727+34	737+49	MAIN LANES ON LT.	1015	
737+89	745+31	MAIN LANES ON LT.	733	
738+00	745+38	MAIN LANES ON RT.	738	1
745+66	748+94	MAIN LANES ON RT.	323	
745+78	748+09	MAIN LANES ON RT.	338	1
749+35	757+62	MAIN LANES ON RT.	947	
749+50	757+60	MAIN LANES ON RT.	883	
736+15		MAIN LANES ON LT.		1
749+40		MAIN LANES ON RT.		1
TOTALS:			13328	4

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE A)	WIRE FENCE (TYPE C)	* 16'-0" GATES
			LIN. FT.		EACH
495+82.00	497+82.00	MAIN LANES ON LT.		189	
596+20.73	596+35.32	MAIN LANES ON LT.		29	1
596+35.33	596+18.96	MAIN LANES ON RT.		33	
596+86.67	597+01.07	MAIN LANES ON LT.		29	
596+86.68	597+00.79	MAIN LANES ON RT.		28	1
606+90.00	610+00.00	MAIN LANES ON LT.		332	
646+19.54	648+75.00	MAIN LANES ON LT.	231		
649+25.00	650+75.00	MAIN LANES ON LT.	153		
651+25.00	653+00.00	MAIN LANES ON LT.	178		
653+50.00	662+02.00	MAIN LANES ON LT.	864		
662+52.00	668+11.00	MAIN LANES ON LT.	563		
667+75.00	681+84.00	MAIN LANES ON LT.	408		
668+61.00	673+01.00	MAIN LANES ON LT.	440		
673+45.00	677+25.00	MAIN LANES ON LT.	373		
682+34.00	687+20.00	MAIN LANES ON LT.	489		
687+70.00	692+50.59	MAIN LANES ON LT.	480		
693+00.00	698+00.00	MAIN LANES ON LT.	506		1
698+53.00	704+94.00	MAIN LANES ON LT.	640		
705+44.00	707+95.00	MAIN LANES ON LT.	254		
708+45.00	715+61.00	MAIN LANES ON LT.	715		
716+11.00	724+93.00	MAIN LANES ON LT.	882		
725+43.00	726+92.00	MAIN LANES ON LT.	150		
727+42.00	733+75.00	MAIN LANES ON LT.	636		
734+25.00	737+44.00	MAIN LANES ON LT.	320		
737+94.00	745+27.00	SOUTHBOUND RAMP ON LT.	713		
738+00.00	745+15.00	NORTHBOUND RAMP ON RT.	735		
745+65.00	749+33.00	NORTHBOUND RAMP ON RT.	386		
745+77.00	748+93.00	SOUTHBOUND RAMP ON LT.	306		
749+43.00	757+20.26	SOUTHBOUND RAMP ON LT.	763		
749+83.00	757+12.16	NORTHBOUND RAMP ON RT.	746		
757+20.26	757+12.16	MAIN LANES LT. & RT.		350	1
758+57.15	763+92.00	NORTHBOUND RAMP ON RT.	545		
758+66.94	758+57.15	MAIN LANES LT. & RT.		355	1
758+66.94	763+00.00	SOUTHBOUND RAMP ON LT.	438		
764+42.00	769+26.00	NORTHBOUND RAMP ON RT.	562		
TOTALS:			13476	1345	5

* DENOTES ALTERNATE BID ITEM.

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

STATION	LOCATION	WIDTH	LENGTH	CU.YD.
		FEET		
528+26	MAIN LANES	8.50	24	7.6
583+22	MAIN LANES	9.08	24	8.1
741+00	MAIN LANES	8.00	24	7.1
TOTAL:				22.8

AVG. DEPTH = 12"

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
479+55.58	494+39.63	MAIN LANES	1844	7
507+86.59	520+54.62	MAIN LANES	1628	7
533+46.35	547+27.12	MAIN LANES	1741	7
578+83.89	597+53.20	MAIN LANES	2349	9
601+88.61	621+32.91	MAIN LANES	2424	9
636+85.87	668+49.12	MAIN LANES	3943	14
737+08.19	753+94.22	MAIN LANES	2106	8
760+55.81	770+15.62	NORTHBOUND RAMP	960	5
* ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			1600	7
TOTALS:			18595	73

* NOTE: QUANTITIES ESTIMATED. SEE SECTION 104.03 OF THE STD. SPECS.

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	200
TOTAL:	200

NOTE: QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

CULVERT CLEAN OUT

STATION	LOCATION	EACH
576+82	MAIN LANES	1
583+82	MAIN LANES	1
623+71	MAIN LANES	1
644+61	MAIN LANES	1
667+25	MAIN LANES	1
685+55	MAIN LANES	1
693+57	MAIN LANES	1
700+19	MAIN LANES	1
731+19	MAIN LANES	1
738+45	MAIN LANES	2
TOTAL:		11

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
475+00	739+55	MAIN LANES	265	265
739+55	757+00	NORTHBOUND RAMP	18	18
739+55	757+03	SOUTHBOUND RAMP	18	18
759+52	769+82	NORTHBOUND RAMP	11	11
759+54	771+42	SOUTHBOUND RAMP	12	12
772+52	774+25	SOUTHBOUND RAMP	2	2
TOTALS:			326	326

GUARDRAIL

	STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
				LIN. FT.	EACH	
*	754+65.77	756+84.52	LT. SIDE OF RT. MAIN LANES	200	1	1
*	754+65.77	756+84.52	RT. SIDE OF RT. MAIN LANES	200	1	1
**	759+70.48	761+89.23	LT. SIDE OF LT. MAIN LANES	200	1	1
**	759+70.48	761+89.23	RT. SIDE OF LT. MAIN LANES	200	1	1
	768+40.75	770+59.50	LT. SIDE OF LT. MAIN LANES	200	1	1
	768+60.02	770+78.77	RT. SIDE OF LT. MAIN LANES	200	1	1
	774+23.73	776+42.48	LT. SIDE OF LT. MAIN LANES	200	1	1
	774+22.73	776+41.48	RT. SIDE OF LT. MAIN LANES	200	1	1
TOTALS:				1600	8	8

* BRIDGE B NORTHBOUND RAMP
** BRIDGE A SOUTHBOUND RAMP

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

8/1/2018

RCA0704.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	106	299

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CURB	SIGN FOUNDATIONS	GUARDRAIL	SIGNS	PLANTERS	APPROACH SLABS AND GUTTERS
			LIN. FT.	EACH	LIN. FT.	EACH	EACH	EACH
500+89		LT. OF EXISTING LANES		2		1		
639+12	639+26	LT. OF EXISTING LANES					1	
639+44	639+56	LT. OF EXISTING LANES					1	
686+90		LT. OF EXISTING LANES		2		1		
751+70	757+25	LT. OF EXISTING LANES			553			1
751+72	757+25	RT. OF EXISTING LANES			553			1
756+90	756+97	RT. OF EXISTING LANES	17					
756+90	756+98	LT. OF EXISTING LANES	17					
759+13	763+65	RT. OF EXISTING LANES			454			1
759+13	763+66	LT. OF EXISTING LANES			454			1
759+40	759+48	RT. OF EXISTING LANES	18					
759+42	759+48	LT. OF EXISTING LANES	12					
768+46	770+54	LT. OF EXISTING SOUTHBOUND RAMP			180			1
768+60	770+69	RT. OF EXISTING SOUTHBOUND RAMP			180			1
771+44	774+24	LT. OF EXISTING SOUTHBOUND RAMP			180			1
771+51	774+23	RT. OF EXISTING SOUTHBOUND RAMP			180			1
TOTALS:			64	4	2734	2	2	8

NOTE: THE QUANTITY SHOWN ABOVE FOR THE REMOVAL AND DISPOSAL OF GUARDRAIL SHALL INCLUDE THE REMOVAL AND DISPOSAL OF ALL GUARDRAIL TERMINALS AND TERMINAL ANCHOR POSTS.

DUMPED RIPRAP AND FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YD.	SQ. YD.
700+19	OUTLET OF PIPE CULVERT	2	3
731+19	OUTLET OF PIPE CULVERT	2	3
738+45	OUTLET OF PIPE CULVERT	2	3
761+51	OUTLET OF PIPE CULVERT	2	3
*	TO BE USED IF AND WHERE	10	20
	DIRECTED BY THE ENGINEER		
TOTALS:		18	32

*NOTE: QUANTITIES ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS

NOTE: FILTER BLANKET SHALL BE GEOTEXTILE FABRIC (TYPE 5).

SOIL LOG (BOX 1 OF 2)

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
		FEET				
477+00	06' RT	0-5	ND	NP	A-4(0)	BR/GR
477+00	15' RT	0-5	ND	NP	A-4(0)	BR/GR
477+00	24' RT	0-5	ND	NP	A-4(0)	BR/GR
485+00	06' LT	0-5	29	13	A-6(4)	BR/GR
485+00	15' LT	0-5	21	6	A-4(0)	BR/GR
493+00	15' RT	0-5	ND	NP	A-4(0)	BR/GR
493+00	06' RT	0-5	19	5	A-4(0)	BR/GR
502+00	06' LT	0-5	ND	NP	A-4(0)	BR/GR
502+00	24' LT	0-5	18	2	A-4(0)	GR/BR
502+00	24' LT	0-5	19	3	A-4(0)	GR/BR
502+00	15' LT	0-5	ND	NP	A-4(0)	BR/GR
509+00	06' RT	0-5	21	6	A-4(0)	BR/GR
509+00	15' RT	0-5	ND	NP	A-4(0)	BR/GR
509+00	06' LT	0-5	21	6	A-4(0)	BR/GR
509+00	15' RT	0-5	ND	NP	A-4(0)	BR/GR
517+00	06' LT	0-5	ND	NP	A-4(0)	BR/GR
517+00	24' LT	0-5	ND	NP	A-4(0)	BR/GR
517+00	15' LT	0-5	17	2	A-4(0)	BR/GR
525+00	06' RT	0-5	17	3	A-4(0)	BR/GR
525+00	15' RT	0-5	ND	NP	A-4(0)	BR/GR
533+00	15' LT	0-5	17	3	A-4(0)	BR/GR
533+00	06' LT	0-5	20	4	A-4(0)	BR/GR
533+00	24' LT	0-5	ND	NP	A-4(0)	BR/GR
541+00	06' RT	0-5	20	4	A-4(0)	BR/GR
541+00	15' RT	0-5	23	6	A-4(1)	BR/GR
549+00	06' LT	0-5	20	5	A-4(0)	BR/GR
549+00	15' LT	0-5	ND	NP	A-4(0)	BR/GR
549+00	24' LT	0-5	ND	NP	A-4(0)	GR/BR
549+00	24' LT	0-5	ND	NP	A-4(0)	GR/BR
557+00	15' RT	0-5	ND	NP	A-4(0)	BR/GR
557+00	06' RT	0-5	ND	NP	A-4(0)	GR/BR
565+00	24' LT	0-5	30	13	A-6(7)	BROWN
565+00	06' LT	0-5	ND	NP	A-4(0)	BR/GR
565+00	15' LT	0-5	22	6	A-4(1)	BR/GR
573+00	06' RT	0-5	ND	NP	A-4(0)	BROWN
573+00	15' RT	0-5	ND	NP	A-4(0)	BR/GR
581+00	06' LT	0-5	21	7	A-4(1)	BR/GR
581+00	15' LT	0-5	22	8	A-4(3)	BR/GR
581+00	24' LT	0-5	20	4	A-4(0)	BROWN
589+00	24' RT	0-5	20	4	A-4(0)	BROWN
589+00	06' RT	0-5	18	3	A-4(0)	BR/GR
589+00	15' RT	0-5	16	1	A-4(0)	BR/GR
589+00	24' RT	0-5	21	6	A-4(0)	BROWN
598+00	06' LT	0-5	ND	NP	A-1-B(0)	BR/GR
598+00	15' LT	0-5	19	4	A-4(0)	BR/GR
605+00	15' RT	0-5	ND	NP	A-1-B(0)	BR/GR
605+00	06' RT	0-5	20	5	A-4(0)	BR/GR
605+00	24' RT	0-5	22	6	A-4(1)	BROWN

SOIL LOG (BOX 2 OF 2)

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
		FEET				
613+00	15' LT	0-5	19	5	A-4(0)	BR/GR
613+00	06' LT	0-5	ND	NP	A-4(0)	BR/GR
613+00	24' LT	0-5	22	7	A-4(1)	BR/GR
621+00	15' RT	0-5	ND	NP	A-4(0)	BR/GR
621+00	06' RT	0-5	19	5	A-2-4(0)	BR/GR
627+00	24' LT	0-5	ND	NP	A-4(0)	BROWN
627+00	06' LT	0-5	ND	NP	A-4(0)	BR/GR
627+00	15' LT	0-5	17	2	A-4(0)	BR/GR
627+00	24' LT	0-5	ND	NP	A-2-4(0)	BROWN
637+00	06' RT	0-5	ND	NP	A-4(0)	BR/GR
637+00	15' RT	0-5	ND	NP	A-2-4(0)	BR/GR
648+00	09' LT	0-5	25	8	A-4(3)	BR/GR
648+00	18' LT	0-5	19	3	A-4(0)	BR/GR
648+00	30' LT	0-5	23	8	A-4(3)	BR/GR
653+00	15' RT	0-5	24	10	A-4(4)	BR/GR
653+00	06' RT	0-5	22	7	A-4(1)	BROWN
661+00	06' LT	0-5	37	24	A-6(15)	BROWN
661+00	24' LT	0-5	26	12	A-6(5)	BR/GR
661+00	15' LT	0-5	33	19	A-6(10)	BR/GR
671+00	06' RT	0-5	53	35	A-7-6(28)	BR/GR
671+00	15' RT	0-5	48	33	A-7-6(22)	BR/GR
677+00	06' LT	0-5	40	26	A-6(11)	BR/GR
677+00	24' LT	0-5	24	8	A-4(2)	BROWN
677+00	15' LT	0-5	30	17	A-6(6)	BR/GR
692+00	24' LT	0-5	27	11	A-6(4)	BROWN
692+00	06' LT	0-5	23	6	A-4(1)	BR/GR
692+00	24' LT	0-5	12	6	A-4(0)	BROWN
692+00	15' LT	0-5	23	6	A-4(0)	BR/GR
701+00	06' RT	0-5	27	11	A-6(5)	BROWN
701+00	15' RT	0-5	27	11	A-6(4)	BR/GR
709+00	24' LT	0-5	26	9	A-4(4)	BROWN
709+00	06' LT	0-5	27	10	A-4(2)	BR/GR
709+00	15' LT	0-5	30	13	A-6(6)	BR/GR
717+00	06' RT	0-5	37	19	A-6(7)	BR/GR
717+00	15' RT	0-5	26	10	A-4(4)	BROWN
725+00	18' LT	0-5	26	11	A-6(3)	BR/GR
725+00	06' LT	0-5	37	20	A-6(8)	BR/GR
725+00	29' LT	0-5	32	14	A-6(4)	BR/GR
732+00	15' RT	0-5	23	9	A-4(2)	BROWN
732+00	06' RT	0-5	31	17	A-6(8)	BR/GR
741+00	06' LT	0-5	22	6	A-4(0)	BR/GR
741+00	15' LT	0-5	23	8	A-4(2)	BR/GR
741+00	24' LT	0-5	22	7	A-4(0)	BR/GR
750+00	06' RT	0-5	50	34	A-7-6(24)	BR/GR
750+00	15' RT	0-5	44	29	A-7-6(12)	BROWN
750+00	24' RT	0-5	43	28	A-7-6(11)	BR/GR
750+00	24' RT	0-5	40	24	A-6(17)	BR/GR
756+00	06' LT	0-5	34	16	A-6(9)	BR/GR
756+00	15' LT	0-5	41	24	A-7-6(15)	BR/GR

SOIL CHARACTERISTICS TABULATED ABOVE ARE REPRESENTATIVE AT THE LOCATION OF THE SAMPLE, AND FROM SURFACE INDICATIONS ARE TYPICAL FOR THE LIMITS SHOWN. THESE DATA ARE SHOWN FOR INFORMATION ONLY. THE STATE WILL NOT BE RESPONSIBLE FOR VARIATIONS IN THE SOIL CHARACTERISTICS AND/OR EXTENT OF SAME DIFFERING FROM THE ABOVE TABULATIONS.
NP - NON-PLASTIC
ND - NOT DETERMINABLE

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
481+00.00	483+30.00	LT. OF MAIN LANES	230.00	204.44
508+00.00	510+00.00	LT. OF MAIN LANES	200.00	177.78
575+00.00	577+00.00	RT. OF MAIN LANES	200.00	177.78
582+00.00	583+00.00	RT. OF MAIN LANES	100.00	88.89
596+61.00	598+00.00	LT. OF MAIN LANES	139.00	123.56
601+00.00	604+80.00	LT. OF MAIN LANES	380.00	337.78
603+30.00	604+80.00	RT. OF MAIN LANES	150.00	133.33
613+00.00	615+00.00	LT. OF MAIN LANES	200.00	177.78
616+00.00	619+00.00	RT. OF MAIN LANES	300.00	266.67
622+00.00	623+71.00	LT. OF MAIN LANES	171.00	152.00
628+00.00	629+56.00	RT. OF MAIN LANES	156.00	138.67
646+00.00	649+00.00	LT. OF MAIN LANES	300.00	266.67
657+00.00	659+00.00	RT. OF MAIN LANES	200.00	177.78
683+00.00	684+00.00	RT. OF MAIN LANES	100.00	88.89
700+00.00	711+00.00	LT. OF MAIN LANES	1100.00	977.78
700+00.00	712+00.00	RT. OF MAIN LANES	1200.00	1066.67
741+00.00	749+00.00	LT. OF SOUTHBOUND RAMP	800.00	711.11
741+00.00	755+00.00	RT. OF SOUTHBOUND RAMP	1400.00	1244.44
759+52.00	760+00.00	LT. OF SOUTHBOUND RAMP	48.00	42.67
760+00.00	761+00.00	RT. OF SOUTHBOUND RAMP	100.00	88.89
741+00.00	744+00.00	RT. OF NORTHBOUND RAMP	300.00	266.67
741+00.00	755+00.00	LT. OF NORTHBOUND RAMP	1400.00	1244.44
746+00.00	748+00.00	RT. OF NORTHBOUND RAMP	200.00	177.78
755+00.00	757+00.00	RT. OF NORTHBOUND RAMP	200.00	177.78
760+00.00	761+00.00	LT. OF NORTHBOUND RAMP	100.00	88.89
762+00.00	763+00.00	RT. OF SOUTHBOUND DETOUR RAMP	100.00	88.89
762+06.00	763+00.00	LT. OF SOUTHBOUND DETOUR RAMP	94.00	83.56
TOTAL:				8771.59

NOTE: AVERAGE WIDTH = 8'-0"

8/1/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	107	299

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
475+00.00	476+00.00	MAIN LANES	24.00	266.67
767+50.00	770+17.90	SOUTHBOUND RAMP	29.00	863.23
770+15.62	771+15.62	NORTHBOUND RAMP	26.00	288.89
772+83.64	775+00.00	SOUTHBOUND RAMP	36.00	865.44
TOTAL:				2284.23

NOTE: AVERAGE MILLING DEPTH 1".

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
500+71.00	502+00.00	RT. OF MAIN LANES	129.00	6.00	86.00	57.33	0.72
596+00.00	597+00.00	LT. OF MAIN LANES	100.00	6.00	66.67	44.44	0.56
611+00.00	612+00.00	LT. OF MAIN LANES	100.00	6.00	66.67	44.44	0.56
623+00.00	624+00.00	LT. OF MAIN LANES	100.00	6.00	66.67	44.44	0.56
643+00.00	645+00.00	RT. OF MAIN LANES	200.00	6.00	133.33	88.89	1.12
691+00.00	695+00.00	RT. OF MAIN LANES	400.00	6.00	266.67	177.78	2.24
699+00.00	700+17.00	RT. OF MAIN LANES	117.00	6.00	78.00	52.00	0.66
760+00.00	762+00.00	RT. OF SOUTHBOUND RAMP	200.00	6.00	133.33	88.89	1.12
TOTALS:					897.34	598.21	7.54

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.

CONCRETE ISLAND

STATION	LOCATION	CURB FACE TYPE	CONCRETE ISLAND
			SQ.YD.
645+20	HWY. 167B	B	27
TOTAL:			27

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)	DROP INLET SILT FENCE (E-7)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	LIN. FT.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
475+00.00	775+00.00	CLEARING AND GRUBBING						89.84	89.84	1832.7	4048		22295			1010
475+00.00	775+00.00	MAIN LANES	29.17	58.34	29.17	2975.3	29.17									
578+83.89	600+96.10	STAGE 1A	0.16	0.32	0.16	16.3	0.16	0.16	0.16	3.3	88			456	456	460
475+00.00	736+16.64	STAGE 1B	1.21	2.42	1.21	123.4	1.21	1.21	1.21	24.7	2200			3934	3934	3934
736+16.64	770+15.62	STAGE 1C	0.28	0.56	0.28	28.6	0.28	0.28	0.28	5.7	88	50		362	362	364
763+55.81	768+53.02	STAGE 1D	0.03	0.06	0.03	3.1	0.03	0.03	0.03	0.6	66		1115			41
475+00.00	770+15.62	STAGE 2A	1.17	2.34	1.17	119.3	1.17	1.17	1.17	23.9	2420	50	6520	4768	4768	
761+20.00	764+59.05	STAGE 2B	0.26	0.52	0.26	26.5	0.26	0.26	0.26	5.3	44					
761+20.00	764+59.05	STAGE 3A	0.08	0.16	0.08	8.2	0.08	0.08	0.08	1.6	44	50	480			
763+56	768+53.02	STAGE 3 OBLITERATION SOUTHBOUND CROSSOVER	0.06	0.12	0.06	6.1	0.06	0.06	0.06	1.2						4
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			8.00	16.00	8.00	816.0	8.00	50.00	50.00	1020.0	1100	150	1000	2000	2000	2093
TOTALS:			40.42	80.84	40.42	4122.8	40.42	143.09	143.09	2919.0	10098	300	31410	11520	11520	7906

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

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.

8/1/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
3/18/20				6	ARK.			
				JOB NO.		CA0704	108	299

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-19-2020

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
	EACH	
ENTIRE PROJECT	5	5
TOTALS:	5	5

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	500
DIRECTED BY THE ENGINEER	
TOTAL:	500

NOTE: QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
475+00.00	736+00.00	LT. OF MAIN LANES	24293.00
475+00.00	736+00.00	RT. OF MAIN LANES	24322.00
736+00.00	756+93.92	LT. & RT. OF SOUTHBOUND RAMP	4187.80
736+00.00	757+08.92	LT. & RT. OF NORTHBOUND RAMP	4182.80
759+46.08	770+62.80	LT. & RT. OF SOUTHBOUND RAMP	1626.44
759+61.08	770+15.62	LT. & RT. OF NORTHBOUND RAMP	2126.60
772+47.63	774+23.23	LT. & RT. OF SOUTHBOUND RAMP	351.20
TOTAL:			61089.84

* QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.
TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	155	310
DIRECTED BY THE ENGINEER		
TOTALS:	155	310

BASIS OF ESTIMATE:
ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC....25 TON/MILE
TACK COAT FOR MAINTENANCE OF TRAFFIC.....50 GAL./MILE

NOTE: QUANTITIES ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
490+82	MAIN LANES - RT. HEADWALL	1
549+42	MAIN LANES - LT. HEADWALL	1
596+61	MAIN LANES - RT. HEADWALL	1
611+39	MAIN LANES - LT. HEADWALL	1
757+08.92	MAIN LANES - B.E. B7400	1
756+93.92	MAIN LANES - B.E. A7400	1
TOTAL:		6

NOTE: SHOWN FOR INFORMATION ONLY. BENCH MARKS SHALL BE FURNISHED AND PLACED BY STATE FORCES.

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18"	(CLASS III) 24"	(CLASS III) 30"	(CLASS III) 36"	(CLASS IV) 30"	(CLASS V) 30"	(CLASS V) 48"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 18"	24"	30"	36"	48"	TEMPORARY CULVERTS 12"	18"	DROP INLETS TYPE RM	DROP INLETS TYPE ST	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					LIN. FT.		EACH		LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
490+82.00	EXTEND R.C. BOX CULVERT LT. & RT.																	4	2	77	29.05	2666	21	9	0.11	SPECIAL DETAILS, W-X003-1, RCB-1, RCB-2, RCB-3
528+26.00	CONSTRUCT R.C. PIPE CULVERT W/FES LT. & RT.		118							2														16	0.20	FES-1, FES-2, PCC-1
549+42.00	EXTEND R.C. BOX CULVERT LT. & RT.																	4	2	72	27.42	2509	20	9	0.11	SPECIAL DETAILS, W-X003-1, RCB-1, RCB-2, RCB-3
576+82.00	EXTEND R.C. PIPE CULVERT W/FES LT. & RT.				64							2												34	0.43	FES-1, FES-2, PCC-1
583+22.00	CONSTRUCT R.C. PIPE CULVERT W/FES LT. & RT.					124					2													26	0.33	FES-1, FES-2, PCC-1
583+28.00	EXTEND R.C. PIPE CULVERT W/FES LT. & RT.					56					2													26	0.33	FES-1, FES-2, PCC-1
611+39.00	EXTEND R.C. BOX CULVERT LT. & RT.																	5	2	75	33.00	3457	24	10	0.13	SPECIAL DETAILS, W-X003-1, RCB-1, RCB-2, RCB-3
623+71.00	EXTEND R.C. PIPE CULVERT W/FES LT. & RT.							70					2											58	0.73	FES-1, FES-2, PCC-1
644+61.00	EXTEND R.C. PIPE CULVERT W/FES LT. & RT.		42							2														16	0.20	FES-1, FES-2, PCC-1
645+42.00	CONSTRUCT R.C. PIPE CULVERT W/FES LT. & RT.		148							2														16	0.20	FES-1, FES-2, PCC-1
667+25.00	EXTEND R.C. PIPE CULVERT LT. W/FES LT. & RT.		40							2														16	0.20	FES-1, FES-2, PCC-1
685+55.00	EXTEND R.C. PIPE CULVERT LT. W/FES LT. & RT.				44							2												34	0.43	FES-1, FES-2, PCC-1
693+57.00	EXTEND R.C. PIPE CULVERT LT. W/FES LT. & RT.		46							2														16	0.20	FES-1, FES-2, PCC-1
700+19.00	EXTEND R.C. PIPE CULVERT LT. W/FES LT. & RT.			48							2													26	0.33	FES-1, FES-2, PCC-1
731+19.00	EXTEND R.C. PIPE CULVERT LT. W/FES LT. & RT.				118							2												34	0.43	FES-1, FES-2, PCC-1
736+45.00	EXTEND DBL. R.C. PIPE CULVERT W/FES LT. & RT.			88							4													54	0.68	FES-1, FES-2, PCC-1
740+98.78	CONSTRUCT D.I. IN MEDIAN W/OUTLET RT.	64							1								1							12	0.15	PCC-1, FES-1, FES-2, FPC-9D
741+96.00	CONSTRUCT D.I. IN MEDIAN W/OUTLET RT.	92															1									PCC-1, FPC-9D
744+00.00	CONSTRUCT D.I. IN MEDIAN W/OUTLET RT.	296														1								5	0.06	PCC-1, FPC-9D
748+00.00	CONSTRUCT D.I. IN MEDIAN W/OUTLET RT.	90							1							1								17	0.21	PCC-1, FES-1, FES-2, FPC-9D
761+51.00	CONSTRUCT R.C. PIPE CULVERT ON 30^ LT. FWD. SKEW W/FES LT. & RT.						302				2													26	0.33	FES-1, FES-2, PCC-1
864+10.00	INSTALL TEMPORARY PIPE CULVERT FOR CROSSOVER														174											
*	ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.													500												
SUBTOTALS:		542	394	136	226	180	302	70	2	10	12	6	2	500	174	2	2				89.47	8632	65	460	5.79	
	STRUCTURES OVER 20' - 0" SPAN																									
596+61.00	CONSTRUCT TRI. R.C. BOX CULVERT W/3:1 WINGS LT. & RT.																	9	8	121	338.19	51707	139	34	0.43	SPECIAL DETAILS, W-X003-1, RCB-1, RCB-2
SUBTOTALS:																					338.19	51707	139	34	0.43	
TOTALS:		542	394	136	226	180	302	70	2	10	12	6	2	500	174	2	2				427.66	60339	204	494	6.22	

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.

*QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

8/1/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/22/20				6	ARK.			
				JOB NO.		CA0704	109	299

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-22-2020

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	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"	
			FEET	SQ. YD.	TON	TON	LIN. FT.			
478+09	RT.	DRIVE	18	88.40	9.72	36.10	34			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
483+31	LT.	DRIVE	16	78.42	8.63	32.02				
487+33	RT.	COUNTY ROAD 157	24	159.59	17.55	65.17		48		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
500+72	LT.	COUNTY ROAD 64	26	147.50	16.23	60.23				
524+73	RT.	COUNTY ROAD 156	20	128.93	14.18	52.65			40	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
536+24	LT.	COUNTY ROAD 252	20	184.93	20.34	75.51				
537+35	RT.	DRIVE	16	78.60	8.65	32.10				
582+34	RT.	DRIVE	16	86.42	9.51	35.29	38			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
603+30	LT.	DRIVE	16	78.24	8.61	31.95		34		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
604+67	RT.	DRIVE	16	78.42	8.63	32.02	28			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
606+05	LT.	DRIVE	16	89.26	9.82	36.45		42		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
619+03	LT.	COUNTY ROAD 238	20	167.81	18.46	68.52	56			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
623+92	RT.	DRIVE	16	78.95	8.68	32.24		28		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
626+74	RT.	DRIVE	16	79.66	8.76	32.53		34		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
629+57	RT.	DRIVE	16	80.20	8.82	32.75		32		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
632+11	RT.	DRIVE	16	80.20	8.82	32.75		30		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
632+89	RT.	DRIVE	16	80.02	8.80	32.67	30			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
634+27	RT.	DRIVE	22	108.26	11.91	44.21	36			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
638+61	LT.	DRIVE	16	76.11	8.37	31.08		32		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
639+44	LT.	DRIVE	16	76.64	8.43	31.29	34			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
640+26	RT.	DRIVE	18	102.00	11.22	41.65				
642+44	LT.	DRIVE	16	82.15	9.04	33.54				
644+96	RT.	DRIVE	16	99.40	10.93	40.59	38			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
649+00	LT.	DRIVE	16	104.41	11.49	42.63		32		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
651+00	LT.	DRIVE	16	73.09	8.04	29.85		28		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
653+18	RT.	DRIVE	16	84.29	9.27	34.42	32			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
662+27	LT.	DRIVE	16	74.33	8.18	30.35	30			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
670+09	RT.	DRIVE	16	78.06	8.59	31.87				
673+26	LT.	DRIVE	16	73.09	8.04	29.85	28			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
673+27	RT.	DRIVE	16	78.06	8.59	31.87	28			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
682+09	LT.	DRIVE	16	70.77	7.78	28.90		30		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
682+09	RT.	DRIVE	16	78.06	8.59	31.87		28		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
686+69	RT.	COUNTY ROAD 72	24	183.59	20.19	74.97		50		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
687+40	LT.	CHAMBERSVILLE ROAD	20	146.04	16.06	59.63				
692+80	LT.	EAST STREET	20	149.59	16.45	61.08				
693+48	RT.	COUNTY ROAD 166	20	160.93	17.70	65.71				
698+28	LT.	DRIVE	16	84.29	9.27	34.42				
705+20	RT.	DRIVE	16	78.24	8.61	31.95		30		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
708+20	LT.	DRIVE	16	70.06	7.71	28.61		28		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
715+71	RT.	DRIVE	16	116.29	12.79	47.49				
715+86	LT.	DRIVE	16	70.06	7.71	28.61				
725+18	LT.	DRIVE	16	87.13	9.58	35.58		34		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
727+17	LT.	DRIVE	16	79.31	8.72	32.38		28		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
727+22	RT.	DRIVE	16	78.24	8.61	31.95		28		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
728+65	RT.	DRIVE	16	78.24	8.61	31.95		32		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
737+69	LT.	DRIVE	16	98.03	10.78	40.03		30		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
745+51	LT.	DRIVE	16	101.17	11.13	41.31	30			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
745+43	RT.	DRIVE	16	101.17	11.13	41.31	30			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
749+65	RT.	DRIVE	20	121.18	13.33	49.48	38			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
749+16	LT.	DRIVE	20	90.07	9.91	36.78	34			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
764+31	RT.	DRIVE	20	90.07	9.91	36.78				
* ENTIRE PROJECT TEMPORARY DRIVES						400.00				
TOTALS:				**5007.97**	**550.88**	**2444.94**	**544**	**658**	**40**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

* 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.
NOTE: FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* REMOVING AND REPLACING TOPSOIL	* SOIL STABILIZATION
			CU. YD.			TON
475+00.00	770+16.00	STAGE 1 - MAIN LANES	20614	191680		
475+00.00	770+16.00	STAGE 2 - MAIN LANES	23815	26039		
767+00.00	770+16.00	STAGE 1 - RAMP NORTHBOUND	1506	137		
766+00.00	771+00.00	STAGE 2 - RAMP SOUTHBOUND	581	10		
759+52.32	768+53.02	STAGE 1 - SOUTHBOUND CROSSOVER	708	922		
759+52.32	768+53.02	STAGE 2 - OBLIT. OF SOUTHBOUND CROSSOVER	2470	78		
ENTIRE	PROJECT	APPROACHES	5	3430		
* 757+04.34	759+67.26	EXIST. BRIDGE EMB. - SOUTHBOUND RAMP	2325			
645+42		HWY. 167B LT. OF MAIN LANES		345		
490+82		CHANNEL CHANGE	4	3		
549+42		CHANNEL CHANGE	1	7		
596+61		CHANNEL CHANGE	207	98		
611+39		CHANNEL CHANGE	12	3		
* ENTIRE	PROJECT	TO BE USED IF AND WHERE			6000	2000
		DIRECTED BY THE ENGINEER				
TOTALS:			**52248**	**222752**	**6000**	**2000**

* QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE C)	APPROACH SLABS		REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)	DROP INLETS (TYPE N3)	CONCRETE SPILLWAY (TYPE A)	12" ZINC COATED (GALVANIZED) CORR. STEEL PIPE CULVERTS (16 GAUGE)
				TYPE C	TYPE SPECIAL					
			CU.YD.	CU.YD.	CU.YD.	POUND	TON	EACH	EACH	LIN. FT.
756+57.42	756+93.92	SOUTHBOUND RAMP ON LT.	14.80			810				
756+57.42	756+93.92	SOUTHBOUND RAMP ON RT.	11.55			630				
756+59.87		RT. OF NORTHBOUND RAMP						1	1	63
756+62.45		LT. OF SOUTHBOUND RAMP						1	1	76
756+72.42	757+08.92	NORTHBOUND RAMP ON LT.	11.55			630				
756+72.42	757+08.92	NORTHBOUND RAMP ON RT.	14.80			810				
759+46.08	759+82.58	SOUTHBOUND RAMP ON LT.	14.80			810				
759+46.08	759+82.58	SOUTHBOUND RAMP ON RT.	11.55			630				
759+46.08	759+82.58	SOUTHBOUND RAMP		49.15		5980	28.00			
759+46.08	759+82.58	SOUTHBOUND RAMP		49.15		5980	28.00			
759+61.08	759+97.58	NORTHBOUND RAMP ON LT.	11.55			630				
759+61.08	759+97.58	NORTHBOUND RAMP ON RT.	14.80			810				
759+61.08	759+97.58	NORTHBOUND RAMP		49.15		5980	28.00			
759+61.08	759+97.58	NORTHBOUND RAMP		49.15		5980	28.00			
759+92.54		RT. OF NORTHBOUND RAMP						1	1	109
759+95.06		LT. OF SOUTHBOUND RAMP						1	1	45
770+18.68		LT. OF SOUTHBOUND RAMP						1	1	40
770+25.99	770+62.99	SOUTHBOUND RAMP			56.70	7757	27.87			
770+34.43		RT. OF SOUTHBOUND RAMP						1	1	32
772+47.22	772+88.26	SOUTHBOUND RAMP			56.70	7757	27.87			
772+75.67		LT. OF SOUTHBOUND RAMP						1	1	40
772+84.62		RT. OF SOUTHBOUND RAMP						1	1	32
TOTALS:			**105.40**	**196.60**	**113.40**	**45194**	**167.74**	**8**	**8**	**437**

NOTE: USE T =17.5" FOR 8' SHOULDER.

8/1/2018

RCA0704.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.AID. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	110	299

(2) QUANTITIES

STATE OF ARKANSAS
TRINITY D. SMITH
REGISTERED PROFESSIONAL ENGINEER
No. 11425
3-11-19

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1 1/2")				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	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	TOTAL PG 70-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																										
474+00.00	475+00.00	TRANSITION	100.00			75.00	833.33	0.17	141.67													75.00	833.33	220.00	91.67	91.67
475+00.00	479+55.58	NOTCH AND WIDEN RT.	455.58	363.25	1654.89	141.75	7175.39	0.05	358.77	39.39	1993.92	495.00	493.50	39.23	1985.82	330.00	327.66	39.13	1980.76	220.00	217.88	75.00	3796.50	220.00	417.62	635.50
479+55.58	483+60.58	NOTCH AND WIDEN RT.	405.00	363.25	1471.16	141.75	6378.75	0.05	318.94	39.39	1772.55	495.00	438.71	39.23	1765.35	330.00	291.28	39.13	1760.85	220.00	193.69	75.00	3375.00	220.00	371.25	564.94
483+60.58	491+77.05	NOTCH AND WIDEN LT. & RT.	816.47	363.25	2965.83	117.74	10681.24	0.05	534.06	39.39	3573.42	495.00	884.42	39.23	3558.90	330.00	587.22	39.13	3549.83	220.00	390.48	75.00	6803.92	220.00	748.43	1138.91
491+77.05	494+39.63	NOTCH AND WIDEN LT.	262.58	363.25	953.82	141.75	4135.64	0.05	206.78	39.39	1149.23	495.00	284.43	39.23	1144.56	330.00	188.85	39.13	1141.64	220.00	125.58	75.00	2188.17	220.00	240.70	366.28
494+39.63	507+86.59	NOTCH AND WIDEN LT.	1346.96	363.25	4892.83	141.75	21214.62	0.05	1060.73	39.39	5895.19	495.00	1459.06	39.23	5871.25	330.00	968.76	39.13	5856.28	220.00	644.19	75.00	11224.67	220.00	1234.71	1878.90
507+86.59	520+54.62	NOTCH AND WIDEN LT.	1268.03	363.25	4606.12	141.75	19971.47	0.05	998.57	39.39	5549.74	495.00	1373.56	39.23	5527.20	330.00	911.99	39.13	5513.11	220.00	606.44	75.00	10566.92	220.00	1162.36	1768.80
520+54.62	533+46.35	NOTCH AND WIDEN LT.	1291.73	363.25	4692.21	141.75	20344.75	0.05	1017.24	39.39	5653.47	495.00	1399.23	39.23	5630.51	330.00	929.03	39.13	5616.15	220.00	617.78	75.00	10764.42	220.00	1184.09	1801.87
533+46.35	547+27.12	NOTCH AND WIDEN LT.	1380.77	363.25	5015.65	141.75	21747.13	0.05	1087.36	39.39	6043.17	495.00	1495.68	39.23	6018.62	330.00	993.07	39.13	6003.28	220.00	660.36	75.00	11506.42	220.00	1265.71	1926.07
547+27.12	578+83.89	NOTCH AND WIDEN LT.	3156.77	363.25	11466.97	141.75	49719.13	0.05	2485.96	39.39	13816.13	495.00	3419.49	39.23	13760.01	330.00	2270.40	39.13	13724.93	220.00	1509.74	75.00	26306.42	220.00	2893.71	4403.45
578+83.80	582+88.89	NOTCH AND WIDEN LT.	405.09	363.25	1471.49	141.75	6380.17	0.05	319.01	39.39	1772.94	495.00	438.80	39.23	1765.74	330.00	291.35	39.13	1761.24	220.00	193.74	75.00	3375.75	220.00	371.33	565.07
582+88.89	593+48.20	NOTCH AND WIDEN LT. & RT.	1059.31	363.25	3847.94	117.74	13858.13	0.05	692.91	39.39	4636.25	495.00	1147.47	39.23	4617.41	330.00	761.87	39.13	4605.64	220.00	506.62	75.00	8827.58	220.00	971.03	1477.65
593+48.20	595+00.00	NOTCH AND WIDEN RT.	151.80	363.25	551.41	141.75	2390.85	0.05	119.54	39.39	664.38	495.00	164.43	39.23	661.68	330.00	109.18	39.13	659.99	220.00	72.60	75.00	1265.00	220.00	139.15	211.75
595+00.00	598+30.00	FULL DEPTH W/FULL DEPTH SHOULDER ON RT.	330.00	456.50	1506.45	208.98	7662.60	0.05	383.13	69.77	2558.23	495.00	633.16	69.46	2546.87	330.00	420.23	69.25	2539.17	220.00	279.31	75.00	2750.00	220.00	302.50	581.81
598+30.00	601+88.61	NOTCH AND WIDEN RT.	358.61	363.25	1302.65	141.75	5648.11	0.05	282.41	39.39	1569.52	495.00	388.46	39.23	1563.14	330.00	257.92	39.13	1559.16	220.00	171.51	75.00	2988.42	220.00	328.73	500.24
601+88.61	605+00.00	NOTCH AND WIDEN RT.	311.39	363.25	1131.12	141.75	4904.39	0.05	245.22	39.39	1362.85	495.00	337.31	39.23	1357.31	330.00	223.96	39.13	1353.85	220.00	148.92	75.00	2594.92	220.00	285.44	434.36
605+00.00	612+00.00	NOTCH AND WIDEN LT. & RT.	700.00	363.25	2542.75	117.74	9157.56	0.05	457.88	39.39	3063.67	495.00	758.26	39.23	3051.22	330.00	503.45	39.13	3043.44	220.00	334.78	75.00	5833.33	220.00	641.67	976.45
612+00.00	621+32.91	NOTCH AND WIDEN LT.	932.91	363.25	3388.80	141.75	14693.33	0.05	734.67	39.39	4083.04	495.00	1010.55	39.23	4066.45	330.00	670.96	39.13	4056.09	220.00	446.17	75.00	7774.25	220.00	855.17	1301.34
621+32.91	636+85.87	NOTCH AND WIDEN LT.	1552.96	363.25	5641.13	141.75	24459.12	0.05	1222.96	39.39	6796.79	495.00	1682.21	39.23	6769.18	330.00	1116.91	39.13	6751.92	220.00	742.71	75.00	12941.33	220.00	1423.55	2166.26
636+85.87	668+49.12	NOTCH AND WIDEN LT.	3163.25	363.25	11490.51	141.75	49821.19	0.05	2491.06	39.39	13844.49	495.00	3426.51	39.23	13788.26	330.00	2275.06	39.13	13753.11	220.00	1512.84	75.00	26360.42	220.00	2899.65	4412.49
668+49.12	738+79.17	NOTCH AND WIDEN LT.	7030.05	363.25	25536.66	141.75	110723.29	0.05	5536.16	39.39	30768.19	495.00	7615.13	39.23	30643.21	330.00	5056.13	39.13	30565.10	220.00	3362.16	75.00	58583.75	220.00	6444.21	9806.37
738+79.17	753+64.49	NOTCH AND WIDEN - TRANSITION TO S.B. LANES	1485.32	294.00	4366.84	75.75	12501.44	0.05	625.07	25.39	4190.25	495.00	1037.09	25.23	4163.85	330.00	687.04	25.13	4147.34	220.00	456.21	55.50	9159.47	220.00	1007.54	1463.75
738+79.17	753+64.49	NOTCH AND WIDEN - TRANSITION TO N.B. LANES	1485.32	339.13	5037.17	98.62	16275.81	0.05	813.79	33.08	5459.38	495.00	1351.20	32.85	5421.42	330.00	894.53	32.69	5395.01	220.00	593.45	55.50	9159.47	220.00	1007.54	1600.99
645+42.00		HWY. 167B TURNOUT AND APPROACH		VAR.	393.11	VAR.	962.71	0.05	48.14									VAR.	962.71	220.00	105.90					105.90
TEMPORARY CROSSOVER SOUTHBOUND RAMP DETOUR																										
860+00.00	868+59.47	FULL DEPTH	859.47	243.50	2092.81	30.71	2932.70	0.05	146.64					15.46	1476.38	330.00	243.60	15.25	1456.32	220.00	160.20	25.00	2387.42	220.00	262.62	422.82
SOUTHBOUND RAMP																										
753+55.73	754+00.00	NOTCH AND WIDEN LT.	44.27	224.75	99.50	33.75	166.01	0.05	8.30	11.39	56.03	495.00	13.87	11.23	55.24	330.00	9.11	11.68	57.45	220.00	6.32	25.00	122.97	220.00	13.53	19.85
754+00.00	756+55.92	FULL DEPTH	255.92	315.00	806.15	79.48	2260.06	0.05	113.00	26.77	761.22	495.00	188.40	26.46	752.40	330.00	124.15	26.25	746.43	220.00	82.11	36.00	1023.68	220.00	112.60	194.71
759+84.04	762+00.00	FULL DEPTH	215.96	315.00	680.27	79.48	1907.17	0.05	95.36	26.77	642.36	495.00	158.98	26.46	634.92	330.00	104.76	26.25	629.88	220.00	69.29	36.00	863.84	220.00	95.02	164.31
762+00.00	765+00.00	FULL DEPTH - TRANSITION	300.00	317.38	952.14	62.98	2099.33	0.05	104.97	21.27	709.00	495.00	175.48	20.96	698.67	330.00	115.28	20.75	691.67	220.00	76.08	30.50	1016.67	220.00	111.83	187.91
765+00.00	767+59.56	NOTCH AND WIDEN LT.	259.56	313.50	813.72	25.00	721.00	0.05	36.05									15.00	432.60	220.00	47.59	25.00	721.00	220.00	79.31	126.90
767+59.56	770+17.90	MILL AND OVERLAY	258.34			29.00	832.43	0.17	141.51													29.00	832.43	220.00	91.57	91.57
772+83.64	775+00.00	MILL AND OVERLAY	216.36			36.00	865.44	0.17	147.12													36.00	865.44	220.00	95.20	95.20
NORTHBOUND RAMP																										
753+73.25	754+17.52	FULL DEPTH	44.27	315.00	139.45	79.48	390.95	0.05	19.55	26.77	131.68	495.00	32.59	26.46	130.15	330.00	21.47	26.25	129.12	220.00	14.20	36.00	177.08	220.00	19.48	33.68
754+17.52	756+70.88	FULL DEPTH	253.36	315.00	798.08	79.48	2237.45	0.05	111.87	26.77	753.61	495.00	186.52	26.46	744.88	330.00	122.91	26.25	738.97	220.00	81.29	36.00	1013.44	220.00	111.48	192.77
759+99.06	760+00.00	FULL DEPTH	0.94	315.00	2.96	79.48	8.30	0.05	0.42	26.77	2.80	495.00	0.69	26.46	2.76	330.00	0.46	26.25	2.74	220.00	0.30	36.00	3.76	220.00	0.41	0.71
760+00.00	765+40.00	FULL DEPTH - TRANSITION	540.00	317.38	1713.85	62.98	3778.80	0.05	188.94	21.27	1276.20	495.00	315.86	20.96	1257.60	330.00	207.50	20.75	1245.00	220.00	136.95	30.50	1830.00	220.00	201.30	338.25
765+40.00	766+00.00	FULL DEPTH	60.00	328.75	197.25	79.48	529.87	0.05	26.49	26.77	178.47	495.00	44.17	26.46	176.40	330.00	29.11	26.25	175.00	220.00	19.25	36.00	240.00	220.00	26.40	45.65
766+00.00	770+15.62	NOTCH AND WIDEN LT. & RT.	415.62	195.75	813.58	25.00	1154.50	0.05	57.73													25.00	1154.50	220.00	127.00	127.00
770+15.62	771+15.62	TRANSITION	100.00	237.25	237.25	26.00	288.89	0.17	49.11													26.00	288.89	220.00	31.78	31.78
ADDITIONAL FOR LEVELING																										
475+00.00	595+00.00	MAIN LANES	12000.00			VAR.	VAR.	0.17	5459.04									VAR.	VAR.	VAR.	3532.32					3532.32
598+30.00	753+64.49	MAIN LANES	15534.49			VAR.	VAR.	0.17	6489.92									VAR.	VAR.	VAR.	4199.36					4199.36
753+55.73	754+00.00	SOUTHBOUND RAMP	44.27			VAR.	VAR.	0.17	479.94									VAR.	VAR.	VAR.	310.55					310.55
765+00.00	767+50.00	SOUTHBOUND RAMP	250.00			VAR.	VAR.	0.17	184.17									VAR.	VAR.	VAR.	119.17					119.17
766+00.00	770+15.62	NORTHBOUND RAMP	415.62			VAR.	VAR.	0.17	117.76									VAR.	VAR.	VAR.	76.20					76.20
ADDITIONAL FOR SUPERELEVATION																										
479+55.58	494+39.63	MAIN LANES	1484.05	VAR.	498.00																					
507+86.59	520+54.62	MAIN LANES	1268.03	VAR.	435.01																					
533+46.35	547+27.12	MAIN LANES	1380.77	VAR.	443.52																					
578+83.89	597+53.20	MAIN LANES	1869.31	VAR.	794.27																					
601+88.61	621+32.91	MAIN LANES	1944.30	VAR.	839.08																					
636+85.87	668+49.12	MAIN LANES	3163.25	VAR.	1147.68																					
738+79.17	754+81.30	NORTHBOUND RAMP	1602.13	VAR.	660.49																					
738+79.17	752+65.19	SOUTHBOUND RAMP	1386.02	VAR.	546.50																					
760+55.81	770+15.62	NORTHBOUND RAMP	959.81	VAR.	185.39																					
TOTALS:					**120824.46**		**461813.05**		**36159.92**		**130728.17**		**32355.22**		**131607.36**		**21715.20**		**132605.78**		**22824.24**		**251520.58**		**27667.29**	**50491.53**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.7% MIN. AGGR.....4.3% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.0% MIN. AGGR.....4.0% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

8/1/2018
RCA0704.DGN

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.		CA0704	111	299
① A&B7400 -		QUANTITIES	- 59376	

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. CA0704

BRIDGE NO. / NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	619	801	SS & 802	SP. SS. & 802	803	SS & 804	SS & 804	SS & 805	SS & 805	SP. SS. & 807	SS & 808	SS & 809	812	816	SP JOB CA0704	SP JOB CA0704	SP JOB CA0704
		ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO._)	7' STEEL CHAIN LINK FENCE	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	① CLASS S(AE) CONCRETE-BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	② CONCRETE PILING (18" SQ.)	② TEST PILE (18" SQ.)	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	CONCRETE RIPRAP	FURNISH PPC MATERIAL	PLACE PPC OVERLAY	PPC BRIDGE DECK REPAIR
		UNIT	LUMP SUM	LIN. FT.	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LB.	CU. IN.	LIN. FT.	EACH	CU. YD.	CU. FT.	SQ. YD.	SQ. FT.
A7400 HIGHWAY 167 OVER UNION PACIFIC RAILROAD	BENT NO. 1				54	38.40		0.3	3,972	280	220	60	720	2,175.0			19			
	BENT NO. 2				243	177.60			30,776		720			2,284.0						
	BENT NO. 3				447	167.50			28,990		575	30		2,284.0						
	BENT NO. 4				58	38.40		0.3	3,972	280	250		720	2,175.0			30			
	250'-0" CONT. W-BEAM UNIT			292			309.50	25.1		72,560			312,520		84	1				
	SITE NO. 2 (EX. BR. NO. 03637)		1																	
	TOTALS FOR BRIDGE NO. A7400			292	802	421.90	309.50	25.7	67,710	73,120	1,765	90	313,960	8,918.0	84	1	49			
B7400 HIGHWAY 167 OVER UNION PACIFIC RAILROAD	BENT NO. 1					38.40		0.3	3,972	280	275		720	2,175.0			25			
	BENT NO. 2				348	177.60			30,776		575	30		2,284.0						
	BENT NO. 3				287	167.50			28,990		840			2,284.0						
	BENT NO. 4					38.40		0.3	3,972	280	220	60	720	2,175.0			23			
	250'-0" CONT. W-BEAM UNIT			298			309.50	25.1		72,560			312,520		84	1				
	TOTALS FOR BRIDGE NO. B7400			298	635	421.90	309.50	25.7	67,710	73,120	1,910	90	313,960	8,918.0	84	1	48			
	EX. BRIDGE NO. 03638 ③								500						130			244	434	585
	TOTALS FOR EX. BRIDGE. NO. 03638								500 ④						130			244	434	585 ④
	SITE NO. 1 (EX. BR. NO. 00306)		1																	
	TOTALS FOR JOB NO. CA0704			590	1,437	843.80	619.00	51.4	135,920	146,240	3,675	180	627,920	17,836.0	298	2	97	244	434	585

① NO DEVIATIONS FROM THE POURING SEQUENCE SHOWN ON DWG. NO. 59391 WILL BE ALLOWED.

② ALL CONCRETE PILING SHALL BE PRESTRESSED CONFORMING TO STD. DWG. NO. 55022.

③ THE EXISTING BRIDGE DECK DOES NOT HAVE AN ASPHALT OVERLAY.

④ QUANTITIES OF REINFORCING STEEL AND BRIDGE DECK REPAIR SHOWN FOR EXISTING BR. NO. 03638 ARE FOR ESTIMATING AND BIDDING PURPOSES ONLY. ACTUAL QUANTITY, IF ANY, WILL BE DETERMINED IN THE FIELD.

JIM POOL
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
10-15-18
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
HWY. 79 - SOUTH (WIDENING) (S)
CALHOUN COUNTY

ROUTE 167 SEC. 4

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 6-30-17 FILENAME: bca0704_ql.dgn
CHECKED BY: DKS DATE: 10-12-18 SCALE: none
DESIGNED BY: — DATE: —

BRIDGE NO. A&B7400 DRAWING NO. 59376

PRINT DATE: 10/12/2018

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/22/20				6	ARK.			
2/10/20				JOB NO.		CA0704	112	299
3/18/20								

(2) SUMMARY OF QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-19-2020

SUMMARY OF QUANTITIES (BOX 1 OF 2)

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	326	STATION
201	GRUBBING	326	STATION
202	REMOVAL AND DISPOSAL OF CURB	64	LIN. FT.
202	REMOVAL AND DISPOSAL OF FENCE	13328	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES	4	EACH
202	REMOVAL AND DISPOSAL OF APPROACH SLAB AND GUTTERS	8	EACH
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS	4	EACH
202	REMOVAL AND DISPOSAL OF DROP INLETS	6	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	47	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	2734	LIN. FT.
202	REMOVAL AND DISPOSAL OF SIGNS	2	EACH
202	REMOVAL AND DISPOSAL OF PLANTERS	2	EACH
SS & 210	UNCLASSIFIED EXCAVATION	52248	CU. YD.
210	COMPACTED EMBANKMENT	222752	CU. YD.
SP	REMOVING AND REPLACING TOPSOIL	6000	CU. YD.
SP & 210	SOIL STABILIZATION	2000	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	123437	TON
SS & 401	TACK COAT	36470	GAL.
SP, SS, & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")	31061	TON
SP, SS, & 405	ASPHALT BINDER (PG 64-22) IN ACHM BASE COURSE (1 1/2")	1294	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	20781	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	934	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	48337	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	29	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")	2676	TON
412	COLD MILLING ASPHALT PAVEMENT	2284	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	155	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	500	TON
504	APPROACH SLABS	310.00	CU. YD.
504	APPROACH GUTTERS	105.40	CU. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SP, SS, & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
603	12" TEMPORARY CULVERT	500	LIN. FT.
603	18" TEMPORARY CULVERT	174	LIN. FT.
SS & 604	SIGNS	1384	SQ. FT.
SP, SS, & 604	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE	10	EACH
SS & 604	BARRICADES	224	LIN. FT.
SS & 604	TRAFFIC DRUMS	654	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	1430	LIN. FT.
SS & 604	RELOCATING PRECAST CONCRETE BARRIER	858	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	240551	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	1008	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	4000	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	2000	LIN. FT.
SS & 604	VERTICAL PANELS	176	EACH
SS & 605	CONCRETE DITCH PAVING (TYPE B)	897	SQ. YD.
SP	CULVERT CLEAN OUT	11	EACH
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	542	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	394	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	136	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	180	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	302	LIN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	226	LIN. FT.
SP & 606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	70	LIN. FT.
606	12" ZINC COATED (GALVANIZED) CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	437	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN	544	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	658	LIN. FT.
SP, SS, & 606	30" SIDE DRAIN	40	LIN. FT.
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	2	EACH
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	10	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	12	EACH
606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	6	EACH
606	48" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	2	EACH
606	SELECTED PIPE BEDDING	200	CU. YD.
SS & 609	DROP INLETS (TYPE N3)	8	EACH
SS & 609	DROP INLETS (TYPE RM)	2	EACH
SS & 609	DROP INLETS (TYPE ST)	2	EACH
SS & 611	4" PIPE UNDERDRAINS	18595	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	73	EACH
614	CONCRETE SPILLWAY (TYPE A)	8	EACH
615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)	22.8	CU. YD.
SS & 617	GUARDRAIL (TYPE A)	1600	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)	8	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL	8	EACH
619	WIRE FENCE (TYPE A)	13476	LIN. FT.
619	WIRE FENCE (TYPE C)	1345	LIN. FT.
* 619	16' STEEL GATES (ALTERNATE NO. 1)	5	EACH
* 619	16' ALUMINUM GATES (ALTERNATE NO. 2)	5	EACH
620	LIME	81	TON
620	SEEDING	40.42	ACRE
SS & 620	MULCH COVER	183.51	ACRE
620	WATER	7055.6	M. GAL.
621	TEMPORARY SEEDING	143.09	ACRE
621	SILT FENCE	31410	LIN. FT.
621	SAND BAG DITCH CHECKS	10098	BAG
621	DROP INLET SILT FENCE	300	LIN. FT.
621	SEDIMENT BASIN	11520	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	11520	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	7906	CU. YD.
623	SECOND SEEDING APPLICATION	40.42	ACRE

* DENOTES ALTERNATE BID ITEMS.

RCA0704.DGN 8/1/2018

SUMMARY OF QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11/13/19		2/24/20		3/17/20		6	ARK.			
1/22/20		3/5/20		3/18/20		JOB NO.		CA0704	113	299
2/10/20		3/13/20								

(2) SUMMARY OF QUANTITIES AND REVISIONS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

3-19-2020

SUMMARY OF QUANTITIES (BOX 2 OF 2)

ITEM NUMBER	ITEM	QUANTITY	UNIT
624	SOLID SODDING	1092	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	8772	SQ. YD.
SS & 632	CONCRETE ISLAND	27	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	5	EACH
637	MAILBOX SUPPORTS (SINGLE)	5	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	61090	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10")	80	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")	70425	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (8")	147	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	73663	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (12")	1552	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	2044	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER	16	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	16	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	65	CU. YD.
SS & 802	CLASS S CONCRETE-ROADWAY	89.47	CU. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	53826	POUND
816	FILTER BLANKET	32	SQ. YD.
816	DUMPED RIPRAP	18	CU. YD.
	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
619	7' STEEL CHAIN LINK FENCE	590	LIN. FT.
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	1437	CU. YD.
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	139	CU. YD.
SS & 802	CLASS S CONCRETE-ROADWAY	338.19	CU. YD.
SS & 802	CLASS S CONCRETE-BRIDGE	843.80	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	619.00	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	51.4	GAL.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	51707	POUND
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	135920	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	146240	POUND
SS & 805	CONCRETE PILING (18" SQUARE)	3675	LIN. FT.
SS & 805	TEST PILE (18" SQUARE)	180	LIN. FT.
SP, SS, & 807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)	627920	POUND
SS & 808	ELASTOMERIC BEARINGS	17836.0	CU. IN.
SS & 809	SILICONE JOINT SEALANT	298	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	2	EACH
816	CONCRETE RIPRAP	97	CU. YD.
SP	FURNISH PPC MATERIAL	244	CU. FT.
SP	PLACE PPC OVERLAY	434	SQ. YD.
SP	PPC BRIDGE DECK REPAIR	585	SQ. FT.

REVISIONS

DATE	REVISION	SHEET NUMBER
11/13/2019	REVISED BRIDGE LENGTH IN NOTE FOR BR. NO. 03638 ON TITLE SHEET.	1 & 113
12/12/2019	REVISED "SITE USE (A+C METHOD) - CALENDAR DAY CONTRACT" SP.	113
12/19/2019	REVISED ROADWAY STANDARD DRAWINGS. REVISED "PLASTIC PIPE" SP.	2 & 22
1/22/2020	REVISED ROADWAY STANDARD DRAWINGS. REVISED "PLASTIC PIPE" SP AND ADDED "TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)" SP; ADDED SS 210-1, SS 404-3, SS 603-1, SS 807-2.	2, 3, 9, 109, 112, & 113
2/10/2020	REMOVED "TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)" SP; ADDED SS-604-3.	3, 112, & 113
2/24/2020	REMOVED "DELAY IN RIGHT OF WAY OCCUPANCY" SP.	3 & 113
3/5/2020	REVISED ROADWAY STANDARD DRAWINGS PCP-3, PM-1, AND TC-3.	2 & 113
3/13/2020	ADDED "INSURANCE, CONSTRUCTION, AND FLAGGING REQUIREMENTS ON RAILROAD PROPERTY" SP.	3 & 113
3/17/2020	ADDED NOTE TO TYPICAL SECTIONS.	4 & 113
3/18/2020	REVISED QUANTITIES FOR ITEMS "30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)" & "30" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)"	108, 112, & 113

8/1/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	114	299

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES
Project Name: ca0704
Date: 2/21/2014
Coordinate System: Arkansas State Plane Coordinates
Based on AHTD GPS PTS : *070011-070011a,070012-070012a,070013-070013a,200002-200002a*
Projected to Ground Coordinates
Units: U.S. Survey Foot

COORDINATES LISTED BELOW ARE GROUND (Localized) COORDINATES !!!!

Point No.	Northing	SY	Easting	SX	Elevation	SZ	Feature Code	Point Description
77	1691176.3512	0.0214	1170041.3625	0.0199	258.78	0.022	CTL	PD:AHTD STD. MON STAMPED T-77
78	1691757.7718	0.0296	1169857.0907	0.0277	253.28	0.022	CTL	PD:AHTD STD. MON STAMPED T-78
79	1692429.4011	0.0239	1169646.2768	0.0255	251.84	0.022	CTL	PD:AHTD STD. MON STAMPED T-79
80	1693224.9257	0.0303	1169395.2151	0.0305	258.54	0.022	CTL	PD:AHTD STD. MON STAMPED T-80
81	1693960.8211	0.0208	1169165.7042	0.0221	262.86	0.021	CTL	PD:AHTD STD. MON STAMPED T-81
82	1694725.7710	0.0263	1168965.9603	0.0304	261.96	0.021	CTL	PD:AHTD STD. MON STAMPED T-82
83	1695368.9850	0.0245	1168935.1453	0.0287	260.87	0.021	CTL	PD:AHTD STD. MON STAMPED T-83
84	1696093.2678	0.0237	1168916.9508	0.0252	269.35	0.021	CTL	PD:AHTD STD. MON STAMPED T-84
85	1696899.6223	0.0213	1168896.6617	0.0234	275.34	0.021	CTL	PD:AHTD STD. MON STAMPED T-85
86	1697536.5707	0.0196	1168851.9880	0.0219	277.09	0.021	CTL	PD:AHTD STD. MON STAMPED T-86
87	1698234.3327	0.0191	1168669.3686	0.0199	268.67	0.021	CTL	PD:AHTD STD. MON STAMPED T-87
88	1698849.0256	0.0217	1168502.4904	0.0229	267.72	0.021	CTL	PD:AHTD STD. MON STAMPED T-88
89	1700234.4684	0.0184	1168178.4044	0.0200	267.38	0.021	CTL	PD:AHTD STD. MON STAMPED T-89
90	1700907.3939	0.0232	1168133.8867	0.0229	266.27	0.021	CTL	PD:AHTD STD. MON STAMPED T-90
91	1701663.8077	0.0302	1168082.7913	0.0258	270.97	0.021	CTL	PD:AHTD STD. MON STAMPED T-91
92	1702971.7788	0.0254	1168004.0605	0.0223	271.37	0.020	CTL	PD:AHTD STD. MON STAMPED T-92
93	1703654.7552	0.0196	1167984.2391	0.0193	266.74	0.020	CTL	PD:AHTD STD. MON STAMPED T-93
94	1704374.5071	0.0288	1167949.4963	0.0264	266.66	0.020	CTL	PD:AHTD STD. MON STAMPED T-94
95	1704972.1440	0.0286	1167755.8362	0.0310	266.47	0.020	CTL	PD:AHTD STD. MON STAMPED T-95
96	1705570.1848	0.0231	1167373.6602	0.0218	265.46	0.020	CTL	PD:AHTD STD. MON STAMPED T-96
97	1706238.9098	0.0235	1166939.1333	0.0221	272.38	0.020	CTL	PD:AHTD STD. MON STAMPED T-97
98	1706835.3127	0.0227	1166705.0581	0.0214	274.64	0.020	CTL	PD:AHTD STD. MON STAMPED T-98
99	1707495.0674	0.0250	1166646.3039	0.0225	285.86	0.019	CTL	PD:AHTD STD. MON STAMPED T-99
106	1688416.9863	0.0001	1170823.0275	0.0001	248.99	0.022	GPS	PD:AHTD GPS #070011
107	1690615.0108	0.0001	1170245.8013	0.0001	251.54	0.022	GPS	PD:AHTD GPS #070011A
108	1699574.5534	0.0001	1168245.0418	0.0001	270.97	0.021	GPS	PD:AHTD GPS #070012
109	1702316.3533	0.0001	1167980.9088	0.0001	271.63	0.020	GPS	PD:AHTD GPS #070012A
110	1721524.2716	0.0001	1169551.1224	0.0001	365.54	0.017	GPS	PD:AHTD GPS #070013
111	1722342.3189	0.0001	1170920.2260	0.0001	348.79	0.016	GPS	PD:AHTD GPS #070013A
112	1730151.3300	0.0001	1175894.9606	0.0001	290.35	0.012	GPS	PD:AHTD GPS #200002
113	1731155.9883	0.0001	1176517.1343	0.0001	286.61	0.013	GPS	PD:AHTD GPS #200002A
150	1708164.9384	0.0326	1166652.2728	0.0286	288.14	0.019	CTL	PD:AHTD STD. MON STAMPED T-150
151	1708896.2056	0.0234	1166684.4835	0.0210	296.71	0.019	CTL	PD:AHTD STD. MON STAMPED T-151
152	1709725.0744	0.0335	1166680.6380	0.0283	304.02	0.019	CTL	PD:AHTD STD. MON STAMPED T-152
153	1710147.8037	0.0304	1166625.4608	0.0260	308.57	0.019	CTL	PD:AHTD STD. MON STAMPED T-153
154	1710784.1443	0.0275	1166789.0537	0.0226	312.99	0.019	CTL	PD:AHTD STD. MON STAMPED T-154
155	1711492.4285	0.0262	1166984.7073	0.0235	313.75	0.019	CTL	PD:AHTD STD. MON STAMPED T-155
156	1712113.8824	0.0298	1167240.8212	0.0293	313.38	0.019	CTL	PD:AHTD STD. MON STAMPED T-156
157	1712766.7757	0.0242	1167539.0073	0.0247	313.35	0.019	CTL	PD:AHTD STD. MON STAMPED T-157
158	1713541.7433	0.0271	1167884.8735	0.0244	311.59	0.018	CTL	PD:AHTD STD. MON STAMPED T-158
159	1714282.1897	0.0305	1168216.3129	0.0272	312.23	0.018	CTL	PD:AHTD STD. MON STAMPED T-159
160	1714818.1228	0.0255	1168455.6677	0.0228	314.57	0.018	CTL	PD:AHTD STD. MON STAMPED T-160
161	1715337.9714	0.0233	1168689.1658	0.0223	315.81	0.018	CTL	PD:AHTD STD. MON STAMPED T-161
162	1715956.9906	0.0262	1168967.5412	0.0246	328.89	0.018	CTL	PD:AHTD STD. MON STAMPED T-162
163	1716637.9003	0.0254	1169275.4410	0.0269	341.98	0.018	CTL	PD:AHTD STD. MON STAMPED T-163
164	1717300.4437	0.0188	1169571.5054	0.0210	342.43	0.017	CTL	PD:AHTD STD. MON STAMPED T-164
165	1717898.3513	0.0193	1169838.1376	0.0192	335.18	0.017	CTL	PD:AHTD STD. MON STAMPED T-165
166	1718523.5550	0.0253	1170124.5205	0.0255	329.95	0.017	CTL	PD:AHTD STD. MON STAMPED T-166
167	1719117.3207	0.0239	1170347.5566	0.0256	337.53	0.017	CTL	PD:AHTD STD. MON STAMPED T-167
168	1719780.9186	0.0234	1170446.2225	0.0260	354.67	0.017	CTL	PD:AHTD STD. MON STAMPED T-168
169	1720541.5290	0.0222	1170408.3039	0.0249	370.95	0.016	CTL	PD:AHTD STD. MON STAMPED T-169
170	1721234.4323	0.0185	1170360.7363	0.0212	368.37	0.016	CTL	PD:AHTD STD. MON STAMPED T-170
171	1721867.1537	0.0249	1170298.4883	0.0250	376.79	0.017	CTL	PD:AHTD STD. MON STAMPED T-171
172	1721825.8557	0.0227	1170590.6709	0.0265	359.94	0.016	CTL	PD:AHTD STD. MON STAMPED T-172
173	1721827.9686	0.0207	1170037.1199	0.0228	360.42	0.016	CTL	PD:AHTD STD. MON STAMPED T-173
174	1722649.6044	0.0185	1171457.0536	0.0228	342.58	0.016	CTL	PD:AHTD STD. MON STAMPED T-174
928	1692301.0003	0.3000	1169691.4721	0.3000	249.70	0.022	TBM	PD:CHSD SQ CTR OF HW
929	1693214.0537	0.3000	1169407.9630	0.3000	257.43	0.022	TBM	PD:CHSD SQ CTR OF HW
930	1698815.2501	0.3000	1168522.1504	0.3000	266.02	0.021	TBM	PD:CHSD SQ CTR OF HW
931	1700874.3518	0.3000	1168084.3009	0.3000	265.39	0.021	TBM	PD:CHSD SQ CNT HW
932	1703611.8656	0.3000	1167993.9460	0.3000	264.24	0.020	TBM	PD:CHSD SQ CNT HW
933	1704257.2295	0.3000	1167976.1309	0.3000	263.08	0.020	TBM	PD:CHLD SQ CNT HW
934	1706759.0807	0.3000	1166732.5089	0.3000	273.05	0.020	TBM	PD:CHSD SQ CNT HW
935	1707966.4325	0.3000	1166654.9133	0.3000	285.95	0.019	TBM	PD:CHSD SQ CNT HW
936	1712198.8268	0.3000	1167299.5098	0.3000	312.37	0.019	TBM	PD:CHSD SQ CNTR HW
937	1713865.0568	0.3000	1168048.1514	0.3000	309.07	0.018	TBM	PD:CHSD SQ CNTR HW
938	1714617.6642	0.3000	1168383.9243	0.3000	313.59	0.018	TBM	PD:CHSD SQ CNT HW
939	1715207.7279	0.3000	1168651.5840	0.3000	314.34	0.018	TBM	PD:CHSD SQ CNT HW
940	1718036.7041	0.3000	1169899.4857	0.3000	330.46	0.017	TBM	PD:CHSD SQ CNT HW
941	1718704.5830	0.3000	1170197.5897	0.3000	328.30	0.017	TBM	PD:CHSD SQ CNT HW
942	1720555.0163	0.3000	1170405.4463	0.3000	371.39	0.016	TBM	PD:CHSD SQ
943	1721877.6984	0.3000	1170309.9929	0.3000	378.36	0.017	TBM	PD:CHSD SQ SW CNR BR
944	1722115.0031	0.3000	1170721.0880	0.3000	354.97	0.016	TBM	PD:CHSD SQ CNTR HW
945	1696088.5268	30.0000	1168663.8304	30.0000	310.75	0.015	TBM	PD:CHSLD SQ IN CENTER OF HW
946	1728704.7522	0.3000	1175030.0576	0.3000	267.67	0.013	TBM	PD:CHSLD SQ IN S\E COR OF HW
947	1729882.9183	0.3000	1179489.6533	0.3000	312.28	0.010	TBM	PD:BOLT ON THE TOP OF A FH
948	1729729.3059	0.3000	1182759.4559	0.3000	303.05	0.008	TBM	PD:CHSLD SQ IN S\E COR OF CB
949	1729681.8075	0.3000	1186326.6658	0.3000	289.14	0.005	TBM	PD:PIPE IN CENTER OF SQ CON.
995	1695105.8941	0.3000	1168890.9845	0.3000	259.72	0.021	TBM	PD:CHSD SQ CTR OF HW
996	1705495.7253	0.3000	1167422.8084	0.3000	265.68	0.020	BM	PD:BRASS CAP
997	1712180.8167	0.3000	1165531.4067	0.3000	285.49	0.020	TBM	PD:CHSD SQ
998	1730083.3951	0.3000	1187838.9465	0.3000	271.77	0.000	BM	PD:BRASS DISC
999	1729764.2347	0.3000	1187223.7147	0.3000	289.84	0.000	BM	PD:BRASS DISC

*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 "PN: ###" & "Job ######". Monuments that are set by Consultants will be stamped "Arkansas Hwy & Trans Dept" with "PN:###", "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 (1500 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) *PN: 106-113*
Horizontal - Primary (2.0cm± 20PPM): *PN:77-99,150-174*
Horizontal - Secondary (3 cm ± 50PPM): *PN:N/A*
Vertical - NGS 1st Order (±4mm x Vdist in km) *PN:N/A*
Vertical - NGS 2nd Order (±6mm x Vdist in km) *PN:998-999*
Vertical - NGS 3rd Order (±8mm x Vdist in km) *PN:930-949,995-997*

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: 0.999926700 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: T 81, U 11
A project Elevation Factor of: 0.9999857524 has been computed and incorporated in the above CAF.
This is based on the average elevation of the project: 297.87 Feet
3-Wire Leveling techniques have been used to establish elevations on
Points: 77-99,150-174,930-949,9! From NGS BM: 998-999

Basis of Bearing: Grid Bearings based on AHTD GPS points: 070011-070011a,070012-070012a,070013-070013a,200002-200002a
Convergence Angle is: 00-16-05.89 LEFT at PN: 98
LT: 33-44-58.3 LG: 092-28-45.8 W
Grid Azimuth = Astronomical Azimuth - Convergence Angle

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

CONST. C.L.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8045	PI	467+33.31	1692844.7005	1169512.9103
8046	PI	476+00.00	1693671.3561	1169252.5449
8047	PC	483+60.58	1694397.0742	1169024.9266
8049	PT	491+77.05	1695200.2061	1168894.1414
8050	PI	494+39.64	1695462.7526	1168889.1718
8051	PC	511+91.59	1697214.1317	1168844.5411
8053	PT	516+49.62	1697666.2440	1168778.3415
8054	PC	537+51.35	1699694.4408	1168227.2673
8056	PT	543+22.12	1700256.4636	1168133.2878
8057	PI	555+30.04	1701461.7514	1168053.5438
8058	PC	564+55.82	1702385.2768	1167988.9773
8060	PT	569+06.78	1702835.6373	1167966.3850
8061	PC	582+88.89	1704217.1109	1167924.3113
8063	PT	593+48.20	1705213.7517	1167607.5061
8064	PC	605+93.61	1706252.0008	1166919.6871
8066	PT	617+27.91	1707323.6243	1166602.0711
8067	PI	631+17.45	1708713.1067	1166614.3258
8068	PC	640+90.87	1709686.4683	1166625.4386
8070	PT	664+44.12	1711968.5226	1167128.0310
8071	PC	739+33.19	1718800.1723	1170196.3767
8073	PT	753+19.22	1720150.4873	1170442.4122
8112	POE	774+25.00	1722252.2596	1170312.6142

DETOUR C.L.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8075	POB	1+75.00	1704971.1448	1167731.3533
8076	PC	6+27.24	1705373.4529	1167524.7919
8078	PT	7+04.16	1705439.7966	1167485.9450
8079	PC	8+25.96	1705541.3339	1167418.6786
8081	PT	9+74.24	1705655.3042	1167324.2590
8082	PC	10+30.14	1705694.3083	1167284.2104
8084	PT	11+78.22	1705808.1055	1167189.9055
8085	POE	14+03.90	1705996.2088	1167065.2099

SOUTHBOUND RAMP

POINT NO.	TYPE	STATION	NORTHING	EASTING
8097	POB	730+00.00	1717951.1516	1169809.0209
8098	PC	738+79.17	1718753.1412	1170169.2240
8100	PT	752+65.19	1720103.4562	1170415.2595
8101	PI	766+29.53	1721465.2030	1170331.1629
8113	PC	768+27.93	1721663.3568	1170321.4094
8115	PT	778+32.46	1722518.7170	1170756.9235
8116	POE	784+91.30	1722879.6219	1171308.1193

NORTHBOUND RAMP C.L.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8103	POB	730+00.00	1717946.6447	1169819.0553
8104	PC	739+87.22	1718847.2034	1170223.5294
8106	PT	753+73.25	1720197.5184	1170469.5649
8107	PC	763+55.81	1721178.2181	1170409.0003
8109	PT	769+81.78	1721782.6619	1170538.7504
8110	POE	770+15.62	1721812.6013	1170554.5120

TEMPORARY CROSSOVER SOUTHBOUND RAMP C.L.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8113	POB	859+61.08	1720748.2345	1170433.3314
8087	PC	863+55.81	1721178.2152	1170409.0005
8089	PT	865+96.43	1721414.5417	1170366.6876
8090	PC	866+05.83	1721423.5432	1170363.9754
8092	PT	868+59.47	1721672.8675	1170320.9413
8102	POE	868+66.30	1721679.6870	1170320.6056

8/1/2018

RCA0704.DGN

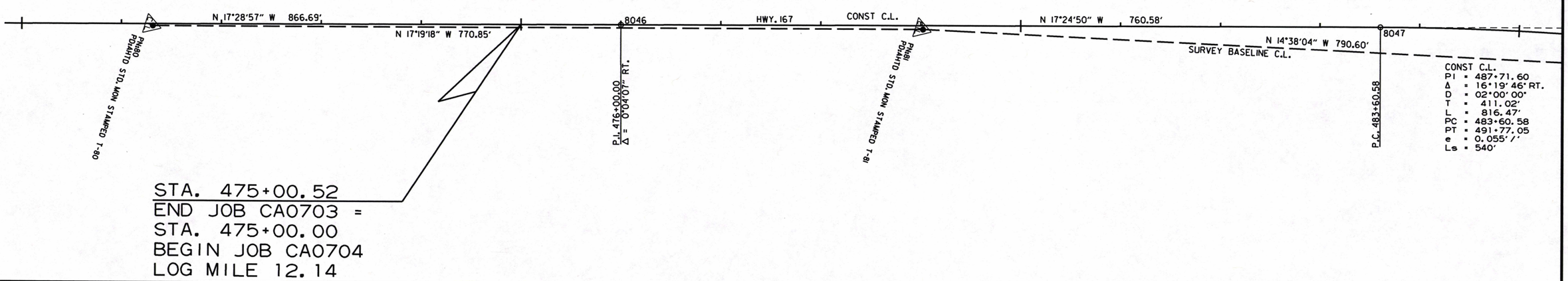
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	115	299

(2) SURVEY CONTROL DETAILS

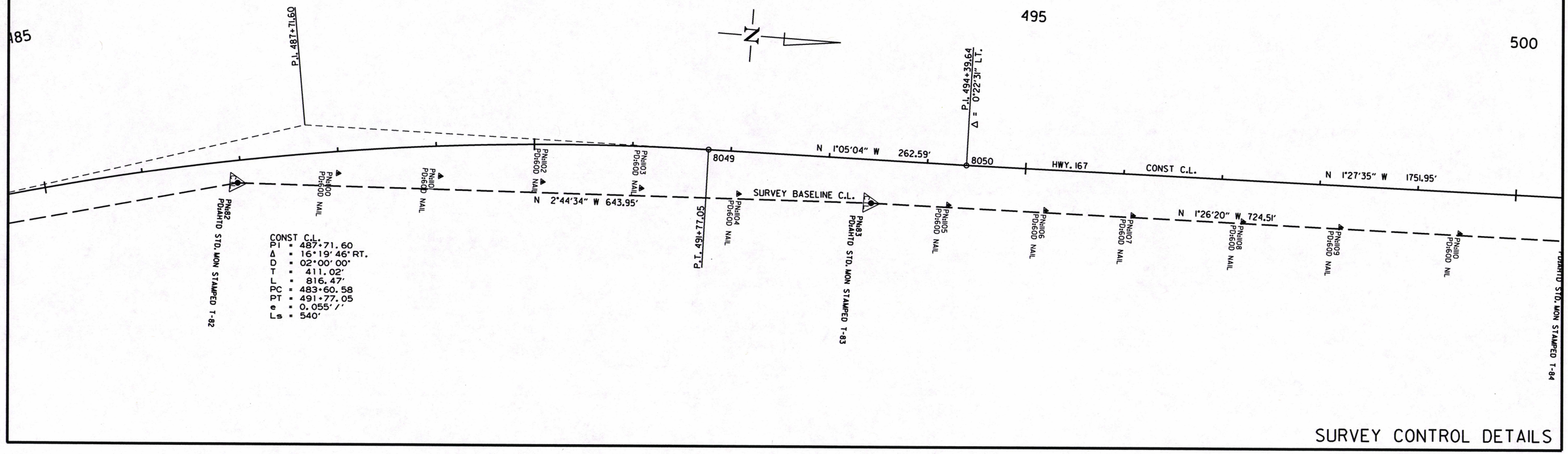
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

470 475 480



STA. 475+00.52
END JOB CA0703 =
STA. 475+00.00
BEGIN JOB CA0704
LOG MILE 12.14

485 490 495 500



8/1/2018

RCA0704.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	116	299

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

500 505 510

N

CONST C.L.
PI = 514+21.71
Δ = 13°44'27" LT.
D = 03°00'00"
T = 230.12'
L = 458.03'
PC = 511+91.59
PT = 516+49.62
e = 0.077'/'
Ls = 540'

P.C. 511+91.59

N 1°27'35" W 1751.95'

CONST C.L.

HWY. 167

8051

N 1°26'29" W 806.61'

SURVEY BASELINE C.L.

N 4°00'43" W 638.51'

P.T. 516+49.62

PN#84 PDAHTD STD. MON STAMPED T-84
PN#111 PD:60D NAIL
PN#112 PD:60D NAIL
PN#113 PD:60D NAIL
PN#114 PD:60D NAIL
PN#115 PD:60D NAIL
PN#116 PD:60D NAIL
PN#117 PD:60D NAIL
PN#118 PD:60D
PN#85 PDAHTD STD. MON STAMPED T-85
PN#119 PD:60D
PN#120 PD:60D
PN#121 PD:60D
PN#122 PD:60D
PN#123 PD:60D
PN#124 PD:60D
PN#86 PDAHTD STD. MON STAMPED T-86

515 520 525 530

N

CONST C.L.
PI = 514+21.71
Δ = 13°44'27" LT.
D = 03°00'00"
T = 230.12'
L = 458.03'
PC = 511+91.59
PT = 516+49.62
e = 0.077'/'
Ls = 540'

P.T. 516+49.62

8053

HWY. 167

CONST C.L.

N 15°12'02" W 2101.73'

N 14°40'00" W 721.26'

SURVEY BASELINE C.L.

N 15°11'19" W 636.94'

PN#86 PDAHTD STD. MON STAMPED T-86
PN#125 PD:60D
PN#126 PD:60D
PN#127 PD:60D
PN#128 PD:60D
PN#129 PD:60D
PN#130 PD:60D
PN#131 PD:60D
PN#87 PDAHTD STD. MON STAMPED T-87
PN#132 PD:60D
PN#133 PD:60D
PN#134 PD:60D
PN#135 PD:60D
PN#136 PD:60D
PN#137 PD:60D
PN#88 PDAHTD STD. MON STAMPED T-88
PN#138 PD:60D
PN#139 PD:60D

8/1/2018

RCA0704.DGN

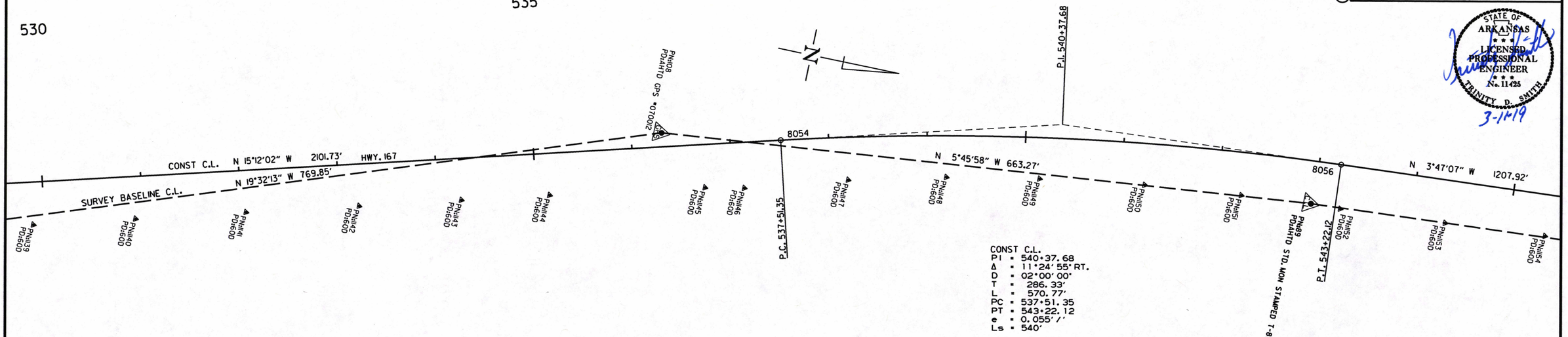
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	117	299

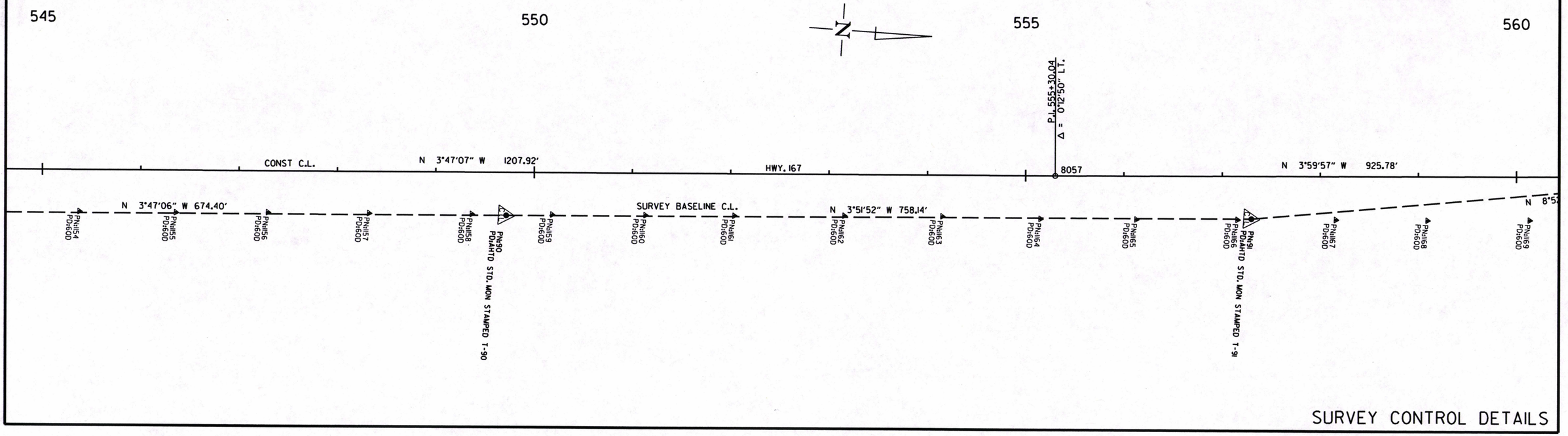
(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-14-19

530 535 540



545 550 555 560



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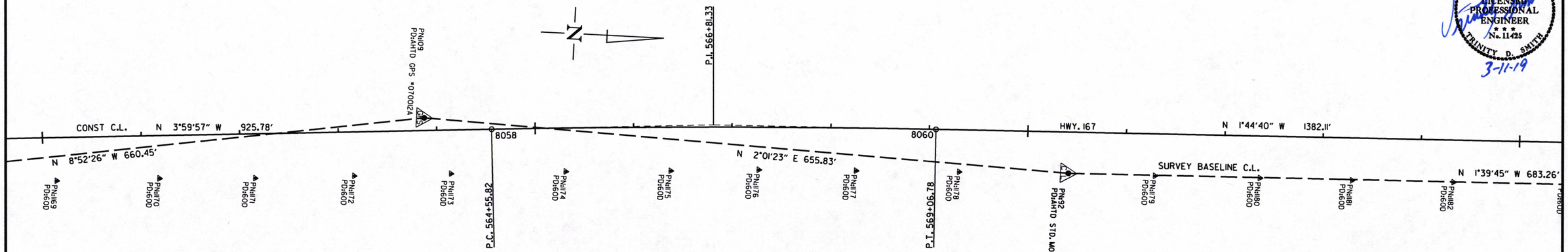
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	118	299

(2) SURVEY CONTROL DETAILS

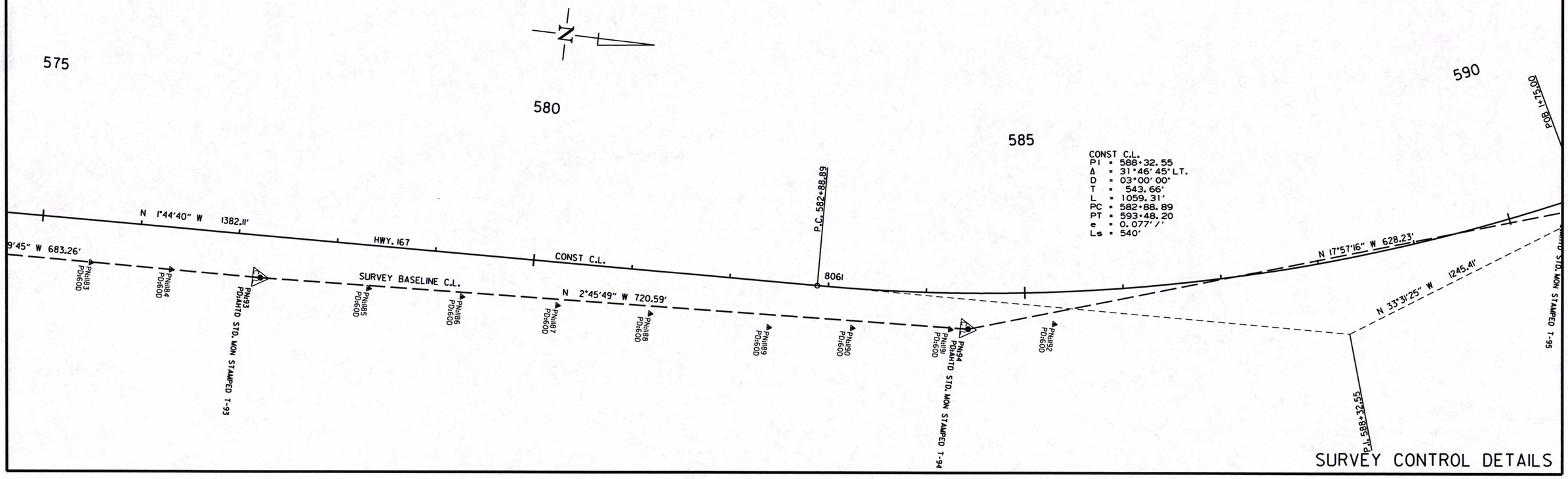
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-1-19

560 565 570



CONST C.L.
PI = 566+81.33
Δ = 02°15'17" RT.
D = 00°30'00"
T = 225.51'
L = 450.96'
PC = 564+55.82
PT = 569+06.78
NO SUPER

575 580 585 590



CONST C.L.
PI = 588+32.55
Δ = 31°46'45" LT.
D = 03°00'00"
T = 543.66'
L = 1059.31'
PC = 582+88.89
PT = 593+48.20
e = 0.077'/'
Ls = 540'

8/1/2018

RCA0704.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	119	299

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

590 5 595 10 600

CONST C.L.
PI = 588+32.55
Δ = 31°46'45" LT.
D = 03°00'00"
T = 543.66'
L = 1059.31'
PC = 582+88.89
PT = 593+48.20
e = 0.077'/'
Ls = 540'

DETOUR C.L.
PI = 6+65.74
Δ = 06°20'45" LT.
D = 08°15'00"
T = 38.50'
L = 76.92'
PC = 6+27.24
PT = 7+04.16
NO SUPER

DETOUR C.L.
PI = 9+00.38
Δ = 12°14'00" LT.
D = 08°15'00"
T = 74.42'
L = 148.28'
PC = 8+25.96
PT = 9+74.24
NO SUPER

DETOUR C.L.
PI = 11+04.46
Δ = 12°12'58" RT.
D = 08°15'00"
T = 74.32'
L = 148.07'
PC = 10+30.14
PT = 11+78.22
NO SUPER

POB 1+75.00
P.T. 593+48.20
P.C. 6+27.24
P.T. 7+04.16
P.C. 8+25.96
P.T. 9+74.24
P.I. 11+04.46
POE 14+03.90
P.I. 6+65.74
P.I. 9+00.38
P.C. 10+30.14
P.T. 11+78.22

8075 N 27°10'40" W 452.24' 8063 N 32°34'50" W 709.73' 8076 8078 N 33°31'25" W 121.80' 8079 HWY. 167 N 45°45'25" W 55.90' 8082 8084 N 33°31'25" W 1245.41' N 33°32'27" W 225.68' 8085 N 33°00'55" W 797.50' CONST C.L. SURVEY BASELINE C.L.

PNH95 PDA4HTD STD. MON STAMPED T-95
PNH96 PDA4HTD STD. MON STAMPED T-96
PNH97 PDA4HTD STD. MON STAMPED T-97

610 615 620

P.I. 611+78.04

N 33°31'25" W N 0°30'19" E

HWY. 167

8064 N 21°25'44" W 640.69' 8066 N 5°05'21" W 662.37' CONST C.L. SURVEY BASELINE C.L.

P.C. 605+93.61

CONST C.L.
PI = 611+78.04
Δ = 34°01'44" RT.
D = 03°00'00"
T = 584.43'
L = 1134.30'
PC = 605+93.61
PT = 617+27.91
e = 0.077'/'
Ls = 540'

P.T. 617+27.91

PNH98 PDA4HTD STD. MON STAMPED T-98
PNH99 PDA4HTD STD. MON STAMPED T-99

8/1/2018
RCA0704.DGN

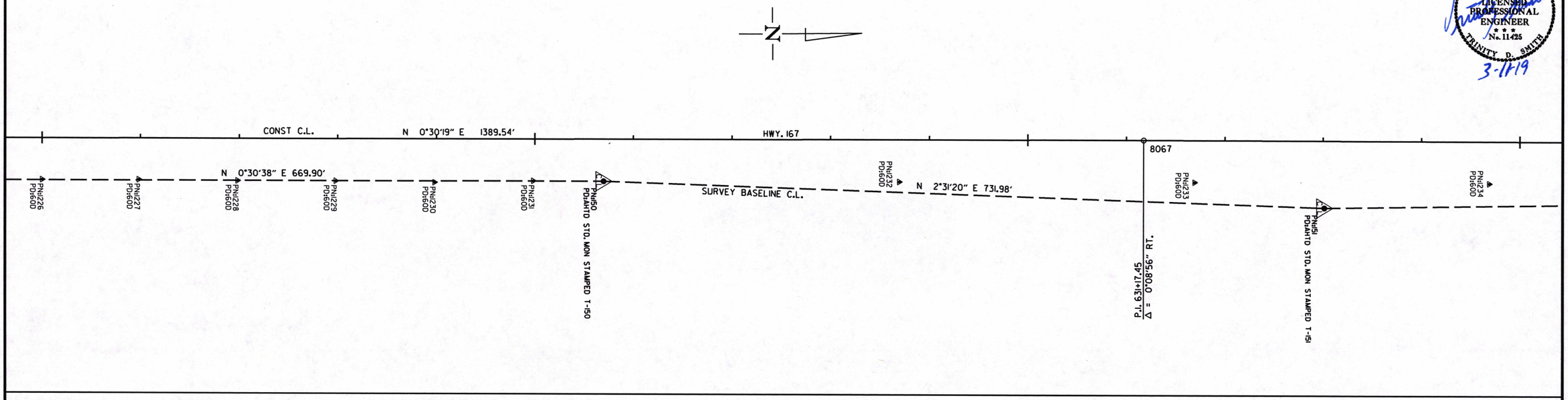
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	120	299

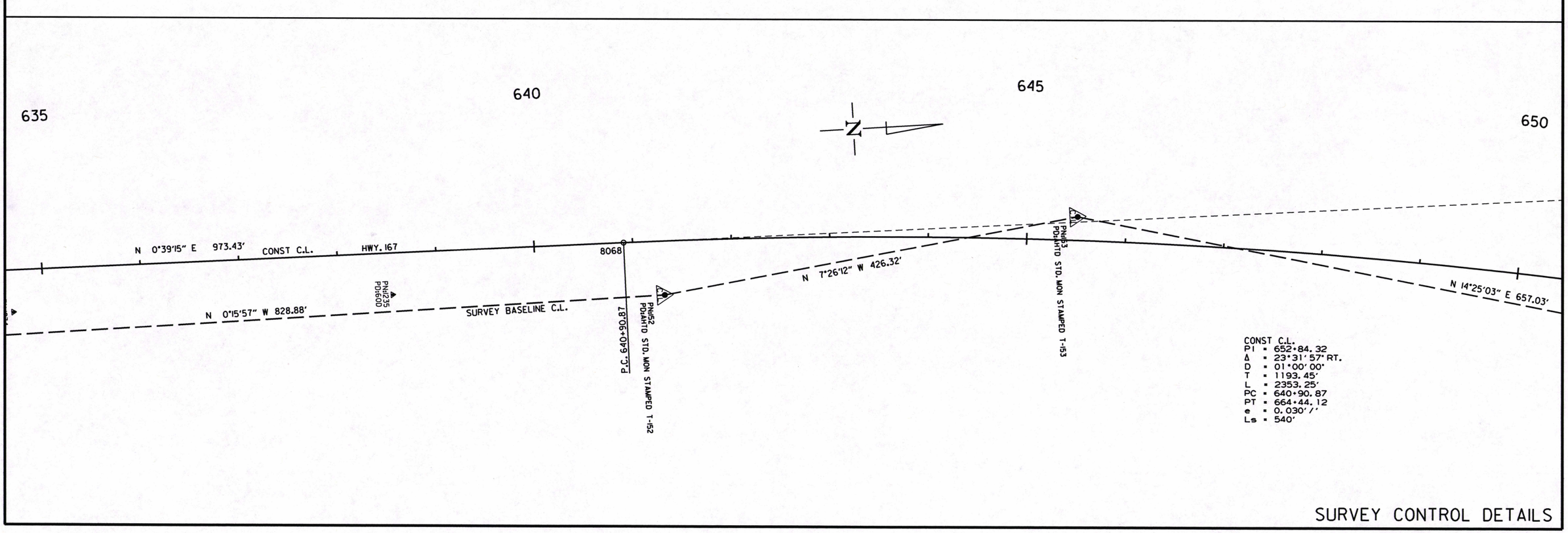
(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

620 625 630



635 640 645 650



8/1/2018

RCA0704.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	121	299

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

650 655 660

P.I. 652+84.32

N 0°39'15" E

N 24°11'12" E

CONST C.L. HWY. 167

5'03" E 657.03'

N 15°26'31" E 734.81'

SURVEY BASELINE C.L.

N 22°23'51" E 672.16'

8070

P.I. 664+44.12

PNW54 PDIAMTD STD. MON STAMPED T-154

PNW236 PD1600

PNW237 PD1600

PNW55 PDIAMTD STD. MON STAMPED T-155

PNW238 PD1600

PNW239 PD1600

CONST C.L.
PI = 652+84.32
Δ = 23°31'57" RT.
D = 01°00'00"
T = 1193.45'
L = 2353.25'
PC = 640+90.87
PT = 664+44.12
e = 0.030'/'
Ls = 540'

665 670 675 680

CONST C.L. N 24°11'12" E 7489.07' HWY. 167

N 24°32'49" E 717.76'

SURVEY BASELINE C.L.

N 24°03'04" E 848.64'

PNW56 PDIAMTD STD. MON STAMPED T-156

PNW240 PD1600

PNW241 PD1600

PNW57 PDIAMTD STD. MON STAMPED T-157

PNW242 PD1600

PNW243 PD1600

8/1/2018

RCA0704.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	122	299

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

680 685 690

HWY. 167 N 24°11'12" E 7489.07' CONST C.L.

N 24°06'51" E 811.24' SURVEY BASELINE C.L. N 24°03'58" E 586.95'

PNW58 PDAMTD STD. MON STAMPED T-158

PNW224 PDSGOD

PNW245 PDPK

PNW59 PDAMTD STD. MON STAMPED T-159

PNW246 PDPK

695 700 705 710

CONST C.L. N 24°11'12" E 7489.07' HWY. 167

N 24°11'17" E 569.88' SURVEY BASELINE C.L. N 24°12'49" E 678.73'

PNW60 PDAMTD STD. MON STAMPED T-160

PNW61 PDAMTD STD. MON STAMPED T-161

PNW247 PDSGOD

PNW62 PDAMTD STD. MON STAMPED T-162

8/1/2018

RCA0704.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	123	299

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

710 715 720

CONST C.L. N 24°11'12" E 7489.07' HWY. 167

PNW248 PDI&OD

N 24°19'55" E 747.29' SURVEY BASELINE C.L. N 24°04'41" E 725.68'

PNW63 PDI&MTD STD. MON STAMPED T-163

PNW64 PDI&MTD STD. MON STAMPED T-164

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'

725 730 735 735 735 740 740 740

POB 730+00.00
POB 730+00.00

P.C. 738+79.17
5.50' LT.
CONST. C.L. 738+79.17

P.C. 739+33.19
NORTHBOUND
C.L. 739+33.19
5.50' RT.

P.C. 739+87.22
6.01' RT.
CONST. C.L. 739+87.11

HWY. 167 N 24°11'12" E 7489.07' CONST C.L. 8097 8103 N 24°11'12" E 879.17' SOUTHBOUND RAMP C.L. 8098 8071 8104

NORTHBOUND RAMP C.L. N 24°11'12" E 987.22'

N 24°02'03" E 654.66' SURVEY BASELINE C.L. N 24°36'39" E 687.67' N 20°35'16" E 634.27'

PNW65 PDI&MTD STD. MON STAMPED T-165

PNW249 PDI&OD

PNW66 PDI&MTD STD. MON STAMPED T-166

PNW250 PDI&OD

8/1/2018

RCA0704.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	124	299

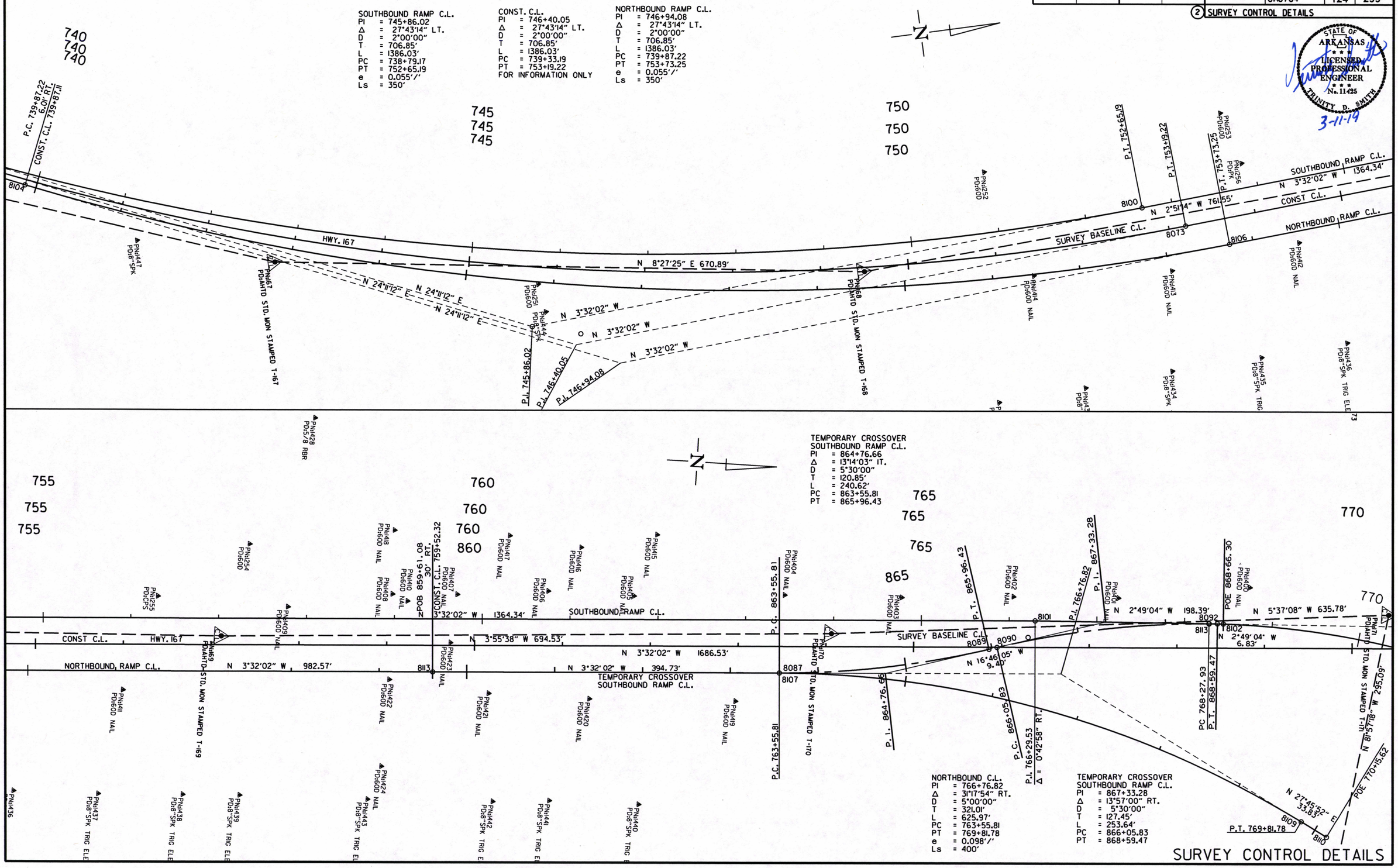
(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'



NORTHBOUND C.L.
PI = 766+76.82
Δ = 31°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

TEMPORARY CROSSOVER SOUTHBOUND RAMP C.L.
PI = 867+33.28
Δ = 13°57'00" RT.
D = 5°30'00"
T = 127.45'
L = 253.64'
PC = 866+05.83
PT = 868+59.47

SURVEY CONTROL DETAILS

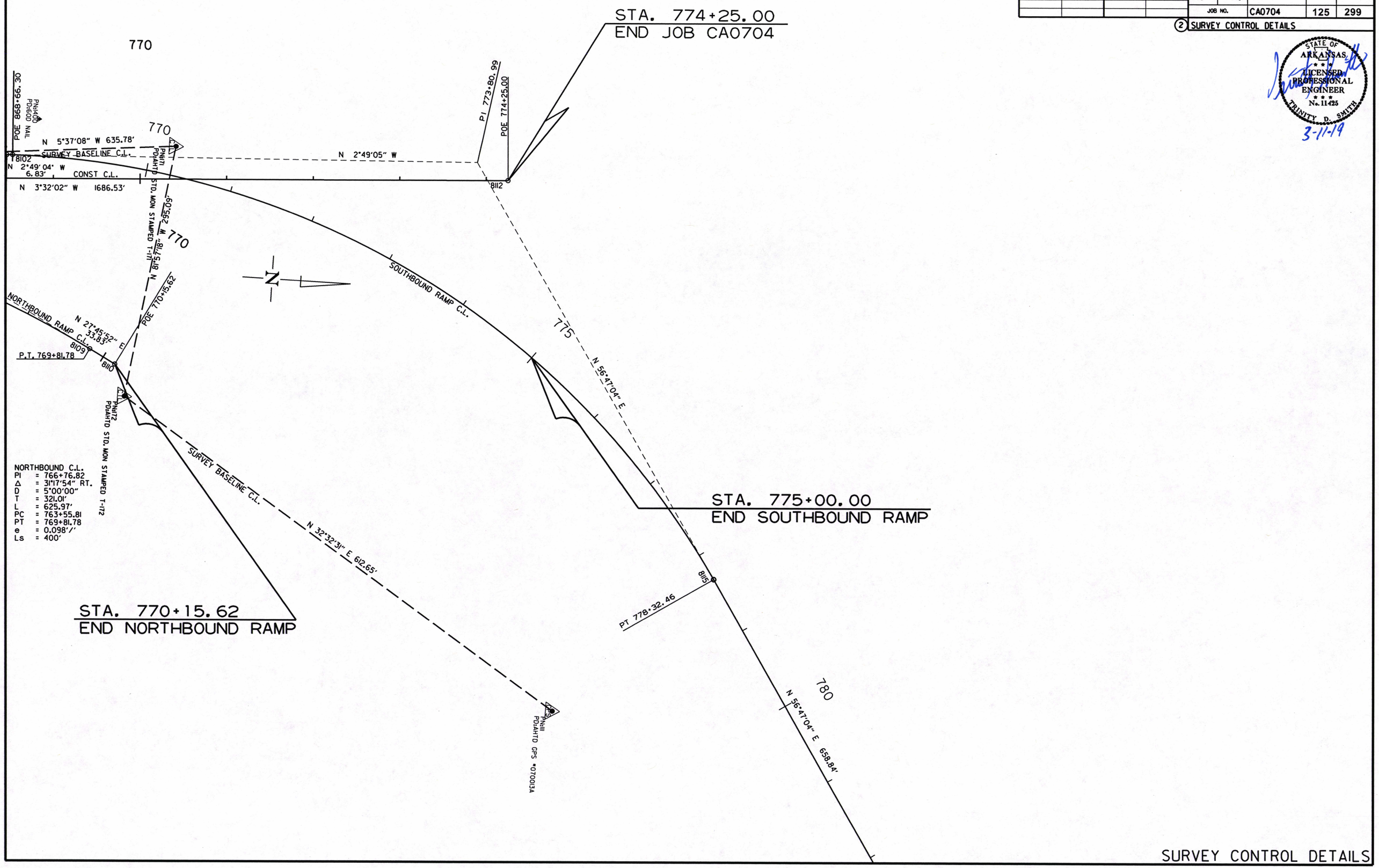
8/1/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	125	299

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



NORTHBOUND C.L.
PI = 766+76.82
Δ = 31°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

SURVEY CONTROL DETAILS

8/1/2018

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	126	299

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

STA. 471+18 IN PLACE
18" X 62' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT.
RETAIN

STA. 474+77 IN PLACE
18" X 25' C.M. PIPE CULVERT
LT. SIDE DRAIN
RETAIN

100' TRANSITION

STA. 483+31
CONSTRUCT APPR. ON LT. = 60 CU. YDS.

EXIST. R/W
2 STR. BARB.
CONST. LIMITS
EXIST. R/W
16'
8'
59'
8'
470
475
480
485
N 17°28'57" W
N 17°24'50" W
167
EXIST. R/W
CONST. LIMITS
PROPOSED R/W
18'

STA. 472+17 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
RETAIN

175-99.48
85.00'
P.I. 476+00.00
Δ = 00°04'07" RT.

483+40.00
85.00'
PC 483+60.58

PI = 487+71.60
Δ = 16°19'46" RT.
D = 02°00'00"
T = 411.02'
L = 816.47'
PC = 483+60.58
PT = 491+77.05
e = 0.055'/'
Ls = 540'

STA. 475+00.52
END JOB CA0703 =
STA. 475+00.00
BEGIN JOB CA0704
LOG MILE 12.14

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STA. 478+15 IN PLACE
18" X 25' C.P. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +09
18" X 34' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 60 CU. YDS.

MAIN LANES

STA. 479+55.58 BEGIN SUPERELEVATION TRANSITION
STA. 484+95.58 MAX. SUPERELEVATION (0.055 '/')
STA. 488+99.63 MAX. SUPERELEVATION (0.055 '/')
STA. 494+39.63 END SUPERELEVATION TRANSITION

P.V.I. 475+00.00
ELEV. 261.56
P.V.C. 475+25.00
ELEV. 261.67
K=350.24
VC=100.00'
e=0.04'
P.V.I. 475+75.00
ELEV. 261.89
P.V.T. 476+25.00
ELEV. 262.25
P.V.C. 477+48.71
ELEV. 263.15
K=1825.58
VC=102.58'
e=0.01'
P.V.I. 478+00.00
ELEV. 263.52
P.V.T. 478+51.29
ELEV. 263.92
P.V.C. 481+85.38
ELEV. 266.53
P.V.I. 483+50.38
ELEV. 267.82
K=159.81
VC=330.00'
e=-0.85'
0.44%
CA0703
0.44
0.73%
0.78%

285 280 275 270 265 260 255 250 245 240

470+00 471+00 472+00 473+00 474+00 475+00 476+00 477+00 478+00 479+00 480+00 481+00 482+00 483+00 484+00 485+00

RCA0704BLT3-4-19.DGN 3/4/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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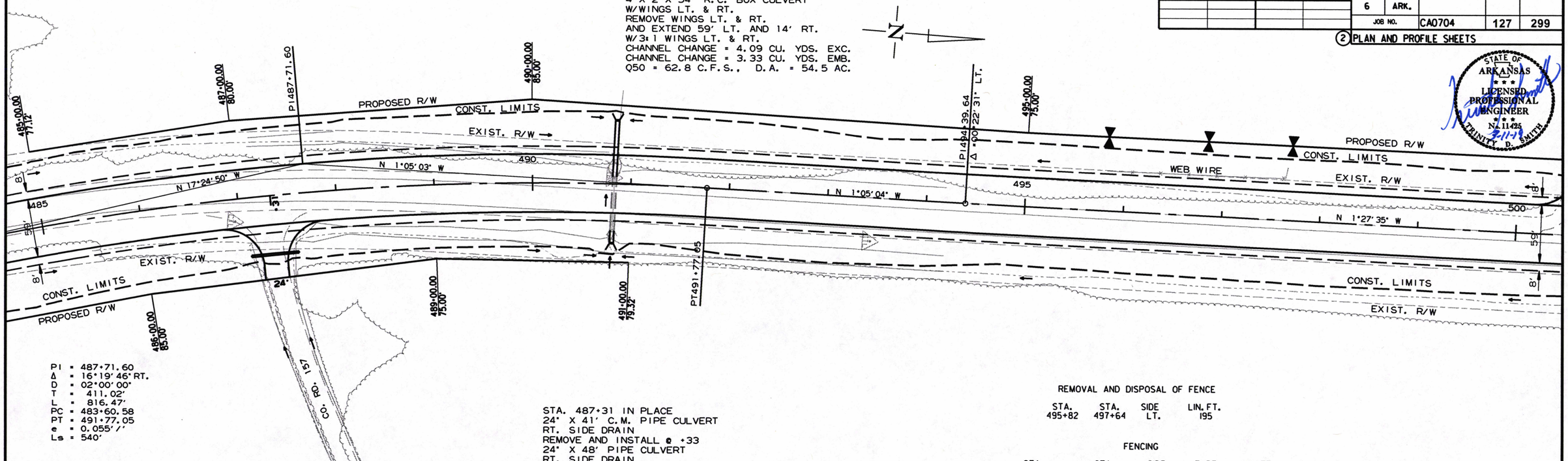
				JOB NO.		CA0704	127	299

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
NO. 11425
TRINITY D. SMITH
3-11-19

STA. 490+82 IN PLACE
4' X 2' X 54' R.C. BOX CULVERT
W/WINGS LT. & RT.
REMOVE WINGS LT. & RT.
AND EXTEND 59' LT. AND 14' RT.
W/3:1 WINGS LT. & RT.
CHANNEL CHANGE = 4.09 CU. YDS. EXC.
CHANNEL CHANGE = 3.33 CU. YDS. EMB.
Q50 = 62.8 C.F.S., D.A. = 54.5 AC.



PI = 487+71.60
Δ = 16°19'46" RT.
D = 02°00'00"
T = 411.02'
L = 816.47'
PC = 483+60.58
PT = 491+77.05
e = 0.055'/'
Ls = 540'

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STA. 487+31 IN PLACE
24" X 41' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +33
24" X 48' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT TURNOUT ON RT. = 80 CU. YDS.

REMOVAL AND DISPOSAL OF FENCE

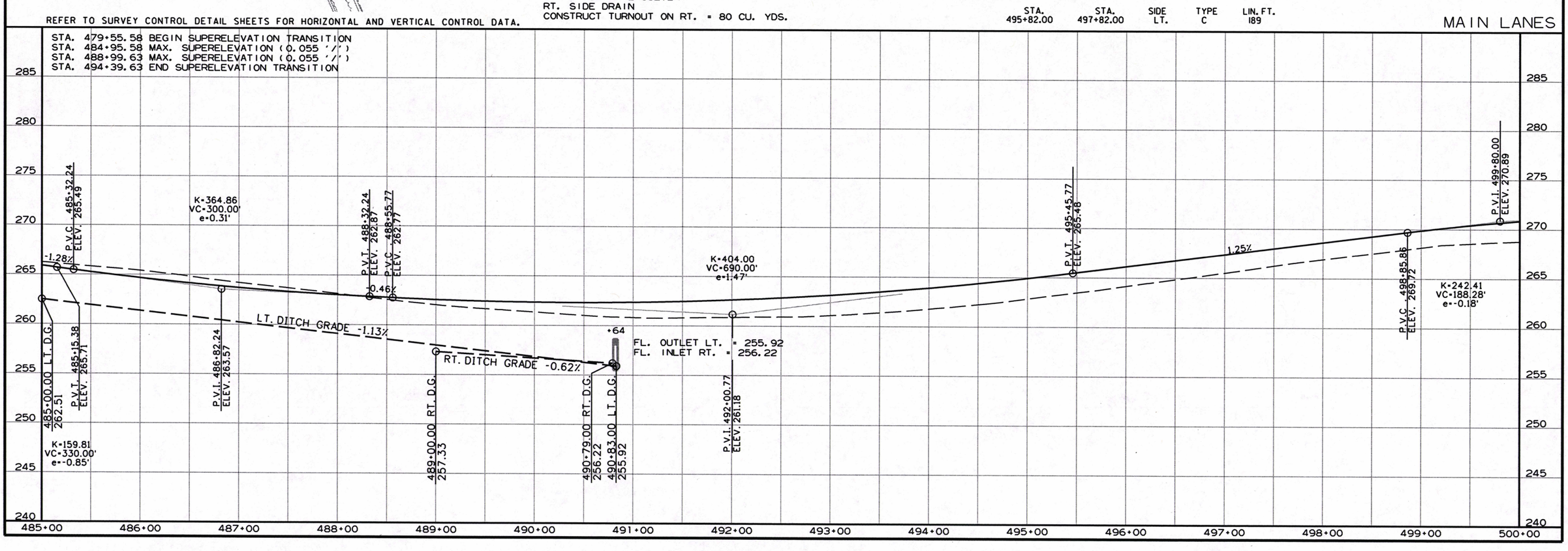
STA.	STA.	SIDE	LIN. FT.
495+82	497+64	LT.	195

FENCING

STA.	STA.	SIDE	TYPE	LIN. FT.
495+82.00	497+82.00	LT.	C	189

MAIN LANES

STA. 479+55.58 BEGIN SUPERELEVATION TRANSITION
STA. 484+95.58 MAX. SUPERELEVATION (0.055 '/')
STA. 488+99.63 MAX. SUPERELEVATION (0.055 '/')
STA. 494+39.63 END SUPERELEVATION TRANSITION



RCA0704BLT3-4-19.DGN 3/4/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	128	299

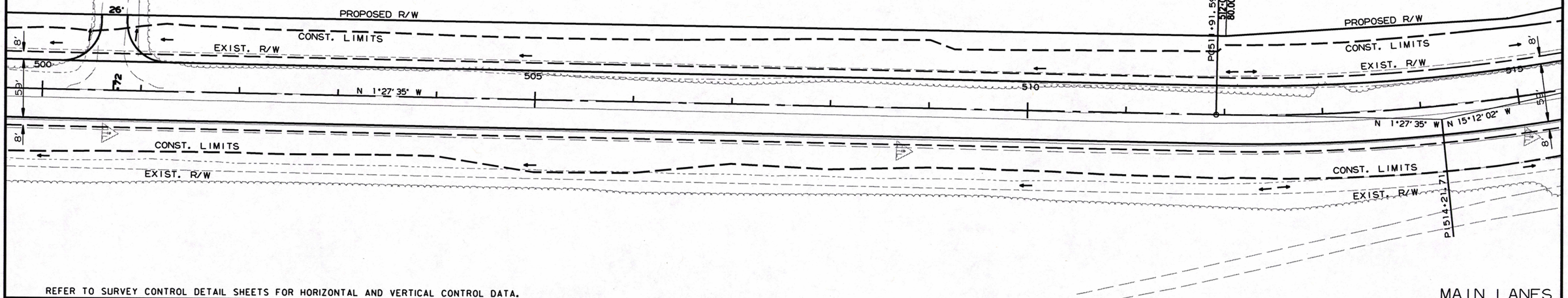
(2) PLAN AND PROFILE SHEETS

STA. 500+72
CONSTRUCT TURNOUT ON LT. = 65 CU. YDS.

CO. RD. 64

PI = 514+21.71
Δ = 13°44' 27" LT.
D = 03°00' 00"
T = 230.12'
L = 458.03'
PC = 511+91.59
PT = 516+49.62
e = 0.077'/'
Ls = 540'

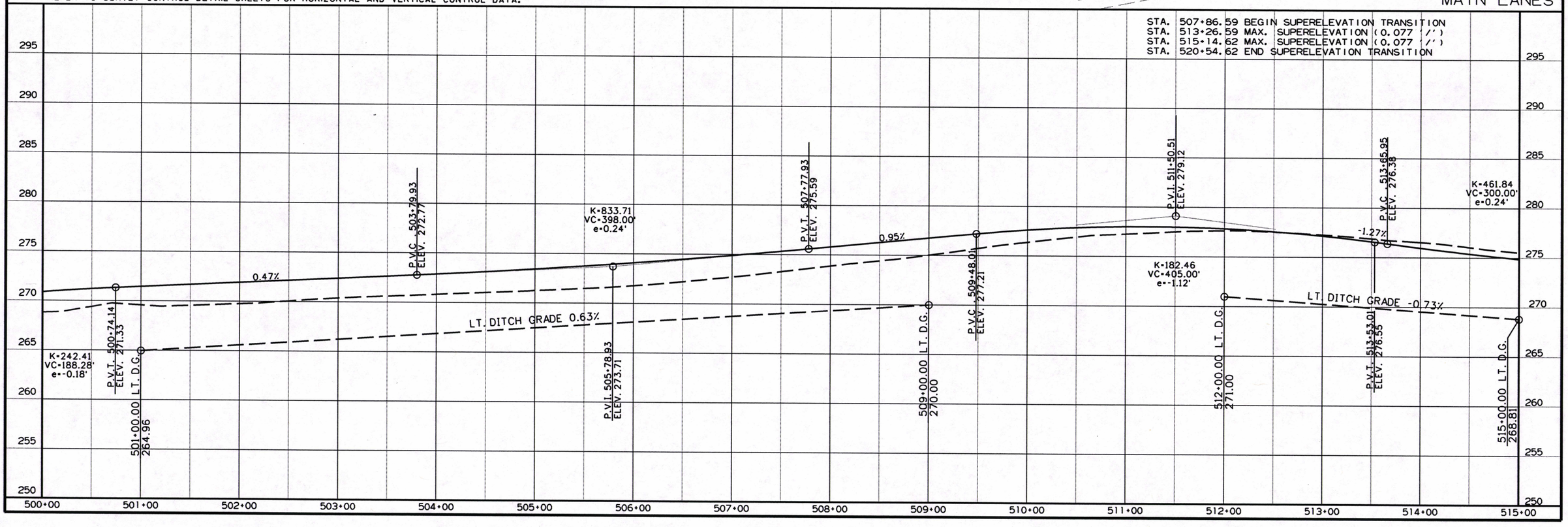
STATE OF ARKANSAS
* * *
LICENSED PROFESSIONAL ENGINEER
* * *
No. 11425
TRINITY D. SMITH
3-11-19



REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

MAIN LANES

STA. 507+86.59 BEGIN SUPERELEVATION TRANSITION
STA. 513+26.59 MAX. SUPERELEVATION (0.077 '/')
STA. 515+14.62 MAX. SUPERELEVATION (0.077 '/')
STA. 520+54.62 END SUPERELEVATION TRANSITION



RCA0704BLT3-4-19.DGN 3/4/2019

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				JOB NO.		CA0704	129	299

(2) PLAN AND PROFILE SHEETS

PI = 514+21.71
Δ = 13°44'27" LT.
D = 03°00'00"
T = 230.12'
L = 458.03'
PC = 511+91.59
PT = 516+49.62
e = 0.077'/'
Ls = 540'

STA. 528+26 IN PLACE
16" X 71' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE AND CONSTRUCT
24" X 118' R.C. PIPE CULVERT
(CLASS III)(TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 30.5 C.F.S., D.A. = 22.7 AC.
24" R.C. PIPE = 118 LIN. FT.
24" FES = 2 EACH

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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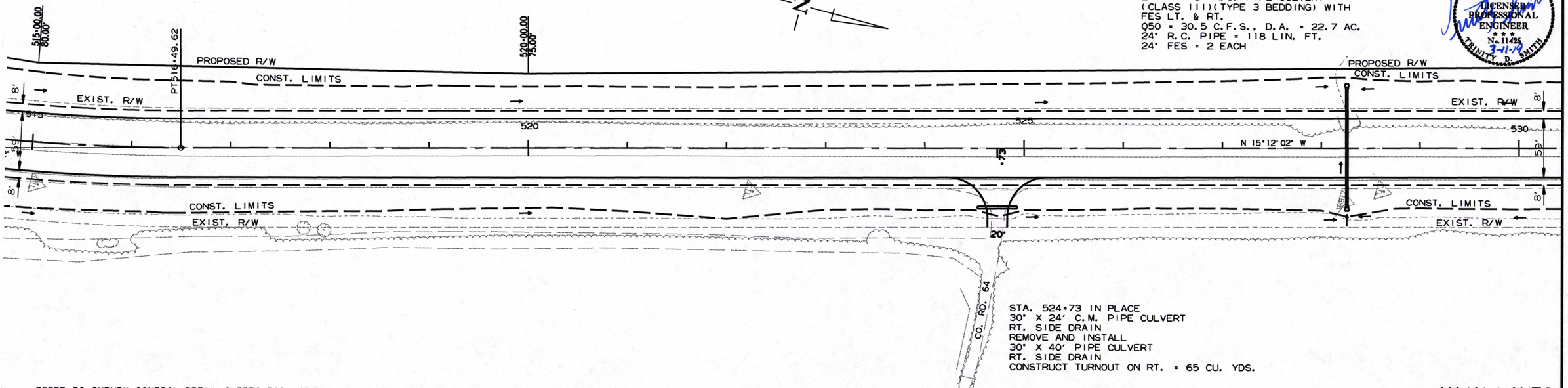
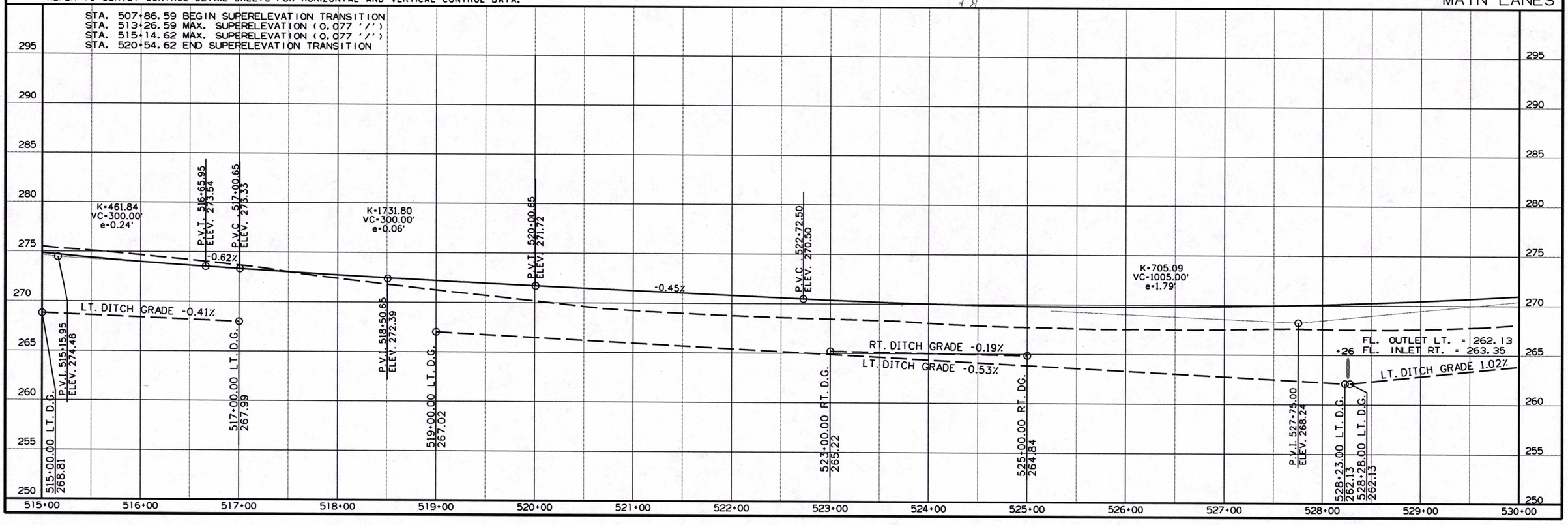
3-11-19



REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

MAIN LANES



RCA0704BLT3-4-19.DGN 3/4/2019

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				JOB NO.		CA0704	130	299

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

STA. 536+24
CONSTRUCT TURNOUT ON LT. = 160 CU. YDS.

STA. 537+35
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

PI = 540+37.68
Δ = 11°24'55" RT.
D = 02°00'00"
T = 286.33'
L = 570.77'
PC = 537+51.35
PT = 543+22.12
e = 0.055'/'
Ls = 540'

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

MAIN LANES

STA. 533+46.35 BEGIN SUPERELEVATION TRANSITION
STA. 538+86.35 MAX. SUPERELEVATION (0.055 '/')
STA. 541+87.12 MAX. SUPERELEVATION (0.055 '/')
STA. 547+27.12 END SUPERELEVATION TRANSITION

K=705.09
VC=1005.00'
e=1.79'

P.V.I. 532+77.50
ELEV. 273.14

P.V.C. 534+44.30
ELEV. 274.77

P.V.I. 536+96.80
ELEV. 277.24

K=216.87
VC=505.00'
e=-1.47'

536+00.00 LT. D.G.
270.00

537+00.00 LT. D.G.
269.00

P.V.I. 539+49.30
ELEV. 273.82

P.V.C. 541+05.93
ELEV. 271.70

541+00.00 LT. D.G.
265.00

K=395.29
VC=550.00'
e=0.96'

P.V.I. 543+80.93
ELEV. 267.99

0.98%

-1.35%

LT. DITCH GRADE 1.02%

LT. DITCH GRADE -1.00%

LT. DITCH GRADE -0.51%

RCA0704BLT3-4-19.DGN 3/4/2019

STA. 549+42 IN PLACE
4' X 2' X 55' R.C. BOX CULVERT
W/WINGS LT. & RT.
REMOVE WINGS LT. & RT.
AND EXTEND 53' LT. AND 15' RT.
W/3:1 WINGS LT. & RT.
CHANNEL CHANGE = 1.40 CU. YDS.
CHANNEL CHANGE = 6.88 CU. YDS.
Q50 = 47.6 C.F.S., D.A. = 41.3 AC.

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				JOB NO.		CA0704	131	299

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

548+00.00
80.00'

555+00.00
80.00'

P.I. 555+30.04
Δ = 0°12'50" LT.

PROPOSED R/W
CONST. LIMITS
EXIST. R/W
8'
59'
545
550
555
560
N 3°47'07" W
N 3°59'57" W

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

MAIN LANES

STA. 533+46.35 BEGIN SUPERELEVATION TRANSITION
STA. 538+86.35 MAX. SUPERELEVATION (0.055 '/')
STA. 541+87.12 MAX. SUPERELEVATION (0.055 '/')
STA. 547+27.12 END SUPERELEVATION TRANSITION

K=395.29
VC=550.00'
e=0.96'

P.V.T. 546+55.93
ELEV. 268.09

P.V.C. 550+38.42
ELEV. 268.24

K=483.57
VC=500.00'
e=0.65'

P.V.T. 555+38.42
ELEV. 271.02

K=475.28
VC=875.00'
e=-2.01'

P.V.C. 558+42.82
ELEV. 274.29

0.04%
1.07%
LT. DITCH GRADE -0.51%
LT. DITCH GRADE 0.60%
+42
FL. OUTLET LT. = 261.60
FL. INLET RT. = 262.67

548+00.00 LT. D.G.
261.43

549+45.00 LT. D.G.
261.60

P.V.I. 552+88.42
ELEV. 268.34

290 285 280 275 270 265 260 255 250 245

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

RCA0704BLT3-4-19.DGN 3/4/2019

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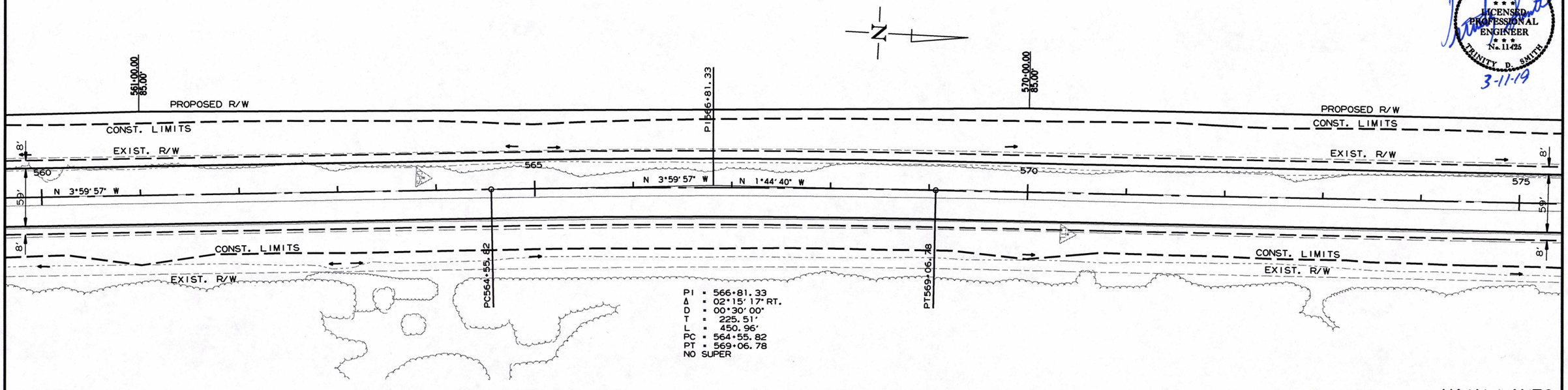
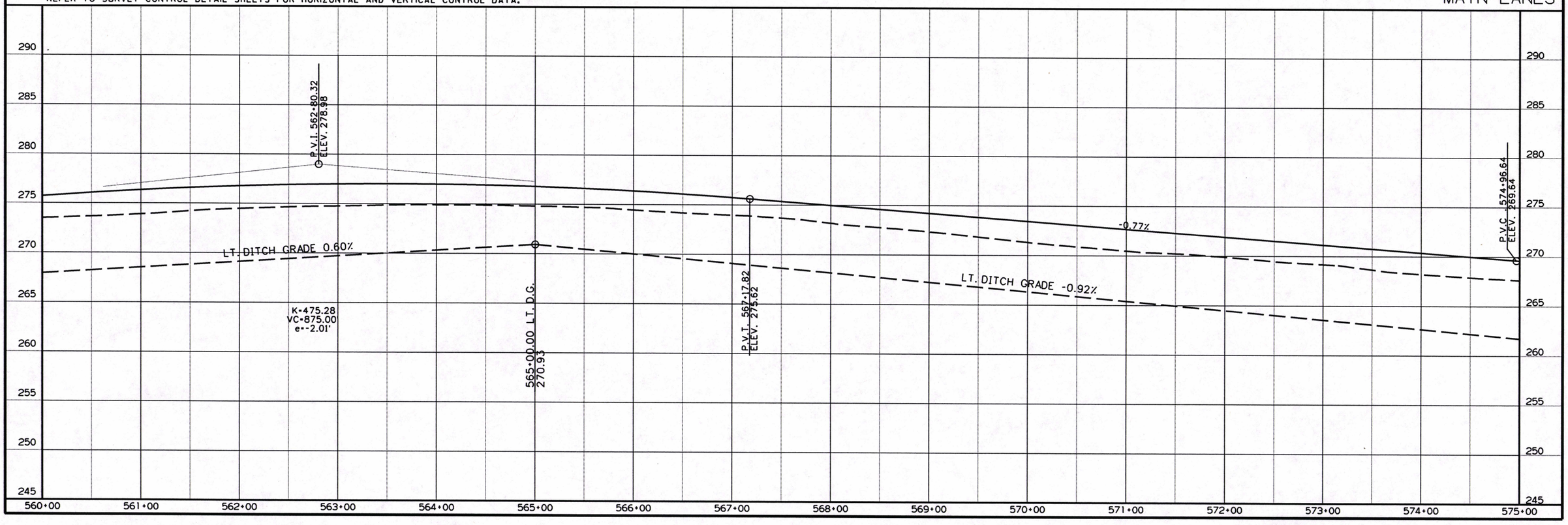
(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

MAIN LANES



RCA0704BLT3-4-19.DGN 3/4/2019

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(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

STA. 576+82 IN PLACE
36" X 64' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
48' LT. & 8' RT.
(CLASS III)(TYPE 2 BEDDING) WITH
FES LT. & RT.
Q50 = 47.0 C.F.S., D.A. = 33.2 AC.
36" R.C. PIPE = 64 LIN. FT.
36" FES = 2 EACH

STA. 583+22 CONSTRUCT
30" X 124' R.C. PIPE CULVERT
(CLASS IV)(TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 94.9 C.F.S., D.A. = 68.2 AC.
30" R.C. PIPE = 124 LIN. FT.
30" FES = 2 EACH

STA. 583+28 IN PLACE
30" X 79' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
34' LT. & 14' RT.
(CLASS IV)(TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 94.9 C.F.S., D.A. = 68.2 AC.
30" R.C. PIPE = 56 LIN. FT.
30" FES = 2 EACH

PI = 588+32.55
Δ = 31°46'45" LT.
D = 03°00'00"
T = 543.66'
L = 1059.31'
PC = 582+88.89
PT = 593+48.20
e = 0.077'/'
Ls = 540'

STA. 582+31 IN PLACE
18" X 25' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +34
18" X 38' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 95 CU. YDS.

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

MAIN LANES

STA. 578+83.89 BEGIN SUPERELEVATION TRANSITION
STA. 584+23.89 MAX. SUPERELEVATION (0.077 1/')
STA. 592+13.20 MAX. SUPERELEVATION (0.077 1/')
STA. 597+53.20 END SUPERELEVATION TRANSITION

RCA0704BLT3-4-19.DGN 3/4/2019

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2 PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

FENCING

STA.	STA.	SIDE	TYPE	LIN. FT.
596+20.73	596+35.32	LT.	C	29
596+35.33	596+18.93	RT.	C	33
596+86.67	597+01.07	LT.	C	29
596+86.68	597+00.79	RT.	C	28

16' GATE EACH 1 1

STA. 596+42 TO STA. 596+85 IN PLACE
43' X 40' BRIDGE NO. 00306
CONCRETE AND STEEL
REMOVE AS EXISTING BRIDGE
STRUCTURE (SITE NO. 1) = 1.00 LUMP SUM

STA. 596+61 CONSTRUCT
TRI. 9'X 8'X 121' R.C. BOX CULVERT
W/3:1 WINGS LT. & RT.
TOTAL SPAN = 29'-11"
Q50 = 966 C.F.S. , D.A. = 2.43 SQ. MI.
CHANNEL CHANGE = 206.67 CU. YDS. EXC.
CHANNEL CHANGE = 97.83 CU. YDS. EMB.

STA. 603+30 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT TURNOUT ON LT. = 65 CU. YDS.

PI = 588+32.55
Δ = 31°46'45" LT.
D = 03°00'00"
T = 543.66'
L = 1059.31'
PC = 582+88.89
PT = 593+48.20
e = 0.077'/'
Ls = 540'

DETOUR C.L.
PI = 6+65.74
Δ = 06°20'45" LT.
D = 08°15'00"
T = 38.50'
L = 76.92'
PC = 6+27.24
PT = 7+04.16
NO SUPER

DETOUR C.L.
PI = 9+00.38
Δ = 12°14'00" LT.
D = 08°15'00"
T = 74.42'
L = 148.28'
PC = 8+25.96
PT = 9+74.24

DETOUR C.L.
PI = 11+04.46
Δ = 12°12'58" RT.
D = 08°15'00"
T = 74.32'
L = 148.07'
PC = 10+30.14
PT = 11+78.22
NO SUPER

STA. 604+67 INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT TURNOUT ON RT. = 40 CU. YDS.

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

MAIN LANES

STA. 578+83.89 BEGIN SUPERELEVATION TRANSITION
STA. 584+23.89 MAX. SUPERELEVATION (0.077 '/')
STA. 592+13.20 MAX. SUPERELEVATION (0.077 '/')
STA. 597+53.20 END SUPERELEVATION TRANSITION

NOTE: FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS. THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 258.0 FEET MSL BETWEEN STATIONS 596+58 AND 596+64. REFER TO SECTION 110.06(c) OF THE 2014 STANDARD SPECIFICATIONS.

STA. 601+88.61 BEGIN SUPERELEVATION TRANSITION
STA. 607+28.61 MAX. SUPERELEVATION (0.077 '/')
STA. 615+92.91 MAX. SUPERELEVATION (0.077 '/')
STA. 621+32.91 END SUPERELEVATION TRANSITION

P.V.C. 592+37.48 ELEV. 267.66
P.V.I. 593+37.48 ELEV. 268.05
P.V.T. 594+37.48 ELEV. 268.02
P.V.C. 599+15.14 ELEV. 267.91
P.V.I. 601+40.14 ELEV. 267.86
P.V.T. 603+65.14 ELEV. 270.35
K=492.12 VC=200.00' e=-0.10'
K=397.99 VC=450.00' e=0.64'
0.38%
-0.02%
1.11%
RT. DITCH GRADE -0.64%
LT. DITCH GRADE -0.42%
RT. DITCH GRADE 1.26%
596+35.00 RT. D.G. 256.00
596+35.00 LT. D.G. 255.00
596+87.00 RT. D.G. 256.00
050 DESIGN H.W. ELEVATION 261.87'
FL. OUTLET LT. = 255.00
FL. INLET RT. = 256.00
604+00.00 RT. D.G. 264.98

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

RCA0704BLT3-4-19.DGN 3/4/2019

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(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

STA. 606+10 IN PLACE
24" X 40' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +05
24" X 42' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 125 CU. YDS.

STA. 618+95 IN PLACE
18" X 31' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ 619+03
18" X 56' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT TURNOUT ON LT. = 170 CU. YDS.

PI = 611+78.04
Δ = 34°01'44" RT.
D = 03°00'00"
T = 584.43'
L = 1134.30'
PC = 605+93.61
PT = 617+27.91
e = 0.077'/'
Ls = 540'

STA. 611+39 IN PLACE
5' X 2' X 63' R.C. BOX CULVERT
W/WINGS LT. & RT.
REMOVE WINGS LT. & RT.
AND EXTEND 59' LT. AND 12' RT.
W/3:1 WINGS LT. & RT.
CHANNEL CHANGE = 11.86 CU. YDS.
CHANNEL CHANGE = 2.96 CU. YDS.
Q50 = 92.3 C.F.S., D.A. = 58.3 AC.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN.FT.
606+90	607+46	LT.	321

FENCING

STA.	STA.	SIDE	TYPE	LIN.FT.
606+90.00	610+00.00	LT.	C	332

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

MAIN LANES

STA. 601+88.61 BEGIN SUPERELEVATION TRANSITION
STA. 607+28.61 MAX. SUPERELEVATION (0.077 '/')
STA. 615+92.91 MAX. SUPERELEVATION (0.077 '/')
STA. 621+32.91 END SUPERELEVATION TRANSITION

NOTE: FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN EPHEMERAL STREAM. THE STREAM BANK ELEVATIONS ARE 270.0 FEET MSL BETWEEN STATIONS 611+38 AND 611+40. REFER TO SECTION 110.06(c) OF THE 2014 STANDARD SPECIFICATIONS.

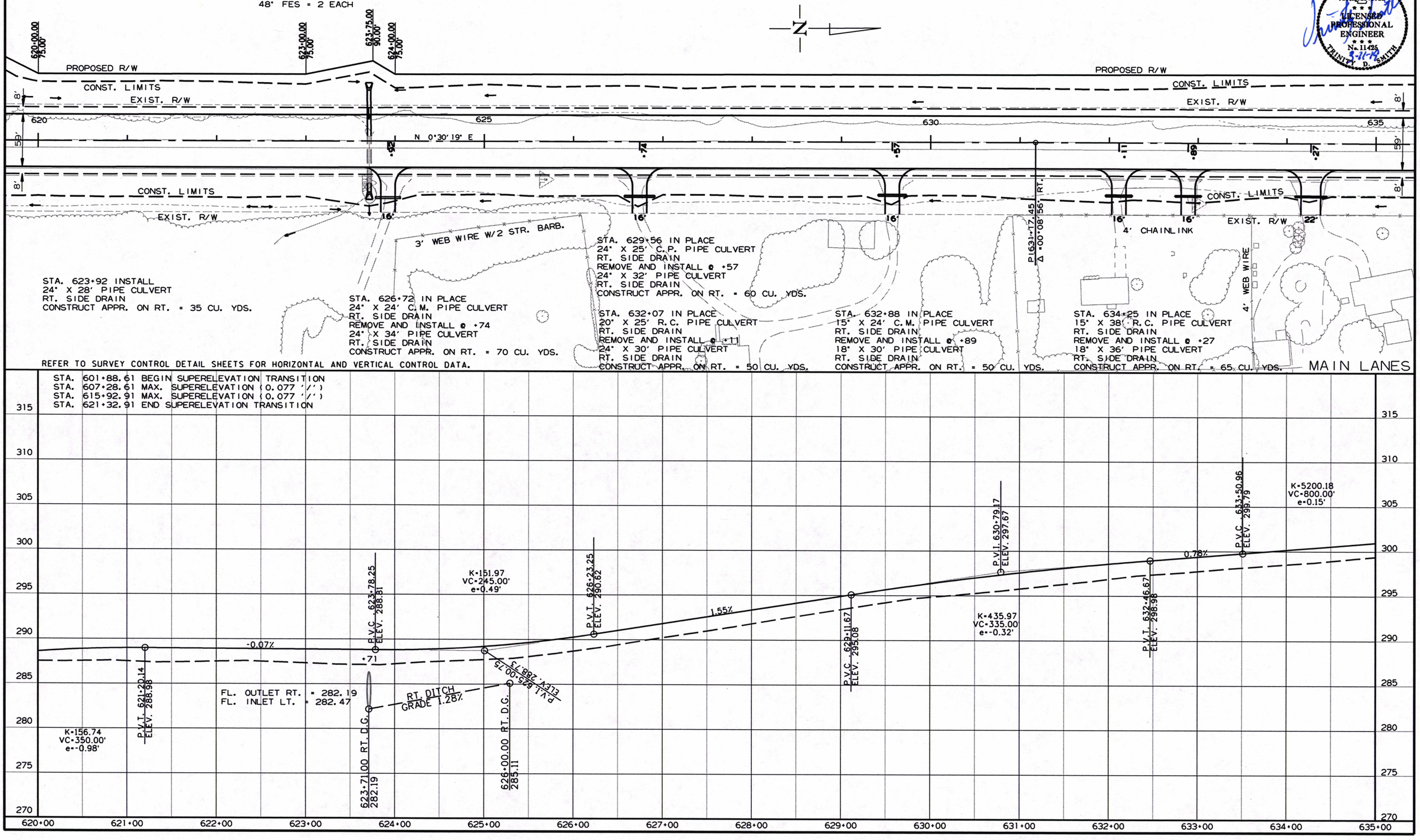
RCA0704BLT3-4-19.DGN 3/4/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	136	299

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

STA. 623+71 IN PLACE
48" X 53' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
52' LT. & 10' RT.
(CLASS V)(TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 42.6 C.F.S., D.A. = 28.6 AC.
48" R.C. PIPE = 70 LIN. FT.
48" FES = 2 EACH



RCA0704BLT3-4-19.DGN 3/4/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	137	299

(2) PLAN AND PROFILE SHEETS

STA. 638+59 IN PLACE
24" X 22' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +61
24" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 55 CU. YDS.

STA. 639+33 IN PLACE
18" X 25' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +44
18" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 55 CU. YDS.

STA. 642+44
CONSTRUCT APPR. ON LT. = 85 CU. YDS.

STA. 644+32 IN PLACE
24" X 37' R.C. PIPE CULVERT
ON LT.
REMOVE

STA. 644+89 IN PLACE
15" X 26' C.M. PIPE CULVERT
LT. SIDE DRAIN
RETAIN AND CONSTRUCT
APPROACH ON LT. OF HWY. 167B = CU. YDS.

STA. 645+20 CONSTRUCT
CONCRETE ISLAND W/TYPE B
CURB FACE = 27 SQ. YDS.

FENCING

STA.	STA.	SIDE	TYPE	LIN. FT.
646+19.54	648+75.00	LT.	A	231
649+25.00	650+75.00	LT.	A	153

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
646+20	686+80	LT.	4080

STA. 640+26
CONSTRUCT APPR. ON RT. = 75 CU. YDS.

STA. 644+61 IN PLACE
24" X 118' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
34' LT.
(CLASS III)(TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 12.0 C.F.S., D.A. = 8.9 AC.
24" R.C. PIPE = 42 LIN. FT.
24" FES = 2 EACH

STA. 645+19 REMOVE
ISLAND = 25 SQ. YDS.

STA. 645+50 REMOVE
ISLAND = 119 SQ. YDS.

STA. 645+00 IN PLACE
15" X 35' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ 644+96
18" X 38' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 40 CU. YDS.
UNCLASS. EXC. ON RT. = 5 CU. YDS.

STA. 645+41 IN PLACE
24" X 94' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +42
24" X 148' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
LT. SIDE DRAIN
CONSTRUCT TURNOUT ON LT. = 565 CU. YDS.
(HWY. 167B)
Q50 = 14 C.F.S., D.A. = 7.2 AC.
24" R.C. PIPE = 148 LIN. FT.
24" FES = 2 EACH

PI = 652+84.32
Δ = 23°31'57" RT.
D = 01°00'00"
T = 1193.45'
L = 2353.25'
PC = 640+90.87
PT = 664+44.12
e = 0.030'/'
Ls = 540'

STA. 649+00 INSTALL
24" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT.
= 100 CU. YDS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-15-19

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

MAIN LANES

STA. 636+85.87 BEGIN SUPERELEVATION TRANSITION
STA. 642+25.87 MAX. SUPERELEVATION (0.030 '/')
STA. 663+09.12 MAX. SUPERELEVATION (0.030 '/')
STA. 668+49.12 END SUPERELEVATION TRANSITION

K-5200.18
VC-800.00'
e-0.15'

P.V.I. 637+50.96
ELEV. 302.90

P.V.I. 641+50.96
ELEV. 306.63

641+00.00 RT. D.G.
301.28

0.93%

FL. OUTLET LT. = 299.34
FL. INLET RT. = 300.27

+61

RT. DITCH GRADE -0.28%

LT. DITCH GRADE 0.024%

644+60.00 LT. D.G.
299.34

644+62.00 RT. D.G.
300.27

646+15.00 LT. D.G.
303.00

P.V.C. 647+67.00
ELEV. 312.37

K-1000.35
VC-990.00'
e--1.22'

635+00 636+00 637+00 638+00 639+00 640+00 641+00 642+00 643+00 644+00 645+00 646+00 647+00 648+00 649+00 650+00

330 325 320 315 310 305 300 295 290 285

RCA0704BLT3-4-19.DGN 3/12/2019

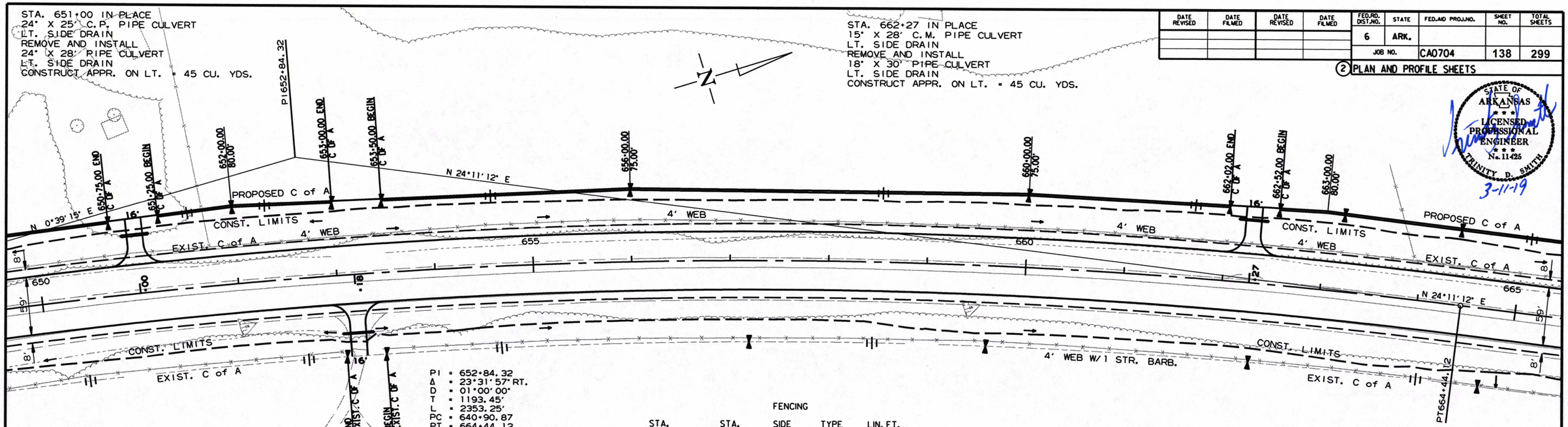
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	138	299

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

STA. 651+00 IN PLACE
24" X 25" C.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 45 CU. YDS.

STA. 662+27 IN PLACE
15" X 28' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 30" PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 45 CU. YDS.



PI = 652+84.32
Δ = 23°31'57" RT.
D = 01°00'00"
T = 1193.45'
L = 2353.25'
PC = 640+90.87
PT = 664+44.12
e = 0.030'/'
Ls = 540'

STA. 653+18 INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

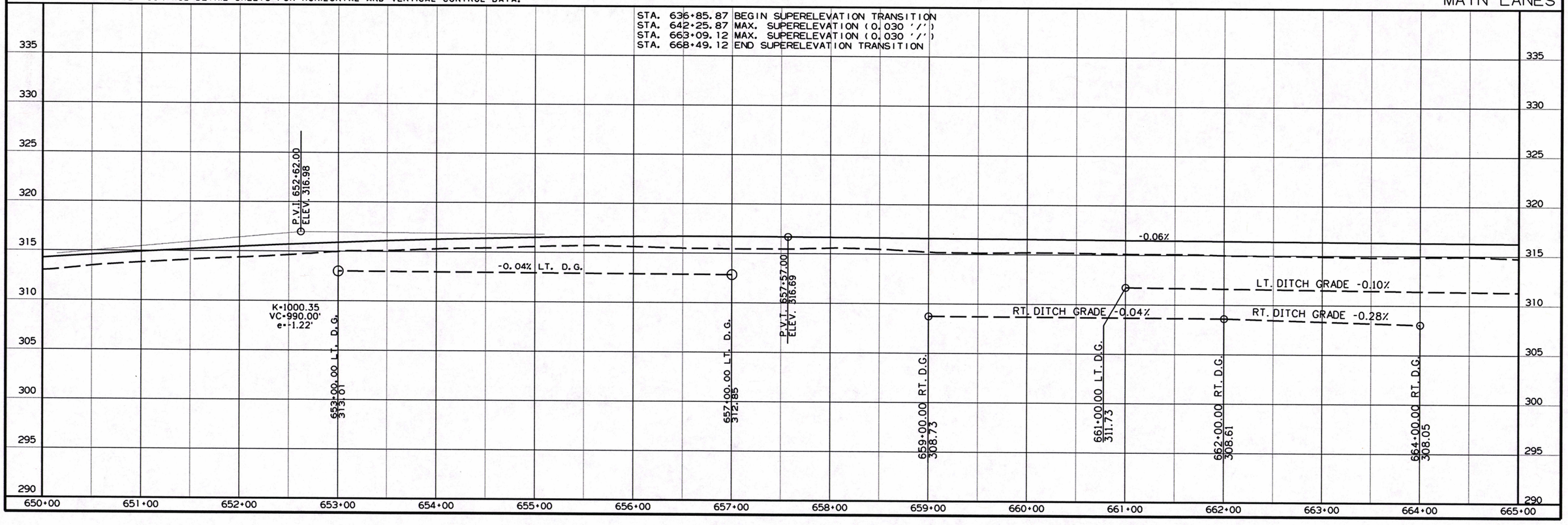
FENCING

STA.	STA.	SIDE	TYPE	LIN. FT.
651+25.00	653+00.00	LT.	A	178
653+50.00	662+02.00	LT.	A	864
662+52.00	668+11.00	LT.	A	563

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

MAIN LANES

STA. 636+85.87 BEGIN SUPERELEVATION TRANSITION
STA. 642+25.87 MAX. SUPERELEVATION (0.030 '/')
STA. 663+09.12 MAX. SUPERELEVATION (0.030 '/')
STA. 668+49.12 END SUPERELEVATION TRANSITION



RCA0704BLT3-4-19.DGN 3/4/2019

STA. 667+25 IN PLACE
24" X 88' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
32' LT.
(CLASS III)(TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 16.4 C.F.S., D.A. = 11.4 AC.
24" R.C. PIPE = 40 LIN. FT.
24" FES = 2 EACH

STA. 673+26 IN PLACE
15' X 32' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 50 CU. YDS.

FENCING

STA.	STA.	SIDE	TYPE	LIN. FT.
667+75.00	681+84.00	LT.	A	408
668+61.00	673+01.00	LT.	A	440
673+45.00	677+25.00	LT.	A	373

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	139	299

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

PROPOSED C of A
CONST. LIMITS
EXIST. C of A
4' WEB
668+11.00 END C OF A
668+61.00 BEGIN C OF A
673+01.00 END C OF A
673+05.00
76.72'-90.00'
673+45.00
76.88'-90.00'
673+51.00 BEGIN C OF A
T. C. E.
677+25.00 END C OF A
677+75.00 BEGIN C OF A
665
670
675
680
N 24°11'12" E
27.26'
4' WEB W/1 STR. BARB.
END EXIST. C OF A
BEGIN EXIST. C OF A

STA. 670+09
CONSTRUCT APPR. ON RT. = 30 CU. YDS.

STA. 673+27 IN PLACE
15' X 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 45 CU. YDS.

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

MAIN LANES

STA. 636+85.87 BEGIN SUPERELEVATION TRANSITION
STA. 642+25.87 MAX. SUPERELEVATION (0.030 '/')
STA. 663+09.12 MAX. SUPERELEVATION (0.030 '/')
STA. 668+49.12 END SUPERELEVATION TRANSITION

-0.06%
-0.39%
LT. DITCH GRADE -0.10%
RT. DITCH GRADE -0.10%
+25
FL. OUTLET RT. 309.21
FL. INLET LT. 310.00
666+00.00 LT. D.G. 311.23
674+00.00 RT. D.G. 310.40
678+00.00 RT. D.G. 310.00
P.V.C. 675+73.06 ELEV. 315.64
P.V.I. 676+50.56 ELEV. 315.59
P.V.T. 677+28.06 ELEV. 315.29
K=470.18
VC=155.00'
e=-0.06'
P.V.C. 680+00.00 ELEV. 314.24

335 330 325 320 315 310 305 300 295 290

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

RCA0704BLT3-4-19.DGN 3/4/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	140	299

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

STA. 682+09 IN PLACE
24" X 32' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 50 CU. YDS.

STA. 685+55 IN PLACE
36" X 88' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
36' LT.
(CLASS III)(TYPE 2 BEDDING) WITH
FES LT. & RT.
Q50 = 55.3 C.F.S., D.A. = 37.8 AC.
36" R.C. PIPE = 44 LIN. FT.
36" FES = 2 EACH

STA. 687+40
CONSTRUCT TURNOUT ON LT. = 80 CU. YDS.

STA. 693+57 IN PLACE
24' X 92' R.C. PIPE CULVERT ON 24° RT. FWD. SKEW
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
38' LT.
(CLASS III)(TYPE 2 BEDDING) WITH
FES LT. & RT.
Q50 = 6.1 C.F.S., D.A. = 4.4 AC.
24" R.C. PIPE = 46 LIN. FT.
24" FES = 2 EACH

STA. 692+80
CONSTRUCT TURNOUT ON LT. = 85 CU. YDS.

CHAMBERSVILLE ROAD

EAST STREET

PROPOSED C of A

CONST. LIMITS

4' WEB EXIST. C of A

4' WEB

4' WEB W/1 STR. BARB.

EXIST. C of A

STA. 682+09 IN PLACE
24" X 31' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 50 CU. YDS.

FENCING

STA.	STA.	SIDE	TYPE	LIN. FT.
682+34.00	687+20.00	LT.	A	489
687+70.00	692+50.59	LT.	A	480
693+00.00	698+00.00	LT.	A	506

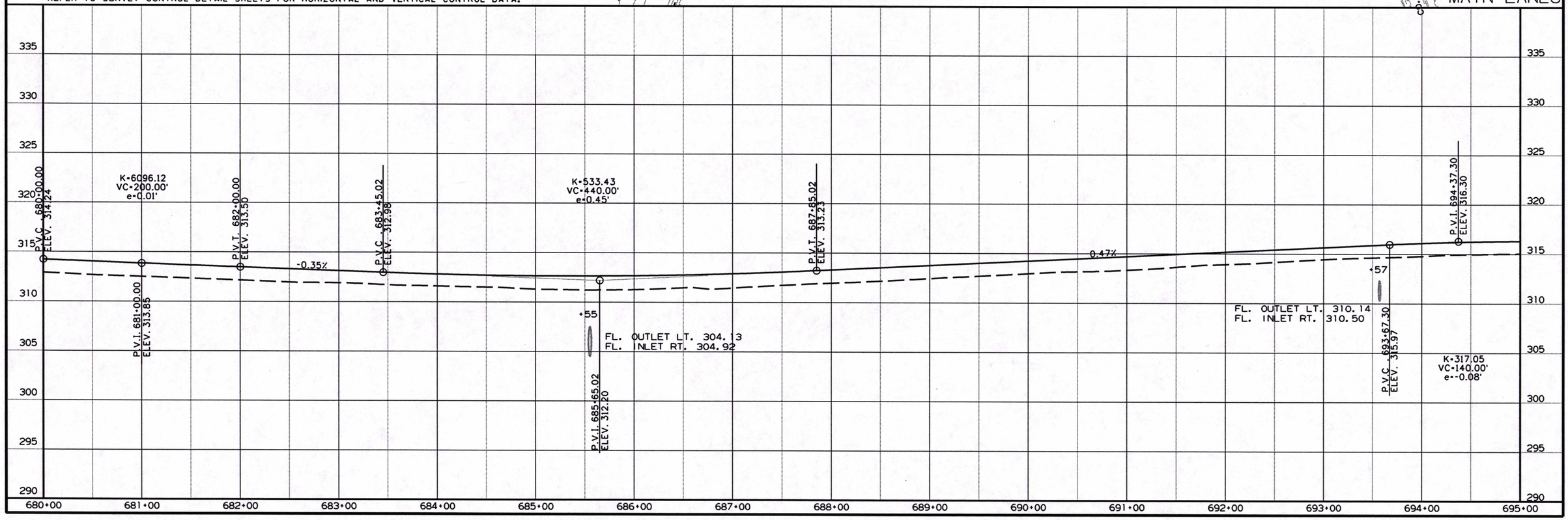
16' GATE EACH: 1

STA. 686+65 IN PLACE
24" X 41' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +69
24" X 50' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT TURNOUT ON RT. = 110 CU. YDS.

STA. 693+48
CONSTRUCT TURNOUT ON RT. = 100 CU. YDS.

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

MAIN LANES



RCA0704BLT3-4-19.DGN 3/4/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	141	299

(2) PLAN AND PROFILE SHEETS

STA. 698+28
CONSTRUCT APPR. ON LT. = 45 CU. YDS.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
698+28	704+23	LT.	595
704+64	708+00	LT.	335
708+39	715+60	LT.	730

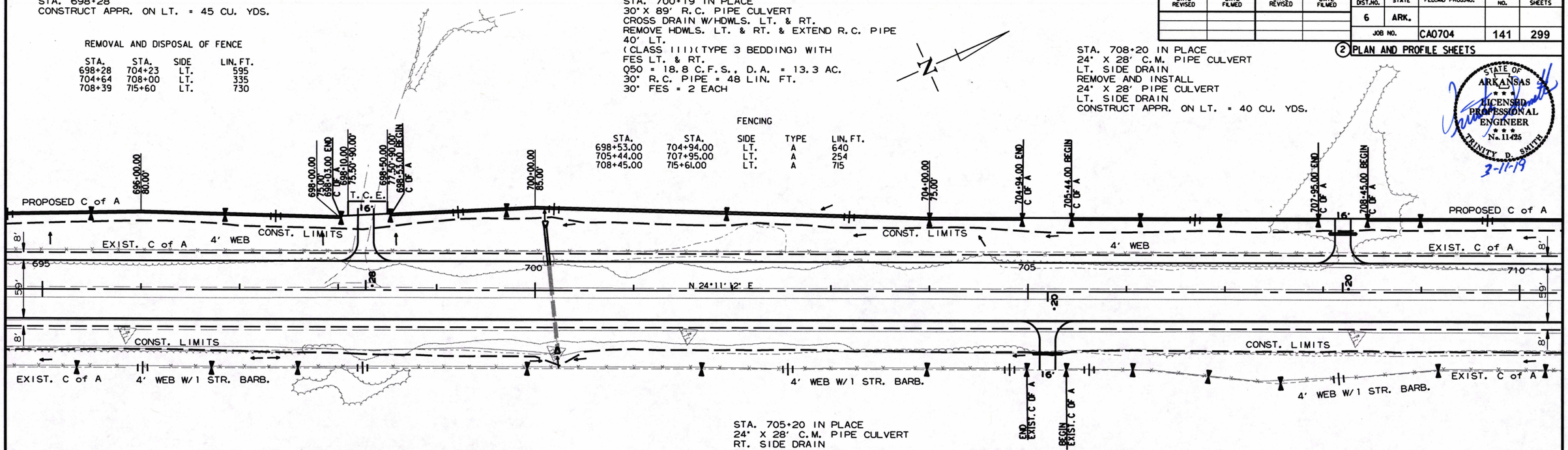
STA. 700+19 IN PLACE
30" X 89' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
40' LT.
(CLASS III)(TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 18.8 C.F.S., D.A. = 13.3 AC.
30" R.C. PIPE = 48 LIN. FT.
30" FES = 2 EACH

FENCING

STA.	STA.	SIDE	TYPE	LIN. FT.
698+53.00	704+94.00	LT.	A	640
705+44.00	707+95.00	LT.	A	254
708+45.00	715+61.00	LT.	A	715

STA. 708+20 IN PLACE
24" X 28' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 40 CU. YDS.

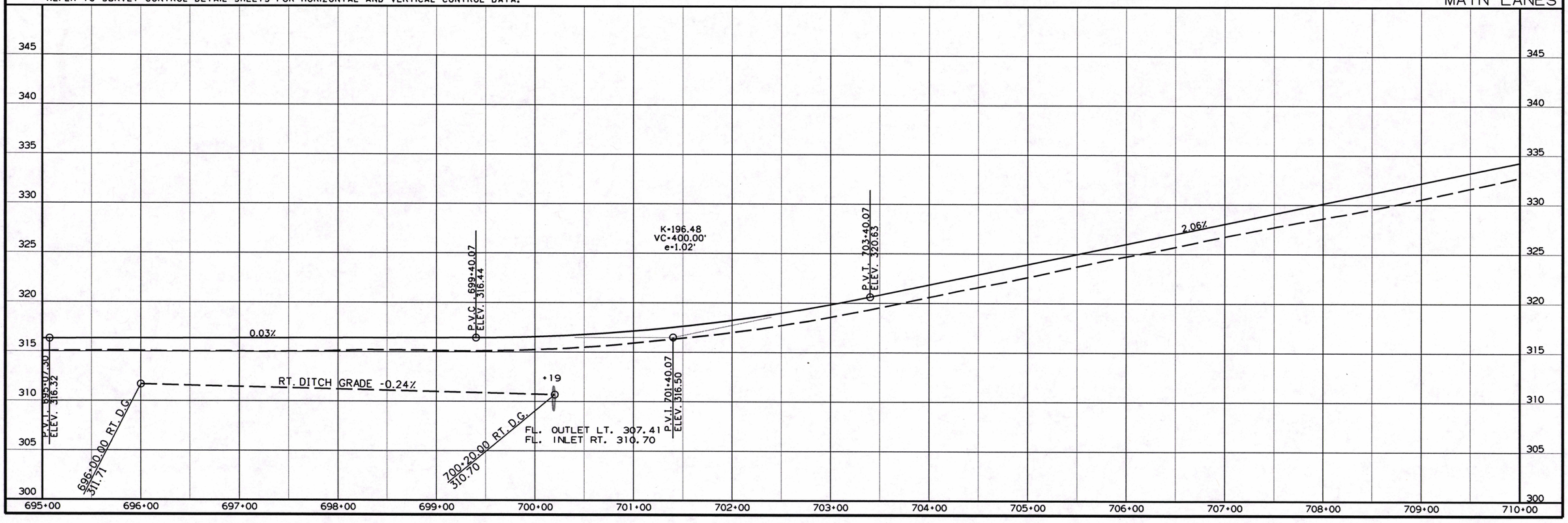
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



STA. 705+20 IN PLACE
24" X 28' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YDS.

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

MAIN LANES



RCA0704BLT3-4-19.DGN 3/4/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	142	299

(2) PLAN AND PROFILE SHEETS

REMOVAL AND DISPOSAL OF FENCE

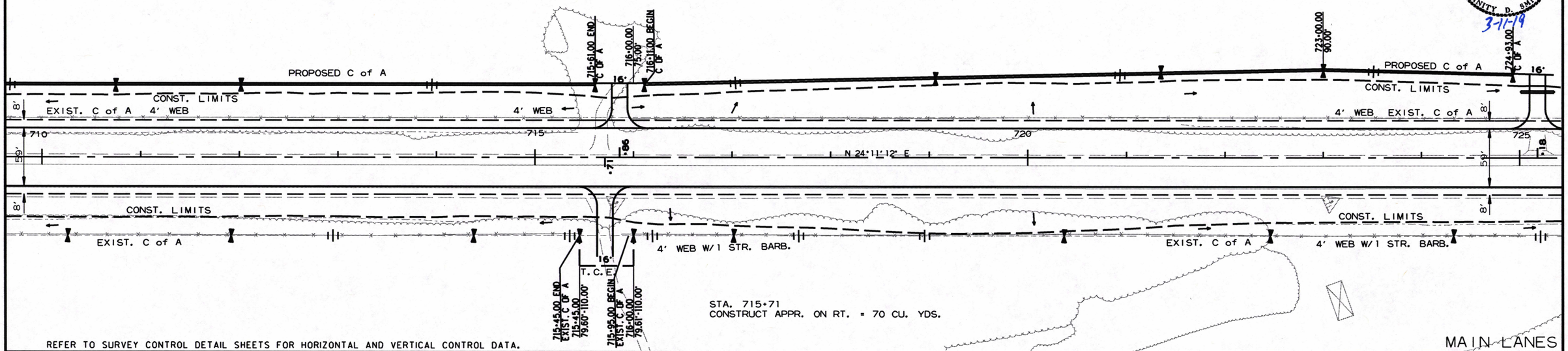
STA.	STA.	SIDE	LIN. FT.
715+95	724+99	LT.	905

FENCING

STA.	STA.	SIDE	TYPE	LIN. FT.
716+11.00	724+93.00	LT.	A	882

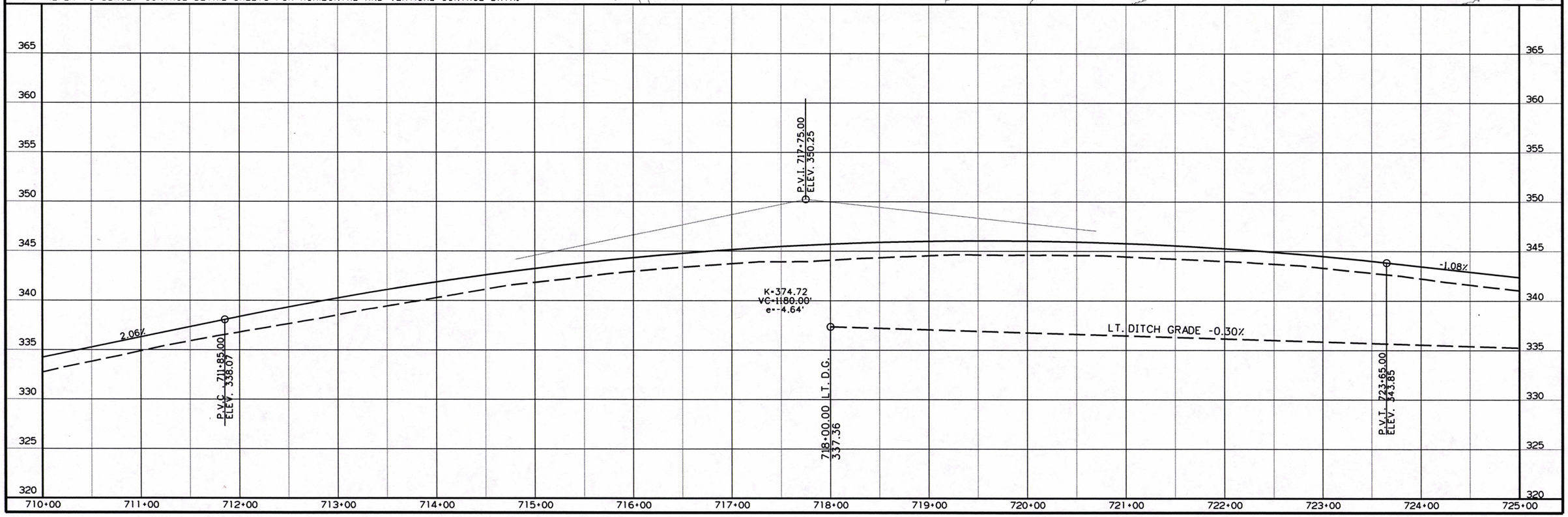
STA. 715+86
CONSTRUCT APPR. ON LT. = 35 CU. YDS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-7-19



REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

MAIN LANES



RCA0704BLT3-4-19.DGN 3/4/2019

STA. 725+18 IN PLACE
24" X 32" C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 34" PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 75 CU. YDS.

STA. 727+18 IN PLACE
24" X 32" C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +17
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 50 CU. YDS.

STA. 731+19 IN PLACE
36"X 90' C.M. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE AND CONSTRUCT
36"X 118' R.C. PIPE CULVERT
(CLASS III)(TYPE 2 BEDDING) WITH
FES LT. & RT.
Q50 = 23.3 C.F.S., D.A. = 16.2 AC.
36" R.C. PIPE = 118 LIN. FT.
36" FES = 2 EACH

CONST. C.L.
STA. 737+69 IN PLACE
24" X 27' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 50 CU. YDS.

FENCING

STA.	STA.	SIDE	TYPE	LIN. FT.
725+43.00	726+92.00	LT.	A	150
727+42.00	733+75.00	LT.	A	636
734+25.00	737+44.00	LT.	A	320
737+94.00	745+27.00	LT.	A	713
738+00.00	745+15.00	RT.	A	735

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.	GATE EACH
725+38	727+10	LT.	180	
727+34	737+49	LT.	1015	
736+15		LT.		1
737+89	745+31	LT.	733	
738+00	745+38	LT.	738	1

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

CONST. C.L. STA. 738+79.17 =
SOUTHBOUND C.L. STA. 738+79.17
(5.5' LT.)

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	143	299

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

PROPOSED C of A
EXIST. C of A 4' WEB
CONST. LIMITS
4' WEB
4' WEB W/1 STR. BARB.
SOUTHBOUND C.L.
NORTHBOUND C.L.
CONST. C.L.
N 24°11'12" E
725
730
735
740

STA. 727+25 IN PLACE
24" X 29' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +22
24" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 50 CU. YDS.

STA. 728+69 IN PLACE
24" X 28' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +65
24" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 60 CU. YDS.

CONST. C.L.
STA. 738+45 IN PLACE
DBL. 30"X 90' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
36' LT.
(CLASS III)(TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 53 C.F.S., D.A. = 34 AC.
30" R.C. PIPE = 88 LIN. FT.
30" FES = 4 EACH

CONST. C.L. STA. 739+33.19 =
NORTHBOUND C.L. STA. 739+33.19
(5.5' RT.)

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

MAIN LANES

SOUTHBOUND RAMP C.L.
STA. 738+79.17 BEGIN SUPERELEVATION TRANSITION
STA. 742+29.17 MAX. SUPERELEVATION (0.055 '/')
STA. 749+15.19 MAX. SUPERELEVATION (0.055 '/')
STA. 752+65.19 END SUPERELEVATION TRANSITION

NORTHBOUND RAMP C.L.
STA. 738+79.17 BEGIN SUPERELEVATION TRANSITION
STA. 742+29.17 MAX. SUPERELEVATION (0.055 '/')
STA. 751+31.30 MAX. SUPERELEVATION (0.055 '/')
STA. 754+81.30 END SUPERELEVATION TRANSITION

-1.08%
LT. DITCH GRADE -0.30%
RT. DITCH GRADE -0.015%
LT. DITCH GRADE -1.44%
-0.58%
0.22%
726+00.00 LT. D.G. 334.96
727+00.00 RT. D.G. 333.52
729+00.00 RT. D.G. 333.51
731+23.00 LT. D.G. 327.43
FL. OUTLET RT. 326.26
FL. INLET LT. 327.43
P.V.C. 730+87.50 ELEV. 336.01
K=639.80 VC=325.00' e=0.21'
P.V.I. 732+50.00 ELEV. 334.25
P.V.T. 734+12.50 ELEV. 333.31
P.V.C. 735+17.67 ELEV. 332.71
K=249.71 VC=200.00' e=0.20'
P.V.I. 736+17.67 ELEV. 332.13
P.V.T. 737+17.67 ELEV. 332.35
P.V.C. 738+00.00 ELEV. 332.54
K=237.30 VC=600.00' e=1.90'
F.L. INLET LT. 325.69
FL. OUTLET RT. 324.20
355
350
345
340
335
330
325
320
315
310
725+00
726+00
727+00
728+00
729+00
730+00
731+00
732+00
733+00
734+00
735+00
736+00
737+00
738+00
739+00
740+00

RCA0704BLT3-4-19.DGN 3/4/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	144	299

(2) PLAN AND PROFILE SHEETS

GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL TYPE A LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	GUARDRAIL TERMINAL (TYPE 2) EACH
754+65.77	756+84.52	LT.	200	1	1
754+65.77	756+84.52	RT.	200	1	1

FENCING

STA.	STA.	SIDE	TYPE	LIN. FT.
745+65.00	749+33.00	RT.	A	386
745+77.00	748+93.00	LT.	A	306
749+43.00	757+20.26	LT.	A	763
749+83.00	757+12.16	RT.	A	746

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'

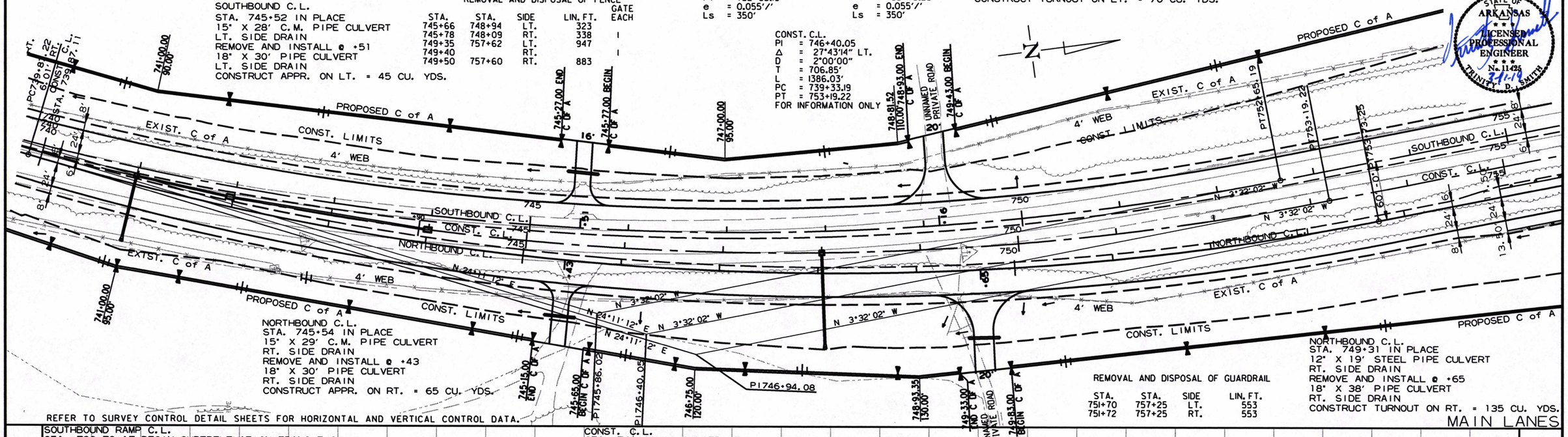
SOUTHBOUND C.L.
STA. 749+37 IN PLACE
12" X 16' STEEL PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +16
18" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT TURNOUT ON LT. = 70 CU. YDS.

SOUTHBOUND C.L.
STA. 745+52 IN PLACE
15" X 28' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +51
18" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 45 CU. YDS.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.	GATE EACH
745+66	748+94	LT.	323	
745+78	748+09	RT.	338	1
749+35	757+62	LT.	947	
749+40		RT.		1
749+50	757+60	RT.	883	

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY



REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

NORTHBOUND C.L.
STA. 745+54 IN PLACE
15" X 29' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +43
18" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 65 CU. YDS.

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	SIDE	LIN. FT.
751+70	757+25	LT.	553
751+72	757+25	RT.	553

NORTHBOUND C.L.
STA. 749+31 IN PLACE
12" X 19' STEEL PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +65
18" X 38' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT TURNOUT ON RT. = 135 CU. YDS.

MAIN LANES

SOUTHBOUND RAMP C.L.
STA. 738+79.17 BEGIN SUPERELEVATION TRANSITION
STA. 742+29.17 MAX. SUPERELEVATION (0.055 '/')
STA. 749+15.19 MAX. SUPERELEVATION (0.055 '/')
STA. 752+65.19 END SUPERELEVATION TRANSITION

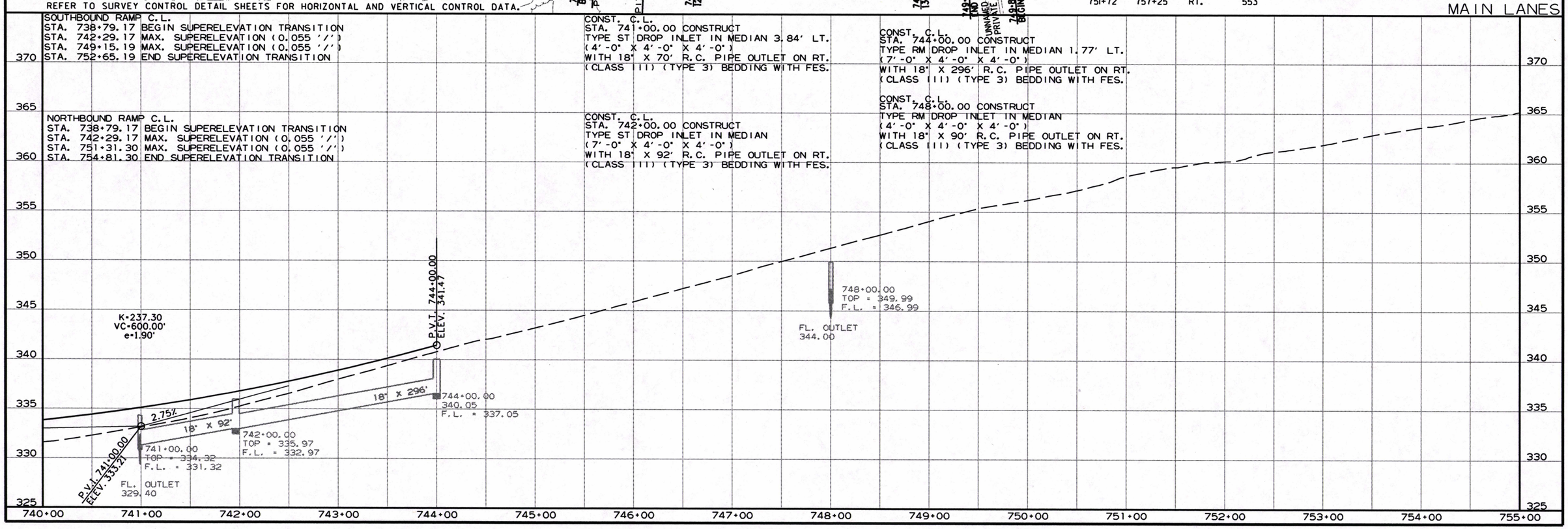
NORTHBOUND RAMP C.L.
STA. 738+79.17 BEGIN SUPERELEVATION TRANSITION
STA. 742+29.17 MAX. SUPERELEVATION (0.055 '/')
STA. 751+31.30 MAX. SUPERELEVATION (0.055 '/')
STA. 754+81.30 END SUPERELEVATION TRANSITION

CONST. C.L.
STA. 741+00.00 CONSTRUCT
TYPE ST DROP INLET IN MEDIAN 3.84' LT.
(4'-0" X 4'-0" X 4'-0")
WITH 18" X 70' R.C. PIPE OUTLET ON RT.
(CLASS III) (TYPE 3) BEDDING WITH FES.

CONST. C.L.
STA. 742+00.00 CONSTRUCT
TYPE ST DROP INLET IN MEDIAN
(7'-0" X 4'-0" X 4'-0")
WITH 18" X 92' R.C. PIPE OUTLET ON RT.
(CLASS III) (TYPE 3) BEDDING WITH FES.

CONST. C.L.
STA. 744+00.00 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN 1.77' LT.
(7'-0" X 4'-0" X 4'-0")
WITH 18" X 296' R.C. PIPE OUTLET ON RT.
(CLASS III) (TYPE 3) BEDDING WITH FES.

CONST. C.L.
STA. 748+00.00 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN
(4'-0" X 4'-0" X 4'-0")
WITH 18" X 90' R.C. PIPE OUTLET ON RT.
(CLASS III) (TYPE 3) BEDDING WITH FES.



RCA0704BLT3-4-19.DGN 3/6/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	145	299

(2) PLAN AND PROFILE SHEETS

SOUTHBOUND C.L.
STA. 756+62 CONSTRUCT
TYPE N-3 DROP INLET ON LT.
H = 4'-0"
WITH 12" X 78' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

SOUTHBOUND C.L.
STA. 756+90 IN PLACE
8" X 51' C.M. PIPE CULVERT
ON LT.
REMOVE

SOUTHBOUND C.L.
STA. 756+93.92 TO STA. 759+46.08 CONSTRUCT
252.16' X 38' CL. RDWY.
BRIDGE NO. A7400
250'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
(70'-110'-70')
TOTAL LENGTH = 252'-2"

SOUTHBOUND C.L.
STA. 759+95 CONSTRUCT
TYPE N-3 DROP INLET ON LT.
H = 4'-0"
WITH 12" X 64' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

CONST. C.L.
STA. 761+51 IN PLACE
30" X 205' R.C. PIPE CULVERT
ON 30° LT. FWD. SKEW
CROSS DRAIN W/HDWLS. LT. & RT.
PLUG & ABANDON AND JACK PIPE
30" X 302' R.C. PIPE CULVERT
ON 30° LT. FWD. SKEW
(CLASS V) (TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 6.5 C.F.S., D.A. = 14 AC.
30" R.C. PIPE = 302 LIN. FT.
30" FES = 2 EACH

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 864+76.66
Δ = 13°14'03" LT.
D = 5°30'00"
T = 120.85'
L = 240.62'
PC = 863+55.81
PT = 865+96.43

SOUTHBOUND RAMP C.L.
PI = 773+80.99
Δ = 59°36'09" RT.
D = 5°56'00"
T = 553.07'
L = 1004.54'
PC = 768+27.93
PT = 778+32.46
NO SUPER

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 867+33.28
Δ = 13°57'00" RT.
D = 5°30'00"
T = 127.45'
L = 253.64'
PC = 866+05.83
PT = 868+59.47

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
TRINITY D. SMITH
No. 11425
3-11-19

SOUTHBOUND C.L.
STA. 759+42 IN PLACE
12" X 29' C.M. PIPE CULVERT
ON LT.
REMOVE

NORTHBOUND C.L.
STA. 756+60 CONSTRUCT
TYPE N-3 DROP INLET ON RT.
H = 4'-0"
WITH 12" X 60' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

NORTHBOUND C.L.
STA. 756+88 IN PLACE
12" X 40' C.M. PIPE CULVERT
ON RT.
REMOVE

NORTHBOUND C.L.
STA. 759+43 IN PLACE
10" X 48' C.M. PIPE CULVERT
ON RT.
REMOVE

NORTHBOUND C.L.
STA. 759+93 CONSTRUCT
TYPE N-3 DROP INLET ON RT.
H = 4'-0"
12" X 110' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

NORTHBOUND C.L.
PI = 766+76.82
Δ = 31°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

NORTHBOUND C.L.
STA. 764+31
CONSTRUCT TURNOUT ON RT. = 60 CU. YDS.

NORTHBOUND RAMP C.L.
STA. 760+55.81 BEGIN SUPERELEVATION TRANSITION
STA. 764+55.81 MAX. SUPERELEVATION (0.098 '/')
STA. 768+05.36 MAX. SUPERELEVATION (0.098 '/')
STA. 770+15.62 MATCH EXISTING SUPERELEVATION

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

NORTHBOUND C.L.
STA. 757+08.92 TO STA. 759+61.08
CONSTRUCT
252.16' X 38' CL. RDWY.
BRIDGE NO. B7400
250'-0" CONTINUOUS COMPOSITE W-BEAM
UNIT (70'-110'-70')
TOTAL LENGTH = 252'-2"

CONST. C.L.
STA. 757+25.36 TO STA. 759+12.81 IN PLACE
33.4' X 188.0' BRIDGE NO. 03637
CONCRETE AND STEEL
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 2) = 1.00 LUMP SUM

GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL TYPE A LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	GUARDRAIL TERMINAL (TYPE 2) EACH
759+70.48	761+89.23	LT.	200	1	1
759+70.48	761+89.23	RT.	200	1	1
768+40.75	770+59.50	LT.	200	1	1
765+60.02	770+78.77	RT.	200	1	1

FENCING

STA.	STA.	SIDE	TYPE	LIN. FT.	16' GATE EACH
757+20.26	757+12.16	LT. & RT.	C	350	1
758+57.15	763+92.00	RT.	A	545	
758+66.94	758+57.15	LT. & RT.	C	355	1
758+66.94	763+00.00	LT.	A	438	
764+42.00	769+26.00	RT.	A	562	

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	SIDE	LIN. FT.
759+13	763+65	RT.	454
759+13	763+65	LT.	454
769+99	770+53	LT.	180

F.L. INLET LT. 353.19
F.L. OUTLET RT. 345.22

MAIN LANES

RCA0704BLT3-4-19.DGN 3/4/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	146	299

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

SOUTHBOUND C.L.
STA. 770+63.18 IN PLACE
198' X 22.40' BRIDGE NO. 03638
STEEL STRINGER
RETAIN EXISTING BRIDGE
REHABILITATE DECK AND RETROFIT GUARDRAIL

REMOVAL AND DISPOSAL OF GUARDRAIL

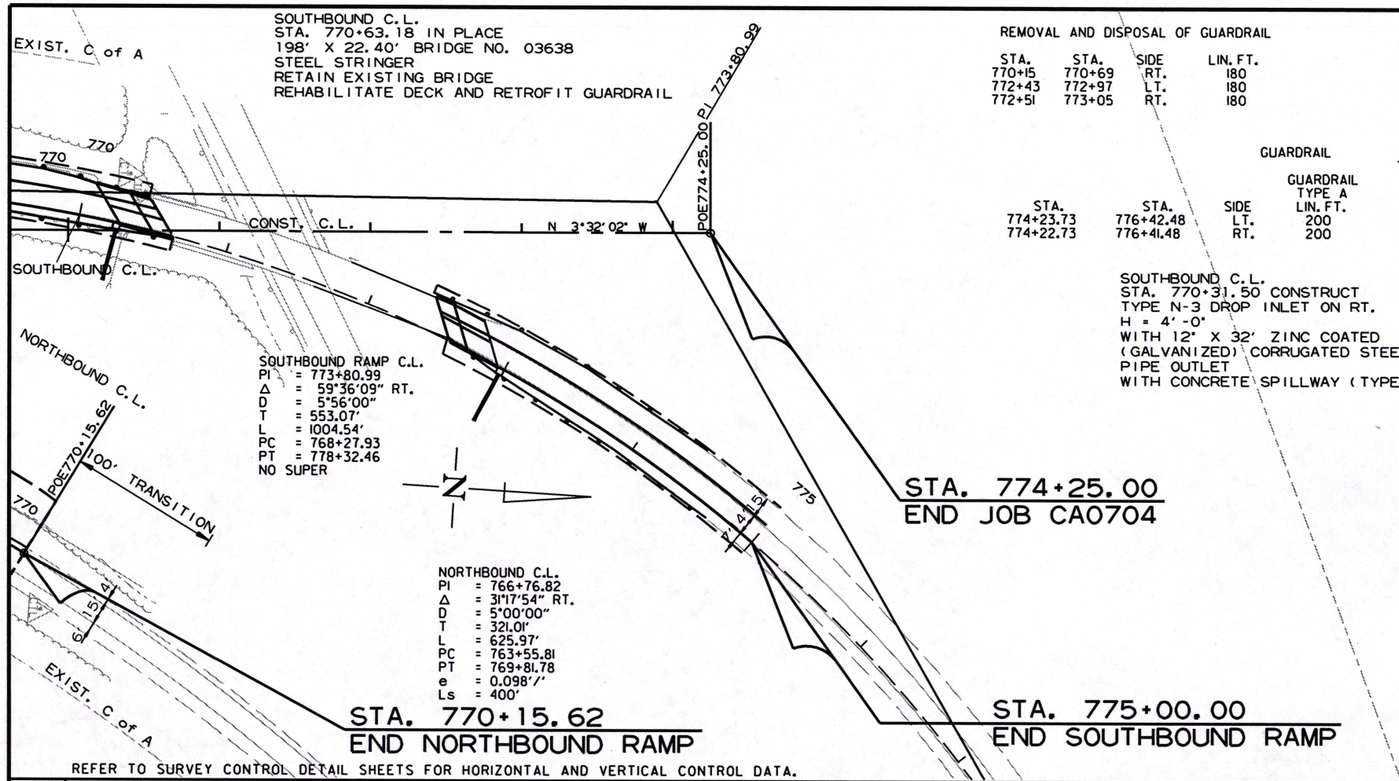
STA.	STA.	SIDE	LIN. FT.
770+15	770+69	RT.	180
772+43	772+97	LT.	180
772+51	773+05	RT.	180

GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL TYPE A LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	GUARDRAIL TERMINAL (TYPE 2) EACH
774+23.73	776+42.48	LT.	200	1	1
774+22.73	776+41.48	RT.	200	1	1

SOUTHBOUND C.L.
STA. 770+31.50 CONSTRUCT
TYPE N-3 DROP INLET ON RT.
H = 4'-0"
WITH 12" X 32' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

SOUTHBOUND C.L.
STA. 772+84.98 CONSTRUCT
TYPE N-3 DROP INLET ON RT.
H = 4'-0"
WITH 12" X 32' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

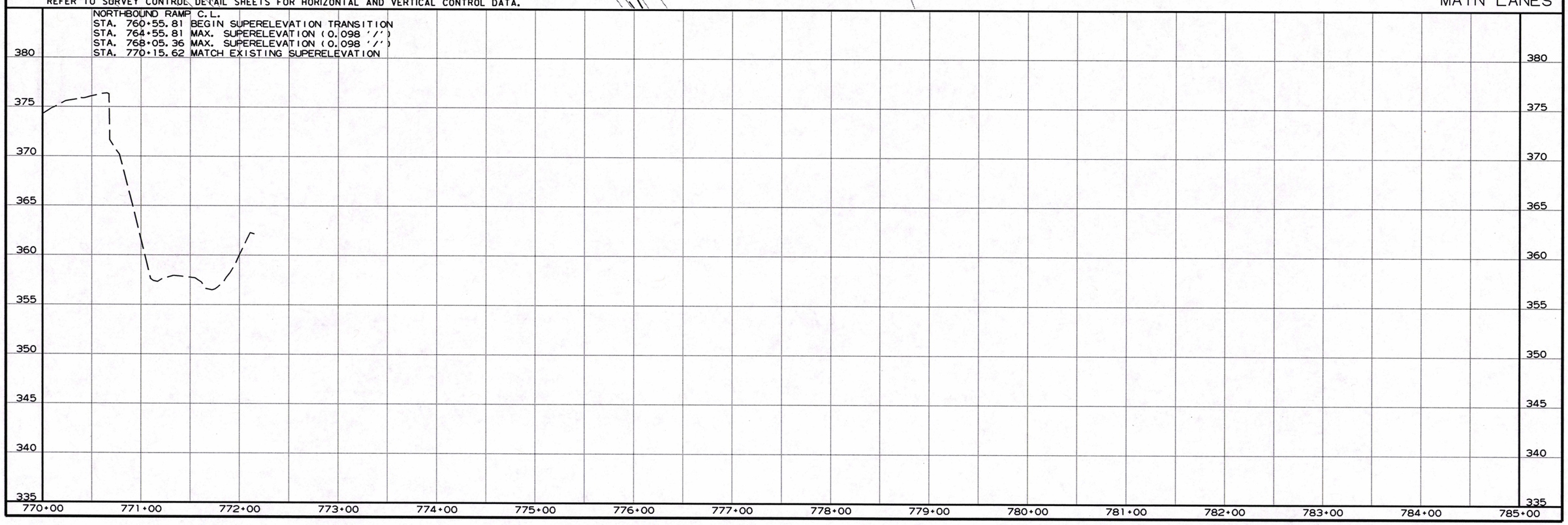


SOUTHBOUND RAMP C.L.
PI = 773+80.99
Δ = 59°36'09" RT.
D = 5°56'00"
T = 553.07'
L = 1004.54'
PC = 768+27.93
PT = 778+32.46
NO SUPER

NORTHBOUND C.L.
PI = 766+76.82
Δ = 31°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

MAIN LANES



RCA0704BLT3-4-19.DGN 3/4/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	147	299

(2) PLAN AND PROFILE SHEETS

STA. 725+18 IN PLACE
24" X 32' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT TURNOUT ON LT. = 75 CU. YDS.

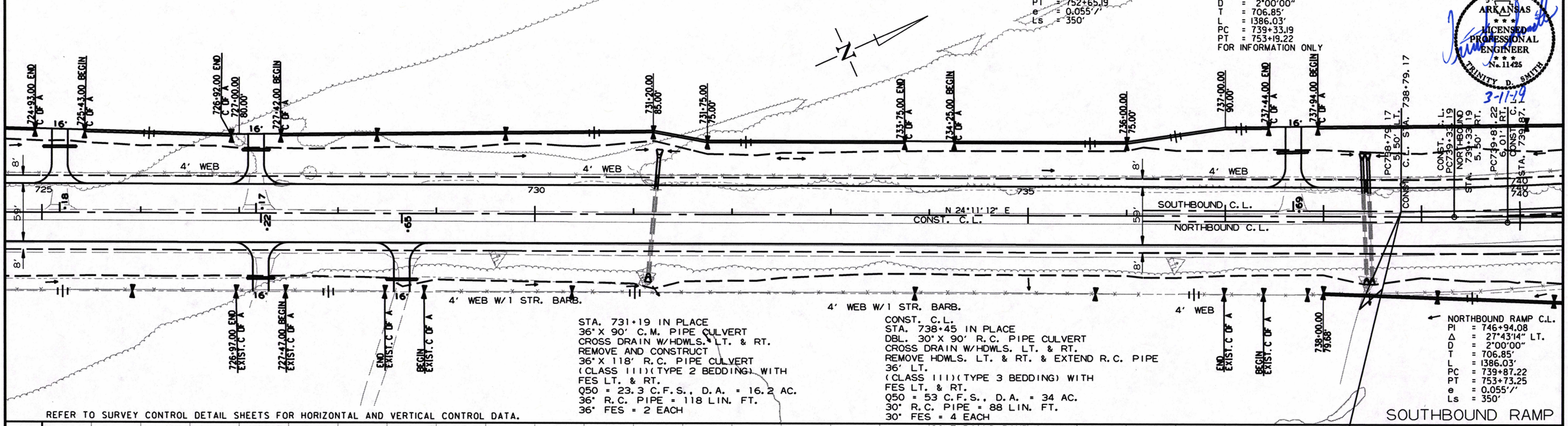
STA. 727+18 IN PLACE
24" X 32' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +17
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT TURNOUT ON LT. = 50 CU. YDS.

CONST. C.L.
STA. 737+69 IN PLACE
24" X 27' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT TURNOUT ON LT. = 50 CU. YDS.

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STA. 731+19 IN PLACE
36" X 90' C.M. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE AND CONSTRUCT
36" X 118' R.C. PIPE CULVERT
(CLASS III)(TYPE 2 BEDDING) WITH
FES LT. & RT.
Q50 = 23.3 C.F.S., D.A. = 16.2 AC.
36" R.C. PIPE = 118 LIN. FT.
36" FES = 2 EACH

CONST. C.L.
STA. 738+45 IN PLACE
DBL. 30" X 90' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
36' LT.
(CLASS III)(TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 53 C.F.S., D.A. = 34 AC.
30" R.C. PIPE = 88 LIN. FT.
30" FES = 4 EACH

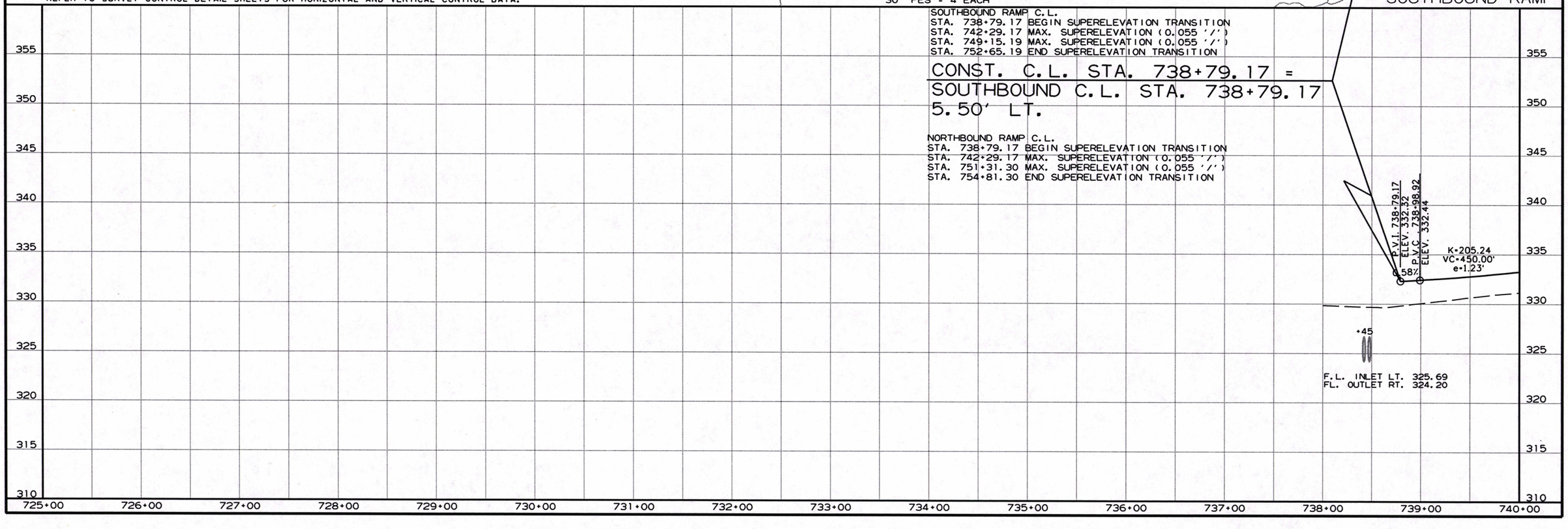
NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'

SOUTHBOUND RAMP

SOUTHBOUND RAMP C.L.
STA. 738+79.17 BEGIN SUPERELEVATION TRANSITION
STA. 742+29.17 MAX. SUPERELEVATION (0.055 '/')
STA. 749+15.19 MAX. SUPERELEVATION (0.055 '/')
STA. 752+65.19 END SUPERELEVATION TRANSITION

CONST. C.L. STA. 738+79.17 =
SOUTHBOUND C.L. STA. 738+79.17
5.50' LT.

NORTHBOUND RAMP C.L.
STA. 738+79.17 BEGIN SUPERELEVATION TRANSITION
STA. 742+29.17 MAX. SUPERELEVATION (0.055 '/')
STA. 751+31.30 MAX. SUPERELEVATION (0.055 '/')
STA. 754+81.30 END SUPERELEVATION TRANSITION



RCA0704BLT3-4-19.DGN 3/4/2019

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.	GATE EACH
745+66	748+94	LT.	323	
745+78	748+09	RT.	338	1
749+35	757+62	LT.	947	
749+40		RT.		1
749+50	757+60	RT.	883	

FENCING

STA.	STA.	SIDE	TYPE	LIN. FT.
745+65.00	749+33.00	RT.	A	386
745+77.00	748+93.00	LT.	A	306
749+43.00	757+20.26	LT.	A	763
749+83.00	757+12.16	RT.	A	746

SOUTHBOUND C.L.
STA. 745+52 IN PLACE
15' X 28' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +51
18" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT TURNOUT ON LT. = 45 CU. YDS.

SOUTHBOUND C.L.
STA. 749+37 IN PLACE
12' X 16' STEEL PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +16
18" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT TURNOUT ON LT. = 70 CU. YDS.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AND PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	148	299

(2) PLAN AND PROFILE SHEETS

GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL TYPE A LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	GUARDRAIL TERMINAL (TYPE 2) EACH
754+65.77	756+84.52	LT.	200	1	1
754+65.77	756+84.52	RT.	200	1	1

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	SIDE	LIN. FT.
751+70	757+25	LT.	553
751+72	757+25	RT.	553

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

SOUTHBOUND RAMP C.L.
STA. 738+79.17 BEGIN SUPERELEVATION TRANSITION
STA. 742+29.17 MAX. SUPERELEVATION (0.055 '/')
STA. 749+15.19 MAX. SUPERELEVATION (0.055 '/')
STA. 752+65.19 END SUPERELEVATION TRANSITION

NORTHBOUND RAMP C.L.
STA. 738+79.17 BEGIN SUPERELEVATION TRANSITION
STA. 742+29.17 MAX. SUPERELEVATION (0.055 '/')
STA. 751+31.30 MAX. SUPERELEVATION (0.055 '/')
STA. 754+81.30 END SUPERELEVATION TRANSITION

CONST. C.L.
STA. 741+00.00 CONSTRUCT
TYPE ST DROP INLET IN MEDIAN 3.84' LT.
(4'-0" X 4'-0" X 4'-0")
WITH 18" X 70' R.C. PIPE OUTLET ON RT.
(CLASS III) (TYPE 3) BEDDING WITH FES.

CONST. C.L.
STA. 742+00.00 CONSTRUCT
TYPE ST DROP INLET IN MEDIAN
(7'-0" X 4'-0" X 4'-0")
WITH 18" X 92' R.C. PIPE OUTLET ON RT.
(CLASS III) (TYPE 3) BEDDING WITH FES.

CONST. C.L.
STA. 744+00.00 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN 1.77' LT.
(7'-0" X 4'-0" X 4'-0")
WITH 18" X 296' R.C. PIPE OUTLET ON RT.
(CLASS III) (TYPE 3) BEDDING WITH FES.

CONST. C.L.
STA. 748+00.00 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN
(4'-0" X 4'-0" X 4'-0")
WITH 18" X 90' R.C. PIPE OUTLET ON RT.
(CLASS III) (TYPE 3) BEDDING WITH FES.

741+00.00
TOP = 334.32
F.L. = 331.32

EL. OUTLET
329.40

18" X 92'

742+00.00
TOP = 335.97
F.L. = 332.97

P.V.I. 741+23.92
ELEV. 333.74

K=205.24
VC=450'
e=1.23'

P.V.T. 743+48.92
ELEV. 339.98

2.77%

18" X 296'

744+00.00
340.05
F.L. = 337.05

748+00.00
TOP = 349.99
F.L. = 346.99

FL. OUTLET
344.00

P.V.C. 750+50.00
ELEV. 359.41

P.V.I. 751+00.00
ELEV. 360.79

P.V.T. 751+50.00
ELEV. 361.94

K=211.22
VC=100'
e=-0.06'

2.30%

P.V.C. 752+50.00
ELEV. 364.24

P.V.I. 753+00.00
ELEV. 365.39

K=142.47
VC=100'
e=0.09'

3.00%

P.V.T. 753+50.00
ELEV. 366.89

P.V.C. 753+89.86
ELEV. 368.09

K=151.00
VC=649'
e=-3.49'

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

375 370 365 360 355 350 345 340 335 330

RCA0704BLT3-4-19.DGN 3/6/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	149	299

REMOVAL AND DISPOSAL OF GUARDRAIL (2) PLAN AND PROFILE SHEETS

SOUTHBOUND C.L.
STA. 756+53.69 CONSTRUCT
TYPE N-3 DROP INLET ON LT.
H = 4'-0"
WITH 12" X 78' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

SOUTHBOUND C.L.
STA. 756+90 IN PLACE
8" X 51' C.M. PIPE CULVERT
ON LT.
REMOVE

SOUTHBOUND C.L.
STA. 756+93.92 TO STA. 759+46.08 CONSTRUCT
252.167' X 38' CL. RDWY.
BRIDGE NO. A7400
CONTINUOUS COMPOSITE W-BEAM UNIT
(70'-110'-70')

SOUTHBOUND C.L.
STA. 759+42 IN PLACE
12" X 29' C.M. PIPE CULVERT
ON LT.
REMOVE

SOUTHBOUND C.L.
STA. 759+86.31 CONSTRUCT
TYPE N-3 DROP INLET ON LT.
H = 4'-0"
WITH 12" X 64' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

CONST. C.L.
STA. 761+51 IN PLACE
30" X 205' R.C. PIPE CULVERT
ON 30° LT. FWD. SKEW
CROSS DRAIN W/HDWLS. LT. & RT.
PLUG & ABANDON AND CONSTRUCT
30" X 302' R.C. PIPE CULVERT
ON 30° LT. FWD. SKEW
(CLASS V)(TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 6.5 C.F.S., D.A. = 14 AC.
30" R.C. PIPE = 302 LIN. FT.
30" FES = 2 EACH

STA.	STA.	SIDE	LIN. FT.
759+13	763+65	RT.	454
759+13	763+65	LT.	454
769+99	770+53	LT.	180

SOUTHBOUND RAMP C.L.
PI = 773+80.99
Δ = 59°36'09" RT.
D = 5°56'00"
T = 553.07'
L = 1004.54'
PC = 768+27.93
PT = 778+32.46
NO SUPER

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 864+76.66
Δ = 13°14'03" IT.
D = 5°30'00"
T = 120.85'
L = 240.62'
PC = 863+55.81
PT = 865+96.43

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 867+33.28
Δ = 13°57'00" RT.
D = 5°30'00"
T = 127.45'
L = 253.64'
PC = 866+05.83
PT = 868+59.47

NORTHBOUND C.L.
STA. 756+60 CONSTRUCT
TYPE N-3 DROP INLET ON RT.
H = 4'-0"
WITH 12" X 60' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

NORTHBOUND C.L.
STA. 759+93 CONSTRUCT
TYPE N-3 DROP INLET ON RT.
H = 4'-0"
12" X 110' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

NORTHBOUND C.L.
PI = 766+76.82
Δ = 3°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.

300' TRANSITION
540' TRANSITION
100' TRANSITION

SOUTHBOUND C.L.
NORTHBOUND C.L.
CONST. C.L.
N 3°32'02" W
N 2°49'05" W
N 27°45'52" E
356.17' TAPER

T.C.E.
P.C.E.
16' GATE
4' WEB

SOUTHBOUND RAMP

STA.	STA.	SIDE	GUARDRAIL TYPE A LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	GUARDRAIL TERMINAL (TYPE 2) EACH
759+70.48	761+89.23	LT.	200		
759+70.48	761+89.23	RT.	200		
768+40.75	770+59.50	LT.	200		
765+60.02	770+78.77	RT.	200		

BR. END STA. 756+93.92
P.V.I. 757+14.51
ELEV. 377.82
3.00%
K-151.00
VC-649'
e=-3.49'
756+53.69 LT.
TOP = 373.22
F.L. = 369.22
OUTLET
351.04

BR. END STA. 759+46.08
759+86.31 LT.
TOP = 373.72
F.L. = 369.72
OUTLET
360.37
P.V.T. 760+39.16
ELEV. 373.60
-1.30%
P.V.C. 762+77.88
ELEV. 370.50
K-139.92
VC-450'
e=-1.81'
P.V.T. 765+02.88
ELEV. 367.58
P.V.I. 767+27.88
ELEV. 371.89
P.V.I. 767+50.00
ELEV. 372.31
1.92%
END NOTCH AND WIDENING
BEGIN MILL & OVERLAY
+51
F.L. INLET LT. 353.19
FL. OUTLET RT. 345.22

FENCING

STA.	STA.	SIDE	TYPE	LIN. FT.	16' GATE EACH
757+20.26	757+12.16	LT. & RT.	C	350	1
758+57.15	763+92.00	RT.	A	545	
758+66.94	758+57.15	LT. & RT.	C	355	1
758+66.94	763+00.00	LT.	A	438	
764+42.00	769+26.00	RT.	A	562	

385 380 375 370 365 360 355 350 345 340
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

RCA0704BLT3-4-19.DGN 3/4/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	150	299

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

SOUTHBOUND C.L.
STA. 770+63.18 IN PLACE
198' X 22.40' BRIDGE NO. 03638
STEEL STRINGER
RETAIN EXISTING BRIDGE
REHABILITATE DECK AND RETROFIT GUARDRAIL

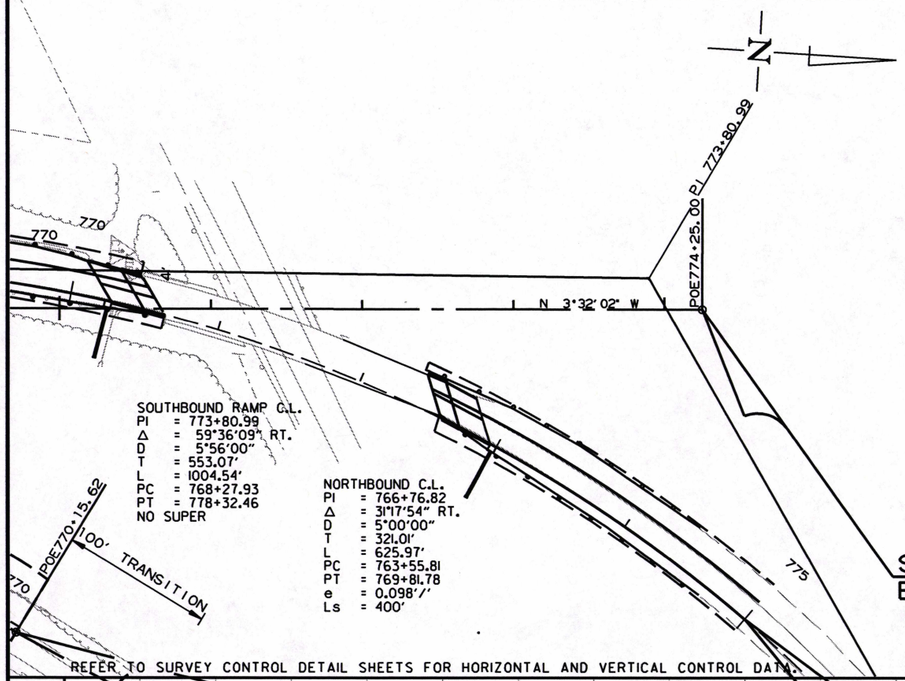
SOUTHBOUND C.L.
STA. 770+31.50 CONSTRUCT
TYPE N-3 DROP INLET ON RT.
H = 4'-0"
WITH 12" X 32' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

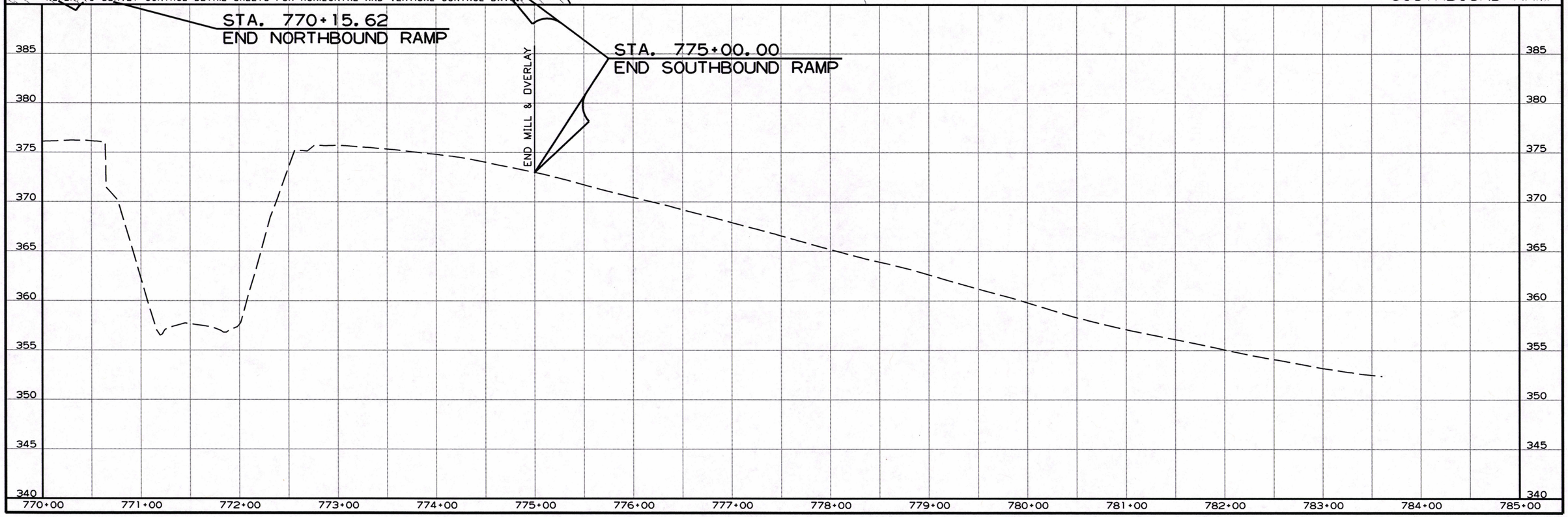
SOUTHBOUND C.L.
STA. 772+84.98 CONSTRUCT
TYPE N-3 DROP INLET ON RT.
H = 4'-0"
WITH 12" X 32' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	SIDE	LIN. FT.
770+15	770+69	RT.	180
772+43	772+97	LT.	180
772+51	773+05	RT.	180

STA.	STA.	SIDE	GUARDRAIL TYPE A LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	GUARDRAIL TERMINAL (TYPE 2) EACH
774+23.73	776+42.48	LT.	200	1	1
774+22.73	776+41.48	RT.	200	1	1



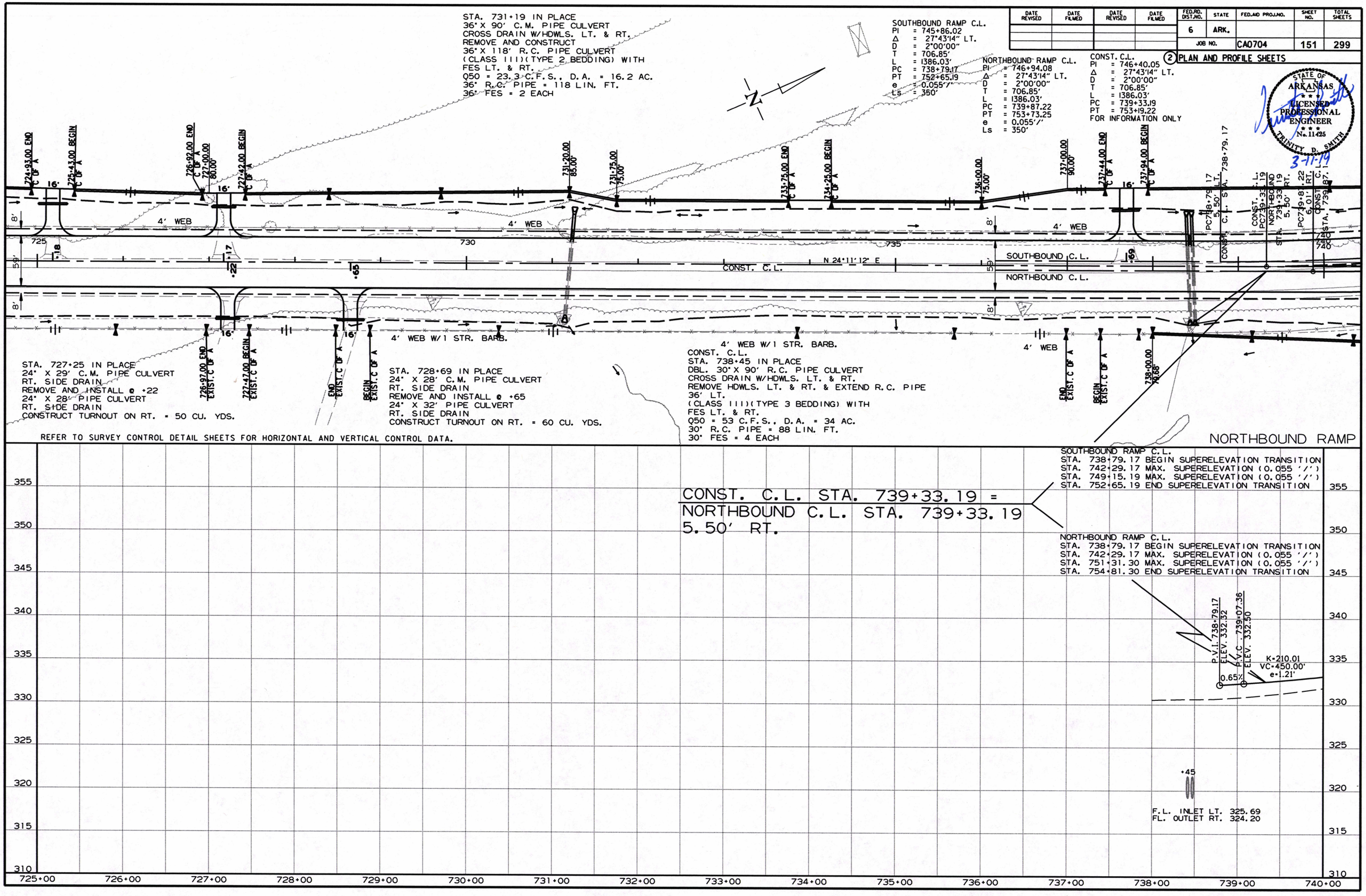


RCA0704BLT3-4-19.DGN 3/4/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	151	299

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19



RCA0704BLT3-4-19.DGN 3/4/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	152	299

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.	GATE EACH
745+66	748+94	LT.	323	
745+78	748+09	RT.	338	1
749+35	757+62	LT.	947	
749+40		RT.		1
749+50	757+60	RT.	883	

FENCING

STA.	STA.	SIDE	TYPE	LIN. FT.
745+65.00	749+33.00	RT.	A	386
745+77.00	748+93.00	LT.	A	306
749+43.00	757+20.26	LT.	A	763
749+83.00	757+12.16	RT.	A	746

GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL TYPE A LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	GUARDRAIL TERMINAL (TYPE 2) EACH
754+65.77	756+84.52	LT.	200	1	1
754+65.77	756+84.52	RT.	200	1	1

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	SIDE	LIN. FT.
751+70	757+25	LT.	553
751+72	757+25	RT.	553

NORTHBOUND C.L.
STA. 745+54 IN PLACE
15' X 29' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +43
18" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT TURNOUT ON RT. = 65 CU. YDS.

NORTHBOUND C.L.
STA. 749+31 IN PLACE
12" X 19' STEEL PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +65
18" X 38' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT TURNOUT ON RT. = 135 CU. YDS.

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

SOUTHBOUND RAMP C.L.
STA. 738+79.17 BEGIN SUPERELEVATION TRANSITION
STA. 742+29.17 MAX. SUPERELEVATION (0.055 '/')
STA. 749+15.19 MAX. SUPERELEVATION (0.055 '/')
STA. 752+65.19 END SUPERELEVATION TRANSITION

NORTHBOUND RAMP C.L.
STA. 738+79.17 BEGIN SUPERELEVATION TRANSITION
STA. 742+29.17 MAX. SUPERELEVATION (0.055 '/')
STA. 751+31.30 MAX. SUPERELEVATION (0.055 '/')
STA. 754+81.30 END SUPERELEVATION TRANSITION

CONST. C.L.
STA. 741+00.00 CONSTRUCT
TYPE ST DROP INLET IN MEDIAN 3.84' LT.
(4'-0" X 4'-0" X 4'-0")
WITH 18" X 70' R.C. PIPE OUTLET ON RT.
(CLASS III) (TYPE 3) BEDDING WITH FES.

CONST. C.L.
STA. 742+00.00 CONSTRUCT
TYPE ST DROP INLET IN MEDIAN
(7'-0" X 4'-0" X 4'-0")
WITH 18" X 92' R.C. PIPE OUTLET ON RT.
(CLASS III) (TYPE 3) BEDDING WITH FES.

CONST. C.L.
STA. 744+00.00 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN 1.77' LT.
(7'-0" X 4'-0" X 4'-0")
WITH 18" X 296' R.C. PIPE OUTLET ON RT.
(CLASS III) (TYPE 3) BEDDING WITH FES.

CONST. C.L.
STA. 748+00.00 CONSTRUCT
TYPE RM DROP INLET IN MEDIAN
(4'-0" X 4'-0" X 4'-0")
WITH 18" X 90' R.C. PIPE OUTLET ON RT.
(CLASS III) (TYPE 3) BEDDING WITH FES.

NORTHBOUND RAMP

2.80%

P.V.I. 741+32.36
ELEV. 333.97
K=210.01
VC=450'
e=1.21'

P.V.T. 743+57.36
ELEV. 340.26

P.V.C. 753+11.08
ELEV. 366.92
K=189.43
VC=700'
e=-3.23'

741+00.00
TOP = 334.32
F.L. = 331.32

FL. OUTLET
329.40

18" X 92'

742+00.00
TOP = 335.97
F.L. = 332.97

18" X 296'

744+00.00
340.05
F.L. = 337.05

748+00.00
TOP = 349.99
F.L. = 346.99

FL. OUTLET
344.00

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

375 370 365 360 355 350 345 340 335 330

RCA0704BLT3-4-19.DGN 3/6/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	153	299

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
TRINITY D. SMITH
No. 11425
3-11-19

SOUTHBOUND C.L.
STA. 756+62 CONSTRUCT
TYPE N-3 DROP INLET ON LT.
H = 4'-0"
WITH 12" X 78' ZINC COATED (GALVANIZED) CORRUGATED STEEL PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

SOUTHBOUND C.L.
STA. 759+95 CONSTRUCT
TYPE N-3 DROP INLET ON LT.
H = 4'-0"
WITH 12" X 64' ZINC COATED (GALVANIZED) CORRUGATED STEEL PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

TEMPORARY CROSSOVER SOUTHBOUND RAMP C.L.
PI = 864+76.66
Δ = 13°14'03" LT.
D = 5°30'00"
T = 120.85'
L = 240.62'
PC = 863+55.81
PT = 865+96.43

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	SIDE	LIN. FT.
759+13	763+65	RT.	454
759+13	763+65	LT.	454
769+99	770+53	LT.	180

SOUTHBOUND RAMP C.L.
PI = 773+80.99
Δ = 59°36'09" RT.
D = 5°56'00"
T = 553.07'
L = 1004.54'
PC = 768+27.93
PT = 778+32.46
NO SUPER

NORTHBOUND C.L.
STA. 756+68.63 CONSTRUCT
TYPE N-3 DROP INLET ON RT.
H = 4'-0"
WITH 12" X 60' ZINC COATED (GALVANIZED) CORRUGATED STEEL PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

NORTHBOUND C.L.
STA. 756+88 IN PLACE
12" X 40' C.M. PIPE CULVERT
ON RT.
REMOVE

CONST. C.L.
STA. 757+08.92 TO STA. 759+61.08 CONSTRUCT
252.167' X 38' CL. RDWY.
BRIDGE NO. A7400
CONTINUOUS COMPOSITE W-BEAM UNIT
(70'-110'-70')

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

NORTHBOUND C.L.
STA. 759+43 IN PLACE
10" X 48' C.M. PIPE CULVERT
ON RT.
REMOVE

NORTHBOUND C.L.
STA. 760+01.30 CONSTRUCT
TYPE N-3 DROP INLET ON RT.
H = 4'-0"
12" X 110' ZINC COATED (GALVANIZED) CORRUGATED STEEL PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

NORTHBOUND C.L.
STA. 761+51 IN PLACE
30" X 205' R.C. PIPE CULVERT
ON 30° LT. FWD. SKEW
CROSS DRAIN W/HDWLS. LT. & RT.
PLUG & ABANDON AND CONSTRUCT
30" X 302' R.C. PIPE CULVERT
ON 30° LT. FWD. SKEW
(CLASS V)(TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 6.5 C.F.S. D.A. = 14 AC.
30" R.C. PIPE = 302 LIN. FT.
30" FES = 2 EACH

TEMPORARY CROSSOVER SOUTHBOUND RAMP C.L.
PI = 867+33.28
Δ = 13°57'00" RT.
D = 5°30'00"
T = 127.45'
L = 253.64'
PC = 866+05.83
PT = 868+59.47

NORTHBOUND C.L.
PI = 766+76.82
Δ = 31°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

NORTHBOUND RAMP C.L.
STA. 760+55.81 BEGIN SUPERELEVATION TRANSITION
STA. 764+55.81 MAX. SUPERELEVATION (0.098 '/')
STA. 768+05.36 MAX. SUPERELEVATION (0.098 '/')
STA. 770+15.62 MATCH EXISTING SUPERELEVATION

GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL TYPE A LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	GUARDRAIL TERMINAL (TYPE 2) EACH
759+70.48	761+89.23	LT.	200		
759+70.48	761+89.23	RT.	200		
768+40.75	770+59.50	LT.	200		
765+60.02	770+78.77	RT.	200		

FENCING

STA.	STA.	SIDE	TYPE	LIN. FT.	16' GATE EACH
757+20.26	757+12.16	LT. & RT.	C	350	1
758+57.15	763+92.00	RT.	A	545	
758+66.94	758+57.15	LT. & RT.	C	355	1
758+66.94	763+00.00	LT.	A	438	
764+42.00	769+26.00	RT.	A	562	

NORTHBOUND RAMP

P.V.I. 756+61.08
ELEV. 376.70
2.80%
BR. END STA. 757+08.92
BR. END STA. 759+61.08
756+68.63 RT.
TOP = 373.06
F.L. = 369.06
OUTLET 354.91
K 189.43
VC=700'
e=-3.23'
760+01.30 RT.
TOP = 373.16
F.L. = 369.16
OUTLET 341.49
P.V.T. 760+11.08
ELEV. 373.55
-0.90%
P.V.C. 767+20.36
ELEV. 367.17
P.V.I. 767+95.36
ELEV. 366.49
K=153.26
VC=150'
e=-0.18'
-1.88%
P.V.T. 768+70.36
ELEV. 365.09
+51
F.L. INLET LT. 353.19
FL. OUTLET RT. 345.22

385 380 375 370 365 360 355 350 345 340
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

RCA0704BLT3-4-19.DGN 3/4/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	154	299

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-1-19

SOUTHBOUND C.L.
STA. 770+63.18 IN PLACE
198' X 22.40' BRIDGE NO. 03638
STEEL STRINGER
RETAIN EXISTING BRIDGE
REHABILITATE DECK AND RETROFIT GUARDRAIL

SOUTHBOUND C.L.
STA. 770+31.50 CONSTRUCT
TYPE N-3 DROP INLET ON RT.
H = 4'-0"
WITH 12" X 32' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

SOUTHBOUND C.L.
STA. 772+84.98 CONSTRUCT
TYPE N-3 DROP INLET ON RT.
H = 4'-0"
WITH 12" X 32' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	SIDE	LIN. FT.
770+15	770+69	RT.	180
772+43	772+97	LT.	180
772+51	773+05	RT.	180

STA.	STA.	SIDE	GUARDRAIL TYPE A LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	GUARDRAIL TERMINAL (TYPE 2) EACH
774+23.73	776+42.48	LT.	200	1	1
774+22.73	776+41.48	RT.	200	1	1

SOUTHBOUND RAMP C.L.
PI = 773+80.99
Δ = 59°36'09" RT.
D = 5°56'00"
T = 553.07'
L = 1004.54'
PC = 768+27.93
PT = 778+32.46
NO SUPER

NORTHBOUND C.L.
PI = 766+76.82
Δ = 31°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

STA. 774+25.00
END JOB CA0704

STA. 775+00.00
END SOUTHBOUND RAMP

STA. 770+15.62
END NORTHBOUND RAMP

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

NORTHBOUND RAMP

NORTHBOUND RAMP C.L.
STA. 760+55.81 BEGIN SUPERELEVATION TRANSITION
STA. 764+55.81 MAX. SUPERELEVATION (0.098 '/')
STA. 768+05.36 MAX. SUPERELEVATION (0.098 '/')
STA. 770+15.62 MATCH EXISTING SUPERELEVATION

P.V.I. 770+15.62
ELEV. 362.36
-1.88%

385 380 375 370 365 360 355 350 345 340

770+00 771+00 772+00 773+00 774+00 775+00 776+00 777+00 778+00 779+00 780+00 781+00 782+00 783+00 784+00 785+00

RCA0704BLT3-4-19.DGN 3/4/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	155	299

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

SOUTHBOUND RAMP C.L.
PI = 745+86.02
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 738+79.17
PT = 752+65.19
e = 0.055'/'
Ls = 350'

CONST. C.L.
PI = 746+40.05
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+33.19
PT = 753+19.22
FOR INFORMATION ONLY

CONST. C.L.
STA. 757+08.92 TO STA. 759+61.08 CONSTRUCT
252.167' X 38' CL. RDWY.
BRIDGE NO. A7400
CONTINUOUS COMPOSITE W-BEAM UNIT
(70'-110'-70')

SOUTHBOUND C.L.
STA. 756+62 CONSTRUCT
TYPE N-3 DROP INLET ON LT.
H = 4'-0"
WITH 12" X 78' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

SOUTHBOUND C.L.
STA. 759+95 CONSTRUCT
TYPE N-3 DROP INLET ON LT.
H = 4'-0"
WITH 12" X 64' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

NORTHBOUND RAMP C.L.
PI = 746+94.08
Δ = 27°43'14" LT.
D = 2°00'00"
T = 706.85'
L = 1386.03'
PC = 739+87.22
PT = 753+73.25
e = 0.055'/'
Ls = 350'

TEMPORARY CROSSOVER SOUTHBOUND RAMP C.L.
PI = 864+76.66
Δ = 13°44'03" LT.
D = 5°30'00"
T = 120.85'
L = 240.62'
PC = 863+55.81
PT = 865+96.43
NO SUPER

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	SIDE	LIN. FT.
751+70	757+25	LT.	553
751+72	757+25	RT.	553

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.	GATE EACH
745+66	748+94	LT.	323	
745+78	748+09	RT.	338	1
749+35	757+62	LT.	947	
749+40		RT.		1
749+50	757+60	RT.	883	

FENCING

STA.	STA.	SIDE	TYPE	LIN. FT.
745+65.00	749+33.00	RT.	A	386
745+77.00	748+93.00	LT.	A	306
749+43.00	757+20.26	LT.	A	763
749+83.00	757+12.16	RT.	A	746

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

NORTHBOUND C.L.
STA. 756+60 CONSTRUCT
TYPE N-3 DROP INLET ON RT.
H = 4'-0"
WITH 12" X 60' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

NORTHBOUND C.L.
STA. 759+93 CONSTRUCT
TYPE N-3 DROP INLET ON RT.
H = 4'-0"
12" X 110' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

NORTHBOUND C.L.
PI = 766+76.82
Δ = 31°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

STA. 864+10 INSTALL
18" X 174' TEMPORARY
PIPE CULVERT
STA. 867+77 END PIPE
FOR CROSSOVER

TEMPORARY CROSSOVER SOUTHBOUND RAMP

SOUTHBOUND RAMP C.L.
STA. 738+79.17 BEGIN SUPERELEVATION TRANSITION
STA. 742+29.17 MAX. SUPERELEVATION (0.055 '/')
STA. 749+15.19 MAX. SUPERELEVATION (0.055 '/')
STA. 752+65.19 END SUPERELEVATION TRANSITION

NORTHBOUND RAMP C.L.
STA. 738+79.17 BEGIN SUPERELEVATION TRANSITION
STA. 742+29.17 MAX. SUPERELEVATION (0.055 '/')
STA. 751+31.30 MAX. SUPERELEVATION (0.055 '/')
STA. 754+81.30 END SUPERELEVATION TRANSITION

CONST. C.L. STA. 759+91.24 =
NORTHBOUND C.L. STA. 760+00.00 =
TEMP. CROSSOVER C.L. STA. 860+00.00
30.00' RT.

GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL TYPE A LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	GUARDRAIL TERMINAL (TYPE 2) EACH
754+65.77	756+84.52	LT.	200	1	1
754+65.77	756+84.52	RT.	200	1	1

P.V.I. 860+00.00
ELEV. 373.65
-0.90%
P.V.C. 864+69.15
ELEV. 369.43
K=81.00
VC=250'
e=0.96'

385 380 375 370 365 360 355 350 345 340

850+00 851+00 852+00 853+00 854+00 855+00 856+00 857+00 858+00 859+00 860+00 861+00 862+00 863+00 864+00 865+00

RCA0704BLT3-4-19.DGN 3/4/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	156	299

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-11-19

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 864+76.66
Δ = 13°14'03" IT.
D = 5°30'00"
T = 120.85'
L = 240.62'
PC = 863+55.81
PT = 865+96.43
NO SUPER

STA. 864+10 INSTALL
18" X 174' TEMPORARY
PIPE CULVERT
STA. 867+77 END PIPE
FOR CROSSOVER

SOUTHBOUND C.L.
STA. 770+31.50 CONSTRUCT
TYPE N-3 DROP INLET ON RT.
H = 4'-0"
WITH 12" X 32' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

SOUTHBOUND C.L.
STA. 772+84.98 CONSTRUCT
TYPE N-3 DROP INLET ON RT.
H = 4'-0"
WITH 12" X 32' ZINC COATED
(GALVANIZED) CORRUGATED STEEL
PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

SOUTHBOUND C.L.
STA. 770+63.18 IN PLACE
198' X 22.40' BRIDGE NO. 03638
STEEL STRINGER
RETAIN EXISTING BRIDGE
REHABILITATE DECK AND RETROFIT GUARDRAIL

TEMPORARY CROSSOVER
SOUTHBOUND RAMP C.L.
PI = 867+33.28
Δ = 13°57'00" RT.
D = 5°30'00"
T = 127.45'
L = 253.64'
PC = 866+05.83
PT = 868+59.47
NO SUPER

SOUTHBOUND RAMP C.L.
PI = 773+80.99
Δ = 59°36'09" RT.
D = 5°56'00"
T = 553.07'
L = 1004.54'
PC = 768+27.93
PT = 778+32.46
NO SUPER

NORTHBOUND C.L.
PI = 766+76.82
Δ = 31°17'54" RT.
D = 5°00'00"
T = 321.01'
L = 625.97'
PC = 763+55.81
PT = 769+81.78
e = 0.098'/'
Ls = 400'

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STA. 770+15.62
END NORTHBOUND RAMP

STA. 774+25.00
END JOB CA0704

TEMPORARY CROSSOVER
SOUTHBOUND RAMP

STA. 868+66.30
END TEMP. CROSSOVER

STA. 775+00.00
END SOUTHBOUND RAMP

K=81.00
VC=250'
e=0.96'

P.V.I. 865+94.15
ELEV. 368.30

P.V.T. 867+19.15
ELEV. 371.04

P.V.I. 868+66.30
ELEV. 374.25

2.19%

385 380 375 370 365 360 355 350 345 340

865+00 866+00 867+00 868+00 869+00 870+00 871+00 872+00 873+00 874+00 875+00 876+00 877+00 878+00 879+00 880+00

RCA0704BLT3-4-19.DGN 3/4/2019

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.		CA0704	157	299
				A7400 -		LAYOUT		- 59377

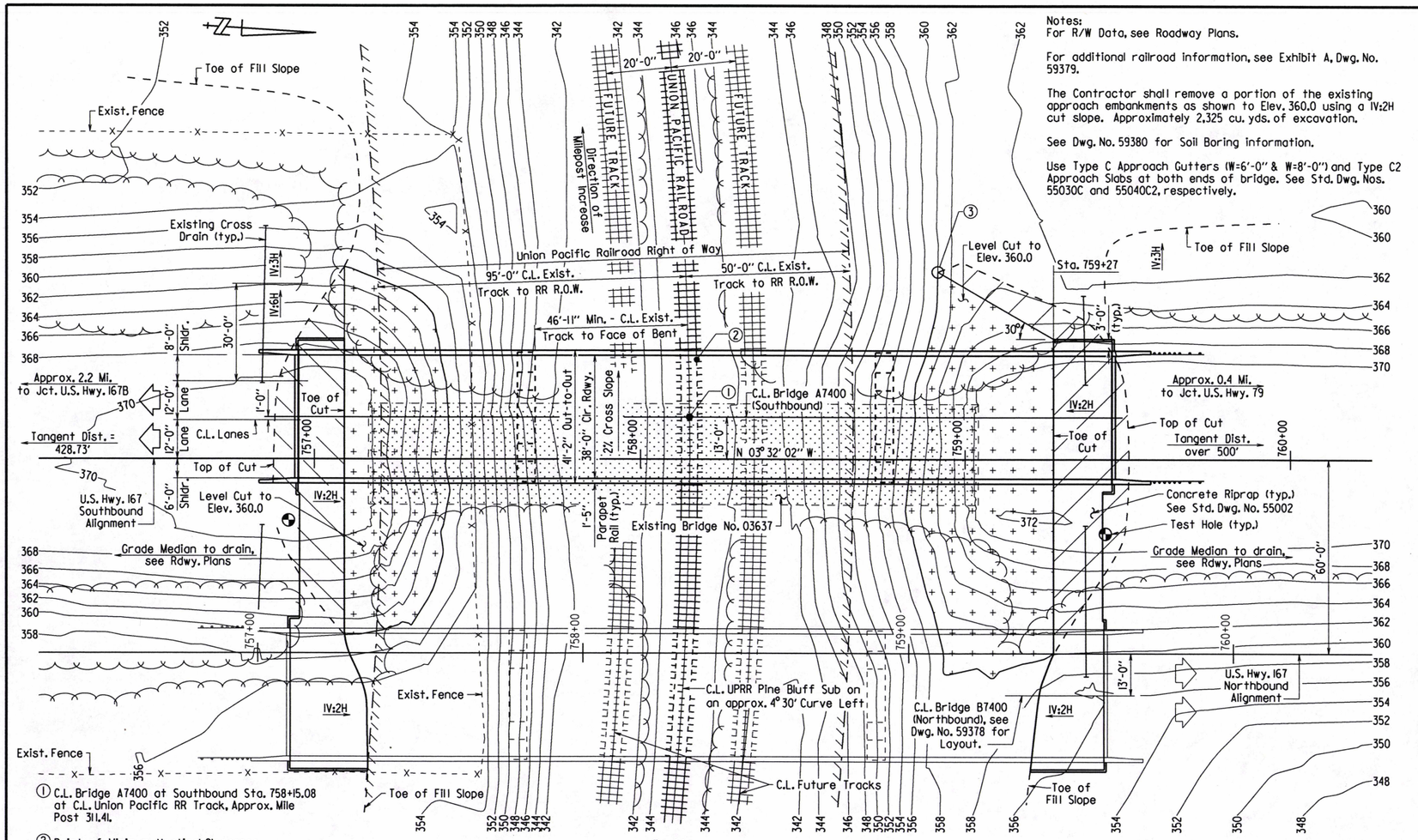
Notes:
For R/W Data, see Roadway Plans.

For additional railroad information, see Exhibit A, Dwg. No. 59379.

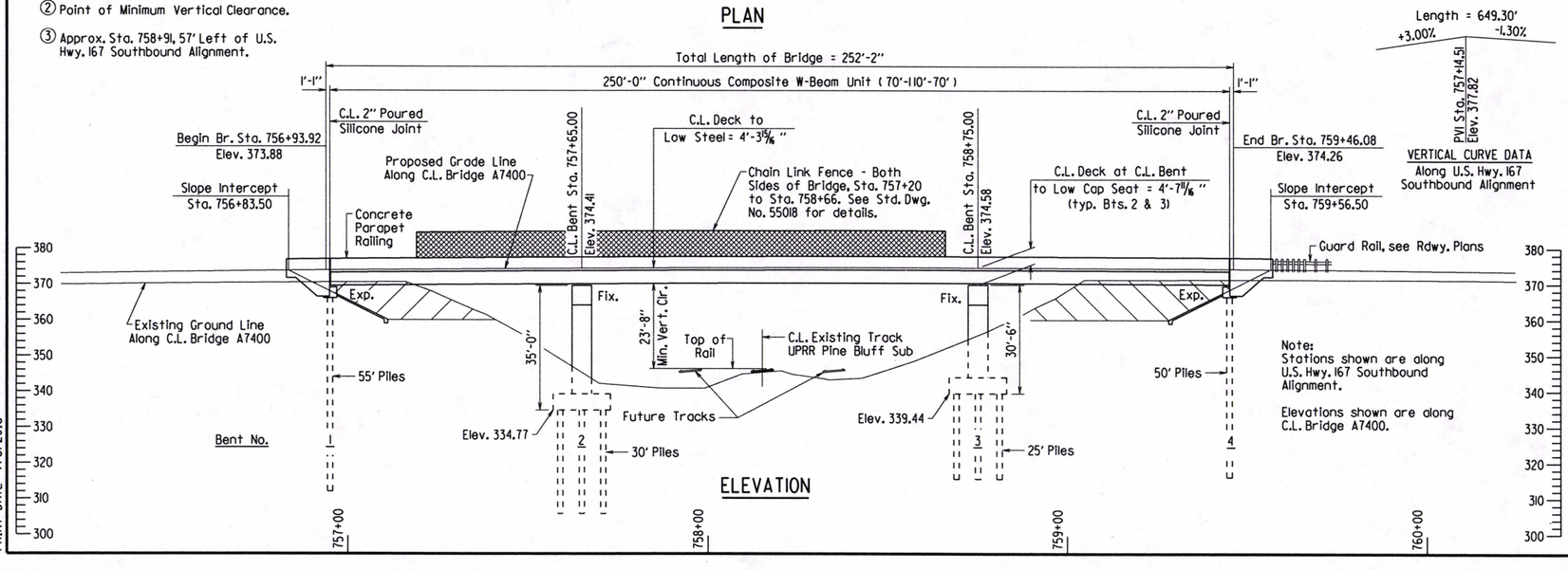
The Contractor shall remove a portion of the existing approach embankments as shown to Elev. 360.0 using a 1V:2H cut slope. Approximately 2,325 cu. yds. of excavation.

See Dwg. No. 59380 for Soil Boring information.

Use Type C Approach Gutters (W=6'-0" & W=8'-0") and Type C2 Approach Slabs at both ends of bridge. See Std. Dwg. Nos. 55030C and 55040C2, respectively.



PLAN



ELEVATION

GENERAL NOTES

BENCH MARK: Vertical Control Data is shown in 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. Section and Subsection refer to the Standard Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition (2012) with 2013 Interims.

LIVE LOADING: HL93
SEISMIC PERFORMANCE ZONE: 2 S_{DI}: 0.160 SITE CLASS: D

MATERIALS AND STRENGTHS

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	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.

CONCRETE PILING: All piling shall be 18" square prestressed concrete and shall be driven with an approved air, steam or diesel hammer to a minimum ultimate bearing capacity of 195 tons per pile. Piling in end bents shall be driven after embankment to bottom of cap is in place. Drive piles in end bents to a minimum penetration of 20' below natural ground. Drive piles in intermediate bents to a minimum penetration of 20' below bottom of footing. Lengths of piling shown are assumed for estimating quantities only. Actual pile lengths to be determined in the field. Drive one 60' test pile in Bent 1, Br. No. A7400 and Bent 4, Br. No. B7400. Drive one 30' test pile in Bent 3, Br. No. A7400 and Bent 2, Br. No. B7400.

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of Subsection 805.09(b), "Method B-Wave Equation Analysis (WEAP)". It is estimated that the minimum rated hammer energy required to obtain the ultimate bearing capacity for all piles will be 36,000 foot pounds per blow.

FOOTINGS: Footings at Bent 2 shall be set a minimum of 6' below base of rail, 2' below natural ground, or at the elevations shown on the plans, whichever is lower. Footings at Bent 3 shall be set a minimum of 2' below natural ground or at the elevations shown on the plans, whichever is lower. Foundations for footings shall be prepared in accordance with Subsection 801.04. Excavations shall be backfilled and compacted to the level of the existing ground in accordance with Subsection 801.08.

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.

PROTECTIVE SURFACE TREATMENT: Class I Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rail.

DETAIL DRAWINGS:

	DRAWING NO.
End Bents	59382-59385
Intermediate Bents	59386-59387
Elastomeric Bearings	59388
250'-0" Continuous W-Beam Unit	59389-59393
Standard General Notes	55006
Standard Details for Steel Bridge Structures	55007
Standard Details for Poured Silicone Joints	55008
Standard Details for Concrete Piling	55022

EXISTING BRIDGE: Existing Bridge No. 03637 (L.M. 17.50) is 33.4' wide and 188.0' long and consists of steel beam spans supported by concrete piers and concrete piles.

REMOVAL AND SALVAGE: After Bridge B7400 is open to traffic, existing Bridge No. 03637 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 become the property of Calhoun County:

Steel Beams including Diaphragms and all Accessories
Metal Bridge Rails

The Contractor shall coordinate with the Engineer for removal and delivery of salvaged material. This material shall be delivered to 1133 Prestress Drive, Hampton, AR 71744. Payment for this work shall be considered incidental to "Removal of Existing Bridge Structure (Site No. 2)".

MAINTENANCE OF TRAFFIC: See Roadway Plans for maintenance of traffic.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
7-6-18
CHARLES R. ELLIS
BRIDGE ENGINEER

LAYOUT OF BRIDGE A
HIGHWAY 167 OVER UNION PACIFIC RAILROAD
HWY. 79 - SOUTH (WIDENING) (S)
CALHOUN COUNTY

ROUTE 167 SEC. 4

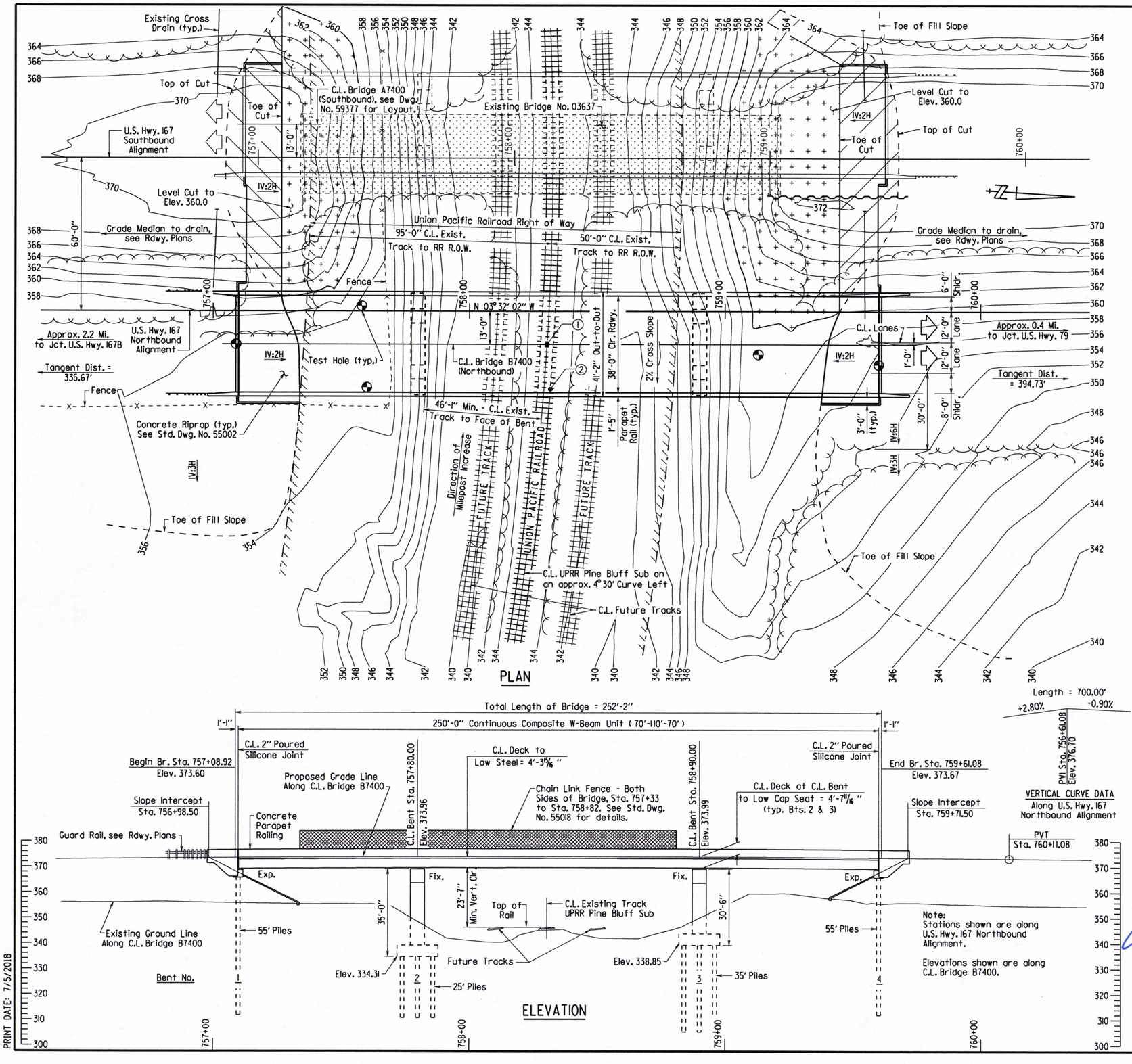
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 4-29-2016 FILENAME: bca0704_ll.dgn
CHECKED BY: JHP DATE: 7-5-18 SCALE: 1" = 20'
DESIGNED BY: LJB DATE: 4-2016

BRIDGE NO. A7400 DRAWING NO. 59377

PRINT DATE: 7/5/2018

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.		CA0704	158	299
				(1) B7400 -		LAYOUT		- 59378



Notes:
For General Notes, see Dwg. No. 59377.

For R/W Data, see Roadway Plans.

For additional railroad information, see Exhibit A, Dwg. No. 59379.

See Dwg. No. 59381 for Soil Boring information.

Use Type C Approach Gutters (W=6'-0" & W=8'-0") and Type C2 Approach Slabs at both ends of bridge. See Std. Dwg. Nos. 55030C and 55040C2, respectively.

(1) C.L. Bridge B7400 at Northbound Sta. 758+30.37 at C.L. Union Pacific RR Track, Approx. Mile Post 311.40.

(2) Point of Minimum Vertical Clearance.

PRINT DATE: 7/5/2018

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
7-6-18
BRIDGE ENGINEER

LAYOUT OF BRIDGE B
HIGHWAY 167 OVER UNION PACIFIC RAILROAD
HWY. 79 - SOUTH (WIDENING) (S)
CALHOUN COUNTY

ROUTE 167 SEC. 4

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 4-29-2016 FILENAME: bca0704_11.dgn
CHECKED BY: JHP DATE: 7-5-18 SCALE: 1" = 20'
DESIGNED BY: LJB DATE: 4-1-2016

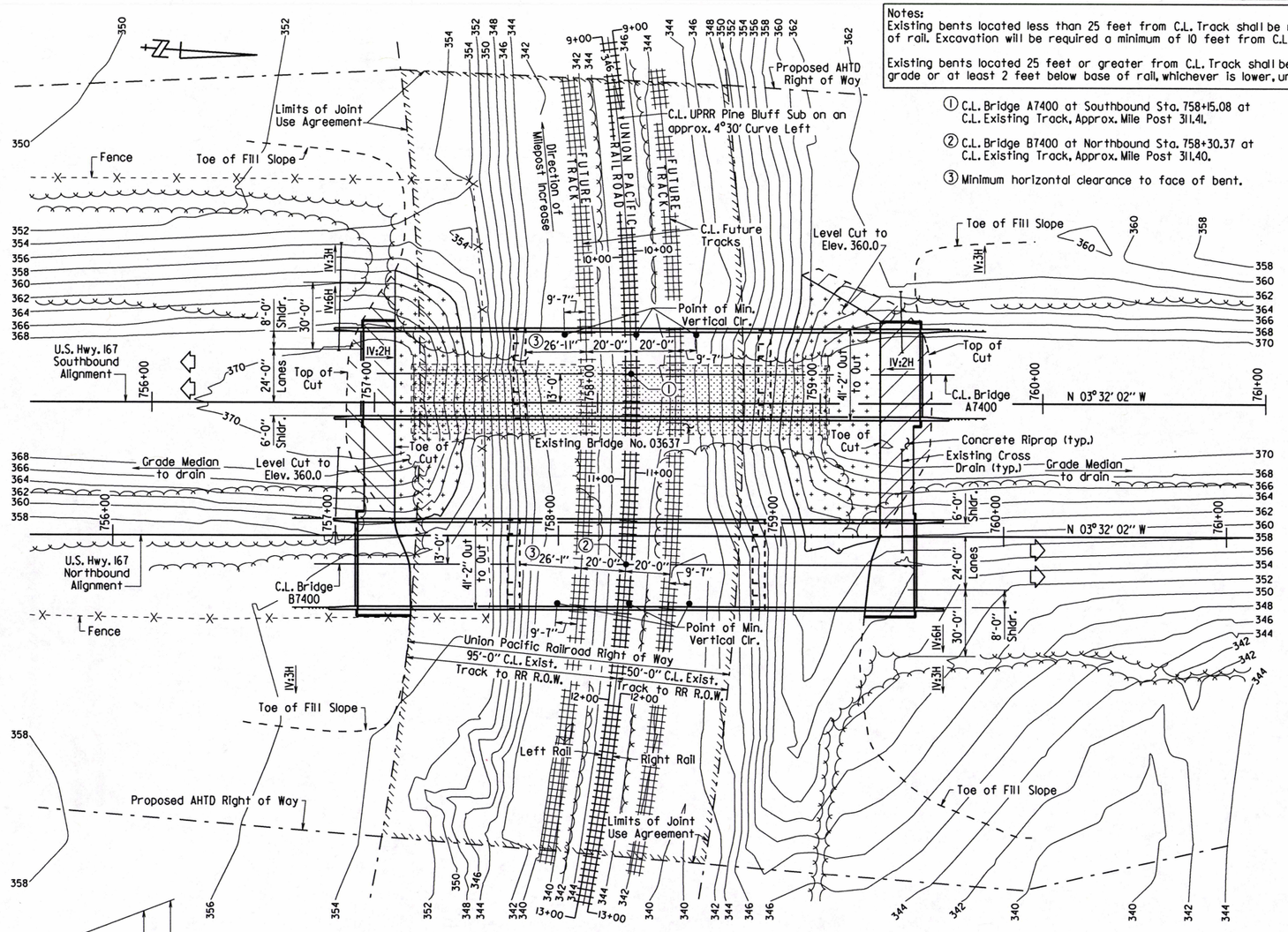
BRIDGE NO. B7400 DRAWING NO. 59378

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.		CA0704	159	299

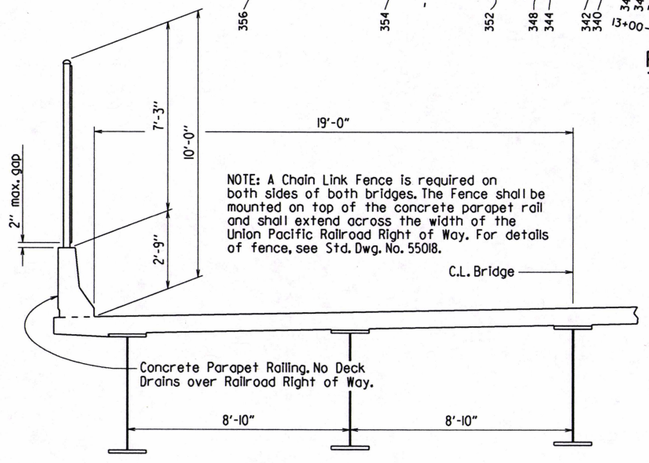
① A7400, B7400 - EXHIBIT A - 59379

Notes:
Existing bents located less than 25 feet from C.L. Track shall be removed to a depth of 6 feet below base of rail. Excavation will be required a minimum of 10 feet from C.L. Track.

Existing bents located 25 feet or greater from C.L. Track shall be removed to at least 3 feet below final grade or at least 2 feet below base of rail, whichever is lower, unless otherwise specified by the Railroad.



PLAN
1"=30'



TYPICAL HALF-SECTION
Typical Both Bridges
No Scale

GENERAL NOTES

The proposed grade separation project **shall not increase the quantity and/or characteristics** of the flow in the Railroad's ditches and/or drainage structure.

The elevation of the existing top-of-rail profile shall be verified before beginning construction. All discrepancies shall be brought to the attention of the Railroad prior to construction.

The Contractor must submit a proposed method of erosion and sediment control and have the method approved by the Railroad.

All shoring systems that impact the Railroad's operations and/or supports the Railroad's embankment shall be designed and constructed per current Railroad Guidelines for Temporary Shoring.

All demolitions within the Railroad's right-of-way and/or demolition that may impact the Railroad's tracks or operations shall be in compliance with the Railroad's Demolition Guidelines.

Erection over the Railroad's right-of-way shall be designed to cause no interruption to the Railroad's operation, enabling the track(s) to remain open to traffic per the Railroad's requirements.

Railroad requirements do not allow work within 50 feet of track centerline when a train passes the work site and all personnel must clear the area within 25 feet of the track centerline and secure all equipment.

False-work clearances shall comply with minimum construction clearances.

All permanent clearances shall be verified before project closing.

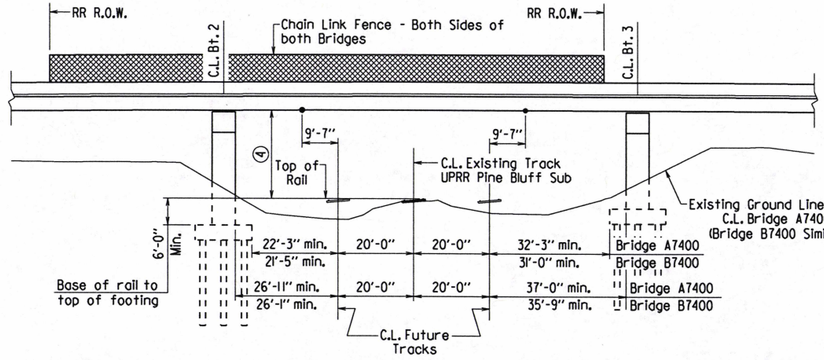
Currently there are no known utilities on the Railroad right-of-way other than shown.

Closed Parapet Railing (No Deck Drains) - Typical on both sides of both bridges. Drop inlets will be provided at the ends of the bridge and water runoff from the bridge will be directed away from Railroad right-of-way.

Existing drainage patterns will be maintained.

"The State shall not plow ice, snow or sleet over the sides of the structure. In consideration of this practice, the Carrier waives its request for the State to attach splash boards to sides of the structure." This statement is in the State-Railroad Agreement.

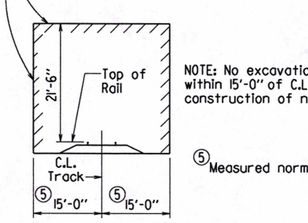
Construction shall comply with the requirements noted in Job SP "Insurance, Construction, and Flagging Requirements on Railroad Property (UPRR)".



SECTION NORMAL TO TRACK

Looking in Direction of Milepost Increase
1"=20'

BRIDGE	④ Minimum Vertical Clearances: 29'-7" Left of C.L. Existing Track	At Rail - Existing Track	29'-7" Right of C.L. Existing Track
A7400 (Southbound)	23'-8"	23'-11"	23'-9"
B7400 (Northbound)	23'-7"	23'-10"	23'-8"



NOTE: No excavation permitted within 15'-0" of C.L. Track for construction of new bridges.

⑤ Measured normal to track.

MINIMUM CONSTRUCTION CLEARANCES
No Scale

TOP OF RAIL ELEVATIONS

(Stations decrease with Milepost increase)

Alignment: Left Rail		Alignment: Right Rail	
Station	Elevation	Station	Elevation
0+00	347.08	0+00	347.08
1+00	347.66	1+00	347.64
2+00	348.08	2+00	348.17
3+00	348.25	3+00	348.39
4+00	348.20	4+00	348.41
5+00	347.93	5+00	348.23
6+00	347.76	6+00	348.15
7+00	347.50	7+00	347.89
8+00	347.14	8+00	347.53
9+00	346.71	9+00	347.11
10+00	346.16	10+00	346.59
⑥ 10+52.59	345.86	⑦ 10+55.44	346.29
11+00	345.72	11+00	346.12
⑧ 11+38.64	345.59	⑨ 11+41.49	345.98
12+00	345.36	12+00	345.76
13+00	344.89	13+00	345.29
14+00	344.26	14+00	344.68
15+00	343.45	15+00	343.87
16+00	342.59	16+00	343.03
17+00	341.59	17+00	342.03
18+00	340.60	18+00	340.93
19+00	339.48	19+00	339.77
20+00	338.36	20+00	338.59
21+00	337.29	21+00	337.47

⑥ Intersection at C.L. Bridge A7400, U.S. Hwy. 167 Southbound Sta. 758+12.59
⑦ Intersection at C.L. Bridge A7400, U.S. Hwy. 167 Southbound Sta. 758+17.57
⑧ Intersection at C.L. Bridge B7400, U.S. Hwy. 167 Northbound Sta. 758+27.89
⑨ Intersection at C.L. Bridge B7400, U.S. Hwy. 167 Northbound Sta. 758+32.86

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
7-5-18
BRIDGE ENGINEER

EXHIBIT A
LAYOUT OF BRIDGES
HIGHWAY 167 OVER UNION PACIFIC RAILROAD
HWY. 79 - SOUTH (WIDENING) (S)
CALHOUN COUNTY

ROUTE 167 SEC. 4

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

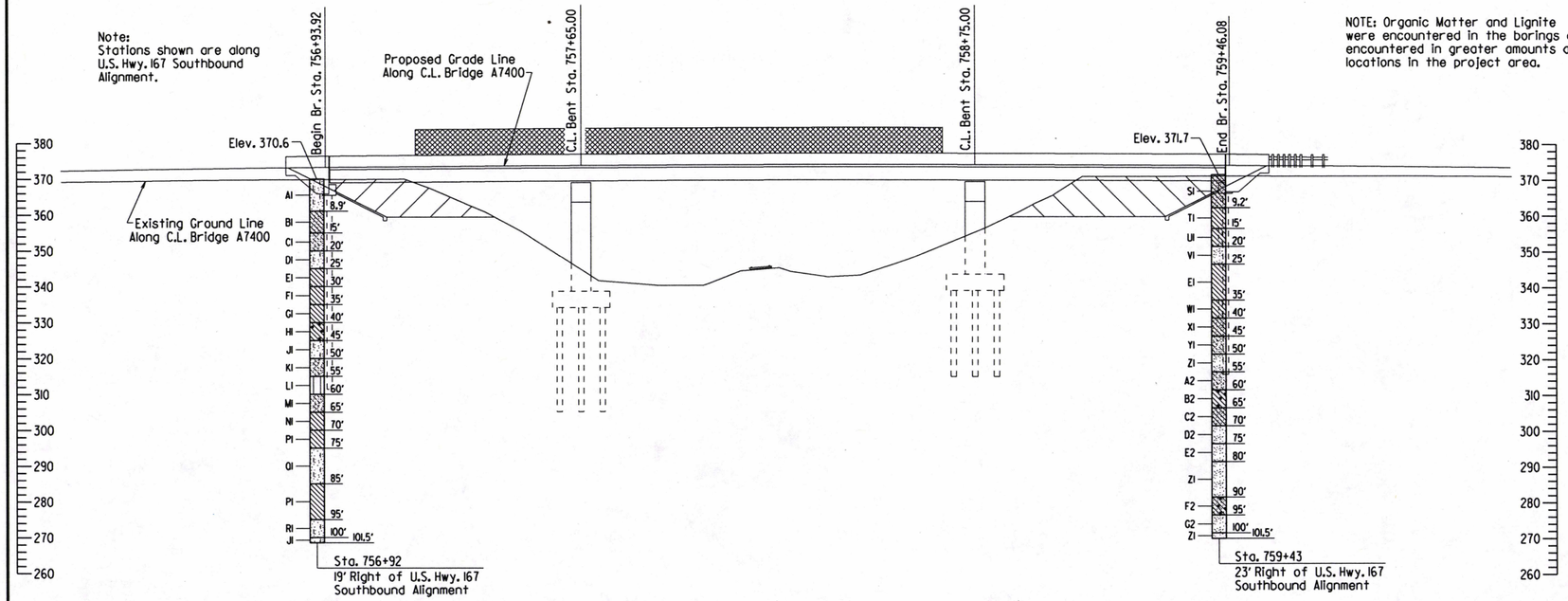
DRAWN BY: LJB DATE: 4-29-2016 FILENAME: bca0704_11.dgn
CHECKED BY: JNP DATE: 7-5-18 SCALE: As Noted
DESIGNED BY: LJB DATE: 4-2016

BRIDGE NOS. A7400, B7400 DRAWING NO. 59379

PRINT DATE: 7/5/2018

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.		CA0704	160	299
				(1) A7400 -		SOIL BORINGS	- 59380	

Note:
Stations shown are along U.S. Hwy. 167 Southbound Alignment.

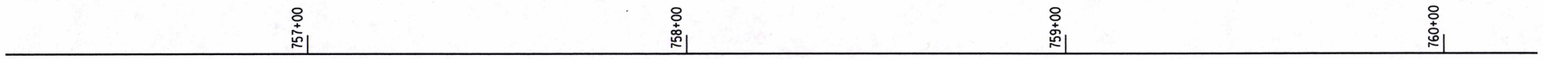


NOTE: Organic Matter and Lignite were encountered in the borings and may be encountered in greater amounts at other locations in the project area.

BORING LEGEND

AI-Moist, Soft, Brown Silty Clay
BI-Moist, Stiff, Brown Sandy Clay
CI-Moist, Loose, Brown Clayey Sand with Some Organic Matter with Trace Gravel
DI-Moist, Medium Dense, Brown Silty Sand
EI-Moist, Very Stiff, Reddish Brown Clay
FI-Moist, Medium Stiff, Reddish Brown Clay
GI-Moist, Stiff, Brown Clay
HI-Moist, Very Stiff, Dark Brown Lignitic Clay
JI-Moist, Very Dense, Brown Silty Sand
KI-Moist, Medium Dense, Brown Clayey Sand
LI-Moist, Very Dense, Brown Silt
MI-Moist, Dense, Gray Clayey Sand
NI-Moist, Hard, Brown Clay with Some Lignite
PI-Moist, Hard, Brown Clay
QI-Moist, Dense, Brown Silty Sand
RI-Moist, Dense, Brown Silty Sand
SI-Moist, Medium Stiff, Light Gray Sandy Clay
TI-Moist, Stiff, Light Gray Clay
UI-Moist, Medium Stiff, Light Gray Silty Clay
VI-Moist, Medium Dense, Light Gray Sand
WI-Moist, Very Stiff, Brown Silty Clay
XI-Moist, Very Stiff, Light Gray Sandy Clay
YI-Moist, Dense, Light Gray Clayey Sand
ZI-Moist, Very Dense, Light Gray Sand
A2-Moist, Very Dense, Light Gray Clayey Sand
B2-Moist, Hard, Light Gray Lignitic Clay
C2-Moist, Hard, Light Gray Sandy Clay
D2-Moist, Very Dense, Light Gray Sand with Some Lignite
E2-Moist, Dense, Light Gray Sand
F2-Moist, Hard, Dark Brown Sandy Clay with Lignite
G2-Moist, Dense, Light Gray Sand with Some Clay

ELEVATION OF SOIL BORINGS - SOUTHBOUND



"N" VALUES

Sta. 756+92 - 19' Right of U.S. Hwy. 167 Southbound Alignment

4.4- 5.4, N=4
9.4- 10.4, N=11
15.5- 16.5, N=10
20.5- 21.5, N=19
25.5- 26.5, N=19
30.5- 31.5, N=8
35.5- 36.5, N=11
40.5- 41.5, N=18
45.5- 46.3, N=112 (10")
50.5- 51.5, N=26
55.5- 56.5, N=54
60.5- 61.5, N=34
65.5- 66.5, N=38
70.5- 71.5, N=48
75.5- 76.5, N=42
80.5- 81.5, N=40
85.5- 86.5, N=39
90.5- 91.5, N=70
95.5- 96.5, N=43
100.5-101.5, N=98

Sta. 759+43 - 23' Right of U.S. Hwy. 167 Southbound Alignment

4.7- 5.7, N=6
9.7- 10.7, N=10
15.5- 16.5, N=7
20.5- 21.5, N=16
25.5- 26.5, N=25
30.5- 31.5, N=35
35.5- 36.5, N=26
40.5- 41.5, N=28
45.5- 46.5, N=46
50.5- 51.5, N=64
55.5- 56.5, N=51
60.5- 61.5, N=55
65.5- 66.5, N=45
70.5- 71.5, N=53
75.5- 76.5, N=44
80.5- 81.5, N=59
85.5- 86.5, N=52
90.5- 91.5, N=54
95.5- 96.5, N=43
100.5-101.5, N=72

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
7-6-18
BRIDGE ENGINEER

SOIL BORINGS
BRIDGE A
HIGHWAY 167 OVER UNION PACIFIC RAILROAD
HWY. 79 - SOUTH (WIDENING) (S)
CALHOUN COUNTY

ROUTE 167 SEC. 4

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

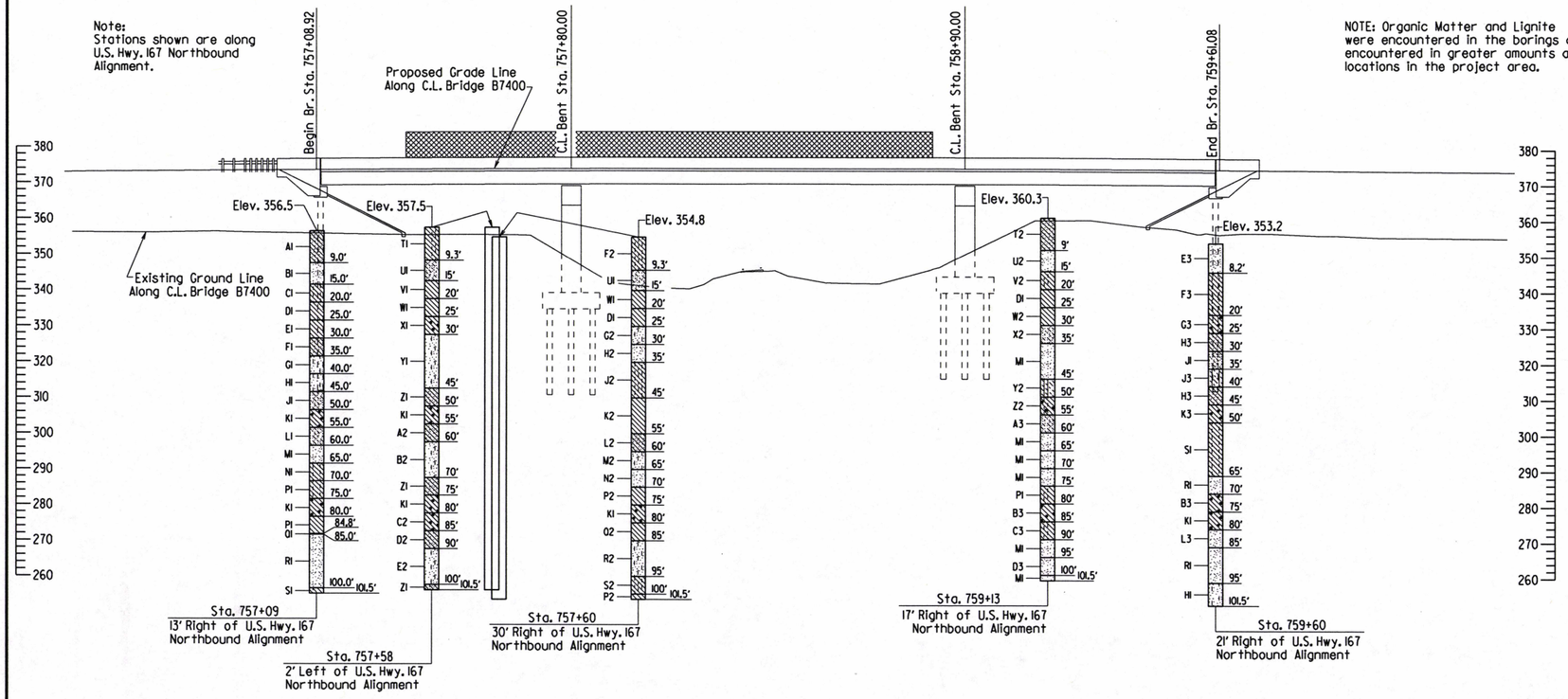
DRAWN BY: LJB DATE: 4-17-2017 FILENAME: bca0704_11.dgn
CHECKED BY: JWP DATE: 7-5-18 SCALE: 1" = 20'
DESIGNED BY: LJB DATE: 4-2016
BRIDGE NO. A7400 DRAWING NO. 59380

PRINT DATE: 7/5/2018

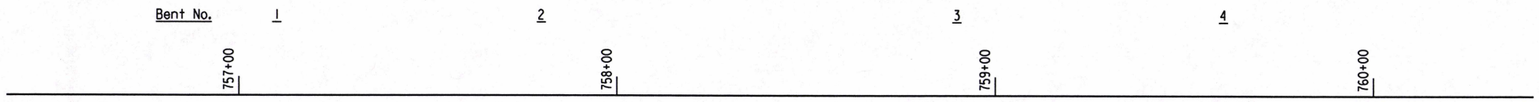
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	161	299
				①	B7400 -	SOIL BORINGS	- 59381	

Note:
Stations shown are along U.S. Hwy. 167 Northbound Alignment.

NOTE: Organic Matter and Lignite were encountered in the borings and may be encountered in greater amounts at other locations in the project area.



ELEVATION OF SOIL BORINGS - NORTHBOUND



BORING LEGEND

AI-Moist, Stiff, Light Brown Sandy Clay
BI-Moist, Medium Dense, Light Brown Sand
CI-Moist, Soft, Light Gray Silty Clay
DI-Moist, Very Stiff, Light Brown Clay
EI-Moist, Very Stiff, Light Gray Clay with Some Lignite
FI-Moist, Very Hard, Light Gray Sandy Clay with Some Lignite
GI-Moist, Medium Dense, Light Gray Silty Sand
HI-Moist, Very Dense, Light Gray Silty Sand
JI-Moist, Dense, Light Gray Clayey Sand
KI-Moist, Hard, Dark Brown Lignitic Clay
LI-Moist, Dense, Dark Brown Clayey Sand
MI-Moist, Dense, Light Gray Sand
NI-Moist, Dense, Light Gray Silty Clay with Some Lignite
PI-Moist, Hard, Light Gray Silty Clay with Some Lignite
QI-SANDSTONE - Unweathered, Poorly Cemented, Light Gray
RI-Moist, Very Dense, Light Gray Sand
SI-Moist, Hard, Light Gray Silty Clay
TI-Dry, Stiff, Light Brown Silty Clay
UI-Moist, Medium Dense, Light Brown Clayey Sand
VI-Moist, Soft, Reddish Brown Clay
WI-Moist, Stiff, Brown Clay
XI-Moist, Very Stiff, Dark Brown Lignitic Clay
YI-Moist, Dense to Very Dense, Light Brown Silty Sand
ZI-Moist, Hard, Brown Sandy Clay
A2-Moist, Hard, Brown Sandy Clay with Trace Lignite
B2-Moist, Dense, Brown Silty Sand
C2-Moist, Hard, Dark Brown Clay with Lignite
D2-Moist, Hard, Brown Sandy Clay with Some Lignite
E2-Moist, Very Dense, Brown Silty Sand
F2-Moist, Very Stiff, Light Brown Silty Clay
G2-Moist, Very Dense, Light Gray Sand with Silt
H2-Wet, Very Dense, Light Gray Sand
J2-Moist, Very Stiff to Hard, Gray Silty Clay
K2-Moist, Hard, Gray Clay with Some Lignite
L2-Moist, Hard, Gray Sandy Clay
M2-Moist, Very Dense, Gray Silty Sand
N2-Moist, Dense, Gray Sand
P2-Moist, Hard, Gray Clay
Q2-Moist, Hard, Gray Clay with Some Sand and Trace Lignite
R2-Moist, Dense to Very Dense, Gray Silty Sand
S2-Moist, Hard, Gray Silty Clay with Trace Lignite
T2-Moist, Stiff, Light Brown Sandy Clay with Some Organics
U2-Moist, Medium Dense, Light Gray Sand
V2-Moist, Soft, Gray Silty Clay
W2-Moist, Very Stiff, Brown Clay
X2-Moist, Medium Dense, Light Gray Clayey Sand
Y2-Moist, Medium Dense, Light Gray Clayey Silt
Z2-Moist, Very Stiff, Dark Brown Silty Clay with Lignite
A3-Moist, Very Hard, Light Gray Clayey Sand with Some Lignite
B3-Moist, Hard, Light Gray Lignitic Clay
C3-Moist, Very Dense, Light Gray Silty Clay
D3-Moist, Dense, Light Gray Sand with Some Lignite
E3-Moist, Medium Dense, Light Gray Sand with Some Clay
F3-Moist, Stiff, Light Gray Silty Clay
G3-Moist, Stiff, Dark Brown Clay with Organic Matter
H3-Moist, Hard, Light Gray Sandy Clay
J3-Moist, Dense, Light Gray Clayey Silt
K3-Moist, Very Stiff, Light Gray Clay with Lignite
L3-Moist, Dense, Dark Brown Sand with Some Lignite

"N" VALUES

Sta. 757+09 - 13' Right of U.S. Hwy. 167 Northbound Alignment

4.5- 5.5	N=14
9.5- 10.5	N=24
15.5- 16.5	N=2
20.5- 21.5	N=25
25.5- 26.5	N=22
30.5- 30.6	N=110 (7")
35.5- 36.5	N=30
40.5- 41.5	N=68
45.5- 46.5	N=32
50.5- 51.5	N=40
55.5- 56.5	N=37
60.5- 61.5	N=43
65.5- 66.5	N=40
70.5- 71.5	N=55
75.5- 76.5	N=43
80.5- 81.5	N=55
85.0- 85.2	N=60 (2")
90.5- 91.5	N=79
95.5- 96.5	N=72
100.5-101.5	N=60

Sta. 757+58 - 2' Left of U.S. Hwy. 167 Northbound Alignment

4.8- 5.8	N=14
9.8- 10.8	N=26
15.5- 16.5	N=4
20.5- 21.5	N=13
25.5- 26.5	N=18
30.5- 31.5	N=75
35.5- 36.5	N=39
40.5- 41.2	N=89 (9")
45.5- 46.5	N=33
50.5- 51.5	N=36
55.5- 56.5	N=35
60.5- 61.5	N=42
65.5- 66.5	N=46
70.5- 71.5	N=41
75.5- 76.5	N=60
80.5- 81.5	N=56
85.5- 86.5	N=37
90.5- 91.5	N=86
95.5- 96.5	N=78
100.5-101.5	N=49

Sta. 757+60 - 30' Right of U.S. Hwy. 167 Northbound Alignment

4.8- 5.8	N=22
9.8- 10.8	N=25
15.5- 16.5	N=10
20.5- 21.5	N=19
25.5- 26.5	N=66
30.5- 30.8	N=60 (4")
35.5- 36.5	N=37
40.5- 41.5	N=28
45.5- 46.5	N=33
50.5- 51.5	N=34
55.5- 56.5	N=38
60.5- 61.5	N=51
65.5- 66.5	N=47
70.5- 71.5	N=39
75.5- 76.5	N=59
80.5- 81.5	N=53
85.5- 86.5	N=42
90.5- 91.5	N=76
95.5- 96.5	N=47
100.5-101.5	N=50

Sta. 759+13 - 17' Right of U.S. Hwy. 167 Northbound Alignment

4.5- 5.5	N=13
9.5- 10.5	N=22
15.5- 16.5	N=4
20.5- 21.5	N=17
25.5- 26.5	N=29
30.5- 31.5	N=27
35.5- 36.5	N=21
40.5- 41.5	N=36
45.5- 46.5	N=30
50.5- 51.5	N=30
55.5- 56.5	N=46
60.5- 61.5	N=49
65.5- 66.5	N=35
70.5- 71.5	N=39
75.5- 76.5	N=56
80.5- 81.5	N=35
85.5- 86.5	N=36
90.5- 91.5	N=42
95.5- 95.8	N=60 (4")
100.5-101.5	N=50

Sta. 759+60 - 21' Right of U.S. Hwy. 167 Northbound Alignment

3.7- 4.7	N=11
8.7- 9.7	N=11
15.5- 16.5	N=11
20.5- 21.5	N=13
25.5- 26.5	N=60
30.5- 31.5	N=45
35.5- 36.5	N=36
40.5- 41.5	N=40
45.5- 46.5	N=29
50.5- 51.5	N=35
55.5- 56.5	N=32
60.5- 61.5	N=42
65.5- 66.5	N=52
70.5- 71.5	N=45
75.5- 76.5	N=55
80.5- 81.5	N=39
85.5- 86.5	N=55
90.5- 91.5	N=60
95.5- 96.5	N=54
100.5-101.5	N=68

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
7-6-18

BRIDGE ENGINEER

SOIL BORINGS
BRIDGE B
HIGHWAY 167 OVER UNION PACIFIC RAILROAD
HWY. 79 - SOUTH (WIDENING) (S)
CALHOUN COUNTY

ROUTE 167 SEC. 4

ARKANSAS STATE HIGHWAY COMMISSION

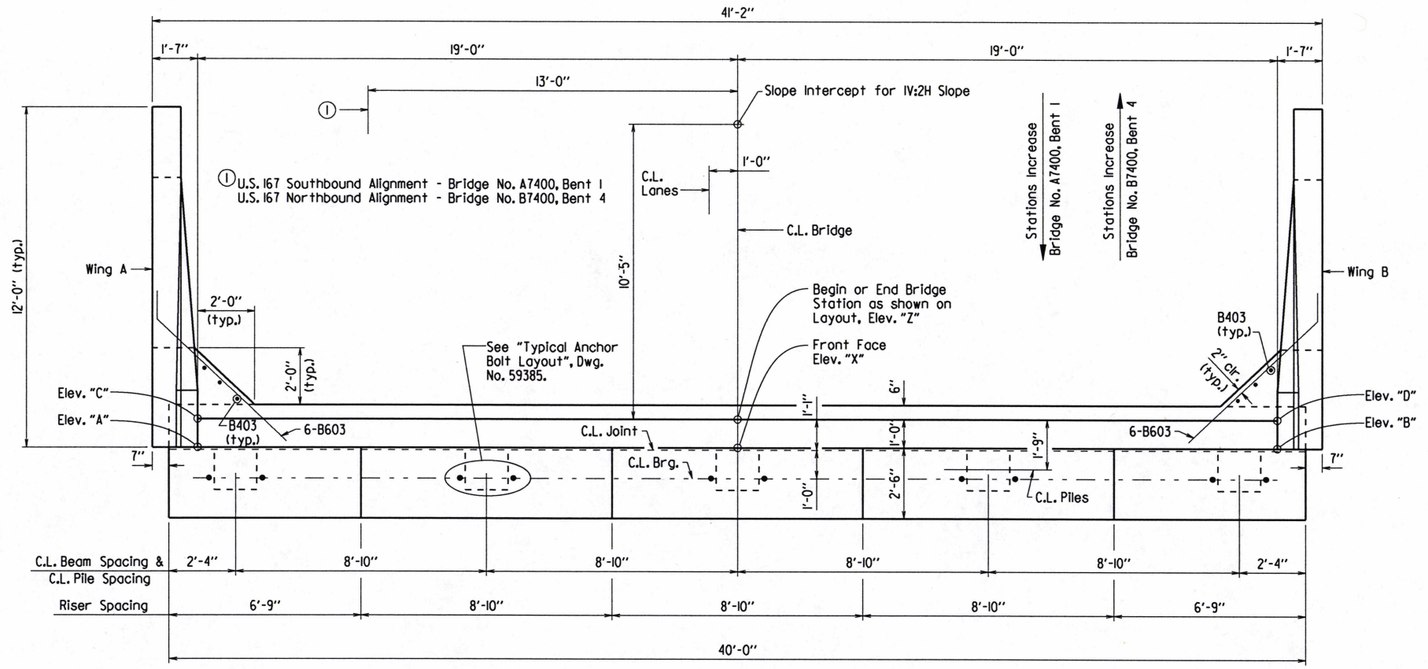
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 4-17-2017 FILENAME: bca0704_11.dgn
CHECKED BY: JHP DATE: 7-5-18 SCALE: 1" = 20'
DESIGNED BY: LJB DATE: 4-2016

BRIDGE NO. B7400 DRAWING NO. 59381

PRINT DATE: 7/5/2018

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.		CA0704	162	299
				① A&B7400 -		END BENTS	- 59382	



PLAN

Bridge No. A7400, Bent 1
Bridge No. B7400, Bent 4
3/16" = 1'-0"

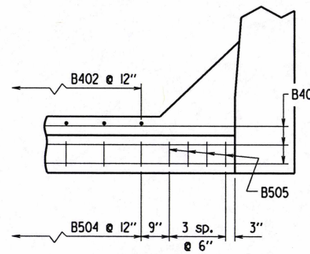
Notes:
Class I Protective Surface Treatment shall be applied to the top of the backwall and to the roadway face and top of the wing rails.

For details of wing and rail, see Dwg. No. 59384. For "Bar List - Per Bent" and "Section A-A", see Dwg. No. 59385.

No portion of the backwall shall be poured before 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, see Std. Dwg. No. 55008. No heavy construction equipment or backfill shall be allowed directly behind the backwall until the concrete for the span has been completed.

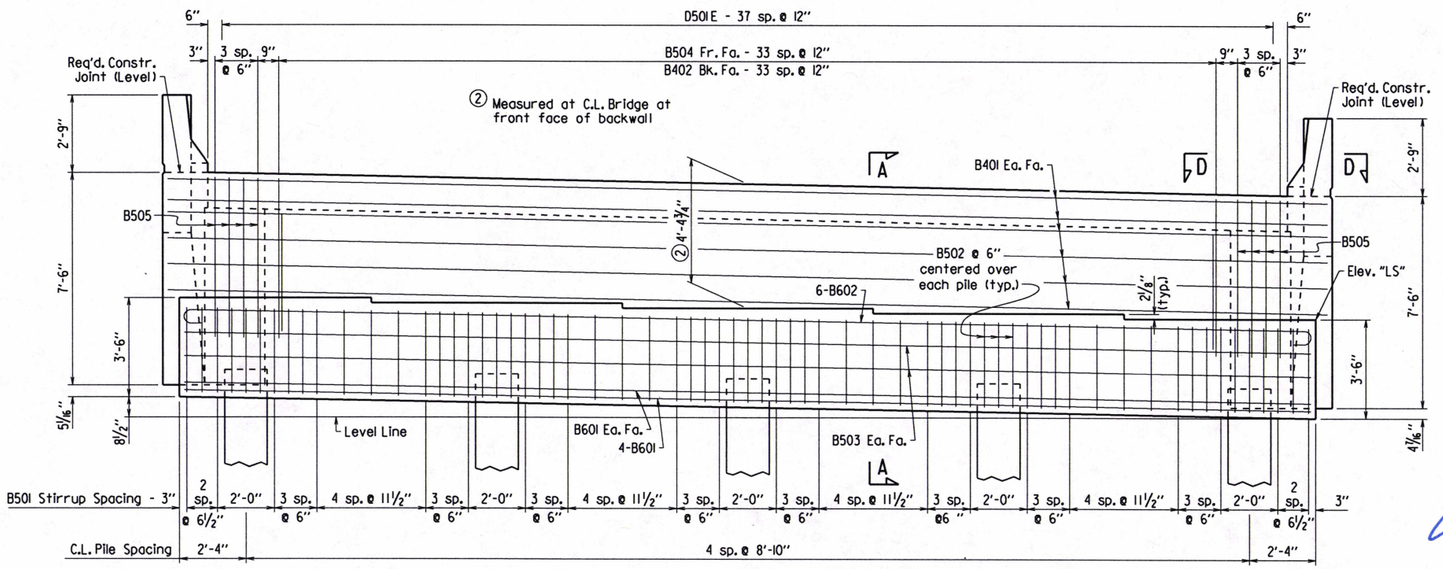
TABLE OF VARIABLES

Bridge No.	Bent	Elev. "X"	Elev. "Z"	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "LS"
A7400	1	373.89	373.88	374.27	373.51	374.26	373.50	369.14
B7400	4	373.68	373.67	374.06	373.30	374.05	373.29	368.93



VIEW D-D

1/2" = 1'-0"



ELEVATION

Looking Back Station - Bridge No. A7400, Bent 1
Looking Ahead Station - Bridge No. B7400, Bent 4
3/8" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
7-6-18
BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS OF END BENTS

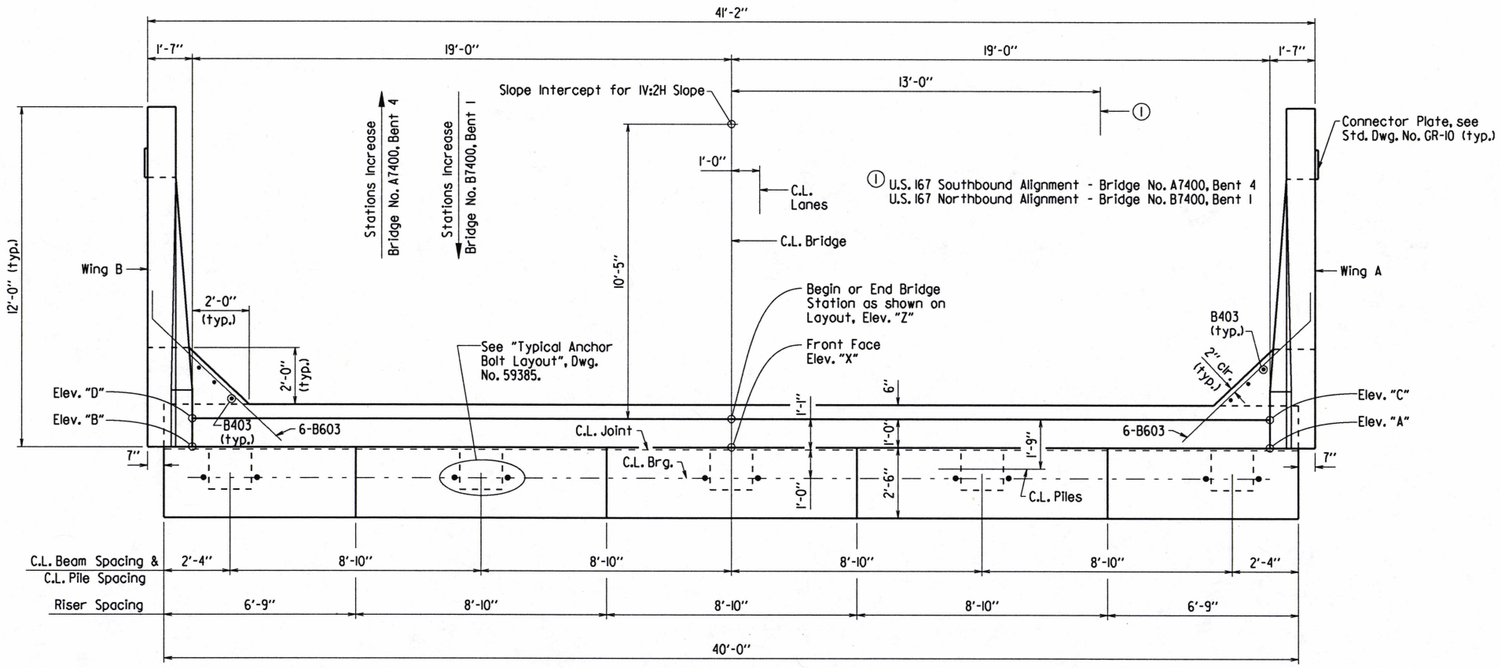
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 1-30-17 FILENAME: bca0704_b1.dgn
CHECKED BY: EOR DATE: 7-6-18 SCALE: as noted
DESIGNED BY: LJB DATE: 8-2016
BRIDGE NO. A&B7400 DRAWING NO. 59382

PRINT DATE: 7/6/2018

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.		CA0704	163	299
				(1) A&B7400 -		END BENTS	- 59383	



PLAN

Bridge No. A7400, Bent 4
Bridge No. B7400, Bent 1
3/8" = 1'-0"

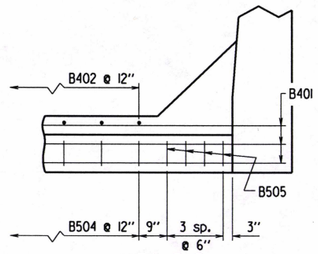
Notes:
Class I Protective Surface Treatment shall be applied to the top of the backwall and to the roadway face and top of the wing rails.

For details of wing and rail, see Dwg. No. 59384. For "Bar List - Per Bent" and "Section A-A", see Dwg. No. 59385.

No portion of the backwall shall be poured before 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, see Std. Dwg. No. 55008. No heavy construction equipment or backfill shall be allowed directly behind the backwall until the concrete for the span has been completed.

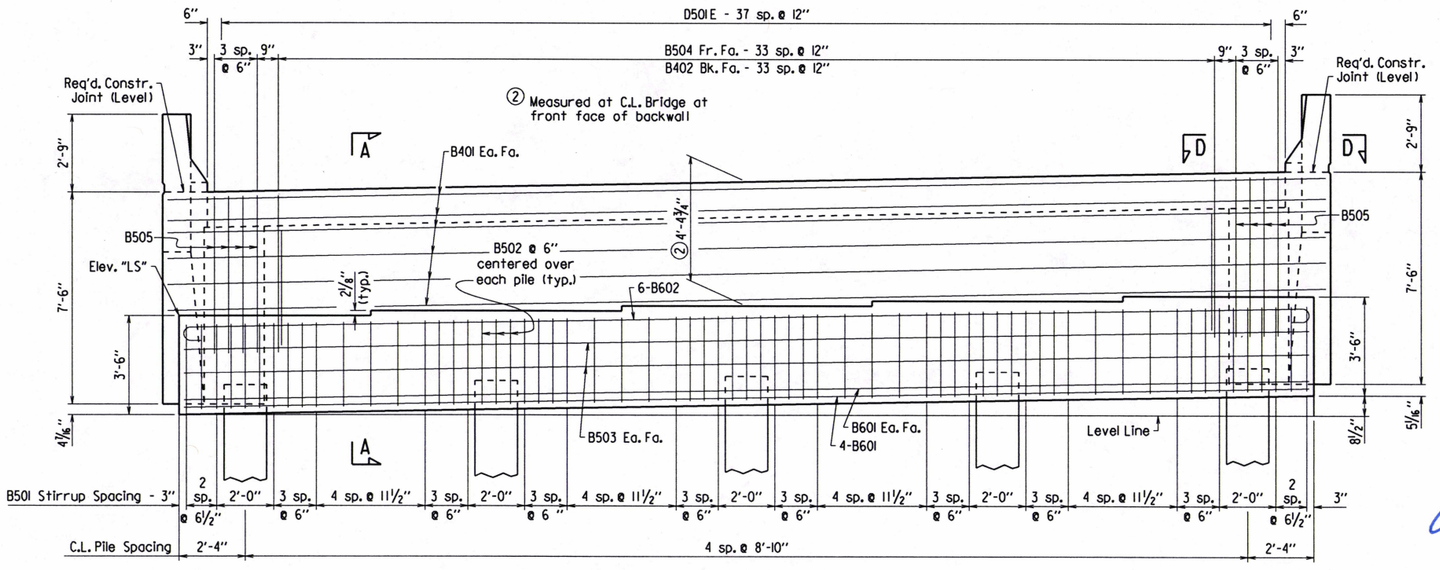
TABLE OF VARIABLES

Bridge No.	Bent	Elev. "X"	Elev. "Z"	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "LS"
A7400	4	374.27	374.26	374.65	373.89	374.64	373.88	369.52
B7400	1	373.60	373.60	373.98	373.22	373.98	373.22	368.85



VIEW D-D

1/2" = 1'-0"



ELEVATION

Looking Ahead Station - Bridge No. A7400, Bent 4
Looking Back Station - Bridge No. B7400, Bent 1
3/8" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
7-6-18
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 4
DETAILS OF END BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 1-30-17
CHECKED BY: EOR DATE: 7-6-18
DESIGNED BY: LJB DATE: 8-2016
FILENAME: bca0704_bl.dgn
SCALE: as noted

BRIDGE NO. A&B7400 DRAWING NO. 59383

PRINT DATE: 7/6/2018

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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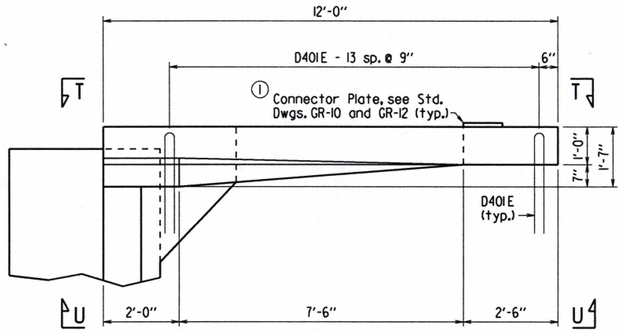
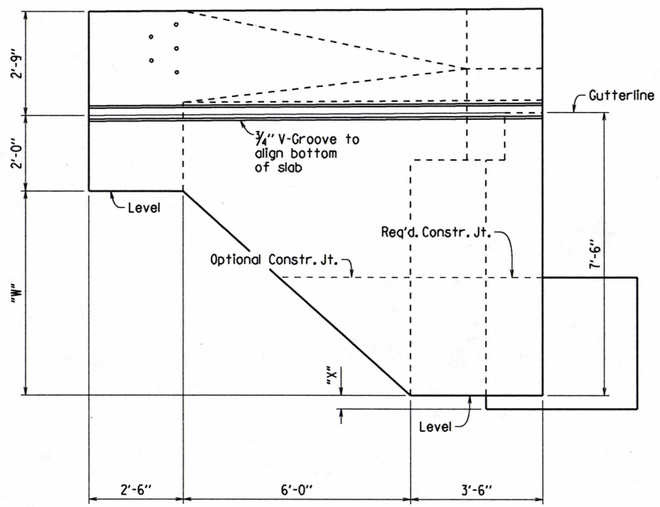
				JOB NO.		CA0704	164299	
				① A&B7400 -		END BENTS		- 59384



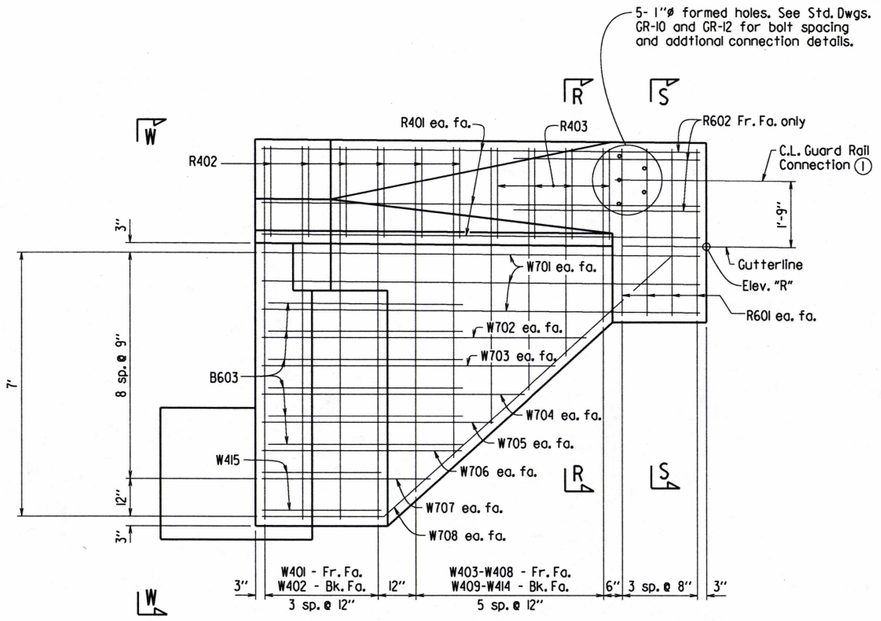
PLAN OF RAIL

½" = 1'-0"



VIEW T-T

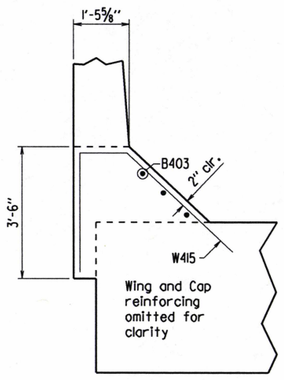
½" = 1'-0"



VIEW U-U

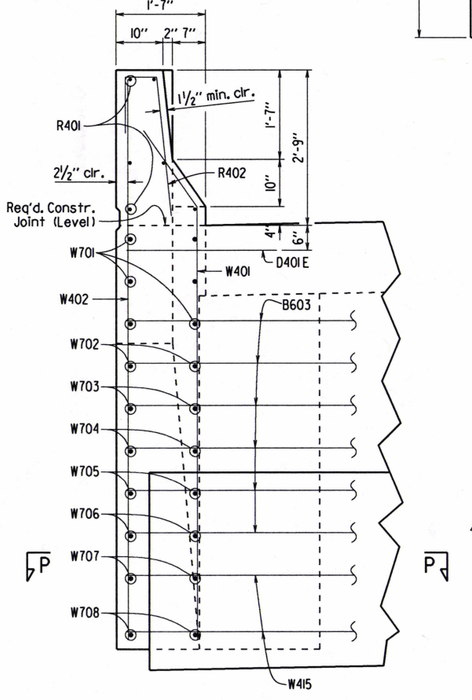
½" = 1'-0"

① Connector Plate as required. See Roadway plans for location of guard rail.



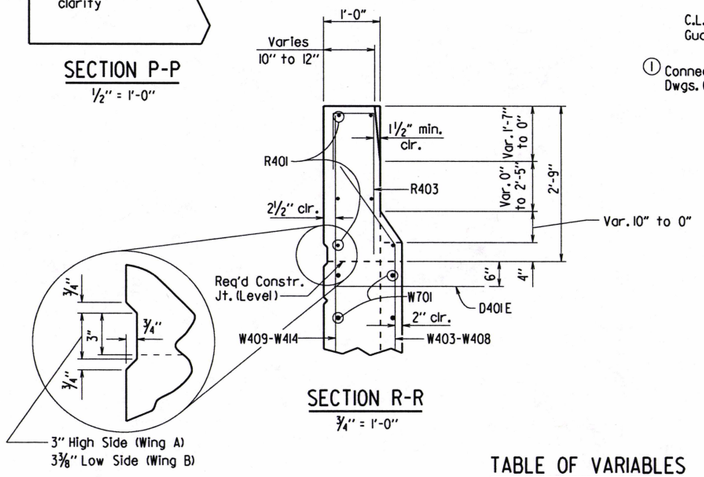
SECTION P-P

½" = 1'-0"



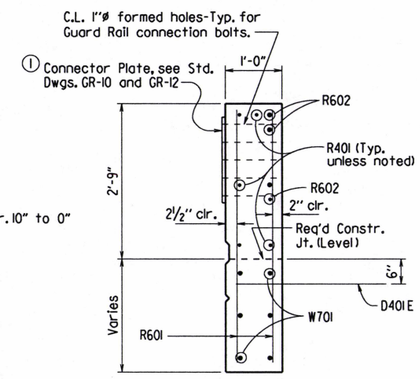
VIEW W-W

¾" = 1'-0"



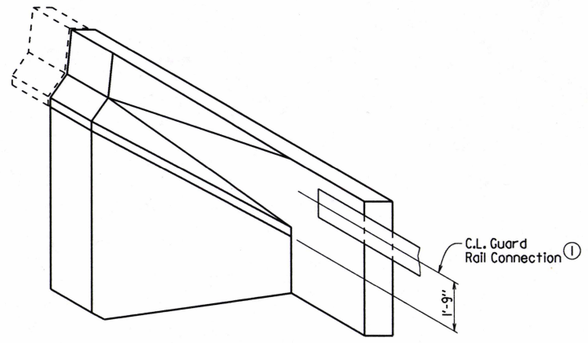
SECTION R-R

¾" = 1'-0"



SECTION S-S

¾" = 1'-0"



THREE DIMENSIONAL VIEW OF RAIL

No Scale

TABLE OF VARIABLES

Bridge No.	Bent	Wing	"W"	"X"	Elev. "R"
A7400	1	A	5'-4⅜"	5/16"	374.15
		B	5'-4⅜"	4/16"	373.39
	4	A	5'-4⅝"	5/16"	374.56
		B	5'-4⅝"	4/16"	373.80
B7400	1	A	5'-5/16"	5/16"	373.90
		B	5'-5/16"	4/16"	373.14
	4	A	5'-5/16"	5/16"	373.98
		B	5'-5/16"	4/16"	373.22

STATE OF ARKANSAS
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BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF END BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

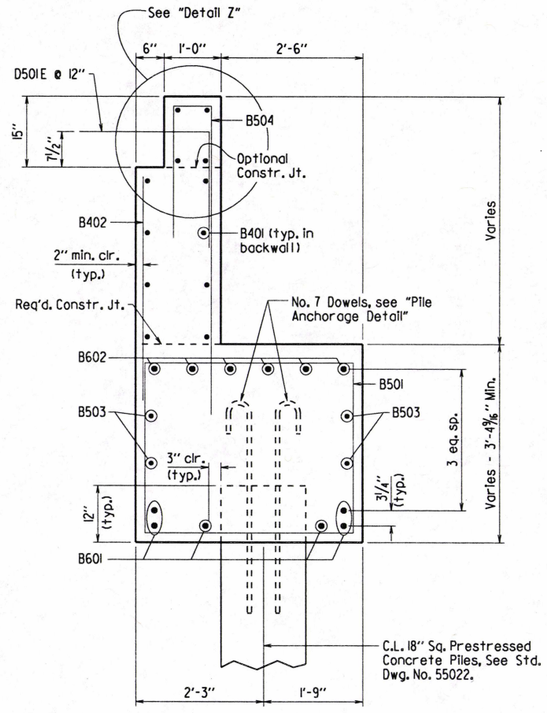
DRAWN BY: LJB DATE: 1-30-17
CHECKED BY: EOR DATE: 7-6-18
DESIGNED BY: LJB DATE: 8-2016
FILENAME: bca0704_bl.dgn
SCALE: as noted

BRIDGE NO. A&B7400 DRAWING NO. 59384

PRINT DATE: 7/6/2018

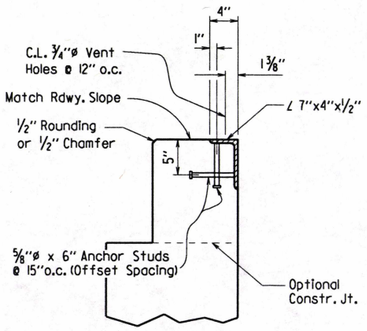
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	165	291
				(1) A&B7400 -		END BENTS	- 59385	

No portion of the backwall shall be poured before 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, see Std. Dwg. No. 55008. No heavy construction equipment or backfill shall be allowed directly behind the backwall until the concrete for the span has been completed.



SECTION A-A

¾" = 1'-0"

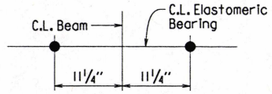


For additional joint details see Std. Dwg. No. 55008.

Concrete shall be hand packed under the joint armor in the backwall.

DETAIL Z

No Scale



For Details of Elastomeric Bearings, see Dwg. No. 59388.

TYPICAL ANCHOR BOLT LAYOUT

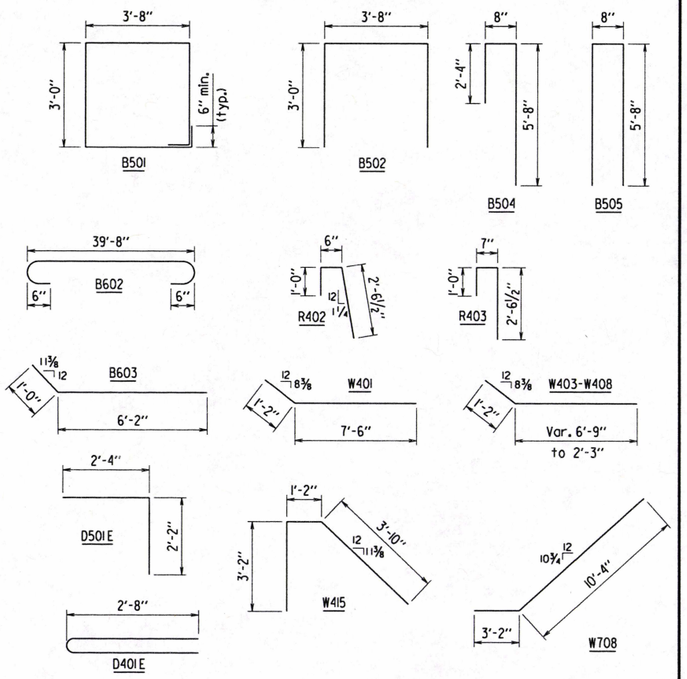
No Scale

BAR LIST- PER BENT

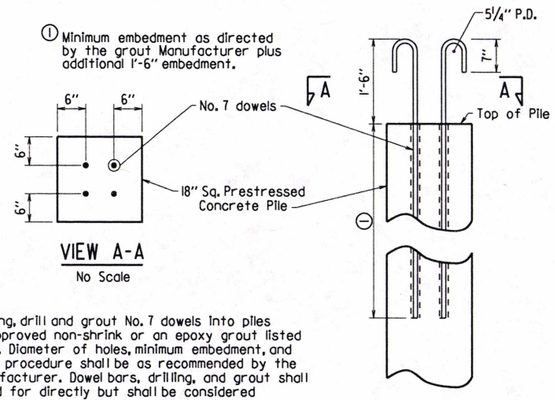
Mark	No. Req'd.	Length	Pin Dia.
B401	12	40'-10"	Str.
B402	34	4'-2"	Str.
B403	6	5'-11"	Str.
B501	50	13'-10"	2½"
B502	15	9'-6"	2½"
B503	4	39'-8"	Str.
B504	34	8'-6"	2½"
B505	8	11'-10"	2½"
B601	6	39'-8"	Str.
B602	6	41'-0"	4½"
B603	12	7'-2"	4½"
D401E	28	5'-6"	3"
D501E	38	4'-5"	3¾"
R401	12	11'-8"	Str.
R402	12	4'-0"	2"
R403	8	4'-0"	2"
R601	16	4'-5"	Str.
R602	6	5'-0"	Str.
W401	8	8'-8"	2"
W402	8	9'-10"	Str.
W403 - W408	2 ea.	Var. 7'-11" to 3'-5"	2"
W409 - W414	2 ea.	Var. 9'-1" to 4'-7"	Str.
W415	4	8'-1"	2"
W701	12	11'-8"	Str.
W702 - W707	4 ea.	Var. 8'-7" to 4'-5"	Str.
W708	4	13'-6"	5¼"

Bending Diagrams

(Dimensions are out to out of bars)



NOTE: Bars with an "E" designation shall be epoxy-coated.



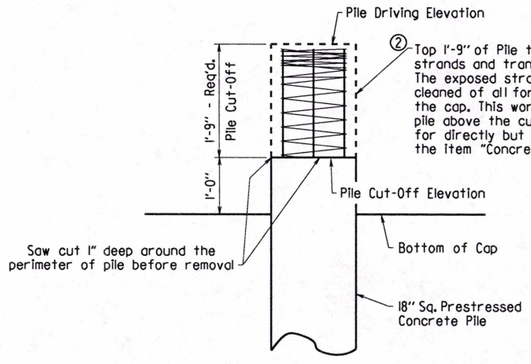
VIEW A-A

No Scale

After driving, drill and grout No. 7 dowels into piles using an approved non-shrink or an epoxy grout listed on the QPL. Diameter of holes, minimum embedment, and installation procedure shall be as recommended by the grout Manufacturer. Dowel bars, drilling, and grout shall not be paid for directly but shall be considered subsidiary to the item "Concrete Piling (18" Square)".

PILE ANCHORAGE DETAIL

No Scale



(2) If for any reason there is not at least 1'-9" of pile above the Pile Cut-Off Elevation after driving, the doweled connection shown in "Pile Anchorage Detail" must be used.

ALTERNATE PILE ANCHORAGE DETAIL

No Scale

Notes:
Structural steel in end bents shall be AASHTO M 270, Grade 50W and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".

See Std. Dwg. No. 55006 for additional notes.

For additional information, see Layout.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
4-17-19

BRIDGE ENGINEER

SHEET 4 OF 4
DETAILS OF END BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 1-30-17 FILENAME: bca0704_bl.dgn

CHECKED BY: JNP DATE: 4-16-19 SCALE: as noted

DESIGNED BY: LJB DATE: 8-2016

BRIDGE NO. A&B7400 DRAWING NO. 59385

PRINT DATE: 4/16/2019

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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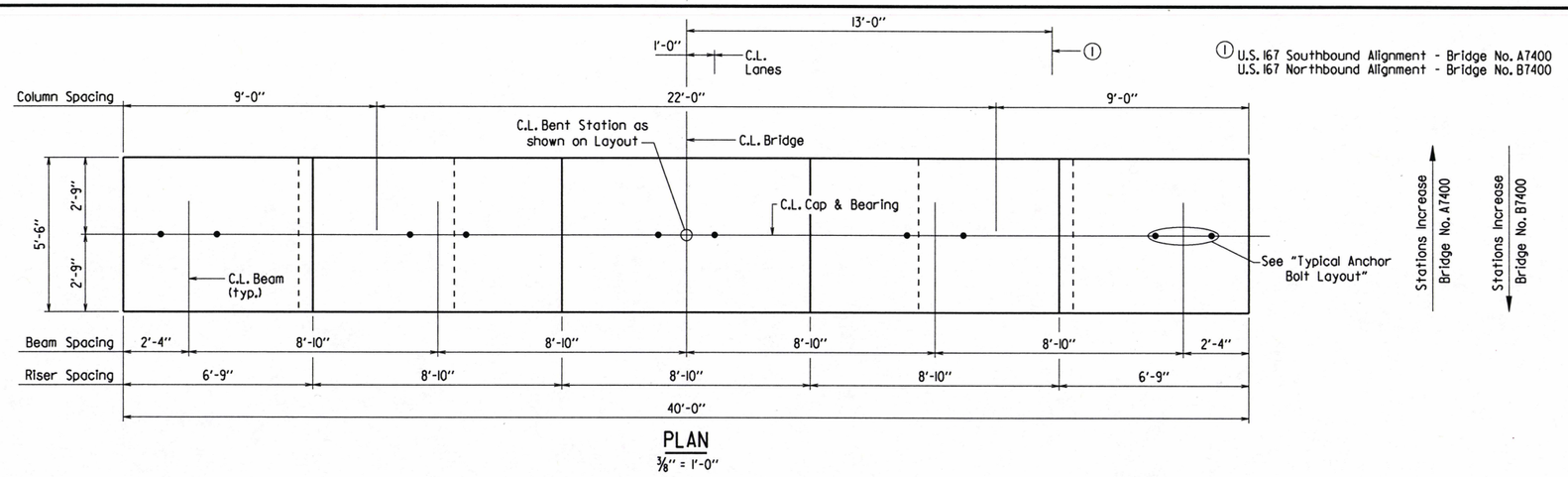
				JOB NO.		CA0704	166	299
				① A&B7400 -		INT. BENTS	- 59386	



PLAN

3/8" = 1'-0"

Stations increase Bridge No. A7400

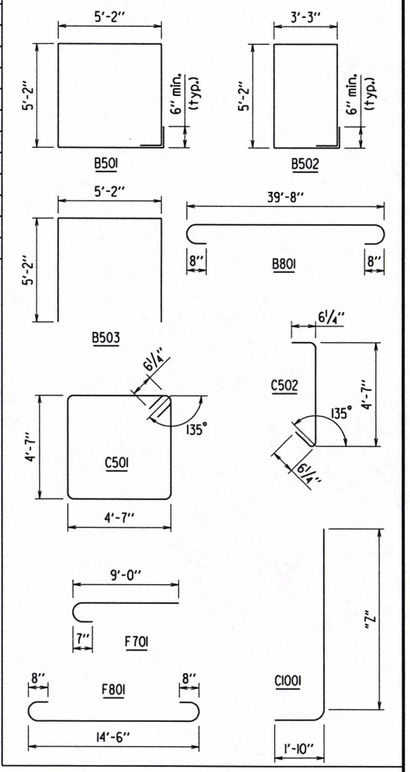
Stations increase Bridge No. B7400

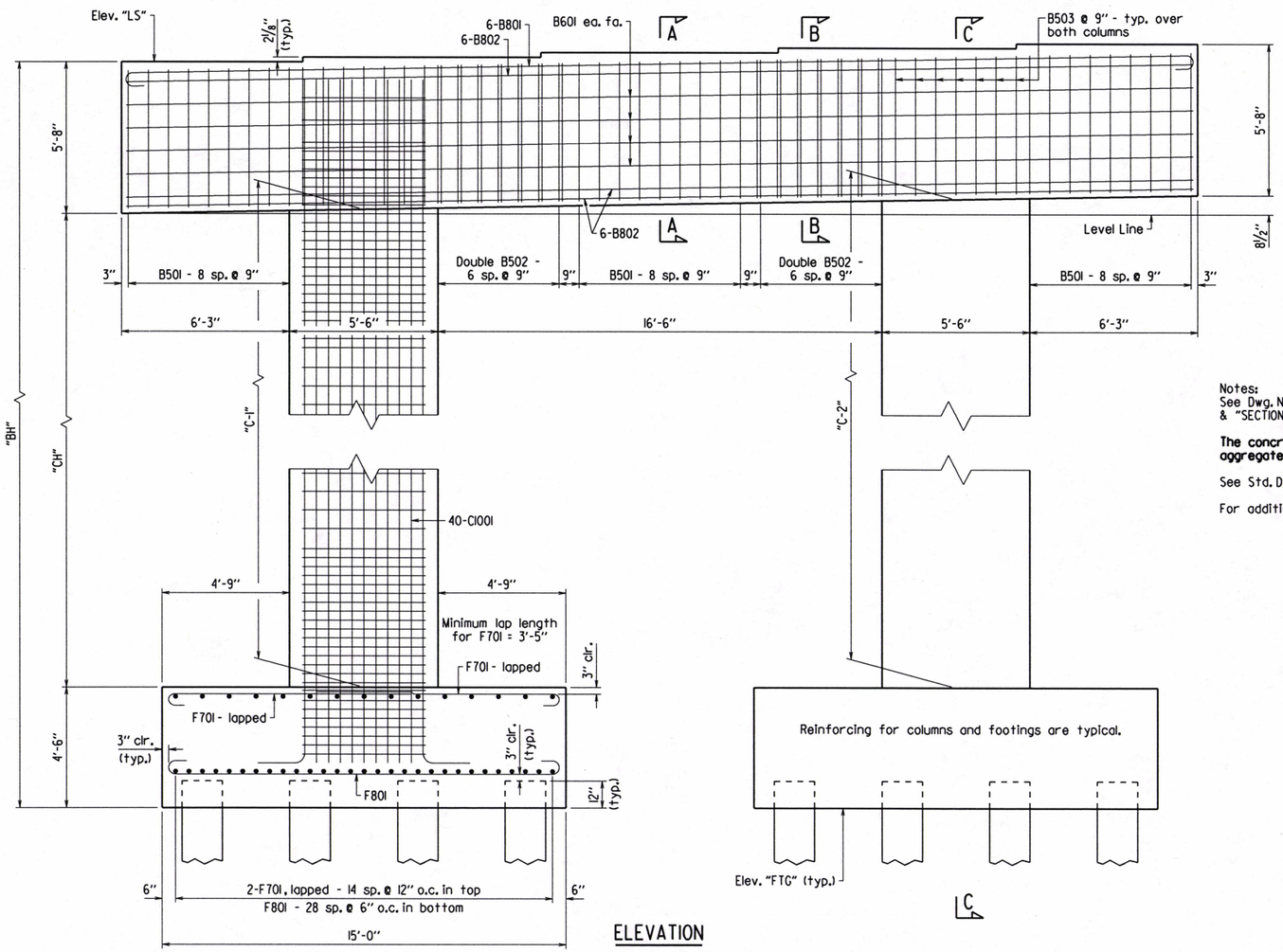
BAR LIST- PER BENT

Mark	No. Req'd.	Length	Pin Dia.
B501	27	21'-2"	2½"
B502	28	17'-4"	2½"
B503	14	15'-4"	2½"
B601	8	39'-8"	Str.
B801	6	41'-6"	6"
B802	18	39'-8"	Str.
C501	"Y"	19'-0"	3¾"
C502	768	5'-5"	3¾"
C1001	80	"L"	10"
F701	120	9'-10"	5¼"
F801	116	16'-4"	6"

Bending Diagrams

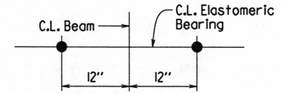
(Dimensions are out to out of bars)





ELEVATION

Looking Ahead Station - Bridge No. A7400
Looking Back Station - Bridge No. B7400
3/8" = 1'-0"



For Details of Elastomeric Bearings, see Dwg. No. 59388.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

Notes:
See Dwg. No. 59387 for "SECTION A-A", "SECTION B-B", & "SECTION C-C".

The concrete shall have a maximum nominal aggregate size of ¾".

See Std. Dwg. No. 55006 for additional notes.

For additional information, see Layout.

TABLE OF VARIABLES

Bridge No.	Bent No.	"BH"	"CH"	"C-1"	"C-2"	"X"	"Y"	"Z"	"L"	Elev. "LS"	Elev. "FTG"
A7400	2	35'-0"	24'-10"	24'-11 5/16"	25'-4 3/16"	19	140	32'-9"	34'-4"	369.77	334.77
	3	30'-6"	20'-4"	20'-5 5/16"	20'-10 3/16"	13	128	28'-3"	29'-10"	369.94	339.44
B7400	2	35'-0"	24'-10"	24'-11 5/16"	25'-4 3/16"	19	140	32'-9"	34'-4"	369.31	334.31
	3	30'-6"	20'-4"	20'-5 5/16"	20'-10 3/16"	13	128	28'-3"	29'-10"	369.35	338.85

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
7-18-18
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 8-30-16 FILENAME: bca0704_b2.dgn
CHECKED BY: EOR DATE: 7-16-18 SCALE: as noted
DESIGNED BY: LJB DATE: 8-2016

BRIDGE NO. A&B7400 DRAWING NO. 59386

PRINT DATE: 7/16/2018

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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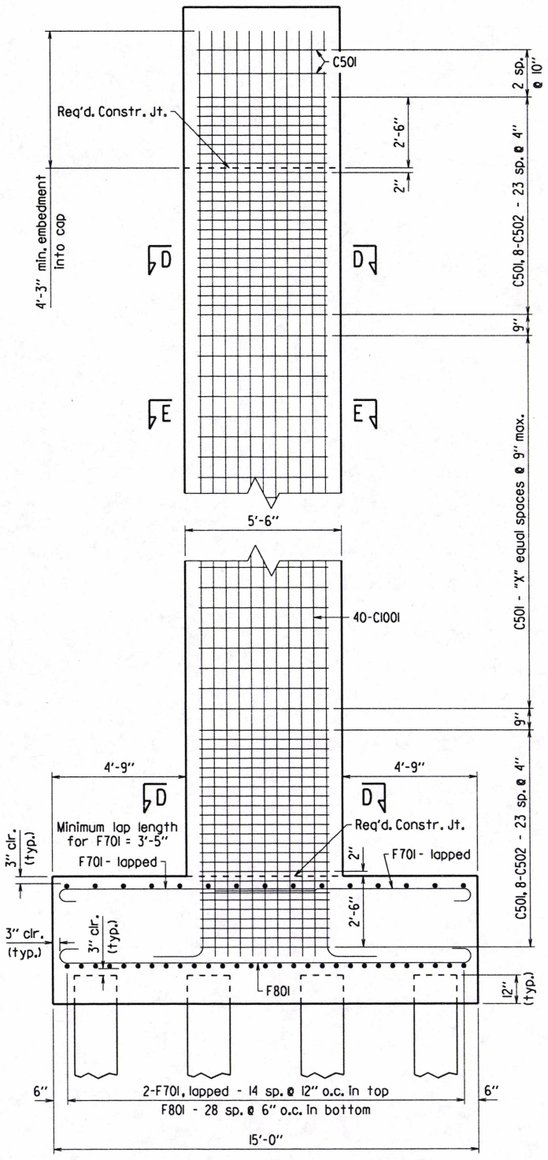
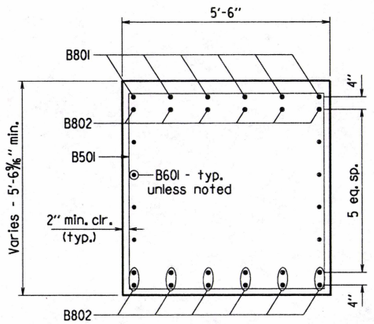
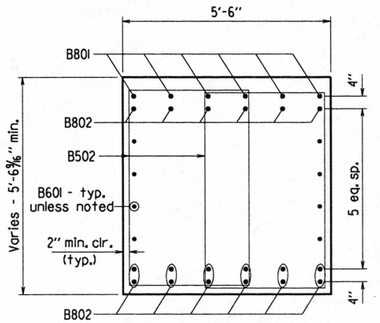
				JOB NO.		CA0704	167	299
				① A&B7400 -		INT. BENTS	- 59387	



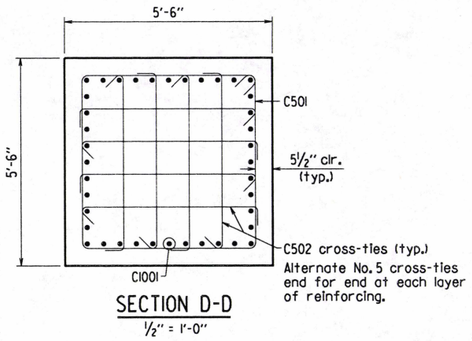
SECTION C-C
3/8" = 1'-0"



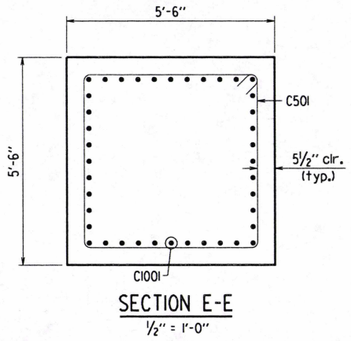
SECTION A-A
1/2" = 1'-0"



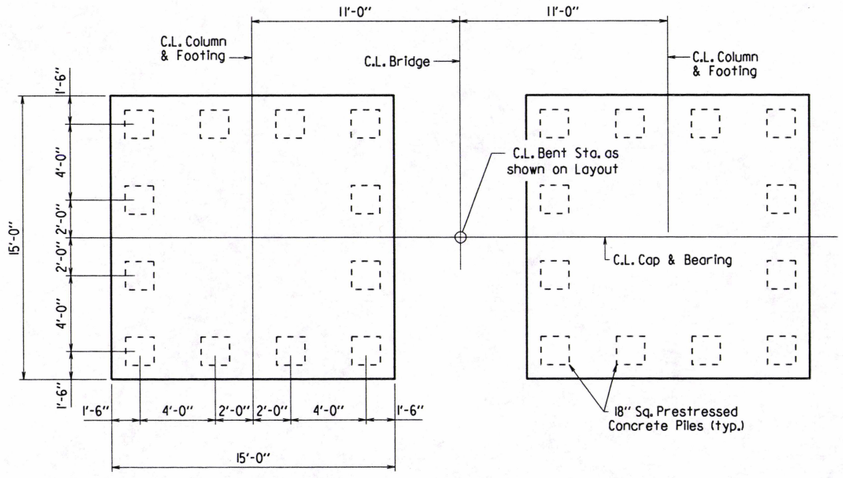
SECTION B-B
1/2" = 1'-0"



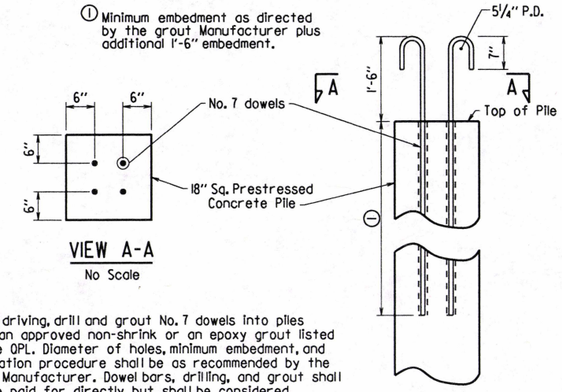
SECTION D-D
1/2" = 1'-0"



SECTION E-E
1/2" = 1'-0"



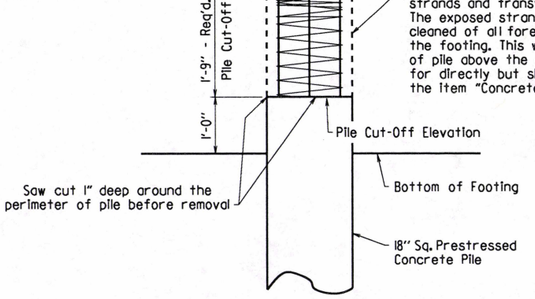
PLAN OF FOOTING
1/4" = 1'-0"



VIEW A-A
No Scale

After driving, drill and grout No. 7 dowels into piles using an approved non-shrink or an epoxy grout listed on the QPL. Diameter of holes, minimum embedment, and installation procedure shall be as recommended by the grout Manufacturer. Dowel bars, drilling, and grout shall not be paid for directly but shall be considered subsidiary to the item "Concrete Piling (18" Square)".

PILE ANCHORAGE DETAIL
No Scale



② If for any reason there is not at least 1'-9" of pile above the Pile Cut-Off Elevation after driving, the doweled connection shown in "Pile Anchorage Detail" must be used.

ALTERNATE PILE ANCHORAGE DETAIL
No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
4-17-19

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

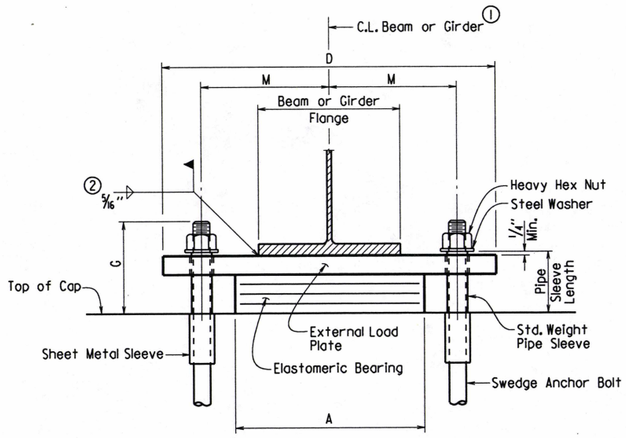
DRAWN BY: LJB DATE: 8-30-16 FILENAME: bca0704_b2.dgn
CHECKED BY: JWP DATE: 4-16-19 SCALE: as noted
DESIGNED BY: LJB DATE: 8-2016

BRIDGE NO. A&B7400 DRAWING NO. 59387

PRINT DATE: 4/16/2019

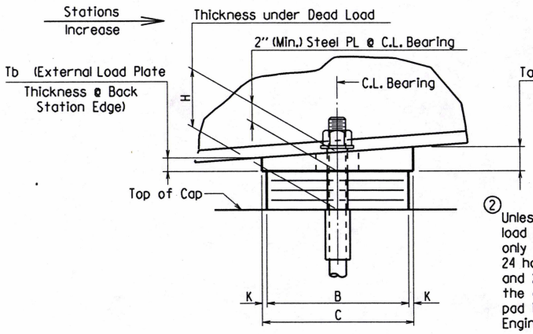
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	168	299

① A&B7400 - ELASTO BRGS. - 59388



FRONT VIEW

① C.L. Elastomeric Pad shall be aligned with C.L. Beam or Girder.

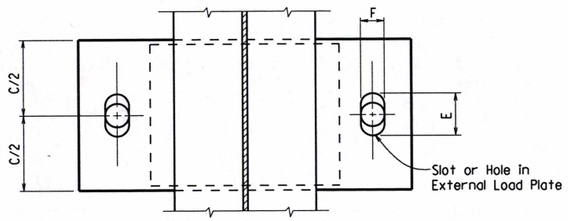


SIDE VIEW

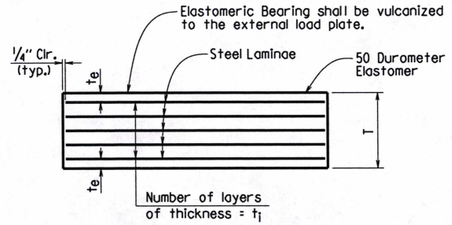
The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in the "Table of Fabricator Variables".

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.



PLAN VIEW



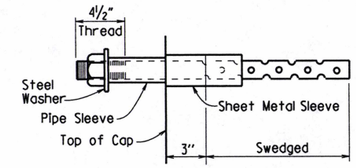
t_e = Thickness of elastomer cover on top and bottom of pad

t_i = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

Prior to erection of the beams or girders, the Contractor shall verify the orientation of the bearings with respect to Ta and Tb .



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)".

TABLE OF FABRICATOR VARIABLES

③ Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION: BENT NO(S).	LOCATION: BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	③ MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD: A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	EXTERNAL LOAD PLATE: C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT: ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
A7400	1	All	Exp	5	104	9 3/8"	5 5/16"	16"	7 1/2"	5	1/2"	1/4"	6 @ 12 Ga.	3 5/8"	9 1/2"	29 1/2"	5 1/2"	3 3/4"	1"	11 1/4"	2.05"	1.95"	2 1/2" x 36"	55	3" x 5 7/8"	4" x 6"	4 1/2"
	2	All	Fix	5	298	8 1/8"	3 5/16"	18"	14"	2	1/2"	1/4"	3 @ 12 Ga.	1 13/16"	15"	31"	3 3/4"	3 3/4"	1/2"	12"	2.04"	1.96"	2 3/4" x 38"	55	3" x 4 1/8"	5" x 10"	5"
	3	All	Fix	5	298	8 1/8"	3 5/16"	18"	14"	2	1/2"	1/4"	3 @ 12 Ga.	1 13/16"	15"	31"	3 3/4"	3 3/4"	1/2"	12"	1.98"	2.02"	2 3/4" x 38"	55	3" x 4 1/8"	5" x 10"	5"
	4	All	Exp	5	104	9 3/8"	5 5/16"	16"	7 1/2"	5	1/2"	1/4"	6 @ 12 Ga.	3 5/8"	9 1/2"	29 1/2"	5 1/2"	3 3/4"	1"	11 1/4"	1.97"	2.03"	2 1/2" x 36"	55	3" x 5 7/8"	4" x 6"	4 1/2"
B7400	1	All	Exp	5	104	9 3/8"	5 5/16"	16"	7 1/2"	5	1/2"	1/4"	6 @ 12 Ga.	3 5/8"	9 1/2"	29 1/2"	5 1/2"	3 3/4"	1"	11 1/4"	2.03"	1.97"	2 1/2" x 36"	55	3" x 5 7/8"	4" x 6"	4 1/2"
	2	All	Fix	5	298	8 1/8"	3 5/16"	18"	14"	2	1/2"	1/4"	3 @ 12 Ga.	1 13/16"	15"	31"	3 3/4"	3 3/4"	1/2"	12"	2.02"	1.98"	2 3/4" x 38"	55	3" x 4 1/8"	5" x 10"	5"
	3	All	Fix	5	298	8 1/8"	3 5/16"	18"	14"	2	1/2"	1/4"	3 @ 12 Ga.	1 13/16"	15"	31"	3 3/4"	3 3/4"	1/2"	12"	1.98"	2.02"	2 3/4" x 38"	55	3" x 4 1/8"	5" x 10"	5"
	4	All	Exp	5	104	9 3/8"	5 5/16"	16"	7 1/2"	5	1/2"	1/4"	6 @ 12 Ga.	3 5/8"	9 1/2"	29 1/2"	5 1/2"	3 3/4"	1"	11 1/4"	1.97"	2.03"	2 1/2" x 36"	55	3" x 5 7/8"	4" x 6"	4 1/2"

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 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 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 (M 270, Gr. 50W)". External load plates will not be measured and 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.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
7-5-18
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 9-13-16 FILENAME: bca0704_el.dgn

CHECKED BY: EOR DATE: 7-5-18 SCALE: as noted

DESIGNED BY: LJB DATE: 8-2016

BRIDGE NO. A&B7400 DRAWING NO. 59388

PRINT DATE: 7/5/2018

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.		CA0704	169	299
				(1) A&B7400 - 250 FT. UNIT - 59389				

SLAB REINFORCING:

LONGITUDINAL: S401E in Top & Bottom placed as shown
S601E placed as shown over int. supports, See "Half Reinforcing Plan and Slab Pouring Sequence", Dwg. No. 59391.

TRANSVERSE: S502E @ 12" o.c. (Top)
S402E @ 12" o.c. (Bottom) — Alternate
S501E @ 12" o.c. (Bent up over beams) — Alternate
S503E @ 6" o.c. in top of overhangs (bundled with No. 5 bars)

Notes:
At the Contractor's option, two straight epoxy coated No. 5 bars, top and bottom, may be substituted for bar S501E. Payment will be based on the weight of bar S501E.

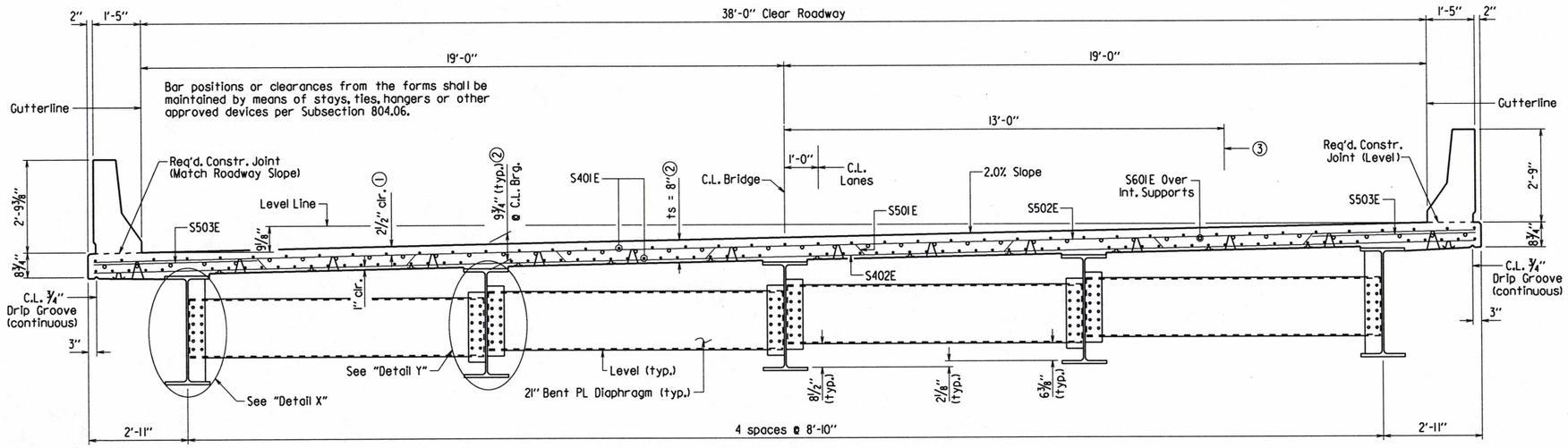
Bars with an "E" suffix are epoxy coated.

Class I Protective Surface Treatment shall be applied to the Roadway Surface and the Roadway Face and Top of Concrete Parapet Rail.

① Tolerance: Minus = 1/4";
Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance" on Std. Dwg. No. 55007.

② See "Adjustment for Slab Thickness Tolerance" on Std. Dwg. No. 55007.

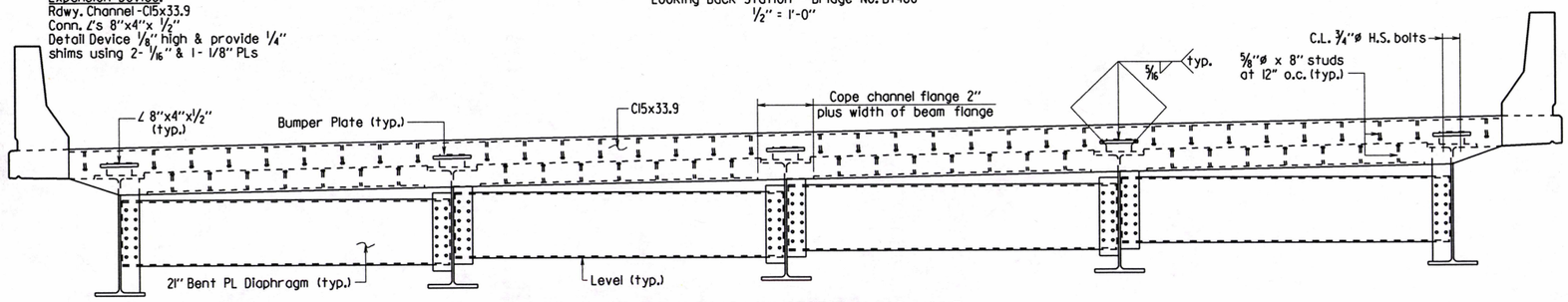
③ U.S. 167 Southbound Alignment - Bridge No. A7400
U.S. 167 Northbound Alignment - Bridge No. B7400



TYPICAL ROADWAY SECTION

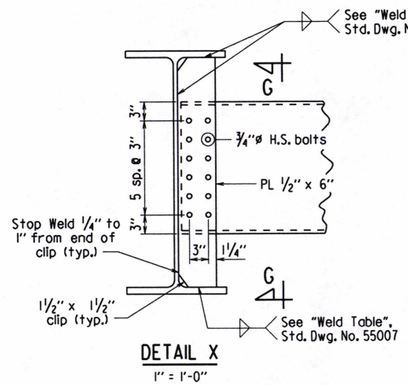
Looking Ahead Station - Bridge No. A7400
Looking Back Station - Bridge No. B7400
½" = 1'-0"

Expansion Device:
Rdwy. Channel - C15x33.9
Conn. ℄s 8"x4"x ½"
Detail Device ⅛" high & provide ¼" shims using 2- 1/16" & 1- 1/8" PLs

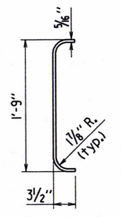


TYPICAL ROADWAY SECTION NEAR JOINT

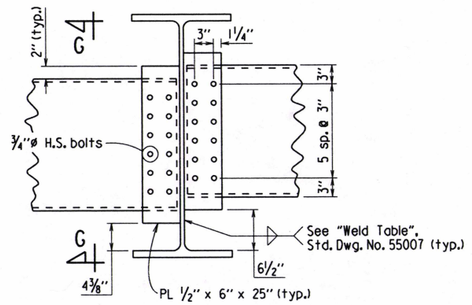
Looking Ahead Station - Bridge No. A7400, Bent 1
Looking Back Station - Bridge No. B7400, Bent 4
½" = 1'-0"



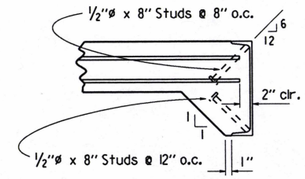
DETAIL X
1" = 1'-0"



SECTION G-G
1" = 1'-0"



DETAIL Y
1" = 1'-0"



Note: As an alternate to ⅝"ø studs, ½"ø x 8" studs spaced as shown may be used. Use weight of ⅝"ø stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

No Scale

TABLE OF SILICONE JOINT DATA

"A" Width Perpendicular to Joint at 24 Hour Average Temperature Of:			"B" Perpendicular to Joint at 60°F	Bumper Plate Size
40°F	60°F	80°F		
2 3/16"	2"	1 13/16"	2¼" ±	1" x 1"

For details of poured silicone joint, see Std. Dwg. No. 55008.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
7-6-18
BRIDGE ENGINEER

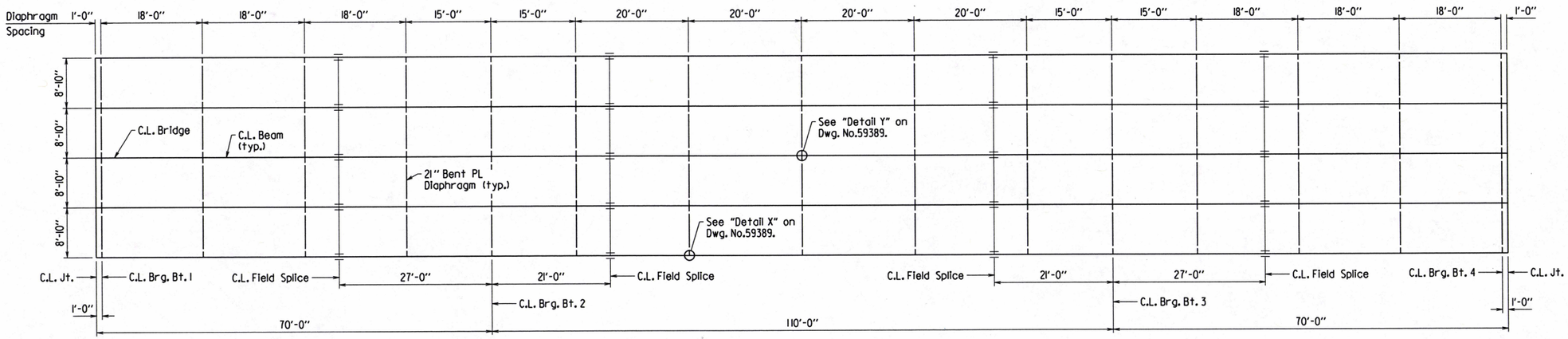
SHEET 1 OF 5
DETAILS OF
250'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: NSA DATE: 4-29-16 FILENAME: bca0704_sl.dgn
CHECKED BY: EOR DATE: 7-5-18 SCALE: as noted
DESIGNED BY: NSA DATE: 4-16
BRIDGE NO. A&B7400 DRAWING NO. 59389

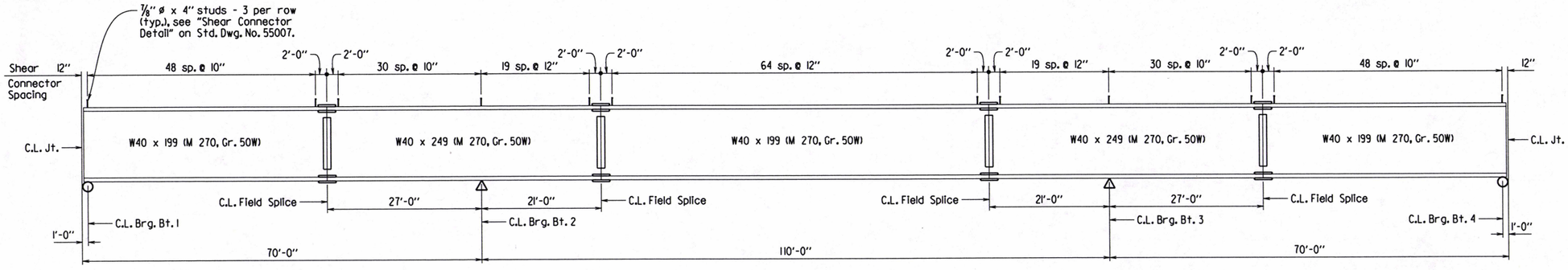
PRINT DATE: 7/5/2018

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.		CA0704	170	299
				(1) A&B7400 - 250 FT. UNIT - 59390				



FRAMING PLAN

3/32" = 1'-0"



BEAM ELEVATION

No Scale

Note: 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)". See Std. Dwg. Nos. 55006 and 55007 for additional notes and details.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
7-6-18
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF
250'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

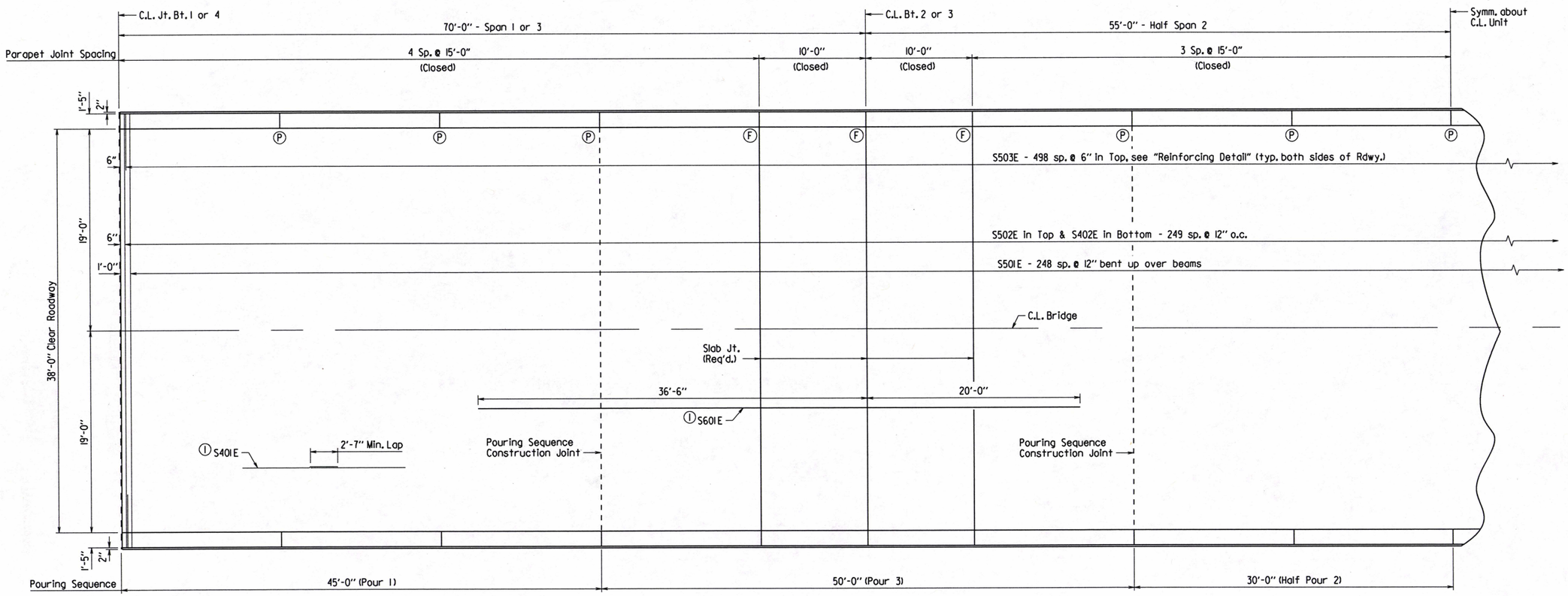
DRAWN BY: NSA DATE: 4-29-16 FILENAME: bca0704_sl.dgn
CHECKED BY: EOR DATE: 7-5-18 SCALE: as noted
DESIGNED BY: NSA DATE: 4-16

BRIDGE NO. A&B7400 DRAWING NO. 59390

PRINT DATE: 7/5/2018

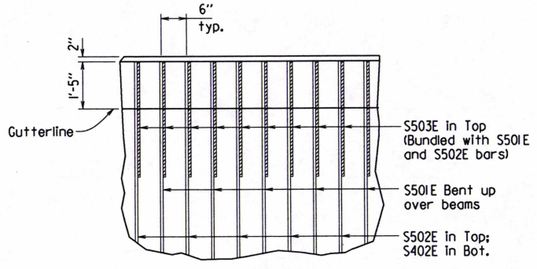
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	17	299
				① A&B7400 - 250 FT. UNIT - 59391				

① Place reinforcing as shown in "Typical Roadway Section" on Dwg. No. 59389.



HALF REINFORCING PLAN AND SLAB POURING SEQUENCE

3/16" = 1'-0"



REINFORCING DETAIL

No Scale

Notes:
Parapet rail spacing and joint depth shown are typical for both sides of roadway.

Ⓟ Partial depth parapet joint at this location

Ⓕ Full depth parapet joint at this location

Slab Pouring Sequence Notes:
Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pour (2) can be placed. Pour (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 adjacent pours. **No deviations from the pouring sequence shown will be allowed.**

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.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
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7-6-18
BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF
250'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

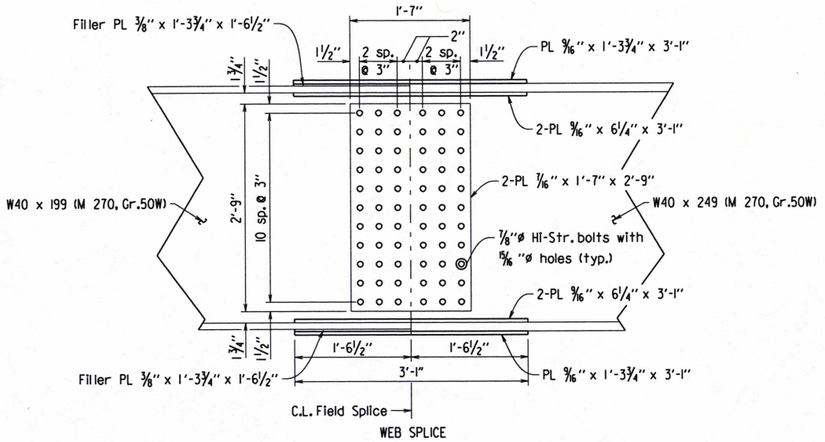
DRAWN BY: NSA DATE: 4-29-16
CHECKED BY: E.O.R. DATE: 7-5-18
DESIGNED BY: NSA DATE: 4-16
FILENAME: bca0704_sl.dgn
SCALE: as noted
BRIDGE NO. A&B7400 DRAWING NO. 59391

PRINT DATE: 7/5/2018

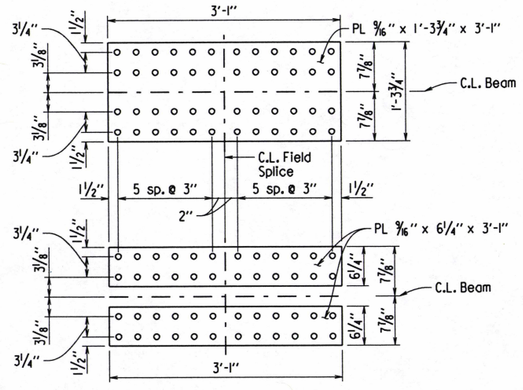
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	172	299
				(1)	A&B7400 - 250 FT. UNIT		- 59392	

Notes:
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.

All field splice bolts shall be ⅞" Hi-str. bolts.
All holes for splice bolts shall be 15/16"ø.
All field splice plates shall be AASHTO M 270, Gr. 50W.



WEB SPLICE



FLANGE SPLICE

TYPICAL FIELD SPLICE DETAILS

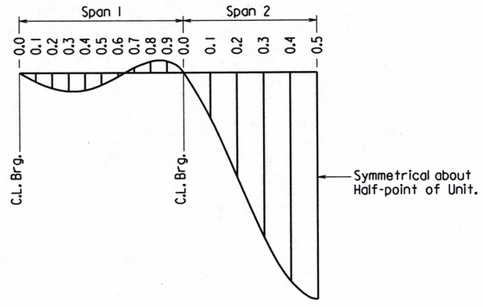
1"= 1'-0"

TABLE OF DEAD LOAD DEFLECTIONS - INCHES

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Rail	
		Ext. Beam	Int. Beam	Ext. Beam	Int. Beam	Ext. Beam	Int. Beam
1	0	0	0	0	0	0	0
	0.1	0.020	0.021	0.090	0.106	0.100	0.112
	0.2	0.034	0.036	0.157	0.184	0.174	0.195
	0.3	0.041	0.043	0.185	0.216	0.205	0.229
	0.4	0.039	0.041	0.169	0.198	0.188	0.210
	0.5	0.028	0.030	0.115	0.133	0.128	0.141
	0.6	0.013	0.013	0.035	0.040	0.039	0.042
	0.7	-0.004	-0.005	-0.046	-0.055	-0.052	-0.058
	0.8	-0.017	-0.018	-0.102	-0.120	-0.114	-0.127
	0.9	-0.018	-0.020	-0.100	-0.118	-0.112	-0.125
2	0	0	0	0	0	0	0
	0.1	0.080	0.085	0.411	0.483	0.459	0.512
	0.2	0.194	0.206	0.985	1.156	1.098	1.226
	0.3	0.305	0.324	1.548	1.817	1.725	1.926
	0.4	0.385	0.408	1.948	2.287	2.170	2.424
	0.5	0.413	0.439	2.092	2.456	2.331	2.603

← Symmetrical about Half-point of Unit.

Note:
Camber for dead load deflection plus vertical curve +/- ¼" 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.



DEAD LOAD DEFLECTION DIAGRAM

No Scale

PRINT DATE: 7/5/2018

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
7-6-18
BRIDGE ENGINEER

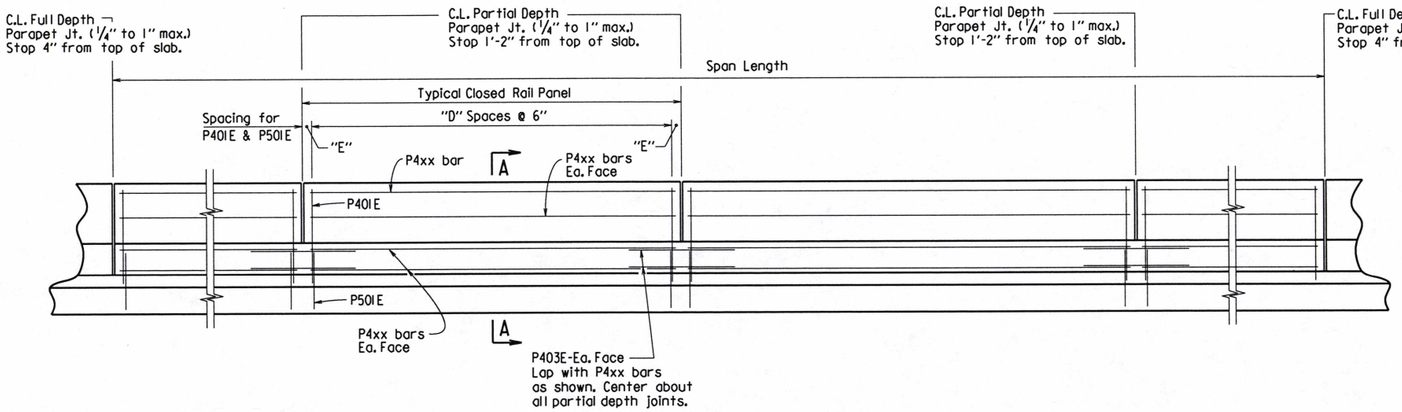
SHEET 4 OF 5
DETAILS OF
250'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: NSA DATE: 4-29-16 FILENAME: bca0704_sl.dgn
CHECKED BY: EOR DATE: 7-5-18 SCALE: as noted
DESIGNED BY: NSK DATE: 4-16

BRIDGE NO. A&B7400 DRAWING NO. 59392

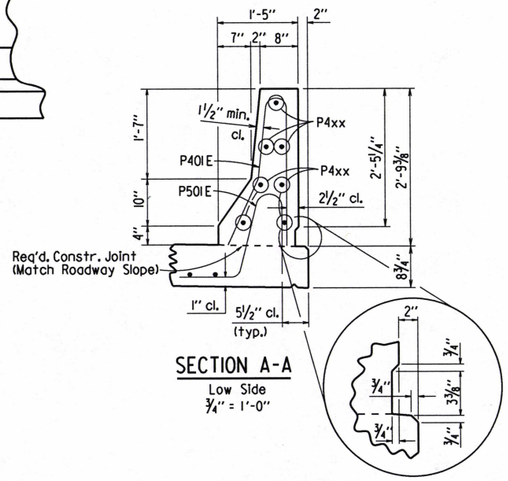
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	173299	
				(1) A&B7400 - 250 FT. UNIT			- 59393	



ELEVATION - CONCRETE PARAPET RAIL

No Scale

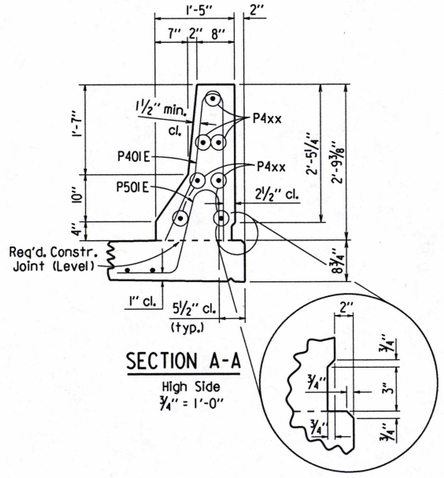
Note: For location of full and partial depth parapet joints, See Dwg. No. 59391.



SECTION A-A

Low Side

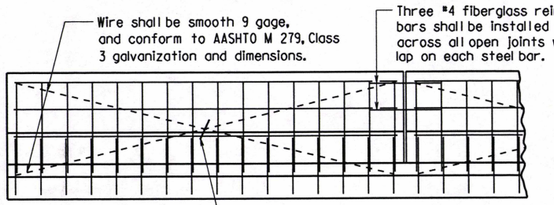
¾" = 1'-0"

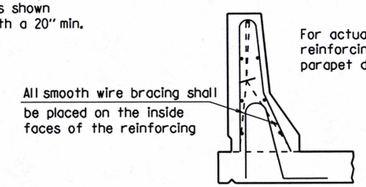


SECTION A-A

High Side

¾" = 1'-0"





For actual placement of reinforcing steel, see parapet details.

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 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.

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 Class 2 Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale

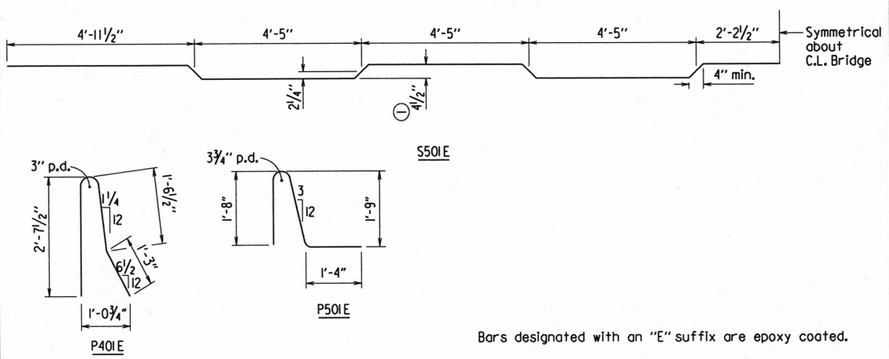
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401E	819	38'-0"	Str.
S402E	250	40'-10"	Str.
S501E	249	41'-8"	3"
S502E	250	40'-10"	Str.
S503E	998	4'-10"	Str.
S601E	84	56'-6"	Str.
P401E	1000	5'-6"	3"
P402E	196	14'-8"	Str.
P403E	88	5'-6"	Str.
P404E	56	9'-8"	Str.
P501E	1000	4'-10"	3¾"

BENDING DIAGRAMS

Dimensions are out to out of bars.

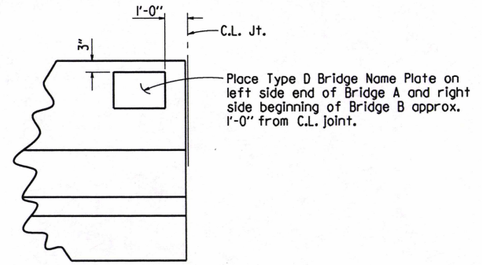
(1) ½" Overtolerance, No Undertolerance.



Bars designated with an "E" suffix are epoxy coated.

TABLE OF VARIABLES

Closed Rail Panels			
Panel Length	"D"	"E"	P4xx Bar
15'-0"	29	3"	P402E
10'-0"	19	3"	P404E



VIEW SHOWING LOCATION OF NAME PLATE

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
7-6-18
BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF
250'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: NSA DATE: 4-29-16 FILENAME: bca0704_sl.dgn

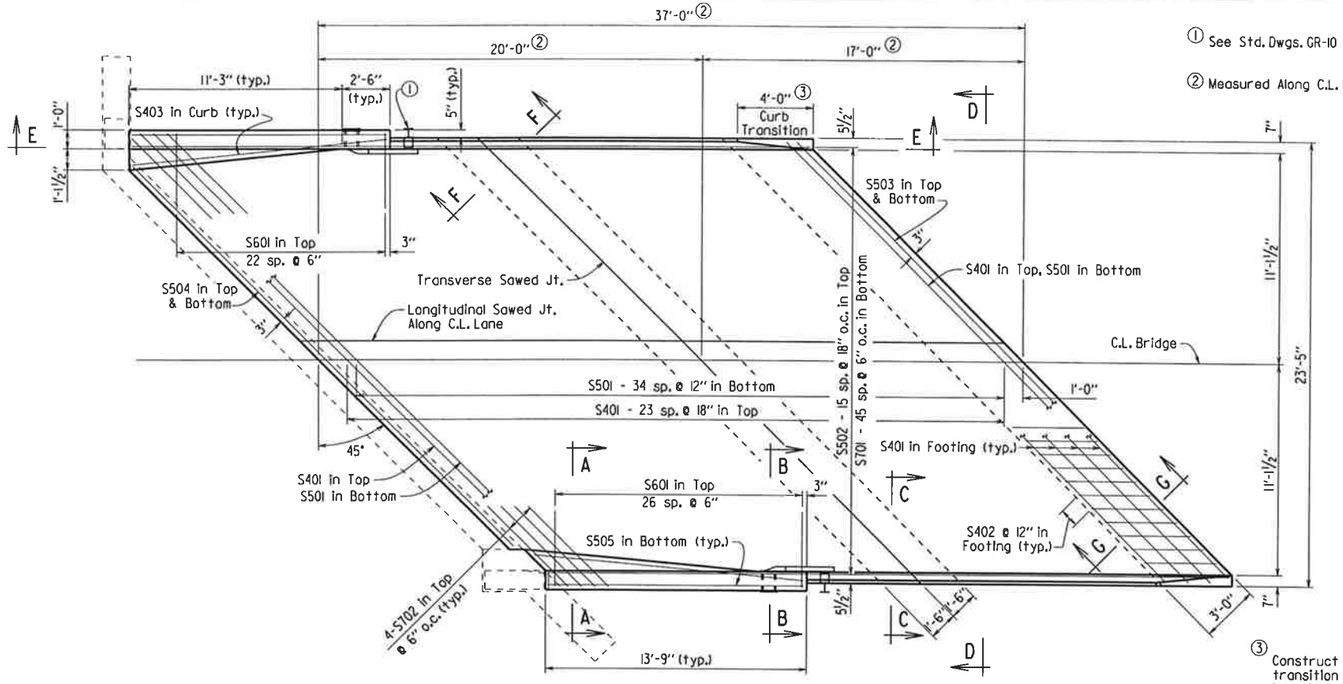
CHECKED BY: EOR DATE: 7-5-18 SCALE: as noted

DESIGNED BY: NSA DATE: 4-16

BRIDGE NO. A&B7400 DRAWING NO. 59393

PRINT DATE: 7/5/2018

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3-31-2020				6	ARK.			
				JOB NO.		CA0704	174	299
				① 03638 -		APPR. SLAB	- 59394	



PLAN OF TYPE SPECIAL APPROACH SLAB

Approach Slab at End of Bridge Shown. Beginning of Bridge Similar

1/4" = 1'-0"

① See Std. Dwgs. GR-10 & GR-12 for post and connector plate details.

② Measured Along C.L. Bridge

③ Construct Curb with height transition as shown if drop inlet is not used at end of gutter.

Construct curb full height (no height transition) if drop inlet is used at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.

BAR LIST FOR ONE TYPE SPECIAL APPROACH SLAB

Mark	No. Req'd.	Length
④S401	32	32'-6"
S402	66	12'-8"
S403	18	13'-5"
S501	35	32'-6"
④S502	16	36'-8"
S503	2	32'-3"
S504	2	28'-3"
S505	2	13'-5"
S601	50	5'-1"
S602-S606	2 ea.	Var. 7'-7" to 7'-11"
S607-S612	2 ea.	Var. 8'-1" to 9'-3"
S613	12	9'-5"
④S701	46	36'-8"
S702	8	7'-3"

④ Trim bars where needed to provide 2" minimum cover at each end.

BENDING DIAGRAMS

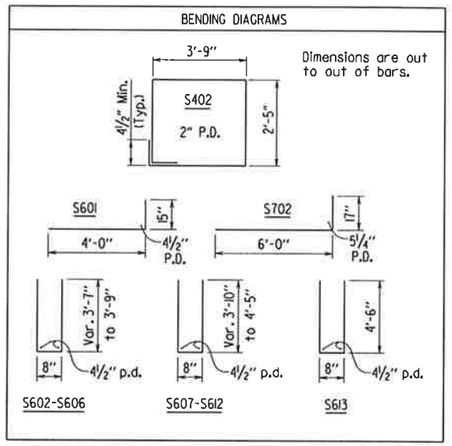
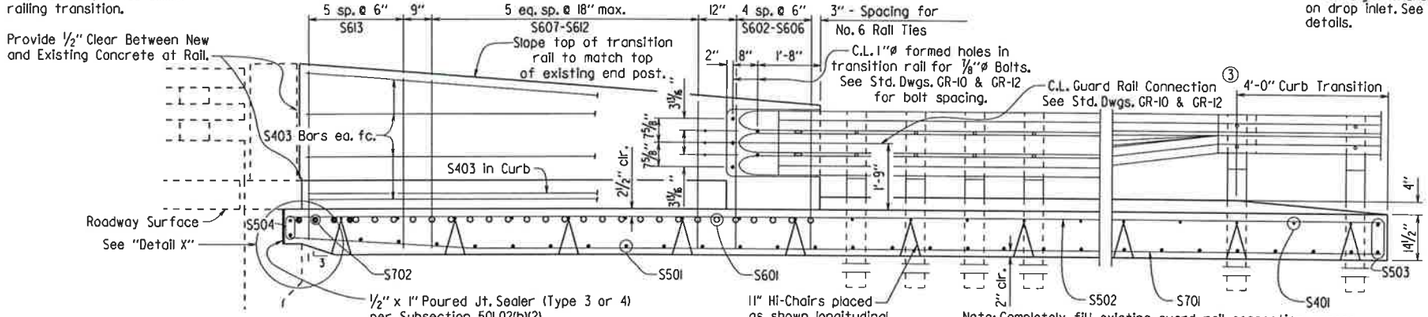


TABLE OF QUANTITIES FOR ONE TYPE SPECIAL APPROACH SLAB

(FOR INFORMATION ONLY)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
7,757	56.70

Bridge end may vary from that shown. Adjust details as required to provide similar railing transition.

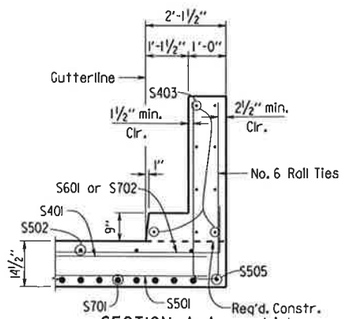


SECTION E-E

Footings Not Shown for Clarity

½" = 1'-0"

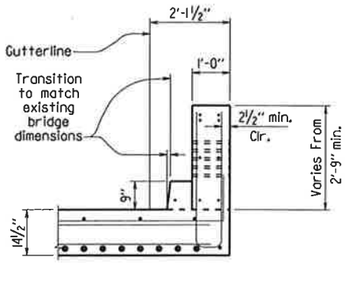
Note: Completely fill existing guard rail connection recess with approved non-shrink grout. Work and material will not be paid for separately but will be considered subsidiary to "Type Special Approach Slab".



SECTION A-A

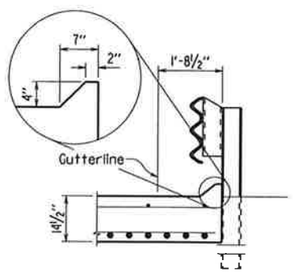
At End of Transition Rail

½" = 1'-0"



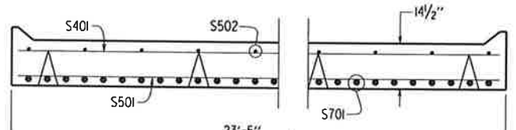
SECTION B-B

½" = 1'-0"



SECTION C-C

½" = 1'-0"

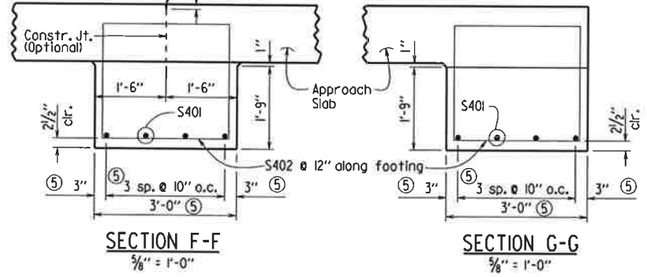


SECTION D-D

½" = 1'-0"

½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.

⑤ Measured Perpendicular to Footing

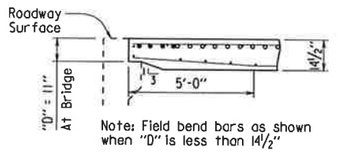


SECTION F-F

⅝" = 1'-0"

SECTION G-G

⅝" = 1'-0"



Note: Field bend bars as shown when "D" is less than 14½"

DETAIL X

⅜" = 1'-0"

⚠ Added note. By: JYP, 3-31-2020

GENERAL NOTES

All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi, 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. Fabricate bar lengths to provide 2" minimum cover at each end.

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.

⚠ The approach slab shall transition to tie the existing roadway grade and the new grade at the beginning or end of bridge but not to exceed a transition rate of 50 feet per inch.

Approach Slabs will be measured and paid for in accordance with Section 504.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
3-31-2020
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF TYPE SPECIAL APPROACH SLAB

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 6-28-17 FILENAME: bca0704_as.dgn

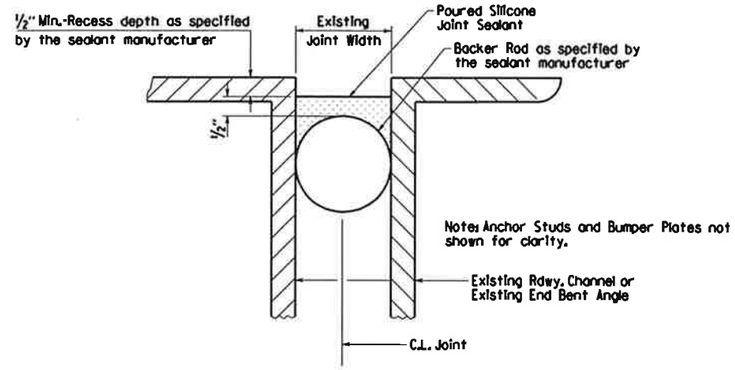
CHECKED BY: EOR DATE: 7-5-2018 SCALE: as noted

DESIGNED BY: STD. DATE: —

BRIDGE NO. 03638 DRAWING NO. 59394

PRINT DATE: 3/31/2020

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	ROAD SHEETS
3-31-2020				6	ARK.			
				JOB NO.		CA0704	175	299
				①	03638 -	JOINT REPAIR	- 59395	



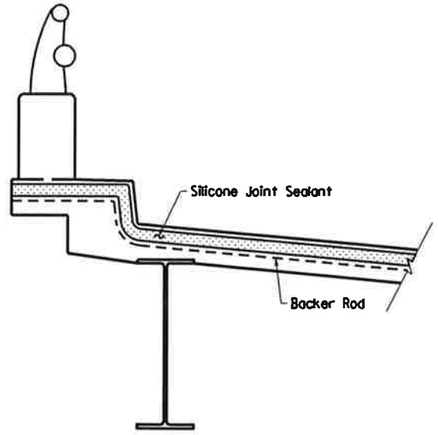
Existing Joint Seal shall be completely removed, backer rods placed, and Silicone Joint Sealant installed across the entire width of the bridge deck in accordance with these details, Section 809, and the Manufacturer's recommendations. Removal of existing Joint Seal will not be paid for directly, but shall be considered incidental to the item "Silicone Joint Sealant".

Backer rods shall be extended beyond the length of the poured joint in the initial joint repair area so that the two pieces can be properly spliced together prior to installing sealant for the adjacent joint repair. Manufacturer's recommendations shall be followed to prevent sealant leakage during repair work.

Backer rods shall be appropriately sized and set to 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 than can be sealed in the same day. The Contractor shall verify separation of the backer rod from the joint material after joint material has set.

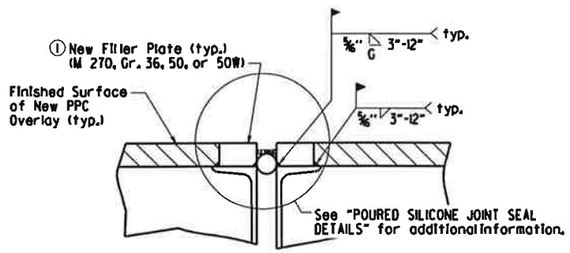
Backer rod shall be notched or otherwise fit around any existing seal supports or bumper plates to maintain its proper depth as defined above.

POURED SILICONE JOINT SEAL DETAILS



Vertical joints may require forming. The clearance from deck surface to joint material shall be maintained.

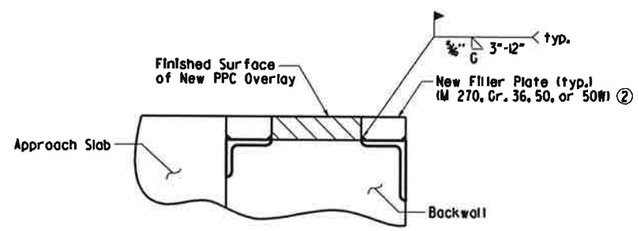
JOINT SEAL PLACEMENT AT RAIL



① New field attached plates atop existing roadway channels are required. The plate thickness shall be adjusted as necessary to match surface of finished surface of PPC Overlay and the width shall be ⅛" less than the existing channel flange width to allow for fillet weld as shown.

Details shown are for an expansion joint where two bridge units meet. Details at end bents are similar. See "DETAILS OF JOINT MODIFICATION AT END BENT" for additional details at end bents.

⚠ DETAILS OF JOINT MODIFICATION



② New field attached plates atop existing roadway angles are required. The plate thickness shall be adjusted as necessary to match surface of finished surface of PPC Overlay and the width shall be 3".

⚠ DETAILS OF JOINT MODIFICIATION AT END BENT

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

⚠ All new Structural Steel shall be AASHTO M 270 (Gr. 36, 50, or 50W). The surfaces not in contact with concrete shall be cleaned and painted in accordance with Section 638. Only one coat of paint is required and shall be applied in the fabricator's shop. Grade 50W steel shall not be painted, but shall be cleaned in accordance with Subsection 807.84(e). Structural Steel and Painting will not be paid for directly, but shall be subsidiary to the item "Silicone Joint Sealant".

⚠ Added details and notes.
By: JYP, 3-31-2020

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
3-31-2020
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF JOINT REPAIR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

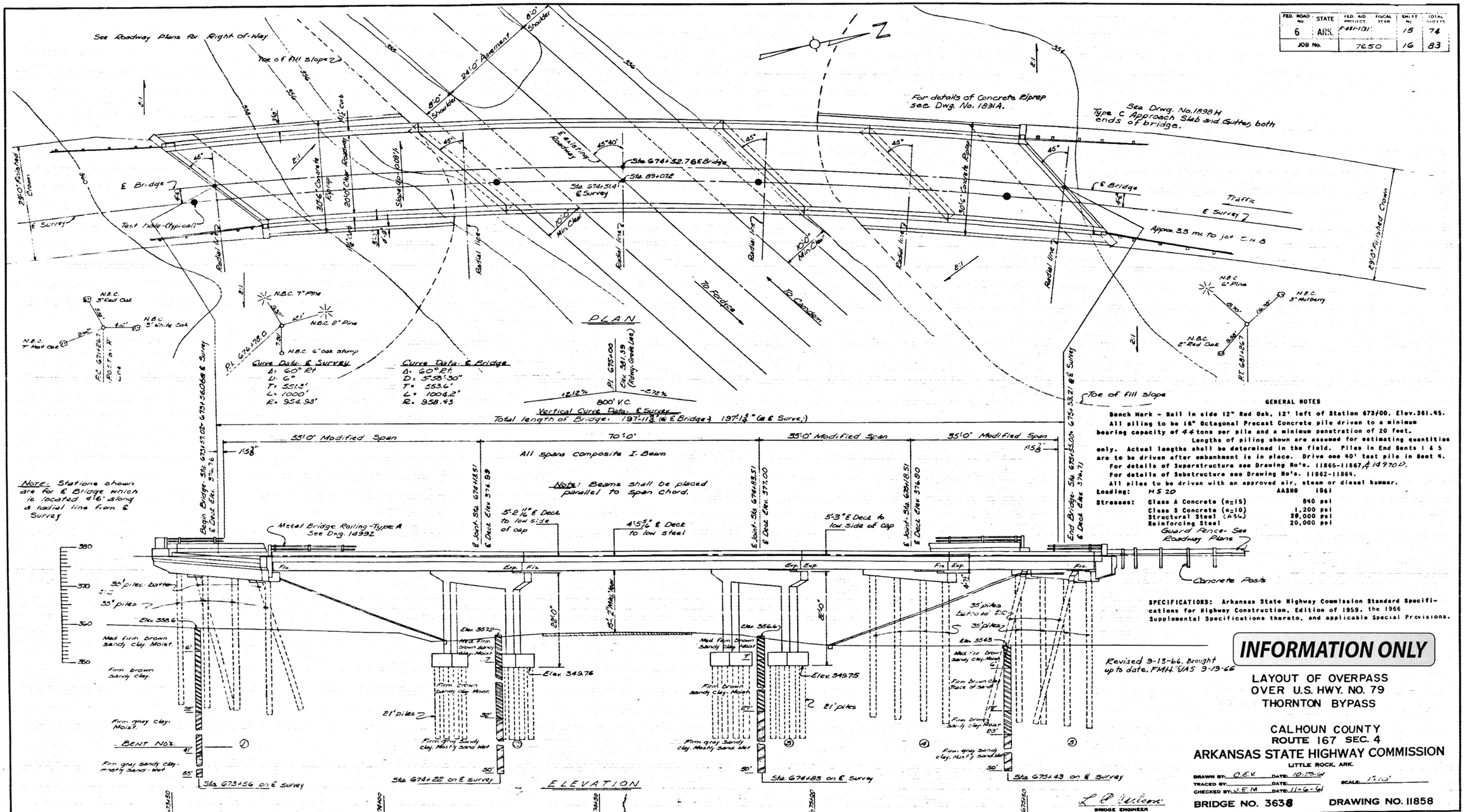
DRAWN BY: LJB DATE: 6-28-17 FILENAME: bca0704_jt.dgn
CHECKED BY: EOR DATE: 7-5-2018 SCALE: No Scale
DESIGNED BY: STD. DATE: —

BRIDGE NO. 03638 DRAWING NO. 59395

PRINT DATE: dateprinted

JOB NO.	SHEET NO.	TOTAL SHEETS
CA0704	176	299

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.	F-081-1(51)		15	74
JOB No.		76.50		16	83



GENERAL NOTES

Bench Mark - Nail in side 12" Red Oak, 12' left of Station 673+00, Elev. 361.45.

All piling to be 16" Octagonal Precast Concrete pile driven to a minimum bearing capacity of 44 tons per pile and a minimum penetration of 20 feet.

Lengths of piling shown are assumed for estimating quantities only. Actual lengths shall be determined in the field. Piles in End Bents 1 & 5 are to be driven after embankment is in place. Drive one 40' test pile in Bent 4.

For details of Superstructure see Drawing No's. 11865-11867, & 14970-D.

For details of Substructure see Drawing No's. 11862-11864.

All piles to be driven with an approved air, steam or diesel hammer.

Loading: H S 20 AASHO 1961

Stresses:		
	Class A Concrete (n=15)	840 psi
	Class S Concrete (n=10)	1,200 psi
	Structural Steel (A36)	20,000 psi
	Reinforcing Steel	20,000 psi

SPECIFICATIONS: Arkansas State Highway Commission Standard Specifications for Highway Construction, Edition of 1959, the 1966 Supplemental Specifications thereto, and applicable Special Provisions.

INFORMATION ONLY

Revised 9-13-66, Brought up to date. FMH. "JAS 9-19-66

LAYOUT OF OVERPASS OVER U.S. HWY. NO. 79 THORNTON BYPASS

CALHOUN COUNTY
ROUTE 167 SEC. 4
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: C.E.V. DATE: 10-25-66
TRACED BY: DATE:
CHECKED BY: J.E.M DATE: 11-6-66
SCALE: 1"=10'

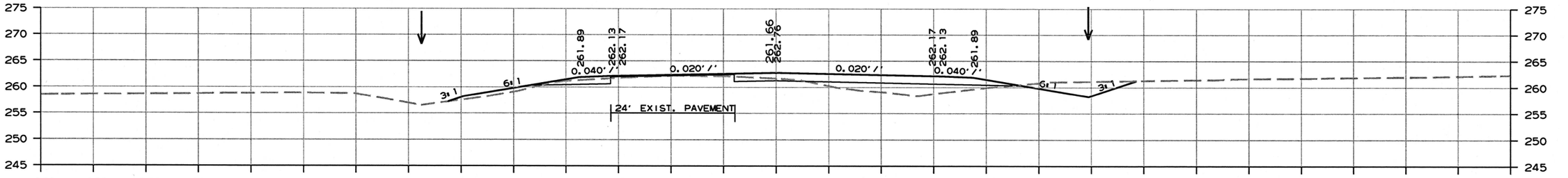
L. P. Wilson
BRIDGE ENGINEER

BRIDGE NO. 3638 DRAWING NO. 11858

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	177	299

(2) CROSS SECTIONS

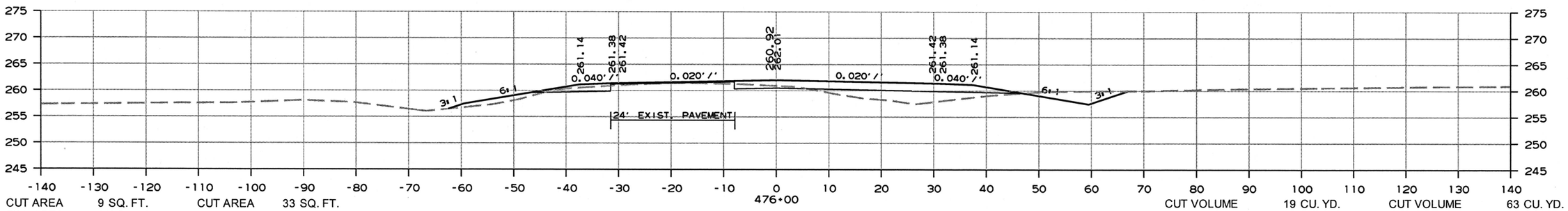
STAGE 1 STAGE 2



CUT AREA 10 SQ. FT. CUT AREA 42 SQ. FT.
FILL AREA 10 SQ. FT. FILL AREA 50 SQ. FT.

477+00

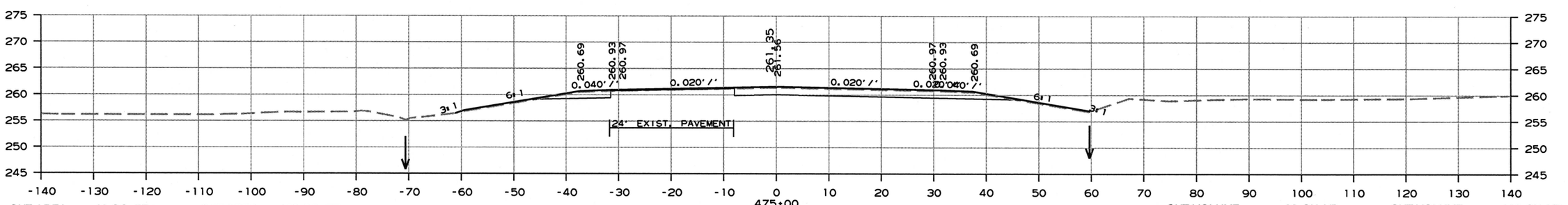
CUT VOLUME 37 CU. YD. CUT VOLUME 141 CU. YD.
FILL VOLUME 44 CU. YD. FILL VOLUME 193 CU. YD.



CUT AREA 9 SQ. FT. CUT AREA 33 SQ. FT.
FILL AREA 13 SQ. FT. FILL AREA 53 SQ. FT.

476+00

CUT VOLUME 19 CU. YD. CUT VOLUME 63 CU. YD.
FILL VOLUME 26 CU. YD. FILL VOLUME 100 CU. YD.



CUT AREA 12 SQ. FT. CUT AREA 63 SQ. FT.
FILL AREA 3 SQ. FT. FILL AREA 1 SQ. FT.

475+00

STA. 475+00.52 END JOB CA0703 =
STA. 475+00.00 BEGIN JOB CA0704
END 100' TRANSITION

STA. 474+00.00
BEGIN 100' TRANSITION

CUT VOLUME 22 CU. YD. CUT VOLUME 119 CU. YD.
FILL VOLUME 7 CU. YD. FILL VOLUME 4 CU. YD.

CROSS SECTION STA. 475+00 TO STA. 477+00

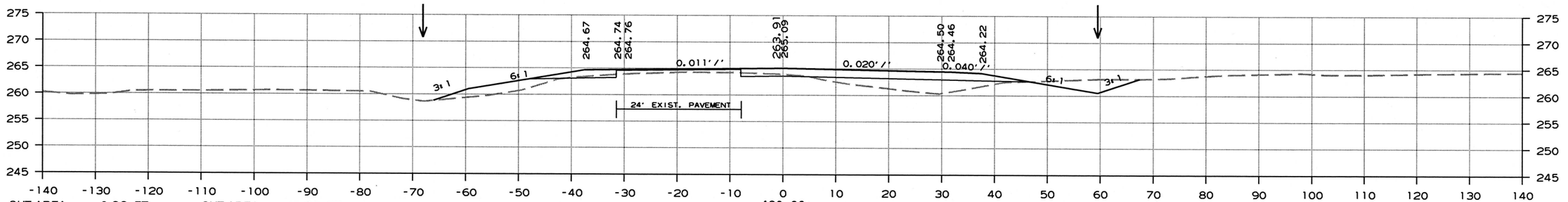
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	178	299

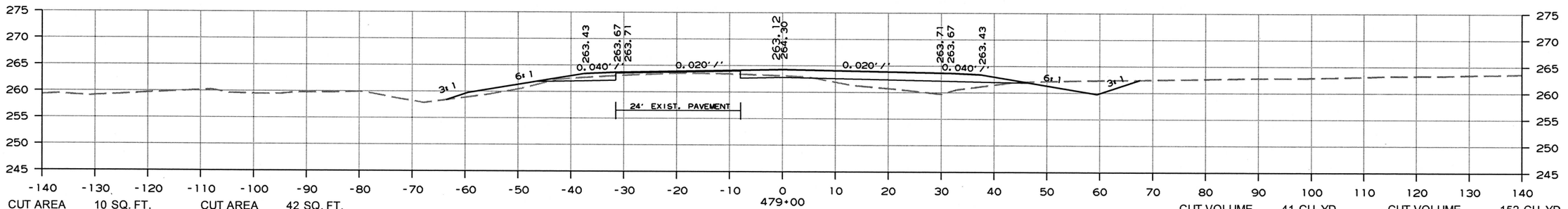
(2) CROSS SECTIONS

STAGE 1 STAGE 2



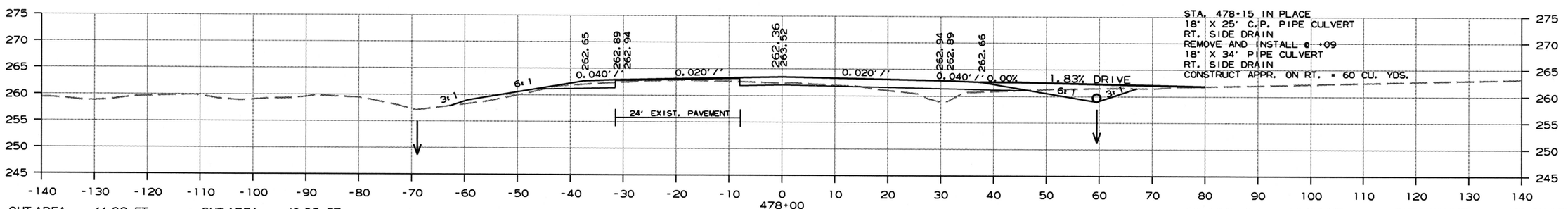
CUT AREA 8 SQ. FT. CUT AREA 48 SQ. FT.
FILL AREA 21 SQ. FT. FILL AREA 42 SQ. FT.

CUT VOLUME 33 CU. YD. CUT VOLUME 167 CU. YD.
FILL VOLUME 59 CU. YD. FILL VOLUME 156 CU. YD.



CUT AREA 10 SQ. FT. CUT AREA 42 SQ. FT.
FILL AREA 10 SQ. FT. FILL AREA 41 SQ. FT.

CUT VOLUME 41 CU. YD. CUT VOLUME 152 CU. YD.
FILL VOLUME 33 CU. YD. FILL VOLUME 119 CU. YD.



STA. 478+15 IN PLACE
18" X 25' C.P. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL ◎ +09
18" X 34' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 60 CU. YDS.

CUT AREA 11 SQ. FT. CUT AREA 40 SQ. FT.
FILL AREA 8 SQ. FT. FILL AREA 23 SQ. FT.

CUT VOLUME 41 CU. YD. CUT VOLUME 152 CU. YD.
FILL VOLUME 33 CU. YD. FILL VOLUME 137 CU. YD.

CROSS SECTION STA. 478+00 TO STA. 480+00

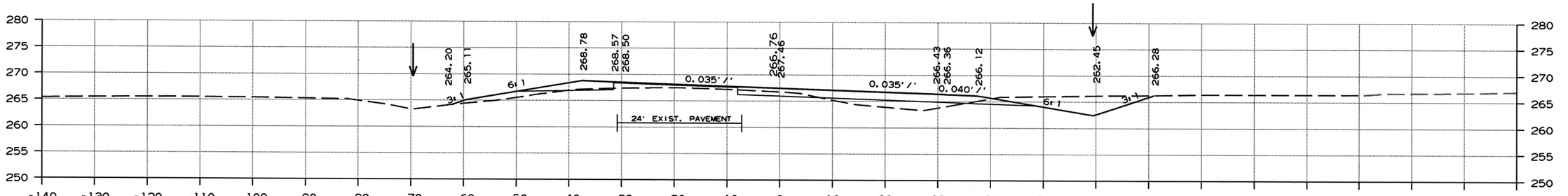
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	179	299

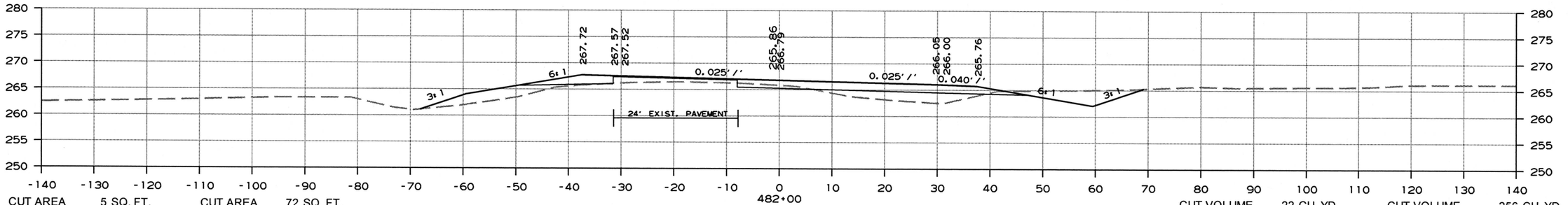
(2) CROSS SECTIONS

STAGE 1 STAGE 2



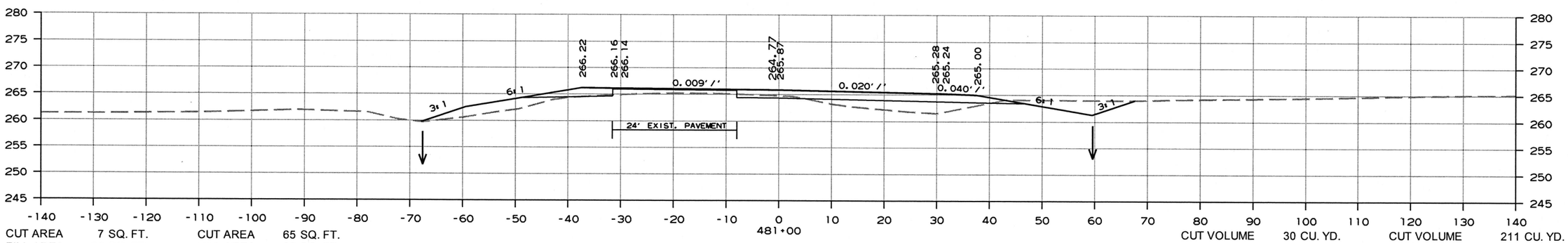
CUT AREA 7 SQ. FT. CUT AREA 101 SQ. FT.
FILL AREA 7 SQ. FT. FILL AREA 17 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 322 CU. YD.
FILL VOLUME 59 CU. YD. FILL VOLUME 78 CU. YD.



CUT AREA 5 SQ. FT. CUT AREA 72 SQ. FT.
FILL AREA 25 SQ. FT. FILL AREA 25 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 256 CU. YD.
FILL VOLUME 85 CU. YD. FILL VOLUME 100 CU. YD.



CUT AREA 7 SQ. FT. CUT AREA 65 SQ. FT.
FILL AREA 21 SQ. FT. FILL AREA 28 SQ. FT.

CUT VOLUME 30 CU. YD. CUT VOLUME 211 CU. YD.
FILL VOLUME 78 CU. YD. FILL VOLUME 130 CU. YD.

CROSS SECTION STA. 481+00 TO STA. 483+00

3/6/2019

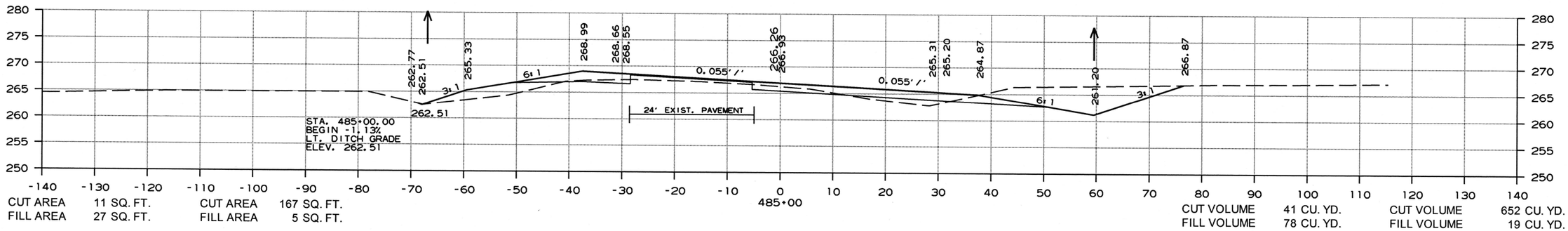
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	180	299

(2) CROSS SECTIONS

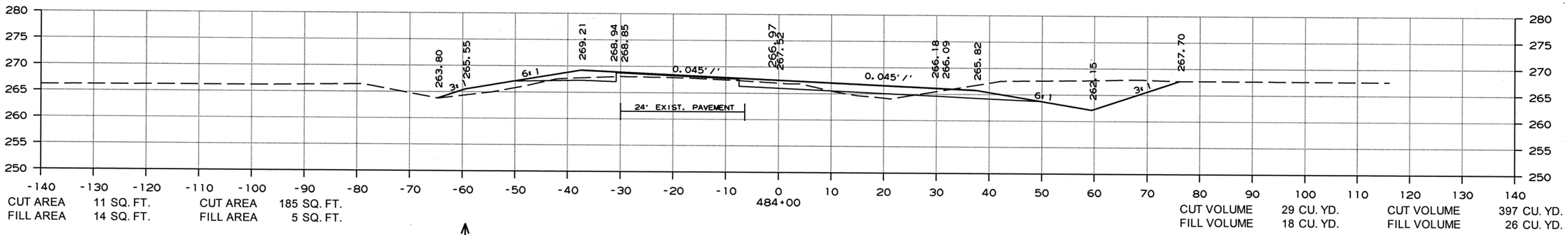
STAGE 1 STAGE 2

STAGE 1 STAGE 2



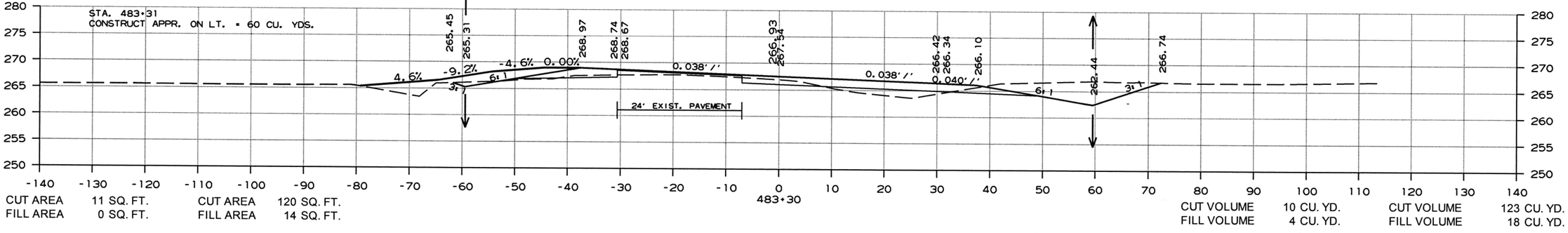
CUT AREA 11 SQ. FT. CUT AREA 167 SQ. FT.
FILL AREA 27 SQ. FT. FILL AREA 5 SQ. FT.

CUT VOLUME 41 CU. YD. CUT VOLUME 652 CU. YD.
FILL VOLUME 78 CU. YD. FILL VOLUME 19 CU. YD.



CUT AREA 11 SQ. FT. CUT AREA 185 SQ. FT.
FILL AREA 14 SQ. FT. FILL AREA 5 SQ. FT.

CUT VOLUME 29 CU. YD. CUT VOLUME 397 CU. YD.
FILL VOLUME 18 CU. YD. FILL VOLUME 26 CU. YD.



CUT AREA 11 SQ. FT. CUT AREA 120 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 14 SQ. FT.

CUT VOLUME 10 CU. YD. CUT VOLUME 123 CU. YD.
FILL VOLUME 4 CU. YD. FILL VOLUME 18 CU. YD.

CROSS SECTION STA. 483+30 TO STA. 485+00

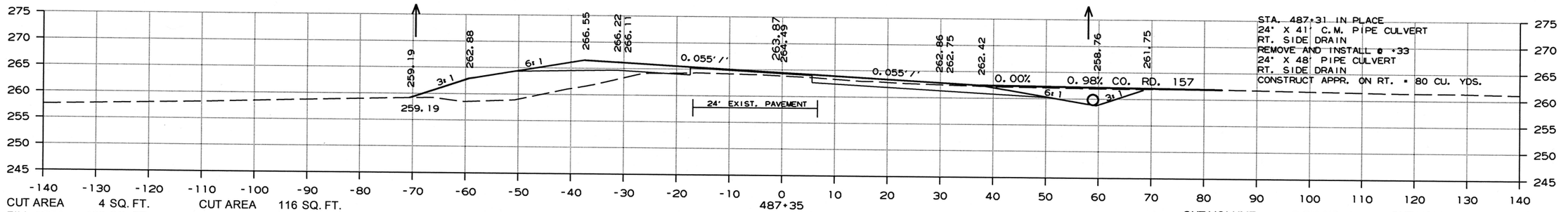
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	181	299

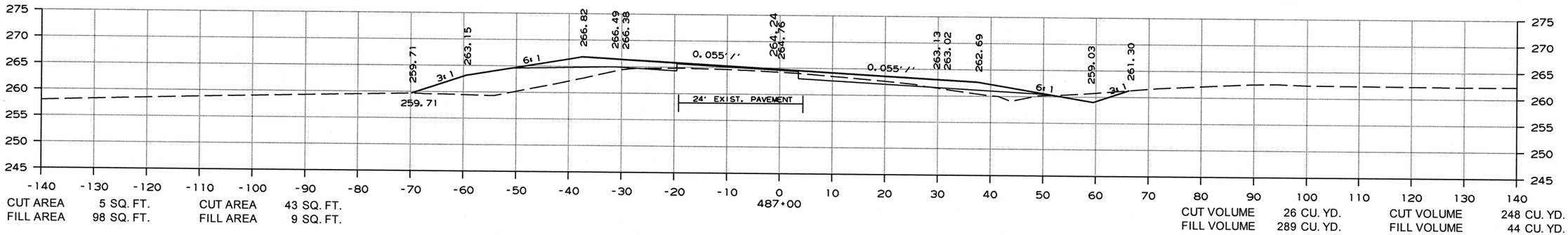
(2) CROSS SECTIONS

STAGE 1 STAGE 2



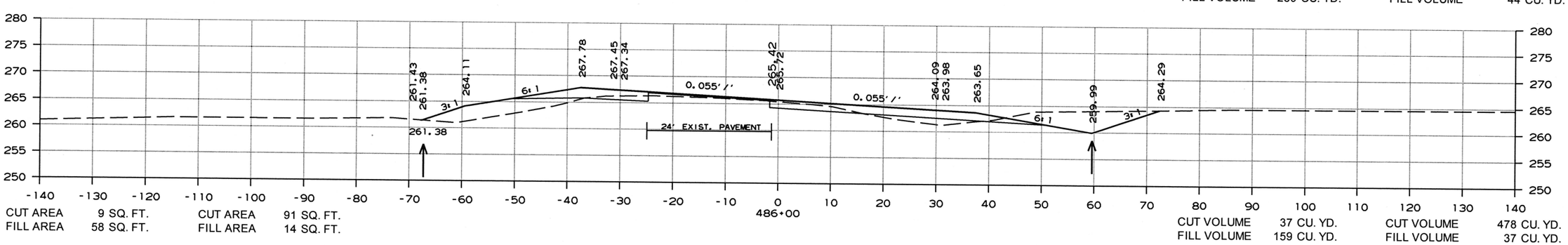
CUT AREA 4 SQ. FT. CUT AREA 116 SQ. FT.
FILL AREA 123 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 6 CU. YD. CUT VOLUME 104 CU. YD.
FILL VOLUME 144 CU. YD. FILL VOLUME 6 CU. YD.



CUT AREA 5 SQ. FT. CUT AREA 43 SQ. FT.
FILL AREA 98 SQ. FT. FILL AREA 9 SQ. FT.

CUT VOLUME 26 CU. YD. CUT VOLUME 248 CU. YD.
FILL VOLUME 289 CU. YD. FILL VOLUME 44 CU. YD.



CUT AREA 9 SQ. FT. CUT AREA 91 SQ. FT.
FILL AREA 58 SQ. FT. FILL AREA 14 SQ. FT.

CUT VOLUME 37 CU. YD. CUT VOLUME 478 CU. YD.
FILL VOLUME 159 CU. YD. FILL VOLUME 37 CU. YD.

CROSS SECTION STA. 486+00 TO STA. 487+35

3/6/2019

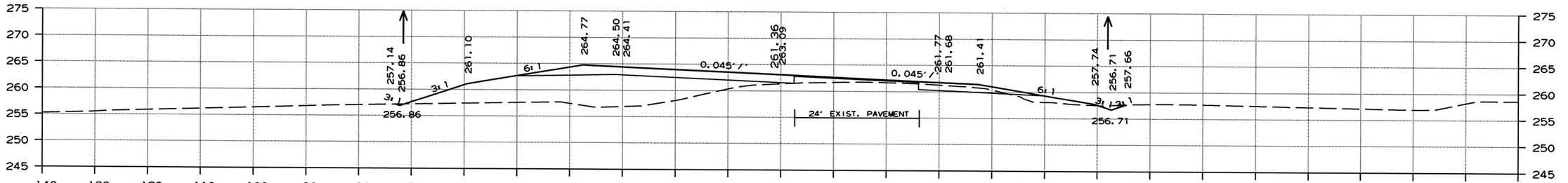
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	182	299

(2) CROSS SECTIONS

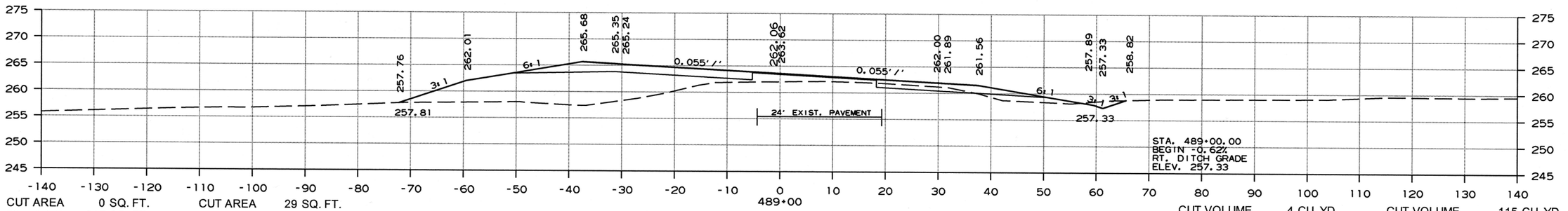
STAGE 1 STAGE 2

STAGE 1 STAGE 2



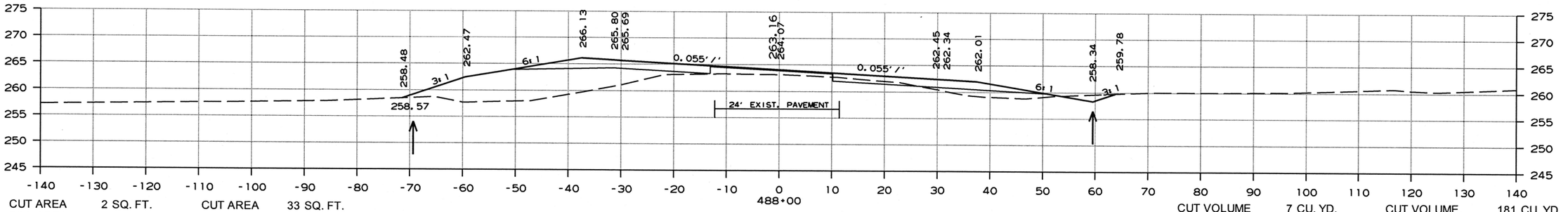
CUT AREA 1 SQ. FT. CUT AREA 21 SQ. FT.
FILL AREA 249 SQ. FT. FILL AREA 9 SQ. FT.

CUT VOLUME 4 CU. YD. CUT VOLUME 93 CU. YD.
FILL VOLUME 859 CU. YD. FILL VOLUME 30 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 29 SQ. FT.
FILL AREA 215 SQ. FT. FILL AREA 6 SQ. FT.

CUT VOLUME 4 CU. YD. CUT VOLUME 115 CU. YD.
FILL VOLUME 693 CU. YD. FILL VOLUME 30 CU. YD.



CUT AREA 2 SQ. FT. CUT AREA 33 SQ. FT.
FILL AREA 159 SQ. FT. FILL AREA 10 SQ. FT.

CUT VOLUME 7 CU. YD. CUT VOLUME 181 CU. YD.
FILL VOLUME 339 CU. YD. FILL VOLUME 12 CU. YD.

CROSS SECTION STA. 488+00 TO STA. 490+00

3/6/2019

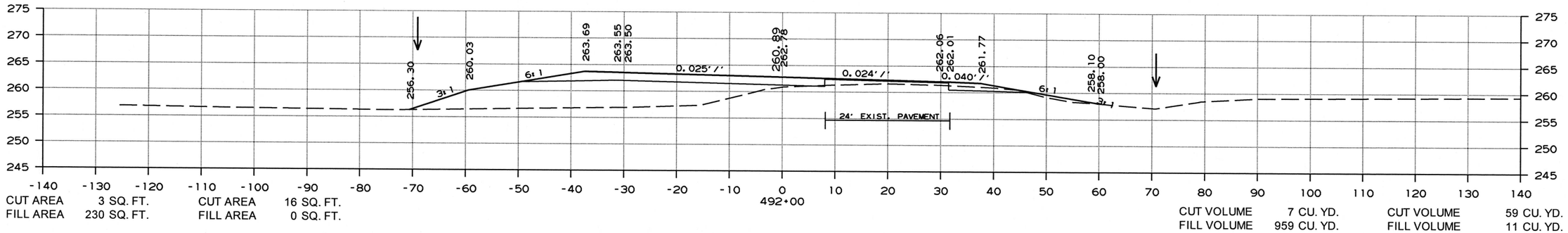
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	183	299

(2) CROSS SECTIONS

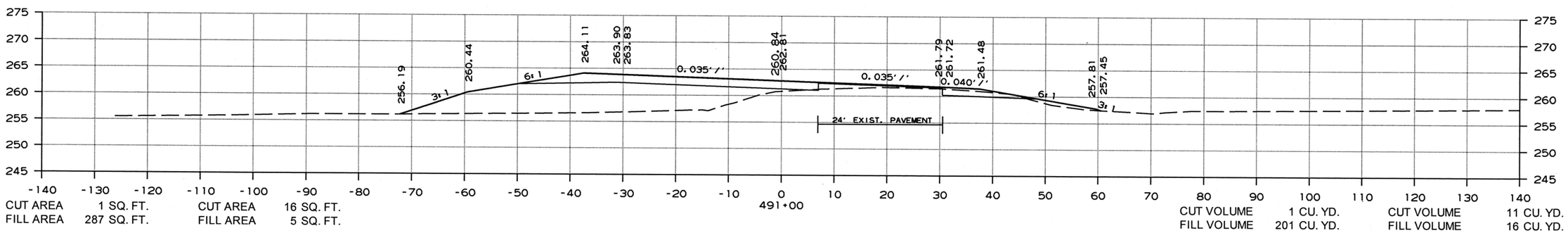
STAGE 1 STAGE 2

STAGE 1 STAGE 2



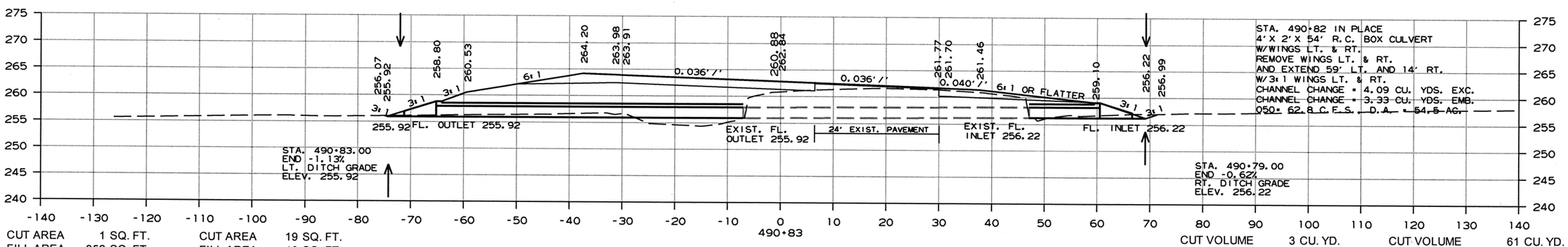
CUT AREA 3 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 230 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 7 CU. YD. CUT VOLUME 59 CU. YD.
FILL VOLUME 959 CU. YD. FILL VOLUME 11 CU. YD.



CUT AREA 1 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 287 SQ. FT. FILL AREA 5 SQ. FT.

CUT VOLUME 1 CU. YD. CUT VOLUME 11 CU. YD.
FILL VOLUME 201 CU. YD. FILL VOLUME 16 CU. YD.



STA. 490+82 IN PLACE
4' X 2' X 54' R.C. BOX CULVERT
W/WINGS LT. & RT.
REMOVE WINGS LT. & RT.
AND EXTEND 59' LT. AND 14' RT.
W/3:1 WINGS LT. & RT.
CHANNEL CHANGE = 4.09 CU. YDS. EXC.
CHANNEL CHANGE = 3.33 CU. YDS. EMB.
050= 62.8 C.F.S. D.A. = 54.5 AC.

CUT AREA 1 SQ. FT. CUT AREA 19 SQ. FT.
FILL AREA 352 SQ. FT. FILL AREA 46 SQ. FT.

CUT VOLUME 3 CU. YD. CUT VOLUME 61 CU. YD.
FILL VOLUME 925 CU. YD. FILL VOLUME 86 CU. YD.

CROSS SECTION STA. 490+83 TO STA. 492+00

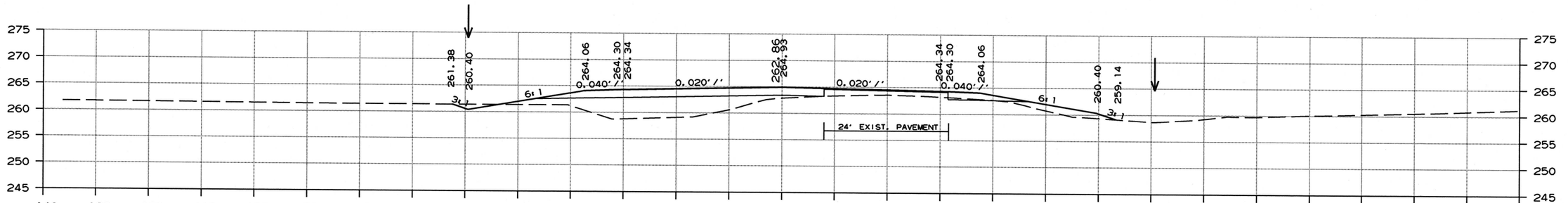
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	184	299

(2) CROSS SECTIONS

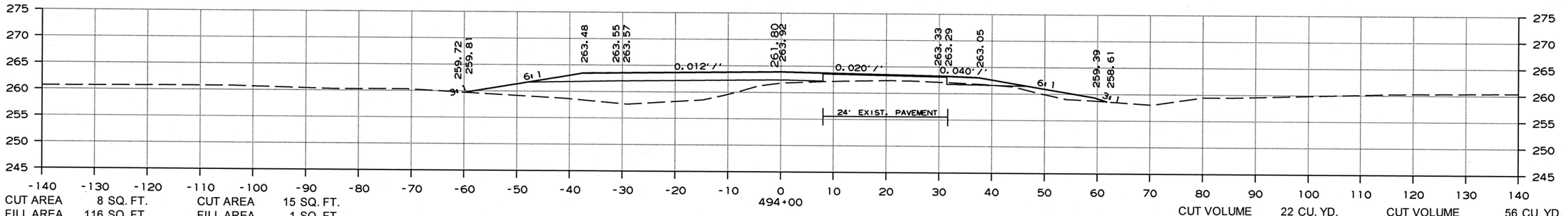
STAGE 1 STAGE 2



495+00

CUT AREA	18 SQ. FT.	CUT AREA	13 SQ. FT.
FILL AREA	91 SQ. FT.	FILL AREA	6 SQ. FT.

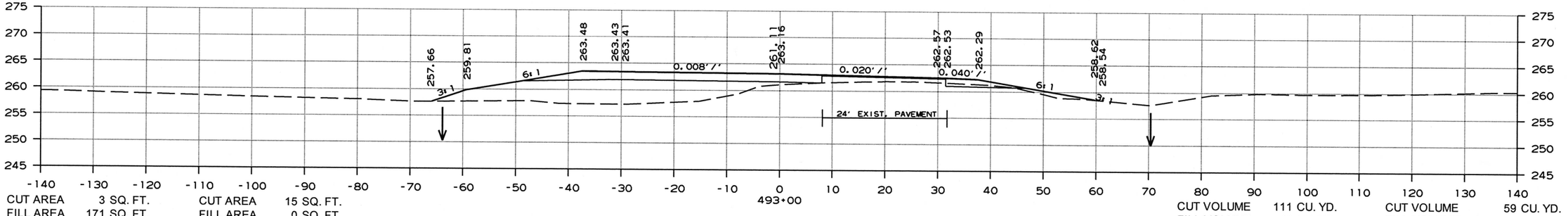
CUT VOLUME	48 CU. YD.	CUT VOLUME	52 CU. YD.
FILL VOLUME	385 CU. YD.	FILL VOLUME	15 CU. YD.



494+00

CUT AREA	8 SQ. FT.	CUT AREA	15 SQ. FT.
FILL AREA	116 SQ. FT.	FILL AREA	1 SQ. FT.

CUT VOLUME	22 CU. YD.	CUT VOLUME	56 CU. YD.
FILL VOLUME	533 CU. YD.	FILL VOLUME	4 CU. YD.



493+00

CUT AREA	3 SQ. FT.	CUT AREA	15 SQ. FT.
FILL AREA	171 SQ. FT.	FILL AREA	0 SQ. FT.

CUT VOLUME	111 CU. YD.	CUT VOLUME	59 CU. YD.
FILL VOLUME	44 CU. YD.	FILL VOLUME	0 CU. YD.

CROSS SECTION STA. 493+00 TO STA. 495+00

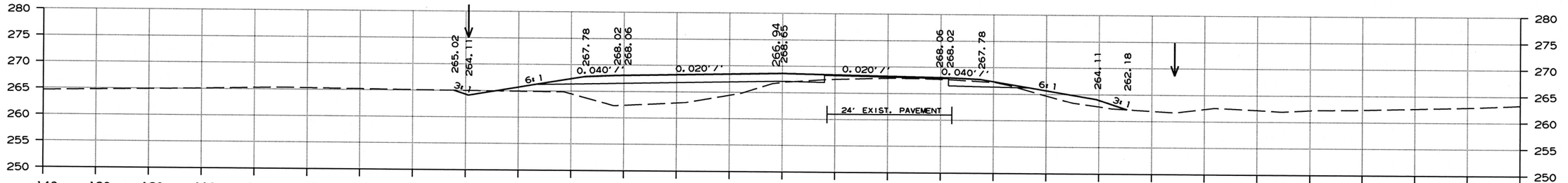
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	185	299

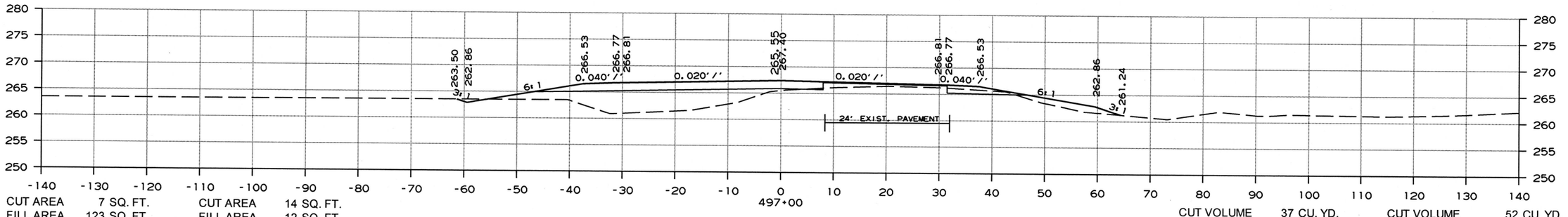
(2) CROSS SECTIONS

STAGE 1 STAGE 2



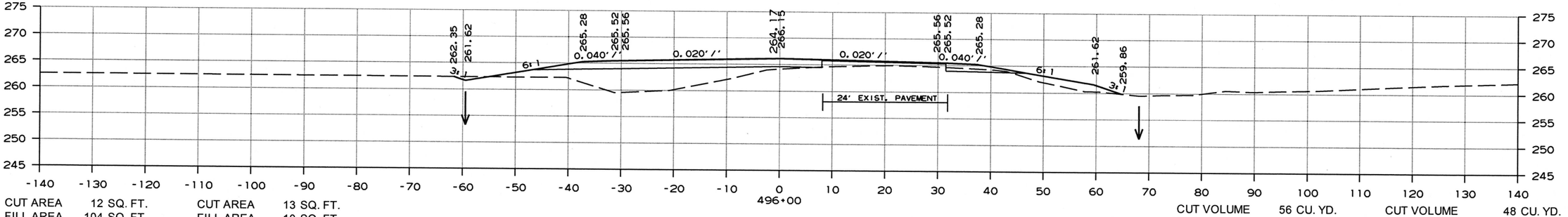
CUT AREA 7 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 127 SQ. FT. FILL AREA 17 SQ. FT.

CUT VOLUME 26 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 463 CU. YD. FILL VOLUME 56 CU. YD.



CUT AREA 7 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 123 SQ. FT. FILL AREA 12 SQ. FT.

CUT VOLUME 37 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 422 CU. YD. FILL VOLUME 41 CU. YD.



CUT AREA 12 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 104 SQ. FT. FILL AREA 10 SQ. FT.

CUT VOLUME 56 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 363 CU. YD. FILL VOLUME 30 CU. YD.

CROSS SECTION STA. 496+00 TO STA. 498+00

3/6/2019

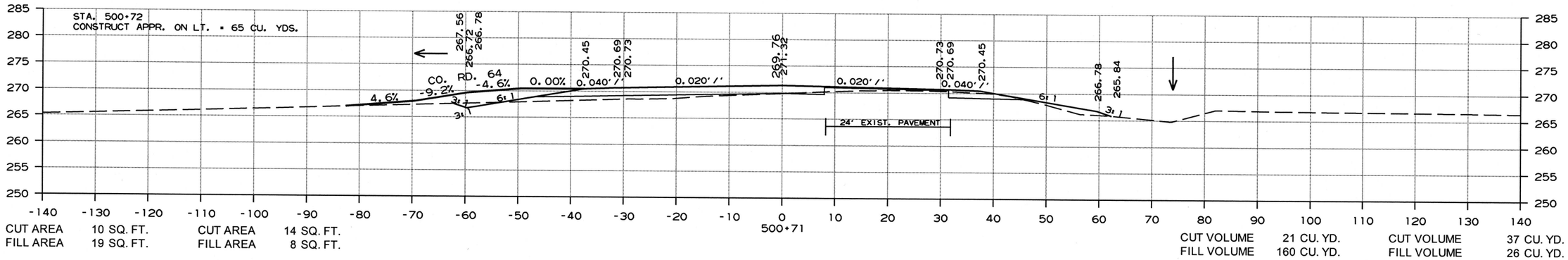
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	186	299

(2) CROSS SECTIONS

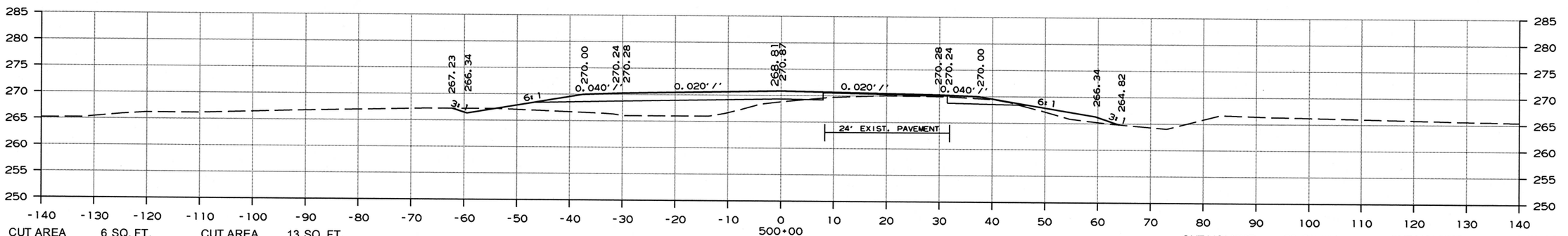
STAGE 1 STAGE 2

STAGE 1 STAGE 2



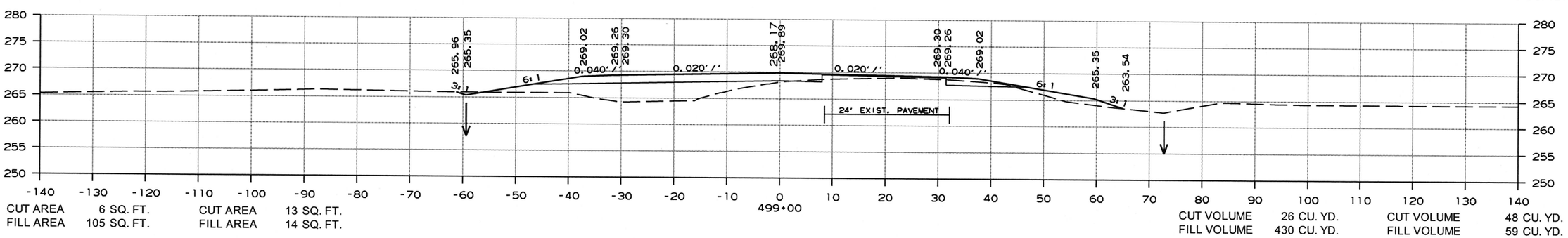
CUT AREA 10 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 19 SQ. FT. FILL AREA 8 SQ. FT.

CUT VOLUME 21 CU. YD. CUT VOLUME 37 CU. YD.
FILL VOLUME 160 CU. YD. FILL VOLUME 26 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 102 SQ. FT. FILL AREA 12 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 385 CU. YD. FILL VOLUME 48 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 105 SQ. FT. FILL AREA 14 SQ. FT.

CUT VOLUME 26 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 430 CU. YD. FILL VOLUME 59 CU. YD.

CROSS SECTION STA. 499+00 TO STA. 500+71

3/6/2019

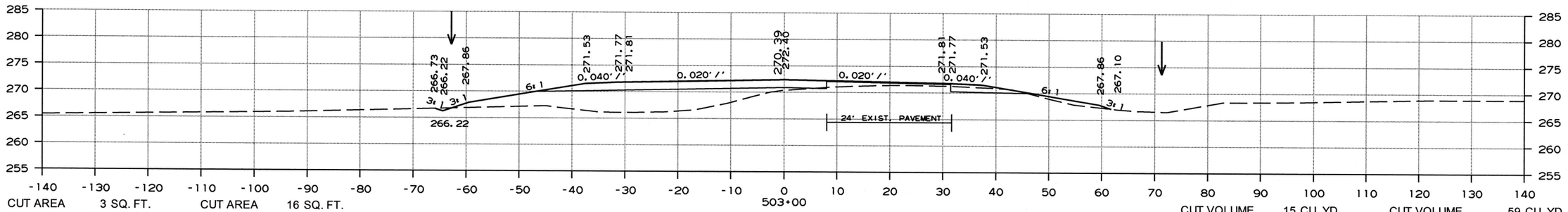
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	187	299

(2) CROSS SECTIONS

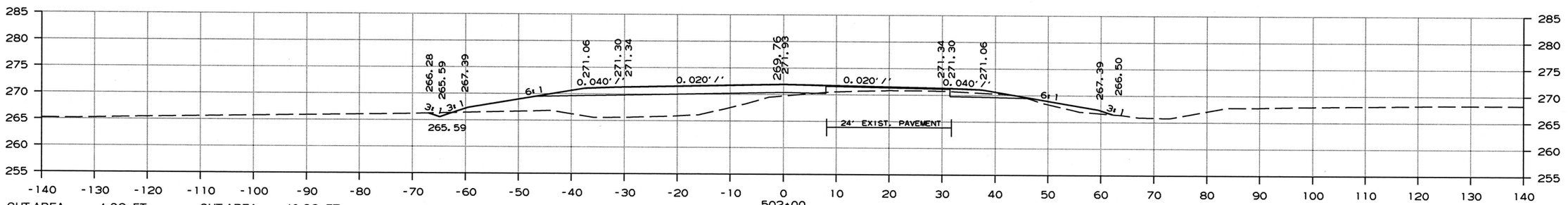
STAGE 1 STAGE 2

STAGE 1 STAGE 2



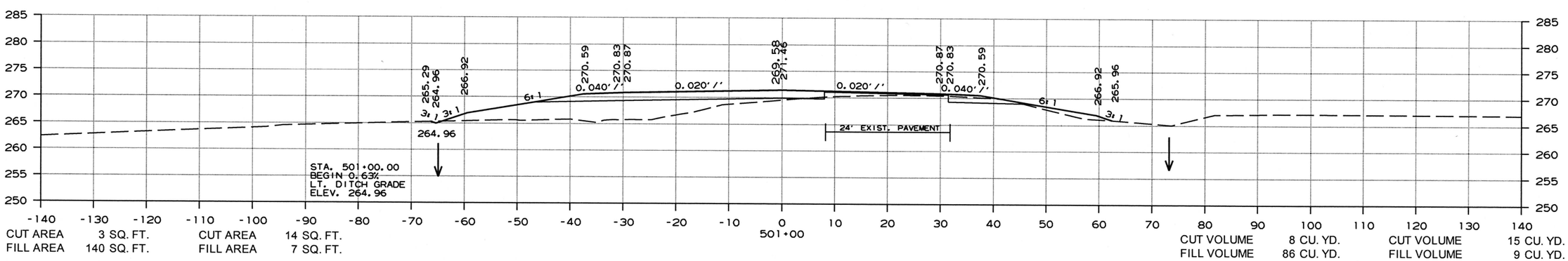
CUT AREA 3 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 156 SQ. FT. FILL AREA 3 SQ. FT.

CUT VOLUME 15 CU. YD. CUT VOLUME 59 CU. YD.
FILL VOLUME 574 CU. YD. FILL VOLUME 15 CU. YD.



CUT AREA 4 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 153 SQ. FT. FILL AREA 5 SQ. FT.

CUT VOLUME 15 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 544 CU. YD. FILL VOLUME 22 CU. YD.



CUT AREA 3 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 140 SQ. FT. FILL AREA 7 SQ. FT.

CUT VOLUME 8 CU. YD. CUT VOLUME 15 CU. YD.
FILL VOLUME 86 CU. YD. FILL VOLUME 9 CU. YD.

CROSS SECTION STA. 501+00 TO STA. 503+00

3/6/2019

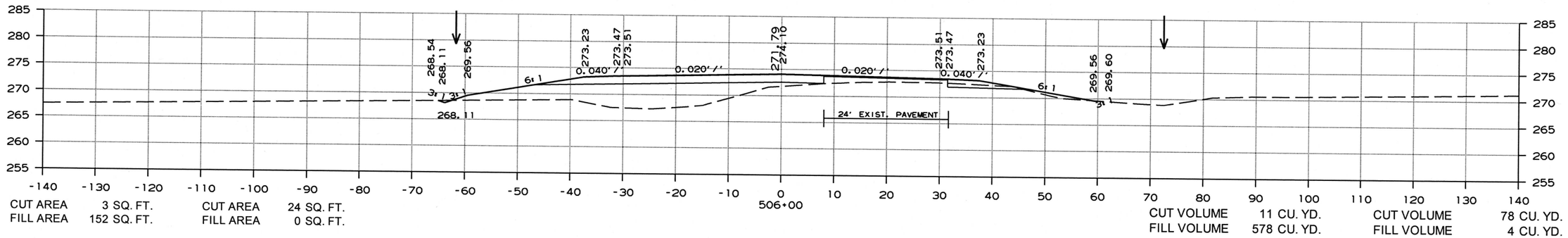
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	188	299

(2) CROSS SECTIONS

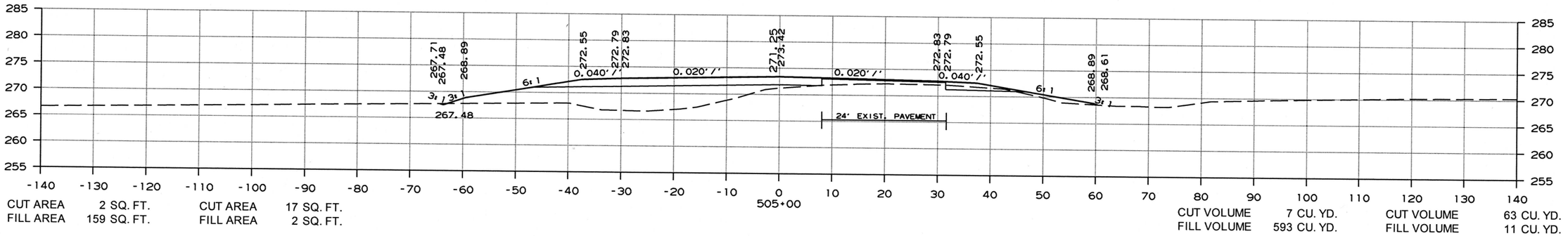
STAGE 1 STAGE 2

STAGE 1 STAGE 2



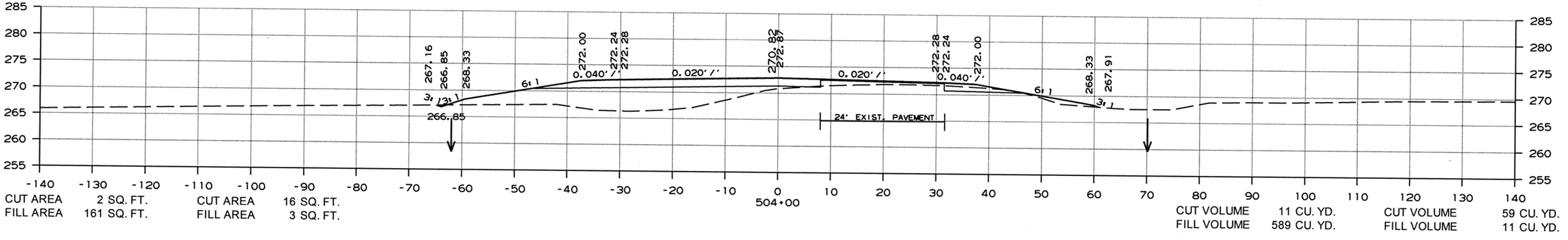
CUT AREA 3 SQ. FT. CUT AREA 24 SQ. FT.
FILL AREA 152 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 11 CU. YD. CUT VOLUME 78 CU. YD.
FILL VOLUME 578 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 2 SQ. FT. CUT AREA 17 SQ. FT.
FILL AREA 159 SQ. FT. FILL AREA 2 SQ. FT.

CUT VOLUME 7 CU. YD. CUT VOLUME 63 CU. YD.
FILL VOLUME 593 CU. YD. FILL VOLUME 11 CU. YD.



CUT AREA 2 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 161 SQ. FT. FILL AREA 3 SQ. FT.

CUT VOLUME 11 CU. YD. CUT VOLUME 59 CU. YD.
FILL VOLUME 589 CU. YD. FILL VOLUME 11 CU. YD.

CROSS SECTION STA. 504+00 TO STA. 506+00

3/6/2019

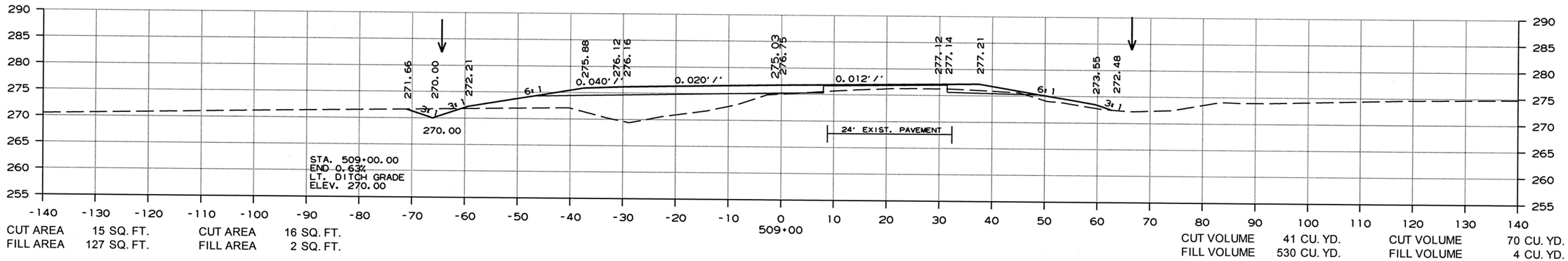
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	189	299

(2) CROSS SECTIONS

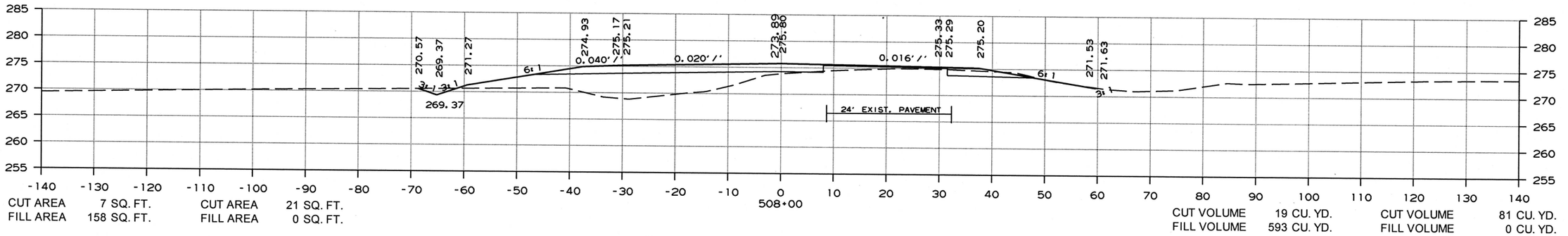
STAGE 1 STAGE 2

STAGE 1 STAGE 2



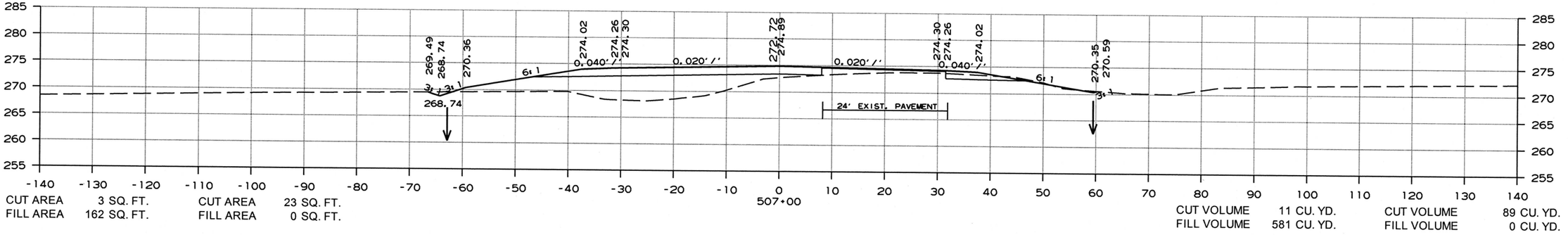
CUT AREA 15 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 127 SQ. FT. FILL AREA 2 SQ. FT.

CUT VOLUME 41 CU. YD. CUT VOLUME 70 CU. YD.
FILL VOLUME 530 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 7 SQ. FT. CUT AREA 21 SQ. FT.
FILL AREA 158 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 19 CU. YD. CUT VOLUME 81 CU. YD.
FILL VOLUME 593 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 3 SQ. FT. CUT AREA 23 SQ. FT.
FILL AREA 162 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 11 CU. YD. CUT VOLUME 89 CU. YD.
FILL VOLUME 581 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 507+00 TO STA. 509+00

3/6/2019

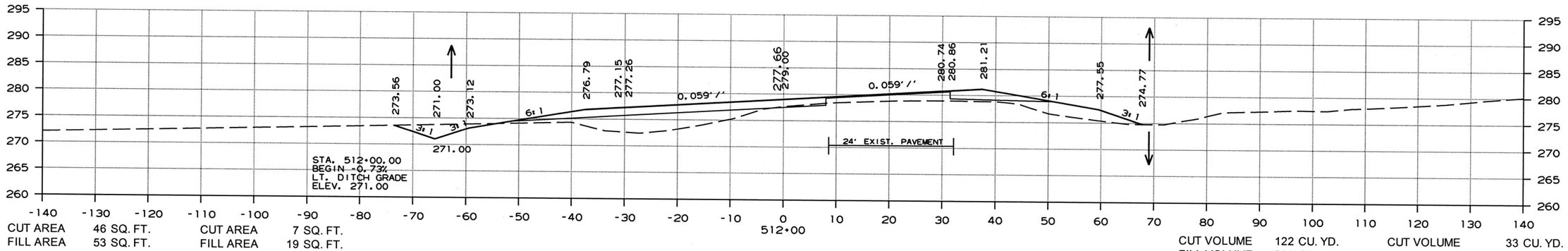
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	190	299

(2) CROSS SECTIONS

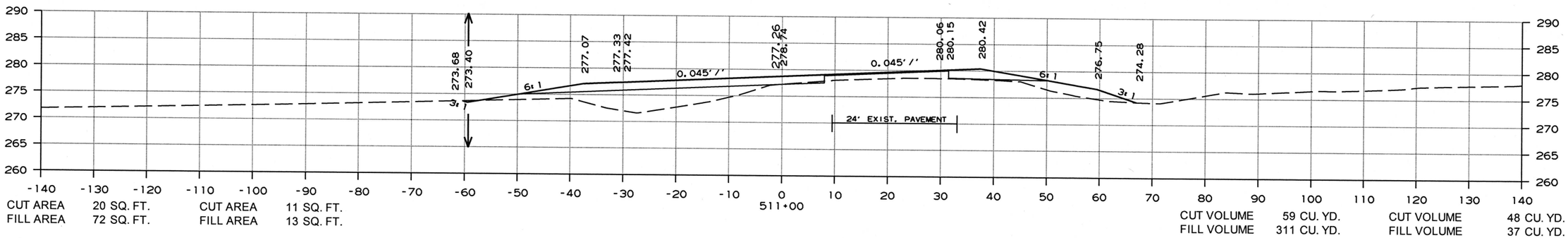
STAGE 1 STAGE 2

STAGE 1 STAGE 2



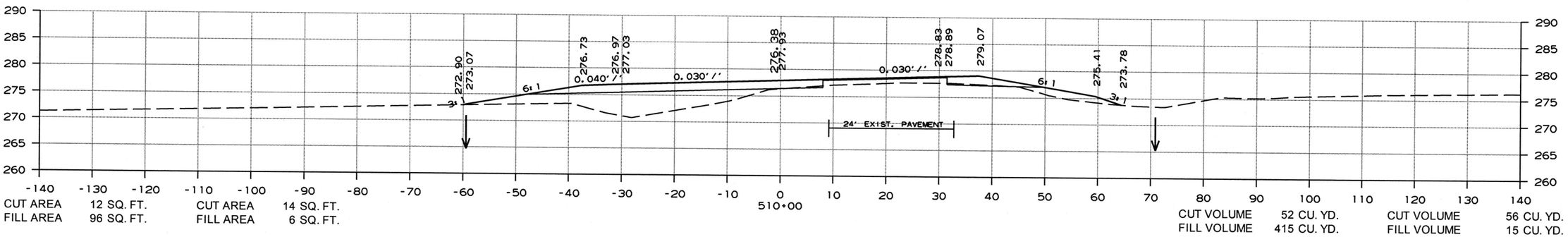
CUT AREA 46 SQ. FT. CUT AREA 7 SQ. FT.
FILL AREA 53 SQ. FT. FILL AREA 19 SQ. FT.

CUT VOLUME 122 CU. YD. CUT VOLUME 33 CU. YD.
FILL VOLUME 233 CU. YD. FILL VOLUME 59 CU. YD.



CUT AREA 20 SQ. FT. CUT AREA 11 SQ. FT.
FILL AREA 72 SQ. FT. FILL AREA 13 SQ. FT.

CUT VOLUME 59 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 311 CU. YD. FILL VOLUME 37 CU. YD.



CUT AREA 12 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 96 SQ. FT. FILL AREA 6 SQ. FT.

CUT VOLUME 52 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 415 CU. YD. FILL VOLUME 15 CU. YD.

CROSS SECTION STA. 510+00 TO STA. 512+00

3/6/2019

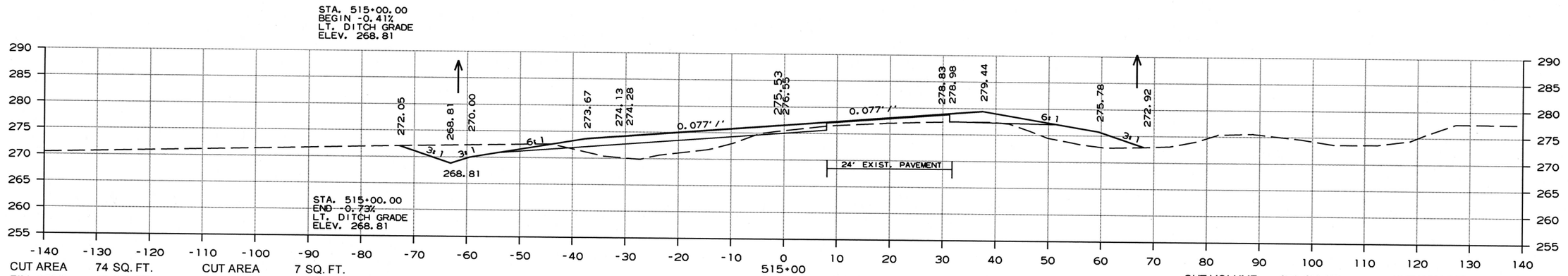
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	191	299

(2) CROSS SECTIONS

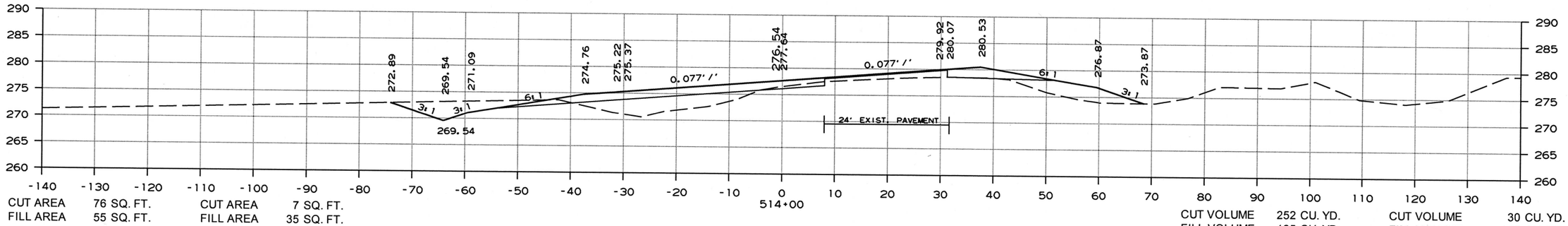
STAGE 1 STAGE 2

STAGE 1 STAGE 2



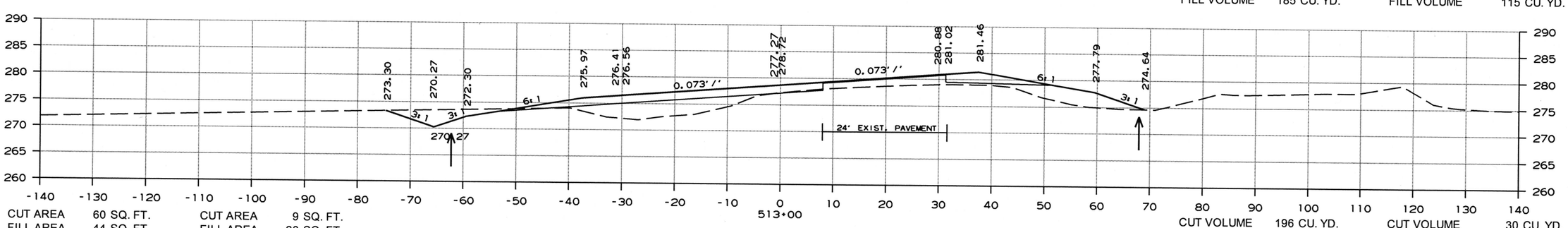
CUT AREA 74 SQ. FT. CUT AREA 7 SQ. FT.
FILL AREA 49 SQ. FT. FILL AREA 37 SQ. FT.

CUT VOLUME 278 CU. YD. CUT VOLUME 26 CU. YD.
FILL VOLUME 193 CU. YD. FILL VOLUME 133 CU. YD.



CUT AREA 76 SQ. FT. CUT AREA 7 SQ. FT.
FILL AREA 55 SQ. FT. FILL AREA 35 SQ. FT.

CUT VOLUME 252 CU. YD. CUT VOLUME 30 CU. YD.
FILL VOLUME 185 CU. YD. FILL VOLUME 115 CU. YD.



CUT AREA 60 SQ. FT. CUT AREA 9 SQ. FT.
FILL AREA 44 SQ. FT. FILL AREA 26 SQ. FT.

CUT VOLUME 196 CU. YD. CUT VOLUME 30 CU. YD.
FILL VOLUME 181 CU. YD. FILL VOLUME 85 CU. YD.

CROSS SECTION STA. 513+00 TO STA. 515+00

3/6/2019

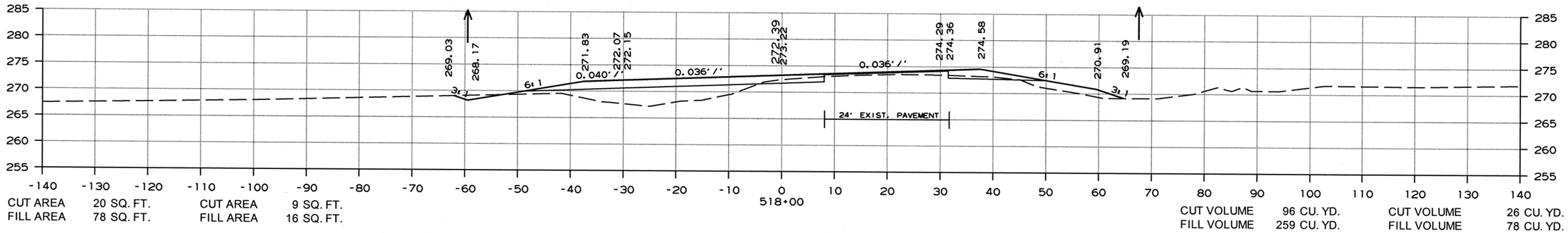
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	192	299

(2) CROSS SECTIONS

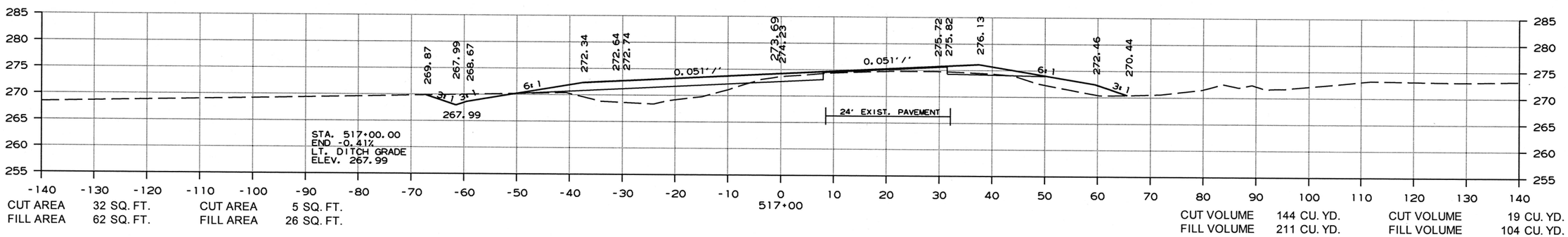
STAGE 1 STAGE 2

STAGE 1 STAGE 2



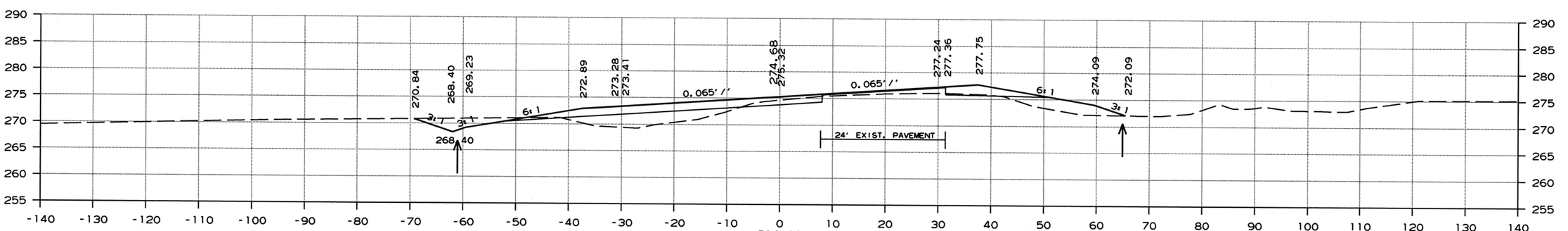
CUT AREA 20 SQ. FT. CUT AREA 9 SQ. FT.
FILL AREA 78 SQ. FT. FILL AREA 16 SQ. FT.

CUT VOLUME 96 CU. YD. CUT VOLUME 26 CU. YD.
FILL VOLUME 259 CU. YD. FILL VOLUME 78 CU. YD.



CUT AREA 32 SQ. FT. CUT AREA 5 SQ. FT.
FILL AREA 62 SQ. FT. FILL AREA 26 SQ. FT.

CUT VOLUME 144 CU. YD. CUT VOLUME 19 CU. YD.
FILL VOLUME 211 CU. YD. FILL VOLUME 104 CU. YD.



CUT AREA 46 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 51 SQ. FT. FILL AREA 30 SQ. FT.

CUT VOLUME 222 CU. YD. CUT VOLUME 22 CU. YD.
FILL VOLUME 185 CU. YD. FILL VOLUME 126 CU. YD.

CROSS SECTION STA. 516+00 TO STA. 518+00

3/6/2019

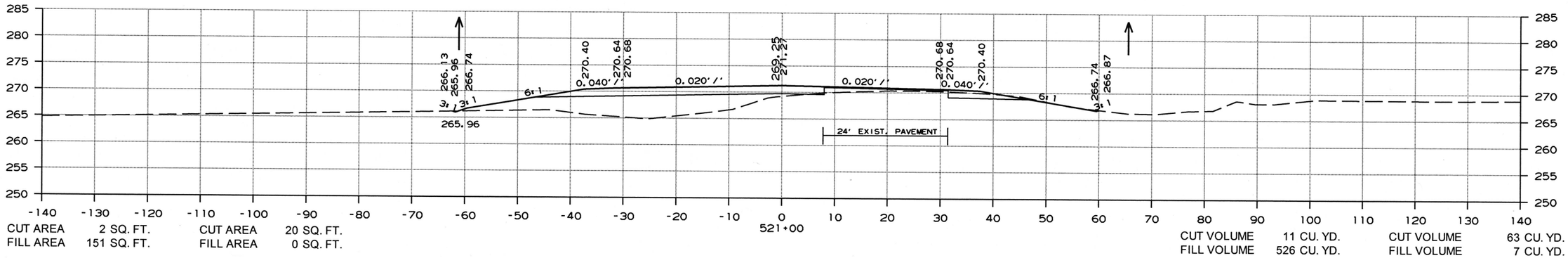
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	193	299

(2) CROSS SECTIONS

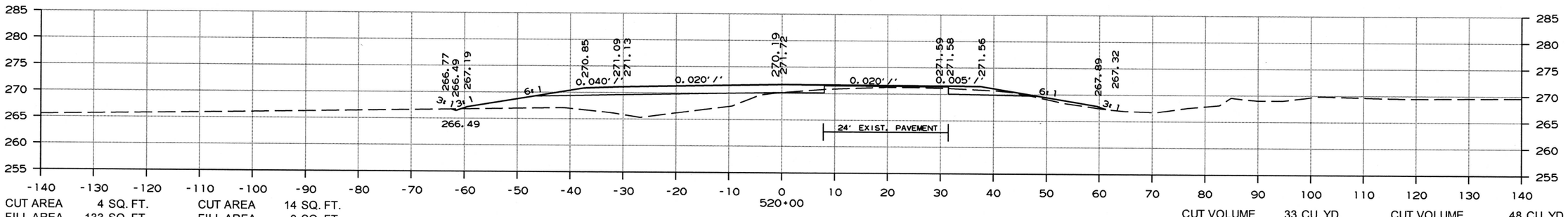
STAGE 1 STAGE 2

STAGE 1 STAGE 2



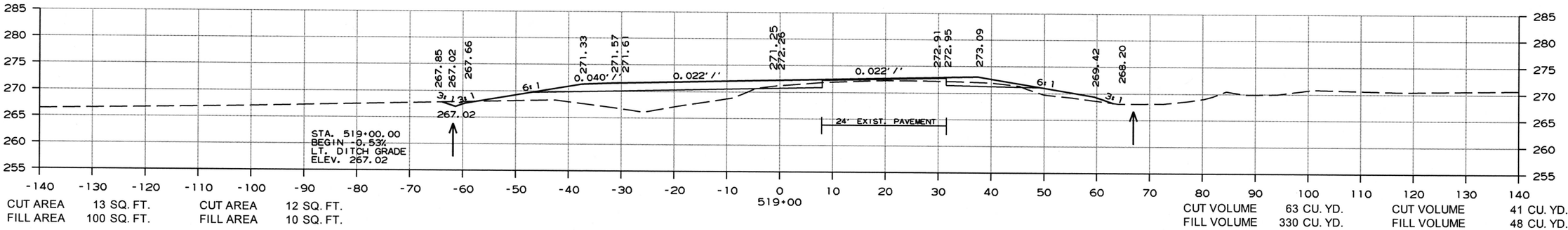
CUT AREA 2 SQ. FT. CUT AREA 20 SQ. FT.
FILL AREA 151 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 11 CU. YD. CUT VOLUME 63 CU. YD.
FILL VOLUME 526 CU. YD. FILL VOLUME 7 CU. YD.



CUT AREA 4 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 133 SQ. FT. FILL AREA 3 SQ. FT.

CUT VOLUME 33 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 433 CU. YD. FILL VOLUME 26 CU. YD.



CUT AREA 13 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 100 SQ. FT. FILL AREA 10 SQ. FT.

CUT VOLUME 63 CU. YD. CUT VOLUME 41 CU. YD.
FILL VOLUME 330 CU. YD. FILL VOLUME 48 CU. YD.

CROSS SECTION STA. 519+00 TO STA. 521+00

3/6/2019

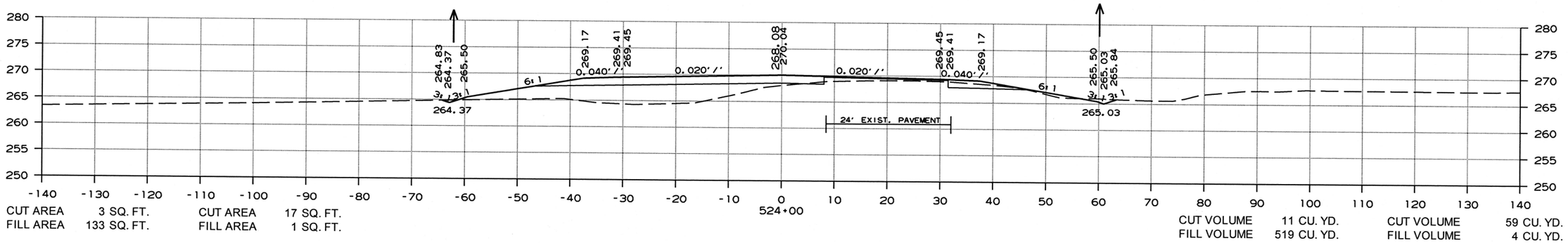
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	194	299

(2) CROSS SECTIONS

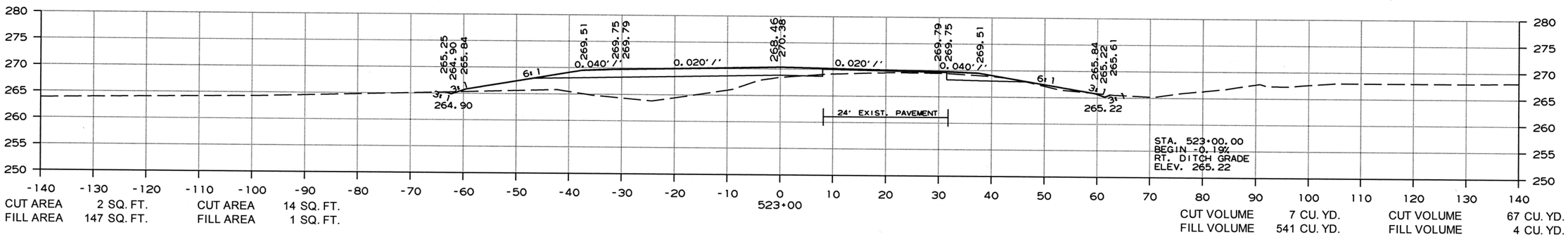
STAGE 1 STAGE 2

STAGE 1 STAGE 2



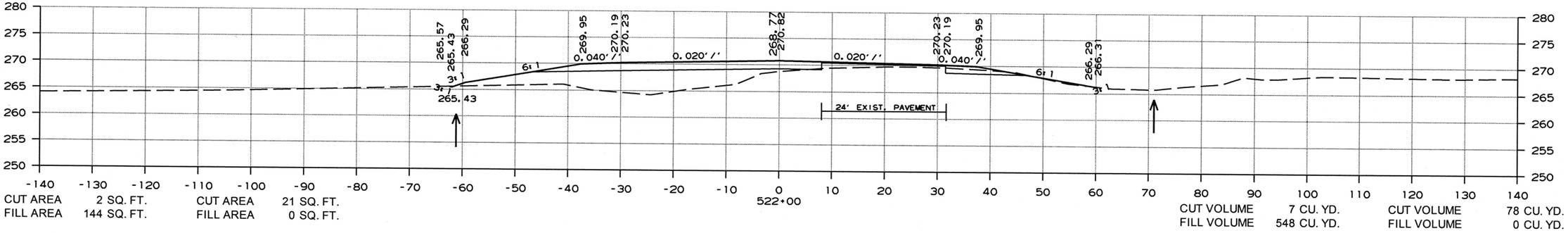
CUT AREA 3 SQ. FT. CUT AREA 17 SQ. FT.
FILL AREA 133 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 11 CU. YD. CUT VOLUME 59 CU. YD.
FILL VOLUME 519 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 2 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 147 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 7 CU. YD. CUT VOLUME 67 CU. YD.
FILL VOLUME 541 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 2 SQ. FT. CUT AREA 21 SQ. FT.
FILL AREA 144 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 7 CU. YD. CUT VOLUME 78 CU. YD.
FILL VOLUME 548 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 522+00 TO STA. 524+00

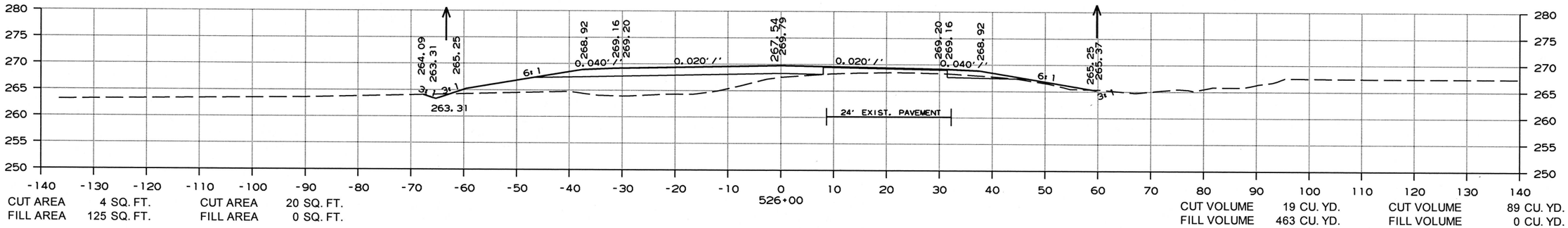
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	195	299

(2) CROSS SECTIONS

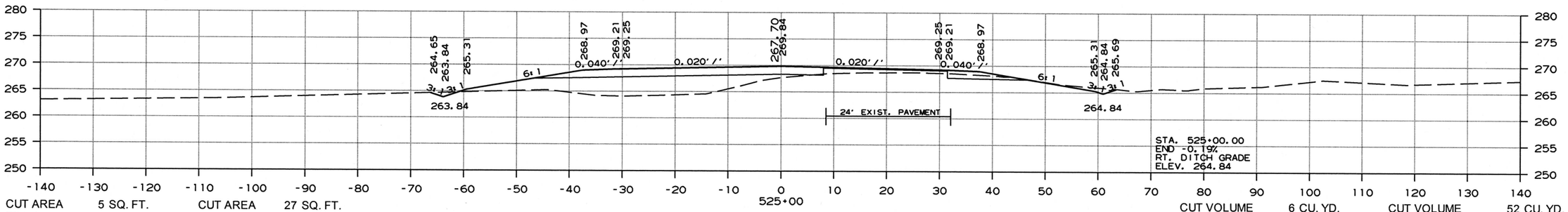
STAGE 1 STAGE 2



CUT AREA 4 SQ. FT. CUT AREA 20 SQ. FT.
FILL AREA 125 SQ. FT. FILL AREA 0 SQ. FT.

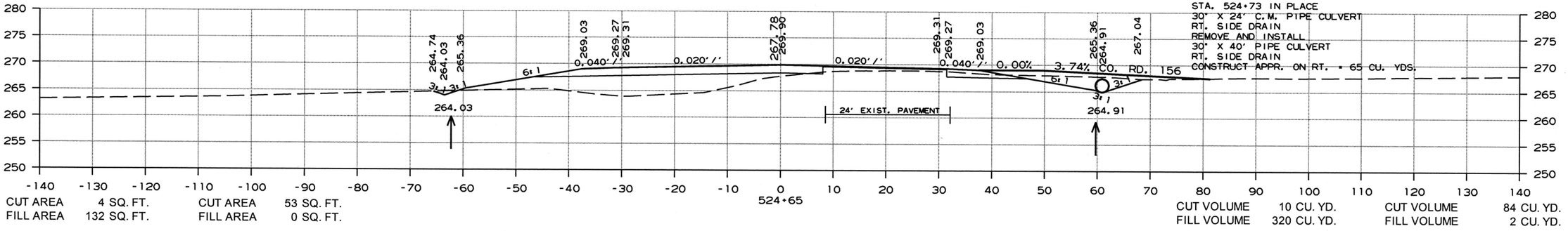
CUT VOLUME 19 CU. YD. CUT VOLUME 89 CU. YD.
FILL VOLUME 463 CU. YD. FILL VOLUME 0 CU. YD.

STAGE 1 STAGE 2



CUT AREA 5 SQ. FT. CUT AREA 27 SQ. FT.
FILL AREA 124 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 6 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 166 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 4 SQ. FT. CUT AREA 53 SQ. FT.
FILL AREA 132 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 10 CU. YD. CUT VOLUME 84 CU. YD.
FILL VOLUME 320 CU. YD. FILL VOLUME 2 CU. YD.

CROSS SECTION STA. 524+65 TO STA. 526+00

3/6/2019

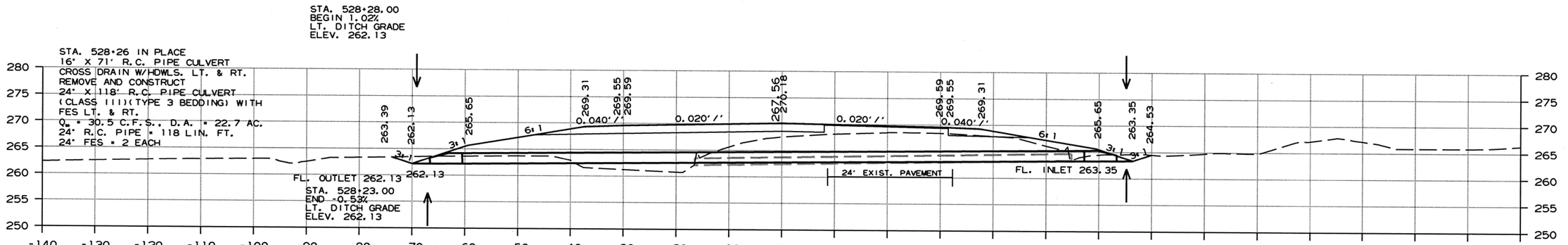
RCA0704.DGN

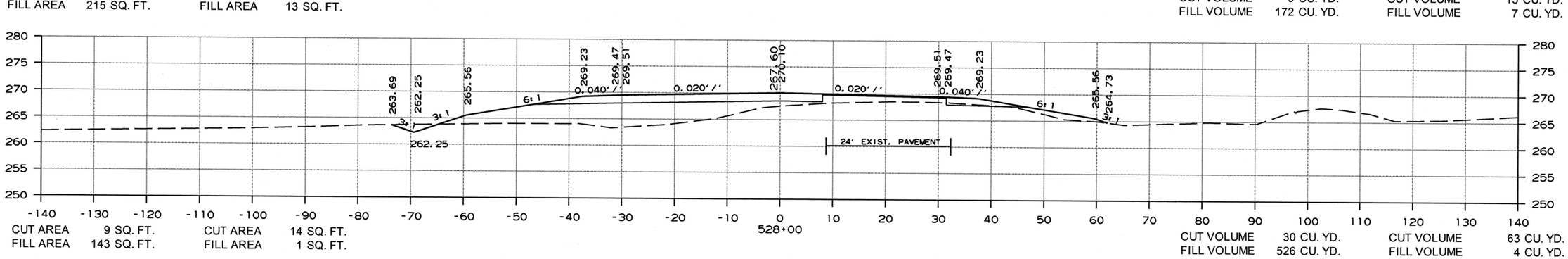
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	196	299

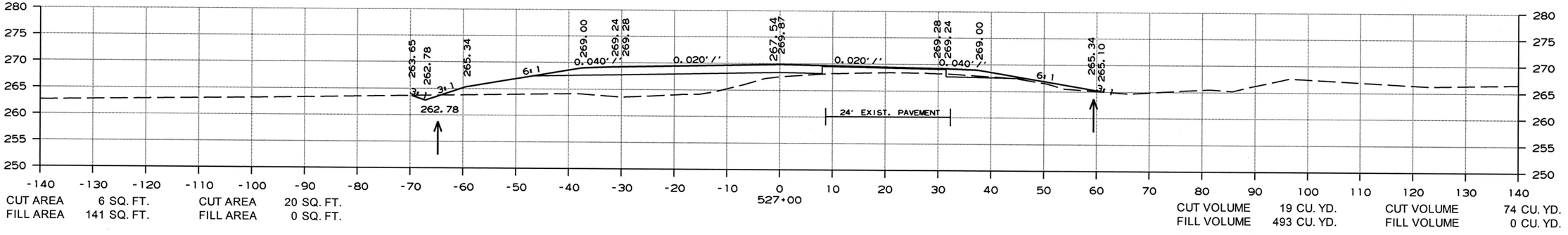
(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2







CROSS SECTION STA. 527+00 TO STA. 528+26

3/6/2019

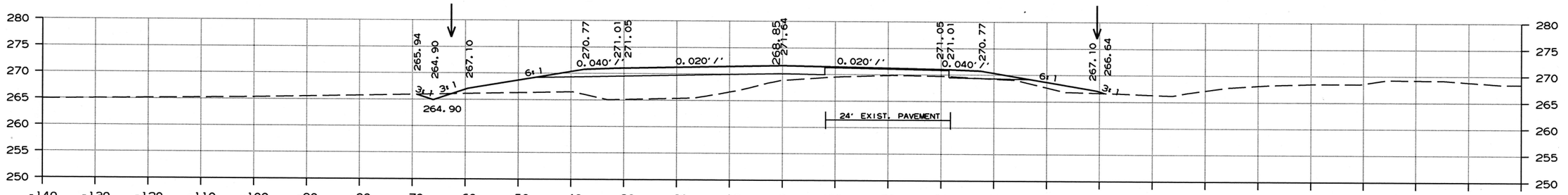
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	197	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2

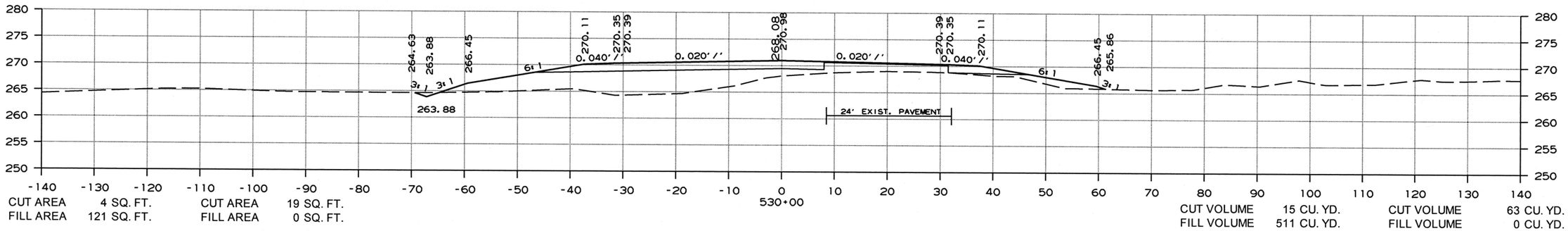
STAGE 1 STAGE 2



531+00

CUT AREA 6 SQ. FT. CUT AREA 19 SQ. FT.
FILL AREA 123 SQ. FT. FILL AREA 0 SQ. FT.

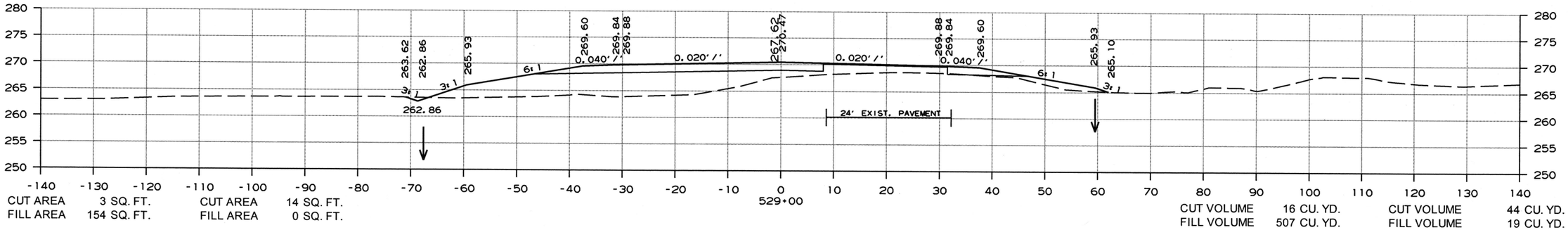
CUT VOLUME 19 CU. YD. CUT VOLUME 70 CU. YD.
FILL VOLUME 452 CU. YD. FILL VOLUME 0 CU. YD.



530+00

CUT AREA 4 SQ. FT. CUT AREA 19 SQ. FT.
FILL AREA 121 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 15 CU. YD. CUT VOLUME 63 CU. YD.
FILL VOLUME 511 CU. YD. FILL VOLUME 0 CU. YD.



529+00

CUT AREA 3 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 154 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 16 CU. YD. CUT VOLUME 44 CU. YD.
FILL VOLUME 507 CU. YD. FILL VOLUME 19 CU. YD.

CROSS SECTION STA. 529+00 TO STA. 531+00

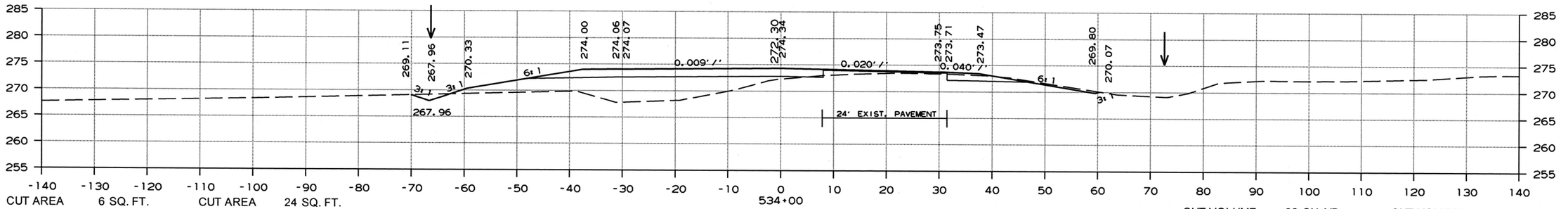
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	198	299

(2) CROSS SECTIONS

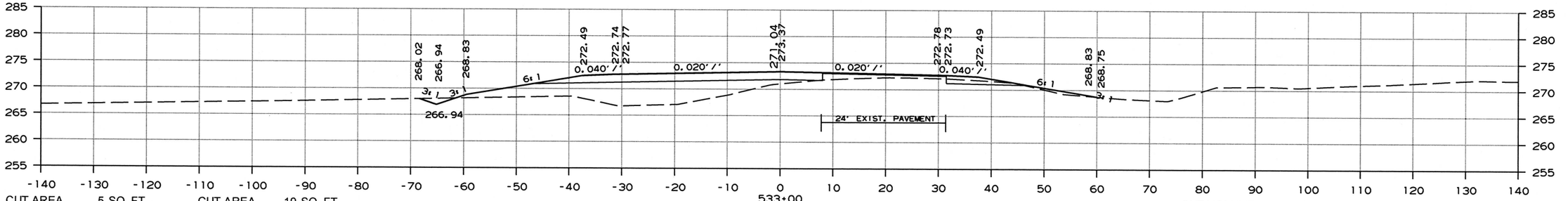
STAGE 1 STAGE 2



STAGE 1 STAGE 2

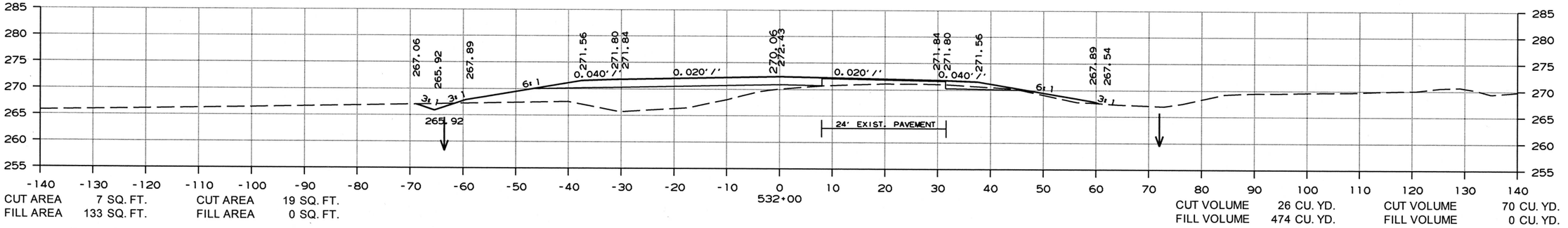
CUT AREA	6 SQ. FT.	CUT AREA	24 SQ. FT.
FILL AREA	168 SQ. FT.	FILL AREA	0 SQ. FT.

CUT VOLUME	22 CU. YD.	CUT VOLUME	81 CU. YD.
FILL VOLUME	578 CU. YD.	FILL VOLUME	0 CU. YD.



CUT AREA	5 SQ. FT.	CUT AREA	19 SQ. FT.
FILL AREA	143 SQ. FT.	FILL AREA	0 SQ. FT.

CUT VOLUME	22 CU. YD.	CUT VOLUME	70 CU. YD.
FILL VOLUME	511 CU. YD.	FILL VOLUME	0 CU. YD.



CUT AREA	7 SQ. FT.	CUT AREA	19 SQ. FT.
FILL AREA	133 SQ. FT.	FILL AREA	0 SQ. FT.

CUT VOLUME	26 CU. YD.	CUT VOLUME	70 CU. YD.
FILL VOLUME	474 CU. YD.	FILL VOLUME	0 CU. YD.

CROSS SECTION STA. 532+00 TO STA. 534+00

3/6/2019

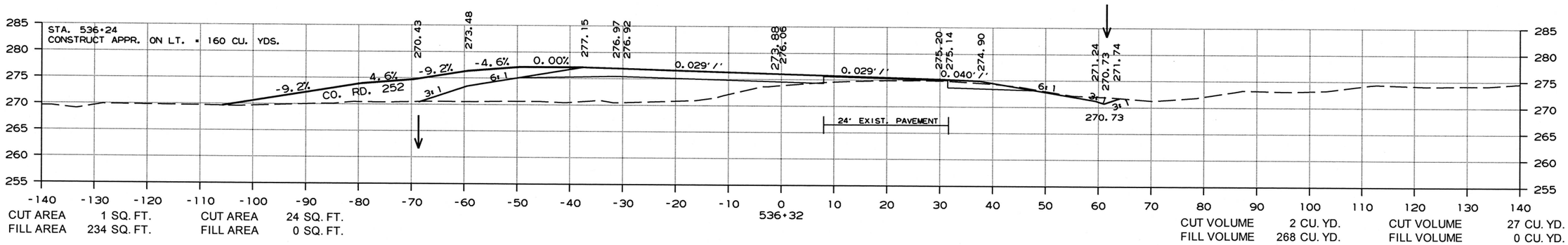
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	199	299

(2) CROSS SECTIONS

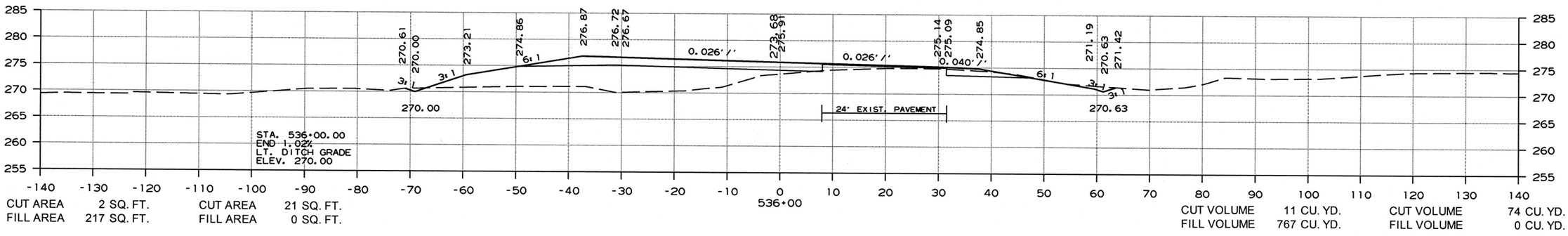
STAGE 1 STAGE 2

STAGE 1 STAGE 2



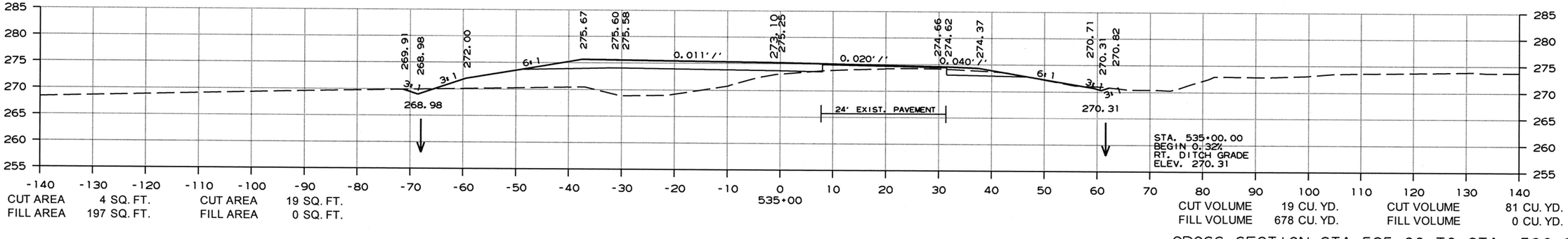
CUT AREA 1 SQ. FT. CUT AREA 24 SQ. FT.
FILL AREA 234 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 2 CU. YD. CUT VOLUME 27 CU. YD.
FILL VOLUME 268 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 2 SQ. FT. CUT AREA 21 SQ. FT.
FILL AREA 217 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 11 CU. YD. CUT VOLUME 74 CU. YD.
FILL VOLUME 767 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 4 SQ. FT. CUT AREA 19 SQ. FT.
FILL AREA 197 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 19 CU. YD. CUT VOLUME 81 CU. YD.
FILL VOLUME 678 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 535+00 TO STA. 536+32

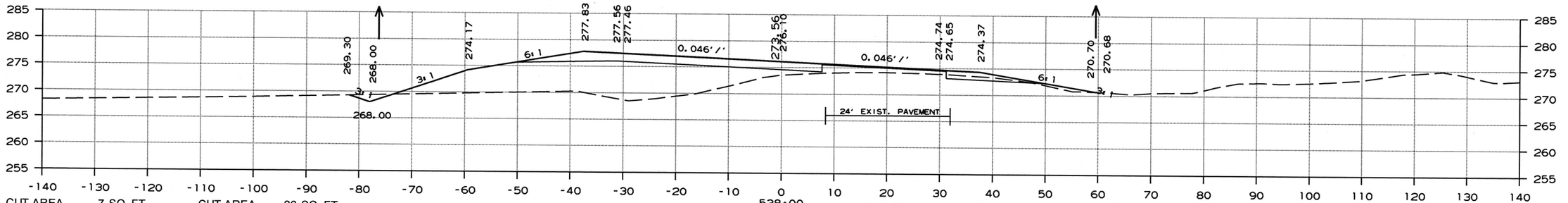
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	200	299

(2) CROSS SECTIONS

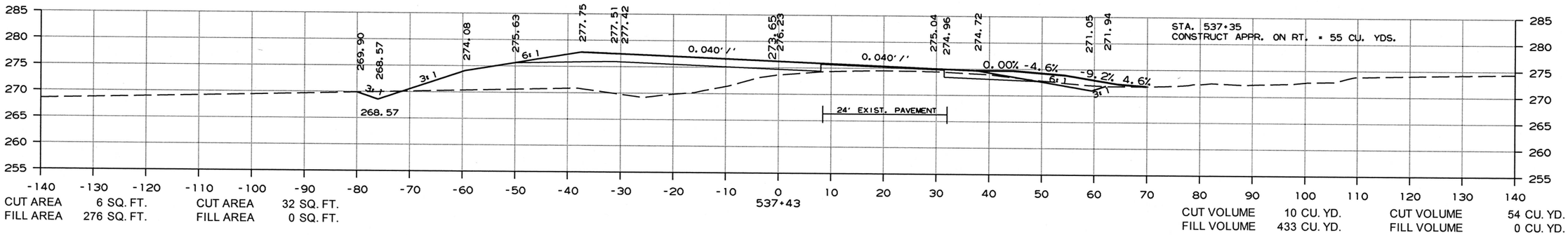
STAGE 1 STAGE 2



CUT AREA 7 SQ. FT. CUT AREA 22 SQ. FT.
FILL AREA 295 SQ. FT. FILL AREA 0 SQ. FT.

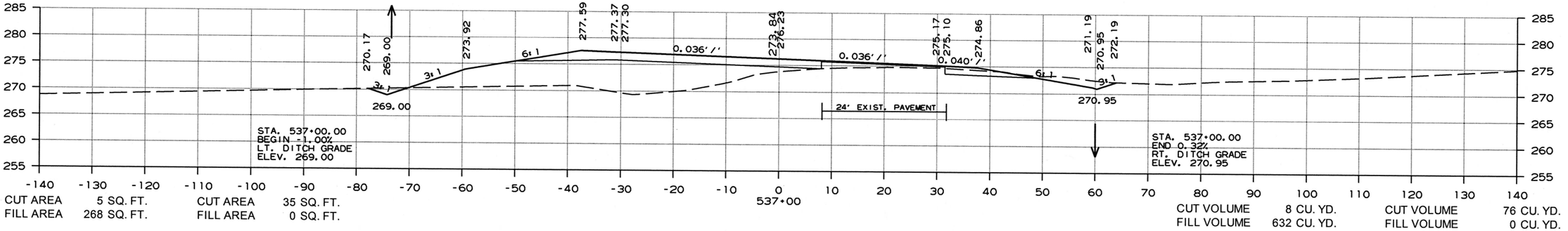
CUT VOLUME 15 CU. YD. CUT VOLUME 57 CU. YD.
FILL VOLUME 604 CU. YD. FILL VOLUME 0 CU. YD.

STAGE 1 STAGE 2



CUT AREA 6 SQ. FT. CUT AREA 32 SQ. FT.
FILL AREA 276 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 10 CU. YD. CUT VOLUME 54 CU. YD.
FILL VOLUME 433 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 5 SQ. FT. CUT AREA 35 SQ. FT.
FILL AREA 268 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 8 CU. YD. CUT VOLUME 76 CU. YD.
FILL VOLUME 632 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 537+00 TO STA. 538+00

3/6/2019

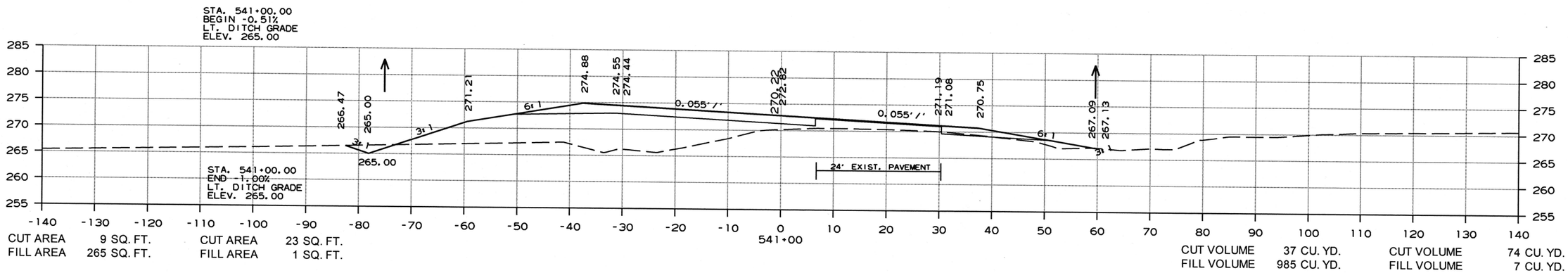
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	201	299

(2) CROSS SECTIONS

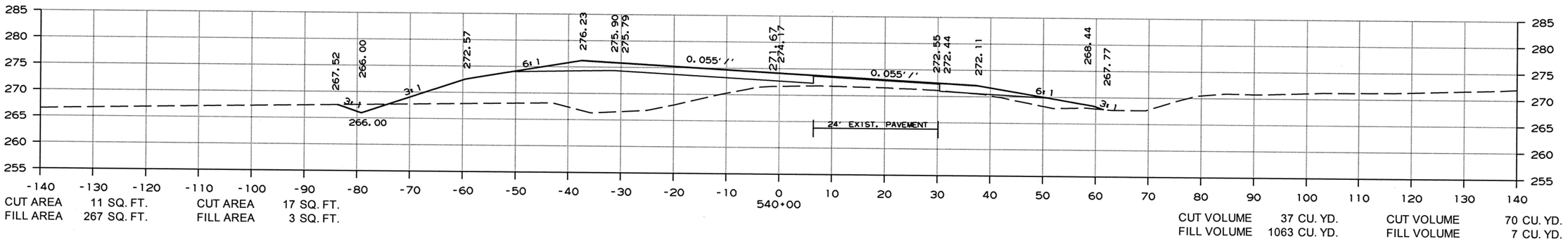
STAGE 1 STAGE 2

STAGE 1 STAGE 2



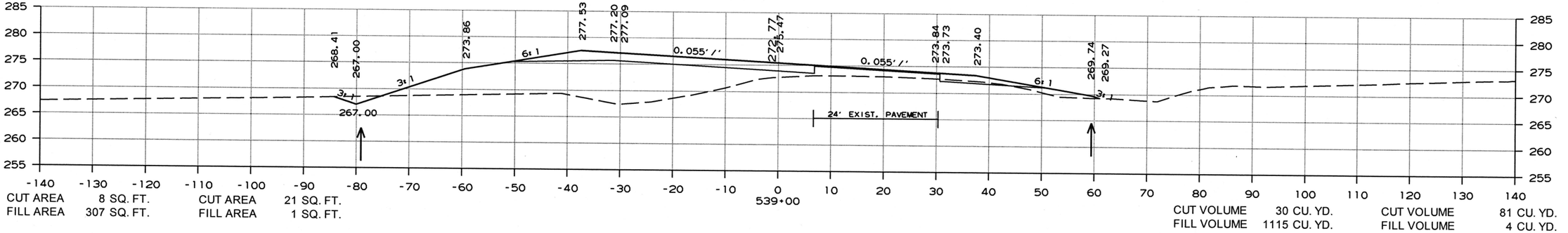
CUT AREA 9 SQ. FT. CUT AREA 23 SQ. FT.
FILL AREA 265 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 37 CU. YD. CUT VOLUME 74 CU. YD.
FILL VOLUME 985 CU. YD. FILL VOLUME 7 CU. YD.



CUT AREA 11 SQ. FT. CUT AREA 17 SQ. FT.
FILL AREA 267 SQ. FT. FILL AREA 3 SQ. FT.

CUT VOLUME 37 CU. YD. CUT VOLUME 70 CU. YD.
FILL VOLUME 1063 CU. YD. FILL VOLUME 7 CU. YD.



CUT AREA 8 SQ. FT. CUT AREA 21 SQ. FT.
FILL AREA 307 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 30 CU. YD. CUT VOLUME 81 CU. YD.
FILL VOLUME 1115 CU. YD. FILL VOLUME 4 CU. YD.

CROSS SECTION STA. 539+00 TO STA. 541+00

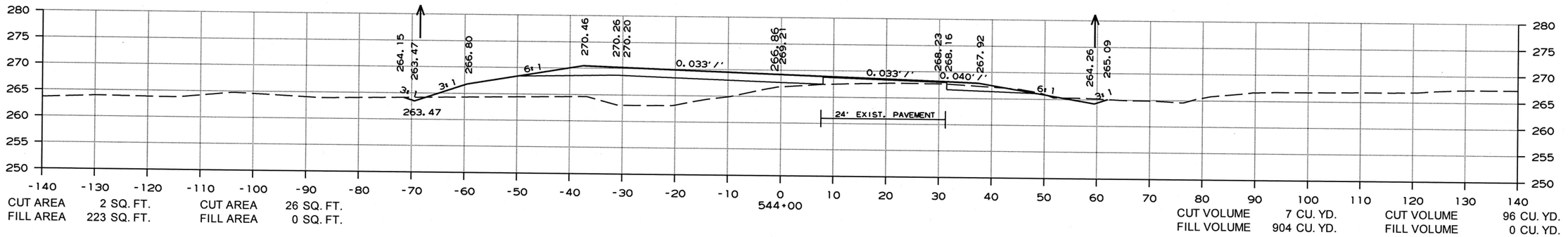
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	202	299

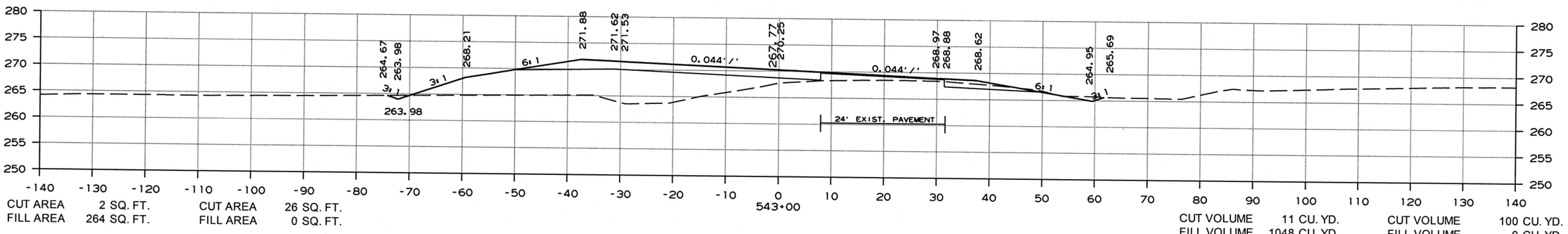
(2) CROSS SECTIONS

STAGE 1 STAGE 2



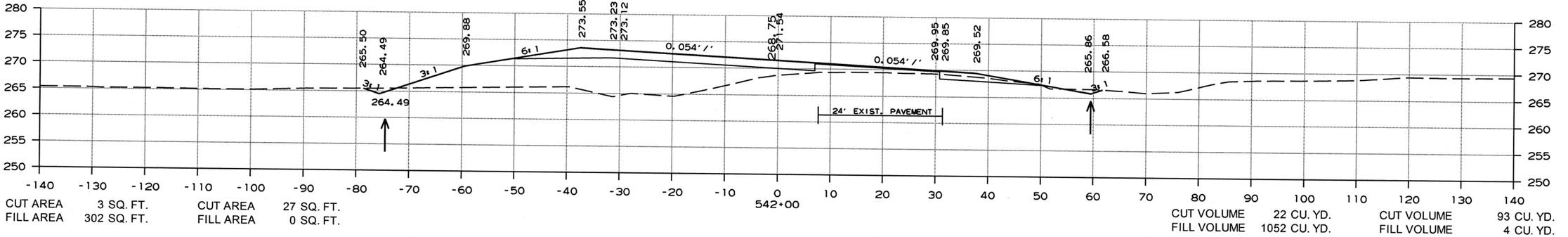
CUT AREA 2 SQ. FT. CUT AREA 26 SQ. FT.
FILL AREA 223 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 7 CU. YD. CUT VOLUME 96 CU. YD.
FILL VOLUME 904 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 2 SQ. FT. CUT AREA 26 SQ. FT.
FILL AREA 264 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 11 CU. YD. CUT VOLUME 100 CU. YD.
FILL VOLUME 1048 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 3 SQ. FT. CUT AREA 27 SQ. FT.
FILL AREA 302 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 93 CU. YD.
FILL VOLUME 1052 CU. YD. FILL VOLUME 4 CU. YD.

CROSS SECTION STA. 542+00 TO STA. 544+00

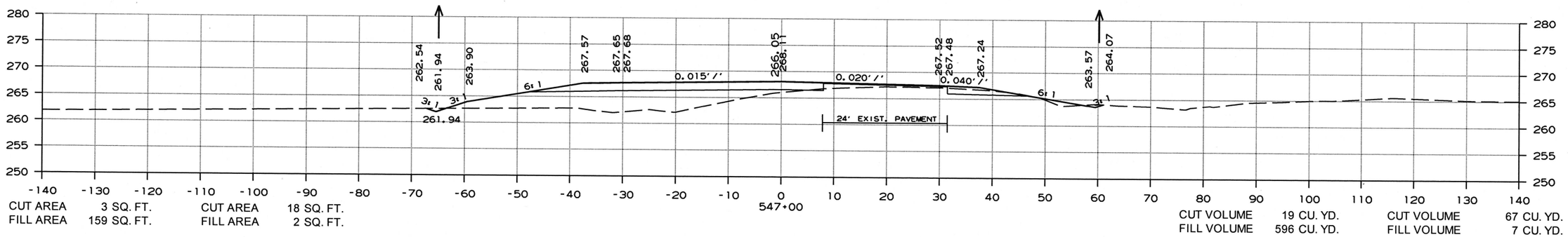
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	203	299

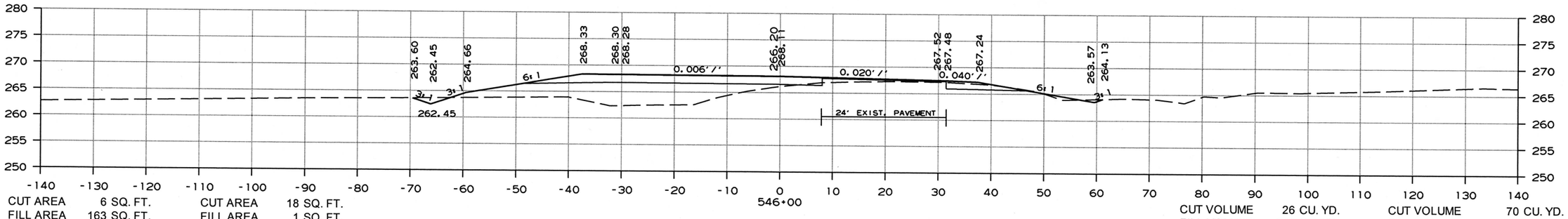
(2) CROSS SECTIONS

STAGE 1 STAGE 2



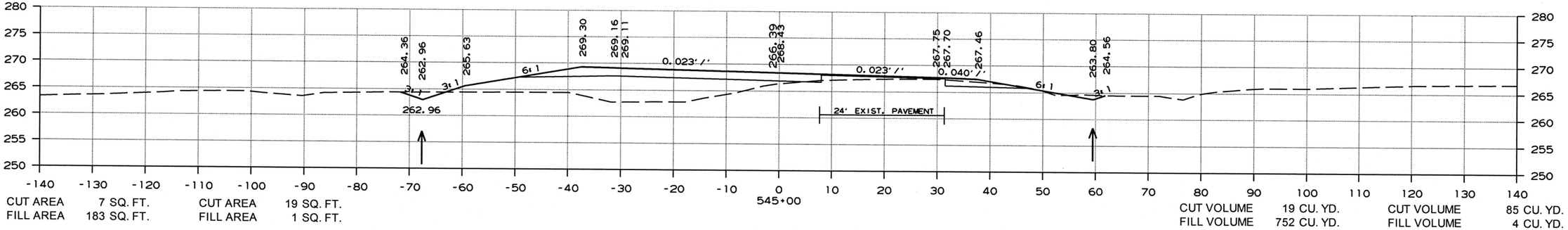
CUT AREA 3 SQ. FT. CUT AREA 18 SQ. FT.
FILL AREA 159 SQ. FT. FILL AREA 2 SQ. FT.

CUT VOLUME 19 CU. YD. CUT VOLUME 67 CU. YD.
FILL VOLUME 596 CU. YD. FILL VOLUME 7 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 18 SQ. FT.
FILL AREA 163 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 26 CU. YD. CUT VOLUME 70 CU. YD.
FILL VOLUME 641 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 7 SQ. FT. CUT AREA 19 SQ. FT.
FILL AREA 183 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 19 CU. YD. CUT VOLUME 85 CU. YD.
FILL VOLUME 752 CU. YD. FILL VOLUME 4 CU. YD.

CROSS SECTION STA. 545+00 TO STA. 547+00

3/6/2019

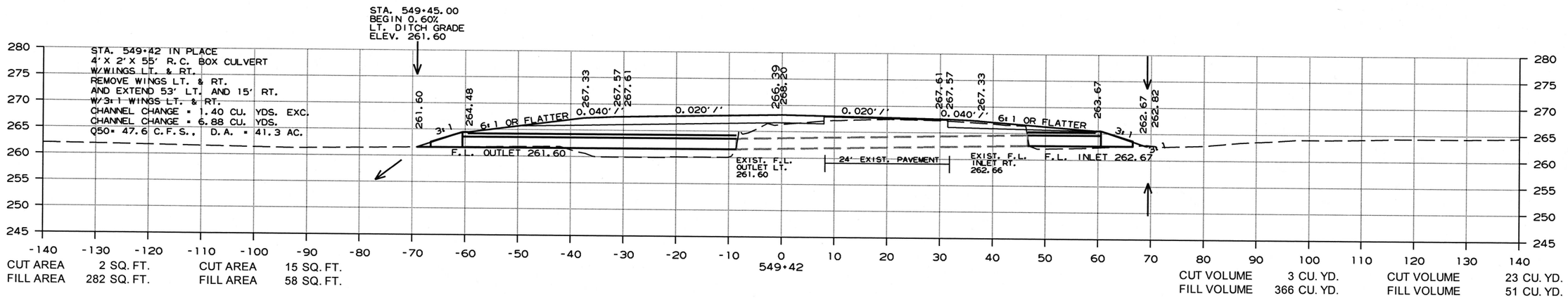
RCA0704.DGN

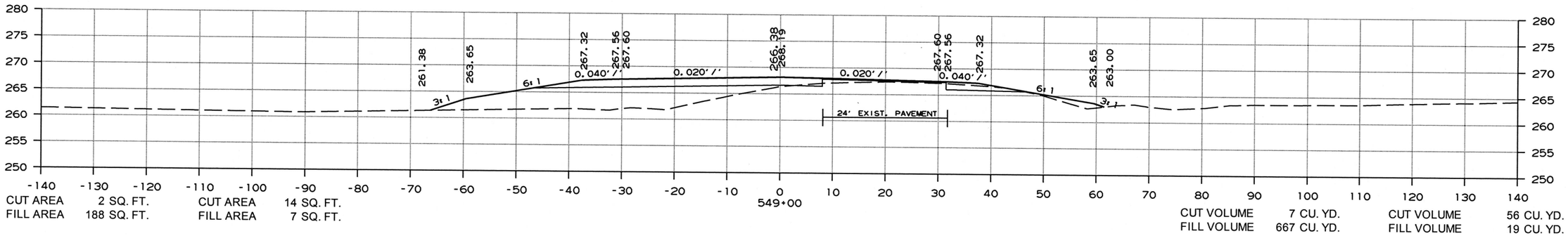
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	204	299

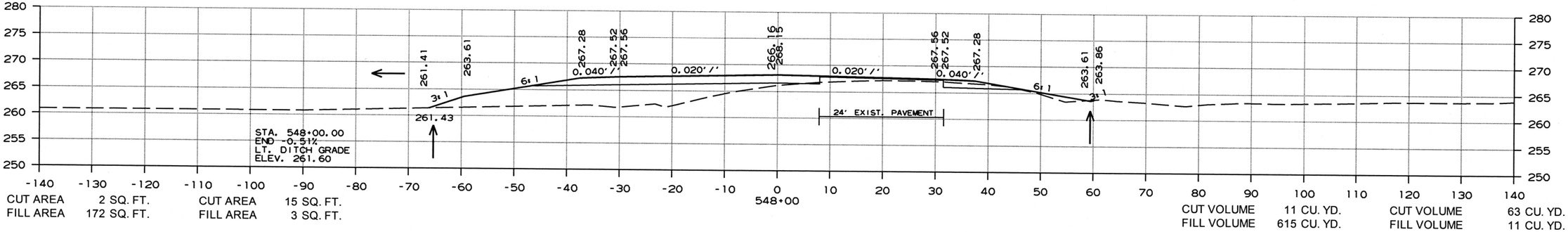
(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2







CROSS SECTION STA. 548+00 TO STA. 549+42

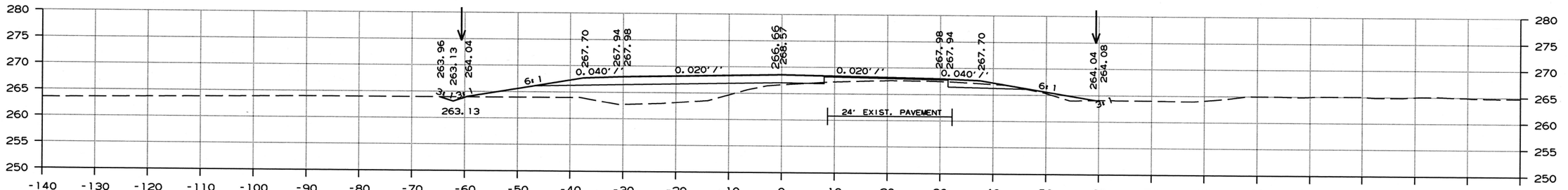
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	205	299

(2) CROSS SECTIONS

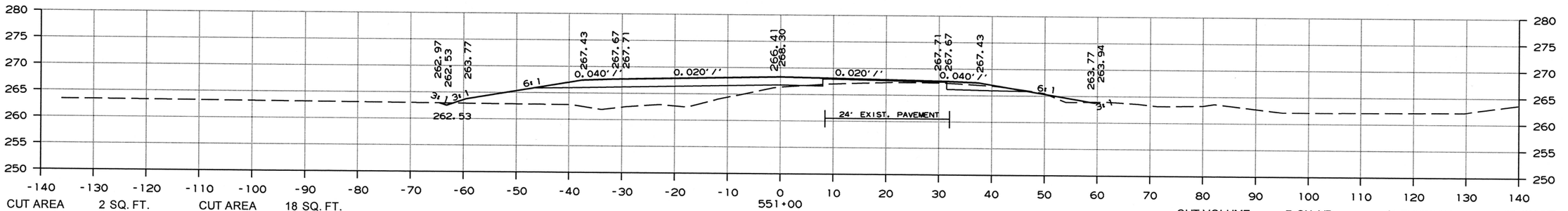
STAGE 1 STAGE 2



CUT AREA 4 SQ. FT. CUT AREA 17 SQ. FT.
FILL AREA 119 SQ. FT. FILL AREA 2 SQ. FT.

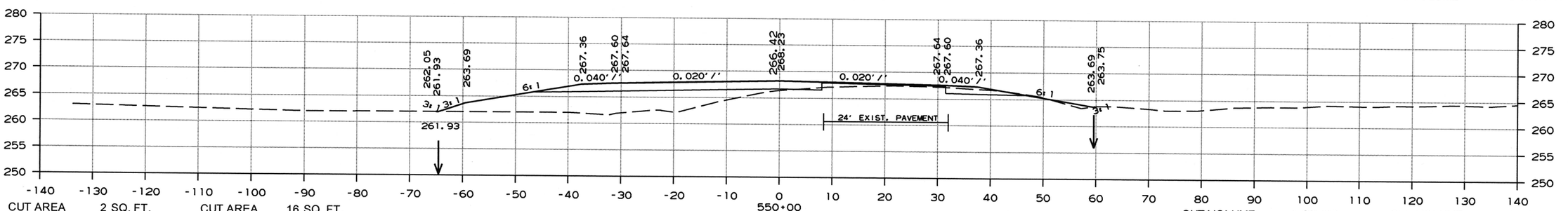
CUT VOLUME 11 CU. YD. CUT VOLUME 67 CU. YD.
FILL VOLUME 507 CU. YD. FILL VOLUME 7 CU. YD.

STAGE 1 STAGE 2



CUT AREA 2 SQ. FT. CUT AREA 18 SQ. FT.
FILL AREA 154 SQ. FT. FILL AREA 2 SQ. FT.

CUT VOLUME 7 CU. YD. CUT VOLUME 63 CU. YD.
FILL VOLUME 611 CU. YD. FILL VOLUME 7 CU. YD.



CUT AREA 2 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 176 SQ. FT. FILL AREA 2 SQ. FT.

CUT VOLUME 4 CU. YD. CUT VOLUME 34 CU. YD.
FILL VOLUME 492 CU. YD. FILL VOLUME 64 CU. YD.

CROSS SECTION STA. 550+00 TO STA. 552+00

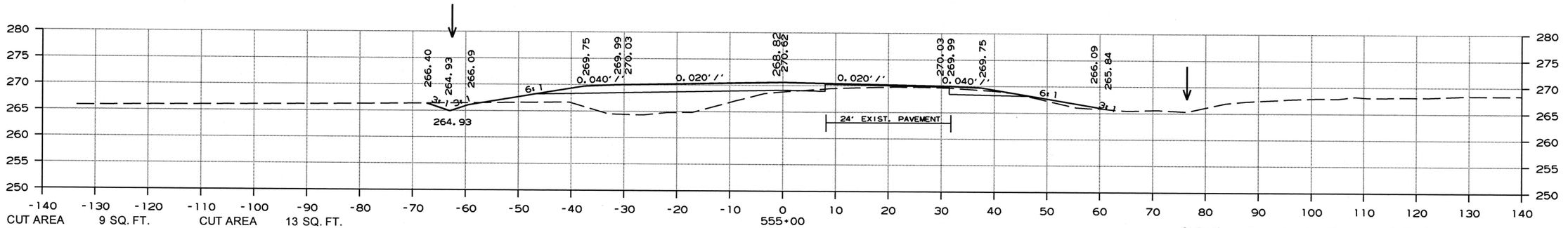
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	206	299

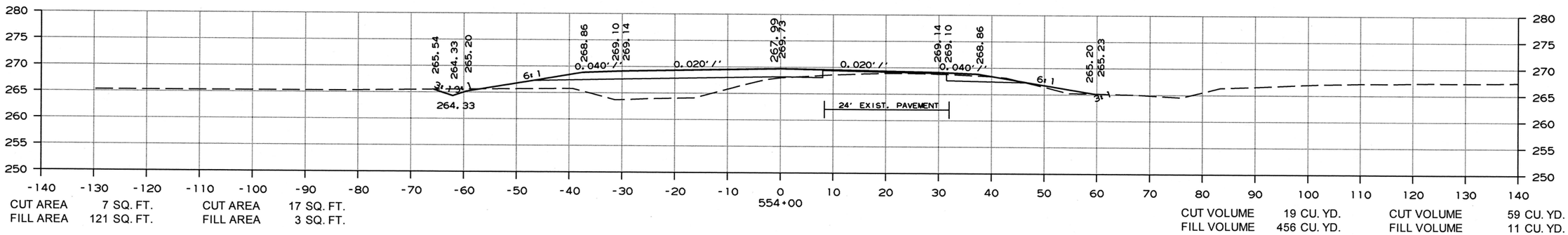
(2) CROSS SECTIONS

STAGE 1 STAGE 2



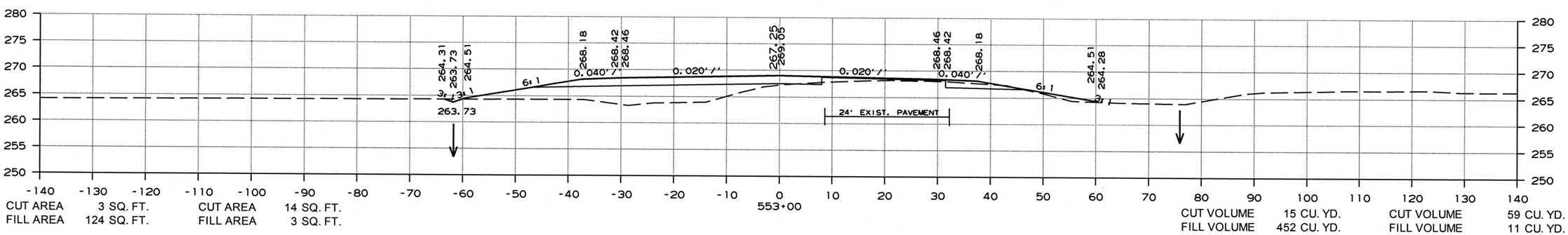
CUT AREA	9 SQ. FT.	CUT AREA	13 SQ. FT.
FILL AREA	128 SQ. FT.	FILL AREA	4 SQ. FT.

CUT VOLUME	30 CU. YD.	CUT VOLUME	56 CU. YD.
FILL VOLUME	463 CU. YD.	FILL VOLUME	15 CU. YD.



CUT AREA	7 SQ. FT.	CUT AREA	17 SQ. FT.
FILL AREA	121 SQ. FT.	FILL AREA	3 SQ. FT.

CUT VOLUME	19 CU. YD.	CUT VOLUME	59 CU. YD.
FILL VOLUME	456 CU. YD.	FILL VOLUME	11 CU. YD.



CUT AREA	3 SQ. FT.	CUT AREA	14 SQ. FT.
FILL AREA	124 SQ. FT.	FILL AREA	3 SQ. FT.

CUT VOLUME	15 CU. YD.	CUT VOLUME	59 CU. YD.
FILL VOLUME	452 CU. YD.	FILL VOLUME	11 CU. YD.

CROSS SECTION STA. 553+00 TO STA. 555+00

3/6/2019

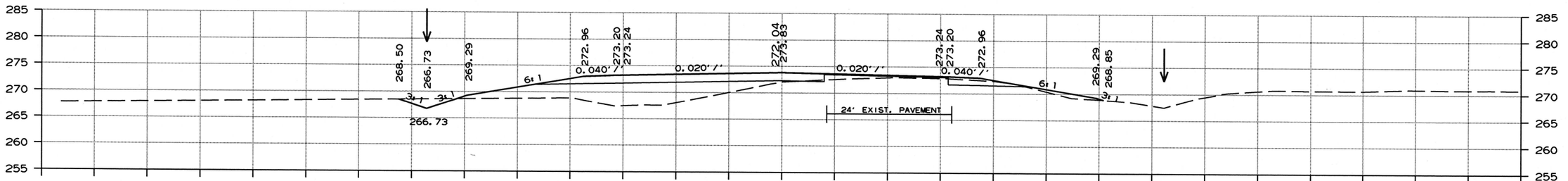
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	207	299

(2) CROSS SECTIONS

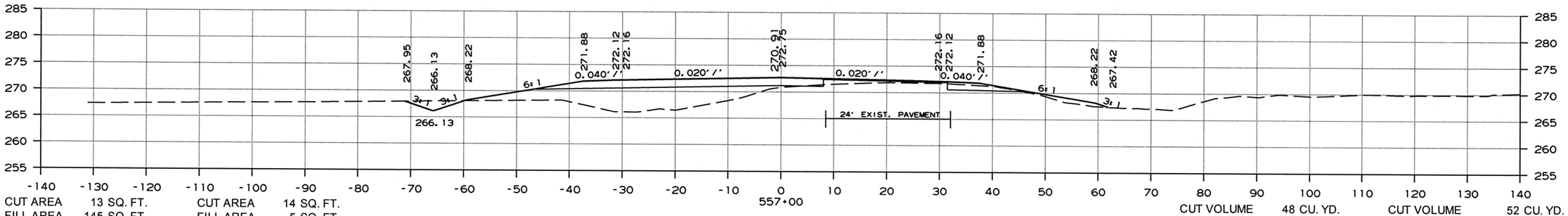
STAGE 1 STAGE 2

STAGE 1 STAGE 2



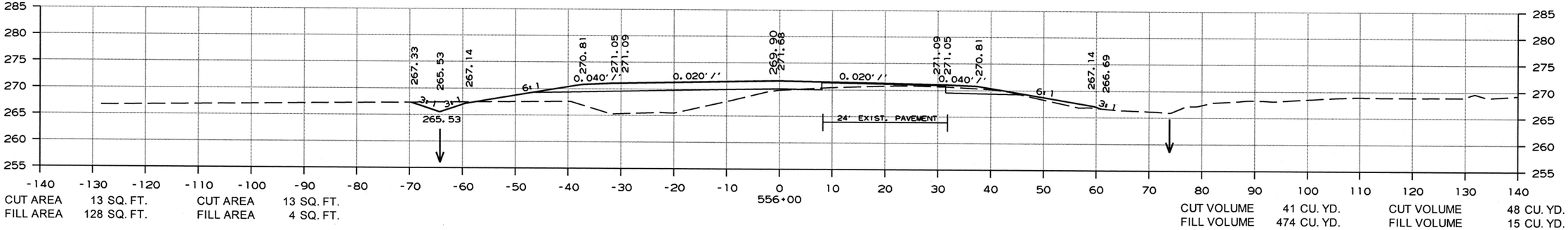
CUT AREA 12 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 147 SQ. FT. FILL AREA 5 SQ. FT.

CUT VOLUME 48 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 541 CU. YD. FILL VOLUME 19 CU. YD.



CUT AREA 13 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 145 SQ. FT. FILL AREA 5 SQ. FT.

CUT VOLUME 48 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 507 CU. YD. FILL VOLUME 19 CU. YD.



CUT AREA 13 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 128 SQ. FT. FILL AREA 4 SQ. FT.

CUT VOLUME 41 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 474 CU. YD. FILL VOLUME 15 CU. YD.

CROSS SECTION STA. 556+00 TO STA. 558+00

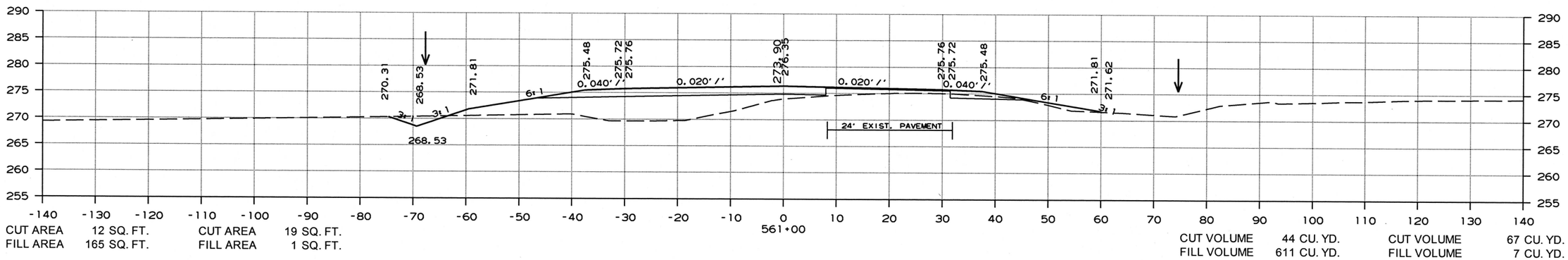
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	208	299

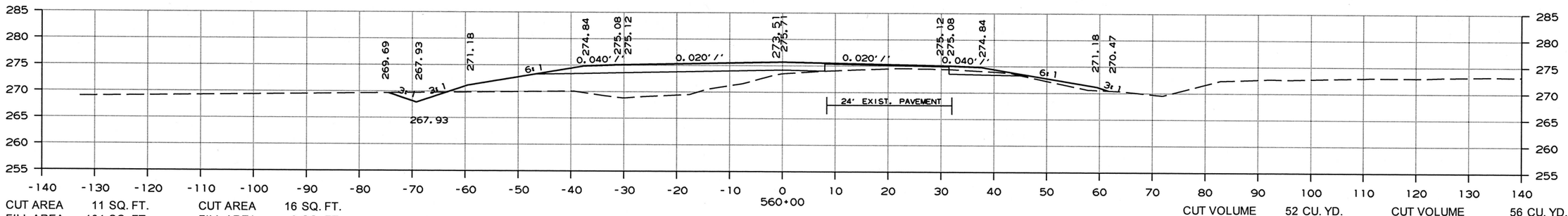
(2) CROSS SECTIONS

STAGE 1 STAGE 2



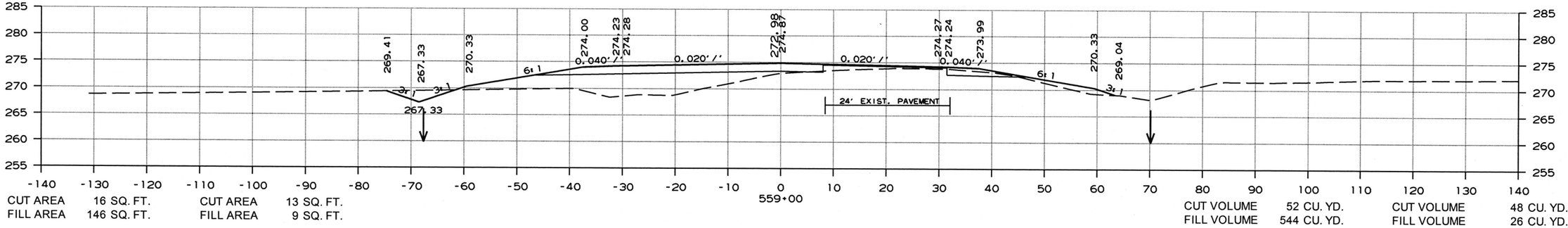
CUT AREA 12 SQ. FT. CUT AREA 19 SQ. FT.
FILL AREA 165 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 44 CU. YD. CUT VOLUME 67 CU. YD.
FILL VOLUME 611 CU. YD. FILL VOLUME 7 CU. YD.



CUT AREA 11 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 164 SQ. FT. FILL AREA 2 SQ. FT.

CUT VOLUME 52 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 574 CU. YD. FILL VOLUME 22 CU. YD.



CUT AREA 16 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 146 SQ. FT. FILL AREA 9 SQ. FT.

CUT VOLUME 52 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 544 CU. YD. FILL VOLUME 26 CU. YD.

CROSS SECTION STA. 559+00 TO STA. 561+00

3/6/2019

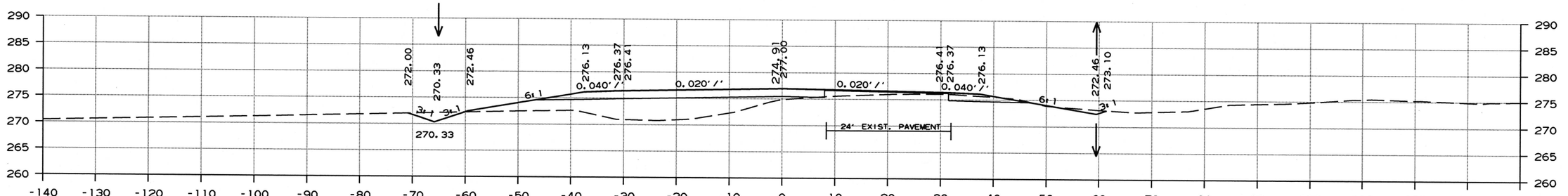
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	209	299

(2) CROSS SECTIONS

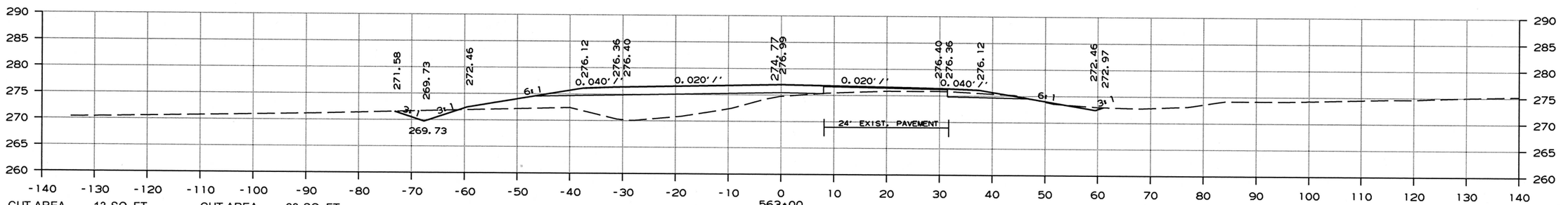
STAGE 1 STAGE 2

STAGE 1 STAGE 2



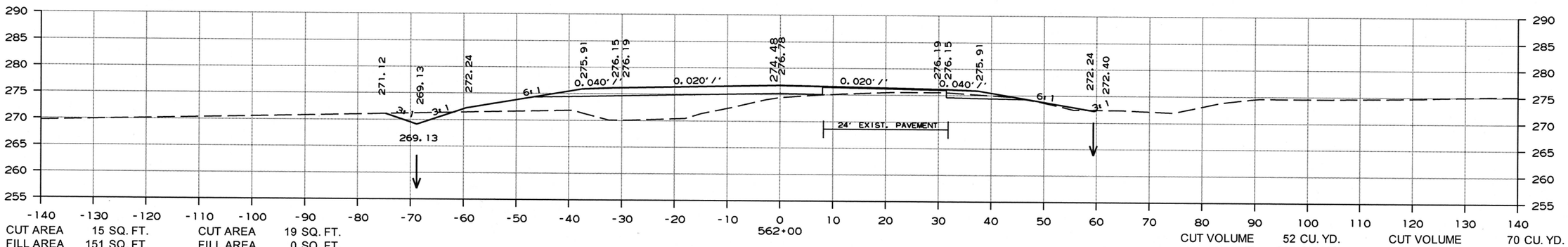
CUT AREA 11 SQ. FT. CUT AREA 22 SQ. FT.
FILL AREA 145 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 44 CU. YD. CUT VOLUME 85 CU. YD.
FILL VOLUME 544 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 13 SQ. FT. CUT AREA 23 SQ. FT.
FILL AREA 149 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 52 CU. YD. CUT VOLUME 78 CU. YD.
FILL VOLUME 556 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 15 SQ. FT. CUT AREA 19 SQ. FT.
FILL AREA 151 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 52 CU. YD. CUT VOLUME 70 CU. YD.
FILL VOLUME 585 CU. YD. FILL VOLUME 4 CU. YD.

CROSS SECTION STA. 562+00 TO STA. 564+00

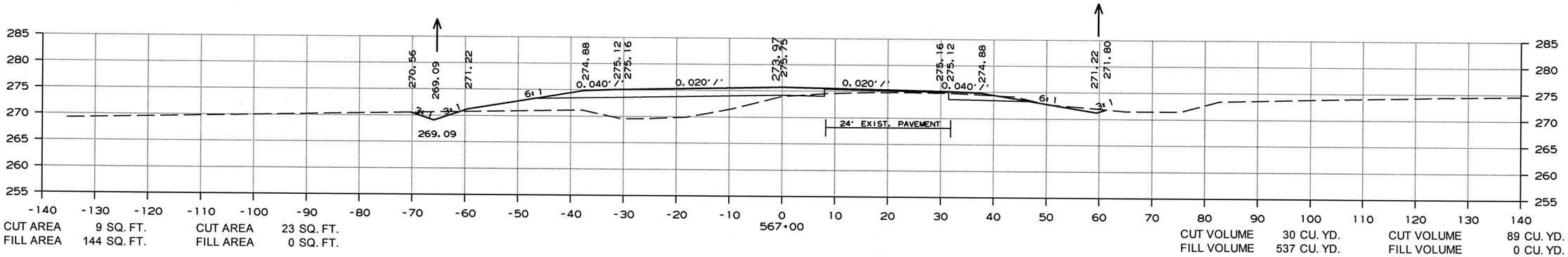
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	210	299

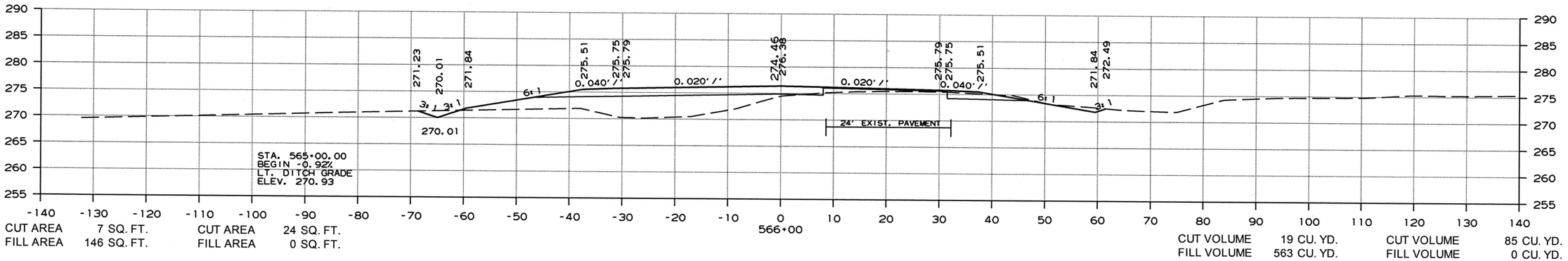
(2) CROSS SECTIONS

STAGE 1 STAGE 2



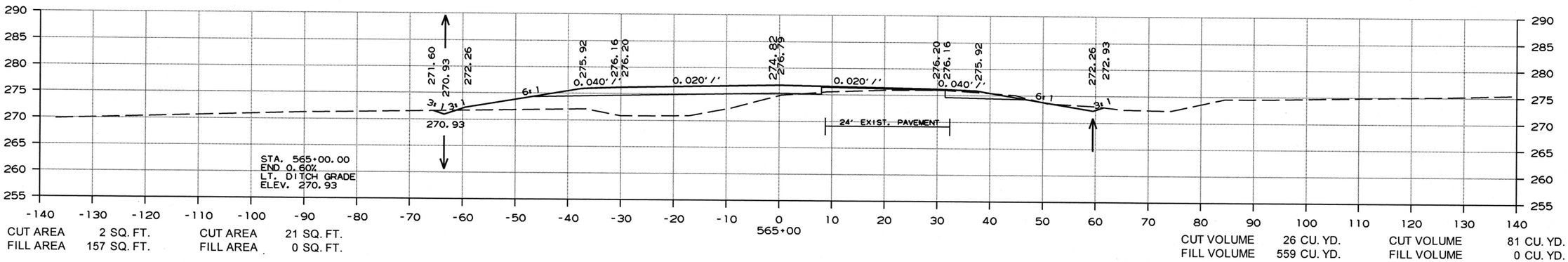
CUT AREA 9 SQ. FT. CUT AREA 23 SQ. FT.
FILL AREA 144 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 30 CU. YD. CUT VOLUME 89 CU. YD.
FILL VOLUME 537 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 7 SQ. FT. CUT AREA 24 SQ. FT.
FILL AREA 146 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 19 CU. YD. CUT VOLUME 85 CU. YD.
FILL VOLUME 563 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 2 SQ. FT. CUT AREA 21 SQ. FT.
FILL AREA 157 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 26 CU. YD. CUT VOLUME 81 CU. YD.
FILL VOLUME 559 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 565+00 TO STA. 567+00

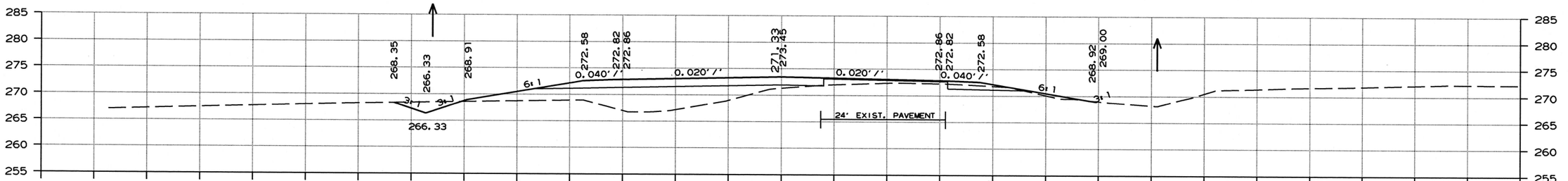
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	211	299

(2) CROSS SECTIONS

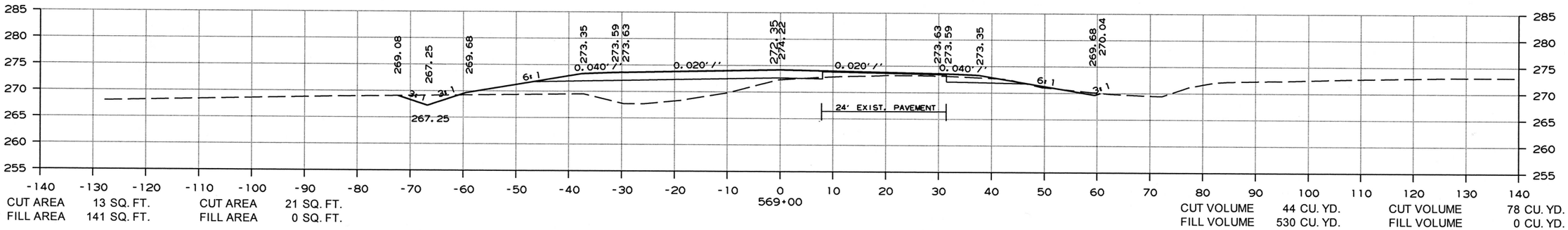
STAGE 1 STAGE 2



CUT AREA 16 SQ. FT. CUT AREA 20 SQ. FT.
FILL AREA 136 SQ. FT. FILL AREA 0 SQ. FT.

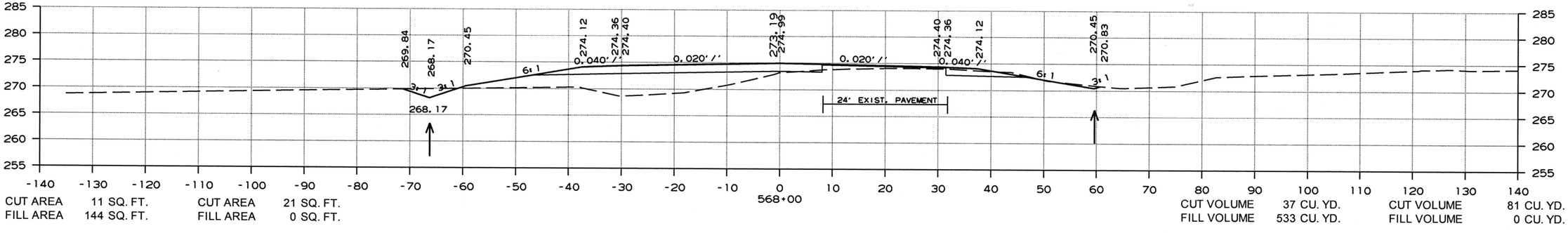
CUT VOLUME 56 CU. YD. CUT VOLUME 78 CU. YD.
FILL VOLUME 515 CU. YD. FILL VOLUME 0 CU. YD.

STAGE 1 STAGE 2



CUT AREA 13 SQ. FT. CUT AREA 21 SQ. FT.
FILL AREA 141 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 44 CU. YD. CUT VOLUME 78 CU. YD.
FILL VOLUME 530 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 11 SQ. FT. CUT AREA 21 SQ. FT.
FILL AREA 144 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 37 CU. YD. CUT VOLUME 81 CU. YD.
FILL VOLUME 533 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 568+00 TO STA. 570+00

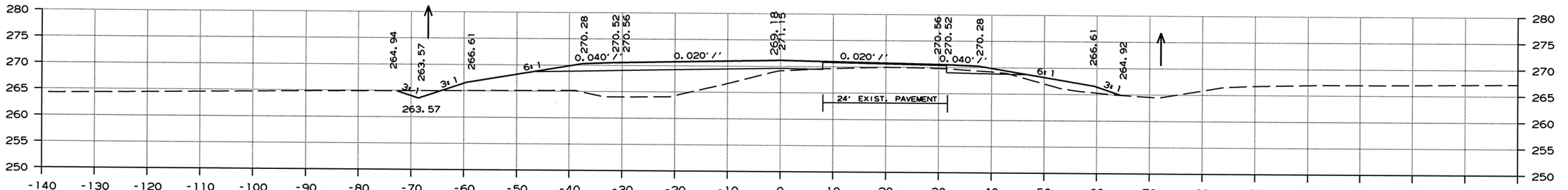
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	212	299

(2) CROSS SECTIONS

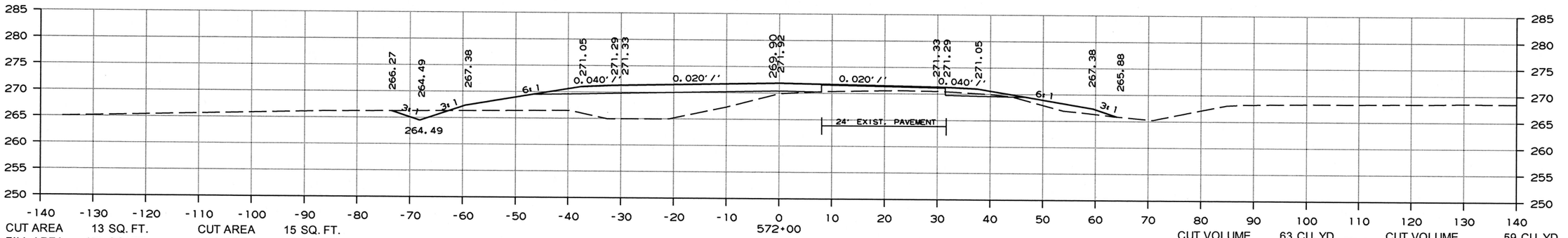
STAGE 1 STAGE 2



CUT AREA 9 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 174 SQ. FT. FILL AREA 11 SQ. FT.

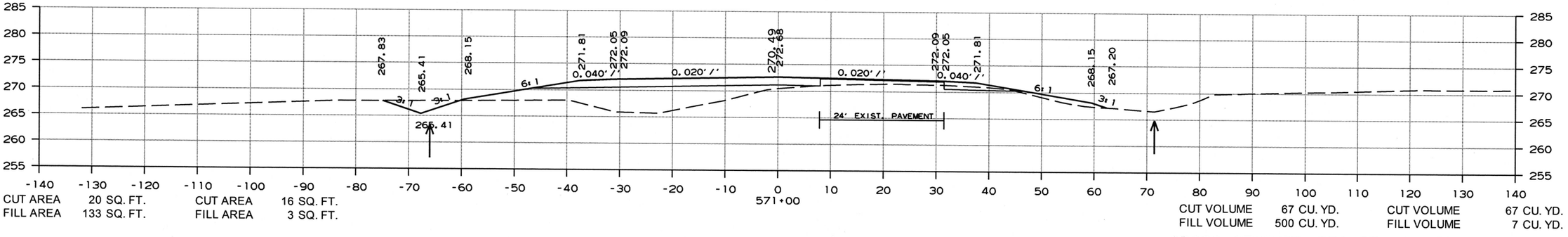
CUT VOLUME 41 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 611 CU. YD. FILL VOLUME 33 CU. YD.

STAGE 1 STAGE 2



CUT AREA 13 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 155 SQ. FT. FILL AREA 6 SQ. FT.

CUT VOLUME 63 CU. YD. CUT VOLUME 59 CU. YD.
FILL VOLUME 533 CU. YD. FILL VOLUME 19 CU. YD.



CUT AREA 20 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 133 SQ. FT. FILL AREA 3 SQ. FT.

CUT VOLUME 67 CU. YD. CUT VOLUME 67 CU. YD.
FILL VOLUME 500 CU. YD. FILL VOLUME 7 CU. YD.

CROSS SECTION STA. 571+00 TO STA. 573+00

3/6/2019

RCA0704.DGN

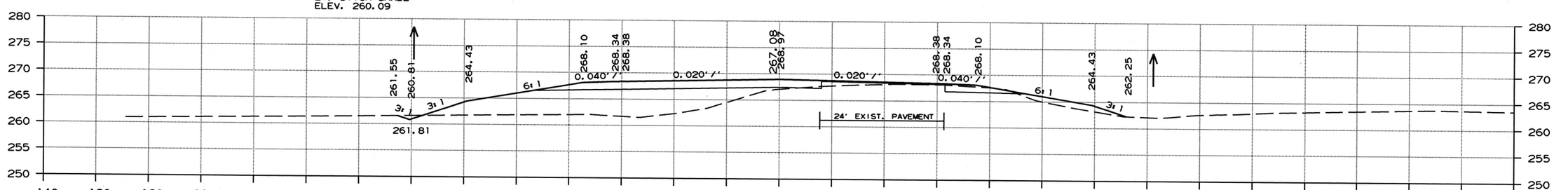
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	213	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2

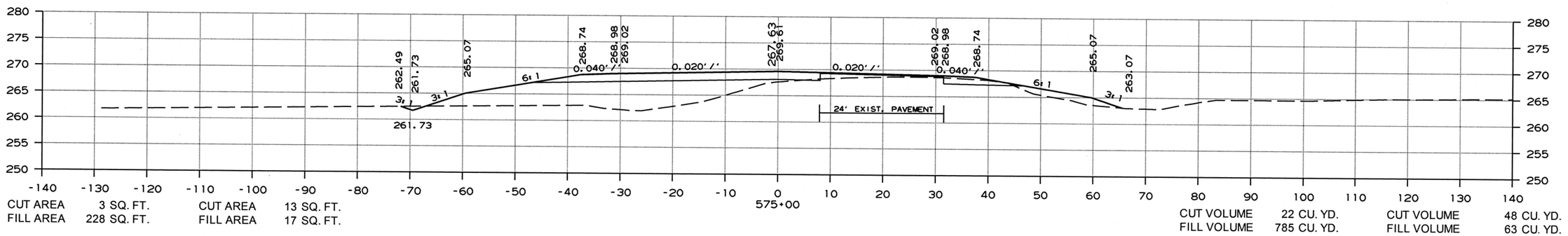
STAGE 1 STAGE 2

STA. 576+78.00
END -0.92%
LT. DITCH GRADE
ELEV. 260.09



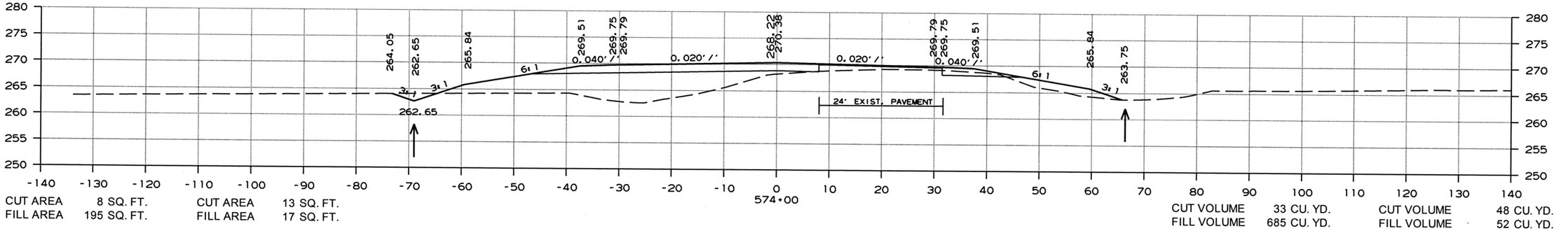
CUT AREA 3 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 238 SQ. FT. FILL AREA 16 SQ. FT.

CUT VOLUME 11 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 863 CU. YD. FILL VOLUME 63 CU. YD.



CUT AREA 3 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 228 SQ. FT. FILL AREA 17 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 785 CU. YD. FILL VOLUME 63 CU. YD.



CUT AREA 8 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 195 SQ. FT. FILL AREA 17 SQ. FT.

CUT VOLUME 33 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 685 CU. YD. FILL VOLUME 52 CU. YD.

CROSS SECTION STA. 574+00 TO STA. 576+00

3/6/2019

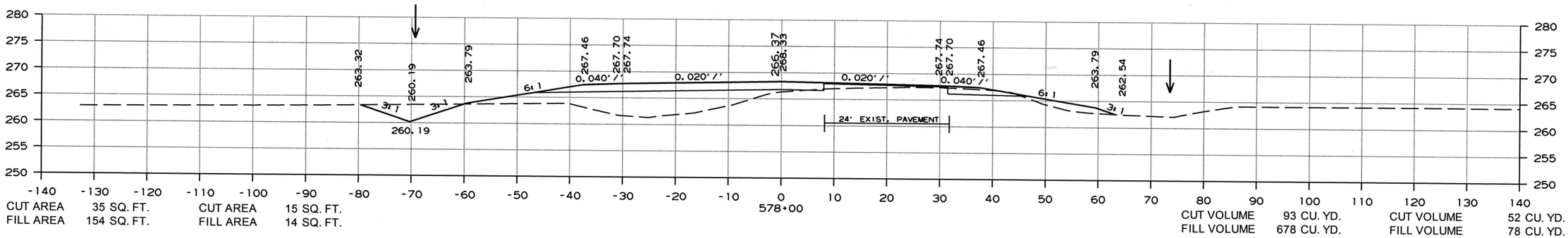
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	214	299

(2) CROSS SECTIONS

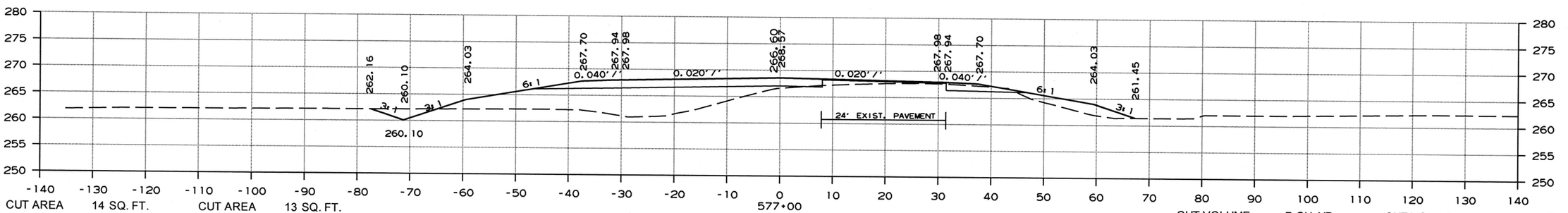
STAGE 1 STAGE 2

STAGE 1 STAGE 2



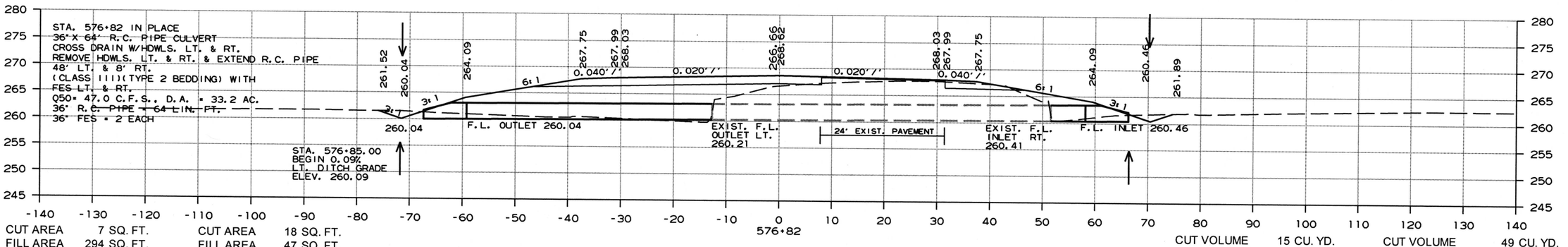
CUT AREA 35 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 154 SQ. FT. FILL AREA 14 SQ. FT.

CUT VOLUME 93 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 678 CU. YD. FILL VOLUME 78 CU. YD.



CUT AREA 14 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 212 SQ. FT. FILL AREA 27 SQ. FT.

CUT VOLUME 7 CU. YD. CUT VOLUME 11 CU. YD.
FILL VOLUME 169 CU. YD. FILL VOLUME 25 CU. YD.



CUT AREA 7 SQ. FT. CUT AREA 18 SQ. FT.
FILL AREA 294 SQ. FT. FILL AREA 47 SQ. FT.

CUT VOLUME 15 CU. YD. CUT VOLUME 49 CU. YD.
FILL VOLUME 808 CU. YD. FILL VOLUME 97 CU. YD.

CROSS SECTION STA. 576+82 TO STA. 578+00

3/6/2019

RCA0704.DGN

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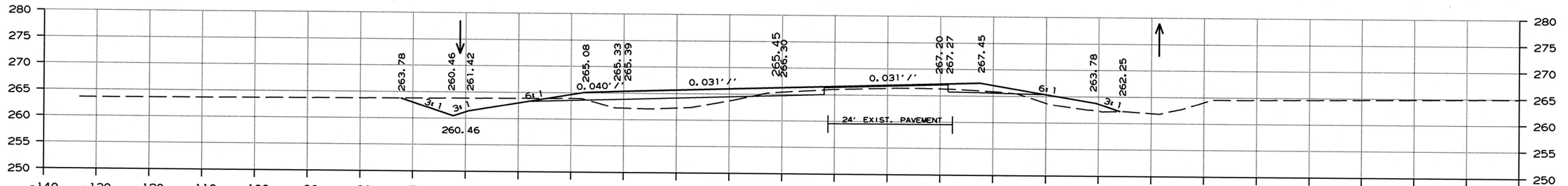
				6	ARK.			
				JOB NO.		CA0704	215	299

(2) CROSS SECTIONS

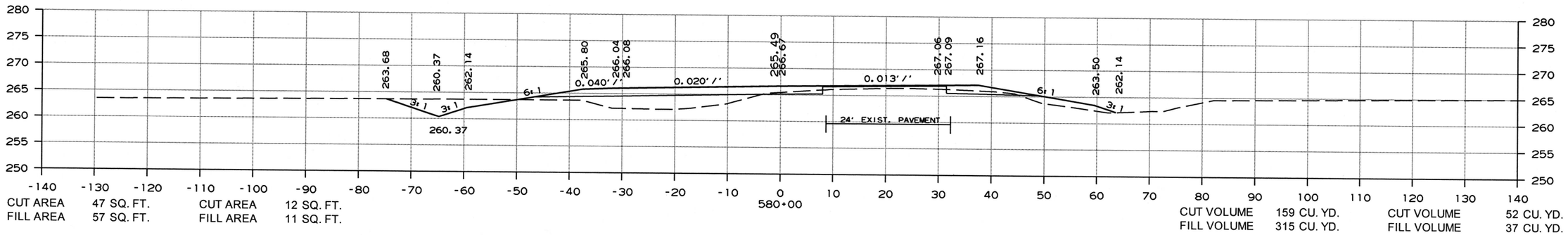
STAGE 1 STAGE 2



CUT AREA 67 SQ. FT. CUT AREA 9 SQ. FT.
FILL AREA 31 SQ. FT. FILL AREA 17 SQ. FT.

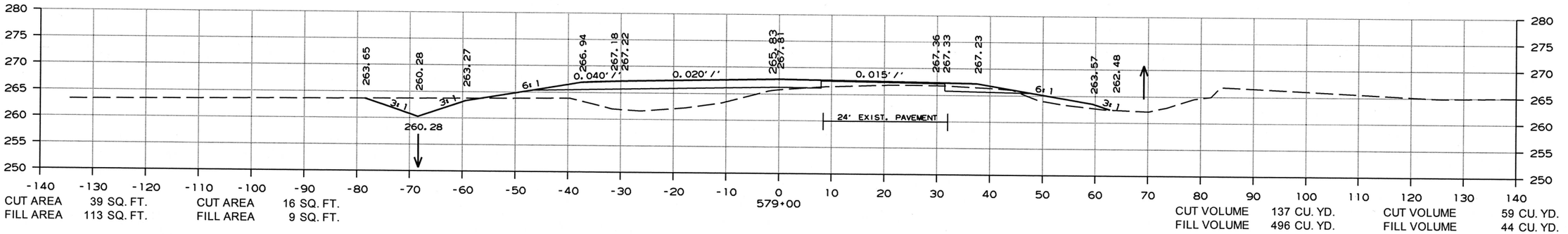
CUT VOLUME 211 CU. YD. CUT VOLUME 41 CU. YD.
FILL VOLUME 163 CU. YD. FILL VOLUME 52 CU. YD.

STAGE 1 STAGE 2



CUT AREA 47 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 57 SQ. FT. FILL AREA 11 SQ. FT.

CUT VOLUME 159 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 315 CU. YD. FILL VOLUME 37 CU. YD.



CUT AREA 39 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 113 SQ. FT. FILL AREA 9 SQ. FT.

CUT VOLUME 137 CU. YD. CUT VOLUME 59 CU. YD.
FILL VOLUME 496 CU. YD. FILL VOLUME 44 CU. YD.

CROSS SECTION STA. 579+00 TO STA. 581+00

3/6/2019

RCA0704.DGN

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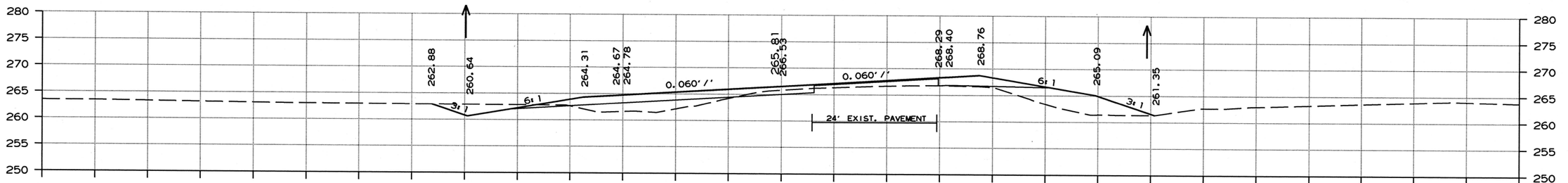
				6	ARK.			
				JOB NO.		CA0704	216	299

(2) CROSS SECTIONS

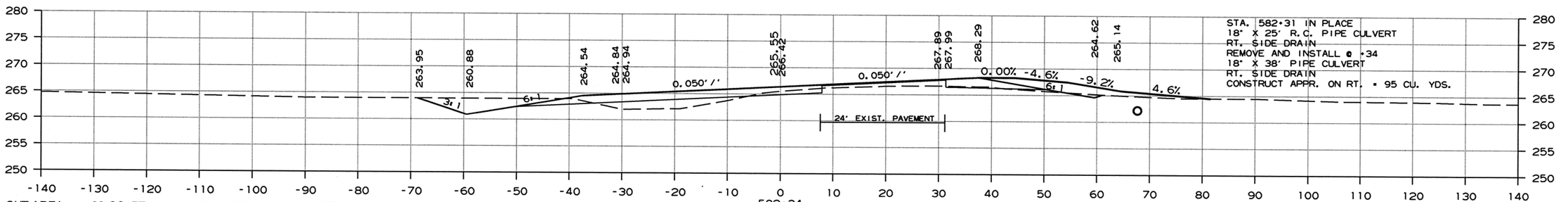
STAGE 1 STAGE 2



CUT AREA 57 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 26 SQ. FT. FILL AREA 57 SQ. FT.

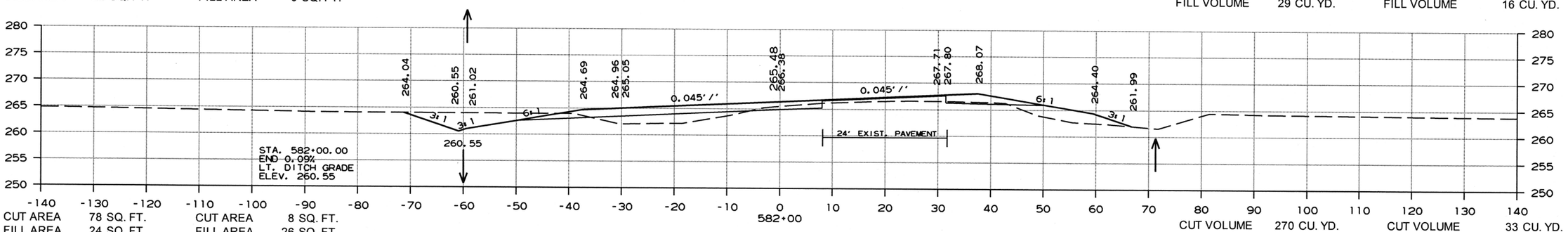
CUT VOLUME 171 CU. YD. CUT VOLUME 64 CU. YD.
FILL VOLUME 59 CU. YD. FILL VOLUME 71 CU. YD.

STAGE 1 STAGE 2



CUT AREA 82 SQ. FT. CUT AREA 48 SQ. FT.
FILL AREA 22 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 101 CU. YD. CUT VOLUME 35 CU. YD.
FILL VOLUME 29 CU. YD. FILL VOLUME 16 CU. YD.



CUT AREA 78 SQ. FT. CUT AREA 8 SQ. FT.
FILL AREA 24 SQ. FT. FILL AREA 26 SQ. FT.

CUT VOLUME 270 CU. YD. CUT VOLUME 33 CU. YD.
FILL VOLUME 104 CU. YD. FILL VOLUME 81 CU. YD.

CROSS SECTION STA. 582+00 TO STA. 583+00

3/6/2019

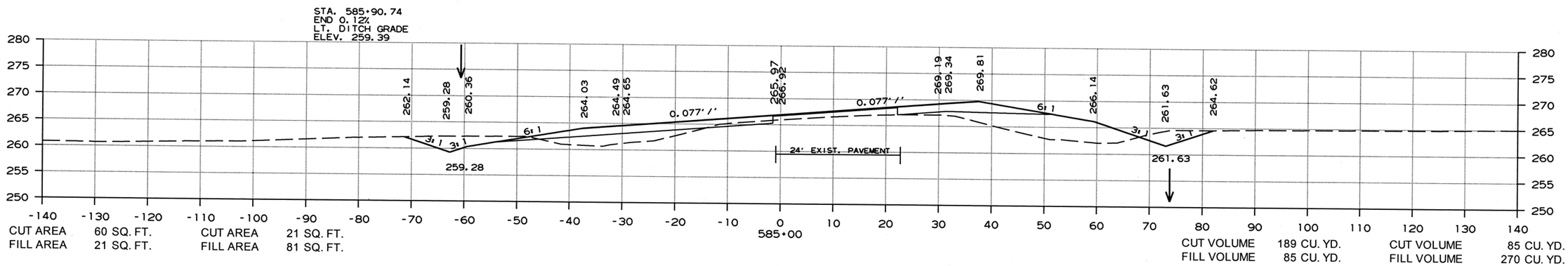
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	217	299

(2) CROSS SECTIONS

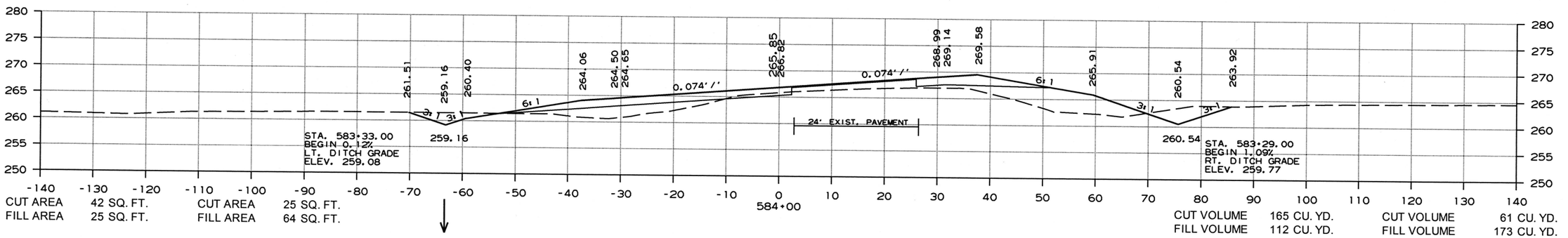
STAGE 1 STAGE 2

STAGE 1 STAGE 2



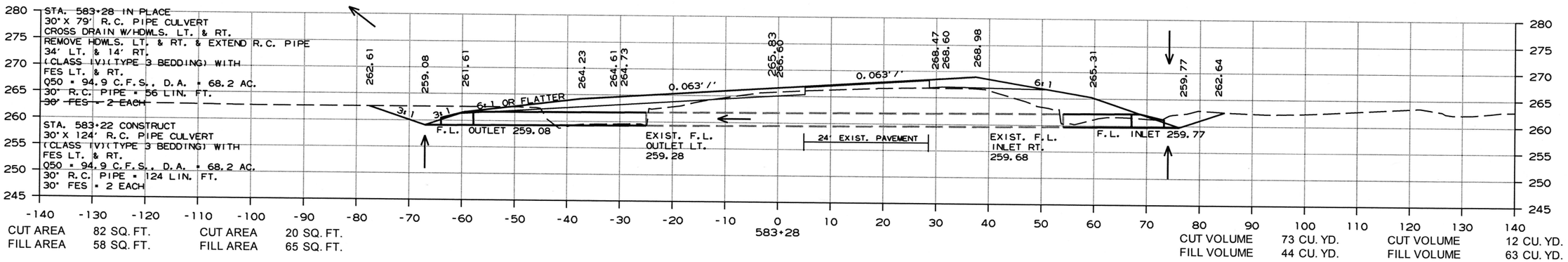
CUT AREA 60 SQ. FT. CUT AREA 21 SQ. FT.
FILL AREA 21 SQ. FT. FILL AREA 81 SQ. FT.

CUT VOLUME 189 CU. YD. CUT VOLUME 85 CU. YD.
FILL VOLUME 85 CU. YD. FILL VOLUME 270 CU. YD.



CUT AREA 42 SQ. FT. CUT AREA 25 SQ. FT.
FILL AREA 25 SQ. FT. FILL AREA 64 SQ. FT.

CUT VOLUME 165 CU. YD. CUT VOLUME 61 CU. YD.
FILL VOLUME 112 CU. YD. FILL VOLUME 173 CU. YD.



CUT AREA 82 SQ. FT. CUT AREA 20 SQ. FT.
FILL AREA 58 SQ. FT. FILL AREA 65 SQ. FT.

CUT VOLUME 73 CU. YD. CUT VOLUME 12 CU. YD.
FILL VOLUME 44 CU. YD. FILL VOLUME 63 CU. YD.

CROSS SECTION STA. 583+28 TO STA. 585+00

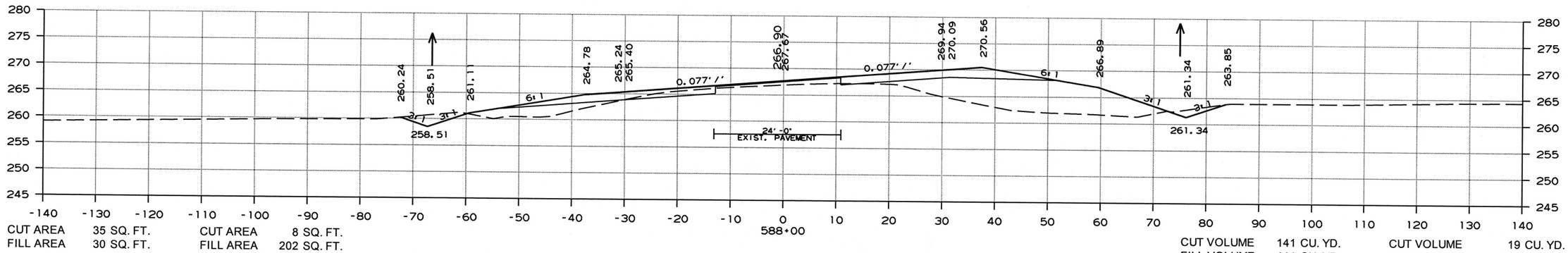
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	218	299

(2) CROSS SECTIONS

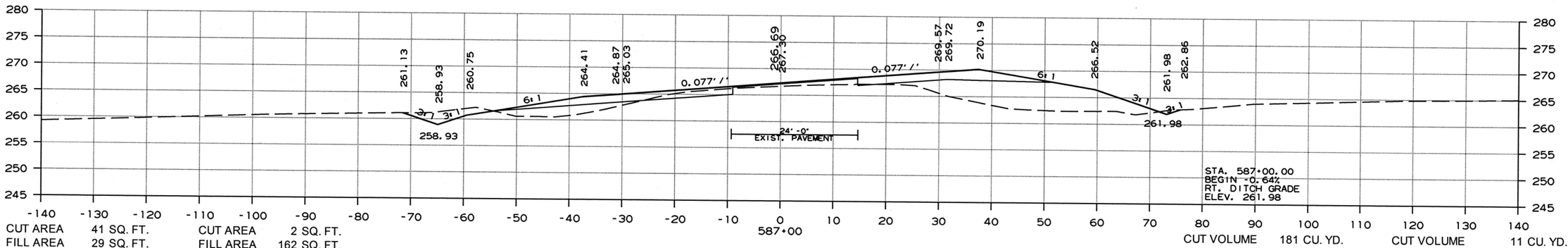
STAGE 1 STAGE 2



CUT AREA 35 SQ. FT. CUT AREA 8 SQ. FT.
FILL AREA 30 SQ. FT. FILL AREA 202 SQ. FT.

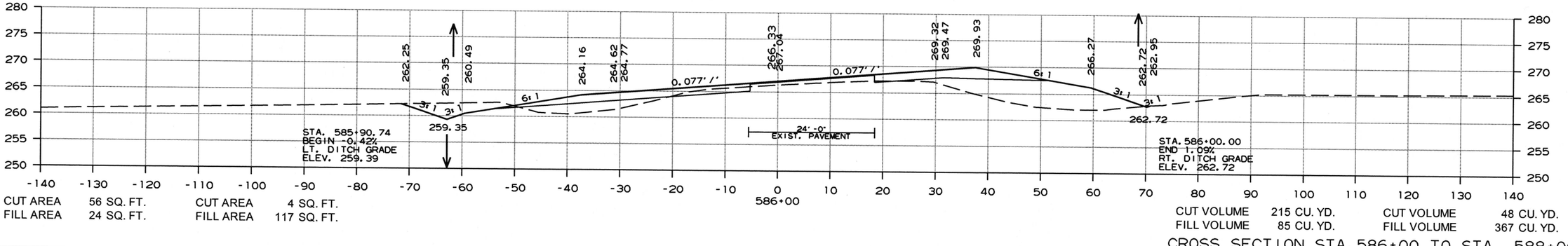
CUT VOLUME 141 CU. YD. CUT VOLUME 19 CU. YD.
FILL VOLUME 111 CU. YD. FILL VOLUME 674 CU. YD.

STAGE 1 STAGE 2



CUT AREA 41 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 29 SQ. FT. FILL AREA 162 SQ. FT.

CUT VOLUME 181 CU. YD. CUT VOLUME 11 CU. YD.
FILL VOLUME 100 CU. YD. FILL VOLUME 519 CU. YD.



CUT AREA 56 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 24 SQ. FT. FILL AREA 117 SQ. FT.

CUT VOLUME 215 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 85 CU. YD. FILL VOLUME 367 CU. YD.

CROSS SECTION STA. 586+00 TO STA. 588+00

3/6/2019

RCA0704.DGN

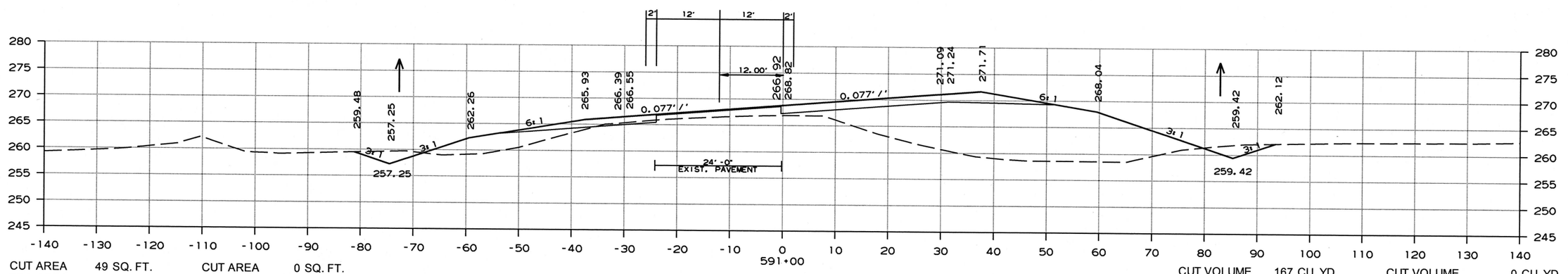
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	219	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2

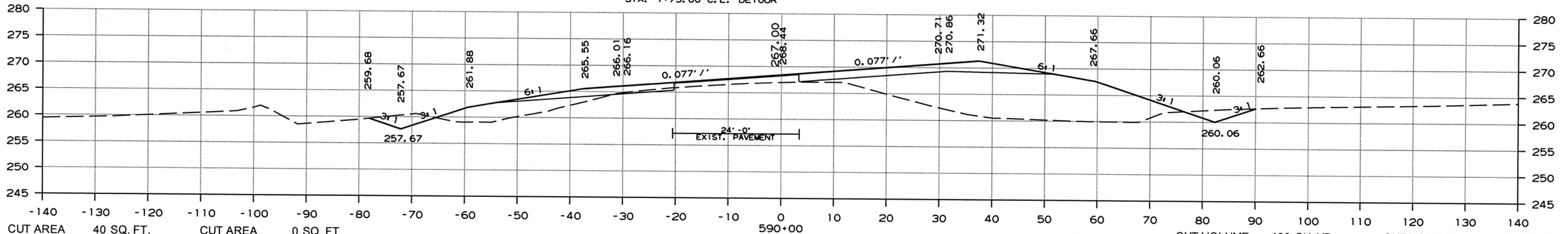
STAGE 2 TRAFFIC



CUT AREA 49 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 500 SQ. FT. FILL AREA 0 SQ. FT.

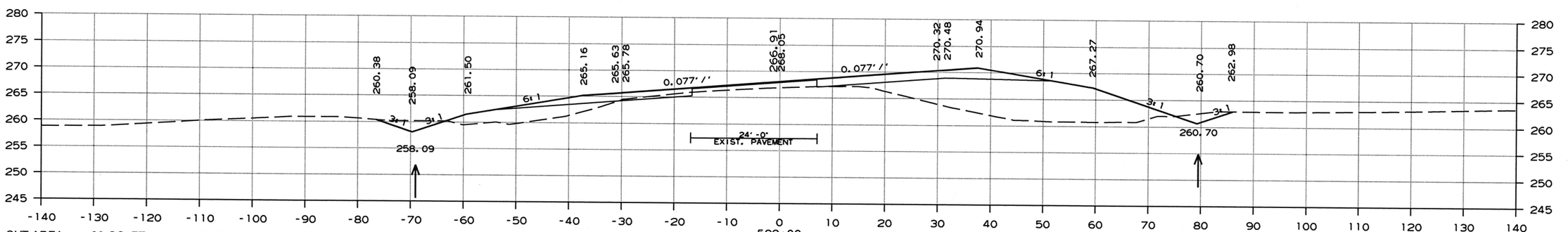
CUT VOLUME 167 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 1622 CU. YD. FILL VOLUME 0 CU. YD.

STA. 590+75.00 C.L. CONST. =
STA. 1+75.00 C.L. DETOUR



CUT AREA 40 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 375 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 130 CU. YD. CUT VOLUME 26 CU. YD.
FILL VOLUME 774 CU. YD. FILL VOLUME 474 CU. YD.



CUT AREA 30 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 42 SQ. FT. FILL AREA 255 SQ. FT.

CUT VOLUME 122 CU. YD. CUT VOLUME 41 CU. YD.
FILL VOLUME 133 CU. YD. FILL VOLUME 848 CU. YD.

CROSS SECTION STA. 589+00 TO STA. 591+00

3/6/2019

RCA0704.DGN

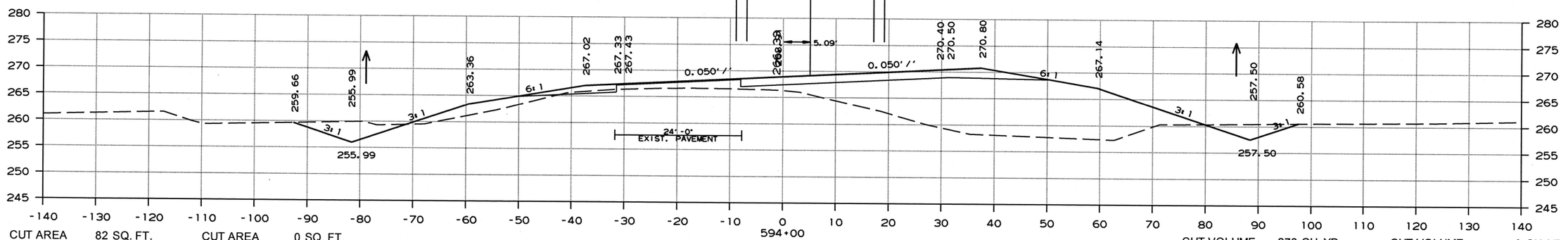
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	220	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2

STAGE 2 TRAFFIC

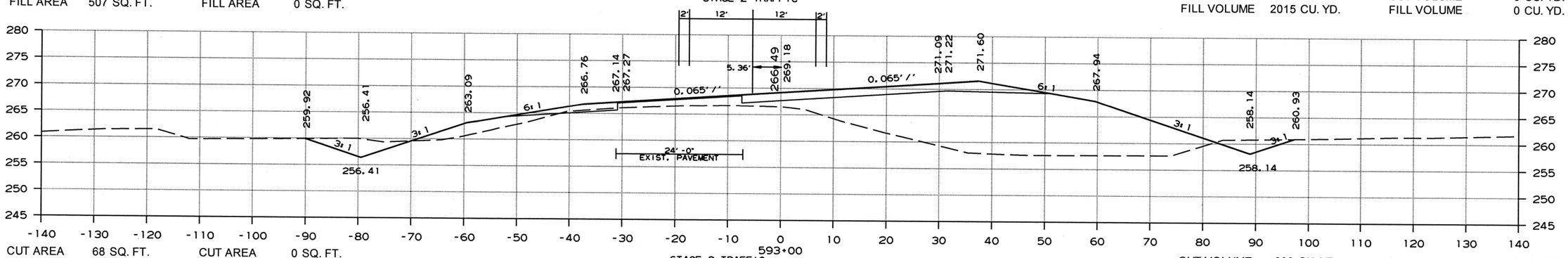


CUT AREA 82 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 507 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 278 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 2015 CU. YD. FILL VOLUME 0 CU. YD.

594+00

STAGE 2 TRAFFIC

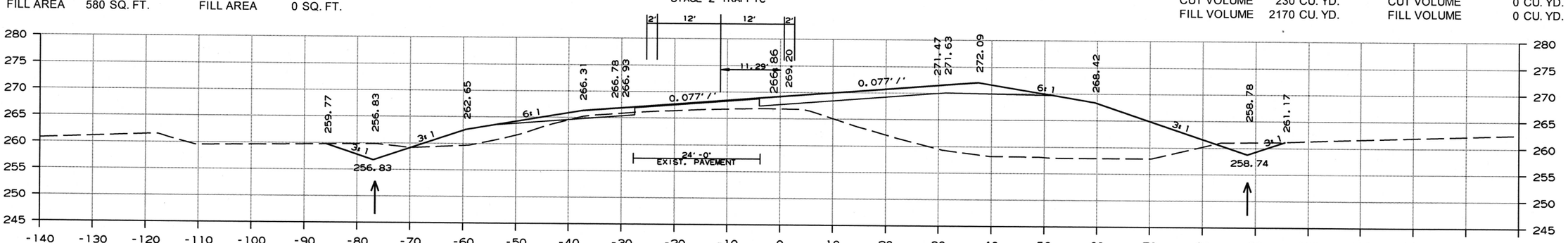


CUT AREA 68 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 580 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 230 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 2170 CU. YD. FILL VOLUME 0 CU. YD.

593+00

STAGE 2 TRAFFIC



CUT AREA 56 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 592 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 196 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 2022 CU. YD. FILL VOLUME 0 CU. YD.

592+00

CROSS SECTION STA. 592+00 TO STA. 594+00

3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	221	299

(2) CROSS SECTIONS

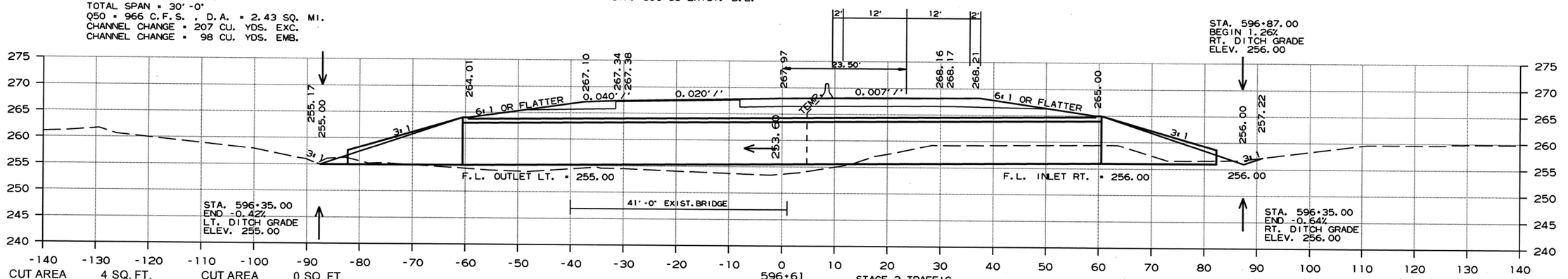
STAGE 1 STAGE 2

STAGE 1 STAGE 2

STA. 596+61 CONSTRUCT
TRI. 9' X 8' X 121' R.C. BOX CULVERT
W/3:1 WINGS LT. & RT.
TOTAL SPAN = 30'-0"
Q50 = 966 C.F.S. , D.A. = 2.43 SQ. MI.
CHANNEL CHANGE = 207 CU. YDS. EXC.
CHANNEL CHANGE = 98 CU. YDS. EMB.

STA. 596+85 EXIST. B.E.

STAGE 2 TRAFFIC

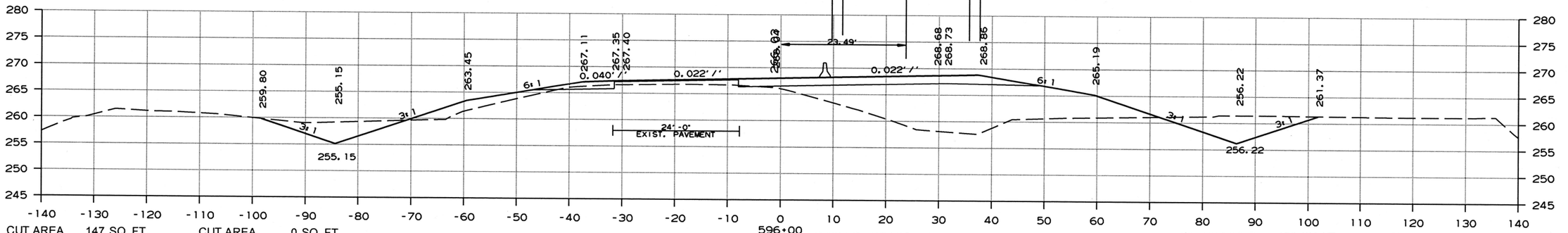


CUT AREA 4 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 1342 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 172 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 1927 CU. YD. FILL VOLUME 0 CU. YD.

STA. 596+42 EXIST. B.E.

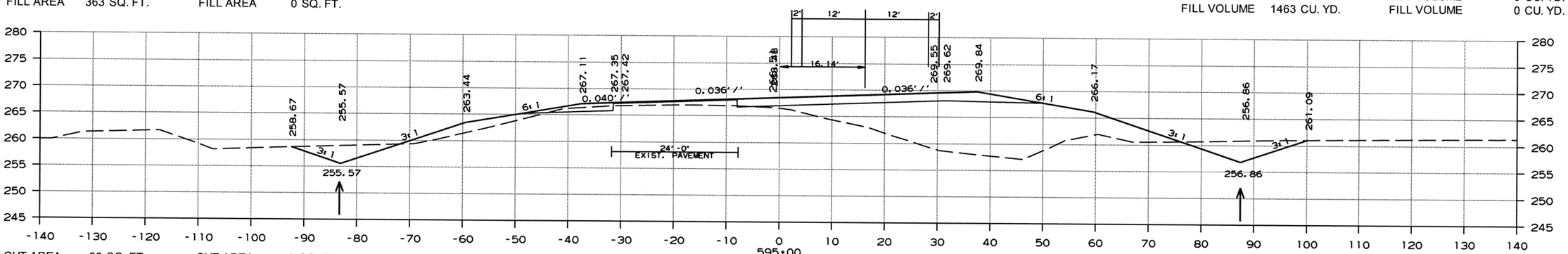
STAGE 2 TRAFFIC



CUT AREA 147 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 363 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 456 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 1463 CU. YD. FILL VOLUME 0 CU. YD.

STAGE 2 TRAFFIC



CUT AREA 99 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 426 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 337 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 1730 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 595+00 TO STA. 596+61

3/6/2019

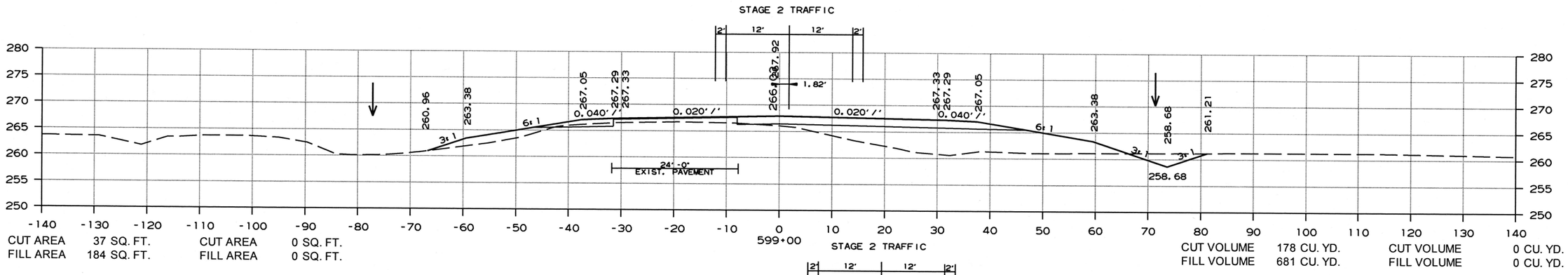
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	222	299

(2) CROSS SECTIONS

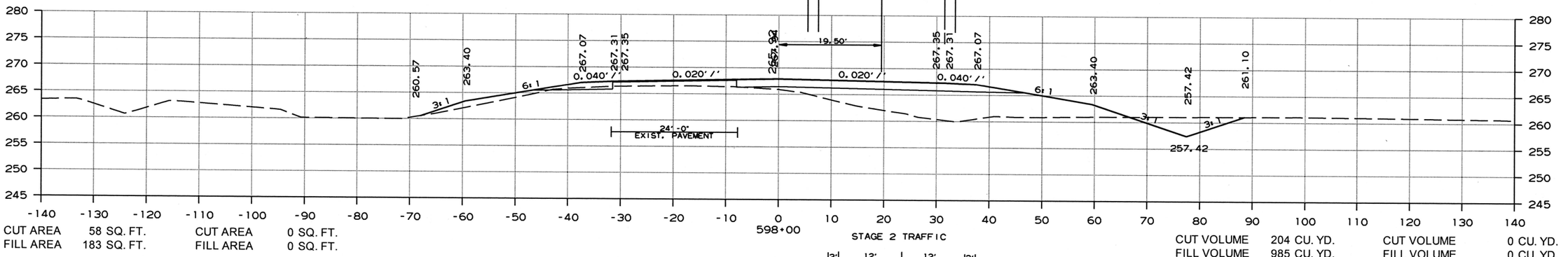
STAGE 1 STAGE 2

STAGE 1 STAGE 2



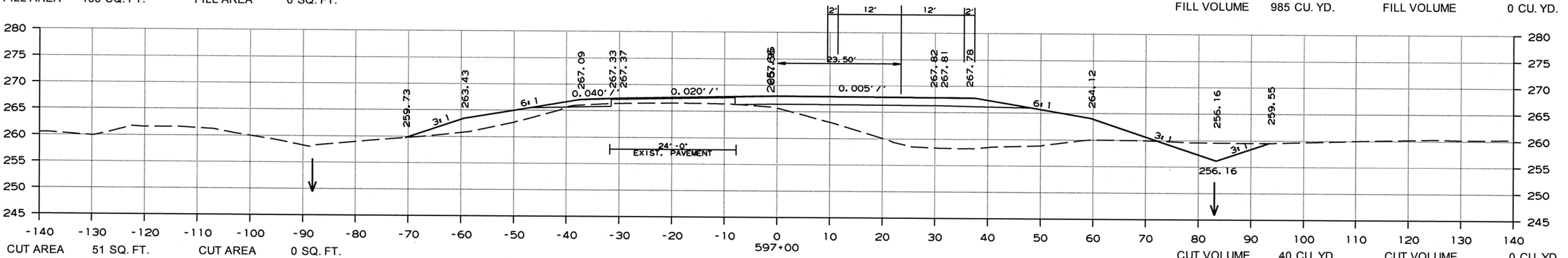
CUT AREA 37 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 184 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 178 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 681 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 58 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 183 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 204 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 985 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 51 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 348 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 40 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 1221 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 597+00 TO STA. 599+00

3/6/2019

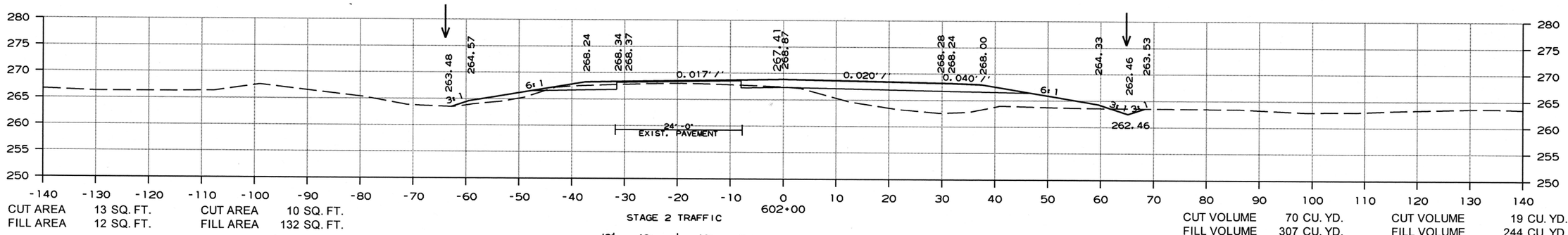
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	223	299

(2) CROSS SECTIONS

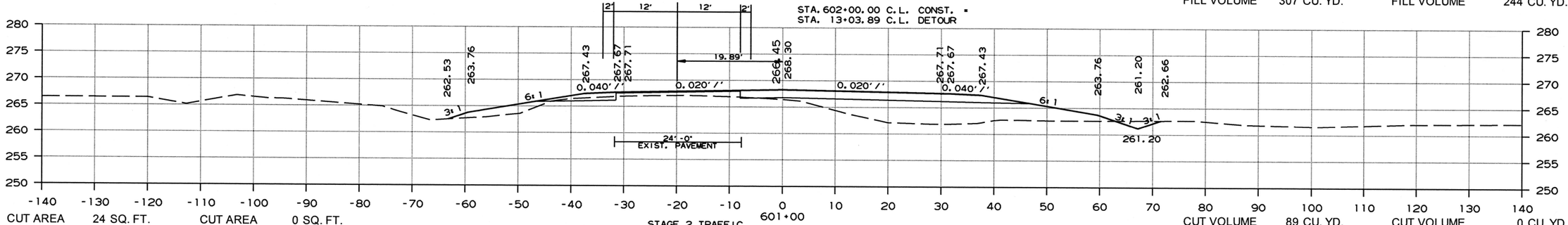
STAGE 1 STAGE 2

STAGE 1 STAGE 2

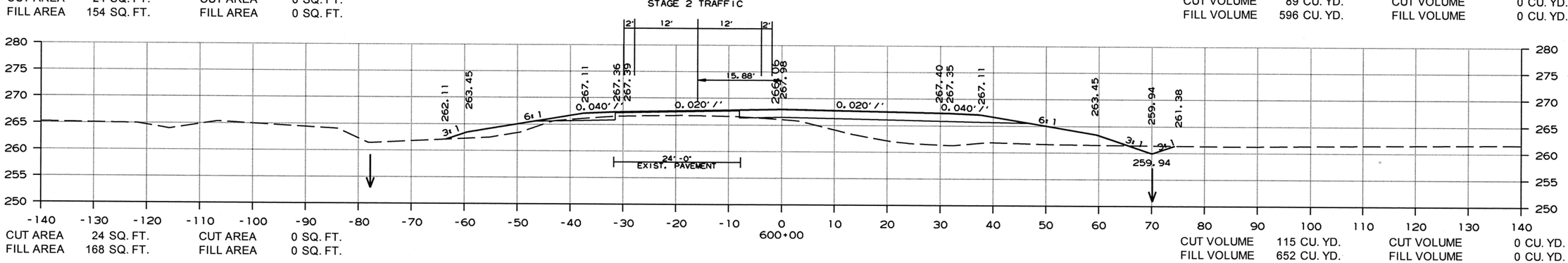


CUT AREA	13 SQ. FT.	CUT AREA	10 SQ. FT.
FILL AREA	12 SQ. FT.	FILL AREA	132 SQ. FT.
CUT VOLUME	70 CU. YD.	CUT VOLUME	19 CU. YD.
FILL VOLUME	307 CU. YD.	FILL VOLUME	244 CU. YD.

STA. 602+00.00 C.L. CONST. =
STA. 13+03.89 C.L. DETOUR



CUT AREA	24 SQ. FT.	CUT AREA	0 SQ. FT.
FILL AREA	154 SQ. FT.	FILL AREA	0 SQ. FT.
CUT VOLUME	89 CU. YD.	CUT VOLUME	0 CU. YD.
FILL VOLUME	596 CU. YD.	FILL VOLUME	0 CU. YD.



CUT AREA	24 SQ. FT.	CUT AREA	0 SQ. FT.
FILL AREA	168 SQ. FT.	FILL AREA	0 SQ. FT.
CUT VOLUME	115 CU. YD.	CUT VOLUME	0 CU. YD.
FILL VOLUME	652 CU. YD.	FILL VOLUME	0 CU. YD.

CROSS SECTION STA. 600+00 TO STA. 602+00

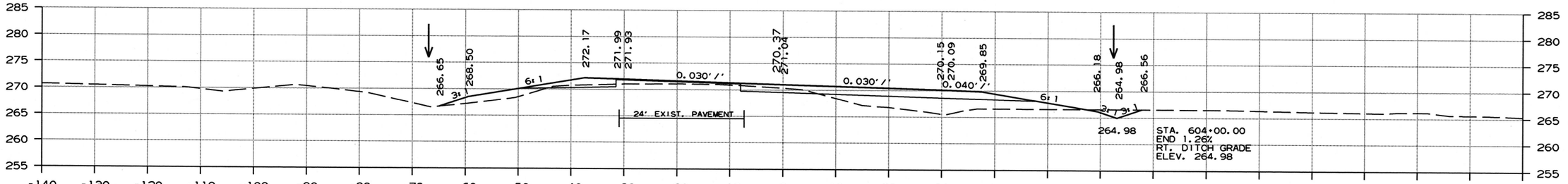
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	224	299

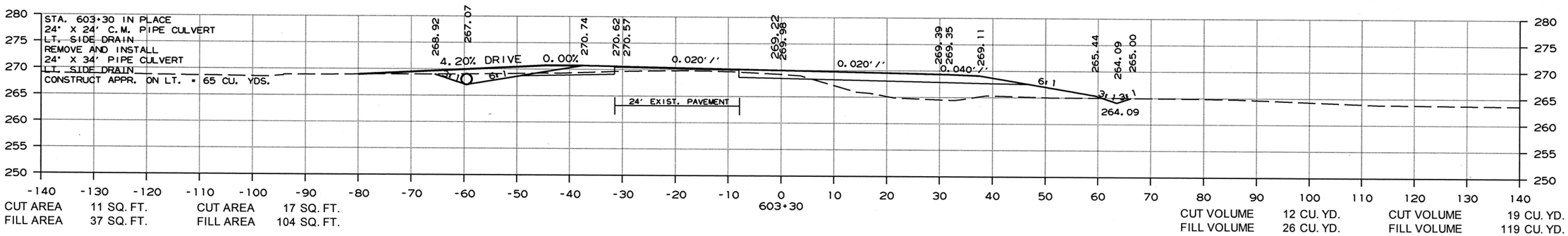
(2) CROSS SECTIONS

STAGE 1 STAGE 2



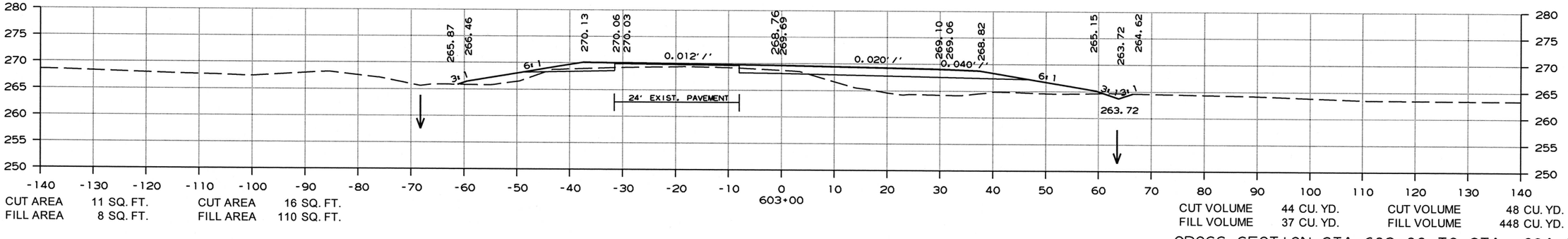
CUT AREA 9 SQ. FT. CUT AREA 23 SQ. FT.
FILL AREA 17 SQ. FT. FILL AREA 75 SQ. FT.

CUT VOLUME 26 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 70 CU. YD. FILL VOLUME 233 CU. YD.



CUT AREA 11 SQ. FT. CUT AREA 17 SQ. FT.
FILL AREA 37 SQ. FT. FILL AREA 104 SQ. FT.

CUT VOLUME 12 CU. YD. CUT VOLUME 19 CU. YD.
FILL VOLUME 26 CU. YD. FILL VOLUME 119 CU. YD.



CUT AREA 11 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 8 SQ. FT. FILL AREA 110 SQ. FT.

CUT VOLUME 44 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 37 CU. YD. FILL VOLUME 448 CU. YD.

CROSS SECTION STA. 603+00 TO STA. 604+00

3/6/2019

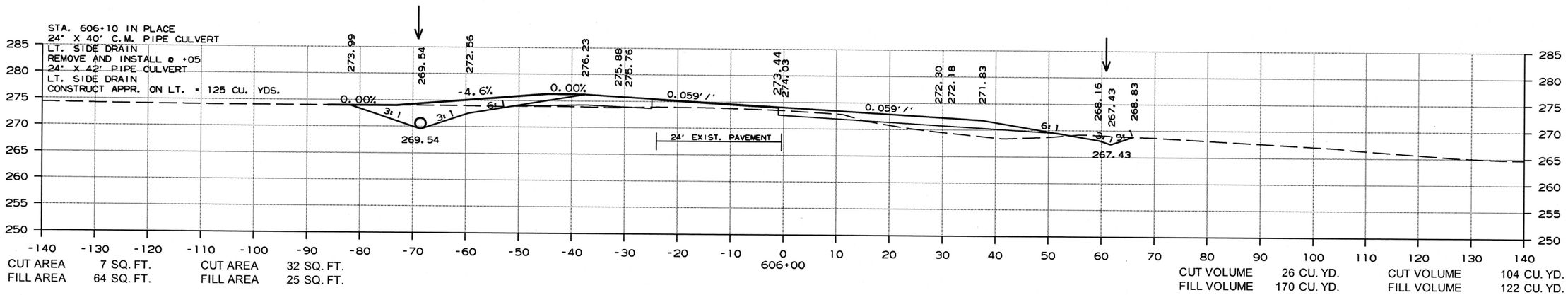
RCA0704.DGN

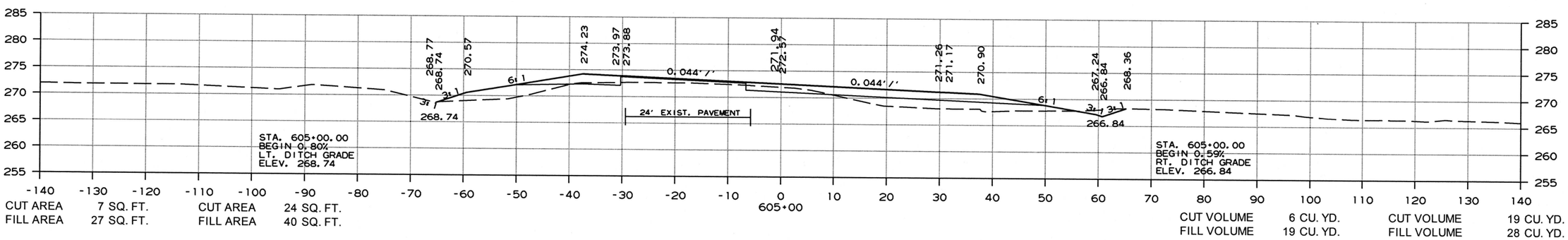
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	225	299

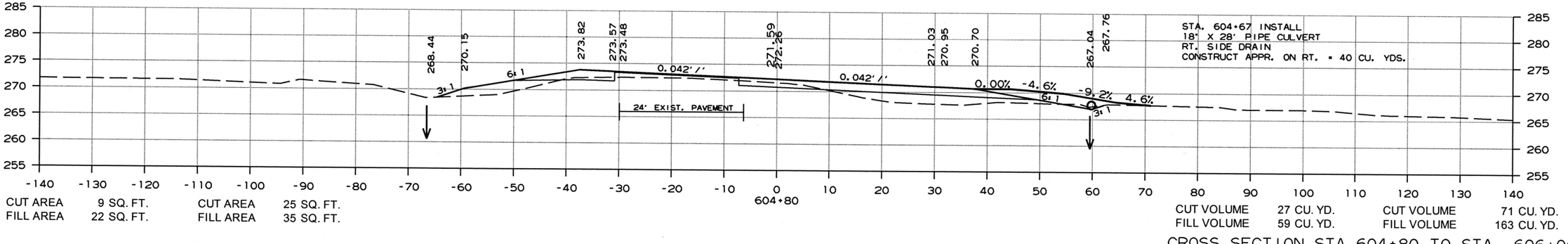
(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2







CROSS SECTION STA. 604+80 TO STA. 606+00

3/6/2019

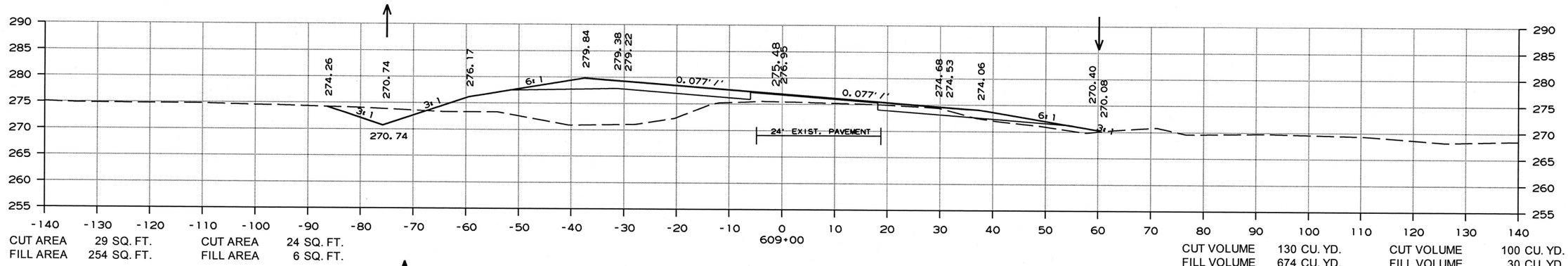
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	226	299

(2) CROSS SECTIONS

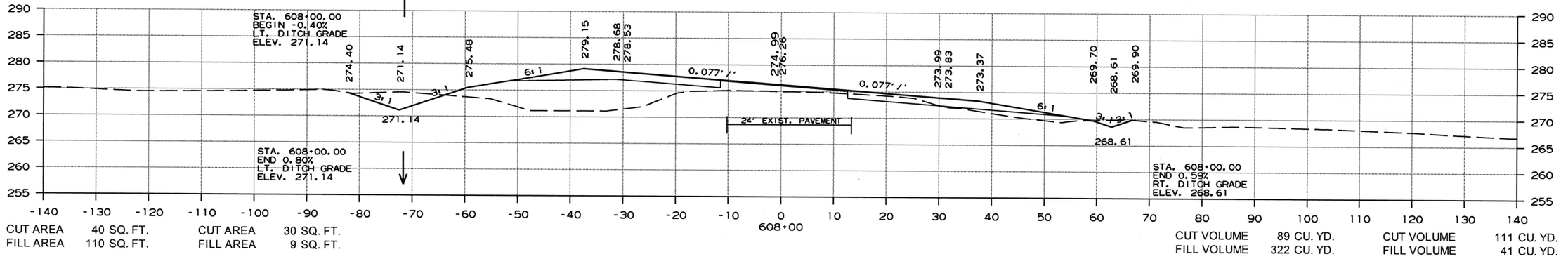
STAGE 1 STAGE 2

STAGE 1 STAGE 2



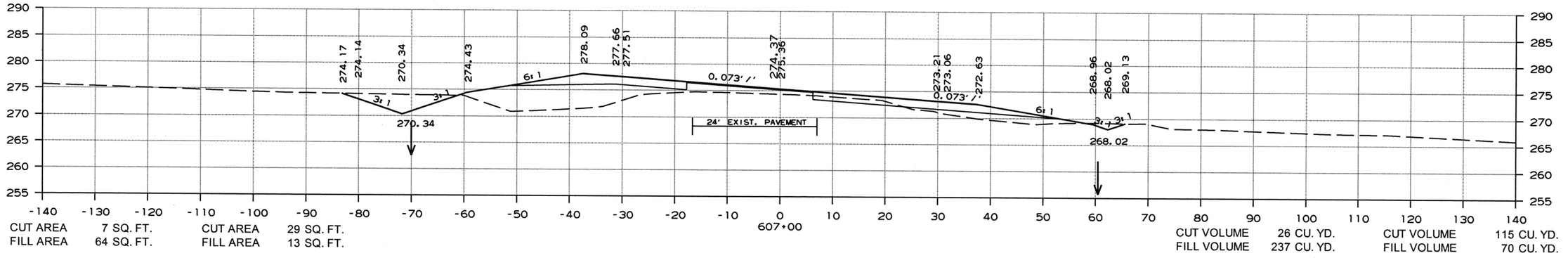
CUT AREA 29 SQ. FT. CUT AREA 24 SQ. FT.
FILL AREA 254 SQ. FT. FILL AREA 6 SQ. FT.

CUT VOLUME 130 CU. YD. CUT VOLUME 100 CU. YD.
FILL VOLUME 674 CU. YD. FILL VOLUME 30 CU. YD.



CUT AREA 40 SQ. FT. CUT AREA 30 SQ. FT.
FILL AREA 110 SQ. FT. FILL AREA 9 SQ. FT.

CUT VOLUME 89 CU. YD. CUT VOLUME 111 CU. YD.
FILL VOLUME 322 CU. YD. FILL VOLUME 41 CU. YD.



CUT AREA 7 SQ. FT. CUT AREA 29 SQ. FT.
FILL AREA 64 SQ. FT. FILL AREA 13 SQ. FT.

CUT VOLUME 26 CU. YD. CUT VOLUME 115 CU. YD.
FILL VOLUME 237 CU. YD. FILL VOLUME 70 CU. YD.

CROSS SECTION STA. 607+00 TO STA. 609+00

3/6/2019

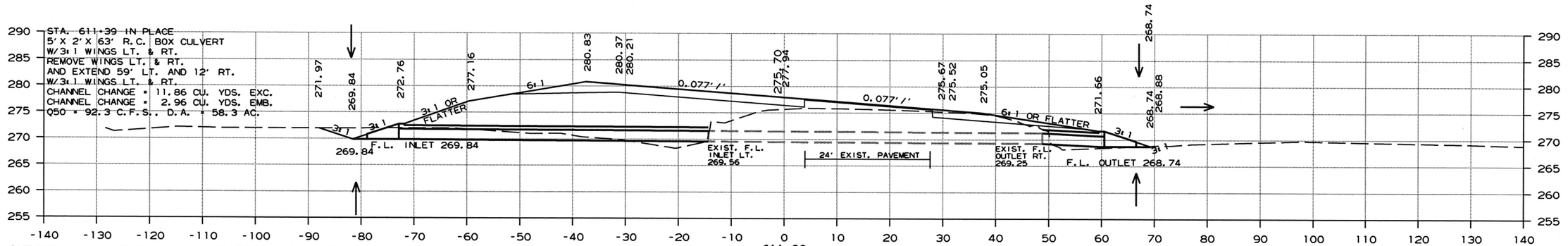
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	227	299

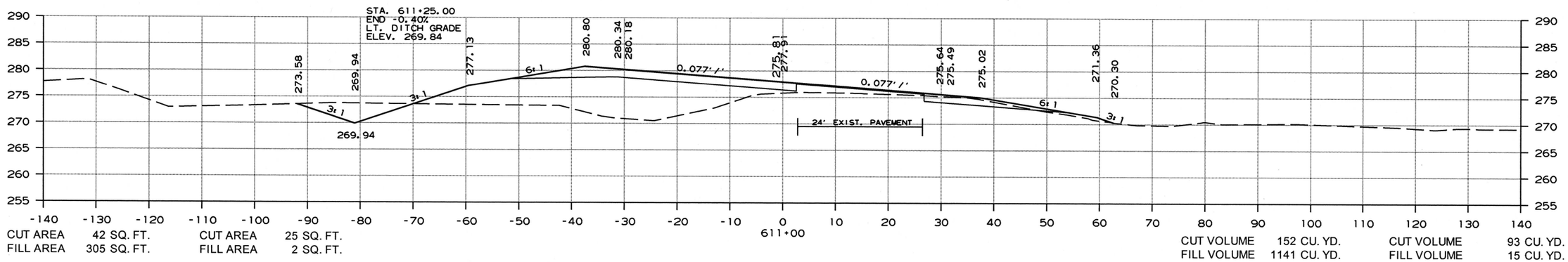
(2) CROSS SECTIONS

STAGE 1 STAGE 2

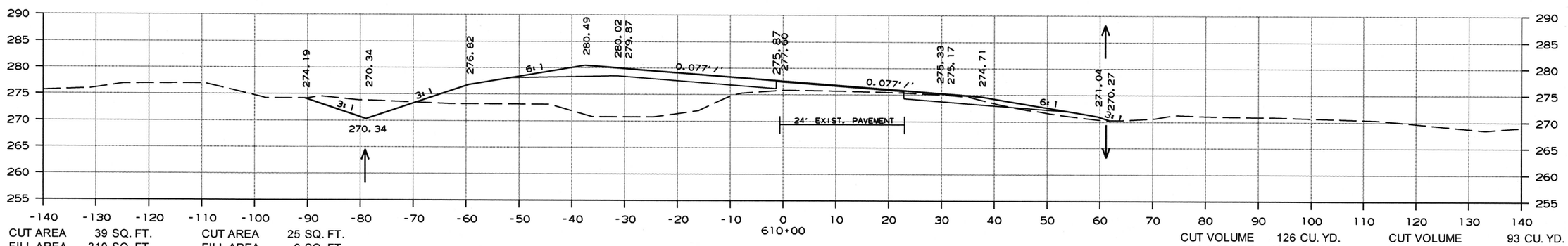
STAGE 1 STAGE 2



CUT AREA	14 SQ. FT.	CUT AREA	22 SQ. FT.	CUT VOLUME	39 CU. YD.	CUT VOLUME	34 CU. YD.
FILL AREA	426 SQ. FT.	FILL AREA	51 SQ. FT.	FILL VOLUME	515 CU. YD.	FILL VOLUME	38 CU. YD.



CUT AREA	42 SQ. FT.	CUT AREA	25 SQ. FT.	CUT VOLUME	152 CU. YD.	CUT VOLUME	93 CU. YD.
FILL AREA	305 SQ. FT.	FILL AREA	2 SQ. FT.	FILL VOLUME	1141 CU. YD.	FILL VOLUME	15 CU. YD.



CUT AREA	39 SQ. FT.	CUT AREA	25 SQ. FT.	CUT VOLUME	126 CU. YD.	CUT VOLUME	93 CU. YD.
FILL AREA	310 SQ. FT.	FILL AREA	6 SQ. FT.	FILL VOLUME	1044 CU. YD.	FILL VOLUME	22 CU. YD.

CROSS SECTION STA. 610+00 TO STA. 611+38

3/6/2019

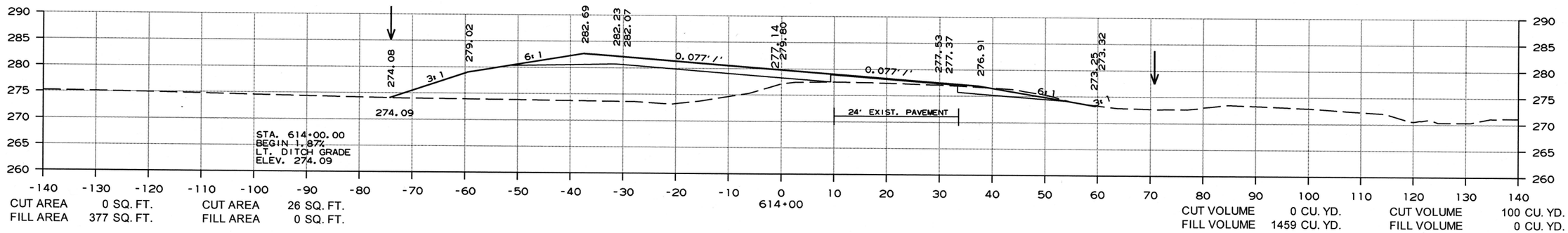
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	228	299

(2) CROSS SECTIONS

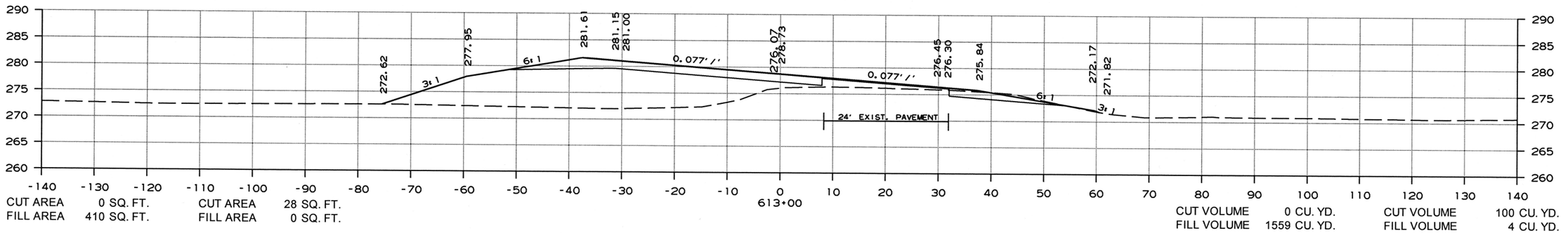
STAGE 1 STAGE 2

STAGE 1 STAGE 2



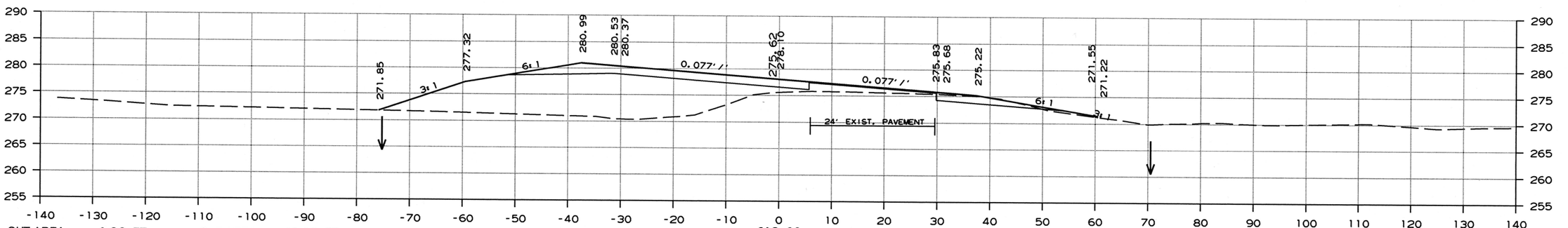
CUT AREA 0 SQ. FT. CUT AREA 26 SQ. FT.
FILL AREA 377 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 100 CU. YD.
FILL VOLUME 1459 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 28 SQ. FT.
FILL AREA 410 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 100 CU. YD.
FILL VOLUME 1559 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 25 SQ. FT.
FILL AREA 431 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 16 CU. YD. CUT VOLUME 55 CU. YD.
FILL VOLUME 985 CU. YD. FILL VOLUME 60 CU. YD.

CROSS SECTION STA. 612+00 TO STA. 614+00

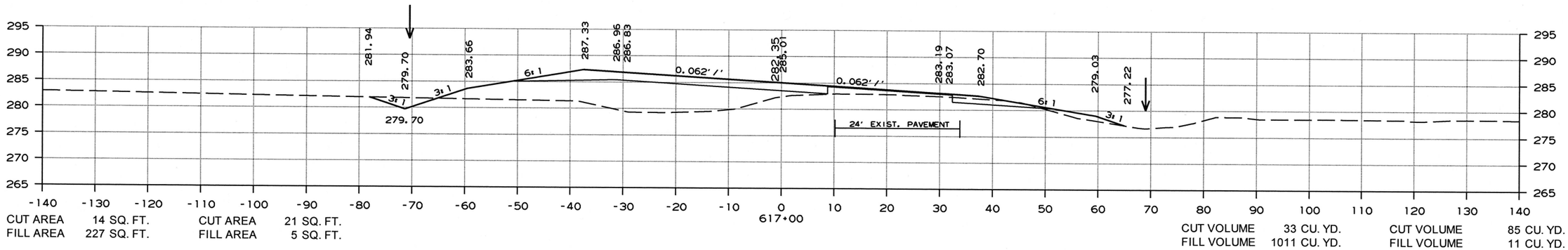
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	229	299

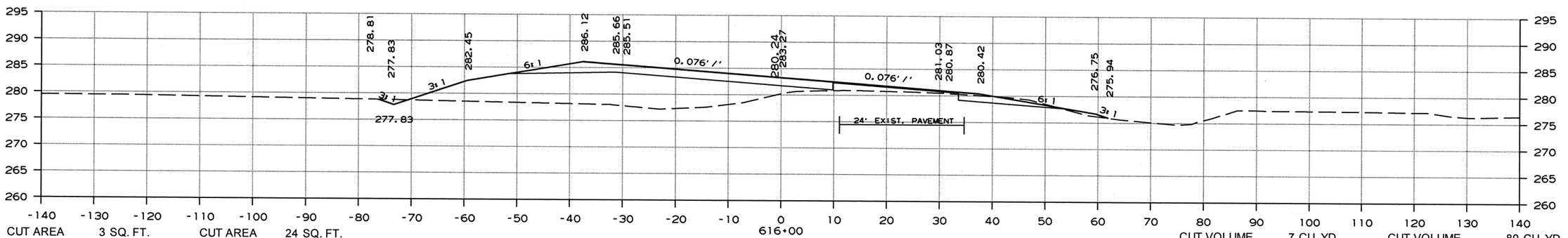
(2) CROSS SECTIONS

STAGE 1 STAGE 2



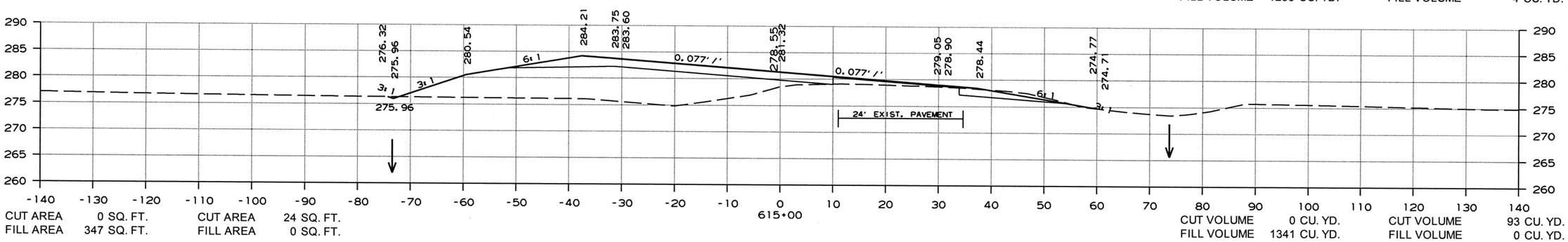
CUT AREA 14 SQ. FT. CUT AREA 21 SQ. FT.
FILL AREA 227 SQ. FT. FILL AREA 5 SQ. FT.

CUT VOLUME 33 CU. YD. CUT VOLUME 85 CU. YD.
FILL VOLUME 1011 CU. YD. FILL VOLUME 11 CU. YD.



CUT AREA 3 SQ. FT. CUT AREA 24 SQ. FT.
FILL AREA 318 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 7 CU. YD. CUT VOLUME 89 CU. YD.
FILL VOLUME 1233 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 24 SQ. FT.
FILL AREA 347 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 93 CU. YD.
FILL VOLUME 1341 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 615+00 TO STA. 617+00

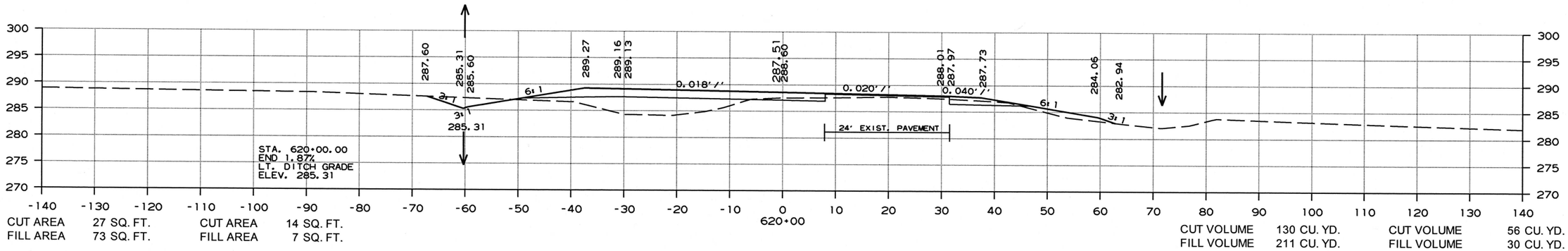
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	230	299

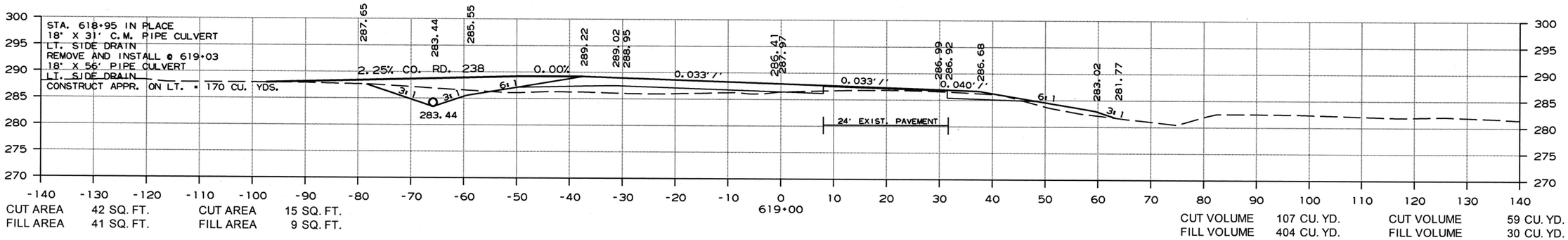
(2) CROSS SECTIONS

STAGE 1 STAGE 2



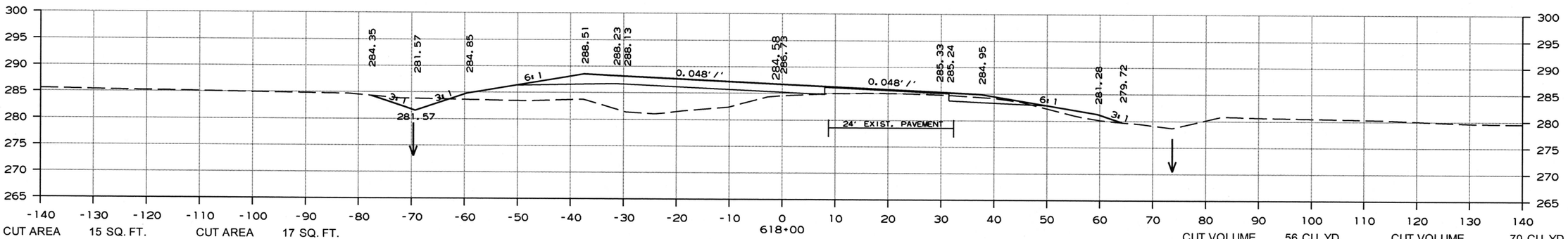
CUT AREA 27 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 73 SQ. FT. FILL AREA 7 SQ. FT.

CUT VOLUME 130 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 211 CU. YD. FILL VOLUME 30 CU. YD.



CUT AREA 42 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 41 SQ. FT. FILL AREA 9 SQ. FT.

CUT VOLUME 107 CU. YD. CUT VOLUME 59 CU. YD.
FILL VOLUME 404 CU. YD. FILL VOLUME 30 CU. YD.



CUT AREA 15 SQ. FT. CUT AREA 17 SQ. FT.
FILL AREA 177 SQ. FT. FILL AREA 7 SQ. FT.

CUT VOLUME 56 CU. YD. CUT VOLUME 70 CU. YD.
FILL VOLUME 748 CU. YD. FILL VOLUME 22 CU. YD.

CROSS SECTION STA. 618+00 TO STA. 620+00

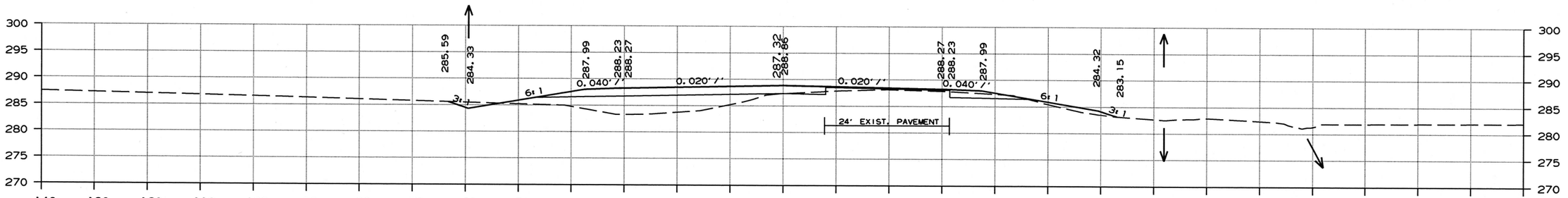
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	231	299

(2) CROSS SECTIONS

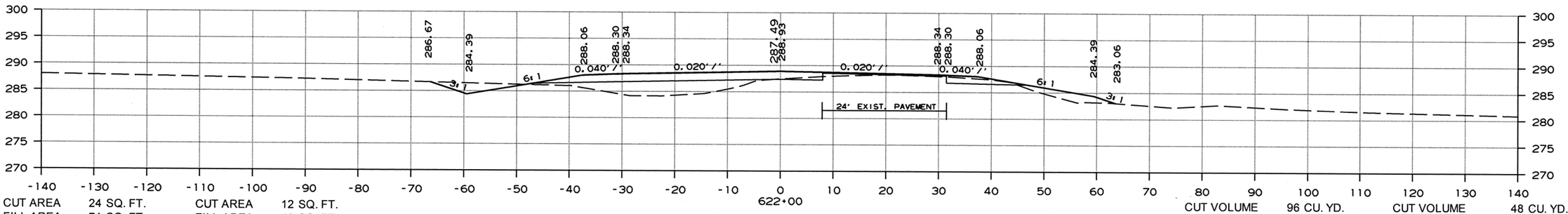
STAGE 1 STAGE 2



CUT AREA 10 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 104 SQ. FT. FILL AREA 6 SQ. FT.

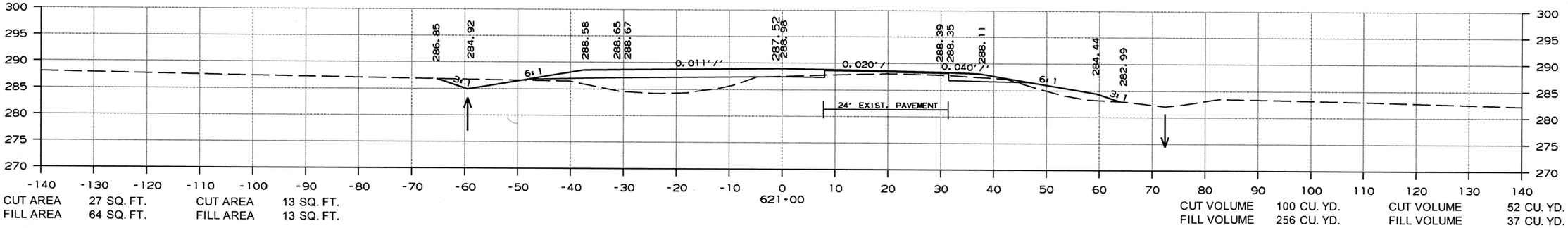
CUT VOLUME 63 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 326 CU. YD. FILL VOLUME 48 CU. YD.

STAGE 1 STAGE 2



CUT AREA 24 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 71 SQ. FT. FILL AREA 19 SQ. FT.

CUT VOLUME 96 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 252 CU. YD. FILL VOLUME 59 CU. YD.



CUT AREA 27 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 64 SQ. FT. FILL AREA 13 SQ. FT.

CUT VOLUME 100 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 256 CU. YD. FILL VOLUME 37 CU. YD.

CROSS SECTION STA. 621+00 TO STA. 623+00

3/6/2019

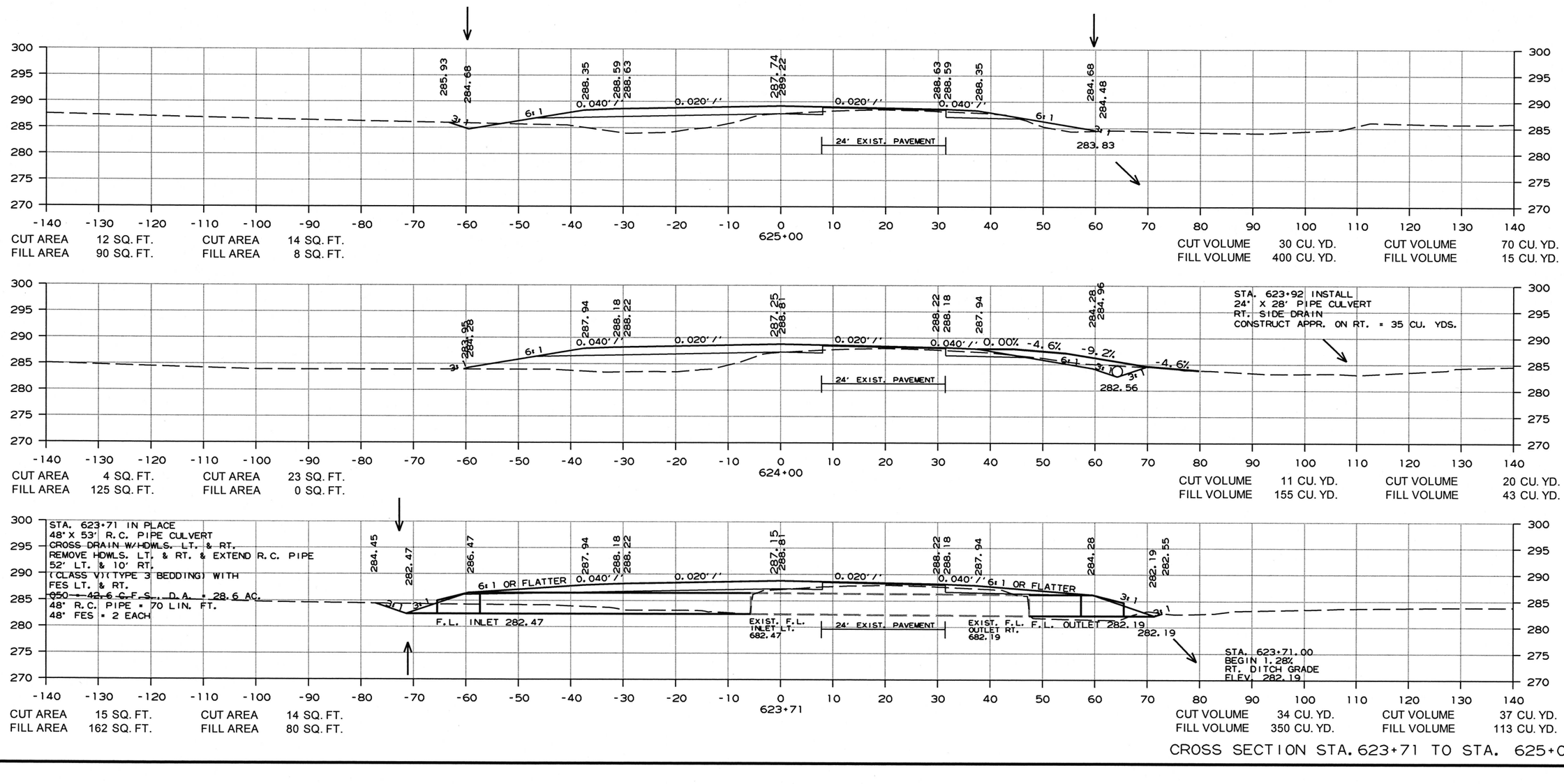
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	232	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2



CROSS SECTION STA. 623+71 TO STA. 625+00

3/6/2019

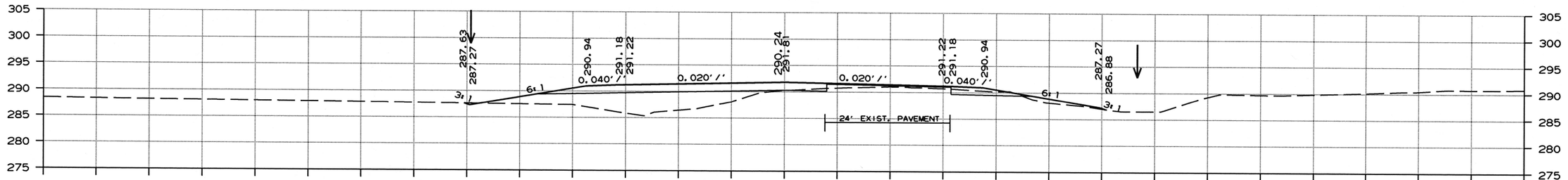
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	233	299

(2) CROSS SECTIONS

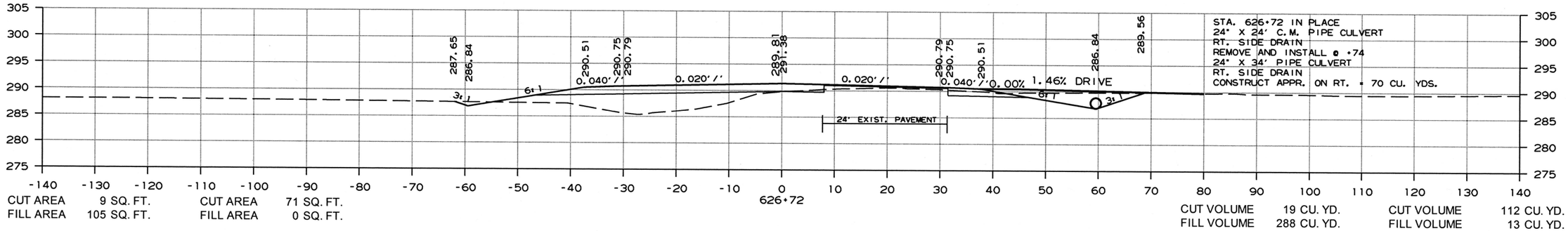
STAGE 1 STAGE 2

STAGE 1 STAGE 2



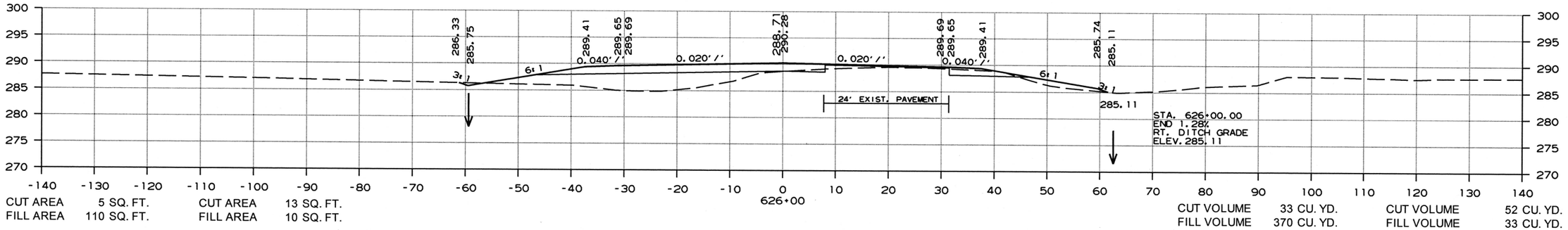
CUT AREA 5 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 117 SQ. FT. FILL AREA 4 SQ. FT.

CUT VOLUME 7 CU. YD. CUT VOLUME 44 CU. YD.
FILL VOLUME 115 CU. YD. FILL VOLUME 2 CU. YD.



CUT AREA 9 SQ. FT. CUT AREA 71 SQ. FT.
FILL AREA 105 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 19 CU. YD. CUT VOLUME 112 CU. YD.
FILL VOLUME 288 CU. YD. FILL VOLUME 13 CU. YD.



CUT AREA 5 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 110 SQ. FT. FILL AREA 10 SQ. FT.

CUT VOLUME 33 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 370 CU. YD. FILL VOLUME 33 CU. YD.

CROSS SECTION STA. 626+00 TO STA. 627+00

3/6/2019

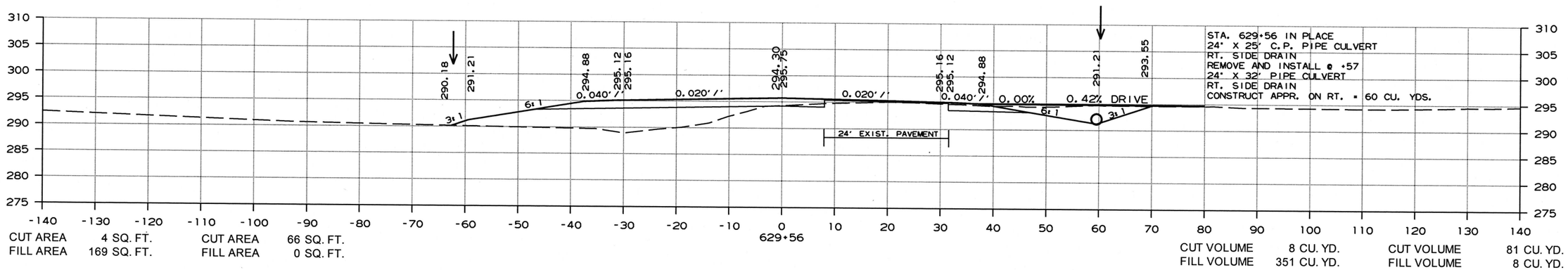
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	234	299

(2) CROSS SECTIONS

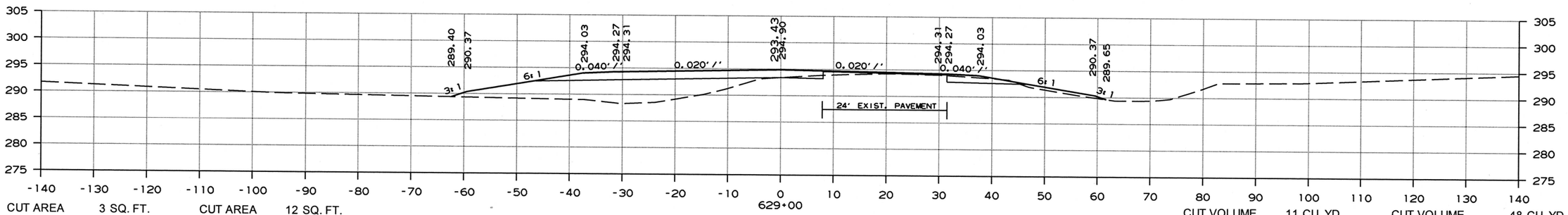
STAGE 1 STAGE 2

STAGE 1 STAGE 2



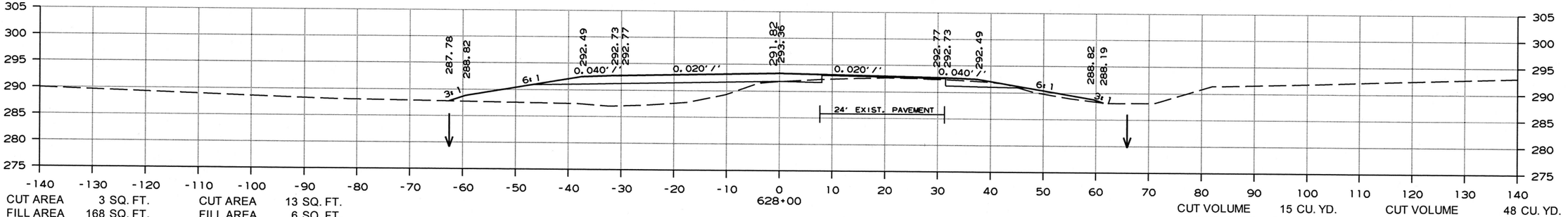
CUT AREA 4 SQ. FT. CUT AREA 66 SQ. FT.
FILL AREA 169 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 8 CU. YD. CUT VOLUME 81 CU. YD.
FILL VOLUME 351 CU. YD. FILL VOLUME 8 CU. YD.



CUT AREA 3 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 168 SQ. FT. FILL AREA 7 SQ. FT.

CUT VOLUME 11 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 622 CU. YD. FILL VOLUME 26 CU. YD.



CUT AREA 3 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 168 SQ. FT. FILL AREA 6 SQ. FT.

CUT VOLUME 15 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 530 CU. YD. FILL VOLUME 19 CU. YD.

CROSS SECTION STA. 628+00 TO STA. 629+56

3/6/2019

RCA0704.DGN

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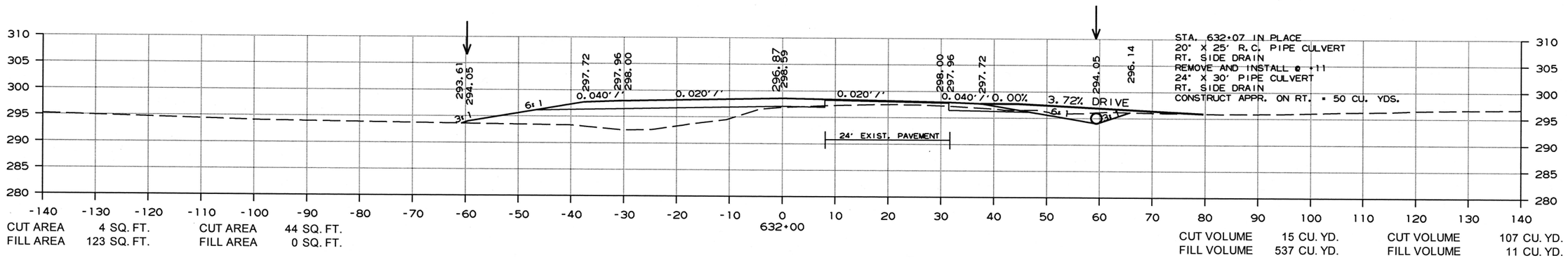
				6	ARK.			
				JOB NO.		CA0704	235	299

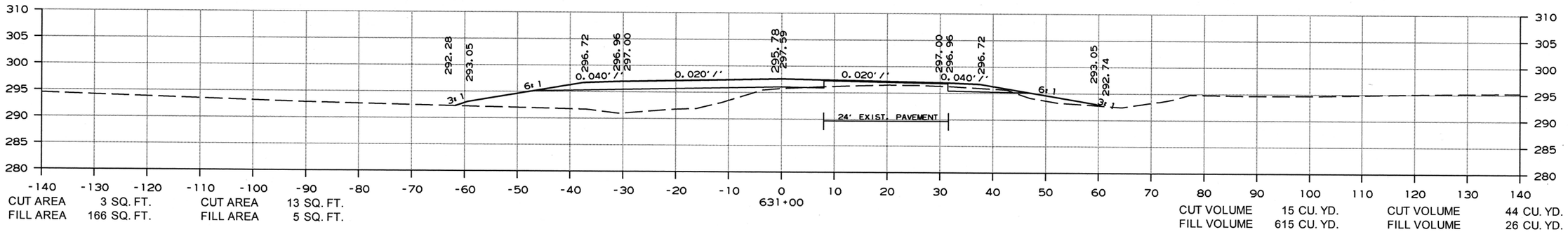
(2) CROSS SECTIONS

STAGE 1 STAGE 2

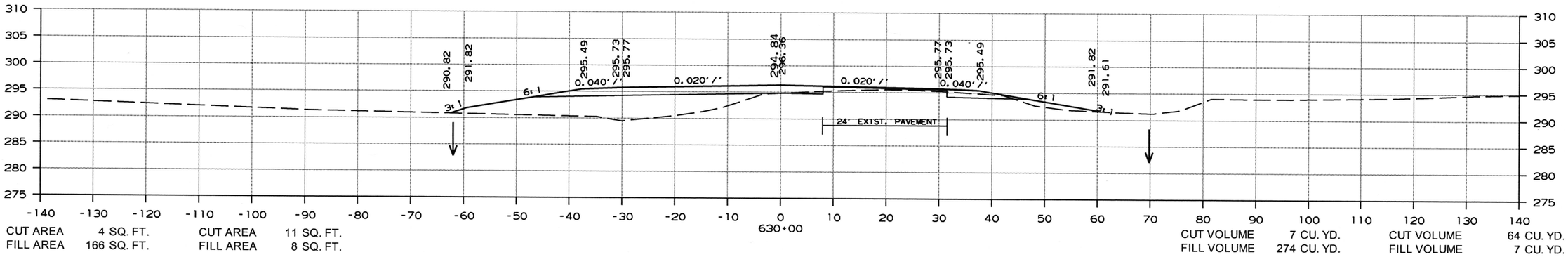


STA. 632+07 IN PLACE
20' X 25' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ +11
24' X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 50 CU. YDS.

CUT AREA	4 SQ. FT.	CUT AREA	44 SQ. FT.
FILL AREA	123 SQ. FT.	FILL AREA	0 SQ. FT.
CUT VOLUME	15 CU. YD.	CUT VOLUME	107 CU. YD.
FILL VOLUME	537 CU. YD.	FILL VOLUME	11 CU. YD.



CUT AREA	3 SQ. FT.	CUT AREA	13 SQ. FT.
FILL AREA	166 SQ. FT.	FILL AREA	5 SQ. FT.
CUT VOLUME	15 CU. YD.	CUT VOLUME	44 CU. YD.
FILL VOLUME	615 CU. YD.	FILL VOLUME	26 CU. YD.



CUT AREA	4 SQ. FT.	CUT AREA	11 SQ. FT.
FILL AREA	166 SQ. FT.	FILL AREA	8 SQ. FT.
CUT VOLUME	7 CU. YD.	CUT VOLUME	64 CU. YD.
FILL VOLUME	274 CU. YD.	FILL VOLUME	7 CU. YD.

CROSS SECTION STA. 630+00 TO STA. 632+00

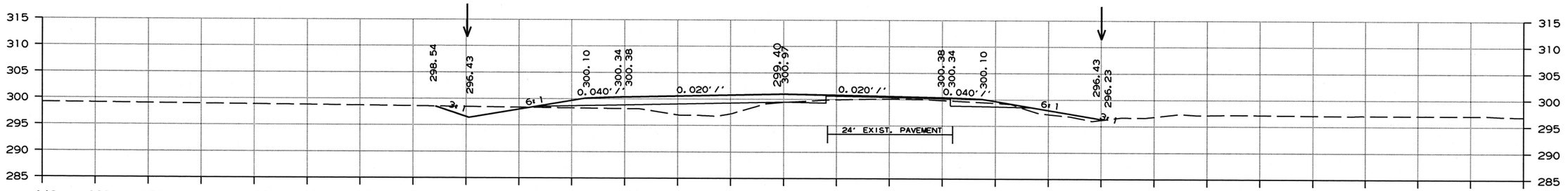
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	236	299

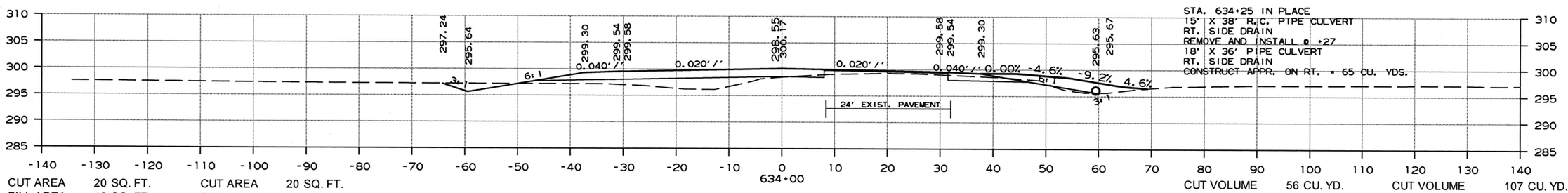
(2) CROSS SECTIONS

STAGE 1 STAGE 2



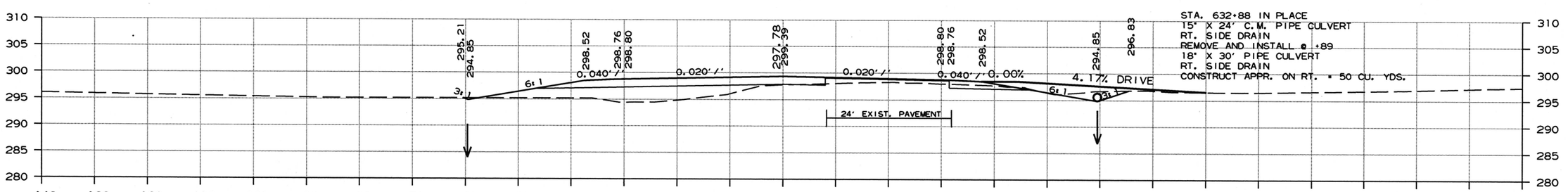
CUT AREA 24 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 39 SQ. FT. FILL AREA 5 SQ. FT.

CUT VOLUME 81 CU. YD. CUT VOLUME 59 CU. YD.
FILL VOLUME 152 CU. YD. FILL VOLUME 11 CU. YD.



CUT AREA 20 SQ. FT. CUT AREA 20 SQ. FT.
FILL AREA 42 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 56 CU. YD. CUT VOLUME 107 CU. YD.
FILL VOLUME 219 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 9 SQ. FT. CUT AREA 38 SQ. FT.
FILL AREA 75 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 26 CU. YD. CUT VOLUME 152 CU. YD.
FILL VOLUME 367 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 633+00 TO STA. 635+00

3/6/2019

RCA0704.DGN

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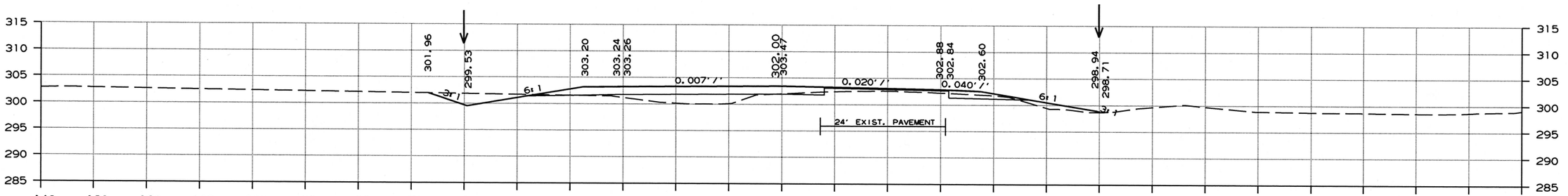
				6	ARK.			
				JOB NO.		CA0704	237	299

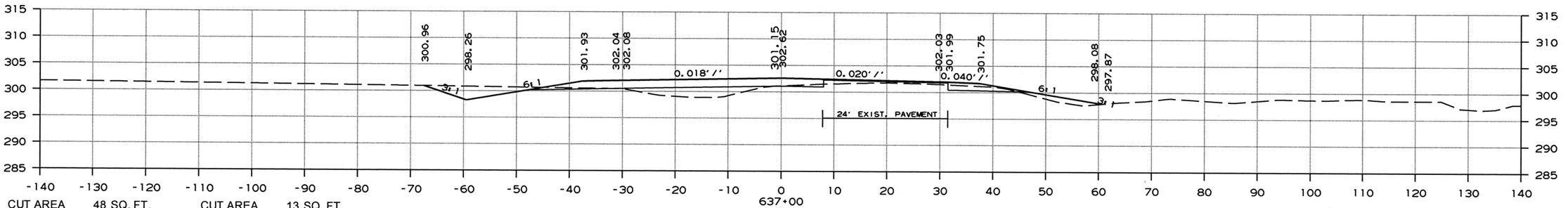
(2) CROSS SECTIONS

STAGE 1 STAGE 2



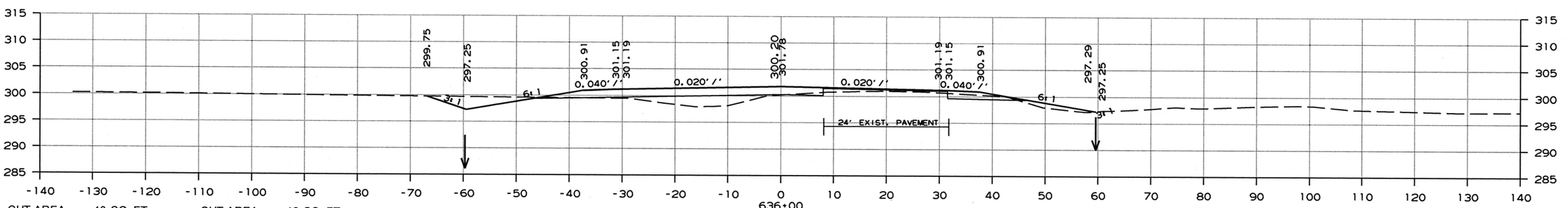
CUT AREA 41 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 28 SQ. FT. FILL AREA 5 SQ. FT.

CUT VOLUME 167 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 104 CU. YD. FILL VOLUME 22 CU. YD.



CUT AREA 48 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 28 SQ. FT. FILL AREA 7 SQ. FT.

CUT VOLUME 163 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 107 CU. YD. FILL VOLUME 22 CU. YD.



CUT AREA 40 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 29 SQ. FT. FILL AREA 5 SQ. FT.

CUT VOLUME 119 CU. YD. CUT VOLUME 44 CU. YD.
FILL VOLUME 126 CU. YD. FILL VOLUME 19 CU. YD.

CROSS SECTION STA. 636+00 TO STA. 638+00

3/6/2019

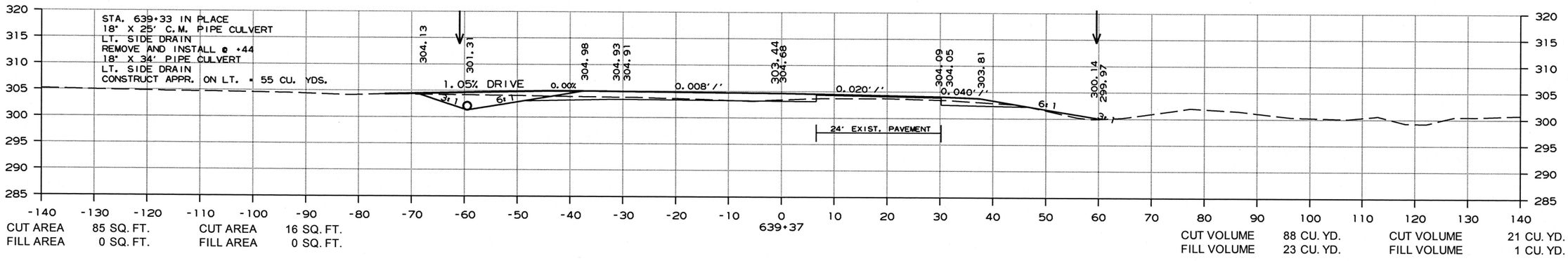
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	238	299

(2) CROSS SECTIONS

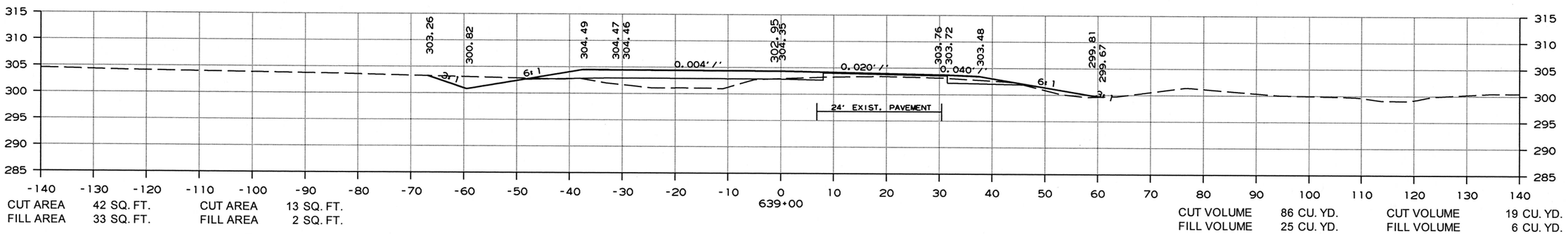
STAGE 1 STAGE 2

STAGE 1 STAGE 2



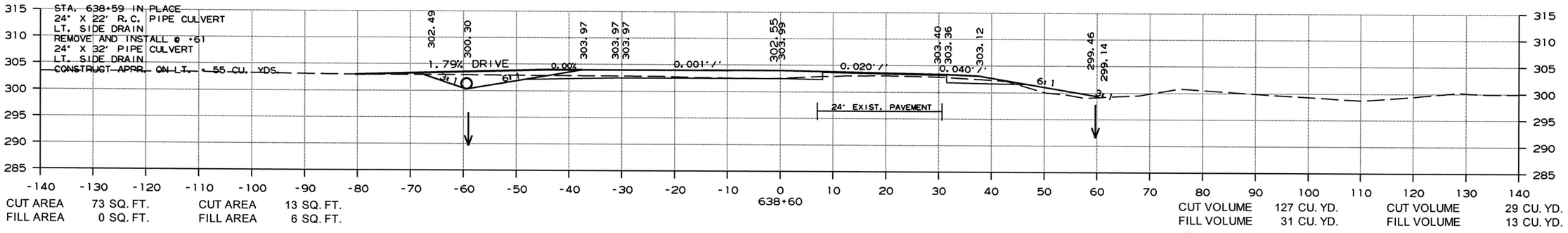
CUT AREA 85 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 88 CU. YD. CUT VOLUME 21 CU. YD.
FILL VOLUME 23 CU. YD. FILL VOLUME 1 CU. YD.



CUT AREA 42 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 33 SQ. FT. FILL AREA 2 SQ. FT.

CUT VOLUME 86 CU. YD. CUT VOLUME 19 CU. YD.
FILL VOLUME 25 CU. YD. FILL VOLUME 6 CU. YD.



CUT AREA 73 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 6 SQ. FT.

CUT VOLUME 127 CU. YD. CUT VOLUME 29 CU. YD.
FILL VOLUME 31 CU. YD. FILL VOLUME 13 CU. YD.

CROSS SECTION STA. 638+60 TO STA. 639+37

3/6/2019

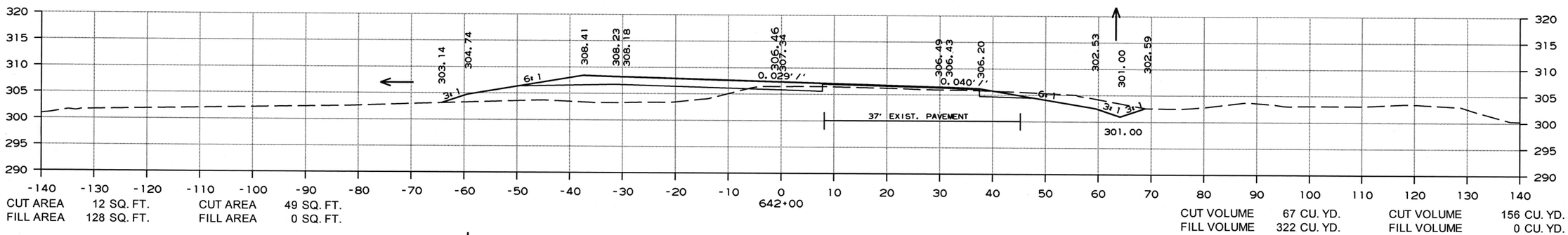
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	239	299

(2) CROSS SECTIONS

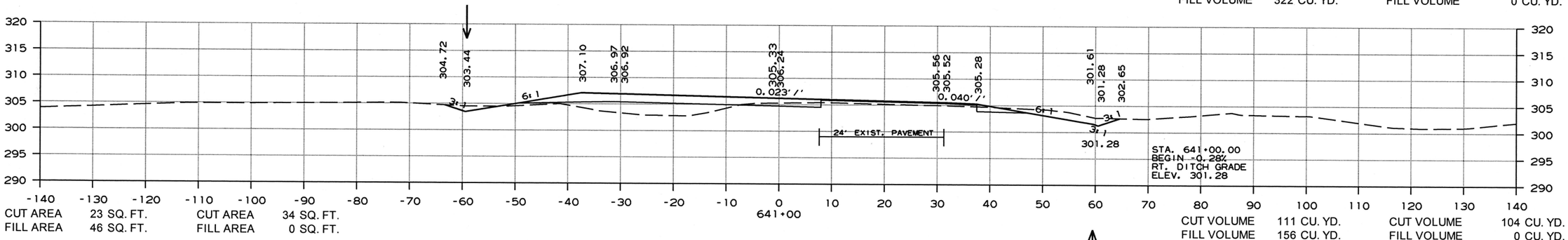
STAGE 1 STAGE 2

STAGE 1 STAGE 2



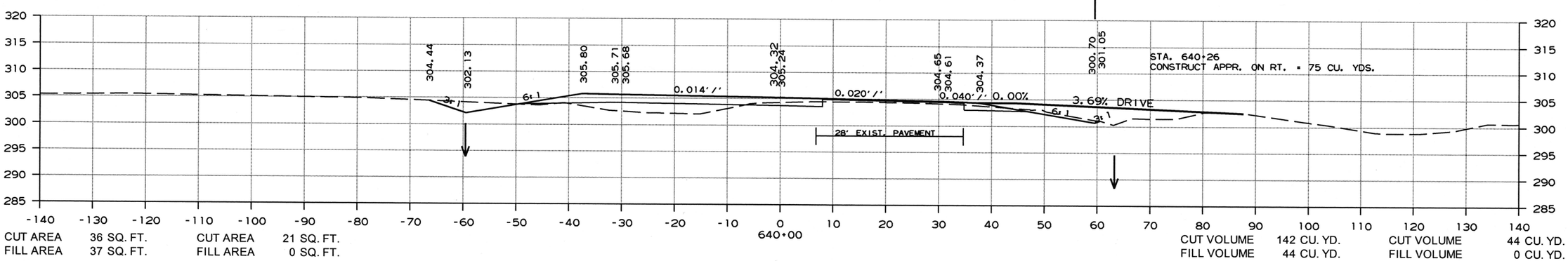
CUT AREA 12 SQ. FT. CUT AREA 49 SQ. FT.
FILL AREA 128 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 67 CU. YD. CUT VOLUME 156 CU. YD.
FILL VOLUME 322 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 23 SQ. FT. CUT AREA 34 SQ. FT.
FILL AREA 46 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 111 CU. YD. CUT VOLUME 104 CU. YD.
FILL VOLUME 156 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 36 SQ. FT. CUT AREA 21 SQ. FT.
FILL AREA 37 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 142 CU. YD. CUT VOLUME 44 CU. YD.
FILL VOLUME 44 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 640+00 TO STA. 642+00

3/6/2019

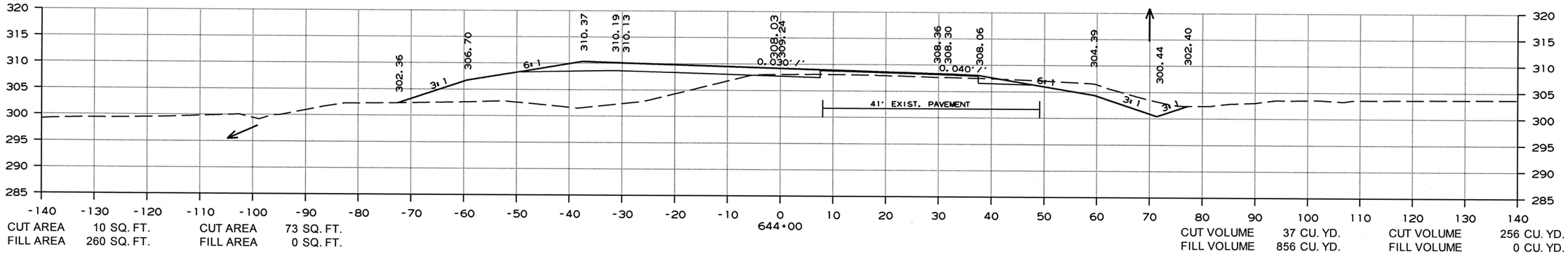
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	240	299

(2) CROSS SECTIONS

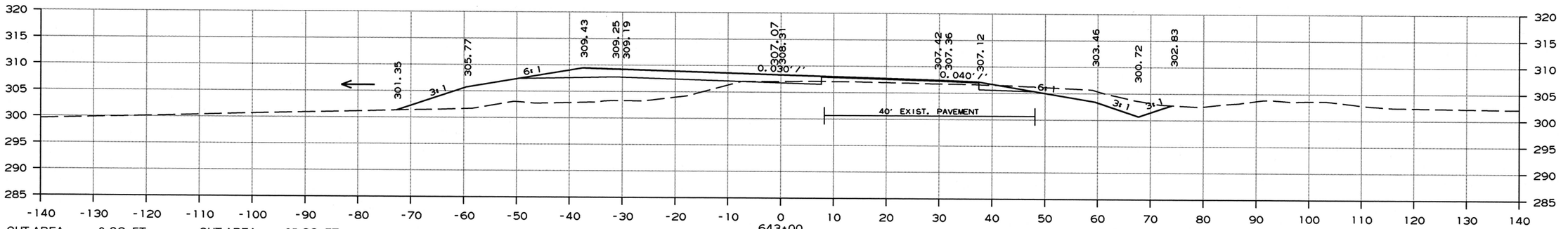
STAGE 1 STAGE 2

STAGE 1 STAGE 2



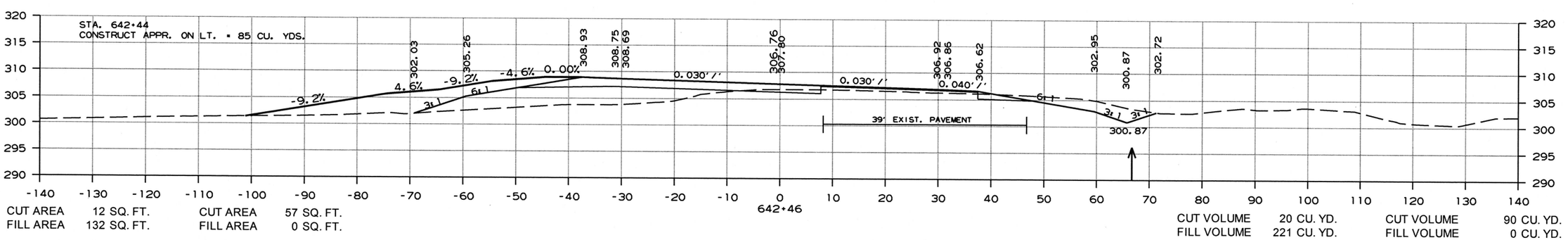
CUT AREA 10 SQ. FT. CUT AREA 73 SQ. FT.
FILL AREA 260 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 37 CU. YD. CUT VOLUME 256 CU. YD.
FILL VOLUME 856 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 9 SQ. FT. CUT AREA 65 SQ. FT.
FILL AREA 201 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 122 CU. YD.
FILL VOLUME 334 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 12 SQ. FT. CUT AREA 57 SQ. FT.
FILL AREA 132 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 20 CU. YD. CUT VOLUME 90 CU. YD.
FILL VOLUME 221 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 642+46 TO STA. 644+00

3/6/2019

RCA0704.DGN

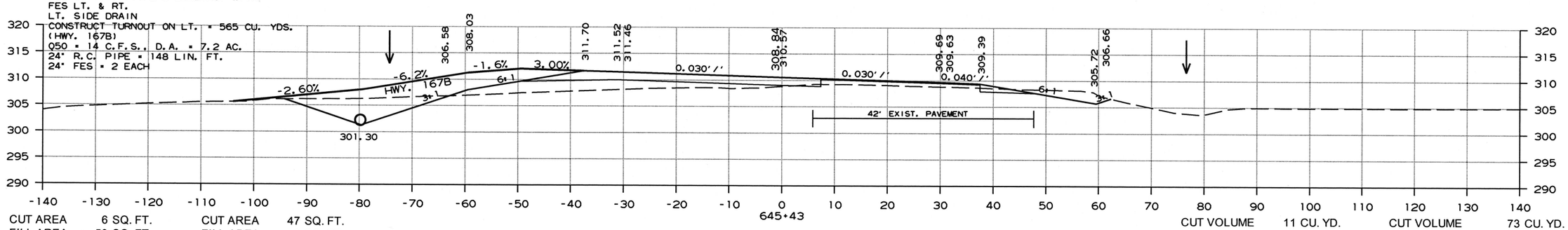
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	241	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2

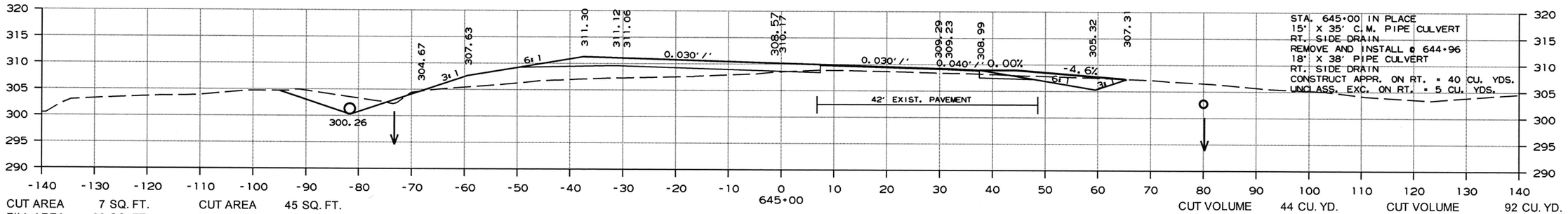
STAGE 1 STAGE 2

STA. 645+41 IN PLACE
24" X 94' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL @ +42
24" X 148' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING) WITH
FES LT. & RT.
LT. SIDE DRAIN
CONSTRUCT TURNOUT ON LT. = 565 CU. YDS.
(HWY. 167B)
Q50 = 14 C.F.S., D.A. = 7.2 AC.
24" R.C. PIPE = 148 LIN. FT.
24" FES = 2 EACH



CUT AREA 6 SQ. FT. CUT AREA 47 SQ. FT.
FILL AREA 53 SQ. FT. FILL AREA 0 SQ. FT.

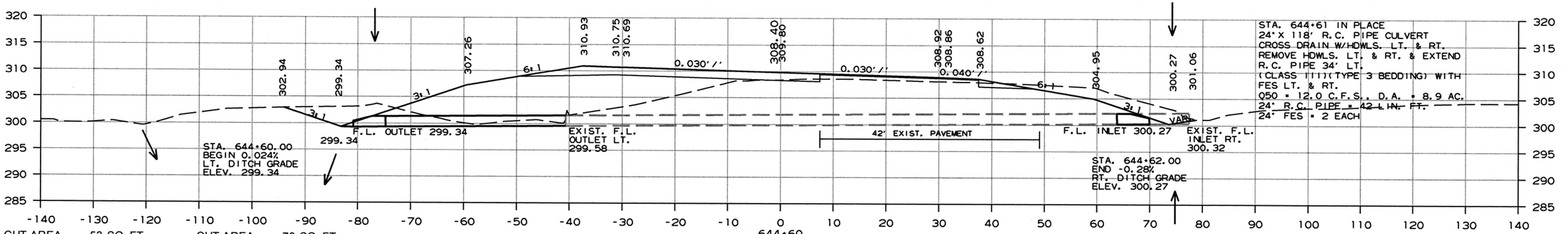
CUT VOLUME 11 CU. YD. CUT VOLUME 73 CU. YD.
FILL VOLUME 111 CU. YD. FILL VOLUME 0 CU. YD.



STA. 645+00 IN PLACE
15" X 35' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ 644+96
18" X 38' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 40 CU. YDS.
UNCLASS. EXC. ON RT. = 5 CU. YDS.

CUT AREA 7 SQ. FT. CUT AREA 45 SQ. FT.
FILL AREA 86 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 44 CU. YD. CUT VOLUME 92 CU. YD.
FILL VOLUME 299 CU. YD. FILL VOLUME 0 CU. YD.



STA. 644+60.00
BEGIN 0.024%
LT. DITCH GRADE
ELEV. 299.34

STA. 644+62.00
END -0.28%
RT. DITCH GRADE
ELEV. 300.27

STA. 644+61 IN PLACE
24"X 118' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND
R.C. PIPE 34' LT.
(CLASS III)(TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 12.0 C.F.S., D.A. = 8.9 AC.
24" R.C. PIPE = 42 LIN. FT.
24" FES = 2 EACH

CUT AREA 53 SQ. FT. CUT AREA 79 SQ. FT.
FILL AREA 318 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 71 CU. YD. CUT VOLUME 169 CU. YD.
FILL VOLUME 642 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 644+60 TO STA. 645+43

3/6/2019

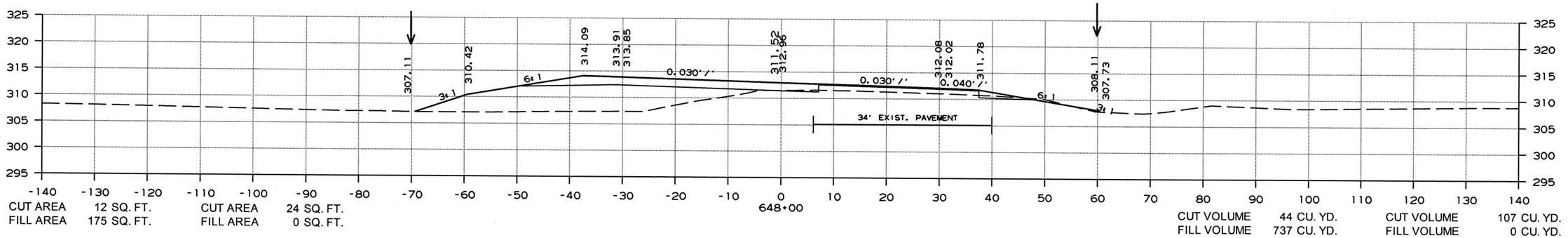
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	242	299

(2) CROSS SECTIONS

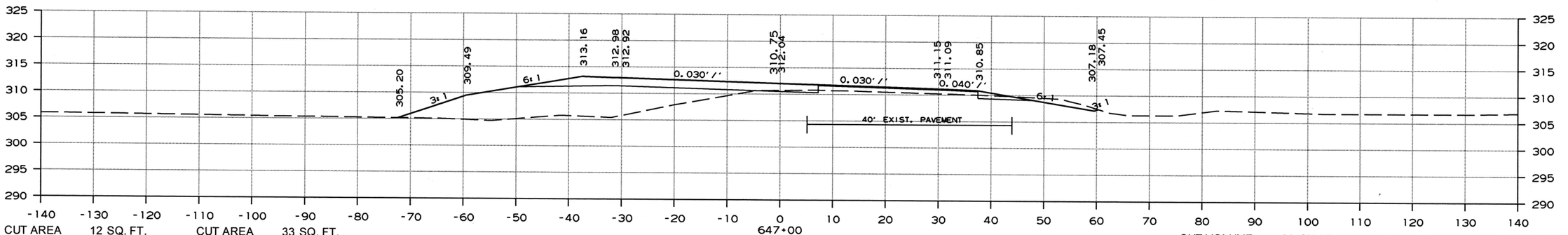
STAGE 1 STAGE 2

STAGE 1 STAGE 2



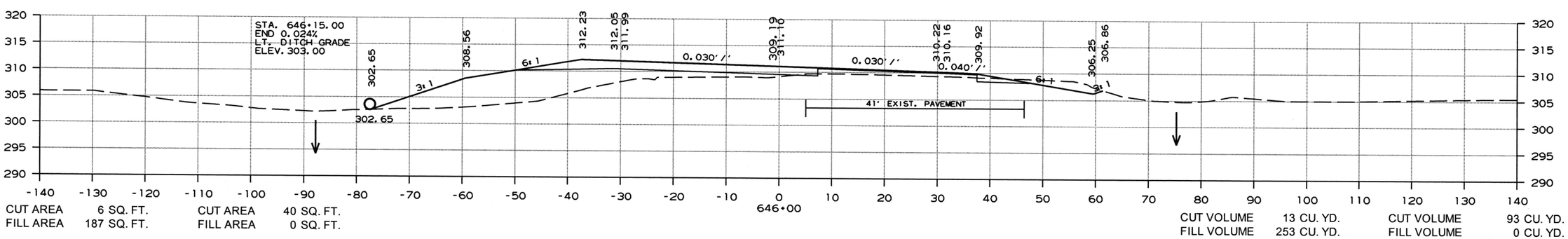
CUT AREA 12 SQ. FT. CUT AREA 24 SQ. FT.
FILL AREA 175 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 44 CU. YD. CUT VOLUME 107 CU. YD.
FILL VOLUME 737 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 12 SQ. FT. CUT AREA 33 SQ. FT.
FILL AREA 222 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 33 CU. YD. CUT VOLUME 137 CU. YD.
FILL VOLUME 759 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 40 SQ. FT.
FILL AREA 187 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 13 CU. YD. CUT VOLUME 93 CU. YD.
FILL VOLUME 253 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 646+00 TO STA. 648+00

3/6/2019

RCA0704.DGN

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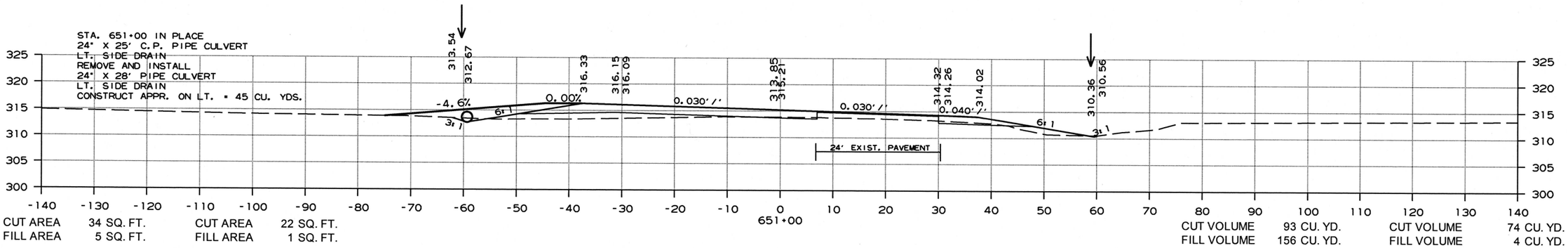
				6	ARK.			
				JOB NO.		CA0704	243	299

(2) CROSS SECTIONS

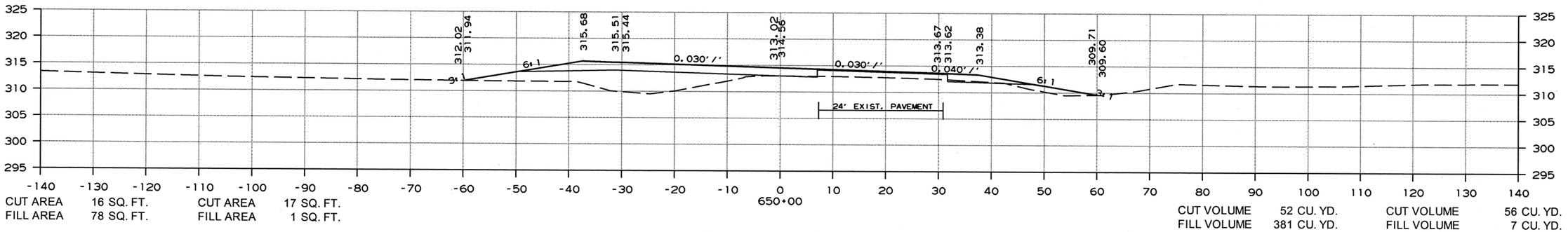
STAGE 1 STAGE 2

STAGE 1 STAGE 2



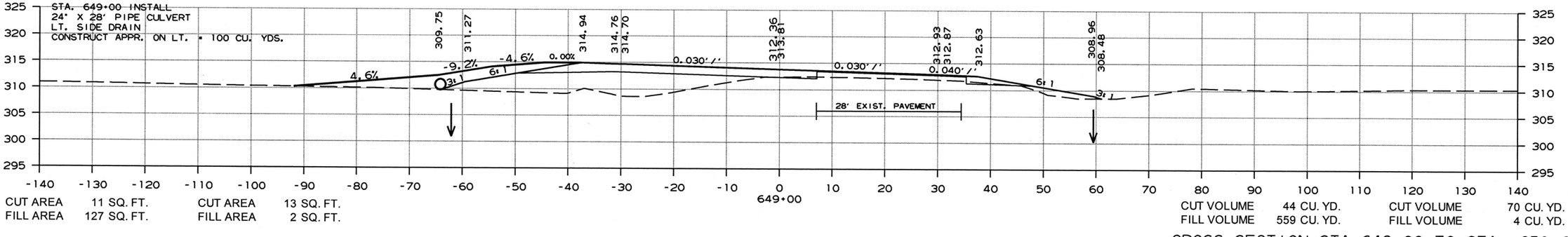
CUT AREA 34 SQ. FT. CUT AREA 22 SQ. FT.
FILL AREA 5 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 93 CU. YD. CUT VOLUME 74 CU. YD.
FILL VOLUME 156 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 16 SQ. FT. CUT AREA 17 SQ. FT.
FILL AREA 78 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 52 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 381 CU. YD. FILL VOLUME 7 CU. YD.



CUT AREA 11 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 127 SQ. FT. FILL AREA 2 SQ. FT.

CUT VOLUME 44 CU. YD. CUT VOLUME 70 CU. YD.
FILL VOLUME 559 CU. YD. FILL VOLUME 4 CU. YD.

CROSS SECTION STA. 649+00 TO STA. 651+00

3/6/2019

RCA0704.DGN

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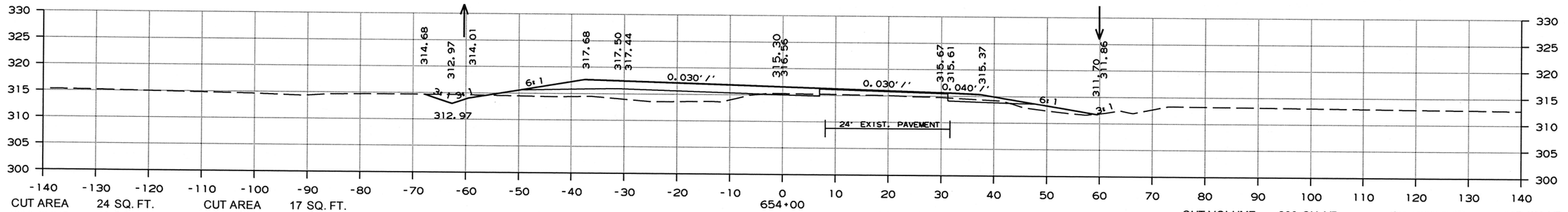
				6	ARK.			
				JOB NO.		CA0704	244	299

(2) CROSS SECTIONS

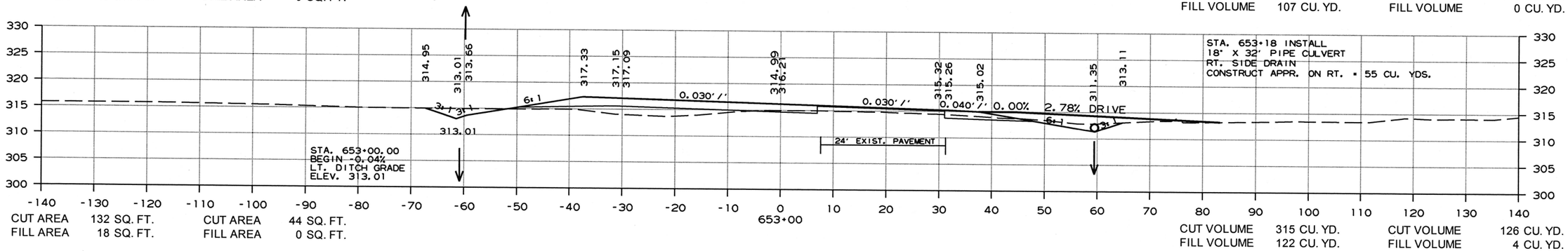
STAGE 1 STAGE 2

STAGE 1 STAGE 2



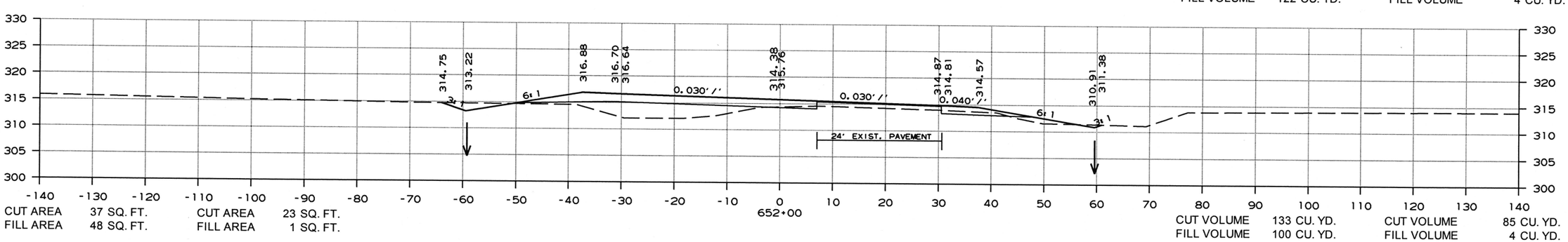
CUT AREA 24 SQ. FT. CUT AREA 17 SQ. FT.
FILL AREA 40 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 289 CU. YD. CUT VOLUME 115 CU. YD.
FILL VOLUME 107 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 132 SQ. FT. CUT AREA 44 SQ. FT.
FILL AREA 18 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 315 CU. YD. CUT VOLUME 126 CU. YD.
FILL VOLUME 122 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 37 SQ. FT. CUT AREA 23 SQ. FT.
FILL AREA 48 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 133 CU. YD. CUT VOLUME 85 CU. YD.
FILL VOLUME 100 CU. YD. FILL VOLUME 4 CU. YD.

CROSS SECTION STA. 652+00 TO STA. 654+00

3/6/2019

RCA0704.DGN

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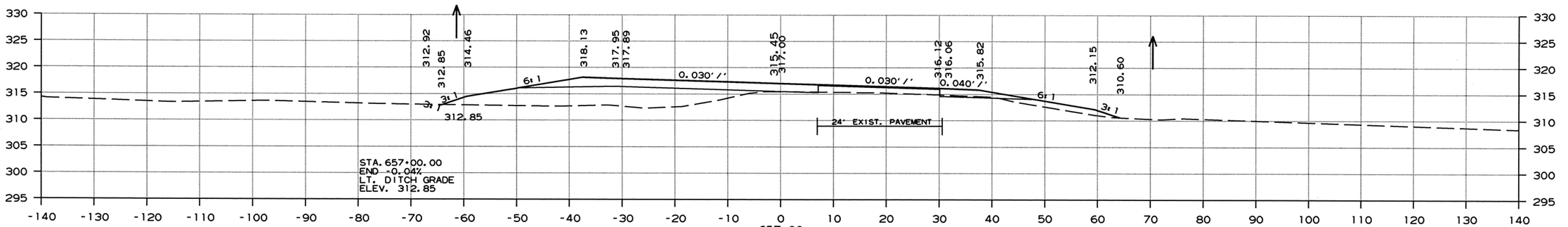
				6	ARK.			
				JOB NO.		CA0704	245	299

(2) CROSS SECTIONS

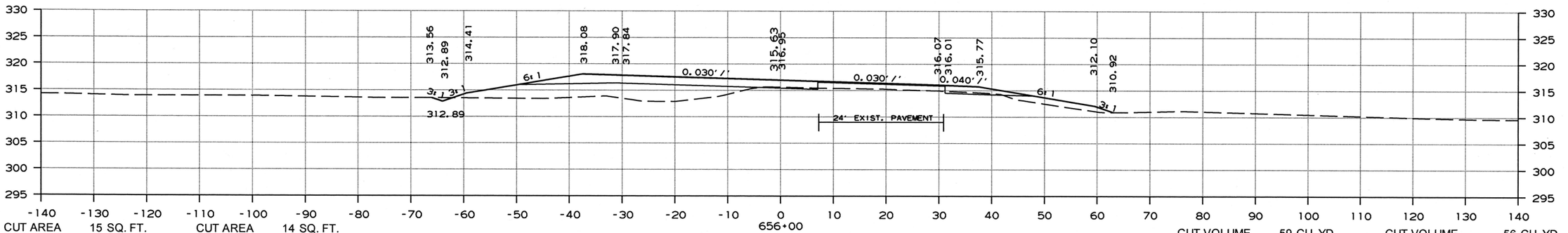
STAGE 1 STAGE 2

STAGE 1 STAGE 2



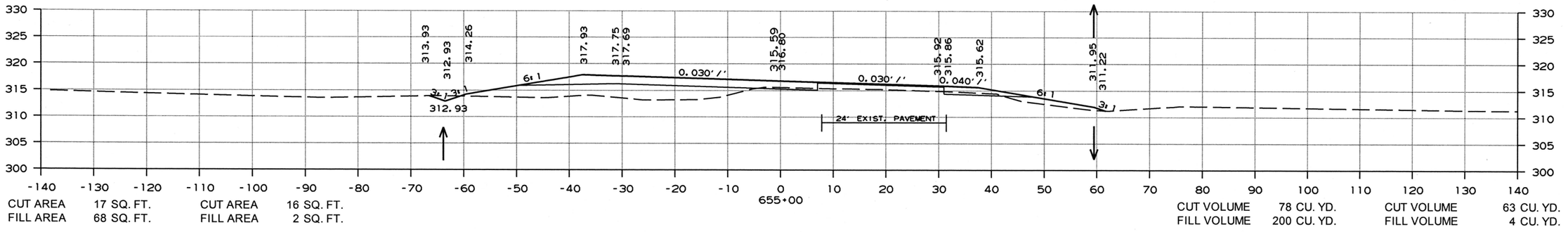
CUT AREA 13 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 110 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 52 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 352 CU. YD. FILL VOLUME 7 CU. YD.



CUT AREA 15 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 79 SQ. FT. FILL AREA 3 SQ. FT.

CUT VOLUME 59 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 274 CU. YD. FILL VOLUME 11 CU. YD.



CUT AREA 17 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 68 SQ. FT. FILL AREA 2 SQ. FT.

CUT VOLUME 78 CU. YD. CUT VOLUME 63 CU. YD.
FILL VOLUME 200 CU. YD. FILL VOLUME 4 CU. YD.

CROSS SECTION STA. 655+00 TO STA. 657+00

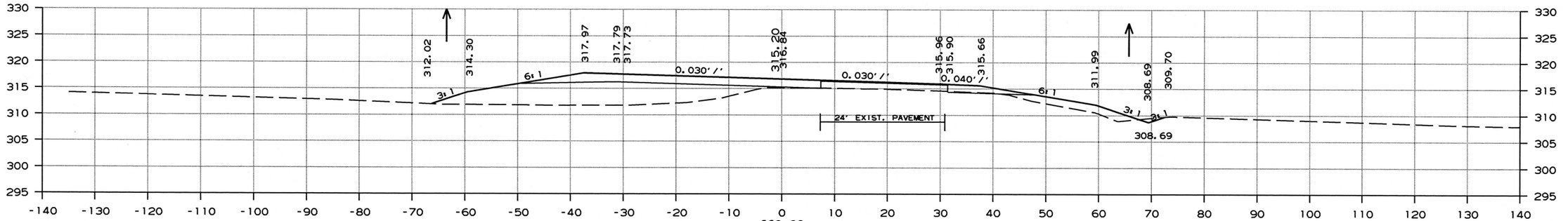
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	246	299

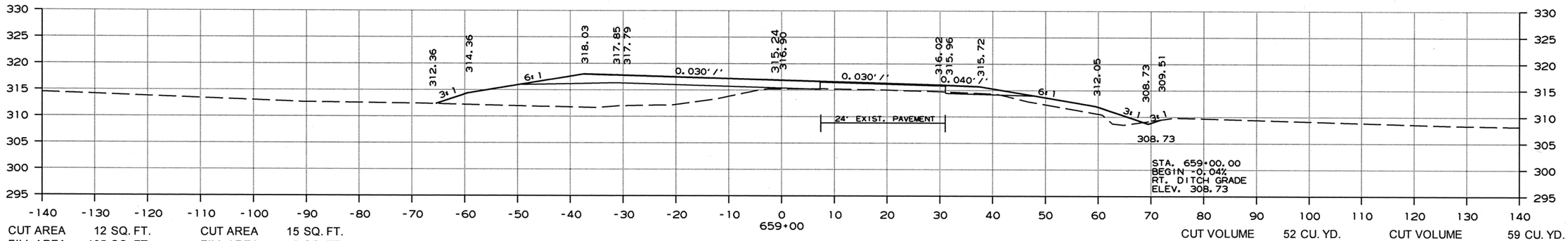
(2) CROSS SECTIONS

STAGE 1 STAGE 2



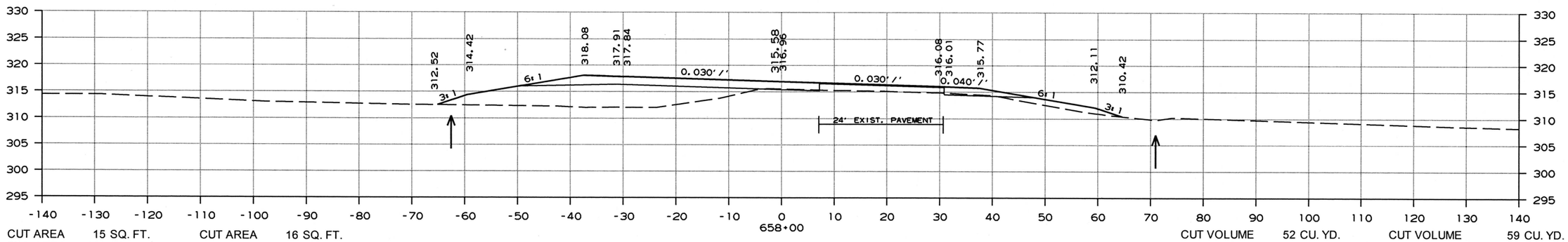
CUT AREA 13 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 136 SQ. FT. FILL AREA 6 SQ. FT.

CUT VOLUME 48 CU. YD. CUT VOLUME 59 CU. YD.
FILL VOLUME 504 CU. YD. FILL VOLUME 26 CU. YD.



CUT AREA 12 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 135 SQ. FT. FILL AREA 3 SQ. FT.

CUT VOLUME 52 CU. YD. CUT VOLUME 59 CU. YD.
FILL VOLUME 485 CU. YD. FILL VOLUME 19 CU. YD.



CUT AREA 15 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 126 SQ. FT. FILL AREA 2 SQ. FT.

CUT VOLUME 52 CU. YD. CUT VOLUME 59 CU. YD.
FILL VOLUME 437 CU. YD. FILL VOLUME 7 CU. YD.

CROSS SECTION STA. 658+00 TO STA. 660+00

3/6/2019

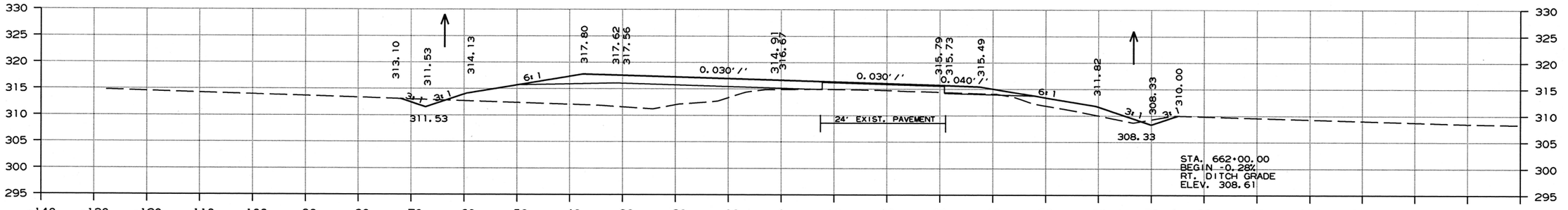
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	247	299

(2) CROSS SECTIONS

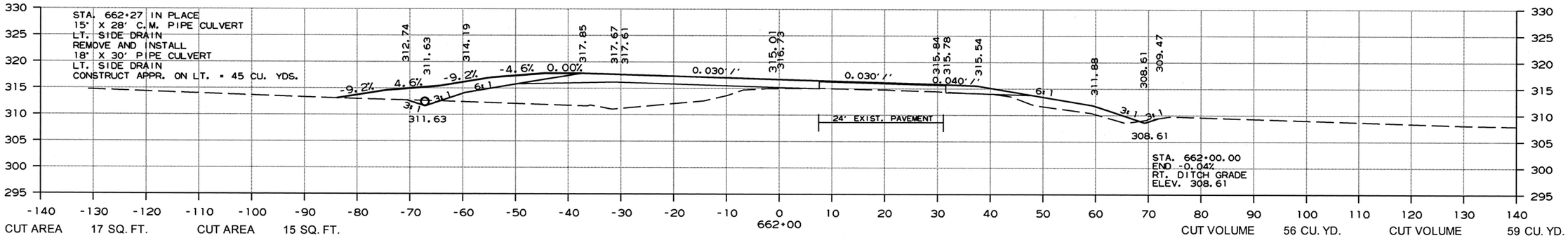
STAGE 1 STAGE 2

STAGE 1 STAGE 2



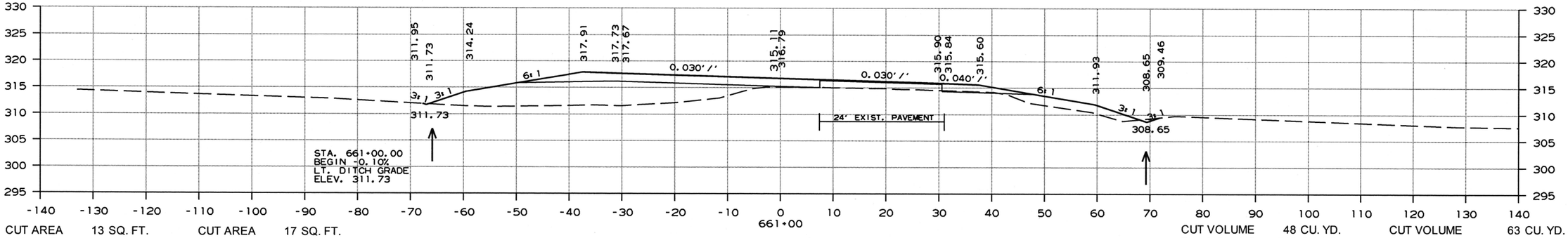
CUT AREA 17 SQ. FT. CUT AREA 17 SQ. FT.
FILL AREA 122 SQ. FT. FILL AREA 7 SQ. FT.

CUT VOLUME 63 CU. YD. CUT VOLUME 59 CU. YD.
FILL VOLUME 459 CU. YD. FILL VOLUME 30 CU. YD.



CUT AREA 17 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 126 SQ. FT. FILL AREA 8 SQ. FT.

CUT VOLUME 56 CU. YD. CUT VOLUME 59 CU. YD.
FILL VOLUME 496 CU. YD. FILL VOLUME 33 CU. YD.



CUT AREA 13 SQ. FT. CUT AREA 17 SQ. FT.
FILL AREA 142 SQ. FT. FILL AREA 9 SQ. FT.

CUT VOLUME 48 CU. YD. CUT VOLUME 63 CU. YD.
FILL VOLUME 515 CU. YD. FILL VOLUME 30 CU. YD.

CROSS SECTION STA. 661+00 TO STA. 663+00

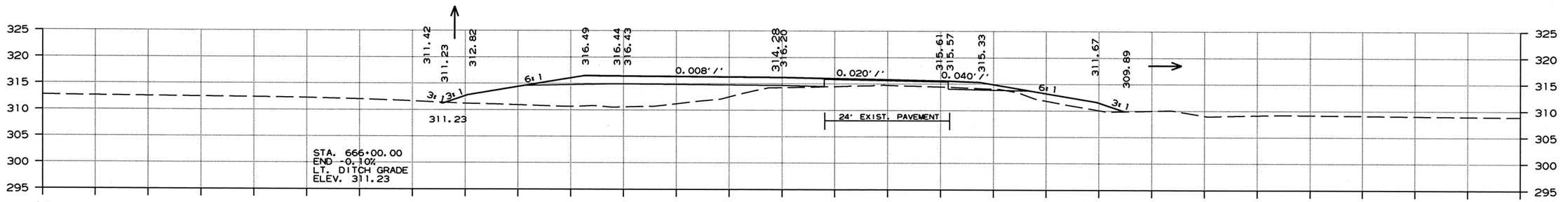
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	248	299

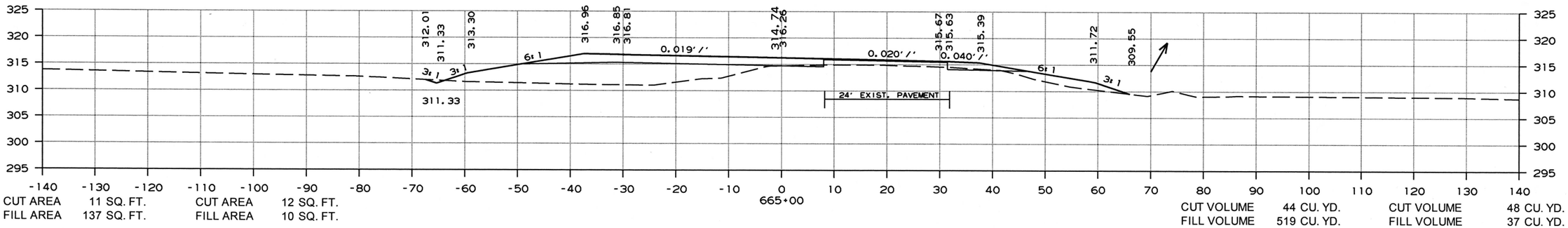
(2) CROSS SECTIONS

STAGE 1 STAGE 2



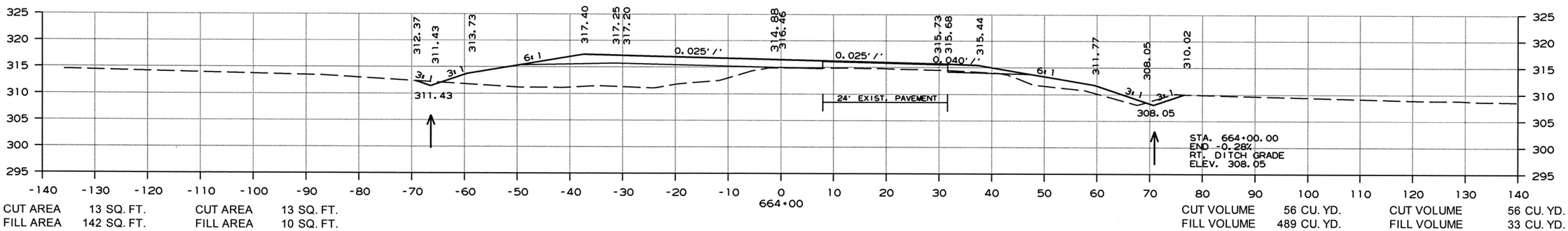
CUT AREA 6 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 137 SQ. FT. FILL AREA 8 SQ. FT.

CUT VOLUME 33 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 507 CU. YD. FILL VOLUME 33 CU. YD.



CUT AREA 11 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 137 SQ. FT. FILL AREA 10 SQ. FT.

CUT VOLUME 44 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 519 CU. YD. FILL VOLUME 37 CU. YD.



CUT AREA 13 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 142 SQ. FT. FILL AREA 10 SQ. FT.

CUT VOLUME 56 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 489 CU. YD. FILL VOLUME 33 CU. YD.

CROSS SECTION STA. 664+00 TO STA. 666+00

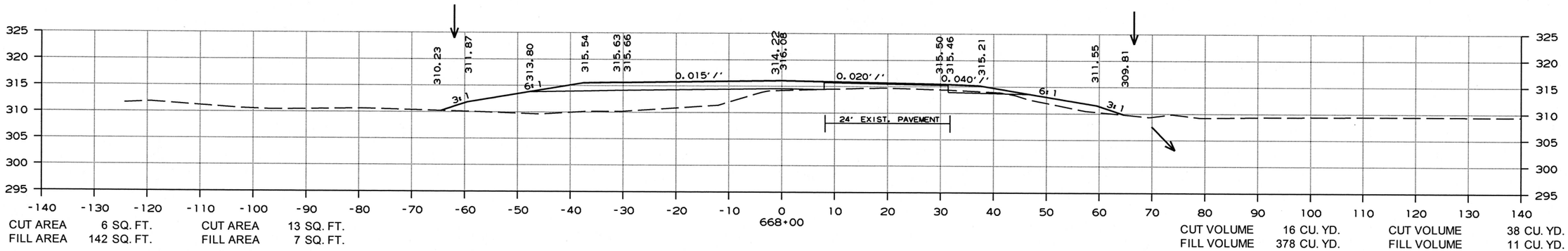
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	249	299

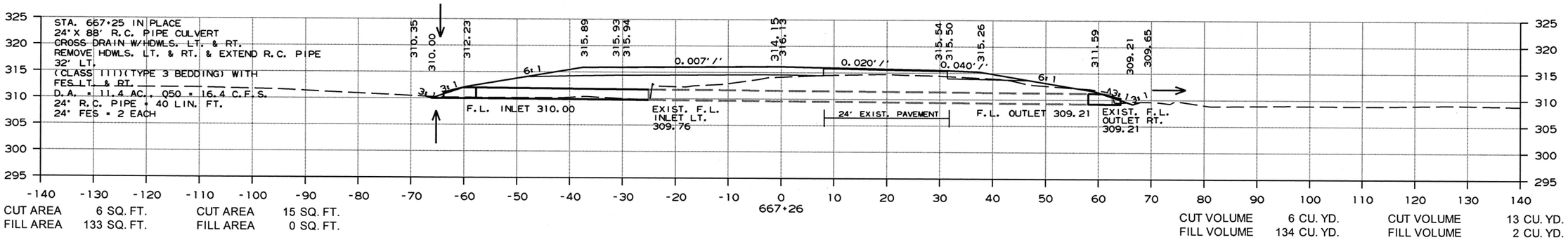
(2) CROSS SECTIONS

STAGE 1 STAGE 2



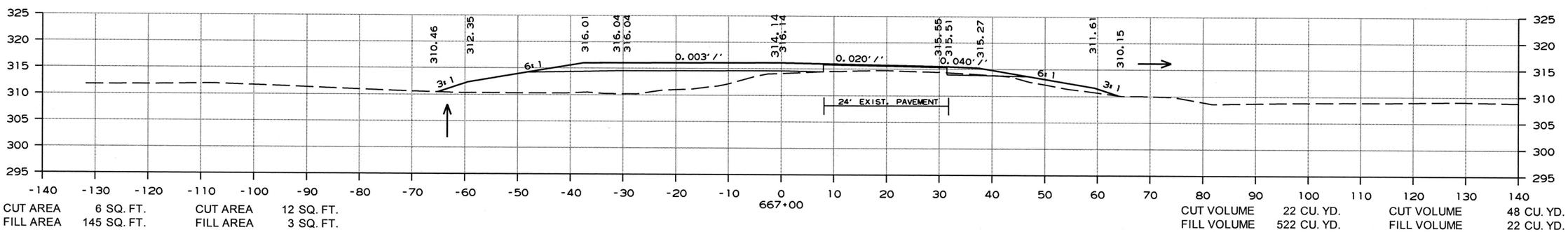
CUT AREA 6 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 142 SQ. FT. FILL AREA 7 SQ. FT.

CUT VOLUME 16 CU. YD. CUT VOLUME 38 CU. YD.
FILL VOLUME 378 CU. YD. FILL VOLUME 11 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 133 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 6 CU. YD. CUT VOLUME 13 CU. YD.
FILL VOLUME 134 CU. YD. FILL VOLUME 2 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 145 SQ. FT. FILL AREA 3 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 522 CU. YD. FILL VOLUME 22 CU. YD.

CROSS SECTION STA. 667+00 TO STA. 668+00

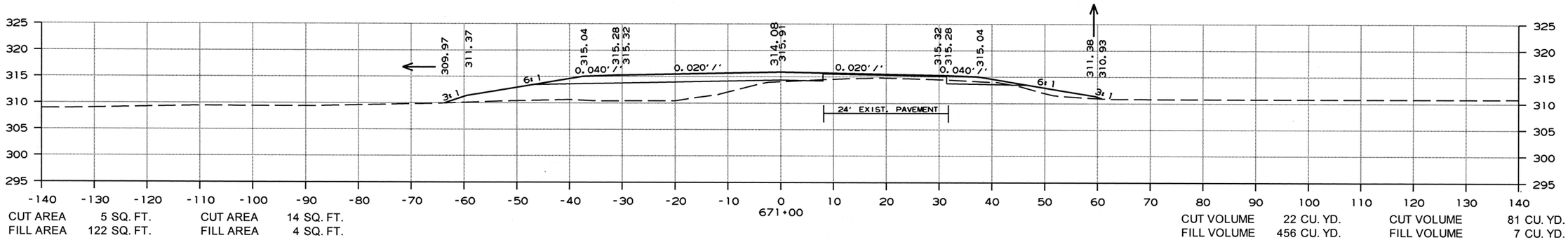
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	250	299

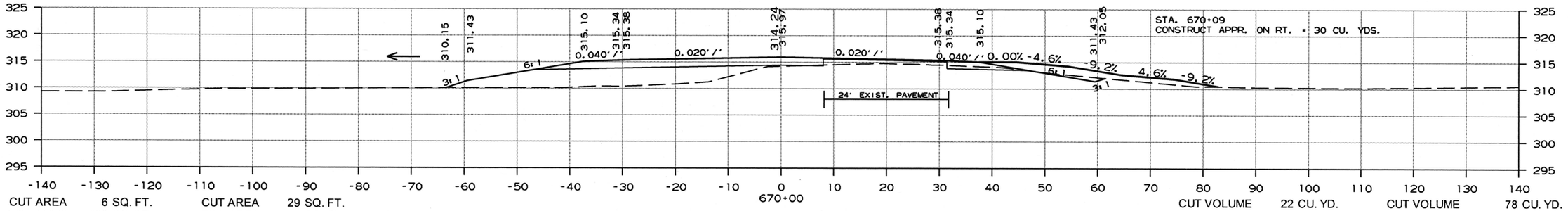
(2) CROSS SECTIONS

STAGE 1 STAGE 2



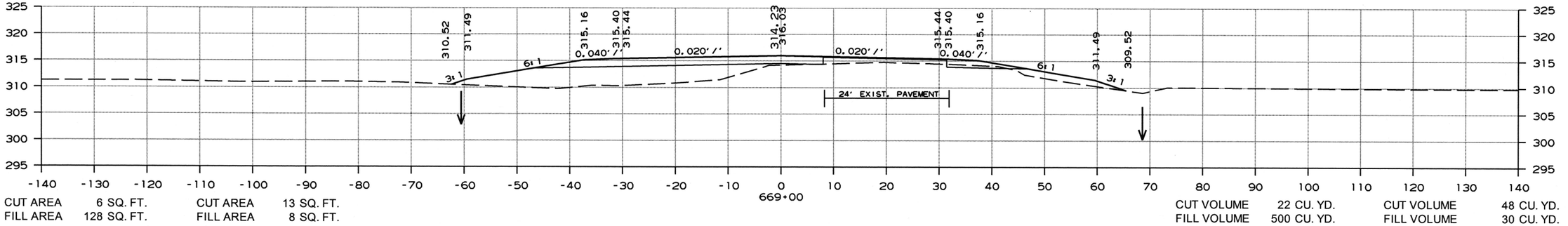
CUT AREA 5 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 122 SQ. FT. FILL AREA 4 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 81 CU. YD.
FILL VOLUME 456 CU. YD. FILL VOLUME 7 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 29 SQ. FT.
FILL AREA 123 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 78 CU. YD.
FILL VOLUME 467 CU. YD. FILL VOLUME 15 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 128 SQ. FT. FILL AREA 8 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 500 CU. YD. FILL VOLUME 30 CU. YD.

CROSS SECTION STA. 669+00 TO STA. 671+00

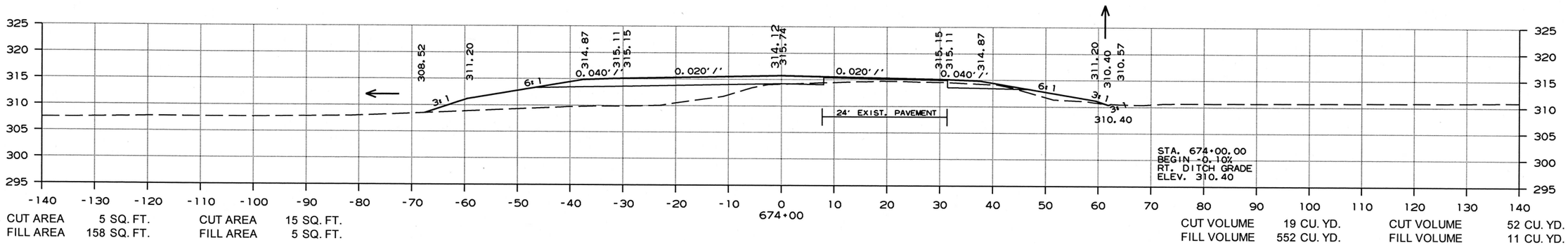
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	251	299

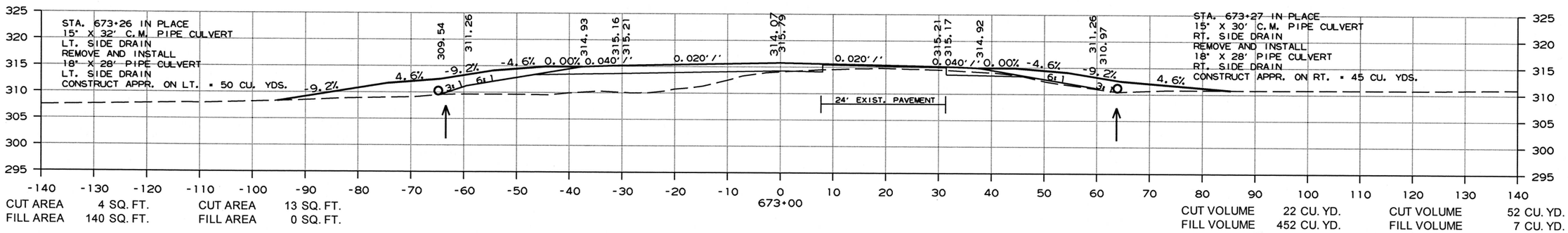
(2) CROSS SECTIONS

STAGE 1 STAGE 2



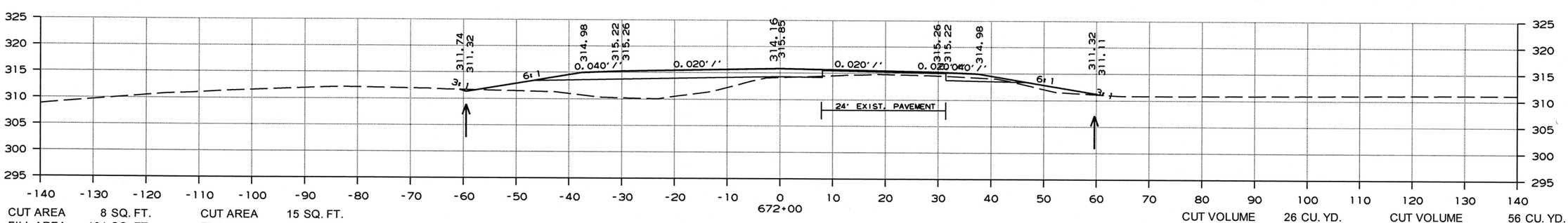
CUT AREA 5 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 158 SQ. FT. FILL AREA 5 SQ. FT.

CUT VOLUME 19 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 552 CU. YD. FILL VOLUME 11 CU. YD.



CUT AREA 4 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 140 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 452 CU. YD. FILL VOLUME 7 CU. YD.



CUT AREA 8 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 104 SQ. FT. FILL AREA 3 SQ. FT.

CUT VOLUME 26 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 419 CU. YD. FILL VOLUME 15 CU. YD.

CROSS SECTION STA. 672+00 TO STA. 674+00

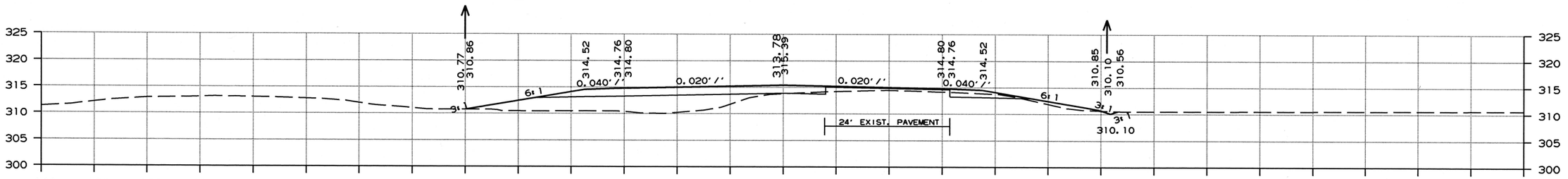
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	252	299

(2) CROSS SECTIONS

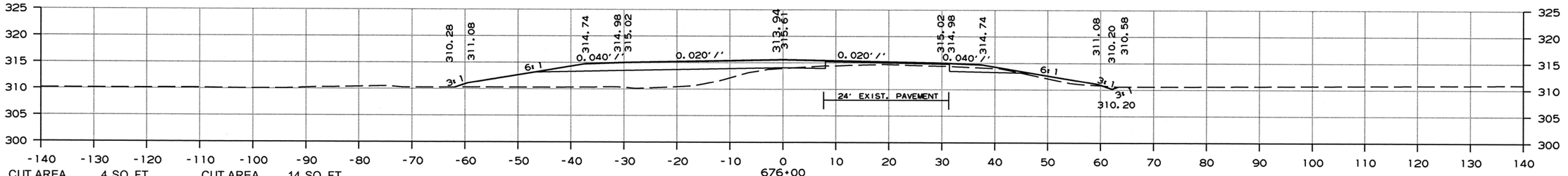
STAGE 1 STAGE 2



CUT AREA 5 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 107 SQ. FT. FILL AREA 2 SQ. FT.

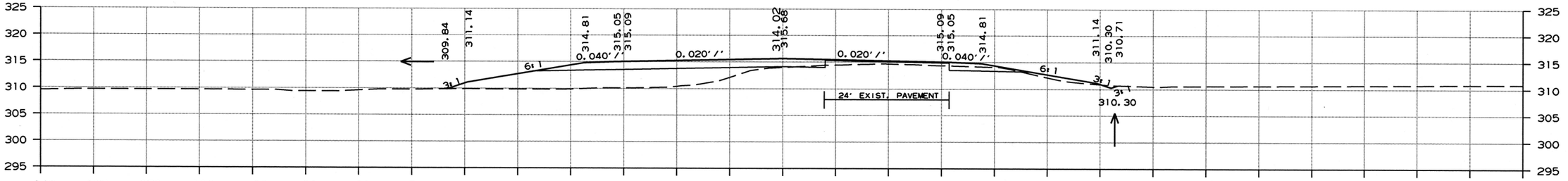
CUT VOLUME 19 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 430 CU. YD. FILL VOLUME 11 CU. YD.

STAGE 1 STAGE 2



CUT AREA 4 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 124 SQ. FT. FILL AREA 3 SQ. FT.

CUT VOLUME 19 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 481 CU. YD. FILL VOLUME 11 CU. YD.



CUT AREA 5 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 136 SQ. FT. FILL AREA 2 SQ. FT.

CUT VOLUME 19 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 544 CU. YD. FILL VOLUME 15 CU. YD.

CROSS SECTION STA. 675+00 TO STA. 677+00

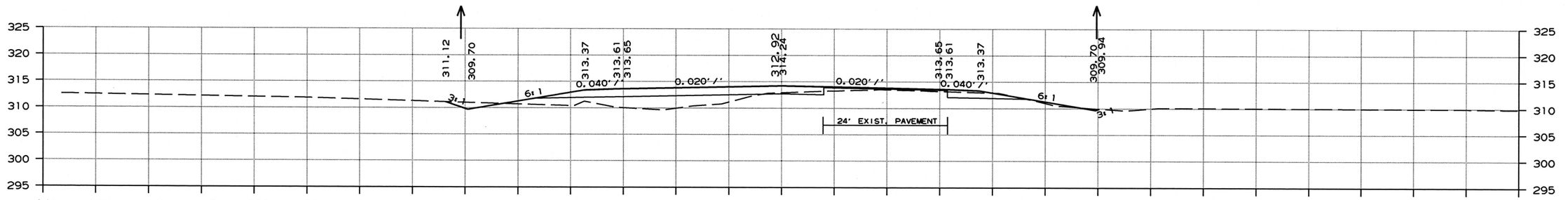
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	253	299

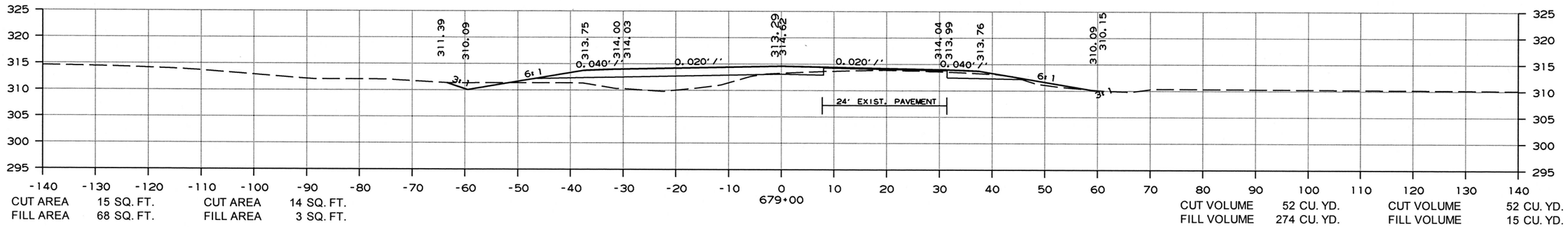
(2) CROSS SECTIONS

STAGE 1 STAGE 2



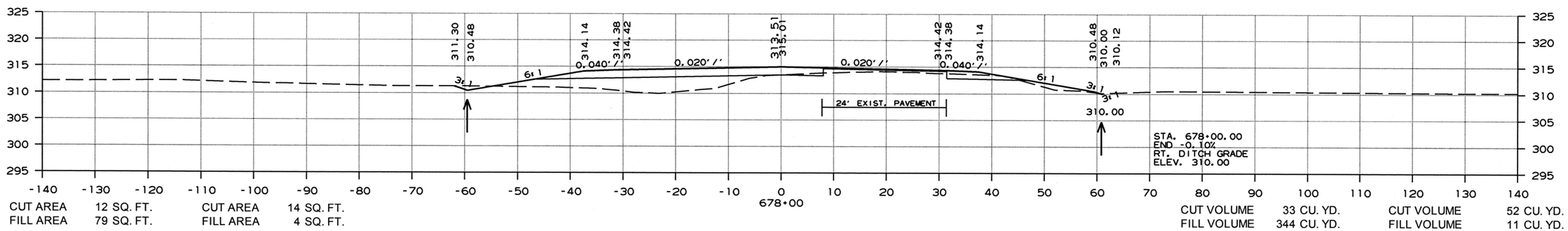
680+00

CUT AREA	15 SQ. FT.	CUT AREA	15 SQ. FT.
FILL AREA	66 SQ. FT.	FILL AREA	1 SQ. FT.
CUT VOLUME	56 CU. YD.	CUT VOLUME	56 CU. YD.
FILL VOLUME	248 CU. YD.	FILL VOLUME	7 CU. YD.



679+00

CUT AREA	15 SQ. FT.	CUT AREA	14 SQ. FT.
FILL AREA	68 SQ. FT.	FILL AREA	3 SQ. FT.
CUT VOLUME	52 CU. YD.	CUT VOLUME	52 CU. YD.
FILL VOLUME	274 CU. YD.	FILL VOLUME	15 CU. YD.



678+00

CUT AREA	12 SQ. FT.	CUT AREA	14 SQ. FT.
FILL AREA	79 SQ. FT.	FILL AREA	4 SQ. FT.
CUT VOLUME	33 CU. YD.	CUT VOLUME	52 CU. YD.
FILL VOLUME	344 CU. YD.	FILL VOLUME	11 CU. YD.

CROSS SECTION STA. 678+00 TO STA. 680+00

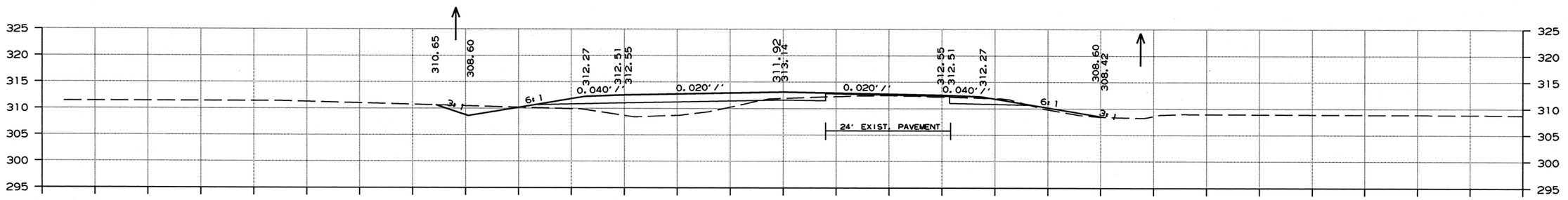
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	254	299

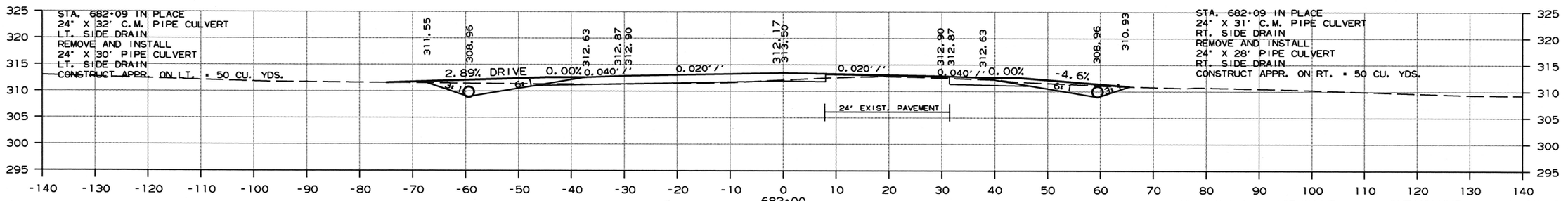
(2) CROSS SECTIONS

STAGE 1 STAGE 2



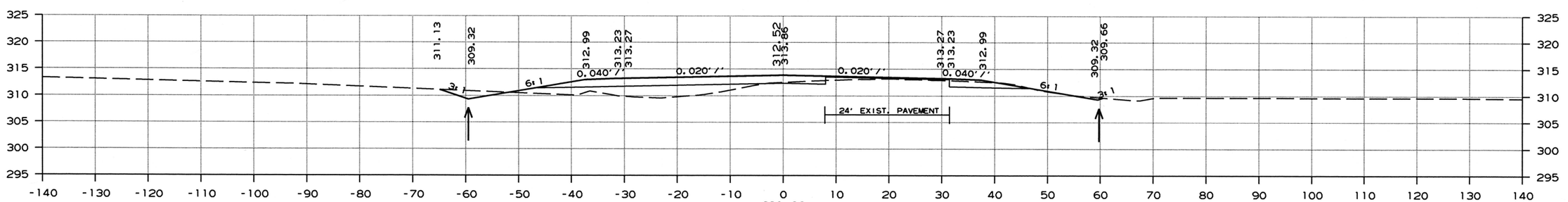
CUT AREA 22 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 6 SQ. FT. FILL AREA 3 SQ. FT.

CUT VOLUME 119 CU. YD. CUT VOLUME 107 CU. YD.
FILL VOLUME 122 CU. YD. FILL VOLUME 7 CU. YD.



CUT AREA 41 SQ. FT. CUT AREA 43 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 107 CU. YD. CUT VOLUME 107 CU. YD.
FILL VOLUME 115 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 17 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 62 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 59 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 237 CU. YD. FILL VOLUME 4 CU. YD.

CROSS SECTION STA. 681+00 TO STA. 683+00

3/6/2019

RCA0704.DGN

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				6	ARK.			
				JOB NO.		CA0704	255	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2

STA. 685+55 IN PLACE
36"X 88" R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
36' LT.
(CLASS III)(TYPE 2 BEDDING) WITH
FES LT. & RT.
Q50 = 55.3 C.F.S., D.A. = 37.8 AC.
36" R.C. PIPE = 44 LIN. FT.
36" FES = 2 EACH

CUT AREA	9 SQ. FT.	CUT AREA	17 SQ. FT.
FILL AREA	200 SQ. FT.	FILL AREA	3 SQ. FT.
CUT VOLUME	15 CU. YD.	CUT VOLUME	33 CU. YD.
FILL VOLUME	392 CU. YD.	FILL VOLUME	15 CU. YD.

685+56

CUT AREA	5 SQ. FT.	CUT AREA	14 SQ. FT.
FILL AREA	178 SQ. FT.	FILL AREA	10 SQ. FT.
CUT VOLUME	22 CU. YD.	CUT VOLUME	52 CU. YD.
FILL VOLUME	533 CU. YD.	FILL VOLUME	30 CU. YD.

685+00

CUT AREA	6 SQ. FT.	CUT AREA	14 SQ. FT.
FILL AREA	109 SQ. FT.	FILL AREA	6 SQ. FT.
CUT VOLUME	52 CU. YD.	CUT VOLUME	56 CU. YD.
FILL VOLUME	326 CU. YD.	FILL VOLUME	19 CU. YD.

684+00

CROSS SECTION STA. 684+00 TO STA. 685+56

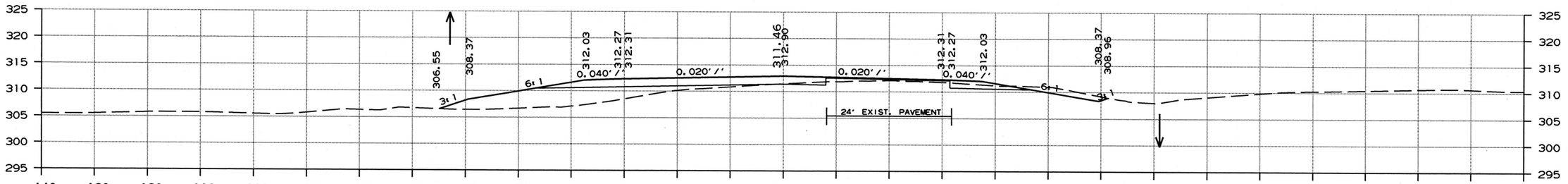
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	256	299

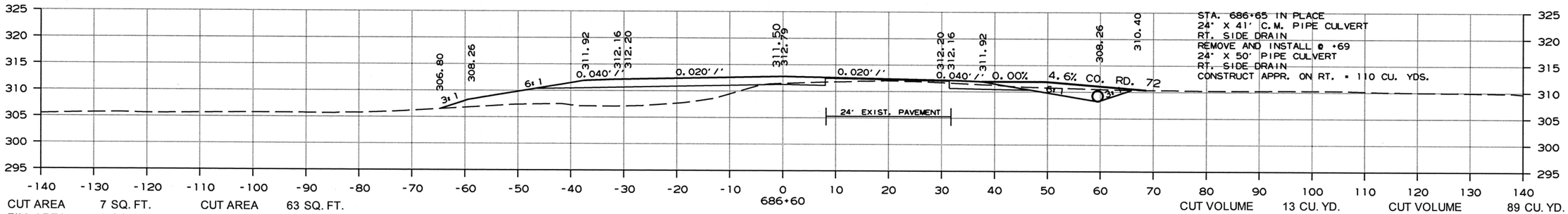
(2) CROSS SECTIONS

STAGE 1 STAGE 2



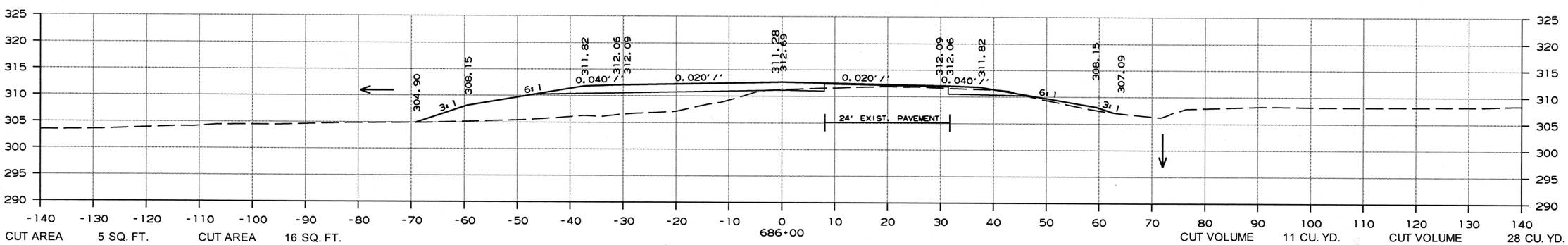
CUT AREA 5 SQ. FT. CUT AREA 34 SQ. FT.
FILL AREA 105 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 9 CU. YD. CUT VOLUME 73 CU. YD.
FILL VOLUME 181 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 7 SQ. FT. CUT AREA 63 SQ. FT.
FILL AREA 138 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 13 CU. YD. CUT VOLUME 89 CU. YD.
FILL VOLUME 371 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 5 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 195 SQ. FT. FILL AREA 4 SQ. FT.

CUT VOLUME 11 CU. YD. CUT VOLUME 28 CU. YD.
FILL VOLUME 323 CU. YD. FILL VOLUME 7 CU. YD.

CROSS SECTION STA. 686+00 TO STA. 687+00

3/6/2019

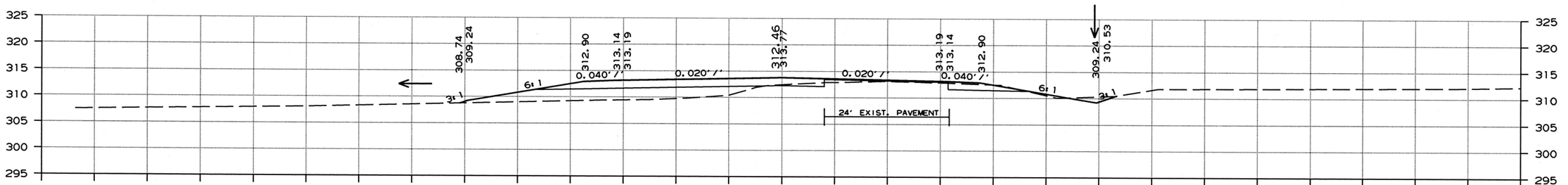
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	257	299

(2) CROSS SECTIONS

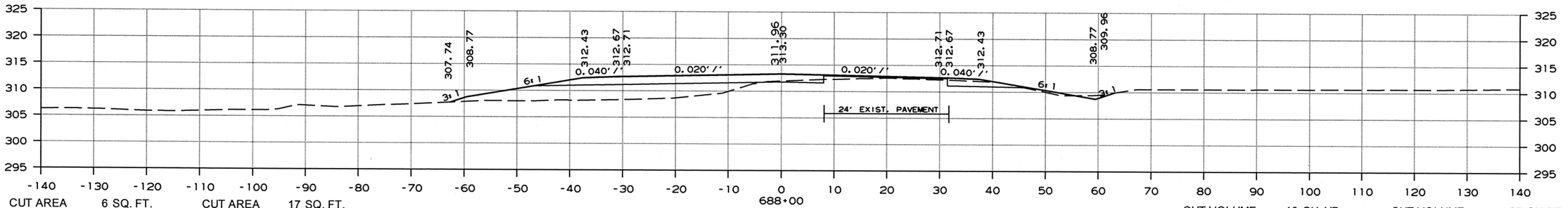
STAGE 1 STAGE 2

STAGE 1 STAGE 2



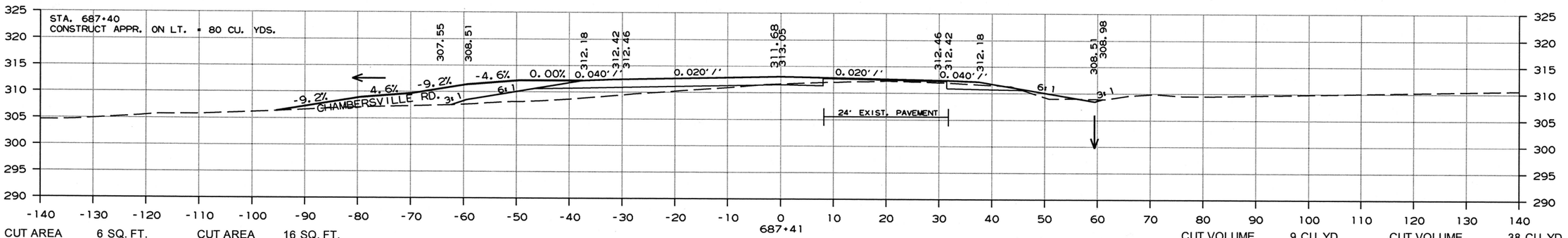
CUT AREA 5 SQ. FT. CUT AREA 21 SQ. FT.
FILL AREA 96 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 70 CU. YD.
FILL VOLUME 396 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 17 SQ. FT.
FILL AREA 118 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 13 CU. YD. CUT VOLUME 37 CU. YD.
FILL VOLUME 245 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 105 SQ. FT. FILL AREA 3 SQ. FT.

CUT VOLUME 9 CU. YD. CUT VOLUME 38 CU. YD.
FILL VOLUME 159 CU. YD. FILL VOLUME 3 CU. YD.

CROSS SECTION STA. 687+41 TO STA. 689+00

3/6/2019

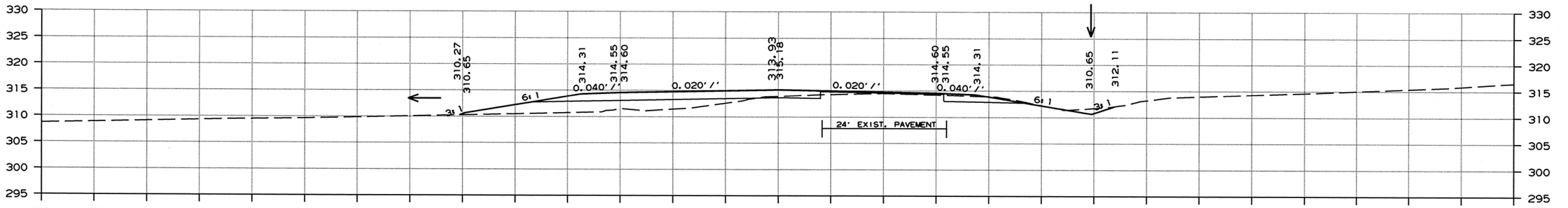
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	258	299

(2) CROSS SECTIONS

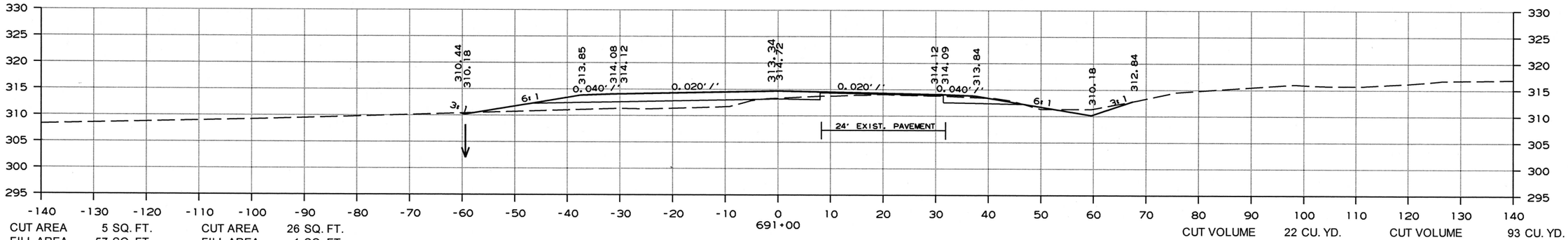
STAGE 1 STAGE 2

STAGE 1 STAGE 2



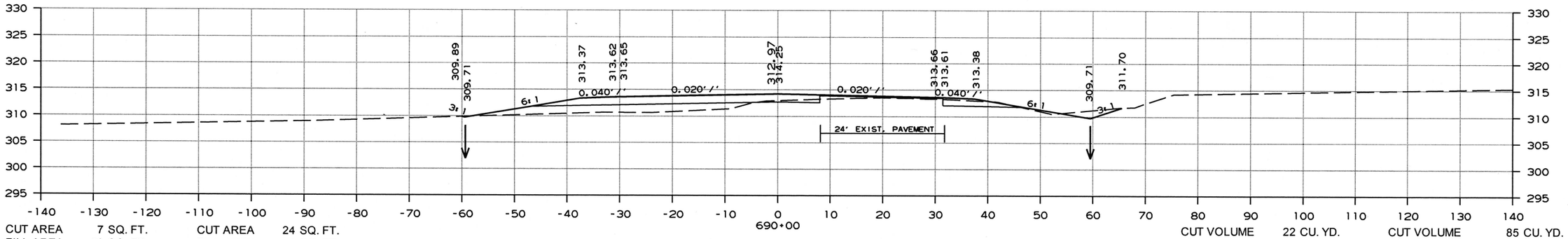
CUT AREA 6 SQ. FT. CUT AREA 23 SQ. FT.
FILL AREA 81 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 93 CU. YD.
FILL VOLUME 256 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 5 SQ. FT. CUT AREA 26 SQ. FT.
FILL AREA 57 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 93 CU. YD.
FILL VOLUME 215 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 7 SQ. FT. CUT AREA 24 SQ. FT.
FILL AREA 58 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 85 CU. YD.
FILL VOLUME 285 CU. YD. FILL VOLUME 4 CU. YD.

CROSS SECTION STA. 690+00 TO STA. 692+00

3/6/2019

RCA0704.DGN

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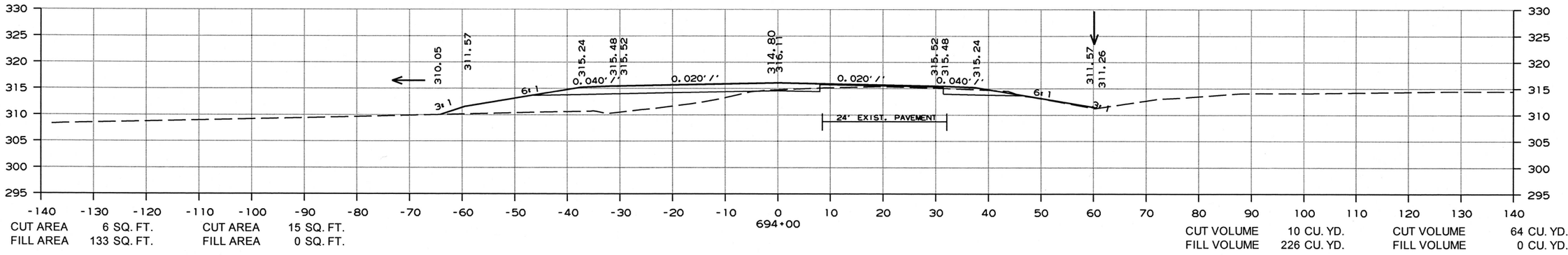
				6	ARK.			
				JOB NO.		CA0704	259	299

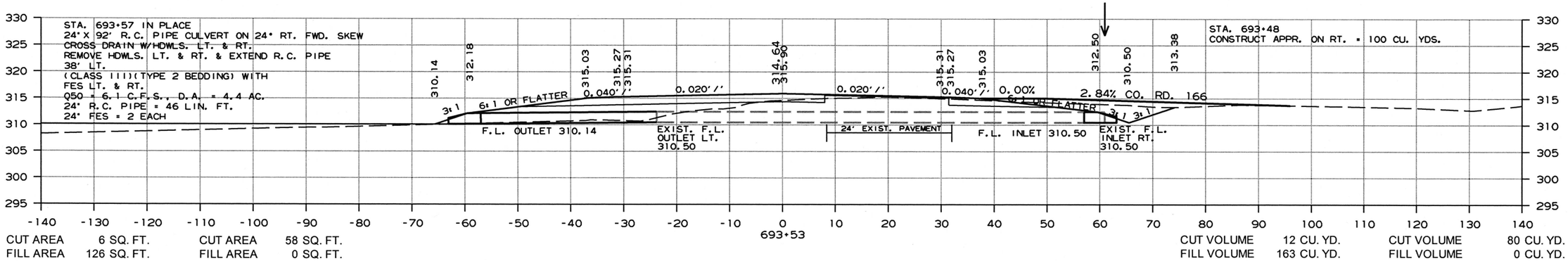
(2) CROSS SECTIONS

STAGE 1 STAGE 2



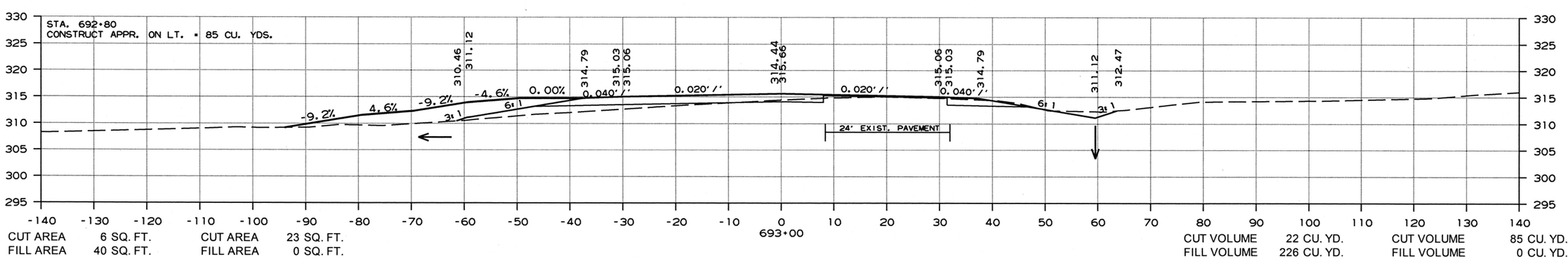
CUT AREA 6 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 133 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 10 CU. YD. CUT VOLUME 64 CU. YD.
FILL VOLUME 226 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 58 SQ. FT.
FILL AREA 126 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 12 CU. YD. CUT VOLUME 80 CU. YD.
FILL VOLUME 163 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 23 SQ. FT.
FILL AREA 40 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 85 CU. YD.
FILL VOLUME 226 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 693+00 TO STA. 694+00

3/6/2019

RCA0704.DGN

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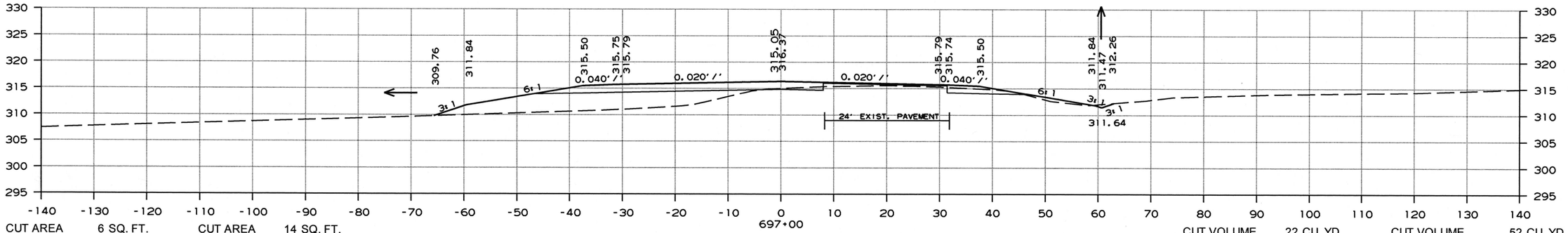
				6	ARK.			
				JOB NO.		CA0704	260	299

(2) CROSS SECTIONS

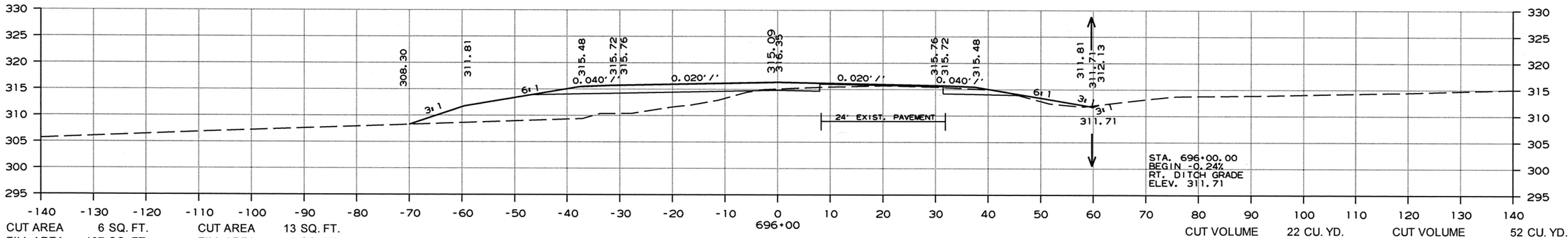
STAGE 1 STAGE 2



CUT AREA 6 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 141 SQ. FT. FILL AREA 3 SQ. FT.

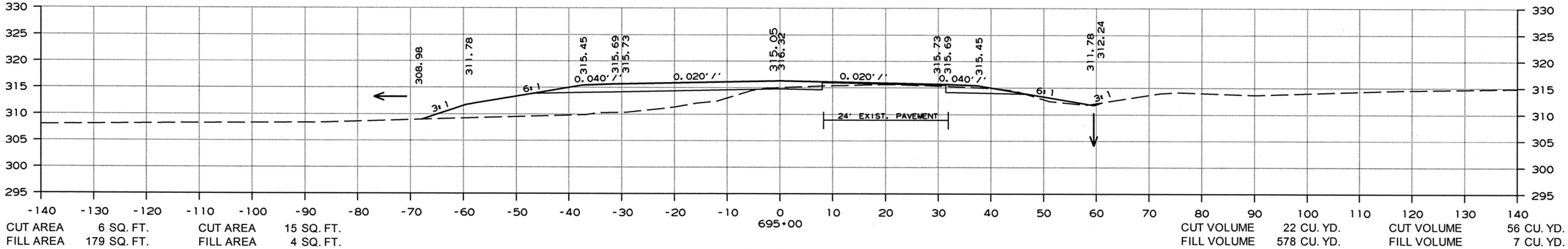
CUT VOLUME 22 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 626 CU. YD. FILL VOLUME 15 CU. YD.

STAGE 1 STAGE 2



CUT AREA 6 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 197 SQ. FT. FILL AREA 5 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 696 CU. YD. FILL VOLUME 19 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 179 SQ. FT. FILL AREA 4 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 578 CU. YD. FILL VOLUME 7 CU. YD.

CROSS SECTION STA. 695+00 TO STA. 697+00

3/6/2019

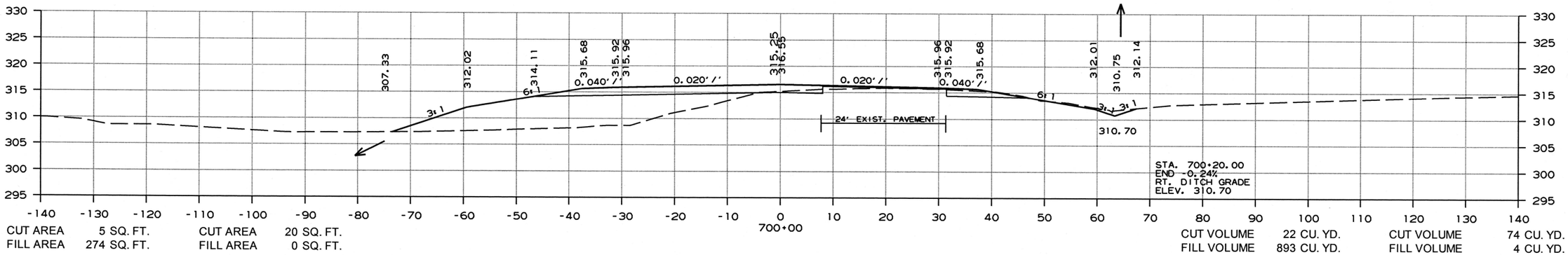
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	261	299

(2) CROSS SECTIONS

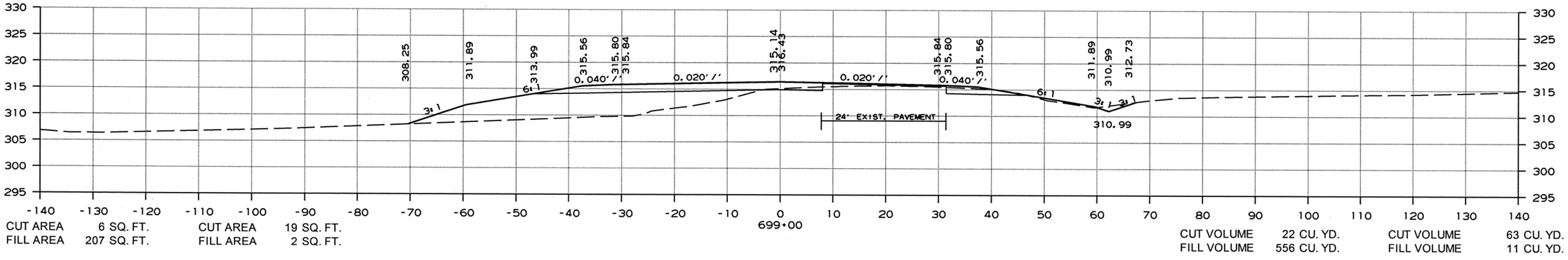
STAGE 1 STAGE 2

STAGE 1 STAGE 2



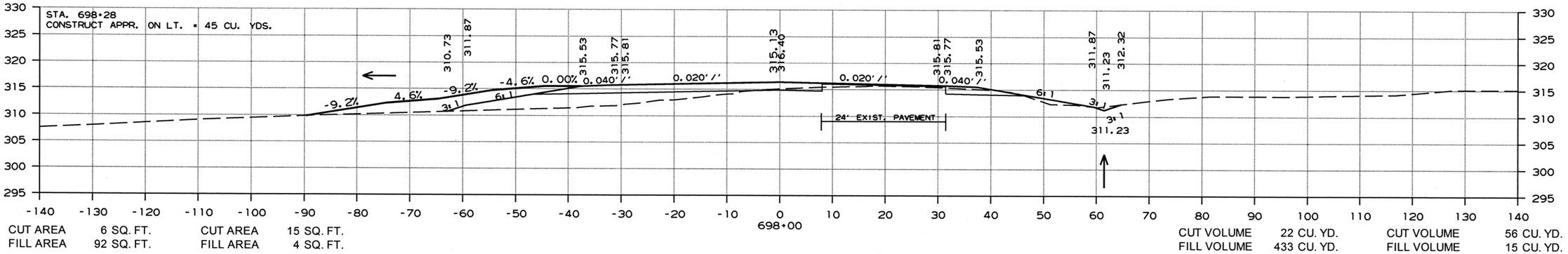
CUT AREA 5 SQ. FT. CUT AREA 20 SQ. FT.
FILL AREA 274 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 74 CU. YD.
FILL VOLUME 893 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 19 SQ. FT.
FILL AREA 207 SQ. FT. FILL AREA 2 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 63 CU. YD.
FILL VOLUME 556 CU. YD. FILL VOLUME 11 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 92 SQ. FT. FILL AREA 4 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 433 CU. YD. FILL VOLUME 15 CU. YD.

CROSS SECTION STA. 698+00 TO STA. 700+00

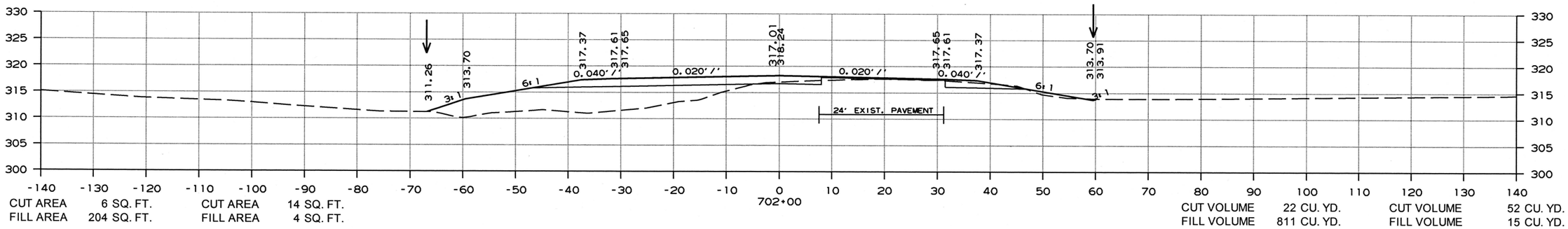
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	262	299

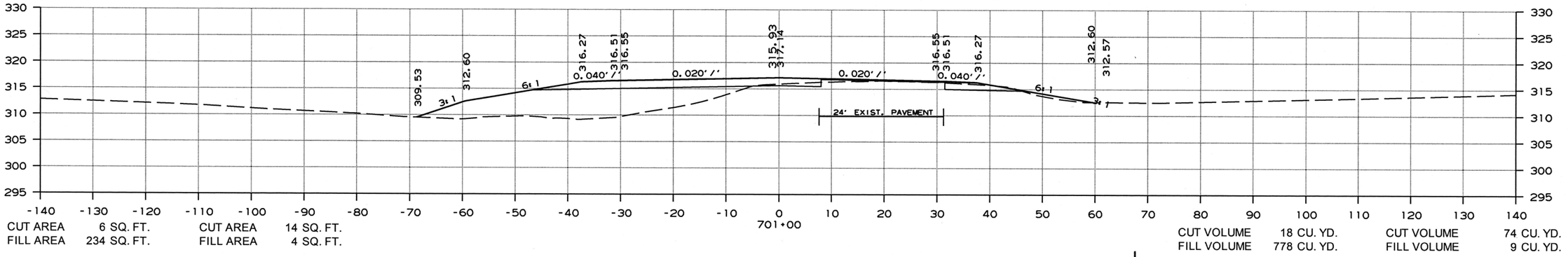
(2) CROSS SECTIONS

STAGE 1 STAGE 2



CUT AREA 6 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 204 SQ. FT. FILL AREA 4 SQ. FT.

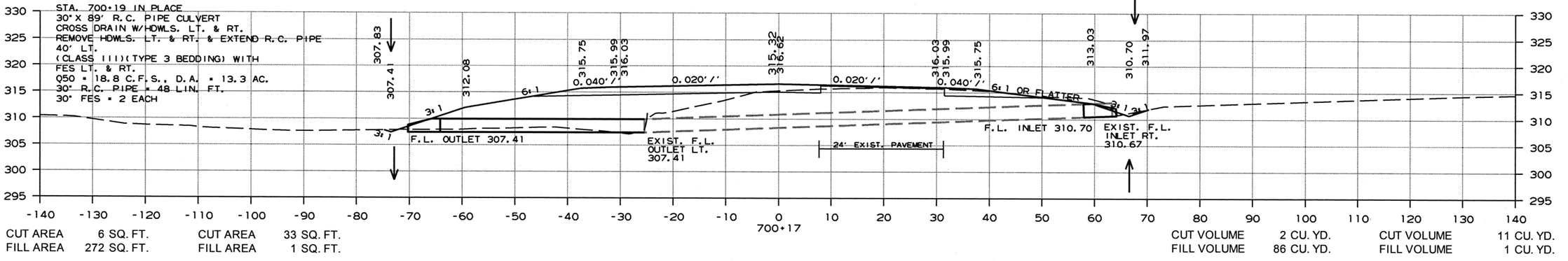
CUT VOLUME 22 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 811 CU. YD. FILL VOLUME 15 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 234 SQ. FT. FILL AREA 4 SQ. FT.

CUT VOLUME 18 CU. YD. CUT VOLUME 74 CU. YD.
FILL VOLUME 778 CU. YD. FILL VOLUME 9 CU. YD.

STA. 700+19 IN PLACE
30" X 89' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
40' LT.
(CLASS III)(TYPE 3 BEDDING) WITH
FES LT. & RT.
Q50 = 18.8 C.F.S., D.A. = 13.3 AC.
30" R.C. PIPE = 48 LIN. FT.
30" FES = 2 EACH



CUT AREA 6 SQ. FT. CUT AREA 33 SQ. FT.
FILL AREA 272 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 2 CU. YD. CUT VOLUME 11 CU. YD.
FILL VOLUME 86 CU. YD. FILL VOLUME 1 CU. YD.

CROSS SECTION STA. 700+17 TO STA. 702+00

3/6/2019

RCA0704.DGN

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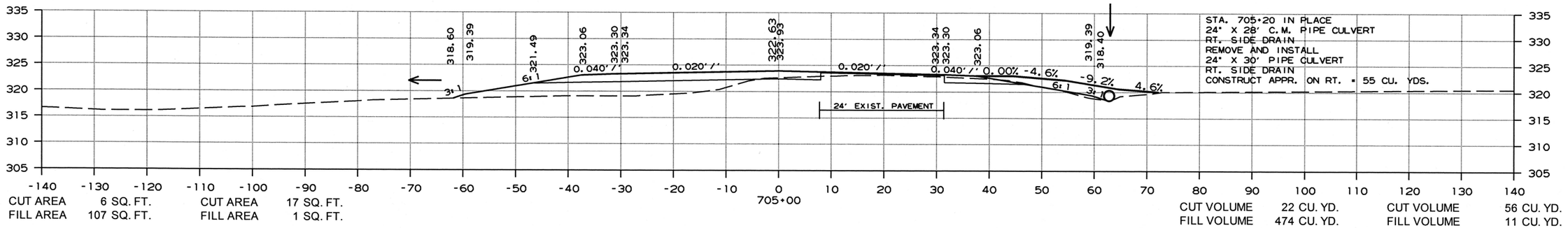
				6	ARK.			
				JOB NO.		CA0704	263	299

(2) CROSS SECTIONS

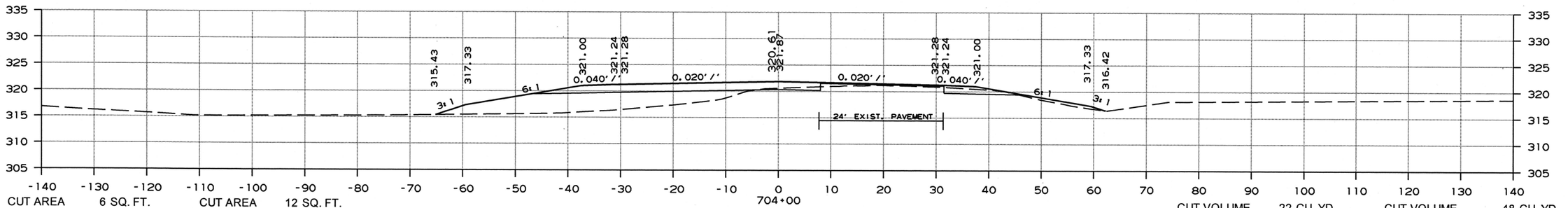
STAGE 1 STAGE 2

STAGE 1 STAGE 2



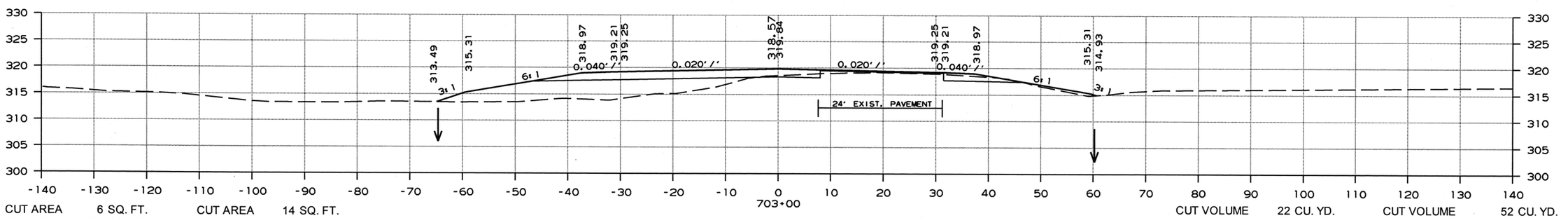
CUT AREA 6 SQ. FT. CUT AREA 17 SQ. FT.
FILL AREA 107 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 474 CU. YD. FILL VOLUME 11 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 149 SQ. FT. FILL AREA 5 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 556 CU. YD. FILL VOLUME 15 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 150 SQ. FT. FILL AREA 3 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 656 CU. YD. FILL VOLUME 15 CU. YD.

CROSS SECTION STA. 703+00 TO STA. 705+00

3/6/2019

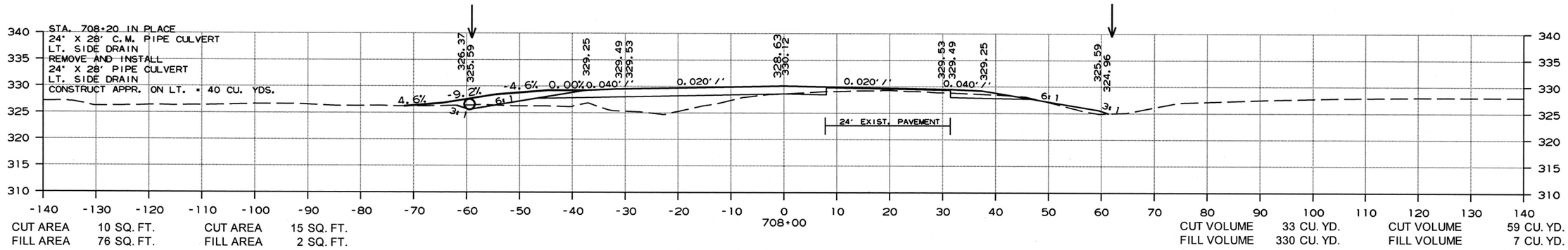
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	264	299

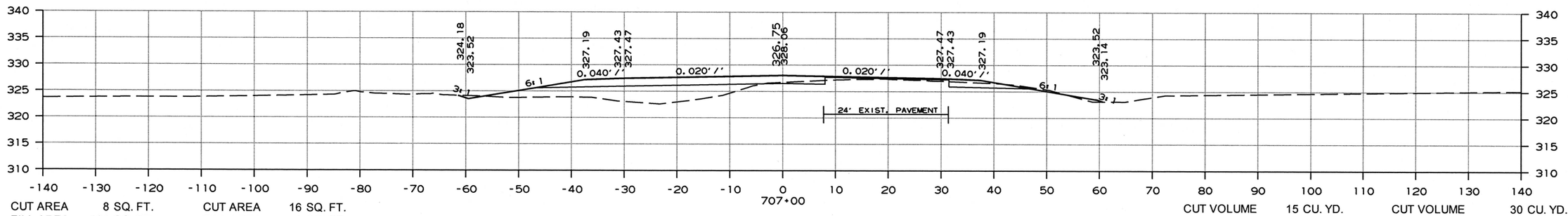
(2) CROSS SECTIONS

STAGE 1 STAGE 2

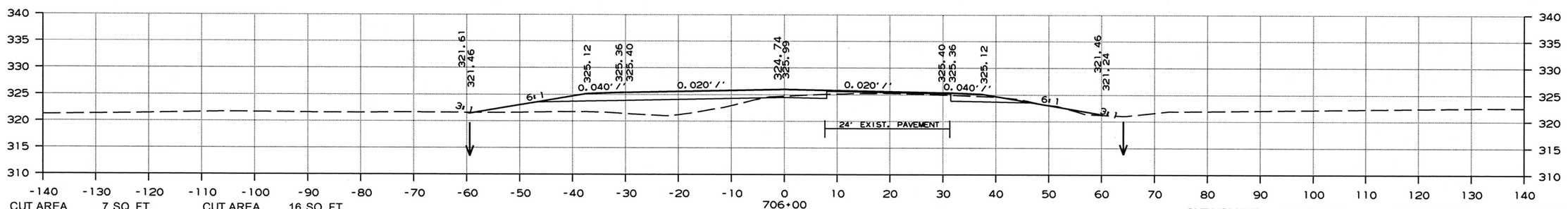
STAGE 1 STAGE 2



CUT AREA	10 SQ. FT.	CUT AREA	15 SQ. FT.
FILL AREA	76 SQ. FT.	FILL AREA	2 SQ. FT.
CUT VOLUME	33 CU. YD.	CUT VOLUME	59 CU. YD.
FILL VOLUME	330 CU. YD.	FILL VOLUME	7 CU. YD.



CUT AREA	8 SQ. FT.	CUT AREA	16 SQ. FT.
FILL AREA	101 SQ. FT.	FILL AREA	1 SQ. FT.
CUT VOLUME	15 CU. YD.	CUT VOLUME	30 CU. YD.
FILL VOLUME	189 CU. YD.	FILL VOLUME	4 CU. YD.



CUT AREA	7 SQ. FT.	CUT AREA	16 SQ. FT.
FILL AREA	92 SQ. FT.	FILL AREA	1 SQ. FT.
CUT VOLUME	622 CU. YD.	CUT VOLUME	63 CU. YD.
FILL VOLUME	1485 CU. YD.	FILL VOLUME	4 CU. YD.

CROSS SECTION STA. 706+00 TO STA. 708+00

3/6/2019

RCA0704.DGN

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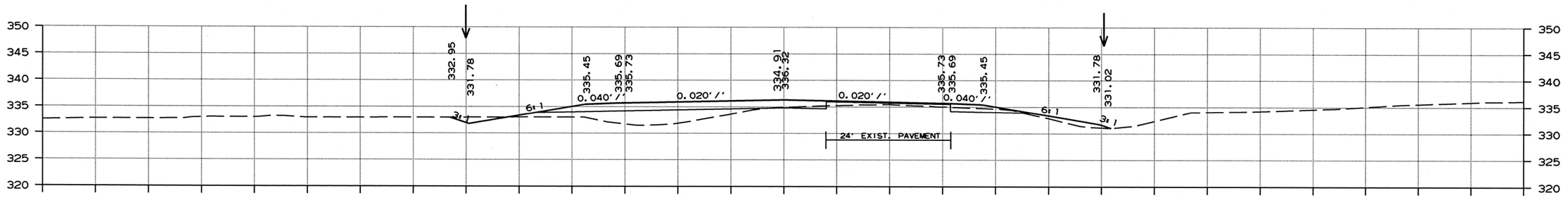
				6	ARK.			
				JOB NO.		CA0704	265	299

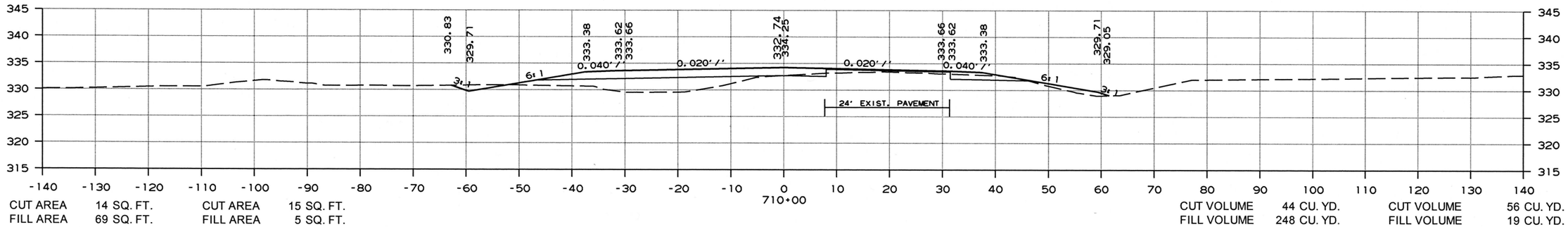
(2) CROSS SECTIONS

STAGE 1 STAGE 2



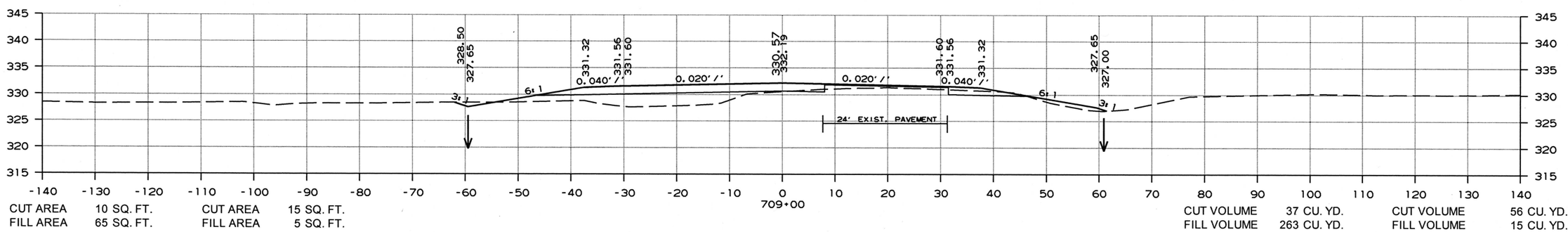
CUT AREA 16 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 59 SQ. FT. FILL AREA 5 SQ. FT.

CUT VOLUME 56 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 237 CU. YD. FILL VOLUME 19 CU. YD.



CUT AREA 14 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 69 SQ. FT. FILL AREA 5 SQ. FT.

CUT VOLUME 44 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 248 CU. YD. FILL VOLUME 19 CU. YD.



CUT AREA 10 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 65 SQ. FT. FILL AREA 5 SQ. FT.

CUT VOLUME 37 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 263 CU. YD. FILL VOLUME 15 CU. YD.

CROSS SECTION STA. 709+00 TO STA. 711+00

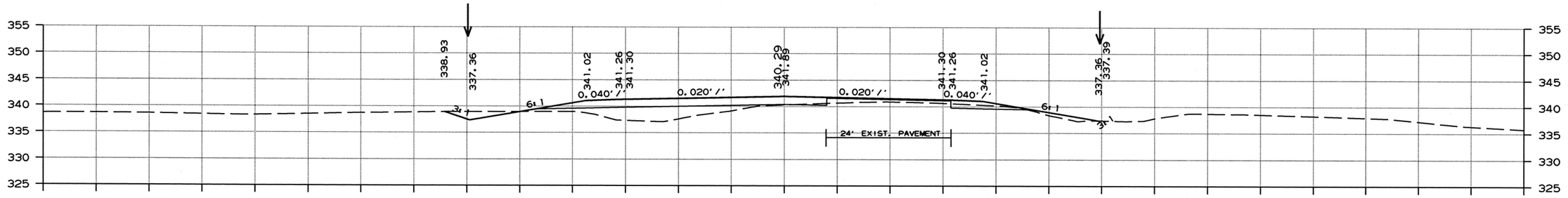
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	266	299

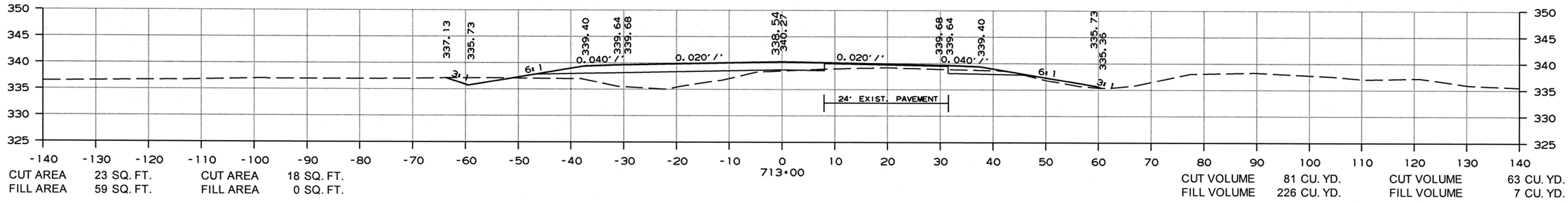
(2) CROSS SECTIONS

STAGE 1 STAGE 2



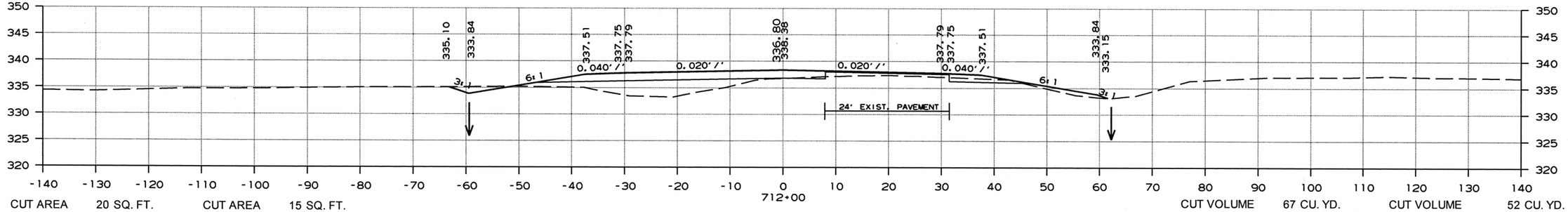
CUT AREA 24 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 47 SQ. FT. FILL AREA 2 SQ. FT.

CUT VOLUME 89 CU. YD. CUT VOLUME 63 CU. YD.
FILL VOLUME 196 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 23 SQ. FT. CUT AREA 18 SQ. FT.
FILL AREA 59 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 81 CU. YD. CUT VOLUME 63 CU. YD.
FILL VOLUME 226 CU. YD. FILL VOLUME 7 CU. YD.



CUT AREA 20 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 62 SQ. FT. FILL AREA 3 SQ. FT.

CUT VOLUME 67 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 226 CU. YD. FILL VOLUME 15 CU. YD.

CROSS SECTION STA. 712+00 TO STA. 714+00

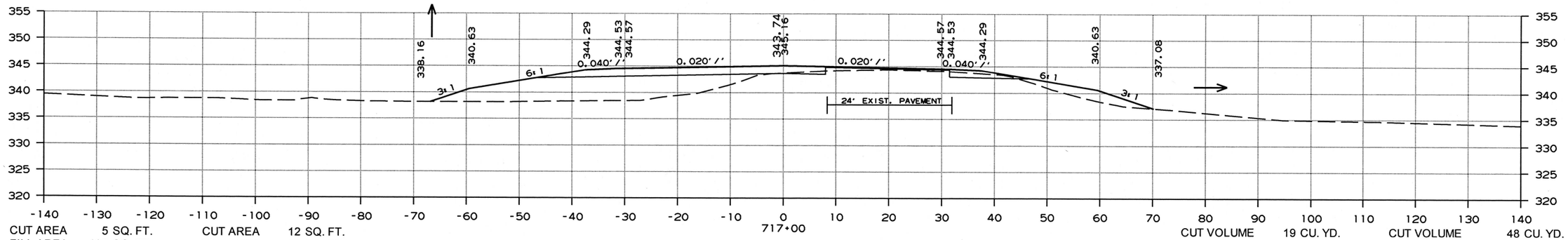
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	267	299

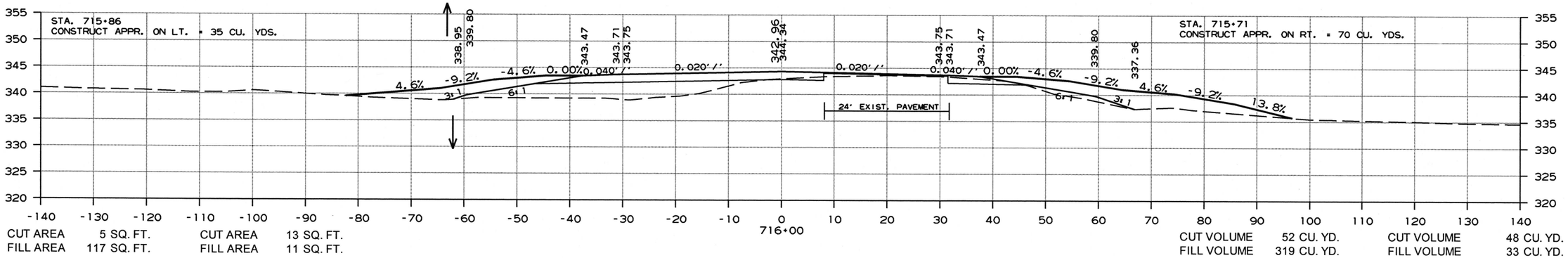
(2) CROSS SECTIONS

STAGE 1 STAGE 2



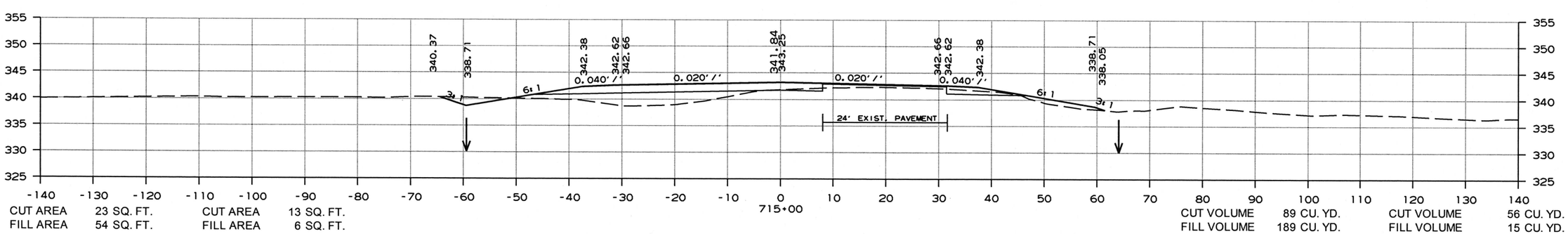
CUT AREA 5 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 197 SQ. FT. FILL AREA 29 SQ. FT.

CUT VOLUME 19 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 581 CU. YD. FILL VOLUME 74 CU. YD.



CUT AREA 5 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 117 SQ. FT. FILL AREA 11 SQ. FT.

CUT VOLUME 52 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 319 CU. YD. FILL VOLUME 33 CU. YD.



CUT AREA 23 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 54 SQ. FT. FILL AREA 6 SQ. FT.

CUT VOLUME 89 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 189 CU. YD. FILL VOLUME 15 CU. YD.

CROSS SECTION STA. 715+00 TO STA. 717+00

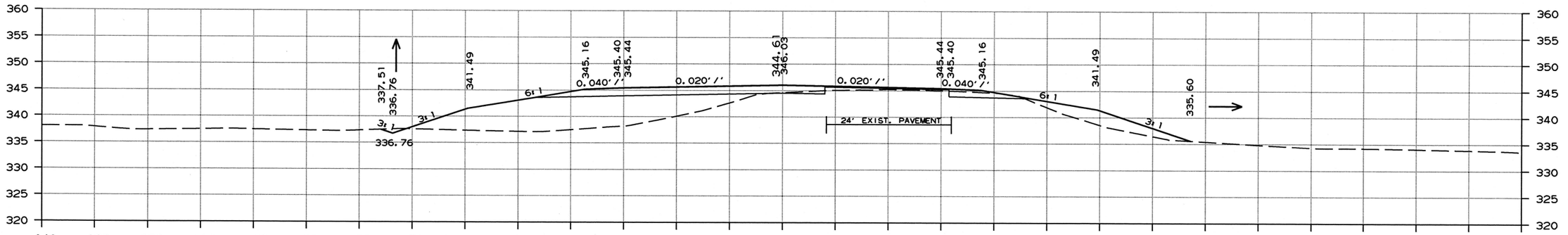
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	268	299

(2) CROSS SECTIONS

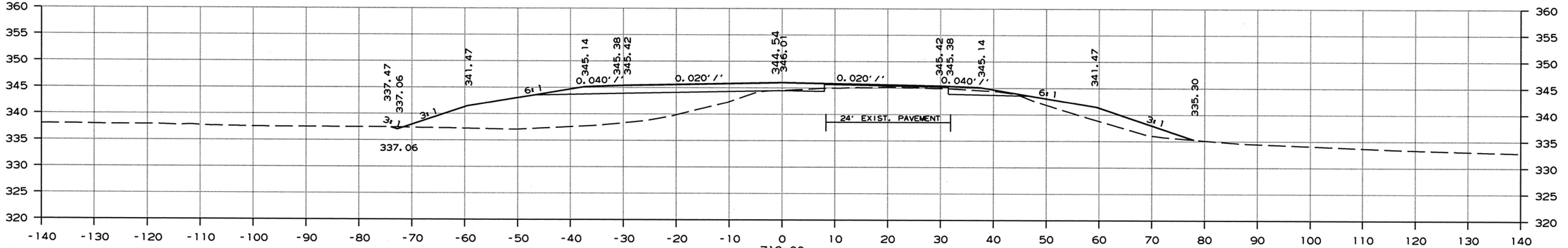
STAGE 1 STAGE 2



CUT AREA 7 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 266 SQ. FT. FILL AREA 47 SQ. FT.

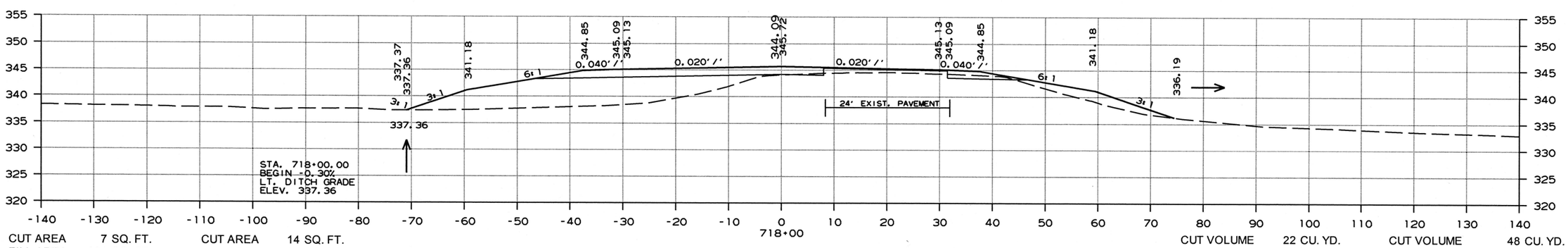
CUT VOLUME 22 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 985 CU. YD. FILL VOLUME 174 CU. YD.

STAGE 1 STAGE 2



CUT AREA 5 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 266 SQ. FT. FILL AREA 46 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 904 CU. YD. FILL VOLUME 130 CU. YD.



CUT AREA 7 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 221 SQ. FT. FILL AREA 24 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 774 CU. YD. FILL VOLUME 100 CU. YD.

CROSS SECTION STA. 718+00 TO STA. 720+00

3/6/2019

RCA0704.DGN

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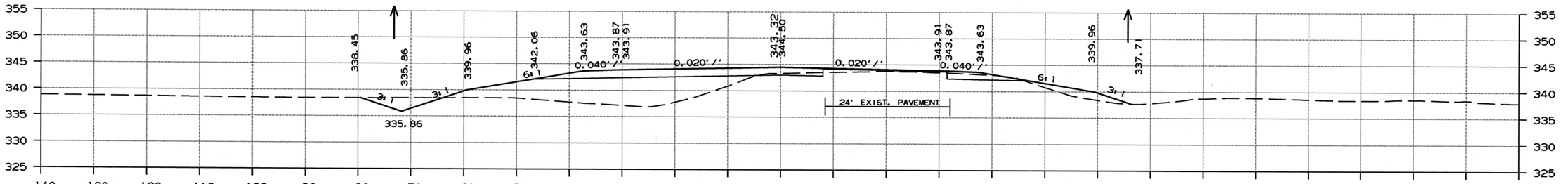
				6	ARK.			
				JOB NO.		CA0704	269	299

(2) CROSS SECTIONS

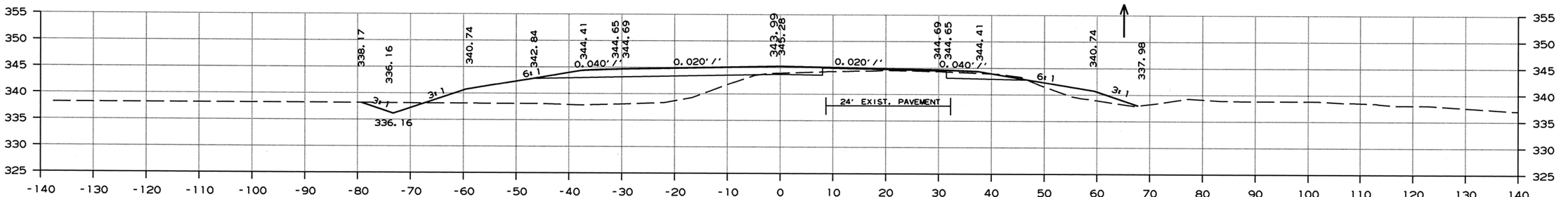
STAGE 1 STAGE 2

STAGE 1 STAGE 2



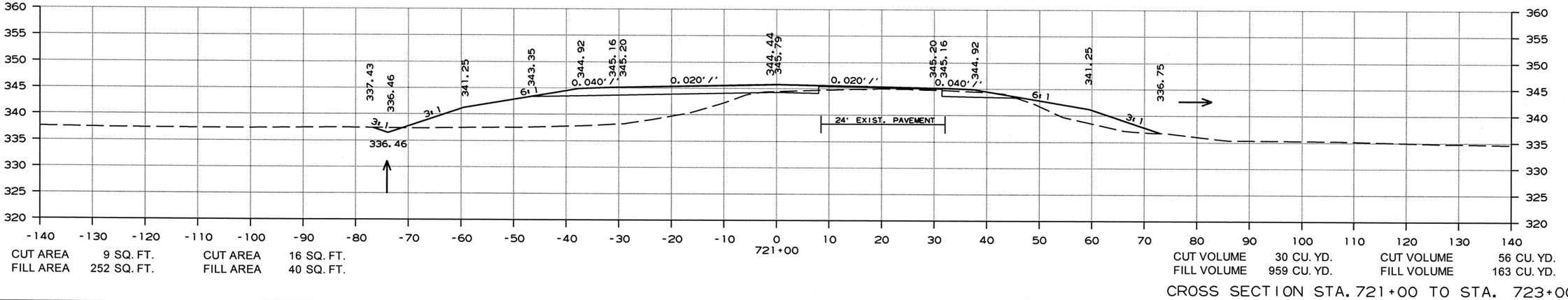
CUT AREA 27 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 20 SQ. FT. FILL AREA 17 SQ. FT.

CUT VOLUME 85 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 452 CU. YD. FILL VOLUME 70 CU. YD.



CUT AREA 18 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 224 SQ. FT. FILL AREA 21 SQ. FT.

CUT VOLUME 52 CU. YD. CUT VOLUME 59 CU. YD.
FILL VOLUME 881 CU. YD. FILL VOLUME 115 CU. YD.



CUT AREA 9 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 252 SQ. FT. FILL AREA 40 SQ. FT.

CUT VOLUME 30 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 959 CU. YD. FILL VOLUME 163 CU. YD.

CROSS SECTION STA. 721+00 TO STA. 723+00

3/6/2019

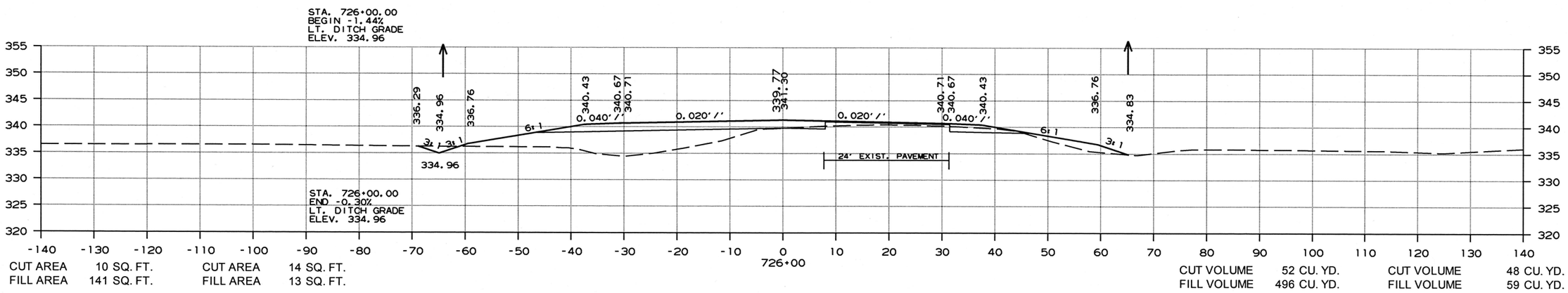
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	270	299

(2) CROSS SECTIONS

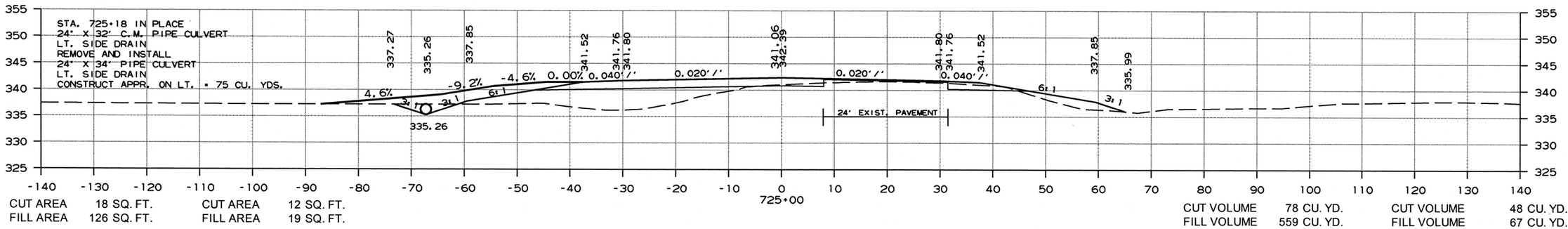
STAGE 1 STAGE 2

STAGE 1 STAGE 2



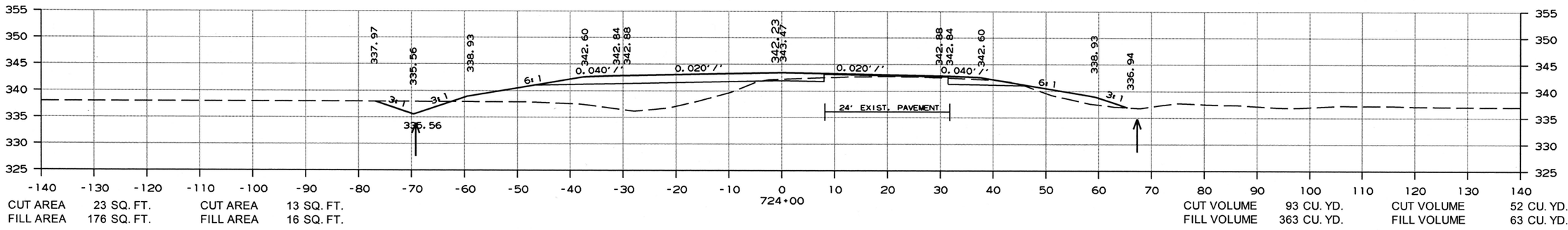
CUT AREA 10 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 141 SQ. FT. FILL AREA 13 SQ. FT.

CUT VOLUME 52 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 496 CU. YD. FILL VOLUME 59 CU. YD.



CUT AREA 18 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 126 SQ. FT. FILL AREA 19 SQ. FT.

CUT VOLUME 78 CU. YD. CUT VOLUME 48 CU. YD.
FILL VOLUME 559 CU. YD. FILL VOLUME 67 CU. YD.



CUT AREA 23 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 176 SQ. FT. FILL AREA 16 SQ. FT.

CUT VOLUME 93 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 363 CU. YD. FILL VOLUME 63 CU. YD.

CROSS SECTION STA. 724+00 TO STA. 726+00

3/6/2019

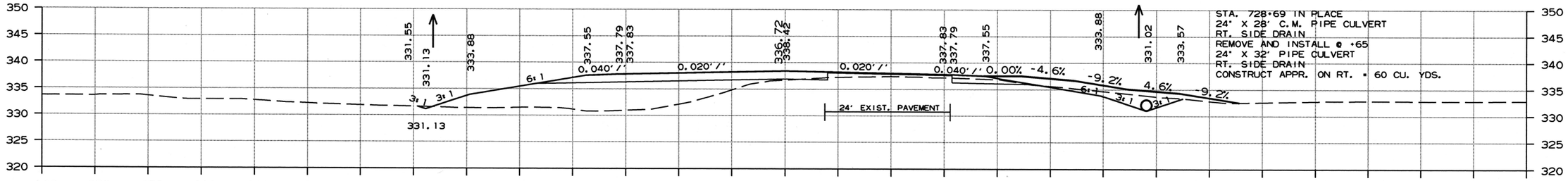
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	271	299

(2) CROSS SECTIONS

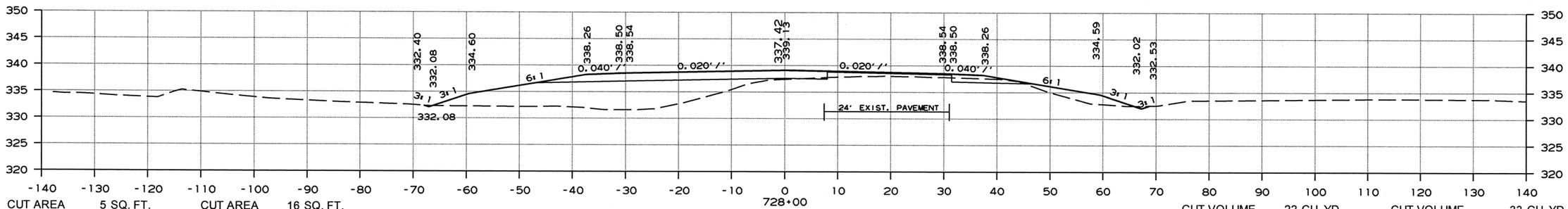
STAGE 1 STAGE 2

STAGE 1 STAGE 2



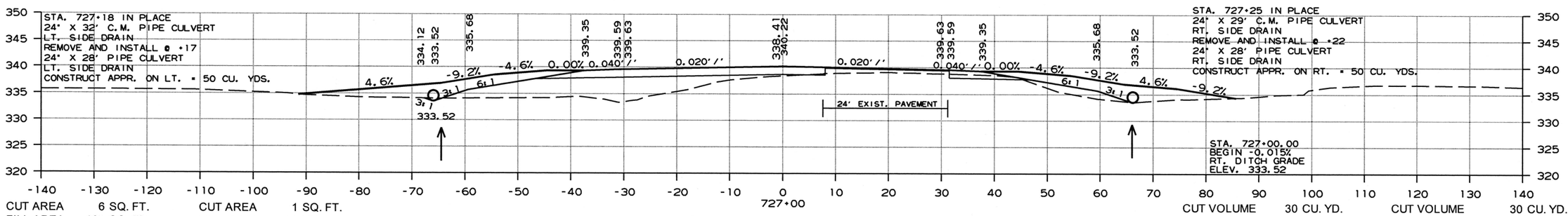
CUT AREA 5 SQ. FT. CUT AREA 52 SQ. FT.
FILL AREA 202 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 12 CU. YD. CUT VOLUME 83 CU. YD.
FILL VOLUME 484 CU. YD. FILL VOLUME 20 CU. YD.



CUT AREA 5 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 193 SQ. FT. FILL AREA 15 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 33 CU. YD.
FILL VOLUME 593 CU. YD. FILL VOLUME 48 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 1 SQ. FT.
FILL AREA 127 SQ. FT. FILL AREA 11 SQ. FT.

CUT VOLUME 30 CU. YD. CUT VOLUME 30 CU. YD.
FILL VOLUME 496 CU. YD. FILL VOLUME 44 CU. YD.

CROSS SECTION STA. 727+00 TO STA. 728+66

3/6/2019

RCA0704.DGN

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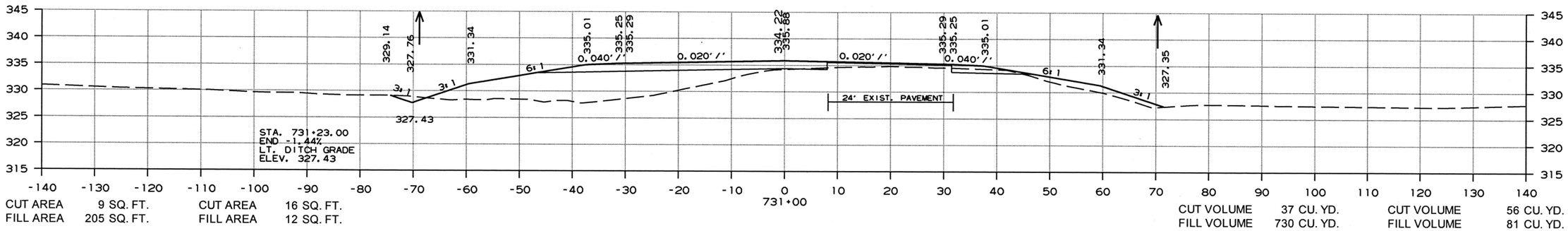
				6	ARK.			
				JOB NO.		CA0704	272	299

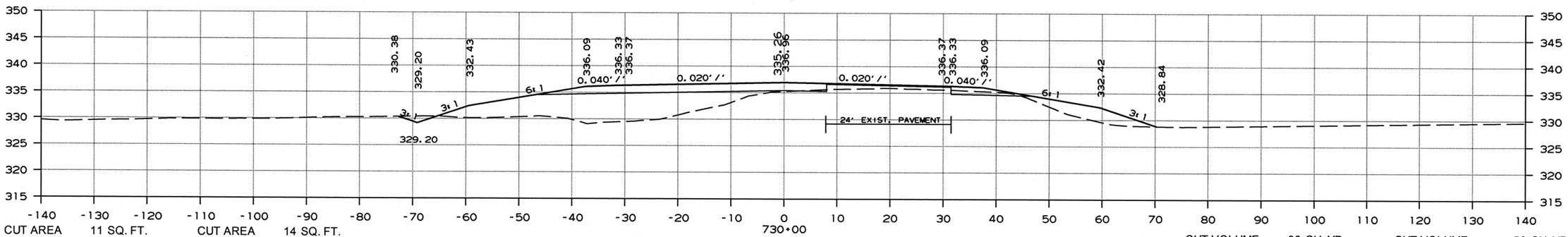
(2) CROSS SECTIONS

STAGE 1 STAGE 2



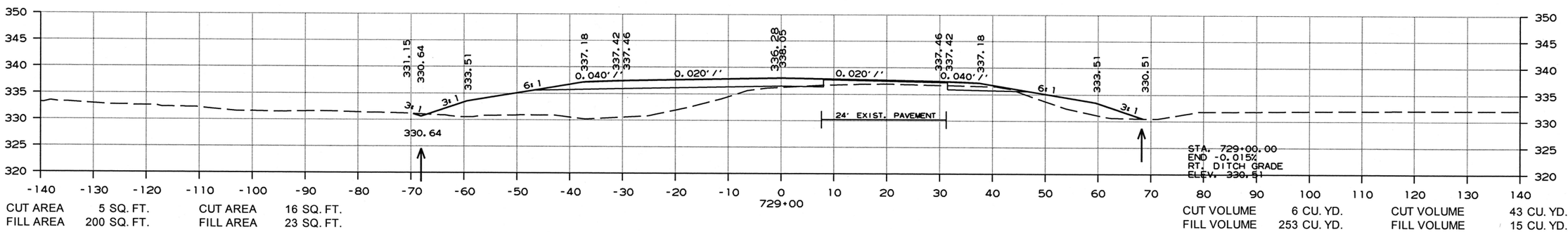
CUT AREA 9 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 205 SQ. FT. FILL AREA 12 SQ. FT.

CUT VOLUME 37 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 730 CU. YD. FILL VOLUME 81 CU. YD.



CUT AREA 11 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 189 SQ. FT. FILL AREA 31 SQ. FT.

CUT VOLUME 30 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 722 CU. YD. FILL VOLUME 100 CU. YD.



CUT AREA 5 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 200 SQ. FT. FILL AREA 23 SQ. FT.

CUT VOLUME 6 CU. YD. CUT VOLUME 43 CU. YD.
FILL VOLUME 253 CU. YD. FILL VOLUME 15 CU. YD.

CROSS SECTION STA. 729+00 TO STA. 731+00

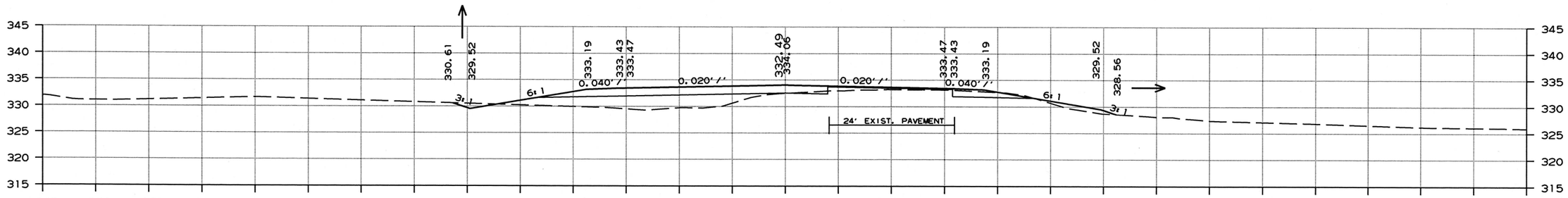
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	273	299

(2) CROSS SECTIONS

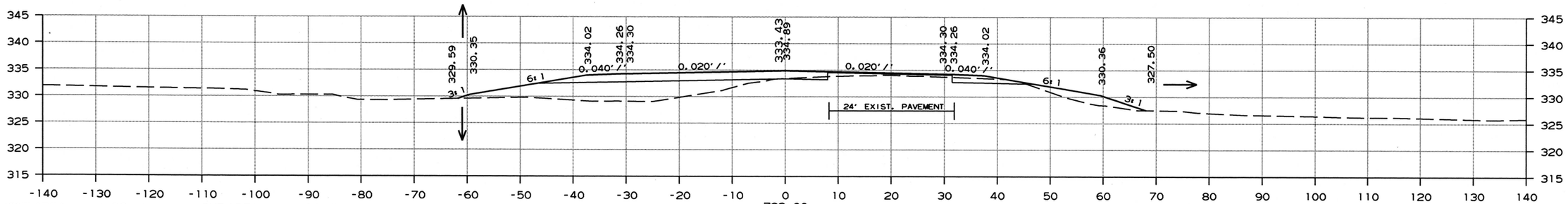
STAGE 1 STAGE 2



CUT AREA 8 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 85 SQ. FT. FILL AREA 7 SQ. FT.

733+00

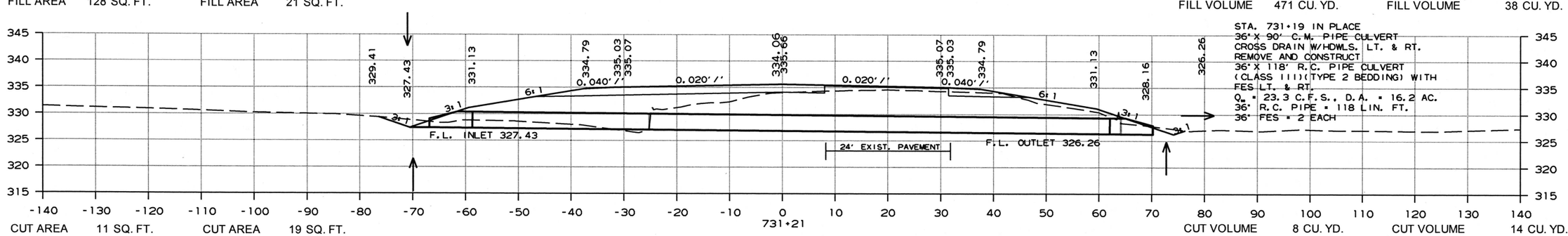
CUT VOLUME 26 CU. YD. CUT VOLUME 56 CU. YD.
FILL VOLUME 396 CU. YD. FILL VOLUME 52 CU. YD.



CUT AREA 5 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 128 SQ. FT. FILL AREA 21 SQ. FT.

732+00

CUT VOLUME 23 CU. YD. CUT VOLUME 50 CU. YD.
FILL VOLUME 471 CU. YD. FILL VOLUME 38 CU. YD.



STA. 731+19 IN PLACE
36" X 90' C.M. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE AND CONSTRUCT
36" X 118' R.C. PIPE CULVERT
(CLASS III)(TYPE 2 BEDDING) WITH
FES LT. & RT.
Q_d = 23.3 C.F.S., D.A. = 16.2 AC.
36" R.C. PIPE = 118 LIN. FT.
36" FES = 2 EACH

CUT AREA 11 SQ. FT. CUT AREA 19 SQ. FT.
FILL AREA 193 SQ. FT. FILL AREA 5 SQ. FT.

731+21

CUT VOLUME 8 CU. YD. CUT VOLUME 14 CU. YD.
FILL VOLUME 155 CU. YD. FILL VOLUME 7 CU. YD.

CROSS SECTION STA. 731+21 TO STA. 733+00

3/6/2019

RCA0704.DGN

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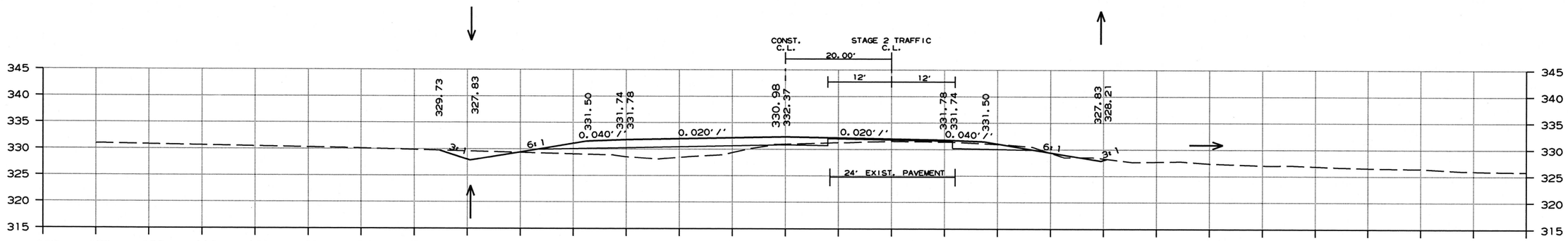
				6	ARK.			
				JOB NO.		CA0704	274	299

(2) CROSS SECTIONS

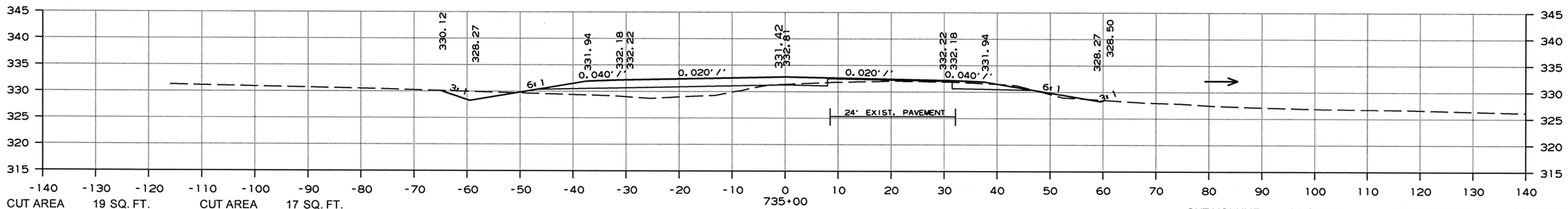
STAGE 1 STAGE 2

STAGE 1 STAGE 2



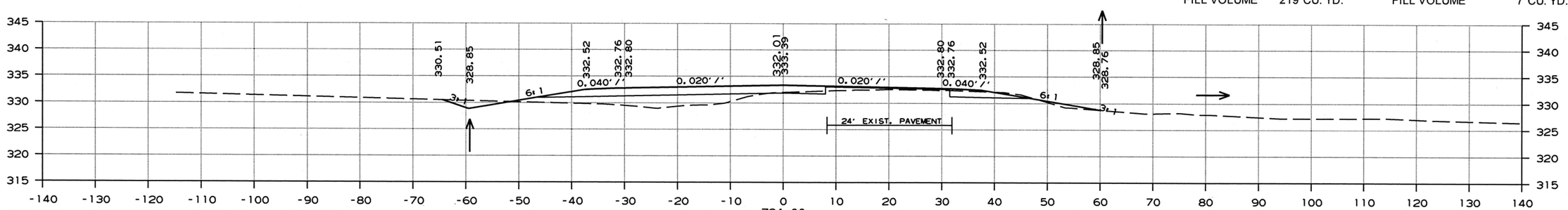
CUT AREA 21 SQ. FT. CUT AREA 21 SQ. FT.
FILL AREA 55 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 74 CU. YD. CUT VOLUME 70 CU. YD.
FILL VOLUME 207 CU. YD. FILL VOLUME 4 CU. YD.



CUT AREA 19 SQ. FT. CUT AREA 17 SQ. FT.
FILL AREA 56 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 67 CU. YD. CUT VOLUME 63 CU. YD.
FILL VOLUME 219 CU. YD. FILL VOLUME 7 CU. YD.



CUT AREA 17 SQ. FT. CUT AREA 17 SQ. FT.
FILL AREA 61 SQ. FT. FILL AREA 2 SQ. FT.

CUT VOLUME 48 CU. YD. CUT VOLUME 63 CU. YD.
FILL VOLUME 270 CU. YD. FILL VOLUME 19 CU. YD.

CROSS SECTION STA. 734+00 TO STA. 736+00

3/6/2019

RCA0704.DGN

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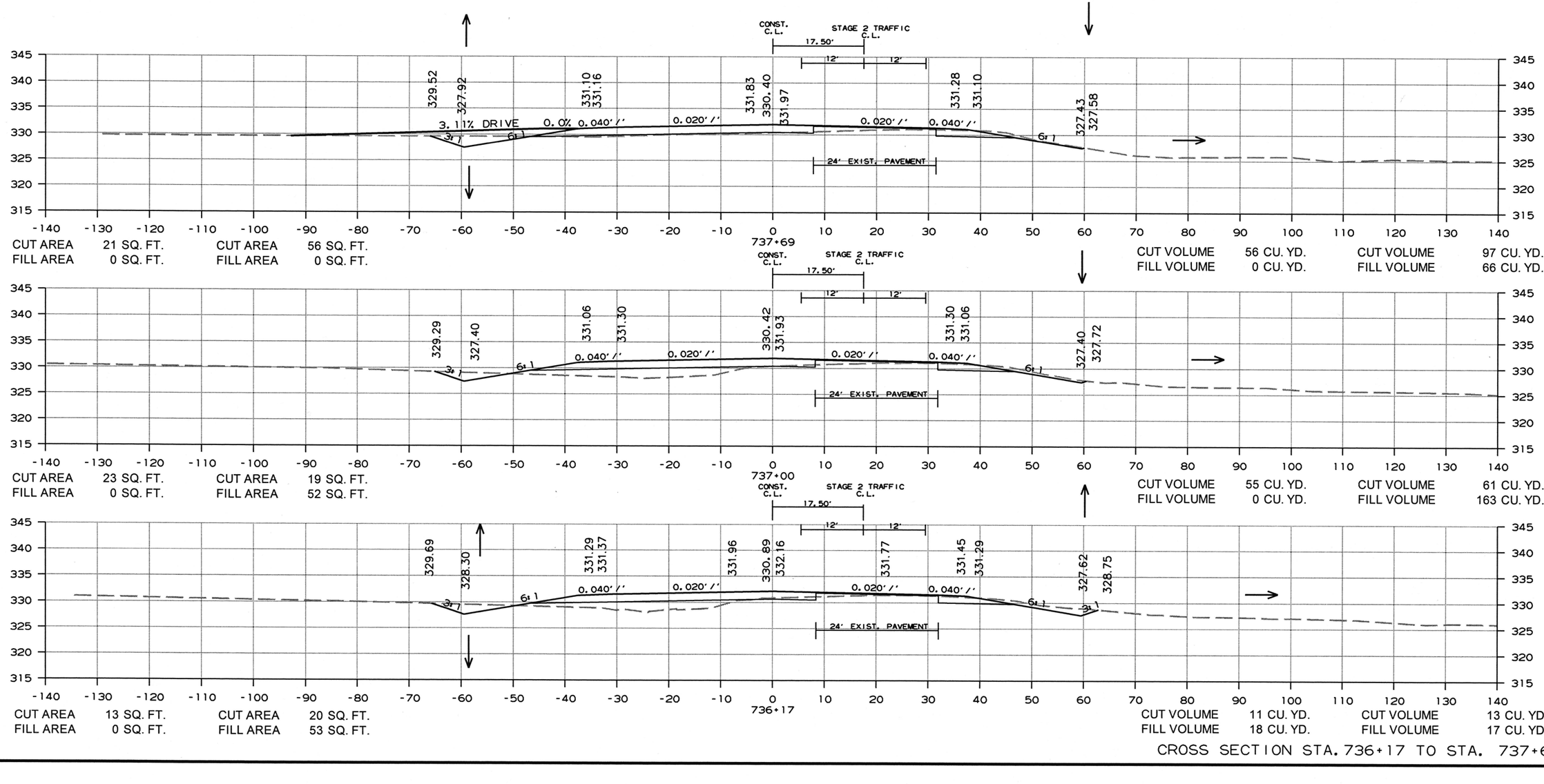
				6	ARK.			
				JOB NO.		CA0704	275	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2



CUT AREA	21 SQ. FT.	CUT AREA	56 SQ. FT.	CUT VOLUME	56 CU. YD.	CUT VOLUME	97 CU. YD.
FILL AREA	0 SQ. FT.	FILL AREA	0 SQ. FT.	FILL VOLUME	0 CU. YD.	FILL VOLUME	66 CU. YD.
CUT AREA	23 SQ. FT.	CUT AREA	19 SQ. FT.	CUT VOLUME	55 CU. YD.	CUT VOLUME	61 CU. YD.
FILL AREA	0 SQ. FT.	FILL AREA	52 SQ. FT.	FILL VOLUME	0 CU. YD.	FILL VOLUME	163 CU. YD.
CUT AREA	13 SQ. FT.	CUT AREA	20 SQ. FT.	CUT VOLUME	11 CU. YD.	CUT VOLUME	13 CU. YD.
FILL AREA	0 SQ. FT.	FILL AREA	53 SQ. FT.	FILL VOLUME	18 CU. YD.	FILL VOLUME	17 CU. YD.

CROSS SECTION STA. 736+17 TO STA. 737+69

3/6/2019

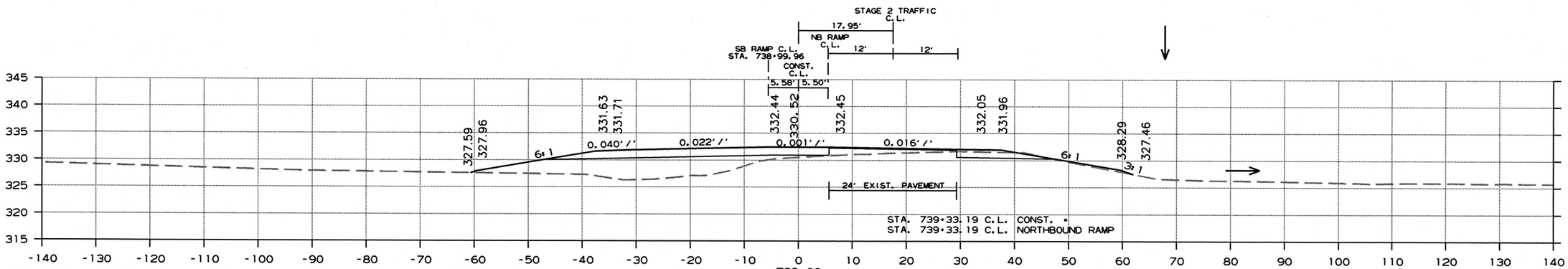
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	276	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2

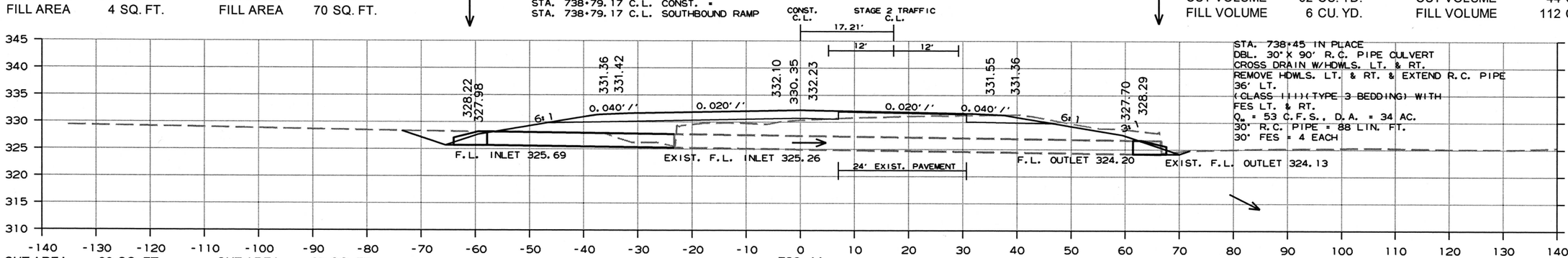
STAGE 1 STAGE 2



CUT AREA 21 SQ. FT. CUT AREA 14 SQ. FT.
FILL AREA 4 SQ. FT. FILL AREA 70 SQ. FT.

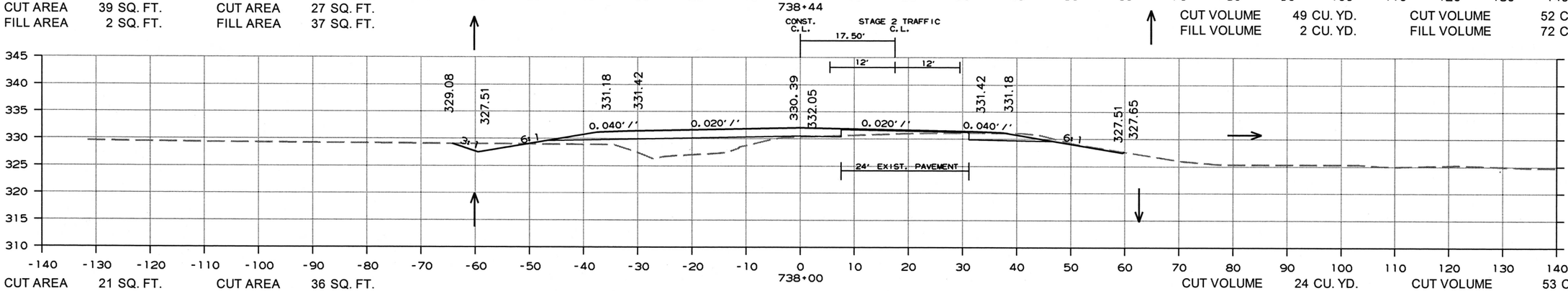
CUT VOLUME 62 CU. YD. CUT VOLUME 44 CU. YD.
FILL VOLUME 6 CU. YD. FILL VOLUME 112 CU. YD.

STA. 738+79.17 C.L. CONST. =
STA. 738+79.17 C.L. SOUTHBOUND RAMP



CUT AREA 39 SQ. FT. CUT AREA 27 SQ. FT.
FILL AREA 2 SQ. FT. FILL AREA 37 SQ. FT.

CUT VOLUME 49 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 2 CU. YD. FILL VOLUME 72 CU. YD.



CUT AREA 21 SQ. FT. CUT AREA 36 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 51 SQ. FT.

CUT VOLUME 24 CU. YD. CUT VOLUME 53 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 30 CU. YD.

CROSS SECTION STA. 738+00 TO STA. 739+00

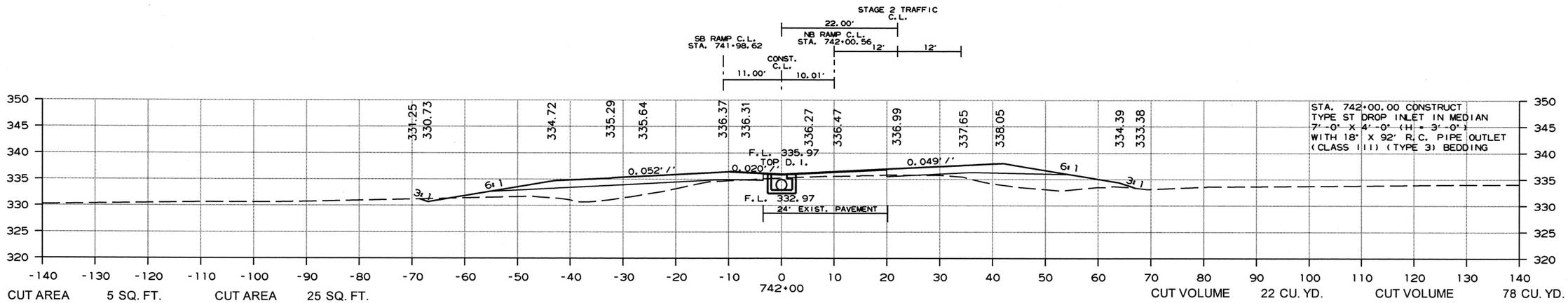
3/6/2019

RCA0704.DGN

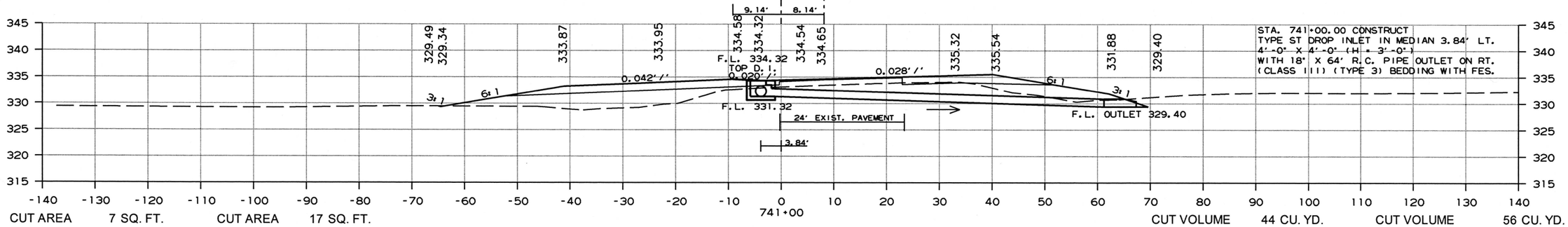
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	277	299

(2) CROSS SECTIONS

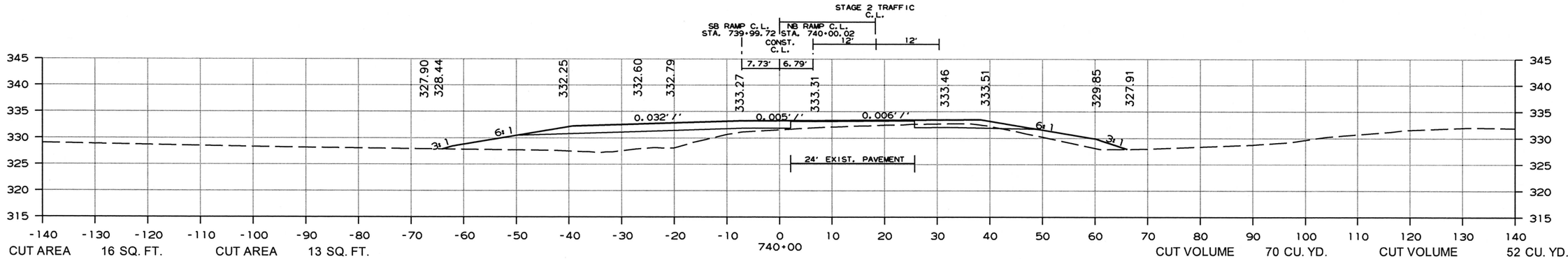
STAGE 1 STAGE 2



CUT AREA	5 SQ. FT.	CUT AREA	25 SQ. FT.
FILL AREA	54 SQ. FT.	FILL AREA	24 SQ. FT.
CUT VOLUME	22 CU. YD.	CUT VOLUME	78 CU. YD.
FILL VOLUME	181 CU. YD.	FILL VOLUME	122 CU. YD.



CUT AREA	7 SQ. FT.	CUT AREA	17 SQ. FT.
FILL AREA	43 SQ. FT.	FILL AREA	42 SQ. FT.
CUT VOLUME	44 CU. YD.	CUT VOLUME	56 CU. YD.
FILL VOLUME	126 CU. YD.	FILL VOLUME	181 CU. YD.



CUT AREA	16 SQ. FT.	CUT AREA	13 SQ. FT.
FILL AREA	24 SQ. FT.	FILL AREA	56 SQ. FT.
CUT VOLUME	70 CU. YD.	CUT VOLUME	52 CU. YD.
FILL VOLUME	52 CU. YD.	FILL VOLUME	233 CU. YD.

CROSS SECTION STA. 740+00 TO STA. 742+00

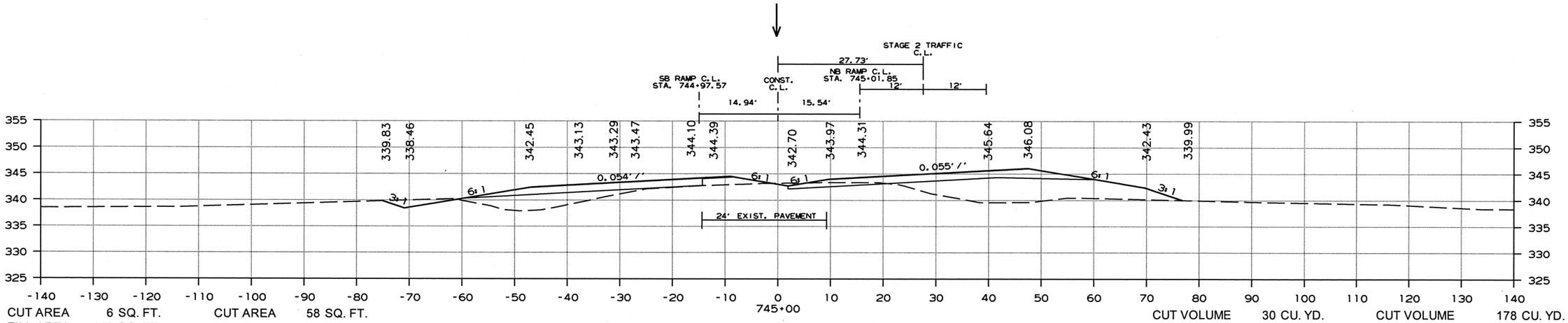
3/6/2019

RCA0704.DGN

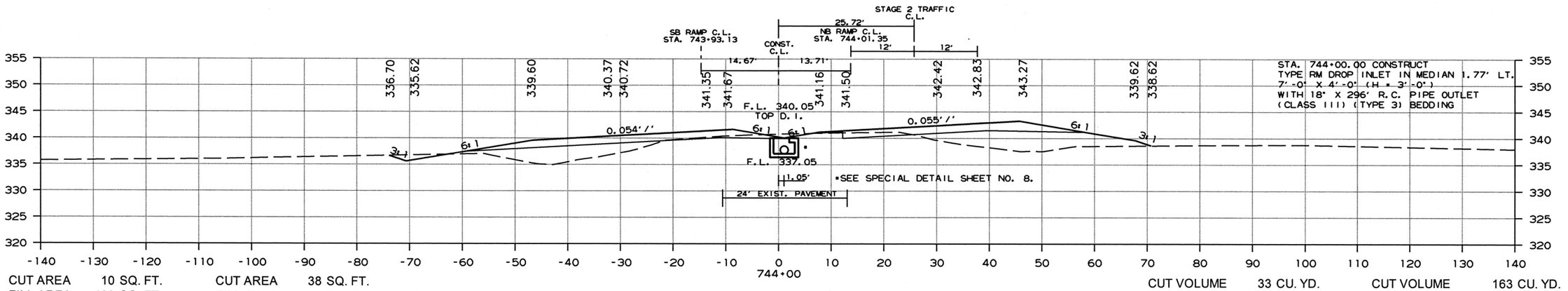
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	278	299

(2) CROSS SECTIONS

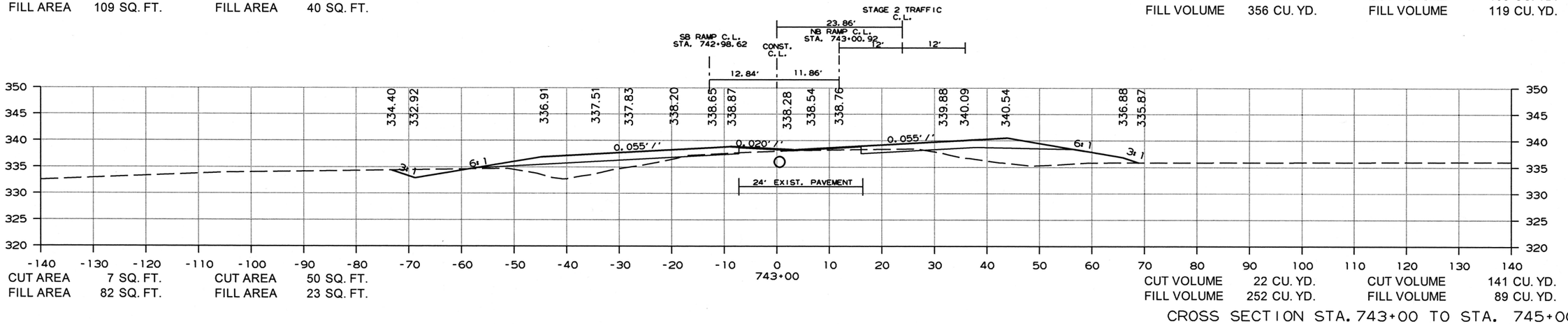
STAGE 1 STAGE 2



CUT AREA	6 SQ. FT.	CUT AREA	58 SQ. FT.
FILL AREA	169 SQ. FT.	FILL AREA	24 SQ. FT.
CUT VOLUME	30 CU. YD.	CUT VOLUME	178 CU. YD.
FILL VOLUME	515 CU. YD.	FILL VOLUME	119 CU. YD.



CUT AREA	10 SQ. FT.	CUT AREA	38 SQ. FT.
FILL AREA	109 SQ. FT.	FILL AREA	40 SQ. FT.
CUT VOLUME	33 CU. YD.	CUT VOLUME	163 CU. YD.
FILL VOLUME	356 CU. YD.	FILL VOLUME	119 CU. YD.



CUT AREA	7 SQ. FT.	CUT AREA	50 SQ. FT.
FILL AREA	82 SQ. FT.	FILL AREA	23 SQ. FT.
CUT VOLUME	22 CU. YD.	CUT VOLUME	141 CU. YD.
FILL VOLUME	252 CU. YD.	FILL VOLUME	89 CU. YD.

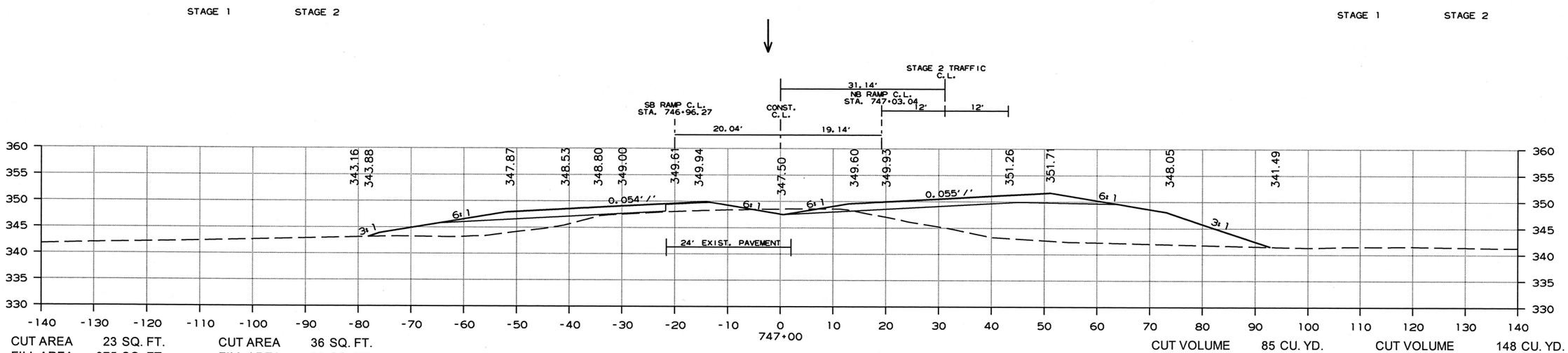
CROSS SECTION STA. 743+00 TO STA. 745+00

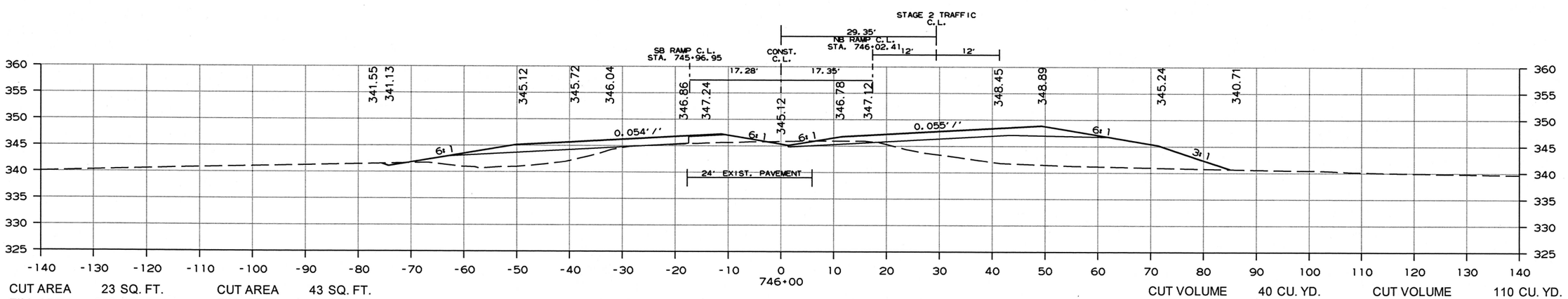
3/6/2019

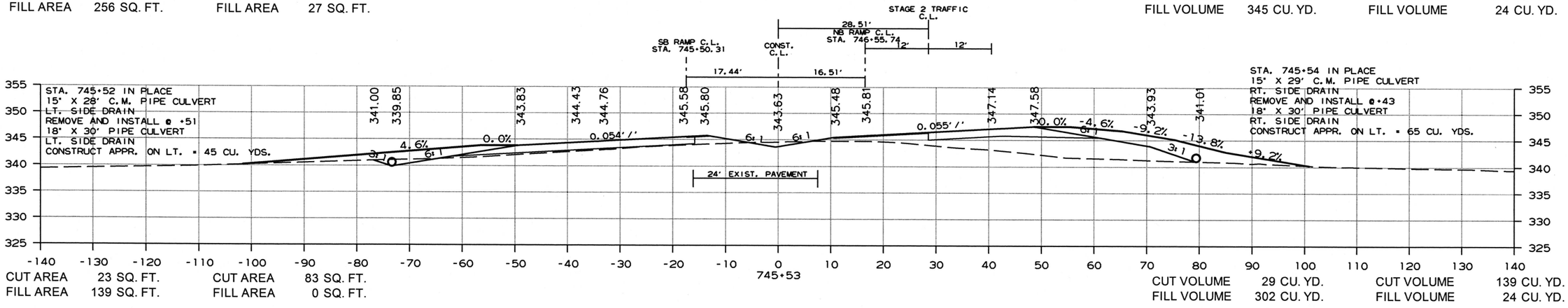
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	279	299

(2) CROSS SECTIONS







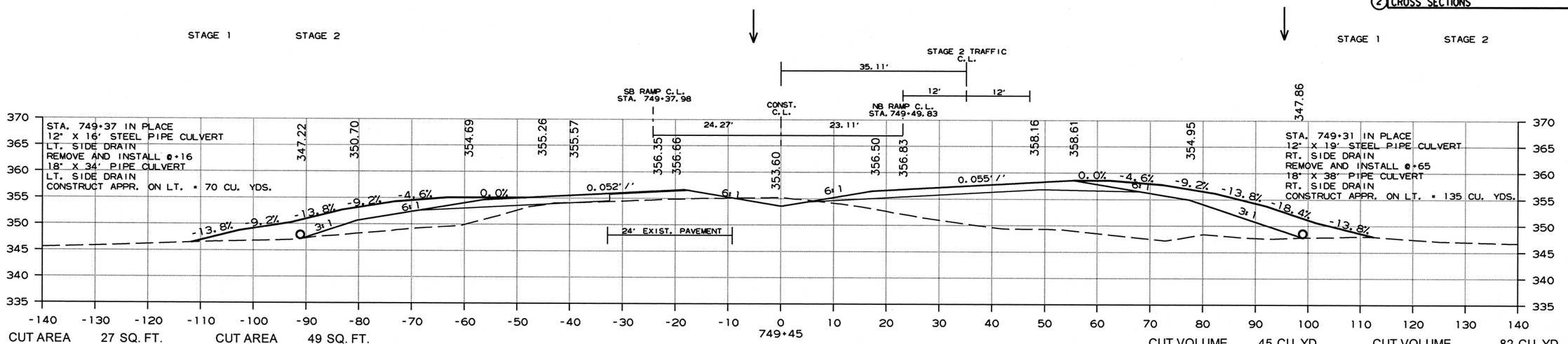
CROSS SECTION STA. 745+53 TO STA. 747+00

3/6/2019

RCA0704.DGN

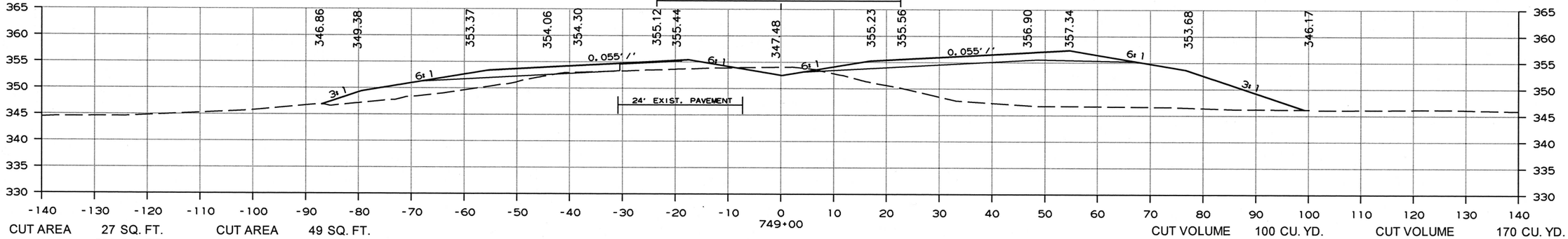
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	280	299

(2) CROSS SECTIONS



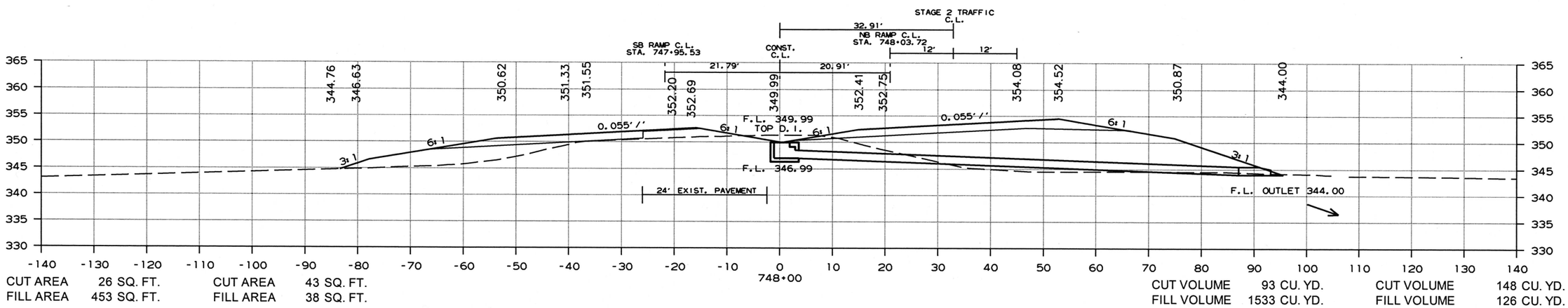
CUT AREA 27 SQ. FT. CUT AREA 49 SQ. FT.
FILL AREA 480 SQ. FT. FILL AREA 41 SQ. FT.

CUT VOLUME 45 CU. YD. CUT VOLUME 82 CU. YD.
FILL VOLUME 838 CU. YD. FILL VOLUME 57 CU. YD.



CUT AREA 27 SQ. FT. CUT AREA 49 SQ. FT.
FILL AREA 526 SQ. FT. FILL AREA 27 SQ. FT.

CUT VOLUME 100 CU. YD. CUT VOLUME 170 CU. YD.
FILL VOLUME 1815 CU. YD. FILL VOLUME 122 CU. YD.



CUT AREA 26 SQ. FT. CUT AREA 43 SQ. FT.
FILL AREA 453 SQ. FT. FILL AREA 38 SQ. FT.

CUT VOLUME 93 CU. YD. CUT VOLUME 148 CU. YD.
FILL VOLUME 1533 CU. YD. FILL VOLUME 126 CU. YD.

CROSS SECTION STA. 748+00 TO STA. 749+00

3/6/2019

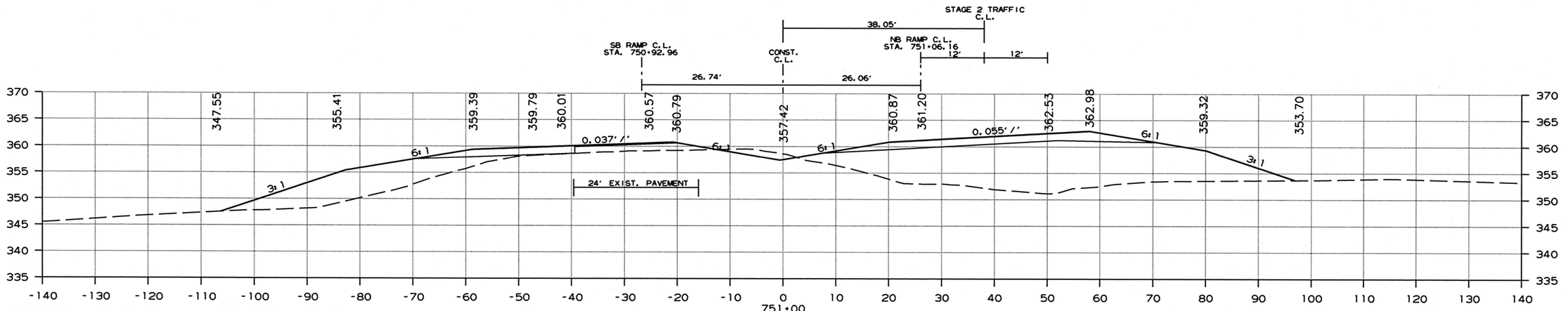
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	281	299

(2) CROSS SECTIONS

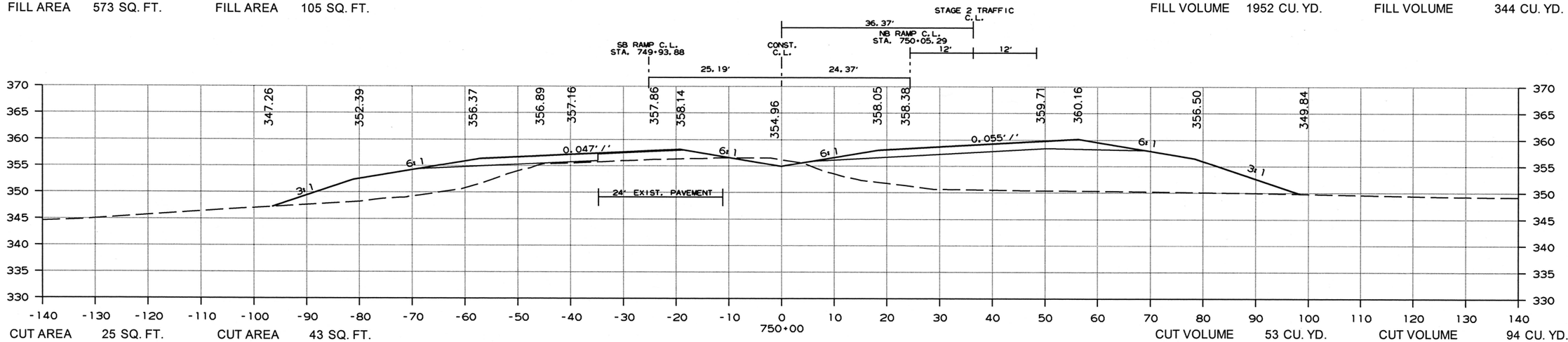
STAGE 1 STAGE 2

STAGE 1 STAGE 2



CUT AREA	26 SQ. FT.	CUT AREA	45 SQ. FT.
FILL AREA	573 SQ. FT.	FILL AREA	105 SQ. FT.

CUT VOLUME	96 CU. YD.	CUT VOLUME	163 CU. YD.
FILL VOLUME	1952 CU. YD.	FILL VOLUME	344 CU. YD.



CUT AREA	25 SQ. FT.	CUT AREA	43 SQ. FT.
FILL AREA	480 SQ. FT.	FILL AREA	81 SQ. FT.

CUT VOLUME	53 CU. YD.	CUT VOLUME	94 CU. YD.
FILL VOLUME	978 CU. YD.	FILL VOLUME	124 CU. YD.

CROSS SECTION STA. 749+45 TO STA. 750+00

3/6/2019

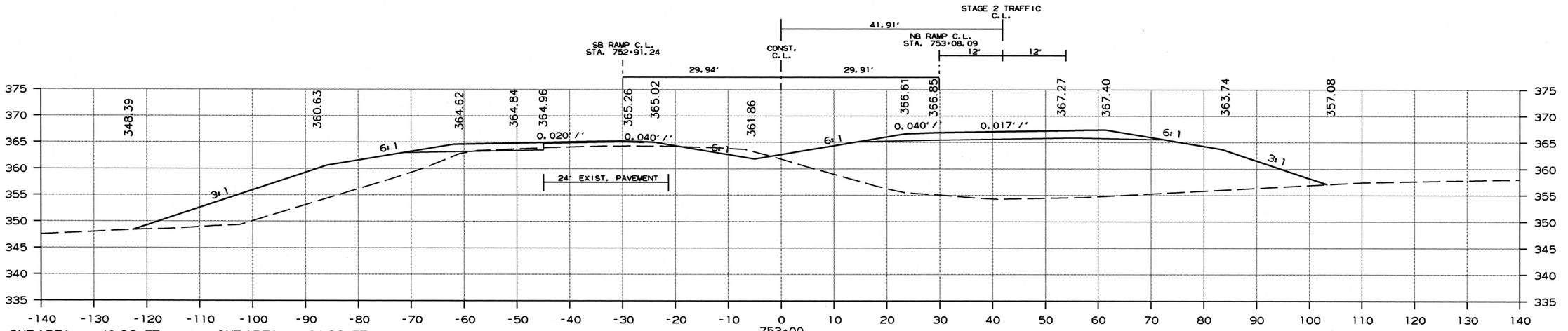
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	282	299

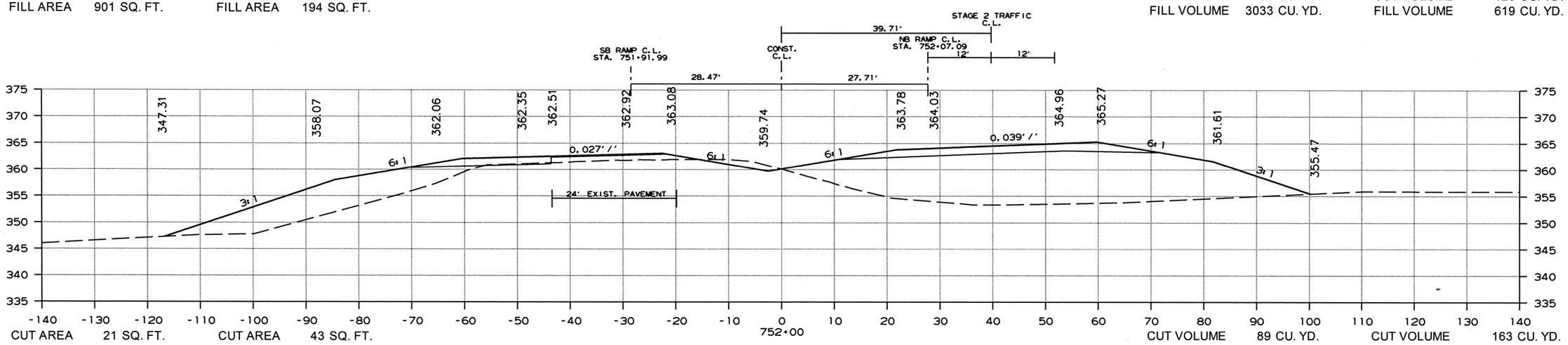
(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2



CUT AREA	10 SQ. FT.	CUT AREA	24 SQ. FT.
FILL AREA	901 SQ. FT.	FILL AREA	194 SQ. FT.
CUT VOLUME	59 CU. YD.	CUT VOLUME	126 CU. YD.
FILL VOLUME	3033 CU. YD.	FILL VOLUME	619 CU. YD.



CUT AREA	21 SQ. FT.	CUT AREA	43 SQ. FT.
FILL AREA	737 SQ. FT.	FILL AREA	139 SQ. FT.
CUT VOLUME	89 CU. YD.	CUT VOLUME	163 CU. YD.
FILL VOLUME	2426 CU. YD.	FILL VOLUME	452 CU. YD.

CROSS SECTION STA. 751+00 TO STA. 752+00

3/6/2019

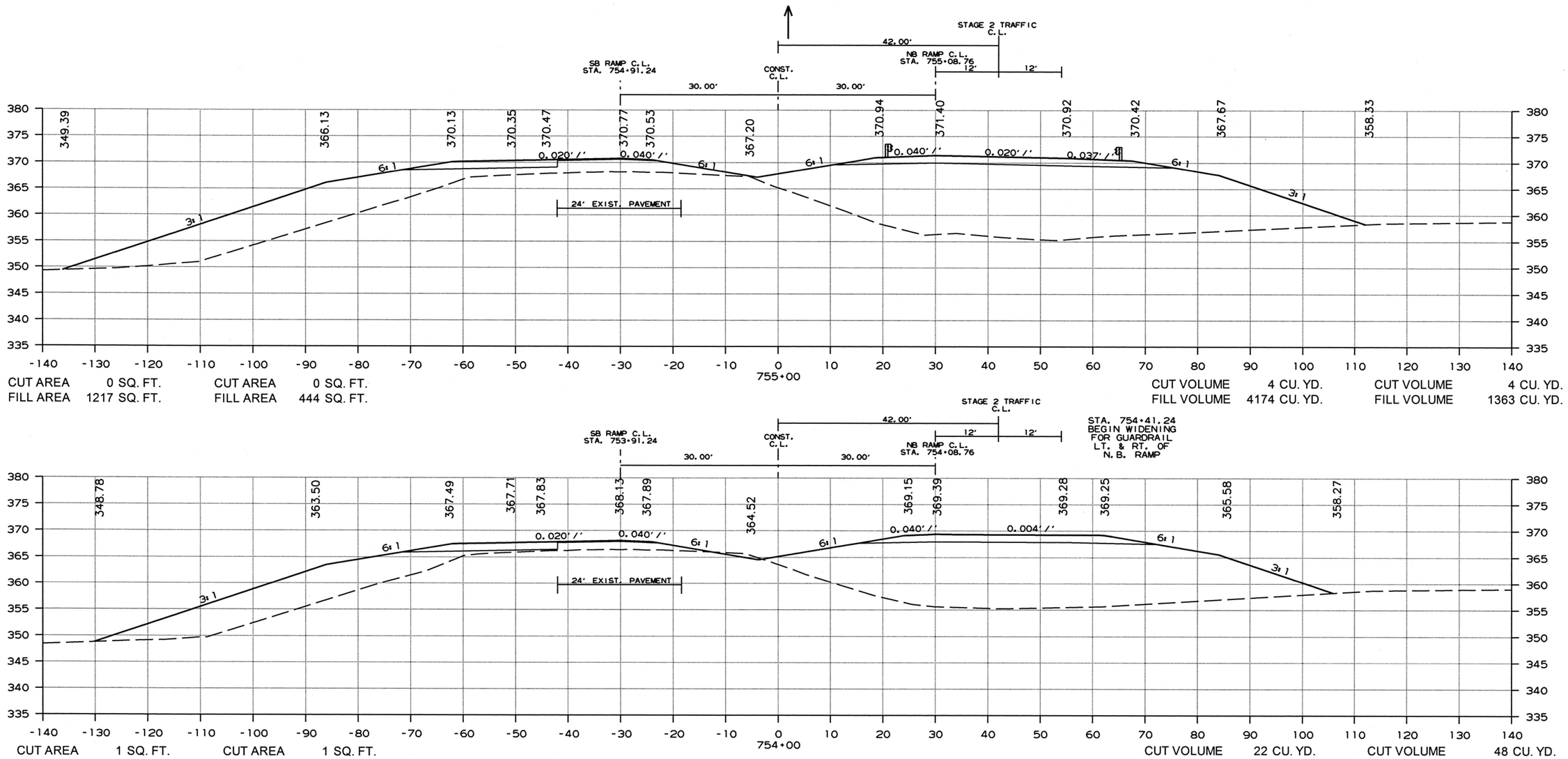
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	283	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2



CUT AREA	0 SQ. FT.	CUT AREA	0 SQ. FT.
FILL AREA	1217 SQ. FT.	FILL AREA	444 SQ. FT.

CUT VOLUME	4 CU. YD.	CUT VOLUME	4 CU. YD.
FILL VOLUME	4174 CU. YD.	FILL VOLUME	1363 CU. YD.

CUT AREA	1 SQ. FT.	CUT AREA	1 SQ. FT.
FILL AREA	1036 SQ. FT.	FILL AREA	291 SQ. FT.

CUT VOLUME	22 CU. YD.	CUT VOLUME	48 CU. YD.
FILL VOLUME	3589 CU. YD.	FILL VOLUME	900 CU. YD.

CROSS SECTION STA. 753+00 TO STA. 754+00

3/6/2019

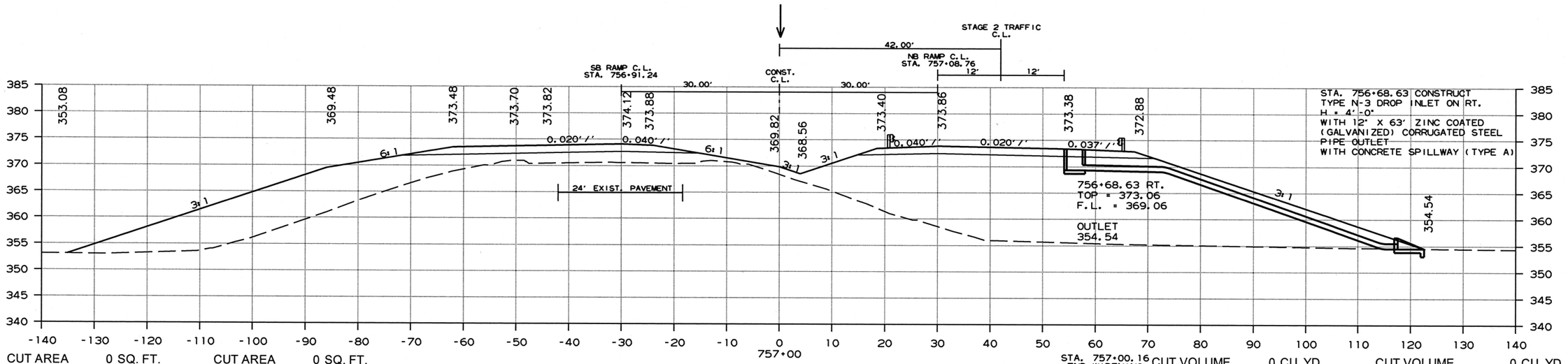
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	284	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2

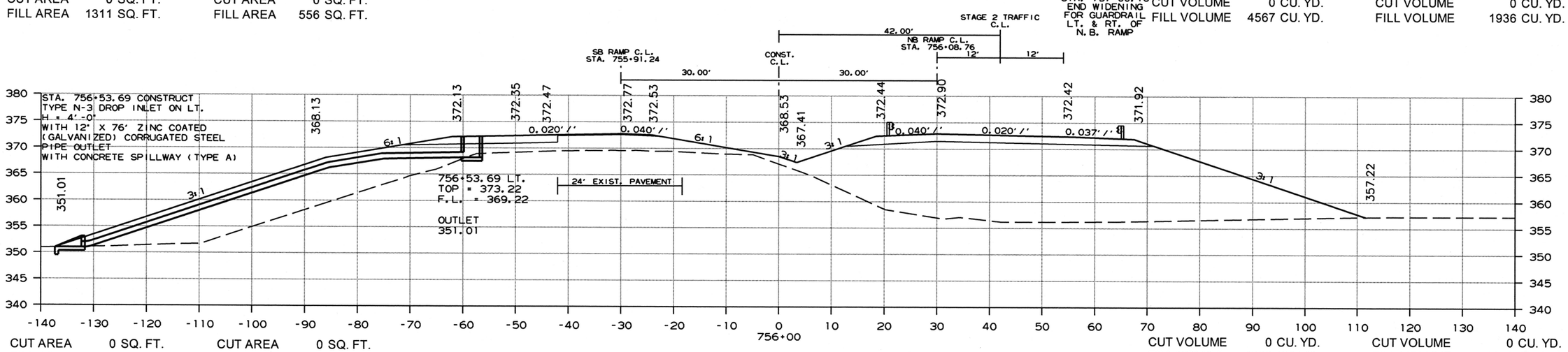
STAGE 1 STAGE 2



CUT AREA	0 SQ. FT.	CUT AREA	0 SQ. FT.
FILL AREA	1311 SQ. FT.	FILL AREA	556 SQ. FT.

STA. 757+00.16 END WIDENING FOR GUARDRAIL LT. & RT. OF N.B. RAMP

CUT VOLUME	0 CU. YD.	CUT VOLUME	0 CU. YD.
FILL VOLUME	4567 CU. YD.	FILL VOLUME	1936 CU. YD.



CUT AREA	0 SQ. FT.	CUT AREA	0 SQ. FT.
FILL AREA	1154 SQ. FT.	FILL AREA	556 SQ. FT.

CUT VOLUME	0 CU. YD.	CUT VOLUME	0 CU. YD.
FILL VOLUME	4393 CU. YD.	FILL VOLUME	1852 CU. YD.

CROSS SECTION STA. 755+00 TO STA. 756+00

3/6/2019

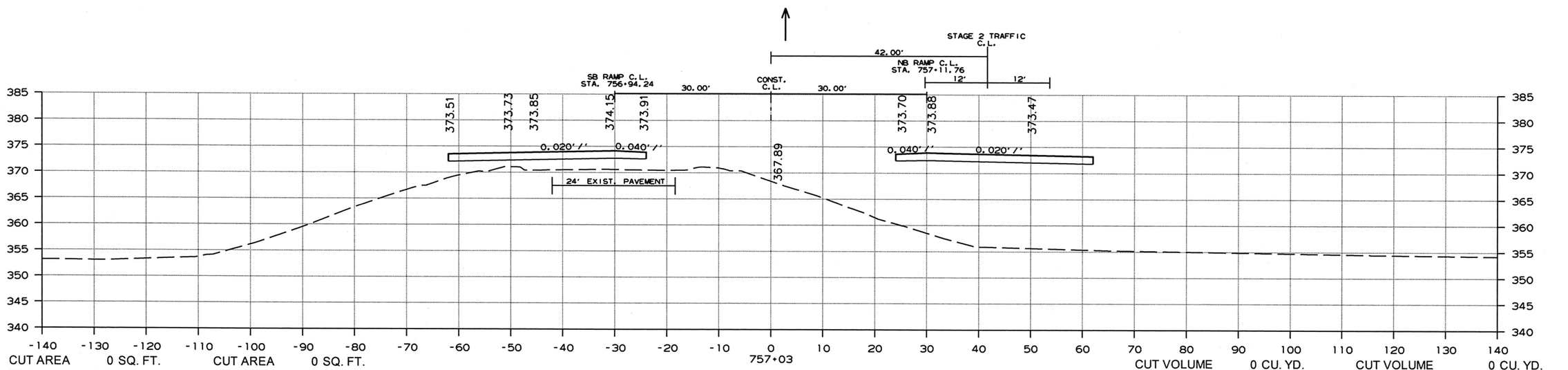
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	285	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 1316 SQ. FT. FILL AREA 0 SQ. FT.

STA. 756+93.92 BR. END

STA. 757+08.92 BR. END

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 146 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 757+00 TO STA. 757+00

3/6/2019

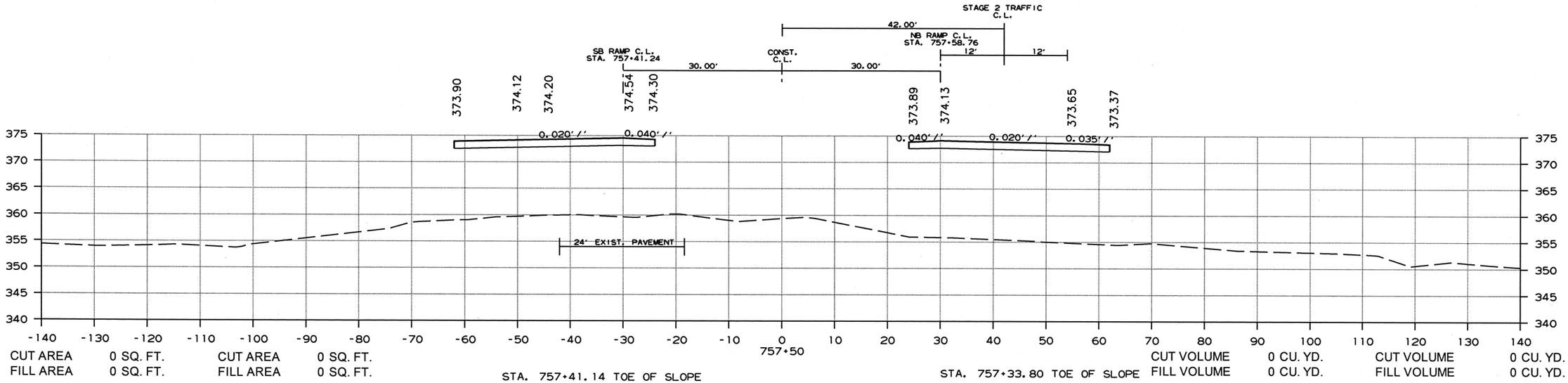
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	286	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2

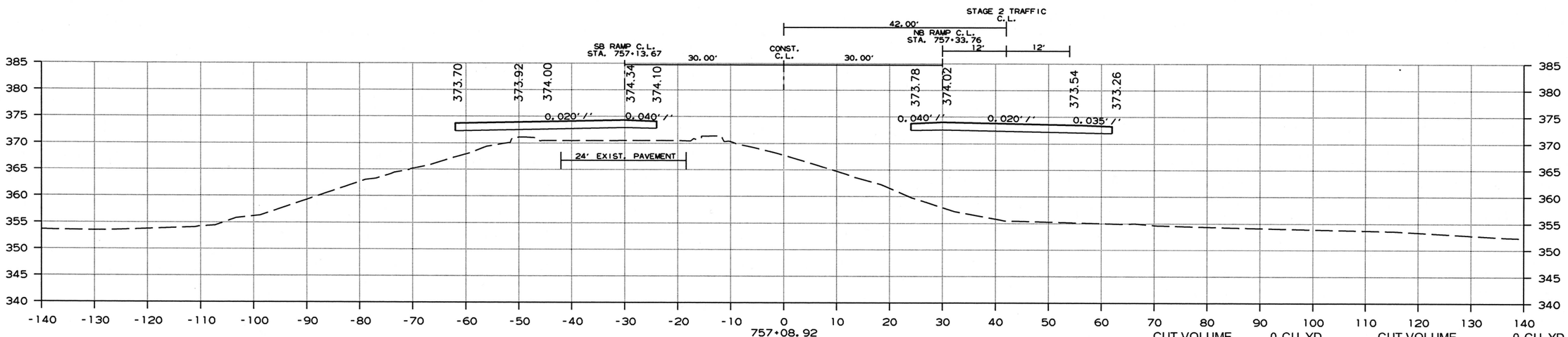


CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

STA. 757+41.14 TOE OF SLOPE

STA. 757+33.80 TOE OF SLOPE

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 146 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 757+03 TO STA. 757+25

3/6/2019

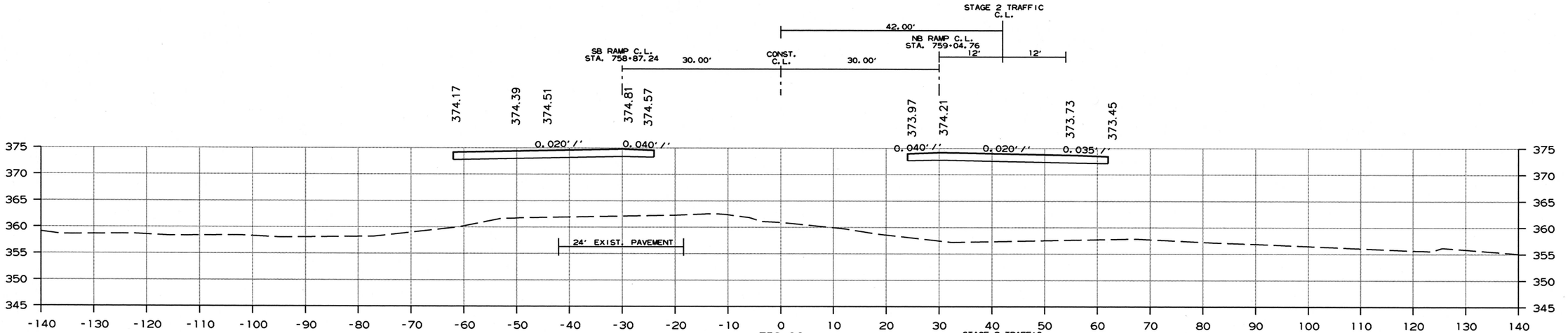
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	287	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2

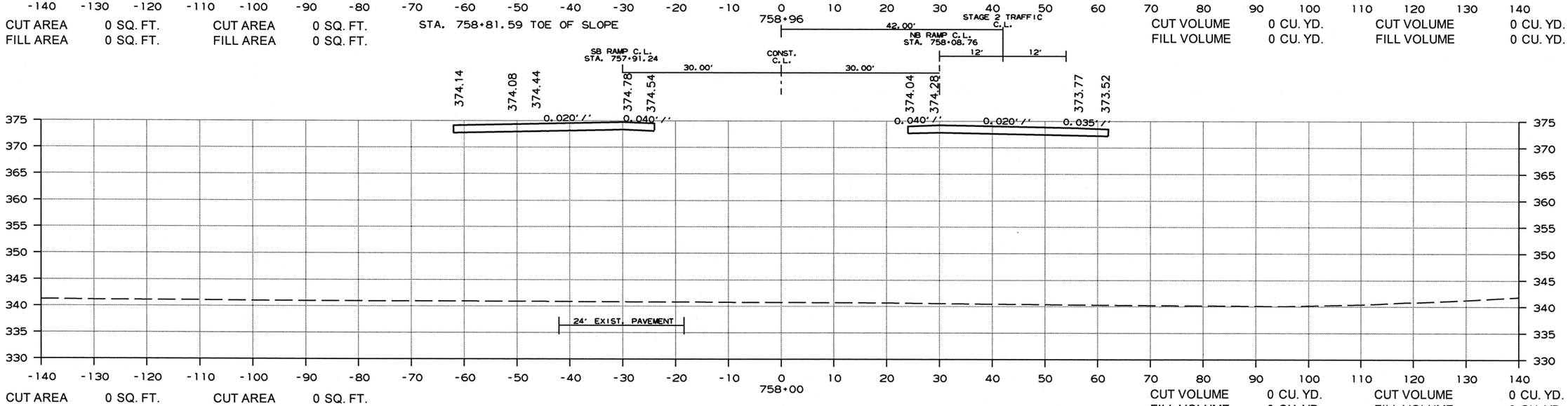


CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT. STA. 758+81.59 TOE OF SLOPE

FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.

FILL VOLUME 0 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.

FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.

FILL VOLUME 0 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 757+50 TO STA. 758+96

3/6/2019

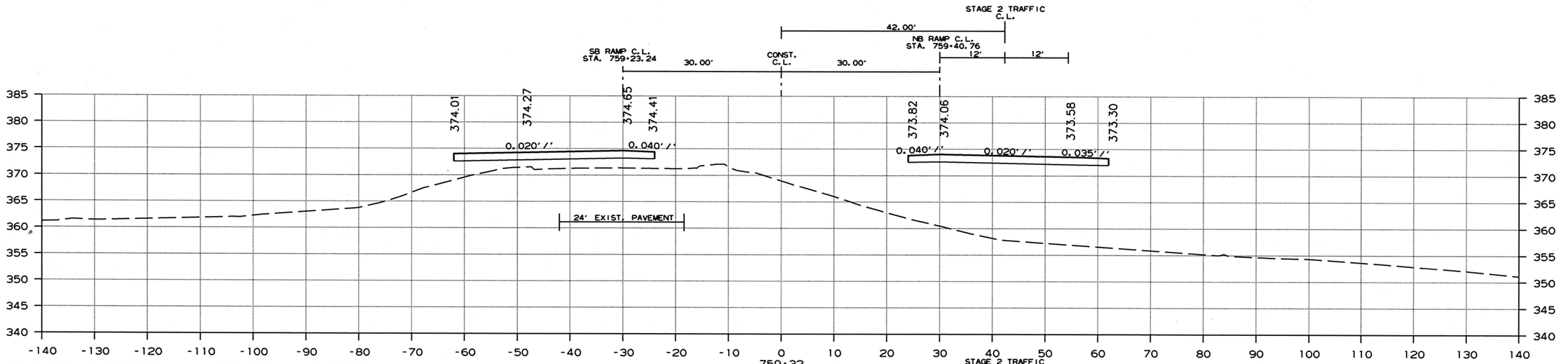
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	288	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2

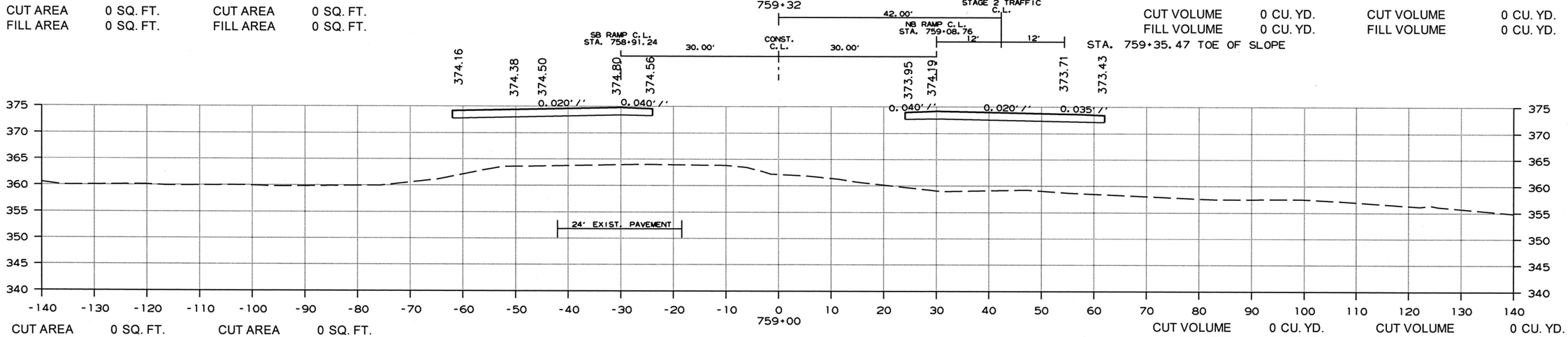
STAGE 1 STAGE 2



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 0 CU. YD.

STA. 759+35.47 TOE OF SLOPE



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 759+00 TO STA. 759+32

3/6/2019

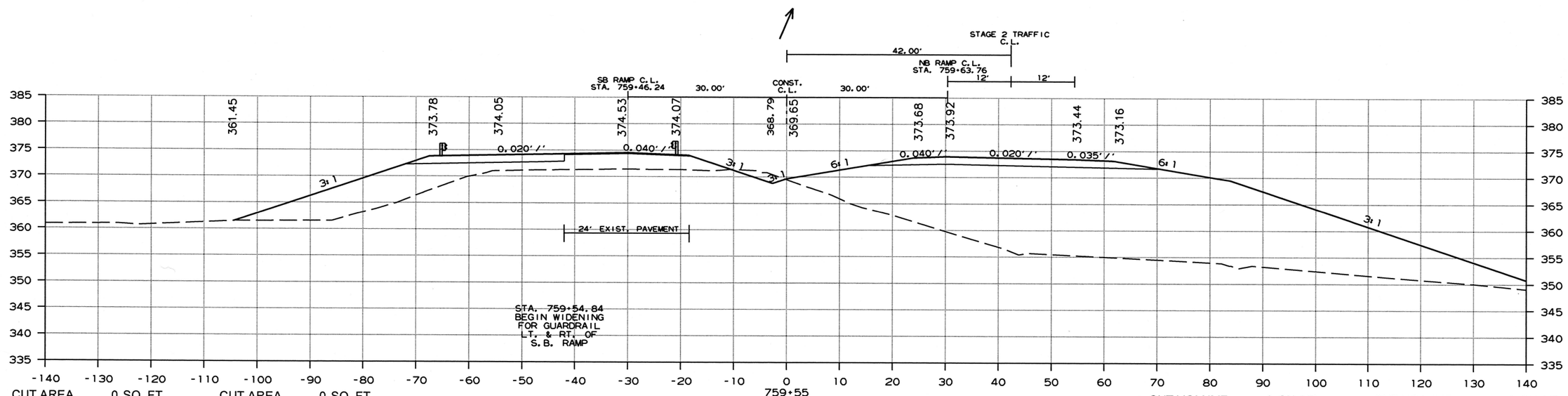
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	289	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2

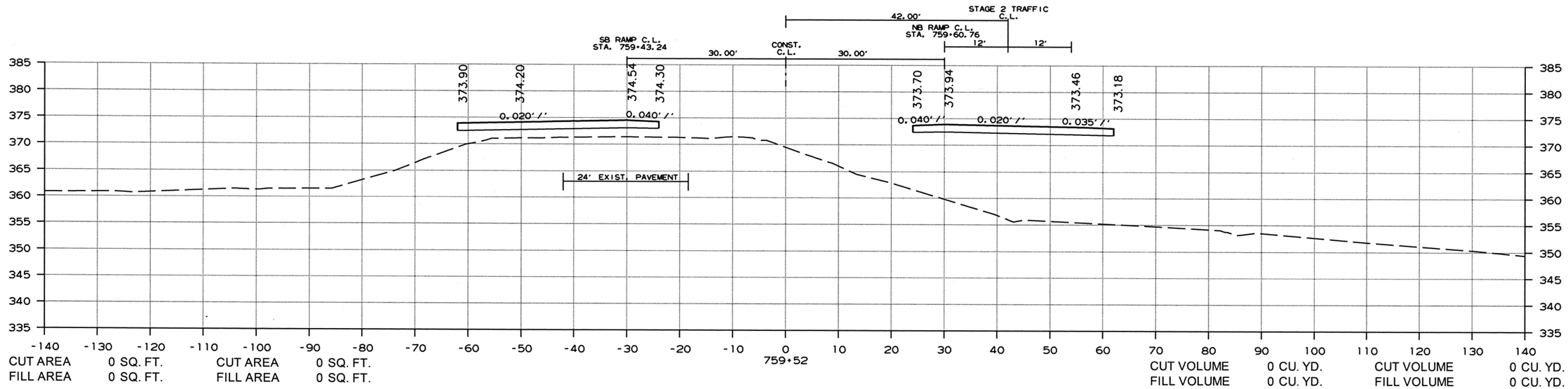


CUT AREA	0 SQ. FT.	CUT AREA	0 SQ. FT.
FILL AREA	1577 SQ. FT.	FILL AREA	309 SQ. FT.

STA. 759+46.08 BR. END

STA. 759+61.08 BR. END

CUT VOLUME	0 CU. YD.	CUT VOLUME	0 CU. YD.
FILL VOLUME	321 CU. YD.	FILL VOLUME	52 CU. YD.



CUT AREA	0 SQ. FT.	CUT AREA	0 SQ. FT.
FILL AREA	0 SQ. FT.	FILL AREA	0 SQ. FT.

CUT VOLUME	0 CU. YD.	CUT VOLUME	0 CU. YD.
FILL VOLUME	0 CU. YD.	FILL VOLUME	0 CU. YD.

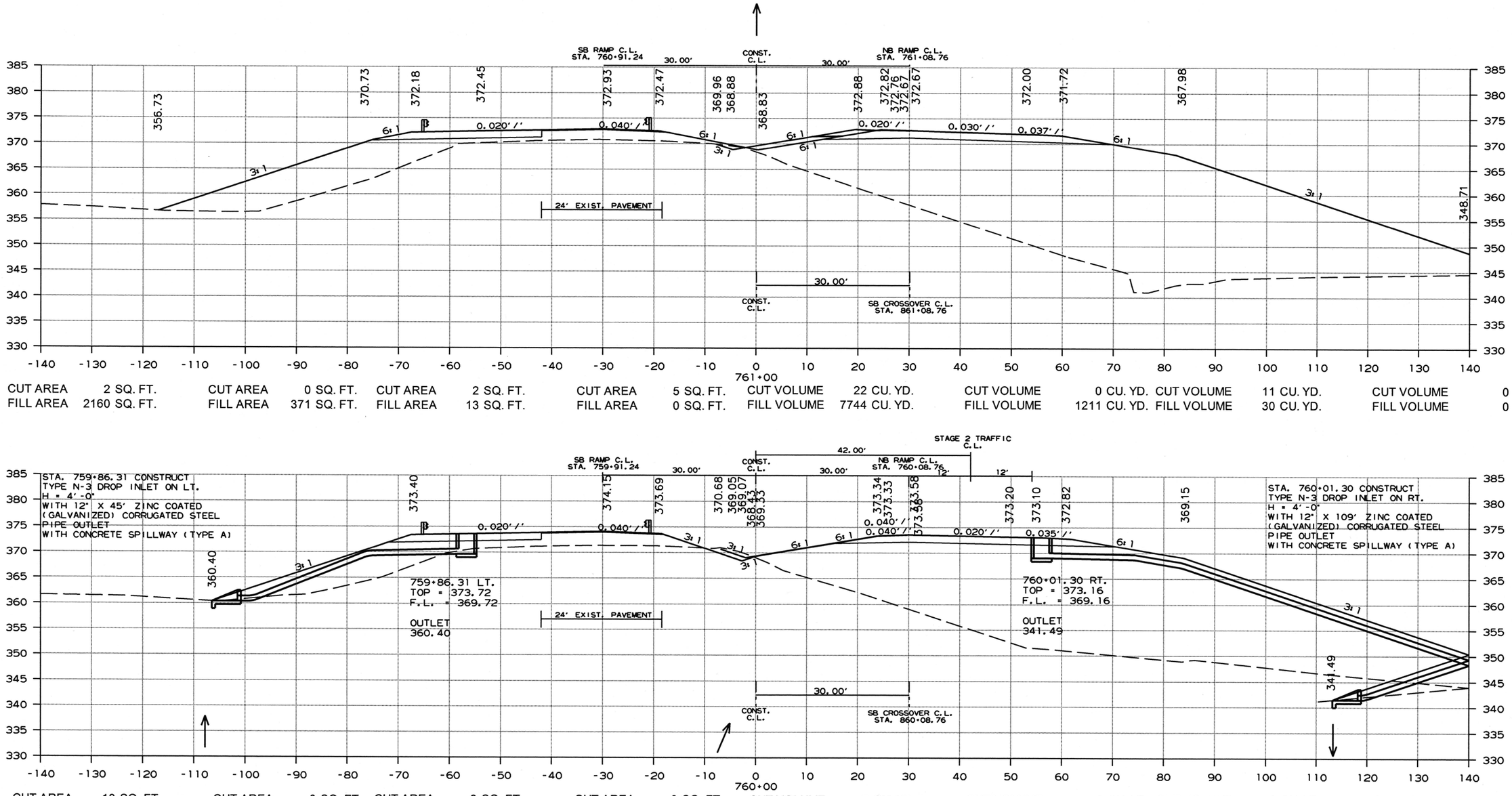
CROSS SECTION STA. 759+52 TO STA. 759+55

3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	290	299

(2) CROSS SECTIONS



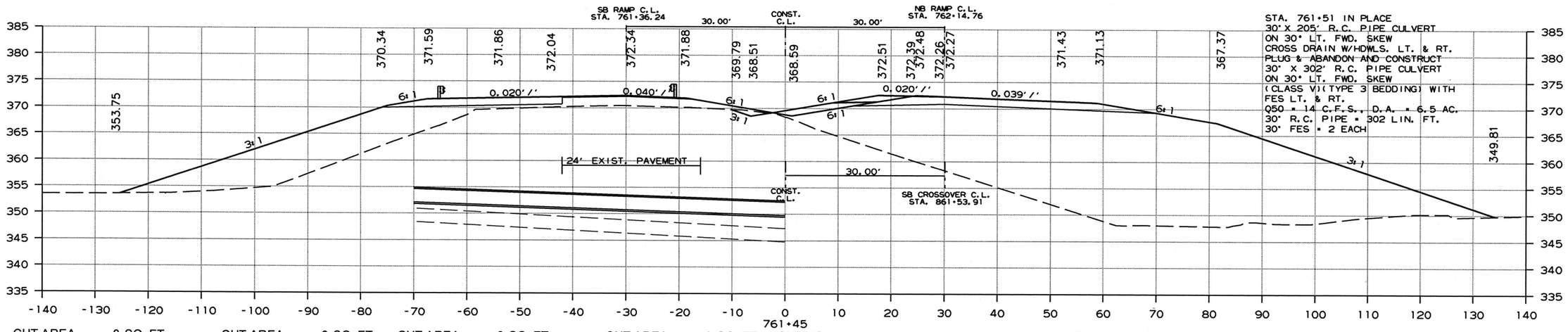
CROSS SECTION STA. 760+00 TO STA. 761+00

3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	291	299

(2) CROSS SECTIONS



CROSS SECTION STA. 761+01 TO STA. 761+45

3/6/2019

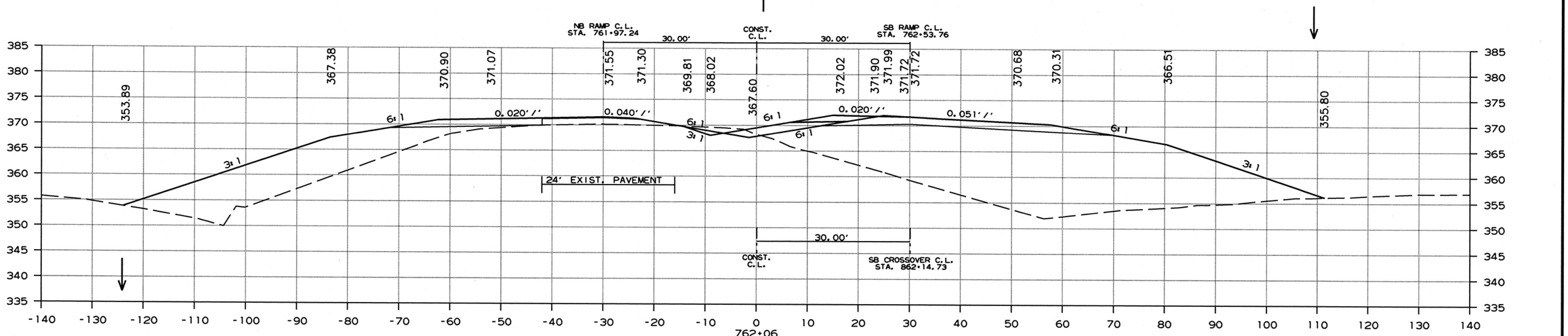
RCA0704.DGN

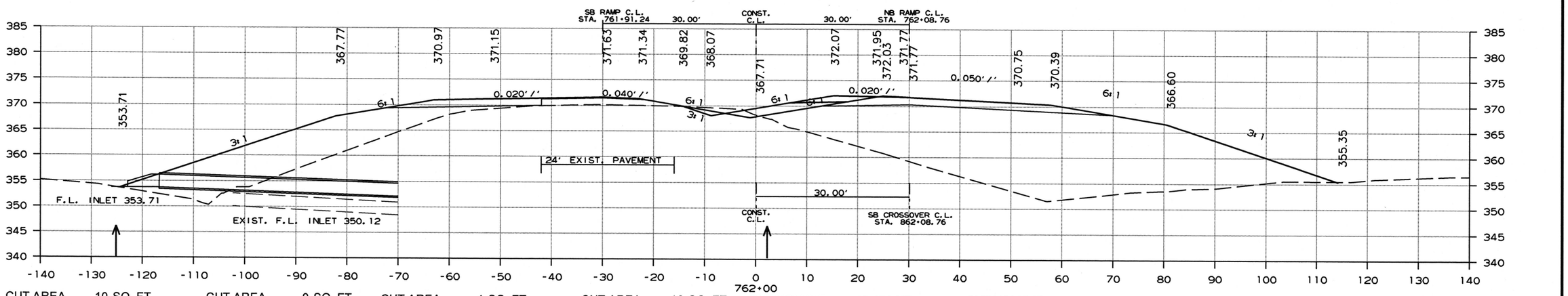
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	292	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2 CROSSOVER STAGE 1 STAGE 2 STAGE 1 STAGE 2 CROSSOVER STAGE 1 STAGE 2

STA. 762+08.92
END WIDENING
FOR GUARDRAIL
LT. & RT. OF
S.B. RAMP





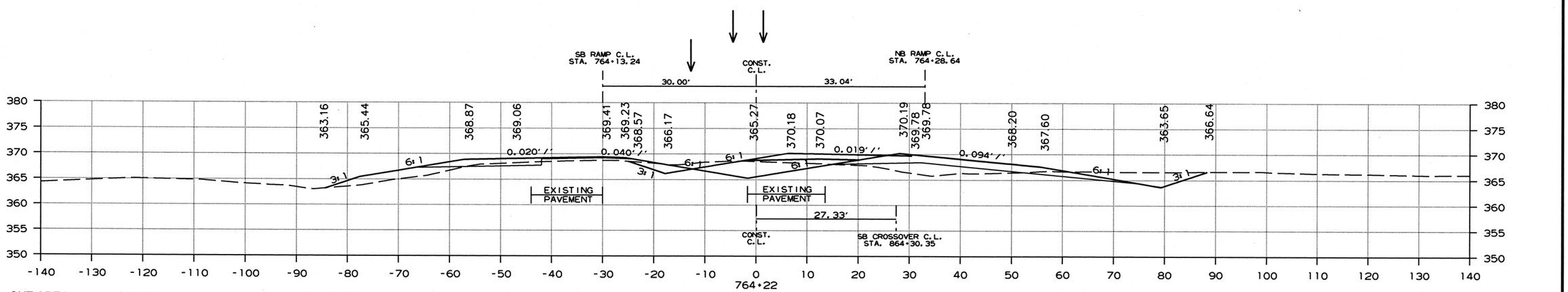
CROSS SECTION STA. 762+00 TO STA. 762+06

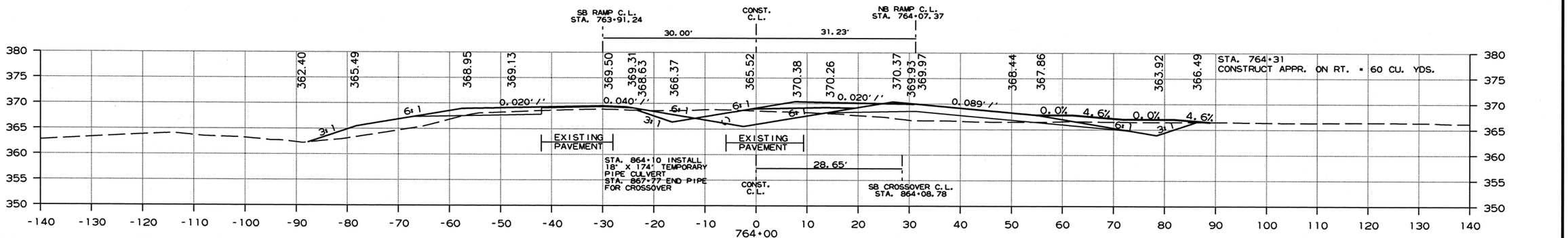
3/6/2019

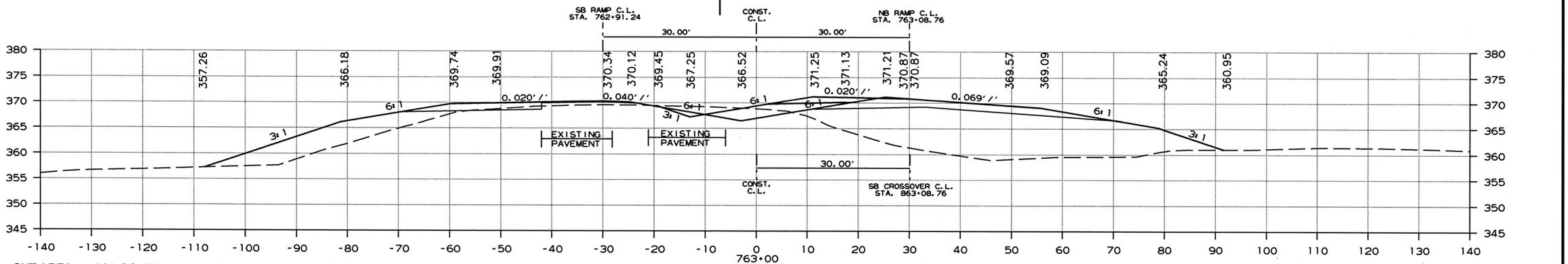
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	293	299

(2) CROSS SECTIONS







CROSS SECTION STA. 763+00 TO STA. 764+22

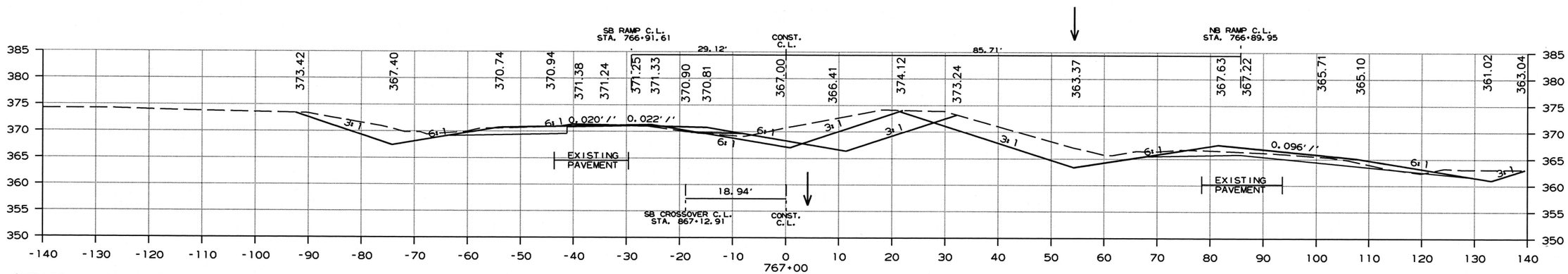
3/6/2019

RCA0704.DGN

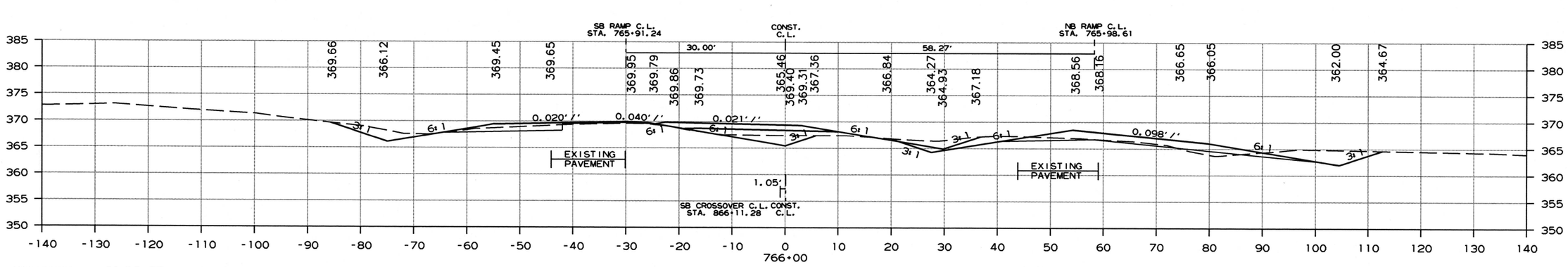
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	294	299

(2) CROSS SECTIONS

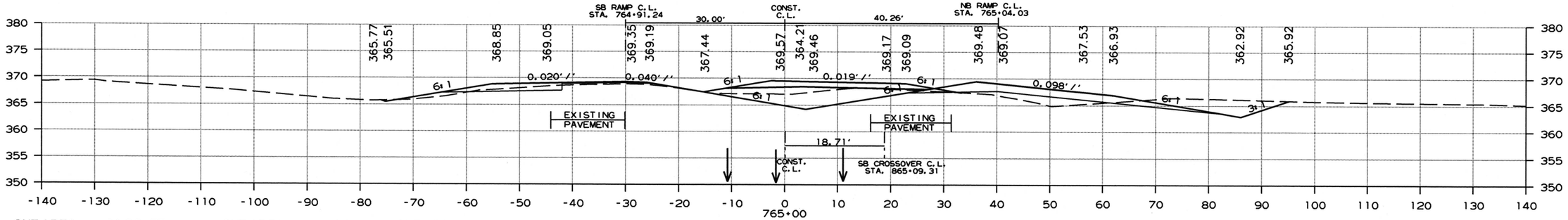
C.L. CONST. STA. 768+36.67 =
END C.L. SOUTHBOUND CROSSOVER STA. 868+49.95



CUT AREA	57 SQ. FT.	CUT AREA	265 SQ. FT.	CUT AREA	412 SQ. FT.	CUT AREA	30 SQ. FT.	CUT VOLUME	204 CU. YD.	CUT VOLUME	589 CU. YD.	CUT VOLUME	0 CU. YD.	CUT VOLUME	377 CU. YD.
FILL AREA	1 SQ. FT.	FILL AREA	4 SQ. FT.	FILL AREA	3 SQ. FT.	FILL AREA	0 SQ. FT.	FILL VOLUME	11 CU. YD.	FILL VOLUME	15 CU. YD.	FILL VOLUME	0 CU. YD.	FILL VOLUME	0 CU. YD.



CUT AREA	52 SQ. FT.	CUT AREA	53 SQ. FT.	CUT AREA	1 SQ. FT.	CUT AREA	67 SQ. FT.	CUT VOLUME	211 CU. YD.	CUT VOLUME	119 CU. YD.	CUT VOLUME	4 CU. YD.	CUT VOLUME	684 CU. YD.
FILL AREA	5 SQ. FT.	FILL AREA	3 SQ. FT.	FILL AREA	28 SQ. FT.	FILL AREA	0 SQ. FT.	FILL VOLUME	56 CU. YD.	FILL VOLUME	30 CU. YD.	FILL VOLUME	230 CU. YD.	FILL VOLUME	0 CU. YD.



CUT AREA	61 SQ. FT.	CUT AREA	11 SQ. FT.	CUT AREA	0 SQ. FT.	CUT AREA	109 SQ. FT.	CUT VOLUME	156 CU. YD.	CUT VOLUME	26 CU. YD.	CUT VOLUME	17 CU. YD.	CUT VOLUME	531 CU. YD.
FILL AREA	25 SQ. FT.	FILL AREA	12 SQ. FT.	FILL AREA	95 SQ. FT.	FILL AREA	0 SQ. FT.	FILL VOLUME	142 CU. YD.	FILL VOLUME	81 CU. YD.	FILL VOLUME	225 CU. YD.	FILL VOLUME	0 CU. YD.

CROSS SECTION STA. 765+00 TO STA. 767+00

3/6/2019

RCA0704.DGN

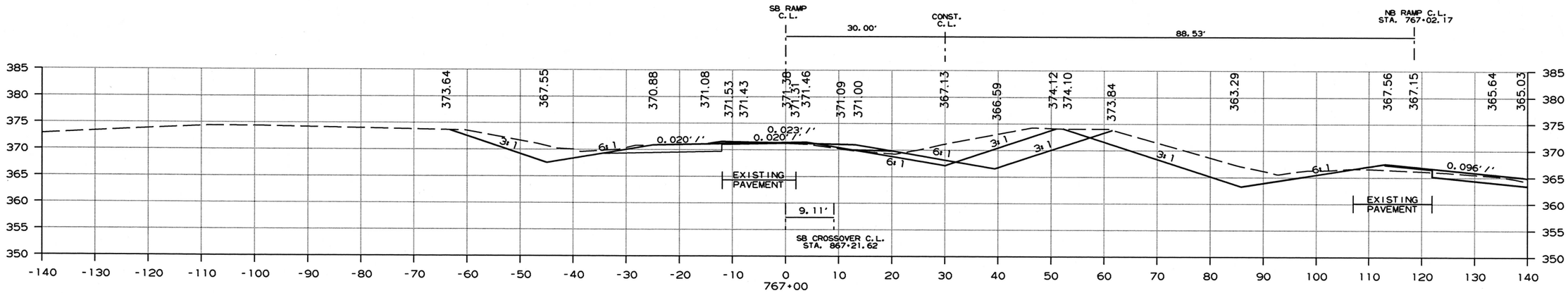
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	295	299

(2) CROSS SECTIONS

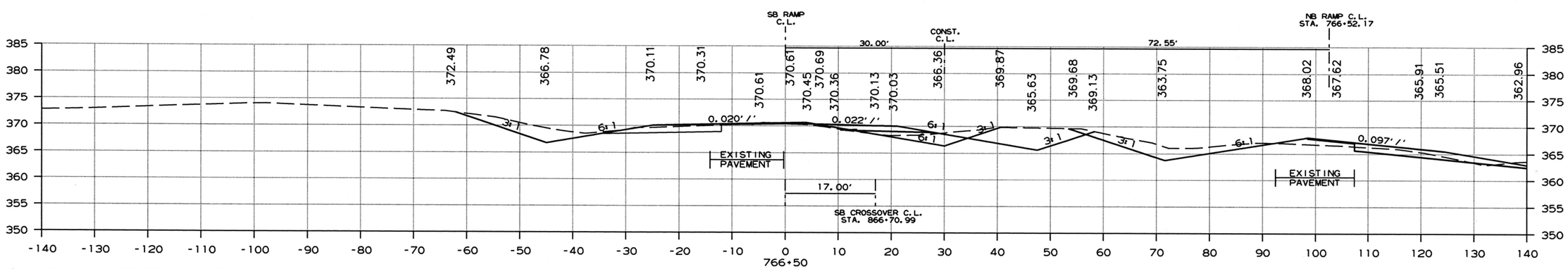
STAGE 1 STAGE 2 CROSSOVER STAGE 1 STAGE 2

STAGE 1 STAGE 2 CROSSOVER STAGE 1 STAGE 2

STA. 767+59.56
BEGIN 100' TRANSITION



CUT AREA	0 SQ. FT.	CUT AREA	152 SQ. FT.	CUT AREA	412 SQ. FT.	CUT AREA	30 SQ. FT.	CUT VOLUME	0 CU. YD.	CUT VOLUME	220 CU. YD.	CUT VOLUME	0 CU. YD.	CUT VOLUME	377 CU. YD.
FILL AREA	0 SQ. FT.	FILL AREA	2 SQ. FT.	FILL AREA	3 SQ. FT.	FILL AREA	0 SQ. FT.	FILL VOLUME	0 CU. YD.	FILL VOLUME	4 CU. YD.	FILL VOLUME	0 CU. YD.	FILL VOLUME	0 CU. YD.



CUT AREA	0 SQ. FT.	CUT AREA	86 SQ. FT.	CUT AREA	16 SQ. FT.	CUT AREA	37 SQ. FT.	CUT VOLUME	0 CU. YD.	CUT VOLUME	80 CU. YD.	CUT VOLUME	64 CU. YD.	CUT VOLUME	202 CU. YD.
FILL AREA	0 SQ. FT.	FILL AREA	1 SQ. FT.	FILL AREA	1 SQ. FT.	FILL AREA	0 SQ. FT.	FILL VOLUME	0 CU. YD.	FILL VOLUME	2 CU. YD.	FILL VOLUME	21 CU. YD.	FILL VOLUME	0 CU. YD.

SOUTHBOUND RAMP CROSS SECTION STA. 766+50 TO STA. 767+00

3/6/2019

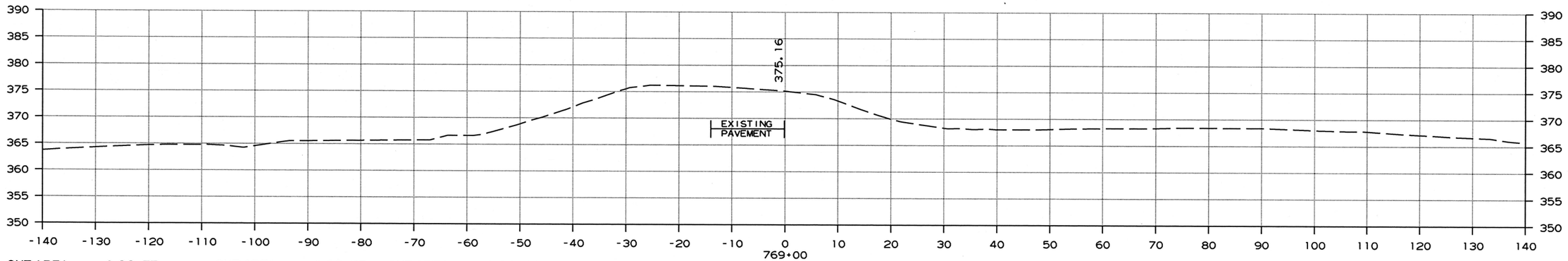
RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	296	299

(2) CROSS SECTIONS

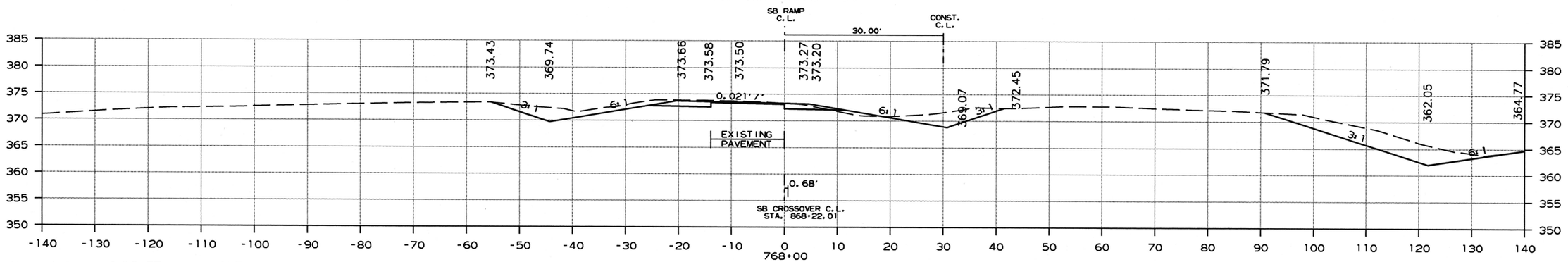
STAGE 1 STAGE 2 CROSSOVER STAGE 1 STAGE 2

STAGE 1 STAGE 2 CROSSOVER STAGE 1 STAGE 2



CUT AREA	0 SQ. FT.	CUT AREA	0 SQ. FT.	CUT AREA	0 SQ. FT.	CUT AREA	0 SQ. FT.	CUT VOLUME	0 CU. YD.	CUT VOLUME	0 CU. YD.	CUT VOLUME	174 CU. YD.	CUT VOLUME	8 CU. YD.
FILL AREA	0 SQ. FT.	FILL AREA	0 SQ. FT.	FILL AREA	0 SQ. FT.	FILL AREA	0 SQ. FT.	FILL VOLUME	0 CU. YD.	FILL VOLUME	0 CU. YD.	FILL VOLUME	7 CU. YD.	FILL VOLUME	39 CU. YD.

STA. 768+59.56
END 100' TRANSITION



CUT AREA	0 SQ. FT.	CUT AREA	0 SQ. FT.	CUT AREA	94 SQ. FT.	CUT AREA	2 SQ. FT.	CUT VOLUME	0 CU. YD.	CUT VOLUME	281 CU. YD.	CUT VOLUME	437 CU. YD.	CUT VOLUME	124 CU. YD.
FILL AREA	0 SQ. FT.	FILL AREA	0 SQ. FT.	FILL AREA	4 SQ. FT.	FILL AREA	10 SQ. FT.	FILL VOLUME	0 CU. YD.	FILL VOLUME	4 CU. YD.	FILL VOLUME	15 CU. YD.	FILL VOLUME	39 CU. YD.

SOUTHBOUND RAMP CROSS SECTION STA. 768+00 TO STA. 768+00

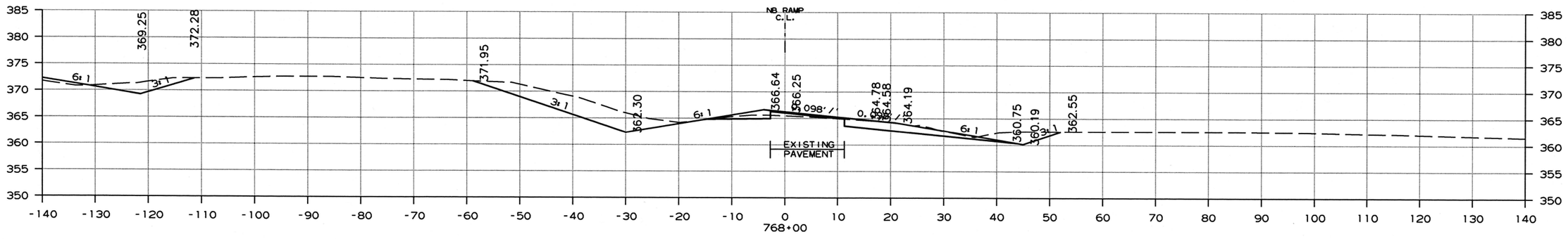
3/6/2019

RCA0704.DGN

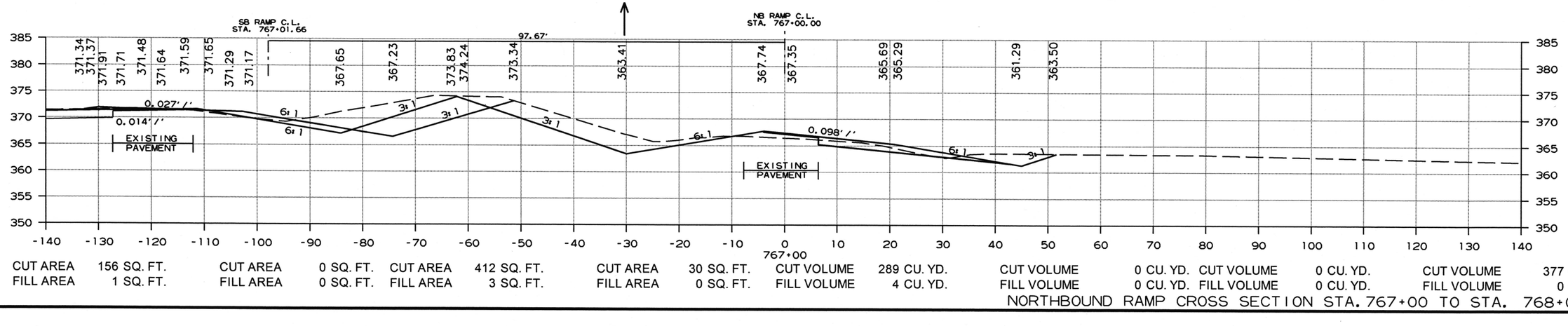
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	297	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2 CROSSOVER STAGE 1 STAGE 2 STAGE 1 STAGE 2 CROSSOVER STAGE 1 STAGE 2



CUT AREA	151 SQ. FT.	CUT AREA	0 SQ. FT.	CUT AREA	94 SQ. FT.	CUT AREA	2 SQ. FT.	CUT VOLUME	570 CU. YD.	CUT VOLUME	0 CU. YD.	CUT VOLUME	437 CU. YD.	CUT VOLUME	124 CU. YD.
FILL AREA	5 SQ. FT.	FILL AREA	0 SQ. FT.	FILL AREA	4 SQ. FT.	FILL AREA	10 SQ. FT.	FILL VOLUME	11 CU. YD.	FILL VOLUME	0 CU. YD.	FILL VOLUME	15 CU. YD.	FILL VOLUME	39 CU. YD.



CUT AREA	156 SQ. FT.	CUT AREA	0 SQ. FT.	CUT AREA	412 SQ. FT.	CUT AREA	30 SQ. FT.	CUT VOLUME	289 CU. YD.	CUT VOLUME	0 CU. YD.	CUT VOLUME	0 CU. YD.	CUT VOLUME	377 CU. YD.
FILL AREA	1 SQ. FT.	FILL AREA	0 SQ. FT.	FILL AREA	3 SQ. FT.	FILL AREA	0 SQ. FT.	FILL VOLUME	4 CU. YD.	FILL VOLUME	0 CU. YD.	FILL VOLUME	0 CU. YD.	FILL VOLUME	0 CU. YD.

NORTHBOUND RAMP CROSS SECTION STA. 767+00 TO STA. 768+00

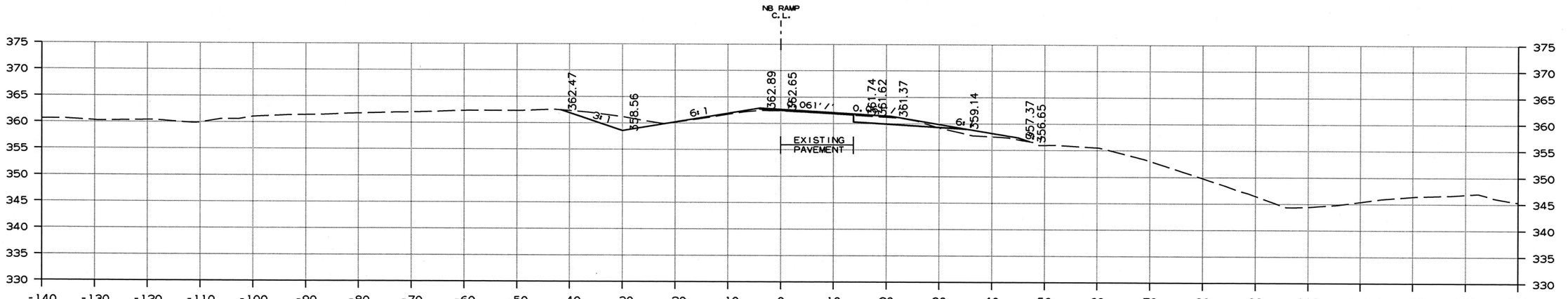
3/6/2019

RCA0704.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	298	299

(2) CROSS SECTIONS

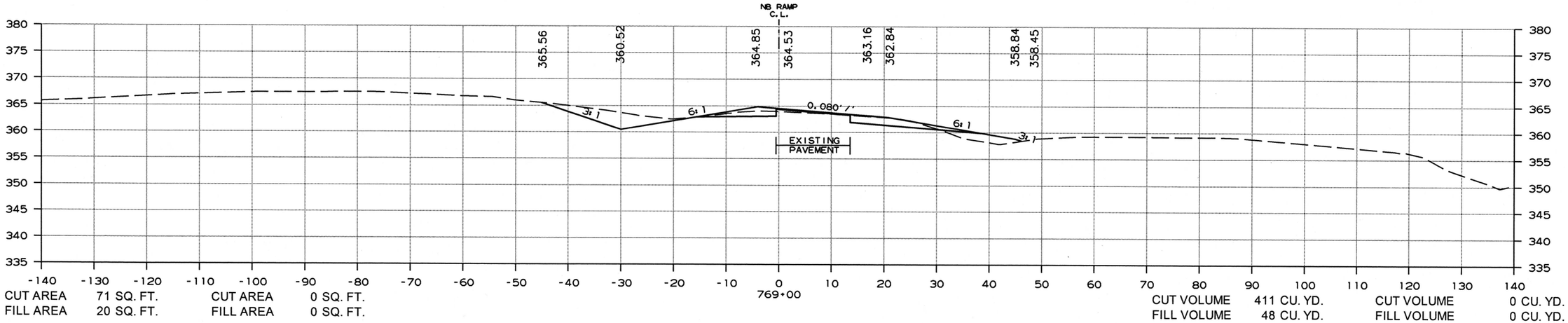
STAGE 1 STAGE 2



CUT AREA	43 SQ. FT.	CUT AREA	0 SQ. FT.
FILL AREA	15 SQ. FT.	FILL AREA	0 SQ. FT.

CUT VOLUME	211 CU. YD.	CUT VOLUME	0 CU. YD.
FILL VOLUME	67 CU. YD.	FILL VOLUME	0 CU. YD.

STAGE 1 STAGE 2



CUT AREA	71 SQ. FT.	CUT AREA	0 SQ. FT.
FILL AREA	20 SQ. FT.	FILL AREA	0 SQ. FT.

CUT VOLUME	411 CU. YD.	CUT VOLUME	0 CU. YD.
FILL VOLUME	48 CU. YD.	FILL VOLUME	0 CU. YD.

NORTHBOUND RAMP CROSS SECTION STA. 769+00 TO STA. 770+00

3/6/2019

RCA0704.DGN

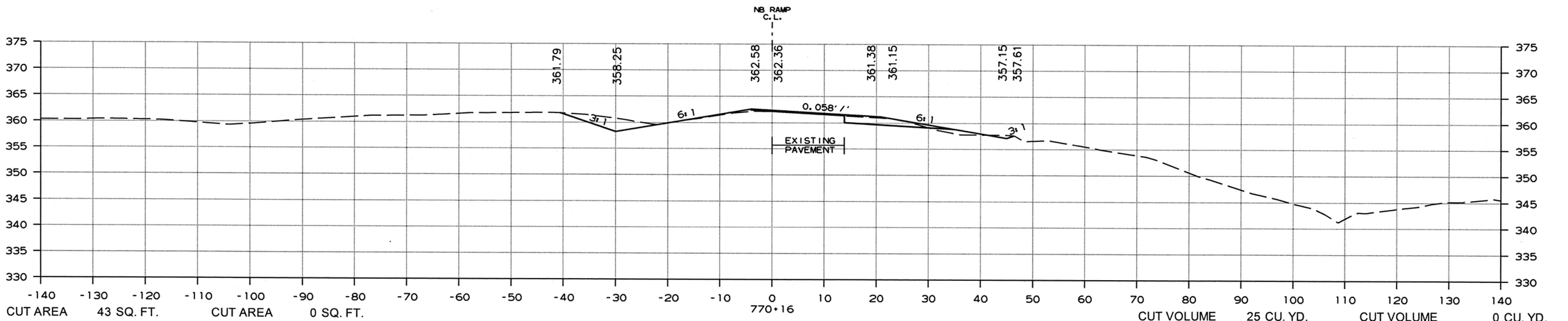
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0704	299	299

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2

STA. 771+15.76
END 100' TRANSITION



CUT AREA 43 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 9 SQ. FT. FILL AREA 0 SQ. FT.

STA. 770+15.76
BEGIN 100' TRANSITION

CUT VOLUME 25 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 7 CU. YD. FILL VOLUME 0 CU. YD.

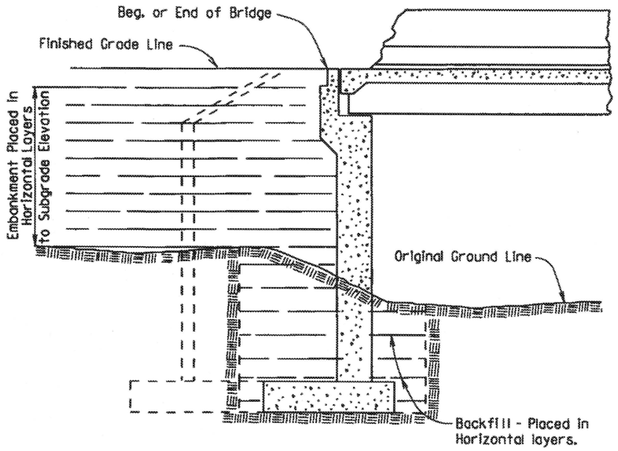
NORTHBOUND RAMP CROSS SECTION STA. 770+16 TO STA. 770+16

3/6/2019

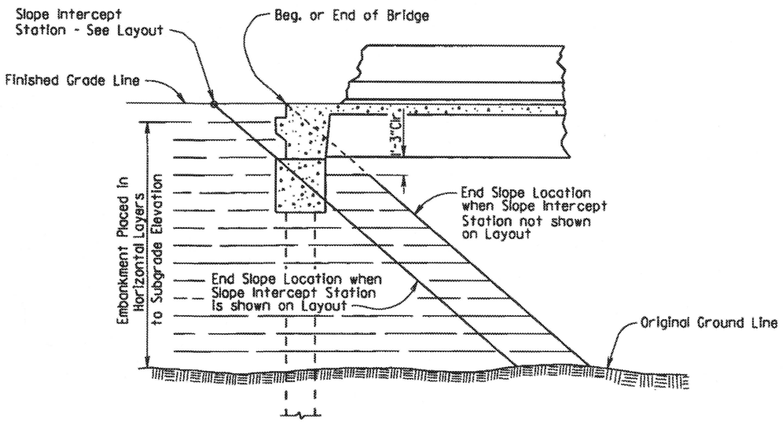
RCA0704.DGN

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.				

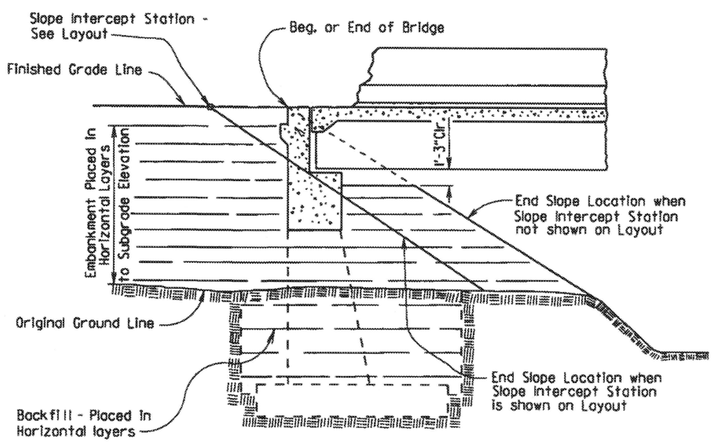
① EMBANKMENT & BACKFILL 55000



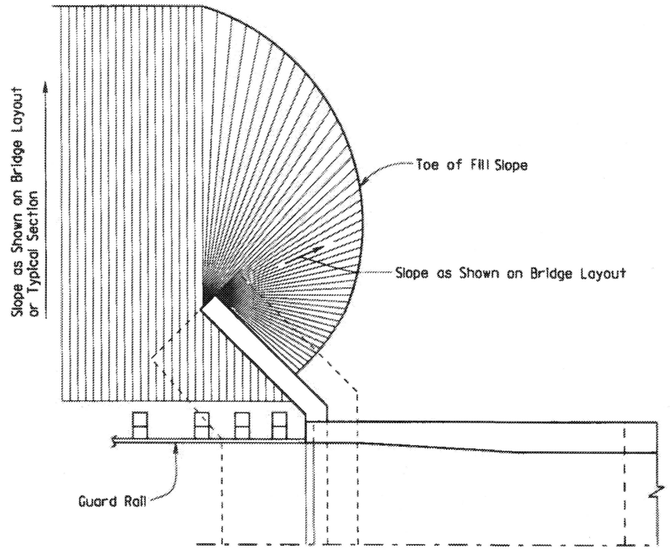
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



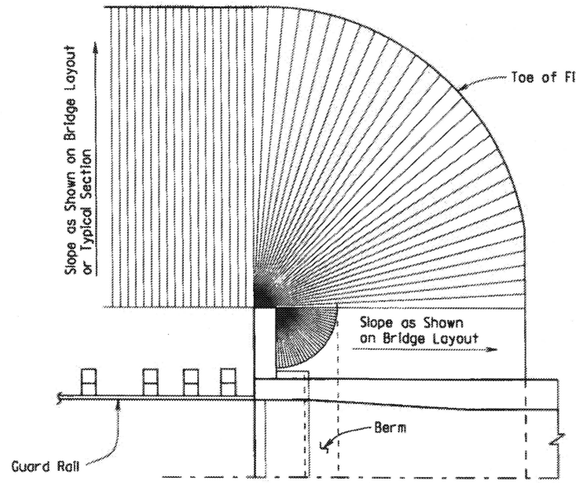
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



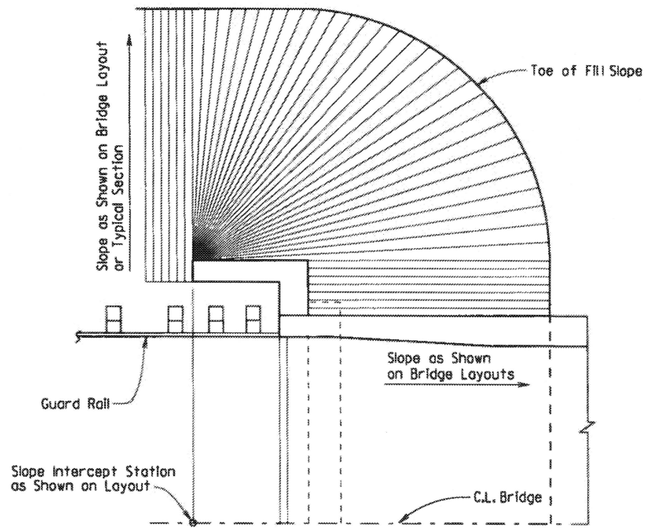
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



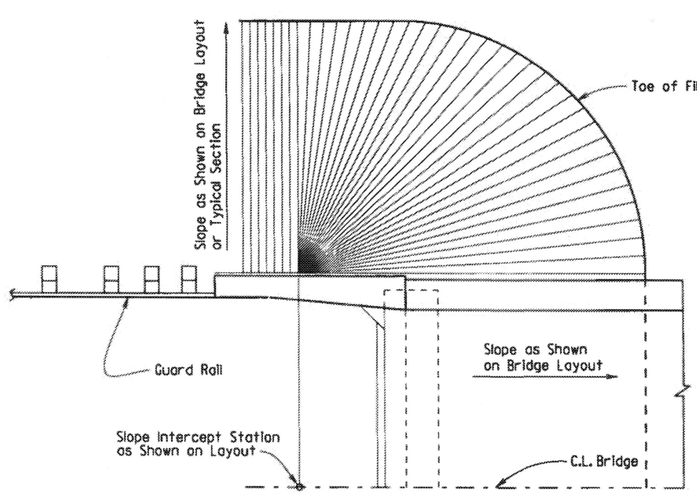
VERTICAL WALL ABUTMENTS



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

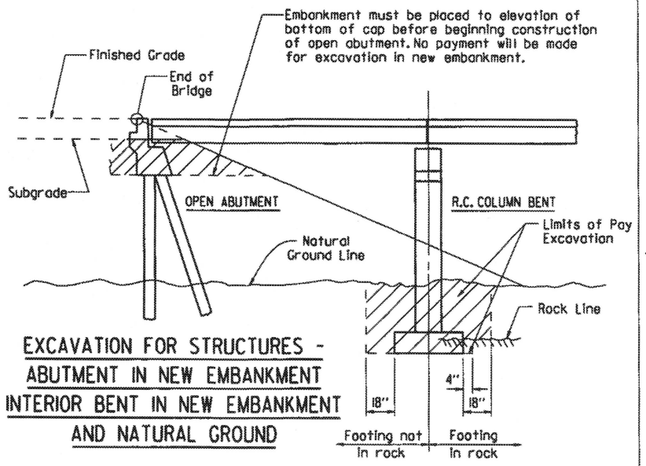
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: -

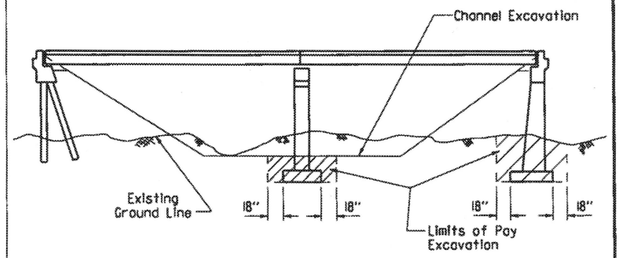
DRAWING NO. 55000

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.				

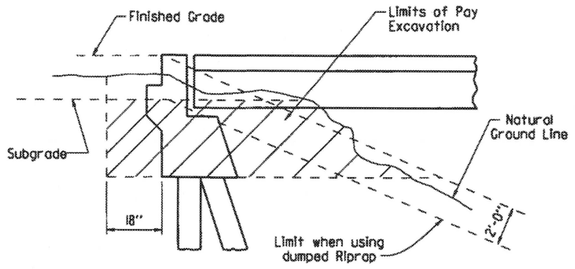
① RIPRAP & EXCAV. 55001



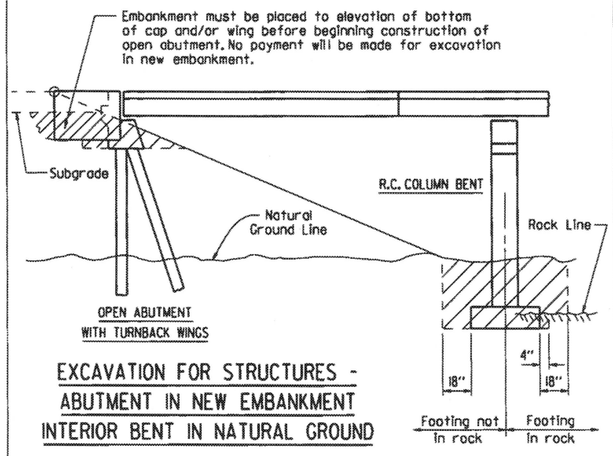
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



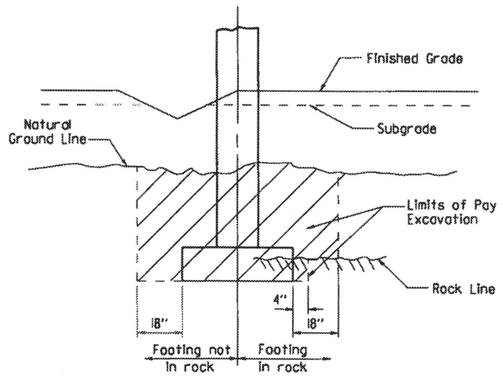
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



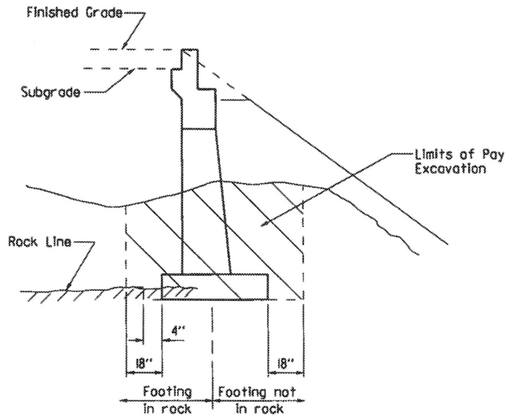
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



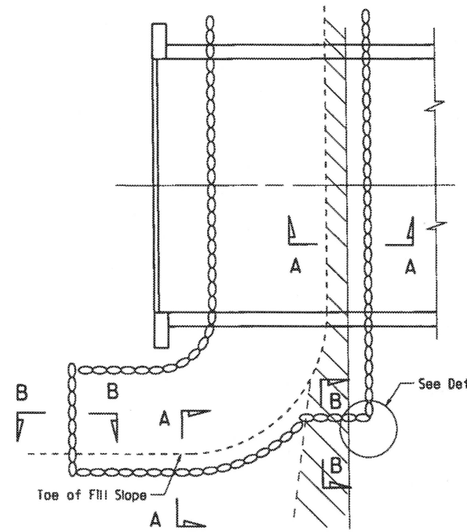
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



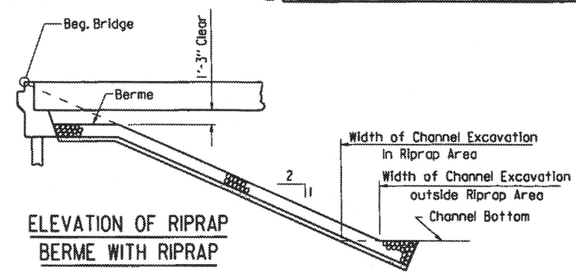
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



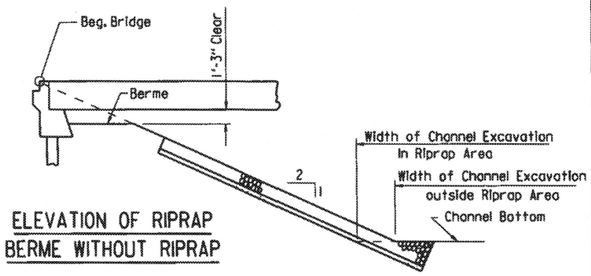
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



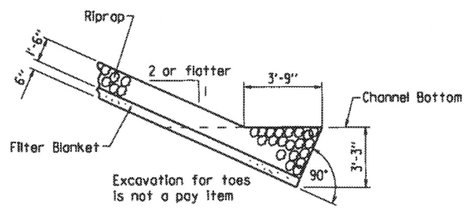
PLAN OF DUMPED RIPRAP



ELEVATION OF RIPRAP BERME WITH RIPRAP

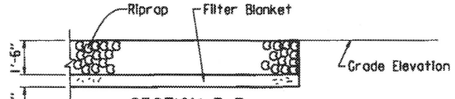


ELEVATION OF RIPRAP BERME WITHOUT RIPRAP

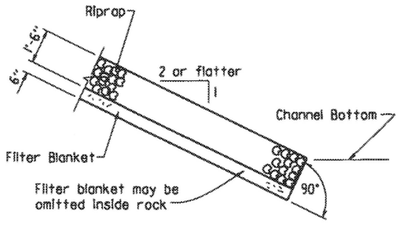


SECTION A-A

(Toe Excavation in Soil)



SECTION B-B



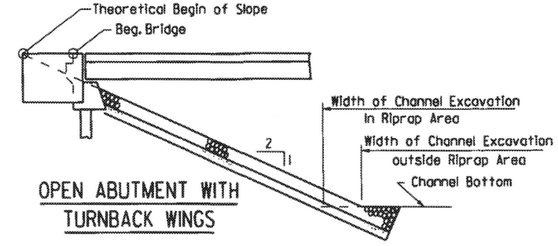
SECTION A-A

(Toe Excavation in Rock)

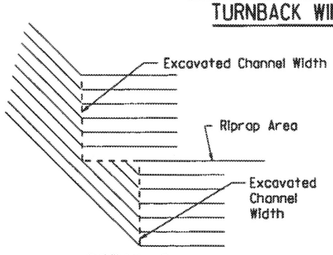
Note : Use this type of toe when rock is encountered which is in a stable condition.

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.



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: b5500l.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

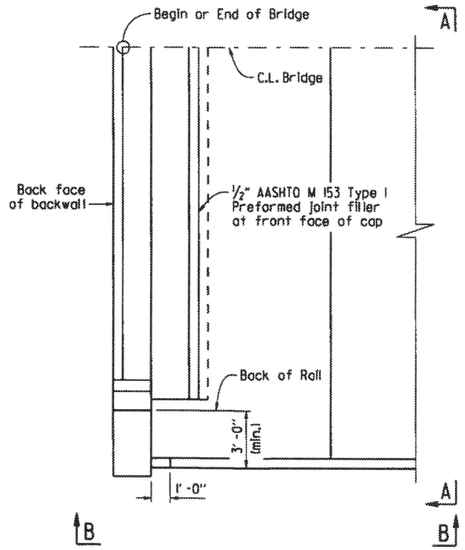
DESIGNED BY: STD. DATE:

DRAWING NO. 55001

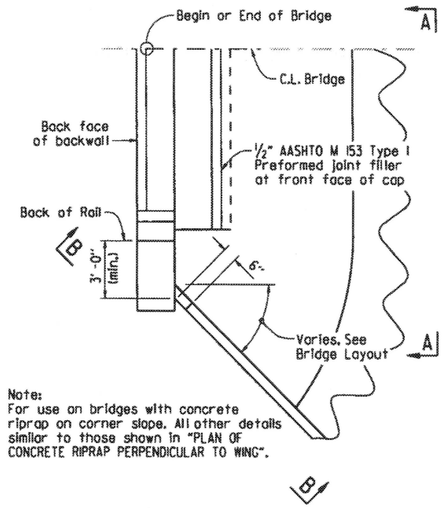
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

① CONCRETE RIPRAP 55002

Note:
Sloped surfaces of concrete riprap to be marked off into blocks (construction joints optional) with an approved grooving tool, spacing the grooved lines about 5' apart.



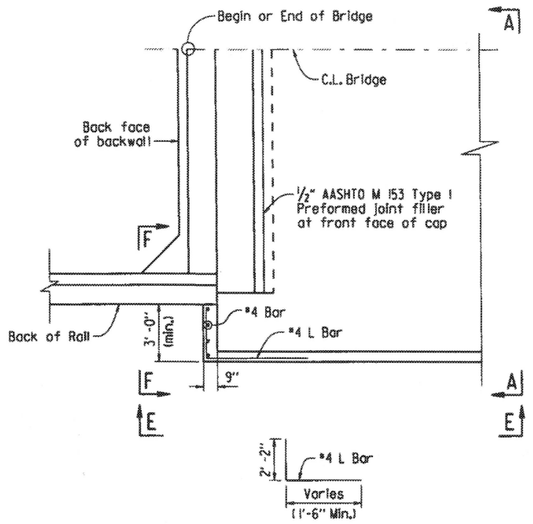
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO WING
¼" = 1'-0"



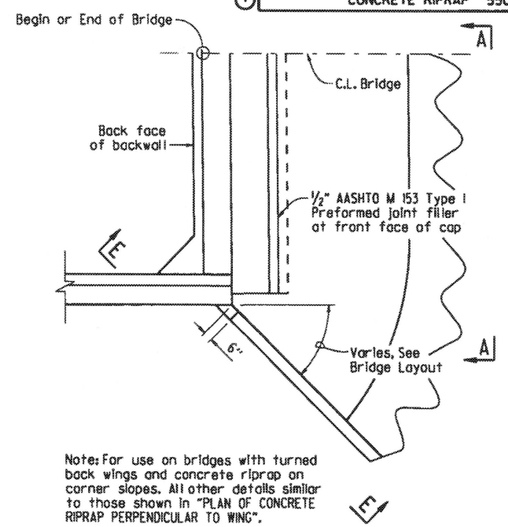
Note:
For use on bridges with concrete riprap on corner slope. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

PLAN OF CONCRETE RIPRAP
AT ANGLE TO WING
¼" = 1'-0"

Note:
For use on bridges with turned back wings. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".



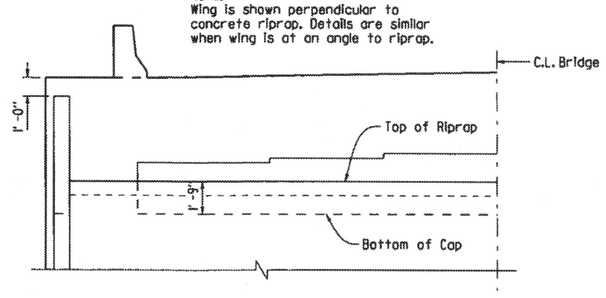
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO TURNED BACK WING
¼" = 1'-0"



Note: For use on bridges with turned back wings and concrete riprap on corner slopes. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

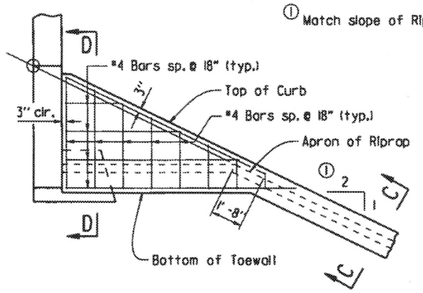
PLAN OF CONCRETE RIPRAP
AT ANGLE FROM TURNED BACK WING
¼" = 1'-0"

Note:
Wing is shown perpendicular to concrete riprap. Details are similar when wing is at an angle to riprap.

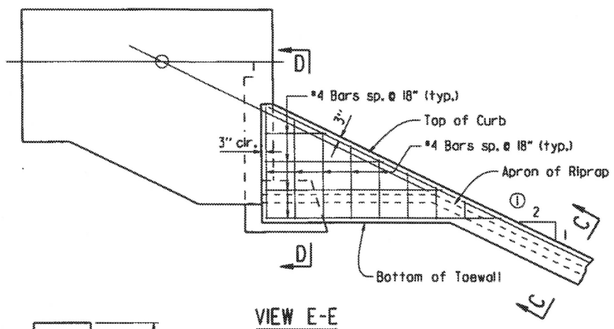


VIEW A-A
¼" = 1'-0"

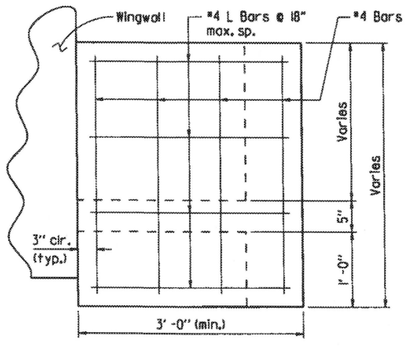
① Match slope of Riprap Apron.



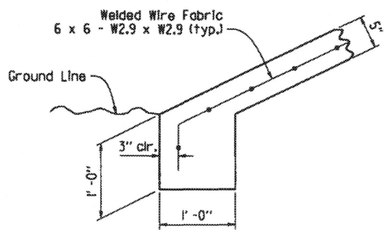
VIEW B-B
¼" = 1'-0"



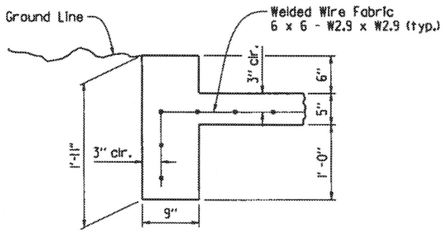
VIEW E-E
¼" = 1'-0"



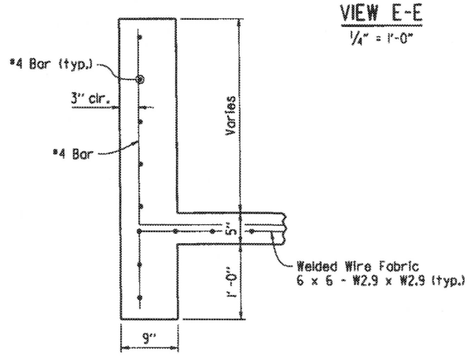
VIEW F-F
1" = 1'-0"



TOE OF CONCRETE RIPRAP
1" = 1'-0"



SECTION C-C
1" = 1'-0"



SECTION D-D
1" = 1'-0"

GENERAL NOTES

All concrete shall be Class A with a minimum compressive strength, f'c = 2,100 psi.

Welded wire fabric shall conform to AASHTO M55 or M221.

STANDARD DETAILS FOR CONCRETE RIPRAP

ARKANSAS STATE HIGHWAY COMMISSION

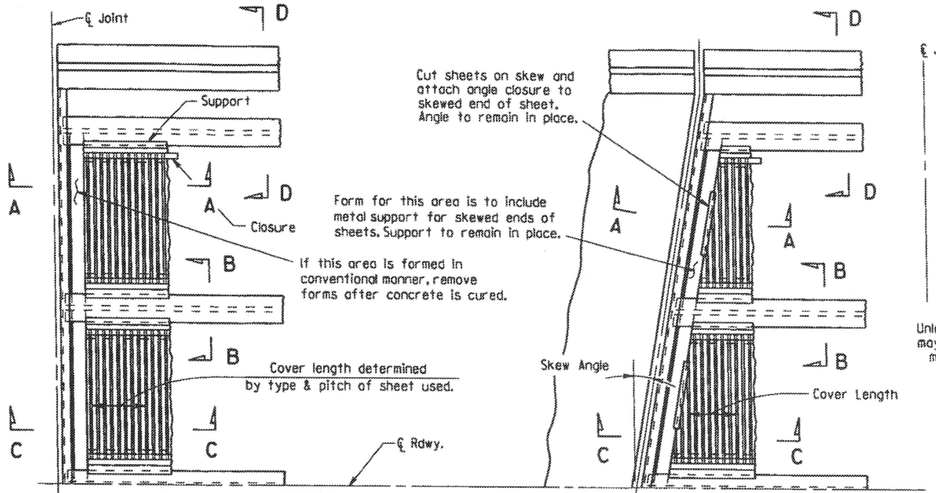
LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 2/27/2014 FILENAME: b55002.dgn
CHECKED BY: BEF DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: Std. DATE: ---

DRAWING NO. 55002

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.			
				JOB NO.				

① BRIDGE DECK FORMS 55005

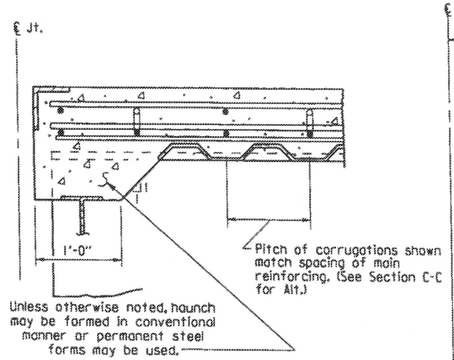


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

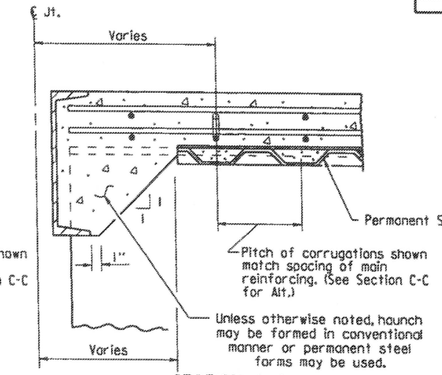
3/8" = 1'-0"



SECTION A-A

N.T.S.

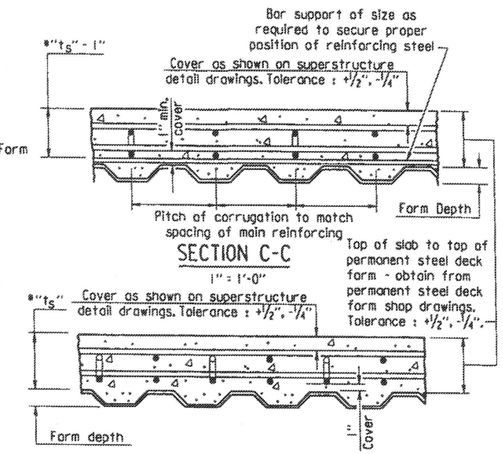
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



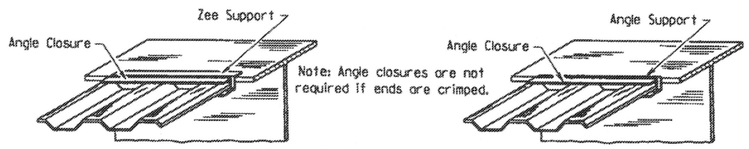
SECTION C-C

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.

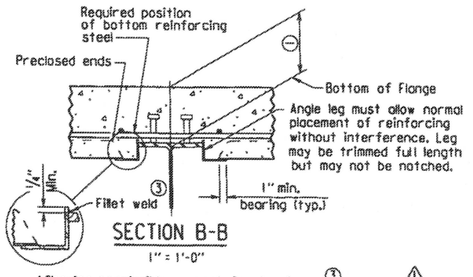
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

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.

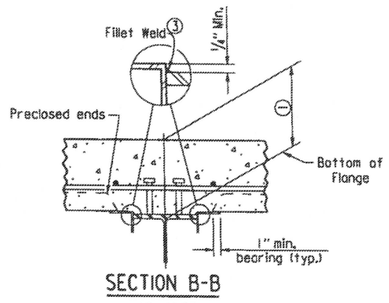


SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

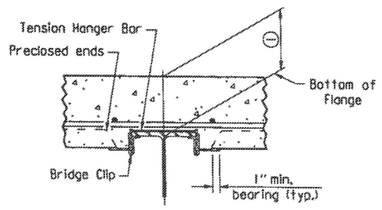
③ ⚠ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

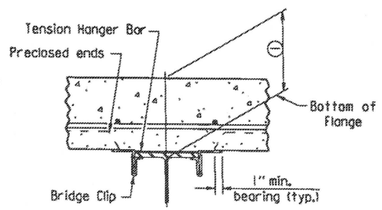
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

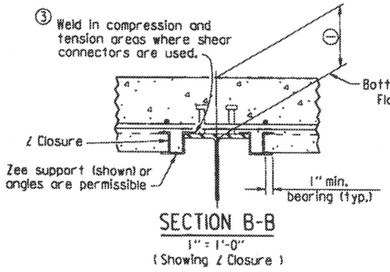
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

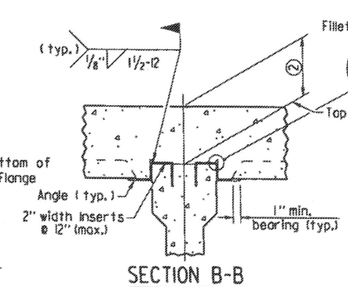
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

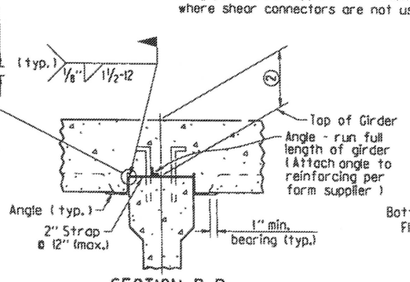


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)

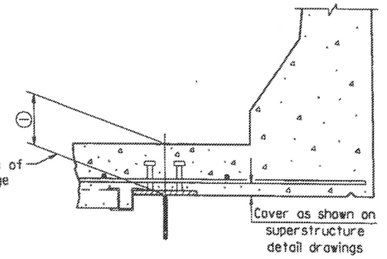


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

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 + 1 3/4" + 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.

⚠ 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
				6	ARK.			
				JOB NO.				
				(1)	GENERAL NOTES		55006	

GENERAL NOTES

These GENERAL NOTES are applicable unless otherwise shown in the Plan Details, Special Provisions, or Supplemental Specifications.

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: See Bridge Layout(s).

SUPERSTRUCTURE NOTES:

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c = 4,000 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M 270, Gr. 50)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. HPS70W)	Fy = 70,000 psi

See Plan Details for Grade(s) of Structural Steel required.

CONCRETE:

All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered ¾" unless otherwise noted.

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 a longitudinal screed is not permitted on any span of a bridge deck with horizontal curvature.

The concrete deck (roadway surface) shall be given a tine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Sidewalks shall receive a broomed finish as specified for final finishing in Subsection 802.19 for Class 6 Broomed 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 be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports and shall be epoxy coated. 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 (COMMON TO W-BEAMS AND PLATE GIRDERS):

Structural steel shall be AASHTO M 270 with grade and payment as specified in the plans. Grade 50W steel shall not be painted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Grade 36 and Grade 50 steel shall be painted unless otherwise noted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84. Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36, Gr. 50 or Gr. 50W 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 and materials shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

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 falsework support devices or 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 5/8" 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.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with recommendations of the Manufacturer.

When painting is required, all structural steel except galvanized steel and steel completely encased in concrete shall be painted in accordance with Subsection 807.75. The color of paint shall be as specified in the plans.

STRUCTURAL STEEL (W-BEAMS):

All beams and field splice plates, and all diaphragms and connection plates attached to horizontally curved beams 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. ___)".

All beams in continuous units and simple spans with field splices shall be blocked in their true position in the shop in groups as specified in Subsection 807.54(b)(2) with the webs horizontal. The camber, length of sections, distance between bearings, and 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 beams in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

Flange field splice plates 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 beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Bent plate diaphragms for horizontally curved beams 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. Bent plate diaphragms for straight beams may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved beams.

Unless otherwise noted, 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.

STRUCTURAL STEEL (PLATE GIRDERS):

All references to cross-frames shall include "X" or "K" types.

All girder web and flange plates, all field splice plates, and all diaphragms, cross-frames and connection plates attached to horizontally curved girders 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 Plate Girder Spans (M 270, Gr. ___)".

All girders in continuous units and simple spans with field splices shall be assembled in the shop as specified in Subsection 807.54(b)(2) and blocked in their true position with webs horizontal. The camber, length of sections, distance between bearings, and 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 girders in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

Web and flange plates for main members and flange 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.

Girder webs may be made by shop splicing with minimum lengths of 25 feet for sections. Flange plates longer than 50 feet may be made by shop splicing with minimum lengths of 25 feet for sections. No additional payment will be made for shop welded splices.

All girder dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Groove welds in web and flange plates shall be Quality Control (Q.C.) tested by nondestructive testing, as required in Subsection 807.23(b). Fillet welds at flange to web plate connections shall be Q.C. tested by the magnetic particle method. All Q.C. testing shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. ___)".

Bent plate diaphragms for horizontally curved girders 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. Bent plate diaphragms for straight girders may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved girders.

Unless otherwise noted, cross-frames and diaphragms shall be installed as girders are erected. All bolts in cross-frames, diaphragms, and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

SUBSTRUCTURE NOTES:

CONCRETE:

Unless otherwise noted, concrete in caps, columns and footings (except seal footings) shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. Seal Concrete for footings shall have a minimum 28 day compressive strength f'c = 2,100 psi.

Concrete in drilled shafts shall be Class "S" as modified by Job SP "Drilled Shaft Foundations".

All exposed corners shall be chamfered ¾" unless otherwise noted.

REINFORCING STEEL:

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.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

STRUCTURAL STEEL:

Structural steel in end bents shall be AASHTO M 270 with grade and payment as specified in the plans.

FOR ADDITIONAL INFORMATION AND NOTES, SEE LAYOUT(S) AND PLAN DETAILS.

STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

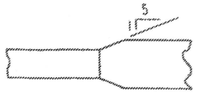
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

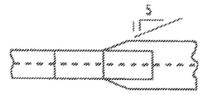
DRAWN BY:	A.M.S.	DATE:	9-2-2015	FILENAME:	b55006.dgn
CHECKED BY:	B.E.F.	DATE:	9-2-2015	SCALE:	NO SCALE
DESIGNED BY:	STD.	DATE:			

DRAWING NO. 55006

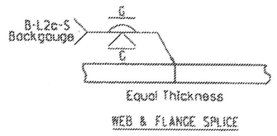
PRINT DATE: 9/21/2015

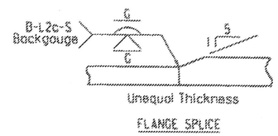
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				① STEEL BRIDGE STRUCTURES 55007				



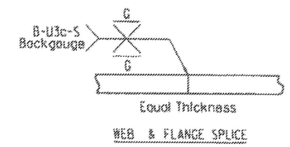


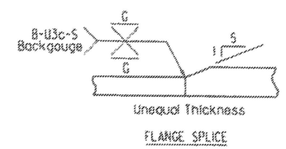
FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS





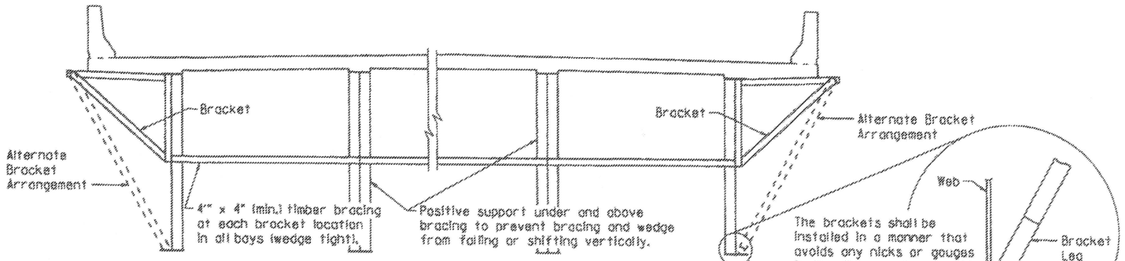
(Use when Base Metal Thickness is Equal to or Less than 2")





(Use when Base Metal Thickness is Greater than 2")

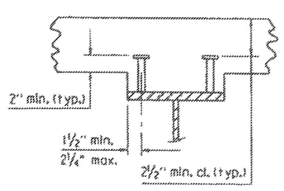
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



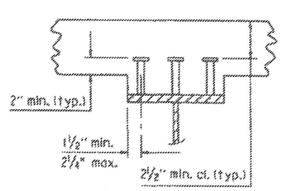
Note:
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the cross-frame connection plates are welded to the insides of the exterior girders at the location of each bracket or if the alternate bracket arrangement shown above is used. The Alternate Bracket arrangement shall extend down to the junction of the web and bottom flange. The stiffener shall conform to the details for cross frame connection plates shown on the plans. No direct payment will be made for brackets, timber bracing, supports, or welded stiffeners. Payment shall be subsidiary to "Structural Steel in Plate Girder Spans (____)".

SCREED RAIL SUPPORT FOR PLATE GIRDERS

(USE WHEN WEB DEPTHS ARE 48" OR GREATER)



2 STUDS PER ROW



3 STUDS PER ROW

Stud Shear Connectors shall be automatically end welded to the beam or girder flange in accordance with the recommendations of the Manufacturer. See plan details for number and size.

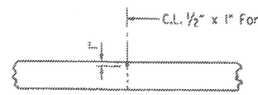
SHEAR CONNECTOR DETAIL



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 and shall align with open joints at the front face of the parapet. 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.

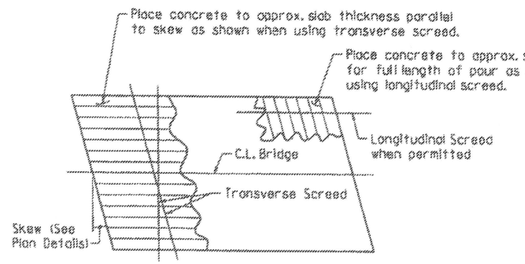
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck slab from gutterline to gutterline and acrosss the top of the sidwalk or raised median to the edge of the slab. No joint sealer shall be placed on the deck slab under the sidewalk or raised median.

TRANSVERSE SLAB JOINT DETAIL



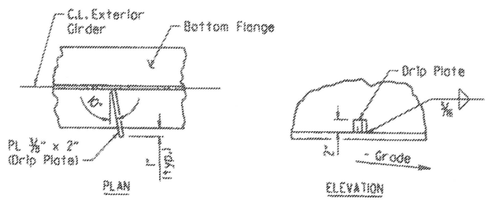
Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL CONSTRUCTION JOINT



Note: At the Contractor's option, the transverse screed may be placed parallel to the skew or perpendicular to C.L. Bridge.

CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW



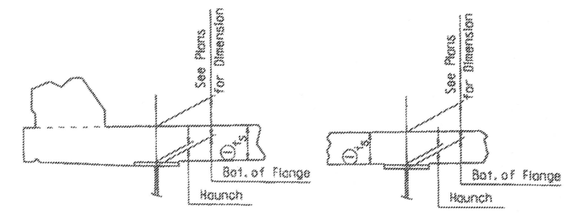
Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

Locate drip plate 5'-0" from C.L. Bearing on high side of each Bent, unless otherwise noted in the plans.

BOTTOM FLANGE DRIP PLATE

(USE WHEN WEB DEPTHS ARE 54" OR GREATER AND UNIT OR SPAN IS NOT IN LEVEL GRADE)

t_s = slab thickness. See "Typical Roadway Section" in the plans.

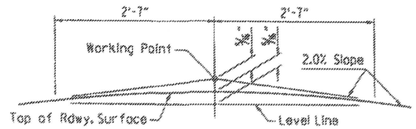


① Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

NOTES:
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 1¾" unless otherwise noted in the plans. 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



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

BRIDGES IN NORMAL CROWN

WELD TABLE

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"	⅜"	

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.

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

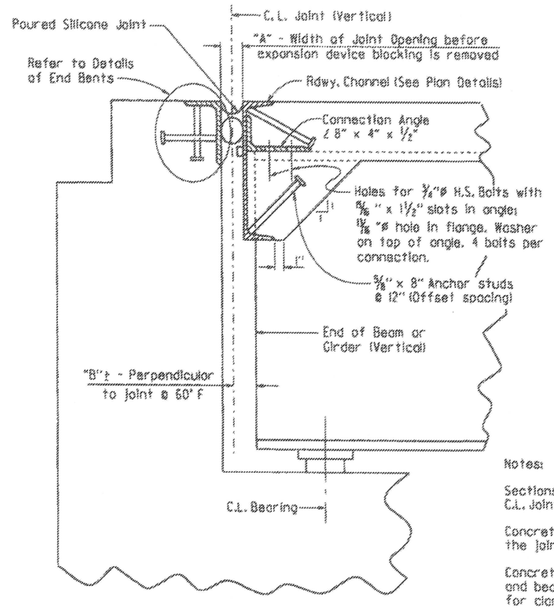
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 2/11/2016 FILENAME: b55007.dgn
CHECKED BY: AMS DATE: 2/11/2016 SCALE: No Scale
DESIGNED BY: STD. DATE: —

DRAWING NO. 55007

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.				

1 POURED SILICONE JOINT 55008



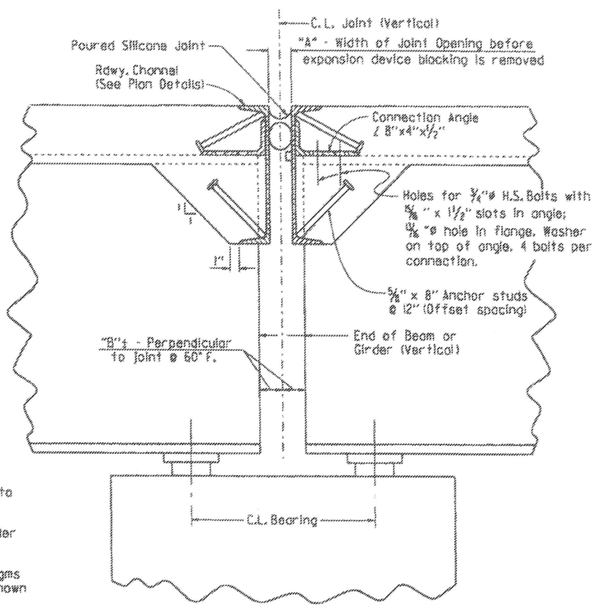
SECTION THRU JOINT AT END BENT

Notes:

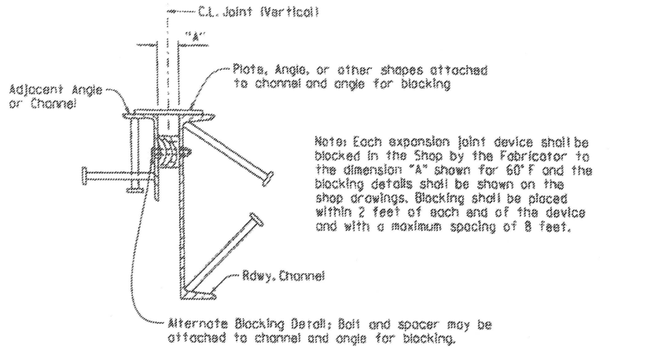
Sections are taken perpendicular to C.L. Joint.

Concrete shall be hand packed under the joint armor.

Concrete diaphragms, steel diaphragms and bearing stiffeners are not shown for clarity. See plans for details.



SECTION THRU JOINT AT INTERMEDIATE BENT



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

The Contractor may elect to install the expansion device using one of the following two alternatives:

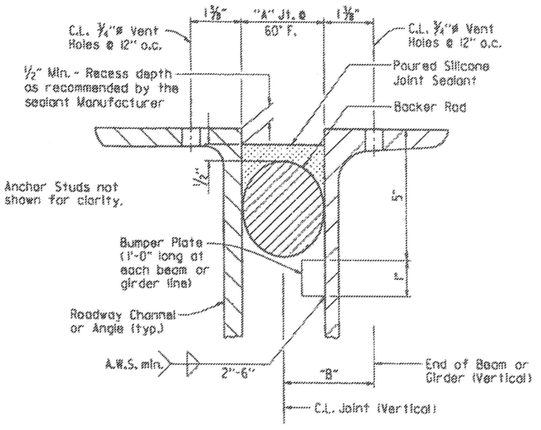
1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams or girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, and the opening adjusted for temperature and grade.

2) The backwall shall be poured to the optional construction joint after beams or girders 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 and grade.

EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENTS:

After all beams or girders on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first side to have deck concrete placed shall be completely bolted. Bolts on the other side shall be loosely installed so that thermal and rotational movements will not be restricted during concrete placement on the first side.

Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed, immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.



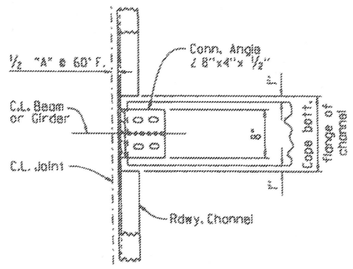
DETAIL OF POURED SILICONE JOINT

Silicone joint material and installation shall conform to Section 809. 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. Unless otherwise noted, do not install more backer rod than can be sealed in the same day.

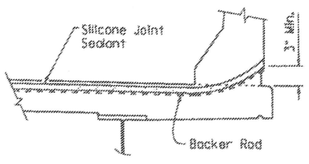
The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.

When bridge deck is constructed in stages, backer rods shall be extended beyond length of poured joint in initial construction stage so that the two pieces can be properly spliced together prior to installing sealant in subsequent stages. Manufacturer's recommendations shall be followed to prevent sealant from "running out of joint" during stage construction.

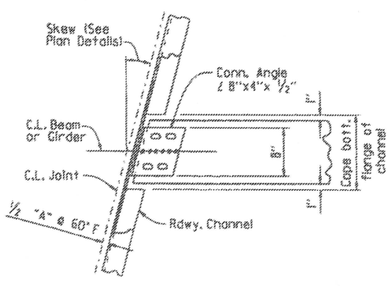


CHANNEL CONNECTION DETAIL

BENTS WITHOUT SKEW

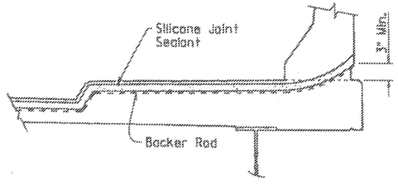


JOINT SEAL PLACEMENT AT RAIL



CHANNEL CONNECTION DETAIL

BENTS WITH SKEW



JOINT SEAL PLACEMENT AT SIDEWALK

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS. SEE "TABLE OF SILICONE JOINT DATA" IN PLAN DETAILS FOR VARIABLES "A" AND "B", AND BUMPER PLATE SIZE.

STANDARD DETAILS FOR POURED SILICONE JOINTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.C.P. DATE: 2/11/2016 FILENAME: b55008.dgn

CHECKED BY: A.M.S. DATE: 2/11/2016 SCALE: No Scale

DESIGNED BY: STD. DATE: —

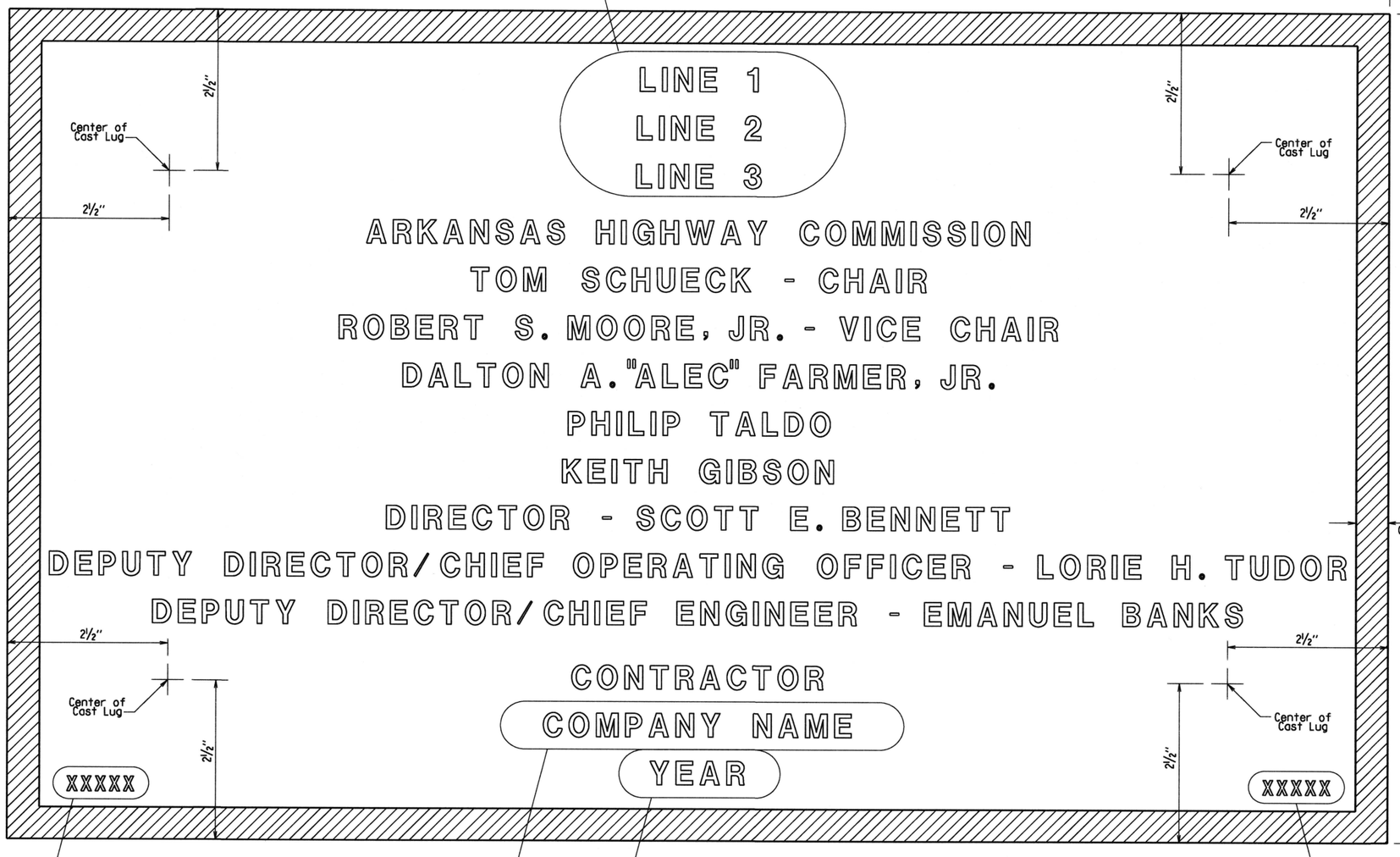
DRAWING NO. 55008

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-1-14		1-15-19		6	ARK.			
1-14-15				JOB NO.				
1-17-17								

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	



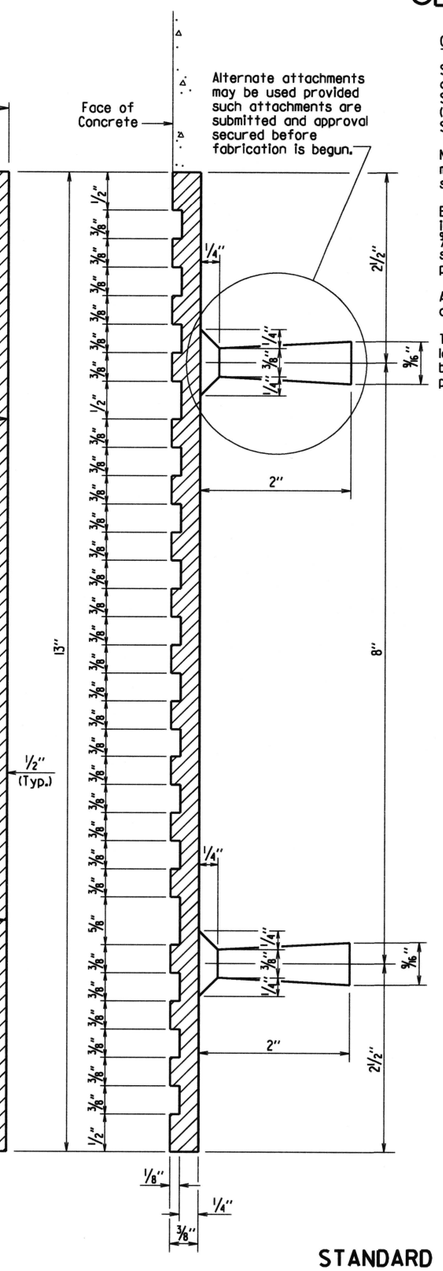
Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20
HL-93

Place the Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example : 2001

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 Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples : A1234
05432

TYPICAL BRIDGE NAME PLATE



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.

4 Revised Chair and Vice Chair Added New Commissioner
1-15-19 CGP Checked By: CRE

3 Added New Commissioner
1-17-17 KDH Checked By: CRE

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

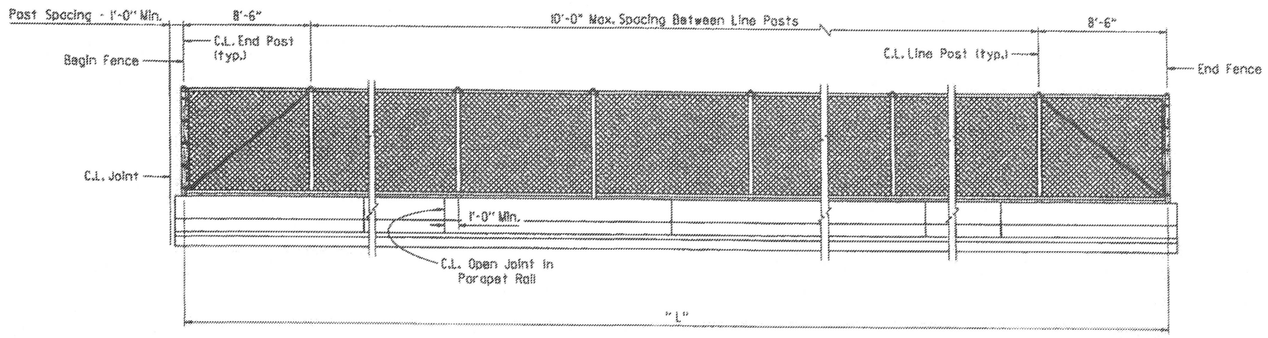
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

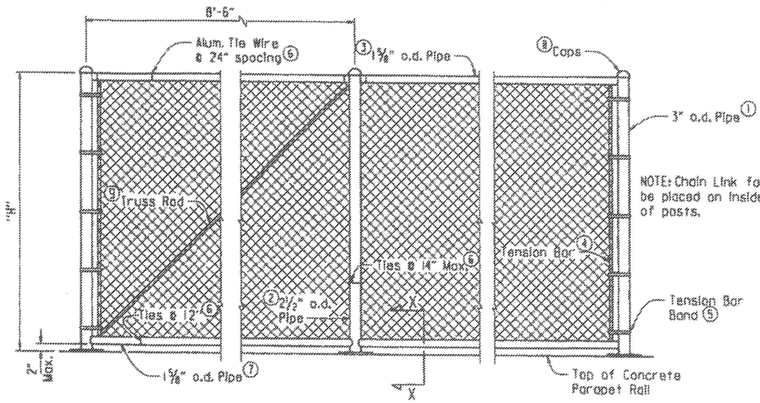
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

1 CHAIN LINK FENCE 55018

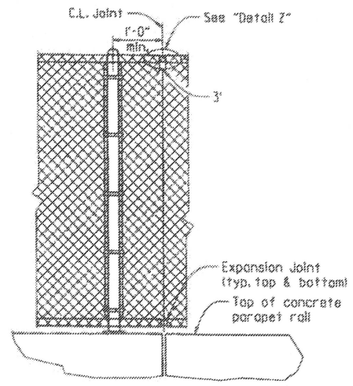


NOTE: The fence location, height "H", total length "L" and parapet panel spacing shall be as specified in plans.

LONGITUDINAL VIEW OF CHAIN LINK FENCE



DETAILS OF CHAIN LINK FENCE



DETAIL AT EXPANSION JOINTS

① END POST: 3" O.D.
② LINE POST: 2½" O.D.
③ TOP RAIL: 1⅝" O.D.
④ TENSION BAR: ⅜" x ¾" Bar
⑤ TENSION BAR BAND: ¾" x .074 w/⅜"ø x 1¼" Bolt (1 Band Top and Bottom w/15" Max. spaces)
⑥ TIE WIRE: 9 Ga. Aluminum
⑦ BOTTOM RAIL: 1⅝" O.D.
⑧ CAPS: All Posts shall be Capped and Shall Conform to ASTM F626-84
⑨ TRUSS ROD: Min. of ⅜" Round with Tighteners and Fittings

FABRIC: 9 Ga. 2" Mesh w/Knuckled or Twisting Selvage

GENERAL NOTES FOR CHAIN LINK FENCE:

Fence layout shall conform to the vertical and horizontal bridge alignments. Fence posts shall be set plumb (true vertical position). Parapet rail concrete shall be at least 7 days old before stretching and securing fabric to posts.

Base plates shall not be placed upon areas that are improperly finished, deformed, or irregular.

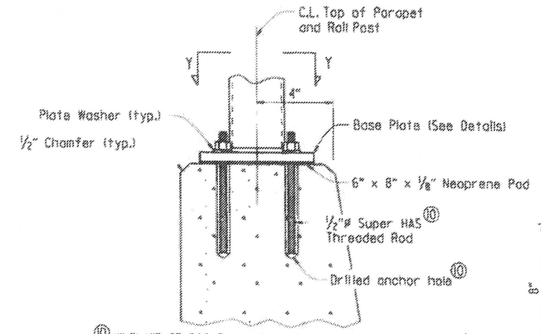
Chain Link Fence attached to Bridge, including neoprene pad and template plates, shall be paid for as "____' Steel Chain Link Fence". For additional details of Chain Link Fence, See Standard Drawing WF-3.

Cast-in-place anchor bolts, nuts, washers, and set screws shall be galvanized high-strength steel or stainless steel. Mixing of galvanized fasteners and stainless steel will not be permitted.

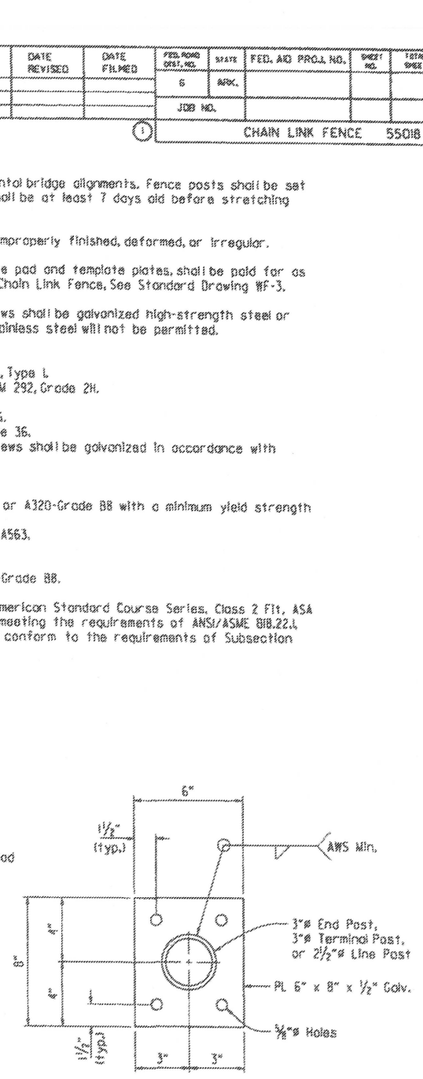
High-Strength Steel:
Cast-in-place anchor bolts shall conform to ASTM A325, Type 1.
Nuts shall conform to ASTM A563, Grade DH or AASHTO M 292, Grade 2H.
Washers shall conform to ASTM F436.
Plate Washers shall conform to AASHTO M 270, Grade 36.
Splice Set Screws shall conform to AASHTO M 270, Grade 36.
Anchor bolts, nuts, washers, plate washers, and set screws shall be galvanized in accordance with AASHTO M 232, Class C or ASTM B695, Class 50.

Stainless Steel:
Cast-in-place anchor bolts shall conform to ASTM A193 or A320-Grade B8 with a minimum yield strength of 80,000 psi.
Nuts shall conform to AASHTO M 292, Grade 8 or ASTM A563.
Washers shall conform to ASTM A240, Type 302.
Plate Washers shall conform to ASTM A240, Type 302.
Splice Set Screws shall conform to ASTM A193 or A320-Grade B8.

Threads on bolts, screws, and nuts shall conform to American Standard Course Series, Class 2 Fit, ASA Specification B1.1. Plate washers shall have dimensions meeting the requirements of ANSI/ASME B18.22.1, Type A plain washer (Wide Series). Neoprene pads shall conform to the requirements of Subsection 807.15(b).

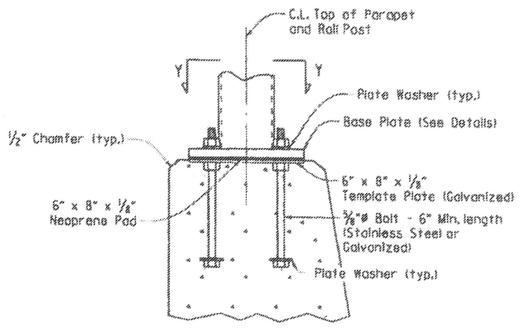


VIEW X-X

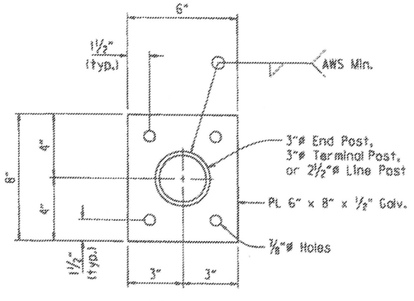


VIEW Y-Y

DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)

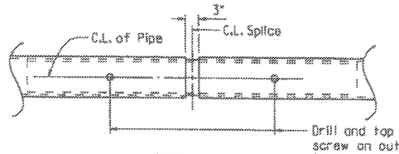


VIEW X-X



VIEW Y-Y

DETAILS OF POST ANCHOR SYSTEM
(CAST-IN-PLACE BOLTS)



DETAIL Z

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

STANDARD DETAILS FOR CHAIN LINK FENCE

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

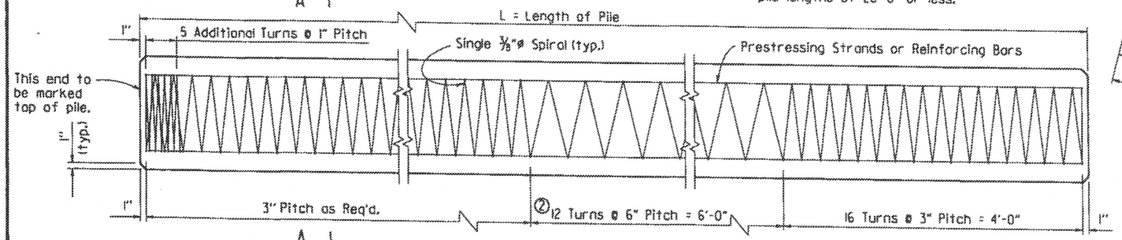
DRAWN BY: E.O.R. DATE: 2-11-2016 FILENAME: b55018.dgn
CHECKED BY: A.M.S. DATE: 2-11-2016 SCALE: No Scale
DESIGNED BY: STD. DATE:

DRAWING NO. 55018

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.			
				JOB NO.				
				① CONC. PILES		55022		

NOTE: Spirals terminate with 1½ turns.

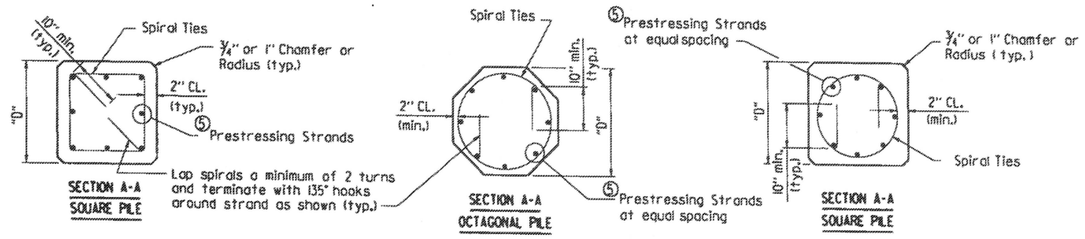
② Omit this section and use 3" pitch throughout for pile lengths of 20'-0" or less.



PLAN OF PILE SHOWING SPIRAL TIE SPACING

For anchorage of pile to bent, see Bent Details.

NOTE: Strand location shall be symmetrical about the axis of the pile with no more than one strand difference between any two adjacent sides. Circular spiral ties are required for odd number of strands.



PRESTRESSED CONCRETE PILES

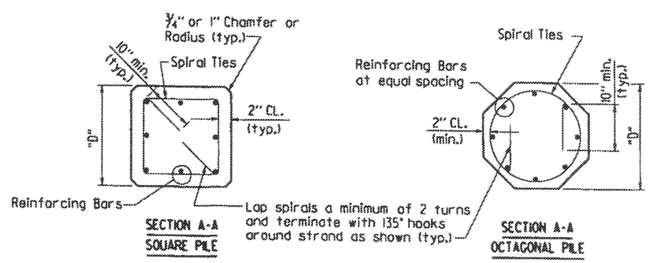
① Number based on initial pre-stress force of "B" x Ultimate Tensile Stress, Prestress Losses and min. 700 psi Unit Prestress on concrete after Losses.

"B" — 0.75 Low Relaxation; 0.70 Stress-Relieved

⑤ See table "Prestressed Concrete Pile Properties" for actual number of strands per pile size.

PRESTRESSED CONCRETE PILE PROPERTIES

	Grade	Strand Diameter	① Number of Strands per Size "D" 16" Oct.	18" Oct.	④ 14" Sq.	16" Sq.	18" Sq.	⚠ 20" Sq.	⚠ 24" Sq.	Minimum Ultimate Tensile Strength Per Strand (Lbs.)	Initial Prestressing Force Per Strand (Lbs.)
Stress-Relieved	250	7/16"	11	13	10	13	16	20	28	27,000	18,900
		½"	8	10	8	10	12	15	21	36,000	25,200
	270	7/16"	9	11	8	12	14	17	24	31,000	21,700
		½"	7	9	6	8	10	13	18	41,300	28,900
Low Relaxation	250	7/16"	9	11	8	11	14	17	24	27,000	20,200
		½"	7	9	6	8	10	13	18	36,000	27,000
	270	7/16"	8	10	7	9	12	15	21	31,000	23,300
		½"	6	8	6	7	9	11	16	41,300	31,000



NON-PRESTRESSED CONCRETE PILES

NON-PRESTRESSED PILE REINFORCING

Pile Size	No. Req'd.	Bar Size
16" Oct.	8	#7
18" Oct.	8	#7
④ 14" Sq.	8	#7
16" Sq.	8	#7
18" Sq.	8	#8

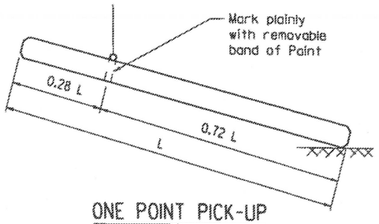
④ 14" sq. piles to be used in Seismic Performance Zone I only.

⚠ Revised to accommodate 20" and 24" square prestressed piles by KWY, Ck'd. by BEF, 3/24/16.

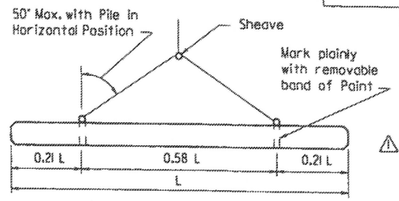
⚠ PILE BUILD-UP FOR 20" & 24" PRESTRESSED PILES

Pile Size	No. Req'd.	Bar Size
20" Sq.	8	#9
24" Sq.	12	#9

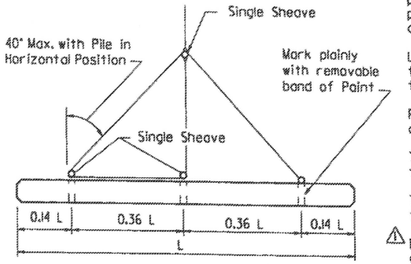
NOTE: Reinforcing bars shall meet the requirements for Grade 60, AASHTO M 31 or M 322, Type A.



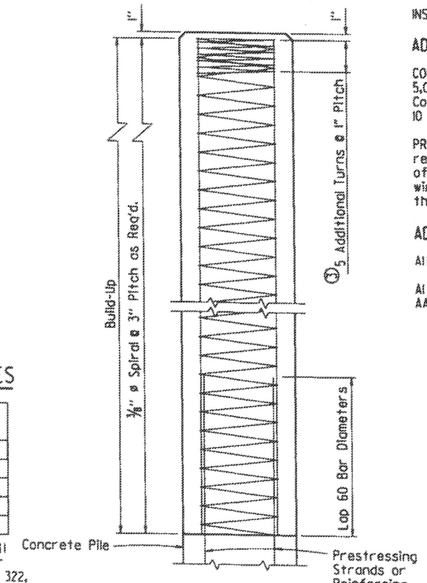
ONE POINT PICK-UP



TWO POINT PICK-UP



THREE POINT PICK-UP



BUILD-UP

③ The five additional turns of spiral reinforcing may be omitted for build-up without additional driving.

MAXIMUM PICKUP LENGTHS "L"

Type of Pick-Up	Prestressed 16" Oct.	18" Oct.	Non-Prestressed 16" or 18" Oct.	Prestressed ④ 14" Sq.	16" Sq.	18" Sq.	⚠ 20" Sq.	⚠ 24" Sq.	Non-Prestressed ④ 14" Sq.	16" Sq.	18" Sq.
One Point	52'	55'	46'	55'	59'	63'	66'	71'	52'	51'	55'
Two Point	75'	80'	67'	79'	84'	90'	95'	102'	75'	74'	79'
Three Point	105'	112'	93'	110'	117'	126'	132'	143'	104'	103'	111'

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, current Edition with interim Specifications.

SEISMIC PERFORMANCE ZONES: 1 & 2

⚠ Unless otherwise noted in the plans, the Contractor may use prestressed or non-prestressed piles for 14", 16" and 18" piles. The Contractor shall use prestressed piles for 20" and 24" piles. Prestressed and non-prestressed piling shall be measured and paid for at the contract unit price bid for "Concrete Piling".

SPIRAL REINFORCING: Spiral reinforcing shall be steel wire meeting the requirements of AASHTO M 32 or M 225 or shall be plain round steel bars meeting the requirements of Grade 60, AASHTO M 31 or M 322, Type A.

MANUFACTURE, TRANSPORTATION AND STORAGE: Shipment of piles from the plant site or pile driving will not be permitted until the required minimum compressive strength is reached, and in no case less than 10 days after pouring the concrete. Prestressed piles may be removed from the casting bed to nearby storage any time after transfer of stress. See Section 802 "Concrete for Structures" for additional information.

Unless otherwise approved by the Engineer, all protruding or exposed pile lifting or transporting devices above the finished ground shall be removed after pile driving is complete. Removal shall be a minimum of 1" below the surface of the pile and the cavity shall be filled with a non-shrink grout listed on the Department's QPL.

FORMS: For forming exterior of piles, the use of steel forms on concrete-founded casting beds is required unless otherwise approved by the Engineer. Side forms may have a maximum drift on each side not exceeding ¼" per foot.

TOLERANCES: Pile ends shall be plane surfaces perpendicular to the longitudinal axis of pile with a maximum tolerance of ⅛" per foot transversely.

The maximum sweep (deviation from straightness measured from end to end of the pile, while not subject to bending forces) shall not exceed ⅛" in 10 feet.

⚠ BUILD-UPS: To provide for build-ups of piles where authorized by the Engineer, the concrete in the pile shall be cut back to provide a 60 bar diameter lap splice. For piles equal to or less than 18", the reinforcing for build-up shall be the reinforcing shown for non-prestressed piles. Otherwise, the reinforcing for build-up shall be as shown in the table "Pile Build-Up for 20" & 24" Prestressed Piles" and the 60 bar diameter splice length shall be based on the bar sizes shown.

INSTALLATION, MEASUREMENT AND PAYMENT: See Section 805 "Piling".

ADDITIONAL NOTES FOR PRESTRESSED PILES ONLY:

CONCRETE: Concrete in prestressed piles shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 5,000 psi at 28 days. Compressive strength at transfer of the prestressing force shall be not less than 4,000 psi. Concrete in build-ups shall have a minimum compressive strength of 4,000 psi and shall be cured for a minimum of 10 days.

PRESTRESSING REINFORCING: Seven-wire stress-relieved or low relaxation strands shall conform to the general requirements of AASHTO M 203. Broken wires within individual strands will be permitted up to 2% of the total number of wires in each pile, providing that there is not more than one broken wire per strand. Two or more broken wires per strand will be cause for replacement of the strand, even though the two broken wires are within the 2% limitation.

ADDITIONAL NOTES FOR NON-PRESTRESSED PILES ONLY:

All concrete shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 4,000 psi at 28 days.

All longitudinal reinforcing bars shall be deformed bars and shall conform to the requirements of Grade 60, AASHTO M 31 or M 322, Type A.

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 CONCRETE PILES

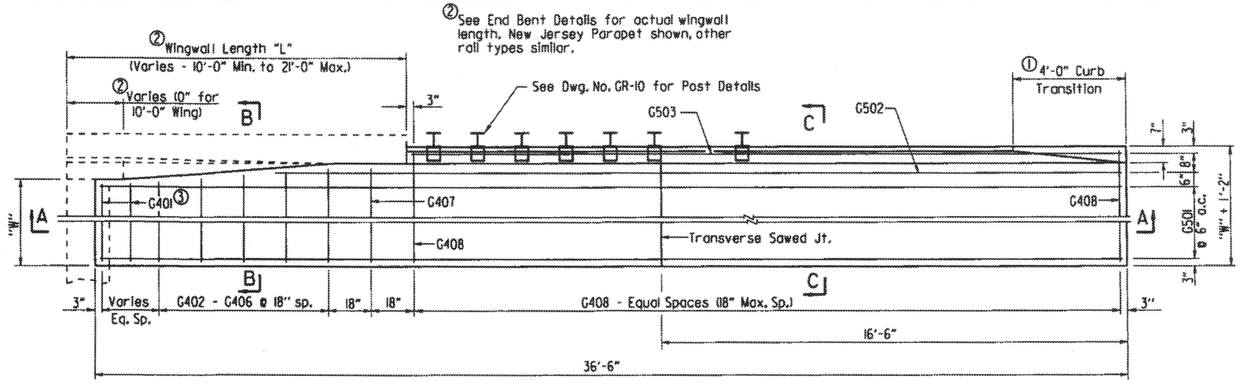
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55022.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

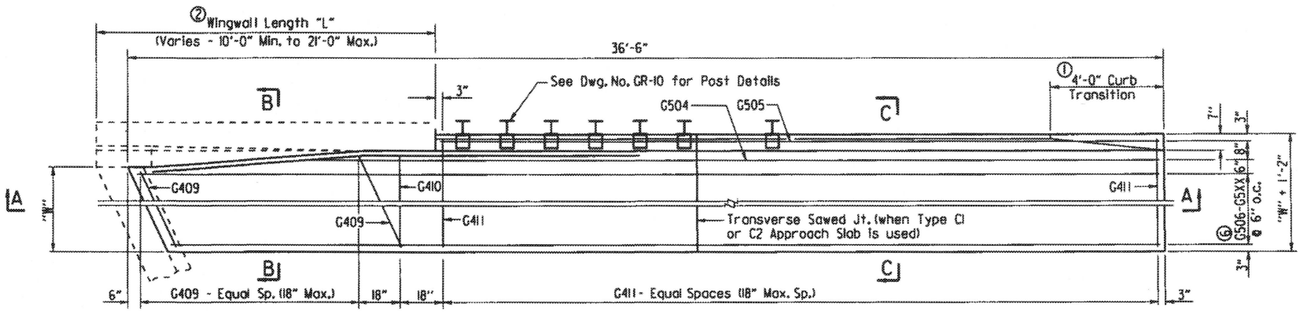
DRAWING NO. 55022

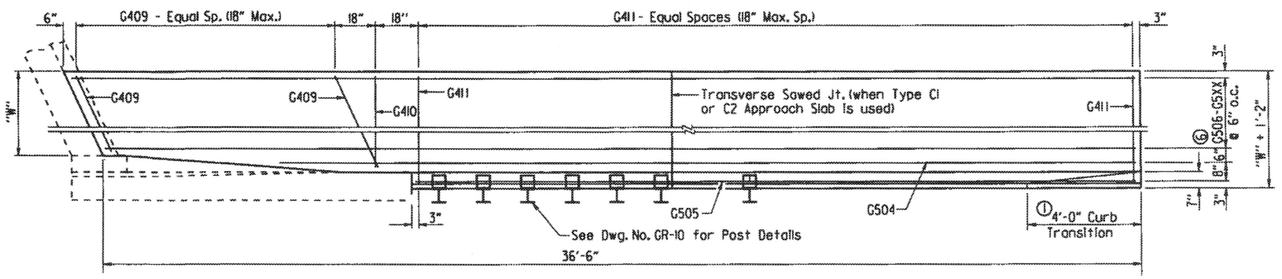
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				① TYPE C GUTTERS			55030C	



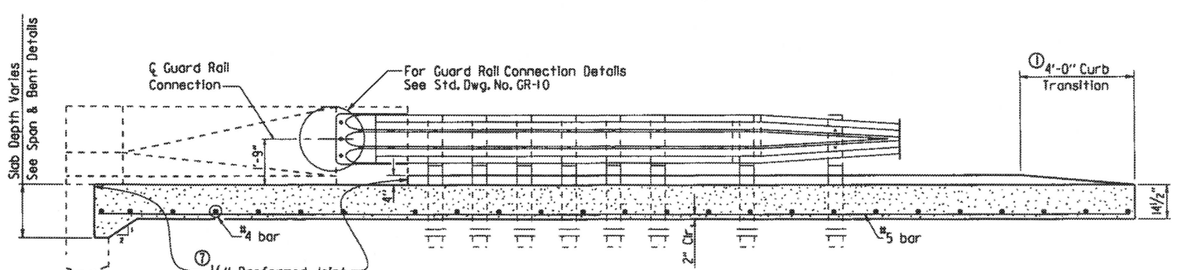
③Provide G401 bars @ 18" max. spacing. Number of G401 bars vary with wingwall length. No G401 bars required for 10'-0" wingwalls.

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





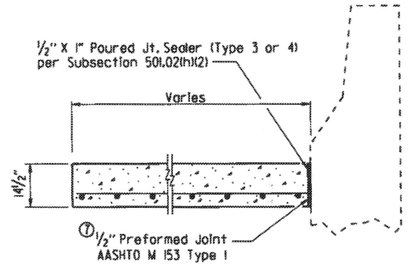
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



SECTION A-A

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.

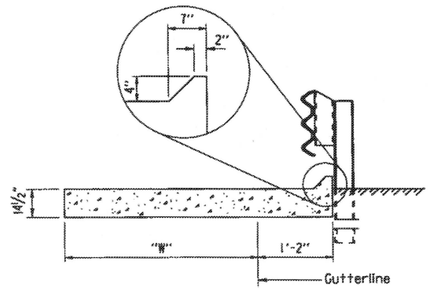
BAR LIST FOR ONE TYPE C GUTTER

	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'



SECTION C-C
N.T.S.

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.

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.

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: ⅛" = 1'-0" or As Shown
DESIGNED BY: STD. DATE:

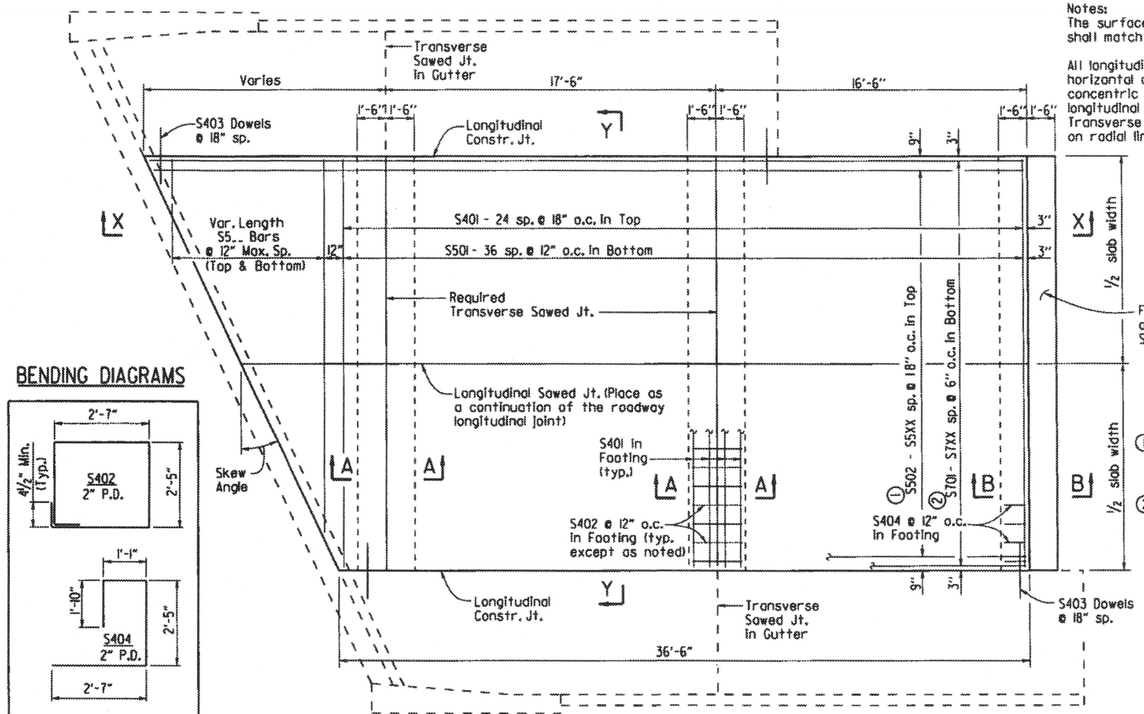
DRAWING NO. 55030C

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.				

TYPE C2 APPROACH SLAB 55040C2

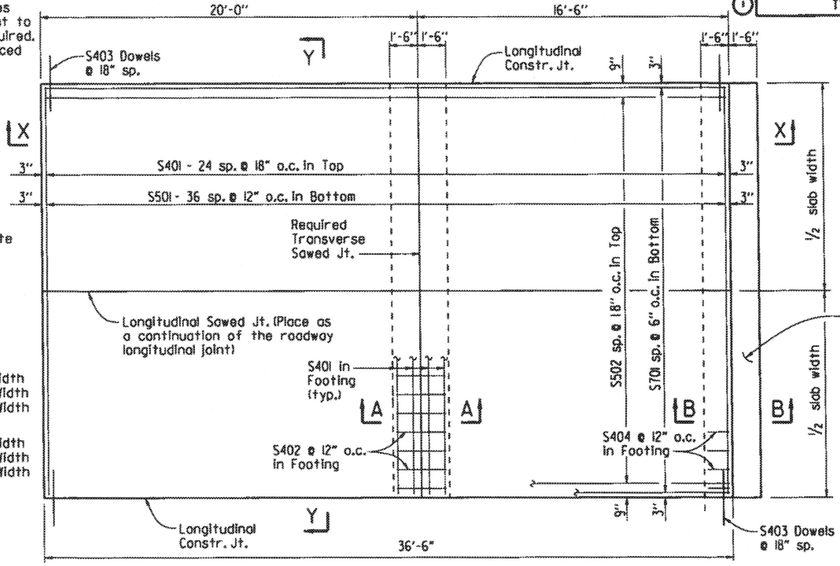
Notes:
The surface finish for Approach Slabs shall match that used on the bridge deck.

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.



PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

¼" = 1'-0"



PLAN - SQUARE APPROACH SLAB

¼" = 1'-0"

BENDING DIAGRAMS

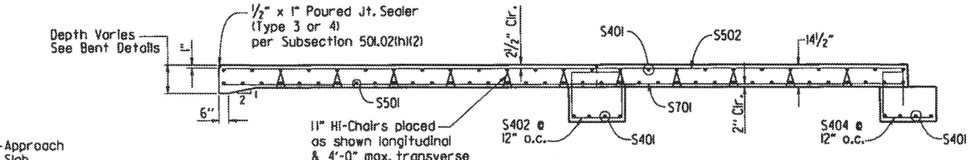
Dimensions are out to out of bar.

BAR LIST

(Square & Skewed Approach Slabs)

	Mark	Square No. Req'd.	Square Length	Skewed No. Req'd.	Skewed Length
15'-0" Slab Width	S401	33	14'-8"	37	14'-8"
	S402	15	10'-4"	30	10'-4"
	S403	50	3'-0"	*	3'-0"
	S404	15	7'-8"	15	7'-8"
	S501	37	14'-8"	37	14'-8"
	S502	10	36'-2"	—	—
	S502 - S511	—	—	1 Ea.	36.1' + 0.75'(tan skew angle) to 36.1' + 14.25'(tan skew angle)
	S5..	—	—	2 Ea.	14.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	30	36'-2"	—	—
	S701 - S730	—	—	1 Ea.	36.1' + 0.25'(tan skew angle) to 36.1' + 14.75'(tan skew angle)
24'-0" Slab Width	S401	33	23'-8"	37	23'-8"
	S402	24	10'-4"	48	10'-4"
	S403	50	3'-0"	*	3'-0"
	S404	24	7'-8"	24	7'-8"
	S501	37	23'-8"	37	23'-8"
	S502	16	36'-2"	—	—
	S502 - S517	—	—	1 Ea.	36.1' + 0.75'(tan skew angle) to 36.1' + 23.25'(tan skew angle)
	S5..	—	—	2 Ea.	23.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	48	36'-2"	—	—
	S701 - S748	—	—	1 Ea.	36.1' + 0.25'(tan skew angle) to 36.1' + 23.75'(tan skew angle)
36'-0" Slab Width	S401	33	35'-8"	37	35'-8"
	S402	36	10'-4"	72	10'-4"
	S403	50	3'-0"	*	3'-0"
	S404	36	7'-8"	36	7'-8"
	S501	37	35'-8"	37	35'-8"
	S502	24	36'-2"	—	—
	S502 - S525	—	—	1 Ea.	36.1' + 0.75'(tan skew angle) to 36.1' + 35.25'(tan skew angle)
	S5..	—	—	2 Ea.	35.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	72	36'-2"	—	—
	S701 - S772	—	—	1 Ea.	36.1' + 0.25'(tan skew angle) to 36.1' + 35.75'(tan skew angle)

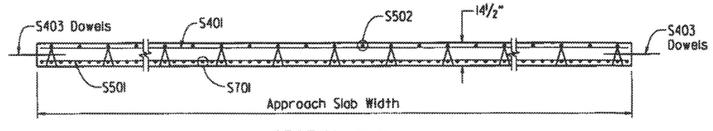
*Varies with skew angle



SECTION X-X

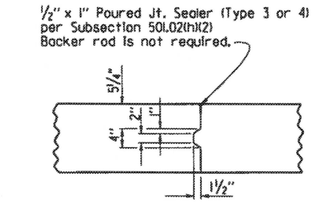
SQUARE APPROACH SLAB SHOWN

¼" = 1'-0"



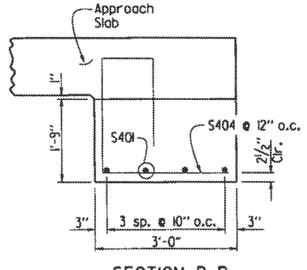
SECTION Y-Y

N.T.S.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

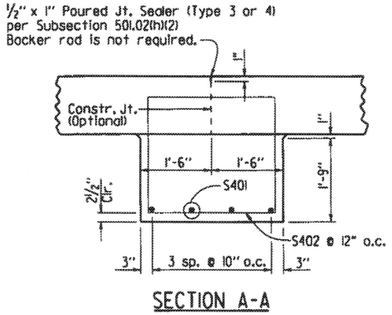
¾" = 1'-0"



SECTION B-B

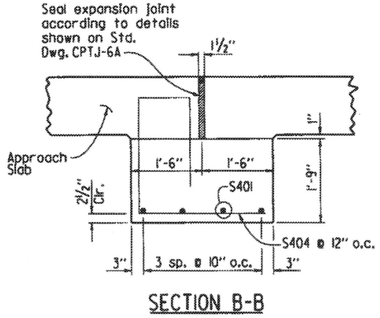
AT ASPHALT APPROACH PAVEMENT

N.T.S.



SECTION A-A

N.T.S.



SECTION B-B

AT CONCRETE APPROACH PAVEMENT

N.T.S.

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
15'-0"	3765	30.75
24'-0"	5980	49.15
36'-0"	8925	73.75

GENERAL NOTES

This drawing shall be used for Approach Slabs in Seismic Performance Zones 2, 3 & 4 and for the maximum skew angles shown below:

15'-0" Slab Width: Maximum Skew Angle = 50°
24'-0" Slab Width: Maximum Skew Angle = 40°
36'-0" Slab Width: Maximum Skew Angle = 30°

All concrete shall be Class S (AE) with a minimum 28 day compressive strength f'c = 4,000 psi 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 Slabs will be measured and paid for in accordance with Section 504.

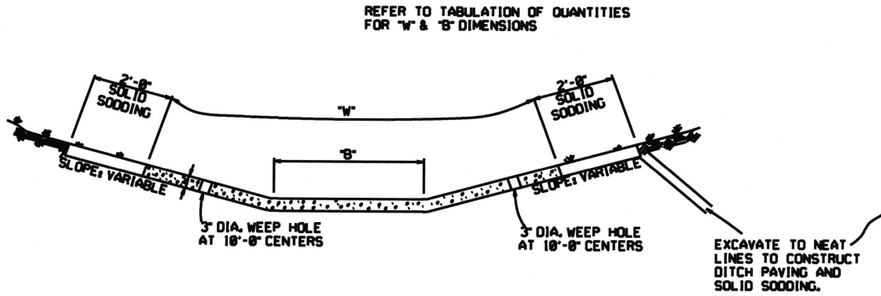
STANDARD DETAILS FOR TYPE C2 APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

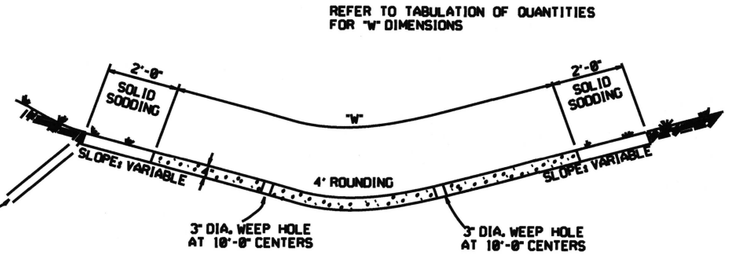
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040c2.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

DRAWING NO. 55040C2

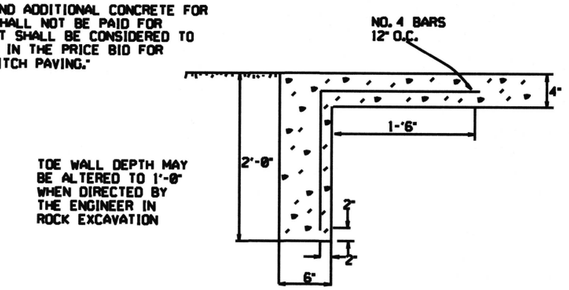


TYPE A

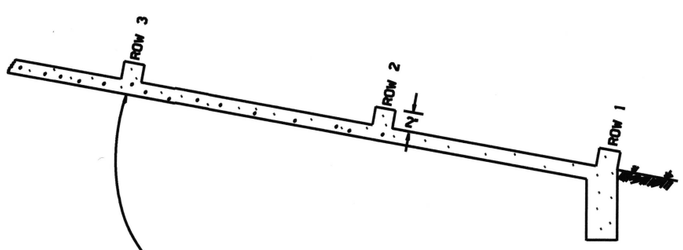


TYPE B

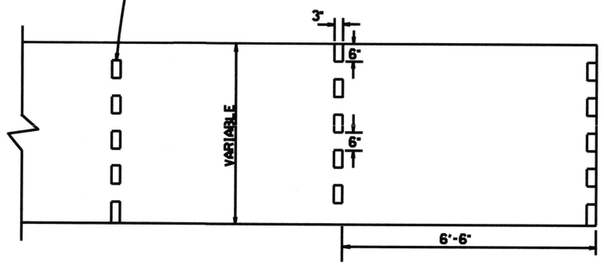
THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR "CONCRETE DITCH PAVING."



TOE WALL DETAIL FOR CONCRETE DITCH PAVING



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 INCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.



ENERGY DISSIPATORS
(NO SCALE)

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.

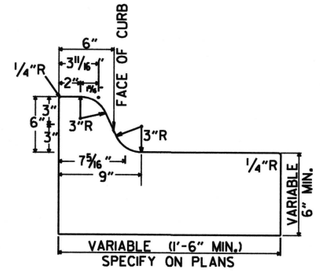
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
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
11-5-87	MODIFIED NOTE ON ENERGY DISS.	632-1-5-87
11-1-86	ADDED NOTE TO ENERGY DISS.	595-12-1-86
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

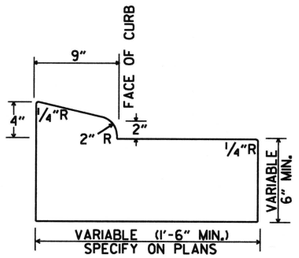
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

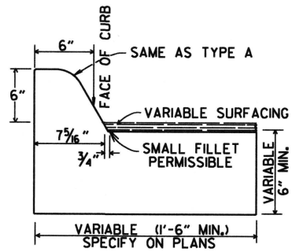
STANDARD DRAWING CDP-1



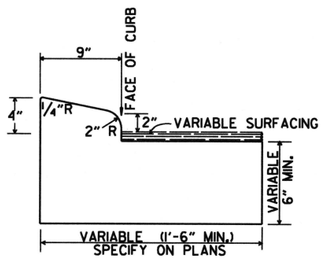
TYPE A



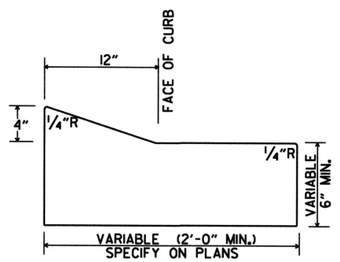
TYPE B-1



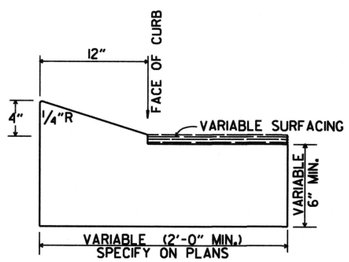
TYPE C



TYPE B-2

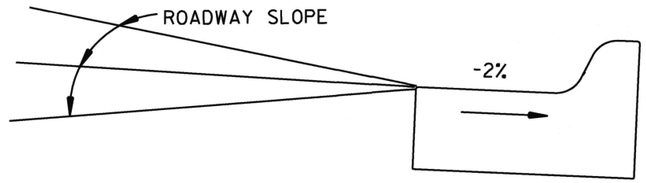


TYPE E-1



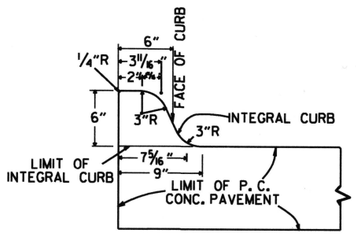
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

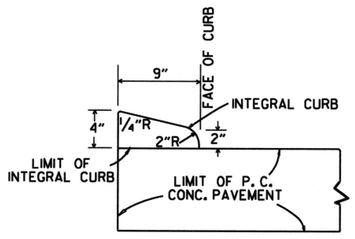


DETAIL OF GUTTER SLOPE

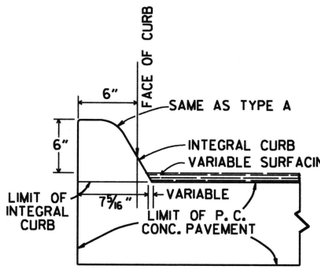
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

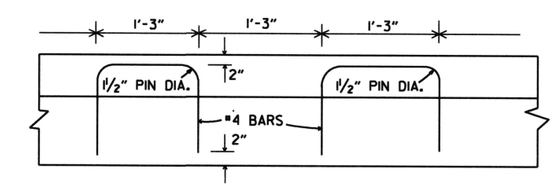


TYPE B

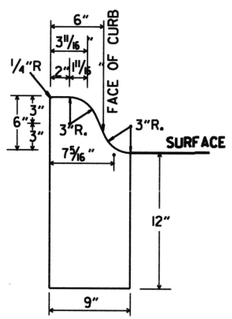


TYPE C

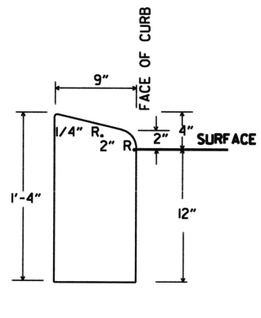
INTEGRAL CURB



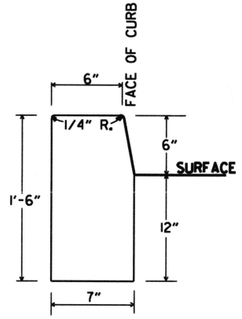
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



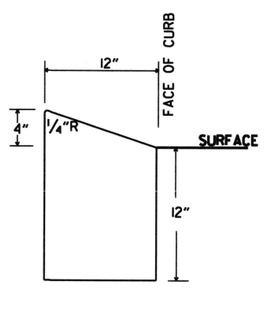
TYPE A



TYPE B

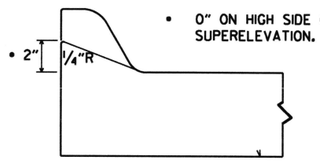


TYPE D



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.

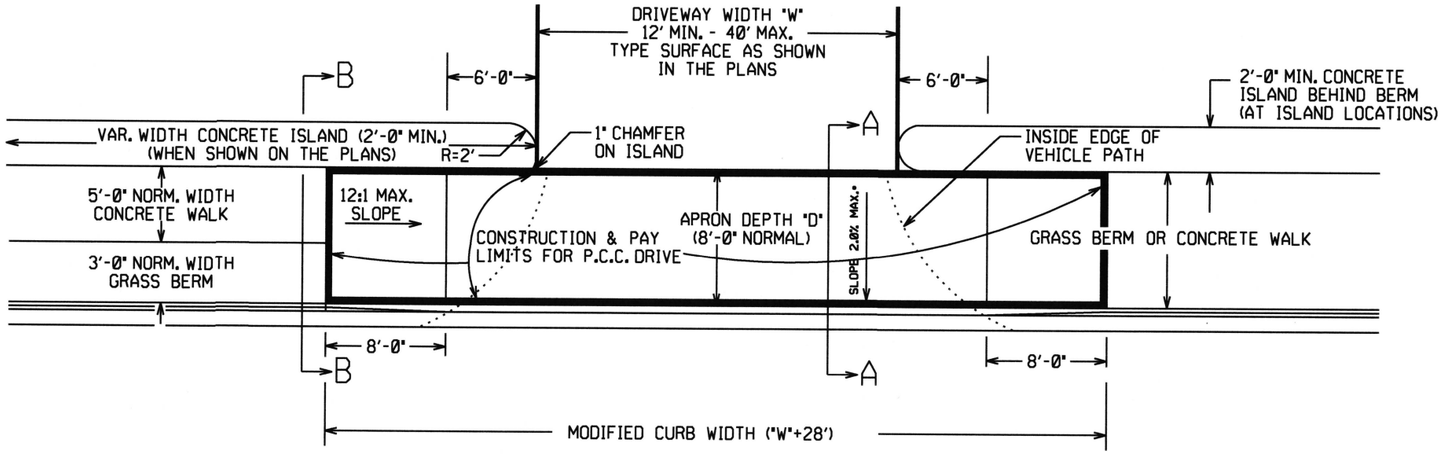
DETAILS OF MODIFIED CURB

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

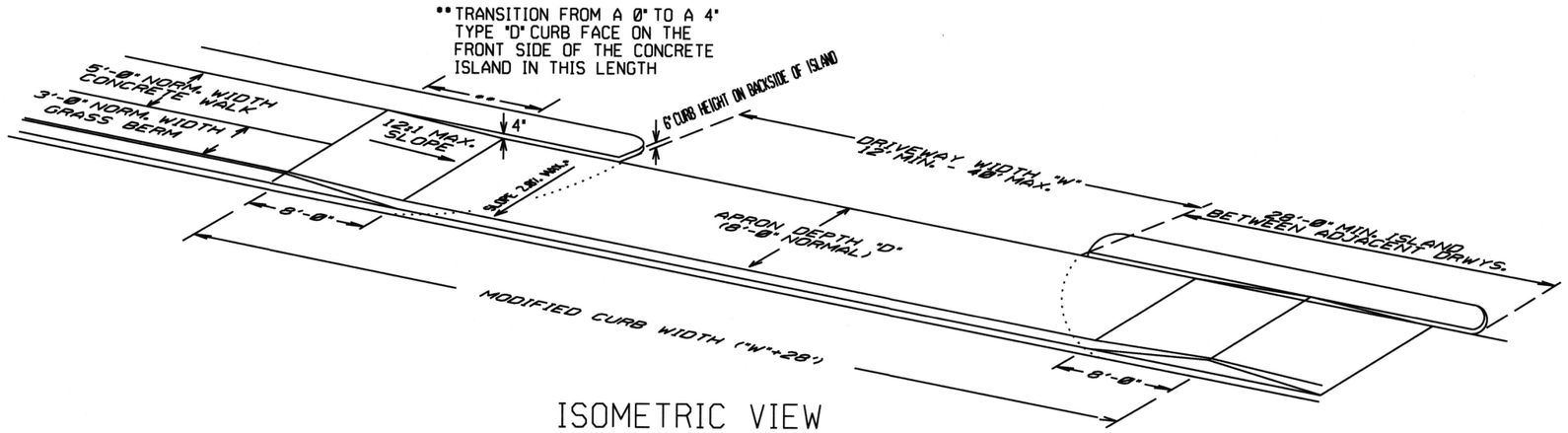
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

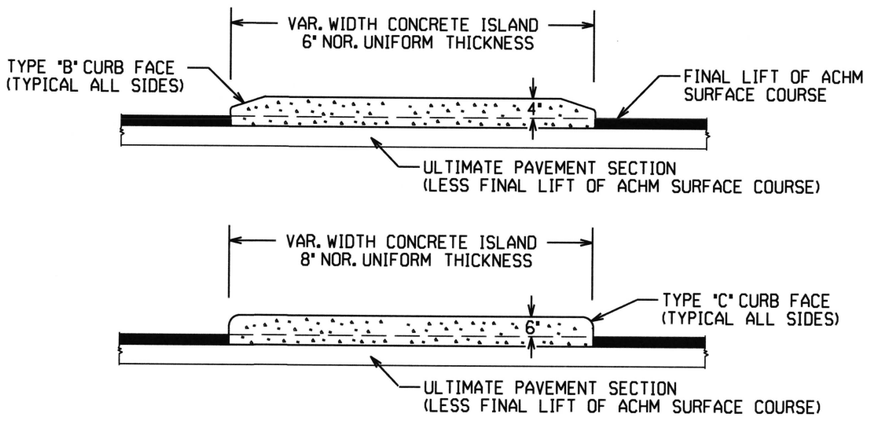
STANDARD DRAWING CG-1



PLAN VIEW

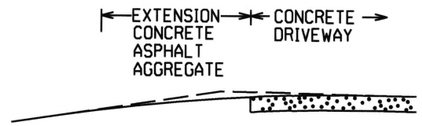


ISOMETRIC VIEW



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

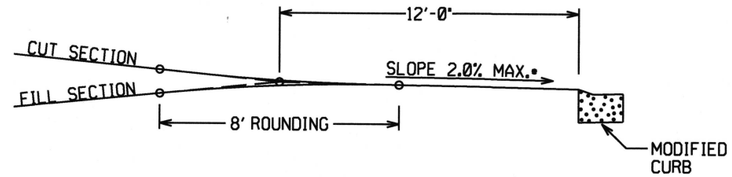
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE (1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

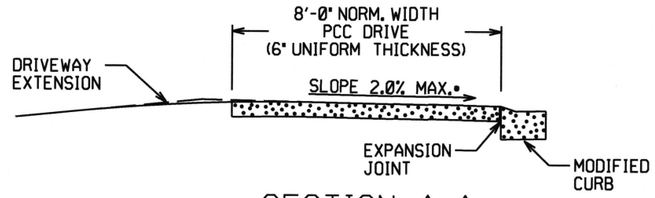
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

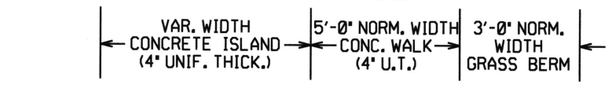


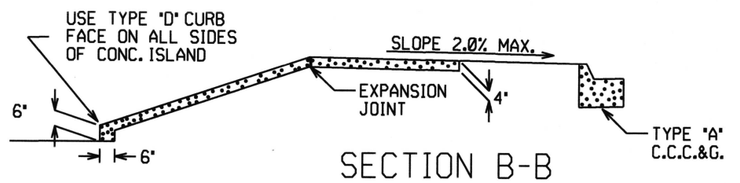
DRIVEWAY VERTICAL ALIGNMENT DETAILS

- NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



SECTION A-A





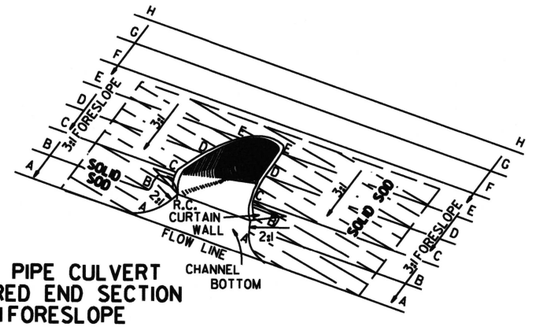
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
11-07-19		REVISED WALK DETAILS
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

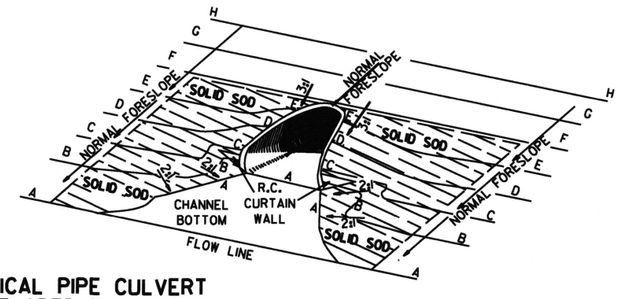
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DRIVEWAYS & ISLANDS

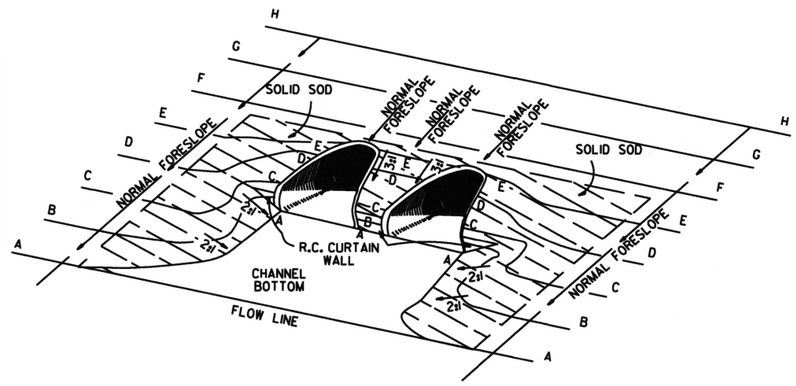
STANDARD DRAWING DR-1



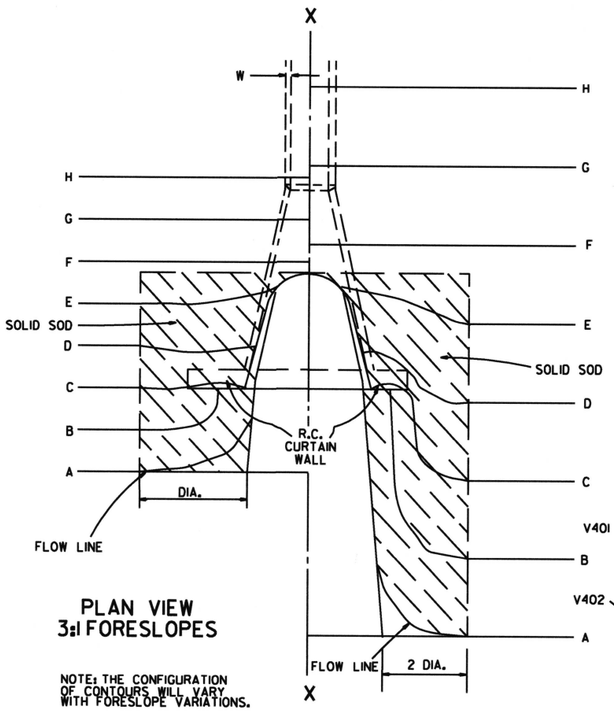
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES



PLAN VIEW
3:1 FORESLOPES

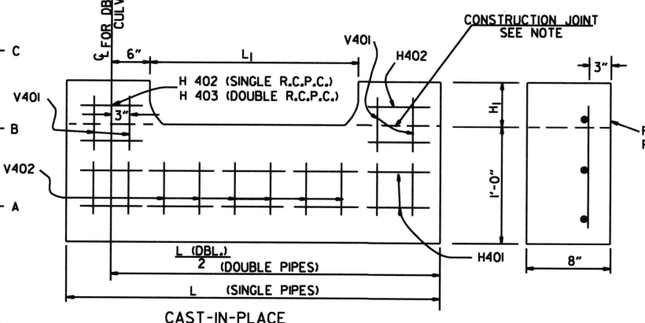
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

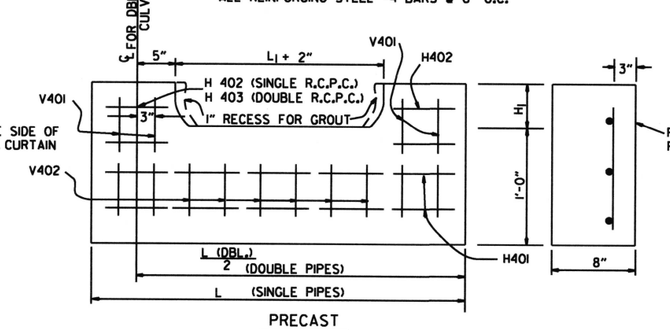
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	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.



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

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	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.

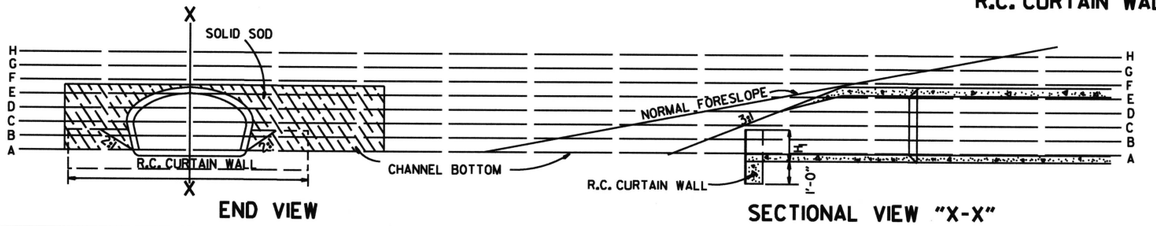
SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C. 3:1	SINGLE R.C.P.C. 4:1	SINGLE R.C.P.C. 6:1	DOUBLE R.C.P.C. 3:1	DOUBLE R.C.P.C. 4:1	DOUBLE R.C.P.C. 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 x 3 W10 x 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	
10-12-95	CORRECTED SPELLING	
11- 5-94	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

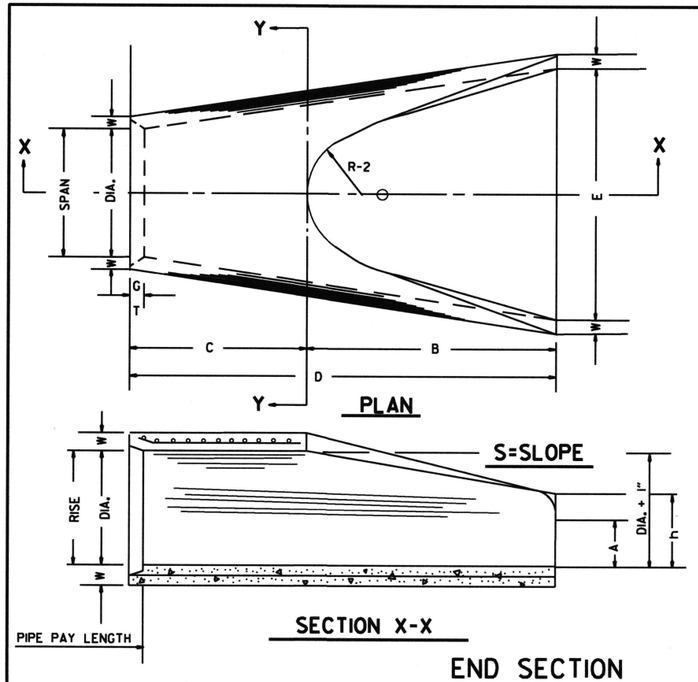


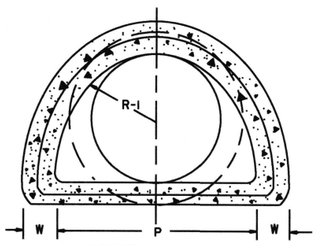
TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3#1	19"	29"	15 1/2"	12"	2"	1000	1'-0 1/2"
24"	3"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3#1	25"	33 3/16"	16 15/16"	14"	2 1/2"	1600	1'-1 1/2"
30"	3 1/2"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3#1	31"	37"	18 1/2"	15"	3/4"	1940	1'-4 5/8"
36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	6'-0"	3#1	37"	47 15/16"	24 5/16"	20"	3 1/2"	4100	1'-8"
42"	4 1/2"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3#1	43"	53 1/16"	27 1/2"	22"	3 1/2"	5380	2'-2 1/2"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3#1	49"	56 1/2"	28 1/2"	22"	3 1/2"	6550	2'-6"
54"	5 1/2"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3#1	55"	65 1/2"	33 1/8"	24"	4"	8750	2'-10 1/2"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3#1	61"	72 1/2"	36 1/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3#1	73"	77 15/16"	38 15/16"	24"	5"	13250	4'-6"

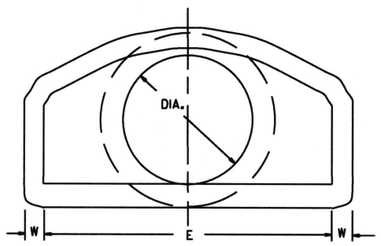
ARCH PIPE

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"	1 1/2"	2 1/2#1
18	22	22	13 1/2	14	2 1/2"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32 1/8"	13"	2 1/2"	2 1/2#1
21	26	26	15 1/2	16	2 3/4"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34 1/8"	14"	2 1/2"	2 1/2#1
24	28 1/2	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 15/16"	15"	2 1/2"	2 1/2#1
30	36 1/4	36	22 1/2	23	3 1/2"	10"	3'-1"	3'-0 1/2"	6'-1 1/2"	6'-0"	47 15/16"	20"	3"	2 1/2#1
36	43 3/4	44	26 5/8	27	4"	10 1/2"	4'-0"	2'-1 1/2"	6'-1 1/2"	6'-6"	54 5/16"	22"	3 1/2"	2 1/2#1
42	51 1/8	51	31 5/16	31	4 1/2"	11 1/2"	4'-7"	1-10 1/4"	6'-5 1/4"	7'-2"	59 1/2"	23"	3 3/4"	2 1/2#1
48	58 1/2	59	36	36	5"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	7'-10"	70 5/16"	24"	4 1/4"	2 1/2#1
54	65	65	40	40	5 1/2"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4 3/4"	2 1/4#1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 1/16"	24"	5"	2 1/4#1

• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.

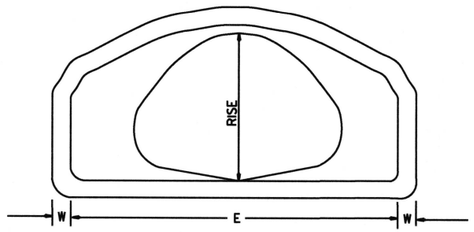


SECTION Y-Y



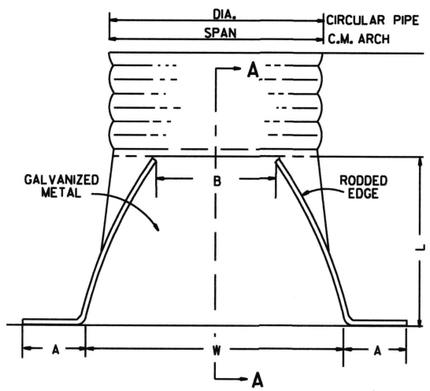
END VIEW

NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

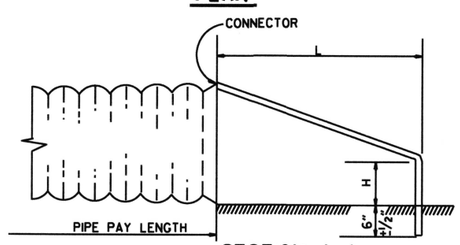


END VIEW
CONCRETE ARCH PIPE

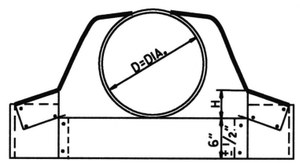
END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS



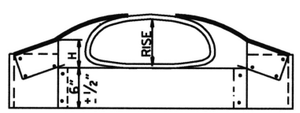
PLAN



SECTION A-A



CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

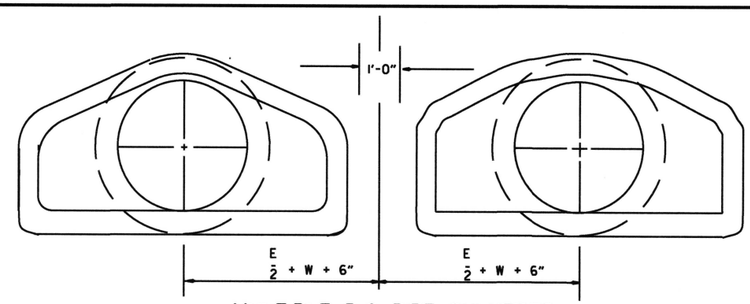
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1 1/2" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2 1/2#1
15	16	7	8	6	26	30	2 1/2#1
18	16	8	10	6	31	36	2 1/2#1
21	16	9	12	6	36	42	2 1/2#1
24	16	10	13	6	41	48	2 1/2#1
30	14	12	16	8	51	60	2 1/2#1
36	14	14	19	9	60	72	2 1/2#1
42	12	16	22	11	69	84	2 1/2#1
48	12	18	27	12	78	90	2 1/2#1
54	12	18	30	12	84	102	2#1
60	12	18	33	12	87	114	1 3/4#1
66	12	18	36	12	87	120	1 1/2#1
72	12	18	39	12	87	126	1 1/3#1

C.M. ARCH PIPE

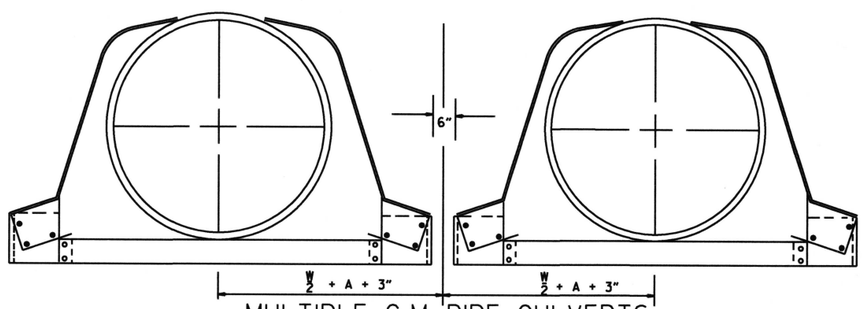
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1 1/2" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2 1/2#1	16
18"	21	15	7	10	6	23	36	2 1/2#1	16
21"	24	18	8	12	6	28	42	2 1/2#1	16
24"	28	20	9	14	6	32	48	2 1/2#1	16
30"	35	24	10	16	6	39	60	2 1/2#1	14
36"	42	29	12	18	8	46	75	2 1/2#1	14
42"	49	33	13	21	9	53	85	2 1/2#1	12
48"	57	38	18	26	12	63	90	2 1/2#1	12
54"	64	43	18	30	12	70	102	2 1/4#1	12
60"	71	47	18	33	12	77	114	2 1/4#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



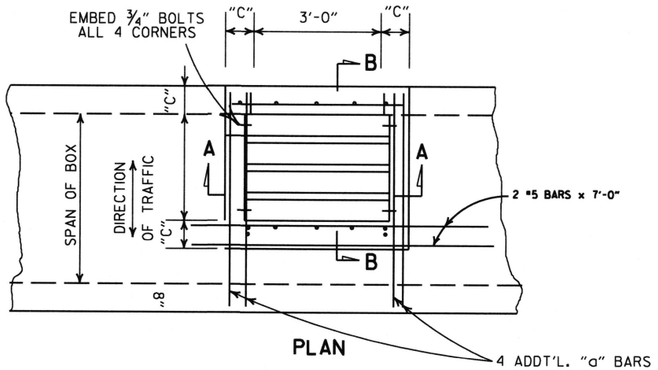
MULTIPLE C.M. PIPE CULVERTS

DATE	REVISION	ED.MED.
10-18-96	REVISED ASTM REF. TO AASHTO	
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

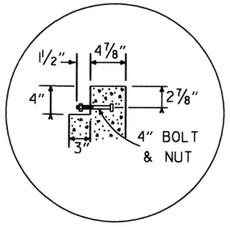
ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

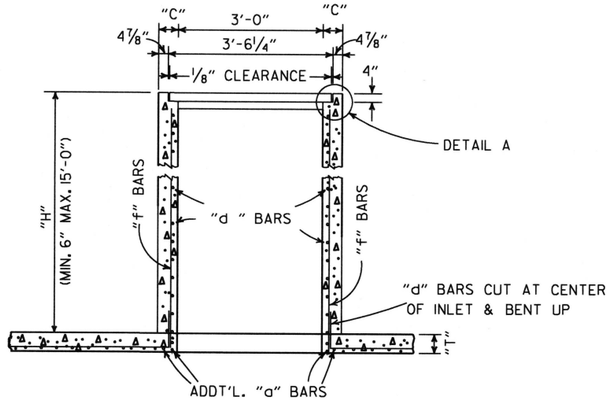
STANDARD DRAWING FES-2



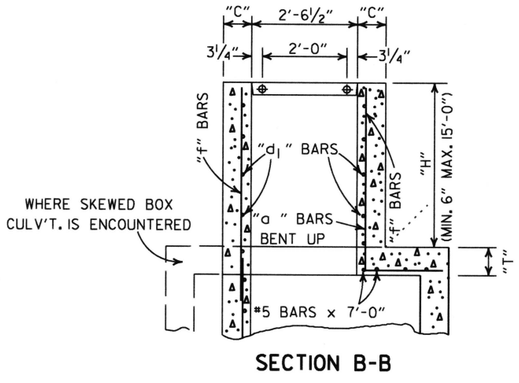
PLAN



DETAIL A



SECTION A-A

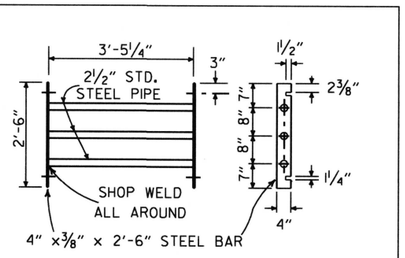


SECTION B-B

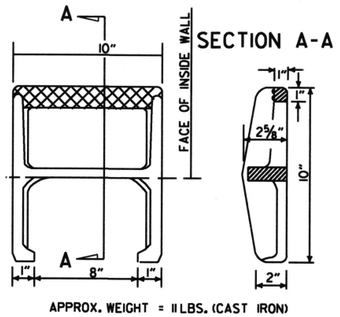
NOTE: ADDT'L.REINF. STEEL TO BE INCLUDED IN UNIT PRICE BID PER TYPE "TM" D.I.

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

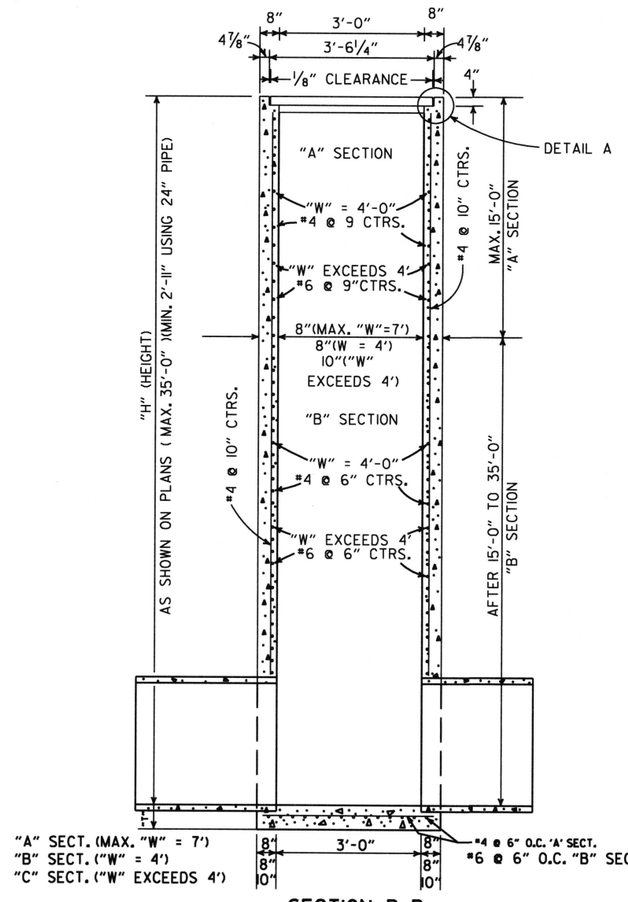
GENERAL NOTES:

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.

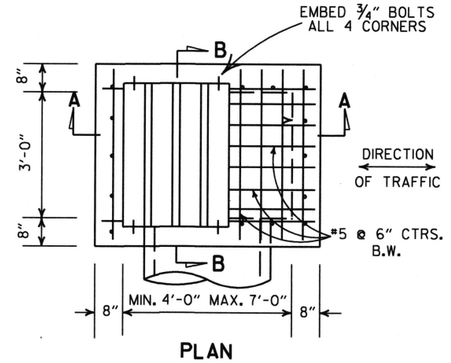
TABLE OF "W" DIMENSIONS

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"

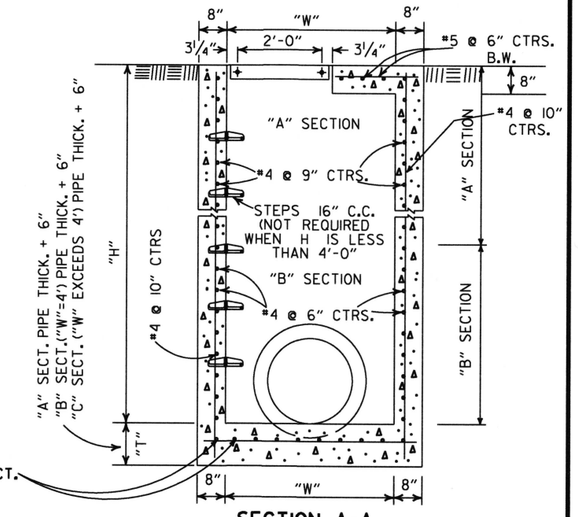
NOTE: DIMENSIONS SHOWN ABOVE ARE FOR PIPES INTERSECTING DROP INLET ON ONE SIDE ONLY. FOR SKEWED PIPES INTERSECTING BOTH SIDES OF DROP INLET, "W" WILL NEED TO BE INCREASED OR AXIS OF INTERSECTING PIPES WILL NEED TO BE SHIFTED.



SECTION B-B



PLAN



SECTION A-A

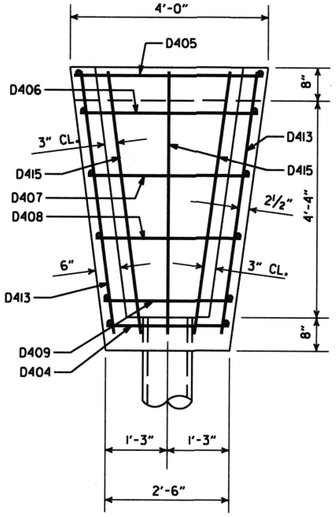
DROP INLET(TYPE RM)

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

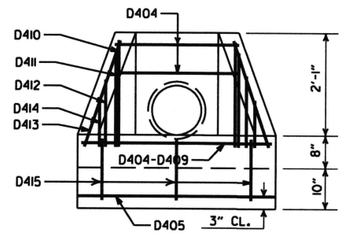
STANDARD DRAWING FPC-9D



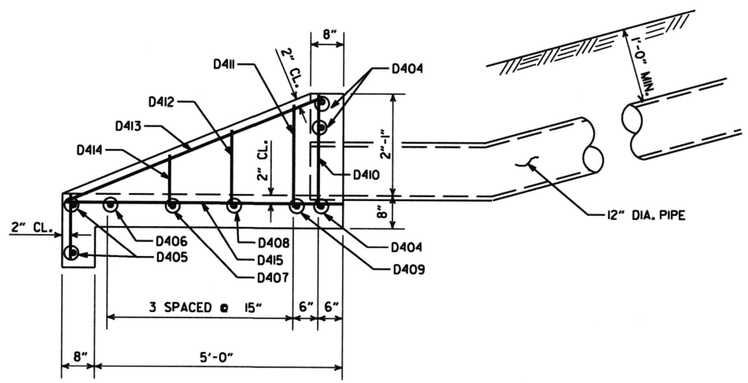
PLAN

BAR LIST (CONCRETE SPILLWAY)

MARK	NO. REQ'D.	LENGTH	BENDING DIAGRAM
D404	3	2'-2"	5'-4", 1'-2", 2" P.D., D415
D405	2	3'-8"	
D406	1	3'-5"	
D407	1	3'-1"	
D408	1	2'-9"	
D409	1	2'-5"	
D410	2	2'-5"	
D411	2	2'-2"	
D412	2	1'-9"	
D413	2	5'-6"	
D414	2	1'-2"	
D415	3	6'-5"	

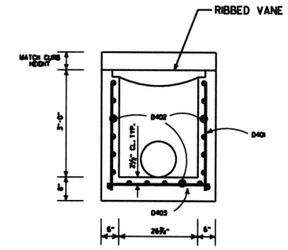


FRONT ELEVATION



SIDE ELEVATION
CONCRETE SPILLWAY

DETAILS OF CONCRETE SPILLWAY (TYPE A)

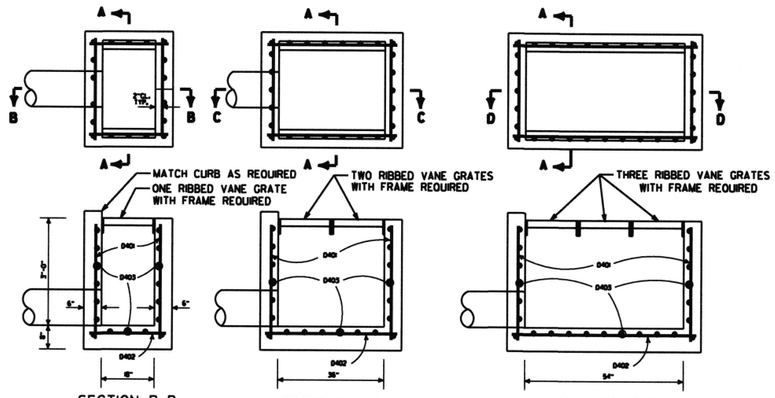


SECTION A-A

BAR LIST (DROP INLET)

MARK	TYPE N-1		TYPE N-2		TYPE N-3	
	NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH
D401	20	3'-0"	26	3'-0"	32	3'-0"
D402	19	2'-2"	19	3'-8"	19	5'-2"
D403	17	2'-11"	20	2'-11"	23	2'-11"

ALL BARS #4 @ 6" SPACING



SECTION B-B
DETAILS OF DROP INLET
(TYPE N-1)

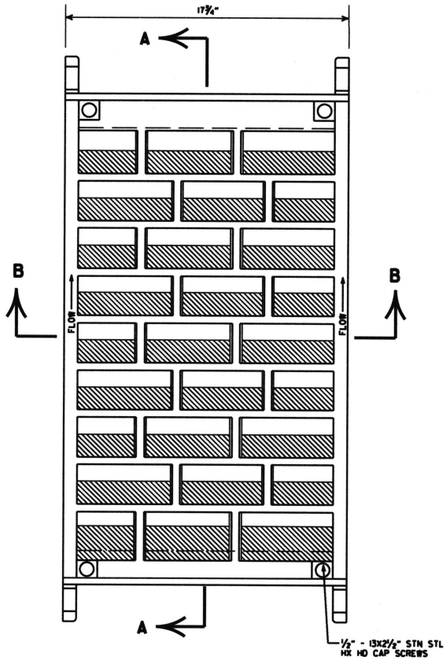
SECTION C-C
DETAILS OF DROP INLET
(TYPE N-2)

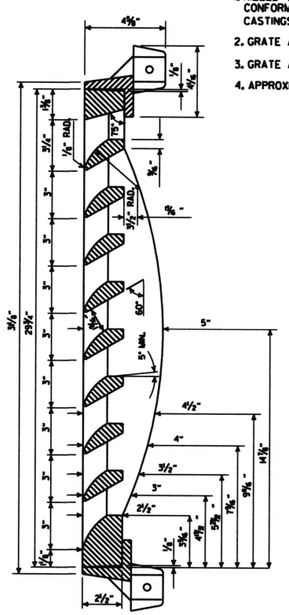
SECTION D-D
DETAILS OF DROP INLET
(TYPE N-3)

DETAILS OF DROP INLET

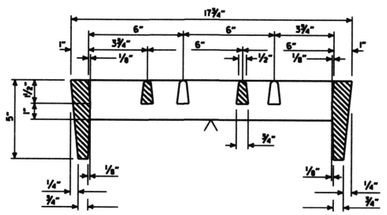
GENERAL NOTES (GRATE & FRAME)

1. RIBBED VANE GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B & AASHTO M 306.
2. GRATE AND FRAME SHALL NOT BE PAINTED.
3. GRATE AND FRAME SHALL BE INSTALLED IN DROP INLET IN ASSEMBLED POSITION.
4. APPROXIMATE WEIGHT OF GRATE SHALL BE 170 LBS.

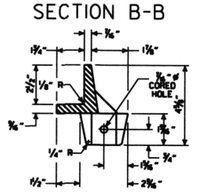




SECTION A-A



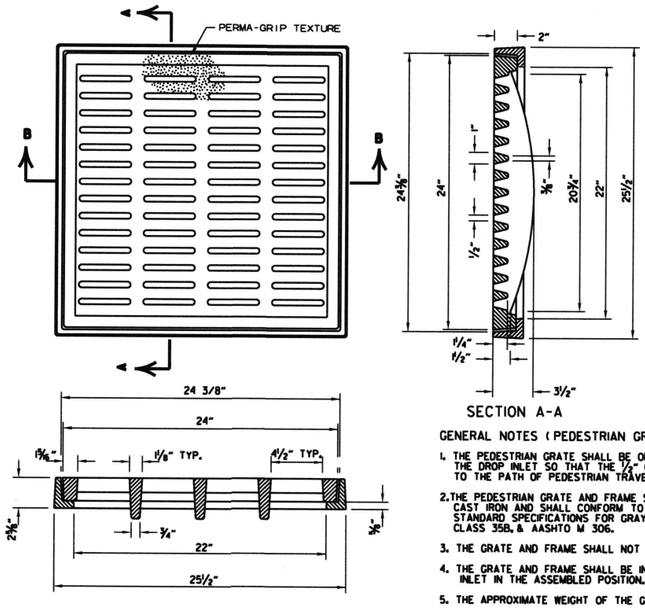
SECTION B-B



SECTION THRU FRAME

DETAILS OF RIBBED VANE GRATE AND FRAME

			ARKANSAS STATE HIGHWAY COMMISSION
7-02-98		REVISED SECT. A-A DETAIL OF DROP INLET & ADDED AASHTO REF. TO NOTE 1, REVISED GRATE	DETAILS OF DROP INLETS AND SPILLWAY OUTLET
10-18-96		REVISED ASTM REF. TO AASHTO	
8-15-91		ISSUED	
DATE REVISED	DATE FILMED	DESCRIPTION	STANDARD DRAWING FPC-9N



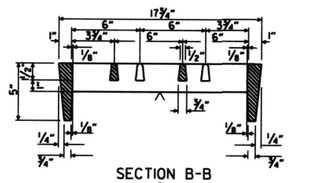
SECTION B-B

SECTION A-A

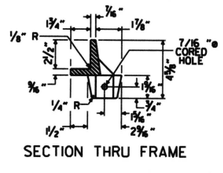
GENERAL NOTES (PEDESTRIAN GRATE & FRAME)

1. THE PEDESTRIAN GRATE SHALL BE ORIENTED IN THE TOP OF THE DROP INLET SO THAT THE 1/2" OPENINGS ARE PERPENDICULAR TO THE PATH OF PEDESTRIAN TRAVEL.
2. THE PEDESTRIAN GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
3. THE GRATE AND FRAME SHALL NOT BE PAINTED.
4. THE GRATE AND FRAME SHALL BE INSTALLED IN THE DROP INLET IN THE ASSEMBLED POSITION.
5. THE APPROXIMATE WEIGHT OF THE GRATE AND FRAME SHALL BE 218 LBS.
6. THE MINIMUM WATERWAY OPENING SHALL BE 122 SQ. IN.

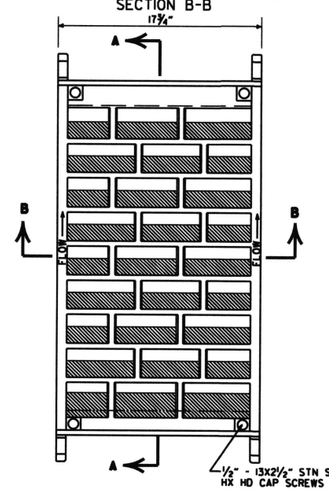
DETAILS OF PEDESTRIAN GRATE AND FRAME

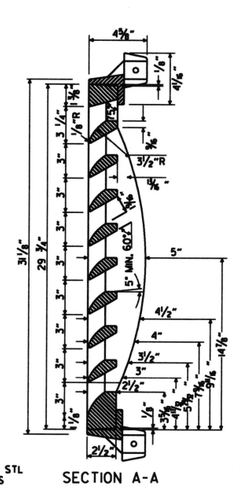


SECTION B-B



SECTION THRU FRAME



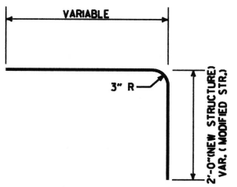


SECTION A-A

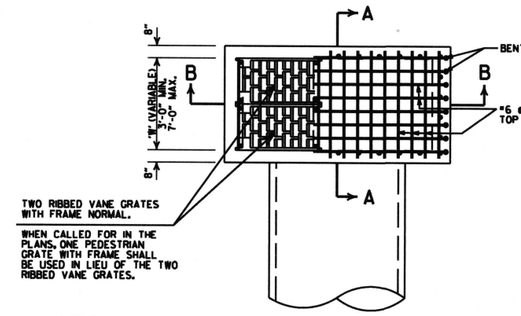
DETAILS OF RIBBED VANE GRATE AND FRAME

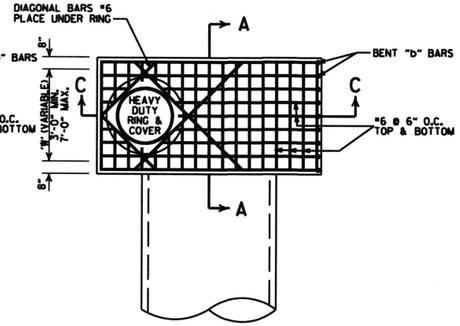
GENERAL NOTES (RIBBED VANE GRATE & FRAME)

1. RIBBED VANE GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
2. GRATE AND FRAME SHALL NOT BE PAINTED.
3. GRATE AND FRAME SHALL BE INSTALLED IN DROP INLET IN ASSEMBLED POSITION.
4. APPROXIMATE WEIGHT OF GRATE SHALL BE 170 LBS.



DETAIL OF BENT "b" BAR

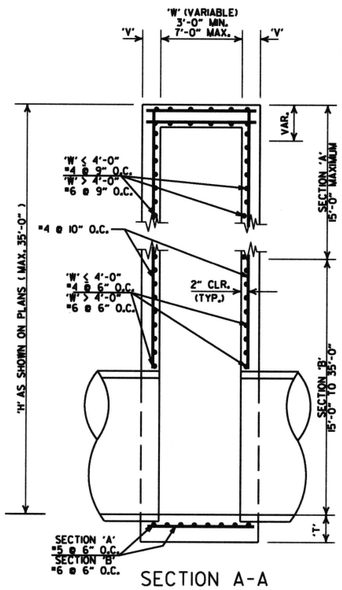




SECTION 'A'
'V' = 8"

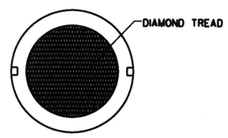
SECTION 'B' (H'<4'-0")
'V' = 8"

SECTION 'B' (H'>4'-0")
'V' = 10"

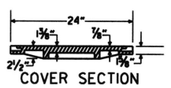


SECTION A-A

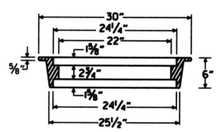
DETAILS OF DROP INLET (TYPE ST)



COVER FACE



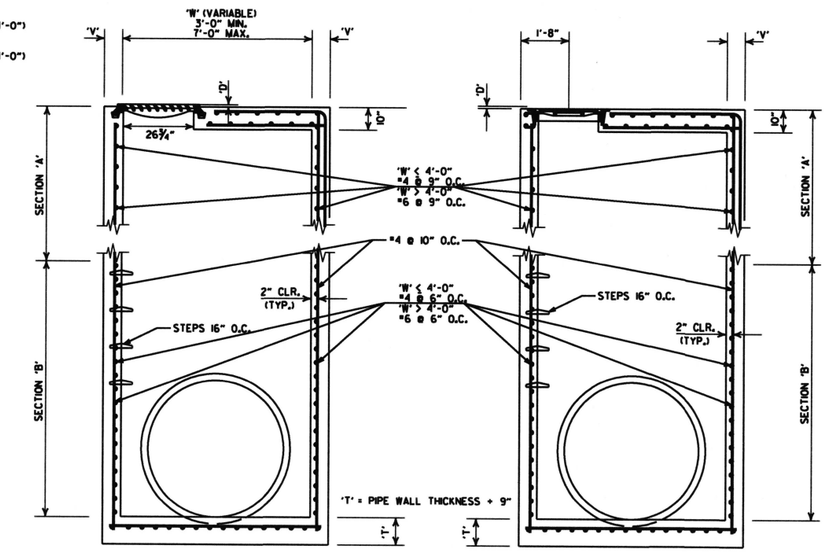
COVER SECTION



RING SECTION

HEAVY DUTY RING & COVER

APPROXIMATE TOTAL WEIGHT = 333 LBS.



SECTION B-B

SECTION C-C

DETAILS OF JUNCTION BOX (TYPE ST)

GENERAL NOTES (TYPE ST DROP INLET & JUNCTION BOX)

1. THE 'D' DIMENSION SHALL MATCH THE FINAL LIFT OF ACHM SURFACE COURSE SHOWN IN THE PLANS WHEN ASPHALT PAVING SURROUNDS THE GRATE OR RING COVER, AND SHALL BE 0" AT OTHER INSTALLATIONS.
2. THE STEPS SHALL BE OMITTED WHERE 'H' IS LESS THAN 4'-0".
3. ALL EXPOSED CORNERS ARE TO HAVE A 3/4" CHAMFER.

GENERAL NOTES (HEAVY DUTY RING & COVER):

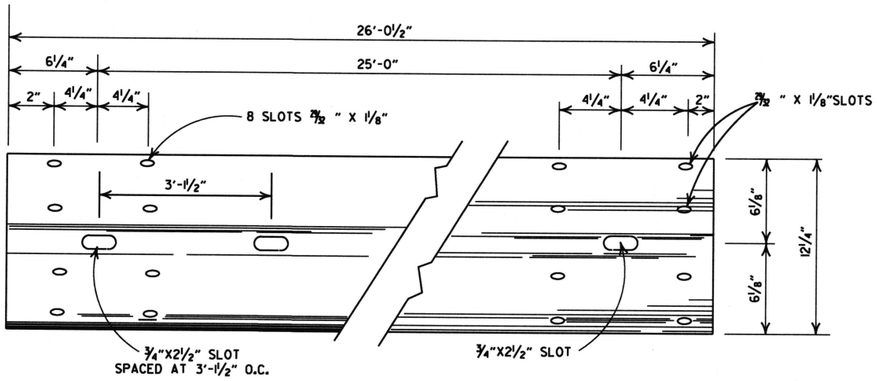
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
4. 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.

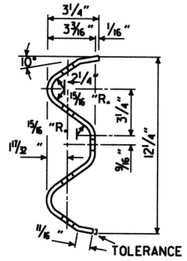
DATE REVISED	DATE FILMED	DESCRIPTION
7-26-12		REMOVED NOTE 4, REVISED 'T', REVISED BOTTOM SLAB REBAR FOR SECTION 'A', SHOWED REBAR CLEARANCE IN SECTIONS
11-16-01		ADDED NOTE 4
1-12-00		REVISED HEAVY DUTY RING & COVER
5-13-99		ADDED PEDESTRIAN FRAME & GRATE
7-02-98		REMOVED NOTE 5, REV. DIMENSIONS, ADDED HEAVY DUTY RING & COVER ADDED AASHTO REF. REVISED GRATE
10-18-96		REVISED ASTM REF. TO AASHTO
10-1-92		REVISED & REISSUED
8-15-91	8-15-91	REVISED & REISSUED

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLET & JUNCTION BOX (TYPE ST)

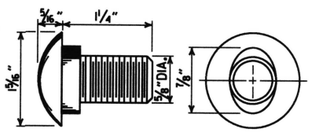
STANDARD DRAWING FPC-9S



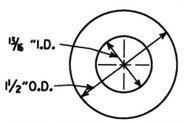


DETAILS OF W-BEAM GUARDRAIL

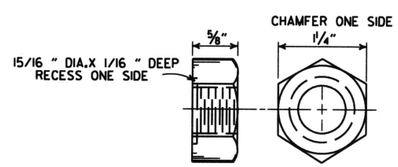
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



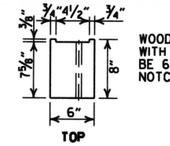
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

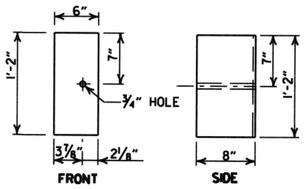


NUT

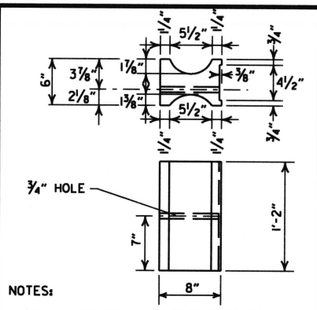


TOP

WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.



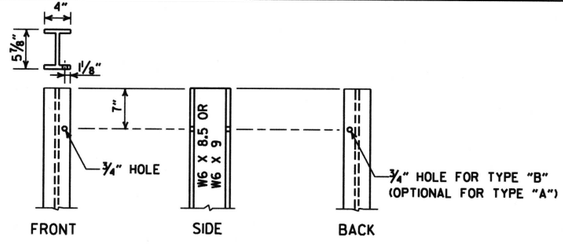
WOOD BLOCKOUT (W-BEAM)



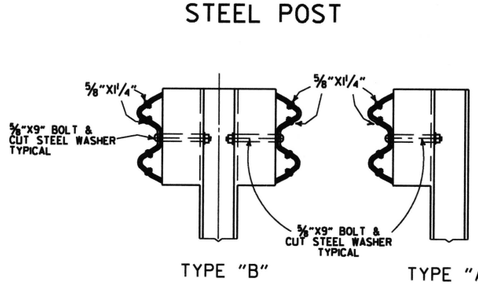
NOTES:

1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT (W-BEAM)



STEEL POST



TYPE "B" TYPE "A"

DETAILS OF STEEL 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 ¾" BEYOND IT.

WHERE W-BEAM GUARDRAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W-BEAM GUARDRAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

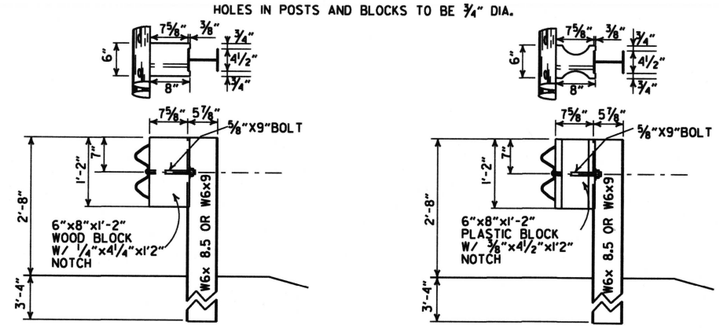
USE W-BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARDRAIL, W-BEAM GUARDRAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

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 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARDRAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARDRAIL.

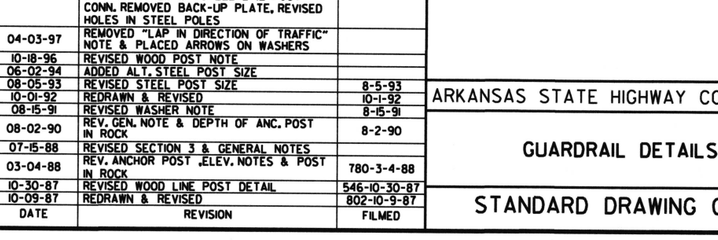
HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.



WOOD BLOCKOUT CONNECTIONS PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.



POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - ¼".

WOOD BLOCKOUT CONNECTIONS PLASTIC BLOCKOUT CONNECTIONS

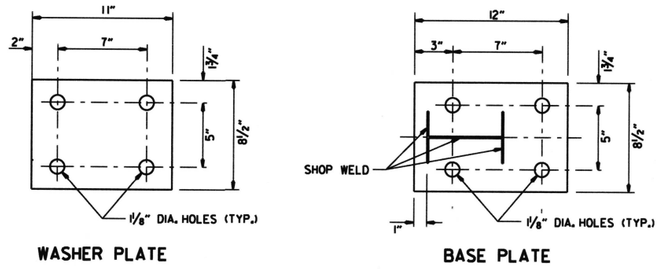
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

DATE	REVISION	FILMED
11-07-19	RENUMBERED AND RENAMED	
11-16-17	REVISED GENERAL NOTES AND RAISED GUARDRAIL HEIGHT 3"	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
03-30-00	REMOVED GUARDRAIL AT BRIDGE ENDS	
01-12-00	ADDED PLASTIC BLOCKOUT	
08-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARDRAIL 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	
04-03-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
06-02-94	ADDED ALT. STEEL POST SIZE	
08-05-93	REVISED STEEL POST SIZE	8-5-93
10-01-92	REDRAWN & REVISED	10-1-92
08-15-91	REVISED WASHER NOTE	8-15-91
08-02-90	REV. GEN. NOTE & DEPTH OF ANC. POST IN ROCK	8-2-90
07-15-88	REVISED SECTION 3 & GENERAL NOTES	
03-04-88	REV. ANCHOR POST ,ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-09-87	REDRAWN & REVISED	802-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

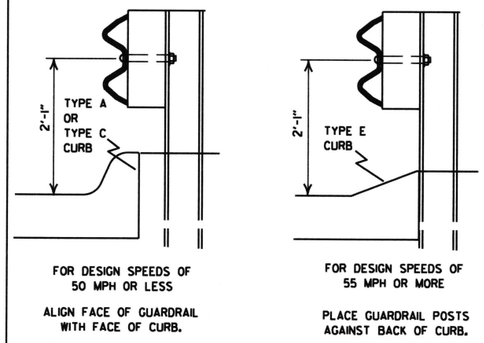
STANDARD DRAWING GR-6



WASHER PLATE

BASE PLATE

Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.



FOR DESIGN SPEEDS OF 50 MPH OR LESS

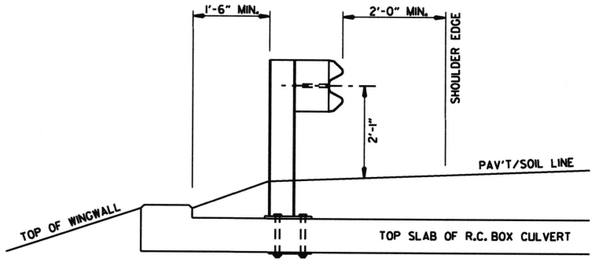
ALIGN FACE OF GUARDRAIL WITH FACE OF CURB.

FOR DESIGN SPEEDS OF 55 MPH OR MORE

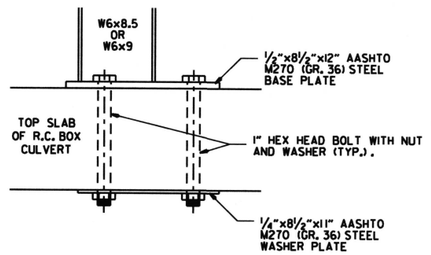
PLACE GUARDRAIL POSTS AGAINST BACK OF CURB.

DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB (W-BEAM)

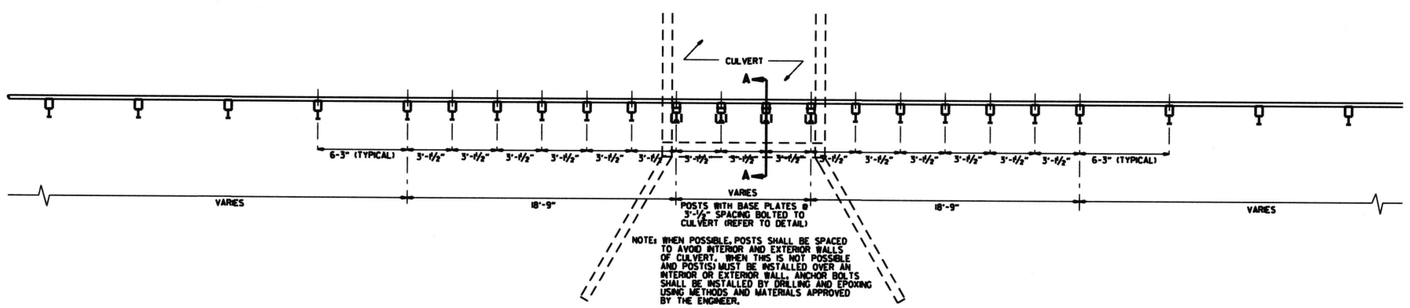
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



SECTION A-A



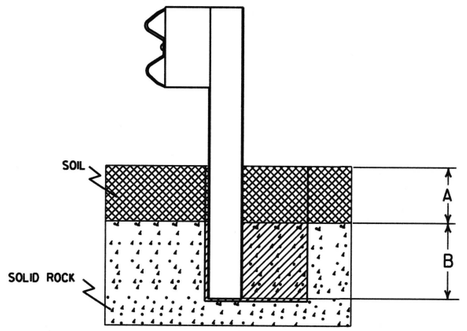
DETAIL OF CONNECTION



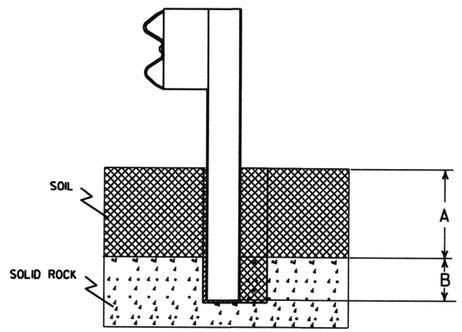
PLAN LAYOUT OF TYPE A GUARDRAIL AT LOW-FILL CULVERTS

NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARDRAIL POSTS AS SHOWN ON STD. DRG. GR-6.

Case 1

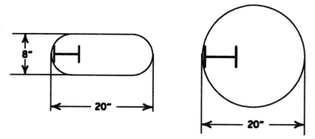


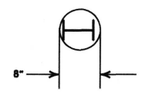
Case 2



Plan View Steel Posts

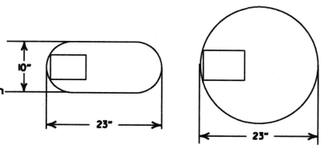
Either hole configuration acceptable

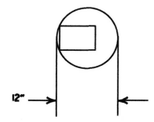




Plan View Wood Posts

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)

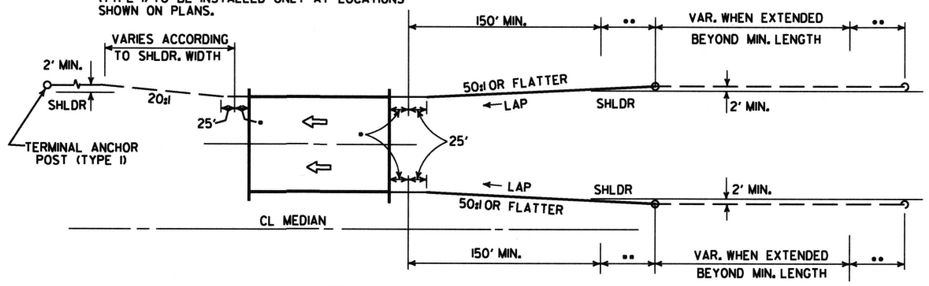
DATE	REVISION	FILMED
11-07-19	RENUMBERED, RENAMED, REVISED REFERENCE	
11-16-17	REVISED GUARDRAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
04-12-07	REVISED DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARDRAIL PLACEMENT BEHIND CURB, REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARDRAIL PLACEMENT AT LOW-FILL CULVERTS	
03-30-00	REMOVED CONCRETE INSERT ANCHOR	
08-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADDED DET. OF GUARDRAIL CONNECTION TO R.C. BOX CULV'T., DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARDRAIL PLACE. BEHIND CURB & DET. OF POSTPLACE. IN SOLID ROCK	
04-03-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
06-02-94	REVISED ALTERNATE POST SIZE	
08-05-93	REVISED STEEL POST SIZE	
10-01-92	REDRAWN & REVISED	10-1-92
08-02-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
07-15-88	CONFORMED TO 1988 SPECS	
03-04-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-09-87	REDRAWN & REVISED	803-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

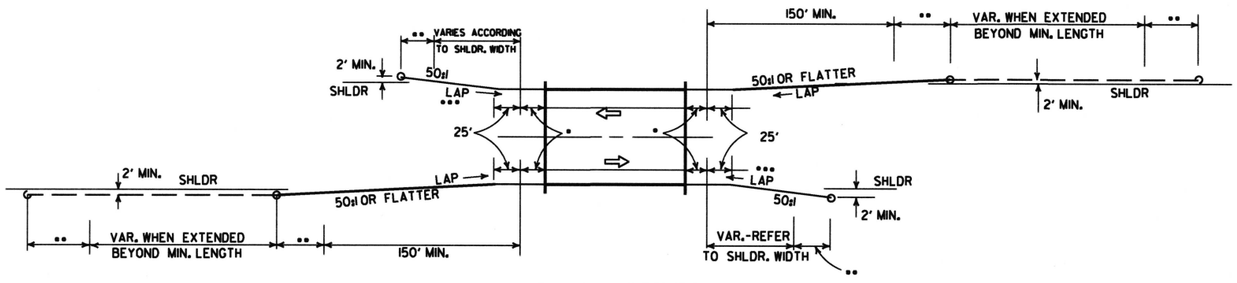
STANDARD DRAWING GR-7

NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

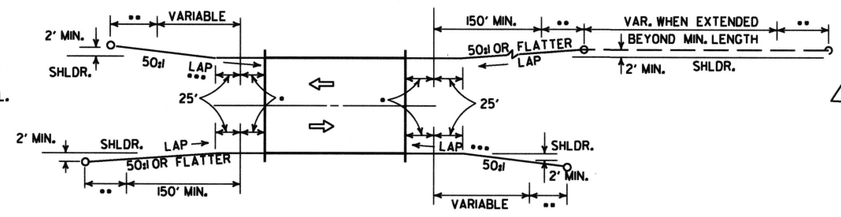
••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

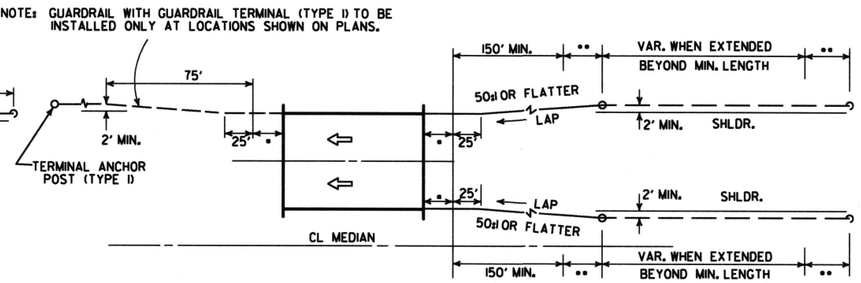
METHODS OF INSTALLATION OF GUARDRAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

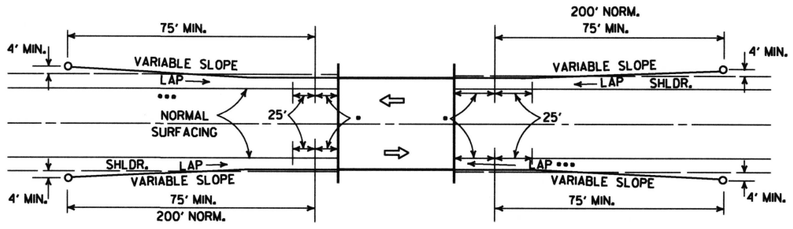
NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARDRAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



LEGEND

- • THRIE BEAM GUARDRAIL TERMINAL
- •• GUARDRAIL TERMINAL (TYPE 2)

METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARDRAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL 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	

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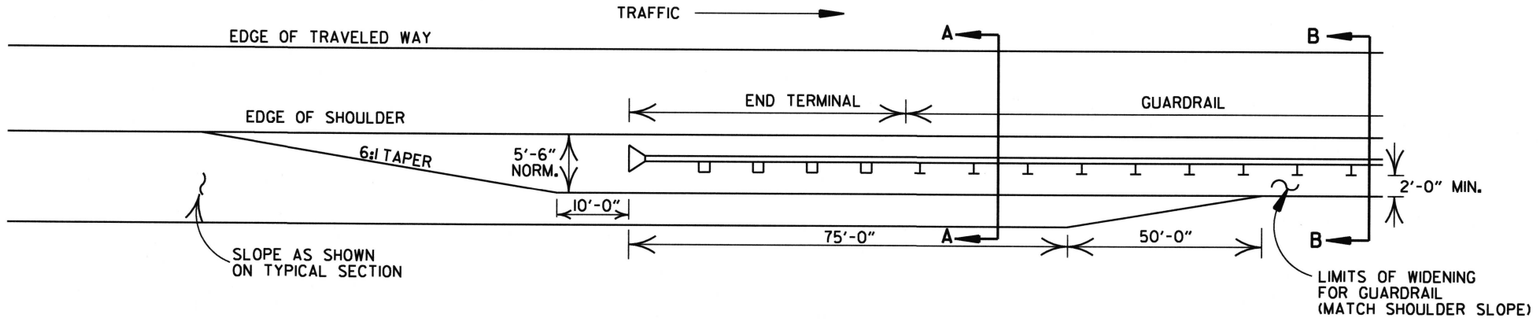
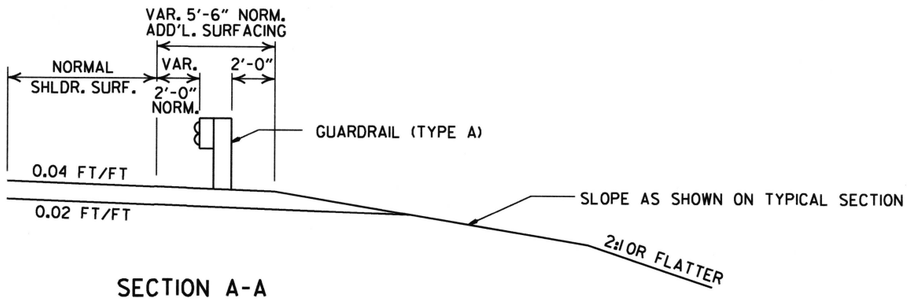
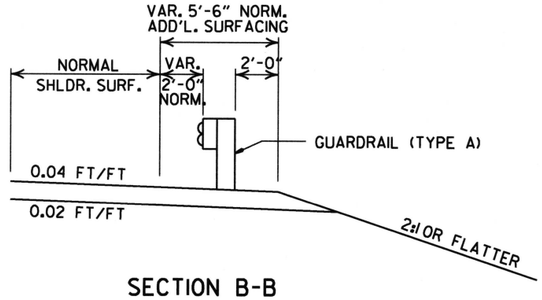
GUARDRAIL DETAILS

STANDARD DRAWING GR-8





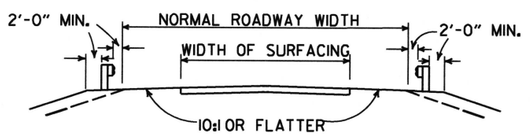
SECTION A-A



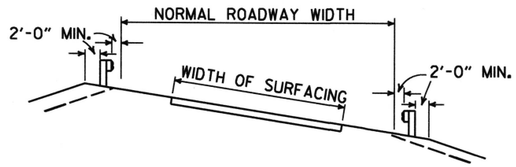
SECTION B-B

DETAILS OF WIDENING FOR GUARDRAIL

NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARDRAIL.

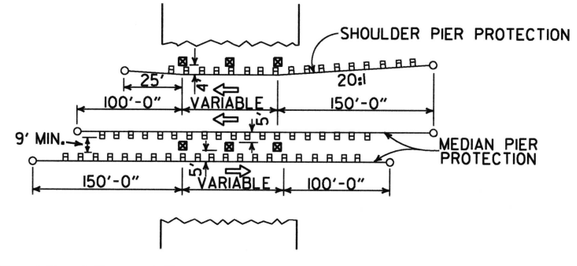


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY



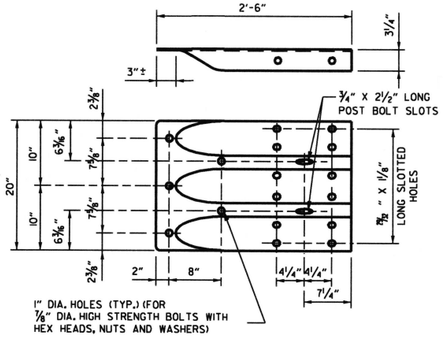
METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

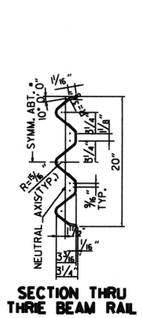
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

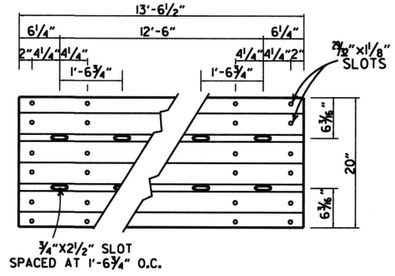
STANDARD DRAWING GR-9



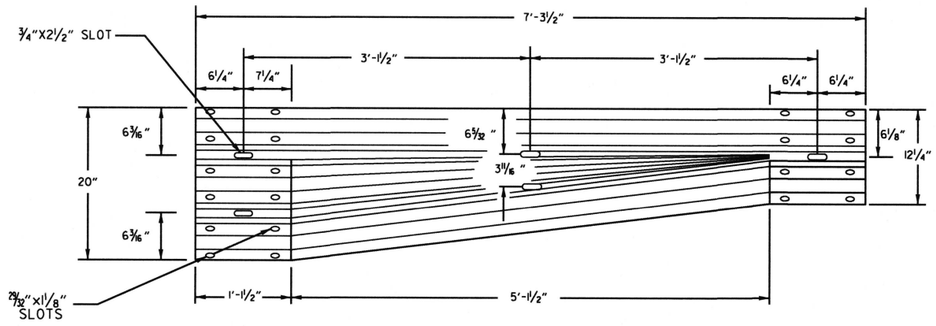
SPECIAL END SHOE



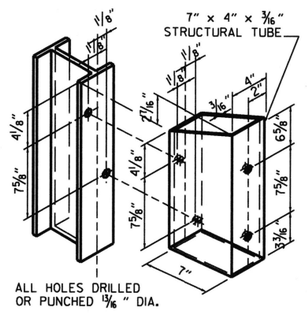
SECTION THRU THRIE BEAM RAIL



THRIE BEAM RAIL

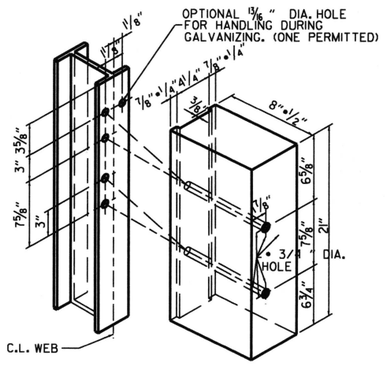


TRANSITION SECTION



ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.

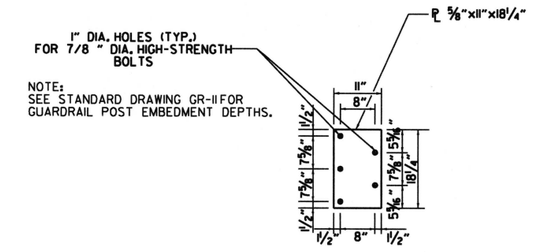
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

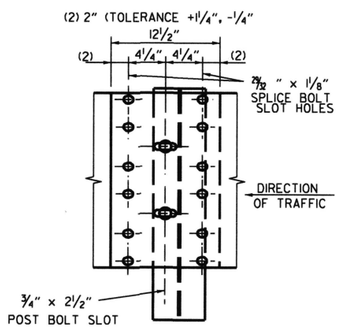
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



NOTE:
SEE STANDARD DRAWING GR-11 FOR GUARDRAIL POST EMBEDMENT DEPTHS.

CONNECTOR PLATE

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 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.



THRIE BEAM RAIL SPLICE AT POST

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 I.

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 3"4" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-8 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

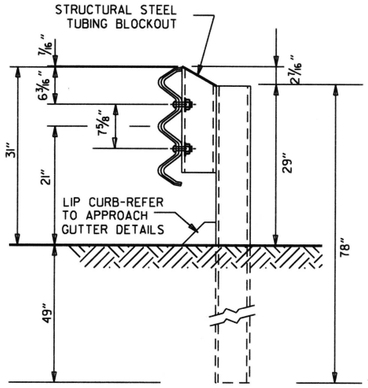
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-07-19	RENAMED AND REVISED REFERENCES	
11-16-17	REVISED TRANSITION SECTION, GUARD RAIL HEIGHT, AND GENERAL NOTES; MOVED THRIE BEAM GUARD RAIL CONNECTIONS AT BRIDGES ENDS TO STD. DRWG. GR-12	
07-14-10	RAISED HEIGHT OF W-BEAM 1"	
11-29-07	ADDED PLASTIC BLOCKOUTS	
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
11-18-04	REVISED GENERAL NOTES	
10-9-03	REVISED GENERAL NOTES	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED NOTE (2)	
06-29-00	MOVED DIMENSION LINES	
05-18-00	ADDED NOTE	
03-30-00	DRAWN & ISSUED	

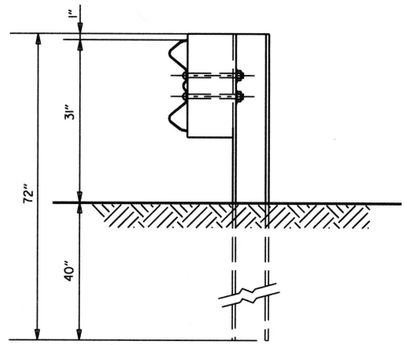
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

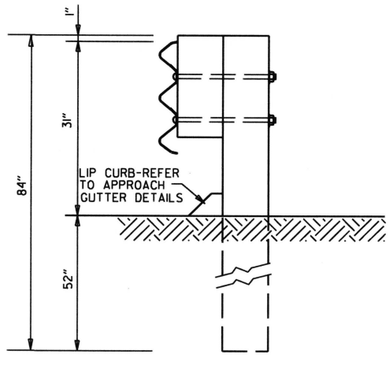
STANDARD DRAWING GR-10



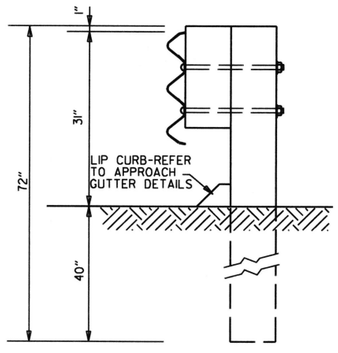
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



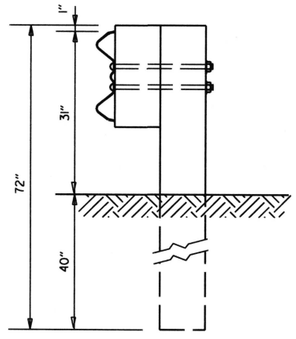
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



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.

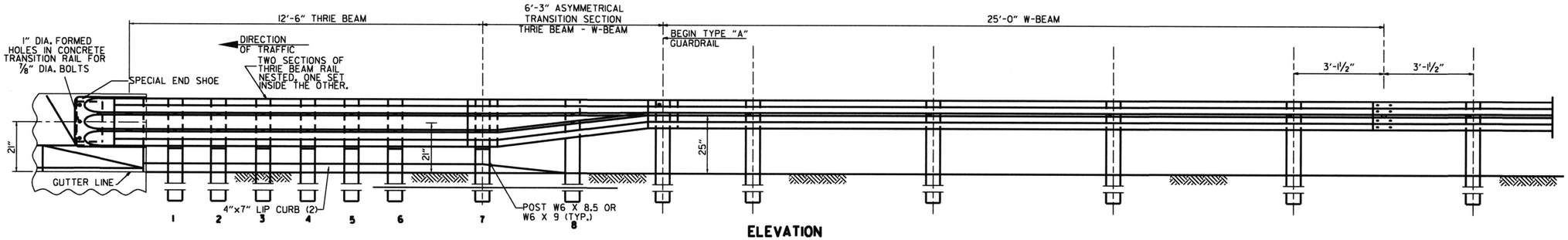
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-07-19	RENAMED	
11-16-17	REVISED GUARDRAIL HEIGHT, CHANGED STD. DWG. NUMBER FROM GR-10A TO GR-11	
07-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
08-22-02	REVISED LIP CURB NOTE	
03-30-00	DRAWN & ISSUED	

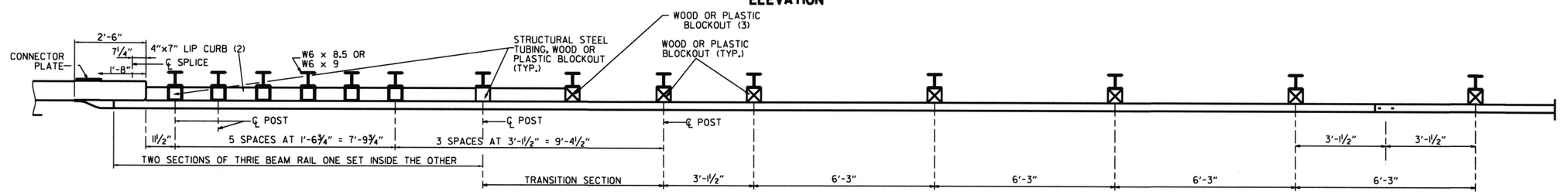
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

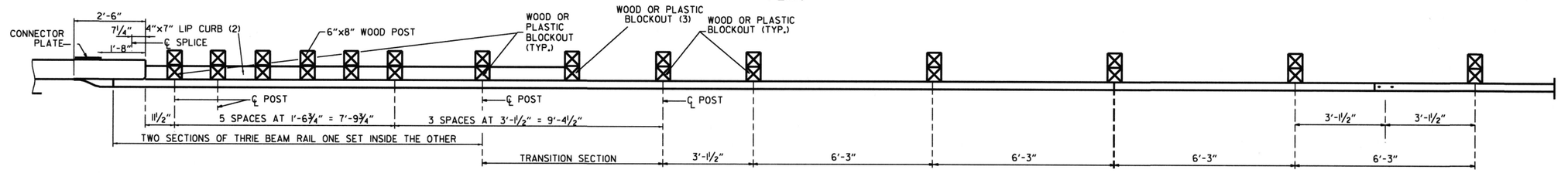
STANDARD DRAWING GR-11



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.

THRIE BEAM GUARDRAIL CONNECTION AT BRIDGE ENDS

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 I.

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 3/4" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-8 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

POSTS SHALL BE PLACED AT THE MID-SPAN OF THE W-BEAM.

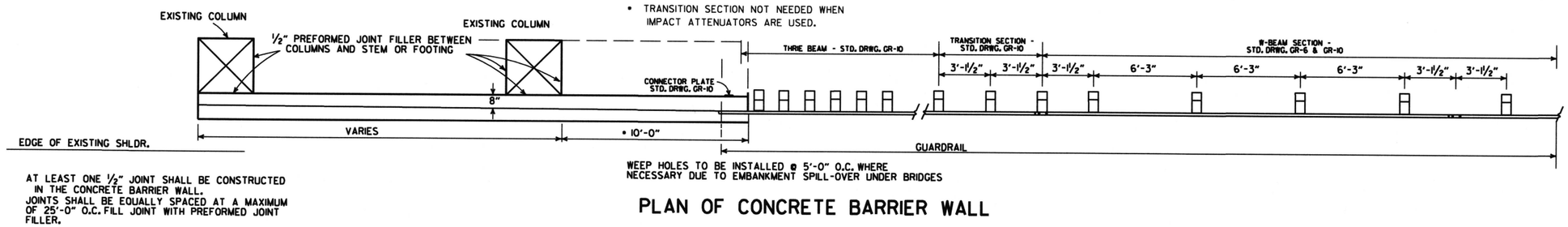
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-07-19	RENAMED & REVISED REFERENCES	
11-16-17	RE-DRAWN FROM STD. DWG. GR-10 & ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

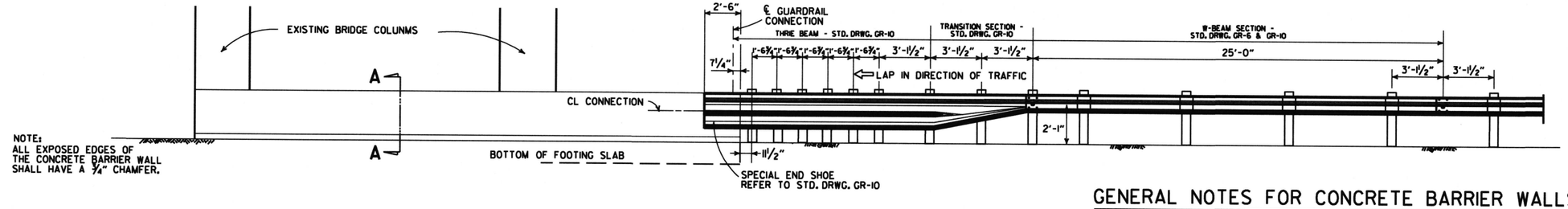
GUARDRAIL DETAILS

STANDARD DRAWING GR-12



AT LEAST ONE ½" JOINT SHALL BE CONSTRUCTED IN THE CONCRETE BARRIER WALL. JOINTS SHALL BE EQUALLY SPACED AT A MAXIMUM OF 25'-0" O.C. FILL JOINT WITH PREFORMED JOINT FILLER.

PLAN OF CONCRETE BARRIER WALL

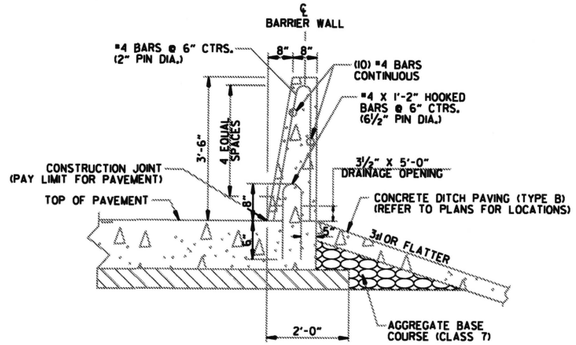


NOTE:
ALL EXPOSED EDGES OF THE CONCRETE BARRIER WALL SHALL HAVE A ¾" CHAMFER.

ELEVATION OF CONCRETE BARRIER WALL

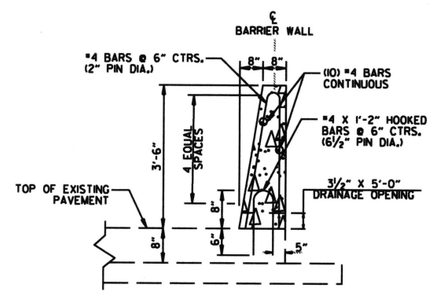
GENERAL NOTES FOR CONCRETE BARRIER WALLS

1. ALL BARRIER WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 631 OF THE STANDARD SPECIFICATIONS, 2014 EDITION.
2. CONTRACTION JOINTS REQUIRED @ 15'-0" MAXIMUM SPACING FOR BARRIER TYPES MEDIAN A, SIDE A. A 30'-0" MAXIMUM SPACING IS REQUIRED FOR TYPES MEDIAN C, SIDE C, D & E.
3. ALL CONTRACTION JOINTS TO BE FORMED IN FRESH CONCRETE ON TOP AND IN SIDES OF BARRIER WALL.
4. DOWEL BARS FOR BARRIER TYPES MEDIAN A, SIDE A WILL NOT BE REQUIRED IF BARRIER AND MINIMUM 4' WIDE BASE ARE CAST AS A COMPLETE UNIT.
5. CONTRACTION JOINTS ARE NOT PERMITTED AT THE DOWEL BAR LOCATIONS.
6. ALL EXPOSED EDGES OF CONCRETE BARRIER WALL SHALL HAVE A ¾" CHAMFER.
7. THE DESIGN OF BARRIER WALL TYPES SIDE C, D & E IS BASED ON A MINIMUM FOUNDATION BEARING CAPACITY OF ONE TON PER SQUARE FOOT. UNSTABLE FOUNDATION MATERIAL SHALL BE REMOVED AND REPLACED TO PROVIDE A FIRM FOUNDATION AS DIRECTED BY THE ENGINEER.
8. SPACING BETWEEN EXPANSION JOINTS SHALL NOT EXCEED 400 FT FOR BARRIER TYPES MEDIAN A AND SIDE A OR 120 FT FOR BARRIER TYPES SIDE C, D & E. EXPANSION JOINTS SHALL BE FORMED USING 1" PREFORMED JOINT FILLER. CONTINUOUS REINFORCEMENT SHALL BE CUT 2" CLEAR OF EXPANSION JOINTS.
9. CONSTRUCT DRAINAGE OPENINGS AT EVERY 50' O.C. AND AT SAGS IF SHOWN ON THE PLANS. DOWEL BARS SHALL NOT BE PLACED WITHIN 3" OF DRAINAGE OPENINGS.
10. MAINTAIN 3" CLEARANCE ON ALL FOOTING REINFORCEMENT AND 2" CLEARANCE ON ALL OTHER REINFORCEMENT.
11. REFER TO BARRIER MOUNTED LUMINARE SPECIAL DETAILS FOR INFORMATION REGARDING CONDUIT IN CONCRETE BARRIER WALLS. REFER TO ILLUMINATION LAYOUT FOR LOCATIONS OF CONDUIT RUNS.
12. BARRIER REINFORCING BARS ANCHORED INTO EXISTING CONCRETE PAVEMENT SHALL BE INSTALLED AND SECURED ACCORDING TO 804.06 USING AN APPROVED ANCHORING SYSTEM FROM OPL.



SECTION A-A CONCRETE BARRIER WALL (SIDE TYPE A)

NOTE: SIDE TYPE A IS FOR USE WITH PROPOSED PAVEMENT.



SECTION A-A CONCRETE BARRIER WALL (SIDE TYPE A-1)

NOTE: SIDE TYPE A-1 IS FOR USE WITH EXISTING PAVEMENT.

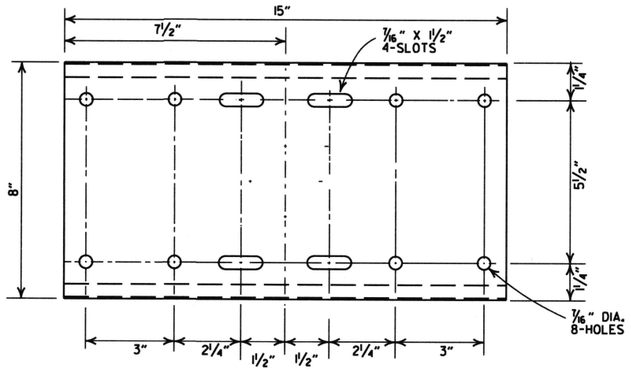
NOTE:
THE COST FOR THE MODIFICATION OF THE BARRIERS AND DROP INLETS ARE TO BE SUBSIDIARY TO CONCRETE BARRIER WALLS AND CURBS.

DATE	REVISION	FILMED
11-07-19	ADDED GENERAL NOTES.	
11-16-17	REVISED CONCRETE BARRIER WALL, RAISED GUARDRAIL HEIGHT 3" AND REVISED POST SPACING. CHANGED STD. DWG. NUMBER FROM GR-11 TO GR-13	
07-14-10	RAISED HEIGHT OF W-BEAM 1"	
08-22-02	REV. SECTION A-A OF DETAILS OF CONCRETE BARRIER WALL	
06-29-00	MOVED DIMENSION LINE	
05-18-00	ADDED NOTE	
03-30-00	REVISED TO INCLUDE THRIE BEAM	
06-02-94	ADDED TRANSITION SECTION NOTE	
10-01-92	REDRAWN & REVISED	10-1-92
08-15-91	REVISED DRAWING PLAN CONC. BARR.	8-15-91
02-16-89	ADDED SKEWED DETAILS	594-2-16-89
07-14-88	CHANGED TITLE	
10-09-87	REDRAWN & REVISED	

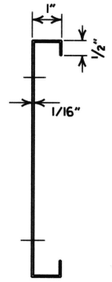
ARKANSAS STATE HIGHWAY COMMISSION

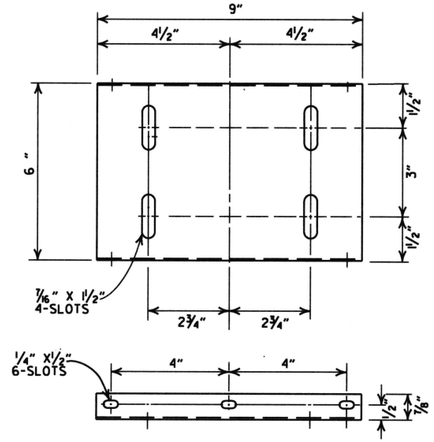
CONCRETE BARRIER WALL (PIER PROTECTION TYPE A)

STANDARD DRAWING GR-13

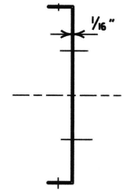


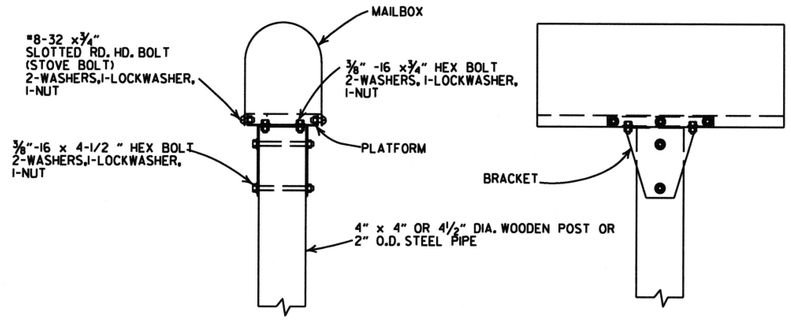
SHELF



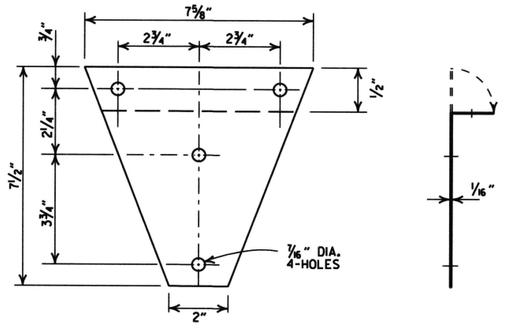


PLATFORM



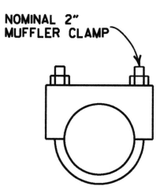


SINGLE INSTALLATION

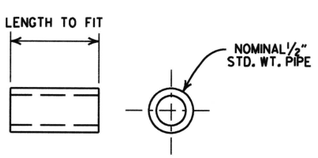


BRACKET

ANTI-TWIST PLATE



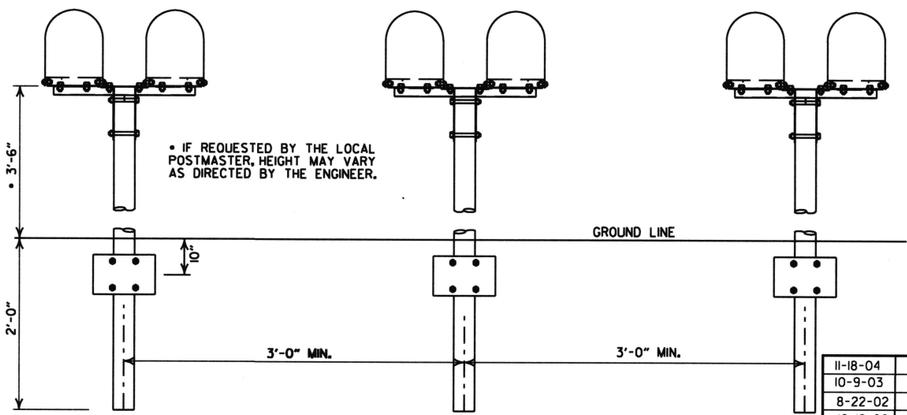
CLAMP



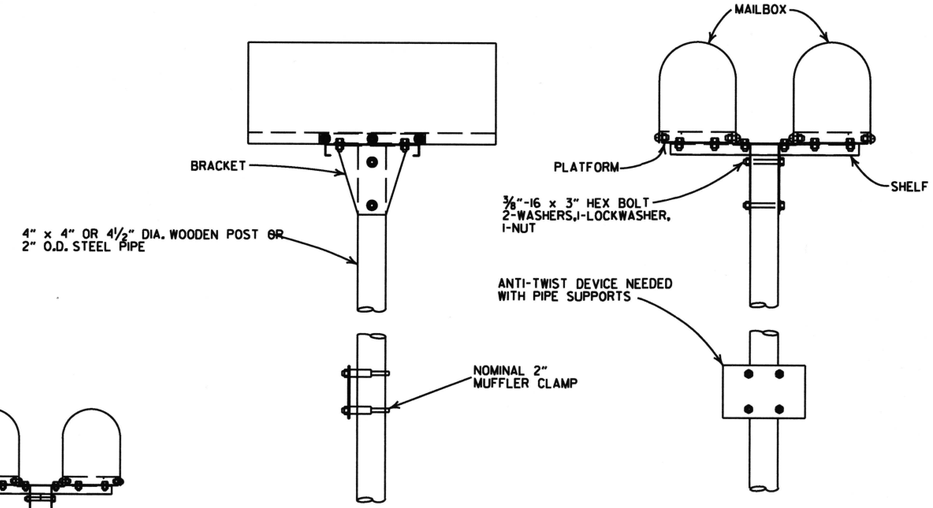
SPACER

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 ARDOT QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



SPACING FOR MULTIPLE POST INSTALLATION



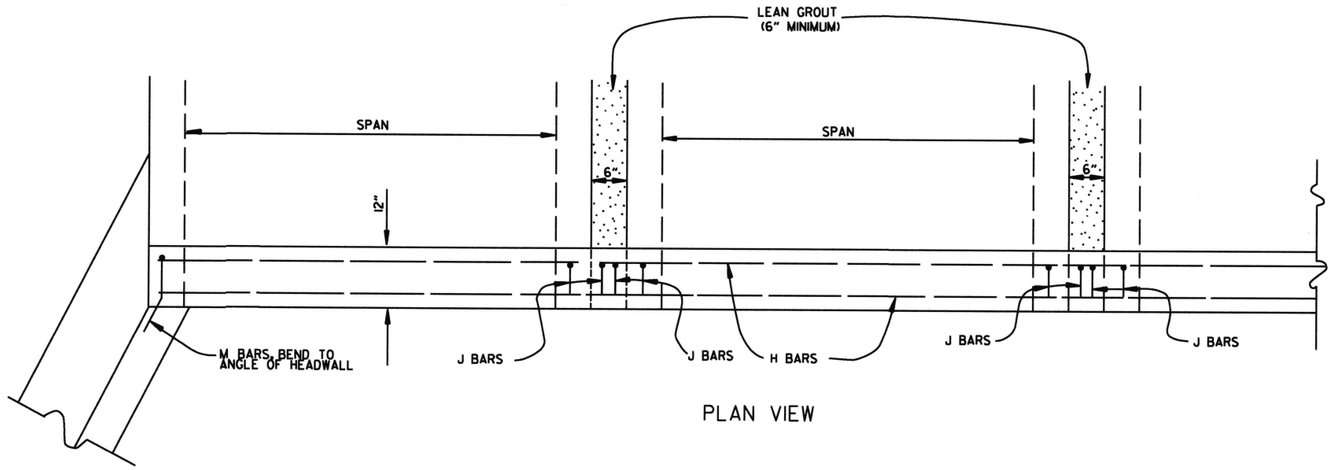
DOUBLE INSTALLATION

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	120-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

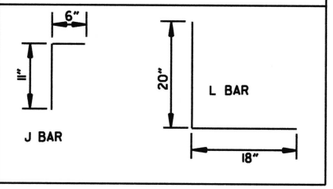
STANDARD DRAWING MB-1



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.

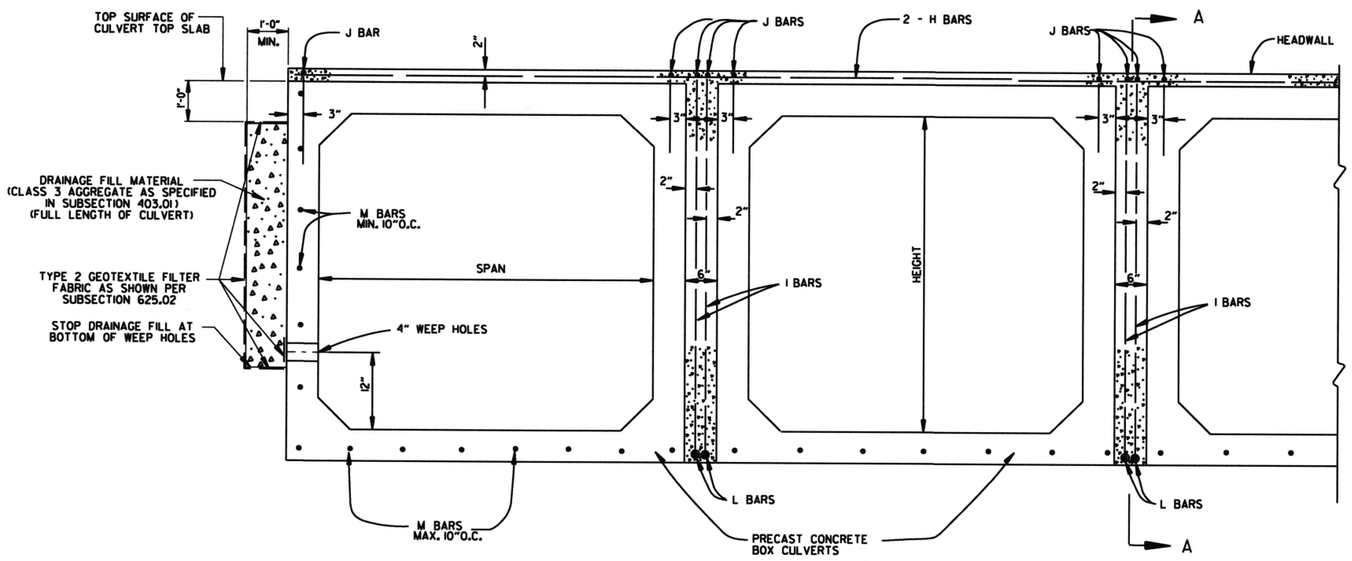
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

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.

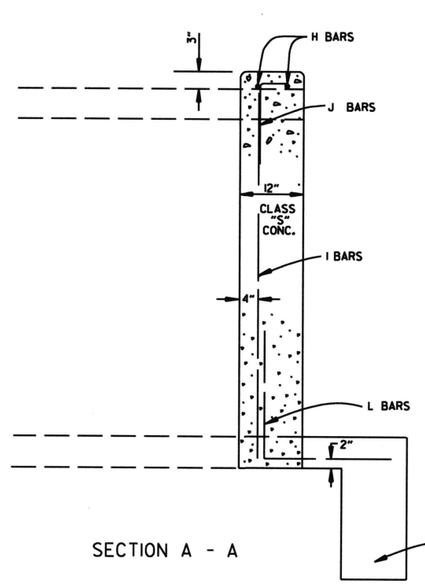
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

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	ARDOT NOMINAL	AASHTO M 206	ARDOT 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	31⅝	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.

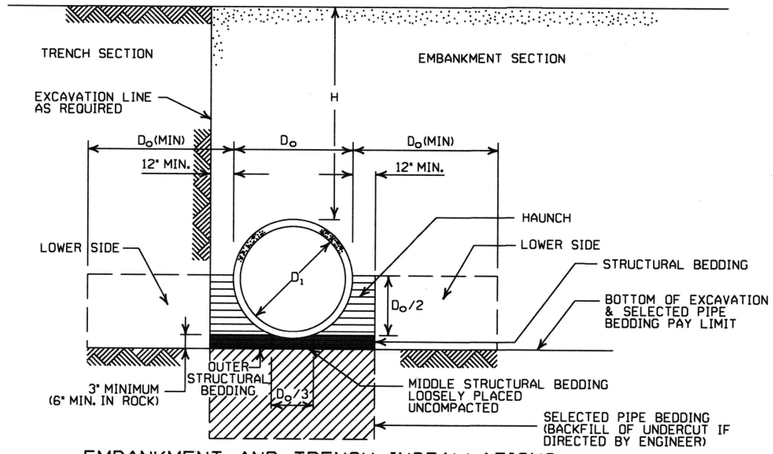
- LEGEND -

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.

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.

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION 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."

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
		2⅔ 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
			2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM			2⅔ 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			
				TYPE 2	TYPE 1	TYPE 2	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

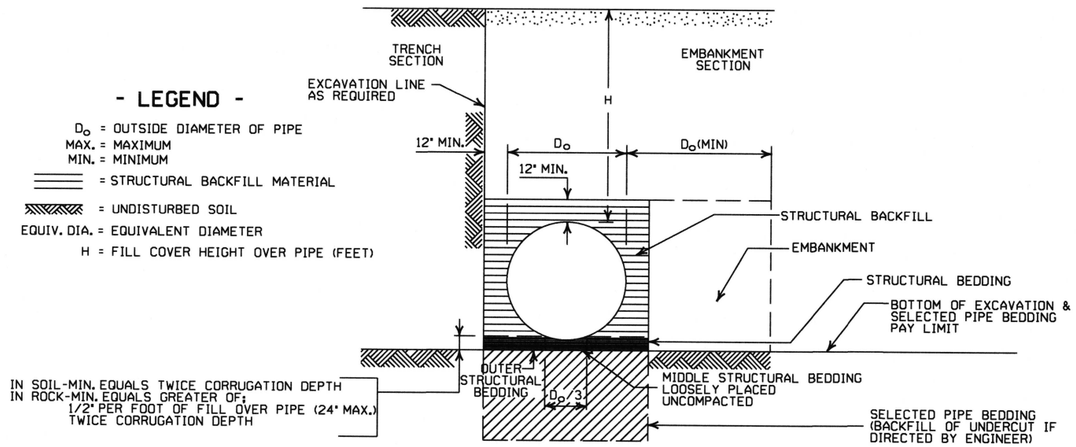
③ SM-3 WILL NOT BE ALLOWED.

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 DEPARTMENT OF TRANSPORTATION 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

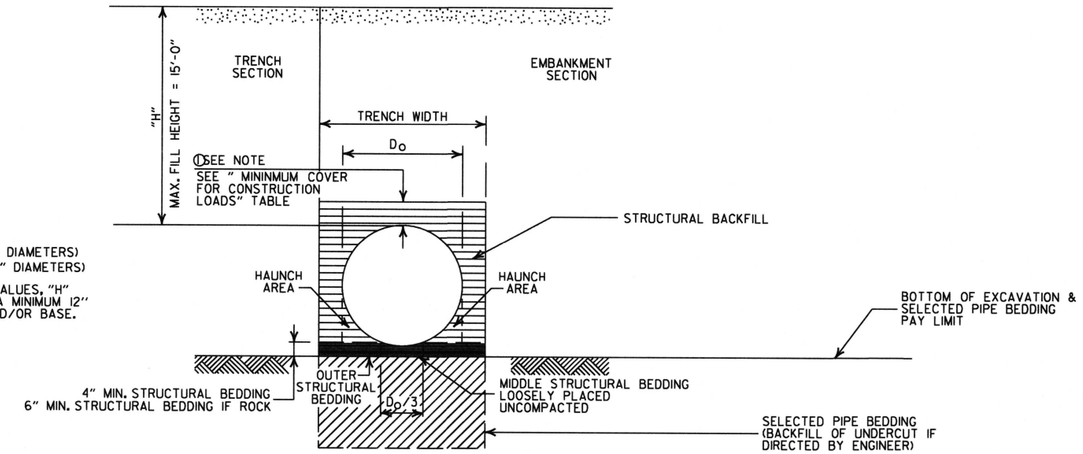
PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET) "H" < 10'-0"	TRENCH WIDTH (FEET) "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.



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.

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.

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 CONFORM 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.)
Do = 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 1INCH. 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

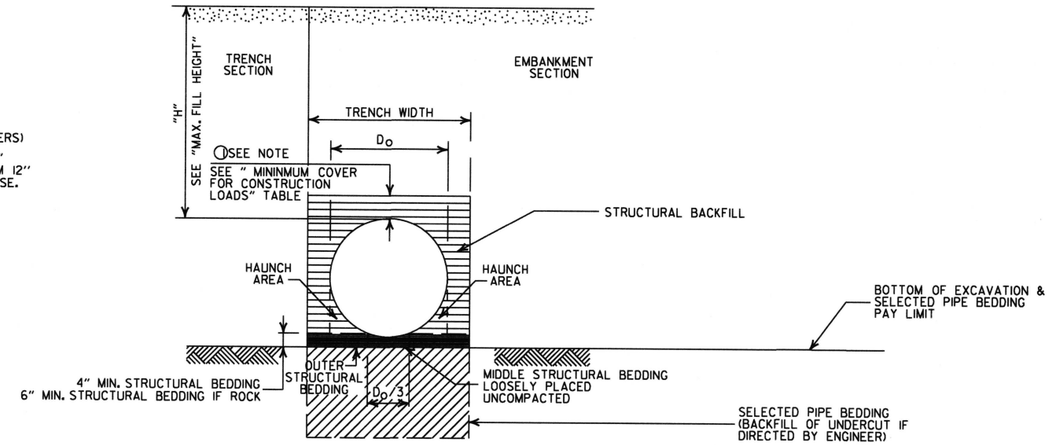
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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 CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS 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

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

* 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 POLYPROPYLENE PIPE.

MULTIPLE INSTALLATION OF POLYPROPYLENE 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"
60"	5'-0"

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET) "H" < 10'-0"	TRENCH WIDTH (FEET) "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"
60"	10'-0"	15'-0"

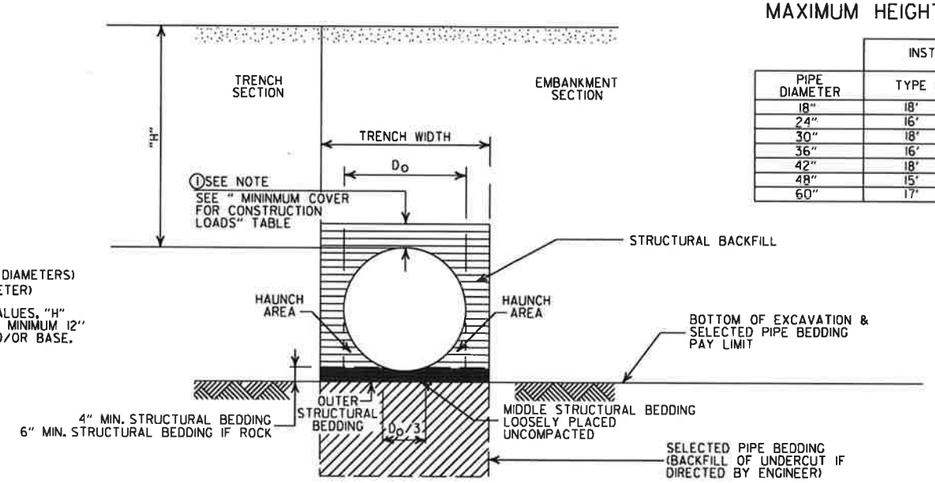
①NOTE:
12" MIN. (18" - 42" DIAMETERS)
24" MIN. (60" DIAMETER)

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)	110.0-150.0 (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.



MAXIMUM HEIGHT OF FILL "H"

PIPE DIAMETER	INSTALLATION TYPE TYPE 1	TYPE 2
18"	18'	14'
24"	16'	12'
30"	18'	14'
36"	16'	12'
42"	18'	13'
48"	15'	11'
60"	17'	12'

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 M330, TYPE S. INSTALLATION SHALL CONFORM 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, SIXTH EDITION (2012) WITH 2013 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. POLYPROPYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR POLYPROPYLENE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN SECTION 26.4.2.4 AND 30.4.2 OF THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS 3RD EDITION (2010) WITH 2012 INTERIMS. JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
D_o = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

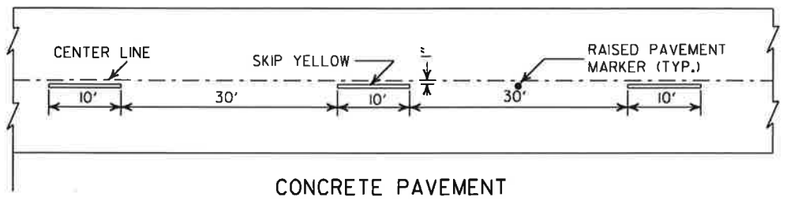
= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
02-27-20	REVISED	
11-07-19	ISSUED	

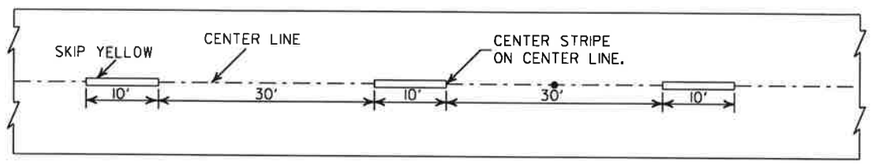
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (POLYPROPYLENE)

STANDARD DRAWING PCP-3

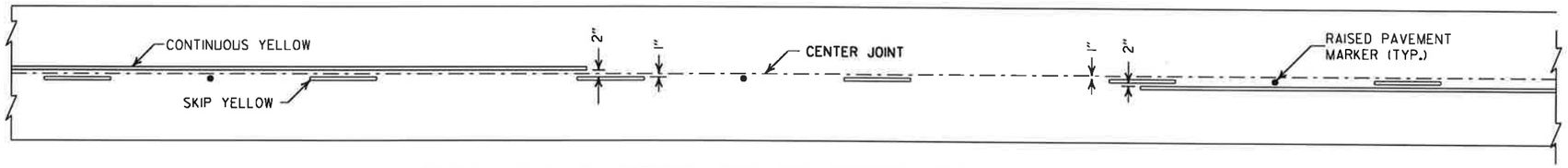


CONCRETE PAVEMENT

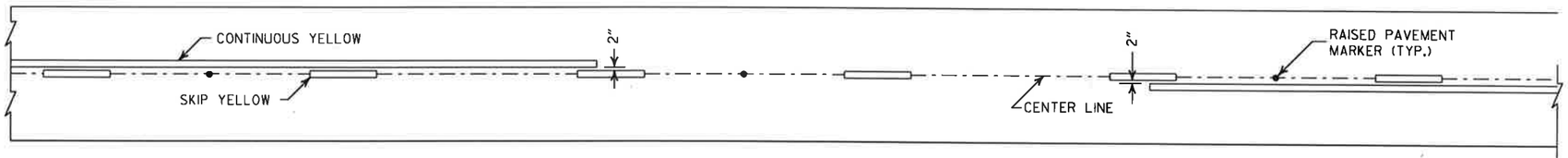


ASPHALT PAVEMENT

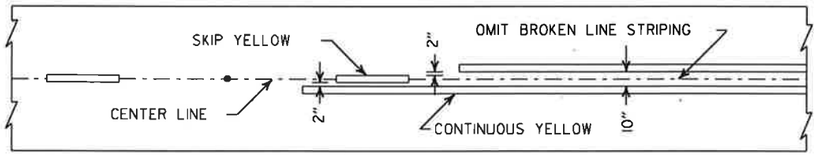
BROKEN LINE STRIPING



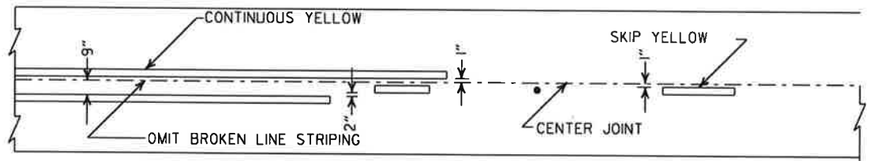
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

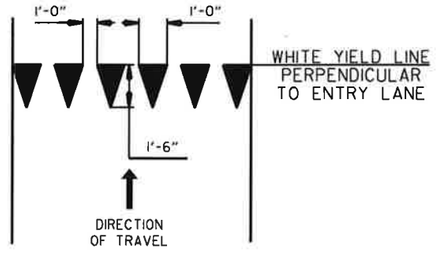


ASPHALT PAVEMENT

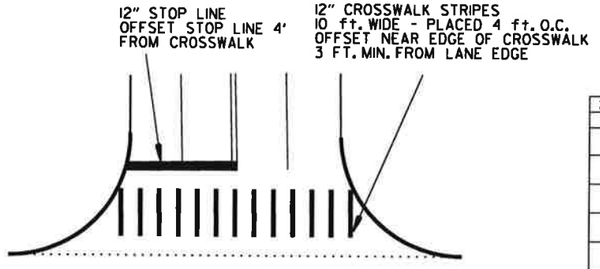


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES



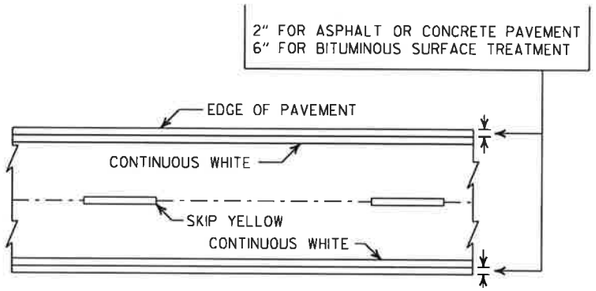
YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

NOTES:

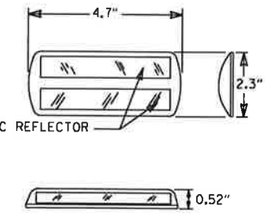
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.



PAVEMENT EDGE LINE MARKING

NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.

TYPE II RED/CLEAR OR YELLOW/YELLOW



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 ARDOT QUALIFIED PRODUCTS LIST.

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

DATE	REVISION	FILMED
2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
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

ARKANSAS STATE HIGHWAY COMMISSION

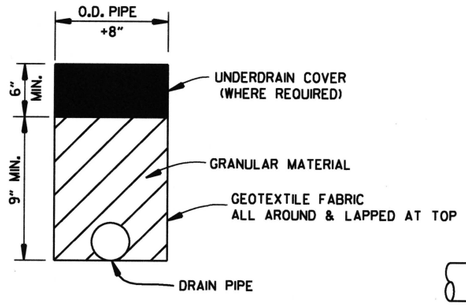
PAVEMENT MARKING DETAILS

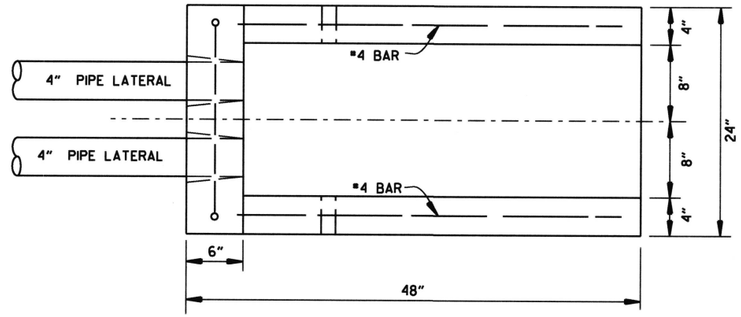
STANDARD DRAWING PM-1

NOTE:

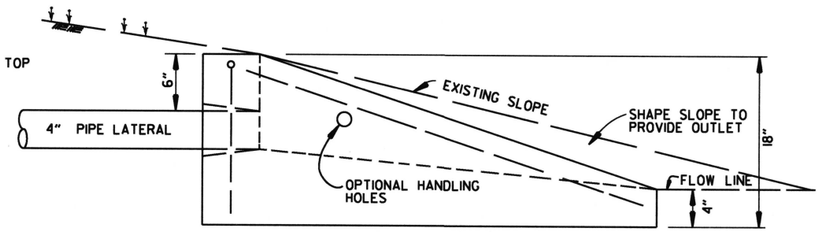
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.

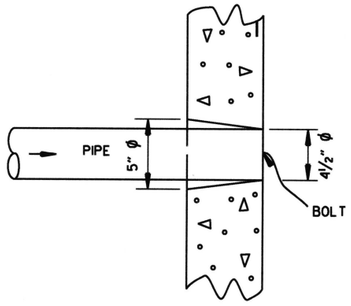




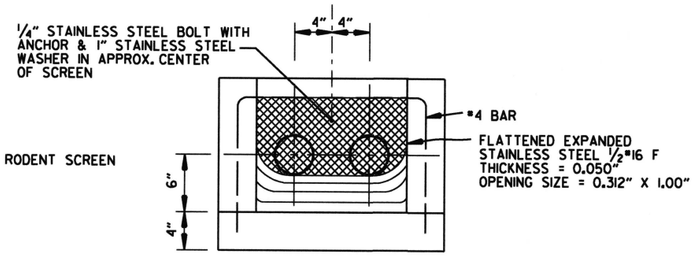
PLAN VIEW



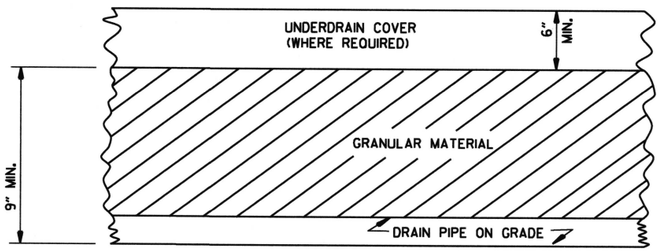
SIDE VIEW



DETAIL OF HOLE FOR 4" PIPE



FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE 1. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."

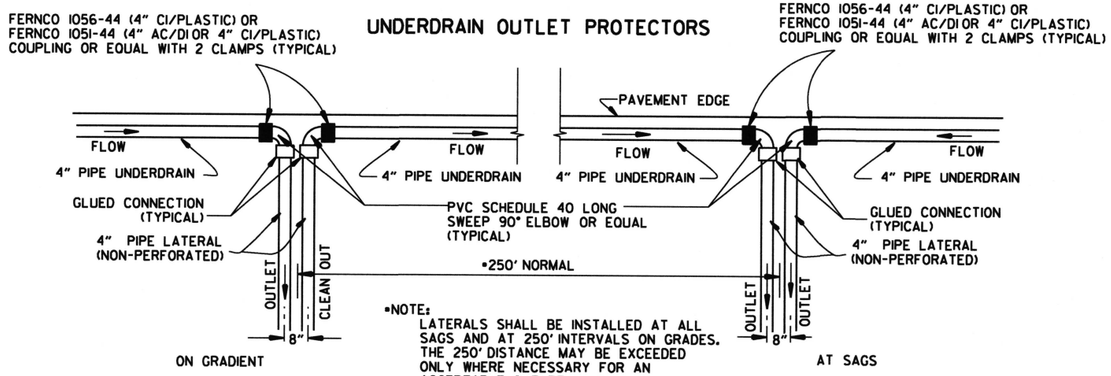
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."

6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."

7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

UNDERDRAIN OUTLET PROTECTORS



•NOTE:
LATERALS SHALL BE INSTALLED AT ALL SAGS AND AT 250' INTERVALS ON GRADES. THE 250' DISTANCE MAY BE EXCEEDED ONLY WHERE NECESSARY FOR AN ACCEPTABLE OUTLET.

DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

DATE	REVISION	DATE FILMED
12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

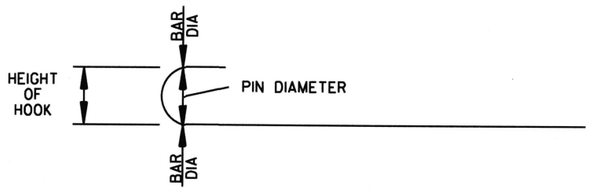
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2 1/4"	4"
4	3 "	4 1/2"
5	3 3/4"	5"
6	4 1/2"	6"
7	5 1/4"	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 2 3/4 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

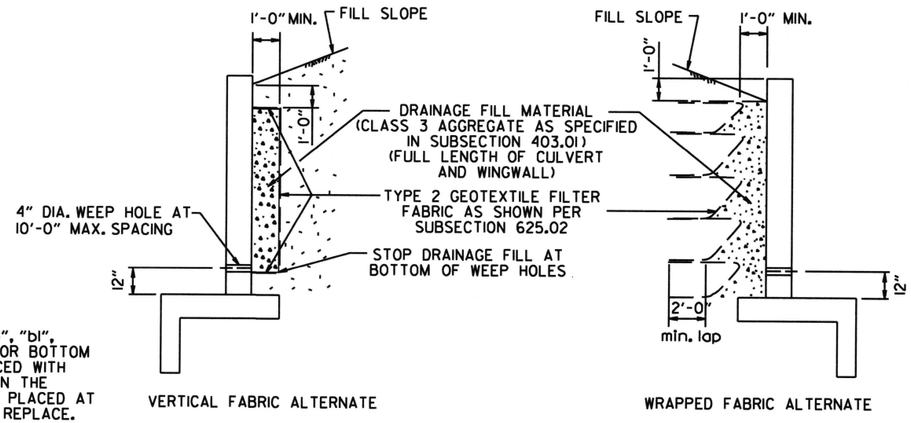
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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.

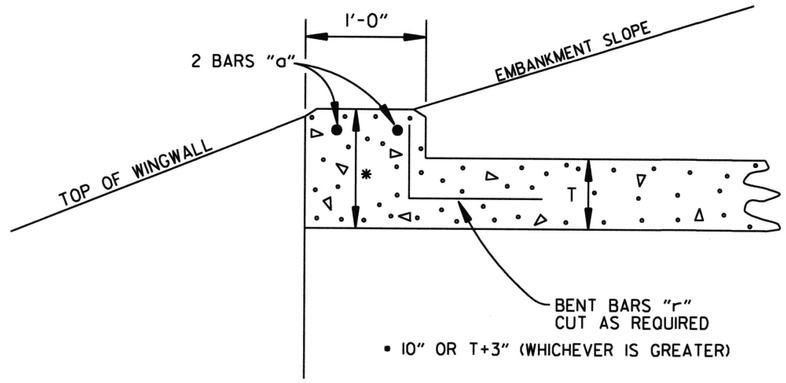
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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 1/2 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.

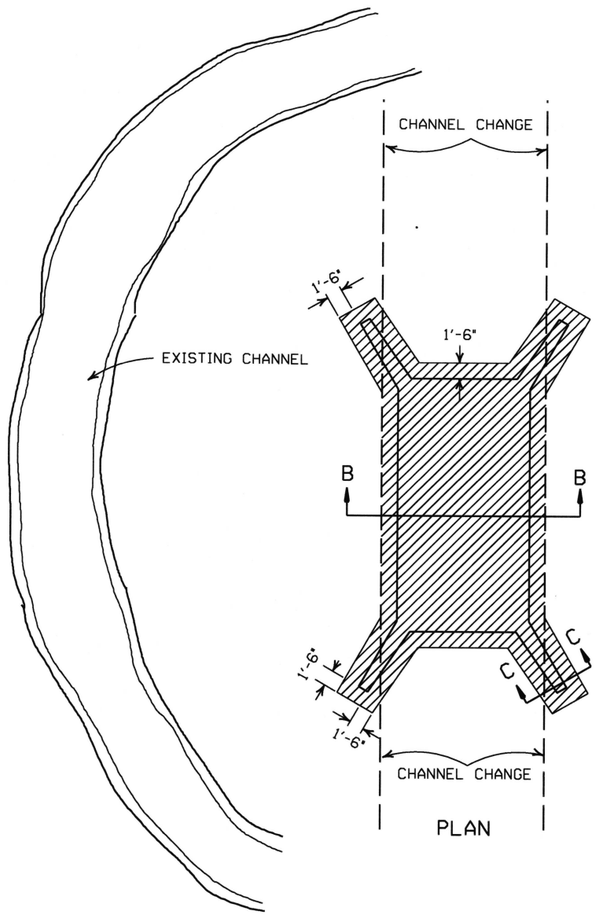
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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

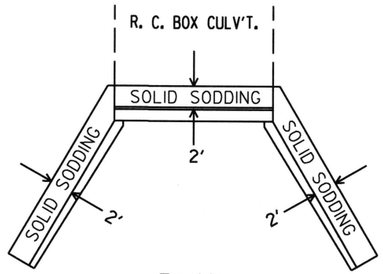
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

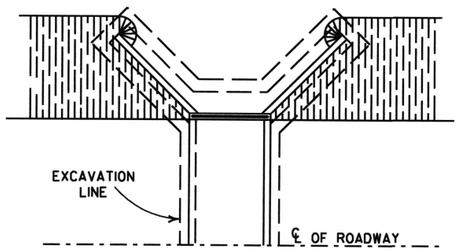
SOLID SODDING



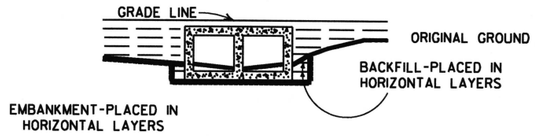
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

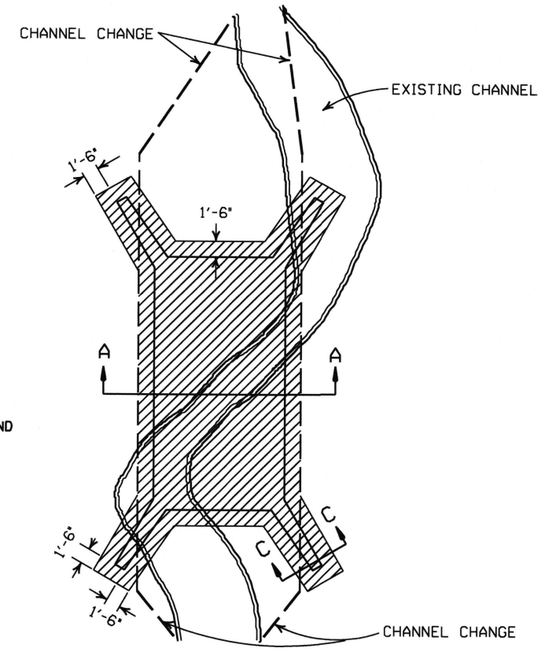


PLAN

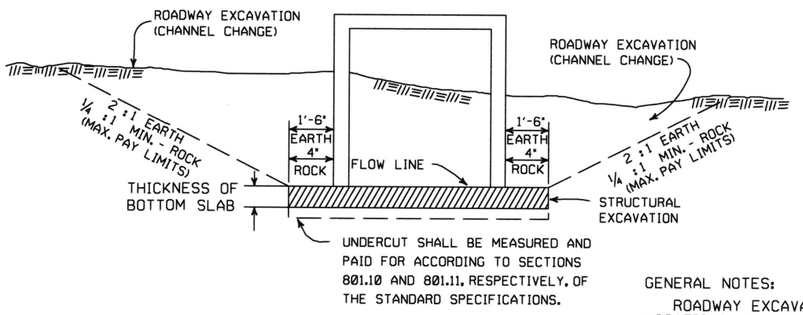


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

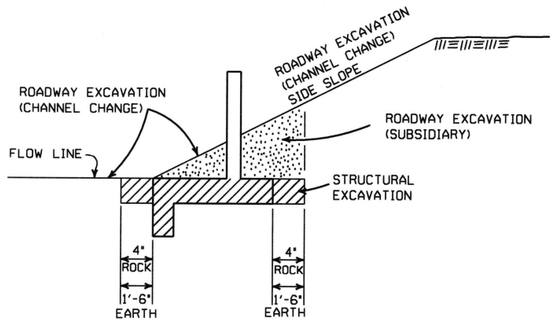


PLAN

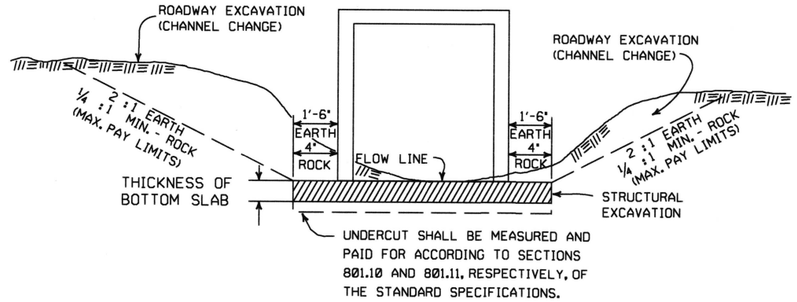


SECTION B-B

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

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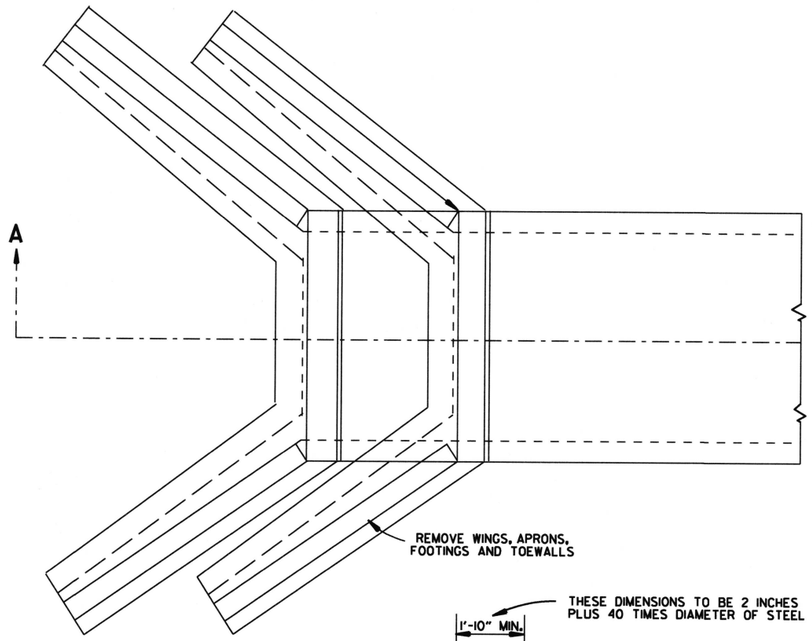
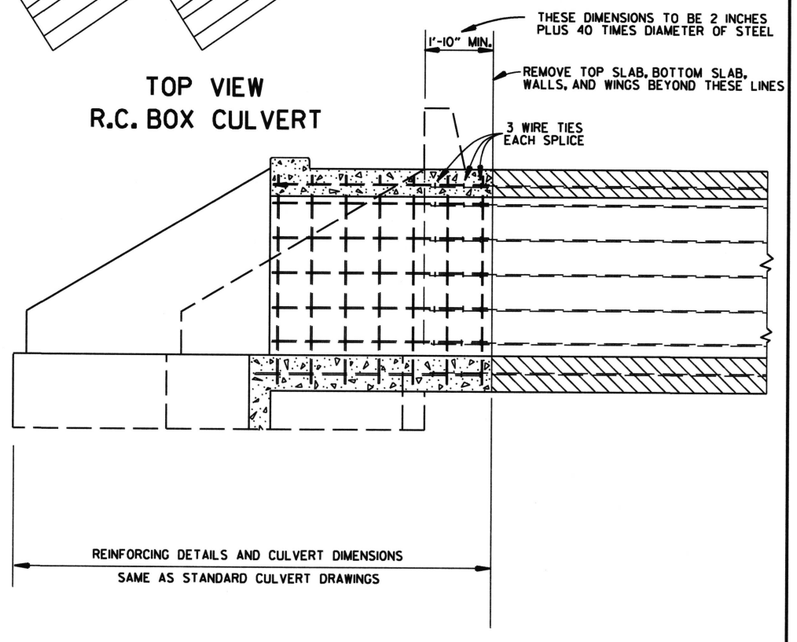
EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

STANDARD DRAWING RCB-2

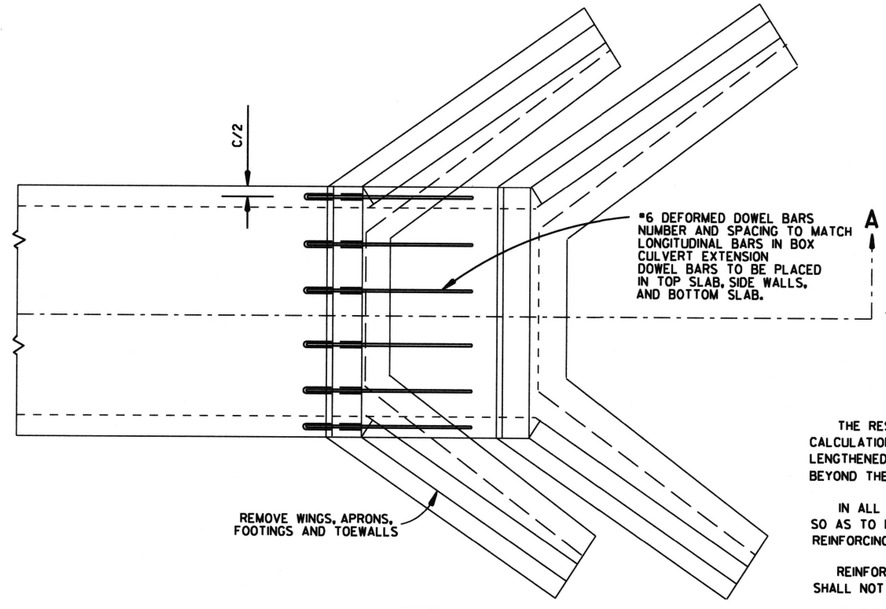


TOP VIEW
R.C. BOX CULVERT

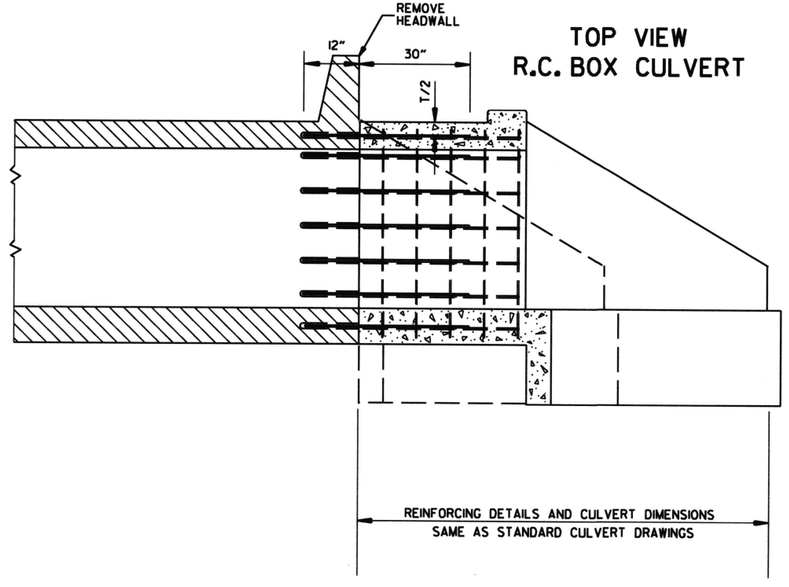


SECTION A-A

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

SUPERELEVATION TABLE FOR ONE - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			35 MPH			40 MPH			45 MPH			50 MPH			55 MPH			60 MPH			65 MPH			70 MPH			75 MPH		
	e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)	
		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE
0° 15'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC		
0° 30'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC		
0° 45'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC		
1° 00'	NC			NC			NC			NC			RC	115		RC	115		RC	115		RC	115		NC			NC		
1° 15'	NC			NC			RC	101		RC	108		0.022	121		0.026	132		0.024	127		0.026	132		RC	115		0.022	121	
1° 30'	NC			RC	94		0.022	106		0.022	114		0.028	138		0.032	150		0.030	144		0.034	156		0.030	144		0.032	150	
1° 45'	RC	86		RC	94		0.026	116		0.028	130		0.032	150		0.038	167		0.038	167		0.042	179		0.038	167		0.042	179	
2° 00'	RC	86		0.024	103		0.028	121		0.030	136		0.036	161		0.044	185		0.044	185		0.050	202		0.046	190		0.052	208	
2° 15'	RC	86		0.026	108		0.032	131		0.034	146		0.042	179		0.048	196		0.050	202		0.056	218		0.056	218		0.062	236	
2° 30'	0.022	90		0.028	113		0.034	136		0.038	157		0.046	190		0.054	214		0.054	214		0.062	236		0.064	242		0.070	259	
2° 45'	0.024	95		0.030	118		0.038	146		0.042	168		0.050	202		0.058	224		0.056	218		0.068	253		0.070	259		0.078	282	
3° 00'	0.026	100		0.034	126		0.040	151		0.046	179		0.054	214		0.064	242		0.062	236		0.074	276		0.076	276		0.086	305	
3° 15'	0.028	103		0.036	131		0.044	161		0.050	190		0.058	224		0.068	253		0.068	253		0.080	288		0.082	294		0.092	323	
3° 30'	0.030	108		0.038	136		0.046	167		0.052	194		0.062	236		0.072	265		0.072	265		0.082	294		0.088	311		0.098	340	
3° 45'	0.032	112		0.040	140		0.050	176		0.056	205		0.066	247		0.076	276		0.076	276		0.086	305		0.094	329		0.104	358	
4° 00'	0.034	116		0.042	145		0.052	181		0.058	211		0.070	259		0.080	288		0.080	288		0.090	317		0.098	340		0.110	381	
4° 15'	0.036	120		0.044	150		0.054	186		0.062	222		0.072	265		0.084	300		0.084	300		0.094	329		0.104	358		0.116	402	
4° 30'	0.036	120		0.046	155		0.056	192		0.064	227		0.074	265		0.086	305		0.086	305		0.096	334		0.110	381		0.122	423	
4° 45'	0.038	125		0.048	160		0.060	202		0.068	238		0.078	282		0.088	317		0.088	317		0.098	340		0.116	402		0.128	444	
5° 00'	0.040	130		0.050	164		0.062	206		0.070	244		0.082	294		0.092	323		0.092	323		0.104	358		0.122	423		0.134	465	
5° 30'	0.044	138		0.054	173		0.066	217		0.072	248		0.084	300		0.094	329		0.094	329		0.104	358		0.128	444		0.140	486	
6° 00'	0.046	143		0.058	182		0.070	227		0.078	265		0.088	311		0.098	340		0.098	340		0.110	381		0.134	465		0.146	507	
6° 30'	0.050	151		0.062	192		0.074	238		0.082	276		0.092	323		0.100	346		0.100	346		0.116	402		0.140	486		0.152	528	
7° 00'	0.052	156		0.064	197		0.078	247		0.086	287		0.096	334																
7° 30'	0.054	160		0.068	206		0.080	252		0.090	298		0.098	340																
8° 00'	0.058	168		0.070	211		0.084	263		0.092	302		0.100	346																
8° 30'	0.060	173		0.072	215		0.086	268		0.094	308																			
9° 00'	0.062	178		0.076	224		0.088	272		0.096	313																			
9° 30'	0.064	181		0.078	229		0.092	282		0.098	319																			
10° 00'	0.066	186		0.080	234		0.094	288		0.100	324																			
11° 00'	0.070	194		0.084	244		0.096	293																						
12° 00'	0.074	203		0.088	253		0.098	298																						
13° 00'	0.076	208		0.090	258		0.100	302																						
14° 00'	0.080	216		0.094	266																									
15° 00'	0.082	221		0.096	271																									
16° 00'	0.086	229		0.098	276																									
17° 00'	0.088	233		0.100	281																									
18° 00'	0.090	238																												
19° 00'	0.092	242																												
20° 00'	0.094	246																												
21° 00'	0.096	251																												
22° 00'	0.096	251																												
23° 00'	0.098	254																												
24° 00'	0.098	254																												
25° 00'	0.100	259																												

30 MPH	250	300	
35 MPH	250	300	
40 MPH	250	300	350
45 MPH	300	350	
50 MPH	300	350	
55 MPH	350	400	
60 MPH	350	400	
65 MPH	350	400	
70 MPH	350	400	450
75 MPH	350	400	450

D MAX = 28° 30' (30 MPH)
D MAX = 19° 30' (35 MPH)
D MAX = 13° 45' (40 MPH)
D MAX = 10° 30' (45 MPH)
D MAX = 8° 25' (50 MPH)
D MAX = 6° 30' (55 MPH)
D MAX = 5° 15' (60 MPH)
D MAX = 4° 15' (65 MPH)
D MAX = 3° 30' (70 MPH)
D MAX = 2° 45' (75 MPH)

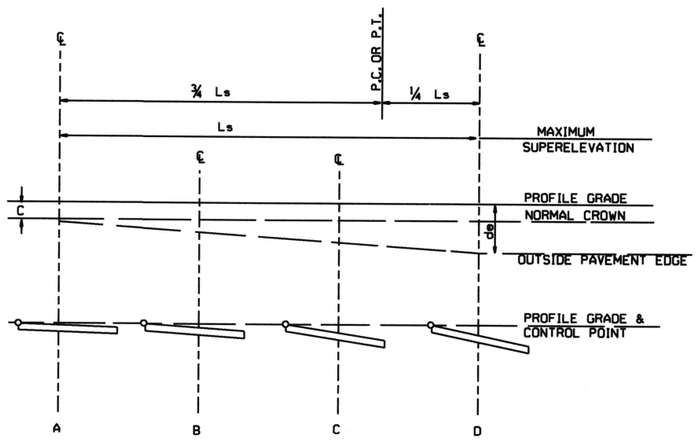
ABBREVIATIONS

NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
S - SUPERELEVATION
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
d - WIDTH OF PAVEMENT
e - MAXIMUM RATE OF SUPERELEVATION (FT. PER FT.)
Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
C - NORMAL CROWN (FT.)

GENERAL NOTES

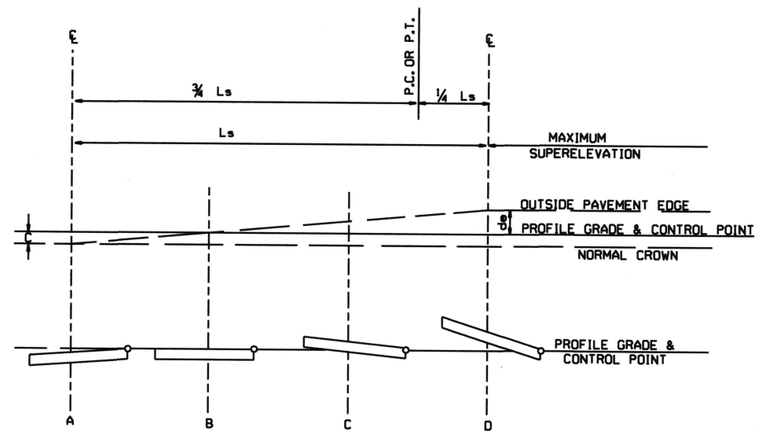
1. ON PAVEMENT WITH ONE-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE PROFILE GRADE POINT.
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR Ls MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. MINIMUM Ls VALUES MAY BE USED FOR RAMPS; DESIRABLE VALUES SHALL APPLY TO MAIN LANES.
5. DIVIDED PAVEMENTS WIDER THAN 4 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLOWS:

6 LANE DIVIDED---------+20%
8 LANE DIVIDED---------+50%



ONE-WAY TRAFFIC
INSIDE LANE

SUPERELEVATION FORMULA = $S = -\frac{L(de-C)}{Ls} - C$



ONE-WAY TRAFFIC
OUTSIDE LANE

SUPERELEVATION FORMULA = $S = +\frac{L(de+C)}{Ls} - C$

DATE	REVISION	DATE FILMED
11-07-19	REVISED SUPERELEVATION TABLE	
01-09-87	ISSUED	578-1-15-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR ONE-WAY TRAFFIC

STANDARD DRAWING SE-1

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			35 MPH			40 MPH			45 MPH			50 MPH			55 MPH			60 MPH			65 MPH			70 MPH			75 MPH		
	e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)	
		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE
0° 15'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC		
0° 30'	NC			NC			NC			NC			NC			NC			RC	96		RC	96		RC	96		RC	96	
0° 45'	NC			NC			NC			NC			RC	96		RC	96		0.024	106		0.026	110		0.030	120		0.022	101	
1° 00'	NC			NC			NC			NC			0.022	101		0.026	110		0.030	120		0.034	130		0.038	139		0.032	125	
1° 15'	NC			NC			RC	84		0.022	95		0.028	115		0.032	125		0.038	139		0.042	149		0.046	158		0.042	149	300
1° 30'	NC			RC	78		0.022	88		0.028	108		0.032	125		0.038	139		0.044	154		0.050	168		0.056	182		0.052	173	
1° 45'	RC	72		RC	78		0.026	97		0.030	113		0.036	134		0.044	154		0.050	168		0.056	182		0.064	202		0.062	197	
2° 00'	RC	72		0.024	86		0.028	101		0.034	122		0.042	149		0.048	163		0.056	182		0.064	202		0.070	216		0.070	216	
2° 15'	RC	72		0.026	90		0.032	109		0.038	131		0.046	158		0.054	178		0.062	197		0.070	216		0.078	235		0.080	240	
2° 30'	0.022	75		0.028	94		0.034	113		0.042	140		0.050	168		0.058	187		0.068	211		0.076	230		0.086	254	350	0.088	259	350
2° 45'	0.024	79		0.030	98		0.038	122		0.046	149		0.054	178		0.062	197		0.072	221		0.082	245		0.092	269		0.096	278	
3° 00'	0.026	83		0.034	105		0.040	126		0.050	158		0.058	187		0.068	211		0.078	235		0.088	259		0.098	283		0.100	288	
3° 15'	0.028	86		0.036	109		0.044	134		0.052	162		0.062	197		0.072	221		0.082	245		0.092	269		0.098	283				
3° 30'	0.030	90		0.038	113		0.046	139		0.056	171		0.066	206		0.076	230		0.086	254		0.096	278		0.100	288				
3° 45'	0.032	93		0.040	117		0.050	147		0.058	176		0.070	216		0.080	240		0.090	264		0.100	288							
4° 00'	0.034	97		0.042	121		0.052	151		0.062	185		0.072	221		0.084	250		0.094	274										
4° 15'	0.036	100		0.044	125		0.054	155		0.064	189		0.076	230		0.086	254		0.096	278										
4° 30'	0.036	100	200	0.046	129	200	0.056	160	200	0.068	198	200	0.078	235	250	0.090	264	300	0.098	283	300										
4° 45'	0.038	104		0.048	133		0.060	168		0.070	203		0.082	245		0.092	269		0.100	288										
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	274													
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221		0.088	259		0.098	283													
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	288													
6° 30'	0.050	126		0.062	160		0.074	198		0.086	239		0.096	278																
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283																
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252		0.100	288																
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257																			
8° 30'	0.060	144		0.072	179		0.086	223		0.096	261																			
9° 00'	0.062	148		0.076	187		0.088	227	250	0.098	266	300																		
9° 30'	0.064	151		0.078	191		0.092	235		0.100	270																			
10° 00'	0.066	155		0.080	195		0.094	240																						
11° 00'	0.070	162		0.084	203		0.096	244																						
12° 00'	0.074	169		0.088	211	250	0.098	248																						
13° 00'	0.076	173		0.090	215		0.100	252	300																					
14° 00'	0.080	180		0.094	222																									
15° 00'	0.082	184		0.096	226																									
16° 00'	0.086	191		0.098	230																									
17° 00'	0.088	194		0.100	234																									
18° 00'	0.090	198	250																											
19° 00'	0.092	202																												
20° 00'	0.094	205																												
21° 00'	0.096	209																												
22° 00'	0.096	209																												
23° 00'	0.098	212																												
24° 00'	0.098	212																												
25° 00'	0.100	216																												

D MAX = 28° 30' | D MAX = 19° 30' | D MAX = 13° 45' | D MAX = 10° 30' | D MAX = 8° 25' | D MAX = 6° 30' | D MAX = 5° 15' | D MAX = 4° 15' | D MAX = 3° 30' | D MAX = 2° 45'

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.)

GENERAL NOTES

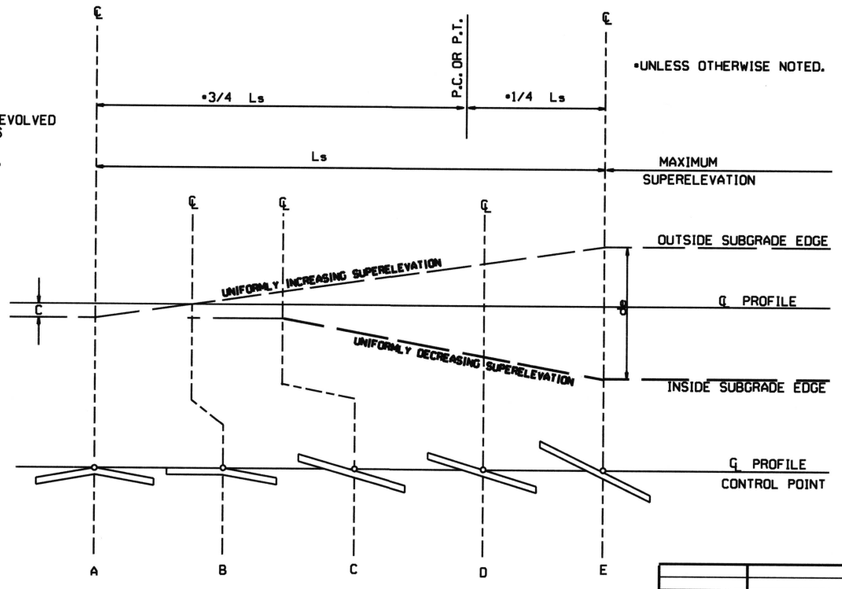
1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED 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.

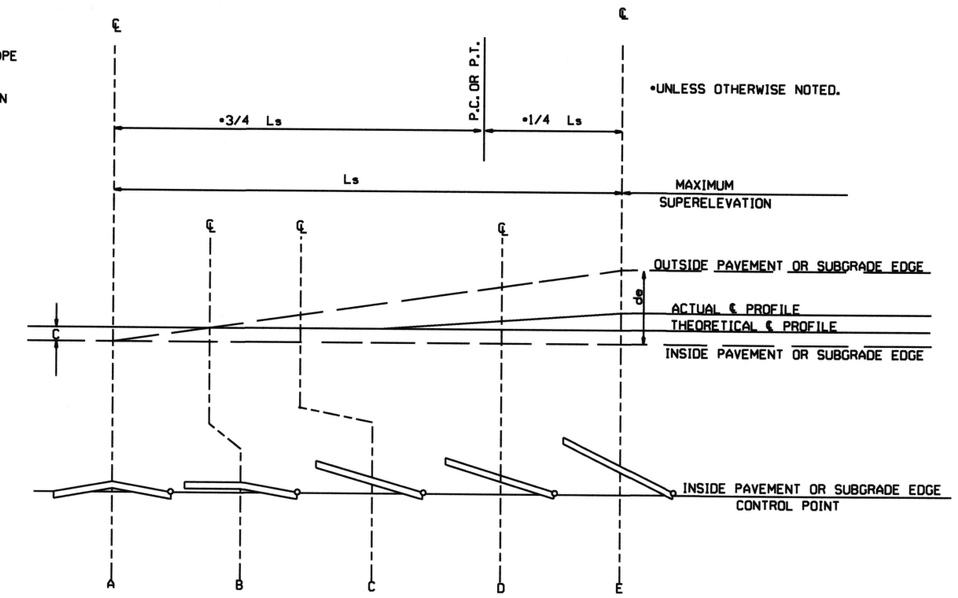
RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.

SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$



*UNLESS OTHERWISE NOTED.

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



*UNLESS OTHERWISE NOTED.

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

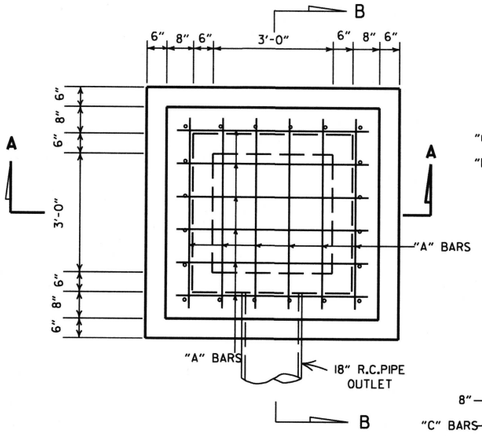
DATE	REVISION
11-07-19	REVISED SUPERELEVATION TABLE
10-18-96	ADDED FORMULA
01-09-87	ISSUED

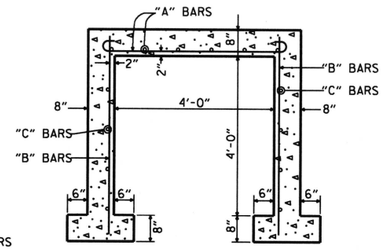
534-1-9-87
DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

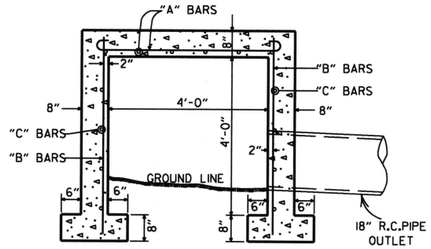
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2





SEC A-A



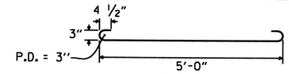
SEC B-B

NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 ½"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



"A" BARS

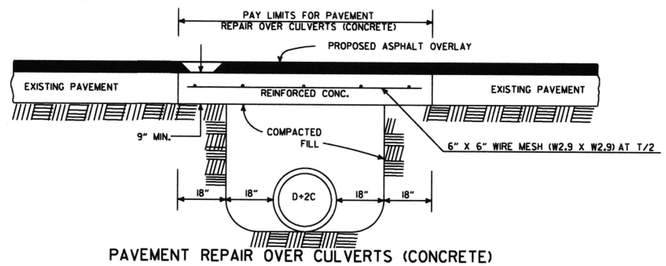
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

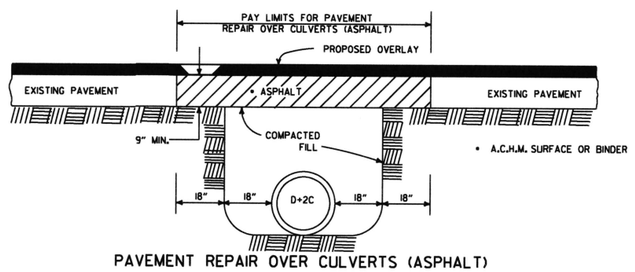
GENERAL NOTE:

THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



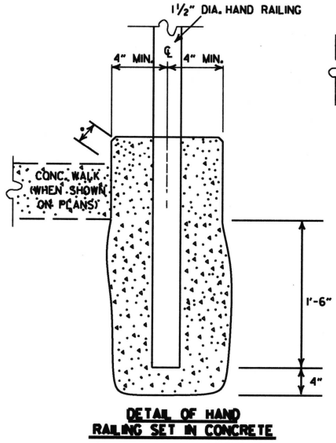
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



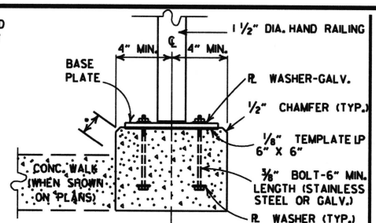
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

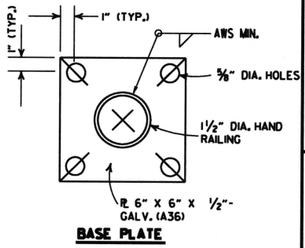
* A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

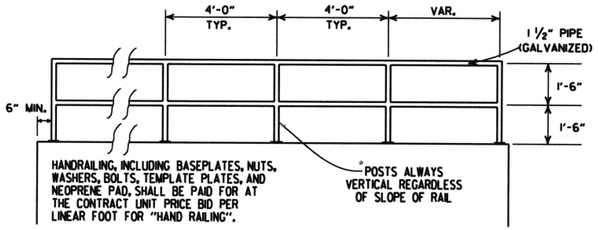


POST CONNECTION TO WALL



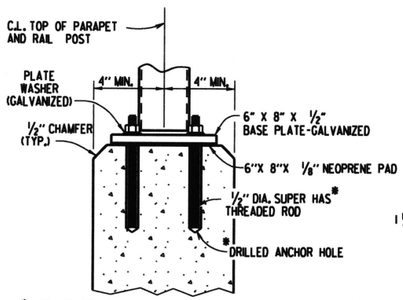
BASE PLATE

POST CONNECTION DETAILS



HANDRAILING, INCLUDING BASEPLATES, NUTS, WASHERS, BOLTS, TEMPLATE PLATES, AND NEOPRENE PAD, SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR "HAND RAILING".

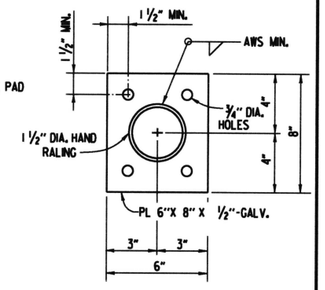
HAND RAILING SHALL CONFORM TO SECTION 633.



*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 ½" EMBEDMENT OR APPROVED EQUAL.

THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

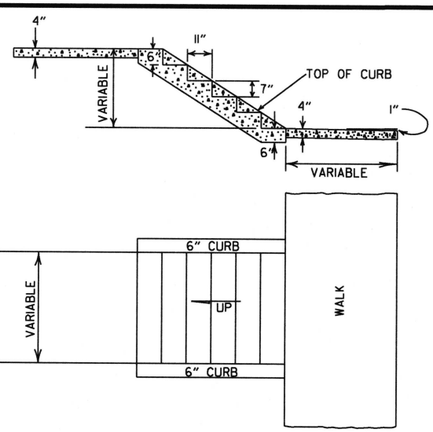
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

DETAILS OF CONCRETE STEPS & WALKS

DATE	REVISION	DATE FILMED
10-25-18	REVISED DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS	
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE; REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET& PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI-1

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



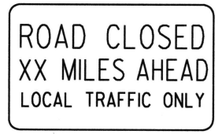
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2



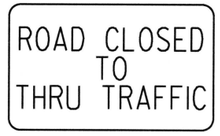
48"X30"

RII-3A



60"X30"

RII-4



60"X30"

W21-5a



STD. 36"X36"
FWY. 48"X48"

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



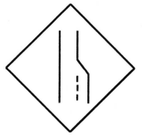
STD. 36"X36"
SPECIAL 48"X48"

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



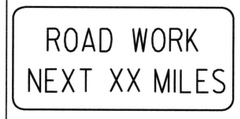
STD. 36"X36"
FWY. 48"X48"

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.

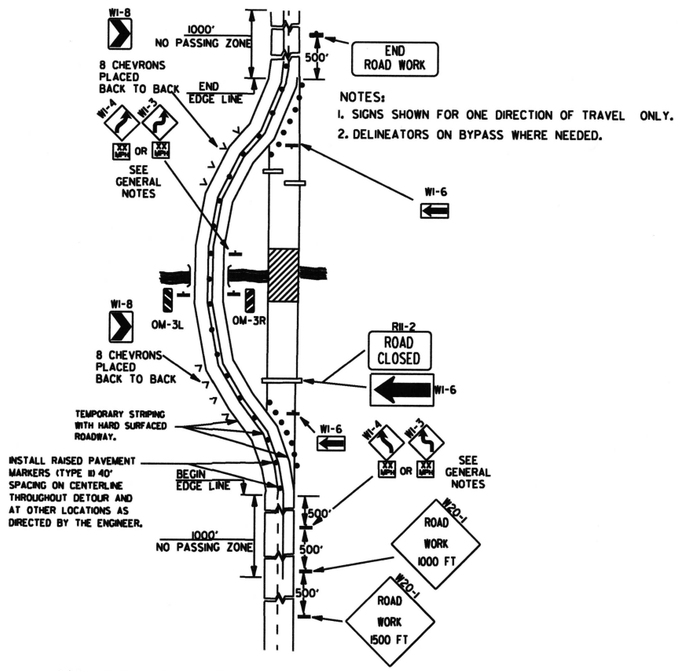
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
11-07-19	REVISED FOR MASH	
4-13-17	DELETED RSP-1 & ADDED W21-5a	
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

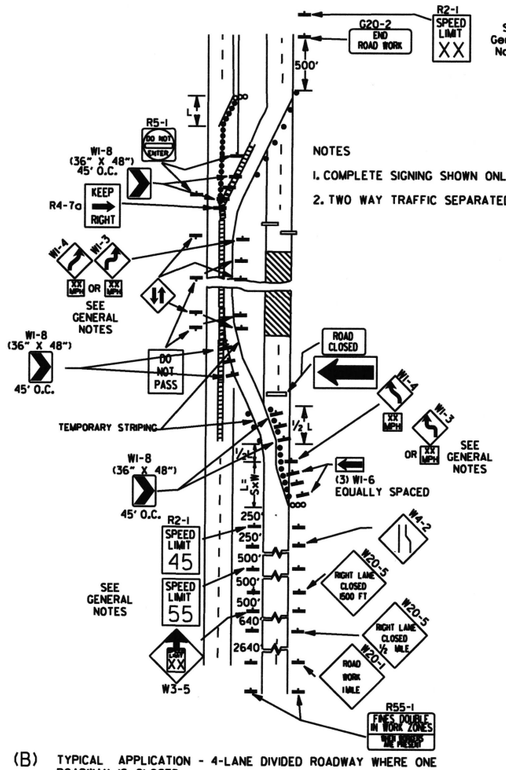
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



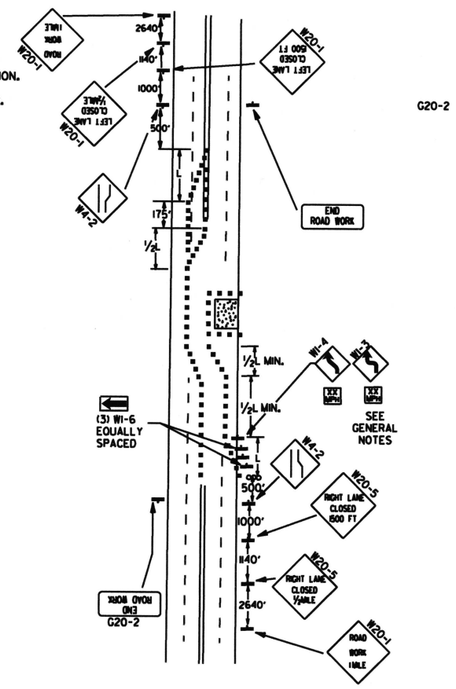
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

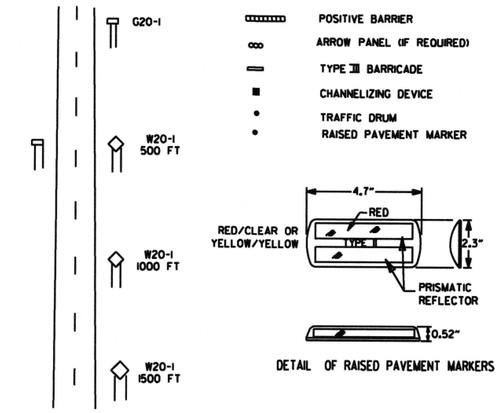


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(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.



DETAIL OF RAISED PAVEMENT MARKERS

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:

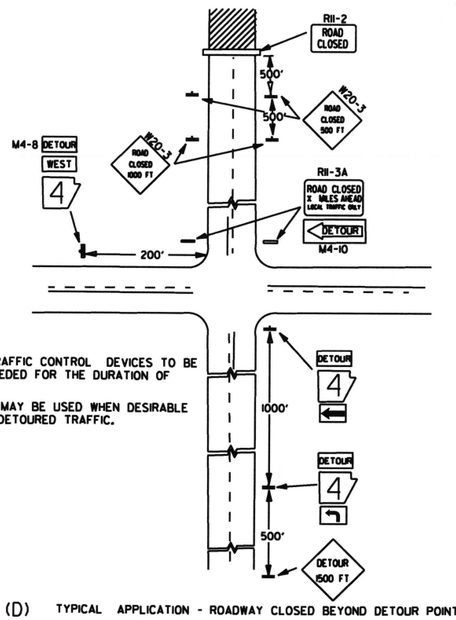
L= MINIMUM LENGTH OF TAPER.

S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.

W= WIDTH OF OFFSET.

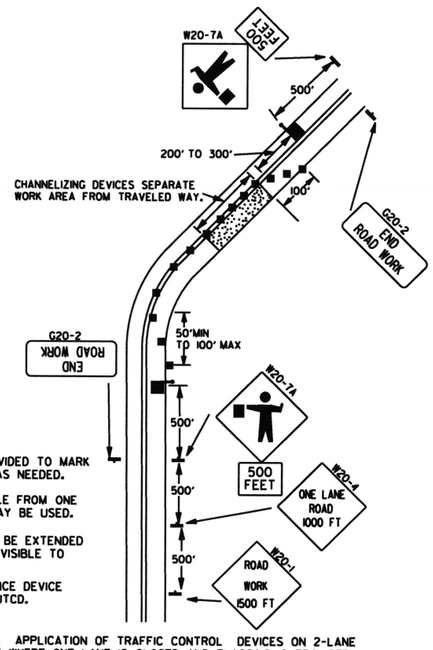
GENERAL NOTES:

1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS. 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 ARDOT QUALIFIED PRODUCTS LIST.
9. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).



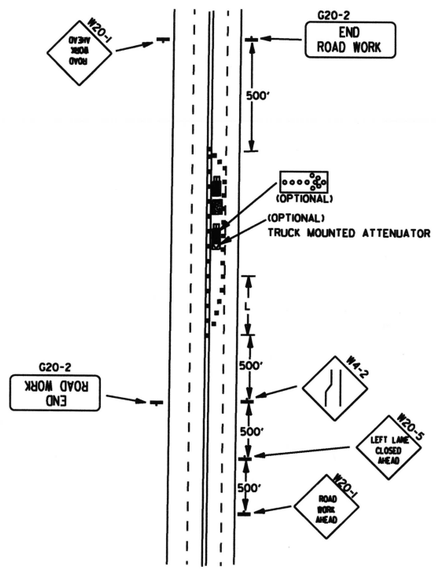
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(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.



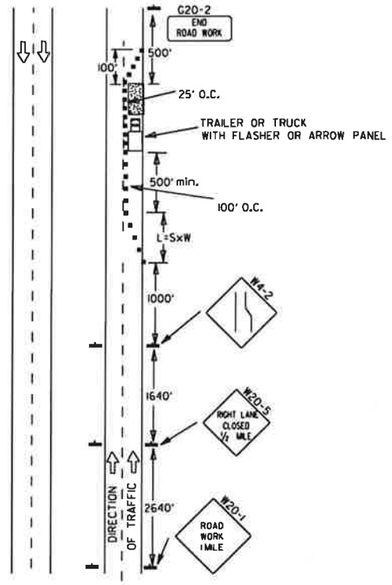
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
11-07-19	REVISED NOTE 1, ADDED NOTE 9	
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	
3-11-10	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	

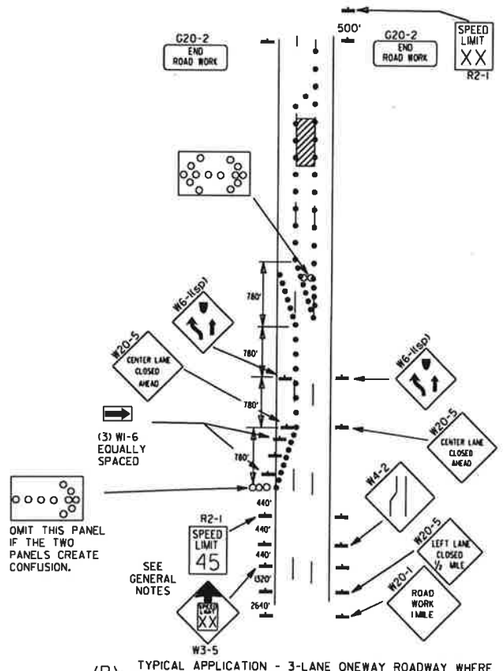
ARKANSAS STATE HIGHWAY COMMISSION

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.

KEY:

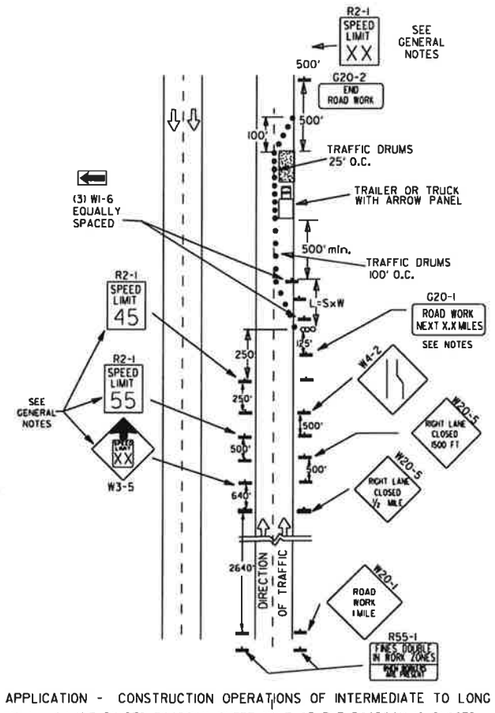
ooo ARROW PANEL (IF REQUIRED)

■ 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 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.
11. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).



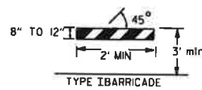
(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

CHANNELIZING DEVICES



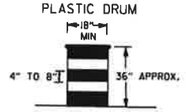
CONES

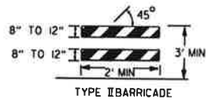
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.



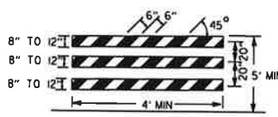
TYPE I BARRICADE

PLASTIC DRUM



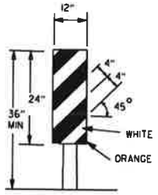


TYPE II BARRICADE



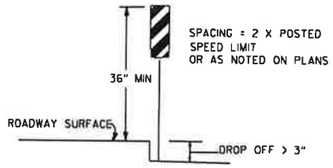
TYPE III BARRICADE

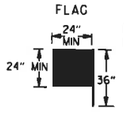
NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.



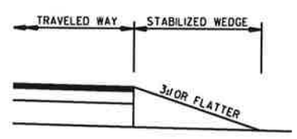
VERTICAL PANEL
VP-1R

VERTICAL PANEL PLACEMENT



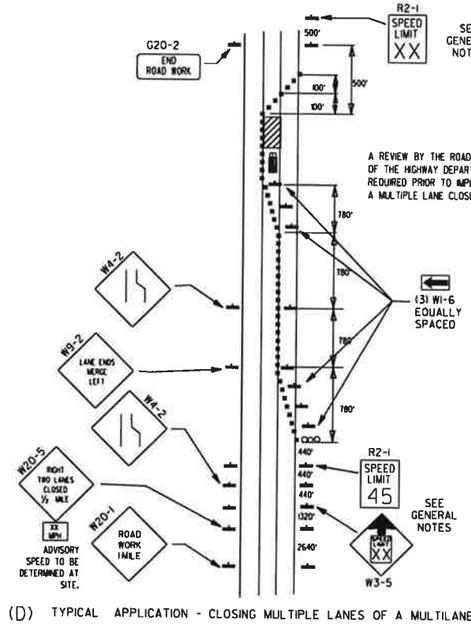


FLAG SHALL BE OF GOOD GRADE RED MATERIAL



STABILIZED WEDGE

NOTE:
MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.



A REVIEW BY THE ROADWAY DESIGN DIVISION OF THE HIGHWAY DEPARTMENT WILL BE REQUIRED PRIOR TO IMPLEMENTING A MULTIPLE LANE CLOSURE.

(D) TYPICAL APPLICATION - CLOSING MULTIPLE LANES OF A MULTILANE HIGHWAY.

TRAFFIC CONTROL DEVICES

NON-INTERSTATE

VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING	W8-11 AND LANE STRIPING
> 2"	CENTERLINE	STANDARD LANE CLOSURE	STANDARD LANE CLOSURE
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS
> 3" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS
> 6" ≤ 18"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(1)	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 18" ≤ 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(1)	A STABILIZED WEDGE, W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER(4) & EDGE LINES	PRECAST CONCRETE BARRIER(4) & EDGE LINES

INTERSTATE

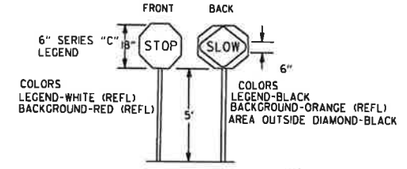
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 2"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 2" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER & EDGE LINES

INTERSTATE AND NON-INTERSTATE

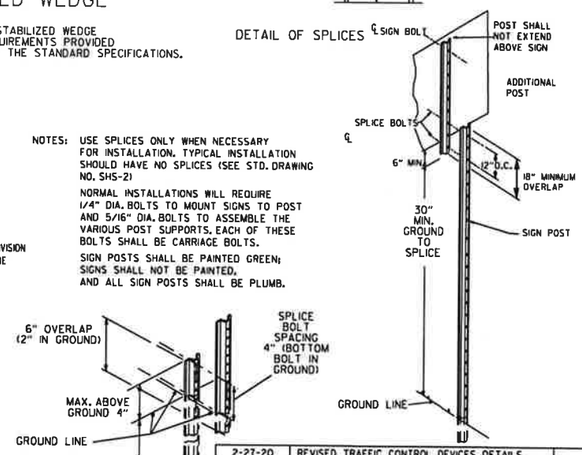
FORESLOPE	HEIGHT	TRAFFIC CONTROL
1:1	> 2 FT	PRECAST CONCRETE BARRIER
2:1	≤ 5 FT	TRAFFIC DRUMS
2:1	> 5 FT	PRECAST CONCRETE BARRIER
Flatter than 2:1	N/A	TRAFFIC DRUMS

GENERAL NOTES:
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED.
3. PRECAST CONCRETE BARRIER WALL CAN BE USED IN LIEU OF A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS, IF AND WHERE DIRECTED BY THE ENGINEER.
4. A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS CAN BE USED IN LIEU OF PRECAST CONCRETE BARRIER WALL, IF AND WHERE DIRECTED BY THE ENGINEER.
5. W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.

STOP SLOW PADDLE



DETAIL OF SPLICES



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.

DATE	REVISION	FILMED
2-27-20	REVISED TRAFFIC CONTROL DEVICES DETAILS	
11-07-19	REVISED NOTE 9, ADDED NOTE 11	
7-25-19	REVISED TRAFFIC CONTROL DEVICES DETAILS	
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	

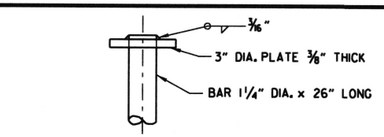
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

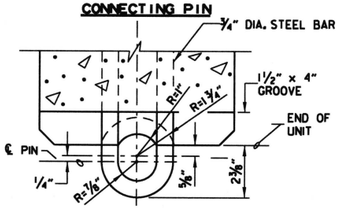
STANDARD DRAWING TC-3

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'-3", 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"

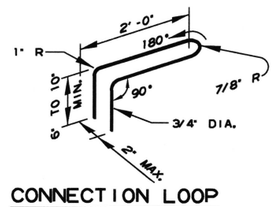


CONNECTING PIN

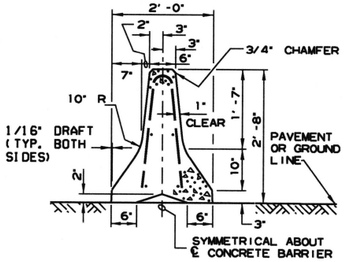


SECTION E-E

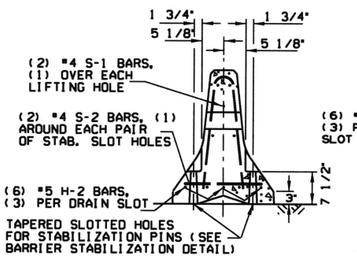
CONNECTION DETAILS



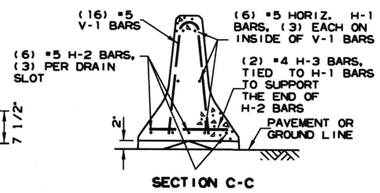
CONNECTION LOOP



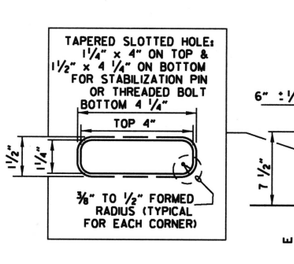
SECTION A-A

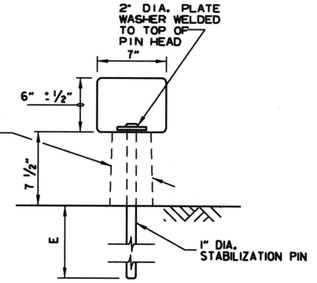


SECTION B-B



SECTION C-C

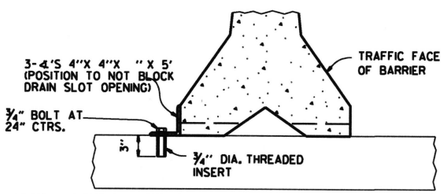




BARRIER STABILIZATION DETAIL

ROADWAY SECTION

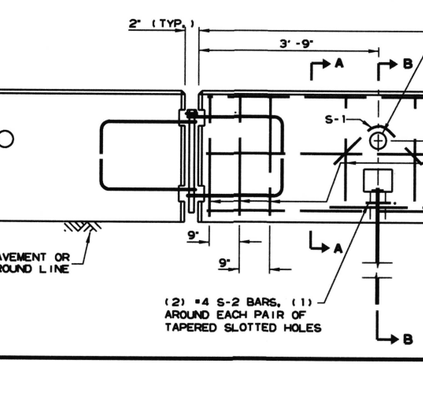
(E) 4" - CONCRETE PAVEMENT
8" - ASPHALT PAVEMENT
12" - SHOULDER AREAS



NOTE: " 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

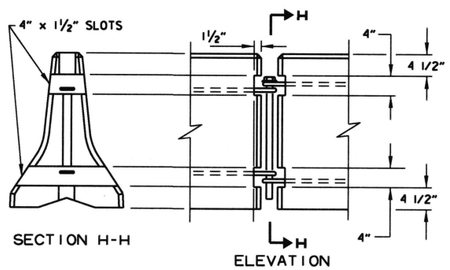
BRIDGE DECKS



VIEW D-D

VIEW D'-D'

ELEVATION



SECTION H-H

ELEVATION

BARRIER REMOVAL SLOT DETAILS

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 WALL IS 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 ARDOT 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 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 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 MANUAL FOR ASSESSING SAFETY HARDWARE (MASH). 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.

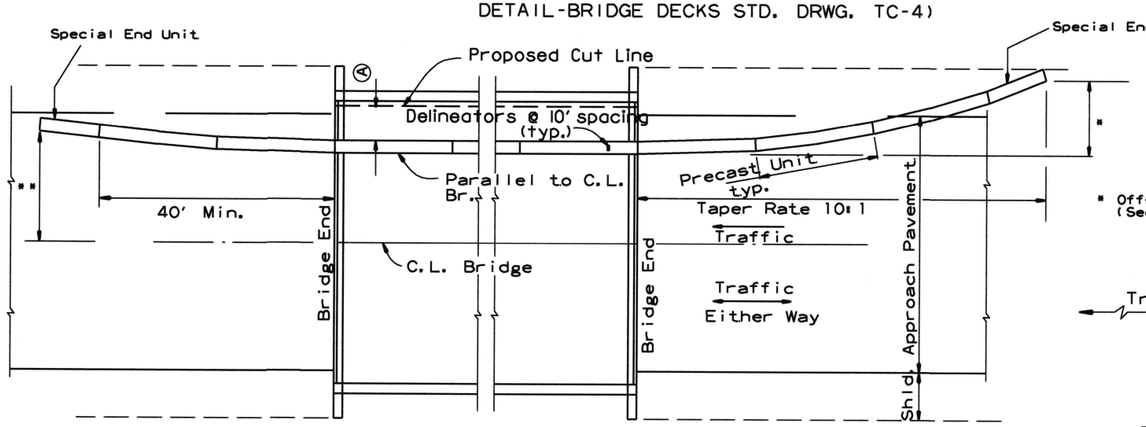
DATE	REVISION	FILMED
11-07-19	REVISED NOTE 3	
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED 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)

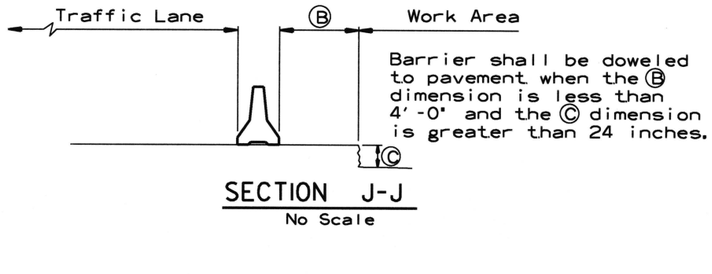


BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

** Offset Distance for Two Way Traffic Only

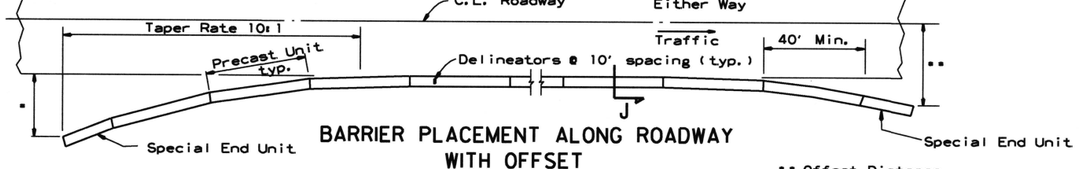
* Offset Distance (See Table)



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

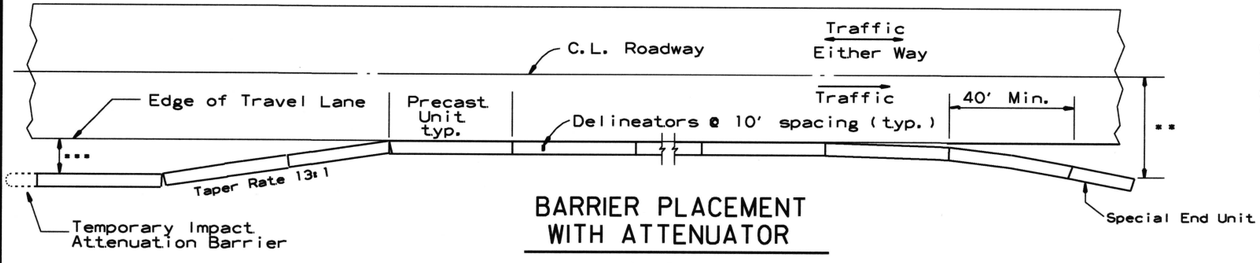
** Offset Distance For Two Way Traffic Only

* Offset Distance (See Table)

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.

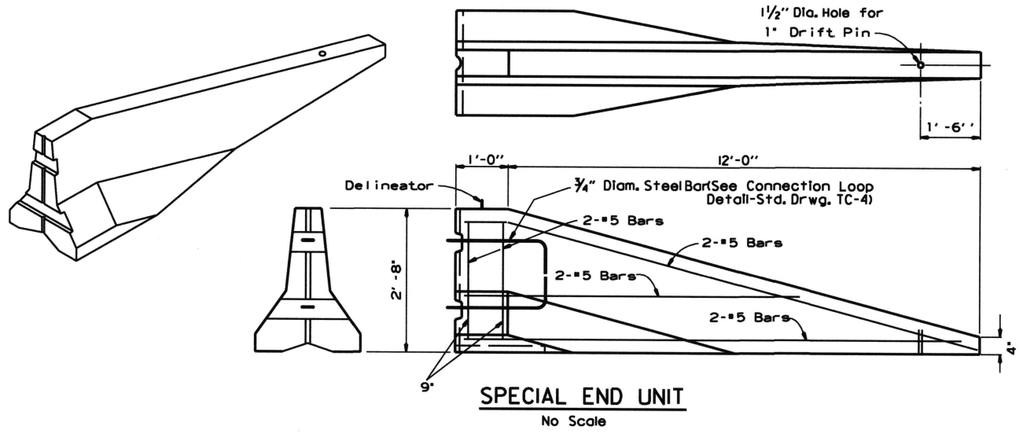


BARRIER PLACEMENT WITH ATTENUATOR

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 a 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
11-07-19	REVISED NOTE	
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

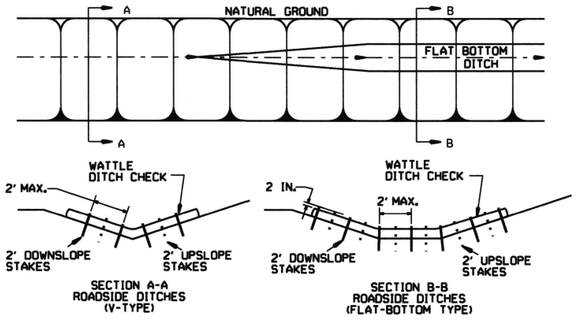
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

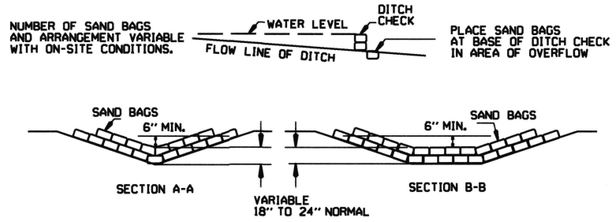
STANDARD DRAWING TC-5

GENERAL NOTES

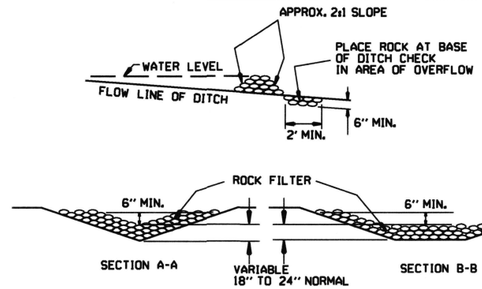
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

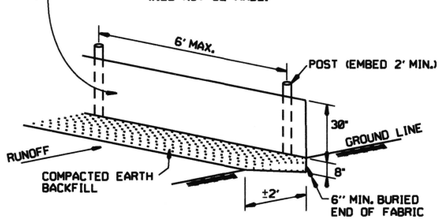


ROCK DITCH CHECK (E-6)

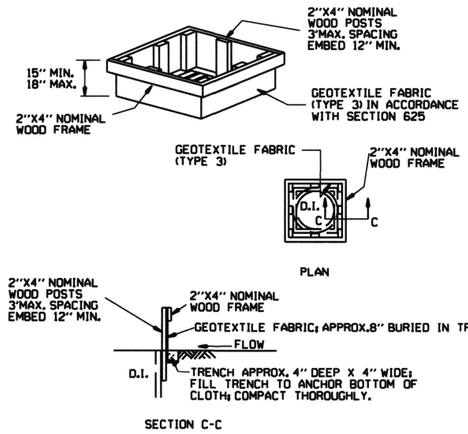
GENERAL NOTES

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

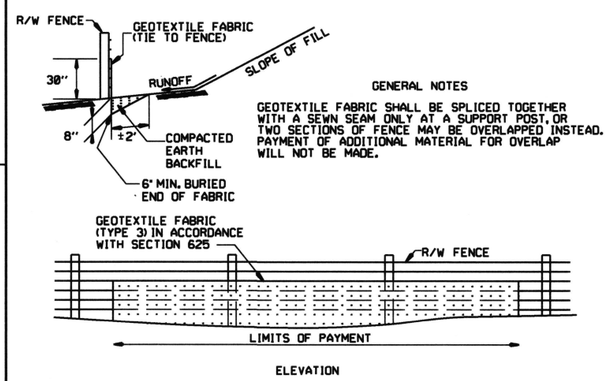
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)



DROP INLET SILT FENCE (E-7)



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.

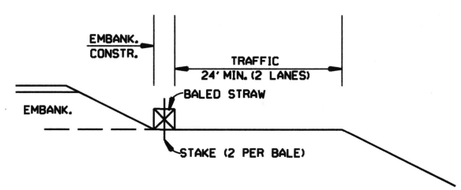
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

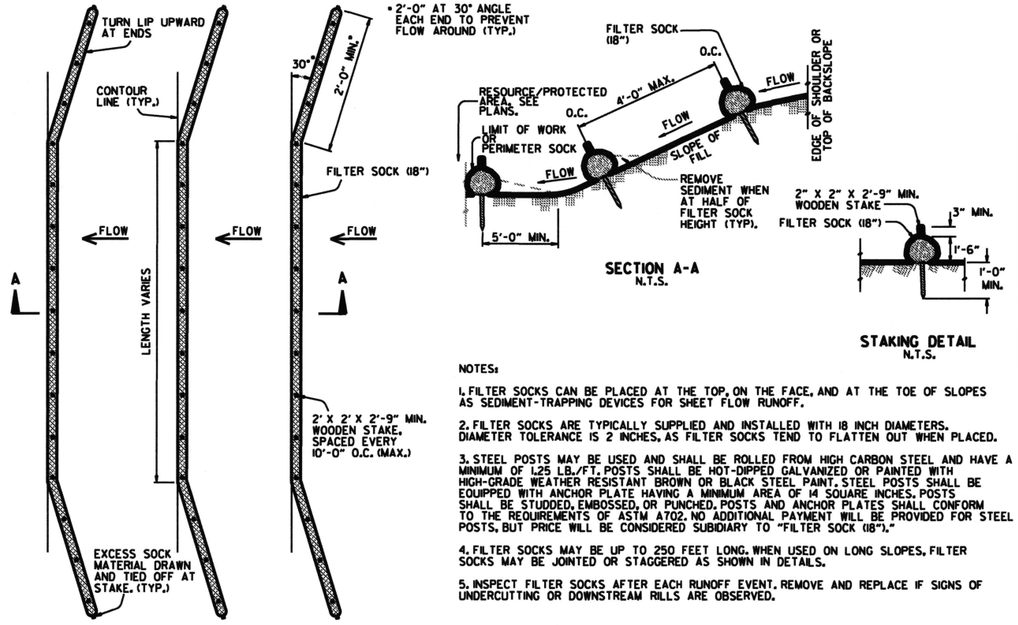
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

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)



NOTES:

1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.

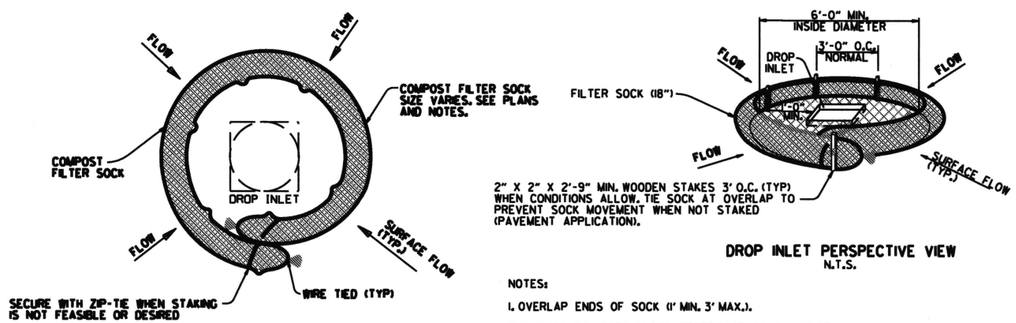
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBIDIARY TO "FILTER SOCK (18")."

4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.

FILTER SOCK ALONG SLOPE (E-3)



NOTES:

1. OVERLAP ENDS OF SOCK (1' MIN. 3' MAX.).

2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

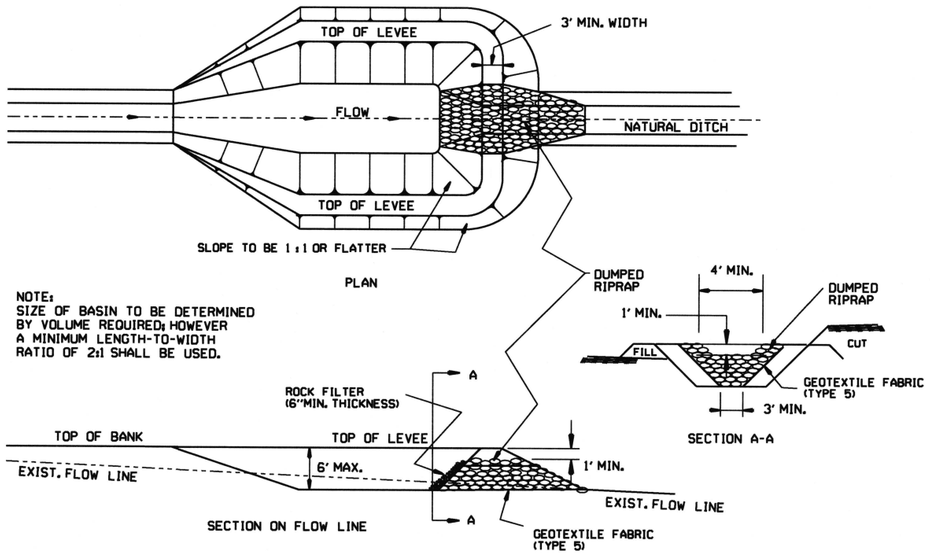
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

DATE	REVISION	FILMED
11-16-17	ADDED FILTER SOCK E-3 AND E-13	
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
07-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
07-15-94	REV. E-4 & E-11 MIN. 15" BURIED END OF FABRIC	
06-02-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
04-01-93	REDRAWN	
10-01-92	REDRAWN	
08-02-76	ISSUED R.D.M.	298-7-28-76

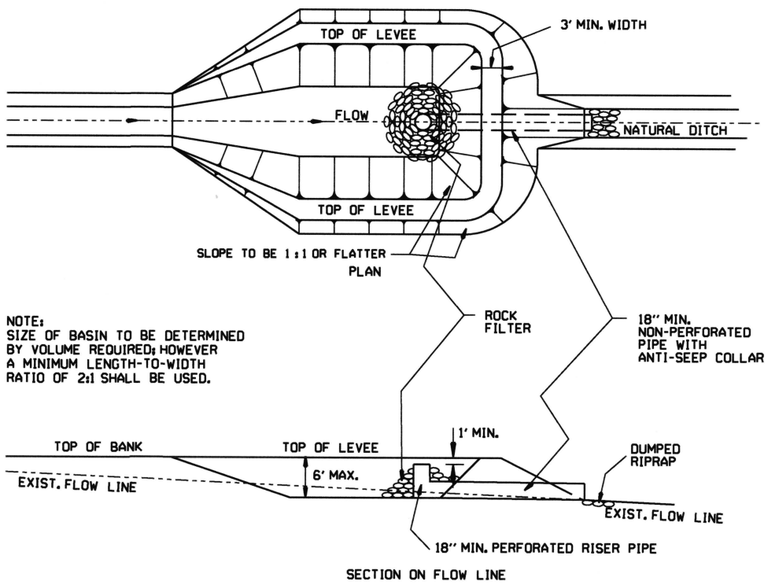
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

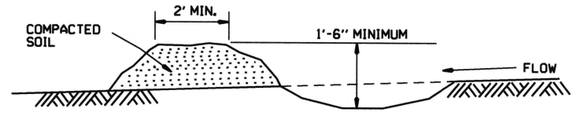
STANDARD DRAWING TEC-1



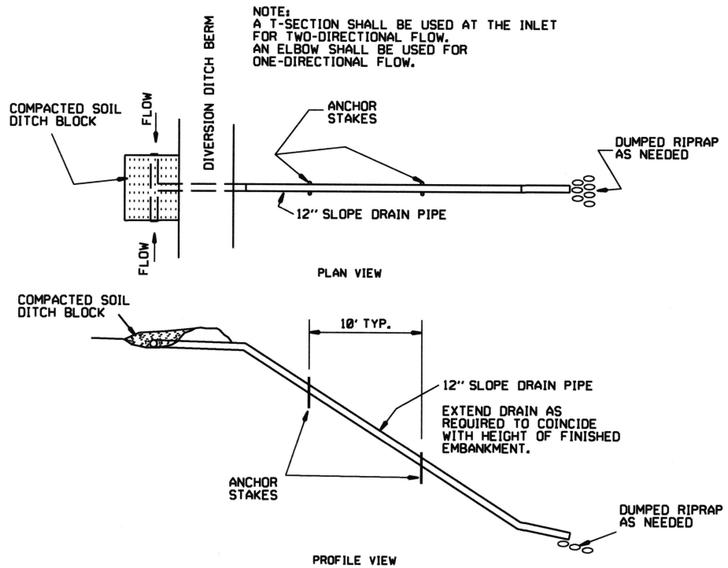
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



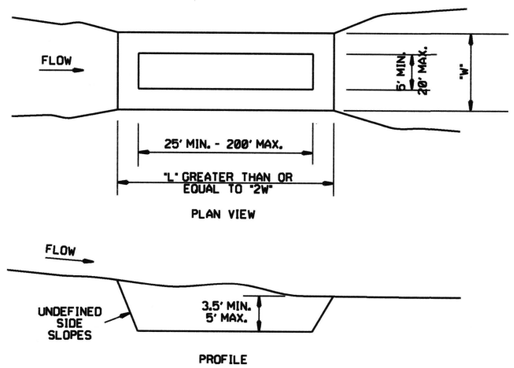
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

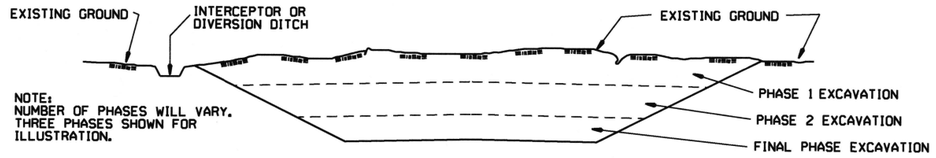
STANDARD DRAWING TEC-2

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



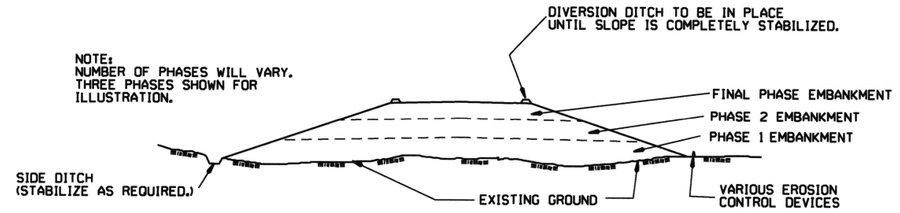
GENERAL NOTE

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

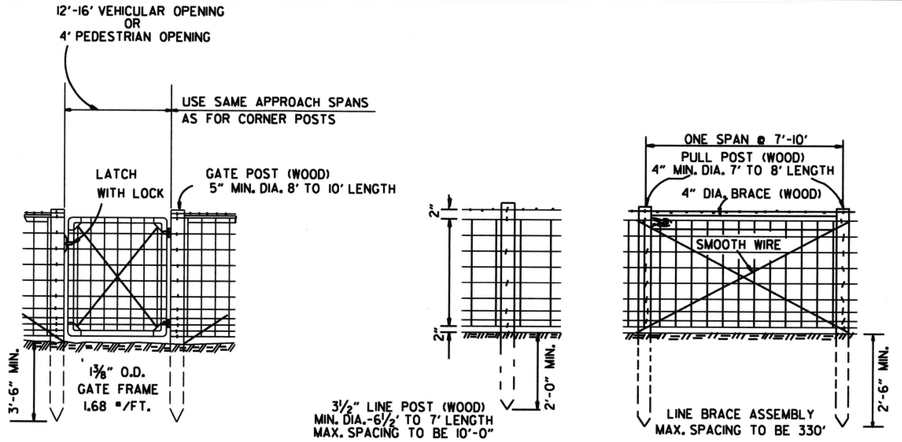
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD 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

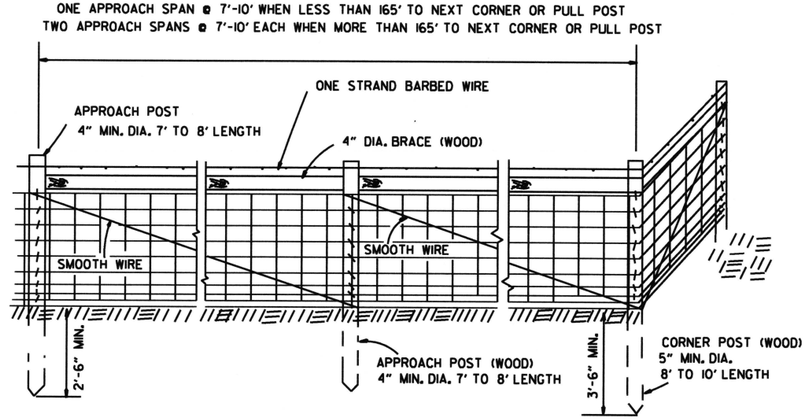
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3



NOTE: STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.



TYPE A FENCE (WOOD 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).

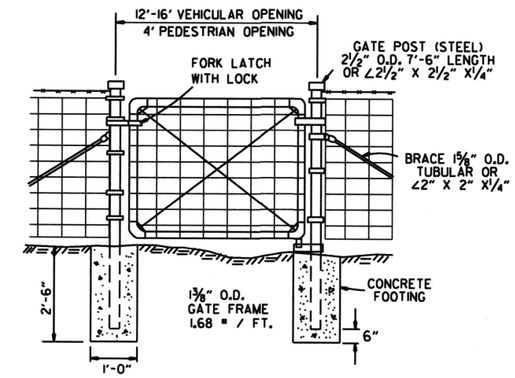
THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF WOOD LINE POSTS OF 7' LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

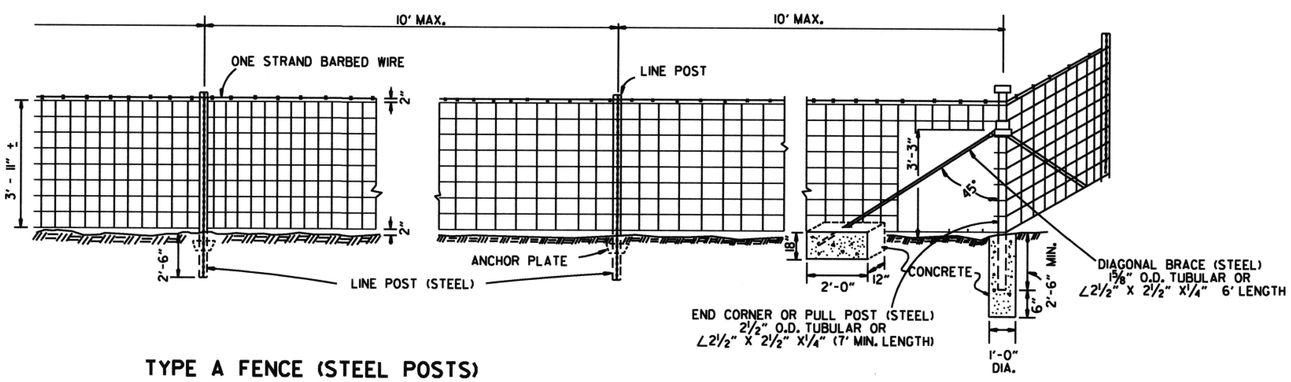
GATE HINGES AND LATCHES WITH LOCKS TO BE OF A TYPE APPROVED BY THE ENGINEER. DRIVEWAY GATES, EITHER SINGLE 12' OR 16' OR DOUBLE 6' TO 8' OPENINGS OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE FOR USE BY 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.

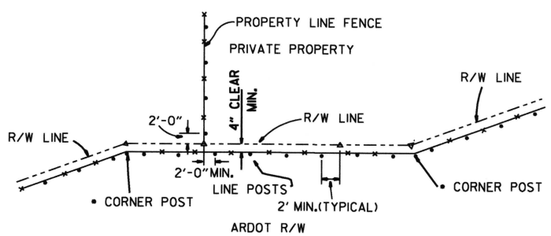
SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

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.





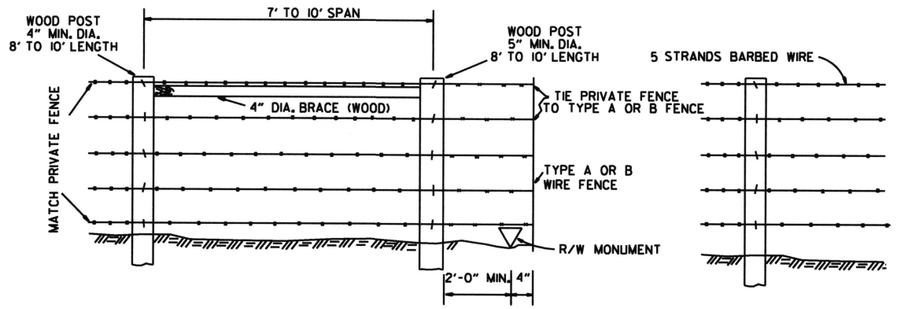
TYPE A FENCE (STEEL POSTS)



*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.

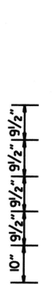
▵ - R/W MONUMENTS
• - FENCE POSTS

RIGHT-OF-WAY FENCE LOCATION



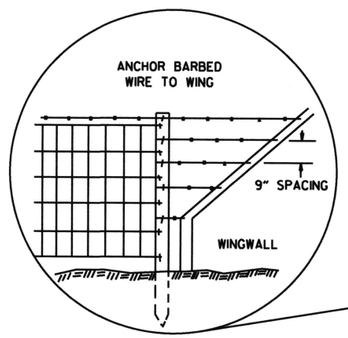
WHERE EXISTING PRIVATE FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN WITH TYPE A FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.

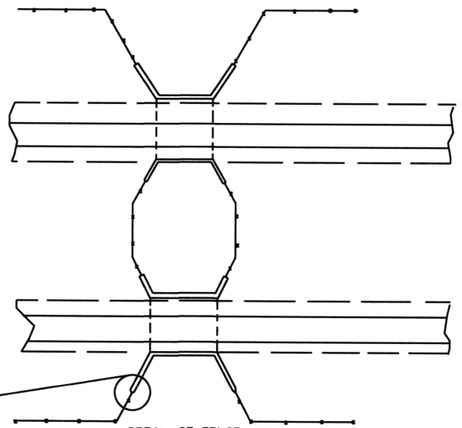
PRIVATE FENCE TERMINAL INSTALLATION



SPACING AND SIZE OF POSTS FOR TYPE B FENCE SHALL BE THE SAME AS TYPE A FENCE.

TYPE B FENCE





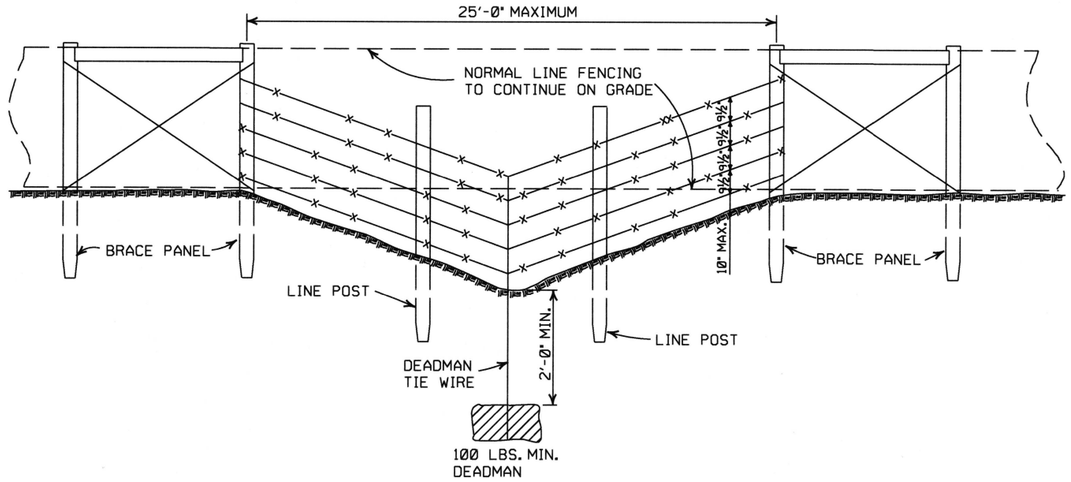
DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

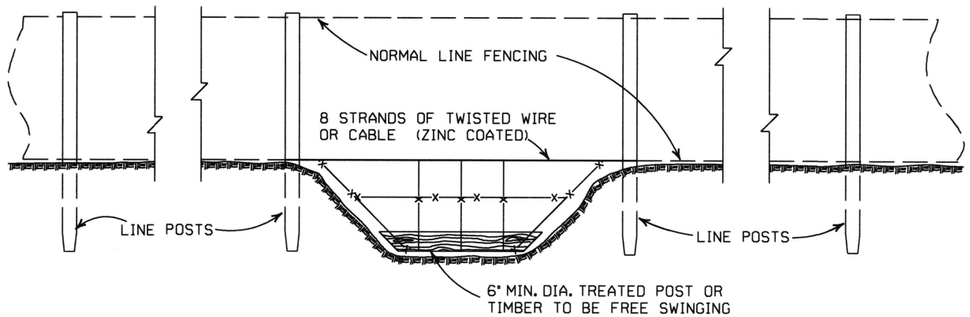
DATE	REVISION	DATE FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	ADDED CORNER POST NOTE	6-2-94
8-5-93	REVISED R-O-W LOCATION DETAIL	8-5-93
10-1-92	ADDED STAPLE NOTE	
8-2-90	REV'D PULL POST LENGTH	
11-30-89	DELETED CLASS CONC.	
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	

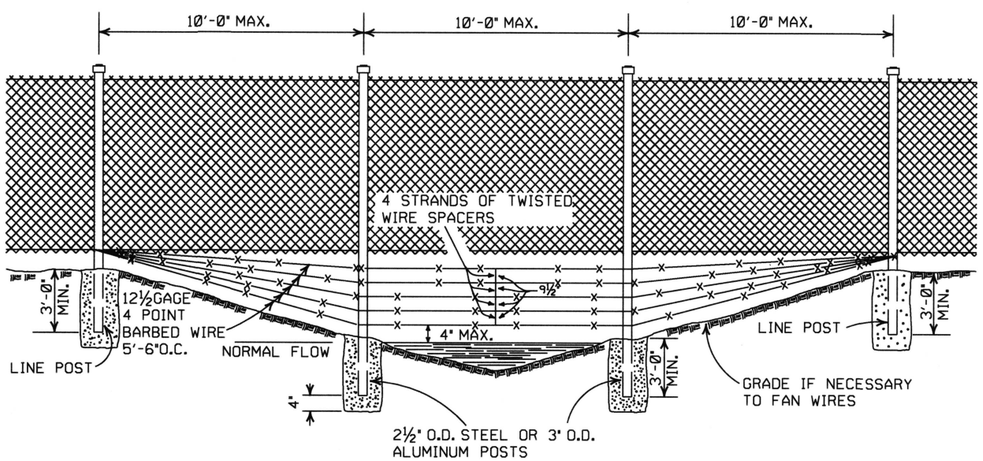
ARKANSAS STATE HIGHWAY COMMISSION

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.

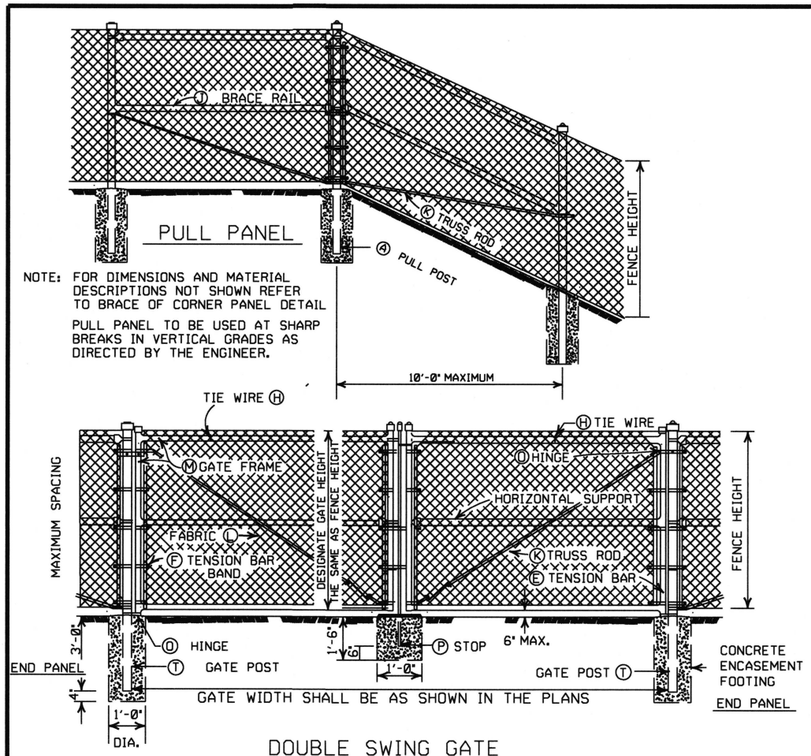
PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

DATE	REVISION	FILMED
4-20-79	REVISED TOP RAIL & TENSION WIRE	696-4-20-79
10-2-72	REVISED AND REDRAWN	529-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE WATER GAPS

STANDARD DRAWING WF-2

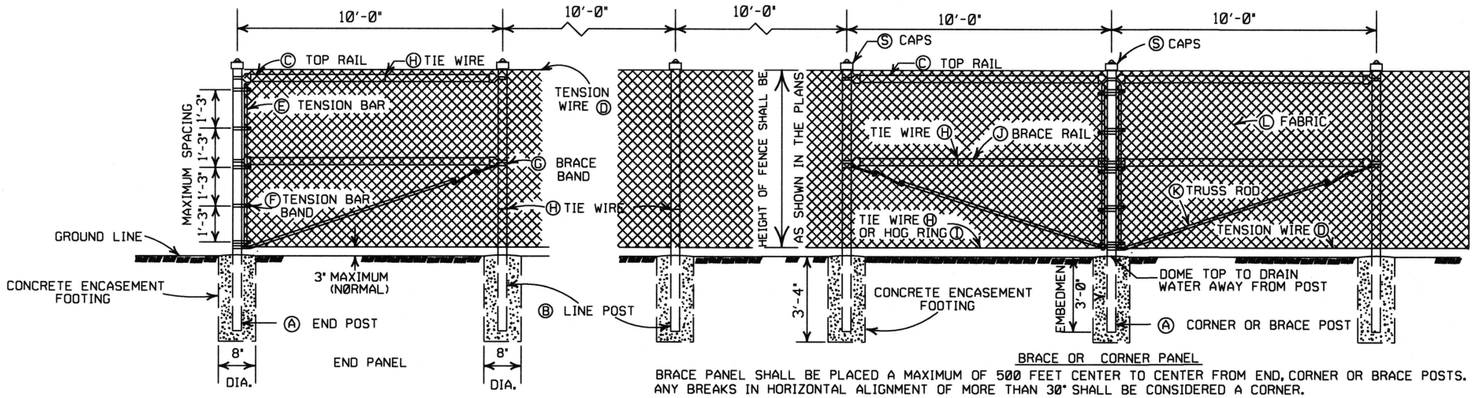


DOUBLE SWING GATE

NOTE: FOR DIMENSIONS AND MATERIAL DESCRIPTIONS NOT SHOWN REFER TO BRACE OF CORNER PANEL DETAIL

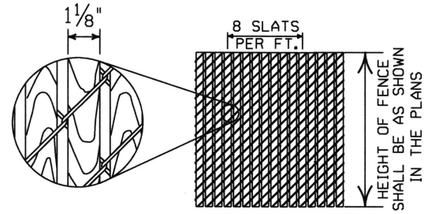
PULL PANEL TO BE USED AT SHARP BREAKS IN VERTICAL GRADES AS DIRECTED BY THE ENGINEER.

POST SPACING DETAIL



BRACE OR CORNER PANEL

BRACE PANEL SHALL BE PLACED A MAXIMUM OF 500 FEET CENTER TO CENTER FROM END, CORNER OR BRACE POSTS. ANY BREAKS IN HORIZONTAL ALIGNMENT OF MORE THAN 30° SHALL BE CONSIDERED A CORNER.



1⅛" X ¼" REDWOOD SLATS(LENGTH TO MATCH HEIGHT OF FENCE)

DETAIL OF REDWOOD SLAT INSTALLATION

(WHERE APPLICABLE)

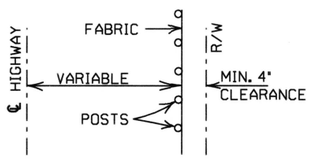
HEIGHT OF FENCE FABRIC	(A) END, PULL CORNER OR BRACE POST	(B) LINE POSTS		(C) TOP RAIL			(D) TENSION WIRE		(E) TENSION BAR		(F) TENSION BAR BAND			(G) BRACE BAND	
		SIZE	TIE SPACING	SIZE	TIE SPACING	MIN. LENGTH	SIZE	TIE SPACING	SIZE	LENGTH	SIZE	BOLT SIZE	SPACING	SIZE	BOLT SIZE
6' AND LESS	2½" O.D.	2" O.D.	1 TIE EVERY 1'-2" OF FABRIC HEIGHT	1⅝" O.D.	1 TIE EVERY 2'-0"	10'-0"	7 GAUGE COIL SPRING WIRE	1 TIE EVERY 1'-0"	MIN. OF ⅜" X ¾"	MIN. OF 2" LESS THAN FABRIC HEIGHT	MIN. OF ¾" X 0.074	⅝" X 1¼"	1 BAND AT TOP AND BOTTOM 15" MAX. INTERVAL BETWEEN BANDS	MIN. OF ¾" X 0.105	⅝" X 1¼"
OVER 6' TO 12' INCL.	3 " O.D.	2½" O.D.													

HEIGHT OF FENCE FABRIC	(H) TIE WIRE	(I) HOG RING	(J) BRACE RAIL SIZE	(J) BRACE RAIL TIE SPACING	(K) TRUSS ROD	(L) FABRIC SIZE	(L) FABRIC MESH	(L) FABRIC SELVAGE	(M) GATE FRAME SIZE	(M) GATE FRAME TIE SPACING	(N) HORIZONTAL SUPPORT SIZE	(N) HORIZONTAL SUPPORT TIE SPACING	(O) HINGE TYPE 180° SWING	(T) GATE POST GATE WIDTH 12' AND LESS	(T) GATE POST GATE WIDTH OVER 12' TO 24' INCL.
6' AND LESS	MIN. OF 12 GA. STEEL OR 9 GA. ALUM.	SAME GAUGE AS FABRIC	1⅝" O.D.	1 TIE EVERY 2'-0"	MIN. OF ⅝" ROUND WITH TIGHTNERS AND FITTINGS	9 GA.	2"	KNUCK -ING AND/OR TWIST -ING	2" O.D.	1 TIE EVERY 1'-0"	2" O.D.	1 TIE EVERY 1'-0"	OFFSET	3" O.D.	4" O.D.
OVER 6' TO 12' INCL.														4" O.D.	

NOTE: POST SIZES SHOWN ARE FOR STEEL. WHERE ALUMINUM IS PROVIDED, LINE POSTS SHALL HAVE AN OUT SIDE DIAMETER OF 2½" FOR FENCE HEIGHT OF 6' AND LESS, AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' TO 12'. END, PULL, CORNER OR BRACE POSTS SHALL HAVE AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' AND LESS; AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHTS OF 6' TO 12'. GATE POSTS WHERE GATE WIDTH IS 12' AND LESS SHALL HAVE AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHT OF 6' AND LESS. ALUMINUM TENSION WIRE SHALL BE 0.192" IN DIAMETER. MINIMUM THICKNESS OF MATERIAL FROM WHICH EXPANSION SLEEVES SHALL BE MADE WILL BE 0.078". POSTS AND RAILS MAY HAVE ANY CROSS-SECTIONAL SHAPE THAT WILL MEET THE SPECIFICATIONS.

OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

ALL MISCELLANEOUS FITTINGS AND HARDWARE SHALL MEET THE REQUIREMENTS AND PRODUCTION TOLERANCES AS SET FORTH IN THE SPECIFICATIONS. 9 GAUGE ALUMINUM WIRE SHALL BE ACCEPTABLE FOR TIEING FABRIC TO TUBULAR AND ROLL FORMED MEMBERS OF STEEL FENCE.



INSTALLATION MAY BE MODIFIED AS SHOWN IN THE PLANS

TYPICAL INSTALLATION DIAGRAM

POSTS AND RAILS

SIZE O.D.	GRADE 1 AND ALUMINUM ALLOY O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT. STEEL	LBS. PER LINEAR FT. ALUMINUM	GRADE 2 O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT.
1⅝	1.660	0.140	2.27	0.786	1.660	0.111	1.84
2	1.900	0.145	2.72	0.940	1.900	0.120	2.28
2½	2.375	0.154	3.65	1.264	2.375	0.130	3.11
3	2.875	0.203	5.79	2.004	2.875	0.160	4.64
3½	3.500	0.216	7.58	2.621	3.500	0.160	5.71
4	4.000	0.226	9.11	3.151	4.000	0.160	6.56

TOLERANCES ON DIMENSIONS AND WEIGHTS ACCORDING TO AASHTO M 181

GENERAL NOTES:

(C) CHAIN LINK FENCE BEING PLACED ON PRIVATE PROPERTY SHALL INCLUDE A TOP RAIL. ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LIN. FT. OF CHAIN LINK FENCE.

(D) TENSION WIRE: SHALL BE SECURED TO ALL TERMINAL, PULL, BRACE OR CORNER POSTS WITH TENSION BAR BANDS.

(J) BRACE RAIL: BRACE RAILS SHALL BE PROVIDED AT ALL TERMINAL, PULL, BRACE OR CORNER POSTS HALFWAY BETWEEN THE TOP RAIL AND GROUND LEVEL WHEN TOPRAIL IS SPECIFIED AND TWELVE INCHES (12") DOWN FROM TOP OF FABRIC WHEN TOP TENSION WIRE IS SPECIFIED. BRACE RAIL SHALL EXTEND FROM SUCH POST TO THE FIRST ADJACENT LINE POST.

(L) FABRIC: SHALL CONFORM TO THE SPECIFICATIONS.

(M) GATE FRAMES: SHALL BE CONSTRUCTED OF TUBULAR MEMBERS ASSEMBLED BY USE OF HEAVY PRESSED STEEL, MALLEABLE FITTINGS OR BY WELDING. ALL GATES SHALL HAVE ONE HORIZONTAL SUPPORT EXTENDING THE WIDTH OF THE GATE AT THE MIDPOINTS OF VERTICAL FRAME MEMBERS. THE COMPLETE FRAME SHALL BE RIGID AND HAVE AMPLE STRENGTH TO BE FREE FROM SAG AND TWIST.

(O) HINGES: SHALL BE OF HEAVY PATTERN, OF ADEQUATE STRENGTH FOR GATE, AND WITH LARGE BEARING SURFACES FOR CLAMPING IN POSITION. THE HINGE SHALL BE OF THE PROPER TYPE TO ALLOW FOR THE DESIGNATED DEGREE OF SWING. THE HINGE SHALL NOT TWIST OR TURN UNDER THE ACTION OF THE GATE. THE GATES SHALL BE CAPABLE OF BEING OPENED AND CLOSED EASILY BY ONE PERSON.

(P) LATCHES AND STOPS: SHALL BE PROVIDED FOR ALL GATES. GATES SHALL HAVE A DROP BAR LATCH. LATCHES SHALL BE ARRANGED FOR LOCKING. THE STOP FOR DROP BAR LATCHES SHALL BE SET IN CONCRETE AND ENGAGE THE PLUNGER OF THE BAR LATCH.

(S) CAPS: ALL POSTS, EXCEPT ROLL FORMED POSTS AND "T" POSTS SHALL BE CAPPED OVER THE EXTERIOR OF THE POST, AND SHALL CONFORM TO ASTM F626.

CONCRETE REQUIRED FOR THE EMBEDMENT OF ALL POSTS SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR CHAIN LINK FENCE.

POSTS SHALL BE SPACED EQUIDISTANT ON A MAXIMUM OF 10' CENTERS.

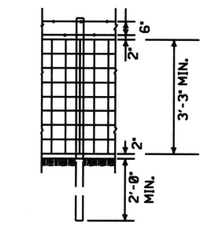
EXCAVATION FOR POSTS: IN OTHER THAN ROCK SHALL BE OF THE DIMENSIONS INDICATED. IF ROCK IS ENCOUNTERED BEFORE REACHING THE REQUIRED DEPTH, THE EXCAVATION SHALL BE CONTINUED TO THE DEPTH INDICATED OR 1'-6" INTO THE ROCK, WHICHEVER IS LESS, AND SHALL BE A MINIMUM OF 8 INCHES IN DIAMETER.

DATE	REVISION	FILMED
11-17-10	REVISED TRUSS ROD	
12-10-09	REVISED POSTS & RAILS TABLE	
5-21-09	ADDED TABLE & GEN. NOTE (C)	
8-22-02	REVISED NOTES, REMOVED TABLE, & REMOVED FENCE ALTERNATE	
4-3-97	REVISED BRACE RAIL NOTE	
10-18-96	REVISED AASHTO & ASTM REF.	
11-3-94	REVISED NOTE (L)	
10-1-92	DELETED ALTERNATE POST	10-1-92
8-15-91	DELETED ROLL FORMED POST DETAIL & ADDED NOTE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
11-17-88	REVISED O.D. SIZES	668-11-17-88
10-30-87	GENERAL REVISIONS	548-10-30-87
4-20-79	REVISED TOP RAIL & TENSION WIRE	695-4-20-79
10-2-72	REVISED AND REDRAWN	530-10-2-72

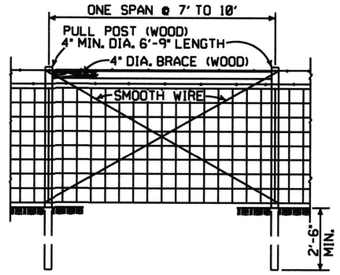
ARKANSAS STATE HIGHWAY COMMISSION

CHAIN LINK FENCE

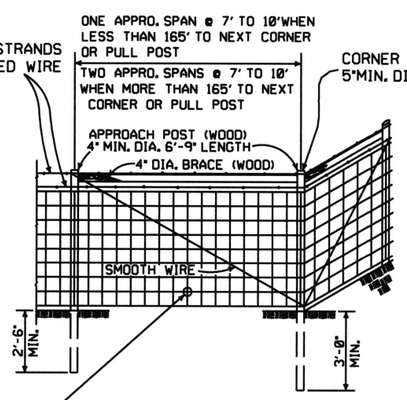
STANDARD DRAWING WF-3

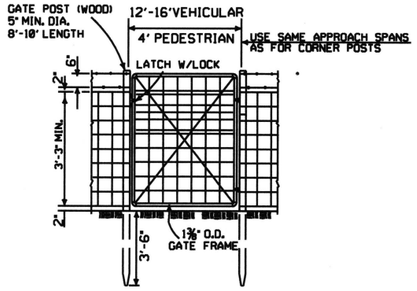


LINE POST
3" MIN. DIA. 6'-3" LENGTH
MAX. SPACING TO BE 10'-0"

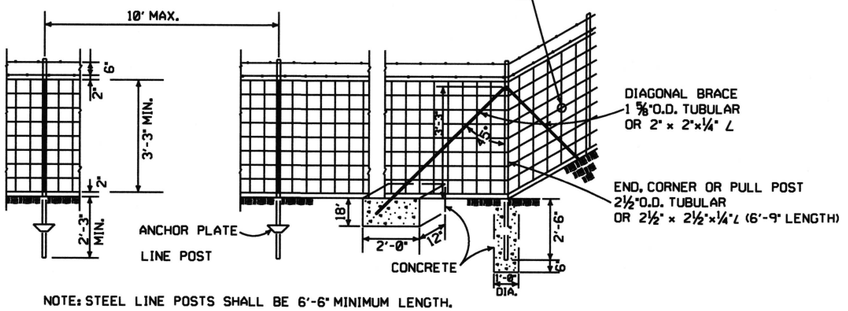


LINE BRACE ASSEMBLY
MAX. SPACING TO BE 330'

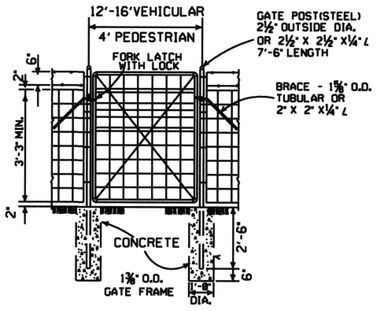


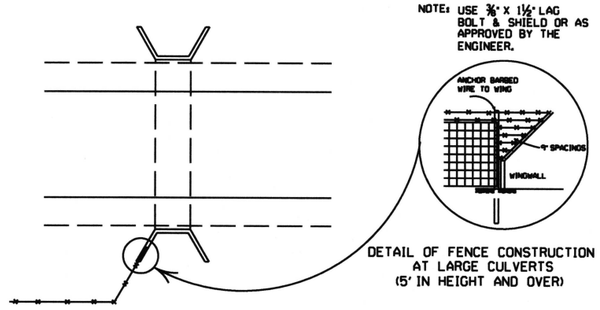


TYPE C FENCE (WOOD POSTS)



OTHER APPROVED TIES WILL BE PERMITTED





DETAIL OF FENCE CONSTRUCTION
AT LARGE CULVERTS
(5' IN HEIGHT AND OVER)

NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.

TYPE C FENCE (STEEL POSTS)

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.

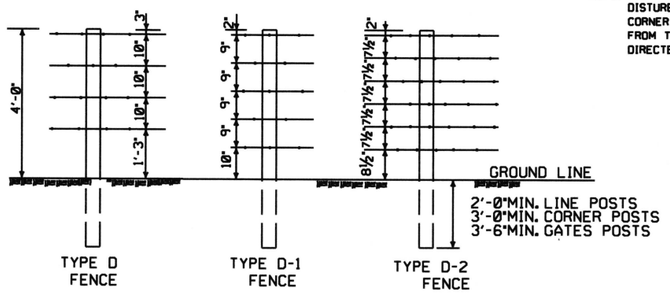
AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED 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.

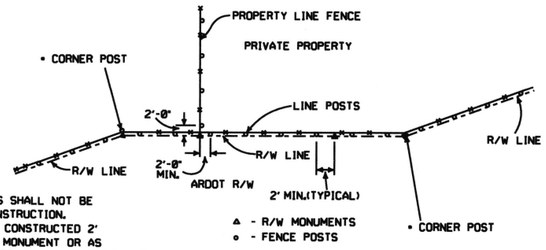
SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

4 STRANDS BARBED WIRE (D)
5 STRANDS BARBED WIRE (D-1)
6 STRANDS BARBED WIRE (D-2)

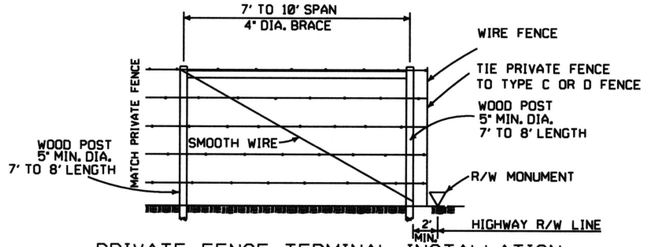


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



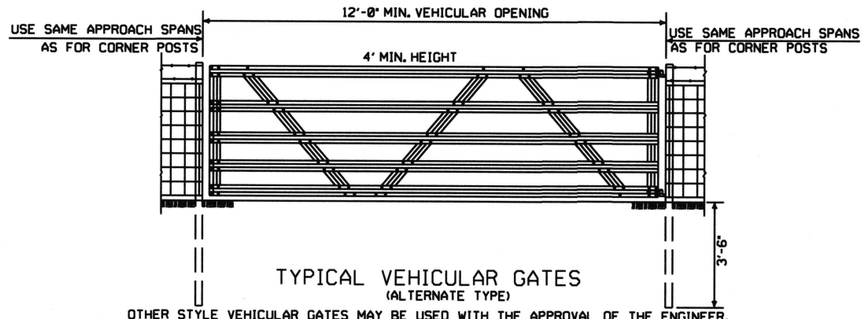
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

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