DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	1	616
				(2)	HWY. 70 EAST - HWY. 7 NORTH (F)			

"A FULLY CONTROLLED ACCESS FACILITY"
ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

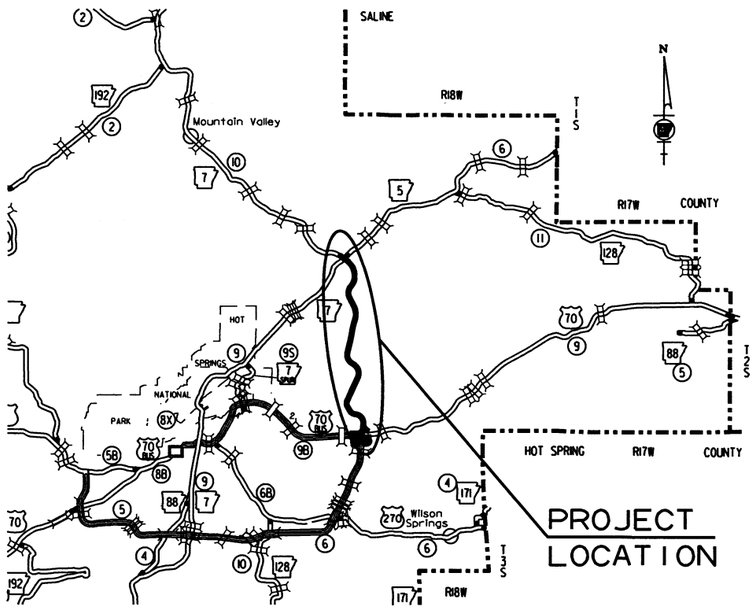
HWY. 70 EAST - HWY. 7 NORTH (F)

GARLAND COUNTY

ROUTE 7 SECTION 10

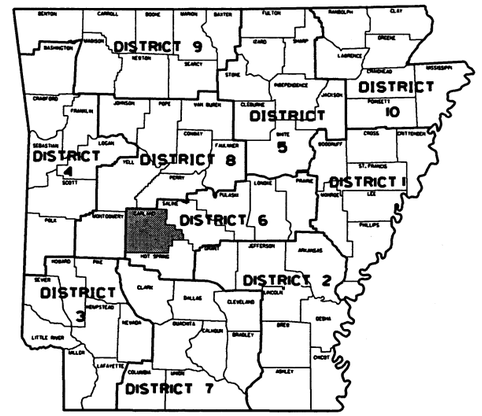
JOB R60140

FED. AID PROJ. STPF-9210(38)



VICINITY MAP

NOT TO SCALE



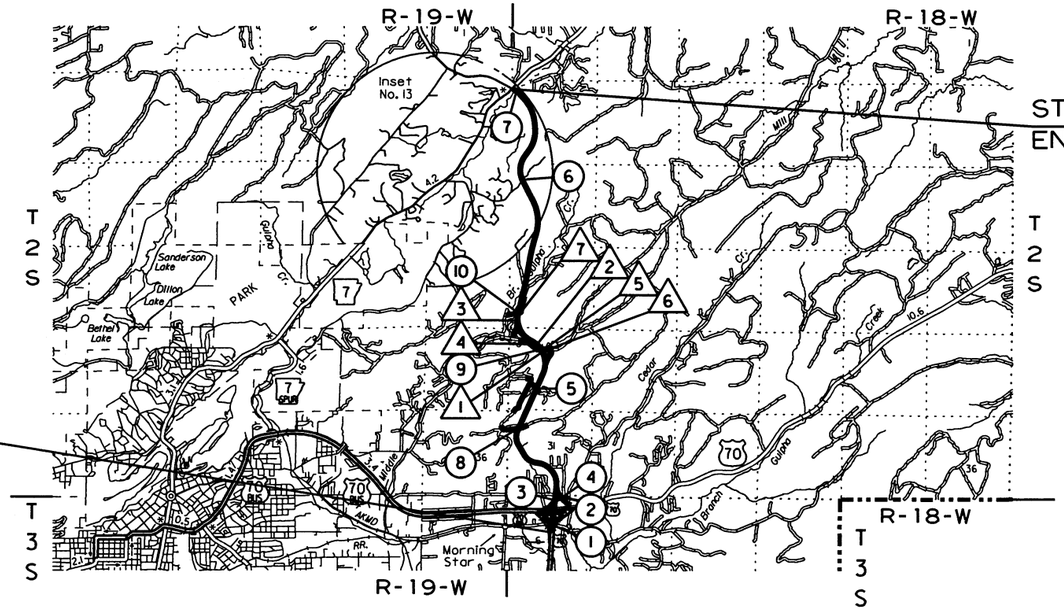
ARK. HWY. DIST. NO. 6

DESIGN TRAFFIC DATA

DESIGN YEAR	2039
2019 ADT	7,000
2039 ADT	9,700
2039 DHV	1,067
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	5%
DESIGN SPEED	50 MPH

SEE SHEET 2 FOR BRIDGE DATA AND STRUCTURES INFO.

STA. 615+94.76
BEGIN JOB R60140



STA. 923+05.44
END JOB R60140

APPROVED

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
M.E. BANES

10-15-19
DEPUTY DIRECTOR
AND CHIEF ENGINEER

BEGINNING OF PROJECT	MID POINT OF PROJECT	END OF PROJECT
LATITUDE = N 34°30'08"	LATITUDE = N 34°32'30"	LATITUDE = N 34°34'41"
LONGITUDE = W 92°58'31"	LONGITUDE = W 92°58'57"	LONGITUDE = W 92°58'55"

GROSS LENGTH OF PROJECT	30710.68	FEET	OR	5.816	MILES
NET " " ROADWAY	29401.95	"	"	5.568	"
NET " " BRIDGES	1308.73	"	"	0.248	"
NET " " PROJECT	30710.68	"	"	5.816	"

6/26/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	2	616

(2) BRIDGE DATA

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
10-15-19

BRIDGE DATA

(1) MAIN LANES
STA. 617+22.98 BR. END
40'-0" CLEAR ROADWAY
74'-0" SIMPLE COMPOSITE W-BEAM SPAN
76'-1¾" TOTAL BRIDGE LENGTH
BR. NO B7206
STA. 617+99.12 BR. END

(2) MAIN LANES
STA. 624+27.90 BR. END
40'-0" CLEAR ROADWAY
388'-0" CONTINUOUS COMPOSITE
PLATE GIRDER UNIT (81'-135'-100'-72')
390'-2½" TOTAL BRIDGE LENGTH
BR. NO B7207
STA. 628+18.10 BR. END

(3) MAIN LANES
STA. 635+53.75 BR. END
88'-0" CLEAR ROADWAY
245'-0" CONTINUOUS COMPOSITE
W-BEAM UNIT (75'-95'-75')
247'-6" TOTAL BRIDGE LENGTH
BR. NO 07455
STA. 638+01.25 BR. END

(4) RAMP WN
STA. 636+07.92 BR. END
25'-0" CLEAR ROADWAY
225'-0" CONTINUOUS COMPOSITE
W-BEAM UNIT (70'-85'-70')
227'-2" TOTAL BRIDGE LENGTH
BR. NO 07456
STA. 638+35.08 BR. END

(5) MAIN LANES
STA. 720+45.92 BR. END
42'-0" CLEAR ROADWAY
120'-0" SIMPLE COMPOSITE
PLATE GIRDER SPAN
122'-2" TOTAL BRIDGE LENGTH
BR. NO B7458
STA. 721+68.08 BR. END

(6) MAIN LANES
STA. 855+12.92 BR. END
42'-0" CLEAR ROADWAY
120'-0" SIMPLE COMPOSITE
PLATE GIRDER SPAN
122'-2" TOTAL BRIDGE LENGTH
BR. NO B7461
STA. 856+35.08 BR. END

(7) MAIN LANES
STA. 920+69.50 BR. END
44' CLEAR ROADWAY
200'-0" CONTINUOUS R.C. SLAB UNIT
(40', 40', 40', 40', 40')
202'-2" TOTAL BRIDGE LENGTH
BR. NO 07462
STA. 922+71.66 BR. END

(8) PROMISE LAND DRIVE
STA. 108+08.89 BR. END
28'-0" CLEAR ROADWAY
495'-0" CONTINUOUS COMPOSITE
PLATE GIRDER UNIT (165'-165'-165')
497'-2½" TOTAL BRIDGE LENGTH
BR. NO 07457
STA. 113+06.10 BR. END

(9) MILL CREEK ROAD
STA. 112+79.08 BR. END
24'-0" CLEAR ROADWAY
195'-0" CONTINUOUS COMPOSITE
PLATE GIRDER UNIT (90'-105')
197'-6" TOTAL BRIDGE LENGTH
BR. NO 07459
STA. 114+76.58 BR. END

(10) DENISE LANE
STA. 102+89.16 BR. END
24'-0" CLEAR ROADWAY
220'-0" CONTINUOUS COMPOSITE
PLATE GIRDER UNIT (110', 110')
222'-2⅞" TOTAL BRIDGE LENGTH
BR. NO 07460
STA. 105+11.40 BR. END

STRUCTURES OVER 20' SPAN

△1 MAIN LANES
STA. 741+75.00 CONSTRUCT
QUAD. 9' X 6' X 126' R.C. BOX CULVERT
(15°RT. FWD. SKEW)
Q50=1700 CFS D.A.=448 ACRES
SPAN = 39'-4"

△2 MAIN LANES
STA. 750+25.00 CONSTRUCT
QUINT. 12' X 12' X 264' R.C. BOX CULVERT
(45°LT. FWD. SKEW)
Q50=4890 CFS D.A.=1044 ACRES
SPAN = 65'-1"

△3 MAIN LANES
STA. 768+75.00 CONSTRUCT
QUAD. 10' X 10' X 268' R.C. BOX CULVERT
(45°RT. FWD. SKEW)
Q50=3111 CFS D.A.=895 ACRES
SPAN = 44'-0"

△4 MILL CREEK ROAD
STA. 105+20.00 CONSTRUCT
SEXT. 12' X 10' X 85' R.C. BOX CULVERT
(45°RT. FWD. SKEW)
Q50=4890 CFS D.A.=1044 ACRES
SPAN = 76'-11"

△5 MILL CREEK ROAD
STA. 116+00.00 CONSTRUCT
QUINT. 12' X 12' X 146' R.C. BOX CULVERT
(15°RT. FWD. SKEW)
Q50=4180 CFS D.A.=1638 ACRES
SPAN = 65'-9"

△6 MILL CREEK ROAD
STA. 118+64.00 CONSTRUCT
QUAD. 12' X 7' X 88' R.C. BOX CULVERT
(45°LT. FWD. SKEW)
Q50=1750 CFS D.A.=1069 ACRES
SPAN = 51'-2"

△7 DENISE LANE
STA. 107+45.00 CONSTRUCT
QUINT. 10' X 8' X 74' R.C. BOX CULVERT
(45°LT. FWD. SKEW)
Q50=3111 CFS D.A.=895 ACRES
SPAN = 54'-1"

8/16/2019
dwbc553
RR60140 DWB.DGN

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217	DETAILS OF END BENTS HWY. 70 FRONTAGE RD. (SHEET 2 OF 4)	07456	60992
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STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11435 TIMOTHY D. SMITH 10-15-19

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED.ROD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.	R6040	3	616

(2) INDEX OF SHEETS

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304	SUPPLEMENTAL DETAILS OF CONCRETE RIPRAP	B7206, B7207, 07455, 07456, B7458, 07459, 07460, & B7461	61079
305	COMMON DETAILS OF RETAINING WALLS (SHEET 1 OF 2)	B7206, B7458, 07459, 07460, & B7461	61080
306	COMMON DETAILS OF RETAINING WALLS (SHEET 2 OF 2)	B7206, B7458, 07459, 07460, & B7461	61081
307	LAYOUT OF RETAINING WALL 1A	B7206	61082
308	LAYOUT OF RETAINING WALL 1B	B7206	61083
309	LAYOUT OF RETAINING WALL 6A	B7458	61084
310	LAYOUT OF RETAINING WALL 6B	B7458	61085
311	LAYOUT OF RETAINING WALL 7A	07459	61086
312	LAYOUT OF RETAINING WALL 7B	07459	61087
313	LAYOUT OF RETAINING WALL 8A	07460	61088
314	LAYOUT OF RETAINING WALL 8B	07460	61089
315	LAYOUT OF RETAINING WALL 9A	B7461	61090
316	LAYOUT OF RETAINING WALL 9B	B7461	61091
317	DETAILS OF TYPE 1 SPECIAL APPROACH GUTTERS	B7206, B7207, 07455, 07456, B7458, & B7461	61092
318	DETAILS OF TYPE 2 SPECIAL APPROACH GUTTERS	B7206 & B7207	61093
319	DETAILS OF TYPE 3 SPECIAL APPROACH GUTTER	B7207	61094
320	DETAILS OF TYPE 4 SPECIAL APPROACH GUTTER	07455	61095
321	DETAILS OF TYPE 5 SPECIAL APPROACH GUTTERS	07462	61096
322	DETAILS OF TYPE 6 SPECIAL APPROACH GUTTERS	07462	61097
323	DETAILS OF TYPE 1 SPECIAL APPROACH SLAB	B7207	61098
324	DETAILS OF TYPE 2 SPECIAL APPROACH SLAB	07455	61099
325	DETAILS OF TYPE 3 SPECIAL APPROACH SLAB	07455	61100
326	DETAILS OF TYPE 4 SPECIAL APPROACH SLAB	07462	61101
327 - 616	CROSS SECTIONS		

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
JAMES D. SMITH
10-25-19

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.AID DIST.NO.
10-07-19				6

STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
ARK.	RG040	4	616

(2) INDEX OF SHEETS

INDEX OF SHEETS

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.		R60140	5	616

(2) STANDARD DRAWINGS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-10-19

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
55009	STANDARD DETAILS FOR NEOPRENE STRIP SEAL JOINTS	02-11-16
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	01-15-19
55020	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS	03-24-16
55030A	STANDARD DETAILS FOR TYPE A APPROACH GUTTERS	09-02-15
55030B	STANDARD DETAILS FOR TYPE B APPROACH GUTTERS	09-02-15
55040C1	STANDARD DETAILS FOR TYPE C1 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
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
FPC-9	DETAILS OF DROP INLETS & JUNCTION BOXES	11-16-01
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-7	GUARD RAIL DETAILS (TYPE C) STREET/ROAD BARRICADE OR TEMPORARY INSTALLLATION	11-16-17
GR-8	GUARD RAIL DETAILS	11-16-17
GR-8A	GUARD RAIL DETAILS	11-16-17
GR-9	GUARD RAIL DETAILS	04-17-08
GR-9A	GUARD RAIL DETAILS	04-17-08
GR-10	GUARD RAIL DETAILS	11-16-17
GR-11	GUARD RAIL DETAILS	11-16-17
GR-12	GUARD RAIL DETAILS	11-16-17
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
PM-1	PAVEMENT MARKING DETAILS	06-01-17
PM-2	PERMANENT PAVEMENT MARKING ON ACCESS CONTROLLED ROADWAYS	12-08-16
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	01-09-87
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	10-18-96
SI-1	DETAILS OF SPECIAL ITEMS	10-25-18
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	04-13-17
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	09-02-15
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	07-25-19
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	02-27-14
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	10-15-09
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
TEC-4	TEMPORARY EROSION CONTROL DEVICES	07-26-12
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
W-X003-1	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	05-10-66
W-X15	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	06-13-63
W-X153-1	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	05-10-66
W-X30	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	07-15-63
W-X303-1	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	05-10-66
R-100X-0	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	02-08-63
R-100X-X2	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	01-14-63
R-100X-X3	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	12-11-64
R-200X-X1	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	10-15-62
R-215X-1	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	10-03-63
R-130X-1	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	01-24-64

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STANDARD DRAWINGS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
10-23-19				JOB NO.		R60140	6	616
10-30-19								

(2) GOVERNING SPECIFICATIONS AND GENERAL NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

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 R60140
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
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
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
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
605-1	CONCRETE DITCH PAVING
606-1	PIPE CULVERTS FOR SIDE DRAINS
617-1	GUARDRAIL TERMINAL (TYPE 2)
620-1	MULCH COVER
732-1	CRASH CUSHION
800-1	STRUCTURES
802-3	CONCRETE FOR STRUCTURES
804-2	REINFORCING STEEL FOR STRUCTURES
808-1	INSTALLATION OF ELASTOMERIC BEARINGS
808-2	ELASTOMERIC BEARINGS
JOB R60140	ARCHITECTURAL FINISH
JOB R60140	BIDDING REQUIREMENTS AND CONDITIONS
JOB R60140	BLASTING FOR ENHANCEMENT OF ROCK FEATURES AND FACES
JOB R60140	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB R60140	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB R60140	CARGO PREFERENCE ACT REQUIREMENTS
JOB R60140	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB R60140	CLEARING AND GRUBBING
JOB R60140	COMPACTED EMBANKMENT SPECIAL
JOB R60140	CONCRETE BARRIER WALL
JOB R60140	CONSTRUCTION DELAY DUE TO ARCHEOLOGICAL MITIGATION
JOB R60140	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB R60140	CONSTRUCTION PROJECT INFORMATION SIGN
JOB R60140	CONTRACTOR PROVIDED CULTURAL RESOURCES CLEARANCE FOR OFF-SITE LOCATIONS
JOB R60140	COORDINATION OF WORK
JOB R60140	DELAY IN RIGHT OF WAY OCCUPANCY
JOB R60140	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB R60140	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB R60140	FLEXIBLE BEGINNING OF WORK – CALENDAR DAY CONTRACT
JOB R60140	GEOTECHNICAL REQUIREMENTS FOR BRIDGE CONSTRUCTION
JOB R60140	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB R60140	MAINTENANCE OF TRAFFIC
JOB R60140	MANDATORY ELECTRONIC CONTRACT
JOB R60140	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB R60140	MOBILIZATION
JOB R60140	NESTING SITES OF MIGRATORY BIRDS
JOB R60140	OFF-SITE RESTRAINING CONDITIONS FOR NORTHERN LONG-EARED BATS
JOB R60140	PARTNERING REQUIREMENTS
JOB R60140	PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)
JOB R60140	PLASTIC PIPE
JOB R60140	PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS
JOB R60140	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB R60140	PROGRESSION OF EARTHWORK FOLLOWING CLEARING AND GRUBBING
JOB R60140	PROSECUTION AND PROGRESS WITH BID SCHEDULE
JOB R60140	RESTRAINING CONDITIONS
JOB R60140	RETAINING WALLS
JOB R60140	SECTION 404 STANDARD INDIVIDUAL PERMIT REQUIREMENTS
JOB R60140	SEQUENCE OF CONSTRUCTION
JOB R60140	SHORING FOR CULVERTS
JOB R60140	SITE USE (A+C METHOD) - CALENDAR DAY CONTRACT
JOB R60140	SOIL STABILIZATION
JOB R60140	SPECIAL SAFETY REQUIREMENTS FOR BRIDGES
JOB R60140	STONE FOR IN-STREAM CHANNEL WORK
JOB R60140	STORM WATER POLLUTION PREVENTION PLAN
JOB R60140	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB R60140	TEXTURED COATING FINISH
JOB R60140	UTILITY ADJUSTMENTS
JOB R60140	VALUE ENGINEERING
JOB R60140	WARM MIX ASPHALT
JOB R60140	WATER POLLUTION CONTROL
JOB R60140	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 ENSURE 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 SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.

8/19/2019

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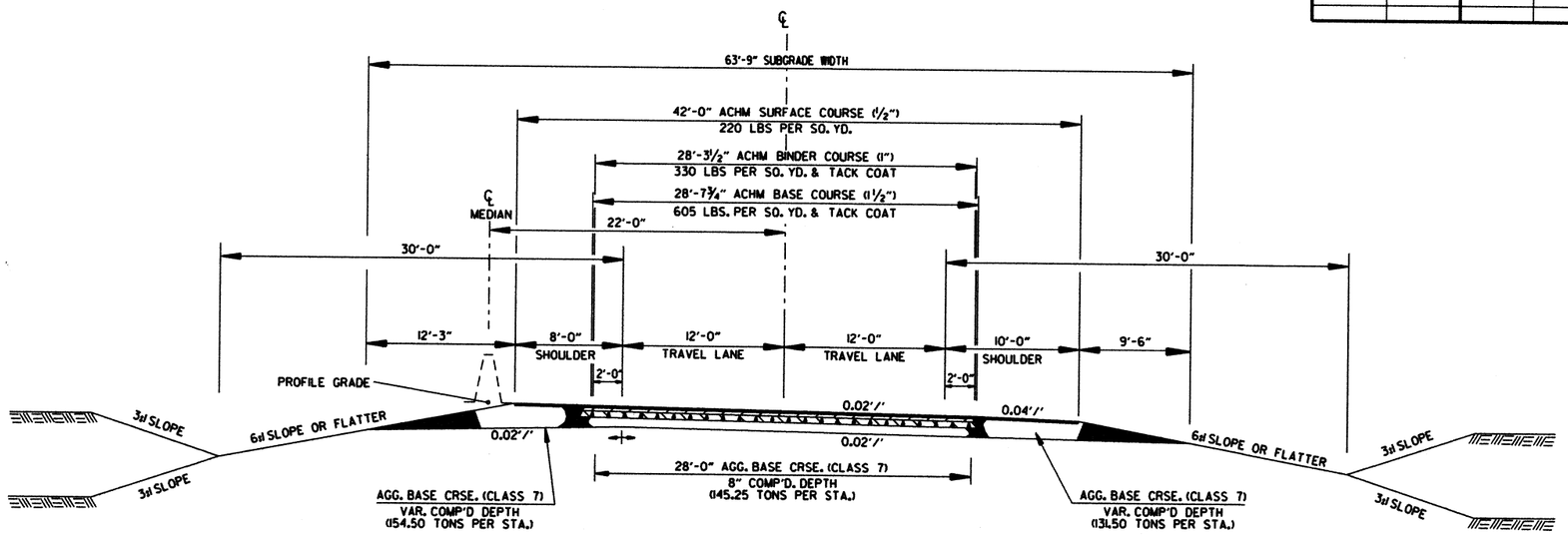
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	7	616

(2) TYPICAL SECTIONS OF IMPROVEMENT

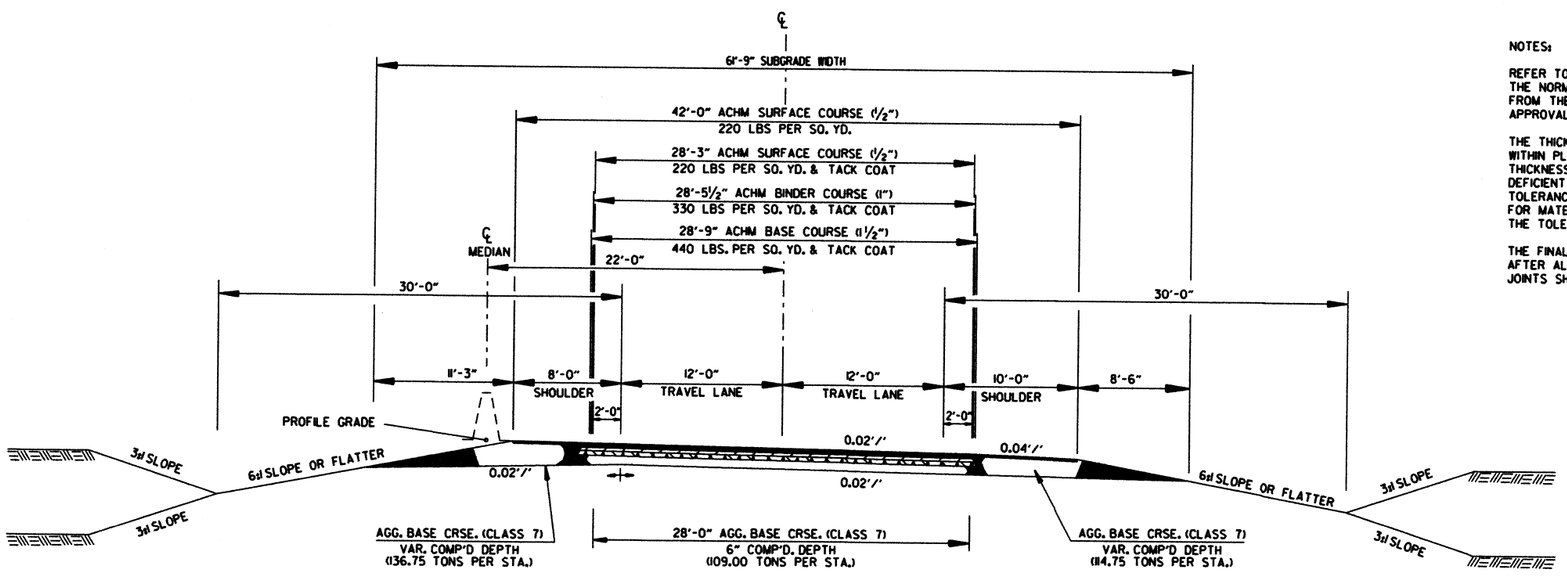
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



HWY. 7 - MAIN LANES

STA. 616+09.76* TO STA. 616+86.48

*NOTE:
SEE SPECIAL DETAIL "PAVEMENT TRANSITION DETAIL AT BEGINNING OF JOB" FOR STA. 615+94.76 TO STA. 616+09.76



HWY. 7 - MAIN LANES

STA. 618+35.62 TO STA. 624+27.90
STA. 628+54.60 TO STA. 631+25.00
STA. 638+43.52 TO STA. 638+59.20
STA. 851+30.88 TO STA. 854+76.42
STA. 856+71.58 TO STA. 858+86.87
STA. 904+37.18 TO STA. 913+92.05

NOTES:

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 (25mm) OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

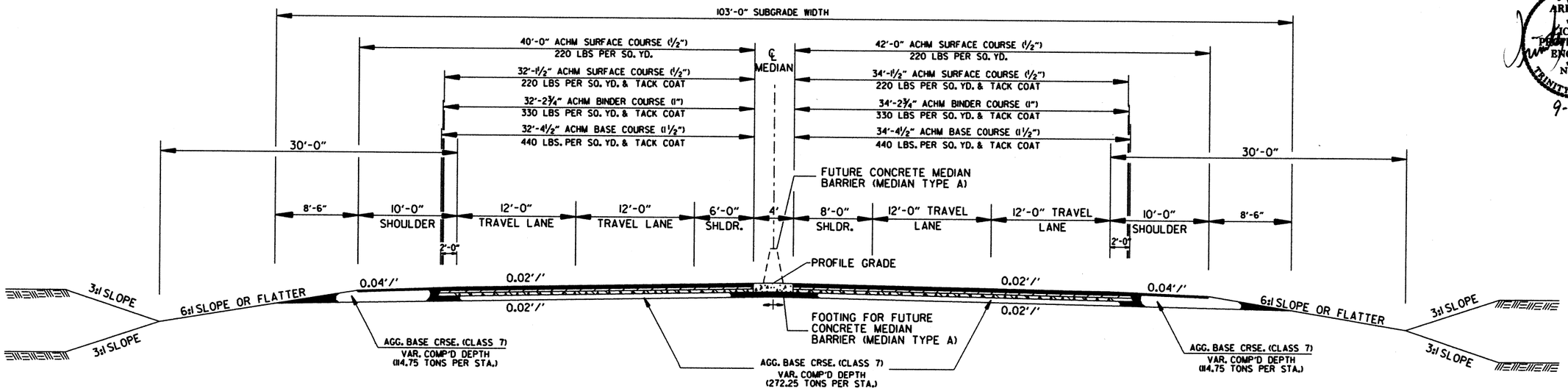
8/16/2019
dwbc553
RR60140 DWB.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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.		R60140	8	616

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



HWY. 7 - MAIN LANES
4-LANE SECTION

STA. 631+25.00 TO STA. 635+17.25

NOTES:

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 (25mm) OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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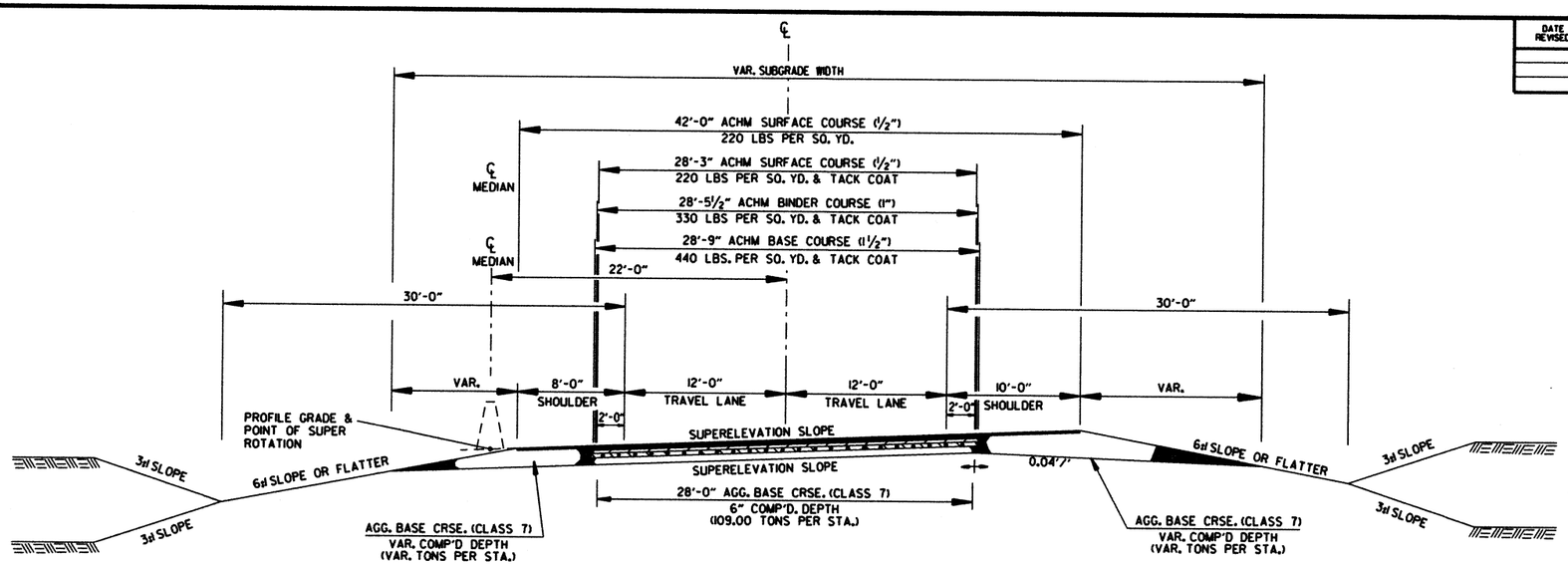
dwbc553
RR60140 DWB.DGN
8/16/2019

TYPICAL SECTIONS OF IMPROVEMENT

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.		R60140	9	616

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

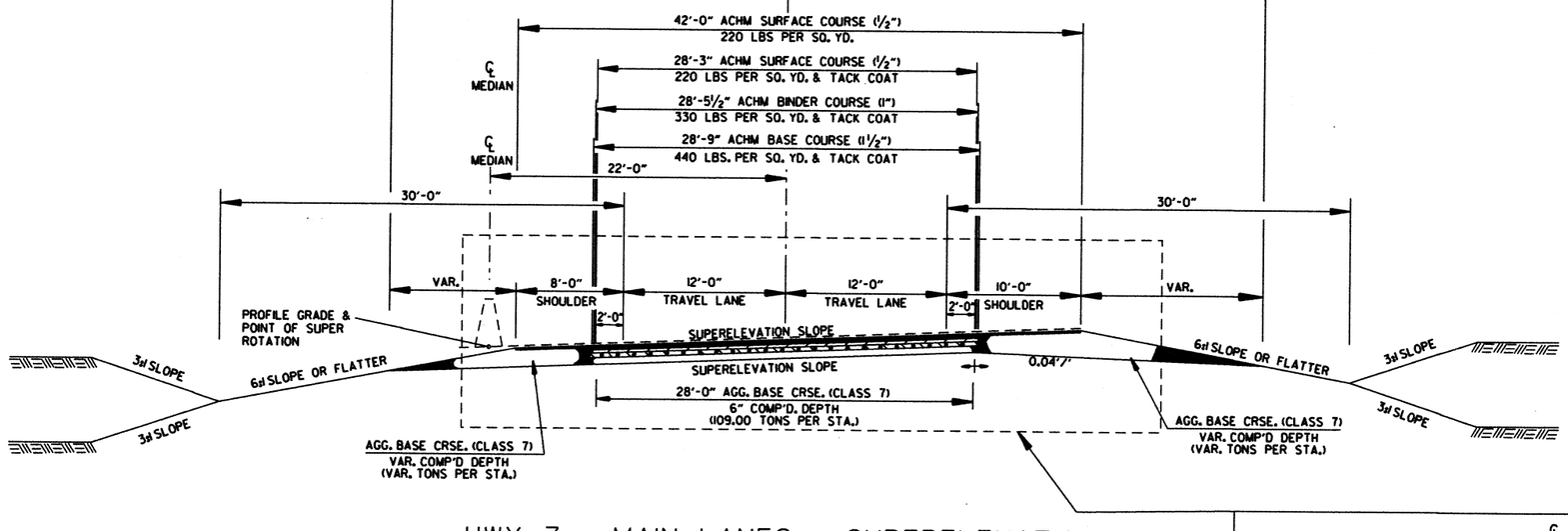


HWY. 7 - MAIN LANES - SUPERELEVATION (CURVE TO LEFT)

STA. 638+59.20 TO STA. 654+12.78*
STA. 725+86.08 TO STA. 754+16.39**

*STA. 652+12.78 - STA. 654+12.78
2" VERTICAL TRANSITION FROM ULITMATE FINISHED GRADE TO INTERIM FINISHED GRADE

**STA. 752+16.39 - STA. 754+16.39
2" VERTICAL TRANSITION FROM ULITMATE FINISHED GRADE TO INTERIM FINISHED GRADE



NOTES:

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.

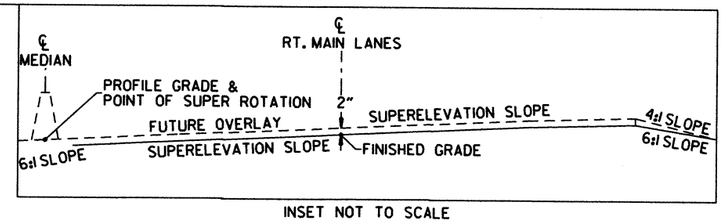
THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH (25mm) OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

HWY. 7 - MAIN LANES - SUPERELEVATION (CURVE TO LEFT)

STA. 654+12.78 TO STA. 663+33.61
STA. 823+20.79 TO STA. 851+30.88
STA. 881+11.66 TO STA. 904+37.18*

*STA. 902+37.18 - STA. 904+37.18
2" VERTICAL TRANSITION FROM INTERIM FINISHED GRADE TO ULITMATE FINISHED GRADE



INSET NOT TO SCALE

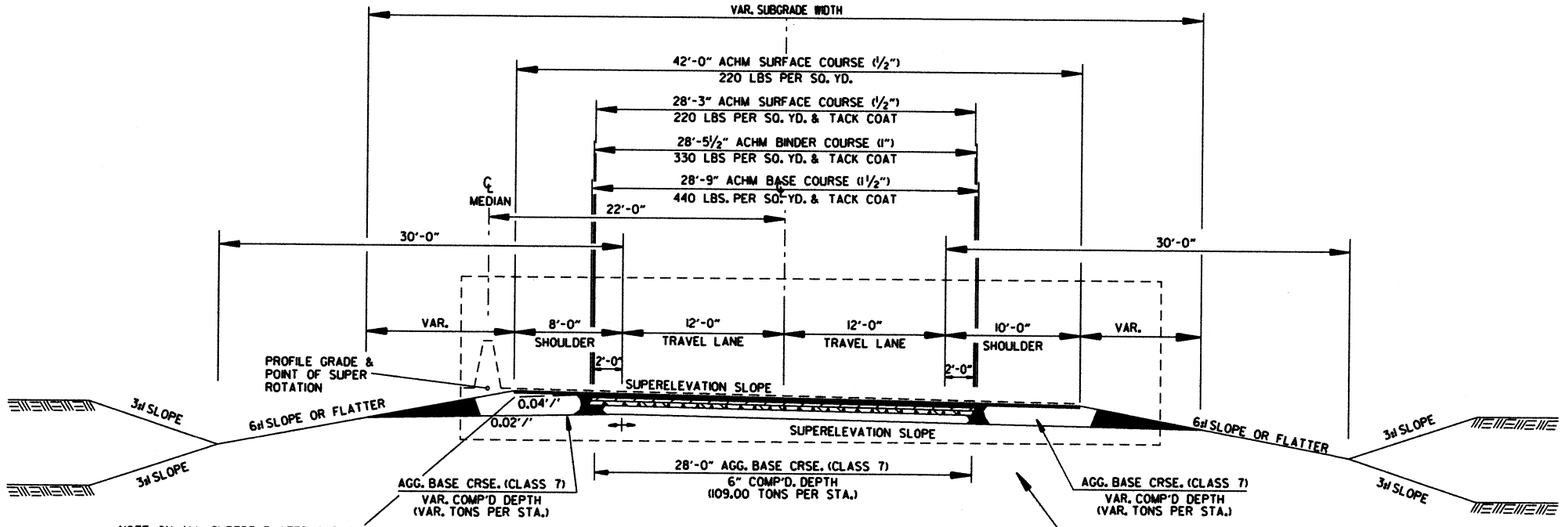
TYPICAL SECTIONS OF IMPROVEMENT

8/16/2019
dwbc553
RR60140 DWB.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.		R60140	10	616

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY P. SMITH
9-6-19



NOTE: ON ALL SUPERELEVATED CURVES AND THRU SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

NOTES:

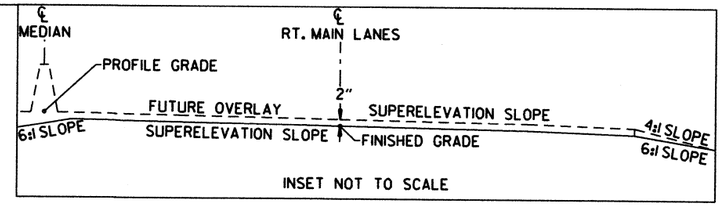
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH (25mm) OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

HWY. 7 - MAIN LANES - SUPERELEVATION SECTION (CURVE TO RIGHT)

STA. 663+33.61 TO STA. 675+63.99
STA. 678+03.99 TO STA. 690+00.00*
STA. 754+16.39 TO STA. 756+00.00
STA. 858+86.87 TO STA. 881+11.66



*STA. 688+00.00 - STA. 690+00.00
2" VERTICAL TRANSITION FROM INTERIM FINISHED GRADE TO ULITMATE FINISHED GRADE

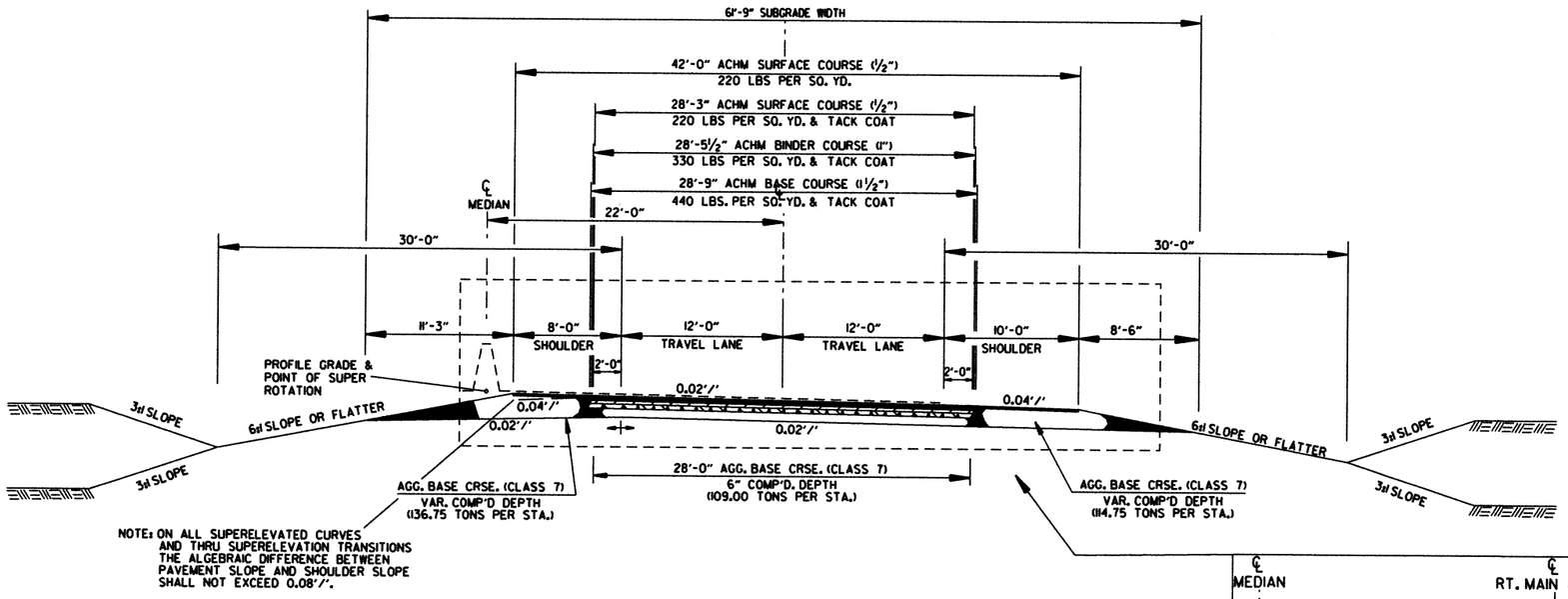
8/16/2019
dwbc553
RR60140 DWB.DGN

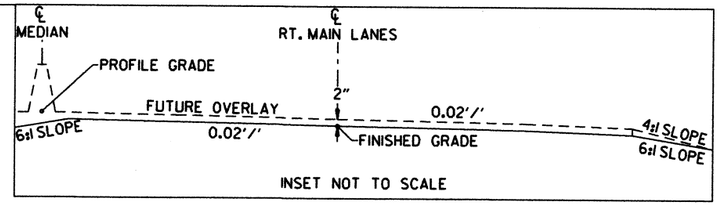
TYPICAL SECTIONS OF IMPROVEMENT

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.		R60140	11	616

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19





NOTES:

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 (25mm) OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

HWY. 7 - MAIN LANES

STA. 675+63.99 TO STA. 678+03.99

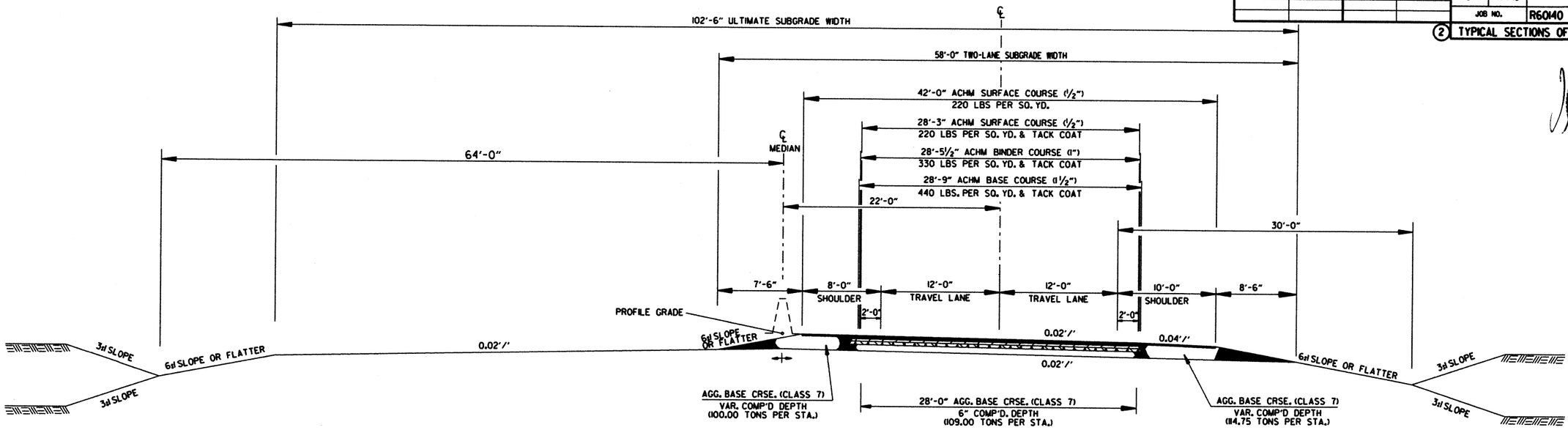
8/16/2019
dwbc553
RR60140 DWB.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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.		R60140	12	616

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



HWY. 7 - MAIN LANES

STA. 693+96.19 TO STA. 698+00.00*

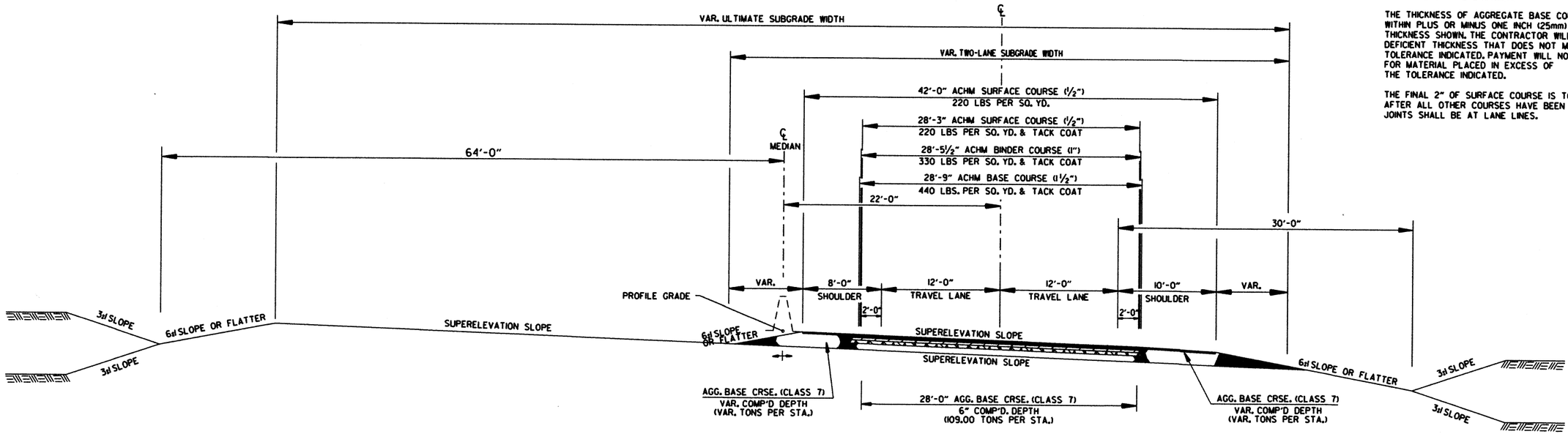
*STA. 695+00.00 TO STA. 698+00.00
SEE "PAVEMENT TRANSITION DETAIL - SUPERELEVATION TRANSITIONS" IN SPECIAL DETAILS

NOTES:

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 (25mm) OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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



HWY. 7 - MAIN LANES - SUPERELEVATION SECTION (CURVE TO RIGHT)

STA. 690+00.00 TO STA. 693+96.19

8/16/2019

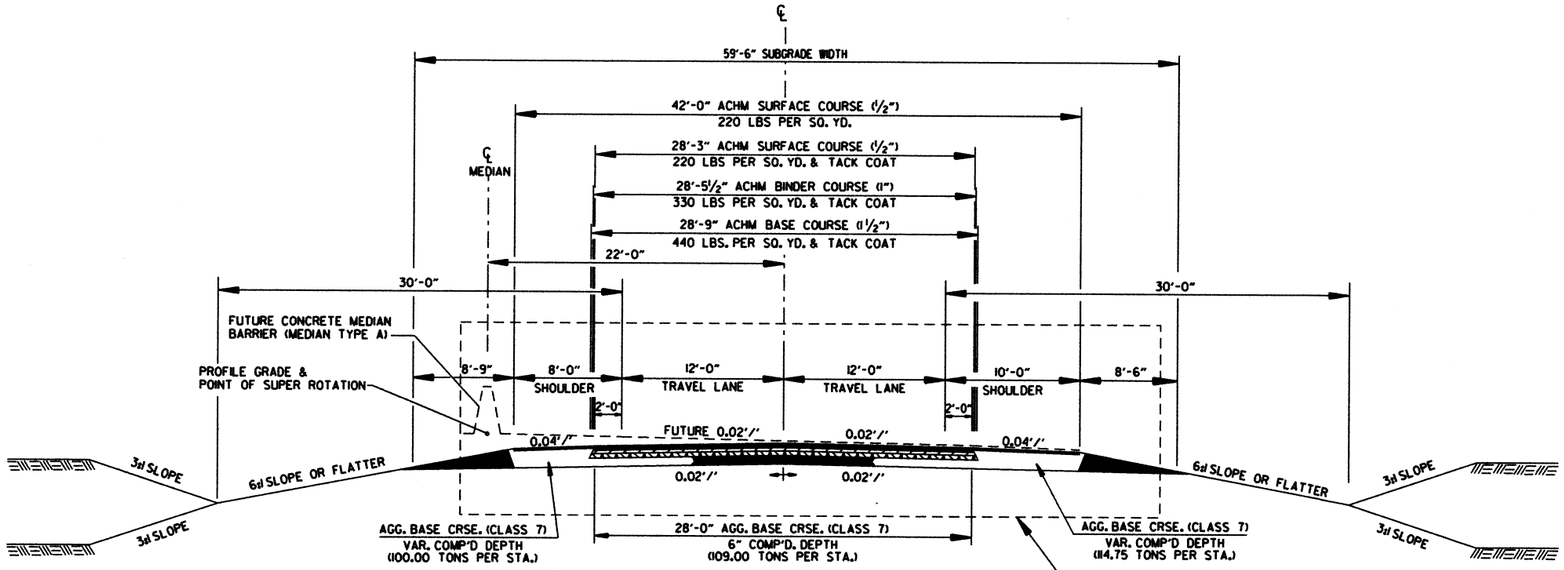
dwbc553
RR60140 DWB.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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.		R60140	13	616

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



HWY. 7 - MAIN LANES

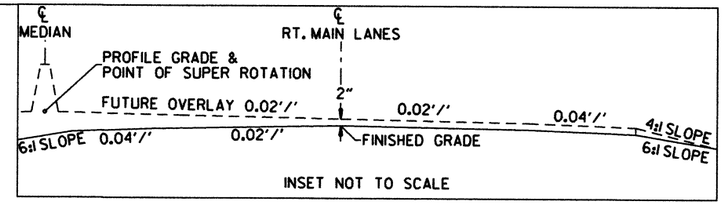
STA. 698+00.00 TO STA. 720+09.42
STA. 722+04.58 TO STA. 725+86.08*
STA. 778+04.01** TO STA. 823+20.79***

NOTES:

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 (25mm) OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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



*STA. 722+86.08 TO STA. 725+86.08
SEE "PAVEMENT TRANSITION DETAIL - SUPERELEVATION TRANSITIONS" IN SPECIAL DETAILS

**STA. 778+04.01 TO STA. 781+04.01
SEE "PAVEMENT TRANSITION DETAIL - SUPERELEVATION TRANSITIONS" IN SPECIAL DETAILS

***STA. 823+20.79 TO STA. 820+20.79
SEE "PAVEMENT TRANSITION DETAIL - SUPERELEVATION TRANSITIONS" IN SPECIAL DETAILS

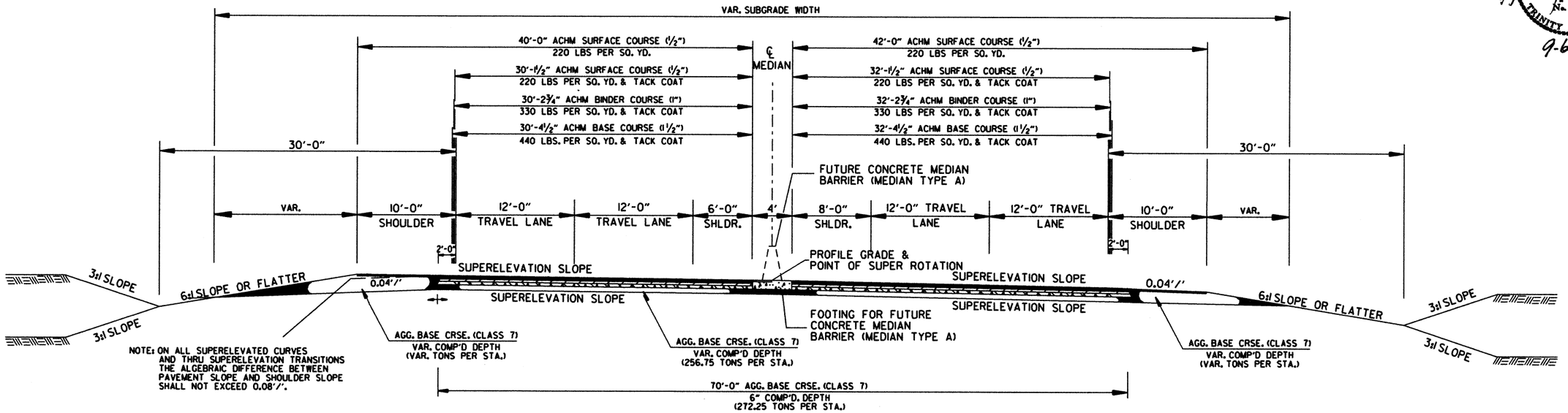
8/16/2019
dwbc553
RR60140 DWB.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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.		R60140	14	616

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
9-6-19



HWY. 7 - MAIN LANES - SUPERELEVATION SECTION
(CURVE TO RIGHT)
4-LANE SECTION

STA. 756+00.00 TO STA. 762+50.00
STA. 766+98.12 TO STA. 774+66.51

NOTES:

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 (25mm) OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

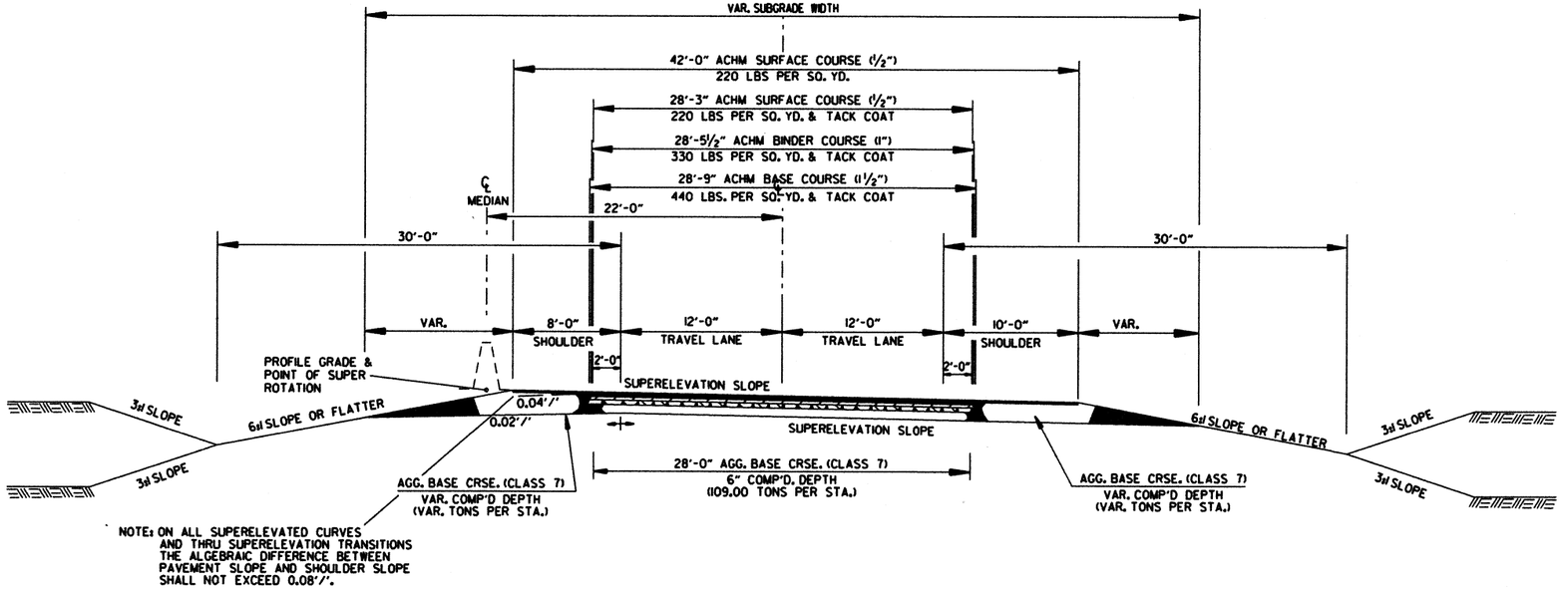
8/16/2019
dwbc553
RR60140 DWB.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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.		R60140	15	616

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



NOTE: ON ALL SUPERELEVATED CURVES AND THRU SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

NOTES:

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 (25mm) OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

HWY. 7 - MAIN LANES - SUPERELEVATION SECTION (CURVE TO RIGHT)

STA. 762+50.00 TO STA. 766+98.12
STA. 774+66.51 TO STA. 778+04.01

dwbc553
RR60140 DWB.DGN
8/16/2019

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.		R60140	16	616

(2) TYPICAL SECTIONS OF IMPROVEMENT

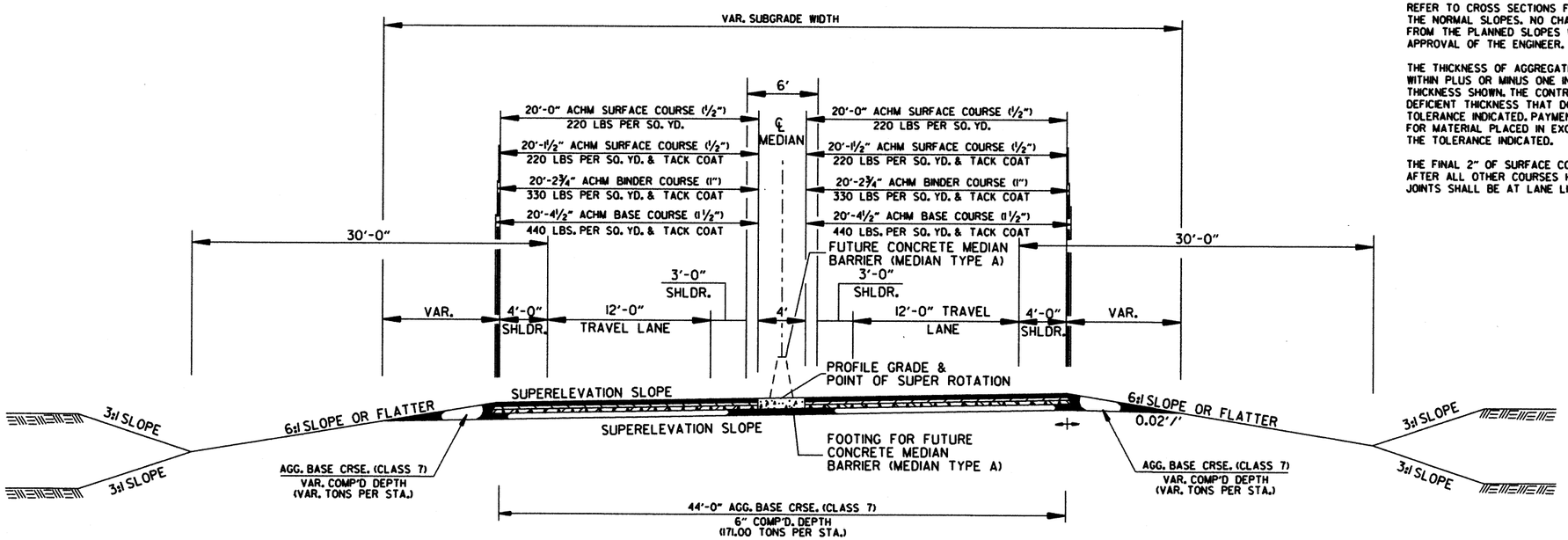
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

NOTES:

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 (25mm) OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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



HWY. 7 - MAIN LANES - SUPERELEVATION SECTION (CURVE TO LEFT)

STA. 913+92.05* TO STA. 920+33.00

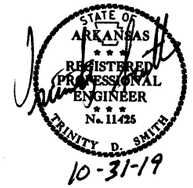
STA. 908+50.00 TO STA. 913+92.05
TRANSITION FROM RT. MAIN LANES TO CENTERLINE MEDIAN

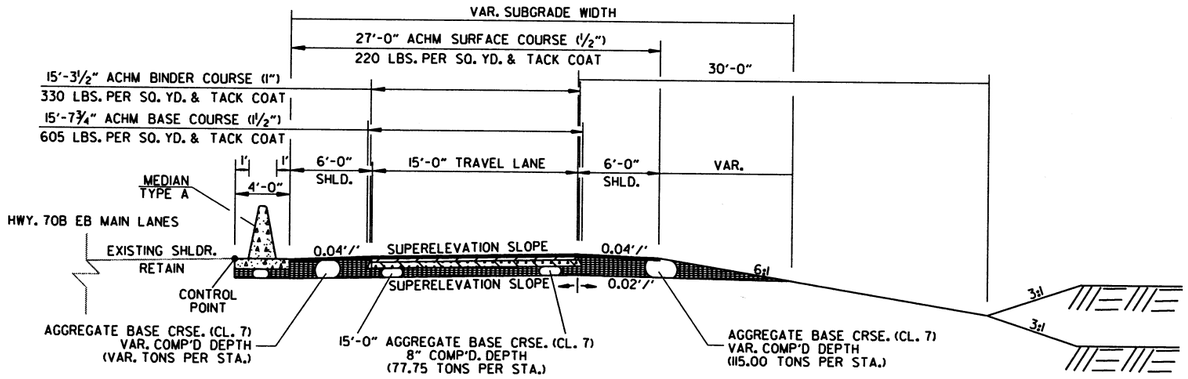
8/16/2019

dwbc553
RR60140 DWB.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	16A	616

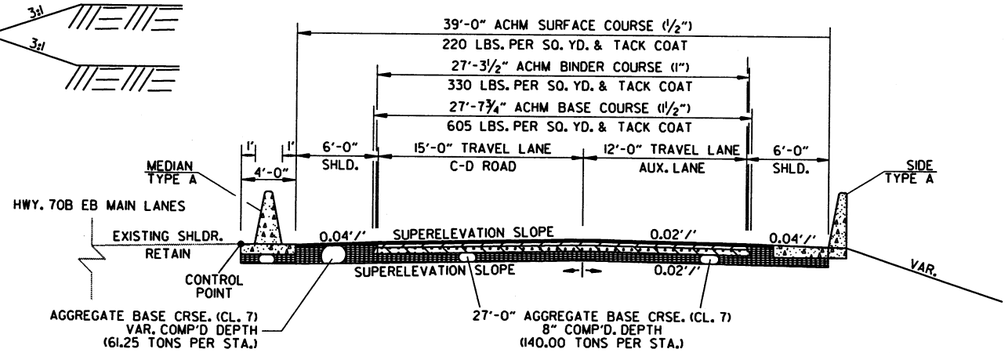
(2) TYPICAL SECTIONS OF IMPROVEMENT





C-D ROAD (SUPERELEVATION)
FULL DEPTH SECTION

STA. 847+14.80 TO STA. 854+74.37



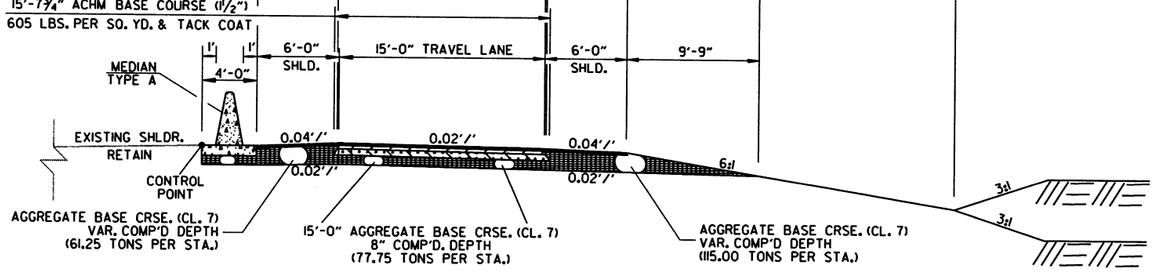
C-D ROAD WITH AUXILIARY LANE
FULL DEPTH SECTION

STA. 854+74.37 TO STA. 862+06.25

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

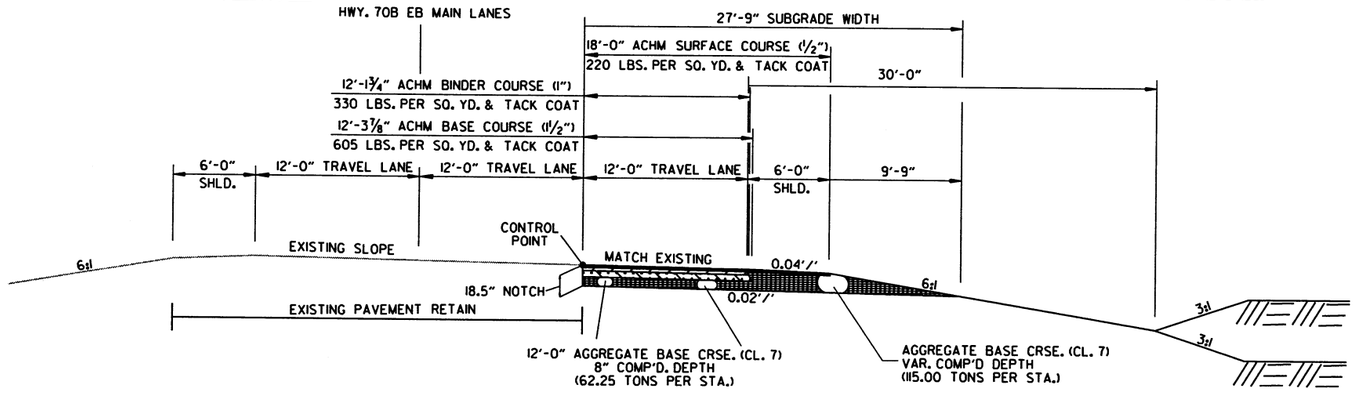
THE THICKNESS OF AGGREGATE BASE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

THE FINAL 2" OF SURFACE COURSE IS NOT TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.



C-D ROAD
FULL DEPTH SECTION

STA. 862+06.25 TO STA. 863+80.00



ACCELERATION LANE
NOTCH AND WIDEN SECTION

STA. 863+80.00 TO STA. 871+81.26

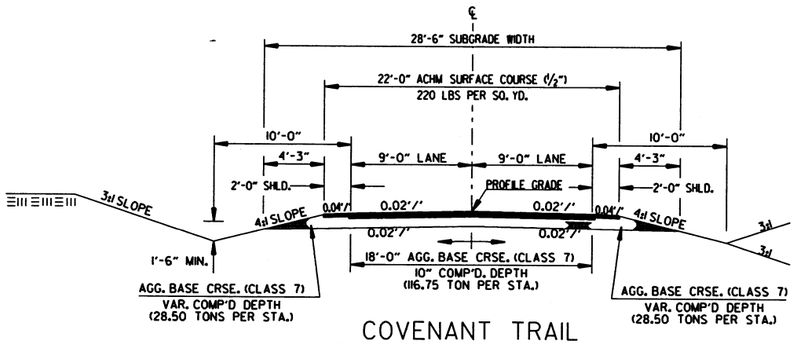
MCM R60140 TYPICALS.DGN 10/31/2019

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	16B	616

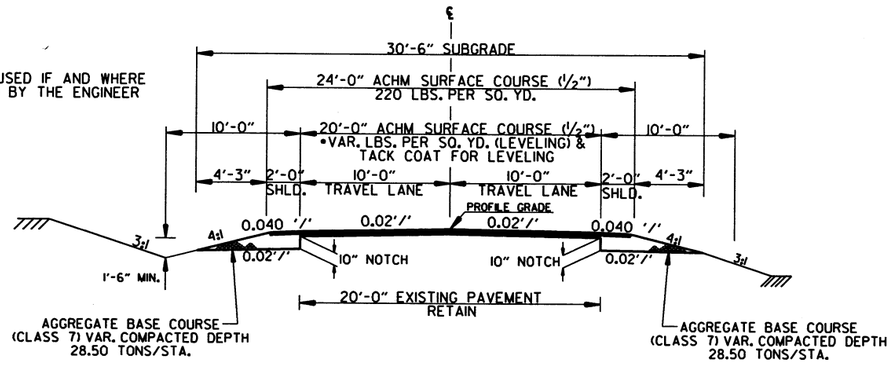
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19



COVENANT TRAIL
FULL DEPTH SECTION

STA. 100+40.53 TO STA. 103+11.00

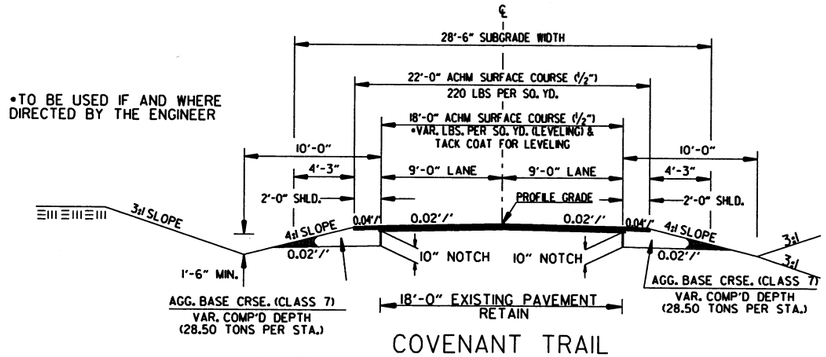


NOTCH, WIDEN, & OVERLAY

MILL CREEK ROAD	STA. 99+43.72 TO STA. 101+49.37 STA. 121+67.23 TO STA. 123+29.45
DENISE LANE	STA. 100+06.80 TO STA. 100+46.85 STA. 108+67.54 TO STA. 109+50.00

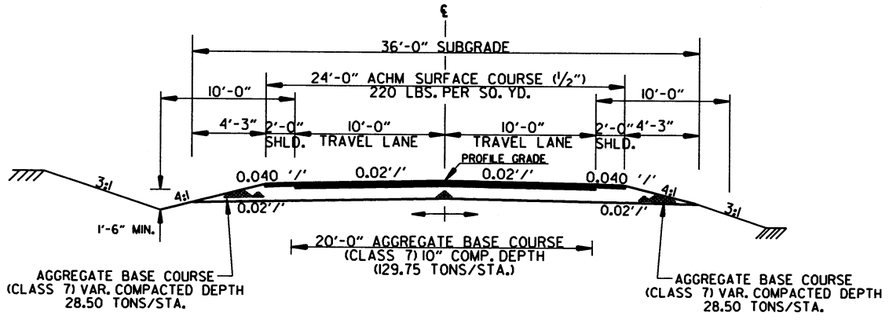
NOTES:

1. 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.
2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
3. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
4. 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.
5. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.



COVENANT TRAIL
NOTCH, WIDEN, AND OVERLAY SECTION

STA. 100+00.00 TO STA. 100+40.53
STA. 103+11.00 TO STA. 105+00.00



FULL DEPTH SECTION

MILL CREEK ROAD	STA. 101+49.37 TO STA. 112+79.08 STA. 114+76.60 TO STA. 121+67.23
DENISE LANE	STA. 100+46.85 TO STA. 108+67.54 STA. 105+11.40 TO STA. 108+67.54

12/20/2017

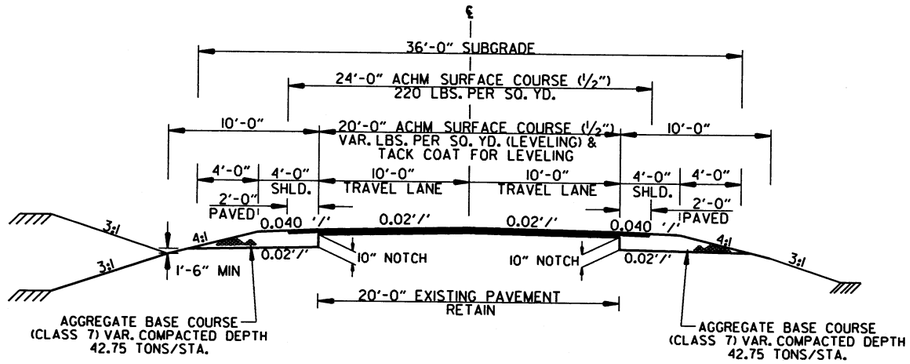
R080495.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	16C	616

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19



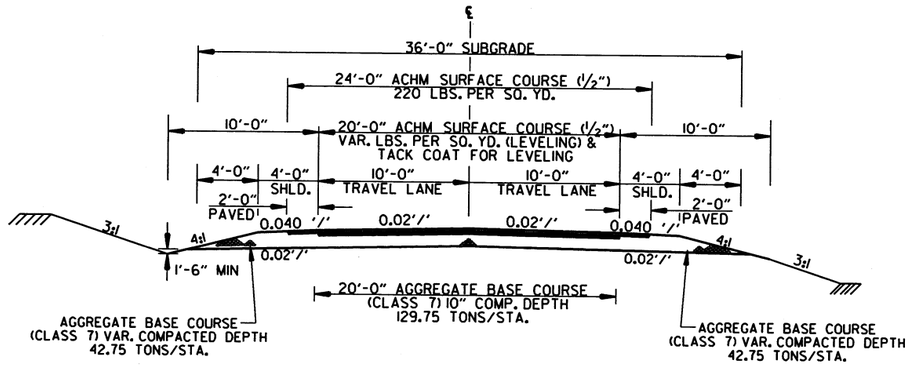
NOTCH, WIDEN, & OVERLAY

PROMISE LAND DRIVE OVERPASS
STA. 100+33.22 TO STA. 101+33.22
STA. 116+00.00 TO STA. 117+00.00

PROMISE LAND DRIVE SHIFT
STA. 200+00.00 TO STA. 200+50.00
STA. 228+19.82 TO STA. 228+64.82

NOTES:

1. 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.
2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
3. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
4. 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.
5. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.



FULL DEPTH SECTION

PROMISE LAND DRIVE OVERPASS
STA. 101+33.22 TO STA. 108+08.89
STA. 113+06.10 TO STA. 116+00.00

PROMISE LAND DRIVE SHIFT
STA. 200+50.00 TO STA. 228+19.82

12/20/2017

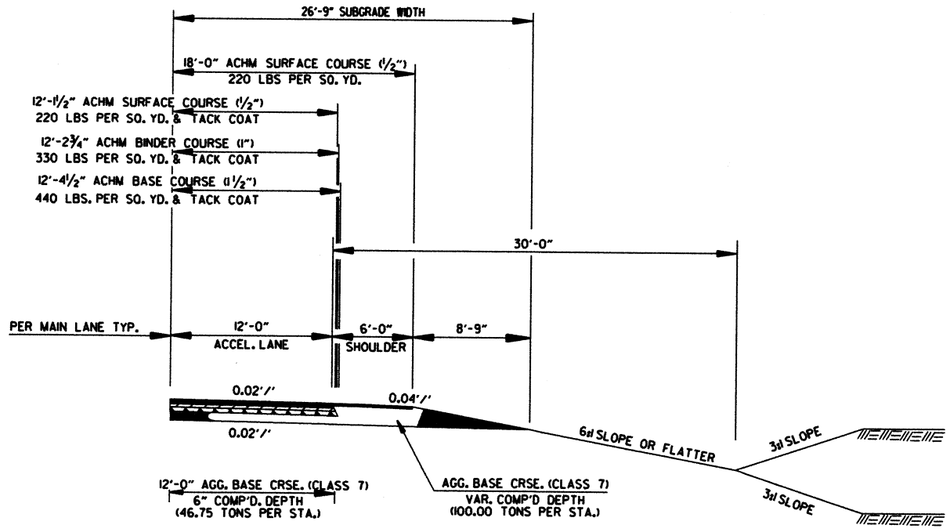
R080495.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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.		R60140	17	616

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



ACCELERATION LANE

NOTES:

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 (25mm) OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

8/16/2019
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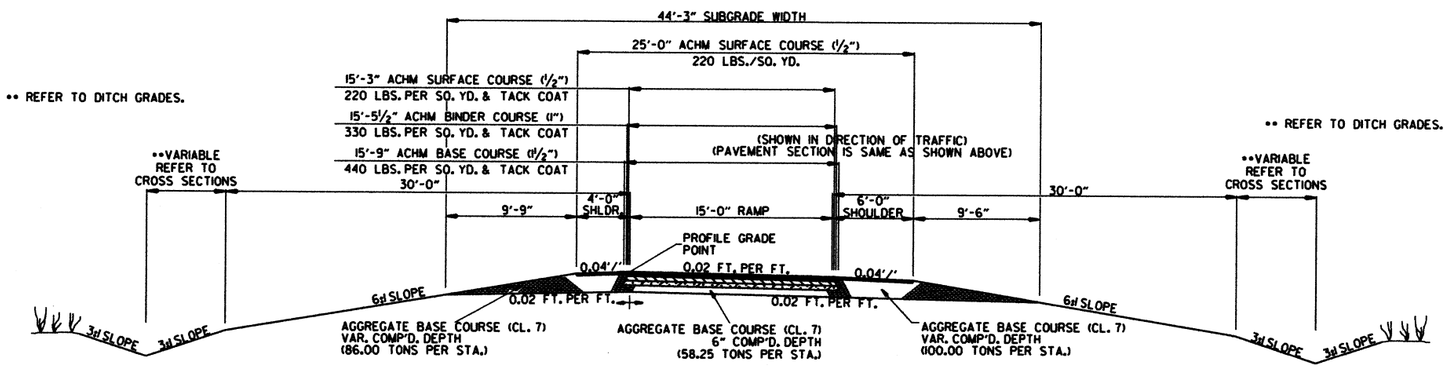
TYPICAL SECTIONS OF IMPROVEMENT

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.		R60140	18	616

(2) TYPICAL SECTIONS OF IMPROVEMENT

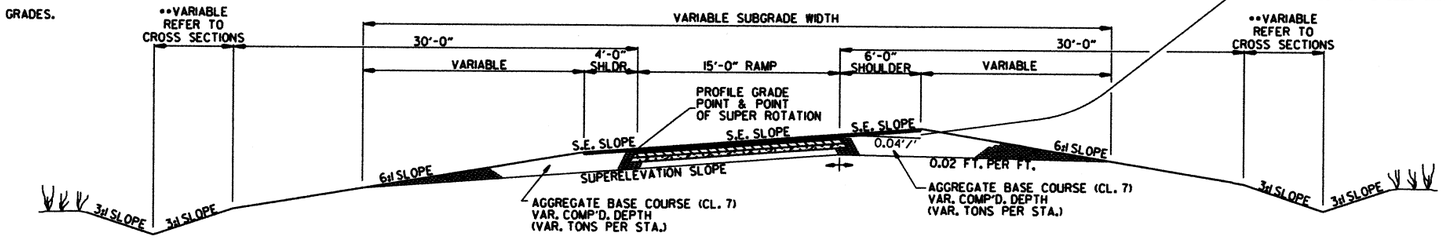
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



RAMPS
(SHOWN IN DIRECTION OF TRAFFIC)

•DENSITY REQUIREMENTS WAIVED.
•• REFER TO DITCH GRADES.

NOTE: ON ALL SUPERELEVATED CURVES AND THRU SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.



RAMPS - CURVE TO LEFT
(SHOWN IN DIRECTION OF TRAFFIC)
(PAVEMENT SECTION IS SAME AS SHOWN ABOVE)

NOTES:

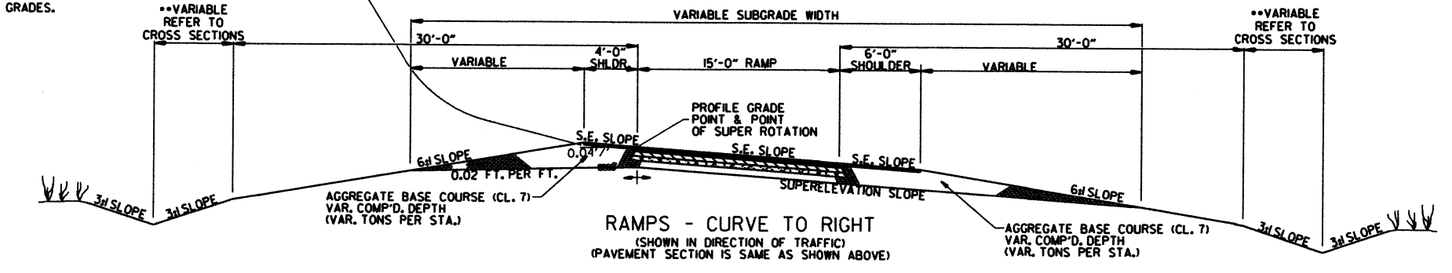
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH (25mm) OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

NOTE: ON ALL SUPERELEVATED CURVES AND THRU SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

•DENSITY REQUIREMENTS WAIVED.
•• REFER TO DITCH GRADES.



RAMPS - CURVE TO RIGHT
(SHOWN IN DIRECTION OF TRAFFIC)
(PAVEMENT SECTION IS SAME AS SHOWN ABOVE)

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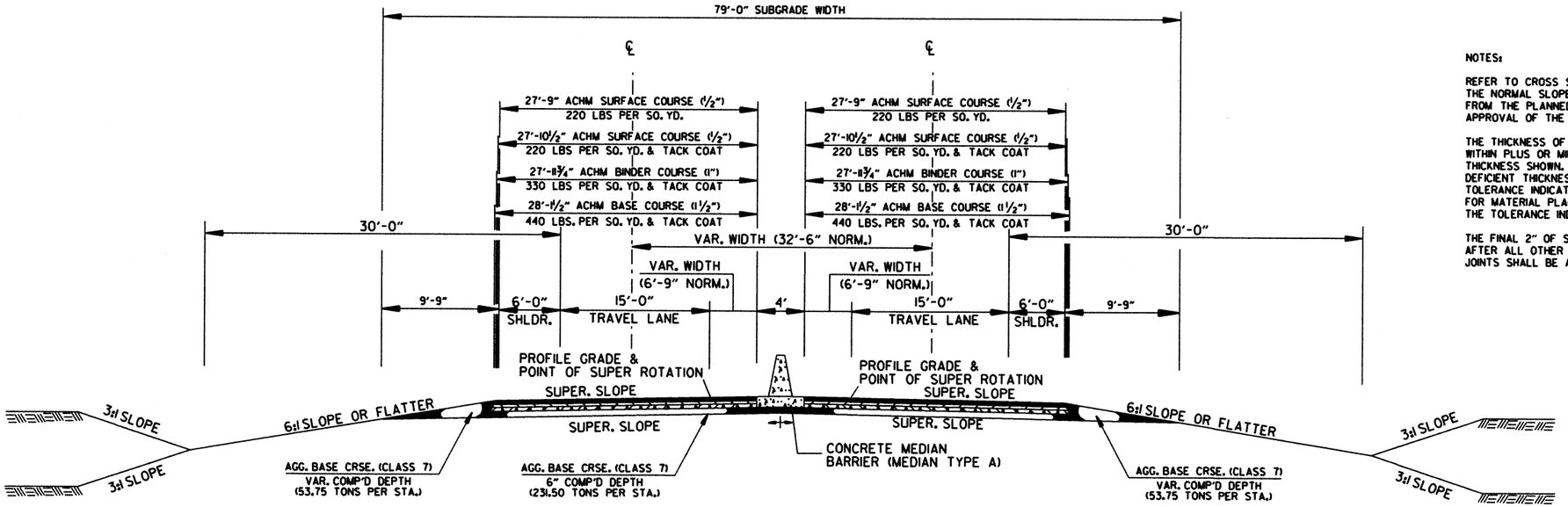
TYPICAL SECTIONS OF IMPROVEMENT

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.		R60140	19	616

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-619



MILL CREEK INTERCHANGE RAMPS
WITH MEDIAN BARRIER WALL

NOTES:

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 (25mm) OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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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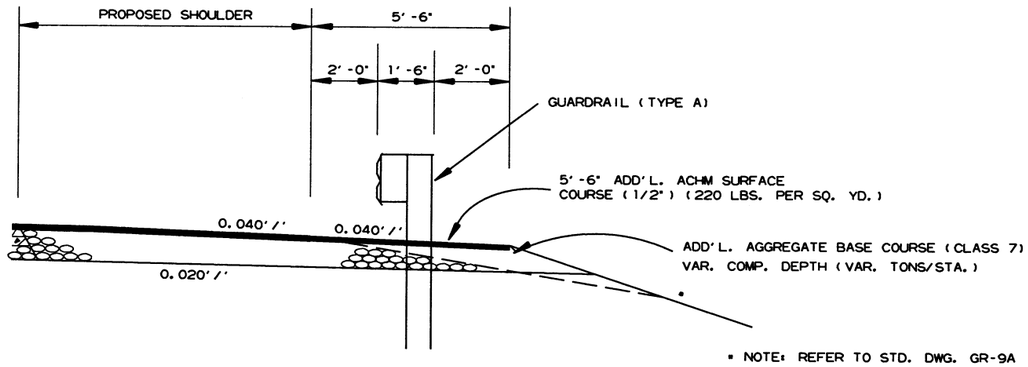
TYPICAL SECTIONS OF IMPROVEMENT

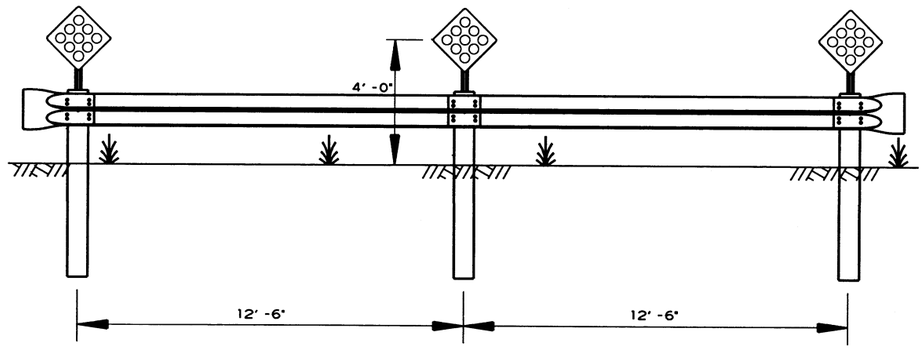
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	20	616

(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19



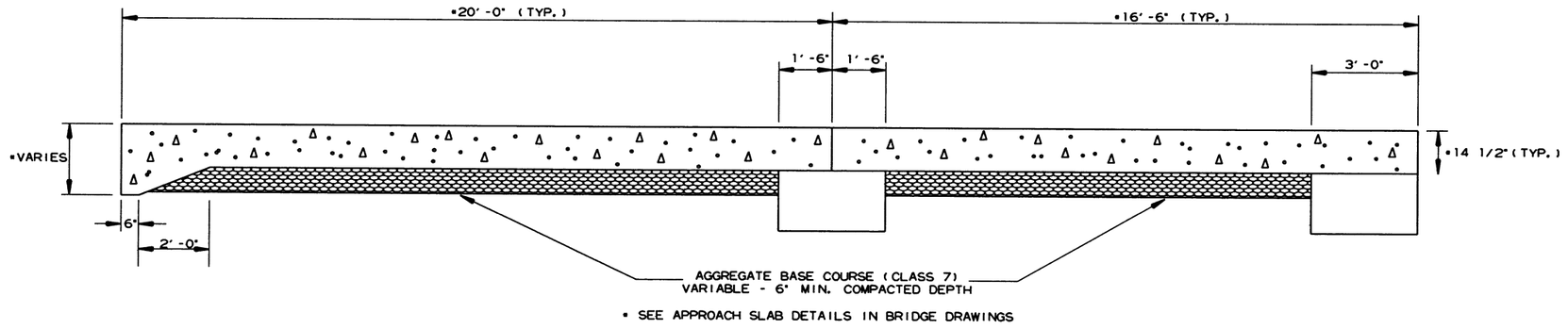
WIDENING FOR GUARDRAIL



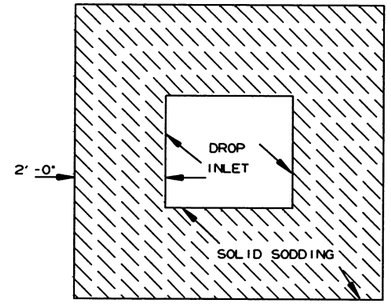
ROAD CLOSED DETAIL

TO BE USED WHERE EXISTING ROADS WILL BE PERMANENTLY CLOSED. SEE PLAN SHEETS FOR LOCATIONS SEE STD. DWG. GR-7 FOR MORE DETAILS.

CONSTRUCT
25 LIN. FT. TYPE "C" GUARDRAIL
WITH 3 RED DIAMOND REFLECTORS
MOUNTED ON U-CHANNEL POSTS
DIRECTLY BEHIND THE GUARDRAIL
AT A HEIGHT OF 4'-0".



SECTION OF APPROACH SLAB



DETAIL FOR SOLID SODDING AROUND DROP INLETS

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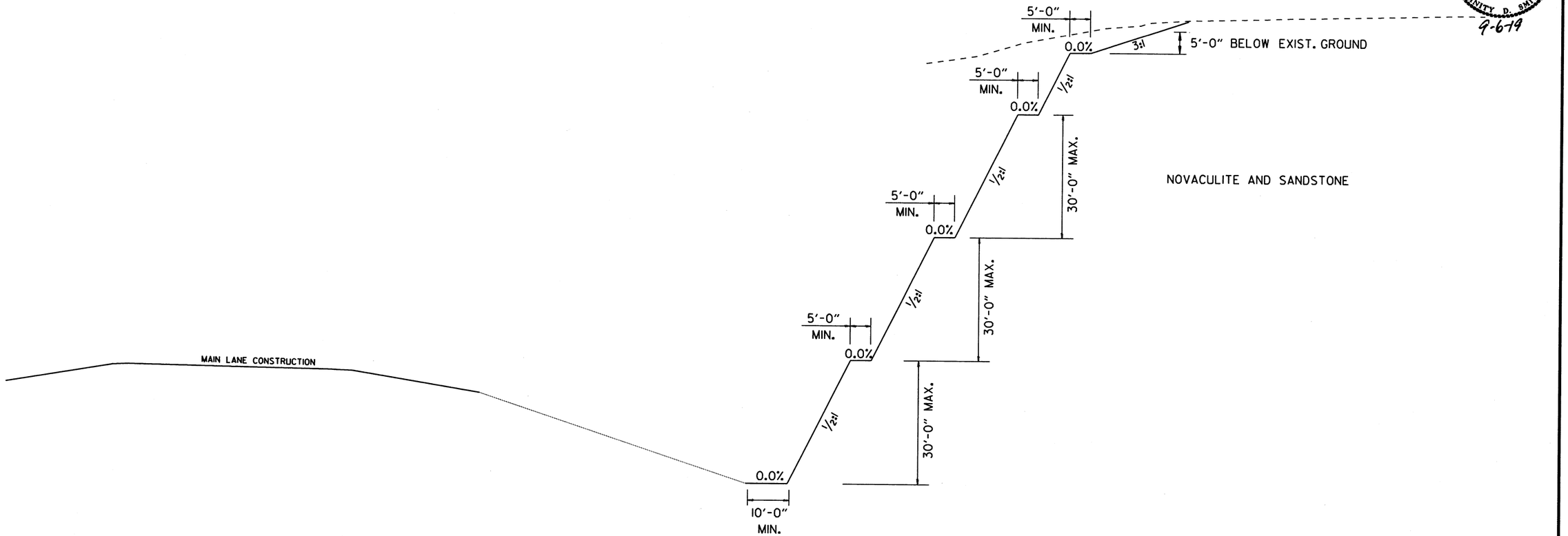
SPECIAL DETAILS

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.		R60140	21	616

(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



NOVACULITE AND SANDSTONE CUT SLOPES
STA. 699+00 TO STA. 697+00
STA. 832+00 TO STA. 850+00

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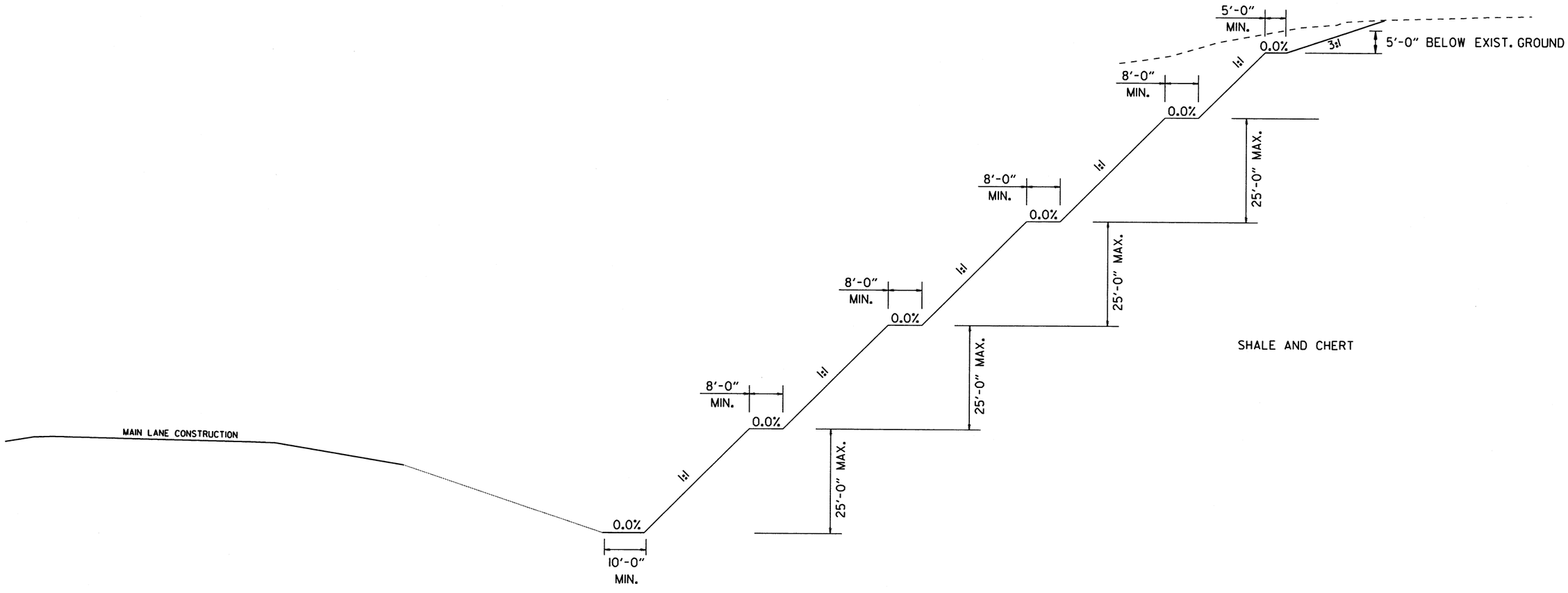
SPECIAL DETAILS

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.		R60140	22	616

(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



SHALE AND CHERT CUT SLOPES
STA. 660+00 TO STA. 669+00
STA. 697+00 TO STA. 736+00
STA. 779+00 TO STA. 807+00
STA. 871+00 TO STA. 878+00
STA. 895+00 TO STA. 912+00

8/16/2019
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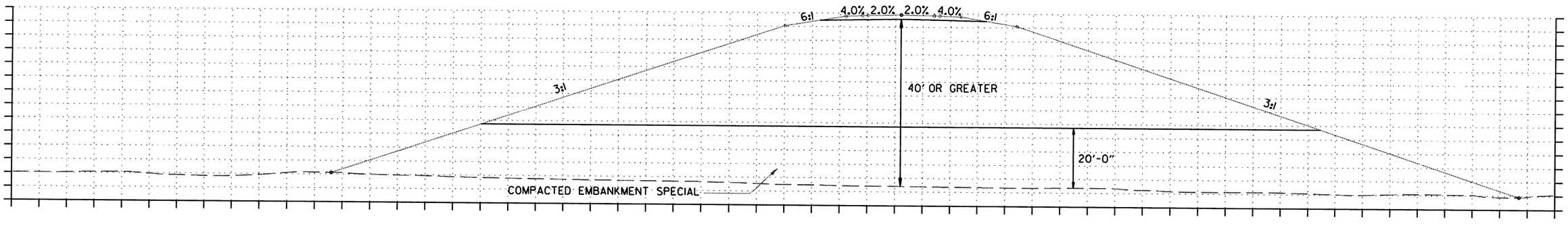
RR60140 DWB.DGN

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.		R60140	23	616

(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



TYPICAL PLACEMENT OF COMPACTED EMBANKMENT SPECIAL
FOR FILL DEPTHS OF GREATER THAN 40'

NOTES:
FOR ALL COMPACTED EMBANKMENT DEPTHS GREATER THAN 40',
THERE SHALL BE A 20' LAYER OF COMPACTED EMBANKMENT SPECIAL
ALONG THE EXISTING SURFACE.

REFER TO "COMPACTED EMBANKMENT SPECIAL" SPECIAL PROVISION FOR ADDITIONAL INFORMATION

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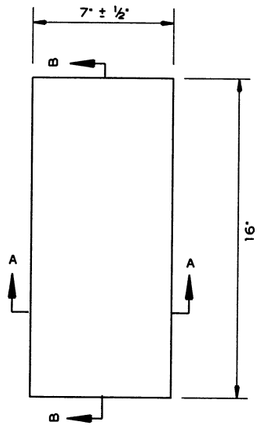
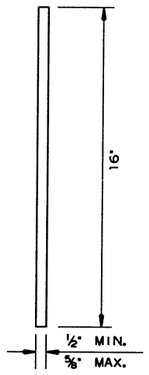
SPECIAL DETAILS

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.		R60140	24	616

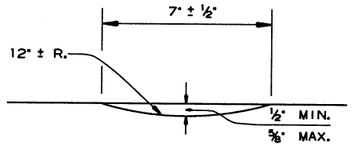
(2) SPECIAL DETAILS



PLAN

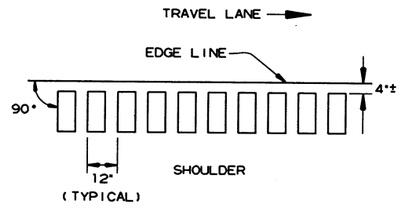


SECTION B-B



SECTION A-A

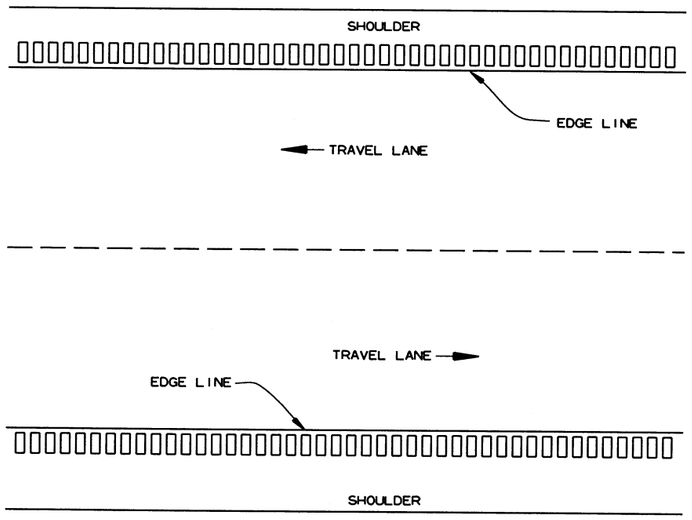
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS

LEFT OR RIGHT SHOULDER

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



PLAN VIEW

NOTES:

1. ALIGNMENT OF RUMBLE STRIPS SHALL GENERALLY BE STRAIGHT AND OFFSET APPROXIMATELY 4" FROM THE OUTER EDGE OF THE EDGE LINE. THIS OFFSET MAY BE ADJUSTED TO ACCOMMODATE VARIATIONS IN THE EDGE LINE.
2. THE ½" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 16" LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.
3. RUMBLE STRIPS SHALL NOT BE INSTALLED ON BRIDGE DECKS, APPROACH SLABS, OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.

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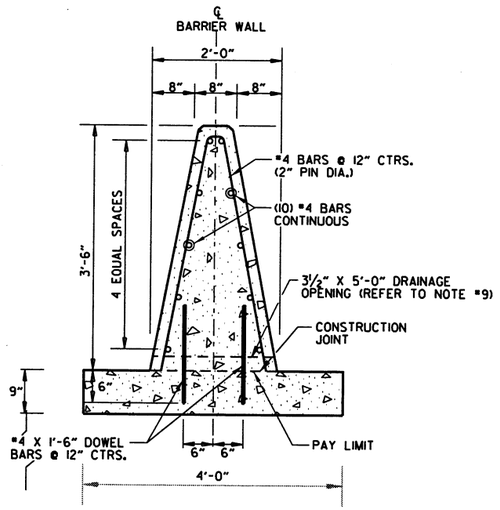
SPECIAL DETAILS

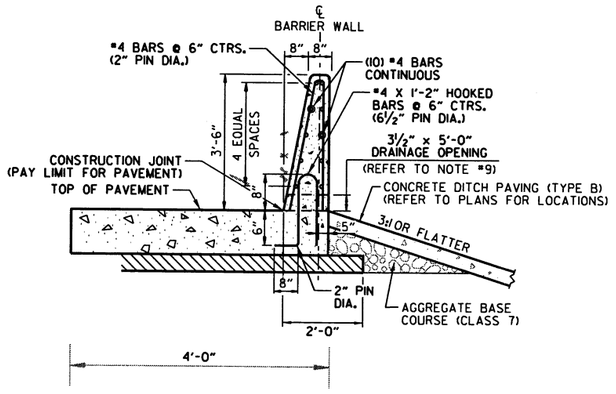
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	25	616

(2) SPECIAL DETAILS

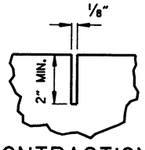
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



CONCRETE BARRIER WALL
(MEDIAN TYPE A; MASH TL-4)
N.T.S.



CONCRETE BARRIER WALL
(SIDE TYPE A; MASH TL-4)
N.T.S.



CONTRACTION
JOINT DETAIL

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.

NOTE:
THE COST FOR THE MODIFICATION OF THE BARRIERS AND DROP INLETS ARE TO BE SUBSIDIARY TO CONCRETE BARRIER WALLS AND CURBS.

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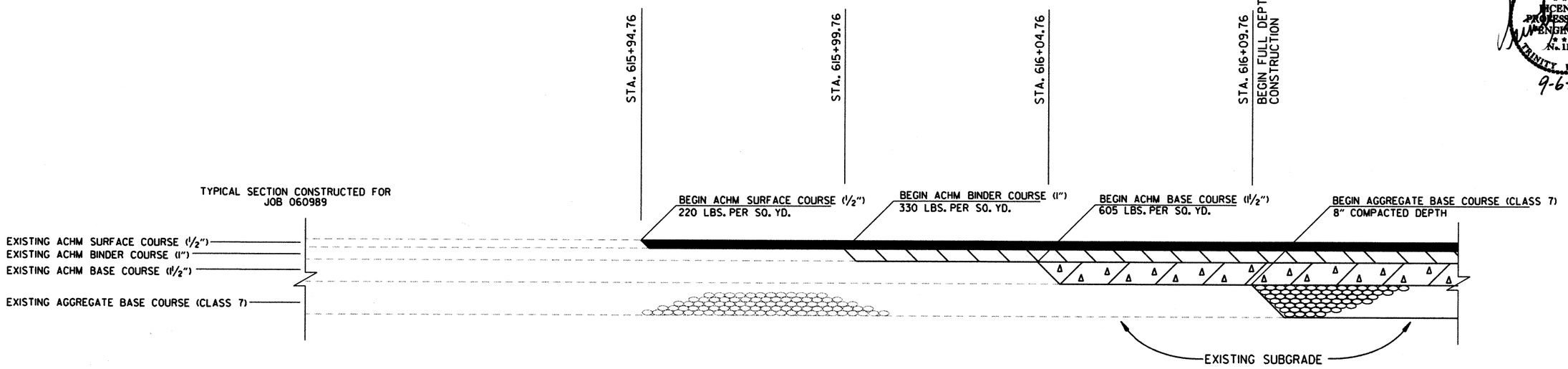
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	26	616

(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



PAVEMENT TRANSITION AT BEGINNING OF JOB

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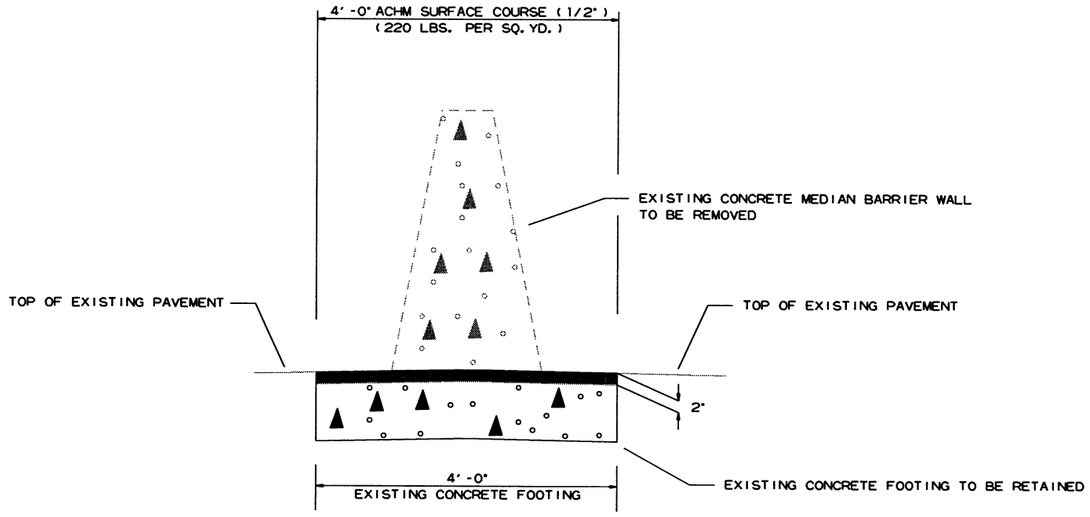
RR60140 DWB.DGN
8/16/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	27	616

(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19



NOTE: THE TOP 2" OF THE FOOTING FOR THE EXISTING CONCRETE MEDIAN BARRIER SHALL BE REMOVED PRIOR TO THE PLACEMENT OF ACHM SURFACE COURSE, INCLUDING ALL EXPOSED REINFORCING STEEL AND DOWELS. THIS REMOVAL WILL BE SUBSIDIARY TO THE PAY ITEM "REMOVAL AND DISPOSAL OF CONCRETE MEDIAN BARRIER".

DETAIL FOR REMOVAL AND DISPOSAL OF EXISTING CONCRETE MEDIAN BARRIER (TYPE A)

STA. 610+50.00 TO STA. 616+00.00
STA. 630+25.00 TO STA. 632+91.35

8/16/2019
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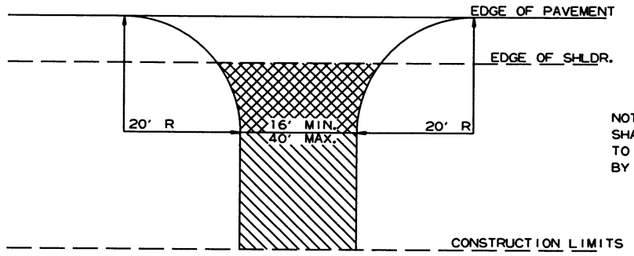
RR60140 DWB.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	28	616

(2) SPECIAL DETAILS

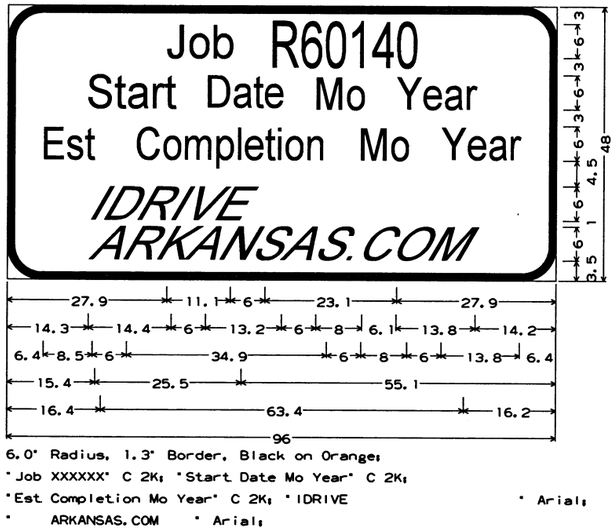


NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

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

AGGREGATE BASE COURSE (CLASS 7)
9" COMP. DEPTH OR CONFORM
TO EXISTING DRIVEWAY

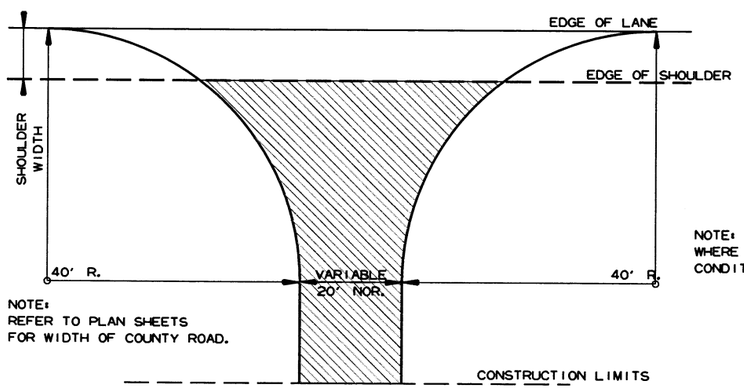
DETAIL FOR DRIVEWAY TURNOUTS



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 " Arial;
" ARKANSAS.COM " Arial;

CONSTRUCTION PROJECT INFORMATION SIGN

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-7-19

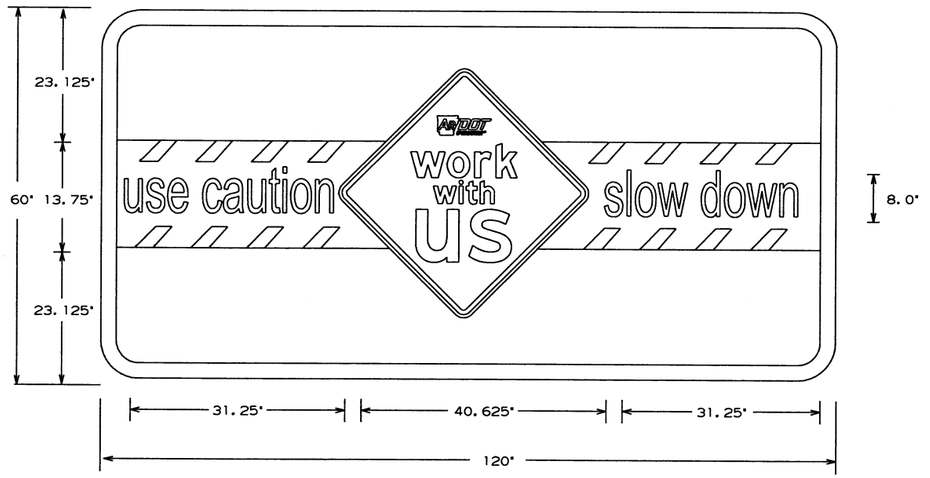


NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.

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 COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION



2" WHITE BORDER, 2" RADII, GREEN BACKGROUND
"use caution/slow down" 5.31" NIVEAU GROTESK, REGULAR FONT x 1.5Y
"work with us" FRUTIGER LT 75 BLACK FONT

NOTE: DIGITAL ART WORK FILE AVAILABLE FROM ARDOT MAINTENANCE DIVISION SIGN SHOP 501-569-2665.
THIS SIGN SHALL BE PLACED 2640' PRECEDING THE FIRST ADVANCE WARNING SIGN, IN THE DIRECTION OF TRAFFIC.

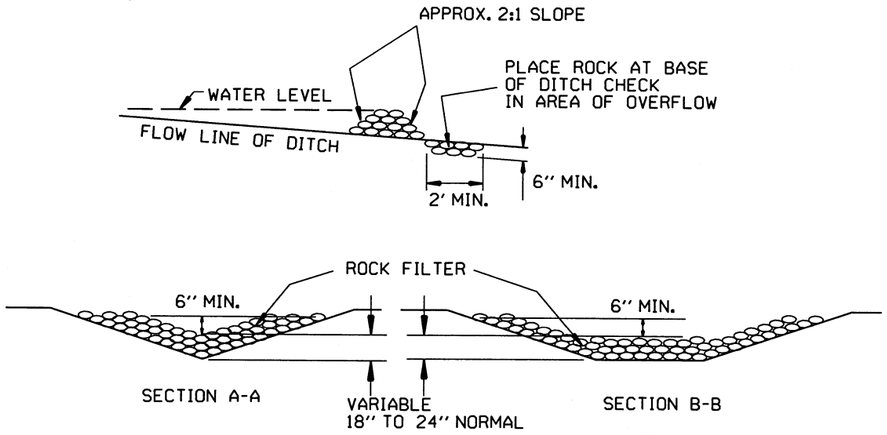
WORK WITH US SIGN

8/16/2019
dwbc553
RR60140 DWB.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.		R60140	29	616

(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-9-19



ROCK DITCH CHECK (E-6)
LEFT IN PLACE

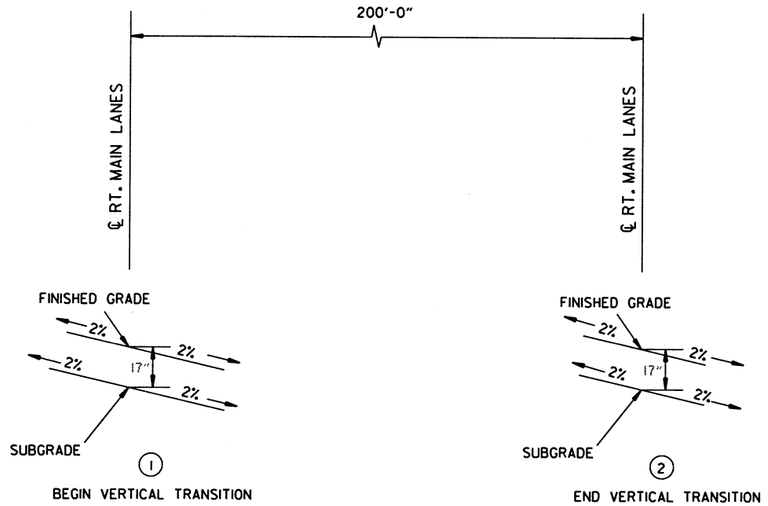
NOTE: FOR ALL DITCHES BETWEEN STATION 858+00 AND STATION 881+78 ABOVE 660.00 M.S.L. ELEVATION, PERMANENT ROCK DITCH CHECKS TO THE SPECIFICATIONS SHOWN ABOVE ARE TO BE LEFT IN PLACE AFTER CONSTRUCTION.

8/16/2019
dwbc553
RR60140 DWB.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.		R60140	30	616

(2) SPECIAL DETAILS

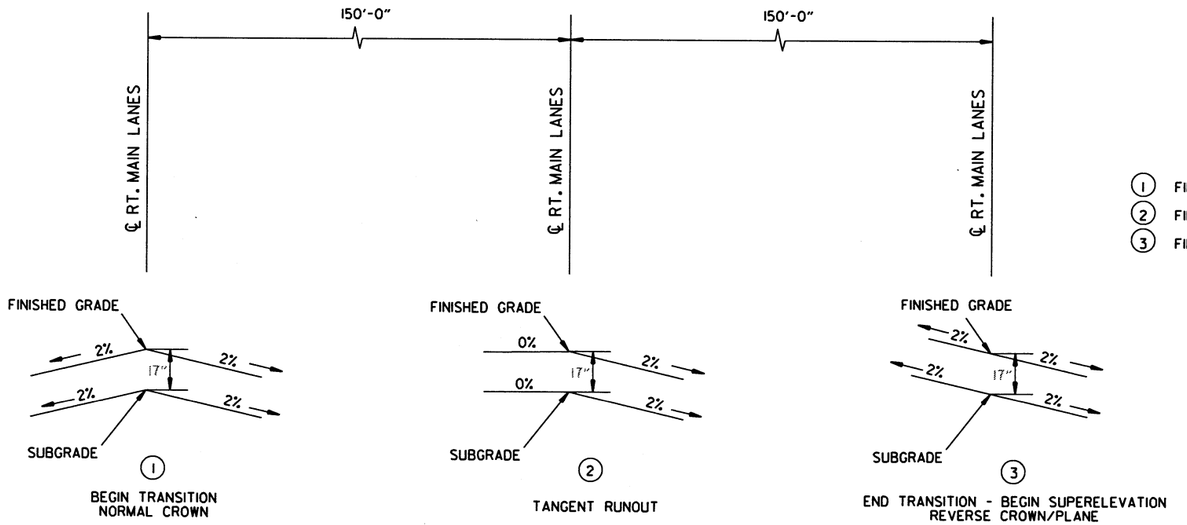
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-9-19



(1) FINISHED GRADE = PROFILE GRADE MINUS 0.60'
(2) FINISHED GRADE = PROFILE GRADE MINUS 0.44'

PROFILE TRANSITION DETAIL - ULTIMATE FINISHED GRADE

NOTE: REVERSE DIMENSIONS FOR TRANSITION FROM PLANE SECTION TO NORMAL CROWN.
SEE TYPICAL SECTIONS OF IMPROVEMENT FOR TRANSITION STATIONS.



(1) FINISHED GRADE = PROFILE GRADE MINUS 0.60'
(2) FINISHED GRADE = PROFILE GRADE MINUS 0.60'
(3) FINISHED GRADE = PROFILE GRADE MINUS 0.60'

PROFILE TRANSITION DETAIL - SUPERELEVATION TRANSITIONS

NOTE: REVERSE DIMENSIONS FOR TRANSITION FROM PLANE SECTION TO NORMAL CROWN.
SEE SUPERELEVATION NOTES IN PLAN AND PROFILES FOR STATIONS OF SUPERELEVATION TRANSITIONS.

8/16/2019
dwbc553
RR60140 DWB.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.		R60140	31	616

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
39'-1"	6'-0"	0'-9"	0'-8"	15	3:1	39'-4 1/8"	2'-0"	6'-10"	2'-0"	15	45	3'-2"	3'-3 7/8"	3'-6 7/8"	0'-5"	0'-3 3/8"	15'-0"	20'-6"	18'-6 3/8"	24'-0 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
10.66	940

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1	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	F6	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	15	L	Min 3'-2"	-	-	-	L -	-	-	-	L -	4	18	4	Min 5'-0"	4	18	4	14'-8"	4	18	10	L Min 4'-11"		4	8	19'-4"	6	18	10	Min 2'-8"	-	-	-	Min -	4	2	15'-3"	4	2	16'-0"	6	12	6	L 3'-4"		407
					Max 7'-10"												Max 9'-8"								Max 9'-3"								Max 2'-8"				Max -									X 1'-8"		
				X	Min 0'-9"				X -				X -												Min 2'-4"																						
					Max 0'-11"																				Max 2'-4"																						
				Y	Min 2'-6"				Y -				Y -												Min 2'-8"																						
					Max 7'-0"																				Max 7'-0"																						
WING B	4	12	21	L	Min 3'-0"	-	-	-	L -	-	-	-	L -	4	18	4	Min 6'-11"	4	18	4	20'-2"	4	18	14	L Min 4'-8"		4	8	24'-10"	6	18	14	Min 2'-8"	-	-	-	Min -	4	2	20'-7"	4	2	22'-3"	6	12	6	L 3'-4"		533
					Max 8'-1"												Max 13'-3"								Max 9'-3"								Max 2'-8"				Max -									X 1'-8"		
				X	Min 0'-9"				X -				X -												Min 2'-4"																						
					Max 1'-2"																				Max 2'-4"																						
				Y	Min 2'-4"				Y -				Y -												Min 2'-5"																						
					Max 7'-0"																				Max 7'-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"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19
CHARLES R. ELLIS

TABULAR DATA BY: MCB DATE: 08/20/19
CHECKED BY: CMW DATE: 8/21/19

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.

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 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																																													
15	3	10	9	6	7'-3"	12	3	12	6.5	8	39'-1"	8'-0"	4	7	Max 38'-9" / Min 5'-11"	16	4	6	Max 38'-9" / Min 5'-11"	18	4	5	Max 38'-9" / Min 5'-11"	22	4	7	Max 38'-9" / Min 5'-11"	16	5	6	29	7'-8"	4	12	50	7'-8"	4	9	103	Max 12'-4" / Min 1'-10"	4	9	103	Max 12'-4" / Min 1'-10"	4	12	6	LONG 12'-2" / SHORT 1'-11"	4	12	12	LONG 9'-8" / MID 7'-1" / SHORT 4'-5"
																					38'-9"			4	38'-9"			4																													

"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
4	20'-11"	12	4	20'-11"	12	4	1'-11"	0'-11"	42

CLASS "S" CONCRETE (Includes HDWL)	① REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
26.72	3592

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

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK	SIDE WALL THK	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL 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 REINF. STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D
D	S	H	T	B	C	W	OW	OH	SL								SPACING	NO. REQ'D							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

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

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 REINFORCING STEEL 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 REINF. STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL							SPACING	NO. REQ'D							SPACING	NO. REQ'D																									
B	15	9	6	13	13	8	8	39'-4"	8'-2"	111.5	4	39'-0"	6	40'-3"	5	39'-0"	16	83	4	39'-0"	5	40'-1"	4	39'-0"	8	167	6	7.5	356	7'-10"	4	12	666	7'-10"	4	8.5	111	4	8.5	111	4	12	12	4	12	36

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
434.53	54782

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
QUADRUPLE BARREL BOX CULVERT
HIGHWAY 7 - Sta. 741+75

SPECIAL DETAILS

Ver. LJI5 br60140_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.		R60140	32	616

① SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19
CHARLES R. ELLIS

TABULAR DATA BY: MCB DATE: 08/20/19
CHECKED BY: CMW DATE: 8/26/19

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
39'-1"	6'-0"	0'-9"	0'-8"	15	3:1	39'-4 1/8"	2'-0"	6'-10"	2'-0"	15	45	3'-2"	3'-3 7/8"	3'-6 7/8"	0'-5"	0'-3 3/8"	15'-0"	20'-6"	18'-6 3/8"	24'-0 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
12.03	940

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1	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	F6	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	15	L Min 3'-2" / Max 7'-10"		-	-	-	L -	-	-	-	L -	4	18	4	Min 5'-0" / Max 9'-8"	4	18	4	14'-8"	4	18	10	L Min 4'-11" / Max 9'-3"		4	8	19'-4"	6	18	10	Min 2'-8" / Max 2'-10"	-	-	-	Min - / Max -	4	2	15'-3"	4	2	16'-0"	6	12	6	L 3'-4" / X 1'-8"	407
				X Min 0'-9" / Max 0'-11"					X -				X -									4	18	10	X Min 2'-4" / Max 2'-4"																						
				Y Min 2'-6" / Max 7'-0"					Y -				Y -									4	18	10	Y Min 2'-8" / Max 7'-0"																						
WING B	4	12	21	L Min 3'-0" / Max 8'-1"		-	-	-	L -	-	-	-	L -	4	18	4	Min 6'-11" / Max 13'-3"	4	18	4	20'-2"	4	18	14	L Min 4'-8" / Max 9'-3"		4	8	24'-10"	6	18	14	Min 2'-8" / Max 3'-1"	-	-	-	Min - / Max -	4	2	20'-7"	4	2	22'-3"	6	12	6	L 3'-4" / X 1'-8"	533
				X Min 0'-9" / Max 1'-2"					X -				X -									4	18	14	X Min 2'-4" / Max 2'-4"																						
				Y Min 2'-4" / Max 7'-0"					Y -				Y -									4	18	14	Y Min 2'-5" / Max 7'-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 REINF. "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINF. "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINF. "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINF. "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINF. "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DIST. REINF. "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DIST. REINF. "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DIST. REINF. "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DIST. REINF. "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH	CLASS "S" CONCRETE (Includes HDWL.) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL.) LBS.
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		
15	3:1	10	9	6	7'-3"	12	3	12	6.5	8	39'-1"	8'-0"	4	7	Max 38'-9" / Min 5'-11"	16	4	6	Max 38'-9" / Min 5'-11"	18	4	5	Max 38'-9" / Min 5'-11"	22	4	7	Max 38'-9" / Min 5'-11"	16	5	6	29	7'-8"	4	12	50	7'-8"	4	9	103	Max 12'-4" / Min 1'-10"	4	9	103	Max 12'-4" / Min 1'-10"	4	12	6	LONG 12'-2" / SHORT 1'-11"	4	12	12	LONG 9'-8" / MID 7'-1" / SHORT 4'-5"	26.72	3592
																					4	5	Max 38'-9" / Min 5'-11"	5	4	7	Max 38'-9" / Min 5'-11"	4																		

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.		R60140	33	616

① SPECIAL DETAILS

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19

TABULAR DATA BY: MCB DATE: 08/20/19
CHECKED BY: CMW DATE: 8/21/19

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT		WINGWALL ANGLE (DEGREE)		FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL		FOOTING DIMENSION PARALLEL WITH HDWL		LENGTH OF WINGWALLS		LENGTH OF FOOTING HEEL	
								AT HDWL	AT WING END	WING A	WING B		WING A	WING B	WING A	WING B	WING A	WING B	WING A	WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
65'-1"	12'-0"	1'-1"	1'-0"	45	3:1	88'-7 1/2"	2'-0"	12'-10"	4'-0"	0	60	3'-6"	5'-9"	7'-4 3/8"	2'-9"	7'-0"	26'-6"	53'-0"	27'-9 1/2"	59'-6 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
48.58	3561

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY
WING A	4	12	27	L	Min	5'-8"	5	12	6	L 8'-11"	4	12	6	L 6'-1"	4	18	10	Min
					Max	16'-8"												4'-10"
				X	Min	1'-1"				X 2'-11"				X 2'-4"				Max
					Max	3'-5"												22'-10"
				Y	Min	4'-8"				Y 6'-1"				Y 3'-10"				
					Max	13'-4"												
WING B	4	12	53	L	Min	5'-8"	6	12	18	L 10'-8"	4	12	12	L 6'-4"	4	18	10	Min
					Max	17'-11"												9'-10"
				X	Min	1'-1"				X 3'-5"				X 2'-7"				Max
					Max	4'-7"												45'-10"
				Y	Min	4'-8"				Y 7'-4"				Y 3'-10"				
					Max	13'-5"												

WING	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	
WING A	4	18	6	26'-2"	4	18	18	L	Min	7'-5"	4	8	28'-8"	6	18	18	Min	
									Max	15'-11"							3'-0"	
								X	Min	2'-8"							Max	
									Max	2'-8"							5'-3"	
								Y	Min	4'-10"								
									Max	13'-4"								
WING B	4	18	6	52'-8"	4	18	36	L	Min	7'-3"	4	8	60'-4"	6	18	40	Min	
									Max	16'-0"							3'-0"	
								X	Min	2'-8"							Max	
									Max	2'-8"							6'-11"	
								Y	Min	4'-8"								
									Max	13'-5"								

WING	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	2	Min	4	2	27'-6"	4	2	27'-5"	6	12	12	L	3'-4"	1106
				18'-10"												
				Max										X	1'-8"	
				18'-10"												
WING B	4	18	4	Min	4	2	53'-3"	4	2	61'-11"	6	12	12	L	3'-4"	2455
				25'-5"												
				Max										X	1'-8"	
				48'-1"												

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.

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.	OVERALL WIDTH	OVERALL 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
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH								
45	3:1	15	12	12	34'-6"	16	3	16.5	14.5	8	65'-1"	14'-8 1/2"	6	8	Max 64'-9" / Min 2'-9" / 64'-9"	93 / 3	6	6.5	Max 64'-9" / Min 2'-9" / 64'-9"	115 / 4

BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	"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
6	4	Max 64'-9" / Min 2'-9" / 64'-9"	186 / 6	6	8	Max 64'-9" / Min 2'-9" / 64'-9"	93 / 3	7	5	166	14'-5"	4	12	288	14'-5"	4	6.5	239	Max 66'-11" / Min 1'-10"

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
4	6.5	239	Max 66'-11" / Min 1'-10"	4	7.5	20	LONG 65'-11"	4	12	24	LONG 53'-11"
						20	SHORT 2'-11"			48	MID 40'-11"
										24	SHORT 14'-10"

"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
8	48'-2"	12	8	48'-2"	12	4	2'-3"	1'-3"	94

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
305.81	51446

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

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL								

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 REINF. STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. 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

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

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 REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL								
B	15	12	12	16	16.5	14.5	8	65'-1"	14'-8 1/2"	195	4	64'-9"	8	66'-0"	5	64'-9"	16	146

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
4	64'-9"	8	66'-11"	5	64'-9"	10	234	7	5	936	14'-4"	4	12	1560	14'-4"

TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D
4	6.5	239	4	6.5	239	4	7.5	40	4	12	96

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
1713.60	241592

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
QUINTUPLE BARREL BOX CULVERT
HIGHWAY 7 - Sta. 750+25

SPECIAL DETAILS

Ver. Jul5 br60140_c2.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.		R60140	34	616

① SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-20-19
CHARLES R. ELLIS

TABULAR DATA BY: MCB DATE: 08/20/19
CHECKED BY: CMW DATE: 8/21/19

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
65'-1"	12'-0"	1'-1"	1'-0"	45	3:1	88'-7 1/2"	2'-0"	12'-10"	4'-0"	0	60	3'-6"	5'-9"	7'-4 3/8"	2'-9"	7'-0"	26'-6"	53'-0"	27'-9 1/2"	59'-6 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
51.57	3561

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
WING A	4	12	27	L	Min	5'-8"	5	12	6	L 8'-11"	4	12	6	L 6'-1"	4	18	10	Min	4	18	6	26'-2"
					Max	16'-8"												4'-10"				
				X	Min	1'-1"				X 2'-11"				X 2'-4"				Max				
					Max	3'-5"												22'-10"				
				Y	Min	4'-8"				Y 6'-1"				Y 3'-10"								
					Max	13'-4"																
WING B	4	12	53	L	Min	5'-8"	6	12	18	L 10'-8"	4	12	12	L 6'-4"	4	18	10	Min	4	18	6	52'-8"
					Max	17'-11"												9'-10"				
				X	Min	1'-1"				X 3'-5"				X 2'-7"				Max				
					Max	4'-7"												45'-10"				
				Y	Min	4'-8"				Y 7'-4"				Y 3'-10"								
					Max	13'-5"																

WING	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	18	L	Min	7'-5"	4	8	28'-8"	6	18	18	Min	4	18	2	Min	4	2	27'-6"	4	2	27'-5"	6	12	12	L	3'-4"	1106
					Max	15'-11"							3'-0"				18'-10"												
				X	Min	2'-8"							Max				Max										X	1'-8"	
					Max	2'-8"							5'-3"				18'-10"												
				Y	Min	4'-10"																							
					Max	13'-4"																							
WING B	4	18	36	L	Min	7'-3"	4	8	60'-4"	6	18	40	Min	4	18	4	Min	4	2	53'-3"	4	2	61'-11"	6	12	12	L	3'-4"	2455
					Max	16'-0"							3'-0"				25'-5"												
				X	Min	2'-8"							Max				Max										X	1'-8"	
					Max	2'-8"							6'-11"				48'-1"												
				Y	Min	4'-8"																							
					Max	13'-5"																							

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.	OVERALL WIDTH	OVERALL HEIGHT
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH
45	3:1	15	12	12	34'-6"	16	3	16.5	14.5	8	65'-1"	14'-8 1/2"

TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	"c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D
6	8	Max 64'-9"	93	6	6.5	Max 64'-9"	115
		Min 2'-9"				Min 2'-9"	
		64'-9"	3			64'-9"	4

BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	"f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D
6	4	Max 64'-9"	186	6	8	Max 64'-9"	93
		Min 2'-9"				Min 2'-9"	
		64'-9"	6			64'-9"	3

SIDE WALL REINFORCING STEEL "f0" SIZE	SPACING	NO. REQ'D	LENGTH
7	5	166	14'-5"

INTERIOR WALL REINFORCING STEEL "f1" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	288	14'-5"

TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	SPACING	NO. REQ'D	LENGTHS VARY
4	6.5	239	Max 66'-11"
			Min 1'-10"

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	SPACING	NO. REQ'D	LENGTHS VARY
4	6.5	239	Max 66'-11"
			Min 1'-10"

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	SPACING	NO. REQ'D	LENGTH
4	7.5	20	LONG 65'-11"
			SHORT 2'-11"

INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	24	LONG 53'-11"
		48	MID 40'-11"
		24	SHORT 14'-10"

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
305.81	51446

"k1" HDWL BARS SIZE	LENGTH	NO. REQ'D
8	48'-2"	12

"k2" HDWL BARS SIZE	LENGTH	NO. REQ'D
8	48'-2"	12

"h" HDWL BARS SIZE	LENGTH	Y	NO. REQ'D
4	2'-3"	1'-3"	94

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

TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	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	SPACING	NO. REQ'D

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D

BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D

SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D

INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" BARS SIZE	Y	LENGTH	NO. REQ'D

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

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
QUINTUPLE BARREL BOX CULVERT
HIGHWAY 7 - Sta. 750+25

SPECIAL DETAILS

LRD

Ver. LJ15 br60140_c2.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.		R60140	35	6/6

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		WINGWALL ANGLE (DEGREE)		FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL		FOOTING DIMENSION PARALLEL WITH HDWL		LENGTH OF WINGWALLS		LENGTH OF FOOTING HEEL	
								AT HDWL	AT WING END	WING A	WING B		WING A	WING B	WING A	WING B	WING A	WING B	WING A	WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
43'-11"	10'-0"	0'-11"	0'-10"	45	3:1	59'-4 3/4"	2'-0"	10'-10"	3'-4"	0	60	3'-4"	4'-9 1/4"	6'-0 3/8"	1'-11 1/4"	4'-7 7/8"	22'-6"	45'-0"	23'-11 3/4"	51'-10 1/2"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
30.45	2604

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS		F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS		F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	
WING A	4	12	23	L	Min	4'-8"	5	12	3	L	7'-1"	4	12	6	L	5'-5"	4	18	10		Min
					Max	13'-6"															3'-4"
				X	Min	0'-11"				X	2'-3"				X	1'-10"					Max
					Max	2'-5"															21'-4"
				Y	Min	3'-10"				Y	4'-11"				Y	3'-8"					
					Max	11'-2"															
WING B	4	12	45	L	Min	4'-8"	5	12	12	L	8'-7"	4	12	12	L	5'-8"	4	18	10		Min
					Max	14'-6"															6'-10"
				X	Min	0'-11"				X	2'-9"				X	2'-1"					Max
					Max	3'-5"															42'-10"
				Y	Min	3'-10"				Y	5'-11"				Y	3'-8"					
					Max	11'-2"															

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	22'-2"	4	18	15	L	Min 6'-7"	4	8	24'-10"	6	18	15		Min	4	18	2		Min	4	2	23'-3"	4	2	23'-5"	6	12	10	L	3'-4"	827
								Max 13'-7"								2'-10"					24'-4"												
								X	Min 2'-6"								Max				Max								X	1'-8"	
									Max 2'-6"							4'-3"					24'-4"											
								Y	Min 4'-2"																								
									Max 11'-2"																								
WING B	4	18	4	44'-8"	4	18	30	L	Min 6'-5"	4	8	52'-8"	6	18	33		Min	4	18	4		Min	4	2	45'-2"	4	2	51'-9"	6	12	10	L	3'-4"	1777
								Max 13'-7"								2'-10"					29'-8"											
								X	Min 2'-6"								Max				Max								X	1'-8"	
									Max 2'-6"							5'-6"					56'-8"											
								Y	Min 4'-0"																								
									Max 11'-2"																								

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"

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19
CHARLES R. ELLIS

TABULAR DATA BY: MCB DATE: 08/20/19
CHECKED BY: CMW DATE: 8/21/19

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.

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 REINFORCING STEEL								BOTTOM SLAB REINFORCING STEEL							
													"a"				"c"				"d"				"f"			
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
45	3	15	10	10	23'-11"	14	3	14	11.5	8	43'-11"	12'-4"	4	5	Max 43'-7" / Min 2'-6"	99	4	4	Max 43'-7" / Min 2'-6"	124	5	4	Max 43'-7" / Min 2'-6"	124	5	7	Max 43'-7" / Min 2'-6"	71
															43'-7"	5			43'-7"	6			43'-7"	6			43'-7"	4

SIDE WALL REINFORCING STEEL "f0"				INTERIOR WALL REINFORCING STEEL "f1"				TOP SLAB DISTRIBUTION REINFORCING STEEL "g"				BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e"				SIDE WALL DISTRIBUTION REINFORCING STEEL "d1"				INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2"			
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
8	9	65	12'-0"	4	12	150	12'-0"	5	12	87	Max 45'-9" / Min 1'-10"	5	12	87	Max 45'-9" / Min 1'-10"	4	9	14	LONG 44'-11" / SHORT 2'-7"	4	12	20	LONG 34'-9" / MID 23'-10" / SHORT 12'-10"

CLASS "S" CONCRETE (Includes HDWL)	① REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
126.93	19143

"k1" HDWL BARS			"k2" HDWL BARS			"h" HDWL BARS			
SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	Y	NO. REQ'D
6	32'-2"	12	6	32'-2"	12	4	2'-1"	1'-1"	64

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

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK	SIDE WALL THK	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS							
											"a"		Bent "b"		"c"				"d"		Bent "b1"		"f"			
	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

HDWL DEPTH.	ADDITIONAL REINF. FOR HDWL	"h" HDWL BARS			
HD	LBS.	SIZE	Y	LENGTH	NO. REQ'D

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4"				INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4"				TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL			BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL			SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL			INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL		
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

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

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 REINFORCING STEEL LENGTH = OW - 4" + BENDS								BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS							
											"a"		Bent "b"		"c"				"d"		Bent "b1"		"f"			
	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
B	15	10	10	14	14	12	8	44'-0"	12'-4"	220.2	4	43'-8"	7	45'-1"	5	43'-8"	17	155	4	43'-8"	8	44'-10"	5	43'-8"	10	264

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4"				INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4"				TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL			BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL			SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL			INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL		
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
8	8.5	620	12'-0"	4	12	1320	12'-0"	5	12	87	5	12	87	5	12	87	4	9	28	4	12	60

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
1163.35	168967

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
QUADRUPLE BARREL BOX CULVERT
HIGHWAY 7 - Sta. 768+75

SPECIAL DETAILS

Ver. Jul5 br6040.e3.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.		R60140	36	616

① SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19
CHARLES R. ELLIS

TABULAR DATA BY: MCB DATE: 08/20/19
CHECKED BY: CMW DATE: 9/21/19

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
43'-11"	10'-0"	0'-11"	0'-10"	45	3:1	59'-4 3/4"	2'-0"	10'-10"	3'-4"	0	60	3'-4"	4'-9 1/4"	6'-0 3/8"	1'-11 1/4"	4'-7 7/8"	22'-6"	45'-0"	23'-11 3/4"	51'-10 1/2"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
32.62	2604

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
WING A	4	12	23	L	Min	4'-8"	5	12	3	L 7'-1"	4	12	6	L 5'-5"	4	18	10	Min 3'-4"	4	18	4	22'-2"
					Max	13'-6"												Max 21'-4"				
				X	Min	0'-11"				X 2'-3"				X 1'-10"								
					Max	2'-5"																
				Y	Min	3'-10"				Y 4'-11"				Y 3'-8"								
					Max	11'-2"																
WING B	4	12	45	L	Min	4'-8"	5	12	12	L 8'-7"	4	12	12	L 5'-8"	4	18	10	Min 6'-10"	4	18	4	44'-8"
					Max	14'-6"												Max 42'-10"				
				X	Min	0'-11"				X 2'-9"				X 2'-1"								
					Max	3'-5"																
				Y	Min	3'-10"				Y 5'-11"				Y 3'-8"								
					Max	11'-2"																

WING	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	15	X	Min	6'-7"	4	8	24'-10"	6	18	15	Min 2'-10"	4	18	2	Min 24'-4"	4	2	23'-3"	4	2	23'-5"	6	12	10	L	3'-4"	827
					Max	13'-7"							Max 4'-3"				Max 24'-4"										X	1'-8"	
					Min	2'-6"																							
					Max	2'-6"																							
				Y	Min	4'-2"																							
					Max	11'-2"																							
WING B	4	18	30	X	Min	6'-5"	4	8	52'-8"	6	18	33	Min 2'-10"	4	18	4	Min 29'-8"	4	2	45'-2"	4	2	51'-9"	6	12	10	L	3'-4"	1777
					Max	13'-7"							Max 5'-6"				Max 56'-8"										X	1'-8"	
					Min	2'-6"																							
					Max	2'-6"																							
				Y	Min	4'-0"																							
					Max	11'-2"																							

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

SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH	TOP SLAB REINF. "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINF. "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINF. "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINF. "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D
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"				TOP SLAB REINFORCING STEEL "c"				BOTTOM SLAB REINFORCING STEEL "d"				BOTTOM SLAB REINFORCING STEEL "f"			
45	3:1	15	10	10	23'-11"	14	3	14	11.5	8	43'-11"	12'-4"	4	5	Max 43'-7" Min 2'-6" 43'-7"	99 5	4	4	Max 43'-7" Min 2'-6" 43'-7"	124 6	5	4	Max 43'-7" Min 2'-6" 43'-7"	124 6	5	7	Max 43'-7" Min 2'-6" 43'-7"	71 4

SIDE WALL REINFORCING STEEL "f0" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	SPACING	NO. REQ'D	LENGTH
8	9	65	12'-0"	4	12	150	12'-0"	5	12	87	Max 45'-9" Min 1'-10"	5	12	87	Max 45'-9" Min 1'-10"	4	9	14	LONG 44'-11" SHORT 2'-7"	4	12	20	LONG 34'-9" MID 23'-10" SHORT 12'-10"

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
126.93	19143

"k1" HDWL BARS SIZE	LENGTH	NO. REQ'D
6	32'-2"	12

"k2" HDWL BARS SIZE	LENGTH	NO. REQ'D
6	32'-2"	12

"h" HDWL BARS SIZE	LENGTH	Y	NO. REQ'D
4	2'-1"	1'-1"	64

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	TOP SLAB REINF. 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 REINF. 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 REINF. "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

INTERIOR WALL REINF. "f1" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. "g" SIZE	SPACING	NO. REQ'D	LENGTH = SL	BOTTOM SLAB DISTRIBUTION REINF. "e" SIZE	SPACING	NO. REQ'D	LENGTH = SL	SIDE WALL DISTRIBUTION REINF. "d1" SIZE	SPACING	NO. REQ'D	LENGTH = SL	INTERIOR WALL DISTRIBUTION REINF. "d2" SIZE	SPACING	NO. REQ'D	LENGTH = SL

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	Y	LENGTH	NO. REQ'D

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

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
QUADRUPLE BARREL BOX CULVERT
HIGHWAY 7 - Sta. 768+75

SPECIAL DETAILS

Ver. win br60140_c3.dgn

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT		WINGWALL ANGLE (DEGREE)		FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL		FOOTING DIMENSION PARALLEL WITH HDWL		LENGTH OF WINGWALLS		LENGTH OF FOOTING HEEL	
								AT HDWL	AT WING END	WING A	WING B		WING A	WING B	WING A	WING B	WING A	WING B	WING A	WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
76'-11"	10'-0"	0'-11"	0'-10"	45	3:1	106'-6 1/2"	2'-0"	10'-10"	3'-4"	0	60	3'-4"	4'-9 1/4"	6'-0 3/8"	1'-11 1/4"	4'-7 7/8"	22'-6"	45'-0"	24'-2 5/8"	52'-6 1/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
33.37	2671

	F1					F2				F3				F4				F5		F6				F7		F8			F9			F10		F11		F12				REINF. STEEL QTY. PER WING (LBS)
	WING	BAR SIZE	MAX. SPACING	NO. REQ'D	LENGTHS VARY		BAR SIZE	SPACING	NO. REQ'D	LENGTHS		BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY		BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY		BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY		BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	
	WING A	4	12	23	L	Min	4'-8"	5	12	3	L	7'-1"	4	12	6	L	5'-5"	4	18	10	Min	4	18	15	L	Min	6'-7"	4	8	25'-1"	6	18	15	Min	4	18	2	Min	4	23'-3"	4	2	23'-5"	6	12	10	L	3'-4"	860
						Max	13'-6"				X	2'-3"				X	1'-10"				3'-4"				X	Max	2'-6"							2'-10"												X	1'-8"	
					X	Min	0'-11"																		Min	2'-6"							Max													
						Max	2'-5"				Y	4'-11"				Y	3'-8"				Max				Y	Max	2'-6"							4'-3"													
					Y	Min	3'-10"																		Min	4'-2"							Min													
						Max	11'-2"																		Max	11'-2"							24'-4"													
	WING B	4	12	45	L	Min	4'-8"	5	12	12	L	8'-7"	4	12	12	L	5'-8"	4	18	10	Min	4	18	30	L	Min	6'-5"	4	8	53'-4"	6	18	33	Min	4	18	4	Min	4	45'-2"	4	2	51'-9"	6	12	10	L	3'-4"	1811
						Max	14'-6"				X	2'-9"				X	2'-1"				6'-10"				X	Max	2'-6"							2'-10"												X	1'-8"	
					X	Min	0'-11"																		Min	2'-6"							Max													
						Max	3'-5"				Y	5'-11"				Y	3'-8"				Max				Y	Max	4'-0"							29'-8"													
					Y	Min	3'-10"																		Min	11'-2"							Min													
						Max	11'-2"																		Max								56'-8"													

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.

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.		R60140	37	616

(1) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-20-19
CHARLES R. ELLIS

TABULAR DATA BY: JWP DATE: 8/20/2019
CHECKED BY: C.M.W DATE: 8/22/19

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 REINFORCING STEEL | | | | | | | | BOTTOM SLAB REINFORCING STEEL | | | | | | | | SIDE WALL REINFORCING STEEL "f0" | | | | INTERIOR WALL REINFORCING STEEL "f1" | | | | TOP SLAB DISTRIBUTION REINFORCING STEEL "g" | | | | BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" | | | | SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" | | | | INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" | | | | CLASS "S" CONCRETE (Includes HDWL) | (1) REINFORCING STEEL (GR 60) (Includes HDWL) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

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.		R60140	38	616

① SPECIAL DETAILS

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19

TABULAR DATA BY: JWP DATE: 8/20/2019
CHECKED BY: CMW DATE: 8/22/19

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
76'-11"	10'-0"	0'-11"	0'-10"	45	2:1	106'-6 1/2"	2'-0"	10'-10"	3'-4"	0	60	3'-4"	4'-8 3/4"	7'-2 1/4"	1'-10 3/4"	6'-11 5/8"	15'-0"	30'-0"	16'-8 5/8"	37'-6 1/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
28.02	1948

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS			F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS			F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY
WING A	4	12	15	L	Min	5'-0"	5	12	2	L	7'-1"		4	12	4	L	5'-5"		4	18	10	Min
					Max	13'-6"																2'-2"
				X	Min	0'-11"				X	2'-3"					X	1'-10"					Max
					Max	2'-5"																14'-2"
				Y	Min	4'-2"				Y	4'-11"					Y	3'-8"				
					Max	11'-2"																
WING B	4	12	30	L	Min	4'-9"	6	12	8	L	9'-5"		4	12	8	L	6'-0"		4	18	10	Min
					Max	15'-3"																4'-6"
				X	Min	0'-11"				X	3'-4"					X	2'-5"					Max
					Max	4'-2"																28'-6"
				Y	Min	3'-11"				Y	6'-2"					Y	3'-8"				
					Max	11'-2"																

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	14'-8"	4	18	10	L	Min	6'-9"	4	8	17'-7"	6	18	10	Min			4	18	2	Min		4	2	16'-4"	4	2	15'-11"	6	12	10	L	3'-4"	621
									Max	13'-7"							2'-10"						16'-10"													
								X	Min	2'-6"							Max						Max										X	1'-8"	
									Max	2'-6"							4'-2"						16'-10"													
								Y	Min	4'-4"																											
									Max	11'-2"																											
WING B	4	18	4	29'-8"	4	18	20	L	Min	6'-6"	4	8	38'-4"	6	18	24	Min			4	18	4	Min		4	2	30'-5"	4	2	39'-0"	6	12	10	L	3'-4"	1327
									Max	13'-7"							2'-10"						16'-6"													
								X	Min	2'-6"							Max						Max										X	1'-8"	
									Max	2'-6"							6'-7"						30'-4"													
								Y	Min	4'-1"																											
									Max	11'-2"																											

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 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 DIST. REINF. STEEL "g" SIZE | "g" SPACING | "g" NO. REQ'D | "g" LENGTHS VARY | BOTTOM SLAB DIST. REINF. STEEL "e" SIZE | "e" SPACING | "e" NO. REQ'D | "e" LENGTHS VARY | SIDE WALL DIST. REINF. STEEL "d1" SIZE | "d1" SPACING | "d1" NO. REQ'D | "d1" LENGTH | INTERIOR WALL DIST. REINF. STEEL "d2" SIZE | "d2" SPACING | "d2" NO. REQ'D | "d2" LENGTHS VARY | CLASS "S" CONCRETE (Includes HDWL) CU. YDS. | ① REINFORCING STEEL (GR 60) (Includes HDWL) LBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

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.		R60140	39	616

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
64'-8"	12'-0"	1'-1"	1'-0"	15	3:1	64'-10 1/2"	2'-0"	12'-10"	4'-0"	15	45	3'-6"	6'-1 3/4"	6'-11 3/4"	2'-11 7/8"	4'-7 1/2"	27'-0"	37'-0"	30'-2 3/8"	40'-2 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
38.44	2911

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F2	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F3	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F4	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6	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	27	L Min	5'-10"	5	12	7	L	10'-2"	4	12	10	L	7'-0"	4	18	10	Min	4'-11"	4	18	6	26'-8"	4	18	18	L Min	7'-7"	4	8	31'-0"	6	18	18	Min	3'-0"	4	18	4	Min	17'-1"	4	2	27'-11"	4	2	28'-10"	6	12	12	L	3'-4"	1200
				L Max	17'-0"				X	3'-2"				X	2'-3"				Max	23'-3"								L Max	15'-11"								Max	5'-7"				Max	32'-3"								X	1'-8"	
				X Min	1'-1"																						X Min	2'-8"																						
				X Max	3'-9"																						X Max	2'-8"																						
				Y Min	4'-10"																						Y Min	5'-0"																						
				Y Max	13'-4"				Y	7'-1"				Y	4'-10"											Y Max	13'-4"																						
WING B	4	12	37	L Min	5'-9"	6	12	13	L	10'-6"	4	12	9	L	6'-3"	4	18	10	Min	6'-10"	4	18	6	36'-8"	4	18	25	L Min	7'-4"	4	8	41'-0"	6	18	27	Min	3'-0"	4	18	4	Min	19'-3"	4	2	37'-7"	4	2	42'-1"	6	12	12	L	3'-4"	1711
				L Max	17'-7"				X	3'-3"				X	2'-6"				Max	31'-11"								L Max	15'-11"								Max	6'-5"				Max	36'-4"								X	1'-8"	
				X Min	1'-1"																						X Min	2'-8"																						
				X Max	4'-4"																						X Max	2'-8"																						
				Y Min	4'-9"																						Y Min	4'-9"																						
				Y Max	13'-4"				Y	7'-4"				Y	3'-10"											Y Max	13'-4"																						

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"

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19

TABULAR DATA BY: JWP DATE: 8/20/2019
CHECKED BY: CMW DATE: 8/26/19

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.

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.	OVERALL WIDTH	OVERALL HEIGHT
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH
15	3:1	10	12	12	10'-8"	15	3	15	12	8	64'-8"	14'-6"

TOP SLAB REINFORCING STEEL	"a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a"	"a" NO. REQ'D	"c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c"	"c" NO. REQ'D
	5	8	Max	64'-4"	24	5	7	Max	64'-4"	27
			Min	6'-5"				Min	6'-5"	
				64'-4"	3				64'-4"	4

BOTTOM SLAB REINFORCING STEEL	"d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d"	"d" NO. REQ'D	"f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f"	"f" NO. REQ'D
	5	5.5	Max	64'-4"	34	4	5	Max	64'-4"	38
			Min	6'-5"				Min	6'-5"	
				64'-4"	5				64'-4"	5

SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH
8	8	32	14'-2"

INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH
4	12	96	14'-2"

TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	"g"
5	11	149	Max	19'-2"
			Min	1'-10"

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	"e"
5	11	149	Max	19'-2"
			Min	1'-10"

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	"d1"
4	9	16	LONG	18'-11"
		16	SHORT	2'-1"

INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH	"d2"
4	12	24	LONG	15'-8"
		48	MID	12'-3"
		24	SHORT	5'-4"

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
87.62	12037

"k1" HDWL BARS SIZE	LENGTH	NO. REQ'D
4	34'-2"	12

"k2" HDWL BARS SIZE	LENGTH	NO. REQ'D
4	34'-2"	12

"h" HDWL BARS SIZE	LENGTH	Y	NO. REQ'D
4	2'-2"	1'-2"	68

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

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB 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
B	15	12	12	16	16	13	8	64'-10"	14'-8"	11.39
C	20	12	12	18	19.5	15.5	8	65'-3"	15'-1 1/2"	11.39

TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS	"a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D
B	4	64'-6"	6	66'-10"	5	64'-6"	12	11
C	4	64'-11"	8	67'-7"	8	64'-11"	14	9

BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS	"d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D
B	4	64'-6"	7	66'-7"	7	64'-6"	10	13
C	4	64'-11"	8	67'-8"	5	64'-11"	10	13

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4"	SIZE	SPACING	NO. REQ'D	LENGTH
B	8	6	44	14'-4"
C	8	6	44	14'-10"

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4"	SIZE	SPACING	NO. REQ'D	LENGTH
B	4	12	88	14'-4"
C	4	12	88	14'-10"

TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL	SIZE	SPACING	NO. REQ'D
B	4	6.5	239
C	4	6	249

BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL	SIZE	SPACING	NO. REQ'D
B	4	6.5	239
C	4	5.5	279

SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL	SIZE	SPACING	NO. REQ'D
B	4	8.5	34
C	5	11	28

INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL	SIZE	SPACING	NO. REQ'D
B	4	12	96
C	4	12	96

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	Y	LENGTH	NO. REQ'D

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
97.40	14899
112.59	16910
TOTAL	
210.00	31809

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

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) 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
D	25	12	12	21.5	23	18.5	8	65'-9"	15'-8 1/2"	79.11

TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS	"a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D
D	4	65'-5"	8	68'-10"	8	65'-5"	12	79

BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS	"d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D
D	4	65'-5"	8	68'-11"	8	65'-5"	13	73

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4"	SIZE	SPACING	NO. REQ'D	LENGTH
D	4	12	158	15'-4"

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4"	SIZE	SPACING	NO. REQ'D	LENGTH
D	4	12	632	15'-4"

TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL	SIZE	SPACING	NO. REQ'D
D	5	8	189

BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL	SIZE	SPACING	NO. REQ'D
D	6	10	159

SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL	SIZE	SPACING	NO. REQ'D
D	4	6	48

INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL	SIZE	SPACING	NO. REQ'D
D	4	12	96

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
916.57	117723

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
QUINTUPLE BARREL BOX CULVERT
MILL CREEK ROAD - Sta. 116+00
SPECIAL DETAILS

Ver. 1.11.5 br6040.c5.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.		R60140	40	616

① SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19
CHARLES R. ELLIS

TABULAR DATA BY: JWP DATE: 8/20/2019
CHECKED BY: CMW DATE: 8/26/19

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
64'-8"	12'-0"	1'-1"	1'-0"	15	3:1	64'-10 1/2"	2'-0"	12'-10"	4'-0"	15	45	3'-6"	6'-1 3/4"	6'-11 3/4"	2'-11 7/8"	4'-7 1/2"	27'-0"	37'-0"	30'-2 3/8"	40'-2 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
40.68	2911

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS			F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS			F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY
WING A	4	12	27	L	Min	5'-10"	5	12	7	L	10'-2"		4	12	10	L	7'-0"		4	18	10	Min
					Max	17'-0"																4'-11"
				X	Min	1'-1"				X	3'-2"					X	2'-3"					Max
					Max	3'-9"																23'-3"
				Y	Min	4'-10"				Y	7'-1"					Y	4'-10"					
					Max	13'-4"																
WING B	4	12	37	L	Min	5'-9"	6	12	13	L	10'-6"		4	12	9	L	6'-3"		4	18	10	Min
					Max	17'-7"																6'-10"
				X	Min	1'-1"				X	3'-3"					X	2'-6"					Max
					Max	4'-4"																31'-11"
				Y	Min	4'-9"				Y	7'-4"					Y	3'-10"					
					Max	13'-4"																

WING	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 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
WING A			4	18	6	26'-8"	4	18	18	L	Min	7'-7"	4	8	31'-0"	6	18	18	4	18	4	Min
											Max	15'-11"										17'-1"
										X	Min	2'-8"										Max
											Max	2'-8"										32'-3"
										Y	Min	5'-0"										
											Max	13'-4"										
WING B			4	18	6	36'-8"	4	18	25	L	Min	7'-4"	4	8	41'-0"	6	18	27	4	18	4	Min
											Max	15'-11"										19'-3"
										X	Min	2'-8"										Max
											Max	2'-8"										36'-4"
										Y	Min	4'-9"										
											Max	13'-4"										

WING	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	2 27'-11"	4	2	28'-10"	6	12	12	L	3'-4"	1200
									X	1'-8"	
WING B	4	2 37'-7"	4	2	42'-1"	6	12	12	L	3'-4"	1711
									X	1'-8"	

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.	OVERALL WIDTH	OVERALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	"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	"f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH																
15	3:1	10	12	12	10'-8"	15	3	15	12	8	64'-8"	14'-6"	5	8	Max 64'-4" / Min 6'-5"	24	5	7	Max 64'-4" / Min 6'-5"	27	5	5.5	Max 64'-4" / Min 6'-5"	34	4	5	Max 64'-4" / Min 6'-5"	38
															64'-4"	3			64'-4"	4			64'-4"	5			64'-4"	5

SIDE WALL REINFORCING STEEL "f0" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	SPACING	NO. REQ'D	LENGTH
8	8	32	14'-2"	4	12	96	14'-2"	5	11	149	Max 19'-2" / Min 1'-10"	5	11	149	Max 19'-2" / Min 1'-10"	4	9	16	LONG 18'-11"	4	12	24	LONG 15'-8"
																		16	SHORT 2'-1"			48	MID 12'-3"
																						24	SHORT 5'-4"

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
87.62	12037

"k1" HDWL BARS SIZE	LENGTH	NO. REQ'D	"k2" HDWL BARS SIZE	LENGTH	NO. REQ'D	"h" HDWL BARS SIZE	LENGTH	Y	NO. REQ'D
4	34'-2"	12	4	34'-2"	12	4	2'-2"	1'-2"	68

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	TOP SLAB REINFORCING STEEL 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
B	15	12	12	16	16	13	8	64'-10"	14'-8"	11.39	4	64'-6"	6	66'-10"	5	64'-6"	12	11	4	64'-6"	7	66'-7"	7	64'-6"	10	13
C	20	12	12	18	19.5	15.5	8	65'-3"	15'-1 1/2"	11.39	4	64'-11"	8	67'-7"	8	64'-11"	14	9	4	64'-11"	8	67'-8"	5	64'-11"	10	13

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
8	6	44	14'-4"	4	12	88	14'-4"	4	6.5	239	4	6.5	239	4	8.5	34	4	12	96
8	6	44	14'-10"	4	12	88	14'-10"	4	6	249	4	5.5	279	5	11	28	4	12	96

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" BARS SIZE	Y	LENGTH	NO. REQ'D

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
97.40	14899
112.59	16910
TOTAL	
210.00	31809

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
QUINTUPLE BARREL BOX CULVERT
MILL CREEK ROAD - Sta. 116+00

SPECIAL DETAILS

LRFD

Ver. LI5 br60140_c5.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.		R60140	41	616

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
51'-2"	7'-0"	0'-9"	0'-8"	45	2:1	70'-8 1/2"	2'-0"	7'-10"	2'-4"	0	60	3'-2"	3'-5 5/8"	4'-10 5/8"	0'-9 5/8"	2'-8 3/8"	11'-0"	22'-0"	12'-10 1/8"	29'-8 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
12.92	1094

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F4 LENGTHS	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6 LENGTHS	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F8 LENGTHS	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	11	L Min	3'-8"	4	12	2	L 3'-5"	-	-	-	L -	4	18	6	Min		4	18	4	10'-8"	4	18	8	L Min	4'-11"	4	8	13'-8"	6	18	7	Min		-	-	-	-	4	2	11'-10"	4	2	11'-10"	6	12	7	L	3'-4"	360
				L Max	8'-11"												2'-2"									Max	10'-2"							2'-8"														
				X Min	0'-9"				X 1'-0"				X -				Max									Min	2'-4"							Max												X	1'-8"	
				X Max	1'-1"												8'-2"									Max	2'-4"							2'-11"														
				Y Min	3'-0"				Y 2'-6"				Y -				Min									Min	2'-8"							Min		-													
				Y Max	7'-11"												4'-6"									Max	7'-11"							2'-8"														
WING B	4	12	22	L Min	3'-5"	4	12	8	L 5'-2"	-	-	-	L -	4	18	6	Min		4	18	4	21'-8"	4	18	15	L Min	5'-0"	4	8	30'-6"	6	18	16	Min		4	18	2	23'-6"	4	2	22'-2"	4	2	26'-10"	6	12	7	L	3'-4"	734
				L Max	10'-3"												16'-6"									Max	10'-3"							2'-8"														
				X Min	0'-9"				X 1'-9"				X -				Max									Min	2'-4"							Max												X	1'-8"	
				X Max	2'-4"												4'-4"									Max	2'-4"							23'-6"														
				Y Min	2'-9"				Y 3'-6"				Y -				Min									Min	2'-9"							Min														
				Y Max	8'-0"												23'-6"									Max	8'-0"							4'-4"														

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"

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19

TABULAR DATA BY: JWP DATE: 8/20/2019
CHECKED BY: CMW DATE: 9/21/19

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.

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" LENGTHS | "a" NO. REQ'D | TOP SLAB REINF. STEEL "c" SIZE | "c" SPACING | "c" LENGTHS VARY | "c" LENGTHS | "c" NO. REQ'D | BOTTOM SLAB REINF. STEEL "d" SIZE | "d" SPACING | "d" LENGTHS VARY | "d" LENGTHS | "d" NO. REQ'D | BOTTOM SLAB REINF. STEEL "f" SIZE | "f" SPACING | "f" LENGTHS VARY | "f" LENGTHS | "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 DISTRIBUTION REINF. STEEL "g" SIZE | "g" SPACING | "g" NO. REQ'D | "g" LENGTHS VARY | BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" SIZE | "e" SPACING | "e" NO. REQ'D | "e" LENGTHS VARY | SIDE WALL DISTRIBUTION REINF. STEEL "d1" SIZE | "d1" SPACING | "d1" NO. REQ'D | "d1" LENGTH | INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" SIZE | "d2" SPACING | "d2" NO. REQ'D | "d2" LENGTH | CLASS "S" CONCRETE (Includes HDWL.) CU. YDS. | REINFORCING STEEL (GR 60) (Includes HDWL.) LBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

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.		R60140	42	66

① SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19
CHARLES R. ELLIS

TABULAR DATA BY: JWP DATE: 8/20/2019
CHECKED BY: C.M.W DATE: 8/21/19

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
51'-2"	7'-0"	0'-9"	0'-8"	45	3:1	70'-8 1/2"	2'-0"	7'-10"	2'-4"	0	60	3'-2"	3'-5 3/4"	4'-2 1/4"	0'-9 3/4"	1'-3 5/8"	16'-6"	33'-0"	18'-4 1/8"	40'-8 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
19.23	1503

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS		F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS		F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY
WING A	4	12	17	L	Min	3'-4"	4	12	3	L	3'-5"	-	-	-	L	-	4	18	6	Min
					Max	9'-0"														3'-4"
				X	Min	0'-9"				X	1'-0"				X	-				Max
					Max	1'-1"														12'-4"
				Y	Min	2'-8"				Y	2'-6"				Y	-				
					Max	8'-0"														
WING B	4	12	33	L	Min	3'-4"	4	12	6	L	4'-0"	-	-	-	L	-	4	18	6	Min
					Max	9'-8"														6'-10"
				X	Min	0'-9"				X	1'-7"				X	-				Max
					Max	1'-9"														24'-10"
				Y	Min	2'-8"				Y	2'-6"				Y	-				
					Max	8'-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	16'-2"	4	18	11	L	Min	5'-3"	4	8	19'-2"	6	18	11	Min			-	-	-	-		4	2	16'-11"	4	2	17'-4"	6	12	7	L	3'-4"	489
									Max	10'-3"							2'-8"																	X	1'-8"	
								X	Min	2'-4"							Max																			
									Max	2'-4"																										
								Y	Min	3'-0"							3'-0"																			
									Max	8'-0"																										
WING B	4	18	4	32'-8"	4	18	22	L	Min	5'-1"	4	8	41'-6"	6	18	23	Min			4	18	2	52'-2"		4	2	33'-0"	4	2	36'-7"	6	12	7	L	3'-4"	1014
									Max	10'-3"							2'-8"						Max												
								X	Min	2'-4"							Max																	X	1'-8"	
									Max	2'-4"																										
								Y	Min	2'-10"							3'-8"						52'-2"													
									Max	8'-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 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 DISTRIBUTION REINF. STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINF. STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIBUTION 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																																													
45	3:1	5	12	7	27'-7"	14	3.5	14	7	8	51'-2"	9'-4"	7	10	Max 50'-10" / Min 2'-2"	59	5	6	Max 50'-10" / Min 2'-2"	98	4	5	Max 50'-10" / Min 2'-2"	117	5	10	Max 50'-10" / Min 2'-2"	59	6	7.5	90	9'-0"	4	12	172	9'-0"	5	12	103	Max 53'-0" / Min 1'-10"	5	12	103	Max 53'-0" / Min 1'-10"	4	12	7	LONG 52'-7" / SHORT 2'-3"	4	12	14	LONG 40'-3" / MID 27'-5" / SHORT 14'-8"
															50'-10"	3			50'-10"	4			50'-10"	5			50'-10"	3																																		

CLASS "S" CONCRETE (Includes HDWL)	① REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
146.31	22186

"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
8	38'-4"	12	8	38'-4"	12	4	2'-1"	1'-1"	74

OUTLET 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	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D	BOTTOM SLAB REINF. 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 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 DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D
D	S	H	T	B	C	W	OW	OH	SL																																													

HDWL DEPTH	ADDITIONAL REINF. FOR HDWL	"h" HDWL BARS SIZE	"h" HDWL BARS Y	"h" HDWL BARS LENGTH	"h" HDWL BARS NO. REQ'D
HD	LBS.				

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

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
QUADRUPLE BARREL BOX CULVERT
MILL CREEK ROAD - Sta. 118+64

SPECIAL DETAILS

LRFD

Ver. Ll15 br60140_c6.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.		R60140	43	61.6

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
19'-0"	3'-0"	0'-9"	0'-8"	0	3:1	18'-0"	1'-0"	3'-10"	1'-0"	30	30	2'-2"	2'-2"	2'-2"	0'-0"	0'-0"	9'-6"	9'-6"	11'-4 5/8"	11'-4 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
3.91	358

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	10	L Min 2'-0" / Max 4'-8" / X Min 0'-9" / Max 0'-9" / Y Min 1'-4" / Max 4'-0"	-	-	-	L - / X - / Y -	-	-	-	L - / X - / Y -	4	18	2	Min 5'-5" / Max 5'-5"	4	18	2	9'-2"	4	18	7	L Min 2'-7" / Max 5'-3" / X Min 1'-4" / Max 1'-4" / Y Min 1'-4" / Max 4'-0"	4	6	12'-3"	6	18	6	Min 1'-8" / Max 1'-8"	-	-	-	Min - / Max -	4	2	9'-5"	4	2	10'-7"	6	12	3	L 3'-4" / X 1'-8"	179
WING B	4	12	10	L Min 2'-0" / Max 4'-8" / X Min 0'-9" / Max 0'-9" / Y Min 1'-4" / Max 4'-0"	-	-	-	L - / X - / Y -	-	-	-	L - / X - / Y -	4	18	2	Min 5'-5" / Max 5'-5"	4	18	2	9'-2"	4	18	7	L Min 2'-7" / Max 5'-3" / X Min 1'-4" / Max 1'-4" / Y Min 1'-4" / Max 4'-0"	4	6	12'-3"	6	18	6	Min 1'-8" / Max 1'-8"	-	-	-	Min - / Max -	4	2	9'-5"	4	2	10'-7"	6	12	3	L 3'-4" / X 1'-8"	179

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"

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19

TABULAR DATA BY: JWP DATE: 8/20/2019
CHECKED BY: CMW DATE: 8/22/19

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.

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 DISTRIBUTION REINF. STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINF. STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIBUTION 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 / Min				Max / Min				Max / Min																Max / Min				Max / Min			LONG / SHORT				LONG / MID / 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.

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

INLET SLOPE SECTION(S)

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

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"	25	4	0'-7"	1'-7"	20

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
TOTAL	
0.18	46

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	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"a" SPACING	"a" NO. REQ'D	BOTTOM SLAB REINF. STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	"d" SPACING	"d" 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 DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL																																							
A	10	4	3	8	9	6	8	19'-0"	4'-5"	120	4	18'-8"	4	19'-2"	4	18'-8"	22	65	4	18'-8"	4	19'-2"	4	18'-8"	22	65	4	9	320	4'-1"	4	12	720	4'-1"	4	12	39	4	12	39	4	12	6	4	12	18

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
159.63	16312

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
QUADRUPLE BARREL BOX CULVERT
RAMP 1 - Sta. 741+10

SPECIAL DETAILS

Ver. Ui5 br6040_c1.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.		R60140	44	616

① SPECIAL DETAILS

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19
CHARLES R. ELLIS

TABULAR DATA BY: JWP DATE: 8/20/2019
CHECKED BY: CMW DATE: 9/22/19

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT		WINGWALL ANGLE (DEGREE)		FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL		FOOTING DIMENSION PARALLEL WITH HDWL		LENGTH OF WINGWALLS		LENGTH OF FOOTING HEEL	
								AT HDWL	AT WING END	WING A	WING B		WING A	WING B	WING A	WING B	WING A	WING B	WING A	WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
19'-0"	3'-0"	0'-9"	0'-8"	0	3:1	18'-0"	1'-0"	3'-10"	1'-0"	30	30	2'-2"	2'-2"	2'-2"	0'-0"	0'-0"	9'-6"	9'-6"	11'-4 5/8"	11'-4 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
4.56	358

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6 LENGTHS	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	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	10	L Min	2'-0"				L	-				L	-	4	18	2	Min	4	18	2	9'-2"	4	18	7	L Min	2'-7"	4	6	12'-3"	6	18	6	Min	-	-	-	Min	4	2	9'-5"	4	2	10'-7"	6	12	3	L 3'-4"	179
				L Max	4'-8"												5'-5"									Max	5'-3"							1'-8"				-									X 1'-8"	
				X Min	0'-9"	-	-	-	X	-	-	-	-	X	-										X Min	1'-4"							Max				Max										
				X Max	0'-9"																				X Max	1'-4"							1'-8"				-										
				Y Min	1'-4"				Y	-				Y	-										Y Min	1'-4"																					
				Y Max	4'-0"																				Y Max	4'-0"																					
WING B	4	12	10	L Min	2'-0"				L	-				L	-	4	18	2	Min	4	18	2	9'-2"	4	18	7	L Min	2'-7"	4	6	12'-3"	6	18	6	Min	-	-	-	Min	4	2	9'-5"	4	2	10'-7"	6	12	3	L 3'-4"	179
				L Max	4'-8"												5'-5"									Max	5'-3"							1'-8"				-									X 1'-8"	
				X Min	0'-9"	-	-	-	X	-	-	-	-	X	-										X Min	1'-4"							Max				Max										
				X Max	0'-9"																				X Max	1'-4"							1'-8"				-										
				Y Min	1'-4"				Y	-				Y	-										Y Min	1'-4"																					
				Y Max	4'-0"																				Y Max	4'-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 | CLASS "S" CONCRETE (Includes HDWL) CU. YDS. | ① REINFORCING STEEL (GR 60) (Includes HDWL) LBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

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.		R60140	45	666

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
54'-1"	8'-0"	0'-9"	0'-8"	45	2:1	74'-5 3/4"	2'-0"	8'-10"	2'-8"	0	60	3'-2"	3'-10 1/4"	5'-7 1/4"	1'-2 1/4"	4'-1 3/4"	12'-0"	24'-6"	13'-8"	31'-8 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
14.90	1293

WING	BAR SIZE	MAX. SPACING	NO. REQ'D	LENGTHS VARY			F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY		F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	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	12	X	L	Min	4'-0"	4	12	4	L 4'-8"	-	-	-	L -	4	18	6	Min		4	18	4	11'-8"	4	18	8	L	Min	5'-10"	4	8	14'-6"	6	18	8	Min		-	-	-	-	4	2	13'-1"	4	2	12'-10"	6	12	8	L	3'-4"	416
						Max	10'-4"												4'-1"										Max	11'-2"								2'-8"														
					R	Min	0'-9"												Max										Min	2'-4"								-											X	1'-8"	
						Max	1'-6"												9'-11"										Max	2'-4"								Max													
					Y	Min	3'-4"				Y 3'-6"				Y -															Min	3'-7"								3'-4"													
						Max	8'-11"																							Max	8'-11"								-													
WING B	4	12	25	X	L	Min	3'-8"	4	12	12	L 6'-3"	-	-	-	L -	4	18	8	Min		4	18	4	24'-2"	4	18	17	L	Min	5'-3"	4	8	32'-7"	6	18	19	Min		4	18	2	Min	4	2	24'-9"	4	2	30'-9"	6	12	8	L	3'-4"	877
						Max	11'-10"												2'-6"										Max	11'-3"								2'-8"				19'-8"								
					R	Min	0'-9"				X 1'-10"				X -				Max										Min	2'-4"								Max											X	1'-8"	
						Max	2'-11"																						Max	2'-4"																			
					Y	Min	3'-0"				Y 4'-6"				Y -															Min	3'-0"								5'-1"													
						Max	9'-0"												20'-4"										Max	9'-0"								Max				19'-8"								

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"

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19
CHARLES R. ELLIS

TABULAR DATA BY: JWP DATE: 8/20/2019
CHECKED BY: CMW DATE: 9/26/19

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.

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.	OVERALL WIDTH	OVERALL 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 DISTRIBUTION REINF. STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINF. STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH	CLASS "S" CONCRETE (Includes HDWL)	①REINFORCING STEEL (GR 60) (Includes HDWL)
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH																																																						
45	2:1	10	10	8	29'-0"	13	3	13	8.5	8	54'-1"	10'-2"	5	8	Max 53'-9" / Min 2'-3"	78	5	7	Max 53'-9" / Min 2'-3"	89	4	4.5	Max 53'-9" / Min 2'-3"	138	5	8	Max 53'-9" / Min 2'-3"	78	7	8	88	9'-10"	4	12	248	9'-10"	4	8.5	159	Max 55'-11" / Min 1'-10"	4	8.5	159	Max 55'-11" / Min 1'-10"	4	12	8	LONG 55'-5" / SHORT 2'-5"	4	12	16	LONG 45'-1" / MID 34'-3" / SHORT 12'-8"	163.07	23760
															53'-9"	3			53'-9"	4			53'-9"	6			53'-9"	3																		

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.		R60140	46	66

① SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19
CHARLES R. ELLIS

TABULAR DATA BY: JWP DATE: 8/20/2019
CHECKED BY: CMW DATE: 8/26/19

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
54'-1"	8'-0"	0'-9"	0'-8"	45	2:1	74'-5 3/4"	2'-0"	8'-10"	2'-8"	0	60	3'-2"	3'-10 1/4"	5'-7 1/4"	1'-2 1/4"	4'-1 3/4"	12'-0"	24'-6"	13'-8"	31'-8 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
17.09	1293

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1	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	F6	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	12	L	Min 4'-0"	4	12	4	L 4'-8"	-	-	-	L -	4	18	6	Min	4	18	4	11'-8"	4	18	8	L	Min 5'-10"	4	8	14'-6"	6	18	8	Min	-	-	-	Min	4	2	13'-1"	4	2	12'-10"	6	12	8	L	3'-4"	416
					Max 10'-4"												4'-1"									X	Min 2'-4"							2'-8"													X	1'-8"	
				X	Min 0'-9"				X 1'-3"				X -				Max									Max 2'-4"							Max				Max										
					Max 1'-6"												9'-11"																	3'-4"														
				Y	Min 3'-4"				Y 3'-6"				Y -												Y	Min 3'-7"																						
					Max 8'-11"																					Max 8'-11"																						
WING B	4	12	25	L	Min 3'-8"	4	12	12	L 6'-3"	-	-	-	L -	4	18	8	Min	4	18	4	24'-2"	4	18	17	L	Min 5'-3"	4	8	32'-7"	6	18	19	Min	4	18	2	Min	4	2	24'-9"	4	2	30'-9"	6	12	8	L	3'-4"	877
					Max 11'-10"												2'-6"																	19'-8"														
				X	Min 0'-9"				X 1'-10"				X -				Max								X	Max 2'-4"							Max				Max										
					Max 2'-11"												2'-8"																	19'-8"														
				Y	Min 3'-0"				Y 4'-6"				Y -												Y	Min 3'-0"																						
					Max 9'-0"												20'-4"									Max 9'-0"								5'-1"														

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

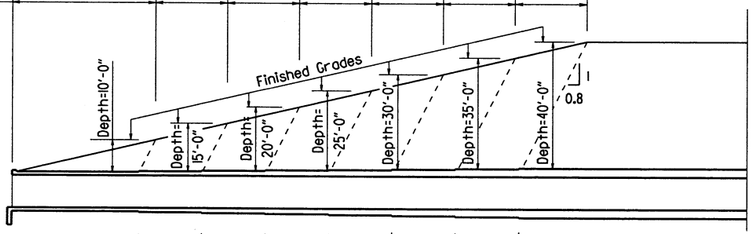
Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

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

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

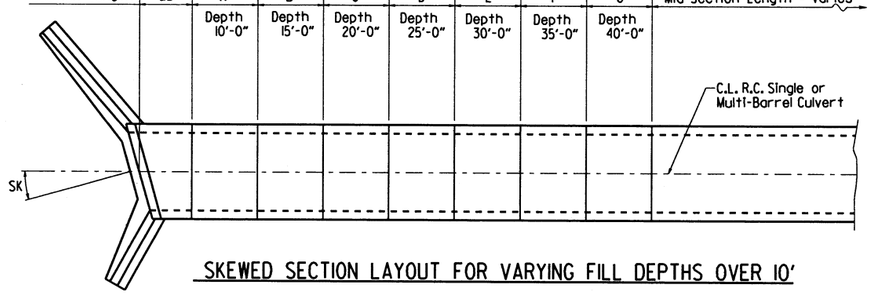
LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

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"	

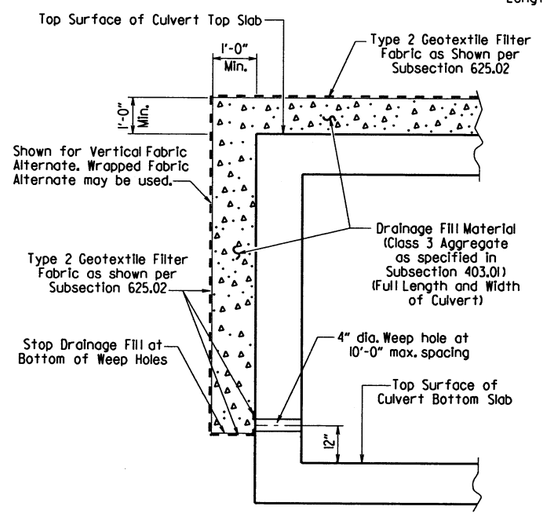


SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

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.		R60140	47	76

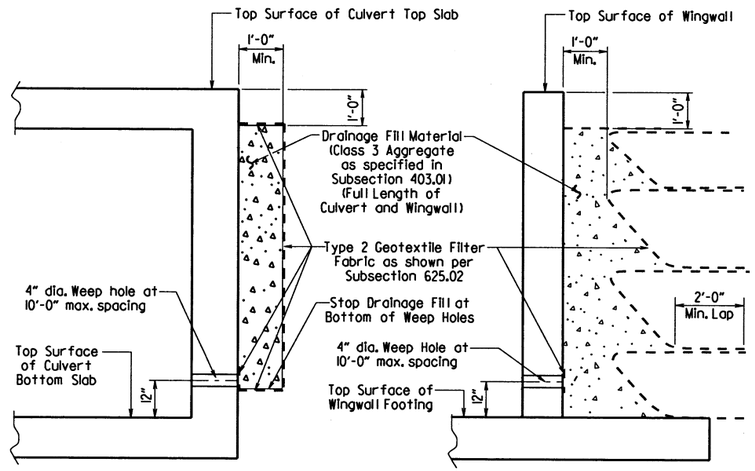
SPECIAL DETAILS

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19
CHARLES R. ELLIS



CULVERT DRAINAGE DETAIL FOR ROCK FILL

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

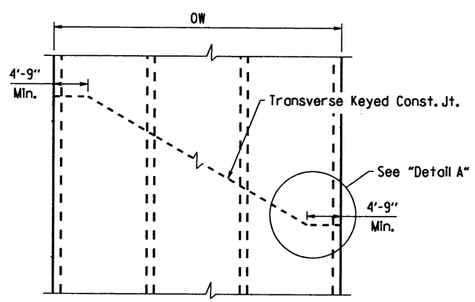


For Details of Excavation and Pay Limits, see Standard Drawing RCB-2.

VERTICAL FABRIC ALTERNATE
(Shown for Culvert, Similar for Wingwall)

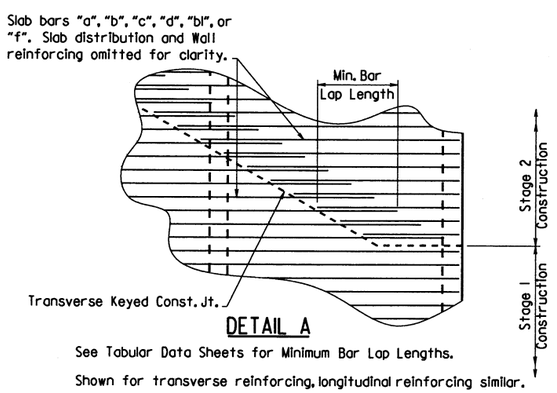
WRAPPED FABRIC ALTERNATE
(Shown for Wingwall, Similar for Culvert)

WINGWALL & CULVERT DRAINAGE DETAIL



SKEWED TRANSVERSE JOINT DETAIL

This detail shall be used to construct a skewed transverse joint only for Multi-Barrel Culverts and only when required by the Maintenance of Traffic Plans. Otherwise, transverse joints should be made normal to the centerline of the barrel.



DETAIL A

See Tabular Data Sheets for Minimum Bar Lap Lengths.

Shown for transverse reinforcing, longitudinal reinforcing similar.

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 keyed and shall be normal to the centerline of barrel except as noted. Reinforcing shall be continuous through joints unless noted otherwise. Reinforcing through stage construction joints shall provide the minimum bar lap length shown on the Tabular Data Sheets. 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

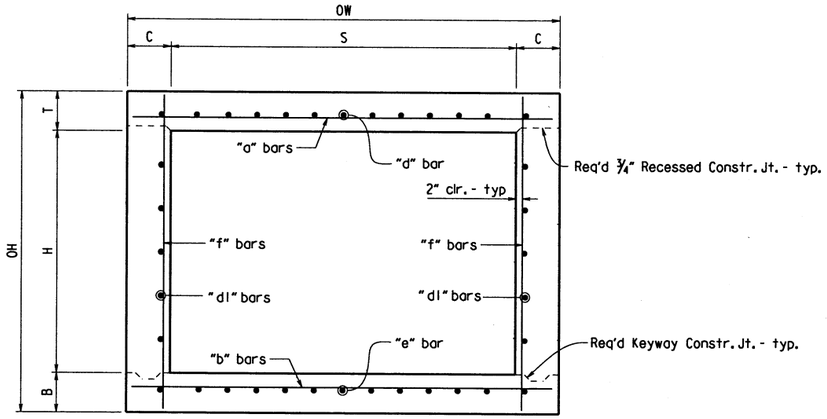
SPECIAL DETAILS

LRFD

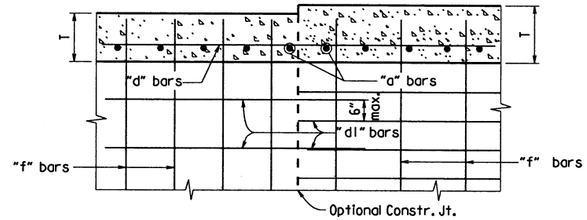
v 1.15 br60140_culvert.dgn

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.		R60140	48	686
				(1)		SPECIAL DETAILS		

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



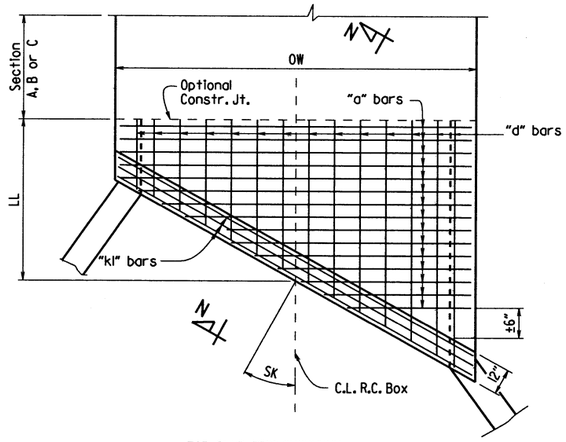
TYPICAL SECTION M-M



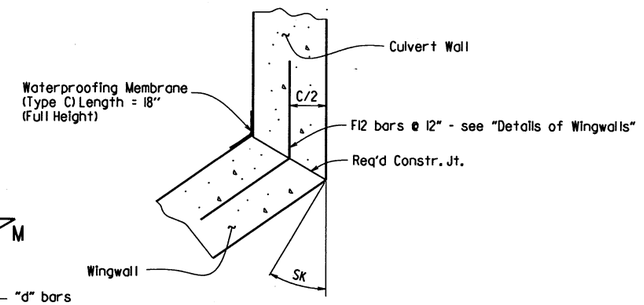
Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

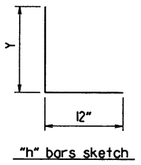


TOP SLAB REINFORCEMENT

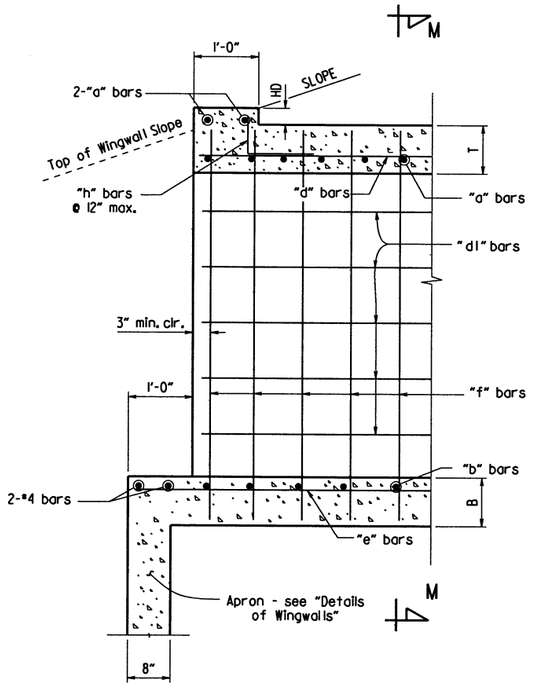


WINGWALL ATTACHMENT

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

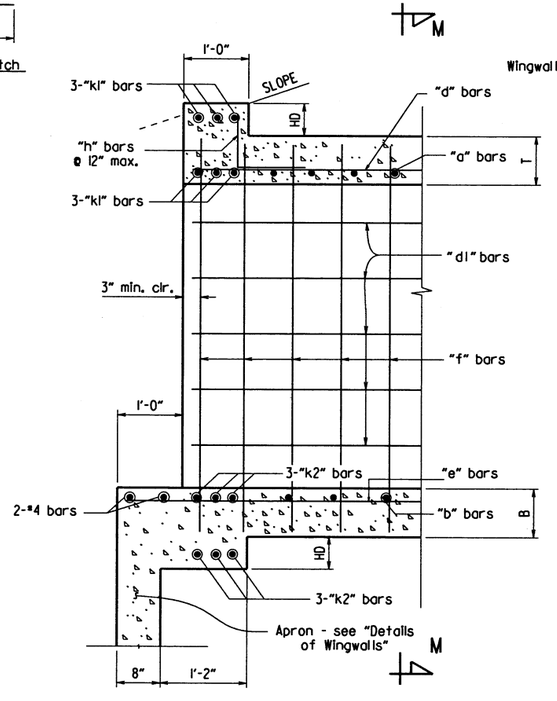


"h" bars sketch



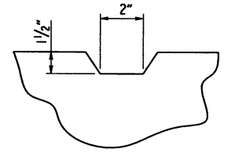
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



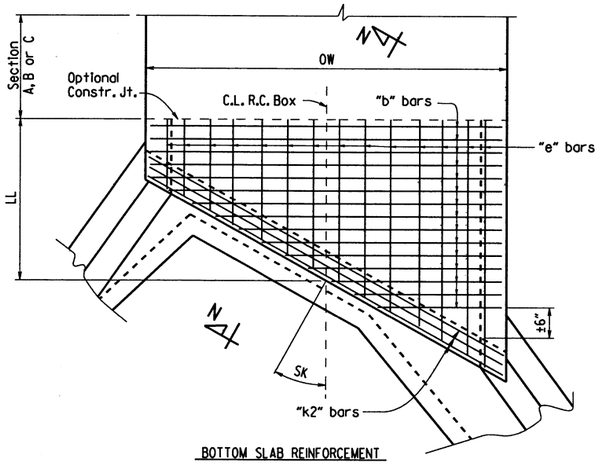
PART LONGITUDINAL SECTION N-N

(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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19
CHARLES R. ELLIS

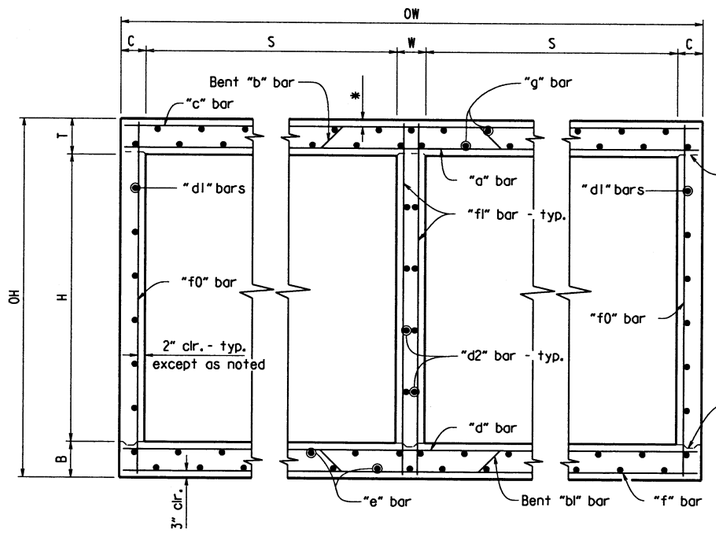
V 1.15 br60140_culvert.dgn

DATE REVISED	DATE FILMED	REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	49	676

SPECIAL DETAILS

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

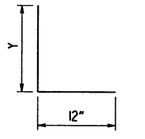
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



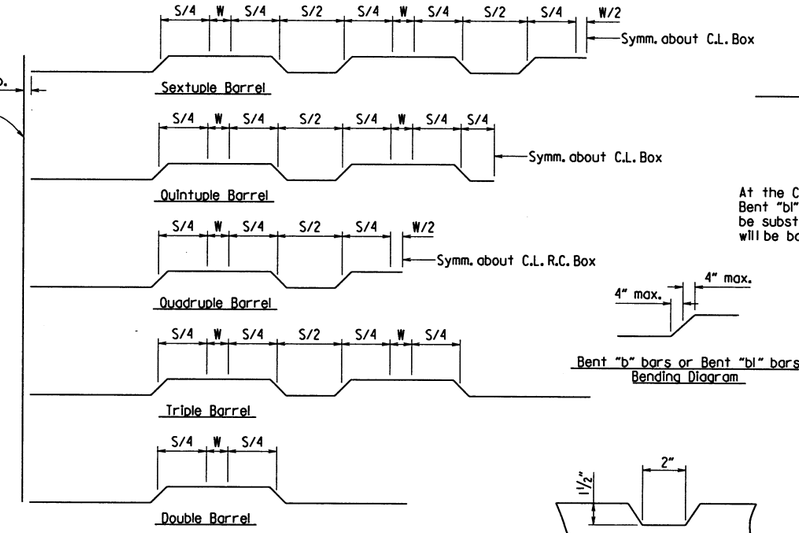
TYPICAL SECTION M-M

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

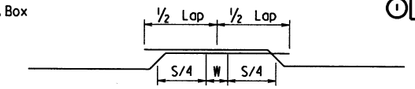
Bottom Slab
Straight "d" bars shall alternate with Bent "bl" bars in top.
Straight "f" bars shall alternate with Bent "bl" bars in bottom.



"h" bars sketch



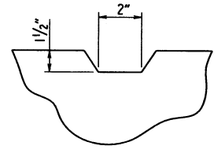
Bent "b" bars or Bent "bl" bars sketch



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

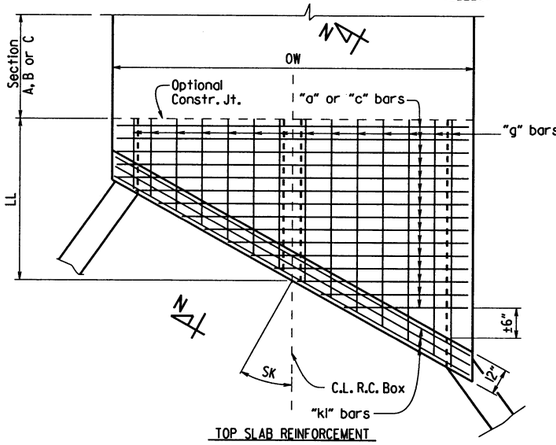
At the Contractor's option in lieu of providing Bent "b" or Bent "bl" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "bl" bar.

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

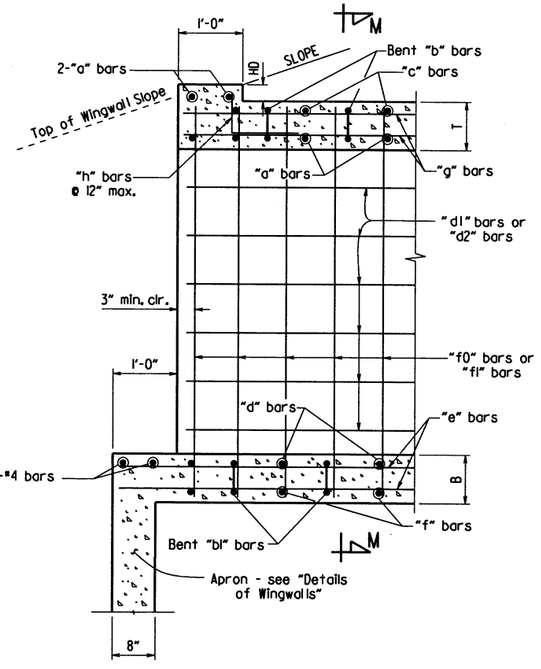


TYPICAL KEYWAY DETAIL

(All Construction Joints)

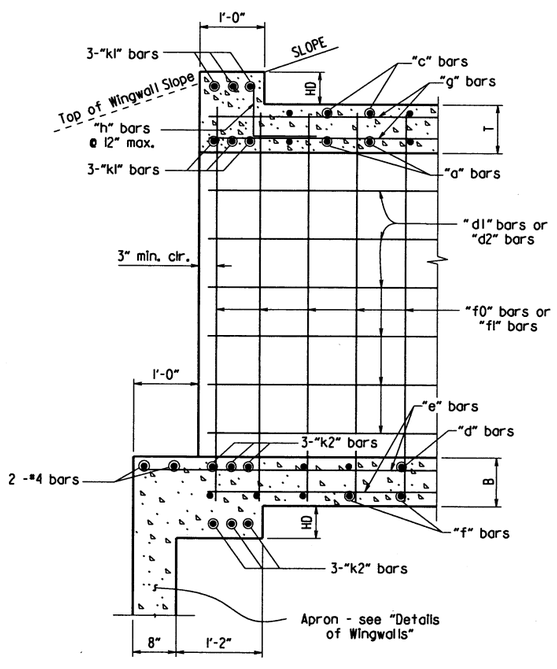


TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



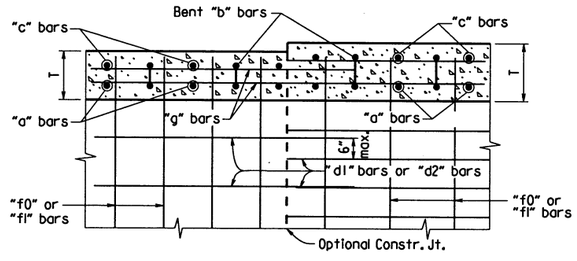
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

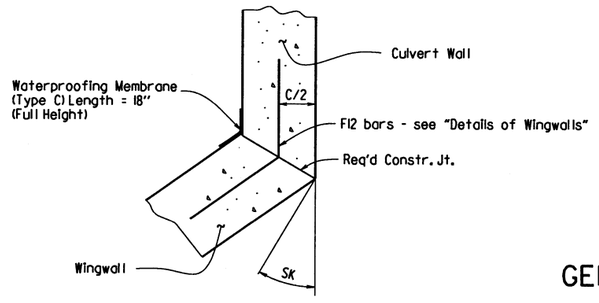
(Skewed Ends)



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

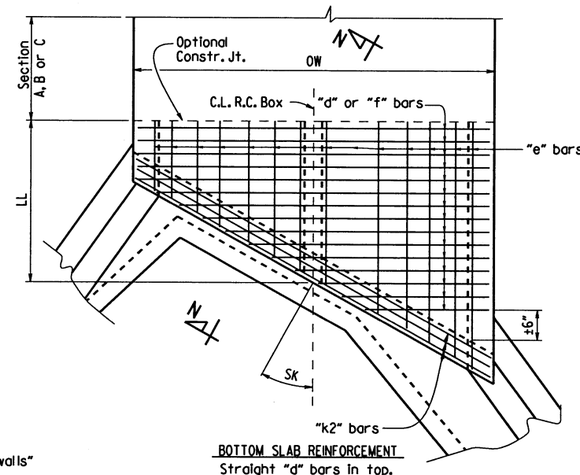
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



WINGWALL ATTACHMENT

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



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

SKEWED END SECTION DETAILS

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

DETAILS OF MULTI-BARREL
R.C. BOX CULVERT

SPECIAL DETAILS

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19
CHARLES R. ELLIS

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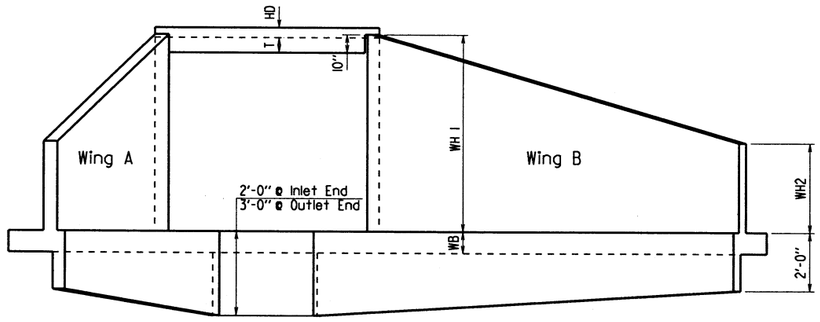
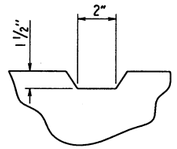
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	50	666

SPECIAL DETAILS



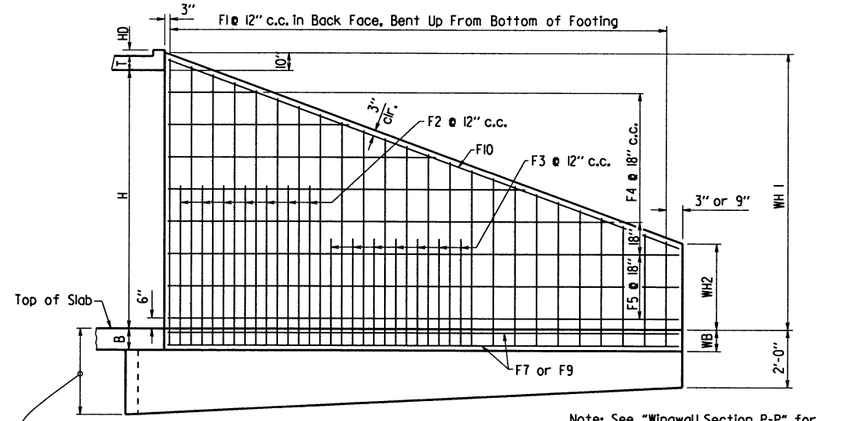
END ELEVATION

Flared Wingwalls Shown



TYPICAL KEYWAY DETAIL

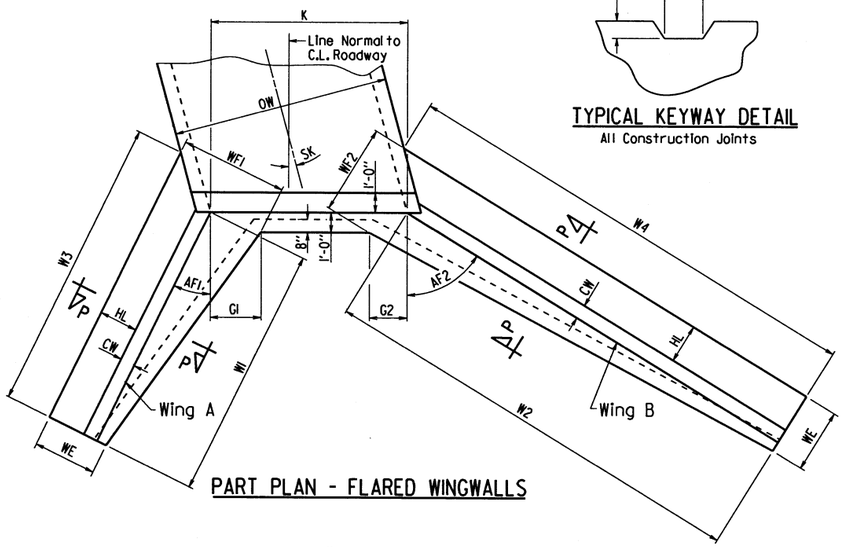
All Construction Joints



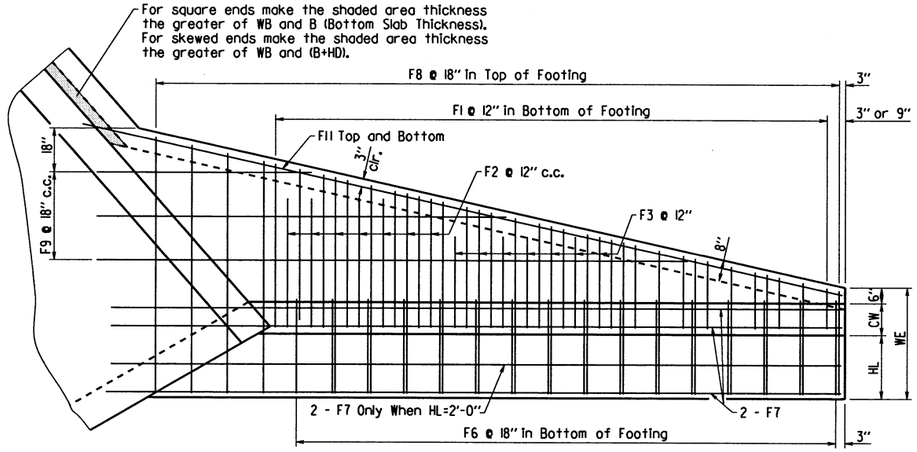
WINGWALL ELEVATION

Showing Back Face Reinforcement

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

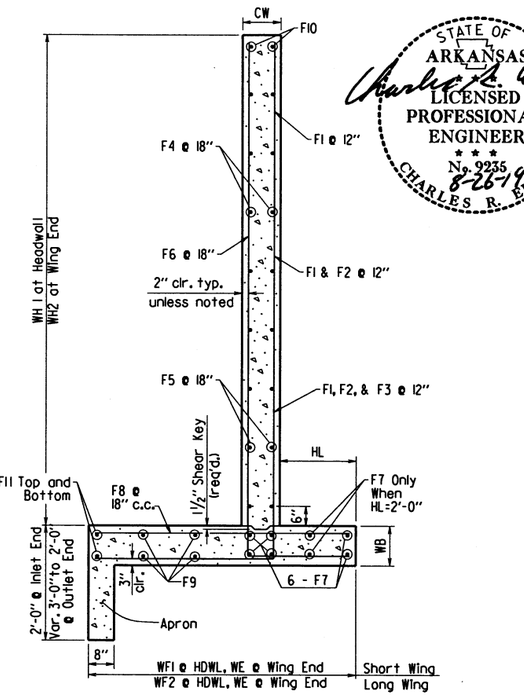


PART PLAN - FLARED WINGWALLS

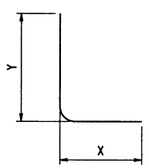


PLAN - FLARED WINGWALLS

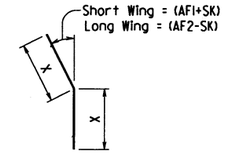
Showing Footing Reinforcement



WINGWALL SECTION P-P

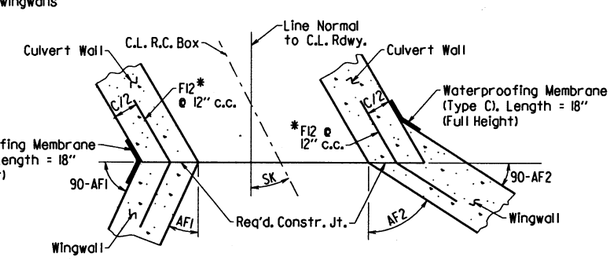


F1, F2, F3, & F6 BARS



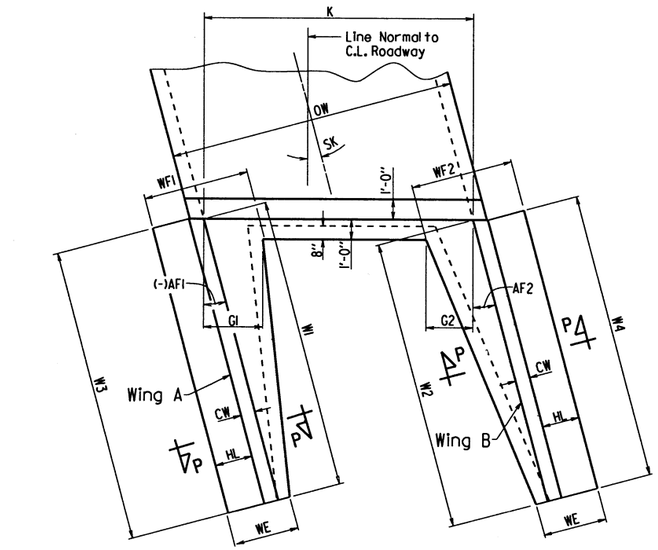
*F12 BAR

*F12 is a straight bar for parallel wingwalls

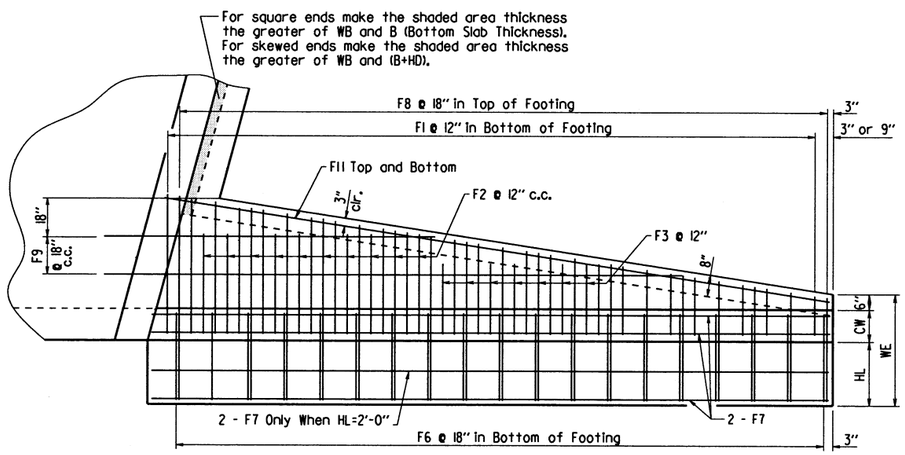


CONSTRUCTION JOINTS

Flared Wingwalls Shown



PART PLAN - PARALLEL WINGWALLS



PLAN - PARALLEL WINGWALLS

Showing Footing Reinforcement

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

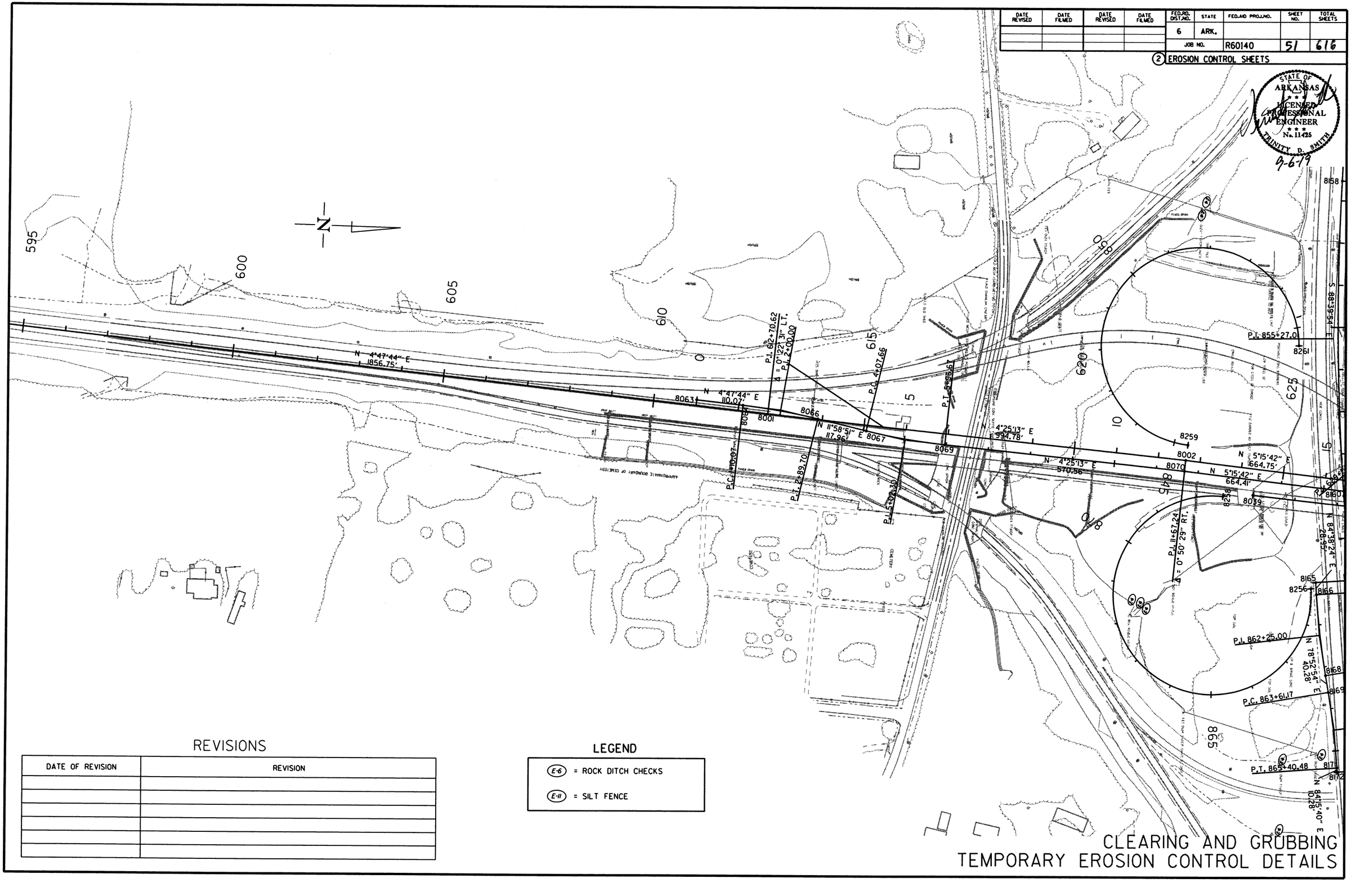
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-26-19
CHARLES R. ELLIS

v 1.15 br60140_culvert.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.		R60140	51	616

(2) EROSION CONTROL SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6) = ROCK DITCH CHECKS

(E-11) = SILT FENCE

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

9/3/2019

RR60140.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.		R60140	52	616

(2) EROSION CONTROL SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

STA. 630+00 - STA. STA. 632+00
INSTALL E-II = 1400 LIN. FT.

STA. 635+77 - STA. STA. 690+47
INSTALL E-II = 5900 LIN. FT.

STA. 636+00 - STA. STA. 691+31
INSTALL E-II = 3225 LIN. FT.

STA. 625+84 - STA. STA. 630+00
INSTALL E-II = 475 LIN. FT.

LEGEND

E-6 = ROCK DITCH CHECKS

E-II = SILT FENCE

REVISIONS

DATE OF REVISION	REVISION

CLEARING AND GRUBBING TEMPORARY EROSION CONTROL DETAILS

9/3/2019

RR60140.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.		R60140	53	616

(2) EROSION CONTROL SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

STA. 635+77 - STA. STA. 690+47
INSTALL E-II = 5900 LIN. FT.

STA. 636+00 - STA. STA. 691+31
INSTALL E-II = 3225 LIN. FT.

LEGEND

E-6	= ROCK DITCH CHECKS
E-II	= SILT FENCE

REVISIONS

DATE OF REVISION	REVISION

9/3/2019

RR60140.DGN

CLEARING AND GRUBBING 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.		R60140	54	616

(2) EROSION CONTROL SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

STA. 635+77 - STA. STA. 690+47
INSTALL E-II = 5900 LIN. FT.

STA. 687+00 - STA. STA. 692+00
INSTALL E-II = 850 LIN. FT.

STA. 691+71 - STA. STA. 692+25
INSTALL E-II = 750 LIN. FT.

STA. 692+00 - STA. STA. 724+00
INSTALL E-II = 4650 LIN. FT.

STA. 691+70 - STA. 720+73
INSTALL E-II = 3225 LIN. FT.

STA. 636+00 - STA. STA. 691+31
INSTALL E-II = 3225 LIN. FT.

LEGEND

(E-6) = ROCK DITCH CHECKS

(E-11) = SILT FENCE

REVISIONS

DATE OF REVISION	REVISION

CLEARING AND GRUBBING TEMPORARY EROSION CONTROL DETAILS

9/3/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	55	616

(2) EROSION CONTROL SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-7-19

STA. 692+00 - STA. STA. 724+00
INSTALL E-II = 4650 LIN. FT.

STA. 721+50 - STA. STA. 726+00
INSTALL E-II = 475 LIN. FT.

STA. 726+00 - STA. STA. 740+25
INSTALL E-II = 1300 LIN. FT.

STA. 740+00 - STA. STA. 741+25
INSTALL E-II = 275 LIN. FT.

STA. 742+00 - STA. STA. 752+00
INSTALL E-II = 1260 LIN. FT.

STA. 691+70 - STA. 720+73
INSTALL E-II = 3225 LIN. FT.

STA. 721+47 - STA. 735+38
INSTALL E-II = 3050 LIN. FT.

STA. 736+00 - STA. 745+10
INSTALL E-II = 1860 LIN. FT.

STA. 745+40 - STA. 768+00
INSTALL E-II = 3175 LIN. FT.

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6) = ROCK DITCH CHECKS

(E-11) = SILT FENCE

9/3/2019

RR60140.DGN

CLEARING AND GRUBBING
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.		R60140	56	616

(2) EROSION CONTROL SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

STA. 763+50 - STA. 764+50
INSTALL E-II = 500 LIN. FT.

STA. 762+15 - STA. 769+40
INSTALL E-II = 1575 LIN. FT.

STA. 770+30 - STA. 922+75
INSTALL E-II = 16125 LIN. FT.

STA. 754+26 - STA. 762+90
INSTALL E-II = 1100 LIN. FT.

STA. 757+00 - STA. 761+41
INSTALL E-II = 700 LIN. FT.

STA. 745+00 - STA. 768+00
INSTALL E-II = 3175 LIN. FT.

STA. 105+27 - STA. 109+91 LT.
INSTALL E-II = 445 LIN. FT.

STA. 105+00 - STA. 109+91 RT.
INSTALL E-II = 700 LIN. FT.

STA. 772+16 - STA. 922+53
INSTALL E-II = 525 LIN. FT.

LEGEND

E-6	= ROCK DITCH CHECKS
E-II	= SILT FENCE

REVISIONS

DATE OF REVISION	REVISION

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

9/3/2019

RR60140.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.		R60140	57	616

(2) EROSION CONTROL SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-6-19

STA. 770+30 - STA. 922+75
INSTALL E-11 = 16125 LIN. FT.

STA. 772+16 - STA. 922+53
INSTALL E-11 = 525 LIN. FT.

9/3/2019

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LEGEND

(E-6) = ROCK DITCH CHECKS

(E-11) = SILT FENCE

REVISIONS

DATE OF REVISION	REVISION

CLEARING AND GRUBBING
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.		R60140	58	616

(2) EROSION CONTROL SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

STA. 770+30 - STA. 922+75
INSTALL E-11 = 16125 LIN. FT.

STA. 772+16 - STA. 922+53
INSTALL E-11 = 525 LIN. FT.

LEGEND

(E-6) = ROCK DITCH CHECKS

(E-11) = SILT FENCE

REVISIONS

DATE OF REVISION	REVISION

9/3/2019

RR60140.DGN

CLEARING AND GRUBBING
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.		R60140	59	616

(2) EROSION CONTROL SHEETS

STATE OF ARKANSAS
TRINITY D. SMITH
LICENSED PROFESSIONAL ENGINEER
No. 11425
9-6-19

STA. 770+30 - STA. 922+75
INSTALL E-II = 16125 LIN. FT.

STA. 772+16 - STA. 922+53
INSTALL E-II = 525 LIN. FT.

P.I. 837+78.19
N 15°48'59" E
S 10°14'33" W 12.52'
S 31°31'39" 72.18'
N 26°53'07" W 1431.00'
P.I. 841+93.38
P.I. 104+36.80
P.I. 102+76.26
P.I. 104+24.83
P.I. 100+81.61
P.I. 102+32.11
P.I. 103+88.18
39°41'29" E
44°49'54" 153.39'
BEGIN C/A 19.95
BEGIN C/A 81.05
END C/A 28.54
END C/A 190.17
P.C.

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECKS

E-II = SILT FENCE

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

9/3/2019

RR60140.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.		R60140	60	616

(2) EROSION CONTROL SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

STA. 770+30 - STA. 922+75
INSTALL E-11 = 16125 LIN. FT.

STA. 772+16 - STA. 922+53
INSTALL E-11 = 525 LIN. FT.

9/3/2019

RR60140.DGN

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECKS

E-11 = SILT FENCE

CLEARING AND GRUBBING
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.		R60140	61	615

2 EROSION CONTROL SHEETS

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECKS

E-11 = SILT FENCE

STA. 922+75
INSTALL E-11 = 575 LIN. FT.

STA. 770+30 - STA. 922+75
INSTALL E-11 = 16125 LIN. FT.

STA. 923+05.44
END JOB NO. R60140

STA. 772+16 - STA. 922+53
INSTALL E-11 = 525 LIN. FT.

STA. 922+53
INSTALL E-11 = 525 LIN. FT.

STA. 922+53
INSTALL E-11 = 525 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

9/3/2019

RR60140.DGN

CLEARING AND GRUBBING
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.		R60140	62	616

(2) EROSION CONTROL SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

LEGEND

(E-6) = ROCK DITCH CHECKS

(E-11) = SILT FENCE

REVISIONS

DATE OF REVISION	REVISION

9/3/2019

RR60140.DGN

CLEARING AND GRUBBING
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.		R60140	63	616

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN

HWY 70 (MLK EXPRESSWAY)

HWY 70B EB

REVISIONS

DATE OF REVISION	REVISION

8/7/2019

RR60140.DGN

MAIN LANES
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.		R60140	64	616

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-6-19

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN

C.L. MEDIAN
PI = 654+67.61
Δ = 86°37'20.50" LT.
D = 4°15'00.00"
T = 1270.92
L = 2038.17
PC = 641+96.70
PT = 662+34.87
Ls = 450'
e = 0.075'/'

REVISIONS

DATE OF REVISION	REVISION

8/7/2019

RR60140.DGN

MAIN LANES
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.		R60140	65	676

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

C.L. MEDIAN
PI = 654+67.61
Δ = 86°37'20.50" LT.
D = 4°15'00.00"
T = 1270.92
L = 2038.17
PC = 641+96.70
PT = 662+34.87
Ls = 450'
e = 0.075'/'

C.L. MEDIAN
PI = 669+06.79
Δ = 50°55'16.79" RT.
D = 5°45'00.00"
T = 474.44
L = 885.59
PC = 664+32.35
PT = 673+17.94
Ls = 540'
e = 0.090'/'

C.L. MEDIAN
PI = 685+59.03
Δ = 54°06'59.72" RT.
D = 5°45'00.00"
T = 508.99
L = 941.16
PC = 680+50.04
PT = 689+91.19
Ls = 540'
e = 0.090'/'

REVISIONS

DATE OF REVISION	REVISION

8/7/2019

RR60140.DGN

MAIN LANES 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.		R60140	66	616

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-6-19

PROMISE LAND DRIVE

P.I. 102+73.31
P.I. 100+82.43
P.C. 101+79.38
P.I. 101+44.85
P.C. 102+23.28
P.I. 102+44.85
P.O.B. 100+00.00
P.O.B. 200+00.00
P.I. 202+20.24
P.C. 201+47.88
P.I. 202+90.18
P.C. 203+54.73
P.I. 203+64.53
P.I. 205+25.43
P.I. 205+64.55
P.I. 206+64.55
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D = 5°45'00.00"
T = 508.99
L = 941.16
PC = 680+50.04
PT = 689+91.19
Ls = 540'
e = 0.090'/'

LEGEND

E-6	= ROCK DITCH CHECKS
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN

REVISIONS

DATE OF REVISION	REVISION

8/7/2019

RR60140.DGN

MAIN LANES
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
10-07-19				6	ARK.			
				JOB NO.		R60140	67	616

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19

C.L. MEDIAN
PI = 744+74.99
Δ = 86°55'26.81" Lt.
D = 3°30'00.00"
T = 1551.42
L = 2483.55
PC = 729+23.58
PT = 754+07.12
Ls = 450'
e = 0.065'/'

DRIVE

PROPOSED R/W

PROPOSED R/W & C/A

PROPOSED C/A

END C/A

BEGIN C/A

16'0" GATE

PROPOSED R/W & C/A

PROPOSED R/W & C/A

PROPOSED R/W & C/A

PROPOSED R/W & C/A

COVENANT RD.

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6	= ROCK DITCH CHECKS
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN

MAIN LANES
TEMPORARY EROSION CONTROL DETAILS

8/7/2019

RR60140.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.		R60140	68	616

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

ROCKY RD

GULPHA CREEK

DENISE LANE

MILL CREEK RD

MILL CREEK

C.L. MEDIAN
PI = 744+74.99
Δ = 86°55'26.81" LT.
D = 3°30'00.00"
T = 1551.42
L = 2483.55
PC = 729+23.58
PT = 754+07.12
Ls = 450'
e = 0.065'/'

C.L. MEDIAN
PI = 766+30.84
Δ = 76°31'53.96" RT.
D = 3°45'00.00"
T = 1205.17
L = 2040.84
PC = 754+25.66
PT = 774+66.51
Ls = 450'
e = 0.069'/'

LEGEND

E-6	= ROCK DITCH CHECKS
E-8	= DIVERSION DITCH
E-11	= SILT FENCE
E-12	= SLOPE DRAIN

REVISIONS

DATE OF REVISION	REVISION

8/7/2019

RR60140.DGN

MAIN LANES
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.		R60140	69	616

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

C.L. MEDIAN
PI = 795+25.60
Δ = 3°39'27.78" LT.
D = 0°30'00.00"
T = 365.90
L = 731.54
PC = 791+59.70
PT = 798+91.25
NO SUPERELEVATION

P.C. 791+59.70

P.T. 798+91.25

N 13°30'36" E
1693.20'

N 9°51'03" E
1049.76'

DENISE LANE
N 4°54'18" W
105.98'

P.T. 774+66.81
P.C. 110+09.35
P.T. 111+25.05
P.O.E. 112+31.03
P.I. 110+67.65

Z

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN

MAIN LANES
TEMPORARY EROSION CONTROL DETAILS

8/7/2019

RR60140.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.		R60140	70	616

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN

C.L. MEDIAN
PI = 815+29.12
Δ = 5°57'56.64" RT.
D = 0°30'00.00"
T = 597.11
L = 1193.15
PC = 809+32.01
PT = 821+25.16
NO SUPERELEVATION

C.L. MEDIAN
PI = 837+78.16
Δ = 42°42'06.40" LT.
D = 2°00'00.00"
T = 1119.87
L = 2135.09
PC = 826+58.29
PT = 847+93.38
Ls = 450'
e = 0.040'/'

N 5°51'09" E
1040.76'

N 15°48'59" E
533.13'

8/7/2019

RR60140.DGN

MAIN LANES
TEMPORARY EROSION CONTROL DETAILS

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-6 = ROCK DITCH CHECKS
- E-8 = DIVERSION DITCH
- E-11 = SILT FENCE
- E-12 = SLOPE DRAIN

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.		R60140	71	616

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

C.L. MEDIAN
PI = 837+78.16
Δ = 42°42' 06.40" LT.
D = 2°00' 00.00"
T = 1119.87
L = 2135.09
PC = 826+58.29
PT = 847+93.37
Ls = 450'
e = 0.040'/'

C.L. MEDIAN
PI = 871+48.87
Δ = 62°21' 17.32" RT.
D = 3°45' 00.00"
T = 924.50
L = 1662.79
PC = 862+24.37
PT = 878+87.17
Ls = 450'
e = 0.069'/'

QUARRY MOUNTAIN ROAD

P.I. 837+78.16

P.I. 841+93.38

P.I. 104+24.38

P.I. 102+16.26

P.I. 103+88.48

P.I. 102+32.11

P.C. 862+24.37

P.T. 878+87.17

S 10°14'33" W 12.52'

S 31°31'39" E 42.18'

S 44°19'54" E 42.15'

N 39°41'29" E 56.39'

N 24°53'01" W 46.00'

N 15°18'59" E

BEGIN C/A

END C/A

FENCE POST

FENCE POST & BRACE

PAINTED POST SPIKE

Davis Spike

MAIN LANES
TEMPORARY EROSION CONTROL DETAILS

8/7/2019

RR60140.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.		R60140	72	616

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

C.L. MEDIAN
PI = 871+48.87
Δ = 62°21'17.32" RT.
D = 3°45'00.00"
T = 924.50
L = 1662.79
PC = 862+24.37
PT = 878+87.17
Ls = 450'
e = 0.069'/'

C.L. MEDIAN
PI = 891+56.79
Δ = 42°59'49.33" LT.
D = 2°45'00.00"
T = 820.64
L = 1563.53
PC = 883+36.15
PT = 898+99.68
Ls = 450'
e = 0.053'/'

LEGEND

E-6 = ROCK DITCH CHECKS

E-11 = SILT FENCE

REVISIONS

DATE OF REVISION	REVISION

8/7/2019

RR60140.DGN

MAIN LANES
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.		R60140	73	616

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

C.L. MEDIAN
PI = 891+56.79
Δ = 42°59'49.33" LT.
D = 2°45'00.00"
T = 820.64
L = 1563.53
PC = 883+36.15
PT = 898+99.68
Ls = 450'
e = 0.053'/'

C.L. MEDIAN
PI = 919+80.37
Δ = 53°07'51.26" LT.
D = 9°00'00.00"
T = 318.32
L = 590.34
PC = 916+62.05
PT = 922+52.40
Ls = 360'
e = 0.063'/'

LEGEND

E-6	= ROCK DITCH CHECKS
E-11	= SILT FENCE

REVISIONS

DATE OF REVISION	REVISION

8/7/2019

RR60140.DGN

MAIN LANES
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.		R60140	74	616

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

HWY 70B WB

HWY 70B EB

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN

REVISIONS

DATE OF REVISION	REVISION

8/7/2019

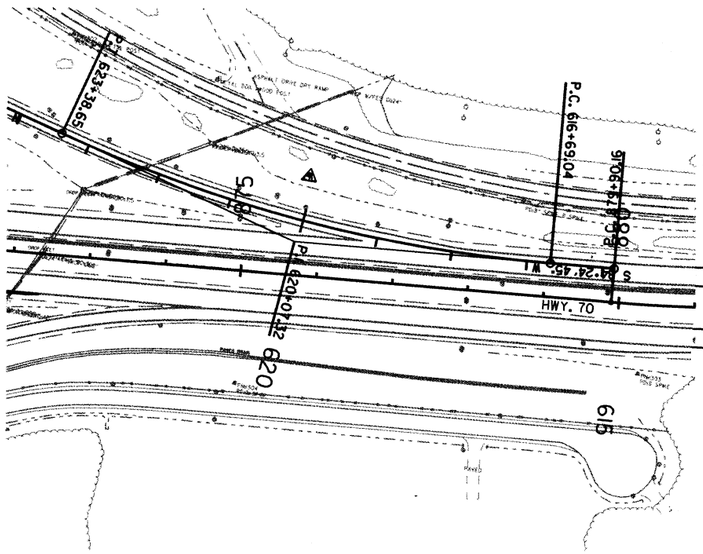
RR60140.DGN

MAIN LANES
TEMPORARY EROSION CONTROL DETAILS

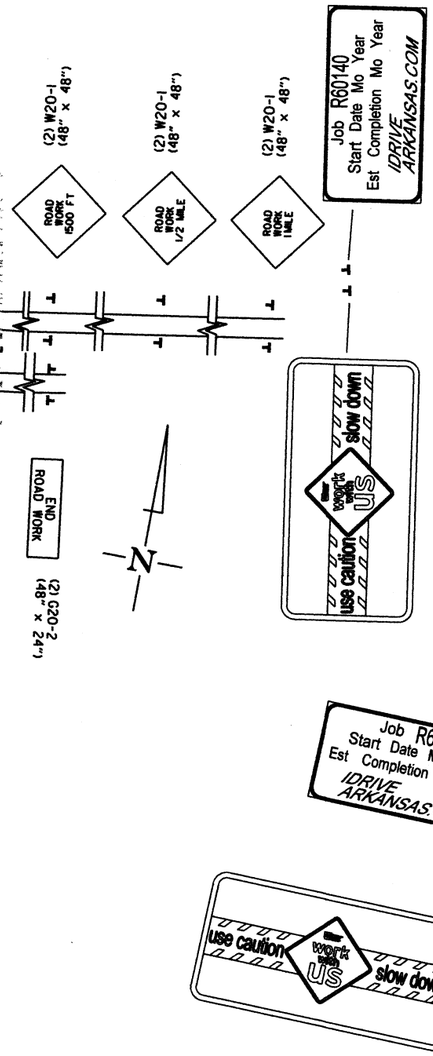
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	75	616

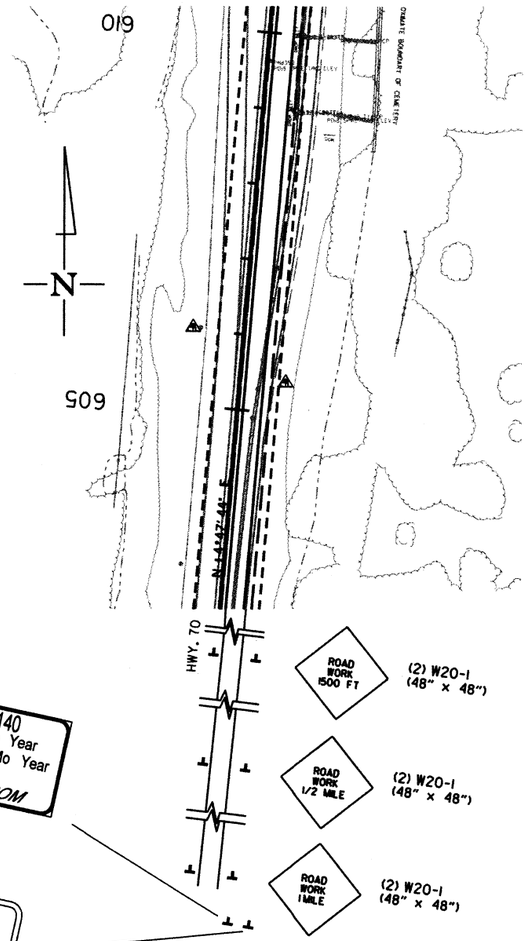
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
9-6-19

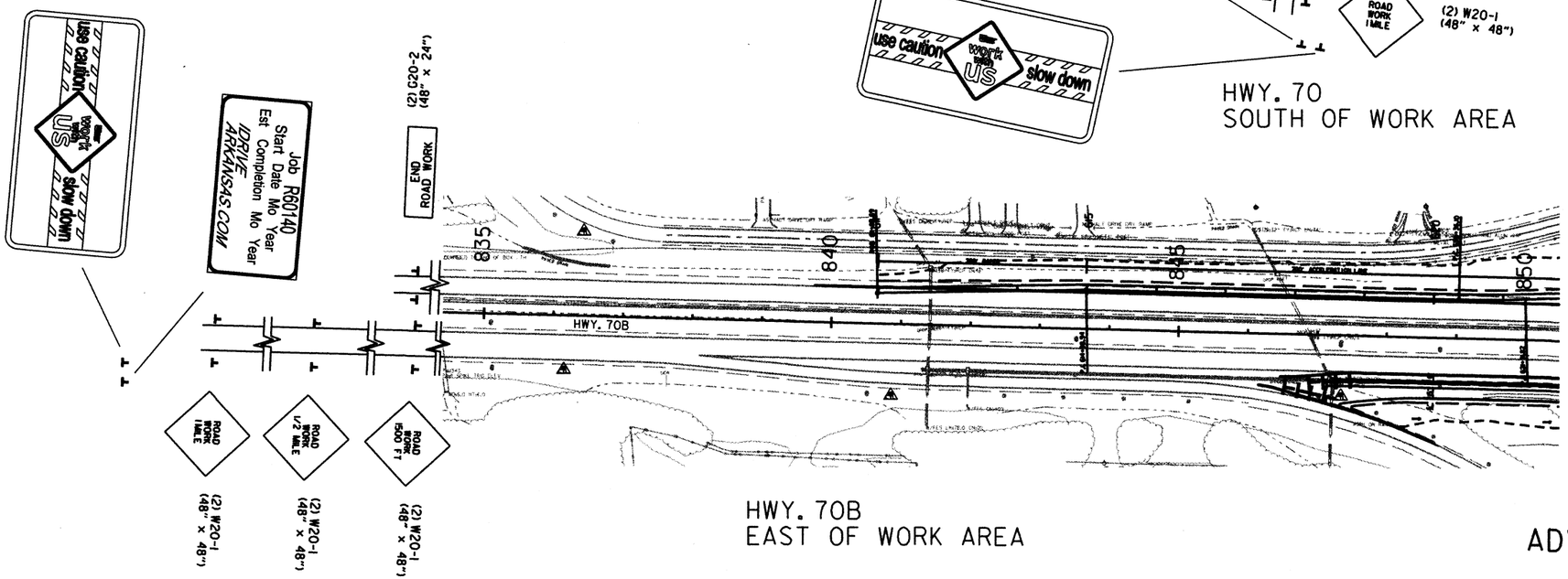


HWY. 70
WEST OF WORK AREA





HWY. 70
SOUTH OF WORK AREA



HWY. 70B
EAST OF WORK AREA

SEQUENCE OF CONSTRUCTION

NOTE:
NEW CONSTRUCTION OF MAIN LANES OF BYPASS, THE HWY. 70B/ HWY.70 INTERCHANGE, AND ALL NEW CONSTRUCTION ON CROSSING ROADS CAN BE BUILT AT ANY TIME, WITH THE EXCEPTION OF THE R.C. BOX CULVERT AT STATION 118+64 ON MILL CREEK ROAD WHICH IS TO BE BUILT IN PARTIAL WIDTHS, AND WITH EXCEPTION OF THE COVENANT TRAIL OVERPASS, WHICH IS TO BE BUILT ACCORDING TO THE STAGES DETAILED BELOW. ALSO, SEE THE GUIDELINES LAID FORTH IN THE "GEOTECHNICAL REQUIREMENTS FOR BRIDGE CONSTRUCTION" SPECIAL PROVISION.

COVENANT TRAIL

STAGE 1
INSTALL ADVANCE WARNING SIGNS AND DEVICES AS SHOWN IN MAINTENANCE OF TRAFFIC DETAILS.
CONSTRUCT NEW LOCATION COVENANT TRAIL ACCESS IN THE AREAS SHOWN IN THE MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2
SHIFT COVENANT TRAIL TO NEW CONSTRUCTION.
CONSTRUCT OVERPASS AT COVENANT TRAIL AS SHOWN IN THE MAINTENANCE OF TRAFFIC DETAILS.

MILL CREEK ROAD

STAGE 1
INSTALL ADVANCE WARNING SIGNS AND DEVICES AS SHOWN IN MAINTENANCE OF TRAFFIC DETAILS.
CONSTRUCT NEW LOCATION MILL CREEK ROAD IN THE AREAS SHOWN IN THE MAINTENANCE OF TRAFFIC DETAILS.
CONSTRUCT RIGHT SIDE OF R.C. BOX CULVERT AT STATION 118+64 AS SHOWN IN THE MAINTENANCE OF TRAFFIC DETAILS FOR MILL CREEK ROAD.

STAGE 2
SHIFT MILL CREEK ROAD TRAFFIC TO NEW CONSTRUCTION.
OBLITERATE EXISTING BRIDGE AT STATION 119+00 ALONG EXISTING MILL CREEK ROAD.
CONSTRUCT REMAINING PORTION OF R.C. BOX CULVERT AT STATION 118+64 AS SHOWN IN STAGE 2 OF THE MAINTENANCE OF TRAFFIC DETAILS FOR MILL CREEK ROAD.

MAIN LANE CONSTRUCTION
INSTALL ADVANCE WARNING SIGNS AND DEVICES AS SHOWN IN MAINTENANCE OF TRAFFIC DETAILS IN ALL LOCATIONS THROUGHOUT THE PROJECT AREA.
CONSTRUCT MAIN LANE OF BYPASS, CONSTRUCT ALL MAIN LANE DRAINAGE STRUCTURES.
CONSTRUCT ALL MAIN LANE OVERPASS STRUCTURES, CONSTRUCT ALL CROSSING ROAD OVERPASS STRUCTURES.
PLACE FINAL LIFT OF ACHM SURFACE COURSE.
INSTALL FINAL STRIPING PER PERMANENT PAVEMENT MARKING DETAILS.

NOTE:
SEE SPECIAL DETAILS FOR INFORMATION ABOUT "WORK WITH US" SIGN AND "PROJECT INFORMATION SIGN"

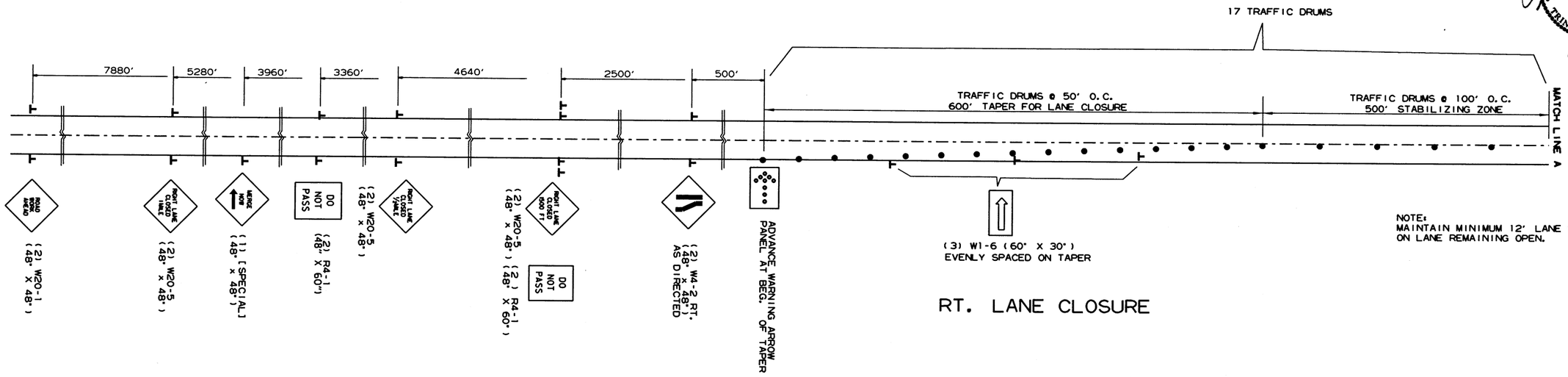
ADVANCE WARNING SIGNS - ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

RR60140 DWB.DGN 8/16/2019

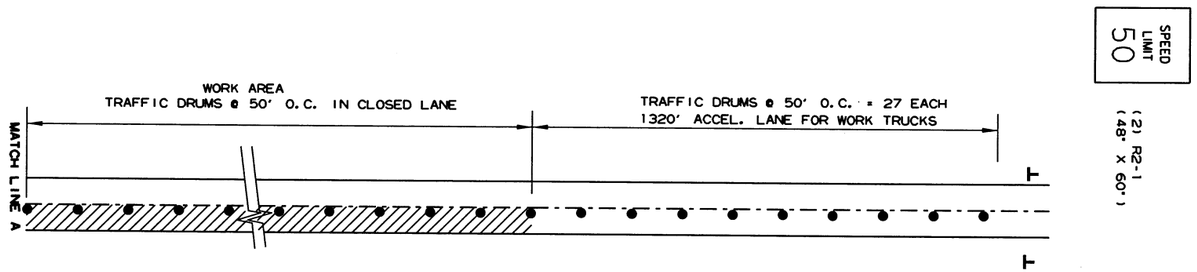
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		BB0620	75A	616

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19



RT. LANE CLOSURE



DIVERSION FOR RT. LANE WORK ZONE

10/13/2017

RBB0620.DGN

LANE CLOSURE
MAINTENANCE OF TRAFFIC DETAILS

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.		R60140	76	616

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
9-6-19

NOTE:
EXISTING PRECAST CONCRETE BARRIER WALL LEFT IN PLACE.
RETAIN FOR THE DURATION OF THE LANE CLOSURE.

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 613 LIN. FT.
INCLUDES (1) TEMPORARY IMPACT ATTENUATION BARRIER
& (1) SPECIAL END UNIT

(4) OM-3R
(12"X 36")

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 1333 LIN. FT.
INCLUDES (1) TEMPORARY IMPACT ATTENUATION BARRIER
& (1) SPECIAL END UNIT

(4) OM-3R
(12"X 36")

HWY 70B WB

HWY 70B EB

(4) OM-3R
(12"X 36")

(4) OM-3R
(12"X 36")

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 273 LIN. FT.
INCLUDES (1) TEMPORARY IMPACT ATTENUATION BARRIER
& (1) SPECIAL END UNIT

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 2593 LIN. FT.
INCLUDES (1) TEMPORARY IMPACT ATTENUATION BARRIER
& (1) SPECIAL END UNIT

NOTE:
EXISTING PRECAST CONCRETE BARRIER WALL LEFT IN PLACE.
RETAIN FOR THE DURATION OF THE LANE CLOSURE.

N

FURNISING AND INSTALLING PRECAST CONCRETE BARRIER WALL
HWY. 70B/HWY. 70 INTERCHANGE

ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

RR60140 DWB.DGN 8/16/2019

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.		R60140	77	86

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 246 LIN. FT.
INCLUDES (2) SPECIAL END UNITS

(3) OM-3L (12"X 36")

(4) OM-3R (12"X 36")

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

SPRING STREET

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

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

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

620

615

CEMETERY

N

(1) W20-1 (48" x 48")
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) G20-2 (48" x 24")
END ROAD WORK

(4) OM-3R (12"X 36")

(3) OM-3L (12"X 36")

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 246 LIN. FT.
INCLUDES (2) SPECIAL END UNITS

RR60140 DWG.DGN 8/16/2019

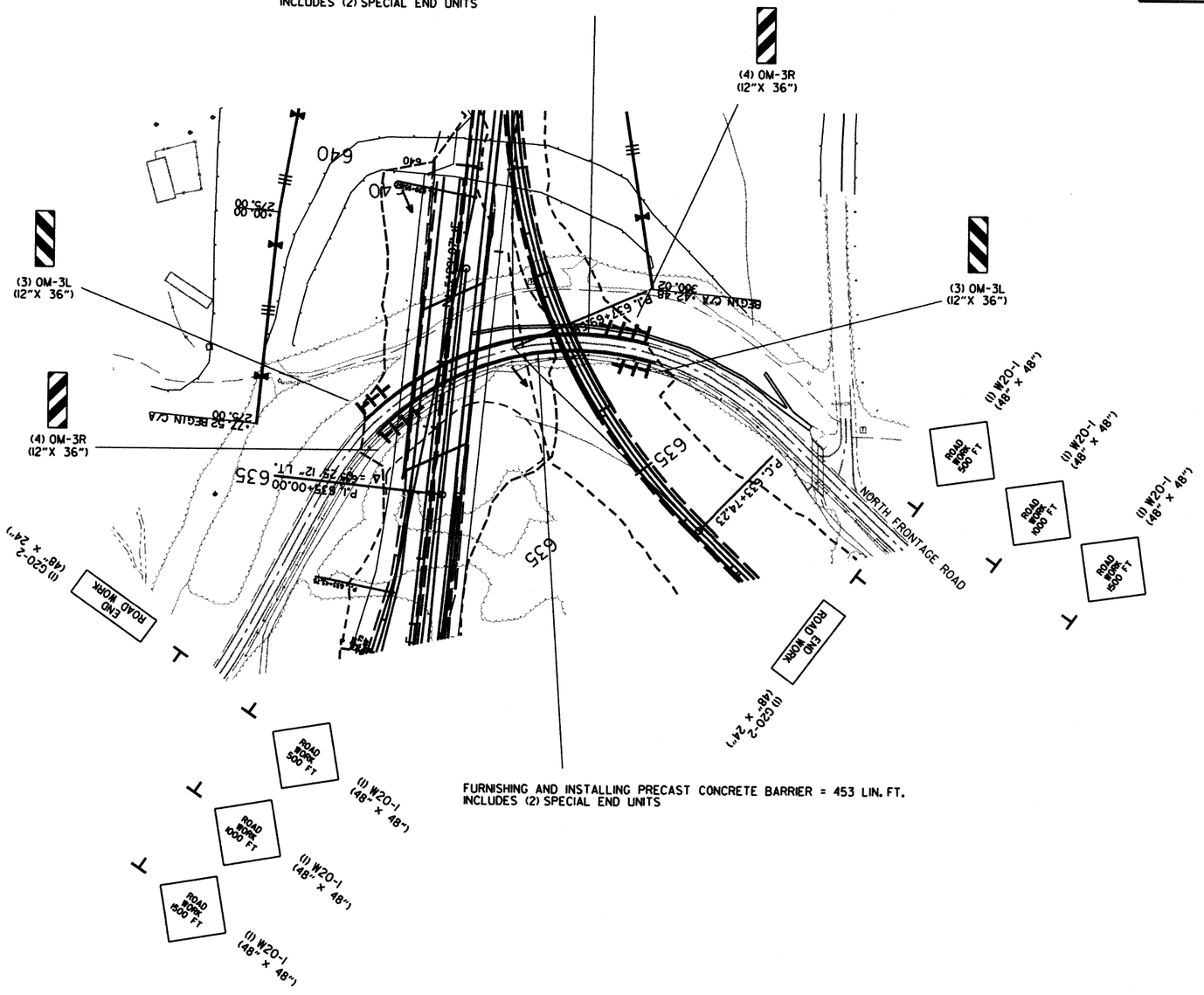
SPRING STREET
MAINTENANCE OF TRAFFIC DETAILS

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.		R60140	78	616

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
9-6-19

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 473 LIN. FT.
INCLUDES (2) SPECIAL END UNITS



FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 453 LIN. FT.
INCLUDES (2) SPECIAL END UNITS

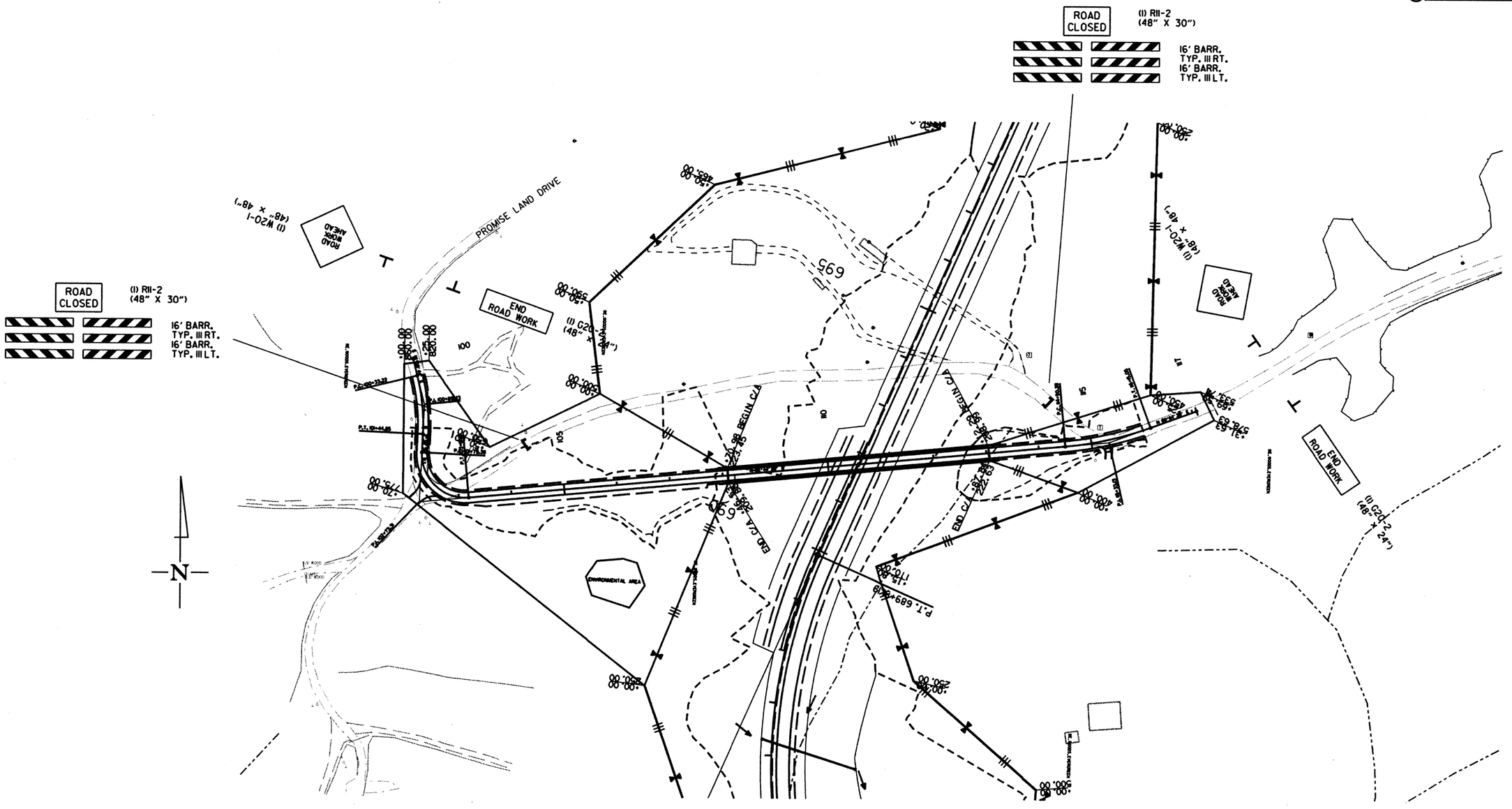
RR60140 DWB.DGN 8/16/2019

HIGHWAY 70 - NORTH FRONTAGE ROAD
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.		R60140	79	616

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



PROMISE LAND DRIVE
MAINTENANCE OF TRAFFIC DETAILS

RR60140 DWB.DGN 8/16/2019

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.		R60140	80	616

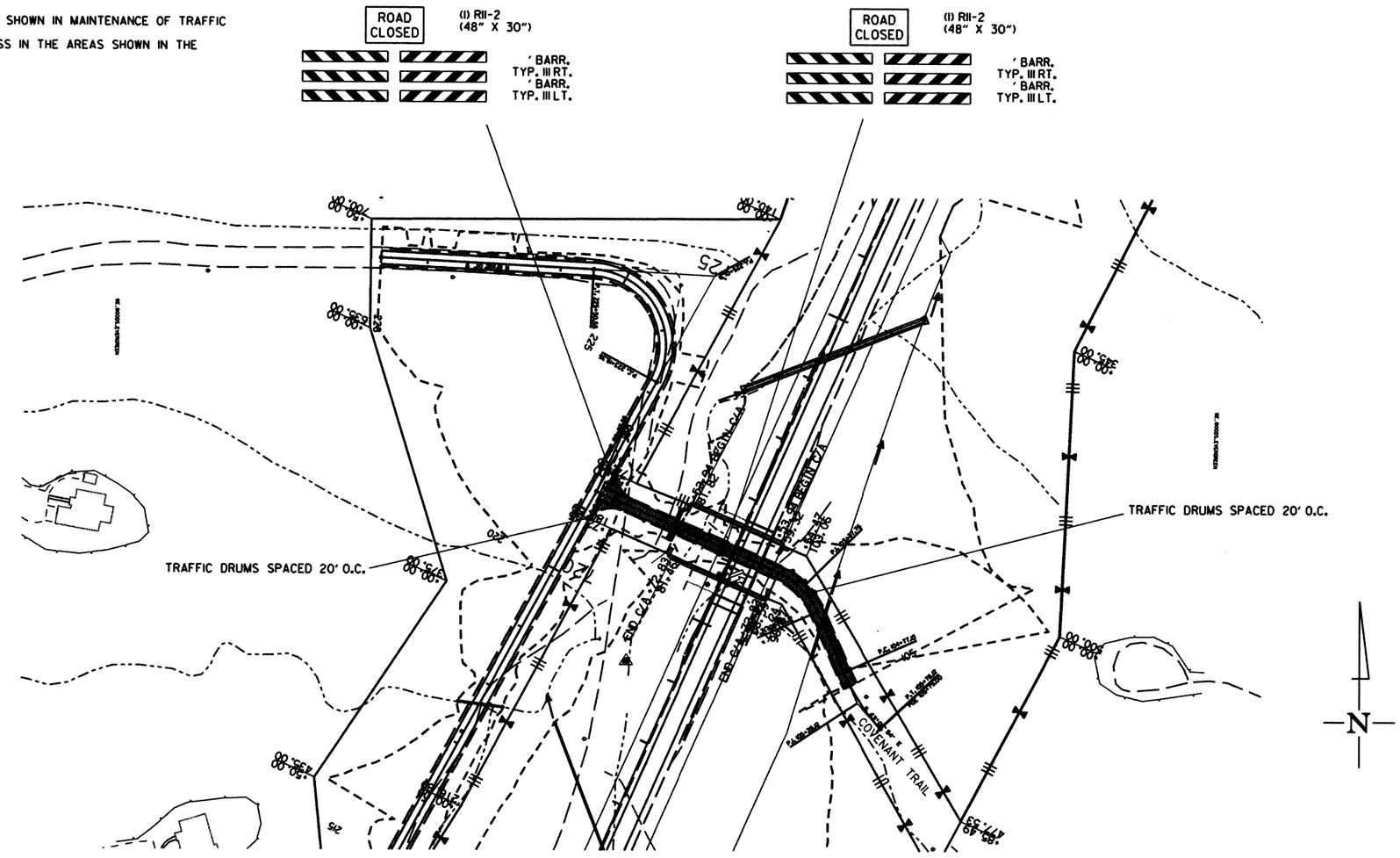
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
9-6-19

SEQUENCE OF CONSTRUCTION

COVENANT TRAIL

STAGE I
INSTALL ADVANCE WARNING SIGNS AND DEVICES AS SHOWN IN MAINTENANCE OF TRAFFIC DETAILS.
CONSTRUCT NEW LOCATION COVENANT TRAIL ACCESS IN THE AREAS SHOWN IN THE MAINTENANCE OF TRAFFIC DETAILS.



COVENANT TRAIL - STAGE I
MAINTENANCE OF TRAFFIC DETAILS

RR60140 DWB.DGN 8/16/2019

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.		R60140	81	617

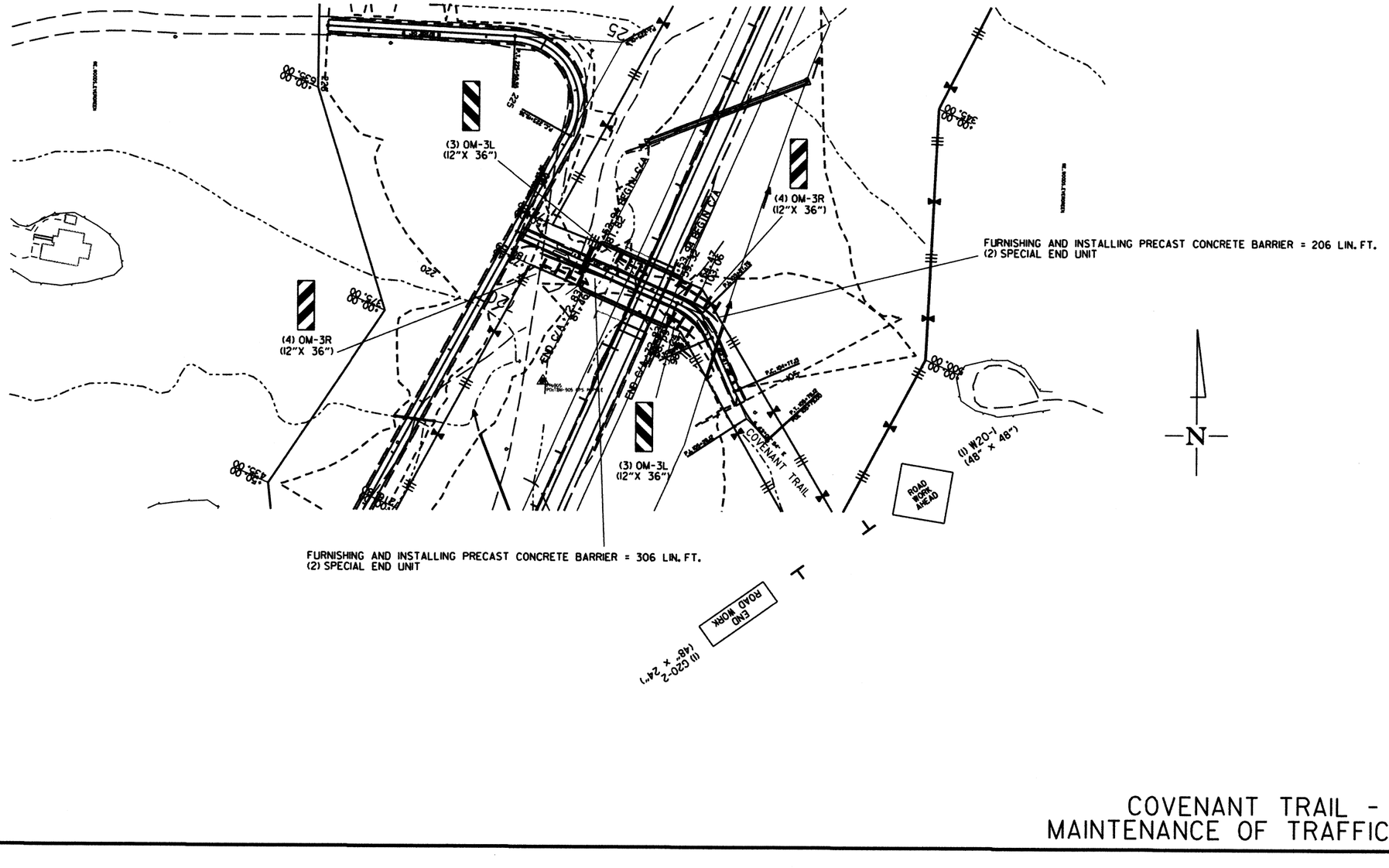
(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION

COVENANT TRAIL

STAGE 2
SHIFT COVENANT TRAIL TO NEW CONSTRUCTION.
CONSTRUCT OVERPASS AT COVENANT TRAIL AS SHOWN IN THE MAINTENANCE OF TRAFFIC DETAILS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



RR60140 DWB.DGN 8/16/2019

COVENANT TRAIL - STAGE 2
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
10-07-19				6	ARK.			
				JOB NO.		R60140	82	616

(2) MAINTENANCE OF TRAFFIC DETAILS

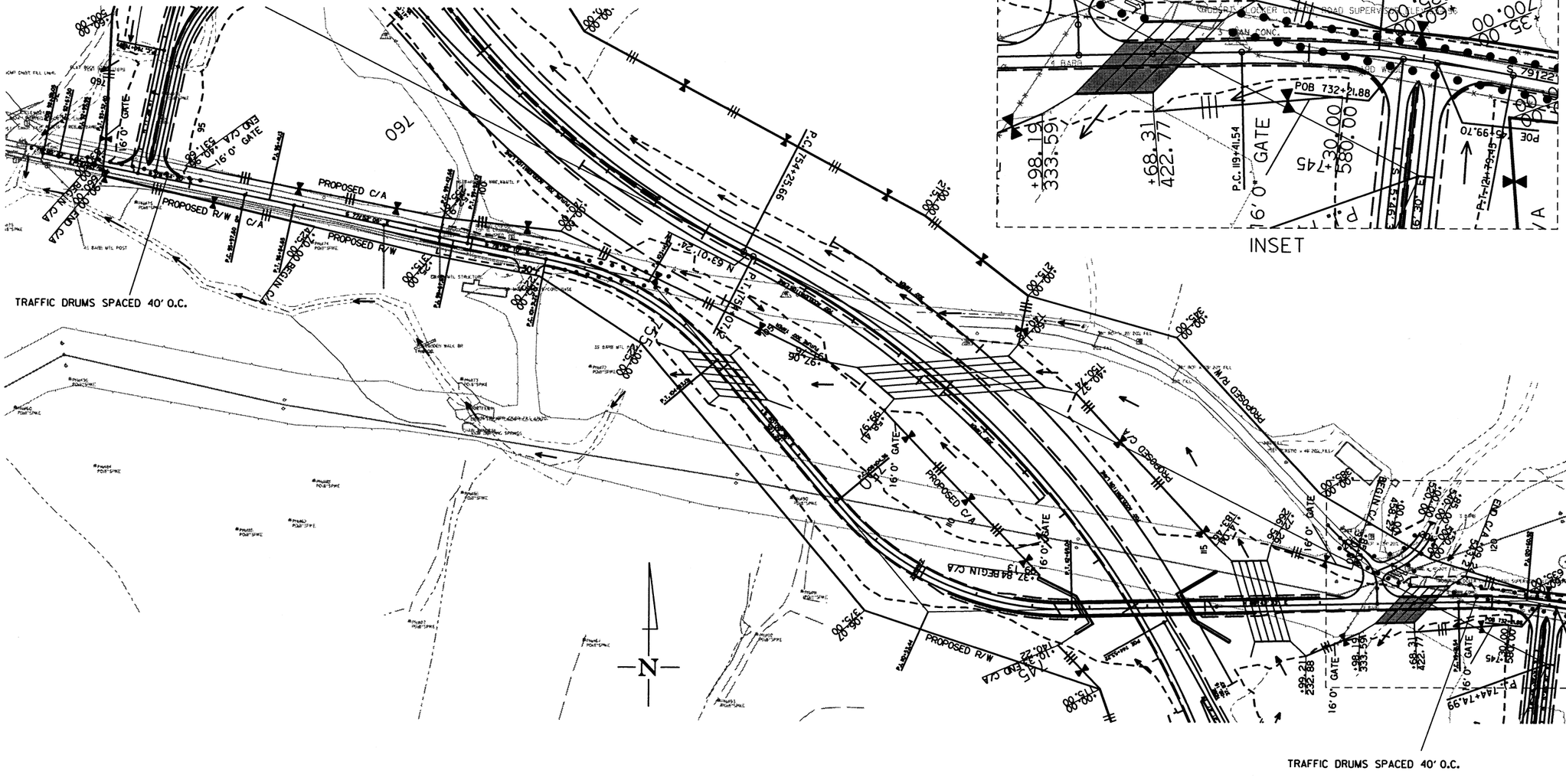
DENOTES STAGE CONSTRUCTION OF R.C. BOX CULVERT

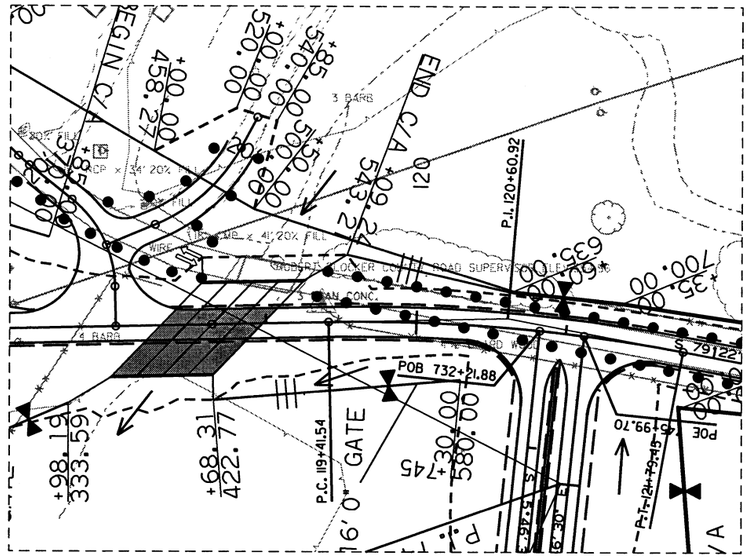
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19

SEQUENCE OF CONSTRUCTION

MILL CREEK ROAD

STAGE I
INSTALL ADVANCE WARNING SIGNS AND DEVICES AS SHOWN IN MAINTENANCE OF TRAFFIC DETAILS.
CONSTRUCT NEW LOCATION MILL CREEK ROAD IN THE AREAS SHOWN IN THE MAINTENANCE OF TRAFFIC DETAILS.
CONSTRUCT RIGHT SIDE OF R.C. BOX CULVERT AT STATION 118+64 AS SHOWN IN THE MAINTENANCE OF TRAFFIC DETAILS FOR MILL CREEK ROAD.





RR60140 DWB.DGN 8/16/2019

MILL CREEK ROAD - STAGE I
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
10-07-19				6	ARK.			
				JOB NO.		R60140	83	616

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19

SEQUENCE OF CONSTRUCTION

MILL CREEK ROAD

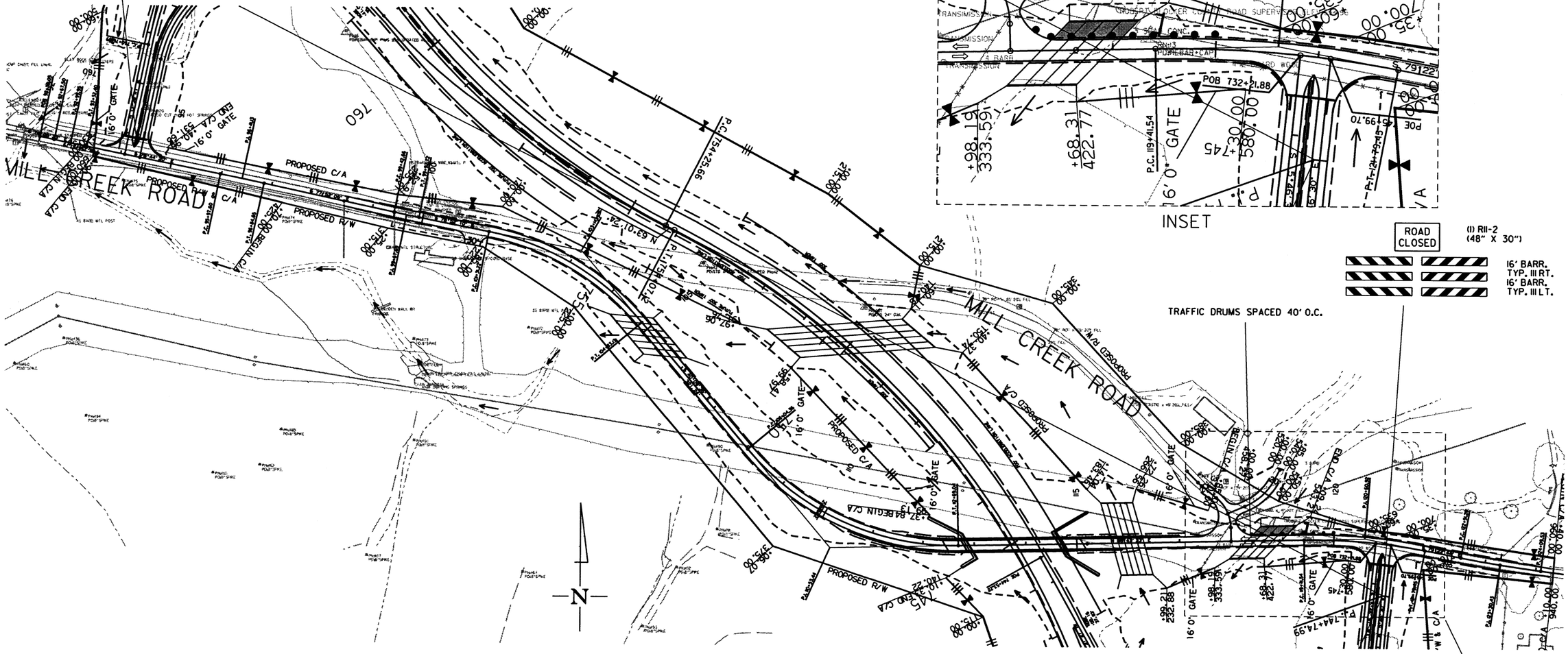
STAGE 2
SHIFT MILL CREEK ROAD TRAFFIC TO NEW CONSTRUCTION.
OBLITERATE EXISTING BRIDGE AT STATION 119+00 ALONG EXISTING MILL CREEK ROAD.
CONSTRUCT REMAINING PORTION OF R.C. BOX CULVERT AT STATION 118+64 AS SHOWN IN STAGE 2 OF THE MAINTENANCE OF TRAFFIC DETAILS FOR MILL CREEK ROAD.

DENOTES STAGE CONSTRUCTION OF R.C. BOX CULVERT

ROAD CLOSED

(1) R11-2 (48" X 30")

16' BARR. TYP. III RT.
16' BARR. TYP. III LT.



8/16/2019

RR60140 DWB.DGN

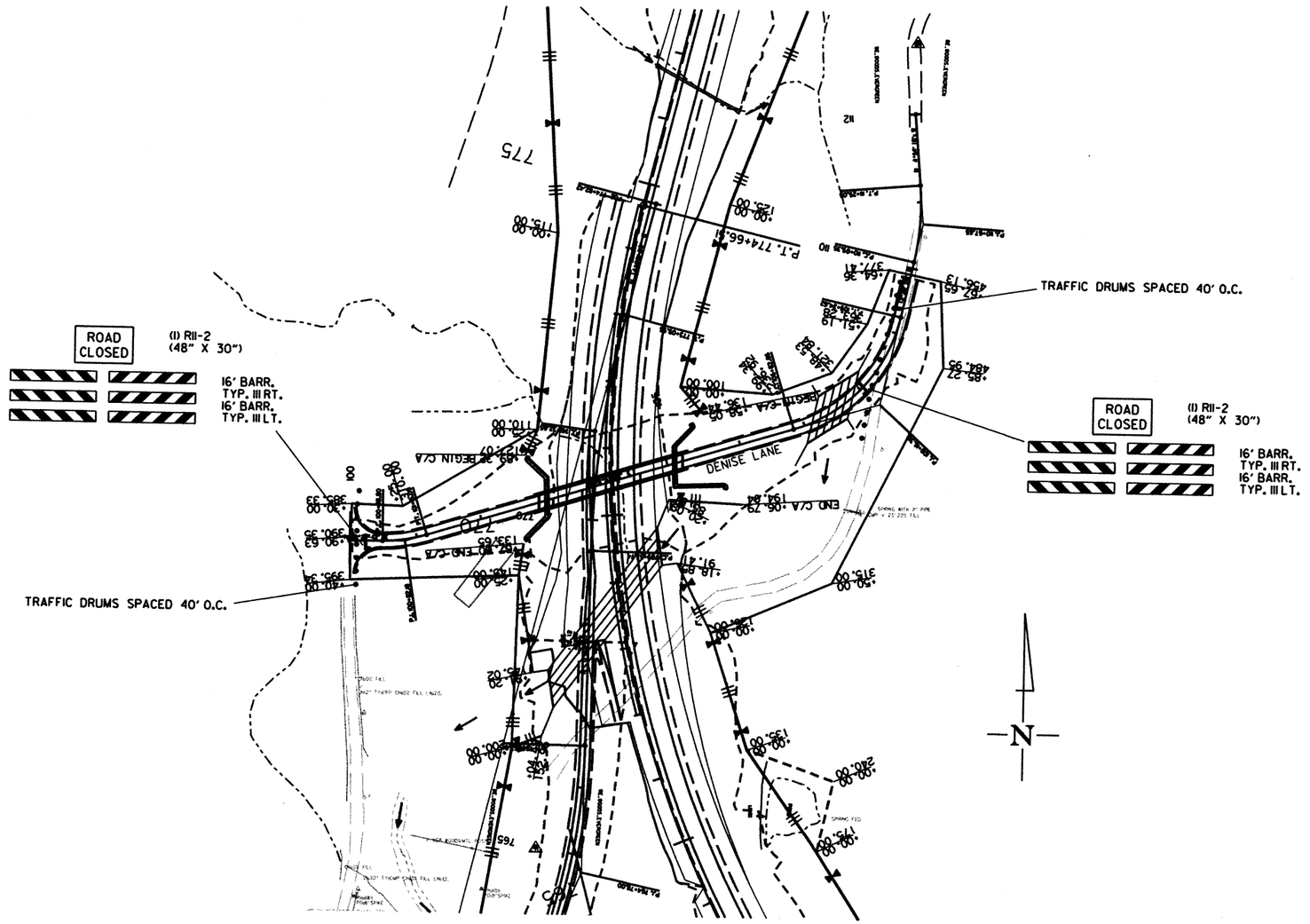
MILL CREEK ROAD - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

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.		R60140	24	27

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



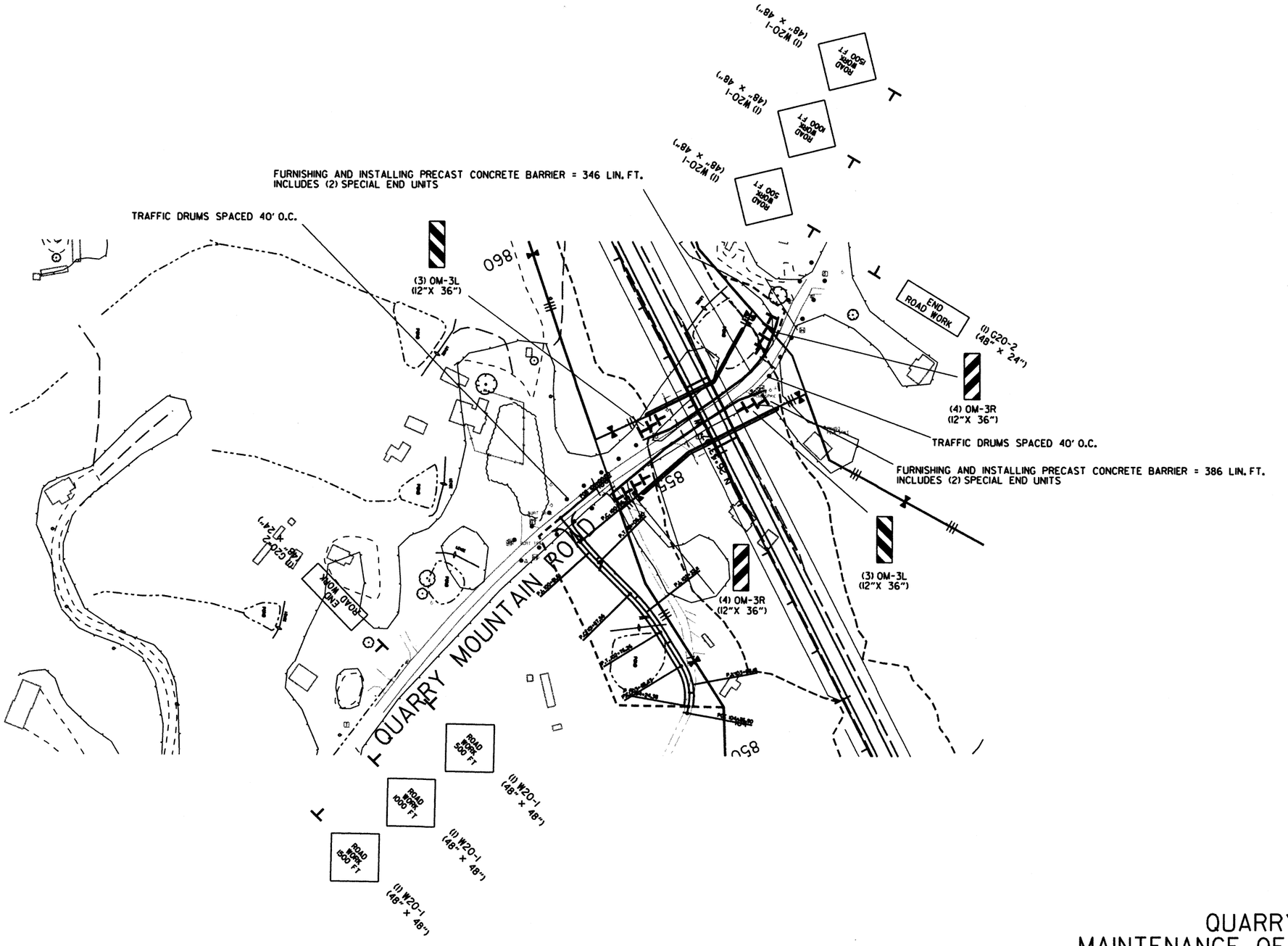
RR60140 DWB.DGN 8/16/2019

DENISE LANE
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.		R60140	35	41

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
9-6-19



RR60140 DWB.DGN 8/16/2019

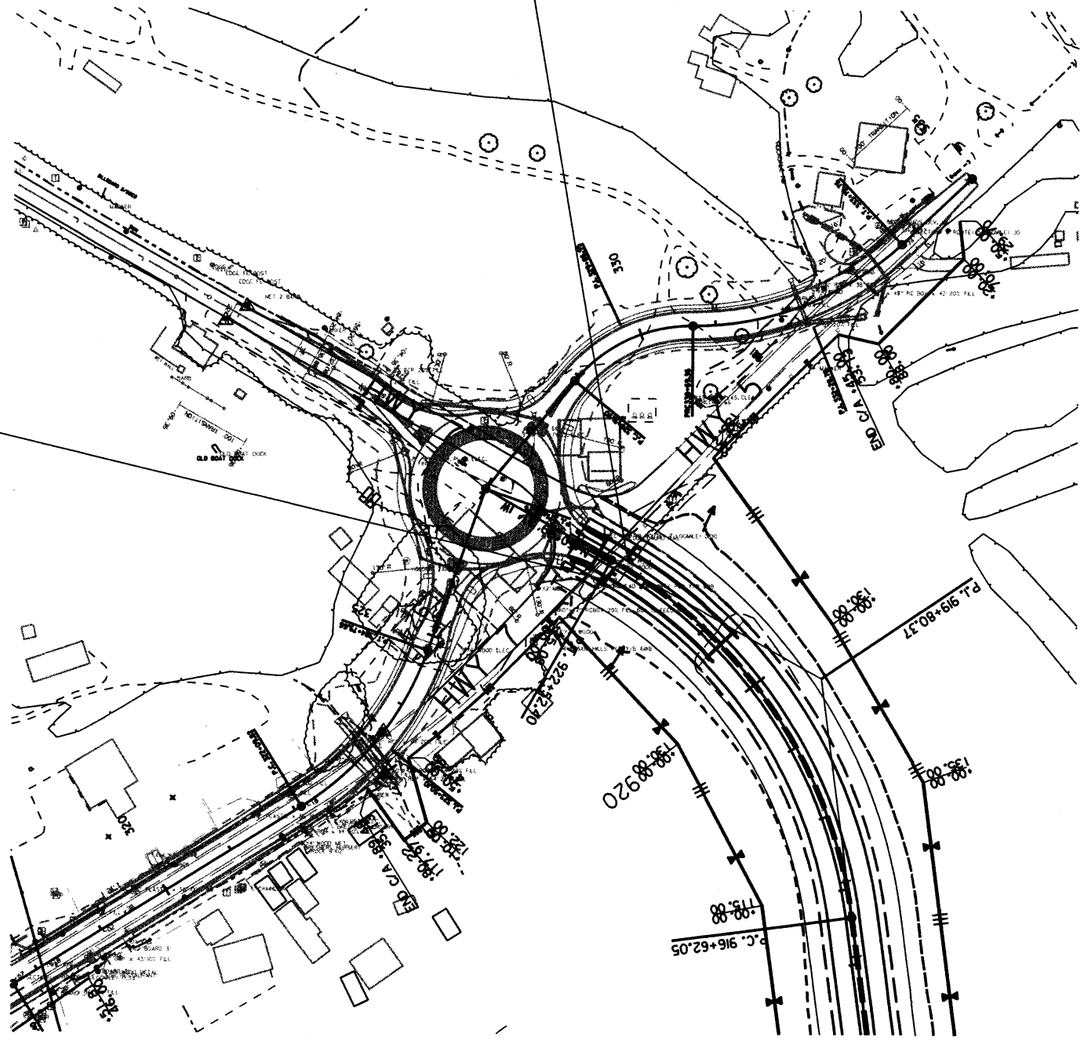
QUARRY MOUNTAIN ROAD
MAINTENANCE OF TRAFFIC DETAILS

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.		R60140	86	616

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TIMOTHY D. SMITH
9-6-19

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



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

HWY. 5/ HWY. 7 INTERSECTION
MAINTENANCE OF TRAFFIC DETAILS

RR60140 DWG.DGN 8/16/2019

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.		R60140	87	616

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

PERMANENT PAVEMENT MARKINGS
APPLY PERMANENT PAVEMENT MARKINGS ACCORDING TO STD. DWGS. PM-1 & PM-2.
CONSULT CURRENT VERSION OF MUTCD FOR ADDITIONAL DETAILS.

PROMISE LAND DRIVE SHIFT

REFLECTORIZED PAVEMENT MARKING
6" WHITE = 4266 LIN. FT.
6" YELLOW = 4266 LIN. FT.

RAISED PAVEMENT MARKER
80' SPACING (EXCEPT WHERE SHOWN ON STD. DWG. PM-2)
TYPE II (YEL/YEL) = 27 EACH

PROMISE LAND DRIVE OVERPASS

REFLECTORIZED PAVEMENT MARKING
6" WHITE = 3334 LIN. FT.
6" YELLOW = 3334 LIN. FT.

RAISED PAVEMENT MARKER
80' SPACING (EXCEPT WHERE SHOWN ON STD. DWG. PM-2)
TYPE II (YEL/YEL) = 21 EACH

COVENANT TRAIL

REFLECTORIZED PAVEMENT MARKING
6" WHITE = 835 LIN. FT.
6" YELLOW = 835 LIN. FT.

RAISED PAVEMENT MARKER
80' SPACING (EXCEPT WHERE SHOWN ON STD. DWG. PM-2)
TYPE II (YEL/YEL) = 5 EACH

DENISE LANE

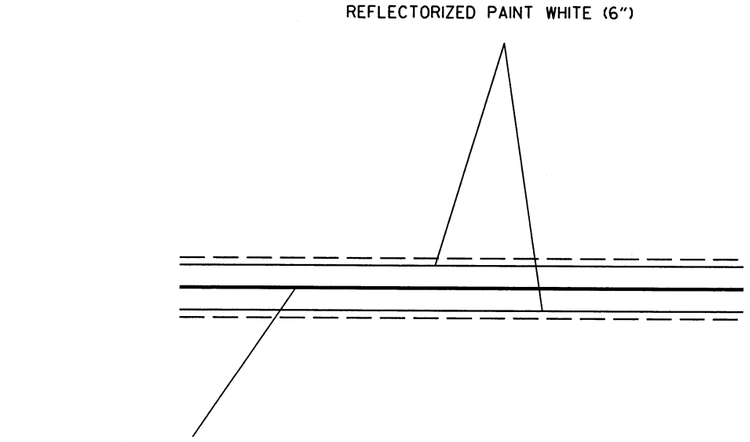
REFLECTORIZED PAVEMENT MARKING
6" WHITE = 2163 LIN. FT.
6" YELLOW = 2163 LIN. FT.

RAISED PAVEMENT MARKER
80' SPACING (EXCEPT WHERE SHOWN ON STD. DWG. PM-2)
TYPE II (YEL/YEL) = 14 EACH

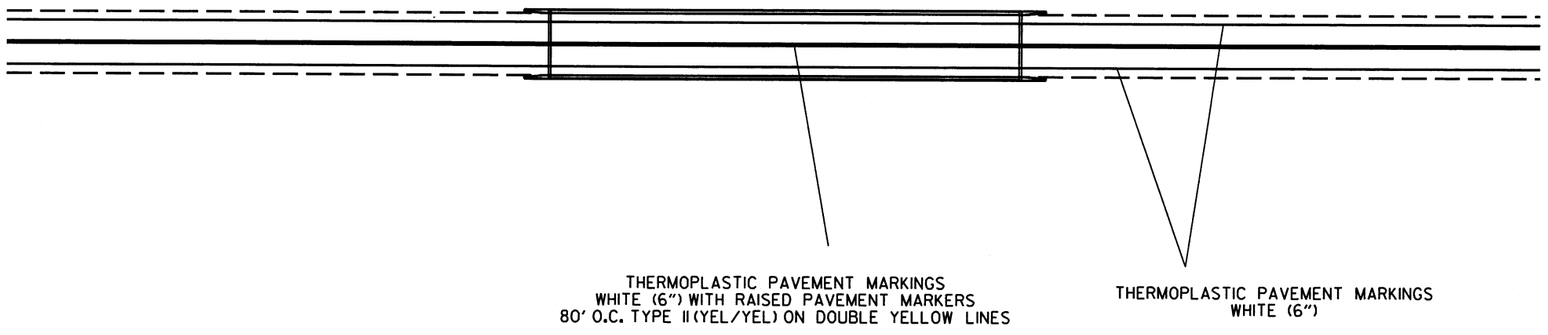
MILL CREEK ROAD

REFLECTORIZED PAVEMENT MARKING
6" WHITE = 5172 LIN. FT.
6" YELLOW = 5172 LIN. FT.

RAISED PAVEMENT MARKER
80' SPACING (EXCEPT WHERE SHOWN ON STD. DWG. PM-2)
TYPE II (YEL/YEL) = 33 EACH



LOCAL ROAD STRIPING DETAIL



MAIN LANE STRIPING DETAIL

PERMANENT PAVEMENT MARKINGS
APPLY PERMANENT PAVEMENT MARKINGS ACCORDING TO STD. DWGS. PM-1 & PM-2.
CONSULT CURRENT VERSION OF MUTCD FOR ADDITIONAL DETAILS.

MAIN LANES

THERMOPLASTIC PAVEMENT MARKING
6" WHITE = 63544 LIN. FT.
6" YELLOW = 63544 LIN. FT.

RAISED PAVEMENT MARKER
80' SPACING (EXCEPT WHERE SHOWN ON STD. DWG. PM-2)
TYPE II (YEL/YEL) = 398 EACH

9/5/2019
dwbc553
RR60140 DWB.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
10-30-19				6	ARK.			
				JOB NO.		R60140	88	616

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

PERMANENT PAVEMENT MARKINGS
APPLY PERMANENT PAVEMENT MARKINGS ACCORDING TO STD. DWGS. PM-1 & PM-2.
CONSULT CURRENT VERSION OF MUTCD FOR ADDITIONAL DETAILS.

S-W RAMP

THERMOPLASTIC PAVEMENT MARKING
6" WHITE = 1553 LIN. FT.
6" YELLOW = 1273 LIN. FT.
8" WHITE = 833 LIN. FT.
DIRECTIONAL ARROW = 1 EACH

RAISED PAVEMENT MARKER
80' SPACING (EXCEPT WHERE SHOWN ON STD. DWG. PM-2)
TYPE II (WHITE/RED) = 162 EACH

S-E RAMP

THERMOPLASTIC PAVEMENT MARKING
6" WHITE = 870 LIN. FT.
6" YELLOW = 590 LIN. FT.
8" WHITE = 833 LIN. FT.
DIRECTIONAL ARROW = 1 EACH

RAISED PAVEMENT MARKER
80' SPACING (EXCEPT WHERE SHOWN ON STD. DWG. PM-2)
TYPE II (WHITE/RED) = 162 EACH

E-N RAMP

THERMOPLASTIC PAVEMENT MARKING
6" WHITE = 951 LIN. FT.
6" YELLOW = 671 LIN. FT.
8" WHITE = 655 LIN. FT.

RAISED PAVEMENT MARKER
80' SPACING (EXCEPT WHERE SHOWN ON STD. DWG. PM-2)
TYPE II (WHITE/RED) = 124 EACH

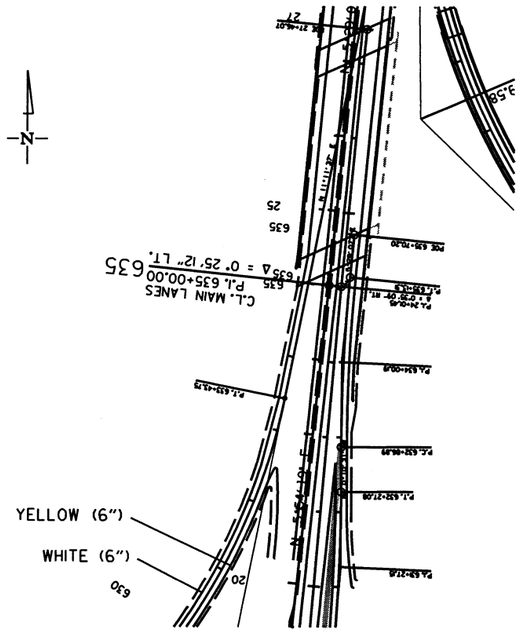
W-N RAMP

THERMOPLASTIC PAVEMENT MARKING
6" WHITE = 1388 LIN. FT.
6" YELLOW = 1108 LIN. FT.
8" WHITE = 833 LIN. FT.
DIRECTIONAL ARROW = 1 EACH

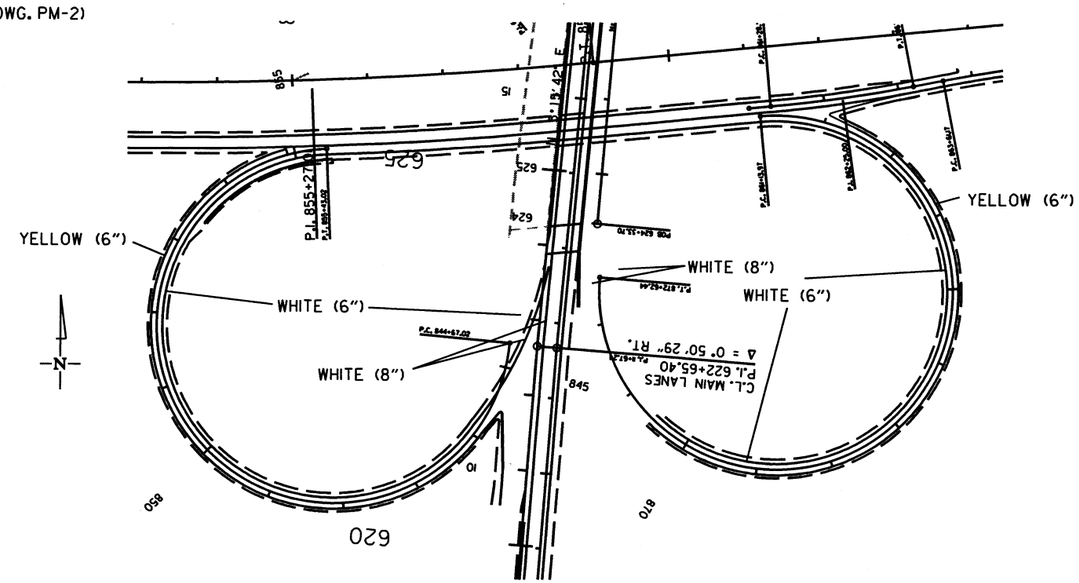
RAISED PAVEMENT MARKER
80' SPACING (EXCEPT WHERE SHOWN ON STD. DWG. PM-2)
TYPE II (WHITE/RED) = 162 EACH

HWY. 70B C-D ROAD

THERMOPLASTIC PAVEMENT MARKING
6" WHITE = 1607 LIN. FT.
6" YELLOW = 1607 LIN. FT.



S-W RAMP



S-E LOOP RAMP & E-N LOOP RAMP

10/21/2019

RR60140.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
10-30-19				6	ARK.			
				JOB NO.		R60140	88A	616

(2) PERMANENT PAVEMENT MARKING DETAILS

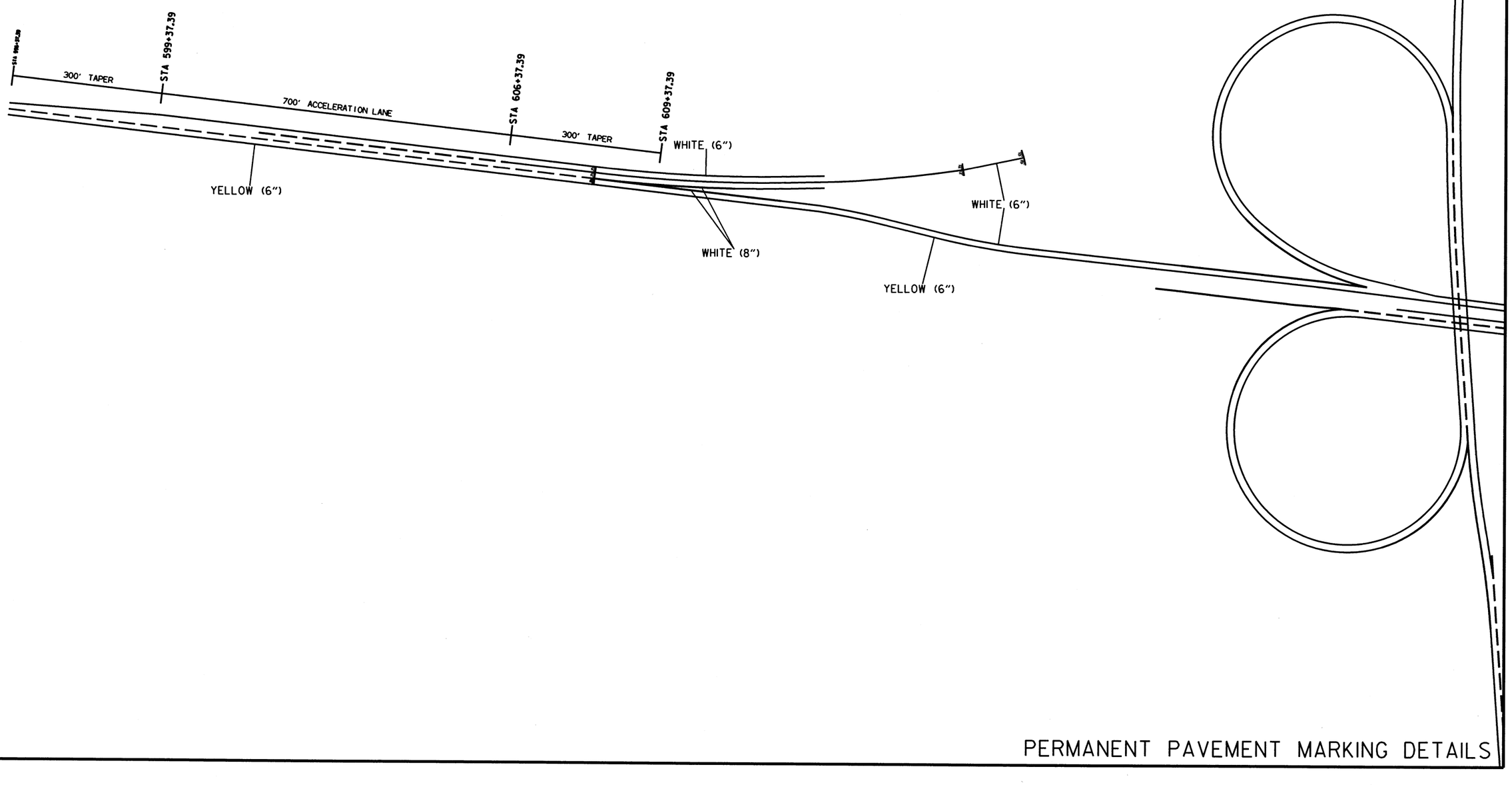
PERMANENT PAVEMENT MARKINGS
APPLY PERMANENT PAVEMENT MARKINGS ACCORDING TO STD. DWGS. PM-1 & PM-2.
CONSULT CURRENT VERSION OF MUTCD FOR ADDITIONAL DETAILS.

SB CROSSOVER

THERMOPLASTIC PAVEMENT MARKING
- 6" WHITE = 3476 LIN. FT.
- 6" YELLOW = 1805 LIN. FT.
- 8" WHITE = 656 LIN. FT.
- DIRECTIONAL ARROW = 1EACH

RAISED PAVEMENT MARKER
- 80' SPACING (EXCEPT WHERE SHOWN ON STD. DWG. PM-2)
- TYPE II (WHITE/RED) = 55 EACH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19



10/21/2019

RR60140.DGN

PERMANENT PAVEMENT MARKING DETAILS

PERMANENT PAVEMENT MARKINGS
APPLY PERMANENT PAVEMENT MARKINGS ACCORDING TO STD. DWGS. PM-1 & PM-2.
CONSULT CURRENT VERSION OF MUTCD FOR ADDITIONAL DETAILS.

MILL CREEK ROAD RAMP 1

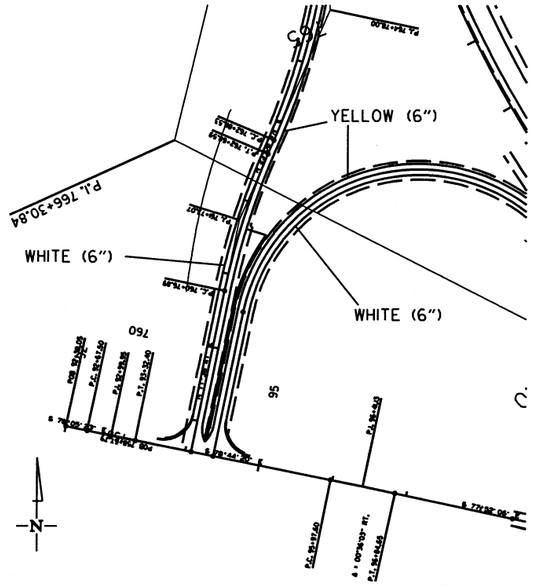
THERMOPLASTIC PAVEMENT MARKING
6" WHITE = 1430 LIN. FT.
6" YELLOW = 1150 LIN. FT.
8" WHITE = 655 LIN. FT.
DIRECTIONAL ARROW = 1 EACH

RAISED PAVEMENT MARKER
80' SPACING (EXCEPT WHERE SHOWN ON STD. DWG. PM-2)
TYPE II (WHITE/RED) = 124 EACH

MILL CREEK ROAD RAMP 2

THERMOPLASTIC PAVEMENT MARKING
6" WHITE = 1021 LIN. FT.
6" YELLOW = 1021 LIN. FT.
8" WHITE = 228 LIN. FT.

RAISED PAVEMENT MARKER
80' SPACING (EXCEPT WHERE SHOWN ON STD. DWG. PM-2)
TYPE II (WHITE/RED) = 38 EACH



MILL CREEK S-B ON AND OFF RAMPS

MILL CREEK ROAD RAMP 3

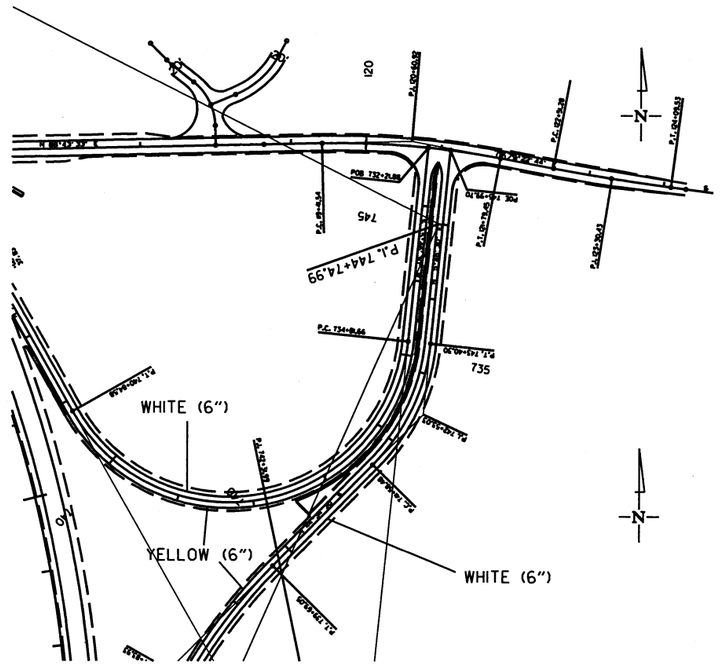
THERMOPLASTIC PAVEMENT MARKING
6" WHITE = 520 LIN. FT.
6" YELLOW = 241 LIN. FT.
8" WHITE = 655 LIN. FT.
DIRECTIONAL ARROW = 1 EACH

RAISED PAVEMENT MARKER
80' SPACING (EXCEPT WHERE SHOWN ON STD. DWG. PM-2)
TYPE II (WHITE/RED) = 124 EACH

MILL CREEK ROAD RAMP 2

THERMOPLASTIC PAVEMENT MARKING
6" WHITE = 658 LIN. FT.
6" YELLOW = 658 LIN. FT.
8" WHITE = 228 LIN. FT.

RAISED PAVEMENT MARKER
80' SPACING (EXCEPT WHERE SHOWN ON STD. DWG. PM-2)
TYPE II (WHITE/RED) = 38 EACH



MILL CREEK N-B ON AND OFF RAMPS

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.		R60140	89	616

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

RR60140 DWB.DGN 9/5/2019

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.		R60140	90	616

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-10-19

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	END OF JOB	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKING				REFLECTORIZED PAINT PAVEMENT MARKING	
		TYPE II	TYPE II	6"		8"	ARROWS	6"	
		(WHITE/RED)	(YELLOW/YELLOW)	WHITE	YELLOW	WHITE		WHITE	YELLOW
	LIN. FT. - EACH	EACH		LIN. FT.			EACH	LIN. FT.	
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)	934	934							
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)	498		498						
THERMOPLASTIC PAVEMENT MARKING WHITE (6")	73542			73542					
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	71863				71863				
THERMOPLASTIC PAVEMENT MARKING WHITE (8")	4920					4920			
THERMOPLASTIC PAVEMENT MARKING (ARROWS)	5						5		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	15770							15770	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	17481								17481
TOTALS:		**934**	**498**	**73542**	**71863**	**4920**	**5**	**15770**	**17481**

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

NOTE: THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT.
THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING.
CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	ENTIRE PROJECT	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		CONSTRUCTION PROJECT INFORMATION SIGN UPDATE	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)
									RIGHT	LEFT			
			LIN. FT. - EACH		NO.	SQ. FT.	EACH	EACH	LIN. FT.			EACH	
W20-1	ROAD WORK 1500 FT.	48"x48"	20	20	20	320.0							
W20-1	ROAD WORK 1000 FT.	48"x48"	14	14	14	224.0							
W20-1	ROAD WORK 500 FT.	48"x48"	14	14	14	224.0							
W20-1	ROAD WORK 1 MILE	48"x48"	6	6	6	96.0							
W20-1	ROAD WORK 1/2 MILE	48"x48"	6	6	6	96.0							
G20-2	END ROAD WORK	48"x24"	22	22	22	176.0							
OM-3L	OBJECT MARKER	12"x36"	24	24	24	192.0							
OM-3R	OBJECT MARKER	12"x36"	52	52	52	416.0							
SPECIAL	WORK WITH US SIGN (USE CAUTION, SLOW DOWN)	120"x60"	3	3	3	24.0							
SPECIAL	CONSTRUCTION PROJECT INFORMATION SIGN	96"x48"	3	3	3	96.0							
	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE		10	10			10						
	TRAFFIC DRUMS		106	106				106					
	TYPE III BARRICADE-RT. (16')								10				
	TYPE III BARRICADE-LT. (16')									10			
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		7474	7474							7474		
	TEMPORARY IMPACT ATTENUATION BARRIER		6	6								6	
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		6	6									6
TOTALS:						**1864.0**	**10**	**106**	**10**	**10**	**7474**	**6**	**6**

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

9/9/2019

RR60140.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
10-30-19				JOB NO.		R60140	91	616

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
635+00	914+00	HWY. 7	279	279
916+00	918+00	HWY. 7	2	2
919+00	923+00	HWY. 7	4	4
100+00	108+10	PROMISE LAND DR.	9	9
113+05	116+00	PROMISE LAND DR.	3	3
200+00	228+00	PROMISE LAND DR.	28	28
100+00	112+79	MILL CREEK RD.	13	13
100+00	104+12	DENISE LN.	5	5
104+96	109+50	DENISE LN.	5	5
TOTALS:			348	348

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.
855+50.00	860+50.00	RT OF HWY. 70 B C-D ROAD	500.00	17.50	972.22	222.22	2.80
849+00.00	850+60.00	LT OF RAMP SE	160.00	6.00	106.67	71.11	0.90
TOTALS:					1078.89	293.33	3.70

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	PRESPLITTING	*SOIL STABILIZATION
			CU. YD.		SQ. YD.	TON
ENTIRE	PROJECT	MAIN LANES	1860946	2513544	93706	
ENTIRE	PROJECT	MILL CREEK ROAD	1089	72755		
ENTIRE	PROJECT	PROMISE LAND DRIVE OVERPASS	3220	17065		
ENTIRE	PROJECT	PROMISE LAND DRIVE SHIFT	90717	14344		
ENTIRE	PROJECT	COVENANT TRAIL	5216	1304		
ENTIRE	PROJECT	DENISE LANE	693	23016		
ENTIRE	PROJECT	MILL CREEK ROAD RAMP 1	58877	1044		
ENTIRE	PROJECT	MILL CREEK ROAD RAMP 2	11235	11521		
ENTIRE	PROJECT	MILL CREEK ROAD RAMP 3	2504	16931		
ENTIRE	PROJECT	MILL CREEK ROAD RAMP 4	967	7610		
ENTIRE	PROJECT	RAMP WN	501	93210		
ENTIRE	PROJECT	RAMP SW	8394	54515		
ENTIRE	PROJECT	RAMP SE	393	36913		
ENTIRE	PROJECT	RAMP EN	6119	40183		
ENTIRE	PROJECT	HWY. 70B C-D ROAD	3389	12181		
ENTIRE	PROJECT	APPROACHES	120	9335		
* ENTIRE	PROJECT	TO BE USED IF AND WHERE			10000	500
		DIRECTED BY THE ENGINEER				
TOTALS:			2054380	2925471	103706	500

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
617+24	BRIDGE END - HWY. 7	1
624+24	BRIDGE END - HWY. 7	1
635+30	BRIDGE END - HWY. 7	1
636+08	BRIDGE END - HWY. 7	1
108+10	BRIDGE END - PROMISE LAND DR.	1
722+47	BRIDGE END - HWY. 7	1
741+02	HEADWALL ON RT. - HWY. 7	1
741+63	HEADWALL ON LT. - HWY. 7	1
104+38	HEADWALL ON RT. - MILL CREEK RD.	1
112+79	BRIDGE END - MILL CREEK RD.	1
115+48	HEADWALL ON LT. - MILL CREEK RD.	1
117+96	HEADWALL ON RT. - MILL CREEK RD.	1
748+76	HEADWALL ON RT. - HWY. 7	1
767+38	HEADWALL ON LT. - HWY. 7	1
104+12	BRIDGE END - DENISE LN.	1
106+94	HEADWALL ON RT. - DENISE LN.	1
855+13	BRIDGE END - HWY. 7	1
920+69	BRIDGE END - HWY. 7	1
TOTAL:		18

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

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)	MAILBOX SUPPORTS (DOUBLE)
	EACH		
ENTIRE PROJECT	8	6	1
TOTALS:	8	6	1

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL: SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY EROSION CONTROL: TEMPORARY SEEDING	MULCH COVER	WATER	WATTLE (20") DITCH CHECKS (E-1)	ROCK DITCH CHECKS (E-6)	DROP INLET SILT FENCE (E-7)	TRIANGULAR SILT DIKE	SILT FENCE (E-11)	DIVERSION DITCH (E-8)	PIPE FOR SLOPE DRAINS	DUMPED RIPRAP	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	LIN. FT.	CU.YD.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	SLOPE DRAIN (E-12)			CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING																			
ENTIRE	PROJECT	MAIN LANES	256.54	513.08	256.54	26167.1	256.54	475.00	475.00	9690.0		219	150		73290						2793
												2910			16802	18980	5412	25			1592
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			64.14	128.28	64.14	6542.3	64.14	118.75	118.75	2422.5	6000	1000	200	10000	18823	10000	3000	100	20000	20000	20705
TOTALS:			320.68	641.36	320.68	32709.4	320.68	593.75	593.75	12112.5	6000	4129	350	10000	108915	28980	8412	125	20000	20000	25090

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
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING
WATTLE DITCH CHECKS.....9 LIN. FT. / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

NOTE: THE TEMPORARY EROSION CONTROL DEVICES SHOWN ABOVE AND ON THE PLANS SHALL BE INSTALLED IN SUCH A SEQUENCE AS TO DETER EROSION AND SEDIMENTATION ON U.S. WATERWAYS AS EXPLAINED BY THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT.

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

10/31/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
10-30-19				JOB NO.		R60140	92	616

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	WELL	FRAME SHED	CONCRETE SLABS	WALLS	BARRIER WALL	PEDESTRIAN BRIDGE	SIGN FOUNDATIONS	HEADWALLS	GUARDRAIL	BUILDINGS	STORM CELLAR	SIGNS	CANOPY	SEPTIC SYSTEM	BRICK PAVERS
			EACH	EACH	SQ. YDS.	LIN. FT.	LIN. FT.	EACH	EACH	EACH	LIN. FT.	EACH	EACH	EACH	EACH	EACH	SQ. YD.
610+50	616+00	C.L. OF HWY. 7					550										
630+25	632+92	RT. OF HWY. 7					267										
651+80		RT. OF HWY. 7		1													
652+11	653+17	RT. OF HWY. 7										3					
652+25	652+42	LT. OF HWY. 7										1					
652+30		LT. OF HWY. 7		1													
652+50		LT. OF HWY. 7		1													
652+70		RT. OF HWY. 7		1								1			1	1	
653+00		RT. OF HWY. 7	1														
653+10		RT. OF HWY. 7		1													
653+20		RT. OF HWY. 7													1		
653+30		LT. OF HWY. 7		1													
653+70		RT. OF HWY. 7		1													
694+26	695+72	LT. OF HWY. 7		1								3				2	
706+70		RT. OF HWY. 7	1														
707+00	710+01	RT. OF HWY. 7										2				2	
719+50		RT. OF HWY. 7		1													
719+70		RT. OF HWY. 7		1								1				1	
723+00		RT. OF HWY. 7										1				1	
734+40		RT. OF HWY. 7										1				1	
736+40		RT. OF HWY. 7	1														
737+60		RT. OF HWY. 7													1	1	35
738+40		RT. OF HWY. 7		1								1					
738+80		RT. OF HWY. 7	2									1				1	
739+90		RT. OF HWY. 7											1				
741+20		RT. OF HWY. 7				17										1	1
741+22		RT. OF HWY. 7				17											
741+30		LT. & RT. OF HWY. 7						1				2				1	
742+00		RT. OF HWY. 7			15	135											
742+20		RT. OF HWY. 7						1									
742+90		RT. OF HWY. 7						1							1		
744+30		CL. OF HWY. 7		1													
745+10		LT. OF HWY. 7		1													
745+80		LT. OF HWY. 7										1					
755+00		LT. OF HWY. 7										1				1	
769+20		LT. OF HWY. 7										1				1	
769+52		LT. OF HWY. 7	1														
769+55		LT. OF HWY. 7 - 151' LT.										1					
770+58		RT. OF HWY. 7 - 57' RT.										1					
774+17		LT. OF HWY. 7 - 29' LT.										1				1	
775+76		LT. OF HWY. 7 - 20' LT.										1					
777+90		LT. OF HWY. 7										1				1	
778+30		LT. OF HWY. 7													1		
778+50		LT. OF HWY. 7										1				1	
779+00		LT. OF HWY. 7										1				1	
785+00		LT. OF HWY. 7										1				1	
785+90		LT. OF HWY. 7										1					
786+30		LT. OF HWY. 7	1														
844+07	844+58	RT. OF HWY. 7										1					
851+00	852+20	LT. OF HWY. 7	1									2				1	
853+03	855+07	LT. & RT. OF HWY. 7	1									2				1	
922+43	922+58	LT. & RT. OF HWY. 7							1	2	127			1			
TOTALS:			**9**	**13**	**15**	**169**	**817**	**3**	**1**	**2**	**127**	**34**	**1**	**1**	**5**	**21**	**36**

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.

10/31/2019

RR60140.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	93	616

(2) QUANTITIES

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.		EACH
618+09.98	620+28.73	LT. SIDE OF HWY. 7 OVER SPRING STREET	150	1	1
854+56.35	855+50.10	RT. SIDE OF RAMP SE	75	1	1
628+22.79	630+41.54	LT. SIDE OF HWY. 7 OVER HWY. 70	150	1	1
633+15.94	635+34.69	RT. SIDE OF HWY. 7 OVER HWY. 70 FRONTAGE ROAD	150	1	1
637+86.25	640+05.00	LT. SIDE OF HWY. 7 OVER HWY. 70 FRONTAGE ROAD	150	1	1
638+37.05	639+30.80	RT. SIDE OF HWY. 7 OVER HWY. 70 FRONTAGE ROAD	75	1	1
633+80.77	635+99.52	LT. SIDE OF RAMP WN OVER HWY. 70 FRONTAGE ROAD	150	1	1
633+80.77	635+99.52	RT. SIDE OF RAMP WN OVER HWY. 70 FRONTAGE ROAD	150	1	1
106+99.74	107+93.49	LT. SIDE OF PROMISE LAND DRIVE OVER HWY. 7	75	1	1
103+74.74	107+93.49	RT. SIDE OF PROMISE LAND DRIVE OVER HWY. 7	350	1	1
113+21.50	115+40.25	LT. SIDE OF PROMISE LAND DRIVE OVER HWY. 7	150	1	1
113+21.50	114+15.25	RT. SIDE OF PROMISE LAND DRIVE OVER HWY. 7	75	1	1
719+39.77	720+33.52	LT. SIDE OF HWY. 7 OVER COVENANT TRAIL	75	1	1
718+14.77	720+33.52	RT. SIDE OF HWY. 7 OVER COVENANT TRAIL	150	1	1
721+77.48	723+96.23	LT. SIDE OF HWY. 7 OVER COVENANT TRAIL	150	1	1
721+77.48	722+71.23	RT. SIDE OF HWY. 7 OVER COVENANT TRAIL	75	1	1
111+68.00	112+61.75	LT. SIDE OF MILL CREEK ROAD OVER HWY. 7	75	1	1
110+41.27	112+60.02	RT. SIDE OF MILL CREEK ROAD OVER HWY. 7	150	1	1
114+80.05	116+98.80	LT. SIDE OF MILL CREEK ROAD OVER HWY. 7	150	1	1
114+93.91	115+87.66	RT. SIDE OF MILL CREEK ROAD OVER HWY. 7	75	1	1
101+86.73	102+80.48	LT. SIDE OF DENISE LANE OVER HWY. 7	75	1	1
100+60.52	102+79.27	RT. SIDE OF DENISE LANE OVER HWY. 7	150	1	1
105+26.52	107+45.27	LT. SIDE OF DENISE LANE OVER HWY. 7	150	1	1
105+20.08	106+13.83	RT. SIDE OF DENISE LANE OVER HWY. 7	75	1	1
854+06.77	855+00.52	LT. SIDE OF HWY. 7 OVER QUARRY MOUNTAIN ROAD	75	1	1
852+81.77	855+00.52	RT. SIDEOF HWY. 7 OVER QUARRY MOUNTAIN ROAD	150	1	1
856+47.48	858+66.23	LT. SIDE OF HWY. 7 OVER QUARRY MOUNTAIN ROAD	150	1	1
856+47.48	857+41.23	RT. SIDEOF HWY. 7 OVER QUARRY MOUNTAIN ROAD	75	1	1
919+70.85	920+64.60	LT. SIDE OF HWY. 7 OVER SALINE RIVER TRIBUTARY	75	1	1
918+45.85	920+64.60	RT. SIDE OF HWY. 7 OVER SALINE RIVER TRIBUTARY	150	1	1
TOTALS:			3725	30	30

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE A)	* 16'-0" GATES
			LIN. FT.	EACH
635+77	690+47	LT. OF HWY. 7	5873	
690+71	720+73	LT. OF HWY. 7	3652	2
721+54	745+10	LT. OF HWY. 7	2331	
746+38	750+58	LT. OF HWY. 7	394	2
751+97	761+41	LT. OF HWY. 7	1176	1
759+70	761+90	LT. OF HWY. 7	378	
762+15	767+04	LT. OF HWY. 7	799	1
767+91	769+68	LT. OF HWY. 7	194	1
770+89	855+02	LT. OF HWY. 7	8480	
856+20	922+75	LT. OF HWY. 7	7088	1
638+42	692+88	RT. OF HWY. 7	5654	
693+12	720+73	RT. OF HWY. 7	3155	1
721+54	741+10	RT. OF HWY. 7	3513	1
741+40	743+09	RT. OF HWY. 7	484	
742+30	742+68	RT. OF HWY. 7	165	1
742+98	742+99	RT. OF HWY. 7	101	1
743+85	744+72	RT. OF HWY. 7	147	1
745+14	748+40	RT. OF HWY. 7	361	
749+60	769+19	RT. OF HWY. 7	1914	
770+07	770+20	RT. OF HWY. 7	109	1
771+58	855+29	RT. OF HWY. 7	8817	1
856+81	922+13	RT. OF HWY. 7	6836	
TOTALS:			61621	15

* DENOTES ALTERNATE BID ITEM.

RETAINING WALLS

STATION	STATION	LOCATION	CONCRETE DITCH PAVING (TYPE B)	RETAINING WALL	SELECT GRANULAR BACKFILL	UNCLASSIFIED EXCAVATION	TEXTURED COATING FINISH
			SQ. YD.	SQ. FT.	CU. YD.	CU. YD.	SQ. YD.
617+03.05	617+31.81	HWY. 7 OVER SPRING STREET - WALL 1A	90	2190	1015	310	219
617+89.36	618+41.50	HWY. 7 OVER SPRING STREET - WALL 1B	75	2400	1275	315	229
720+72.39	720+72.39	HWY. 7 OVER COVENANT TRAIL - WALL 6A	67	2477	1084	108	229
721+54.32	721+54.32	HWY. 7 OVER COVENANT TRAIL - WALL 6B	63	2473	1285	113	224
112+05.59	112+75.97	MILL CREEK ROAD OVER HWY. 7 - WALL 7A	74	3621	2330	108	358
115+20.98	115+41.41	MILL CREEK ROAD OVER HWY. 7 - WALL 7B	94	4402	2568	119	442
102+58.24	102+93.16	DENISE LANE OVER HWY. 7 - WALL 8A	64	2816	1531	118	260
105+37.86	105+59.84	DENISE LANE OVER HWY. 7 - WALL 8B	78	2469	981	140	211
855+01.98	855+28.64	HWY. 7 OVER QUARRY MOUNTAIN ROAD - WALL 9A	128	5849	3531	236	541
856+19.95	856+81.11	HWY. 7 OVER QUARRY MOUNTAIN ROAD - WALL 9B	108	4474	2333	236	407
TOTALS:			841	33171	17933	1803	3120

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
611+00	617+24	RT. HWY. 7	624
618+01	624+24	RT. HWY. 7	623
628+17	630+13	RT. HWY. 7	196
632+02	635+30	RT. HWY. 7	328
638+25	640+90	RT. HWY. 7	265
643+50	720+47	RT. HWY. 7	7697
722+08	731+93	RT. HWY. 7	985
734+79	741+93	RT. HWY. 7	714
744+53	855+13	RT. HWY. 7	11060
856+34	920+69	RT. HWY. 7	6435
616+00	617+24	LT. HWY. 7	124
618+01	623+18	LT. HWY. 7	517
628+17	635+30	LT. HWY. 7	713
638+25	720+47	LT. HWY. 7	8222
722+08	772+96	LT. HWY. 7	5088
774+82	855+13	LT. HWY. 7	8031
856+34	920+69	LT. HWY. 7	6435
625+83	636+08	RT. HWY. 7 ENTRANCE RAMP	1025
638+35	643+50	RT. HWY. 7 ENTRANCE RAMP	515
628+27	636+08	LT. HWY. 7 ENTRANCE RAMP	781
638+35	643+50	LT. HWY. 7 ENTRANCE RAMP	515
731+93	745+59	RT. HWY. 7 EXIT RAMP	1366
734+79	745+59	LT. HWY. 7 EXIT RAMP	1080
732+63	744+53	LT. HWY. 7 ENTRANCE RAMP	1190
732+63	741+90	LT. HWY. 7 ENTRANCE RAMP	927
759+06	768+17	RT. HWY. 7 EXIT RAMP	911
759+06	774+82	LT. HWY. 7 EXIT RAMP	1576
TOTAL:			67943

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

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
626+78	922+68	HWY. 7 MAIN LANES	14795	60
TOTALS:			14795	60

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
615+94.76	632+00.00	LT. OF HWY. 7	1605.24	1426.88
635+00.00	641+00.00	LT. OF HWY. 7	600.00	533.33
649+00.00	651+00.00	LT. OF HWY. 7	200.00	177.78
652+00.00	661+00.00	LT. OF HWY. 7	900.00	800.00
664+00.00	689+00.00	LT. OF HWY. 7	2500.00	2222.22
698+00.00	725+00.00	LT. OF HWY. 7	2700.00	2400.00
726+00.00	732+00.00	LT. OF HWY. 7	600.00	533.33
734+00.00	735+00.00	LT. OF HWY. 7	100.00	88.89
741+00.00	743+00.00	LT. OF HWY. 7	200.00	177.78
744+00.00	763+00.00	LT. OF HWY. 7	1900.00	1688.89
765+00.00	769+00.00	LT. OF HWY. 7	400.00	355.56
772+00.00	773+00.00	LT. OF HWY. 7	100.00	88.89
775+00.00	778+00.00	LT. OF HWY. 7	300.00	266.67
788+00.00	789+00.00	LT. OF HWY. 7	100.00	88.89
810+00.00	812+00.00	LT. OF HWY. 7	200.00	177.78
815+00.00	816+00.00	LT. OF HWY. 7	100.00	88.89
818+00.00	822+00.00	LT. OF HWY. 7	400.00	355.56
823+00.00	834+00.00	LT. OF HWY. 7	1100.00	977.78
837+00.00	840+00.00	LT. OF HWY. 7	300.00	266.67
844+00.00	845+00.00	LT. OF HWY. 7	100.00	88.89
851+00.00	864+00.00	LT. OF HWY. 7	1300.00	1155.56
866+00.00	867+00.00	LT. OF HWY. 7	100.00	88.89
879+00.00	892+00.00	LT. OF HWY. 7	1300.00	1155.56
913+00.00	923+05.44	LT. OF HWY. 7	1005.44	893.72
625+00.00	629+00.00	RT. OF HWY. 7	400.00	355.56
634+00.00	641+00.00	RT. OF HWY. 7	700.00	622.22
643+00.00	661+00.00	RT. OF HWY. 7	1800.00	1600.00
665+00.00	670+00.00	RT. OF HWY. 7	500.00	444.44
671+00.00	673+00.00	RT. OF HWY. 7	200.00	177.78
677+00.00	678+00.00	RT. OF HWY. 7	100.00	88.89
688+00.00	690+00.00	RT. OF HWY. 7	200.00	177.78
698+00.00	704+00.00	RT. OF HWY. 7	600.00	533.33
707+00.00	711+00.00	RT. OF HWY. 7	400.00	355.56
714+00.00	734+00.00	RT. OF HWY. 7	2000.00	1777.78
738+00.00	752+00.00	RT. OF HWY. 7	1400.00	1244.44
769+00.00	770+00.00	RT. OF HWY. 7	100.00	88.89
773+00.00	783+00.00	RT. OF HWY. 7	1000.00	888.89
788+00.00	789+00.00	RT. OF HWY. 7	100.00	88.89
794+00.00	795+00.00	RT. OF HWY. 7	100.00	88.89
810+00.00	812+00.00	RT. OF HWY. 7	200.00	177.78
815+00.00	834+00.00	RT. OF HWY. 7	1900.00	1688.89
836+00.00	838+00.00	RT. OF HWY. 7	200.00	177.78
845+00.00	846+00.00	RT. OF HWY. 7	100.00	88.89
851+00.00	866+00.00	RT. OF HWY. 7	1500.00	1333.33
883+00.00	884+00.00	RT. OF HWY. 7	100.00	88.89
888+00.00	895+00.00	RT. OF HWY. 7	700.00	622.22
913+00.00	923+05.44	RT. OF HWY. 7	1005.44	893.72
TOTAL:				29703.25

NOTE: AVERAGE WIDTH = 8'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19

10/11/2019

RR60140.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
10-30-19				JOB NO.		R60140	94	616

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTERS	APPROACH SLABS	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	POUND	TON
616+86.48	617+22.98	MAIN LANES		49.15	5775	27.1
616+86.48	617+22.98	RT. SIDE	17.60		970	
616+86.48	617+22.98	LT. SIDE	11.05		600	
617+99.12	618+35.62	MAIN LANES		49.15	5775	27.1
617+99.12	618+35.62	RT. SIDE	17.60		970	
617+99.12	618+35.62	LT. SIDE	11.05		600	
624+27.90	624+64.40	MAIN LANES		58.05	6435	28.7
624+27.90	624+64.40	RT. SIDE	16.10		910	
624+27.90	624+64.40	LT. SIDE	11.10		565	
628+18.10	628+54.60	MAIN LANES		49.15	5775	27.1
628+18.10	628+54.60	RT. SIDE	16.10		910	
628+18.10	628+54.60	LT. SIDE	11.05		600	
635+17.25	635+53.75	MAIN LANES		174.97	19980	80.8
635+17.25	635+53.75	RT. SIDE	17.60		970	
635+17.25	635+53.75	LT. SIDE	18.30		1020	
638+01.25	638+37.75	MAIN LANES		170.88	18840	76.7
638+01.25	638+37.75	RT. SIDE	17.60		980	
638+01.25	638+37.75	LT. SIDE	17.60		980	
635+71.42	636+07.92	MAIN LANES		49.15	5775	27.1
635+71.42	636+07.92	LT. SIDE	7.80		405	
635+71.42	636+07.92	RT. SIDE	11.05		600	
638+35.08	638+71.58	MAIN LANES		49.15	5775	27.1
638+35.08	638+71.58	LT. SIDE	7.80		405	
638+35.08	638+71.58	RT. SIDE	11.05		600	
720+09.42	720+45.92	MAIN LANES		49.15	5775	27.1
720+09.42	720+45.92	LT. SIDE	14.35		780	
720+09.42	720+45.92	RT. SIDE	17.60		970	
721+68.08	722+04.58	MAIN LANES		49.15	5775	27.1
721+68.08	722+04.58	LT. SIDE	14.35		780	
721+68.08	722+04.58	RT. SIDE	17.60		970	
854+76.42	855+12.92	MAIN LANES		49.15	5775	27.1
854+76.42	855+12.92	LT. SIDE	14.35		780	
854+76.42	855+12.92	RT. SIDE	17.60		970	
856+35.08	856+71.58	MAIN LANES		49.15	5775	27.1
856+35.08	856+71.58	LT. SIDE	14.35		780	
856+35.08	856+71.58	RT. SIDE	17.60		970	
920+33.00	920+69.50	MAIN LANES		73.75	8620	40.6
920+33.00	920+69.50	LT. SIDE	9.85		735	
920+33.00	920+69.50	RT. SIDE	9.85		735	
922+71.66	923+08.16	MAIN LANES		71.21	7675	43.7
922+71.66	923+08.16	LT. SIDE	9.70		890	
922+71.66	923+08.16	RT. SIDE	9.70		890	
107+72.39	108+08.89	PROMISE LAND DRIVE	4.55		390	
113+06.10	113+42.60	PROMISE LAND DRIVE	4.55		390	
112+42.58	112+79.08	MILL CREEK ROAD	2.55		210	
114+76.58	115+13.08	MILL CREEK ROAD	2.55		210	
102+52.66	102+89.16	DENISE LANE	2.55		210	
105+11.40	105+47.90	DENISE LANE	2.55		210	
TOTALS:			406.65	991.21	137480	514.4

NOTE: USE T =17" FOR 8' SHOULDER.

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	610
ENGINEER	
TOTAL:	610

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

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	25
DIRECTED BY THE ENGINEER	
TOTAL:	25

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
596+37.39	612+37.39	MAIN LANES	53.18	9647.58
TOTAL:				9647.58

NOTE: AVERAGE MILLING DEPTH 1".

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"	
			FEET	SQ. YD.	TON	TON	LIN. FT.	
102+44	RT	PROMISE LAND DRIVE OVERPASS	20	131.19	14.43	67.31		
115+31	RT	PROMISE LAND DRIVE OVERPASS	16	37.01	4.07	27.00		
101+04	RT	MILL CREEK ROAD	30	77.90	8.57	31.81		
117+96	LT	MILL CREEK ROAD	40	231.13	25.42	94.38		
117+96	RT	MILL CREEK ROAD ACCESS	20	237.51	26.13	96.98		
117+96	LT	MILL CREEK ROAD ACCESS	20	103.40	11.37	42.22		
100+09		QUARRY MOUNTAIN ROAD DRIVE	16	787.12	86.58	321.41	48	PCC-1, PCM-1, PCP-1, PCP-2
* ENTIRE PROJECT TEMPORARY DRIVES						350.00		
TOTALS:				1605.26	176.57	1031.11	48	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.1% MIN. AGGR.....5.9% 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.

** FOR INFORMATION ONLY

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.

CONCRETE BARRIER WALL

STATION	STATION	LOCATION	MEDIAN TYPE A	SIDE TYPE A
			LIN. FT.	LIN. FT.
847+29.59	861+29.00	LT. OF HWY. 70B CD ROAD	1399.41	
855+50.00	860+50.00	RT. OF HWY. 70B CD ROAD		500.00
616+18.84	617+11.53	RT. OF HWY. 7		92.69
618+05.66	619+07.53	RT. OF HWY. 7		101.87
623+21.71	624+22.61	RT. OF HWY. 7		100.90
628+30.82	630+13.57	RT. OF HWY. 7		182.75
732+45.46	737+46.23	LT. OF RAMP 2	500.77	
765+59.31	768+36.32	LT. OF RAMP 4	277.01	
TOTALS:			2177.19	978.21

CRASH CUSHION

STATION	LOCATION	CRASH CUSHION
		EACH
897+74.91	RT. OF E.B. CD ROAD	1
611+00.00	MAIN LANE C.L.	1
630+15.00	RT. OF MAIN LANE C.L.	1
745+00.00	MAIN LANE C.L.	2
770+50.00	MAIN LANE C.L.	2
TOTAL:		7

10/31/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	95	616

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18"	24"	36"	60"	72"	84"	(CLASS V) 24"	30"	36"	42"	48"	54"	60"	72"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 18"	24"	30"	36"	42"	48"	54"	60"	72"	DROP INLETS TYPE TM	MODIFYING DROP INLETS	JUNCT. BOXES (TYPE E)	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.														EACH									EACH			LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
BYPASS																																			
650+75	CONSTRUCT PIPE CULVERT									254									2																	
670+00	CONSTRUCT DBL. PIPE CULVERT														396									4										34	0.43	FES-1, FES-2, PCC-1
677+00	CONSTRUCT PIPE CULVERT											376									2													128	1.61	FES-1, FES-2, PCC-1
686+50	CONSTRUCT PIPE CULVERT											328									2													46	0.58	FES-1, FES-2, PCC-1
708+80	CONSTRUCT PIPE CULVERT											422									2													46	0.58	FES-1, FES-2, PCC-1
716+33	CONSTRUCT PIPE CULVERT							446									2																	46	0.58	FES-1, FES-2, PCC-1
733+54	CONSTRUCT DBL.PIPE CULVERT													300									2											16	0.20	FES-1, FES-2, PCC-1
735+72	CONSTRUCT PIPE CULVERT										144									2														90	1.13	FES-1, FES-2, PCC-1
776+65	CONSTRUCT PIPE CULVERT													98									2											46	0.58	FES-1, FES-2, PCC-1
787+79	CONSTRUCT PIPE CULVERT												122									2												90	1.13	FES-1, FES-2, PCC-1
794+41	CONSTRUCT DBL. PIPE CULVERT							172									4																	70	0.88	FES-1, FES-2, PCC-1
799+01	CONSTRUCT DBL. PIPE CULVERT							168									4																	18	0.23	FES-1, FES-2, PCC-1
805+27	CONSTRUCT PIPE CULVERT								82									2																18	0.23	FES-1, FES-2, PCC-1
809+46	CONSTRUCT TRP. PIPE CULVERT											300									6													26	0.33	FES-1, FES-2, PCC-1
838+37	CONSTRUCT PIPE CULVERT								344									2																66	0.83	FES-1, FES-2, PCC-1
844+23	CONSTRUCT PIPE CULVERT								158									2																26	0.33	FES-1, FES-2, PCC-1
863+97	CONSTRUCT PIPE CULVERT									98									2																26	0.33	FES-1, FES-2, PCC-1
865+89	CONSTRUCT PIPE CULVERT							80									2																	34	0.43	FES-1, FES-2, PCC-1
870+00	CONSTRUCT PIPE CULVERT							72									2																	16	0.20	FES-1, FES-2, PCC-1
879+00	CONSTRUCT PIPE CULVERT							90									2																	16	0.20	FES-1, FES-2, PCC-1
893+15	CONSTRUCT DBL. PIPE CULVERT								184									4																	16	0.20	FES-1, FES-2, PCC-1
																																		28	0.35	FES-1, FES-2, PCC-1
COVENANT TRAIL																																			
101+15	CONSTRUCT DBL. PIPE CULVERT						80																											134	1.69	FES-1, FES-2, PCC-1
PROMISE LAND DRIVE SHIFT																																			
213+24	CONSTRUCT DBL. PIPE CULVERT					176																	4											128	1.61	FES-1, FES-2, PCC-1
217+68	CONSTRUCT PIPE CULVERT				58																		2											90	1.13	FES-1, FES-2, PCC-1
HWY. 70B C-D ROAD																																			
852+97	EXTEND W/ F.E.S. RT.	38														1																		5	0.06	FES-1, FES-2, PCC-1
865+03	EXTEND W/ F.E.S. RT.	10														1																		5	0.06	FES-1, FES-2, PCC-1
867+20	EXTEND 6' X 8' R.C. BOX CULVERT																											6	8	13	21.74	1958	15	75	0.95	RCB-1, RCB-2, RCB-3, R-100X-0, W-X003-1
871+87	EXTEND PIPE OUTLET			156														1																17	0.21	FES-1, FES-2, PCC-1
RAMP 1																																			
741+10	CONSTRUCT QUAD. 4' X 3' R.C. BOX CULVERT																											4	3	120	168.46	17120	86	68	0.86	PBC-1, RCB-1, RCB-2, SPECIAL DETAILS
RAMP 2																																			
739+90	CONSTRUCT PIPE CULVERT		78														2																	16	0.20	FES-1, FES-2, PCC-1
RAMP 3																																			
763+00	CONSTRUCT PIPE CULVERT		104														2																	16	0.20	FES-1, FES-2, PCC-1
RAMP WN																																			
630+00	EXTEND DBL. 6' X 6' R.C. BOX CULVERT																											6	6	11	21.93	1825	13	94	1.18	RCB-1, RCB-2, RCB-3, R-215X-1, R-200X-X1, W-X003-1
RAMP EN																																			
868+02	EXTEND 8' X 7' R.C. BOX CULVERT																											8	7	131	149.35	18645	51			RCB-1, RCB-2, RCB-3, R-100X-X2, R-100X-X3
869+54	CONSTRUCT R.C. PIPE CULVERT		254														1																	8	0.10	FES-1, FES-2, PCC-1
869+61	CONSTRUCT JUNCTION BOX		12														1										1								8	0.10	FES-1, FES-2, FPC-9, PCC-1
RAMP SW																																			
628+68	EXTEND 8' X 7' R.C. BOX CULVERT																							1				8	7	283	293.33	35221	107	119	1.50	FPC-9D, RCB-1, RCB-2, RCB-3, R100X-X2, R-130X-1, W-X30, W-X303-1
846+40	RAMP SW - MODIFY DROP INLET																									1										
SUBTOTALS:		**48**	**448**	**156**	**58**	**176**	**80**	**1028**	**768**	**352**	**144**	**1426**	**122**	**398**	**396**	**2**	**22**	**10**	**5**	**2**	**12**	**2**	**6**	**8**	**1**	**1**	**1**				**654.81**	**74769**	**272**	**1685**	**21.21**	
STRUCTURES OVER 20' - 0" SPAN																																			
BYPASS																																			
741+75	CONSTRUCT QUAD. 9' X 6' R.C. BOX CULVERT																											9	6	126	510.66	63846	239	175	2.21	PBC-1, RCB-1, RCB-2, SPECIAL DETAILS
750+25	CONSTRUCT QUINT. 12' X 12' R.C. BOX CULVERT																											12	12	264	2425.37	351606	1008	329	4.15	PBC-1, RCB-1, RCB-2, SPECIAL DETAILS
768+75	CONSTRUCT QUAD. 10' X 10' R.C. BOX CULVERT																											10	10	268	1480.28	212461	605	248	3.12	PBC-1, RCB-1, RCB-2, SPECIAL DETAILS
MILL CREEK ROAD																																			
105+20	CONSTRUCT SEXTUPLE 12' X 10' R.C. BOX CULVERT																											12	10	85	788.43	128493	367	339	4.27	PBC-1, RCB-1, RCB-2, SPECIAL DETAILS
116+00	CONSTRUCT QUINT. 12' X 12' R.C. BOX CULVERT																											12	12	146	1590.93	211237	696	254	3.20	PBC-1, RCB-1, RCB-2, SPECIAL DETAILS
118+64	CONSTRUCT QUAD. 12' X 7' R.C. BOX CULVERT																											12	7	88	497.88	67345	244	235	2.96	PBC-1, RCB-1, RCB-2, SPECIAL DETAILS
DENISE LANE																																			
107+45	CONSTRUCT QUINT. 10' X 8' R.C. BOX CULVERT																											10	8	74	446.93	60757	207	252	3.18	PBC-1, RCB-1, RCB-2, SPECIAL DETAILS
SUBTOTALS:																															**7740.48**	**1095745**	**3366**	**1832**	**23.09**	
TOTALS:		**48**	**448**	**156**	**58**	**176**	**80**	**1028**	**768**	**352**	**144**	**1426**	**122**	**398**	**396**	**2**	**22**	**10**	**5**	**2**	**12**	**2**	**6**	**8**	**1**	**1**	**1**				**8395.29**	**1170514**	**3638**	**3517**	**44.30**	

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.

10/31/2019

RR60140.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	96	616

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

BASE AND SURFACING (BOX 1 OF 2)

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT						TOTAL GALLONS	ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")										TOTAL PG 64-22	TOTAL PG 70-22
				TON / STATION	TON	(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)				AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	PG 70-22		
			FEET			TOTAL WID. FEET	SQ.YD.	GALLON	TOTAL WID. FEET	SQ.YD.	GALLON		FEET			TON	FEET			TON	FEET			TON	TON	FEET			TON	TON		
MAIN LANES																															
596+37.39	612+70.23	MAIN LANES - MILL AND INLAY	1632.84						53.18	9647.58	1640.09	1640.09														53.18	9647.58	220.00		1061.23		1061.23
615+94.76	615+99.76	MAIN LANES - TRANSITION	5.00						42.00	23.33	3.97	3.97														42.00	23.33	220.00		2.57		2.57
615+99.76	616+04.76	MAIN LANES - TRANSITION	5.00						70.29	39.05	6.64	6.64					28.29	15.72	330.00	2.59						42.00	23.33	220.00		2.57		2.57
616+04.76	616+09.76	MAIN LANES - TRANSITION	5.00						98.93	54.96	9.34	9.34	28.64	15.91	605.00	4.81	28.29	15.72	330.00	2.59						42.00	23.33	220.00		2.57		2.57
616+09.76	616+86.48	MAIN LANES	76.72	431.25	330.86	56.93	485.30	24.27				24.27	28.64	244.14	605.00	73.85	28.29	241.16	330.00	39.79						42.00	358.03	220.00		39.38		39.38
618+35.62	624+27.90	MAIN LANES	592.28	360.50	2135.17	85.46	5624.03	281.20				281.20	28.75	1892.01	440.00	416.24	28.46	1872.92	330.00	309.03	28.25	1859.10	220.00		204.50	42.00	2763.97	220.00		304.04		508.54
628+54.80	631+25.00	MAIN LANES	270.40	360.50	974.79	85.46	2567.60	128.38				128.38	28.75	863.78	440.00	190.03	28.46	855.06	330.00	141.08	28.25	848.76	220.00		93.36	42.00	1261.87	220.00		138.81		232.17
631+25.00	635+17.25	MAIN LANES - ULTIMATE WIDTH	392.25	501.75	1968.11	211.46	9216.13	460.81				460.81	70.75	3083.52	440.00	678.37	70.46	3070.88	330.00	506.70	70.25	3061.73	220.00		336.79	86.00	3748.17	220.00		412.30		749.09
638+43.52	698+00.00	MAIN LANES	5956.48	360.50	8934.36	VAR.	2167.44	108.37				108.37	28.75	19027.64	440.00	4186.08	28.46	479.29	330.00	79.08	28.25	18696.73	220.00		2056.64	42.00	693.90	220.00		76.33		2132.97
698+00.00	720+09.42	MAIN LANES	2209.42	323.75	7153.00	85.46	20979.67	1048.98				1048.98	28.75	7057.87	440.00	1552.73	28.46	6986.68	330.00	1152.80	28.25	6935.12	220.00		762.86	42.00	10310.63	220.00		1134.17		1897.03
722+04.58	756+00.00	MAIN LANES	3395.42	323.75	10992.67	85.46	32241.40	1612.07				1612.07	28.75	10946.48	440.00	2386.23	28.46	10737.07	330.00	1771.62	28.25	10657.85	220.00		1172.36	42.00	15845.29	220.00		1742.98		2915.34
756+00.00	762+50.00	MAIN LANES - ULTIMATE WIDTH	650.00	486.25	3160.63	211.46	15272.11	763.61				763.61	70.75	5109.72	440.00	1124.14	70.46	5088.78	330.00	839.65	70.25	5073.61	220.00		558.10	86.00	6211.11	220.00		683.22		1241.32
762+50.00	766+98.12	MAIN LANES	448.12	360.50	2200.97	85.46	9507.82	475.39				475.39	28.75	4088.09	440.00	899.38	28.46	4013.13	330.00	662.17	28.25	1406.60	220.00		154.73	42.00	5526.73	220.00		607.94		762.67
766+98.12	774+66.51	MAIN LANES - ULTIMATE WIDTH	768.39	486.25	2419.55	VAR.	14098.93	704.95				704.95	70.75	4088.09	440.00	899.38	70.46	4013.13	330.00	662.17	70.25	5997.71	220.00		659.75	86.00	5526.73	220.00		607.94		1267.69
774+66.51	854+76.42	MAIN LANES	8009.91	360.50	28875.73	85.46	76058.55	3802.93				3802.93	28.75	25587.21	440.00	5629.19	28.46	25329.12	330.00	4179.30	28.25	25142.22	220.00		2765.64	42.00	37379.58	220.00		4111.75		6877.39
856+71.58	913+92.05	MAIN LANES	5720.47	360.50	20622.29	85.46	54319.04	2715.95				2715.95	28.75	18273.72	440.00	4020.22	28.46	18089.40	330.00	2984.75	28.25	17955.92	220.00		1975.15	42.00	26695.53	220.00		2936.51		4911.66
913+92.05	920+33.00	MAIN LANES	640.95	278.50	1860.96	VAR.	9406.36	470.32				470.32	44.75	3186.95	440.00	701.13	44.46	3068.07	330.00	506.23	44.25	3151.34	220.00		346.65	44.00	4177.14	220.00		459.49		806.14
RAMPS & COLLECTOR-DISTRIBUTOR ROAD																															
847+14.18	847+29.59	COLLECTOR-DISTRIBUTOR ENTRANCE	15.41	177.25	27.31	42.47	72.72	3.64				3.64	12.32	21.09	605.00	6.38	12.15	20.80	330.00	3.43						18.00	30.82	220.00		3.39		3.39
847+29.59	854+74.37	CD ROAD WITH MEDIAN TYPE A	744.78	254.00	1891.74	57.94	4794.73	239.74				239.74	15.65	1295.09	605.00	391.76	15.29	1265.30	330.00	208.77						27.00	2234.34	220.00		245.78		245.78
854+74.37	855+50.74	CD ROAD WITH RAMP SE ENTRANCE	76.37	VAR.	269.00	VAR.	1083.46	54.17				54.17	VAR.	334.79	605.00	101.27	VAR.	332.26	330.00	54.82						VAR.	416.41	220.00		45.81		45.81
855+50.74	860+50.00	CD ROAD WITH MEDIAN TYPE A AND SIDE TYPE A	499.26	282.50	1310.56	93.94	5211.16	260.56				260.56	27.65	1533.84	605.00	463.99	27.29	1513.87	330.00	249.79						39.00	2163.46	220.00		237.98		237.98
860+50.00	862+06.25	CD ROAD WITH RAMP EN EXIT	156.25	VAR.	403.20	VAR.	1557.03	77.85				77.85	VAR.	523.18	605.00	158.26	VAR.	517.16	330.00	85.33						VAR.	516.69	220.00		56.84		56.84
862+06.25	863+80.00	CD ROAD SLIP RAMP ENTRANCE	173.75	VAR.	234.63	VAR.	1103.11	55.16				55.16	VAR.	303.76	605.00	91.89	VAR.	297.29	330.00	49.05						VAR.	502.06	220.00		55.23		55.23
863+80.00	868+87.01	CD ROAD SLIP RAMP	507.01	177.25	898.68	42.47	2392.52	119.63				119.63	12.32	694.04	605.00	209.95	12.15	684.46	330.00	112.94						18.00	1014.02	220.00		111.54		111.54
868+87.01	871+81.26	CD ROAD SLIP RAMP TAPER	294.25	88.63	260.79	21.24	694.43	34.72				34.72	6.16	201.40	605.00	60.92	6.08	198.78	330.00	32.80						9.00	294.25	220.00		32.37		32.37
628+59.90	636+08.00	RAMP WEST TO NORTH	748.1	290.50	2173.23	55.94	4649.86	232.49				232.49	15.65	1300.86	605.00	393.51	15.29	1270.94	330.00	209.71						25.00	2078.06	220.00		228.59		228.59
638+35.00	642+12.78	RAMP WEST TO NORTH	377.78	290.50	1097.45	55.94	2348.11	117.41				117.41	15.65	656.92	605.00	198.72	15.29	641.81	330.00	105.90						25.00	1049.39	220.00		115.43		115.43
862+45.00	870+55.74	RAMP EAST TO NORTH	810.74	290.50	2355.20	55.94	5039.20	251.96				251.96	15.65	1409.79	605.00	426.46	15.29	1377.36	330.00	227.26						25.00	2252.06	220.00		247.73		247.73
845+58.77	855+43.02	RAMP SOUTH TO EAST	984.25	290.50	2859.25	55.94	6117.66	305.88				305.88	15.65	1711.50	605.00	517.73	15.29	1672.13	330.00	275.90						25.00	2734.03	220.00		300.74		300.74
621+64.08	632+50.73	RAMP TO SOUTH WEST	1086.65	290.50	3156.72	55.94	6754.13	337.71				337.71	15.65	1889.56	605.00	571.59	15.29	1846.10	330.00	304.61						25.00	3018.47	220.00		332.03		332.03
633+43.75	635+40.44	RAMP TO SOUTH WEST	196.69	290.50	571.38	55.94	1222.54	61.13				61.13	15.65	342.02	605.00	103.46	15.29	334.15	330.00	55.13						25.00	546.36	220.00		60.10		60.10
732+33.15	732+73.10	MILL CREEK RAMP 2 - RADIUS AT INTERSECTION	39.95	144.25	57.63	VAR.	369.90	18.50				18.50	VAR.	126.65	440.00	27.86	VAR.	122.66	330.00	20.24	VAR.	120.59	220.00		13.26	VAR.	170.07	220.00		18.71		31.97
732+73.10	737+47.63	MILL CREEK RAMP 2 - AT INTERSECTION	474.53	144.25	684.51	46.42	2447.52	122.38				122.38	15.75	830.43	440.00	182.69	15.42	813.03	330.00	134.15	15.25	804.06	220.00		88.45	25.00	1318.14	220.00		145.00		233.45
737+47.63	743+01.65	MILL CREEK RAMP 2	554.02	186.00	1030.48	46.42	2857.51	142.88				142.88	15.75	969.54	440.00	213.30	15.42	949.22	330.00	156.62	15.25	938.76	220.00		103.26	25.00	1538.94	220.00		169.28		272.54
734+85.93	740+52.47	MILL CREEK RAMP 1	566.54	186.00	1053.76	46.42	2922.09	146.10				146.10	15.75	991.45	440.00	218.12	15.42	970.67	330.00	160.16	15.25	959.97	220.00		105.60	25.00	1573.72	220.00		173.11		278.71
740+52.47	745+46.40	MILL CREEK RAMP 1 - AT INTERSECTION	493.93	144.25	712.49	46.42	2547.58	127.38				127.38	15.75	864.38	440.00	190.16	15.42	846.27	330.00	139.63	15.25	836.94	220.00		92.06	25.00	1372.03	220.00		150.92		242.98
745+46.40	745+87.30	MILL CREEK RAMP 1 - RADIUS AT INTERSECTION	40.90	144.25	59.00	VAR.	369.90	18.50				18.50	VAR.	126.65	440.00	27.86	VAR.	122.66	330.00	20.24	VAR.	120.59	220.00		13.26	VAR.	170.07	220.00		18.71		31.97
758+30.05	765+61.19	MILL CREEK RAMP 4	731.14	186.00	1359.92	46.42	3771.06	188.55				188.55	15.75	1279.50	440.00	281.49	15.42	1252.69	330.00	206.69	15.25	1238.88	220.00		136.28	25.00	2030.94	220.00		223.40		359.68
765+61.19	768+15.83	MILL CREEK RAMP 4 - AT INTERSECTION	254.64	144.25	367.32	46.42	1313.38	65.67				65.67	15.75	445.62	440.00	98.04	15.42	436.28	330.00	71.99	15.25	431.47	220.00		47.46	25.00	707.33	220.00		77.81		125.27
768+15.83	768+55.37	MILL CREEK RAMP 4 - RADIUS AT INTERSECTION	39.54	144.25	57.04	VAR.	369.90	18.50				18.50	VAR.	126.65	440.00	27.86	VAR.	122.66	330.00	20.24	VAR.	120.59	220.00		13.26	VAR.	170.07	220.00		18.71		31.97
758+65.84	759+09.65	MILL CREEK RAMP 3 - RADIUS AT INTERSECTION	43.81	144.25	63.20	VAR.	369.90	18.50				18.50	VAR.	126.65	440.00	27.86	VAR.	122.66	330.00	20.24	VAR.	120.59	220.00		13.26	VAR.	170.07	220.00		18.71		31.97
759+09.65	761+67.87	MILL CREEK RAMP 3 - AT INTERSECTION	258.22	144.25	372.48	46.42	1331.84	66.59				66.59	15.75	451.89	440.00	99.42	15.42	442.42	330.00	73.00	15.25	437.54	220.00		48.13	25.00	717.28	220.00		78.90		127.03
761+67.87	771+69.68	MILL CREEK RAMP 3	1001.81	186.00	1863.37	46.42	5167.11	258.36				258.36	15.75	1753.17	440.00	385.70	15.42	1716.43	330.00	283.21	15.25	1697.51	220.00		186.73	25.00	2782.81	220.00		306.11		492.84
CROSSING ROADS																															
100+33.22	101+33.22	PROMISE LAND DRIVE OVERPASS NOTCH & WIDEN	100.00	83.00	83.00				20.25	225.00	38.25	38.25									20.25	225.00	220.00	24.75		24.00	266.67	220.00	29.33		54.08	
101+33.22	108+08.89	PROMISE LAND DRIVE OVERPASS FULL DEPTH	675.67	212.75	1437.49	20.25	1520.26	76.01				76.01									20.25	1520.26	220.00	167.23		24.00	1801.79	220.00	198.20		365.43	
113+06.10	116+00.00	PROMISE LAND DRIVE OVERPASS FULL DEPTH	293.90	212.75	625.27	20.25	661.28	33.06				33.06									20.25	661.28	220.00	72.74		24.00	783.73	220.00	86.21		158.95	
116+00.00	117+00.00	PROMISE LAND DRIVE OVERPASS NOTCH & WIDEN	100.00	83.00	83.00				20.25	225.00	38.25	38.25									20.25	225.00	220.00	24.75		24.00	266.67	220.00	29.33		54.08	
200+00.00	200+50.00	PROMISE LAND DRIVE SHIFT NOTCH & WIDEN	50.00	83.00	41.50				20.25	112.50	19.13	19.13									20.25	112.50	220.00	12.38		24.00	133.33	220.00	14.67		27.05	
200+50.00	228+19.82	PROMISE LAND DRIVE SHIFT FULL DEPTH	2769.82	212.75	5892.79	20.25	6232.10	311.61				311.61									20.25	6232.10	220.00	685.53		24.00	7386.19	220.00	812.48		1498.01	
228+19.82	228+69.82	PROMISE LAND DRIVE SHIFT NOTCH & WIDEN	50.00	83.00	41.50				20.25	112.50	19.13	19.13									20.25	112.50	220.00	12.38		24.00	133.33	220.00	14.67		27.05	
100+00.00	100+40.53	COVENANT TRAIL RADIUS	40.53	VAR.	125.68	VAR.	157.75	7.89				7.89									VAR.	157.75	220.00	17.35		VAR.	190.05	220.00	20.91		38.26	
100+40.53	103+11.00	COVENANT TRAIL FULL DEPTH	270.47	191.25	517.27	18.25	548.45	27.42				27.42									18.25	548.45	220.00	60.33		22.00	661.15	220.00	72.73		133.06	
103+11.00	105+00.00	COVENANT TRAIL NOTCH & WIDEN	189.00	74.50	140.81				18.25	383.25	65.15	65.15									18.25	383.25	220.00	42.16		22.00	462.00	220.00	50.82		92.98	
98+43.72	99+43.72	TRANSITION	100.00						VAR.	239.63	40.74	40.74														VAR.	239.63	220.00	26.36		26.36	
99+43.72	101+49.37	MILL CREEK ROAD NOTCH & WIDEN	205.65	74.50	153.21				20.00	457.00	77.69	77.69									20.25	462.71	220.00	50.90		24.00	548.40	220.00	60.32		111.22	
101+49.37	112+79.08	MILL CREEK ROAD FULL DEPTH	1129.71	212.75	2403.46	20.25	2541.85	127.09				127.09									20.25	2541.85	220.00	279.60		24.00	3012.56	220.00	331.38		610.98	
114+76.58	121+67.23	MILL CREEK ROAD FULL DEPTH	690.65	212.75	1469.36	20.25	1553.96	77.70				77.70									20.25	1553.96	220.00	170.94		24.00	1841.73	220.00	202.59		373.53	
121+67.23	123+29.45	MILL CREEK ROAD NOTCH & WIDEN	162.22	74.50	120.85				20.25	365.00	62.05	62.05									20.25	365.00	220.00	40.15		24.00	432.59	220.00	47.58		87.73	
123+29.45	124+29.45	TRANSITION	100.00						VAR.	239.63	40.74	40.74														VAR.	239.63	220.00	26.36		26.36	
100+06.80	100+46.85	DENISE LANE RADIUS	40.05	VAR.	80.39	VAR.	196.72	9.84				9.84									VAR.	168.78	220.00	18.57		VAR.	196.72	220.00	21.64		40.21	
100+46.85	102+89.16	DENISE LANE FULL DEPTH	242.31	212.75	80.39	20.25	545.20	27.26				27.26									20.25	168.78	220.00	18.57		24.00	196.72	220.00	21.64		40.21	
105+11.40	108+67.54	DENISE LANE FULL DEPTH	356.14	212.75	757.69	20.25	801.32	40.07				40.07									20.25	801.32	220.00	88.15		24.00	949.71	220.00	104.47		192.62	
108+67.54	109+50.00	DENISE LANE NOTCH & WIDEN	82.46	74.50	61.43				20.25	185.54	31.54	31.54									20.25	185.54	220.00	20.41		24.00	219.89	220.00	24.19		44.60	
SUBTOTALS (BOX 1 OF 2)					130934.52		333581.62	16679.14		2662.39	452.62	17131.76		123675.55		28238.03		103766.19		17121.40		125040.21		1806.89	11947.54		172103.05		2195.88	16735.50	4002.77	28683.04

10/31/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	97	616

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

BASE AND SURFACING (BOX 2 OF 2)

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")							
						(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)																	
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLON	TOTAL WID.	SQ.YD.	GALLON	TOTAL GALLONS	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	PG 70-22	TOTAL PG 64-22	TOTAL PG 70-22
		ADDITIONAL FOR GUARDRAIL WIDENING	FEET			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON	TON	TON
618+13.16	620+13.16	HWY. 7 OVER SPRING STREET WIDENING	200.00	91.75	183.50																5.50	122.22	220.00		13.44		13.44
620+13.16	620+46.16	HWY. 7 OVER SPRING STREET WIDENING TAPER	33.00	45.88	15.14																2.75	10.08	220.00		1.11		1.11
628+25.52	630+25.52	HWY. 7 OVER HWY. 70 WIDENING	200.00	91.75	183.50																5.50	122.22	220.00		13.44		13.44
630+25.52	630+58.52	HWY. 7 OVER HWY. 70 WIDENING TAPER	33.00	45.88	15.14																2.75	10.08	220.00		1.11		1.11
633+35.62	633+68.62	HWY. 7 OVER HWY. 70 FRONTAGE ROAD WIDENING TAPER	33.00	45.88	15.14																2.75	10.08	220.00		1.11		1.11
633+68.62	635+68.62	HWY. 7 OVER HWY. 70 FRONTAGE ROAD WIDENING	200.00	91.75	183.50																5.50	122.22	220.00		13.44		13.44
637+86.38	639+86.38	HWY. 7 OVER HWY. 70 FRONTAGE ROAD WIDENING	200.00	91.75	183.50																5.50	122.22	220.00		13.44		13.44
639+86.38	640+19.38	HWY. 7 OVER HWY. 70 FRONTAGE ROAD WIDENING TAPER	33.00	45.88	15.14																2.75	10.08	220.00		1.11		1.11
638+38.92	639+13.92	HWY. 7 OVER HWY. 70 FRONTAGE ROAD WIDENING	75.00	91.75	68.81																5.50	45.83	220.00		5.04		5.04
639+13.92	639+46.92	HWY. 7 OVER HWY. 70 FRONTAGE ROAD WIDENING TAPER	33.00																								
633+44.77	633+77.77	RAMP WN WIDENING TAPER	33.00	45.88	15.14																2.75	10.08	220.00		1.11		1.11
633+77.77	635+96.52	RAMP WN WIDENING	218.75	91.75	200.70																5.50	133.68	220.00		14.70		14.70
633+44.77	633+77.77	RAMP WN WIDENING TAPER	33.00	45.88	15.14																2.75	10.08	220.00		1.11		1.11
633+77.77	635+96.52	RAMP WN WIDENING	218.75	91.75	200.70																5.50	133.68	220.00		14.70		14.70
105+45.74	105+78.74	PROMISED LAND DRIVE OVERPASS WIDENING TAPER	33.00	23.13	7.63																2.75	10.08	220.00	1.11		1.11	
105+78.74	107+78.74	PROMISED LAND DRIVE OVERPASS WIDENING	200.00	46.25	92.50																5.50	122.22	220.00	13.44		13.44	
106+70.74	107+03.74	PROMISED LAND DRIVE OVERPASS WIDENING TAPER	33.00	23.13	7.63																2.75	10.08	220.00	1.11		1.11	
107+03.74	107+78.74	PROMISED LAND DRIVE OVERPASS WIDENING	75.00	46.25	34.69																5.50	45.83	220.00	5.04		5.04	
113+17.50	113+92.50	PROMISED LAND DRIVE OVERPASS WIDENING	75.00	46.25	34.69																5.50	45.83	220.00	5.04		5.04	
113+92.50	114+25.50	PROMISED LAND DRIVE OVERPASS WIDENING TAPER	33.00	23.13	7.63																2.75	10.08	220.00	1.11		1.11	
113+17.50	115+17.50	PROMISED LAND DRIVE OVERPASS WIDENING	200.00	46.25	92.50																5.50	122.22	220.00	13.44		13.44	
115+17.50	115+50.50	PROMISED LAND DRIVE OVERPASS WIDENING TAPER	33.00	23.13	7.63																2.75	10.08	220.00	1.11		1.11	
718+01.52	718+34.52	HWY. 7 OVER CONVENANT TRAIL WIDENING TAPER	33.00	45.88	15.14																2.75	10.08	220.00	1.11		1.11	
718+34.52	720+34.52	HWY. 7 OVER CONVENANT TRAIL WIDENING	200.00	91.75	183.50																5.50	122.22	220.00	13.44		13.44	
719+26.52	719+59.52	HWY. 7 OVER CONVENANT TRAIL WIDENING TAPER	33.00	45.88	15.14																2.75	10.08	220.00	1.11		1.11	
719+59.52	720+34.52	HWY. 7 OVER CONVENANT TRAIL WIDENING	75.00	91.75	68.81																5.50	45.83	220.00	5.04		5.04	
721+79.48	723+79.48	HWY. 7 OVER CONVENANT TRAIL WIDENING	200.00	91.75	183.50																5.50	122.22	220.00	13.44		13.44	
723+79.48	724+12.48	HWY. 7 OVER CONVENANT TRAIL WIDENING TAPER	33.00	45.88	15.14																2.75	10.08	220.00	1.11		1.11	
721+79.48	722+54.48	HWY. 7 OVER CONVENANT TRAIL WIDENING	75.00	91.75	68.81																5.50	45.83	220.00	5.04		5.04	
722+54.48	722+87.48	HWY. 7 OVER CONVENANT TRAIL WIDENING TAPER	33.00	45.88	15.14																2.75	10.08	220.00	1.11		1.11	
110+43.34	110+76.34	MILL CREEK ROAD OVER HWY. 7 WIDENING TAPER	33.00	23.13	7.63																2.75	10.08	220.00	1.11		1.11	
110+76.34	112+76.34	MILL CREEK ROAD OVER HWY. 7 WIDENING	200.00	46.25	92.50																5.50	122.22	220.00	13.44		13.44	
111+51.02	111+84.02	MILL CREEK ROAD OVER HWY. 7 WIDENING TAPER	33.00	23.13	7.63																2.75	10.08	220.00	1.11		1.11	
111+84.02	112+59.02	MILL CREEK ROAD OVER HWY. 7 WIDENING	75.00	46.25	34.69																5.50	45.83	220.00	5.04		5.04	
114+79.32	116+79.32	MILL CREEK ROAD OVER HWY. 7 WIDENING	200.00	46.25	92.50																5.50	122.22	220.00	13.44		13.44	
116+79.32	117+12.32	MILL CREEK ROAD OVER HWY. 7 WIDENING TAPER	33.00	23.13	7.63																2.75	10.08	220.00	1.11		1.11	
114+96.64	115+71.64	MILL CREEK ROAD OVER HWY. 7 WIDENING	75.00	46.25	34.69																5.50	45.83	220.00	5.04		5.04	
115+71.64	116+04.64	MILL CREEK ROAD OVER HWY. 7 WIDENING TAPER	33.00	23.13	7.63																2.75	10.08	220.00	1.11		1.11	
110+43.34	110+76.34	DENISE LANE OVER HWY. 7 WIDENING TAPER	33.00	23.13	7.63																2.75	10.08	220.00	1.11		1.11	
110+76.34	112+76.34	DENISE LANE OVER HWY. 7 WIDENING	200.00	46.25	92.50																5.50	122.22	220.00	13.44		13.44	
111+51.02	111+84.02	DENISE LANE OVER HWY. 7 WIDENING TAPER	33.00	23.13	7.63																2.75	10.08	220.00	1.11		1.11	
111+84.02	112+59.02	DENISE LANE OVER HWY. 7 WIDENING	75.00	46.25	34.69																5.50	45.83	220.00	5.04		5.04	
114+79.32	116+79.32	DENISE LANE OVER HWY. 7 WIDENING	200.00	46.25	92.50																5.50	122.22	220.00	13.44		13.44	
116+79.32	117+12.32	DENISE LANE OVER HWY. 7 WIDENING TAPER	33.00	23.13	7.63																2.75	10.08	220.00	1.11		1.11	
114+96.64	115+71.64	DENISE LANE OVER HWY. 7 WIDENING	75.00	46.25	34.69																5.50	45.83	220.00	5.04		5.04	
115+71.64	116+04.64	DENISE LANE OVER HWY. 7 WIDENING TAPER	33.00	23.13	7.63																2.75	10.08	220.00	1.11		1.11	
852+68.52	853+01.52	HWY. 7 OVER QUARRY MTN. ROAD WIDENING TAPER	33.00	45.88	15.14																						
853+01.52	855+01.52	HWY. 7 OVER QUARRY MTN. ROAD WIDENING	200.00	91.75	183.50																2.75	10.08	220.00		1.11		1.11
853+94.00	854+27.00	HWY. 7 OVER QUARRY MTN. ROAD WIDENING TAPER	33.00	45.88	15.14																5.50	122.22	220.00		13.44		13.44
854+26.52	855+01.52	HWY. 7 OVER QUARRY MTN. ROAD WIDENING	75.00	91.75	68.81																2.75	10.08	220.00		1.11		1.11
856+46.48	858+46.48	HWY. 7 OVER QUARRY MTN. ROAD WIDENING	200.00	91.75	183.50																5.50	45.83	220.00		5.04		5.04
858+46.48	858+79.48	HWY. 7 OVER QUARRY MTN. ROAD WIDENING TAPER	33.00	45.88	15.14																5.50	122.22	220.00		13.44		13.44
856+46.48	857+21.48	HWY. 7 OVER QUARRY MTN. ROAD WIDENING	75.00	91.75	68.81																2.75	10.08	220.00		1.11		1.11
857+21.48	857+54.48	HWY. 7 OVER QUARRY MTN. ROAD WIDENING TAPER	33.00	45.88	15.14																5.50	45.83	220.00		5.04		5.04
918+25.10	918+58.10	HWY. 7 SALINE RIVER TRIBUTARY WIDENING TAPER	33.00	45.88	15.14																2.75	10.08	220.00		1.11		1.11
918+58.10	920+58.10	HWY. 7 SALINE RIVER TRIBUTARY WIDENING	200.00	91.75	183.50																5.50	122.22	220.00		13.44		13.44
919+50.10	919+83.10	HWY. 7 OVER SALINE RIVER TRIBUTARY WIDENING TAPER	33.00	45.88	15.14																2.75	10.08	220.00		1.11		1.11
919+83.10	920+58.10	HWY. 7 SALINE RIVER TRIBUTARY WIDENING	75.00	91.75	68.81																5.50	45.83	220.00		5.04		5.04
		ADDITIONAL FOR SUPERELEVATION																									
638+59.20	643+09.20	MAIN LANE - TRANSITION	450.00	56.00	252.00																						
643+09.20	658+83.61	MAIN LANE - FULL SUPERELEVATION	1574.41	112.00	1763.34																						
658+83.61	663+33.61	MAIN LANE - TRANSITION	450.00	56.00	252.00																						
663+33.61	668+73.61	MAIN LANE - TRANSITION	540.00	44.63	241.00																						
668+73.61	671+43.99	MAIN LANE - FULL SUPERELEVATION	270.38	89.25	241.31																						
671+43.99	675+63.99	MAIN LANE - TRANSITION	420.00	44.63	187.45																						
675+03.99	682+23.99	MAIN LANE - TRANSITION	420.00	44.63	187.45																						
682+23.99	688+56.19	MAIN LANE - FULL SUPERELEVATION	632.20	89.25	564.24																						
688+56.19	693+96.19	MAIN LANE - TRANSITION	540.00	44.63	241.00																						
725+86.08	730+36.08	MAIN LANE - TRANSITION	450.00	50.38	226.71																						
730+36.08	749+66.39	MAIN LANE - FULL SUPERELEVATION	1930.31	100.75	1944.79																						
749+66.39	754+16.39	MAIN LANE - TRANSITION	450.00	50.38	226.71																						
754+16.39	758+66.39	MAIN LANE - TRANSITION	450.00	35.63	160.34																						
758+66.39	773+54.01	MAIN LANE - FULL SUPERELEVATION	1487.62	71.25	1059.93																						
773+54.01	778+04.01	MAIN LANE - TRANSITION	450.00	35.63	160.34																						
823+20.79	827+70.79	MAIN LANE - TRANSITION	450.00	37.13	167.09																						
827+70.79	846+80.88	MAIN LANE - FULL SUPERELEVATION	1910.09	74.25	1418.24																						
846+80.88	851+30.88	MAIN LANE - TRANSITION	450.00	37.13	167.09																						
858+66.87	863+36.87	MAIN LANE - TRANSITION	450.00	35.36	159.12																						
863+36.87	876+61.66	MAIN LANE - FULL SUPERELEVATION	1324.79	71.25	943.91																						
876+61.66	881+11.66	MAIN LANE - TRANSITION	450.00	35.36	159.12																						
881+11.66	885+61.66	MAIN LANE - TRANSITION	450.00	44.13	198.59																						
885+61.66	897+87.18	MAIN LANE - FULL SUPERELEVATION	1225.52	88.25	1081.52																						
897+87.18	902+37.18	MAIN LANE - TRANSITION	450.00	44.13	198.59																						
913+92.05	917+62.05	MAIN LANE - TRANSITION	360.00	49.50	178.20																						
917+52.05	918+92.40	MAIN LANE - FULL SUPERELEVATION	140.35	99.00	138.95																						
918+92.40	922+52.40	MAIN LANE - TRANSITION	360.00	49.50	178.20																						
850+14.80	853+14.80	CD ROAD SUPERELEVATION TRANSITION	300.00	24.63	73.89																						
853+14.80	858+24.82	CD ROAD FULL SUPERELEVATION (0.021 ')	510.02	49.25	251.18																						
858+24.82	861+24.82	CD ROAD SUPERELEVATION TRANSITION	300.00	24.63	73.89																						
625+83.34	628+30.33	RAMP WN TRANSITION	246.99	30.13	74.42																						
628+30.33	630+92.54	RAMP WN FULL SUPER (0.065 ')	262.21	60.25	157.98																						
630+92.54	632+19.51	RAMP WN TRANSITION	126.97	30.13	38.26																						
632+19.51	634+46.51	RAMP WN TRANSITION	227.00	33.25	75.48																						
637+49.07	642+12.78	RAMP WN FULL SUPER (0.088 ')	463.71	66.50	308.37																						
862+05.62	865+05.62	RAMP EN TRANSITION	300.00	34.38	103.14																						
865+05.62	869+69.49	RAMP EN FULL SUPER (0.10 ')	463.87	68.75	318.91																						
869+69.49	870+55.74	RAMP EN MATCH EXISTING	86.25	34.38	29.65																						
845+58.77	848+58.77	RAMP SE TRANSITION	300.00	34.38	103.14																						
848+58.77	851+88.74	RAMP SE FULL SUPER (0.10 ')	329.97	68.75	226.85																						
851+88.74	854+88.74	RAMP SE TRANSITION	300.00	34.38	103.14																						
621+98.50	625+48.50	RAMP SW TRANSITION	350.00	34.38	120.33																						
625+48.50	629+00.73	RAMP SW FULL SUPER (0.10 ')	352.23	68.75	242.16																						
629+00.73	632+50.73	RAMP SW TRANSITION	350.00	34.38	120.33																						
SUBTOTALS (BOX 2 OF 2)					18681.05																						
																						2932.86		165.60	156.96	165.60	156.96
SUBTOTALS (BOX 1 OF 2)					130934.52		333581.62	16679.14		2662.39	452.62	17131.76		123675.55	28238.03	103766.19		17121.40	125040.21	1806.89	11947.54	172103.05		2195.88	16735.50	4002.77	28863.04
TOTALS:					149616.57		333581.62	16679.14		2662.39	452.62	17131.76		123675.55	28238.03	103766.19		17121.40	125040.21	1806.89	11947.54	175035.91		2361.48	16892.46	4168.37	28840.00

ACHM SURFACE COURSE (1/2").....94.1% MIN. AGGR.....5.9% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.1% MIN. AGGR.....4.9% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....95.8% MIN. AGGR.....4.2% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
MAXIMUM NUMBER OF GYRATIONS = 205 FOR PG 76-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

10/31/2019

RR60140.DGN

QUANTITIES

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.		R60140	98	616

(1) SEE TABLE - QUANTITIES - 60941

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. R60140

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	801	SS & 802	SP, SS, & 802	803	SS & 804	SS & 804	SS & 805	SS & 805	SS & 805	SS & 805	SS & 805	SP, SS, & 807	SP, SS, & 807	SP, SS, & 807	SS & 807	SS & 808	SS & 809	SS & 809	812	816	816	816	SP JOB R60140	SP JOB R60140
			ITEM	UNCLASSIFIED EXCAVATION FOR STRUCTURES - BRIDGE	CLASS S CONCRETE - BRIDGE	CLASS S(AE) CONCRETE - BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	EPOXY COATED REINFORCING STEEL (GRADE 60)	REINFORCING STEEL - BRIDGE (GRADE 60)	(1) STEEL PILING (HP 12X53)	(1) STEEL PILING (HP 14X73)	(1) STEEL PILING (HP 14X89)	PILE ENCASEMENT	(3) PREBORING	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50)	STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50)	STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50W)	(2) PAINTING STRUCTURAL STEEL	ELASTOMERIC BEARINGS	ARMORED JOINT WITH NEOPRENE STRIP SEAL	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	CONCRETE RIPRAP	ARCHITECTURAL FINISH	TEXTURED COATING FINISH
			UNIT	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LB.	LB.	LB.	TON	CU. IN.	LIN. FT.	LIN. FT.	EACH	SQ. YD.	CU. YD.	CU. YD.	SQ. FT.	SQ. YD.
B7206	HIGHWAY 7 OVER SPRING STREET	BENT 1		25	50.50		0.3		5,510	182					840			0.4	1,370.5		43				3		57
		BENT 2		25	50.60		0.3		5,530	182					840			0.4	1,370.5		43				3		58
		74'-0" W-BEAM SPAN				100.50	8.0	24,140							95,900			48.8				1					111
TOTALS FOR BRIDGE NO. B7206				50	101.10	100.50	8.6	24,140	11,040	364					97,580			49.6	2,741.0		86	1			6		226
B7207	HIGHWAY 7 OVER U.S. HWY. 70	BENT 1		30	50.50		0.3		5,602		336					765		0.4	2,741.0	43					88		601
		BENT 2		175	174.20				36,368		260			240					3,422.0							450	180
		BENT 3		205	175.50				34,993		460			440					3,422.0							279	159
		BENT 4		205	163.00				33,881		224			208					3,422.0							342	167
		BENT 5		30	50.50		0.3		5,606		322			312		765		0.4	2,741.0	43					80		545
		388'-0" PLATE GIRDER UNIT				524.00	41.7	141,990								527,460		263.7				1					589
TOTALS FOR BRIDGE NO. B7207				645	613.70	524.00	42.3	141,990	116,450		1,602			1,200		528,990		264.5	15,748.0	86		1			168	1,071	2,241
07455	HIGHWAY 7 OVER HWY. 70 FRONTAGE ROAD	BENT 1			109.90		0.4		11,080		385			369	2,120			1.1	3,696.0		105				119		94
		BENT 2		892	428.18				64,205										6,468.0							495	358
		BENT 3		853	432.68				64,970										6,468.0							567	376
		BENT 4			110.54		0.4		11,095		385			369	2,120			1.1	3,696.0		105				170		94
		245'-0" W-BEAM UNIT				630.00	52.4	166,490							623,410			311.7				1					384
TOTALS FOR BRIDGE NO. 07455				1,745	1,081.30	630.00	53.2	166,490	151,350		770			738	627,650			313.9	20,328.0		210	1			289	1,062	1,306
07456	RAMP WN OVER HWY. 70 FRONTAGE ROAD	BENT 1			35.35		0.2		4,237		116			108	520			0.3	1,140.5		28				66		39
		BENT 2		254	150.05				20,995										1,508.0							183	95
		BENT 3		268	150.05				20,995										1,508.0							183	95
		BENT 4			35.05		0.2		4,283		76			68	520			0.3	1,140.5		28				62		39
		255'-0" W-BEAM UNIT				218.10	16.7	61,500							225,610			112.8				1					
TOTALS FOR BRIDGE NO. 07456				522	370.50	218.10	17.1	61,500	50,510		192			176	226,650			113.4	5,297.0		56	1			128	366	268
SUBTOTAL FOR SHEET 1				2,962	2,166.60	1,472.60	121.2	394,120	329,350	364	2,564	0	0	2,114	951,880	528,990	0	741.4	44,114.0	86	352	4	0	0	591	2,499	4,041

(1) All steel piling shall be Grade 50 and are required to have approved driving points which will not be paid for directly, but will be considered subsidiary to the items "Steel Piling (HP12X53)," "Steel Piling (HP14x73)," and "Steel Piling (HP14X89)."

(2) Bridge Nos. B7206, B7207, 07455, and 07456
The color of paint shall be Blue equal or close to Federal Std. 595B Color Chip No. 25052 and as approved by the Engineer.

Bridge Nos. 07457, 07459, and 07460
The color of paint shall be Brown equal to or close to Federal Std. 595B Color Chip No. 20219 and as approved by the Engineer.

Bridge Nos. B7458 and B7461
The color of paint shall be Brown equal to or close to Federal Std. 595B Color Chip No. 30070 and as approved by the Engineer.

(3) Quantity of Preboring shown is for estimating and bidding purposes only. Actual quantity will be determined in the field.

Luke Bailey
DESIGN SECTION SUPERVISOR

BRIDGE NUMBERS

B7206
B7207
07455
07456
07457
B7458
07459
07460
B7461
07462

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8/20/19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 3
SCHEDULE OF BRIDGE QUANTITIES
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TMG DATE: 7/23/2019 FILENAME: br60140_q1.dgn
CHECKED BY: LJB DATE: 8-20-19 SCALE: NO SCALE
DESIGNED BY: - DATE: -

BRIDGE NO. SEE TABLE DRAWING NO. 60941

PRINT DATE: 8/20/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10/24/2019				6	ARK.			
10/29/2019				JOB NO.		R60140	99	616

(1) SEE TABLE - QUANTITIES - 60942

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. R60140

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	801	SS & 802	SP, SS, & 802	803	SS & 804	SS & 804	SS & 805	SS & 805	SS & 805	SS & 805	SS & 805	SP, SS, & 807	SP, SS, & 807	SP, SS, & 807	SS & 807	SS & 808	SS & 809	SS & 809	812	816	816	816	SP JOB R60140	SP JOB R60140
			ITEM	UNCLASSIFIED EXCAVATION FOR STRUCTURES - BRIDGE	CLASS S CONCRETE - BRIDGE	CLASS S(AE) CONCRETE - BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	EPOXY COATED REINFORCING STEEL (GRADE 60)	REINFORCING STEEL - BRIDGE (GRADE 60)	(1) STEEL PILING (HP 12X53)	(1) STEEL PILING (HP 14X73)	(1) STEEL PILING (HP 14X89)	PILE ENCASEMENT	(3) PREBORING	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50)	STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50)	STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50W)	(2) PAINTING STRUCTURAL STEEL	ELASTOMERIC BEARINGS	ARMORED JOINT WITH NEOPRENE STRIP SEAL	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	CONCRETE RIPRAP	ARCHITECTURAL FINISH	TEXTURED COATING FINISH
			UNIT	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LB.	LB.	LB.	TON	CU. IN.	LIN. FT.	LIN. FT.	EACH	SQ. YD.	CU. YD.	CU. YD.	SQ. FT.	SQ. YD.
07457	PROMISE LAND DRIVE OVER HIGHWAY 7	BENT 1		26	42.30		0.4		5,670			73		70		1,075		0.5	3,118.5	31						28	63
		BENT 2		171	274.50				39,755										3,276.0							1,974	277
		BENT 3		174	288.20				41,495										3,276.0							2,155	297
		BENT 4			42.50		0.4		5,670			180				1,075		0.5	3,118.5	31			75	37		28	65
		495'-0" PLATE GIRDER UNIT				501.40	38.8	121,840								763,420		377.0				1				2,228	633
TOTALS FOR BRIDGE NO. 07457 (4)				371	647.50	501.40	39.6	121,840	92,590			253		70		765,570		378.0	12,789.0	62		1	75	37		6,413	1,335
B7458	HIGHWAY 7 OVER COVENANT TRAIL	BENT 1			51.90		0.4		6,875	304							875		2,925.0		45				29		67
		BENT 2			49.50		0.4		5,915	203							(1) 875		2,175.0		45				11		66
		120'-0" PLATE GIRDER SPAN				168.40	13.4	40,050									~~319,140~~ 202,080	13.8				1					170
TOTALS FOR BRIDGE NO. B7458					101.40	168.40	14.2	40,050	12,790	507							(1) ~~320,090~~ 203,830	13.8	5,100.0		90	1			40		303
07459	MILL CREEK ROAD OVER HIGHWAY 7	BENT 1			34.60		0.3		4,295		180					578		0.3	(2) 863.0		32				12	43	43
		BENT 2			133.00				20,990		336			160					~~710.0~~ 1,603							266	89
		BENT 3			35.00		0.3		4,295		190					578		0.3	1,160.0		32				12	43	43
		195'-0" PLATE GIRDER UNIT				171.00	15.6	42,360								178,844		88.2				1				877	204
																		(2)									
TOTALS FOR BRIDGE NO. 07459					202.60	171.00	16.2	42,360	29,580		706			160		180,000	(1)	88.8	(2) ~~2,741.0~~ 3,626.0		64	1			24	1,229	379
SUBTOTAL FOR SHEET 2				371	951.50	840.80	70.0	204,250	134,960	507	706	253	0	230	0	945,570	~~320,090~~ 203,830	480.6	~~20,630.0~~ 21,515.0	62	154	3	75	37	64	7,642	2,017

(1) All steel piling shall be Grade 50 and are required to have approved driving points which will not be paid for directly, but will be considered subsidiary to the items "Steel Piling (HP12X53)," "Steel Piling (HP14x73)," and "Steel Piling (HP14X89)."

(2) Bridge Nos. B7206, B7207, 07455, and 07456
The color of paint shall be Blue equal or close to Federal Std. 595B Color Chip No. 25052 and as approved by the Engineer.

Bridge Nos. 07457, 07459, and 07460
The color of paint shall be Brown equal to or close to Federal Std. 595B Color Chip No. 20219 and as approved by the Engineer.

Bridge Nos. B7458 and B7461
The color of paint shall be Brown equal to or close to Federal Std. 595B Color Chip No. 30070 and as approved by the Engineer.

(3) Quantity of Preboring shown is for estimating and bidding purposes only. Actual quantity will be determined in the field.

(4) See Special Provision Job No. R60140 "Geotechnical Requirements for Bridge Construction."

(1) Revised Quantities
By: TMG Date: 10/24/2019
Checked By: DPT Date: 10/24/2019

(2) Revised Elastomeric Bearing Quantities
By: TMG Date: 10/29/2019
Checked By: DPT Date: 10/29/2019

Thomas Gerard
DESIGN SECTION SUPERVISOR

BRIDGE NUMBERS

B7206
B7207
07455
07456
07457
B7458
07459
07460
B7461
07462

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
10-31-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 3
SCHEDULE OF BRIDGE QUANTITIES
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TMG DATE: 7/23/2019 FILENAME: br60140_q1.dgn
CHECKED BY: DPT DATE: 10/30/19 SCALE: NO SCALE
DESIGNED BY: - DATE: -

BRIDGE NO. SEE TABLE DRAWING NO. 60942

PRINT DATE: 10/29/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10/24/2019				6	ARK.			
10/29/2019				JOB NO.		R60140	100	616

(1) SEE TABLE - QUANTITIES - 60943

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. R60140

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	801	SS & 802	SP, SS, & 802	803	SS & 804	SS & 804	SS & 805	SS & 805	SS & 805	SS & 805	SS & 805	SP, SS, & 807	SP, SS, & 807	SP, SS, & 807	SS & 807	SS & 808	SS & 809	SS & 809	812	816	816	816	SP JOB R60140	SP JOB R60140
			ITEM	UNCLASSIFIED EXCAVATION FOR STRUCTURES - BRIDGE	CLASS S CONCRETE - BRIDGE	CLASS S(AE) CONCRETE - BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	EPOXY COATED REINFORCING STEEL (GRADE 60)	REINFORCING STEEL - BRIDGE (GRADE 60)	(1) STEEL PILING (HP 12X53)	(1) STEEL PILING (HP 14X73)	(1) STEEL PILING (HP 14X89)	PILE ENCASEMENT	(3) PREBORING	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50)	STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50)	STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50W)	(2) PAINTING STRUCTURAL STEEL	ELASTOMERIC BEARINGS	ARMORED JOINT WITH NEOPRENE STRIP SEAL	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	CONCRETE RIPRAP	ARCHITECTURAL FINISH	TEXTURED COATING FINISH
			UNIT	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LB.	LB.	LB.	TON	CU. IN.	LIN. FT.	LIN. FT.	EACH	SQ. YD.	CU. YD.	CU. YD.	SQ. FT.	SQ. YD.
07460	DENISE LANE OVER HIGHWAY 7	BENT 1			34.10				3,925	170				61					1,755.0						20	47	51
		BENT 2			112.30				20,220		192			162					1,958.0							154	102
		BENT 3			33.60				3,925	162				65					1,755.0						16	47	51
		220'-0" PLATE GIRDER UNIT				192.30	15.3	45,520								205,140		104.0			56	1				989	257
TOTALS FOR BRIDGE NO. 07460					180.00	192.30	15.3	45,520	28,070	332	192			288		205,140		104.0	5,468.0		56	1			36	1,237	461
B7461	HIGHWAY 7 OVER QUARRY MOUNTAIN ROAD	BENT 1			52.10		0.4		6,875	423							875		2,925.0		45				18		67
		BENT 2			49.30		0.4		5,915	266				80			(1) 875		2,175.0		45				17		66
		120'-0" PLATE GIRDER SPAN				168.40	13.4	40,050									(1) ~~319,140~~ 202,080	13.8				1					170
TOTALS FOR BRIDGE NO. B7461					101.40	168.40	14.2	40,050	12,790	689				80			(1) ~~320,890~~ 203,830	13.8	5,100.0		90	1			35		303
07462	HIGHWAY 7 OVER SALINE RIVER TRIBUTARY	BENT 1			25.40		0.1		3,346		125			95			845						280	155			8
		BENT 2			15.70			190	1,644		175		63	125													2
		BENT 3			15.80			190	1,644		175		70	120													2
		BENT 4			17.50			190	1,844		175		105	85													2
		BENT 5			17.10			190	1,807		175		105	85													2
		BENT 6			26.00		0.1		3,395		125			115			845						525	294			8
		200'-0" R.C. SLAB UNIT				749.30	23.2	199,560									2,020				93	1					244
TOTALS FOR BRIDGE NO. 07462					117.50	749.30	23.4	200,320	13,680		950		343	625			(1) 3,710				93	1	805	449			268
SUBTOTAL FOR SHEET 3					398.90	1,110.00	52.9	285,890	54,540	1,021	1,142	0	343	993	0	205,140	(1) ~~324,600~~ 207,540	117.8	10,568.0	0	239	3	805	449	71	1,237	1,032
SUBTOTAL FOR SHEET 1				2,962	2,166.60	1,472.60	121.2	394,120	329,350	364	2,564	0	0	2,114	951,880	528,990	(1) 0	741.4	(2) 44,114.0	86	352	4	0	0	591	2,499	4,041
SUBTOTAL FOR SHEET 2				371	951.50	840.80	70.0	204,250	134,960	507	706	253	0	230	0	945,570	~~320,890~~ 203,830	480.6	~~20,630.0~~ 21,515.0	62	154	3	75	37	64	7,642	2,017
TOTALS FOR JOB NO. R60140			(4)	3,333	3,517.00	3,423.40	244.1	884,260	518,850	1,892	4,412	253	343	3,337	951,880	1,679,700	(1) ~~645,490~~ 411,370	1,339.8	(2) ~~75,312.0~~ 76,197.0	148	745	10	880	486	726	11,378	7,090

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(2) Bridge Nos. B7206, B7207, 07455, and 07456
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The color of paint shall be Brown equal to or close to Federal Std. 595B Color Chip No. 20219 and as approved by the Engineer.

Bridge Nos. B7458 and B7461
The color of paint shall be Brown equal to or close to Federal Std. 595B Color Chip No. 30070 and as approved by the Engineer.

(3) Quantity of Preboring shown is for estimating and bidding purposes only. Actual quantity will be determined in the field.

(4) Includes approximately 2,813 cubic yards of rock excavation.

(1) Revised Quantities
By: TMG Date: 10/24/2019
Checked By: DPT Date: 10/24/2019

(2) Revised Elastomeric Bearing Quantities
By: TMG Date: 10/29/2019
Checked By: DPT Date: 10/29/2019

Steven Peyton
DESIGN SECTION SUPERVISOR

BRIDGE NUMBERS

B7206
B7207
07455
07456
07457
B7458
07459
07460
B7461
07462

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
10-31-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 3
SCHEDULE OF BRIDGE QUANTITIES
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TMG DATE: 7/23/2019 FILENAME: br60140_q1.dgn
CHECKED BY: DPT DATE: 10/30/19 SCALE: NO SCALE
DESIGNED BY: - DATE: -

BRIDGE NO. SEE TABLE DRAWING NO. 60943

PRINT DATE: 10/29/2019

RR60140.DGN 11/1/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10-07-19		10-30-19	
10-23-19			
10-24-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		R60140	101	616

(2) SUMMARY OF QUANTITIES AND REVISIONS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-1-19

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP & 201	CLEARING	348	STATION
SP & 201	GRUBBING	348	STATION
202	REMOVAL AND DISPOSAL OF WELL	9	EACH
202	REMOVAL AND DISPOSAL OF FRAME SHED	13	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE SLABS	15	SQ. YD.
202	REMOVAL AND DISPOSAL OF WALLS	1690	LN. FT.
202	REMOVAL AND DISPOSAL OF BARRIER WALL	817	LN. FT.
202	REMOVAL AND DISPOSAL OF PEDESTRIAN BRIDGE	3	EACH
202	REMOVAL AND DISPOSAL OF CANOPY	1	EACH
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS	2	EACH
202	REMOVAL AND DISPOSAL OF SEPTIC SYSTEM	127	LN. FT.
202	REMOVAL AND DISPOSAL OF BRICK PAVERS	34	EACH
SP & 210	UNCLASSIFIED EXCAVATION	1	EACH
SP	SELECT GRANULAR BACKFILL	5	EACH
SP & 210	PRESPLITTING	21	EACH
SP & 210	COMPACTED EMBANKMENT	36	SQ. YD.
SP & 210	SOIL STABILIZATION	2056183	CU. YD.
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	1037308	SQ. YD.
SS & 407	TACK COAT	2925471	CU. YD.
SP, SS, & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")	500	TON
SP, SS, & 405	ASPHALT BINDER (PG 70-22) IN ACHM BASE COURSE (1 1/2")	151161	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	17132	GAL.
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")	21052	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	11598	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	16282	TON
SP, SS, & 407	ASPHALT BINDER (PG 76-22) IN ACHM SURFACE COURSE (1/2")	839	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")	31227	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	256	TON
504	APPROACH SLABS	1702	TON
504	APPROACH GUTTERS	9648	SQ. YD.
SP & 601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SS & 604	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SP, SS, & 604	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE	1864	SQ. FT.
SS & 604	BARRICADES	10	EACH
SS & 604	TRAFFIC DRUMS	20	LN. FT.
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	106	EACH
SS & 605	CONCRETE DITCH PAVING (TYPE B)	7474	LN. FT.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	1920	SQ. YD.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	48	LN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	1448	LN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	1028	LN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	768	LN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	156	LN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	352	LN. FT.
606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	144	LN. FT.
606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	1426	LN. FT.
606	54" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	122	LN. FT.
606	60" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	58	LN. FT.
606	60" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	398	LN. FT.
606	72" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	176	LN. FT.
606	72" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	396	LN. FT.
606	84" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	80	LN. FT.
SP, SS, & 606	84" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	46	LN. FT.
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	2	EACH
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	22	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	10	EACH
606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	5	EACH
606	42" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	2	EACH
606	48" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	12	EACH
606	54" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	2	EACH
606	60" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	2	EACH
606	72" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	8	EACH
606	84" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	8	EACH
SP, SS, & 606	84" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	610	CU. YD.
606	SELECTED PIPE BEDDING	1	EACH
SS & 609	DROP INLETS (TYPE TM)	14795	LN. FT.
SS & 609	JUNCTION BOXES (TYPE E)	89	EACH
SS & 611	UNDERDRAIN OUTLETS	3725	LN. FT.
SS & 617	GUARDRAIL (TYPE A)	30	EACH
SS & 617	GUARDRAIL TERMINAL (TYPE 2)	30	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL	61621	LN. FT.
619	WIRE FENCE (TYPE A)	15	EACH
619	16' STEEL GATES	15	EACH
619	16' ALUMINUM GATES	841	EACH
620	LIME	320.68	ACRE
620	SEEDING	914.43	ACRE
620	MULCH COVER	448869.9	M. GAL.
620	WATER	59375	ACRE
621	TEMPORARY SEEDING	108915	LN. FT.
621	SILT FENCE	28980	LN. FT.
621	DIVERSION DITCH	1350	LN. FT.
621	DROP INLET SILT FENCE	20000	CU. YD.
621	SEDIMENT BASIN	20000	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	25090	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	8412	LN. FT.
621	PIPE FOR SLOPE DRAINS	4129	CU. YD.
621	ROCK DITCH CHECKS	6000	LN. FT.
621	HAY BALE DITCH	10000	LN. FT.
621	TRANSVERSE SILT DIKE	320.68	ACRE
623	SECOND SEEDING APPLICATION	3810	SQ. YD.
624	SOLID SODDING	29703	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	2177	LN. FT.
631	CONCRETE BARRIER WALL (MEDIAN TYPE A)	978	LN. FT.
SP & 631	CONCRETE BARRIER WALL (SIDE TYPE A)	1.00	LUMP SUM
635	ROADWAY CONSTRUCTION CONTROL	8	EACH
637	MAILBOXES	6	EACH
637	MAILBOX SUPPORTS (SINGLE)	1	EACH
637	MAILBOX SUPPORTS (DOUBLE)	1	EACH
640	MODIFYING DROP INLETS	67943	LN. FT.
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	15770	LN. FT.
718	REFLECTORIZED PAVEMENT MARKING WHITE (6")	72461	LN. FT.
718	REFLECTORIZED PAVEMENT MARKING YELLOW (6")	75642	LN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")	4920	LN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (8")	71863	LN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	5	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	1432	EACH
721	RAISED PAVEMENT MARKERS (TYPE I)	6	EACH
721	RAISED PAVEMENT MARKERS (TYPE II)	7	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER	6	EACH
SS & 732	CRASH CUSHION	272	CU. YD.
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	664.81	CU. YD.
SS & 802	CLASS S CONCRETE-ROADWAY	33171	SQ. FT.
SP	RETAINING WALL	3120	POUND
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	212249	POUND
816	DUMPED RIPRAP	125	CU. YD.
		1.00	LUMP SUM
806	BRIDGE CONSTRUCTION CONTROL	3333	CU. YDS.
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	2304	CU. YDS.
SS & 802	CLASS S CONCRETE-ROADWAY	77048	CU. YD.
SS & 802	CLASS S CONCRETE-BRIDGE	3517.00	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	3423.40	CU. YD.
SP	ARCHITECTURAL FINISH	11378	SQ. FT.
SP	TEXTURED COATING FINISH	7090	SQ. FT.
807	DRILLED SHAFT CONCRETE SURFACE TREATMENT	2441	GAL.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	1095745	POUND
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	518650	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	894260	POUND
SS & 805	STEEL PILING (HP 12X53)	1892	LN. FT.
SS & 805	STEEL PILING (HP 14X73)	4412	LN. FT.
SS & 805	STEEL PILING (HP 14X89)	253	LN. FT.
SS & 805	PILE EXTENSION	3337	LN. FT.
SS & 805	PILE ENCASEMENT	3337	LN. FT.
SP, SS, & 807	STRUCTURAL STEEL N BEAM SPANS (A709-GR50)	951880	POUND
SP, SS, & 807	STRUCTURAL STEEL N PLATE GIRDER SPANS (A709-GR50)	1679700	POUND
SP, SS, & 807	STRUCTURAL STEEL N PLATE GIRDER SPANS (A709-GR50W)	2701140	POUND
SS & 807	PAINTING STRUCTURAL STEEL	1339.8	TON
SS & 807	PAINTING EXISTING BRIDGE	76197.0	CU. IN.
SS & 809	ARMORED JOINT WITH NEOPRENE STRIP SEAL	745	LN. FT.
SS & 809	SILICONE JOINT SEALANT	745	LN. FT.
812	BRIDGE NAME PLATE (TYPE D)	10	EACH
816	FILTER BLANKET	860	SQ. YD.
816	DUMPED RIPRAP	486	CU. YD.
816	CONCRETE RIPRAP	726	CU. YD.

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
10/7/2019	REVISED BRIDGE DATA AND STRUCTURES OVER 20' SPAN AND INDEX OF SHEETS. REVISED THE FOLLOWING SPECIAL PROVISIONS: DELAY OF RIGHT OF WAY OCCUPANCY; FLEXIBLE BEGINNING OF WORK - CALENDAR DAY CONTRACT; GEOTECHNICAL SPECIAL PROVISIONS; CONSTRUCTION SCHEDULE; ADDED THE FOLLOWING SPECIAL PROVISIONS: COORDINATION OF WORK, MOBILIZATION, SEQUENCE OF CONSTRUCTION, RIGHT OF WAY, MAINTENANCE OF TRAFFIC DETAILS. REVISED THE FOLLOWING QUANTITIES: UNCLASSIFIED EXCAVATION, CONCRETE DITCH PAVING (TYPE B), WIRE FENCE (TYPE A), 16' STEEL GATES (ALTERNATE NO. 1), 16' STEEL GATES (ALTERNATE NO. 2), WATER. SOLID SODDING, CONCRETE BARRIER WALL (MEDIAN TYPE A), TEXTURED COATING FINISH. ADDED THE FOLLOWING QUANTITIES: REMOVAL AND DISPOSAL OF BARRIER WALL, SELECT GRANULAR BACKFILL, RETAINING WALL. REVISED "DELAY IN RIGHT OF WAY OCCUPANCY" SPECIAL PROVISION. REVISED "BYPASS CD ROAD SLIP RAMP" AND "BYPASS CD ROAD ACCEL LANE" AND ADDED "BYPASS CD ROAD SLIP RAMP" AND "BYPASS CD ROAD ACCEL LANE" SPECIAL PROVISIONS. REVISED "CONSTRUCTION SEQUENCE" SPECIAL PROVISION. REVISED CONSTRUCT DRAINAGE STRUCTURE NOTES. REVISED BRIDGE NOTES ON BRIDGE SHEETS. ADDED BRIDGE SHEETS.	6, 101 99-101
10/23/2019	ADDED "PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS" SPECIAL PROVISION.	
10/24/2019	REVISED "DELAY IN RIGHT OF WAY OCCUPANCY" SPECIAL PROVISION. REVISED STRUCTURAL STEEL (A709-GR50W) QUANTITY.	
10/30/2019	ADDED "MAINTENANCE OF TRAFFIC" AND "PROGRESSION OF EARTHWORK FOLLOWING CLEARING AND GRUBBING" SPECIAL PROVISIONS. REVISED THE FOLLOWING QUANTITIES: CLEARING AND GRUBBING, COMPACTED EMBANKMENT, PRESPLITTING, COMPACTED EMBANKMENT, SOIL STABILIZATION, AGGREGATE BASE COURSE (CLASS 7), PORTLAND CEMENT CONCRETE BASE COURSE (1"), MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2"), ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2"), ASPHALT BINDER (PG 70-22) IN ACHM BASE COURSE (1 1/2"), MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2"), ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1"), MINERAL AGGREGATE IN ACHM BINDER COURSE (1"), ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1"), ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2"), ASPHALT BINDER (PG 76-22) IN ACHM SURFACE COURSE (1/2"), ACHM PATCHING OF EXISTING ROADWAY, CONCRETE PPE CULVERTS (CLASS III), (24", 30", 36", 48", 54" & 60") REINFORCED CONCRETE PPE CULVERTS (CLASS V), (24", 30", 36" & 72") FLARED END SECTIONS FOR REINFORCED CONCRETE PPE CULVERTS, CONCRETE DITCH PAVING (TYPE B), DROP INLETS (TYPE TM), JUNCTION BOXES (TYPE E), DISPOSAL ROCK DITCH CHECKS, WATTLES (20"), SECOND SEEDING APPLICATION, SOLID SODDING, LIME, WATER, FOR STRUCTURES-ROADWAY, CLASS S CONCRETE-ROADWAY, REINFORCING STEEL-ROADWAY (GRADE 60), BEARINGS. ADDED THE FOLLOWING QUANTITIES: COLD MILLING ASPHALT PAVEMENT, 18" FLARED END SECTIONS FOR REINFORCED CONCRETE PPE CULVERTS, AND MODIFYING DROP INLETS.	

SUMMARY OF QUANTITIES AND REVISIONS

SURVEY CONTROL COORDINATES

Project Name: sr60140.alg
Date: 7/18/2018
Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	1983930.8777	1018752.1237	492.025	CTL	REBAR•CAP
2	1983873.0064	1019283.6359	470.297	CTL	REBAR•CAP
3	1984448.0317	1018257.2460	549.733	CTL	CPS
4	1984995.6044	1018224.5203	569.442	CTL	REBAR•CAP
5	1985356.3525	1017260.2293	587.137	CTL	T-5 RBC
6	1985601.9765	1017257.9959	590.336	CTL	T-6 RBC
7	1986637.3855	1015636.2349	735.956	CTL	REBAR•CAP
8	1986832.9765	1015949.4908	749.034	CTL	REBAR•CAP
9	1988253.4883	1016330.1904	925.110	CTL	REBAR•CAP FILE REOPENED
10	1988275.8628	1016797.5031	904.587	CTL	REBAR•CAP FILE REOPENED
11	1990240.4124	1018401.9691	641.585	CTL	REBAR•CAP
12	1990096.2695	1018682.1381	666.765	CTL	REBAR•CAP FILE REOPENED
13	1990040.8395	1018416.0701	553.746	CTL	REBAR•CAP
14	1992926.8279	1019133.7524	573.734	CTL	REBAR•CAP
15	1994007.6802	1016553.8199	537.501	CTL	REBAR•CAP PN: 15 WAS UPDATED IN 2018
16	1994390.3484	1016241.1815	537.585	CTL	REBAR•CAP FILE REOPENED
17	1996484.5257	1016578.1775	637.114	CTL	REBAR•CAP. PINE
18	1996820.6897	1016586.3914	628.164	CTL	REBAR•CAP. PINE
19	1998304.5163	1016968.3218	659.777	CTL	REBAR•CAP
20	1998618.2163	1016951.0945	668.236	CTL	REBAR•CAP
21	1999012.8595	1016934.6849	668.237	CTL	REBAR•CAP
22	2000766.3749	1017913.9425	708.031	CTL	REBAR•CAP
23	2001080.1238	1018096.8263	712.199	CTL	REBAR•CAP
24	2002241.9868	1017217.8219	822.811	CTL	REBAR•CAP
25	2002577.0372	1017457.3460	834.670	CTL	REBAR•CAP
26	2003084.4109	1016786.9463	677.710	CTL	REBAR•CAP
27	2002658.9520	1016352.6232	685.474	CTL	REBAR•CAP
28	2004055.3076	1015956.5815	749.991	CTL	REBAR•CAP
29	2004388.0696	1015882.8011	739.268	CTL	REBAR•CAP
30	2004984.3565	1017172.4933	712.278	CTL	REBAR•CAP
31	2005403.7413	1017152.8635	670.600	CTL	REBAR•CAP
32	2009184.9330	1016565.0210	566.553	CTL	REBAR•CAP FILE REOPENED
33	2009746.2581	1016383.0018	589.695	CTL	REBAR•CAP
34	2010178.7918	1015647.4547	594.193	CTL	REBAR•CAP
35	2006897.2587	1017950.3760	588.427	CTL	REBAR•CAP
36	2007343.4626	1017845.7936	650.535	CTL	REBAR•CAP
37	2009727.7489	1016354.7550	590.258	CTL	CPS PN: 21 JOB •060776 REOCCUPIED WI
38	2010182.9666	1015632.8677	594.356	HPT	REBAR•CAP
39	2010354.6166	1014882.8301	609.297	CTL	REBAR•CAP
40	1982835.2569	1018088.2670	499.941	CTL	REBAR•CAP FILE REOPENED
41	1982996.8189	1018757.0643	493.499	CTL	REBAR•CAP
42	1993559.7689	1017250.1195	535.719	CTL	STD ARDOT CAP STAMPED PN: 42
43	1993663.2886	1016664.7222	529.443	CTL	STD ARDOT CAP STAMPED PN: 43
44	1993816.2256	1015921.9796	524.128	CTL	STD ARDOT CAP STAMPED PN: 44
45	1988166.8912	1015900.4652	914.759	CTL	STD ARDOT CAP STAMPED PN: 45
46	1987989.4036	1015607.5021	896.311	CTL	STD ARDOT CAP STAMPED PN: 46
47	1982980.2401	1016440.2125	502.975	CTL	STD AHTD MON. STAMPED PN: 47
48	1982790.4267	1016010.9895	486.325	CTL	STD AHTD MON. STAMPED PN: 48
49	1982780.5400	1016411.3436	490.794	CTL	STD AHTD MON. STAMPED PN: 49
50	1982744.6277	1016882.2044	503.817	CTL	STD AHTD MON. STAMPED PN: 50
51	1982744.9127	1017529.8138	507.336	CTL	STD AHTD MON. STAMPED PN: 51
52	1982299.2076	1018084.9601	518.169	CTL	STD AHTD MON. STAMPED PN: 52
53	1979875.9711	1018357.1429	418.005	CTL	STD AHTD MON. STAMPED PN: 53
54	1979402.8412	1018416.1467	412.151	CTL	STD AHTD MON. STAMPED PN: 54
55	1980077.3663	1018474.8836	425.102	CTL	STD AHTD MON. STAMPED PN: 55
56	1980749.1642	1018545.9842	451.503	CTL	STD AHTD MON. STAMPED PN: 56
57	1981543.7262	1018639.3373	484.144	CTL	STD AHTD MON. STAMPED PN: 57
58	1983008.4969	1019647.9723	468.165	CTL	STD AHTD MON. STAMPED PN: 58
59	1982768.5272	1018993.5885	478.829	CTL	STD AHTD MON. STAMPED PN: 59
60	1983276.1384	1019359.2014	503.518	CTL	STD AHTD MON. STAMPED PN: 60
61	1988112.4507	1016915.3636	890.671	CTL	STD AHTD MON. STAMPED PN: 61
62	1988396.9763	1017438.0788	908.107	CTL	STD AHTD MON. STAMPED PN: 62
63	1988571.7957	1017956.4477	946.221	CTL	STD AHTD MON. STAMPED PN: 63
64	1988592.3811	1018394.3463	977.503	CTL	STD AHTD MON. STAMPED PN: 64
65	1988512.5368	1018763.6924	999.213	CTL	STD AHTD MON. STAMPED PN: 65
100	2010913.8627	1012711.6827	663.854	GPS	AHTD GPS 260001
101	2010293.2981	1013938.8270	620.917	GPS	AHTD GPS 260001A
102	1982693.2083	1013301.2573	513.731	GPS	AHTD GPS 260020
103	1982790.4387	1011152.5938	452.413	GPS	AHTD GPS 260020A
104	2000329.1595	1018537.4127	676.448	GPS	AHTD GPS 260021
105	1998690.9354	1019023.7365	602.373	GPS	AHTD GPS 260021A ELEV BY RTK
808	1983599.5710	1022324.4849	450.121	CTL	8" SPIKE
810	1980822.5428	1018424.4571	453.062	CTL	5/8"REBAR W/2"CAP
811	1981885.8611	1018455.2401	501.723	CTL	5/8"REBAR W/2"CAP
812	1982050.5690	1018820.0922	496.651	CTL	5/8"REBAR W/2"CAP
813	1982248.4861	1019027.5761	493.865	CTL	5/8"REBAR W/2"CAP
814	1982753.8966	1018648.2442	480.518	CTL	5/8"REBAR W/2"CAP
815	1983011.1632	1019094.0965	479.077	CTL	5/8"REBAR W/2"CAP
816	1983264.1024	1018906.5205	499.889	CTL	5/8"REBAR W/2"CAP
817	1983145.3574	1020354.4424	489.347	CTL	5/8"REBAR W/2"CAP
818	1982576.8582	1019342.2314	472.583	CTL	5/8"REBAR W/2"CAP
819	1982361.0602	1018381.1000	487.932	CTL	5/8"REBAR W/2"CAP
820	1982728.3042	1018328.2147	493.477	CTL	5/8"REBAR W/2"CAP
824	1983942.6695	1015787.7054	516.582	CTL	5/8"REBAR W/2"CAP
841	1982996.8192	1018757.0640	493.499	CTL	5/8"REBAR W/2"CAP
901	1983418.3310	1015691.6510	501.427	BM	TBM-901 CHSL SQ DIVIDER
902	1985395.7454	1017183.6380	595.444	BM	TBM-902 CPS 20" PINE
903	1986613.7844	1015630.3375	740.048	BM	TBM-903 CPS 18" OAK
904	1987980.0047	1015492.8544	895.142	CTL	TBM-904 CPS 18" OAK
905	1990599.9358	1017459.3859	600.446	BM	TBM-905 CPS P POLE
906	1992117.7120	1016277.3836	785.245	BM	CPS PP
907	1993478.1276	1017565.3309	548.425	BM	CPS 24" OAK
908	1995600.9029	1016787.7193	552.601	BM	CPS 14" PINE
909	1998065.0547	1017079.0497	678.075	BM	CPS 14" PINE
910	2000759.1730	1017640.2162	698.007	BM	CPS 10" GUM
911	2001405.7836	1017688.2235	753.957	BM	CPS 12" HICKORY
912	2003097.4468	1016860.3190	682.928	BM	CPS 14" PINE
913	2005214.9200	1017156.5540	687.567	BM	CPS CUT OFF PP
914	2008244.4950	1016214.8389	638.020	CTL	CPS IN CUT OFF PP
915	2009128.0654	1016568.0512	565.747	BM	CHSLD SQ CNTR HW
916	2009963.0698	1016015.1634	590.228	BM	CHSLD SQ CNTR HW
917	2003864.1646	1017527.7198	-99999.000	BM	
918	1996492.6245	1016578.7517	-99999.000	BM	
919	1996826.1576	1016590.3183	-99999.000	BM	
920	1993857.7454	1016168.5938	525.049	TBM	SQ CUT IN BR HOT SPRINGS
950	1983838.1782	1017244.0531	548.031	TBM	WEST BOLT HEAD ON FIRE HYDRANT
979	1981511.8840	1011744.3339	457.220	BM	USC&GS R 79 1935
980	2021402.1785	1001385.4801	762.120	BM	NGS POINT L 103
981	2015461.7900	1009105.9849	610.340	BM	NGS POINT K 103
997	1983868.8792	1018511.2957	528.112	BM	TBM-997 CPS CP
998	-99999.0000	-99999.0000	662.210	BM	CPS 30" OAK
999	-99999.0000	-99999.0000	548.833	BM	TBM-999 TOP 1" ROD

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 0.999934610S HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME sr60140gi.ctl
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

REFERENCE POINTS (1500 SERIES) ARE TO BE USED TO ESTABLISH CONTROL
IF THE PRIMARY CONTROL POINTS LISTED ABOVE HAVE BEEN DESTROYED.
REFERENCE POINTS ARE NOT TO BE USED FOR VERTICAL CONTROL

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0302-SOUTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 260001 - 260020
CONVERGENCE ANGLE: 0 32 43.07319 LEFT AT LT: 34-32-55.07411N LG: 092-58-27.42514W
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

SURVEY CONTROL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER N. 11435 TIMOTHY D. SMITH 9-6-19

DATE REVISED	DATE REVISED	DATE REVISED	DATE PLOTTED	DATE PLOTTED	FEDERAL DISTRICT	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.		192	616

JOB NO. R60140

2 SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	103	616

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19

BYPASS ULTIMATE CL

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	594+13.87	1979629.2689	1018391.1355
8001	PI	612+70.62	1981479.5194	1018546.3631
8002	PI	622+65.40	1982471.3454	1018623.0312
8003	PI	629+30.15	1983133.2914	1018683.9901
8004	PI	635+00.00	1983700.1227	1018742.6178
8005	PC	641+96.70	1984393.6258	1018809.2151
8007	PT	662+34.87	1985854.5337	1017674.9619
8008	PC	664+32.35	1985884.9592	1017479.8436
8010	PT	673+17.94	1986368.0400	1016772.3003
8011	PC	680+50.04	1987000.6755	1016403.8652
8013	PT	689+91.19	1987905.8617	1016353.9321
8014	PC	729+23.58	1991501.0324	1017947.1578
8016	PT	754+07.12	1993623.1798	1017193.1146
8017	PC	754+25.66	1993631.5909	1017176.5904
8019	PT	774+66.51	1995350.1263	1016384.0649
8020	PC	791+59.70	1996996.4805	1016779.5753
8022	PT	798+91.25	1997712.7555	1016927.6421
8023	PC	809+32.01	1998738.1742	1017105.6972
8025	PT	821+25.16	1999900.9899	1017370.5988
8026	PC	826+58.29	2000413.9399	1017515.9079
8028	PT	847+93.38	2002490.2323	1017314.7232
8029	PC	862+24.37	2003766.5564	1016667.6174
8031	PT	878+87.17	2005344.0625	1016786.0107
8032	PC	883+36.15	2005709.7244	1017046.5409
8034	PT	898+99.68	2007191.6480	1017415.2278
8035	PC	916+62.05	2008938.8342	1017184.3509
8037	PT	922+52.40	2009410.3855	1016865.1704
8038	POE	924+43.89	2009504.2219	1016698.2396

BYPASS CD ROAD SLIP RAMP

POINT NO.	TYPE	STATION	NORTHING	EASTING
8039	POB	624+33.70	1982633.8953	1018701.9520
8040	PC	630+27.09	1983225.1794	1018751.8585
8042	PT	632+27.08	1983424.9414	1018759.9679
8043	PC	632+86.89	1983484.7568	1018759.7850
8045	PT	635+13.31	1983710.8426	1018770.2692
8046	POE	635+70.20	1983767.4687	1018775.7070

BYPASS SB LANE SHIFT (SOUTH)

POINT NO.	TYPE	STATION	NORTHING	EASTING
8063	POB	0+00.00	1981310.6702	1018518.1482
8064	PC	1+10.07	1981420.3506	1018527.3499
8066	PT	2+89.70	1981597.9440	1018553.5374
8067	PC	4+07.66	1981713.3344	1018578.0242
8069	PT	5+96.67	1981900.2837	1018604.9657
8070	PI	11+67.24	1982469.1513	1018648.9392
8071	PI	18+31.65	1983130.7617	1018709.8671
8072	PI	24+01.45	1983698.4766	1018758.5333
8073	POE	27+46.07	1984041.5238	1018791.4763

COVENANT TRAIL

POINT NO.	TYPE	STATION	NORTHING	EASTING
8074	POB	99+93.86	1990852.7794	10174140875
8075	PC	102+93.31	1990731.4363	1017687.8503
8077	PT	103+78.12	1990672.7179	1017746.3498
8078	PC	104+77.13	1990582.0487	1017786.1340
8080	PT	105+78.12	1990498.1526	1017841.4771
8081	POE	105+79.00	1990497.5097	1017842.0793

DENISE LANE

POINT NO.	TYPE	STATION	NORTHING	EASTING
8082	POB	100+00.00	1994842.4647	1015956.1960
8083	PC	100+48.80	1994842.9231	1016004.9917
8085	PT	101+15.09	1994853.0568	1016070.2678
8086	PC	106+82.86	1995020.1050	1016612.9136
8088	PT	109+24.62	1995189.7369	1016759.2786
8089	PC	110+09.35	1995272.4726	1016787.5443
8091	PT	111+25.05	1995387.4785	1016795.1272
8092	POE	112+31.03	1995493.0727	1016786.0652

DRIVEWAY TRACT 56

POINT NO.	TYPE	STATION	NORTHING	EASTING
8093	POB	100+00.00	2003003.5268	1016708.2936
8094	PC	100+56.39	2002960.1945	1016744.3856
8096	PT	101+06.80	2002922.9333	1016778.3045
8097	PC	101+87.56	2002865.6571	1016835.2451
8099	PT	102+76.26	2002796.0919	1016889.9473
8100	PC	103+48.43	2002734.5690	1016927.6890
8102	PT	104+24.38	2002661.5721	1016941.4060
8103	POE	104+36.90	2002649.2477	1016939.1791

HIGHWAY 7

POINT NO.	TYPE	STATION	NORTHING	EASTING
8104	POB	139+00.00	1996485.2314	1003754.7339
8105	PC	148+86.67	1997214.3045	1004419.5366
8107	PT	151+81.87	1997427.2190	1004623.9714
8108	PC	186+95.55	1999898.1951	1007122.0109
8110	PT	192+32.85	2000301.6268	1007476.2135
8111	PC	200+80.78	2000976.5595	1007989.4914
8113	PT	203+40.77	2001150.7365	1008180.5886
8114	PC	208+61.75	2001426.4173	1008622.6580
8116	PT	211+79.38	2001571.3556	1008904.8722
8117	PC	225+69.03	2002101.3516	1010189.4931
8119	PT	230+13.55	2002345.3722	1010557.7132
8120	PC	236+76.67	2002811.3553	1011029.4978
8122	PT	239+39.73	2002980.4117	1011230.6715
8123	PC	245+63.56	2003342.1276	1011738.9316
8125	PT	248+54.18	2003501.4711	1011981.8889
8126	PC	254+36.92	2003802.2966	1012480.9822
8128	PT	256+03.87	2003896.6094	1012618.6286
8129	PC	262+09.84	2004267.6561	1013097.7159
8131	PT	265+14.73	2004489.3383	1013305.1353
8132	PI	269+85.96	2004880.2371	1013568.3020
8133	PC	287+65.80	2006362.9776	1014552.8381
8135	PT	289+45.24	2006516.1968	1014646.1473
8136	PC	293+64.64	2006822.6696	1014850.1069
8138	PT	296+40.16	2007135.9741	1014957.0118
8139	PC	304+96.00	2007955.7171	1015203.0365
8141	PT	308+98.78	2008289.7968	1015418.4298
8142	PC	315+81.98	2008738.7120	1015933.4427
8144	PT	317+63.40	2008846.6183	1016079.0474
8145	PC	322+09.82	2009083.2262	1016457.6063
8147	PT	324+79.66	2009289.9428	1016623.0257
8038	PI	327+06.76	2009504.2219	1016698.2396
8148	PC	328+91.90	2009647.4039	1016815.6061
8150	PRC	330+59.36	2009720.6146	1016970.9176
8152	PT	333+72.76	2009829.3878	1017246.3928
8153	POE	335+00.00	2009916.6143	1017339.0336

HWY 70B MEDIAN CENTERLINE

POINT NO.	TYPE	STATION	NORTHING	EASTING
8154	POB	800+00.00	1982827.5366	1012797.5986
8155	PC	822+72.43	1982879.0142	1015069.4494
8157	PT	826+60.68	1982878.8890	1015457.6589
8158	PC	851+53.30	1982820.8152	1017949.6033
8160	PT	858+99.82	1982848.4943	1018695.1524
8161	PC	879+90.16	1983052.0177	1020775.5669
8163	PT	885+46.72	1983177.7614	1021316.0959
8164	POE	892+81.28	1983436.2623	1022003.6692

HWY. 70B C-D ROAD SLIP RAMP

POINT NO.	TYPE	STATION	NORTHING	EASTING
8165	POB	861+00.00	1982788.7575	1018902.1367
8166	PC	861+28.95	1982791.4614	1018930.9564
8168	PT	863+20.89	1982818.9567	1019120.8429
8169	PC	863+61.17	1982826.7234	1019160.3631
8171	PT	865+40.48	1982852.9967	1019337.6727
8172	POE	865+50.76	1982854.0245	1019347.8999

MILL CREEK ROAD

POINT NO.	TYPE	STATION	NORTHING	EASTING
8173	POB	92+39.05	1993796.7304	1015960.1201
8174	PC	92+67.50	1993790.8592	1015987.9561
8176	PT	93+32.40	1993777.8240	1016051.5387
8177	PC	95+97.60	1993726.0349	1016311.6333
8179	PT	96+84.65	1993708.3884	1016396.8715
8180	PC	99+42.66	1993654.1656	1016649.1175
8182	PT	99+92.72	1993644.0738	1016698.1453
8183	PC	101+31.22	1993617.3356	1016834.0471
8185	PT	104+83.13	1993442.1850	1017131.5687
8186	PC	108+04.36	1993196.6808	1017338.7424
8188	PT	112+69.04	1993011.8612	1017748.3979
8189	PC	119+41.54	1993026.8149	1018420.7331
8191	PT	121+79.45	1993007.4655	1018657.4234
8192	PC	122+51.28	1992994.2244	1018728.0319
8194	PT	124+09.53	1992969.3662	1018884.2971
8195	POE	125+74.03	1992948.0199	1019047.4015

MILL CREEK ROAD RAMP 1

POINT NO.	TYPE	STATION	NORTHING	EASTING
8209	POB	731+93.24	1991752.5295	1018074.6553
8210	PC	735+89.67	1992136.8030	1018172.0761
8212	PT	739+69.05	1992463.4717	1018356.1532
8213	PC	741+58.48	1992598.4017	1018489.1030
8215	PT	743+40.30	1992759.8231	1018564.9789
8216	POE	745+99.70	1993017.9043	1018591.0806

MILL CREEK ROAD RAMP 2

POINT NO.	TYPE	STATION	NORTHING	EASTING
8217	POB	732+21.88	1993021.2822	1018561.5204
8218	PC	734+81.66	1992762.8166	1018535.3799
8219	PT	740+84.58	1992669.1939	1018090.1266
8220	POE	744+53.22	1992989.9616	1017908.4666

MILL CREEK ROAD RAMP 3

POINT NO.	TYPE	STATION	NORTHING	EASTING
8221	POB	758+57.79	1993763.0182	1016125.5809
8222	PC	760+76.89	1993977.6088	1016169.8045
8224	PT	762+68.59	1994160.2301	1016227.0189
8225	PC	762+88.53	1994178.5682	1016234.8584
8227	PT	766+62.61	1994542.2363	1016311.6554
8286	PC	769+53.74	1994833.3401	1016315.2216
8288	PT	773+09.95	1995185.8062	1016360.8799
8289	POE	774+82.42	1995353.1081	1016402.7792

MILL CREEK ROAD RAMP 4

POINT NO.	TYPE	STATION	NORTHING	EASTING
8290	POB	755+92.08	1993723.9457	1017029.1005
8291	PC	758+03.91	1993840.9099	1016852.4842
8293	PT	761+03.93	1994037.2321	1016626.7593
8230	PC	761+33.67	1994059.5112	1016607.0590
8232	PT	766+62.29	1993949.5556	1016194.3984
8233	POE	768+58.62	1993757.2688	1016154.7712

PROMISE LAND DRIVE

POINT NO.	TYPE	STATION	NORTHING	EASTING
8234	POB	200+00.00	1989040.4730	1016317.5700
8235	PC	201+47.88	1989170.3690	1016388.2512
8237	PT	202+90.18	1989276.2870	1016481.4955
8238	PC	203+54.73	1989314.0798	1016533.8299
8240	PT	205+25.43	1989441.1334	1016645.6970
8241	PC	223+19.36	1991016.7647	1017503.3483
8243	PT	225+50.55	1991185.9874	1017408.6296
8244	POE	228+69.82	1991202.5050	1017089.7905

PROMISE LAND DRIVE OVERPASS

POINT NO.	TYPE	STATION	NORTHING	EASTING
8245	POB	100+00.00	1988272.9946	1015587.5937
8246	PC	100+33.22	1988240.7839	1015595.7117
8248	PT	101+44.85	1988130.1123	1015606.9007
8249	PC	101+79.38	1988095.6182	1015605.3347
8251	PT	103+19.18	1988010.3997	1015694.6070
8252	PC	114+50.28	1988114.1180	1016820.9426
8254	PT	116+15.05	1988150.1716	1016981.2429
8255	POE	117+08.03	1988182.1123	1017068.5722

RAMP EN

POINT NO.	TYPE	STATION	NORTHING	EASTING
8256	PC	861+13.97	1982778.1492	1018917.2156
8258	PT	872+62.44	1982562.8466	1018705.3286

RAMP SE

POINT NO.	TYPE	STATION	NORTHING	EASTING
8259	PC	844+67.02	1982475.4237	1018586.7524
8261	PT	855+43.02	1982731.7682	1018342.9164

RAMP SW

POINT NO.	TYPE	STATION	NORTHING	EASTING
8262	POB	611+98.69	1982890.6585	1016862.8369
8263	PI	614+98.94	1982895.9835	1017163.0424
8264	PC	620+36.10	1982883.1885	1017700.0541
8266	PT	622+27.38	1982888.2074	1017891.1821
8267	PC	622+80.42	1982892.2520	1017944.0686
8269	PT	633+43.75	1983549.4861	1018684.5936
8270	PI	639+55.62	1984149.7135	1018803.3727
8271	POE	641+98.97	1984391.9530	1018826.6350

RAMP WN

POINT NO.	TYPE	STATION	NORTHING	EASTING
8272	POB	615+84.44	1983096.3077	1020771.2399
8273	PC	616+69.04	1983088.0175	1020687.0498
8275	PT	623+38.65	1983139.8400	1020022.8732
8276	PC	625+83.34	1983201.1103	1019785.9771
8278	PT	630+77.32	1983440.3178	1019360.0684
8279	PC	633+74.23	1983647.0874	1019146.9935
8281	PT	641+23.90	1984317.7207	1018857.1979
8282	PC	643+50.00	1984543.7925	1018853.7250
8284	PT	649+34.08	1985108.8258	1018723.8255
8285	POE	649+36.58	1985111.0913	1018722.7684

NORTHBOUND TO CENTERLINE LANE SHIFT

POINT NO.	TYPE	STATION	NORTHING	EASTING
8294	POB	908+50.00	2008137.2930	1017312.4596
8295	PC	908+89.79	2008176.7420	1017307.2467
8297	PRC	911+40.92	2008423.9472	1017263.4848
8299	PT	913+92.05	2008671.1521	1017219.7230
8300	POE	913+92.06	2008671.1572	1017219.7223

10/11/2019

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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.		R60140	104	616

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

BEGIN JOB R60140
STA. 615+94.76

BYPASS SB LANE SHIFT (SOUTH)
PI = 5+02.30
Δ = 7°11'07" RT.
D = 4°00'00"
T = 89.93'
L = 179.63'
PC = 1+10.07
PT = 2+89.70
NO SUPERELEVATION

BYPASS SB LANE SHIFT (SOUTH)
PI = 2+00.00
Δ = 7°11'07" RT.
D = 4°00'00"
T = 89.93'
L = 179.63'
PC = 1+10.07
PT = 2+89.70
NO SUPERELEVATION

BYPASS ULTIMATE CL

N 4°47'44" E 1856.75'

N 4°47'44" E 110.07'

N 11°58'51" E 117.96'

N 4°25'13" E 994.78'

N 4°25'13" E 570.56'

N 5°15'42" E 664.75'

N 5°15'42" E 664.41'

N 84°38'24" E 28.95'

N 78°52'54" E 40.28'

N 84°15'40" E 10.28'

P.I. 612+70.62
Δ = 0°22'31" LT.
P.I. 2+00.00

P.C. 1+10.07

P.T. 2+89.70

P.I. 5+02.30

P.C. 4+07.86

P.T. 5+96.67

P.I. 11+67.24
Δ = 50°29" RT.

STA. 847+14.80
END RAMP SE

P.I. 855+27.01

STA. 845+58.77
BEGIN RAMP SE

RAMP SE

STA. 862+05.62
BEGIN RAMP EN

STA. 870+55.74
END RAMP EN

RAMP EN

P.I. 862+25.00

P.C. 863+61.

P.T. 865+40.48

HWY. 70B C-D ROAD SLIP RAMP

BYPASS SB LANE SHIFT (SOUTH)

SURVEY CONTROL DETAILS

RR60140.DGN 9/5/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	105	616

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
* * *
LICENSED PROFESSIONAL ENGINEER
* * *
No. 11425
TRINITY D. SMITH
10-15-19

HWY. 70B CENTERLINE
PI = 855+27.01
Δ = 6°55'21" LT.
D = 0°55'38"
T = 373.71'
L = 746.52'
PC = 851+53.30
PT = 858+99.82
e = 0.021'/'
Ls = 300'

STA. 626+40.56 HWY. 7
= STA. 858+61.93 HWY. 70B
Δ = 79°29'57"

STA. 637+78.27 HWY. 7
= STA. 637+79.67 RAMP SW
Δ = 5°42'30"

BYPASS ULTIMATE CL
PI = 654+67.61
Δ = 86°37'20.50" LT.
D = 4°15'00.00"
T = 1270.92
L = 2038.17
PC = 641+96.70
PT = 662+34.87
e = 0.075'/'
Ls = 450'

BYPASS ULTIMATE CL

BYPASS SB LANE SHIFT (SOUTH)

BYPASS CD ROAD SLIP RAMP

RAMP SW

RAMP WN

RAMP WN
PI = 637+69.58
Δ = 44°58'49" RT.
D = 6°00'00"
T = 395.35'
L = 749.67'
PC = 633+74.23
PT = 641+23.90
e = 0.092'/'
Ls = 350'

RAMP WN
PI = 646+46.43
Δ = 24°08'03" LT.
D = 4°07'55"
T = 296.44'
L = 584.08'
PC = 643+50.00
PT = 649+34.08
e = 0.072'/'
Ls = 300'

RAMP WN
PI = 628+35.99
Δ = 29°38'19" RT.
D = 6°00'00"
T = 252.65'
L = 493.98'
PC = 625+83.34
PT = 630+77.32
e = 0.092'/'
Ls = 350'

BYPASS CD ROAD SLIP RAMP
PI = 631+27.15
Δ = 4°59'59" LT.
D = 2°30'00"
T = 100.06'
L = 199.99'
PC = 630+27.09
PT = 632+27.08
NO SUPERELEVATION

BYPASS CD ROAD SLIP RAMP
PI = 634+00.19
Δ = 5°39'38" RT.
D = 2°30'00"
T = 113.30'
L = 226.42'
PC = 632+86.89
PT = 635+13.31
NO SUPERELEVATION

10/14/2019

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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.		R60140	106	616

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-6-19

BYPASS ULTIMATE CL
PI = 654+67.61
Δ = 86°37'20.50" LT.
D = 4°15'00.00"
T = 1270.92
L = 2038.17
PC = 641+96.70
PT = 662+34.87
e = 0.075'/'
Ls = 450'

SURVEY BASELINE N69°29'20"W 1029.56'

P.N.5 SURVEY BASELINE N20°31'E 2456.5'

P.N.6

P.I. 669+06.79

655 660 665 670 675 680 685

P.T. 662+34.87

8007

N 81°08'13" W 197.48'

8008

P.C. 664+32.35

BYPASS ULTIMATE CL

8010

P.I. 673+17.94

N 30°12'57" W 732.10'

8011

P.C. 680+50.04

BYPASS ULTIMATE CL
PI = 669+06.79
Δ = 50°55'16.79" RT.
D = 5°45'00.00"
T = 474.44
L = 885.59
PC = 664+32.35
PT = 673+17.94
e = 0.090'/'
Ls = 540'

SURVEY BASELINE N69°29'20"W 2456.5'

BYPASS ULTIMATE CL
PI = 685+59.03
Δ = 54°06'59.72" RT.
D = 5°45'00.00"
T = 508.99
L = 941.16
PC = 680+50.04
PT = 689+91.19
e = 0.090'/'
Ls = 540'

P.I. 685+59.03

N 23°54'03" E

9/5/2019

RR60140.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.		R60140	107	616

(2) SURVEY CONTROL DETAILS

PROMISE LAND DRIVE (OVERPASS)
PI = 100+89.43
= 16°44'42" RT.
D = 15°00'00"
T = 56.22'
L = 111.63'
PC = 100+33.22
PT = 101+44.85
MATCH EXISTING SUPERELEVATION

PROMISE LAND DRIVE (OVERPASS)
PI = 102+73.31
= 97°51'38" LT.
D = 70°00'00"
T = 93.93'
L = 139.80'
PC = 101+79.38
PT = 103+19.18
MATCH EXISTING SUPERELEVATION

PROMISE LAND DRIVE (SHIFT)
PI = 202+20.24
= 25°36'48" RT.
D = 18°00'00"
T = 72.36'
L = 142.30'
PC = 201+47.88
PT = 202+90.18
MATCH EXISTING SUPERELEVATION

PROMISE LAND DRIVE (SHIFT)
PI = 204+41.53
= 25°36'18" LT.
D = 15°00'00"
T = 86.80'
L = 170.70'
PC = 203+54.73
PT = 205+25.43
e = 0.052'/'
Ls = 200'

BYPASS ULTIMATE CL
PI = 685+59.03
Δ = 54°06'59.72" RT.
D = 5°45'00.00"
T = 508.99
L = 941.16
PC = 680+50.04
PT = 689+91.19
e = 0.090'/'
Ls = 540'

PROMISE LAND DRIVE (OVERPASS)
PI = 115+33.13
= 14°49'44" LT.
D = 9°00'00"
T = 82.85'
L = 164.76'
PC = 114+50.28
PT = 116+15.05
MATCH EXISTING SUPERELEVATION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

9/5/2019

RR60140.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.		R60140	128	616

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

STA. 99+93.86 COVENANT TRAIL
= STA. 221+32.65 PROMISE LAND DRIVE (SHIFT)
Δ = 85°20'26"

PROMISE LAND DRIVE (SHIFT)
PI = 225+01.31
= 115°35'41" RT.
D = 50°00'00"
T = 181.95'
L = 231.19'
PC = 223+19.36
PT = 225+50.55
MATCH EXISTING SUPERELEVATION

POE 228+69.82

PROMISE LAND DRIVE

N 28°33'38" E
1193.93'

STA. 721+14.92 HWY. 7
= STA. 102+18.57 COVENANT TRAIL
Δ = 89°59'45"

N 23°54'03" E
3932.38'

POB 99+93.86

P.C. 223+19.36

P.T. 225+50.55

N 87°02'04" W
319.27'

STA. 224+66.65
END PROMISE LAND DRIVE

S 66°05'42" E
299.45'

STA. 100+00.00
BEGIN COVENANT TRAIL
COVENANT TRAIL

P.I. 102+93.31

P.I. 103+78.12

P.I. 105+28.12

S 23°41'28" W
99.01'

S 43°07'54" E
0.86'

P.C. 104+77.13

P.I. 105+78.12

POE 105+79.00

STA. 105+00.00
END COVENANT TRAIL

P.I. 103+37.76

P.I. 225+50.55

BYPASS ULTIMATE CL

COVENANT TRAIL
PI = 103+37.76
Δ = 42°24'14" RT.
D = 50°00'00.00"
T = 44.45'
L = 84.81'
PC = 102+93.31
PT = 103+78.12
MATCH EXISTING SUPERELEVATION

COVENANT TRAIL
PI = 105+28.12
Δ = 19°26'26" LT.
D = 19°15'00.00"
T = 50.98'
L = 100.99'
PC = 104+77.13
PT = 105+78.12
NO SUPERELEVATION

BYPASS ULTIMATE CL
PI = 744+74.99
Δ = 86°55'26.81" LT.
D = 3°30'00.00"
T = 1551.42
L = 2483.55
PC = 729+23.58
PT = 754+07.12
e = 0.065'/'
Ls = 450'

P.C. 729+23.58

P.I. 110+53.44

MILL CREEK ROAD

STA. 745+00.00 HWY. 7
= STA. 113+70.33 MILL CREEK ROAD
Δ = 60°00'00"

P.T. 112+69.

POE 744+53.22

N 29°31'27" W
368.64'

N 88°43'33" E
672.50'

P.I. 737+83.83

P.I. 140+84.58

MILL CREEK ROAD RAMP 2

N 14°13'33" E
396.43'

MILL CREEK ROAD RAMP 1

P.C. 135+89.67

STA. 120+82.52 MILL CREEK ROAD
= STA. 732+21.88 RAMP 2
Δ = 90°00'00"

P.C. 734+81.66

P.C. 741+58.48

P.C. 119+41.54

P.T. 743+40.30

P.T. 739+69.05

N 44°34'35" E
189.42'

P.I. 742+31.99

S 5°46'30" W
259.78'

P.I. 120+60.92

N 5°46'30" E
259.40'

POB 732+21.88

POE 745+99.70

P.T. 121+79.45

S 79°22'44" E
71.84'

P.I. 742+53.03

STA. 121+09.53 MILL CREEK ROAD
= STA. 745+99.70 RAMP 1
Δ = 88°38'60"

P.C. 122+51.28

P.I. 123+30.43

STA. 123+29.45
END MILL CREEK ROAD

P.T. 124+09.53

POE 125+74.03

MILL CREEK ROAD RAMP 1
PI = 737+83.93
= 30°21'02" RT.
D = 8°00'00"
T = 194.26'
L = 379.38'
PC = 735+89.67
PT = 739+69.05
e = 5.8%
Ls = 250'

MILL CREEK ROAD RAMP 2
PI = 742+31.99
Δ = 144°42'03" RT.
D = 24°00'00"
T = 750.32'
L = 602.92'
PC = 734+81.66
PT = 740+84.58
e = 0.100'/'
Ls = 300'

MILL CREEK ROAD RAMP 1
PI = 742+53.03
= 38°48'05" RT.
D = 21°20'26"
T = 94.55'
L = 181.82'
PC = 741+58.48
PT = 743+40.30
e = 9.9%
Ls = 300'

MILL CREEK ROAD
PI = 120+60.92
Δ = 11°53'43" RT.
D = 5°00'00"
T = 119.38'
L = 237.91'
PC = 119+41.54
PT = 121+79.45
e = 0.040'/'
Ls = 200'

MILL CREEK ROAD
PI = 123+30.43
= 3°09'54" LT.
D = 2°00'00"
T = 79.15'
L = 158.25'
PC = 122+51.28
PT = 124+09.53
NO SUPERELEVATION

PNH5 PDJREBAR+CAP

PNH6 PDJREBAR+CAP

PNH7 PDJ8"SPIKE

PNH8 PDJ8"SPIKE

PNH9 PDJ8"SPIKE

PNH10 PDJ8"SPIKE

PNH11 PDJREBAR+CAP

PNH12 PDJREBAR+CAP

PNH905 PDJTEM-CPS CPS POLE

SURVEY CONTROL DETAILS

9/5/2019

RR60140.DGN FILE REOPENED

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.		R60140	109	616

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

MILL CREEK ROAD
PI = 92+99.95
Δ = 0°38'57" LT.
D = 1°00'00"
T = 32.45'
L = 64.91'
PC = 92+67.50
PT = 93+32.40
NO SUPERELEVATION

MILL CREEK ROAD
PI = 96+41.13
Δ = 0°52'14" RT.
D = 1°00'00"
T = 43.52'
L = 87.05'
PC = 95+97.60
PT = 96+84.65
NO SUPERELEVATION

MILL CREEK ROAD
PI = 99+67.69
Δ = 1°00'04" LT.
D = 2°00'00"
T = 25.03'
L = 50.06'
PC = 99+42.66
PT = 99+92.72
NO SUPERELEVATION

MILL CREEK ROAD
PI = 103+14.19
Δ = 38°42'34" RT.
D = 11°00'00"
T = 182.96'
L = 351.90'
PC = 101+31.22
PT = 104+83.13
e = 0.072'/'
Ls = 250'

BYPASS ULTIMATE CL
PI = 744+74.99
Δ = 86°55'26.81" LT.
D = 3°30'00.00"
T = 1551.42
L = 2483.55
PC = 729+23.58
PT = 754+07.12
e = 0.065'/'
Ls = 450'

MILL CREEK ROAD
PI = 110+53.44
Δ = 51°06'51" LT.
D = 11°00'00"
T = 249.08'
L = 464.67'
PC = 108+04.36
PT = 112+69.04
e = 0.072'/'
Ls = 250'

MILL CREEK ROAD RAMP 3
PI = 761+73.07
Δ = 11°30'06" RT.
D = 6°00'00"
T = 96.17'
L = 191.70'
PC = 760+76.89
PT = 762+68.59
e = 0.046'/'
Ls = 250'

MILL CREEK ROAD RAMP 3
PI = 764+78.00
Δ = 22°26'40" LT.
D = 6°00'00"
T = 189.47'
L = 374.08'
PC = 762+88.53
PT = 766+62.61
e = 0.046'/'
Ls = 250'

MILL CREEK ROAD RAMP 3
PI = 771+32.65
Δ = 13°21'29" RT.
D = 3°45'00"
T = 178.92'
L = 356.22'
PC = 769+53.74
PT = 773+09.95
e = 0.031'/'
Ls = 250'

MILL CREEK ROAD RAMP 4
PI = 766+11.53
Δ = 126°52'14" LT.
D = 24°00'00"
T = 477.47'
L = 528.63'
PC = 756+82.66
e = 0.100'/'
Ls = 300'

BYPASS ULTIMATE CL
PI = 766+30.84
Δ = 76°31'53.96" RT.
D = 3°45'00.00"
T = 1205.17
L = 2040.84
PC = 754+25.66
PT = 774+66.51
e = 0.069'/'
Ls = 450'

DENISE LANE
PI = 100+82.18
Δ = 16°34'20" LT.
D = 25°00'00"
T = 33.38'
L = 66.29'
PC = 100+48.80
PT = 101+15.09
NO SUPERELEVATION

DENISE LANE
PI = 108+16.36
Δ = 60°26'24" LT.
D = 25°00'00"
T = 133.49'
L = 241.76'
PC = 106+82.86
PT = 109+24.62
e = 0.050'/'
Ls = 200'

DENISE LANE
PI = 110+67.65
Δ = 17°21'17" LT.
D = 15°00'00"
T = 58.30'
L = 115.70'
PC = 110+09.35
PT = 111+25.05
NO SUPERELEVATION

STA. 114+14.62 MILL CREEK ROAD = STA. 758+57.79 RAMP 3, Δ = 60°45'26"
STA. 94+37.66 MILL CREEK ROAD = STA. 768+58.62 RAMP 4, Δ = 89°36'60"
STA. 99+43.72 BEGIN MILL CREEK ROAD
STA. 745+00.00 HWY. 7 = STA. 113+70.33 MILL CREEK ROAD, Δ = 60°00'00"
STA. 757+29.68 HWY. 7 = STA. 757+21.60 MILL CREEK ROAD RAMP 4, Δ = 4°51'42"
STA. 103+75.81 DENISE LANE = STA. 770+50.27 MILL CREEK ROAD RAMP 3, Δ = 68°34'22"
STA. 770+50.00 HWY. 7 = STA. 104+00.27 DENISE LANE, Δ = 75°00'00"
STA. 772+42.58 HWY. 7 = STA. 772+52.01 MILL CREEK ROAD RAMP 3, Δ = 6°46'43"

SURVEY BASELINE N 69°08'30" E 2121.12'

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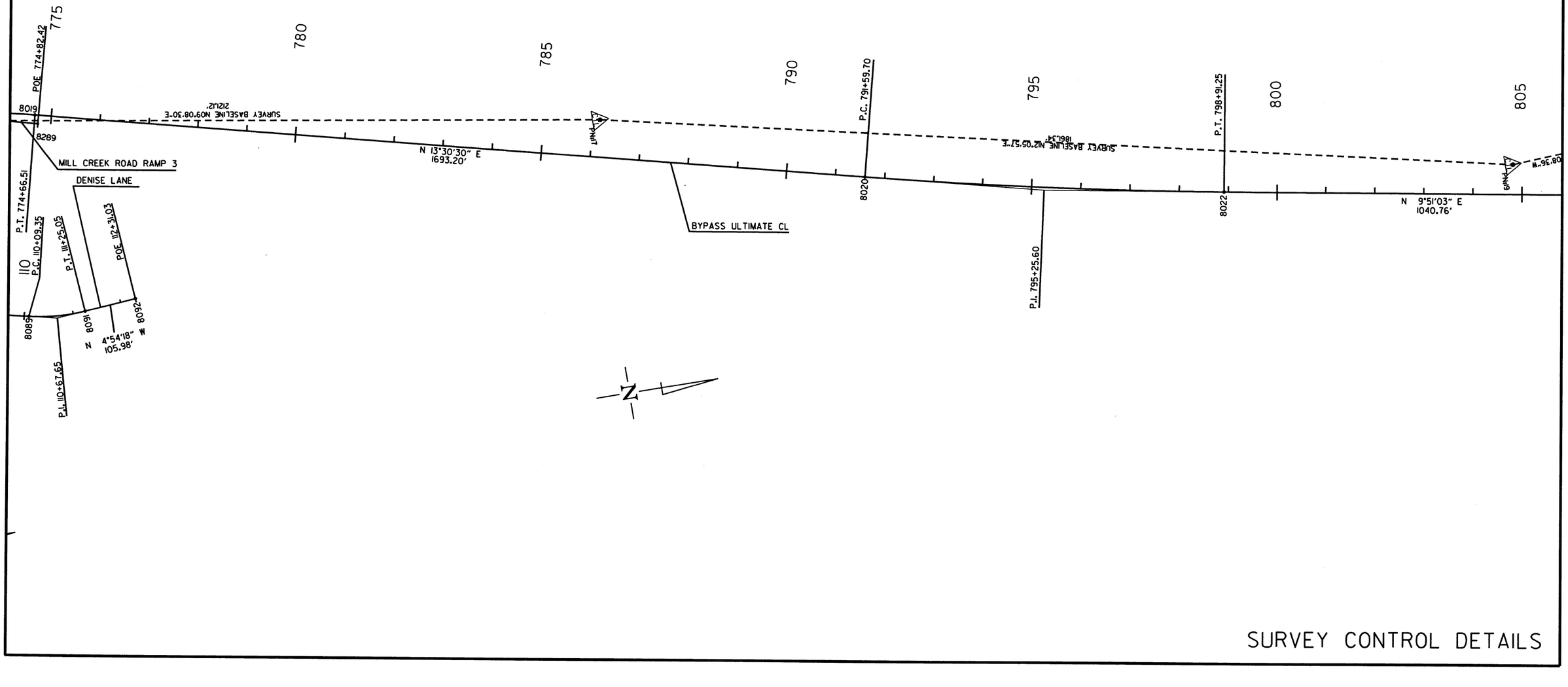
SURVEY CONTROL DETAILS

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.		R60140	110	616

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

BYPASS ULTIMATE CL
PI = 795+25.60
Δ = 3°39'27.78" LT.
D = 0°30'00.00"
T = 365.90
L = 731.54
PC = 791+59.70
PT = 798+91.25
NO SUPERELEVATION



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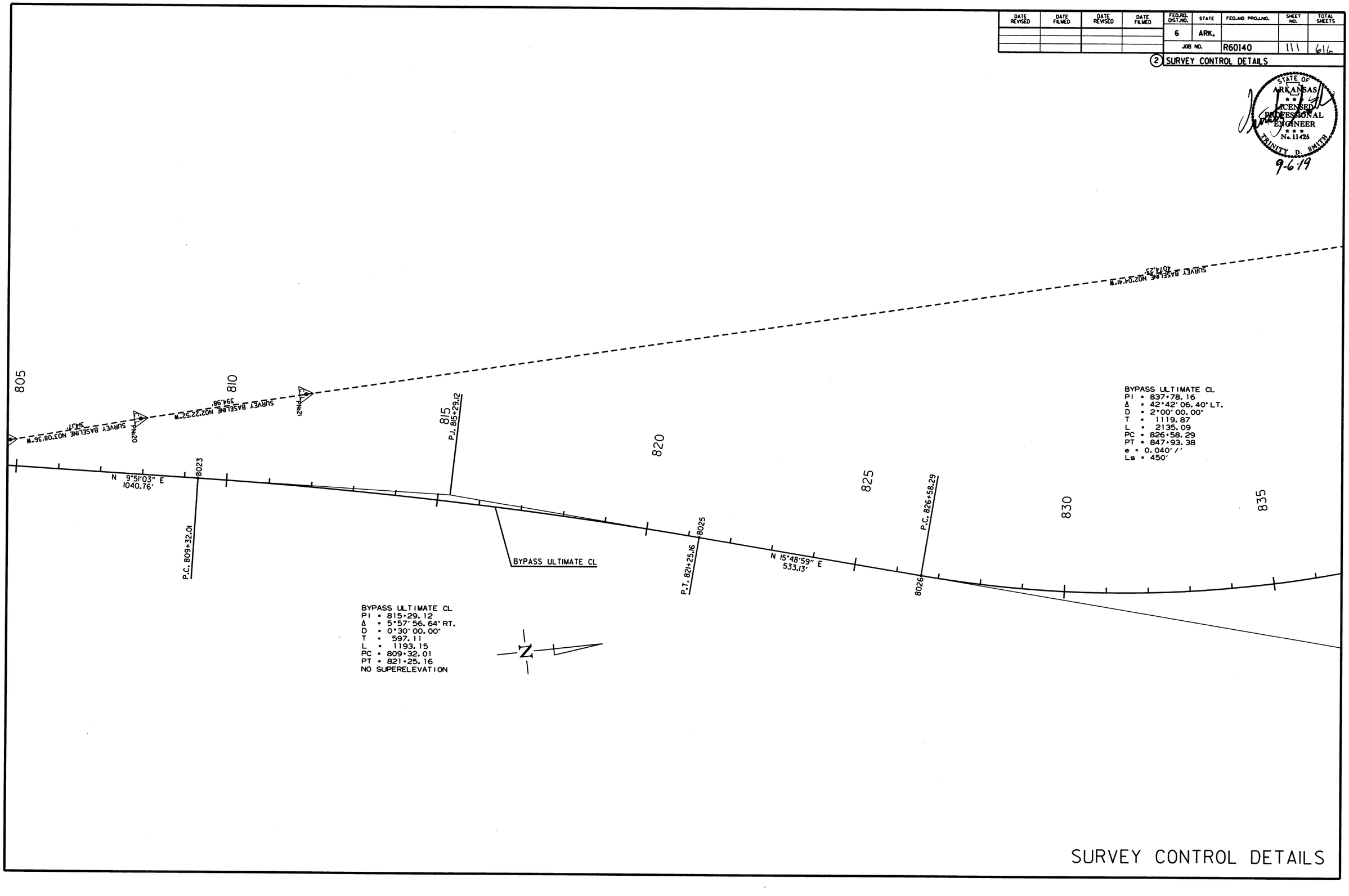
SURVEY CONTROL DETAILS

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.		R60140	111	616

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



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RR60140.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.		R60140	112	616

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

DRIVEWAY TRACT 56
PI = 103+88.18
Δ = 41°46'11" RT.
D = 55°00'00"
T = 39.75'
L = 75.95'
PC = 103+48.43
PT = 104+24.38
NO SUPERELEVATION

DRIVEWAY TRACT 56
PI = 102+32.11
Δ = 13°18'16" RT.
D = 15°00'00"
T = 44.55'
L = 88.70'
PC = 101+87.56
PT = 102+76.26
NO SUPERELEVATION

DRIVEWAY TRACT 56
PI = 100+81.61
Δ = 5°02'25" LT.
D = 10°00'00"
T = 25.22'
L = 50.40'
PC = 100+56.39
PT = 101+06.80
NO SUPERELEVATION

BYPASS ULTIMATE CL
PI = 837+78.16
Δ = 42°42'06.40" LT.
D = 2°00'00.00"
T = 1119.87
L = 2135.09
PC = 826+58.29
PT = 847+93.38
e = 0.040'/'
Ls = 450'

BYPASS ULTIMATE CL
PI = 871+48.87
Δ = 62°21'17.32" RT.
D = 3°45'00.00"
T = 924.50
L = 1662.79
PC = 862+24.37
PT = 878+87.17
e = 0.069'/'
Ls = 450'

DRIVEWAY TRACT 56

P.T. 104+24.38
P.C. 103+48.43
P.I. 102+76.26
P.C. 101+87.56
P.I. 100+81.61
S 39°47'29" E 56.39'
STA. 100+00.00 BEGIN DRIVEWAY TRACT 56
POB 100+00.00
P.C. 100+56.39
P.I. 101+06.80
44°49'54" 80.16'
P.I. 102+32.11
S 31°31'39" E 72.18'
S 10°14'33" W 12.52'
STA. 104+36.90 END DRIVEWAY TRACT 56
POE 104+36.90
P.I. 103+88.18
N 26°53'07" W 1431.00'
SURVEY BASELINE N08°57'56"E 2348.02'
P.C. 862+24.37
P.I. 841+93.38
P.I. 837+78.16
N 15°48'59" E
BYPASS ULTIMATE CL
PENHUB 3 FD.5/8" SPIKE
PENHUB 59 FD.5/8" SPIKE
PENHUB 36 FD.5/8" SPIKE
PENHUB 60 FD.5/8" SPIKE
PENHUB 61 FD.5/8" SPIKE
PENHUB 72 FD.5/8" SPIKE
835
840
845
850
855
860
865
9/5/2019
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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.		R60140	113	616

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

865
870
875
880
885
890
895

P.I. 871+48.87

N 26°53'07" W

BYPASS ULTIMATE CL

BYPASS ULTIMATE CL
PI = 871+48.87
Δ = 62°21'17.32" RT.
D = 3°45'00.00"
T = 924.50
L = 1662.79
PC = 862+24.37
PT = 878+87.17
e = 0.069'/'
Ls = 450'

8031

P.T. 878+87.17

N 35°38'10" E
446.98'

P.C. 883+36.15

8032

SURVEY BASELINE N08°57'56"E
2348.02'

P.I.

N

BYPASS ULTIMATE CL
PI = 891+56.79
Δ = 42°59'49.33" LT.
D = 2°45'00.00"
T = 820.64
L = 1563.53
PC = 883+36.15
PT = 898+99.68
e = 0.053'/'
Ls = 450'

N 7°31'39" W

SURVEY BASELINE N9°39'30"E
2059.77'

P.I. 891+56.79

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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.		R60140	114	616

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

BYPASS ULTIMATE CL
PI = 891+56.79
Δ = 42°59'49.33" LT.
D = 2°45'00.00"
T = 820.64
L = 1563.53
PC = 883+36.15
PT = 898+99.68
e = 0.053'/'
Ls = 450'

BYPASS ULTIMATE CL
PI = 919+80.37
Δ = 53°07'51.26" LT.
D = 9°00'00.00"
T = 318.32
L = 590.34
PC = 916+62.05
PT = 922+52.40
e = 0.063'/'
Ls = 360'

P.T. 317+63.40
8144
N 57°59'37" E
446.42'
320
HIGHWAY 7
P.C. 322+09.82
8145
STA. 923+05.44 BYPASS ULTIMATE CL
= STA. 327+06.76 HIGHWAY 7
Δ = 80°00'00"
SURVEY BASELINE N67°59'37"E 1762.37'
P.I. 324+79.66
325
PNI33
PNI32
8147
N 19°20'23" E
227.10'
P.I. 323+50.10
END JOB R60140
STA. 923+05.44
8038
N 60°39'37" W
191.50'
P.I. 322+52.40
920
P.I. 327+06.76
8037
N 39°20'23" E
185.14'
8148
P.I. 329+
330
P.C. 328+91.90
PRC330+69.36
8150
P.I. 332+28.78
N 46°43'27" E
121.24'
8152
P.I. 919+80.37
P.C. 916+62.05
8035
POE 913+92.06
P.I. 913+92.05
P.I. 912+66.57
PRC911+40.92
P.C. 908+89.79
POB 908+50.00
SURVEY BASELINE N34°49'09"E 2240.08'
N 60°49'09" E 1360.49'
P.I. 910+15.44
8034
N 7°31'39" W
1762.37'
BYPASS ULTIMATE CL
NORTHBOUND TO CENTERLINE LANE SHIFT
PNI36
895
900
905
910
915

NORTHBOUND TO CENTERLINE LANE SHIFT
PI = 910+15.44
Δ = 5°01'21" LT.
D = 2°00'00"
T = 125.65'
L = 251.13'
PC = 908+89.79
PRC = 911+40.92
NO SUPERELEVATION

NORTHBOUND TO CENTERLINE LANE SHIFT
PI = 912+66.57
Δ = 5°01'21" RT.
D = 2°00'00"
T = 125.64'
L = 251.13'
PRC = 911+40.92
PT = 913+92.05
NO SUPERELEVATION

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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.		R60140	115	616

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

800
805
810
815
820
825

POB 800+00.00
8154
N 88°42'07" E
2272.43'
8155
P.I. 824+66.59
P.C. 822+72.43
HWY. 70B MEDIAN CENTERLINE

PNH02
PID:AHTD GPS 260020

HWY. 70B CENTERLINE
PI = 824+66.59
Δ = 2°37'59" RT.
D = 0°40'42"
T = 194.16'
L = 388.25'
PC = 822+72.43
PT = 826+60.68
NO SUPERELEVATION

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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.		R60140	116	616

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

PN:824
PD:5/8"REBAR W/2"CAP

PN:901
PD:TBM-901 CHSL SQ DIVIDER

PN:950
PD:WEST BOLT HEAD ON FIRE HYDRANT

HWY. 70B CENTERLINE
PI = 855+27.01
Δ = 6°55'21" LT.
D = 0°55'38"
T = 373.71'
L = 746.52'
PC = 851+53.30
PT = 858+99.82
e = 0.021'/'
Ls = 300'

N

*PN:1472
PD:8" SPK

P.I. 824+66.59

HWY. 70B CENTERLINE
PI = 824+66.59
Δ = 2°37'59" RT.
D = 0°40'42"
T = 194.16'
L = 388.25'
PC = 822+72.43
PT = 826+60.68
NO SUPERELEVATION

P.T. 826+60.68

HWY. 70B MEDIAN CENTERLINE

S 88°39'54" E
2492.62'

PN:48
PD:STD AHTD MON. STAMPED

*PN:1343
PD:8 SPIKE TRIG ELEV

PN:49
PD:STD AHTD MON. STAMPED PN:49

PN:47
PD:STD AHTD MON. STAMPED PN:47

STA. 611+98.69
BEGIN RAMP SW

POB 611+98.69

*PN:1310
PD:8 SPIKE

N 88°59'02" E
300.25'

PN:50
PD:STD AHTD MON. STAMPED PN:50

P.C. 611+98.94
Δ = 2°22'52" RT.

S 88°38'06" E
537.16'

PN:51
PD:STD AHTD MON. STAMPED PN:51

STA. 847+14.80
BEGIN HWY. 70B C-D ROAD

P.I. 621+31.82

P.C. 620+36.10
PD:SPIKE REBAR AND ALUM CAP

N 85°37'36" E
53.04'

P.T. 622+27.38

P.C. 622+80.42

P.C. 851+53.30

*PN:1330
PD:8 SPIKE

*PN:1331
PD:8 SPIKE

*PN:1332
PD:8 SPIKE

*PN:1334
PD:8 SPIKE

*PN:1338
PD:8 SPIKE

PN:40
PD:REBAR+CAP

S 88°39'54" E

*PN:1543
PD:8 SPK TRIG ELEV

*PN:1542
PD:8 SPK TRIG ELEV

P.I. 855+27.01

*PN:1545
PD:8 SPK TRIG ELEV

*PN:1554
PD:8 SPK TRIG ELEV

*PN:1553
PD:8 SPK TRIG ELEV

*PN:1549
PD:8 SPK TRIG ELEV

*PN:1552
PD:8 SPK TRIG ELEV

*PN:1550
PD:8 SPK TRIG ELEV

*PN:1544
PD:8 SPK TRIG ELEV

*PN:1548
PD:8 SPK TRIG ELEV

*PN:1551
PD:8 SPK TRIG ELEV

*PN:1546
PD:8 SPK TRIG ELEV

*PN:1344
PD:8 SPIKE TRIG ELEV

*PN:1547
PD:8 SPK TRIG ELEV

*PN:1555
PD:8 SPK

RAMP SE
PI = N.A.
Δ = 262°20'31" RT.
D = 24°22'52"
R = 190.28'
L = 1076.00'
PC = 844+67.02
PT = 855+43.02
e = 0.100'/'
Ls = 300'

RAMP SE

PN:52
PD:STD AHTD MON. STAMPED PN:52

825 830 835 840 845 850 855 860 865 870 875 880 885 890 895 900 905 910 915 920 925 930 935 940 945 950

615 620 625

8157 8262 8263 8264 8266 8267 8158 8261

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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
10-07-19				6	ARK.			
				JOB NO.		R60140	117	616

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19

HWY. 70B CENTERLINE
PI = 855+27.01
Δ = 6°55'21" LT.
D = 0°55'38"
T = 373.71'
L = 746.52'
PC = 851+53.30
PT = 858+99.82
e = 0.021'/'
Ls = 300'

STA 632+50.73
END RAMP SW

RAMP WN
PI = 637+69.58
Δ = 44°58'49" RT.
D = 6°00'00"
T = 395.35'
L = 749.67'
PC = 633+74.23
PT = 641+23.90
e = 0.092'/'
Ls = 350'

RAMP WN
PI = 628+35.99
Δ = 29°38'19" RT.
D = 6°00'00"
T = 252.65'
L = 493.98'
PC = 625+83.34
PT = 630+77.32
e = 0.092'/'
Ls = 350'

BYPASS CD ROAD SLIP RAMP
PI = 634+00.19
Δ = 5°39'38" RT.
D = 2°30'00"
T = 113.30'
L = 226.42'
PC = 632+86.89
PT = 635+13.31
NO SUPERELEVATION

BYPASS CD ROAD SLIP RAMP
PI = 631+27.15
Δ = 4°59'59" LT.
D = 2°30'00"
T = 100.06'
L = 199.99'
PC = 630+27.09
PT = 632+27.08
NO SUPERELEVATION

RAMP WN
PI = 620+07.32
Δ = 20°05'19" RT.
D = 3°00'00"
T = 338.28'
L = 669.62'
PC = 616+69.04
PT = 623+38.65
e = 0.057'/'
Ls = 300'

RAMP EN
PI = N.A.
Δ = 280°00'37" RT.
D = 24°22'52"
R = 235.00'
L = 1148.47'
PC = 861+13.97
PT = 872+62.44
e = 0.100'/'
Ls = 300'

HWY. 70B C-D ROAD SLIP RAMP
PI = 862+25.00
Δ = 5°45'30" LT.
D = 3°00'00"
T = 96.05'
L = 191.95'
PC = 861+28.95
PT = 863+20.89
NO SUPERELEVATION

HWY. 70B C-D ROAD SLIP RAMP
PI = 864+50.89
Δ = 5°22'46" RT.
D = 3°00'00"
T = 89.72'
L = 179.31'
PC = 863+61.17
PT = 865+40.48
NO SUPERELEVATION

RAMP SE
PI = N.A.
Δ = 262°20'31" RT.
D = 24°22'52"
R = 190.28'
L = 1076.00'
PC = 844+67.02
PT = 855+43.02
e = 0.100'/'
Ls = 300'

BYPASS ULTIMATE CL
HWY. 70B MEDIAN CENTERLINE
HWY. 70B C-D ROAD SLIP RAMP
RAMP WN
RAMP SW
RAMP EN
RAMP SE
BYPASS CD ROAD SLIP RAMP
STA. 871+81.26
END HWY. 70B C-D ROAD

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SURVEY CONTROL DETAILS

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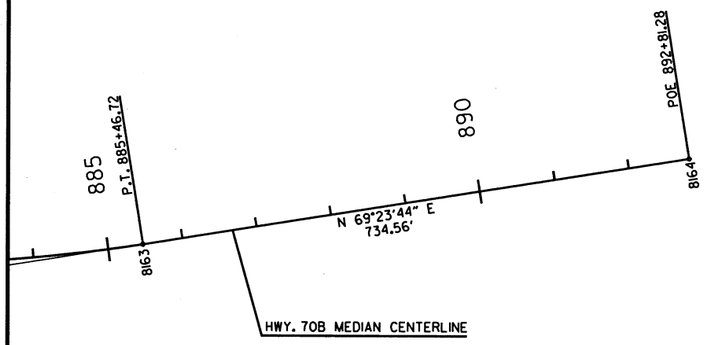
				6	ARK.			
				JOB NO.		R60140	118	616

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



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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
10-07-19				6	ARK.			
				JOB NO.		R60140	119	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19

STA. 617+22.98 - STA. 617+99.12 CONSTRUCT
76'-1¾" X 40'-0" CLEAR ROADWAY BRIDGE
74'-0" SIMPLE COMPOSITE W-BEAM SPAN
BR. NO B7206

STA. 624+27.90 - STA. 628+18.10 CONSTRUCT
390'-2½" X 40'-0" CLEAR ROADWAY BRIDGE
388'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (81'-135'-100'-72')
BR. NO B7207

BYPASS SB LANE SHIFT (SOUTH)
PI = 5+02.30
Δ = 7°11'07" RT.
D = 4°00'00"
T = 89.93'
L = 179.63'
PC = 1+10.07
PT = 2+89.70
NO SUPERELEVATION

BEGIN JOB R60140
STA. 615+94.76
ELEV. 495.90

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
618+09.98	620+28.73	M.L. - LT.	150 LIN. FT.	1 EA.	1 EA.

C.L. MAIN LANES
P.I. 612+70.62
Δ = 0°12'31" LT.

CRASH CUSHION

HWY 70 (MLK EXPRESSWAY)

N 14°47'44" E

STA. 620+50.58 C.L. MEDIAN
BEGIN L.M.L. PAVED

HWY 70B EB

P.I. 855+27.00

C.L. MAIN LANES
P.I. 622+65.40
Δ = 0°50'29" RT.

REMOVAL AND DISPOSAL OF BARRIER WALL

STA.	STA.	SIDE	LIN. FT.
610+50.00	616+00.00	C.L.	550

BYPASS SB LANE SHIFT (SOUTH)
PT = 2+00.00
Δ = 7°11'07" RT.
D = 4°00'00"
T = 89.93'
L = 179.63'
PC = 1+10.07
PT = 2+89.70
NO SUPERELEVATION

STA. 609+00 - IN PLACE TYPE ST DROP INLET W/ 18" X 48' PIPE OUTLET RETAIN

STA. 610+00 - IN PLACE TYPE ST DROP INLET W/ 18" X 48' PIPE OUTLET RETAIN

STA. 612+00 - IN PLACE TYPE ST DROP INLET W/ 18" X 54' PIPE OUTLET RETAIN

STA. 614+00 - IN PLACE TYPE ST DROP INLET W/ 18" X 56' PIPE OUTLET RETAIN

STA. 616+00 - IN PLACE TYPE ST DROP INLET W/ 18" X 56' PIPE OUTLET RETAIN

STA. 618+50 - IN PLACE TYPE ST DROP INLET W/ 18" X 40' PIPE OUTLET RETAIN

STA. 620+50 - IN PLACE TYPE ST DROP INLET W/ 18" X 56' PIPE OUTLET RETAIN

STA. 623+00 - IN PLACE TYPE ST DROP INLET W/ 18" X 76' PIPE OUTLET RETAIN

BYPASS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	120	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10.15.19

BYPASS

STA. 617+22.98 - STA. 617+99.12 CONSTRUCT
76'-1¼" X 40'-0" CLEAR ROADWAY BRIDGE
74'-0" SIMPLE COMPOSITE W-BEAM SPAN
BR. NO B7206

STA. 624+27.90 - STA. 628+18.10 CONSTRUCT
390'-2½" X 40'-0" CLEAR ROADWAY BRIDGE
388'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (81'-135'-100'-72')
BR. NO B7207

BEGIN JOB R60140
STA. 615+94.76
ELEV. 495.90

BRIDGE BEGIN
STA 617+22.98

618+02.84
507.68

BRIDGE END
STA 617+99.12

K=354.67
VC=1350'
e=-6.23%

BRIDGE BEGIN
STA 624+27.90

624+67.84
511.01

0.50%

EXISTING

K=326.53
VC=800'
e=2.45%

599+49.81
424.58

599+74.81
424.63

602+49.81
434.68

602+74.81
434.73

617+37.84
479.42

720 710 700 690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530 520 510 500 490 480 470 460 450 440 430 420 410 400

595+00 596+00 597+00 598+00 599+00 600+00 601+00 602+00 603+00 604+00 605+00 606+00 607+00 608+00 609+00 610+00 611+00 612+00 613+00 614+00 615+00 616+00 617+00 618+00 619+00 620+00 621+00 622+00 623+00 624+00 625+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10-07-19			
10-30-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		R60140	121	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STA. 624+27.90 - STA. 628+18.10 CONSTRUCT
390'-2½" X 40'-0" CLEAR ROADWAY BRIDGE
388'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (81'-135'-100'-72')
BR. NO B7207

STA. 635+53.75 - STA. 638+01.25 CONSTRUCT
247'-6" X 88'-0" CLEAR ROADWAY BRIDGE
245'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (75'-95'-75')
BR. NO 07455

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
628+22.79	630+41.54	M.L. - LT.	150 LIN. FT.	1 EA.	1 EA.
633+15.94	635+34.69	M.L. - RT.	150 LIN. FT.	1 EA.	1 EA.
637+86.25	640+05.00	M.L. - LT.	150 LIN. FT.	1 EA.	1 EA.
638+37.05	639+30.80	M.L. - RT.	75 LIN. FT.	1 EA.	1 EA.

FENCING STA.	STA.	SIDE	(TYPE A) LIN.FT.
635+77	690+47	LT.	5873
638+42	692+88	RT.	5654

STA. 626+40.56 HWY. 7
= STA. 858+61.93 HWY. 70B
Δ = 79°29'57"

EAST GRAND AVE

EXISTING R/W

STA. 631+30.73 C.L. MEDIAN BEGIN L.M.L. PAVED

C.L. MAIN LANES P.I. 629+30.15 Δ = 0°38'37" RT.

C.L. MAIN LANES P.I. 635+00.00 Δ = 0°25'12" LT.

STA. 637+78.27 HWY. 7
= STA. 637+79.67 RAMP SW
Δ = 5°42'30"

STA. 640+99.20 C.L. MEDIAN END L.M.L. PAVED

P.T. 858+67.64

N 5°42'30" E

N 5°54'49" E

N 0°52'48" W

N 26°08'51" W

P.C. 641+96.70

P.C. 643+50.00

P.T. 649+34.08

P.T. 641+28.90

P.I. 637+69.58

P.I. 646+46.13

P.I. 654+61.91

PROPOSED R/W & C/A

EXISTING R/W

BEGIN C/A 442.48 300.02

CRASH CUSHION

STA. 629+50 - IN PLACE TYPE ST DROP INLET W/ 18" X 66' PIPE OUTLET RETAIN

STA. 631+50 - IN PLACE TYPE ST DROP INLET W/ 18" X 66' PIPE OUTLET RETAIN AND MODIFY

REMOVAL AND DISPOSAL OF BARRIER WALL

STA.	STA.	SIDE	LIN. FT.
630+25.00	632+91.35	RT	266.35

C.L. MEDIAN
PI = 654+67.61
Δ = 86°37'20.50" LT.
D = 4°15'00.00"
T = 1270.92
L = 2038.17
PC = 641+96.70
PT = 662+34.87
e = 0.075'/'
Ls = 450'

STA. 650+75 CONSTRUCT
36" X 254' R.C. PIPE CULVERT
ON A 45° LT. FWD. SKEW
(CLASS VI (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 43.0 CFS D.A. = 11.70 ACRES
36" R.C. PIPE = 254 LIN. FT.
36" FES = 2 EA.

P.I. 633+14.23

P.C. 633+14.23

P.I. 630+17.32

P.T. 628+35.39

P.C. 625+83.34

TURPEN LANE

CEDAR CREEK ROAD

BYPASS CD ROAD SLIP RAMP
PI = 631+27.15
Δ = 4°59'59" LT.
D = 2°30'00"
T = 100.06'
L = 199.99'
PC = 630+27.09
PT = 632+27.08
NO SUPERELEVATION

BYPASS CD ROAD SLIP RAMP
PI = 634+00.19
Δ = 5°39'38" RT.
D = 2°30'00"
T = 113.30'
L = 226.42'
PC = 632+86.89
PT = 635+13.31
NO SUPERELEVATION

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BYPASS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
10-30-19				JOB NO.		R60140	122	616

(2) PLAN AND PROFILE SHEETS

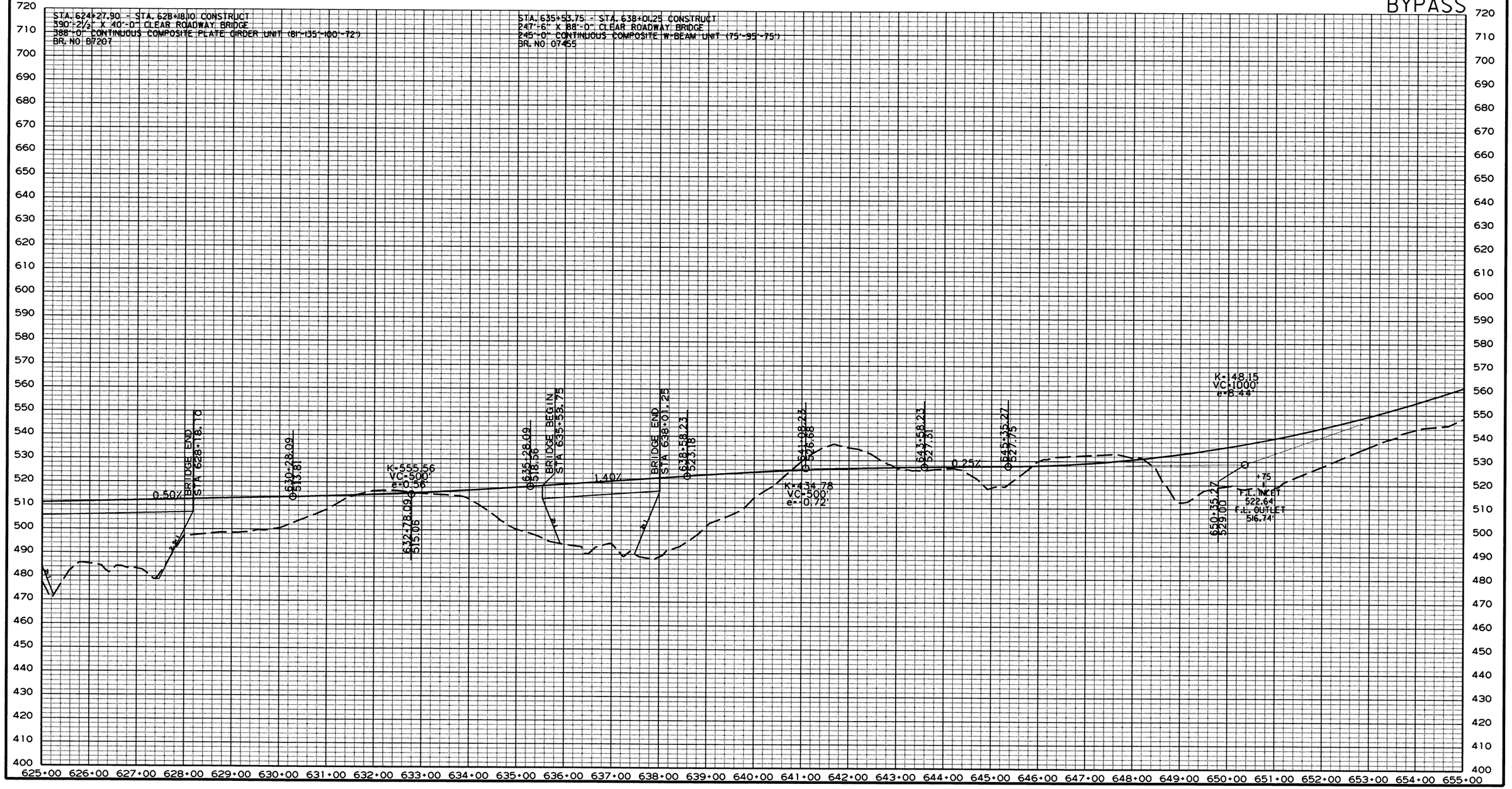
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STA. 638+59.20 BEGIN SUPERELEVATION (0.020'/')
STA. 643+09.20 MAX SUPERELEVATION (0.075'/')
STA. 658+83.61 MAX SUPERELEVATION (0.075'/')
STA. 663+33.61 END SUPERELEVATION (0.020'/')

BYPASS

STA. 624+27.90 - STA. 628+18.10 CONSTRUCT
390'-2 1/2" X 40'-0" CLEAR ROADWAY BRIDGE
388'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (81'-135'-100'-72')
BR. NO B7207

STA. 635+53.75 - STA. 638+01.25 CONSTRUCT
247'-6" X 88'-0" CLEAR ROADWAY BRIDGE
245'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (75'-95'-75')
BR. NO 07455



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RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	123	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

FENCING STA.	STA.	SIDE	(TYPE A) LIN.FT.
635+77	690+47	LT.	5873
638+42	692+88	RT.	5654

C.L. MEDIAN
PI = 654+67.61
Δ = 86°37'20.50" LT.
D = 4°15'00.00"
T = 1270.92
L = 2038.17
PC = 641+96.70
PT = 662+34.87
Ls = 450'
e = 0.075'/'

C.L. MEDIAN
PI = 669+06.79
Δ = 50°55'16.79" RT.
D = 5°45'00.00"
T = 474.44
L = 885.59
PC = 664+32.35
PT = 673+17.94
Ls = 540'
e = 0.090'/'

STA. 670+00 CONSTRUCT
DBL. 72" X 198' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 540 CFS D.A. = 146 ACRES
72" R.C. PIPE = 396 LIN. FT.
72" FES = 4 EA.

STA. 677+00 CONSTRUCT
48" X 376' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 115 CFS D.A. = 24.40 ACRES
48" R.C. PIPE = 376 LIN. FT.
48" FES = 2 EA.

C.L. MEDIAN
PI = 685+59.03
Δ = 54°06'59.72" RT.
D = 5°45'00.00"
T = 508.99
L = 941.16
PC = 680+50.04
PT = 689+91.19
Ls = 540'
e = 0.090'/'

PROPOSED R/W & C/A
P.I. 669+06.79
P.T. 673+17.94
P.C. 664+32.35
P.C. 680+50.04
P.I. 685+59.03
N 81°08'13" W
N 30°12'07" W
655
660
665
670
675
680
685
BYPASS

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RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	124	616

(2) PLAN AND PROFILE SHEETS

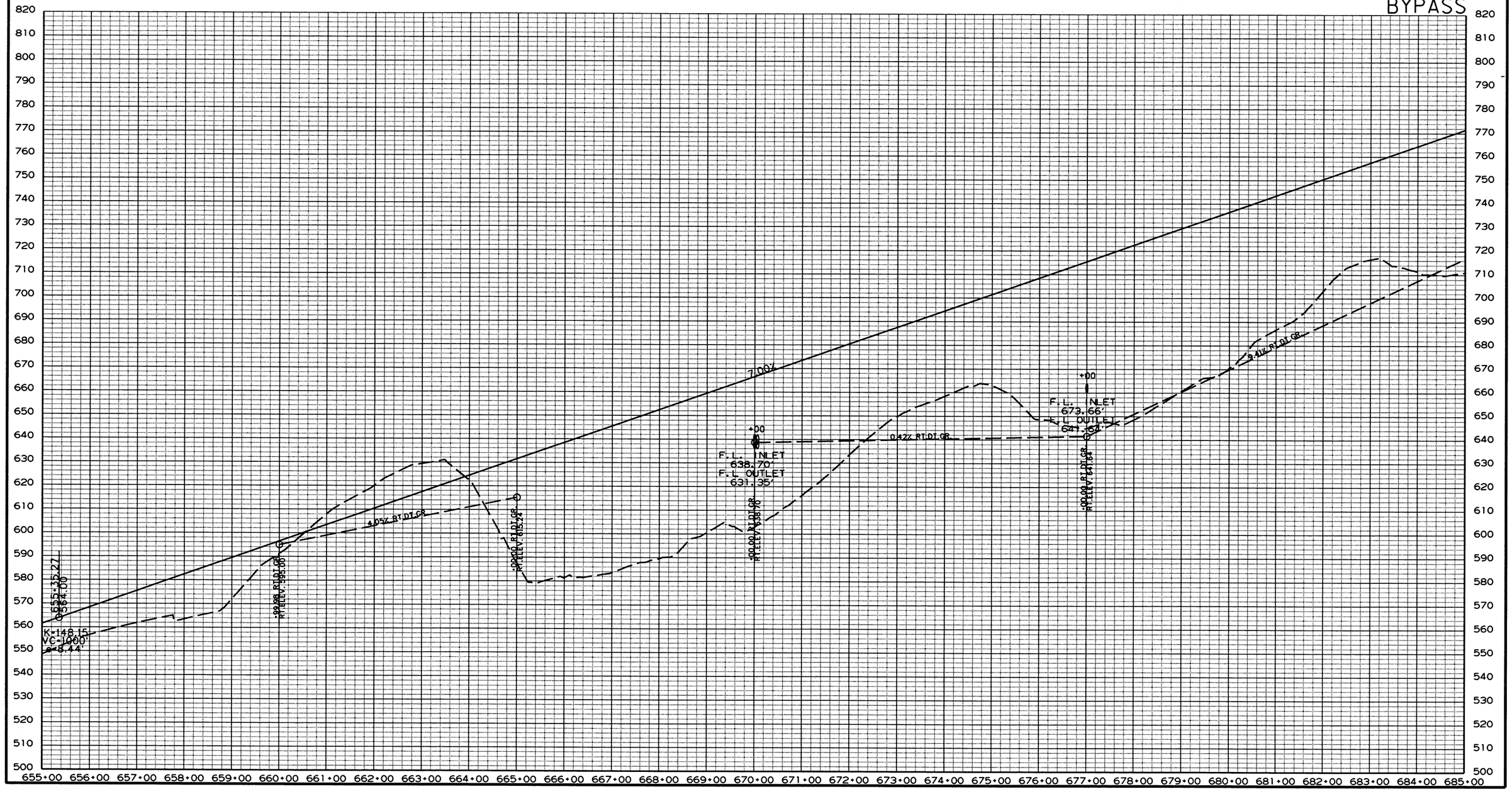
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STA. 638+59.20 BEGIN SUPERELEVATION (0.020'/')
STA. 643+09.20 MAX SUPERELEVATION (0.075'/')
STA. 658+83.61 MAX SUPERELEVATION (0.075'/')
STA. 663+33.61 END SUPERELEVATION (0.020'/')

STA. 663+33.61 BEGIN SUPERELEVATION (0.020'/')
STA. 668+73.61 MAX SUPERELEVATION (0.090'/')
STA. 671+43.99 MAX SUPERELEVATION (0.090'/')
STA. 675+63.99 END SUPERELEVATION (0.020'/')

STA. 678+03.99 BEGIN SUPERELEVATION (0.020'/')
STA. 682+23.99 MAX SUPERELEVATION (0.090'/')
STA. 688+56.19 MAX SUPERELEVATION (0.090'/')
STA. 693+96.19 END SUPERELEVATION (0.020'/')
STA. 696+96.19 END TRANSITION (N.C.)

BYPASS



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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
10-30-19				JOB NO.		R60140	125	616

(2) PLAN AND PROFILE SHEETS

FENCING STA.	STA.	SIDE	(TYPE A) LIN.FT.
635+77	690+47	LT.	5873
638+42	692+88	RT.	5654
690+71	720+73	LT.	3652
693+12	720+73	RT.	3155

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STA. 688+00.00 C.L. MEDIAN
BEGIN L.M.L. GRADING

STA. 692+50.00 C.L. MEDIAN
END L.M.L. GRADING

STA. 691+79.97 HWY. 7
= STA. 110+79.64 PROMISE LAND DRIVE OVERPASS
Δ = 60°50'16"

C.L. MEDIAN
PI = 685+59.03
Δ = 54°06'59.72" RT.
D = 5°45'00.00"
T = 508.99
L = 941.16
PC = 680+50.04
PT = 689+91.19
Ls = 540'
e = 0.090'/'

STA. 686+50.00 CONSTRUCT
48" X 328' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 92 CFS D.A. = 19.3 ACRES
48" R.C. PIPE = 328 LIN. FT.
4" FES = 2 EA.

STA. 708+80.00 CONSTRUCT
48" X 422' R.C. PIPE CULVERT
ON A 30° LT. FWD. SKEW
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 120 CFS D.A. = 26 ACRES
48" R.C. PIPE = 422 LIN. FT.
48" FES = 2 EA.

N 23°54'03" E

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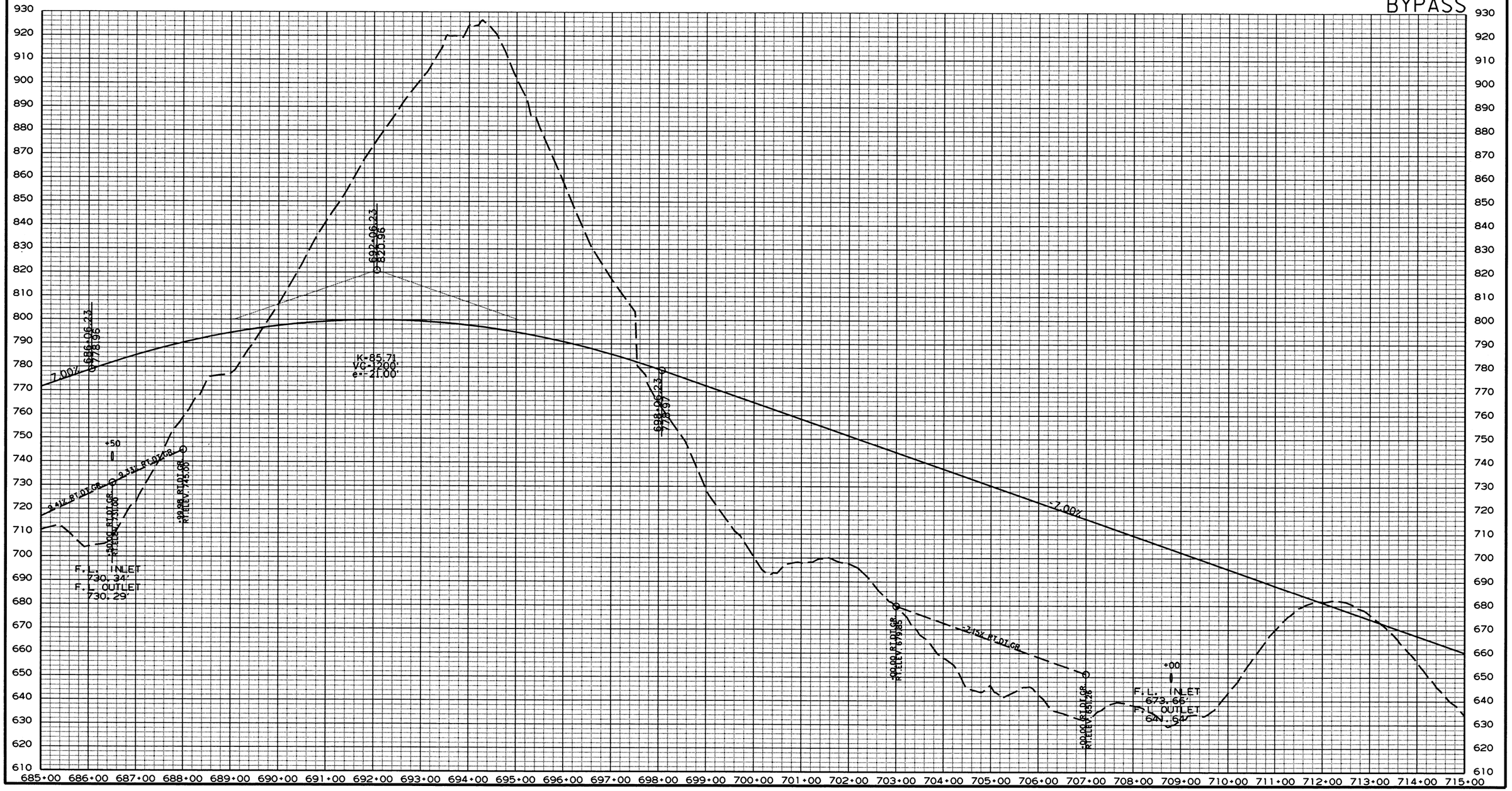
BYPASS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
10-30-19				JOB NO.		R60140	126	616
				(2) PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STA. 678+03.99 BEGIN SUPERELEVATION (0.020'/')
STA. 682+23.99 MAX SUPERELEVATION (0.090'/')
STA. 688+56.19 MAX SUPERELEVATION (0.090'/')
STA. 693+96.19 END SUPERELEVATION (0.020'/')
STA. 696+96.19 END TRANSITION (N.C.)

BYPASS



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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
10-30-19				JOB NO.		R60140	127	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STA. 716+33.00 CONSTRUCT
24" X 464' R.C. PIPE CULVERT
ON A 45° LT. FWD. SKEW
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 47.40 CFS D.A. = 26 ACRES
24" R.C. PIPE = 464 LIN. FT.
24" FES = 2 EA.

FENCING STA.	STA.	SIDE	(TYPE A) LIN.FT.
690+71	720+73	LT.	3652
693+12	720+73	RT.	3155
721+54	745+10	LT.	2331
721+54	741+10	RT.	3513
741+40	743+09	RT.	484
743+85	744+72	RT.	147

C.L. MEDIAN
PI = 744+74.99
Δ = 86°55'26.81" LT.
D = 3°30'00.00"
T = 1551.42
L = 2483.55
PC = 729+23.58
PT = 754+07.12
Ls = 450'
e = 0.065'/'

STA. 745+00.00 HWY. 7
= STA. 113+70.33 MILL CREEK ROAD
Δ = 60°00'00"

STA. 741+75 CONSTRUCT
QUAD. 9' X 6' X 126' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
(15° RT. FWD. SKEW)
Q50 = 1700 CFS D.A. = 448 ACRES

STA. 721+14.92 HWY. 7
= STA. 102+18.57 COVENANT TRAIL
Δ = 89°59'45"

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
719+39.77	720+33.52	M.L. - LT.	75 LIN. FT.	1 EA.	1 EA.
718+14.77	720+33.52	M.L. - RT.	150 LIN. FT.	1 EA.	1 EA.
721+77.48	723+96.23	M.L. - LT.	150 LIN. FT.	1 EA.	1 EA.
721+77.48	722+71.23	M.L. - RT.	75 LIN. FT.	1 EA.	1 EA.

STA. 720+45.92 - STA. 721+68.08 CONSTRUCT
122'-2" X 42'-0" CLEAR ROADWAY BRIDGE
120'-0" SIMPLE COMPOSITE PLATE GIRDER SPAN
BR. NO B7458

STA. 733+54 CONSTRUCT
DBL. 60" X 150' R.C. PIPE CULVERT
ON A 45° LT. FWD. SKEW
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 320 CFS D.A. = 85 ACRES
60" R.C. PIPE = 300 LIN. FT.
60" FES = 2 EA.

STA. 735+72 CONSTRUCT
42" X 144' R.C. PIPE CULVERT
ON A 15° LT. FWD. SKEW
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 75 CFS D.A. = 173 ACRES
42" R.C. PIPE = 144 LIN. FT.
42" FES = 2 EA.

PROPOSED R/W
PROPOSED C/A
PROPOSED R/W & C/A
16' 0" GATE
CRASH CUSHION
BEGIN C/A
END C/A
P.I. 744+74.99
P.C. 729+23.58
P.T. 754+07.12

BYPASS

8/7/2019

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10-07-19			
10-30-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		R60140	128	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STA. 717+09.42 BEGIN TRANSITION (N.C.)
STA. 720+09.42 END TRANSITION (0.020'/')

STA. 725+86.08 BEGIN SUPERELEVATION (0.020'/')
STA. 730+36.08 MAX SUPERELEVATION (0.065'/')
STA. 749+66.39 MAX SUPERELEVATION (0.065'/')
STA. 754+16.39 END SUPERELEVATION (0.020'/')

BYPASS

STA. 720+45.92 - STA. 721+68.08 CONSTRUCT
22'-2" X 42'-0" CLEAR ROADWAY BRIDGE
20'-0" SIMPLE COMPOSITE PLATE GIRDER SPAN
BR. NO B7458

-2.00%

STA. 717+74.07
ELEV. 634.27'

+33
F.L. INLET
622.27'
F.L. OUTLET
597.68'

BRIDGE BEG. IN
STA. 720+45.92

BRIDGE END
STA. 721+68.08

K=321.54
VC=2000'
e=15.56'

-1.01% LT OT GR.

STA. 724+07.08
ELEV. 592.48'

STA. 724+07.08
ELEV. 592.48'

STA. 727+74.07
ELEV. 597.29'

+54
F.L. INLET
560.06'
F.L. OUTLET
559.00'

-0.53% LT OT GR.

STA. 733+68.08
ELEV. 558.98'

STA. 733+68.08
ELEV. 558.98'

+72
F.L. INLET
565.72'
F.L. OUTLET
556.85'

STA. 737+74.07
ELEV. 563.54'

-1.37% LT OT GR.

STA. 741+75 CONSTRUCT
QUAD. 9' X 6' X 126' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
(15° RT. FWD. SKEW)
Q50 = 1700 CFS D.A. = 448 ACRES

-0.78%

F.L. INLET
548.00'
F.L. OUTLET
544.00'

STA. 741+75.00
ELEV. 547.13'

STA. 741+75.00
ELEV. 547.13'

770 760 750 740 730 720 710 700 690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530 520 510 500 490 480 470 460 450

715+00 716+00 717+00 718+00 719+00 720+00 721+00 722+00 723+00 724+00 725+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+00 741+00 742+00 743+00 744+00 745+00

8/7/2019

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	129	616

(2) PLAN AND PLOT SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STA. 768+75 CONSTRUCT
QUAD. 10' X 10' X 268' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
(45° RT. FWD. SKEW)
Q50 = 3111 CFS D.A. = 895 ACRES

STA. 103+75.81 DENISE LANE
= STA. 770+50.27 MILL CREEK ROAD RAMP 3
Δ = 68°34'22"

STA. 770+50.00 HWY. 7
= STA. 104+00.27 DENISE LANE
Δ = 75°00'00"

STA. 772+42.58 HWY. 7
= STA. 772+52.01 MILL CREEK ROAD RAMP 3
Δ = 6°46'43"

STA. 766+98.12 C.L. MEDIAN
BEGIN L.M.L. PAVING

STA. 762+50.00 C.L. MEDIAN
END L.M.L. PAVING

STA. 774+66.51 C.L. MEDIAN
END L.M.L. PAVING

C.L. MEDIAN
PI = 766+30.84
Δ = 76°31'53.96" RT.
D = 3°45'00.00"
T = 1205.17
L = 2040.84
PC = 754+25.66
PT = 774+66.51
Ls = 450'
e = 0.069'/'

C.L. MEDIAN
PI = 744+74.99
Δ = 86°55'26.81" LT.
D = 3°30'00.00"
T = 1551.42
L = 2483.55
PC = 729+23.58
PT = 754+07.12
Ls = 450'
e = 0.065'/'

STA. 757+29.68 HWY. 7
= STA. 757+21.60 MILL CREEK ROAD RAMP 4
Δ = 4°51'42"

STA. 756+09.00 C.L. MEDIAN
BEGIN L.M.L. PAVING

STA. 754+25.66

STA. 750+25 CONSTRUCT
QUINT. 12' X 12' X 264' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
(45° LT. FWD. SKEW)
Q50 = 4890 CFS D.A. = 1044 ACRES

STA. 747+44.68 C.L. MEDIAN
BEGIN L.M.L. ACCEL PAVING

STA. 745+00.00 HWY. 7
= STA. 113+70.33 MILL CREEK ROAD
Δ = 60°00'00"

FENCING

STA.	STA.	SIDE	(TYPE A) LIN.FT.
721+54	745+10	LT.	2331
742+30	742+68	RT.	165
742+98	742+99	RT.	101
745+14	748+40	RT.	361
746+38	750+58	LT.	394
749+60	769+19	RT.	1914
751+97	761+41	LT.	1176
759+70	761+90	LT.	378
762+15	767+04	LT.	799
767+91	769+68	LT.	194
770+07	770+20	RT.	109
770+89	855+02	LT.	8480
771+58	855+29	RT.	8817

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RR60140.DGN

BYPASS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	130	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STA. 725+86.08 BEGIN SUPERELEVATION (0.020'/')
STA. 730+36.08 MAX SUPERELEVATION (0.065'/')
STA. 749+66.39 MAX SUPERELEVATION (0.065'/')
STA. 754+16.39 END SUPERELEVATION (0.020'/')

STA. 754+16.39 BEGIN SUPERELEVATION (0.020'/')
STA. 758+66.39 MAX SUPERELEVATION (0.069'/')
STA. 773+54.01 MAX SUPERELEVATION (0.069'/')
STA. 778+04.01 END SUPERELEVATION (0.020'/')
STA. 781+04.01 END TRANSITION (N.C.)

BYPASS

STA. 750+25 CONSTRUCT
QUINT 12' X 12' X 264' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
(45° LT. FWD. SKEW)
Q50 = 4890 CFS D.A. = 1044 ACRES

STA. 768+75 CONSTRUCT
QUAD. 10' X 10' X 268' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
(45° RT. FWD. SKEW)
Q50 = 3410 CFS D.A. = 895 ACRES

-0.78%
-0.73% RT.DT.GR.
2.55%
K=300.30
VC=1000'
e=4.16'
760+61.17
545.81
765+61.17
541.93
770+61.17
554.70
F.L. INLET 534.30'
F.L. OUTLET 533.30'
F.L. INLET 530.00'
F.L. OUTLET 528.00'
RT.DT.GR.
LT.DT.GR.

770 760 750 740 730 720 710 700 690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530 520 510 500 490 480 470 460 450

745+00 746+00 747+00 748+00 749+00 750+00 751+00 752+00 753+00 754+00 755+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+00 771+00 772+00 773+00 774+00 775+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10-30-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		R60140	131	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STA. 776+65 CONSTRUCT
60" X 98' R.C. PIPE CULVERT
ON A 15° LT. FWD. SKEW
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 170 CFS D.A. = 36.3 ACRES
60" R.C. PIPE = 98 LIN. FT.
60" FES = 2 EA.

C.L. MEDIAN
PI = 795+25.60
Δ = 3°39'27.78" LT.
D = 0°30'00.00"
T = 365.90
L = 731.54
PC = 791+59.70
PT = 798+91.25
NO SUPERELEVATION

FENCING STA.	STA.	SIDE	(TYPE A) LIN.FT.
770+89	855+02	LT.	8480
771+58	855+29	RT.	8817

STA. 787+79 CONSTRUCT
54" X 122' R.C. PIPE CULVERT
ON A 15° LT. FWD. SKEW
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 132 CFS D.A. = 27.7 ACRES
54" R.C. PIPE = 122 LIN. FT.
54" FES = 2 EA.

STA. 794+41 CONSTRUCT
DBL. 24" X 86' R.C. PIPE CULVERT
ON A 30° LT. FWD. SKEW
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 97 CFS D.A. = 20.4 ACRES
24" R.C. PIPE = 172 LIN. FT.
24" FES = 4 EA.

STA. 799+01 CONSTRUCT
DBL. 24" X 84' R.C. PIPE CULVERT
ON A 30° LT. FWD. SKEW
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 97 CFS D.A. = 20.4 ACRES
24" R.C. PIPE = 168 LIN. FT.
24" FES = 4 EA.

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BYPASS

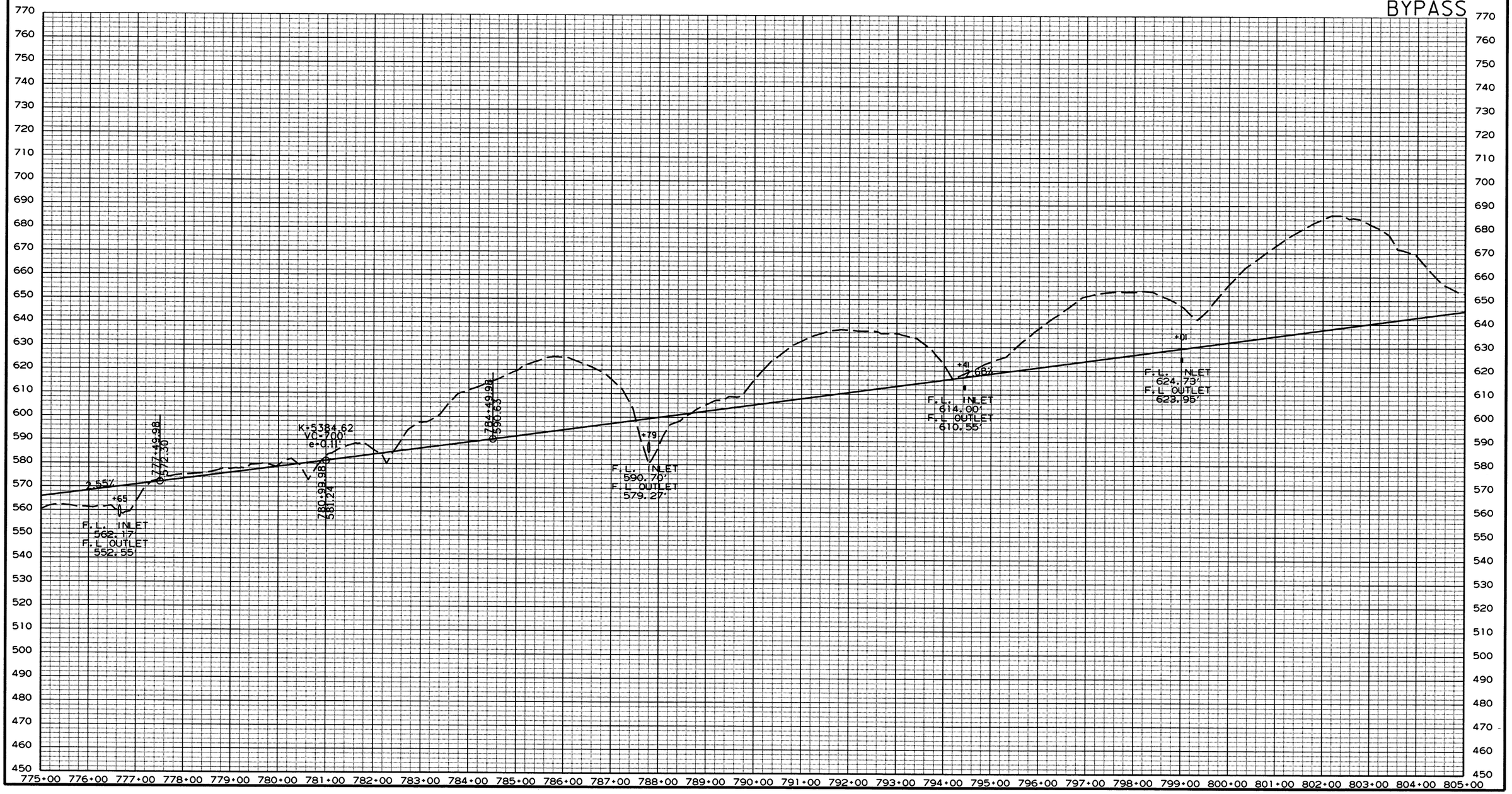
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	132	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STA. 754+16.39 BEGIN SUPERELEVATION (0.020'/')
STA. 758+66.39 MAX SUPERELEVATION (0.069'/')
STA. 773+54.01 MAX SUPERELEVATION (0.069'/')
STA. 778+04.01 END SUPERELEVATION (0.020'/')
STA. 781+04.01 END TRANSITION (N.C.)

BYPASS



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RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	133	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

FENCING STA.	STA.	SIDE	(TYPE A) LIN.FT.
770+89	855+02	LT.	8480
771+58	855+29	RT.	8817

STA. 805+27 CONSTRUCT
30" X 82' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 51.40 CFS D.A. = 13.66 ACRES
30" R.C. PIPE = 82 LIN. FT.
30" FES = 2 EA.

STA. 809+46 CONSTRUCT
TRP. 48" X 100' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 226.0 CFS D.A. = 80.68 ACRES
48" R.C. PIPE = 300 LIN. FT.
48" FES = 6 EA.

C.L. MEDIAN
PI = 815+29.12
Δ = 5°57'56.64" RT.
D = 0°30'00.00"
T = 597.11
L = 1193.15
PC = 809+32.01
PT = 821+25.16
NO SUPERELEVATION

C.L. MEDIAN
PI = 837+78.16
Δ = 42°42'06.40" LT.
D = 2°00'00.00"
T = 1119.87
L = 2135.09
PC = 826+58.29
PT = 847+93.38
Ls = 450'
e = 0.040'/'

805 810 815 820 825 830 835

P.I. 815+29.12
P.C. 809+32.01
P.T. 821+25.16
P.C. 826+58.29
N 15°48'59" E

PROPOSED R/W & C/A

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BYPASS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	134	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STA. 820+20.79 BEGIN TRANSITION (N.C.)
STA. 823+20.79 BEGIN SUPERELEVATION (0.020'/')
STA. 827+70.79 MAX SUPERELEVATION (0.040'/')
STA. 846+80.88 MAX SUPERELEVATION (0.040'/')
STA. 851+30.88 END SUPERELEVATION (N.C.)

BYPASS

K=231.48
VC=1000'
e=5.40'

@823+58.71
695.48

@823+58.71
743.89

@828+58.71
708.39

7.68%

1.00%

+27
F.L. INLET
638.40'
F.L. OUTLET
637.37'

+46
F.L. INLET
647.56'
F.L. OUTLET
640.88'

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
10-30-19				JOB NO.		R60140	135	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

QUARRY MOUNTAIN ROAD

STA. 855+12.92 - STA. 856+35.08 CONSTRUCT
122'-2" X 42'-0" CLEAR ROADWAY
120'-0" SIMPLE COMPOSITE PLATE GIRDER SPAN
BR. NO B7461

STA. 863+97 CONSTRUCT
36" X 98' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 65 CFS D.A. = 25.7 ACRES
36" R.C. PIPE = 98 LIN. FT.
36" FES = 2 EA.

FENCING STA.	STA.	SIDE	(TYPE A) LIN.FT.
770+89	855+02	LT.	8480
771+58	855+29	RT.	8817
856+20	922+75	LT.	7088
856+81	922+13	RT.	6836

C.L. MEDIAN
PI = 837+78.16
Δ = 42°42'06.40" LT.
D = 2°00'00.00"
T = 1119.87
L = 2135.09
PC = 826+58.29
PT = 847+93.37
Ls = 450'
e = 0.040'/'

C.L. MEDIAN
PI = 871+48.87
Δ = 62°21'17.32" RT.
D = 3°45'00.00"
T = 924.50
L = 1662.79
PC = 862+24.37
PT = 878+87.17
e = 0.069'/'
Ls = 450'

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
854+06.77	855+00.52	M.L. - LT.	75 LIN. FT.	1 EA.	1 EA.
852+81.77	855+00.52	M.L. - RT.	150 LIN. FT.	1 EA.	1 EA.
856+47.48	858+66.23	M.L. - LT.	150 LIN. FT.	1 EA.	1 EA.
856+47.48	857+41.23	M.L. - RT.	75 LIN. FT.	1 EA.	1 EA.

STA. 844+23 CONSTRUCT
30" X 158' R.C. PIPE CULVERT
ON A 45° RT. FWD. SKEW
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 34.9 CFS D.A. = 9.35 ACRES
30" R.C. PIPE = 158 LIN. FT.
30" FES = 2 EA.

STA. 838+37 CONSTRUCT
30" X 344' R.C. PIPE CULVERT
ON A 30° LT. FWD. SKEW
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 65.3 CFS D.A. = 28.60 ACRES
30" R.C. PIPE = 344 LIN. FT.
30" FES = 2 EA.

PROPOSED R/W & C/A

P.I. 837+78.16

P.T. 847+93.38

BEGIN C/A 16+81.65

END C/A 17+30.15

BEGIN C/A 18+81.65

END C/A 19+30.15

16'-0" GATE

N 26°53'07" W

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BYPASS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
10-30-19				JOB NO.		R60140	136	616

(2) PLAN AND PROFILE SHEETS

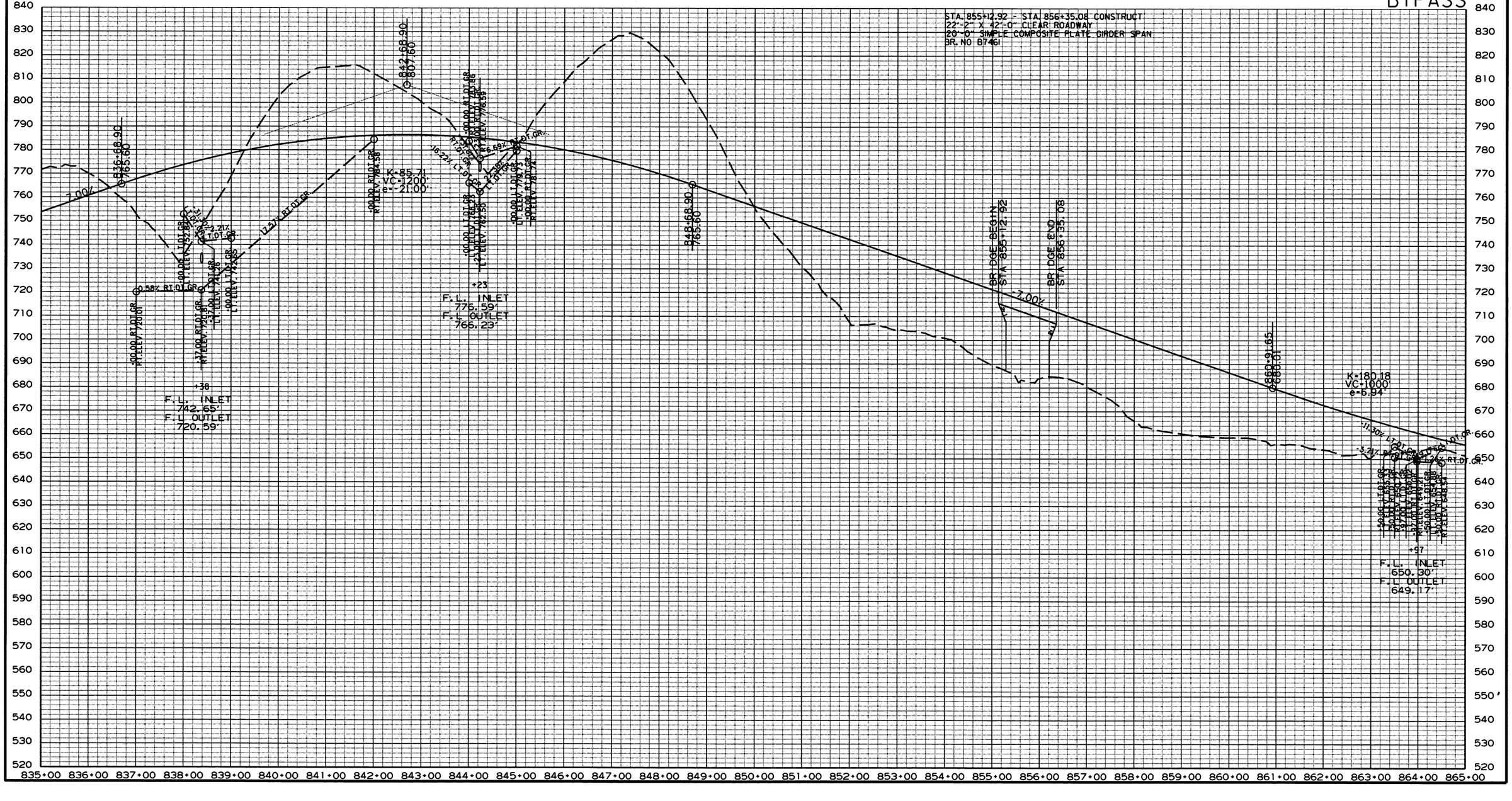
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STA. 820+20.79 BEGIN TRANSITION (N.C.)
STA. 823+20.79 BEGIN SUPERELEVATION (0.020'/')
STA. 827+70.79 MAX SUPERELEVATION (0.040'/')
STA. 846+80.88 MAX SUPERELEVATION (0.040'/')
STA. 851+30.88 END SUPERELEVATION (N.C.)

STA. 858+86.87 BEGIN SUPERELEVATION (N.C.)
STA. 863+36.87 MAX SUPERELEVATION (0.069'/')
STA. 876+61.66 MAX SUPERELEVATION (0.069'/')
STA. 881+11.66 END SUPERELEVATION (N.C.)

BYPASS

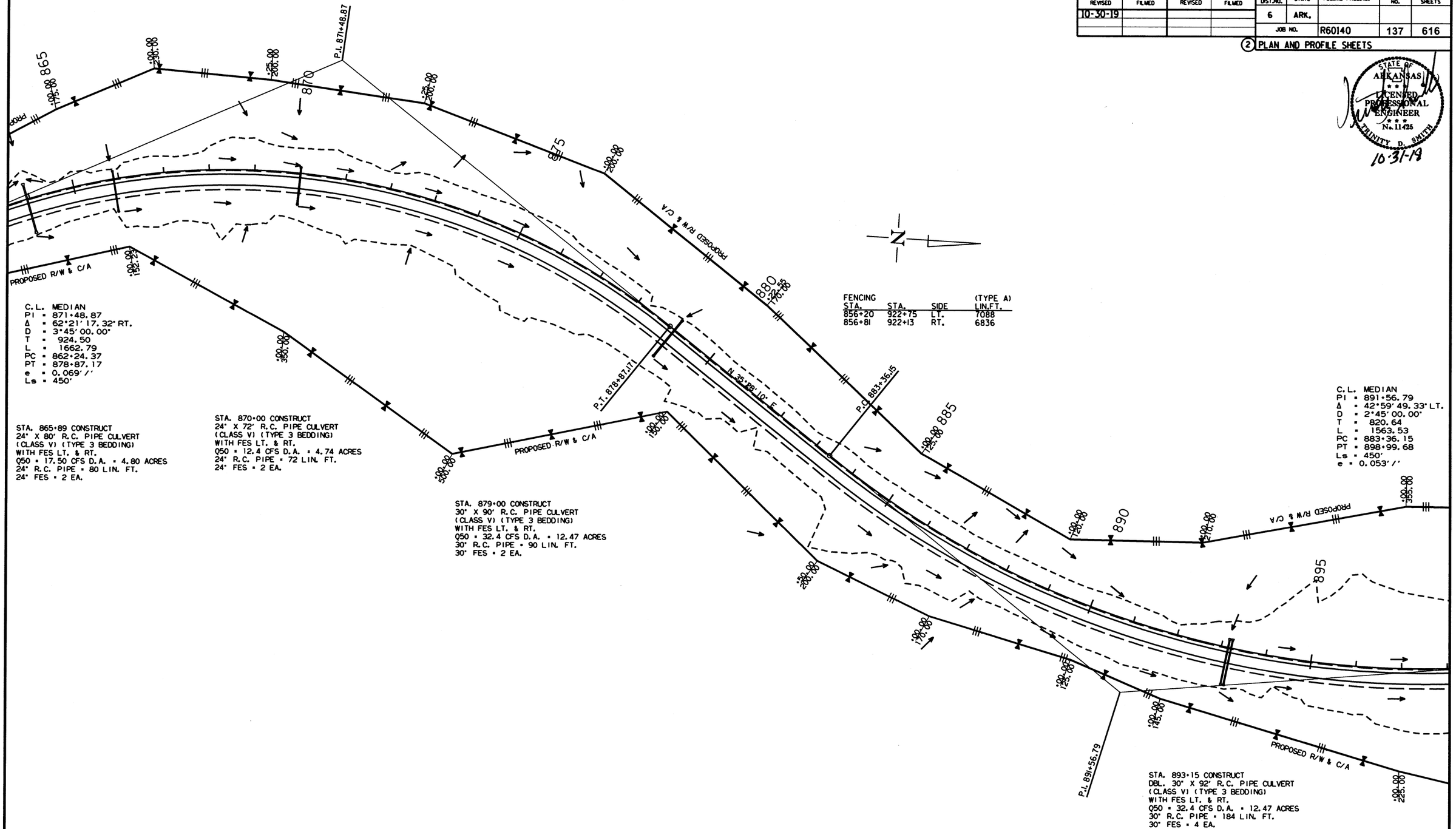
STA. 855+12.92 - STA. 856+35.08 CONSTRUCT
22'-2" X 42'-0" CLEAR ROADWAY
20'-0" SIMPLE COMPOSITE PLATE GIRDER SPAN
BR. NO B7461


B36+68.90
@765.60
7.00%
@842.68.90
@807.60
L27' VERT.CURVE
K=85.71
VC=1200'
e=-21.00'
16.22% LT.01.GR.
RT.01.GR.
-0.58% RT.01.GR.
2.21%
-3.01%
-2.21%
-1.30% LT.01.GR.
-3.21%
-1.21%
-1.74% RT.01.GR.
-1.74% LT.01.GR.
-1.74% RT.01.GR.
-1.74% LT.01.GR.
-1.74% RT.01.GR.
-1.74% LT.01.GR.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	137	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19



C.L. MEDIAN
PI = 871+48.87
Δ = 62°21'17.32" RT.
D = 3°45'00.00"
T = 924.50
L = 1662.79
PC = 862+24.37
PT = 878+87.17
e = 0.069'/'
Ls = 450'

STA. 865+89 CONSTRUCT
24" X 80' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 17.50 CFS D.A. = 4.80 ACRES
24" R.C. PIPE = 80 LIN. FT.
24" FES = 2 EA.

STA. 870+00 CONSTRUCT
24" X 72' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 12.4 CFS D.A. = 4.74 ACRES
24" R.C. PIPE = 72 LIN. FT.
24" FES = 2 EA.

STA. 879+00 CONSTRUCT
30" X 90' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 32.4 CFS D.A. = 12.47 ACRES
30" R.C. PIPE = 90 LIN. FT.
30" FES = 2 EA.

FENCING

STA.	STA.	SIDE	(TYPE A) LIN.FT.
856+20	922+75	LT.	7088
856+81	922+13	RT.	6836

C.L. MEDIAN
PI = 891+56.79
Δ = 42°59'49.33" LT.
D = 2°45'00.00"
T = 820.64
L = 1563.53
PC = 883+36.15
PT = 898+99.68
Ls = 450'
e = 0.053'/'

STA. 893+15 CONSTRUCT
DBL. 30" X 92' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 32.4 CFS D.A. = 12.47 ACRES
30" R.C. PIPE = 184 LIN. FT.
30" FES = 4 EA.

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BYPASS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	138	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STA. 858+86.87 BEGIN SUPERELEVATION (N.C.)
STA. 863+36.87 MAX SUPERELEVATION (0.069'/')
STA. 876+61.66 MAX SUPERELEVATION (0.069'/')
STA. 881+11.66 END SUPERELEVATION (N.C.)

STA. 881+11.66 BEGIN SUPERELEVATION (N.C.)
STA. 885+61.66 MAX SUPERELEVATION (0.053'/')
STA. 897+87.18 MAX SUPERELEVATION (0.053'/')
STA. 902+37.18 END SUPERELEVATION (N.C.)

BYPASS

K=180.18
VC=1000'
e=6.94'

-1.45%

F.L. INLET
647.37'
F.L. OUTLET
641.92'

F.L. INLET
635.35'
F.L. OUTLET
629.62'

F.L. INLET
618.71'
F.L. OUTLET
616.31'

F.L. INLET
599.51'
F.L. OUTLET
595.47'

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	139	616

(2) PLAN AND PLOT SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-7-19

FENCING STA.	STA.	SIDE	(TYPE A) LIN.FT.
856+20	922+75	LT.	7088
856+81	922+13	RT.	6836

STA. 920+69.50 - STA. 922+71.66 CONSTRUCT
202'-2" X 44' CLEAR ROADWAY
200'-0" CONTINUOUS R.C. SLAB UNIT (40', 40', 40', 40', 40')
BR. NO 07462

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
919+70.85	920+64.60	M.L. - LT.	75 LIN. FT.	1EA.	1EA.
918+45.85	920+64.60	M.L. - RT.	150 LIN. FT.	1EA.	1EA.

C.L. MEDIAN
PI = 891+56.79
Δ = 42°59'49.33" LT.
D = 2°45'00.00"
T = 820.64
L = 1563.53
PC = 883+36.15
PT = 898+99.68
Ls = 450'
e = 0.053'/'

C.L. MEDIAN
PI = 919+80.37
Δ = 53°07'51.26" LT.
D = 9°00'00.00"
T = 318.32
L = 590.34
PC = 916+62.05
PT = 922+52.40
Ls = 360'
e = 0.063'/'

END JOB R60140
STA. 923+05.44
ELEV. 569.86

STA. 908+50.00 C.L. MEDIAN
BEGIN L.M.L. PAVED

STA. 913+92.06 C.L. MEDIAN
END L.ML. PAVED

N 7°31'89" W

PROPOSED R/W & C/A

HWY 7

BYPASS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	140	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19

STA. 881+11.66 BEGIN SUPERELEVATION (N.C.)
STA. 885+61.66 MAX SUPERELEVATION (0.053'/')
STA. 897+87.18 MAX SUPERELEVATION (0.053'/')
STA. 902+37.18 END SUPERELEVATION (N.C.)

STA. 913+92.05 BEGIN SUPERELEVATION (N.C.)
STA. 917+52.05 MAX SUPERELEVATION (0.063'/')
STA. 918+92.40 MAX SUPERELEVATION (0.063'/')
STA. 922+52.40 END SUPERELEVATION (N.C.)

BYPASS

STA 917+41

STA 922+45

FLOODPLAIN LIMITS

STA. 920+69.50 - STA. 922+71.66 CONSTRUCT
202'-2" X 44' CLEAR ROADWAY
200'-0" CONTINUOUS R.C. SLAB UNIT (40', 40', 40', 40', 40')
BR. NO 07462

END JOB R60140
STA. 923+05.44
ELEV. 569.86

-1.45%

@916+52.68
@57.62

K=3.44
VC=500'
a=0.91

918+02.68
568.00

BRIDGE BEG.
STA 920+69.50
921+52.68
568.00
921+52.44
568.00
0.00%

K=50.00
VC=100'
a=0.25'

922+62.44
569.00
BRIDGE END
STA 922+71.66
922+72.44
568.00
2.00%

Q50 DESIGN H.W.
ELEV. 561.76

8/7/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	141	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STA. 102+18.57 COVENANT TRAIL
= STA. 721+14.93 BYPASS
Δ = 90°00'00"

COVENANT TRAIL
PI = 103+37.76
Δ = 42°24'14" RT.
D = 50°00'00.00"
T = 44.45'
L = 84.81'
PC = 102+93.31
PT = 103+78.12
MATCH EXISTING SUPERELEVATION

COVENANT TRAIL
PI = 105+28.12
Δ = 19°26'26" LT.
D = 19°15'00.00"
T = 50.98'
L = 100.99'
PC = 104+77.13
PT = 105+78.12
NO SUPERELEVATION

STA. 100+15 CONSTRUCT
DBL. 84" X 40' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 585 CFS D.A. = 162 ACRES
84" R.C. PIPE = 80 LIN. FT.
84" FES = 4 EA.

STA. 99+93.86 COVENANT TRAIL
= STA. 221+32.65 PROMISE LAND DRIVE (SHIFT)
Δ = 85°20'26"

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

COVENANT TRAIL

STA. 100+03.89
BEGIN COVENANT TRAIL

STA. 103+11.00
END COVENANT TRAIL

K=10.00
VC=135'
e=2.28'

K=3.00
VC=35'
e=-0.50'

K=2.14
VC=30'
e=0.52'

K=1.25
VC=10'
e=-0.10'

F.L. INLET 593.50'
F.L. OUTLET 592.53

2/15/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	142	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19

DENISE LANE
PI = 100+82.18
Δ = 16°34'20" LT.
D = 25°00'00"
T = 33.38'
L = 66.29'
PC = 100+48.80
PT = 101+15.09
NO SUPERELEVATION

DENISE LANE
PI = 108+16.36
Δ = 60°26'24" LT.
D = 25°00'00"
T = 133.49'
L = 241.76'
PC = 106+82.86
PT = 109+24.62
e = 0.050'/'
Ls = 200'

DENISE LANE
PI = 110+67.65
Δ = 17°21'17" LT.
D = 15°00'00"
T = 58.30'
L = 115.70'
PC = 110+09.35
PT = 111+25.05
NO SUPERELEVATION

STA. 102+89.16 - STA. 105+11.40 CONSTRUCT
222'-2⅞" X 24'-0" CLEAR ROADWAY BRIDGE
220'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (110', 110')
BR. NO 07460

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
101+86.73	102+80.48	LT.	75 LIN. FT.	1 EA.	1 EA.
100+60.52	102+79.27	RT.	150 LIN. FT.	1 EA.	1 EA.
105+26.52	107+45.27	LT.	150 LIN. FT.	1 EA.	1 EA.
105+20.08	106+13.83	RT.	75 LIN. FT.	1 EA.	1 EA.

STA. 107+45 CONSTRUCT
QUINT. 10' X 8' X 74' R.C. BOX CULVERT
WITH 21 WINGS LT. & RT.
(45° LT. FWD. SKEW)
050 = 311 CFS D.A. = 895 ACRES

STA. 103+75.81 DENISE LANE
= STA. 770+50.27 MILL CREEK ROAD RAMP 3
Δ = 68°34'22"

STA. 104+00.27 DENISE LANE
= STA. 770+50.00 BYPASS
Δ = 75°00'00"

PROPOSED R/W
PROPOSED R/W
BEGIN PROPOSED R/W
PROPOSED R/W END C/A
BEGIN C/A
END C/A
GATE
16'-0" GATE
P.I. 100+82.18
P.C. 100+48.80
P.T. 101+15.09
P.I. 111+25.05
P.I. 110+09.35
P.C. 106+82.86
P.I. 108+16.36
P.I. 113+69.95
P.I. 110+67.65
P.I. 107+45.27
P.I. 103+75.81
P.I. 104+00.27
N 14°53'22" E
N 4°54'18" W
N 12°26'38" E
N 72°53'22" E
N 75°00'00" E
N 89°27'42" E
TYCOR FILL
TYCOR GNOX FILL LN(20)
NOSE 18.12 18.04
N 0°02'42" E

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

DENISE LANE

STA. 100+03.69
BEGIN DENISE LANE
P.V.I. 100+03.69
ELEV. 581.57
-0.40%
BRIDGE BEGIN
STA 102+89.16
P.V.C. 103+00.00
ELEV. 580.38
P.V.I. 104+00.00
ELEV. 579.98
P.V.I. 105+00.00
ELEV. 569.98
BRIDGE END
STA 105+11.40
-10.00%
P.V.C. 105+78.08
ELEV. 562.17
K=20.83
VC=200'
e=-2.40'
2:1
2:1
BYPASS
K=33.33
VC=400'
e=6.00'
+45
F.L. INLET
535.8'
F.L OUTLET
534.00'
P.V.I. 107+78.08
ELEV. 542.17
P.V.T. 109+78.08
ELEV. 546.17
P.V.I. 109+85.00
ELEV. 546.31
2.00%
STA. 109+85.00
END DENISE LANE

610 600 590 580 570 560 550 540 530 520

100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00

2/20/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	143	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19

MILL CREEK ROAD
PI = 96+41.13
Δ = 0°52'14" RT.
D = 1°00'00"
T = 43.52'
L = 87.05'
PC = 95+97.60
PT = 96+84.65
NO SUPERELEVATION

MILL CREEK ROAD
PI = 99+67.69
Δ = 1°00'04" LT.
D = 2°00'00"
T = 25.03'
L = 50.06'
PC = 99+42.66
PT = 99+92.72
NO SUPERELEVATION

MILL CREEK ROAD
PI = 103+14.19
Δ = 38°42'34" RT.
D = 11°00'00"
T = 182.96'
L = 351.90'
PC = 101+31.22
PT = 104+83.13
e = 0.072'/'
Ls = 250'

MILL CREEK ROAD
PI = 110+53.44
Δ = 51°06'51" LT.
D = 11°00'00"
T = 249.08'
L = 464.67'
PC = 108+04.36
PT = 112+69.04
e = 0.072'/'
Ls = 250'

PROPOSED C/A
PROPOSED R/W
PROPOSED R/W & C/A
END C/A 531.95
16'-0" GATE
BEGIN C/A 425.00
S 78°44' 20" E
S 77°52' 06" E
S 78°52' 10" E
S 40°09' 36" E 321.24'
N 63°01' 24" W
700' FUTURE ACCELERATION LANE
FUTURE 300' TAPER
P.I. 96+41.13
P.C. 95+97.60
P.T. 96+84.65
P.C. 99+42.66
P.T. 99+92.72
P.I. 99+67.69
P.I. 103+14.19
P.T. 104+83.13
P.C. 101+31.22
P.I. 754+07.12
P.C.(108+04.36)
425.00
375.00
225.00
755.00
97.06
99.97
HOT SPRINGS
TOP OF CRIPPLED CONC. CURB
TOP OF CRIPPLED CONC. CURB & GUTTER
CONC. CURB & GUTTER
CONC. CURB
W/CONC. BASE
MTL STRUCTURE
MTL PIPE
WOODEN WALK BR
WOOD
GRAVEL
SPRINGS
PK NAIL & WASHER
PK NAIL
PK NAIL & SHINER
PK NAIL & WASHER
PK NAIL & SHINER
PK NAIL & WASHER
PK NAIL & SHINER
PK NAIL & WASHER

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	144	616

(2) PLAN AND PROFILE SHEETS

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
111+68.00	112+61.75	LT.	75 LIN. FT.	1 EA.	1 EA.
110+41.27	112+60.02	RT.	150 LIN. FT.	1 EA.	1 EA.
114+80.85	116+78.80	LT.	150 LIN. FT.	1 EA.	1 EA.
114+93.91	115+81.66	RT.	75 LIN. FT.	1 EA.	1 EA.

STA. 745+00.00 HWY. 7
= STA. 113+70.33 MILL CREEK ROAD
Δ = 60°00'00"

STA. 120+82.52 MILL CREEK ROAD
= STA. 732+21.88 RAMP 2
Δ = 90°00'00"

STA. 121+12.53 MILL CREEK ROAD
= STA. 745+99.70 RAMP 1
Δ = 88°30'42"

MILL CREEK ROAD
PI = 110+53.44
Δ = 51°06'51"LT.
D = 11°00.00'
T = 249.08'
L = 464.67'
PC = 108+04.36
PT = 112+69.04
e = 0.072'/'
Ls = 250'

MILL CREEK ROAD
PI = 120+60.92
Δ = 11°53'43"RT.
D = 5°00'00"
T = 119.38'
L = 237.91'
PC = 119+41.54
PT = 121+79.45
e = 0.040'/'
Ls = 200'

MILL CREEK ROAD
PI = 123+30.43
Δ = 3°09'54"LT.
D = 2°00'00"
T = 79.15'
L = 158.25'
PC = 122+51.28
PT = 124+09.53
NO SUPERELEVATION

STA. 112+79.08 - STA. 114+76.58 CONSTRUCT
197'-6" X 24'-0" CLEAR ROADWAY BRIDGE
195'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (90'-105')
BR. NO 07459

STA. 116+00 CONSTRUCT
QUINT. 12' X 12' X 146' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
(15° RT. FWD. SKEW)
Q50 = 4180 CFS D.A. = 1638 ACRES

STA. 118+64 CONSTRUCT
QUAD. 12' X 7' X 88' R.C. BOX CULVERT
WITH 2:1 WING LT. & 3:1 WING RT.
(45° LT. FWD. SKEW)
Q10 = 1750 CFS D.A. = 1069 ACRES

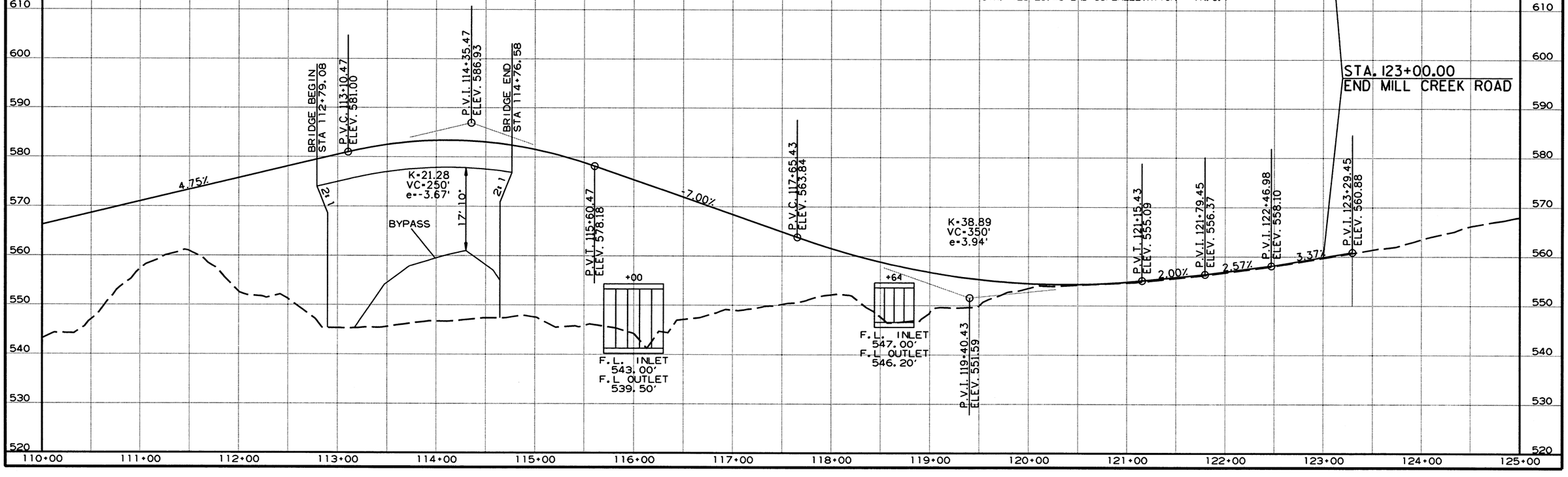
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

MILL CREEK ROAD

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19

STA. 106+43.75 BEGIN SUPERELEVATION (N.C.)
STA. 108+86.32 MAX SUPERELEVATION (0.070'/')
STA. 110+36.70 MAX SUPERELEVATION (0.070'/')
STA. 112+79.27 END SUPERELEVATION (N.C.)

STA. 117+91.54 BEGIN SUPERELEVATION (N.C.)
STA. 119+91.54 MAX SUPERELEVATION (0.040'/')
STA. 121+29.45 MAX SUPERELEVATION (0.040'/')
STA. 123+29.45 END SUPERELEVATION (N.C.)



4/18/2019

RR60140.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.		R60140	145	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-6-19

16' 0" GATE
C/A +72.83
81.46
+53.94 BEGIN C/A
81.82
725
+00.00
140.00
+00.00
150.00
P.I. 725+23.58
P.C. 729+23.58
730
+00.00
130.00
N
C/A +72.83
58.59
+53.94 BEGIN C/A
59.32
+54.47
103.06
P.I. 103+37.76
16' 0" GATE
23°41'28" E
P.C. 104+77.13
105
POB 731+93.24
735
N 14°13'33" E
NOSE
50.68
50.75'
100' TAPER
315' DECELERATION LANE

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

RAMP I

STA. 734+50.68 7.50' LT. RAMP I C.L. =
STA. 734+50.68 50.75' RT. OF BYPASS C.L.
ELEV. 571.26

STA. 729+64.38 BEGIN SUPERELEVATION (0.065)
STA. 734+50.68 NOSE SUPERELEVATION (-0.009)
STA. 737+73.59 MAX SUPERELEVATION (-0.058'/')
STA. 738+13.77 MAX SUPERELEVATION (-0.058'/')
STA. 740+63.77 END SUPERELEVATION (-0.020)

P.V.I. 734+50.68
ELEV. 571.26
-1.02%
P.V.C. 734+99.49
ELEV. 570.76

600 590 580 570 560 550 540

720+00 721+00 722+00 723+00 724+00 725+00 726+00 727+00 728+00 729+00 730+00 731+00 732+00 733+00 734+00 735+00

4/18/2019

RR60140.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.		R60140	146	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

RAMP I
PI = 737+83.93
Δ = 30°21'02"RT.
D = 8°00'00"
T = 194.26'
L = 379.38'
PC = 735+89.67
PT = 739+69.05
e = 0.058'/'
Ls = 250'

STA. 741+10 CONSTRUCT
QUAD. 4' X 3' X 120' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
Q50 = 182 CFS D.A. = 118 ACRES

RAMP I
PI = 742+53.03
Δ = 38°48'05"RT.
D = 21°20'26"
T = 94.55'
L = 181.82'
PC = 741+58.48
PT = 743+40.30
e = 0.099'/'
Ls = 300'

STA. 120+82.52 MILL CREEK ROAD
= STA. 732+21.88 RAMP 2
Δ = 90°00'00"

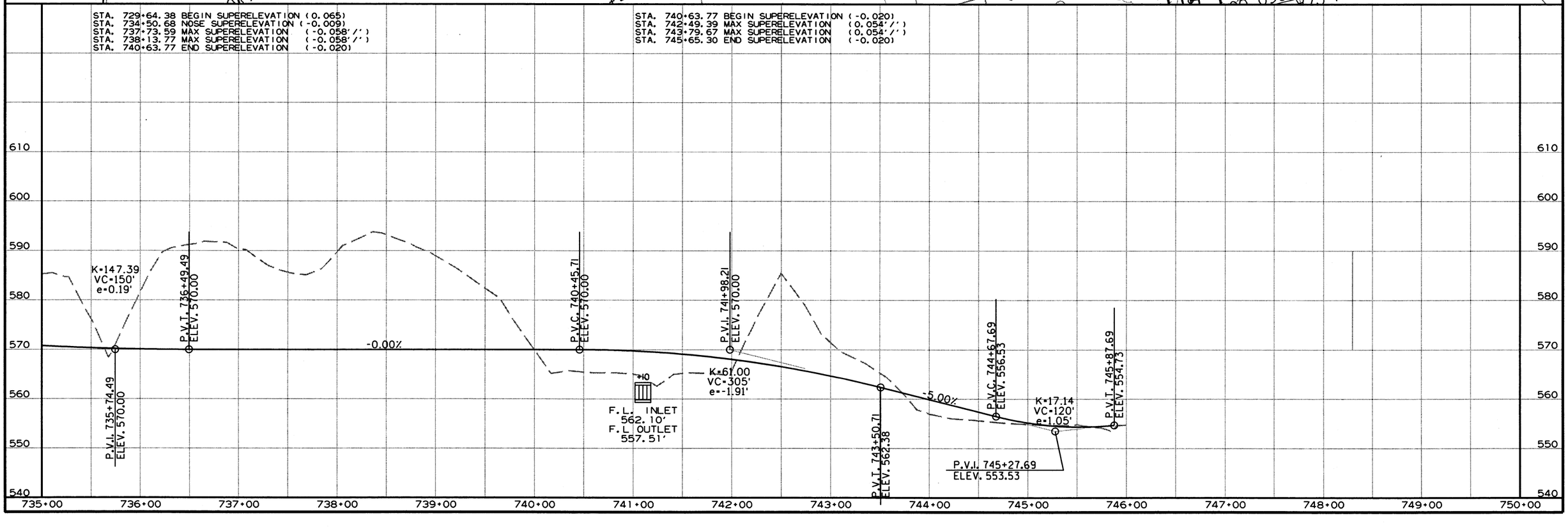
STA. 121+12.53 MILL CREEK ROAD
= STA. 745+99.70 RAMP 1
Δ = 88°30'42"

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

RAMP I

STA. 729+64.38 BEGIN SUPERELEVATION (0.065)
STA. 734+50.68 NOSE SUPERELEVATION (-0.009)
STA. 737+73.59 MAX SUPERELEVATION (-0.058'/')
STA. 738+13.77 MAX SUPERELEVATION (-0.058'/')
STA. 740+63.77 END SUPERELEVATION (-0.020)

STA. 740+63.77 BEGIN SUPERELEVATION (-0.020)
STA. 742+49.39 MAX SUPERELEVATION (0.054'/')
STA. 743+79.67 MAX SUPERELEVATION (0.054'/')
STA. 745+65.30 END SUPERELEVATION (-0.020)



4/18/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	147	616
				(2) PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10/15/19

BEGIN C/A +40.00
960.00

END C/A +10.00
940.00

P.I. 124+09.53

P.I. 123+30.43

P.C. 122+51.28

RAMP 2 STA. 732+45.46 TO STA. 737+46.23
CONSTRUCT CONCRETE BARRIER WALL (MEDIAN TYPE A)

PROPOSED R/W & C/A

+38.56
639.92

+92.86
557.57

+24.03
432.37

PROPOSED R/W & C/A

S 79°22'44" E

POE 701.69

P.I. 124+79.49

735

P.I. 143+40.30

P.I. 142+53.03

STA. 121+12.53 MILL CREEK ROAD
= STA. 745+99.70 RAMP 1
Δ = 88°30'42"

+35.00
700.00

60.00
635.00

N 5°46'30" E

S 5°46'30" W

P.I. 120+60.92

STA. 120+82.52 MILL CREEK ROAD
= STA. 732+21.88 RAMP 2
Δ = 90°00'00"

POB 732+21.88

30.00
580.00

745

P.I. 744+74.99

P.C. 744+58.48

P.I. 739+69.05

P.C. 734+81.66

120

END C/A +09.24
543.24

16'0" GATE

P.C. 119+41.54

RAMP 2
PI = 742+31.99
Δ = 144°42'03" RT.
D = 24°00'00"
T = 750.32'
L = 602.92'
PC = 734+81.66
PT = 740+84.58
e = 0.100'/'
Ls = 300'

P.I. 742+31.99

+85.00
540.00

+50.00
500.00

+00.00
520.00

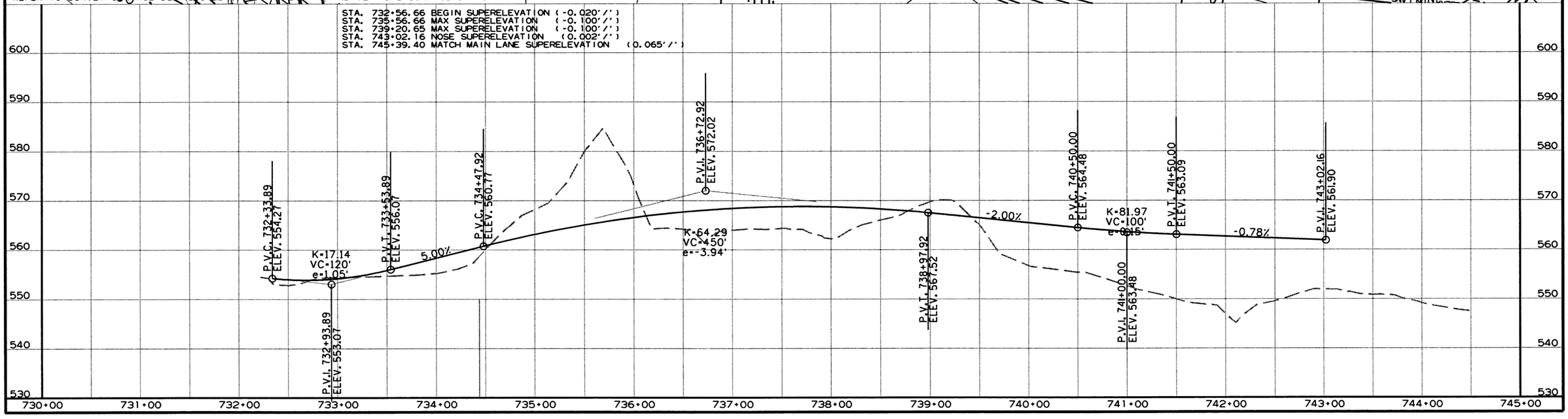
+68.31
422.77

P.C. 735+89.61

RAMP 2

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

STA. 732+56.66 BEGIN SUPERELEVATION (-0.020'/')
STA. 735+56.66 MAX SUPERELEVATION (-0.100'/')
STA. 739+20.65 MAX SUPERELEVATION (-0.100'/')
STA. 743+02.16 NOSE SUPERELEVATION (0.002'/')
STA. 745+39.40 MATCH MAIN LANE SUPERELEVATION (0.065'/')



10/11/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	148	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STA. 739+90 CONSTRUCT
24" X 78' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 15.12 CFS D.A. = 4.75 ACRES
24" R.C. PIPE = 78 LIN. FT.
24" FES = 2 EA.

RAMP 2
PI = 742+31.99
Δ = 144°42'03" RT.
D = 24°00'00"
T = 750.32'
L = 602.92'
PC = 734+81.66
PT = 740+84.58
e = 0.100'/'
Ls = 300'

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

STA. 732+56.66 BEGIN SUPERELEVATION (-0.020'/')
STA. 735+56.66 MAX SUPERELEVATION (-0.100'/')
STA. 739+20.65 MAX SUPERELEVATION (-0.100'/')
STA. 743+02.16 NOSE SUPERELEVATION (0.002'/')
STA. 745+39.40 MATCH MAIN LANE SUPERELEVATION (0.065'/')

STA. 743+02.16 7.50' LT. RAMP 2 C.L. =
STA. 743+02.16 37.83' RT. OF BYPASS C.L.
ELEV. 561.90

P.V.I. 736+72.92 ELEV. 572.02
K=64.29 VC=450' e=-3.94'
P.V.T. 738+97.92 ELEV. 567.52
-2.00%
F.L. INLET 557.43'
F.L. OUTLET 556.97'
P.V.C. 740+50.00 ELEV. 564.48
K=81.97 VC=100' e=0.15'
P.V.I. 741+00.00 ELEV. 563.48
P.V.T. 741+50.00 ELEV. 563.09
-0.78%
P.V.I. 743+02.16 ELEV. 561.90

RAMP 2

10/31/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10-07-19			
10-30-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		R60140	149	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

POB 92+39.05
P.C. 92+67.50
P.I. 92+99.95
P.T. 93+32.40
S 78°05'33" E 630.00
630.00 BEGIN C/A
630.00 END C/A
STA. 94+07.91 MILL CREEK ROAD = STA. 758+57.86 RAMP 3 Δ = 89°36'60"
STA. 94+37.66 MILL CREEK ROAD = STA. 768+59.02 RAMP 4 Δ = 89°36'60"
16'0" GATE
N 11° 38' 41" E
S 78°44'20" E
PROPOSED R/W & C/A
P.C. 95+97.60
P.I. 96+41.13
95
531.65
16'0" GATE
END C/A
760
765
763
P.C. 760+76.89
P.I. 761+73.07
P.T. 762+68.59
P.C. 762+88.53
P.T. 766+62.61
P.I. 764+78.00
N 23° 08' 02" E
PROPOSED R/W & C/A
500.00
533.33
200.00
RAMP 3
PI = 761+73.07
Δ = 11°30'06"RT.
D = 6°00'00"
T = 96.17'
L = 191.70'
PC = 760+76.89
PT = 762+68.59
e = 0.046'/'
Ls = 250'
STA. 763+00 CONSTRUCT 24" X 120' R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) WITH FES LT. & RT.
050 = 17.32 CFS D.A. = 4.85 ACRES
24" R.C. PIPE = 104 LIN. FT.
24' FES = 2 EA.
RAMP 3
PI = 764+78.00
Δ = 22°26'40"LT.
D = 6°00'00"
T = 189.47'
L = 374.08'
PC = 762+88.53
PT = 766+62.61
e = 0.046'/'
Ls = 250'
PROPOSED R/W & C/A
P.I. 766+33.25
P.I. 766+29.74
16'0" GATE
NOSE 18+12 48.69' LT.
N 04° 52' 43" W 429.96
N 04° 07' 17" E
P.C. 769+51.74
+18.85 91.41
+20.09 85.50
RAMP 4
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STA. 758+89.39 BEGIN SUPERELEVATION (-0.020'/')
STA. 759+95.45 MAX SUPERELEVATION (0.008'/')
STA. 761+72.74 MAX SUPERELEVATION (0.008'/')
STA. 762+78.56 END SUPERELEVATION (-0.020'/')
STA. 762+78.56 BEGIN SUPERELEVATION (-0.020'/')
STA. 764+75.57 MAX SUPERELEVATION (-0.040'/')
STA. 765+39.27 MAX SUPERELEVATION (-0.040'/')
STA. 768+18.12 NOSE SUPERELEVATION (-0.011'/')
STA. 773+95.08 MATCH MAIN LANE SUPERELEVATION (0.069'/')
STA. 768+18.12 7.50' RT. RAMP 3 C.L. = ELEV. 552.84
STA. 768+18.12 48.69' LT. OF BYPASS C.L.

FLOODPLAIN LIMITS
STA. 758+57.79
STA. 761+73.00
P.V.I. 758+67.08 ELEV. 523.74
P.V.C. 759+15.66 ELEV. 523.74
K=50.00 VC=200' e=1.00'
P.V.T. 761+15.66 ELEV. 527.74
P.V.I. 760+15.66 ELEV. 523.74
+61.27 LT.OF C/L ELEV. 518.00
+01.27 LT.OF C/L ELEV. 521.50
0.00%
4.00%
1.46% LT.OF C/L
+00
F.L. INLET 528.80'
F.L. OUTLET 521.48'
P.V.C. 765+85.00 ELEV. 546.51
P.V.I. 766+85.00 ELEV. 550.51
K=88.89 VC=200' e=-0.56'
P.V.T. 767+85.00 ELEV. 552.26
P.V.I. 768+18.12 ELEV. 552.84
1.75%
580 570 560 550 540 530 520 510 500 490
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

8/1/2019
RR60140.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.		R60140	150	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

STA. 103+75.81 DENISE LANE
= STA. 770+50.27 MILL CREEK ROAD RAMP 3
Δ = 68°34'22"

STA. 772+42.58 HWY. 7
= STA. 772+52.01 MILL CREEK ROAD RAMP 3
Δ = 6°46'43"

N 14°03' 36" E

N 13°30' 30" E

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

RAMP 3

STA. 762+78.56 BEGIN SUPERELEVATION (-0.020'/')
STA. 764+75.57 MAX SUPERELEVATION (-0.040'/')
STA. 765+39.27 MAX SUPERELEVATION (-0.040'/')
STA. 768+18.12 NOSE SUPERELEVATION (-0.011'/')
STA. 773+95.08 MATCH MAIN LANE SUPERELEVATION (0.069'/')

580 570 560 550 540 530 520 510 500 490

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

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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.		R60140	151	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

RAMP 3
PI = 764+78.00
Δ = 22°26'40"LT.
D = 6°00'00"
T = 189.47'
L = 374.08'
PC = 762+88.53
PT = 766+62.61
e = 0.046'/'
Ls = 250'

STA. 757+29.68 HWY. 7
= STA. 757+21.60 MILL CREEK ROAD RAMP 4
Δ = 4°51'42"

RAMP 4

STA. 759+06.34 MATCH MAIN LANE SUPERELEVATION (0.069'/')
STA. 761+41.06 NOSE SUPERELEVATION (0.006'/')
STA. 763+98.38 MAX SUPERELEVATION (-0.062'/')
STA. 766+42.50 MAX SUPERELEVATION (-0.062'/')
STA. 768+00.00 END SUPERELEVATION (-0.020'/')

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

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560 550 540 530

745+00 746+00 747+00 748+00 749+00 750+00 751+00 752+00 753+00 754+00 755+00 756+00 757+00 758+00 759+00 760+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10-07-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		R60140	152	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19

PROPOSED C/A
STA. 94+37.66 MILL CREEK ROAD
= STA. 768+59.02 RAMP 4
Δ = 89°36'60"

P.I. 96+41.13

P.C. 99+42.66

255.91

S 77°52' 06" E

S 78°44' 20" E

16.0' GATE
END C/A +40.96
531.68

16.0' GATE

P.I. 93+32.40

P.C. 92+67.50

S 78°05' 23" E

PC 758+57.79

STA. 94+07.91 MILL CREEK ROAD
= STA. 758+57.86 RAMP 3
Δ = 89°36'60"

P.I. 92+99.95

P.C. 92+69.05

RAMP 4 STA. 765+59.31 TO STA. 768+36.32
CONSTRUCT CONCRETE BARRIER WALL (MEDIAN TYPE A)

RAMP 4
PI = 766+11.53
Δ = 126°52'14"LT.
D = 24°00'00"
T = 477.47'
L = 528.63'
PC = 761+34.06
PT = 766+62.69
e = 0.100'/'
Ls = 300'

760

760

N 11° 38' 41" E

P.C. 760+76.89

P.I. 761+73.07

P.I. 766+30.84

500.00

500.00

395.00

395.00

NOSE
41.06
35.76'

P.T. 762+68.59

P.C. 762+88.53

SINGLE WIDE MOBILE HOME

CEMETARY (GRAVE MARKER, WELL, PUMP HOUSE)

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

RAMP 4

STA. 759+06.34 MATCH MAIN LANE SUPERELEVATION (0.069'/')
STA. 761+41.06 NOSE SUPERELEVATION (0.006'/')
STA. 763+98.38 MAX SUPERELEVATION (-0.062'/')
STA. 766+42.50 MAX SUPERELEVATION (-0.062'/')
STA. 768+00.00 END SUPERELEVATION (-0.020'/')

STA. 761+41.06 7.50' RT. RAMP 4 C.L. =
STA. 761+41.06 35.76' LT. OF BYPASS C.L.
ELEV. 547.59

FLOODPLAIN LIMITS

STA. 765+67.00

STA. 768+71.61

P.V.I. 761+41.06
ELEV. 547.59

P.V.C. 761+43.63
ELEV. 547.59

0.00%

K=54.17
VC=325'
e=-2.44'

P.V.I. 763+06.13
ELEV. 547.59

-6.00%

P.V.T. 764+68.63
ELEV. 537.84

P.V.C. 765+65.48
ELEV. 532.03

K=45.83
VC=275'
e=2.06'

P.V.I. 767+02.98
ELEV. 523.78

P.V.T. 768+40.48
ELEV. 523.78

0.00%

P.V.I. 768+49.74
ELEV. 523.78

560 550 540 530 520 510 500

760+00 761+00 762+00 763+00 764+00 765+00 766+00 767+00 768+00 769+00 770+00 771+00 772+00 773+00 774+00 775+00

8/1/2019

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	153	616
				(2) PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19

PROMISE LAND DRIVE (OVERPASS)
PI = 100+89.43
Δ = 16°44'42" RT.
D = 15°00'00"
T = 56.22'
L = 111.63'
PC = 100+33.22
PT = 101+44.85
MATCH EXISTING SUPERELEVATION

STA. 101+33.22
BEGIN PROMISE LAND DRIVE OVERPASS

PROMISE LAND DRIVE (OVERPASS)
PI = 102+73.31
Δ = 97°51'38" LT.
D = 70°00'00"
T = 93.93'
L = 139.80'
PC = 101+79.38
PT = 103+19.18
MATCH EXISTING SUPERELEVATION

STA. 108+08.89 - STA. 113+06.10 CONSTRUCT
497'-2½" X 28'-0" CLEAR ROADWAY BRIDGE
495'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (165'-165'-165')
BR. NO 07457

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
106+99.74	107+93.49	LT.	75 LIN. FT.	1 EA.	1 EA.
103+74.74	107+93.49	RT.	350 LIN. FT.	1 EA.	1 EA.
113+21.50	115+40.25	LT.	150 LIN. FT.	1 EA.	1 EA.
113+21.50	114+15.29	RT.	75 LIN. FT.	1 EA.	1 EA.

STA. 691+79.97 HWY. 7
= STA. 110+79.64 PROMISE LAND DRIVE OVERPASS
Δ = 60°50'16"

PROPOSED R/W & C/A
PROPOSED R/W
PROPOSED C/A
16'0" GATE
WE. WOODS EVERGREEN
ENVIRONMENTAL AREA
BEGIN C/A
END C/A
N 84°44'29" E
P.C. 100+33.22
P.I. 100+89.43
P.T. 101+44.85
P.C. 101+79.38
P.I. 102+73.31
P.T. 103+19.18
PROMISE LAND DR
EDGE 7" HICKORY
PN:1401 PD:8" SPIKE
PN:1402 PD:8" SPIKE
PN:1403 PD:8" SPIKE
PN:1404 PD:8" SPIKE
PN:1405 PD:8" SPIKE
PN:1406 PD:8" SPIKE
PN:1407 PD:8" SPIKE
PN:1408 PD:8" SPIKE
PN:1409 PD:8" SPIKE
PN:1410 PD:8" SPIKE
PN:1411 PD:8" SPIKE
PN:1412 PD:8" SPIKE
PN:1413 PD:8" SPIKE
PN:1414 PD:8" SPIKE
PN:1415 PD:8" SPIKE
PN:1416 PD:8" SPIKE
PN:1417 PD:8" SPIKE
PN:1418 PD:8" SPIKE
PN:1419 PD:8" SPIKE
PN:45 PD:
PN:46 PD:
PN:904 PD:TBM-904 CPS 18" OAK
PN:9 PD:REBAR+CAP FILE REOPENED
CM:2 FILE
PD:10" TY:OPP CN:0 LN:69.0
P.S WOOD
12" ATT
100
105
110
N
+00.00
+25.00
+50.00
+75.00
+00.00
+00.00
+00.00
+70.98
+23.45
+46.90
+09.36

PROPOSED C/A
PROPOSED R/W
PROMISE LAND DRIVE (OVERPASS)

9/5/2019
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10-07-19				6	ARK.			
				JOB NO.		R60140	154	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19

PROMISE LAND DRIVE (OVERPASS)

STA. 108+08.89 - STA. 113+06.10 CONSTRUCT
497'-2½" X 28'-0" CLEAR ROADWAY BRIDGE
495'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (165'-165'-165')
BR. NO. 07457

P.V.I. 101+33.22
ELEV. 890.68
L=300'
ELEV. 892.03

P.V.I. 102+76.15
ELEV. 901.41

K=17.24
VC=250'
e=-4.53'

-2.00%

P.V.C. 104+83.07
ELEV. 886.92

P.V.T. 104+01.15
ELEV. 892.66

BRIDGE BEGIN
STA 108+08.89

K=64.29
VC=900'
e=15.75'

P.V.I. 109+33.07
ELEV. 855.42

930 920 910 900 890 880 870 860 850 840 830 820 810 800 790 780 770

95+00 96+00 97+00 98+00 99+00 100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	155	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19

PROPOSED R/W & C/A

PROPOSED C/A

PROPOSED R/W

END C/A +87.96
222.63 PROPOSED C/A

BEGIN C/A
+12.29
208.69

16' 0" GATE

693

110

115

116

117

P.I. 116+15.05

P.C. 114+50.28

P.I. 115+33.13

P.T. 689+96.49

450.00

400.00

250.00

N 69°54'36" E

+53.33 20% FILL

+78.63 20% FILL

+31.63

PN:1443
PD:8" SPK TRIG ELEV

PN:1444
PD:8" SPK TRIG ELEV

PN:1442
PD:8" SPK TRIG ELEV

PN:62
PD:STD AHTD MON. STAMPED PN:62

PN:9
PD:REBAR+CAP FILE REOPENED

PN:10
PD:REBAR+CAP FILE REOPENED

PN:1441
PD:8 SPK TRIG ELEV

PN:61
PD:STD AHTD MON. STAMPED PN:61

PN:1520
PD:8 SPK TRIG ELEV

PN:1521
PD:8 SPK TRIG ELEV

EDGE PP
MIDDLE ROCK

EDGE 30" HICKORY
HICKORY

E 7" HICKORY

N

STA. 116+00.00
END PROMISE LAND DRIVE OVERPASS

E WOODS EVERGREEN

PROMISE LAND DRIVE (OVERPASS)
PI = 115+33.13
Δ = 14°49'44" LT.
D = 9°00'00"
T = 82.85'
L = 164.76'
PC = 114+50.28
PT = 116+15.05
MATCH EXISTING SUPERELEVATION

STA. 691+79.97 HWY. 7
= STA. 110+79.64 PROMISE LAND DRIVE OVERPASS
Δ = 60°50'16"

STA. 108+08.89 - STA. 113+06.10 CONSTRUCT
497'-2½" X 28'-0" CLEAR ROADWAY BRIDGE
495'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (165'-165'-165')
BR. NO 07457

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
106+99.74	107+93.49	LT.	75 LIN. FT.	1 EA.	1 EA.
103+74.74	107+93.49	RT.	350 LIN. FT.	1 EA.	1 EA.
113+21.50	115+40.25	LT.	150 LIN. FT.	1 EA.	1 EA.
113+21.50	114+15.25	RT.	75 LIN. FT.	1 EA.	1 EA.

9/5/2019

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PROMISE LAND DRIVE (OVERPASS)

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10-07-19				6	ARK.			
				JOB NO.		R60140	156	616
				(2) PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19

PROMISE LAND DRIVE (OVERPASS)

STA. 108+08.89 - STA. 113+06.10 CONSTRUCT
497'-2½" X 28'-0" CLEAR ROADWAY BRIDGE
495'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (165'-165'-165')
BR. NO. 07457

K-64.29
VC-900'
e-15.75'

BRIDGE END
STA 113+06.10

P.V.T. 113+83.07
ELEV. 886.92

-1.00%

P.V.C. 114+36.39
ELEV. 890.63

K-8.33
VC-125'
e-2.34'

P.V.I. 114+98.89
ELEV. 895.08

-3.00%

P.V.T. 115+61.39
ELEV. 890.03

P.V.I. 116+00.00
ELEV. 886.94

2:1

930 920 910 900 890 880 870 860 850 840 830 820 810 800 790 780 770

110+00 111+00 112+00 113+00 114+00 115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00 124+00 125+00

9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	157	616

(2) PLAN AND PLOT SHEETS

PROMISE LAND DRIVE (SHIFT)
PI = 202+20.24
Δ = 25°36'48"RT.
D = 18°00'00"
T = 72.36'
L = 142.30'
PC = 201+47.88
PT = 202+90.18
NO SUPERELEVATION

PROMISE LAND DRIVE (SHIFT)
PI = 204+41.53
Δ = 25°36'18"LT.
D = 15°00'00"
T = 86.80'
L = 170.70'
PC = 203+54.73
PT = 205+25.43
NO SUPERELEVATION

STA. 213+24 CONSTRUCT
DBL. 72" X 88' R.C. PIPE CULVERT
ON A 30° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 420 CFS D.A. = 120 ACRES
72" R.C. PIPE = 196 LIN. FT.
72" FES = 4 EA.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

POB 200+00.00
P.C. 201+47.88
P.I. 202+20.24
P.T. 202+90.18
P.C. 203+54.73
P.T. 205+25.43
P.I. 204+41.53
N 28°33'08" E
N 54°09'56" E
N 28°33'38" E
PROPOSED R/W
PROPOSED C/A

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

PROMISE LAND DRIVE (SHIFT)

K-17.27
VC-95'
e-0.65'
-7.50%
-2.00%
P.V.I. 200+00.00
ELEV. 746.54
P.V.C. 200+02.50
ELEV. 746.35
P.V.I. 200+50.00
ELEV. 742.79
P.V.I. 200+97.50
ELEV. 741.84
P.V.C. 201+14.86
ELEV. 741.49
P.V.I. 203+14.86
ELEV. 737.49
K-33.33
VC-400'
e--6.00'
-14.00%
P.V.I. 205+14.86
ELEV. 709.49
P.V.C. 208+87.57
ELEV. 657.31
K-43.48
VC-500'
e-7.19'
P.V.I. 211+37.57
ELEV. 622.31
P.V.I. 213+87.57
ELEV. 616.06
-2.50%
24"
F.L. INLET 610.92'
F.L. OUTLET 606.66'

2/15/2019
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10-30-19				6	ARK.			
				JOB NO.		R60140	158	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

STA. 217+68 CONSTRUCT
60" X 58' R.C. PIPE CULVERT
ON A 70° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 165 CFS D.A. = 42 ACRES
60" R.C. PIPE = 58 LIN. FT.
60" FES = 2 EA.

STA. 99+93.86 COVENANT TRAIL
= STA. 221+32.65 PROMISE LAND DRIVE (SHIFT)
Δ = 85°20'26"

PROMISE LAND DRIVE (SHIFT)
PI = 225+01.31
Δ = 115°35'41"RT.
D = 50°00'00"
T = 181.95'
L = 231.19'
PC = 223+19.36
PT = 225+50.55
MATCH EXISTING SUPERELEVATION

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

PROMISE LAND DRIVE (SHIFT)

-2.50%
P.V.C. 215+56.80
ELEV. 611.83
K=120.00
VC=300'
e=0.94'
P.V.I. 217+06.80
ELEV. 608.08
F.L. INLET 597.78'
F.L. OUTLET 596.24'
P.V.T. 218+56.80
ELEV. 608.08
0.00%
P.V.C. 221+44.65
ELEV. 608.08
K=22.62
VC=238'
e=3.13'
P.V.I. 222+63.65
ELEV. 608.08
P.V.I. 224+24.65
ELEV. 625.02
K=11.04
VC=84'
e=-0.80'
P.V.T. 224+66.65
ELEV. 626.24

2/15/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	159	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-19

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	SIDE	LIN. FT.
627+10.00	629+10.00	LT	200

NOSE
+25.07
7.5'

RAMP WN
PI = 628+35.99
Δ = 29°38'19"RT.
D = 6°00'00"
T = 252.65'
L = 493.98'
PC = 625+83.34
PT = 630+77.32
e = 0.092'/'
Ls = 350'

RAMP WN
PI = 637+69.58
Δ = 44°58'49"RT.
D = 6°00'00"
T = 395.35'
L = 749.67'
PC = 633+74.23
PT = 641+23.90
e = 0.092'/'
Ls = 350'

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE-BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
633+80.77	635+99.52	LT.	150 LIN. FT.	1EA.	1EA.
633+80.77	635+99.52	RT.	150 LIN. FT.	1EA.	1EA.

STA. 630+00 - IN PLACE
DBL. 6' X 6' X 241' R.C. BOX CULVERT
RETAIN AND EXTEND 11'
FOR A COMPLETED LENGTH OF 252'

N 75°29'56" W

N 45°31'38" W

P.I. 620+07.32

P.T. 623+38.65

P.C. 625+83.34

P.I. 628+35.99

P.T. 630+77.32

P.C. 633+74.23

625

630

635

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

RAMP WN

STA. 625+83.34 BEGIN SUPERELEVATION (-0.020'/')
STA. 628+30.33 MAX SUPERELEVATION (-0.065'/')
STA. 630+92.54 MAX SUPERELEVATION (-0.065'/')
STA. 632+19.51 END SUPERELEVATION (-0.042'/')

STA. 632+19.51 BEGIN SUPERELEVATION (-0.042'/')
STA. 634+46.51 MAX SUPERELEVATION (-0.088'/')
STA. 637+49.07 MAX SUPERELEVATION (-0.088'/')
STA. 642+12.78 NOSE (0.007'/')
STA. 645+84.36 MATCH MAIN LANE SUPERELEVATION (0.075'/')

P.V.I. 627+53.64
ELEV. 492.68

P.V.C. 628+25.07
ELEV. 494.52

P.V.I. 628+85.07
ELEV. 496.07

P.V.T. 629+45.07
ELEV. 486.52

P.V.C. 633+34.40
ELEV. 499.44

2.58%

0.75%

K=65.72
VC=120'
e=-0.27'

K=82.35
VC=350'
e=1.86'

STA. 628+25.07 7.50' LT. RAMP WN C.L.
ELEV. 494.52'

+00
F.L. INLET 456.01'
EXISTING F.L. INLET 454.87'
EXISTING F.L. OUTLET 446.56'

540 530 520 510 500 490 480 470 460 450

620+00 621+00 622+00 623+00 624+00 625+00 626+00 627+00 628+00 629+00 630+00 631+00 632+00 633+00 634+00 635+00

4/12/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	160	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-7-19

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
633+80.77	635+99.52	LT.	150 LIN. FT.	1 EA.	1 EA.
633+80.77	635+99.52	RT.	150 LIN. FT.	1 EA.	1 EA.

STA. 636+07.92 - STA. 638+35.08 CONSTRUCT
227'-2" X 25'-0" CLEAR ROADWAY BRIDGE
225'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (70'-85'-70')
BR. NO. 07456

RAMP WN
PI = 637+69.58
Δ = 44°58'49"RT.
D = 6°00'00"
T = 395.35'
L = 749.67'
PC = 633+74.23
PT = 641+23.90
e = 0.092'/'
Ls = 350'

STA. 645+84.36 4.5' LT. RAMP WN C.L. =
STA. 645+74.33 34' RT. OF BYPASS C.L.
ELEV. 530.45

STA. 642+12.78 7.50' LT. RAMP WN C.L. =
STA. 642+12.78 38.71' RT. OF BYPASS C.L.
ELEV. 528.93

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

RAMP WN

STA. 632+19.51 BEGIN SUPERELEVATION (-0.042'/')
STA. 634+46.51 MAX SUPERELEVATION (-0.088'/')
STA. 637+49.07 MAX SUPERELEVATION (-0.088'/')
STA. 642+12.78 NOSE (0.007'/')
STA. 645+84.36 MATCH MAIN LANE SUPERELEVATION (0.075'/')

P.V.I. 635+09.40
ELEV. 500.75

BRIDGE BEGIN
STA 636+07.92

K-82.35
VC-350'
e-1.86'

5.00%

P.V.T. 636+84.40
ELEV. 509.50

BRIDGE END
STA 638+35.08

2:1

P.V.C. 639+04.55
ELEV. 520.51

P.V.I. 640+54.55
ELEV. 528.01

K-67.94
VC-300'
e--1.66'

P.V.T. 642+04.55
ELEV. 528.88

0.58%

P.V.I. 642+58.98
ELEV. 529.20

540 530 520 510 500 490 480 470 460 450

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

4/12/2019

RR60140.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.		R60140	161	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

STA. 846+40 - IN PLACE
TYPE RM DROP INLET
W/ 30" X 75' STUB INLET &
30" X 97' PIPE OUTLET
RETAIN AND MODIFY

STA. 846+89 - IN PLACE
TYPE RM DROP INLET IN MEDIAN
W/ 30" X 67' PIPE OUTLET
RETAIN

STA. 857+90 - IN PLACE
8' X 7' X 86' R.C. BOX CULVERT
W/ TYPE TM DROP INLET
RETAIN

700' ACCELERATION LANE

HWY. 70B CENTERLINE
PI = 855+27.01
Δ = 6°55'21" LT.
D = 0°55'38"
T = 373.71'
L = 746.52'
PC = 851+53.30
PT = 858+99.82
e = 0.021'/'
Ls = 300'

HWY 70B WB

HWY 70B EB

STA. 847+19 - IN PLACE
TYPE ST DROP INLET
W/ 30" X 2' PIPE OUTLET
RETAIN

STA. 847+22 - IN PLACE
TYPE ST DROP INLET
W/ 30" X 124' PIPE OUTLET
RETAIN

STA. 852+97 - IN PLACE
TYPE RM DROP INLET IN MEDIAN
W/ 18" X 89' R.C. PIPE OUTLET
W/ F.E.S. RT.
RETAIN AND EXTEND 36' RT. W/ F.E.S.
24" R.C. PIPE = 38 LIN. FT.
24" F.E.S. = 1EACH
CHANNEL CHANGE = 100 CU. YD.

STA. 869+61 - IN PLACE
8' X 7' X 499' R.C. BOX CULVERT
45° RT. END SKEW
REMOVE 2' LT. AND CONSTRUCT
12' X 4' X 9' JUNCTION BOX 138.04' RT.
WITH 24" X 12' STUB INLET W/ F.E.S.
24" R.C. PIPE = 12 LIN. FT.
24" F.E.S. = 1EACH

HWY. 70B C-D ROAD

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

STA. 847+14.80 MATCH EXISTING (-0.002'/')
STA. 850+14.80 END SUPERELVATION (-0.020'/')

STA. 850+14.80 BEGIN SUPERELEVATION (-0.020'/')
STA. 853+14.80 MAX SUPERELEVATION (0.021'/')
STA. 858+24.82 MAX SUPERELEVATION (0.021'/')
STA. 861+24.82 END SUPERELVATION (-0.020'/')

STA. 847+14.80
BEGIN HWY. 70B C-D ROAD

EXISTING SHOULDER

520 510 500 490 480 470 460

845+00 846+00 847+00 848+00 849+00 850+00 851+00 852+00 853+00 854+00 855+00 856+00 857+00 858+00 859+00 860+00

9/6/2019

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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.		R60140	162	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-6-19

HWY. 70B C-D ROAD SLIP RAMP
PI = 862+25.00
Δ = 5°45'30" LT.
D = 3°00'00"
T = 96.05'
L = 191.95'
PC = 861+28.95
PT = 863+20.89
NO SUPERELEVATION

HWY. 70B C-D ROAD SLIP RAMP
PI = 864+50.89
Δ = 5°22'46" RT.
D = 3°00'00"
T = 89.72'
L = 179.31'
PC = 863+61.17
PT = 865+40.48
NO SUPERELEVATION

C.L. MAIN LANES
P.I. 629+30.15
Δ = 0°38'37" RT.

N 75°29'56" W

628+35.99

623+38.65

STA. 874+48 - IN PLACE
TYPE RM DROP INLET
W/ 24" X 194' STUB INLET &
36" X 180' PIPE OUTLET
RETAIN

STA. 872+84 - IN PLACE
TYPE RM DROP INLET
W/ 30" X 98' PIPE OUTLET
RETAIN

STA. 872+38 - IN PLACE
TYPE RM DROP INLET IN MEDIAN
W/ 30" X 88' PIPE OUTLET
RETAIN

STA. 871+87 - IN PLACE
TYPE RM DROP INLET
W/ 36" X 230' PIPE OUTLET
RETAIN AND EXTEND 154'
FOR A COMPLETED LENGTH OF 384'
W/ F.E.S.
36" R.C. PIPE = 156 LIN. FT.
36" F.E.S. = 1 EACH

STA. 867+20 - IN PLACE
6' X 8' X 222' R.C. BOX CULVERT
WITH TYPE TM DROP INLET IN MEDIAN
RETAIN AND EXTEND 13'
FOR A COMPLETED LENGTH OF 235'

STA. 865+03 - IN PLACE
TYPE RM DROP INLET IN MEDIAN
W/ 18" X 100' R.C. PIPE OUTLET W/ F.E.S.
RETAIN AND EXTEND 8' W/ F.E.S. RT.
18" R.C. PIPE = 10 LIN. FT.
18" F.E.S. = 1 EACH

STA. 866+08 - IN PLACE
24" X 162' R.C. PIPE CULVERT
RETAIN

500' ACCELERATION LANE

300' TAPER

HWY. 70B C-D ROAD

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

STA. 850+14.80 BEGIN SUPERELEVATION (-0.020'/')
STA. 853+14.80 MAX SUPERELEVATION (0.021'/')
STA. 858+24.82 MAX SUPERELEVATION (0.021'/')
STA. 861+24.82 END SUPERELVATION (-0.020'/')

STA. 847+14.80
BEGIN HWY. 70B C-D ROAD

EXISTING SHOULDER

500 490 480 470 460 450

860+00 861+00 862+00 863+00 864+00 865+00 866+00 867+00 868+00 869+00 870+00 871+00 872+00 873+00 874+00 875+00

9/6/2019

RR60140.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.		R60140	163	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

STA. 869+61 - IN PLACE
8' X 7' X 499' R.C. BOX CULVERT
45° RT. FWD. SKEW
REMOVE 2' LT. AND CONSTRUCT
12' X 4' X 9' JUNCTION BOX 138.04' RT.
WITH 24" X 12' STUB INLET W/ F.E.S.
24" R.C. PIPE = 12 LIN. FT.
24" F.E.S. = 1 EACH

STA. 868+02 (RAMP EN) - IN PLACE
8' X 7' X 313' R.C. BOX CULVERT
RETAIN AND EXTEND 131' RT. &
CONNECT TO JUNCTION BOX @ STA. 869+61

STA. 866+08 - IN PLACE
24" X 162' R.C. PIPE CULVERT
RETAIN

RAMP EN
PI = N.A.
Δ = 280°00'37" RT.
D = 24°22'52"
T = N.A.
L = 1148.47
PC = 861+13.97
PT = 872+62.44
e = 0.100'/'
Ls = 300'

P.I. 855+27.89
P.T. 855+43.02
P.C. 861+13.97
P.T. 865+40.47
P.C. 862+25.00
P.C. 863+61.71
P.C. 844+67.02
P.T. 872+62.44
P.I. 622+65.40
Δ = 0° 50' 29" RT.
C.L. MAIN LANES

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

STA. 862+05.62 BEGIN SUPERELEVATION (-0.020'/')
STA. 865+05.62 MAX SUPERELEVATION (-0.100'/')
STA. 869+69.49 MAX SUPERELEVATION (-0.100'/')
STA. 870+55.74 MATCH EXISTING (0.077'/')

STA. 869+54 - CONSTRUCT
24" X 254' R.C. PIPE CULVERT
W/ F.E.S. LT.
(CLASS III) (TYPE 3 BEDDING)
CONNECT TO JUNCTION BOX @ STA. 869+61
24" R.C. PIPE = 254 LIN. FT.
24" F.E.S. = 1 EACH

STA. 862+05.62 7.5' LT. C.L. RAMP = STA. 862+05.30 24.06' RT. C.D. ROAD
P.V.C. 862+12.50
ELEV. 475.22
-4.75%
K=38.26
VC=350'
e=4.00'
P.V.I. 863+87.50
ELEV. 469.72
-00.00 RT. DT. GR.
RT. ELEV. 468.42
P.V.I. 865+62.50
ELEV. 480.22
6.00%
P.V.C. 867+00.00
ELEV. 488.47
-2.05% RT. DT. GR.
-00.00 RT. DT. GR.
RT. ELEV. 460.21
P.V.I. 868+50.00
ELEV. 497.47
K=129.31
VC=300'
e=-0.87'
3.68%
P.V.T. 870+00.00
ELEV. 502.99
P.V.I. 870+55.74
ELEV. 505.04

510 500 490 480 470 460 450 440

861+00 862+00 863+00 864+00 865+00 866+00 867+00 868+00 869+00 870+00 871+00

RAMP EN

9/6/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	164	616

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-15-19

RAMP SE

BEGIN RAMP SE 1 LANE EDGE RADIUS = 1493'
STA 623+72.12 51.12' RT. BYPASS ULTIMATE CL

RAMP SE
PI = N. A.
Δ = 262° 20' 31" RT.
D = 24° 22' 52"
T = N. A.
L = 1076.00'
PC = 844+67.02
PT = 855+43.02
e = 0.100'/'
Ls = 300'

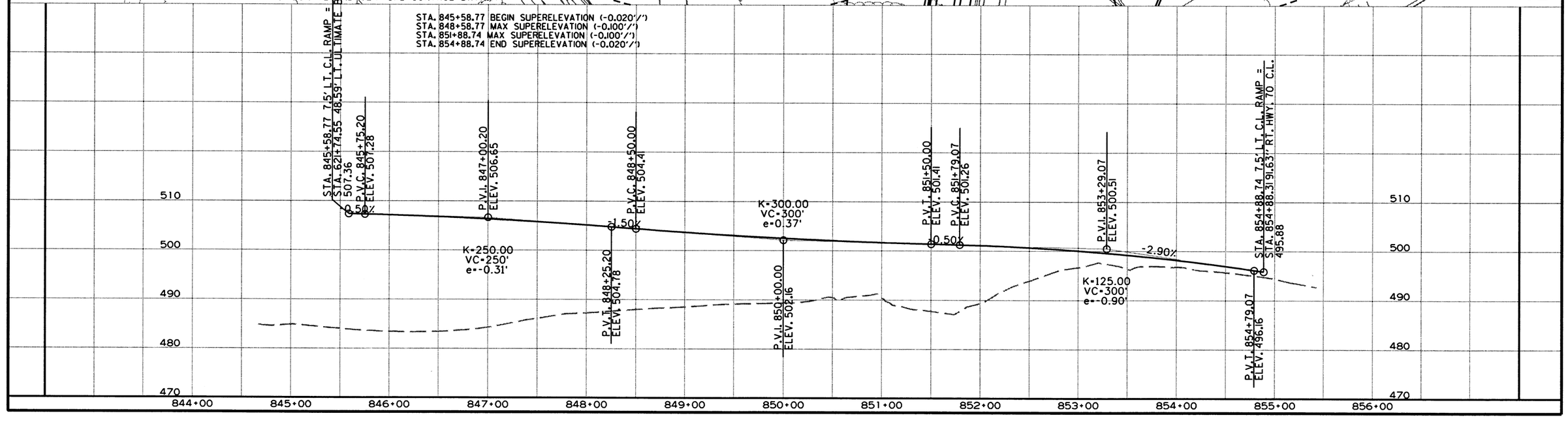
P.C. 844+67.02
P.T. 855+43.02
P.C. 862+25.00
P.C. 861+13.97
POB 624+33.70
P.T. 872+62.44
P.I. 622+65.40
Δ = 0° 50' 29" RT.
P.I. 11+61.24
C.L. MAIN LANES

STA. 849+00 - STA. 850+60 LT. OF RAMP SE
CONCRETE DITCH PAVING (TYPE B) = 106.67 SQ. YD.

STA. 849+76 - CONSTRUCT
24" X 208' R.C. PIPE CULVERT
W/ F.E.S. LT. & RT.
(CLASS III) (TYPE 3 BEDDING)
24" R.C. PIPE = 208'
24" F.E.S. = 2 EACH

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

STA. 845+58.77 BEGIN SUPERELEVATION (-0.020'/')
STA. 848+58.77 MAX SUPERELEVATION (-0.100'/')
STA. 851+88.74 MAX SUPERELEVATION (-0.100'/')
STA. 854+88.74 END SUPERELEVATION (-0.020'/')



10/11/2019

RR60140.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.		R60140	165	616

(2) PLAN AND PLOTTING SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

STA. 841+41 - IN PLACE
TYPE RM DROP INLET
W/ 30" X 82' STUB INLET &
30" X 80' PIPE OUTLET
RETAIN

STA. 841+41 - IN PLACE
TYPE RM DROP INLET IN MEDIAN
W/ 30" X 60' PIPE OUTLET
RETAIN

STA. 846+40 - IN PLACE
TYPE RM DROP INLET
W/ 30" X 75' STUB INLET &
30" X 97' PIPE OUTLET
RETAIN AND MODIFY

STA. 846+89 - IN PLACE
TYPE RM DROP INLET IN MEDIAN
W/ 30" X 67' PIPE OUTLET
RETAIN

RAMP SW
PI = 621+31.82
Δ = 5°44'18" LT.
D = 3°00'00"
T = 95.72'
L = 191.27'
PC = 620+36.10
PT = 622+27.38
e = 0.057'/'
Ls = 250'

RAMP SW
PI = 628+02.08
Δ = 74°28'59" LT.
D = 7°00'00"
T = 621.66'
L = 1063.33'
PC = 622+80.42
PT = 633+43.75
e = 0.098'/'
Ls = 350'

PN:1310
PD:8 SPIKE

PN:1330
PD:8 SPIKE

PN:1543
PD:8 SPIKE

MONUMENT SPIKE, REBAR AND ALUM. CAP

HWY 70B

RAMP SW

STA. 611+98.69
BEGIN RAMP SW

STA. 841+41 - IN PLACE
TYPE ST DROP INLET
W/ 30" X 2' PIPE OUTLET
RETAIN

STA. 841+41 - IN PLACE
TYPE ST DROP INLET
W/ 30" X 78' PIPE OUTLET
RETAIN

STA. 841+98 - IN PLACE
TYPE ST DROP INLET
W/ 18" X 2' PIPE OUTLET
RETAIN

STA. 841+98 - IN PLACE
TYPE ST DROP INLET
W/ 18" X 48' PIPE OUTLET
RETAIN

STA. 847+19 - IN PLACE
TYPE ST DROP INLET
W/ 30" X 2' PIPE OUTLET
RETAIN

STA. 847+22 - IN PLACE
TYPE ST DROP INLET
W/ 30" X 124' PIPE OUTLET
RETAIN

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

STA. 621+98.50 BEGIN SUPERELEVATION (0.020'/')
STA. 625+48.50 MAX SUPERELEVATION (0.098'/')
STA. 629+00.73 MAX SUPERELEVATION (0.098'/')
STA. 632+50.73 END SUPERELEVATION (0.020'/')

STA. 621+98.50 7.5' RT. C.L. RAMP =
STA. 854+65.20 55.88' LT. HWY. 70 C.L.
505.42

P.V.C. 623+00.00
ELEV. 503.31

-2.08%

K=81.98
VC=400'
e=2.44'

-00.00 LT.DT.GR.
LT. ELEV. 496.48

-00.00 LT.DT.GR.
LT. ELEV. 495.00

P.V.T. 625+00.00
ELEV. 499.15

9/5/2019

RR60140.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.		R60140	166	616

(2) PLAN AND PLOT SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19

RAMP SW
PI = 629+02.08
Δ = 74°25'59" LT.
D = 7°00'00"
T = 621.66'
L = 1063.33'
PC = 622+80.42
PT = 633+43.75
e = 0.098'/'
Ls = 350'

STA. 623+68. - IN PLACE
8' X 7' X 174' R.C. BOX CULVERT
30° LT. FWD. SKEW
CONSTRUCT TW DROP INLET
AND EXTEND 283' TO LT
W/ 3:1 WINGWALLS

P.C. 633+74.23

RAMP SW

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

STA. 621+98.50 BEGIN SUPERELEVATION (0.020'/')
STA. 625+48.50 MAX SUPERELEVATION (0.098'/')
STA. 629+00.73 MAX SUPERELEVATION (0.098'/')
STA. 632+50.73 END SUPERELEVATION (0.020'/')

STA. 632+50.73
END RAMP SW

STA. 632+50.73 7.5' RT. OF C.L. RAMP = STA. 632+50.73 48.69' LT. HWY. 7 C.L.
514.40

P.V.I. 627+00.00
ELEV. 504.75

P.V.C. 628+50.00
ELEV. 508.95

P.V.I. 630+00.00
ELEV. 513.15

P.V.I. 631+50.00
ELEV. 518.90

K=81.98
VC=400'
e=2.44'

2.80%

K=130.46
VC=300'
e=-0.86'

0.50%

-0.68% LT.DT.GR.

-00.00 LT.DT.GR
LT. ELEV. 485.00

-30.00 LT.DT.GR
LT. ELEV. 492.61

530
520
510
500
490
480
470
460

625+00 626+00 627+00 628+00 629+00 630+00 631+00 632+00 633+00

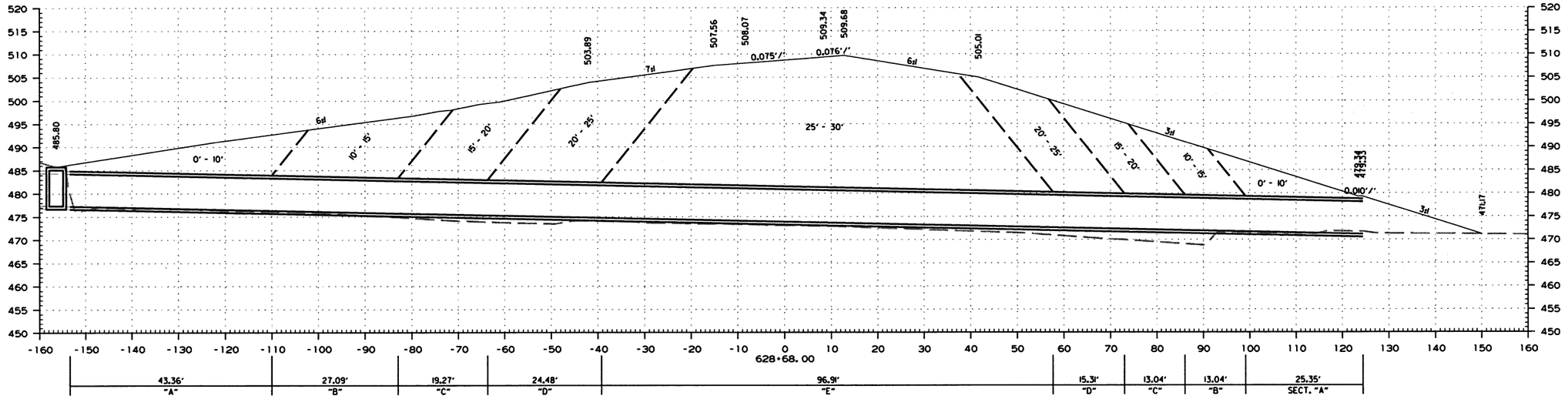
9/5/2019

RR60140.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.		R60140	167	616

(2) CULVER DIAGRAMS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



STA. 628+68 - IN PLACE
8' X 7' X 174' R.C. BOX CULVERT
30° LT. FWD. SKEW
CONSTRUCT TW DROP INLET
AND EXTEND 283' TO LT
W/ 3H WINGWALLS

STA. 628+68.00

DESCRIPTION	LENGTH	CLASS "S" CONCRETE - ROADWAY		REINFORCING STEEL (GR. 60) - ROADWAY						UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	SOLID SODDING	WATER
						BAR LAPS						
	LIN.FT.	CU.YD. / L.F.	CU. YD.	LBS. / L.F.	LBS.	EACH	LBS./LAP	LBS.	TOTAL LBS.	CU. YD.	SQ.YD.	M.GAL.
SECTION "A"	43.36	0.838	36.34	89.72	3890.26	1	26.72	26.72	3916.98	11.76		
SECTION "B"	27.09	0.909	24.62	106.02	2872.08	1	26.72	26.72	2898.80	8.31		
SECTION "C"	19.27	0.966	18.61	122.89	2368.09			0.00	2368.09	6.33		
SECTION "D"	24.48	1.065	26.07	136.70	3346.42	1	30.06	30.06	3376.48	8.85		
SECTION "E"	96.91	1.166	113.00	147.08	14253.52	3	30.06	90.18	14343.70	38.36		
SECTION "D"	15.31	1.065	16.31	136.70	2092.88			0.00	2092.88	5.54		
SECTION "C"	13.04	0.966	12.60	122.89	1602.49	1	28.39	28.39	1630.88	4.28		
SECTION "B"	13.04	0.909	11.85	106.02	1382.50			0.00	1382.50	4.00		
SECTION "A"	25.35		21.28		*** 2474.00				2474.00	6.88		
** HEADWALLS, WINGWALLS & APRONS (OUTLET)			12.65		737.00				737.00		119	1.50
V.O.										13.00		
TOTALS			**293.33**		**35019.24**			**202.07**	**35221.31**	**107.31**	**119**	**1.50**

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.
** INCLUDES: HEADWALLS, WINGWALLS, FOOTINGS, TOE WALLS, AND APRONS
*** INCLUDES: BARREL, APRON, HEADWALL, AND ONE LAP

STANDARD DRAWINGS: RCB-1, RCB-2, RCB-3, R100X-X2, R-130X-1, W-X30, W-X303-1

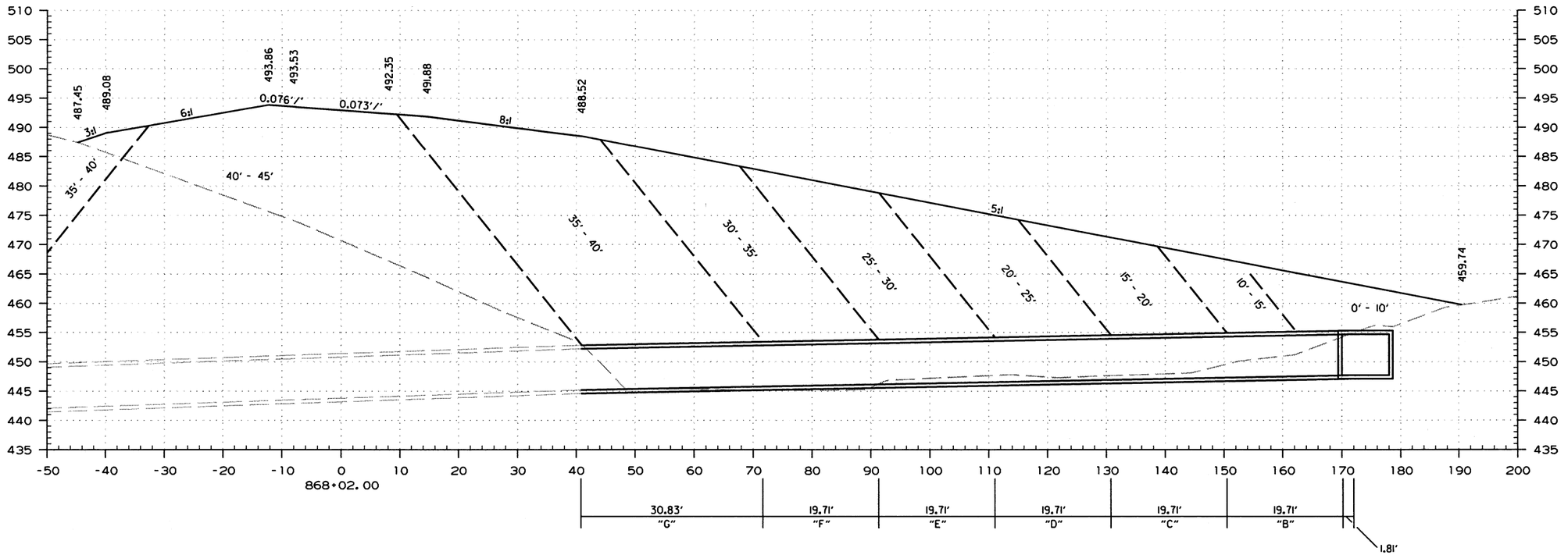
RAMP SW - STA. 628+68.00
CULVERT DIAGRAM

mm41715 08/26/2019
RR60140.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.		R60140	168	616

(2) CULVER DIAGRAMS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-6-19



STA. 868+02 (RAMP EN) - IN PLACE
8' X 7' X 313' R.C. BOX CULVERT
RETAIN AND EXTEND 131' RT. &
CONNECT TO JUNCTION BOX @ STA. 869+61

STA. 868+02.00

DESCRIPTION	LENGTH	CLASS "S" CONCRETE - ROADWAY		REINFORCING STEEL (GR. 60) - ROADWAY						UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY
						BAR LAPS				
	LIN.FT.	CU.YD. / L.F.	CU. YD.	LBS. / L.F.	LBS.	EACH	LBS./LAP	LBS.	TOTAL LBS.	CU. YD.
SECTION "A"	1.81	0.838	1.52	89.72	162.39				162.39	0.49
SECTION "B"	19.71	0.909	17.92	106.02	2089.65				2089.65	6.05
SECTION "C"	19.71	0.966	19.04	122.89	2422.16				2422.16	6.47
SECTION "D"	19.71	1.065	20.99	136.70	2694.36				2694.36	7.13
SECTION "E"	19.71	1.166	22.98	147.08	2898.95	1	30.06	30.06	2929.01	7.80
SECTION "F"	19.71	1.261	24.85	157.78	3109.84				3109.84	8.49
SECTION "G"	30.83	1.364	42.05	168.81	5204.41	1	33.40	33.40	5237.81	14.38
TOTALS			**149.35**		**18581.76**			**63.46**	**18645.22**	**50.81**

STANDARD DRAWINGS: RCB-1, RCB-2, RCB-3, R-100X-X2, R-100X-X3

mm41715 08/22/2019
RR60140.DGN

RAMP EN - STA. 868+02.00
CULVERT DIAGRAM

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.		R60140	169	616
				(1)	B7206 -	LAYOUT - 60944		

For R/W Data, See Rdwy. Plans.

500 — Use Type C1 Approach Slabs (width = 24'-0"), Type 1 Special Approach Gutter (left side "W"= 6'-0"), and Type 2 Special Approach Gutter (right side "W"= 10'-0") at both ends of the bridge, see Std. Dwg. No. 55040C1, Dwg. No. 61092, and Dwg. No. 61093, respectively.

Remove Existing Concrete Ditch Paving

Remove Existing Concrete Ditch Paving

C.L. Median Hwy. 7 & Profile Grade Line

Existing Concrete Barrier Wall

Approx. 2.3 mi. to Jct. U.S. Hwy. 270

Tangent Dist. = 452.36'

Existing Concrete Barrier Wall

See Rdwy. Plans for Continuation of Concrete Barrier Wall

Storm Sewer

Existing Pile Casings without piles (typ.). See "FOUNDATION PLAN", Dwg. No. 60948.

Existing Concrete Barrier Wall

Existing Concrete Riprap, typ. both ends of Bridge

Underground Utility

Underground Septic Tank

Proposed Concrete Ditch Paving

MSE Wall 1A, see Dwg. No. 61082 for details.

MSE Wall 1B, see Dwg. No. 61083 for details.

Toe of Fill

Toe of Fill

Proposed Concrete Ditch Paving

20'-0" Pavement

Future Bridge A7206

18'-7" Min. Clr.

18'-8" Min. Clr.

1V:3H or flatter

1V:3H or flatter

2% Slope

45' Lt. of C.L. Const.

2% Slope

45' Lt. of C.L. Const.

7° (typ.)

6°37'52"

C.L. Spring St.

Boring Test Hole (typ.)

New Pile Casings without piles. See "FOUNDATION PLAN" on Dwg. No. 60948 for number and location.

Guard Rail, See Rdwy. Plans.

N 4° 25'13" E

Approx. 5.8 mi. to Jct. S.H. 7

Tangent Dist. = 466.28'

22'-0"

43'-0" Out-to-Out

40'-0" Clear Roadway

2.0% Slope

1'-4" Parapet Rail

1'-4" Parapet Rail

4'-0"

C.L. Lane

C.L. Bridge

18'-0" Shldr.

12'-0" Lane

10'-0" Shldr.

40'-0" Pavement

Point of Minimum Vertical Clearance

See Rdwy. Plans for Continuation of Concrete Barrier Wall

Existing Guard Rail

Existing Drop Inlets

Existing Concrete Barrier Wall

Existing Cross Drain to be extended, see Rdwy. Plans.

Existing Bridge No. 07206 to be retained

Existing MSE Walls

Existing Concrete Ditch Paving

Storm Sewer

616+00 617+00 618+00 619+00

494 496 496 494 492 478 478 496 498 500 502

PLAN

Total Length of Bridge = 76'-1¾"

1'-0⅞" | 74'-0" - Simple Composite W-Beam Span | 1'-0⅞"

C.L. 1½" Poured Silicone Jt.

C.L. 1½" Poured Silicone Jt.

Beg. Br. Sta. 617+22.98
Elev. 499.02

End Br. Sta. 617+99.12
Elev. 500.92

C.L. Deck to Low Steel = 4'-4⁵⁄₁₆"

Concrete Parapet Railing

Proposed Grade Line Along C.L. Bridge

Fix

Exp.

16'-9" Min. Clr.

MSE Wall 1A

MSE Wall 1B

Existing Ground Line Along C.L. Bridge

Spring St.

26' Piles w/ casings

26' Piles w/ casings

Stations shown are along C.L. Median Hwy. 7. Elevations shown are actual top of deck elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on actual top of deck elevation at C.L. Bridge.

See Dwg. No. 60945 for Soil Borings.

Bent No. 1 2

510 500 490 480 470 460 450 440 430

616+00 617+00 618+00 619+00

ELEVATION

PVI Sta 618+02.84
Elev. 507.68

+4.25% +0.5%

L = 1,330'

VERTICAL CURVE DATA

Theoretical Grade Along C.L. Median Hwy. 7 and Profile Grade Line

(1) See Roadway Plans for embankment slope transition.

(2) Measured from face of existing MSE Wall to Spring St. edge of pavement.

(3) Intersection Point: C.L. Median Hwy. 7 Sta. 617+61.21, 22' Rt.

(4) Remove existing coping, ditch paving, and panels for respective wall as shown on Dwg. Nos. 61082 and 61083.

(5) Remove existing concrete riprap that conflicts with the proposed new bridge and pavement locations. This work shall not be paid for directly but shall be subsidiary to the item bid for "Concrete Riprap".

(6) Concrete Riprap, See Std. Dwg. No. 55002 and Dwg. No. 61079 for details.

(7) Existing concrete riprap that is disturbed in this area shall be replaced as directed by the Engineer. For details of Concrete Riprap, See Std. Dwg. No. 55002 and Dwg. No. 61079.

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Seventh Edition (2014) with 2015 Interims.

LIVE LOADING: HL-93

SEISMIC ZONE: 1 S_{D1}: 0.12 SITE CLASS: C

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring Logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: All piling shall be HP 12x53 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 95 tons per pile and into the material designated as shale on the boring legend. Minimum penetration shall be 10' below natural ground or 5' below concrete leveling pad, whichever is lower. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual pile lengths are to be determined in the field. The Contractor shall use approved steel H-Pile driving points on all piles.

PILE CASINGS: Pile casings are required for all piling at end bents. See "FOUNDATION PLAN", Dwg. No. 60948 for the location of existing and proposed casings. The existing casings without piles shall be uncovered, the caps removed, and the casings cleaned of debris. The top of the existing casings shall be cut to the bottom of cap elevation. New casings shall be installed prior to or during the embankment construction and shall extend from top of leveling pad to bottom of cap. Pile casing material shall be of sufficient strength to retain its original form free from harmful distortions after compaction of the surrounding fill material. The minimum inside diameter of the new casing shall be 18". Piles for Bridge No. B7206 shall be driven through the new or existing casings after embankment to bottom of cap is in place. After driving is complete, the pile casings shall be filled with Class S Concrete, an approved non-shrink grout, mixture used for Portland Cement Concrete Pavement, or other approved material in a single continuous operation to completely fill voids. This work and material will not be paid for directly but shall be considered subsidiary to the item "Steel Piling (HP 12x53)".

PILE CASINGS WITHOUT PILES: Additional pile casings are required on the west side of C.L. Median Hwy. 7 to provide for the Future Bridge A7206. See "FOUNDATION PLAN" for the location of additional casings. These casing shall be installed prior to or during embankment construction and shall extend, at a minimum, from the top of the leveling pad to approximately 1' below the finished surface of the embankment. The minimum inside diameter of the casings shall be 24". Pile casing material shall conform to the above. No piling shall be driven through these casings, but they shall be kept clean from debris and capped at the top with a durable waterproof material of sufficient strength to prevent collapse. The cap material shall be approved by the Engineer. Payment for this work and materials will be considered subsidiary to the item "Steel Piling (HP 12x53)".

PAINTING: All Grade 50 structural steel, except galvanized members and surfaces in contact with concrete, shall be painted as specified in Subsection 807.75. The color of paint shall be Blue and shall match Federal Standard 595B, Color Chip No. 25052.

TEXTURED COATING FINISH: Class 3 Textured Coating Finish shall be applied to bridge and retaining wall surfaces as specified in Special Provision Job No. R60140 "Textured Coating Finish" and in accordance with Subsection 802.19(b)(3). Textured Coating Finish shall not be applied on surfaces where Class 1 Protective Surface Treatment is applied.

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 1 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rails in accordance with Section 803.

DETAIL DRAWINGS:	DRAWING NO(S).
Retaining Walls	61080-61083
Ends Bents	60946-60950
Elastomeric Bearings	61075-61076
74' W-Beam Span	60951-60954, 61077
General Notes For Steel Bridge Structures	55006
Details For Steel Bridge Structures	55007
Poured Silicone Joints	55008
Steel H-Piling	55020

EXISTING BRIDGE: Existing Bridge No. 07206 (U.S. 70, Sec. 9, L.M. 2.61) is 28.2' wide (25.0' clear roadway) and 76.2' long and consists of a steel W-beam span (one span total) supported by steel piles. The existing bridge is located approximately 40' east of the proposed new bridge, as measured from bridge centerlines. Plans of the existing structure and existing MSE walls may be obtained upon request to the Construction Contract Procurement Section of the Program Management Division.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE
HIGHWAY 7 OVER SPRING STREET
HWY. 70 EAST-HWY.7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION

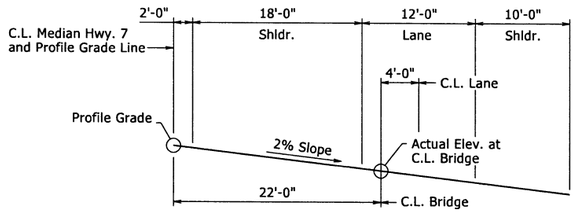
LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 4/23/19 FILENAME: br60140x1_l1.dgn
CHECKED BY: DKS DATE: 8/14/19 SCALE: 1" = 20'
DESIGNED BY: WAC DATE: 4/2019

BRIDGE NO. B7206 DRAWING NO. 60944

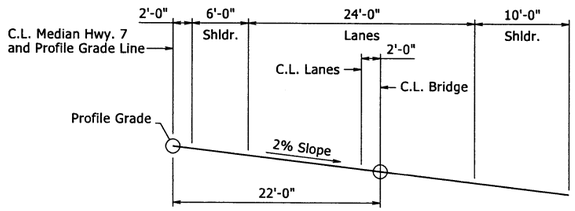
PRINT DATE: 8/14/2019

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.		R60140	170	616
				(1)	B7206 -	LAYOUT	- 60945	



CROSS-SLOPE SKETCH

Looking Ahead
No Scale



FUTURE TRAFFIC SKETCH

Looking Ahead
No Scale

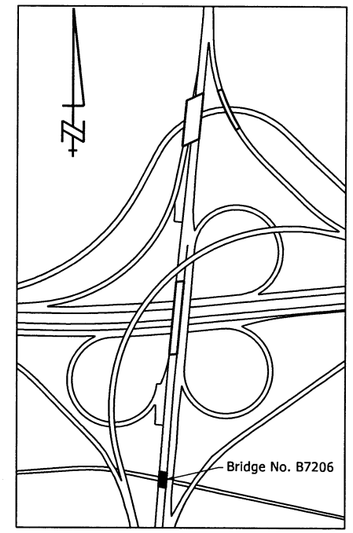
BORING LEGEND

A1-Moist, Very Stiff, Reddish Brown Sandy Clay
B1-SHALE - Highly Weathered, Medium Hard, Red and Gray
C1-SHALE - Slightly Weathered, Medium Hard, Occasional Sandstone Partings and Fractures, Gray
D1-SHALE - Unweathered, Medium Hard, Occasional Sandstone Partings and Fractures, Gray
E1-SHALE - Unweathered, Medium Hard, Frequent Fractures, Slickensides, and Quartz Layers and Seams, Gray
F1-SHALE WITH FREQUENT SANDSTONE LAYERS AND SEAMS - Unweathered, Medium Hard, Frequent Fractures, Gray
G1-SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Medium Hard, Frequent Fractures and Quartz Veins, Gray
H1-Moist, Very Dense, Reddish Brown Sand and Gravel
J1-SHALE - Highly Weathered, Medium Hard, Gray
K1-SHALE - Weathered, Medium Hard, Occasional Sandstone Partings and Seams, Gray
L1-SHALE WITH INTERBEDDED SANDSTONE LAYERS AND SEAMS - Unweathered, Medium Hard, Occasional Fractures, Gray
M1-SHALE WITH INTERBEDDED SANDSTONE LAYERS AND SEAMS - Unweathered, Medium Hard, Gray
N1-SHALE - Unweathered, Medium Hard, Occasional Sandstone Partings, Layers, and Seams, Gray

"N" VALUES

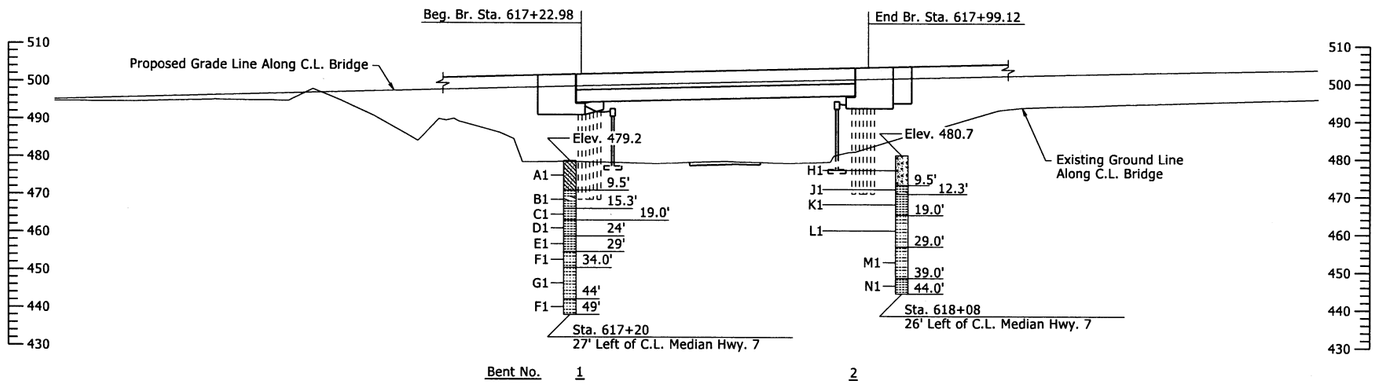
Sta. 617+20 - 27' Left of C.L. Median Hwy. 7
5.0- 6.0,N=24
10.0- 11.0,N=96
15.0- 15.3,N=60(4")

Sta. 618+08 - 26' Left of C.L. Median Hwy. 7
5.0- 6.0,N=56
10.0- 10.8,N=97(10")

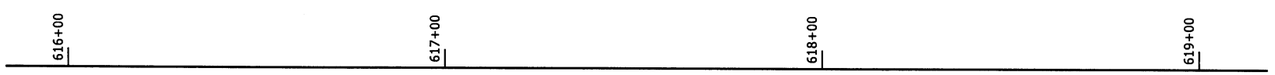


SITE PLAN

No Scale



ELEVATION OF SOIL BORINGS



STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19

BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 7 OVER SPRING STREET
HWY. 70 EAST-HWY.7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 4/23/19 FILENAME: br60140x1_l1.dgn
CHECKED BY: DKS DATE: 8/13/19 SCALE: 1" = 20'
DESIGNED BY: WAC DATE: 4/2019

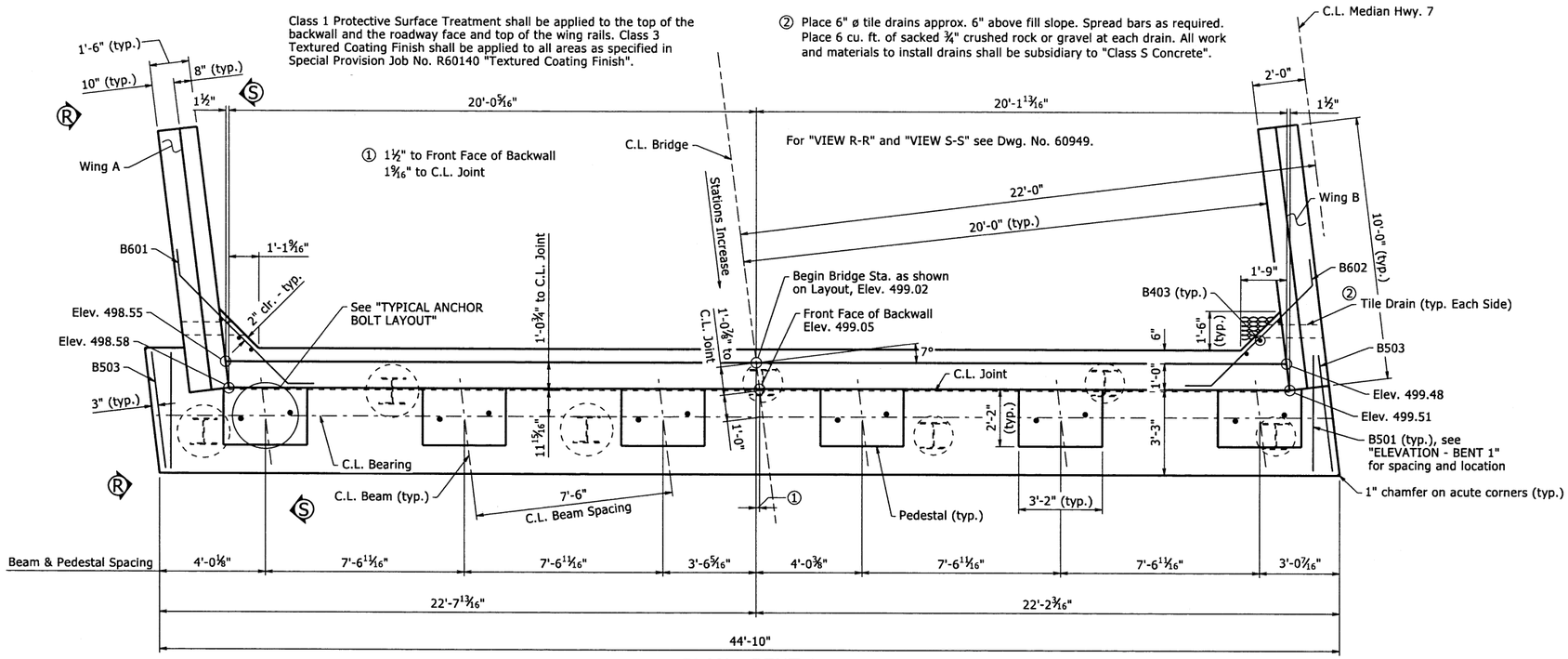
BRIDGE NO. B7206 DRAWING NO. 60945

PRINT DATE: 8/13/2019

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.		R60140	171	616
				①	B7206 -	END BENTS	- 60946	

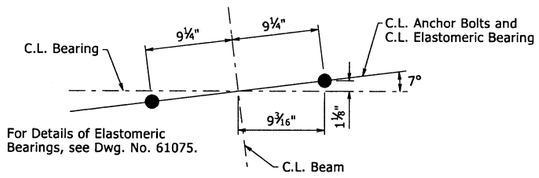
Class 1 Protective Surface Treatment shall be applied to the top of the backwall and the roadway face and top of the wing rails. Class 3 Textured Coating Finish shall be applied to all areas as specified in Special Provision Job No. R60140 "Textured Coating Finish".

② Place 6" ø tile drains approx. 6" above fill slope. Spread bars as required. Place 6 cu. ft. of sacked ¾" crushed rock or gravel at each drain. All work and materials to install drains shall be subsidiary to "Class S Concrete".



PLAN - BENT 1

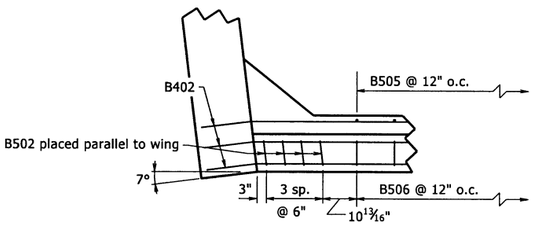
⅜" = 1'-0"



For Details of Elastomeric Bearings, see Dwg. No. 61075.

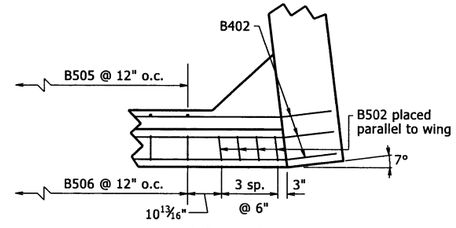
TYPICAL ANCHOR BOLT LAYOUT

No Scale



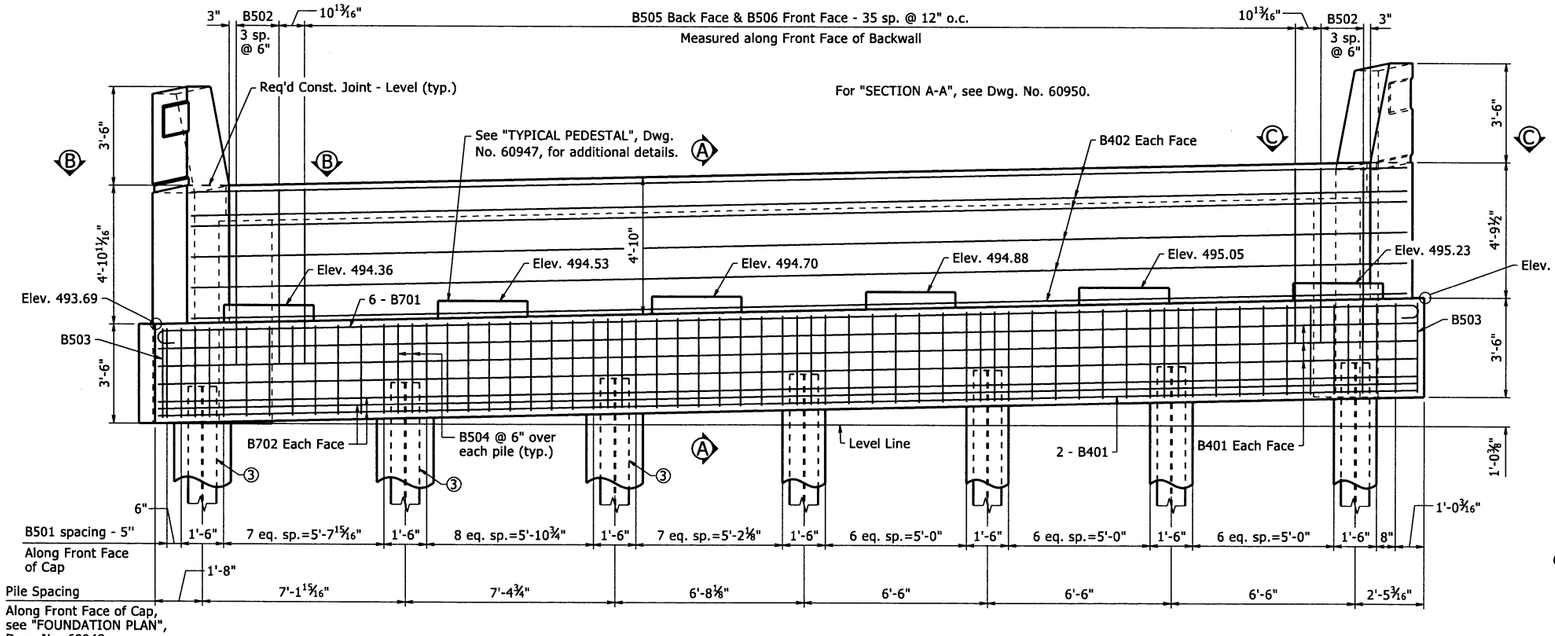
VIEW B-B

½" = 1'-0"



VIEW C-C

½" = 1'-0"



ELEVATION - BENT 1

Looking Back

⅜" = 1'-0"

③ Pile driven into existing casings as shown. Dimensions to piles are approximate. See "FOUNDATION PLAN" on Dwg. No. 60948 for additional information.

GENERAL NOTES:

Structural Steel in end bents shall be ASTM A709, Gr. 50 and shall be paid for as "Structural Steel in Beam Spans (A709, Gr. 50)".

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 adjacent deck pour has been made. Refer to the "EXPANSION DEVICE INSTALLATION AT END BENTS" note on Std. Dwg. No. 55008. No heavy construction equipment shall be allowed within 10' of the backwall until the deck concrete placement for the adjacent span has been completed unless MSE strap reinforcing has been designed to accommodate these loads, see "END BENT STRAP DETAIL", Dwg. No. 60948.

For details of steel piling, See Std. Dwg. No. 55020.

All piling shall be Gr. 50.

See Std. Dwg. No. 55006 for additional notes.

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-20-19

BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF END BENTS
SPRING STREET

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	WAC	DATE:	6/12/19	FILENAME:	br60140x1_b1.dgn
CHECKED BY:	LJB	DATE:	8-20-19	SCALE:	As Noted
DESIGNED BY:	WAC	DATE:	6/2019		

BRIDGE NO. B7206 DRAWING NO. 60946

PRINT DATE: 8/20/2019

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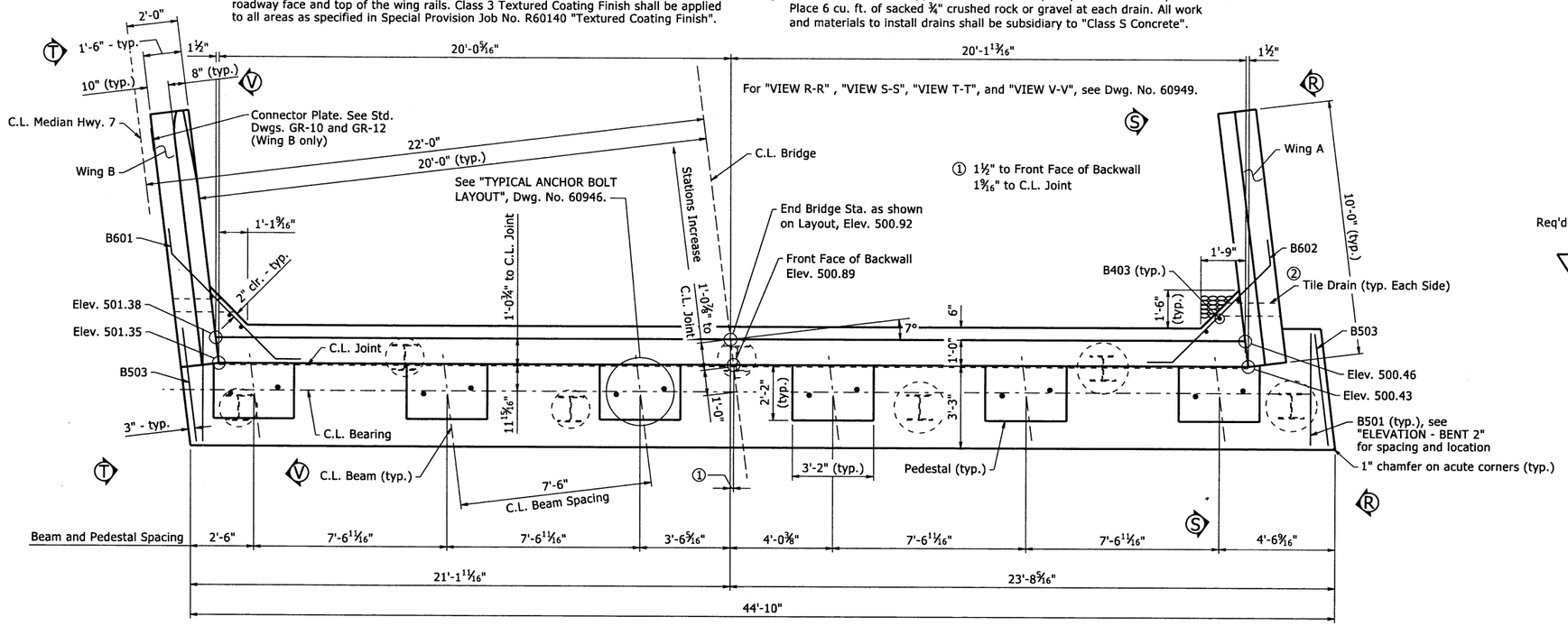
				6	ARK.			
				JOB NO.		R60140	172	616
				(1)	B7206 -	END BENTS	- 60947	

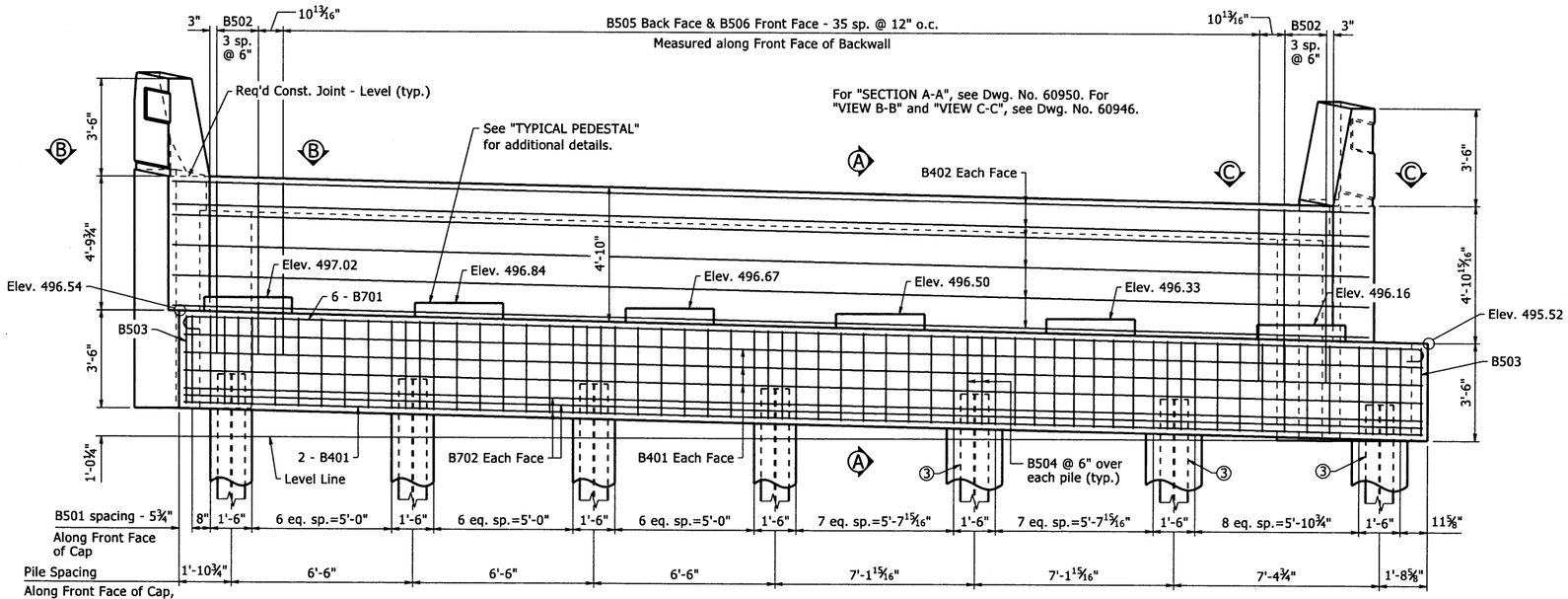
Class 1 Protective Surface Treatment shall be applied to the top of the backwall and the roadway face and top of the wing rails. Class 3 Textured Coating Finish shall be applied to all areas as specified in Special Provision Job No. R60140 "Textured Coating Finish".

② Place 6" ø tile drains approx. 6" above fill slope. Spread bars as required. Place 6 cu. ft. of sacked ¾" crushed rock or gravel at each drain. All work and materials to install drains shall be subsidiary to "Class S Concrete".



PLAN - BENT 2

⅜" = 1'-0"

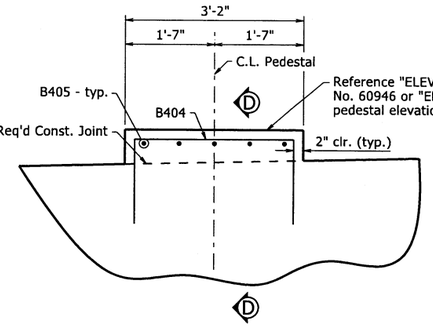


ELEVATION - BENT 2

Looking Ahead

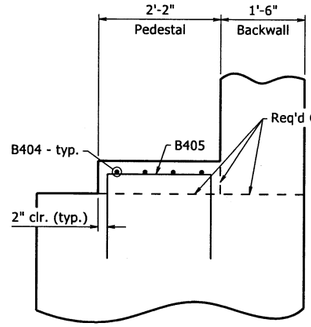
⅜" = 1'-0"

③ Pile driven into existing casings as shown. Dimensions to piles are approximate. See "FOUNDATION PLAN" on Dwg. No. 60948 for additional information.



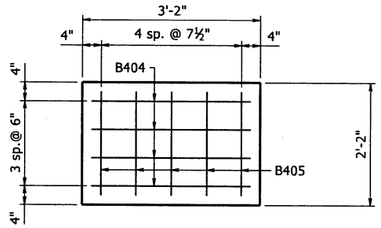
TYPICAL PEDESTAL

¾" = 1'-0"



SECTION D-D

¾" = 1'-0"



PEDESTAL PLAN

¾" = 1'-0"

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8/20/19
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SHEET 2 OF 5
DETAILS OF END BENTS
SPRING STREET

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 6/12/19
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BRIDGE NO. B7206
DRAWING NO. 60947

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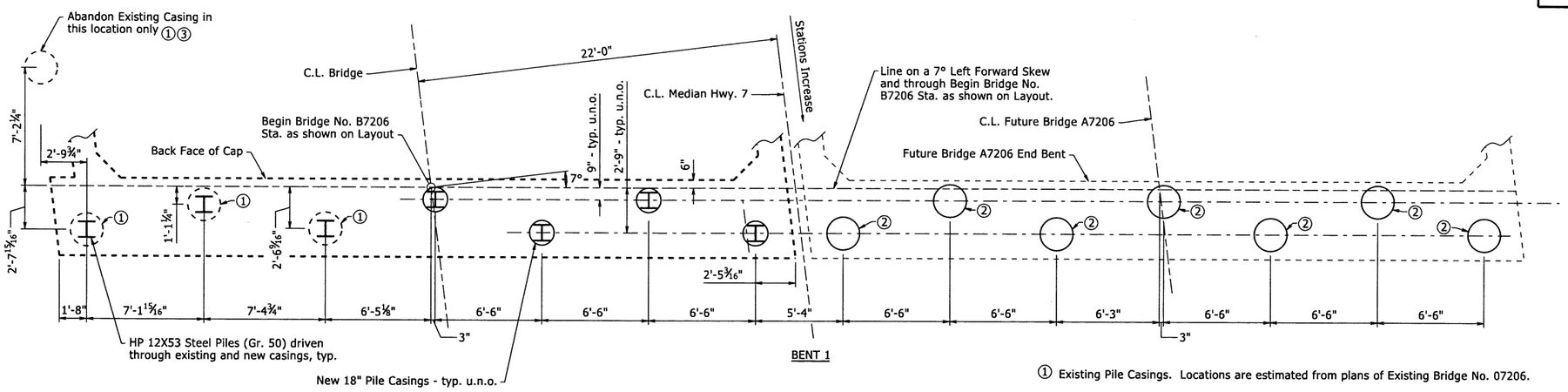
				6	ARK.			
				JOB NO.		R60140	173	616
				(1)		B7206 - END BENTS - 60948		



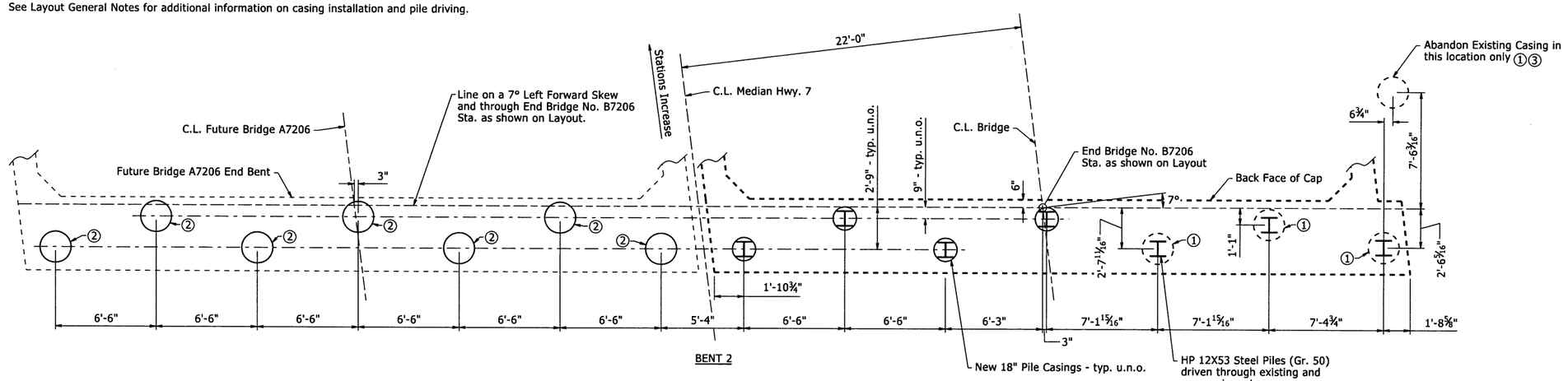
The Contractor shall verify the location of existing casings before driving any new piling or installing new casings. Any adjustments necessary to fit the proposed bridge to existing conditions shall be submitted for the Engineer's approval.

See Layout General Notes for additional information on casing installation and pile driving.

① Existing Pile Casings. Locations are estimated from plans of Existing Bridge No. 07206.

② New 24" Casings for Future Bridge.

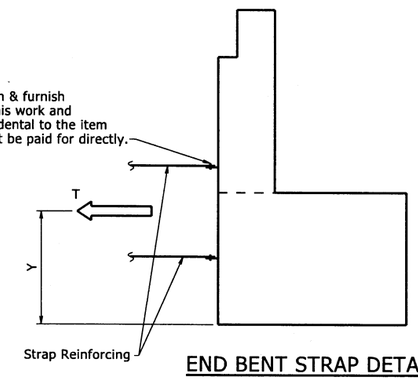
③ Abandoned existing casings shall be uncovered, cut off 2' below finished ground, and filled per Layout General Notes.



FOUNDATION PLAN

¼" = 1'-0"

MSE wall supplier shall design & furnish attachments for end bent. This work and materials are considered incidental to the item "Retaining Walls" and will not be paid for directly.



END BENT STRAP DETAIL

No Scale

Limit State	④ T Kips/Ft.	Y Ft.
Service	4.24	3.3
Strength	6.54	3.3

④ The provided loads do not include any additional loadings due to heavy construction equipment such as cranes. If the Contractor anticipates bringing heavy construction equipment within 10' of the backwall, they shall coordinate with the MSE wall supplier to design strap reinforcing for the anticipated loadings. Tolerable horizontal backwall movement for all loading combinations is ½" at the Service Limit State. Design computations shall accompany the wall design submittal for review by the Engineer. See Special Provision Job No. R60140 "Retaining Walls" for additional information.

T = Resultant force required to be resisted by strap reinforcing

Y = Centroid of resultant force

STATE OF ARKANSAS
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SHEET 3 OF 5
DETAILS OF END BENTS
SPRING STREET

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 6/12/19
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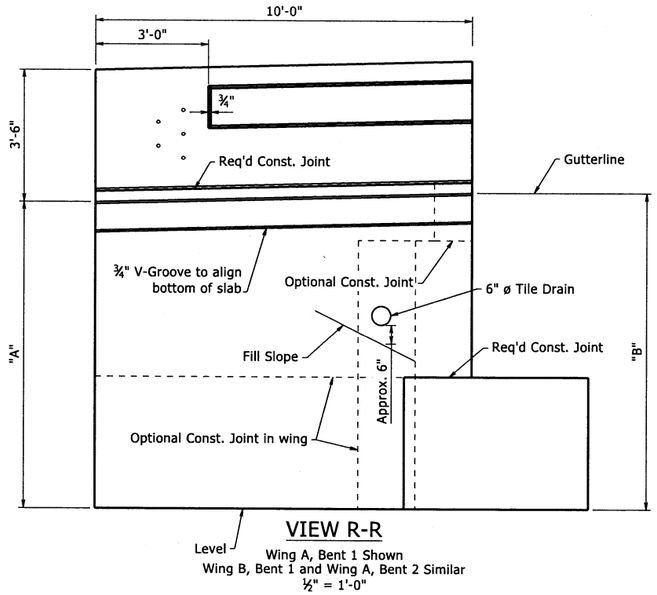
BRIDGE NO. B7206 DRAWING NO. 60948

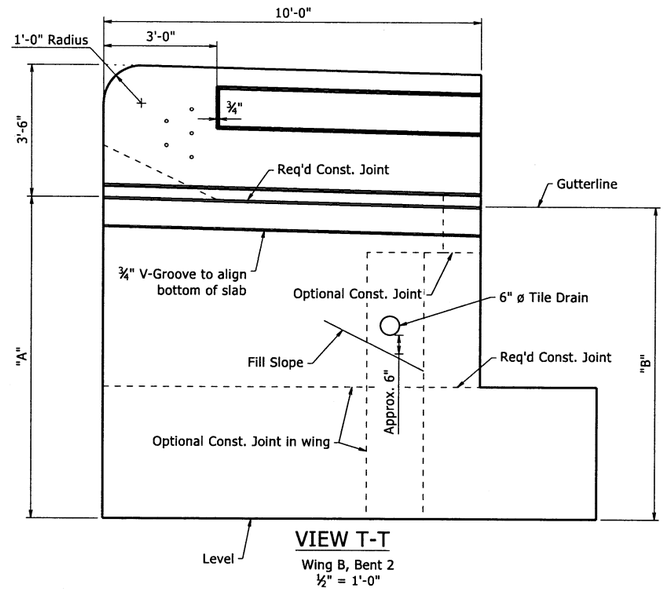
PRINT DATE: 8/20/2019

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.		R60140	174	616
				B7206 - END BENTS - 60949				



VIEW R-R

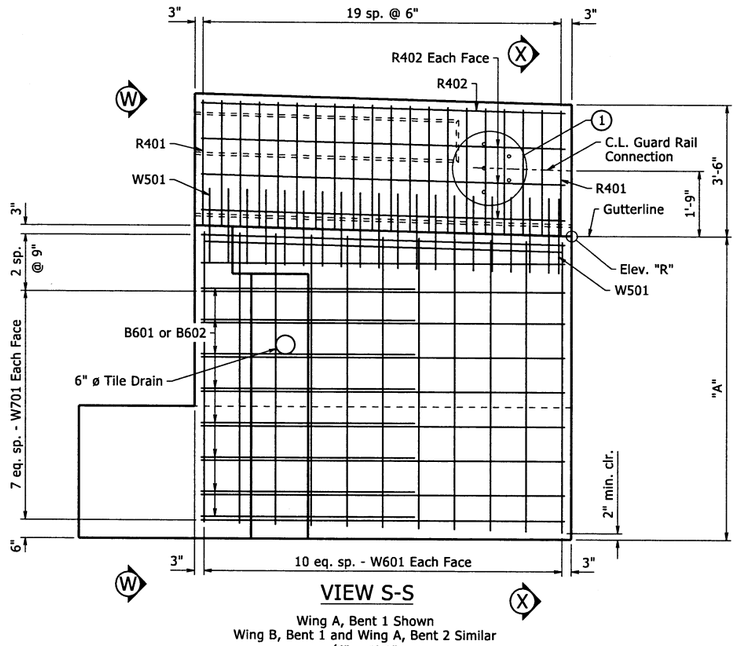
Wing A, Bent 1 Shown
Wing B, Bent 1 and Wing A, Bent 2 Similar
½" = 1'-0"



VIEW T-T

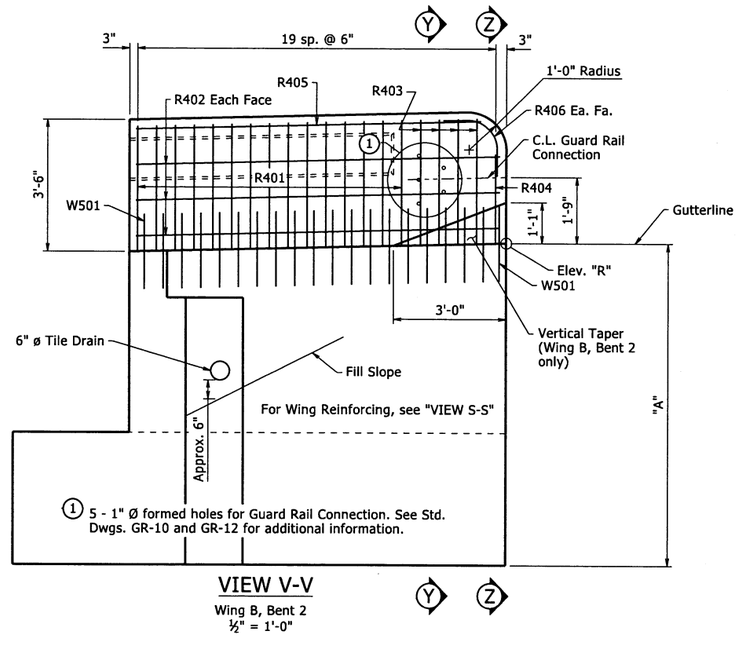
Wing B, Bent 2
½" = 1'-0"

For "VIEW W-W" , "SECTION X-X", "SECTION Y-Y", and "SECTION Z-Z", see Dwg. No. 60950.



VIEW S-S

Wing A, Bent 1 Shown
Wing B, Bent 1 and Wing A, Bent 2 Similar
½" = 1'-0"



VIEW V-V

Wing B, Bent 2
½" = 1'-0"

TABLES OF VARIABLES

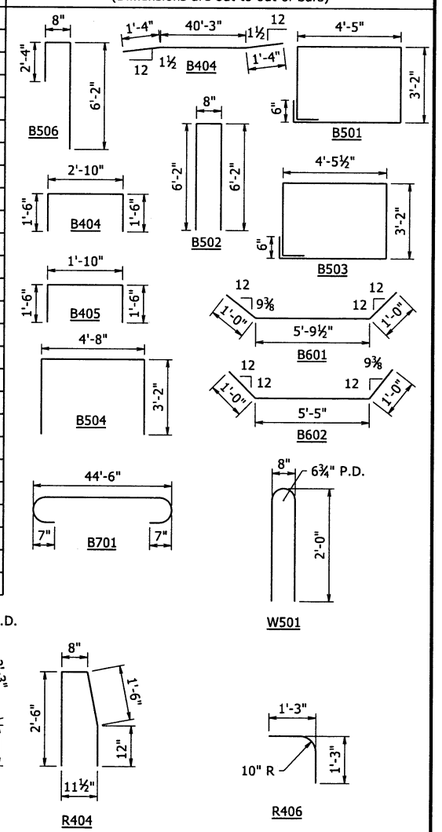
Bent	Wing	Variable "A"	Variable "B"	Variable "R"	Variable "L1"
Bent 1	Wing A	8'-1 9/16"	8'-4 1/16"	498.32	7'-11"
Bent 1	Wing B	8'-0 3/8"	8'-3 1/2"	499.25	7'-10"
Bent 2	Wing A	8'-7 13/16"	8'-4 15/16"	500.67	8'-2"
Bent 2	Wing B	8'-6 5/8"	8'-3 3/4"	501.59	8'-1"

Bent	Variable "N1"	"N2"	"N3"	"N4"	"N5"	"N6"
Bent 1	40	14	-	-	-	-
Bent 2	35	13	4	1	1	2

BAR LIST - PER BENT

Mark	No. Req'd	Length	Pin Dia.
B401	8	44'-6"	Str.
B402	12	43'-0"	3"
B403	6	6'-8"	Str.
B404	24	5'-8"	2"
B405	30	4'-8"	2"
B501	50	15'-8"	2½"
B502	8	12'-9"	2½"
B503	2	15'-9"	2½"
B504	14	10'-10"	2½"
B505	36	5'-1"	Str.
B506	36	9'-0"	2½"
B601	8	7'-9"	4½"
B602	8	7'-5"	4½"
B701	6	46'-2"	5¼"
B702	6	44'-6"	Str.
R401	"N1"	7'-1"	5¾"
R402	"N2"	9'-8"	Str.
R403	"N3"	6'-11"	5¾"
R404	"N4"	5'-6"	2"
R405	"N5"	9'-1"	Str.
R406	"N6"	2'-3"	-
W501	40	4'-5"	6¾"
W601	44	"L1"	Str.
W701	40	9'-8"	Str.

Bending Diagram
(Dimensions are out to out of bars)



STATE OF ARKANSAS
CHARLES R. ELLIS
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8-14-19

BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF END BENTS
SPRING STREET

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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BRIDGE NO. B7206
DRAWING NO. 60949

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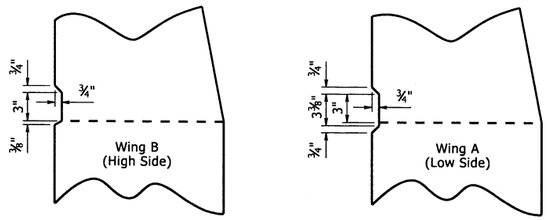
				6	ARK.			
				JOB NO.		R60140	175	616
				①	B7206 -	END BENTS	- 60950	



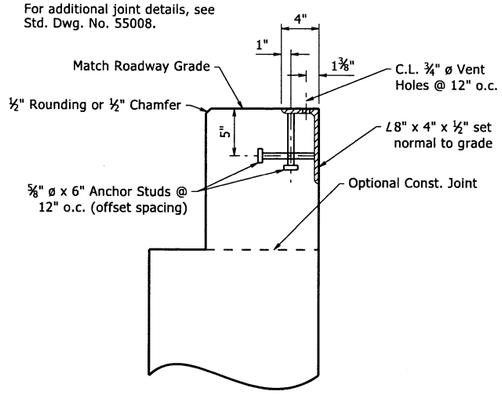
DETAIL Y

No Scale

Transverse spacing between vertical anchor studs and vent holes shall be 6".

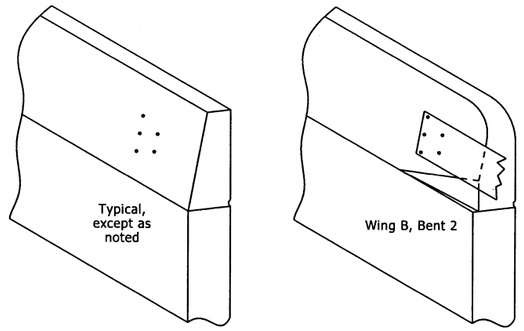
Concrete shall be hand packed under the joint armor.

For additional joint details, see Std. Dwg. No. 55008.



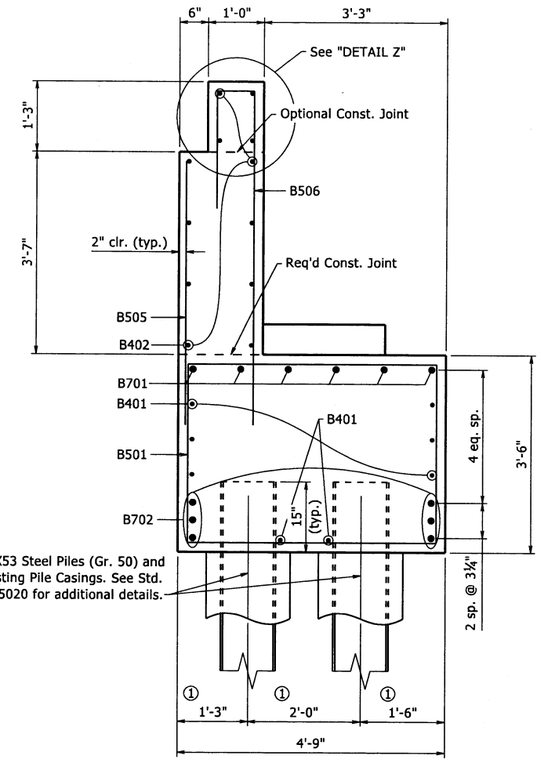
DETAIL Z

No Scale



THREE DIMENSIONAL VIEW OF RAIL

No Scale

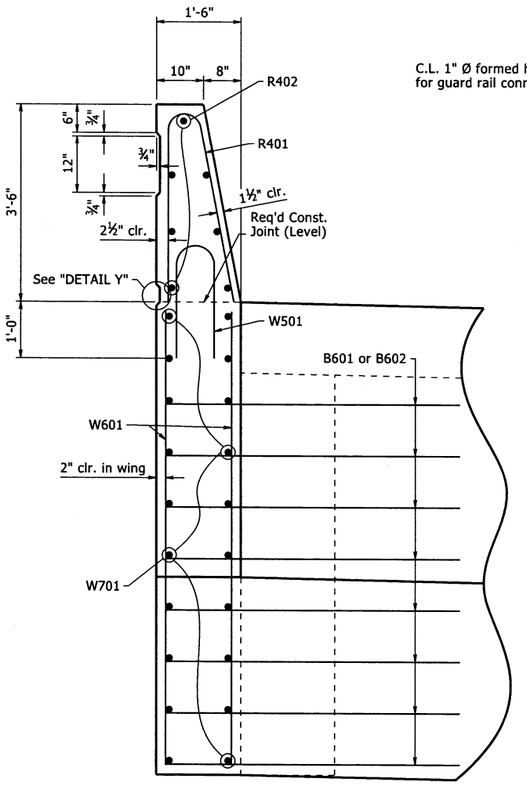


C.L. HP 12X53 Steel Piles (Gr. 50) and New or Existing Pile Casings. See Std. Dwg. No. 55020 for additional details.

SECTION A-A

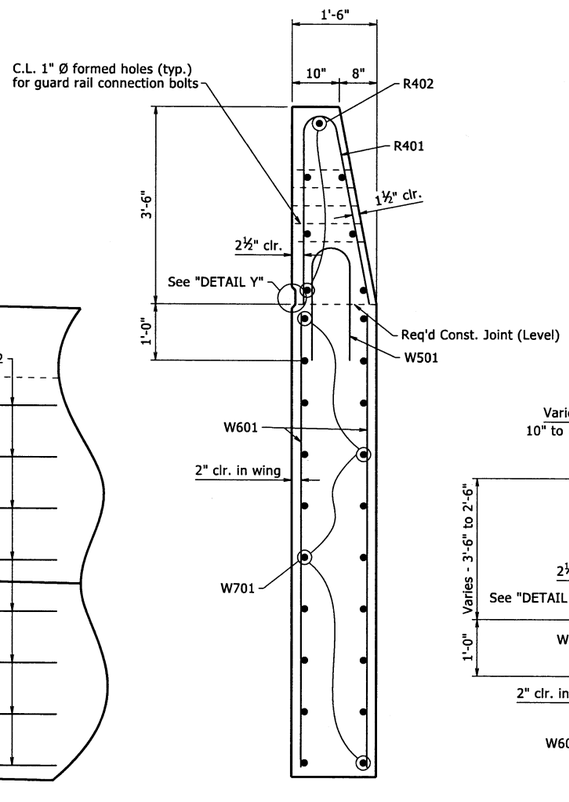
¾" = 1'-0"

① Dimensions shown are for piles in new casings. See "FOUNDATION PLAN" on Dwg. No. 60948 for approximate position of existing casings.



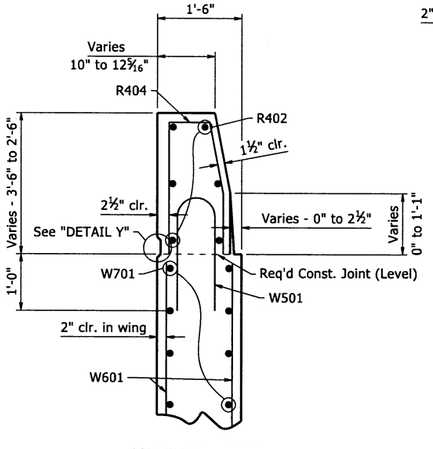
VIEW W-W

¾" = 1'-0"



SECTION X-X

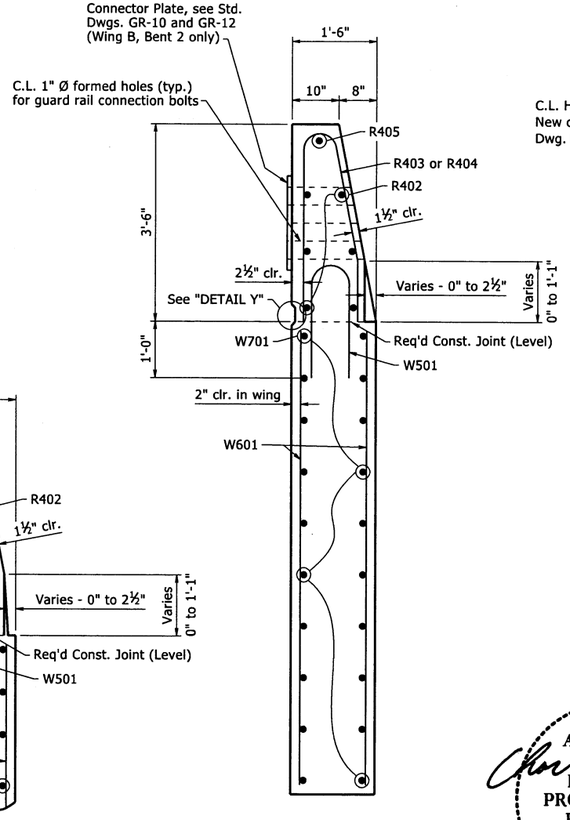
¾" = 1'-0"



SECTION Z-Z

Wing B, Bent 2

¾" = 1'-0"



SECTION Y-Y

Wing B, Bent 2

¾" = 1'-0"

STATE OF ARKANSAS
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SHEET 5 OF 5
DETAILS OF END BENTS
SPRING STREET

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 6/12/19 FILENAME: br60140x1_b1.dgn
CHECKED BY: LJB DATE: 8-20-19 SCALE: As Noted
DESIGNED BY: WAC DATE: 6/2019

BRIDGE NO. B7206 DRAWING NO. 60950

PRINT DATE: 8/20/2019

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10-7-19				6	ARK.			
				JOB NO.		R60140	176	616
				(1)		B7206 & B7207 - COMMON DETAILS - 60951		

Slab Reinforcing:

Longitudinal: S401E Top and Bottom placed as shown
S601E Placed as shown, see "REINFORCING PLAN AND SLAB POURING SEQUENCE", Dwg. Nos. 60971 & 60972. (4)

Transverse: S501E @ 12" o.c. in top, S402E @ 12" o.c. in bottom — Alternate
S501E @ 12" o.c. in top, S502E @ 12" o.c. in bottom
S503E @ 6" o.c. in top of overhangs (bundled with No. 5 bars)

See "ALTERNATE TRUSS BAR" for allowable substitutions of the S501E and S502E bar group.

Bar positions or clearances from the forms shall be maintained by means of stays, ties, hangers or other approved devices per Subsection 804.06. Placement of slab bolsters or high-chairs with full-length lower runners directly on removable deck forms will not be allowed.

Class 1 Protective Surface Treatment shall be applied to the Roadway Surface and the Roadway Face and Top of Concrete Parapet Rail. Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. R60140 "Textured Coating Finish".

(1) Gutterline to gutterline.

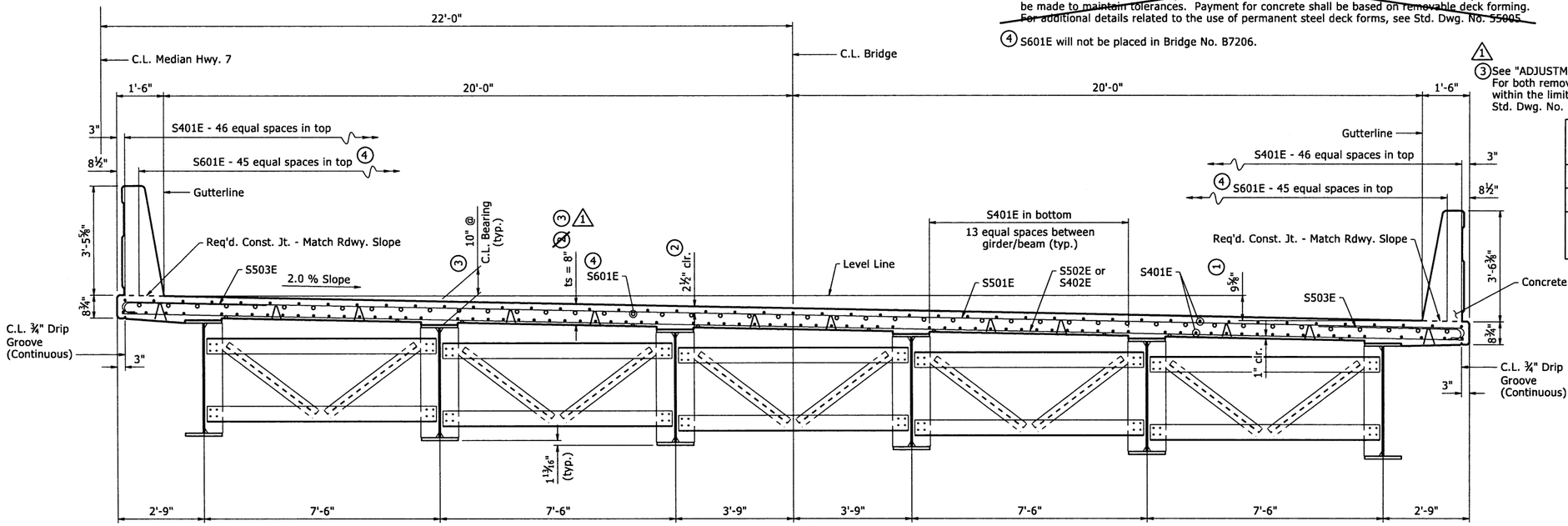
(2) Tolerance: Minus = ¼";
Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. 55007.

~~(3) For both removable and permanent steel deck forms the haunch dimension may vary +/- 1½" to maintain grade, slab thickness, and shear connector requirements. The top flange shall not interfere with bottom mat of reinforcing steel. See "SHEAR CONNECTOR DETAIL" on Std. Dwg. No. 55007 for shear connector requirements. No increase in concrete and structural steel quantities will be made to maintain tolerances. Payment for concrete shall be based on removable deck forming. For additional details related to the use of permanent steel deck forms, see Std. Dwg. No. 55005.~~

(4) S601E will not be placed in Bridge No. B7206.

△1 Revised slab thickness and haunch adjustment notes.

By: LJB, Checked By: DKS, 10-7-19



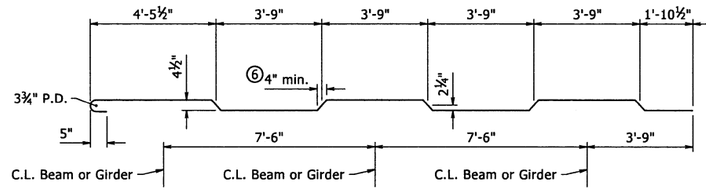
△1 (3) See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007. For both removable and permanent steel deck forms the haunch dimension may vary within the limits shown in the table below. See "SHEAR CONNECTOR DETAIL" on Std. Dwg. No. 55007 for shear connector requirements.

Top Flange Thickness	Haunch Adjustment Tolerance	
	plus	minus
¾"	1⅝"	1⅝"
1"	1⅞"	1⅜"
1⅞"	1¾"	when the top flange contacts the bottom mat of reinforcing steel

TYPICAL SECTION -BRIDGE NO. B7207

For K Frame and connection details, see Dwg. No. 60968.

Looking Ahead
Br. No. B7206 Similar
½" = 1'-0"

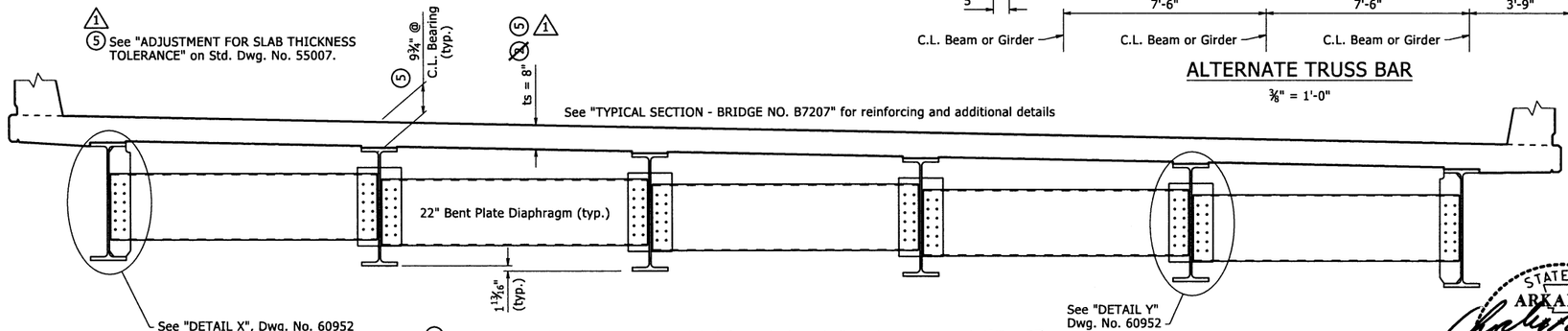


ALTERNATE TRUSS BAR

⅜" = 1'-0"

At the Contractor's option, the S501E and S502E bar group spaced at 12" may be replaced by an epoxy coated No. 5 truss bar spaced at 12". The No. 5 truss bar shall be bent up over the beams/girders as shown and shall have a pin diameter of 3 inches, except as noted. Payment will be based on plan quantities of bars S501E and S502E. Approximate length is 44'-11".

(6) ½" Overtolerance. No Undertolerance.



~~(5) For both removable and permanent steel deck forms the haunch dimension may vary +/- 1⅜" to maintain grade, slab thickness, and shear connector requirements. The top flange shall not interfere with bottom mat of reinforcing steel. See "SHEAR CONNECTOR DETAIL" on Std. Dwg. No. 55007 for shear connector requirements. No increase in concrete and structural steel quantities will be made to maintain tolerances. Payment for concrete shall be based on removable deck forming. For additional details related to the use of permanent steel deck forms, see Std. Dwg. No. 55005.~~

TYPICAL SECTION -BRIDGE NO. B7206

Looking Ahead ½" = 1'-0"

For bent plate and connection details, see Dwg. No. 60952.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
10-7-19
CHARLES R. ELLIS
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COMMON DETAILS OF 40' CLEAR ROADWAY STEEL BRIDGE STRUCTURES

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 5-9-19
CHECKED BY: LJB DATE: 8-13-19
DESIGNED BY: LJB DATE: 5-2019
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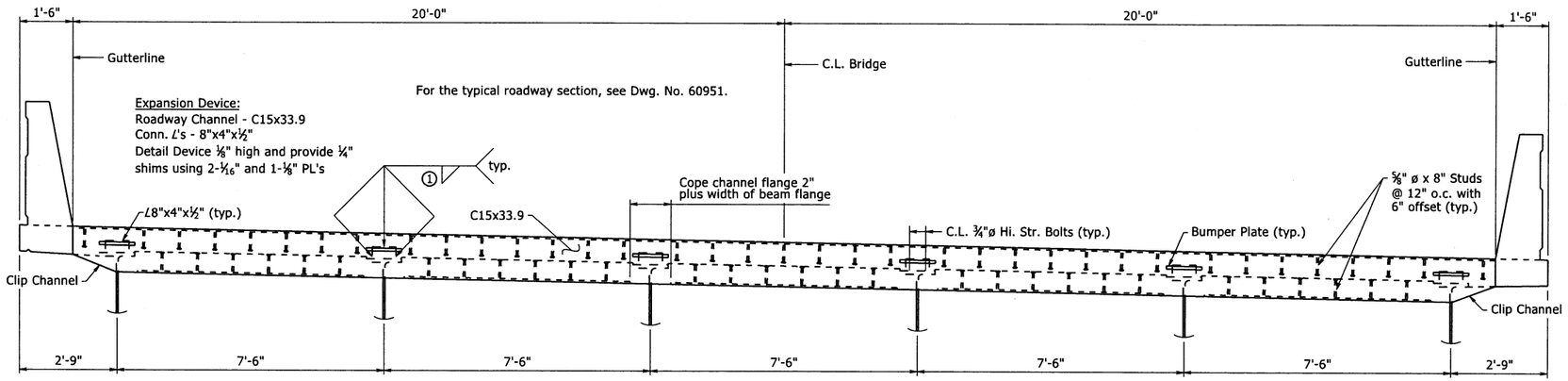
SCALE: AS NOTED

BRIDGE NO. B7206 & B7207 DRAWING NO. 60951

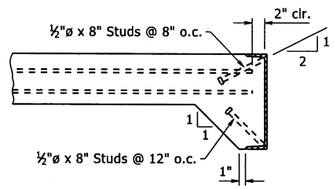
PRINT DATE: 10/3/2019

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.		R60140	177	616
				①	B7206 -	74' SPAN	- 60952	



TYPICAL ROADWAY SECTION NEAR JOINT

Looking Ahead
½" = 1'-0"



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

① See "WELD TABLE" for min. weld size on Std. Dwg. No. 55007.

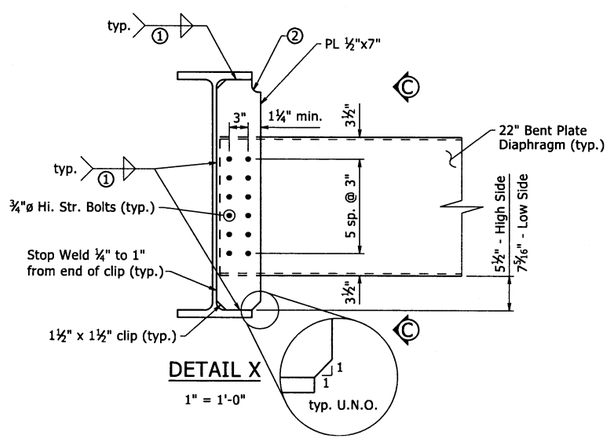
② If permanent steel bridge deck forms are used, the Fabricator shall clip plates as necessary to accommodate the deck form supports. Clip with min. 1" radius.

TABLE OF SILICONE JOINT DATA

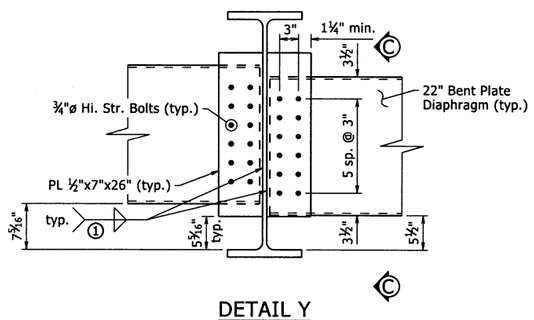
	"A" Width Perpendicular to Joint at 24 Hour Average Temperature of:			"B" Perpendicular to Joint at 60°	Bumper Plate Size
	40°	60°	80°		
Bent 1	1½"	1½"	1½"	2"	1" x ¾"
Bent 2	1⅝"	1½"	1⅜"	2"	1" x ¾"

The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

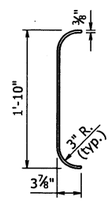
See "STANDARD DETAILS FOR POURED SILICONE JOINTS", Std. Dwg. No. 55008.



DETAIL X
1" = 1'-0"



DETAIL Y
1" = 1'-0"



SECTION C-C
1" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8/20/19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF 74'-0" W-BEAM SPAN
SPRING STREET

ROUTE SEC.

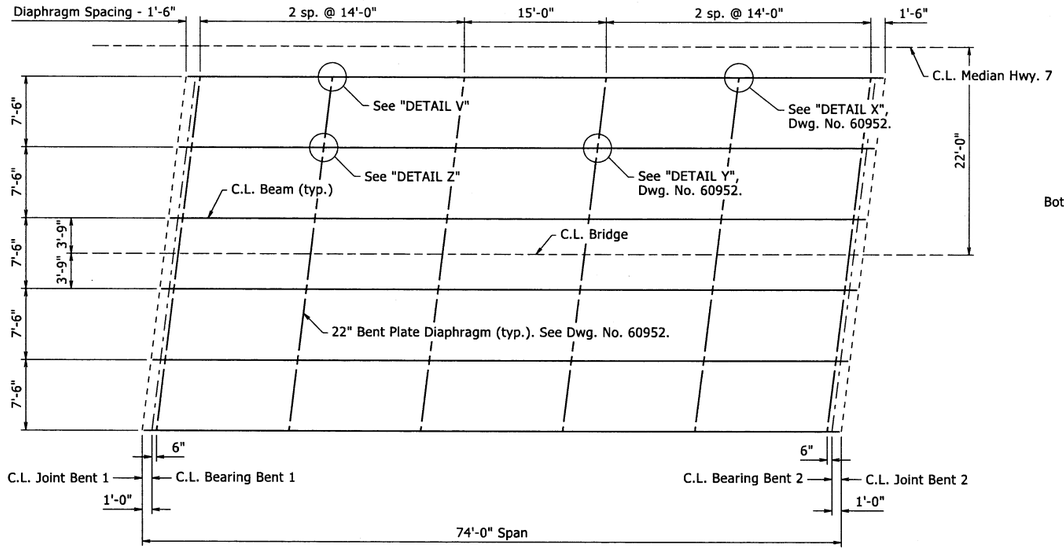
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 5/22/19 FILENAME: br60140x1_s1.dgn
CHECKED BY: RJAC DATE: 8/20/19 SCALE: As Noted
DESIGNED BY: WAC DATE: 5/2019

BRIDGE NO. B7206 DRAWING NO. 60952

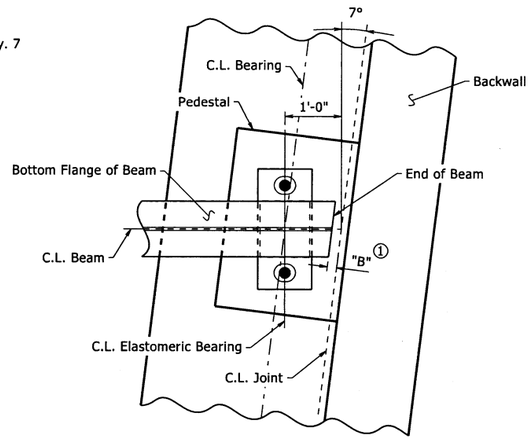
PRINT DATE: 8/20/2019

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.		R60140	178	616
				①	B7206 -	74' SPAN	- 60953	



FRAMING PLAN

⅛" = 1'-0"

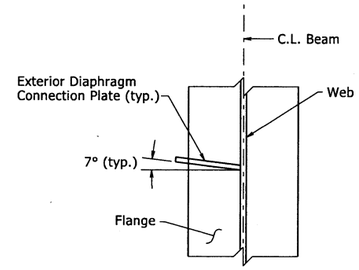


PLAN OF BEARING AT END BENT

¾" = 1'-0"

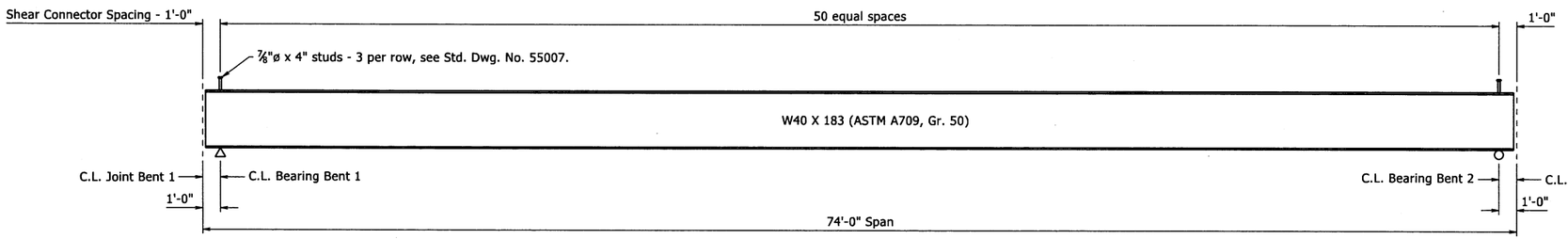
① See "TABLE OF SILICONE JOINT DATA", Dwg. No. 60952.

For details of Elastomeric Bearings, see Dwg. Nos. 61075-61076.



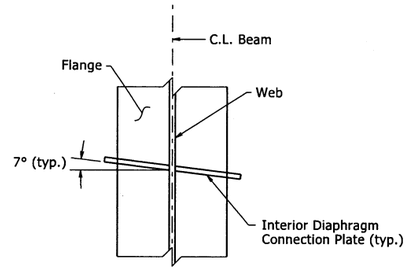
DETAIL V

1½" = 1'-0"



BEAM ELEVATION

No Scale

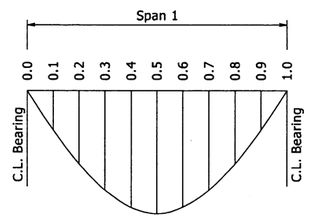


DETAIL Z

1½" = 1'-0"

TABLE OF DEAD LOAD DEFLECTIONS - INCHES

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Ext. Beam	Int. Beam	Ext. Beam	Int. Beam	Ext. Beam	Int. Beam
1	0	0	0	0	0	0	0
	0.1	0.097	0.103	0.460	0.527	0.509	0.574
	0.2	0.183	0.196	0.869	0.998	0.961	1.087
	0.3	0.250	0.268	1.190	1.367	1.316	1.488
	0.4	0.293	0.314	1.394	1.601	1.542	1.743
	0.5	0.308	0.329	1.464	1.681	1.620	1.830
	0.6	0.293	0.314	1.394	1.601	1.542	1.743
	0.7	0.250	0.268	1.190	1.367	1.316	1.488
	0.8	0.183	0.196	0.869	0.998	0.961	1.087
	0.9	0.097	0.103	0.460	0.527	0.509	0.574
	1.0	0	0	0	0	0	0



DEAD LOAD DEFLECTION DIAGRAM

Camber for Dead Load Deflection +/- ¼" tolerance. Deflections shown are along C.L. Beam from a chord from C.L. Bearing to C.L. Bearing. Vertical curve corrections not included.

All structural steel shall be ASTM A709, Grade 50 unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (A709, Gr. 50)". See Std. Dwg. Nos. 55006 & 55007 for additional notes and details.

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8/20/19

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF 74'-0" W-BEAM SPAN
SPRING STREET

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 5/22/19 FILENAME: br60140x1_s1.dgn
CHECKED BY: NAC DATE: 8/20/19 SCALE: As Noted
DESIGNED BY: WAC DATE: 5/2019

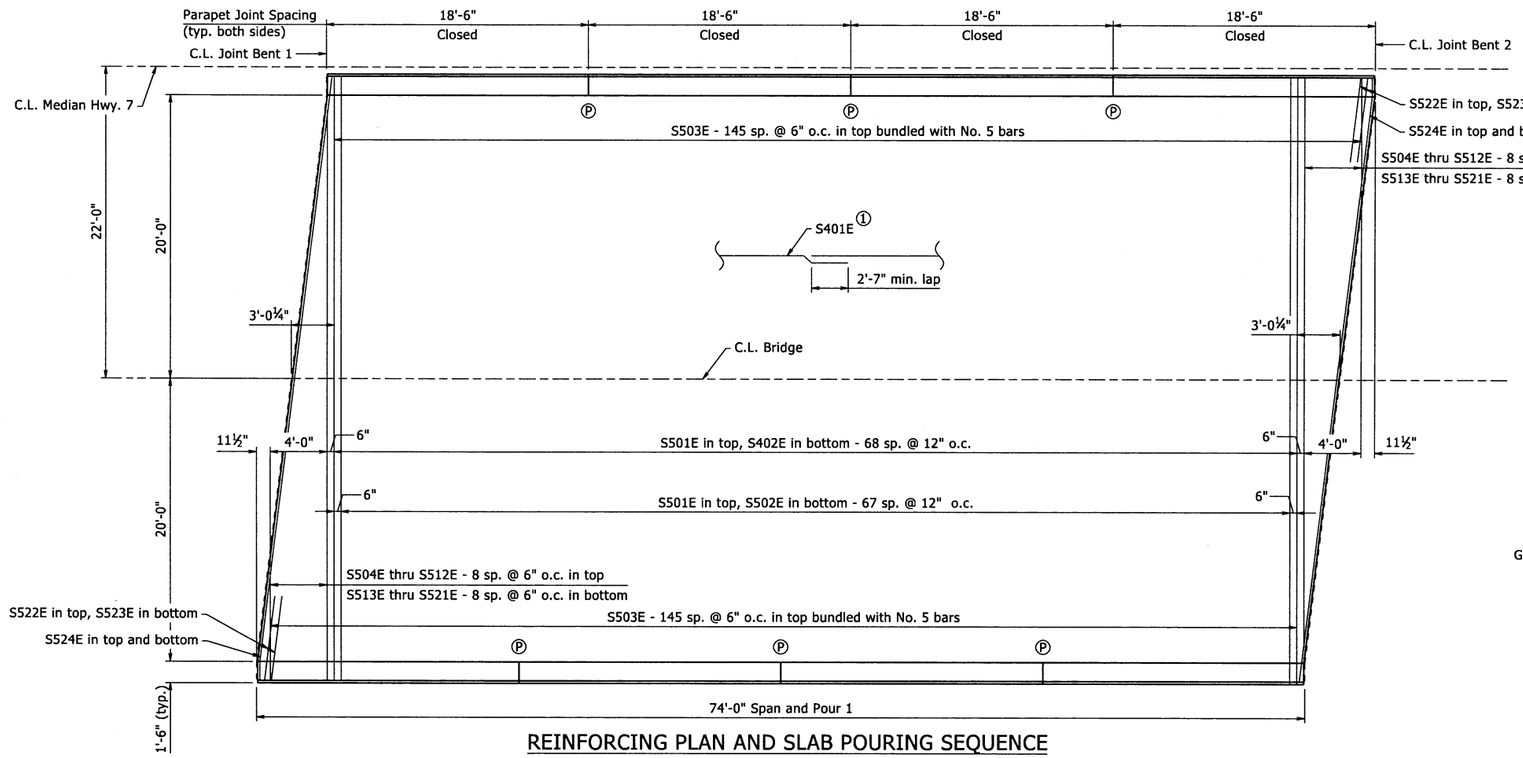
BRIDGE NO. B7206 DRAWING NO. 60953

PRINT DATE: 8/20/2019

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.		R60140	179	616
				①	B7206 - 74' SPAN - 60954			

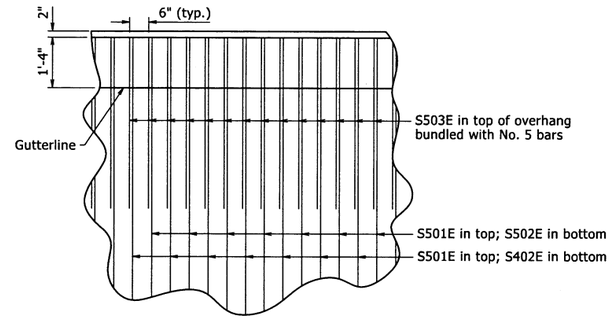
Ⓟ Partial Depth joint at this location

① Placed as shown on Dwg. No. 60951.



REINFORCING PLAN AND SLAB POURING SEQUENCE

3/16" = 1'-0"



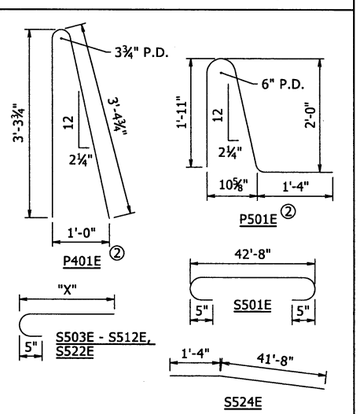
REINFORCING DETAIL

No Scale

BAR LIST

MARK	NO. REQ'D	LENGTH	"X"	P.D.
S401E	250	38'-6"	-	Str.
S402E	69	42'-8"	-	Str.
S501E	137	43'-10"	-	3¾"
S502E	68	42'-8"	-	Str.
S503E	292	5'-2"	4'-7"	3¾"
S504E - S512E	2 ea.	8'-3" to 40'-10"	7'-8" to 40'-3"	3¾"
S513E - S521E	2 ea.	7'-8" to 40'-3"	-	Str.
S522E	4	6'-7"	6'-0"	3¾"
S523E	4	6'-0"	-	Str.
S524E	4	43'-0"	-	3¾"
P401E ②	296	6'-8"	-	3¾"
P403E ②	24	5'-6"	-	Str.
P404E ②	56	18'-2"	-	Str.
P501E ②	296	5'-4	-	6"

BENDING DIAGRAMS (Dimensions are out to out of bars)



All bars with an "E" suffix shall be Epoxy Coated.

② See Dwg. No. 61077 for "COMMON DETAILS OF 3'-6" CONCRETE PARAPET RAILS".

TABLE OF VARIABLES

Closed Rail Panels		
Panel Length	"D"	P4XXE ② Bar
18'-6"	36	P404E

Slab Pouring Notes:
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.

A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF 74'-0" W-BEAM SPAN
SPRING STREET

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 5/22/19
CHECKED BY: [illegible] DATE: 8/14/19
DESIGNED BY: WAC DATE: 5/2019
FILENAME: br60140x1_s1.dgn
SCALE: As Noted

BRIDGE NO. B7206 DRAWING NO. 60954

PRINT DATE: 8/14/2019

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.		R60140	180	616
						B7207 - Layout - 60955		

For R/W Data, See Rdwy. Plans.

Begin Bridge Approach: Use Type 1 Special Approach Slab, Type 3 Special Approach Gutter (left side), and Type 2 Special Approach Gutter (right side "W"=10'-0"), see Dwg. No. 61098, Dwg. No. 61094, and Dwg. No. 61093, respectively.

End Bridge Approach: Use Type C1 Approach Slabs (width = 24'-0"), Type 1 Special Approach Gutter (left side "W"= 6'-0"), and Type 2 Special Approach Gutter (right side "W"= 10'-0"), see Std. Dwg. No. 55040C1, Dwg. No. 61092, and Dwg. No. 61093, respectively.

Toe of Fill

Concrete Riprap, See Std. Dwg. No. 55002 and Dwg. No. 61079 for details.

Future Bridge A7207

Existing Guardrail

U.S. Hwy. 70 EB

U.S. Hwy. 70 WB

Existing Bent 14

Existing Concrete Riprap to be retained. (typ. both ends of bridge)

Boring Test Hole (typ.)

1V:3H

1V:6H or flatter

30'-0"

10'-0" Bench

8'-0" Shldr.

24'-0" Lanes

10'-0" Shldr.

77'-7" Min. Horiz. Clr.

25'-10" Min. Horiz. Clr.

25'-10" Min. Horiz. Clr.

1'-4" Parapet Rail

45°

624+00

625+00

626+00

627+00

628+00

629+00

1V:2.5H

1V:2H

22'-0"

Approx. 2.5 mi. to Jct. U.S. Hwy. 270

Tangent Distance = 162.51'

Level Berm Elev. 503.5

Point of Min. Vertical Clr.

Point of Min. Vertical Clr.

C.L. Median Hwy. 7 and Profile Grade Line

C.L. Lane

C.L. Bridge

2.0% Slope

43'-0" out to out

40'-0" Clear Roadway

4'-0"

Toe of Fill

Level Berm Elev. 505.4

18'-0" max. Shldr.

12'-0" min. Lane

10'-0" Shldr.

40'-0" Pavement

Guard Rail, See Rdwy. Plans

Approx. 5.6 mi. to Jct. State Hwy. 7

Concrete Barrier, See Rdwy. Plans

Point of Min. Vertical Clr.

Existing Bent 15

Concrete Barrier, See Rdwy. Plans

Existing 10'-0" Bench

Sta. 626+44.68 22' Rt. C.L. Median Hwy. 7

10°42'18"

31'-10" Min. Horiz. Clr.

C.L. Median U.S. Hwy. 70

Existing Concrete Barrier

Existing WS Ramp Bridge No. 06948

Existing Bridge No. 07207

Existing RCBC 8' X 7' to be retained.

8'-0" Shldr.

36'-0" Lanes

4'-0" Shldr.

10°30' (typ.)

N 5°15' 42" E

PI Sta. 629+30.15

PVI 618+02.84

Elev. 507.68

+ 4.25%

+ 0.50%

L=1330'

PLAN

TABLE OF VARIABLES

BENT NO.	Top of Deck at C.L. Bent and C.L. Bridge to Low Seat of Cap
	"G"
2	5'-9½"
3	5'-9⅜"
4	5'-8⅛"

VERTICAL CURVE DATA

Theoretical Grade at C.L Median Hwy. 7 and Profile Grade Line

Total Length of Bridge = 390'-2½"

388'-0" Continuous Composite Plate Girder Unit (81'-135'-100'-72')

1'-1¼"

C.L. 2½" Neoprene Strip Seal Joint (4" Movement Rating)

Begin Bridge Sta. 624+27.90 Elev. 510.34

Slope Intercept Sta. 624+21.40

PVT Sta. 624+67.84

C.L. Bent Sta. 625+10.00 Elev. 510.78 "G"

Concrete Parapet Railing

C.L. Deck to Low Steel = 4'-9⅝"

C.L. Bent Sta. 626+45.00 Elev. 511.45

C.L. Deck to Low Steel = 4'-10¾"

C.L. Bent Sta. 627+45.00 Elev. 511.95

End Bridge Sta. 628+18.10 Elev. 512.32

Slope Intercept Sta. 628+24.60

Existing WS Ramp Bridge No. 06948

17'-7" Min. Clr.

Proposed Grade Line Along C.L. Bridge

Existing Ground Line Along C.L. Bridge

Exp.

Fix.

10'-0"

41'-6"

21'-4" Min. Clr.

32'-0"

23'-0" Min. Clr.

35'-6"

46' Piles

48' Piles

13' Piles

23' Piles

14' Piles

Elev. 463.49

Elev. 473.67

Elev. 470.78

U.S. Hwy. 70 EB

U.S. Hwy. 70 WB

Existing RCBC 8' X 7' to be retained.

Stations shown are along C.L. Median Hwy. 7. Elevations shown are actual top of deck elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on actual top of deck elevation at C.L. Bridge.

See Dwg. No. 60957 for Soil Borings.

Bent No. 1 2 3 4 5

ELEVATION

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9276
8/20/19
BRIDGE ENGINEER

SHEET 1 OF 3
LAYOUT OF BRIDGE
HIGHWAY 7 OVER U.S. HWY. 70
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 3/18/19 FILENAME: br60140x2_l1.dgn

CHECKED BY: DBS DATE: 8/20/19 SCALE: 1" = 20'

DESIGNED BY: NAC DATE: 3/2019

BRIDGE NO. B7207 DRAWING NO. 60955

PRINT DATE: 8/20/2019

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.		R60140	181	616
				①		B7207 - Layout - 60956		

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Seventh Edition (2014) with 2015 interim revisions.

LIVE LOADING: HL-93

SEISMIC ZONE: 1 S_{D1}: 0.12 SITE CLASS: C

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: All piling shall be HP 14 x 73 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 130 tons per pile and into the material designated as shale on the boring legend. Minimum penetration at Bent 1 shall be 10' below natural ground. Minimum penetration at Bents 2 thru 5 shall be 10' below cap or footing. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. The Contractor shall use approved steel H-Pile driving points on all piles.

PREBORING: Preboring is required for all piling in Bents 2 thru 5. Preboring shall be to a minimum depth of 5' into competent shale, or to a depth sufficient to provide the specified minimum pile penetration, whichever is greater. The actual size and depth of preboring are to be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free from debris prior to backfilling which may require casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of rock and the remaining length backfilled in accordance with Subsection 805.08(a). Any cost associated with achieving the minimum pile penetration, including any backfill and casings, shall not be paid for directly but shall be considered subsidiary to the item "Preboring".

PILE FOOTINGS: The top of the footings at Bents 2 thru 4 shall be set a minimum of 2' below finished ground, as determined by the lowest surface elevation within the footprint of the footing, or at the elevations shown on the plans, whichever is lower. Foundations for footings shall be prepared in accordance with Subsection 801.04.

PAINTING: All Grade 50 structural steel, except galvanized members and surfaces in contact with concrete, shall be painted as specified in Subsection 807.75. The color of paint shall be Blue and shall match Federal Standard 595B, Color Chip No. 25052.

TEXTURED COATING FINISH: Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. R60140 "Textured Coating Finish" and in accordance with Subsection 802.19(b)(3). Textured Coating Finish shall not be applied on surfaces where Class 1 Protective Surface Treatment is applied.

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.

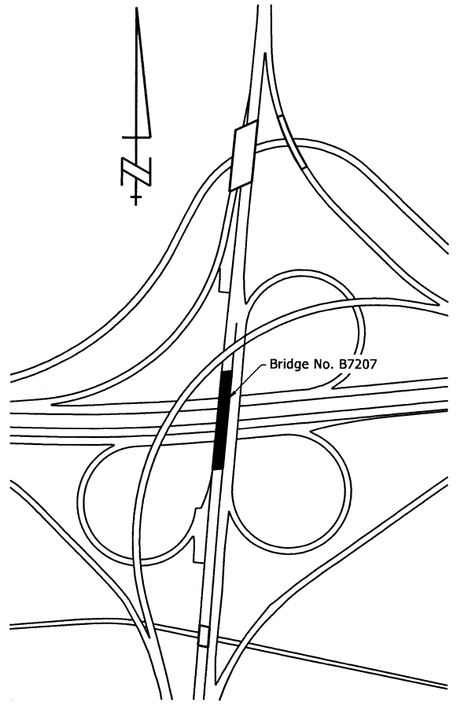
PROTECTIVE SURFACE TREATMENT: Class 1 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and to the inside face and top of the concrete parapet rails in accordance with Section 803.

DETAIL DRAWINGS:	DRAWING NO(S).
End Bents	60958-60962
Intermediate Bents	60963-60966
Elastomeric Bearings	61075-61076
388' Continuous Plate Girder Unit	60951, 60967-60972, 61077
General Notes For Steel Bridge Structures	55006
Details For Steel Bridge Structures	55007
Neoprene Strip Seal Joints	55009
Steel H-Piling	55020

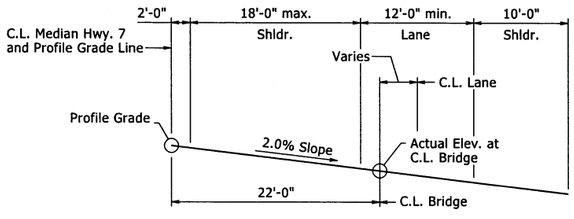
EXISTING BRIDGES: Existing Bridge No. 07207 (U.S. 70, Sec. 9, L.M. 2.80) is 37.2' wide (34.0' clear roadway) and 390.2' long and consists of steel W-beam spans (4 spans total) supported by concrete columns on spread footings and steel pile abutments. The existing Bridge No. 07207 is located approximately 44' east of the proposed new bridge as measured from bridge centerlines. Existing Bridge No. 06948 (U.S. 70, Sec. 9, L.M. 2.61) is 28.2' wide (25.0' clear roadway) and 1913.2' long and consists of steel W-beams and plate girder (22 spans total) supported by concrete columns on spread footings and steel pile abutments. The existing Bridge No. 06948 is located approximately 59' north from the proposed new bridge, as measured between bridges and along centerline of the proposed new bridge. Plans of the existing structures may be obtained upon request to the Construction Contract Procurement Section of the Program Management Division.

EXISTING BURIED STRUCTURE: The proposed foundation at Bent 2 is positioned to avoid interference with the existing 8' x 7' reinforced concrete box culvert, see Dwg. No. 60965 for details. The Contractor shall verify the location of the existing 8' x 7' reinforced concrete box culvert prior to construction of Bent 2. Any adjustments necessary to fit the proposed foundation to the existing conditions shall be submitted for the Engineer's approval.

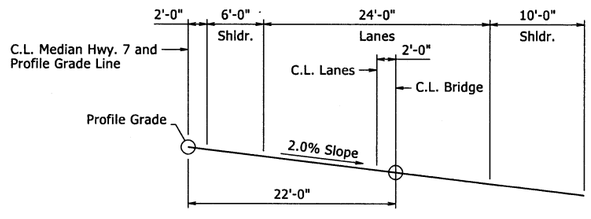
MAINTENANCE OF TRAFFIC: See Roadway Plans.



SITE PLAN
No Scale



CROSS-SLOPE SKETCH
Looking Ahead
No Scale



FUTURE TRAFFIC SKETCH
Looking Ahead
No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8/14/19
BRIDGE ENGINEER

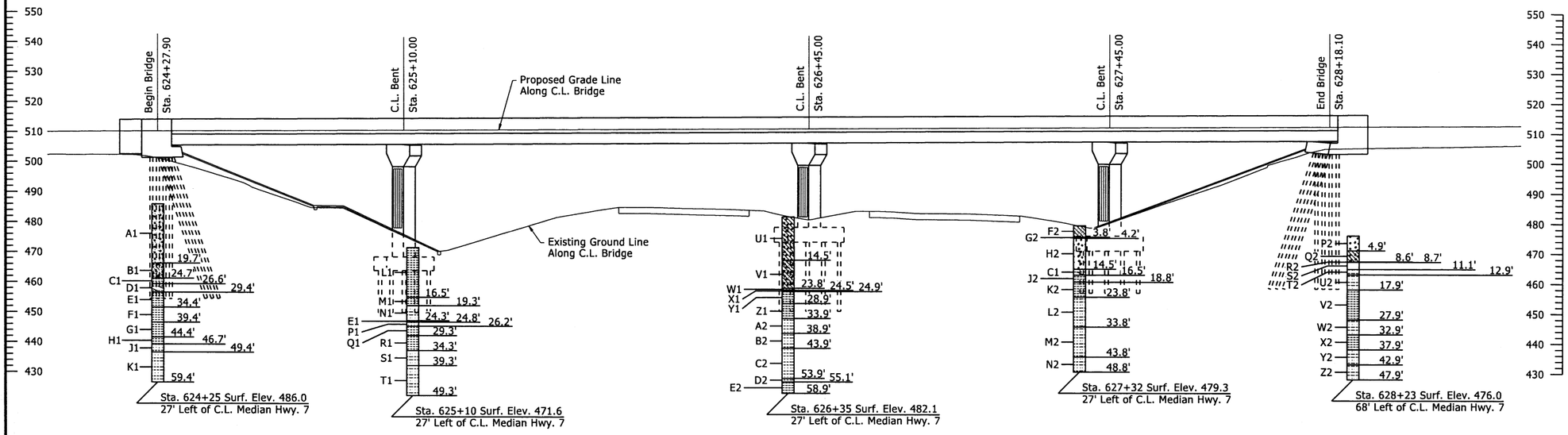
SHEET 2 OF 3
LAYOUT OF BRIDGE
HIGHWAY 7 OVER U.S. HWY. 70
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 3/18/19 FILENAME: br60140x2_l1.dgn
CHECKED BY: DRS DATE: 8/13/19 SCALE: AS NOTED
DESIGNED BY: NAC DATE: 3/2019
BRIDGE NO. B7207 DRAWING NO. 60956

PRINT DATE: 8/13/2019

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.		R60140	182	616
				(1)		B7207 - Layout - 60957		



ELEVATION OF SOIL BORINGS

"N" VALUES

Sta. 624+25 - 27' Left of C.L. Median Hwy. 7
5.2 - 6.2, N=63
10.2 - 11.2, N=78
15.2 - 16.2, N=71
20.2 - 21.2, N=21
25.2 - 25.6, N=60 (5")

Sta. 625+10 - 27' Left of C.L. Median Hwy. 7
5.0 - 6.0, N=8
10.0 - 11.0, N=4
15.0 - 15.1, N=10 (1")

Sta. 626+35 - 27' Left of C.L. Median Hwy. 7
5.0 - 6.0, N=7
10.0 - 11.0, N=5
15.0 - 16.0, N=10
20.0 - 21.0, N=20
24.5 - 24.9, N=60 (5")

Sta. 627+32 - 27' Left of C.L. Median Hwy. 7
5.0 - 6.0, N=16
10.0 - 11.0, N=11
15.0 - 15.0, N=100 (6")

Sta. 628+23 - 68' Left of C.L. Median Hwy. 7
5.4 - 6.4, N=3
8.6 - 8.7, N=13 (1")

BORING LEGEND

A1-Moist, Very Dense, Sand with Gravel (Rock Fragments)
B1-Moist, Medium Dense, Clayey Sand and Gravel (Shale Fragments)
C1-SHALE - Highly Weathered, Medium Hard, Gray
D1-SHALE - Highly Weathered, Medium Hard, Frequent Fractures, Slickensided, Gray
E1-SHALE - Unweathered, Medium Hard, Occasional Fractures, Slickensided, Gray
F1-SHALE - Unweathered, Medium Hard, Slickensided, Occasional Mineral Veins, Gray
G1-SHALE - Unweathered, Medium Hard, Frequent Fractures, Occasional Mineral Veins, Slickensided, Gray
H1-SHALE - Unweathered, Medium Hard, Frequent Fractures, Slickensided, Gray
J1-SANDSTONE WITH INTERBEDDED SHALE - Well Cemented, Frequent Fractures, Slickensided, Occasional Quartz Layers, Gray
K1-SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Medium Hard, Slickensided, Gray
L1-SHALE - Weathered, Medium Hard, Gray
M1-SHALE WITH OCCASIONAL SANDSTONE PARTINGS AND SEAMS - Unweathered, Medium Hard, Calcareous In Part, Frequent Fractures, Gray
N1-SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Occasional Fractures, Slickensided, Calcareous, Gray
P1-SANDSTONE - Unweathered, Well Cemented, Gray
Q1-SHALE - Unweathered, Medium Hard, Occasional Sandstone Nodules, Gray
R1-SHALE WITH OCCASIONAL CALCAREOUS SANDSTONE LAYERS - Unweathered, Medium Hard, Slickensided, Gray
S1-SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Medium Hard, Occasional Fractures, Calcareous, Gray
T1-SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Medium Hard, Occasional Fractures and Mineral Veins, Gray
U1-Moist, Medium Stiff, Gray Clay with Gravel (Rock Fragments)
V1-Moist, Stiff, Gray Sandy Clay with Gravel (Rock Fragments)
W1-SHALE
X1-SHALE - Slightly Weathered, Medium Hard, Gray
Y1-SHALE WITH OCCASIONAL SANDSTONE PARTINGS AND SEAMS - Unweathered, Medium Hard, Occasional Fractures, Gray
Z1-SHALE WITH OCCASIONAL SANDSTONE PARTINGS AND SEAMS - Unweathered, Medium Hard, Trace Quartz Veins, Gray
A2-SHALE WITH FREQUENT SANDSTONE LAYERS AND SEAMS - Unweathered, Medium Hard, Occasional Fractures, Gray
B2-SHALE WITH FREQUENT SANDSTONE LAYERS AND SEAMS - Unweathered, Medium Hard, Frequent Fractures and Quartz Veins, Slickensided, Gray
C2-SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Medium Hard, Slickensided, Frequent Quartz Veins, Gray
D2-SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Medium Hard, Occasional Fractures, Slickensided, Gray
E2-SHALE - Unweathered, Medium Hard, Gray
F2-Sandy Clay
G2-Sandy Clay with Gravel (Shale Fragments)
H2-Moist, Medium Dense, Gray Gravel (Shale Fragments)
J2-SHALE - Unweathered, Medium Hard, Slickensided, Occasional Quartz Layers, Gray
K2-SHALE - Unweathered, Medium Hard, Frequent Fractures and Mineral Veins, Slickensided, Gray
L2-SHALE WITH FREQUENT SANDSTONE LAYERS AND SEAMS - Unweathered, Medium Hard, Frequent Fractures, Slickensided, Gray
M2-SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Medium Hard, Frequent Fractures and Mineral Veins, Slickensided, Gray
N2-SHALE WITH FREQUENT SANDSTONE PARTINGS AND SEAMS - Unweathered, Medium Hard, Occasional Fractures and Mineral Veins, Slickensided, Gray
P2-Gravel (Rock Fragments)
Q2-Wet, Soft, Gray Clay with Gravel (Rock Fragments)
R2-Wet, Very Hard, Gray Clay with Gravel (Rock Fragments)
S2-CONCRETE
T2-SHALE WITH FREQUENT SANDSTONE PARTINGS AND SEAMS - Weathered, Medium Hard, Frequent Fractures, Slickensided, Gray
U2-SHALE WITH FREQUENT SANDSTONE PARTINGS AND SEAMS - Slightly Weathered, Medium Hard, Frequent Fractures, Slickensided, Gray
V2-SHALE WITH OCCASIONAL SANDSTONE PARTINGS AND SEAMS - Unweathered, Medium Hard, Frequent Fractures, Slickensided, Gray
W2-SHALE WITH FREQUENT SANDSTONE PARTINGS AND LAYERS - Unweathered, Medium Hard, Occasional Fractures, Slickensided, Gray
X2-SHALE WITH OCCASIONAL SANDSTONE PARTINGS AND SEAMS- Unweathered, Medium Hard, Occasional Fractures and Mineral Veins, Slickensided, Gray
Y2-SHALE WITH FREQUENT SANDSTONE LAYERS - Unweathered, Medium Hard, Frequent Fractures, Slickensided, Gray
Z2-SHALE WITH FREQUENT SANDSTONE PARTINGS AND SEAMS - Unweathered, Medium Hard, Frequent Fractures, Slickensided, Gray

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8/20/19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 3
LAYOUT OF BRIDGE
HIGHWAY 7 OVER U.S. HWY. 70
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 3/18/19 FILENAME: br60140x2_l1.dgn
CHECKED BY: DBS DATE: 8/20/19 SCALE: 1" = 20'
DESIGNED BY: NAC DATE: 3/2019
BRIDGE NO. B7207 DRAWING NO. 60957

PRINT DATE: 8/20/2019

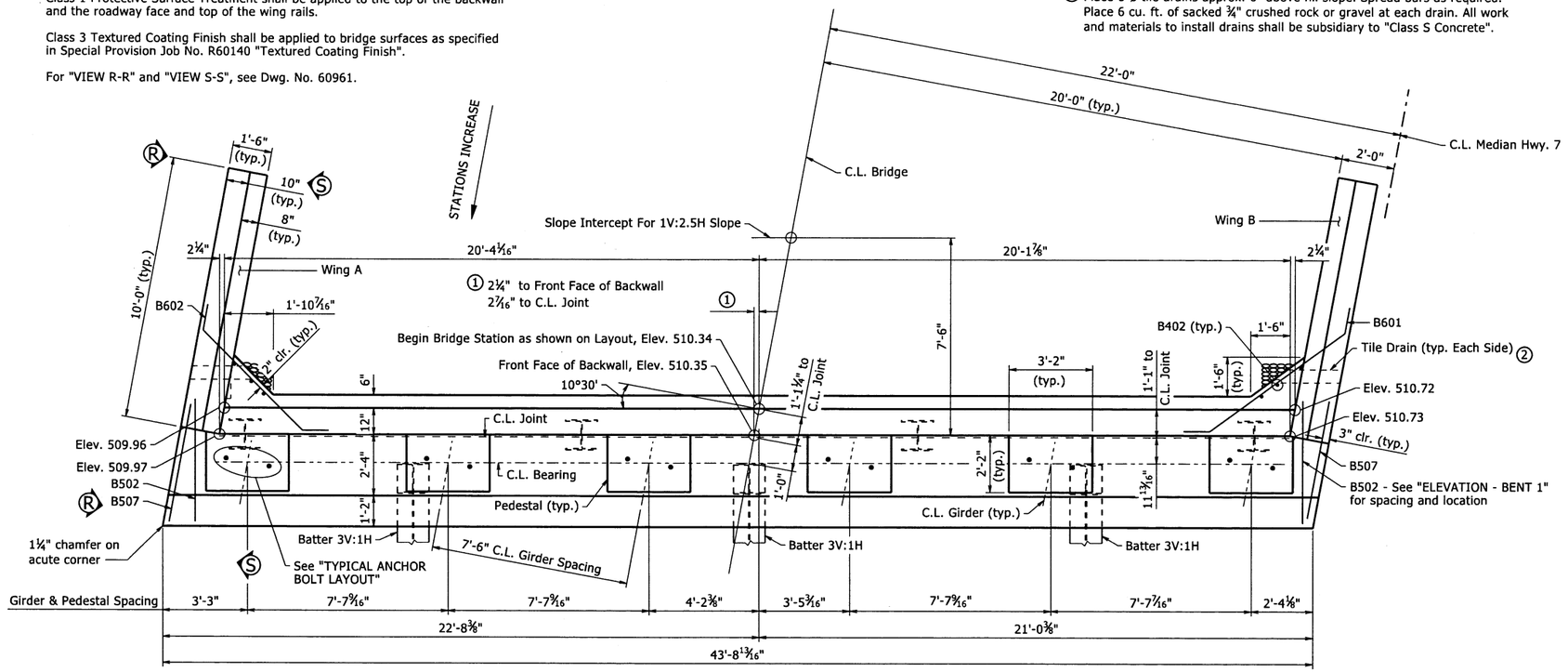
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	183	616
				①		B7207 - END BENTS - 60958		

Class 1 Protective Surface Treatment shall be applied to the top of the backwall and the roadway face and top of the wing rails.

Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. R60140 "Textured Coating Finish".

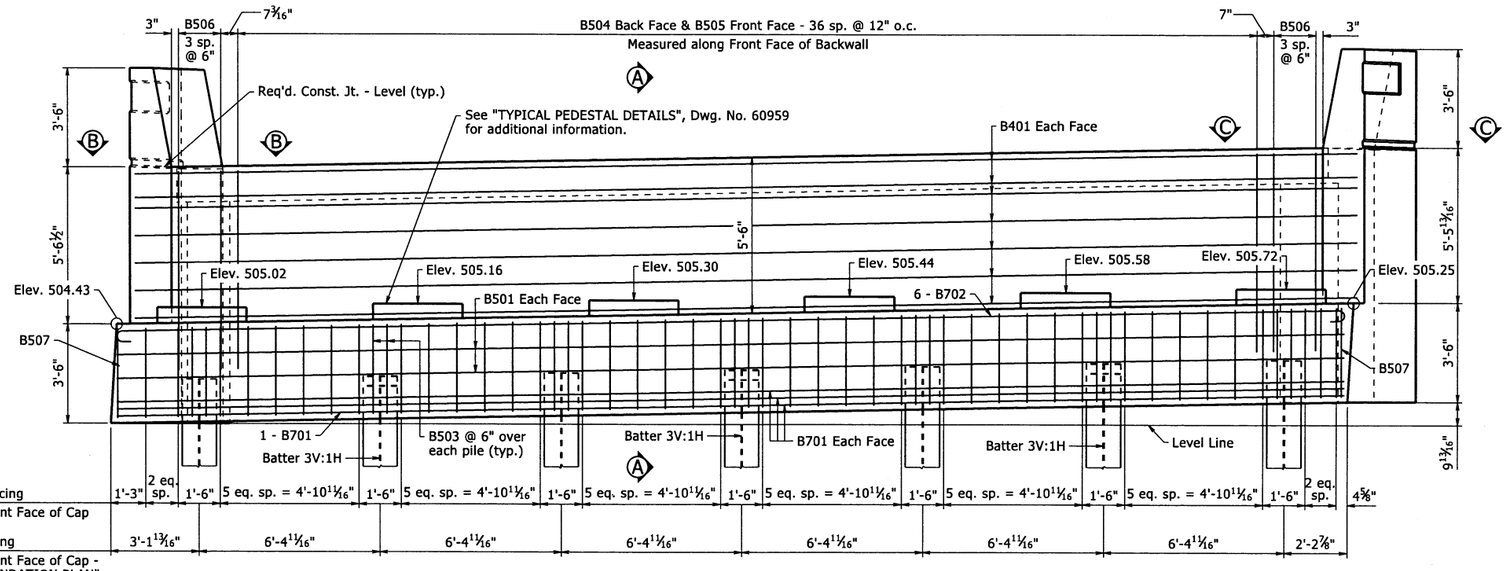
For "VIEW R-R" and "VIEW S-S", see Dwg. No. 60961.

② Place 6"ø tile drains approx. 6" above fill slope. Spread bars as required. Place 6 cu. ft. of sacked ¾" crushed rock or gravel at each drain. All work and materials to install drains shall be subsidiary to "Class S Concrete".



PLAN - BENT 1

⅜" = 1'-0"

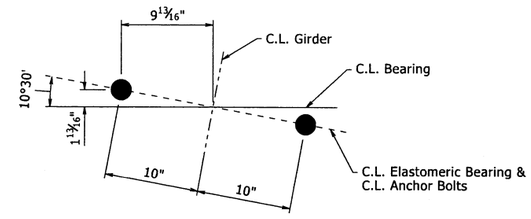


ELEVATION - BENT 1

LOOKING BACK

⅜" = 1'-0"

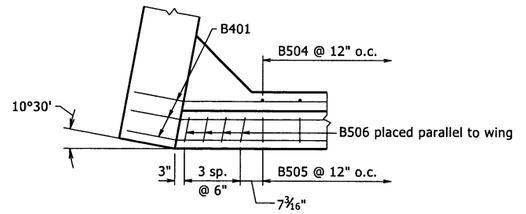
For "SECTION A-A", see Dwg. No. 60960.



For Details of Elastomeric Bearings, See Dwg. Nos. 61075-61076.

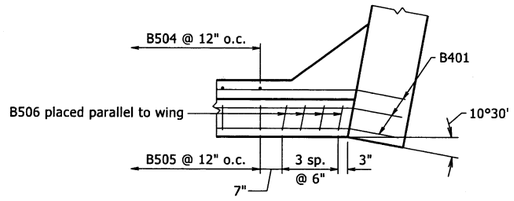
TYPICAL ANCHOR BOLT LAYOUT

No Scale



VIEW B-B

½" = 1'-0"



VIEW C-C

½" = 1'-0"

Structural Steel in end bent shall be ASTM A709, Gr. 50 and shall be paid for as "Structural Steel in Plate Girder Spans (A709, Gr. 50)".

For details of steel piling, See Std. Dwg. No. 55020.

All piling shall be Gr. 50.

See Std. Dwg. No. 55006 for additional notes.

No portion of the backwall shall be poured before girders are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the adjacent deck pour has been made. Refer to the "EXPANSION DEVICE INSTALLATION AT END BENTS" note on Std. Dwg. No. 55009. No heavy construction equipment shall be allowed within 10' of the backwall until the deck concrete placement for the adjacent span has been completed.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8/20/19
BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF END BENTS
U.S. HWY. 70

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 6-22-19 FILENAME: br60140x2_b1.dgn
CHECKED BY: DKS DATE: 8-20-19 SCALE: AS NOTED
DESIGNED BY: NAC DATE: 6-2019

BRIDGE NO. B7207 DRAWING NO. 60958

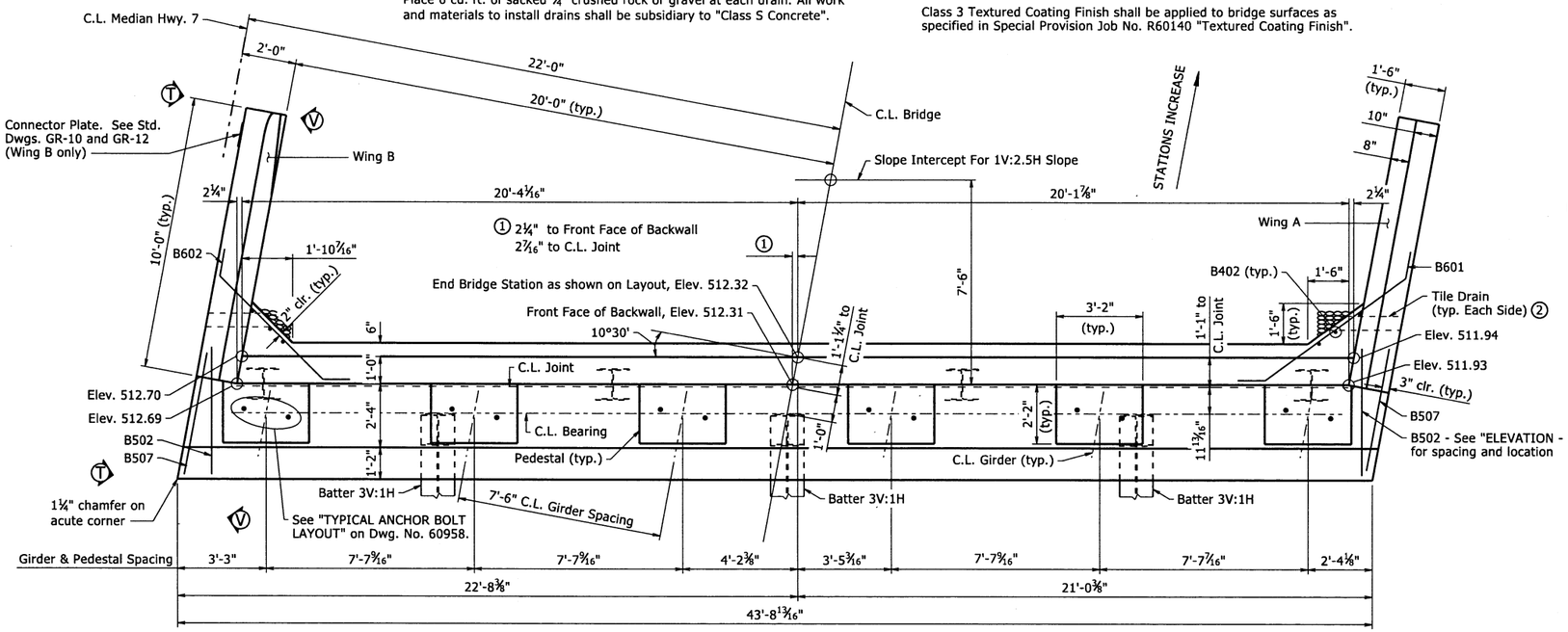
PRINT DATE: 8/20/2019

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.		R60140	184	616
				(1)	B7207 - END BENTS - 60959			

(2) Place 6"ø tile drains approx. 6" above fill slope. Spread bars as required. Place 6 cu. ft. of sacked ¾" crushed rock or gravel at each drain. All work and materials to install drains shall be subsidiary to "Class S Concrete".

Class 1 Protective Surface Treatment shall be applied to the top of the backwall and the roadway face and top of the wing rails.

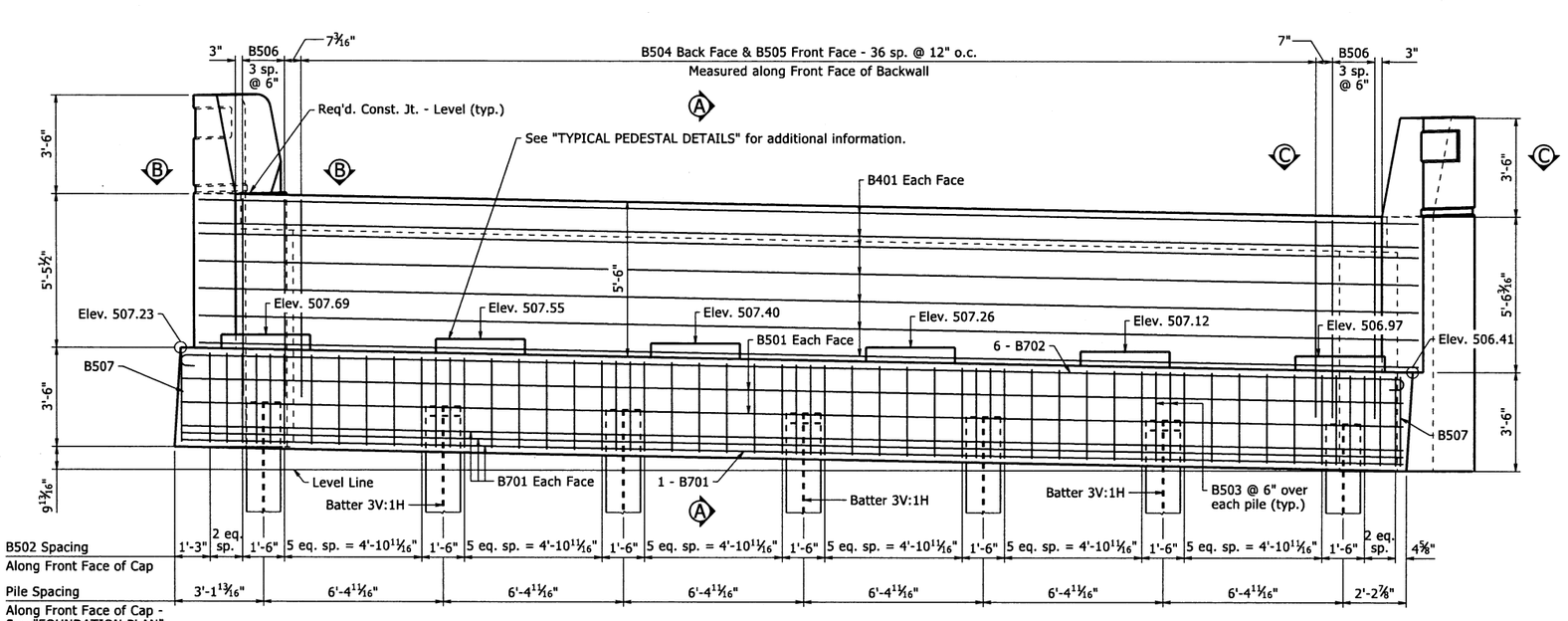
Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. R60140 "Textured Coating Finish".



PLAN - BENT 5

⅜" = 1'-0"

For "VIEW V-V" and "VIEW T-T", see Dwg. No. 60961.

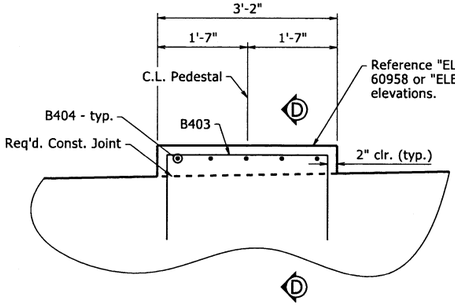


ELEVATION - BENT 5

LOOKING AHEAD

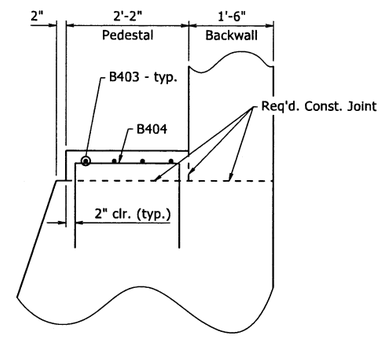
⅜" = 1'-0"

For "SECTION A-A", see Dwg. No. 60960. For "VIEW B-B" and "VIEW C-C", see Dwg. No. 60958.



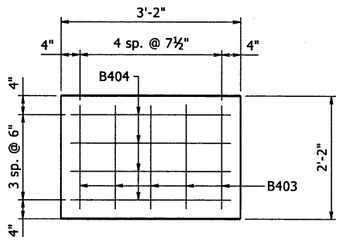
TYPICAL PEDESTAL DETAILS

¾" = 1'-0"



SECTION D-D

¾" = 1'-0"



PEDESTAL PLAN

¾" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF END BENTS
U.S. HWY. 70

ROUTE SEC.

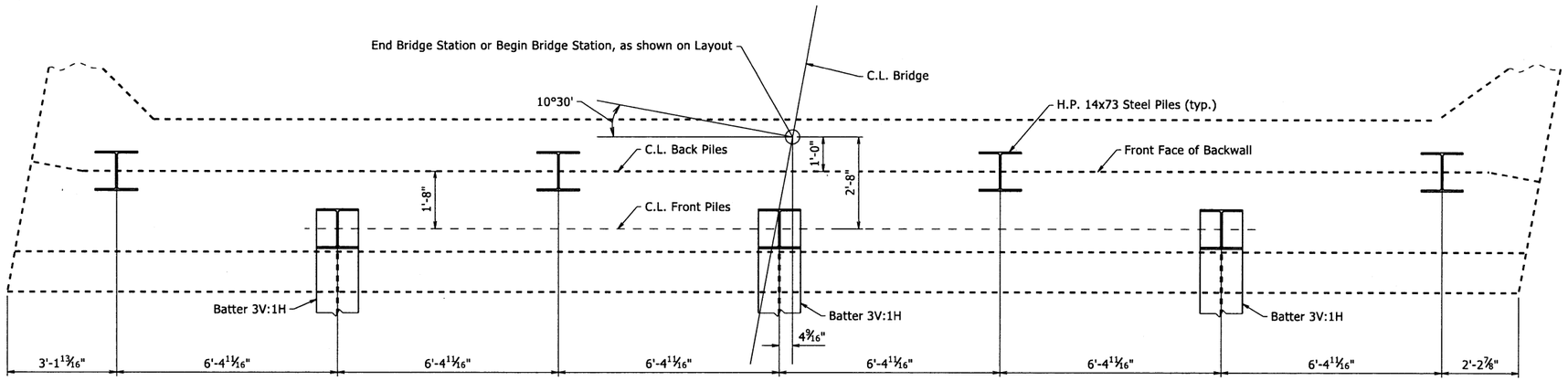
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 7-2-19 FILENAME: br60140x2_b1.dgn
CHECKED BY: DWS DATE: 8-14-19 SCALE: AS NOTED
DESIGNED BY: NAC DATE: 6-2019

BRIDGE NO. B7207 DRAWING NO. 60959

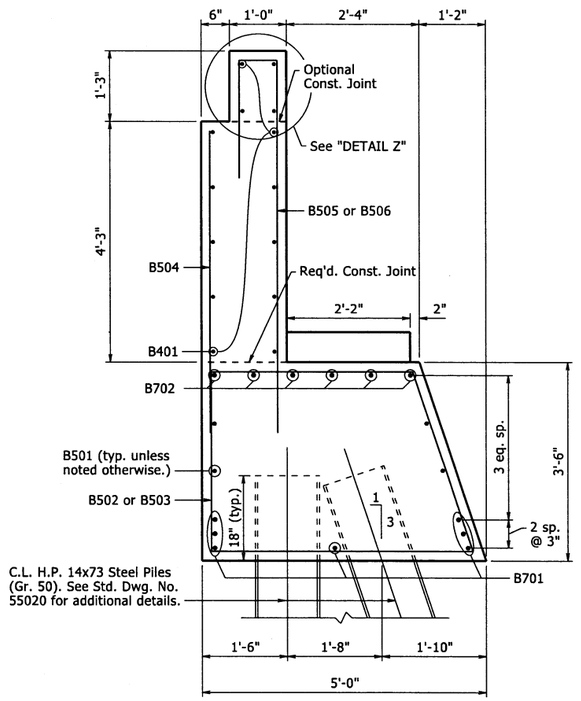
PRINT DATE: 8/14/2019

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.		R60140	185	616
				(1)	B7207 - END BENTS - 60960			



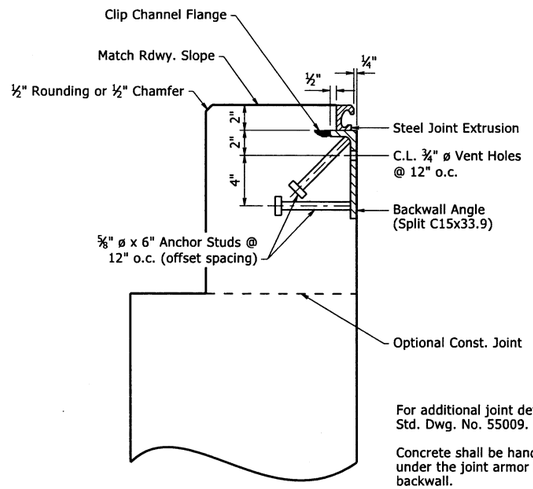
FOUNDATION PLAN

½" = 1'-0"



SECTION A-A

¾" = 1'-0"



DETAIL Z

No Scale

For additional joint details, see Std. Dwg. No. 55009.

Concrete shall be hand packed under the joint armor in the backwall.

Transverse spacing between top anchor studs and vent holes shall be 6".

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19

BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF END BENTS
U.S. HWY. 70

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

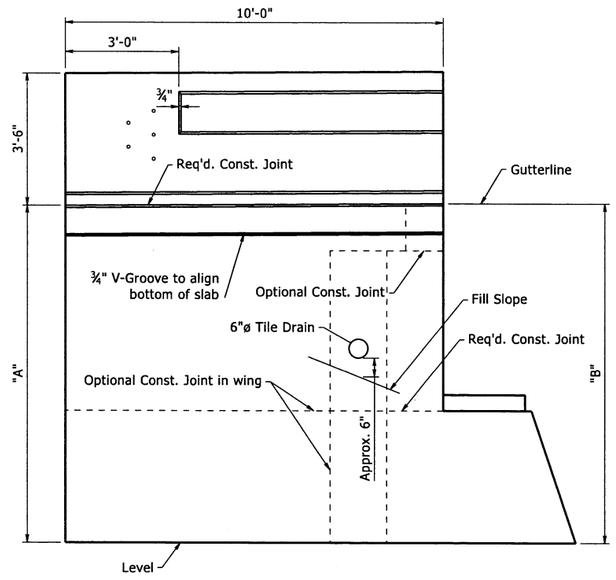
DRAWN BY: NAC DATE: 7-2-19 FILENAME: br60140x2_b1.dgn
CHECKED BY: DKS DATE: 8-14-19 SCALE: AS NOTED
DESIGNED BY: NAC DATE: 6-2019

BRIDGE NO. B7207 DRAWING NO. 60960

PRINT DATE: 8/14/2019

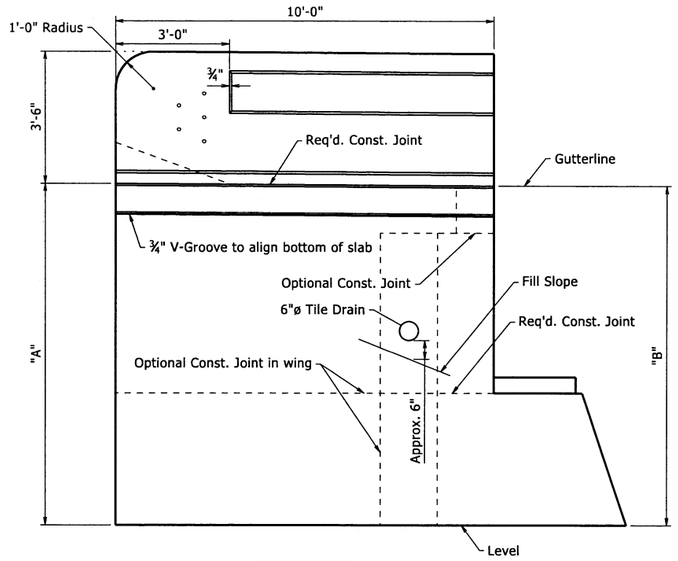
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	186	616

(1) B7207 - END BENTS - 60961



VIEW R-R

Wing A, Bent 1 Shown
Wing B, Bent 1 and Wing A, Bent 5 Similar
½" = 1'-0"

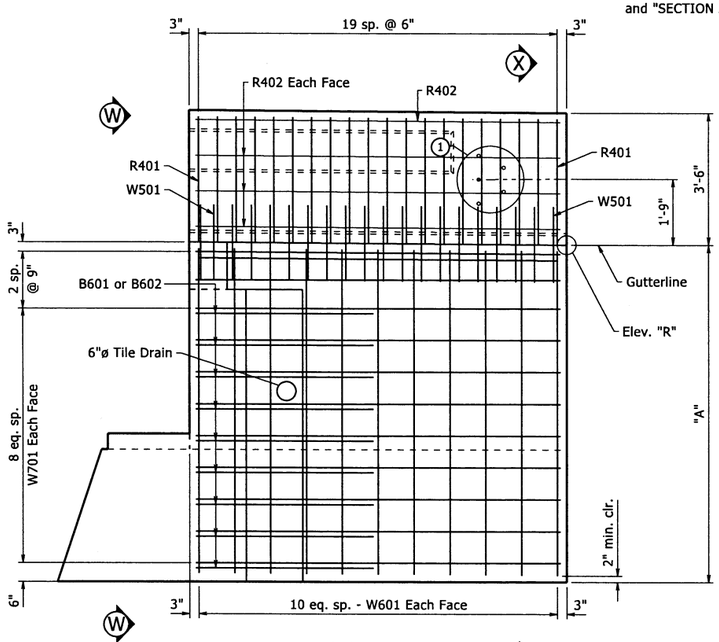


VIEW T-T

Wing B, Bent 5
½" = 1'-0"

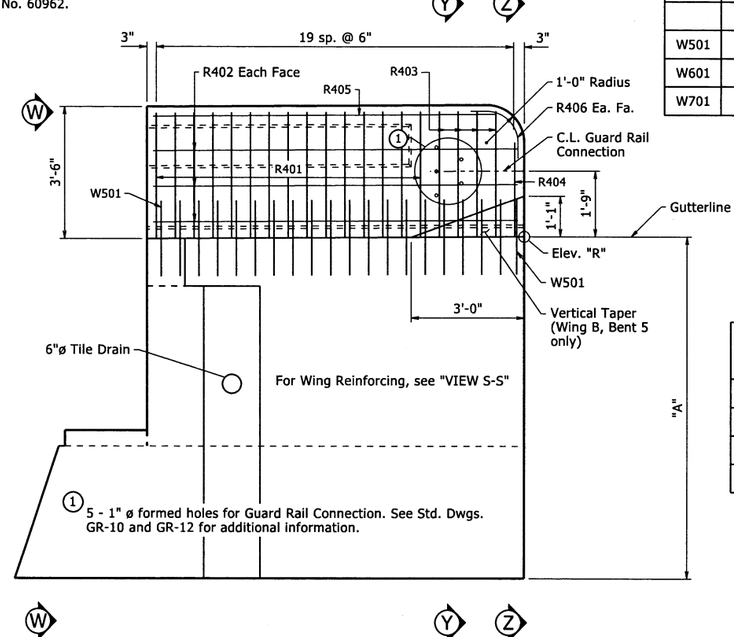
Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. R60140 "Textured Coating Finish".

For "VIEW W-W" , "SECTION X-X", "SECTION Y-Y", and "SECTION Z-Z", see Dwg. No. 60962.



VIEW S-S

Wing A, Bent 1 Shown
Wing B, Bent 1 and Wing A, Bent 5 Similar
½" = 1'-0"



VIEW V-V

Wing B, Bent 5
½" = 1'-0"

BAR LIST - PER BENT

MARK	NO. REQ'D	LENGTH	"X"	"Y"	PIN DIA.
B401	14	43'-4"	-	-	3"
B402	6	7'-4"	-	-	Str.
B403	24	5'-8"	2'-10"	1'-6"	2"
B404	30	4'-8"	1'-10"	1'-6"	2"
B501	4	43'-4"	-	-	Str.
B502	42	15'-2"	-	-	2½"
B503	12	9'-10"	-	-	2½"
B504	37	5'-6"	-	-	Str.
B505	37	9'-7"	2'-4"	6'-9"	2½"
B506	8	14'-0"	6'-9"	6'-9"	2½"
B507	2	15'-2"	-	-	2½"
B601	9	8'-4"	-	-	4½"
B602	9	7'-4"	-	-	4½"
B701	7	43'-4"	-	-	Str.
B702	6	45'-0"	-	-	5¼"
R401	"N1"	7'-1"	-	-	5¾"
R402	"N2"	9'-8"	-	-	Str.
R403	"N3"	6'-11"	-	-	5¾"
R404	"N4"	5'-6"	-	-	2"
R405	"N5"	9'-1"	-	-	Str.
R406	"N6"	2'-3"	-	-	-
W501	40	4'-5"	-	-	6¾"
W601	44	"L1"	-	-	Str.
W701	44	9'-8"	-	-	Str.

Dimensions are out to out of bars.

BENDING DIAGRAMS

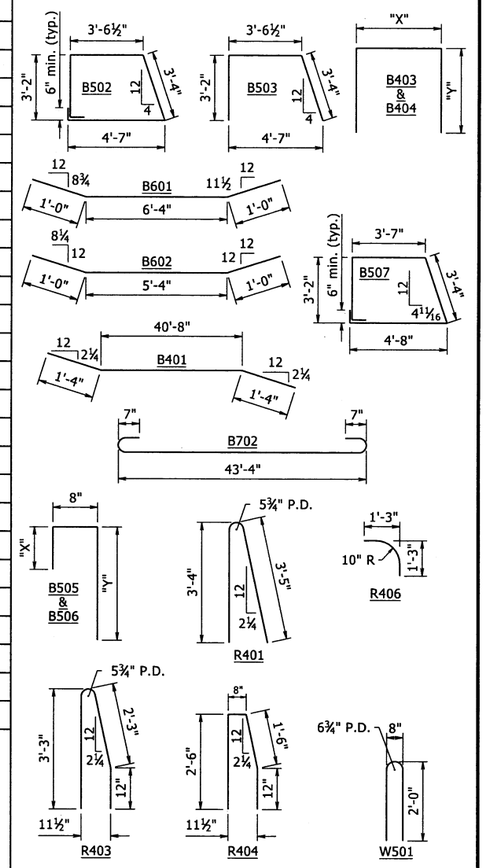


TABLE OF VARIABLES

Bent	Wing	Variable			
		"A"	"B"	"R"	"L1"
Bent 1	Wing A	8'-11¾"	9'-0½"	509.91	8'-7"
Bent 1	Wing B	8'-11¹⁵⁄₁₆"	8'-11¹³⁄₁₆"	510.67	8'-7"
Bent 5	Wing A	9'-0⅛"	8-11½"	512.74	8'-7"
Bent 5	Wing B	9'-0¹³⁄₁₆"	9'-0³⁄₁₆"	511.98	8'-8"

Bent	Variable					
	"N1"	"N2"	"N3"	"N4"	"N5"	"N6"
Bent 1	40	14	-	-	-	-
Bent 5	35	13	4	1	1	2

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8/20/19
BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF END BENTS
U.S. HWY. 70

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

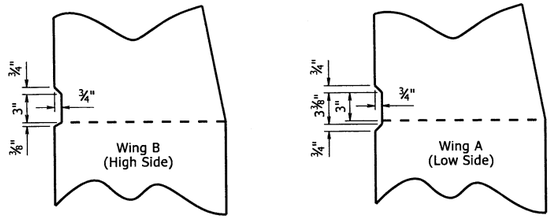
DRAWN BY: NAC DATE: 7-2-19
CHECKED BY: DKS DATE: 8-20-19
DESIGNED BY: NAC DATE: 6-2019
FILENAME: br60140x2_b1.dgn
SCALE: AS NOTED

BRIDGE NO. B7207
DRAWING NO. 60961

PRINT DATE: 8/20/2019

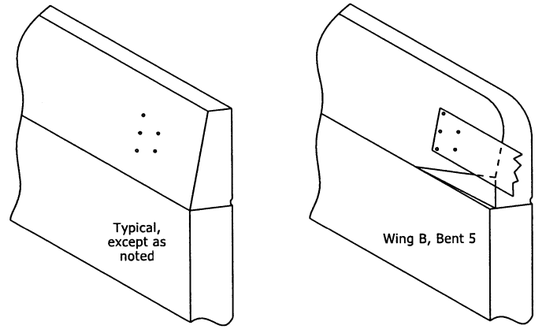
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	187	616

(1) B7207 - END BENTS - 60962



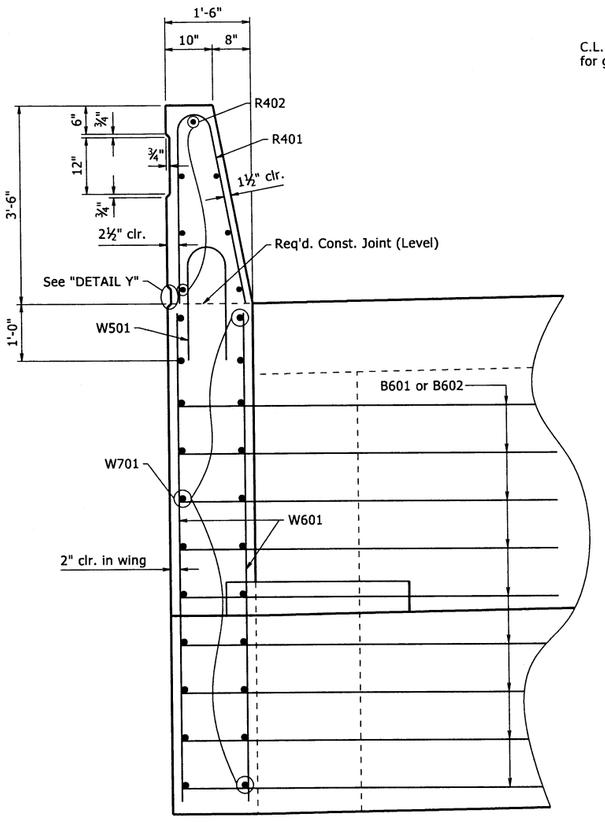
DETAIL Y

No Scale



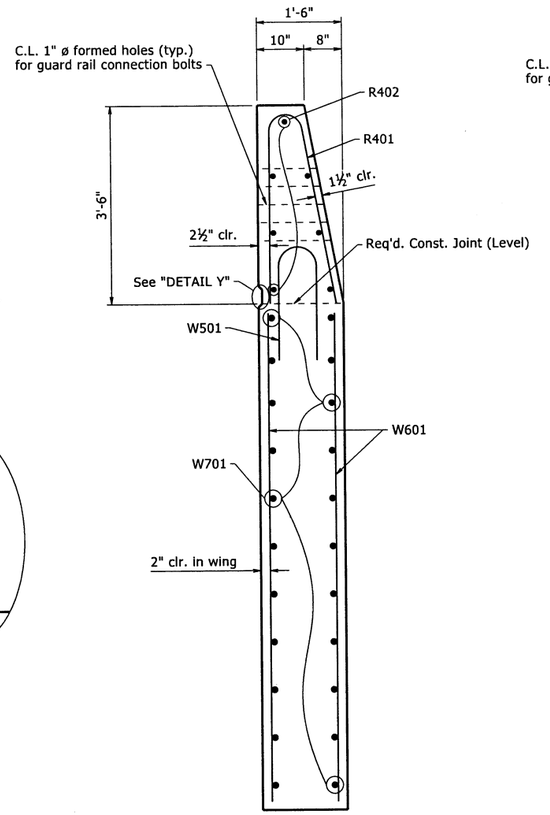
THREE DIMENSIONAL VIEW OF RAIL

No Scale



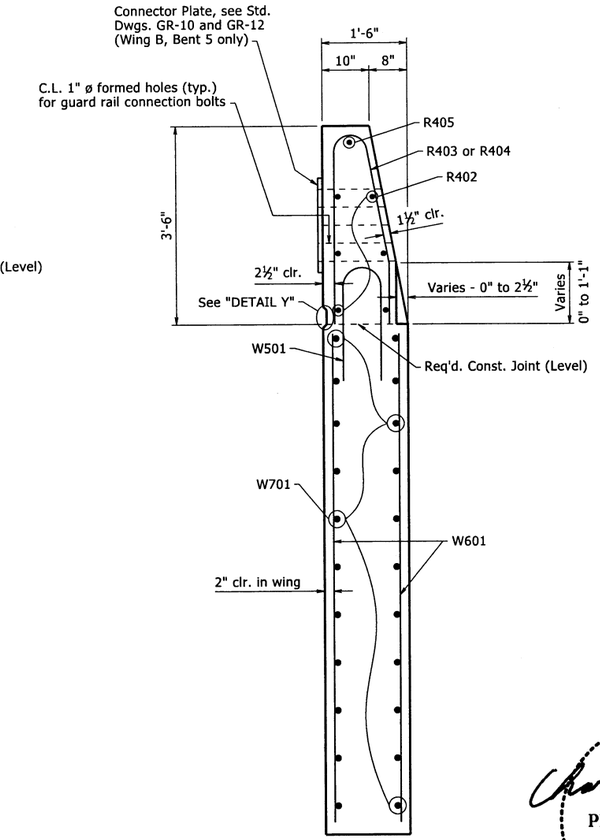
VIEW W-W

¾" = 1'-0"



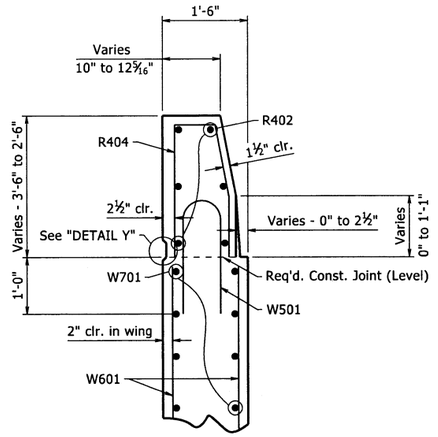
SECTION X-X

¾" = 1'-0"



SECTION Y-Y

Wing B, Bent 5
¾" = 1'-0"



SECTION Z-Z

Wing B, Bent 5
¾" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF END BENTS
U.S. HWY. 70

ROUTE SEC.

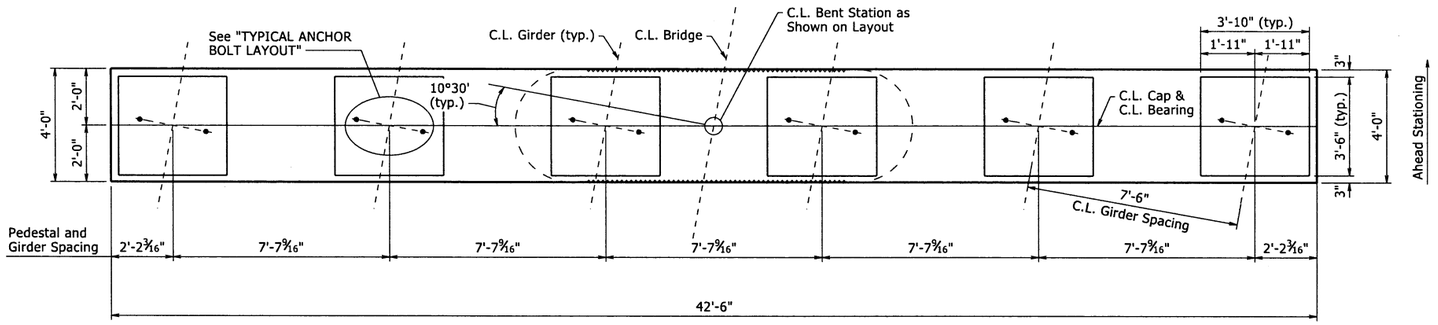
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 7-2-19 FILENAME: br60140x2_b1.dgn
CHECKED BY: DJSS DATE: 8-14-19 SCALE: AS NOTED
DESIGNED BY: NAC DATE: 6-2019

BRIDGE NO. B7207 DRAWING NO. 60962

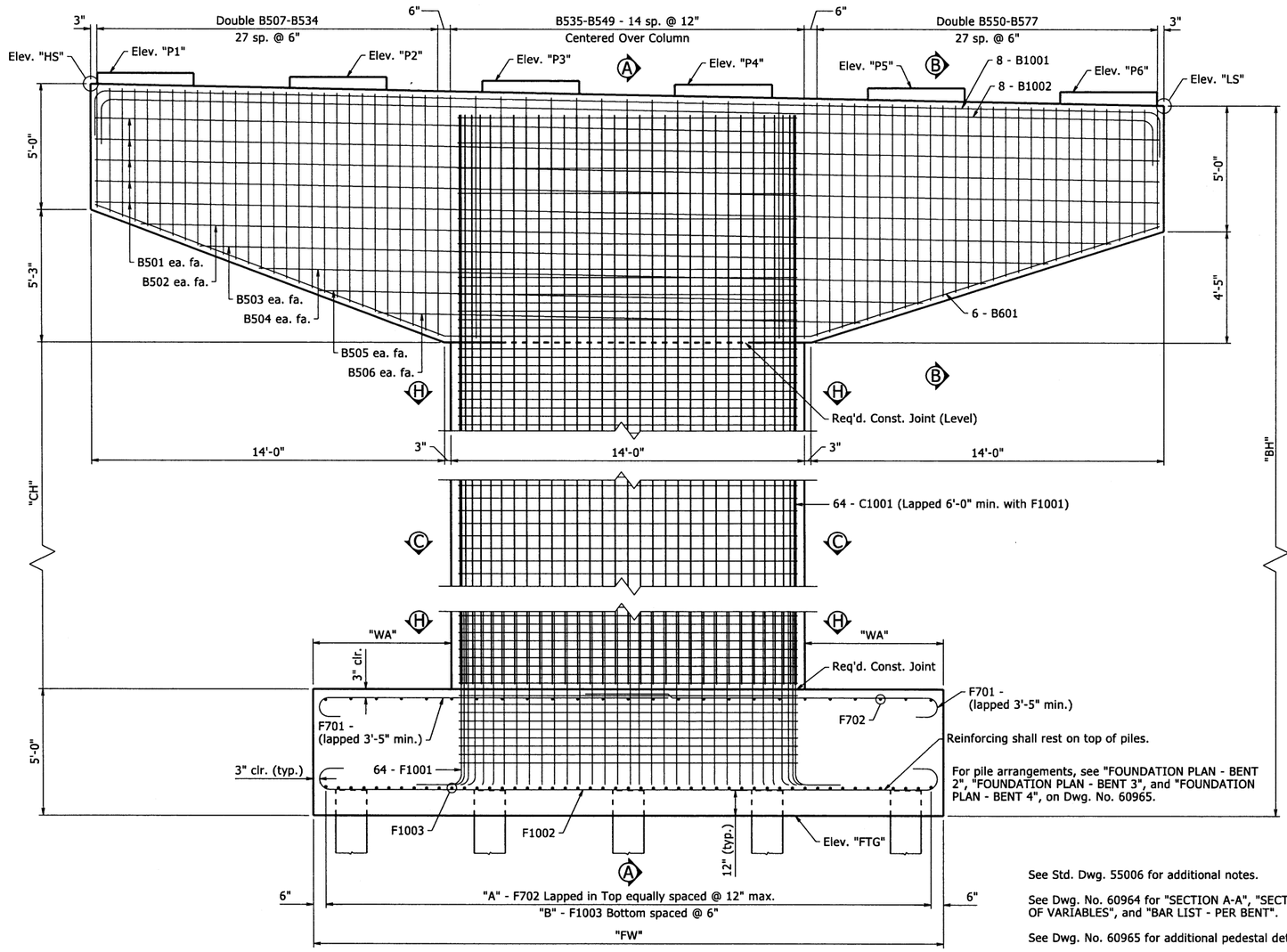
PRINT DATE: 8/13/2019

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.		R60140	188	616
				(1) B7207 - INT. BENTS - 60963				



PLAN

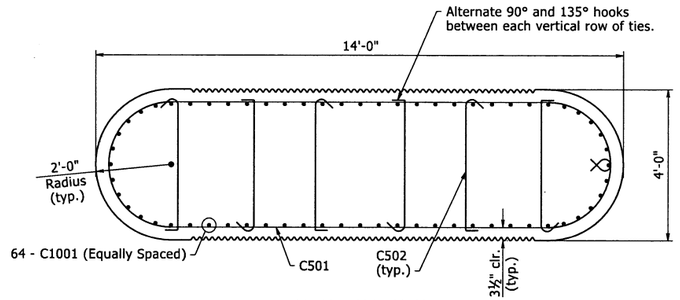
⅜" = 1'-0"



ELEVATION

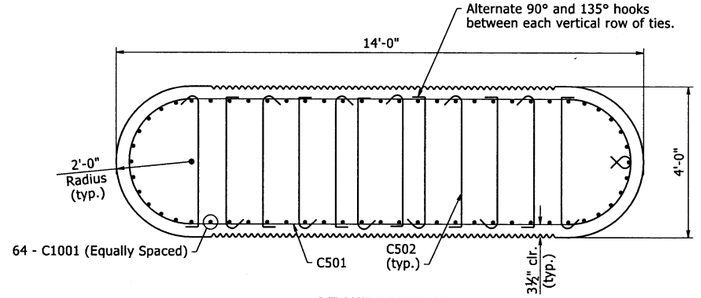
⅜" = 1'-0"
Looking Ahead
Bent 3 Footing Shown

For "COMMON DETAILS OF COLUMN ENHANCEMENT", see Dwg. No. 60966.



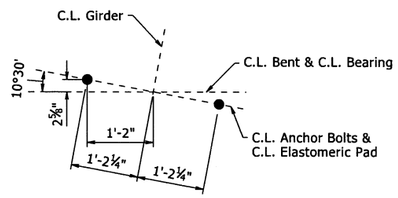
SECTION C-C

½" = 1'-0"



SECTION H-H

½" = 1'-0"



For Details of Elastomeric Bearings, See Dwg. Nos. 61075 - 61076.

TYPICAL ANCHOR BOLT LAYOUT

¾" = 1'-0"

See Std. Dwg. 55006 for additional notes.

See Dwg. No. 60964 for "SECTION A-A", "SECTION B-B", "TABLE OF VARIABLES", and "BAR LIST - PER BENT".

See Dwg. No. 60965 for additional pedestal details.

See Layout for additional notes.

The concrete shall have a maximum nominal aggregate size of ¾".

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF INTERMEDIATE BENTS
U.S. HWY. 70

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 4-15-19
CHECKED BY: DWS DATE: 8-14-19
DESIGNED BY: NAC DATE: 4-2019
FILENAME: br60140x2_b2.dgn
SCALE: AS NOTED

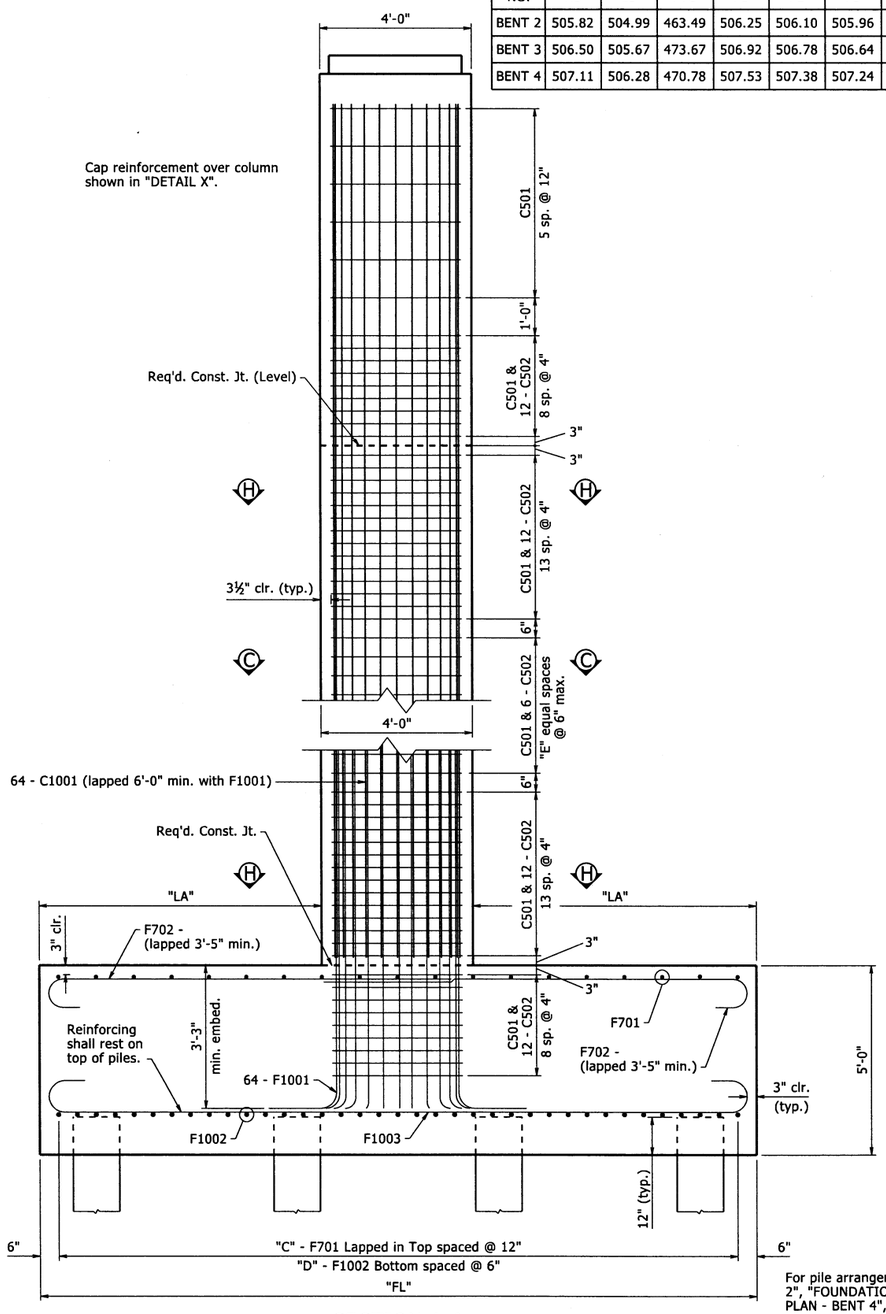
BRIDGE NO. B7207 DRAWING NO. 60963

PRINT DATE: 8/14/2019

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.		R60140	189	616
				(1)		B7207 - INT. BENTS - 60964		

TABLE OF VARIABLES

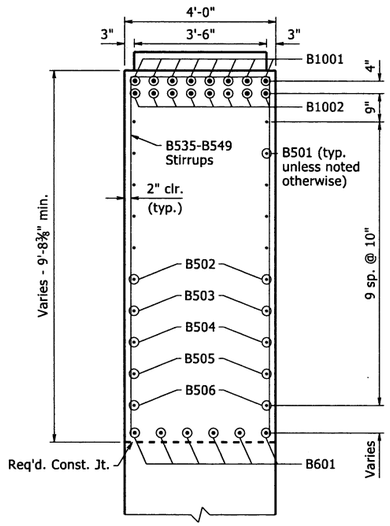
BENT NO.	GEOMETRY																C1001	C501	C502	F702			F701			F1003			F1002			F703
	Elev. "HS"	Elev. "LS"	Elev. "FTG"	Elev. "P1"	Elev. "P2"	Elev. "P3"	Elev. "P4"	Elev. "P5"	Elev. "P6"	"BH"	"CH"	"FW"	"WA"	"FL"	"LA"	"E"	"CL"	"CT"	"CTZ"	"A"	"ZTL"	"TLZ"	"C"	"XTL"	"TLX"	"B"	"ZBL"	"BLZ"	"D"	"XBL"	"BLX"	"PA"
BENT 2	505.82	504.99	463.49	506.25	506.10	505.96	505.82	505.68	505.53	41'-6"	27'-1"	23'-0"	4'-6"	16'-0"	6'-0"	34	36'-1"	87	762	46	10'-10"	10'-0"	32	14'-4"	13'-6"	45	18'-4"	15'-6"	31	25'-4"	22'-6"	80
BENT 3	506.50	505.67	473.67	506.92	506.78	506.64	506.49	506.35	506.21	32'-0"	17'-7"	25'-0"	5'-6"	19'-0"	7'-6"	15	26'-7"	68	648	50	12'-4"	11'-6"	38	15'-4"	14'-6"	49	21'-4"	18'-6"	37	27'-4"	24'-6"	80
BENT 4	507.11	506.28	470.78	507.53	507.38	507.24	507.10	506.95	506.81	35'-6"	21'-1"	19'-6"	2'-9"	19'-0"	7'-6"	22	30'-1"	75	690	40	12'-4"	11'-6"	38	12'-7"	11'-9"	38	21'-4"	18'-6"	37	21'-10"	19'-0"	64



SECTION A-A

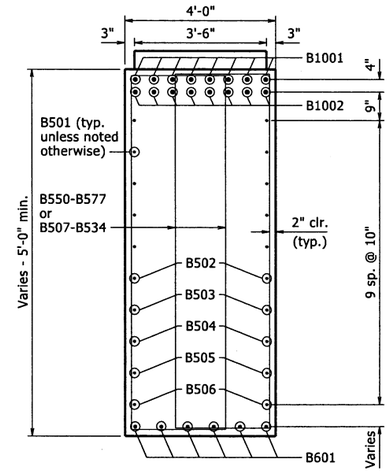
½" = 1'-0"
Bent 3 Footing Shown

For pile arrangements, see "FOUNDATION PLAN - BENT 2", "FOUNDATION PLAN - BENT 3", and "FOUNDATION PLAN - BENT 4", on Dwg. No. 60965.



DETAIL X

½" = 1'-0"



SECTION B-B

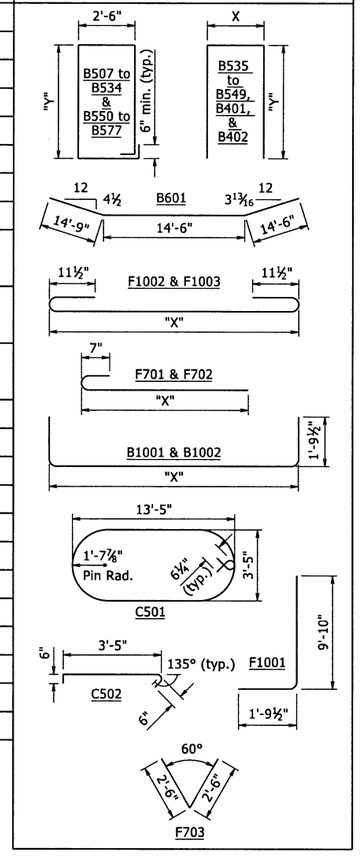
½" = 1'-0"

BAR LIST - PER BENT

MARK	NO. REQ'D	LENGTH	"X"	"Y"	PIN DIA.
B401	30	6'-6"	3'-2"	1'-9"	2"
B402	30	6'-10"	3'-6"	1'-9"	2"
B501	10	42'-2"	-	-	Str.
B502	2	38'-5"	-	-	Str.
B503	2	33'-7"	-	-	Str.
B504	2	28'-9"	-	-	Str.
B505	2	23'-11"	-	-	Str.
B506	2	19'-1"	-	-	Str.
B507 to B534	2 EACH	15'-0" - 24'-6"	-	4'-9" - 9'-6"	2½"
B535 to B549	1 EACH	22'-8" - 22'-2"	-	9'-7" - 9'-4"	2½"
B550 to B577	2 EACH	24'-0" - 15'-0"	3'-8"	9'-3" - 4'-9"	2½"
B601	6	43'-9"	-	-	4½"
B1001	8	45'-2"	42'-2"	-	10"
B1002	8	44'-6"	41'-6"	-	10"
C501	"CT"	32'-3"	-	-	3¾"
C502	"CTZ"	4'-6"	-	-	3¾"
C1001	64	"CL"	-	-	Str.
F701	"C"	"XTL"	"TLX"	-	5¼"
F702	"A"	"ZTL"	"TLZ"	-	5¼"
F703	"PA"	4'-10"	-	-	5¼"
F1001	64	11'-4"	-	-	10"
F1002	"D"	"XBL"	"BLX"	-	10"
F1003	"B"	"ZBL"	"BLZ"	-	10"

Dimensions are out to out of bars.

BENDING DIAGRAMS



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF INTERMEDIATE BENTS
U.S. HWY. 70

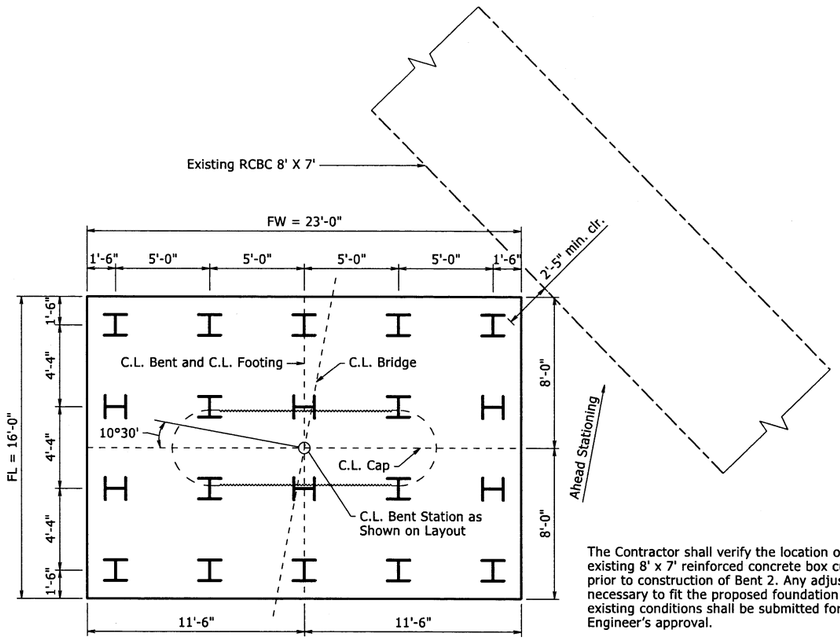
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 4-15-19 FILENAME: br60140x2_b2.dgn
CHECKED BY: DKS DATE: 8-14-19 SCALE: AS NOTED
DESIGNED BY: NAC DATE: 4-2019
BRIDGE NO. B7207 DRAWING NO. 60964

PRINT DATE: 8/14/2019

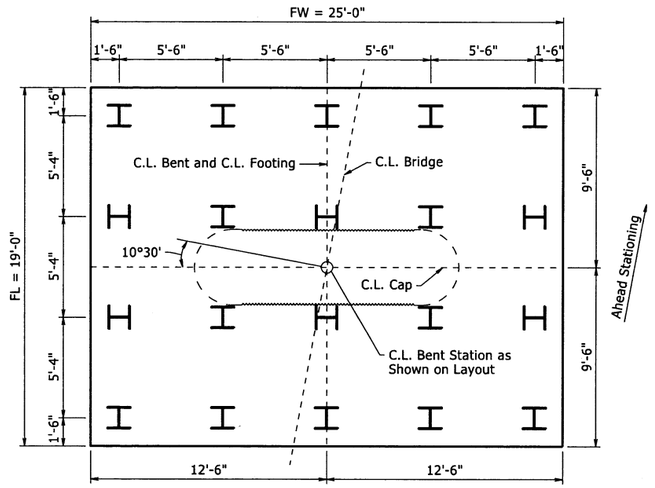
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	190	616
				(1)	B7207 - INT. BENTS - 60965			



The Contractor shall verify the location of the existing 8' x 7' reinforced concrete box culvert prior to construction of Bent 2. Any adjustments necessary to fit the proposed foundation to the existing conditions shall be submitted for the Engineer's approval.

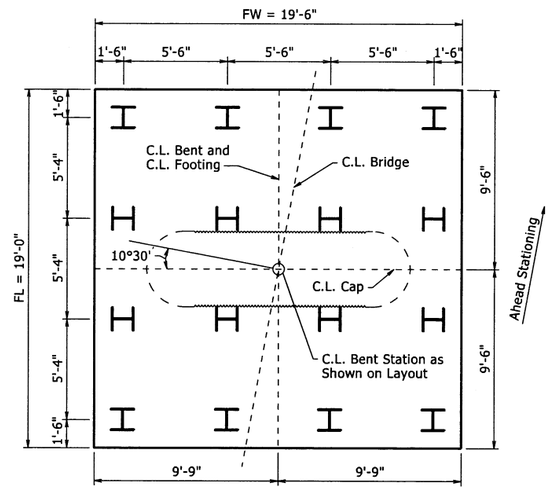
FOUNDATION PLAN - BENT 2

¼" = 1'-0"



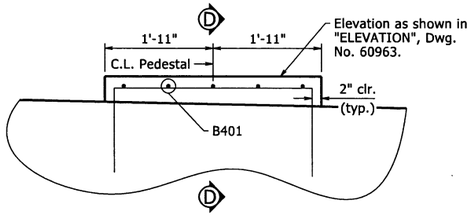
FOUNDATION PLAN - BENT 3

¼" = 1'-0"



FOUNDATION PLAN - BENT 4

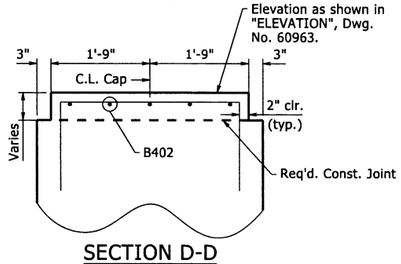
¼" = 1'-0"



TYPICAL PEDESTAL DETAILS

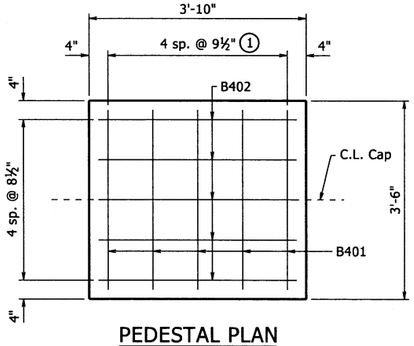
¾" = 1'-0"

Cap reinforcement not shown for clarity.



SECTION D-D

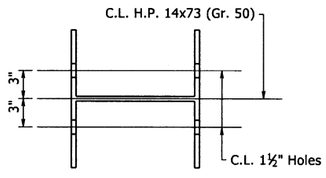
¾" = 1'-0"



PEDESTAL PLAN

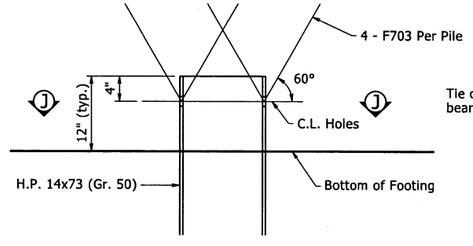
¾" = 1'-0"

(1) Adjust spacing as needed to avoid anchor bolts.



SECTION J-J

No Scale



Tie or wedge F703 bars to bear at top of holes.

PILE ANCHORAGE DETAIL (2)

No Scale

(2) An alternate Pile Anchorage Detail is shown on Dwg. No. 61042.

STATE OF ARKANSAS
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BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF INTERMEDIATE BENTS
U.S. HWY. 70

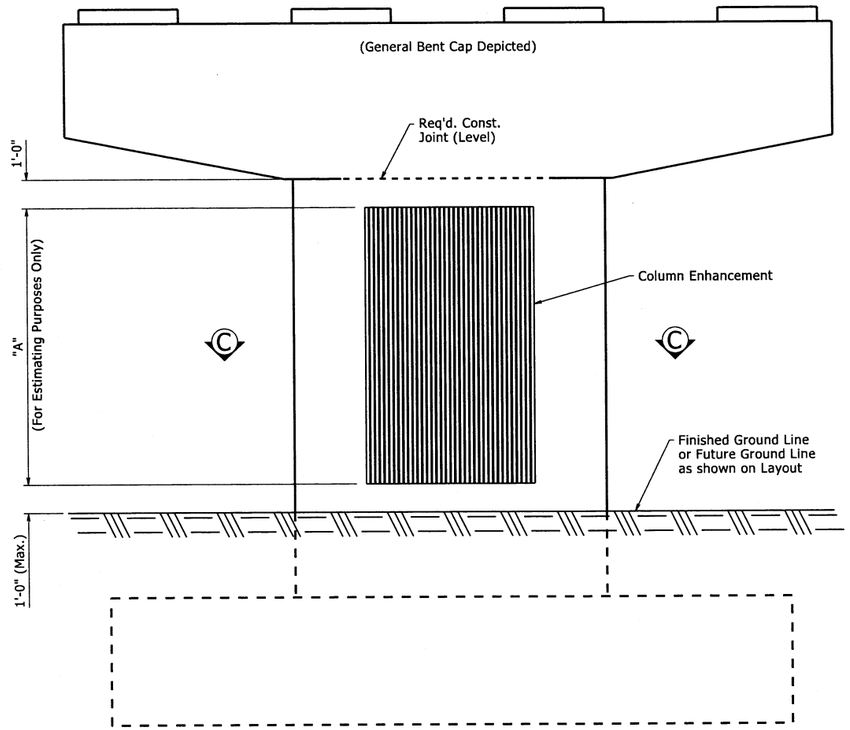
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 4-15-19
CHECKED BY: DKS DATE: 8-20-19
DESIGNED BY: NAC DATE: 4-2019
FILENAME: br60140x2_b2.dgn
SCALE: AS NOTED
BRIDGE NO. B7207
DRAWING NO. 60965

PRINT DATE: 8/20/2019

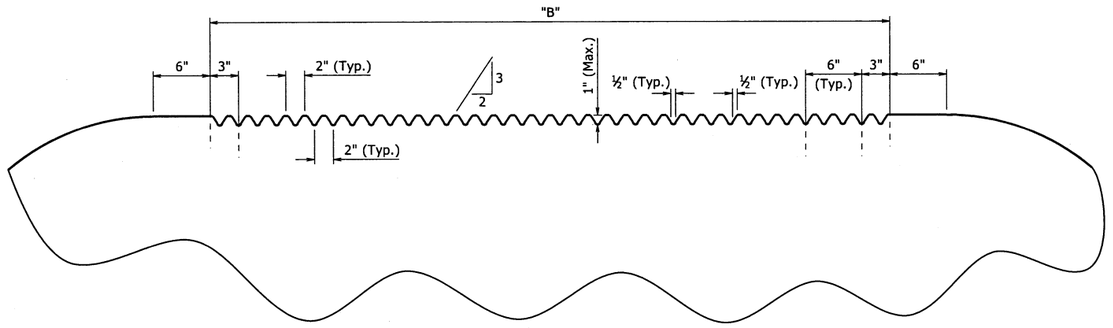
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	191	616

(1) B7207, 07455, 07456 - COL. DETAILS - 60966



ELEVATION

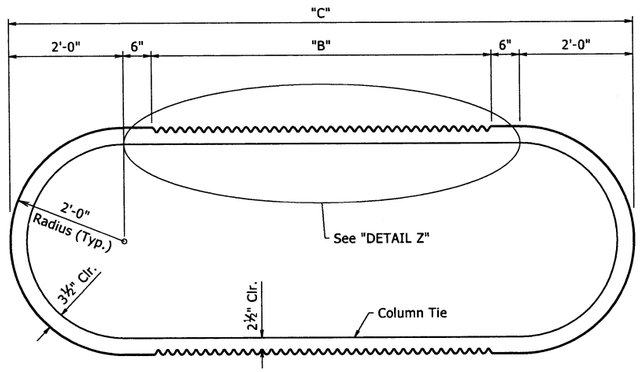
⅜" = 1'-0"



The enhancement pattern shown is general in nature. The Contractor shall submit specific details of an enhancement pattern to the Engineer for approval. The enhancement pattern submitted shall be similar to the existing enhancement pattern on Ramp WS (Br. No. 06948) and CD Road bridge (Br. No. 07207). See Special Provision Job No. R60140 "Architectural Finish" for more information.

DETAIL Z

1½" = 1'-0"



SECTION C-C

½" = 1'-0"

TABLE OF VARIABLES

Br. No.	Bent	Column	"A"	"B"	"C"
B7207	2	1	25'-0"	9'-0"	14'-0"
	3	1	15'-6"	9'-0"	14'-0"
	4	1	19'-0"	9'-0"	14'-0"
07455	2	1	10'-9"	6'-0"	11'-0"
		2	11'-9"	6'-0"	11'-0"
		3	18'-9"	6'-0"	11'-0"
	3	1	10'-6"	6'-0"	11'-0"
		2	17'-3"	6'-0"	11'-0"
		3	19'-6"	6'-0"	11'-0"
07456	2 & 3	1	15'-3"	6'-0"	11'-0"

STATE OF ARKANSAS
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8-14-19
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COMMON DETAILS OF COLUMN ENHANCEMENT FRACTURED FIN

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 6/7/2019
CHECKED BY: LJB DATE: 8-13-19
DESIGNED BY: DKS DATE: 5/2019

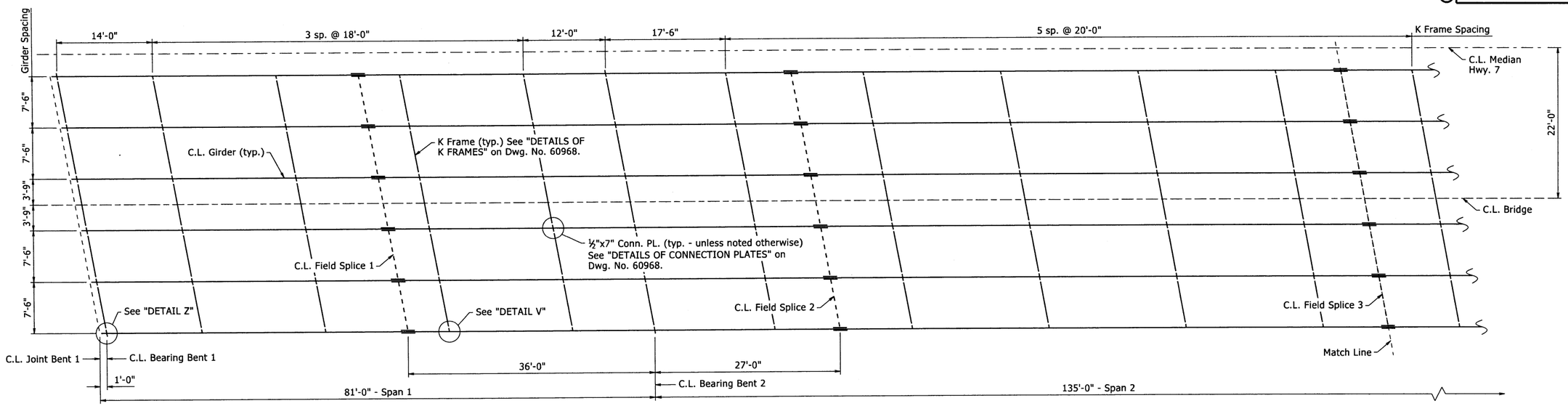
FILENAME: br60140x4_b2.dgn
SCALE: AS NOTED

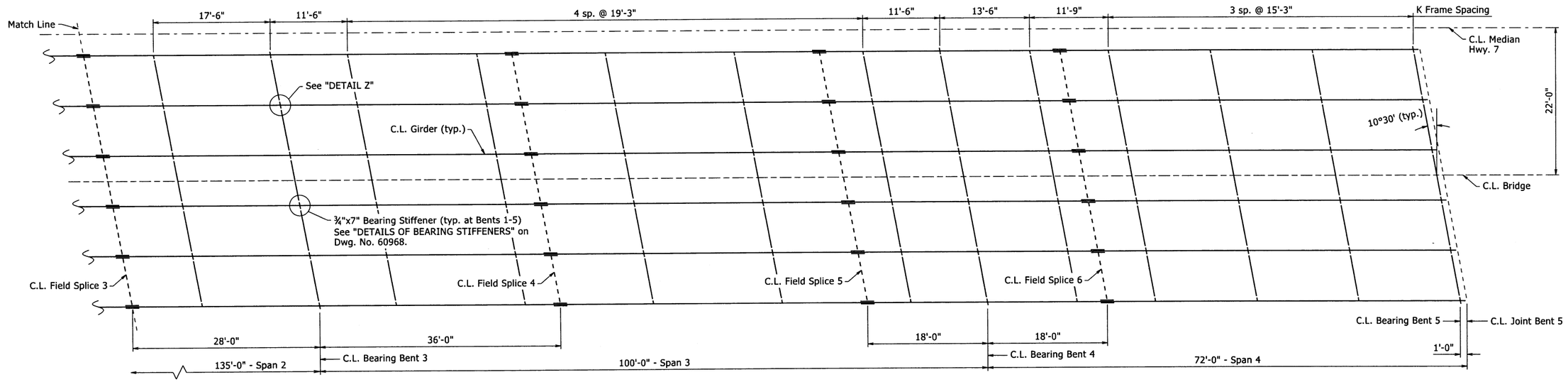
BRIDGE NO. B7207, 07455, 07456 DRAWING NO. 60966

PRINT DATE: 8/13/2019

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.		R60140	192	616

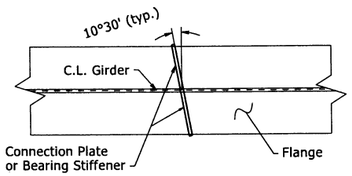
(1) B7207 - 388' UNIT - 60967





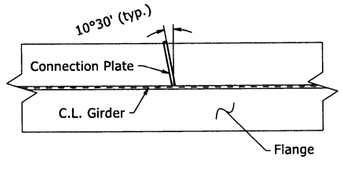
FRAMING PLAN

1/8" = 1'-0"



DETAIL Z

1" = 1'-0"



DETAIL V

1" = 1'-0"

For details of field splices, see Dwg. No. 60970.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 6
DETAILS OF 388'-0"
PLATE GIRDER UNIT
U.S. HWY. 70

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

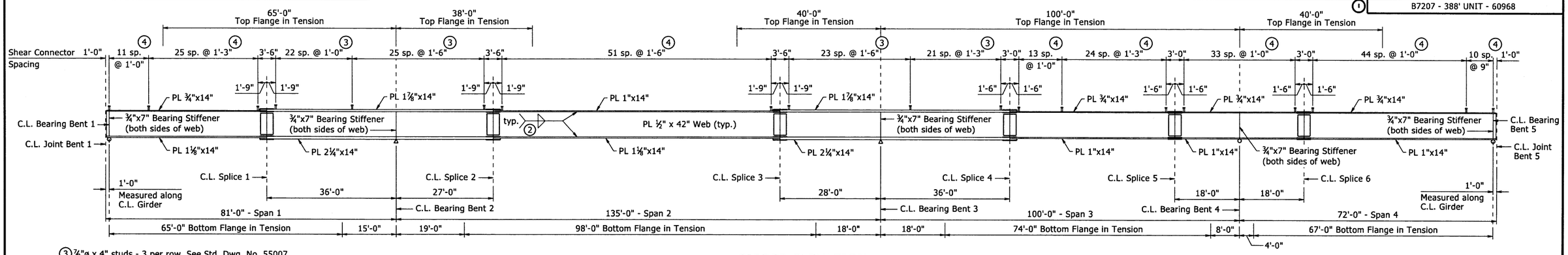
DRAWN BY: NAC DATE: 4-17-19
CHECKED BY: DKS DATE: 8-14-19
DESIGNED BY: NAC DATE: 4-2019
FILENAME: br60140x2_s1.dgn
SCALE: AS NOTED

BRIDGE NO. B7207 DRAWING NO. 60967

PRINT DATE: 8/13/2019

All structural steel shall be ASTM A709, Grade 50 unless otherwise noted and shall be paid for as "Structural Steel in Plate Girder Spans (A709, Gr. 50)". See Std. Dwg. Nos. 55006 & 55007 for additional notes and details.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	193	616
				(1)		B7207 - 388' UNIT - 60968		



GIRDER ELEVATION

No Scale

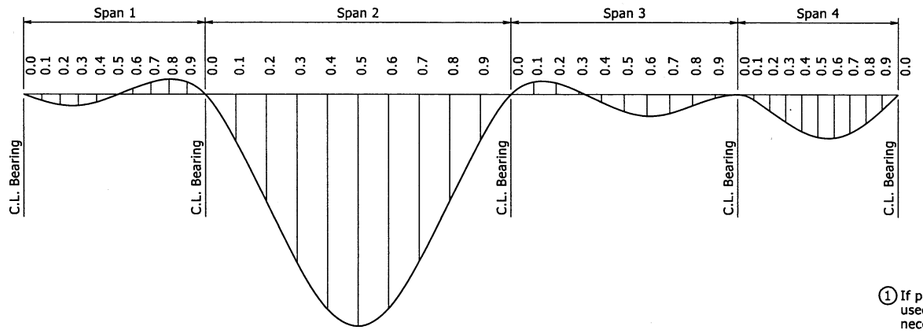
(3) ⅞"ø x 4" studs - 3 per row. See Std. Dwg. No. 55007.

(4) ⅞"ø x 5" studs - 3 per row. See Std. Dwg. No. 55007.

For details of field splices, see Dwg. No. 60970.

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

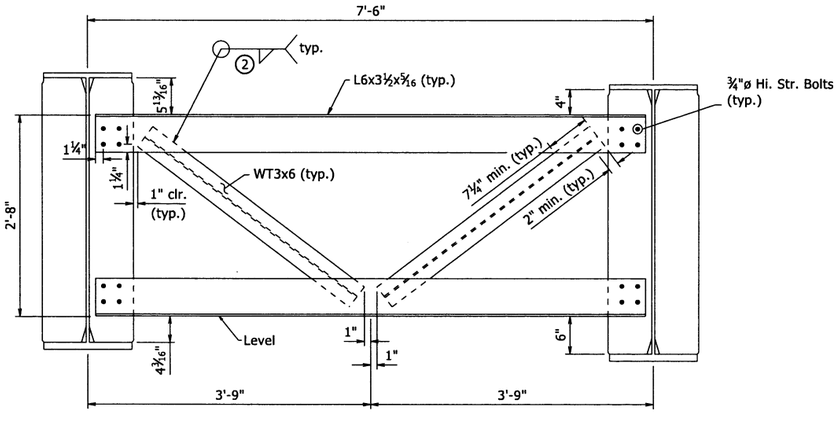
Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Ext. Girder	Int. Girder	Ext. Girder	Int. Girder	Ext. Girder	Int. Girder
1	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.022	0.024	0.155	0.182	0.164	0.190
	0.2	0.038	0.041	0.271	0.317	0.285	0.330
	0.3	0.042	0.045	0.320	0.375	0.334	0.389
	0.4	0.035	0.038	0.294	0.347	0.303	0.356
	0.5	0.019	0.019	0.200	0.237	0.200	0.237
	0.6	-0.003	-0.004	0.057	0.070	0.046	0.059
	0.7	-0.022	-0.026	-0.062	-0.070	-0.083	-0.090
	0.8	-0.035	-0.039	-0.140	-0.160	-0.165	-0.184
	0.9	-0.031	-0.034	-0.134	-0.154	-0.154	-0.173
2	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.126	0.139	0.568	0.655	0.642	0.726
	0.2	0.304	0.335	1.374	1.587	1.548	1.754
	0.3	0.484	0.533	2.201	2.543	2.474	2.806
	0.4	0.618	0.680	2.811	3.246	3.155	3.577
	0.5	0.670	0.737	3.031	3.501	3.400	3.856
	0.6	0.626	0.688	2.808	3.243	3.150	3.572
	0.7	0.497	0.546	2.201	2.542	2.471	2.802
	0.8	0.315	0.346	1.382	1.597	1.553	1.762
	0.9	0.132	0.145	0.578	0.667	0.650	0.736
3	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	-0.036	-0.040	-0.166	-0.193	-0.186	-0.212
	0.2	-0.032	-0.036	-0.162	-0.189	-0.181	-0.207
	0.3	-0.009	-0.009	-0.070	-0.082	-0.076	-0.087
	0.4	0.022	0.024	0.054	0.060	0.065	0.071
	0.5	0.048	0.053	0.169	0.193	0.194	0.217
	0.6	0.059	0.065	0.224	0.256	0.255	0.286
	0.7	0.051	0.057	0.196	0.225	0.223	0.251
	0.8	0.030	0.033	0.105	0.120	0.121	0.136
	0.9	0.007	0.007	0.011	0.011	0.015	0.015
4	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.016	0.017	0.095	0.110	0.103	0.118
	0.2	0.042	0.047	0.243	0.282	0.265	0.303
	0.3	0.071	0.079	0.400	0.464	0.437	0.499
	0.4	0.095	0.106	0.530	0.616	0.580	0.663
	0.5	0.110	0.122	0.609	0.707	0.666	0.762
	0.6	0.112	0.125	0.619	0.719	0.677	0.775
	0.7	0.101	0.112	0.555	0.644	0.608	0.694
	0.8	0.076	0.085	0.419	0.487	0.459	0.525
	0.9	0.041	0.046	0.226	0.263	0.247	0.284
	0	0.000	0.000	0.000	0.000	0.000	0.000



DEAD LOAD DEFLECTION DIAGRAM

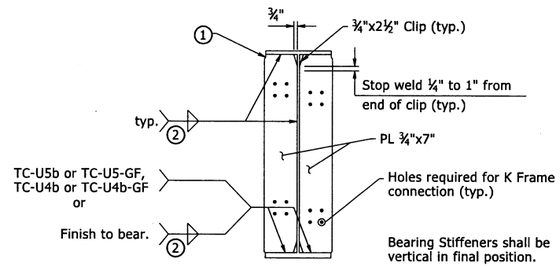
No Scale

Camber for Dead Load Deflection ¼" inch tolerance. Deflections shown are along C.L. Girder from a chord from C.L. Bearing to C.L. Bearing. Negative sign (-) indicates point above chord. Vertical curve corrections not included.



DETAILS OF K FRAMES

1" = 1'-0"

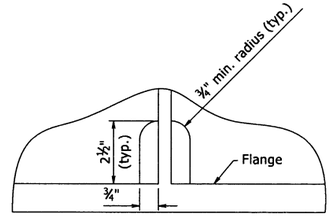


DETAILS OF BEARING STIFFENERS

¾" = 1'-0"

(1) If permanent steel bridge deck forms are used, the Fabricator shall clip plates as necessary to accommodate the deck form supports. Clip with 1" min. radius.

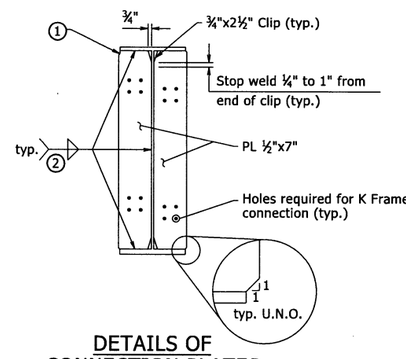
(2) See "WELD TABLE" for min. weld size on Std. Dwg. No. 55007.



For Bearing Stiffeners and K Frame Connection Plates.

ALTERNATE CLIP DETAIL

No Scale



DETAILS OF CONNECTION PLATES

¾" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
8/20/19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 6
DETAILS OF 388'-0"
PLATE GIRDER UNIT
U.S. HWY. 70

ROUTE SEC.

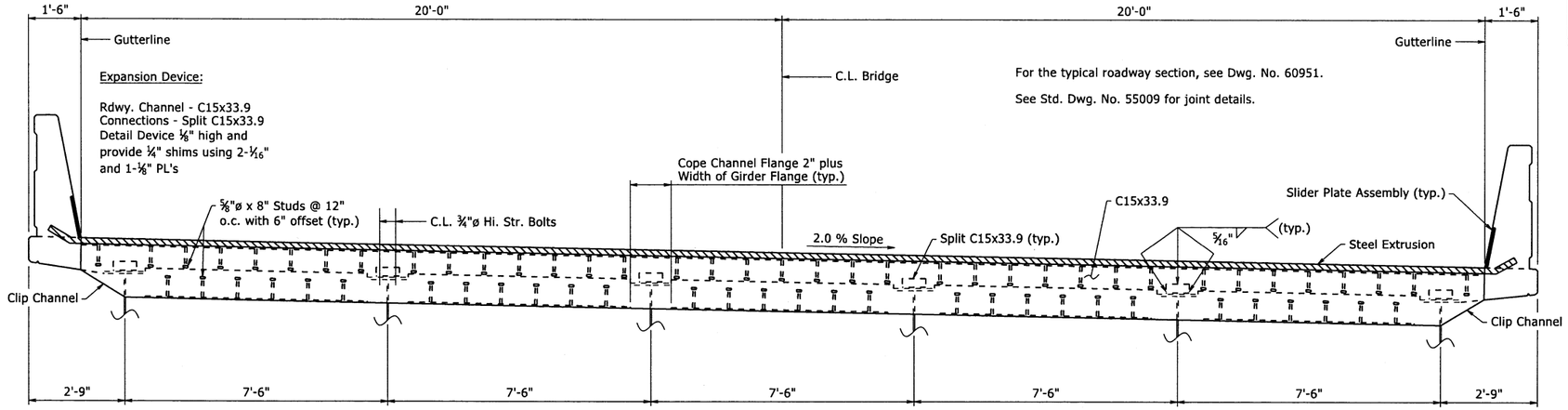
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	NAC	DATE:	4-17-19	FILENAME:	br60140x2_s1.dgn
CHECKED BY:	DKS	DATE:	8-20-19	SCALE:	AS NOTED
DESIGNED BY:	NAC	DATE:	4-2019		

BRIDGE NO. B7207 DRAWING NO. 60968

PRINT DATE: 8/20/2019

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.		R60140	194	616
				①		B7207 - 388' UNIT - 60969		



SECTION NEAR JOINTS

Looking Ahead
½" = 1'-0"

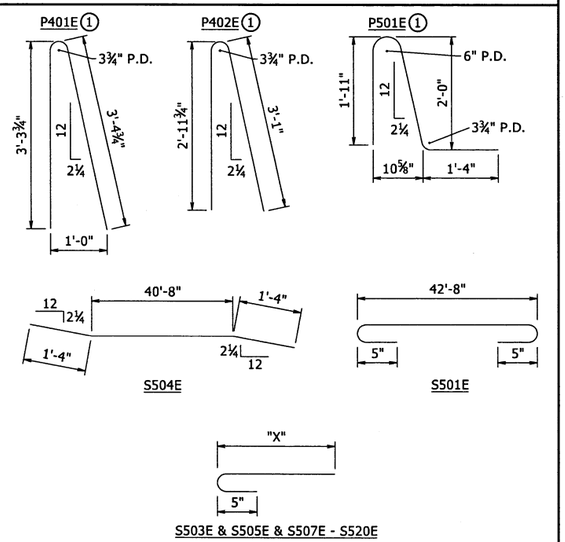
TABLE OF VARIABLES

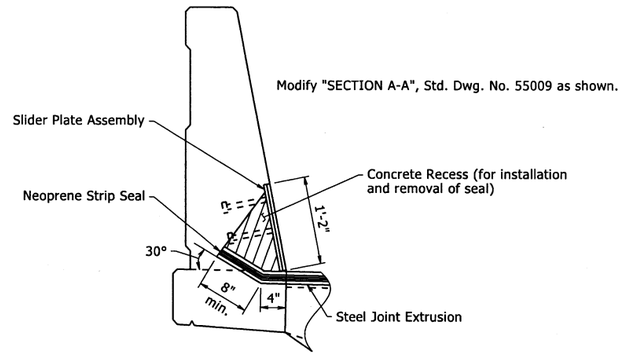
Closed Rail Panels			Open Rail Panels			
Panel Length	"D"	P4XXE ① Bar	Panel Length	"F"	"P"	P4XXE ① Bar
9'-0"	17	P404E	18'-0"	13	7'-0"	P406E
10'-0"	19	P405E				
18'-0"	35	P406E				
20'-0"	39	P407E				

BAR LIST

MARK	NO. REQ'D.	LENGTH	"X"	P.D.
P401E ①	1480	6'-8"	-	3¾"
P402E ①	72	6'-2"	-	3¾"
P403E ①	120	5'-6"	-	Str.
P404E ①	28	8'-8"	-	Str.
P405E ①	28	9'-8"	-	Str.
P406E ①	210	17'-8"	-	Str.
P407E ①	56	19'-8"	-	Str.
P501E ①	1480	5'-4"	-	3¾"
S401E	1250	41'-6"	-	Str.
S402E	380	42'-8"	-	Str.
S501E	759	43'-10"	-	3¾"
S502E	379	42'-8"	-	Str.
S503E	1546	5'-2"	4'-7"	3¾"
S504E	4	43'-4"	-	3¾"
S505E	4	6'-1"	5'-6"	3¾"
S506E	4	5'-6"	-	Str.
S507E - S520E	2 ea.	6'-7" - 41'-8"	6'-0" - 41'-1"	3¾"
S521E - S534E	2 ea.	6'-0" - 41'-1"	-	Str.
S601E	230	45'-11"	-	Str.

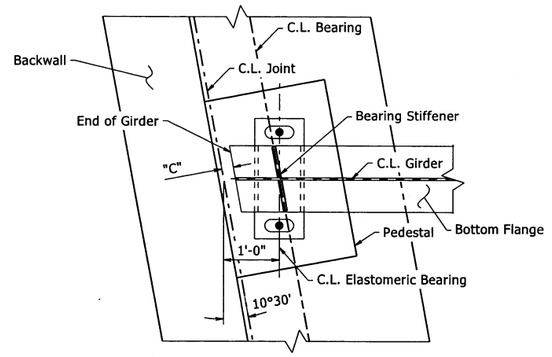
BENDING DIAGRAM





SECTION A-A

Looking Ahead
1" = 1'-0"



PLAN OF BEARING AT END BENT

No Scale

For details of Elastomeric Bearings, see Dwg. Nos. 61075 - 61076.

TABLE OF STRIP SEAL JOINT DATA

Movement Rating (inch)	"A" Width Perpendicular to Joint at 24 Hour Average Temperature ② of:			"B" Width Perpendicular to Joint at 24 Hour Average Temperature ② of:			"C" Width Perpendicular to Joint at 24 Hour Average Temperature 60° F
	40° F	60° F	80° F	40° F	60° F	80° F	
4"	2 5/16"	2"	1 1/16"	2 13/16"	2½"	2 3/16"	2½"

② The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature, interpolation of the table may be necessary.

Dimensions are out to out of bars.

All bars with an "E" suffix shall be Epoxy Coated.

For rail panel spacing, see "REINFORCING PLAN AND SLAB POURING SEQUENCE" on Dwg. Nos. 60971 and 60972.

① See Dwg. No. 61077 for "COMMON DETAILS OF 3'-6" CONCRETE PARAPET RAILS".

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8/20/19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 6
DETAILS OF 388'-0"
PLATE GIRDER UNIT
U.S. HWY. 70

ROUTE SEC.

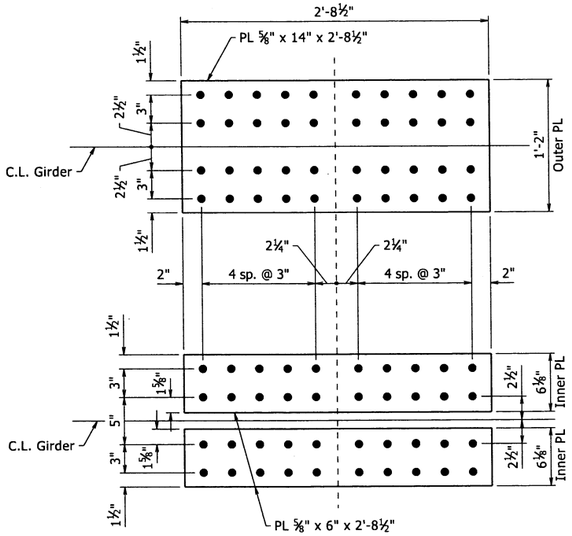
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 4-17-19
CHECKED BY: DKS DATE: 8-20-19
DESIGNED BY: NAC DATE: 4-2019
FILENAME: br60140x2_s1.dgn
SCALE: AS NOTED

BRIDGE NO. B7207 DRAWING NO. 60969

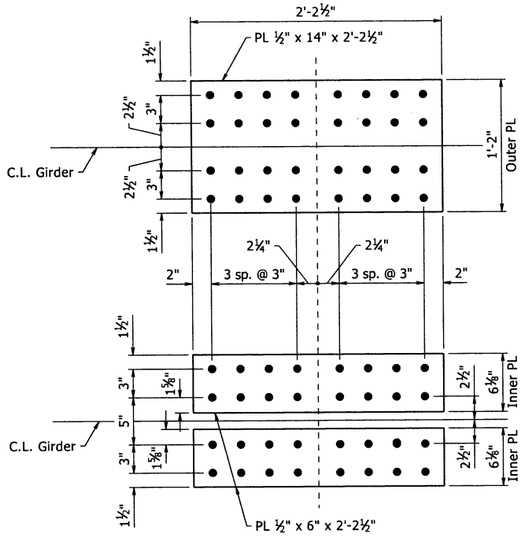
PRINT DATE: 8/20/2019

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.		R60140	195	616
				①		B7207 - 388' UNIT - 60970		



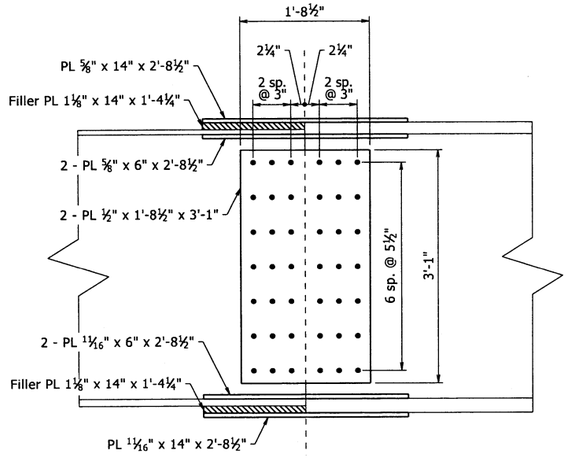
DETAILS OF TOP FLANGE SPLICE

Field Splice 1, 2, and 3
1½" = 1'-0"



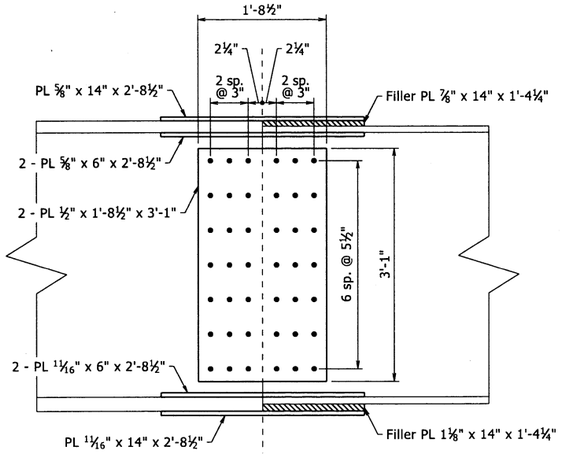
DETAILS OF TOP FLANGE SPLICE

Field Splice 4, 5, and 6
1½" = 1'-0"



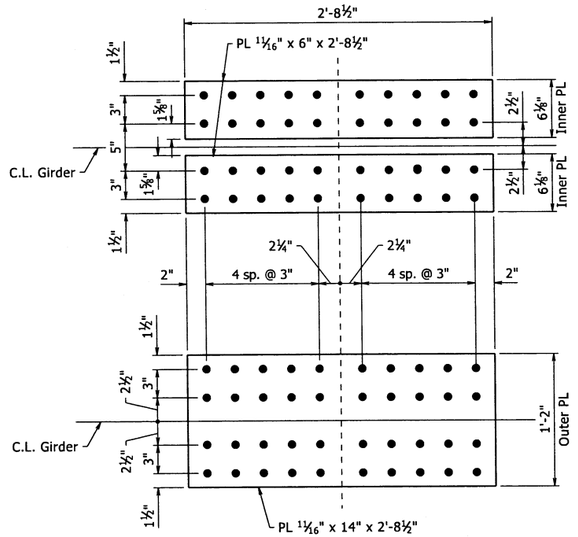
DETAILS OF WEB SPLICE

Field Splice 1
1" = 1'-0"



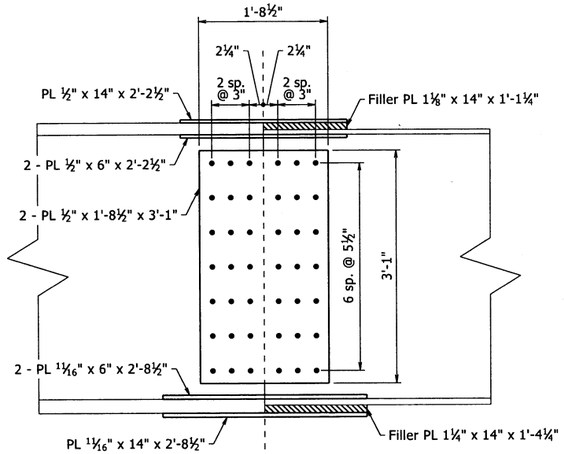
DETAILS OF WEB SPLICE

Field Splice 2 & 3
(Field Splice 2 Shown. Field Splice 3 similar.)
1" = 1'-0"



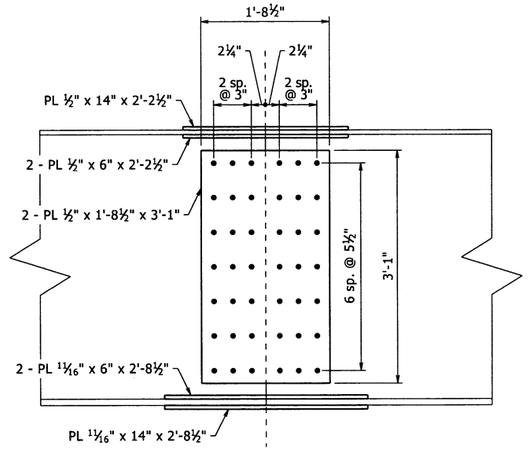
DETAILS OF BOTTOM FLANGE SPLICE

1½" = 1'-0"



DETAILS OF WEB SPLICE

Field Splice 4
1" = 1'-0"



DETAILS OF WEB SPLICE

Field Splice 5 & 6
1" = 1'-0"

All field splice bolts shall be ⅞"ø Hi. Str. bolts.

All holes for splice bolts shall be ¹⁵⁄₁₆"ø.

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 Plates shall be ASTM A709, Gr. 50.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 6
DETAILS OF 388'-0"
PLATE GIRDER UNIT
U.S. HWY. 70

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

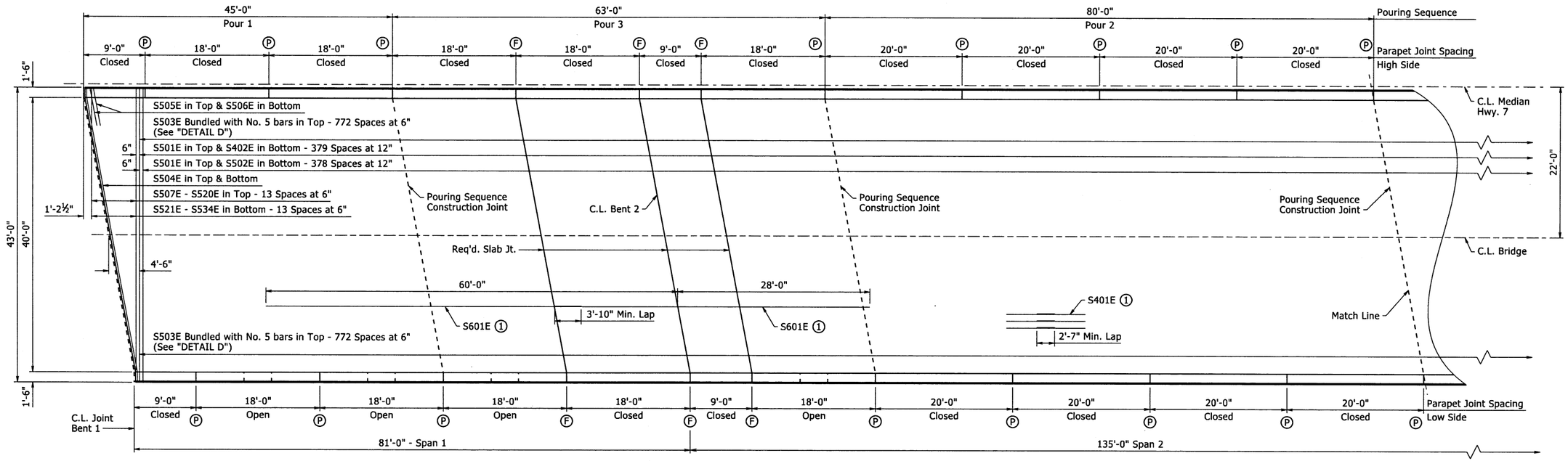
DRAWN BY: NAC DATE: 4-17-19
CHECKED BY: DRS DATE: 8-14-19
DESIGNED BY: NAC DATE: 4-2019

FILENAME: br60140x2_s1.dgn
SCALE: AS NOTED

BRIDGE NO. B7207 DRAWING NO. 60970

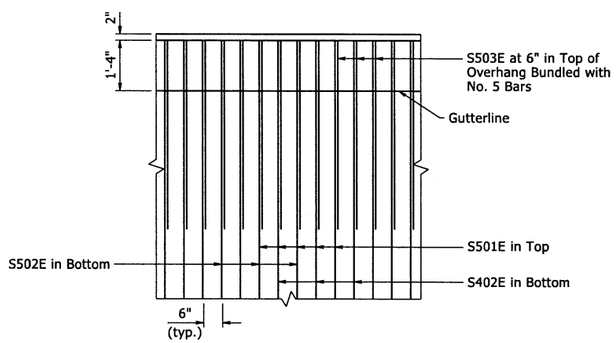
PRINT DATE: 8/13/2019

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.		R60140	198	616
				(1)		B7207 - 388' UNIT - 60971		



REINFORCING PLAN AND SLAB POURING SEQUENCE

⅛" = 1'-0"



DETAIL D

No Scale

(1) Placed as shown on Dwg. No. 60951.

For "COMMON DETAILS OF 3'-6" CONCRETE PARAPET RAILS", see Dwg. No. 61077.

For "BAR LIST", see Dwg. No. 60969.

Req'd slab joints and pouring sequence joints shall align with open joints in parapet rail at the gutterline.

Ⓟ Partial Depth Parapet Joint at this location

Ⓕ Full Depth Parapet Joint at this location

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 6
DETAILS OF 388'-0"
PLATE GIRDER UNIT
U.S. HWY. 70

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

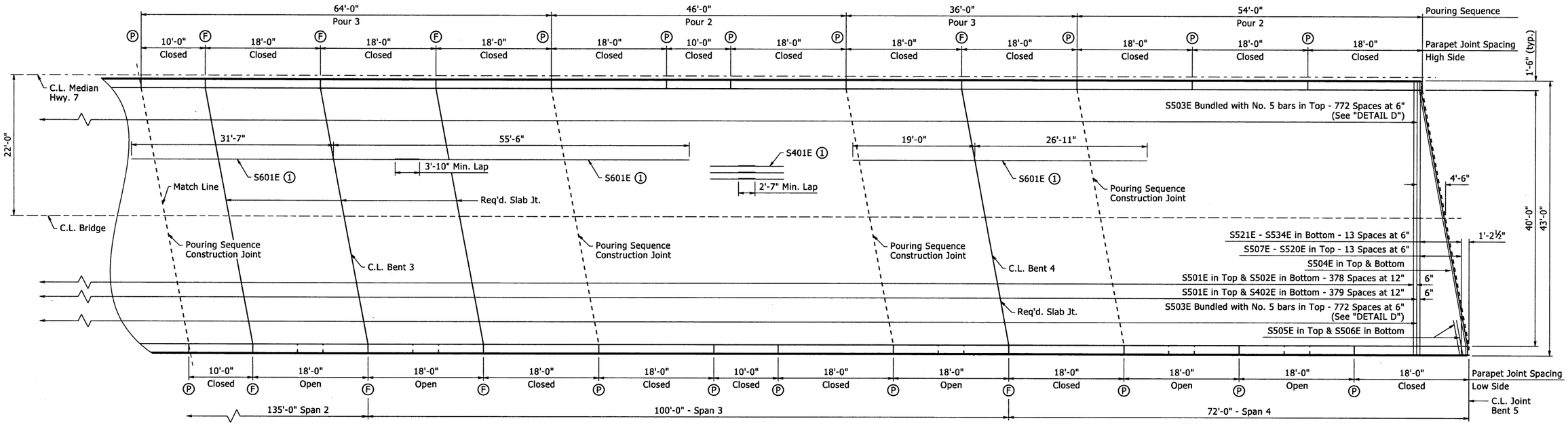
DRAWN BY: NAC DATE: 4-22-19
CHECKED BY: DKS DATE: 8-14-19
DESIGNED BY: NAC DATE: 4-2019
FILENAME: br60140x2_s1.dgn
SCALE: AS NOTED

BRIDGE NO. B7207
DRAWING NO. 60971

PRINT DATE: 8/14/2019

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.		R60140	197	616
①	B7207 - 388' UNIT - 60972			



REINFORCING PLAN AND SLAB POURING SEQUENCE

⅛" = 1'-0"

① Placed as shown on Dwg. No. 60951.

For "COMMON DETAILS OF 3'-6" CONCRETE PARAPET RAILS", see Dwg. No. 61077.

For "BAR LIST", see Dwg. No. 60969.

Req'd slab joints and pouring sequence joints shall align with open joints in parapet rail at the gutterline.

Ⓟ 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 Pour(s) 1 must be placed before Pour(s) 2 can be placed. All Pour(s) 2 must be placed before Pour(s) 3 can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between adjacent pours.

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.

A minimum of 72 hours shall elapse between completion of the slab and the pouring of the bridge railing. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. No deviations from the pouring sequence shown will be allowed.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 6 OF 6
DETAILS OF 388'-0"
PLATE GIRDER UNIT
U.S. HWY. 70

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 4-22-19
CHECKED BY: DMS DATE: 8-14-19
DESIGNED BY: NAC DATE: 4-2019
FILENAME: br60140x2_s1.dgn
SCALE: AS NOTED

BRIDGE NO. B7207 DRAWING NO. 60972

PRINT DATE: 8/14/2019

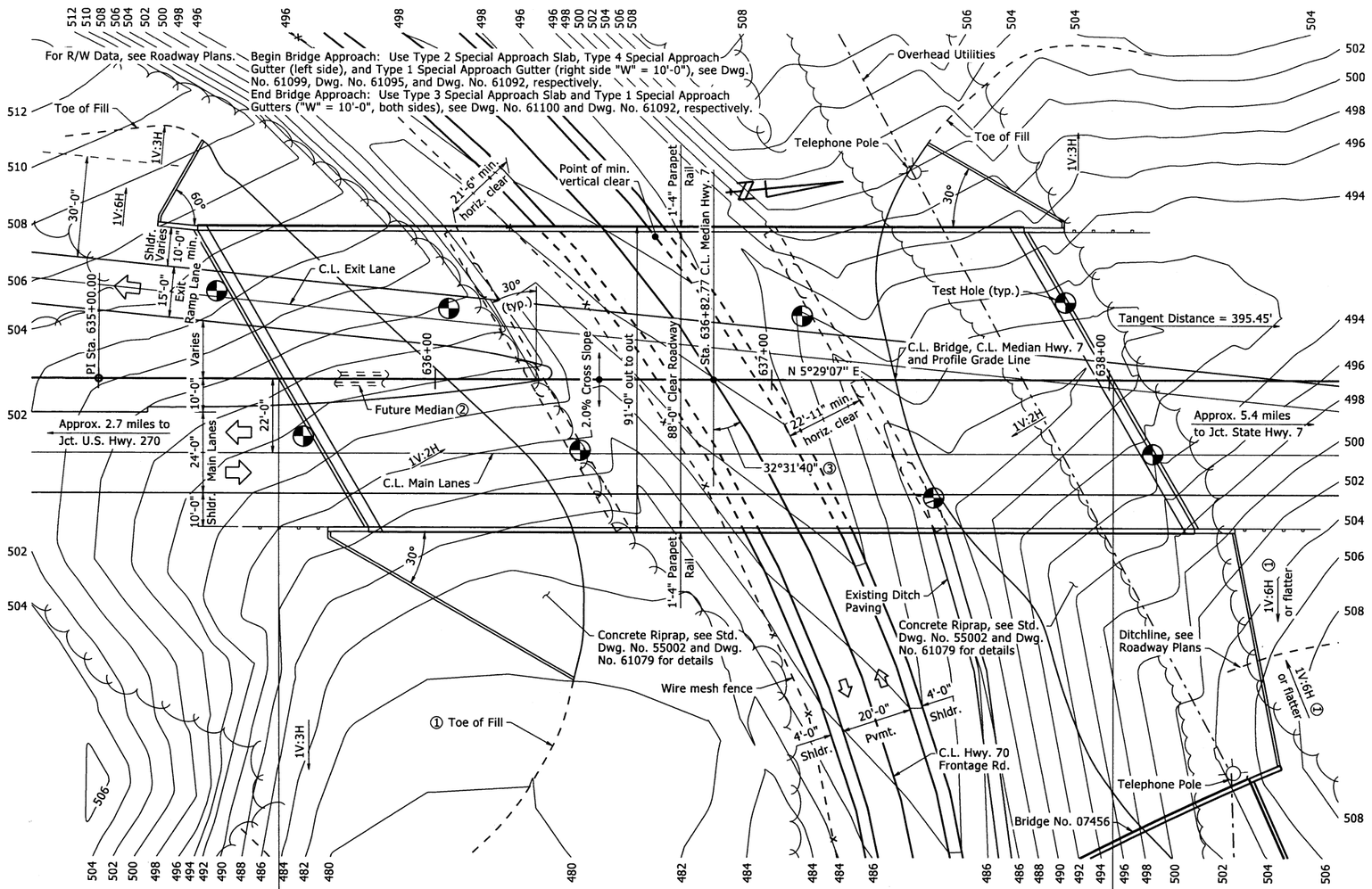
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		R60140	198	616
① 07455	-	LAYOUT	-	60973

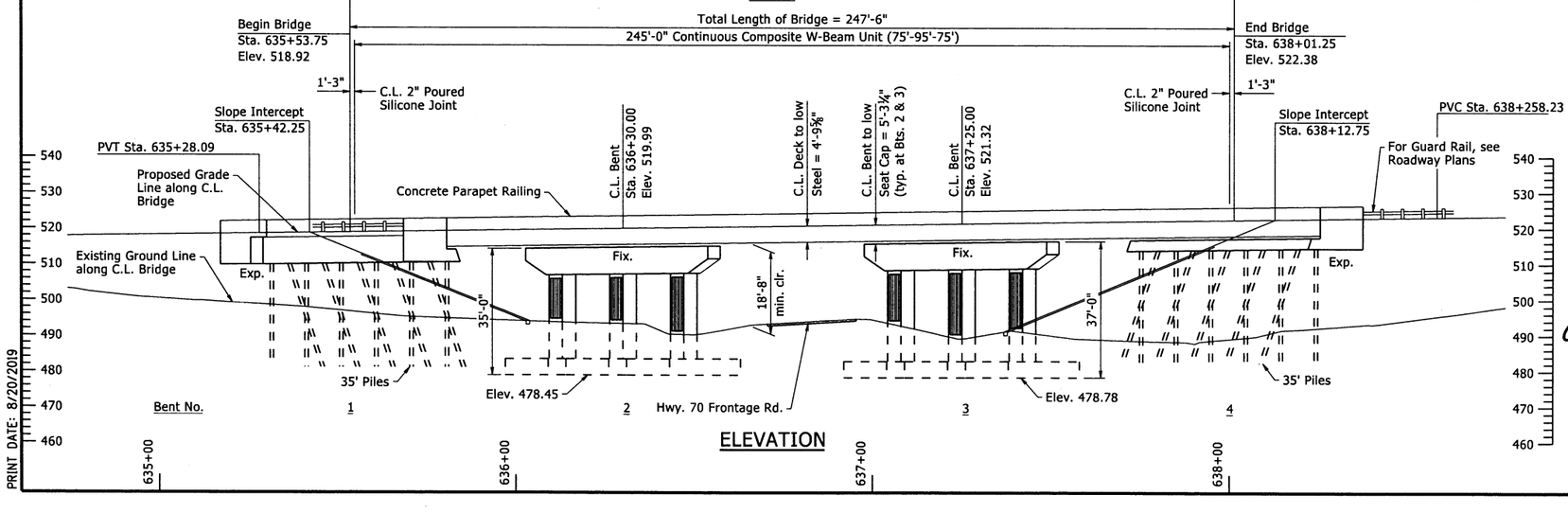
For R/W Data, see Roadway Plans.

Begin Bridge Approach: Use Type 2 Special Approach Slab, Type 4 Special Approach Gutter (left side), and Type 1 Special Approach Gutter (right side "W" = 10'-0"), see Dwg. No. 61099, Dwg. No. 61095, and Dwg. No. 61092, respectively.

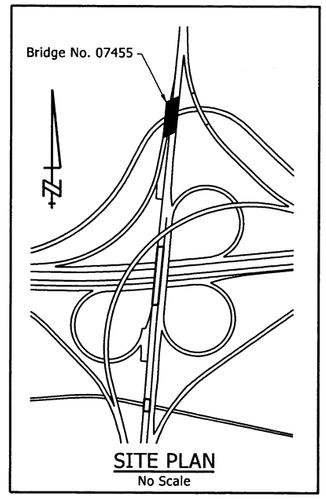
End Bridge Approach: Use Type 3 Special Approach Slab and Type 1 Special Approach Gutters ("W" = 10'-0", both sides), see Dwg. No. 61100 and Dwg. No. 61092, respectively.

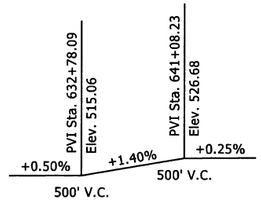


PLAN



ELEVATION





VERTICAL CURVE DATA

Theoretical Grade Along C.L. Median Hwy. 7 and Profile Grade Line

Stations shown are along C.L. Median Hwy. 7 and Profile Grade Line. Elevations shown are theoretical working point elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on theoretical working point elevation at C.L. Bridge. See "ROUNDING DETAIL" on Standard Drawing Number 55007 for additional information.

① See Dwg. No. 60976 for additional information of embankment.

② Concrete Median Barrier to be installed in a future contract, see "FUTURE ROADWAY SECTION", Dwg. No. 60974.

③ Measured to tangent line from Centerline Hwy. 70 Frontage Rd. at Centerline Median Hwy. 7 Station 636+82.77

See Dwg. No. 60975 for soil borings.

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8/20/19

BRIDGE ENGINEER

SHEET 1 OF 3
LAYOUT OF BRIDGE
HWY. 7 OVER HWY. 70 FRONTAGE RD.
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION

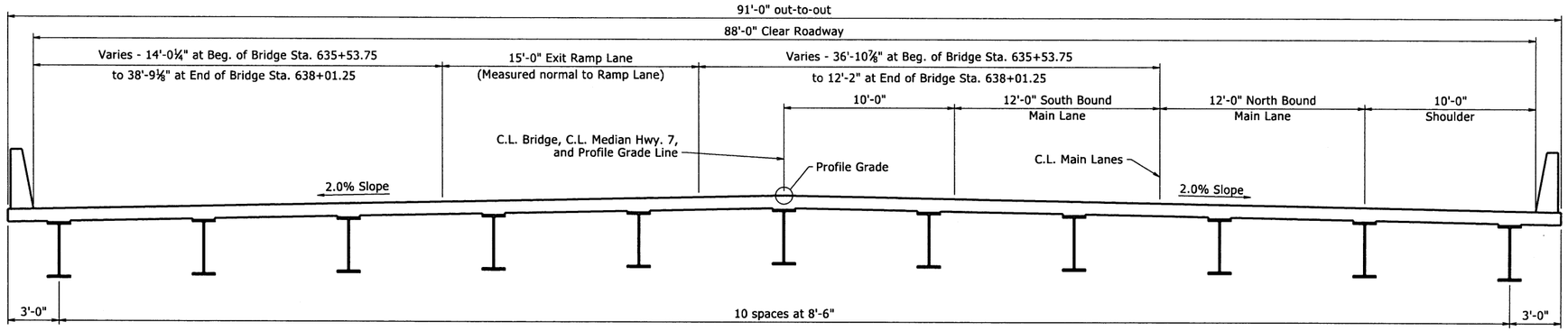
LITTLE ROCK, ARK.

DRAWN BY: DBS DATE: 4/19/19 FILENAME: br60140x3.l1.dgn
CHECKED BY: NRC DATE: 8/20/19 SCALE: 1" = 20'
DESIGNED BY: DBS DATE: 4/19

BRIDGE NO. 07455 DRAWING NO. 60973

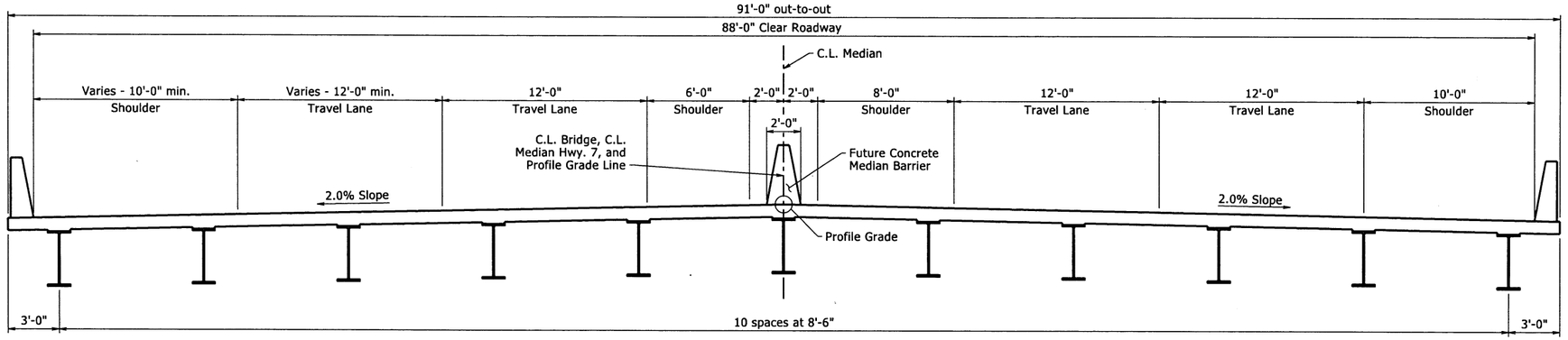
PRINT DATE: 8/20/2019

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.		R60140	199	616
				07455	-	LAYOUT	-	60974



TYPICAL ROADWAY SECTION

Looking Ahead - Dimensions normal to C.L. Median Hwy. 7 unless noted otherwise



FUTURE ROADWAY SECTION

Looking Ahead - Dimensions normal to C.L. Median Hwy. 7
Future 4-lane divided traffic

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Seventh Edition (2014) with 2015 interim revisions.

LIVE LOADING: HL-93

SEISMIC ZONE: 1 S_{D1}: 0.07 SITE CLASS: B

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: All end bent piling shall be HP 14x73 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 130 tons per pile and into the material designated as shale on the boing legend. Minimum penetration shall be 10' below natural ground. Piling shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. The Contractor shall use approved steel H-Pile driving points on all piles.

PREBORING: Preboring is required for all piling in Bents 1 and 4. Preboring shall be to a minimum depth of 5' into competent shale, or to a depth sufficient to provide the specified minimum pile penetration, whichever is greater. The actual size and depth of preboring are to determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free from debris prior to backfilling which may require casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of rock and the remaining length backfilled in accordance with Subsection 805.08(a). Any cost associated with achieving the minimum pile penetration, including any backfill and casings, shall not be paid for directly but shall be considered subsidiary to the item "Preboring".

SPREAD FOOTINGS: Footings at Bents 2 & 3 shall be set a minimum of 3' into competent shale. The top of the footings shall be set a minimum of 2' below natural ground as determined by the lowest surface elevation within the footprint of the footing or at the elevations shown on the plans, whichever is lower. Foundations for footings shall be prepared in accordance with Subsection 801.04. Rock excavations shall be made to neat lines of the concrete footings. Concrete in footings shall be poured directly against excavated surfaces of rock. Excavations shall be backfilled and compacted to the level of the existing ground in accordance with Subsection 801.08. Blasting is not allowed.

PAINTING: All Grade 50 structural steel, except galvanized members and surfaces in contact with concrete, shall be painted as specified in Subsection 807.75. The color of paint shall be Blue and shall match Federal Standard 595B, Color Chip No. 25052.

TEXTURED COATING FINISH: Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. R60140 "Textured Coating Finish" and in accordance with Subsection 802.19(b)(3). Textured Coating Finish shall not be applied on surfaces where Class 1 Protective Surface Treatment is applied.

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 1 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rails in accordance with Section 803.

DETAIL DRAWINGS:	DRAWING NO(S).
End Bents	60977-60981
Intermediate Bents	60982-60983, 60966
Elastomeric Bearings	61075-61076
245'-0" W-Beam Unit	60984-60988, 61077
General Notes For Steel Bridge Structures	55006
Details For Steel Bridge Structures	55007
Poured Silicone Joints	55008
Steel H-Piling	55020

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 3
LAYOUT OF BRIDGE
HWY. 7 OVER HWY. 70 FRONTAGE RD.
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

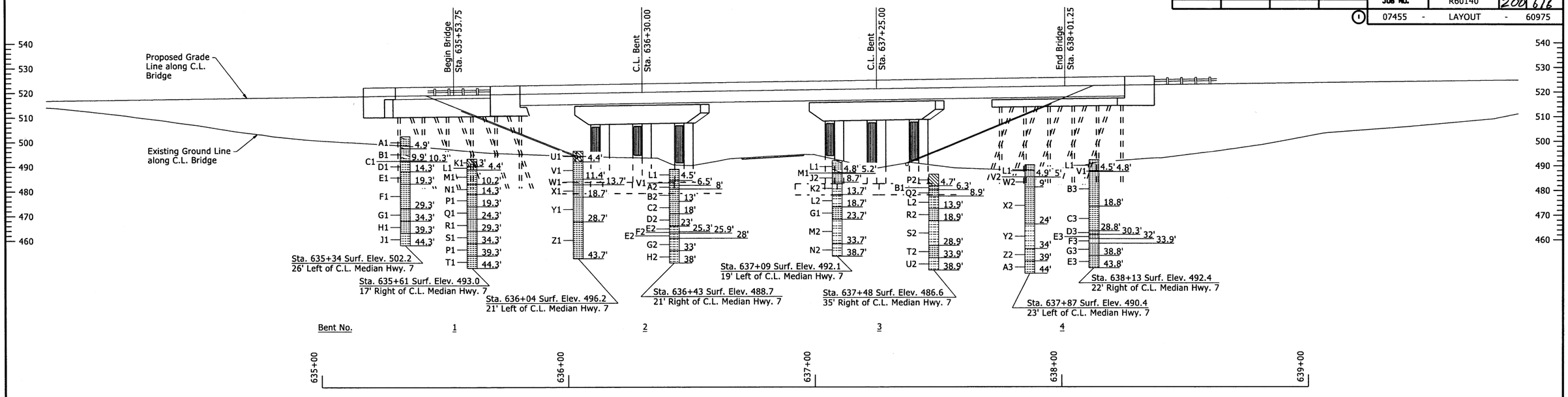
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DBS DATE: 4/18/19 FILENAME: br60140x3_l1.dgn
CHECKED BY: NAC DATE: 6/13/19 SCALE: ¼" = 1'-0"
DESIGNED BY: DBS DATE: 4/19

BRIDGE NO. 07455 DRAWING NO. 60974

PRINT DATE: 8/13/2019

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.		R60140	200	616
				1	07455	- LAYOUT -	60975	



ELEVATION OF SOIL BORINGS

BORING LEGEND

A1-HIGHLY WEATHERED SHALE
B1-SHALE - Highly Weathered, Medium Hard, Gray
C1-SHALE - Weathered, Medium Hard, Gray
D1-SHALE WITH FREQUENT SANDSTONE PARTINGS AND SEAMS - Slightly Weathered, Medium Hard, Frequent Fractures, Slickensided, Gray
E1-SHALE - Slightly Weathered, Medium Hard, Occasional Sandstone Partings and Seams, Frequent Fractures, Slickensided, Gray
F1-SHALE - Unweathered, Medium Hard, Occasional Sandstone Partings and Seams, Occasional Mineral Veins, Frequent Fractures, Slickensided
G1-SHALE - Unweathered, Medium Hard, Frequent Fractures and Mineral Veins, Slickensided, Gray
H1-SHALE - Unweathered, Medium Hard, Frequent Fractures, Slickensided, Gray
J1-SHALE WITH FREQUENT SANDSTONE PARTINGS AND SEAMS - Unweathered, Medium Hard, Slickensided, Gray
K1-Clay with Gravel and Cobbles
L1-SHALE
M1-SHALE - Weathered, Medium Hard, Gray
N1-SHALE - Slightly Weathered, Medium Hard, Frequent Fractures, Slickensided, Gray
P1-SHALE - Unweathered, Medium Hard, Occasional Sandstone Partings and Seams, Slickensided, Gray
Q1-SHALE - Unweathered, Medium Hard, Slickensided, Gray
R1-SHALE WITH OCCASIONAL SANDSTONE PARTINGS AND SEAMS - Unweathered, Medium Hard, Occasional Pyrite and Fractures, Slickensided, Gray
S1-SHALE WITH OCCASIONAL SANDSTONE LAYERS AND SEAMS - Unweathered, Medium Hard, Occasional Fractures, Slickensided, Gray
T1-SHALE - Unweathered, Medium Hard, Frequent Fractures, Occasional Mineral Veins, Slickensided, Gray
U1-Clay with Gravel (Shale Fragments)
V1-SHALE - Weathered, Medium Hard, Dark Gray
W1-SHALE WITH OCCASIONAL SANDSTONE LAYERS - Weathered, Medium Hard, Frequent Fractures, Dark Gray
X1-SHALE WITH OCCASIONAL SANDSTONE LAYERS - Weathered, Medium Hard, Frequent Fractures, Occasional Mineral Veins, Dark Gray
Y1-SHALE WITH OCCASIONAL SANDSTONE SEAMS - Unweathered, Medium Hard, Frequent Fractures and Mineral Veins, Dark Gray
Z1-SHALE WITH OCCASIONAL SANDSTONE SEAMS AND LAYERS - Unweathered, Medium Hard, Frequent Fractures, Occasional Mineral Veins, Dark Gray
A2-SHALE - Weathered, Medium Hard, Frequent Fractures, Dark Gray
B2-SHALE WITH OCCASIONAL SANDSTONE SEAMS - Weathered, Medium Hard, Frequent Fractures, Dark Gray
C2-SHALE WITH OCCASIONAL SANDSTONE SEAMS - Slightly Weathered, Medium Hard, Frequent Fractures, Dark Gray
D2-SHALE WITH OCCASIONAL SANDSTONE SEAMS - Unweathered, Medium Hard, Frequent Fractures, Dark Gray
E2-SHALE WITH FREQUENT SANDSTONE SEAMS AND LAYERS - Unweathered, Medium Hard, Frequent Fractures, Occasional Thick Mineral Veins, Dark Gray
F2-SANDSTONE - Unweathered, Well Cemented, Dark Gray
G2-SHALE WITH FREQUENT SANDSTONE SEAMS AND LAYERS - Unweathered, Medium Hard, Occasional Fractures, Dark Gray
H2-SHALE WITH FREQUENT SANDSTONE SEAMS AND LAYERS - Unweathered, Medium Hard, Frequent Fractures, Dark Gray
J2-SHALE WITH OCCASIONAL SANDSTONE PARTINGS AND SEAMS - Weathered, Medium Hard, Frequent Fractures, Gray
K2-SHALE WITH INTERBEDDED SANDSTONE - Slightly Weathered, Medium Hard, Frequent Fractures, Slickensided, Gray
L2-SHALE WITH FREQUENT SANDSTONE LAYERS AND SEAMS - Unweathered, Medium Hard, Frequent Fractures, Slickensided, Gray
M2-SHALE WITH FREQUENT SANDSTONE LAYERS AND SEAMS - Unweathered, Frequent Fractures, Slickensided, Gray
N2-SHALE WITH FREQUENT SANDSTONE LAYERS AND SEAMS - Unweathered, Frequent Fractures and Mineral Veins, Slickensided, Gray
P2-Moist, Very Hard, Light Brown Clay
Q2-SHALE WITH OCCASIONAL SANDSTONE PARTINGS - Slightly Weathered, Medium Hard, Slickensided, Gray
R2-SHALE WITH OCCASIONAL SANDSTONE PARTINGS AND SEAMS - Unweathered, Medium Hard, Occasional Fractures, Slickensided, Gray
S2-SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Medium Hard, Occasional Fractures, Slickensided, Gray
T2-SHALE WITH OCCASIONAL SANDSTONE PARTINGS - Unweathered, Medium Hard, Occasional Fractures, Slickensided, Gray
U2-SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Medium Hard, Frequent Fractures, Slickensided, Gray
V2-SHALE - Slightly Weathered, Medium Hard, Dark Gray
W2-SHALE - Slightly Weathered, Hard, Frequent Fractures, Dark Gray
X2-SHALE WITH OCCASIONAL SANDSTONE LAYERS - Unweathered, Hard, Occasional Mineral Veins, Frequent Fractures, Dark Gray
Y2-SANDSTONE WITH INTERBEDDED SHALE - Unweathered, Well Cemented, Frequent Fractures, Gray
Z2-SHALE WITH FREQUENT SANDSTONE LAYERS - Unweathered, Hard, Frequent Fractures, Dark Gray
A3-SHALE WITH FREQUENT SANDSTONE LAYERS - Unweathered, Hard, Frequent Mineral Veins, Frequent Fractures, Dark Gray
B3-SHALE WITH OCCASIONAL SANDSTONE LAYERS - Slightly Weathered, Medium Hard, Frequent Fractures, Dark Gray
C3-SHALE - Unweathered, Hard, Occasional Mineral Layers, Frequent Fractures, Dark Gray
D3-SHALE - Unweathered, Hard, Frequent Fractures and Thick Mineral Layers, Dark Gray
E3-SHALE - Unweathered, Hard, Frequent Fractures, Dark Gray
F3-SANDSTONE WITH OCCASIONAL SHALE LAYERS - Unweathered, Well Cemented, Frequent Fracture, Gray
G3-SHALE WITH OCCASIONAL SANDSTONE LAYERS - Unweathered, Hard, Frequent Fractures, Dark Gray

PRINT DATE: 8/13/2019

"N" VALUES

Sta. 635+34 - 26' Left of C.L. Median Hwy. 7
5.4 - 6.3, N=111(11")
9.9 - 10.3, N=100(5")

Sta. 635+61 - 17' Right of C.L. Median Hwy. 7
4.9 - 5.3, N=60(5")
9.9 - 10.2, N=60(4")

Sta. 636+04 - 21' Left of C.L. Median Hwy. 7
4.9 - 5.9, N=99
9.9 - 10.3, N=60(5")

Sta. 636+43 - 21' Right of C.L. Median Hwy. 7
5.0 - 6.0, N=94

Sta. 637+09 - 19' Left of C.L. Median Hwy. 7
4.8 - 5.2, N=100(4")

Sta. 637+48 - 35' Right of C.L. Median Hwy. 7
4.8 - 5.0, N=60(2")

Sta. 637+87 - 23' Left of C.L. Median Hwy. 7
4.9 - 5.0, N=40(1")

Sta. 638+13 - 22' Right of C.L. Median Hwy. 7
4.5 - 4.8, N=100(4")

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8/14/19
BRIDGE ENGINEER

SHEET 3 OF 3
LAYOUT OF BRIDGE
HWY. 7 OVER HWY. 70 FRONTAGE RD.
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

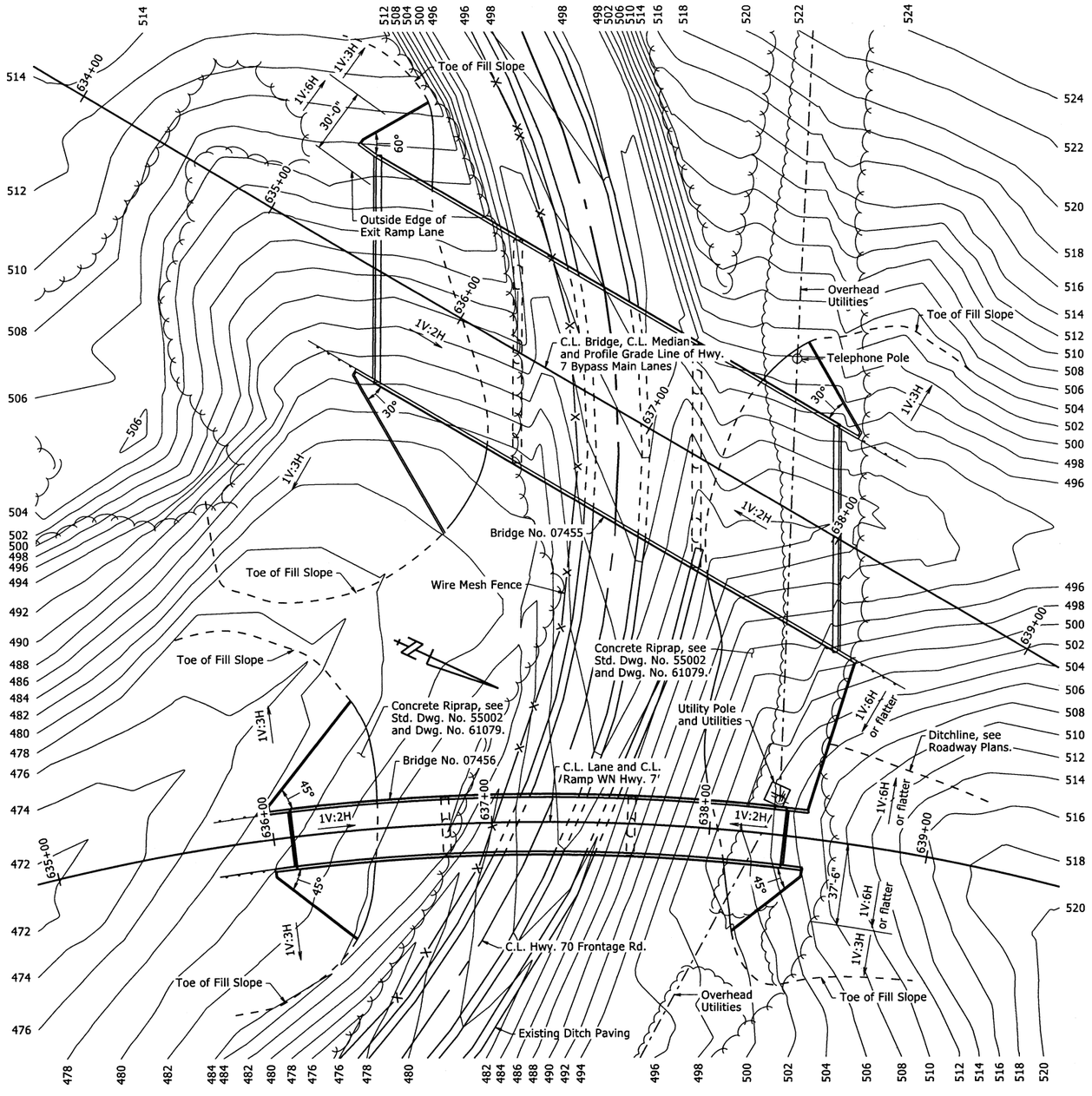
ROUTE 7 SEC. 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DBS DATE: 4/19/19
CHECKED BY: NAC DATE: 8/13/19
DESIGNED BY: DBS DATE: 4/19
FILENAME: br60140x3_l1.dgn
SCALE: 1" = 20'

BRIDGE NO. 07455 DRAWING NO. 60975

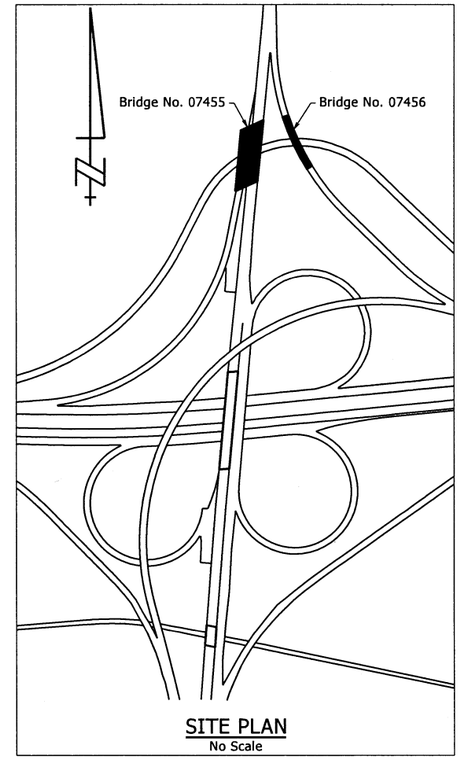
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	201	616

① 07455, 07456 - COMMON EMBANKMENT - 60976



COMMON EMBANKMENT DETAIL

For Layouts of Bridge Nos. 07455 and 07456, see Dwg. Nos. 60973-60975 and 60989-60990, respectively.



SITE PLAN
No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19

BRIDGE ENGINEER

COMMON EMBANKMENT DETAILS
HIGHWAY 70 FRONTAGE ROAD
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

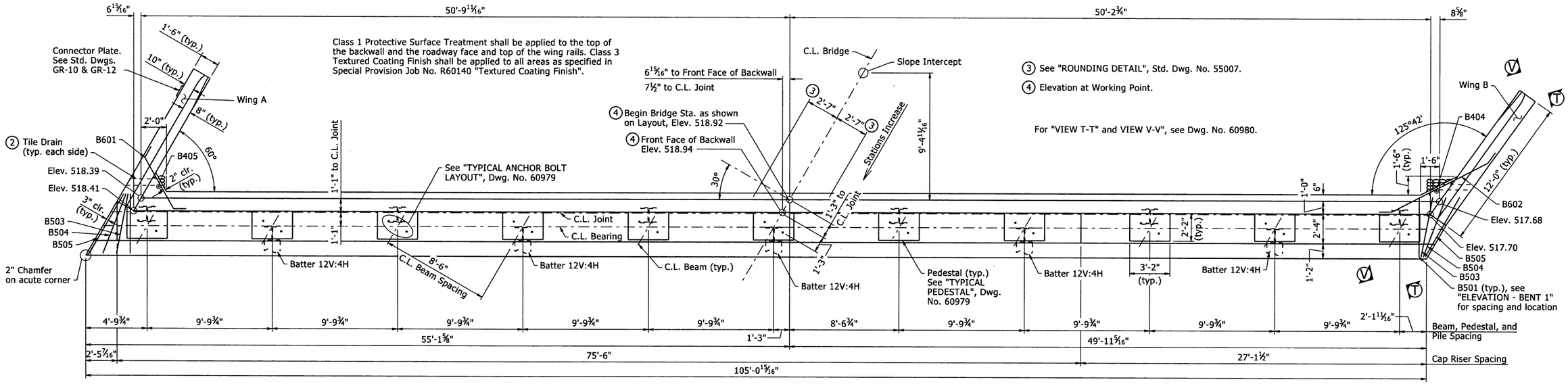
DRAWN BY: DKS DATE: 4/22/2019 FILENAME: br60140x4_l1.dgn
CHECKED BY: CRE DATE: 8/13/19 SCALE: 1" = 30'
DESIGNED BY: DKS DATE: 4/2019

BRIDGE NO. 07455, 07456 DRAWING NO. 60976

PRINT DATE: 8/13/2019

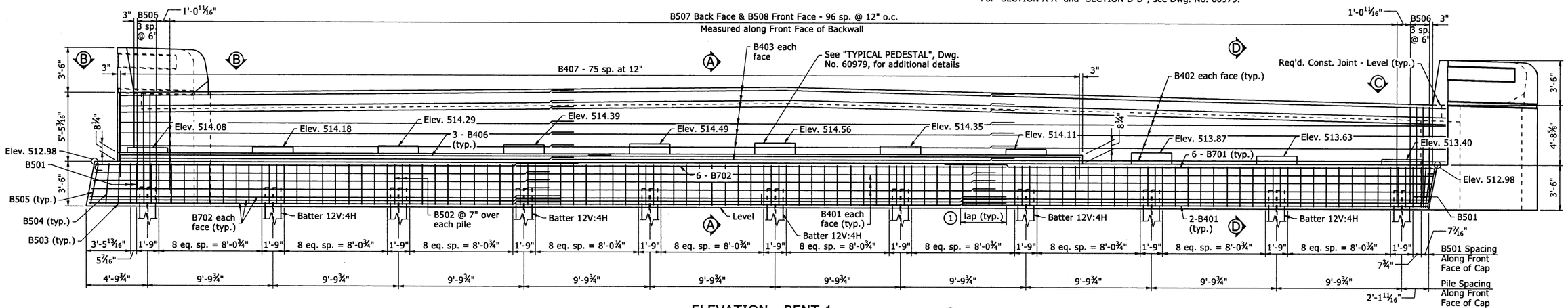
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	202	616
				(1) 07455	-	END BENTS	-	60977

(2) Place 6"ø tile drains approx. 6" above fill slope. Spread bars as required. Place 6 cu. ft. of sacked ¾" crushed rock or gravel at each drain. All work and materials to install drains shall be subsidiary to "Class S Concrete".



PLAN - BENT 1

For "VIEW B-B" and "VIEW C-C", see Dwg. No. 60980.
For "SECTION A-A" and "SECTION D-D", see Dwg. No. 60979.



ELEVATION - BENT 1

Looking Back

(1) Lap #4 bars 1'-9"
Lap top #7 bars 4'-10"
Lap bottom #7 bars 3'-5"

GENERAL NOTES:

Structural Steel in end bents shall be ASTM A709, Gr. 50 and shall be paid for as "Structural Steel in Beam Spans (A709, Gr. 50)".

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 adjacent deck pour has been made. Refer to the "EXPANSION DEVICE INSTALLATION AT END BENTS" note on Std. Dwg. No. 55008. No heavy construction equipment shall be allowed within 10' of the backwall until the deck concrete placement for the adjacent span has been completed.

For details of steel piling, See Std. Dwg. No. 55020.

All piling shall be Gr. 50.

See Std. Dwg. No. 55006 for additional notes.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
8/20/19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF END BENTS
HWY. 70 FRONTAGE RD.

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

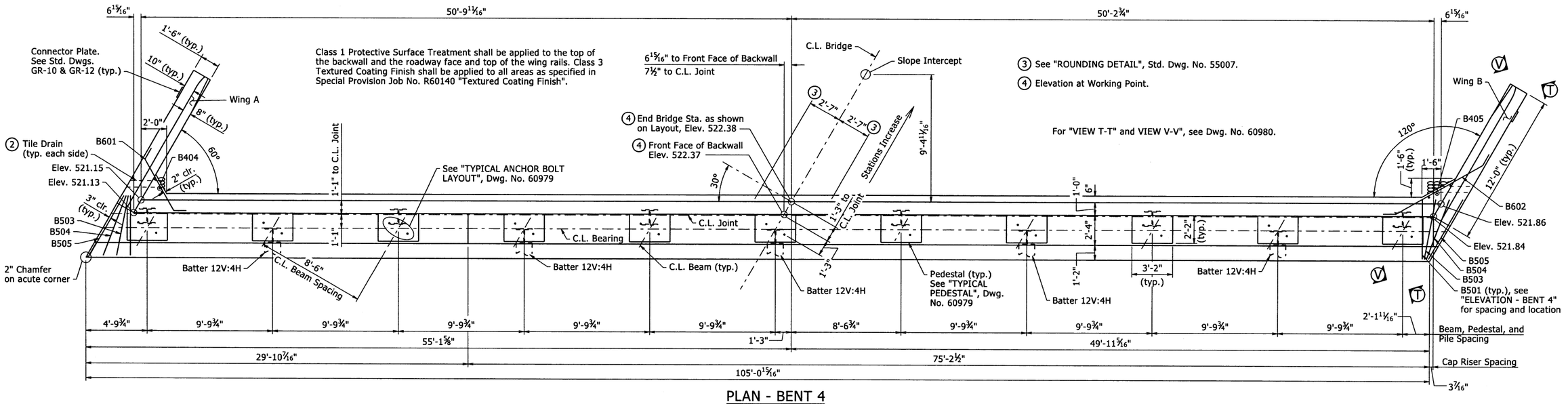
DRAWN BY: DBS DATE: 7/8/19 FILENAME: br60140x3_b1.dgn
CHECKED BY: NAC DATE: 8/20/19 SCALE: ¼" = 1'-0"
DESIGNED BY: DBS DATE: 6/19

BRIDGE NO. 07455 DRAWING NO. 60977

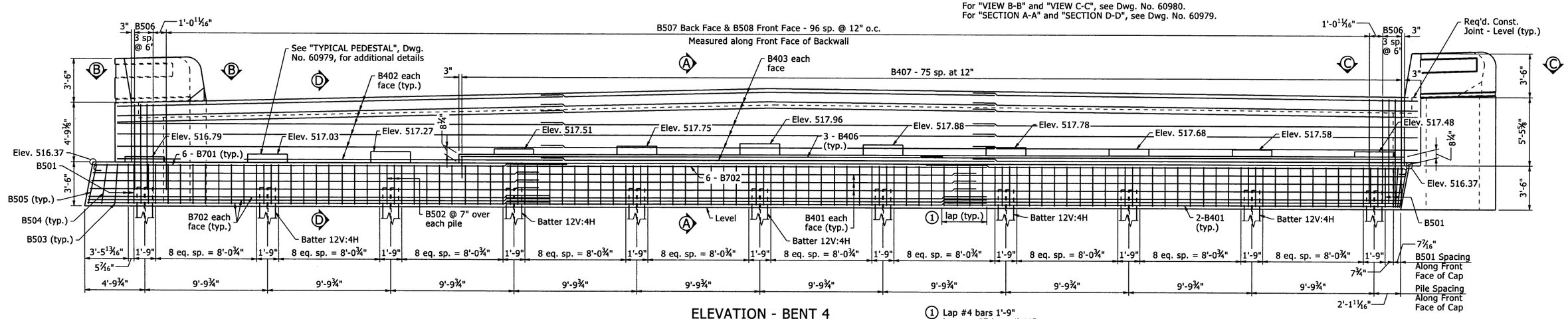
PRINT DATE: 8/20/2019

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.		R60140	203	616
				(1) 07455	-	END BENTS	-	60978

(2) Place 6"ø tile drains approx. 6" above fill slope. Spread bars as required. Place 6 cu. ft. of sacked ¾" crushed rock or gravel at each drain. All work and materials to install drains shall be subsidiary to "Class S Concrete".



PLAN - BENT 4



ELEVATION - BENT 4

Looking Ahead

(1) Lap #4 bars 1'-9"
Lap top #7 bars 4'-10"
Lap bottom #7 bars 3'-5"

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
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SHEET 2 OF 5
DETAILS OF END BENTS
HWY. 70 FRONTAGE RD.

ROUTE SEC.

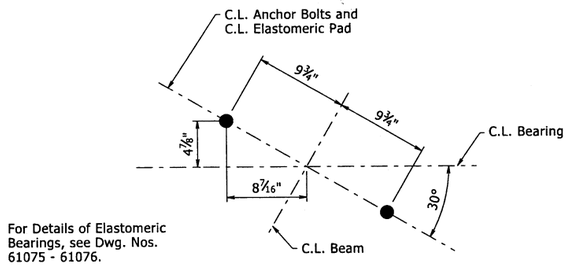
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DBS DATE: 7/8/19 FILENAME: br60140x3_b1.dgn
CHECKED BY: NBC DATE: 8/14/19 SCALE: ¼" = 1'-0"
DESIGNED BY: DBS DATE: 6/19

BRIDGE NO. 07455 DRAWING NO. 60978

PRINT DATE: 8/14/2019

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.		R60140	204	616
				(1) 07455	-	END BENTS	- 60979	



For Details of Elastomeric Bearings, see Dwg. Nos. 61075 - 61076.

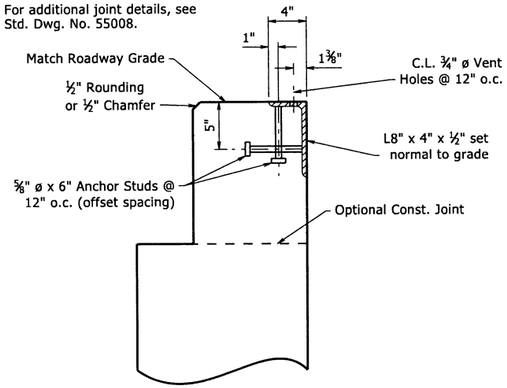
TYPICAL ANCHOR BOLT LAYOUT

No Scale

Transverse spacing between vertical anchor studs and vent holes shall be 6".

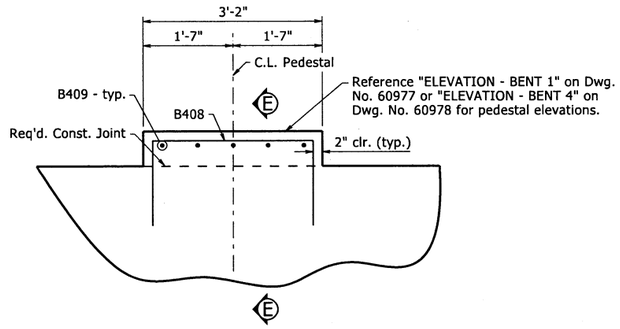
Concrete shall be hand packed under the joint armor.

For additional joint details, see Std. Dwg. No. 55008.



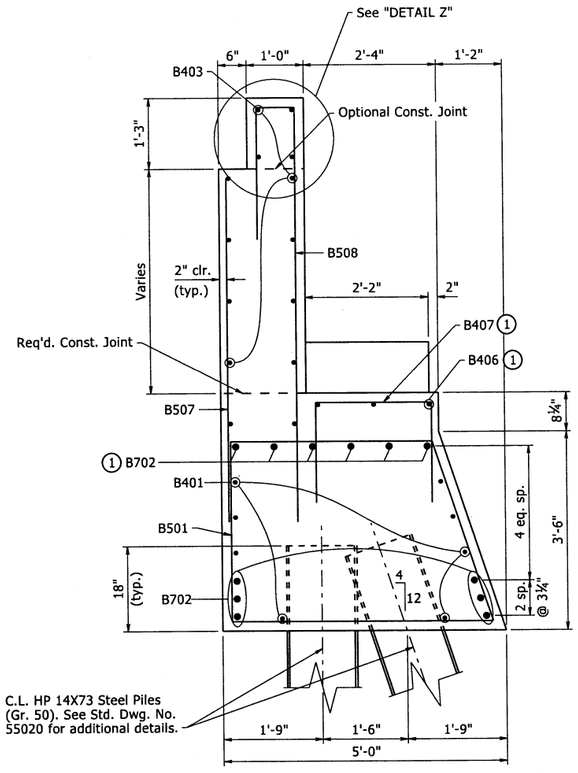
DETAIL Z

No Scale



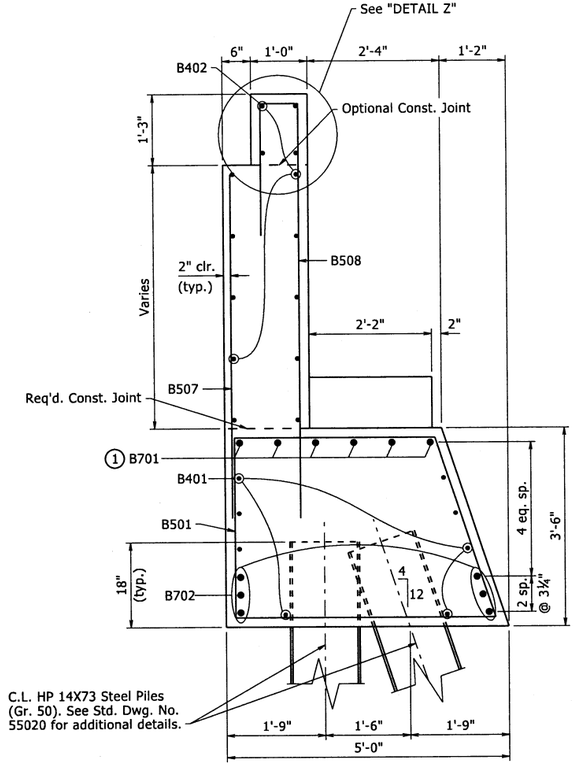
TYPICAL PEDESTAL

¾" = 1'-0"



SECTION A-A

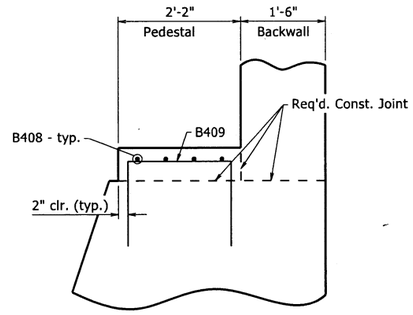
¾" = 1'-0"



SECTION D-D

¾" = 1'-0"

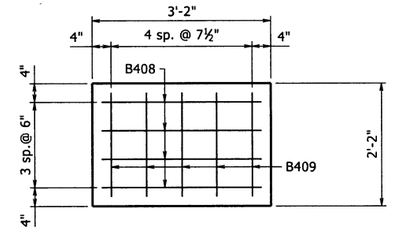
(1) Place as necessary to avoid anchor bolts



SECTION E-E

¾" = 1'-0"

Shown at cap without riser. Cap with riser is similar.



PEDESTAL PLAN

¾" = 1'-0"

Place bars B408 and B409 as necessary to avoid anchor bolts.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF END BENTS
HWY. 70 FRONTAGE RD.

ROUTE SEC.

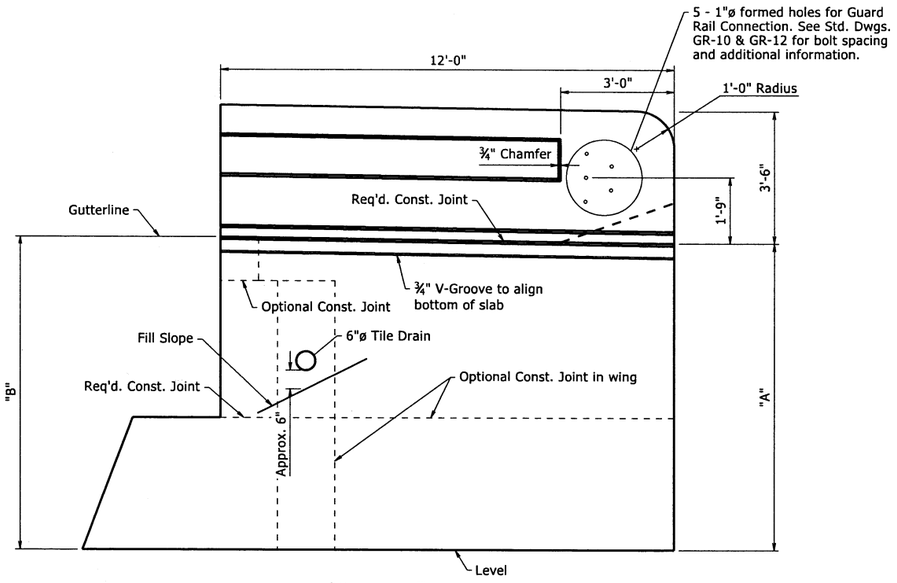
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DBS DATE: 7/8/19 FILENAME: br60140x3_b1.dgn
CHECKED BY: NBC DATE: 8/13/19 SCALE: AS NOTED
DESIGNED BY: DBS DATE: 6/19

BRIDGE NO. 07455 DRAWING NO. 60979

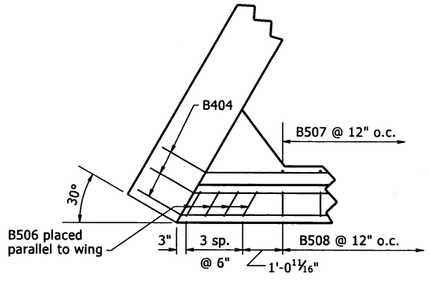
PRINT DATE: 8/13/2019

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.		R60140	205	616
				1	07455 - END BENTS - 60980			



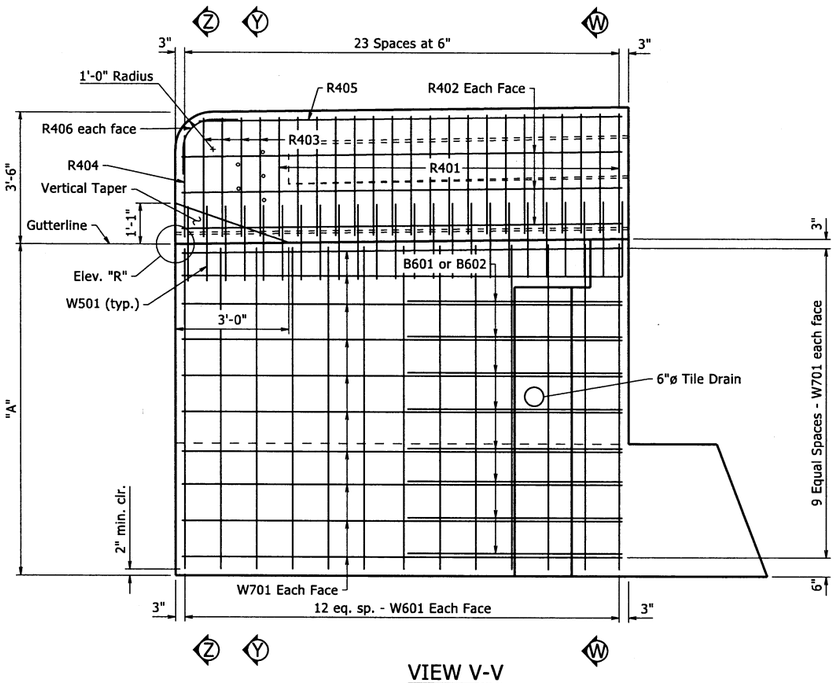
VIEW T-T

½" = 1'-0"



VIEW B-B

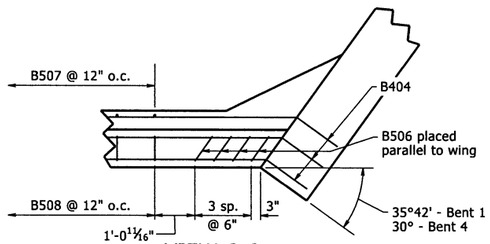
½" = 1'-0"



VIEW V-V

½" = 1'-0"

See Dwg. No. 60981 for "VIEW W-W", "SECTION Y-Y", and "SECTION Z-Z".



VIEW C-C

½" = 1'-0"

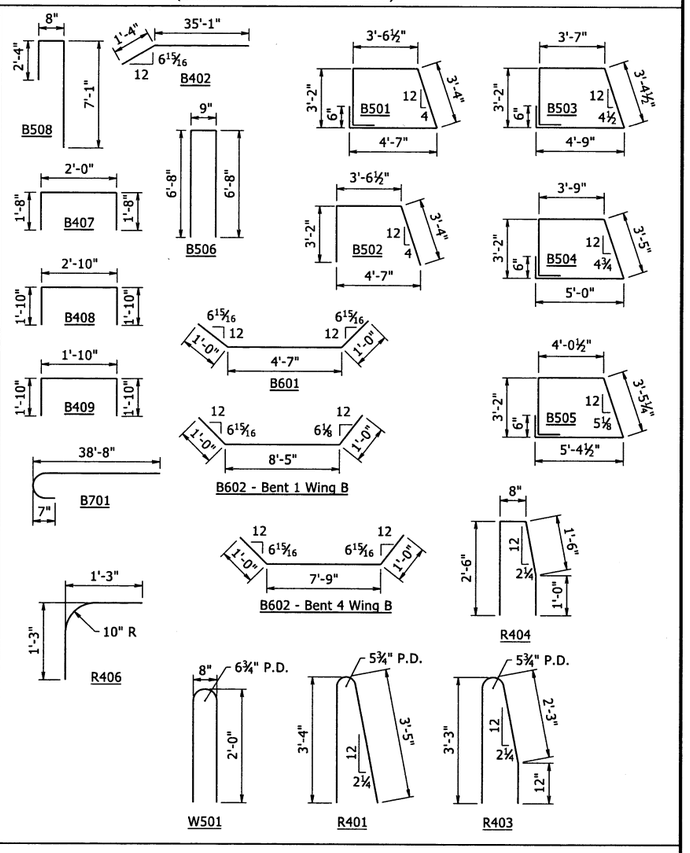
TABLE OF VARIABLES

Wing	Variable				
	"A"	"B"	"R"	"L1"	"W"
Wing A - Bent 1	8'-9⅛"	8'-11 3⁄16"	518.24	8'-5"	-
Wing B - Bent 1	8'-0⅜"	8'-2⅝"	517.51	7'-8"	10'-5"
Wing A - Bent 4	8'-5 3⁄16"	8'-3⅛"	521.30	8'-1"	-
Wing B - Bent 4	9'-1 13⁄16"	8'-11⅝"	522.01	8'-7"	9'-9"

BAR LIST - PER BENT

Mark	No. Req'd.	Length	Pin Dia.
B401	24	36'-1"	Str.
B402	28	36'-5"	3"
B403	14	35'-1"	Str.
B404	3	6'-8"	Str.
B405	3	7'-4"	Str.
B406	6	38'-6"	Str.
B407	76	5'-2"	2"
B408	44	6'-4"	2"
B409	55	5'-4"	2"
B501	94	15'-2"	2½"
B502	22	9'-10"	2½"
B503	2	15'-4"	2½"
B504	2	15'-10"	2½"
B505	2	16'-6"	2½"
B506	8	13'-11"	2½"
B507	97	5'-10"	Str.
B508	97	9'-11"	2½"
B601	8	6'-7"	4½"
B602	8	"W"	4½"
B701	12	39'-6"	5¼"
B702	24	37'-3"	Str.
R401	38	7'-1"	5¾"
R402	12	11'-8"	Str.
R403	8	6'-11"	5¾"
R404	2	5'-6"	2"
R405	2	11'-1"	Str.
R406	4	2'-3"	-
W501	48	4'-5"	6¾"
W601	52	"L1"	Str.
W701	40	11'-8"	Str.

Bending Diagram
(Dimensions are out to out of bars)



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19
BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF END BENTS
HWY. 70 FRONTAGE RD.

ROUTE SEC.

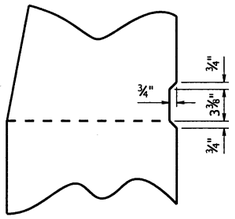
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DBS DATE: 7/8/19 FILENAME: br60140x3_b1.dgn
CHECKED BY: AJAC DATE: 8/14/19 SCALE: ½" = 1'-0"
DESIGNED BY: DBS DATE: 6/19

BRIDGE NO. 07455 DRAWING NO. 60980

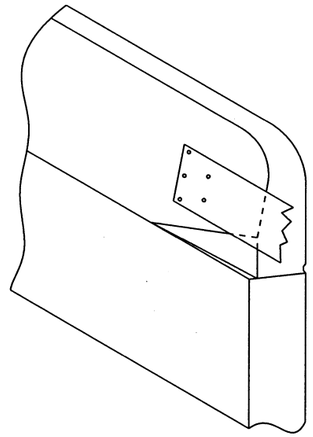
PRINT DATE: 8/14/2019

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.		R60140	206	616
				①	07455 -	END BENTS	-	60981



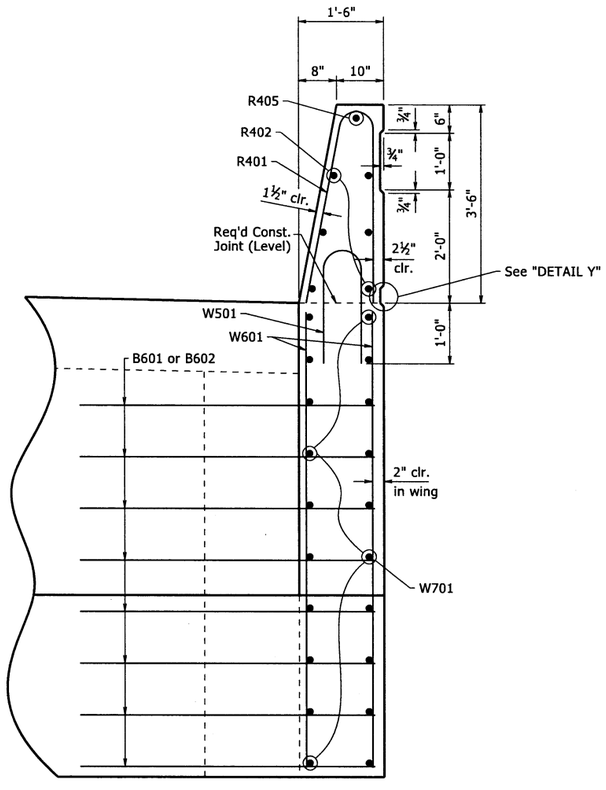
DETAIL Y

No Scale



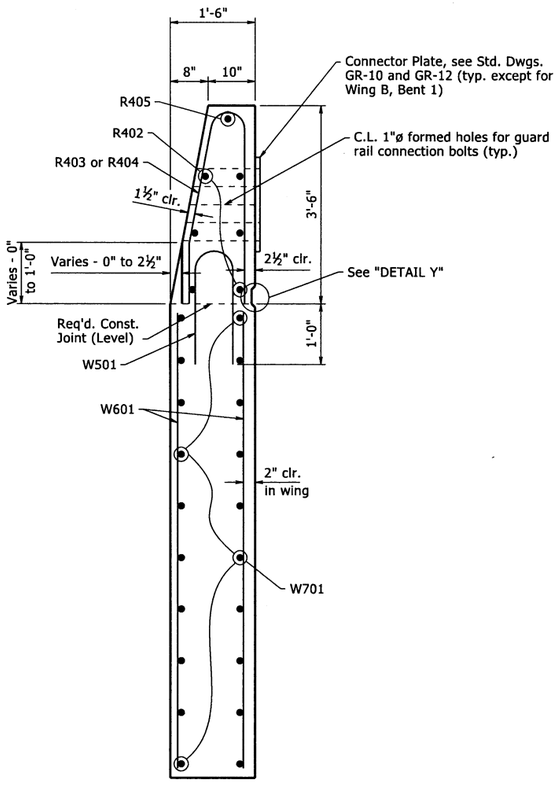
THREE DIMENSIONAL VIEW OF RAIL

No Scale



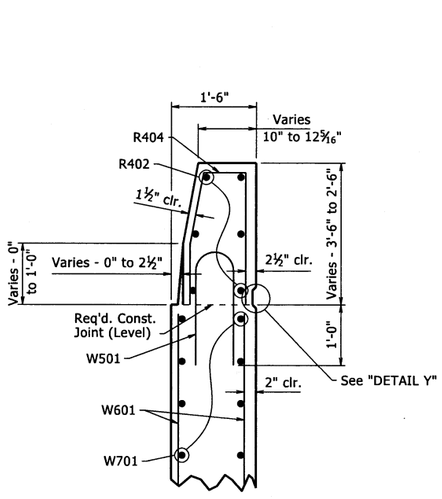
VIEW W-W

¾" = 1'-0"



SECTION Y-Y

¾" = 1'-0"



SECTION Z-Z

¾" = 1'-0"

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-19-19

BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF END BENTS
HWY. 70 FRONTAGE RD.

ROUTE SEC.

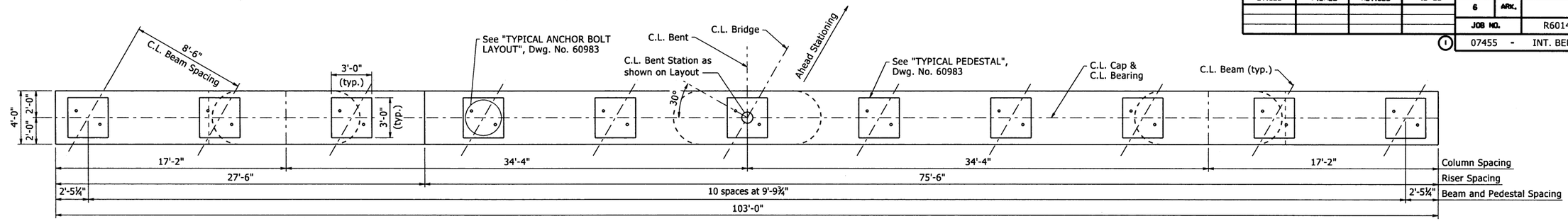
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DBS DATE: 7/8/19 FILENAME: br60140x3_b1.dgn
CHECKED BY: NAC DATE: 8/15/19 SCALE: AS NOTED
DESIGNED BY: DBS DATE: 6/19
BRIDGE NO. 07455 DRAWING NO. 60981

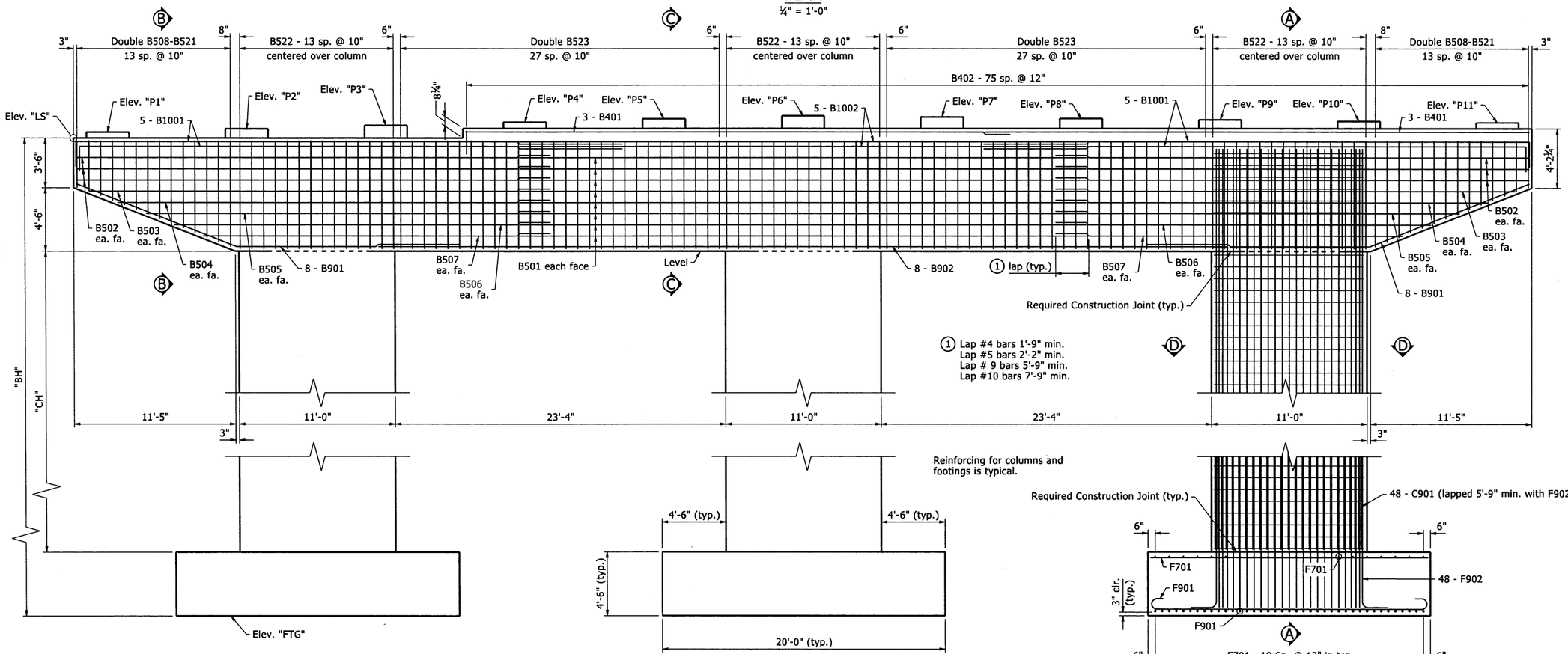
PRINT DATE: 8/15/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

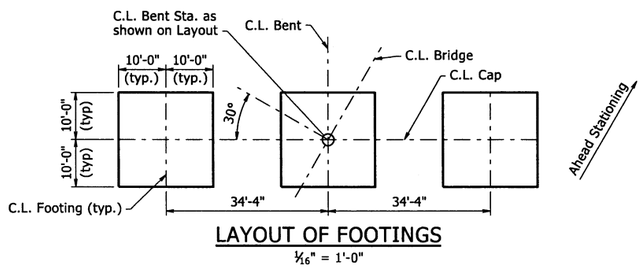
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		R60140	207	616
① 07455	-	INT. BENTS	-	60982



PLAN
¼" = 1'-0"



ELEVATION
Looking Ahead
¼" = 1'-0"



LAYOUT OF FOOTINGS
1/16" = 1'-0"

See Std. Dwg. No. 55006 for additional notes.

See Layout for additional information.

See Dwg. No. 60983 for Bar List and additional Sections.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS
HWY. 70 FRONTAGE RD.

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DBS DATE: 7/11/19
CHECKED BY: WAC DATE: 8/14/19
DESIGNED BY: DBS DATE: 6/19

FILENAME: br60140x3_b2.dgn
SCALE: AS NOTED

BRIDGE NO. 07455 DRAWING NO. 60982

PRINT DATE: 8/14/2019

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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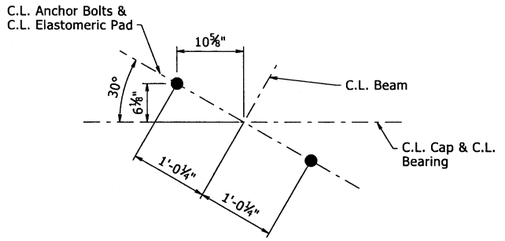
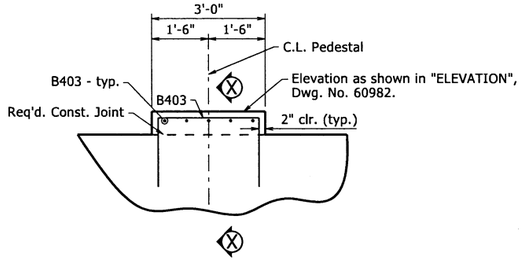
				JOB NO.		R60140	208	616
				07455	-	INT. BENTS	-	60983



For Details of Elastomeric Bearings, See Dwg. Nos. 61075-61076.

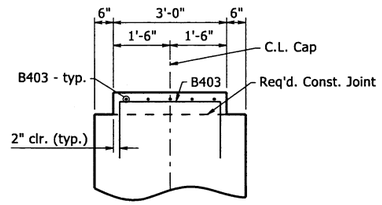
TYPICAL ANCHOR BOLT LAYOUT

1"=1'-0"



TYPICAL PEDESTAL

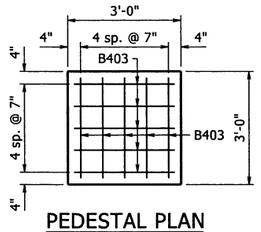
½" = 1'-0"



SECTION X-X

½" = 1'-0"

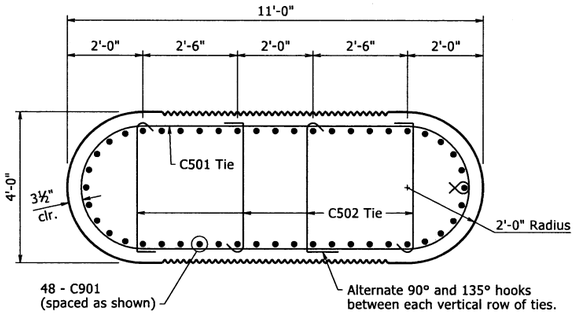
Shown at cap without riser. Cap with riser is similar.



PEDESTAL PLAN

½" = 1'-0"

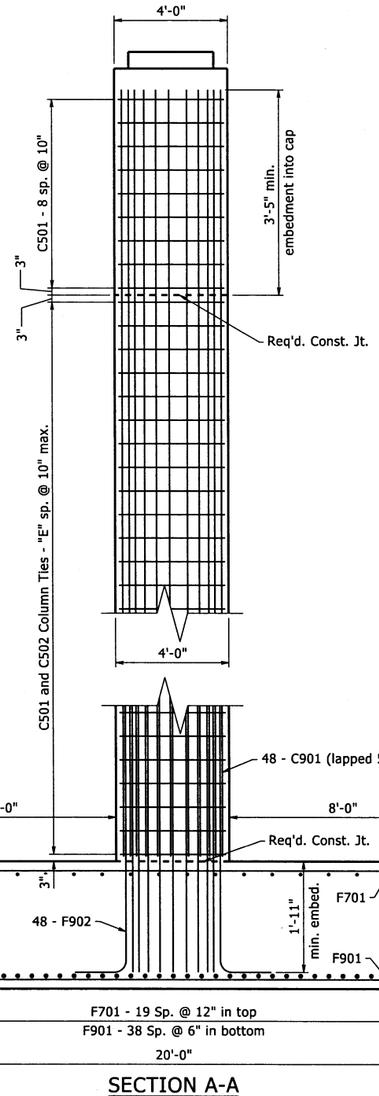
Place bars B403 as necessary to avoid anchor bolts.

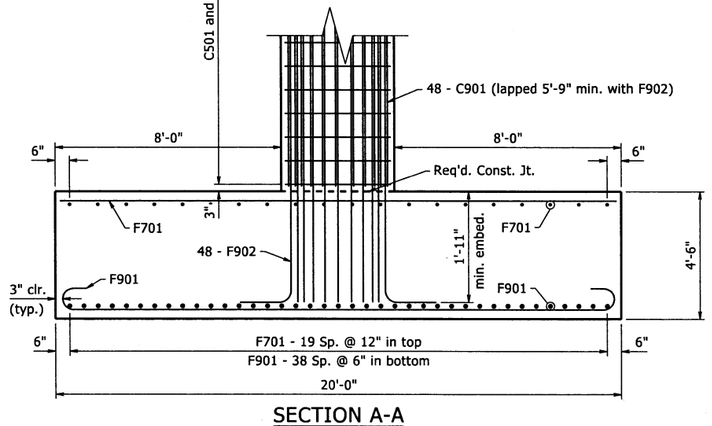


SECTION D-D

½" =1'-0"

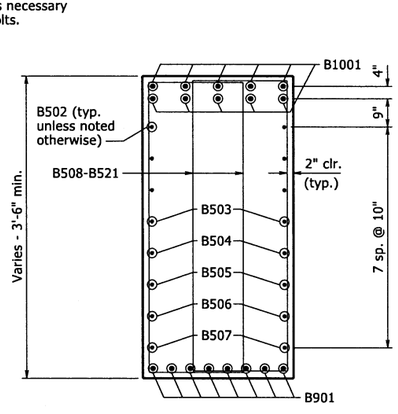
For "COMMON DETAILS OF COLUMN ENHANCEMENT", see Dwg. No. 60966.





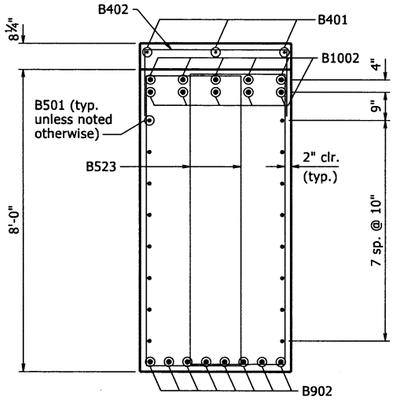
SECTION A-A

⅜" = 1'-0"



SECTION B-B

½" = 1'-0"



SECTION C-C

½" = 1'-0"

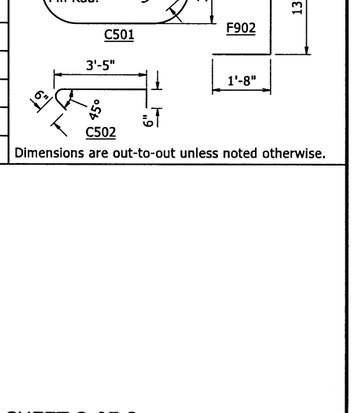
TABLE OF VARIABLES

BENT NO.	GEOMETRY															C901	C501		C502
	Elev. "LS"	Elev. "FTG"	Elev. "P1"	Elev. "P2"	Elev. "P3"	Elev. "P4"	Elev. "P5"	Elev. "P6"	Elev. "P7"	Elev. "P8"	Elev. "P9"	Elev. "P10"	Elev. "P11"	"BH"	"CH"	"CL"	"E"	"CT"	"CTZ"
BENT 2	513.95	478.45	514.37	514.60	514.84	515.08	515.32	515.53	515.46	515.36	515.26	515.15	515.05	35'-6"	23'-0"	30'-3"	27	111	336
BENT 3	515.28	478.78	515.70	515.93	516.17	516.41	516.65	516.86	516.79	516.69	516.59	516.48	516.38	36'-6"	24'-0"	31'-3"	29	117	360

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	"X"	"Y"	PIN DIA.
B401	6	38'-6"	-	-	Str.
B402	76	6'-10"	3'-8"	1'-8"	2"
B403	110	6'-2"	2'-8"	1'-10"	2"
B501	16	40'-0"	-	-	Str.
B502	12	33'-6"	-	-	Str.
B503	4	32'-7"	-	-	Str.
B504	4	30'-7"	-	-	Str.
B505	4	28'-7"	-	-	Str.
B506	4	26'-7"	-	-	Str.
B507	4	24'-7"	-	-	Str.
B508 to B521	4 EACH	11'-11" - 20'-6"	-	3'-2½" - 7'-6"	2½"
B522	42	18'-10"	3'-8"	7'-8"	2½"
B523	112	20'-10"	-	7'-8"	2½"
B901	16	27'-11"	-	-	9"
B902	8	60'-0"	-	-	Str.
B1001	20	40'-7"	-	-	10"
B1002	10	40'-0"	-	-	Str.
C501	"CT"	26'-3"	-	-	3¾"
C502	"CTZ"	4'-4"	-	-	3¾"
C901	144	"CL"	-	-	Str.
F701	120	19'-6"	-	-	Str.
F901	234	22'-0"	-	-	9"
F902	144	15'-0"	-	-	9"

BENDING DIAGRAMS



Dimensions are out-to-out unless noted otherwise.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS
HWY. 70 FRONTAGE RD.

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DBS DATE: 7/11/19 FILENAME: br60140x3_b2.dgn
CHECKED BY: WAC DATE: 8/14/19 SCALE: AS NOTED
DESIGNED BY: DBS DATE: 6/19

BRIDGE NO. 07455 DRAWING NO. 60983

PRINT DATE: 8/14/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10-7-19				6	ARK.			
				JOB NO.		R60140	209	616
				① 07455	-	245' UNIT	-	60984

Slab Reinforcing:

Longitudinal: S401E Top and Bottom placed as shown
S601E Placed as shown, see "REINFORCING PLAN AND SLAB POURING SEQUENCE", Dwg. No. 60986.

Transverse: S501E lapped with S504E @ 12" o.c. in top, S402E lapped with S403E @ 12" o.c. in bottom
S501E lapped with S5404E @ 12" o.c. in top, S502E lapped with S505E @ 12" o.c. in bottom
S503E @ 6" o.c. in top of overhangs (bundled with No. 5 bars)
— Alternate

Bar positions or clearances from the forms shall be maintained by means of stays, ties, hangers or other approved devices per Subsection 804.06. Placement of slab bolsters or high-chairs with full-length lower runners directly on removable deck forms will not be allowed.

Class 1 Protective Surface Treatment shall be applied to the Roadway Surface and the Roadway Face and Top of Concrete Parapet Rail. Class 3 Textured Coating Finish shall be applied to all areas as specified in Special Provision Job No. R60140 "Textured Coating Finish".

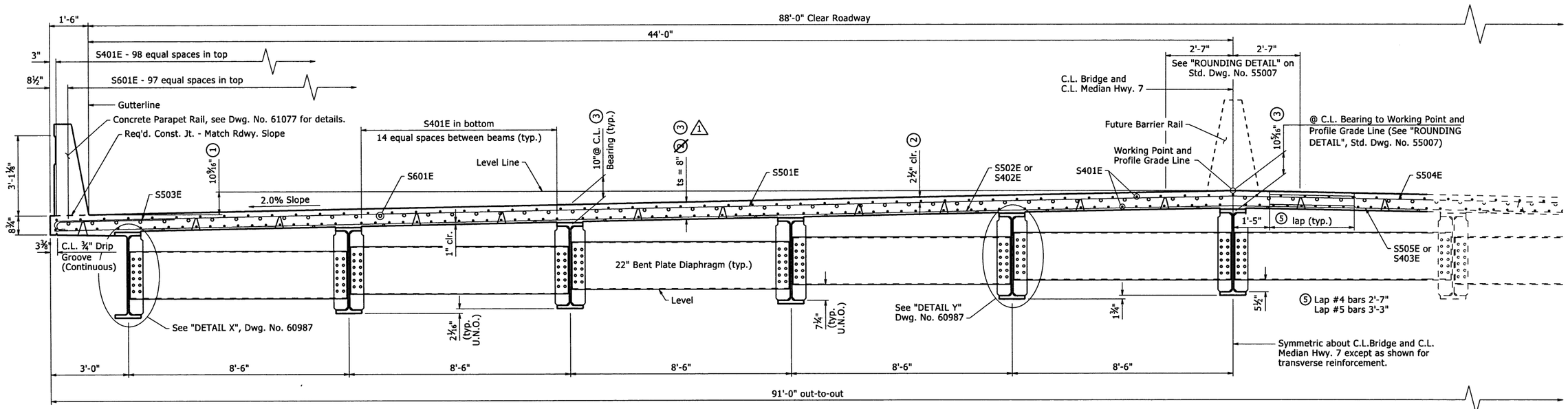
(1) Profile Grade Line to Gutterline.

(2) Tolerance: Minus = ¼";
Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. 55007.

~~(3) See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. 55007.~~

△1 Revised slab thickness adjustment note.

By: LJB, Checked By: DBS, 10-7-19



For bent plate and connection details, see Dwg. No. 60987.

SECTION A-A

Half Typical Section, See Dwg. No. 60986 for location

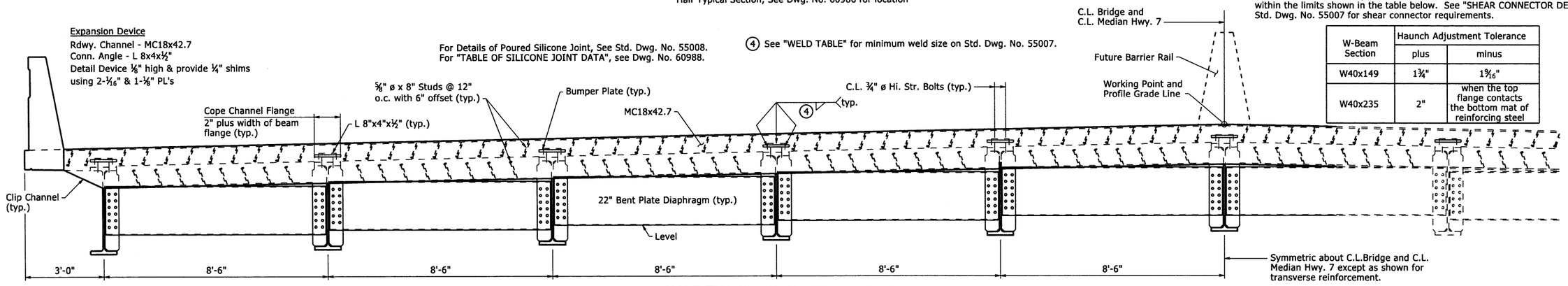
△1 ③ See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007. For both removable and permanent steel deck forms the haunch dimension may vary within the limits shown in the table below. See "SHEAR CONNECTOR DETAIL" on Std. Dwg. No. 55007 for shear connector requirements.

W-Beam Section	Haunch Adjustment Tolerance	
	plus	minus
W40x149	1¾"	1⁹⁄₁₆"
W40x235	2"	when the top flange contacts the bottom mat of reinforcing steel

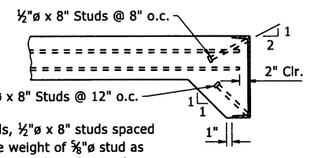
Expansion Device
Rdwy. Channel - MC18x42.7
Conn. Angle - L 8x4x½"
Detail Device ⅛" high & provide ¼" shims using 2-1⁄16" & 1-⅛" PL's

For Details of Poured Silicone Joint, See Std. Dwg. No. 55008.
For "TABLE OF SILICONE JOINT DATA", see Dwg. No. 60988.

④ See "WELD TABLE" for minimum weld size on Std. Dwg. No. 55007.



HALF TYPICAL SECTION NEAR JOINT



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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
10-7-19
BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF
245'-0" W-BEAM UNIT
HWY. 70 FRONTAGE RD.

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DBS DATE: 5/28/19
CHECKED BY: WAC DATE: 8-13-19
DESIGNED BY: DBS DATE: 5/19
FILENAME: br60140x3_s1.dgn
SCALE: ½" = 1'-0"

BRIDGE NO. 07455 DRAWING NO. 60984

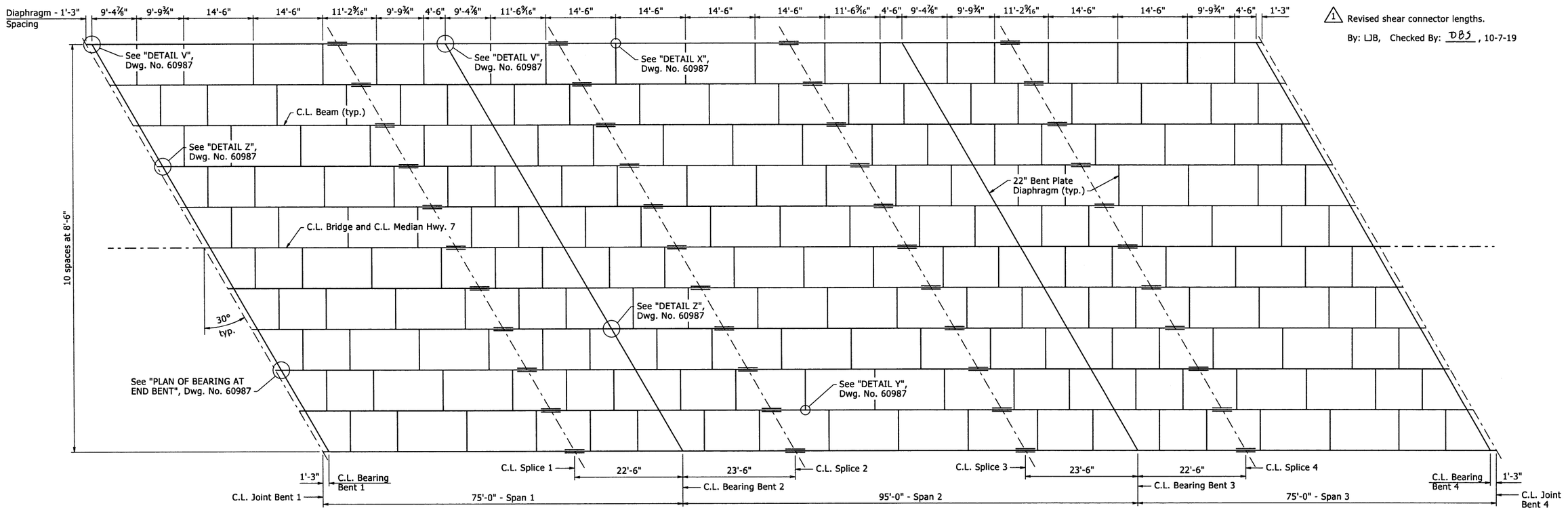
PRINT DATE: 10/3/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10-7-19			

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		R60140	210	616
07455	-	245' UNIT	-	60985

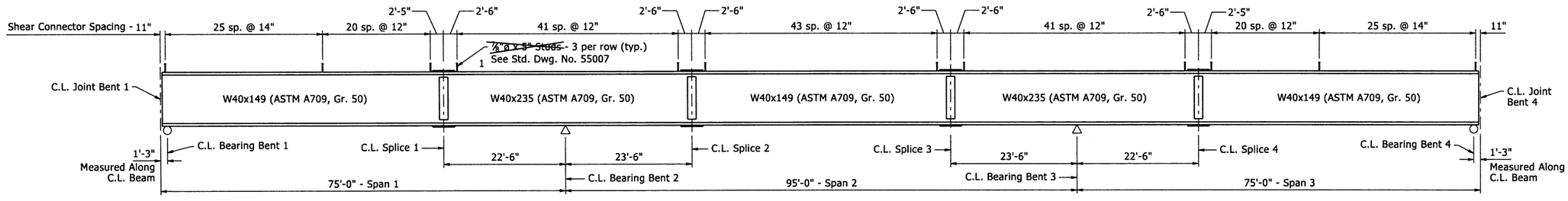
1 Revised shear connector lengths.

By: LJB, Checked By: DBS, 10-7-19



FRAMING PLAN

1 Use ⅞"ø x 5" Studs on W40x149
Use ⅞"ø x 4½" Studs on W40x235



BEAM ELEVATION

All structural steel shall be ASTM A709, Grade 50 unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (A709, Gr. 50)". See Std. Dwg. Nos. 55006 & 55007 for additional notes and details.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
10-7-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF
245'-0" W-BEAM UNIT
HWY. 70 FRONTAGE RD.

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

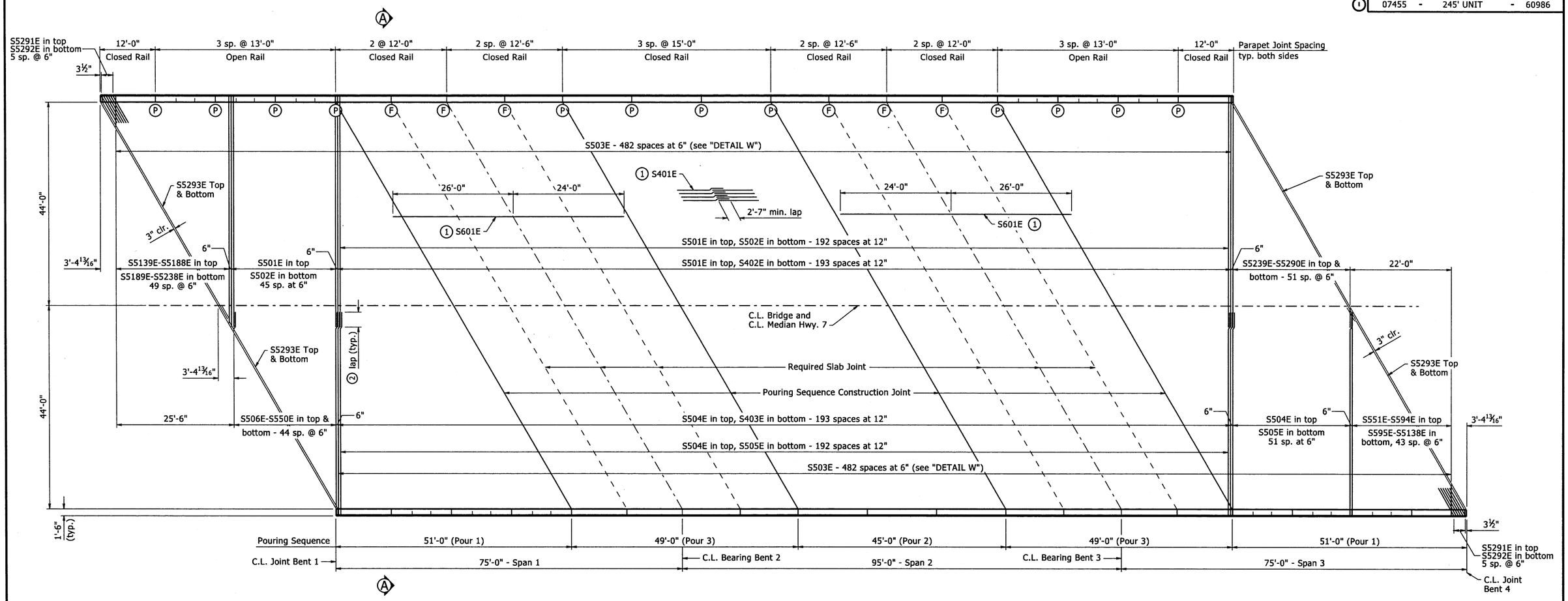
DRAWN BY: DBS DATE: 5/10/19 FILENAME: br60140x3_s1.dgn
CHECKED BY: CWC DATE: 8-13-19 SCALE: 3/32" = 1'-0"
DESIGNED BY: DBS DATE: 5/19

BRIDGE NO. 07455 DRAWING NO. 60985

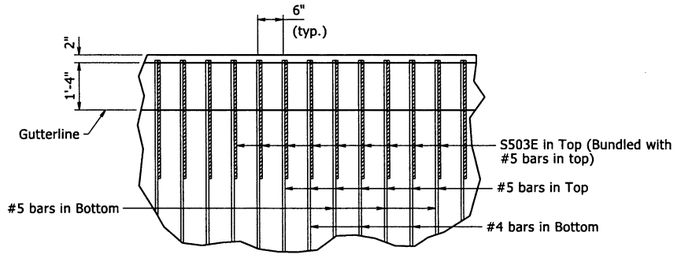
PRINT DATE: 10/4/2019

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.		R60140	211	618
① 07455	-	245' UNIT	-	60986



For "SECTION A-A", see Dwg. No. 60984



DETAIL W
N.T.S.

REINFORCING PLAN AND SLAB POURING SEQUENCE

① Placed as shown in "SECTION A-A", see Dwg. No. 60984.

② Lap #4 bars 2'-7"
Lap #5 bars 3'-3"
See "SECTION A-A", Dwg. No. 60984 for details on lap location.

For "COMMON DETAILS OF 3'-6" CONCRETE PARAPET RAILS", see Dwg. No. 61077.

For Bar List, see Dwg. No. 60988.

Required slab joints and pouring sequence joints shall align with open joints in parapet rail at the gutterline.

Ⓟ Partial Depth Parapet Joint at this location.

Ⓕ Full Depth Parapet Joint at this location.

Slab Pouring Sequence:
Pours with the same number may be placed simultaneously or separately. All Pour(s) 1 must be placed before Pour(s) 2 can be placed. All Pour(s) 2 must be placed before Pour(s) 3 can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between adjacent pours.

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.

A minimum of 72 hours shall elapse between completion of the slab and the pouring of the bridge railing. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. No deviations from the pouring sequence shown will be allowed.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF
245'-0" W-BEAM UNIT
HWY. 70 FRONTAGE RD.

ROUTE SEC.

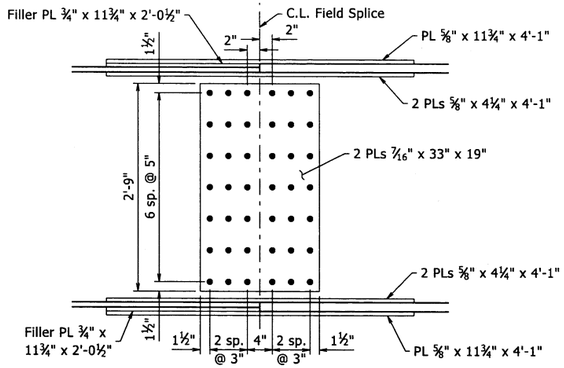
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DBS DATE: 5/10/19
CHECKED BY: DATE: 8/14/19
DESIGNED BY: DBS DATE: 5/19
FILENAME: br60140x3_s1.dgn
SCALE: 3/32" = 1'-0"

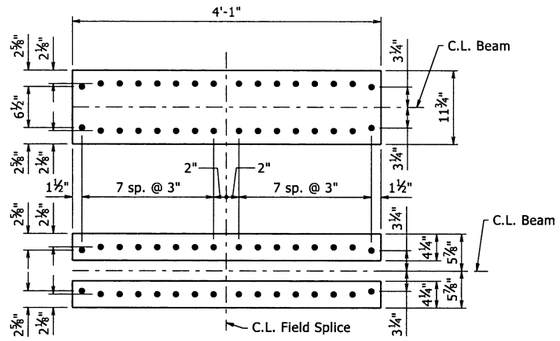
BRIDGE NO. 07455 DRAWING NO. 60986

PRINT DATE: 8/14/2019

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.		R60140	212	616
				(1) 07455	-	245' UNIT	-	60987



WEB SPLICE
1" = 1'-0"

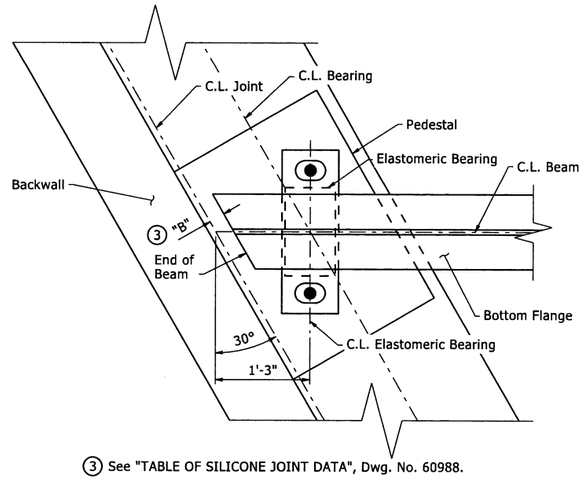


FLANGE SPLICE
1" = 1'-0"

FIELD SPLICE DETAIL

Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.

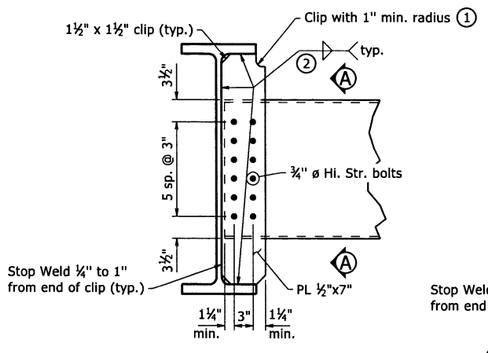
All field splice bolts shall be ⅞" ø Hi-Str. bolts.
All holes for splice bolts shall be 15/16" ø .



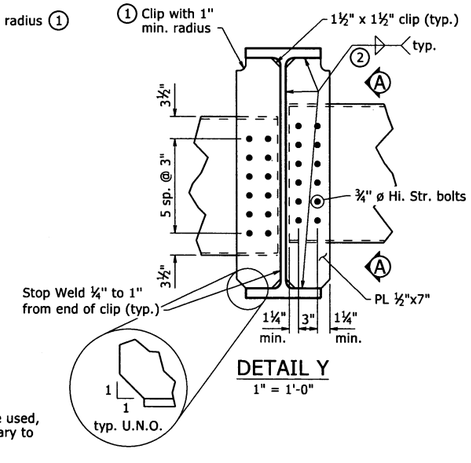
(3) See "TABLE OF SILICONE JOINT DATA", Dwg. No. 60988.

PLAN OF BEARING AT END BENT
1" = 1'-0"

For details of Elastomeric Bearings, see Dwg. Nos. 61075-61076



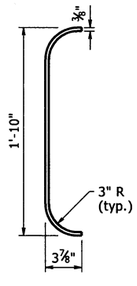
DETAIL X
1" = 1'-0"



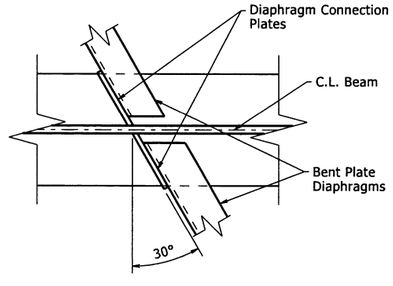
DETAIL Y
1" = 1'-0"

(1) If permanent steel bridge deck forms are used, the Fabricator shall clip plates as necessary to accommodate the deck form supports.

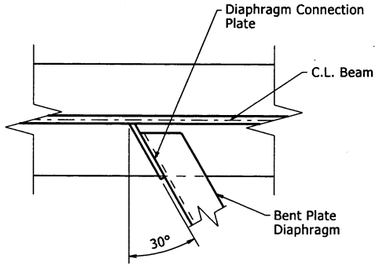
(2) See "WELD TABLE" for minimum weld size on Std. Dwg. No. 55007.



SECTION A-A
1½" = 1'-0"



DETAIL Z
No Scale



DETAIL V
No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8/20/19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF
245'-0" W-BEAM UNIT
HWY. 70 FRONTAGE RD.

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DBS DATE: 5/27/19 FILENAME: br60140x3_s1.dgn
CHECKED BY: CWAC DATE: 8/20/19 SCALE: 1" = 1'-0"
DESIGNED BY: DBS DATE: 5/19

BRIDGE NO. 07455 DRAWING NO. 60987

PRINT DATE: 8/20/2019

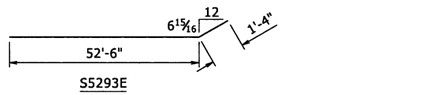
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	2/3	6/6
				①	07455 -	245' UNIT	-	60988

BAR LIST

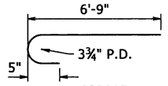
MARK	NO. REQ'D.	LENGTH	"X"	P.D.
S401E	1542	43'-0"	-	Str.
S402E	194	50'-0"	-	Str.
S403E	194	43'-3"	-	Str.
S501E	433	50'-7"	50'-0"	3¾"
S502E	239	50'-0"	-	Str.
S503E	966	5'-7"	-	3¾"
S504E	439	44'-7"	44'-0"	3¾"
S505E	245	44'-0"	-	Str.
S506E-S550E	2 ea.	4'-3" - 42'-4"	-	Str.
S551E-S594E	1 ea.	7'-4" - 44'-7"	6'-9" - 44'-0"	3¾"
S595E-S5138E	1 ea.	6'-9" - 44'-0"	-	Str.
S5139E-S5188E	1 ea.	7'-4" - 49'-9"	6'-9" - 49'-2"	3¾"
S5189E-S5238E	1 ea.	6'-9" - 49'-2"	-	Str.
S5239E-S5290E	2 ea.	4'-2" - 48'-5"	-	Str.
S5291E	12	7'-4"	-	3¾"
S5292E	12	6'-9"	-	Str.
S5293E	8	53'-10"	-	3¾"
S601E	196	50'-0"	-	Str.
P401E	884	6'-8"	-	3¾"
P402E	96	6'-2"	-	3¾"
P403E	96	5'-6"	-	Str.
P404E	84	11"-8"	-	Str.
P405E	56	12'-2"	-	Str.
P406E	84	12'-8"	-	Str.
P407E	42	14'-8"	-	Str.
P501E	884	5'-4"	-	3¾"

BENDING DIAGRAMS

Dimensions are out to out of bars.
Bars with an "E" suffix are to be epoxy coated.



S5293E



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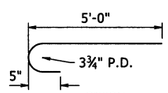
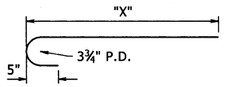
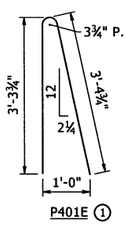


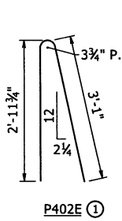
S503E



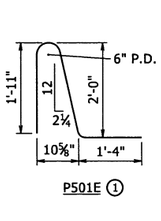
S501E, S504E, S551E-S594E, S5139E-S5188E



P401E ①



P402E ①



P501E ①

① See Dwg. No. 61077 for "COMMON DETAILS OF 3'-6" CONCRETE PARAPET RAILS".

TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels			
Panel Length	"D"	P4XXE Bar	Panel Length	"F"	"P"	P4XXE Bar
12'-0"	23	P404E	13'-0"	8	4'-6"	P406E
12'-6"	24	P405E				
15'-0"	29	P407E				

For location of full and partial depth parapet joints, see Dwg. No. 60986.

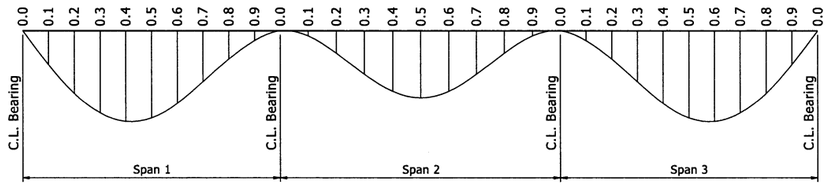
TABLE OF SILICONE JOINT DATA

Bent No(s).	"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		
1 & 4	2 3/16"	2"	1⅝"	2½"	1" x 1" x 12"

The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

TABLE OF DEAD LOAD DEFLECTIONS - INCHES

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Exterior	Interior	Exterior	Interior	Exterior	Interior
1	0.0	0	0	0	0	0	0
	0.1	0.055	0.059	0.378	0.441	0.409	0.449
	0.2	0.102	0.109	0.702	0.815	0.760	0.830
	0.3	0.132	0.141	0.920	1.068	0.996	1.088
	0.4	0.143	0.154	1.011	1.178	1.094	1.200
	0.5	0.135	0.145	0.969	1.133	1.046	1.153
	0.6	0.110	0.119	0.807	0.946	0.869	0.962
	0.7	0.076	0.081	0.578	0.663	0.621	0.674
	0.8	0.040	0.043	0.322	0.369	0.344	0.375
	0.9	0.012	0.012	0.116	0.129	0.122	0.130
2	0.0	0	0	0	0	0	0
	0.1	0.023	0.024	0.047	0.065	0.065	0.069
	0.2	0.068	0.074	0.222	0.287	0.272	0.299
	0.3	0.120	0.129	0.445	0.553	0.530	0.574
	0.4	0.163	0.172	0.638	0.774	0.750	0.802
	0.5	0.179	0.188	0.708	0.858	0.829	0.888
	0.6	0.164	0.173	0.639	0.777	0.750	0.805
	0.7	0.124	0.130	0.454	0.559	0.538	0.580
	0.8	0.072	0.074	0.232	0.288	0.281	0.300
	0.9	0.023	0.024	0.048	0.065	0.065	0.069
3	0.0	0	0	0	0	0	0
	0.1	0.010	0.012	0.110	0.127	0.115	0.128
	0.2	0.039	0.043	0.321	0.368	0.344	0.374
	0.3	0.073	0.081	0.565	0.659	0.609	0.670
	0.4	0.110	0.118	0.820	0.943	0.886	0.959
	0.5	0.133	0.144	0.976	1.128	1.057	1.148
	0.6	0.142	0.154	1.020	1.178	1.106	1.200
	0.7	0.131	0.142	0.927	1.071	1.006	1.091
	0.8	0.101	0.109	0.706	0.815	0.766	0.830
	0.9	0.056	0.060	0.386	0.443	0.419	0.451
	0.0	0	0	0	0	0	0



DEAD LOAD DEFLECTION DIAGRAM

No scale

Camber for Dead Load Deflection +/- ¼ inch 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.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF
245'-0" W-BEAM UNIT
HWY. 70 FRONTAGE RD.

ROUTE SEC.

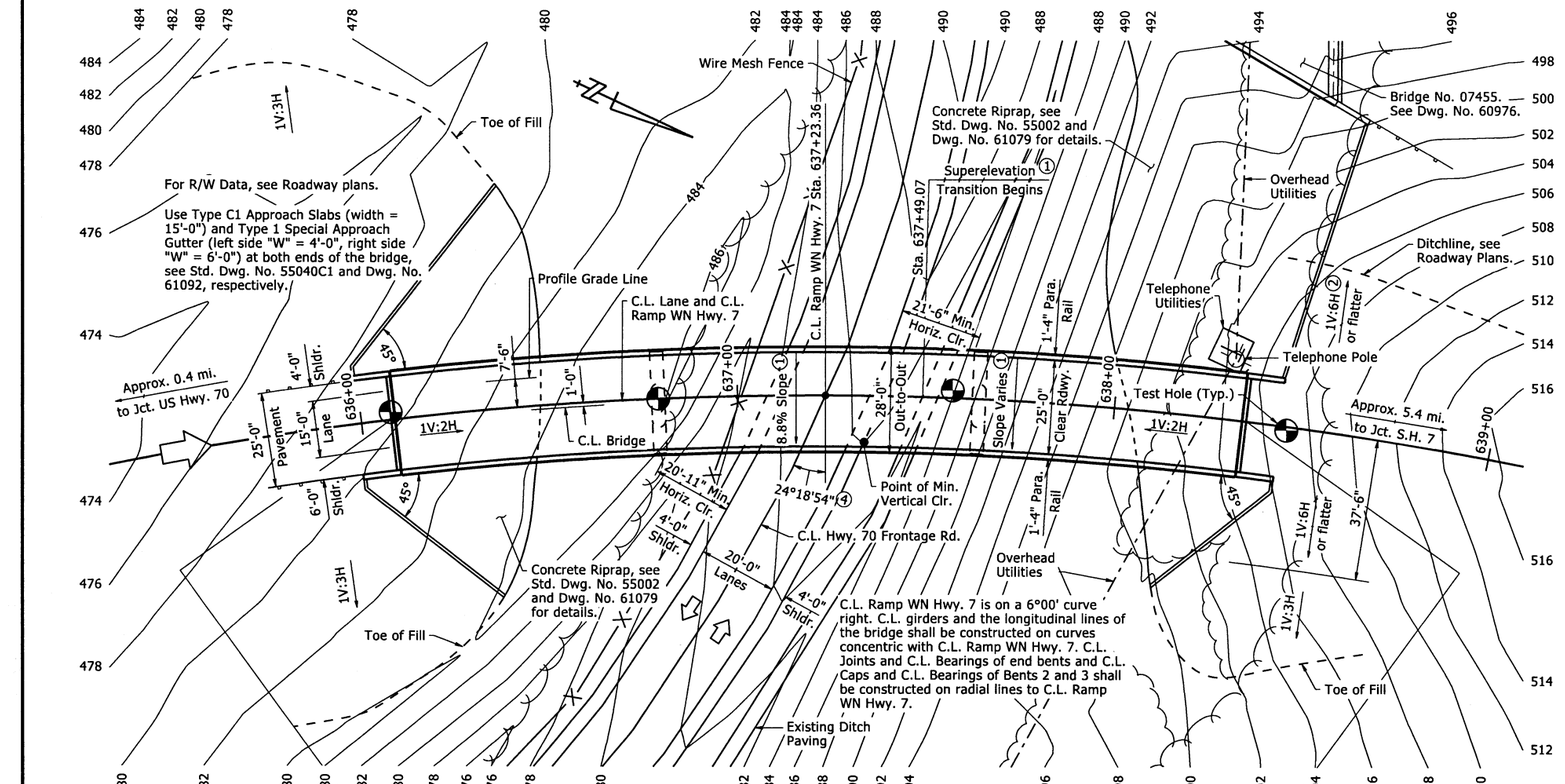
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DBS DATE: 5/27/19
CHECKED BY: WAC DATE: 8/13/19
DESIGNED BY: DBS DATE: 5/19
FILENAME: br60140x3_s1.dgn
SCALE: 1" = 1'-0"

BRIDGE NO. 07455 DRAWING NO. 60988

PRINT DATE: 8/13/2019

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.		R60140	214	616
				07456 -	LAYOUT	- 60989		



PLAN

Stations shown are along C.L. Ramp WN Hwy. 7. Elevations shown are actual top of deck elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on actual top of deck elevation at C.L. Bridge.

Spans, total Bridge length, and C.L. Joint to Bridge End dimensions are measured along C.L. Ramp WN Hwy. 7.

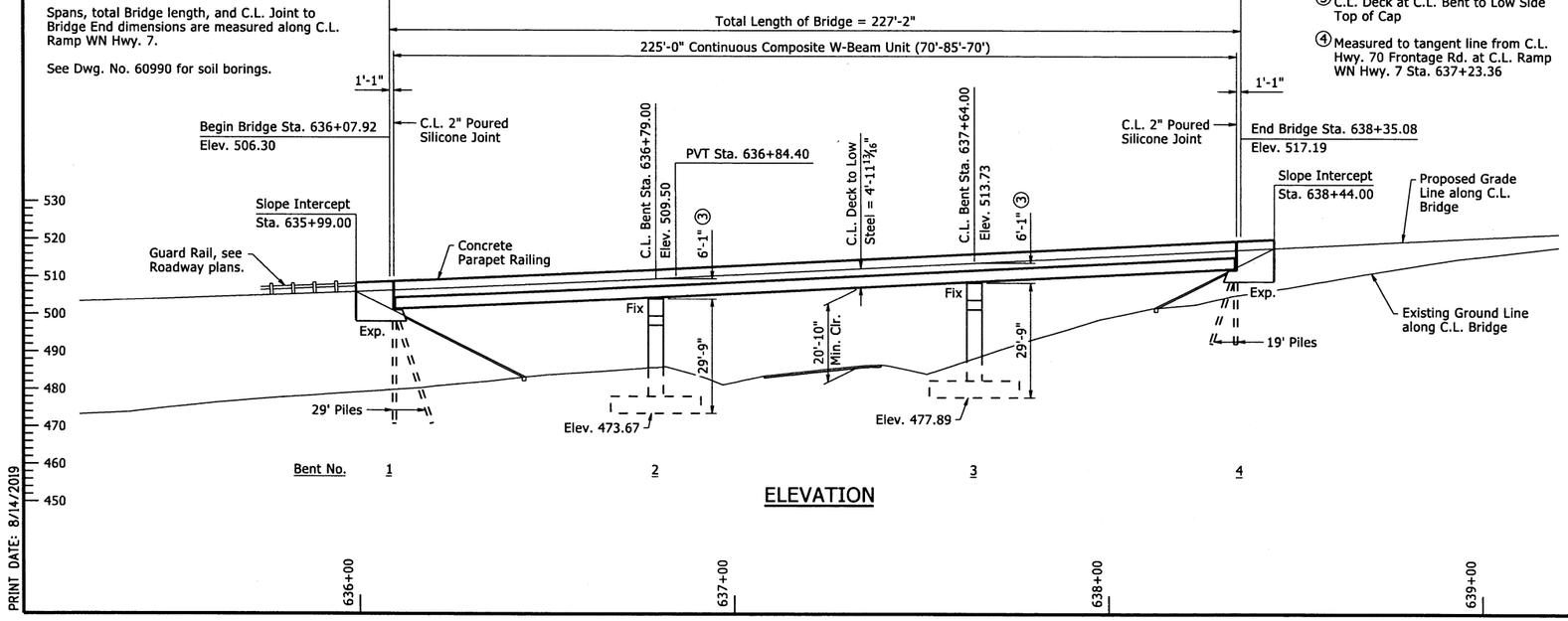
See Dwg. No. 60990 for soil borings.

① See Dwg. No. 60990 for "Superelevation Transition Sketch".

② See Dwg. No. 60976 for additional information of embankment.

③ C.L. Deck at C.L. Bent to Low Side Top of Cap

④ Measured to tangent line from C.L. Hwy. 70 Frontage Rd. at C.L. Ramp WN Hwy. 7 Sta. 637+23.36



ELEVATION

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Seventh Edition (2014) with 2015 Interims.

LIVE LOADING: HL-93

SEISMIC ZONE: 1 SITE CLASS: B S_{D1}: 0.07

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (Grade 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: All piling shall be HP14x73 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 130 tons per pile and into the material designated as shale on the boring legend. Minimum penetration shall be 10' below natural ground. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual pile lengths are to be determined in the field. The Contractor shall use approved steel H-Pile driving points on all piles.

PREBORING: Preboring is required for all piling in Bents 1 and 4. Preboring shall be to a minimum depth of 5' into competent shale, or to a depth sufficient to provide the specified minimum pile penetration, whichever is greater. The actual size and depth of preboring are to determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free from debris prior to backfilling which may require casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of rock and the remaining length backfilled in accordance with Subsection 805.08(a). Any cost associated with achieving the minimum pile penetration, including any backfill and casings, shall not be paid for directly but shall be considered subsidiary to the item "Preboring".

SPREAD FOOTINGS: Footings at Bents 2 & 3 shall be set a minimum of 3' into competent shale. The top of the footings shall be set a minimum of 2' below natural ground as determined by the lowest surface elevation within the footprint of the footing or at the elevations shown on the plans, whichever is lower. Foundations for footings shall be prepared in accordance with Subsection 801.04. Rock excavations shall be made to neat lines of the concrete footings. Concrete in footings shall be poured directly against excavated surfaces of rock. Excavations shall be backfilled and compacted to the level of the existing ground in accordance with Subsection 801.08. Blasting is not allowed.

PAINTING: All Grade 50 structural steel, except galvanized members and surfaces in contact with concrete, shall be painted as specified in Subsection 807.75. The color of paint shall be Blue and shall match Federal Standard 595B, Color Chip No. 25052.

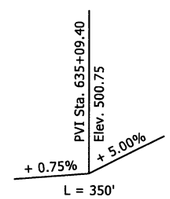
TEXTURED COATING FINISH: Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. R60140 "Textured Coating Finish" and in accordance with Subsection 802.19(b)(3). Textured Coating Finish shall not be applied on surfaces where Class 1 Protective Surface Treatment is applied.

PROTECTIVE SURFACE TREATMENT: Class 1 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rail in accordance with Section 803.

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

DETAIL DRAWINGS:	DRAWING NO(S).
End Bents	60991-60994
Intermediate Bents	60966, 60995-60996
Elastomeric Bearings	61075-61076
225' Continuous W-Beam Unit	60997-61000, 61077
General Notes For Steel Bridge Structures	55006
Details For Steel Bridge Structures	55007
Poured Silicone Joints	55008
Steel H-Piling	55020

MAINTENANCE OF TRAFFIC: See Roadway Plans.



C.L. RAMP WN HWY. 7 HORIZONTAL CURVE DATA

PI Sta. 637+69.58
Delta = 44°58'49" Rt.
D = 6°00'00"
L = 749.67'
T = 395.35'

VERTICAL CURVE DATA

Theoretical Grade at Profile Grade Line

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
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SHEET 1 OF 2
LAYOUT OF BRIDGE
RAMP WN OVER HWY. 70 FRONTAGE ROAD
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 4/22/2019
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DESIGNED BY: DKS DATE: 4/2019
FILENAME: br60140x4_l1.dgn
SCALE: 1" = 20'

BRIDGE NO. 07456 DRAWING NO. 60989

PRINT DATE: 8/14/2019

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.		R60140	215	616
				07456 -		LAYOUT - 60990		

"N" VALUES

Sta. 636+08 - 2' Left of Centerline WN Ramp
5.4- 5.8, N=60(5")

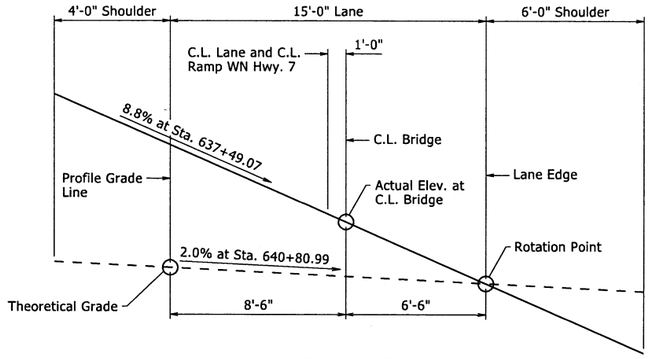
Sta. 636+79 - Centerline WN Ramp
4.9- 5.1, N=60(2")

Sta. 637+57 - 2' Left of Centerline WN Ramp
4.2- 4.3, N=30(1")

Sta. 638+46 - 1' Right of Centerline WN Ramp
5.5- 6.5, N=83
10.5- 10.8, N=60(4")

BORING LEGEND

A1-SHALE
B1-SHALE - Weathered, Medium Hard, Dark Gray
C1-SHALE - Slightly Weathered with Occasional Highly Weathered Seams, Medium Hard, Occasional Fractures, Dark Gray
D1-SHALE WITH OCCASIONAL SANDSTONE SEAMS AND LAYERS - Unweathered, Medium Hard, Dark Gray
E1-SHALE WITH OCCASIONAL SANDSTONE SEAMS - Unweathered, Medium Hard, Occasional Fractures, Dark Gray
F1-SHALE WITH OCCASIONAL SANDSTONE SEAMS AND LAYERS - Unweathered, Medium Hard, Frequent Fractures, Frequent Thick Mineral Veins, Dark G
G1-SHALE WITH OCCASIONAL SANDSTONE SEAMS AND LAYERS - Unweathered, Medium Hard, Frequent Fractures, Occasional Mineral Veins, Dark Gray
H1-SHALE WITH FREQUENT SANDSTONE SEAMS - Slightly Weathered, Medium Hard, Frequent Fractures, Dark Gray
J1-SHALE WITH OCCASIONAL SANDSTONE SEAMS - Slightly Weathered, Medium Hard, Frequent Fractures, Dark Gray
K1-SHALE - Unweathered, Medium Hard, Frequent Fractures, Occasional Mineral Veins, Dark Gray
L1-SHALE WITH FREQUENT SANDSTONE SEAMS AND LAYERS - Unweathered, Medium Hard, Frequent Fractures, Occasional Mineral Veins, Dark Gray
M1-Highly Weathered Shale
N1-SHALE - Weathered, Medium Hard, Gray
P1-SHALE WITH OCCASIONAL SANDSTONE PARTINGS AND SEAMS - Slightly Weathered, Medium Hard, Occasional Sandstone Partings and Seams, Frequent
Q1-SHALE - Unweathered, Medium Hard, Frequent Fractures, Slickensided, Gray
R1-SHALE - Unweathered, Medium Hard, Frequent Fractures and Calcite Veins, Slickensided, Gray
S1-SHALE - Unweathered, Medium Hard, Frequent Fractures and Mineral Veins, Slickensided, Gray
T1-SHALE WITH FREQUENT SANDSTONE LAYERS AND SEAMS - Unweathered, Medium Hard, Frequent to Occasional Fractures, Slickensided, Gray
U1-Clay with Gravel
V1-SHALE - Medium Hard, Weathered, Gray
W1-SHALE - Slightly Weathered, Medium Hard, Frequent Fractures, Dark Gray
X1-SANDSTONE - Slightly Weathered, Well Cemented, Frequent Fractures, Gray
Y1-SHALE - Slightly Weathered, Hard, Fractured Fractures, Dark Gray
Z1-SHALE - Unweathered, Hard, Frequent Fractures, Dark Gray
A2-SANDSTONE WITH INTERBEDDED SHALE AND FREQUENT THICK MINERAL VEINS - Unweathered, Well Cemented, Frequent Fractures, Gray
B2-SHALE - Unweathered, Hard, Frequent Quartz/Calcite Seams and Layers, Frequent Fractures, Dark Gray
C2-SHALE WITH FREQUENT SANDSTONE LAYERS - Unweathered, Hard, Dark Gray
D2-SANDSTONE - Unweathered, Well Cemented, Gray

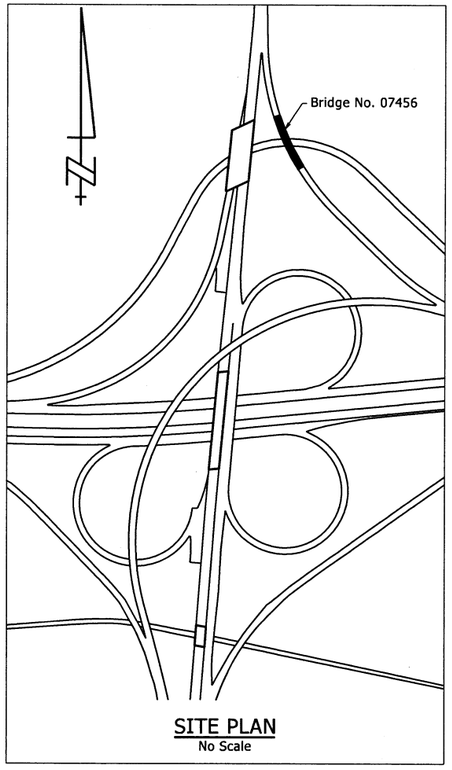


SUPERELEVATION TRANSITION SKETCH

Looking Ahead
No Scale

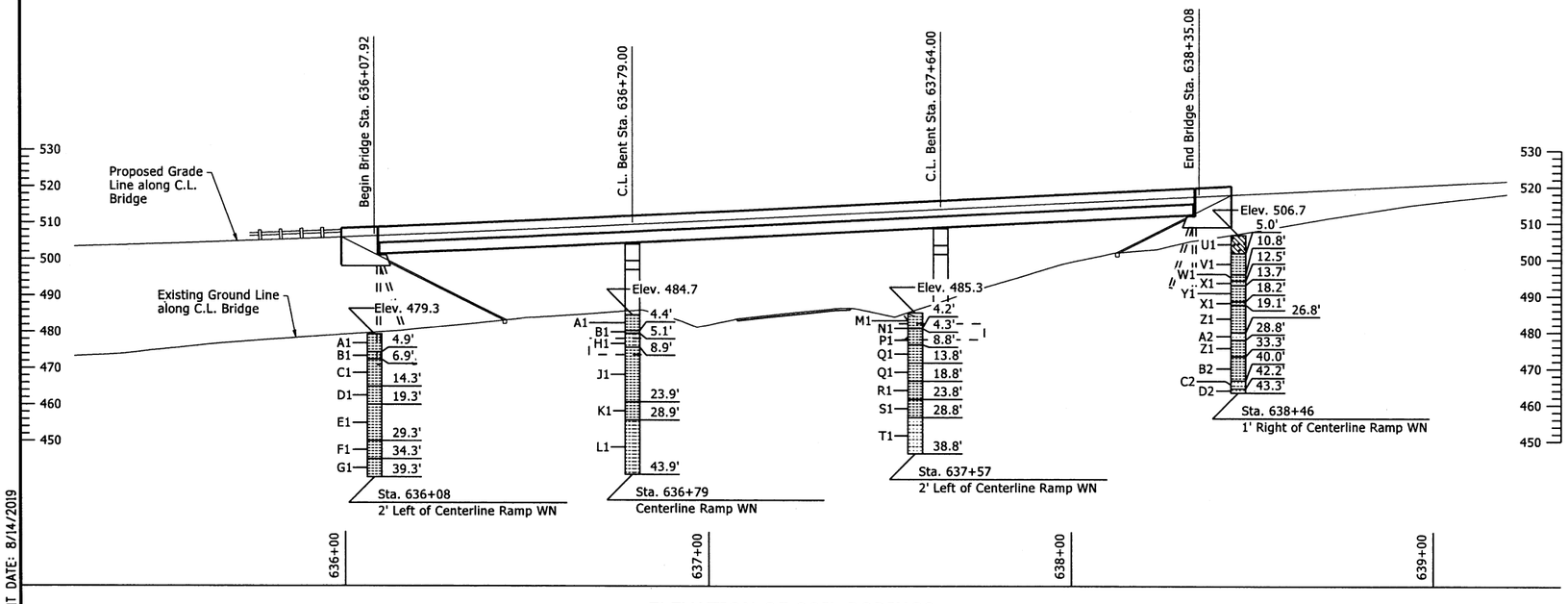
Superelevation transition begins at Sta. 637+49.07.

See Roadway Plans for superelevation beyond limits shown.



SITE PLAN

No Scale



ELEVATION OF SOIL BORINGS

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

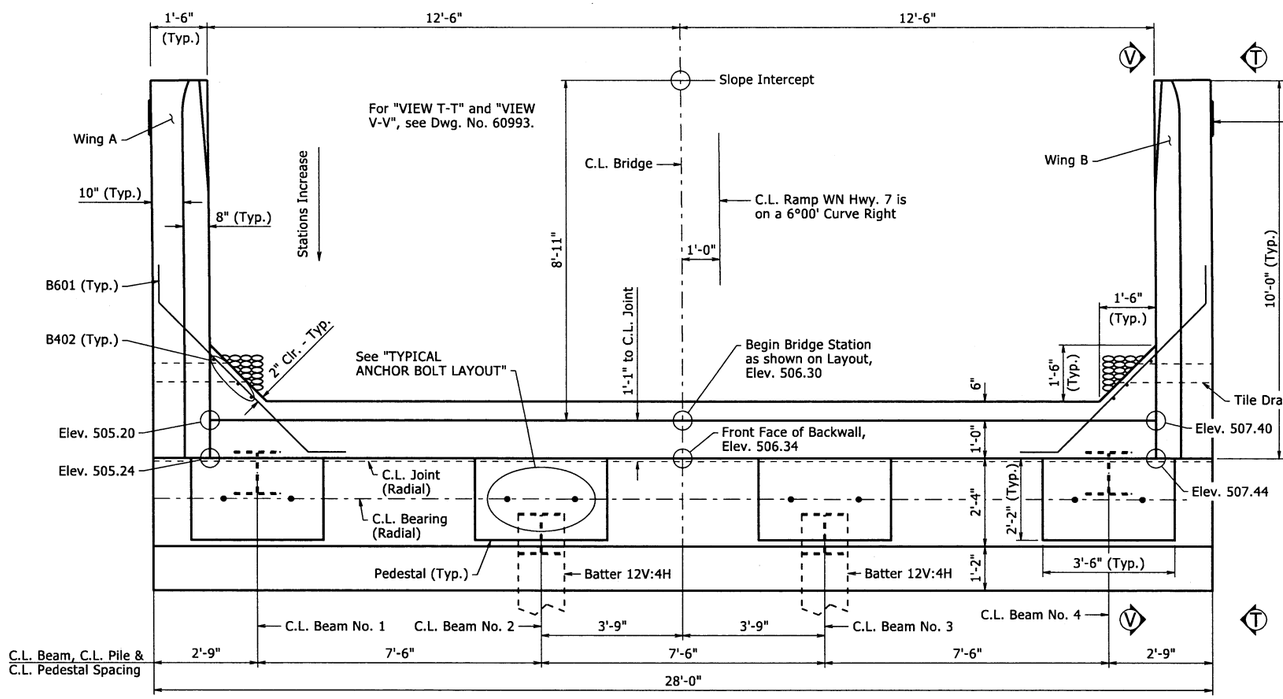
SHEET 2 OF 2
LAYOUT OF BRIDGE
RAMP WN OVER HWY. 70 FRONTAGE ROAD
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 4/22/2019 FILENAME: br60140x4_l1.dgn
CHECKED BY: WAC DATE: 5/14/19 SCALE: 1" = 20'
DESIGNED BY: DKS DATE: 4/2019
BRIDGE NO. 07456 DRAWING NO. 60990

PRINT DATE: 8/14/2019

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.		R60140	216	616
				07456 -	END BENTS	- 60991		



PLAN - BENT 1

½" = 1'-0"

(1) Place 6"ø tile drains approx. 6" above fill slope. Spread bars as required. Place 6 cu. ft. of sacked ¾" crushed rock or gravel at each drain. All work and materials to install drains shall be subsidiary to "Class S Concrete".

Class 1 Protective Surface Treatment shall be applied to the top of the backwall and the roadway face and top of the wing rails. Class 3 Textured Coating Finish shall be applied to all areas as specified in Special Provision Job No. R60140 "Textured Coating Finish".

GENERAL NOTES:

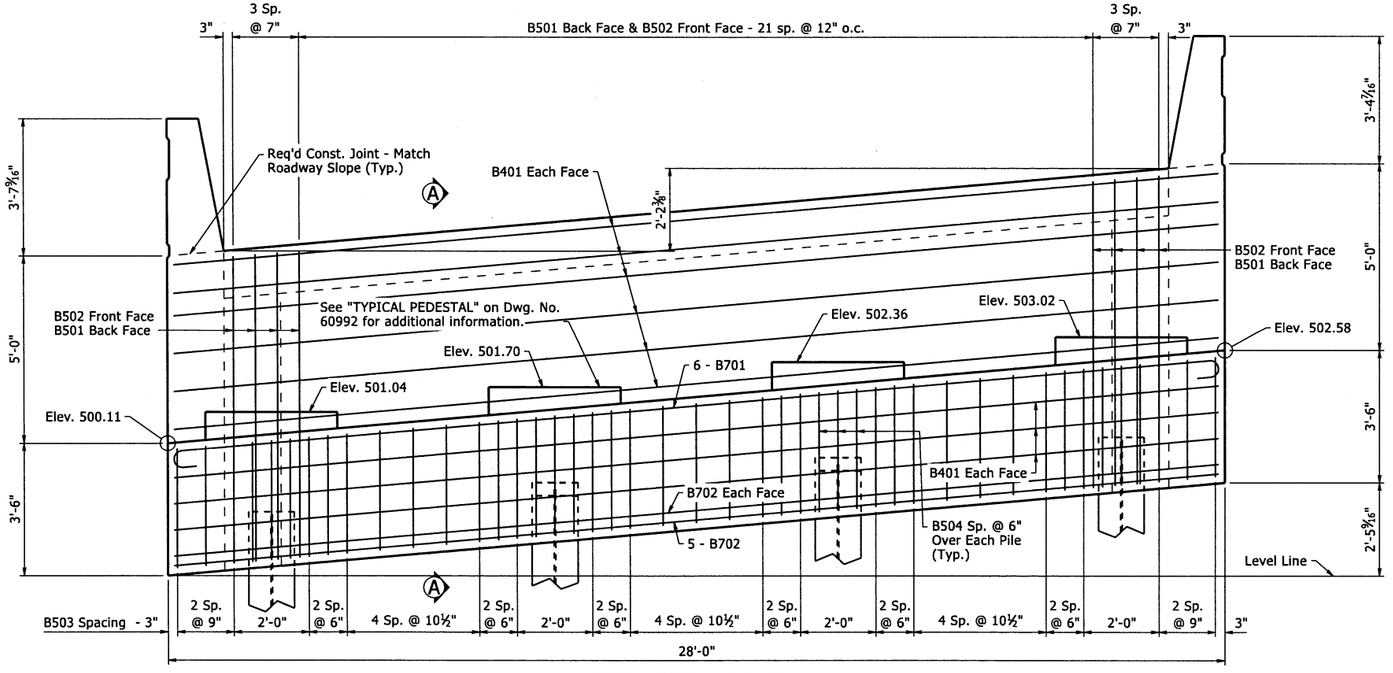
Structural Steel in end bents shall be ASTM A709, Gr. 50 and shall be paid for as "Structural Steel in Beam Spans (A709, Gr. 50)".

For details of steel piling, See Std. Dwg. No. 55020.

All piling shall be Gr. 50.

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 adjacent deck pour has been made. Refer to the "EXPANSION DEVICE INSTALLATION AT END BENTS" note on Std. Dwg. No. 55008. No heavy construction equipment shall be allowed directly behind the backwall until the deck concrete placement for the adjacent span has been completed.

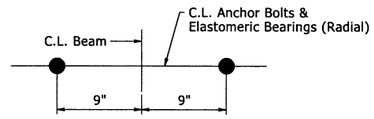
See Std. Dwg. No. 55006 for additional notes.



ELEVATION - BENT 1

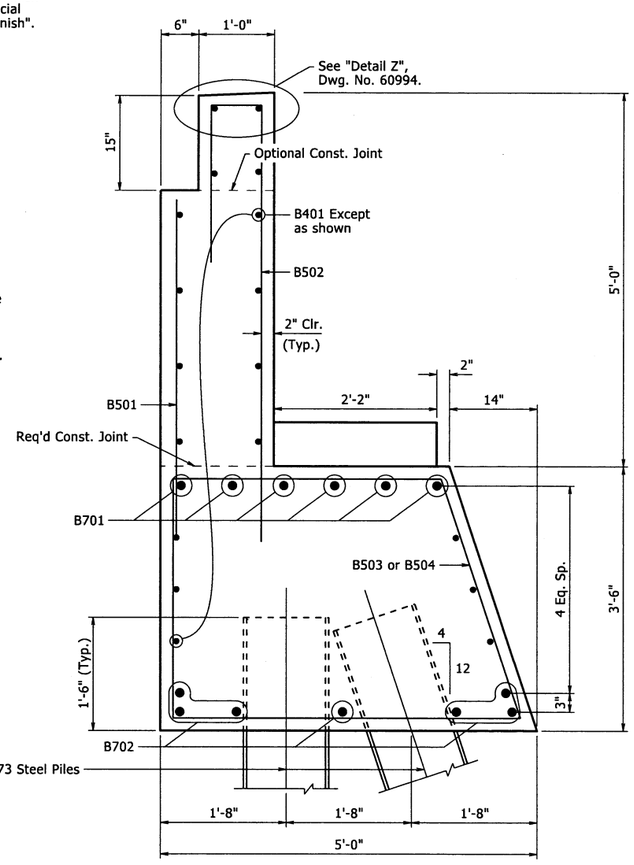
½" = 1'-0"
Looking Back

For details of elastomeric bearings, see Dwg. Nos. 61075-61076.



TYPICAL ANCHOR BOLT LAYOUT

1½" = 1'-0"



SECTION A-A

1" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
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SHEET 1 OF 4
DETAILS OF END BENTS
HWY. 70 FRONTAGE ROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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DESIGNED BY: DKS DATE: 5/2019

BRIDGE NO. 07456 DRAWING NO. 60991

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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
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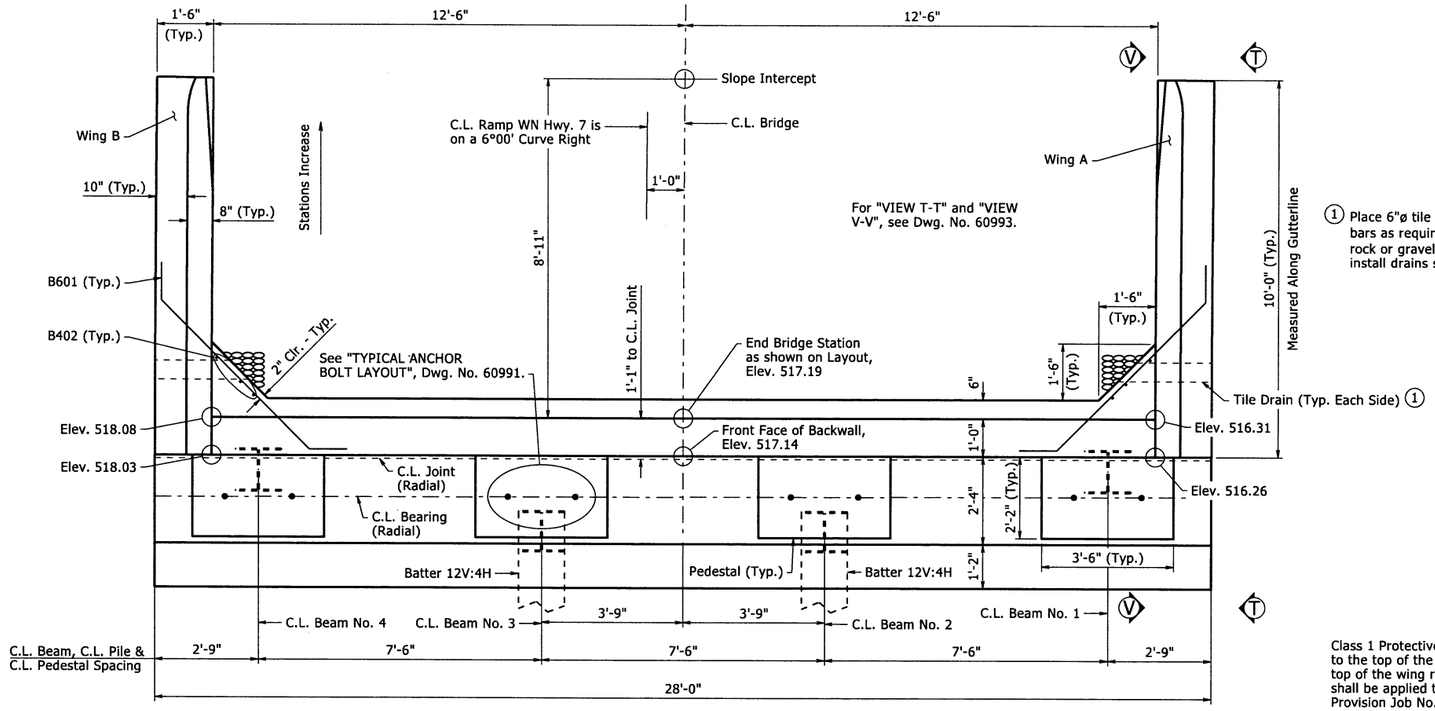
				JOB NO.		R60140	217	616
				07456 - END BENTS - 60992				



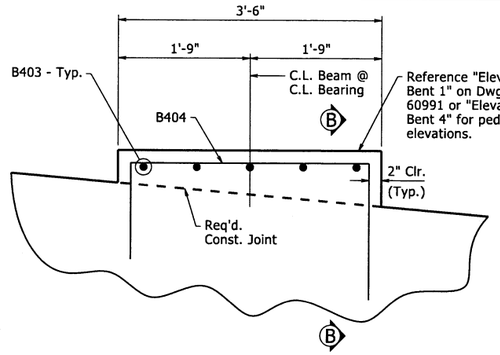
PLAN - BENT 4

½" = 1'-0"

(1) Place 6"ø tile drains approx. 6" above fill slope. Spread bars as required. Place 6 cu. ft. of sacked ¾" crushed rock or gravel at each drain. All work and materials to install drains shall be subsidiary to "Class S Concrete".

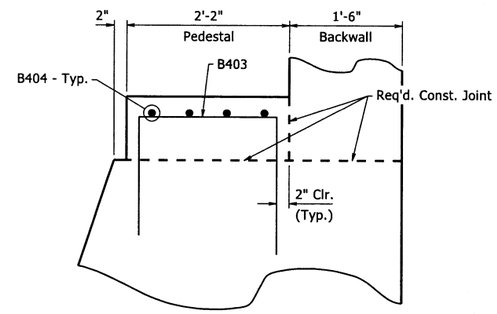
Class 1 Protective Surface Treatment shall be applied to the top of the backwall and the roadway face and top of the wing rails. Class 3 Textured Coating Finish shall be applied to all areas as specified in Special Provision Job No. R60140 "Textured Coating Finish".

See Dwg. No. 60991 for "GENERAL NOTES".



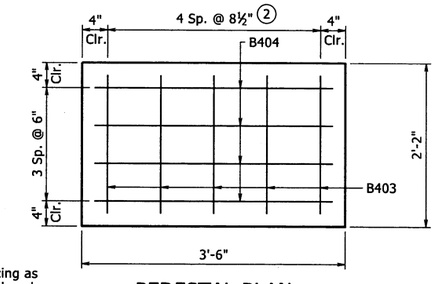
TYPICAL PEDESTAL

1" = 1'-0"



SECTION B-B

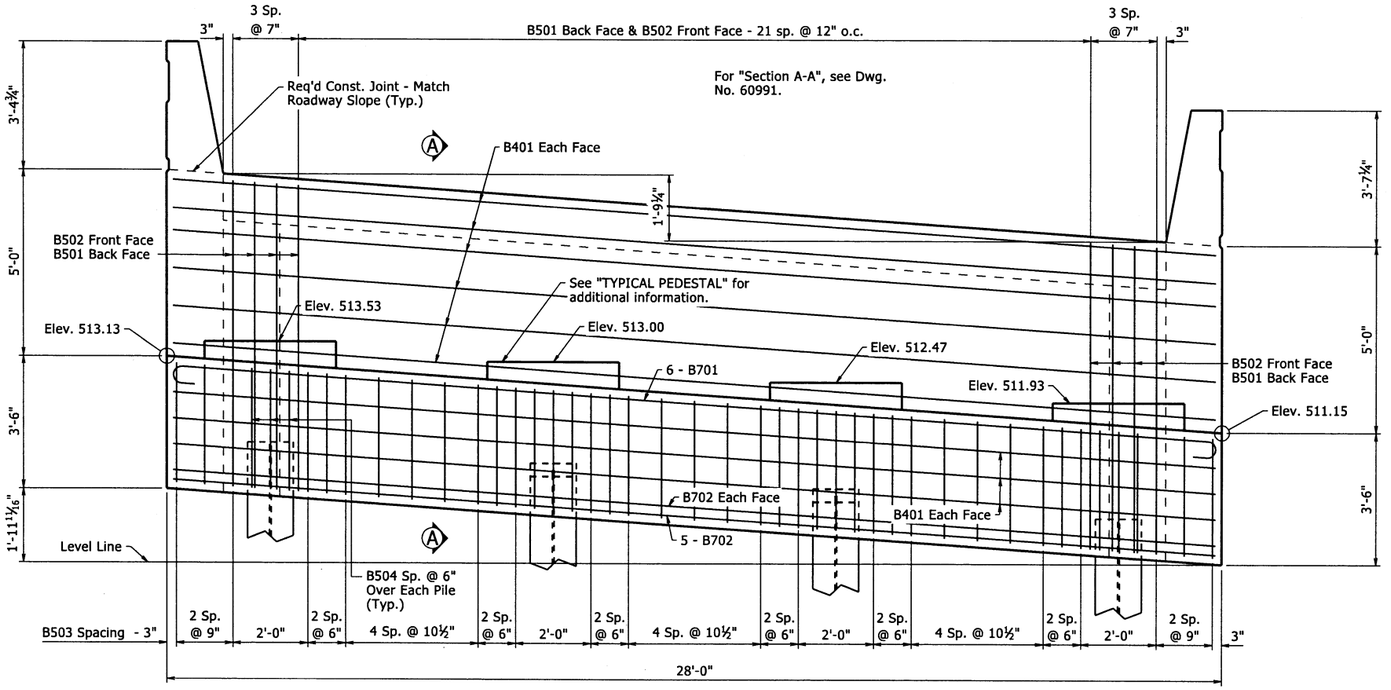
1" = 1'-0"



(2) Adjust bar spacing as needed to avoid anchor bolts.

PEDESTAL PLAN

1" = 1'-0"



ELEVATION - BENT 4

½" = 1'-0"
Looking Ahead

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
3-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 4
DETAILS OF END BENTS
HWY. 70 FRONTAGE ROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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CHECKED BY: DBS DATE: 3/14/19 SCALE: AS NOTED
DESIGNED BY: DKS DATE: 5/2019

BRIDGE NO. 07456 DRAWING NO. 60992

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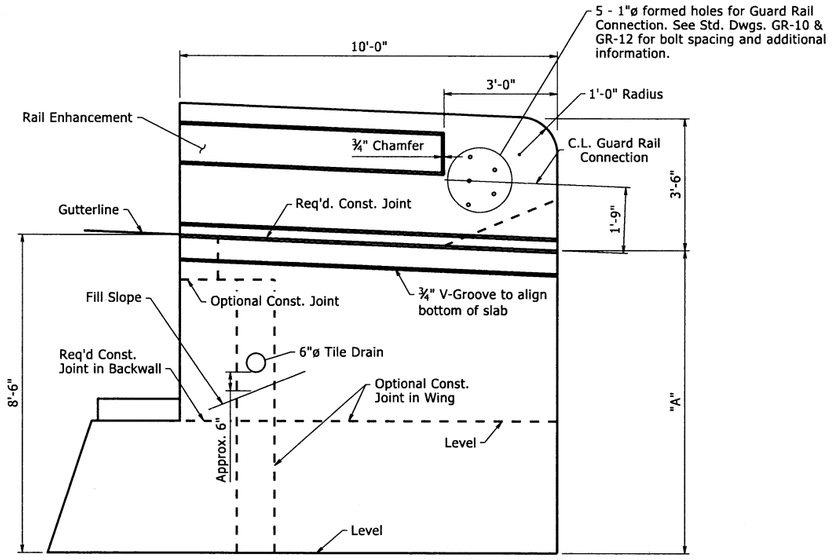
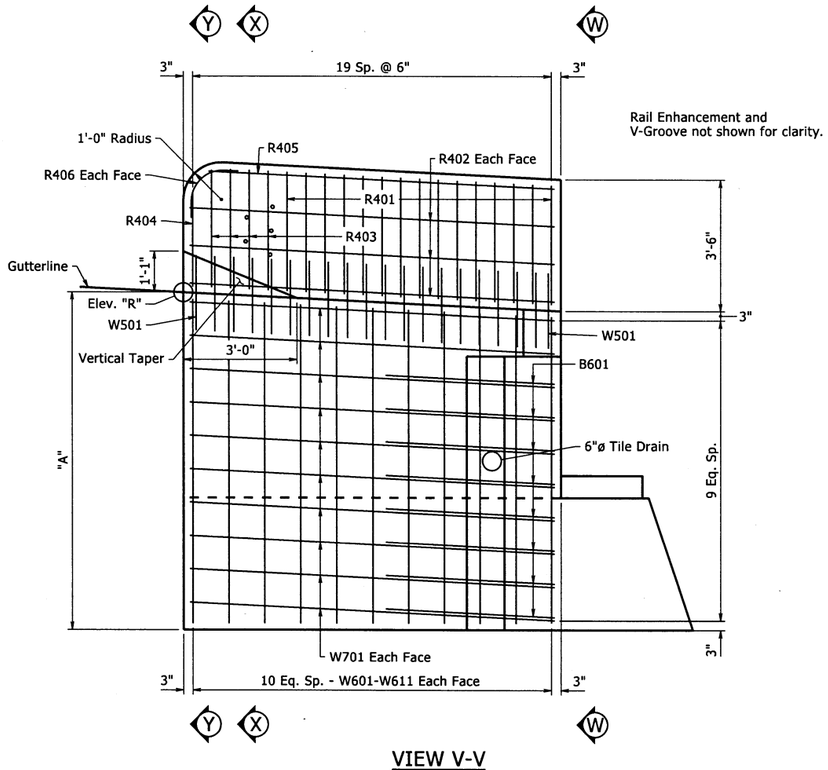
				JOB NO.		R60140	218	616
				07456 - END BENTS - 60993				



VIEW T-T

½" = 1'-0"
Wing B, Bent 1 Shown



Rail Enhancement and V-Groove not shown for clarity.

VIEW V-V

½" = 1'-0"
Wing B, Bent 1 Shown

For "VIEW W-W", "SECTION X-X", and "SECTION Y-Y", see Dwg. No. 60994.

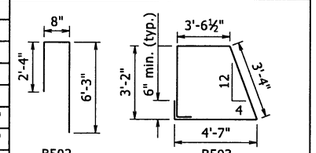
TABLE OF VARIABLES

Wing	Bent	Variable				
		Elev. "R"	"A"	"B"	"L1"	"L2"
A	1	504.84	8'-1 3/16"	4½"	7'-9"	8'-1"
B	1	507.05	8'-1 5/16"	3"	7'-9"	8'-1"
A	4	516.77	9'-0¼"	4½"	8'-2"	8'-7"
B	4	518.48	8'-11⅜"	3"	8'-2"	8'-7"

BAR LIST - PER BENT

Mark	No. Req'd.	Length	Pin Dia.
B401	18	27'-9"	Str.
B402	6	6'-11"	Str.
B403	20	5'-2"	2"
B404	16	6'-8"	2"
B501	28	5'-0"	Str.
B502	28	9'-1"	2½"
B503	33	15'-2"	2½"
B504	12	9'-10"	2½"
B601	16	7'-6"	4½"
B701	6	29'-5"	5¼"
B702	7	27'-9"	Str.
R401	30	6'-11"	5¾"
R402	12	9'-8"	Str.
R403	8	6'-9"	5¾"
R404	2	5'-4"	2"
R405	2	9'-1"	Str.
R406	4	2'-3"	-
W501	40	4'-8"	6¾"
W601 - W611	4 EA.	"L1" to "L2"	Str.
W701	40	9'-8"	Str.

Bending Diagram (Dimensions are out to out of bars)



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19
BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF END BENTS
HWY. 70 FRONTAGE ROAD

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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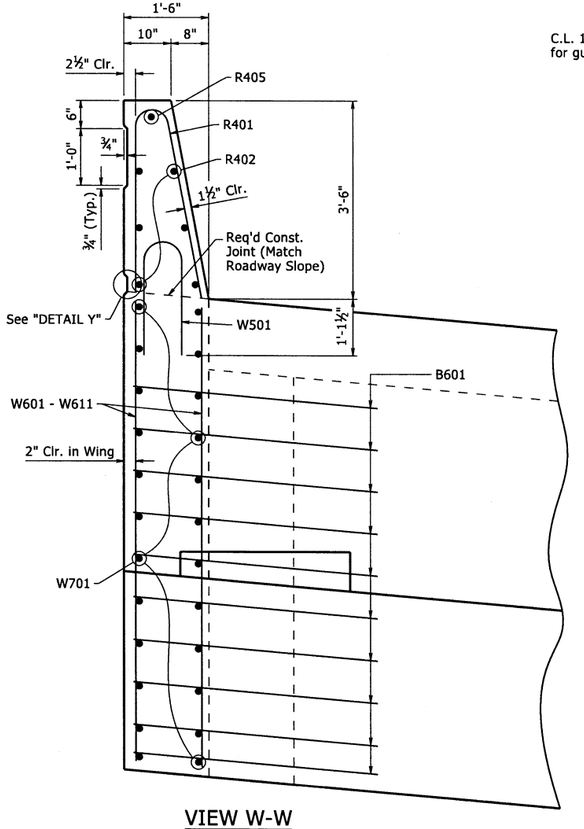
SCALE: AS NOTED

BRIDGE NO. 07456 DRAWING NO. 60993

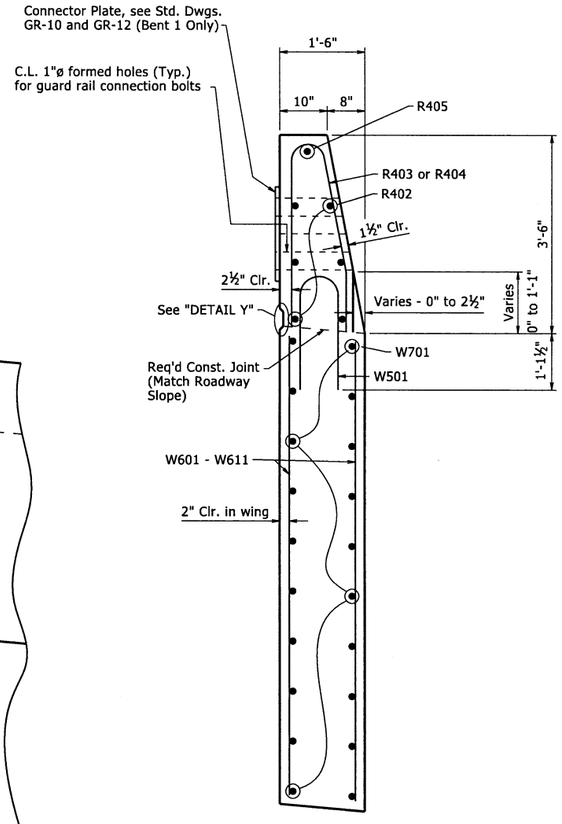
PRINT DATE: 8/14/2019

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.		R60140	219	616
				07456 - END BENTS - 60994				



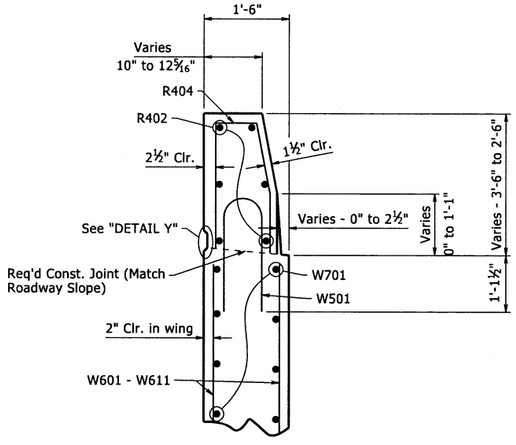
VIEW W-W

¾" = 1'-0"
High Side Shown
Low Side Similar



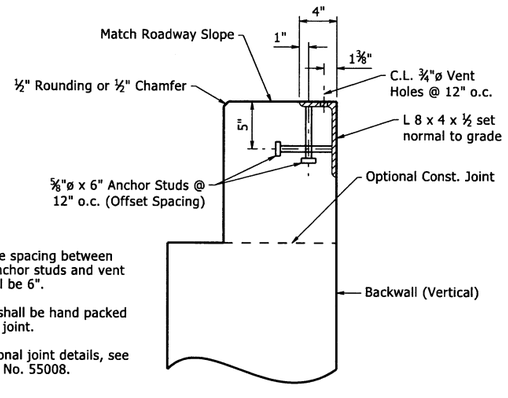
SECTION X-X

¾" = 1'-0"
High Side Shown
Low Side Similar



SECTION Y-Y

¾" = 1'-0"
High Side Shown
Low Side Similar



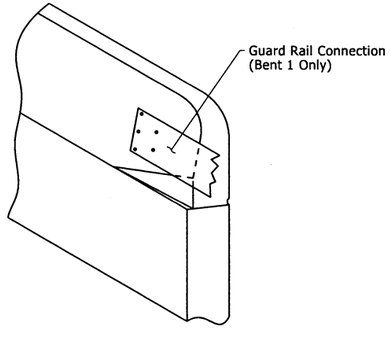
Transverse spacing between vertical anchor studs and vent holes shall be 6".

Concrete shall be hand packed under the joint.

For additional joint details, see Std. Dwg. No. 55008.

DETAIL Z

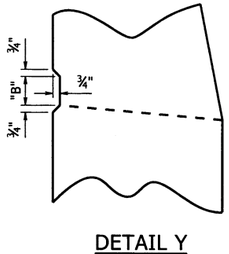
No Scale



THREE DIMENSIONAL VIEW OF RAIL

No Scale
Bent 1 Shown

See "TABLE OF VARIABLES" on Dwg. No. 60993 for "B" dimensions.



DETAIL Y

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 4
DETAILS OF END BENTS
HWY. 70 FRONTAGE ROAD

ROUTE SEC.

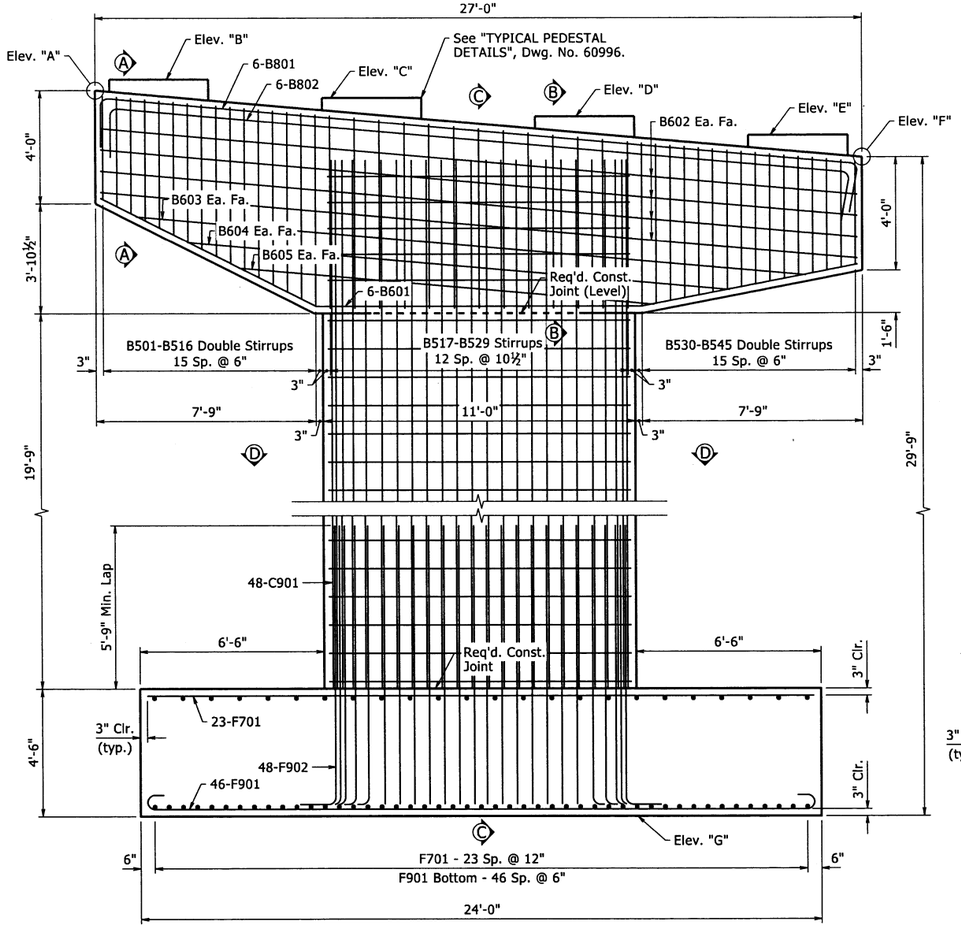
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 6/7/2019
CHECKED BY: DBS DATE: 8/15/19
DESIGNED BY: DKS DATE: 5/2019
FILENAME: br60140x4_b1.dgn
SCALE: AS NOTED

BRIDGE NO. 07456
DRAWING NO. 60994

PRINT DATE: 8/15/2019

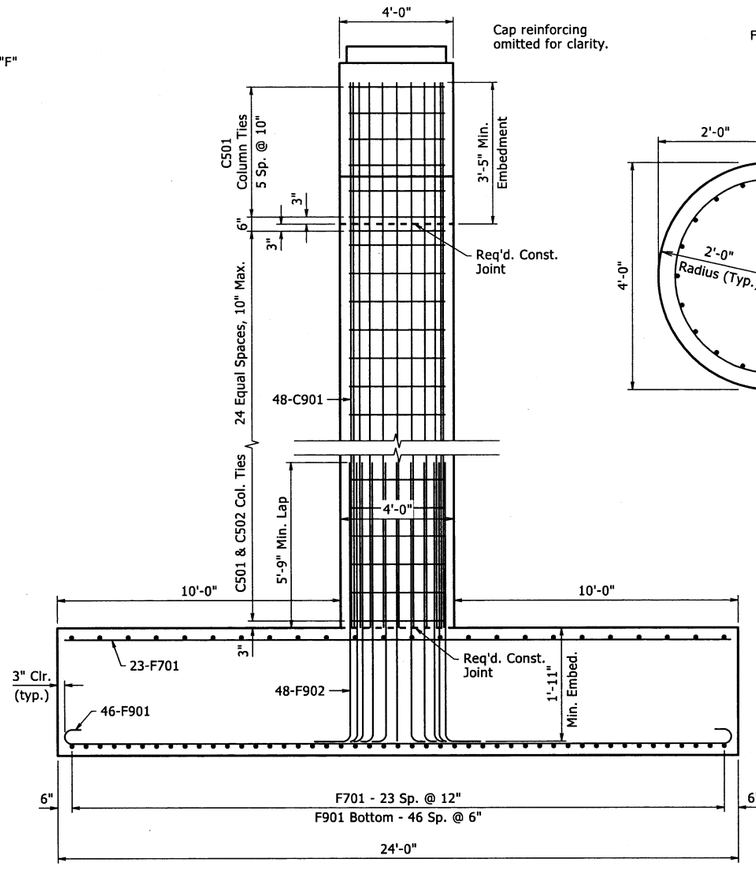
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	220	618
				07456 - INT. BENTS - 60995				



ELEVATION

Looking Ahead

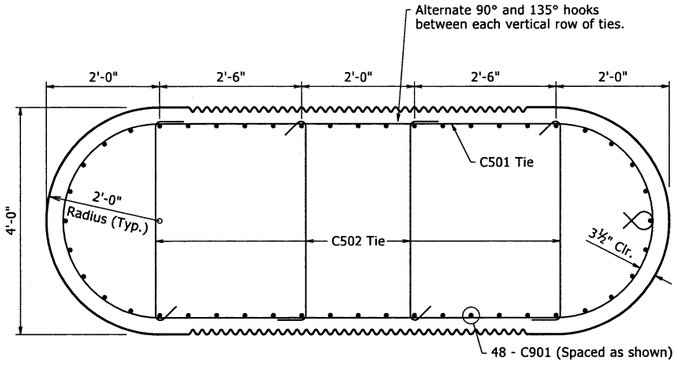
⅜" = 1'-0"



SECTION C-C

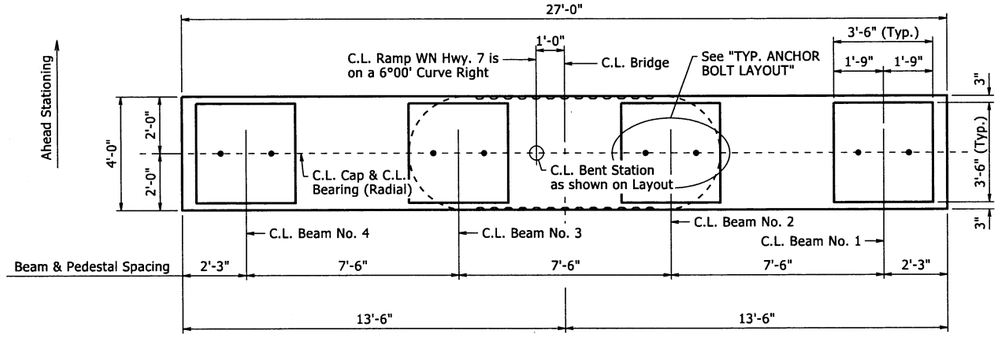
⅜" = 1'-0"

For "COMMON DETAILS OF COLUMN ENHANCEMENT", see Dwg. No. 60966.



SECTION D-D

¾" = 1'-0"



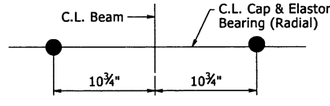
PLAN

⅜" = 1'-0"

TABLE OF VARIABLES

Bent No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	Elev. "F"	Elev. "G"
2	505.79	506.18	505.52	504.86	504.20	503.42	473.67
3	509.97	510.38	509.74	509.10	508.46	507.60	477.89

For Details of Elastomeric Bearings, see Dwg. Nos. 61075-61076.



TYP. ANCHOR BOLT LAYOUT

1½" = 1'-0"

See Std. Dwg. No. 55006 for additional notes.

See Layout for additional information.

See Dwg. No. 60996 for Bar List and additional Sections.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-20-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS
HWY. 70 FRONTAGE ROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

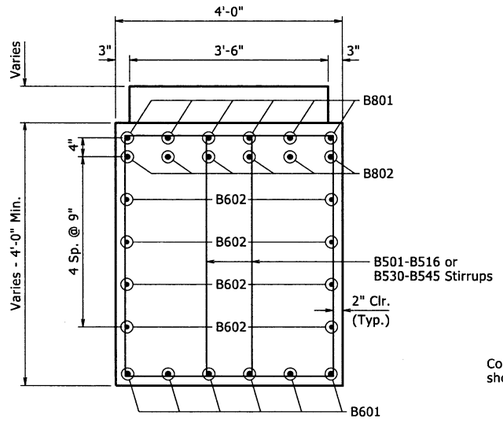
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 6/7/2019 FILENAME: br60140x4_b2.dgn
CHECKED BY: LJB DATE: 8-20-19 SCALE: AS NOTED
DESIGNED BY: DKS DATE: 5/2019

BRIDGE NO. 07456 DRAWING NO. 60995

PRINT DATE: 8/20/2019

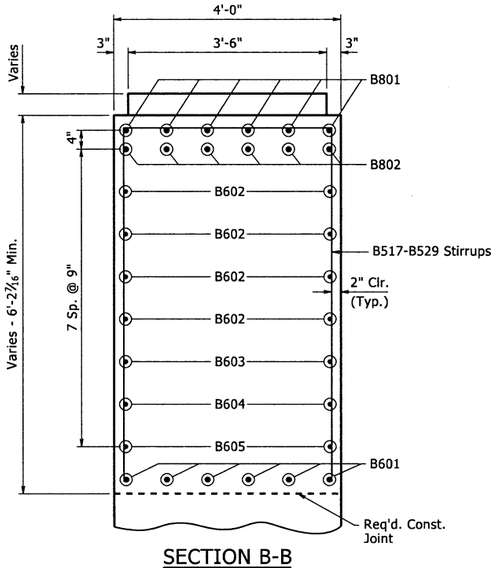
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	221	616
				①	07456 - INT. BENTS - 60996			



SECTION A-A

¾" = 1'-0"

Column reinforcing not shown for clarity.



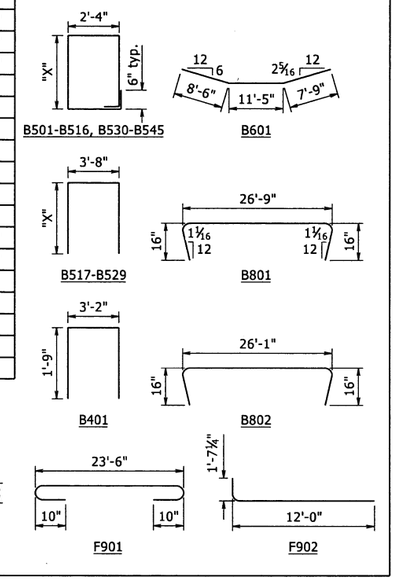
SECTION B-B

¾" = 1'-0"

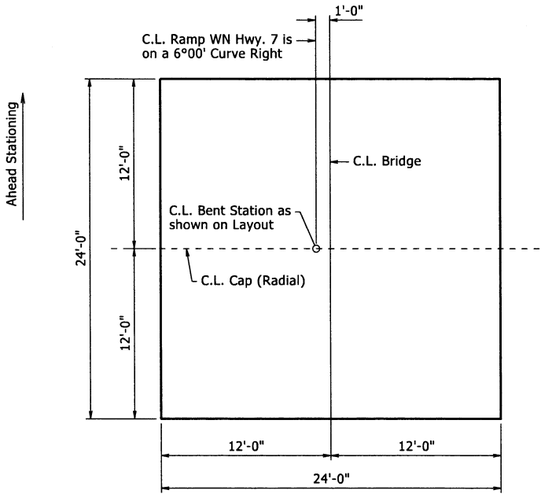
BAR LIST - PER BENT

MARK	NO. REQ'D.	"X"	LENGTH	PIN DIA.
B401	44		6'-6"	2"
B501-B516	2 EA.	3'-9" to 6'-10"	12'-8" to 18'-10"	2½"
B517-B529	1 EA.	5'-10" to 6'-9"	15'-2" to 17'-0"	2½"
B530-B545	2 EA.	3'-8" to 5'-10"	12'-6" to 16'-10"	2½"
B601	6	-	27'-8"	4½"
B602	8	-	26'-9"	Str.
B603	2	-	23'-8"	Str.
B604	2	-	19'-2"	Str.
B605	2	-	14'-8"	Str.
B801	6	-	29'-0"	6"
B802	6	-	28'-4"	6"
C501	31	-	26'-3"	3¾"
C502	100	-	4'-4"	3¾"
C901	48	-	25'-3"	Str.
F701	46	-	23'-6"	Str.
F901	92	-	26'-0"	9"
F902	48	-	13'-4"	9"

BENDING DIAGRAMS

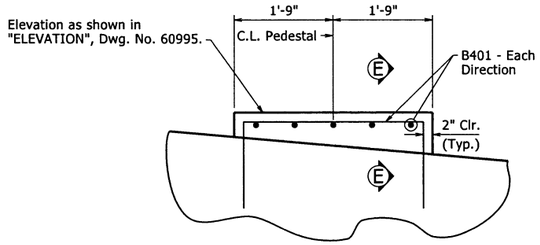


Dimensions are out to out of bars, unless noted otherwise.



LAYOUT OF FOOTING

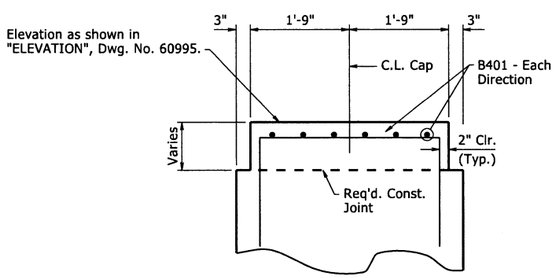
No Scale



TYPICAL PEDESTAL DETAILS

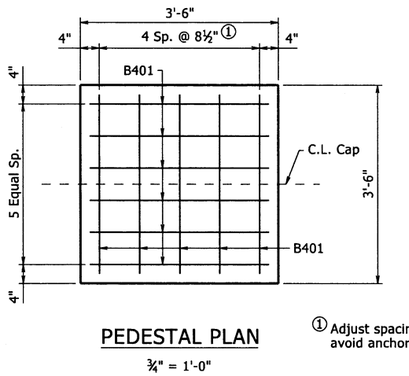
¾" = 1'-0"

Cap reinforcing not shown for clarity.



SECTION E-E

¾" = 1'-0"



PEDESTAL PLAN

¾" = 1'-0"

① Adjust spacing as needed to avoid anchor bolts.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS
HWY. 70 FRONTAGE ROAD

ROUTE SEC.

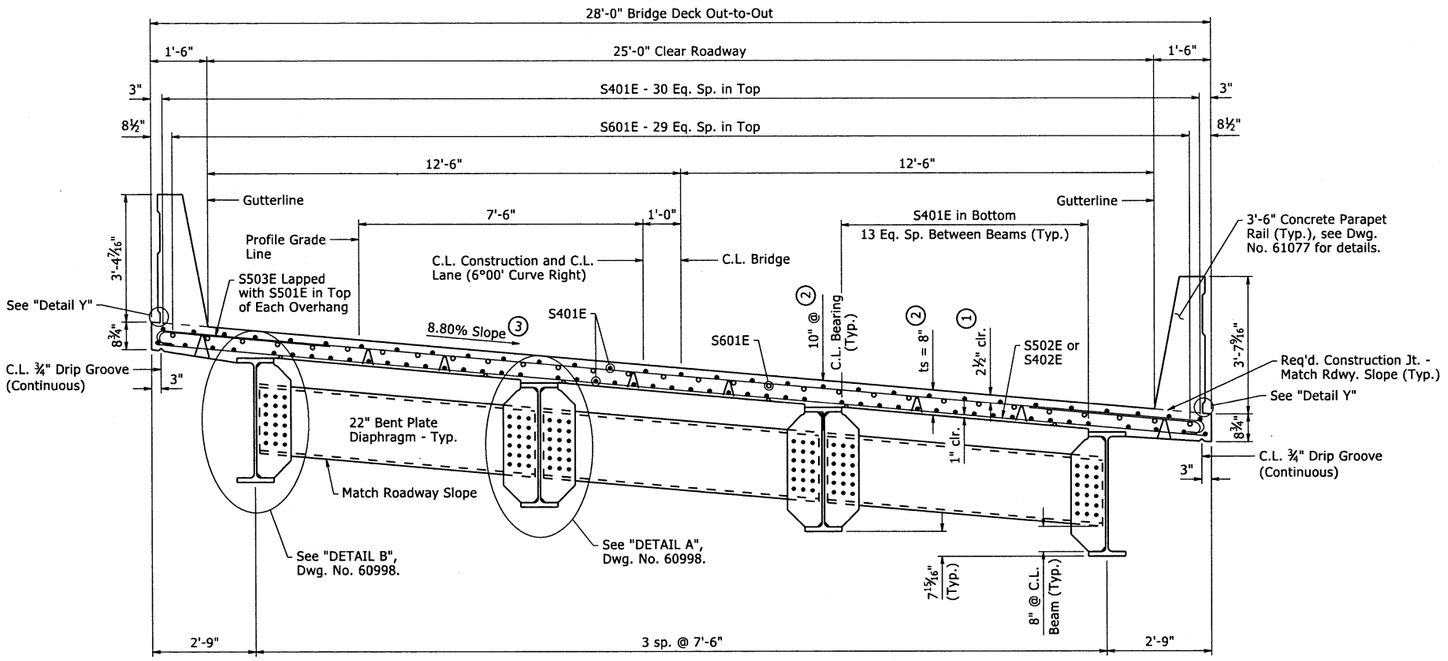
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 6/7/2019 FILENAME: br60140x4_b2.dgn
CHECKED BY: LJB DATE: 8-13-19 SCALE: AS NOTED
DESIGNED BY: DKS DATE: 5/2019

BRIDGE NO. 07456 DRAWING NO. 60996

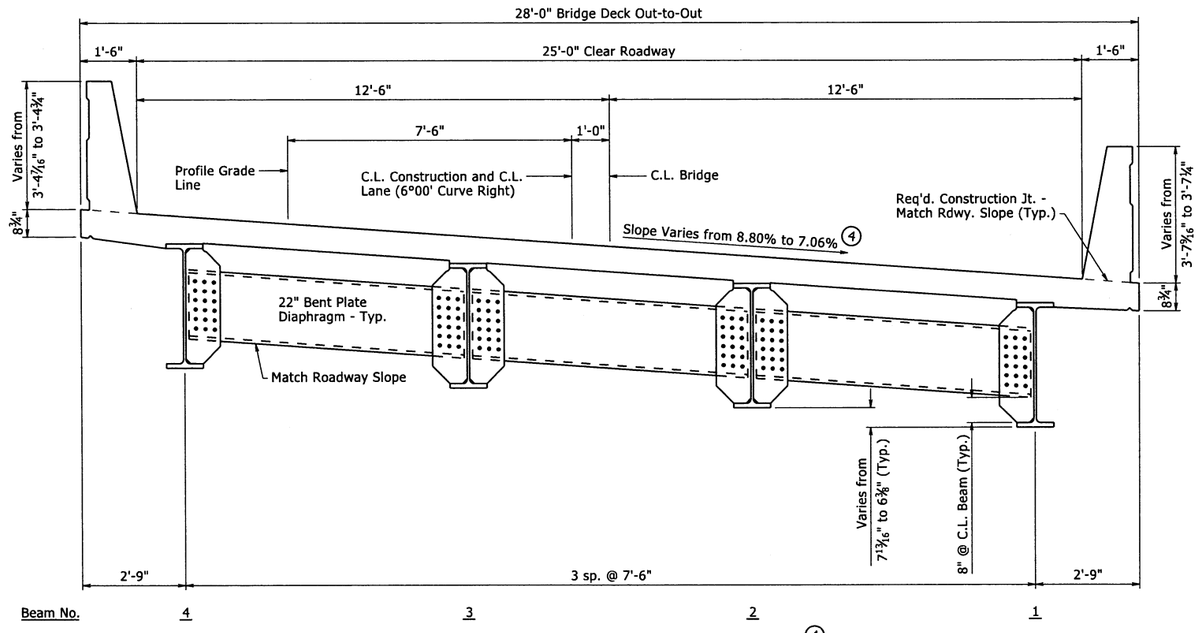
PRINT DATE: 8/13/2019

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.		R60140	222	616
				①	07456 - 225' UNIT - 60997			



TYPICAL ROADWAY SECTION

Looking Ahead
Beginning of Unit to Sta. 637+49.07 ③
½" = 1'-0"



ROADWAY CROSS-SLOPE TRANSITION ④

Looking Ahead
Sta. 637+49.07 To End of Unit at Sta. 638+34.00
½" = 1'-0"

Slab Reinforcing:

Longitudinal: S401E Top and Bottom placed as shown
S601E Placed as shown, see "REINFORCING PLAN AND SLAB POURING SEQUENCE", Dwg. No. 61000.

Transverse: S501E @ 12" o.c. in top, S402E @ 12" o.c. in bottom
S501E @ 12" o.c. in top, S502E @ 12" o.c. in bottom — Alternate
S503E @ 6" in top of overhangs (bundled with S501E bars)

Bar positions or clearances from the forms shall be maintained by means of stays, ties, hangers or other approved devices per Subsection 804.06. Placement of slab bolsters or high-chairs with full-length lower runners directly on removable deck forms will not be allowed.

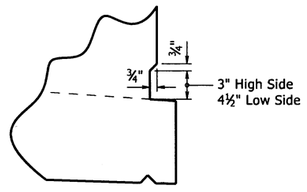
Class 1 Protective Surface Treatment shall be applied to the Roadway Surface and the Roadway Face and Top of Concrete Parapet Rail. Class 3 Textured Coating Finish shall be applied to all areas as specified in Special Provision Job No. R60140 "Textured Coating Finish".

① Tolerance: Minus = ¼";
Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. 55007.

② See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007.

③ See "ROADWAY CROSS-SLOPE TRANSITION".

④ See Layout for "SUPERELEVATION TRANSITION SKETCH".



DETAIL Y

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8/20/19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS OF 225'-0" W-BEAM UNIT
HWY. 70 FRONTAGE ROAD

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 5/24/2019
CHECKED BY: DBS DATE: 8/20/19
DESIGNED BY: DKS DATE: 5/2019
FILENAME: br60140x4_s1.dgn
SCALE: AS NOTED

BRIDGE NO. 07456 DRAWING NO. 60997

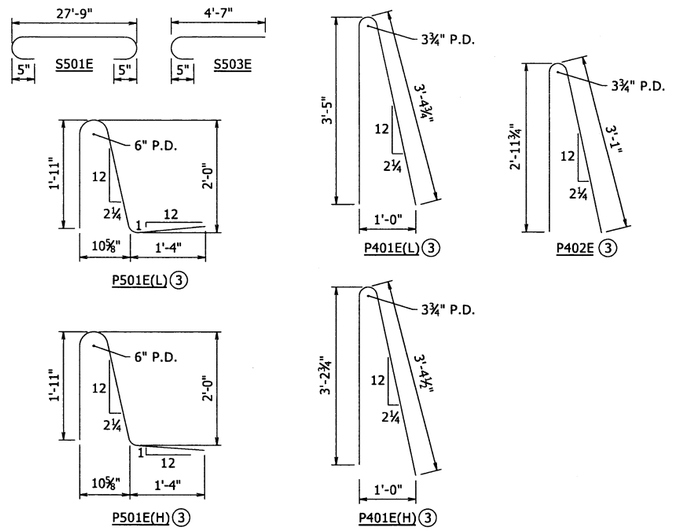
PRINT DATE: 8/20/2019

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.		R60140	223	6/6
				①	07456 - 225' UNIT - 60998			

BAR LIST

MARK	NO. REQ'D	LENGTH	P.D.
S401E	486	40'-3"	Str.
S402E	224	27'-9"	Str.
S501E	449	28'-11"	3¾"
S502E	225	27'-9"	Str.
S503E	898	5'-2"	3¾"
S601E	150	36'-7"	Str.
P401E(H)	462	6'-7"	3¾"
P401E(L)	402	6'-8"	3¾"
P402E	48	6'-2"	3¾"
P403E	72	5'-8"	Str.
P404E	56	12'-11"	Str.
P405E	56	13'-4"	Str.
P406E	42	13'-9"	Str.
P407E	42	14'-2"	Str.
P408E	14	14'-11"	Str.
P409E	14	15'-4"	Str.
P501E(H)	462	5'-4"	3¾"
P501E(L)	402	5'-4"	3¾"

BENDING DIAGRAMS



Dimensions are out to out of bars.

Bars with an "E" suffix are to be epoxy coated.

Bars with an "(H)" suffix are designated for high side parapet rail.

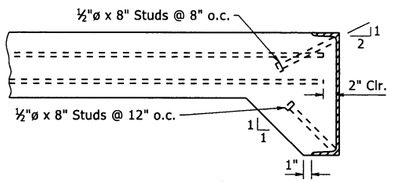
Bars with an "(L)" suffix are designated for low side parapet rail.

See Dwg. No. 60997 for typical roadway section.

① See "CHANNEL CONNECTION DETAIL", Std. Dwg. No. 55008.

② See "SECTION THRU JOINT AT END BENT", Std. Dwg. No. 55008.

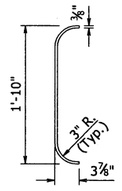
③ See Dwg. No. 61077 for "COMMON DETAILS OF 3'-6" CONCRETE PARAPET RAILS".



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.

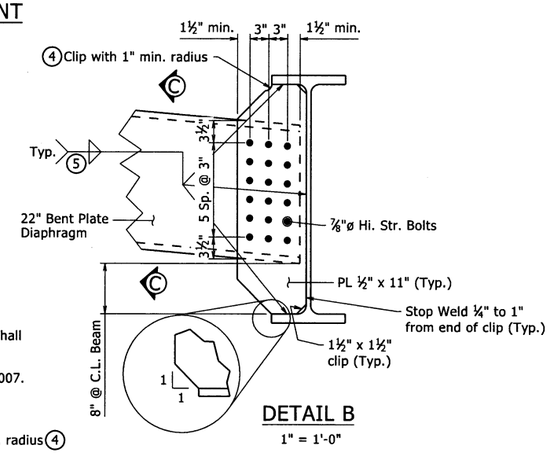
DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

No Scale



SECTION C-C

1" = 1'-0"

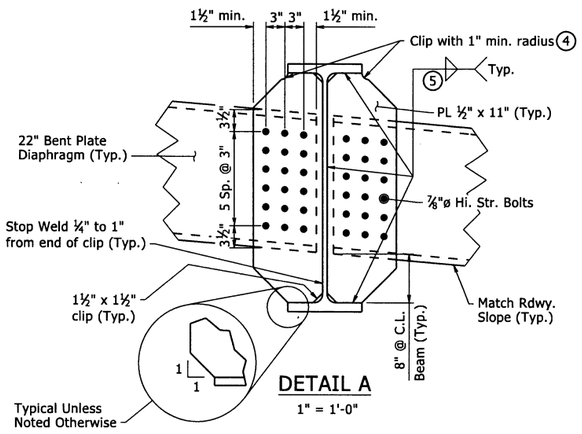


DETAIL B

1" = 1'-0"

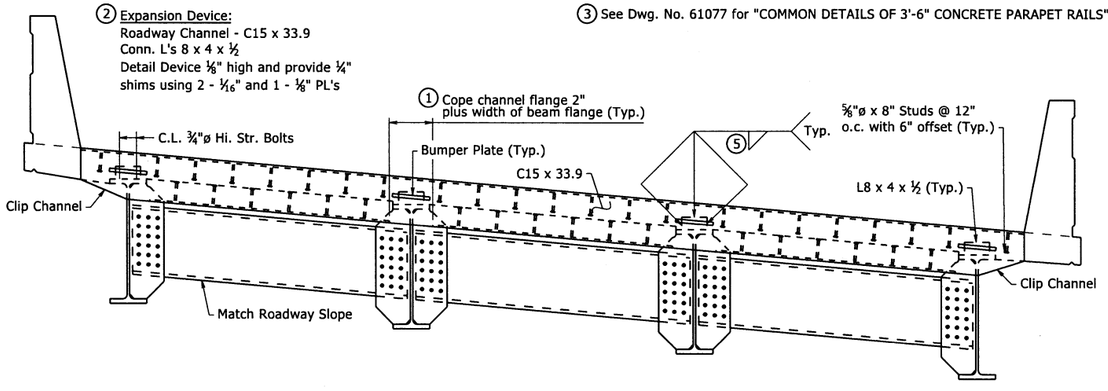
④ If permanent steel bridge deck forms are used, the Fabricator shall clip plates necessary to accommodate the deck form supports.

⑤ See "WELD TABLE" for minimum weld size on Std. Dwg. No. 55007.



DETAIL A

1" = 1'-0"



TYPICAL ROADWAY SECTION NEAR JOINT

Looking Ahead
½" = 1'-0"

TABLE OF SILICONE JOINT DATA

"A" Width Perpendicular to Joint at 24 Hour Average Temperature of:			"B" Perpendicular to Joint at 60°	Bumper Plate Size
40°	60°	80°		
2¼"	2"	1¾"	2⅜" +/-	1" x 1" x 12"

The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

See Std. Dwg. No. 55008 for joint details.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8/20/19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 4
DETAILS OF 225'-0" W-BEAM UNIT
HWY. 70 FRONTAGE ROAD

ROUTE SEC.

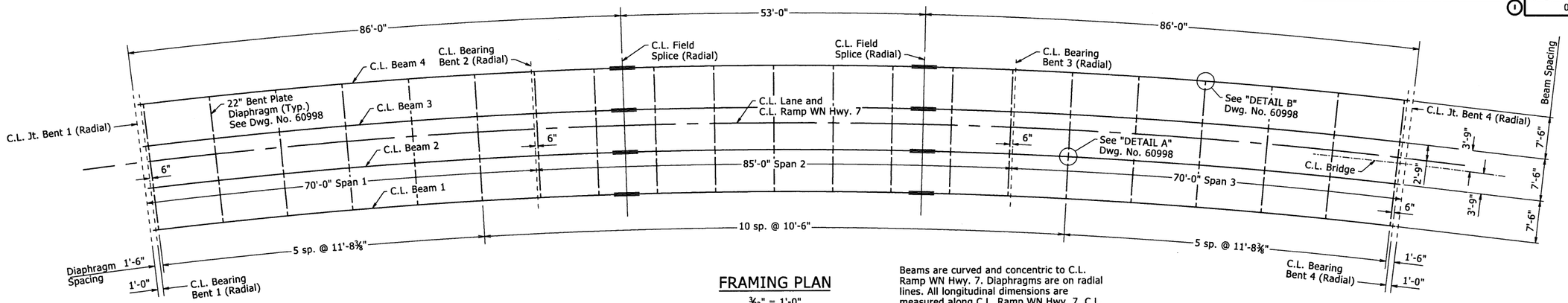
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 5/24/2019 FILENAME: br60140x4_s1.dgn
CHECKED BY: DDS DATE: 8/20/19 SCALE: AS NOTED
DESIGNED BY: DKS DATE: 5/2019

BRIDGE NO. 07456 DRAWING NO. 60998

PRINT DATE: 8/20/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10-7-19				6	ARK.			
				JOB NO.		R60140	224	616
				07456 - 225' UNIT - 60999				



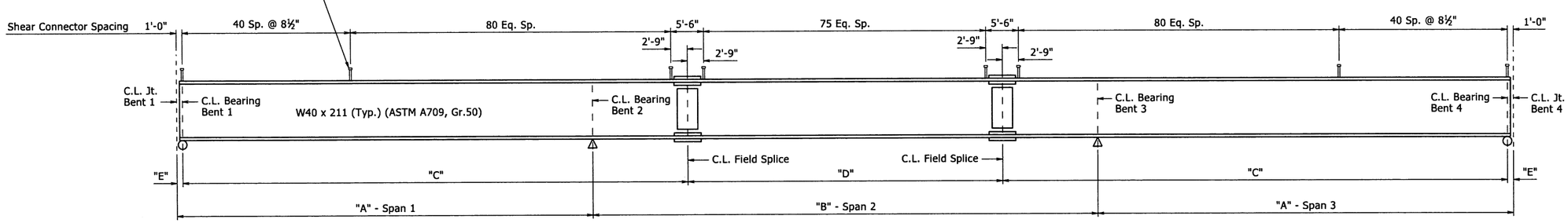
FRAMING PLAN

3/32" = 1'-0"

Beams are curved and concentric to C.L. Ramp WN Hwy. 7. Diaphragms are on radial lines. All longitudinal dimensions are measured along C.L. Ramp WN Hwy. 7. C.L. Ramp WN Hwy. 7 is on a 6°00'00" curve right.

1 Revised shear connector length.

By: DKS, Checked By: DBS, 10-7-19



BEAM ELEVATION

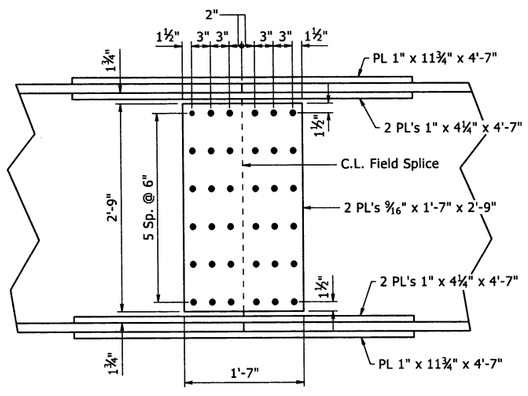
No Scale

TABLE OF VARIABLES 1

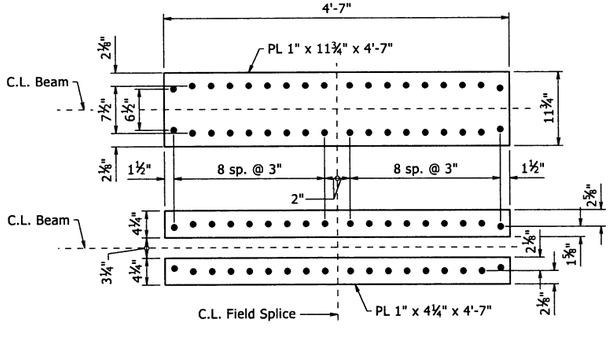
Beam No.	"A"	"B"	"C"	"D"	"E"
1	69'-1¼"	83'-10 15/16"	83'-10 15/16"	52'-3 13/16"	11⅞"
2	69'-7 13/16"	84'-6 15/16"	84'-6 15/16"	52'-8 13/16"	11 15/16"
3	70'-2 7/16"	85'-2 15/16"	85'-2 15/16"	53'-1 13/16"	12 1/16"
4	70'-9"	85'-10 15/16"	85'-10 15/16"	53'-6 13/16"	12⅛"

1 All dimensions are measured along C.L. Beam.

All structural steel shall be ASTM A709, Grade 50 unless otherwise noted, and shall be paid for as "Structural Steel in Beam Spans (A709, Gr. 50)". See Std. Dwg. Nos. 55006 & 55007 for additional notes and details.



(Web Splice)



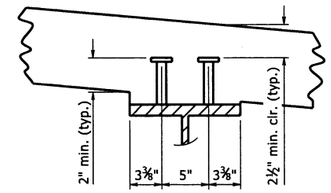
(Flange Splice)

All field splice bolts to be ⅞"ø Hi.Str. Bolts.
All holes for splice bolts to be 15/16"ø.

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.

DETAILS OF FIELD SPLICE

1" = 1'-0"



Stud Shear Connectors shall be automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

SHEAR CONNECTOR DETAIL

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
10-7-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF 225'-0" W-BEAM UNIT
HWY. 70 FRONTAGE ROAD

ROUTE SEC.

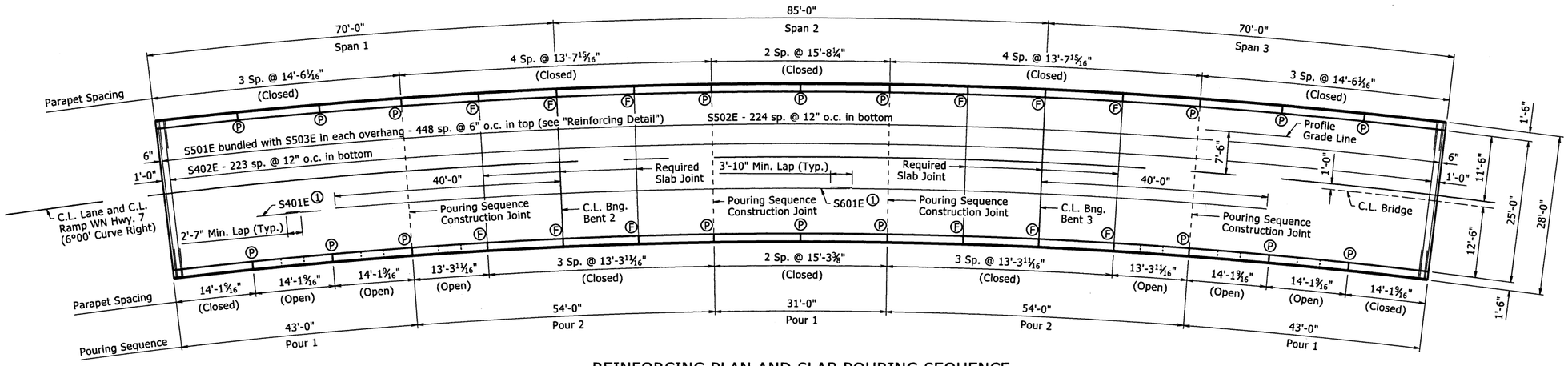
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 5/24/2019 FILENAME: br60140x4_s1.dgn
CHECKED BY: DBS DATE: 10/4/19 SCALE: AS NOTED
DESIGNED BY: DKS DATE: 5/2019

BRIDGE NO. 07456 DRAWING NO. 60999

PRINT DATE: 10/4/2019

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.		R60140	225	616
				①	07456 -	225' UNIT -	61000	



REINFORCING PLAN AND SLAB POURING SEQUENCE

3/32" = 1'-0"

C.L. Ramp WN Hwy. 7 is on a 6°00'00" curve to the right. All longitudinal lines and longitudinal reinforcing steel shall be placed on curves concentric to C.L. Ramp WN Hwy. 7. All transverse reinforcing steel shall be placed on radial lines to C.L. Ramp WN Hwy. 7.

Span lengths, slab pour lengths, and transverse reinforcing spacing shown are measured along C.L. Ramp WN Hwy. 7.

Rail spacings shown are measured along respective gutterlines.

Required slab joints and pouring sequence joints shall align with parapet open joints at the gutterline.

See Std. Dwg. No. 55007 for "TRANSVERSE SLAB JOINT DETAIL".

① Place as shown in typical roadway section, Dwg. No. 60997.

② See Dwg. No. 61077 for "COMMON DETAILS OF 3'-6" CONCRETE PARAPET RAILS".

③ Values shown are for 8.8% cross-slope. Values differ after Sta. 637+49.07. See Dwg No. 60997 for "ROADWAY CROSS-SLOPE TRANSITION".

Ⓕ Full depth parapet joint at this location.

Ⓟ Partial depth parapet joint at this location.

Slab Pouring Sequence:
Pours with the same number may be placed simultaneously or separately. All Pour(s) 1 must be placed before Pour(s) 2 can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between adjacent pours.

Concrete in bridge superstructure shall be placed, consolidated and screeded off before any concrete has taken its initial set. This may require the use of a retarding agent.

A minimum of 72 hours shall elapse between completion of the slab and the pouring of the bridge railing. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence(s) shown.

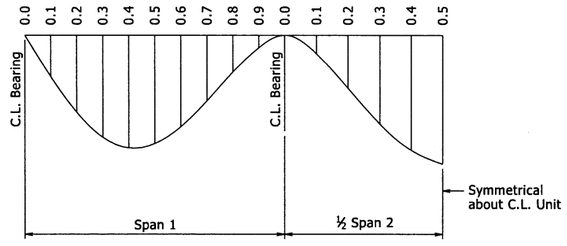
TABLE OF VARIABLES ②

Closed Rail Panels			Open Rail Panels			
Panel Length	"D"	P4XXE Bar	Panel Length	"F"	"P"	P4XXE Bar
13'-3 11/16"	26	P404E	13'-3 11/16"	9	4'-7 7/8"	P404E
13'-7 15/16"	27	P405E	14'-1 9/16"	9	5'-0 3/4"	P406E
14'-1 9/16"	28	P406E				
14'-6 1/16"	28	P407E				
15'-3 3/8"	30	P408E				
15'-8 1/4"	31	P409E				

TABLE OF DEAD LOAD DEFLECTIONS - INCHES

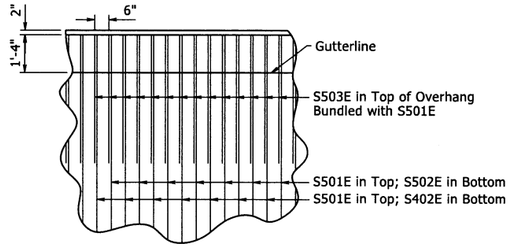
	Point of Deflection	Structural Steel				Structural Steel + Slab				Structural Steel + Slab + Rail			
		Beam 1	Beam 2	Beam 3	Beam 4	Beam 1	Beam 2	Beam 3	Beam 4	Beam 1	Beam 2	Beam 3	Beam 4
Span 1	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.1	0.037	0.041	0.043	0.045	0.165	0.190	0.199	0.197	0.190	0.215	0.226	0.227
	0.2	0.069	0.076	0.080	0.082	0.304	0.350	0.366	0.364	0.350	0.397	0.416	0.419
	0.3	0.090	0.100	0.104	0.108	0.399	0.459	0.480	0.479	0.460	0.522	0.546	0.552
	0.4	0.099	0.110	0.115	0.119	0.440	0.505	0.529	0.528	0.507	0.574	0.602	0.608
	0.5	0.096	0.105	0.111	0.115	0.425	0.487	0.510	0.507	0.489	0.552	0.580	0.584
	0.6	0.081	0.089	0.093	0.096	0.358	0.410	0.431	0.427	0.412	0.466	0.490	0.492
	0.7	0.057	0.063	0.066	0.069	0.254	0.292	0.308	0.304	0.293	0.332	0.350	0.350
	0.8	0.031	0.034	0.036	0.037	0.138	0.159	0.168	0.166	0.159	0.181	0.191	0.191
	0.9	0.009	0.010	0.011	0.011	0.040	0.046	0.050	0.049	0.046	0.053	0.057	0.057
½ Span 2	0.0	0	0	0	0	0	0	0	0	0	0	0	0
	0.1	0.017	0.017	0.018	0.018	0.071	0.077	0.080	0.077	0.082	0.088	0.091	0.089
	0.2	0.050	0.053	0.055	0.056	0.216	0.239	0.248	0.242	0.248	0.271	0.282	0.278
	0.3	0.084	0.091	0.094	0.096	0.367	0.409	0.424	0.417	0.422	0.464	0.483	0.480
	0.4	0.109	0.118	0.122	0.125	0.477	0.532	0.551	0.545	0.548	0.604	0.627	0.627
	0.5	0.118	0.128	0.133	0.136	0.516	0.576	0.597	0.591	0.593	0.655	0.680	0.680

← Symmetrical about C.L. Unit



DEAD LOAD DEFLECTION DIAGRAM

Camber for Dead Load Deflection +/- ¼ inch tolerance. Deflections shown are along C.L. Beam from a plane from C.L. Bearing to C.L. Bearing. Negative sign (-) indicates point above chord. Vertical curve corrections not included.



REINFORCING DETAIL

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19
BRIDGE ENGINEER

SHEET 4 OF 4
DETAILS OF 225'-0" W-BEAM UNIT
HWY. 70 FRONTAGE ROAD

ROUTE SEC.

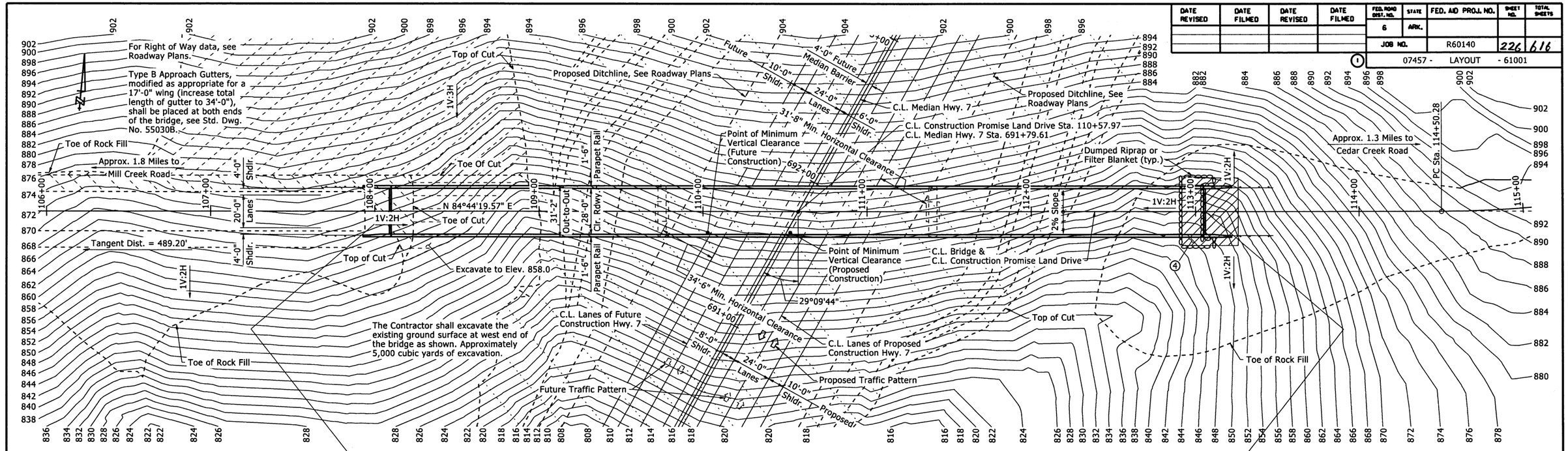
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 5/24/2019 FILENAME: br60140x4_s1.dgn
CHECKED BY: DRS DATE: 8/14/19 SCALE: AS NOTED
DESIGNED BY: DKS DATE: 5/2019

BRIDGE NO. 07456 DRAWING NO. 61000

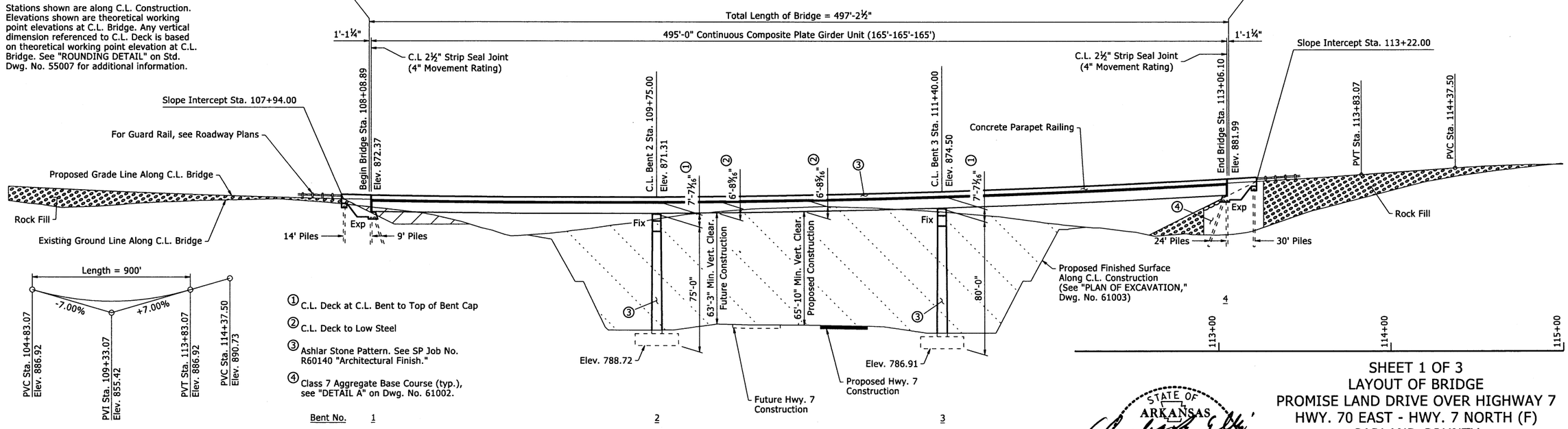
PRINT DATE: 8/14/2019

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.		R60140	226	616
				07457 -	LAYOUT	- 61001		



PLAN

Stations shown are along C.L. Construction. Elevations shown are theoretical working point elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on theoretical working point elevation at C.L. Bridge. See "ROUNDING DETAIL" on Std. Dwg. No. 55007 for additional information.



① C.L. Deck at C.L. Bent to Top of Bent Cap

② C.L. Deck to Low Steel

③ Ashlar Stone Pattern. See SP Job No. R60140 "Architectural Finish."

④ Class 7 Aggregate Base Course (typ.), see "DETAIL A" on Dwg. No. 61002.

Bent No. 1 2 3

VERTICAL ALIGNMENT DATA
Along C.L. Construction
No Scale

ELEVATION

PRINT DATE: 8/14/2019

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
BRIDGE ENGINEER

SHEET 1 OF 3
LAYOUT OF BRIDGE
PROMISE LAND DRIVE OVER HIGHWAY 7
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

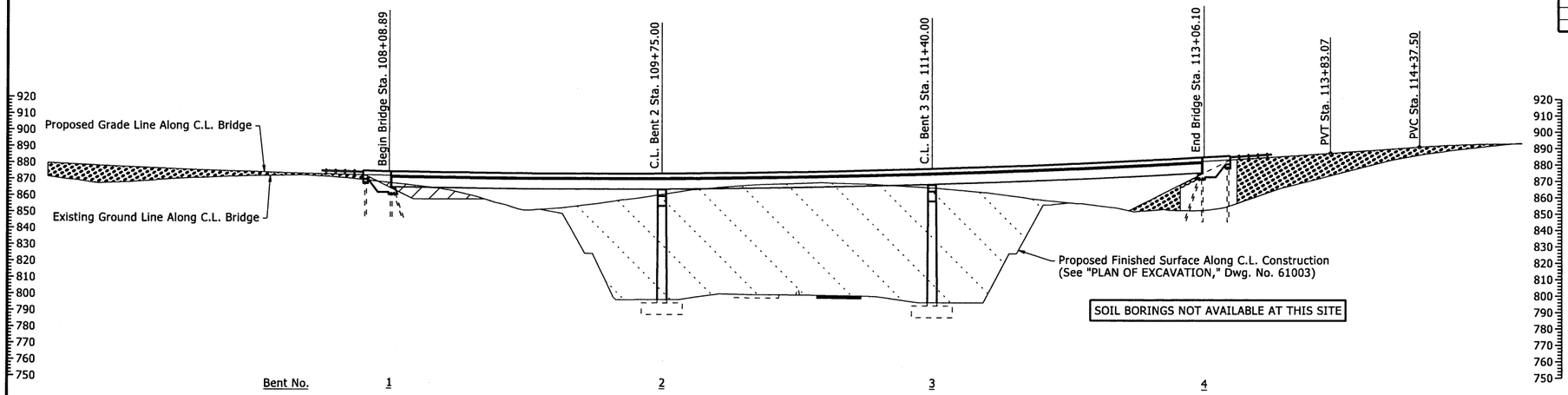
ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TMG DATE: 4/29/2019
CHECKED BY: DATE: 8/14/19
DESIGNED BY: TMG DATE: 3/2019
FILENAME: br060140x5_l1.dgn
SCALE: 1" = 30'

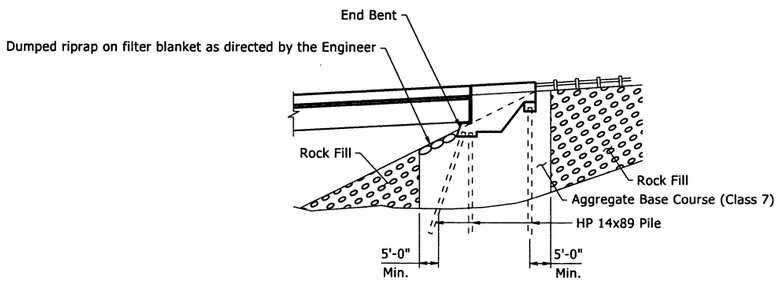
BRIDGE NO. 07457 DRAWING NO. 61001

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.		R60140	227	616
				1	07457 -	LAYOUT	- 61002	



ELEVATION OF SOIL BORINGS

106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00



Where rock fill is used for embankment construction, aggregate base course (Class 7), in accordance with section 303.02, shall be placed in areas where piling will be located. Aggregate base course (Class 7) and Rock Plating shall be paid for as "Rock Fill."

At the Contractor's option, preboring or other methods as approved by the Engineer may be used to facilitate pile installation thru the aggregate base course (Class 7) material at these locations. Preboring or other methods used for installation of piles where rock fill is used for embankment construction will not be paid for separately but shall be included in the item "Steel Piling (HP 14X89)."

DETAIL A

1" = 20'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 3
LAYOUT OF BRIDGE
PROMISE LAND DRIVE OVER HIGHWAY 7
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

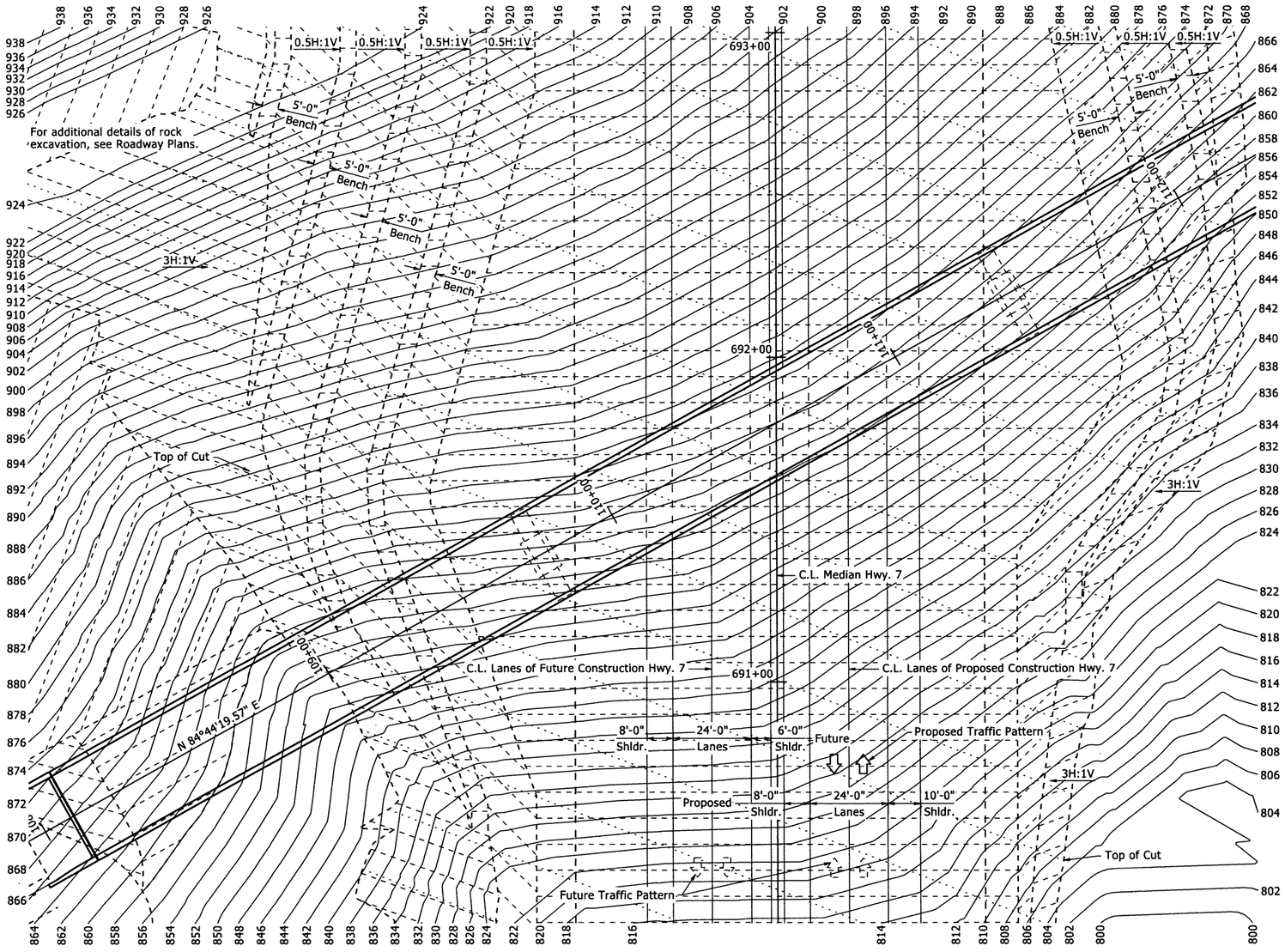
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TMG DATE: 4/29/2019 FILENAME: br060140x5_l1.dgn
CHECKED BY: CJT DATE: 5/14/19 SCALE: 1" = 40'
DESIGNED BY: TMG DATE: 3/2019

BRIDGE NO. 07457 DRAWING NO. 61002

PRINT DATE: 8/14/2019

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.		R60140	228	616
				07457 -		LAYOUT	- 61003	



PLAN OF EXCAVATION

General Notes:

BENCH MARK: Vertical Control Data are shown on the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specification, 7th Edition (2014) with 2015 Interim Revisions.

LIVE LOADING: HL-93

SEISMIC ZONE: 1 S_{D1} = 0.07 SITE CLASS: B

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c = 4,000 psi
Class S Concrete	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 50W)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi

BORING LOGS: See Special Provision Job No. R60140 "Geotechnical Requirements for Bridge Construction".

STEEL PILING: All piling shall be HP 14x89 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 163 tons per pile and into the material designated as Novaculite on the boring legend. Minimum penetration shall be 7' below bottom of cap or wingwall footing for all piles in Bent 1. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual pile lengths are to be determined in the field. The Contractor shall use approved steel H-Pile driving points on all piles.

PREBORING: Preboring is required for all piles in Bent 1. The depth of preboring shall be to a depth sufficient to provide the specified minimum penetration and to a minimum 3' depth into material designated as Novaculite on the boring legend, whichever is lower. The actual size and depth of preboring shall be determined in the field by the Engineer. The Contractor shall be responsible for keeping the prebored holes free of debris prior to driving piles and backfilling which may require the use of temporary casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of the rock and the remaining length backfilled in accordance with Subsection 805.08(a). Any related cost for backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring."

SPREAD FOOTINGS: Footings shall be set a minimum of 2' into material designated as Novaculite on the boring legend. The top of the footings at Bents 2 and 3 shall be set 2' below the finished grade as determined by the lowest elevation within the footprint of the footing. Foundations for footings shall be prepared in accordance with Subsection 801.04. Rock excavations shall be made to neat lines of the concrete footings. Care shall be exercised to avoid shattering of rock faces by excessive blasting. Concrete footings shall be poured directly against excavated surfaces of rock. Excavations shall be backfilled and compacted to the level of the finished grade in accordance with Subsection 801.08.

PAINTING: All Grade 50 structural steel, except galvanized members and surfaces in contact with concrete, shall be painted as specified in Subsection 807.75. The color of paint shall be Brown and shall match Federal Standard 595B, Color Chip No. 20219.

TEXTURED COATING FINISH: Class 3 Textured Coating Finish shall be applied to bridge as specified in Special Provision Job No. R60140 "Textured Coating Finish" and in accordance with Subsection 802.19(b)(3). Textured Coating Finish shall not be applied where Class 1 Protective Surface Treatment is applied.

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 1 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rail in accordance with Section 803.

DETAIL DRAWINGS:	DRAWING NO(S).
End Bents	61004 - 61009
Intermediate Bent 2	61010 - 61011
Intermediate Bent 3	61012 - 61013
Elastomeric Bearings	61075 - 61076
495' Continuous Plate Girder Unit	61014 - 61020
General Notes for Steel Bridge Structures	55006
Details for Steel Bridge Structures	55007
Type B Approach Gutters (Modified)	55030B

MAINTENANCE OF TRAFFIC: The road will be closed during the construction of this project.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 3
LAYOUT OF BRIDGE
PROMISE LAND DRIVE OVER HIGHWAY 7
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

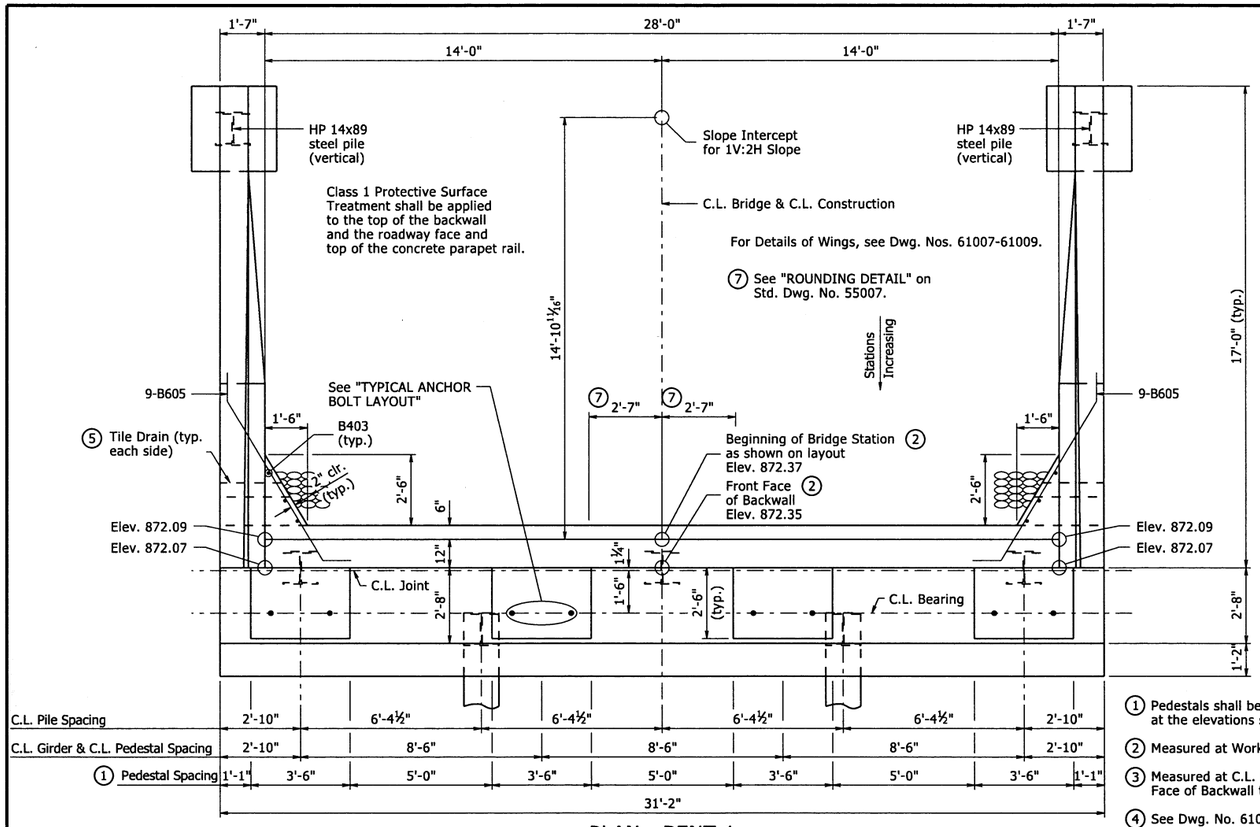
DRAWN BY: TMG DATE: 6/18/2019 FILENAME: br60140x5_l1.dgn
CHECKED BY: KST DATE: 7/14/19 SCALE: 1" = 20'
DESIGNED BY: TMG DATE: 3/2019

BRIDGE NO. 07457 DRAWING NO. 61003

PRINT DATE: 8/14/2019

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.		R60140	229	616

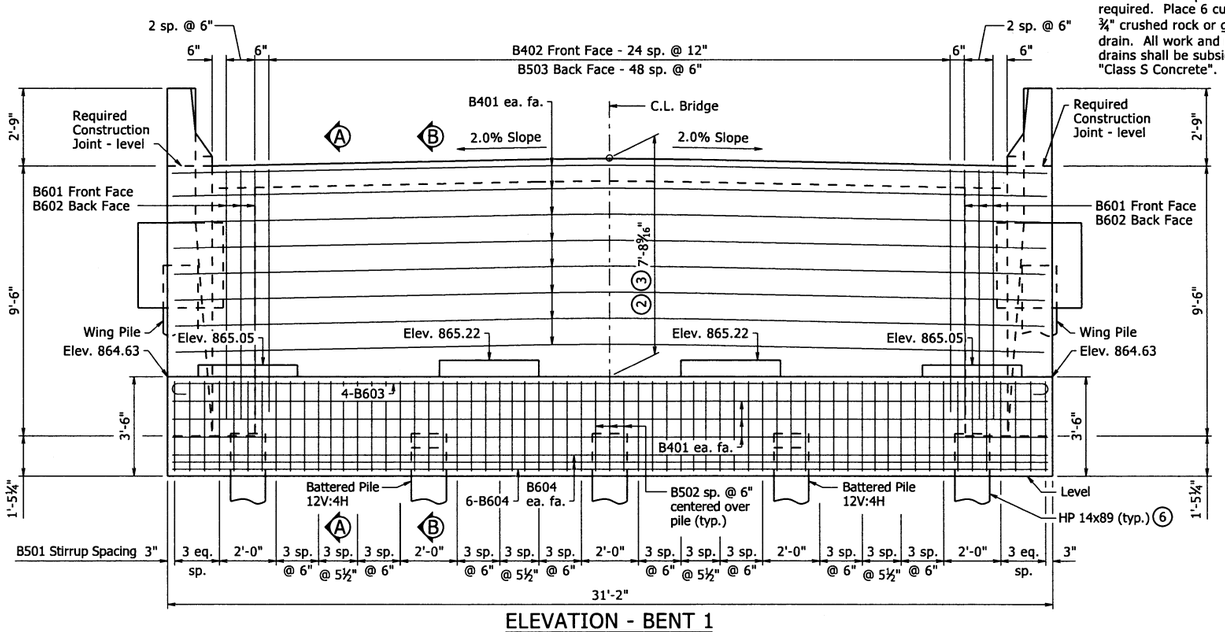
1 07457 - END BENTS - 61004



PLAN - BENT 1

⅜"=1'-0"

1. ① Pedestals shall be cast level at the elevations shown.
2. ② Measured at Working Point.
3. ③ Measured at C.L. Bridge at Front Face of Backwall to Working Point.
4. ④ See Dwg. No. 61005 for pedestal details.
5. ⑤ Place 6"ø tile drains approximately 6" above fill slope. Spread bars as required. Place 6 cu. ft. of sacked ¾" crushed rock or gravel at each drain. All work and materials to install drains shall be subsidiary to "Class S Concrete".
6. ⑥ See "TYPICAL PILE DETAILS" for Pile anchorage on Dwg. No. 61005.



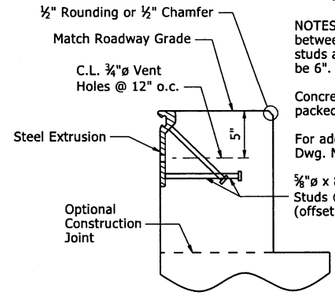
ELEVATION - BENT 1

LOOKING BACK

⅜"=1'-0"

TYPICAL ANCHOR BOLT LAYOUT

NO SCALE



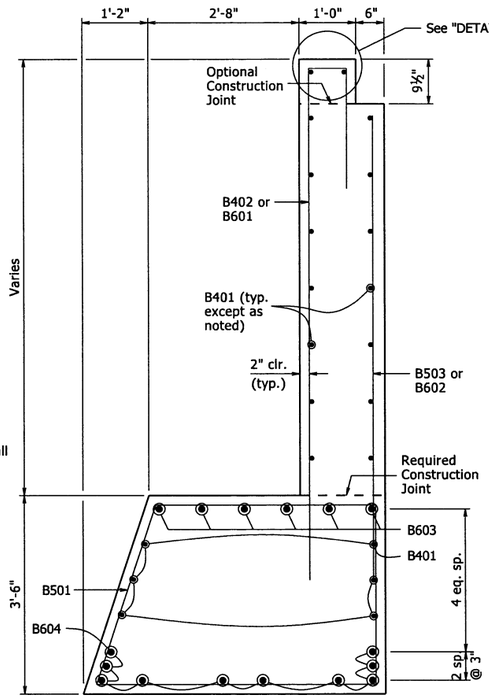
NOTES: Transverse spacing between horizontal anchor studs and vent holes shall be 6".

Concrete shall be hand packed under the joint armor.

For additional joint details, see Dwg. No. 61020

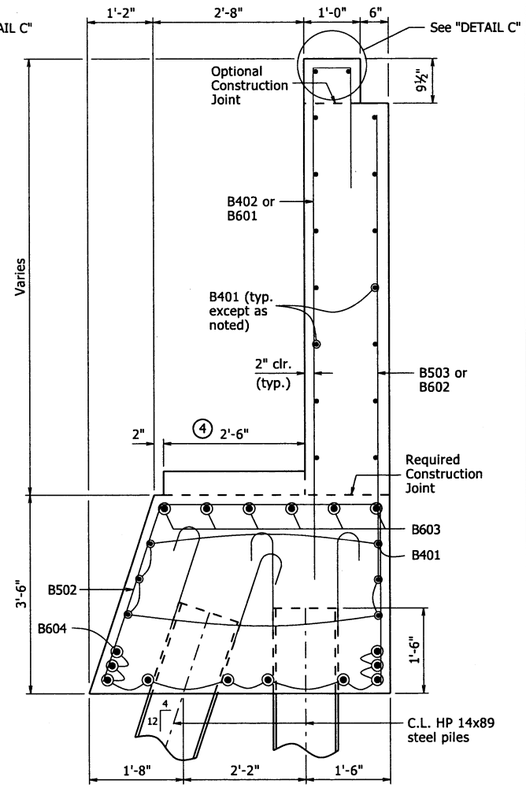
DETAIL C

NO SCALE



SECTION A-A

¾"=1'-0"



SECTION B-B

¾"=1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 6
DETAILS OF END BENTS
PROMISE LAND DRIVE OVER HIGHWAY 7

ROUTE SEC.

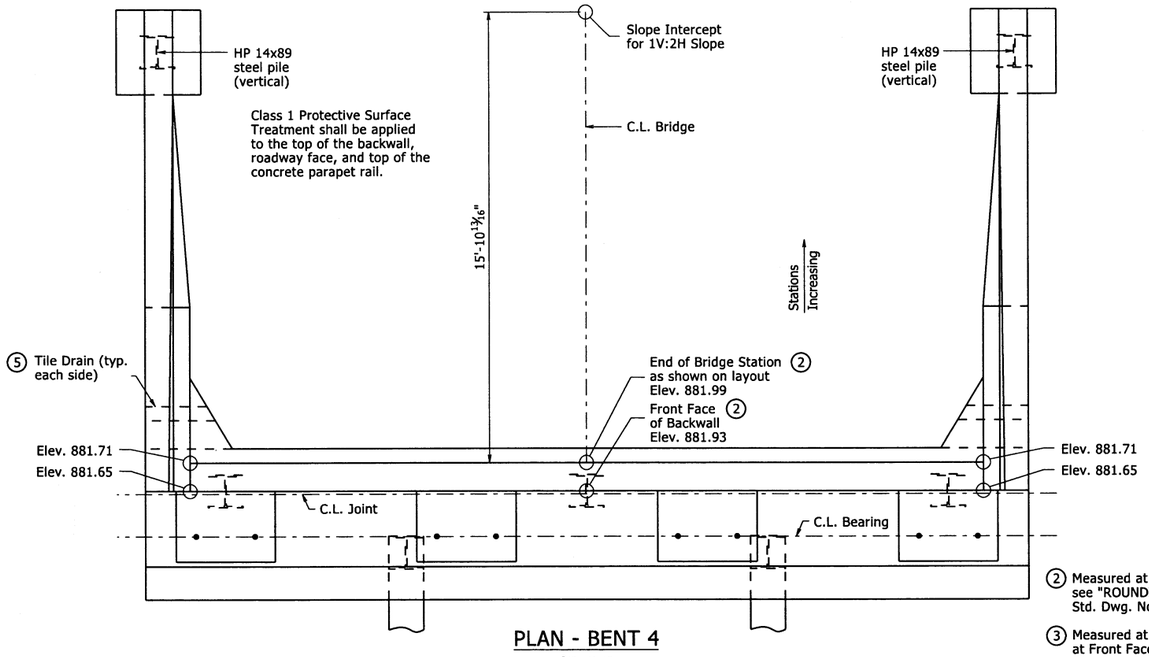
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP	DATE: 7/02/19	FILENAME:	br60140x5_b1.dgn
CHECKED BY: TMC.	DATE: 8/13/19	SCALE:	AS NOTED
DESIGNED BY: JJ	DATE: 6/19		

BRIDGE NO. 07457 DRAWING NO. 61004

PRINT DATE: 8/13/2019

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.		R60140	230	6/6
				①		07457 - END BENTS - 61005		

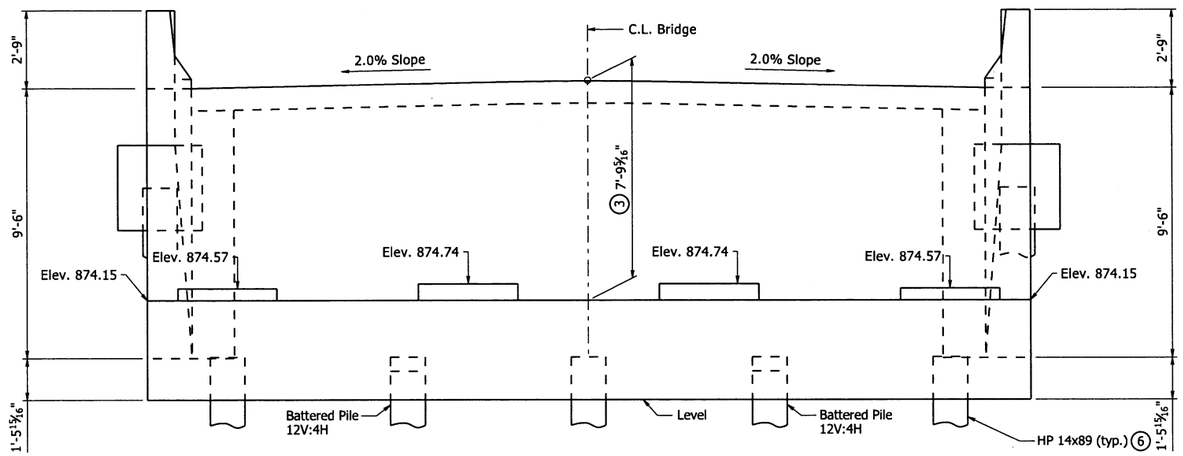


PLAN - BENT 4

3/8"=1'-0"

NOTE:

Reinforcing steel, details and dimensions shown for Bent 1, Dwg. No. 61004, are similar for Bent 4 shown on this sheet except as noted.



ELEVATION - BENT 4

LOOKING AHEAD

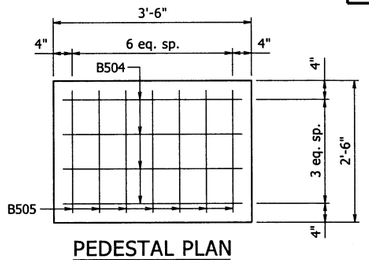
3/8"=1'-0"

② Measured at Working Point, see "ROUNDING DETAIL" on Std. Dwg. No. 55007.

③ Measured at C.L. Bridge at Front Face of Backwall.

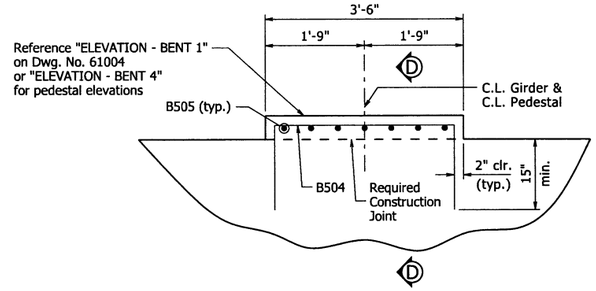
⑤ Place 6"ø tile drains approximately 6" above fill slope. Spread bars as required. Place 6 cu. ft. of sacked ¾" crushed rock or gravel at each drain. All work and materials to install drains shall be subsidiary to "Class S Concrete".

⑥ See "TYPICAL PILE DETAILS" for Pile anchorage.



PEDESTAL PLAN

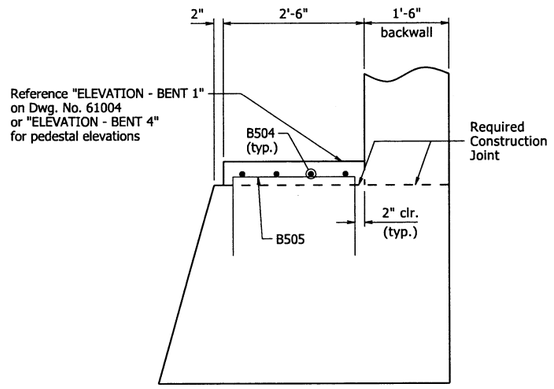
¾"=1'-0"



TYPICAL PEDESTAL DETAILS

LOOKING BACK - BENT 1
LOOKING AHEAD - BENT 2

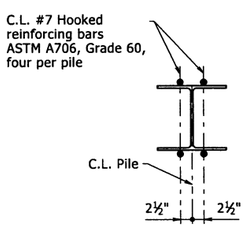
¾"=1'-0"



SECTION D-D

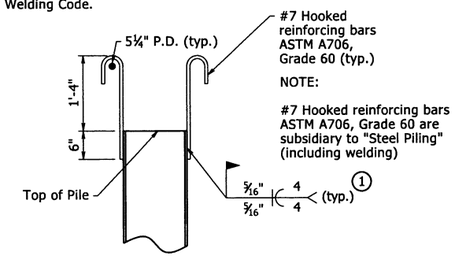
NO SCALE

① Welding shall comply with ANSI/AWS D1.4 Structural Welding Code-Reinforcing Steel and applicable portions of ANSI/AWS D1.5 Bridge Welding Code.



PILE PLAN

¾"=1'-0"



NOTE:

#7 Hooked reinforcing bars ASTM A706, Grade 60 are subsidiary to "Steel Piling" (including welding)

TYPICAL PILE DETAILS

¾"=1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
5-14-19

BRIDGE ENGINEER

SHEET 2 OF 6
DETAILS OF END BENTS
PROMISE LAND DRIVE OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

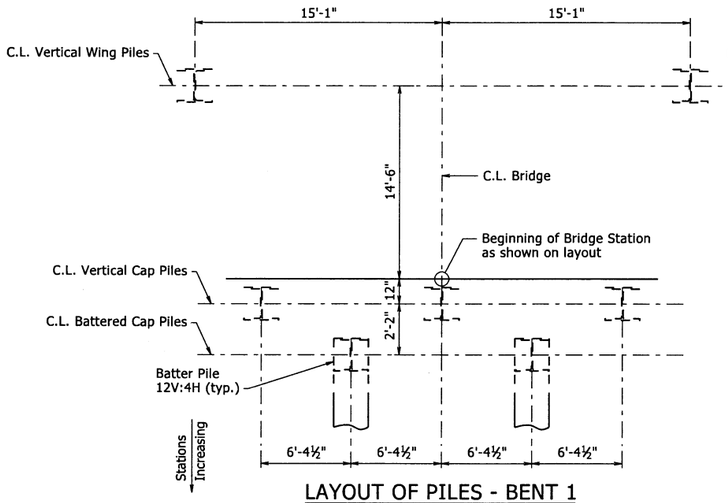
DRAWN BY: CGP DATE: 7/02/19 FILENAME: br60140x5_b1.dgn
CHECKED BY: TMG DATE: 8/13/19 SCALE: AS NOTED
DESIGNED BY: JJ DATE: 6/19

BRIDGE NO. 07457 DRAWING NO. 61005

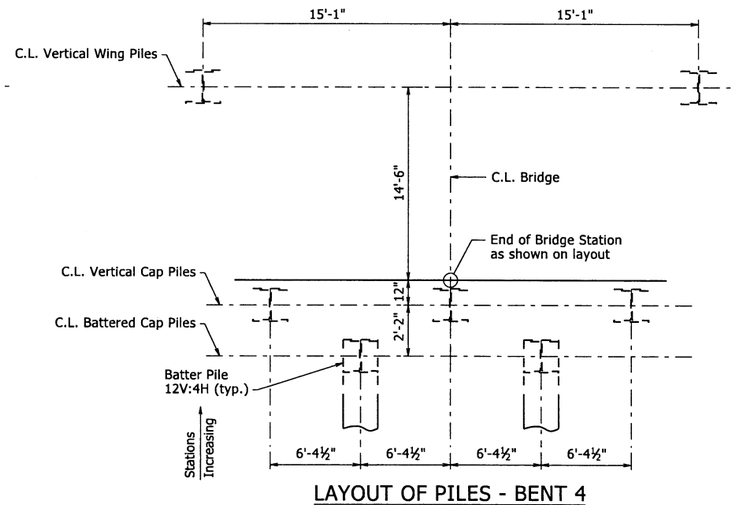
PRINT DATE: 8/13/2019

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.		R60140	231	616

(1) 07457 - END BENTS - 61006



LAYOUT OF PILES - BENT 1

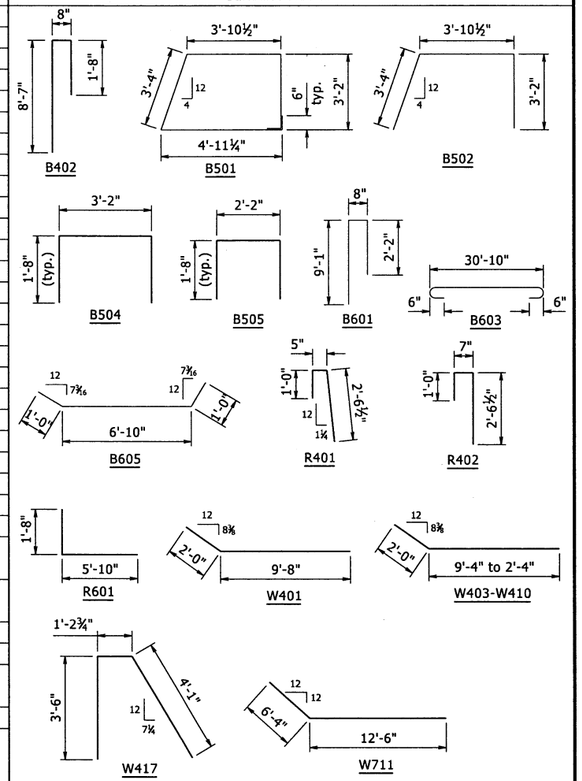


LAYOUT OF PILES - BENT 4

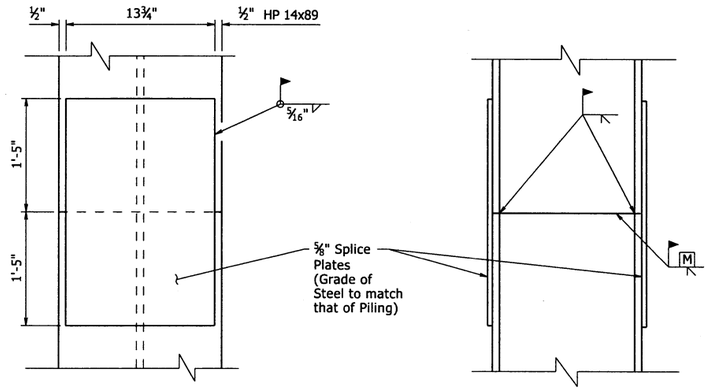
BAR LIST-PER BENT

MARK	NO. REQ'D	LENGTH	P.D.
B401	22	30'-10"	Str.
B402	25	10'-9"	3"
B403	6	8'-5"	Str.
B501	48	15'-10"	2½"
B502	15	10'-2"	2½"
B503	49	8'-0"	Str.
B504	16	6'-4"	2½"
B505	28	5'-4"	2½"
B601	6	11'-8"	4½"
B602	6	8'-3"	Str.
B603	6	32'-2"	4½"
B604	10	30'-10"	Str.
B605	18	8'-10"	4½"
F601	12	2'-8"	Str.
R401	22	3'-10"	2"
R402	8	3'-11"	2"
R403	12	16'-8"	Str.
R601	16	7'-4"	4½"
R602	6	5'-0"	Str.
W401	14	11'-8"	2"
W402	14	11'-11"	Str.
W403-W410	2 ea.	11'-4" to 4'-4"	2"
W411-W418	2 ea.	11'-7" to 4'-7"	Str.
W417	6	8'-9"	2"
W701	12	16'-8"	Str.
W702-W710	4 ea.	13'-1" to 7'-1"	Str.
W711	4	18'-10"	5¼"

BENDING DIAGRAMS



Dimensions are out to out of bars.



The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

H-pile splicers manufactured by Associated Pile and Fitting Corporation, LB Foster Piling, Skyline Steel or equivalent may be used in lieu of the "Typical Splice Details" shown. H-pile splicers shall match the same grade of steel specified for the piling and shall be welded to the pile with a 5⁄16" fillet weld around the entire perimeter of the splice. Flanges shall be welded with a complete penetration groove weld complying with AASHTO/AWS Joint Designation B-U4a or B-U4b. All welding shall conform to Subsection 807.26.

GENERAL NOTES:

For General Notes, see Std. Dwg. No. 55006.

For Joint Details see Dwg. No. 61020.

Structural steel in end bents shall be ASTM A709, Gr. 50W and shall be paid for as "Structural steel in Plate Girder Spans (A709, Gr. 50W)".

No portion of the backwall shall be poured before the girders are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the adjacent deck pour has been made. Refer to the "EXPANSION DEVICE INSTALLATION AT END BENTS" note on Dwg. No. 61020. No heavy construction equipment shall be allowed within 10.5' of the backwall until the deck concrete placement for the adjacent span has been completed.

For additional information, see Layout.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8/20/19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 6
DETAILS OF END BENTS
PROMISE LAND DRIVE OVER HIGHWAY 7

ROUTE SEC.

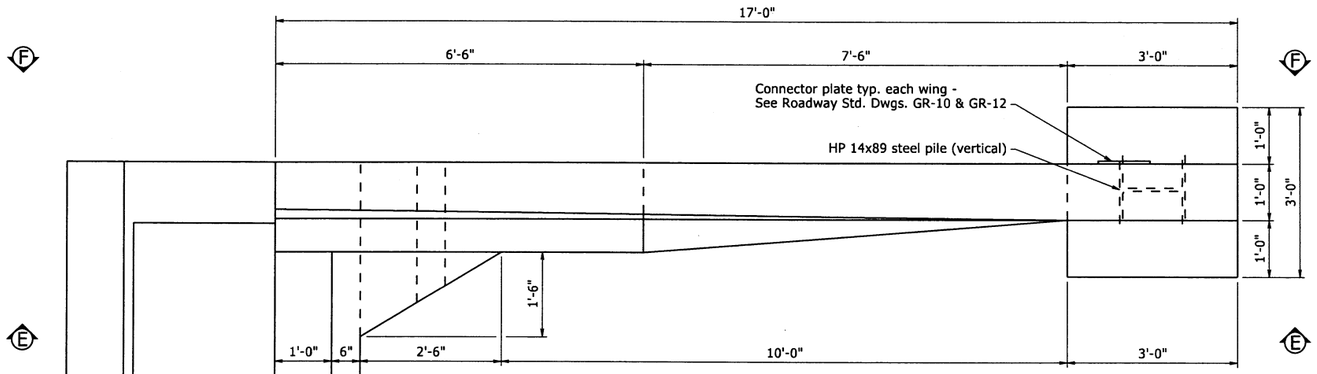
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 7/02/19
CHECKED BY: TMG DATE: 8/20/19
DESIGNED BY: JJ DATE: 6/19
FILENAME: br60140x5_b1.dgn
SCALE: NO SCALE

BRIDGE NO. 07457 DRAWING NO. 61006

PRINT DATE: 8/20/2019

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.		R60140	232	616
				(1)	07457 - END BENTS - 61007			



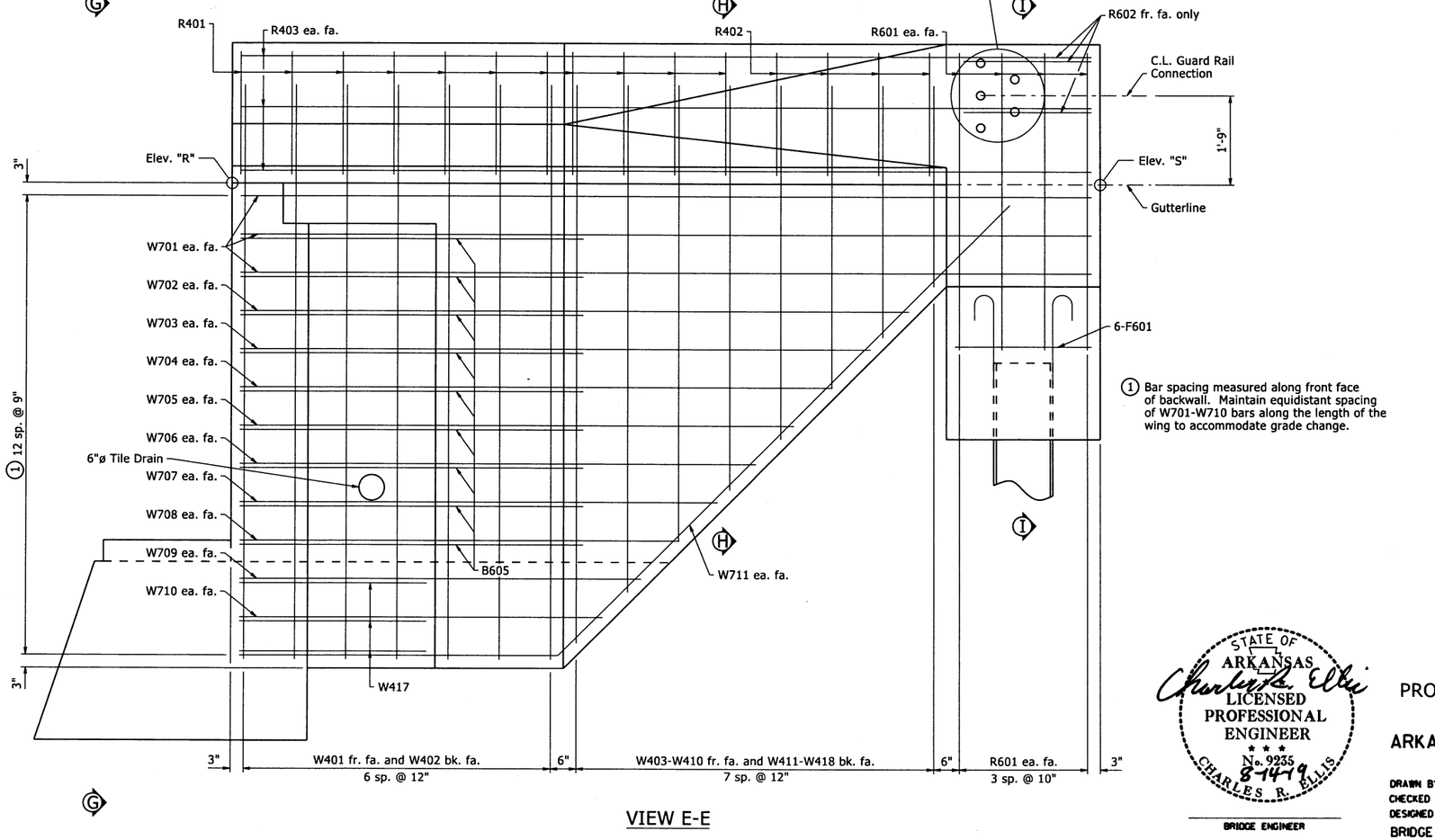
PLAN OF RAIL

NOTES:
See Dwg. No. 61008 for "VIEW F-F"

See Dwg. No. 61009 for "VIEW G-G", "SECTION H-H", & "SECTION I-I"

TABLE OF VARIABLES

BENT	ELEV. "R"	ELEV. "S"
1	872.07	872.42
4	881.65	882.66



(1) Bar spacing measured along front face of backwall. Maintain equidistant spacing of W701-W710 bars along the length of the wing to accommodate grade change.

VIEW E-E

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 4 OF 6
DETAILS OF END BENTS
PROMISE LAND DRIVE OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 7/02/19
CHECKED BY: TMG DATE: 8/13/19
DESIGNED BY: JJ DATE: 6/19
FILENAME: br60140x5_b1.dgn
SCALE: 3/4"=1'-0"

BRIDGE NO. 07457 DRAWING NO. 61007

PRINT DATE: 8/13/2019

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.		R60140	233	616
				(1)	07457 - END BENTS - 61008			

(1) Class 3 Textured Coating Finish
(Color = Brown, Color Chip 33522)

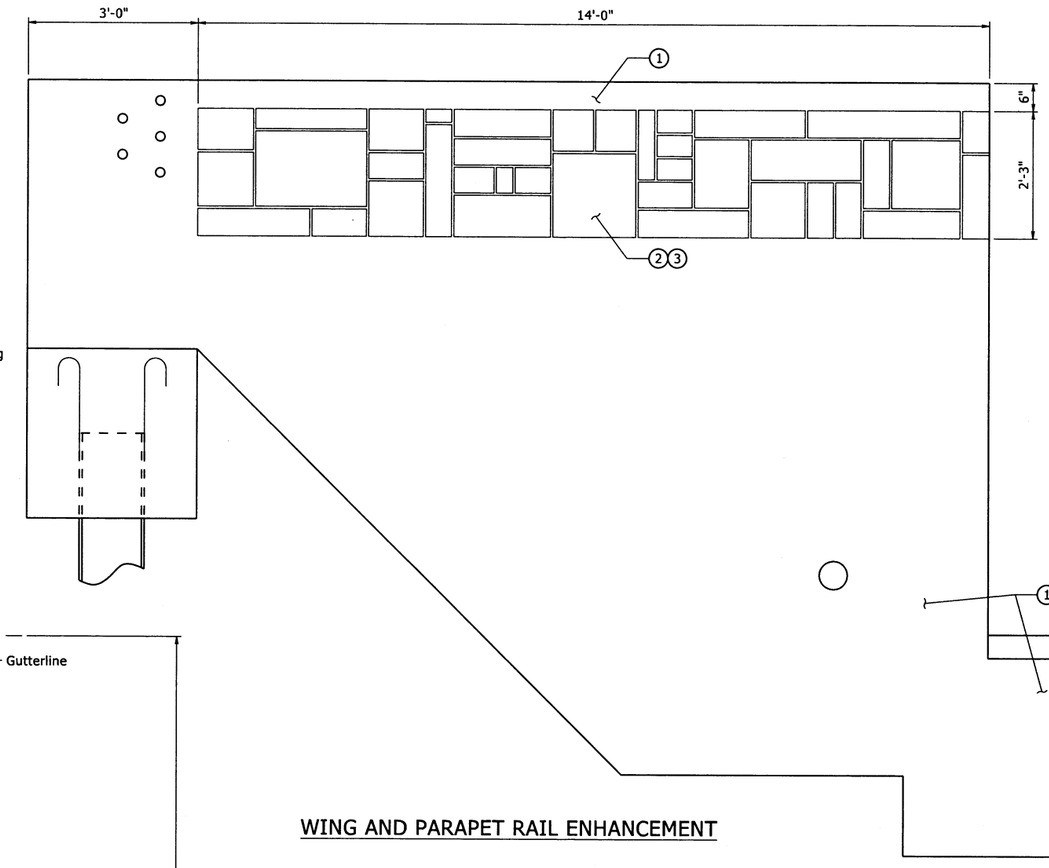
(2) Class 3 Textured Coating Finish
(Color = Brown, Color Chip 30219)

(3) "Ashlar Stone" Pattern Form Liner,
See SP Job R60140 "Architectural Finish".

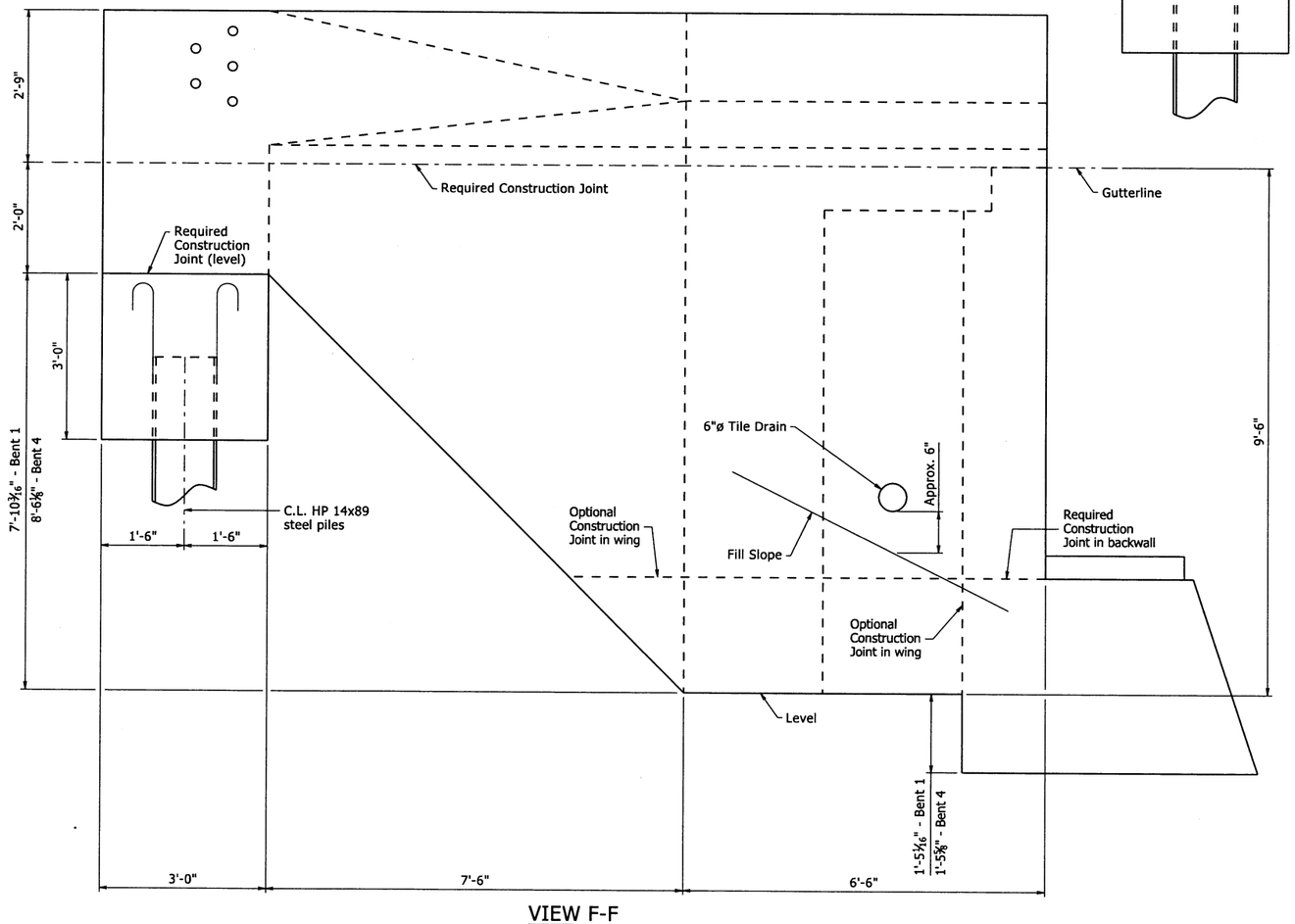
NOTES:

Form liner shall be max. depth of 2" to provide a min. clearance of 1½" to rail reinforcing.

See SP Job R60140 "Textured Coating Finish" for additional information regarding the placement of the Class 3 Textured Coating Finish.



WING AND PARAPET RAIL ENHANCEMENT



VIEW F-F

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 6
DETAILS OF END BENTS
PROMISE LAND DRIVE OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

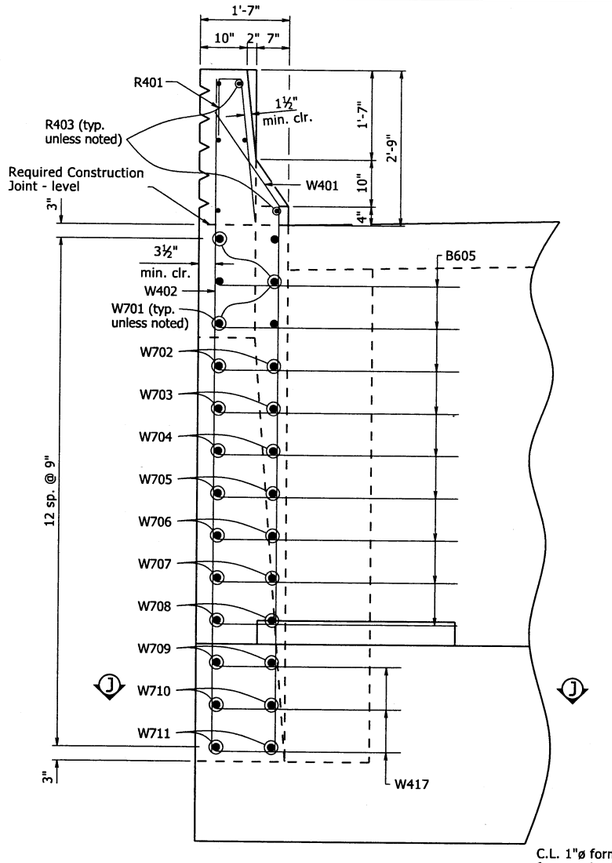
DRAWN BY: CGP DATE: 7/02/19 FILENAME: br60140x5_b1.dgn
CHECKED BY: TMG DATE: 8/13/19 SCALE: ¾"=1'-0"
DESIGNED BY: JJ DATE: 6/19

BRIDGE NO. 07457 DRAWING NO. 61008

PRINT DATE: 8/13/2019

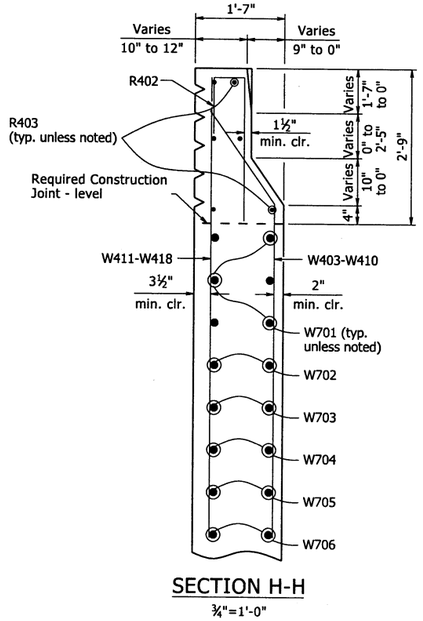
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	234	616

1 07457 - END BENTS - 61009



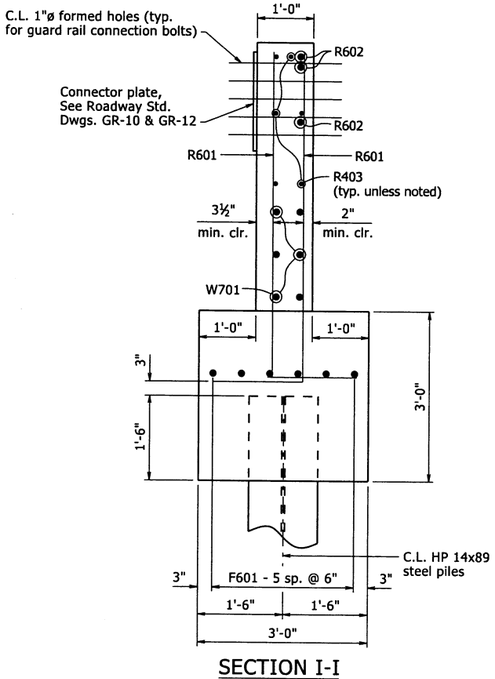
VIEW G-G

¾"=1'-0"



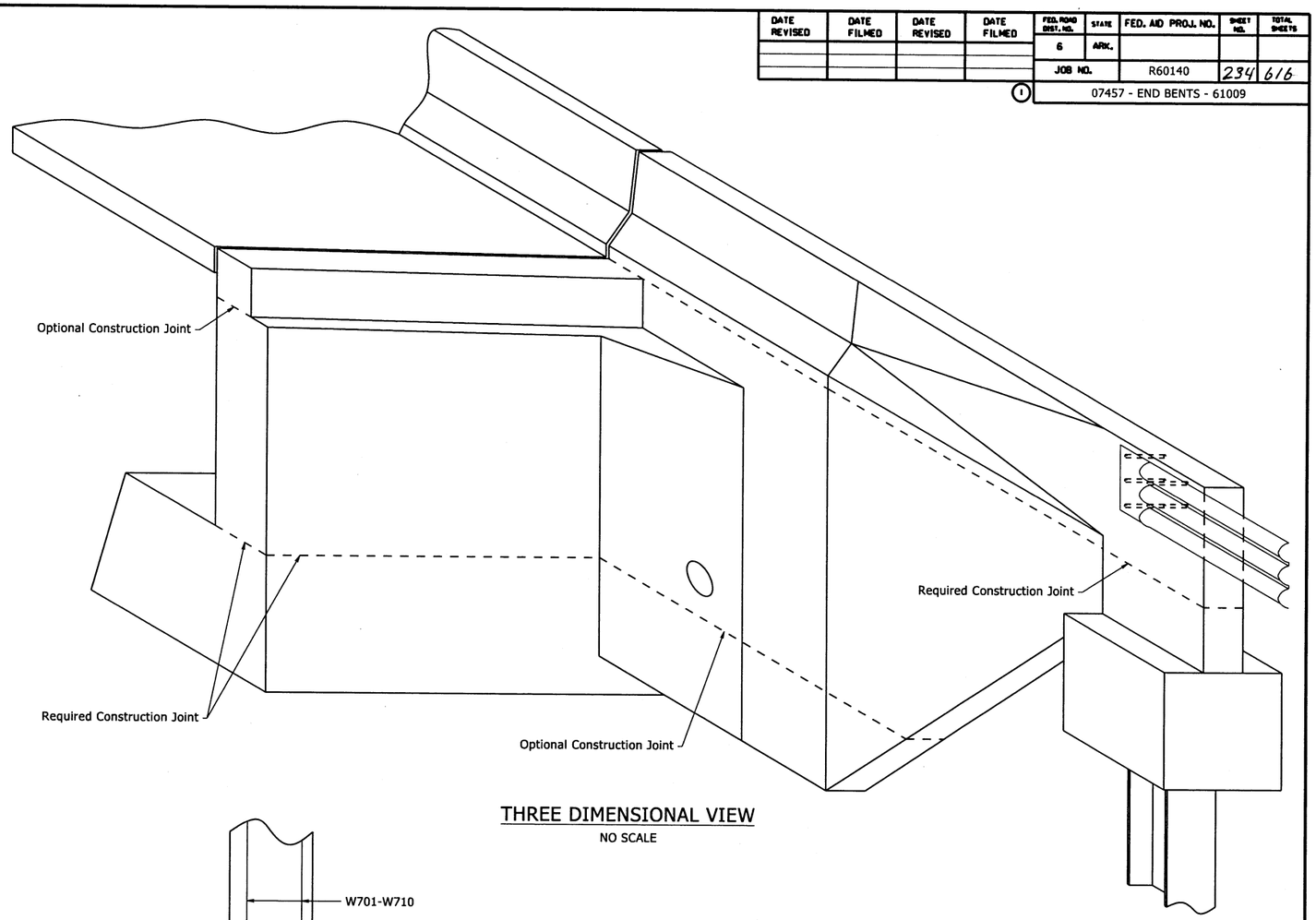
SECTION H-H

¾"=1'-0"



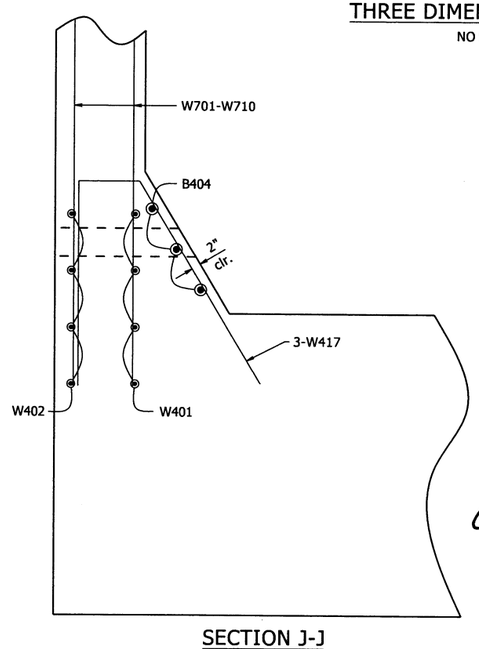
SECTION I-I

¾"=1'-0"



THREE DIMENSIONAL VIEW

NO SCALE



SECTION J-J

¾"=1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19

BRIDGE ENGINEER

SHEET 6 OF 6
DETAILS OF END BENTS
PROMISE LAND DRIVE OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

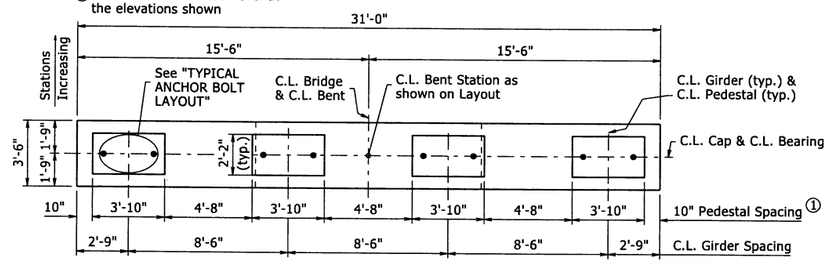
DRAWN BY: CGP DATE: 7/02/19 FILENAME: br60140x5_b1.dgn
CHECKED BY: JMG DATE: 8/13/19 SCALE: AS NOTED
DESIGNED BY: JJ DATE: 6/19

BRIDGE NO. 07457 DRAWING NO. 61009

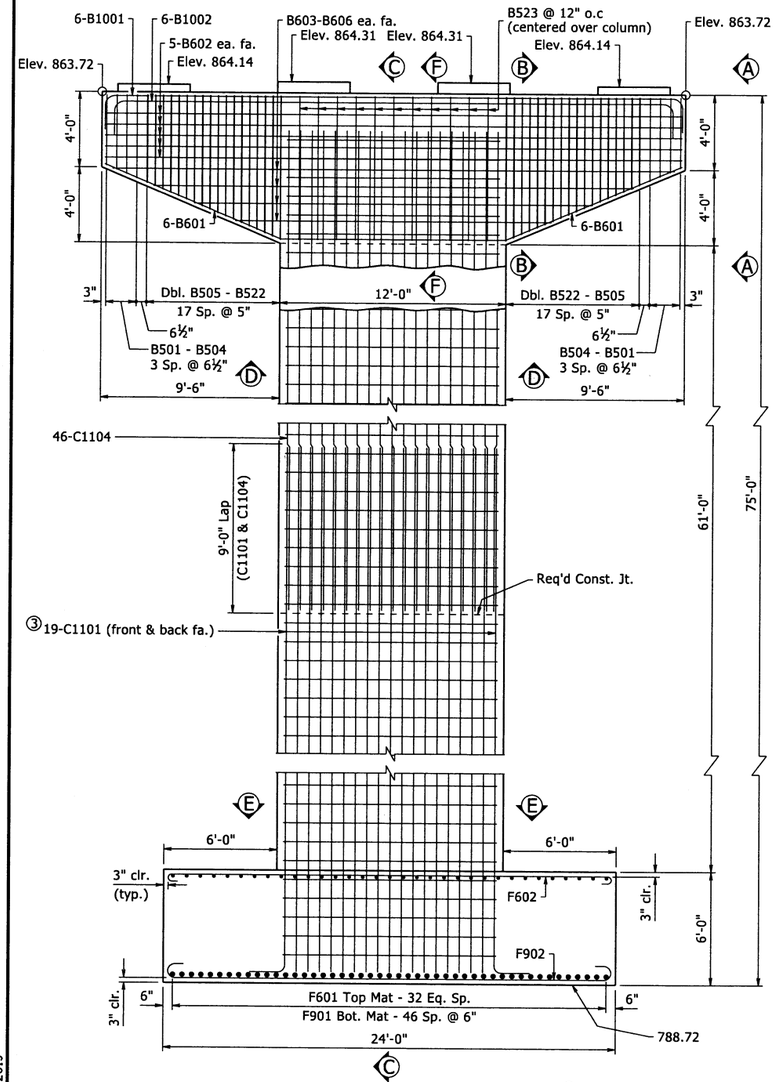
PRINT DATE: 8/13/2019

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.		R60140	235	616
				①	07457 -	INT. BENTS - 61010		

① Pedestals shall be cast level at the elevations shown



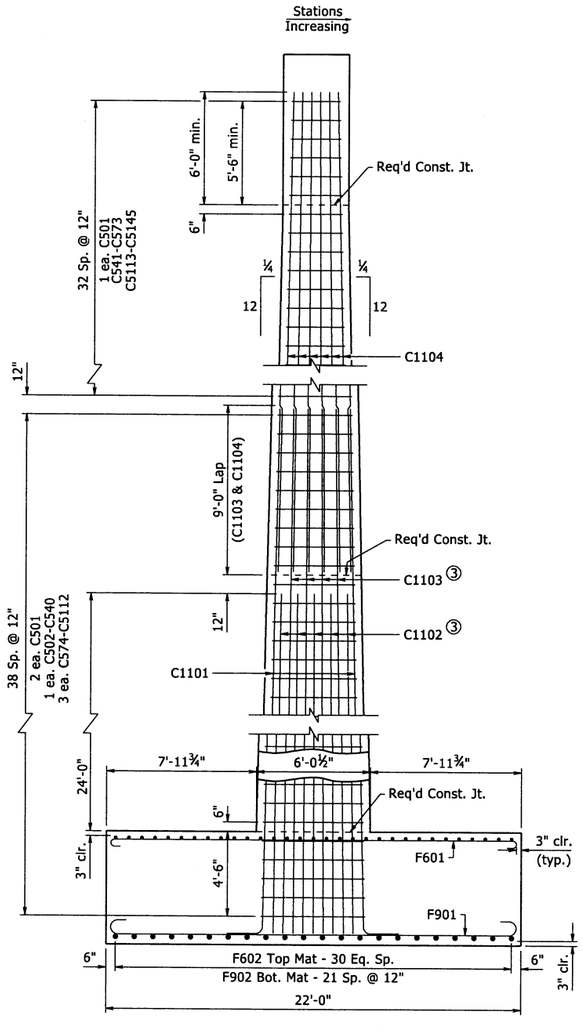
PLAN
¼" = 1'-0"



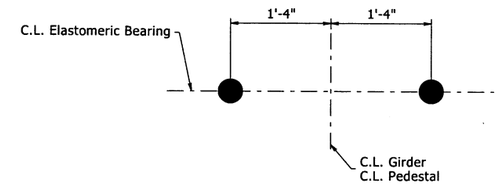
ELEVATION
Looking Ahead
¼" = 1'-0"

③ Bars to rest on footing mat of reinforcing as shown.

For "VIEW A-A", "SECTION B-B", "SECTION F-F", "TYPICAL PEDESTAL DETAIL", and "ASHLAR STONE PATTERN" See Dwg. No. 61011.



SECTION C-C
¼" = 1'-0"



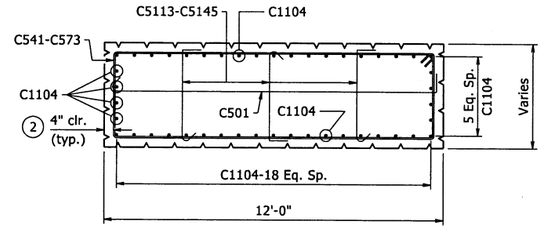
For Details of Elastomeric Bearings, See Dwg. No. 61075 and Dwg. No. 61076.

TYPICAL ANCHOR BOLT LAYOUT
1" = 1'-0"

INTERMEDIATE BENT NOTES

For Standard General Notes, see Std. Dwg. No. 55006.

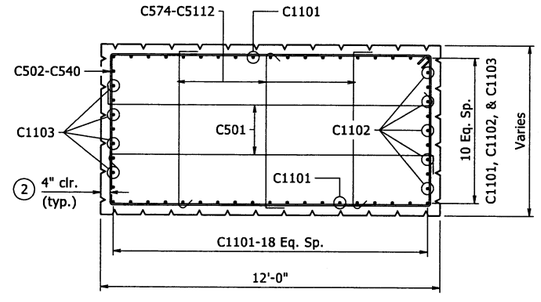
For additional information see Layout.



NOTE: Alternate #5 crossties end for end at each layer of reinforcing.

SECTION D-D
⅜" = 1'-0"

② Form Liner shall be a maximum depth of 2" to provide a minimum clearance of 2".



NOTE: Alternate #5 crossties end for end at each layer of reinforcing.

SECTION E-E
⅜" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENT 2
PROMISE LAND DRIVE OVER HIGHWAY 7

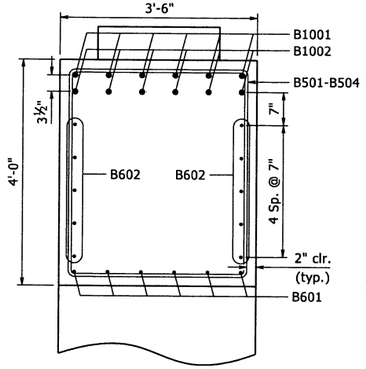
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JJ DATE: 08/02/2019 FILENAME: br60140x5_b2.dgn
CHECKED BY: DHT DATE: 8/13/19 SCALE: AS NOTED
DESIGNED BY: JJ DATE: 06/2019

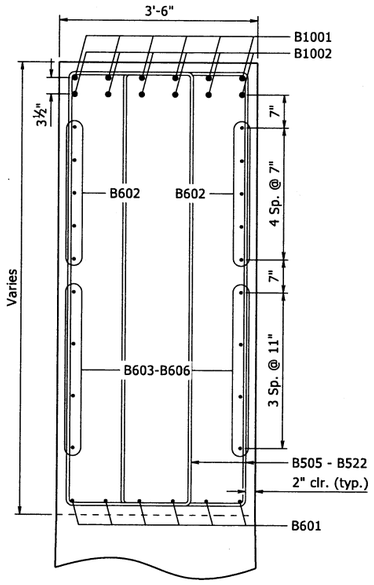
BRIDGE NO. 07457 DRAWING NO. 61010

PRINT DATE: 8/13/2019

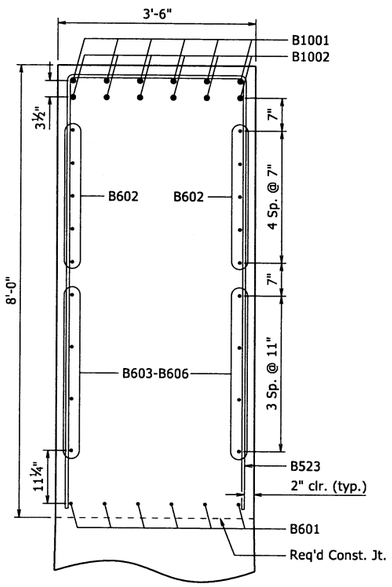
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	236	616
				①	07457 - INT. BENTS - 61011			



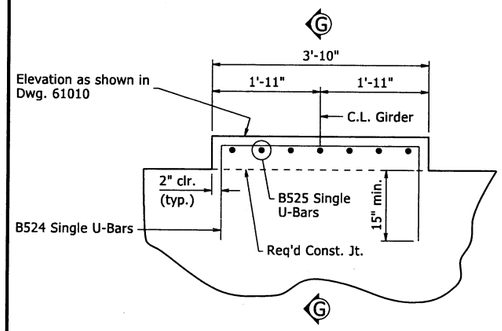
VIEW A-A
¾" = 1'-0"



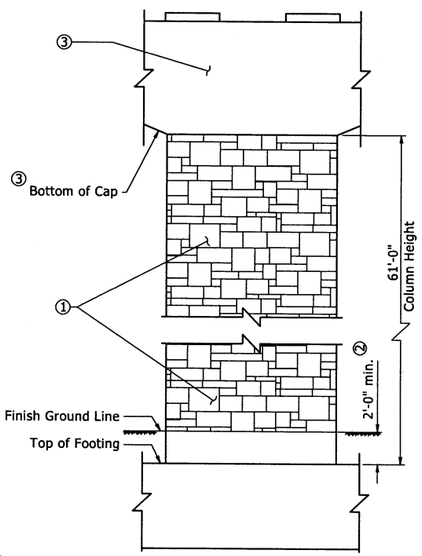
SECTION B-B
¾" = 1'-0"



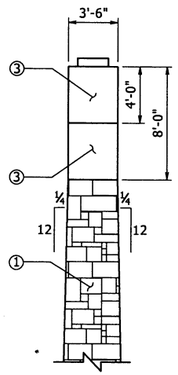
SECTION F-F
¾" = 1'-0"



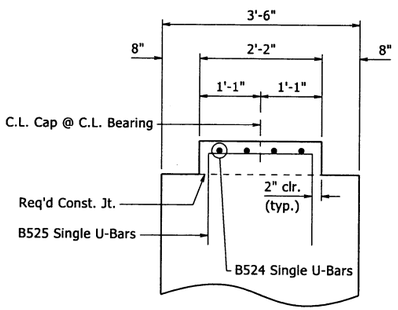
TYPICAL PEDESTAL DETAIL
¾" = 1'-0"



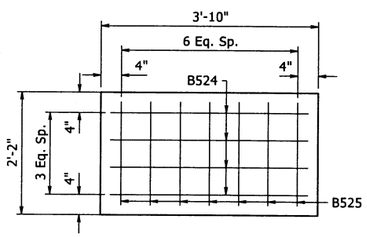
FRONT VIEW



END VIEW



SECTION G-G
¾" = 1'-0"



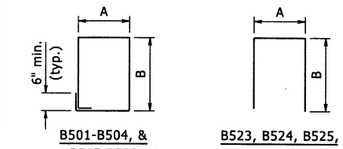
PEDESTAL PLAN
¾" = 1'-0"

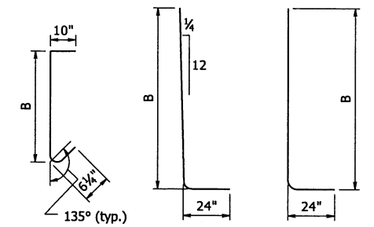
BENT AESTHETICS
3/16" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	A	B	P. D.
B501-B504	2 ea.	Var. 14'-4" to 15'-9"	3'-2"	Var. 3'-9" to 4'-5¼"	2½"
B505-B522	4 ea.	Var. 14'-2" to 20'-2"	2'-2"	Var. 4'-8" to 7'-7¾"	2½"
B523	11	18'-4"	3'-2"	7'-8"	2½"
B524	16	6'-8"	3'-6"	1'-8"	2½"
B525	28	5'-0"	1'-10"	1'-8"	2½"
B601	12	17'-5"			4½"
B602	10	30'-8"			Str.
B603-B606	2 ea.	Var. 29'-5" to 16'-4"			Str.
B1001	6	33'-8"	30'-8"	1'-9½"	10"
B1002	6	32'-8"	29'-8"	1'-9½"	10"
C501	111	12'-7"		11'-4"	3¾"
C502-C573	1 ea.	Var. 34'-6" to 28'-7"		Var. 5'-6¾" to 2'-7¼"	3¾"
C574-C5145	3 ea.	Var. 6'-10" to 3'-11"		Var. 5'-6¾" to 2'-7¼"	3¾"
C1101	38	41'-3"		39'-7"	11¼"
C1102	10	31'-3"		29'-7"	11¼"
C1103	8	41'-3"		39'-7"	11¼"
C1104	46	42'-0"			Str.
F601	33	22'-10"	21'-6"	6"	4½"
F602	31	24'-10"	23'-6"	6"	4½"
F901	47	24'-0"	21'-6"	10"	9"
F902	22	26'-0"	23'-6"	10"	9"

BENDING DIAGRAMS





Dimensions are out to out of bars.

① "Ashlar Stone" Pattern & Class 3 Textured Coating Finish (Color = Brown Chip No. 30219)

② Form liner and texture coating to be stopped at Finish Ground Line

③ Class 3 Textured Coating Finish (Color = Brown, Color Chip No. 33522)

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENT 2
PROMISE LAND DRIVE OVER HIGHWAY 7

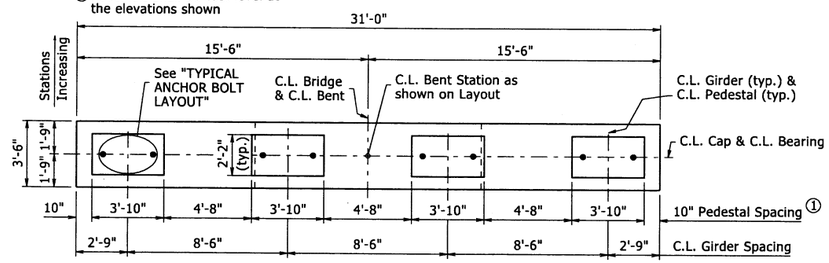
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JJ DATE: 08/02/2019 FILENAME: br60140x5_b2.dgn
CHECKED BY: DHP DATE: 8/13/19 SCALE: AS NOTED
DESIGNED BY: JJ DATE: 06/2019
BRIDGE NO. 07457 DRAWING NO. 61011

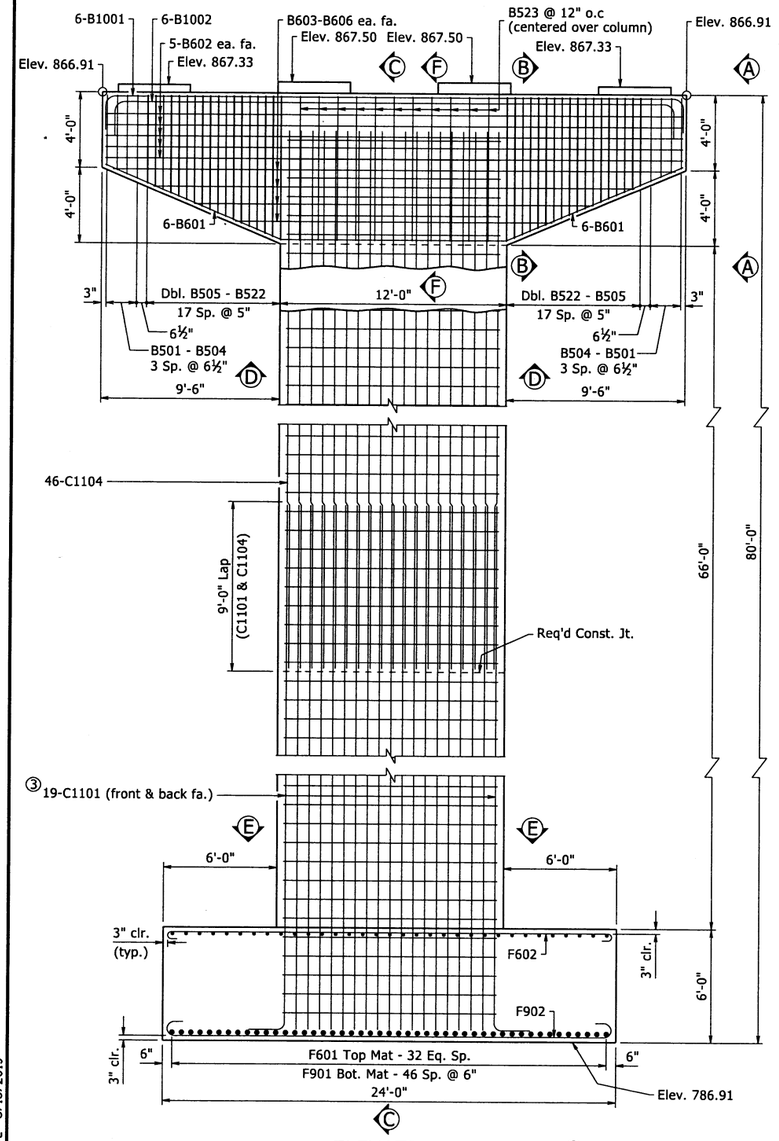
PRINT DATE: 8/13/2019

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.		R60140	237	616
				①	07457 -	INT. BENTS - 61012		

① Pedestals shall be cast level at the elevations shown

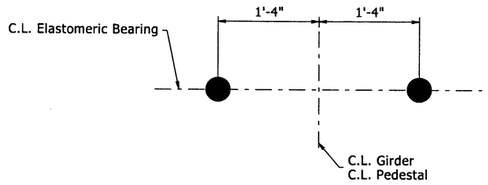


PLAN
¼" = 1'-0"



ELEVATION
Looking Ahead
¼" = 1'-0"

③ Bars to rest on footing mat of reinforcing as shown.



For Details of Elastomeric Bearings, See Dwg. No. 61075 and Dwg. No. 61076

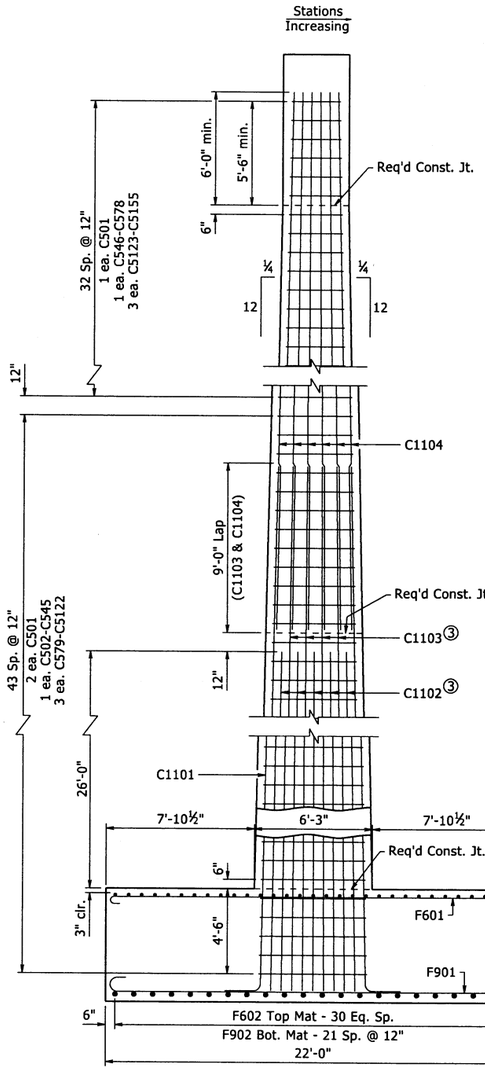
INTERMEDIATE BENT NOTES

For Standard General Notes, see Std. Dwg. No. 55006.

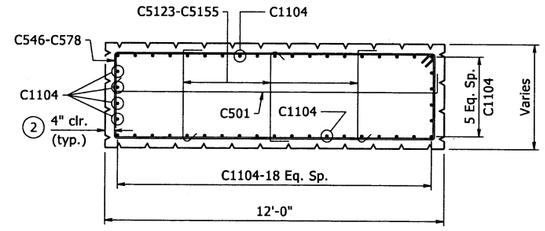
For additional information see Layout.

TYPICAL ANCHOR BOLT LAYOUT
1" = 1'-0"

For "VIEW A-A", "SECTION B-B", "SECTION F-F", "TYPICAL PEDESTAL DETAIL", and "ASHLAR STONE PATTERN" See Dwg. No. 61013.



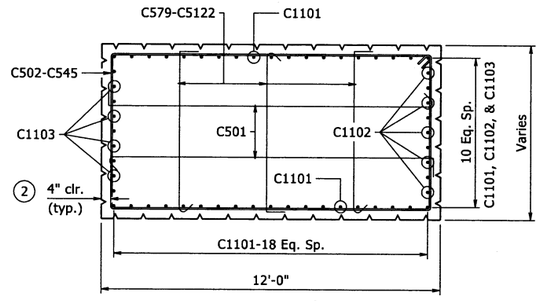
SECTION C-C
¼" = 1'-0"



NOTE: Alternate #5 crossties end for end at each layer of reinforcing.

SECTION D-D
⅜" = 1'-0"

② Form Liner shall be a maximum depth of 2" to provide a minimum clearance of 2".



NOTE: Alternate #5 crossties end for end at each layer of reinforcing.

SECTION E-E
⅜" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-19-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENT 3
PROMISE LAND DRIVE OVER HIGHWAY 7

ROUTE SEC.

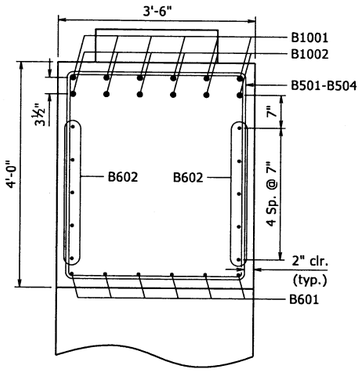
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JJ DATE: 08/09/2019 FILENAME: br60140x5_b3.dgn
CHECKED BY: DHP DATE: 8/19/19 SCALE: AS NOTED
DESIGNED BY: JJ DATE: 06/2019

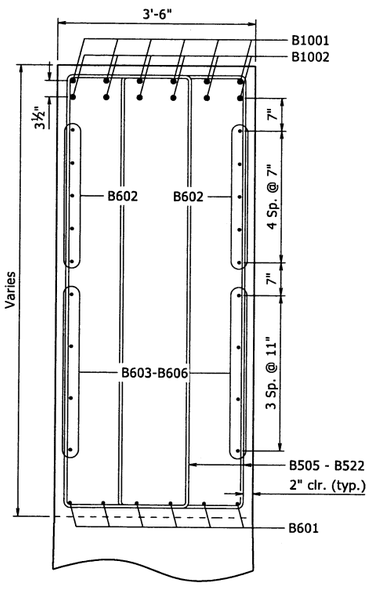
BRIDGE NO. 07457 DRAWING NO. 61012

PRINT DATE: 8/13/2019

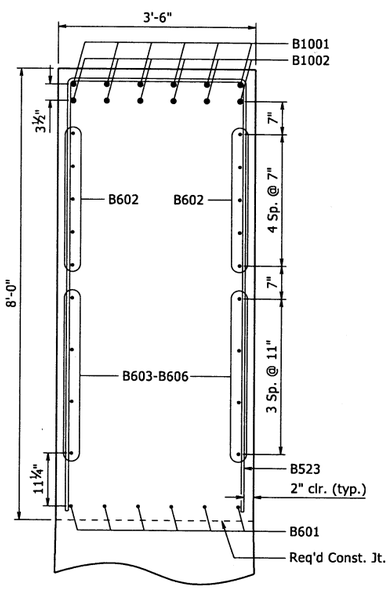
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	238	616
				07457 - INT. BENTS - 61013				



VIEW A-A
¾" = 1'-0"



SECTION B-B
¾" = 1'-0"

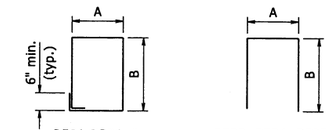


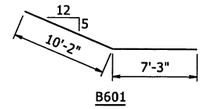
SECTION F-F
¾" = 1'-0"

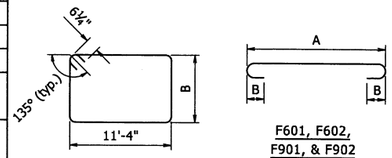
BAR LIST

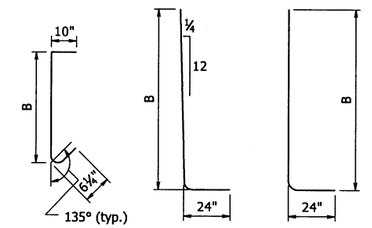
MARK	NO. REQ'D.	LENGTH	A	B	P. D.
B501-B504	2 ea.	Var. 14'-4" to 15'-9"	3'-2"	Var. 3'-9" to 4'-5¼"	2½"
B505-B522	4 ea.	Var. 14'-2" to 20'-2"	2'-2"	Var. 4'-8" to 7'-7¾"	2½"
B523	11	18'-4"	3'-2"	7'-8"	2½"
B524	16	6'-8"	3'-6"	1'-8"	2½"
B525	28	5'-0"	1'-10"	1'-8"	2½"
B601	12	17'-5"			4½"
B602	10	30'-8"			Str.
B603-B606	2 ea.	Var. 29'-5" to 16'-4"			Str.
B1001	6	33'-8"	30'-8"	1'-9½"	10"
B1002	6	32'-8"	29'-8"	1'-9½"	10"
C501	121	12'-7"		11'-4"	3¾"
C502-C578	1 ea.	Var. 34'-9" to 28'-5"		Var. 5'-9¼" to 2'-7¼"	3¾"
C579-C5155	3 ea.	Var. 7'-1" to 3'-11"		Var. 5'-9¼" to 2'-7¼"	3¾"
C1101	38	43'-3"		41'-7"	11¼"
C1102	10	33'-3"		31'-7"	11¼"
C1103	8	43'-3"		41'-7"	11¼"
C1104	46	45'-0"			Str.
F601	33	22'-10"	21'-6"	6"	4½"
F602	31	24'-10"	23'-6"	6"	4½"
F901	47	24'-0"	21'-6"	10"	9"
F902	22	26'-0"	23'-6"	10"	9"

BENDING DIAGRAMS

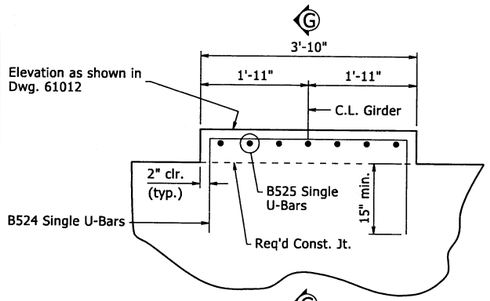




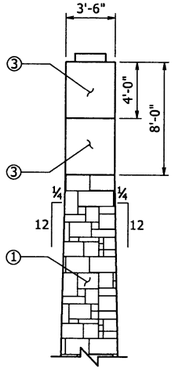




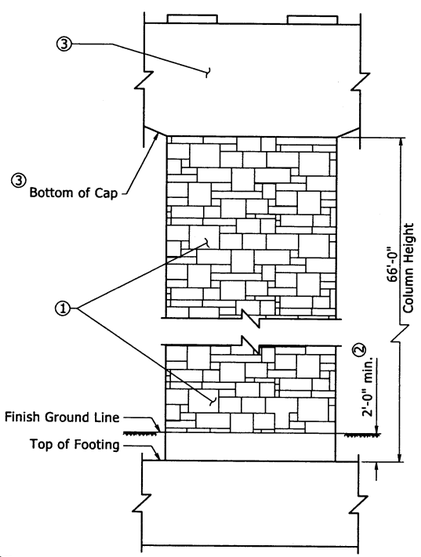
Dimensions are out to out of bars.



TYPICAL PEDESTAL DETAIL
¾" = 1'-0"



END VIEW

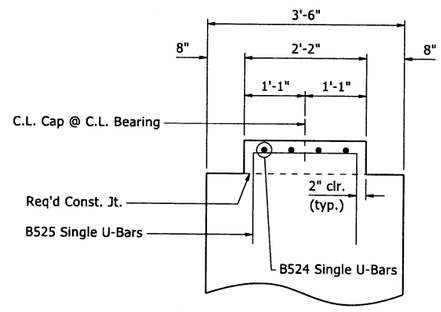


FRONT VIEW

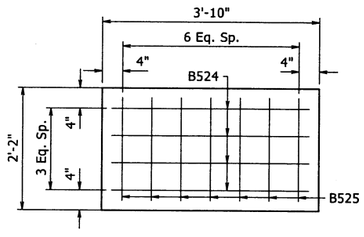
① "Ashlar Stone" Pattern & Class 3 Textured Coating Finish (Color = Brown Chip No. 30219)

② Form liner and texture coating to be stopped at Finish Ground Line

③ Class 3 Textured Coating Finish (Color = Brown, Color Chip No. 33522)



SECTION G-G
¾" = 1'-0"



PEDESTAL PLAN
¾" = 1'-0"

BENT AESTHETICS
3/16" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENT 3
PROMISE LAND DRIVE OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JJ DATE: 08/09/2019 FILENAME: br60140x5_b3.dgn
CHECKED BY: DHP DATE: 8/13/19 SCALE: AS NOTED
DESIGNED BY: JJ DATE: 06/2019
BRIDGE NO. 07457 DRAWING NO. 61013

PRINT DATE: 8/13/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10/07/19				6	ARK.			
				JOB NO.		R60140	239	616
				①		07457 - SPAN DETAILS - 61014		

SLAB REINFORCING:

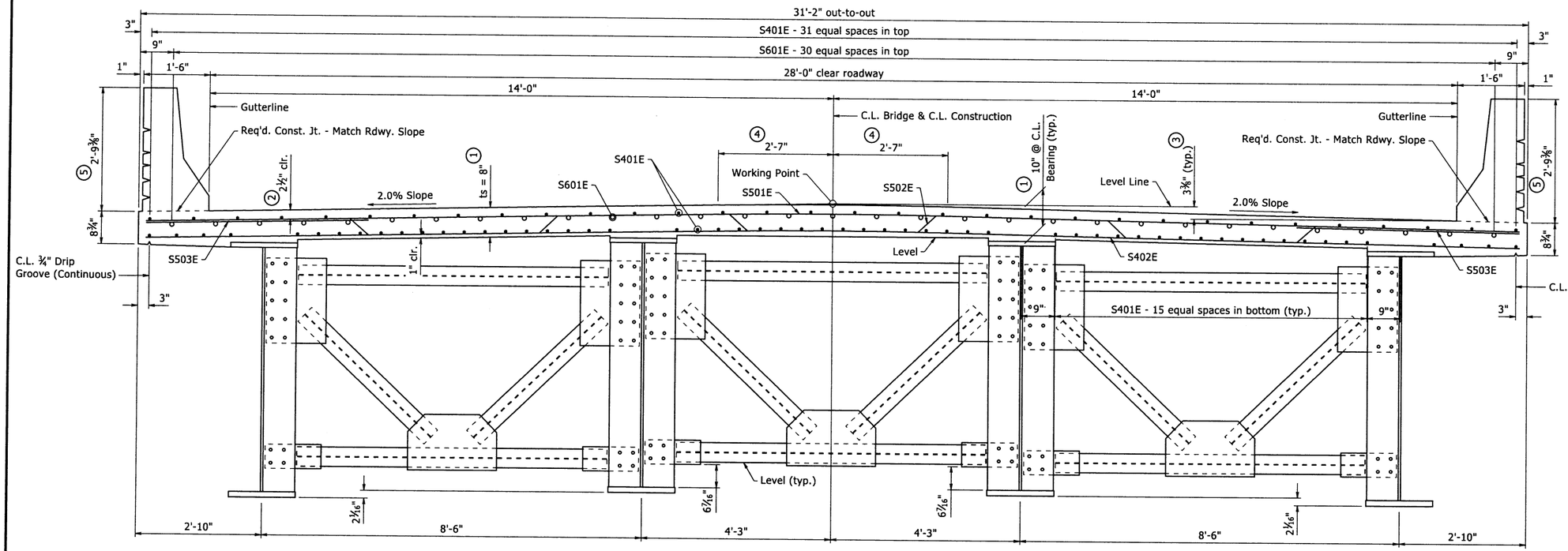
Longitudinal: S401E Top and Bottom placed as shown
S601E placed as shown, see "HALF REINFORCING PLAN AND POURING SEQUENCE," Dwg. No. 61019

Transverse: S501E @ 12" o.c. in Top, S402E @ 12" o.c. in bottom
S502E @ 12" o.c. bent up over girders — Alternate
S503E @ 6" in top of overhangs (bundled with No. 5 bars) both sides

At the Contractor's option, in lieu of providing bars S502E, one epoxy coated No. 5 bar, top and bottom, may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S502E. Bars in top and bottom shall be epoxy coated.

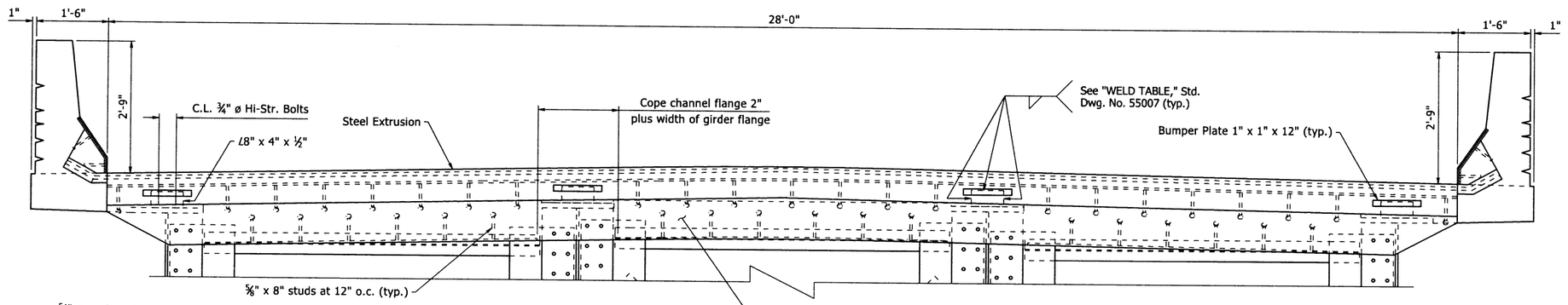
Class 1 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rail.

Bar positions and clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices sufficient in size and number to prevent displacement during construction, per Subsection 804.06. Placement of slab bolsters or hi-chairs with full-length lower runners directly on removable deck forms will not be allowed.



TYPICAL ROADWAY SECTION

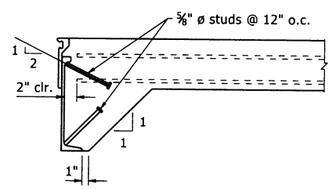
¾" = 1'-0"



TYPICAL ROADWAY SECTION NEAR JOINT

¾" = 1'-0"

Looking Ahead



DETAILS OF ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCING

No Scale

EXPANSION DEVICE:

Roadway Channel: C15x33.9
Connection ∠'s 8" x 4" x ½"
Detail Device ⅛" high & provide ¼" shims using 2 - 1⁄16" & 1 - ⅛" plates

⚠1 See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007. For both removable and permanent steel deck forms the haunch dimension may vary within the limits shown in the table below. See "SHEAR CONNECTOR DETAIL" on Std. Dwg. No. 55007 for shear connector requirements.

Top Flange	Haunch Adjustment Tolerance	
	plus	minus
1¼" x 18"	1⅝"	when the top flange contacts the bottom mat of reinforcing steel
1¼" x 21"	1½"	when the top flange contacts the bottom mat of reinforcing steel
1¾" x 21"	2"	when the top flange contacts the bottom mat of reinforcing steel

① For both removable and permanent steel deck forms the haunch dimension may vary ± 1" to maintain grade, slab thickness, and shear connector requirements. See "SHEAR CONNECTOR DETAIL" on Std. Dwg. No. 55007 for shear connector requirements. No increase in concrete and structural steel quantities will be made to maintain tolerances. Payment for concrete shall be based on removable deck forming. For additional details related to the use of permanent steel deck forms, see Std. Dwg. No. 55005.

② Tolerance: Minus = ¼" ±
Plus = to the amount of slab thickening used to meet slab thickness tolerance. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE," Std. Dwg. No. 55007.

③ Working Point to gutterline

④ See "ROUNDING DETAIL," Std. Dwg. No. 55007.

⑤ Outside face of concrete parapet rail to receive an ashlar stone finish, see Dwg. No. 61078 for details.

⚠1 Revised note and added Table.

BY: CGP DATE: 10/07/19
CHECKED BY: KST DATE: 10/7/19

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
10-7-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 7
DETAILS OF 495'-0"
CONTINUOUS PLATE GIRDER UNIT
PROMISE LAND DRIVE OVER HIGHWAY 7

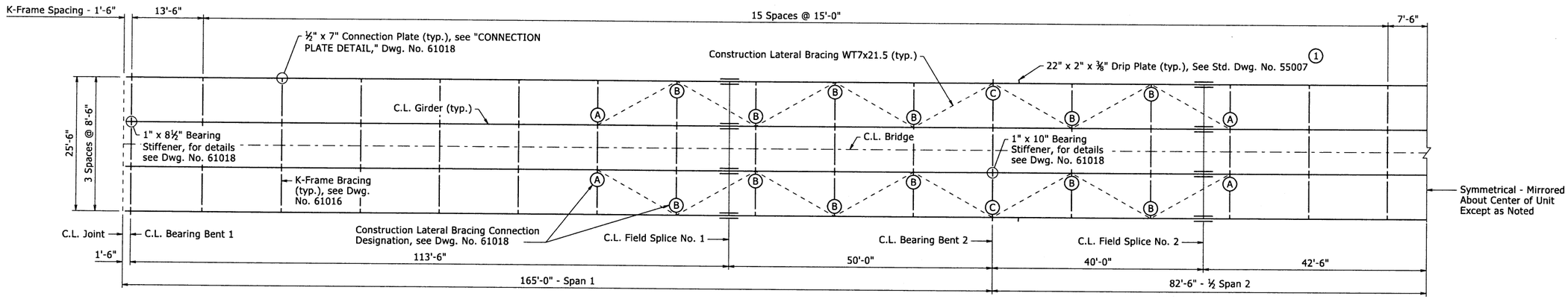
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TMG DATE: 7/16/2019 FILENAME: br60140x5_s1.dgn
CHECKED BY: KST DATE: 9/19/19 SCALE: AS NOTED
DESIGNED BY: TMG DATE: 06/2019
BRIDGE NO. 07457 DRAWING NO. 61014

PRINT DATE: 10/7/2019

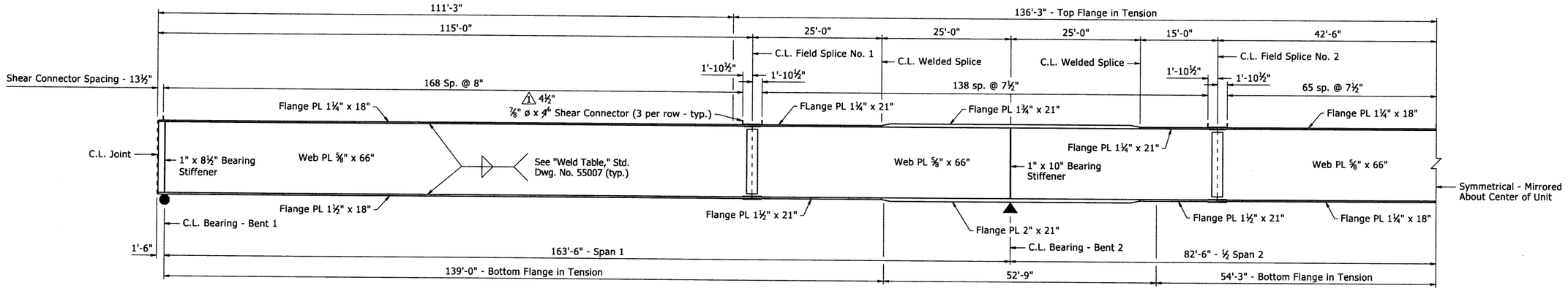
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10/07/19				6	ARK.			
				JOB NO.		R60140	240	616
				①	07457 - SPAN DETAILS - 61015			



HALF FRAMING PLAN

3/32" = 1'-0"

① Location of drip plate is not mirrored about center of unit. It shall be placed on the up-hill side of each Bent. Stop weld 1" from edge of flange. See Std. Dwg. No. 55007 for additional details.



GIRDER ELEVATION

No Scale

For "DETAILS OF WELDED SPLICES FOR PLATE GIRDERS," See Std. Dwg. No. 55007.

Notes:

All Structural Steel shall be ASTM A709, Grade 50 unless otherwise noted, and shall be paid for as "Structural Steel in Plate Girder Spans (A709, Grade 50)."

For additional information, see Layout.

For General Notes, see Std. Dwg. No. 55006.

For additional details, see Std. Dwg. No. 55007.

⚠1 Adjusted the length of Shear Connectors.

BY: CGP DATE: 10/07/19
CHECKED BY: KJT DATE: 10/7/19

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
10-7-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 7
DETAILS OF 495'-0"
CONTINUOUS PLATE GIRDER UNIT
PROMISE LAND DRIVE OVER HIGHWAY 7

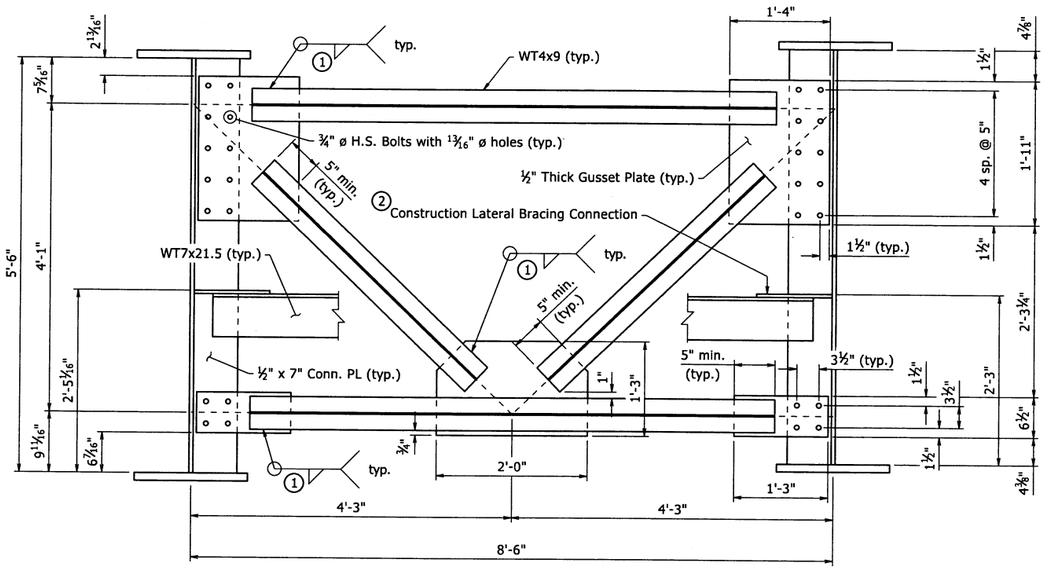
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

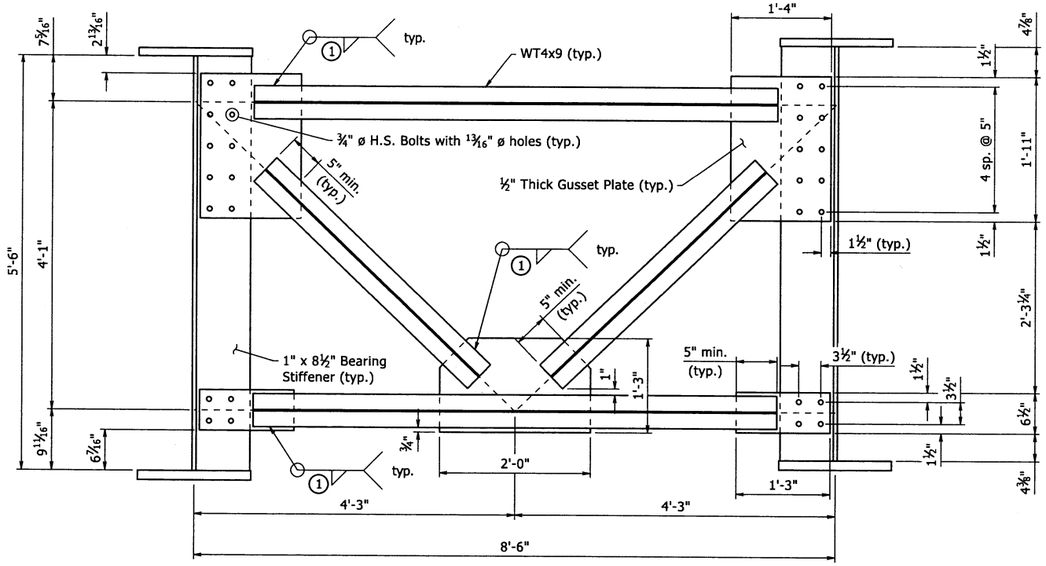
DRAWN BY: TMG DATE: 7/16/2019
CHECKED BY: KJT DATE: 8/14/19
DESIGNED BY: TMG DATE: 06/2019
FILENAME: br60140x5_s1.dgn
SCALE: AS NOTED
BRIDGE NO. 07457
DRAWING NO. 61015

PRINT DATE: 10/7/2019

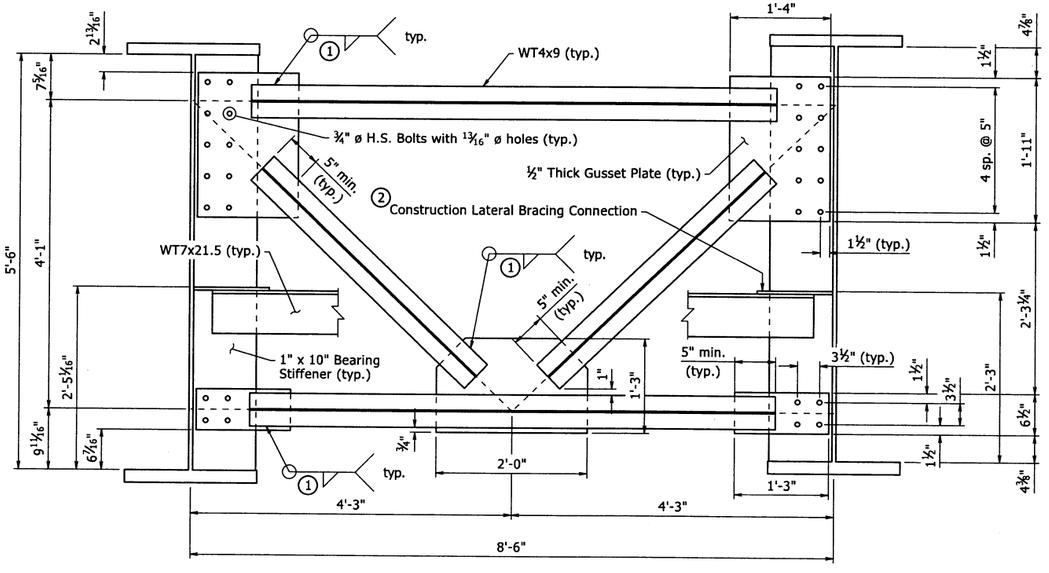
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	241	616
				①	07457 - SPAN DETAILS - 61016			



DETAILS OF K-FRAMES AT CONNECTION PLATES



DETAILS OF K-FRAMES AT END BENTS



DETAILS OF K-FRAMES AT BENTS 2 & 3

① See "WELD TABLE," Std. Dwg. No. 55007.

② See Dwg. No. 61015 for Construction Lateral Bracing Connection Designation and Dwg. No. 61018 for Lateral Bracing Connection Details.

Note: K-Frames shown between outside girder and first interior girder. K-Frames between interior girders are similar.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 7
DETAILS OF 495'-0"
CONTINUOUS PLATE GIRDER UNIT
PROMISE LAND DRIVE OVER HIGHWAY 7

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TMG DATE: 7/16/2019
CHECKED BY: KJT DATE: 8/14/19
DESIGNED BY: TMG DATE: 06/2019
FILENAME: br60140x5_s1.dgn
SCALE: 1" = 1'-0"

BRIDGE NO. 07457
DRAWING NO. 61016

PRINT DATE: 8/14/2019

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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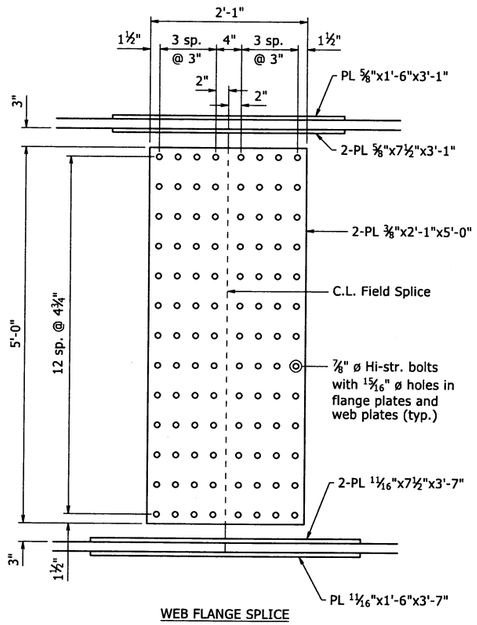
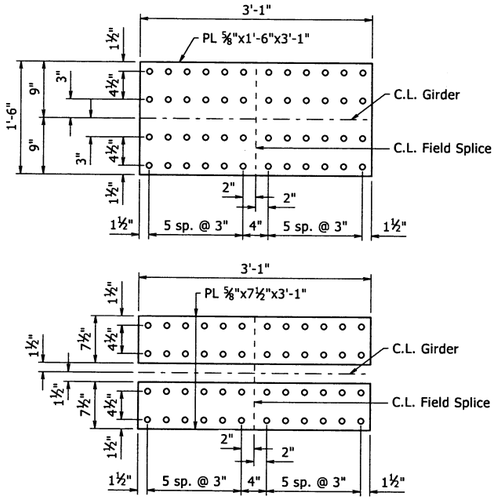
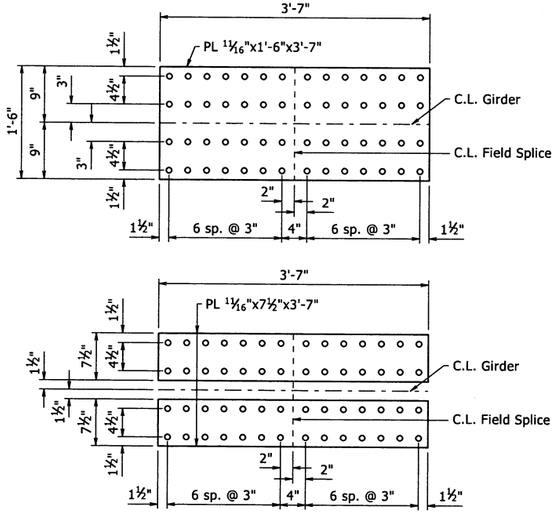
				JOB NO.		R60140	242	616
				07457 - SPAN DETAILS - 61017				



WEB FLANGE SPLICE



TOP FLANGE SPLICE



BOTTOM FLANGE SPLICE

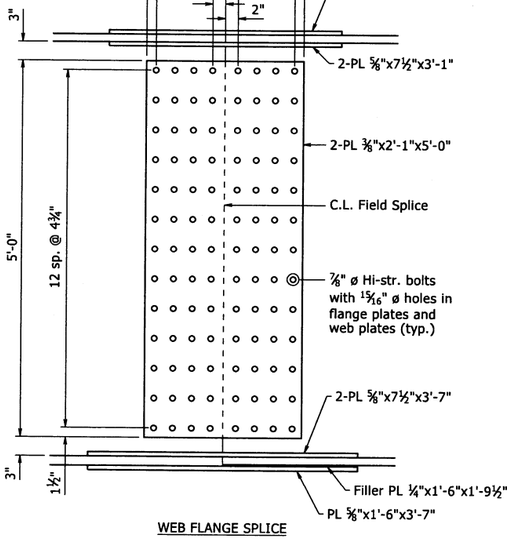
DETAILS OF FIELD SPLICE 1

1" = 1'-0"

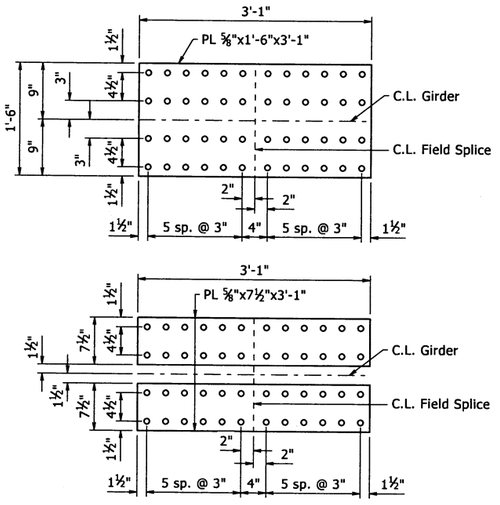
NOTES:

All Field Splice plates shall be ASTM A709, Gr. 50. For location of field splices, see Dwg. No. 61015.

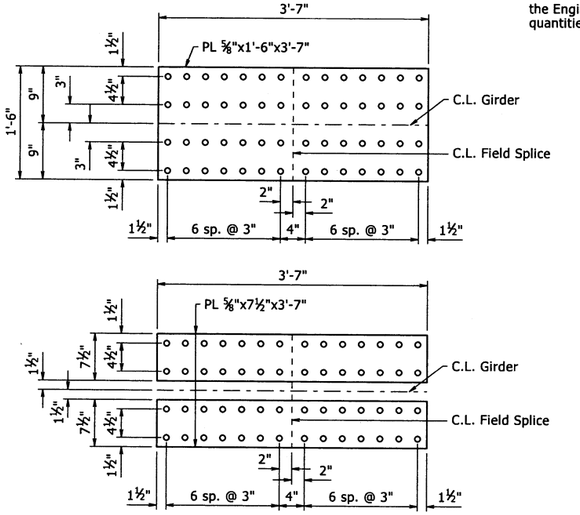
Bolted field splices may either be eliminated or shop welded splices may be substituded with the approval of the Engineer. Payment will be made on the basis of plan quantities.



WEB FLANGE SPLICE



TOP FLANGE SPLICE



BOTTOM FLANGE SPLICE

DETAILS OF FIELD SPLICE 2

1" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19

BRIDGE ENGINEER

SHEET 4 OF 7
DETAILS OF 495'-0"
CONTINUOUS PLATE GIRDER UNIT
PROMISE LAND DRIVE OVER HIGHWAY 7

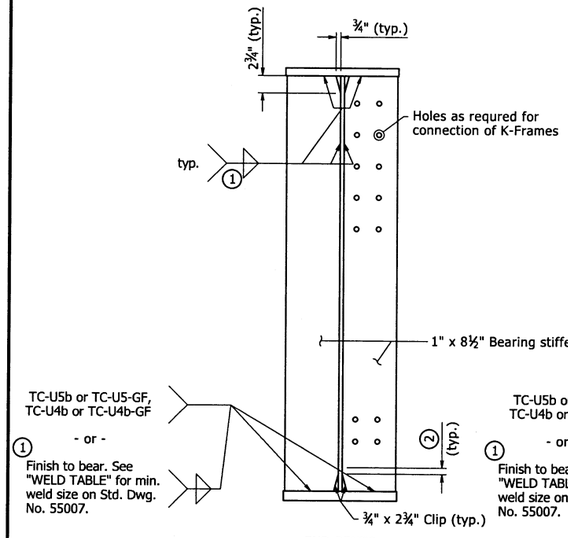
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

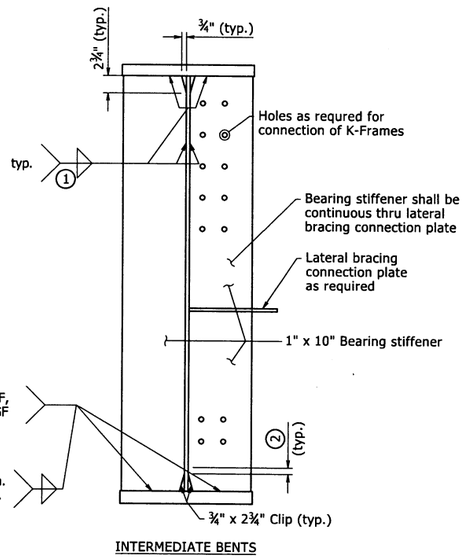
DRAWN BY: TMG DATE: 7/16/2019 FILENAME: br60140x5_s1.dgn
CHECKED BY: CRE DATE: 8/13/19 SCALE: AS NOTED
DESIGNED BY: TMG DATE: 06/2019
BRIDGE NO. 07457 DRAWING NO. 61017

PRINT DATE: 8/13/2019

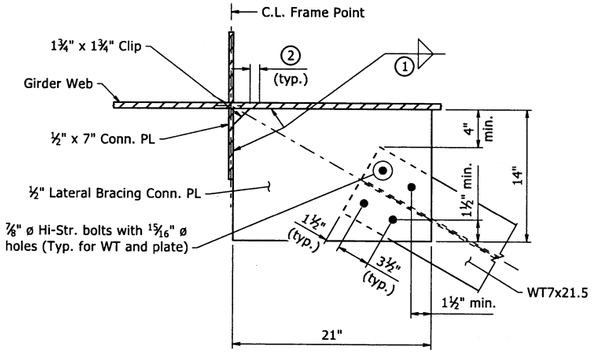
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	243	616
				1	07457 - SPAN DETAILS - 61018			



END BENTS

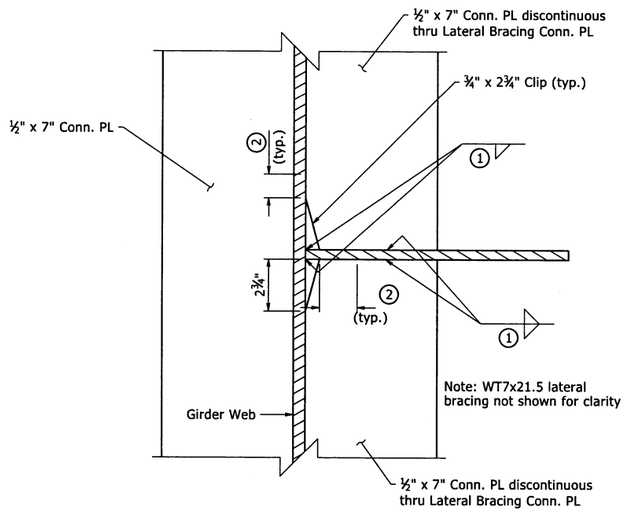


INTERMEDIATE BENTS



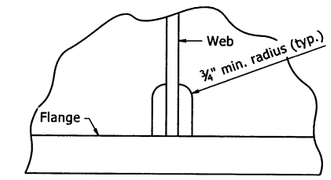
LATERAL BRACING CONNECTION A

1½" = 1'-0"



SECTION D-D

At Lateral Bracing Connection "B"
3" = 1'-0"



For Bearing Stiffeners and K-Frame Connection Plates. Height and width of clip shall be as noted in the plans.

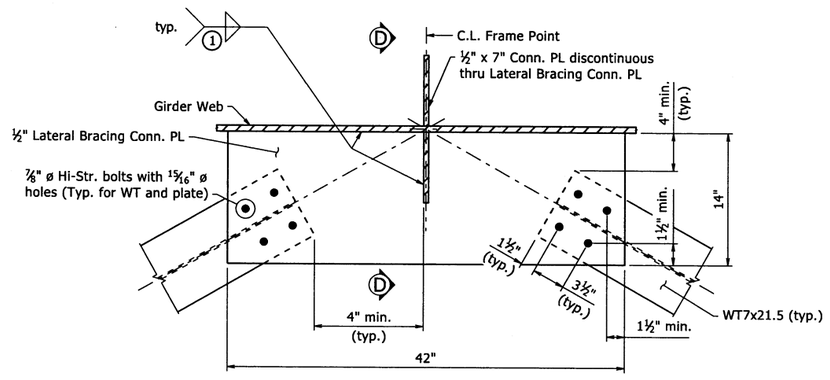
ALTERNATE CLIP DETAIL

No Scale

NOTE: All Bearing Stiffeners shall be vertical in their final position.

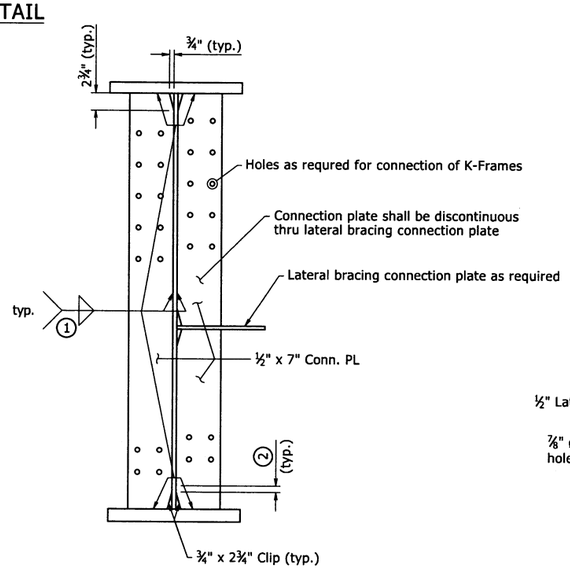
BEARING STIFFENER DETAIL

(Shown at Exterior Girders)
1" = 1'-0"



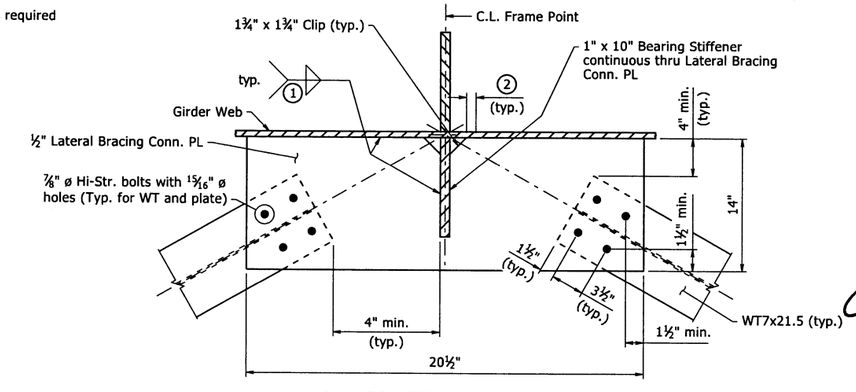
LATERAL BRACING CONNECTION B

(Shown at Interior Girders)
1½" = 1'-0"



K-FRAME CONNECTION DETAIL

(Shown at Interior Girders)
1" = 1'-0"



LATERAL BRACING CONNECTION C

½" lateral bracing connection plate shall be notched at these locations to allow for the 1" bearing stiffeners as required.
1½" = 1'-0"

Lateral Bracing Connection Notes:

⅞" ø H.S. Bolts shall be used in all lateral bracing connections.

The ends of lateral bracing members shall be a minimum of 4" clear from the web or any stiffener or connection plate.

At the Contractor's option, holes in one end of the WT may be field drilled. Minimum clearance from C.L. Bolt to edge of plate is 1½".

1 See "WELD TABLE," Std. Dwg. No. 55007.

2 Stop weld ¼" to 1" from end of clip.

STATE OF ARKANSAS
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SHEET 5 OF 7
DETAILS OF 495'-0"
CONTINUOUS PLATE GIRDER UNIT
PROMISE LAND DRIVE OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TMG DATE: 7/16/2019 FILENAME: br60140x5_s1.dgn
CHECKED BY: CRE DATE: 8/14/19 SCALE: AS NOTED
DESIGNED BY: TMG DATE: 06/2019

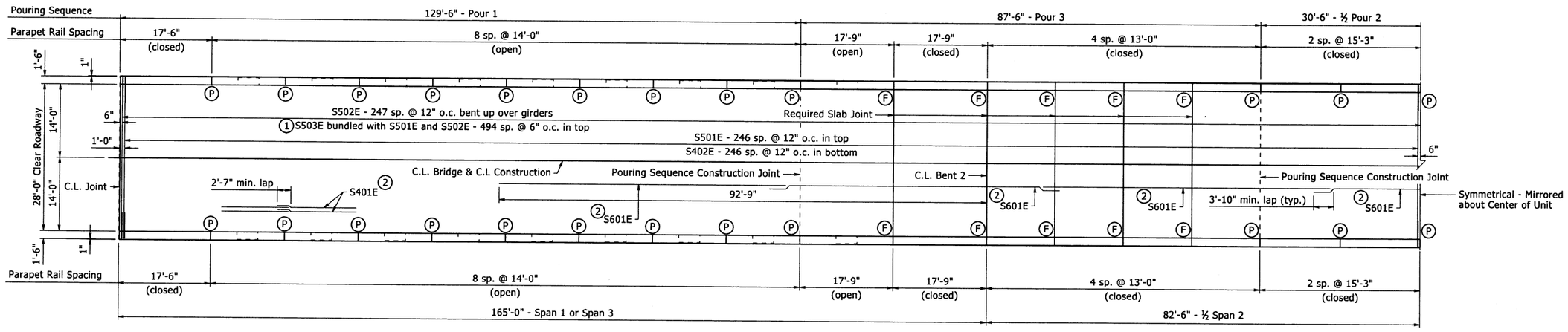
BRIDGE NO. 07457 DRAWING NO. 61018

PRINT DATE: 8/13/2019

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.		R60140	244	628
				(1)	07457 - SPAN DETAILS - 61019			

(F) C.L. Full Depth Parapet Joint (¼"-1" max.). Stop 4" from top of slab.

(P) C.L. Full Depth Parapet Joint (¼"-1" max.). Stop 1'-2" from top of slab.



HALF REINFORCING PLAN AND POURING SEQUENCE

3/32" = 1'-0"

Slab Pouring Sequence Notes:

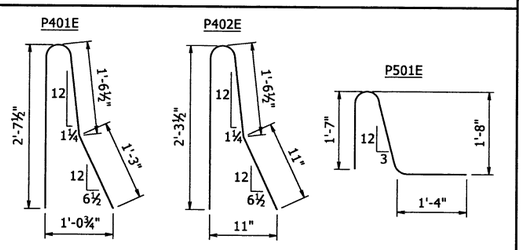
Pours with the same number may be placed simultaneously or separately. Pour(s) 1 must be placed before Pour(s) 2 can be placed. Pour(s) 2 must be placed before Pour(s) 3 can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between adjacent pours.

Concrete in bridge superstructure unit shall be placed, consolidated, and screeded off before any concrete has taken its initial set. This may require the use of a retarding agent.

A minimimum of 72 hours shall elapse between completion of the slab and pouring of the bridge railing. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. No deviations from the pouring sequence shown will be allowed.

(3) PARAPET BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAM
P401E	1,700	5'-6"	3"	
P402E	288	4'-10"	3"	
P403E	184	5'-6"	Str.	
P404E	112	12'-8"	Str.	
P405E	56	14'-11"	Str.	
P406E	28	17'-2"	Str.	
P407E	56	17'-5"	Str.	
P408E	224	13'-8"	Str.	
P501E	1,700	4'-8"	3¾"	



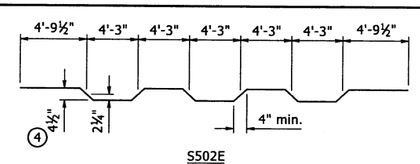
For details and location of parapet reinforcing, see Dwg. No. 61078

All bars with an "E" suffix shall be Epoxy Coated.

Dimensions are out-to-out of bars.

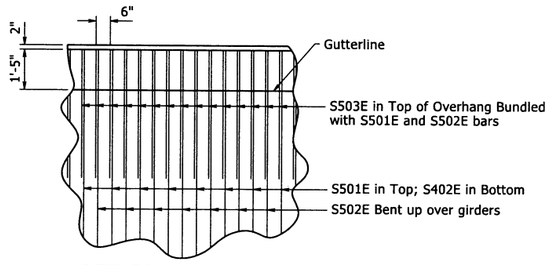
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAM
S401E	1,232	37'-10"	Str.	
S402E	494	30'-10"	Str.	
S501E	494	30'-10"	Str.	
S502E	495	31'-6"	3"	
S503E	1,978	5'-0"	Str.	
S601E	217	53'-5"	Str.	



(3) TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels			
Panel Length	"D"	P4XXE Bar	Panel Length	"E"	"G"	P4XXE Bar
13'-0"	25	P404E	13'-0"	8	4'-6"	P404E
15'-3"	30	P405E	14'-0"	9	5'-0"	P408E
17'-6"	34	P406E	17'-9"	13	6'-10½"	P407E
17'-9"	35	P407E				



REINFORCING DETAIL

No Scale

(1) Typical Both Sides, see "REINFORCING DETAIL."

(2) Place as shown in "TYPICAL ROADWAY SECTION," Dwg. No. 61014.

(3) See Dwg. No. 61078 for "COMMON DETAILS OF 2'-9" CONCRETE PARAPET RAILS."

(4) ½" Overtolerance, No Undertolerance.

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SHEET 6 OF 7
DETAILS OF 495'-0" CONTINUOUS PLATE GIRDER UNIT
PROMISE LAND DRIVE OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TMG DATE: 7/16/2019
CHECKED BY: DATE: 8/14/19
DESIGNED BY: TMG DATE: 06/2019
FILENAME: br60140x5_s1.dgn
SCALE: AS NOTED

BRIDGE NO. 07457 DRAWING NO. 61019

PRINT DATE: 8/14/2019

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.		R60140	245	618
				07457 - SPAN DETAILS - 61020				

STRIP SEAL JOINT DATA

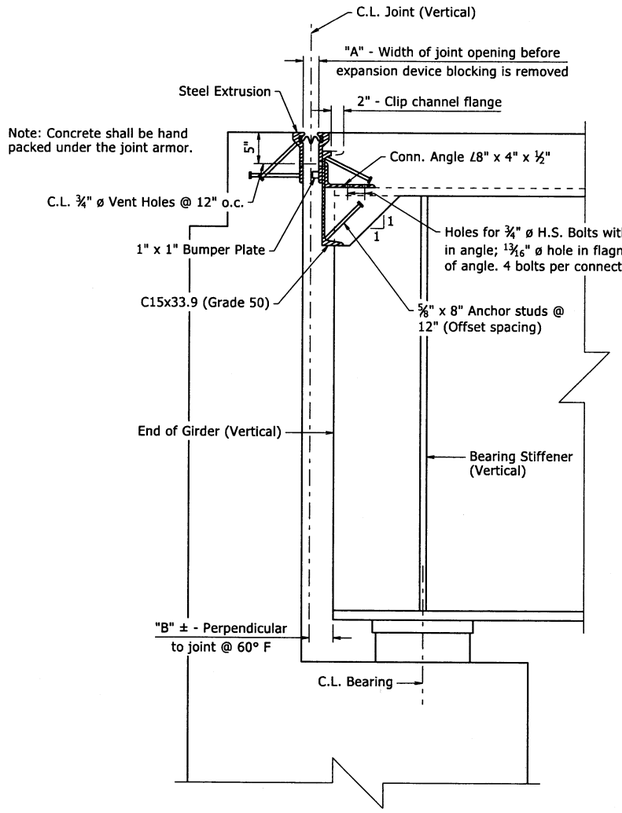
Bent No.	Movement Rating	"A" - Width perpendicular to joint at 24 hour average temperature of:			"B" - Width perpendicular to joint at 24 hour average temperature of:
		40°F	60°F	80°F	60°F
1	4"	2⅞"	2½"	2⅛"	3¾"
4	4"	2⅞"	2½"	2⅛"	3¾"

The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary. Installation is limited to 40°F min. and 80°F max. The temperature limitations by the lubricant-adhesive manufacturer shall be observed.

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

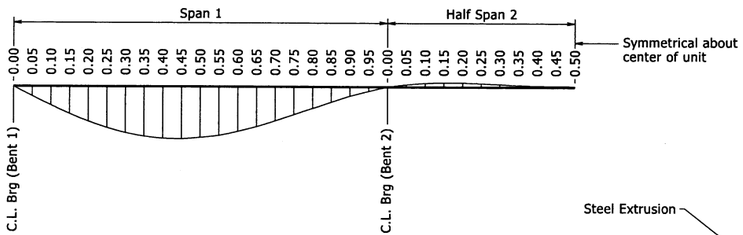
Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Exterior Girder	Interior Girder	Exterior Girder	Interior Girder	Exterior Girder	Interior Girder
Span 1	0.00	0.000	0.000	0.000	0.000	0.000	0.000
	0.05	0.256	0.257	1.001	1.007	1.088	0.344
	0.10	0.495	0.497	1.936	1.947	2.104	1.415
	0.15	0.716	0.719	2.804	2.820	3.046	2.411
	0.20	0.920	0.923	3.606	3.624	3.917	3.334
	0.25	1.090	1.094	4.281	4.302	4.648	4.162
	0.30	1.222	1.226	4.810	4.832	5.220	4.844
	0.35	1.316	1.320	5.196	5.219	5.636	5.366
	0.40	1.372	1.376	5.427	5.450	5.884	5.732
	0.45	1.384	1.388	5.494	5.518	5.953	5.921
	0.50	1.359	1.363	5.412	5.435	5.860	5.941
	0.55	1.292	1.295	5.175	5.198	5.598	5.790
	0.60	1.195	1.199	4.797	4.820	5.185	5.490
	0.65	1.063	1.067	4.285	4.307	4.627	5.029
	0.70	0.917	0.920	3.709	3.727	4.000	4.451
	0.75	0.756	0.758	3.066	3.081	3.302	3.801
	0.80	0.580	0.582	2.357	2.369	2.534	3.082
	0.85	0.406	0.407	1.658	1.666	1.778	2.314
	0.90	0.251	0.252	1.033	1.037	1.104	1.582
	0.95	0.116	0.116	0.480	0.481	0.511	0.932
Half Span 2	0.00	0.000	0.000	0.000	0.000	0.000	0.365
	0.05	-0.072	-0.072	-0.322	-0.320	-0.336	-0.086
	0.10	-0.120	-0.120	-0.554	-0.550	-0.573	-0.387
	0.15	-0.138	-0.137	-0.690	-0.682	-0.703	-0.581
	0.20	-0.143	-0.141	-0.746	-0.734	-0.750	-0.690
	0.25	-0.129	-0.127	-0.762	-0.746	-0.751	-0.709
	0.30	-0.112	-0.110	-0.736	-0.719	-0.711	-0.704
	0.35	-0.089	-0.087	-0.708	-0.690	-0.667	-0.656
	0.40	-0.072	-0.069	-0.676	-0.656	-0.624	-0.621
	0.45	-0.059	-0.056	-0.656	-0.636	-0.597	-0.584
	0.50	-0.054	-0.052	-0.647	-0.627	-0.585	-0.570

Symmetrical about center of unit



SECTION THRU JOINT

Bents 1 & 4

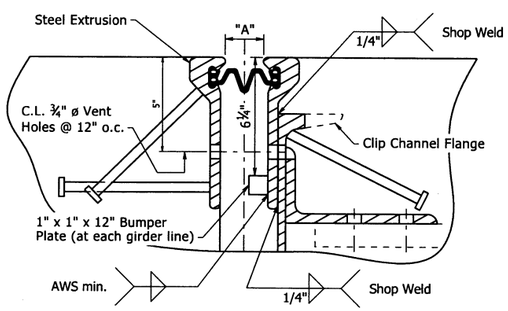


Symmetrical about center of unit

DEAD LOAD DEFLECTION DIAGRAM

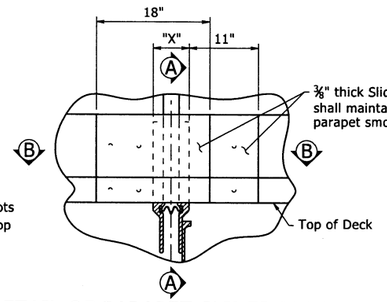
No Scale

Camber for Dead Load Deflection ±¼" tolerance. Deflections shown are along C.L. Girder from a chord from C.L. Bearing to C.L. Bearing. Negative sign (-) indicates a point above chord. Vertical curve corrections not included.



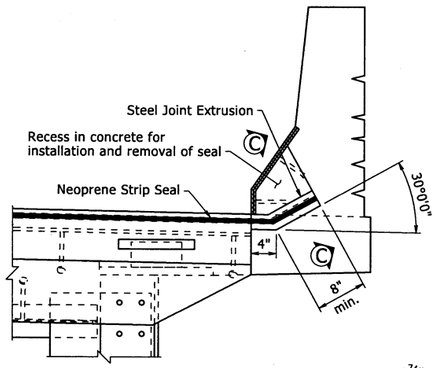
DETAIL OF STRIP SEAL JOINT

Detail shown at End Bent.
No Scale



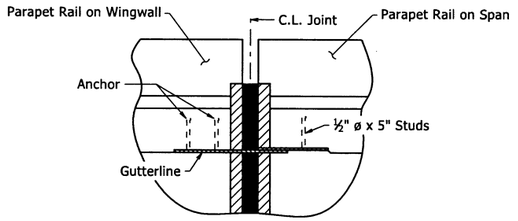
DETAIL OF PARAPET SLIDER PLATES

No Scale



SECTION A-A

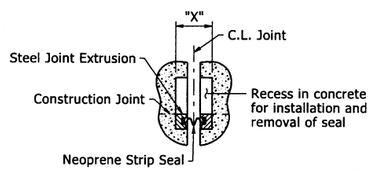
1" = 1'-0"



The method of attachment of the slider plate assembly shall allow for removal to provide forfuture replacement of the neoprene seal. Anchors shall not be paid for directly, but shall be considered subsidiary to the item "Armored Joint with Neoprene Strip Seal."

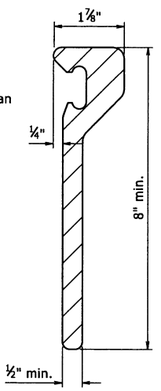
SECTION B-B

No Scale

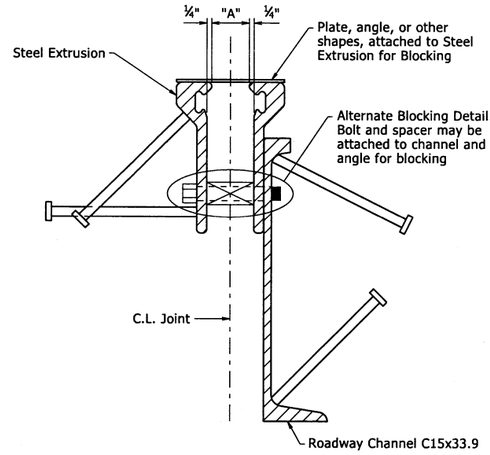


SECTION C-C

No Scale



STEEL EXTRUSION



DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

Neoprene Strip Seal Joint Notes:

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.

The steel extrusion material (D.S. Brown SSPA or approved equal), neoprene strip seal material (D.S. Brown L2-400 or approved equal) and installation shall be in accordance with Section 809.

The expansion device shall provide for the movement rating(s) shown in the "STRIP SEAL JOINT DATA" in the plan details. The expansion joint shall be capable of sealing the deck surface and parapet area to prevent moisture and other contaminants from descending through the joint.

All structural steel shall conform to ASTM A709, Grade 50 and exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Structural Steel shall be paid for as "Structural Steel in Plate Girder Spans (ASTM A709, Grade 50)."

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 backwall is placed. After the end bent backwall forms are in place and the 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 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.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 7 OF 7
DETAILS OF 495'-0"
CONTINUOUS PLATE GIRDER UNIT
PROMISE LAND DRIVE OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

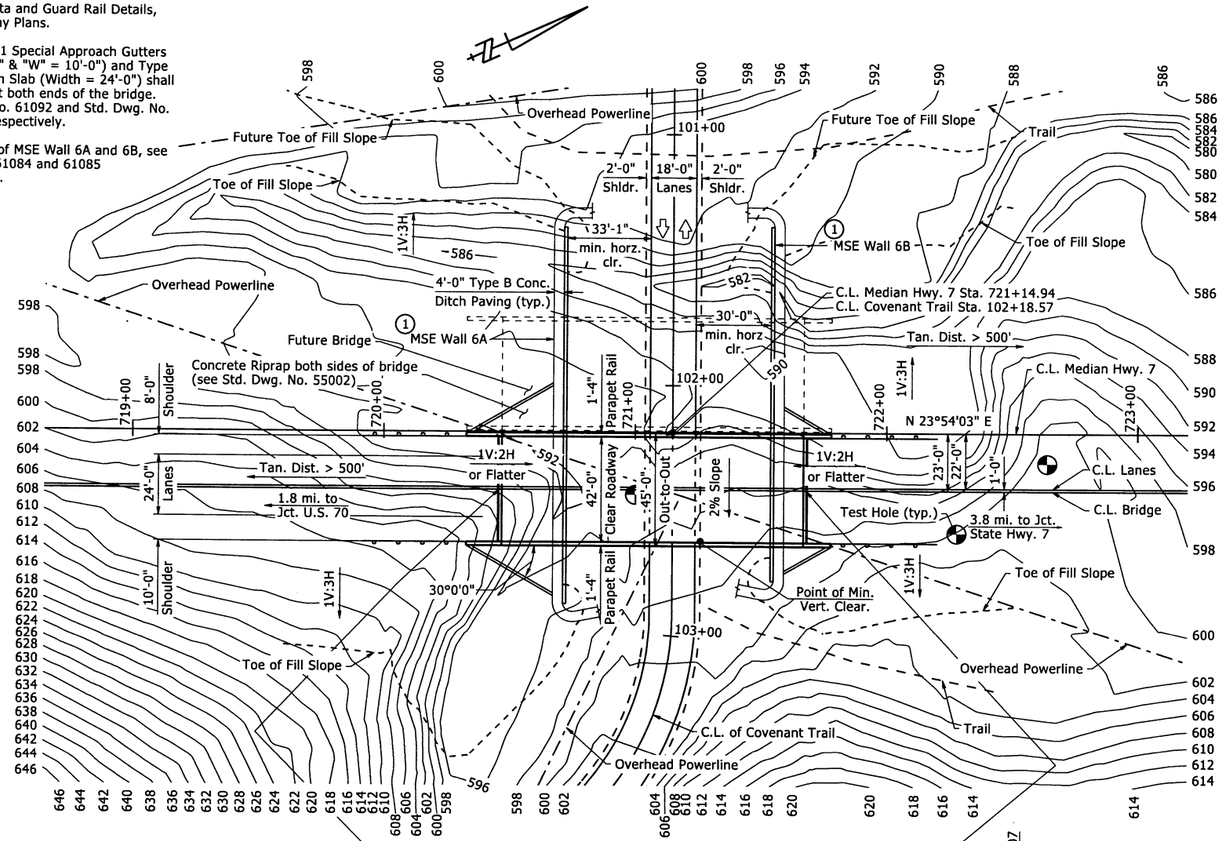
DRAWN BY: TMG DATE: 7/16/2019 FILENAME: br60140x5_s1.dgn
CHECKED BY: [illegible] DATE: 8/14/19 SCALE: NO SCALE
DESIGNED BY: TMG DATE: 06/2019
BRIDGE NO. 07457 DRAWING NO. 61020

PRINT DATE: 8/14/2019

For R/W Data and Guard Rail Details, See Roadway Plans.

Note: Type 1 Special Approach Gutters ("W" = 8'-0" & "W" = 10'-0") and Type C1 Approach Slab (Width = 24'-0") shall be placed at both ends of the bridge. See Dwg. No. 61092 and Std. Dwg. No. 55040C1, respectively.

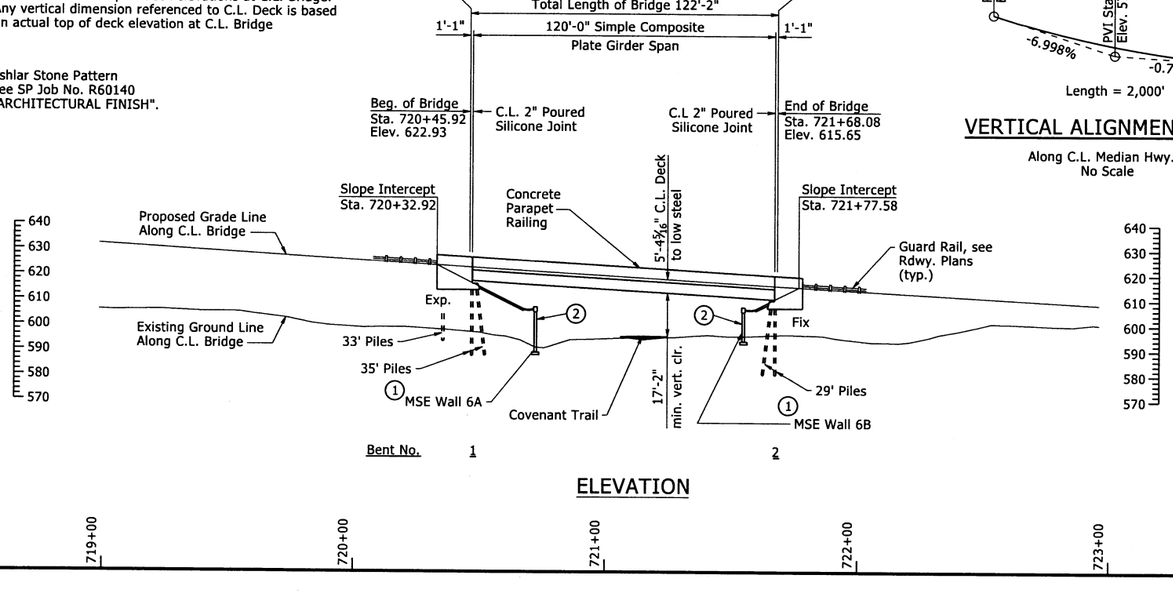
(1) For Details of MSE Wall 6A and 6B, see Dwg. Nos. 61084 and 61085 respectively.



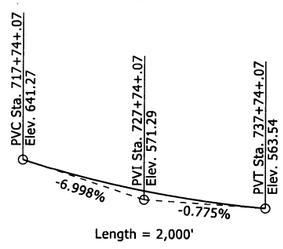
PLAN

Note:
Stations shown are along C.L Median Hwy. 7. Elevations shown are actual top of deck elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on actual top of deck elevation at C.L. Bridge

(2) Ashlar Stone Pattern
See SP Job No. R60140
"ARCHITECTURAL FINISH".



ELEVATION



VERTICAL ALIGNMENT DATA

Along C.L. Median Hwy. 7
No Scale

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.		R60140	246	616
				(1)		B7458 - LAYOUT - 61021		

GENERAL NOTES:

BENCH MARK: Vertical Control Data are shown on the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Seventh Edition (2014) with 2015 Interims.

LIVE LOADING: HL-93

SEISMIC ZONE: 1 S_{D1} = 0.12 SITE CLASS: C

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (Superstructure)	f'c = 4,000 psi
Class S Concrete (Substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50W)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: All piling shall be HP 12x53 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 95 tons per pile and into the material designated as Shale on the boring legend. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual pile lengths are to be determined in the field. The Contractor shall use approved steel H-Pile driving points on all piles.

PILE CASINGS: Pile casings are required for piling within MSE walls at End Bents 1 and 2. See "FOUNDATION PLAN - BENT 1" and "FOUNDATION PLAN - BENT 2", Dwg. No. 61027, for the location of proposed casings. Casings shall be installed prior to or during embankment construction and shall extend from top of leveling pad to bottom of cap. Pile casing material shall be of sufficient strength to retain its original form free from harmful distortions after compaction of the fill material surrounding it. The minimum inside diameter of the casings shall be at 18". Piles shall be driven through the open casings after embankment to bottom of cap is in place After driving is complete, the pile casings shall be filled with Class S Concrete, an approved non-shrink grout, mixture used for Portland Cement Concrete Pavement, or other approved material in a single continuous operation to completely fill voids. This work and material will not be paid for directly but shall be considered subsidiary to the item "Steel Piling (HP 12x53)."

Additional pile casings are required on the west side of C.L. Median Hwy. 7 to provide for the future Hwy. 7 Bridge. See "FOUNDATION PLAN - BENT 1" and "FOUNDATION PLAN - BENT 2", Dwg. No. 61027 for the location of additional casings. These casings shall be installed during embankment construction and shall extend, at the minimum, from the top of the leveling pad to approximately 1' below the finished surface of the embankment. The minimum inside diameter of the casings shall be 24". Pile casing material shall conform to the above. No piling shall be driven through these casings, but they shall be kept clean from debris and capped at the top with a durable waterproof material sufficient in strength to prevent collapse. The cap material shall be approved by the Engineer. Payment for this work and materials will be considered subsidiary to other contract items in the job.

PAINTING: All Grade 50W structural steel, except galvanized members, surfaces in contact with concrete, and the expansion device, within 8 feet of bridge deck expansion joints shall be painted as specified in Subsection 807.75. The color of paint shall be Brown equal or close to Federal Std. 595B, Color Chip No. 30070 and as approved by the Engineer. The finish system may be applied in the shop. Any damage to the paint system occurring during transport or installation shall be corrected according to the manufacturer's recommendations at no cost to the Department.

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 Roadway Surface Finish.

PROTECTIVE SURFACE TREATMENT: Class 1 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(S).
End Bents	61025 - 61029
Elastomeric Bearings	61075 - 61076
120'-0" Simple Plate Girder Span	61030 - 61033
General Notes for Steel Bridge Structures	55006
Details for Steel Bridge Structures	55007
Poured Silicone Joints	55008
Steel H-Piling	55020
Type 1 Special Approach Gutter	61092
Type C1 Approach Slab	55040C1
Retaining Walls	61084 - 61085

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE
HIGHWAY 7 OVER COVENANT TRAIL
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 4/9/2019 FILENAME: br60140x6_l1.dgn
CHECKED BY: [illegible] DATE: 3/18/19 SCALE: 1" = 30'
DESIGNED BY: DPT DATE: 4/2019

BRIDGE NO. B7458 DRAWING NO. 61021

PRINT DATE: 8/14/2019

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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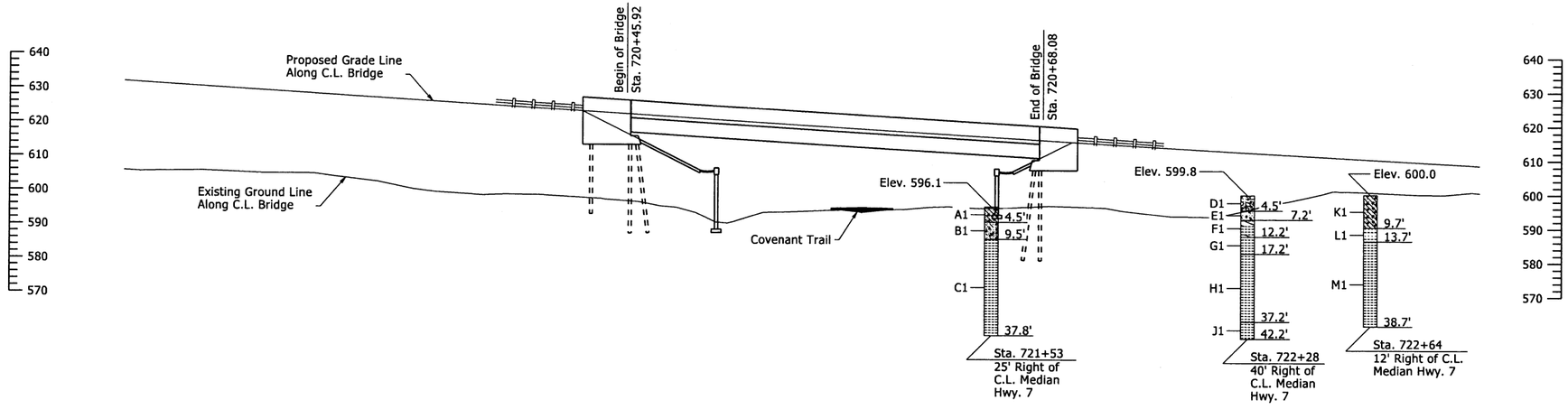
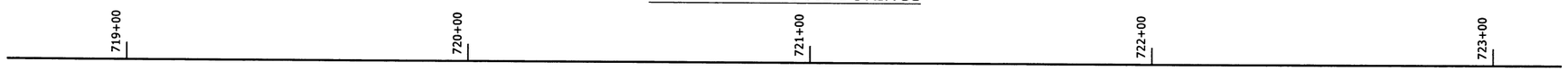
				JOB NO.		R60140	247	616
				(1)		B7458 - LAYOUT - 61022		



ELEVATION OF SOIL BORINGS



BORING LEGEND

A1-Sandy Clay with Gravel
B1-Wet, Very Dense, Brown and Gray Gravel with Sand and Clay
C1-SHALE - Slightly Weathered, Medium Hard, Dark Gray
D1-Sand with Gravel and Cobbles
E1-Moist, Very Dense, Light Gray Sand with Gravel (Sandstone Fragments)
F1-SHALE - Highly Weathered to Slightly Weathered, Medium Hard, Frequent Fractures and Quartz Veins, Gray
G1-SHALE - Slightly Weathered, Medium Hard, Frequent Fractures, Gray
H1-SHALE - Unweathered to Weathered, Medium Hard, Frequent Fractures, Gray
J1-No recovery
K1-Moist, Very Hard, Brown and Gray Sandy Clay with Gravel
L1-SANDSTONE WITH INTERBEDDED SHALE - Unweathered, Well Cemented, Frequent Fractures, Dark Gray
M1-SHALE - Unweathered, Hard, Siliceous, Frequent Fractures, Occasional Mineral Veins, Dark Gray

"N" VALUES

Sta. 721+53 - 25' Right of C.L. Median Hwy. 7

5.0- 6.0,N=78
10.0- 10.0,N=100(6")

Sta. 722+28 - 40' Right of C.L. Median Hwy. 7

5.0- 5.9,N=65(11")

Sta. 722+64 - 12' Right of C.L. Median Hwy. 7

4.7- 5.1,N=60(5")
9.7- 9.7,N=10(0")

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19

BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 7 OVER COVENANT TRAIL
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 4/9/19
CHECKED BY: KJT DATE: 8/14/19
DESIGNED BY: DPT DATE: 4/19

FILENAME: br60140x6_l1.dgn
SCALE: 1' = 20'

BRIDGE NO. B7458 DRAWING NO. 61022

PRINT DATE: 8/14/2019

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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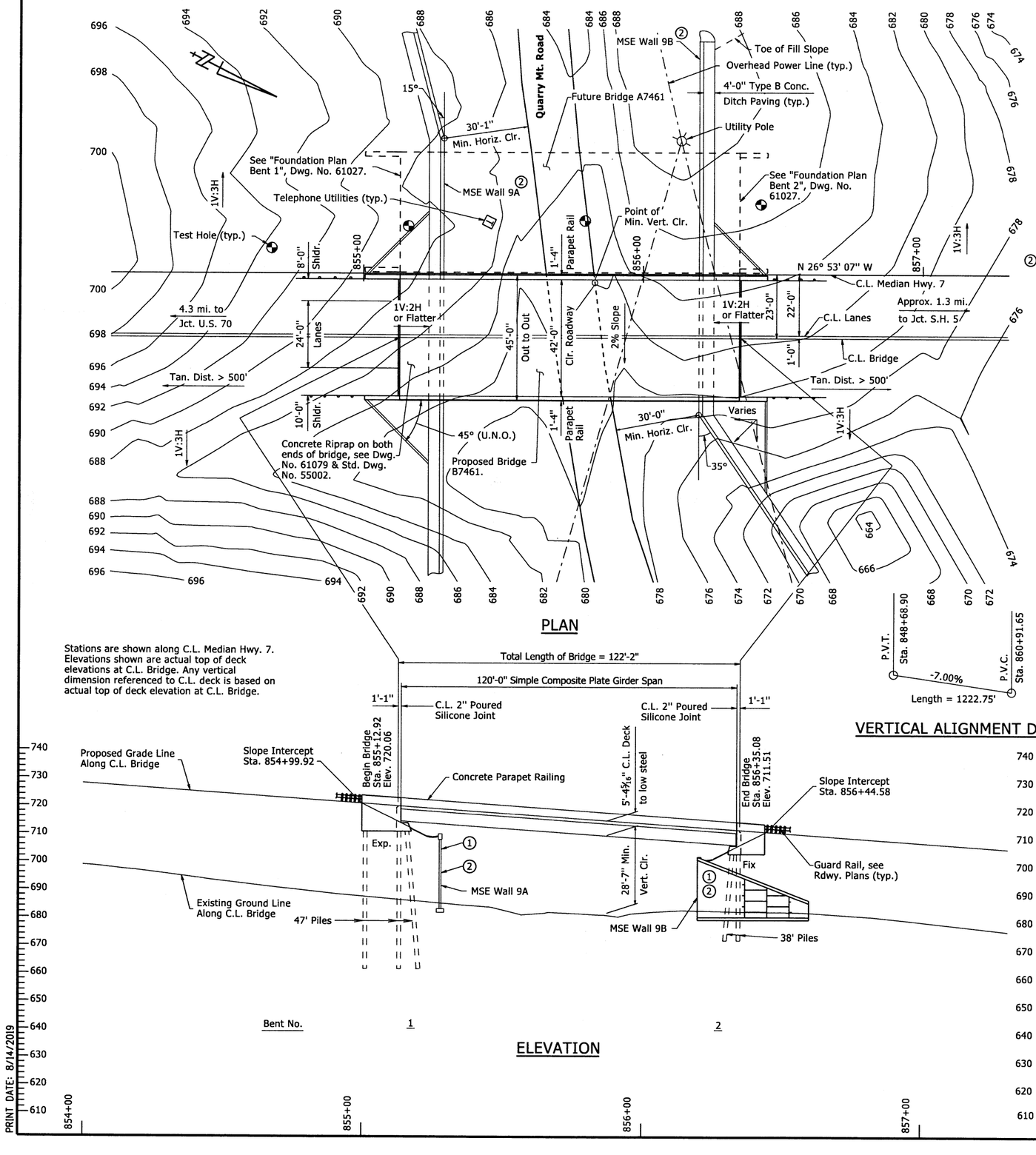
				JOB NO.		R60140	245	616
				①		B7461 - LAYOUT - 61023		



Note: Type Special 1 Approach Gutters (W=8'-0" & W=10'-0") and Type C1 Approach Slab (Width=24'-0") shall be placed at both ends of the bridge. See Dwg. No. 61092 and Std. Dwg. No. 55040C1, respectively.

For R/W Data and Guard Rail Details See Roadway Plans.

① Ashlar Stone Pattern See SP Job No. R60140 "ARCHITECTURAL FINISH".

② For Details of MSE walls and for additional fill slope information see Dwg. Nos. 61090-61091.

GENERAL NOTES:

BENCH MARK: Vertical Control Data are shown on the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, 7th Edition (2014) with 2015 Interims.

LIVE LOADING: HL-93

SEISMIC ZONE: 1 S_{D1}= 0.119 SITE CLASS: C

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (Superstructure)	f'c = 4,000 psi
Class S Concrete (Substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50W)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: All piling shall be HP 12x53 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 95 tons per pile and into the material designated as Medium Hard Shale on the boring legend. Minimum penetration shall be 10' below the cap or natural ground, whichever is lower. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual pile lengths are to be determined in the field. The Contractor shall use approved steel H-Pile driving points on all piles.

PREBORING: Preboring is required for all piling in Bents 1 and 2. Preboring shall be to a minimum depth of 5' into the material designated as shale on the boring legend, or to a depth sufficient to provide the specified minimum pile penetration, whichever is greater. The actual size and depth of preboring are to be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free from debris prior to backfilling which may require casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of rock and the remaining length backfilled in accordance with Subsection 805.08(a). Any cost associated with achieving the minimum pile penetration, including any backfill and casings, shall not be paid for directly but shall be considered subsidiary to the item "Preboring".

PILE CASINGS: Pile casings are required for piling within MSE walls at End Bents 1 and 2 . See "FOUNDATION PLAN - BENT 1" and "FOUNDATION PLAN - BENT 2", Dwg. No. 61027, for the location of proposed casings. Casings shall be installed prior to or during embankment construction and shall extend from top of leveling pad to bottom of cap. Pile casing material shall be of sufficient strength to retain its original form free from harmful distortions after compaction of the fill material surrounding it. The minimum inside diameter of the casings shall be at 18". Piles shall be driven through the open casings after embankment to bottom of cap is in place After driving is complete, the pile casings shall be filled with Class S Concrete, an approved non-shrink grout, mixture used for Portland Cement Concrete Pavement, or other approved material in a single continuous operation to completely fill voids. This work and material will not be paid for directly but shall be considered subsidiary to the item "Steel Piling (HP 12x53)."

Additional pile casings are required on the west side of C.L. Median Hwy. 7 to provide for the future Hwy. 7 Bridge. See "FOUNDATION PLAN - BENT 1" and "FOUNDATION PLAN - BENT 2", Dwg. No. 61027 for the location of additional casings. These casings shall be installed during embankment construction and shall extend, at the minimum, from the top of the leveling pad to approximately 1' below the finished surface of the embankment. The minimum inside diameter of the casings shall be 24". Pile casing material shall conform to the above. No piling shall be driven through these casings, but they shall be kept clean from debris and capped at the top with a durable waterproof material sufficient in strength to prevent collapse. The cap material shall be approved by the Engineer. Payment for this work and materials will be considered subsidiary to other contract items in the job.

PAINTING: All Grade 50W structural steel, except galvanized members, surfaces in contact with concrete, and the expansion device within 8 feet of bridge deck expansion joints shall be painted as specified in Subsection 807.75. The color of paint shall be Brown equal or close to Federal Std. 595B, Color Chip No. 30070 and as approved by the Engineer. The finish system may be applied in the shop. Any damage to the paint system occurring during transport or installation shall be corrected according to the manufacturer's recommendations at no cost to the Department.

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 1 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rails.

DETAIL DRAWINGS:	DRAWING NO(S).
End Bents	61025 - 61029
120'-0" Simple Plate Girder Span	61030 - 61033
General Notes for Steel Bridge Structures	55006
Details for Steel Bridge Structures	55007
Steel H-Piling	55020
MSE Walls	61090 - 61091
Type Special 1 Approach Gutter	61092
Type C1 Approach Slab	55040C1

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE
HIGHWAY 7 OVER QUARRY MOUNTAIN ROAD
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JWP DATE: 5/1/2019 FILENAME: br60140x9_l1.dgn
CHECKED BY: CMW DATE: 8/14/19 SCALE: 1"=20'
DESIGNED BY: JWP DATE: 05/2019

BRIDGE NO. B7461 DRAWING NO. 61023

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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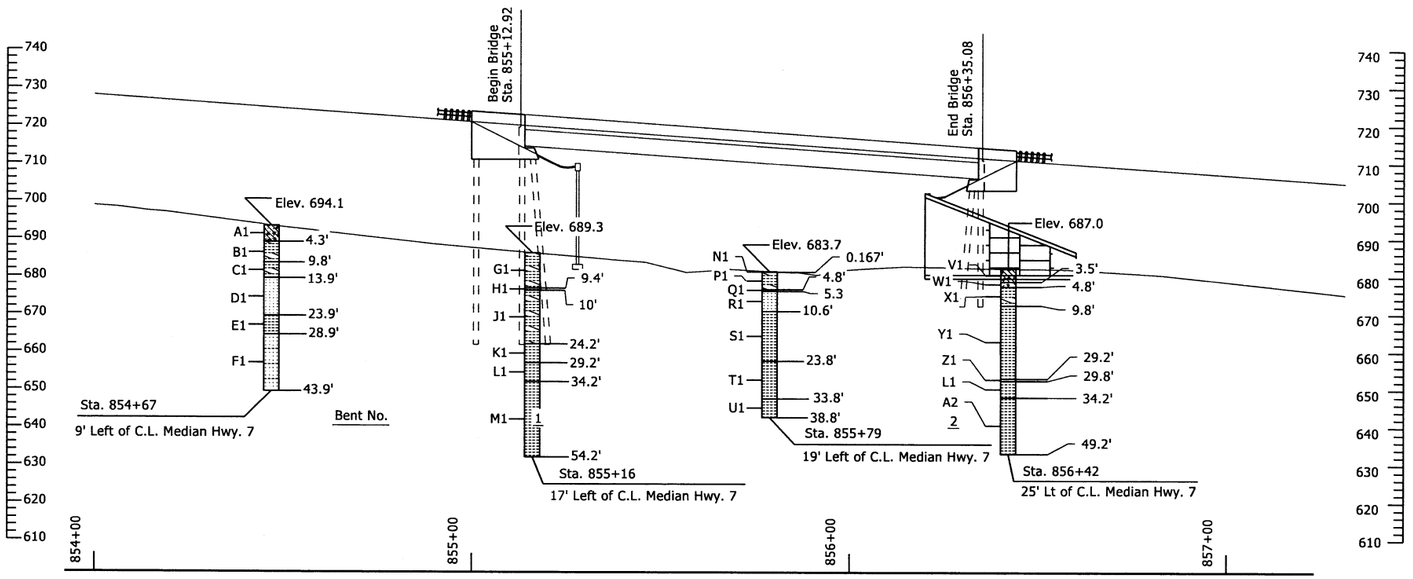


ELEVATION OF SOIL BORINGS

BORING LEGEND

A1-Sandy Clay with Gravel
B1-SHALE - Highly Weathered, Medium Hard, Light Brown to Light Gray
C1-SHALE WITH OCCASIONAL SANDSTONE LAYERS - Highly Weathered, Medium Hard, Brown
D1-SANDSTONE - Highly Weathered, Cemented, Frequent Fractures, Light Gray
E1-SHALE WITH OCCASIONAL SANDSTONE LAYERS - Highly Weathered, Medium Hard, Frequent Fractures, Dark Gray
F1-SANDSTONE WITH FREQUENT SHALE LAYERS - Highly Weathered, Cemented, Frequent Fractures, Dark Gray
G1-SHALE - Highly Weathered, Soft, Brown and Light Gray
H1-CLAY (SHALE) WITH OCCASIONAL SANDSTONE LAYERS - Highly Weathered, Soft, Reddish Brown and Gray
J1-CLAY (SHALE) OCCASIONAL SANDSTONE LAYERS - Highly Weathered, Soft, Reddish Brown
K1-SHALE - Weathered, Medium Hard, Frequent Fractures, Dark Gray
L1-SHALE - Weathered, Medium Hard, Occasional Fractures, Dark Gray
M1-SHALE WITH OCCASIONAL SANDSTONE LAYERS - Slighty Weathered, Medium Hard, Occasional Fractures, Dark Gray
N1-Asphalt
P1-SHALE
Q1-SHALE - Highly Weathered, Medium Hard, Gray
R1-SANDSTONE - Weathered with Highly Weathered Seams, Cemented, Occasional Fractures, Gray
S1-SHALE - Slightly Weathered, Medium Hard, Occasional Mineral Veins, Occasional Fractures, Dark Gray
T1-SHALE - Slightly Weathered, Medium Hard, Occasional Mineral Layers, Occasional Fractures, Dark Gray
U1-SHALE - Unweathered, Medium Hard, Occasional Mineral Veins, Occasional Fractures, Dark Gray
V1-Clay with Gravel
W1-Sand with Gravel
X1-SHALE - Highly Weathered, Medium Hard, Light Gray
Y1-SHALE WITH OCCASIONAL SILTSTONE LAYERS - Highly Weathered, Medium Hard, Brown and Gray
Z1-SANDSTONE - Weathered, Cemented, Frequent Fractures, Gray
A2-SHALE - Slightly Weathered, Medium Hard, Occasional Fractures, Occasional Mineral Veins, Dark Gray

"N" VALUES

Sta. 854+67 - 9' Left of C.L. Median Hwy. 7

4.8- 5.7, N=95 (10")
9.8- 9.8, N=18 (0")

Sta. 855+16 - 17' Left of C.L. Median Hwy. 7

5.4- 5.7, N=60 (4")
9.9- 10.0, N=60 (1")

Sta. 855+79 - 19' Left of C.L. Median Hwy. 7

5.3- 5.3, N=20 (0")

Sta. 856+42 - 25' Lt of C.L. Median Hwy. 7

4.8- 5.1, N=40 (4")
10.3- 10.3, N=40 (6")

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 7 OVER QUARRY MOUNTAIN ROAD
HWY 7 - HWY 7 NORTH (F)
GARLAND COUNTY

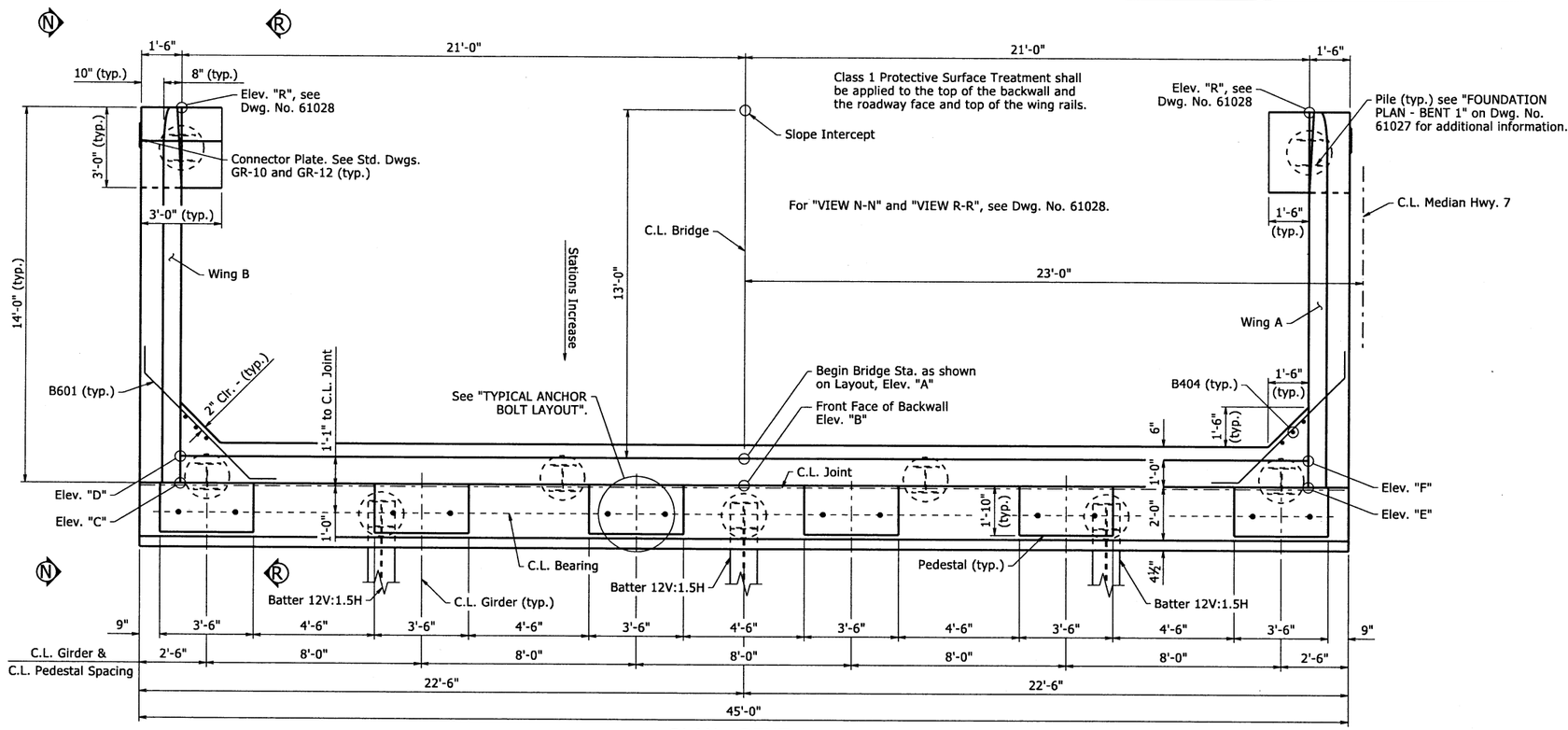
ROUTE 7 SEC. 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JWP DATE: 5/1/2019 FILENAME: br60140x9_l1.dgn
CHECKED BY: CMW DATE: 8/14/19 SCALE: 1"=20'
DESIGNED BY: JWP DATE: 05/2019
BRIDGE NO. B7461 DRAWING NO. 61024

PRINT DATE: 8/14/2019

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.		R60140	250	616

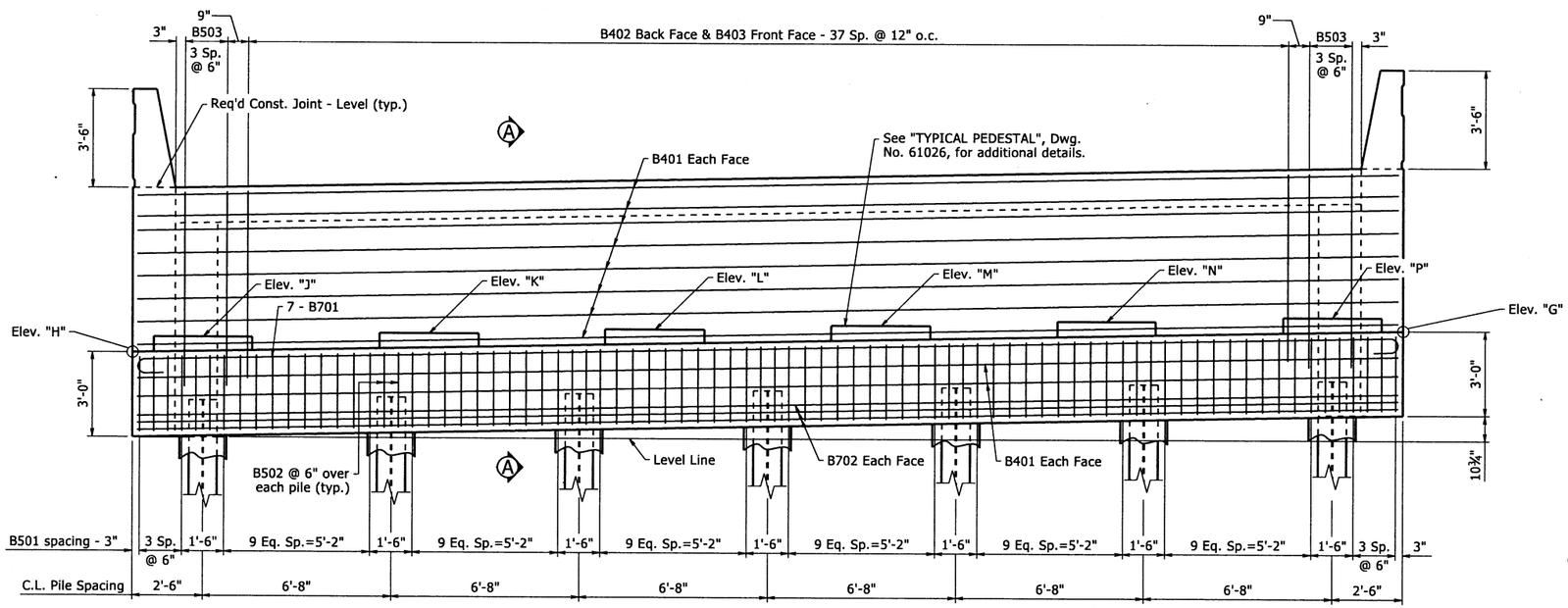
(1) B7458 & B7461 - END BENTS - 61025



PLAN - BENT 1

For "SECTION A-A", see Dwg. No. 61029.

⅜" = 1'-0"

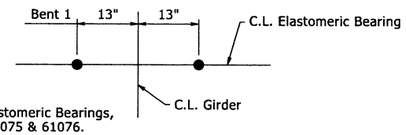


ELEVATION - BENT 1

Looking Back

⅜" = 1'-0"

See "FOUNDATION PLAN - BENT 1" on Dwg. No. 61027 for additional information.



For Details of Elastomeric Bearings, see Dwg. Nos. 61075 & 61076.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

TABLE OF VARIABLES FOR "PLAN - BENT 1"

Bridge No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	Elev. "F"
B7458	622.94	622.87	622.45	622.52	623.29	623.36
B7461	720.06	719.99	719.57	719.64	720.41	720.48

GENERAL NOTES:

Structural Steel in end bents shall be ASTM A709, Gr. 50W and shall be paid for as "Structural Steel in Plate Girder Spans (A709, Gr. 50W)".

All piling shall be Grade 50. For details of steel piling, see Std. Dwg. No. 55020.

No portion of the backwall shall be poured before girders are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the adjacent deck pour has been made. Refer to the "EXPANSION DEVICE INSTALLATION AT END BENTS" note on Std. Dwg. No. 55008. No heavy construction equipment shall be allowed within 10' of the backwall until the deck concrete placement for the adjacent span has been completed unless MSE strap reinforcing has been designed to accommodate these loads, see "END BENT STRAP DETAIL", Dwg. No. 61027.

See Std. Dwg. No. 55006 for additional notes.

TABLE OF VARIABLES FOR "ELEVATION - BENT 1"

Bridge No.	Elev. "G"	Elev. "H"	Elev. "J"	Elev. "K"	Elev. "L"	Elev. "M"	Elev. "N"	Elev. "P"
B7458	617.48	616.58	617.07	617.23	617.39	617.55	617.71	617.87
B7461	714.59	713.69	714.18	714.35	714.50	714.66	714.82	714.98

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8/20/19

BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF END BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

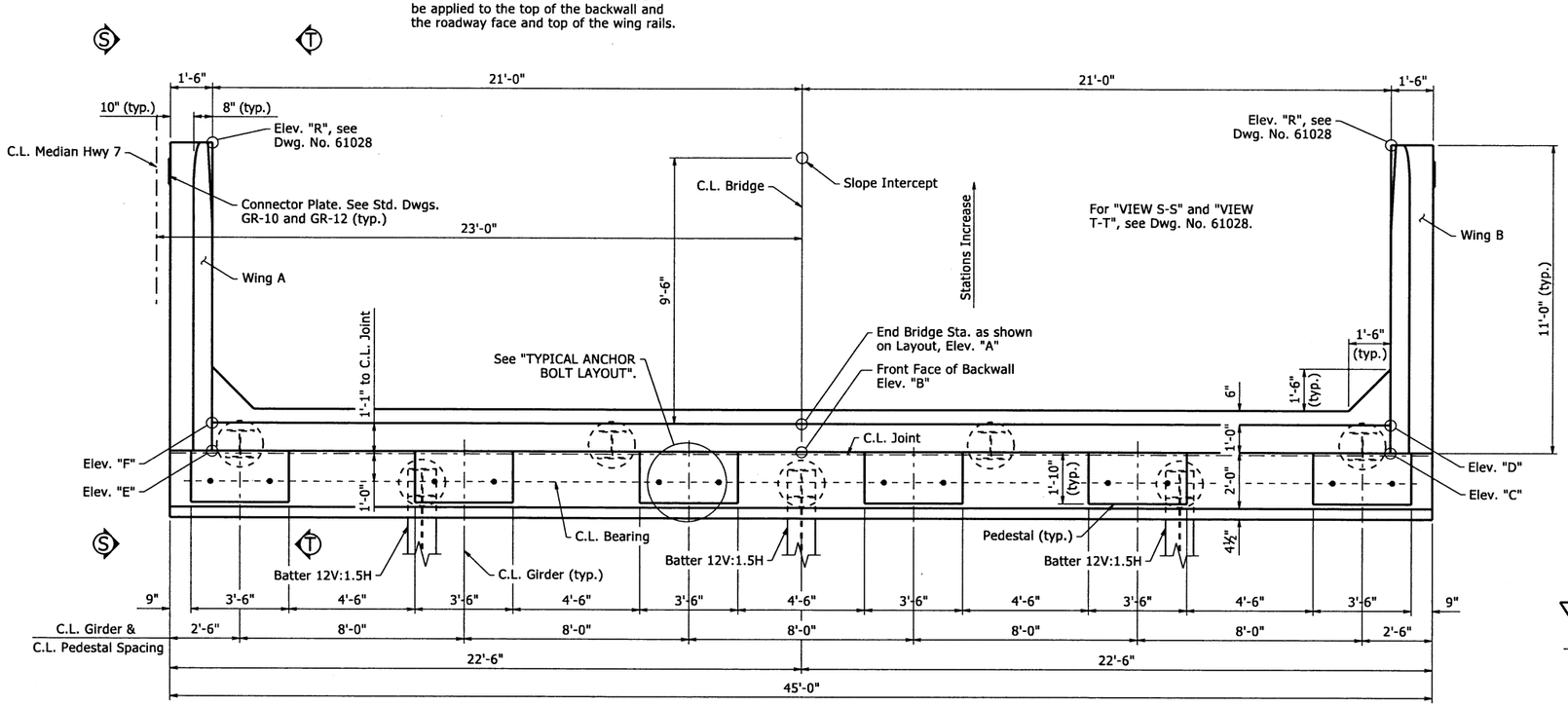
DRAWN BY: CMW DATE: 7/4/2019 FILENAME: br60140x9_b1.dgn
CHECKED BY: CWP DATE: 8/20/2019 SCALE: As Noted
DESIGNED BY: CMW DATE: 6/2019

BRIDGE NO. B7458 & B7461 DRAWING NO. 61025

PRINT DATE: 8/20/2019

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.		R60140	251	616
				(1) B7458 & B7461 - END BENTS - 61026				

Class 1 Protective Surface Treatment shall be applied to the top of the backwall and the roadway face and top of the wing rails.

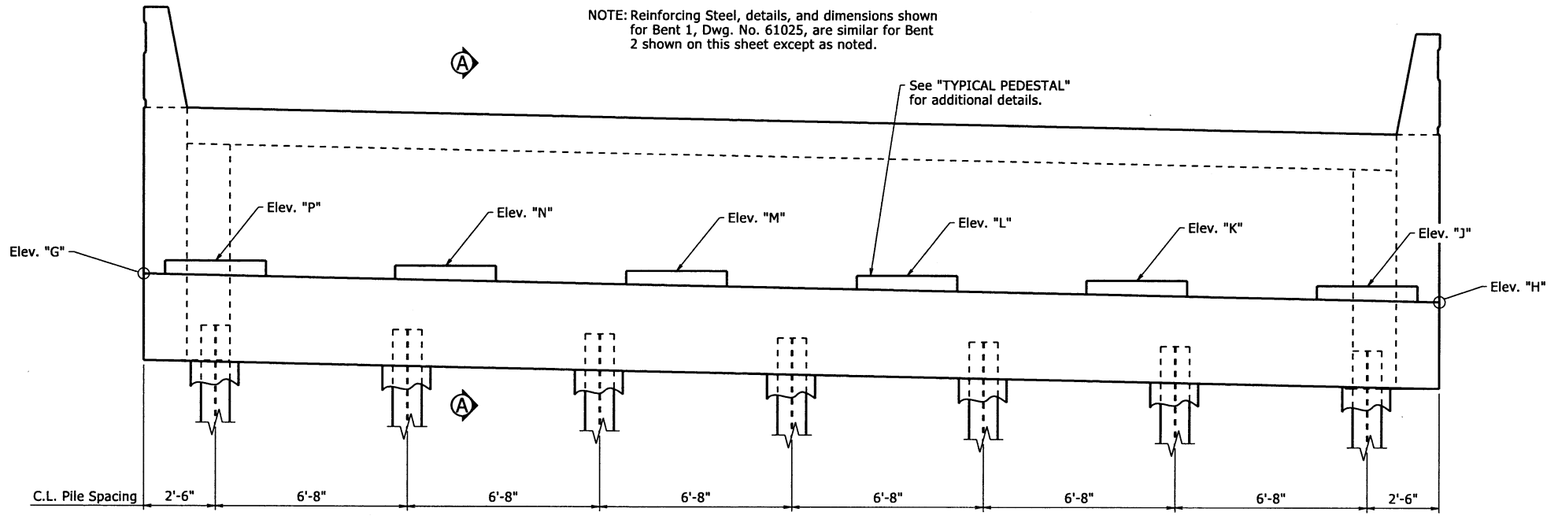


PLAN - BENT 2

For "SECTION A-A", see Dwg. No. 61029.

3/8" = 1'-0"

NOTE: Reinforcing Steel, details, and dimensions shown for Bent 1, Dwg. No. 61025, are similar for Bent 2 shown on this sheet except as noted.



ELEVATION - BENT 2

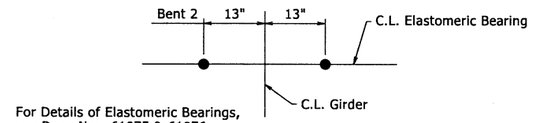
Looking Ahead

3/8" = 1'-0"

See "FOUNDATION PLAN - BENT 2" on Dwg. No. 61027 for additional information.

TABLE OF VARIABLES FOR "ELEVATION - BENT 2"

Bridge No.	Elev. "G"	Elev. "H"	Elev. "J"	Elev. "K"	Elev. "L"	Elev. "M"	Elev. "N"	Elev. "P"
B7458	610.45	609.55	610.09	610.25	610.41	610.57	610.73	610.89
B7461	706.33	705.43	705.97	706.13	706.29	706.45	706.61	706.77



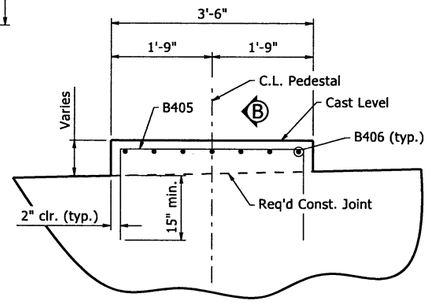
For Details of Elastomeric Bearings, see Dwg. Nos. 61075 & 61076.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

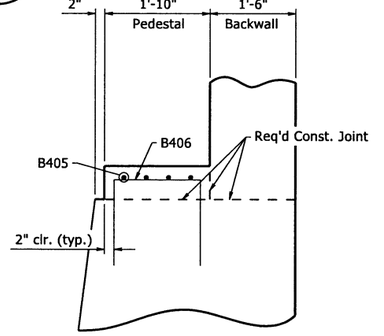
TABLE OF VARIABLES FOR "PLAN - BENT 2"

Bridge No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	Elev. "F"
B7458	615.65	615.71	615.29	615.23	616.13	616.07
B7461	711.51	711.58	711.16	711.09	712.00	711.93



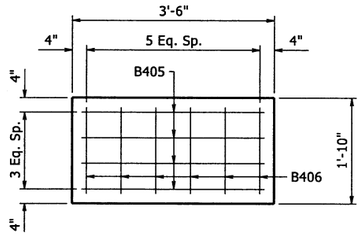
TYPICAL PEDESTAL

3/4" = 1'-0"



SECTION B-B

3/4" = 1'-0"



PEDESTAL PLAN

3/4" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9255
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF END BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

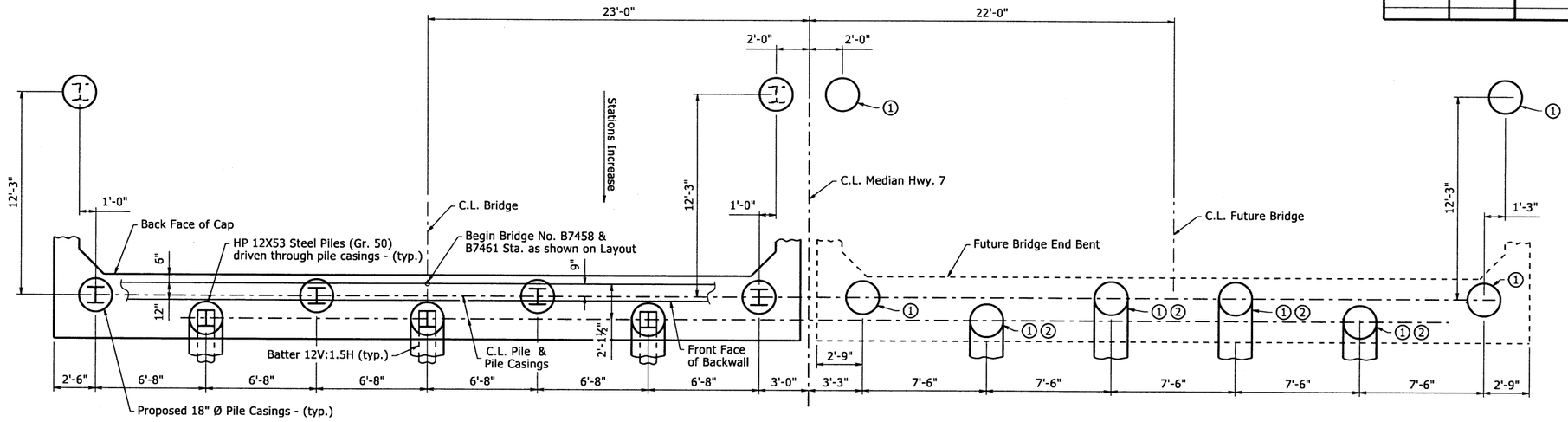
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 7/4/2019
CHECKED BY: [illegible] DATE: 8/14/2019
DESIGNED BY: CMW DATE: 6/2019
FILENAME: br60140x9_b1.dgn
SCALE: As Noted

BRIDGE NO. B7458 & B7461 DRAWING NO. 61026

PRINT DATE: 8/14/2019

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.		R60140	252	618
				① B7458 & B7461 - END BENTS - 61027				



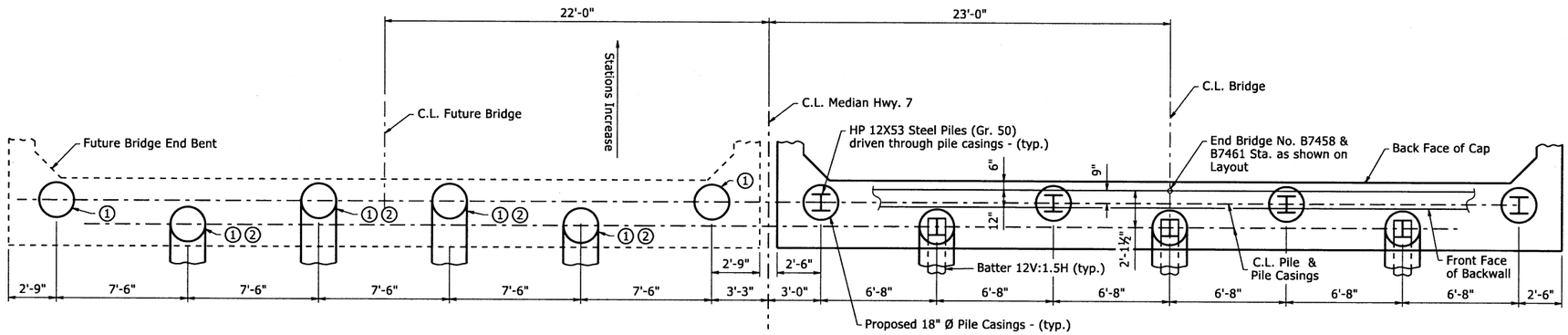
FOUNDATION PLAN - BENT 1

¼" = 1'-0"

See Layout General Notes for additional information on casing installation and pile driving.

① Proposed 24" Ø Casings for Future Bridge.

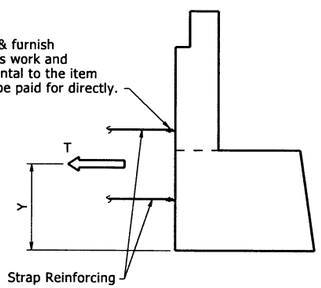
② Proposed Casings for Future Bridge to be battered 12V:1.5H.



FOUNDATION PLAN - BENT 2

¼" = 1'-0"

MSE wall supplier shall design & furnish attachments for end bents. This work and materials are considered incidental to the item "Retaining Walls" and will not be paid for directly.



Limit State	③ T Kips/Ft.	Y Ft.
Service	3.62	3.35
Strength	6.38	3.35

END BENT STRAP DETAIL

No Scale

③ The provided loads do not include any additional loadings due to heavy consturction equipment such as cranes. If the Contractor anticipates bringing heavy construction equipment within 10' of the backwall, they shall coordinate with the MSE wall supplier to design strap reinforcing for the anticipated loadings. Tolerable horizontal backwall movement for all loading combinations is 1/16" at the Service Limit State. Design computations shall accompany the wall design submittal for review by the Engineer. See Special Provision Job No. R60140 "Retaining Walls" for additional information.

T = Resultant force required to be resisted by strap reinforcing

Y = Centroid of resultant force

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8/20/19

BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF END BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 7/4/2019 FILENAME: br60140x9_b1.dgn

CHECKED BY: SWP DATE: 8/20/2019 SCALE: As Noted

DESIGNED BY: CMW DATE: 6/2019

BRIDGE NO. B7458 & B7461 DRAWING NO. 61027

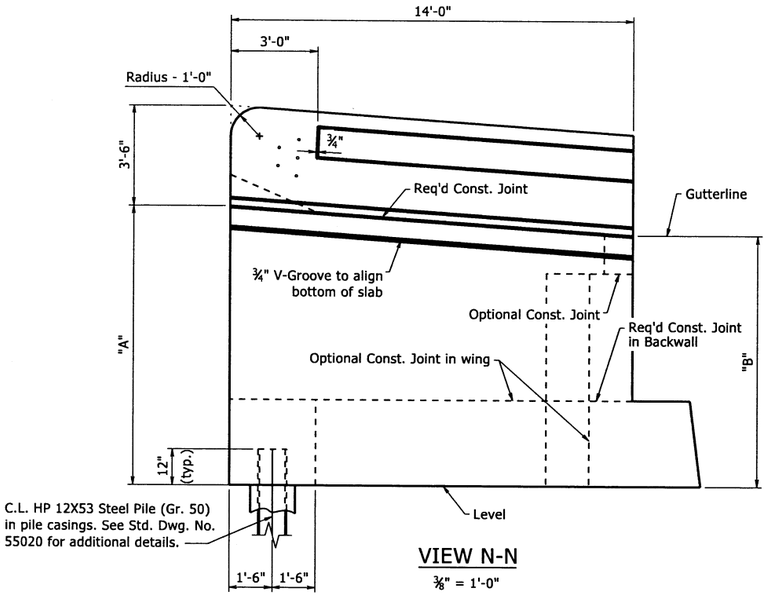
PRINT DATE: 8/19/2019

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.		R60140	253	616

① B7458 & B7461 - END BENTS - 61028

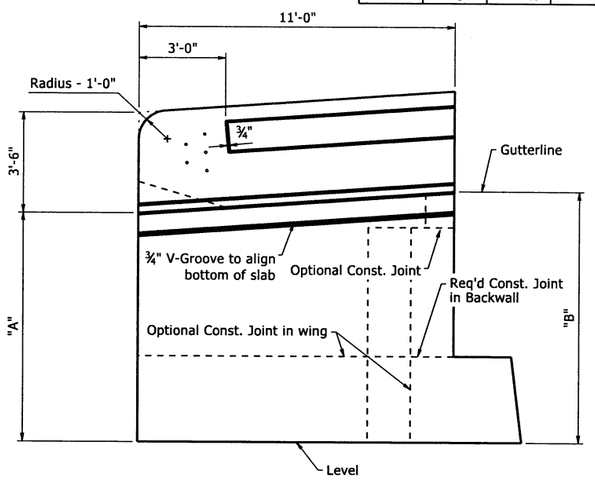
TABLE OF VARIABLES

Bent	Wing	Bridge No. B7458			Bridge No. B7461		
		"A"	"B"	Elev. "R"	"A"	"B"	Elev. "R"
Bent 1	Wing A	9'-7 5/16"	8'-9 3/4"	624.09	9'-9 1/2"	8'-9 3/4"	721.38
Bent 1	Wing B	9'-8 5/16"	8'-10 7/16"	623.25	9'-10 5/16"	8'-10 9/16"	720.55
Bent 2	Wing A	8'-0 1/2"	8'-8 3/16"	615.50	7'-10 13/16"	8'-8 1/16"	711.23
Bent 2	Wing B	8'-1 5/16"	8'-8 7/8"	614.66	7'-11 1/2"	8'-8 3/4"	710.39



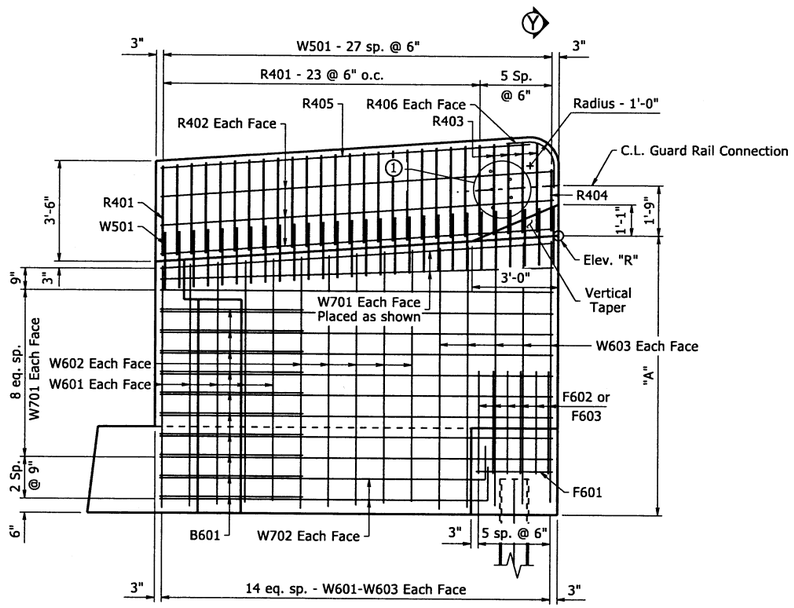
VIEW N-N

3/8" = 1'-0"



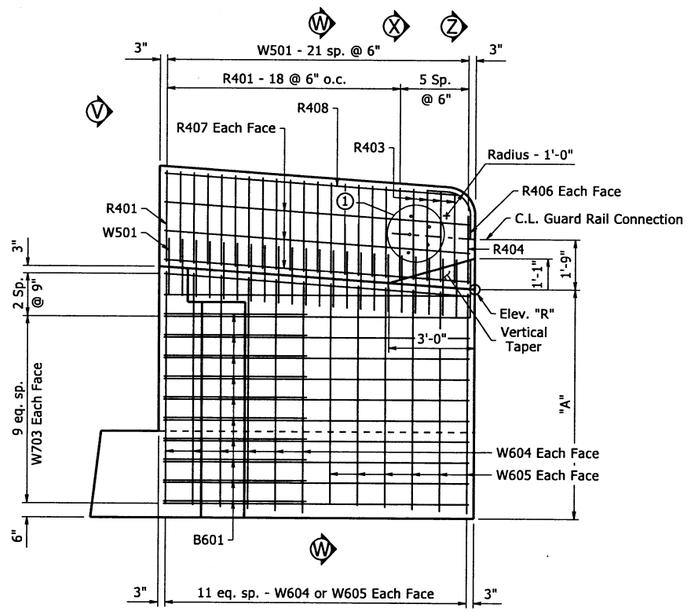
VIEW S-S

3/8" = 1'-0"



VIEW R-R

3/8" = 1'-0"
Wing A Bent 1 Shown
Wing B Bent 1 Similar



VIEW T-T

3/8" = 1'-0"
Wing B Bent 2 Shown
Wing A Bent 2 Similar

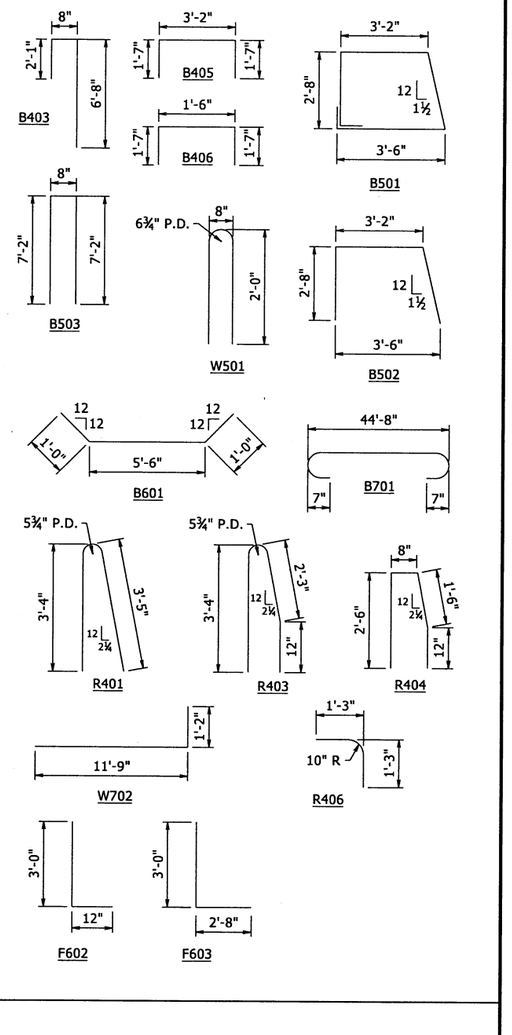
① 5 - 1" Ø formed holes for Guardrail Connection. See Std. Dwgs. GR-10 and GR-12 for additional information.

For "VIEW V-V" and "SECTIONS W-W" through "SECTIONS Z-Z", see Dwg. No. 61029.

BAR LIST

Mark	No. Req'd	Length	Pin Dia.
Bent 1 or Bent 2 - Per Bent			
B401	20	44'-8"	Str.
B402	38	5'-8"	Str.
B403	38	9'-3"	2"
B404	6	7'-1"	Str.
B405	24	6'-2"	2"
B406	36	4'-6"	2"
B501	68	12'-6"	2 1/2"
B502	14	8'-4"	2 1/2"
B503	8	14'-10"	2 1/2"
B601	20	7'-6"	4 1/2"
B701	7	46'-4"	5 1/4"
B702	6	44'-8"	Str.
Bent 1 Wings			
R401	46	7'-1"	5 3/4"
R402	12	13'-8"	Str.
R403	8	6'-11"	5 3/4"
R404	2	5'-6"	2"
R405	2	13'-1"	Str.
R406	4	2'-6"	-
W501	56	4'-5"	6 3/4"
W601	20	8'-5"	Str.
W602	20	8'-9"	Str.
W603	20	9'-1"	Str.
W701	44	13'-8"	Str.
W702	8	12'-9"	5 1/4
F601	12	2'-8"	Str.
F602	12	3'-10"	4 1/2"
F603	12	5'-6"	4 1/2"
Bent 2 Wings			
R401	36	7'-1"	5 3/4"
R403	8	6'-11"	5 3/4"
R404	2	5'-6"	2"
R406	4	2'-6"	-
R407	12	10'-8"	Str.
R408	2	10'-1"	Str.
W501	44	4'-5"	6 3/4
W604	24	8'-0"	Str.
W605	24	7'-8"	Str.
W703	48	10'-8"	Str.

Bending Diagram (Dimensions are out to out of bars)



STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19

BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF END BENTS

ROUTE SEC.

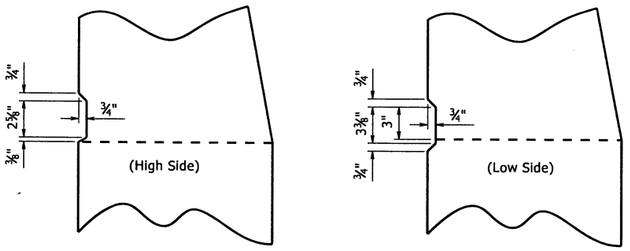
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 7/4/2019
CHECKED BY: CRE DATE: 8/14/2019
DESIGNED BY: CMW DATE: 6/2019
FILENAME: br60140x9_b1.dgn
SCALE: As Noted

BRIDGE NO. B7458 & B7461 DRAWING NO. 61028

PRINT DATE: 8/14/2019

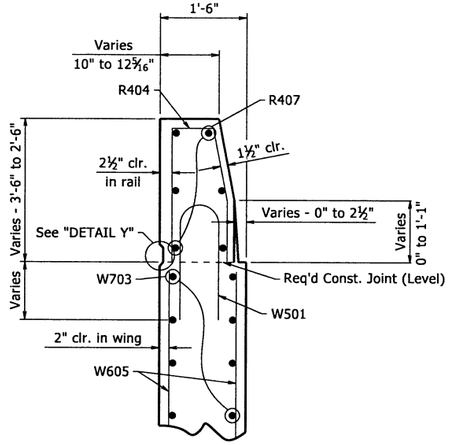
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	254	616
				① B7458 & B7461 - END BENTS - 61029				



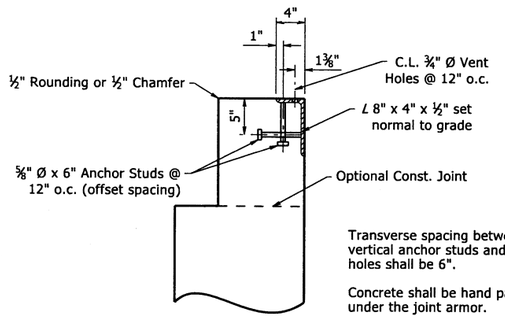
DETAIL Y
No Scale

① Additional W701 required Each Face at Bent 1, see Dwg. No. 61028 for placement.

② Reinforcing shown for Bent 2, see "VIEW R-R", Dwg. No. 61028 for any adjustments to bar designations for Bent 1.



② SECTION Z-Z
¾" = 1'-0"

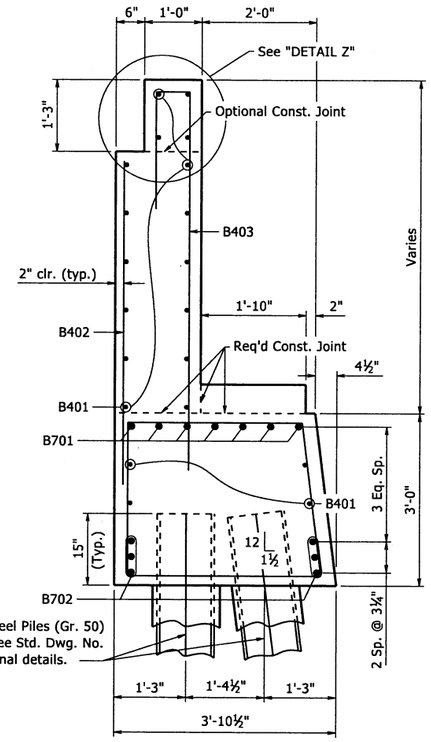


DETAIL Z
No Scale

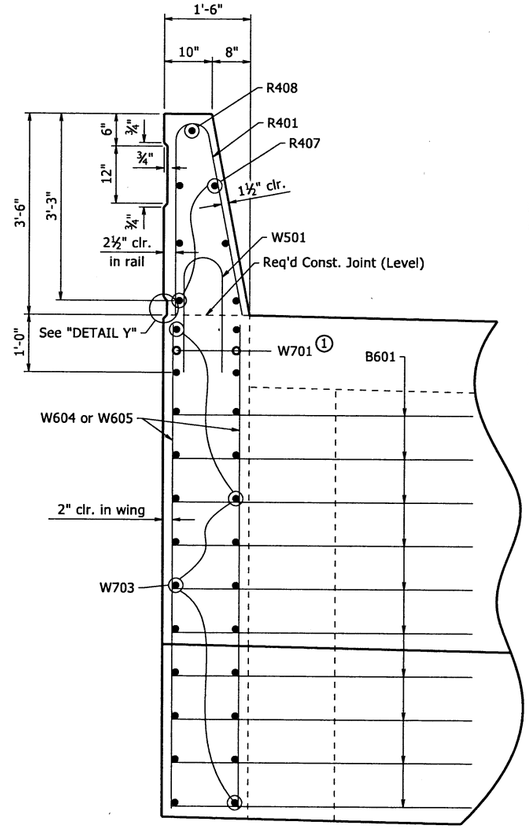
Transverse spacing between vertical anchor studs and vent holes shall be 6".

Concrete shall be hand packed under the joint armor.

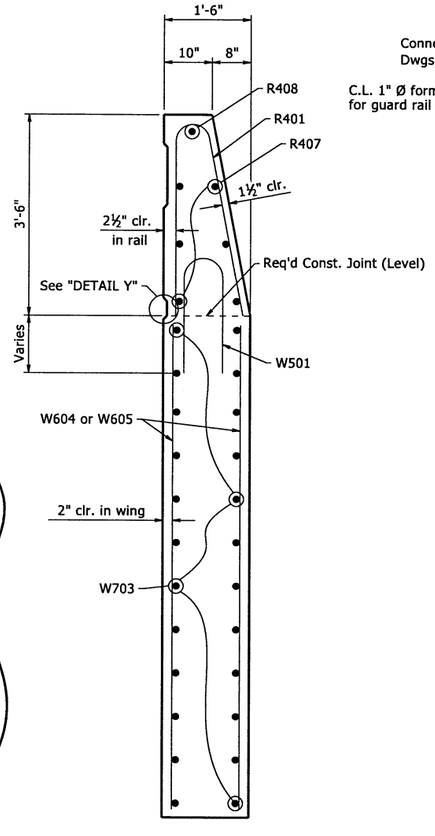
For additional joint details, see Std. Dwg. No. 55008.



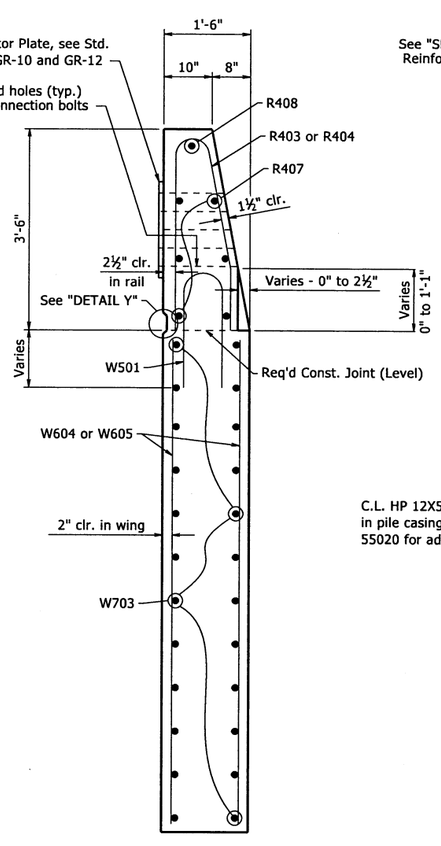
SECTION A-A
¾" = 1'-0"



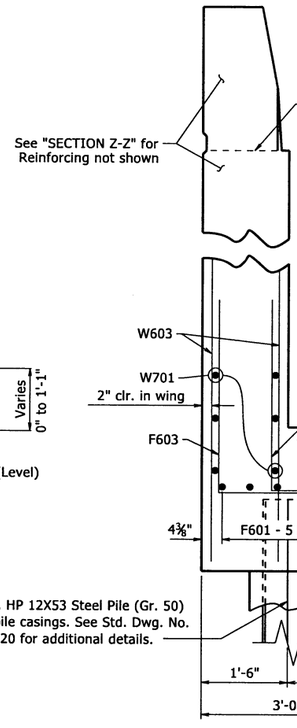
② VIEW V-V
¾" = 1'-0"



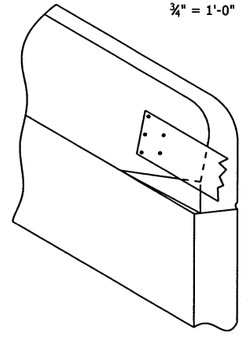
② SECTION W-W
¾" = 1'-0"



② SECTION X-X
¾" = 1'-0"



SECTION Y-Y
¾" = 1'-0"
(Bent 1 Only)



THREE DIMENSIONAL VIEW OF RAIL
No Scale

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19
BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF END BENTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 7/4/2019 FILENAME: br60140x9_b1.dgn
CHECKED BY: CWP DATE: 8/13/2019 SCALE: As Noted
DESIGNED BY: CMW DATE: 6/2019

BRIDGE NO. B7458 & B7461 DRAWING NO. 61029

PRINT DATE: 8/13/2019

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.		R60140	255	616
				(1) B7458 & B7461 - SPAN DETAILS - 61030				

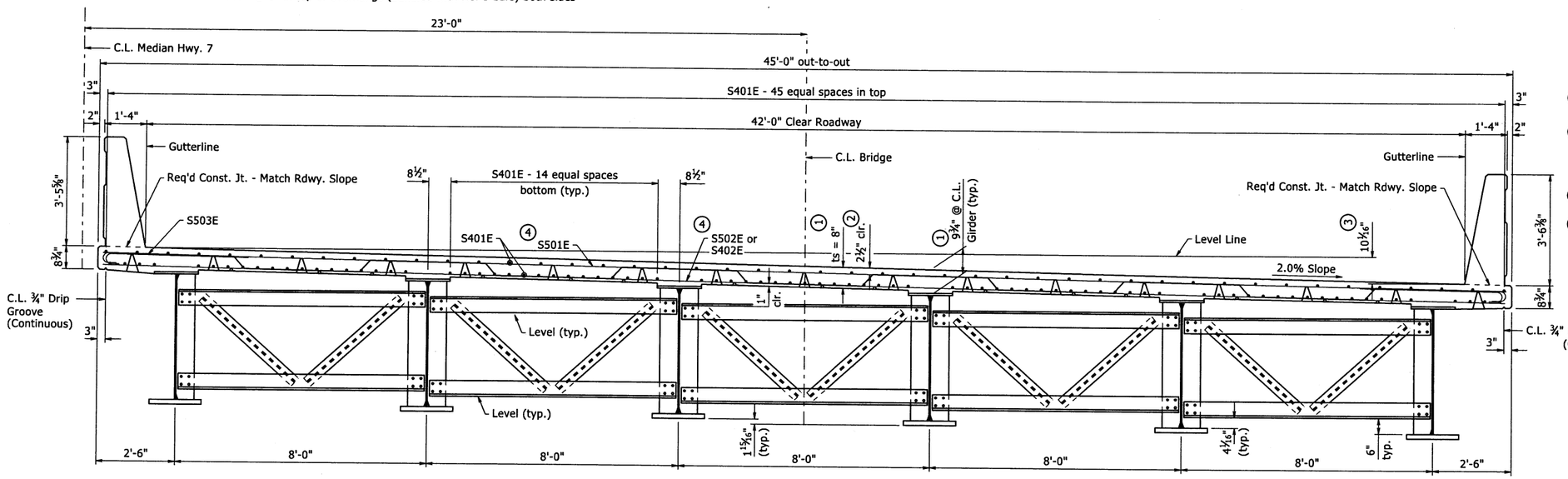
SLAB REINFORCING:

Longitudinal: S401E Top and Bottom placed as shown
See "REINFORCING PLAN AND SLAB POURING SEQUENCE," Dwg. No. 61033.

Transverse: S501E @ 6" o.c. in top
S402E @ 12" o.c. in bottom
S502E @ 12" o.c. in bottom — Alternate
S503E @ 6" in top of overhangs (bundled with No. 5 bars) both sides

Bar positions and clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices sufficient in size and number to prevent displacement during construction, per Subsection 804.06. Placement of slab bolsters or hi-chairs with full-length lower runners directly on removable deck forms will not be allowed.

Class 1 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rail.



(1) See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007.

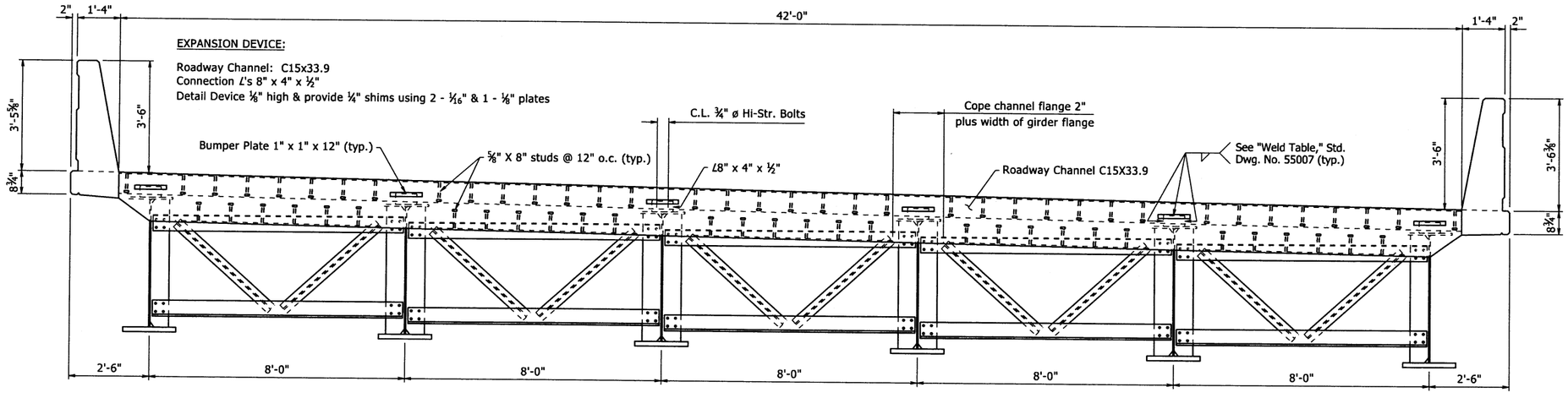
(2) Tolerance: Minus = ¼"; Plus = to the amount of slab thickening used to meet slab thickness tolerance. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE," Std. Dwg. No. 55007.

(3) Gutterline to gutterline

(4) At the Contractor's option, in lieu of providing the S501E and S502E bar group, one epoxy coated No. 5 bar bent up over girders may be substituted for each bar group. The S501E and S402E bar grouped may not be substituted. Payment for reinforcing will be based on the weight of the bars for S501E and S502E. For additional details, see "S501E AND S502E BAR GROUP ALTERNATE, " Dwg. No. 61033.

TYPICAL ROADWAY SECTION
Looking Ahead

For "DETAILS OF K-FRAMES," see Dwg. No. 61032.



TYPICAL ROADWAY SECTION NEAR JOINT
Looking Ahead
Bent 1
(Bent 2 Similiar)

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8/14/19
BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS OF 120'-0" SIMPLE PLATE GIRDER SPAN

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

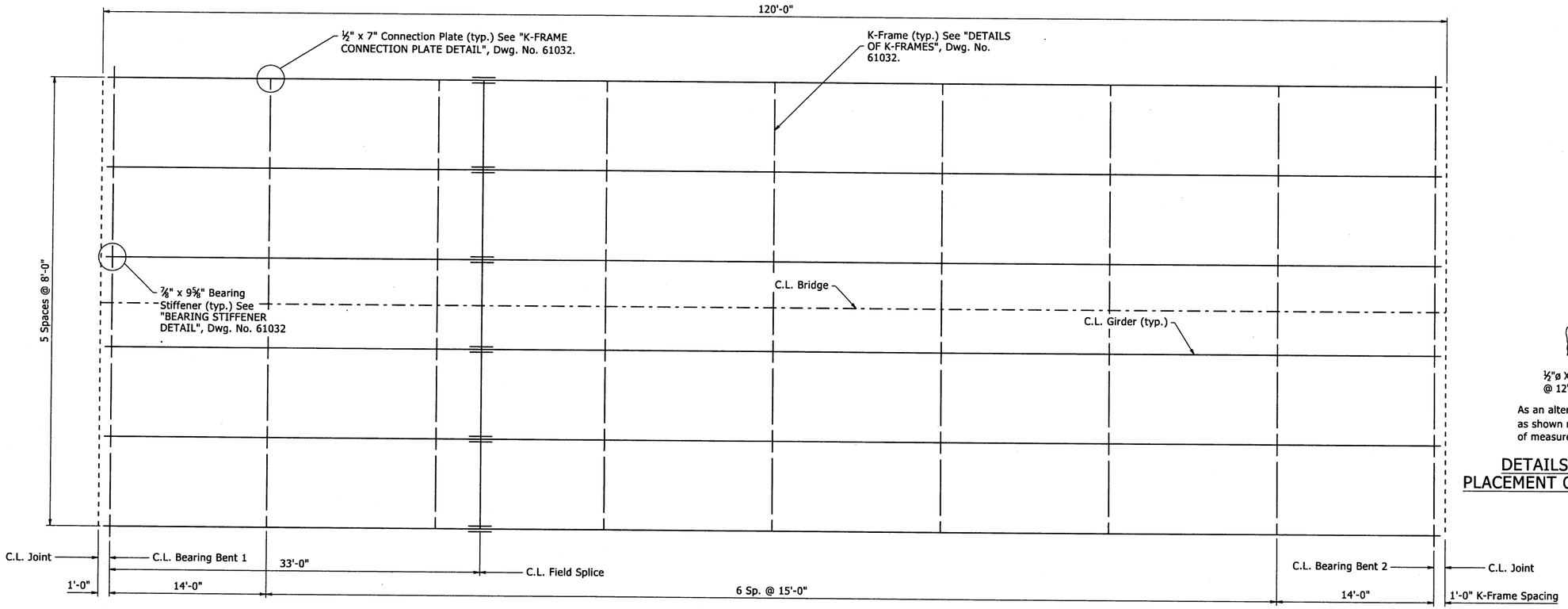
DRAWN BY: DPT DATE: 7/15/2019 FILENAME: br60140x6_s1.dgn
CHECKED BY: CMW DATE: 8/13/19 SCALE: 1/2" = 1'-0"
DESIGNED BY: JWP DATE: 6/2019

BRIDGE NO. B7458 & B7461 DRAWING NO. 61030

PRINT DATE: 8/13/2019

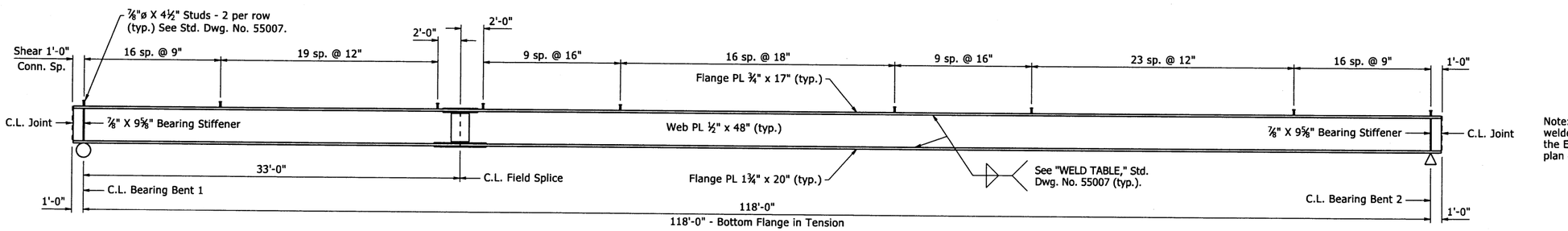
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	256	618

(1) B7458 & B7461 - SPAN DETAILS - 61031



FRAMING PLAN

3/16"=1'-0"



GIRDER ELEVATION

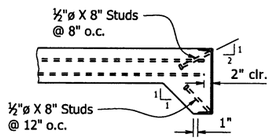
No Scale

For painting of Girder Ends, see General Notes on Layout Dwg. Nos. 61021 or 61023.

For details of Field Splices, see Dwg. No. 61032.

For "DETAILS OF WELDED SPLICES FOR PLATE GIRDERS," see Std. Dwg. No. 55007.

Note: Bolted field splices may be eliminated or shop welded splices may by substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.



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

Notes:

All Structural Steel shall be ASTM A709, Gr. 50W unless otherwise noted, and shall be paid for as "Structural Steel in Plate Girder Spans (A709, Gr. 50W)."

For additional information, see Layout.

For General Notes, see Std. Dwg. No. 55006.

For additional details, see Std. Dwg. No. 55007.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9935
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 4
DETAILS OF 120'-0" SIMPLE PLATE GIRDER SPAN

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

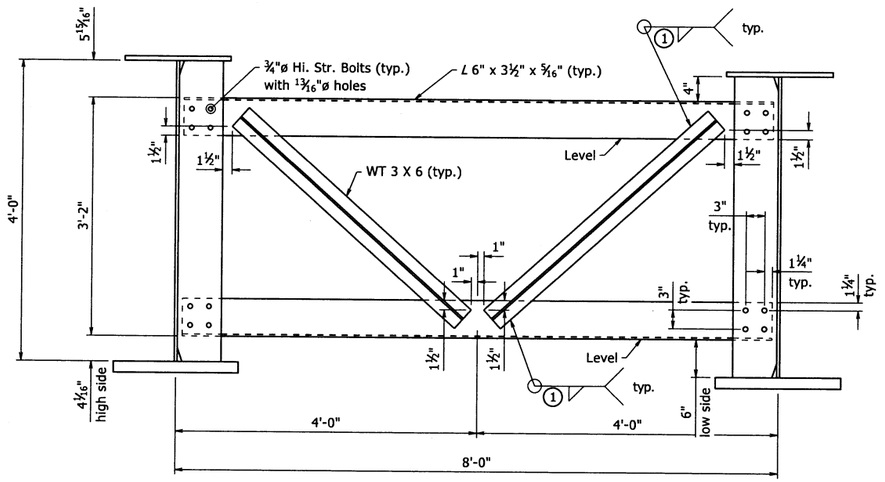
DRAWN BY: DPT DATE: 7/15/2019 FILENAME: br60140x6_s1.dgn
CHECKED BY: CMW DATE: 9/13/19 SCALE: AS NOTED
DESIGNED BY: JWP DATE: 6/2019

BRIDGE NO. B7458 & B7461 DRAWING NO. 61031

PRINT DATE: 8/13/2019

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.		R60140	257	616

(1) B7458 & B7461 - SPAN DETAILS - 61032

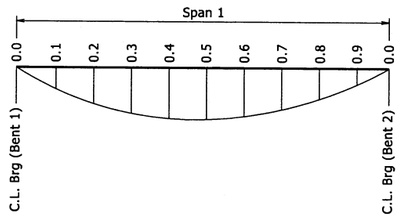


DETAILS OF K-FRAMES

1" = 1'-0"

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

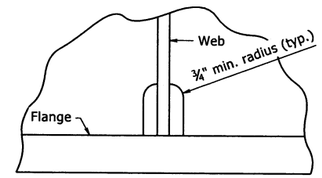
Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Exterior Girder	Interior Girder	Exterior Girder	Interior Girder	Exterior Girder	Interior Girder
Span 1	0.00	0.000	0.000	0.000	0.000	0.000	0.000
	0.10	0.409	0.427	1.588	1.877	1.738	2.017
	0.20	0.774	0.807	3.005	3.552	3.290	3.817
	0.30	1.060	1.105	4.116	4.865	4.506	5.227
	0.40	1.241	1.294	4.821	5.698	5.278	6.123
	0.50	1.303	1.359	5.063	5.984	5.543	6.430
	0.60	1.241	1.294	4.821	5.698	5.278	6.123
	0.70	1.060	1.105	4.116	4.865	4.506	5.227
	0.80	0.774	0.807	3.005	3.552	3.290	3.817
	0.90	0.409	0.427	1.588	1.877	1.738	2.017
	1.00	0.000	0.000	0.000	0.000	0.000	0.000



DEAD LOAD DEFLECTION DIAGRAM

No Scale

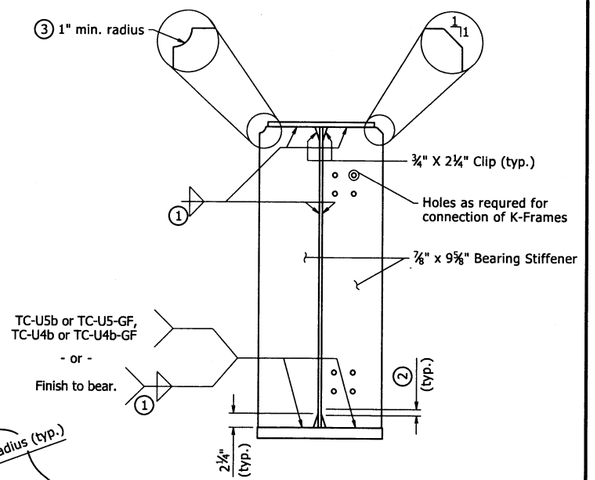
Camber for Dead Load Deflection ±¼" tolerance. Deflections shown are along C.L. Girder from a chord from C.L. Bearing to C.L. Bearing. Vertical curve corrections not included.



For Bearing Stiffeners and K-Frame Connection Plates. Height and width of clip shall be as noted in the plans.

ALTERNATE CLIP DETAIL

No Scale



NOTE: All bearing stiffeners shall be vertical in their final position

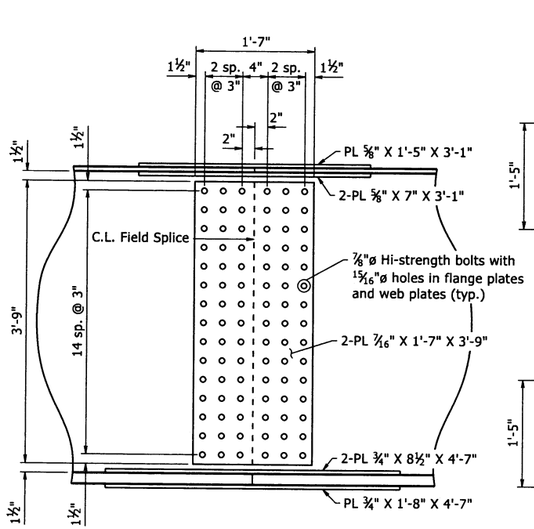
BEARING STIFFENER DETAIL

1" = 1'-0"

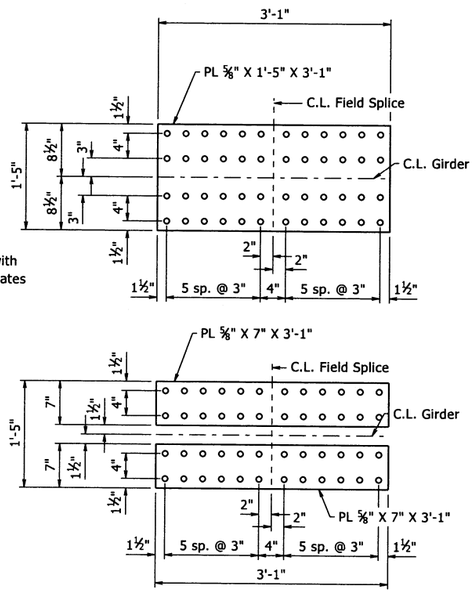
(1) See "WELD TABLE" on Std. Dwg. No. 55007.

(2) Stop Weld ¼" to 1" from end of clip.

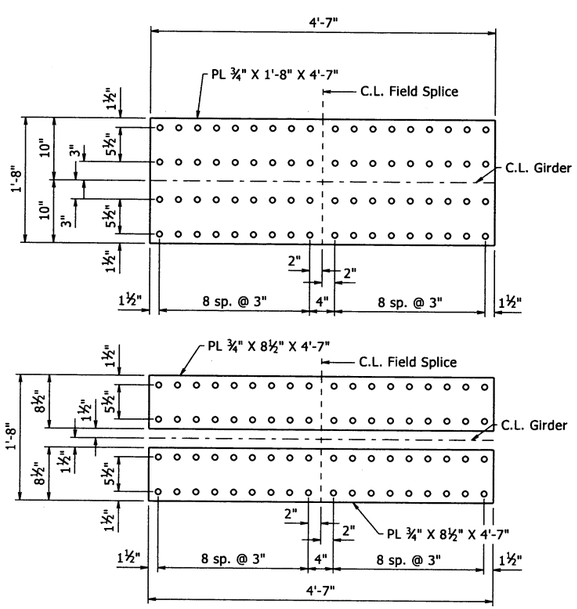
(3) If permanent steel bridge deck forms are used, the Fabricator shall clip plates as necessary to accomodate the deck form supports.



WEB SPLICE



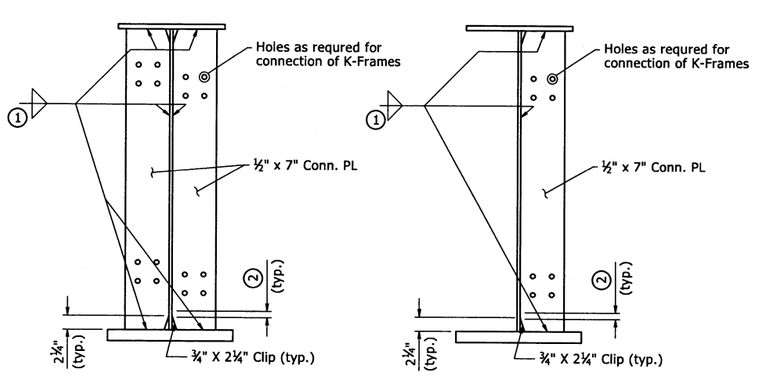
TOP FLANGE



BOTTOM FLANGE

DETAILS OF FIELD SPLICE

1" = 1'-0"



K-FRAME CONNECTION PLATE DETAIL

1" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF 120'-0" SIMPLE PLATE GIRDER SPAN

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

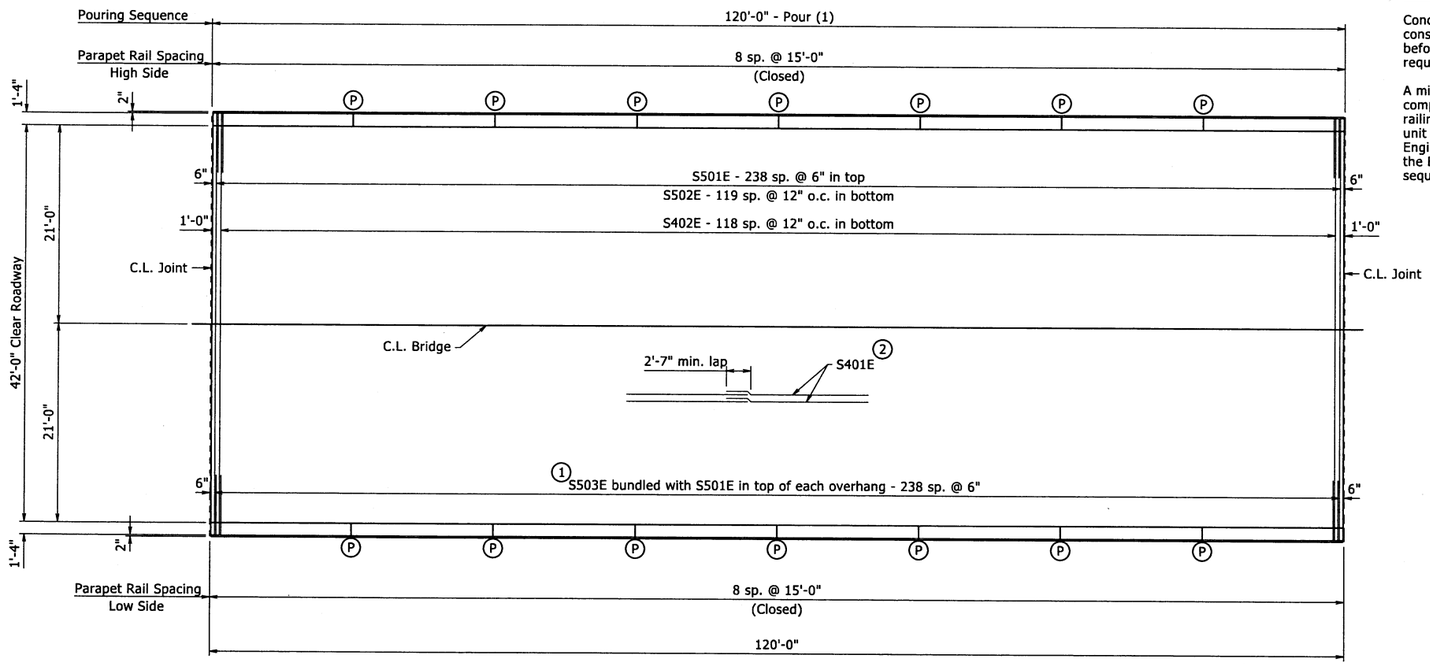
DRAWN BY: DPT DATE: 7/15/2019
CHECKED BY: CMW DATE: 8/13/19
DESIGNED BY: JWP DATE: 6/2019
FILENAME: br60140x6_s1.dgn
SCALE: AS NOTED

BRIDGE NO. B7458 & B7461 DRAWING NO. 61032

PRINT DATE: 8/13/2019

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.		R60140	258	616

(1) B7458 & B7461 - SPAN DETAILS - 61033



(1) See "REINFORCING DETAIL".

(2) Place as shown in "TYPICAL ROADWAY SECTION, " Dwg No. 61030.

REINFORCING PLAN AND SLAB POURING SEQUENCE

⅛" = 1'-0"

(3) See Dwg. No. 61077 for "COMMON DETAILS OF 3'-6" CONCRETE PARAPET RAILS."

(P) C.L. Partial Depth Parapet Joint (¼" - 1" max.). Stop 1'-6" from top of slab.

Slab Pouring Sequence Notes:

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.

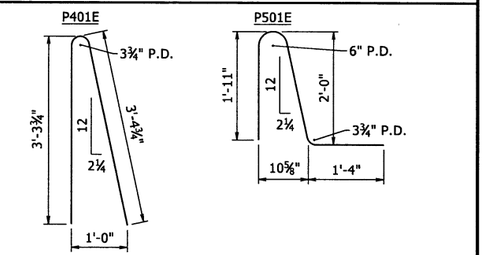
A minimum of 72 hours shall elapse between completion of the slab and the pouring of the bridge railing. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence(s) shown.

TABLE OF VARIABLES

Closed Rail Panels		
Panel Length	"D"	P4XXE Bar
15'-0"	29	P404E

(3) PARAPET BAR LIST

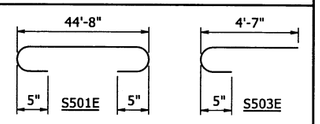
MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAM
P401E	480	6'-8"	3¾"	
P403E	56	5'-6"	Str.	
P404E	112	14'-8"	Str.	
P501E	480	5'-4"	3¾"	



All bars with an "E" suffix shall be Epoxy Coated.
Dimensions are Out-to-Out of bars

BAR LIST

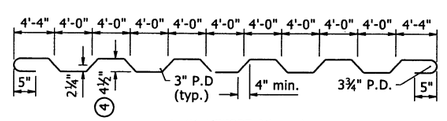
MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAM
S401E	387	41'-9"	Str.	
S402E	119	44'-8"	Str.	
S501E	239	45'-10"	3¾"	
S502E	120	44'-8"	Str.	
S503E	478	5'-2"	3¾"	



All bars with an "E" suffix shall be Epoxy Coated.
Dimensions are Out-to-Out of bars

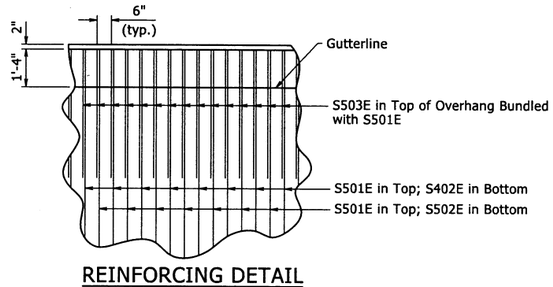
S501E AND S502E BAR GROUP ALTERNATE

BENDING DIAGRAM



S501E/S502E Alternate

(4) ½" Overtolerance, No Undertolerance



REINFORCING DETAIL

No Scale

SILCONE JOINT DATA

Bent No.	"A" - Width perpendicular to joint at 24 hour average temperature of: (5)			"B" - Width Perpendicular to Joint at 60°F	Bumper Plate Size
	40°F	60°F	80°F		
1	2 3/16"	2"	1 13/16"	2¼" ±	1" X 1"
2	2"	2"	2"	2¼" ±	1" X 1"

For Standard Details For Poured Silicone Joint, see Std. Dwg. No. 55008

(5) The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9935
CHARLES R. ELLIS
8-14-19

BRIDGE ENGINEER

SHEET 4 OF 4
DETAILS OF 120'-0" SIMPLE PLATE GIRDER SPAN

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

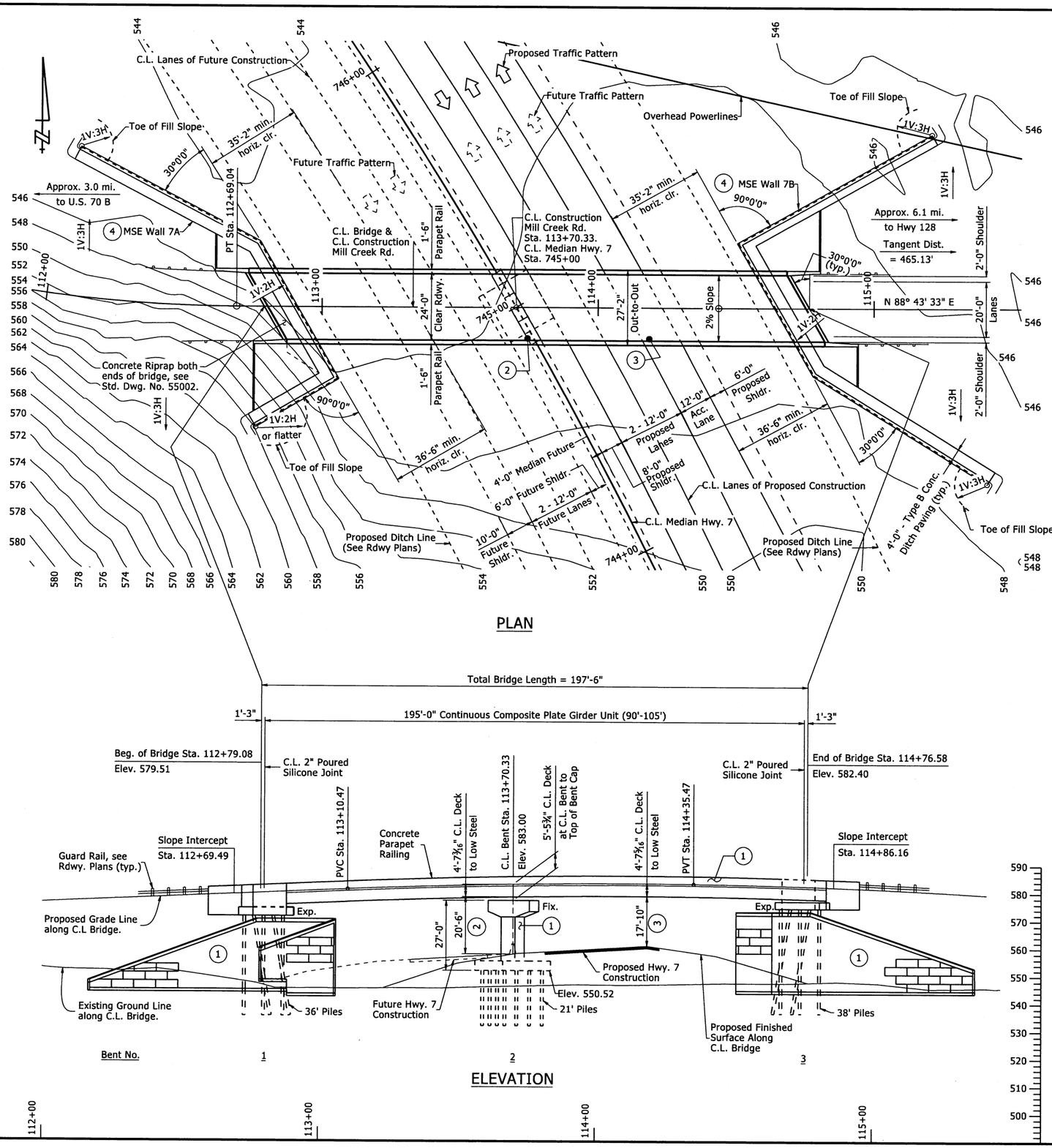
DRAWN BY: DPT DATE: 7/15/2019
CHECKED BY: CMW DATE: 8/14/19
DESIGNED BY: JWP DATE: 6/2019
FILENAME: br60140x6_s1.dgn
SCALE: AS NOTED

BRIDGE NO. B7458 & B7461 DRAWING NO. 61033

PRINT DATE: 8/14/2019

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.		R60140	259	616
				07459 -		LAYOUT	- 61034	

Use Type A Approach Gutters ("W"=2'-0") at both ends of the bridge, see Std. Dwg. No. 55030A.



PLAN

ELEVATION

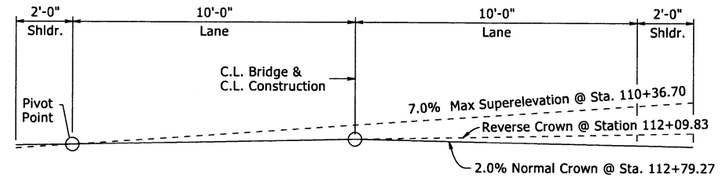
PRINT DATE: 8/14/2019

1 Ashlar Stone Pattern See SP Job No. R60140 "ARCHITECTURAL FINISH".

2 Point of Minimum Vertical Clearance (Future Construction)

3 Point of Minimum Vertical Clearance (Proposed Construction)

4 For Details of MSE Walls 7A & 7B see Dwg. Nos. 61086-61087.



CROSS SLOPE TRANSITION SKETCH

Along C.L. Construction
No Scale

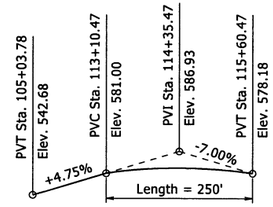
PI = 110+53.44
Δ = 51°06'51" Left
D = 11°00'00"
T = 249.08'
L = 464.67'

HORIZONTAL ALIGNMENT DATA

Along C.L. Construction
No Scale

Notes:
For R/W Data, see Roadway Plans.

Stations shown are along C.L. Construction. Elevations shown are theoretical working point elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on theoretical working point elevation at C.L. Bridge. See "ROUNDING DETAIL" on Std. Dwg. No. 55007 for additional information.



VERTICAL ALIGNMENT DATA

Along C.L. Construction
No Scale

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE
MILL CREEK ROAD OVER HIGHWAY 7
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

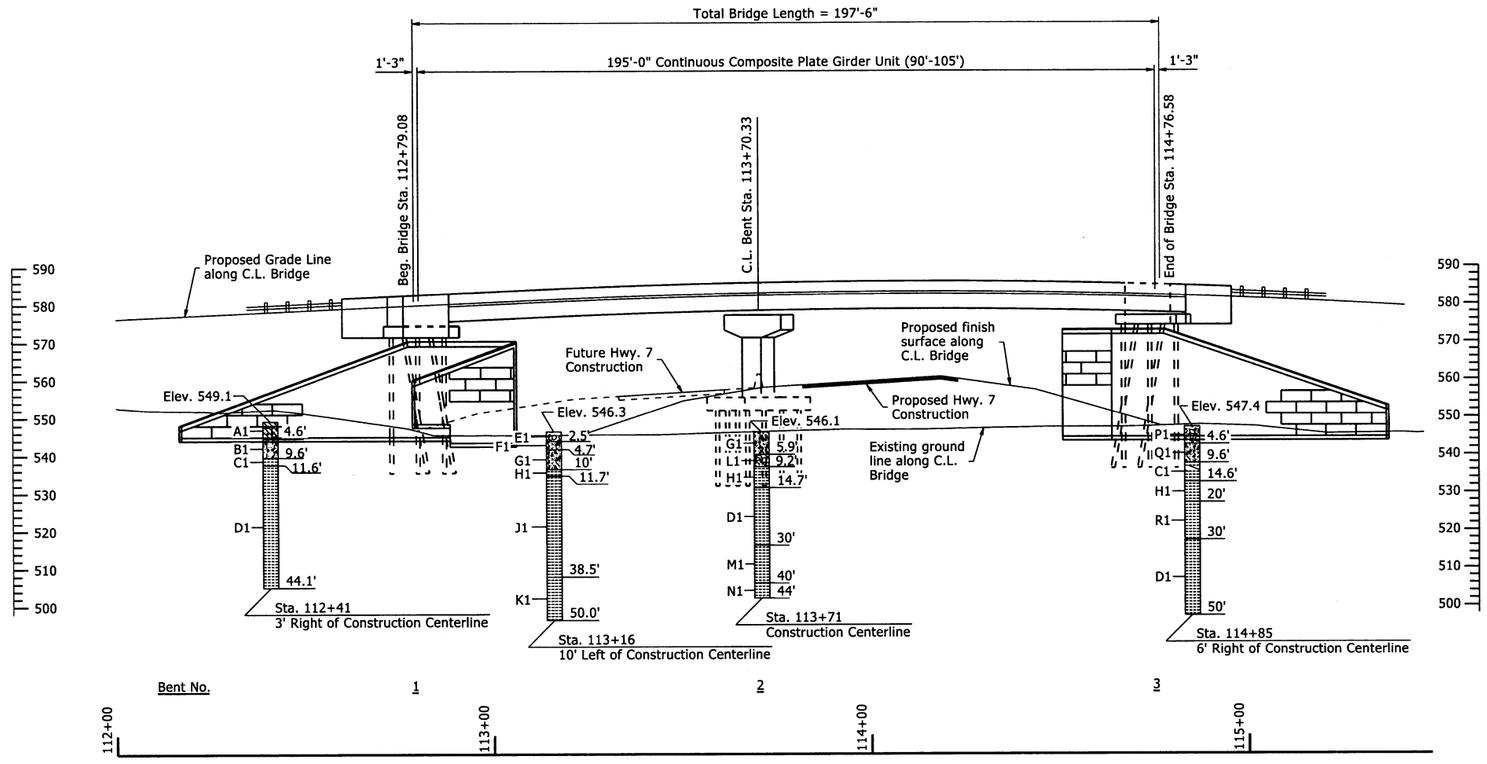
ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJT DATE: 4/19/19
CHECKED BY: CRE DATE: 8/14/19
DESIGNED BY: KJT DATE: 4/19
FILENAME: br60140x7_l1.dgn
SCALE: 1"=20'

BRIDGE NO. 07459
DRAWING NO. 61034

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10/07/19				6	ARK.			
				JOB NO.		R60140	260	616
				07459 -		LAYOUT	- 61035	



ELEVATION OF SOIL BORINGS

BORING LEGEND

A1-Sandy Clay with Gravel
B1-Wet, Medium Dense, Light Gray Silty Sand with Gravel
C1-SHALE - Highly Weathered, Medium Hard, Dark Gray
D1-SHALE - Unweathered, Medium Hard, Siliceous, Dark Gray
E1-Gravel and Cobbles
F1-Clayey Sand with Gravel
G1-Wet, Medium Dense, Brown Clayey Sand with Gravel
H1-SHALE - Weathered, Medium Hard, Siliceous, Dark Gray
J1-SHALE - Weathered, Medium Hard, Siliceous, Frequent Fractures, Dark Gray
K1-SHALE - Weathered, Medium Hard, Siliceous, Frequent Fractures, Dark Gray
L1-Clayey Sand with Gravel and Cobbles
M1-SHALE - Unweathered, Medium Hard, Siliceous, Trace Chert, Dark Gray
N1-SHALE - Unweathered, Medium Hard, Siliceous, Trace Quartz, Dark Gray
P1-Gravel and Cobbles with Sand
Q1-Wet, Loose, Brown Clayey Sand with Gravel
R1-SHALE - Unweathered, Hard, Siliceous, Trace Quartz, Dark Gray

"N" VALUES

Sta. 112+41 - 3' Right of Construction Centerline
5.1- 6.1,N=26
10.1- 10.5,N=60(5")

Sta. 113+16 - 10' Left of Construction Centerline
5.2- 6.2,N=12
10.2- 10.5,N=60(4")

Sta. 113+71 - Construction Centerline
4.9- 5.9,N=18
9.2- 9.6,N=100(5")
15.2- 15.5,N=60(4")
20.0- 20.8,N=60(4")
25.3- 26.2,N=64(11")
30.5- 31.5,N=8
40.5- 41.5,N=2

Sta. 114+85 - 6' Right of Construction Centerline
5.1- 6.1,N=10
10.1- 10.9,N=93(10")
15.1- 16.1,N=88
20- 20.0,N=10(0")
30- 30.3,N=100(4")

GENERAL NOTES:

BENCH MARK: Vertical Control Data are shown on the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Seventh Edition (2014) with 2015 interim revisions.

LIVE LOADING: HL-93

SEISMIC ZONE: 1 S_{D1} = 0.12 Site Class = C

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (Superstructure)	f'c = 4,000 psi
Class S Concrete (Substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M31 or M322, Type A)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division Programs.

1 STEEL PILING: All Piling shall be be HP 14x73 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 134 tons per pile and into the material designated as shale on the boring legend. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual pile lengths are to be determined in the field. The Contractor shall use approved steel H-Pile driving points on all piles.

PILE CASINGS: Pile casings are required for all piling within MSE wall at end bents. Casings shall be installed prior to or during the embankment construction and shall extend from top of leveling pad to bottom of cap. Pile casing material shall be of sufficient strength to retain its original form free from harmful distortions after compaction of the fill material surrounding it. The minimum inside diameter of the casings shall be 24". Piles shall be driven through the open casings after embankment to bottom of cap is in place. After driving is complete, the pile casings shall be filled with Class S Concrete, an approved non-shrink grout, mixture used for Portland Cement Concrete Pavement, or other approved material in a single continuous operation to completely fill voids. This work and material will not be paid for directly but shall be considered subsidiary to the item "Steel Piling (HP 14x73)".

PILE FOOTINGS: The top of the footings at Bent 2 shall be set a minimum of 2' below finished ground or at the elevations shown on the plans, whichever is lower. Foundations for footings shall be prepared in accordance with Subsection 801.04.

PREBORING: Preboring is required for all piles in Bent 2. The depth of preboring shall be to a depth sufficient to provide the specified minimum penetration and to a minimum 5' depth into material designated as shale on the boring legend, whichever is lower. The actual size and depth of preboring shall be determined in the field by the Engineer. The Contractor shall be responsible for keeping the prebored holes free of debris prior to driving piles and backfilling which may require the use of temporary casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of the rock and the remaining length backfilled in accordance with Subsection 805.08(a). Any related cost for backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring."

PAINTING: All Grade 50 structural steel, except galvanized members and surfaces in contact with concrete, shall be painted as specified in Subsection 807.75. The color of paint shall be Brown and shall match Federal Standard 595B, Color Chip No. 20219.

TEXTURED COATING FINISH: Class 3 Textured Coating Finish shall be applied to bridge and retaining wall surfaces as specified in Special Provision Job No. R60140 "Textured Coating Finish" and in accordance with Subsection 802.19(b)(3). Textured Coating Finish shall not be applied on surfaces where Class 1 Protective Surface Treatment is applied.

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 1 Protective Surface Treatment shall be applied to the roadway surface and the roadway face and top of the concrete parapet rails in accordance with Section 803.

DETAIL DRAWINGS:	DRAWING NO(S).
End Bents	61036-61041
Intermediate Bent	61042-61043
195'-0" Cont. Plate Girder Unit	61045-61049
Elastomeric Bearings	61075-61076
General Notes For Steel Bridge Structures	55006
Details For Steel Bridge Structures	55007
Poured Silicone Joints	55008
Steel H-Piling	55020
Type A Approach Gutters	55030A
Retaining Walls	61086-61087

MAINTENANCE OF TRAFFIC: See Roadway Plans.

1 Added "safe" to minimum bearing capacity in the Steel Piling Note.
BY: KJT DATE: 10/07/19
CHECKED BY: DHP DATE: 10/07/19

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
10-7-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE
MILL CREEK ROAD OVER HIGHWAY 7
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJT DATE: 4/19/19 FILENAME: br60140x7_l1.dgn
CHECKED BY: DHP DATE: 10/7/19 SCALE: 1"=20'
DESIGNED BY: KJT DATE: 4/19

BRIDGE NO. 07459 DRAWING NO. 61035

PRINT DATE: 10/2/2019

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.		R60140	261	616
				①	07459 - END BENTS - 61036			

NOTE:

Dimensions are to Working Point.

Beginning of Bridge Station as shown on Layout

Front Face of Backwall

C.L. Bridge & C.L. Construction

C.L. Joint

C.L. Bearing

For Details of Wings, see Dwg. Nos. 61039-61041.

Wing A

Wing B

Working Point

2" chamfer

Slope Intercept for 1V:2H Slope

C.L. Girder to C.L. Girder (typ.)

⑦ Beginning of Bridge Station as shown on Layout Elev. 579.51

11-B603

Elev. 579.60

Elev. 579.64

B408 (typ.)

2" clr. (typ.)

30°00'

Stations Increasing

11-B604

Elev. 578.94

Elev. 578.98

12'-0" (typ.)

2" chamfer on acute corners

See "TYPICAL ANCHOR BOLT LAYOUT"

⑦ Front Face of Backwall Elev. 579.55

② Pedestal Spacing

4'-6" (typ.)

1'-6" (typ.)

3'-0" (typ.)

Girder Spacing 3'-3 13/16" | 8'-7 15/16" | 5'-7" | 3'-0 15/16" | 8'-7 15/16" | 2'-0 13/16"

17'-6 3/4" | 13'-9 1/16"

Pile Spacing 3'-9 3/16" | 8'-8" | 8'-8" | 8'-8" | 1'-7 1/4"

31'-4 7/16"

PLAN - BENT 1

3/8"=1'-0"

① See "ROUNDING DETAIL" on Std. Dwg. No. 55007.

② Pedestals shall be cast level at the elevations shown in "ELEVATION - BENT 1".

③ Measured at C.L. Bridge at Front Face of Backwall to Working Point.

④ See Dwg. No. 61038 for "VIEW C-C", "VIEW D-D", and additional details of placement of reinforcing.

⑤ See Dwg. No. 61037 for pedestal details.

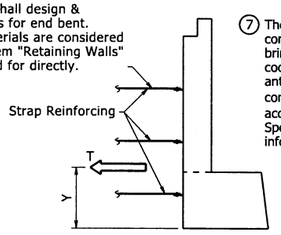
⑥ Measured at Gutter at Front Face of Backwall.

⑦ Measured at Working Point.

Class 1 Protective Surface Treatment shall be applied to the top of the backwall and the roadway face and top of the concrete parapet rail.

MSE wall supplier shall design & furnish attachments for end bent. This work and materials are considered incidental to the item "Retaining Walls" and will not be paid for directly.

⑦ The provided loads do not include any additional loadings due to heavy construction equipment such as cranes. If the Contractor anticipates bringing heavy construction equipment within 10' of the backwall, they shall coordinate with the MSE wall supplier to design strap reinforcing for the anticipated loadings. Tolerable horizontal backwall movement for all loading combinations is 1/16" at the Service Limit State. Design computations shall accompany the wall design submittal for review by the Engineer. See Special Provision Job No. R60140 "Retaining Walls" for additional information.



T = Resultant force required to be resisted by strap reinforcing

Y = Centroid of resultant force

Limit State	⑦ T Kips/Ft.	Y Ft.
Service	5.00	3.5
Strength	7.00	3.5

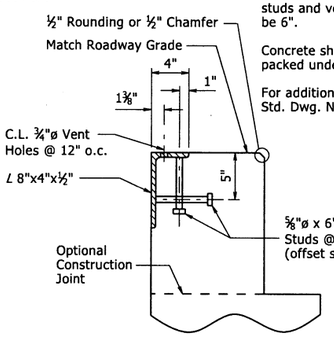
END BENT STRAP DETAIL

NO SCALE

NOTES: Transverse spacing between vertical anchor studs and vent holes shall be 6".

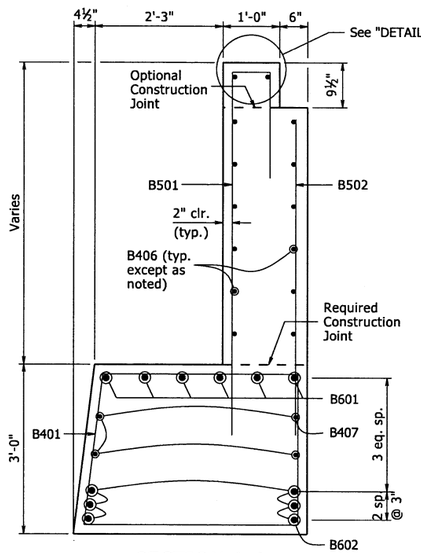
Concrete shall be hand packed under the joint armor.

For additional joint details, see Std. Dwg. No. 55008



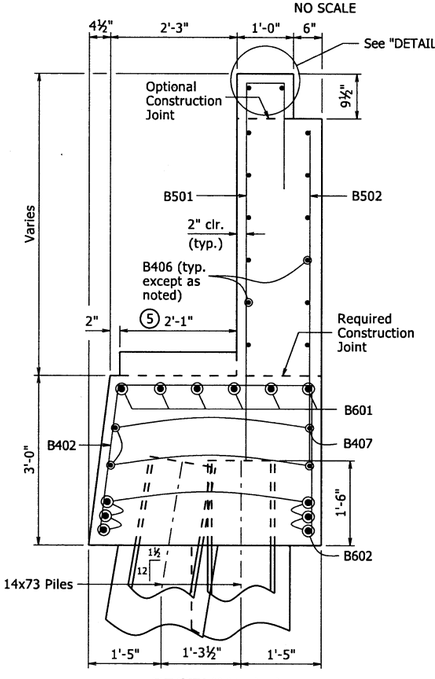
DETAIL E

NO SCALE



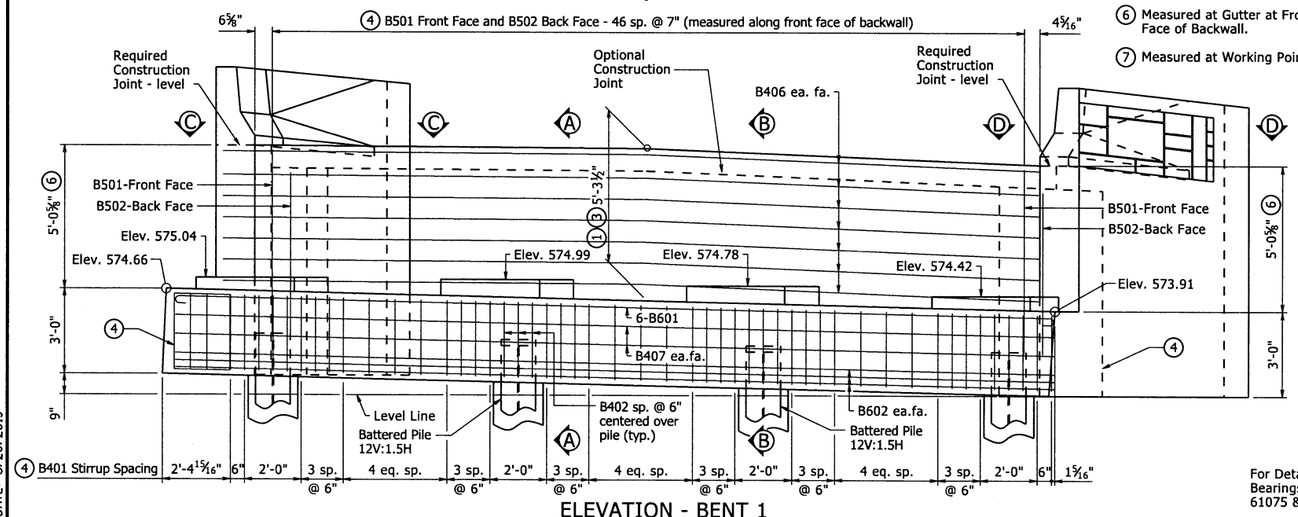
SECTION A-A

3/4"=1'-0"



SECTION B-B

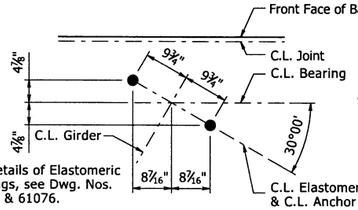
3/4"=1'-0"



ELEVATION - BENT 1

LOOKING BACK

3/8"=1'-0"



For Details of Elastomeric Bearings, see Dwg. Nos. 61075 & 61076.

TYPICAL ANCHOR BOLT LAYOUT

NO SCALE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8/20/19

BRIDGE ENGINEER

SHEET 1 OF 6
DETAILS OF END BENTS
MILL CREEK ROAD OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 6/21/19 FILENAME: br60140x7_b1.dgn

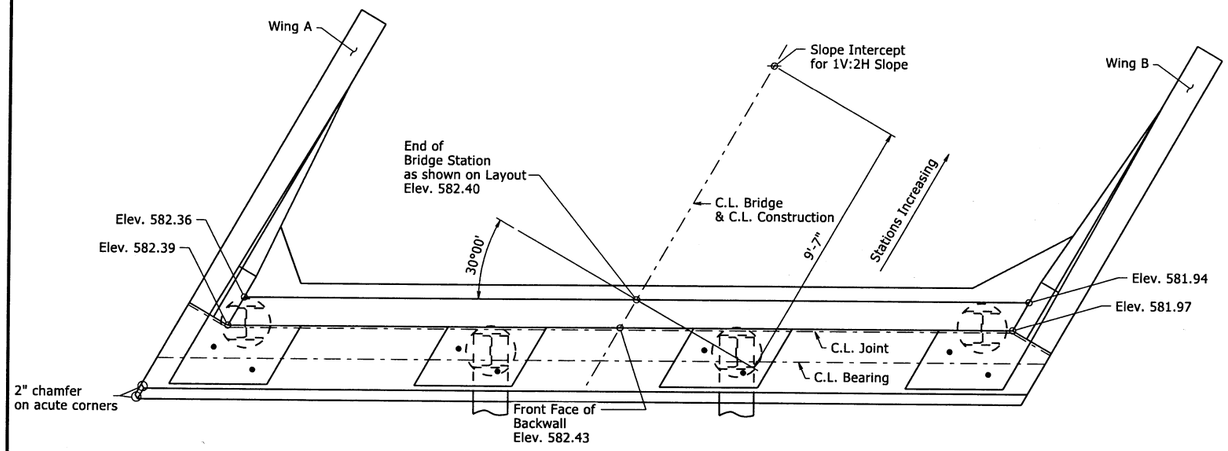
CHECKED BY: DHP DATE: 8/20/19 SCALE: AS NOTED

DESIGNED BY: DHP DATE: 6/19

BRIDGE NO. 07459 DRAWING NO. 61036

PRINT DATE: 8/20/2019

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.		R60140	262	616
				①	07459 - END BENTS - 61037			

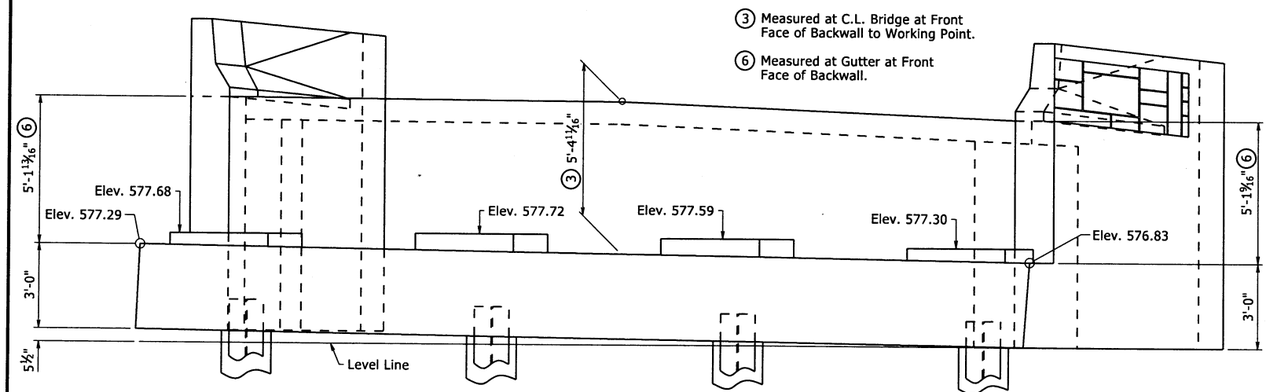


PLAN - BENT 3

3/8"=1'-0"

NOTE:

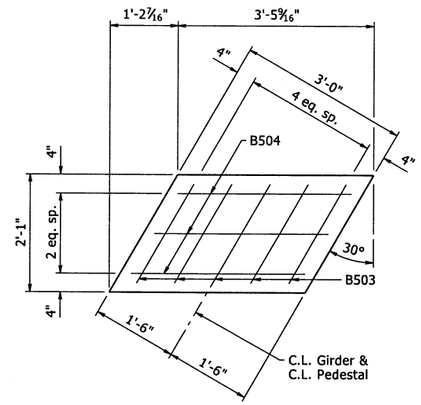
Reinforcing steel, details and dimensions shown for Bent 1, Dwg. No. 61036, are similar for Bent 3 shown on this sheet except as noted.



ELEVATION - BENT 3

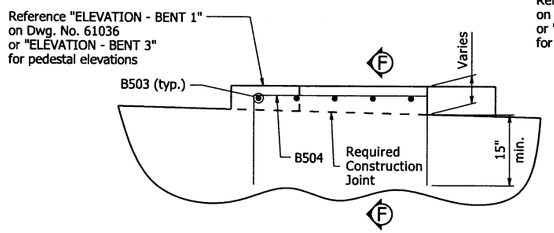
LOOKING AHEAD

3/8"=1'-0"



PEDESTAL PLAN

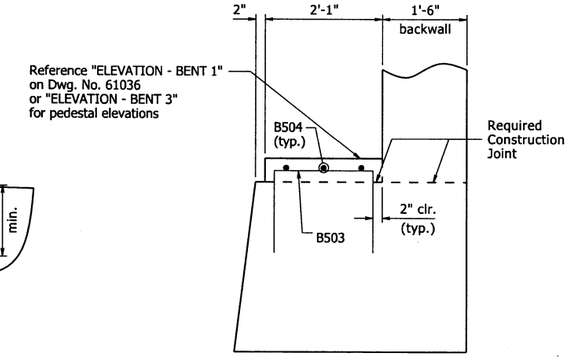
3/4"=1'-0"



TYPICAL PEDESTAL DETAILS

LOOKING BACK

3/4"=1'-0"



SECTION F-F

NO SCALE

GENERAL NOTES:

For General Notes, see Std. Dwg. No. 55006.

For Joint Details see Std. Dwg. No. 55008.

Structural steel in end bents shall be ASTM A709, Gr. 50 and shall be paid for as "Structural steel in Plate Girder Spans (A709, Gr. 50)".

No portion of the backwall shall be poured before girders are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the adjacent deck pour has been made. Refer to the "EXPANSION DEVICE INSTALLATION AT END BENTS" note on Std. Dwg. No. 55008. No heavy construction equipment shall be allowed within 10' of the backwall until the deck concrete placement for the adjacent span has been completed unless MSE strap reinforcing has been designed to accommodate these loads, see "END BENT STRAP DETAIL," Dwg. No. 61036.

For additional information, see Layout.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8/20/19

BRIDGE ENGINEER

SHEET 2 OF 6
DETAILS OF END BENTS
MILL CREEK ROAD OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

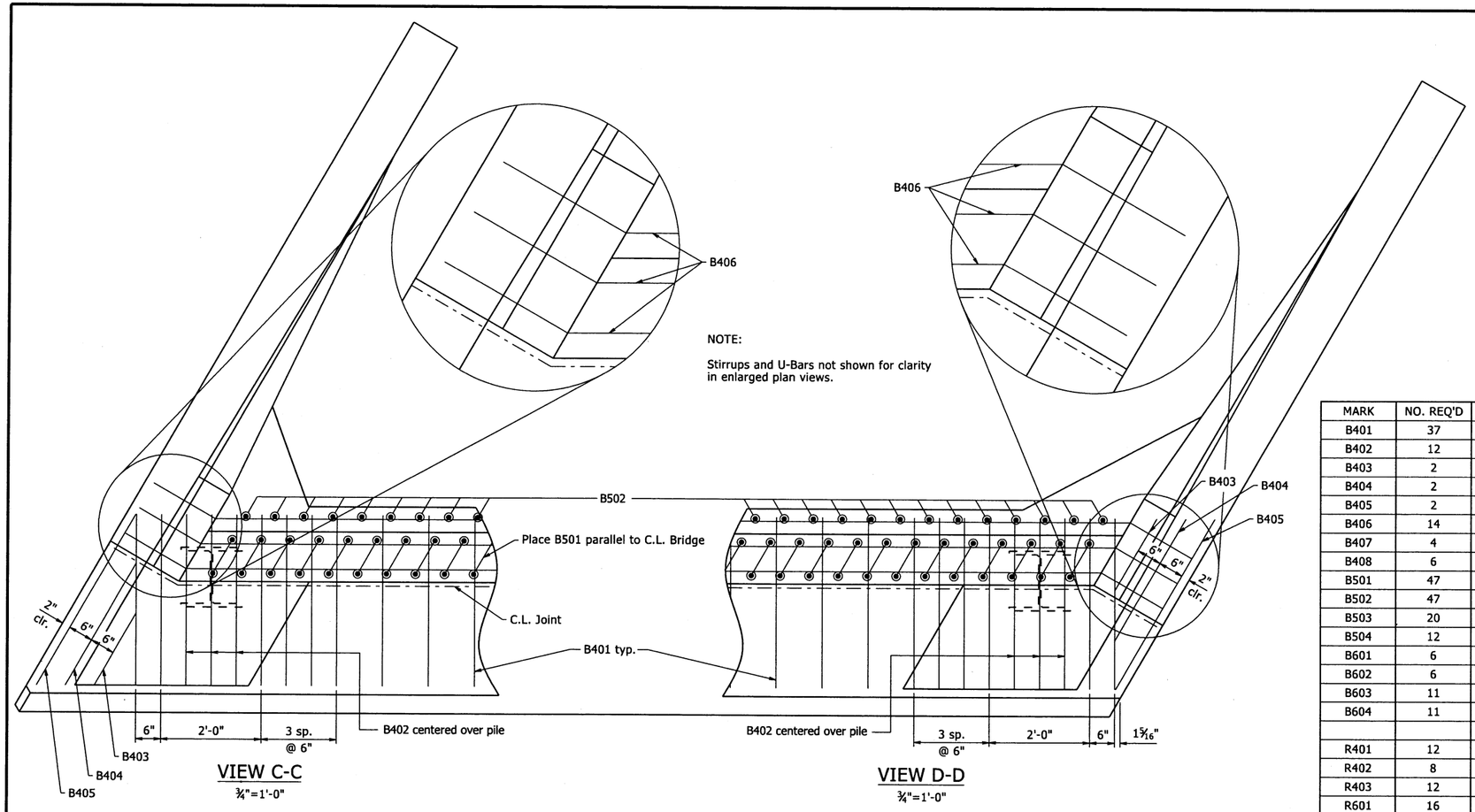
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 6/21/19 FILENAME: br60140x7_b1.dgn
CHECKED BY: DHP DATE: 8-20-19 SCALE: AS NOTED
DESIGNED BY: DHP DATE: 6/19

BRIDGE NO. 07459 DRAWING NO. 61037

PRINT DATE: 8/20/2019

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.		R60140	263	616
				07459 - END BENTS - 61038				

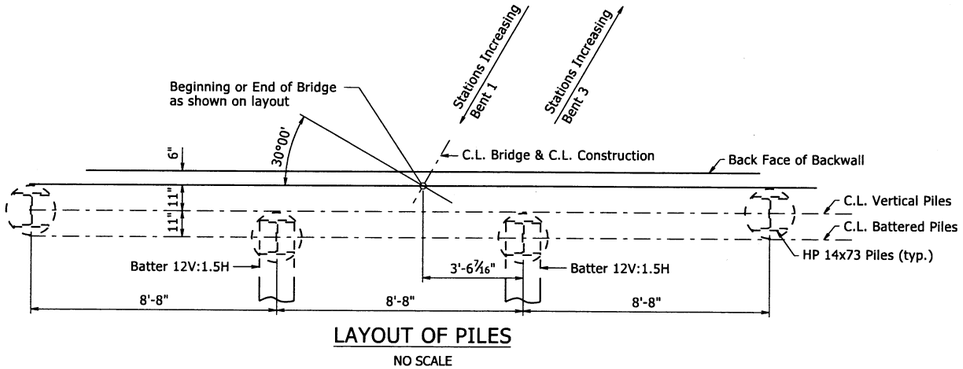


VIEW C-C

¾"=1'-0"

VIEW D-D

¾"=1'-0"



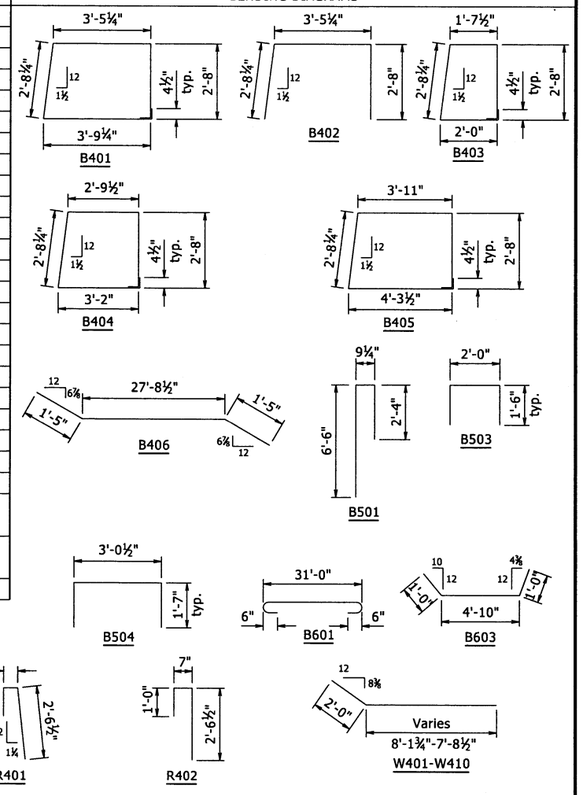
LAYOUT OF PILES

NO SCALE

BAR LIST-PER BENT

MARK	NO. REQ'D	LENGTH	P.D.
B401	37	12'-11"	2"
B402	12	8'-8"	2"
B403	2	9'-4"	2"
B404	2	11'-8"	2"
B405	2	13'-11"	2"
B406	14	30'-7"	2"
B407	4	31'-0"	Str.
B408	6	6'-10"	Str.
B501	47	9'-5"	2½"
B502	47	5'-9"	Str.
B503	20	4'-10"	2½"
B504	12	6'-0"	2½"
B601	6	32'-4"	4½"
B602	6	31'-0"	Str.
B603	11	6'-10"	4½"
B604	11	10'-6"	4½"
R401	12	3'-10"	2"
R402	8	3'-11"	2"
R403	12	11'-8"	Str.
R601	16	9'-11"	Str.
R602	6	5'-0"	Str.
W401-W410	2 ea.	Varies 10'-2" to 9'-8½"	2"
W411-W420	2 ea.	Varies 10'-5" to 10'-0"	Str.
W701	48	11'-8"	Str.

BENDING DIAGRAMS



Dimensions are out to out of bars.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
84419
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 6
DETAILS OF END BENTS
MILL CREEK ROAD OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

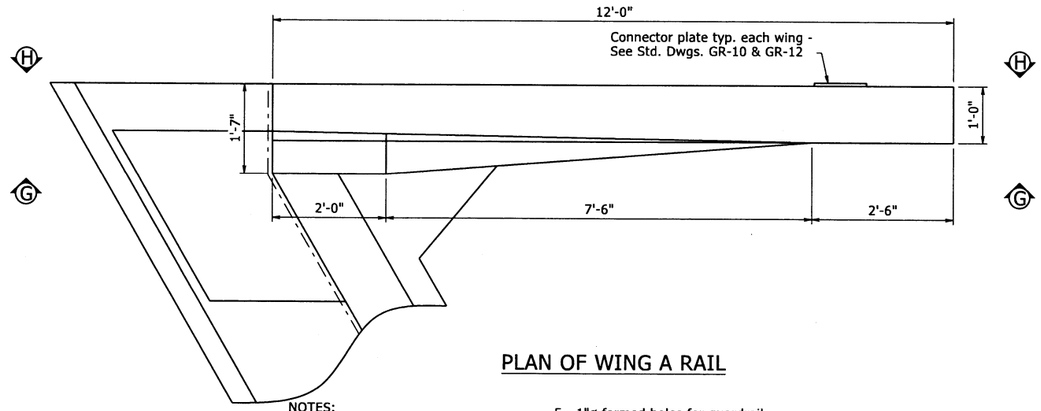
DRAWN BY: CGP DATE: 6/21/19
CHECKED BY: DHP DATE: 8/13/19
DESIGNED BY: DHP DATE: 6/19
FILENAME: br60140x7_b1.dgn
SCALE: AS NOTED

BRIDGE NO. 07459 DRAWING NO. 61038

PRINT DATE: 8/13/2019

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.		R60140	264	616

(1) 07459 - END BENTS - 61039

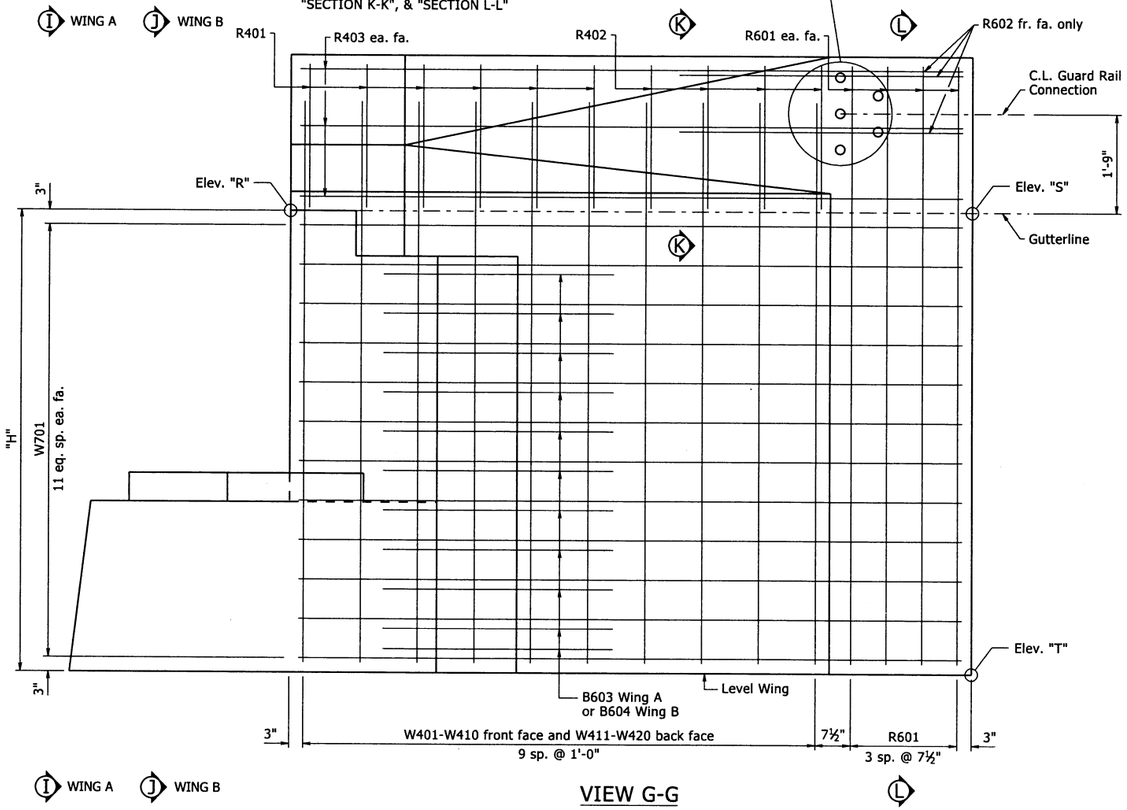


PLAN OF WING A RAIL

NOTES:
See Dwg. No. 61040 for "VIEW H-H"

See Dwg. No. 61041 for "VIEW I-I", "VIEW J-J", "SECTION K-K", & "SECTION L-L"

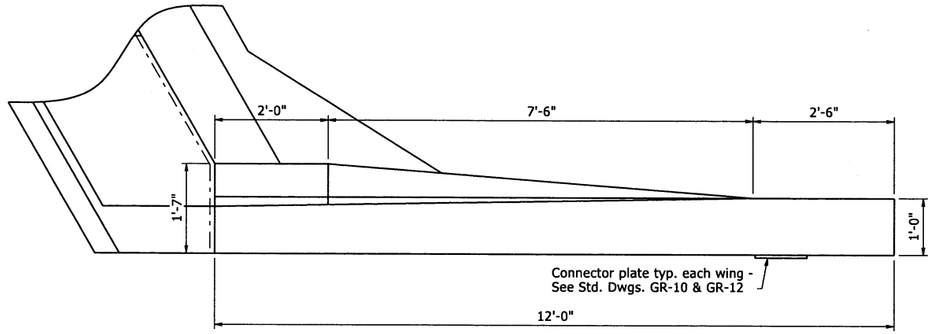
5 - 1"ø formed holes for guardrail connection. See Dwgs. GR-10 & GR-12 for bolt spacing and additional connection details.



VIEW G-G

TABLE OF VARIABLES

BENT	WING	ELEV. "R"	ELEV. "S"	ELEV. "T"	"H"
1	A	579.64	579.07	571.61	8'-0⅜"
	B	578.98	578.41	570.86	8'-1 7/16"
3	A	582.39	582.03	574.26	8'-1 9/16"
	B	581.97	581.54	573.80	8'-2 1/16"



PLAN OF WING B RAIL

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

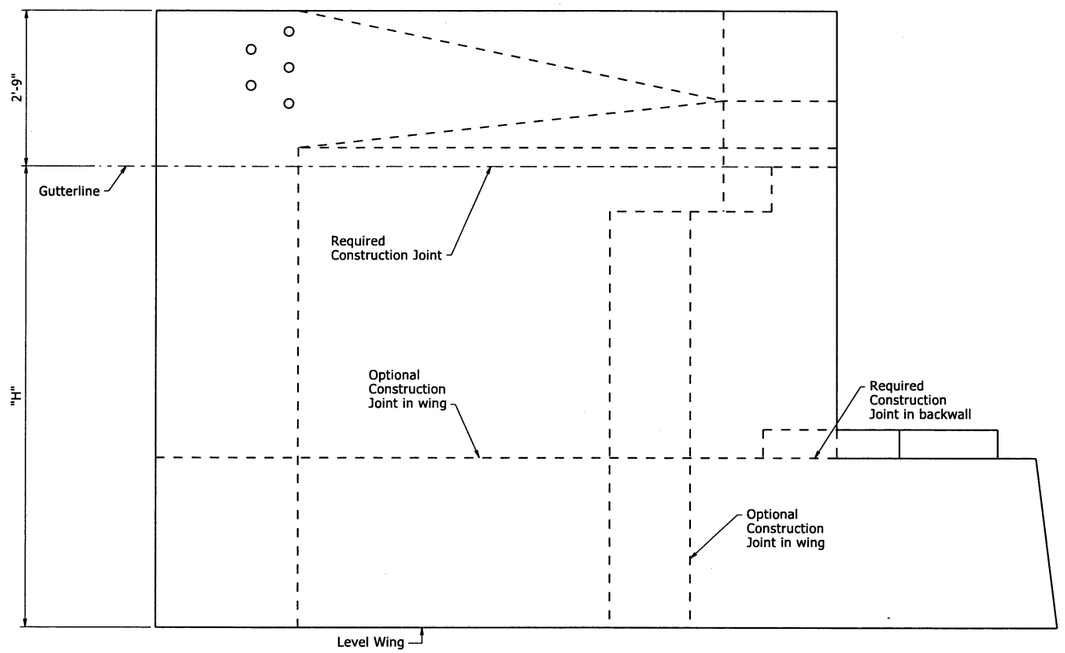
SHEET 4 OF 6
DETAILS OF END BENTS
MILL CREEK ROAD OVER HIGHWAY 7

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 6/21/19
CHECKED BY: DHP DATE: 8/13/19
DESIGNED BY: DHP DATE: 6/19
FILENAME: br60140x7_b1.dgn
SCALE: ¾"=1'-0"
BRIDGE NO. 07459
DRAWING NO. 61039

PRINT DATE: 8/13/2019

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.		R60140	265	616
				1	07459 - END BENTS - 61040			

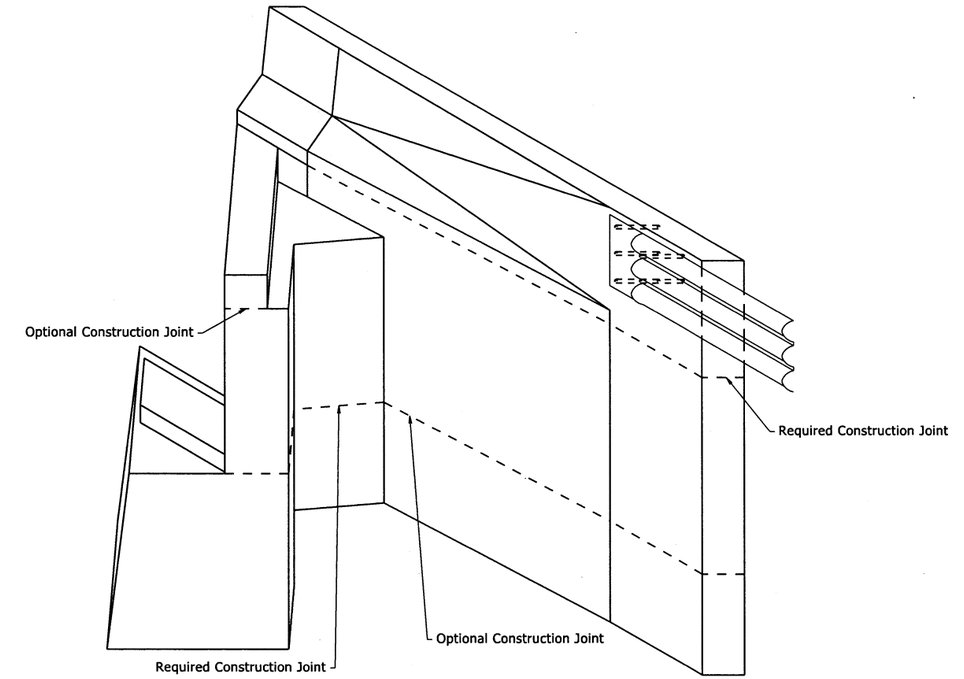


VIEW H-H

¾"=1'-0"

TABLE OF VARIABLES

BENT	WING	"H"
1	A	7'-5½"
	B	7'-6⅝"
3	A	7'-9¼"
	B	7'-8⅞"



THREE DIMENSIONAL VIEW AT WING

NO SCALE

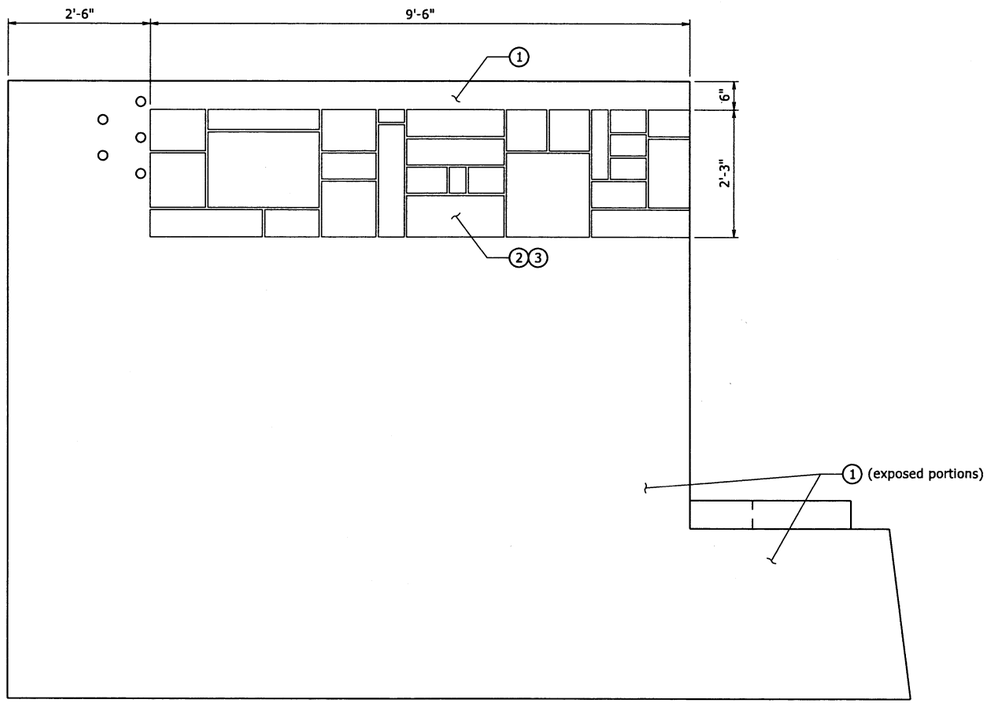
(1) Class 3 Textured Coating Finish (Color = Brown, Color Chip 33522)

(2) Class 3 Textured Coating Finish (Color = Brown, Color Chip 30219)

(3) "Ashlar Stone" Pattern Form Liner

NOTE:

Form liner shall be max. depth of 2" to provide a min. clearance of 1½" to parpet reinforcing.



WING AND PARAPET RAIL ENHANCEMENT

¾"=1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 6
DETAILS OF END BENTS
MILL CREEK ROAD OVER HIGHWAY 7

ROUTE SEC.

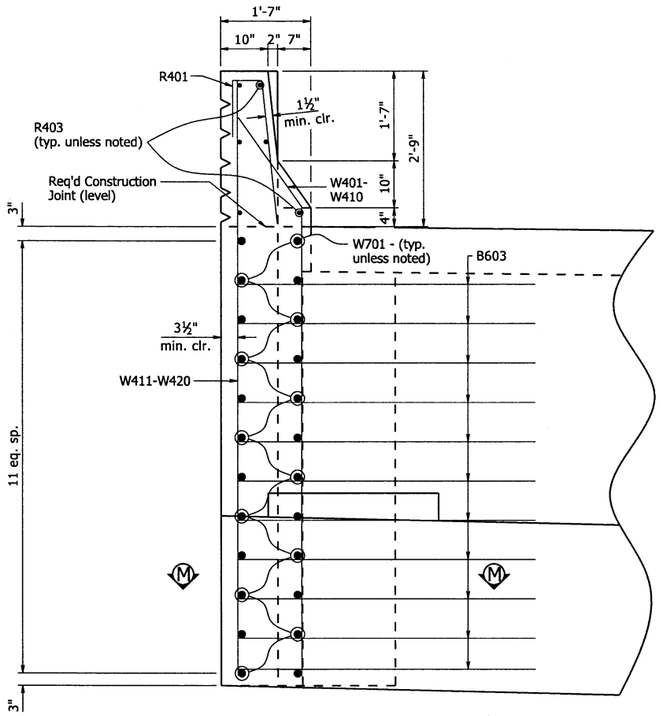
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 6/21/19 FILENAME: br60140x7_b1.dgn
CHECKED BY: DHP DATE: 8/13/19 SCALE: AS NOTED
DESIGNED BY: DHP DATE: 6/19

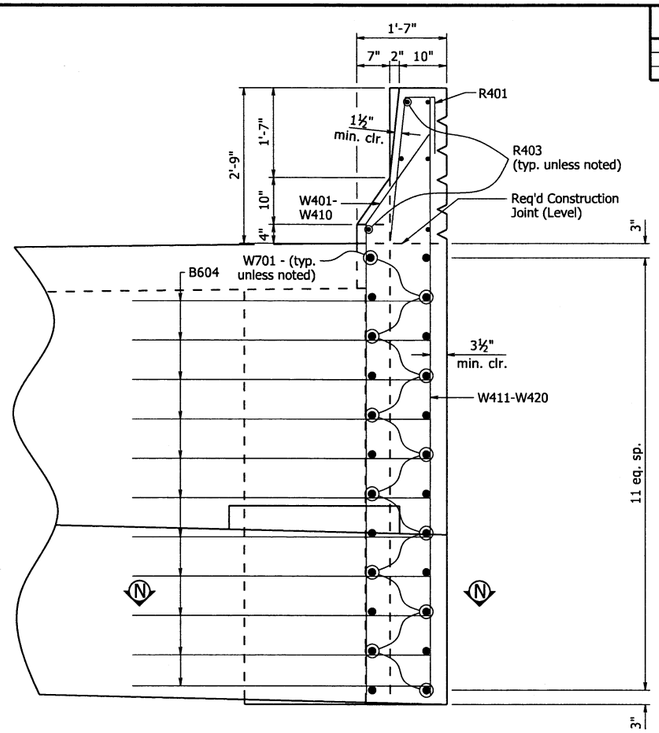
BRIDGE NO. 07459 DRAWING NO. 61040

PRINT DATE: 8/13/2019

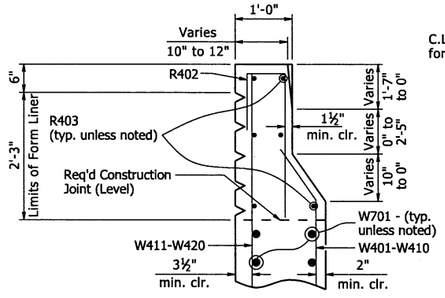
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	266	616
				①		07459 - END BENTS - 61041		



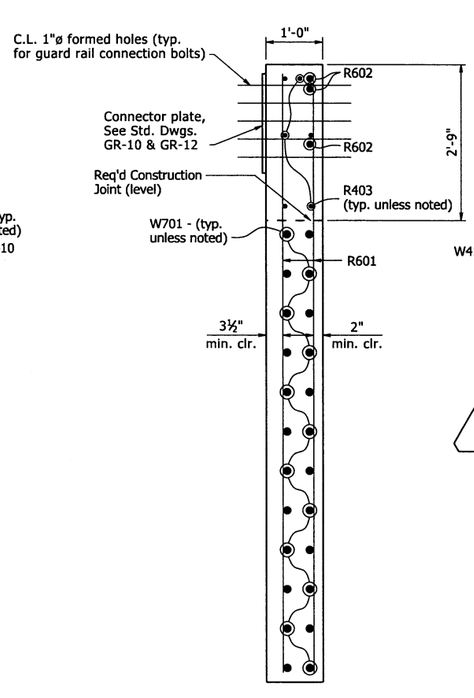
VIEW I-I



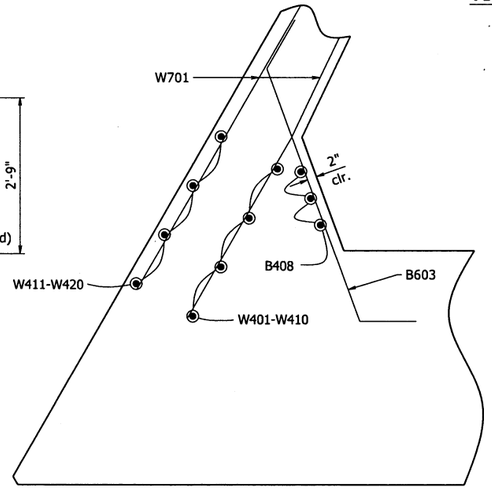
VIEW J-J



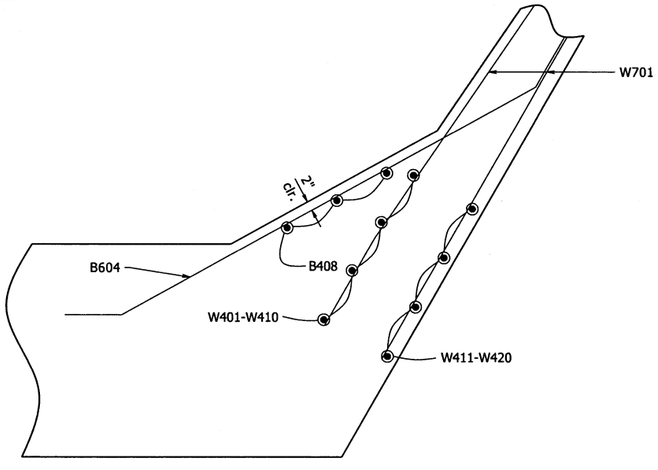
SECTION K-K
WING A SHOWN
WING B SIMILAR



SECTION L-L
WING A SHOWN
WING B SIMILAR



SECTION M-M



SECTION N-N

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-19-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 6 OF 6
DETAILS OF END BENTS
MILL CREEK ROAD OVER HIGHWAY 7

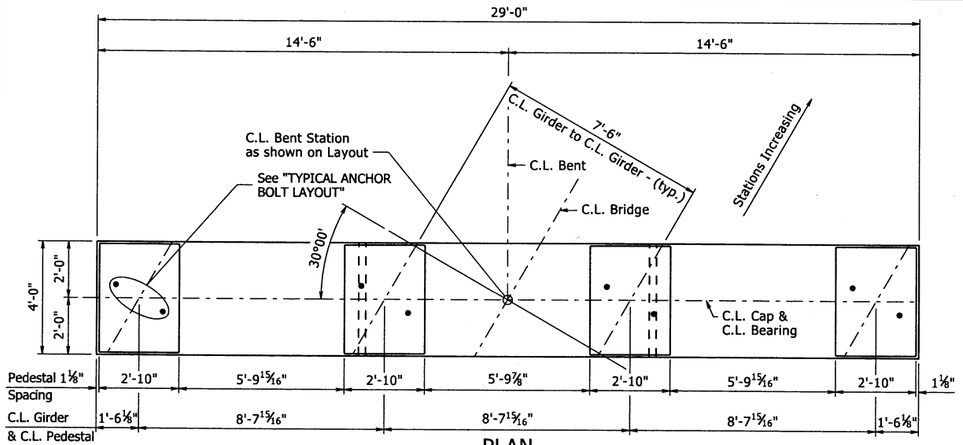
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 6/21/19 FILENAME: br60140x7_b1.dgn
CHECKED BY: DHP DATE: 8/14/19 SCALE: ¾"=1'-0"
DESIGNED BY: DHP DATE: 6/19

BRIDGE NO. 07459 DRAWING NO. 61041

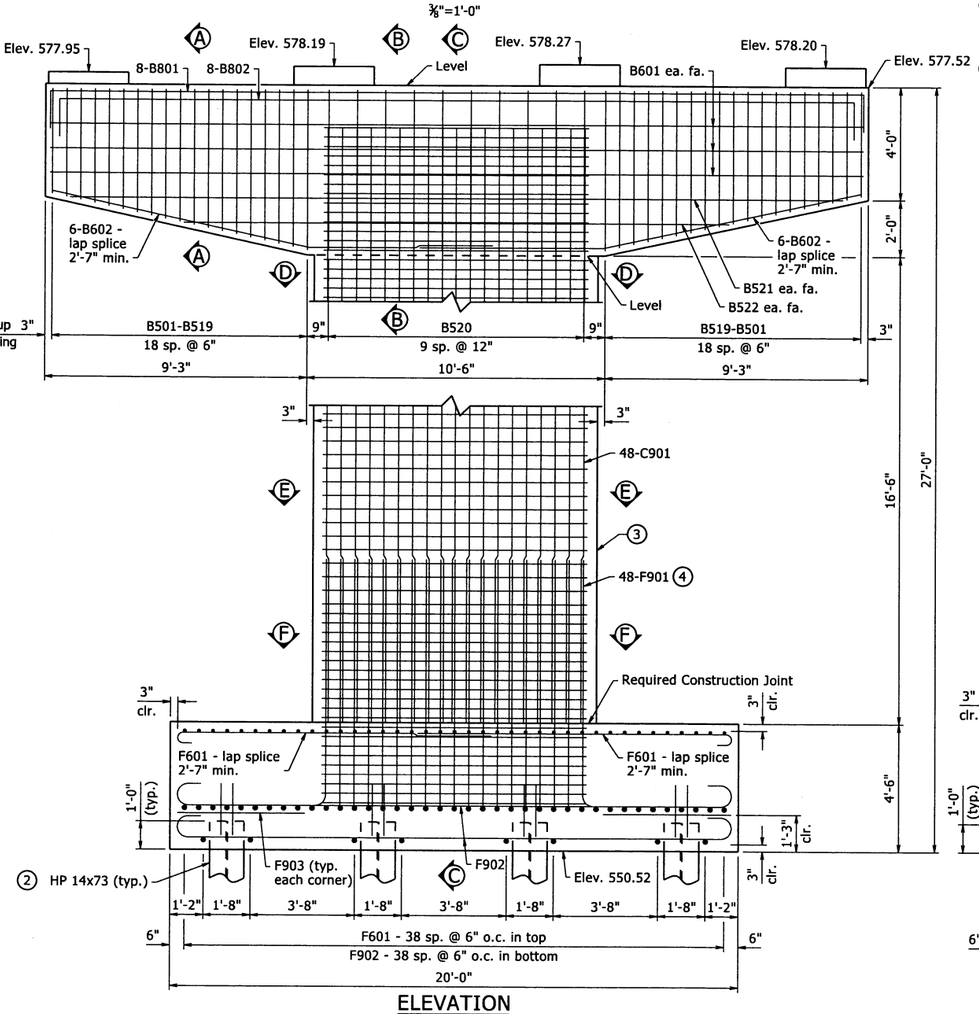
PRINT DATE: 8/15/2019

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.		R60140	267	616
				(1) 07459 - INTERMEDIATE BENT - 61042				



PLAN

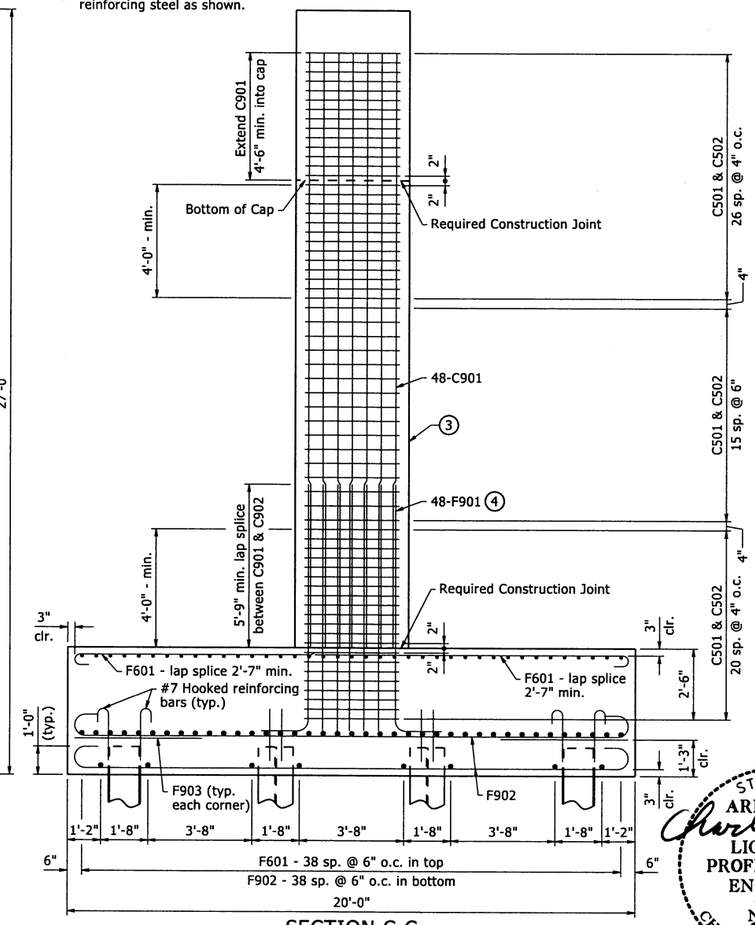
⅜"=1'-0"



ELEVATION

LOOKING AHEAD

⅜"=1'-0"



SECTION C-C

⅜"=1'-0"

For Details of Elastomeric Bearings, see Dwg. Nos. 61075 & 61076.

TYPICAL ANCHOR BOLT LAYOUT

NO SCALE

NOTES:

For General Notes, see Std. Dwg. No. 55006.

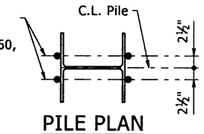
For additional information, see Layout.

For "SECTION A-A", "SECTION B-B", "SECTION D-D", "SECTION E-E", & "SECTION F-F" see Dwg. No. 61043.

(2) See "TYPICAL PILE DETAILS" for Pile reinforcing & Dwg. No. 61043 for "LAYOUT OF PILES".

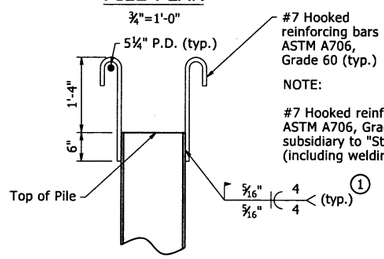
(3) See "COLUMN ELEVATION ENHANCEMENT" & "COLUMN END ENHANCEMENT" for placement of Ashlar Stone on Dwg. No. 61044.

(4) F901 bars to rest on footing mat of reinforcing steel as shown.



PILE PLAN

¾"=1'-0"



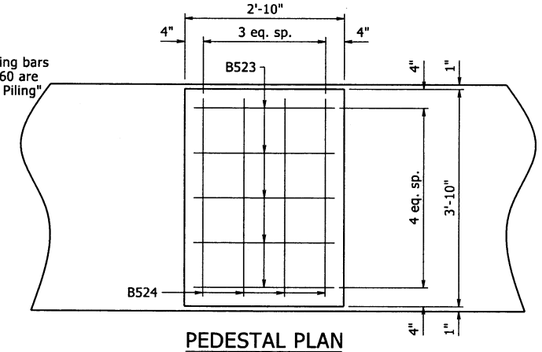
TYPICAL PILE DETAILS

¾"=1'-0"

(1) Welding shall comply with ANSI/AWS D1.4 Structural Welding Code-Reinforcing Steel and applicable portions of ANSI/AWS D1.5 Bridge Welding Code.

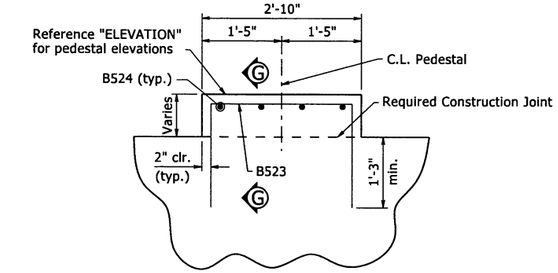
NOTE:

#7 Hooked reinforcing bars ASTM A706, Grade 60 are subsidiary to "Steel Piling" (including welding)



PEDESTAL PLAN

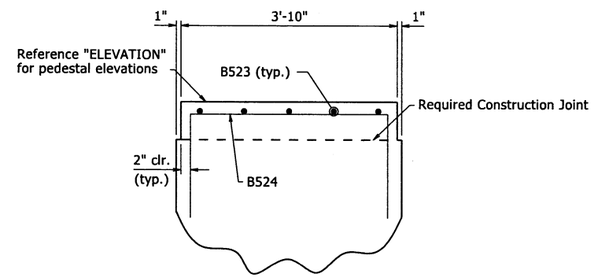
¾"=1'-0"



TYPICAL PEDESTAL DETAILS

LOOKING AHEAD

¾"=1'-0"



SECTION G-G

¾"=1'-0"

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENT
MILL CREEK ROAD OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

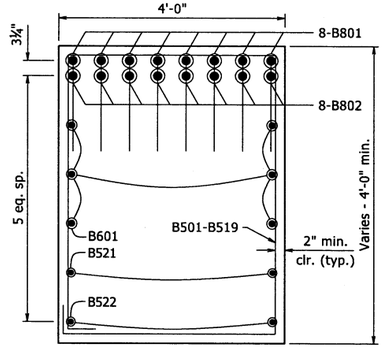
DRAWN BY: CGP DATE: 7/08/19
CHECKED BY: DHP DATE: 8/13/19
DESIGNED BY: DHP DATE: 6/19
FILENAME: br60140x7_b2.dgn
SCALE: AS NOTED

BRIDGE NO. 07459 DRAWING NO. 61042

PRINT DATE: 8/13/2019

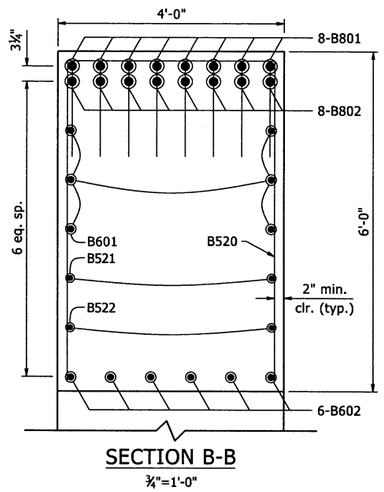
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	268	618

1 07459 - INTERMEDIATE BENT - 61043



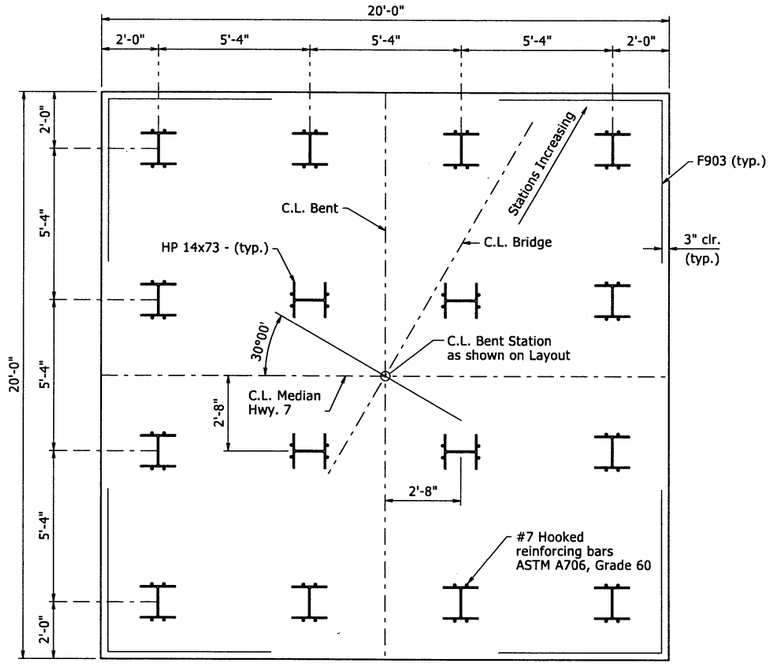
SECTION A-A

¾"=1'-0"



SECTION B-B

¾"=1'-0"

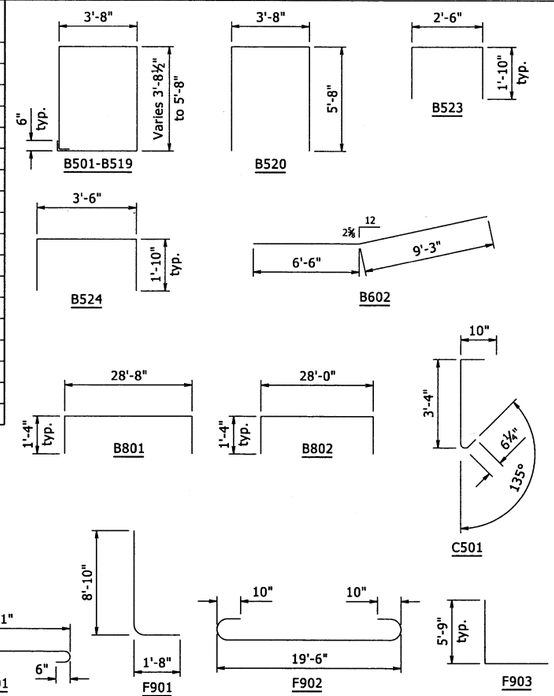


LAYOUT OF PILES

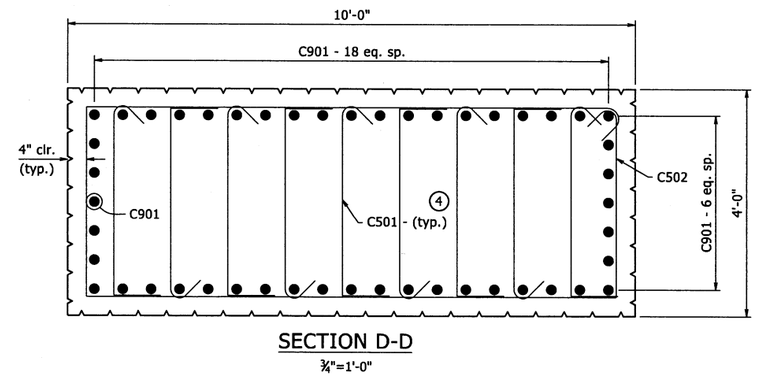
BAR LIST

MARK	NO. REQ'D	LENGTH	P.D.
B501-B519	2 ea.	15'-3"-19'-2"	2½"
B520	10	14'-10"	2½"
B521	2	27'-3"	Str.
B522	2	19'-3"	Str.
B523	20	6'-0"	3¾"
B524	16	7'-0"	3¾"
B601	6	28'-8"	Str.
B602	12	15'-9"	4½"
B801	8	30'-11"	6"
B802	8	30'-3"	6"
C501	496	4'-9"	3¾"
C502	64	26'-0"	3¾"
C901	48	21'-0"	Str.
F601	156	11'-9"	4½"
F901	48	10'-3"	9"
F902	78	22'-0"	9"
F903	4	11'-3"	9"

BENDING DIAGRAMS

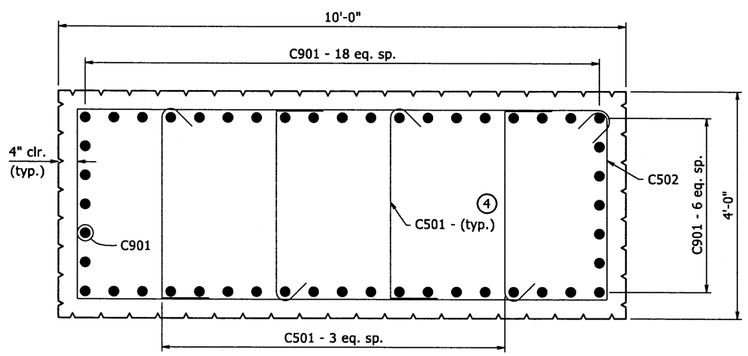


Dimensions are out to out of bars.



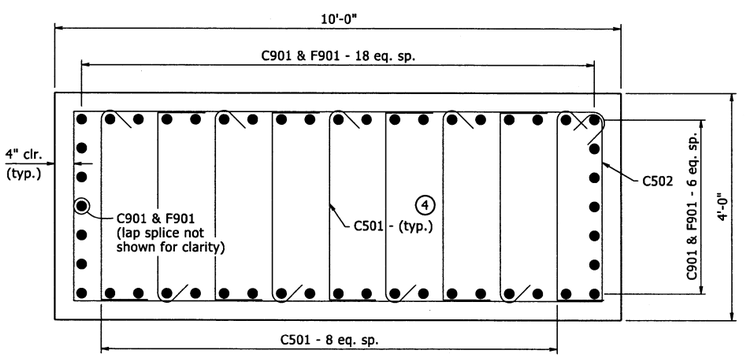
SECTION D-D

¾"=1'-0"



SECTION E-E

¾"=1'-0"



SECTION F-F

¾"=1'-0"

④ Alternate #5 crossties end for end at each layer of reinforcing.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENT
MILL CREEK ROAD OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

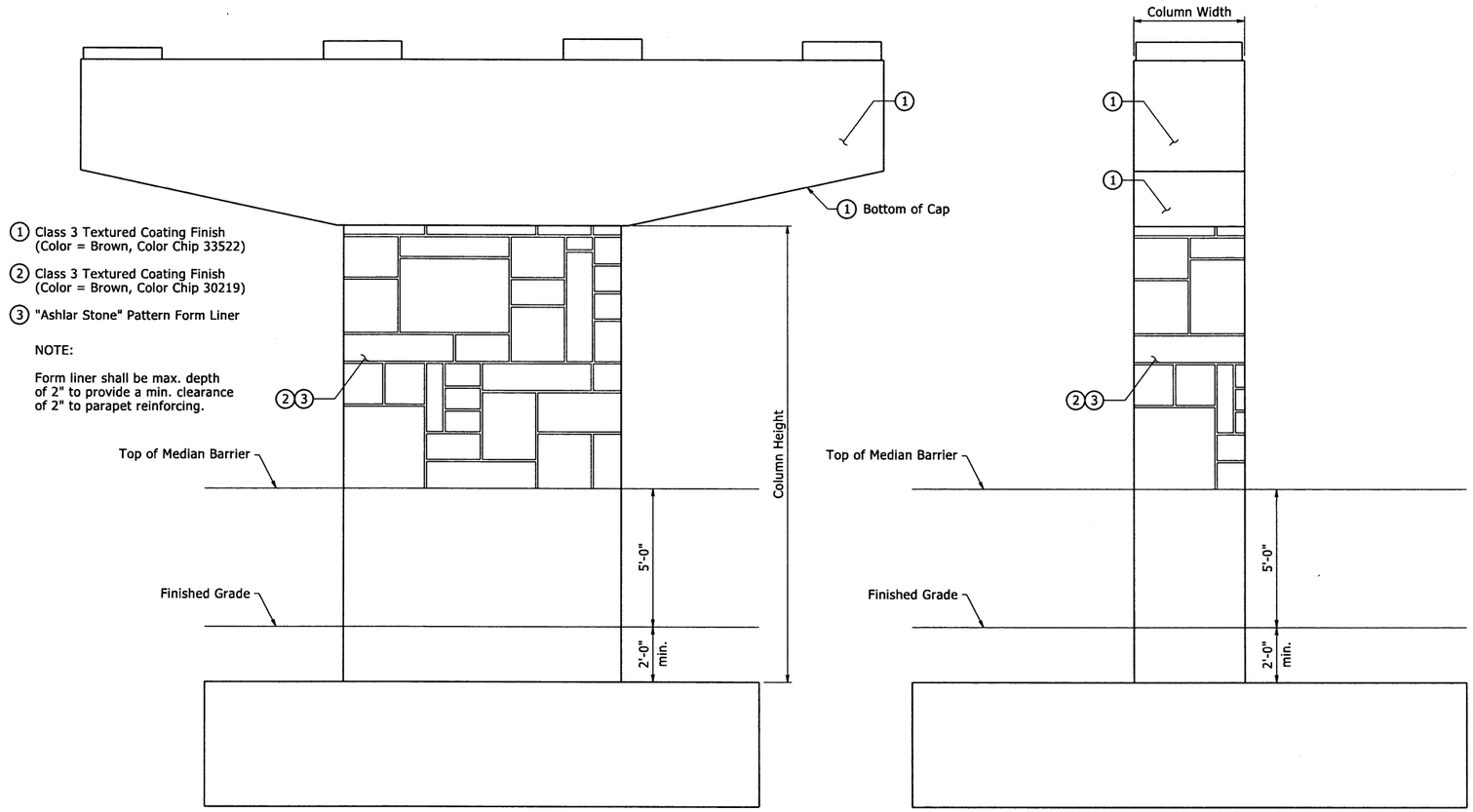
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 7/08/19
CHECKED BY: DHP DATE: 8/13/19
DESIGNED BY: DHP DATE: 6/19
FILENAME: br60140x7_b2.dgn
SCALE: AS NOTED

BRIDGE NO. 07459 DRAWING NO. 61043

PRINT DATE: 8/13/2019

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.		R60140	269	616
				(1)	07459 & 07460 - COMMON DETAILS - 61044			



FRONT VIEW
LOOKING AHEAD

END VIEW

BENT AESTHETICS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

COMMON DETAILS
OF COLUMN ENHANCEMENT-ASHLAR STONE

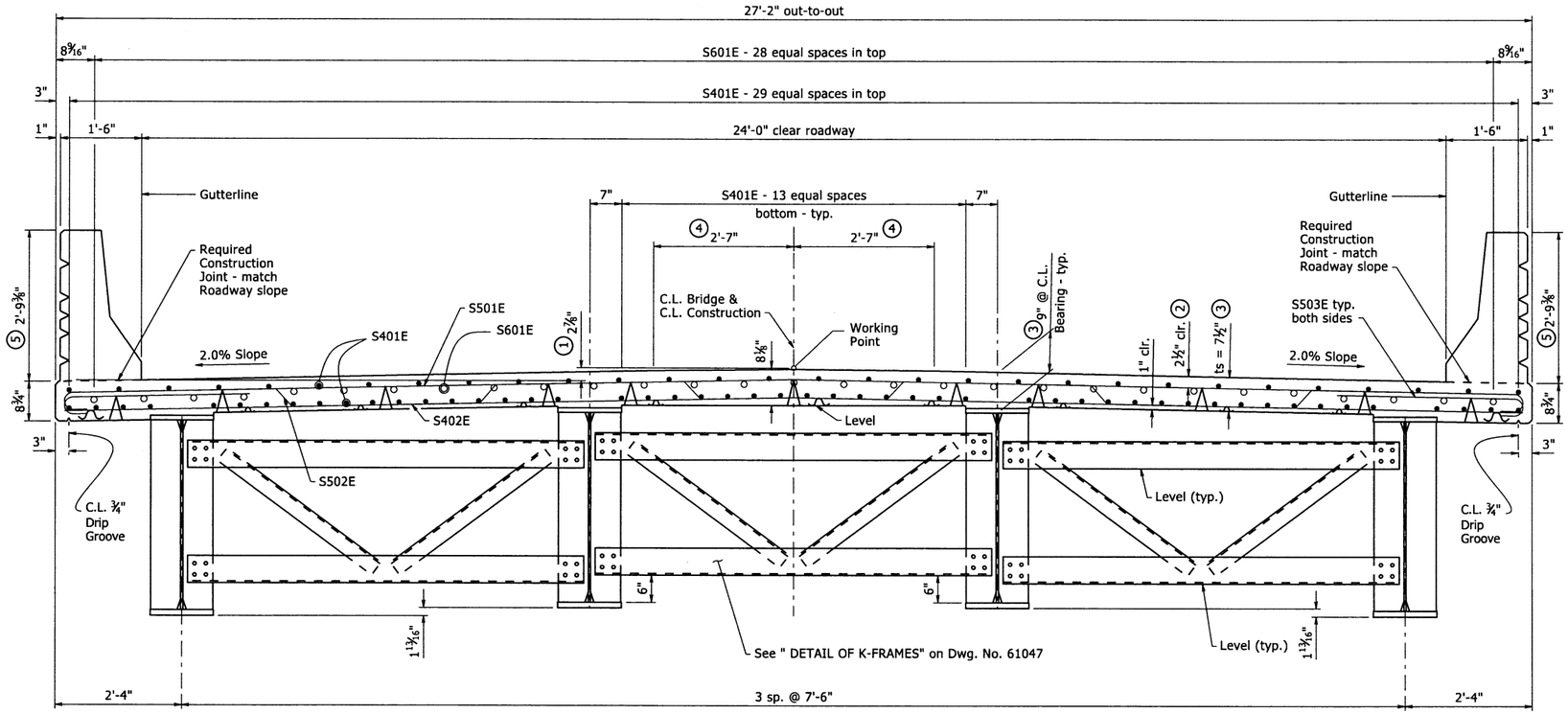
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 7/08/19 FILENAME: br60140_c.dgn
CHECKED BY: DHP DATE: 8/14/19 SCALE: NO SCALE
DESIGNED BY: DHP DATE: 6/19

BRIDGE NO. 07459 & 07460 DRAWING NO. 61044

PRINT DATE: 8/14/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10/07/2019				6	ARK.			
				JOB NO.		R60140	270	616
				(1)		07459 - SPAN DETAILS - 61045		

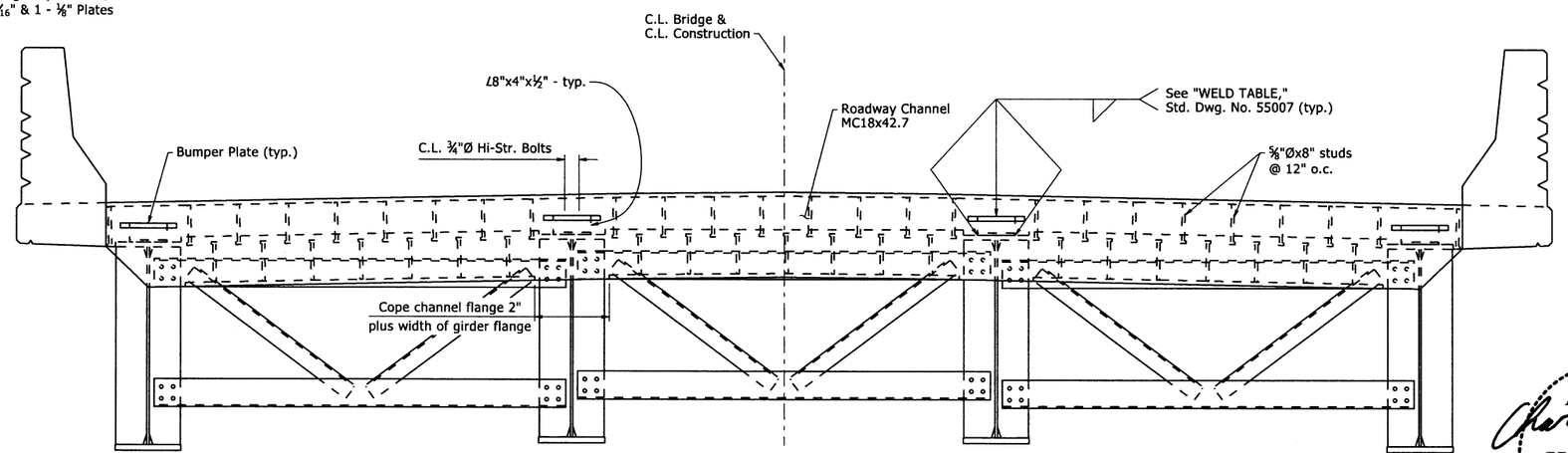


TYPICAL ROADWAY SECTION

Looking Ahead

Expansion Device:

Roadway Channel - MC18x42.7
Connection L's 8"x4"x½"
Detail Device ⅛" high & provide ¼" shims using 2 - 1/16" & 1 - ⅛" Plates



TYPICAL ROADWAY SECTION THRU JOINT

Looking Ahead

1 Revised slab thickness and haunch adjustment notes.

By: DPT DATE: 10-7-19
CHECKED By: KJT DATE: 10-7-19

Slab Reinforcing:

Longitudinal: S401E Top and Bottom placed as shown
S601E Placed as shown, see "REINFORCING PLAN & DECK POURING SEQUENCE", Dwg. No. 61048.

Transverse: S501E @ 12" o.c. in Top, S402E @ 12" o.c. in bottom — Alternate
S502E @ 12" o.c. bent up over girders
S503E @ 6" in top of overhangs (bundled with No. 5 bars) both sides

At the Contractor's option, in lieu of providing bars S502E, one epoxy coated No. 5 bar, top and bottom, may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S502E. Bars in top and bottom shall be epoxy coated.

Bar positions or clearances from the forms shall be maintained by means of stays, ties, hangers or other approved devices per Subsection 804.06. Placement of slab bolsters or high-chairs with full-length lower runners directly on removable deck forms will not be allowed.

Class 1 Protective Surface Treatment shall be applied to the Roadway Surface and the Roadway Face and Top of Concrete Parapet Rail.

(1) Working Point to gutterline.

(2) Tolerance: Minus = ¼";
Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. 55007.

(3) For ~~both removable and~~ permanent steel deck forms the haunch dimension may ~~vary +1¼" to~~ maintain grade, slab ~~thickness, and~~ shear connector requirements. ~~See~~ "SHEAR CONNECTOR DETAIL" on Std. Dwg. No. 55007 for ~~shear connector requirements~~. No increase in concrete and structural steel quantities ~~will be made~~ to maintain tolerances. Payment for concrete shall be based on ~~removable~~ deck forming. For additional details related to the ~~use of permanent steel deck~~ forms, see Std. Dwg. No. 55005.

(4) See "ROUNDING DETAIL," Std. Dwg. No. 55007.

(5) Outside face of concrete parapet rail to receive an ashlar stone finish, see Dwg. No. 61078 for details.

1
(3) See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
10-7-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF 195'-0" CONTINUOUS PLATE GIRDER UNIT MILL CREEK ROAD OVER HIGHWAY 7

ROUTE SEC.

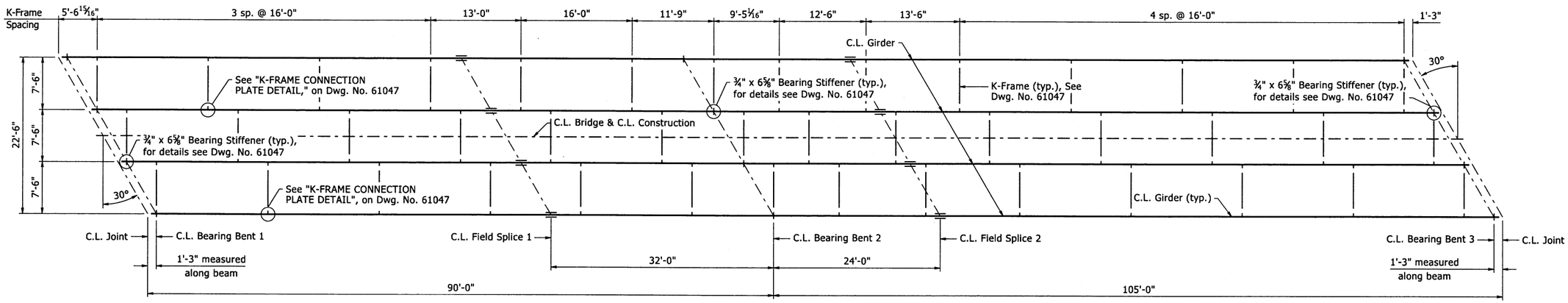
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP/DPT DATE: 7/30/19 FILENAME: br60140x7_s1.dgn
CHECKED BY: KJT DATE: 10-7-19 SCALE: 3/4" = 1'-0"
DESIGNED BY: KJT DATE: 7/2019

BRIDGE NO. 07459 DRAWING NO. 61045

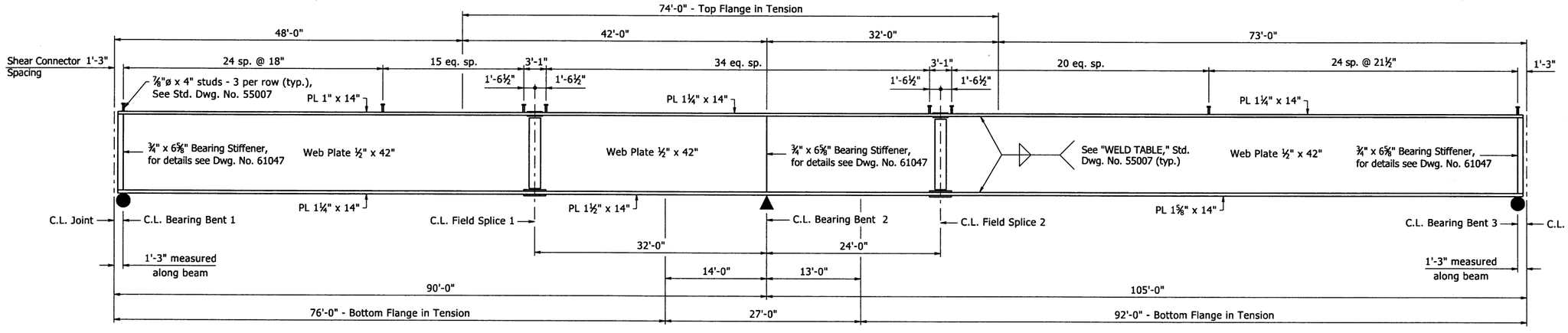
PRINT DATE: 10/4/2019

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.		R60140	271	616
				07459 - SPAN DETAILS - 61046				



FRAMING PLAN

⅛" = 1'-0"



TYPICAL GIRDER ELEVATION

NO SCALE

Notes:

All Structural Steel shall be ASTM A709, Gr. 50 unless otherwise noted, and shall be paid for as "Structural Steel in Plate Girder Spans (A709, Gr. 50)."

For additional information, see Layout.

For General Notes, see Std. Dwg. No. 55006.

For additional details, see Std. Dwg. No. 55007.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19

BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF 195'-0" CONTINUOUS PLATE GIRDER UNIT
MILL CREEK ROAD OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP/DPT DATE: 7/30/19 FILENAME: br60140x7_s1.dgn
CHECKED BY: KJT DATE: 8/13/19 SCALE: AS NOTED
DESIGNED BY: KJT DATE: 7/19

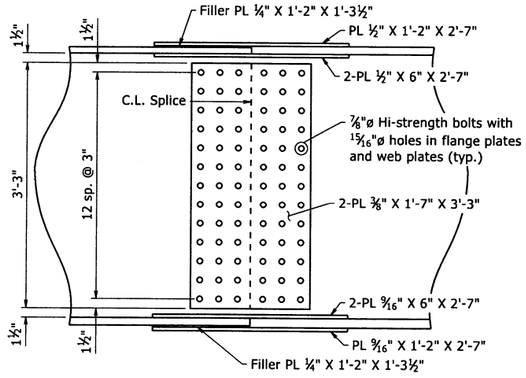
BRIDGE NO. 07459 DRAWING NO. 61046

PRINT DATE: 8/13/2019

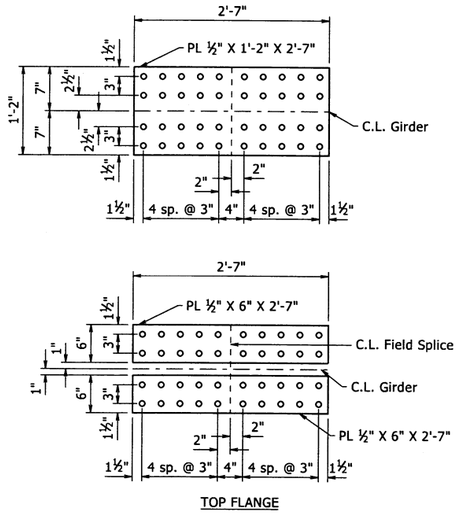
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	272	616

1 07459 - SPAN DETAILS - 61047

See "FRAMING PLAN" for placement of Connection Plates, Dwg. No. 61046



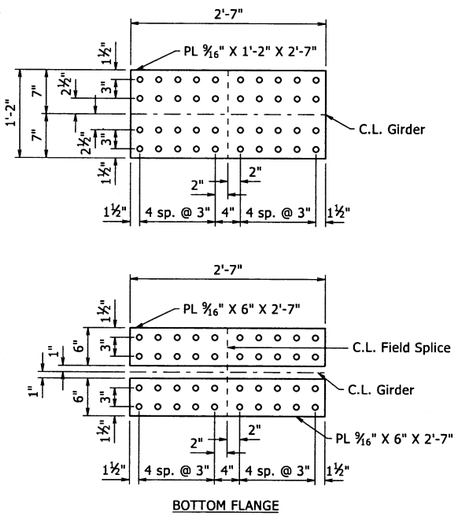
WEB SPLICE



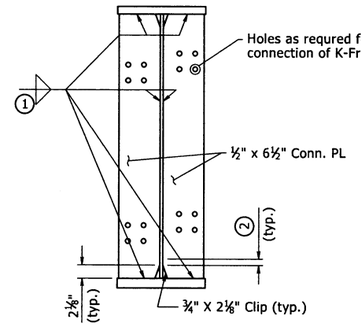
TOP FLANGE

DETAILS OF FIELD SPLICE 1

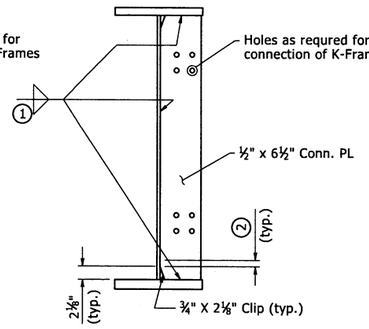
1" = 1'-0"



BOTTOM FLANGE



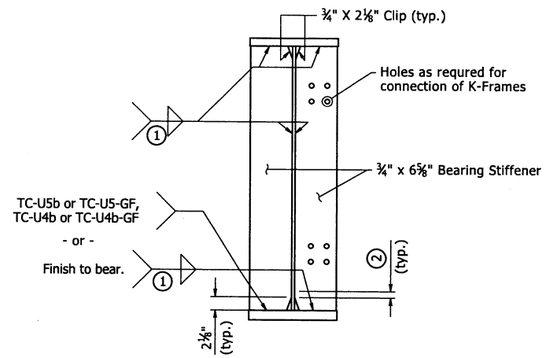
INTERIOR



EXTERIOR

K-FRAME CONNECTION PLATE DETAIL

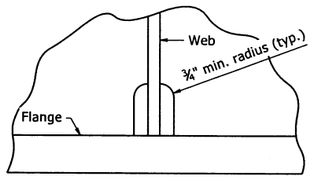
1" = 1'-0"



NOTE: All bearing stiffeners shall be vertical in their final position

BEARING STIFFENER DETAIL

1" = 1'-0"



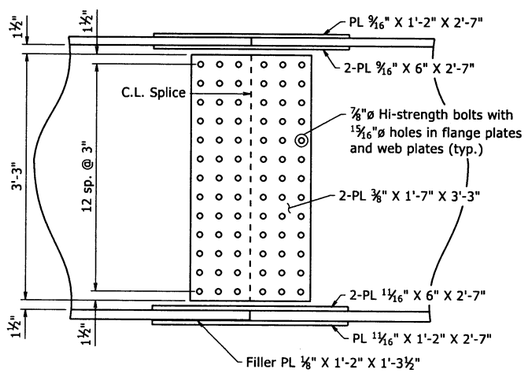
For Bearing Stiffeners and K-Frame Connection Plates. Height and width of clip shall be as noted in the plans.

ALTERNATE CLIP DETAIL

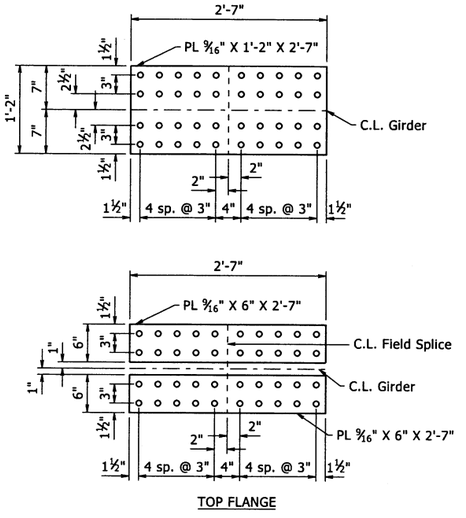
No Scale

1 See "WELD TABLE" on Std. Dwg. No. 55007.

2 Stop Weld ¼" to 1" from end of clip.



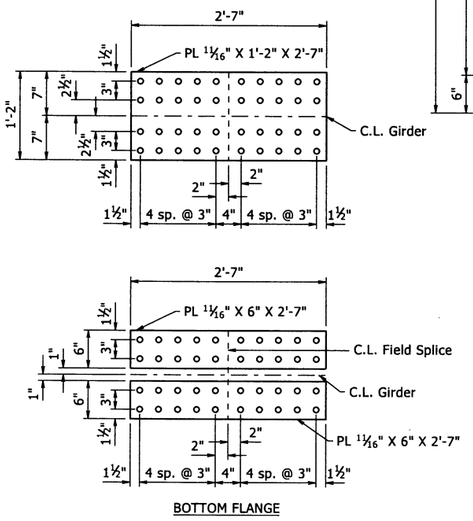
WEB SPLICE



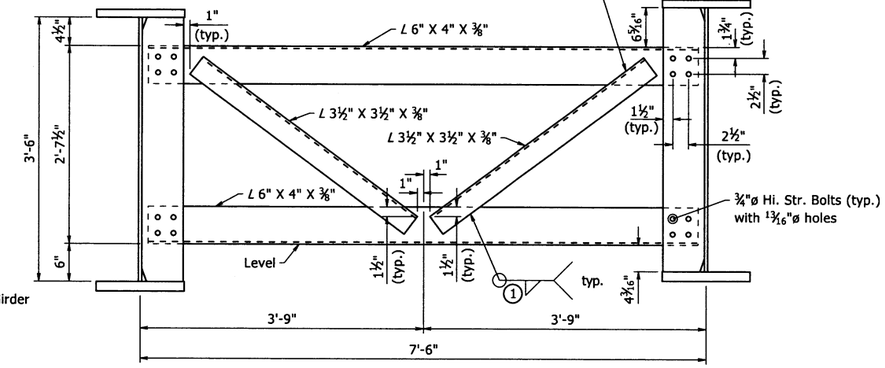
TOP FLANGE

DETAILS OF FIELD SPLICE 2

1" = 1'-0"



BOTTOM FLANGE



DETAIL OF K-FRAMES

1" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF 195'-0" CONTINUOUS PLATE GIRDER UNIT
MILL CREEK ROAD OVER HIGHWAY 7

ROUTE SEC.

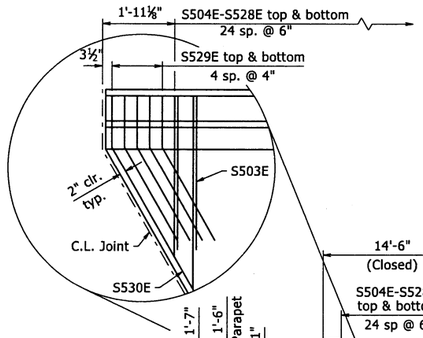
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

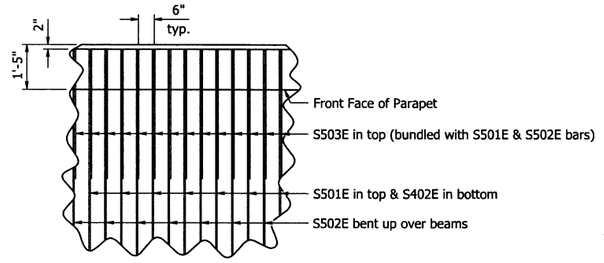
DRAWN BY: CGP/DPT DATE: 7/30/19
CHECKED BY: [illegible] DATE: 8/13/19
DESIGNED BY: KJT DATE: 7/2019
FILENAME: br60140x7_s1.dgn
SCALE: AS NOTED

BRIDGE NO. 07459 DRAWING NO. 61047

PRINT DATE: 8/13/2019

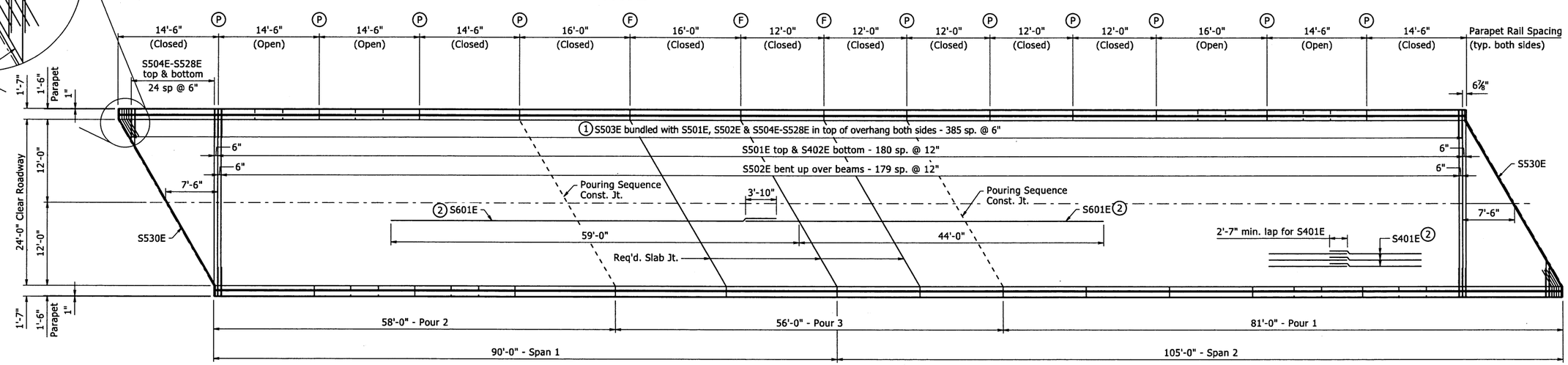
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	273	616
				07459 - SPAN DETAILS - 61048				





DETAIL A
NO SCALE

1. See "DETAIL A."
2. Place as shown in "TYPICAL ROADWAY SECTION," Dwg No. 61045.
P. C.L. Partial Depth Parapet Joint (¼" - 1" max.). Stop 4" from top of slab.
F. C.L. Full Depth Parapet Joint (¼" - 1" max.). Stop 1'-2" from top of slab.
3. See Dwg. No. 61078 for "COMMON DETAILS OF 2'-9" CONCRETE PARAPET RAILS."



REINFORCING PLAN & DECK POURING SEQUENCE

⅛" = 1'-0"

Slab Pouring Sequence Notes:

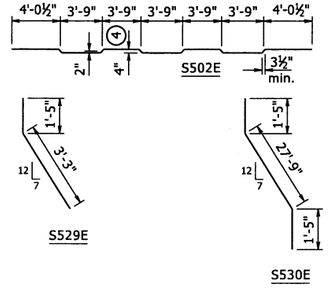
Pours with the same number may be placed simultaneously or separately. All Pour(s) 1 must be placed before Pour(s) 2 can be placed. Pour(s) 2 must be placed before Pour(s) 3 can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between adjacent pours.

Concrete in bridge superstructure unit 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.

A minimum of 72 hours shall elapse between completion of the slab and the pouring of the bridge railing. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence(s) shown.

BAR LIST

MARK	NO. REQ'D	LENGTH	P.D.	BENDING DIAGRAMS
S401E	480	34'-8"	Str.	
S402E	181	26'-10"	Str.	
S501E	181	26'-10"	Str.	
S502E	180	27'-6"	3"	
S503E	772	3'-9"	Str.	
S504E-S528E	4 ea.	4'-4" to 25'-2"	Str.	
S529E	20	4'-8"	3¾"	
S530E	2	30'-7"	3¾"	
S601E	58	53'-6"	Str.	



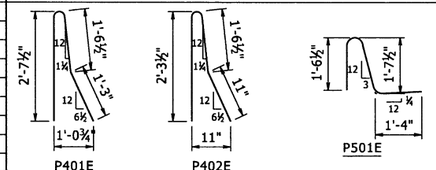
4 ½" Overtolerance - No Undertolerance
Note: Dimensions are out to out of bars.
Bars designated with an "E" suffix to be Epoxy Coated.

③ TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels			
Panel Length	"D"	P4XXE Bar	Panel Length	"E"	"G"	P4XXE Bar
12'-0"	23	P404E	14'-6"	10	5'-3"	P405E
14'-6"	28	P405E	16'-0"	11	6'-0"	P406E
16'-0"	31	P406E				

③ PARAPET BAR LIST

MARK	NO. REQ'D	LENGTH	P.D.	BENDING DIAGRAMS
P401E	722	5'-6"	3"	
P402E	64	4'-10"	3"	
P403E	80	5'-6"	Str.	
P404E	70	11'-8"	Str.	
P405E	84	14'-2"	Str.	
P406E	42	15'-8"	Str.	
P501E	722	4'-7"	3¾"	



Note: Dimensions are out to out of bars.
Bars designated with an "E" suffix to be Epoxy Coated.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19
BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF 195'-0" CONTINUOUS PLATE GIRDER UNIT
MILL CREEK ROAD OVER HIGHWAY 7

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP/DPT DATE: 7/30/19 FILENAME: br60140x7_s1.dgn
CHECKED BY: DATE: 8/14/19 SCALE: AS NOTED
DESIGNED BY: KJT DATE: 7/19
BRIDGE NO. 07459 DRAWING NO. 61048

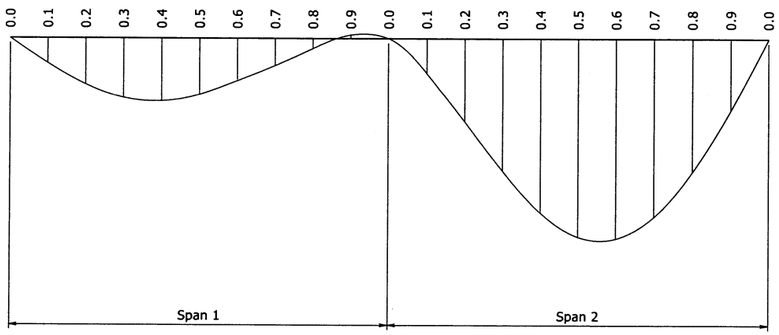
PRINT DATE: 8/14/2019

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.		R60140	274	616
				①	07459 - SPAN DETAILS - 61049			

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Exterior	Interior	Exterior	Interior	Exterior	Interior
Span 1	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.059	0.063	0.348	0.413	0.399	0.471
	0.2	0.106	0.115	0.636	0.759	0.733	0.872
	0.3	0.135	0.146	0.826	0.990	0.955	1.142
	0.4	0.142	0.153	0.894	1.078	1.037	1.248
	0.5	0.127	0.138	0.838	1.023	0.975	1.188
	0.6	0.093	0.103	0.669	0.834	0.782	0.972
	0.7	0.051	0.058	0.430	0.555	0.507	0.650
	0.8	0.011	0.015	0.184	0.260	0.222	0.309
	0.9	-0.011	-0.011	0.019	0.044	0.028	0.056
Span 2	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.072	0.075	0.249	0.255	0.283	0.293
	0.2	0.182	0.188	0.677	0.710	0.776	0.821
	0.3	0.294	0.306	1.129	1.208	1.297	1.399
	0.4	0.390	0.404	1.529	1.634	1.757	1.891
	0.5	0.445	0.461	1.765	1.896	2.026	2.190
	0.6	0.449	0.466	1.795	1.938	2.057	2.233
	0.7	0.401	0.416	1.614	1.744	1.844	2.001
	0.8	0.302	0.313	1.220	1.320	1.389	1.507
	0.9	0.163	0.169	0.659	0.714	0.746	0.809
	0.0	0.000	0.000	0.000	0.000	0.000	0.000

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.



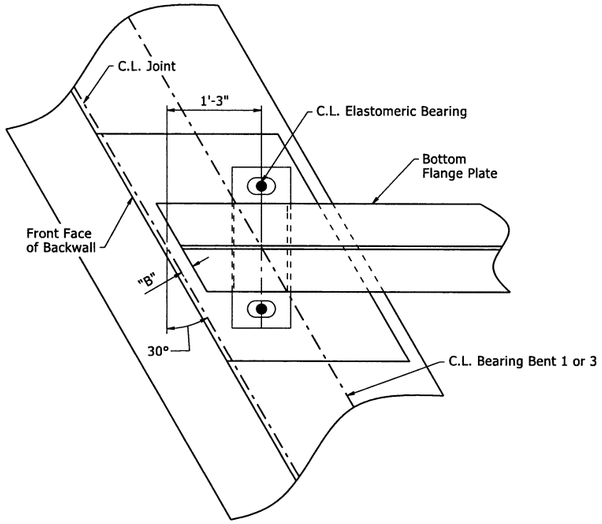
DEAD LOAD DEFLECTION DIAGRAM
NO SCALE

SILCONE JOINT DATA

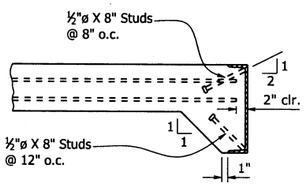
Bent No.	"A" - Width perpendicular to joint at 24 hour average temperature of: ①			"B" - Width Perpendicular to Joint at 60°F	Bumper Plate Size
	40°F	60°F	80°F		
1	2⅛"	2"	1⅞"	2¼" ±	1" X 1"
4	2⅛"	2"	1⅞"	2¼" ±	1" X 1"

For details of poured silicone joint, see Std. Dwg. No. 55008.

① The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.



PLAN OF BEARING AT END BENT
1"=1'-0"



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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9236
CHARLES R. ELLIS
8/20/19
BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF 195'-0" CONTINUOUS PLATE GIRDER UNIT
MILL CREEK ROAD OVER HIGHWAY 7

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

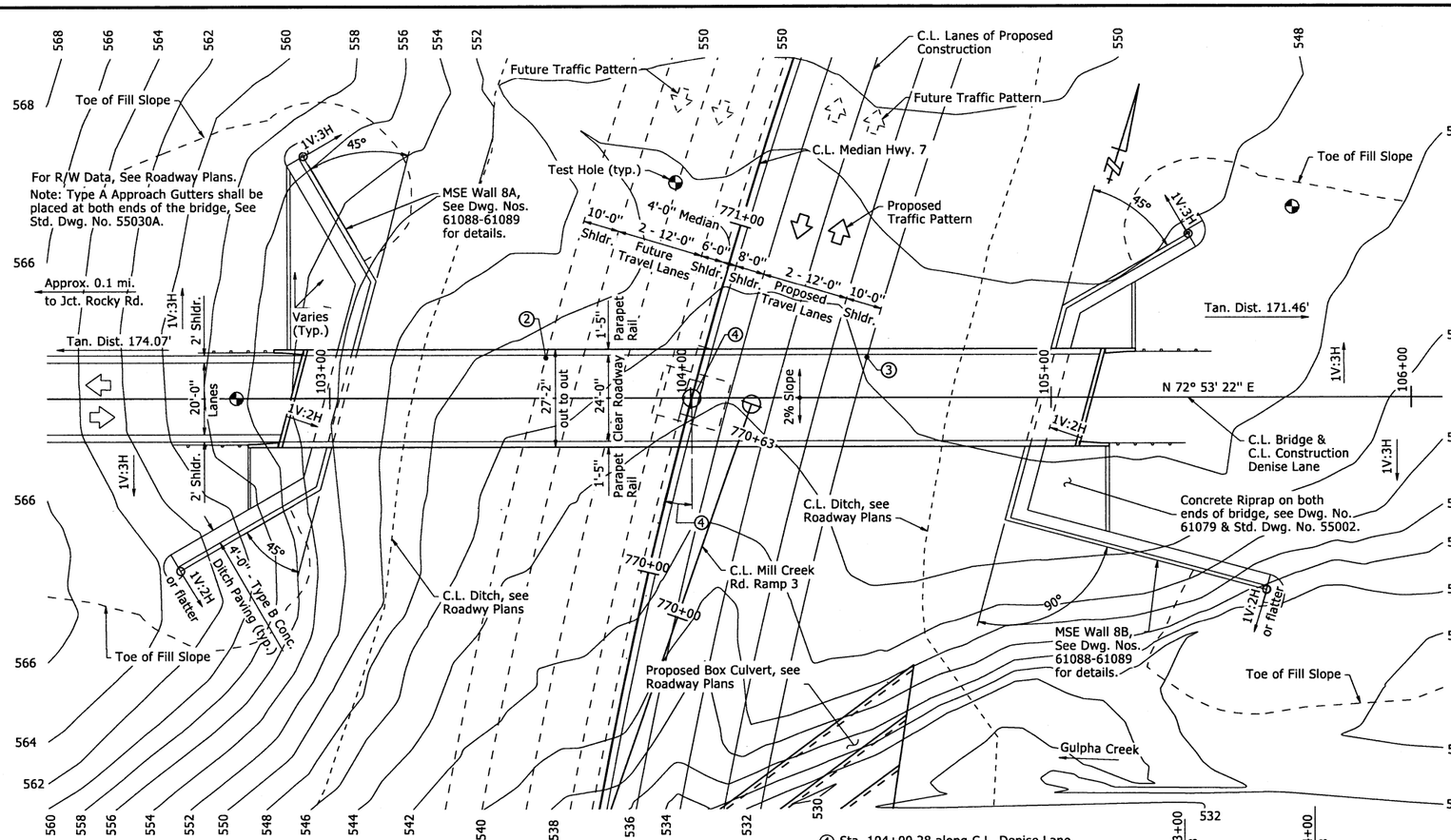
DRAWN BY: CGP/DPT DATE: 7/30/19
CHECKED BY: CRE DATE: 8/20/19
DESIGNED BY: KJT DATE: 7/19
FILENAME: br60140x7_s1.dgn
SCALE: AS NOTED

BRIDGE NO. 07459 DRAWING NO. 61049

PRINT DATE: 8/20/2019

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.		R60140	275	616

1 07460 - LAYOUT - 61050



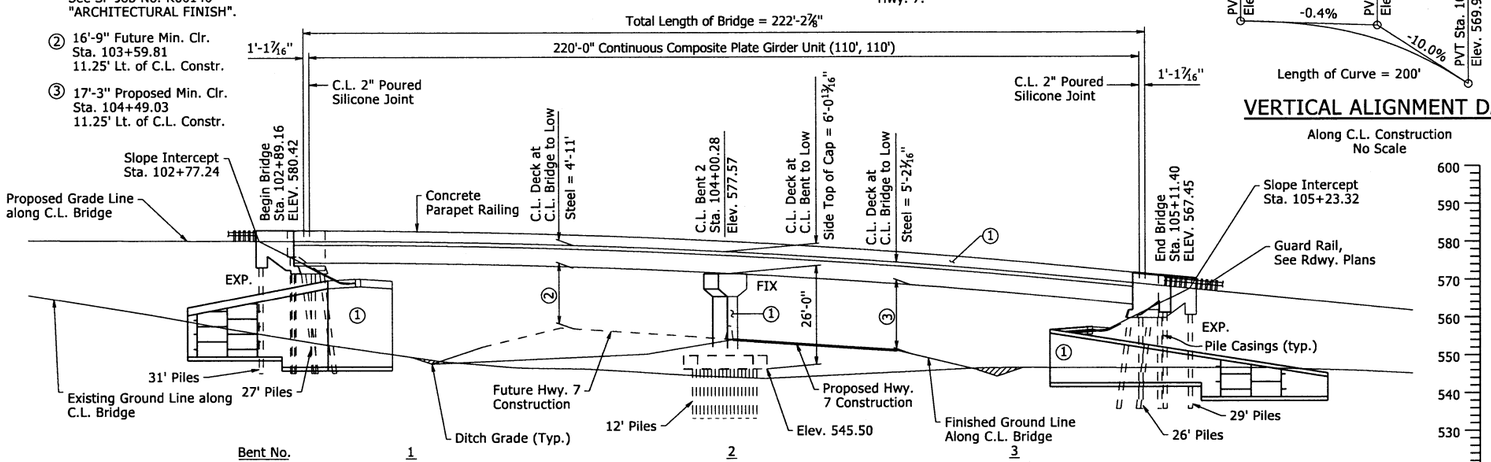
PLAN

① Ashlar Stone Pattern, See SP Job No. R60140 "ARCHITECTURAL FINISH".

② 16'-9" Future Min. Clr. Sta. 103+59.81 11.25' Lt. of C.L. Constr.

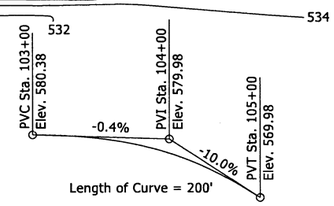
③ 17'-3" Proposed Min. Clr. Sta. 104+49.03 11.25' Lt. of C.L. Constr.

④ Sta. 104+00.28 along C.L. Denise Lane intercepts Sta. 770+50.00 along C.L. Median Hwy. 7 at an angle of 15°0'0" measured to a line tangent to C.L. Median Hwy. 7.



NOTE: Stations shown are along C.L. Construction. Elevations shown are theoretical working point elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on theoretical working point elevation at C.L. Bridge. See "ROUNDING DETAIL" on Std. Dwg. No. 55007 for additional information.

ELEVATION



VERTICAL ALIGNMENT DATA

Along C.L. Construction
No Scale

GENERAL NOTES:

BENCH MARK: Vertical Control Data are shown on the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, 7th Edition (2014) with 2015 Interims.

LIVE LOADING: HL-93

SEISMIC ZONE: 1 S_{D1} = 0.119 SITE CLASS: C

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (Superstructure)	f'c = 4,000 psi
Class S Concrete (Substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 50W)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: Piling at Bent Nos. 1 and 3 shall be HP 12x53 (Grade 50). Piling at Bent No. 2 shall be HP 14x73 (Grade 50). All piling shall be driven with an approved air, steam, or diesel hammer to a safe bearing capacity of 95 tons per pile at Bent Nos. 1 and 3 and 134 tons per pile at Bent No. 2 and into the material designated as Medium Hard Shale or Sandstone on the boring legend. Minimum penetration shall be 10' below natural ground. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual pile lengths are to be determined in the field. The Contractor shall use approved steel H-Pile driving points on all piles.

PREBORING: Preboring is required for all piling in Bents. Preboring shall be to a minimum depth of 5' into the material designated as shale on the boring legend, or to a depth sufficient to provide the specified minimum pile penetration, whichever is greater. The actual size and depth of preboring are to be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free from debris prior to backfilling which may require casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of rock and the remaining length backfilled in accordance with Subsection 805.08(a). Any cost associated with achieving the minimum pile penetration, including any backfill and casings, shall not be paid for directly but shall be considered subsidiary to the item "Preboring".

PILE CASINGS: Pile casings are required for all piling within MSE wall at end bents. See "LAYOUT OF PILES", Dwg. No. 61056 for the location of proposed casings. Casings shall be installed prior to or during the embankment construction and shall extend from top of leveling pad to bottom of cap. Pile casing material shall be of sufficient strength to retain its original form free from harmful distortions after compaction of the fill material surrounding it. The minimum inside diameter of the new casing shall be 18". Piles shall be driven through the open casings after embankment to bottom of cap is in place. After driving is complete, the pile casings shall be filled with Class S Concrete, an approved non-shrink grout, mixture used for Portland Cement Concrete Pavement, or other approved material in a single continuous operation to completely fill voids. This work and material will not be paid for directly but shall be considered subsidiary to the item "Steel Piling (HP 12x53)".

PILE FOOTINGS: The top of the footings at Bent 2 shall be set a minimum, of 2' below final ground surface or at the elevations shown on the plans, whichever is lower. Foundations for footings shall be prepared in accordance with Subsection 801.04.

PAINTING: All grade 50 structural steel, except galvanized members and surfaces in contact with concrete, shall be painted as specified in Subsection 807.75. The color of paint shall be Brown and shall match Federal Standard 595B, Color Chip No. 20219.

TEXTURED COATING FINISH: Class 3 Textured Coating Finish shall be applied to bridge and retaining wall surfaces as specified in Special Provision Job No. R60140 "Textured Coating Finish" and in accordance with Subsection 802.19(b)(3). Textured Coating Finish shall not be applied on surfaces where Class 1 Protective Surface Treatment is applied.

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 1 Protective Surface Treatment shall be applied to the roadway surface and the roadway face and top of the concrete parapet rails in accordance with Section 803.

DETAIL DRAWINGS:	DRAWING NOS.:
End Bents	61052-61056
Intermediate Bents	61057-61058
Elastomeric Bearings	61075-61076
220'-0" Continuous Plate Girder Unit	61059-61063
General Notes for Steel Bridge Structure	55006
Details for Steel Bridge Structures	55007
Poured Silicone Joints	55008
Steel H-Piling	55020
Type A Approach Gutters	55030A
MSE Walls	61088-61089

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8/20/19
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE
DENISE LANE OVER HIGHWAY 7
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

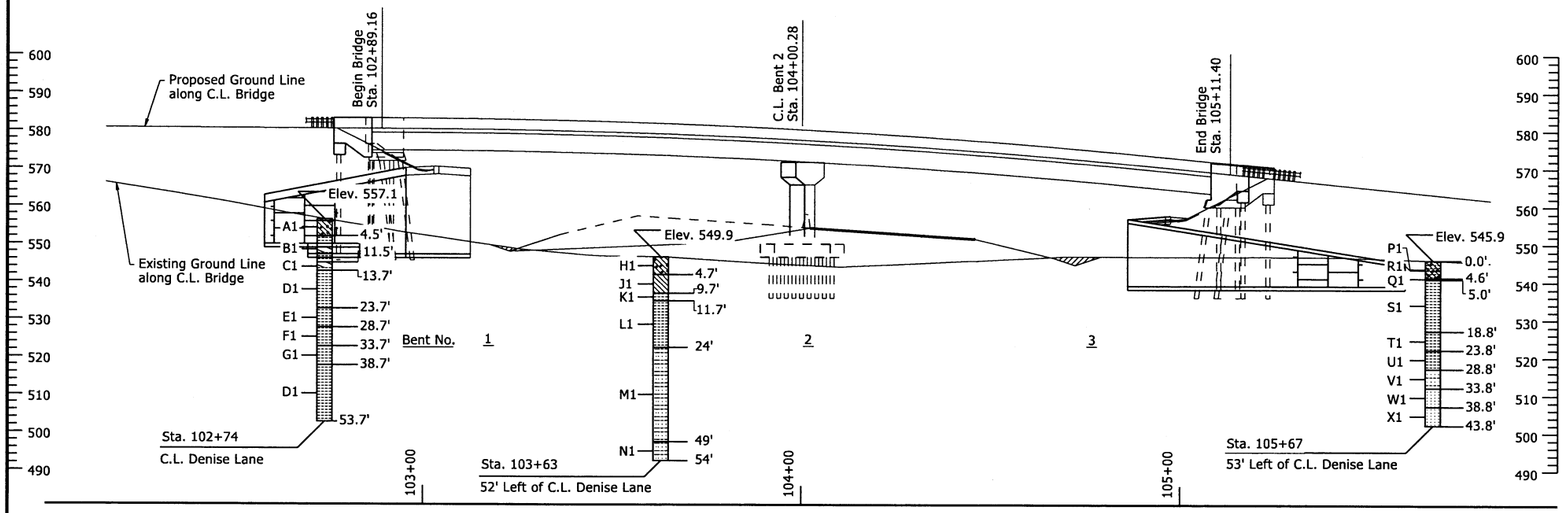
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JWP DATE: 05/2019 FILENAME: br60140x8_l1.dgn
CHECKED BY: CMW DATE: 8/20/19 SCALE: 1"=20'
DESIGNED BY: JWP DATE: 05/2019

BRIDGE NO. 07460 DRAWING NO. 61050

PRINT DATE: 8/20/2019

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.		R60140	276	616
				①		07460 - LAYOUT - 61050		



ELEVATION OF SOIL BORINGS

BORING LEGEND

A1-Clay with Gravel
B1-SHALE - Highly Weathered, Soft, Dark Gray
C1-SHALE - Highly Weathered, Medium Hard with Soft Layers, Frequent Fractures, Dark Gray
D1-SHALE - Weathered, Medium Hard, Frequent Fractures, Dark Gray
E1-SHALE WITH OCCASIONAL SANDSTONE SEAMS - Weathered, Medium Hard, Frequent Fractures, Occasional Mineral Veins, Dark Gray
F1-SHALE
G1-SHALE - Weathered, Medium Hard, Frequent Fractures, Occasional Thick Mineral Veins, Dark Gray
H1-Moist, Brown Clay with Gravel
J1-Moist, Stiff, Brown Clay
K1-SHALE - Weathered, Medium Hard, Gray
L1-SHALE - Slightly Weathered, Medium Hard, Frequent Fractures, Steeply Dipping, Slickensided, Gray
M1-SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Medium Hard, Frequent Fractures, Steeply Dipping, Slickensided, Gray
N1-SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Medium Hard, Steeply Dipping, Slickensided, Gray
P1-Moist, Redish Brown Clay with Gravel
Q1-Dry, Very Dense, Gray Sand with Gravel (Rock Fragments)
R1-SANDSTONE - Weathered, Cemented, Frequent Fractures, Gray SHALE - Slightly Weathered, Medium Hard, Occasional Sandstone Layers and Sea
S1-SHALE - Slightly Weathered, Medium Hard, Occasional Sandstone Layers and Seams, Frequent Fractures, Steeply Dipping, Slickensided, Gra
T1-SHALE - Unweathered, Medium Hard, Steeply Dipping, Occasional Quartz Layers, Slickensided, Gray
U1-SHALE - Weathered, Medium Hard, Frequent Fractures, Slickensided, Gray
V1-SANDSTONE WITH FREQUENT SHALE LAYERS AND SEAMS - Weathered, Cemented, Frequent Fractures, Gray*
W1-SANDSTONE - Slightly Weathered, Cemented, Occasional Shale Layers, Occasional Fractures, Gray
X1-SANDSTONE - Slightly Weathered, Cemented, Frequent Fractures, Gray

"N" VALUES

Sta. 102+74 - C.L. Denise Lane

5.0- 6.0, N=54
10.0- 10.3, N=56 (4")

Sta. 103+63 - 52' Left of C.L. Denise

5.2- 6.2, N=10
10.2- 10.4, N=60 (2")

Sta. 105+67 - 53' Left of C.L. Denise Lane

4.6- 5.0, N=100 (5")

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-19-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE
DENISE LANE OVER HIGHWAY 7
HWY 7 - HWY 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JWP DATE: 05/2019 FILENAME: br60140x8_l1.dgn
CHECKED BY: CMW DATE: 8/13/19 SCALE: 1"=20'
DESIGNED BY: JWP DATE: 05/2019

BRIDGE NO. 07460 DRAWING NO. 61051

PRINT DATE: 8/15/2019

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.		R60410	277	616
				07460 -		END BENTS - 61052		

Class 1 Protective Surface Treatment shall be applied to the top of the backwall and roadway face and top of the concrete parapet rail.

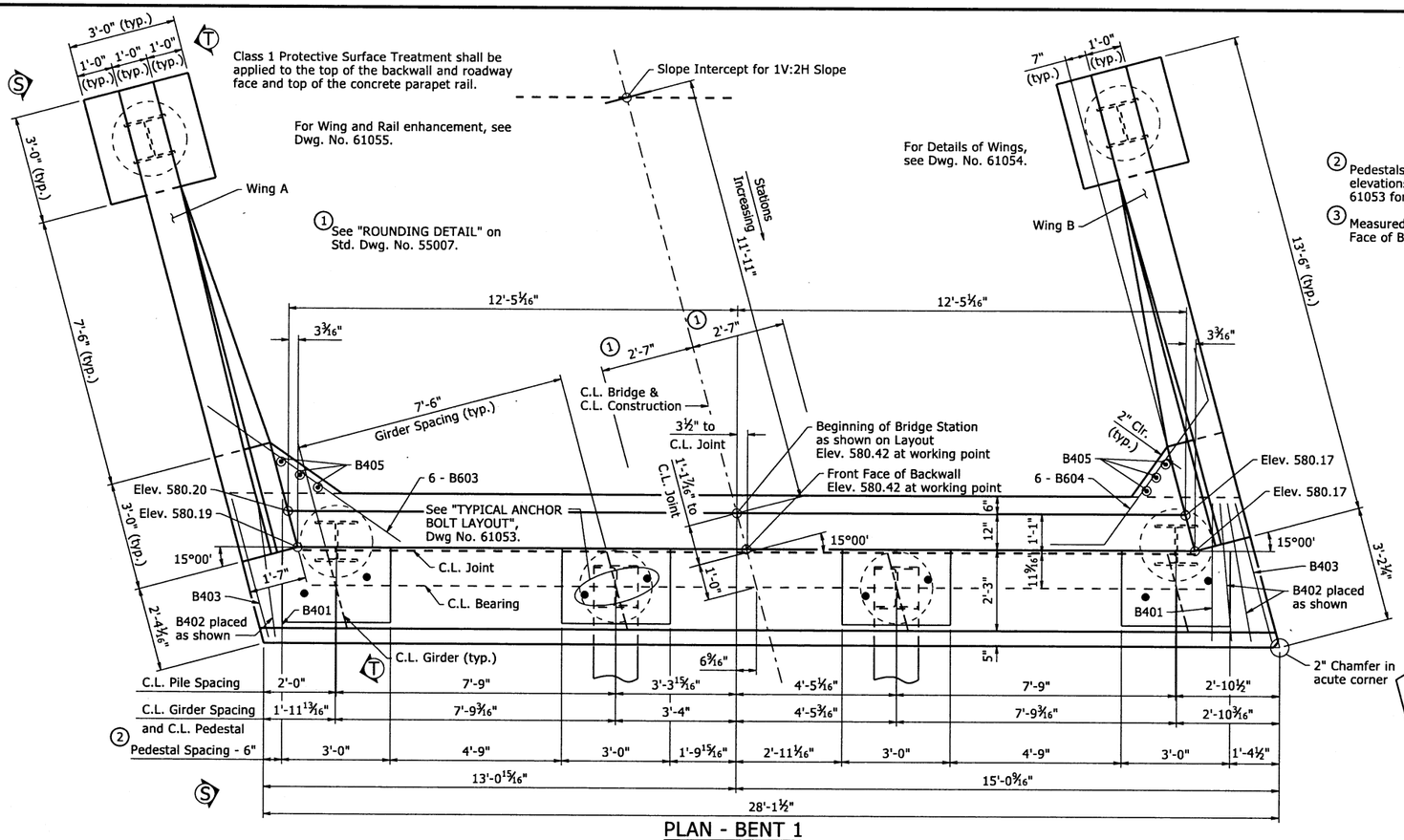
For Wing and Rail enhancement, see Dwg. No. 61055.

For Details of Wings, see Dwg. No. 61054.

(1) See "ROUNDING DETAIL" on Std. Dwg. No. 55007.

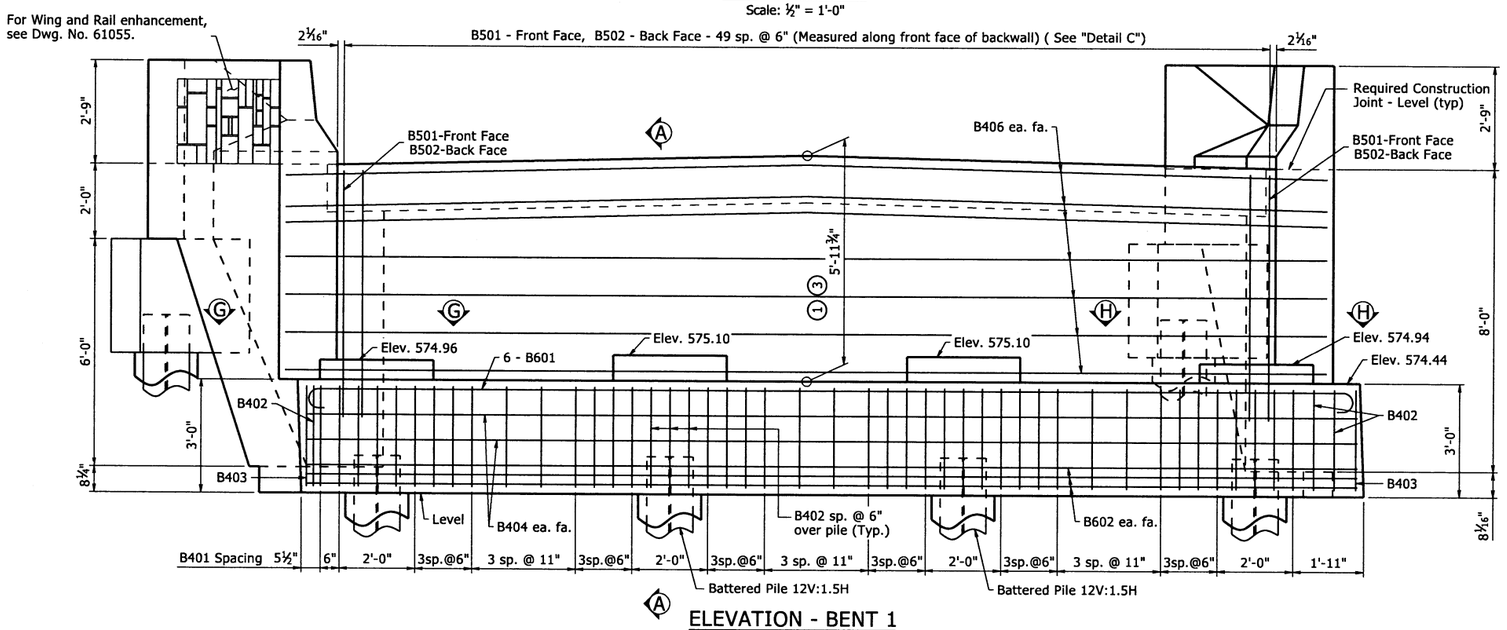
(2) Pedestals shall be cast level at the elevations shown. See Dwg. No. 61053 for additional information.

(3) Measured at C.L. Bridge at Front Face of Backwall to working point.



PLAN - BENT 1

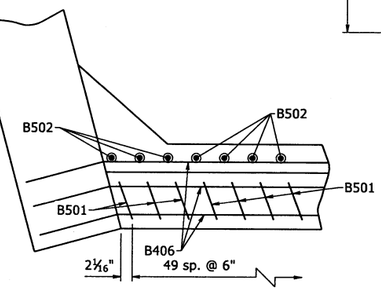
Scale: 1/2" = 1'-0"



ELEVATION - BENT 1

Scale: 1/2" = 1'-0"

Looking Back

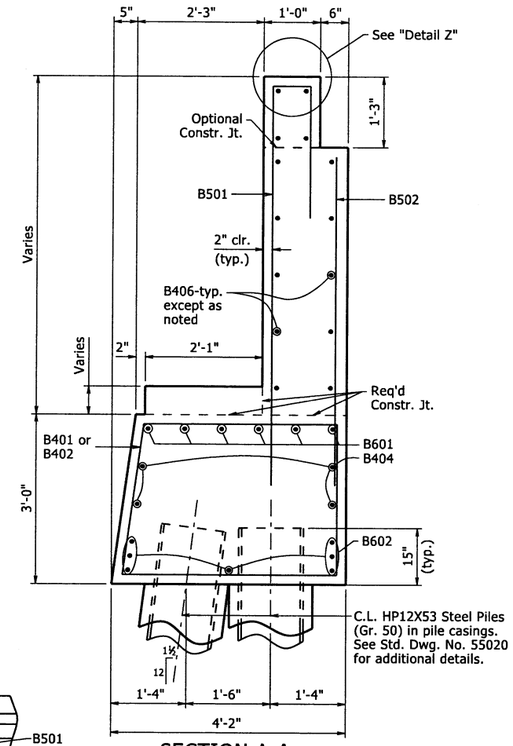


DETAIL C

Not to Scale

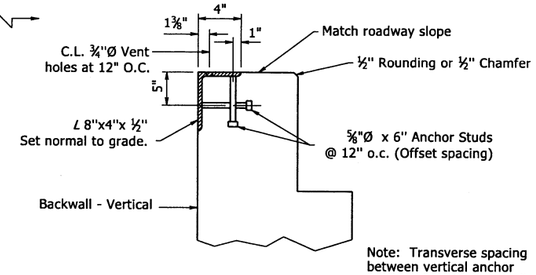
Shown for Wing A Wing B Similar

For "VIEW G-G" and "VIEW H-H", See Dwg. No. 61054.



SECTION A-A

Scale: 3/4"=1'-0"



Note: For additional joint details, see Std. Dwg. No. 55008.

Note: Transverse spacing between vertical anchor studs and vent holes shall be 6".

Concrete shall be hand packed under the joint armor in the backwall.

DETAIL Z

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF END BENTS
DENISE LANE OVER HIGHWAY 7

ROUTE SEC.

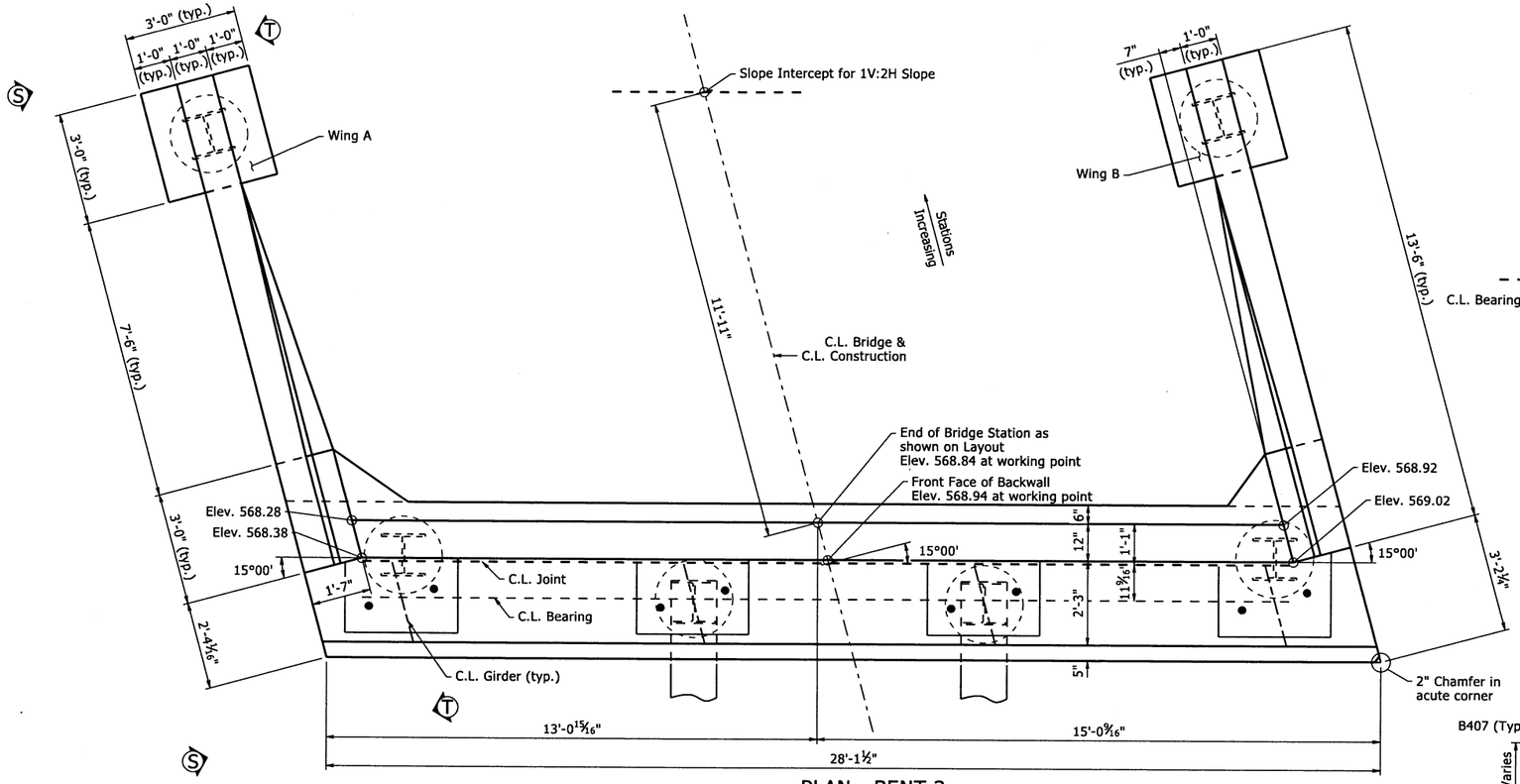
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 07/25/2019 FILENAME: br60140x8_b1.dgn
CHECKED BY: CMW DATE: 9/14/19 SCALE: As Noted
DESIGNED BY: MCB DATE: 07/2019
BRIDGE NO. 07460 DRAWING NO. 61052

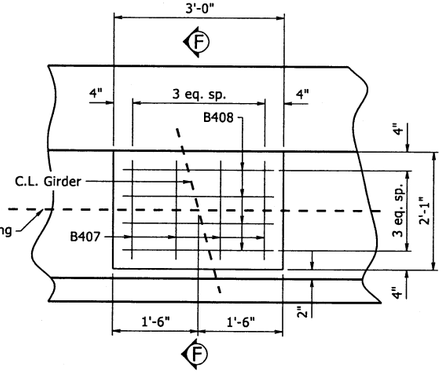
PRINT DATE: 8/14/2019

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.		R60140	278	616
				07460 -	END BENTS	- 61053		



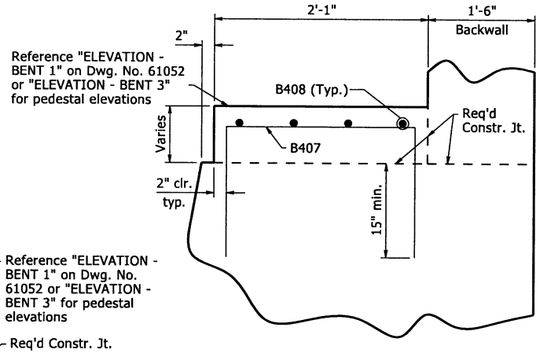
PLAN - BENT 3

Scale: ½" = 1'-0"



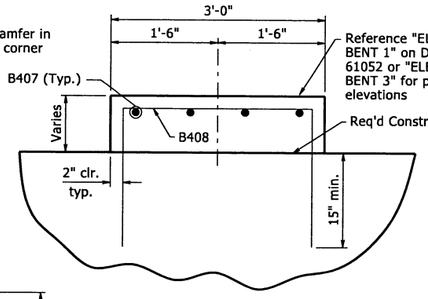
PEDESTAL PLAN

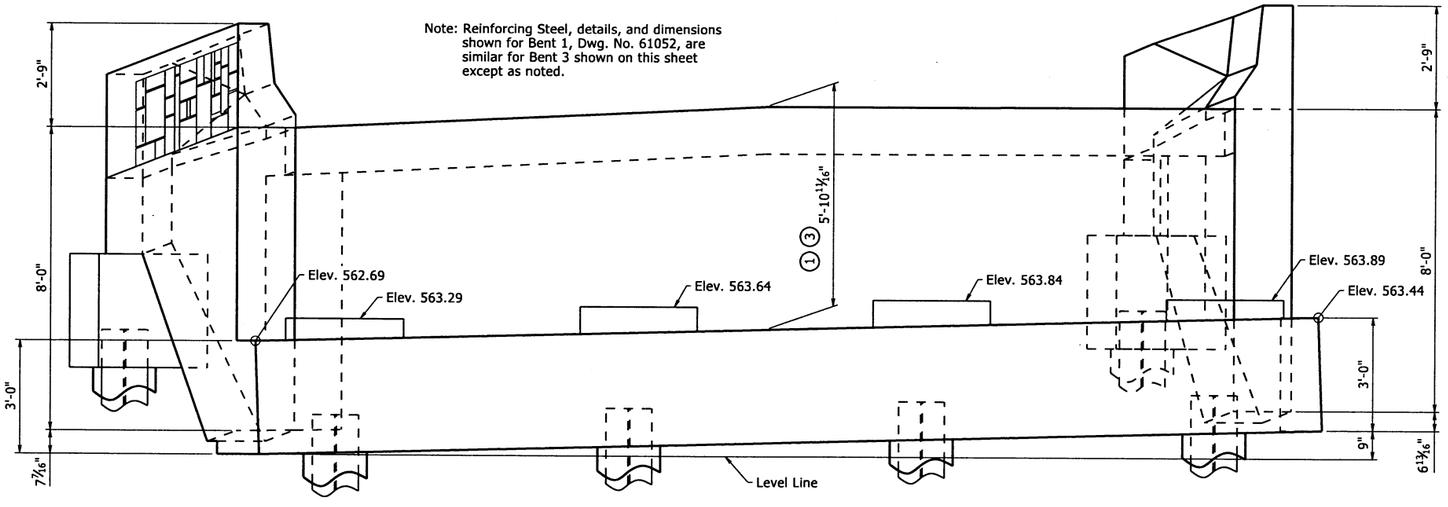
Scale: ¾"=1'-0"



SECTION F-F

No Scale





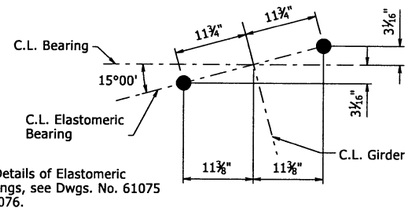
ELEVATION - BENT 3

Scale: ½" = 1'-0"
Looking Ahead

Details not shown. Similar to Bent 1, Dwg. No. 61052

PEDESTAL ELEVATION

No Scale



For Details of Elastomeric Bearings, see Dwgs. No. 61075 & 61076.

TYPICAL ANCHOR BOLT LAYOUT

Not to Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19

BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF END BENTS
DENISE LANE OVER HIGHWAY 7

ROUTE SEC.

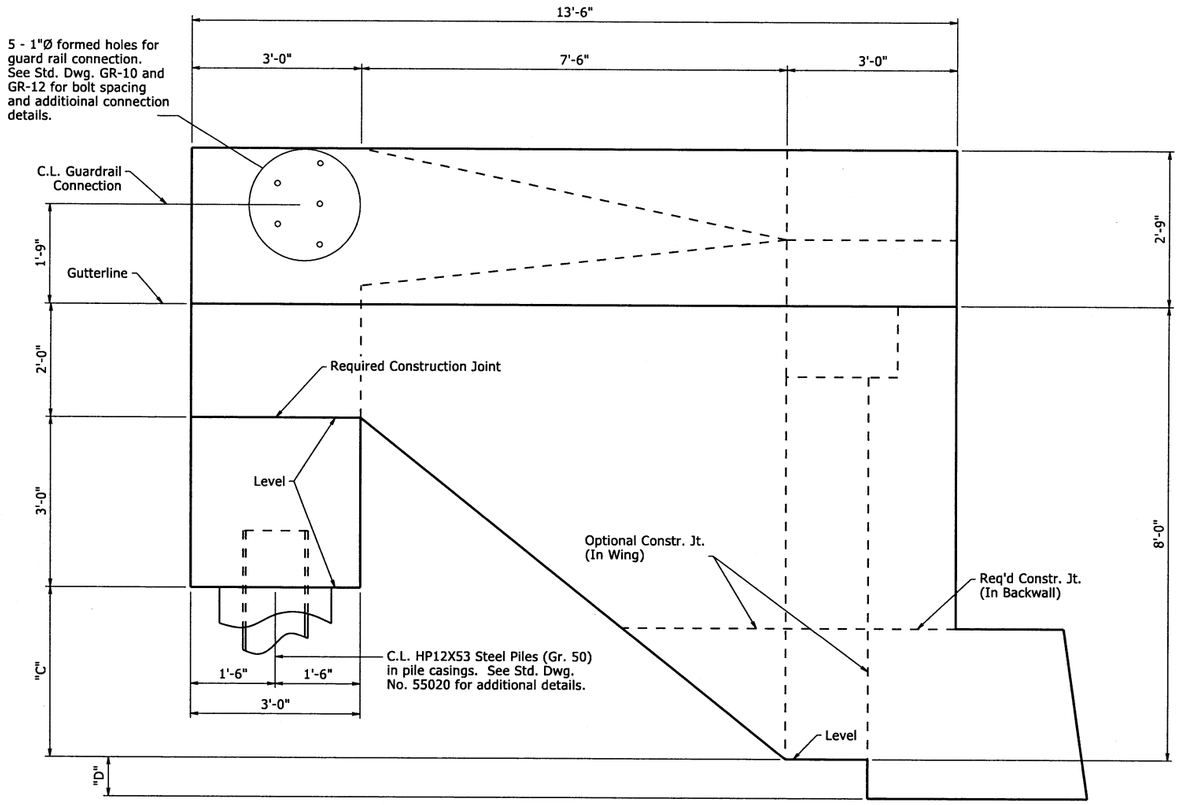
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 07/25/2019
CHECKED BY: CMW DATE: 8/14/19
DESIGNED BY: MCB DATE: 07/2019
FILENAME: br60140x8_b1.dgn
SCALE: AS NOTED

BRIDGE NO. 07460
DRAWING NO. 61053

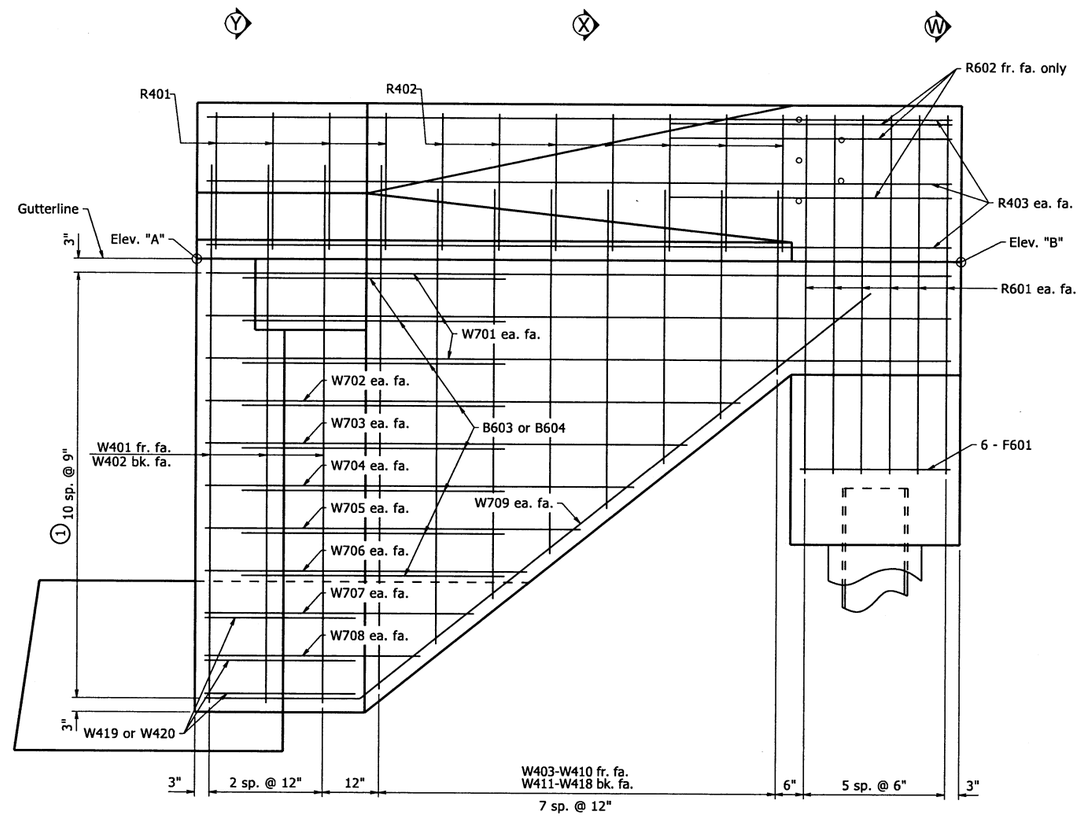
PRINT DATE: 8/14/2019

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.		R60140	279	616
				07460 - END BENTS - 61054				



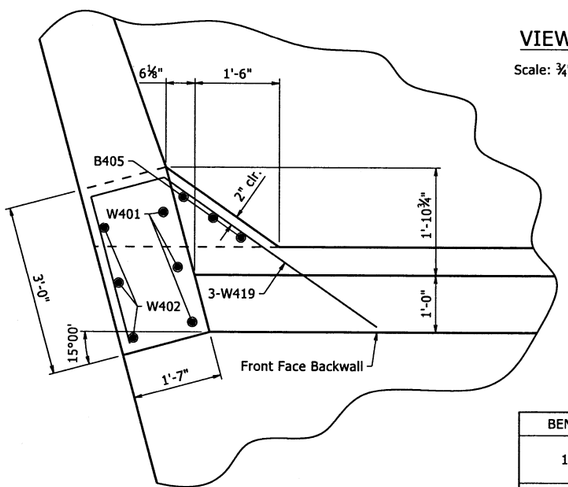
VIEW S-S

Scale: ¾" = 1'-0"



VIEW T-T

Scale: ¾" = 1'-0"

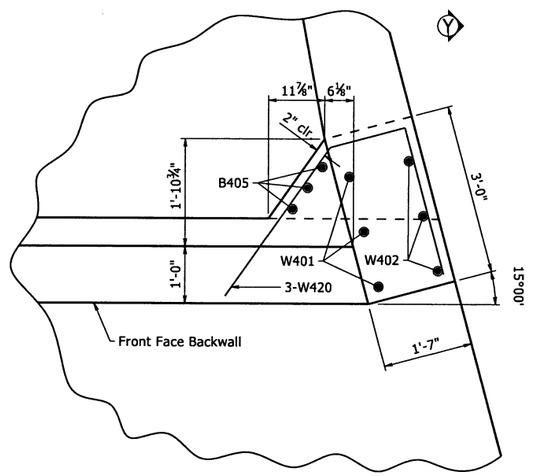


VIEW G-G

No Scale

TABLE OF VARIABLES

BENT	WING	ELEV. "A"	ELEV. "B"	"C"	"D"
1	A	580.19	580.24	3'-0⅝"	9"
	B	580.17	580.21	3'-0½"	8¾"
3	A	568.38	567.02	1'-7 11/16"	8¼"
	B	569.02	567.66	1'-7 11/16"	6 15/16"



VIEW H-H

No Scale

① Bar spacing measured along front face of backwall. Maintain equidistant spacing of W701 - W708 bars along the length of the wing to accommodate grade change.

For "Section W-W", "Section X-X" & "Section Y-Y", See Dwg. No. 61055.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19
BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF END BENTS
DENISE LANE OVER HIGHWAY 7

ROUTE SEC.

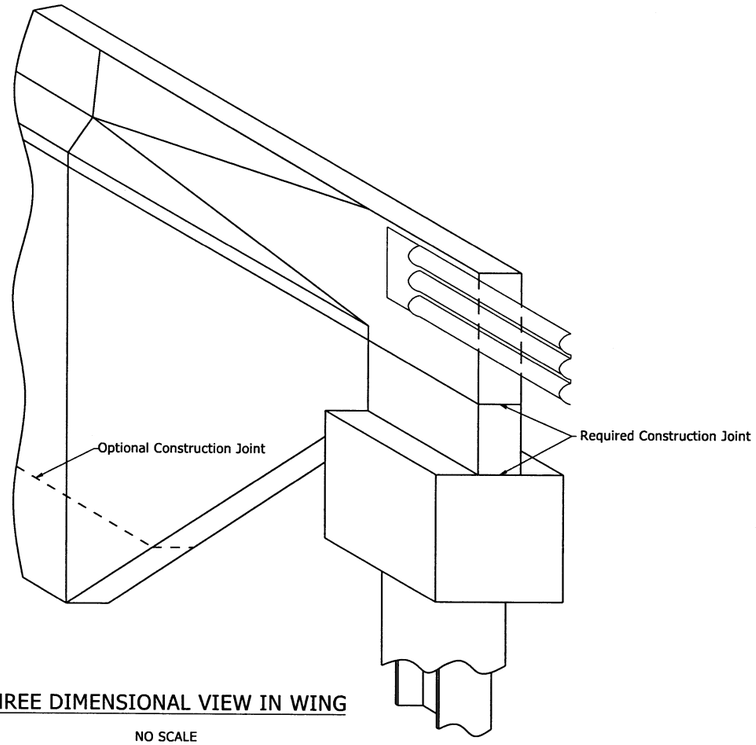
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 07/25/2019
CHECKED BY: CMW DATE: 8/14/19
DESIGNED BY: MCB DATE: 07/2019
FILENAME: br60140x8_b1.dgn
SCALE: AS NOTED

BRIDGE NO. 07460 DRAWING NO. 61054

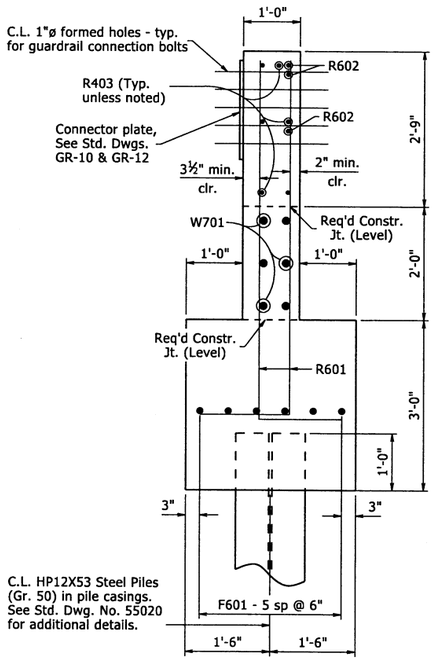
PRINT DATE: 8/14/2019

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.		R60140	280	6/6
				07460 -		END BENTS	- 61055	



THREE DIMENSIONAL VIEW IN WING

NO SCALE



SECTION W-W

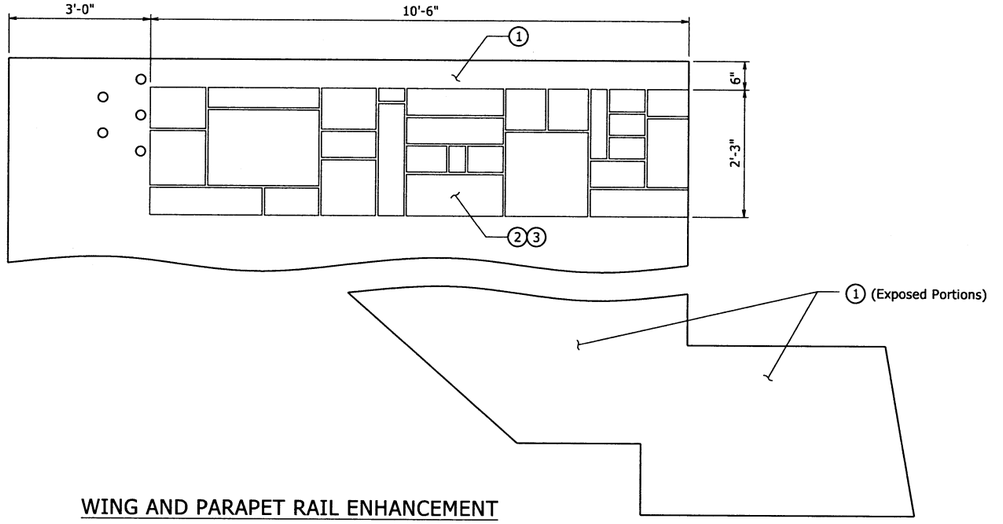
① Class 3 Textured Coating Finish (Color = Brown, Color Chip 33522)

② Class 3 Textured Coating Finish (Color = Brown, Color Chip 30219)

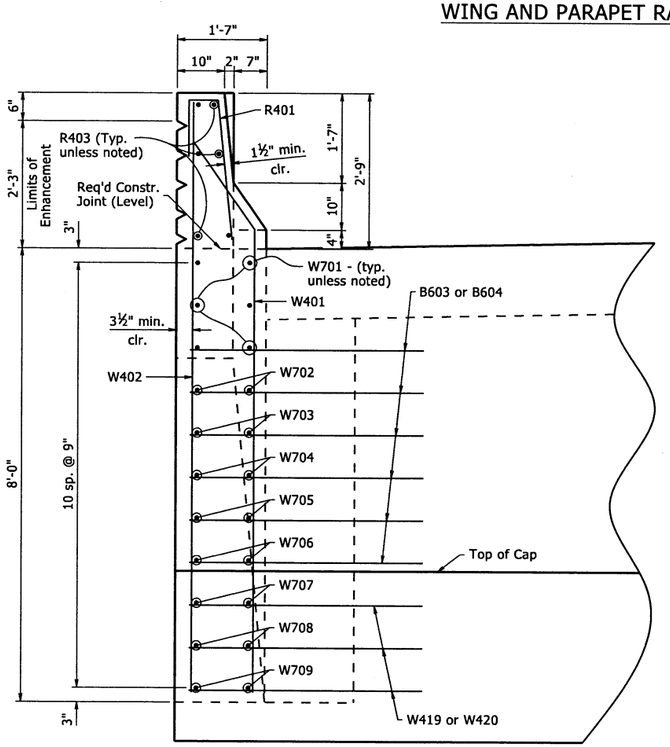
③ "Ashlar Stone" Pattern Form Liner

NOTE:

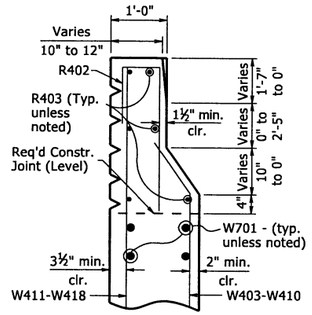
Form liner shall be max. depth of 2" to provide a min. clearance of 1½" to parapet reinforcing.



WING AND PARAPET RAIL ENHANCEMENT



SECTION Y-Y



SECTION X-X

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF END BENTS
DENISE LANE OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

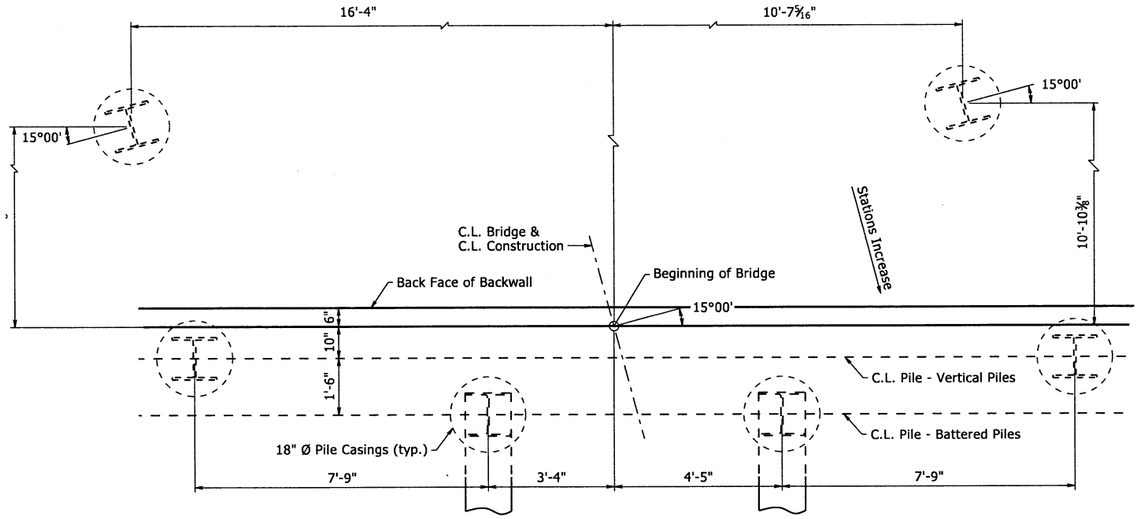
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 07/25/2019 FILENAME: br60140x8_b1.dgn
CHECKED BY: CMW DATE: 8/14/19 SCALE: NO SCALE
DESIGNED BY: MCB DATE: 07/2019

BRIDGE NO. 07460 DRAWING NO. 61055

PRINT DATE: 8/14/2019

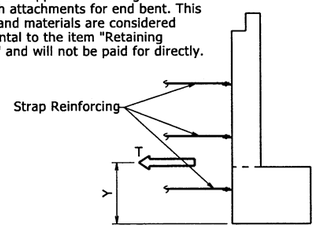
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	281	616
				①	07460 -	END BENTS	- 61056	



LAYOUT OF PILES

BENT 1 SHOWN
BENT 3 SIMILAR

MSE wall supplier shall design & furnish attachments for end bent. This work and materials are considered incidental to the item "Retaining Walls" and will not be paid for directly.



T = Resultant force required to be resisted by strap reinforcing

Y = Centroid of resultant force

Limit State	① T Kips/Ft.	Y Ft.
Service	5.00	3.5
Strength	7.00	3.5

① The provided loads do not include any additional loadings due to heavy construction equipment such as cranes. If the Contractor anticipates bringing heavy construction equipment within 10' of the backwall, they shall coordinate with the MSE wall supplier to design strap reinforcing for the anticipated loadings. Tolerable horizontal backwall movement for all loading combinations is 1/16" at the Service Limit State. Design computations shall accompany the wall design submittal for review by the Engineer. See Special Provision Job No. R60140 "Retaining Walls" for additional information.

END BENT STRAP DETAIL

GENERAL NOTES:

Structural Steel in end bents shall be ASTM A709, Gr. 50W and shall be paid for as "Structural Steel in Plate Girder Spans (A709, Gr. 50W)".

All piling shall be Grade 50. For details of steel piling, see Std. Dwg. No. 55020.

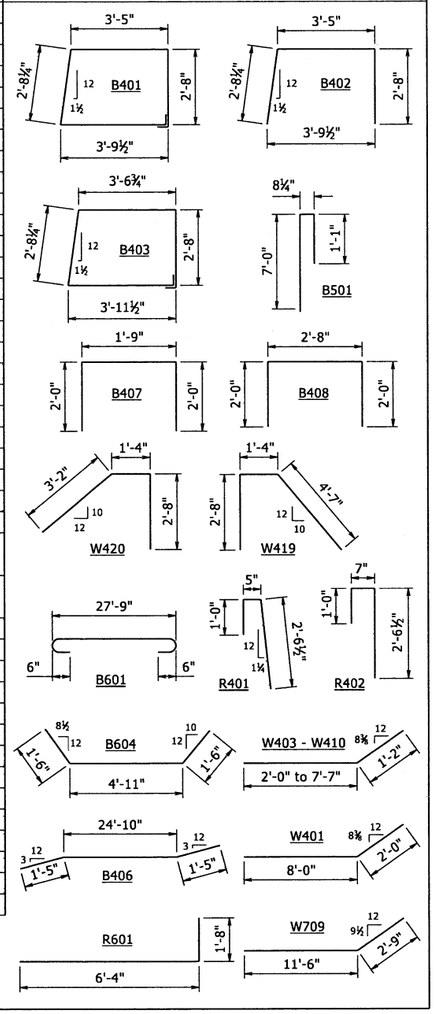
No portion of the backwall shall be poured before girders as are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the adjacent deck pour has been made. Refer to the "EXPANSION DEVICE INSTALLATION AT END BENTS" note on Std. Dwg. No. 55008. No heavy construction equipment shall be allowed within 10' of the backwall until the deck concrete placement for the adjacent span has been completed unless MSE strap reinforcing has been designed to accommodate these loads, see "END BENT STRAP DETAIL".

See Std. Dwg. No. 55006 for additional notes.

BAR LIST-PER BENT

MARK	NO. REQ'D	LENGTH	P.D.
B401	33	12'-11"	2"
B402	15	8'-7"	2"
B403	2	13'-3"	2"
B404	4	27'-9"	Str.
B405	6	6'-5"	Str.
B406	14	27'-8"	2"
B407	16	5'-7"	2"
B408	16	6'-6"	2"
B501	50	8'-8"	2½"
B502	50	5'-9"	Str.
B601	6	29'-1"	4½"
B602	7	27'-9"	Str.
B603	6	6'-7"	Str.
B604	6	7'-11"	4½"
R401	8	3'-11"	2"
R402	14	4'-0"	2"
R403	12	13'-2"	Str.
R601	24	7'-10"	Str.
R602	6	5'-0"	Str.
F601	12	2'-8"	Str.
W401	6	10'-0"	2"
W402	6	10'-5"	Str.
W403 - W410	2 each	3'-2" to 8'-9"	2"
W411 - W418	2 each	4'-5" to 10'-3"	Str.
W419	3	8'-6"	2"
W420	3	7'-1"	2"
W701	12	13'-2"	Str.
W702	4	9'-5"	Str.
W703	4	8'-6"	Str.
W704	4	7'-6"	Str.
W705	4	6'-7"	Str.
W706	4	5'-8"	Str.
W707	4	4'-9"	Str.
W708	4	3'-9"	Str.
W709	4	14'-3"	5¼"

BENDING DIAGRAMS



Dimensions are out to out of bars.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8/20/19
BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF END BENTS
DENISE LANE OVER HIGHWAY 7

ROUTE SEC.

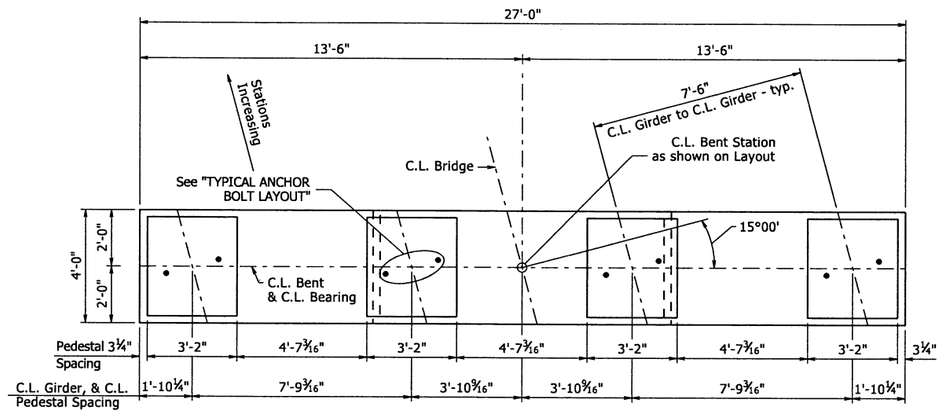
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 07/25/2019 FILENAME: br60140x8_b1.dgn
CHECKED BY: CMW DATE: 9/30/19 SCALE: NO SCALE
DESIGNED BY: MCB DATE: 07/2019

BRIDGE NO. 07460 DRAWING NO. 60156

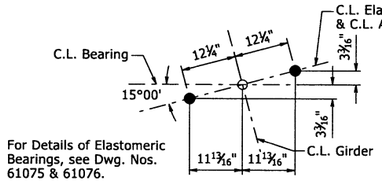
PRINT DATE: 8/20/2019

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.		R60140	282	616
				①	07460 - INTERMEDIATE BENT - 61057			



PLAN

⅜"=1'-0"



For Details of Elastomeric Bearings, see Dwg. Nos. 61075 & 61076.

TYPICAL ANCHOR BOLT LAYOUT

NO SCALE

NOTES:

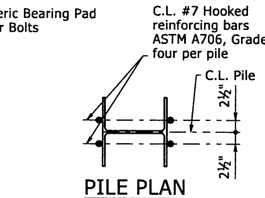
For General Notes, see Std. Dwg. No. 55006.

For additional information, see Layout.

For "SECTION A-A", "SECTION B-B", "SECTION D-D", & "SECTION E-E", "SECTION F-F", see Dwg. No. 61058.

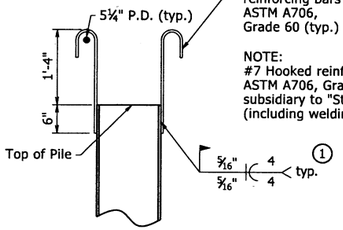
③ See "COLUMN ELEVATION ENHANCEMENT" & "COLUMN END ENHANCEMENT" for placement of Ashlar Stone on Dwg. No. 61044.

④ F901 Bars to rest on footing mat of reinforcing as shown.



PILE PLAN

¾"=1'-0"

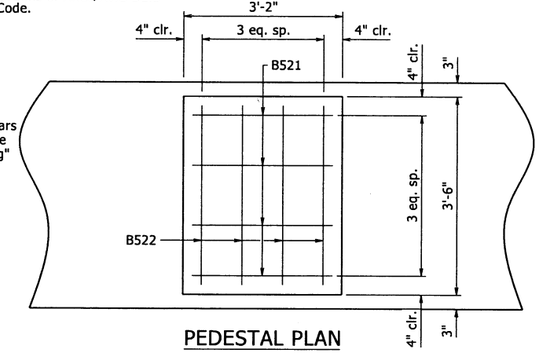


NOTE:
#7 Hooked reinforcing bars ASTM A706, Grade 60 are subsidiary to "Steel Piling" (including welding)

TYPICAL PILE DETAILS

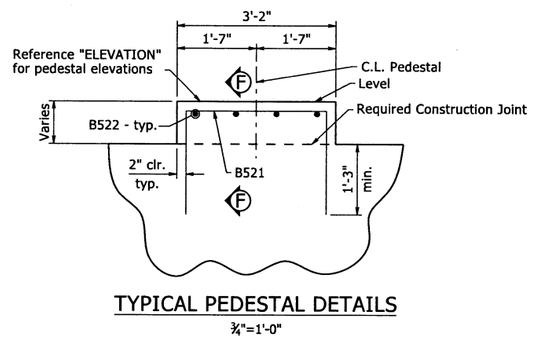
¾"=1'-0"

① Welding shall comply with ANSI/AWS D1.4 Structural Welding Code-Reinforcing Steel and applicable portions of ANSI/AWS D1.5 Bridge Welding Code.



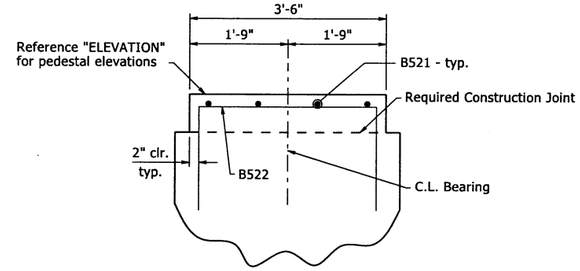
PEDESTAL PLAN

¾"=1'-0"



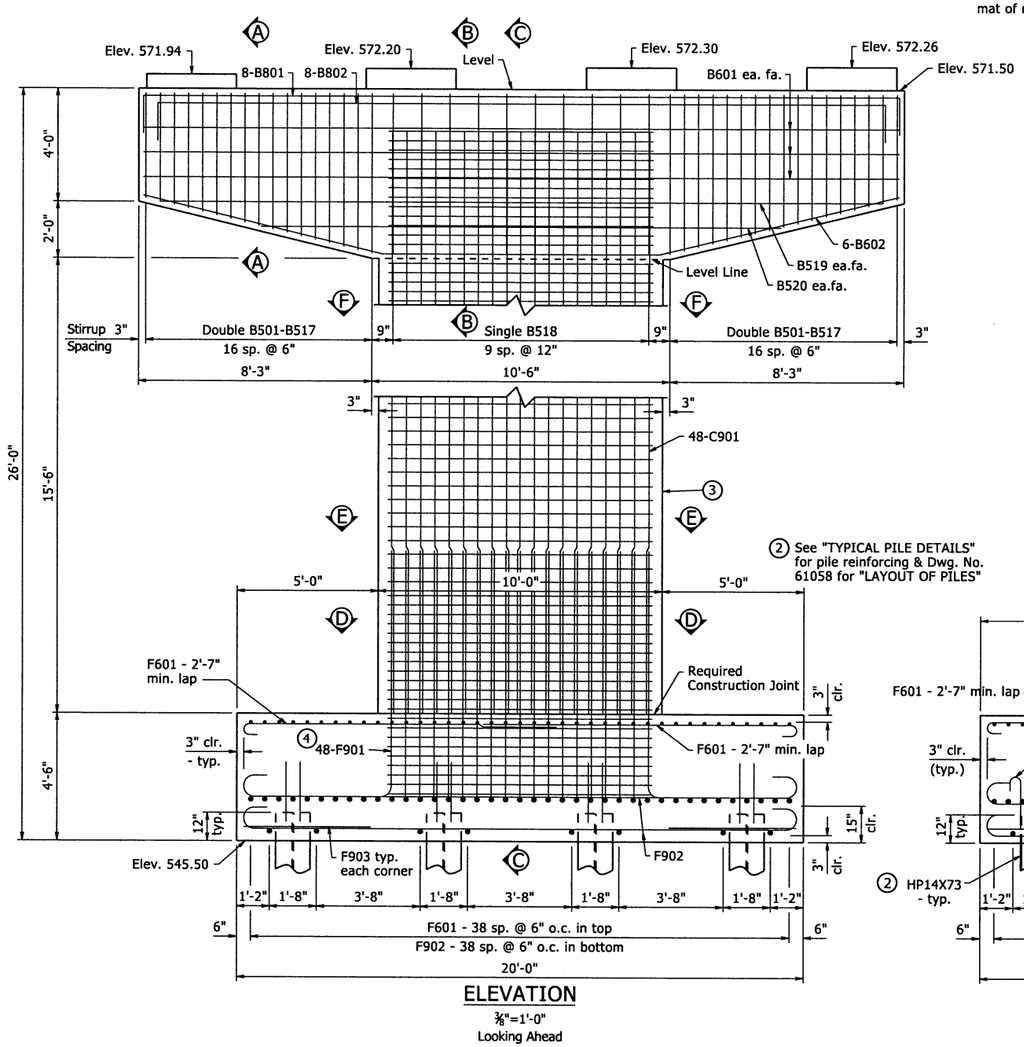
TYPICAL PEDESTAL DETAILS

¾"=1'-0"



SECTION F-F

¾"=1'-0"

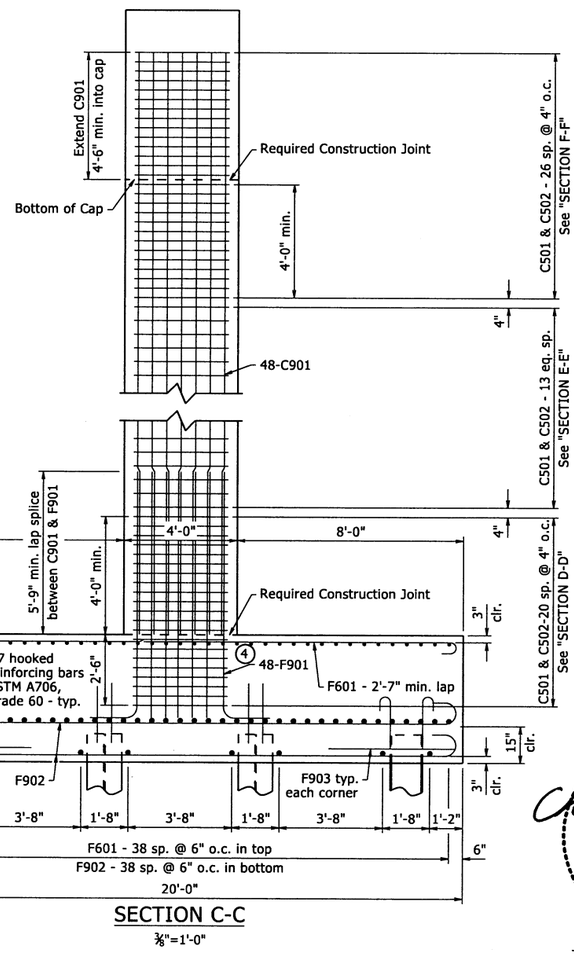


② See "TYPICAL PILE DETAILS" for pile reinforcing & Dwg. No. 61058 for "LAYOUT OF PILES"

ELEVATION

⅜"=1'-0"

Looking Ahead



SECTION C-C

⅜"=1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENT
DENISE LANE OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 07/11/2019 FILENAME: br60140x8_b2.dgn
CHECKED BY: CMW DATE: 8/14/19 SCALE: As Noted
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BRIDGE NO. 07460 DRAWING NO. 61057

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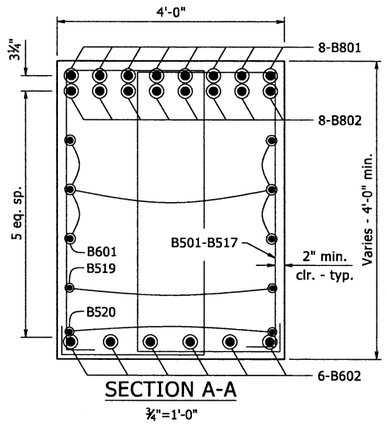
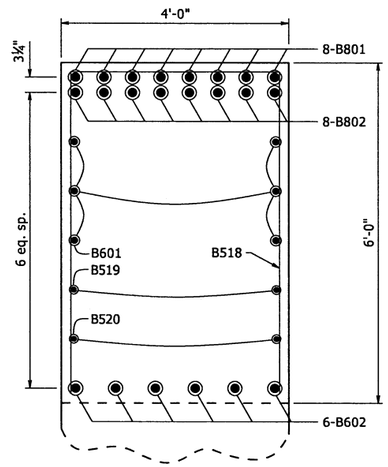
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	283	616
				07460 - INTERMEDIATE BENT - 61058				



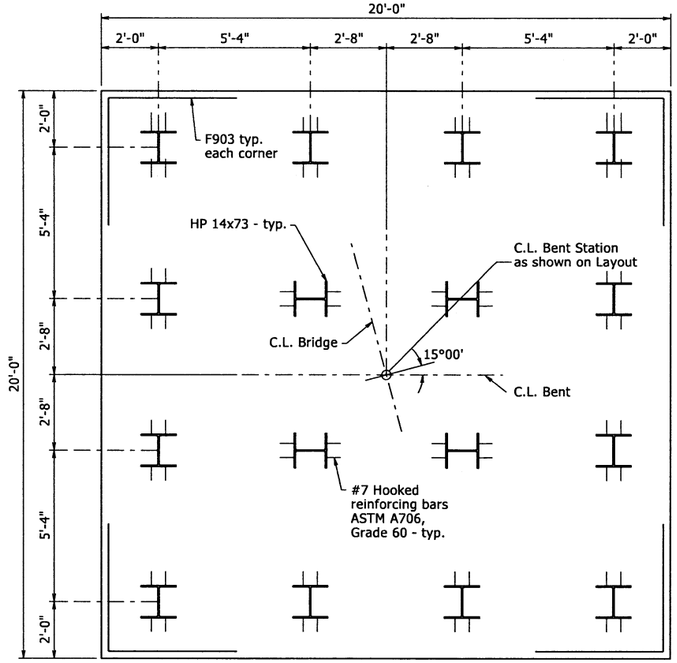
SECTION A-A

¾"=1'-0"



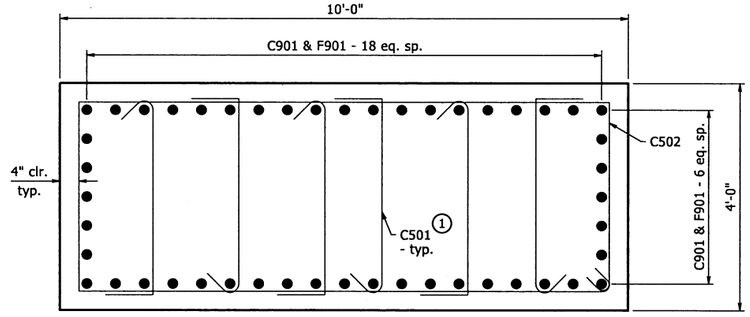
SECTION B-B

¾"=1'-0"



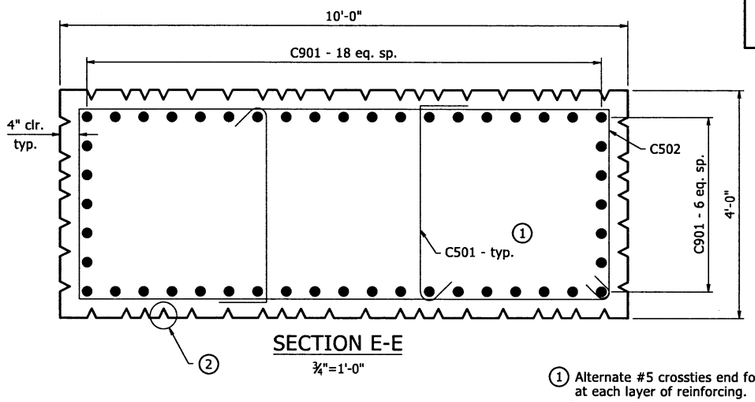
LAYOUT OF PILES

⅜"=1'-0"



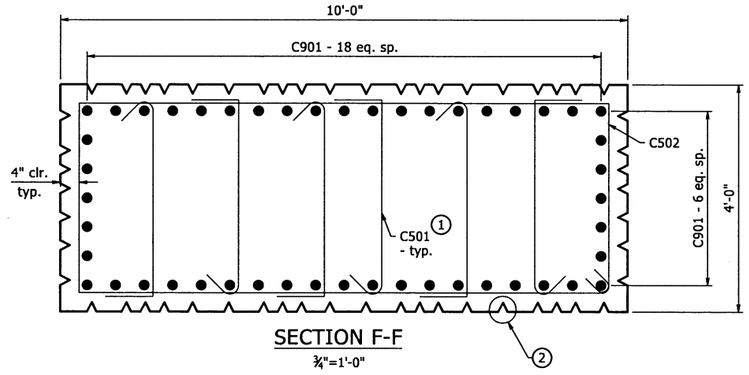
SECTION D-D

¾"=1'-0"



SECTION E-E

¾"=1'-0"



SECTION F-F

¾"=1'-0"

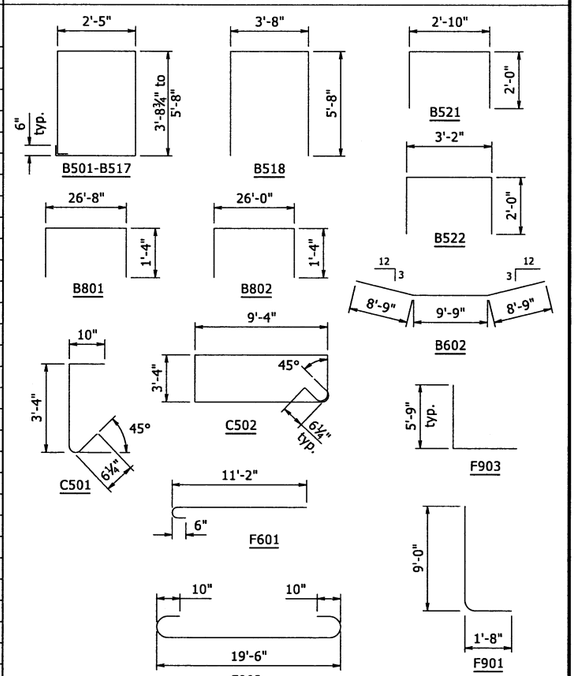
① Alternate #5 crossties end for end at each layer of reinforcing.

② Ashlar Stone Enhancement, see Dwg. No. 61044.

BAR LIST

MARK	NO. REQ'D	LENGTH	P.D.
B501-B517	4 ea.	12'-10" to 16'-8"	2½"
B518	10	14'-10"	2½"
B519	2	25'-4"	Str.
B520	2	18'-2"	Str.
B521	16	6'-8"	3¾"
B522	16	7'-0"	3¾"
B601	6	26'-8"	Str.
B602	6	27'-1"	4½"
B801	8	28'-11"	6"
B802	8	28'-3"	6"
C501	318	4'-9"	3¾"
C502	62	26'-0"	3¾"
C901	48	20'-0"	Str.
F601	156	11'-10"	4½"
F901	48	10'-6"	9"
F902	78	22'-0"	9"
F903	4	11'-3"	9"

BENDING DIAGRAMS



Dimensions are out to out of bars.

STATE OF ARKANSAS
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No. 9235
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8-14-19

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENT
DENISE LANE OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 07/11/2019
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SCALE: As Noted

BRIDGE NO. 07460 DRAWING NO. 61058

PRINT DATE: 8/14/2019

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.		R60140	284	616
				(1)		07460 - SPAN DETAILS - 61059		

Slab Reinforcing:

Longitudinal: S401E Top and Bottom placed as shown
S601E & S602E Placed as shown, see "REINFORCING PLAN & DECK POURING SEQUENCE", Dwg. No. 61062.

Transverse: S501E @ 12" o.c. in Top, S402E @ 12" o.c. in bottom — Alternate
S502E @ 12" o.c. bent up over girders
S503E @ 6" in top of overhangs (bundled with No. 5 bars) both sides

At the Contractor's option, in lieu of providing bars S502E, one epoxy coated No. 5 bar, top and bottom, may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S502E. Bars in top and bottom shall be epoxy coated.

Bar positions or clearances from the forms shall be maintained by means of stays, ties, hangers or other approved devices per Subsection 804.06. Placement of slab bolsters or high-chairs with full-length lower runners directly on removable deck forms will not be allowed.

Class 1 Protective Surface Treatment shall be applied to the Roadway Surface and the Roadway Face and Top of Concrete Parapet Rail.

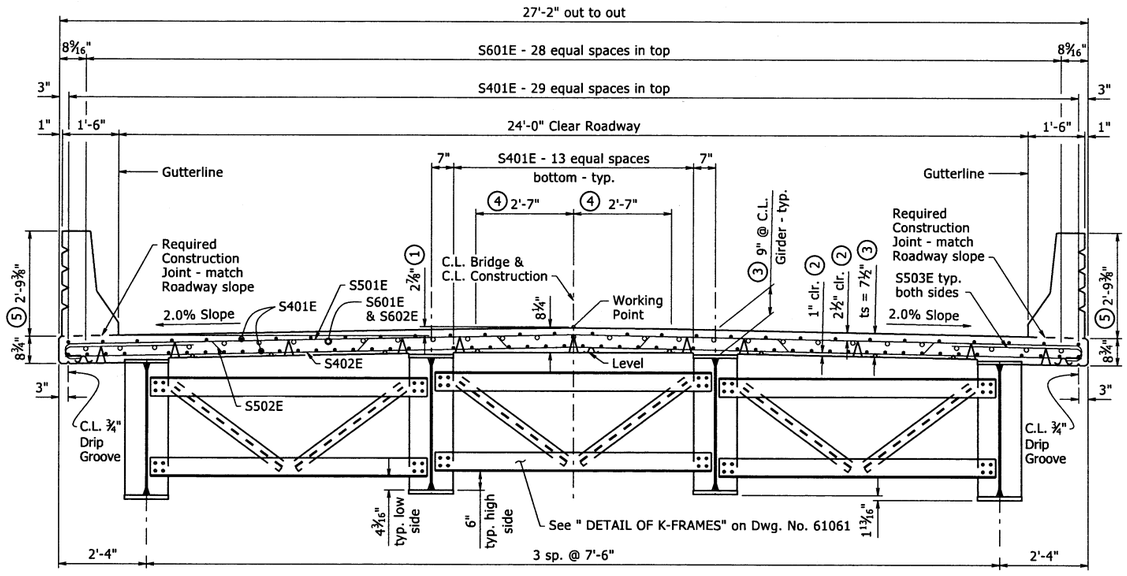
(1) Working Point to gutterline.

(2) Tolerance: Minus = ¼";
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.

(3) See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007.

(4) See "ROUNDING DETAIL," Std. Dwg. No. 55007.

(5) Outside face of concrete parapet rail to receive an ashlar stone finish, see Dwg. No. 61078 for details.

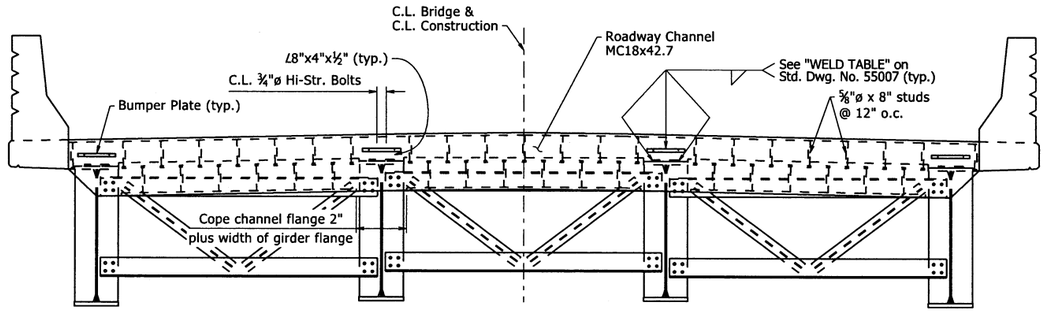


TYPICAL ROADWAY SECTION

LOOKING AHEAD
½"=1'-0"

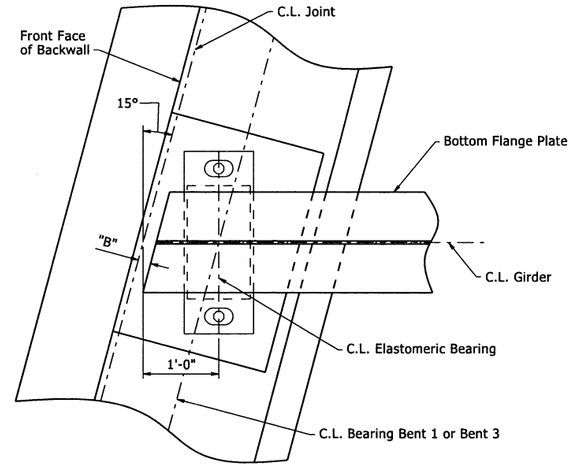
Expansion Device:

Roadway Channel - MC18x42.7
Connection L's 8"x4"x½"
Detail Device ⅛" high & provide ¼" shims using 2 - 1/16" & 1 - ⅛" Plates



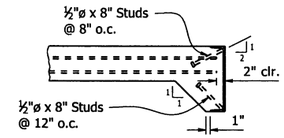
TYPICAL ROADWAY SECTION THRU JOINT

LOOKING AHEAD
½"=1'-0"



PLAN OF BEARING AT END BENT

1"=1'-0"



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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF 220'-0" CONTINUOUS PLATE GIRDER UNIT
DENISE LANE OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 8/01/19 FILENAME: br60140x8_s1.dgn
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DESIGNED BY: MCB DATE: 7/19

BRIDGE NO. 07460 DRAWING NO. 61059

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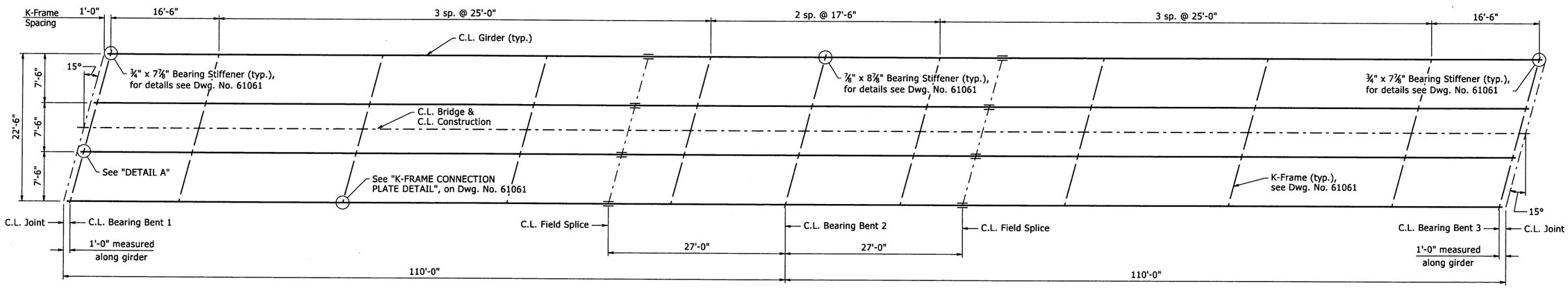
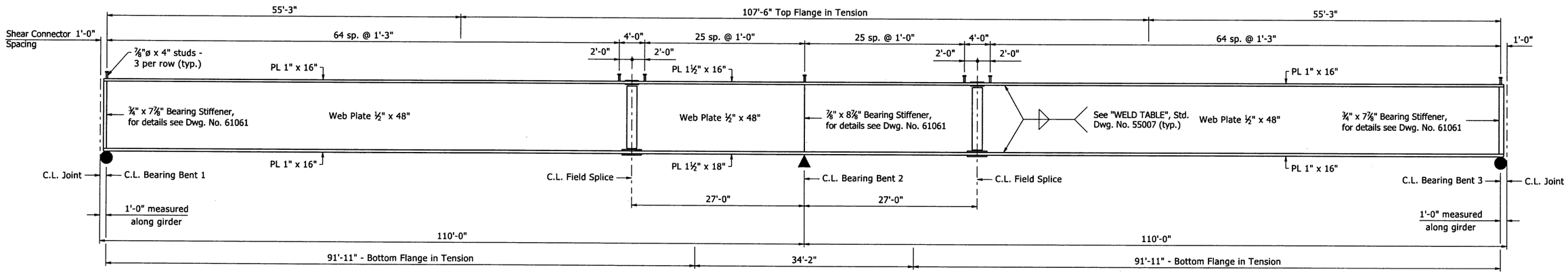
				6	ARK.			
				JOB NO.		R60140	285	618
				07460 - SPAN DETAILS - 61060				



FRAMING PLAN

⅛"= 1'-0"



TYPICAL GIRDER ELEVATION

⅛" = 1'-0"

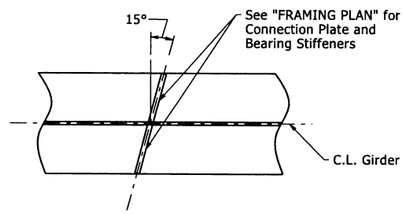
Notes:

All Structural Steel shall be ASTM A709, Gr. 50 unless otherwise noted, and shall be paid for as "Structural Steel in Plate Girder Spans (A709, Gr. 50)."

For additional information, see Layout.

For General Notes, see Std. Dwg. No. 55006.

For additional details, see Std. Dwg. No. 55007.



DETAIL A

1"=1'-0"

For "DETAILS OF FIELD SPLICE", see Dwg. No. 61061.

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF 220'-0" CONTINUOUS PLATE GIRDER UNIT
DENISE LANE OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 8/01/19 FILENAME: br60140x8_s1.dgn
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DESIGNED BY: MCB DATE: 7/19

BRIDGE NO. 07460 DRAWING NO. 61060

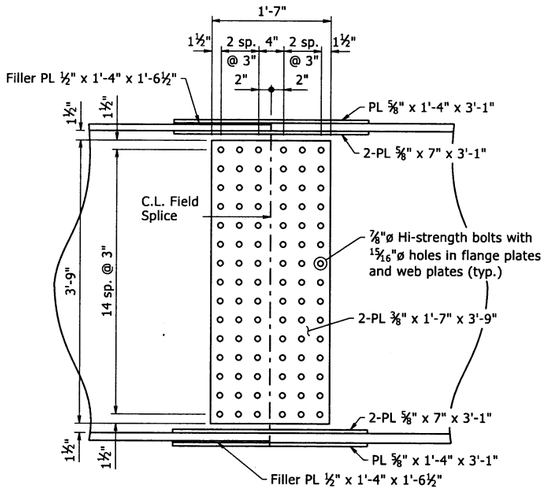
PRINT DATE: 8/14/2019

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.		R60140	286	6/6
				①		07460 - SPAN DETAILS - 61061		

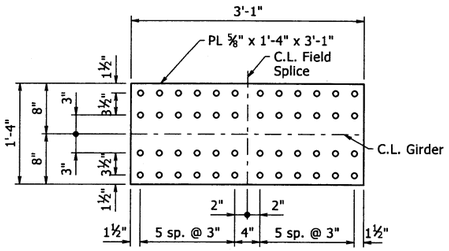
NOTES:

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.

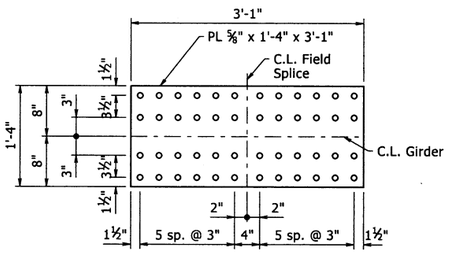
All Field Splice Plates shall be ASTM A709, Gr. 50.



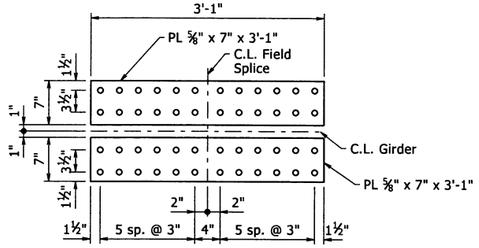
WEB SPLICE



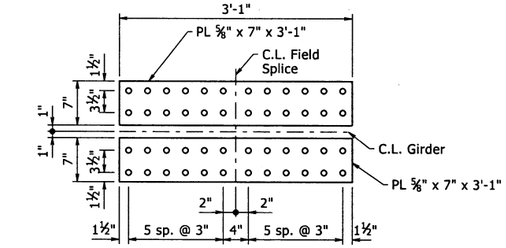
TOP FLANGE



BOTTOM FLANGE



TOP FLANGE

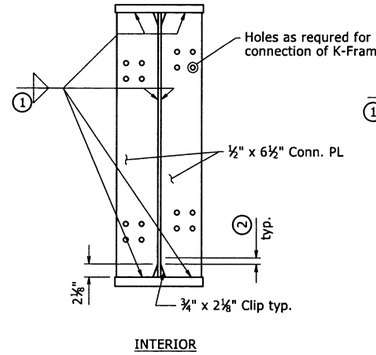


BOTTOM FLANGE

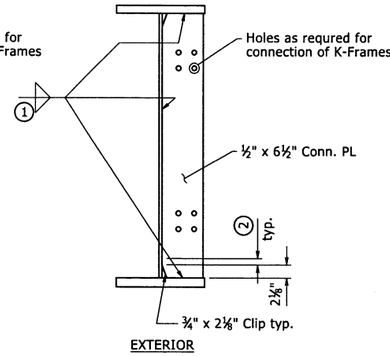
DETAILS OF FIELD SPLICE

1" = 1'-0"

See "FRAMING PLAN" for placement of Connection Plates, Dwg. No. 61060



INTERIOR



EXTERIOR

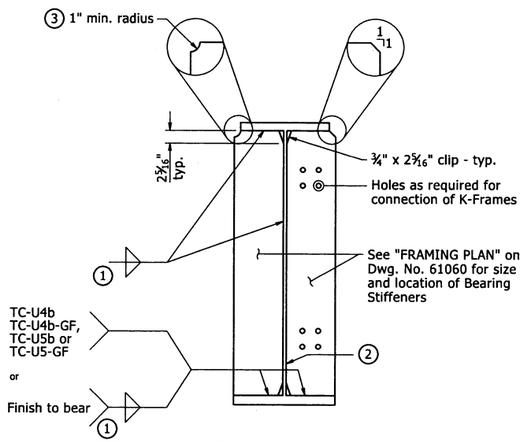
K-FRAME CONNECTION PLATE DETAIL

1" = 1'-0"

① See "WELD TABLE" on Std. Dwg. No. 55007.

② Stop Weld ¼" to 1".

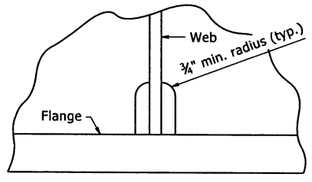
③ If permanent steel bridge deck forms are used, the Fabricator shall clip plates as necessary to accommodate the deck form supports.



NOTE: All bearing stiffeners shall be vertical in their final position

BEARING STIFFENER DETAIL

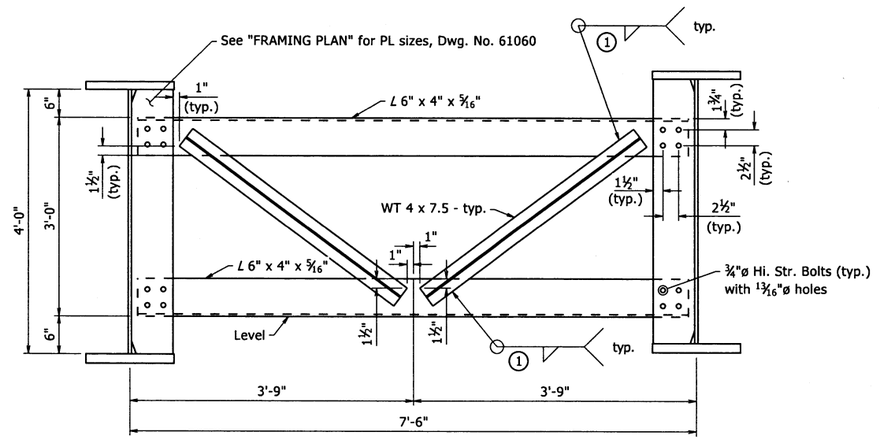
1" = 1'-0"



For Bearing Stiffeners and K-Frame Connection Plates. Height and width of clip shall be as noted in the plans.

ALTERNATE CLIP DETAIL

No Scale



DETAIL OF K-FRAMES

1" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF 220'-0" CONTINUOUS PLATE GIRDER UNIT
DENISE LANE OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 8/01/19 FILENAME: br60140x8_s1.dgn
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BRIDGE NO. 07460 DRAWING NO. 61061

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				6	ARK.			
				JOB NO.		R60140	287	616
				(1)	07460 - SPAN DETAILS - 61062			

NOTES:

Pours with the same number may be placed simultaneously or separately. All Pour(s) 1 must be placed before Pour(s) 2 can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between adjacent pours.

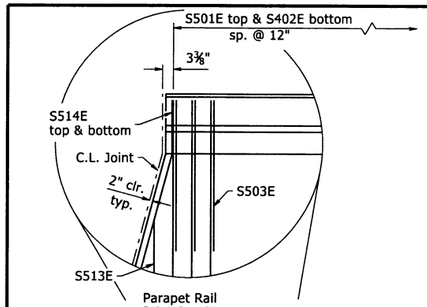
Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

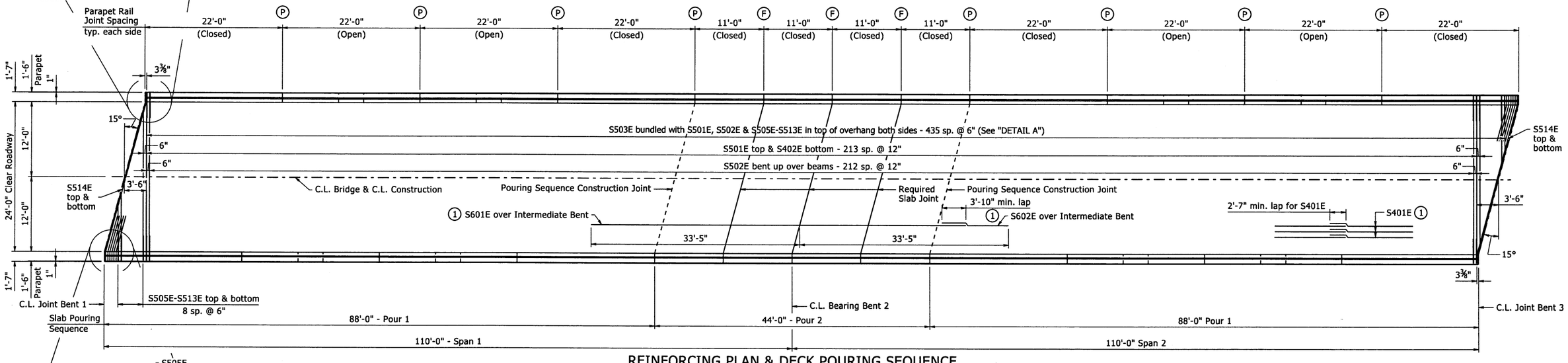
A minimum of 72 hours shall elapse between completion of the slab and the pouring of the bridge railing. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence(s) shown.

(F) C.L. Full-Depth Parapet Joint (¼" to 1" max.) Stop 4" from top of slab.

(P) C.L. Partial-Depth Parapet Joint (¼" to 1" max.) Stop 1'-2" from top of slab.

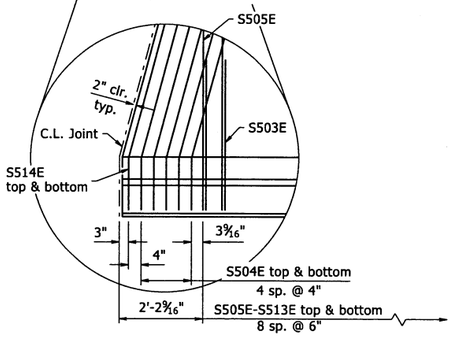
(1) Placed as shown in "TYPICAL ROADWAY SECTION", Dwg. No. 61059.

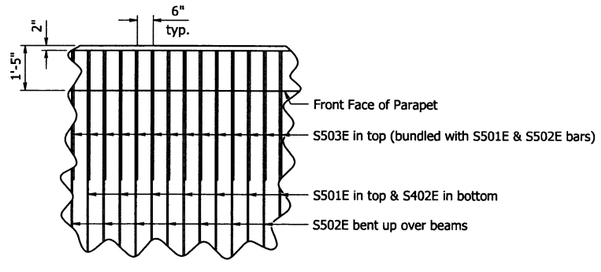




REINFORCING PLAN & DECK POURING SEQUENCE

⅛"= 1'-0"





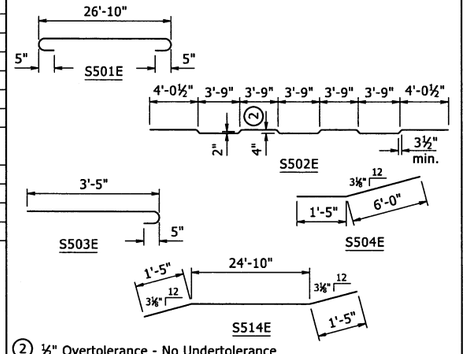
DETAIL A

NO SCALE

BAR LIST

MARK	NO. REQ'D	LENGTH	P.D.
S401E	480	38'-9"	Str.
S402E	214	26'-10"	Str.
S501E	214	28'-0"	3¾"
S502E	213	27'-6"	3"
S503E	872	4'-0"	3¾"
S504E	20	7'-5"	3¾"
S505E-S513E	4 ea.	8'-8" to 23'-7"	Str.
S514E	4	27'-8"	3¾"
S601E	29	60'-0"	Str.
S602E	29	10'-8"	Str.

BENDING DIAGRAMS



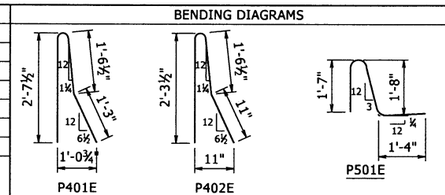
(2) ½" Overtolerance - No Undertolerance

Note: Dimensions are out to out of bars.
Bars designated with an "E" suffix to be Epoxy Coated.

PARAPET BAR LIST

MARK	NO. REQ'D	LENGTH	P.D.
P401E	816	5'-6"	3"
P402E	64	4'-10"	3"
P403E	64	5'-6"	Str.
P404E	56	10'-8"	Str.
P405E	112	21'-8"	Str.
P501E	816	4'-7"	3¾"

BENDING DIAGRAMS



Note: Dimensions are out to out of bars.
Bars designated with an "E" suffix to be Epoxy Coated.

For details and location of parapet reinforcing, see Dwg. No. 61078

TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels			
Panel Length	"D"	P4XXE Bar	Panel Length	"E"	"G"	P4XXE Bar
11'-0"	21	P404E	22'-0"	17	9'-0"	P405E
22'-0"	43	P405E				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19

BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF 220'-0" CONTINUOUS PLATE GIRDER UNIT
DENISE LANE OVER HIGHWAY 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 8/01/19 FILENAME: br60140x8_s1.dgn
CHECKED BY: SHP DATE: 8/14/19 SCALE: AS NOTED
DESIGNED BY: MCB DATE: 7/19

BRIDGE NO. 07460 DRAWING NO. 61062

PRINT DATE: 8/14/2019

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.		R60140	288	616
				①	07460 - SPAN DETAILS - 61063			

SILICONE JOINT DATA

Bent No.	"A" - Width perpendicular to joint at 24 hour average temperature of: ①			"B" - Width Perpendicular to Joint at 60°F	Bumper Plate Size
	40°F	60°F	80°F		
1	2 3/16"	2"	1 13/16"	2¼" ±	1" x 1"
3	2 3/16"	2"	1 13/16"	2¼" ±	1" x 1"

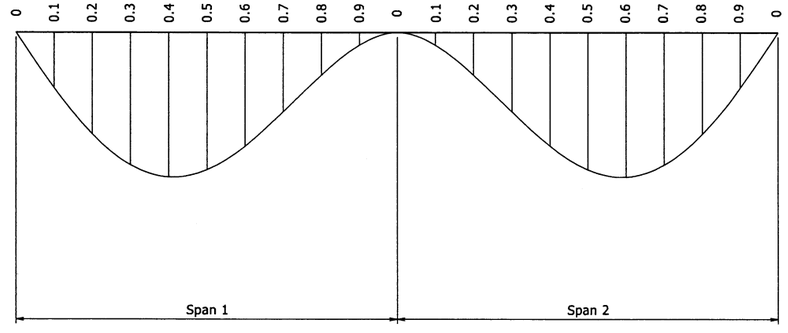
For details of poured silicone joint, see Std. Dwg. No. 55008.

① The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Exterior Girder	Interior Girder	Exterior Girder	Interior Girder	Exterior Girder	Interior Girder
Span 1	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.128	0.134	0.534	0.645	0.611	0.719
	0.2	0.236	0.245	0.981	1.183	1.123	1.318
	0.3	0.307	0.320	1.277	1.542	1.462	1.718
	0.4	0.336	0.349	1.393	1.681	1.596	1.874
	0.5	0.320	0.332	1.323	1.596	1.516	1.780
	0.6	0.265	0.276	1.095	1.321	1.256	1.474
	0.7	0.185	0.193	0.762	0.921	0.875	1.028
	0.8	0.100	0.104	0.409	0.494	0.470	0.552
	0.9	0.030	0.031	0.122	0.147	0.140	0.164
Span 2	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.030	0.031	0.122	0.147	0.140	0.164
	0.2	0.100	0.104	0.409	0.494	0.470	0.552
	0.3	0.186	0.193	0.763	0.921	0.876	1.028
	0.4	0.265	0.276	1.094	1.321	1.255	1.474
	0.5	0.320	0.332	1.323	1.596	1.516	1.780
	0.6	0.336	0.349	1.393	1.681	1.596	1.874
	0.7	0.308	0.320	1.278	1.542	1.463	1.718
	0.8	0.236	0.245	0.981	1.183	1.123	1.318
	0.9	0.128	0.134	0.534	0.645	0.611	0.719
	0.0	0.000	0.000	0.000	0.000	0.000	0.000

Note:
Camber for dead load deflection plus vertical curve +/- ¼" tolerance. Deflections shown are along C.L. Girder 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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19
BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF 220'-0" CONTINUOUS PLATE GIRDER UNIT
DENISE LANE OVER HIGHWAY 7

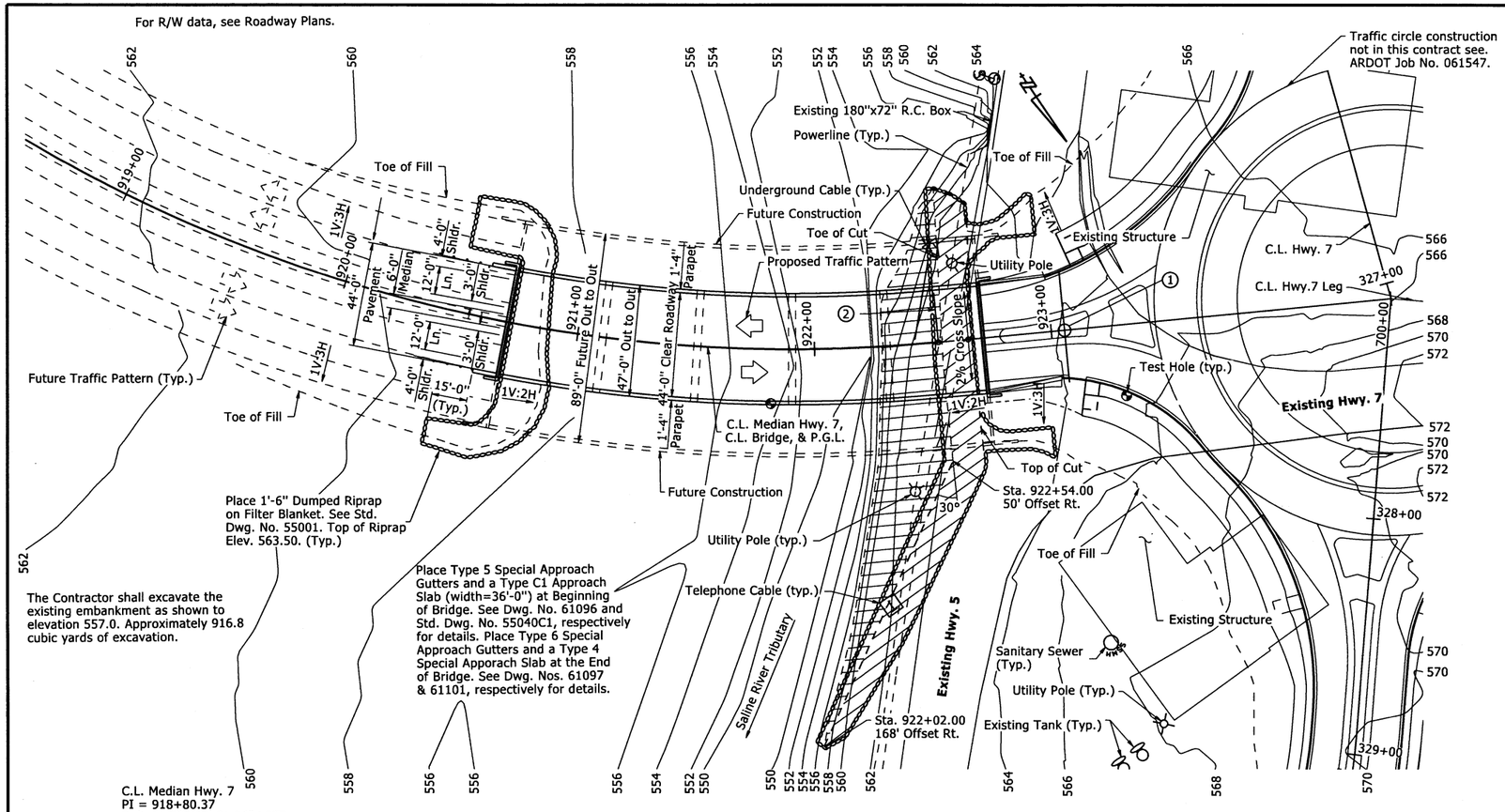
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 8/01/19 FILENAME: br60140x8_s1.dgn
CHECKED BY: SWP DATE: 8/14/19 SCALE: NO SCALE
DESIGNED BY: MCB DATE: 7/19

BRIDGE NO. 07460 DRAWING NO. 61063

PRINT DATE: 8/13/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10/07/2019				6	ARK.			
				JOB NO.		R60140	289	616
				①		07462 - LAYOUT - 61064		

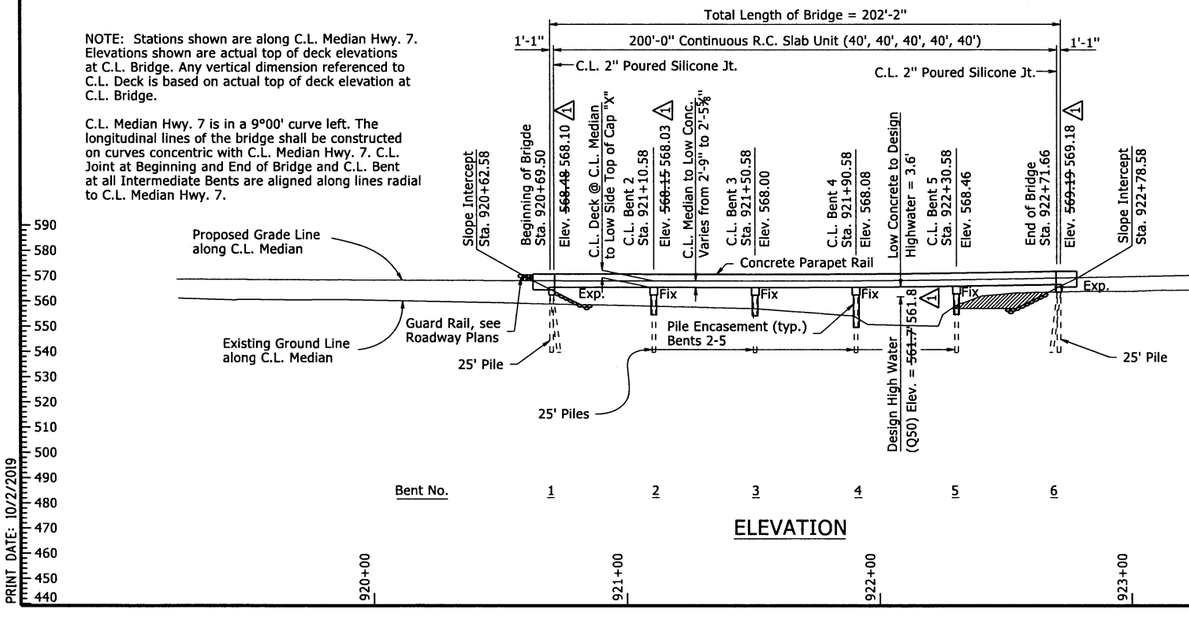


PLAN

HORIZONTAL CURVE DATA

NOTE: Stations shown are along C.L. Median Hwy. 7. Elevations shown are actual top of deck elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on actual top of deck elevation at C.L. Bridge.

C.L. Median Hwy. 7 is in a 9°00' curve left. The longitudinal lines of the bridge shall be constructed on curves concentric with C.L. Median Hwy. 7. C.L. Joint at Beginning and End of Bridge and C.L. Bent at all Intermediate Bents are aligned along lines radial to C.L. Median Hwy. 7.



ELEVATION

③ HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	④NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEVATION WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	7020	561.8	562.4
Base	100	8400	562.3	563.1
Extreme	500	12000	563.9	~~565.4~~ 566.0 ⚠
Overtopping	>500	——	——	——

④ Unconstricted water surface without structure or roadway approaches.
Proposed Low Bridge Chord = ~~564.96~~ Feet ~~(Sta. 920+69.50)~~ 565.35 (Sta. 920+72.16) ⚠

Drainage Area = 5.24 square miles
Historical H.W. Elev. = N/A

Bent No.	~~"X"~~	"X"
1	~~2'-9 15/16"~~	2'-9¾"
2	~~2'-7"~~	2'-7¾"
3	~~2'-5⅞"~~	2'-6⅜"
4	~~2'-5⅞"~~	2'-6⅜"
5	~~2'-5⅞"~~	2'-6⅜"
6	~~2'-5⅞"~~	2'-6⅜"

⚠

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, 7th Edition (2014) with 2015 Interims.

LIVE LOADING: HL93

SEISMIC ZONE: 1 S_{D1}: 0.12 Site Class: C

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322 Type A, Gr. 60)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: All piling shall be HP 14x73 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 134 tons per pile and into the material designated as Medium Hard Shale on the boring legend. Minimum penetration shall be 10' below the cap or natural ground, whichever is lower. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities. Actual pile lengths are to be determined in the field. The Contractor shall use approved steel H-Pile driving points on all piles.

PREBORING: Preboring is required for all piling in all Bents. Preboring shall be to a minimum depth of 5' into the material designated as shale on the boring legend, or to a depth sufficient to provide the specified minimum pile penetration, whichever is greater. The actual size and depth of preboring are to be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free from debris prior to backfilling which may require casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of rock and the remaining length backfilled in accordance with Subsection 805.08(a). Any cost associated with achieving the minimum pile penetration, including any backfill and casings, shall not be paid for directly but shall be considered subsidiary to the item "Preboring".

PILE ENCASEMENT: Pile encasements for Bents 2-5 shall extend from the bottom of cap to 3' below final ground surface. See Std. Dwg. No. 55020.

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 1 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	61066- 61068
Intermediate Bents	61069 - 61070
200'-0" Cont. R.C. Slab Unit	61071 - 61074
Poured Silicone Joint	55008
Steel Piling & Pile Encasement	55020
Type 4 Special Approach Slabs	61101
Type 5 & 6 Special Approach Gutters	61096 & 61097
Type C1 Approach Slab	55040C1

MAINTENANCE OF TRAFFIC: For Maintenance of Traffic, see Roadway Plans.

① Tie Station: Sta. 923+05.44 is equivalent to Sta. 610+95 in Job No. 061547 at Elev. 569.86. Beyond 923+05.44 is future construction of Job No. 061547.

② Cross Slope Varies to Sta. 922+52.40. See "Superelevation Transition Sketch" Dwg. No. 61065.

③ Hydraulic Data Table based on full 89'-0" width in Future Construction Condition.

⚠ Revised Elevations and Dimensions for Corrected Superelevation Transition. Revised Hydraulic Data as Shown.
By: JWP Date: 10/07/2019 Checked By: SWP Date: 10/7/19

PRINT DATE: 10/2/2019

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
10-7-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE
HIGHWAY 7 OVER
SALINE RIVER TRIBUTARY
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

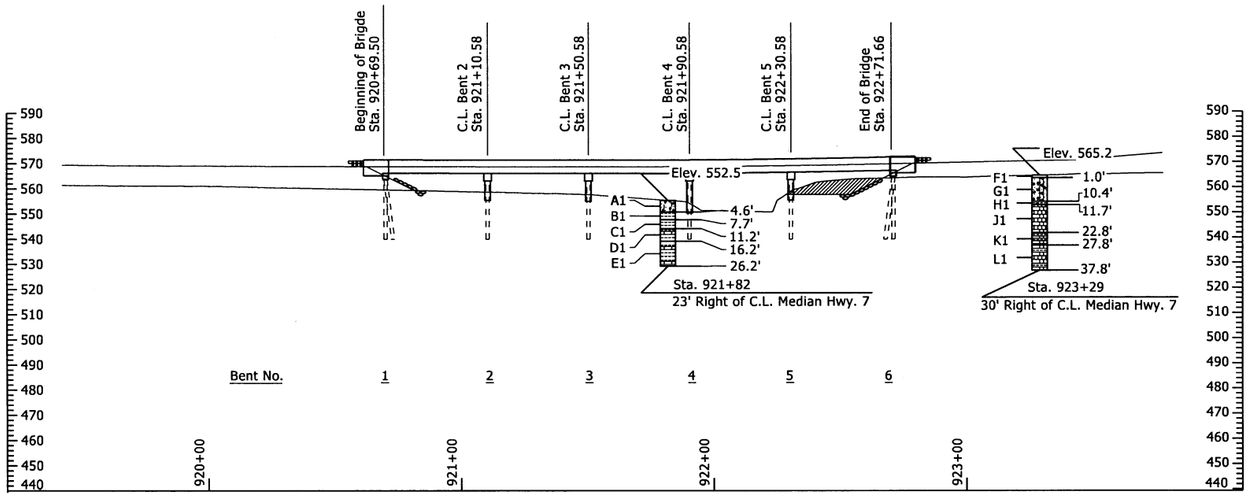
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

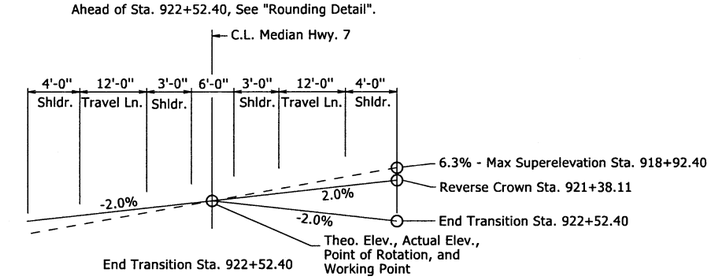
DRAWN BY: JWP DATE: 04/2019 FILENAME: br60140x10_l1.dgn
CHECKED BY: SWP DATE: 08/2019 SCALE: 1"=30'
DESIGNED BY: JWP DATE: 04/2019

BRIDGE NO. 07462 DRAWING NO. 61064

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10/07/2019				6	ARK.			
				JOB NO.		R60140	290	616
				07462 - LAYOUT - 61065				



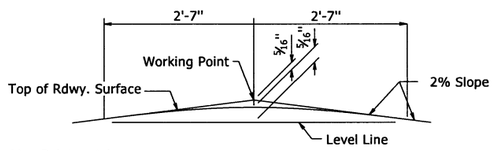
ELEVATION OF SOIL BORINGS



1 SUPERELEVATION TRANSITION SKETCH

Looking Ahead

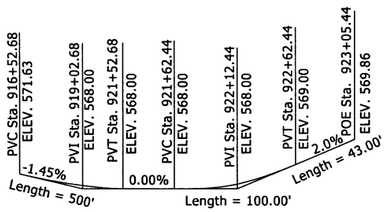
Values shown are for 2% Peaked Crown. Dimension for Working Point to Top of Roadway Surface Varies from 0" at Sta. 921+38.11 to 5/16" at Station 922+52.40.



Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

No Scale



VERTICAL ALIGNMENT DATA

Theoretical Grade Along C.L. Median Hwy. 7 and Profile Grade Line.

BORING LEGEND

A1-Moist, Brown Sandy Silt with Gravel
B1-SHALE - Weathered, Medium Hard, Gray
C1-SHALE - Slightly Weathered, Medium Hard, Frequent Fractures, Frequent Calcite Layers and Seams, Gray
D1-SHALE WITH FREQUENT TO OCCASIONAL LIMESTONE LAYERS AND SEAMS - Unweathered, Medium Hard, Frequent Fractures, Calcite Veins, and Slick
E1-SHALE WITH FREQUENT TO OCCASIONAL LIMESTONE LAYERS AND SEAMS - Unweathered, Medium Hard, Frequent Fractures, Frequent Calcite Layers
F1-Asphalt
G1-Moist, Medium Dense, Brown Silty Sand with Gravel
H1-SHALE - Highly Weathered, Soft, Gray
J1-LIMESTONE - Unweathered, Moderately Hard, Frequent Fractures, Frequent Calcite Layers and Seams, Gray
K1-LIMESTONE - Unweathered, Moderately Hard, Frequent Fractures, Frequent Calcite and Shale Layers and Seams, Gray
L1-LIMESTONE WITH INTERBEDDED SHALE - Unweathered, Moderately Hard, Frequent Calcite Layers and Seams, Gray

"N" VALUES

Sta. 921+82 - 23' Right of C.L. Median Hwy. 7

5.1 - 5.7, N=100 (7")

Sta. 923+29 - 30' Right of C.L. Median Hwy. 7

5.3 - 6.3, N=27
10.3 - 11.3, N=18
14.8 - 14.8, N=20 (0")

1 Corrected Superelevation Transition.
By: JWP Date: 10/07/2019
Check'd By: SWP Date: 10/7/19

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
10-7-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 7 OVER UNNAMED
TRIBUTARY TO SALINE RIVER
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JWP DATE: 04/17/2019 FILENAME: br60140x10_l1.dgn
CHECKED BY: SWP DATE: 08/2019 SCALE: 1"=30'
DESIGNED BY: JWP DATE: 04/2019

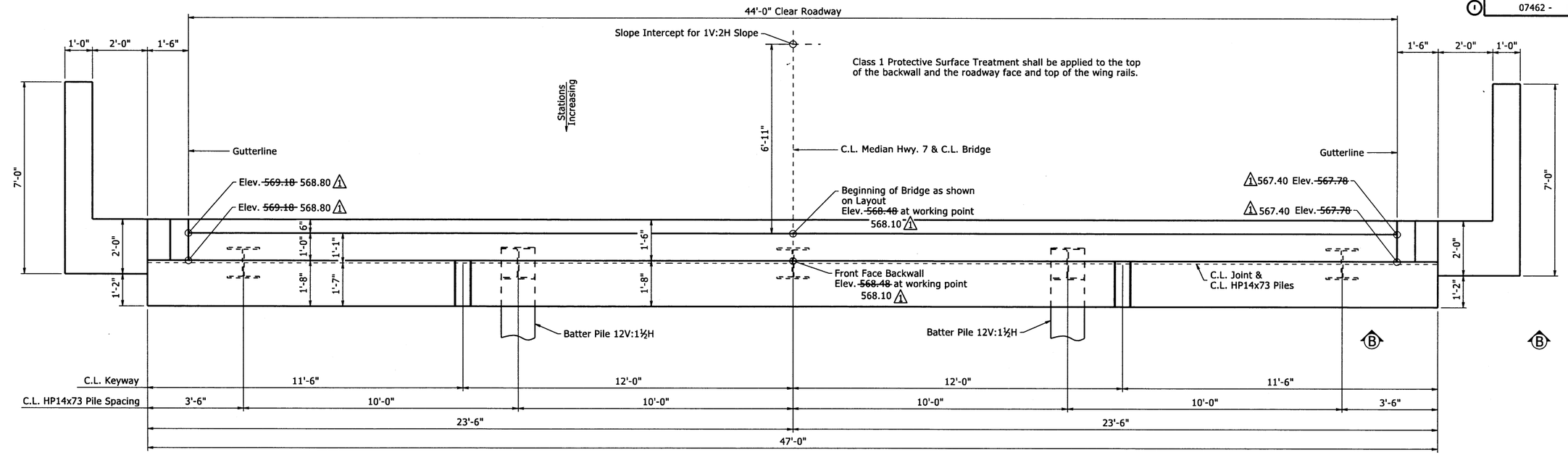
BRIDGE NO. 07462 DRAWING NO. 61065

PRINT DATE: 10/2/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10/07/2019			

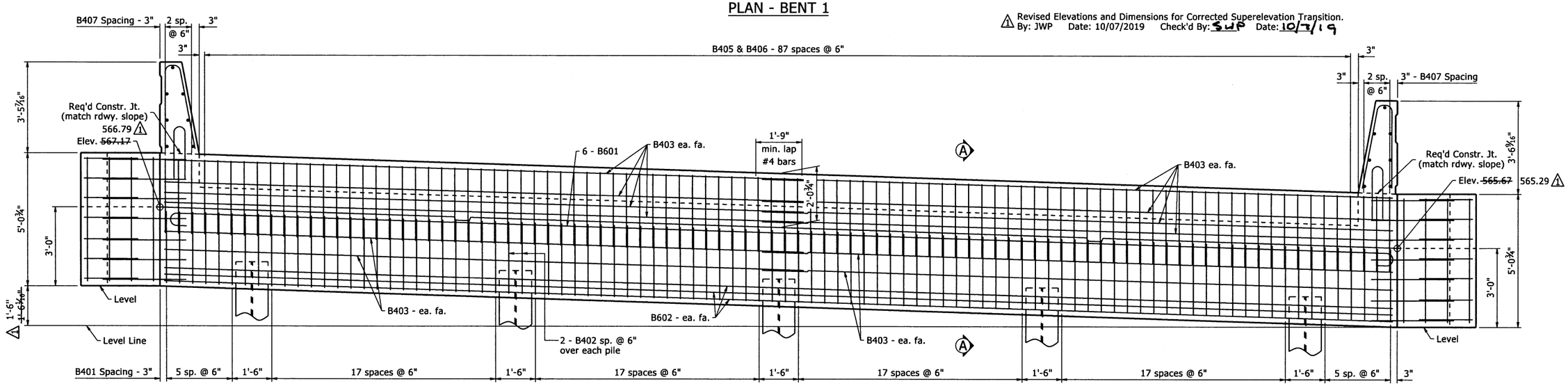
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		R60140	291	616

① 07462 - END BENTS - 61066



PLAN - BENT 1

⚠1 Revised Elevations and Dimensions for Corrected Superelevation Transition.
By: JWP Date: 10/07/2019 Check'd By: SWP Date: 10/7/19



ELEVATION - BENT 1

LOOKING BACK

For "KEYWAY DETAIL", See Dwg. No. 61067.
For "SECTION A-A" & "VIEW B-B", See Dwg. No. 61068.

GENERAL NOTES:

All concrete shall be Class "S" with a minimum 28 day compressive strength, f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered ¾" unless otherwise noted.

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.

Structural Steel in end bents shall be ASTM A709, Gr. 50W and shall be paid for as "Structural Steel in Plate Girder Spans (A709, Gr. 50W)".

All piling shall be Grade 50. For details of steel piling, see Std. Dwg. No. 55020.

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 at End Bents" note; see Std. Dwg. No. 55008. No heavy construction equipment shall be allowed within 10' of the backwall until the deck concrete placement for the adjacent span has been completed.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
10-7-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF END BENTS
HIGHWAY 7 OVER
SALINE RIVER TRIBUTARY

ROUTE SEC.

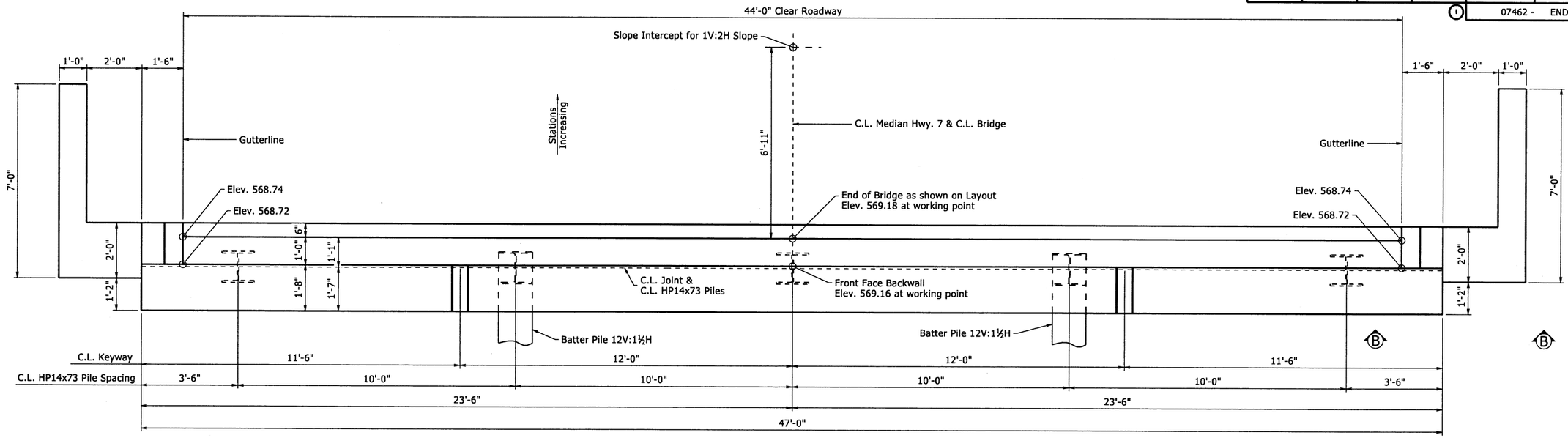
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 08/05/2019 FILENAME: br60140x10_ b1.dgn
CHECKED BY: JWP DATE: 08/20/2019 SCALE: 1/2" = 1'-0"
DESIGNED BY: MCB DATE: 08/2019

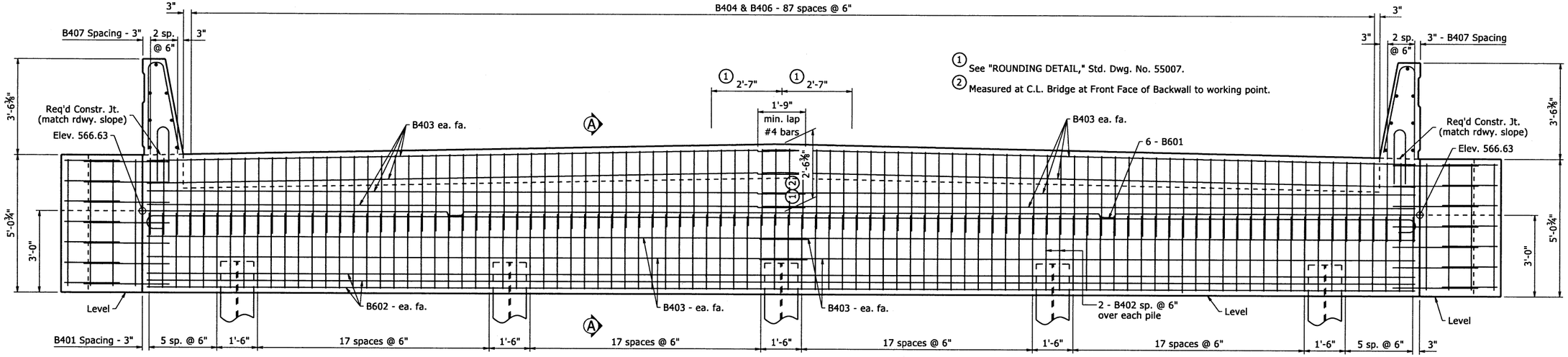
BRIDGE NO. 07462 DRAWING NO. 61066

PRINT DATE: 10/2/2019

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.		R60140	292	616
				07462 - END BENTS - 61067				



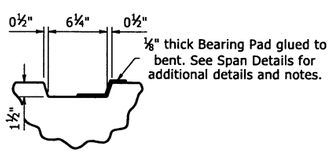
PLAN - BENT 6



For "SECTION A-A" & "VIEW B-B", See Dwg. No. 61068.

ELEVATION - BENT 6

LOOKING AHEAD



KEYWAY DETAIL

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF END BENTS
HIGHWAY 7 OVER
SALINE RIVER TRIBUTARY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

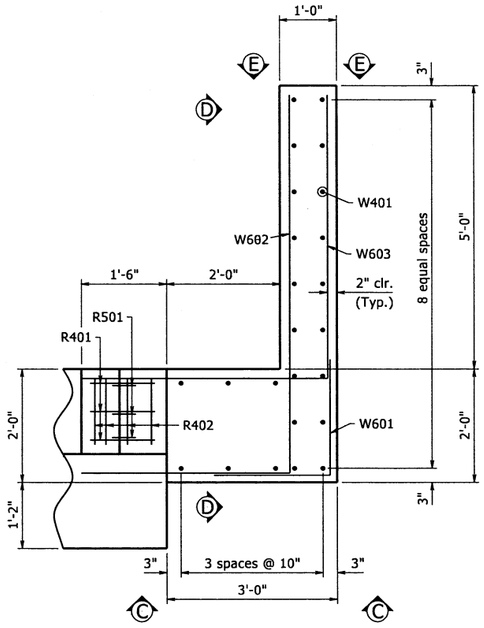
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 08/05/2019 FILENAME: br60140x10_b1.dgn
CHECKED BY: JCW DATE: 8/14/2019 SCALE: 1/2" = 1'-0"
DESIGNED BY: MCB DATE: 08/2019

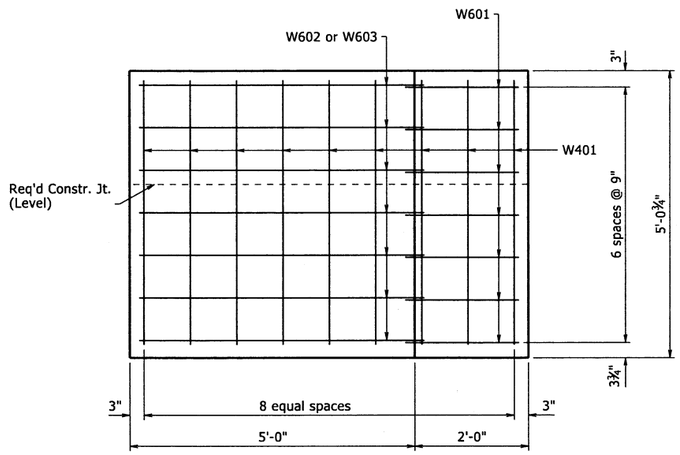
BRIDGE NO. 07462 DRAWING NO. 61067

PRINT DATE: 8/14/2019

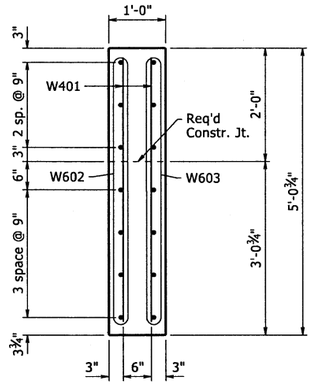
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	293	616
				07462 - END BENTS - 61068				



VIEW B-B



VIEW D-D

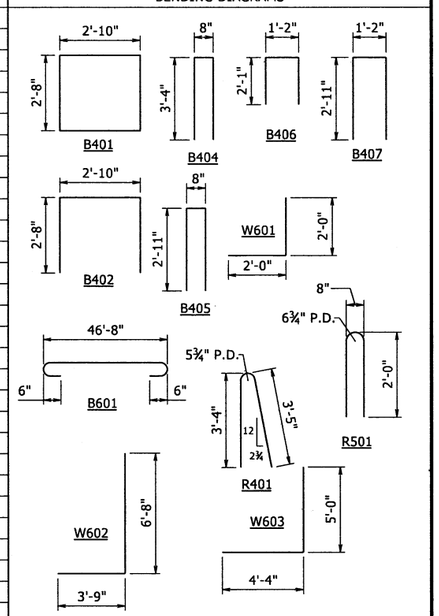


VIEW E-E

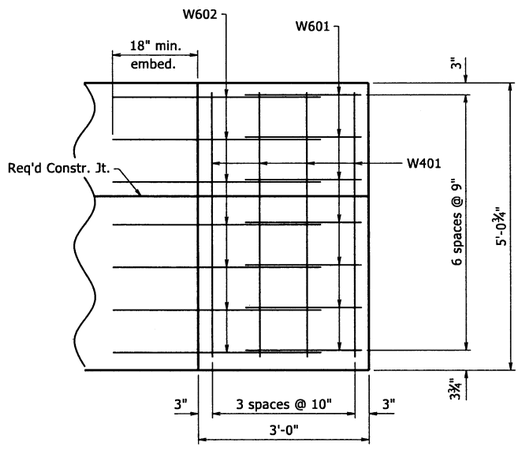
BAR LIST

MARK	NO. REQ'D	LENGTH	P.D.
Bent 1 or 6 - Per Bent			
B401	84	11'-4"	2"
B402	10	8'-0"	2"
B403	24	24'-3"	Str.
B406	88	5'-2"	2"
B407	6	6'-10"	2"
B601	6	48'-0"	4½"
B602	6	46'-8"	Str.
R401	6	7'-1"	5¾"
R402	14	1'-2"	Str.
R501	6	4'-5"	6¾"
W401	48	4'-9"	Str.
W601	14	3'-11"	4½"
W602	14	10'-3"	4½"
W603	14	9'-3"	4½"
Bent 1			
B405	88	6'-4"	2"
Bent 6			
B404	88	7'-2"	2"

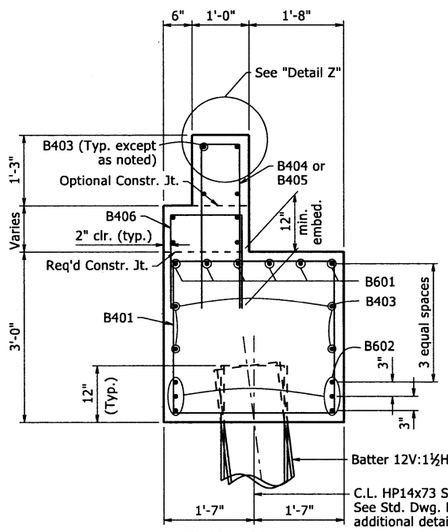
BENDING DIAGRAMS



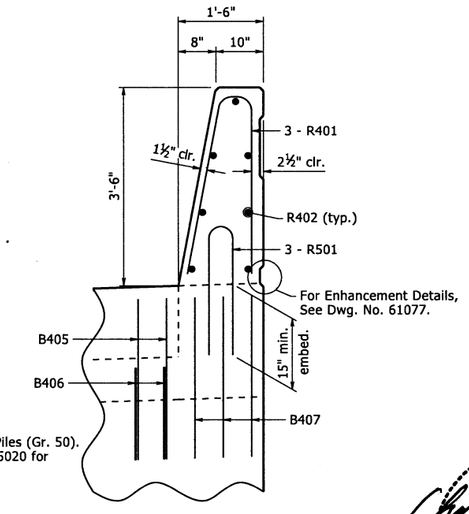
Dimensions are out to out of bars.



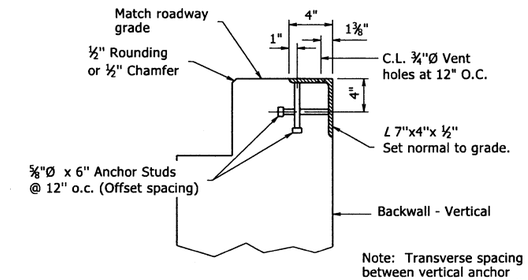
VIEW C-C



SECTION A-A



PARAPET RAIL DETAIL



Note: For additional joint details, see Std. Dwg. No. 55008.

Note: Transverse spacing between vertical anchor studs and vent holes shall be 6".

Concrete shall be hand packed under the joint armor in the backwall.

DETAIL Z

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF END BENTS
HIGHWAY 7 OVER
SALINE RIVER TRIBUTARY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

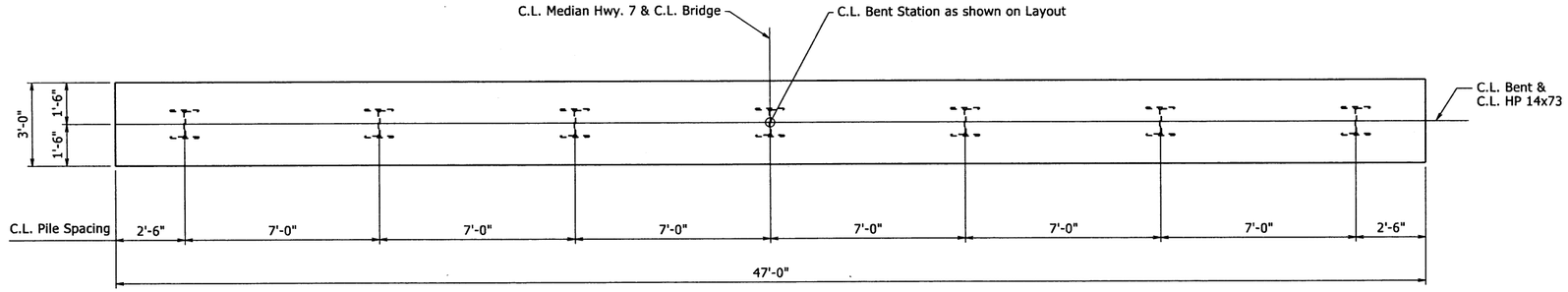
DRAWN BY: MCB DATE: 08/05/2019
CHECKED BY: JWP DATE: 08/14/2019
DESIGNED BY: MCB DATE: 08/2019
FILENAME: br60140x10_ b1.dgn
SCALE: 3/4" = 1'-0"

BRIDGE NO. 07462 DRAWING NO. 61068

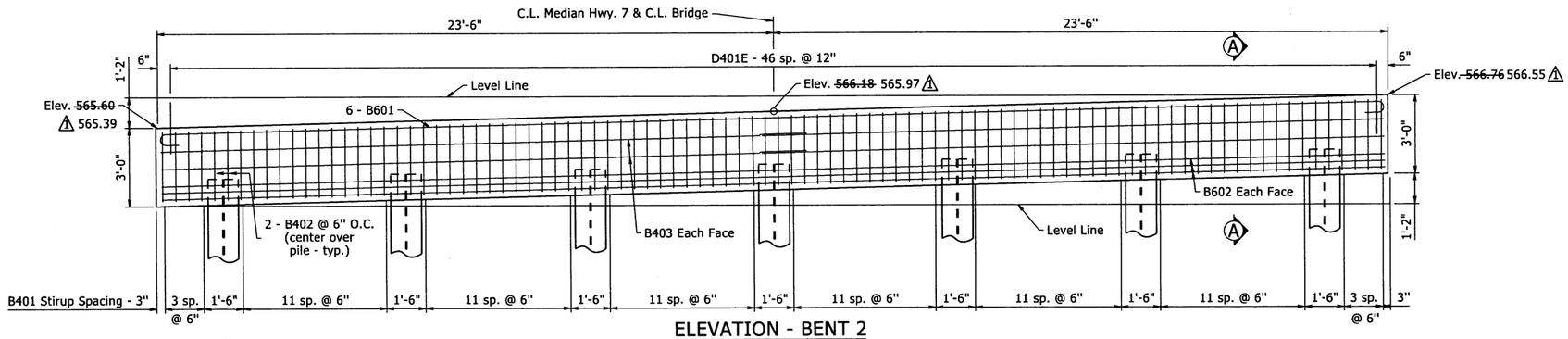
PRINT DATE: 8/14/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10/07/2019			

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		R60140	294	616
07462 - INT. BENTS - 61069				

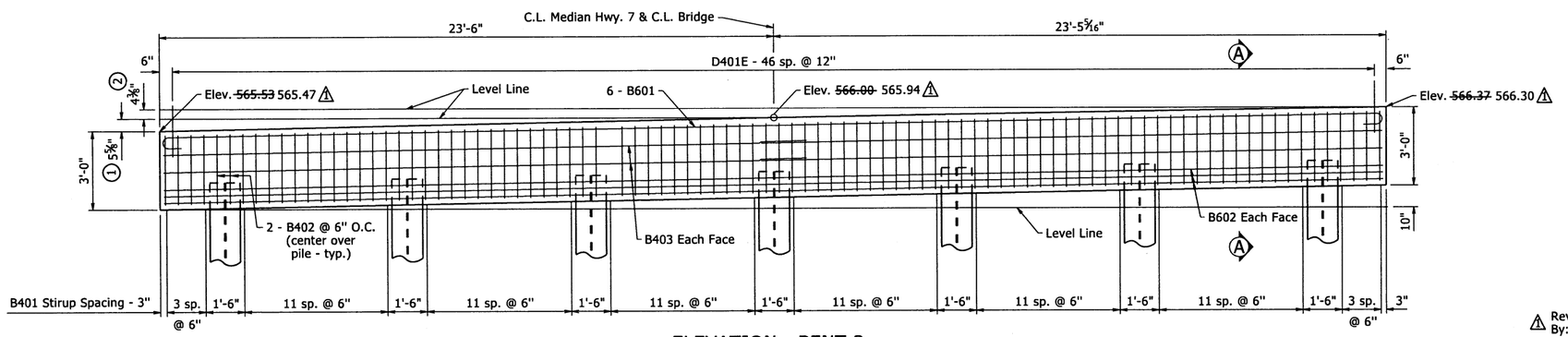


PLAN - BENTS 2, 3, 4, & 5



ELEVATION - BENT 2

Looking Ahead



ELEVATION - BENT 3

Looking Ahead

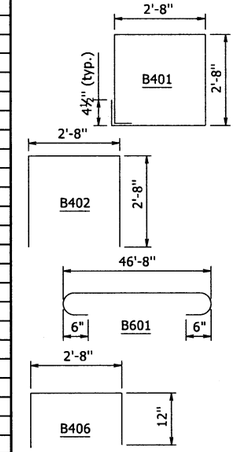
(1) C.L. Bridge to Left Edge

(2) C.L. Bridge to Right Edge

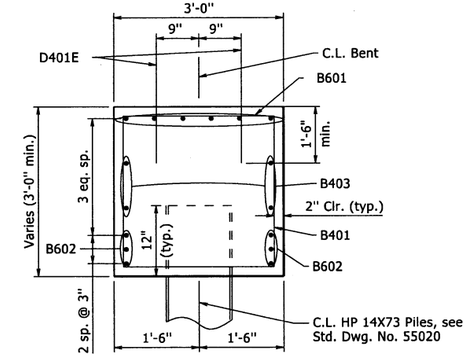
BAR LIST

Mark	NO. REQ'D.	LENGTH	P.D.
Bents: 2, 3, 4, or 5 - Per Bent			
B401	80	11'-0"	2"
B402	14	7'-10"	2"
B403	8	24'-3"	Str.
B601	6	48'-0"	4½"
B602	6	46'-8"	Str.
D401E	94	3'-0"	Str.
Bent 4			
B404	4	34'-6"	Str.
B406	35	4'-6"	2"
Bent 5			
B405	4	28'-6"	Str.
B406	29	4'-6"	2"

BENDING DIAGRAMS



Dimensions are out to out of bars. Bars designated with an "E" suffix to be Epoxy Coated.



SECTION A-A

3/16" = 1'-0"

⚠ Revised Elevations and Dimensions for Corrected Superelevation Transition.
By: JWP Date: 10/07/2019 Check'd By: SWP Date: 10/7/19

Notes: All Concrete shall be Class "S" with a minimum 28 day compressive strength, f'c=3500 psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered ¾" unless otherwise noted.

All Reinforcing steel shall be Grade 60 (fy = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

For details of pile encasement, see Std. Dwg. No. 55020.

For additional information, See Layout.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
10-7-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS
HIGHWAY 7 OVER
SALINE RIVER TRIBUTARY

ROUTE SEC.

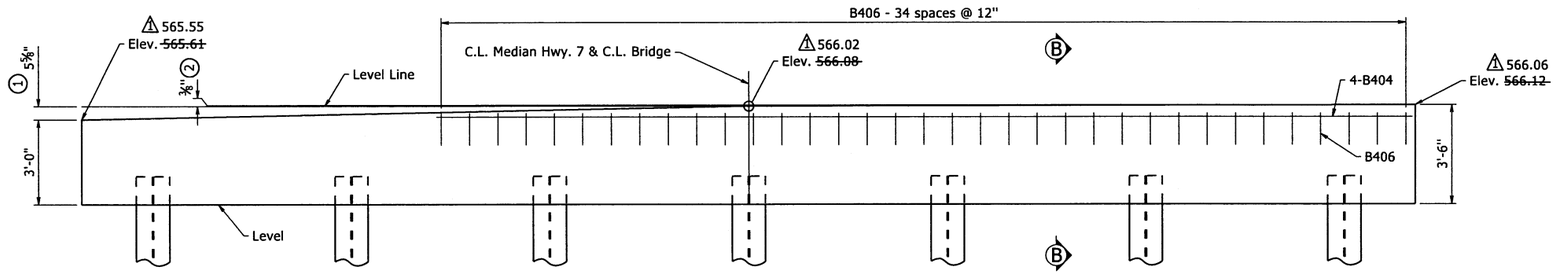
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JWP DATE: 08/2019
CHECKED BY: MCB DATE: 08/14/2019
DESIGNED BY: JWP DATE: 08/2019
FILENAME: r60140x10_b2.dgn
SCALE: 3/8" = 1'-0" or as noted

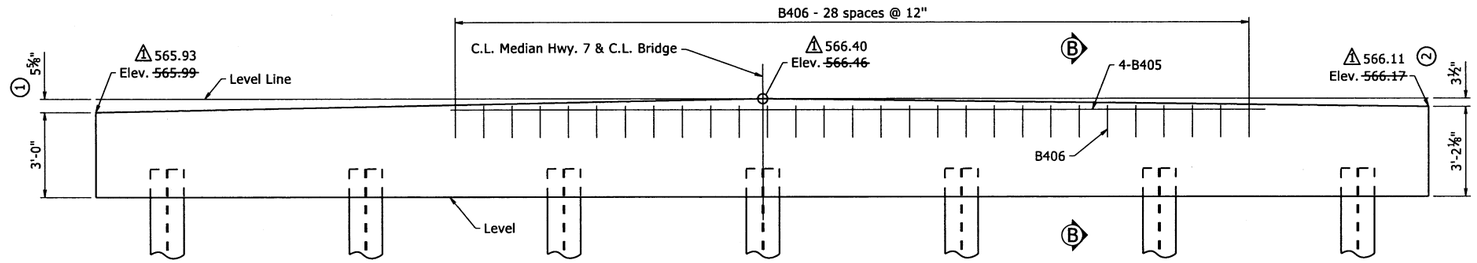
BRIDGE NO. 07462 DRAWING NO. 61069

PRINT DATE: 10/2/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10/07/2019				6	ARK.			
				JOB NO.		R60140	295	616
				①		07462 - INT. BENTS - 61070		



ELEVATION - BENT 4

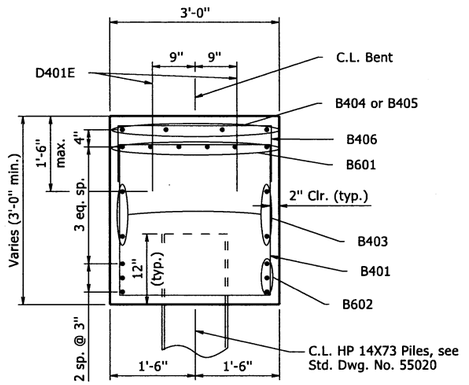


ELEVATION - BENT 5

Notes: Reinforcing steel, details and dimensions not shown for Bents 4 and 5 are the similar to Bents 2 and 3 .

① C.L. Bridge to Left Edge

② C.L. Bridge to Right Edge



SECTION B-B

3/16"=1'-0"

⚠ Revised Elevations and Dimensions for Corrected Superelevation Transition.
By: JWP Date: 10/07/2019 Check'd By: SWP Date: 10/7/19

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
10-7-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS
HIGHWAY 7 OVER
SALINE RIVER TRIBUTARY

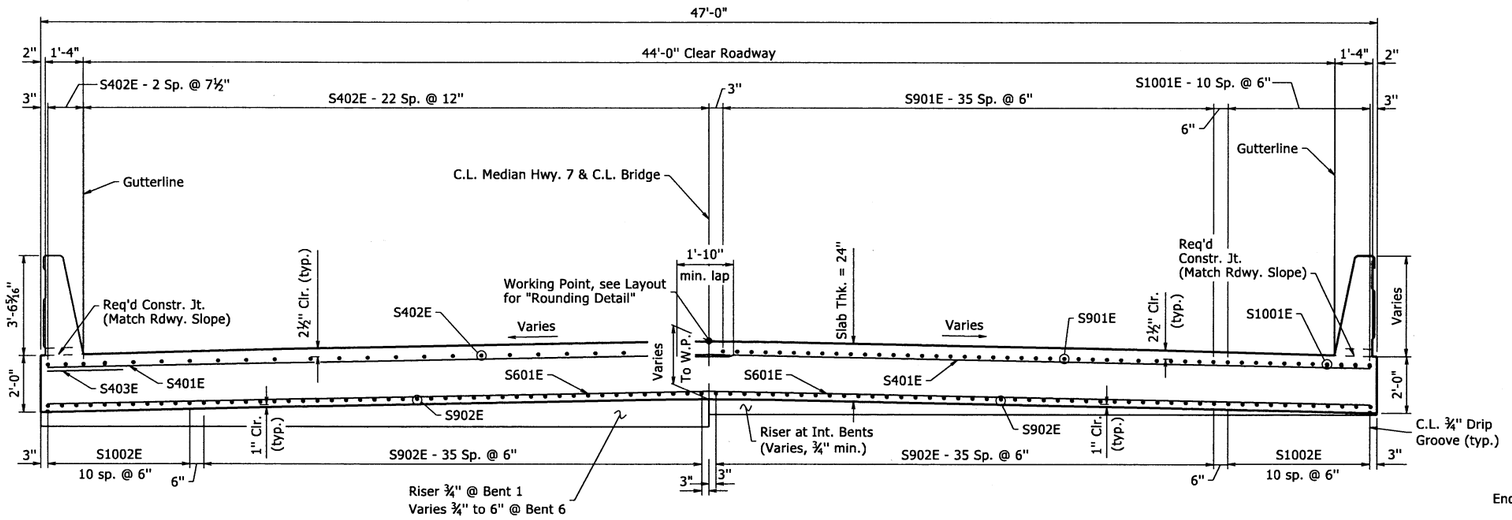
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JWP DATE: 08/2019
CHECKED BY: MCB DATE: 08/14/2019
DESIGNED BY: JWP DATE: 08/2019
FILENAME: r60140x10_b2.dgn
SCALE: ⅜" = 1'-0" or as noted

BRIDGE NO. 07462 DRAWING NO. 61070

PRINT DATE: 10/2/2019

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.		R60140	298	616
				①	07462 - R.C. SLAB UNIT - 61071			



TYP. SECTION THROUGH ROADWAY @ BRIDGE ENDS

Looking Ahead (Symmetric about C.L. Bridge)

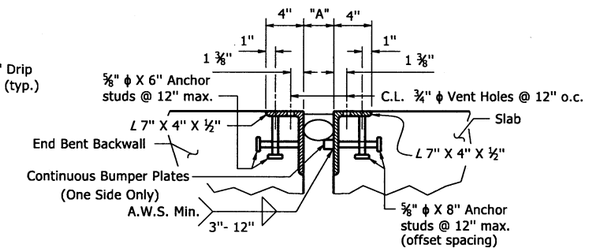
TYP. SECTION THROUGH ROADWAY @ INT. BENTS & SPANS

Looking Ahead (Symmetric about C.L. Bridge)

For rebar spacing and placement, see Dwg. Nos. 61073 - 61074.

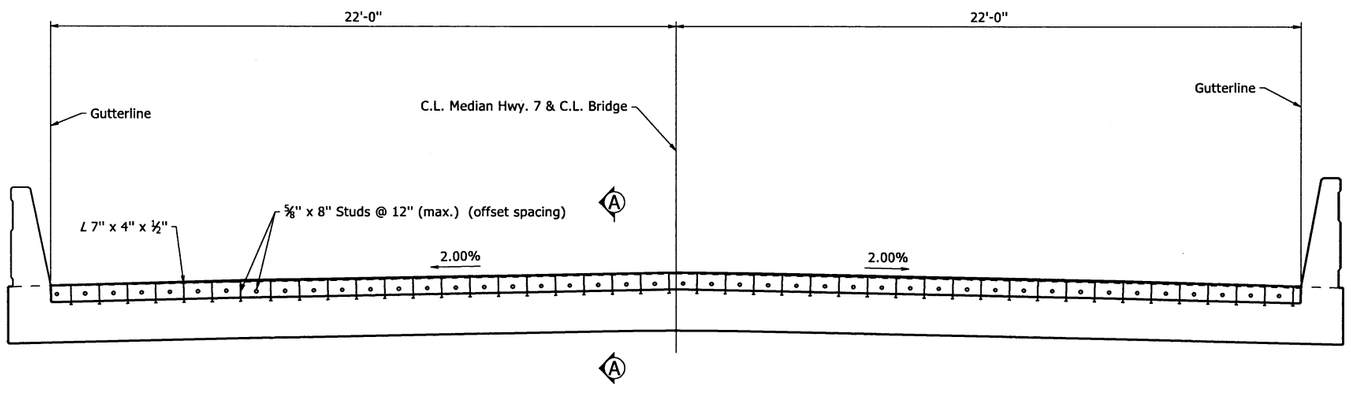
Bar positions and clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices sufficient in size and number to prevent displacement during construction per Subsection 804.06. Placement of slab bolsters or hi-chairs with full-length lower runners directly on removable deck forms will not be allowed.

Class 1 Protective Surface Treatment shall be applied to the Roadway Surface and to the Roadway Face and Top of the Concrete Parapet Rail.



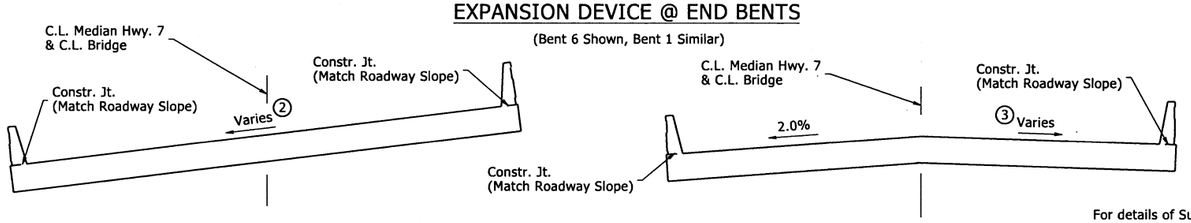
SECTION A-A

Not to Scale



EXPANSION DEVICE @ END BENTS

(Bent 6 Shown, Bent 1 Similar)



② 3.2% at Beginning of Bridge Sta. 920+69.50
2.0% at Sta. 921+38.11

③ Reverse Crown at Sta. 921+38.11
Normal Crown at Sta. 922+52.40

ROADWAY SUPERELEVATION TRANSITION

For details of Superelevation Transition, see Layout.

Note: See Std. Dwg. No. 55008 for additional joint details.

Concrete shall be hand packed under the joint armor in the slab.

Transverse spacing between vertical anchor studs and vent holes shall be 6".

SILICONE JOINT DATA

"A" Width Perpendicular to Joint at 24 Hour Average Temperature Of: ①			Bumper Plate Size
40°F	60°F	80°F	
2⅛"	2"	1⅞"	1" X 1"

① The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

Note: The temperature limitations recommended by the sealant manufacturer shall be observed.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS OF 200'-0"
CONTINUOUS R.C. SLAB UNIT
HIGHWAY 7 OVER
SALINE RIVER TRIBUTARY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

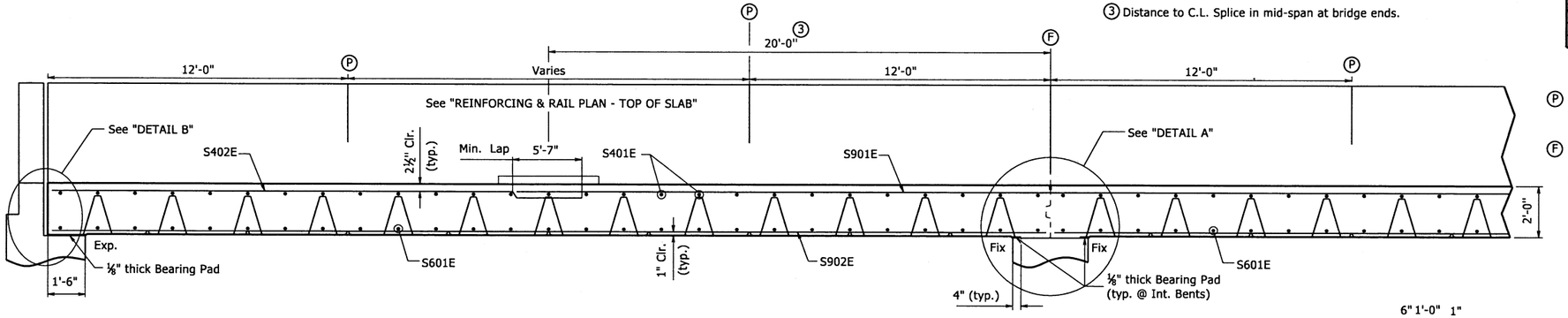
DRAWN BY: JWP DATE: 7/31/2019
CHECKED BY: MCB DATE: 8/14/19
DESIGNED BY: JSQ DATE: 7/2019
FILENAME: br60140x10_s1.dgn
SCALE: ⅜" = 1'-0" OR AS NOTED

BRIDGE NO. 07462 DRAWING NO. 61071

PRINT DATE: 8/14/2019

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.		R60140	297	616

① 07462 - R.C. SLAB UNIT - 61072



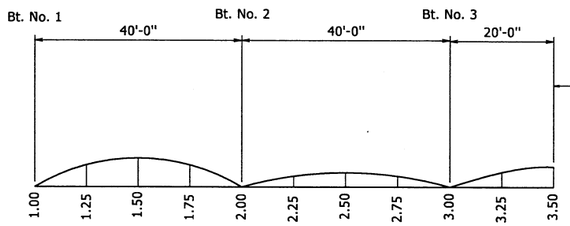
③ Distance to C.L. Splice in mid-span at bridge ends.

Ⓟ C.L. Full-Depth Parapet Joint (¼" to 1" max.) Stop 4" from top of slab.

Ⓕ C.L. Partial-Depth Parapet Joint (¼" to 1" max.) Stop 1'-2" from top of slab.

LONGITUDINAL SECTION ALONG C.L. BRIDGE

Not to Scale



DEAD LOAD CAMBER DIAGRAM

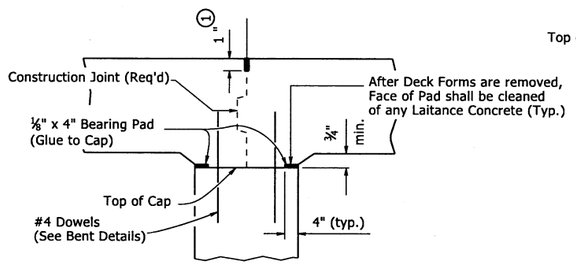
No Scale

Deflections shown are from a chord from C.L. Bent to C.L. Bent. Vertical alignment corrections are not included. Tolerance + ¼" for camber and vertical alignment.

DEAD LOAD DEFLECTIONS

POINT	TOTAL DEFLECTION
1.00	0.00"
1.25	0.42"
1.50	0.53"
1.75	0.29"
2.00	0.00"
2.25	0.04"
2.50	0.13"
2.75	0.07"
3.00	0.00"
3.25	0.05"
3.50	0.26"

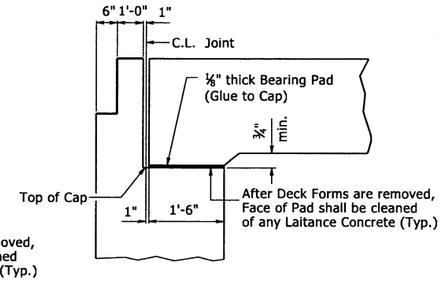
Symmetrical About This Point



Joint to be cleaned by sandblasting or other approved method before pouring joint sealer.

DETAIL A

Not to Scale



DETAIL B

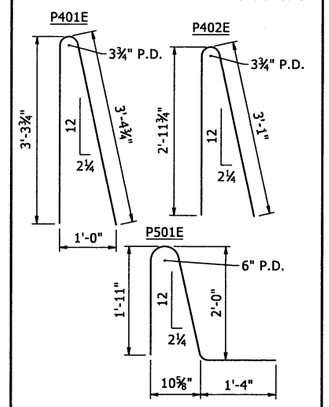
Not to Scale

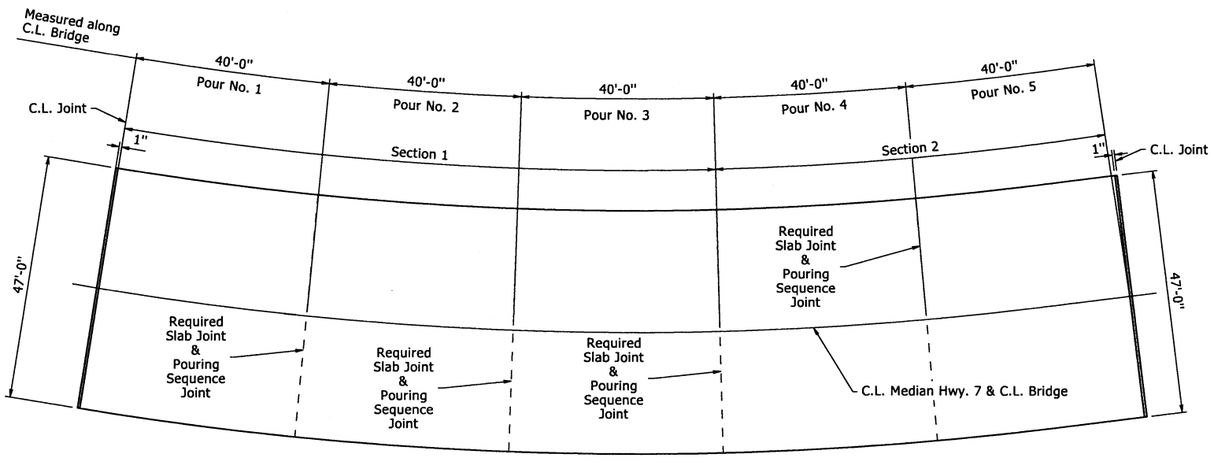
BAR LIST

	MARK	NO. REQ'D.	LENGTH	P.D.
RAILS	P401E	596	6'-8"	3¾"
	P402E	126	6'-2"	3¾"
	P403E	240	5'-6"	Str.
	P404E	140	11'-8"	Str.
	P405E	28	17'-4"	Str.
	P406E	28	14'-3"	Str.
	P407E	7	14'-11"	Str.
	P408E	7	16'-5"	Str.
	P501E	596	5'-4"	3¾"
SLAB	S401E	724	24'-3"	Str.
	S402E	98	20'-3"	Str.
	S403E	38	2'-8"	Str.
	S601E	398	46'-8"	Str.
	S901E	288	49'-3"	Str.
	S902E	288	56'-4"	Str.
	S1001E	110	51'-1"	Str.
	S1002E	88	57'-6"	Str.

BENDING DIAGRAMS

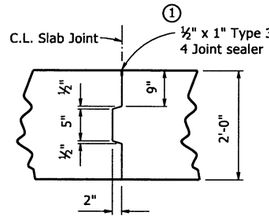
All bars with an "E" suffix shall be Epoxy Coated. Dimensions are Out-to-Out of bars.





DECK POURING SEQUENCE

Not to Scale



DECK SLAB CONSTR. JT. DETAIL

Not to Scale

① 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. Seal Color shall be gray or other color similar to concrete.

The Contractor shall pour the slab unit in sections according to the pouring sequence shown. No part of the falsework for the entire section shall be removed until all of the concrete in that section of the bridge slab has been placed and cured. Falsework for Pour No. 3 shall remain in place until after Section 2 is placed and cured. All pours shall begin at one end of the bridge and proceed in sequence to the other end of the bridge. 72 hours shall elapse between the end of a pour and the start of the next pour. Concrete in the bridge superstructure shall be placed and consolidated for the entire pour before any concrete has taken its initial set. A minimum of 72 hours shall elapse between the completion of slab unit and the pouring of the bridge railing.The Contractor must obtain approval from the Engineer for any deviation from the pouring sequence shown and for any railing pours made before the entire bridge slab unit has been poured.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 4
DETAILS OF 200'-0" CONTINUOUS R.C. SLAB UNIT
HIGHWAY 7 OVER
SALINE RIVER TRIBUTARY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JWP DATE: 07/2019
CHECKED BY: MCS DATE: 8/14/19
DESIGNED BY: JSQ DATE: 07/2019

FILENAME: br60140x10_s1.dgn
SCALE: ⅜" = 1'-0" OR AS NOTED

BRIDGE NO. 07462 DRAWING NO. 61072

PRINT DATE: 8/14/2019

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.		R60140	298	616
				(1)		07462 - R.C. SLAB UNIT - 61073		

Ⓕ C.L. Full-Depth Parapet Joint (¼" to 1" max.) Stop 4" from top of slab.

Ⓟ C.L. Partial-Depth Parapet Joint (¼"' to 1" max.) Stop 1'-2" from top of slab.

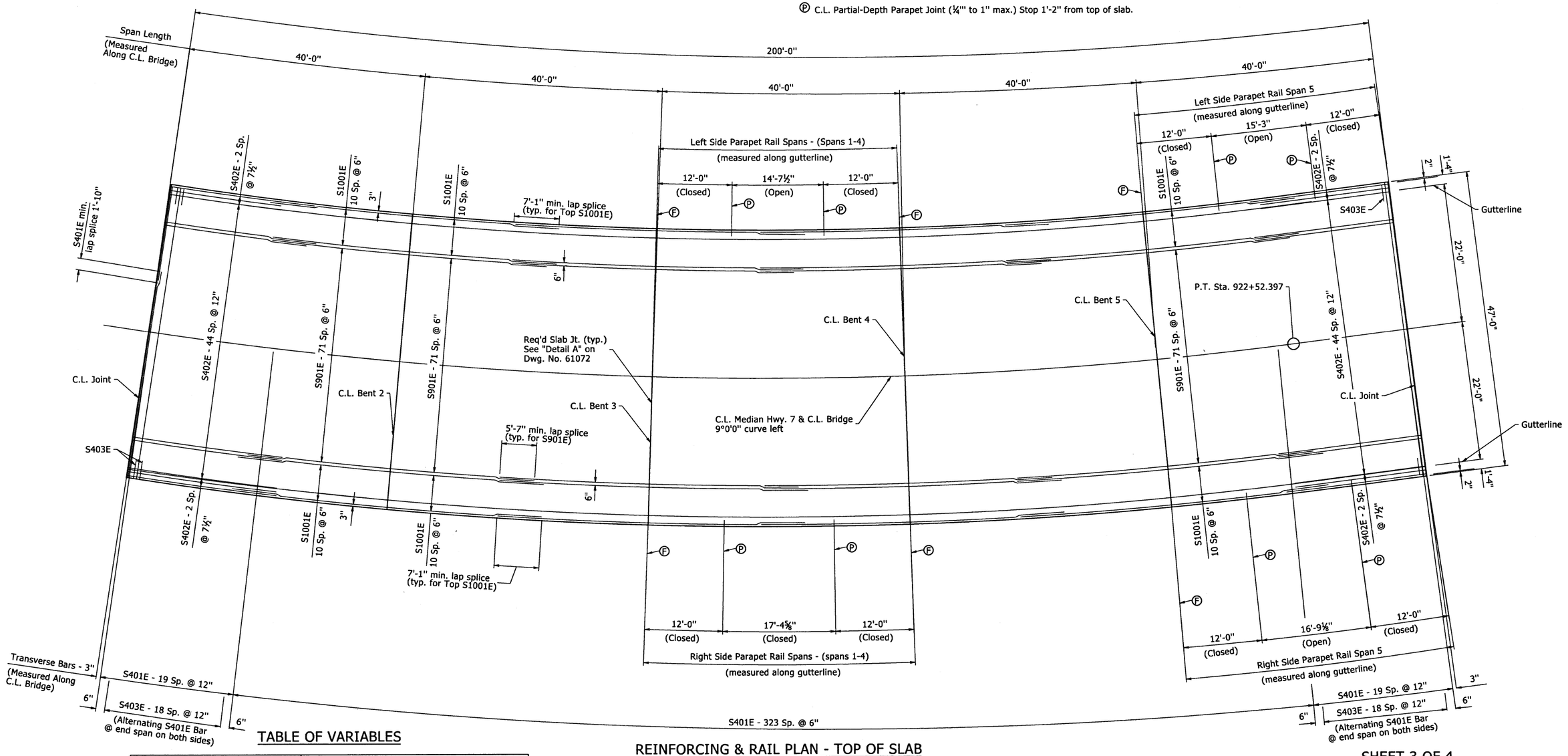


TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels			
Panel Length	"D"	P4XXE Bars	Panel Length	"F"	"P"	P4XXE Bars
12'-0"	23	P404E	14'-7½"	10	5'-3¾"	P406E
17'-4⅝"	34	P405E	15'-3"	11	5'-7½"	P407E
			16'-9⅛"	12	6'-4⅝16"	P408E

REINFORCING & RAIL PLAN - TOP OF SLAB

Note: Longitudinal lines of concrete bridge deck and longitudinal reinforcing bars are curved and concentric to a 9°00'00" curve left which is located along centerline of bridge. Transverse reinforcing bars are placed on radial lines. Spacing shown for transverse reinforcing bars is measured along centerline of bridge.

For details of parepet rails, see Dwg. No. 61077.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF 200'-0"
CONTINUOUS R.C. SLAB UNIT
HIGHWAY 7 OVER
SALINE RIVER TRIBUTARY

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

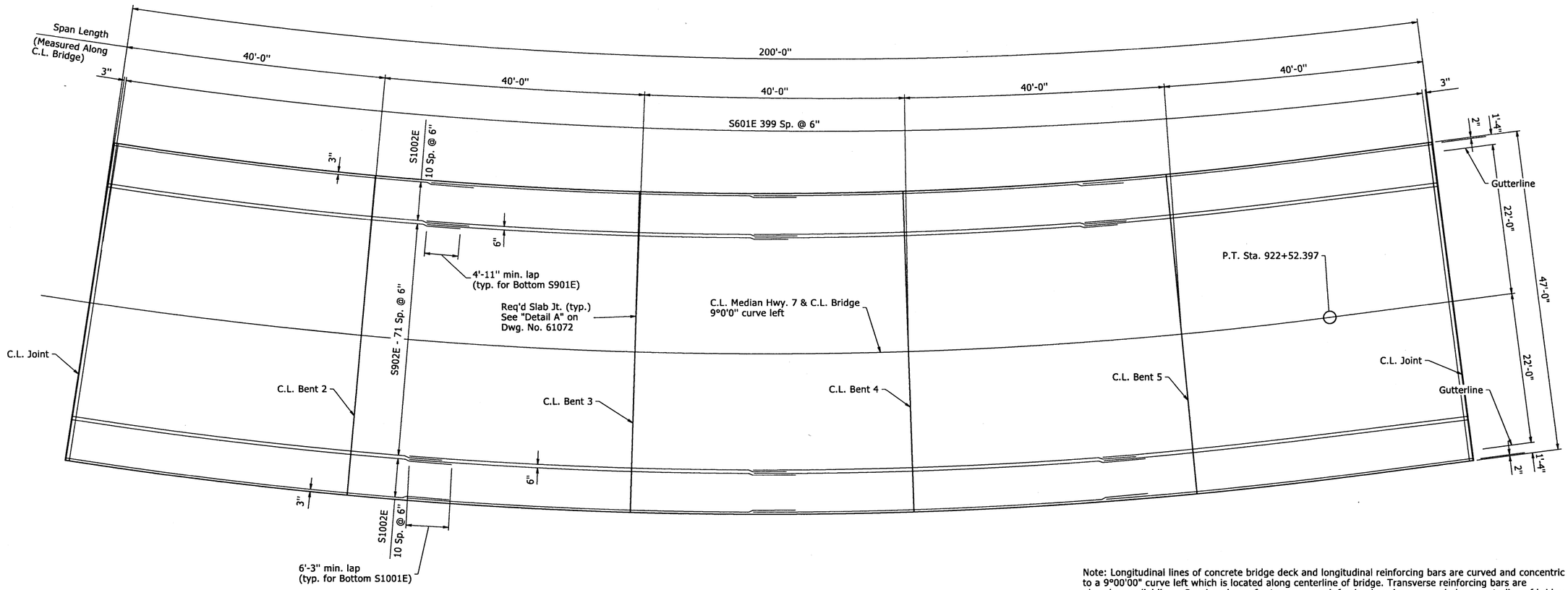
DRAWN BY: JWP DATE: 07/2019
CHECKED BY: MCB DATE: 8/14/19
DESIGNED BY: JSQ DATE: 07/2019
FILENAME: br60140x10_s1.dgn
SCALE: ⅛" = 1'-0"

BRIDGE NO. 07462 DRAWING NO. 61073

PRINT DATE: 8/14/2019

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.		R60140	299	616
				07462 - R.C. SLAB UNIT - 61074				

1



REINFORCING PLAN - BOTTOM OF SLAB

Note: Longitudinal lines of concrete bridge deck and longitudinal reinforcing bars are curved and concentric to a 9°00'00" curve left which is located along centerline of bridge. Transverse reinforcing bars are placed on radial lines. Spacing shown for transverse reinforcing bars is measured along centerline of bridge.

GENERAL NOTES

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 3/4" unless otherwise noted.

Concrete in bridge superstructure shall be placed, consolidated, and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The concrete deck (roadway surface) shall be given a tine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. The use of a longitudinal screed is not permitted.

BEARING PAD: The ⅛" bearing pad shall be an unreinforced pad meeting the requirements of Section 808, or shall be nylon reinforced neoprene meeting the requirements of Subsection 807.20. The pad shall be furnished in one piece for the required width and full length of the bearing and glued to the bent cap with an adhesive approved by the Engineer. Pads and adhesive will not be paid for directly, but will be considered subsidiary to the item "Class S(AE) Concrete-Bridge".

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: Structural steel shall be ASTM A709 and shall be paid for as "Structural Steel in Plate Girder Spans (A709, Gr. 50W)". Unless otherwise noted, Grade 50W steel shall not be painted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Structural steel completely embedded in concrete may be ASTM A709, 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.

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. All welding shall conform to Subsection 807.26.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 4
DETAILS OF 200'-0"
CONTINUOUS R.C. SLAB UNIT
HIGHWAY 7 OVER
SALINE RIVER TRIBUTARY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

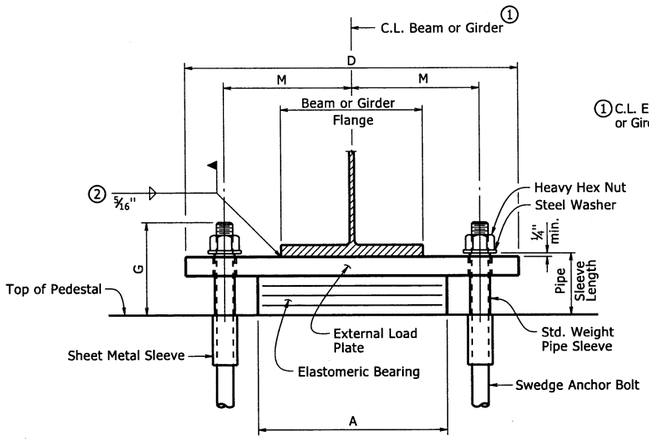
DRAWN BY: JWP DATE: 07/2019
CHECKED BY: MCB DATE: 8/19/19
DESIGNED BY: JSQ DATE: 07/2019
FILENAME: br60140x10_s1.dgn
SCALE: ⅛" = 1'-0"

BRIDGE NO. 07462 DRAWING NO. 61074

PRINT DATE: 8/14/2019

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.		R60140	300	616

① SEE TABLE - ELASTO. BNGS. - 61075

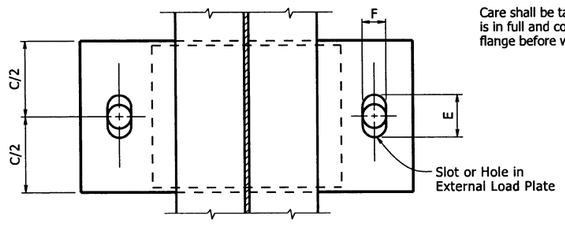


FRONT VIEW
Typical Unless Noted Otherwise

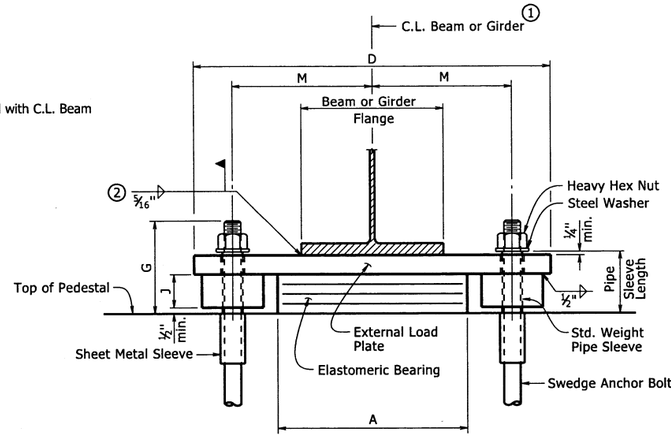
① C.L. Elastomeric Pad shall be aligned with C.L. Beam or Girder.

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.

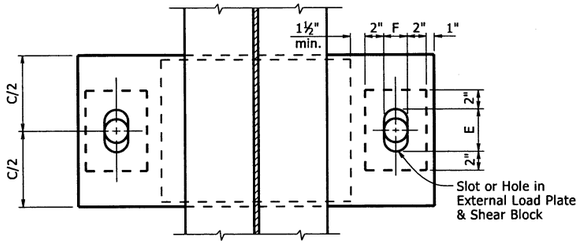


PLAN VIEW
Typical Unless Noted Otherwise

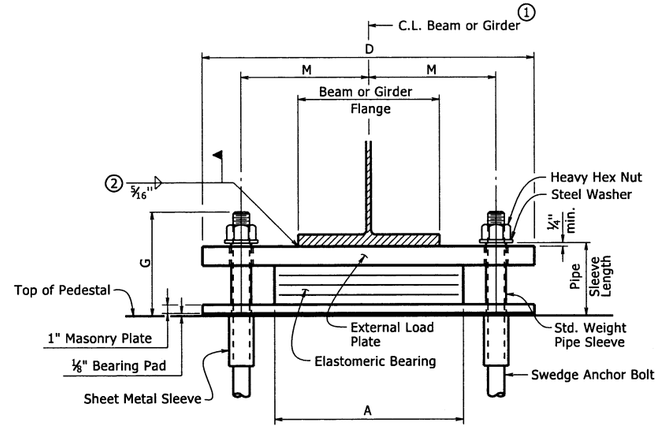


FRONT VIEW - BENTS WITH SHEAR BLOCKS
Br. No. B7207, Bents 2-4
Br. No. 07455, Bents 2-3
Br. No. 07457, Bents 2-3

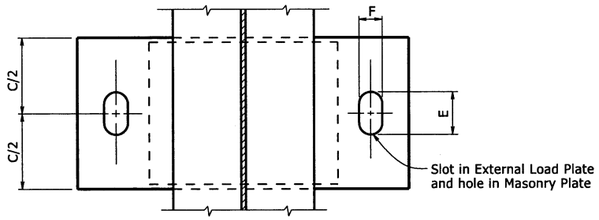
Prior to erection of the beams or girders, the Contractor shall verify the orientation of the bearing with respect to Ta and Tb.



PLAN VIEW - BENTS WITH SHEAR BLOCKS
Br. No. B7207, Bents 2-4
Br. No. 07455, Bents 2-3
Br. No. 07457, Bents 2-3

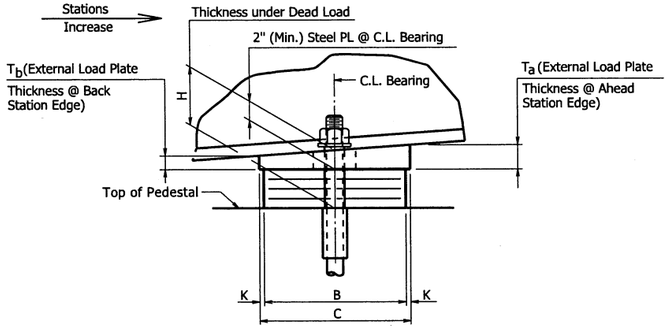


FRONT VIEW - BENTS WITH MASONRY PLATE
Br. No. B7207, Bents 1 & 5

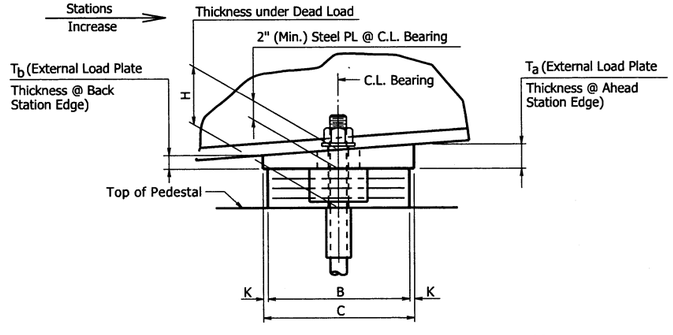


PLAN VIEW - BENTS WITH MASONRY PLATE
Br. No. B7207, Bents 1 & 5

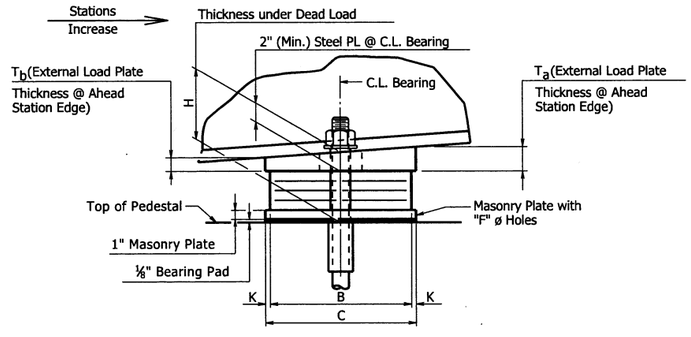
The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in the "Table of Fabricator Variables".



SIDE VIEW
Typical Unless Noted Otherwise



SIDE VIEW - BENTS WITH SHEAR BLOCKS
Br. No. B7207, Bents 2-4
Br. No. 07455, Bents 2-3
Br. No. 07457, Bents 2-3



SIDE VIEW - BENTS WITH MASONRY PLATE
Br. No. B7207, Bents 1 & 5

BRIDGE NUMBERS

SITE	BRIDGE NO.
1	B7206
2	B7207
3	07455
4	07456
5	07457
6	B7458
7	07459
8	07460
9	B7461

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8/20/19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF ELASTOMERIC BEARINGS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 7/2019 FILENAME: br60140_e1.dgn
CHECKED BY: LJB DATE: 8-20-19 SCALE: No Scale
DESIGNED BY: DKS DATE: 7/2019

BRIDGE NO. SEE TABLE DRAWING NO. 61075

PRINT DATE: 8/20/2019

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.		R60140	301	618

① SEE TABLE - ELASTO. BNGS. - 61076

TABLE OF FABRICATOR VARIABLES

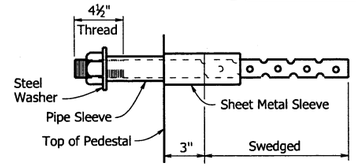
① Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION: BENT NO(S).	LOCATION: BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	①MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD: A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	EXTERNAL LOAD PLATE: A709, GR. __	C	D	E	F	J	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.)
B7206	1	All	Fix	6	121	7¼"	3 13/16"	12"	10½"	2	½"	¼"	3 @ 12 ga.	1 13/16"	50	11½"	25"	3⅜"	3⅛"	NA	½"	9¼"	2.15"	1.85"	2¼" x 33"	55	2½" x 4"	4" x 12"	4"
	2	All	Exp	6	121	7¼"	3 13/16"	12"	10½"	2	½"	¼"	3 @ 12 ga.	1 13/16"		11½"	25"	4½"	3⅛"	NA	½"	9¼"	2.14"	1.86"	2¼" x 33"	55	2½" x 4"	4" x 12"	4"
B7207	1	All	Exp	6	107	10¼"	6 1/16"	14"	9"	5	½"	¼"	6 @ 12 ga.	3⅝"	50	11"	26½"	7"	3⅛"	NA	1"	10"	2.03"	1.97"	2¼" x 36"	55	2½" x 7"	4" x 12"	4"
	2	All	Fix	6	335	7⅞"	4⅜"	18"	13"	3	½"	¼"	4 @ 12 ga.	2 7/16"		14"	38"	3½"	3⅛"	1⅞"	½"	14¼"	2.03"	1.97"	2¼" x 35"	55	2½" x 4⅜"	4" x 16"	4"
	3	All	Fix	6	335	7⅞"	4⅜"	18"	13"	3	½"	¼"	4 @ 12 ga.	2 7/16"		14"	38"	3⅛"	3⅛"	1⅞"	½"	14¼"	2.03"	1.97"	2¼" x 35"	55	2½" x 4⅜"	4" x 16"	4"
	4	All	Exp	6	241	7⅞"	4⅜"	18"	13"	3	½"	¼"	4 @ 12 ga.	2 7/16"		14"	38"	5¾"	3⅛"	1⅞"	½"	14¼"	2.03"	1.97"	2¼" x 35"	55	2½" x 4⅜"	4" x 16"	4"
	5	All	Exp	6	107	10¼"	6 1/16"	14"	9"	5	½"	¼"	6 @ 12 ga.	3⅝"		11"	26½"	7"	3⅛"	NA	1"	10"	2.03"	1.97"	2¼" x 36"	55	2½" x 7"	4" x 12"	4"
07455	1	All	Exp	11	109	8¼"	4 15/16"	14"	8"	4	½"	¼"	5 @ 12 ga.	3"	50	9"	26"	4¾"	3⅛"	NA	½"	9¾"	2.06"	1.94"	2" x 34"	55	2½" x 5¼"	4" x 23"③	3¾"
	2	All	Fix	11	270	8¼"	4 15/16"	14"	14"	4	½"	¼"	5 @ 12 ga.	3"		15"	34"	3½"	3⅛"	2 7/16"	½"	12¼"	2.11"	1.89"	2" x 36"	55	2½" x 5¼"	4" x 27"③	3¾"
	3	All	Fix	11	270	8¼"	4 15/16"	14"	14"	4	½"	¼"	5 @ 12 ga.	3"		15"	34"	3½"	3⅛"	2 7/16"	½"	12¼"	2.11"	1.89"	2" x 36"	55	2½" x 5¼"	4" x 27"③	3¾"
	4	All	Exp	11	109	8¼"	4 15/16"	14"	8"	4	½"	¼"	5 @ 12 ga.	3"		9"	26"	4¾"	3⅛"	NA	½"	9¾"	2.06"	1.94"	2" x 34"	55	2½" x 5¼"	4" x 23"③	3¾"
07456	1	All	Exp	4	112	7⅜"	4⅜"	13"	9"	3	½"	¼"	4 @ 12 ga.	2 7/16"	50	10"	24"	4¾"	2⅝"	NA	½"	9"	2.20"	1.80"	1¾" x 29"	55	2" x 4⅝"	4" x 14"	3⅜"
	2	All	Fix	4	254	7⅜"	3 13/16"	16"	13"	2	½"	¼"	3 @ 12 ga.	1 13/16"		14"	28"	3½"	3⅛"	NA	½"	10¾"	2.35"	1.65"	2¼" x 35"	55	2½" x 4⅛"	4" x 18"	4"
	3	All	Fix	4	254	7⅜"	3 13/16"	16"	13"	2	½"	¼"	3 @ 12 ga.	1 13/16"		14"	28"	3⅛"	3⅛"	NA	½"	10¾"	2.35"	1.65"	2¼" x 35"	55	2½" x 4⅛"	4" x 18"	4"
	4	All	Exp	4	112	7⅜"	4⅜"	13"	9"	3	½"	¼"	4 @ 12 ga.	2 7/16"		10"	24"	4¾"	2⅝"	NA	½"	9"	2.25"	1.75"	1¾" x 29"	55	2" x 4⅝"	4" x 14"	3⅜"
07457	1	All	Exp	4	191	11"	6 1/16"	18"	9"	7	½"	¼"	8 @ 12 ga.	4 13/16"	50	11½"	32"	7⅝"	3¾"	NA	1¼"	12½"	1.89"	2.11"	2¾" x 42"	55	3" x 7"	5" x 12"	5"
	2	All	Fix	4	479	8¾"	4 15/16"	21"	13"	4	½"	¼"	5 @ 12 ga.	3"		14"	41¾"	3¾"	3¾"	2⅜"	½"	16"	2.05"	1.95"	2½" x 37"	55	3" x 5¼"	4" x 16"	4½"
	3	All	Fix	4	479	8¾"	4 15/16"	21"	13"	4	½"	¼"	5 @ 12 ga.	3"		14"	41¾"	3¾"	3¾"	2⅜"	½"	16"	2.23"	1.77"	2½" x 37"	55	3" x 5¼"	4" x 16"	4½"
	4	All	Exp	4	191	11"	6 1/16"	18"	9"	7	½"	¼"	8 @ 12 ga.	4 13/16"		11½"	32"	7⅝"	3¾"	NA	1¼"	12½"	2.33"	1.67"	2¾" x 42"	55	3" x 7"	5" x 12"	5"
B7458	1	All	Exp	6	195	7⅝"	4⅜"	20"	10"	3	½"	¼"	4 @ 12 ga.	2 7/16"	50W	11"	32½"	4⅝"	2⅝"	NA	½"	12¾"	1.66"	2.34"	2" x 31"	55	2" x 4⅝"	4" x 12"	3⅜"
	2	All	Fix	6	195	7⅜"	3 13/16"	20"	10"	2	½"	¼"	3 @ 12 ga.	1 13/16"		11"	32½"	3⅛"	3⅛"	NA	½"	13"	1.68"	2.32"	2¼" x 33"	55	2½" x 4⅛"	4" x 12"	4"
07459	1	All	Exp	4	107	6¾"	3¾"	14"	8½"	2	½"	¼"	3 @ 12 ga.	1 13/16"	50	9½"	25½"	4⅛"	2⅝"	NA	½"	9¾"	2.23"	1.77"	1¾" x 28"	55	2" x 4"	4" x 12"	3⅜"
	2	All	Fix	4	280	7½"	3¾"	17"	13"	2	½"	¼"	3 @ 12 ga.	1 13/16"		14"	30"	3¾"	3¾"	NA	½"	11½"	2.14"	1.86"	2½" x 36"	55	3" x 4"	4" x 16"	4½"
	3	All	Exp	4	119	7½"	4⅜"	14"	8½"	3	½"	¼"	4 @ 12 ga.	2 7/16"		9½"	25½"	4⅜"	2⅝"	NA	½"	9¾"	1.86"	2.14"	1¾" x 29"	55	2" x 4⅝"	4" x 12"	3⅜"
07460	1	All	Exp	4	134	7⅜"	4⅜"	18"	10"	3	½"	¼"	4 @ 12 ga.	2 7/16"	50	11"	29½"	4½"	2⅝"	NA	½"	11¾"	1.98"	2.02"	1¾" x 28"	55	2" x 4⅝"	4" x 12"	3⅜"
	2	All	Fix	4	335	7⅝"	3 13/16"	18"	15"	2	½"	¼"	3 @ 12 ga.	1 13/16"		16"	31½"	3¾"	3¾"	NA	½"	12¼"	1.58"	2.42"	2½" x 36"	55	3" x 4¼"	4" x 16"	4½"
	3	All	Exp	4	134	7⅜"	4⅜"	18"	10"	3	½"	¼"	4 @ 12 ga.	2 7/16"		11"	29½"	4½"	2⅝"	NA	½"	11¾"	1.45"	2.55"	1¾" x 28"	55	2" x 4⅝"	4" x 12"	3⅜"
B7461	1	All	Exp	6	195	7⅝"	4⅜"	20"	10"	3	½"	¼"	4 @ 12 ga.	2 7/16"	50W	11"	32½"	4⅝"	2⅝"	NA	½"	12¾"	1.62"	2.39"	2" x 31"	55	2" x 4⅝"	4" x 12"	3⅜"
	2	All	Fix	6	195	7⅜"	3 13/16"	20"	10"	2	½"	¼"	3 @ 12 ga.	1 13/16"		11"	32½"	3⅛"	3⅛"	NA	½"	13"	1.62"	2.39"	2¼" x 33"	55	2½" x 4⅛"	4" x 12"	4"

③ Sheet metal sleeve length shown is maximum for bent. Field cut to length as necessary to penetrate the bottom of lowest layer of flexural reinforcement in the top of the cap.

BRIDGE NUMBERS

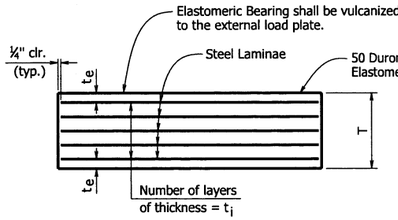
SITE	BRIDGE NO.
1	B7206
2	B7207
3	07455
4	07456
5	07457
6	B7458
7	07459
8	07460
9	B7461



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 (A709, Gr. 50)", "Structural Steel in Plate Girder Spans (A709, Gr. 50)", or "Structural Steel in Plate Girder Spans (A709, Gr. 50W)".



t_e = Thickness of elastomer cover on top and bottom of pad

t_i = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings".

External load plates, shear blocks, and masonry plates shall conform to ASTM A709, Grade 50 or 50W, see "Table of Fabricator Variables" for Grade. 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, shear blocks, and masonry plates shall be completely fabricated (including bevel, bolt holes and all shop welding) 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 (A709, Gr. 50)", "Structural Steel in Steel Girder Spans (A709, Gr. 50)", or "Structural Steel in Steel Girder Spans (A709, Gr. 50W)". External load plates and shear blocks will not be measured or paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

Bearings with masonry plates shall be seated in accordance with Subsection 807.66. Bearings without masonry plates shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8/20/19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF ELASTOMERIC BEARINGS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 7/2019
CHECKED BY: LJB DATE: 8-20-19
DESIGNED BY: DKS DATE: 7/2019

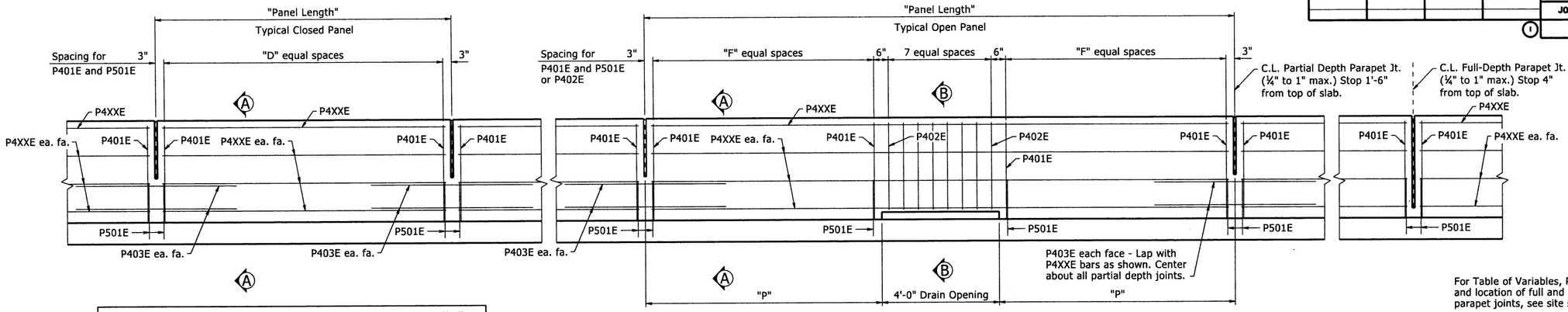
FILENAME: br60140_e1.dgn
SCALE: No Scale

BRIDGE NO. SEE TABLE DRAWING NO. 61076

PRINT DATE: 8/20/2019

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.		R60140	302	616

(1) SEE TABLE - 3'-6" RAILS - 61077

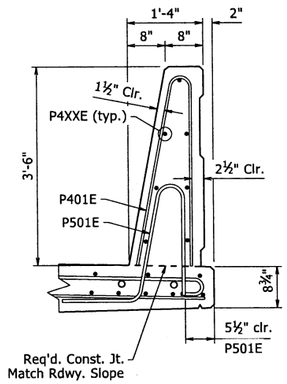


For Table of Variables, Parapet Bar List, and location of full and partial depth parapet joints, see site specific Dwg(s).

ELEVATION - CONCRETE PARAPET RAIL

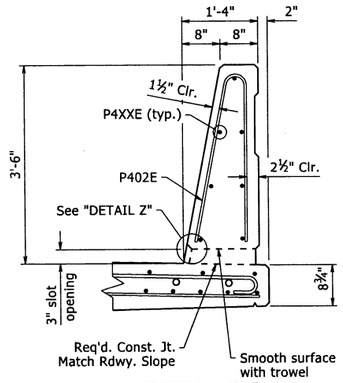
½" = 1'-0"

Details shown for Steel Bridge Structures. Reinforced Concrete Span Similar.



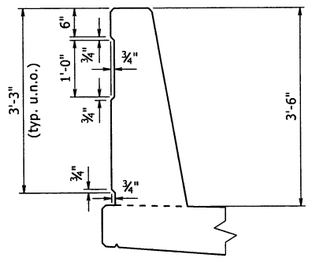
SECTION A-A

¾" = 1'-0"



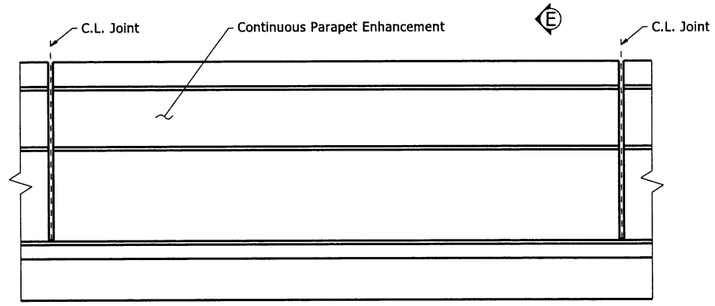
SECTION B-B

¾" = 1'-0"



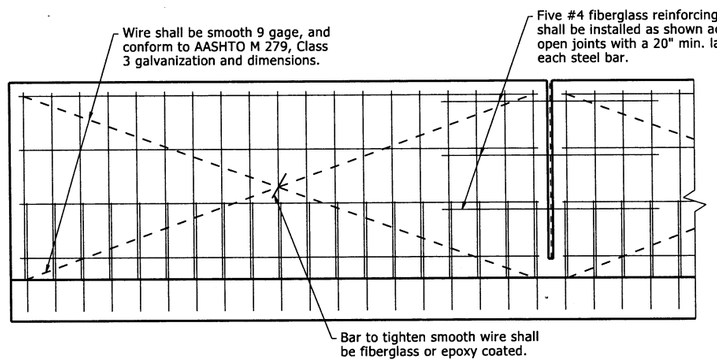
SECTION E-E

¾" = 1'-0"

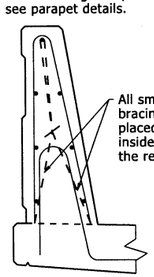


DETAILS OF PARAPET ENHANCEMENT

No Scale



For actual placement of reinforcing steel, see parapet details.

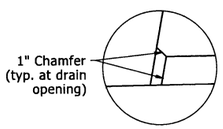


All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Unless otherwise noted, exposed surfaces may be given a light brush finish or a Class 3 Textured Coating Finish in place of Class 2 Rubbed Finish.

DETAILS OF OPTIONAL SLIP FORMING OF CONCRETE PARAPET RAIL

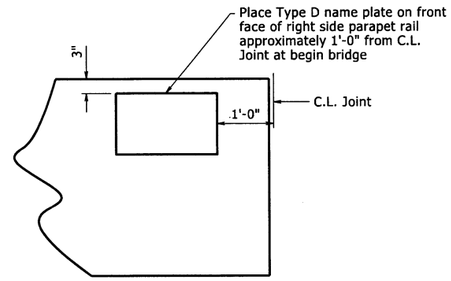
No Scale



DETAIL Z

No Scale

Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. R60140 "Textured Coating Finish".



NAME PLATE LOCATION

No Scale

BRIDGE NUMBERS

SITE	BRIDGE NO.
1	B7206
2	B7207
3	07455
4	07456
6	B7458
9	B7461
10	07462

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

COMMON DETAILS OF 3'-6" CONCRETE PARAPET RAILS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 5-7-19
CHECKED BY: LJB DATE: 8-13-19
DESIGNED BY: LJB DATE: 5-2019

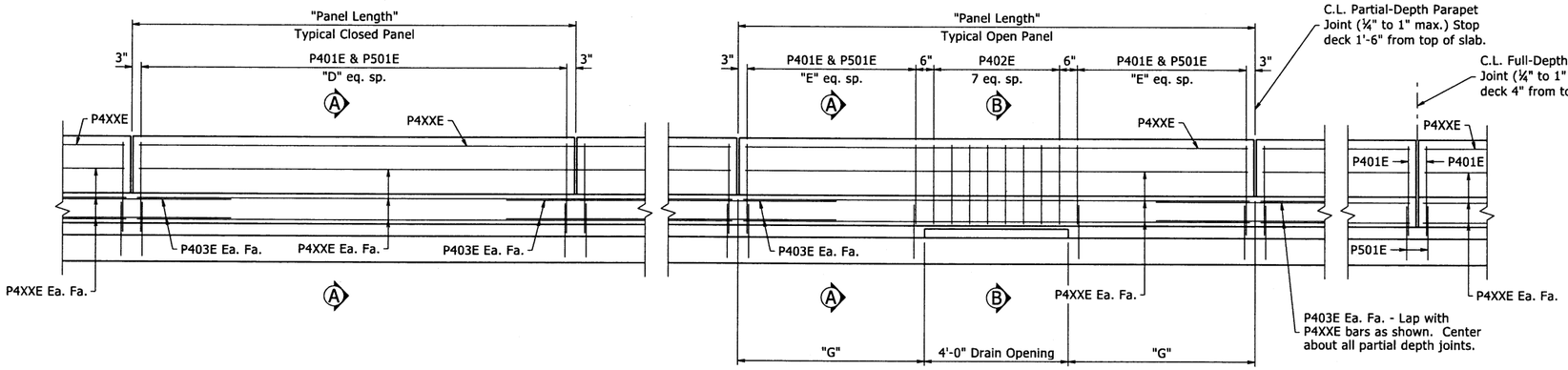
FILENAME: br60140_p1.dgn
SCALE: AS NOTED

BRIDGE NO. SEE TABLE

DRAWING NO. 61077

PRINT DATE: 8/13/2019

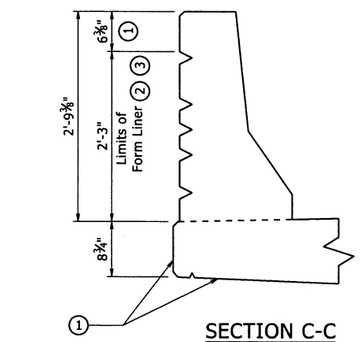
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	303	618
				①	07457,07459, & 07460 - 2'-9" RAILS - 61078			



ELEVATION - CONCRETE PARAPET RAIL

½" = 1'-0"

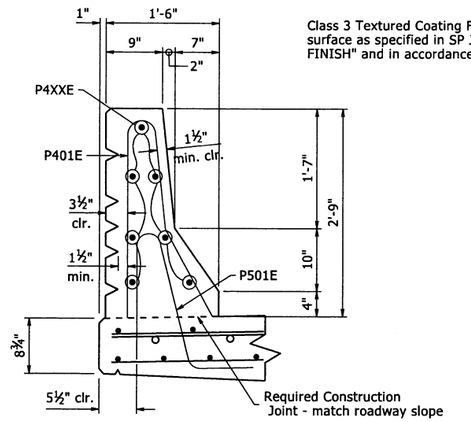
For Table of Variables, Parapet Bar List, and location of Full and Paritial Depth Parapet Joints, see site specific Dwg(s).



SECTION C-C

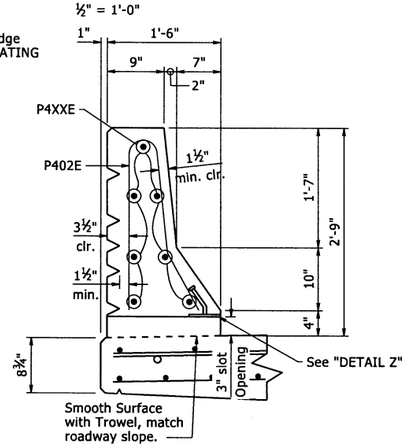
1" = 1'-0"

Class 3 Textured Coating Finish shall be applied to bridge surface as specified in SP JOB R60140 "TEXTURED COATING FINISH" and in accordance with Subsection 802.19.



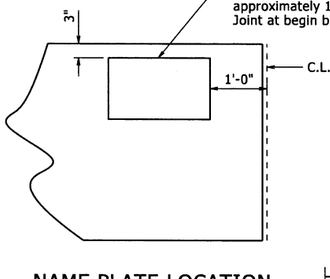
SECTION A-A

1" = 1'-0"



SECTION B-B

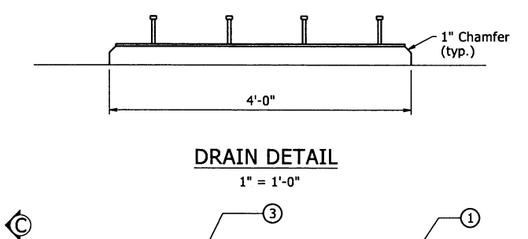
1"= 1'-0"



Place Type D name plate on front face of right side parapet rail approximately 1'-0" from C.L. Joint at begin bridge

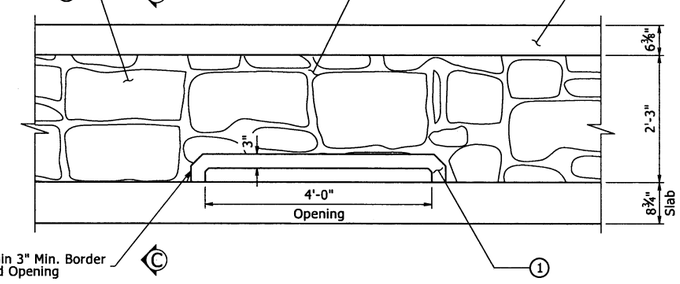
NAME PLATE LOCATION

No Scale



DRAIN DETAIL

1" = 1'-0"



① Class 3 Textured Coating Finish (Color = Brown, Color Chip 33522)

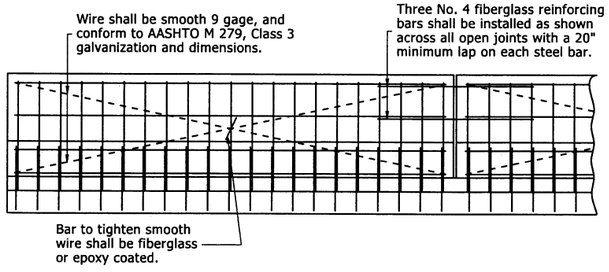
② Class 3 Textured Coating Finish (Color = Brown, Color Chip 30219)

③ "Ashlar Stone" Pattern Form Liner

DETAILS OF PARAPET ENHANCEMENT

¾" = 1'-0"

Form liner shall be a max. depth of 2" to provide a min. clearance of 1½" to parapet reinforcing.

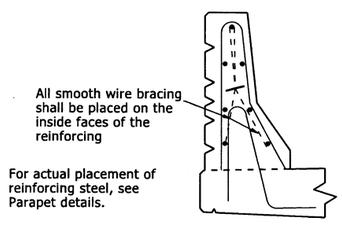


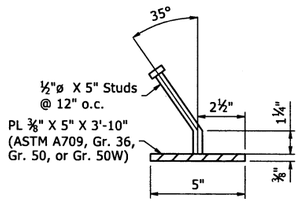
All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet shall conform to the horizontal and vertical lines as 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 SLIP FORMING OF CONCRETE PARAPET RAIL

No Scale





DETAIL Z

No Scale

Note:
Parapet studs shall be 5" long, granular flux filled, solid fluxed or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plates shall be measured and paid for as "Structural Steel in Plate Girder Spans (A709, Gr. 50W)" or "Structural Steel in Plate Girder Spans (A709, Gr. 50)."

The surfaces of the ⅜" plates which will not be in contact with concrete shall be painted in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the Fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Plate Girder Spans (A709, Gr. 50W)" or "Structural Steel in Plate Girder Spans (A709, Gr. 50)."

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8/19/19
BRIDGE ENGINEER

COMMON DETAILS OF 2'-9" CONCRETE PARAPET RAILS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 7/11/19 FILENAME: br60140_p2.dgn
CHECKED BY: TMG DATE: 8/13/19 SCALE: AS NOTED
DESIGNED BY: — DATE: —

BRIDGE NO. 07457,07459 & 07460 DRAWING NO. 61078

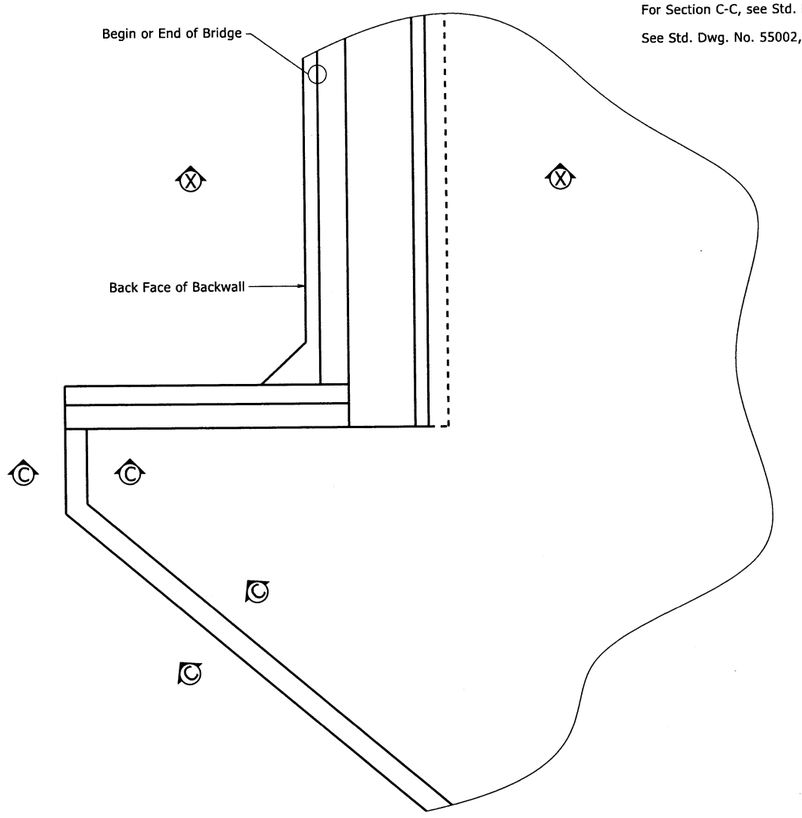
PRINT DATE: 8/13/2019

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.		R60140	304	616

(1) SEE TABLE - CONCRETE RIPRAP - 61079

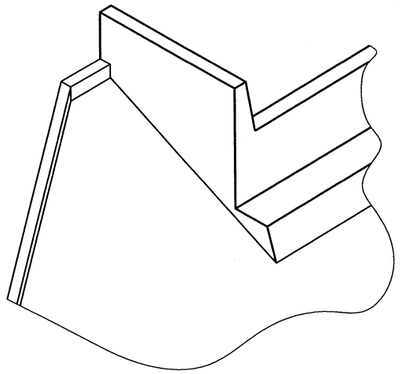
For Section C-C, see Std. Dwg. No. 55002.

See Std. Dwg. No. 55002, layouts, and end bent plans for additional information.



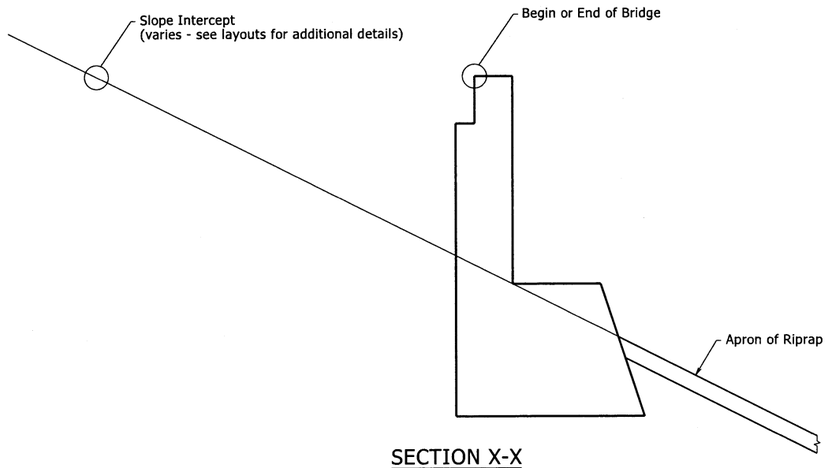
PLAN

Typical, except Br. No. B7206 and Br. No. B7207



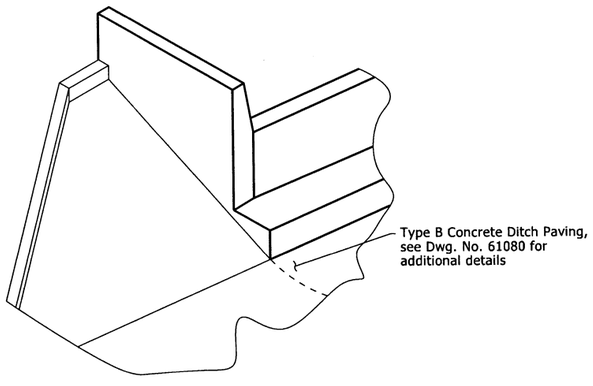
THREE DIMENSION VIEW OF CONCRETE RIPRAP

Typical, except Br. No. B7206 and Br. No. B7207



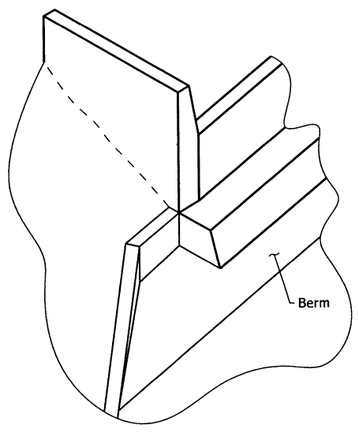
SECTION X-X

Typical, except Br. No. B7206 and Br. No. B7207



THREE DIMENSION VIEW OF CONCRETE RIPRAP

Br. No. B7206 - Left Side Shown,
Right Side to tie into existing as directed by Engineer



THREE DIMENSION VIEW OF CONCRETE RIPRAP

Br. No. B7207 - Left Side Shown,
Right Side to tie into existing as directed by Engineer

BRIDGE NUMBERS

SITE	BRIDGE NO.
1	B7206
2	B7207
3	07455
4	07456
6	B7458
7	07459
8	07460
9	B7461

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19

BRIDGE ENGINEER

SUPPLEMENTAL DETAILS OF CONCRETE RIPRAP

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

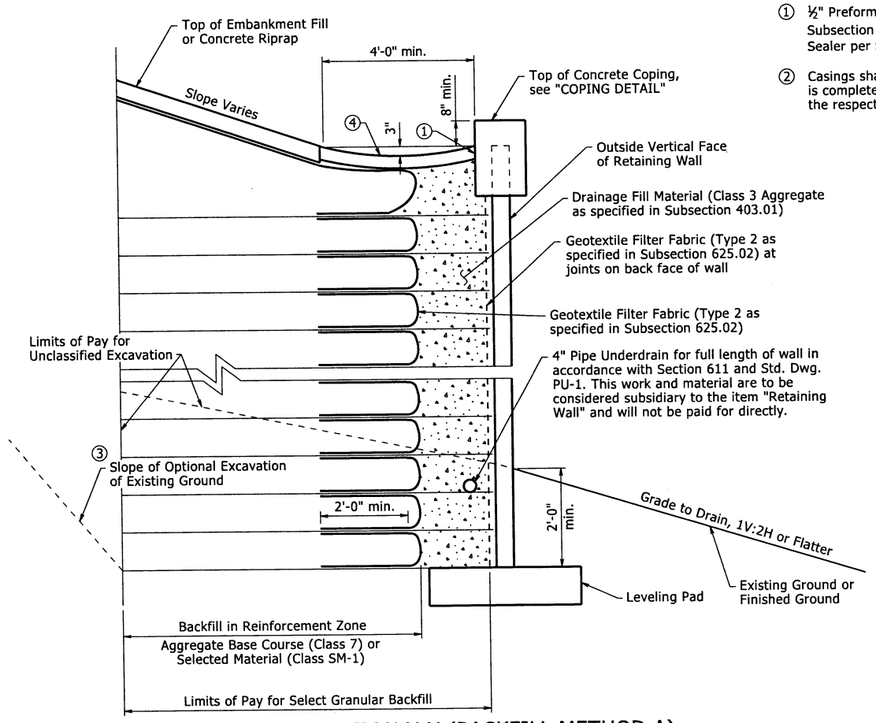
LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 7/25/19 FILENAME: br60140_cr1.dgn
CHECKED BY: LJB DATE: 8-13-19 SCALE: No Scale
DESIGNED BY: STD DATE: –

BRIDGE NO. SEE TABLE DRAWING NO. 61079

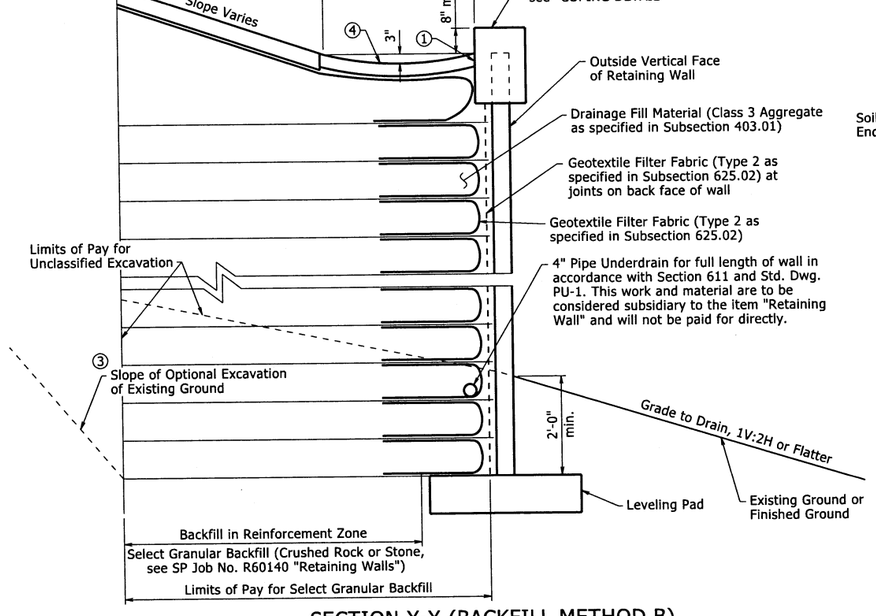
PRINT DATE: 8/13/2019

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.		R60140	305	616
				①	SEE TABLE - RETAINING WALL - 61080			



SECTION X-X (BACKFILL METHOD A)

Not Allowed at Walls 6A and 6B



SECTION X-X (BACKFILL METHOD B)

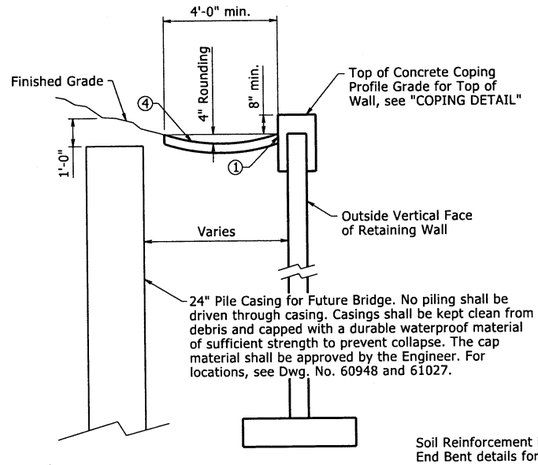
Required at Walls 6A and 6B

① ½" Preformed Joint Filler (AASHTO M 153, Type 1) per Subsection 501.02(h)(1). Seal with ½" x 1" Type 3 or 4 Joint Sealer per Subsection 501.02(h)(2).

② Casings shall be placed after excavation to top of leveling pad is completed. For locations of casings, see end bent details for the respective site.

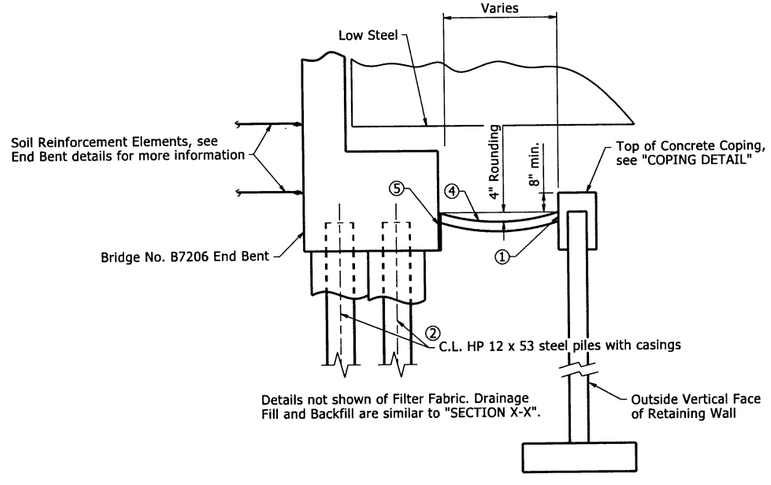
③ The Contractor has the option of using a cut slope or shoring to maintain stability of the cut or existing wall. Any excavation beyond the limits of the reinforcement zone or any shoring used will not be paid for directly, but shall be considered incidental to the item "Retaining Wall". See SP Job No. R60140 "Retaining Walls" for additional information.

④ See Dwg. No. CDP-1 for Ditch Paving Details.



SECTION C-C

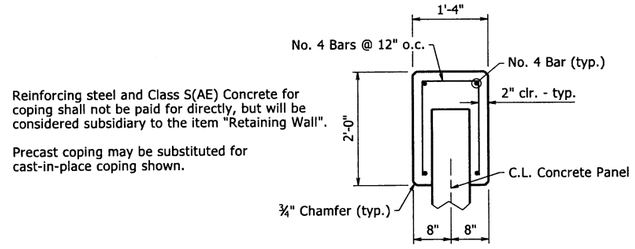
Walls 1A, 1B, 6A, 6B, 9A, 9B



SECTION B-B

Walls 1A, 1B

⑤ 1" Polystyrene Foam Board (Foam Board will not be paid for directly, but will be considered incidental to the various bid items)

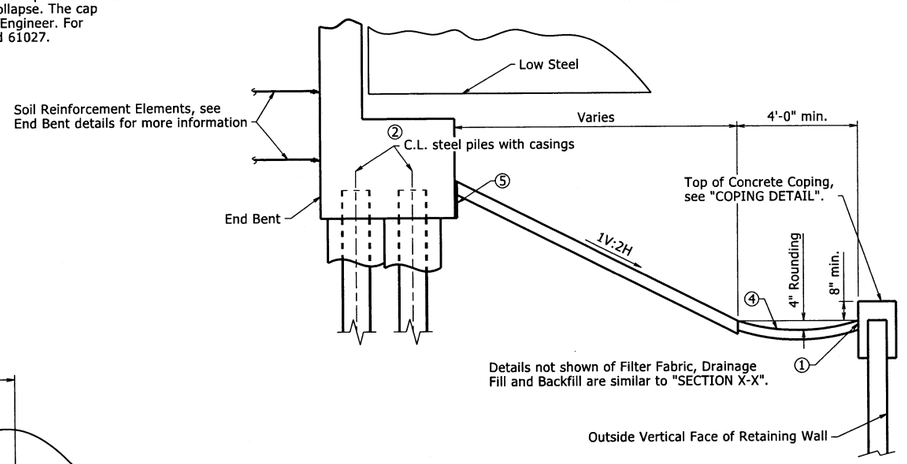


Reinforcing steel and Class S(AE) Concrete for coping shall not be paid for directly, but will be considered subsidiary to the item "Retaining Wall".

Precast coping may be substituted for cast-in-place coping shown.

COPING DETAIL

All Sites



SECTION D-D

All walls except for 1A and 1B

BRIDGE NUMBERS

BRIDGE NUMBERS	WALL NUMBERS
B7206	1A,1B
B7458	6A,6B
07459	7A,7B
07460	8A,8B
B7461	9A,9B

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19

BRIDGE ENGINEER

SHEET 1 OF 2
COMMON DETAILS OF RETAINING WALLS
HWY. 70 EAST-HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 6/19/19 FILENAME: br60140_rw.dgn
CHECKED BY: BHS DATE: 8/13/19 SCALE: No Scale
DESIGNED BY: WAC DATE: 6/2019

BRIDGE NO. SEE TABLE DRAWING NO. 61080

PRINT DATE: 8/13/2019

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.		R60140	306	616
				(1) SEE TABLE - RETAINING WALL - 61081				

GENERAL NOTES:

Design Specifications: AASHTO LRFD Bridge Design Specifications, Seventh Edition (2014) with 2015 Interims.

Boring logs for respective bridge sites may be obtained from the Construction Contract Procurement Section of the Program Management Division.

Elevations are approximate. Wall dimensions may vary depending on wall design selected.

Pipe Underdrains shall be used in the area of backfill as determined by the Engineer.

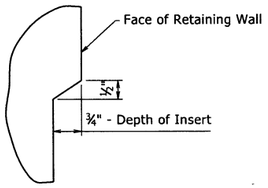
Reinforcement placement and details for retaining walls may be affected by end bent construction and proposed roadway drainage structures. See End Bent drawings for pile locations and cap details. See Roadway Plans for locations and details of drainage structures.

Preformed joint filler, joint sealer, and pipe underdrains will not be paid for directly, but will be considered subsidiary to the item "Retaining Wall".

An architectural finish (Ashlar Stone or approved equivalent) shall be applied to the face of the retaining walls. See Special Provision Job No. R60140 "Architectural Finish".

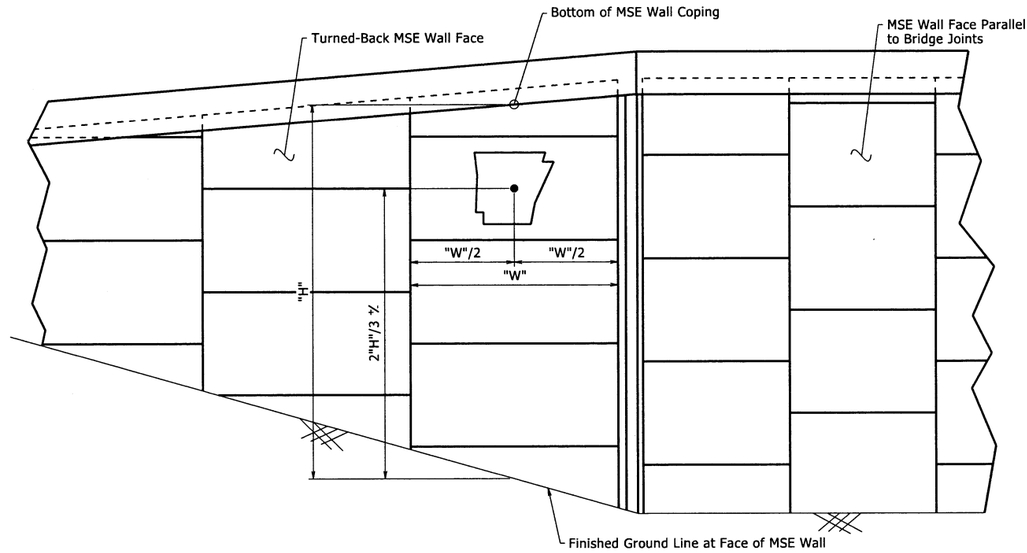
A Class 3 Textured Coating Finish shall be applied to the exposed face of the concrete wall panels and coping as specified in Special Provision Job No. R60140 "Textured Coating Finish" and in accordance with Subsection 802.19(b)(3).

See Special Provision Job No. R60140 "Retaining Walls" for additional information.



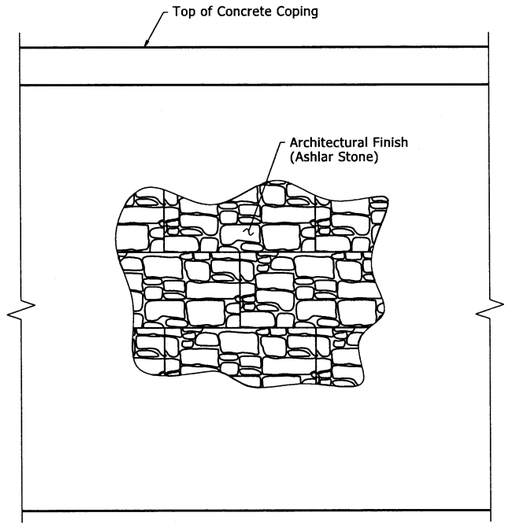
CHAMFER DETAIL

No Scale

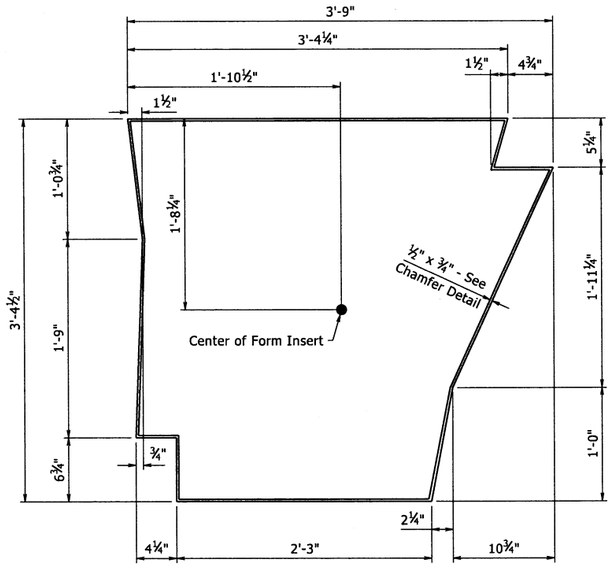


PLACEMENT AT MSE WALLS

All walls except for 1A and 1B
Turned-Back MSE Wall Shown, Straight Wall Similar
No Scale



ARCHITECTURAL FINISH DETAIL



See Bridge Layouts and MSE Wall details for locations of form inserts.

FORM INSERT DETAILS ON MSE WALLS

1½" = 1'-0"

BRIDGE NUMBERS

BRIDGE NUMBERS	WALL NUMBERS
B7206	1A,1B
B7458	6A,6B
07459	7A,7B
07460	8A,8B
B7461	9A,9B

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-7-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
COMMON DETAILS OF RETAINING WALLS
HWY. 70 EAST-HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

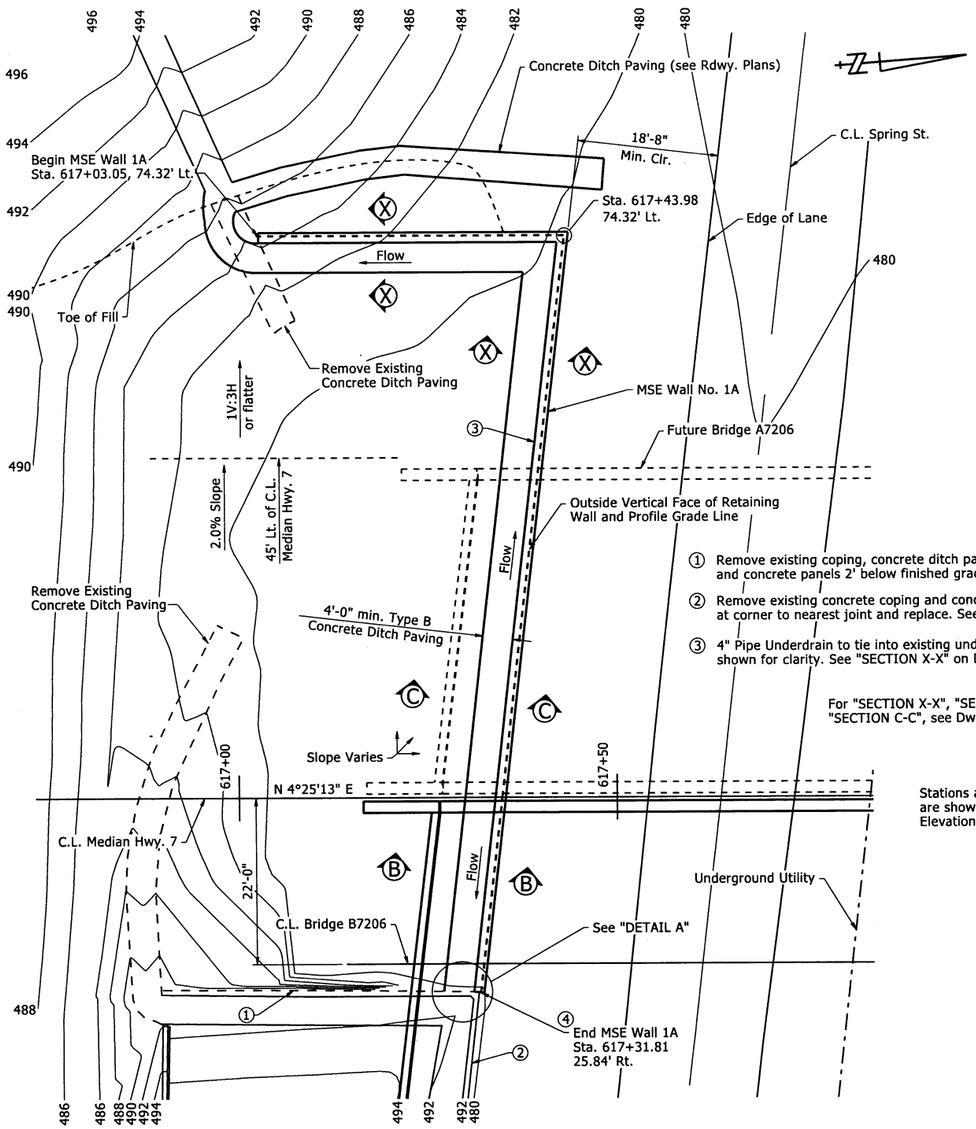
DRAWN BY: WAC DATE: 6/19/19 FILENAME: br60140_rw.dgn
CHECKED BY: BHS DATE: 8/13/19 SCALE: No Scale
DESIGNED BY: WAC DATE: 6/2019

BRIDGE NO. SEE TABLE DRAWING NO. 61081

PRINT DATE: 8/13/2019

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.		R60140	307	616

(1) B7206 - RETAINING WALL - 61082



PLAN

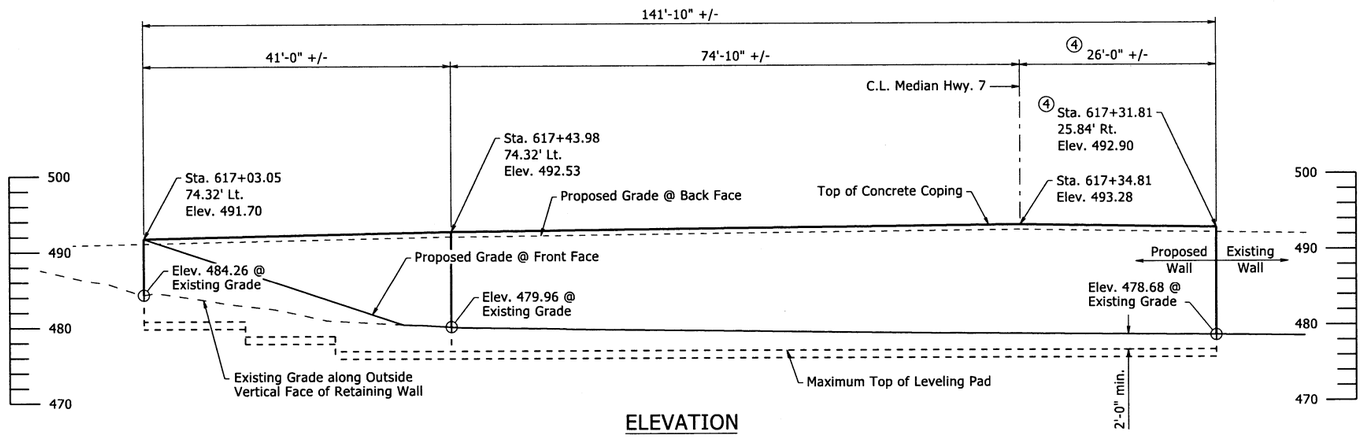
(1) Remove existing coping, concrete ditch paving, and concrete panels 2' below finished grade.

(2) Remove existing concrete coping and concrete ditch paving at corner to nearest joint and replace. See "DETAIL A".

(3) 4" Pipe Underdrain to tie into existing underdrain, not shown for clarity. See "SECTION X-X" on Dwg. No. 61080.

For "SECTION X-X", "SECTION B-B", and "SECTION C-C", see Dwg. No. 61080.

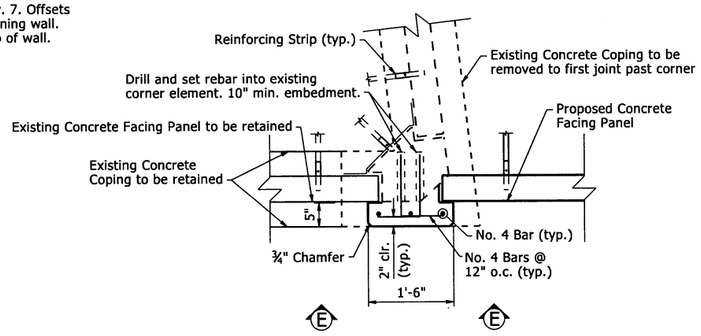
Stations are measured along C.L. Median Hwy. 7. Offsets are shown to the outside vertical face of retaining wall. Elevations shown are profile grade line on top of wall.



ELEVATION

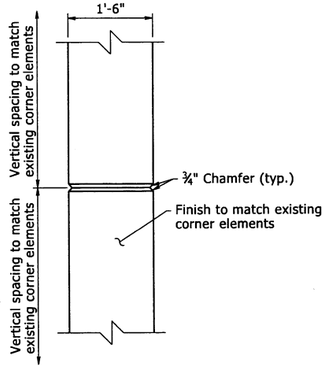
Looking at Back Face of Wall

(4) Dimensions are based on best available information. Details show the general intent of the retaining wall and how it ties to the existing and new structure. Actual dimensions may vary in the field. The Contractor shall make adjustments to the retaining wall as required. Quantities are based on dimensions shown.



DETAIL A

¾" = 1'-0"



VIEW E-E

No Scale

TABLE OF QUANTITIES

(For Information Only)

ITEM NO.	SP R60140	SP R60140	SP R60140	210	605
ITEM	SELECT GRANULAR BACKFILL	RETAINING WALL	TEXTURED COATING FINISH	UNCLASSIFIED EXCAVATION	CONCRETE DITCH PAVING (TYPE B)
UNIT	CU. YD.	SQ. FT.	SQ. FT.	CU. YD.	SQ. YD.
	1,015	2,190	1,965	310	90

BEARING RESISTANCE

Factored Bearing Resistance (KSF)
4.0

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-1979

BRIDGE ENGINEER

LAYOUT OF RETAINING WALL 1A
HIGHWAY 7 OVER SPRING STREET
HWY. 70 EAST-HWY.7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

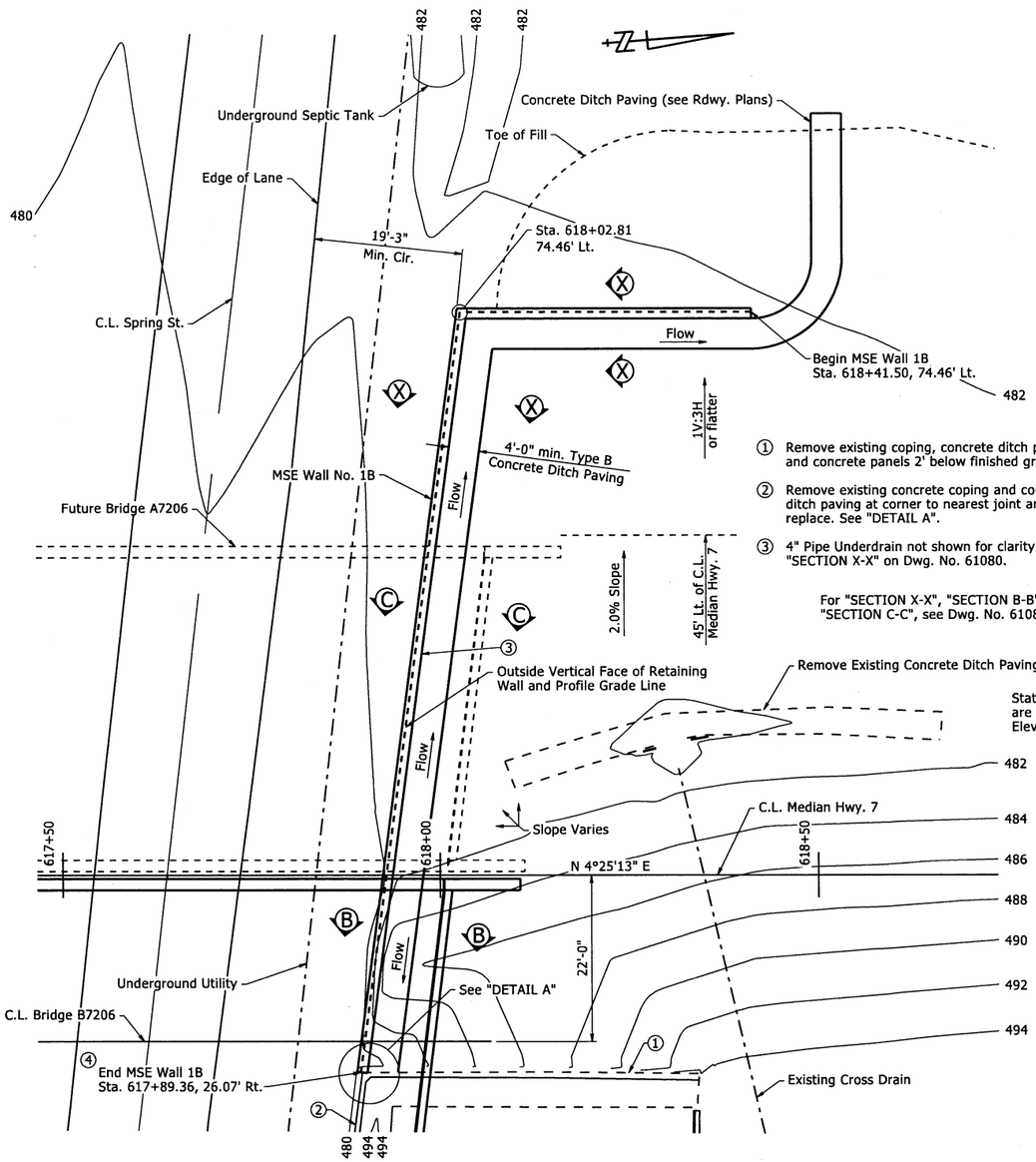
DRAWN BY: WAC DATE: 4/23/19 FILENAME: br60140x1_rw1.dgn
CHECKED BY: BWS DATE: 8/15/19 SCALE: 1" = 10'
DESIGNED BY: WAC DATE: 4/2019

BRIDGE NO. B7206 DRAWING NO. 61082

PRINT DATE: 8/15/2019

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.		R60140	308	616

(1) B7206 - RETAINING WALL - 61083



PLAN

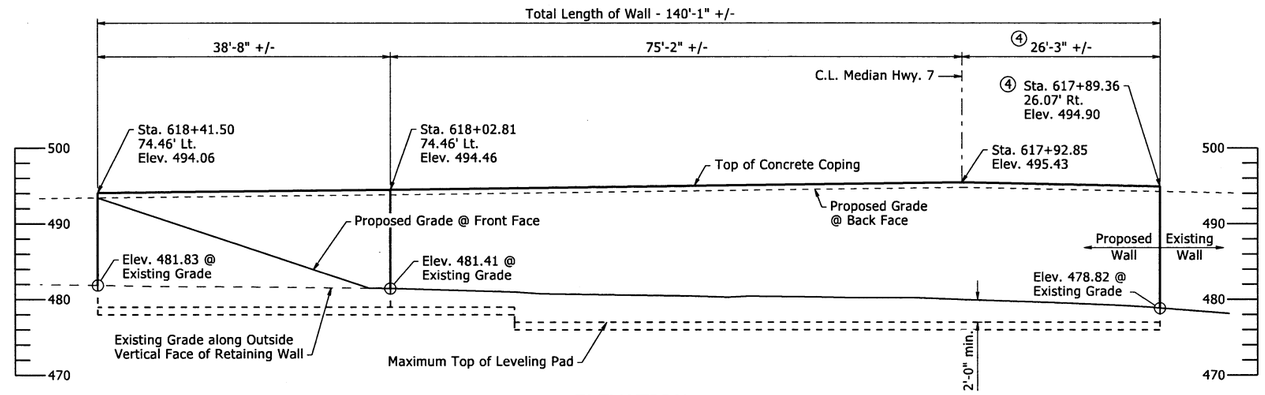
① Remove existing coping, concrete ditch paving, and concrete panels 2' below finished grade.

② Remove existing concrete coping and concrete ditch paving at corner to nearest joint and replace. See "DETAIL A".

③ 4" Pipe Underdrain not shown for clarity. See "SECTION X-X" on Dwg. No. 61080.

For "SECTION X-X", "SECTION B-B", and "SECTION C-C", see Dwg. No. 61080.

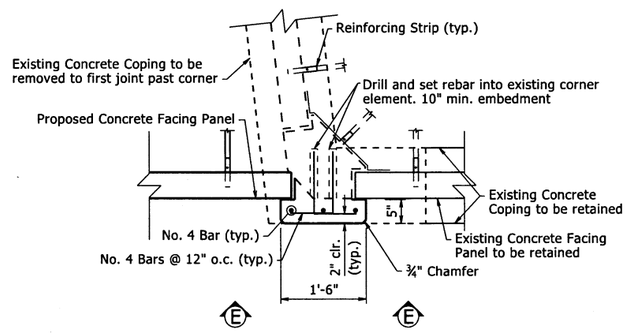
Stations are measured along C.L. Median Hwy. 7. Offsets are shown to the outside vertical face of retaining wall. Elevations shown are profile grade line along top of wall.



ELEVATION

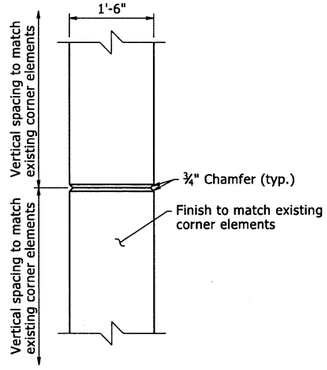
Looking at Front Face of Wall

④ Dimensions are based on best available information. Details show the general intent of the retaining wall and how it ties to the existing and new structure. Actual dimensions may vary in the field. The Contractor shall make adjustments to the retaining wall as required. Quantities are based on dimensions shown.



DETAIL A

¾" = 1'-0"



VIEW E-E

No Scale

TABLE OF QUANTITIES

(For Information Only)

ITEM NO.	SP R60140	SP R60140	SP R60140	210	605
ITEM	SELECT GRANULAR BACKFILL	RETAINING WALL	TEXTURED COATING FINISH	UNCLASSIFIED EXCAVATION	CONCRETE DITCH PAVING (TYPE B)
ITEM	CU. YD.	SQ. FT.	SQ. FT.	CU. YD.	SQ. YD.
	1,275	2,400	2,060	315	75

BEARING RESISTANCE

Factored Bearing Resistance (KSF)
4.0

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-19-19

BRIDGE ENGINEER

LAYOUT OF RETAINING WALL 1B HIGHWAY 7 OVER SPRING STREET HWY. 70 EAST-HWY.7 NORTH (F) GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

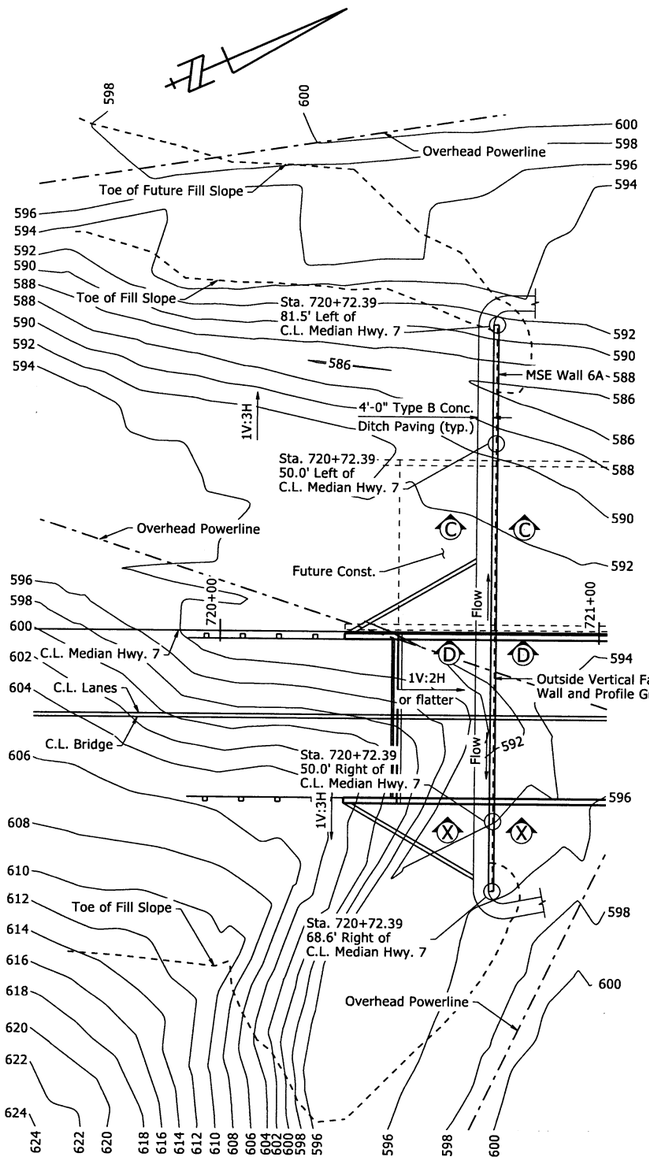
DRAWN BY: WAC DATE: 4/23/19
CHECKED BY: BHS DATE: 8/15/19
DESIGNED BY: WAC DATE: 4/2019

FILENAME: br60140x1_l1.dgn
SCALE: 1" = 10'

BRIDGE NO. B7206 DRAWING NO. 61083

PRINT DATE: 8/15/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10/30/19				6	ARK.			
				JOB NO.		R60140	309	616
				① B7458 - RETAINING WALL - 61084				



PLAN

1" = 20'-0"

BEARING RESISTANCE

Factored Bearing Resistance (KSF)
4

Note:
Stations and offsets shown are measured along C.L. Median Hwy. 7. Offsets are shown to the outside vertical face of MSE retaining wall. Elevations shown are profile grade at top of coping.

For additional details, see Dwg. Nos. 61080 - 61081.

For "SECTION C-C" "SECTION D-D", and "SECTION X-X", see Dwg. No. 61080.

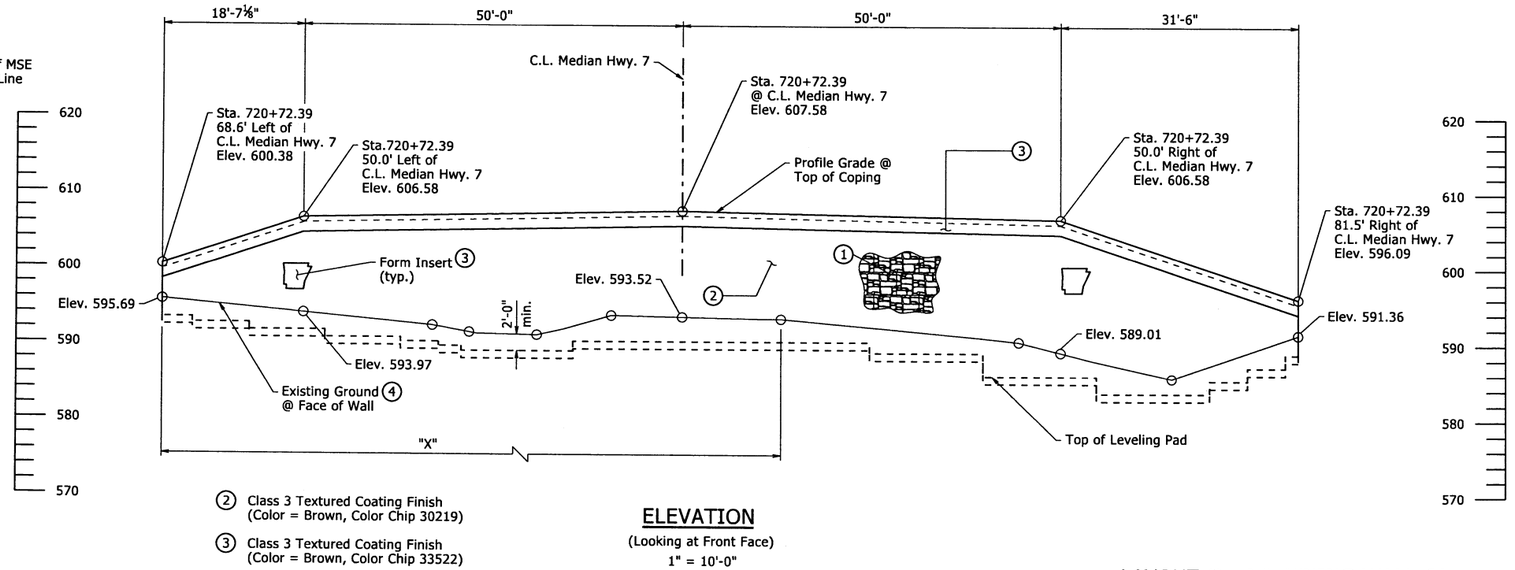
For "FORM INSERT DETAILS," SEE Dwg. No. 61081.

① Ashlar Stone Finish SP Job No. R60140
"ARCHITECTURAL FINISH."

TABLE OF QUANTITIES

(FOR INFORMATION ONLY)

ITEM NO.	210	605	SP R60140	SP R60140	SP R60140
ITEM	UNCLASSIFIED EXCAVATION	CONCRETE DITCH PAVING (TYPE B)	SELECT GRANULAR BACKFILL	RETAINING WALLS	TEXTURED COATING FINISH
UNIT	CU. YD.	SQ. YD.	CU. YD.	SQ. FT.	SQ. YD.
	108	67	1,084	2,477	229



② Class 3 Textured Coating Finish
(Color = Brown, Color Chip 30219)

③ Class 3 Textured Coating Finish
(Color = Brown, Color Chip 33522)

ELEVATION

(Looking at Front Face)
1" = 10'-0"

⚠ Added Elevations and Dimensions for Existing Ground
By: DPT Date: 10/30/2019
Checked By: JWP Date: 10/30/2019

⚠ "X"	Elev. ④
35.7	592.34
40.5	591.46
49.5	591.12
59.3	593.70
81.7	593.30
113.1	590.37
133.3	585.60

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
10-31-19
CHARLES R. ELLIS
BRIDGE ENGINEER

LAYOUT OF RETAINING WALL 6A
HIGHWAY 7 OVER COVENANT TRAIL
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 6/19/2019 FILENAME: br60140x6_l1.dgn
CHECKED BY: KJT DATE: 9/14/19 SCALE: AS NOTED
DESIGNED BY: DPT DATE: 6/2019

BRIDGE NO. B7458 DRAWING NO. 61084

PRINT DATE: 10/30/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10/30/19				6	ARK.			
				JOB NO.		R60140	310	616
				① B7458 - RETAINING WALL - 61085				

BEARING RESISTANCE

Factored Bearing Resistance (KSF)
4

Note:
Stations and offsets shown are measured along C.L. Median Hwy. 7. Offsets are shown to the outside vertical face of MSE retaining wall. Elevations shown are profile grade at top of coping.

For additional details, see Dwg. Nos. 61080 - 61081.

For "SECTION C-C" "SECTION D-D", and "SECTION X-X", see Dwg. No. 61080.

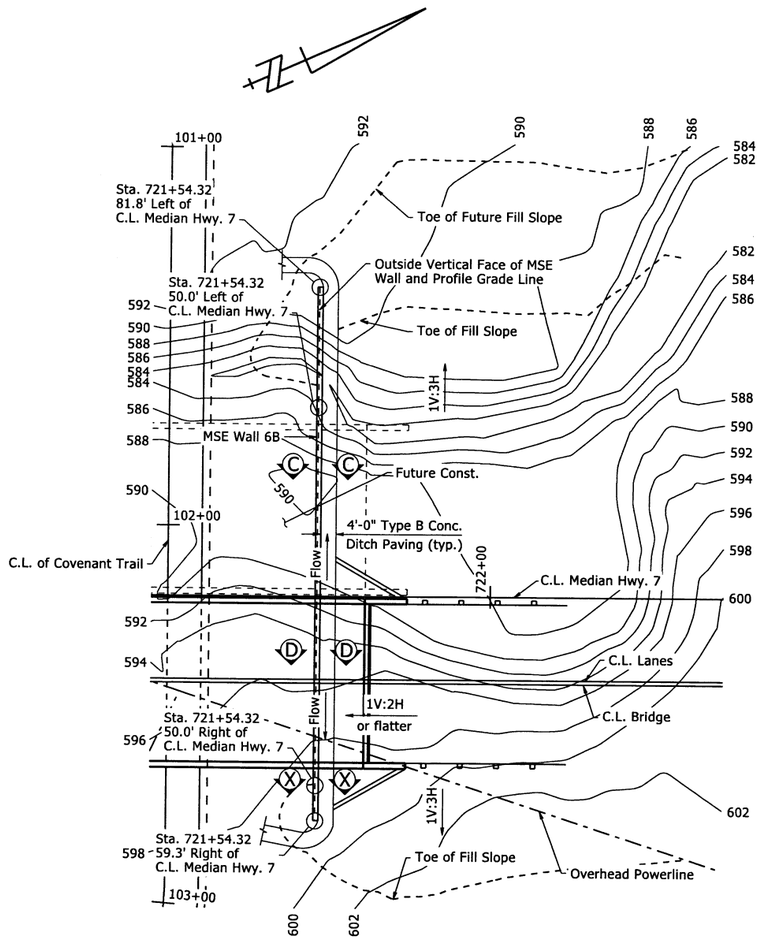
For "FORM INSERT DETAILS," SEE Dwg. No. 61081.

① Ashlar Stone Finish SP Job No. R60140 "ARCHITECTURAL FINISH."

TABLE OF QUANTITIES

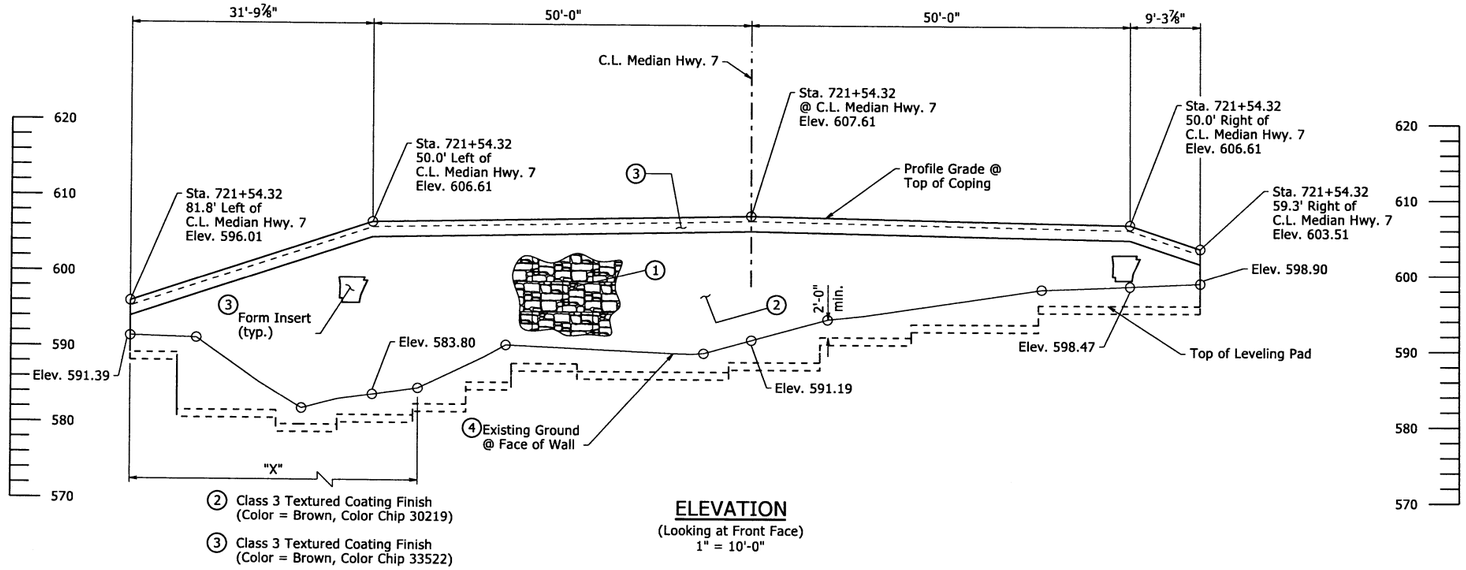
(FOR INFORMATION ONLY)

ITEM NO.	210	605	SP R60140	SP R60140	SP R60140
ITEM	UNCLASSIFIED EXCAVATION	CONCRETE DITCH PAVING (TYPE B)	SELECT GRANULAR BACKFILL	RETAINING WALLS	TEXTURED COATING FINISH
UNIT	CU. YD.	SQ. YD.	CU. YD.	SQ. FT.	SQ. YD.
	113	63	1,285	2,473	224



PLAN

1" = 20'-0"



② Class 3 Textured Coating Finish (Color = Brown, Color Chip 30219)

③ Class 3 Textured Coating Finish (Color = Brown, Color Chip 33522)

ELEVATION

(Looking at Front Face)

1" = 10'-0"

⚠1 Added Elevations and Dimensions for Existing Ground
By: DPT Date: 10/30/2019
Checked By: JWP Date: 10/30/2019

⚠1

"X"	Elev. ④
8.7	591.15
22.5	581.91
37.8	584.65
49.5	590.41
75.6	589.43
91.9	593.94
120.1	598.02

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
10-31-19
CHARLES R. ELLIS

BRIDGE ENGINEER

LAYOUT OF RETAINING WALL 6B HIGHWAY 7 OVER COVENANT TRAIL HWY. 70 EAST - HWY. 7 NORTH (F) GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

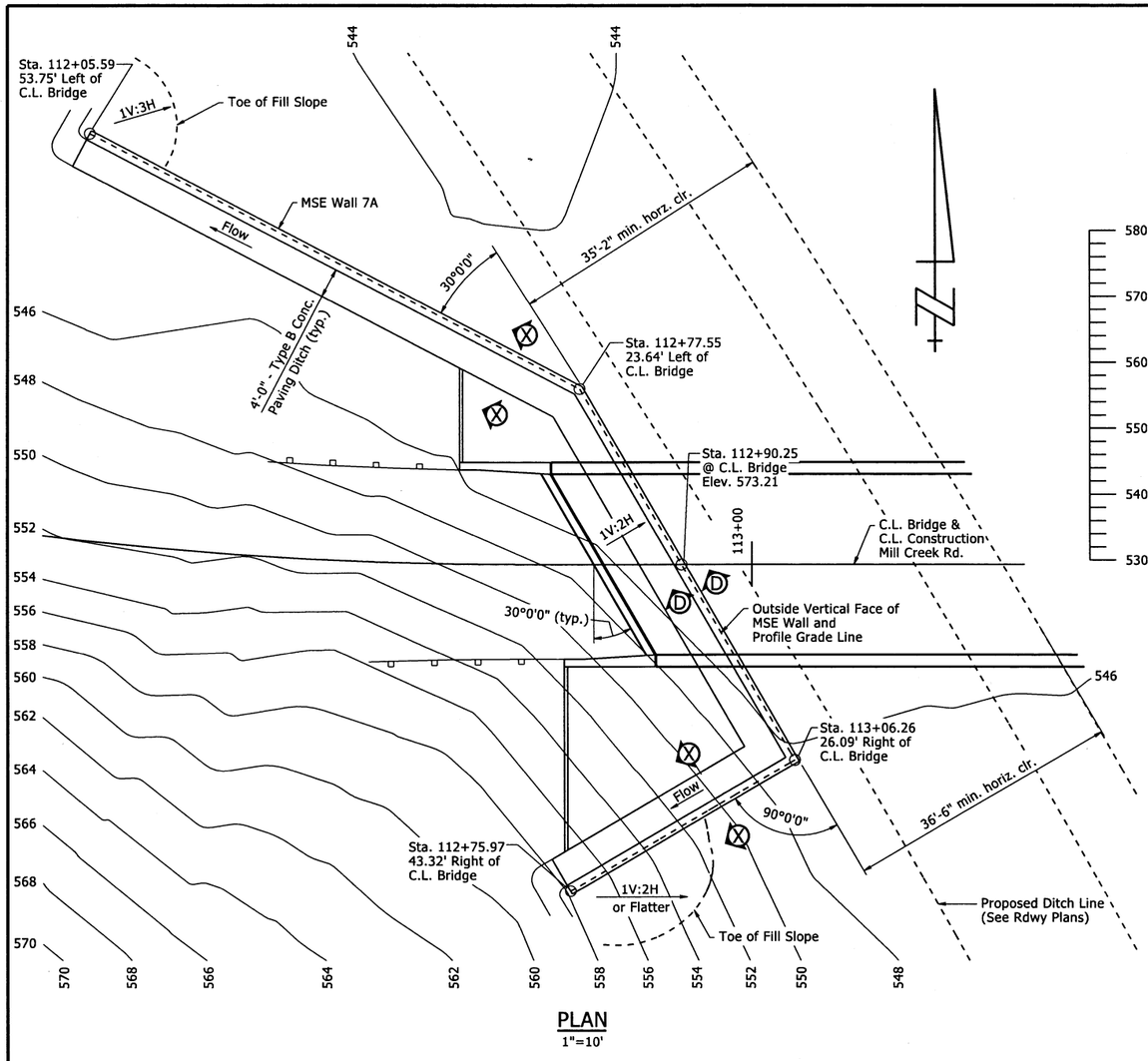
DRAWN BY: DPT DATE: 6/19/2019 FILENAME: br60140x6_l1.dgn
CHECKED BY: DPT DATE: 6/2019 SCALE: AS NOTED
DESIGNED BY: DPT DATE: 6/2019

BRIDGE NO. B7458 DRAWING NO. 61085

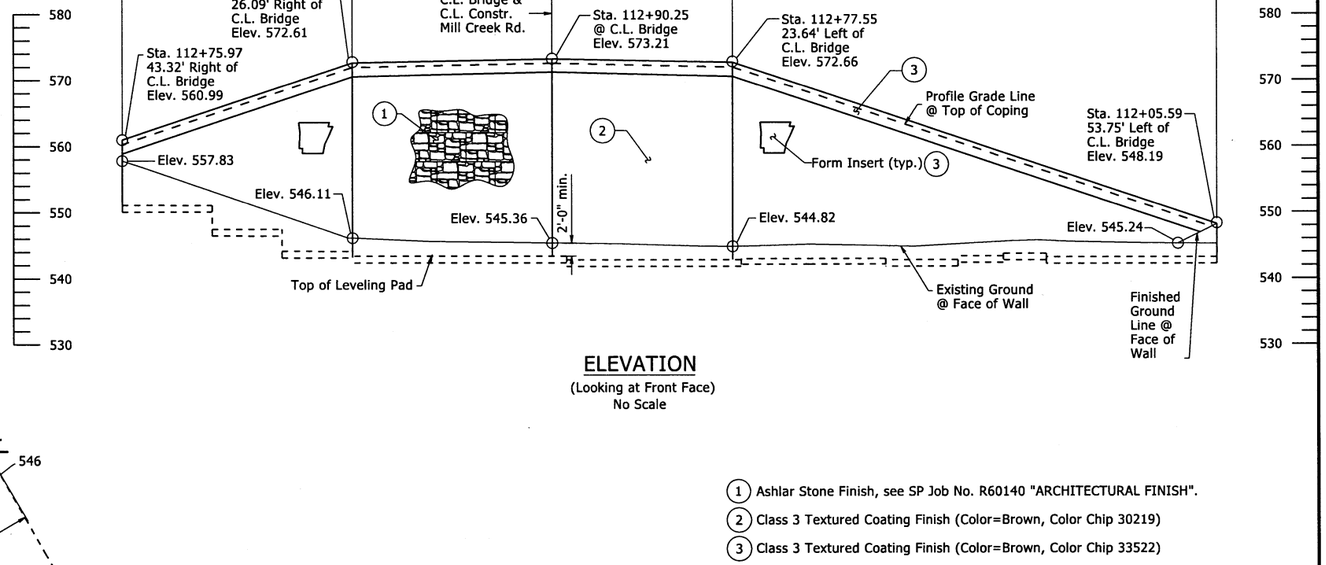
PRINT DATE: 10/30/2019

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.		R60140	3/1	6/6

(1) 07459 - RETAINING WALL - 61086



PLAN
1"=10'



ELEVATION
(Looking at Front Face)
No Scale

(1) Ashlar Stone Finish, see SP Job No. R60140 "ARCHITECTURAL FINISH".
(2) Class 3 Textured Coating Finish (Color=Brown, Color Chip 30219)
(3) Class 3 Textured Coating Finish (Color=Brown, Color Chip 33522)

TABLE OF QUANTITIES
(FOR INFORMATION ONLY)

ITEM NO.	210	605	SP R60140	SP R60140	SP R60140
ITEM / UNIT	UNCLASSIFIED EXCAVATION	CONCRETE DITCH PAVING (TYPE B)	SELECT GRANULAR BACKFILL	RETAINING WALL	TEXTURED COATING FINISH
	CU.YD.	SQ.YD.	CU.YD.	SQ. FT.	SQ. YD.
	108	74	2,330	3,621	358

BEARING RESISTANCE

Factored Bearing Resistance (KSF)
4

Notes:

Stationing shown is along C.L. Bridge and C.L. Construction on Mill Creek Rd.

Offset dimensions are measured from C.L. Bridge and C.L. Construction on Mill Creek Rd. to outside vertical face of MSE retaining wall.

For additional details, see Dwg. Nos. 61080-61081.

For "SECTION X-X" and "SECTION D-D", see Dwg. No. 61080.

For "FORM INSERT DETAILS", see Dwg. No. 61081.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19
BRIDGE ENGINEER

LAYOUT OF RETAINING WALL 7A
MILL CREEK ROAD OVER HIGHWAY 7
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

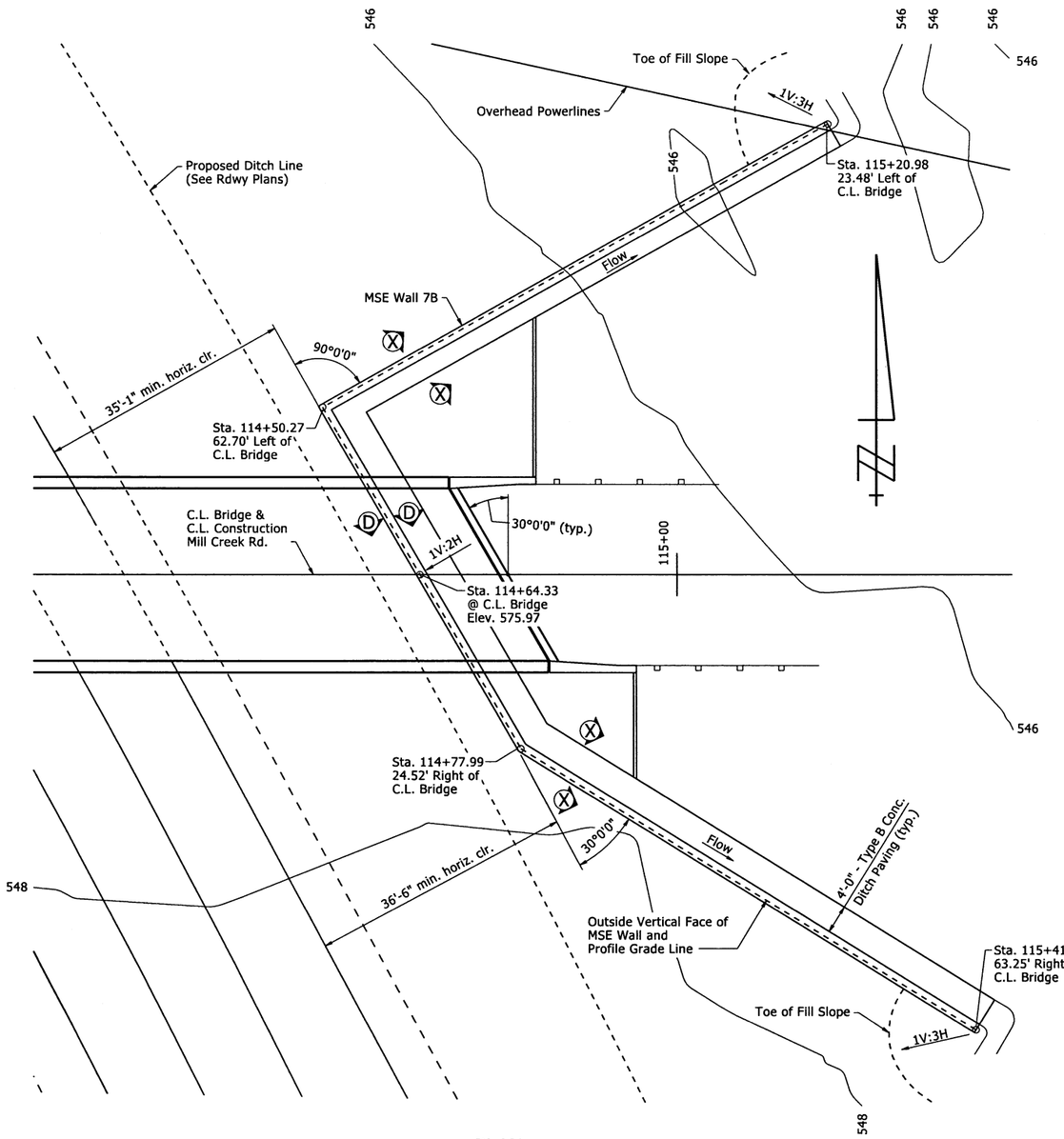
DRAWN BY: KJT DATE: 4/19/19 FILENAME: br60140x7_l1.dgn
CHECKED BY: DDT DATE: 8/19/19 SCALE: AS NOTED
DESIGNED BY: KJT DATE: 4/19

BRIDGE NO. 07459 DRAWING NO. 61086

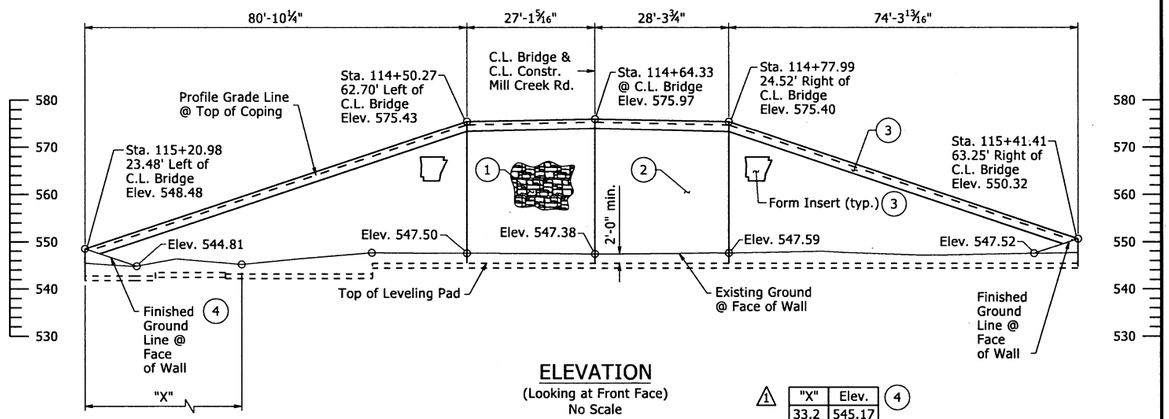
PRINT DATE: 8/14/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10/30/19				6	ARK.			
				JOB NO.		R60140	312	616

(1) 07459 - RETAINING WALL - 61087



PLAN
Scale: 1"=10'



ELEVATION
(Looking at Front Face)
No Scale

1	"X"	Elev.	4
	33.2	545.17	
	60.8	547.64	

TABLE OF QUANTITIES
(FOR INFORMATION ONLY)

ITEM NO.	210	605	SP R60140	SP R60140	SP R60140
ITEM / UNIT	UNCLASSIFIED EXCAVATION	CONCRETE DITCH PAVING (TYPE B)	SELECT GRANULAR BACKFILL	RETAINING WALL	TEXTURED COATING FINISH
	CU. YD.	SQ.YD.	CU.YD.	SQ. FT.	SQ. YD.
	119	94	2,568	4,402	442

BEARING RESISTANCE

Factored Bearing Resistance (KSF)
4

Notes:

Stationing shown is along C.L. Bridge and C.L. Construction on Mill Creek Rd.

Offset dimensions are measured from C.L. Bridge and C.L. Construction on Mill Creek Rd. to outside vertical face of MSE retaining wall.

For additional details, see Dwg. Nos. 61080-61081.

For "SECTION X-X" and "SECTION D-D", see Dwg. No. 61080.

For "FORM INSERT DETAILS", see Dwg. No. 61081.

(1) Ashlar Stone Finish, see SP Job No. R60140 "ARCHITECTURAL FINISH".

(2) Class 3 Textured Coating Finish (Color=Brown, Color Chip 30219)

(3) Class 3 Textured Coating Finish (Color=Brown, Color Chip 33522)

1 Added Elevations and Dimensions for Existing Ground
By: DPT Date: 10/30/2019
Checked By: JWP Date: 10/30/2019

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
10-31-19
CHARLES R. ELLIS
BRIDGE ENGINEER

LAYOUT OF RETAINING WALL 7B
MILL CREEK ROAD OVER HIGHWAY 7
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

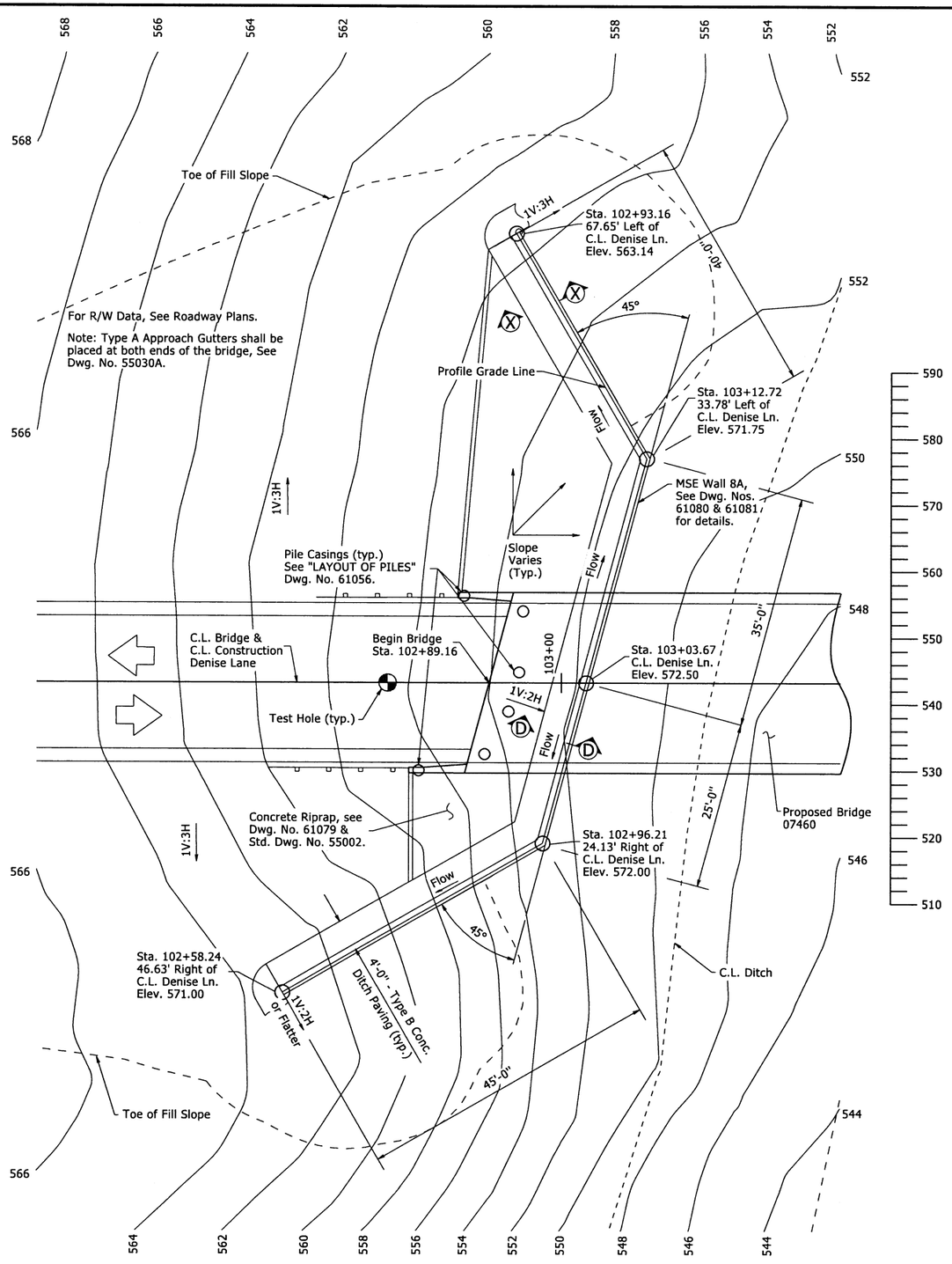
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJT DATE: 4/19/19 FILENAME: br60140x7_l1.dgn
CHECKED BY: DPT DATE: 9/14/19 SCALE: AS NOTED
DESIGNED BY: KJT DATE: 4/19

BRIDGE NO. 07459 DRAWING NO. 61087

PRINT DATE: 10/30/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10/30/2019				6	ARK.			
				JOB NO.		R60140	313	616
				①		07460 - RETAINING WALL - 61088		

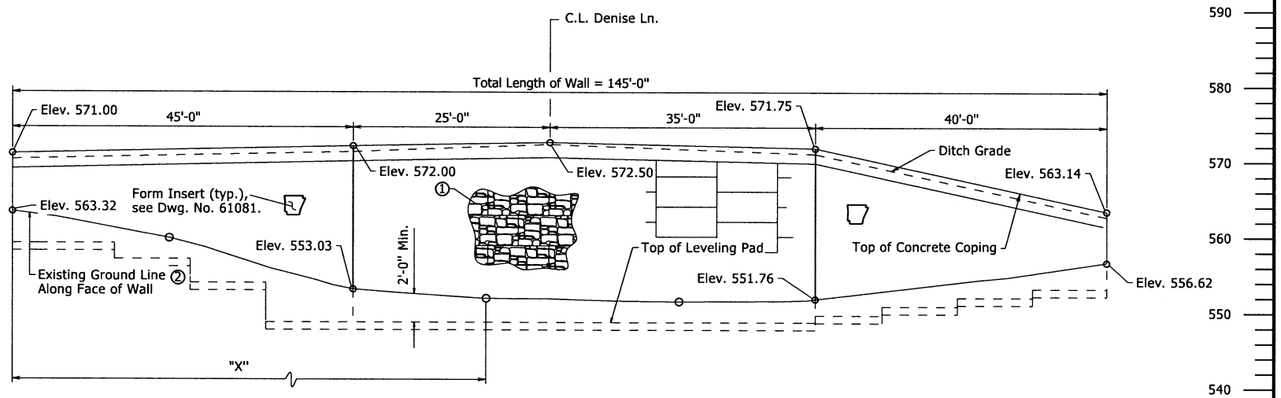


PLAN

TABLE OF QUANTITIES

(For Information Only)

ITEM NO.	210	605	SP R60140	SP R60140	SP R60140
ITEM	UNCLASSIFED EXCAVATION	CONCRETE DITCH PAVING (TYPE B)	SELECT GRANULAR BACKFILL	RETAINING WALL	TEXTURED COATING FINISH
UNIT	CU. YD.	SQ. YD.	CU. YD.	SQ. FT.	SQ. YD.
	118	64	1,531	2,816	260



ELEVATION

(Looking at Front Face)

⚠1 "X"	Elev. ②
20.7'	559.8
62.6'	551.8
88.0'	551.5

① Ashlar Stone Finish SP Job No. R60140
"ARCHITECTURAL FINISH"

Notes:
Stations shown are along C.L. Denise Lane. Lengths of wall shown are along front Face of Retaining Wall. Elevations shown are at the top of wall.

For "SECTION X-X" & "SECTION D-D", see Dwg. No. 61080.

For additional details, see Dwg. Nos. 61080 & 61081.

Maximum factored bearing resistance is 4 ksf, unless approved by the Engineer.
Backfill method shall be Method A Construction as detailed on Dwg. No. 61080 and defined in SP Job R60140 "RETAINING WALLS".

⚠1 Added Elevations and Dimensions for Existing Ground Line as Shown.
By: JWP Date:10/30/2019 Checked By: CWP Date: 10/30/19

STATE OF ARKANSAS
CHARLES R. ELLIS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-31-19
BRIDGE ENGINEER

LAYOUT OF RETAINING WALL 8A
DENISE LANE OVER HIGHWAY 7
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE SEC.

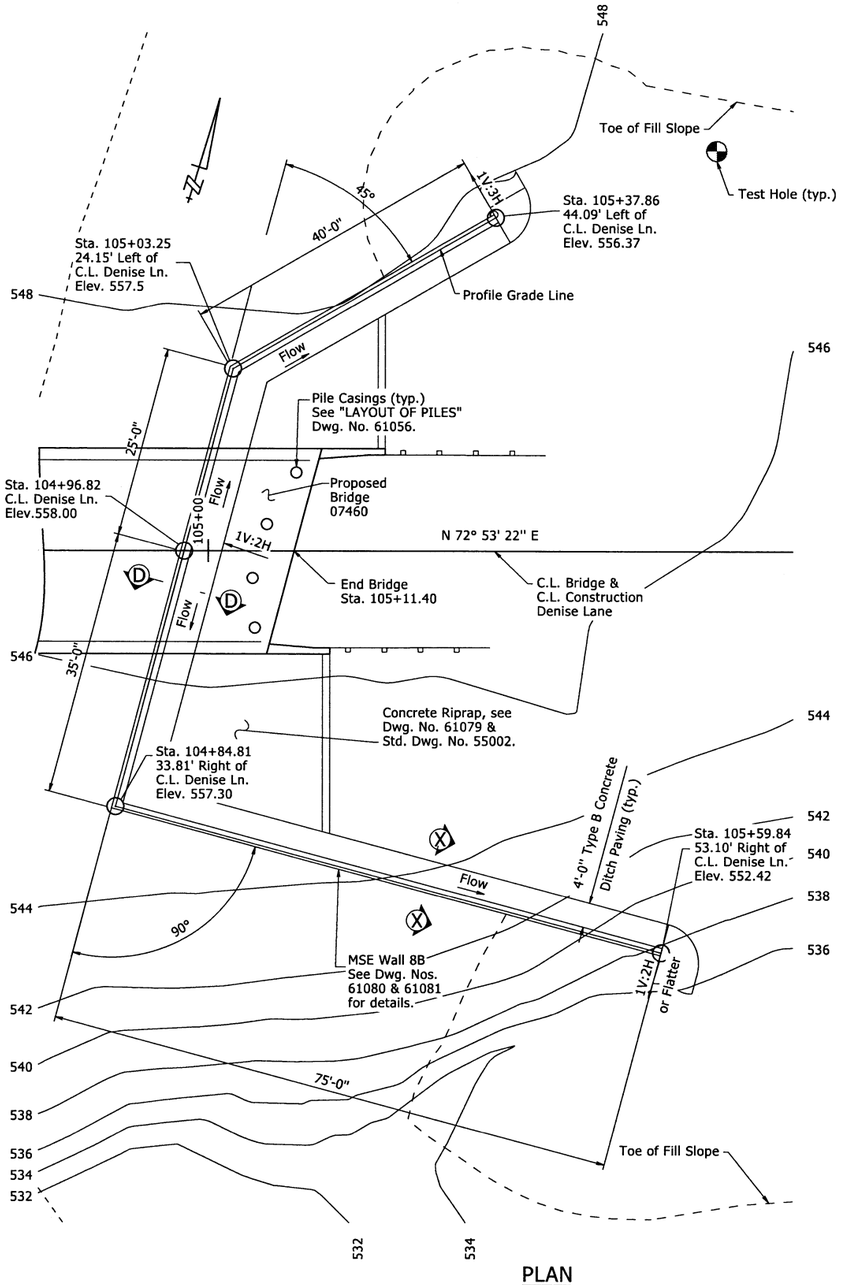
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JWP DATE: 07/2019
CHECKED BY: SWP DATE: 08/2019
DESIGNED BY: JWP DATE: 07/2019
FILENAME: b60140_mse_x8.dgn
SCALE: 1" = 10'

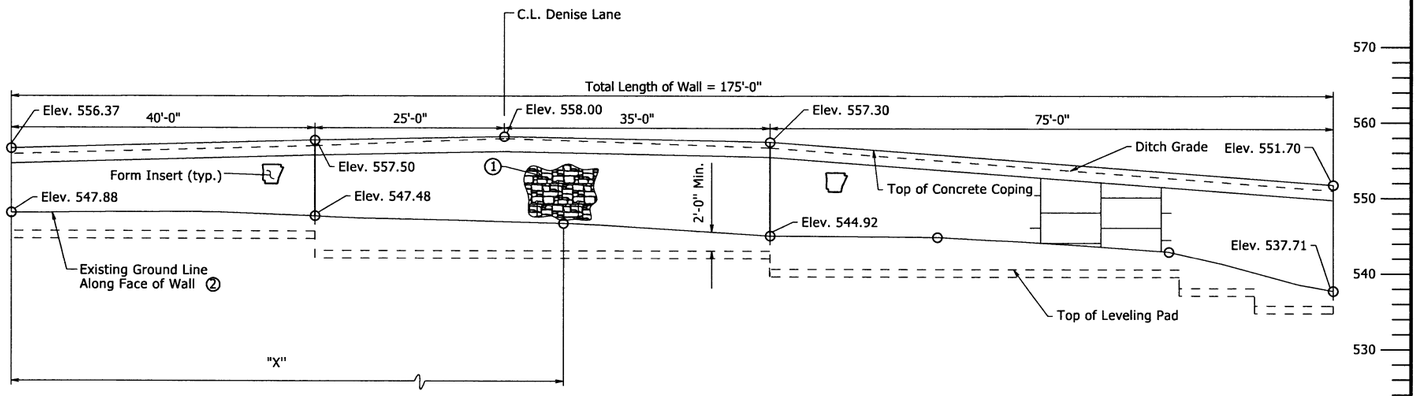
BRIDGE NO. 07460 DRAWING NO. 61088

PRINT DATE: 10/30/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10/30/2019				6	ARK.			
				JOB NO.		R60140	314	616
				①	07460 - RETAINING WALL - 61089			



PLAN



① Ashlar Stone Finish SP Job No. R60140
"ARCHITECTURAL FINISH"

TABLE OF QUANTITIES

(For Information Only)

ITEM NO.	210	605	SP R60140	SP R60140	SP R60140
ITEM	UNCLASSIFIED EXCAVATION	CONCRETE DITCH PAVING (TYPE B)	SELECT GRANULAR BACKFILL	RETAINING WALL	TEXTURED COATING FINISH
UNIT	CU. YD.	SQ. YD.	CU. YD.	SQ. FT.	SQ. YD.
	140	78	981	2,469	211

ELEVATION

(Looking at Front Face)

⚠1 "X"	Elev. ②
72.8'	546.5
122.1'	544.8
152.8'	542.9

Notes:
Stations shown are along C.L. Denise Lane. Lengths of wall shown are along front Face Retaining Wall. Elevations shown are at the top of wall.

For "SECTION X-X" & "SECTION D-D", see Dwg. No. 61080.

For additional details, see Dwg. Nos. 61080 & 61081.

Maximum factored bearing resistance is 4 ksf, unless approved by the Engineer. Backfill method shall be Method A Construction as detailed on Dwg. No. 61080 and defined in SP Job R60140 "RETAINING WALLS".

⚠1 Added Elevations and Dimensions for Existing Ground Line as Shown.
By: JWP Date:10/30/2019 Checked By: DDT Date: 10/30/19

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-31-19
CHARLES R. ELLIS
BRIDGE ENGINEER

LAYOUT OF RETAINING WALL 8B
DENISE LANE OVER HIGHWAY 7
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE SEC.

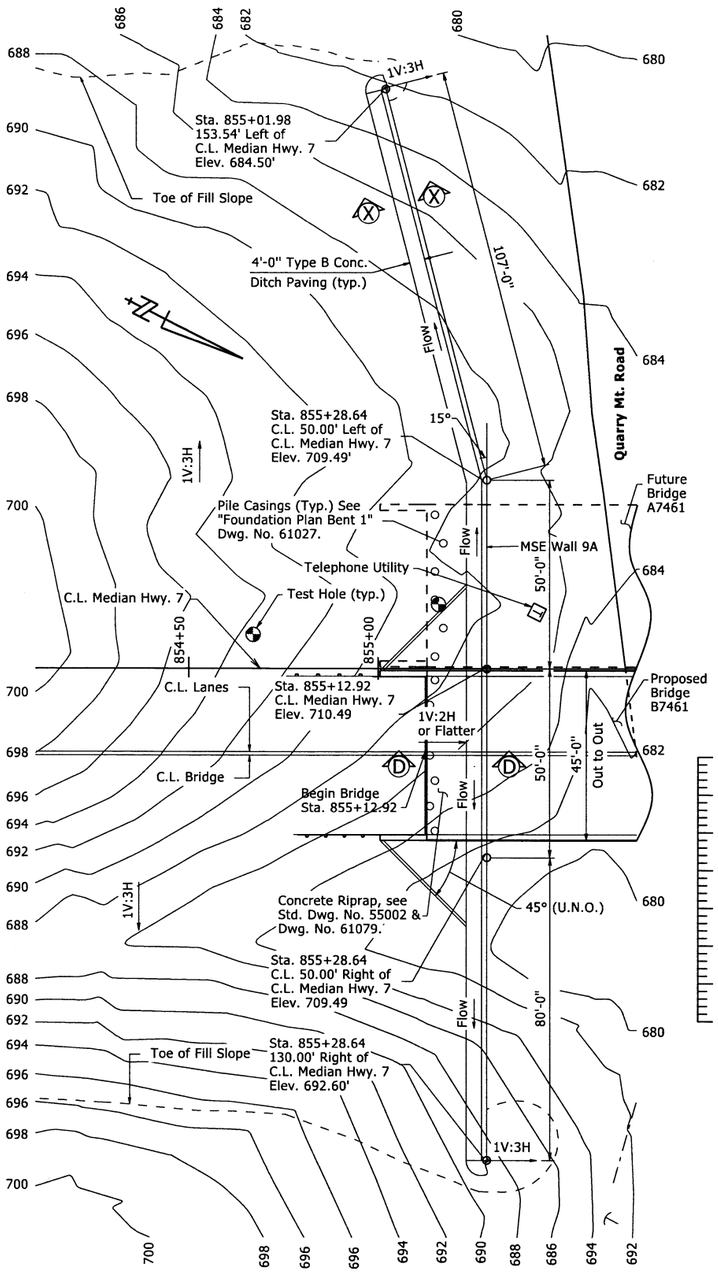
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JWP DATE: 07/2019
CHECKED BY: SWP DATE: 08/2019
DESIGNED BY: JWP DATE: 07/2019
FILENAME: b60140_mse_x8.dgn
SCALE: 1"=10'

BRIDGE NO. 07460 DRAWING NO. 61089

PRINT DATE: 10/30/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10/30/2019				6	ARK.			
				JOB NO.		R60140	315	616
				①	B7461 - RETAINING WALL - 61090			



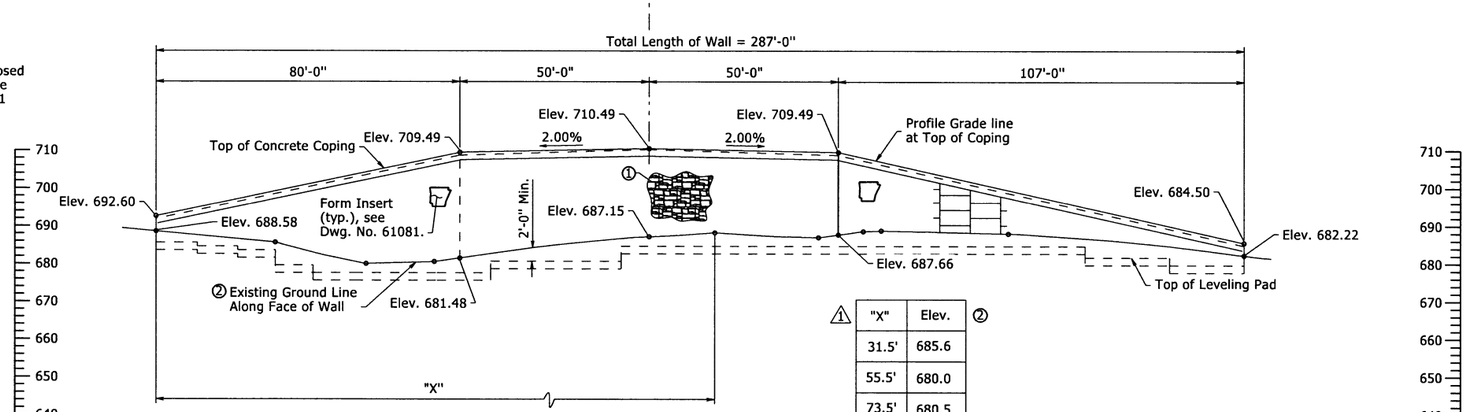
PLAN

Notes:
Stations shown are along C.L. Median Hwy. 7. Lengths of wall shown are along front Face of Retaining Wall. Elevations shown are at the top of wall.

For "SECTION X-X" & "SECTION D-D", see Dwg. No. 61080.

For additional details, see Dwg. Nos. 61080 & 61081.

① Ashlar Stone Finish, see SP Job No. R60140 "ARCHITECTURAL FINISH"



ELEVATION

(Looking at Front Face)

⚠1 "X"	Elev. ②
31.5'	685.6
55.5'	680.0
73.5'	680.5
147.5'	688.2
174.9'	687.0
186.8'	688.5
191.5'	688.8
225.0'	688.0

Maximum factored bearing resistance is 4 ksf, unless approved by the Engineer. Backfill method shall be Method A Construction as detailed on Dwg. No. 61080 and defined in SP Job R60140 "Retaining Walls".

TABLE OF QUANTITIES

(For Information Only)

ITEM NO.	210	605	SP R60140	SP R60140	SP R60140
ITEM	UNCLASSIFIED EXCAVATION	CONCRETE DITCH PAVING (TYPE B)	SELECT GRANULAR BACKFILL	RETAINING WALL	TEXTURED COATING FINISH
UNIT	CU. YD.	SQ. YD.	CU. YD.	SQ. FT.	SQ. YD.
	236	128	3,531	5,849	541

⚠1 Added Elevations and Dimensions for Existing Ground Line as Shown.
By: JWP Date:10/30/2019 Checked By: CRE Date: 10/30/19

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-30-19
CHARLES R. ELLIS
BRIDGE ENGINEER

LAYOUT OF RETAINING WALL 9A
HIGHWAY 7 OVER QUARRY MOUNTAIN ROAD
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION

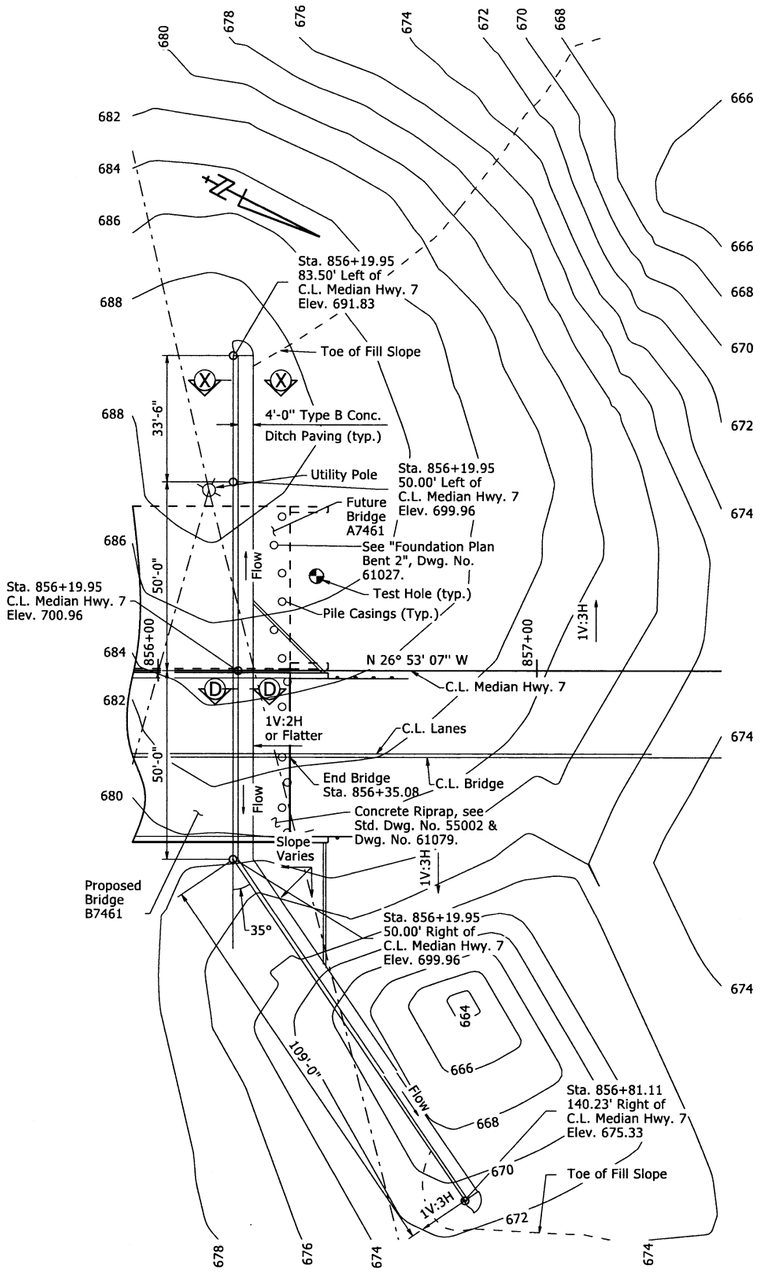
LITTLE ROCK, ARK.

DRAWN BY:	JWP	DATE:	07/2019	FILENAME:	br60140x9_l1.dgn
CHECKED BY:	SWP	DATE:	08/2019	SCALE:	1"=20'
DESIGNED BY:	JWP	DATE:	07/2019		

BRIDGE NO. B7461 DRAWING NO. 61090

PRINT DATE: 10/30/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10/30/2019				6	ARK.			
				JOB NO.		R60140	316	616
				①		B7461 - RETAINING WALL - 61091		

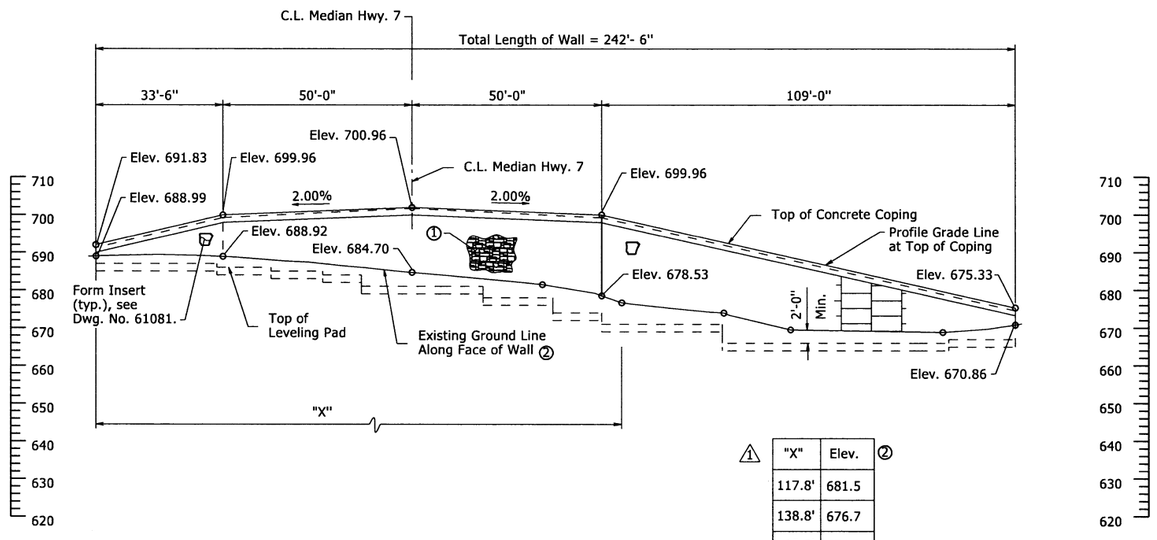


PLAN

TABLE OF QUANTITIES

(For Information Only)

ITEM NO.	210	605	SP R60140	SP R60140	SP R60140
ITEM	UNCLASSIFIED EXCAVATION	CONCRETE DITCH PACING (TYPE B)	SELECT GRANULAR BACKFILL	RETAINING WALL	TEXTURED COATING FINISH
UNIT	CU. YD.	SQ. YD.	CU. YD.	SQ. FT.	SQ. YD.
	236	108	2,333	4,474	407



ELEVATION

(Looking at Front Face)

① "X"	Elev. ②
117.8'	681.5
138.8'	676.7
165.8'	674.0
183.4'	669.6
223.6'	668.9

① Added Elevations and Dimensions for Existing Ground Line as Shown.
By: JWP Date:10/30/2019 Checked By: SWP Date: 10/30/19

Notes:

Stations shown are along C.L. Median Hwy. 7. Lengths of wall shown are along front face of retaining wall. Elevations shown are at the top of wall.

For "SECTION X-X" & "SECTION D-D", see Dwg. No. 61080.

For additional details, see Dwg. No. 61080 & 61081.

① Ashlar Stone Finish, see SP Job No. R60140 "ARCHITECTURAL FINISH"

Maximum factored bearing resistance is 4 ksf, unless approved by the Engineer. Backfill method shall be Method A Construction as detailed on Dwg. No. 61080 and defined in SP Job R60140 "Retaining Walls".

STATE OF ARKANSAS
CHARLES R. ELLIS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-30-19

BRIDGE ENGINEER

LAYOUT OF RETAINING WALL 9B
HIGHWAY 7 OVER QUARRY MOUNTIAN ROAD
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY

ROUTE 7 SEC. 10

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

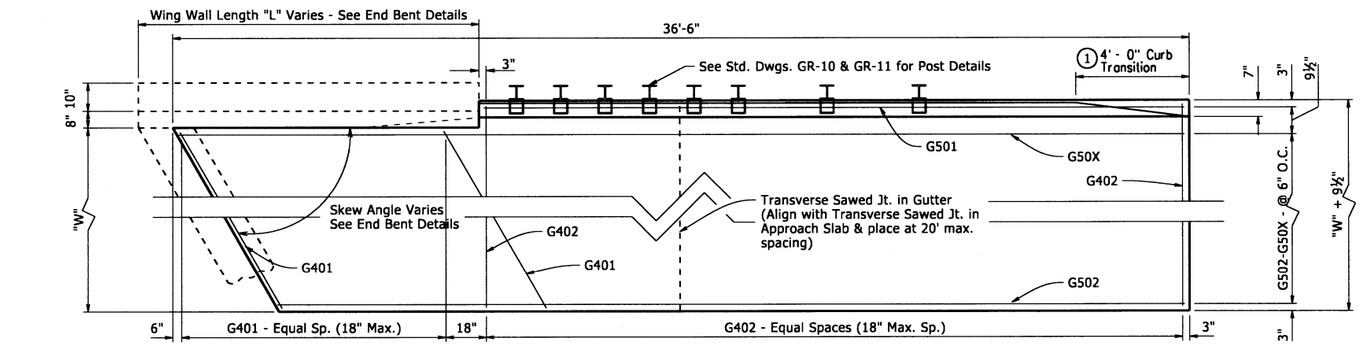
DRAWN BY:	JWP	DATE:	07/2019	FILENAME:	br60140x9_l1.dgn
CHECKED BY:	SWP	DATE:	08/2019	SCALE:	1"=20'
DESIGNED BY:	JWP	DATE:	07/2019		

BRIDGE NO. B7461 DRAWING NO. 61091

PRINT DATE: 10/30/2019

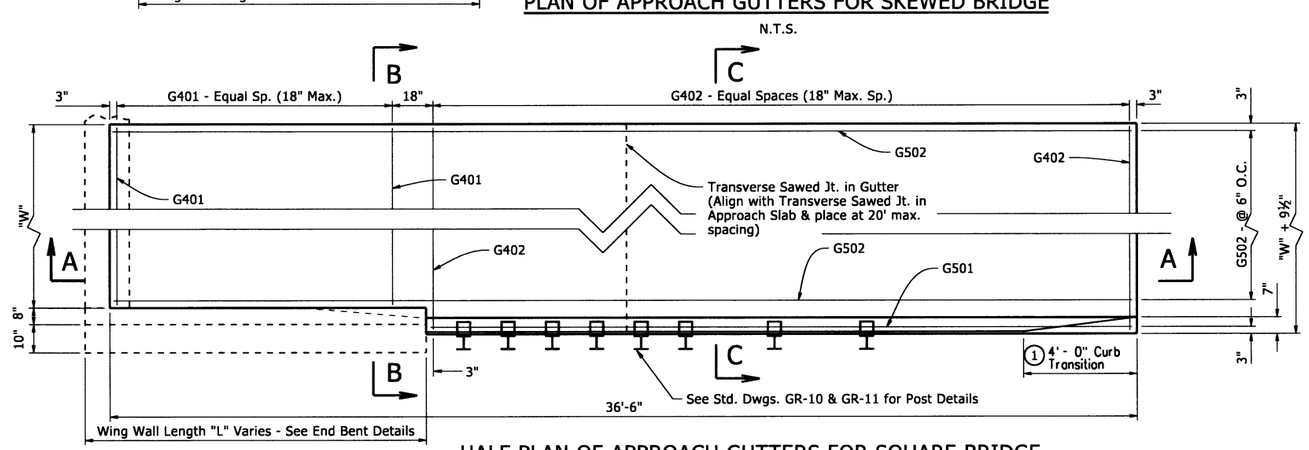
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	317	616

① SEE TABLE - APPR. GUTTERS - 61092



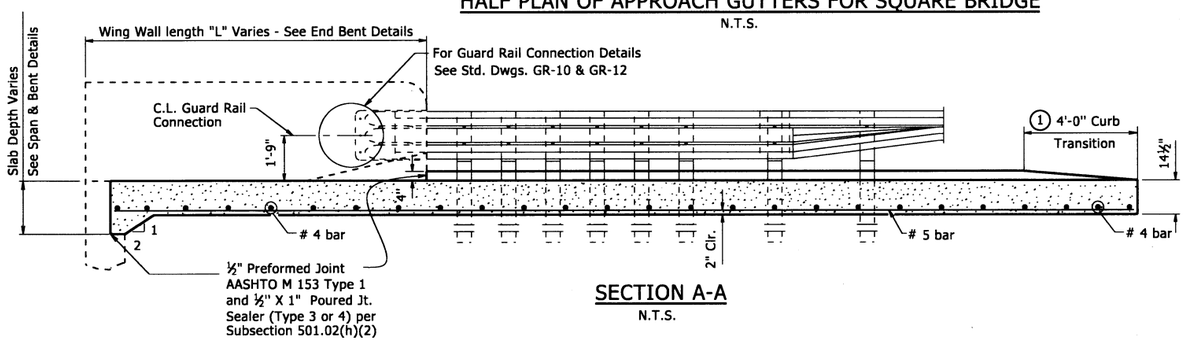
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE

N.T.S.



HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE

N.T.S.



SECTION A-A

N.T.S.

BAR LIST FOR TYPE 1 SPECIAL APPROACH GUTTER

	Mark	No. Req'd. for Width "W" 4'-0"	6'-0"	8'-0"	10'-0"	Length
Square Bridge	G401	8	8	8	8	"W"- 4"
	G402	19	19	19	19	"W"+4"
	G501	1	1	1	1	(36'-2")-"L"
	G502	8	12	16	20	36'-2"
Skewed Bridge	G401	②	②	②	②	③
	G402	19	19	19	19	"W"+4"
	G501	1	1	1	1	(36'-2")-"L"
	G502 - G50X ④	1 each	1 each	1 each	1 each	③

② No. Req'd. varies with Skew and Wingwall Length.

③ Bar Lengths vary with Skew and Wingwall Length.

④ G509 for "W" = 4'
G513 for "W" = 6'
G517 for "W" = 8'
G521 for "W" = 10'

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.

Note for Br. No. 07456:

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.

① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

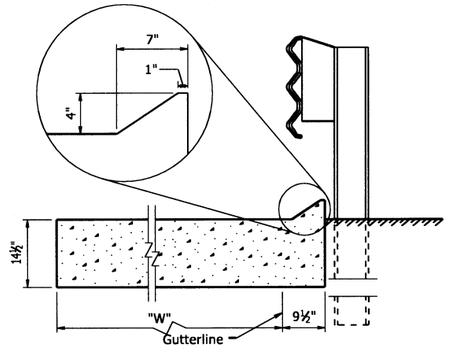
Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

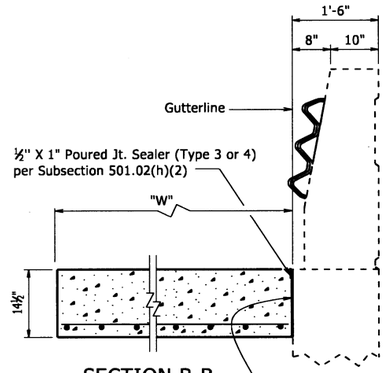
"W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
4	405	7.80
6	600	11.05
8	780	14.35
10	970	17.60

Quantities are based on "L" = 10'-0".



SECTION C-C

N.T.S.



SECTION B-B

N.T.S.

BRIDGE NUMBERS

BRIDGE NUMBERS
B7206
B7207
07455
07456
B7458
B7461

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19
BRIDGE ENGINEER

DETAILS OF TYPE 1 SPECIAL APPROACH GUTTERS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JSW DATE: 6-18-19 FILENAME: br60140x3_ag1.dgn
CHECKED BY: JAC DATE: 8-14-19 SCALE: As Noted
DESIGNED BY: — DATE: —

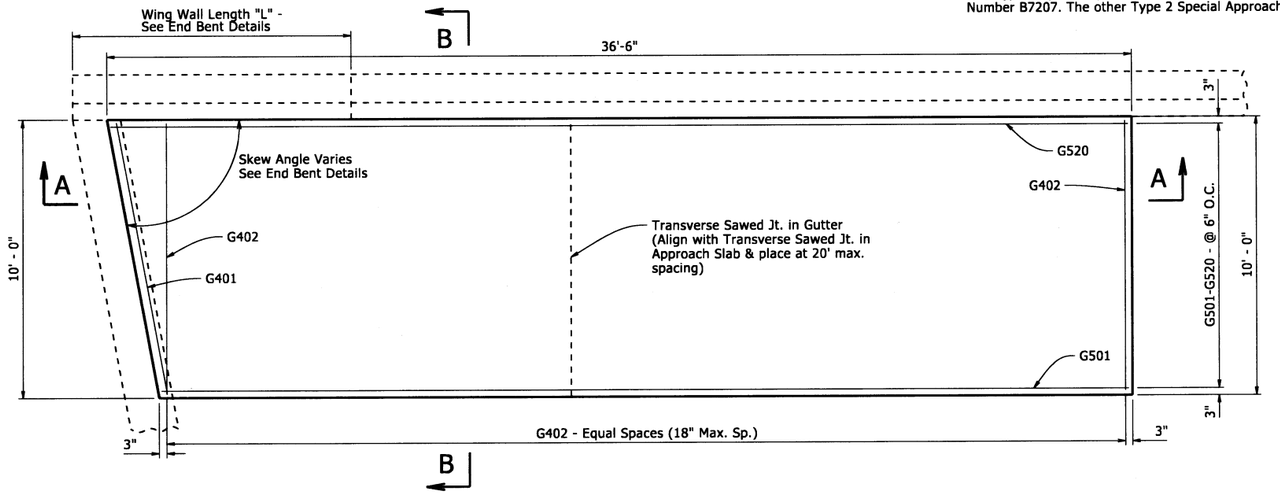
BRIDGE NOS. - SEE TABLE DRAWING NO. 61092

PRINT DATE: 8/14/2019

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.		R60140	318	616
				①	B7206 & B7207 - APPR. GUTTERS - 61093			

NOTE:

The Type 2 Special Approach Gutter shown is at the beginning of Bridge Number B7207. The other Type 2 Special Approach Gutters are similar.



PLAN OF TYPE 2 SPECIAL APPROACH GUTTER

N.T.S.

BAR LIST FOR TYPE 2 SPECIAL APPROACH GUTTER

Mark	No. Req'd.	Length
G401	1	9' - 9"
G402	25	9' - 8"
G501 - G520	1 each	①

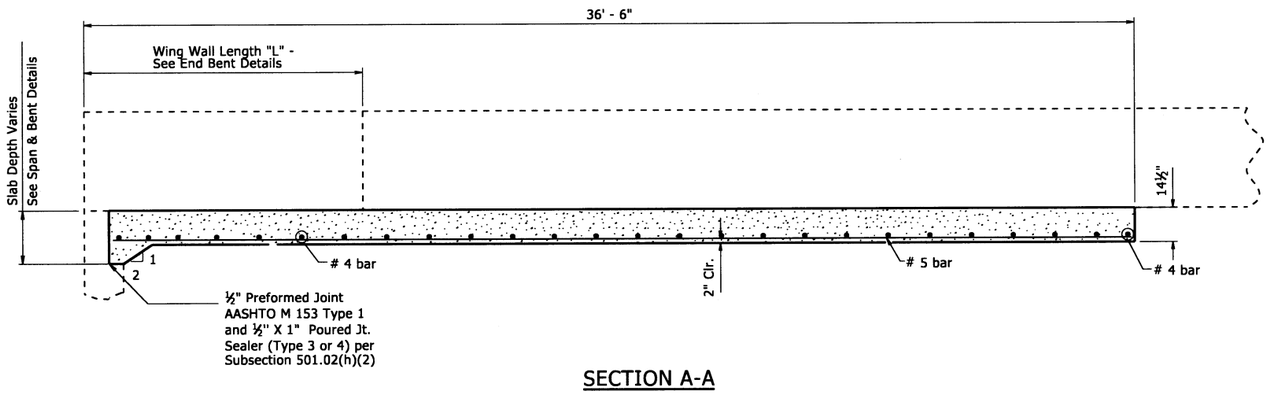
① Bar Lengths vary with Skew.

QUANTITIES FOR ONE TYPE 2 SPECIAL APPROACH GUTTER

(FOR INFORMATION ONLY)

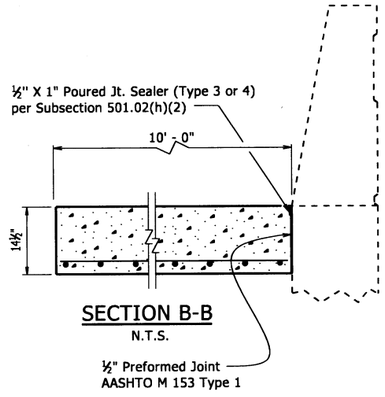
Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
910	16.10

Quantities Based on "L" = 10'



SECTION A-A

N.T.S.



SECTION B-B

N.T.S.

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.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF TYPE 2 SPECIAL APPROACH GUTTERS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JSW DATE: 6-26-19 FILENAME: br60140x3_ag2.dgn

CHECKED BY: JAC DATE: 8-13-19 SCALE: As Noted

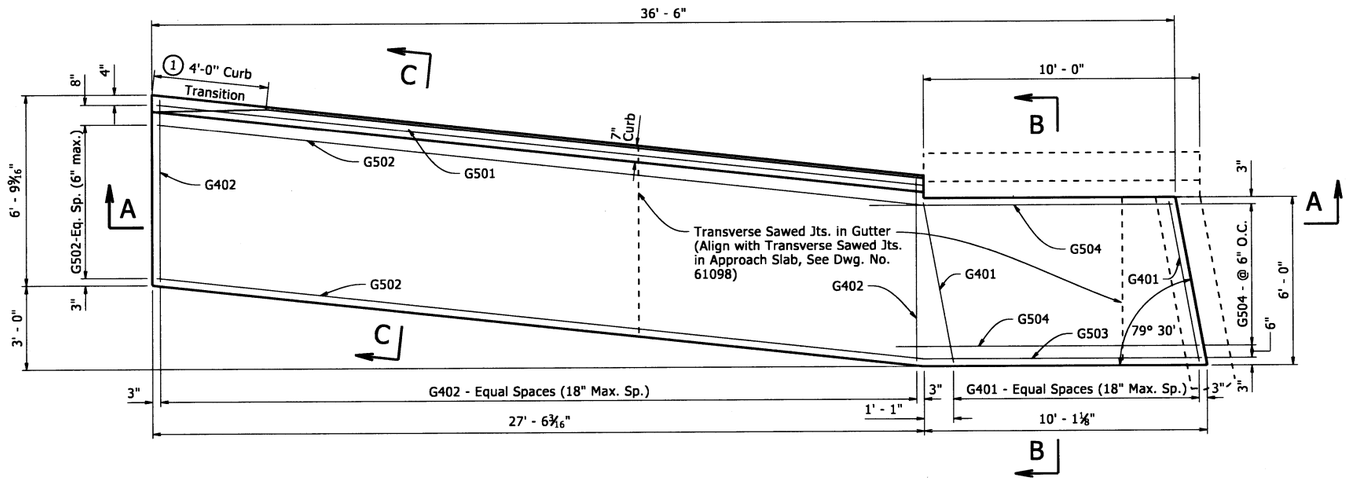
DESIGNED BY: — DATE: —

BRIDGE NOS. B7206 & B7207 DRAWING NO. 61093

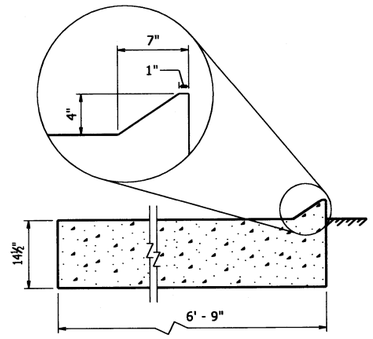
PRINT DATE: 8/13/2019

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.		R60140	319	616

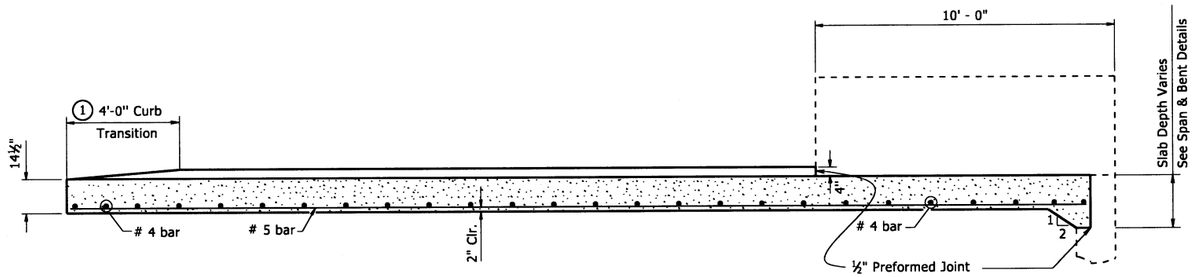
① B7207 - APPR. GUTTER - 61094



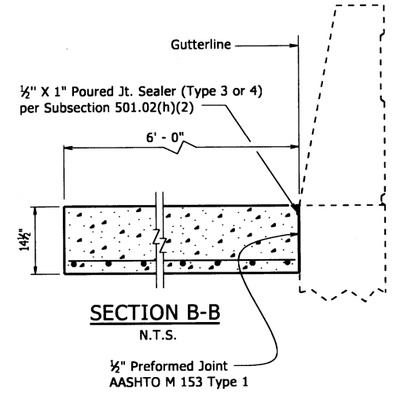
PLAN OF TYPE 3 APPROACH GUTTER
N.T.S.



SECTION C-C
N.T.S.



SECTION A-A
N.T.S.



SECTION B-B
N.T.S.

BAR LIST FOR TYPE 3 SPECIAL APPROACH GUTTER

Mark	No. Req'd.	Length
G401	7	5' - 9"
G402	19	6' - 5"
G501	1	27' - 5"
G502	10	27' -8"
G503	1	10' - 0"
G504	11	11' - 0"

QUANTITIES FOR TYPE 3 SPECIAL APPROACH GUTTER

(FOR INFORMATION ONLY)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
565	11.10

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.

① Construct 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.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-19-19
BRIDGE ENGINEER

DETAILS OF TYPE 3 SPECIAL APPROACH GUTTER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

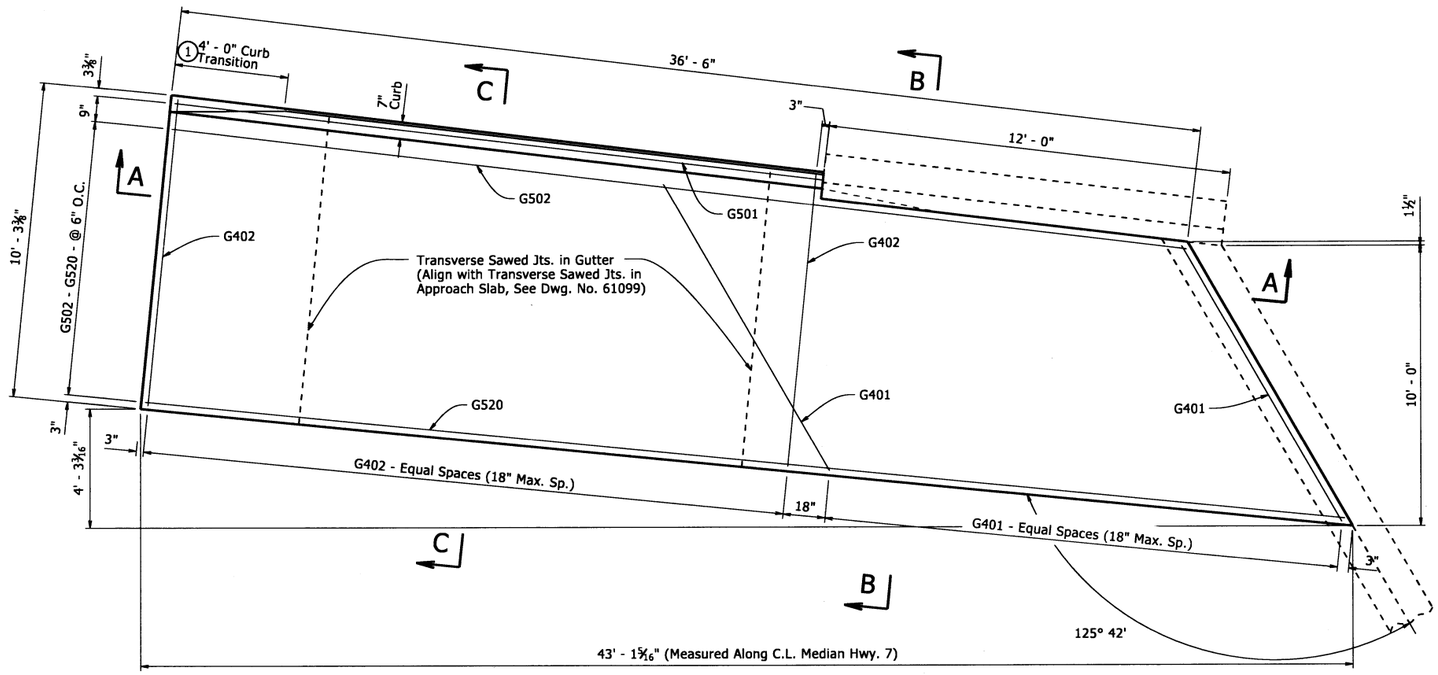
LITTLE ROCK, ARK.

DRAWN BY: JSW DATE: 6-18-19 FILENAME: br60140x3_ag3.dgn
CHECKED BY: JAC DATE: 8-13-19 SCALE: As Noted
DESIGNED BY: — DATE: —

BRIDGE NO. B7207 DRAWING NO. 61094

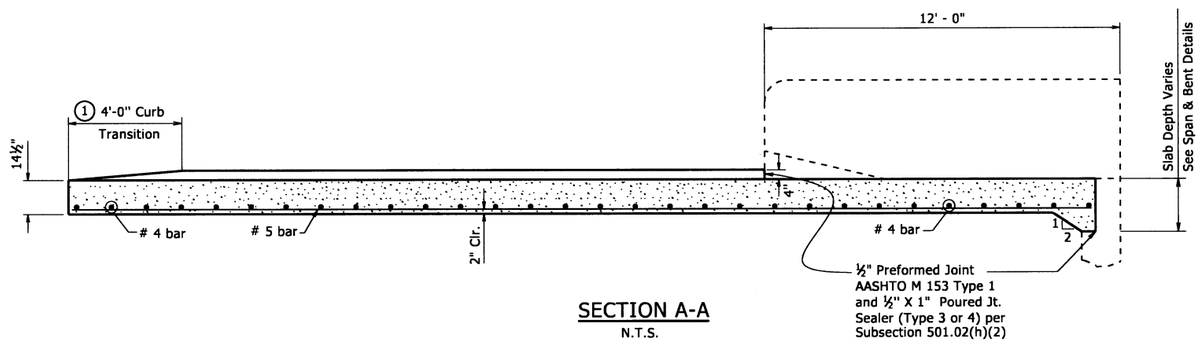
PRINT DATE: 8/13/2019

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.		R60140	320	616
				① 07455 - APPR. GUTTER - 61095				



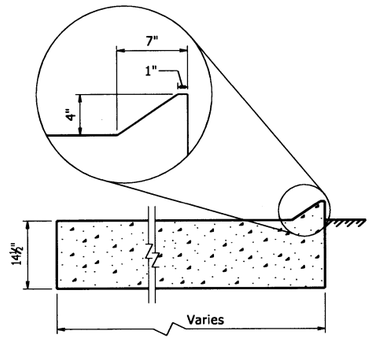
PLAN OF TYPE 4 APPROACH GUTTER

N.T.S.



SECTION A-A

N.T.S.

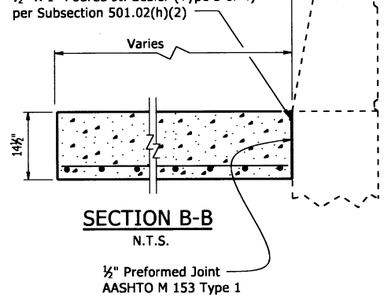


SECTION C-C

N.T.S.

BAR LIST FOR TYPE 4 SPECIAL APPROACH GUTTER

Mark	No. Req'd.	Length
G401	11	11' - 9½"
G402	18	9' - 10"
G501	1	26' - 6"
G502 - G520	1 each	Varies (36' - 2" to 43' - 0")



SECTION B-B

N.T.S.

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.

① Construct 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.

QUANTITIES FOR TYPE 4 SPECIAL APPROACH GUTTER

(FOR INFORMATION ONLY)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
1020	18.30

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF TYPE 4 SPECIAL APPROACH GUTTER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

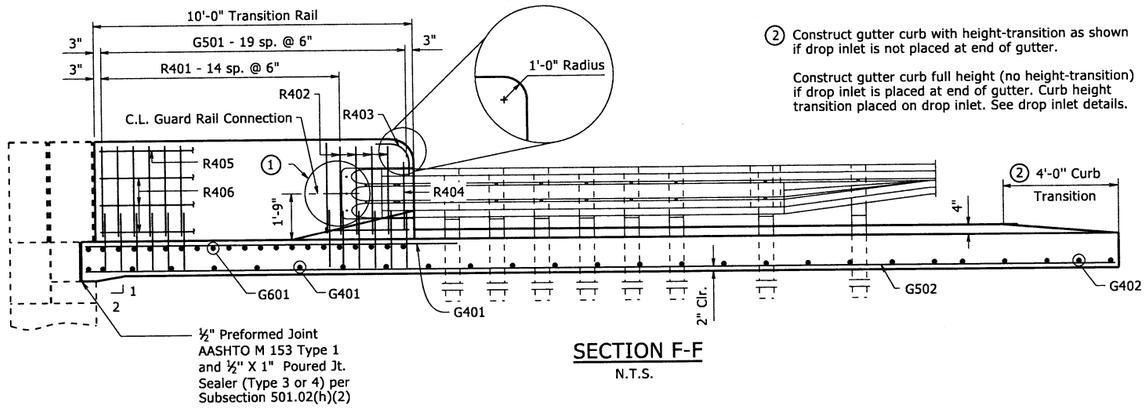
LITTLE ROCK, ARK.

DRAWN BY: JSW DATE: 6-29-19 FILENAME: br60140x3_ag4.dgn
CHECKED BY: JAC DATE: 8-13-19 SCALE: As Noted
DESIGNED BY: - DATE: -

BRIDGE NO. 07455 DRAWING NO. 61095

PRINT DATE: 8/13/2019

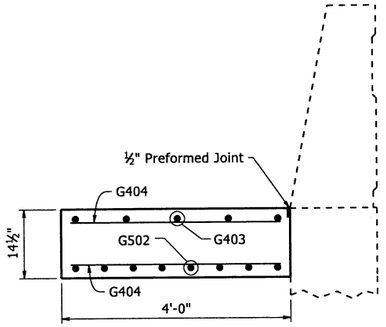
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	321	616
				① 07462 - END BENTS - 61096				



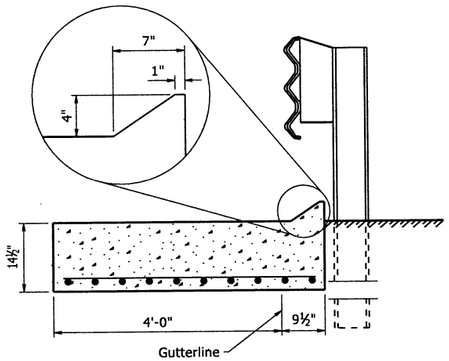
SECTION F-F
N.T.S.

② Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

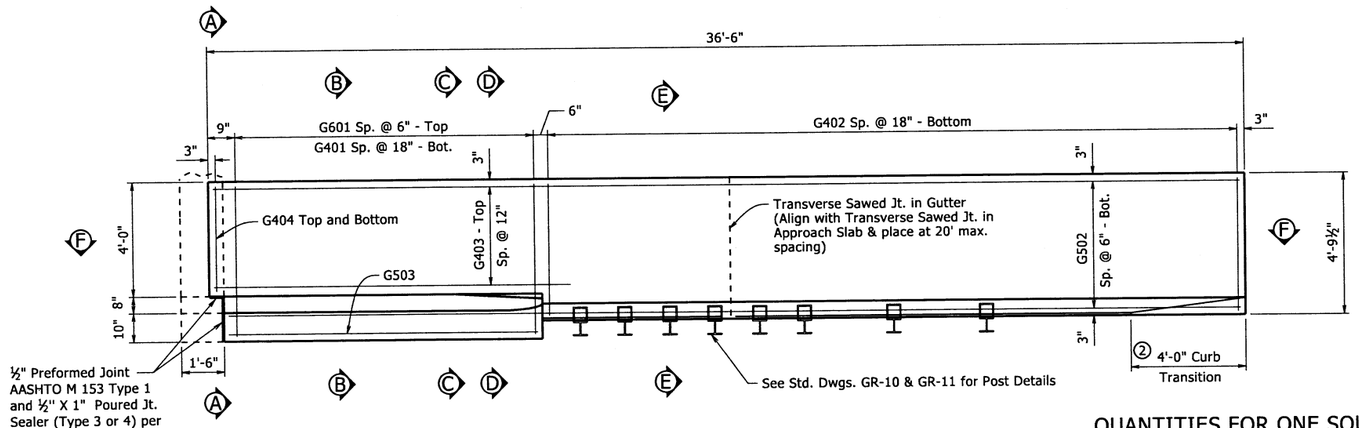
Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION A-A
N.T.S.



SECTION E-E
N.T.S.

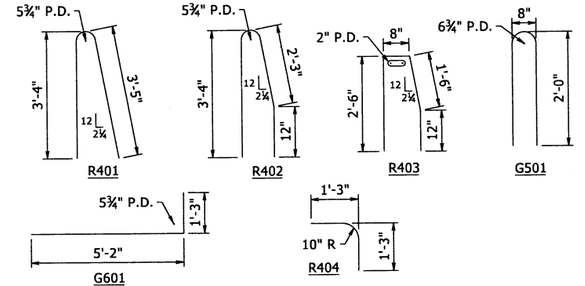


PLAN TYPE SPECIAL 5 APPROACH GUTTER
N.T.S.

BAR LIST - PER APPROACH GUTTER

Mark	No. Req'd	Length
R401	15	7'-1"
R402	4	6'-11"
R403	1	5'-6"
R404	1	2'-6"
R405	1	9'-1"
R406	6	9'-8"
G401	7	5'-2"
G402	18	4'-5"
G403	5	11'-6"
G404	2	3'-8"
G501	20	4'-5"
③ G502	10	36'-2"
G503	1	9'-8"
G601	20	6'-3"

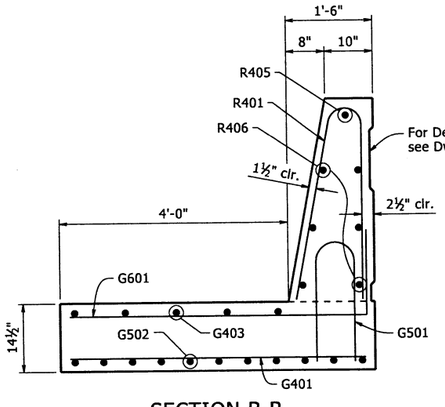
Bending Diagram (Dimensions are out to out of bars)



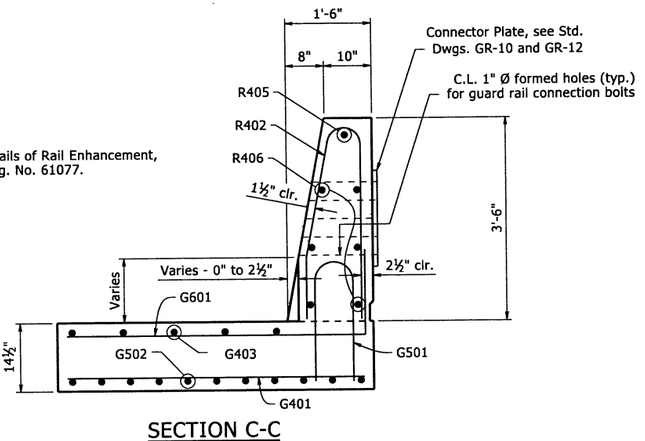
QUANTITIES FOR ONE SQUARE APPROACH GUTTER

"W"	CONCRETE	REINFORCING STEEL
4'-0"	9.85 cu.yd.	735 lb.

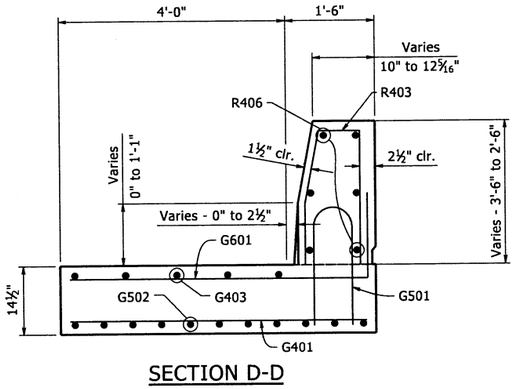
① Trim bar in field as required to provide 2" end cover.



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.



SECTION D-D
N.T.S.

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.

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.

Approach Gutters will be measured and paid for in accordance with Section 504.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19
BRIDGE ENGINEER

DETAILS OF TYPE 5 SPECIAL APPROACH GUTTERS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

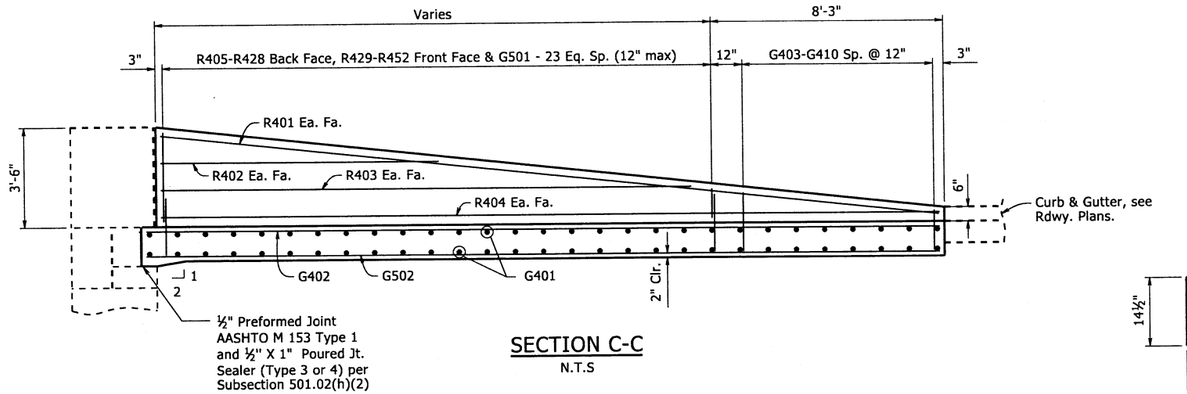
DRAWN BY: CMW DATE: 8/5/2019 FILENAME: br60140x10_ag5.dgn
CHECKED BY: SWP DATE: 8/14/19 SCALE: As Noted
DESIGNED BY: STD DATE: —

BRIDGE NO. 07462 DRAWING NO. 61096

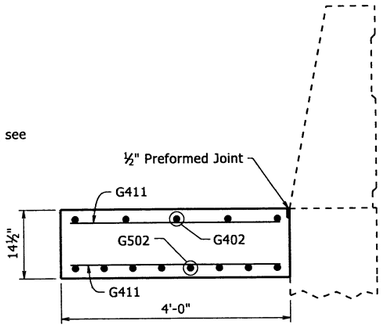
PRINT DATE: 8/14/2019

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.		R60140	322	616
				07462 - END BENTS - 61097				

(1)



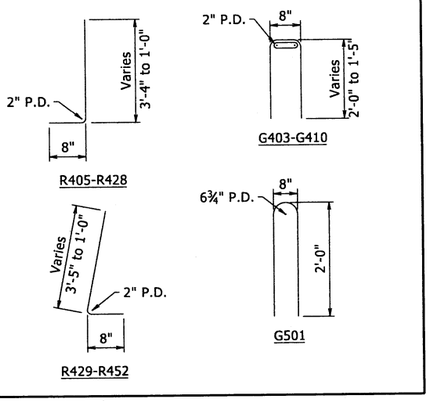
SECTION C-C
N.T.S

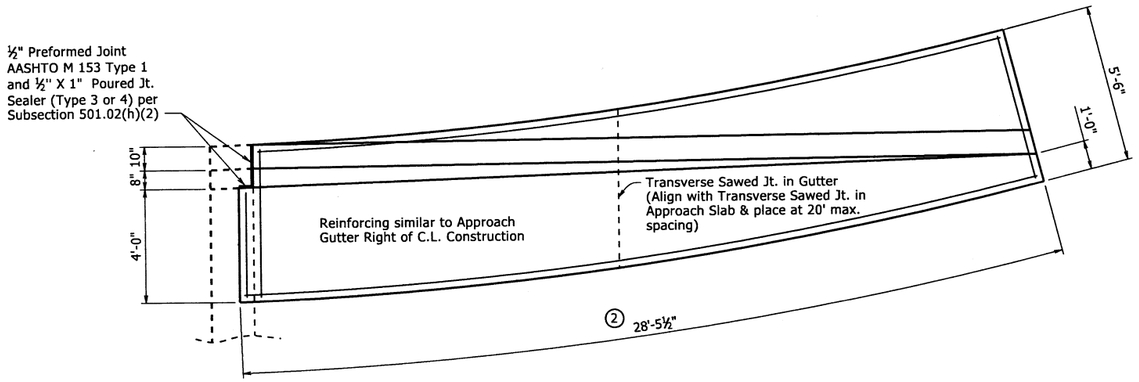


SECTION A-A
N.T.S.

BAR LIST - PER APPROACH GUTTER

Mark	No. Req'd	Length	Bending Diagram (Dimensions are out to out of bars)
R401	2	(1)	
R402	2	(1)	
R403	2	(1)	
R404	2	(1)	
R405 - R428	1 Ea.	4'-0" - 1'-7"	
R429 - R452	1 Ea.	3'-11" - 1'-7"	
G401	64	5'-2"	
G402	6	(1)	
G403 - G410	1 Ea.	4'-6" to 3'-4"	
G411	2	3'-8"	
G501	24	4'-5"	
G502	6	(1)	

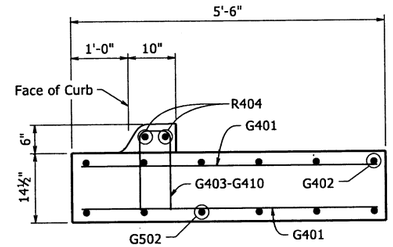




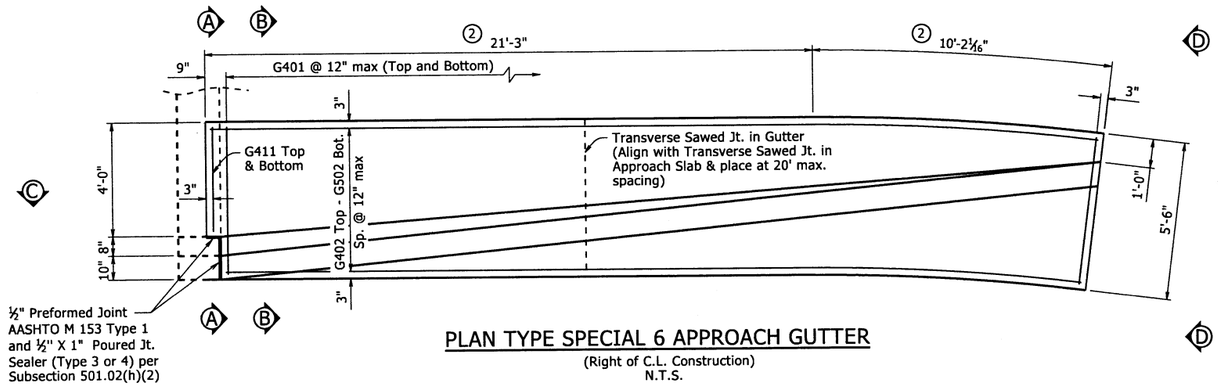
PLAN TYPE SPECIAL 6 APPROACH GUTTER
(Left of C.L. Construction)
N.T.S.

QUANTITIES FOR ONE APPROACH GUTTER

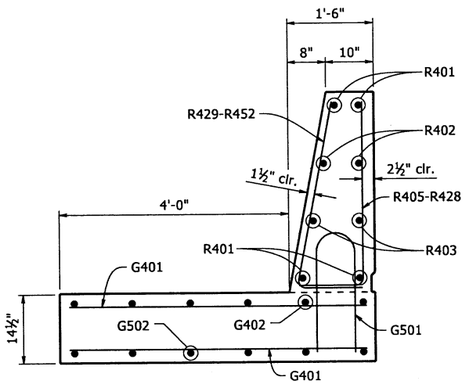
"W"	CONCRETE	REINFORCING STEEL
4'-0"	9.70 cu.yd.	890 lb.



VIEW D-D
N.T.S.



PLAN TYPE SPECIAL 6 APPROACH GUTTER
(Right of C.L. Construction)
N.T.S.



SECTION B-B
N.T.S.

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.

Longitudinal lines within the limits of horizontal curves shall be on curves concentric to adjacent roadway. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines.

Approach Gutters will be measured and paid for in accordance with Section 504.

(1) Fabricate bar lengths to provide 2" minimum cover at each end.

(2) Measured along inside edge of shoulder.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-1979
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF TYPE 6 SPECIAL APPROACH GUTTERS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 8/5/2019 FILENAME: br60140x10_ag6.dgn
CHECKED BY: SWP DATE: 8/15/19 SCALE: As Noted
DESIGNED BY: STD DATE:

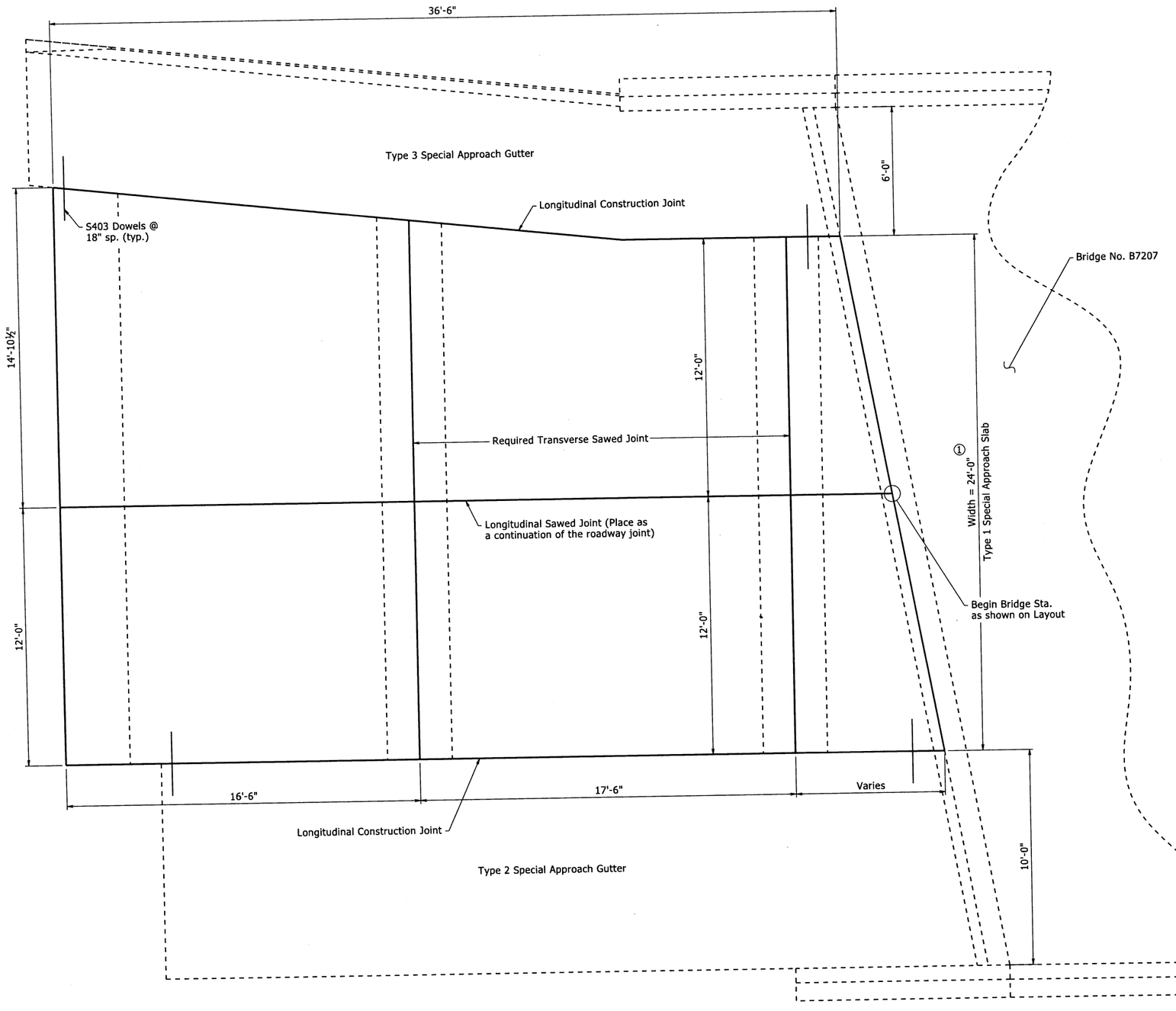
BRIDGE NO. 07462 DRAWING NO. 61097

PRINT DATE: 8/15/2019

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.		R60140	323	616

① B7207 - APPROACH SLAB - 61098



PLAN OF TYPE 1 SPECIAL APPROACH SLAB

① Modify Type C1 Approach Slab (width = 24'-0") to accommodate for flare as shown. Adjust length of reinforcing as necessary. See Std. Dwg. No. 55040C1 for details not shown.

TABLE OF QUANTITIES

(For Information Only)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
6,435	58.05

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF TYPE 1 SPECIAL APPROACH SLAB

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

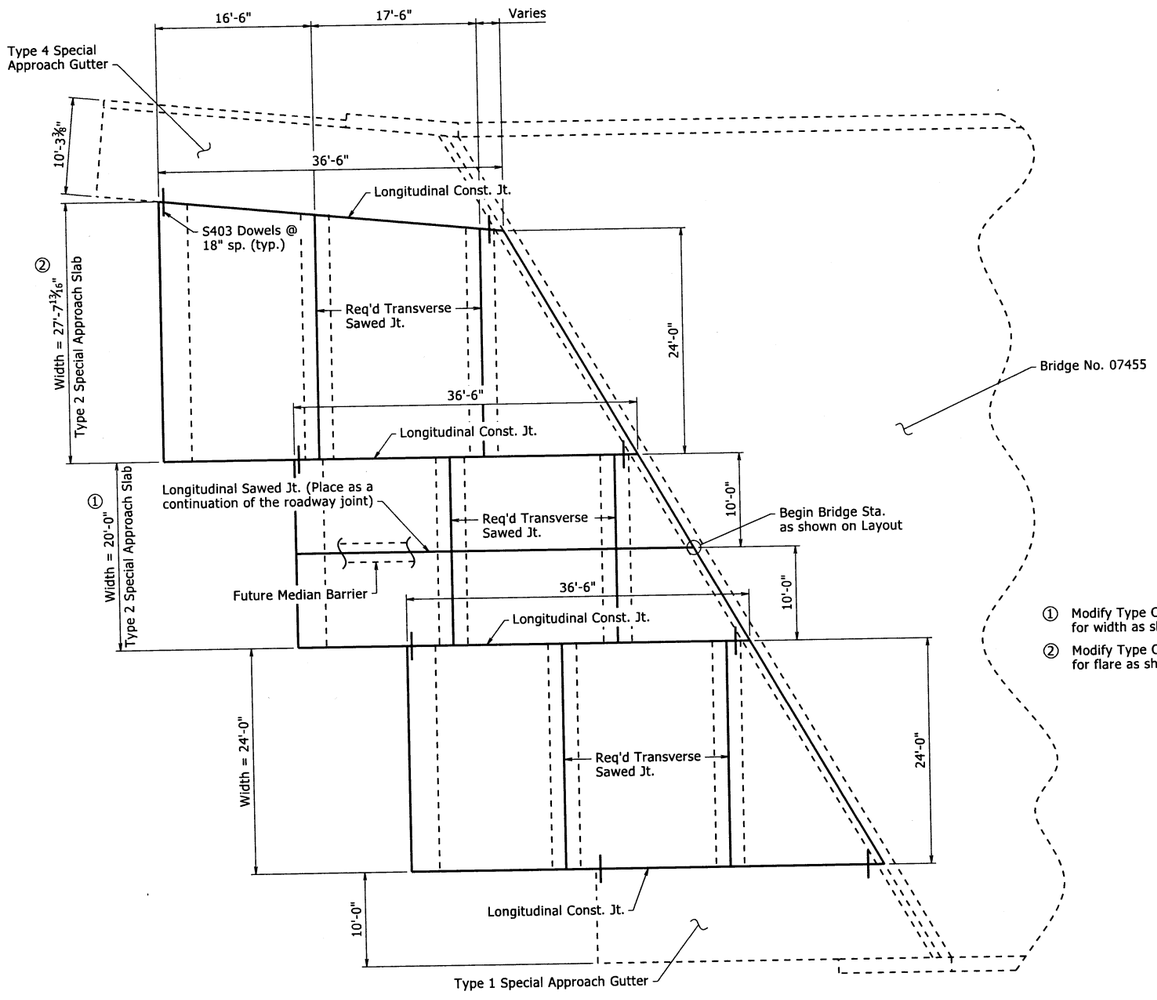
DRAWN BY: WAC DATE: 7/24/19 FILENAME: br60140x2_a1.dgn
CHECKED BY: DBS DATE: 8/13/19 SCALE: ⅜" = 1'-0"
DESIGNED BY: STD DATE: -

BRIDGE NO. B7207 DRAWING NO. 61098

PRINT DATE: 8/13/2019

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.		R60140	324	616
① 07455 - APPROACH SLABS - 61099				



PLAN OF TYPE 2 SPECIAL APPROACH SLAB

Place three Type C1 Approach Slabs as shown. See Std. Dwg. No. 55040C1 for details not shown.

TABLE OF QUANTITIES

(For Information Only)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
19,980	174.97

① Modify Type C1 Approach Slab (width = 24'-0") to accommodate for width as shown. Adjust length of reinforcing as necessary.

② Modify Type C1 Approach Slab (width = 24'-0") to accommodate for flare as shown. Adjust length of reinforcing as necessary.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF TYPE 2 SPECIAL APPROACH SLAB

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

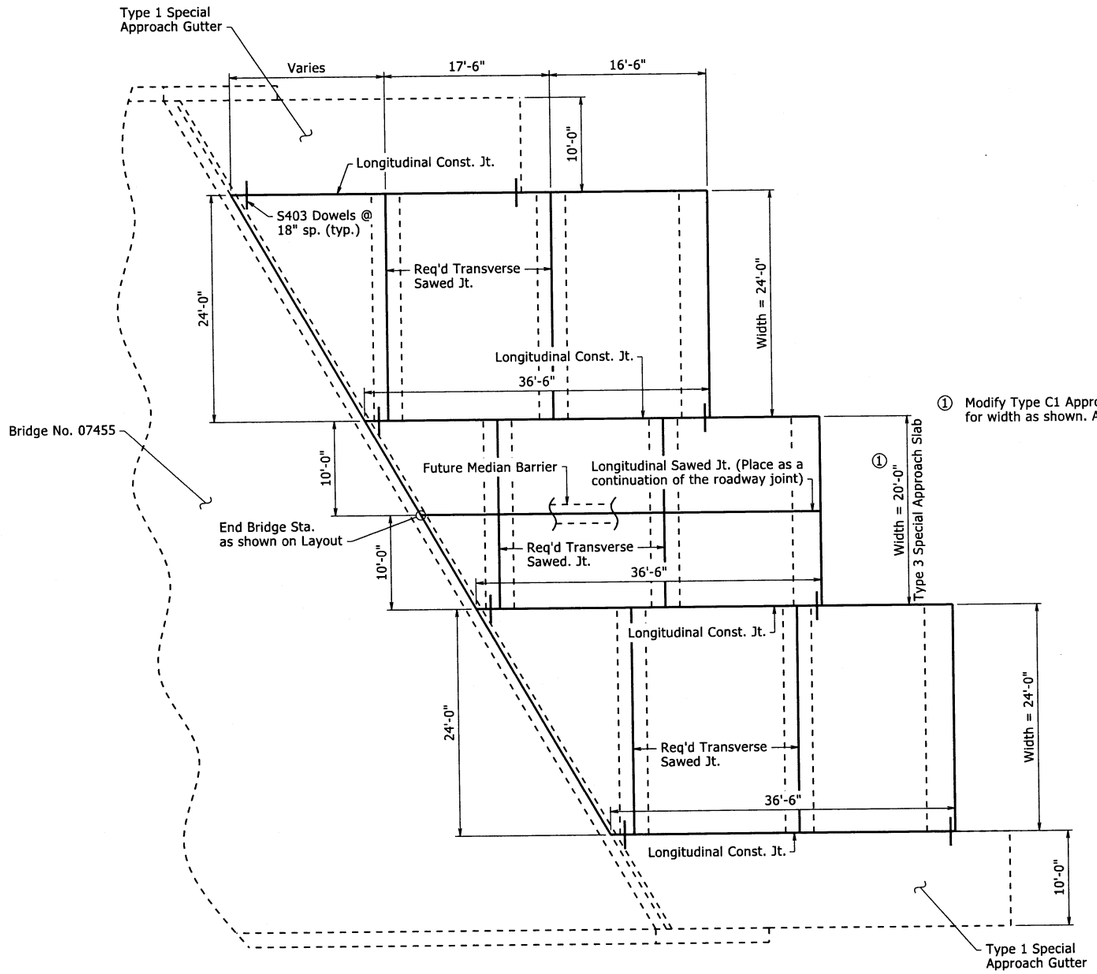
DRAWN BY: WAC DATE: 7/29/19
CHECKED BY: TDBS DATE: 8/13/19
DESIGNED BY: STD DATE: -

FILENAME: br60140x3_a1.dgn
SCALE: ⅜" = 1'-0"

BRIDGE NO. 07455 DRAWING NO. 61099

PRINT DATE: 8/13/2019

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.		R60140	325	616
				①	07455 - APPROACH SLAB - 61100			



① Modify Type C1 Approach Slab (width = 24'-0") to accommodate for width as shown. Adjust length of reinforcing as necessary.

PLAN OF TYPE 3 SPECIAL APPROACH SLAB

Place three Type C1 Approach Slabs as shown. See Std. Dwg. No. 55040C1 for details not shown.

TABLE OF QUANTITIES

(For Information Only)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
18,840	170.88

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
8-14-19
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF TYPE 3 SPECIAL APPROACH SLAB

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

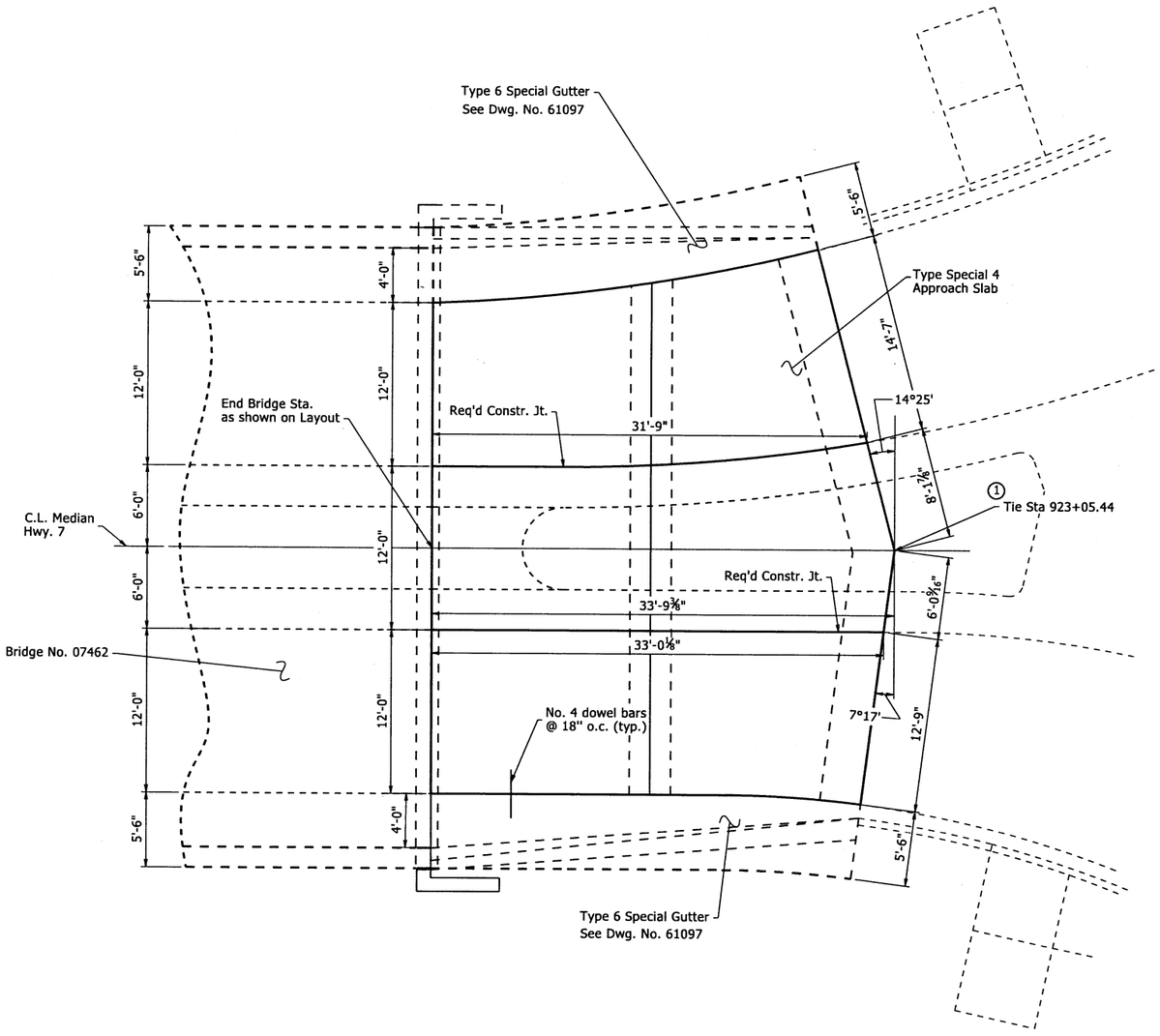
LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 7/24/19 FILENAME: br60140x3_a2.dgn
CHECKED BY: DBS DATE: 8/13/19 SCALE: ⅜" = 1'-0"
DESIGNED BY: STD DATE: -

BRIDGE NO. 07455 DRAWING NO. 61100

PRINT DATE: 8/13/2019

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.		R60140	326	616
				①	07462 - APPROACH SLABS - 61101			



Type Special 4 Approach Slab for Bridge 07462

TABLE OF QUANTITIES

(For Information Only)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
7,675	71.21

Modify Type C1 Approach Slab (width = 36'-0") to accomodate for width as shown. Adjust length of reinforcing as necessary.

① Tie Station: Sta. 923+05.44 is equivalent to Sta. 610+95 in Job No. 061547 at Elev. 569.86. Beyond 923+05.44 is future construction of Job No. 061547.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-14-19

BRIDGE ENGINEER

TYPE 4 SPECIAL APPROACH SLAB

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

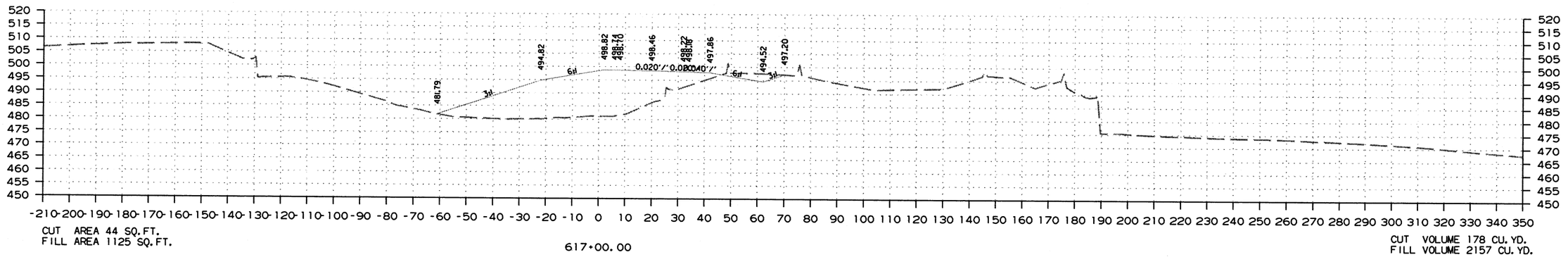
DRAWN BY: JWP DATE: 08/07/2019 FILENAME: br60140x10_a4.dgn
CHECKED BY: SWP DATE: 8/14/19 SCALE: No Scale
DESIGNED BY: STD DATE: -

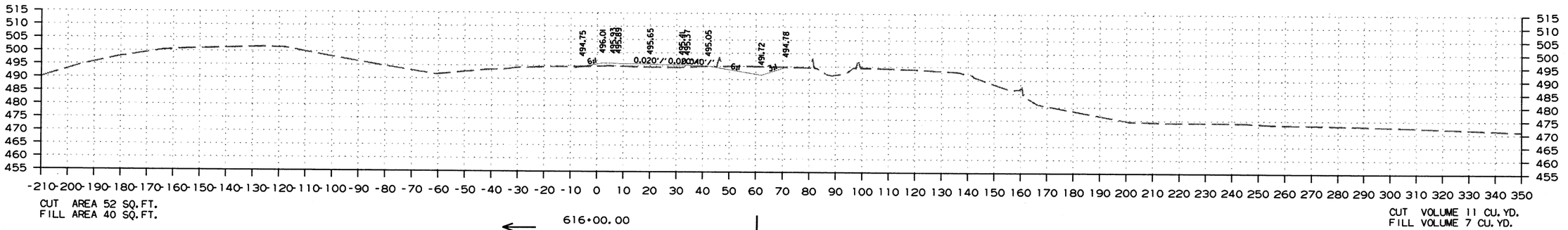
BRIDGE NO. 07462 DRAWING NO. 61101

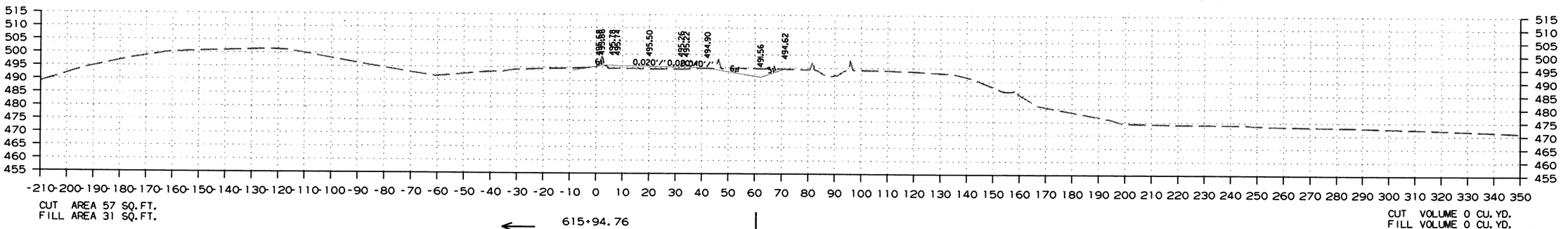
PRINT DATE: 8/14/2019

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.		R60140	327	613

(2) CROSS SECTIONS







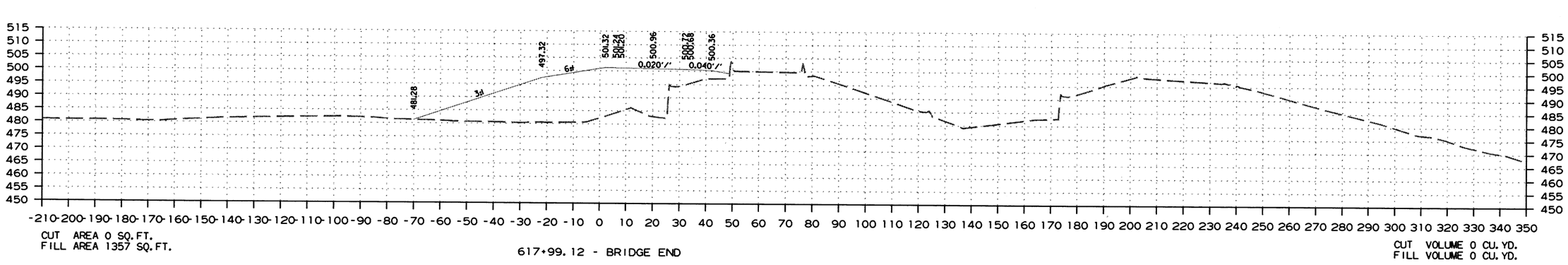
BYPASS
STA. 615+94.76 TO STA. 617+00.00

9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	327A	616

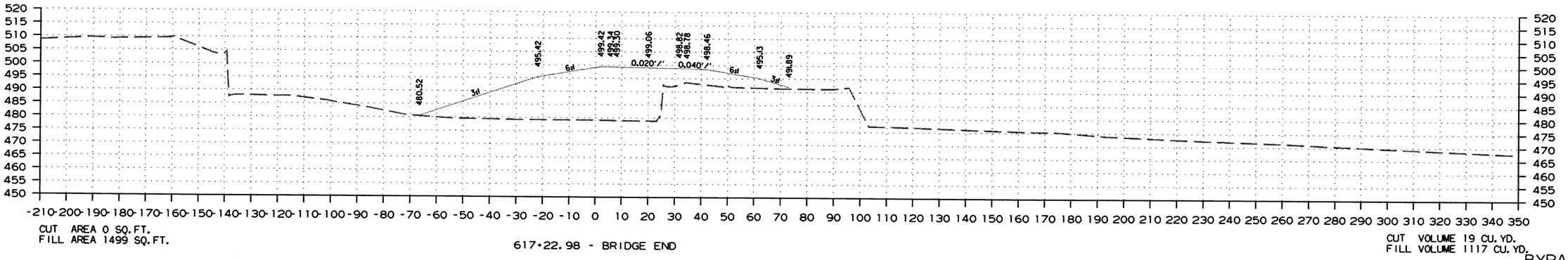
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 1357 SQ.FT.

617+99.12 - BRIDGE END

CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 1499 SQ.FT.

617+22.98 - BRIDGE END

CUT VOLUME 19 CU.YD.
FILL VOLUME 1117 CU.YD.

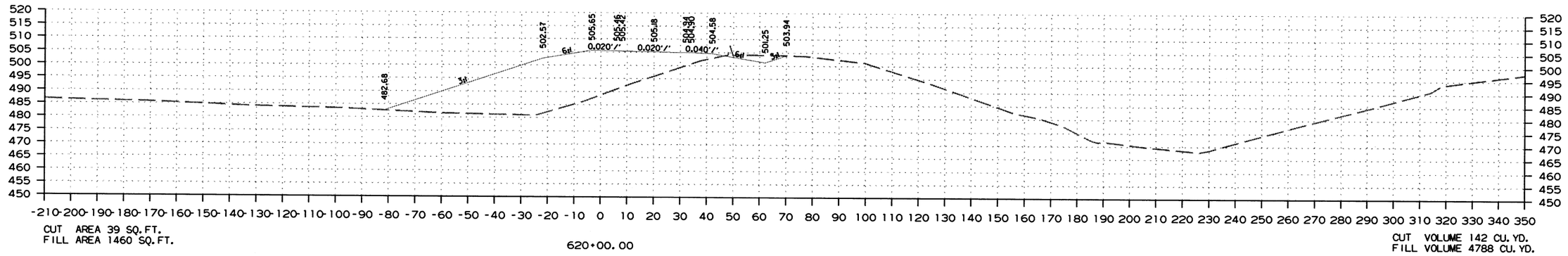
BYPASS
STA. 617+22.98 TO STA. 617+99.12

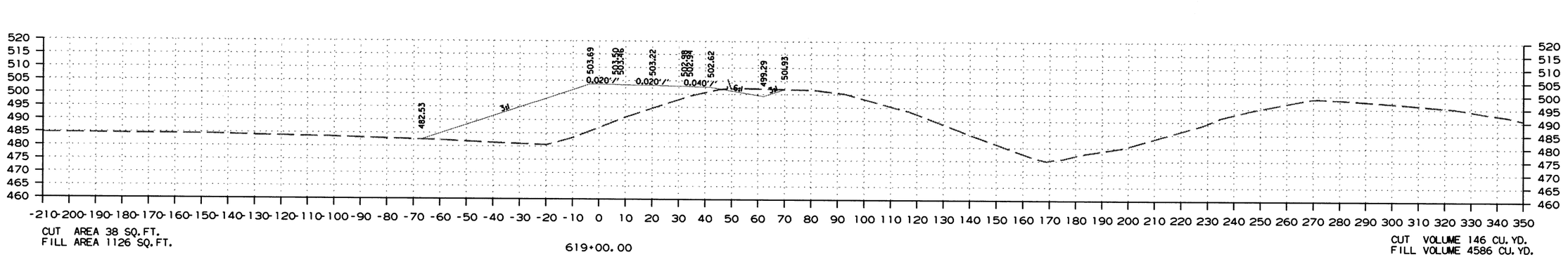
9/5/2019

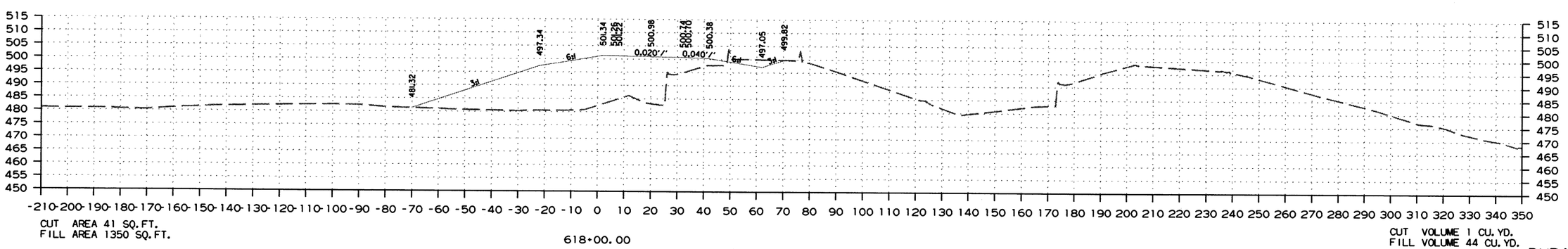
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	328	616

(2) CROSS SECTIONS







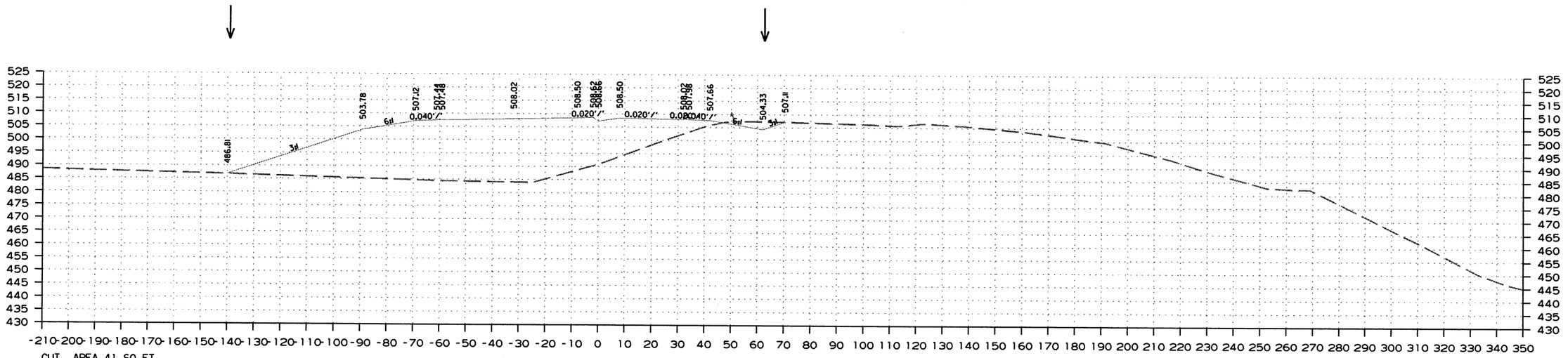
BYPASS
STA. 618+00.00 TO STA. 620+00.00

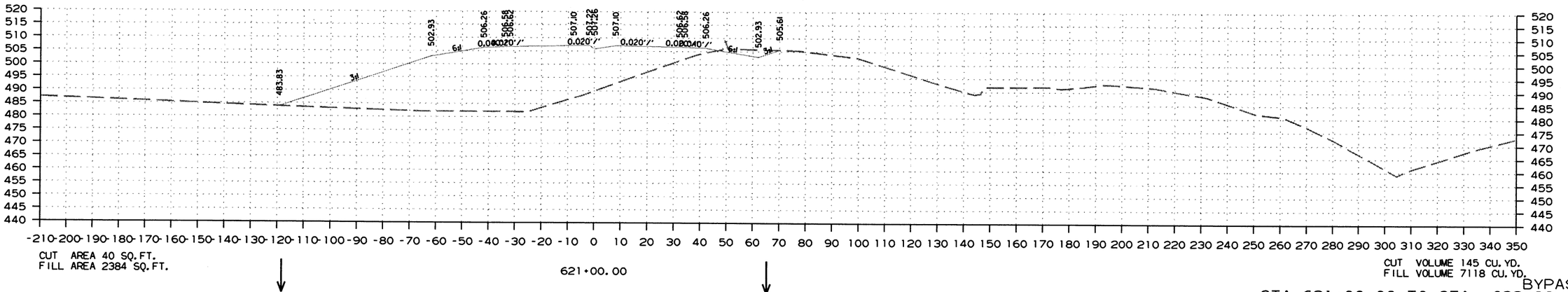
9/5/2019

RR60140.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.		R60140	329	616

(2) CROSS SECTIONS





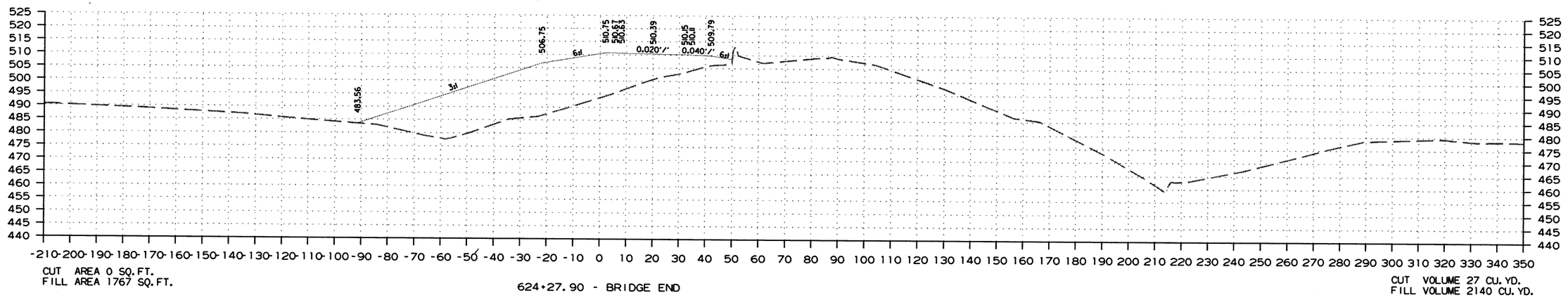
BYPASS
STA. 621+00.00 TO STA. 622+00.00

9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	330	616

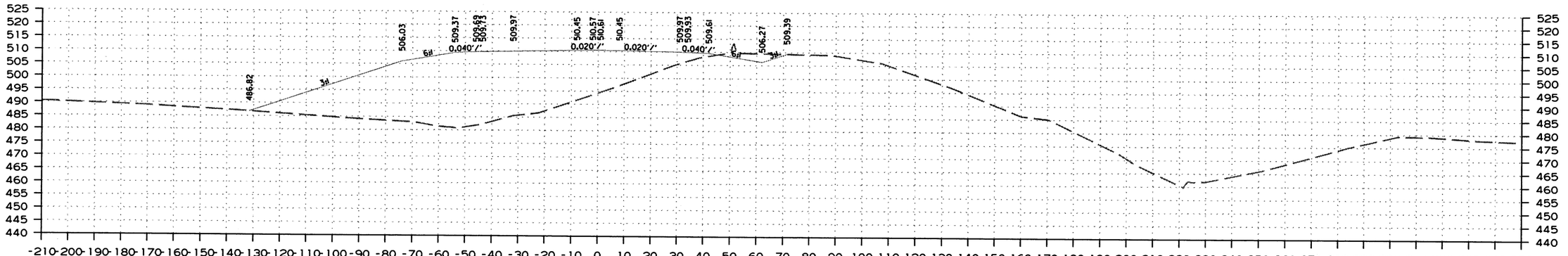
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 1767 SQ.FT.

624+27.90 - BRIDGE END

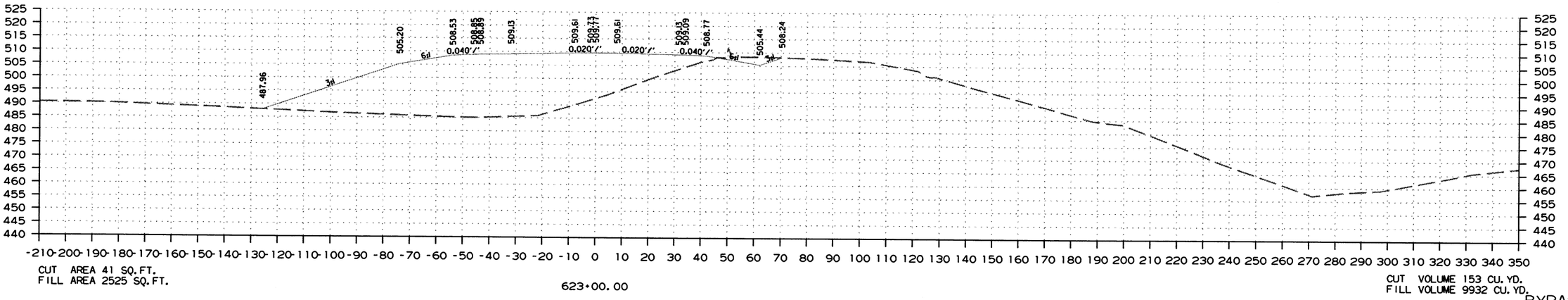
CUT VOLUME 27 CU.YD.
FILL VOLUME 2140 CU.YD.



CUT AREA 53 SQ.FT.
FILL AREA 2375 SQ.FT.

624+00.00

CUT VOLUME 175 CU.YD.
FILL VOLUME 9074 CU.YD.



CUT AREA 41 SQ.FT.
FILL AREA 2525 SQ.FT.

623+00.00

CUT VOLUME 153 CU.YD.
FILL VOLUME 9932 CU.YD.

BYPASS
STA. 623+00.00 TO STA. 624+27.90

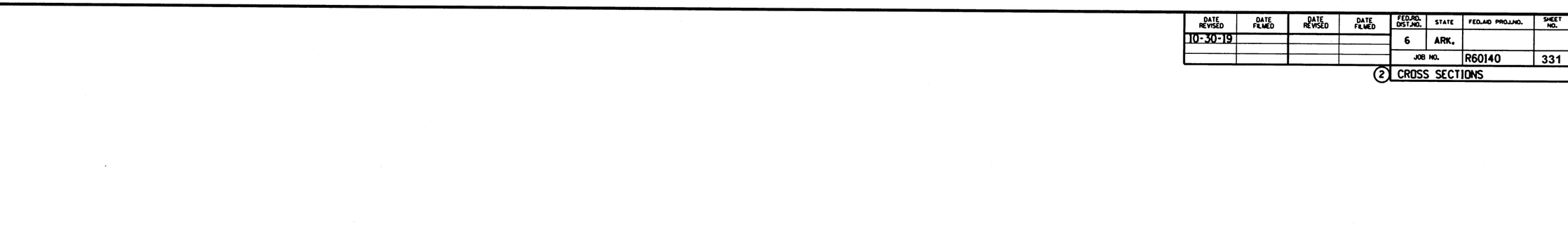
9/5/2019

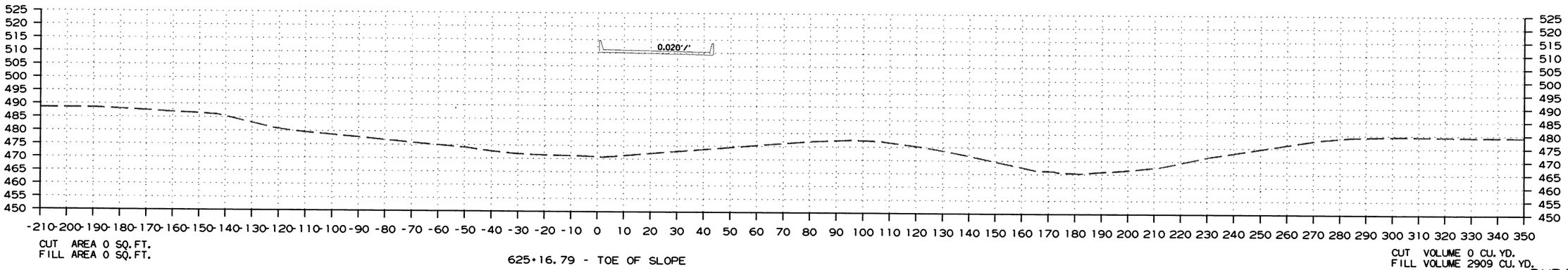
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10-30-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		R60140	331	616

(2) CROSS SECTIONS





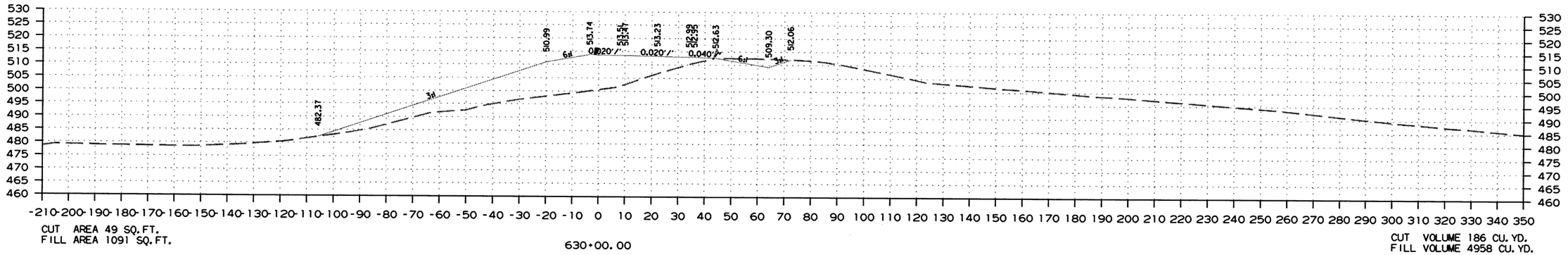
BYPASS
STA. 625+16.79 TO STA. 627+27.05

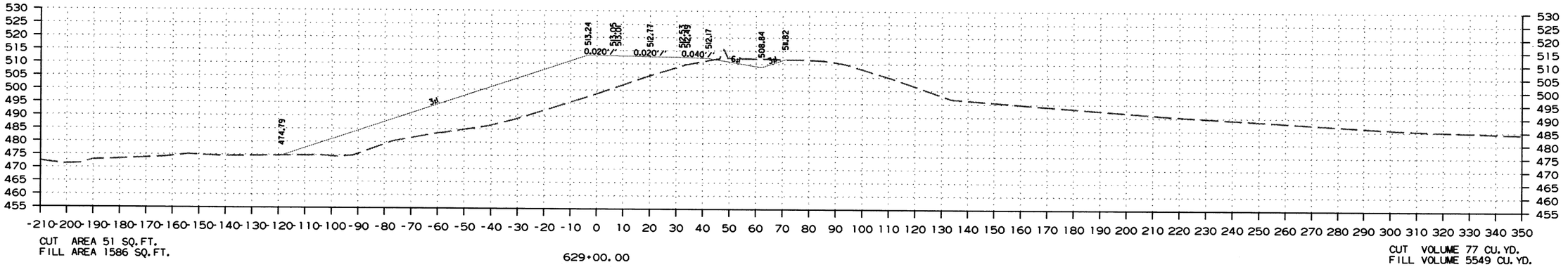
9/5/2019

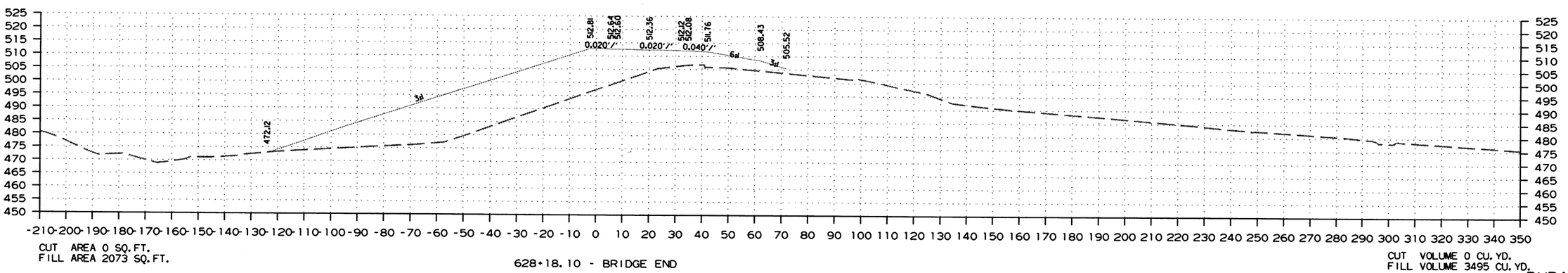
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	332	616

(2) CROSS SECTIONS







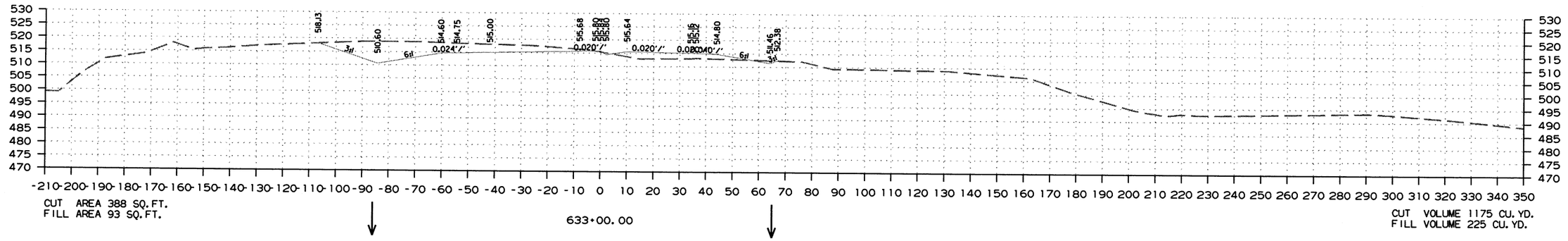
BYPASS
STA. 628+18.10 TO STA. 630+00.00

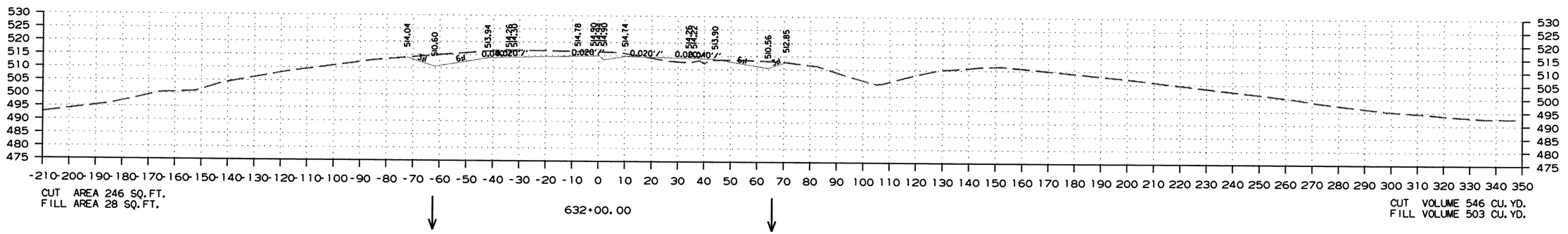
9/5/2019

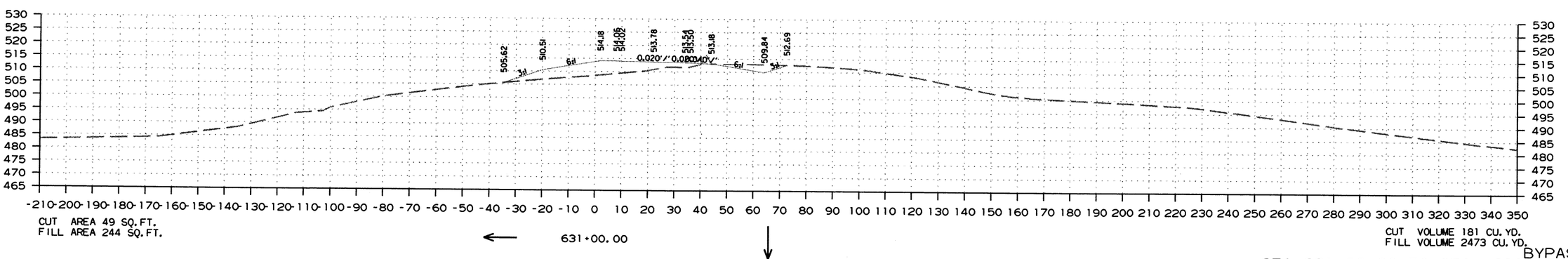
RR60140.DGN

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.		R60140	333	616

(2) CROSS SECTIONS







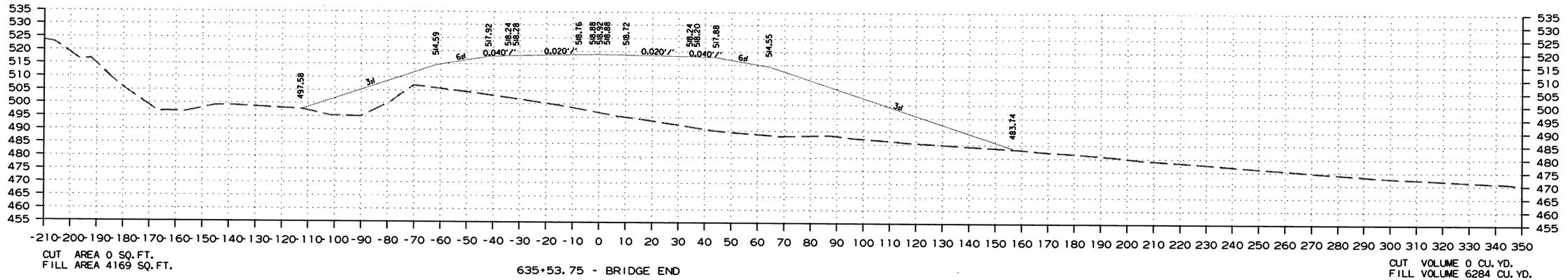
BYPASS
STA. 631+00.00 TO STA. 633+00.00

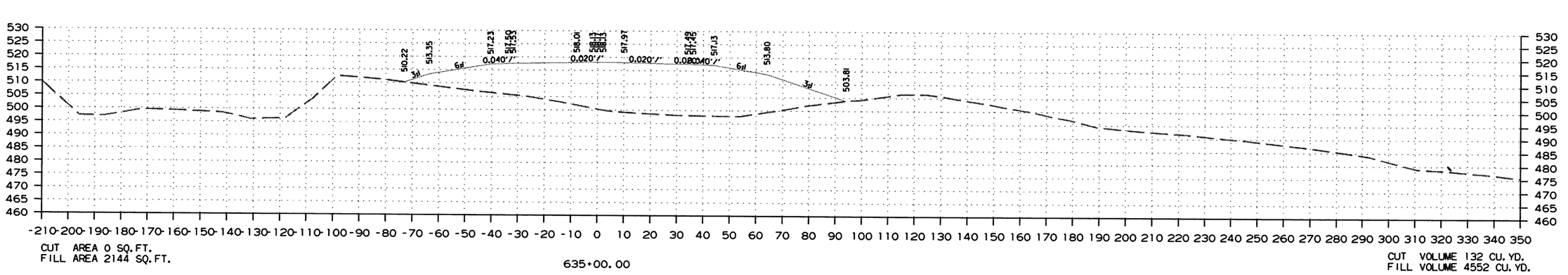
9/5/2019

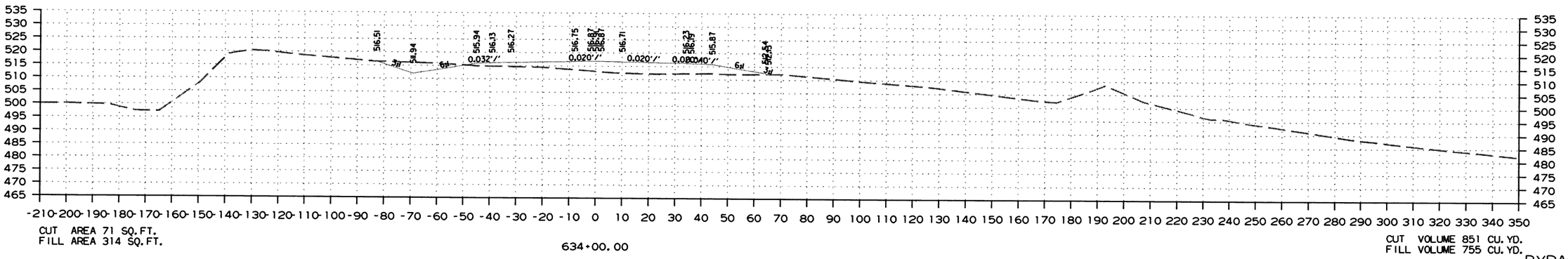
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	334	616

(2) CROSS SECTIONS







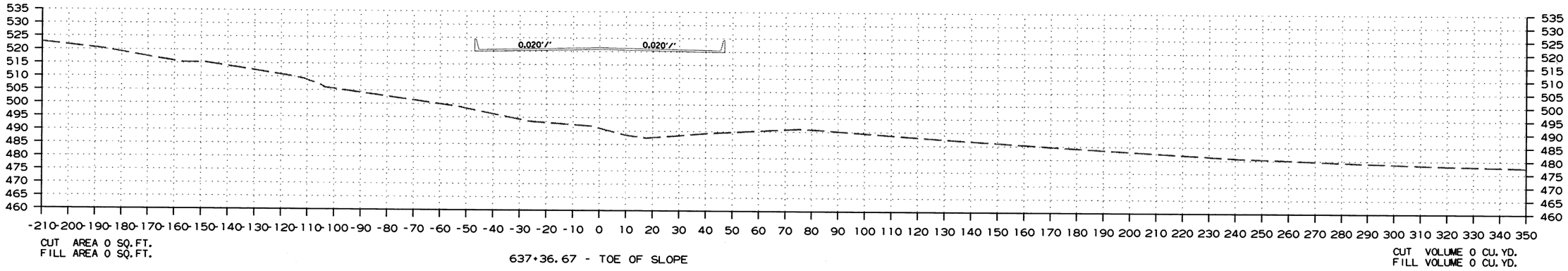
BYPASS
STA. 634+00.00 TO STA. 635+53.75

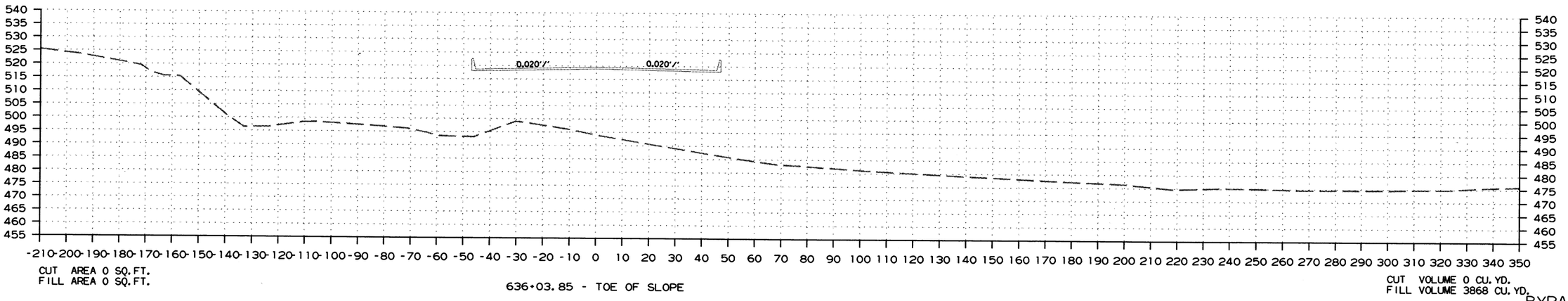
9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	334A	616

(2) CROSS SECTIONS





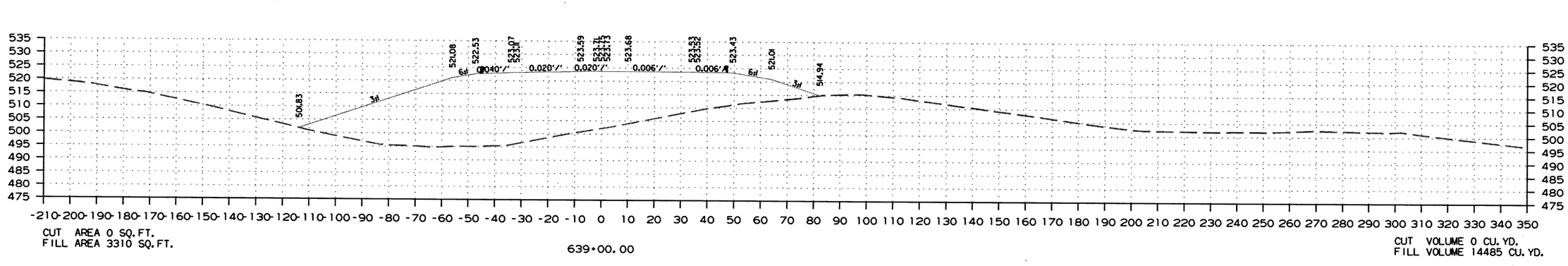
BYPASS
STA. 636+03.85 TO STA. 637+36.67

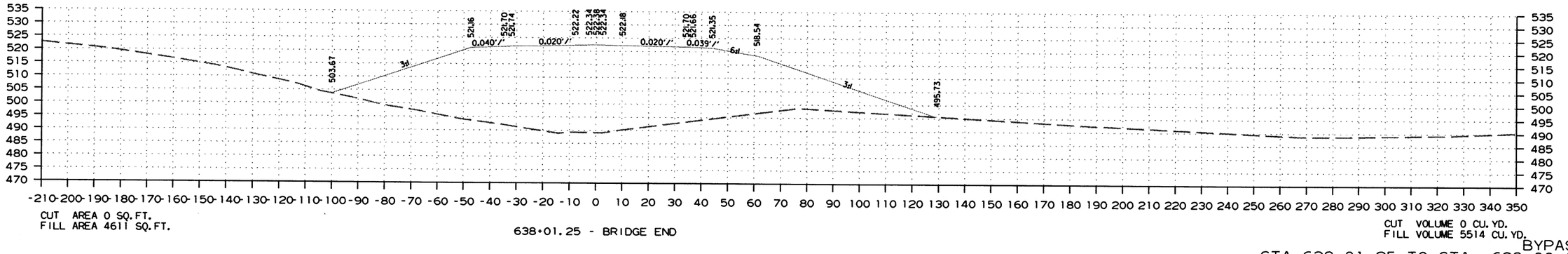
11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	335	616

(2) CROSS SECTIONS





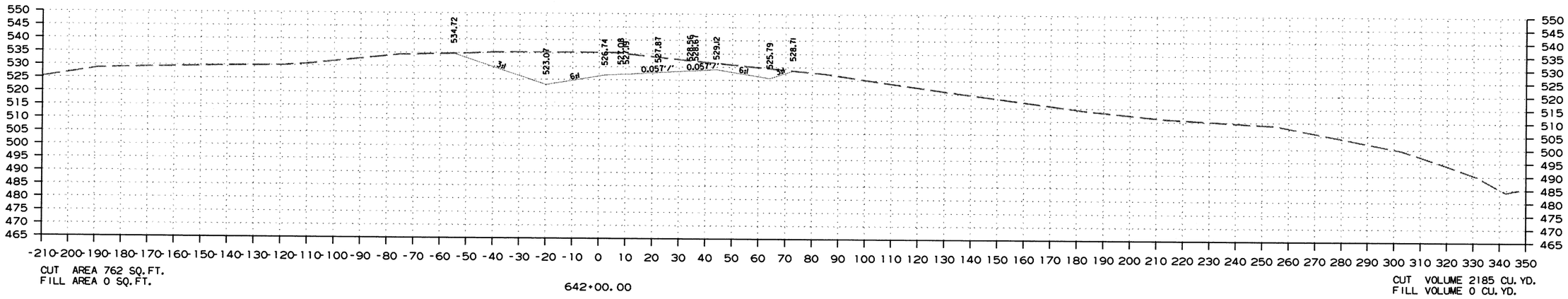
BYPASS
STA. 638+01.25 TO STA. 639+00.00

9/5/2019

RR60140.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.		R60140	336	616

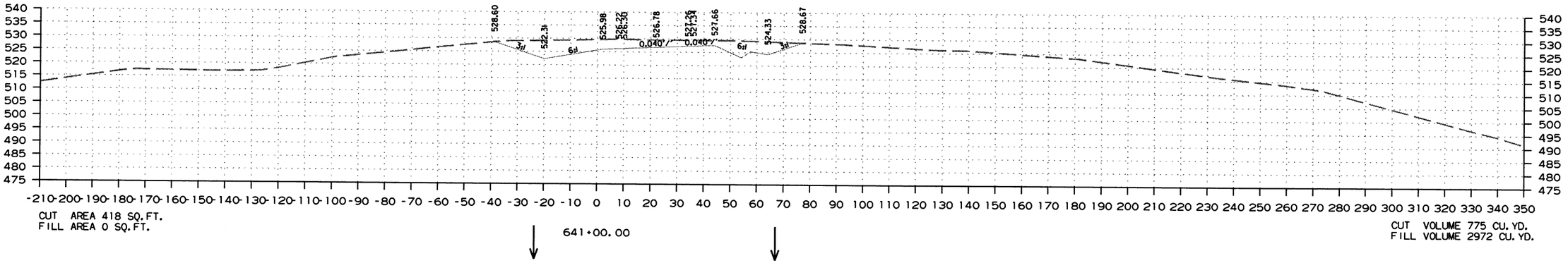
(2) CROSS SECTIONS



CUT AREA 762 SQ.FT.
FILL AREA 0 SQ.FT.

642+00.00

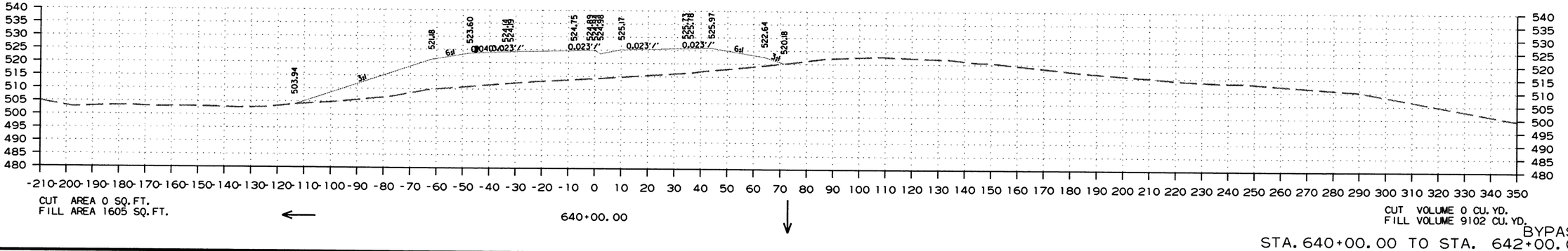
CUT VOLUME 2185 CU.YD.
FILL VOLUME 0 CU.YD.



CUT AREA 418 SQ.FT.
FILL AREA 0 SQ.FT.

641+00.00

CUT VOLUME 775 CU.YD.
FILL VOLUME 2972 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 1605 SQ.FT.

640+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 9102 CU.YD.

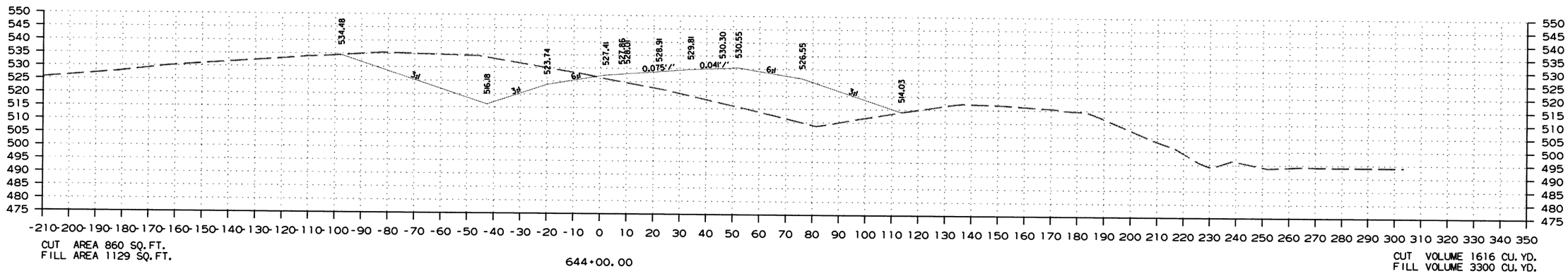
BYPASS
STA. 640+00.00 TO STA. 642+00.00

9/5/2019

RR60140.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.		R60140	337	616

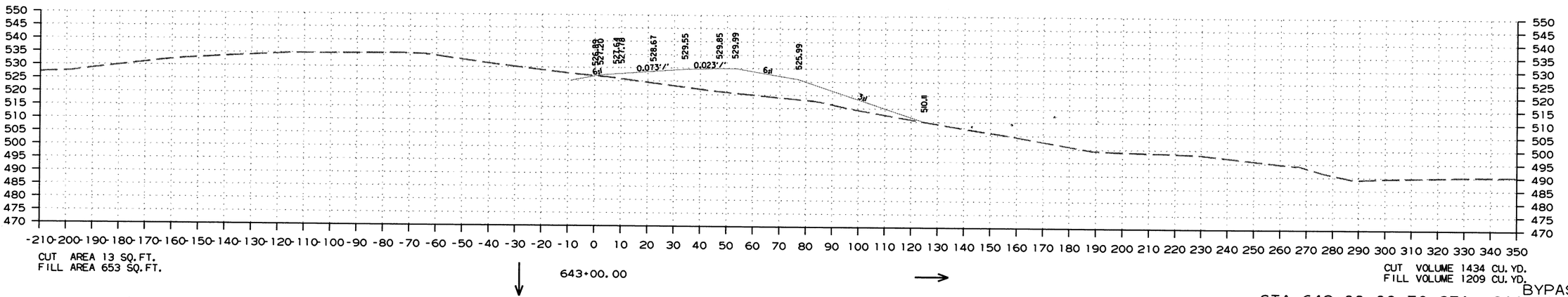
(2) CROSS SECTIONS



CUT AREA 860 SQ.FT.
FILL AREA 1129 SQ.FT.

644+00.00

CUT VOLUME 1616 CU. YD.
FILL VOLUME 3300 CU. YD.



CUT AREA 13 SQ.FT.
FILL AREA 653 SQ.FT.

643+00.00

CUT VOLUME 1434 CU. YD.
FILL VOLUME 1209 CU. YD.

BYPASS
STA. 643+00.00 TO STA. 644+00.00

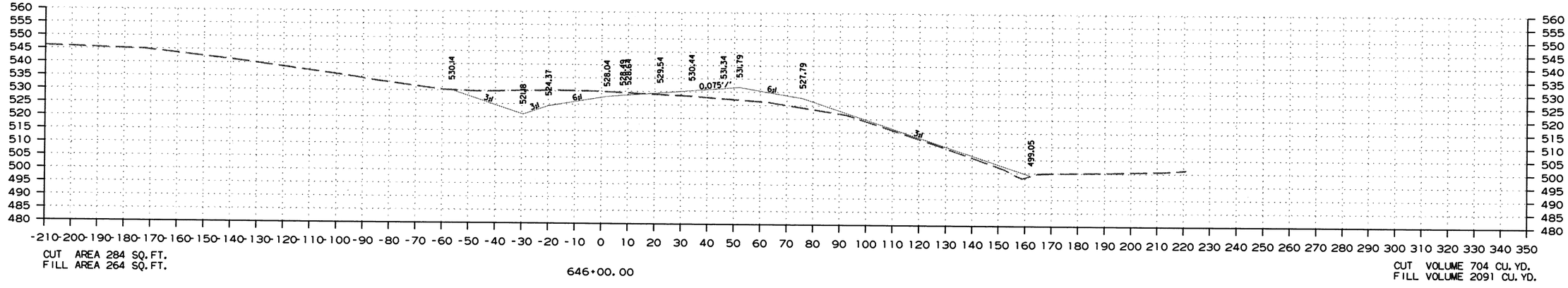
9/5/2019

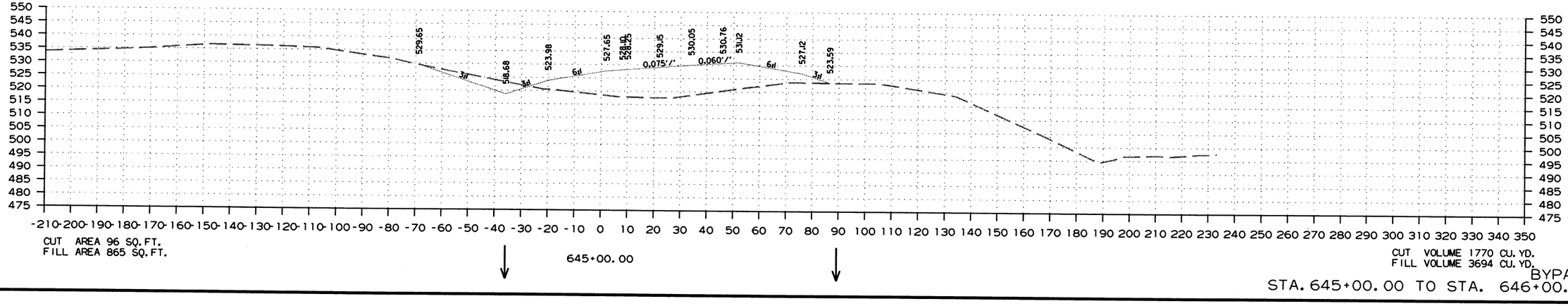
RR60140.DGN

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.		R60140	338	616

(2) CROSS SECTIONS





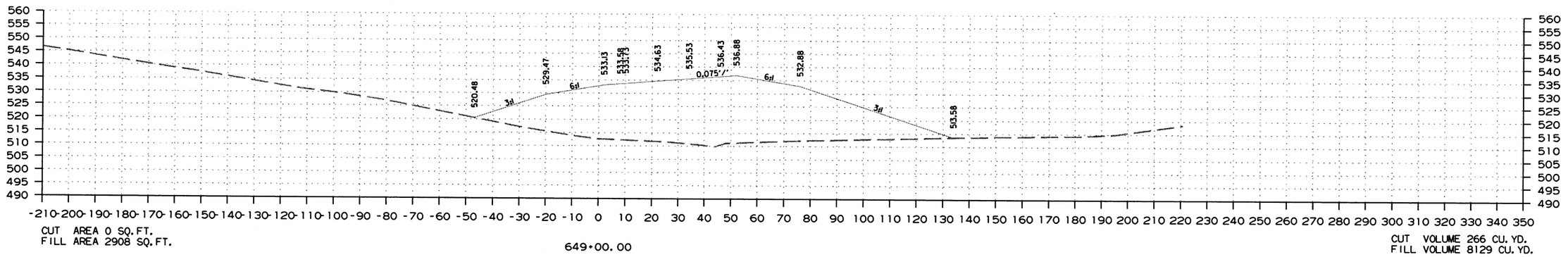
BYPASS
STA. 645+00.00 TO STA. 646+00.00

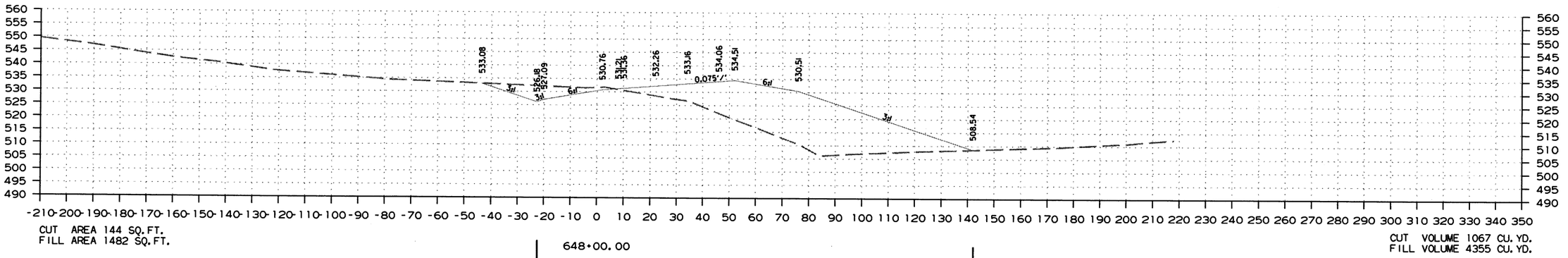
9/5/2019

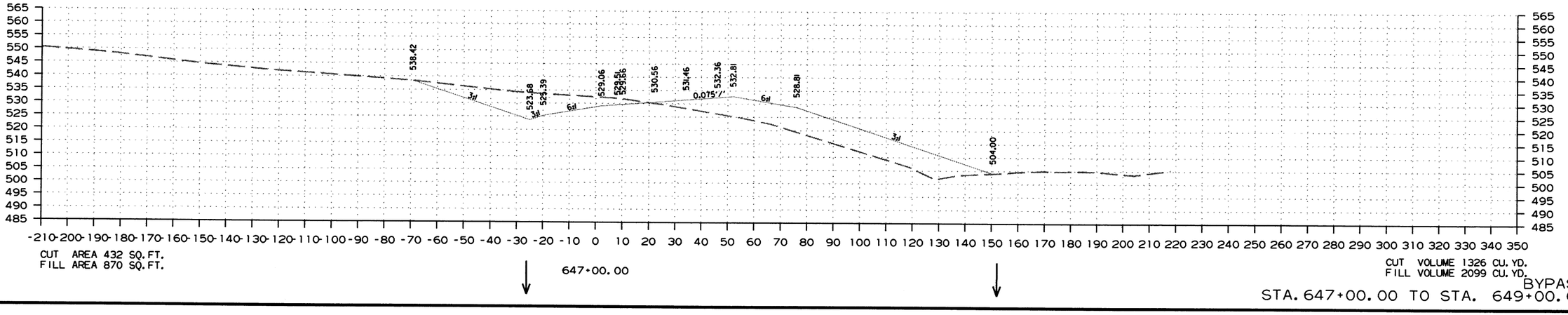
RR60140.DGN

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.		R60140	339	616

(2) CROSS SECTIONS







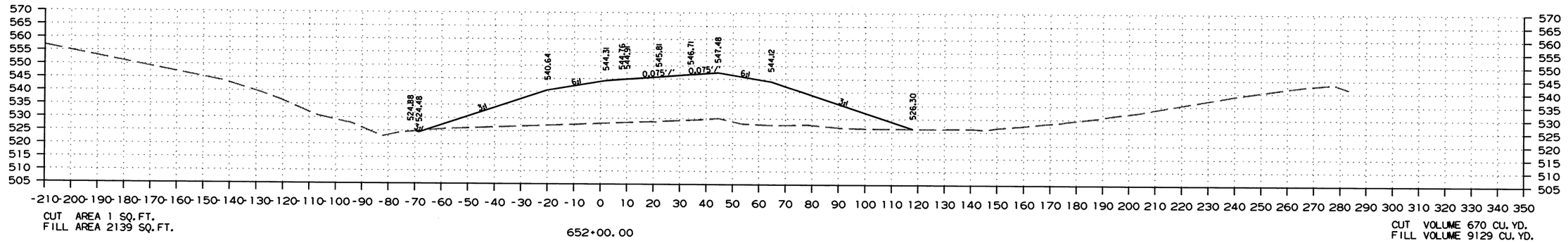
BYPASS
STA. 647+00.00 TO STA. 649+00.00

9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	340	616

(2) CROSS SECTIONS

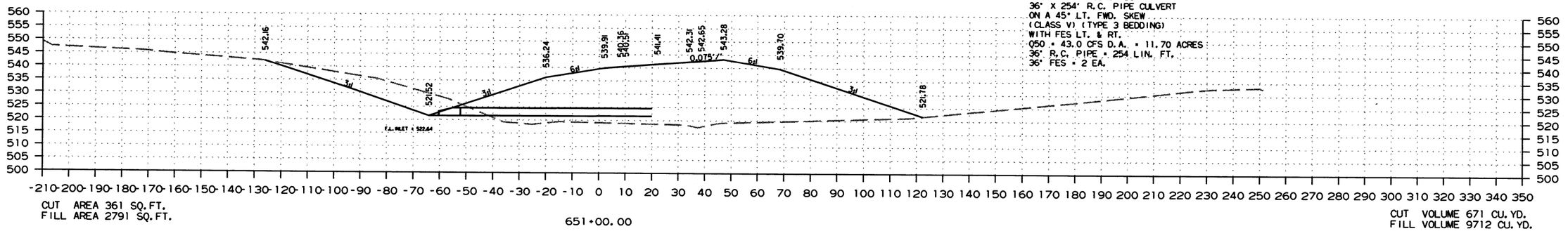


CUT AREA 1 SQ.FT.
FILL AREA 2139 SQ.FT.

652+00.00

CUT VOLUME 670 CU.YD.
FILL VOLUME 9129 CU.YD.

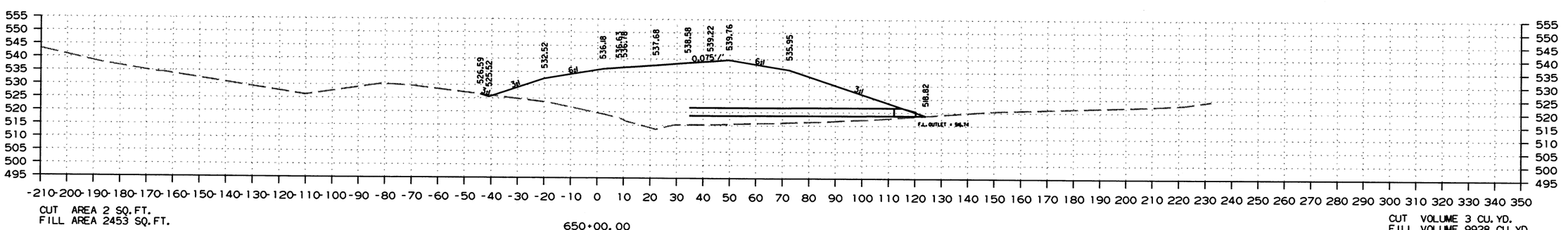
STA. 650+75 CONSTRUCT
36" X 254' R.C. PIPE CULVERT
ON A 45° LT. FWD. SKEW
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 43.0 CFS D.A. = 11.70 ACRES
36" R.C. PIPE = 254 LIN. FT.
36" FES = 2 EA.



CUT AREA 361 SQ.FT.
FILL AREA 2791 SQ.FT.

651+00.00

CUT VOLUME 671 CU.YD.
FILL VOLUME 9712 CU.YD.



CUT AREA 2 SQ.FT.
FILL AREA 2453 SQ.FT.

650+00.00

CUT VOLUME 3 CU.YD.
FILL VOLUME 9928 CU.YD.

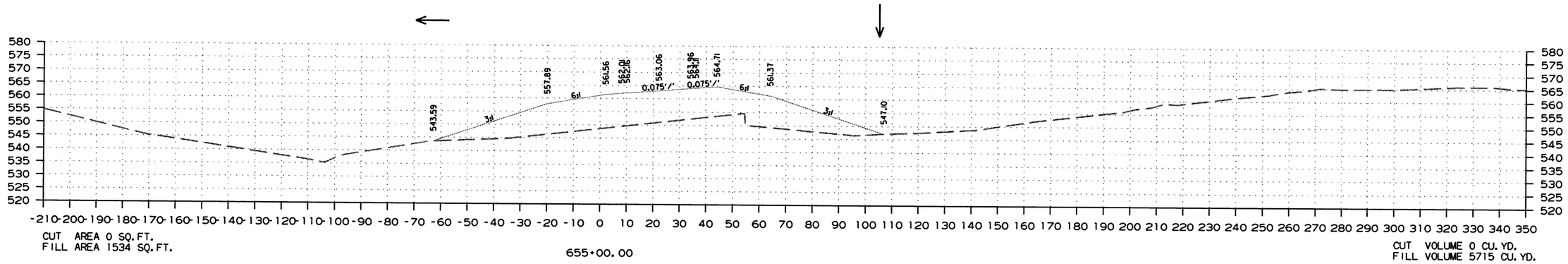
BYPASS
STA. 650+00.00 TO STA. 652+00.00

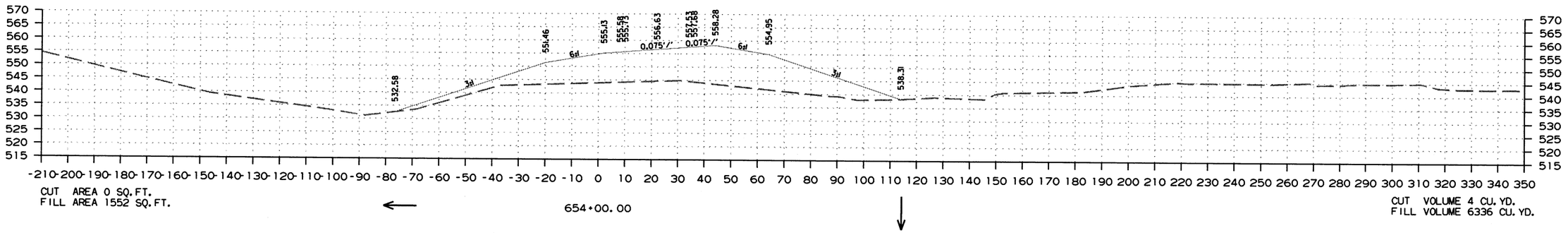
9/5/2019

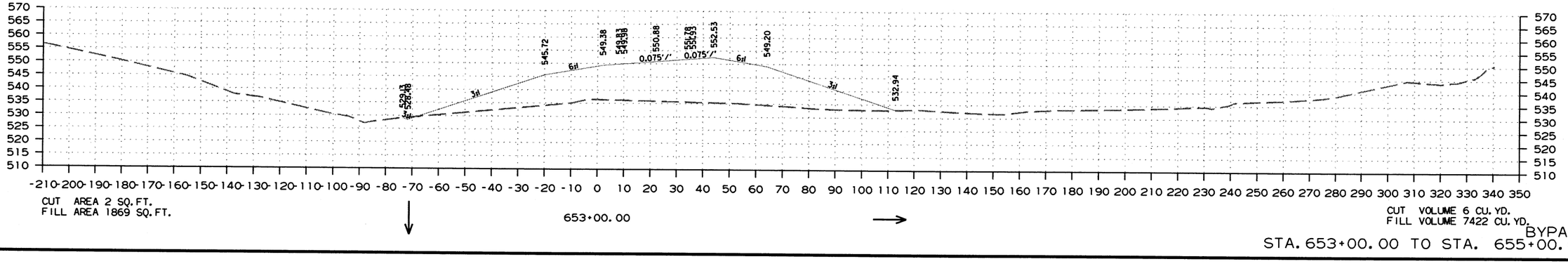
RR60140.DGN

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.		R60140	341	616

(2) CROSS SECTIONS







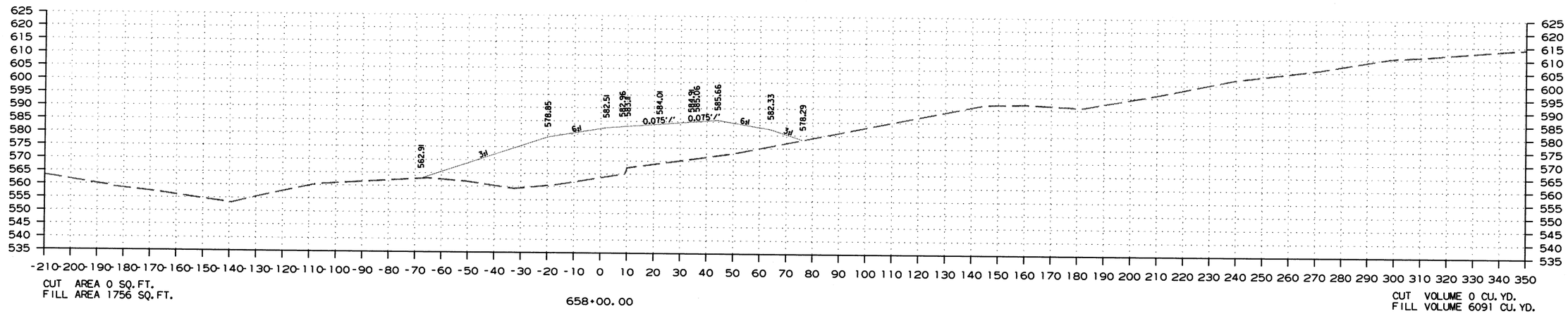
BYPASS
STA. 653+00.00 TO STA. 655+00.00

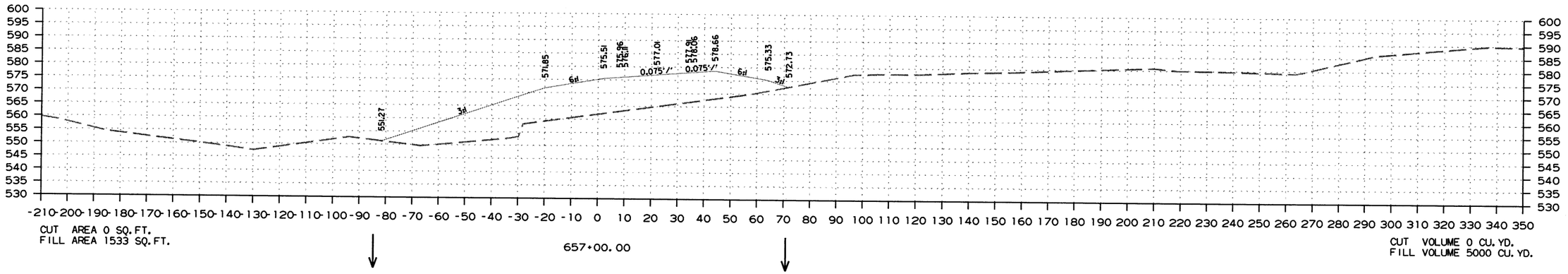
9/5/2019

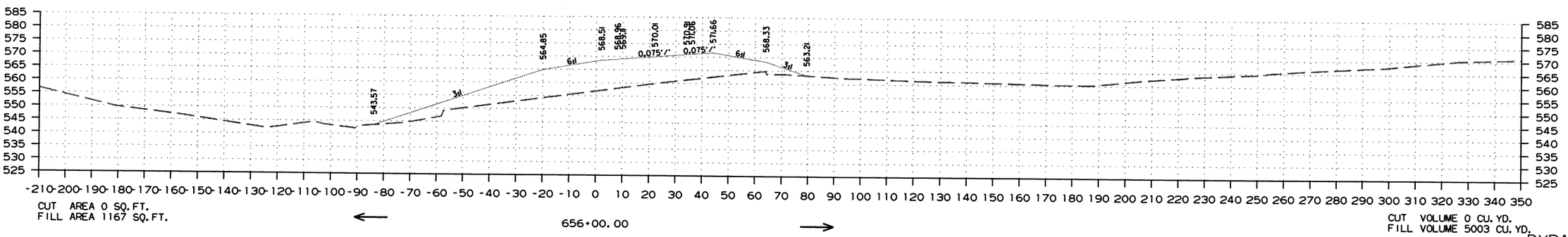
RR60140.DGN

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.		R60140	342	616

(2) CROSS SECTIONS







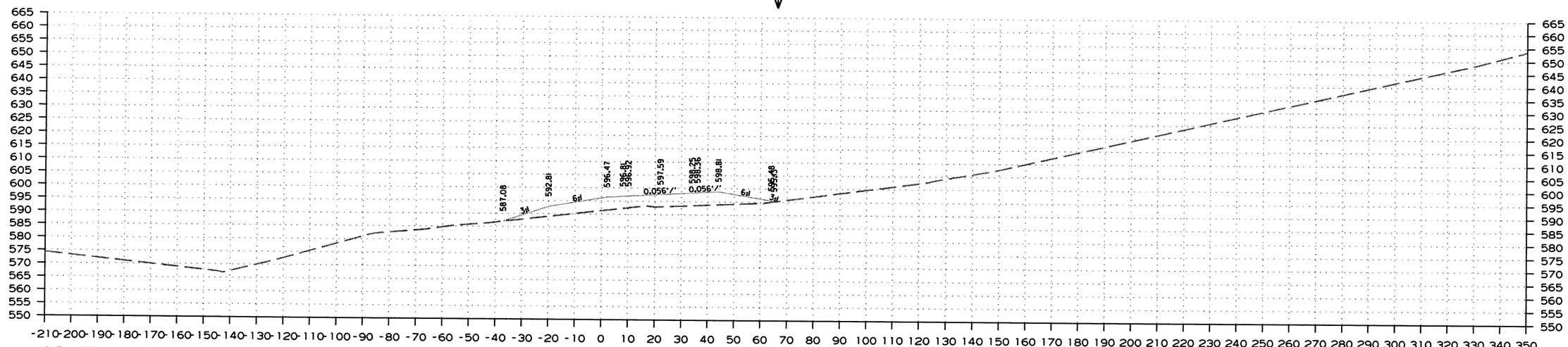
BYPASS
STA. 656+00.00 TO STA. 658+00.00

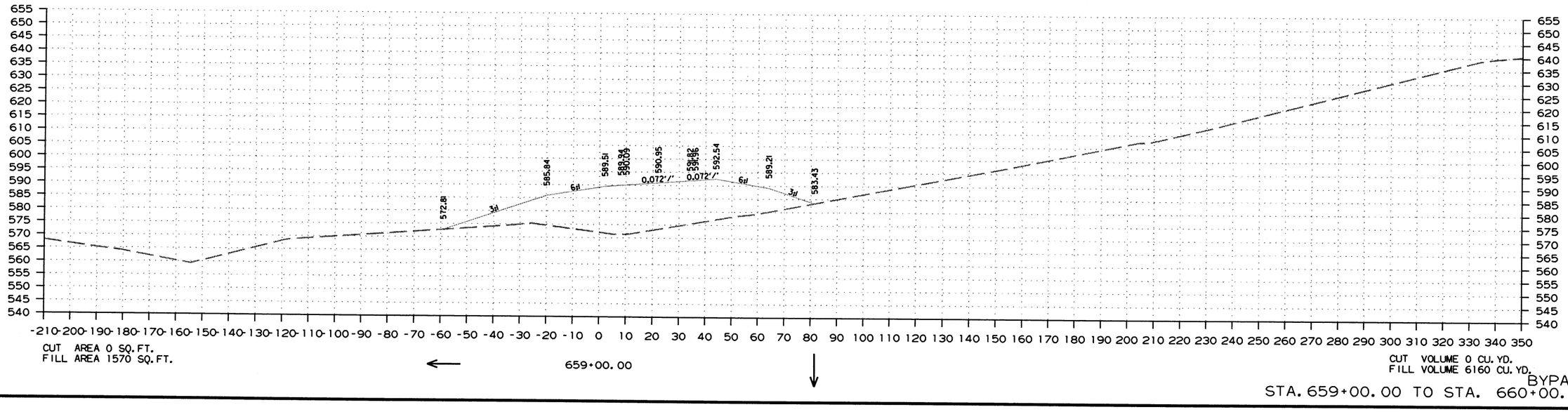
9/5/2019

RR60140.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.		R60140	343	616

(2) CROSS SECTIONS





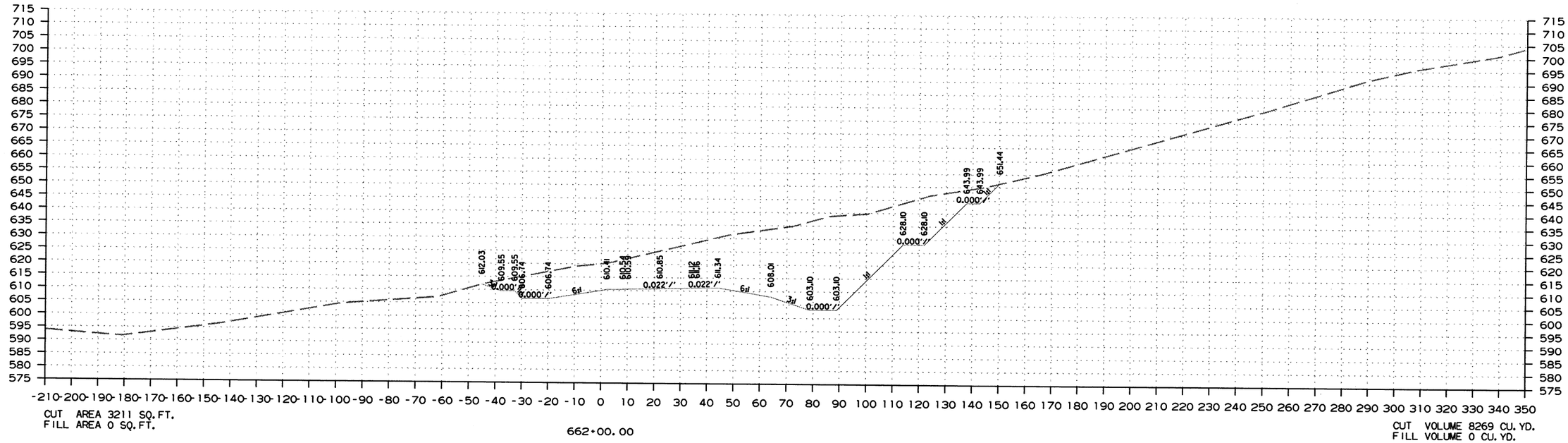
BYPASS
STA. 659+00.00 TO STA. 660+00.00

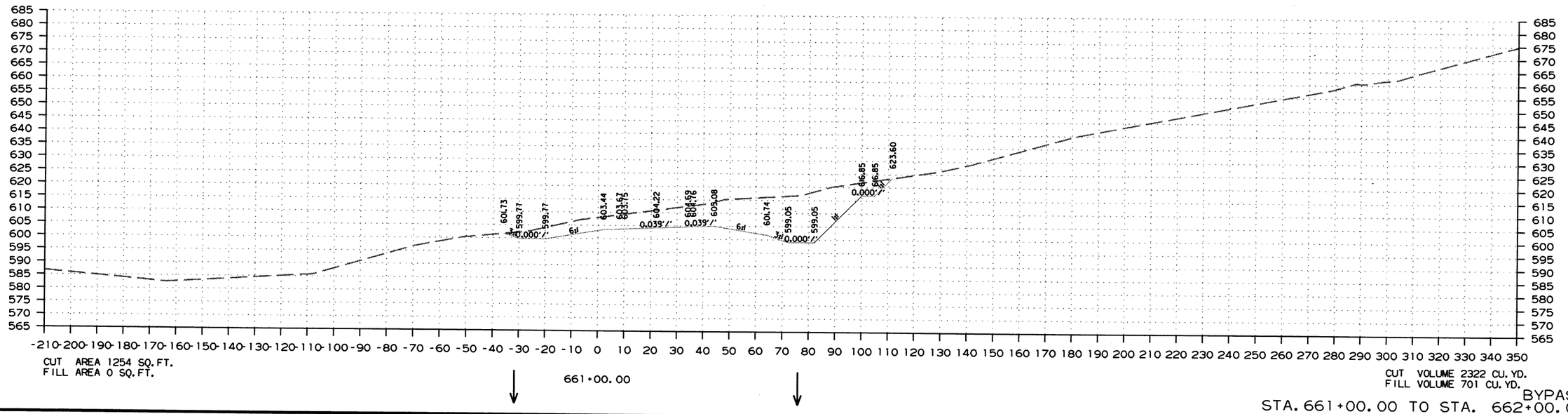
9/5/2019

RR60140.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.		R60140	344	616

(2) CROSS SECTIONS





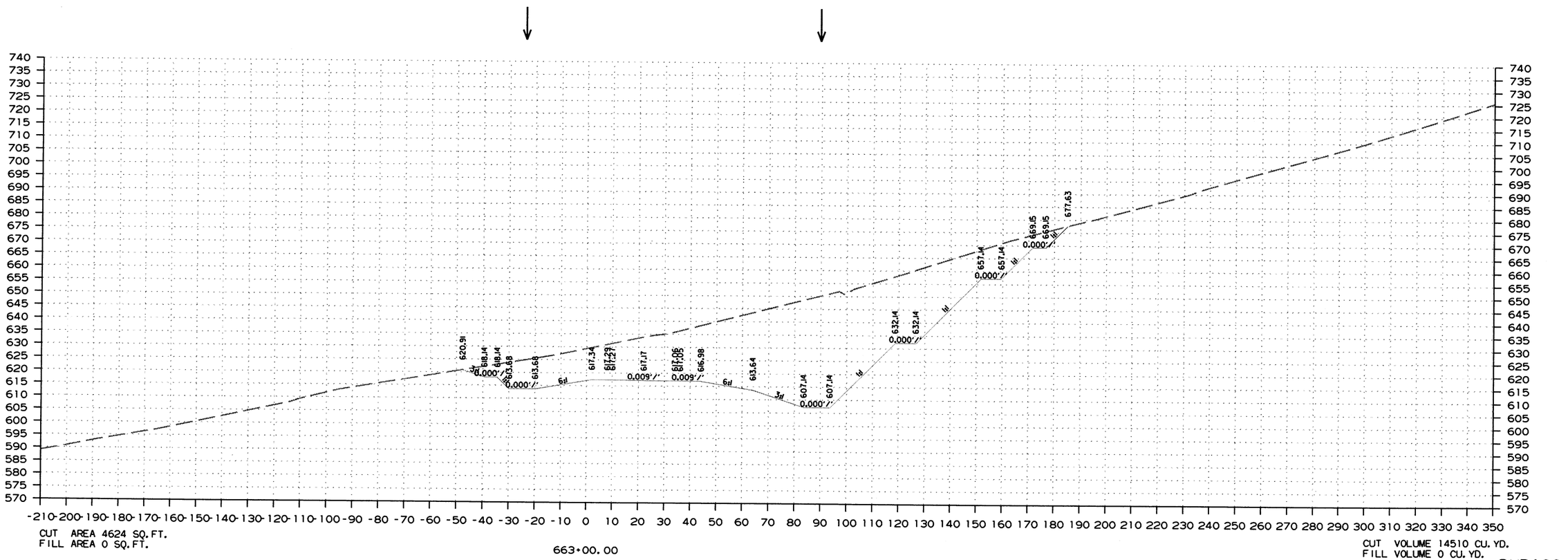
BYPASS
STA. 661+00.00 TO STA. 662+00.00

9/5/2019

RR60140.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.		R60140	345	616

(2) CROSS SECTIONS



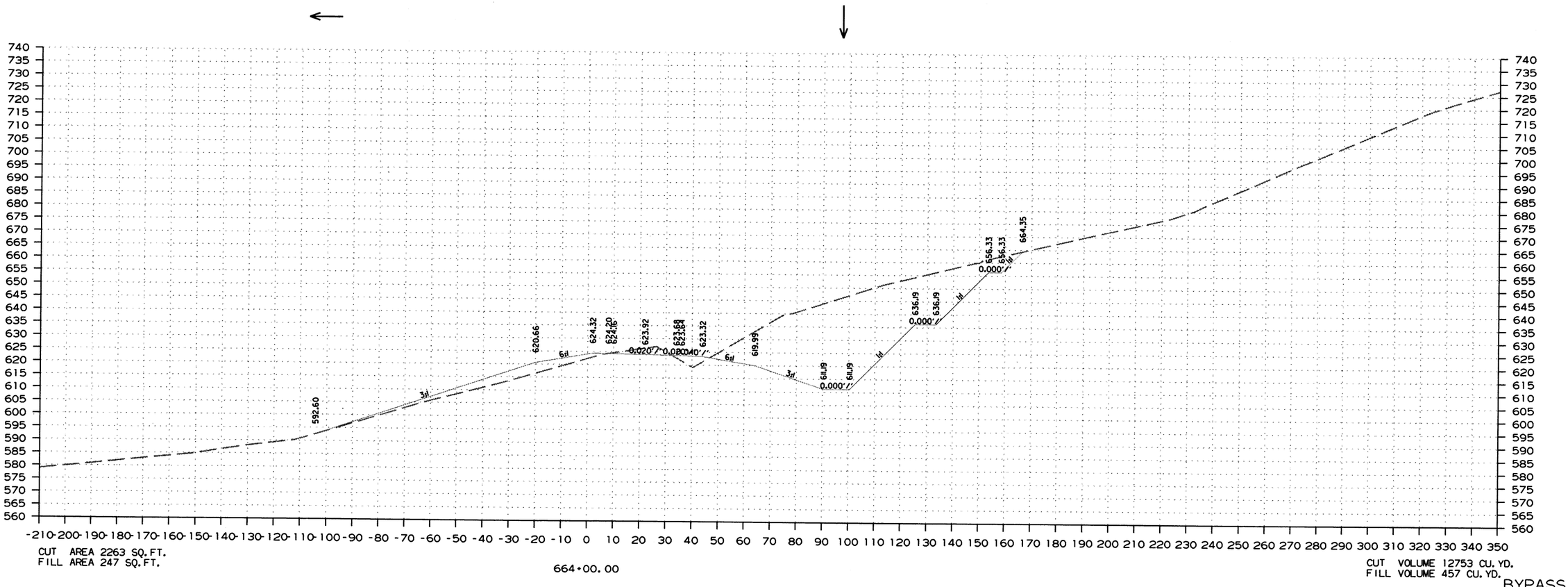
BYPASS
STA. 663+00.00 TO STA. 663+00.00

9/5/2019

RR60140.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.		R60140	345	616

(2) CROSS SECTIONS



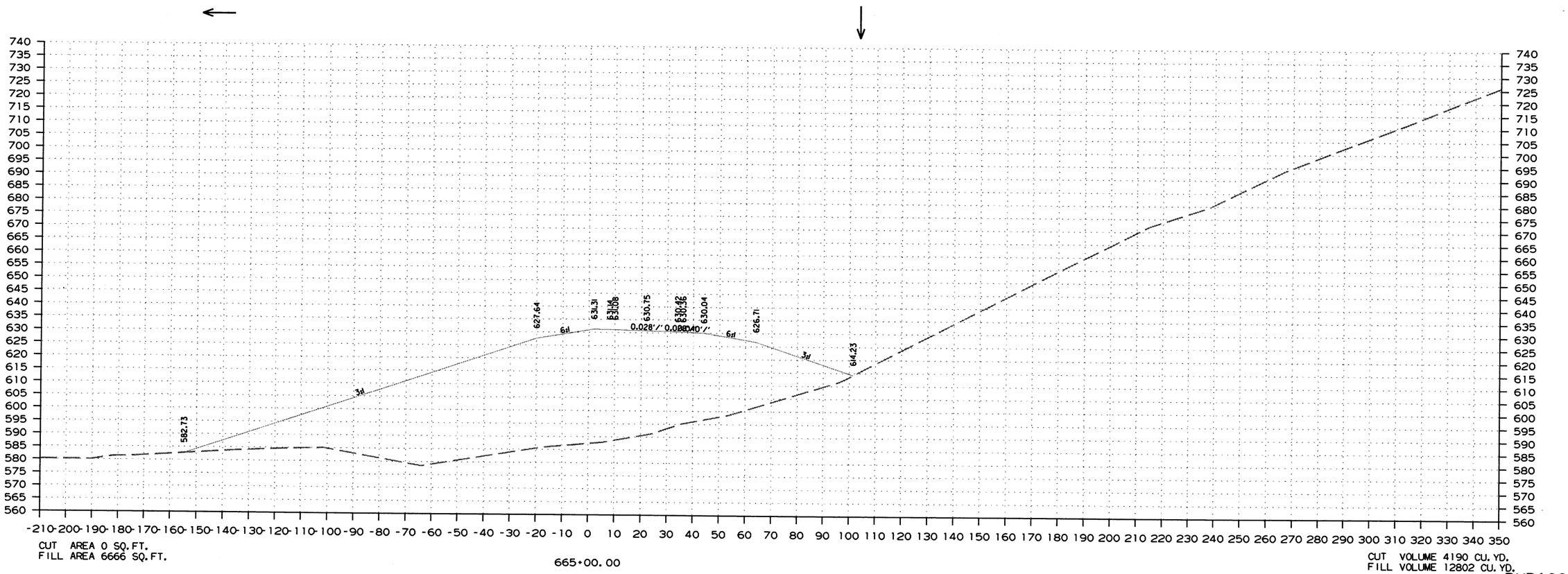
BYPASS
STA. 664+00.00 TO STA. 664+00.00

9/5/2019

RR60140.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.		R60140	347	616

(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 6666 SQ.FT.

665+00.00

CUT VOLUME 4190 CU.YD.
FILL VOLUME 12802 CU.YD.

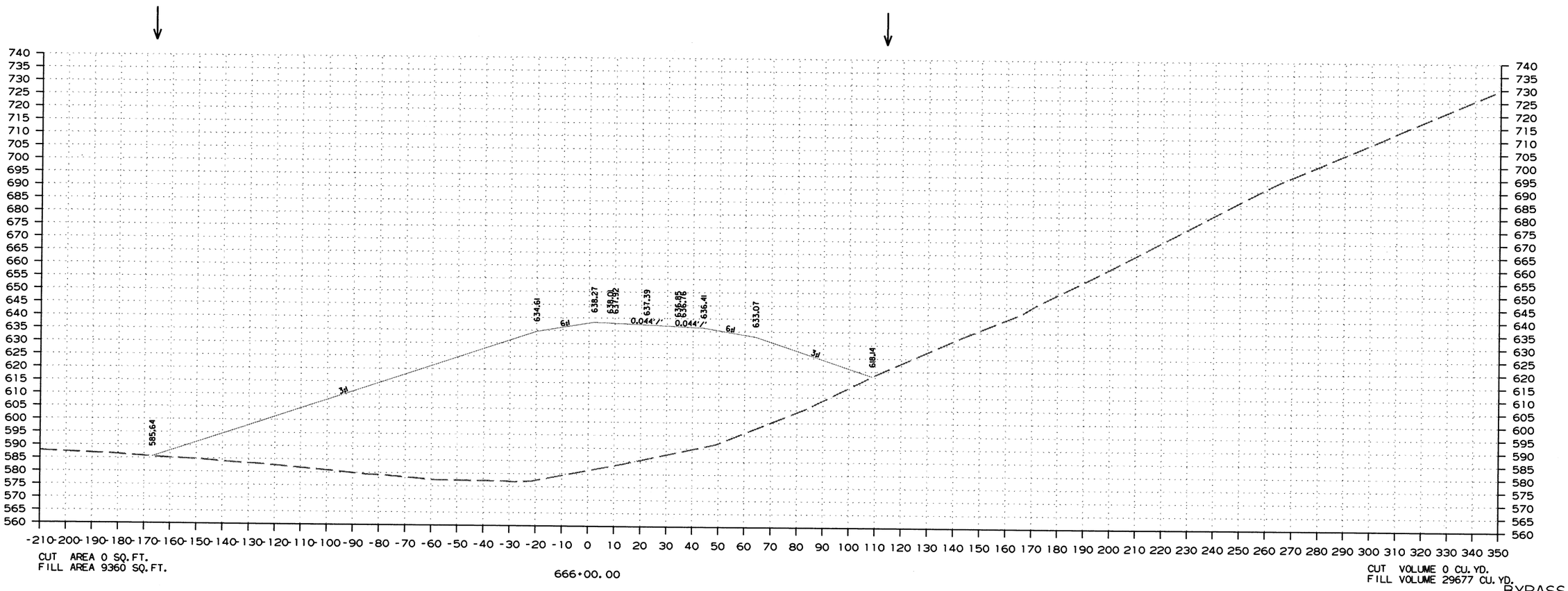
BYPASS
STA. 665+00.00 TO STA. 665+00.00

9/5/2019

RR60140.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.		R60140	345	616

(2) CROSS SECTIONS



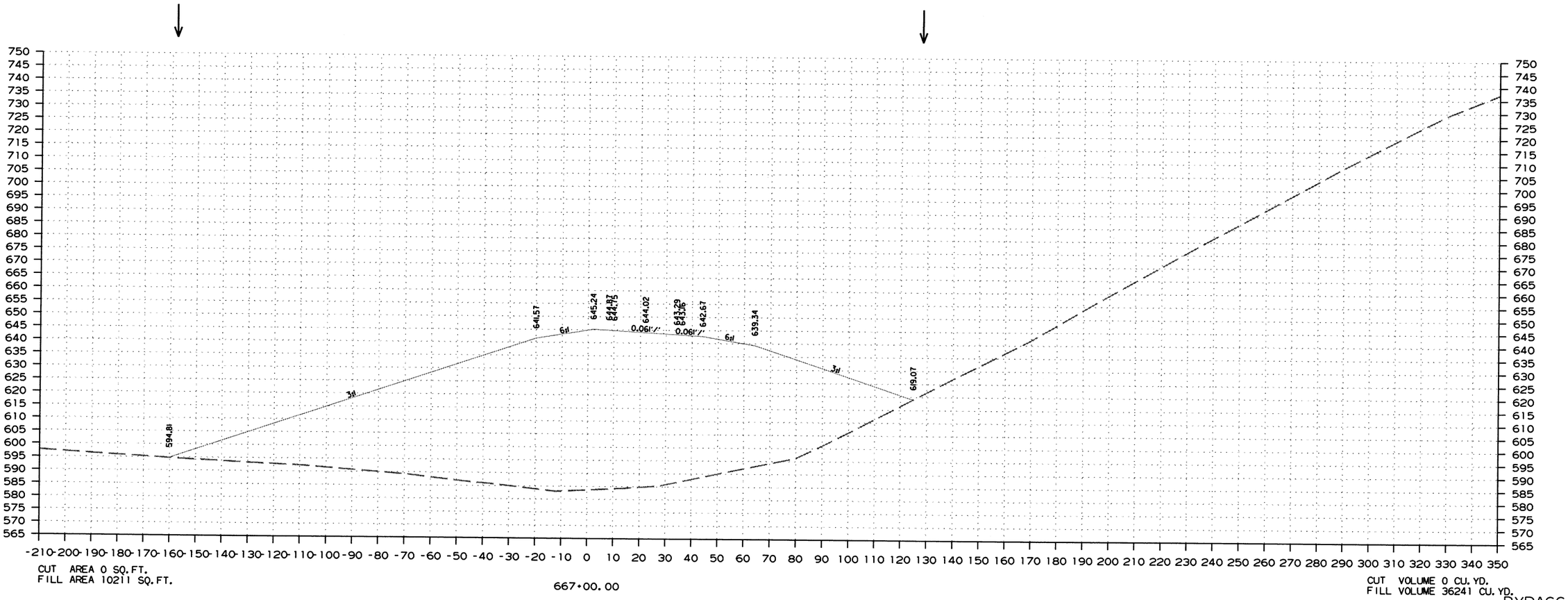
BYPASS
STA. 666+00.00 TO STA. 666+00.00

9/5/2019

RR60140.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.		R60140	349	616

(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 10211 SQ.FT.

667+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 36241 CU.YD.

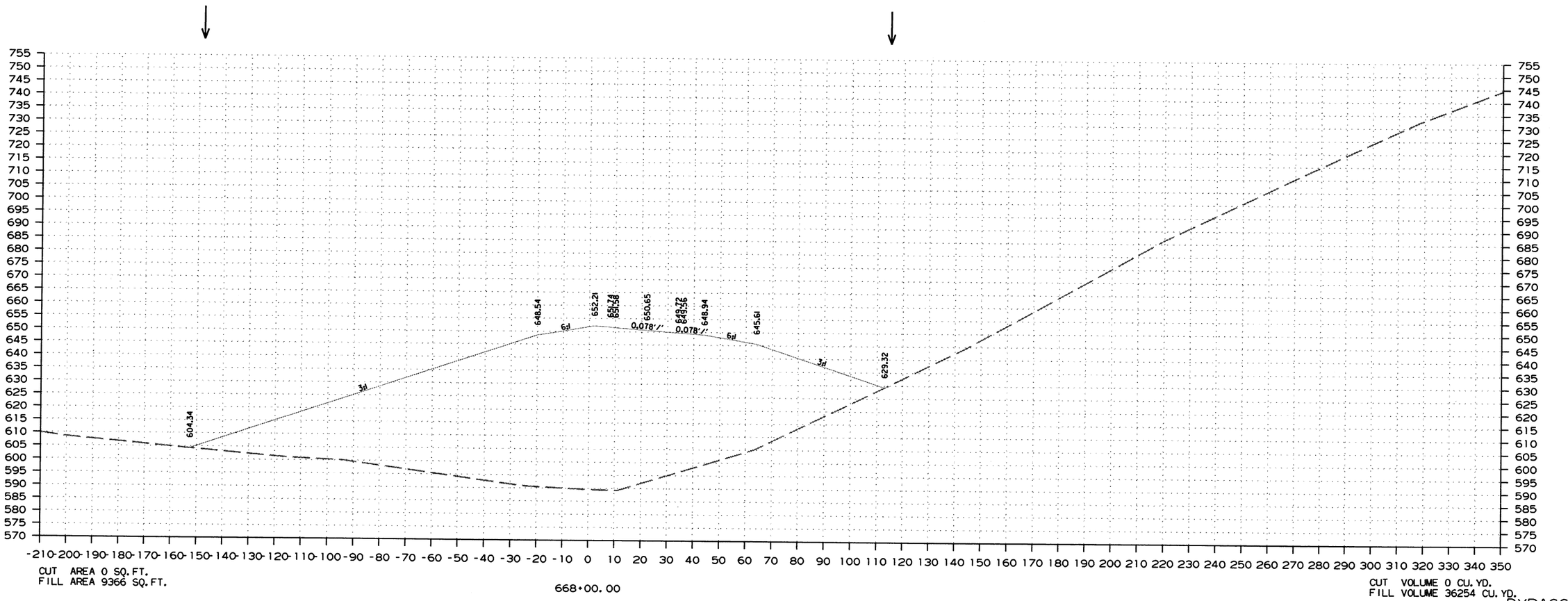
BYPASS
STA. 667+00.00 TO STA. 667+00.00

9/5/2019

RR60140.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.		R60140	350	616

(2) CROSS SECTIONS



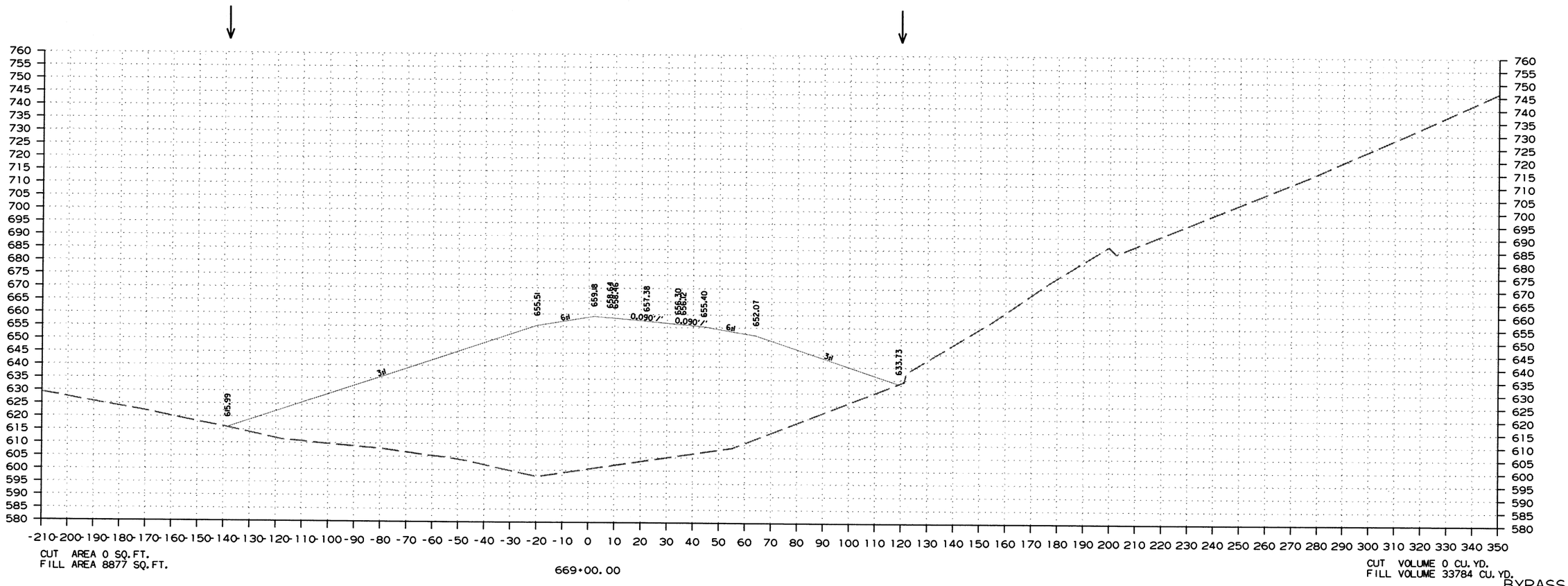
BYPASS
STA. 668+00.00 TO STA. 668+00.00

9/5/2019

RR60140.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.		R60140	351	616

(2) CROSS SECTIONS



BYPASS
STA. 669+00.00 TO STA. 669+00.00

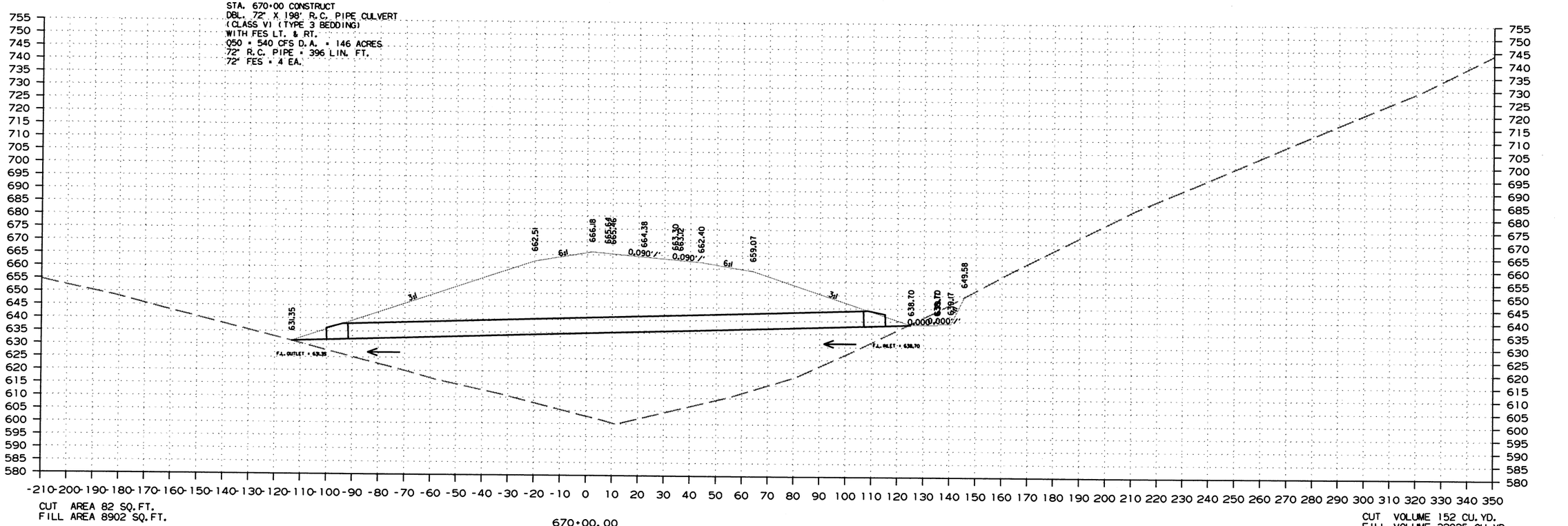
9/5/2019

RR60140.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.		R60140	352	618

(2) CROSS SECTIONS

STA. 670+00 CONSTRUCT
DBL. 72" X 198' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 540 CFS D.A. = 146 ACRES
72" R.C. PIPE = 396 LIN. FT.
72" FES = 4 EA.



CUT AREA 82 SQ.FT.
FILL AREA 8902 SQ.FT.

670+00.00

CUT VOLUME 152 CU.YD.
FILL VOLUME 32925 CU.YD.

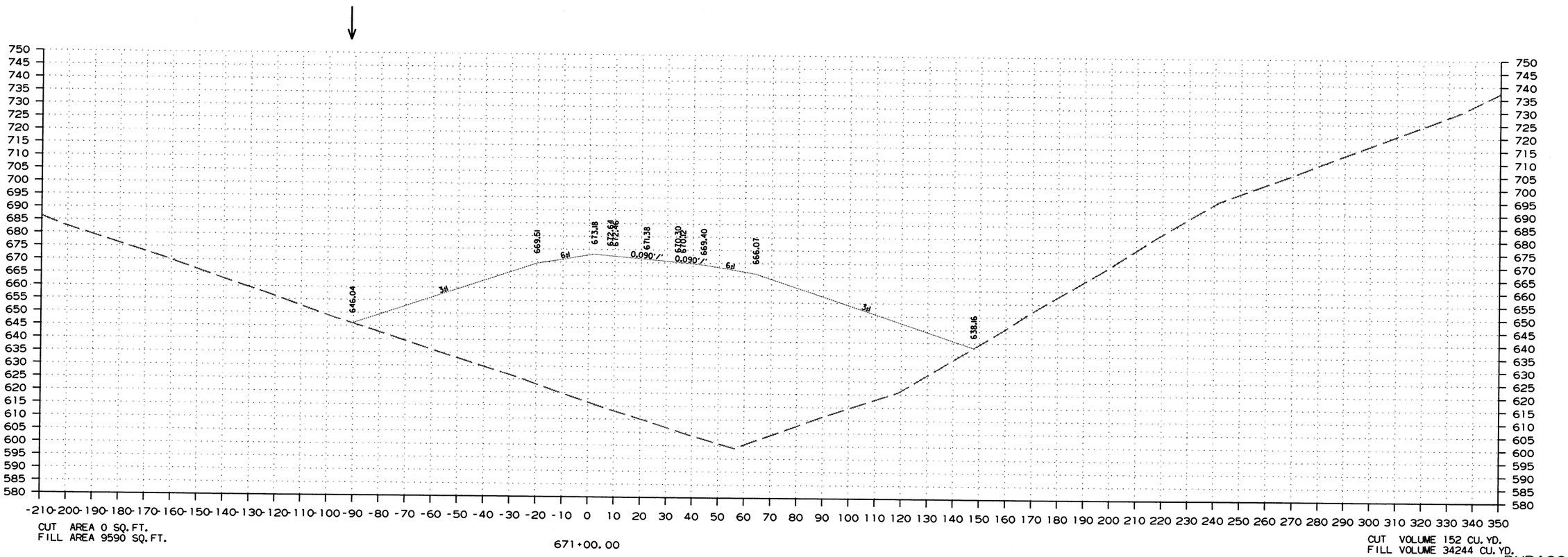
BYPASS
STA. 670+00.00 TO STA. 670+00.00

9/5/2019

RR60140.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.		R60140	353	616

(2) CROSS SECTIONS



CUT AREA 0 SQ. FT.
FILL AREA 9590 SQ. FT.

671+00.00

CUT VOLUME 152 CU. YD.
FILL VOLUME 34244 CU. YD.

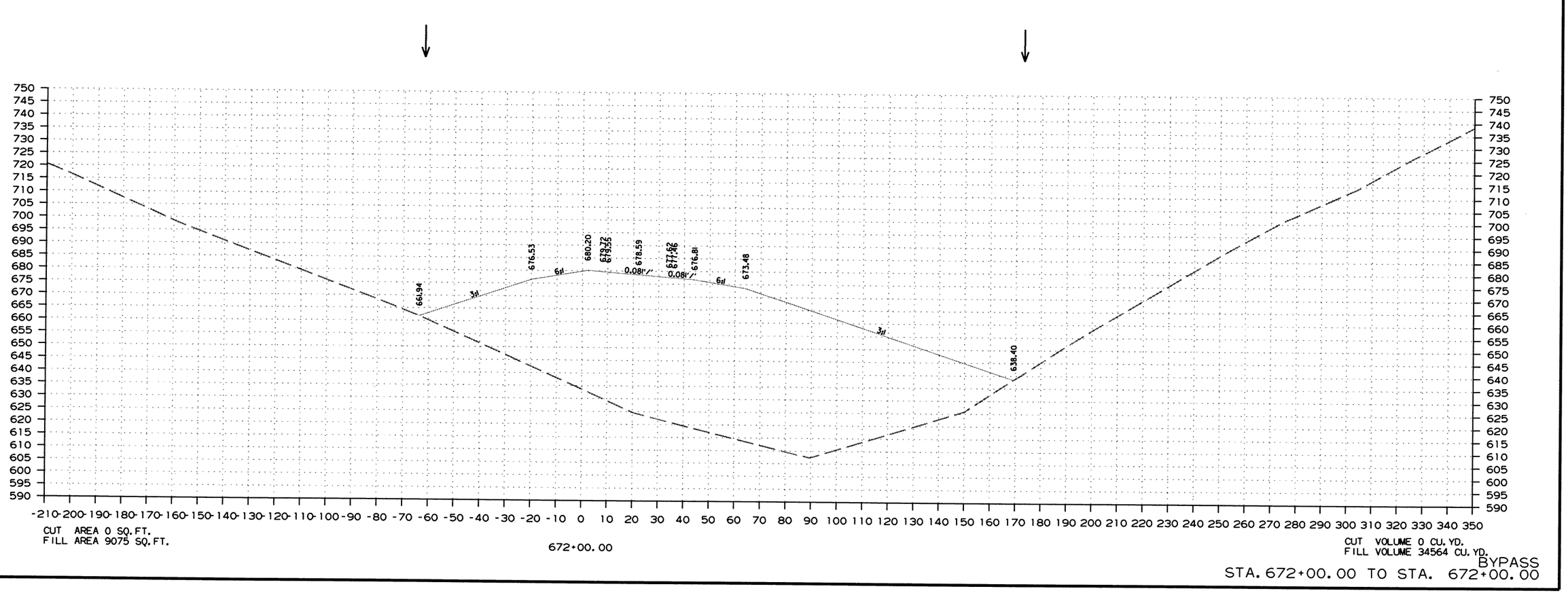
BYPASS
STA. 671+00.00 TO STA. 671+00.00

9/5/2019

RR60140.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.		R60140	354	618

(2) CROSS SECTIONS



BYPASS

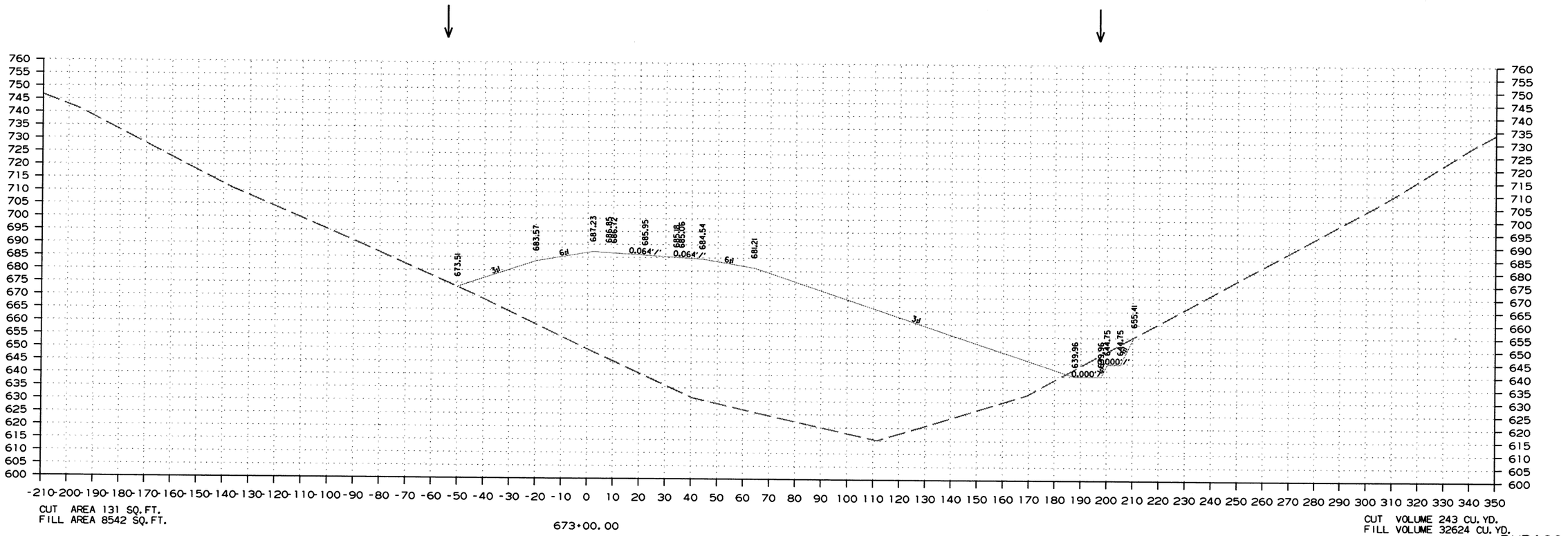
STA. 672+00.00 TO STA. 672+00.00

9/5/2019

RR60140.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.		R60140	355	616

(2) CROSS SECTIONS



CUT AREA 131 SQ.FT.
FILL AREA 8542 SQ.FT.

673+00.00

CUT VOLUME 243 CU.YD.
FILL VOLUME 32624 CU.YD.

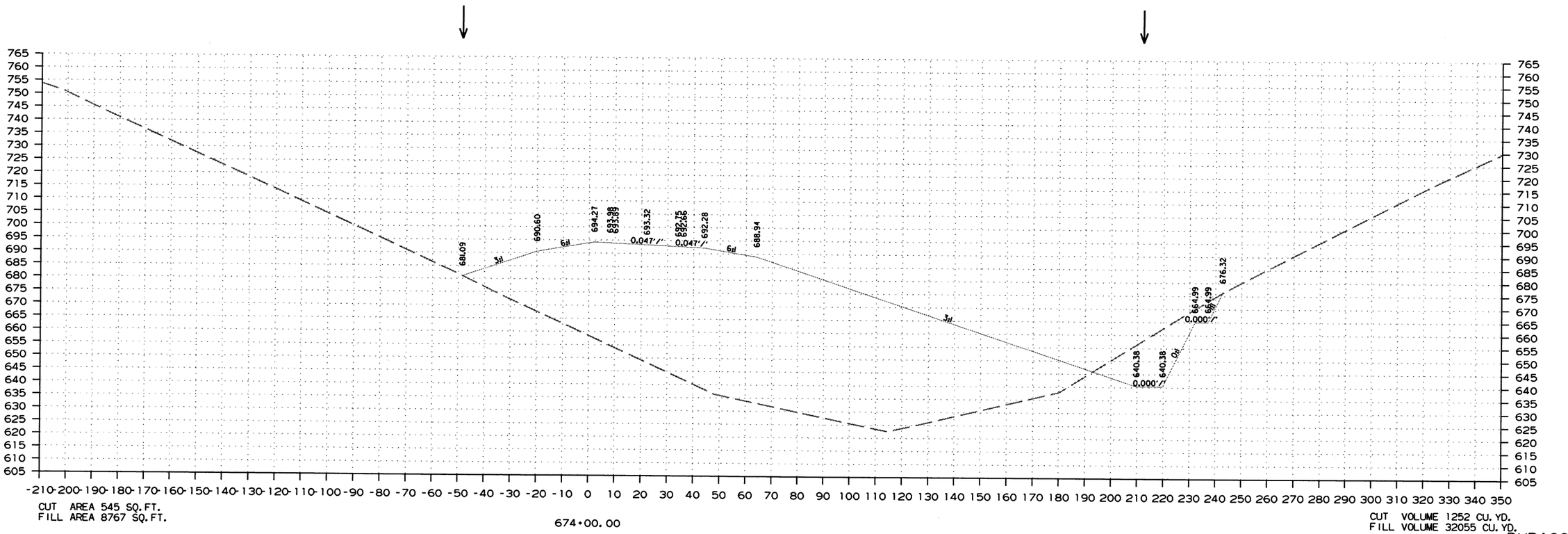
BYPASS
STA. 673+00.00 TO STA. 673+00.00

9/5/2019

RR60140.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.		R60140	356	616

(2) CROSS SECTIONS



CUT AREA 545 SQ.FT.
FILL AREA 8767 SQ.FT.

674+00.00

CUT VOLUME 1252 CU.YD.
FILL VOLUME 32055 CU.YD.

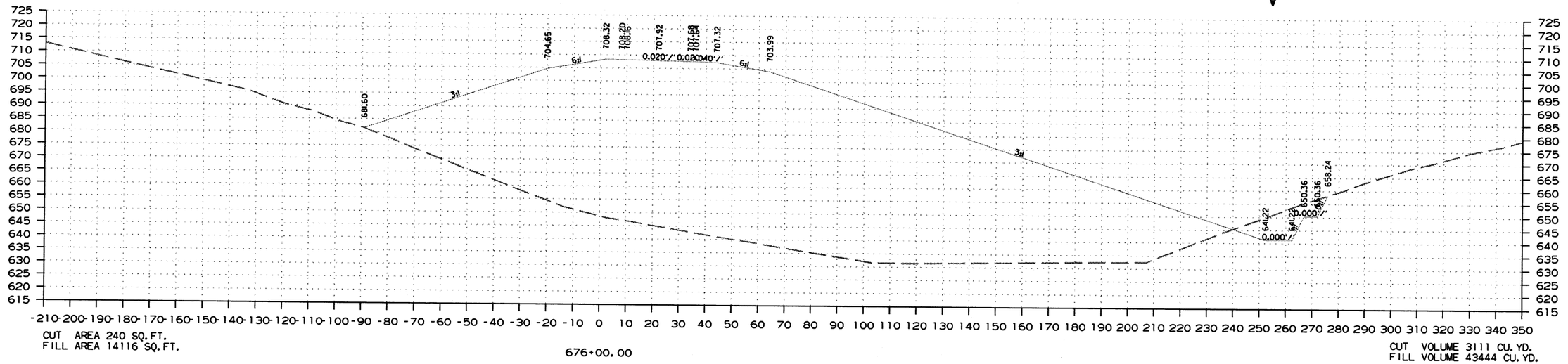
BYPASS
STA. 674+00.00 TO STA. 674+00.00

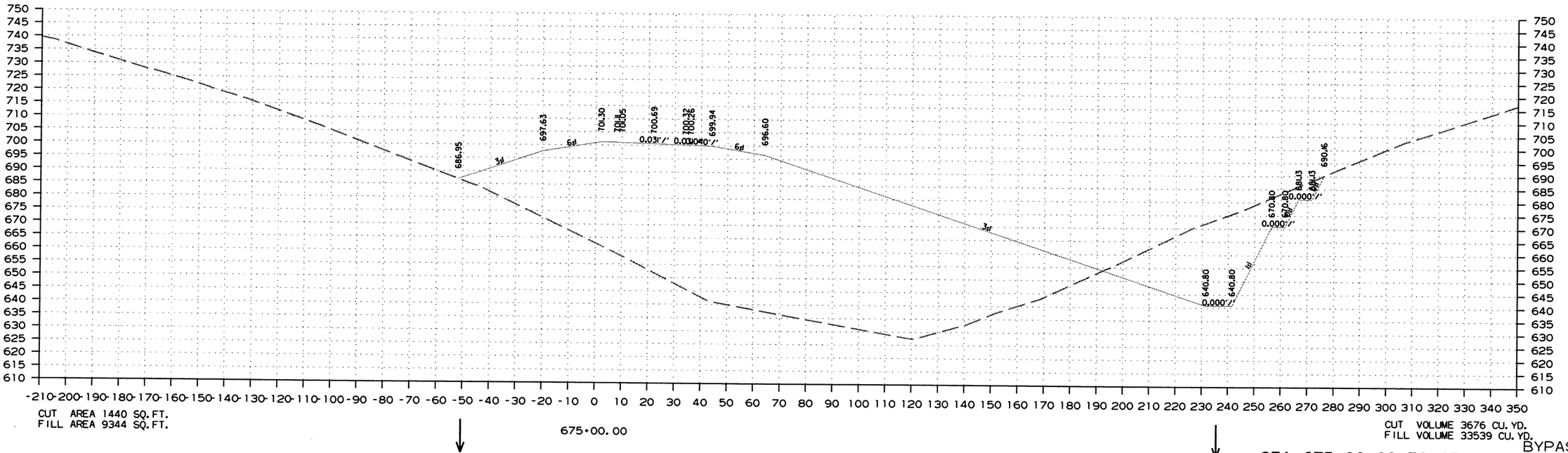
9/5/2019

RR60140.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.		R60140	357	618

(2) CROSS SECTIONS





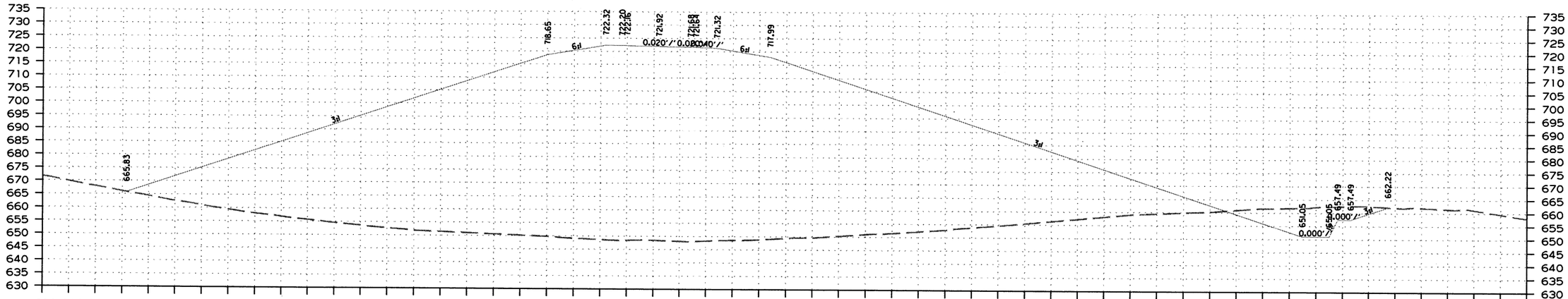
BYPASS
STA. 675+00.00 TO STA. 676+00.00

9/5/2019

RR60140.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.		R60140	358	616

(2) CROSS SECTIONS

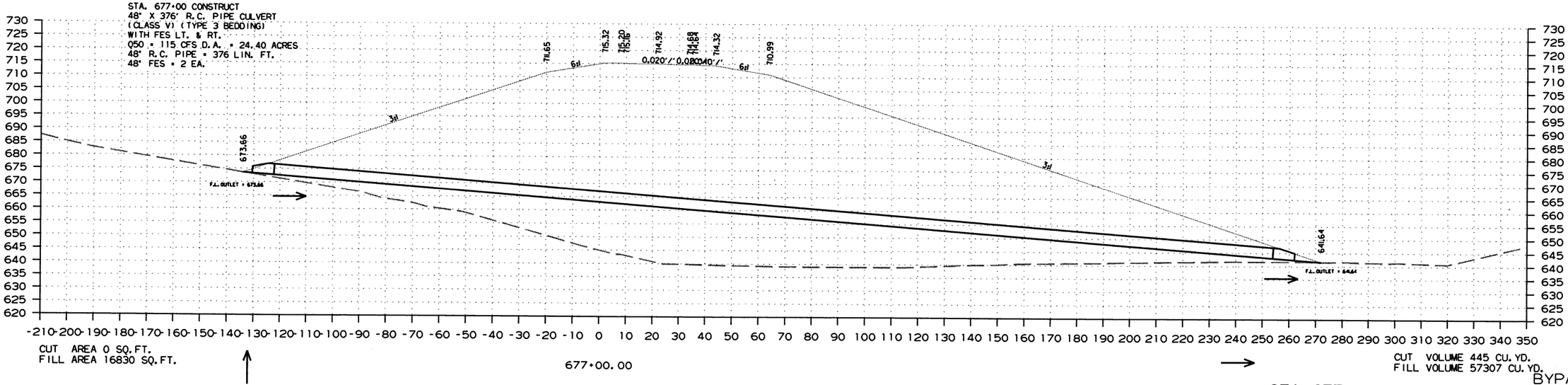


CUT AREA 363 SQ.FT.
FILL AREA 17814 SQ.FT.

678+00.00

CUT VOLUME 673 CU.YD.
FILL VOLUME 64155 CU.YD.

STA. 677+00 CONSTRUCT
48" X 376' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 115 CFS D.A. = 24.40 ACRES
48" R.C. PIPE = 376 LIN. FT.
48" FES = 2 EA.



CUT AREA 0 SQ.FT.
FILL AREA 16830 SQ.FT.

677+00.00

CUT VOLUME 445 CU.YD.
FILL VOLUME 57307 CU.YD.

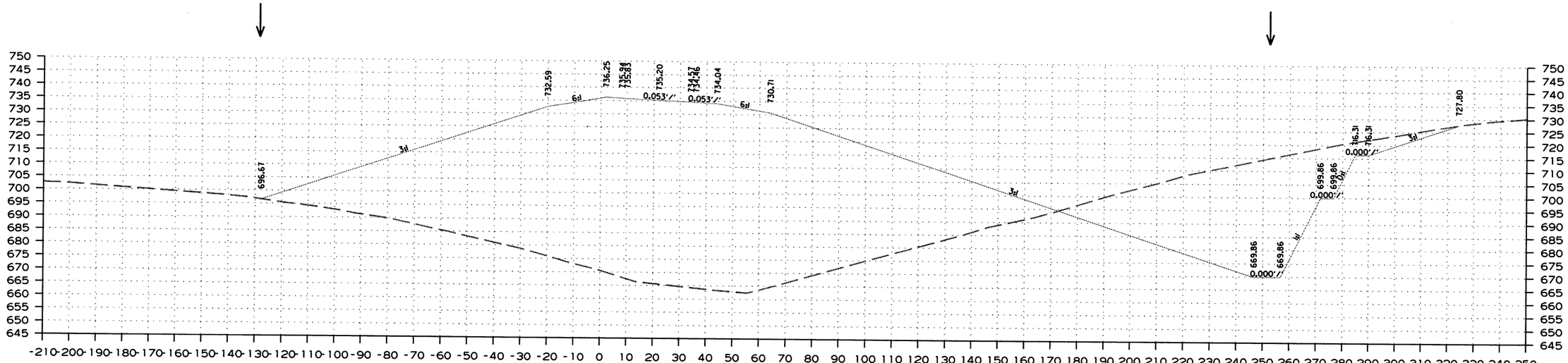
BYPASS
STA. 677+00.00 TO STA. 678+00.00

9/5/2019

RR60140.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.		R60140	359	616

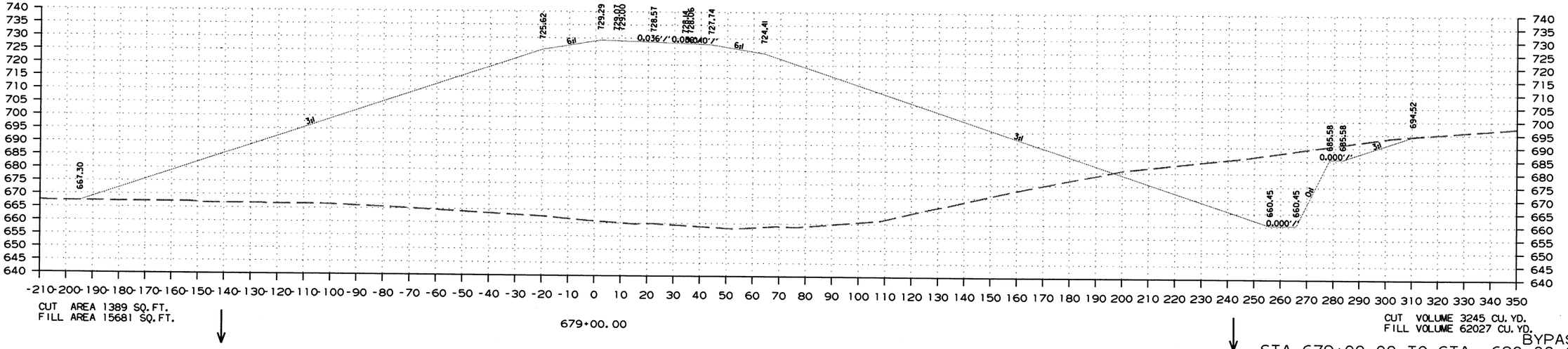
(2) CROSS SECTIONS



CUT AREA 2929 SQ. FT.
FILL AREA 12109 SQ. FT.

680+00.00

CUT VOLUME 7997 CU. YD.
FILL VOLUME 51463 CU. YD.



CUT AREA 1389 SQ. FT.
FILL AREA 15681 SQ. FT.

679+00.00

CUT VOLUME 3245 CU. YD.
FILL VOLUME 62027 CU. YD.

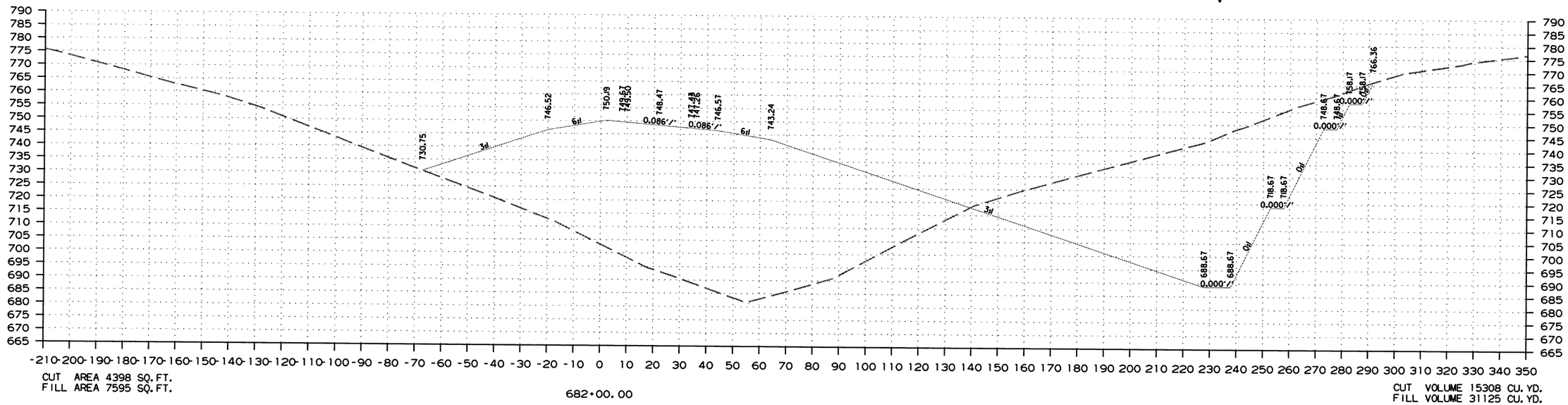
BYPASS
STA. 679+00.00 TO STA. 680+00.00

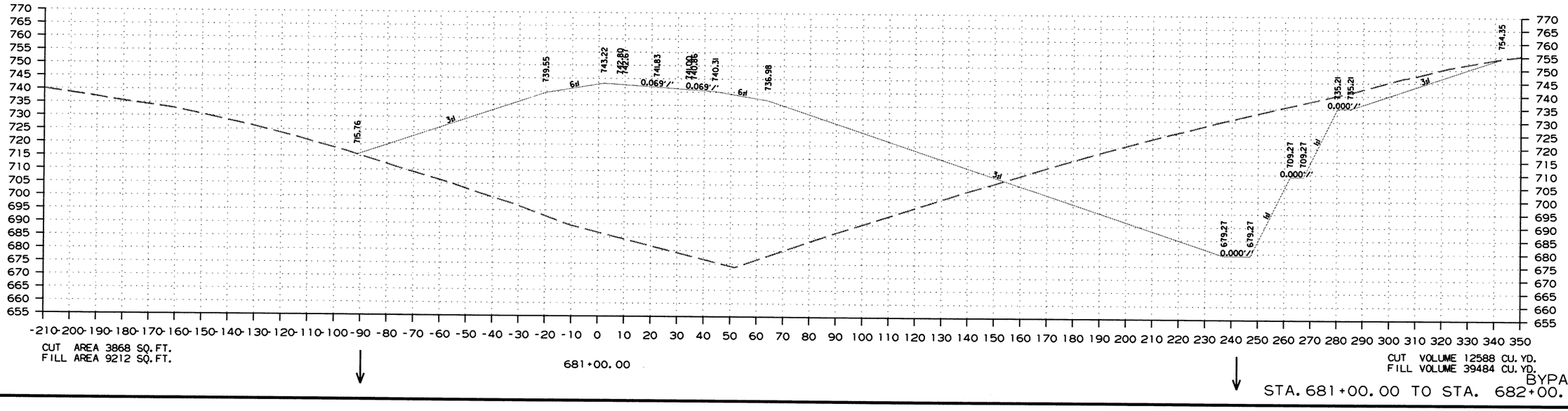
9/5/2019

RR60140.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.		R60140	360	616

(2) CROSS SECTIONS





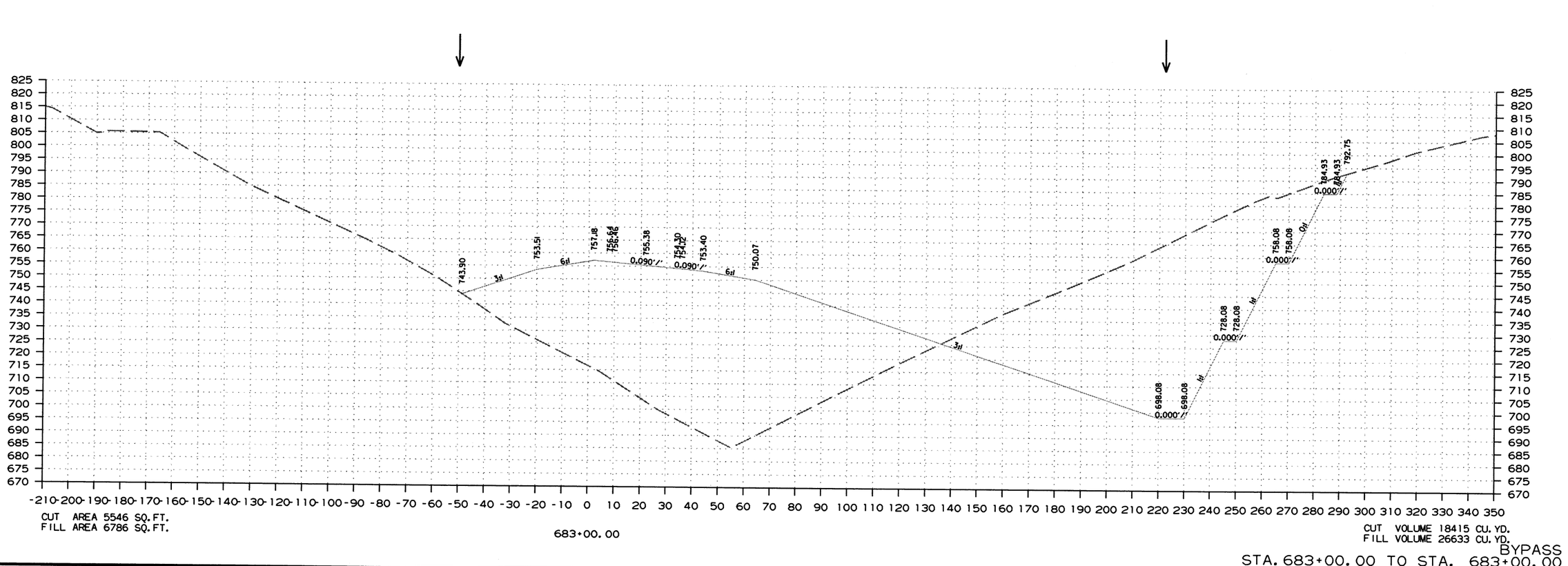
BYPASS
STA. 681+00.00 TO STA. 682+00.00

9/5/2019

RR60140.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.		R60140	361	616

(2) CROSS SECTIONS



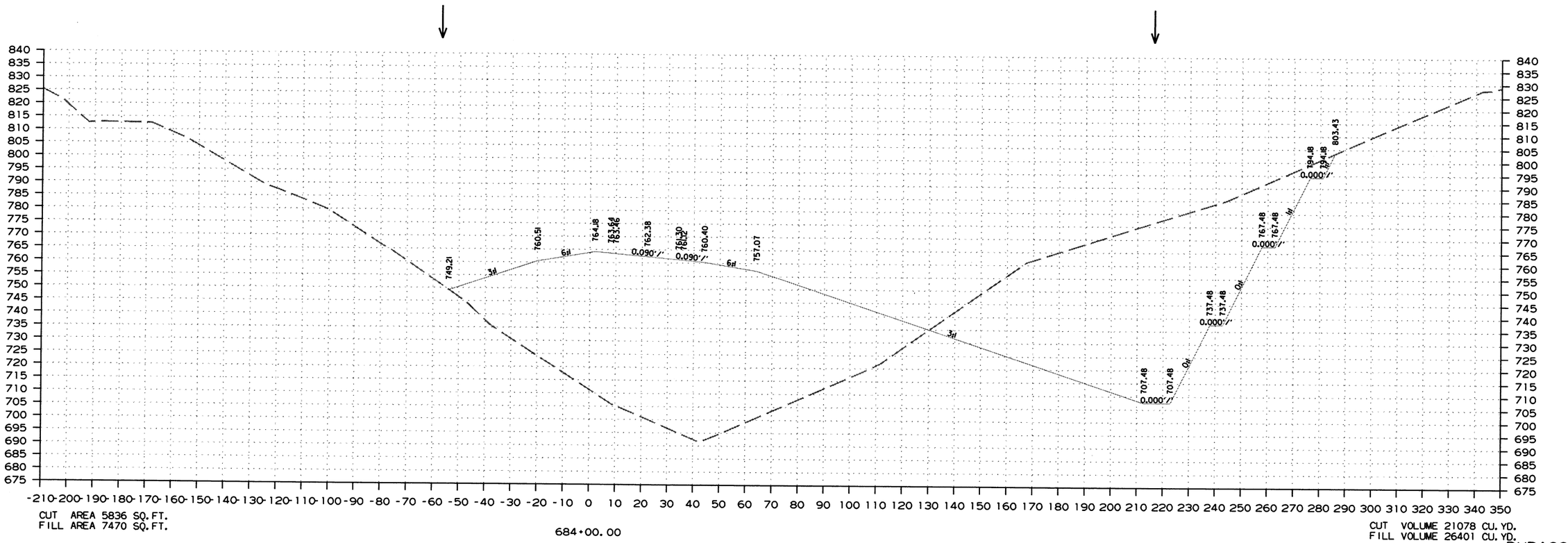
BYPASS
STA. 683+00.00 TO STA. 683+00.00

9/5/2019

RR60140.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.		R60140	362	616

(2) CROSS SECTIONS



CUT AREA 5836 SQ.FT.
FILL AREA 7470 SQ.FT.

684+00.00

CUT VOLUME 21078 CU.YD.
FILL VOLUME 26401 CU.YD.

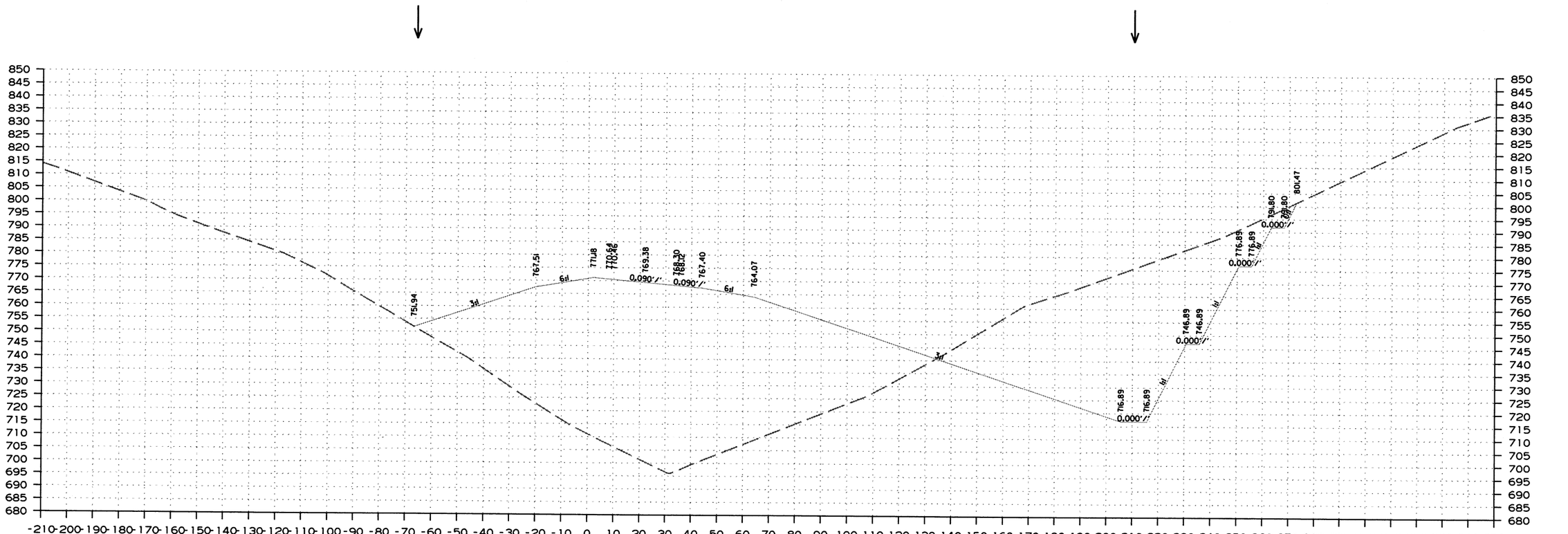
BYPASS
STA. 684+00.00 TO STA. 684+00.00

9/5/2019

RR60140.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.		R60140	363	616

(2) CROSS SECTIONS



CUT AREA 4287 SQ.FT.
FILL AREA 8272 SQ.FT.

685+00.00

CUT VOLUME 18747 CU.YD.
FILL VOLUME 29153 CU.YD.

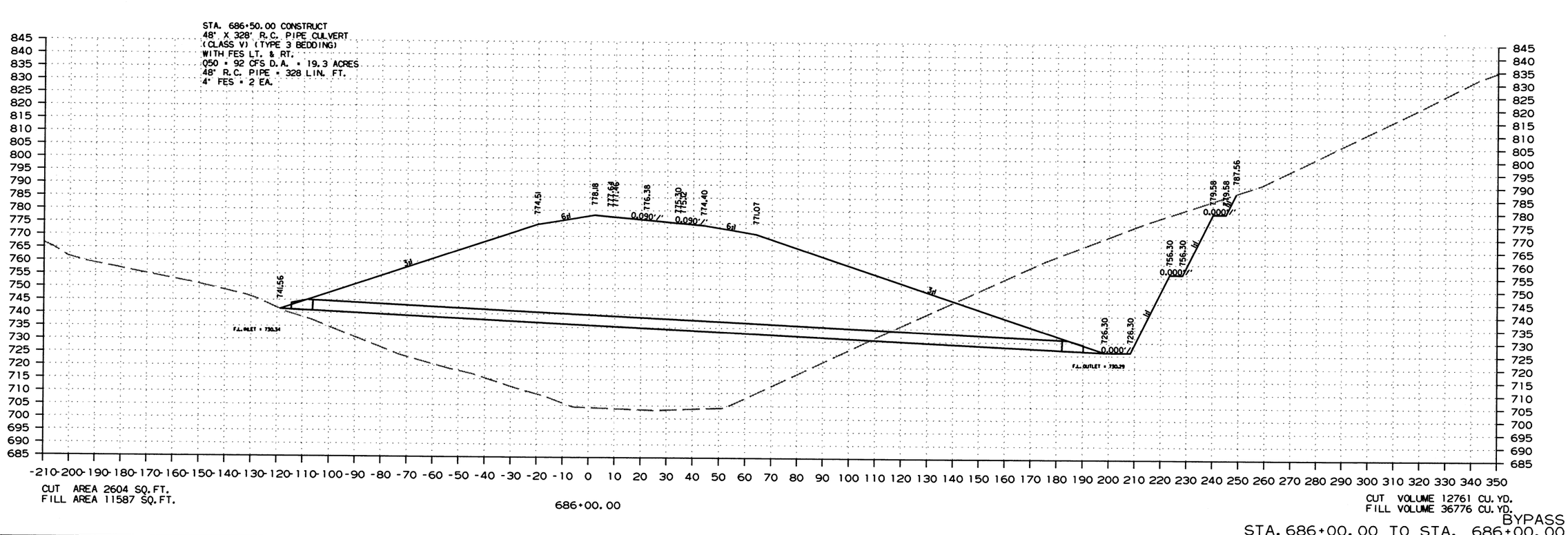
BYPASS
STA. 685+00.00 TO STA. 685+00.00

9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	364	616

(2) CROSS SECTIONS



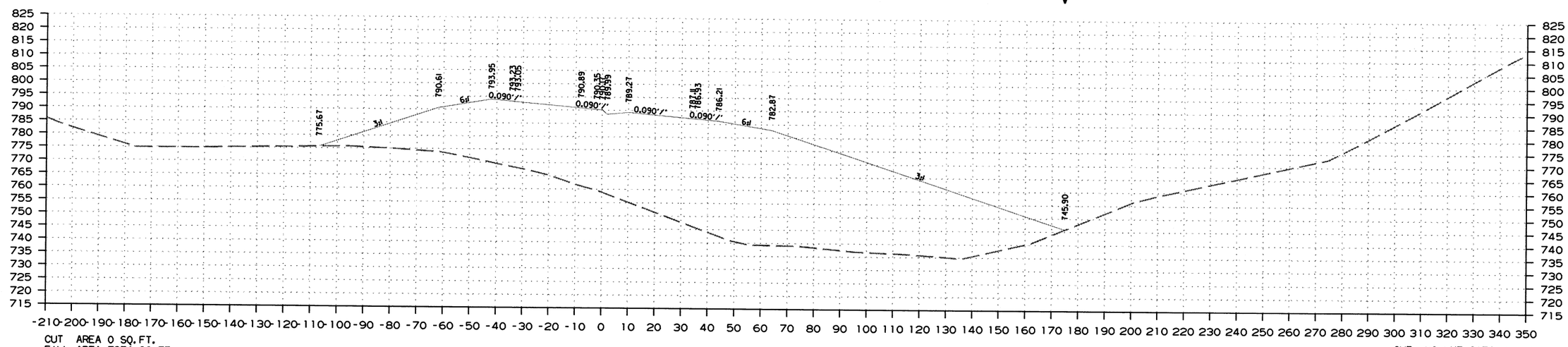
BYPASS
STA. 686+00.00 TO STA. 686+00.00

9/5/2019

RR60140.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.		R60140	365	616

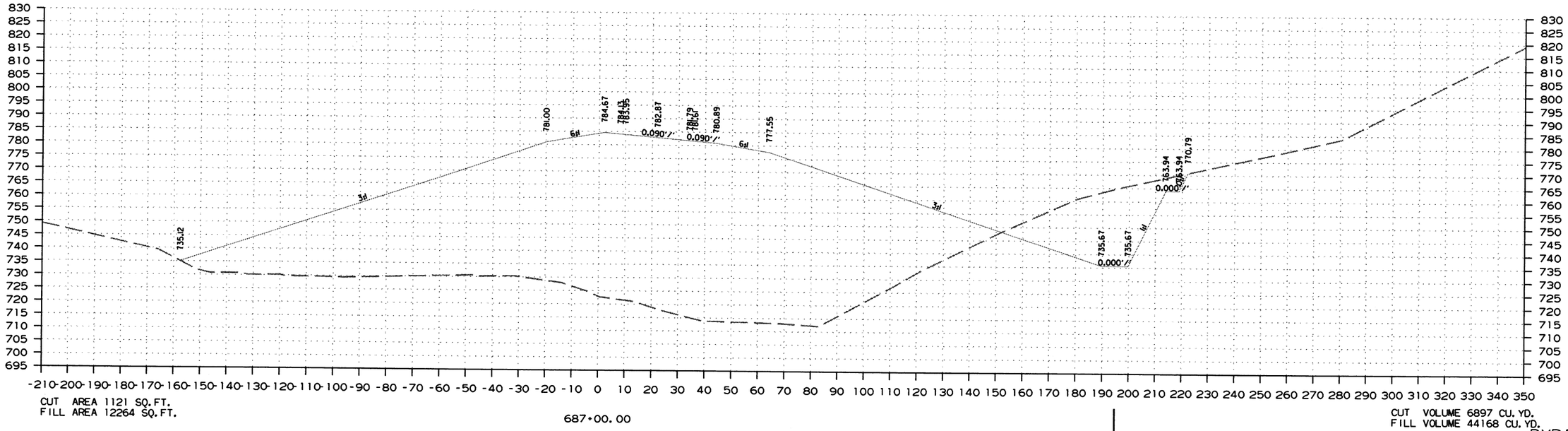
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 7374 SQ.FT.

688+00.00

CUT VOLUME 2076 CU.YD.
FILL VOLUME 36367 CU.YD.



CUT AREA 1121 SQ.FT.
FILL AREA 12264 SQ.FT.

687+00.00

CUT VOLUME 6897 CU.YD.
FILL VOLUME 44168 CU.YD.

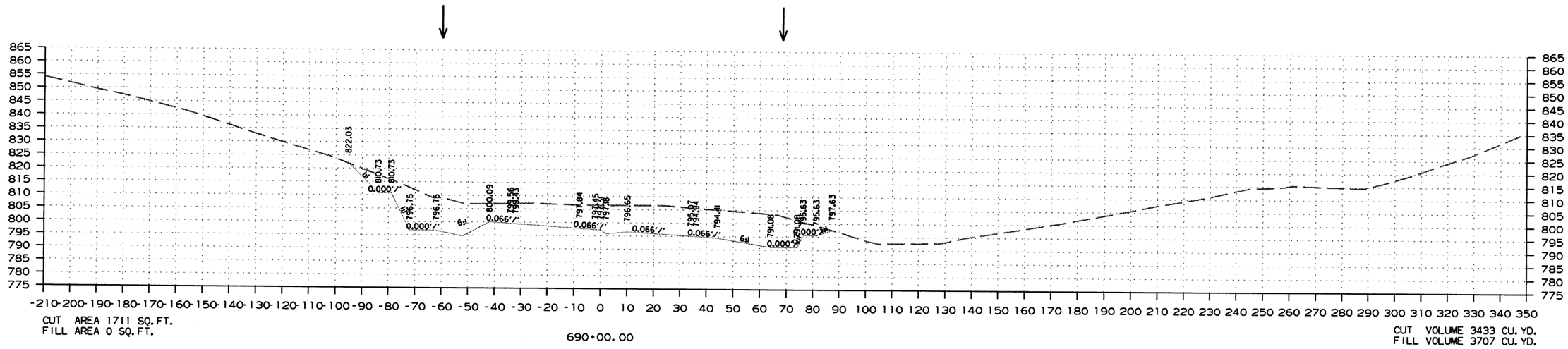
BYPASS
STA. 687+00.00 TO STA. 688+00.00

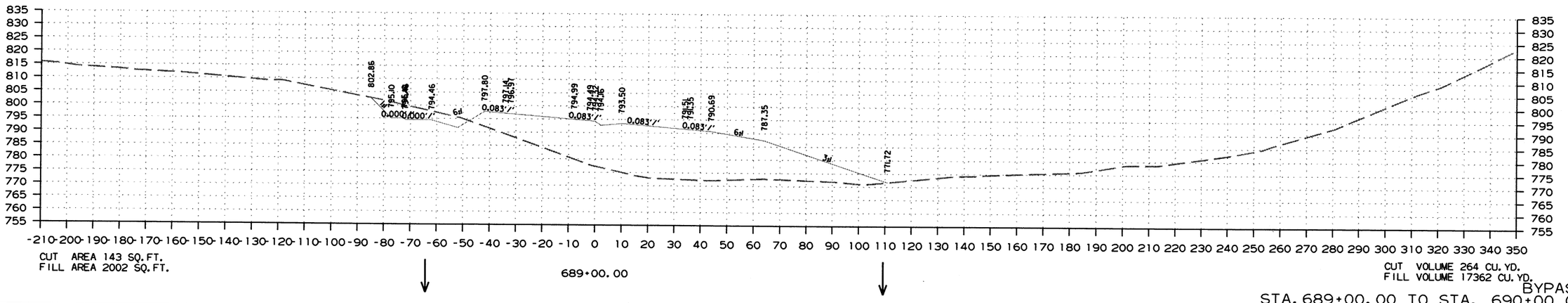
9/5/2019

RR60140.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.		R60140	366	616

(2) CROSS SECTIONS





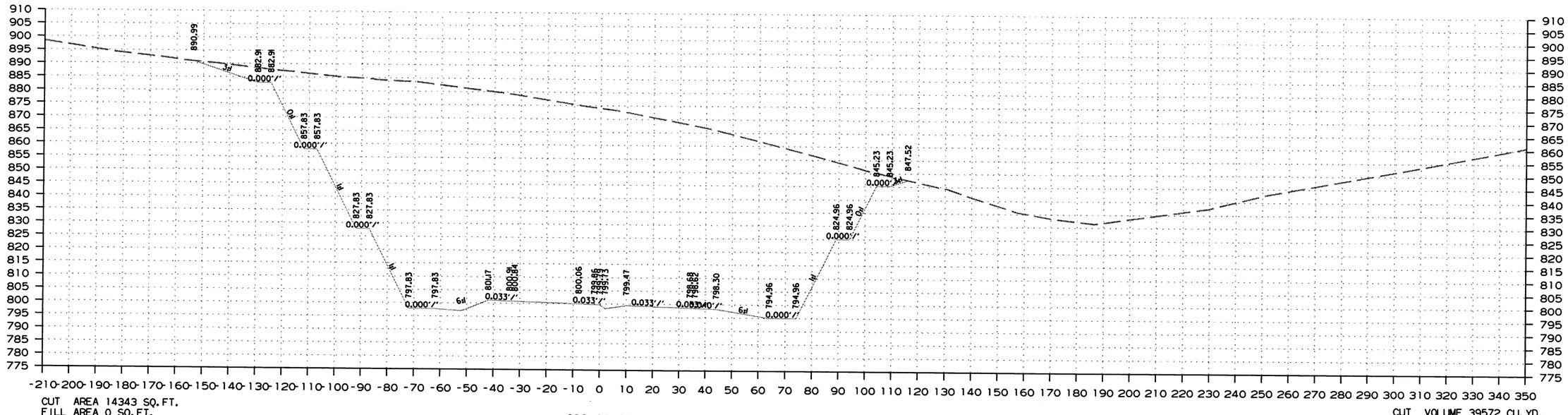
BYPASS
STA. 689+00.00 TO STA. 690+00.00

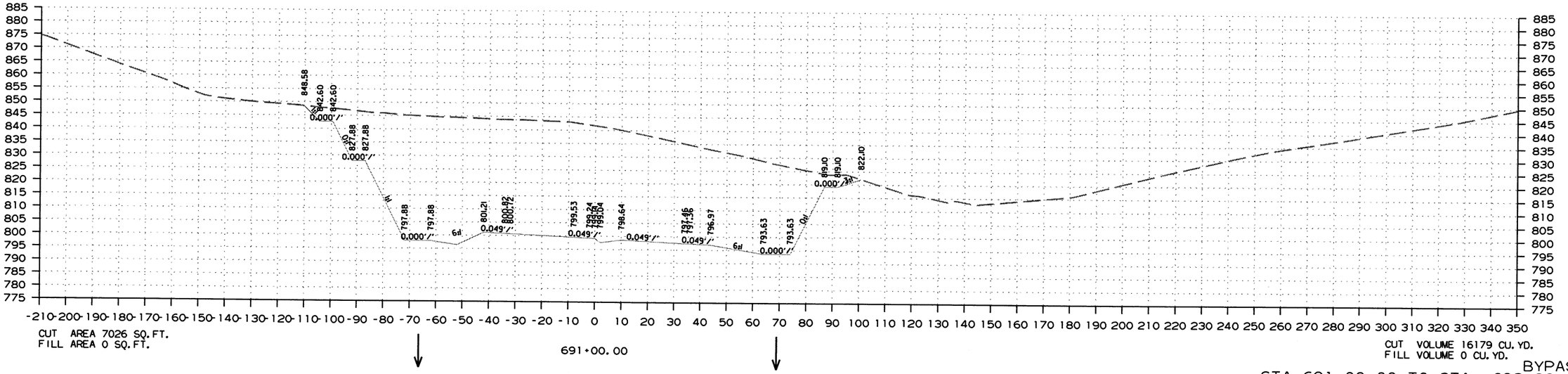
9/5/2019

RR60140.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.		R60140	367	616

(2) CROSS SECTIONS





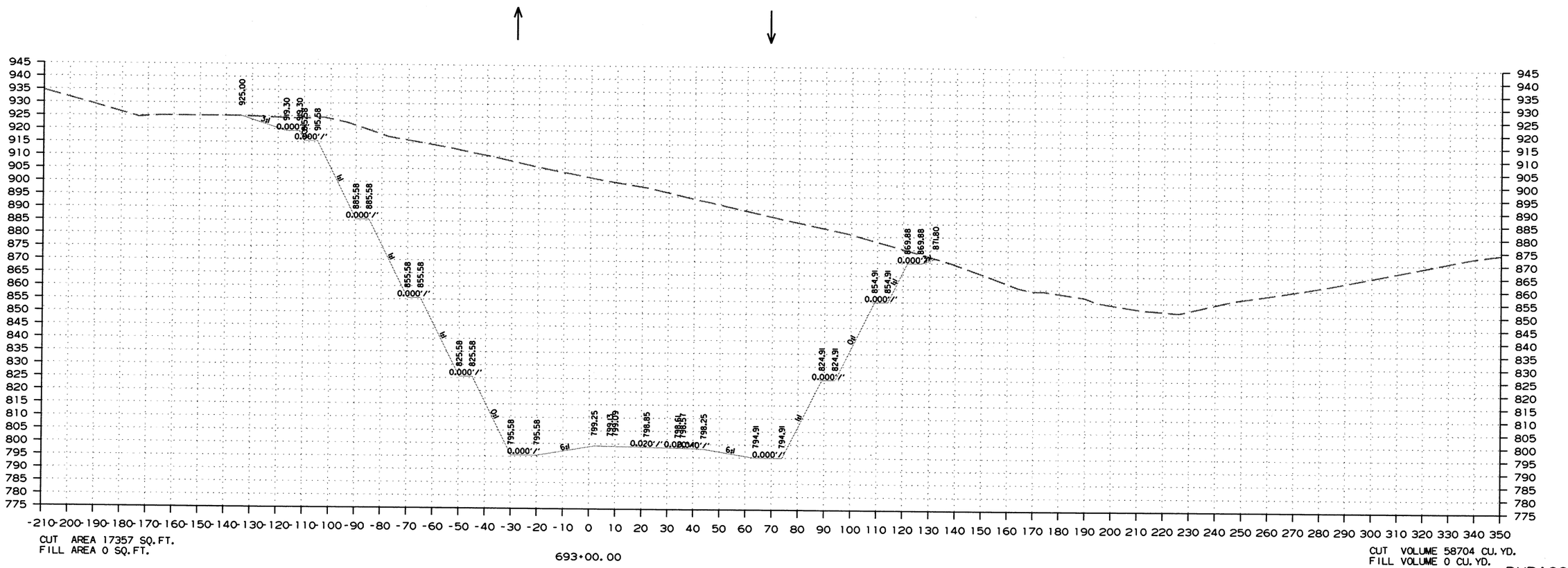
BYPASS
STA. 691+00.00 TO STA. 692+00.00

9/5/2019

RR60140.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.		R60140	368	616

(2) CROSS SECTIONS



BYPASS

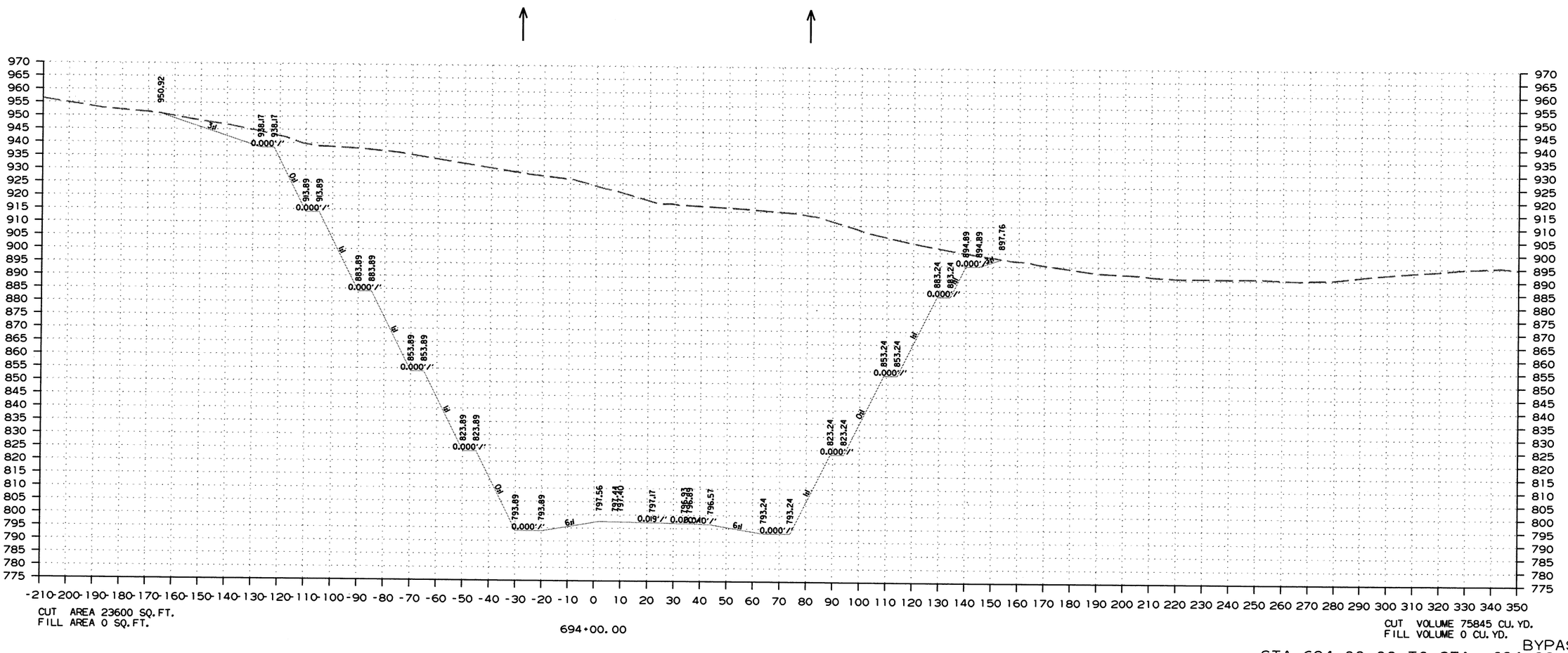
STA. 693+00.00 TO STA. 693+00.00

9/5/2019

RR60140.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.		R60140	369	616

(2) CROSS SECTIONS



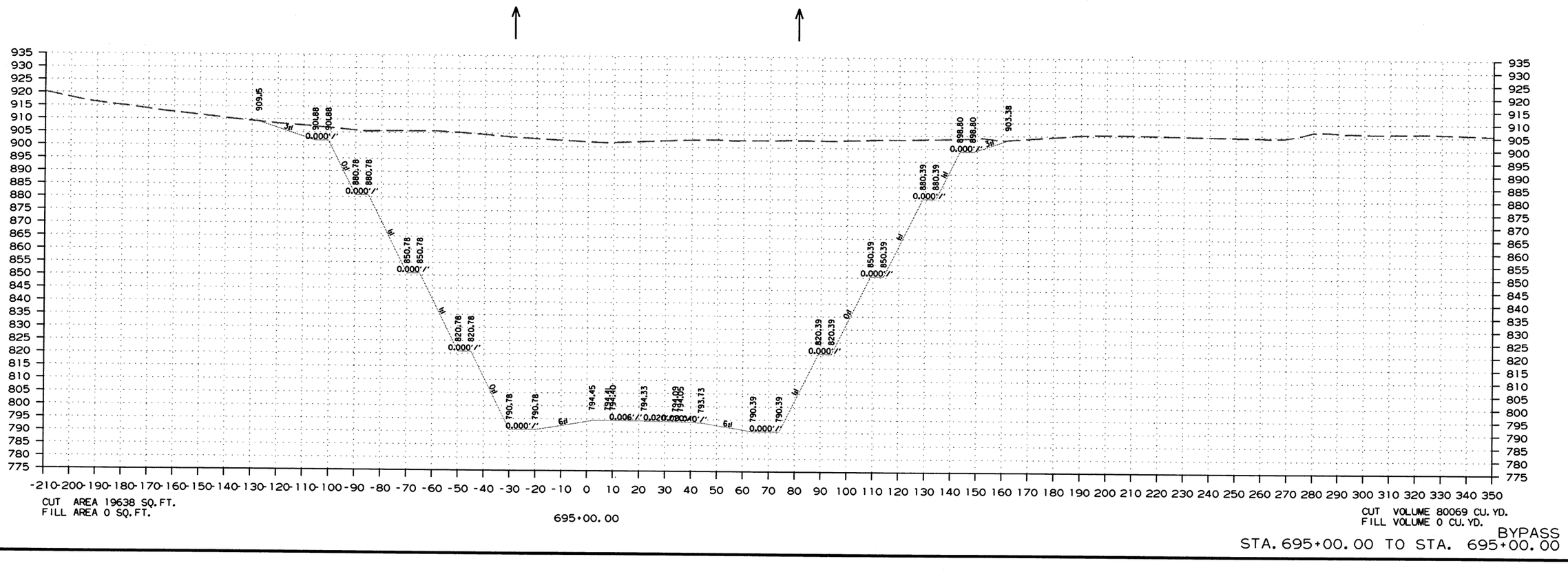
BYPASS
STA. 694+00.00 TO STA. 694+00.00

9/5/2019

RR60140.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.		R60140	370	616

(2) CROSS SECTIONS



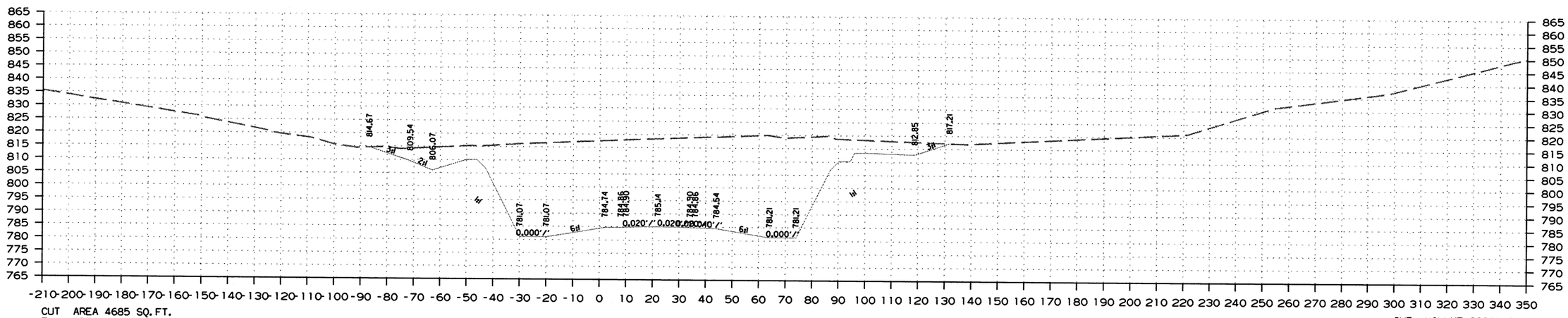
BYPASS
STA. 695+00.00 TO STA. 695+00.00

9/5/2019

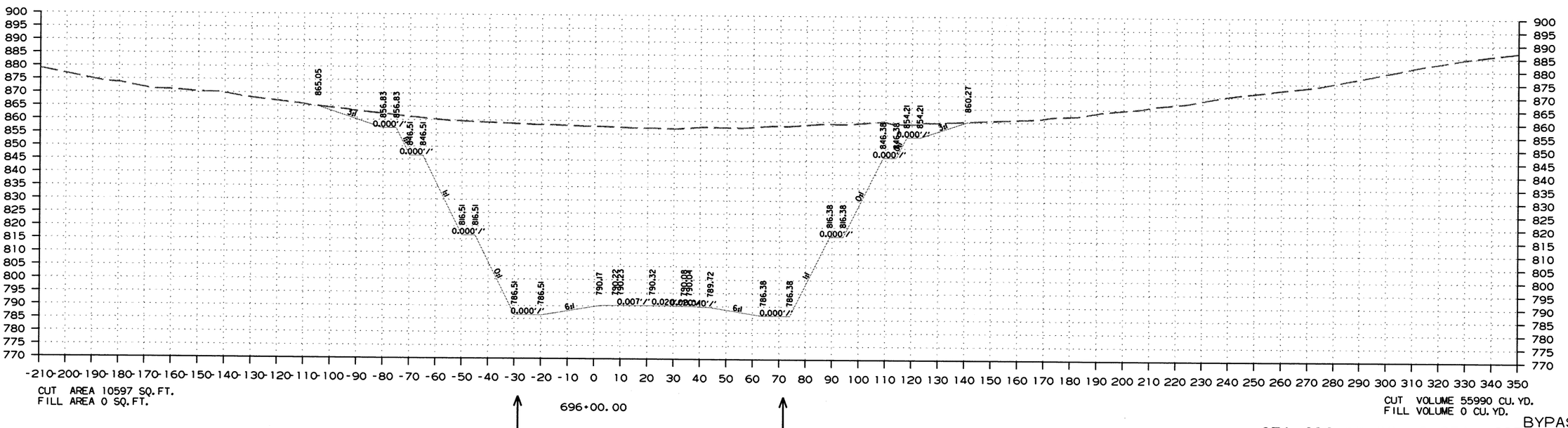
RR60140.DGN

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.		R60140	371	616

(2) CROSS SECTIONS



697+00.00



696+00.00

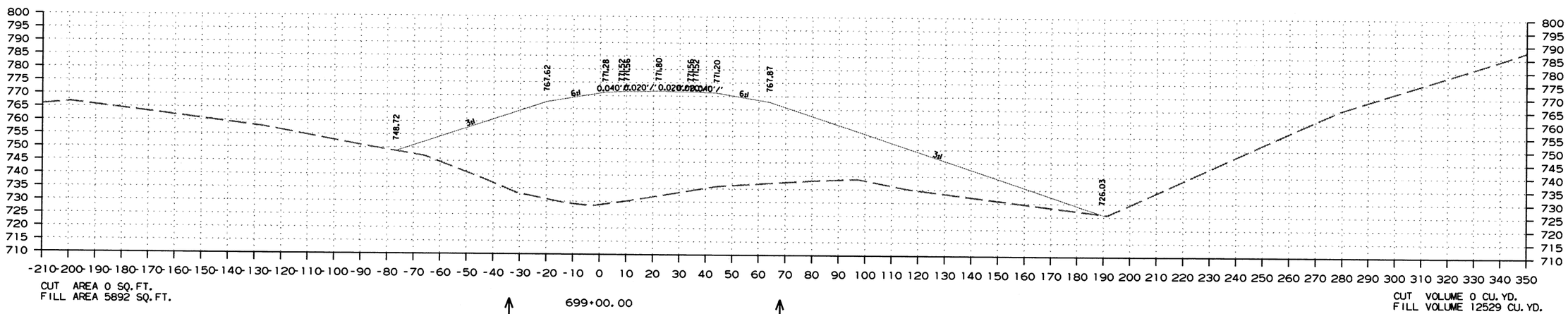
9/5/2019

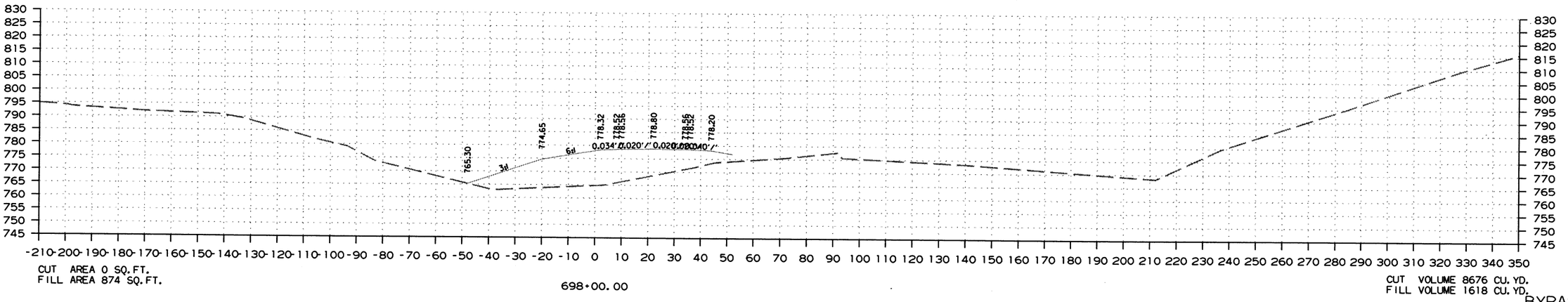
RR60140.DGN

BYPASS
STA. 696+00.00 TO STA. 697+00.00

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.		R60140	372	616

(2) CROSS SECTIONS





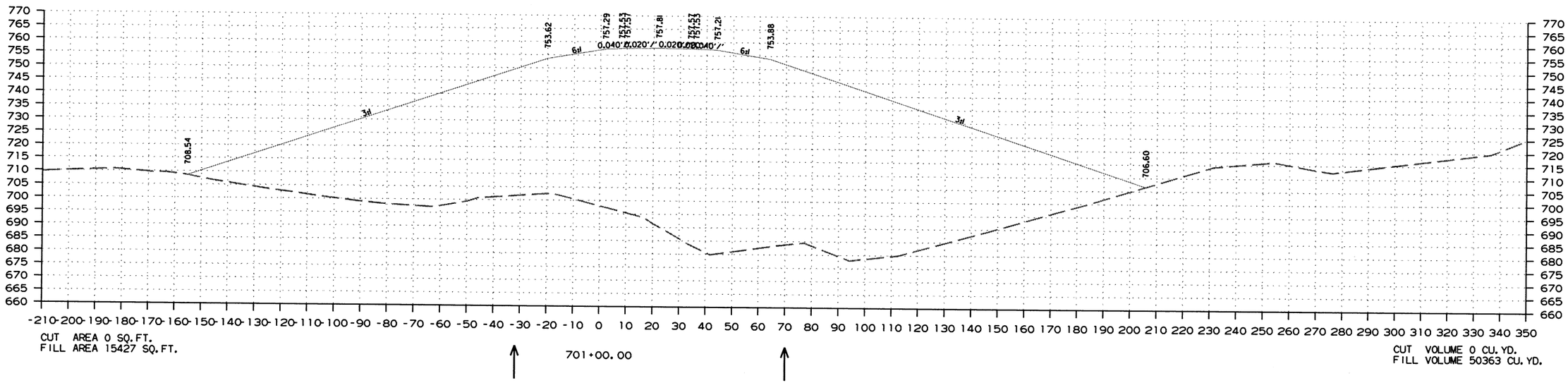
BYPASS
STA. 698+00.00 TO STA. 699+00.00

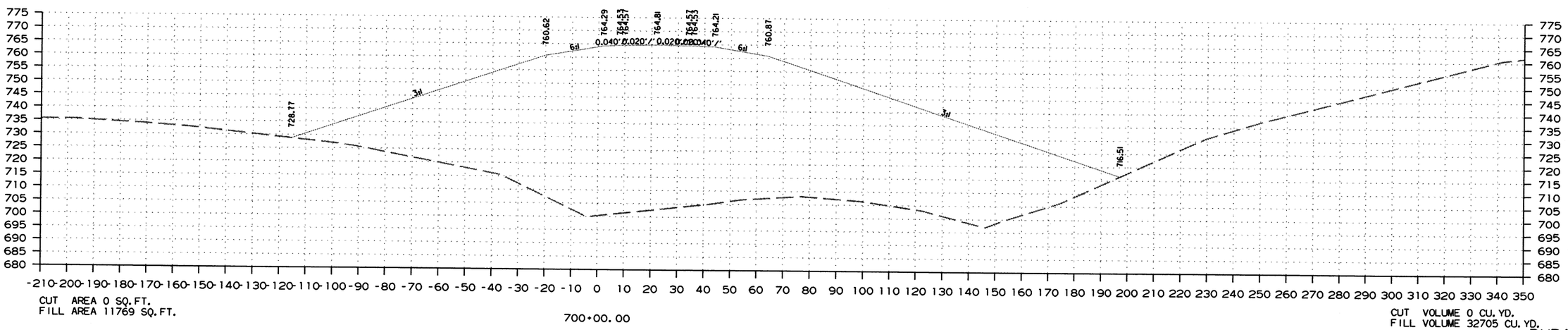
9/5/2019

RR60140.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.		R60140	373	616

(2) CROSS SECTIONS





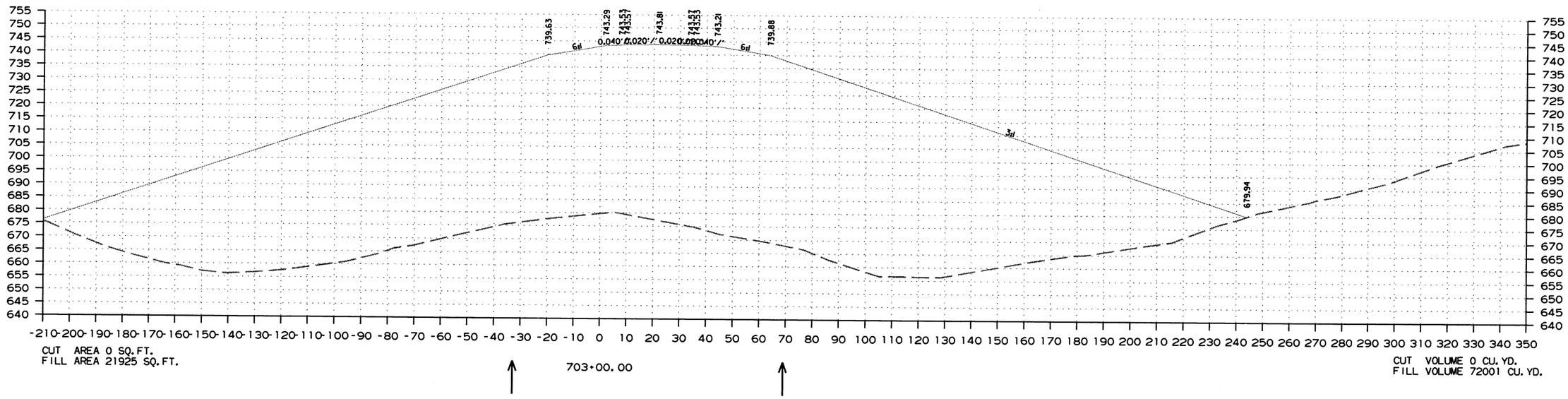
BYPASS
STA. 700+00.00 TO STA. 701+00.00

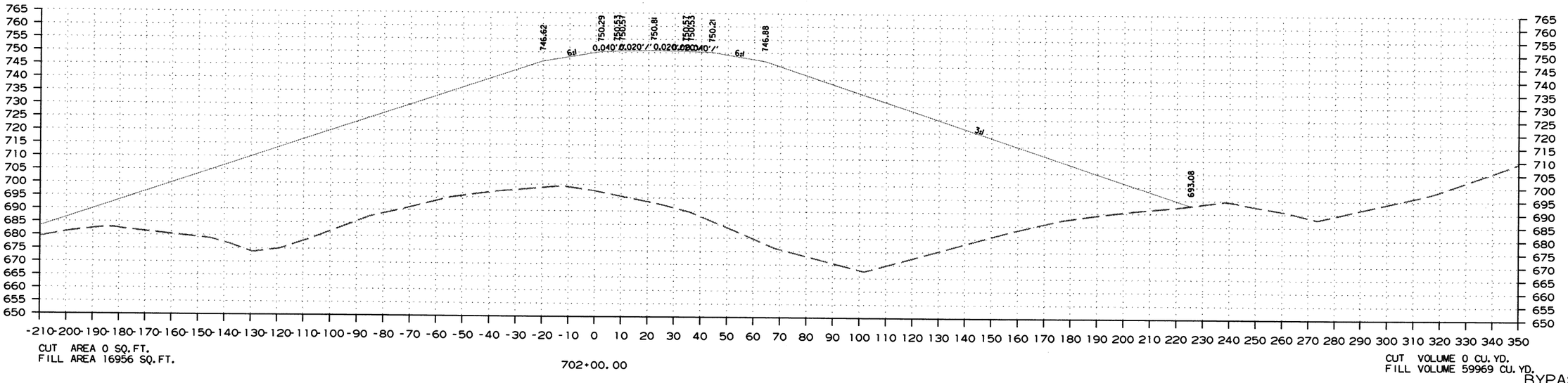
9/5/2019

R60140.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.		R60140	374	616

(2) CROSS SECTIONS





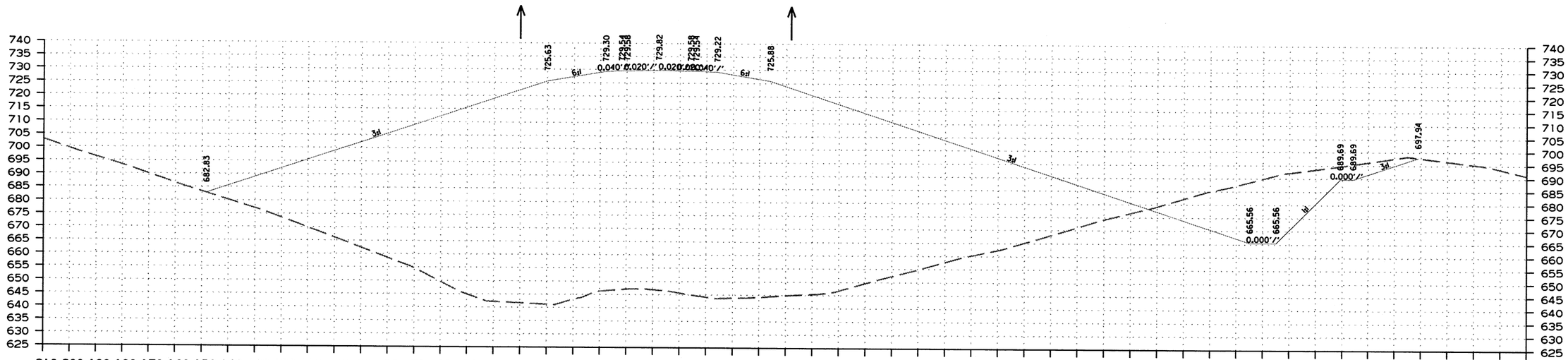
BYPASS
STA. 702+00.00 TO STA. 703+00.00

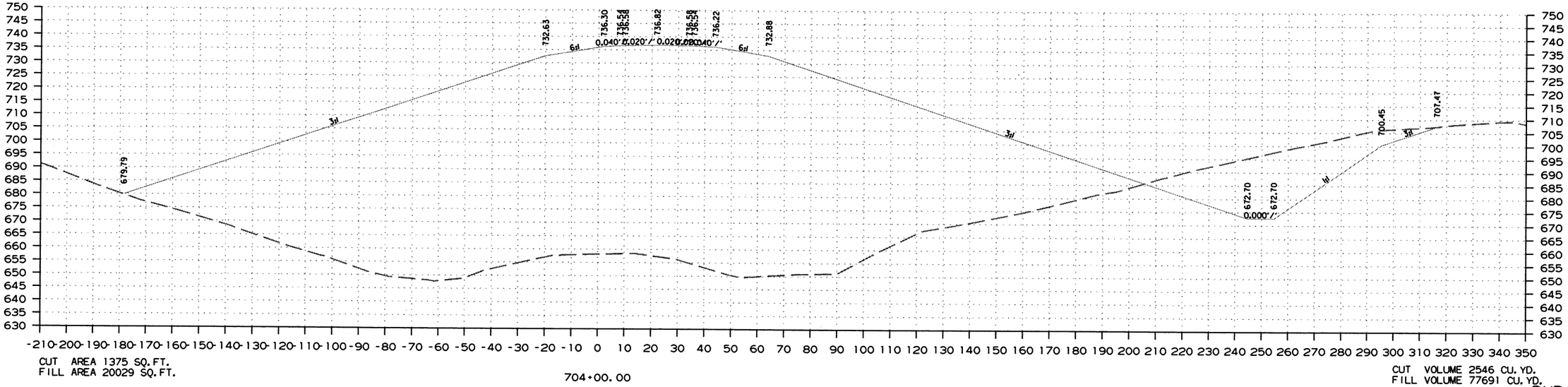
9/5/2019

RR60140.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.		R60140	375	616

(2) CROSS SECTIONS





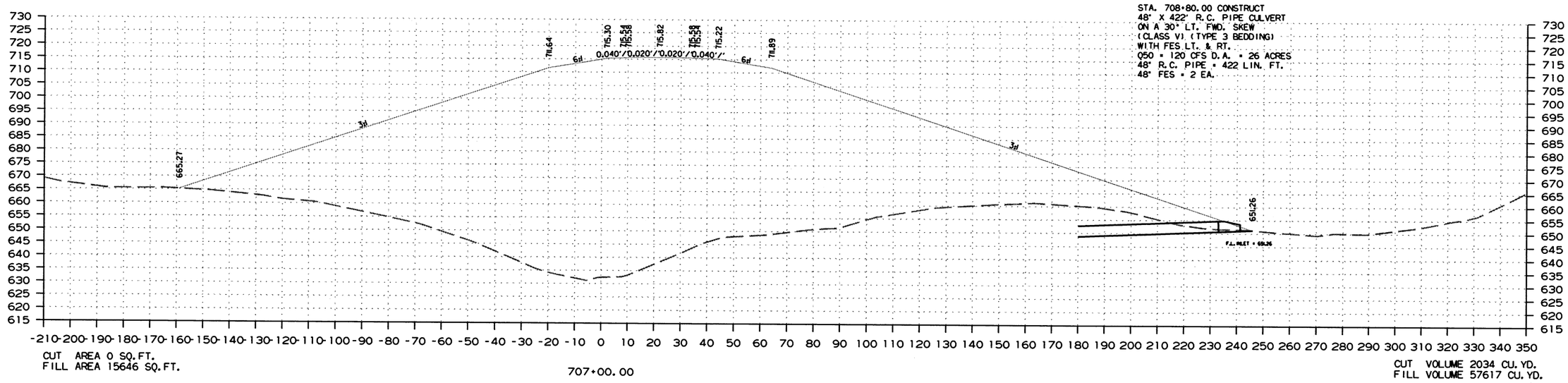
BYPASS
STA. 704+00.00 TO STA. 705+00.00

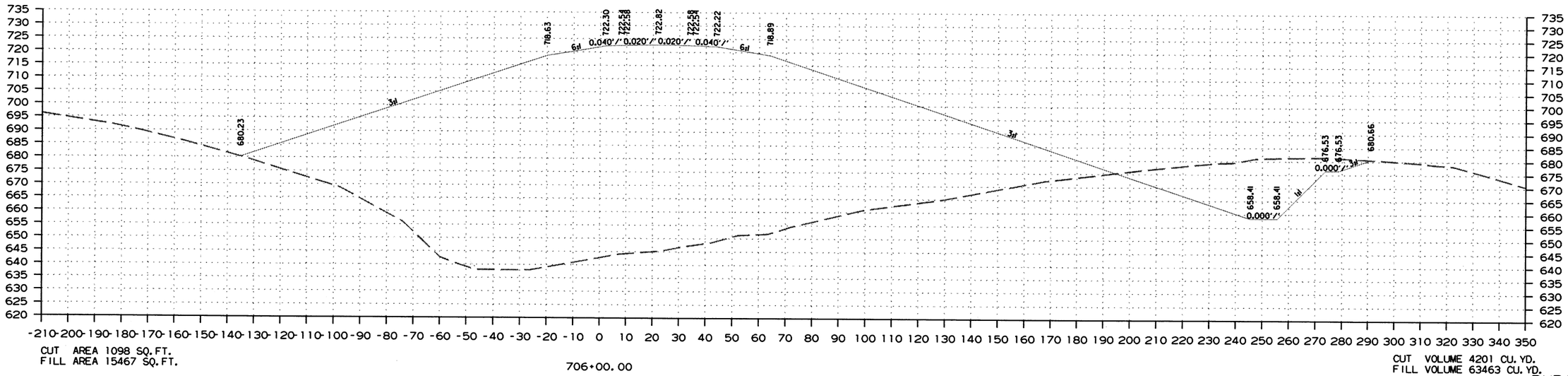
9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	376	616

(2) CROSS SECTIONS





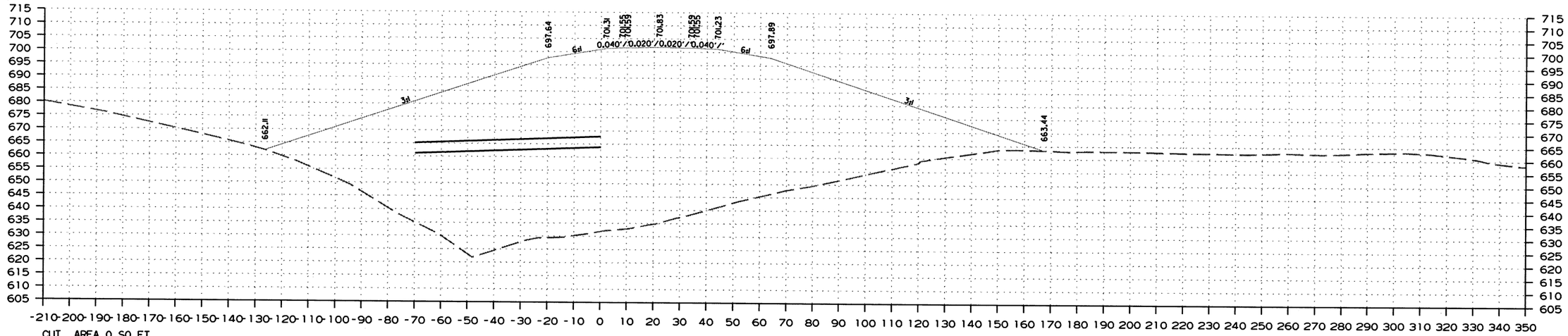
BYPASS
STA. 706+00.00 TO STA. 707+00.00

9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	377	616

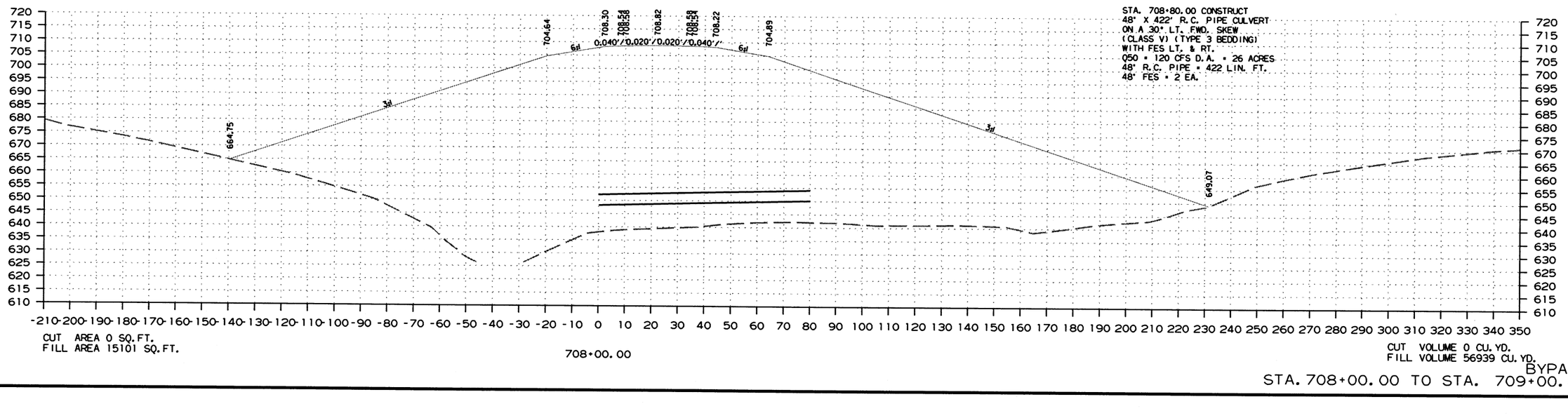
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 12176 SQ.FT.

709+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 50514 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 15101 SQ.FT.

708+00.00

STA. 708+80.00 CONSTRUCT
48" X 422' R.C. PIPE CULVERT
ON A 30° LT. FWD. SKEW
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 120 CFS D.A. = 26 ACRES
48" R.C. PIPE = 422 LIN. FT.
48" FES = 2 EA.

CUT VOLUME 0 CU.YD.
FILL VOLUME 56939 CU.YD.

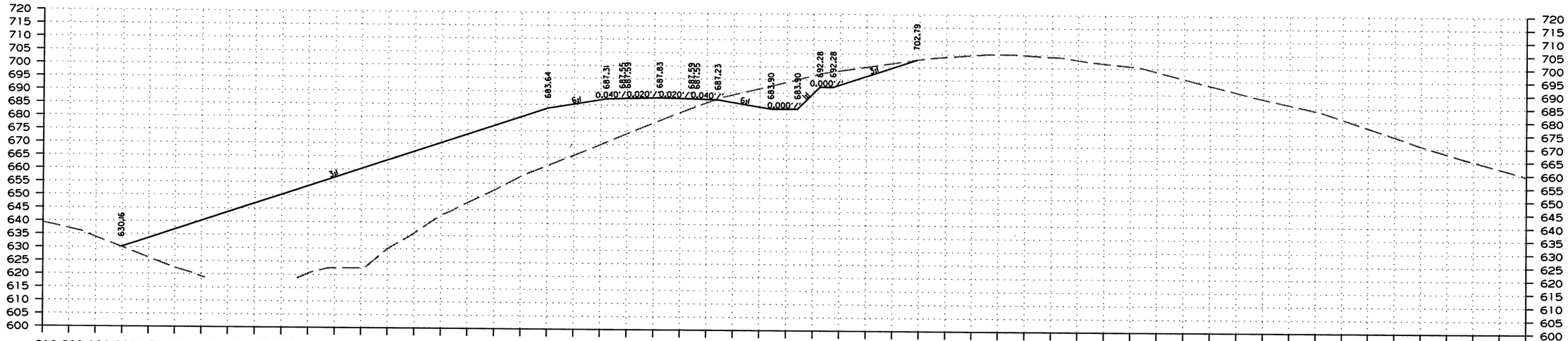
BYPASS
STA. 708+00.00 TO STA. 709+00.00

9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	378	616

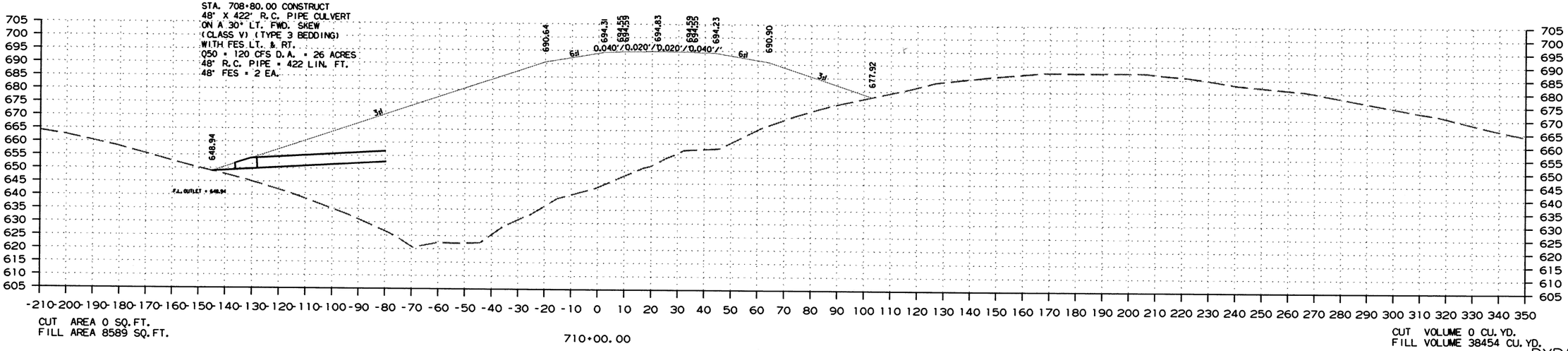
(2) CROSS SECTIONS



CUT AREA 378 SQ.FT.
FILL AREA 3909 SQ.FT.

711+00.00

CUT VOLUME 699 CU. YD.
FILL VOLUME 23144 CU. YD.



CUT AREA 0 SQ.FT.
FILL AREA 8589 SQ.FT.

710+00.00

CUT VOLUME 0 CU. YD.
FILL VOLUME 38454 CU. YD.

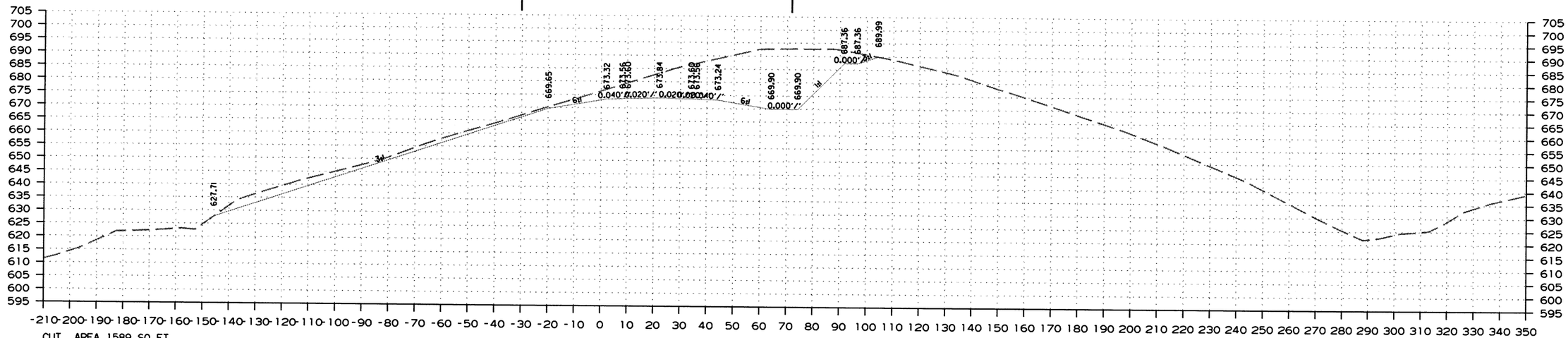
BYPASS
STA. 710+00.00 TO STA. 711+00.00

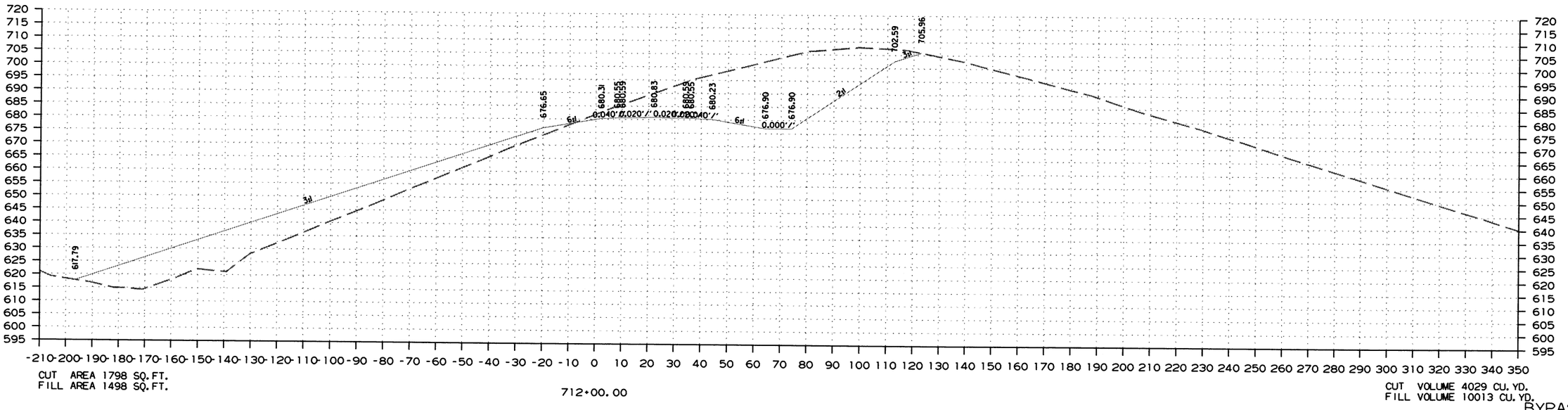
9/5/2019

RR60140.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.		R60140	379	616

(2) CROSS SECTIONS





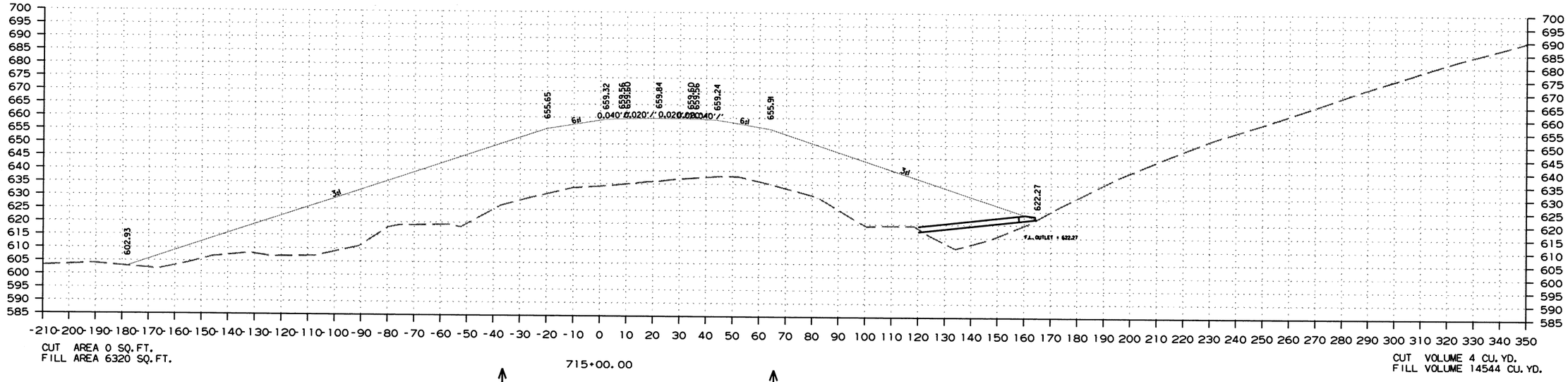
BYPASS
STA. 712+00.00 TO STA. 713+00.00

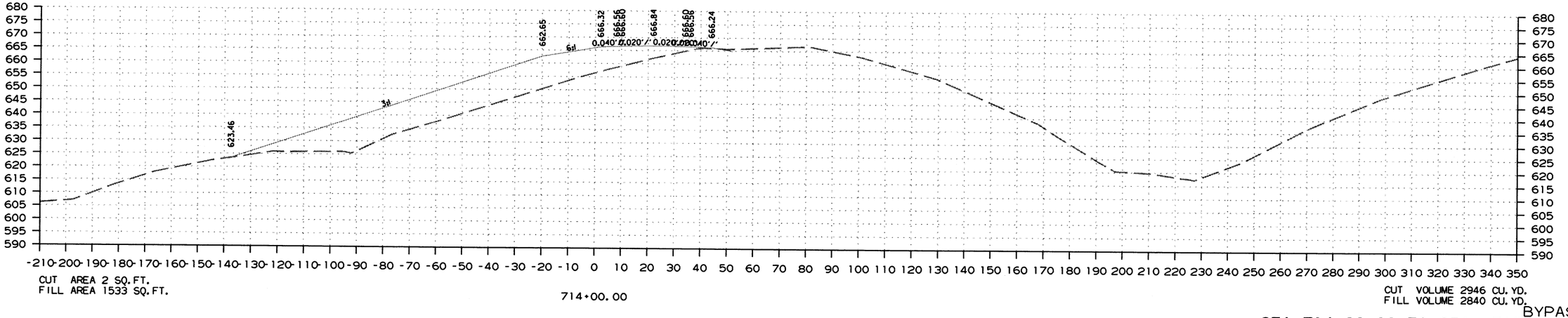
9/5/2019

RR60140.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.		R60140	380	616

(2) CROSS SECTIONS





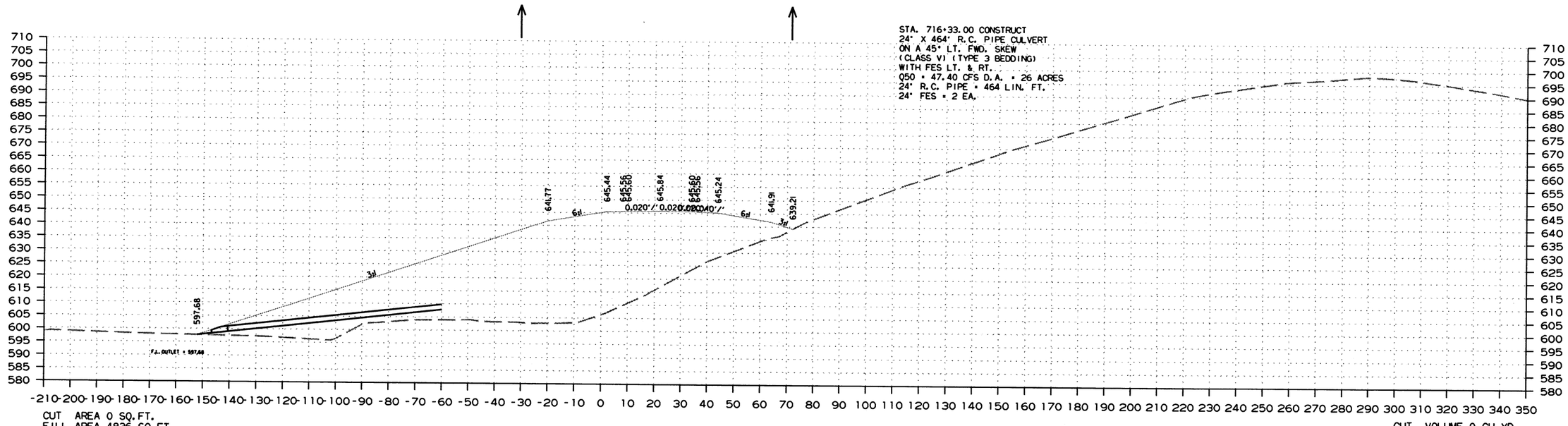
BYPASS
STA. 714+00.00 TO STA. 715+00.00

9/5/2019

RR60140.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.		R60140	381	616

(2) CROSS SECTIONS



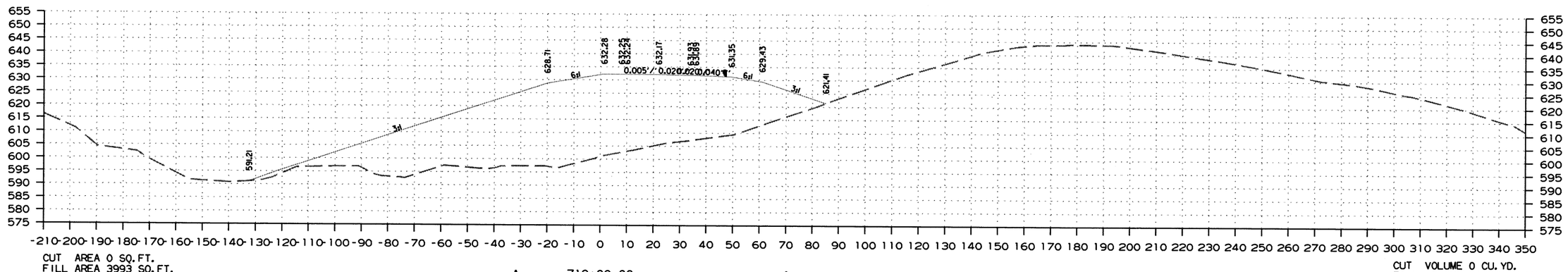
9/5/2019

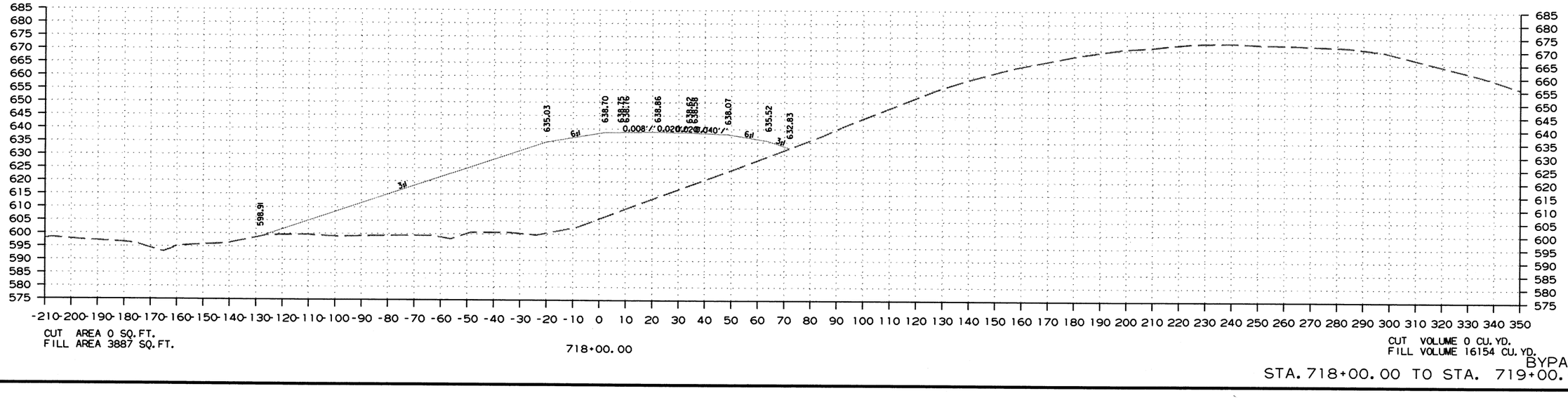
RR60140.DGN

BYPASS
STA. 716+00.00 TO STA. 717+00.00

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.		R60140	382	616

(2) CROSS SECTIONS





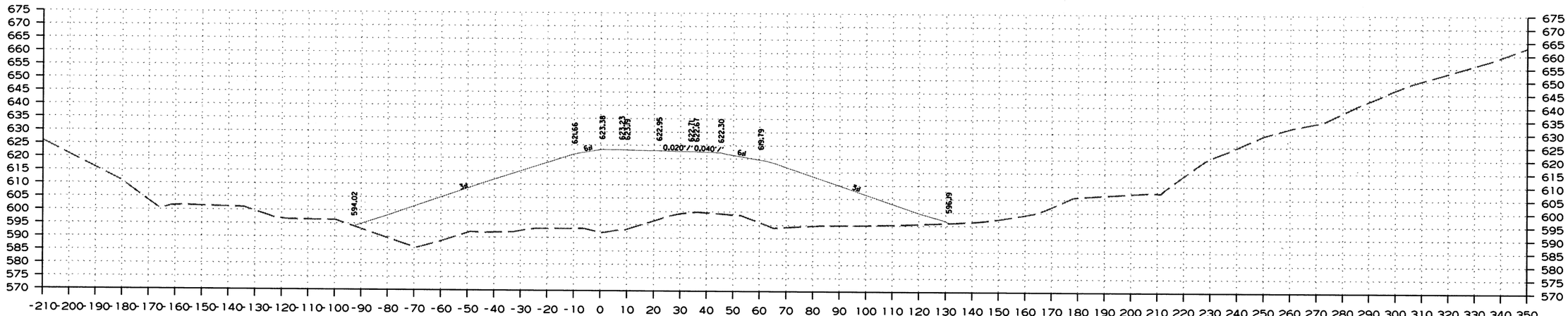
BYPASS
STA. 718+00.00 TO STA. 719+00.00

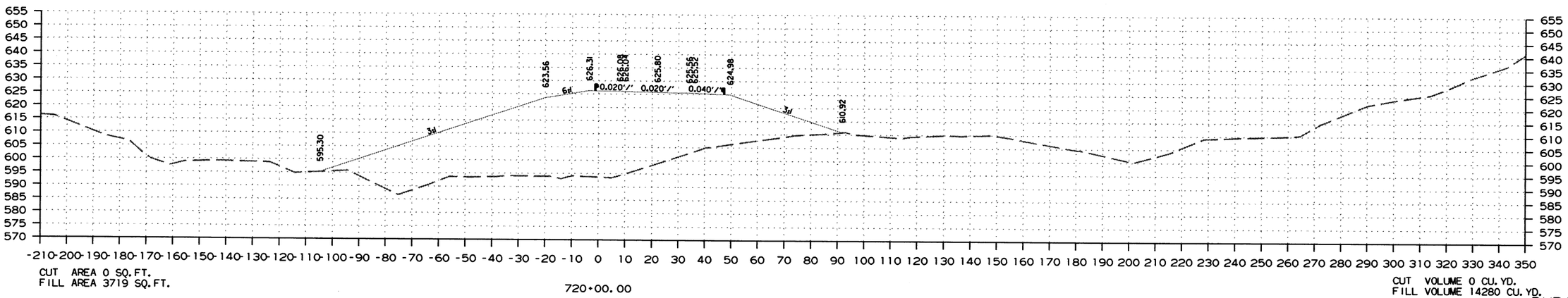
9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	383	616

(2) CROSS SECTIONS





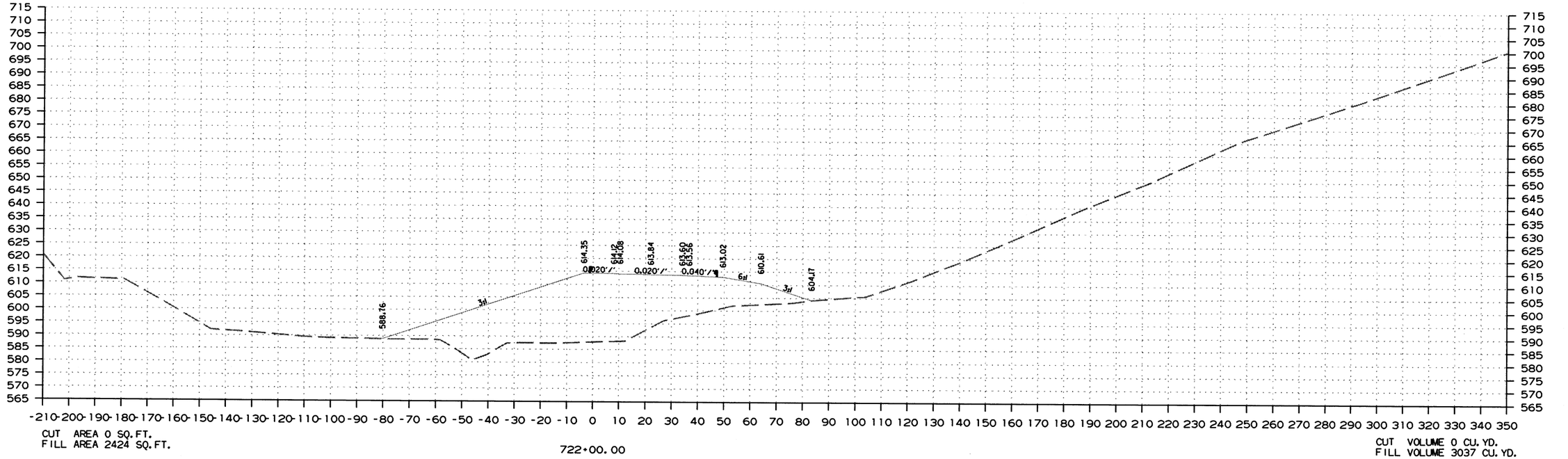
BYPASS
STA. 720+00.00 TO STA. 720+45.92

9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	384	616

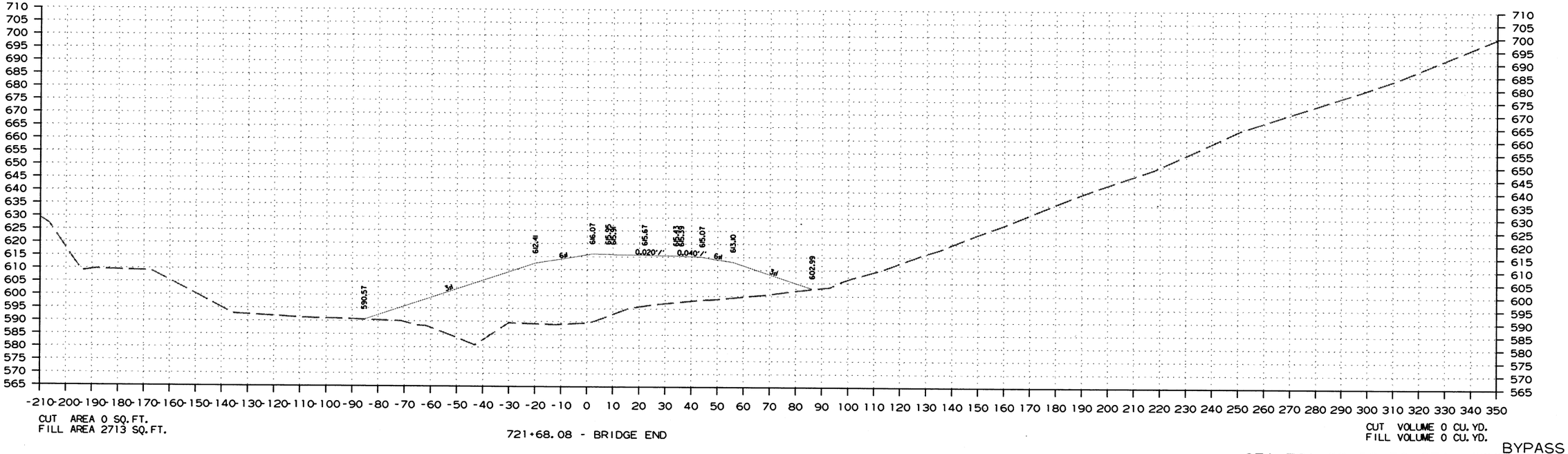
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 2424 SQ.FT.

722+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 3037 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 2713 SQ.FT.

721+68.08 - BRIDGE END

CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.

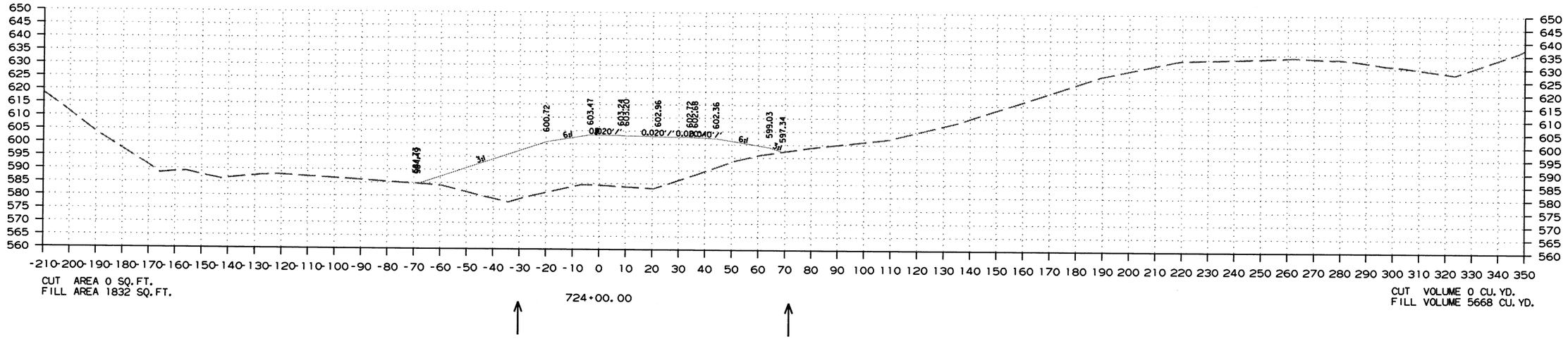
BYPASS
STA. 721+68.08 TO STA. 722+00.00

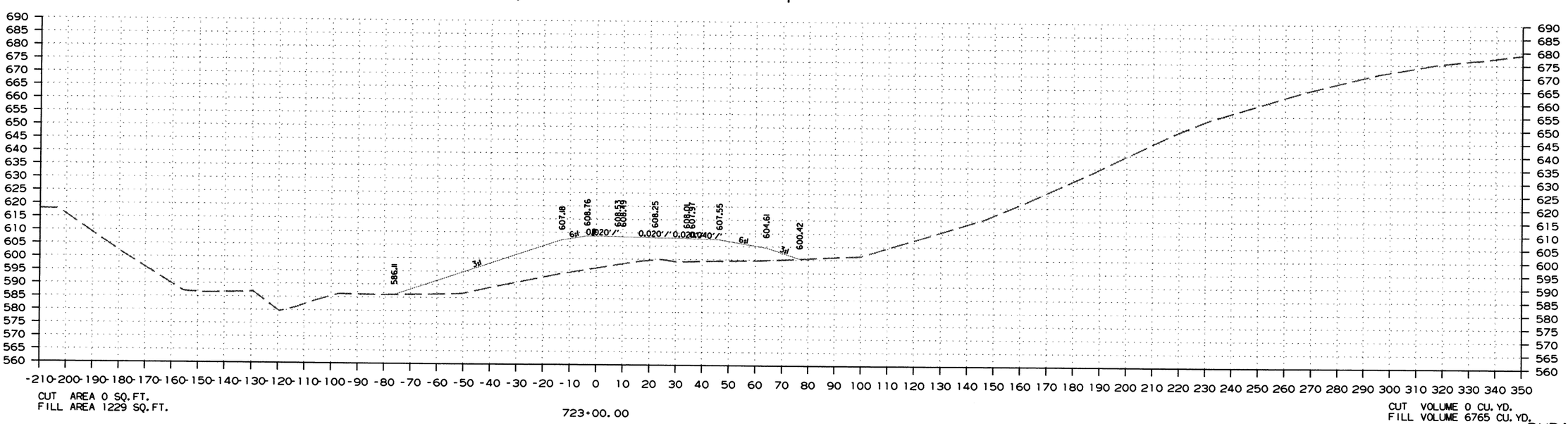
9/5/2019

RR60140.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.		R60140	385	616

(2) CROSS SECTIONS





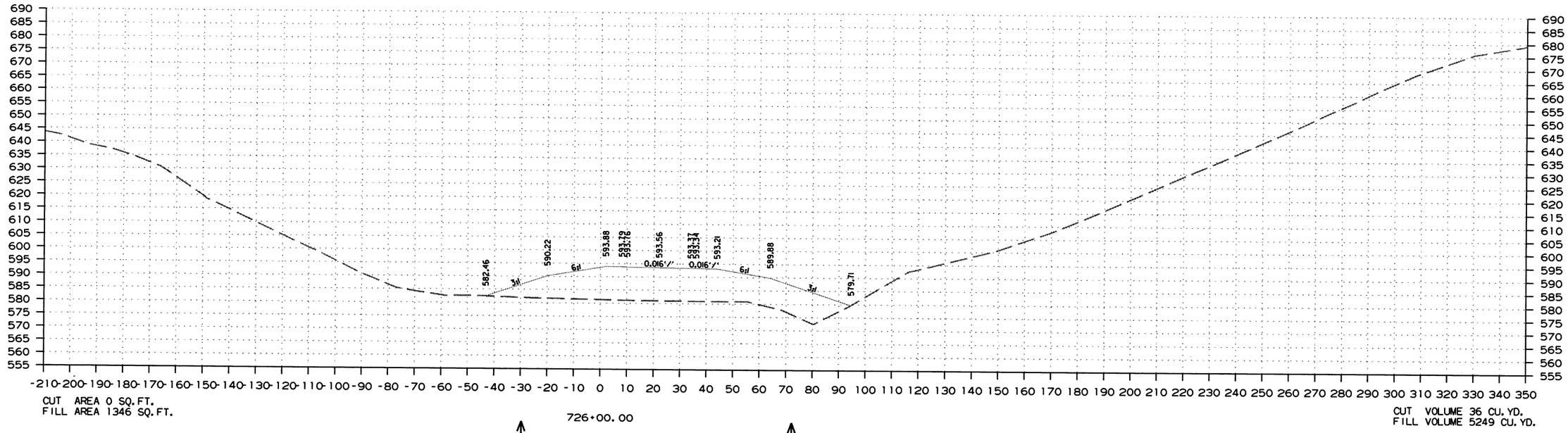
9/5/2019

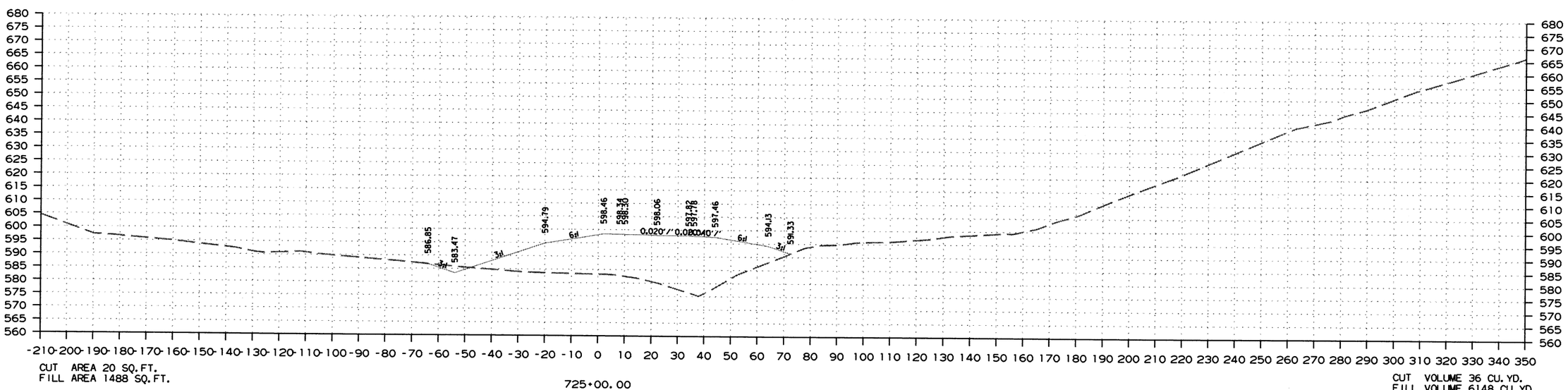
RR60140.DGN

BYPASS
STA. 723+00.00 TO STA. 724+00.00

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.		R60140	386	616

(2) CROSS SECTIONS





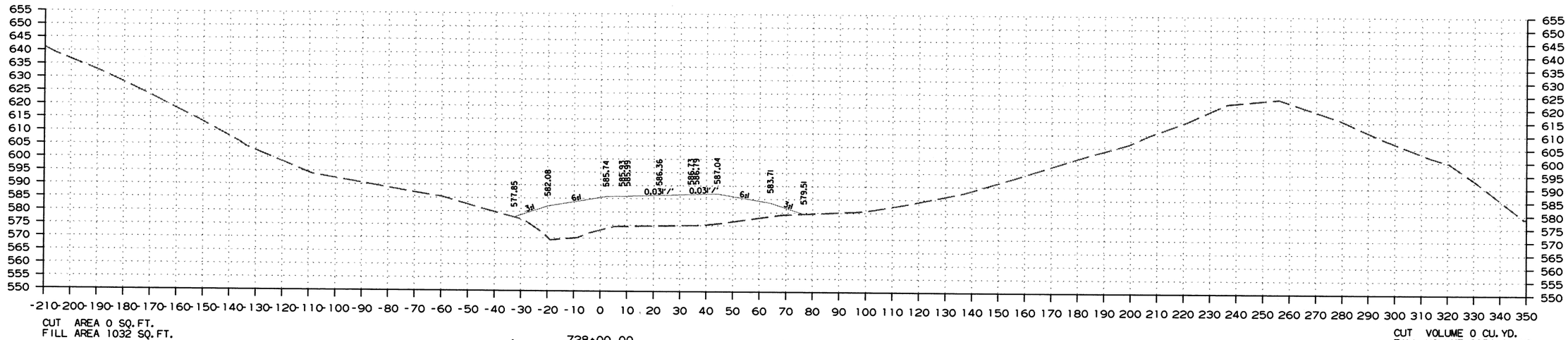
BYPASS
STA. 725+00.00 TO STA. 726+00.00

9/5/2019

RR60140.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.		R60140	387	616

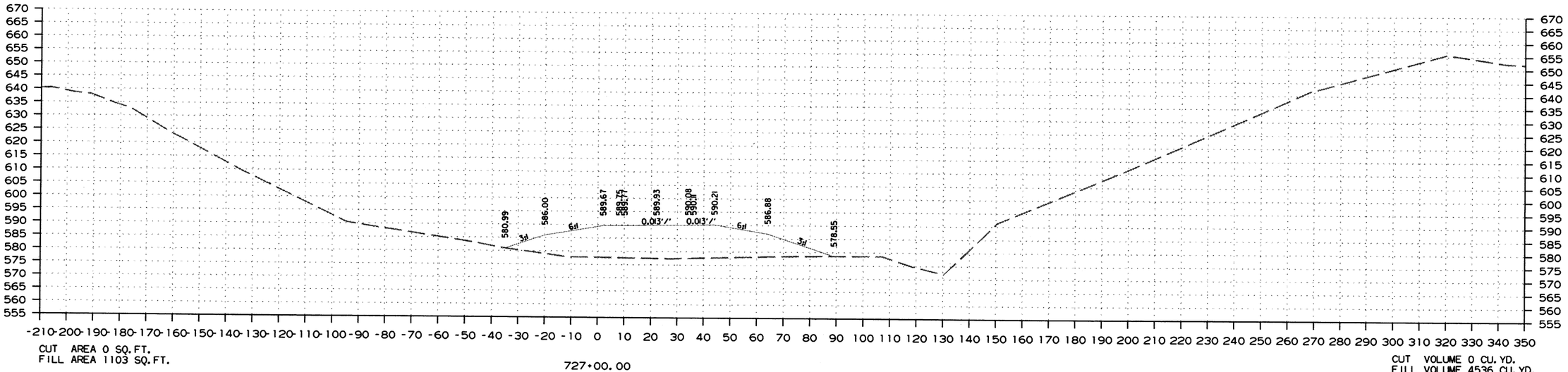
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 1032 SQ.FT.

728+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 3954 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 1103 SQ.FT.

727+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 4536 CU.YD.

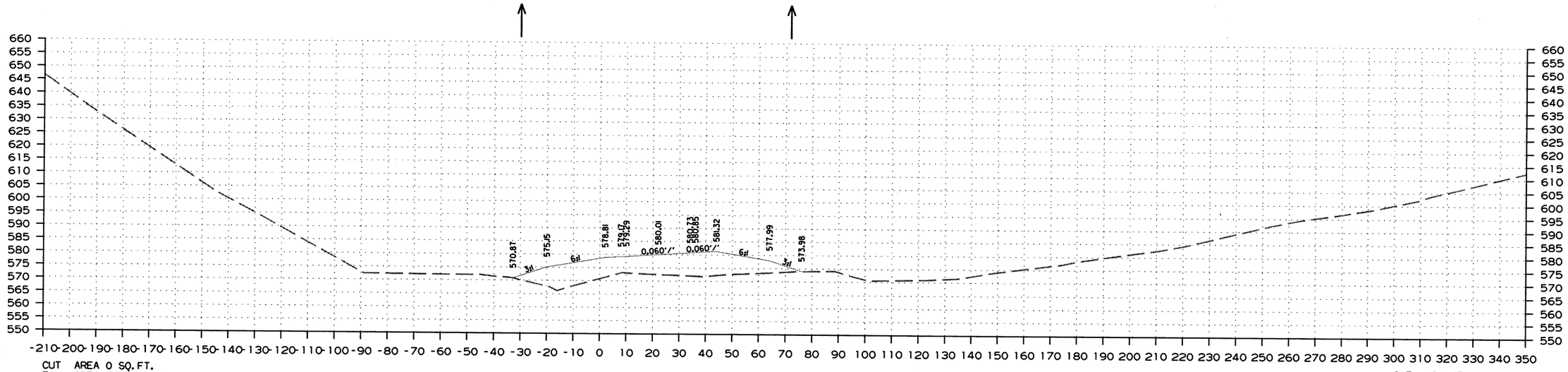
BYPASS
STA. 727+00.00 TO STA. 728+00.00

9/5/2019

RR60140.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.		R60140	388	616

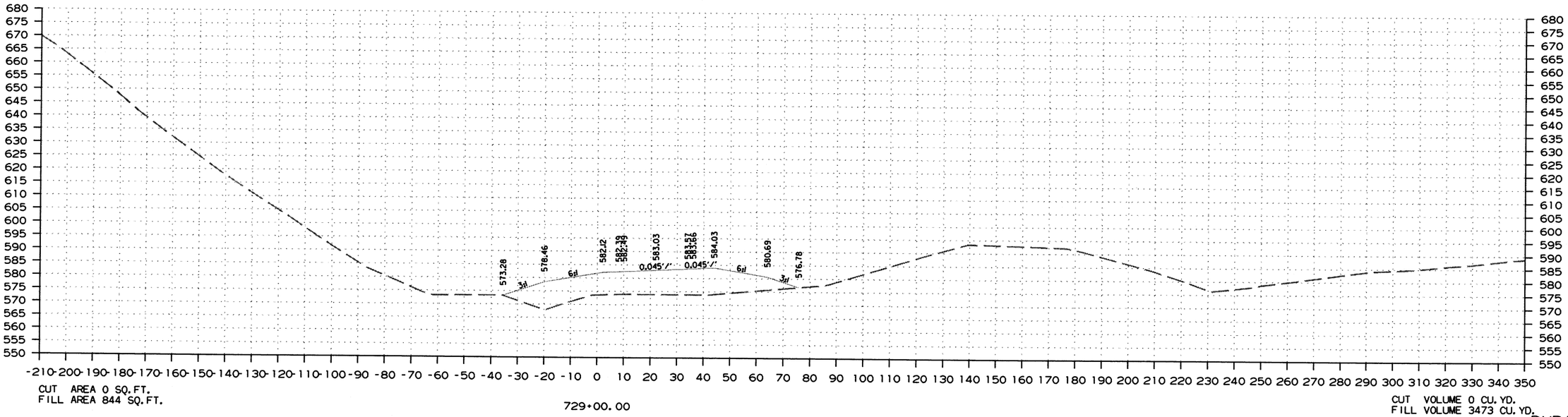
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 718 SQ.FT.

730+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 2893 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 844 SQ.FT.

729+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 3473 CU.YD.

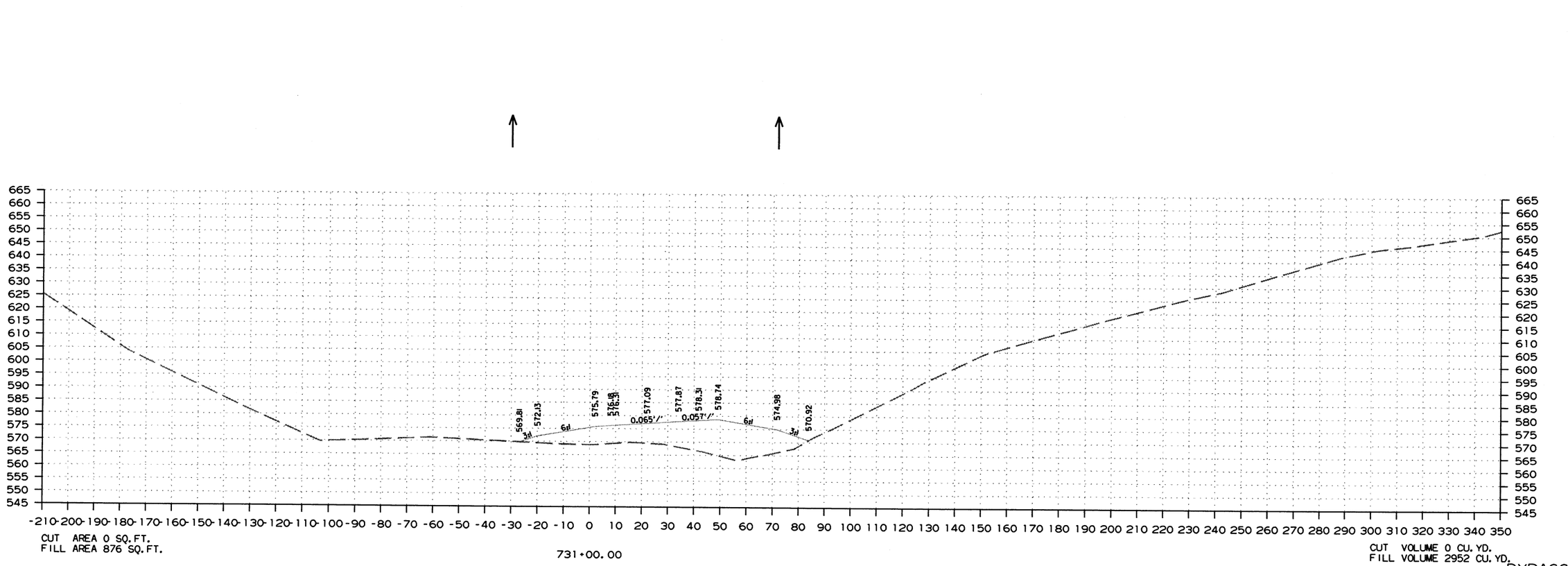
BYPASS
STA. 729+00.00 TO STA. 730+00.00

9/5/2019

RR60140.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.		R60140	389	616

(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 876 SQ.FT.

731+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 2952 CU.YD.

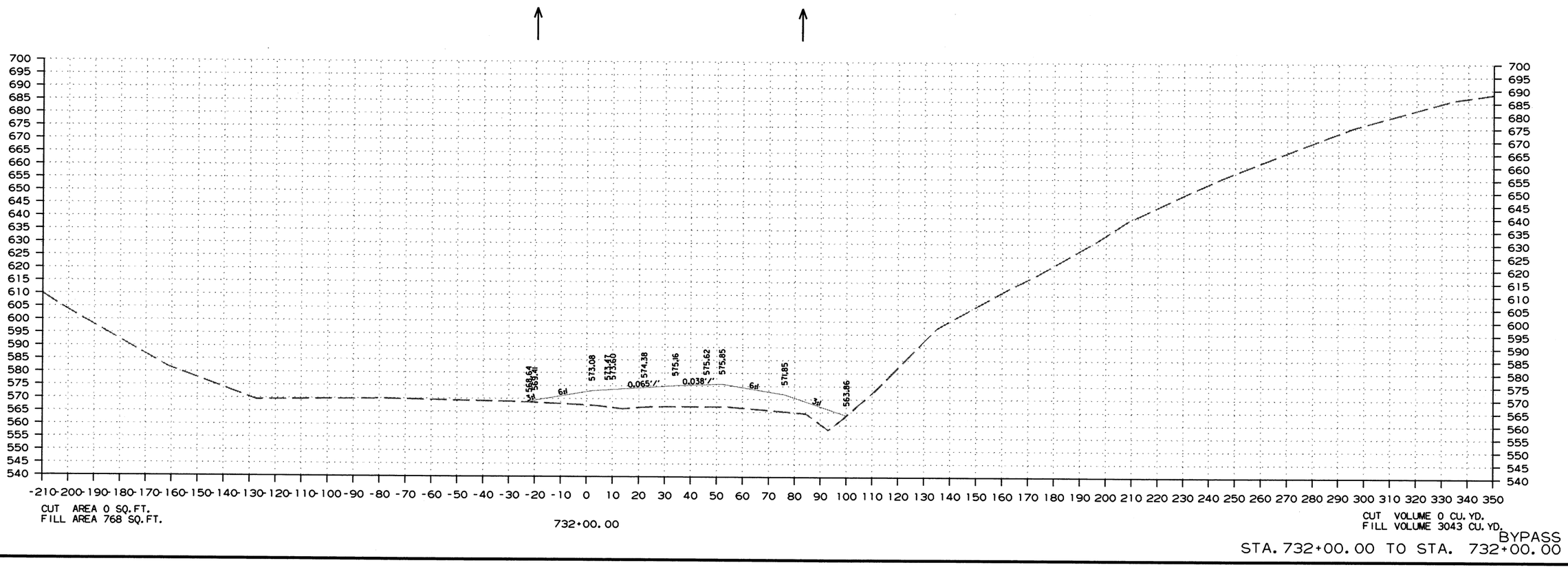
BYPASS
STA. 731+00.00 TO STA. 731+00.00

9/5/2019

RR60140.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.		R60140	390	616

(2) CROSS SECTIONS



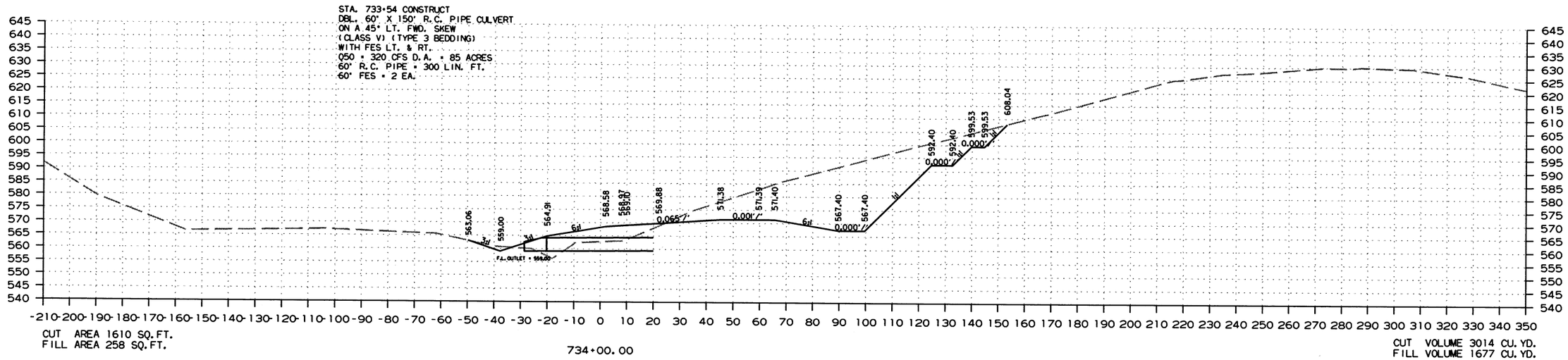
BYPASS
STA. 732+00.00 TO STA. 732+00.00

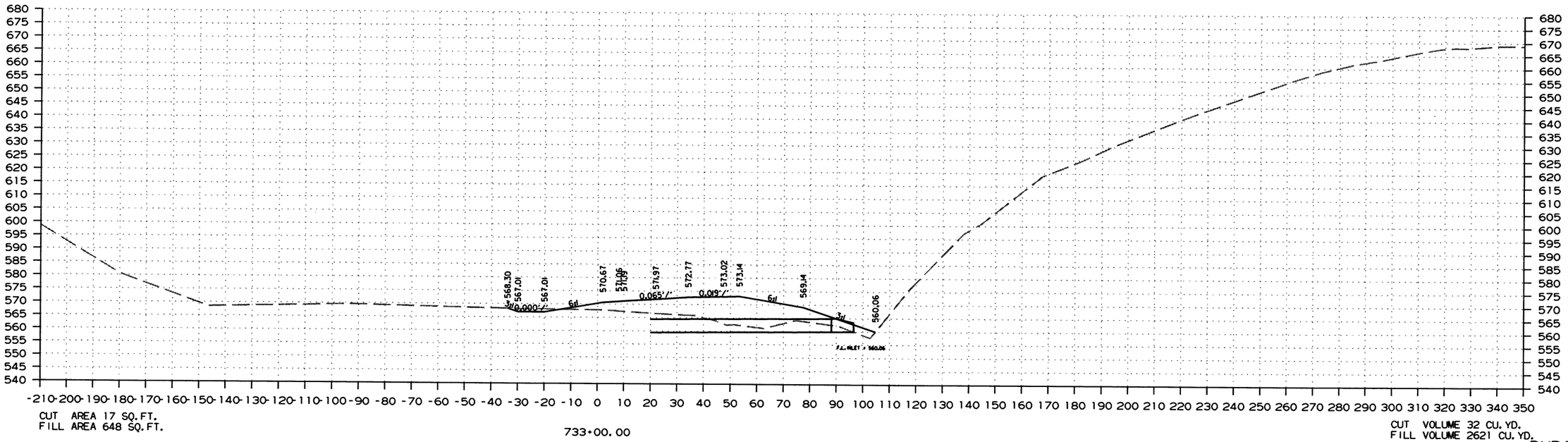
9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	391	616

(2) CROSS SECTIONS





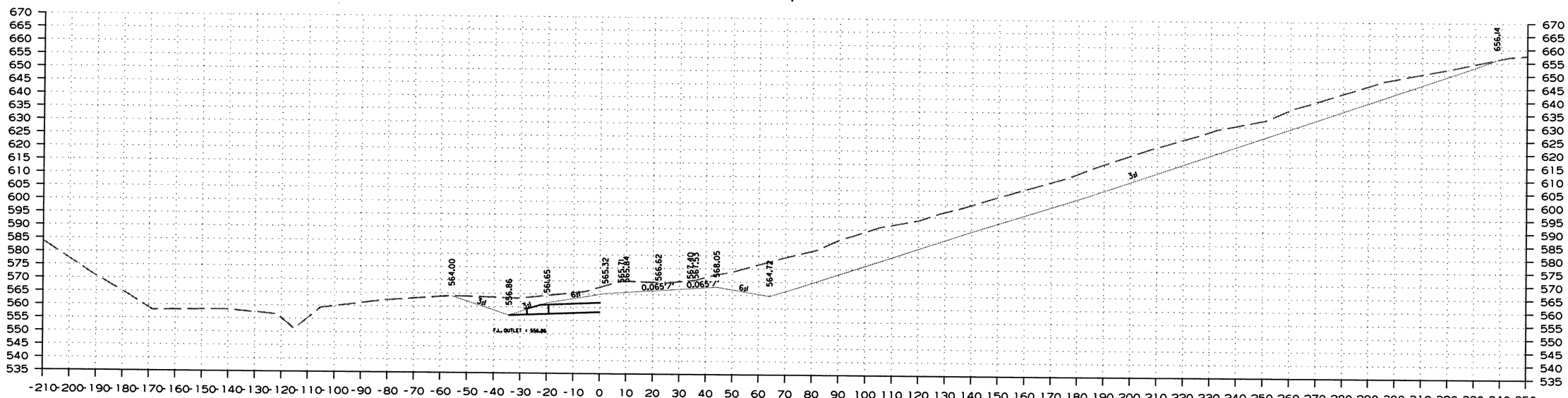
9/5/2019

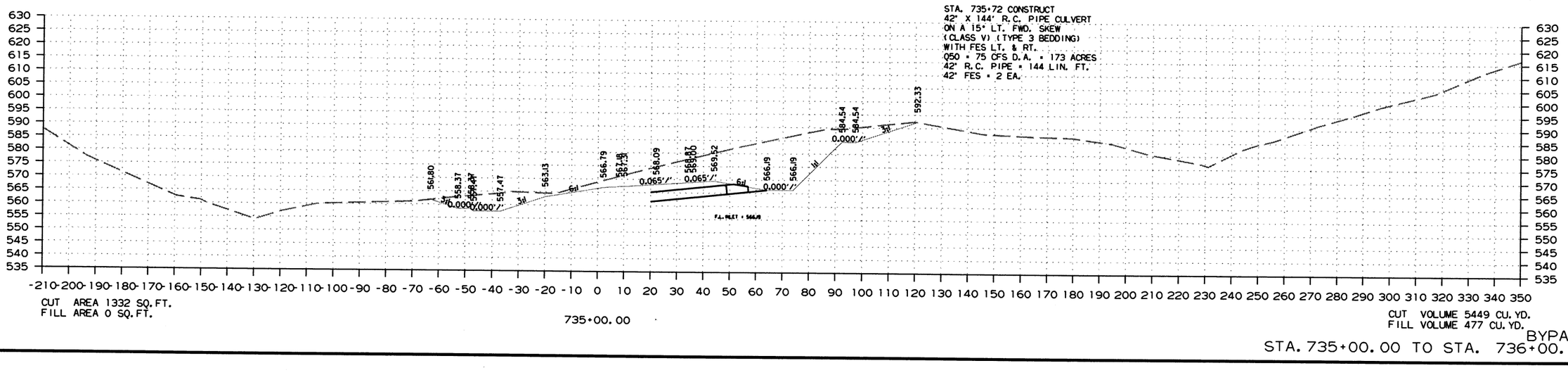
RR60140.DGN

BYPASS
STA. 733+00.00 TO STA. 734+00.00

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.		R60140	392	616

(2) CROSS SECTIONS





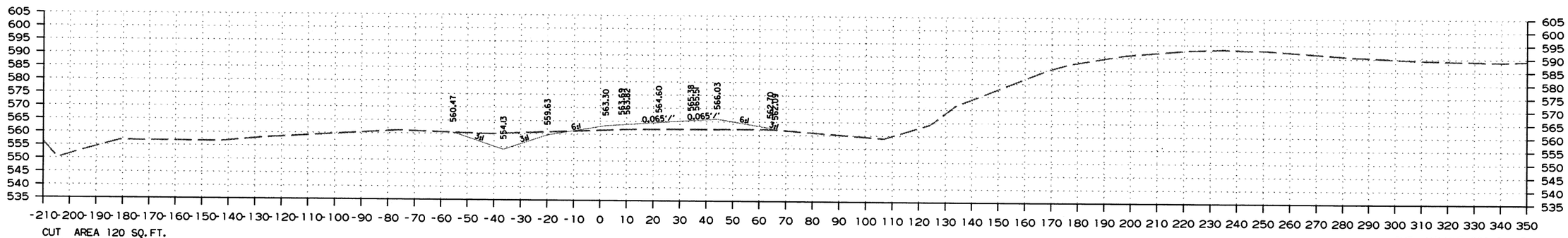
9/5/2019

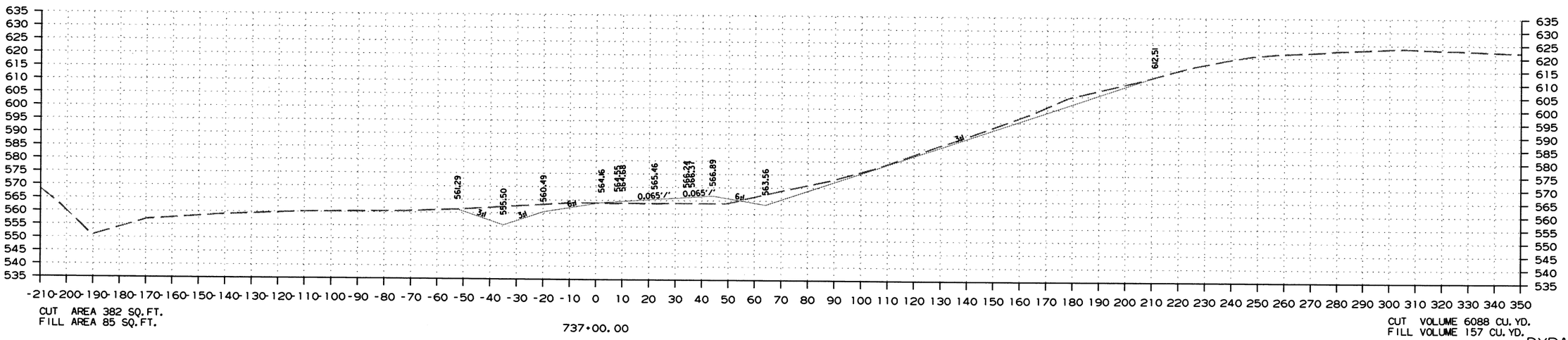
RR60140.DGN

BYPASS
STA. 735+00.00 TO STA. 736+00.00

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.		R60140	393	616

(2) CROSS SECTIONS





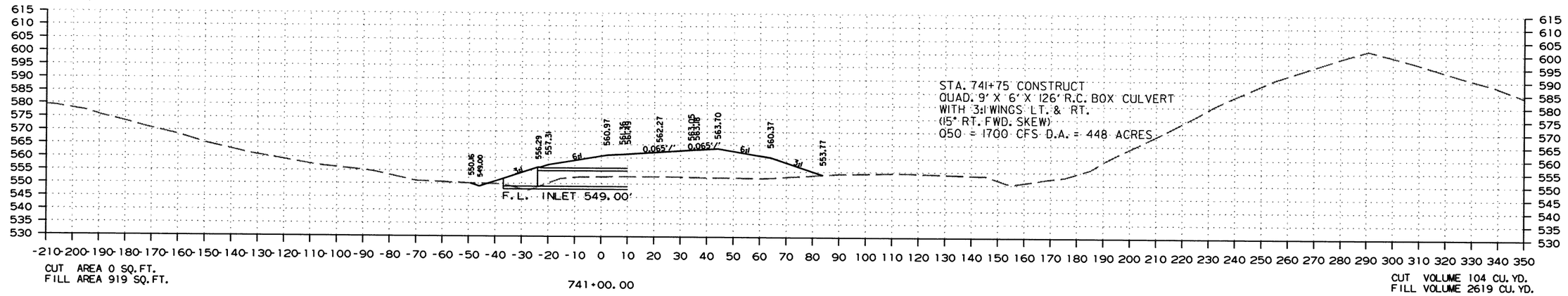
BYPASS
STA. 737+00.00 TO STA. 738+00.00

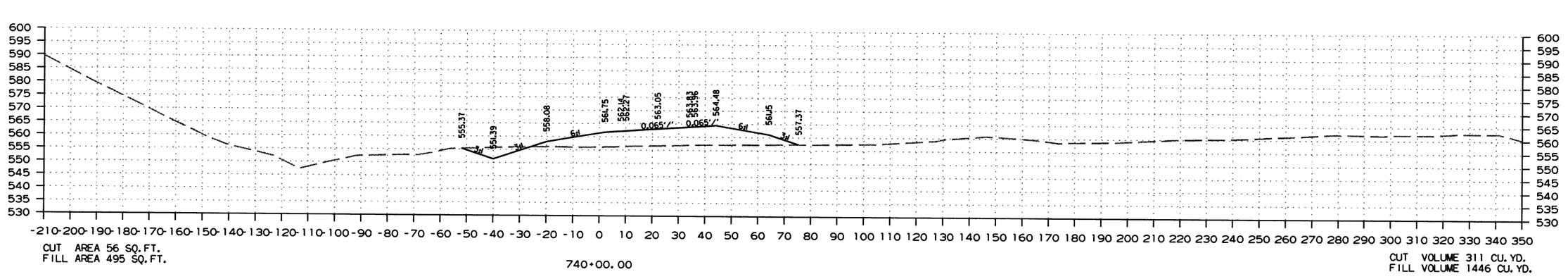
9/5/2019

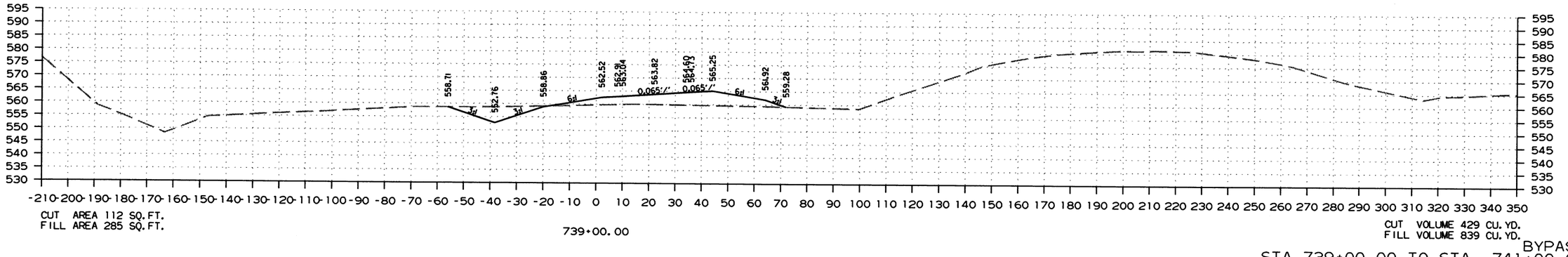
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	394	616

(2) CROSS SECTIONS







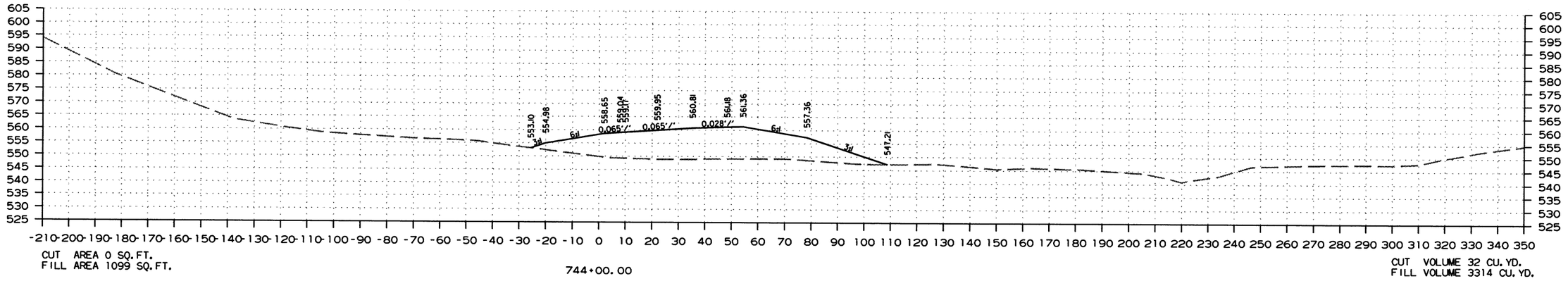
BYPASS
STA. 739+00.00 TO STA. 741+00.00

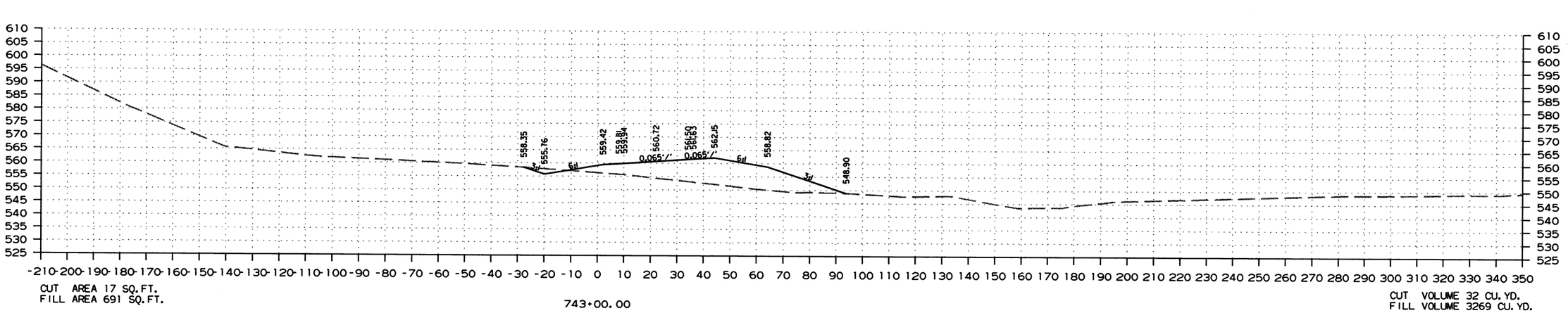
9/5/2019

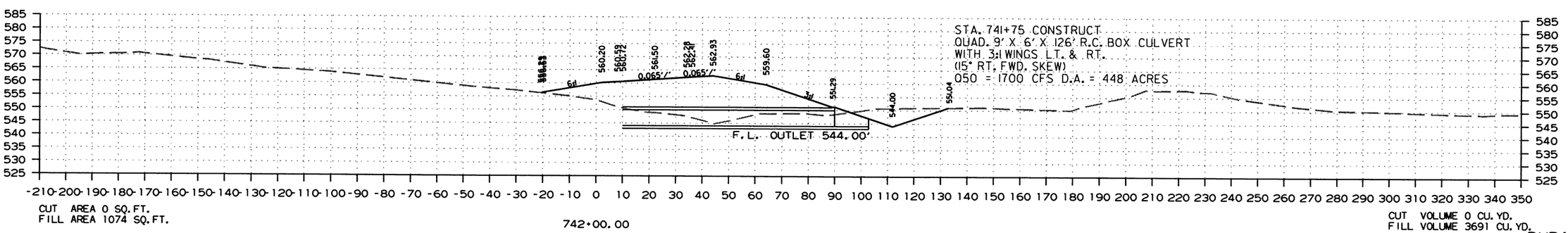
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	395	616

(2) CROSS SECTIONS







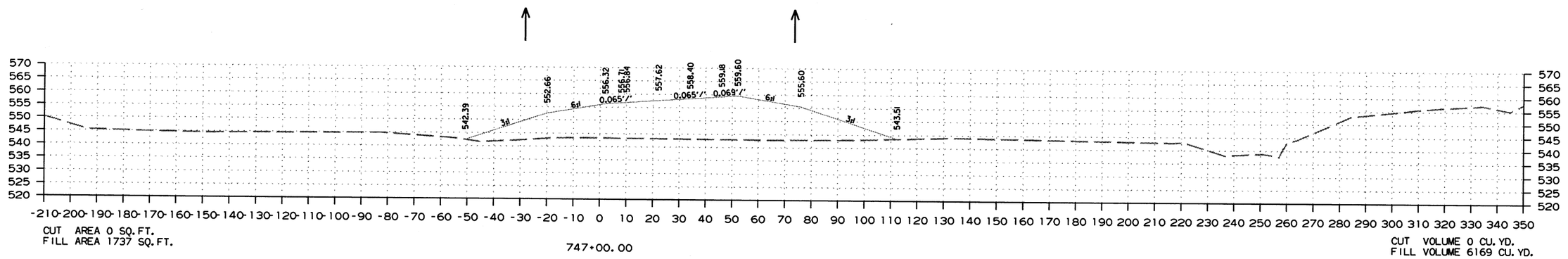
BYPASS
STA. 742+00.00 TO STA. 744+00.00

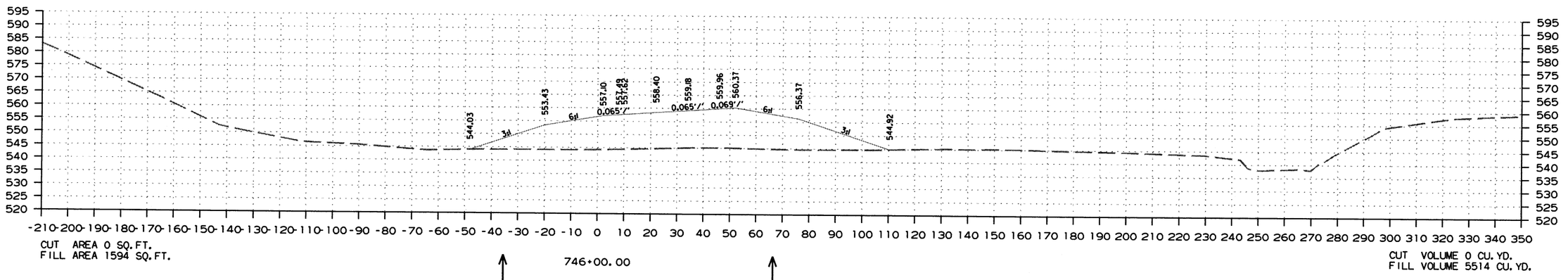
9/5/2019

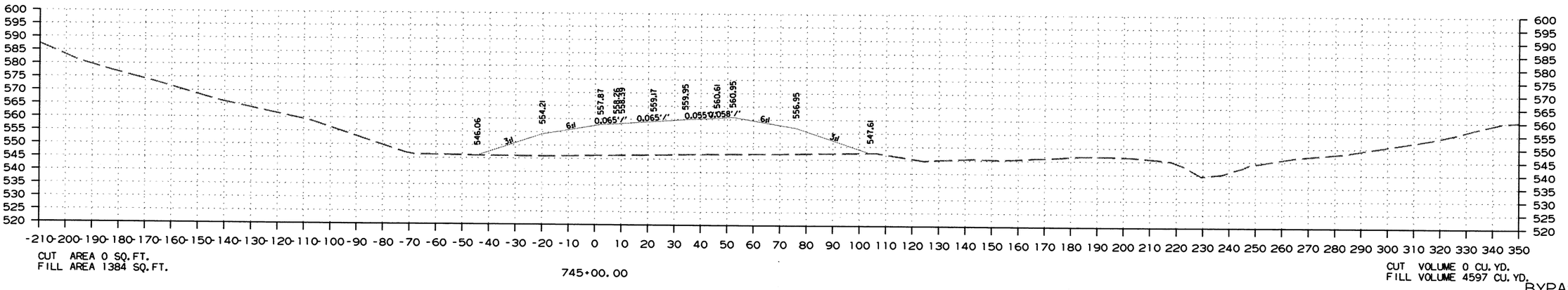
RR60140.DGN

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.		R60140	396	616

(2) CROSS SECTIONS







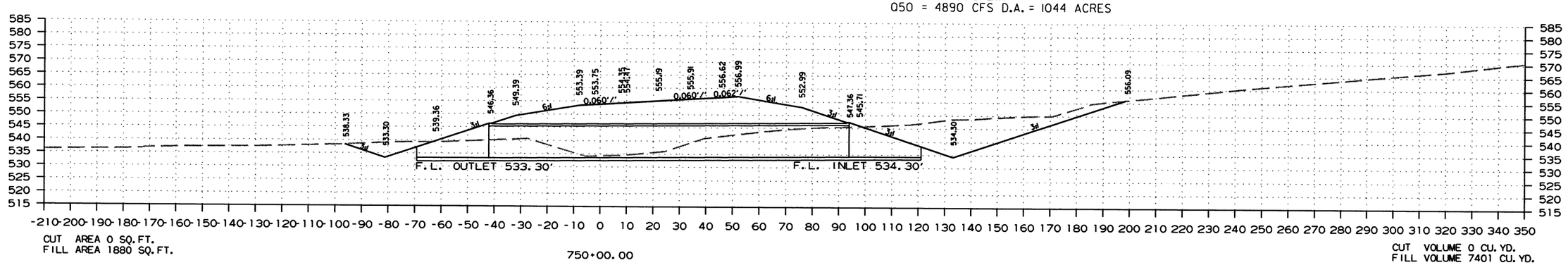
BYPASS
STA. 745+00.00 TO STA. 747+00.00

9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	397	616
				(2) CROSS SECTIONS				

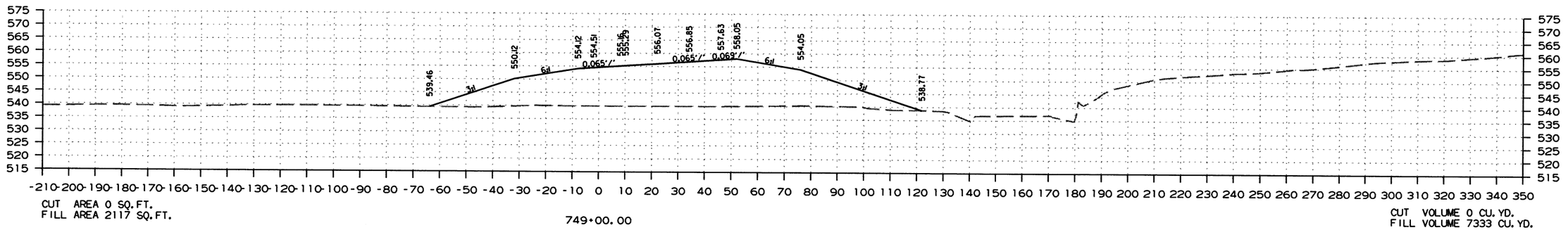
STA. 750+25 CONSTRUCT
QUINT. 12' X 12' X 264' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
(45° LT. FWD. SKEW)
Q50 = 4890 CFS D.A. = 1044 ACRES



CUT AREA 0 SQ.FT.
FILL AREA 1880 SQ.FT.

750+00.00

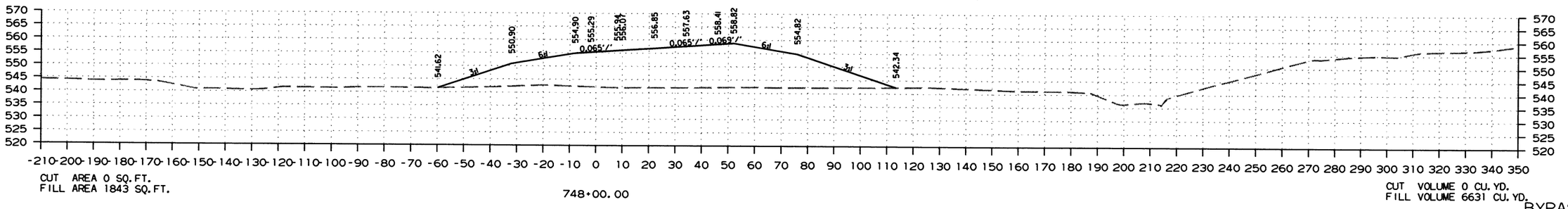
CUT VOLUME 0 CU.YD.
FILL VOLUME 7401 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 2117 SQ.FT.

749+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 7333 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 1843 SQ.FT.

748+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 6631 CU.YD.

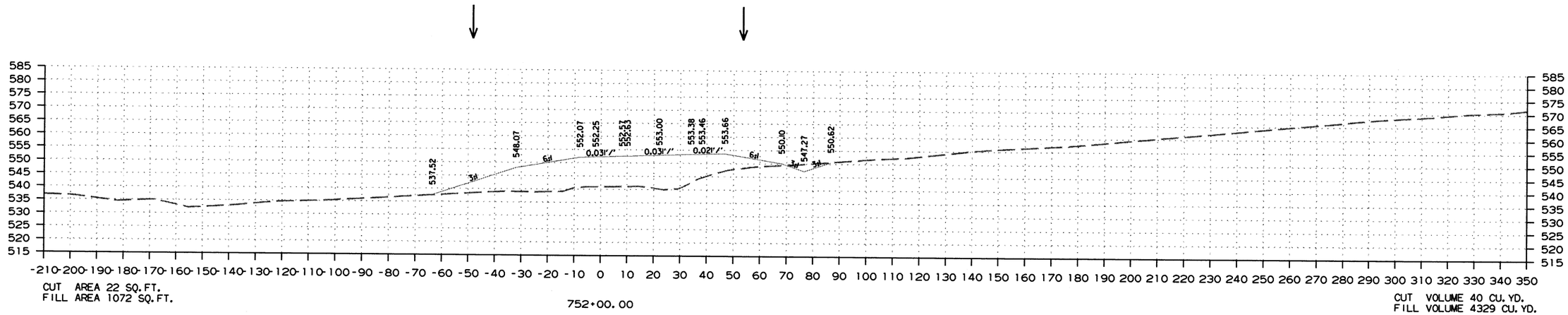
BYPASS
STA. 748+00.00 TO STA. 750+00.00

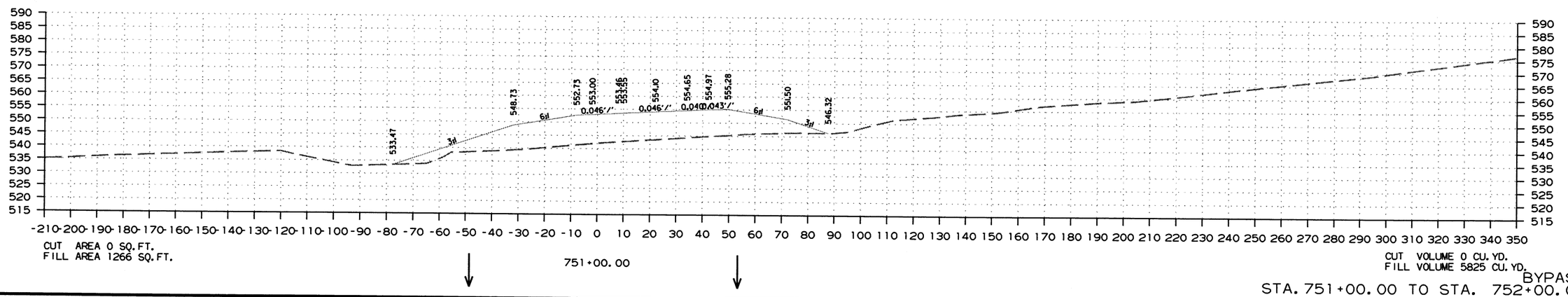
9/5/2019

RR60140.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.		R60140	393	616

(2) CROSS SECTIONS





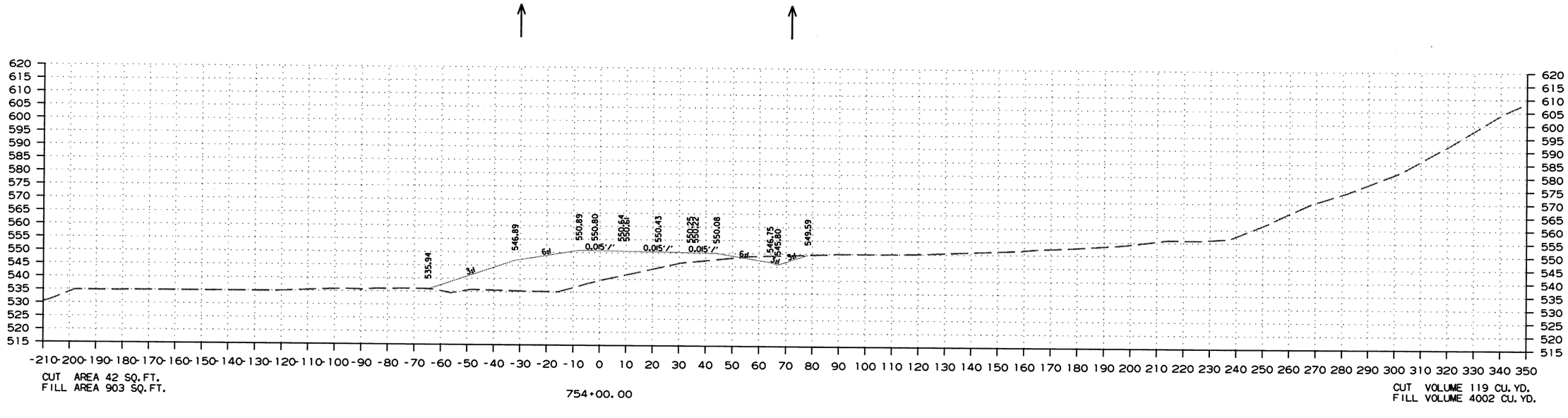
BYPASS
STA. 751+00.00 TO STA. 752+00.00

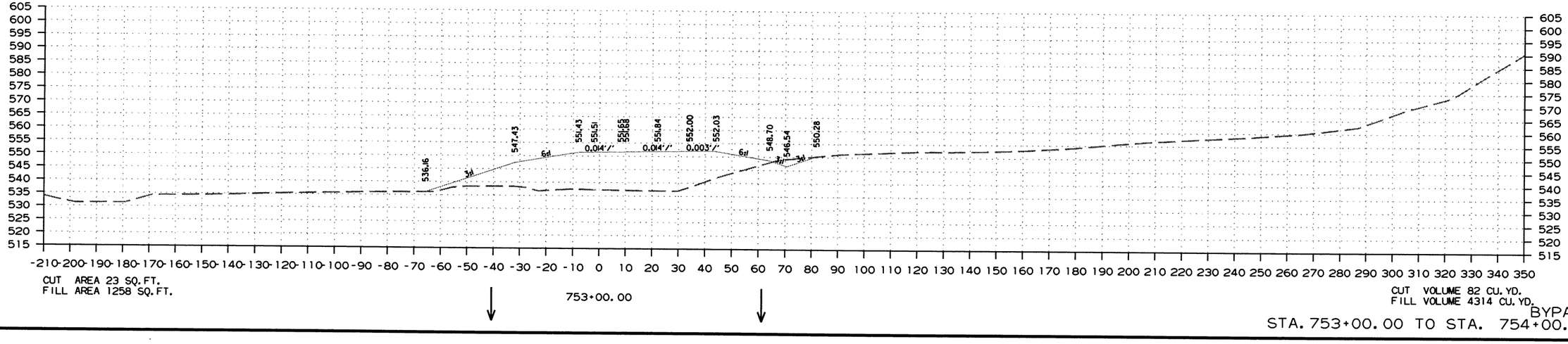
9/5/2019

RR60140.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.		R60140	399	616

(2) CROSS SECTIONS





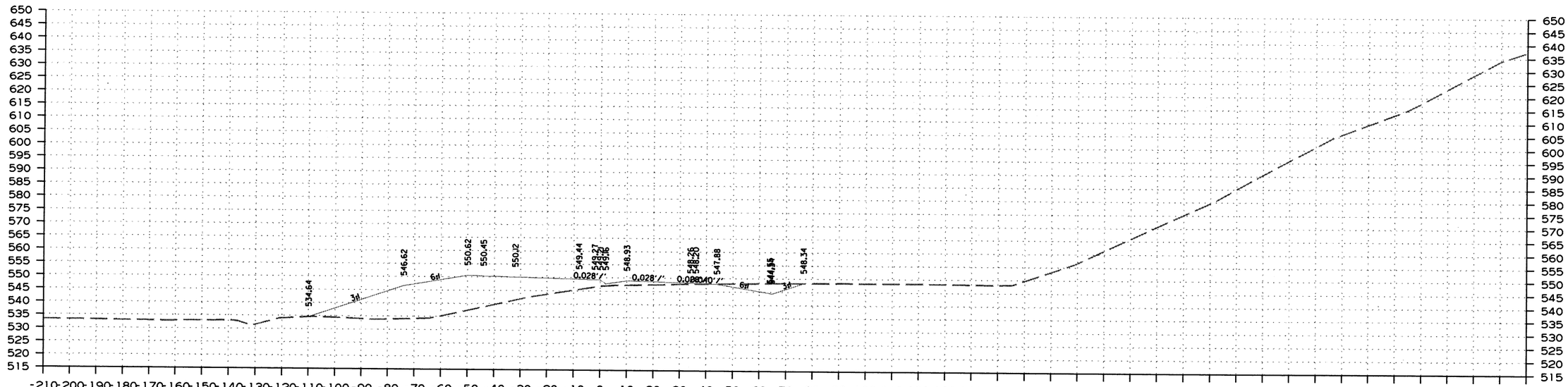
BYPASS
STA. 753+00.00 TO STA. 754+00.00

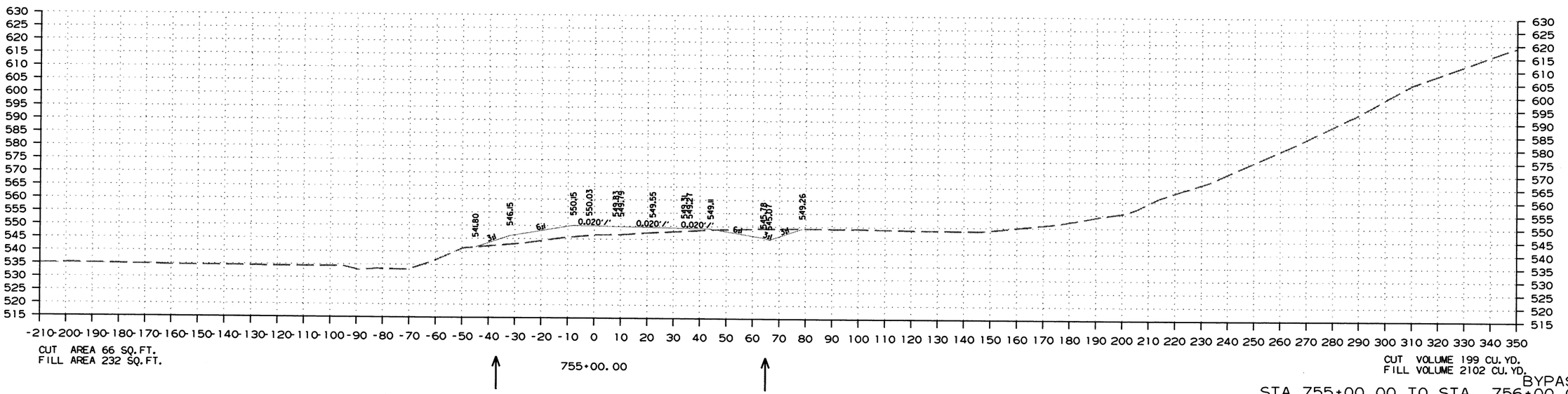
9/5/2019

RR60140.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.		R60140	406	616

(2) CROSS SECTIONS





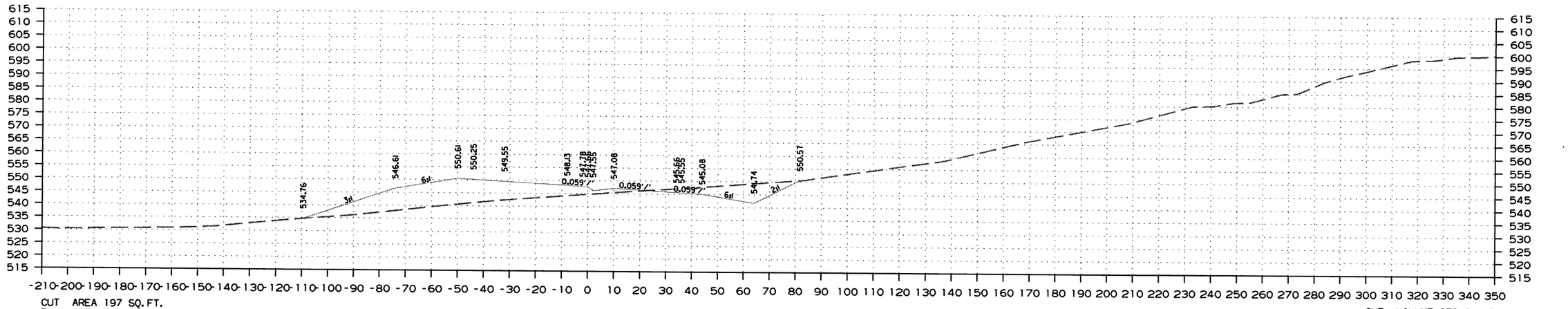
BYPASS
STA. 755+00.00 TO STA. 756+00.00

9/5/2019

RR60140.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.		R60140	46/	6/6

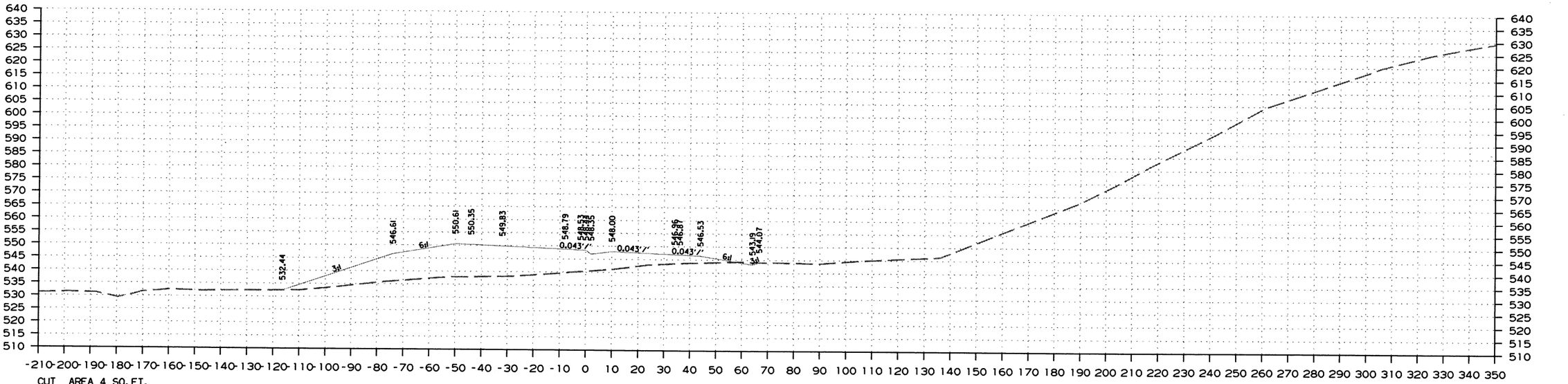
(2) CROSS SECTIONS



CUT AREA 197 SQ.FT.
FILL AREA 722 SQ.FT.

758+00.00

CUT VOLUME 372 CU.YD.
FILL VOLUME 3715 CU.YD.



CUT AREA 4 SQ.FT.
FILL AREA 1283 SQ.FT.

757+00.00

CUT VOLUME 127 CU.YD.
FILL VOLUME 4153 CU.YD.

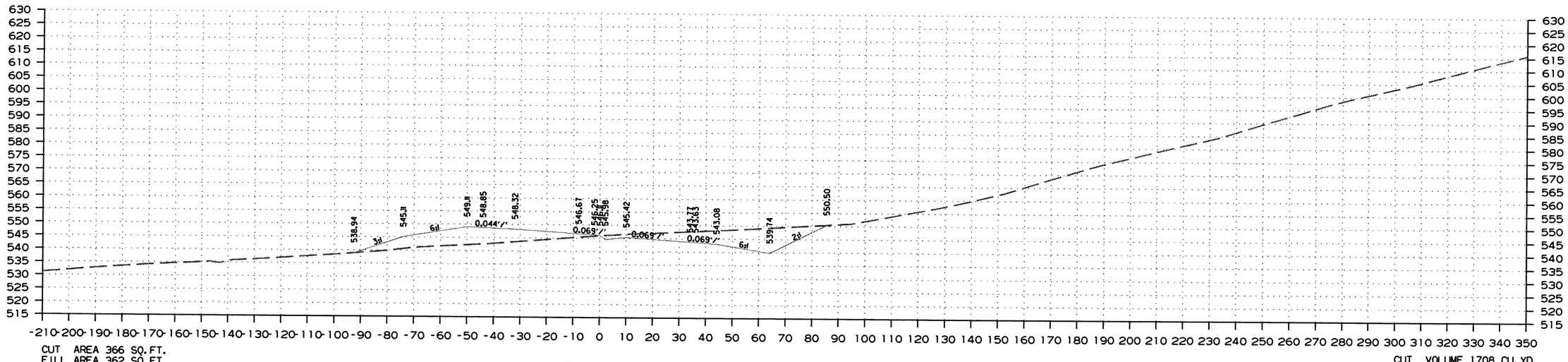
BYPASS
STA. 757+00.00 TO STA. 758+00.00

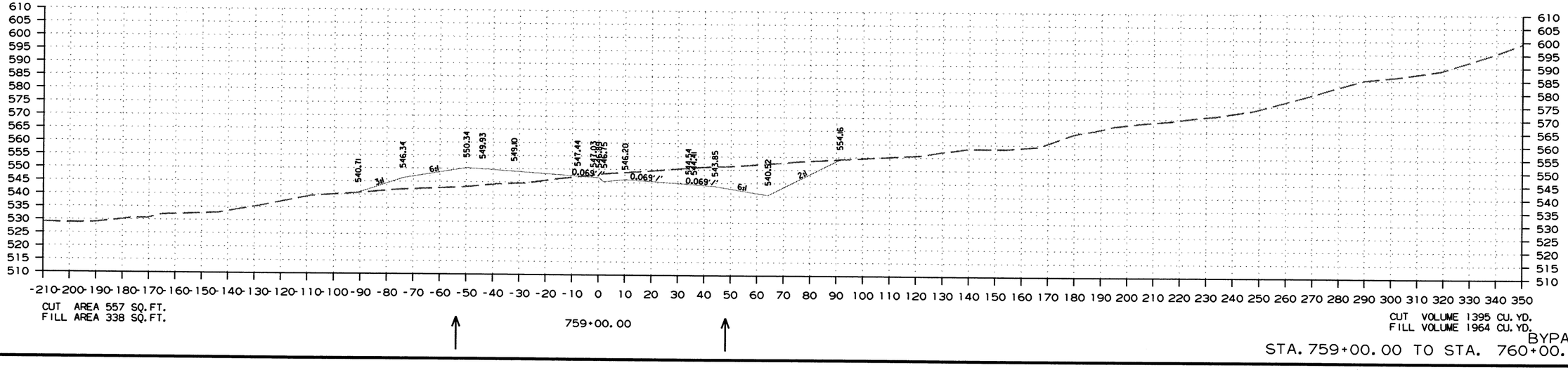
9/5/2019

RR60140.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.		R60140	402	618

(2) CROSS SECTIONS





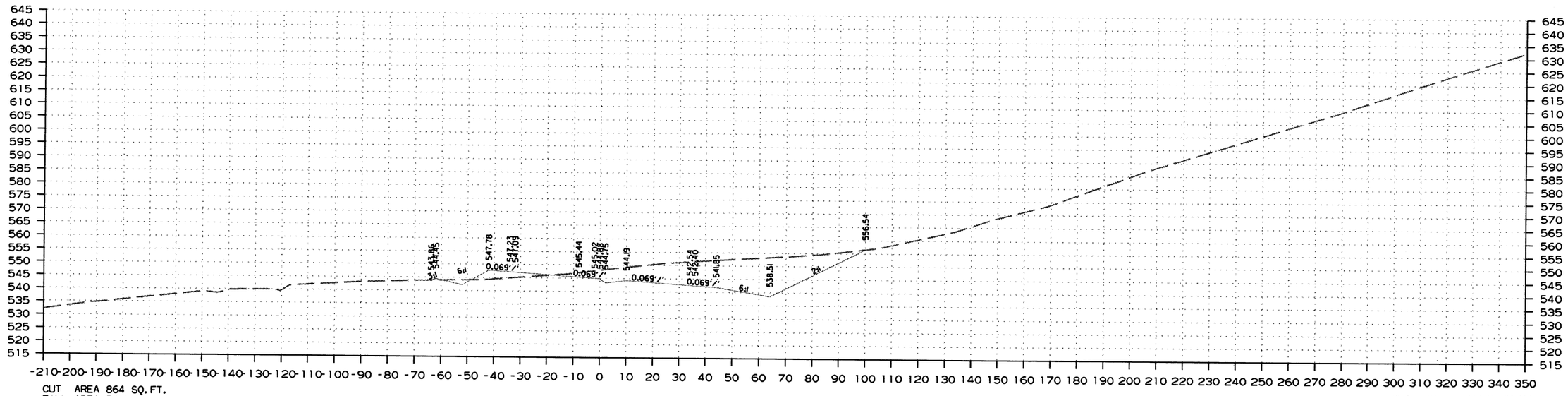
BYPASS
STA. 759+00.00 TO STA. 760+00.00

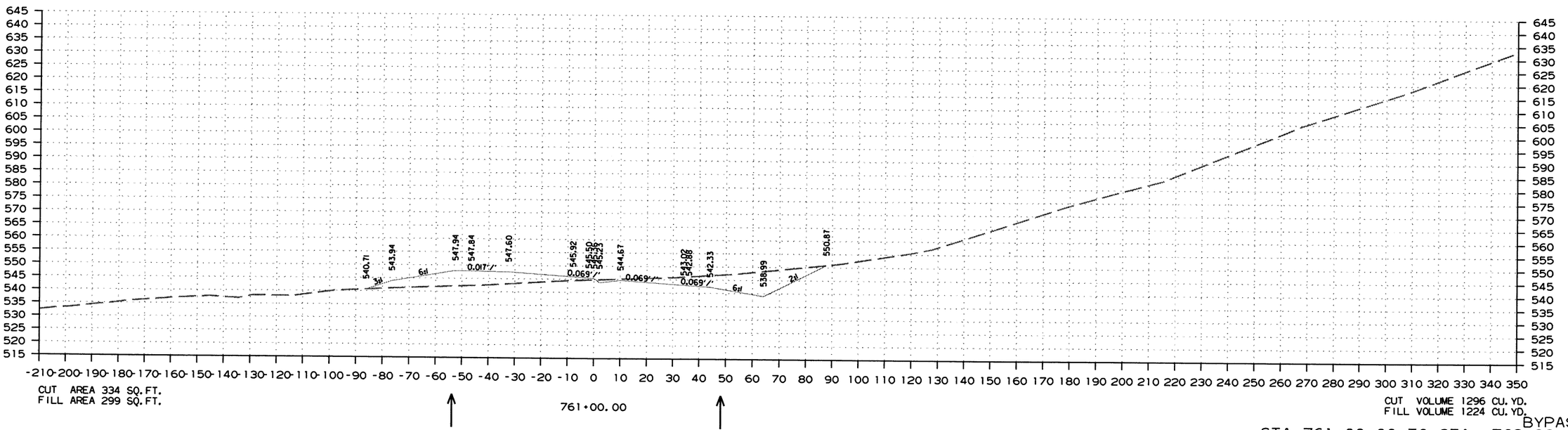
9/5/2019

RR60140.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.		R60140	403	618

(2) CROSS SECTIONS





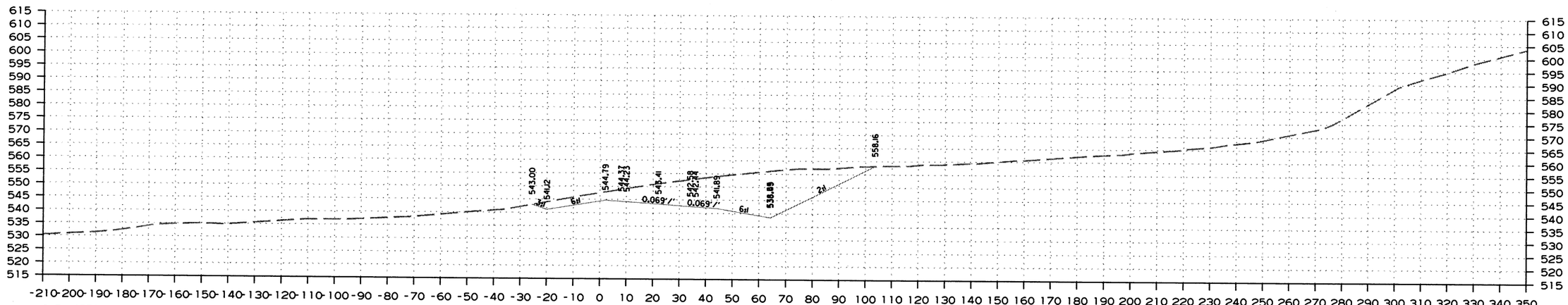
BYPASS
STA. 761+00.00 TO STA. 762+00.00

9/5/2019

RR60140.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.		R60140	404	616

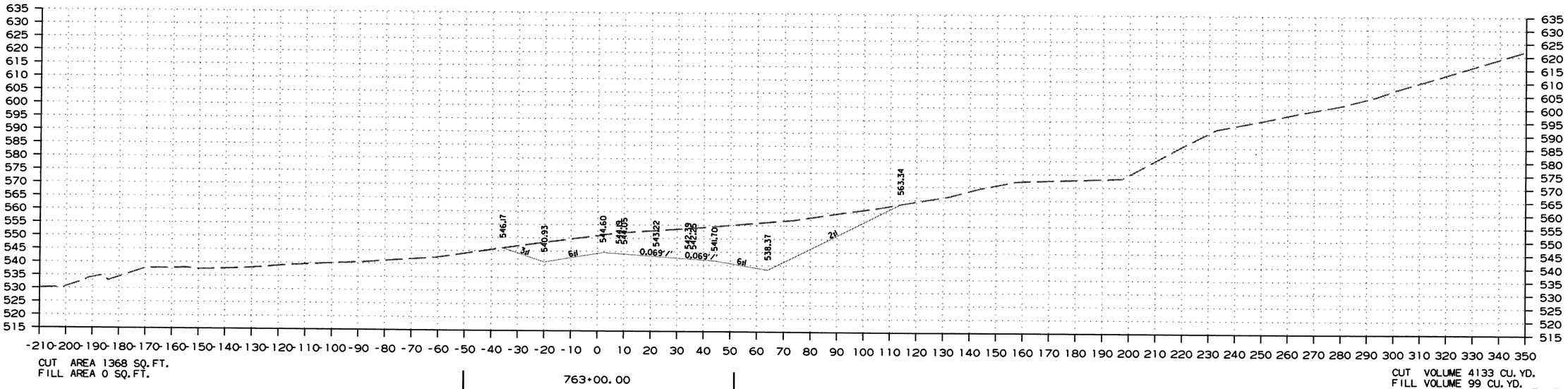
(2) CROSS SECTIONS



CUT AREA 1053 SQ.FT.
FILL AREA 0 SQ.FT.

764+00.00

CUT VOLUME 4484 CU.YD.
FILL VOLUME 0 CU.YD.



CUT AREA 1368 SQ.FT.
FILL AREA 0 SQ.FT.

763+00.00

CUT VOLUME 4133 CU.YD.
FILL VOLUME 99 CU.YD.

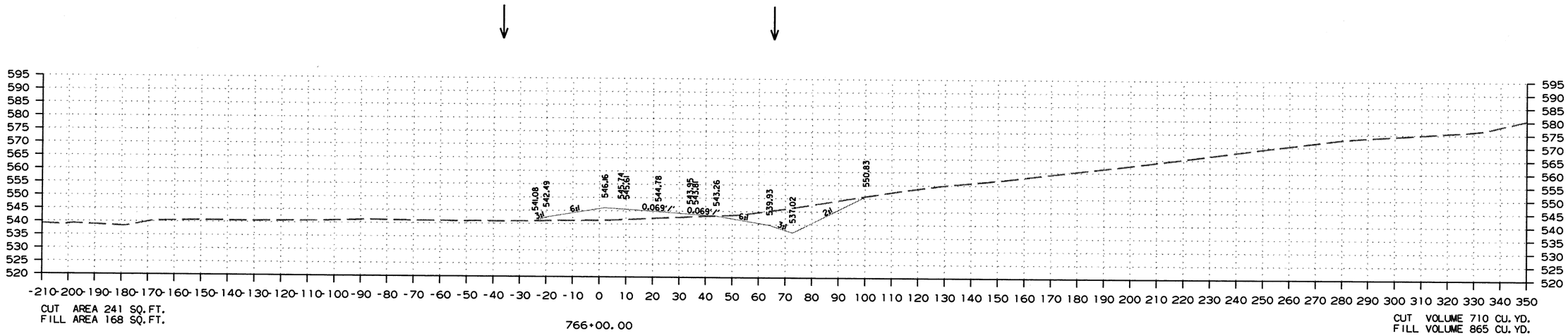
BYPASS
STA. 763+00.00 TO STA. 764+00.00

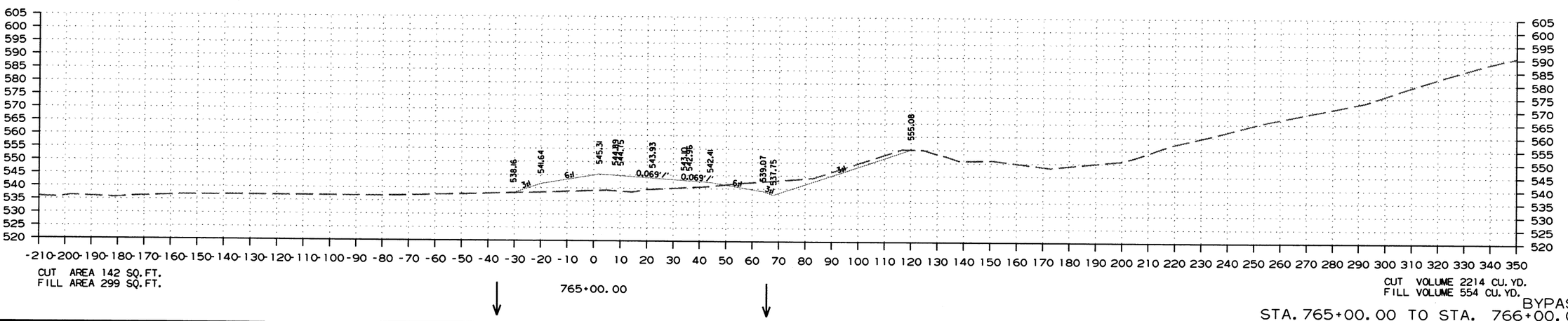
9/5/2019

RR60140.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.		R60140	405	613

(2) CROSS SECTIONS





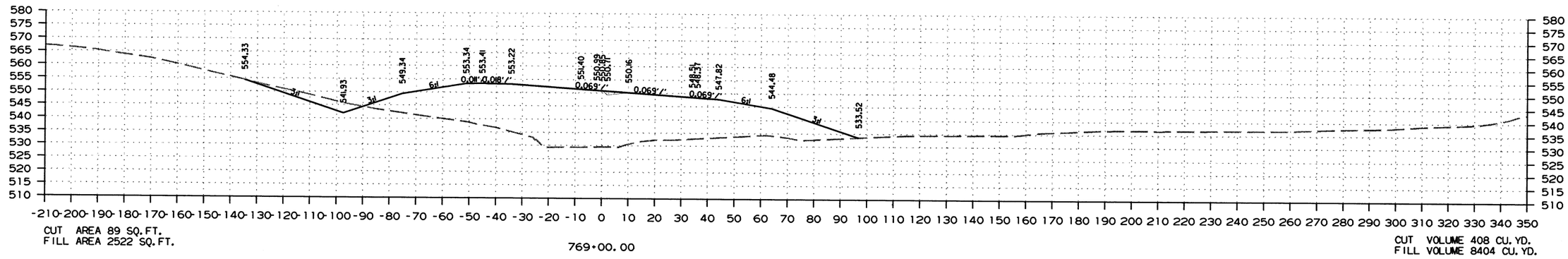
BYPASS
STA. 765+00.00 TO STA. 766+00.00

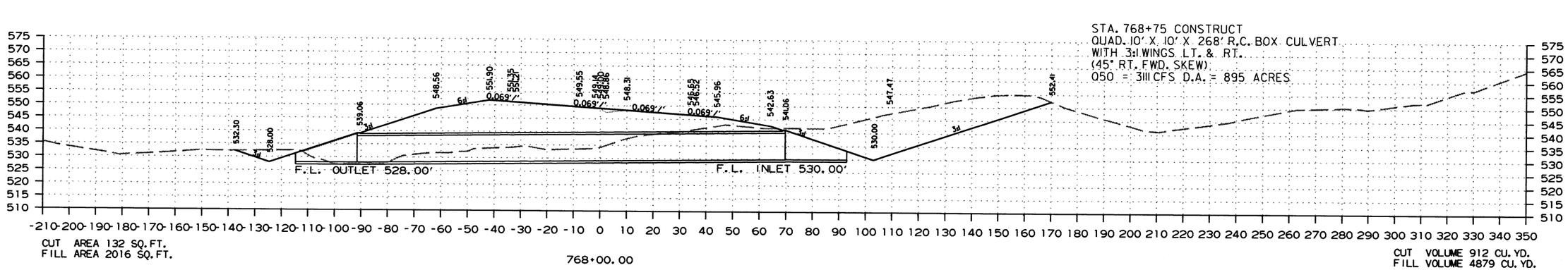
9/5/2019

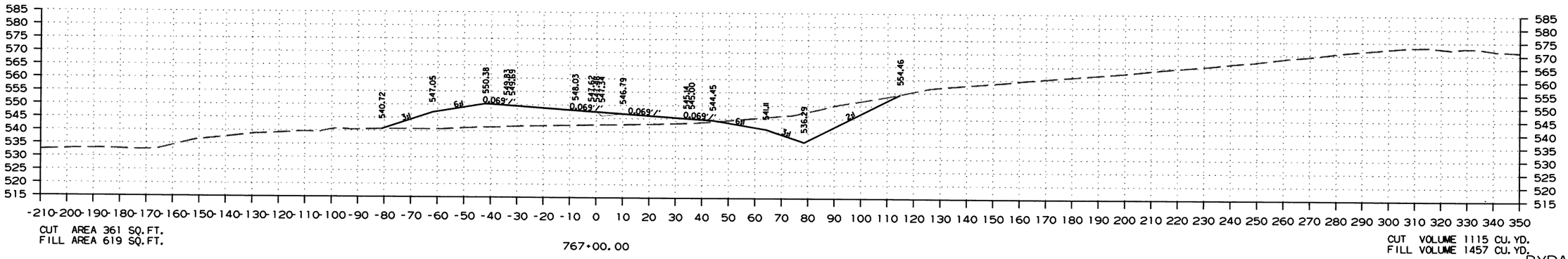
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	406	616

(2) CROSS SECTIONS







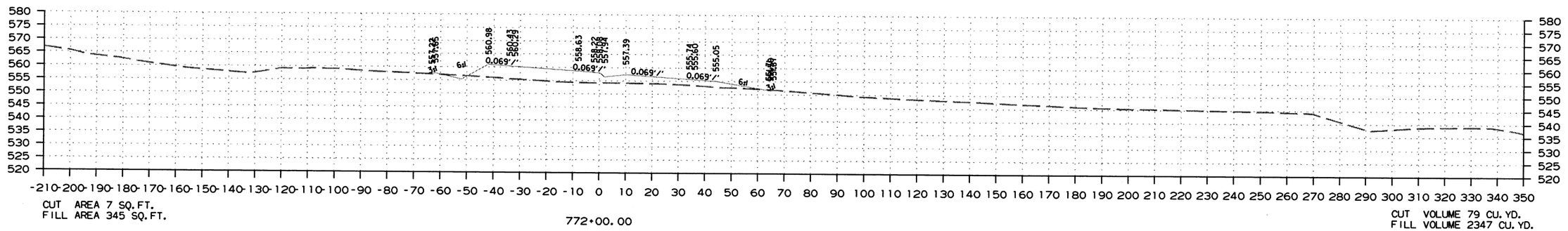
BYPASS
STA. 767+00.00 TO STA. 769+00.00

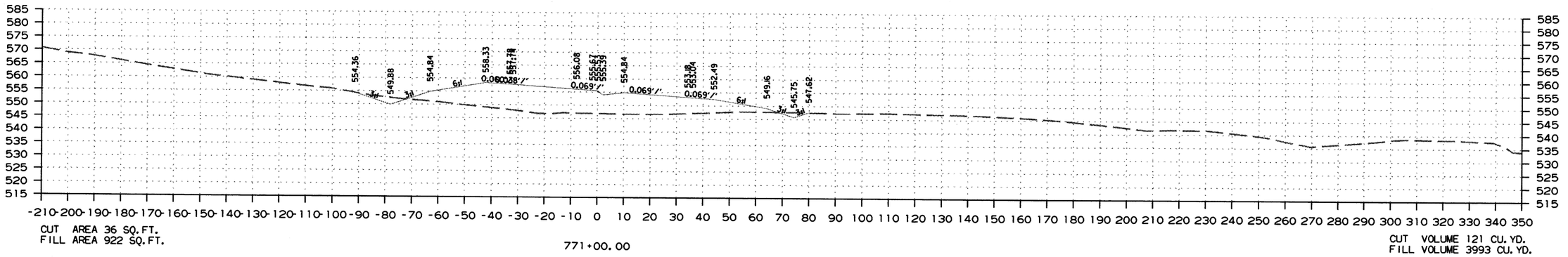
9/5/2019

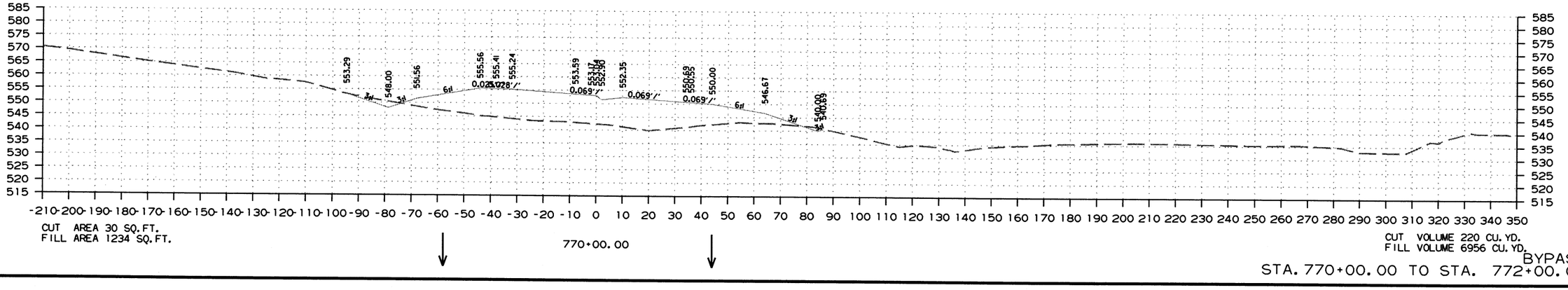
RR60140.DGN

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.		R60140	407	618

(2) CROSS SECTIONS







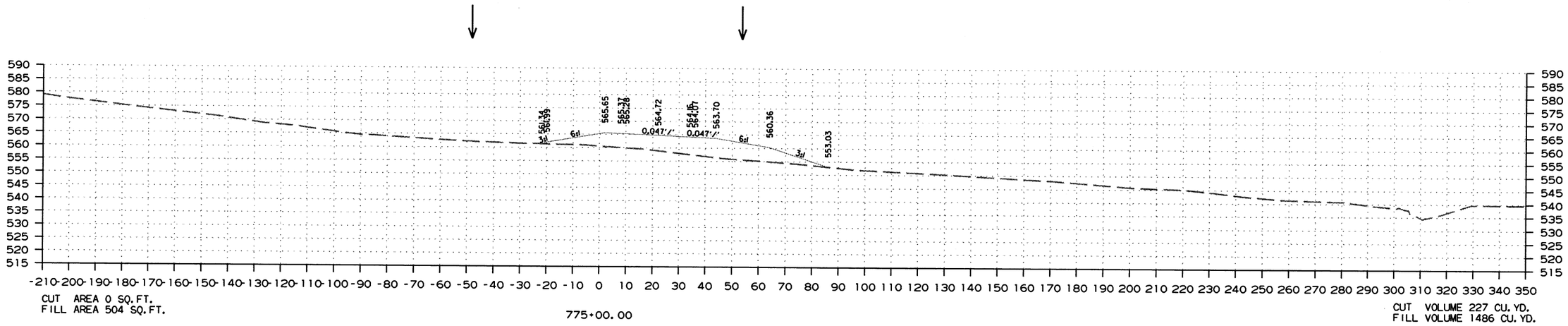
BYPASS
STA. 770+00.00 TO STA. 772+00.00

9/5/2019

RR60140.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.		R60140	408	616

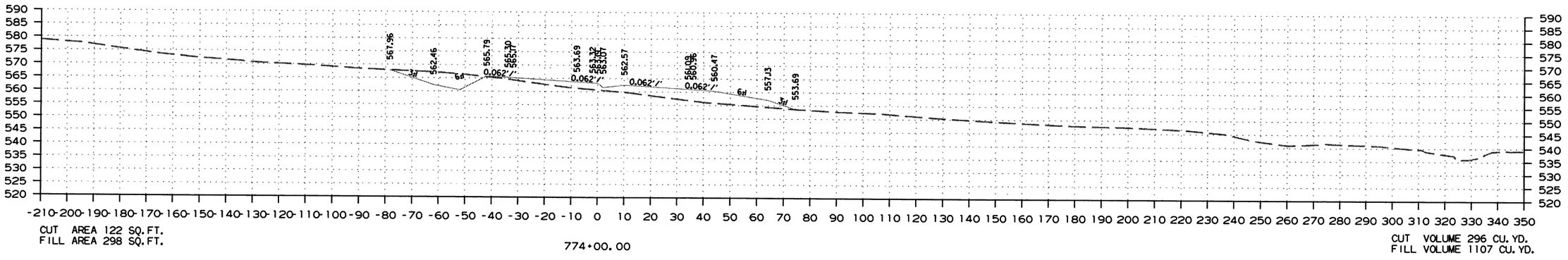
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 504 SQ.FT.

775+00.00

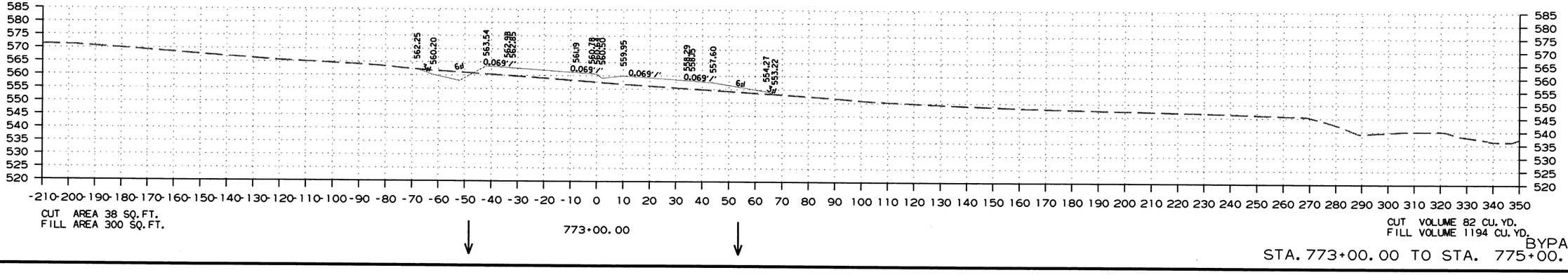
CUT VOLUME 227 CU.YD.
FILL VOLUME 1486 CU.YD.



CUT AREA 122 SQ.FT.
FILL AREA 298 SQ.FT.

774+00.00

CUT VOLUME 296 CU.YD.
FILL VOLUME 1107 CU.YD.



CUT AREA 38 SQ.FT.
FILL AREA 300 SQ.FT.

773+00.00

CUT VOLUME 82 CU.YD.
FILL VOLUME 1194 CU.YD.

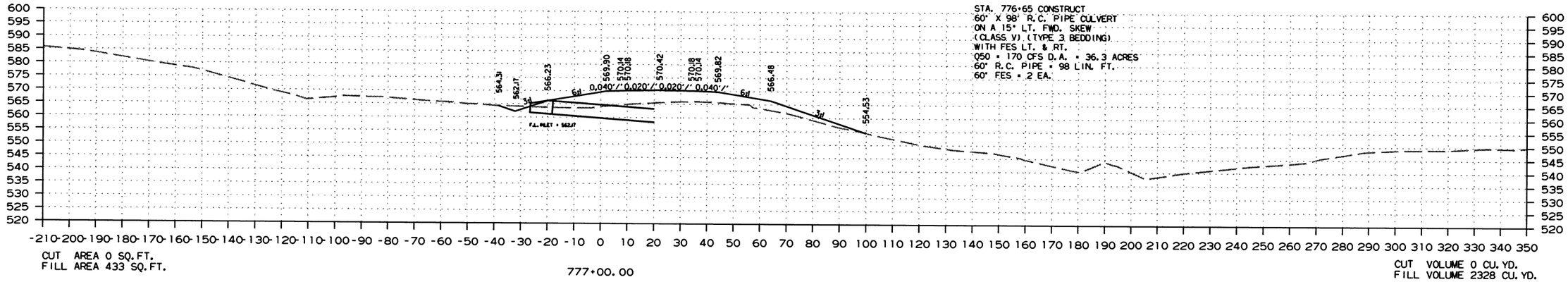
BYPASS
STA. 773+00.00 TO STA. 775+00.00

9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	409	616

(2) CROSS SECTIONS



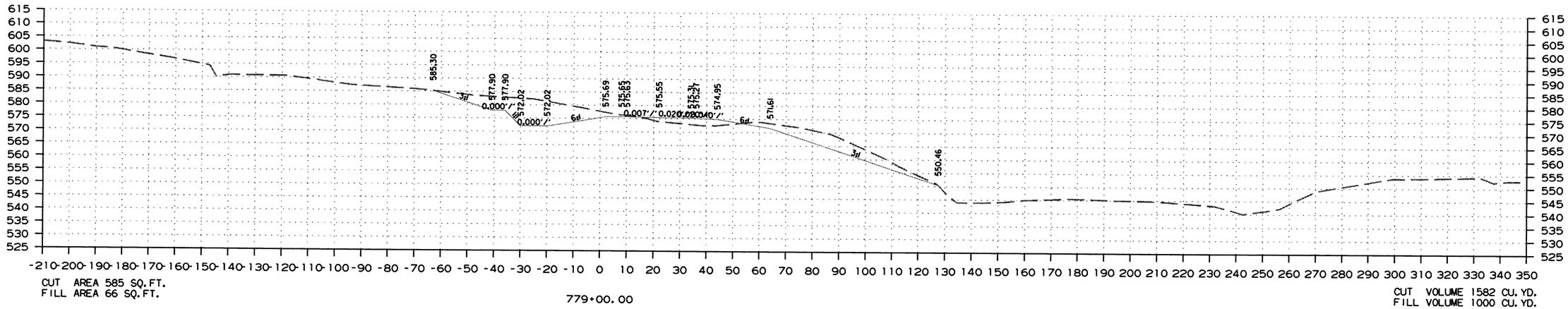
BYPASS
STA. 776+00.00 TO STA. 777+00.00

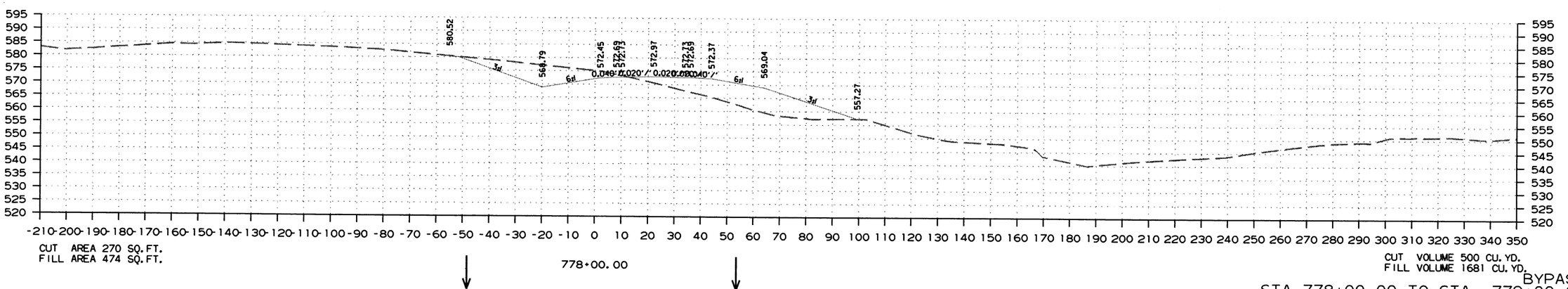
9/5/2019

RR60140.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.		R60140	410	616

(2) CROSS SECTIONS





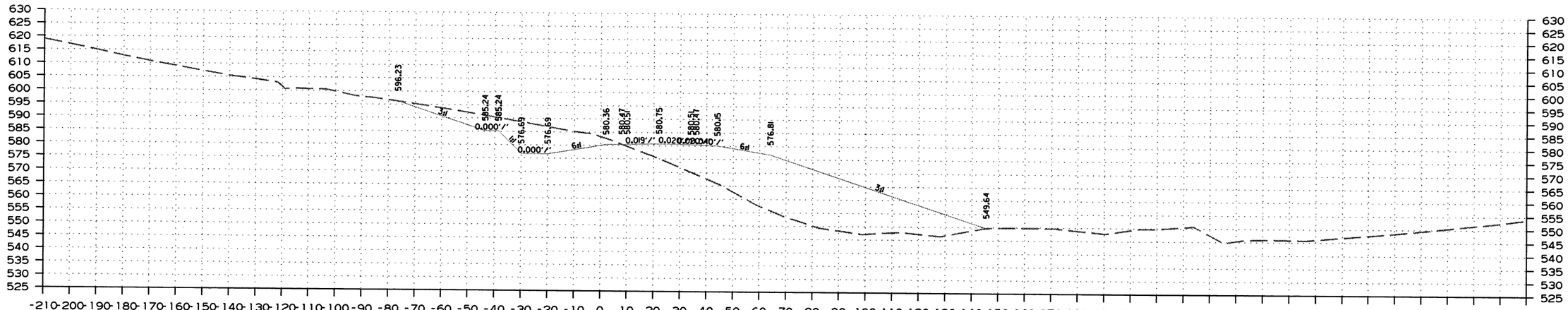
9/5/2019

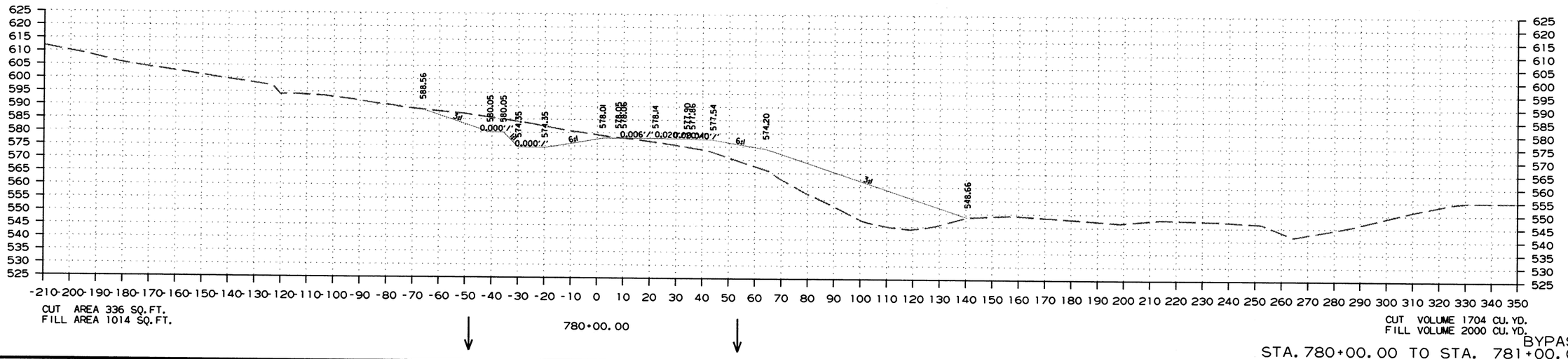
RR60140.DGN

BYPASS
STA. 778+00.00 TO STA. 779+00.00

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.		R60140	411	616

(2) CROSS SECTIONS





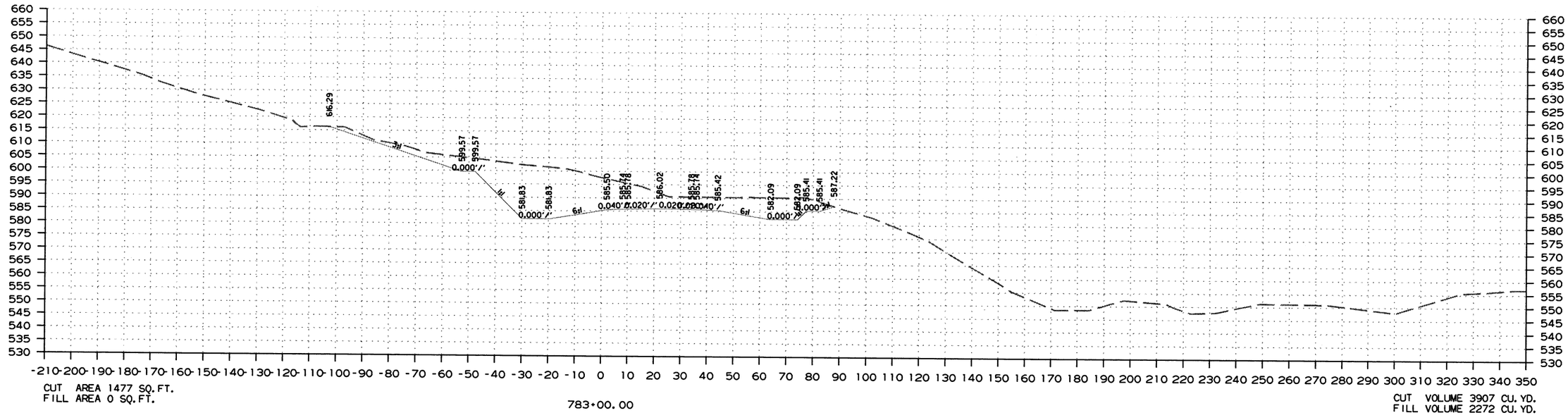
BYPASS
STA. 780+00.00 TO STA. 781+00.00

9/5/2019

RR60140.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.		R60140	412	616

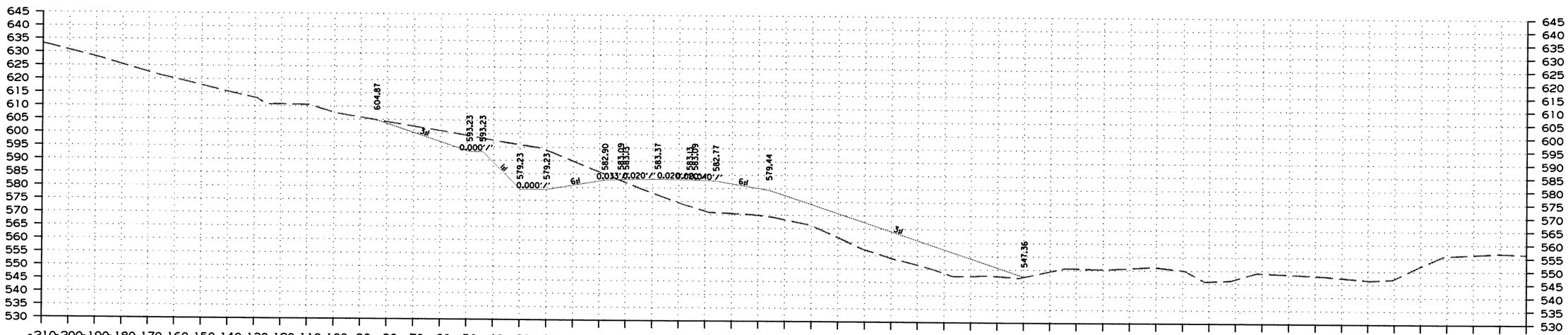
(2) CROSS SECTIONS



CUT AREA 1477 SQ.FT.
FILL AREA 0 SQ.FT.

783+00.00

CUT VOLUME 3907 CU. YD.
FILL VOLUME 2272 CU. YD.



CUT AREA 633 SQ.FT.
FILL AREA 1227 SQ.FT.

782+00.00

CUT VOLUME 2026 CU. YD.
FILL VOLUME 5580 CU. YD.

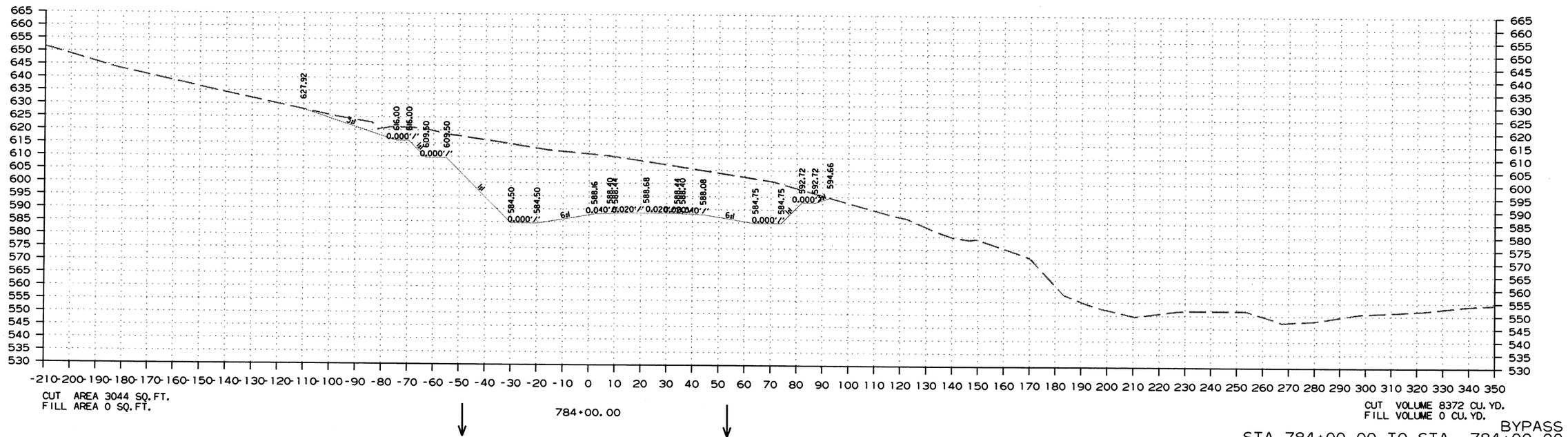
BYPASS
STA. 782+00.00 TO STA. 783+00.00

9/5/2019

RR60140.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.		R60140	413	618

(2) CROSS SECTIONS



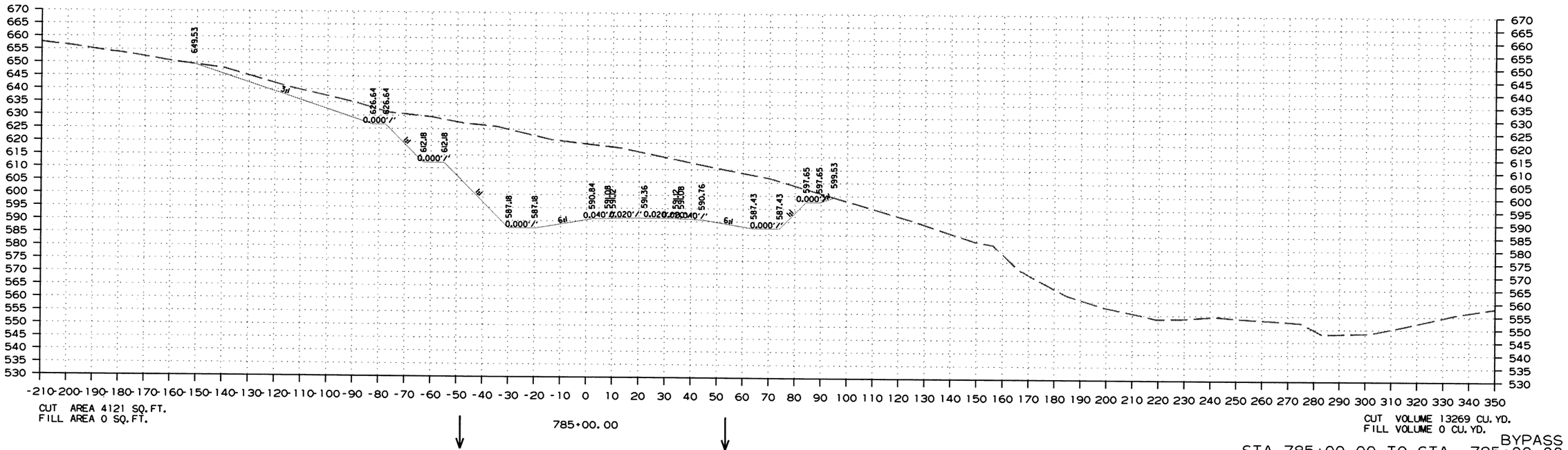
BYPASS
STA. 784+00.00 TO STA. 784+00.00

9/5/2019

RR60140.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.		R60140	414	616

(2) CROSS SECTIONS



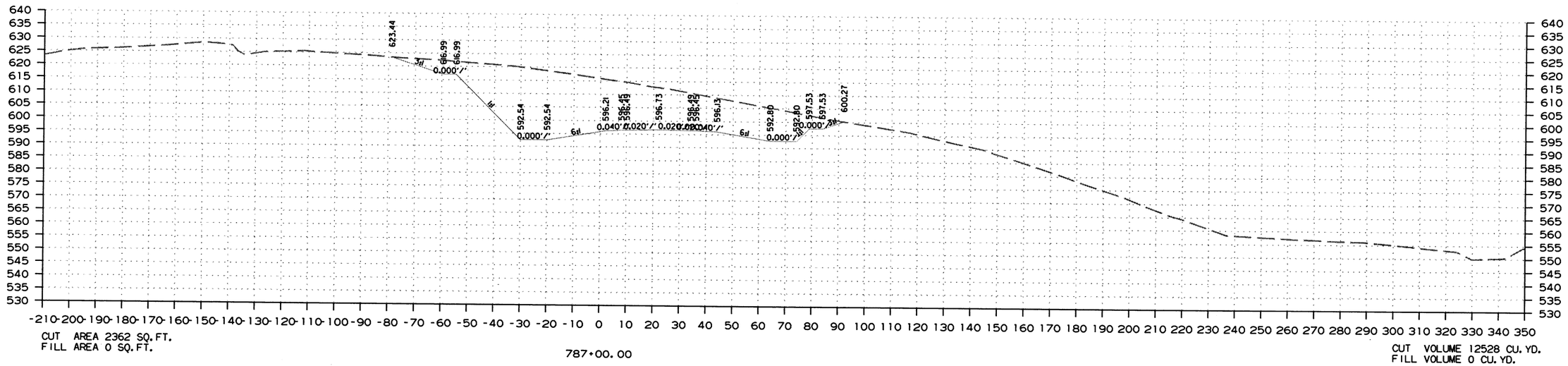
BYPASS
STA. 785+00.00 TO STA. 785+00.00

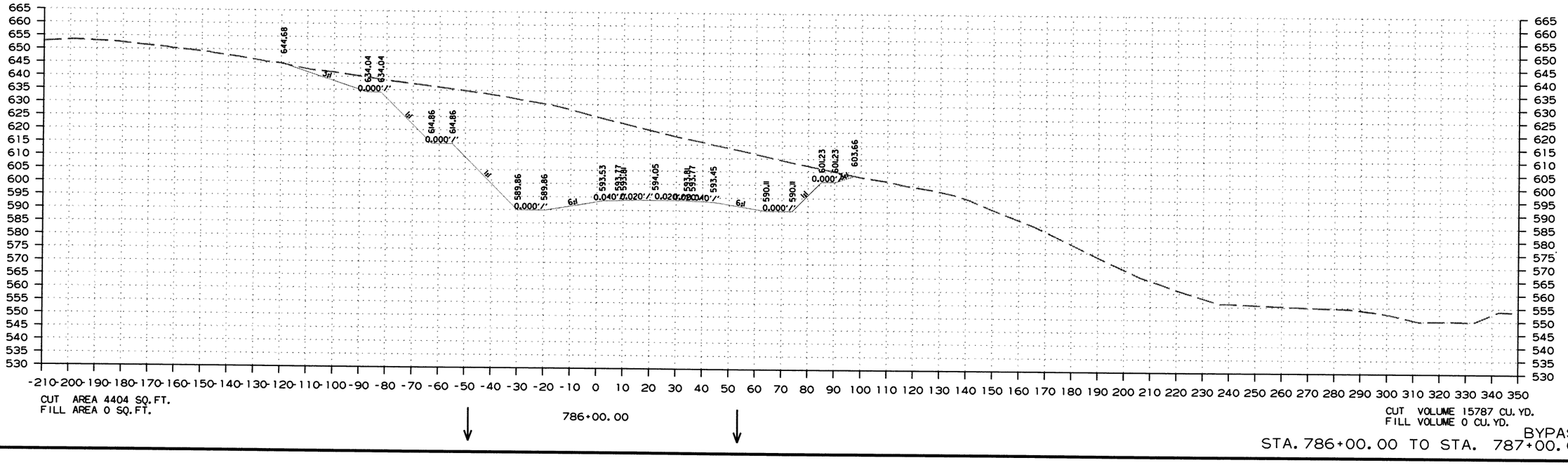
9/5/2019

RR60140.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.		R60140	415	616

(2) CROSS SECTIONS





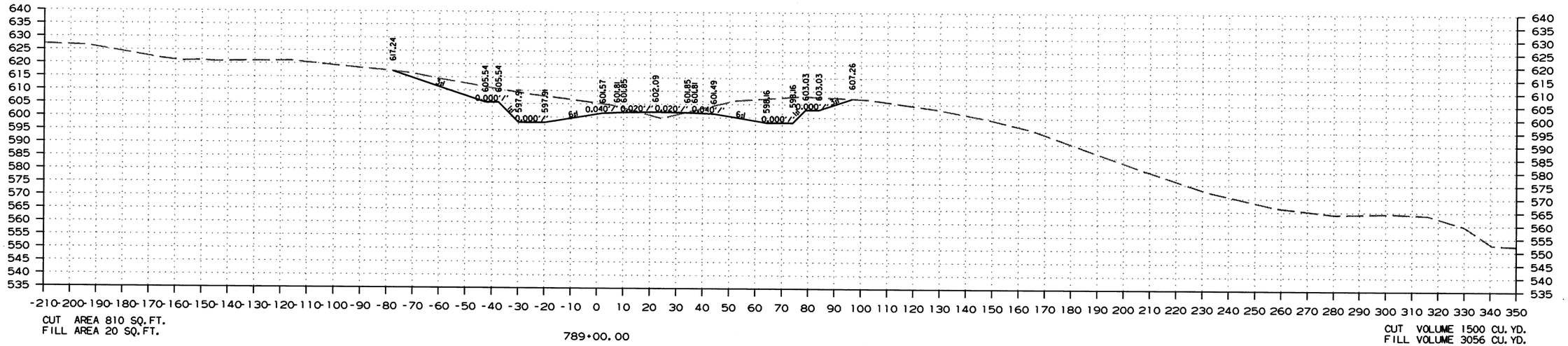
BYPASS
STA. 786+00.00 TO STA. 787+00.00

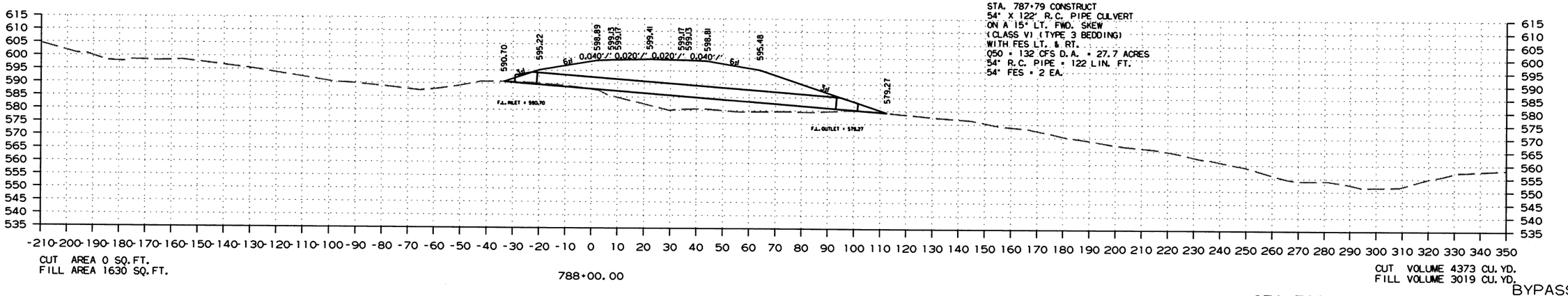
9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	416	616

(2) CROSS SECTIONS





STA. 787+79 CONSTRUCT
54" X 122' R.C. PIPE CULVERT
ON A 15° LT. FWD. SKEW
(CLASS VI (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 132 CFS D.A. = 27.7 ACRES
54" R.C. PIPE = 122 LIN. FT.
54" FES = 2 EA.

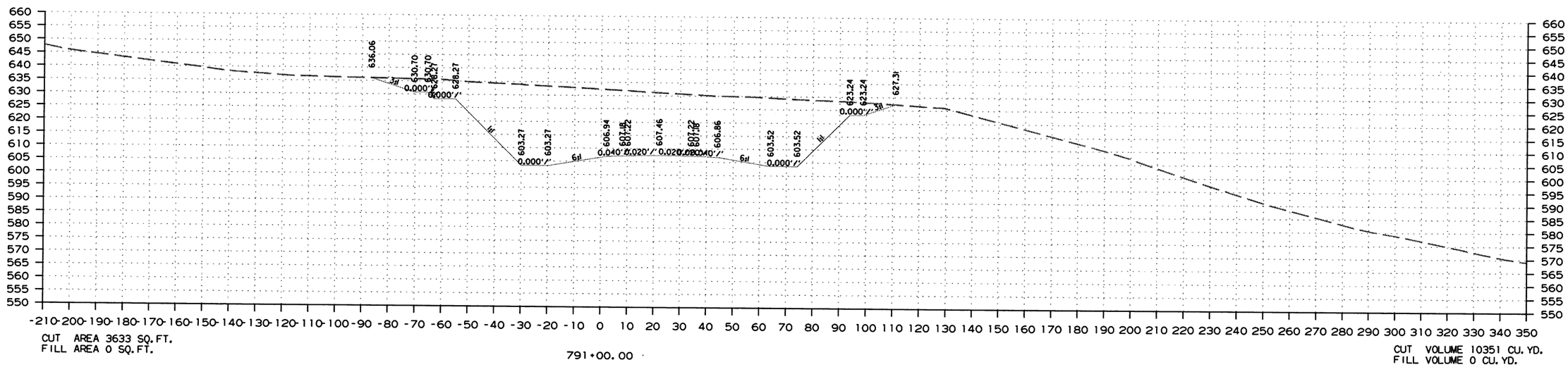
BYPASS
STA. 788+00.00 TO STA. 789+00.00

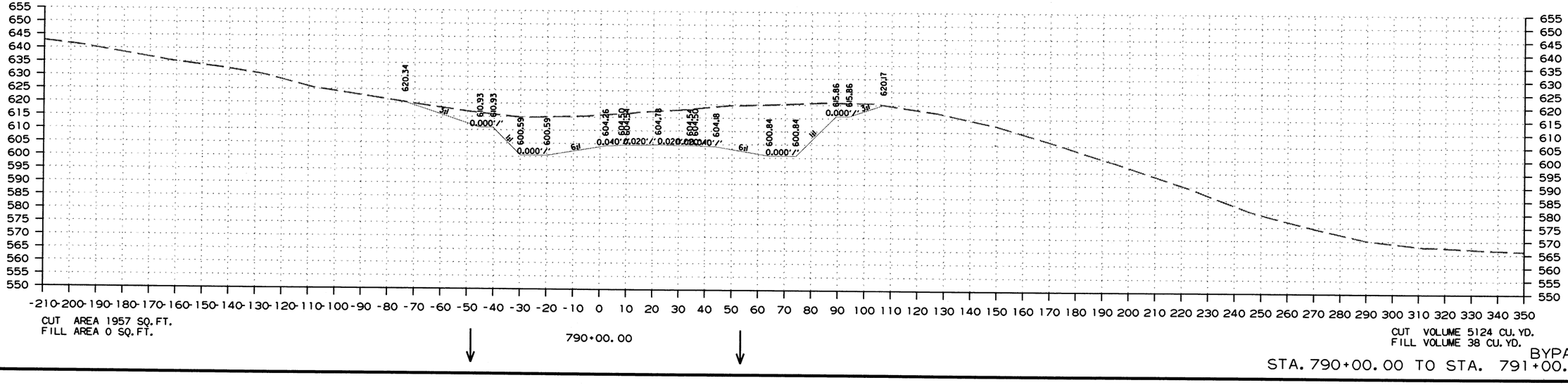
9/5/2019

RR60140.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.		R60140	417	616

(2) CROSS SECTIONS





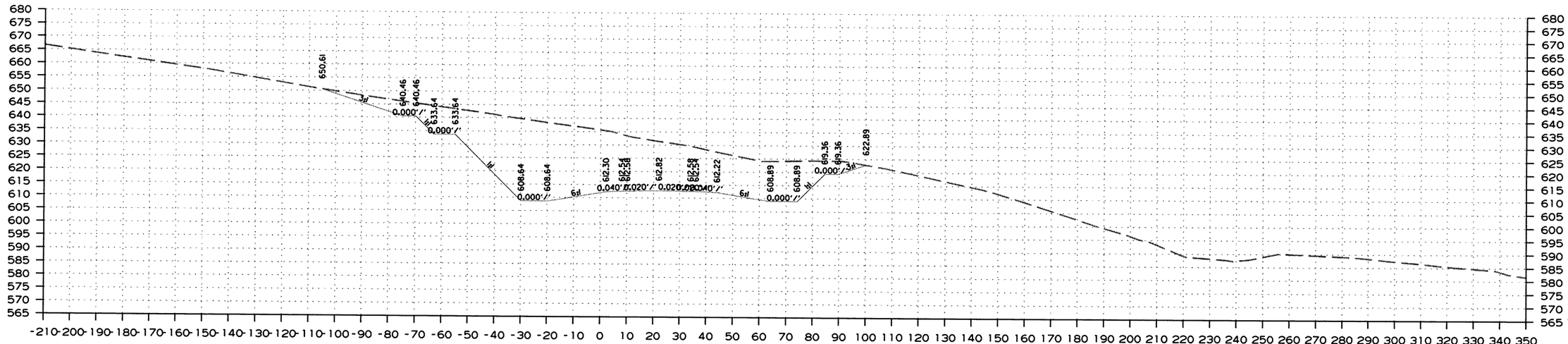
9/5/2019

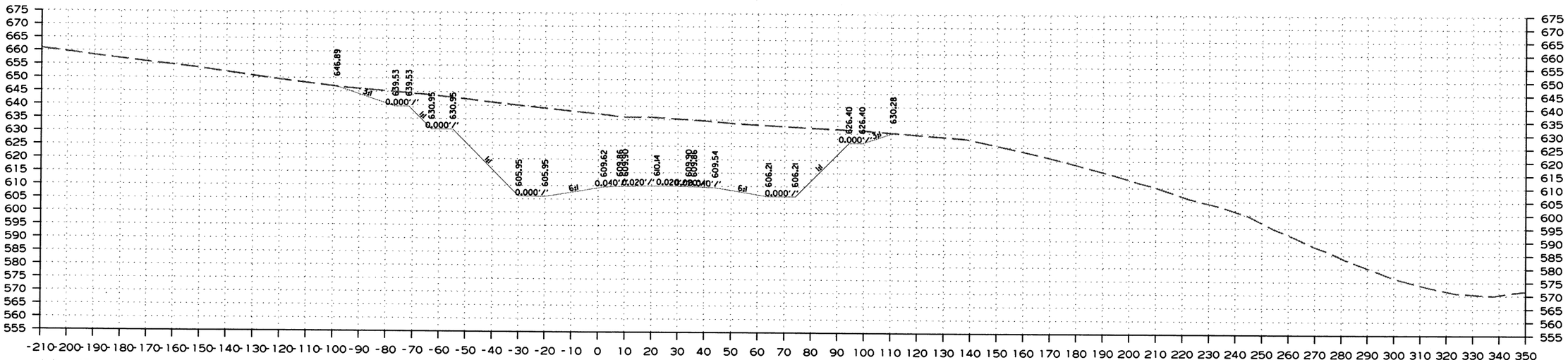
RR60140.DGN

BYPASS
STA. 790+00.00 TO STA. 791+00.00

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.		R60140	418	616

(2) CROSS SECTIONS





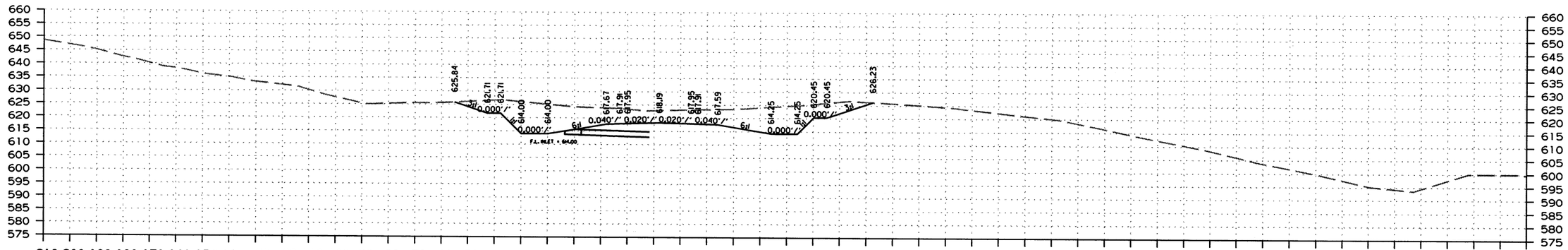
9/5/2019

RR60140.DGN

BYPASS
STA. 792+00.00 TO STA. 793+00.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	419	616

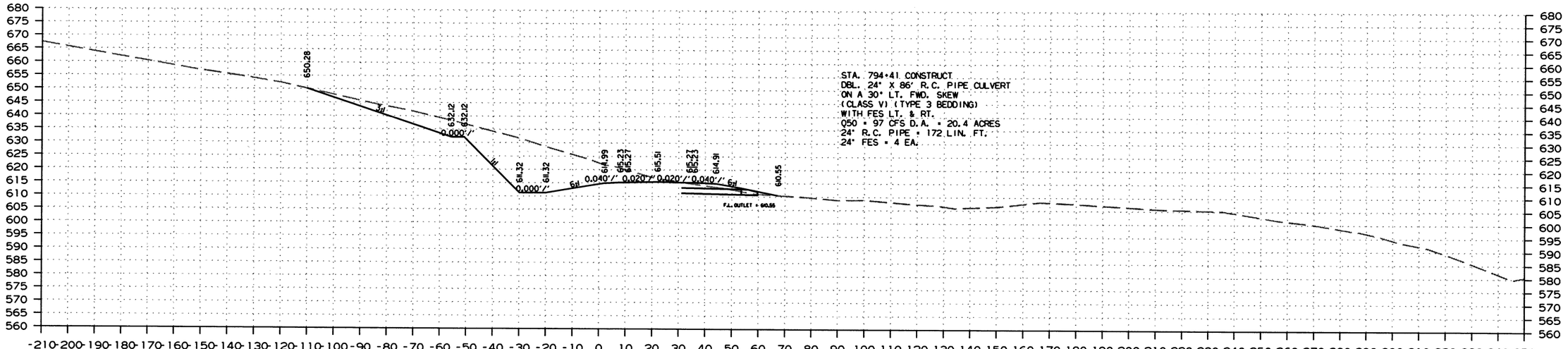
(2) CROSS SECTIONS



CUT AREA 1032 SQ.FT.
FILL AREA 0 SQ.FT.

795+00.00

CUT VOLUME 3784 CU.YD.
FILL VOLUME 60 CU.YD.



STA. 794+41 CONSTRUCT
DBL. 24" X 86' R.C. PIPE CULVERT
ON A 30° LT. FWD. SKEW
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 97 CFS D.A. = 20.4 ACRES
24" R.C. PIPE = 172 LIN. FT.
24" FES = 4 EA.

CUT AREA 1011 SQ.FT.
FILL AREA 33 SQ.FT.

794+00.00

CUT VOLUME 7517 CU.YD.
FILL VOLUME 60 CU.YD.

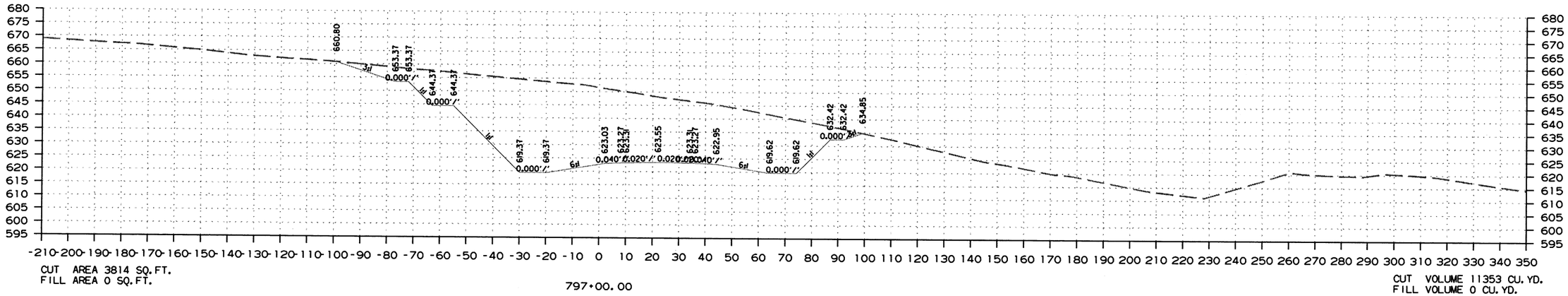
BYPASS
STA. 794+00.00 TO STA. 795+00.00

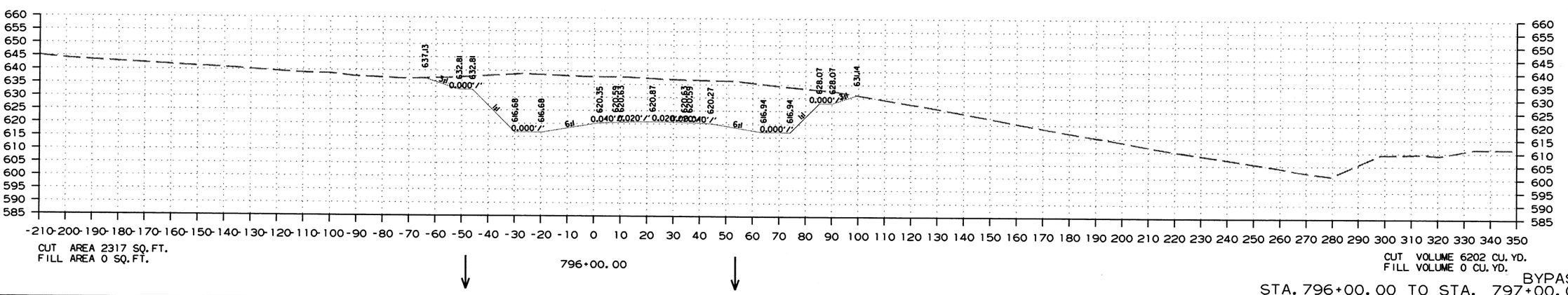
9/5/2019

RR60140.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.		R60140	420	616

(2) CROSS SECTIONS





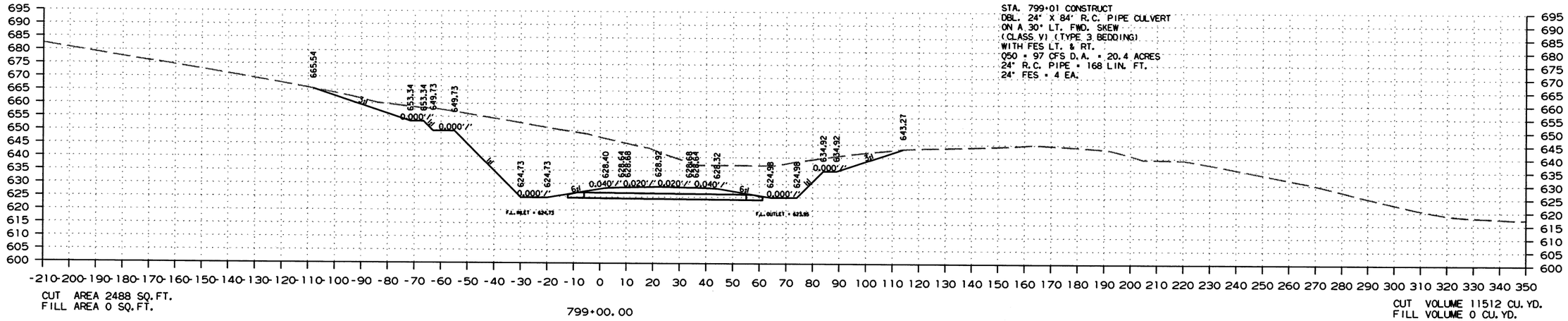
BYPASS
STA. 796+00.00 TO STA. 797+00.00

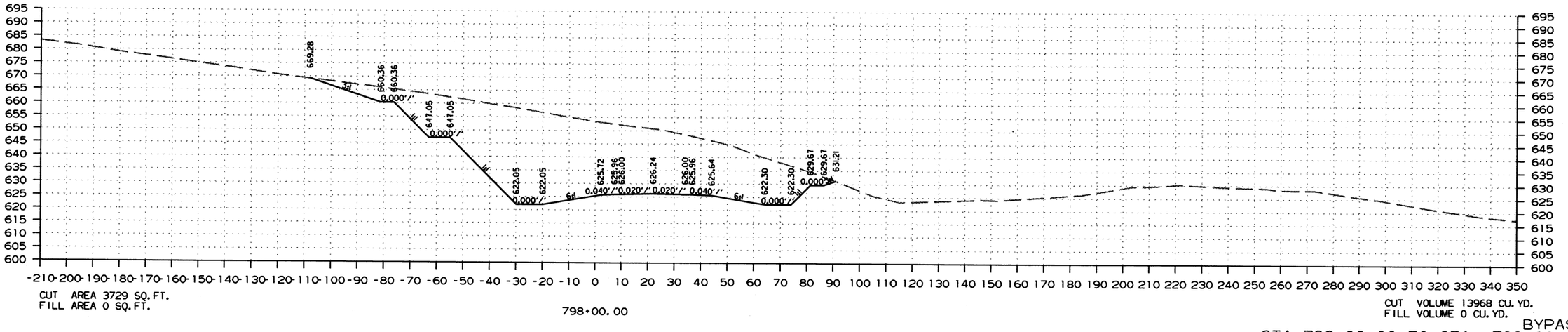
9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	421	616

(2) CROSS SECTIONS





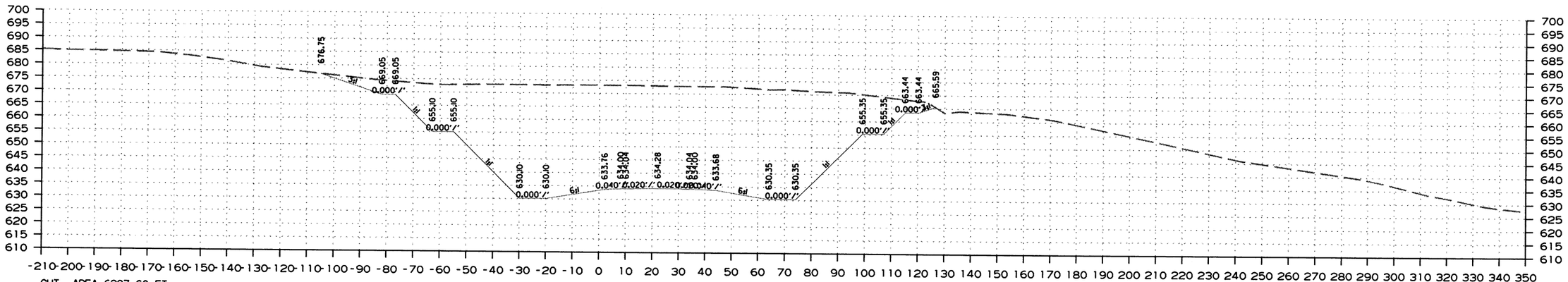
BYPASS
STA. 798+00.00 TO STA. 799+00.00

9/5/2019

RR60140.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.		R60140	422	616

(2) CROSS SECTIONS



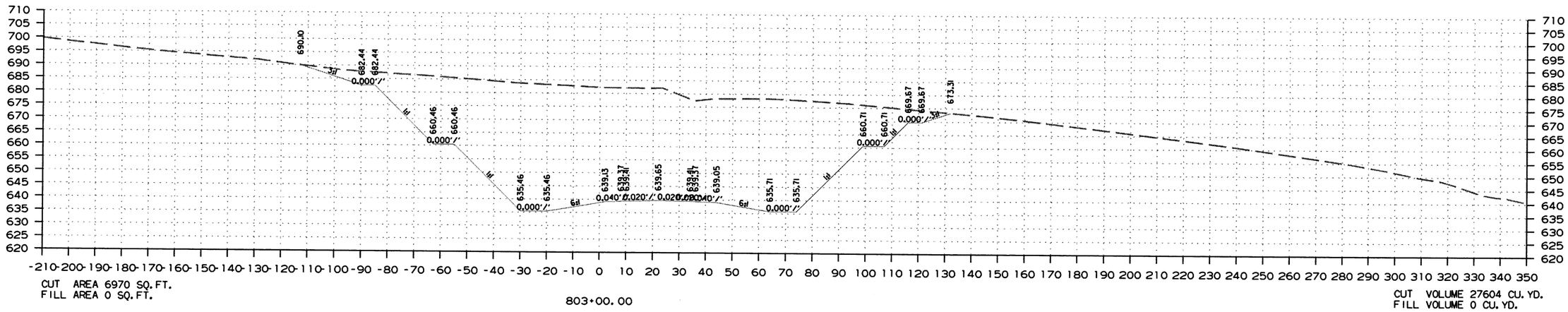
9/5/2019

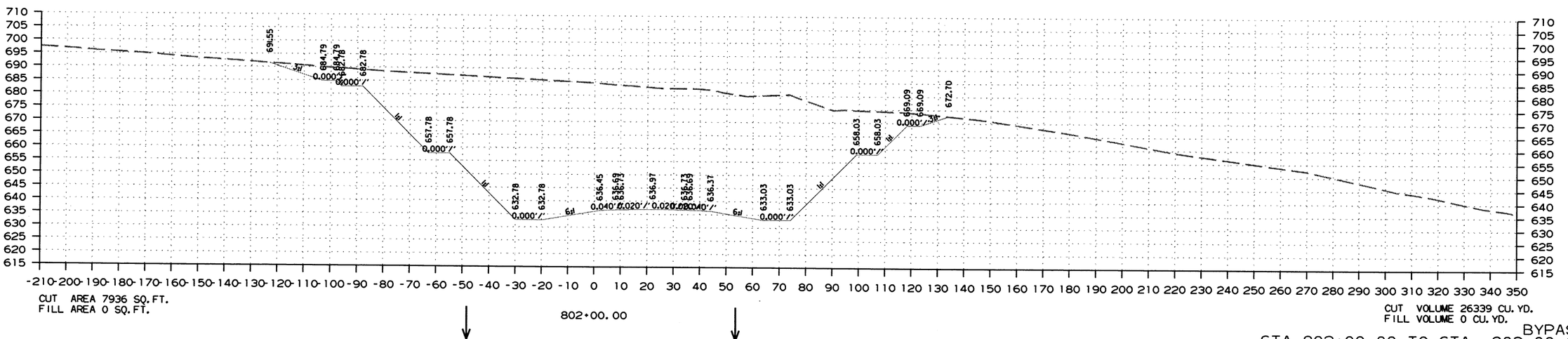
RR60140.DGN

BYPASS
STA. 800+00.00 TO STA. 801+00.00

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.		R60140	423	616

(2) CROSS SECTIONS





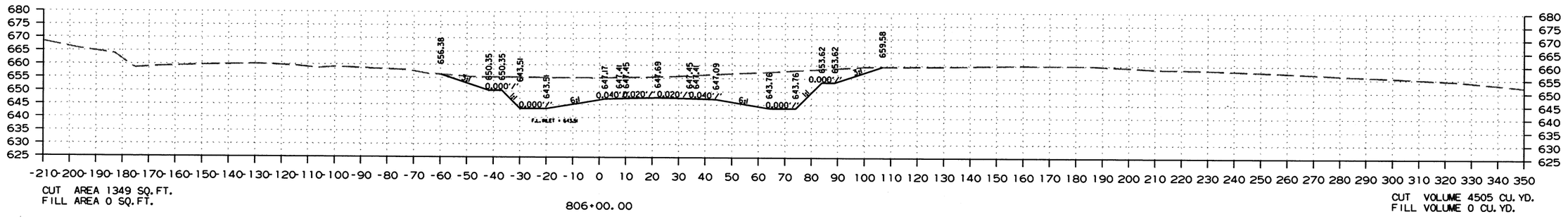
BYPASS
STA. 802+00.00 TO STA. 803+00.00

9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	424	616

(2) CROSS SECTIONS



CUT AREA 1349 SQ.FT.
FILL AREA 0 SQ.FT.

806+00.00

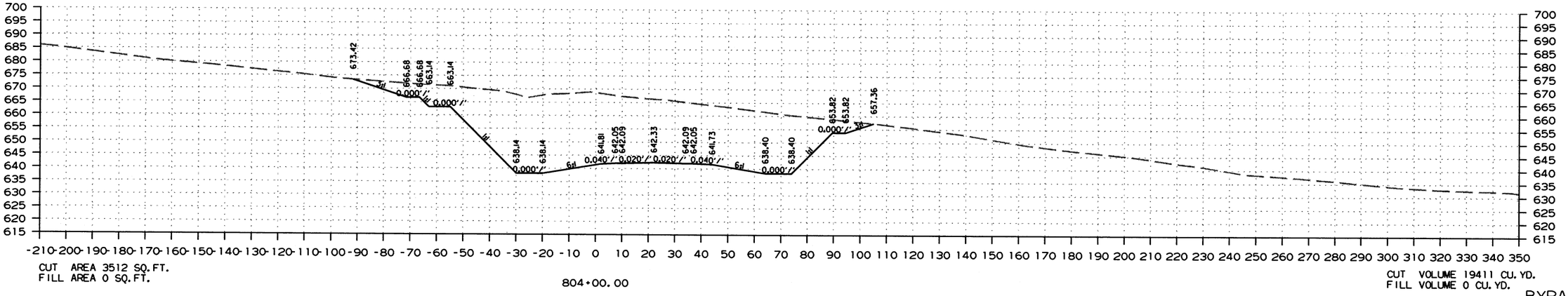
CUT VOLUME 4505 CU.YD.
FILL VOLUME 0 CU.YD.

STA. 805+27 CONSTRUCT
30" X 82' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 51.40 CFS D.A. = 13.66 ACRES
30" R.C. PIPE = 82 LIN. FT.
30" FES = 2 EA.

CUT AREA 1084 SQ.FT.
FILL AREA 0 SQ.FT.

805+00.00

CUT VOLUME 8511 CU.YD.
FILL VOLUME 0 CU.YD.



CUT AREA 3512 SQ.FT.
FILL AREA 0 SQ.FT.

804+00.00

CUT VOLUME 19411 CU.YD.
FILL VOLUME 0 CU.YD.

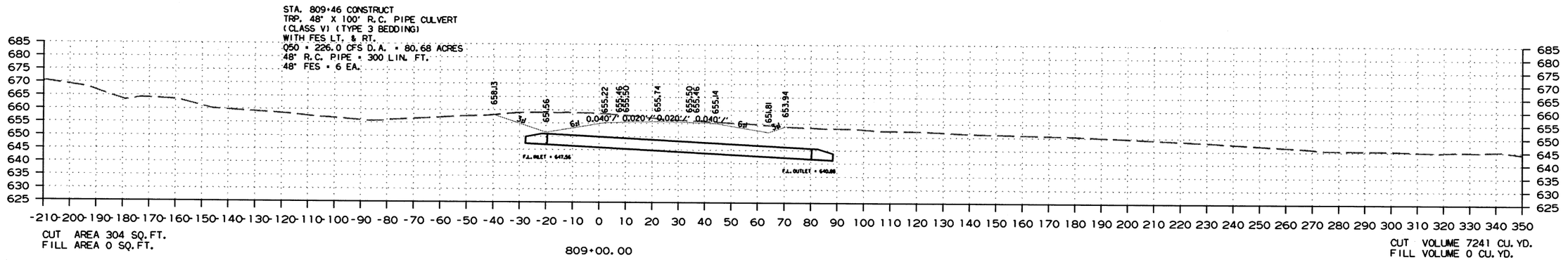
BYPASS
STA. 804+00.00 TO STA. 806+00.00

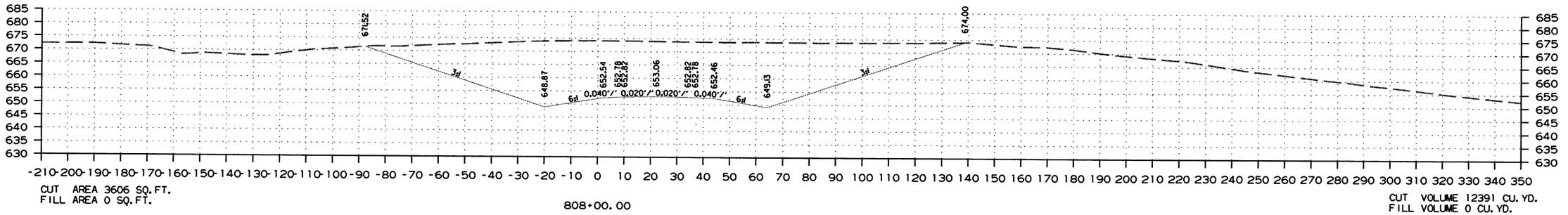
9/5/2019

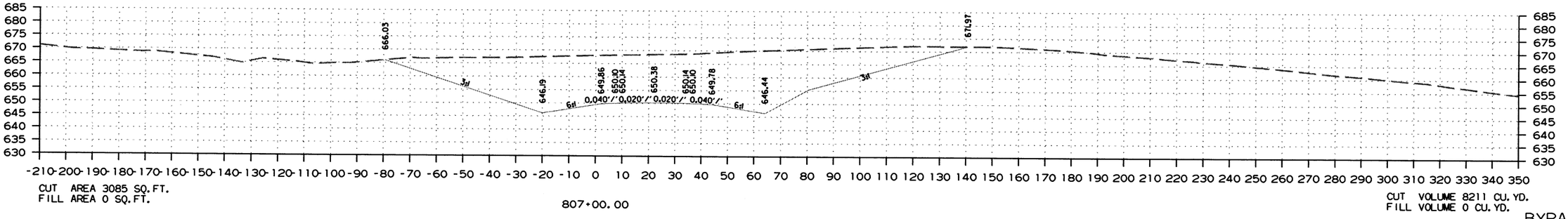
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	425	616

(2) CROSS SECTIONS







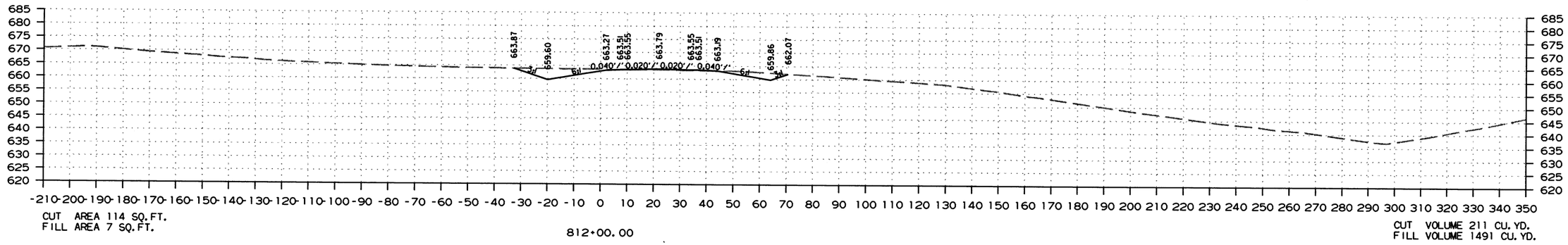
BYPASS
STA. 807+00.00 TO STA. 809+00.00

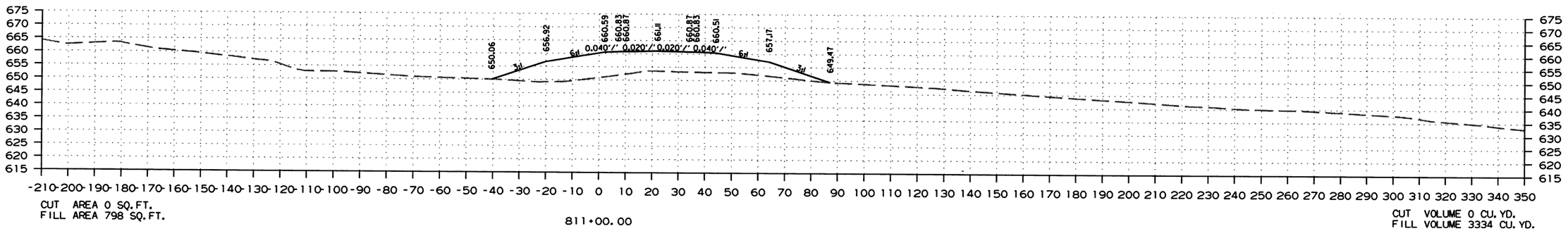
9/5/2019

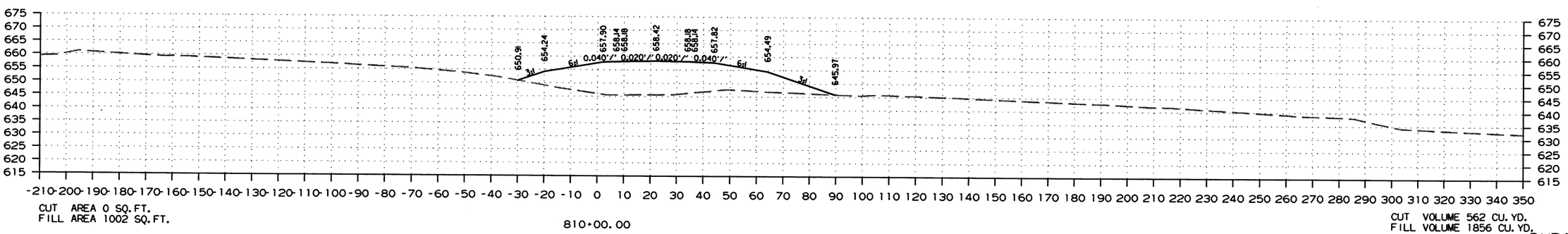
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	426	616

(2) CROSS SECTIONS







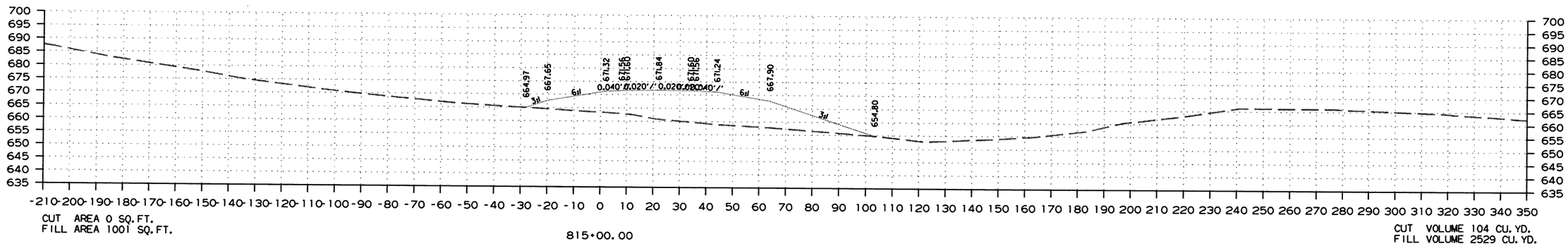
BYPASS
STA. 810+00.00 TO STA. 812+00.00

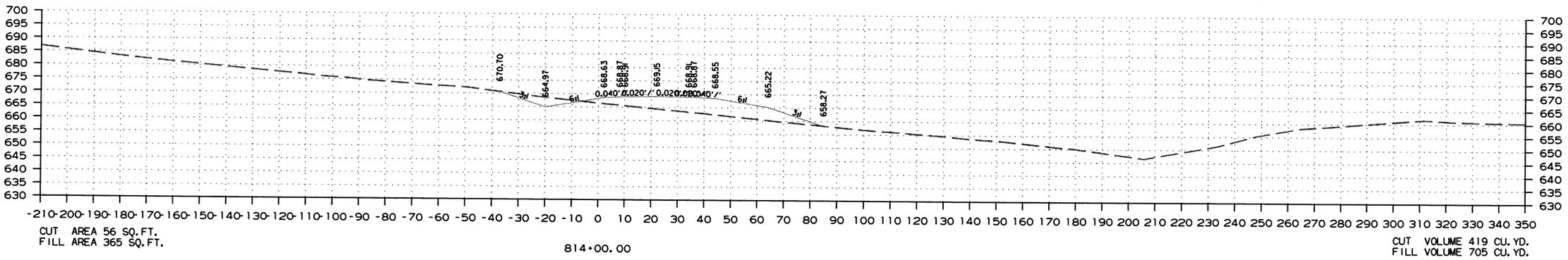
9/5/2019

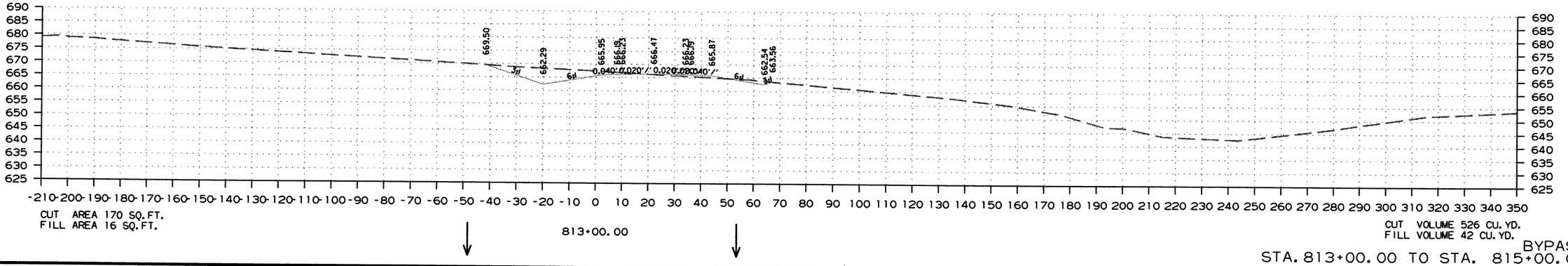
RR60140.DGN

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.		R60140	427	616

(2) CROSS SECTIONS







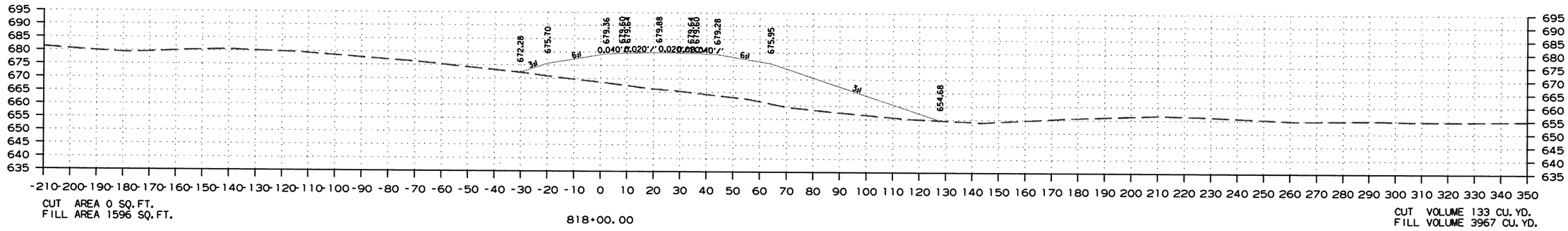
9/5/2019

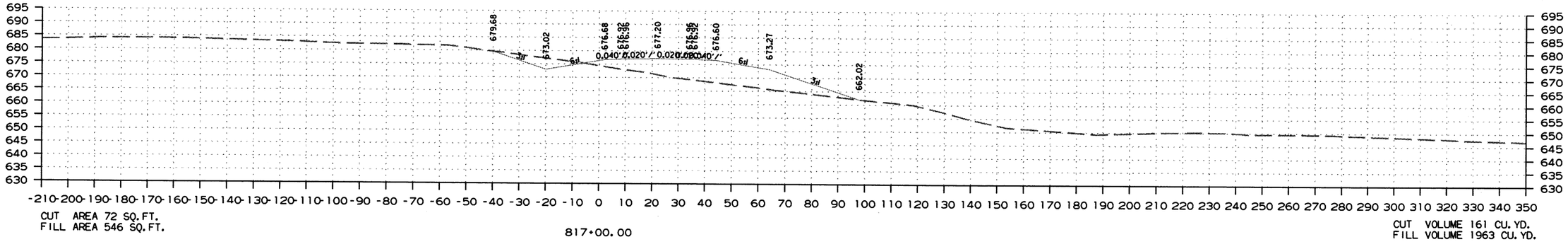
RR60140.DGN

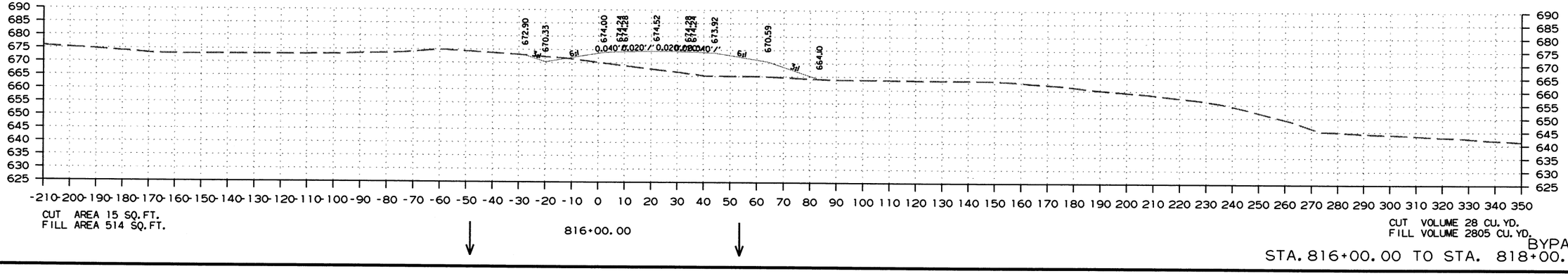
BYPASS
STA. 813+00.00 TO STA. 815+00.00

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.		R60140	428	616

(2) CROSS SECTIONS







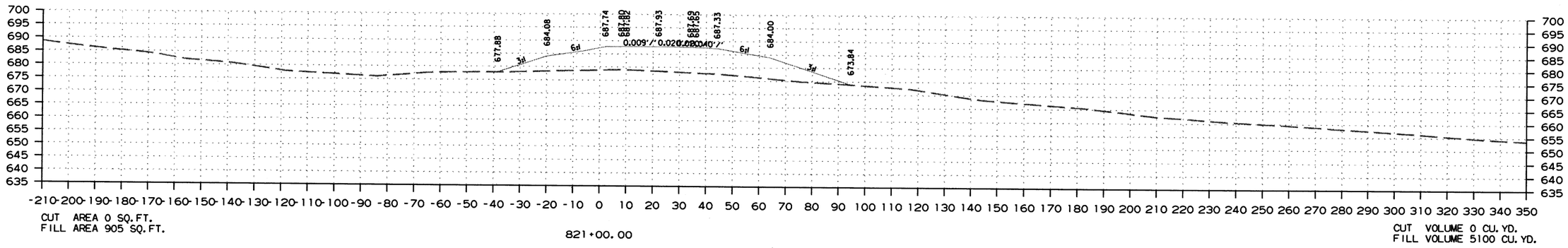
BYPASS
STA. 816+00.00 TO STA. 818+00.00

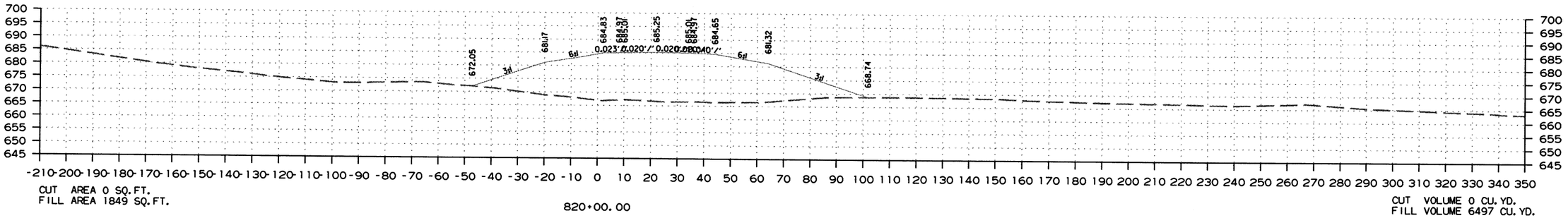
9/5/2019

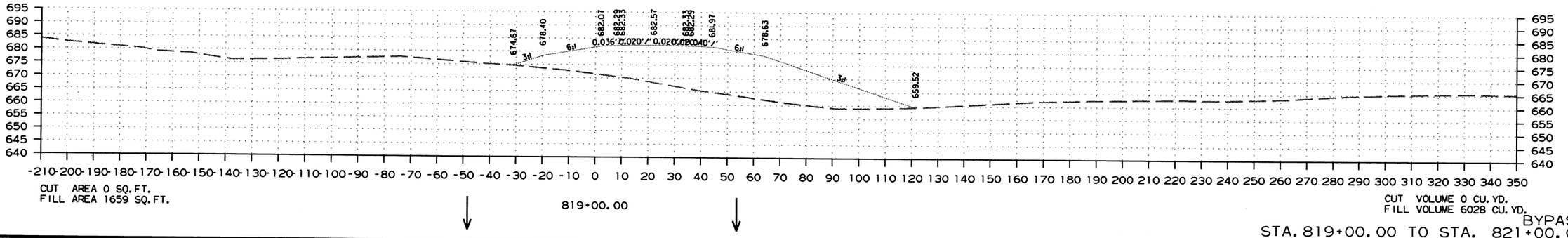
RR60140.DGN

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.		R60140	479	616

(2) CROSS SECTIONS







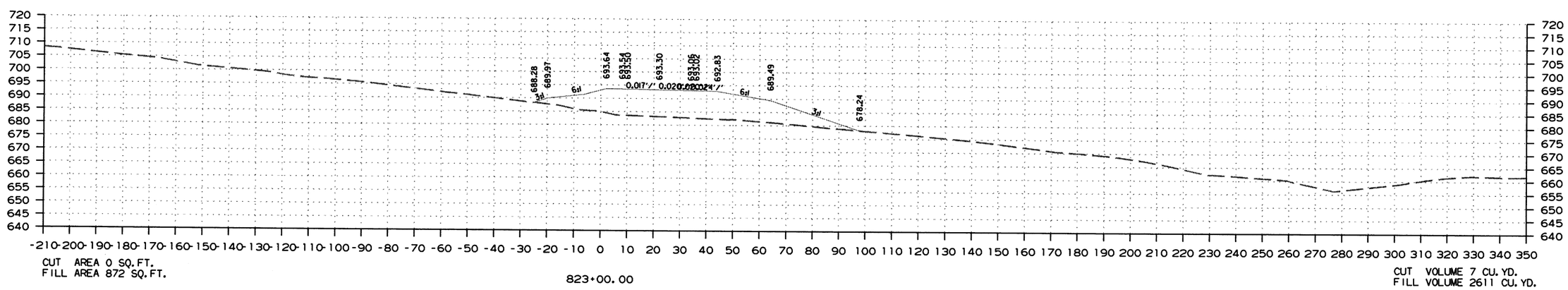
BYPASS
STA. 819+00.00 TO STA. 821+00.00

9/5/2019

RR60140.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.		R60140	430	616

(2) CROSS SECTIONS



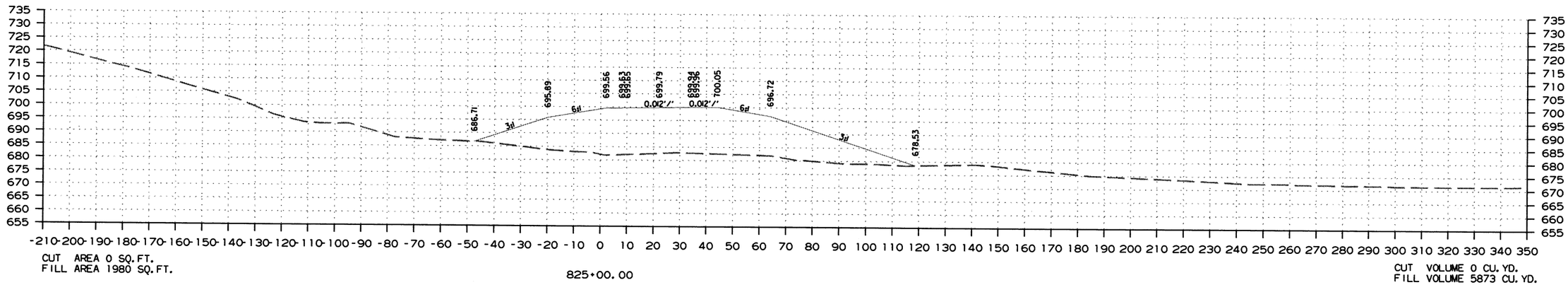
BYPASS
STA. 822+00.00 TO STA. 823+00.00

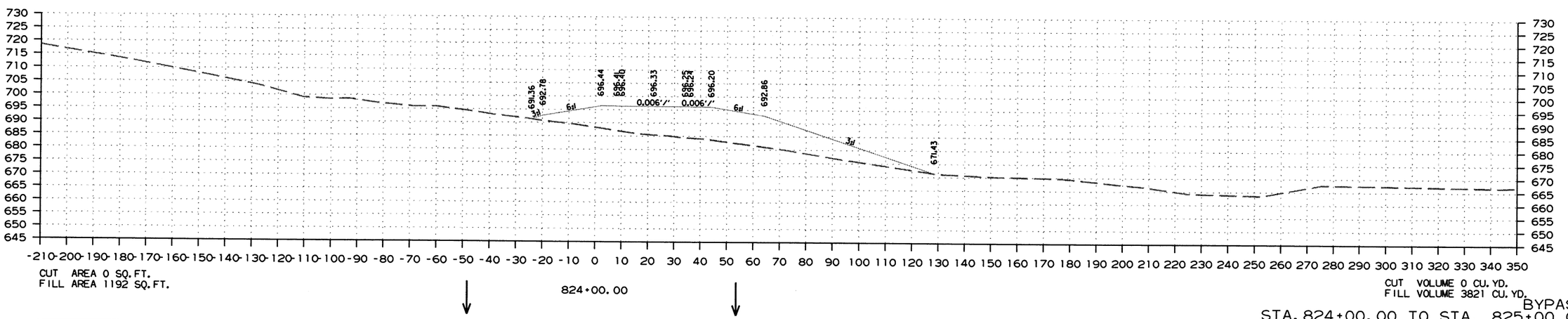
9/5/2019

RR60140.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.		R60140	431	616

(2) CROSS SECTIONS





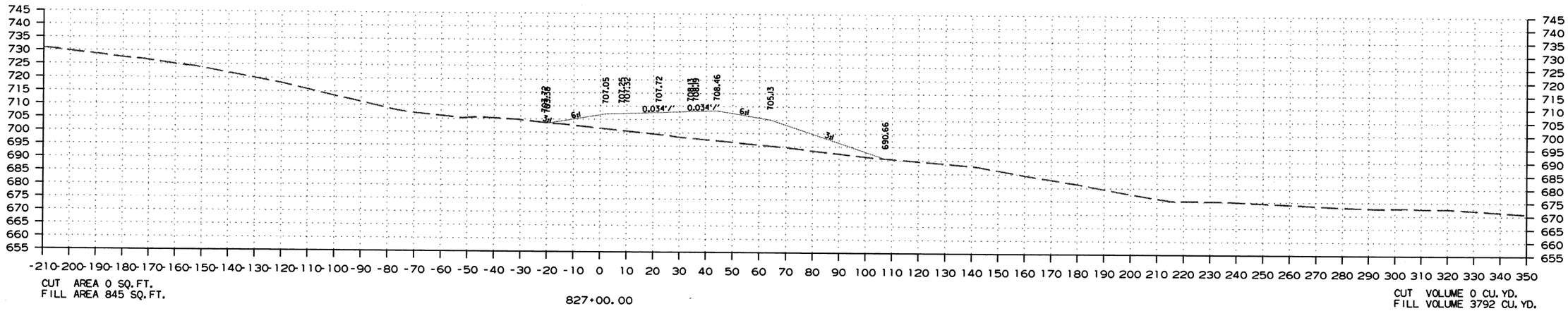
BYPASS
STA. 824+00.00 TO STA. 825+00.00

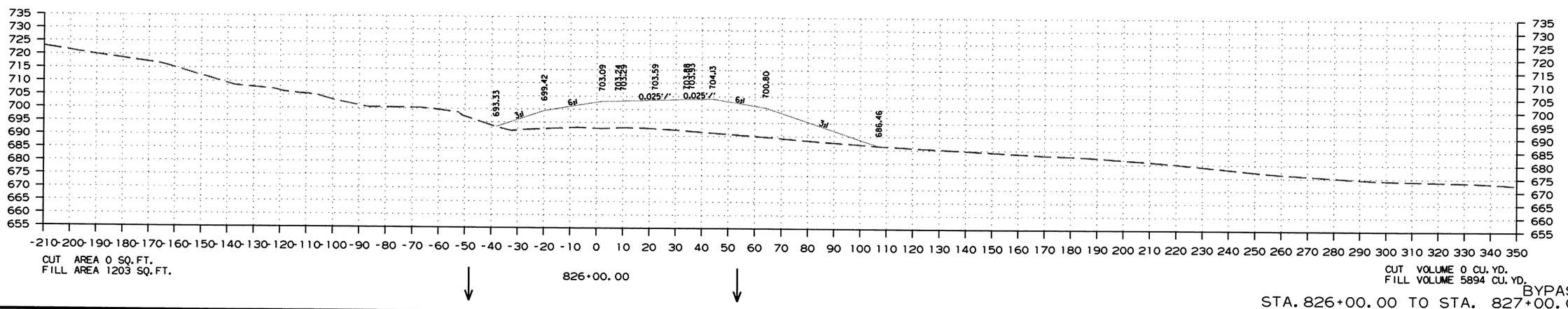
9/5/2019

RR60140.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.		R60140	432	616

(2) CROSS SECTIONS





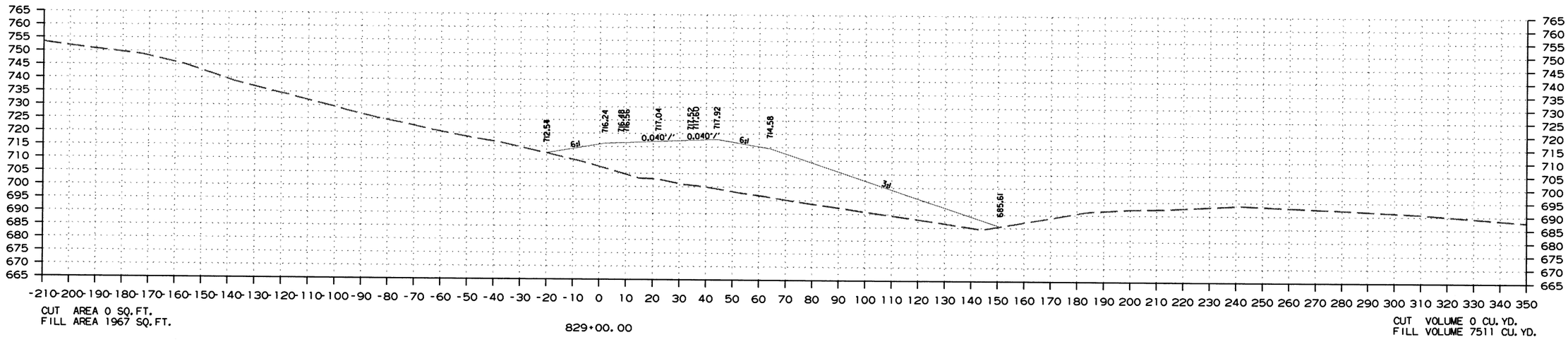
9/5/2019

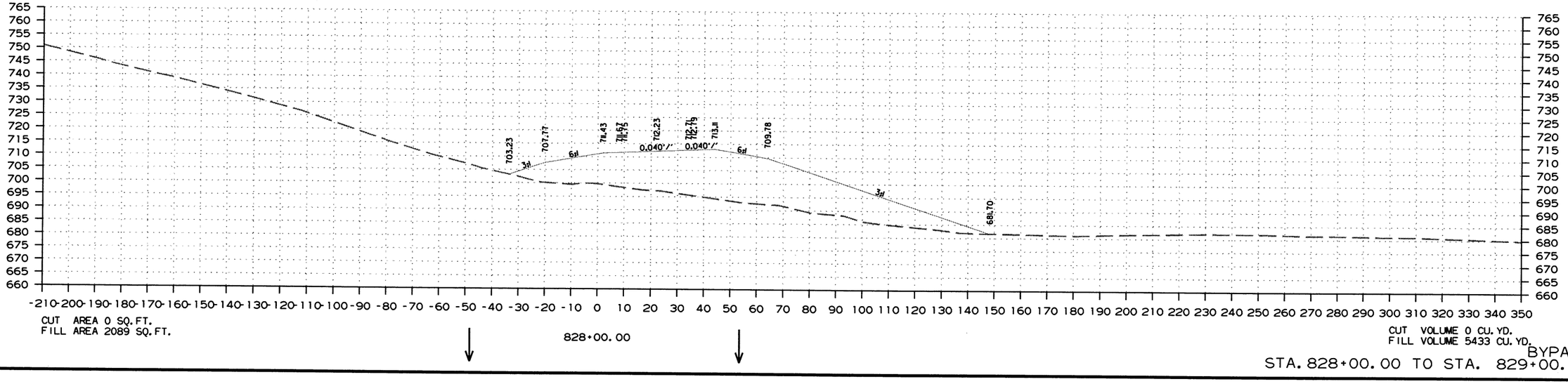
RR60140.DGN

BYPASS
STA. 826+00.00 TO STA. 827+00.00

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.		R60140	433	616

(2) CROSS SECTIONS





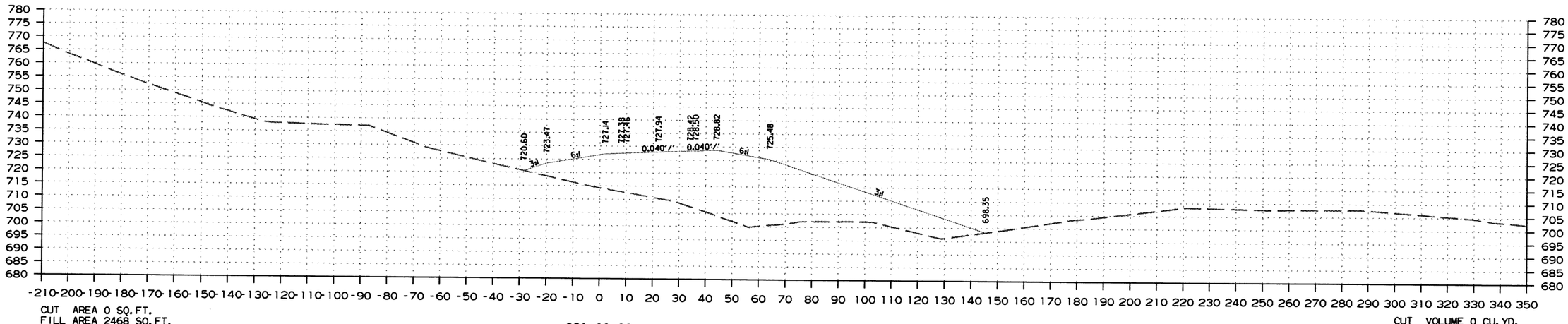
BYPASS
STA. 828+00.00 TO STA. 829+00.00

9/5/2019

RR60140.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.		R60140	434	616

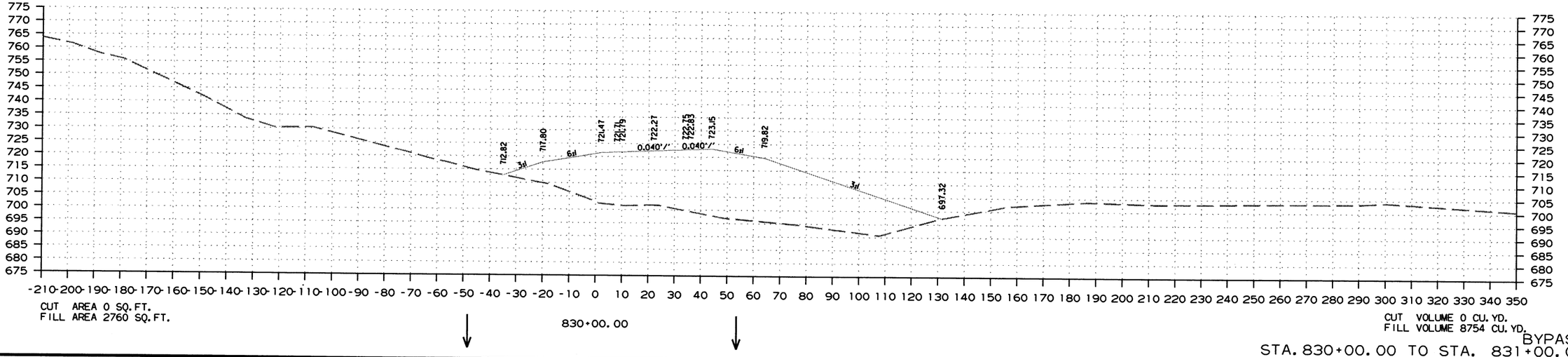
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 2468 SQ.FT.

831+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 9682 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 2760 SQ.FT.

830+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 8754 CU.YD.

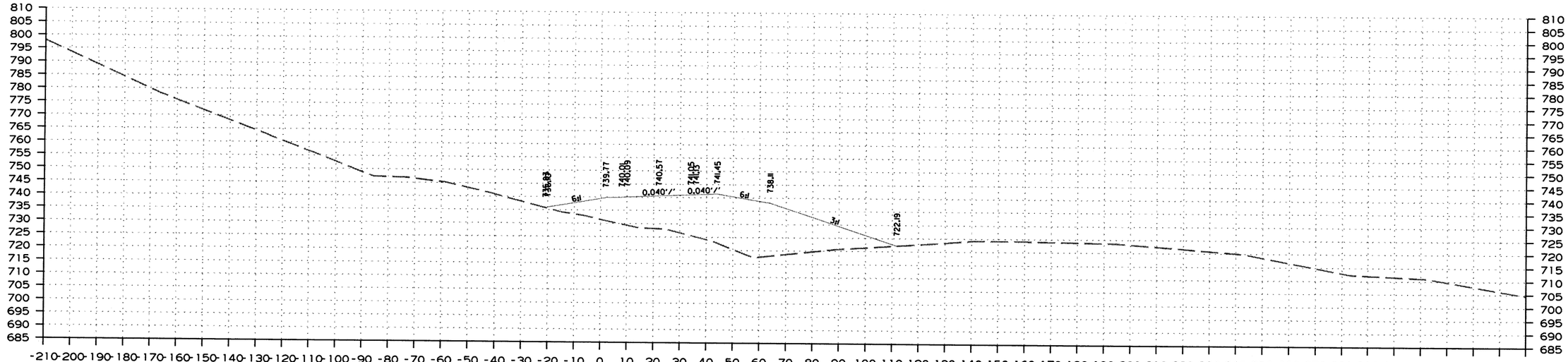
BYPASS
STA. 830+00.00 TO STA. 831+00.00

9/5/2019

RR60140.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.		R60140	435	616

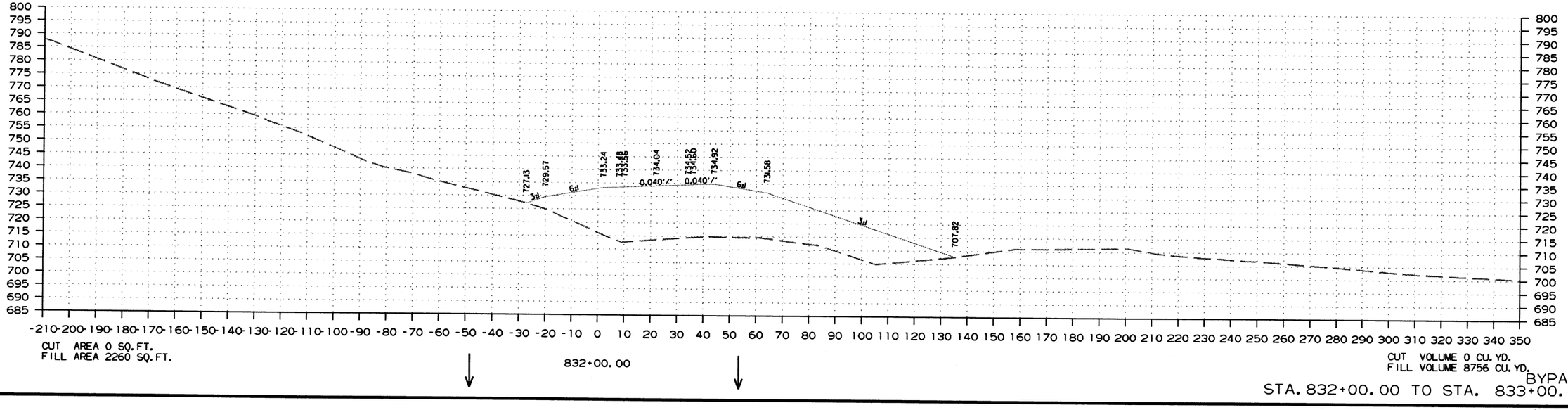
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 1531 SQ.FT.

833+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 7020 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 2260 SQ.FT.

832+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 8756 CU.YD.

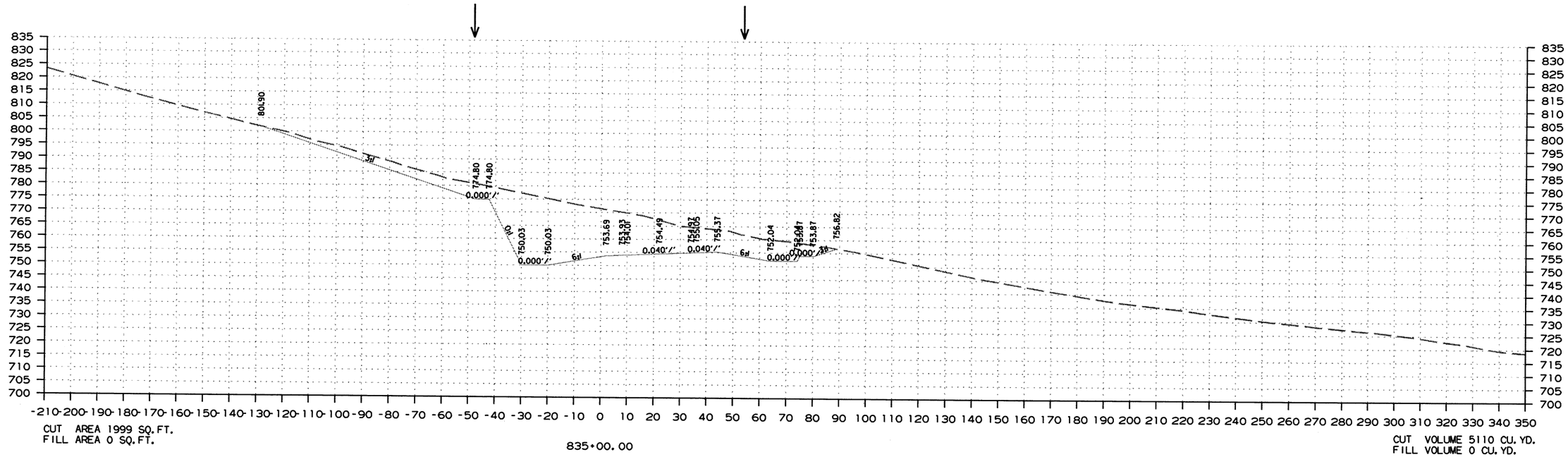
BYPASS
STA. 832+00.00 TO STA. 833+00.00

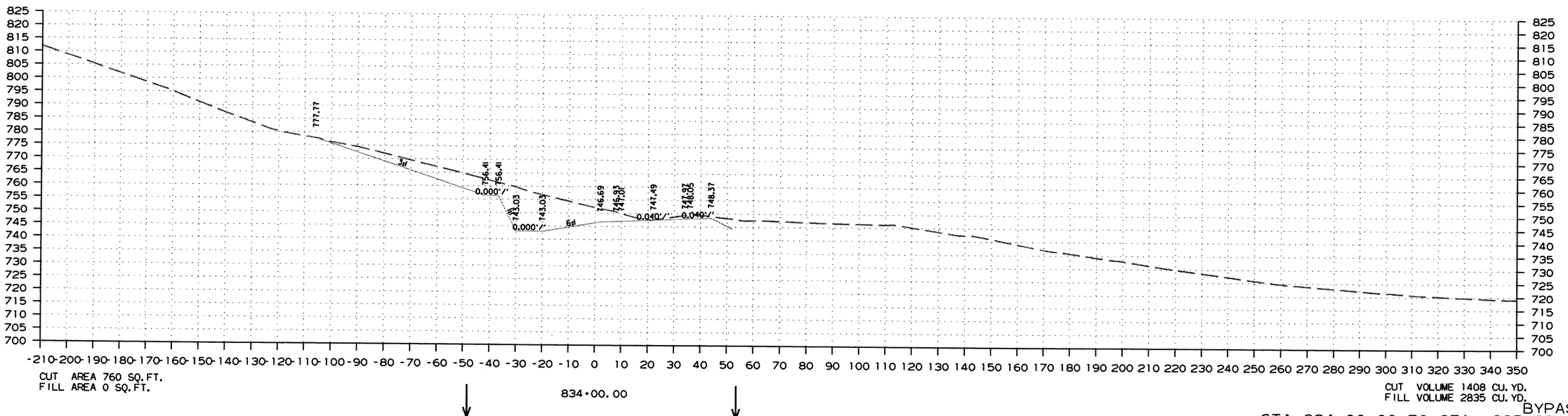
9/5/2019

RR60140.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.		R60140	436	616

(2) CROSS SECTIONS





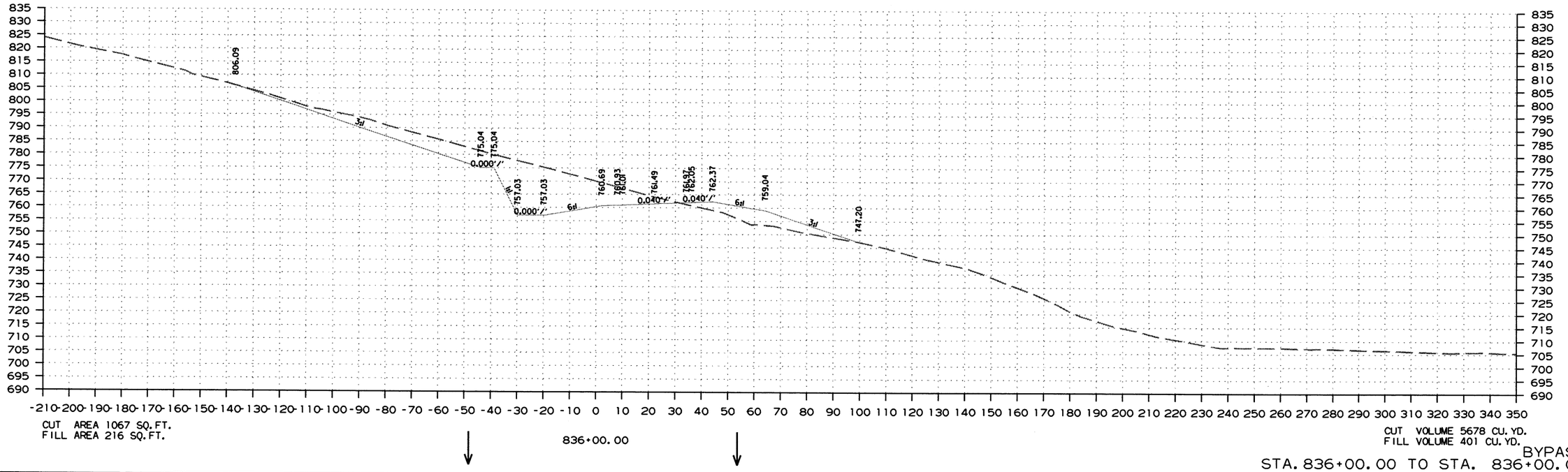
BYPASS
STA. 834+00.00 TO STA. 835+00.00

9/5/2019

RR60140.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.		R60140	437	616

(2) CROSS SECTIONS



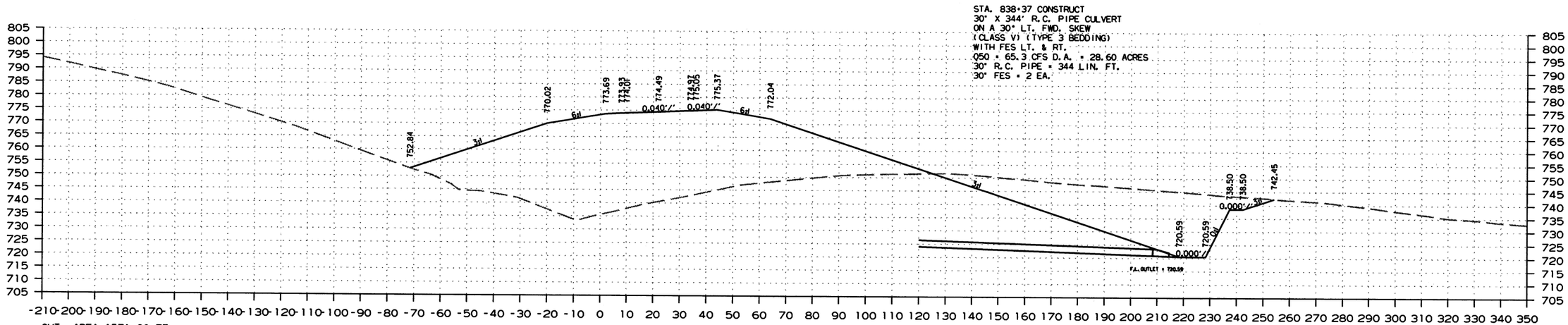
BYPASS
STA. 836+00.00 TO STA. 836+00.00

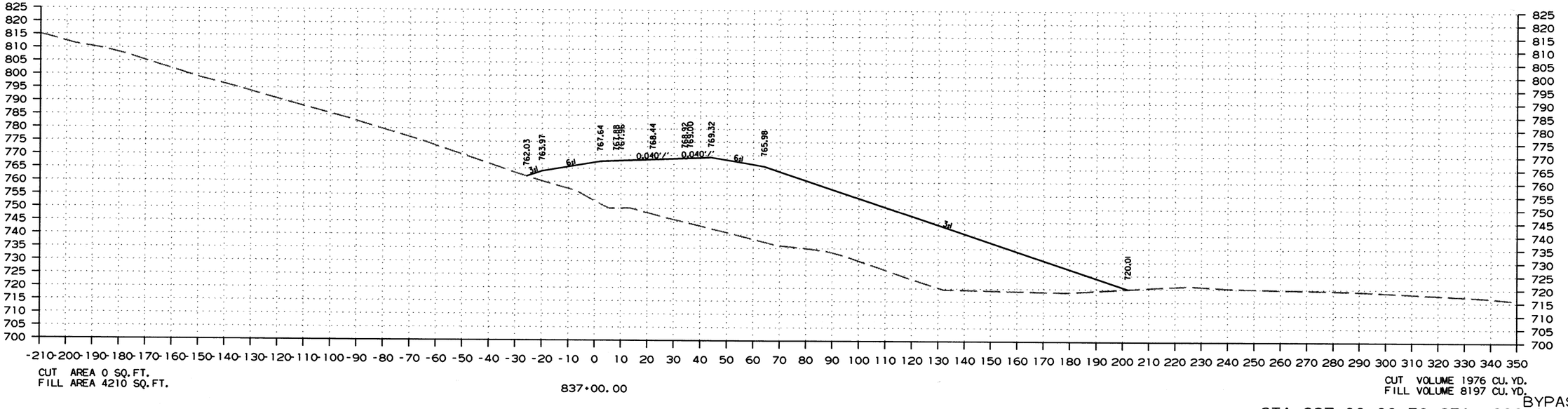
9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	438	616

(2) CROSS SECTIONS





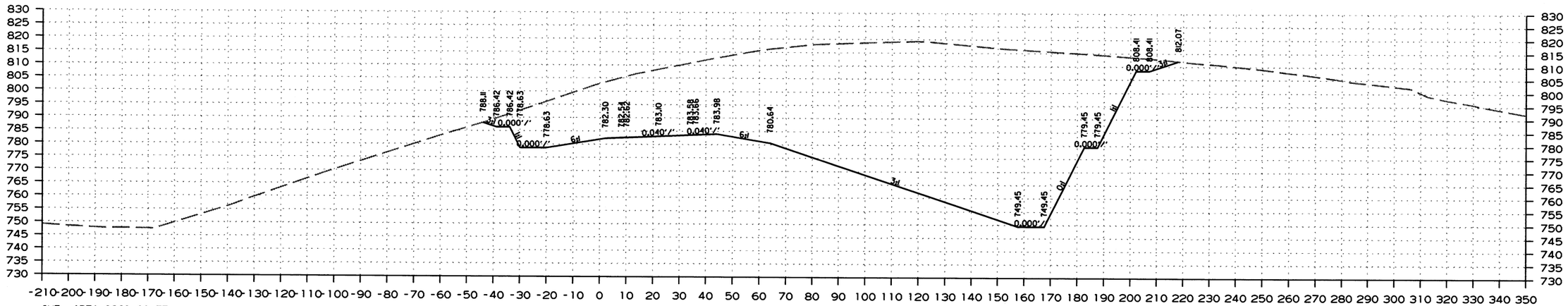
BYPASS
STA. 837+00.00 TO STA. 838+00.00

9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	439	616

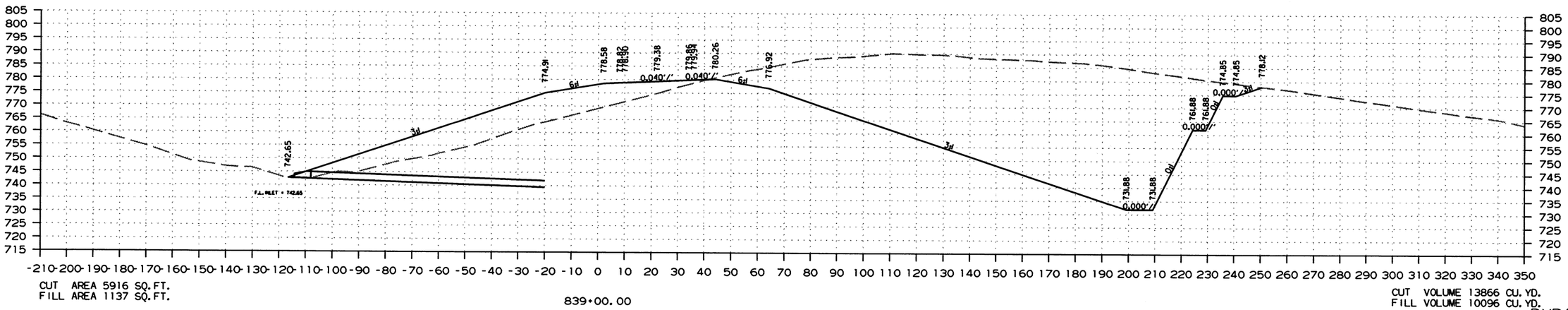
(2) CROSS SECTIONS



CUT AREA 9269 SQ.FT.
FILL AREA 0 SQ.FT.

840+00.00

CUT VOLUME 28121 CU.YD.
FILL VOLUME 2105 CU.YD.



CUT AREA 5916 SQ.FT.
FILL AREA 1137 SQ.FT.

839+00.00

CUT VOLUME 13866 CU.YD.
FILL VOLUME 10096 CU.YD.

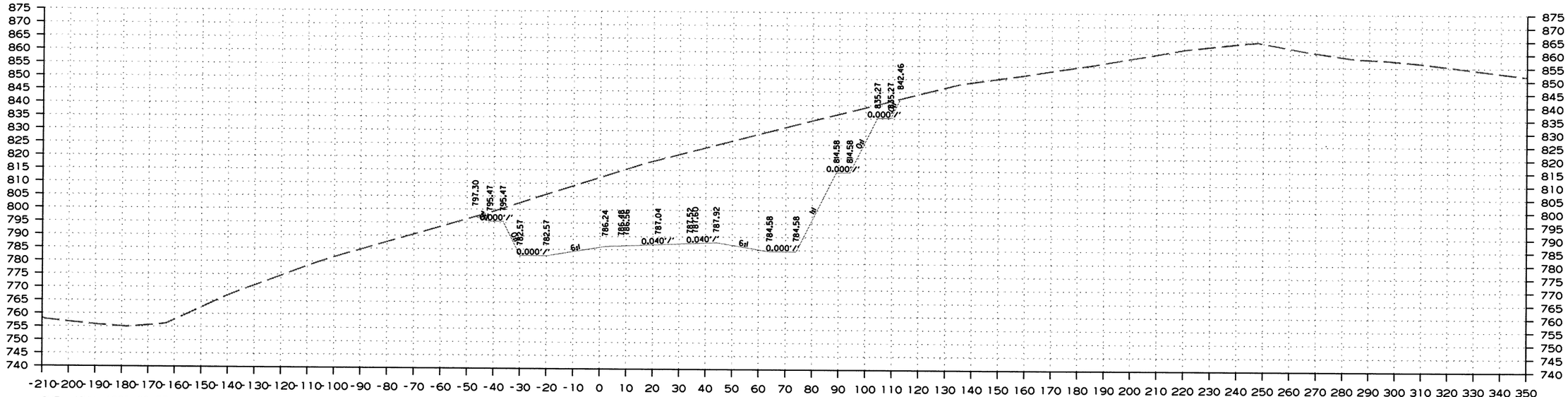
BYPASS
STA. 839+00.00 TO STA. 840+00.00

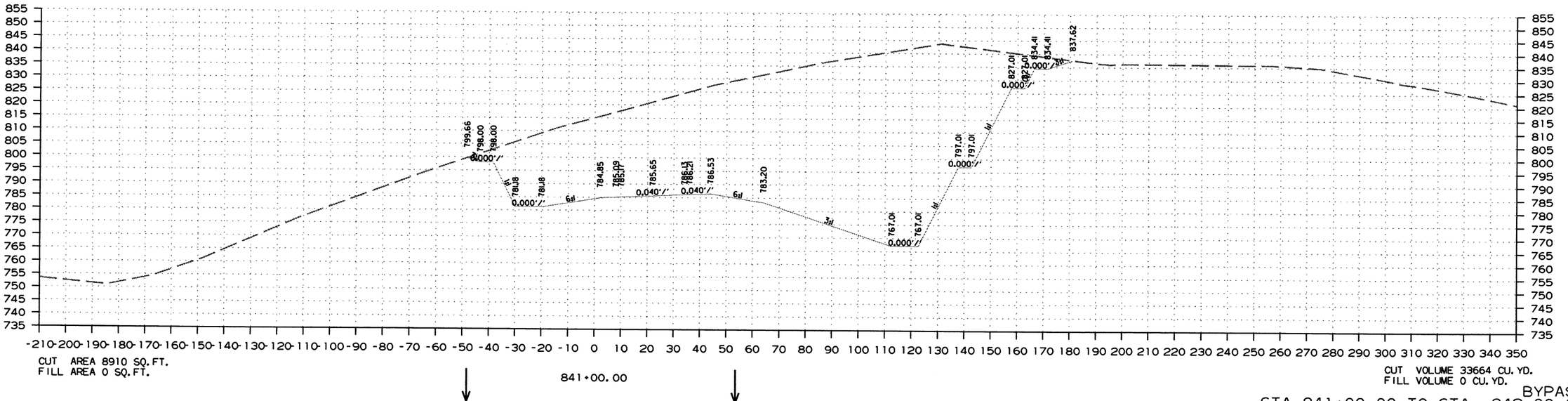
9/5/2019

RR60140.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.		R60140	440	616

(2) CROSS SECTIONS





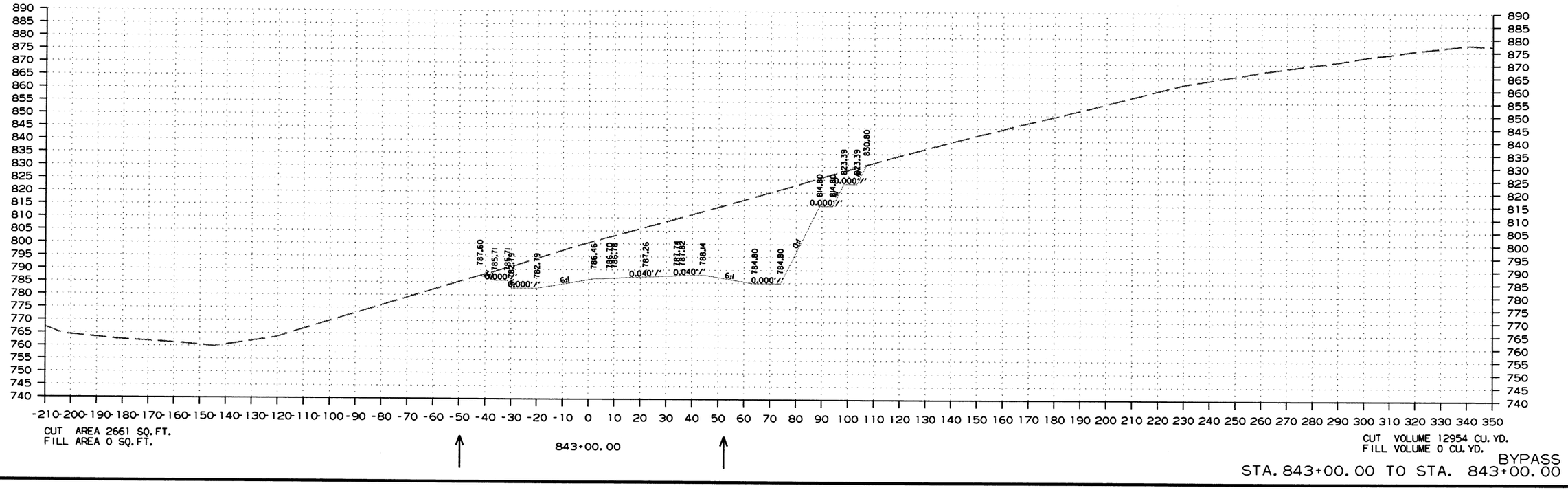
BYPASS
STA. 841+00.00 TO STA. 842+00.00

9/5/2019

RR60140.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.		R60140	441	616

(2) CROSS SECTIONS



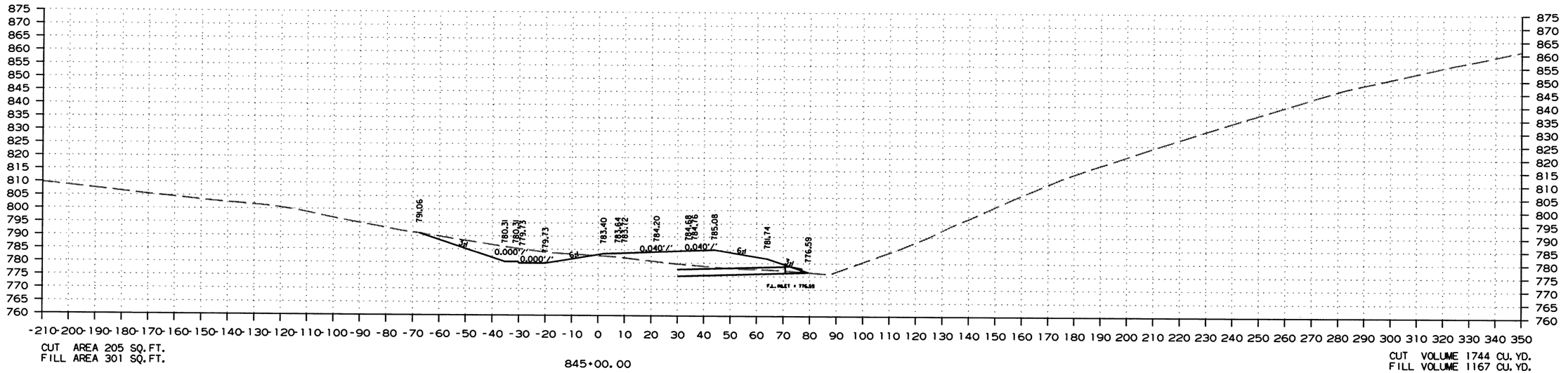
BYPASS
STA. 843+00.00 TO STA. 843+00.00

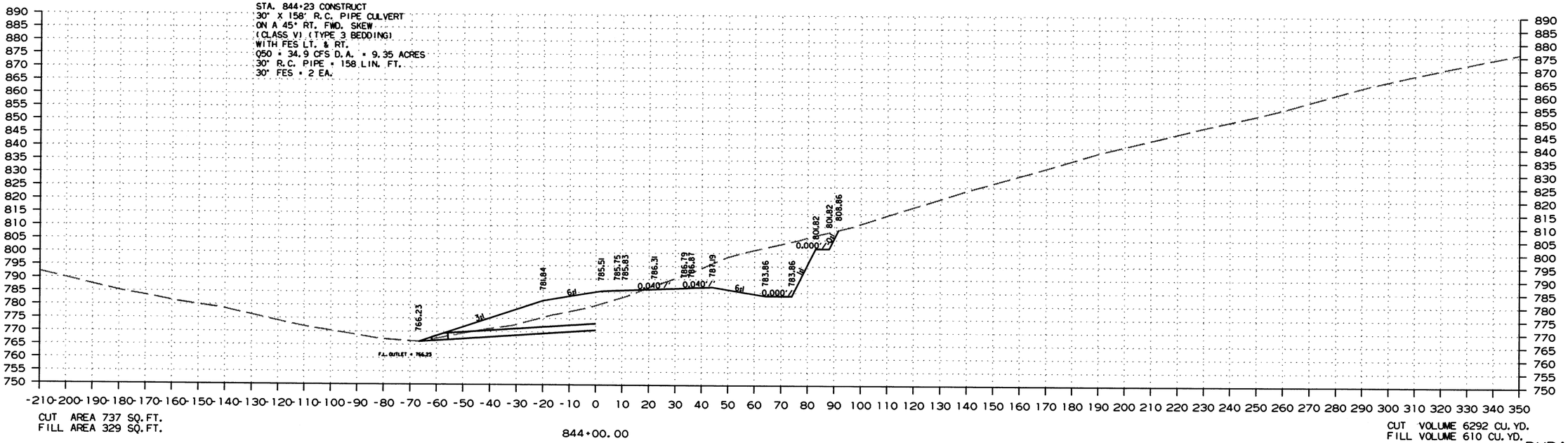
9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	442	616

(2) CROSS SECTIONS





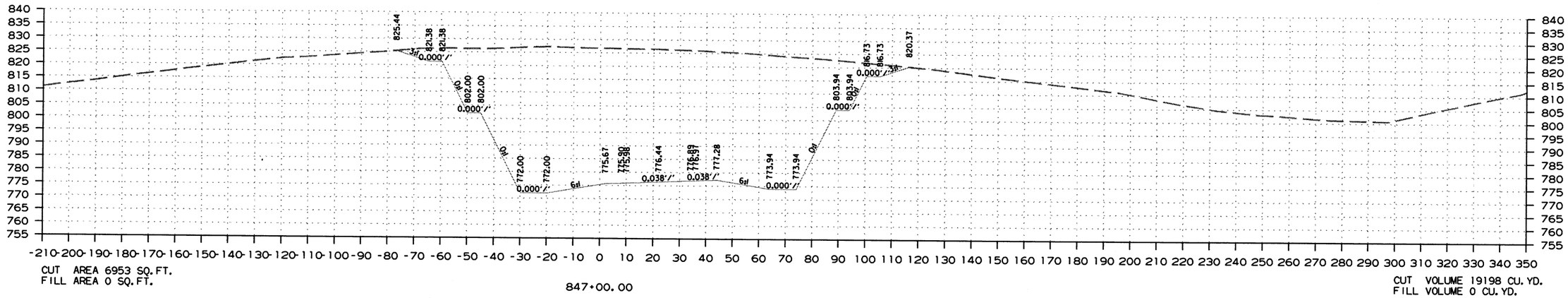
BYPASS
STA. 844+00.00 TO STA. 845+00.00

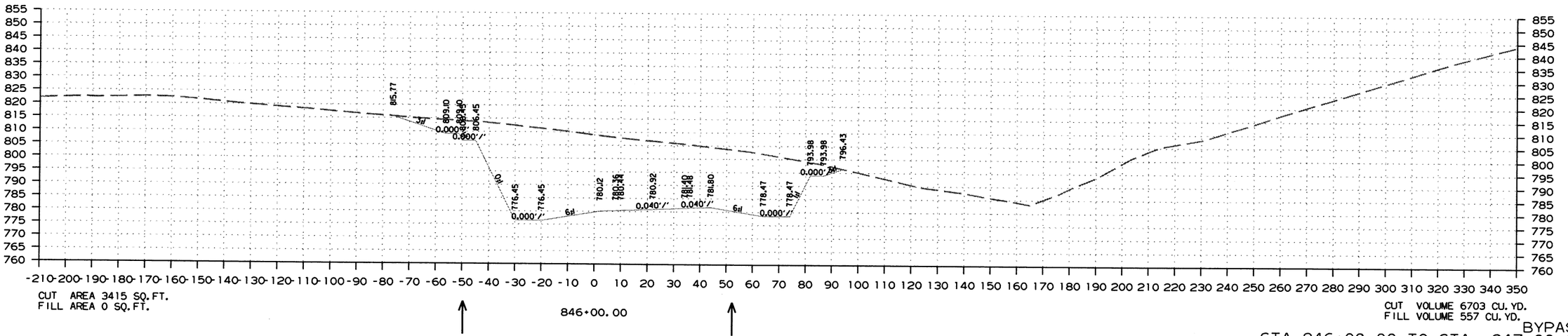
9/5/2019

RR60140.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.		R60140	443	616

(2) CROSS SECTIONS





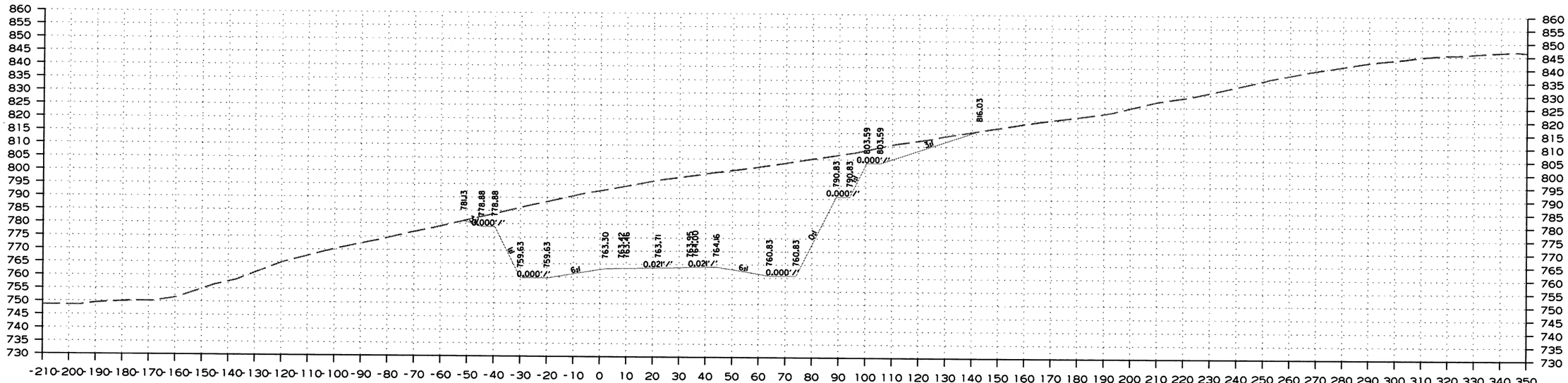
BYPASS
STA. 846+00.00 TO STA. 847+00.00

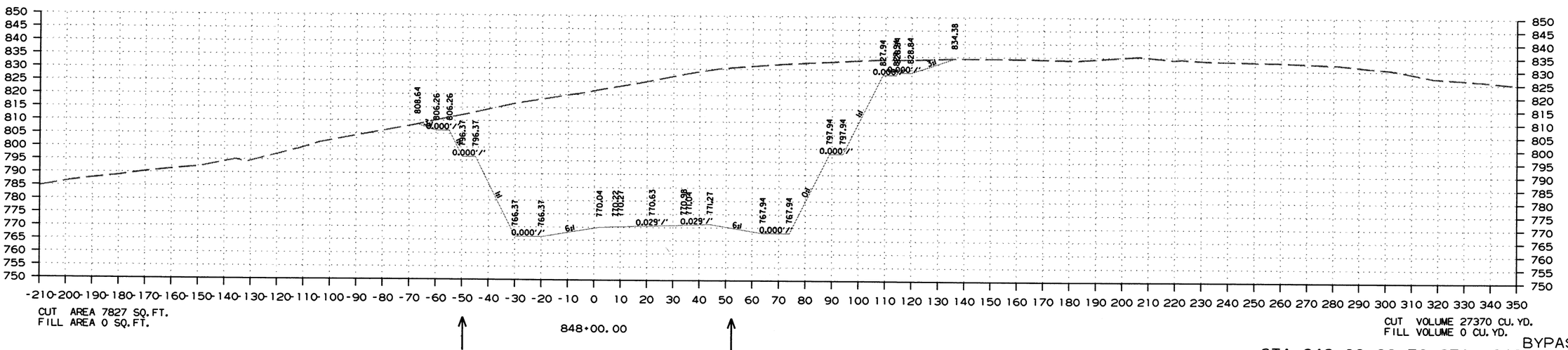
9/5/2019

RR60140.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.		R60140	444	616

(2) CROSS SECTIONS





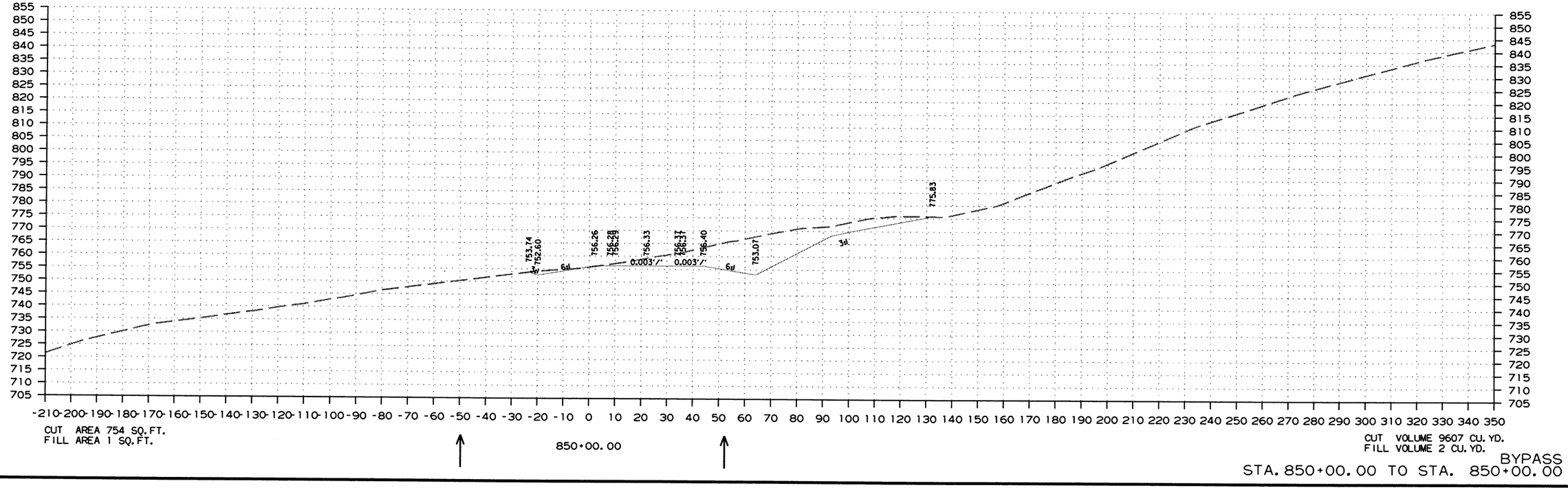
BYPASS
STA. 848+00.00 TO STA. 849+00.00

9/5/2019

RR60140.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.		R60140	445	616

(2) CROSS SECTIONS



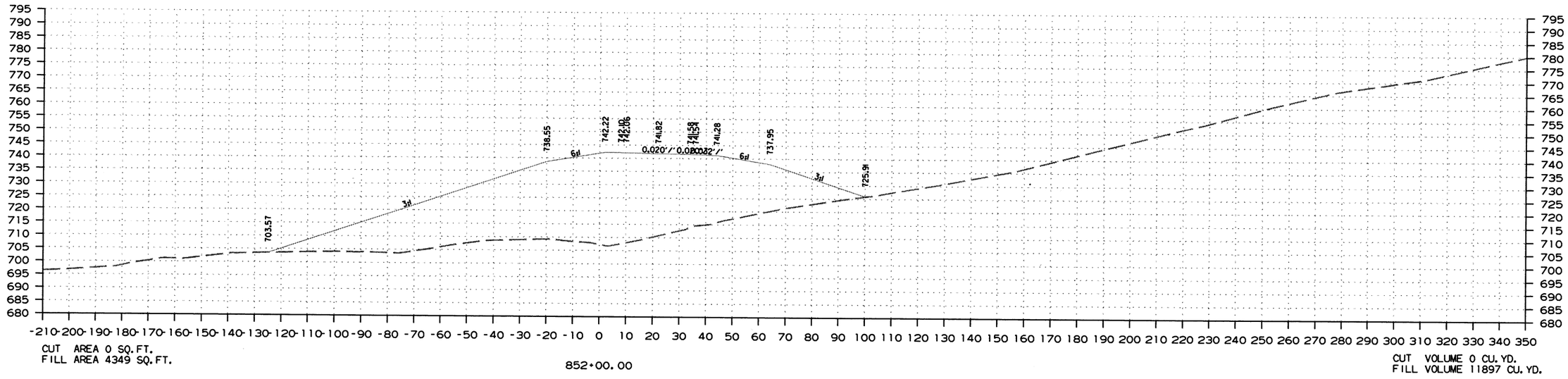
BYPASS
STA. 850+00.00 TO STA. 850+00.00

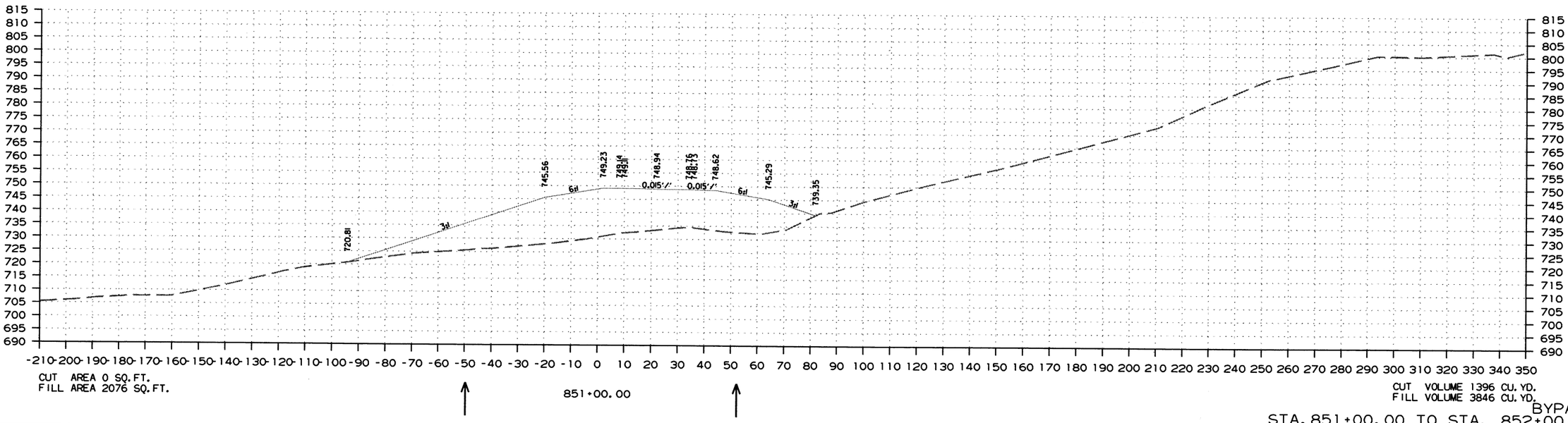
9/5/2019

RR60140.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.		R60140	446	616

(2) CROSS SECTIONS





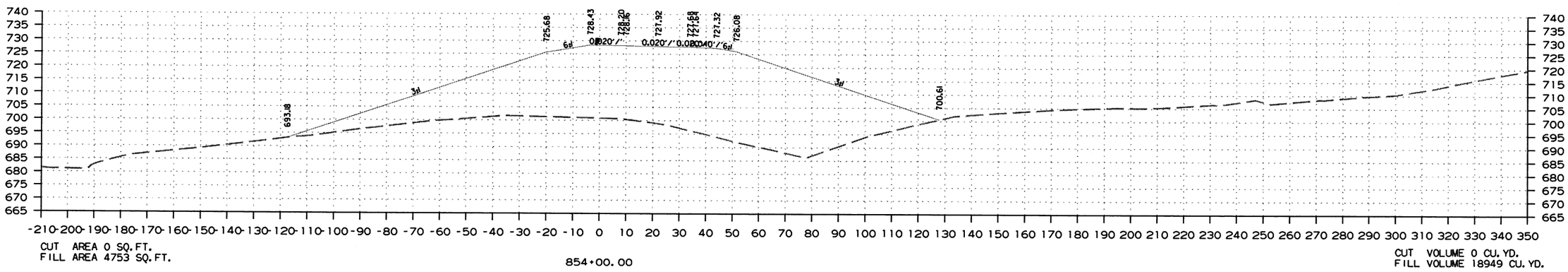
BYPASS
STA. 851+00.00 TO STA. 852+00.00

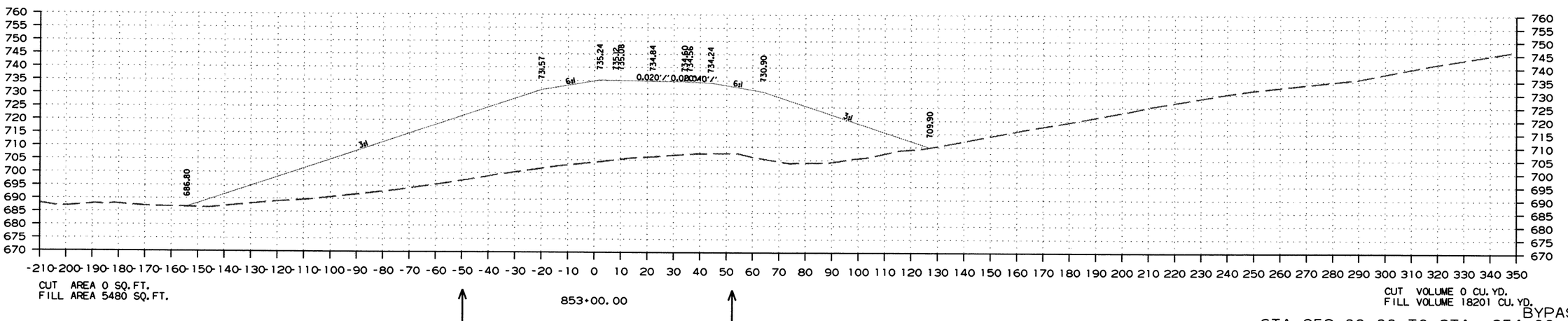
9/5/2019

RR60140.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.		R60140	447	616

(2) CROSS SECTIONS





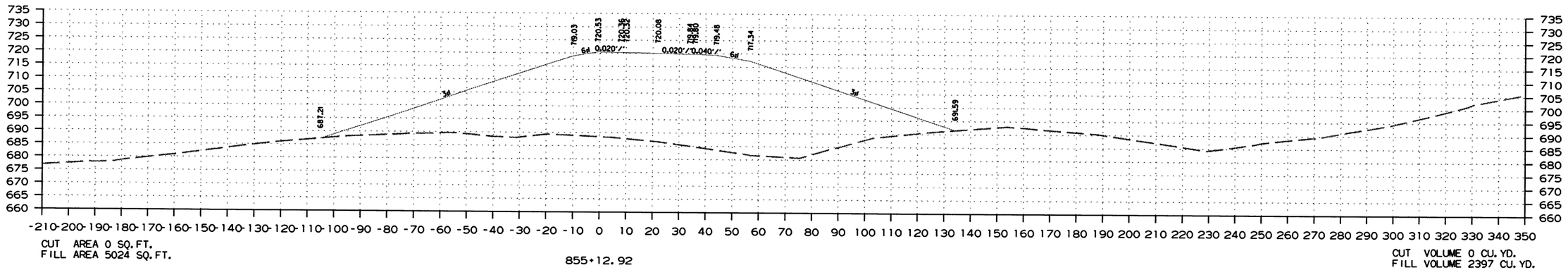
BYPASS
STA. 853+00.00 TO STA. 854+00.00

9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	447A	616

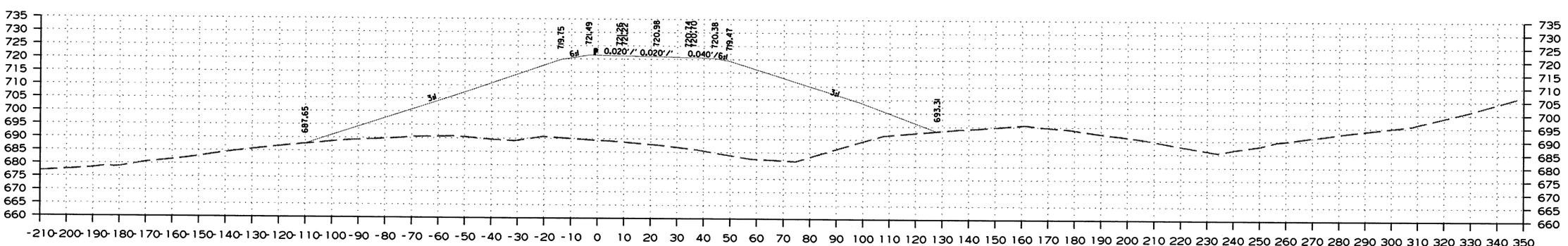
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 5024 SQ.FT.

855+12.92

CUT VOLUME 0 CU.YD.
FILL VOLUME 2397 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 4993 SQ.FT.

855+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 18048 CU.YD.

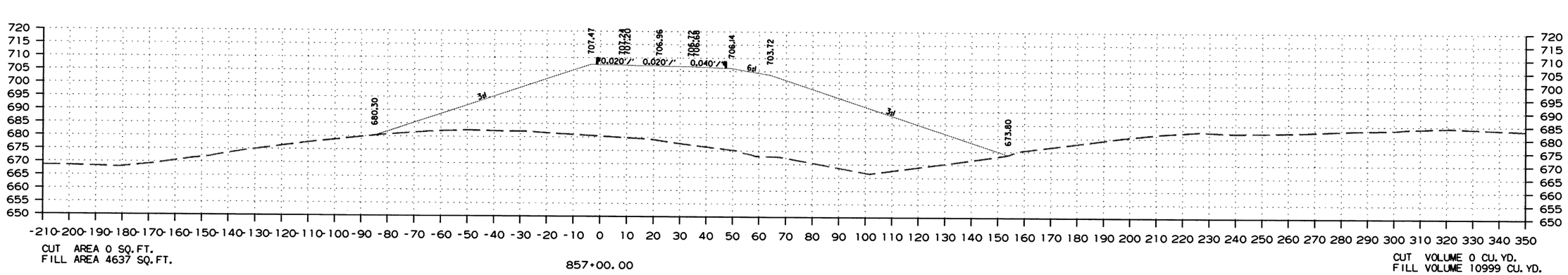
BYPASS
STA. 855+00.00 TO STA. 855+12.92

9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	448	616

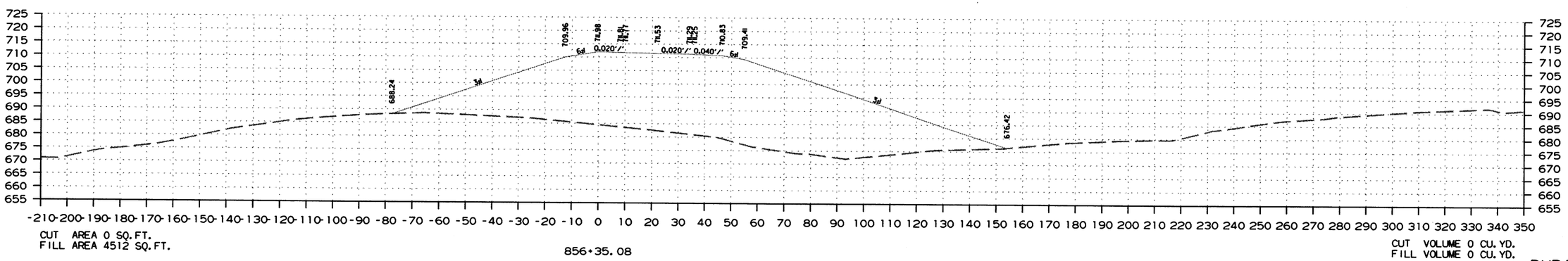
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 4637 SQ.FT.

857+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 10999 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 4512 SQ.FT.

856+35.08

CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.

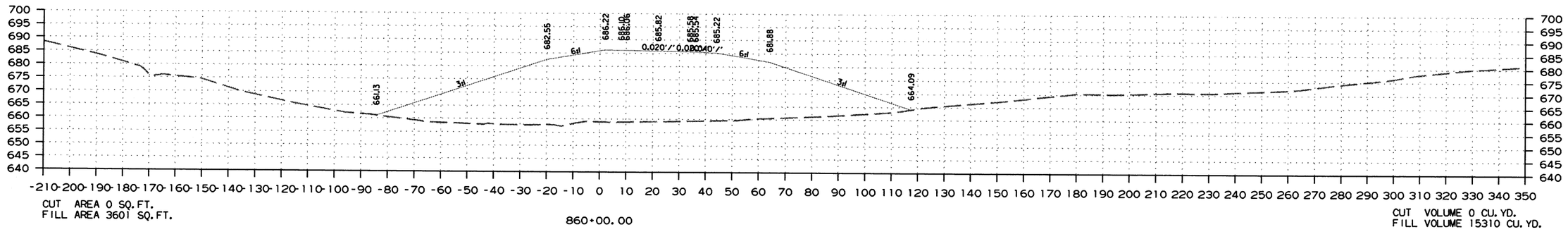
BYPASS
STA. 856+35.08 TO STA. 857+00.00

9/5/2019

RR60140.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.		R60140	449	616

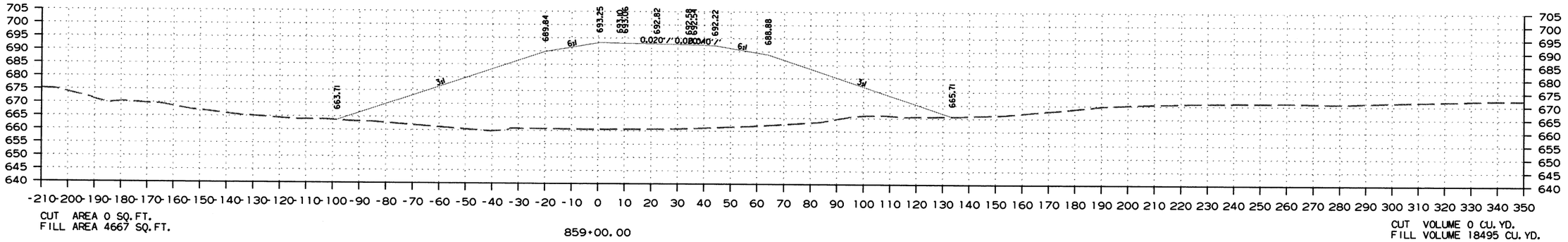
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 3601 SQ.FT.

860+00.00

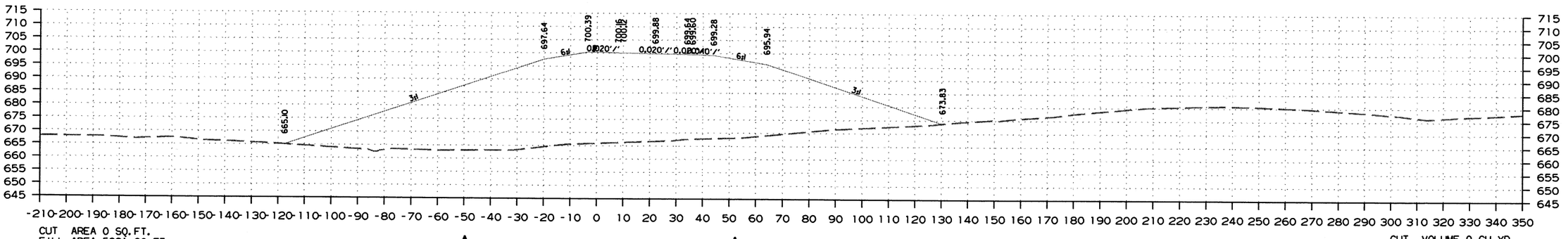
CUT VOLUME 0 CU.YD.
FILL VOLUME 15310 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 4667 SQ.FT.

859+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 18495 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 5321 SQ.FT.

858+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 18440 CU.YD.

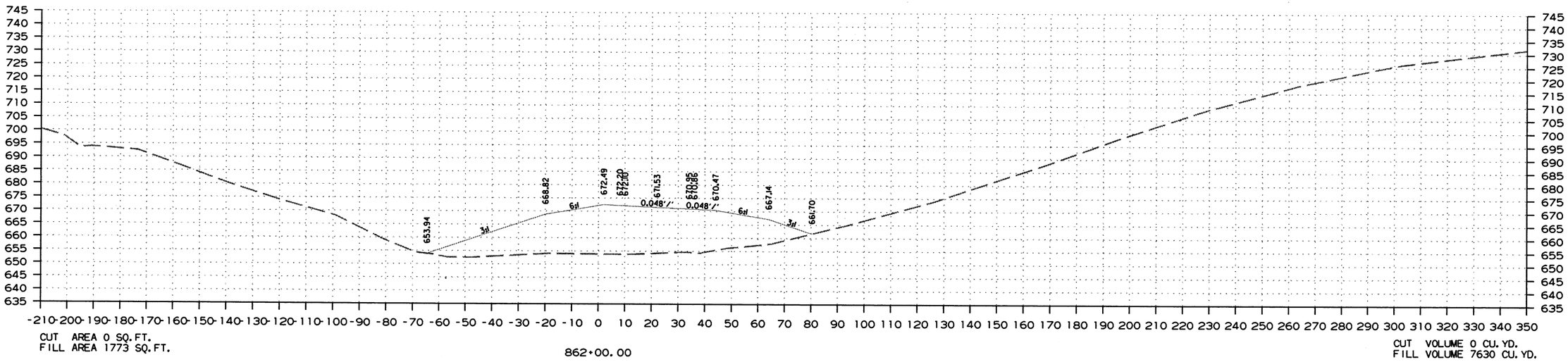
BYPASS
STA. 858+00.00 TO STA. 860+00.00

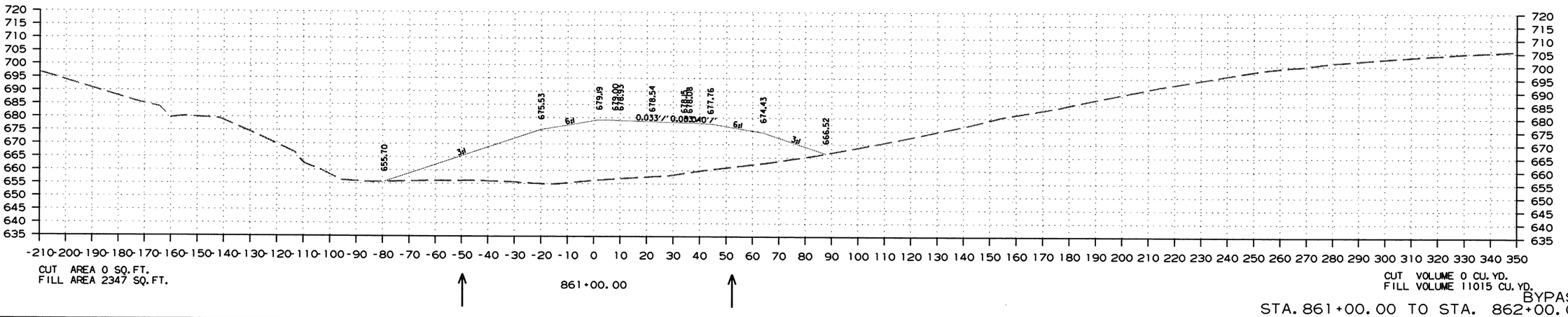
9/5/2019

RR60140.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.		R60140	450	616

(2) CROSS SECTIONS





BYPASS
STA. 861+00.00 TO STA. 862+00.00

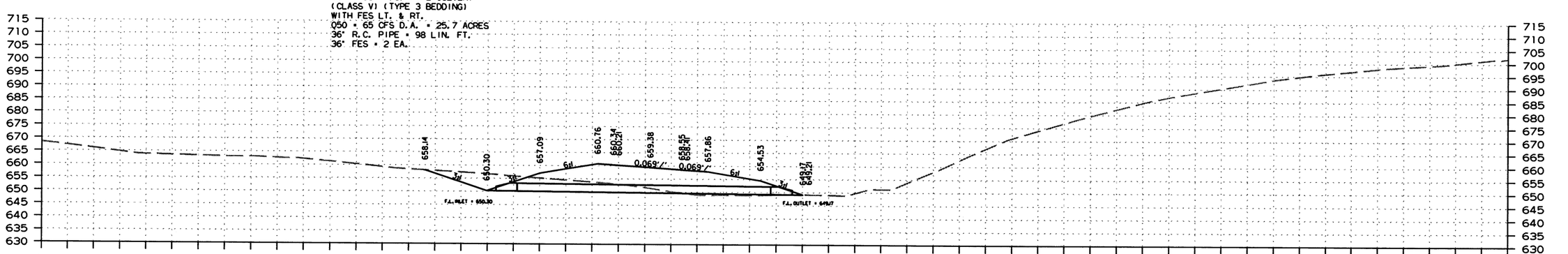
9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	451	616

(2) CROSS SECTIONS

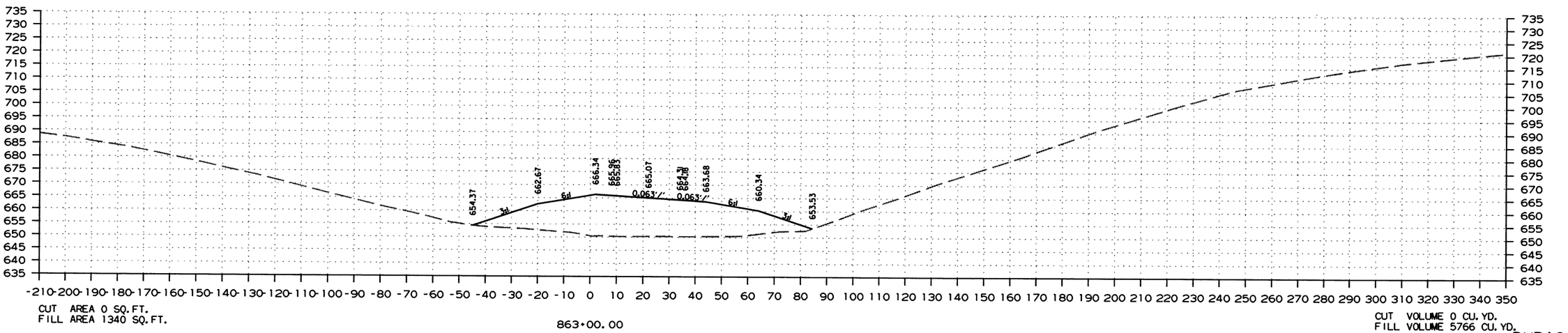
STA. 863+97 CONSTRUCT
36" X 98' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 65 CFS D.A. = 25.7 ACRES
36" R.C. PIPE = 98 LIN. FT.
36" FES = 2 EA.



CUT AREA 128 SQ.FT.
FILL AREA 631 SQ.FT.

864+00.00

CUT VOLUME 237 CU.YD.
FILL VOLUME 3651 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 1340 SQ.FT.

863+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 5766 CU.YD.

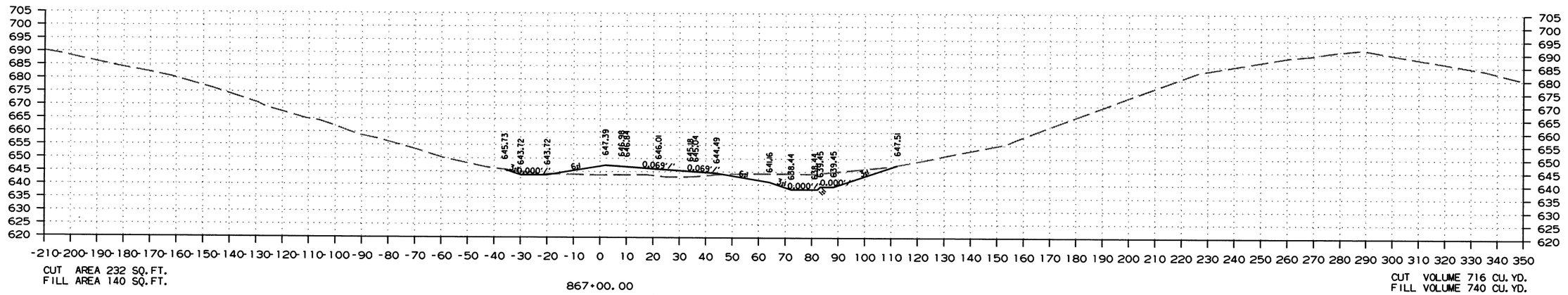
BYPASS
STA. 863+00.00 TO STA. 864+00.00

9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	452	616

(2) CROSS SECTIONS

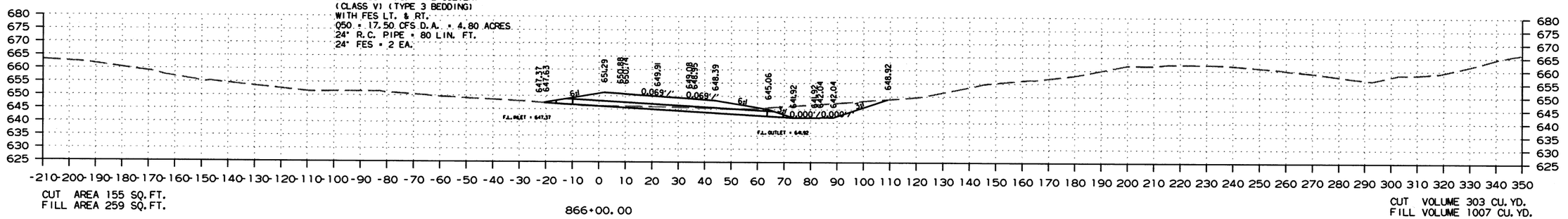


CUT AREA 232 SQ.FT.
FILL AREA 140 SQ.FT.

867+00.00

CUT VOLUME 716 CU.YD.
FILL VOLUME 740 CU.YD.

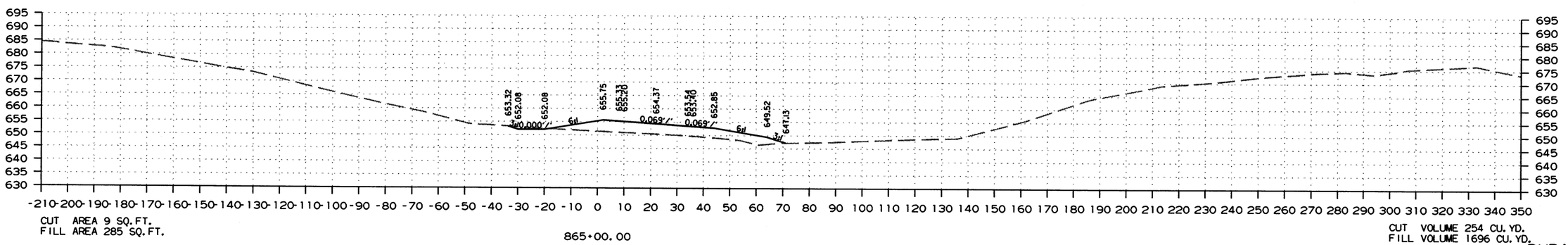
STA. 865+89 CONSTRUCT
24" X 80' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 17.50 CFS D.A. = 4.80 ACRES
24" R.C. PIPE = 80 LIN. FT.
24" FES = 2 EA.



CUT AREA 155 SQ.FT.
FILL AREA 259 SQ.FT.

866+00.00

CUT VOLUME 303 CU.YD.
FILL VOLUME 1007 CU.YD.



CUT AREA 9 SQ.FT.
FILL AREA 285 SQ.FT.

865+00.00

CUT VOLUME 254 CU.YD.
FILL VOLUME 1696 CU.YD.

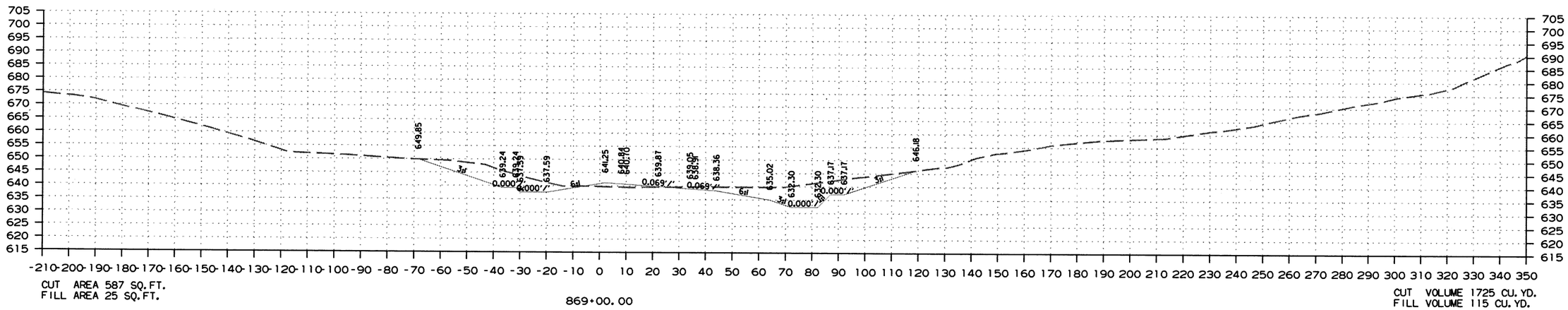
BYPASS
STA. 865+00.00 TO STA. 867+00.00

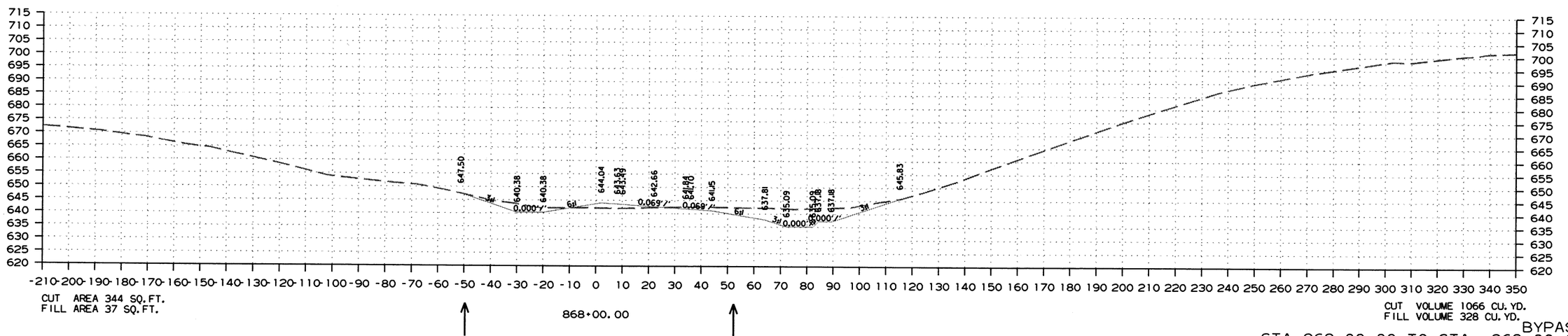
9/5/2019

RR60140.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.		R60140	453	616

(2) CROSS SECTIONS





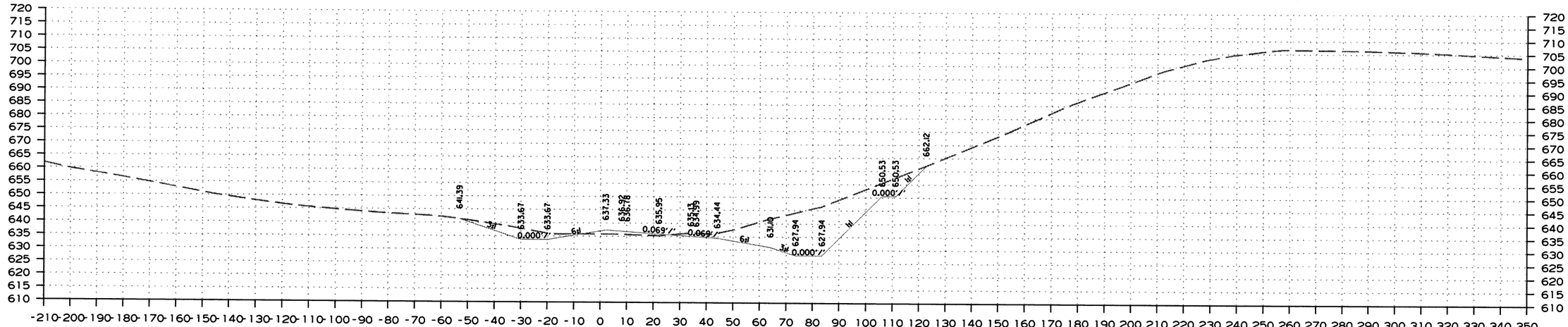
BYPASS
STA. 868+00.00 TO STA. 869+00.00

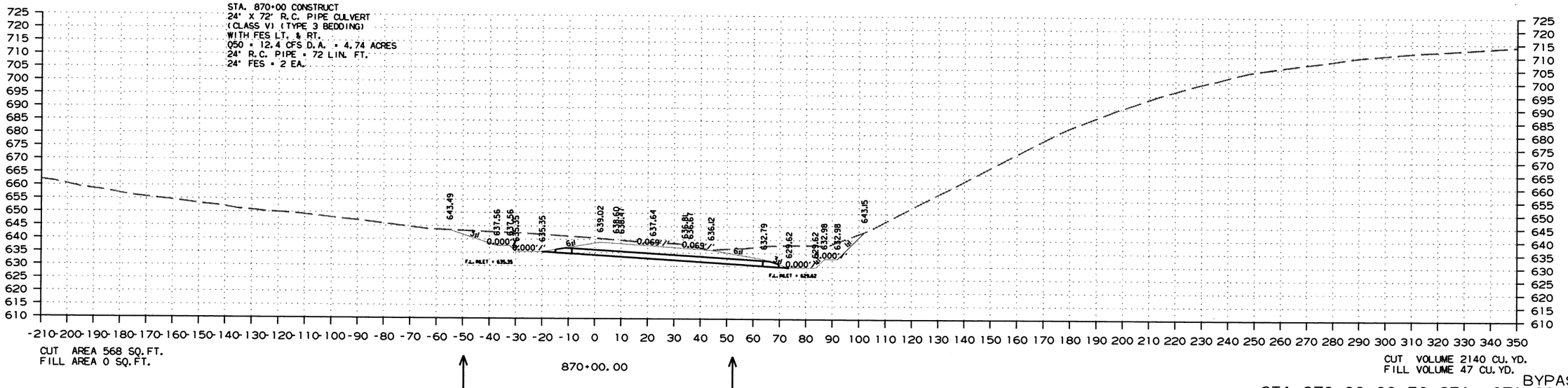
9/5/2019

RR60140.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.		R60140	454	616

(2) CROSS SECTIONS





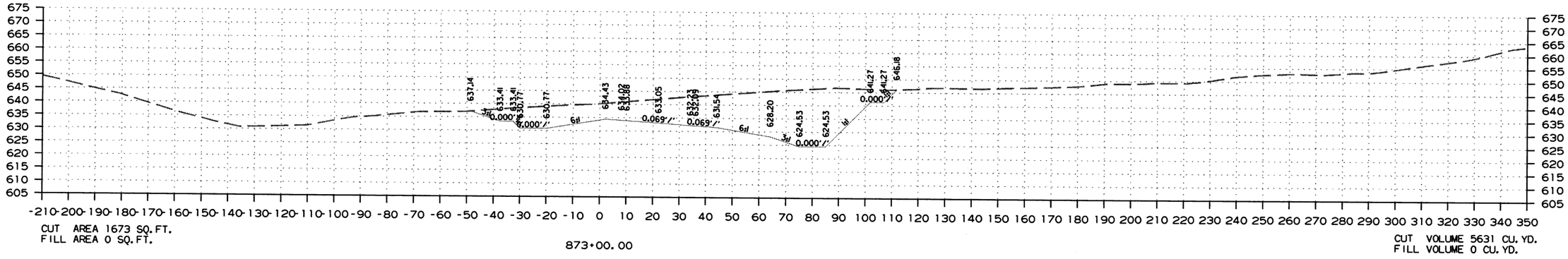
BYPASS
STA. 870+00.00 TO STA. 871+00.00

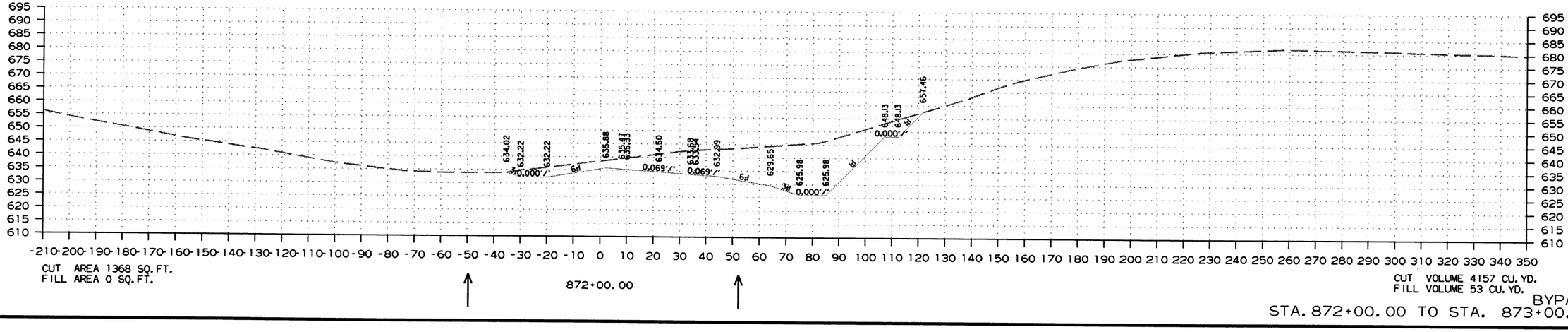
9/5/2019

RR60140.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.		R60140	455	616

(2) CROSS SECTIONS





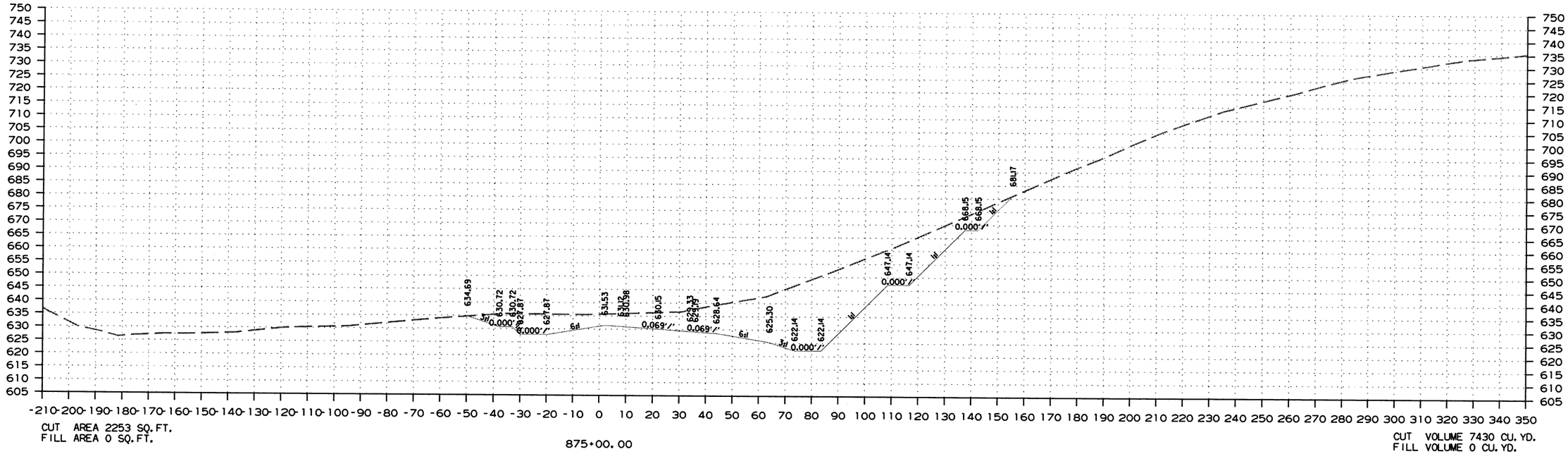
BYPASS
STA. 872+00.00 TO STA. 873+00.00

9/5/2019

RR60140.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.		R60140	456	616

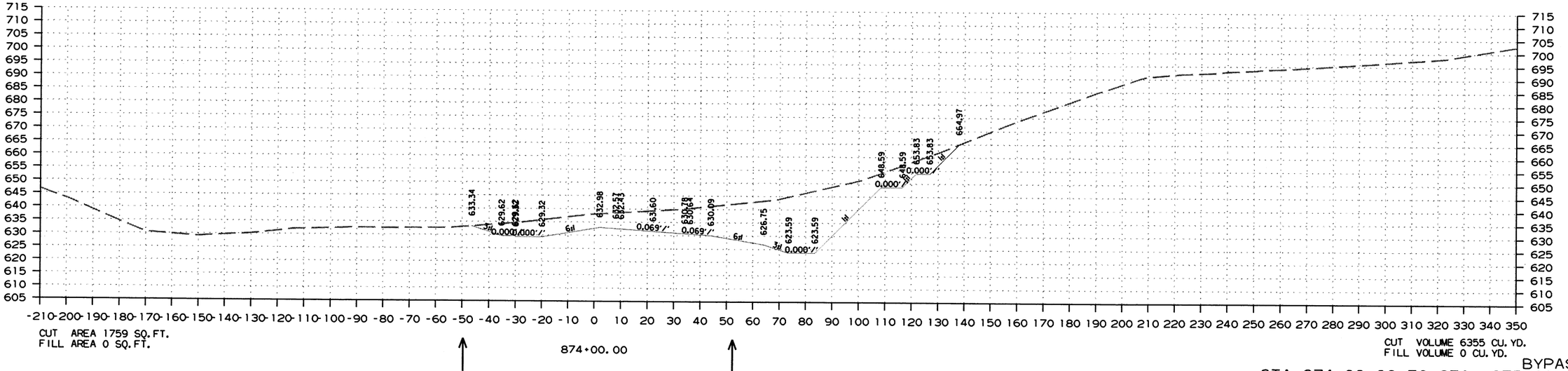
(2) CROSS SECTIONS



CUT AREA 2253 SQ.FT.
FILL AREA 0 SQ.FT.

875+00.00

CUT VOLUME 7430 CU.YD.
FILL VOLUME 0 CU.YD.



CUT AREA 1759 SQ.FT.
FILL AREA 0 SQ.FT.

874+00.00

CUT VOLUME 6355 CU.YD.
FILL VOLUME 0 CU.YD.

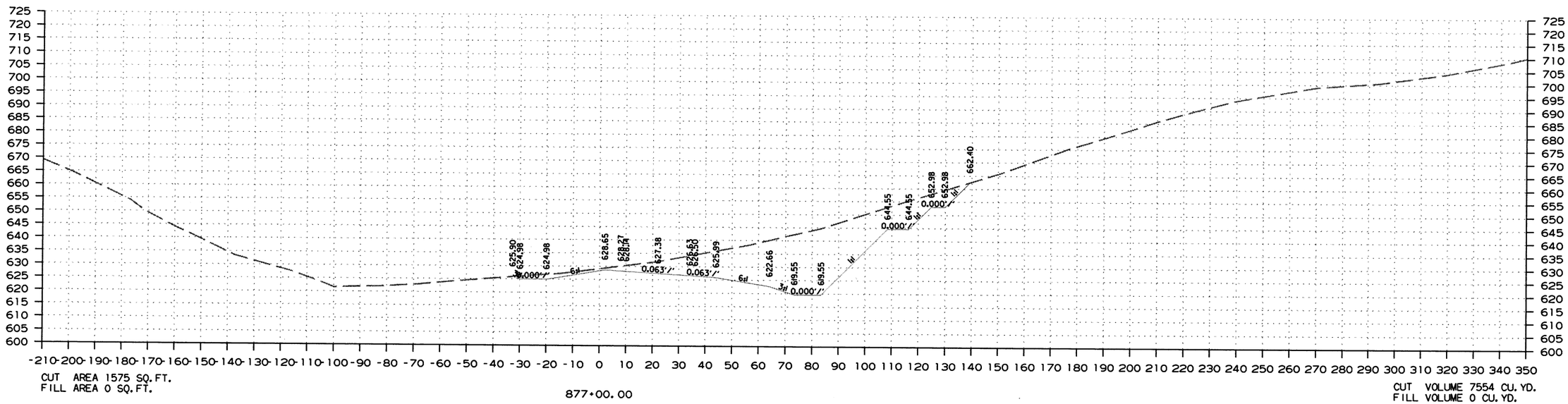
BYPASS
STA. 874+00.00 TO STA. 875+00.00

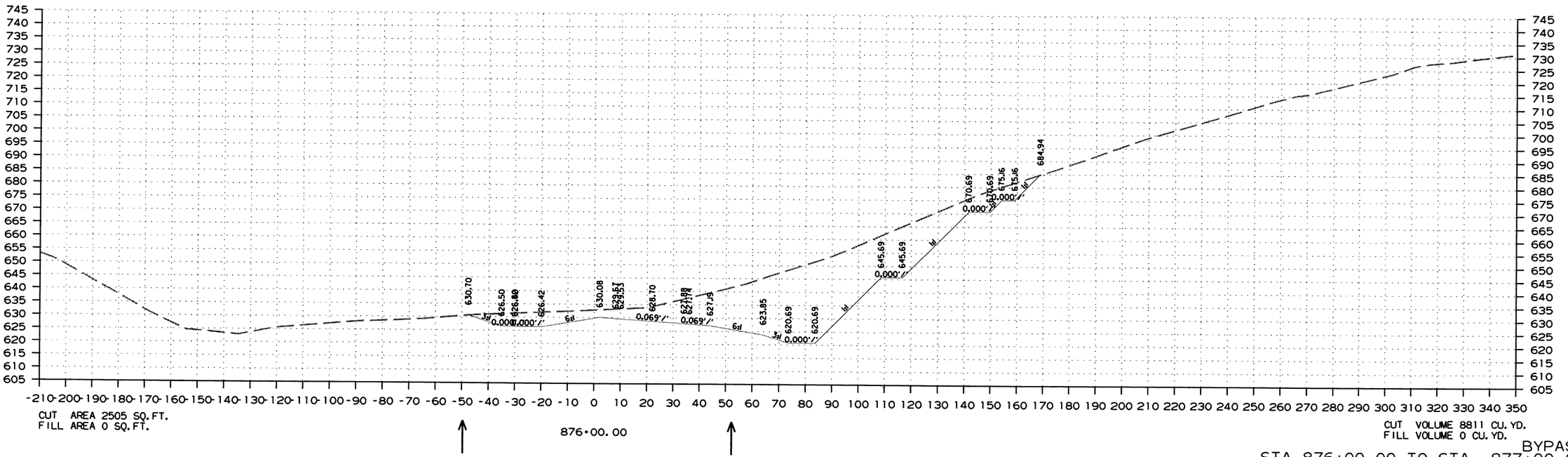
9/5/2019

RR60140.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.		R60140	457	616

(2) CROSS SECTIONS





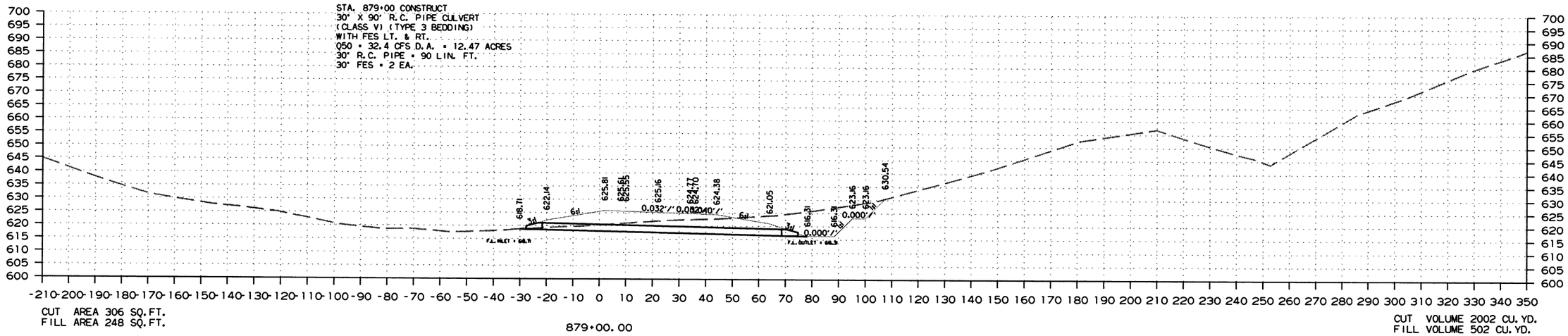
9/5/2019

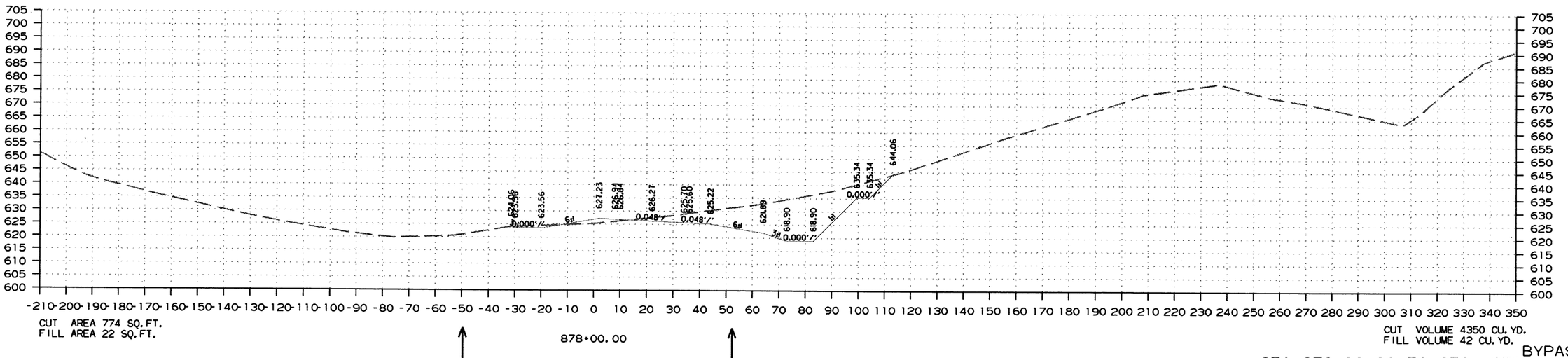
RR60140.DGN

BYPASS
STA. 876+00.00 TO STA. 877+00.00

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.		R60140	458	616

(2) CROSS SECTIONS





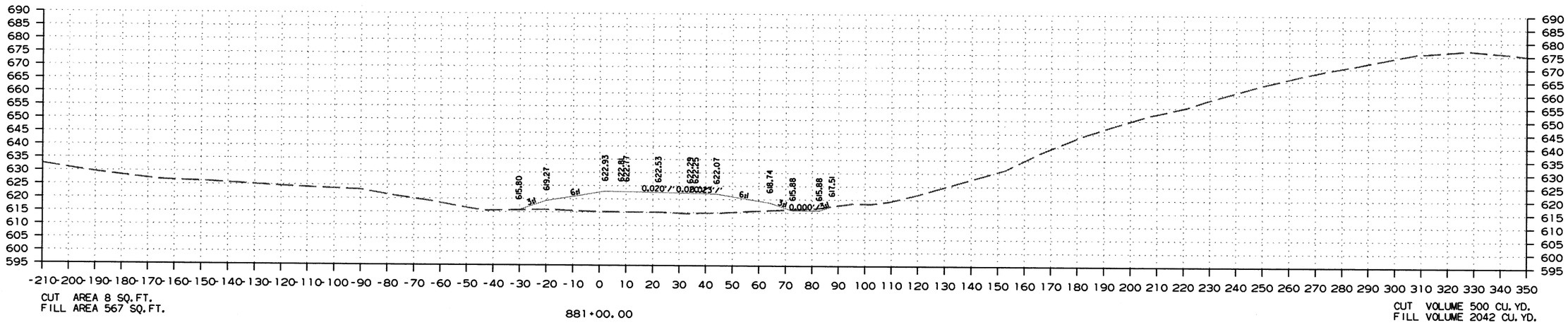
BYPASS
STA. 878+00.00 TO STA. 879+00.00

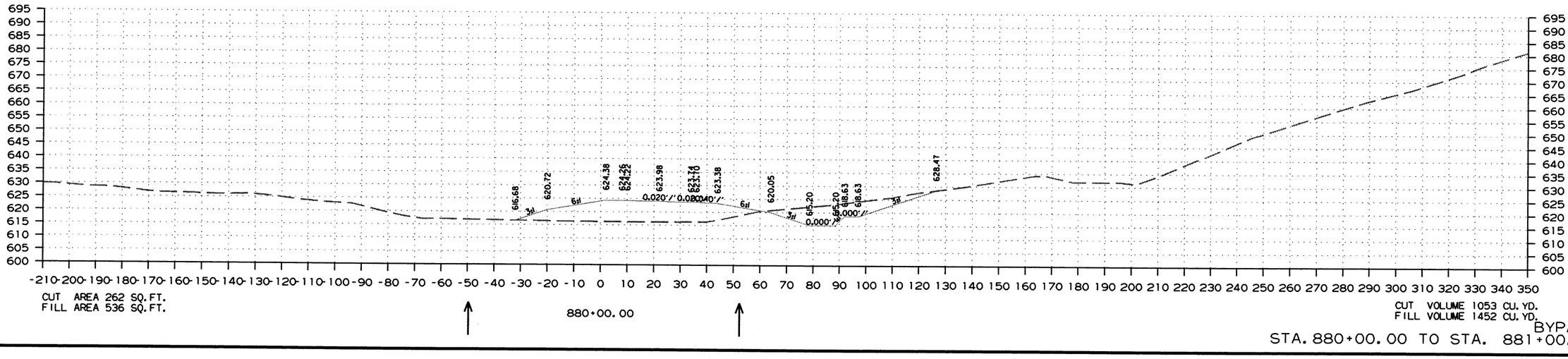
9/5/2019

RR60140.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.		R60140	459	616

(2) CROSS SECTIONS





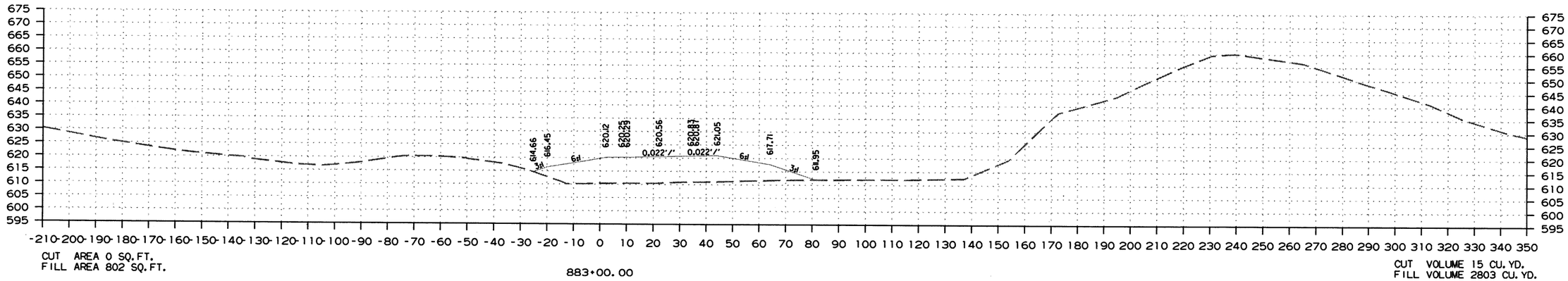
BYPASS
STA. 880+00.00 TO STA. 881+00.00

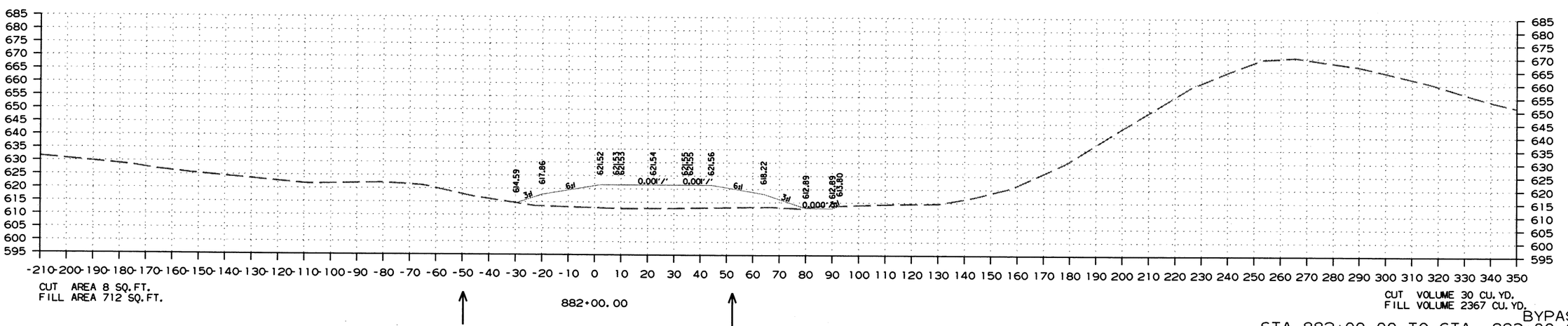
9/5/2019

RR60140.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.		R60140	460	616

(2) CROSS SECTIONS





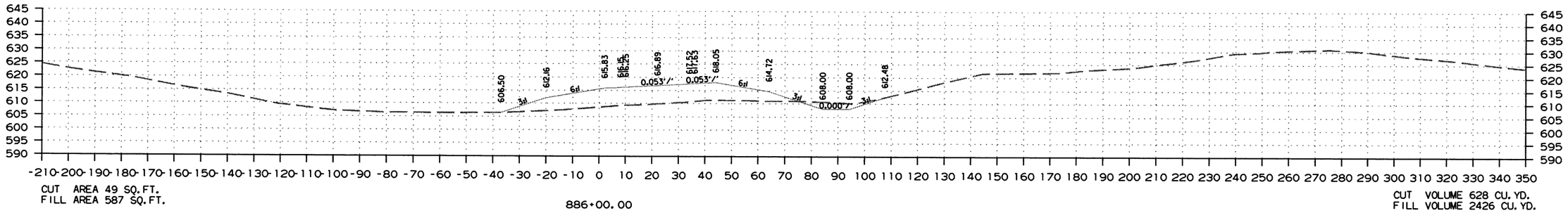
BYPASS
STA. 882+00.00 TO STA. 883+00.00

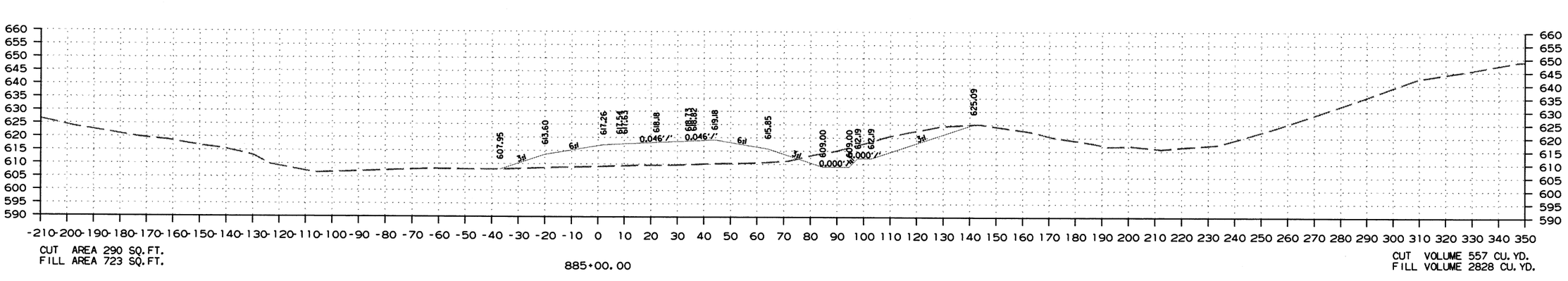
9/5/2019

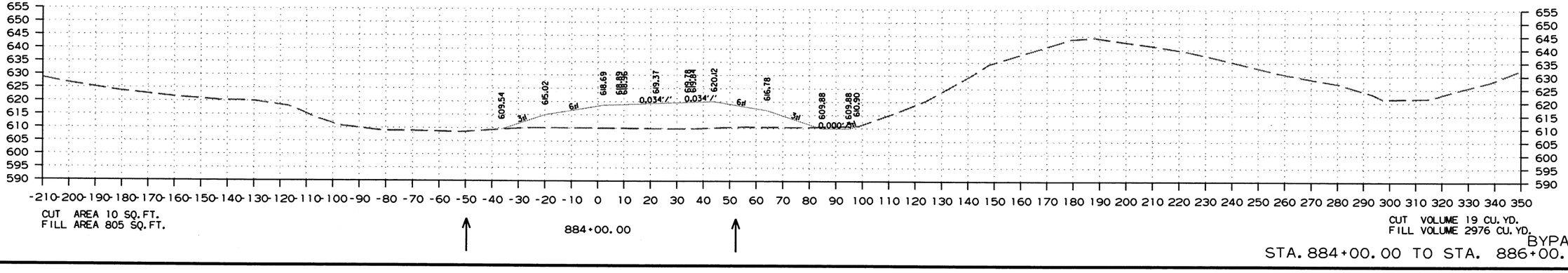
RR60140.DGN

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.		R60140	461	616

(2) CROSS SECTIONS







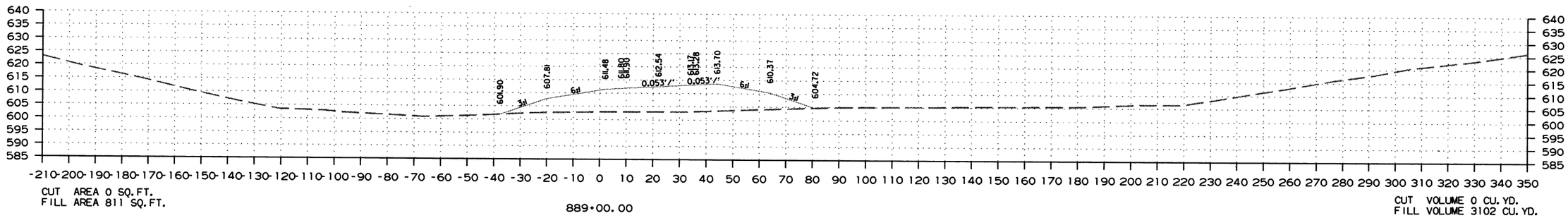
BYPASS
STA. 884+00.00 TO STA. 886+00.00

9/5/2019

RR60140.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.		R60140	462	616

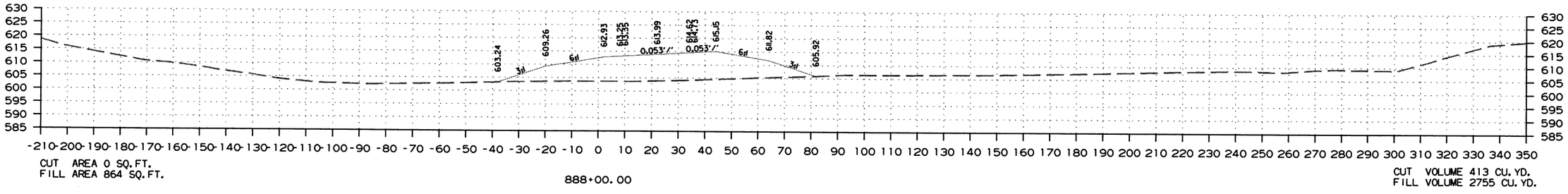
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 811 SQ.FT.

889+00.00

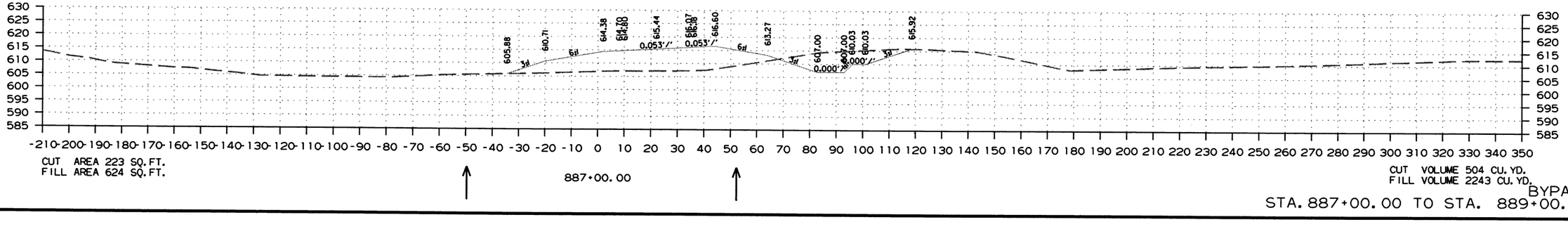
CUT VOLUME 0 CU.YD.
FILL VOLUME 3102 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 864 SQ.FT.

888+00.00

CUT VOLUME 413 CU.YD.
FILL VOLUME 2755 CU.YD.



CUT AREA 223 SQ.FT.
FILL AREA 624 SQ.FT.

887+00.00

CUT VOLUME 504 CU.YD.
FILL VOLUME 2243 CU.YD.

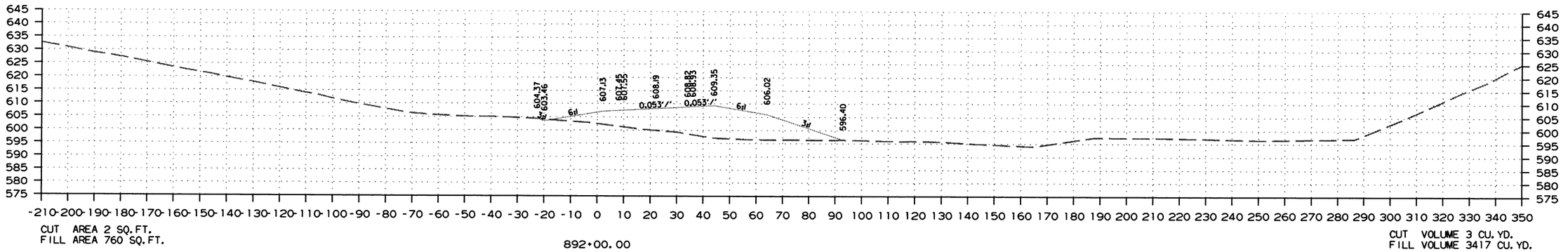
BYPASS
STA. 887+00.00 TO STA. 889+00.00

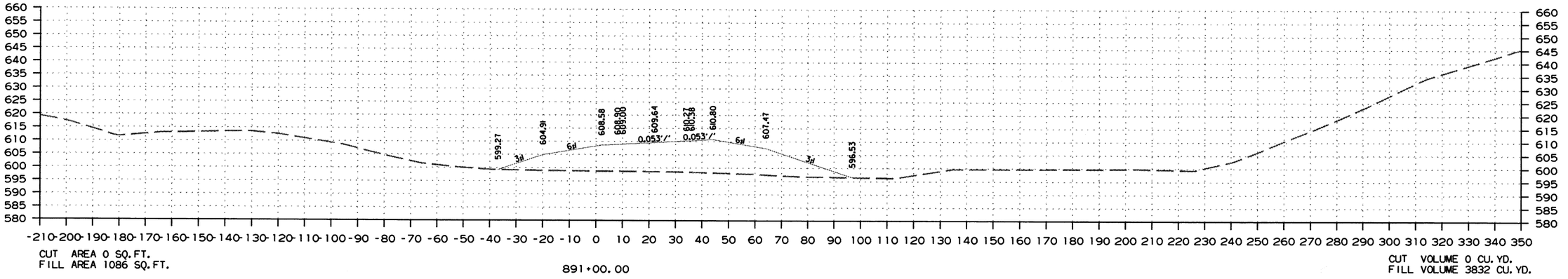
9/5/2019

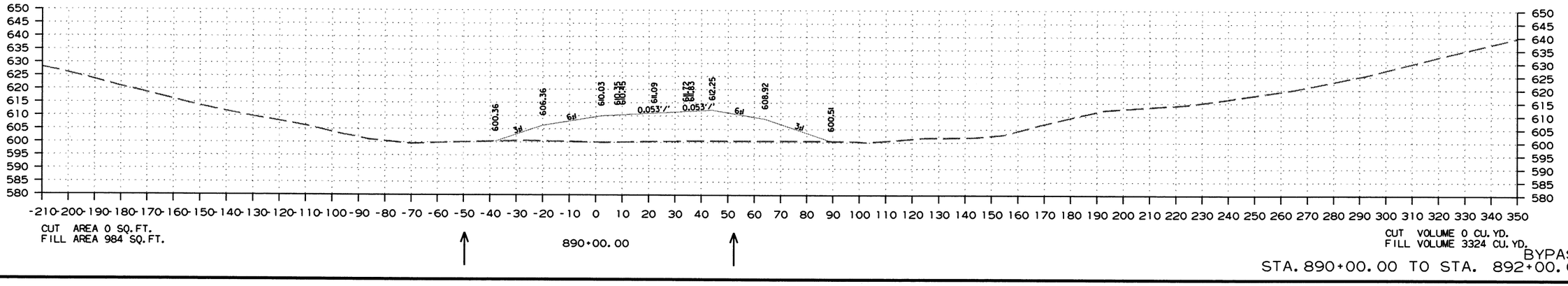
RR60140.DGN

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.		R60140	463	616

(2) CROSS SECTIONS







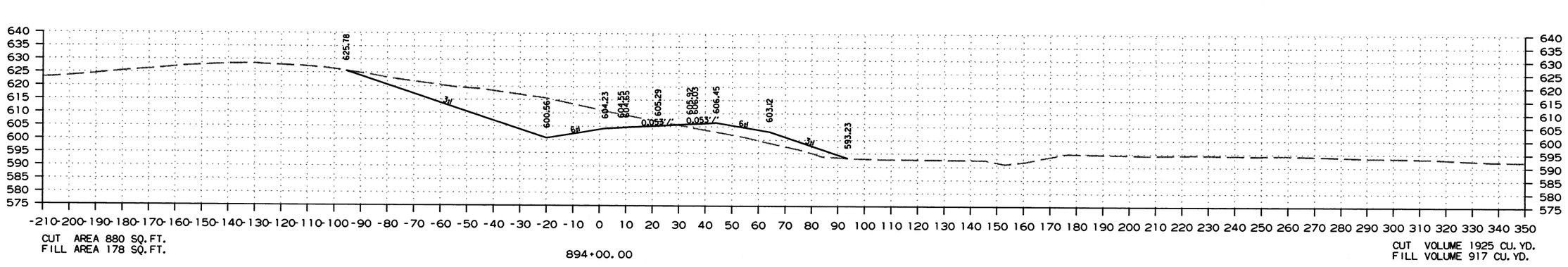
BYPASS
STA. 890+00.00 TO STA. 892+00.00

9/5/2019

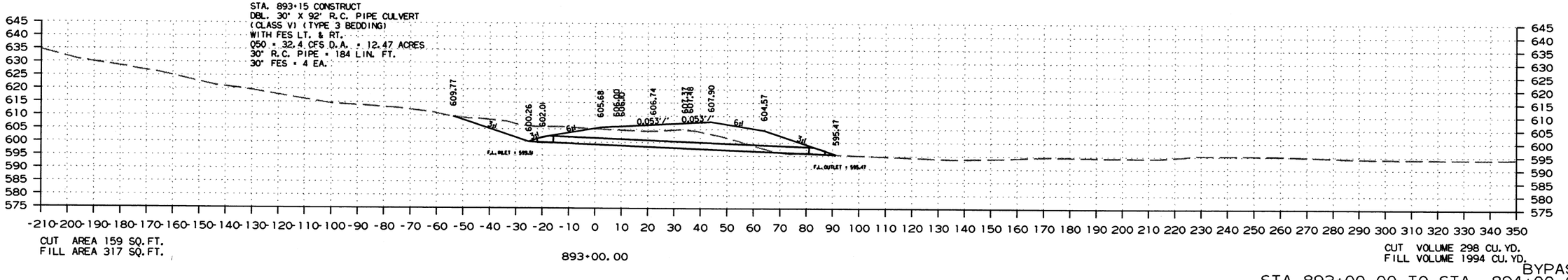
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	464	616

(2) CROSS SECTIONS



STA. 893+15 CONSTRUCT
DBL. 30" X 92' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 32.4 CFS D.A. = 12.47 ACRES
30" R.C. PIPE = 184 LIN. FT.
30" FES = 4 EA.



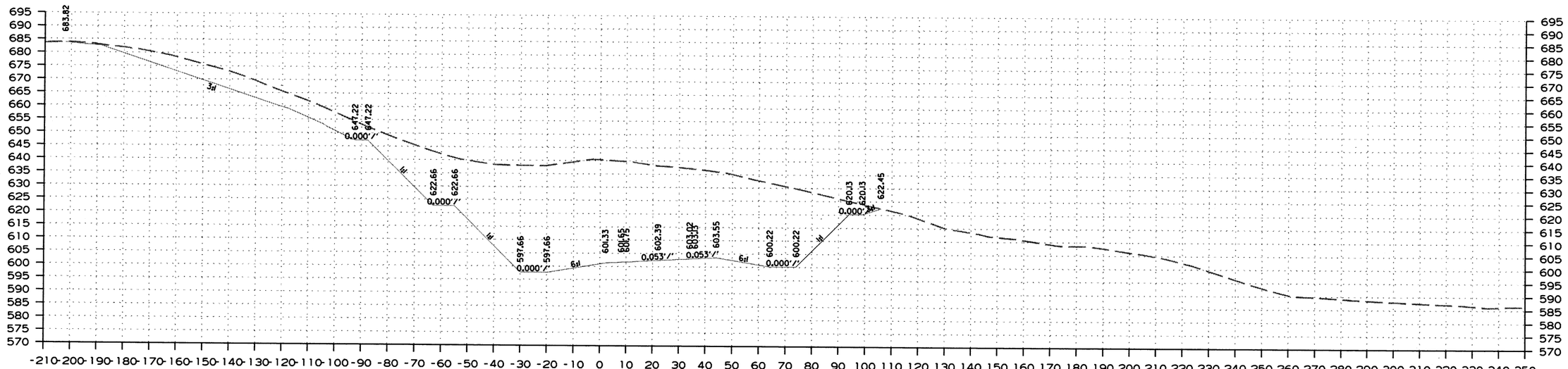
BYPASS
STA. 893+00.00 TO STA. 894+00.00

9/5/2019

RR60140.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.		R60140	465	616

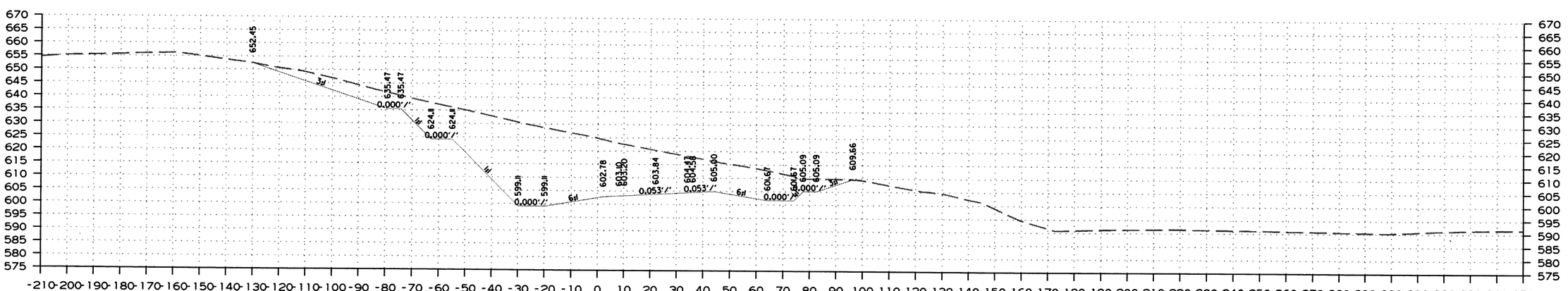
(2) CROSS SECTIONS



CUT AREA 5858 SQ.FT.
FILL AREA 0 SQ.FT.

896+00.00

CUT VOLUME 16285 CU.YD.
FILL VOLUME 0 CU.YD.



CUT AREA 2936 SQ.FT.
FILL AREA 0 SQ.FT.

895+00.00

CUT VOLUME 7067 CU.YD.
FILL VOLUME 330 CU.YD.

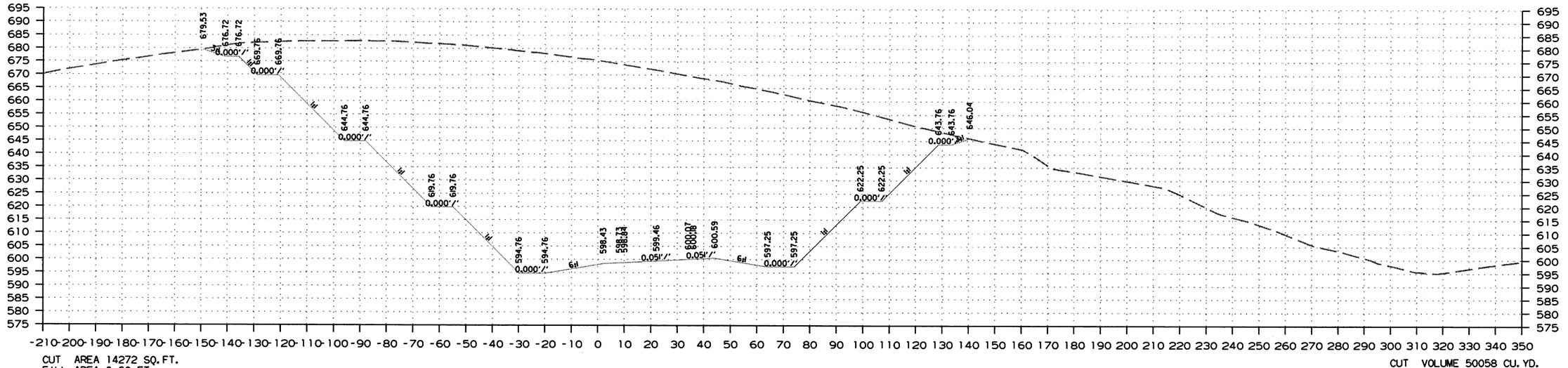
BYPASS
STA. 895+00.00 TO STA. 896+00.00

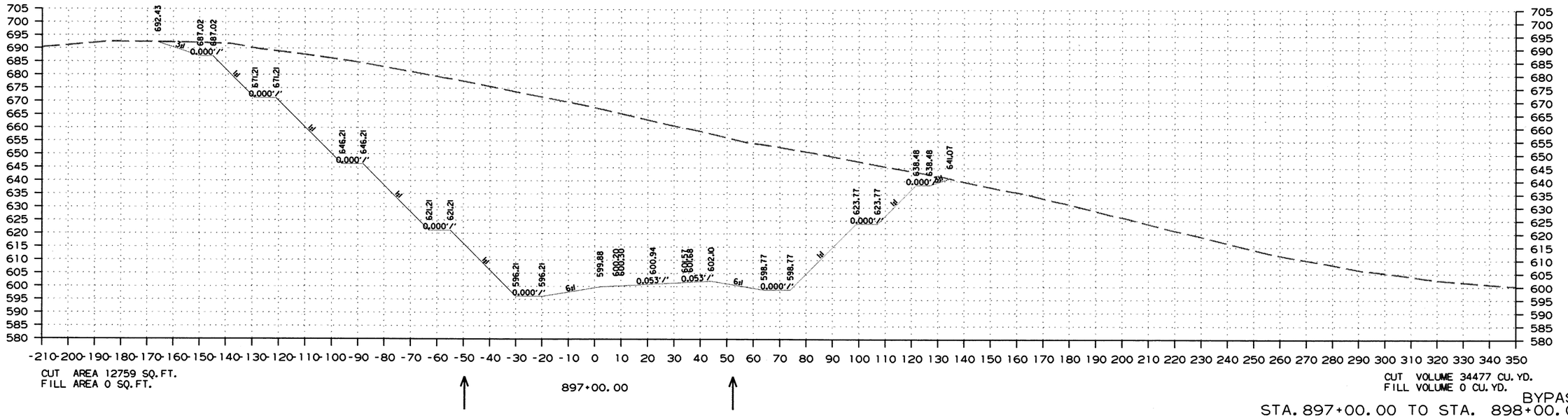
9/5/2019

RR60140.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.		R60140	466	616

(2) CROSS SECTIONS





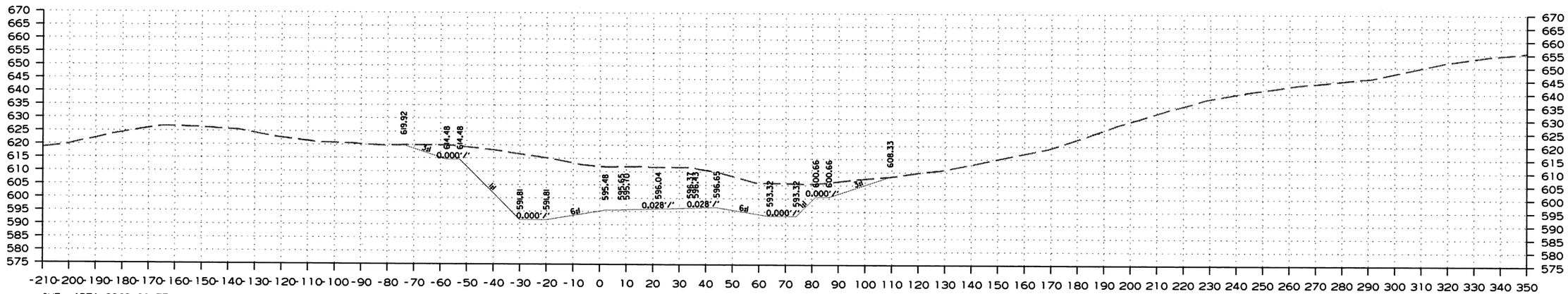
BYPASS
STA. 897+00.00 TO STA. 898+00.00

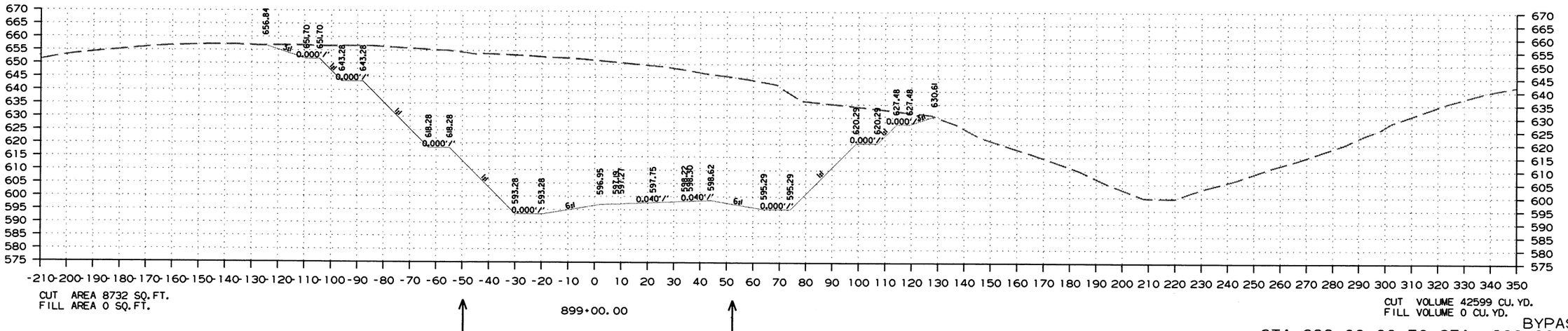
9/5/2019

RR60140.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.		R60140	467	616

(2) CROSS SECTIONS





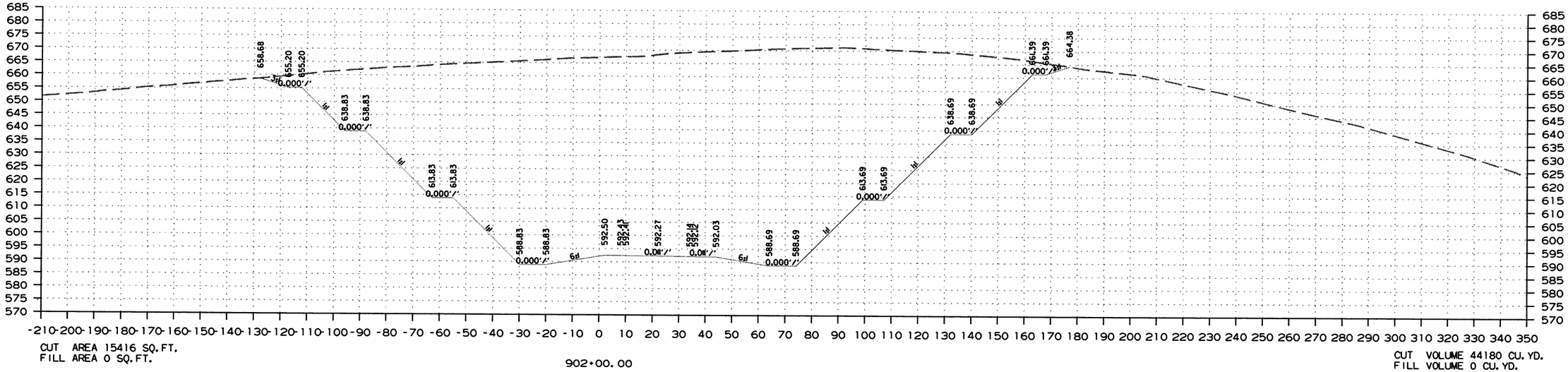
BYPASS
STA. 899+00.00 TO STA. 900+00.00

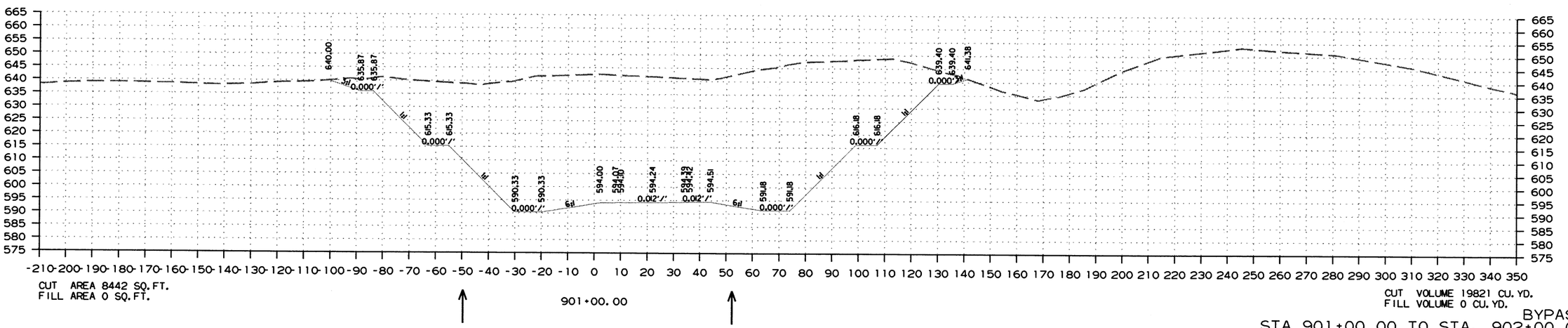
9/5/2019

RR60140.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.		R60140	468	616

(2) CROSS SECTIONS





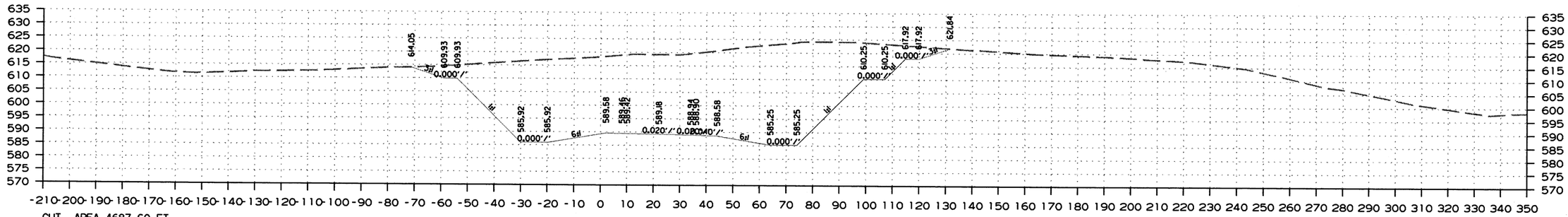
BYPASS
STA. 901+00.00 TO STA. 902+00.00

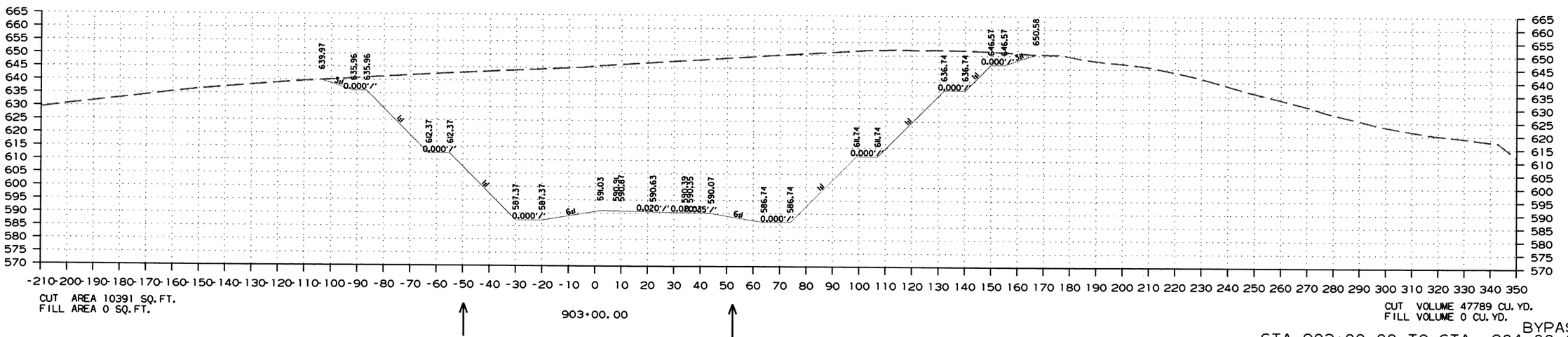
9/5/2019

RR60140.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.		R60140	469	616

(2) CROSS SECTIONS





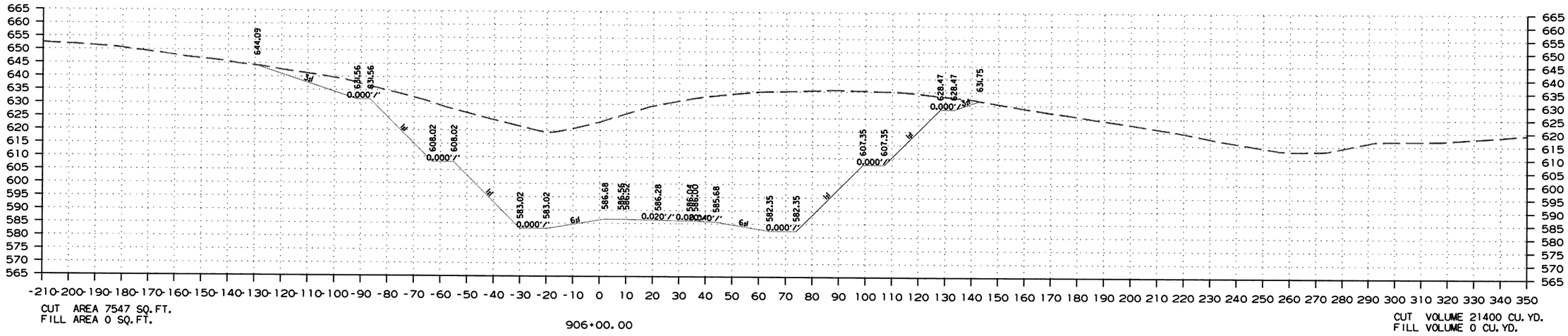
BYPASS
STA. 903+00.00 TO STA. 904+00.00

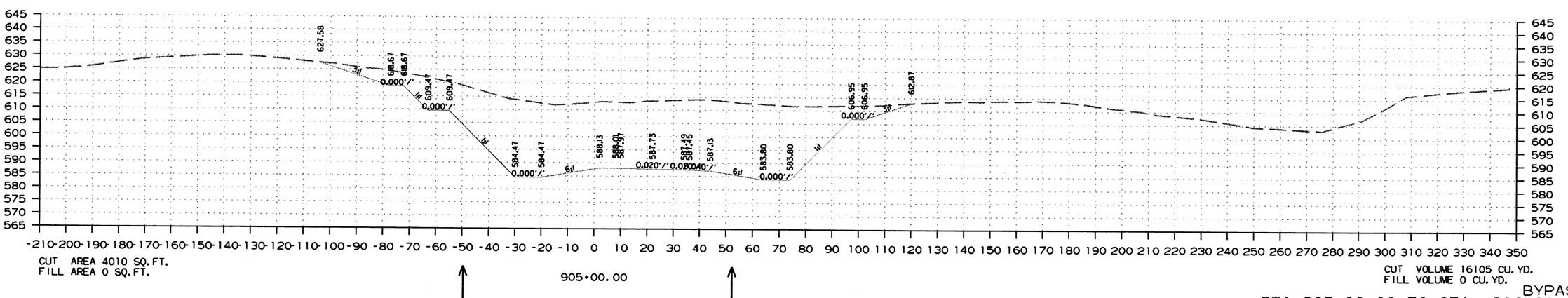
9/5/2019

RR60140.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.		R60140	470	616

(2) CROSS SECTIONS





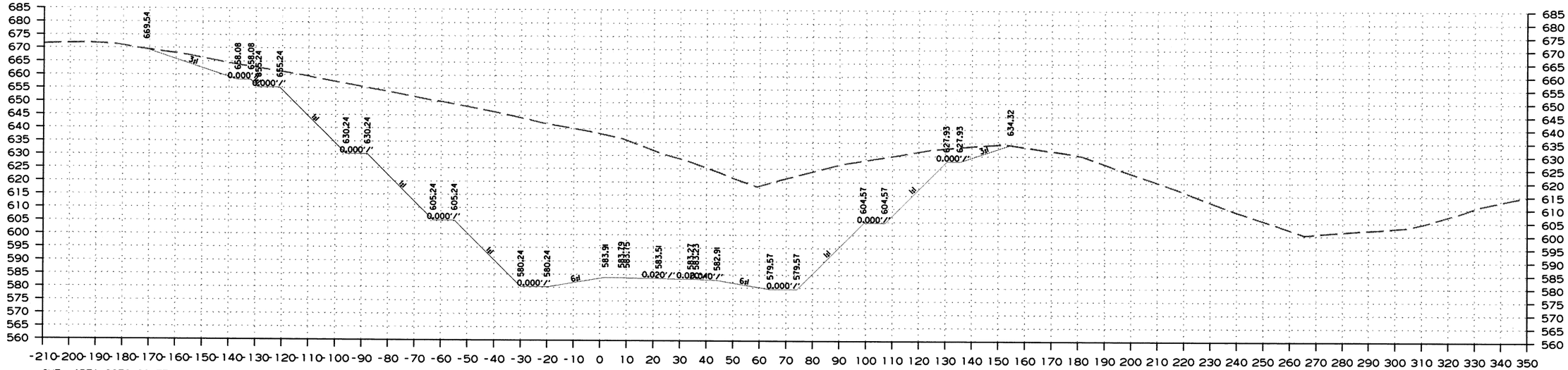
BYPASS
STA. 905+00.00 TO STA. 906+00.00

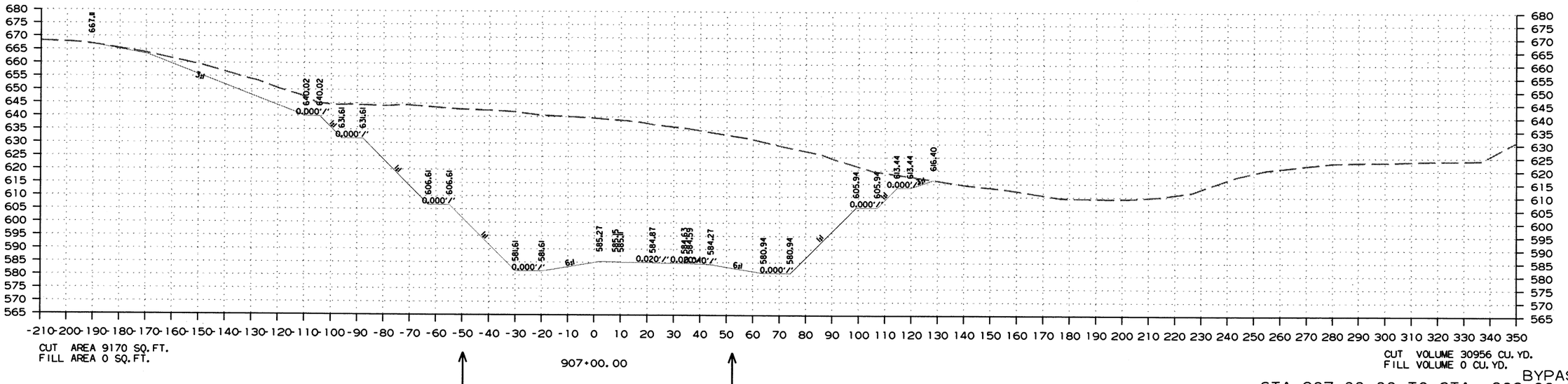
9/5/2019

RR60140.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.		R60140	471	616

(2) CROSS SECTIONS





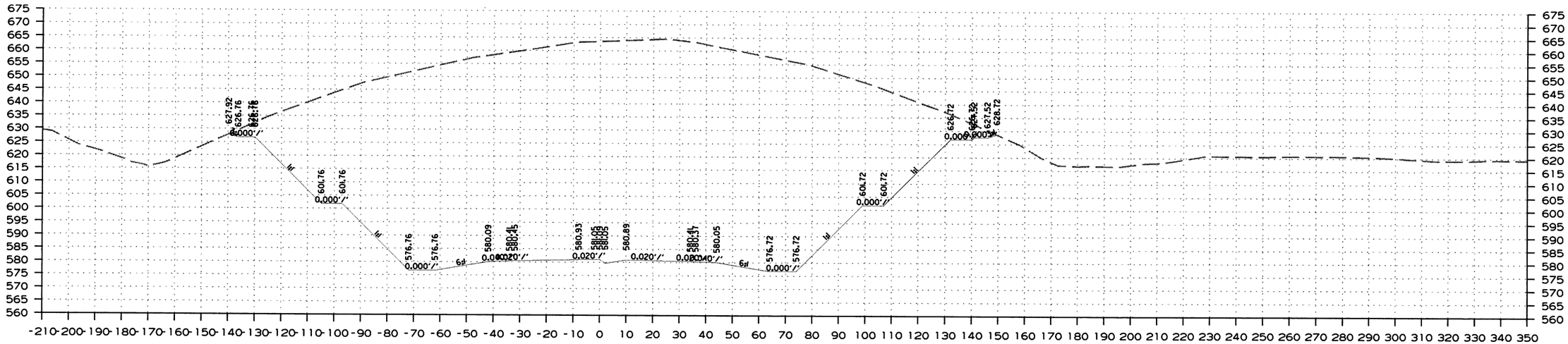
9/5/2019

RR60140.DGN

BYPASS
STA. 907+00.00 TO STA. 908+00.00

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.		R60140	472	616

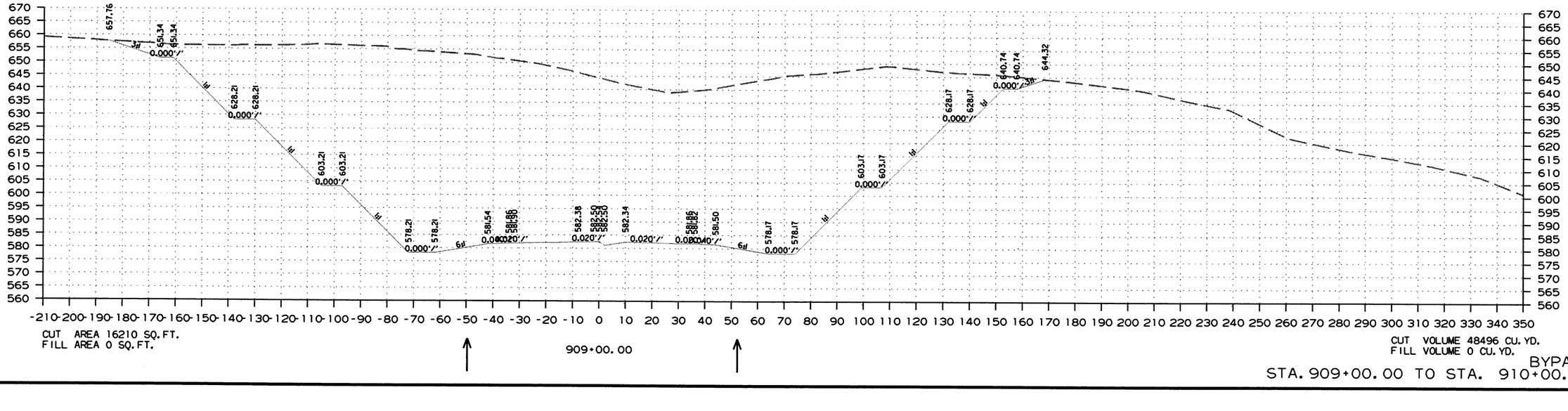
(2) CROSS SECTIONS



CUT AREA 16925 SQ. FT.
FILL AREA 0 SQ. FT.

910+00.00

CUT VOLUME 61360 CU. YD.
FILL VOLUME 0 CU. YD.



CUT AREA 16210 SQ. FT.
FILL AREA 0 SQ. FT.

909+00.00

CUT VOLUME 48496 CU. YD.
FILL VOLUME 0 CU. YD.

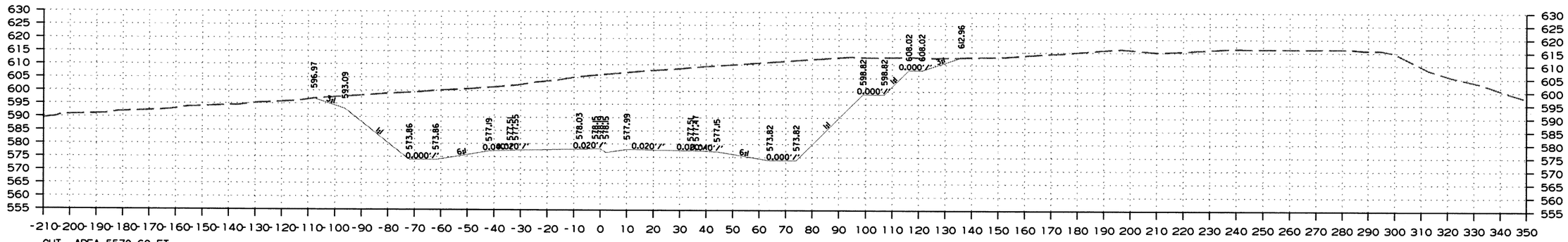
BYPASS
STA. 909+00.00 TO STA. 910+00.00

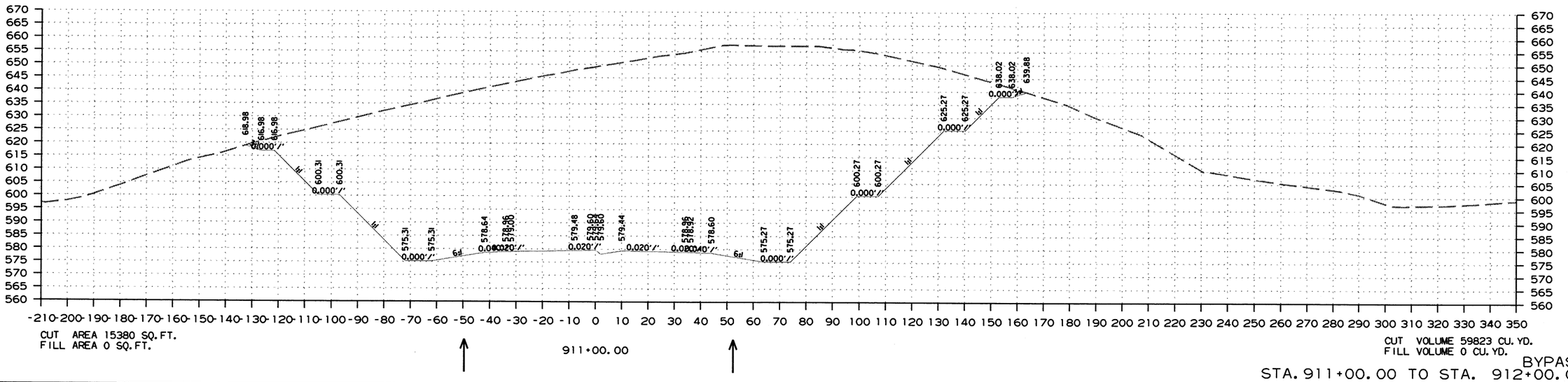
9/5/2019

RR60140.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.		R60140	473	616

(2) CROSS SECTIONS





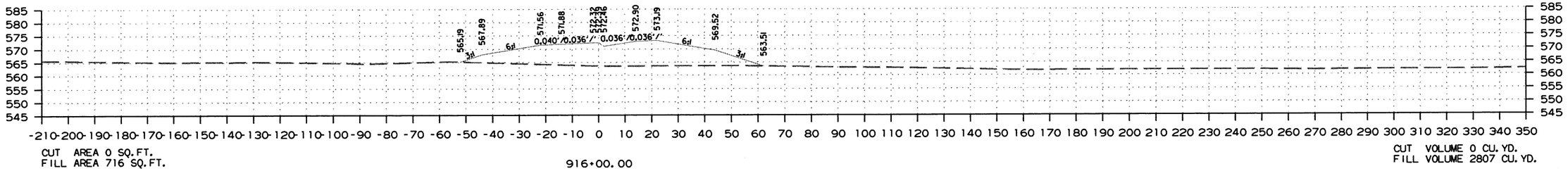
BYPASS
STA. 911+00.00 TO STA. 912+00.00

9/5/2019

RR60140.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.		R60140	474	616

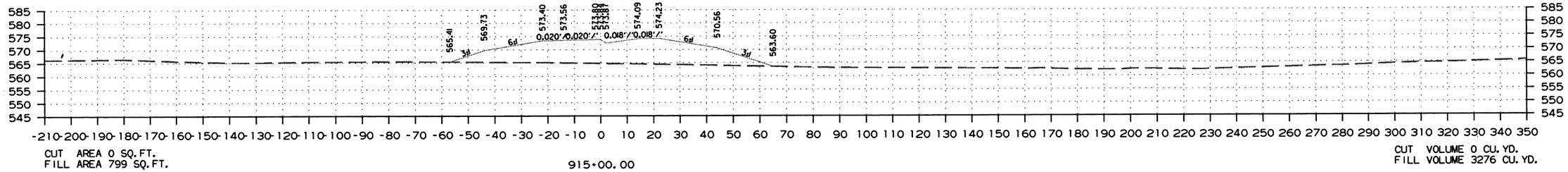
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 716 SQ.FT.

916+00.00

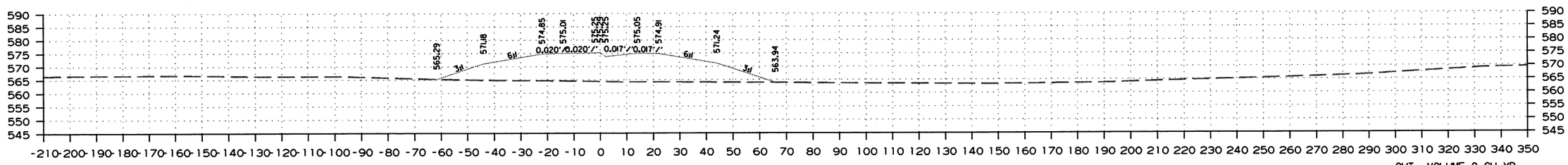
CUT VOLUME 0 CU.YD.
FILL VOLUME 2807 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 799 SQ.FT.

915+00.00

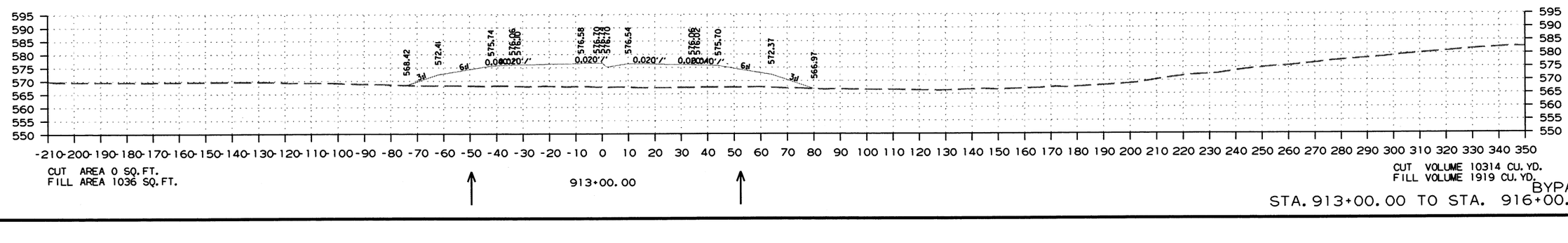
CUT VOLUME 0 CU.YD.
FILL VOLUME 3276 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 970 SQ.FT.

914+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 3715 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 1036 SQ.FT.

913+00.00

CUT VOLUME 10314 CU.YD.
FILL VOLUME 1919 CU.YD.

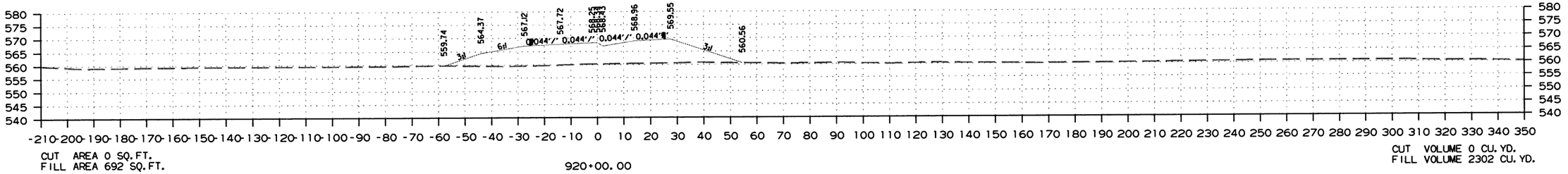
BYPASS
STA. 913+00.00 TO STA. 916+00.00

9/5/2019

RR60140.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.		R60140	475	616

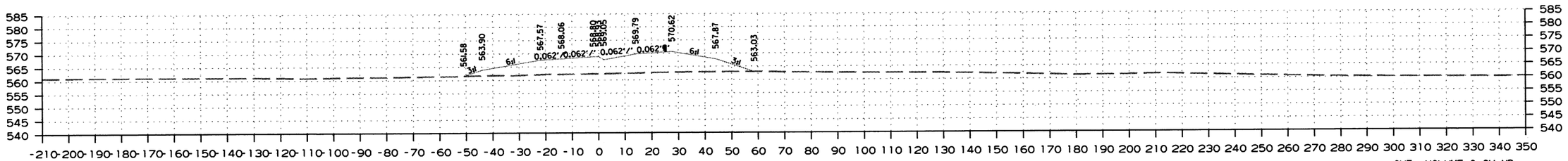
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 692 SQ.FT.

920+00.00

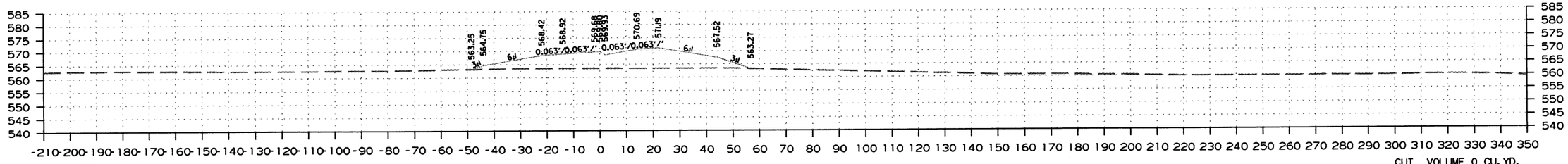
CUT VOLUME 0 CU.YD.
FILL VOLUME 2302 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 551 SQ.FT.

919+00.00

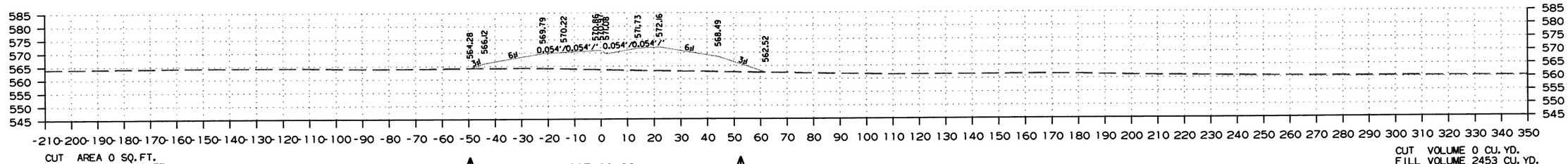
CUT VOLUME 0 CU.YD.
FILL VOLUME 1937 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 495 SQ.FT.

918+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 2044 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 608 SQ.FT.

917+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 2453 CU.YD.

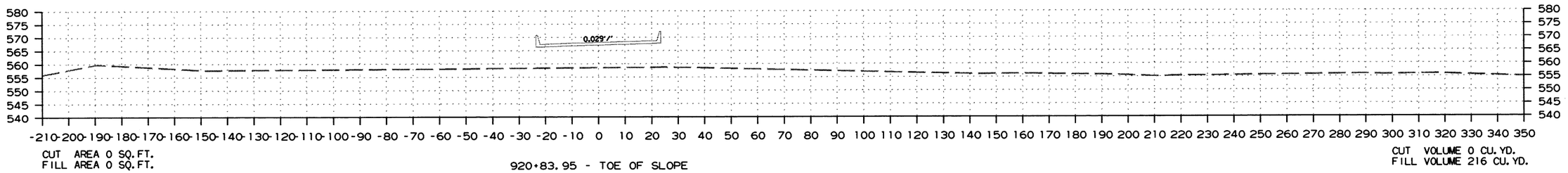
BYPASS
STA. 917+00.00 TO STA. 920+00.00

9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	475A	616

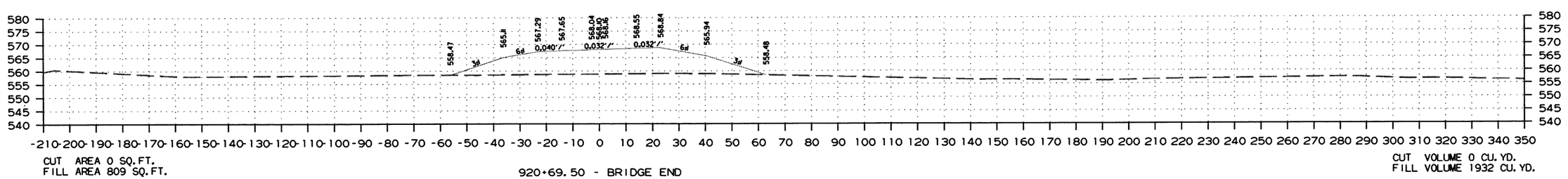
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.

920+83.95 - TOE OF SLOPE

CUT VOLUME 0 CU.YD.
FILL VOLUME 216 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 809 SQ.FT.

920+69.50 - BRIDGE END

CUT VOLUME 0 CU.YD.
FILL VOLUME 1932 CU.YD.

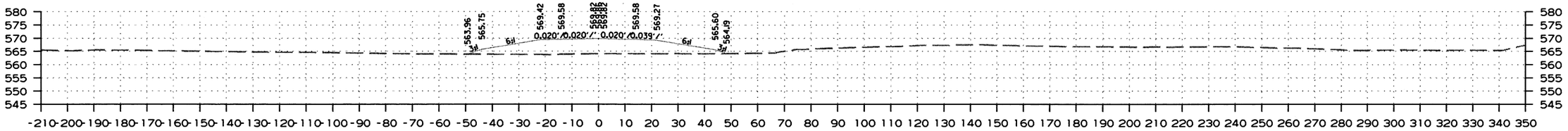
STA. 920+69.50 TO STA. 920+83.95

9/5/2019

RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	476	616

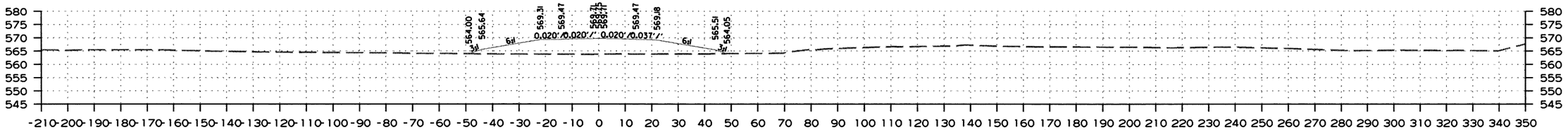
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 400 SQ.FT.

923+05.44

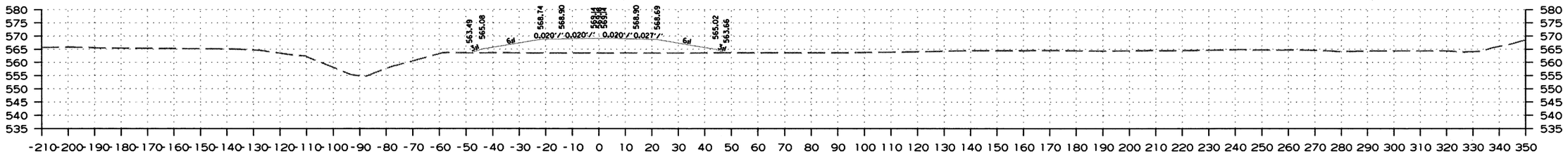
CUT VOLUME 0 CU.YD.
FILL VOLUME 80 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 399 SQ.FT.

923+00.00

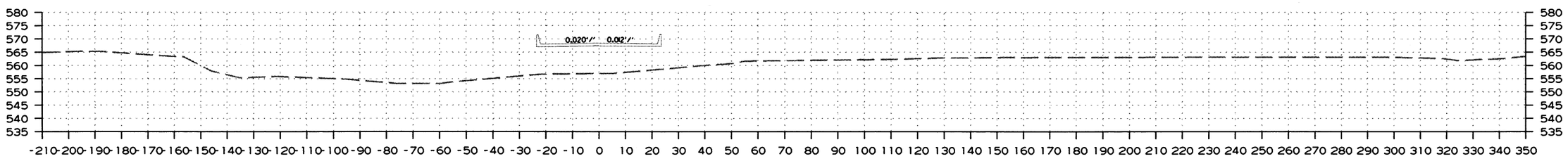
CUT VOLUME 0 CU.YD.
FILL VOLUME 411 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 384 SQ.FT.

922+71.66 - BRIDGE END

CUT VOLUME 0 CU.YD.
FILL VOLUME 306 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.

922+28.56 - TOE OF SLOPE

CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.

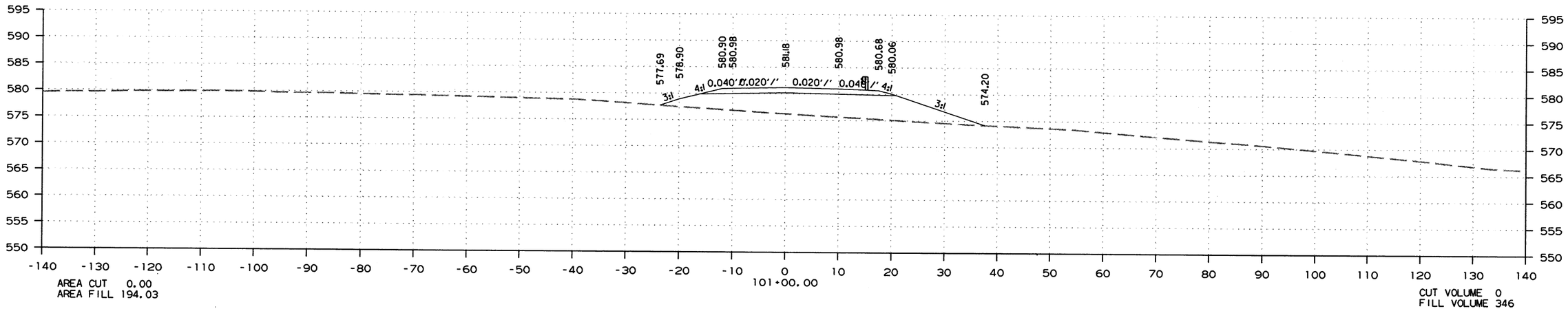
BYPASS
STA. 922+28.56 TO STA. 923+05.44

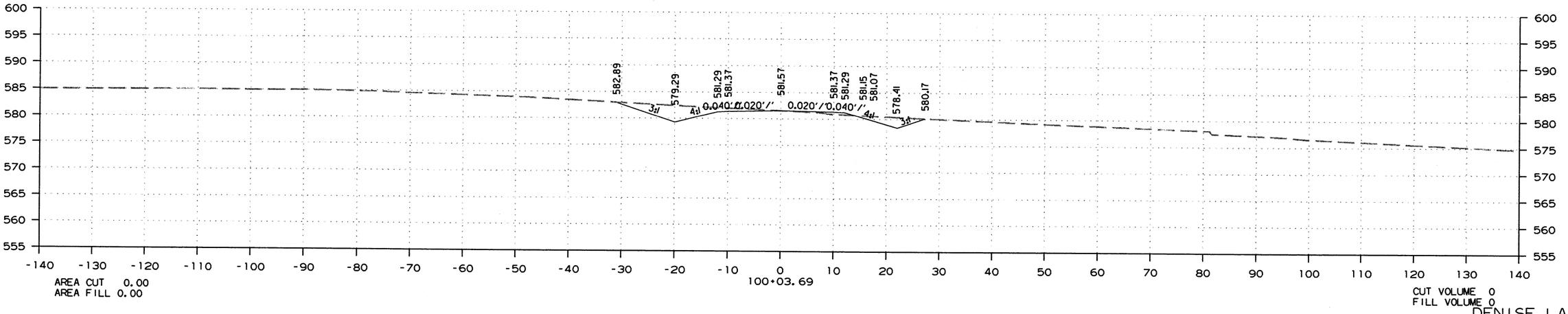
9/5/2019

RR60140.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.		R60140	477	616

(2) CROSS SECTIONS- DENISE LANE



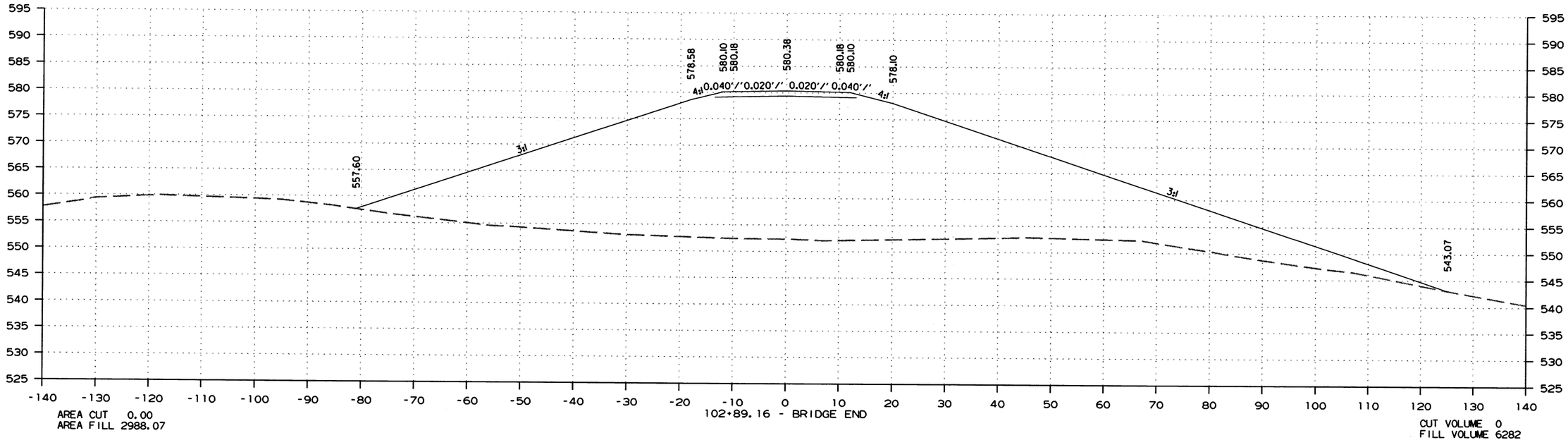


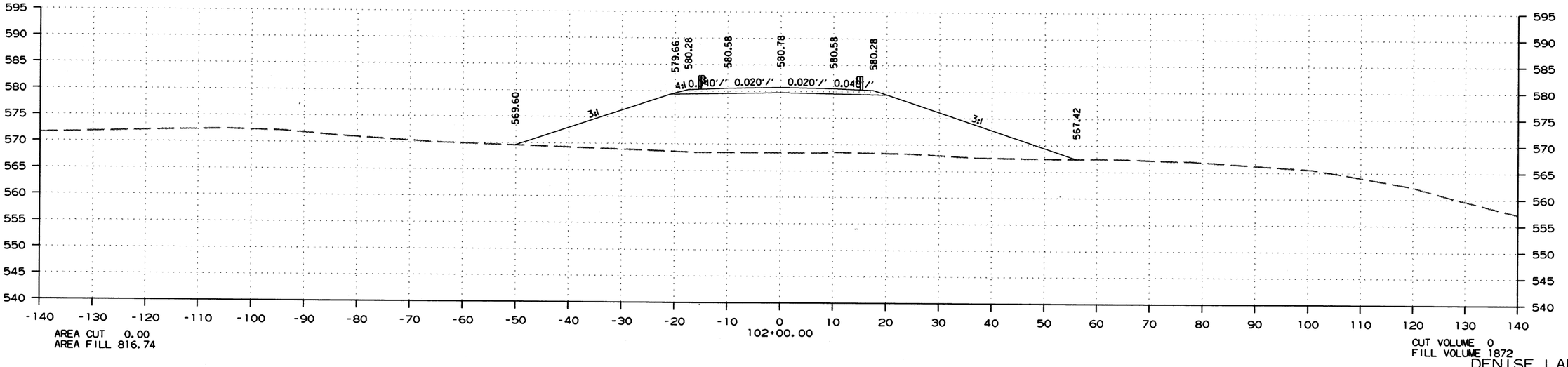
DENISE LANE
STA. 100+03.69 TO STA. 101+00.00

qh40749 9/5/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	478	616

(2) CROSS SECTIONS- DENISE LANE



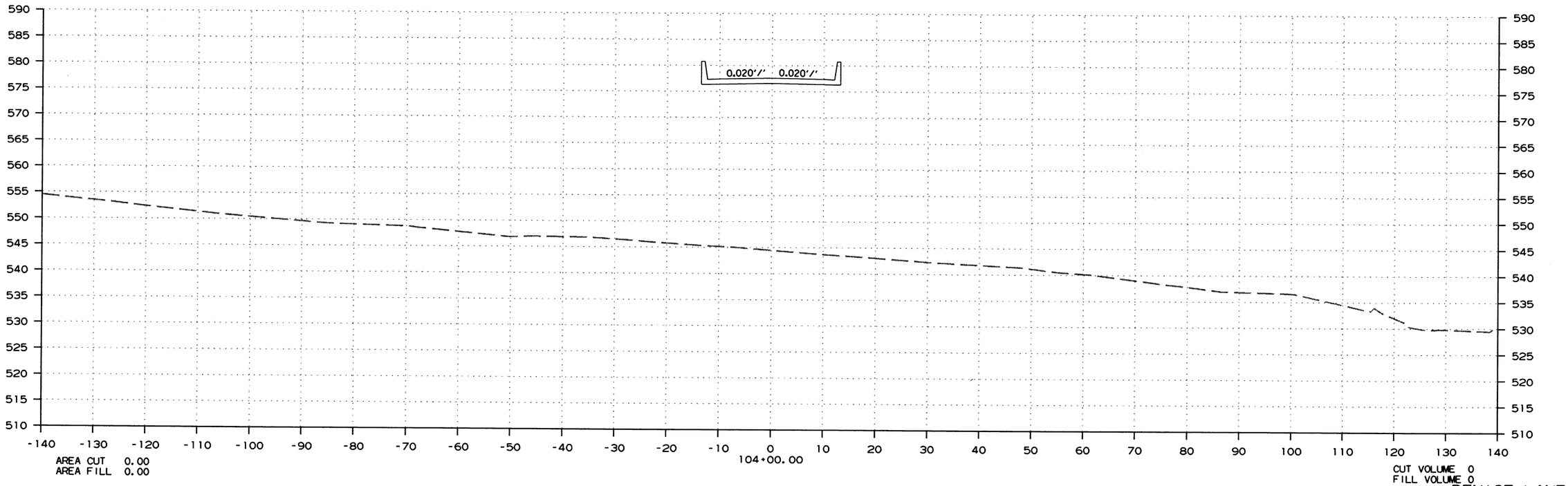


DENISE LANE
STA. 102+00.00 TO STA. 103+00.00

dr40749 9/5/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	479	616

(2) CROSS SECTIONS- DENISE LANE

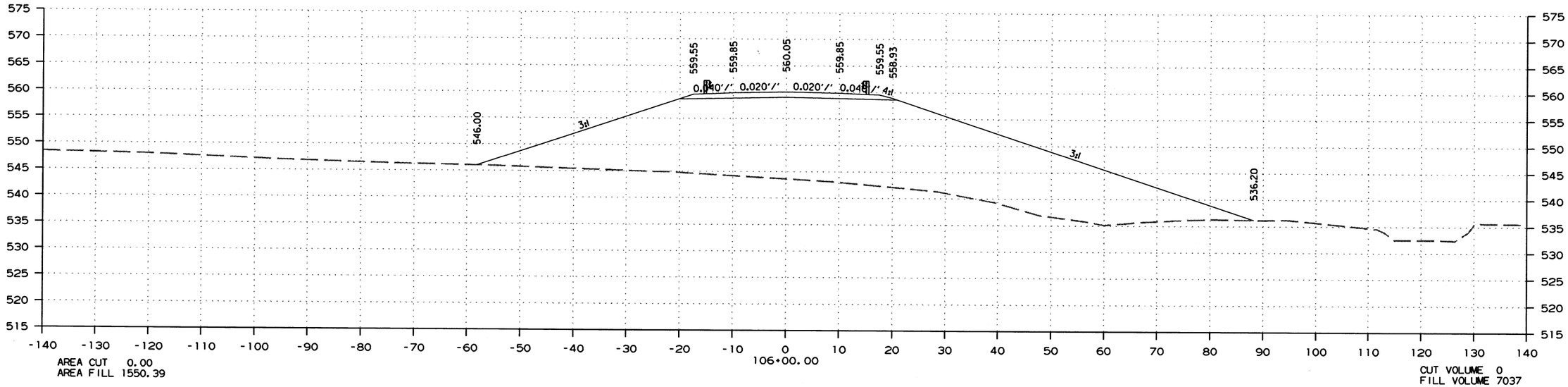


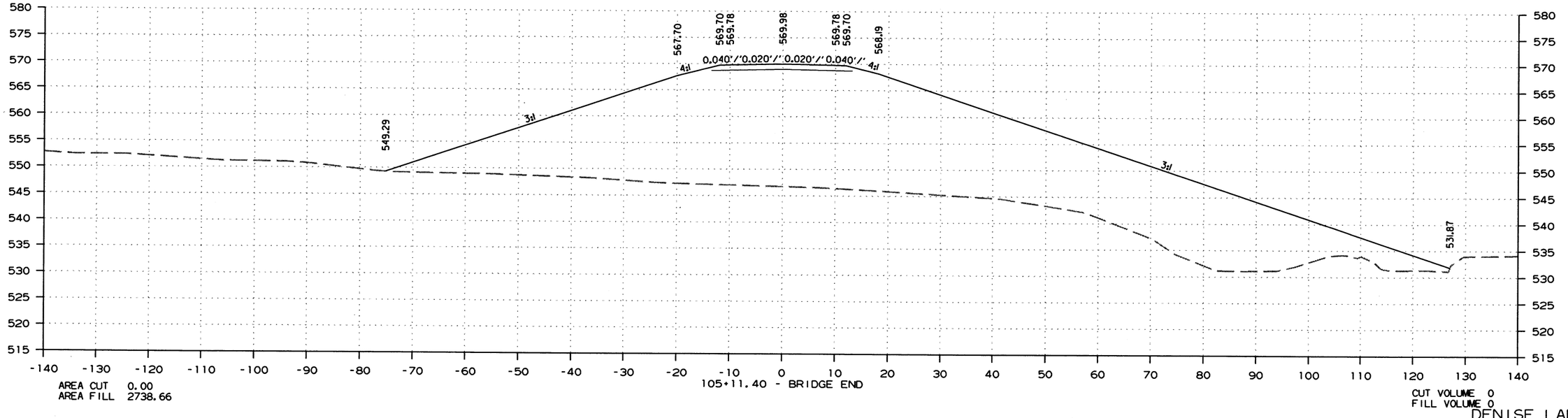
DENISE LANE
STA. 104+00.00 TO STA. 104+00.00

ah40749 9/5/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	480	616

(2) CROSS SECTIONS- DENISE LANE



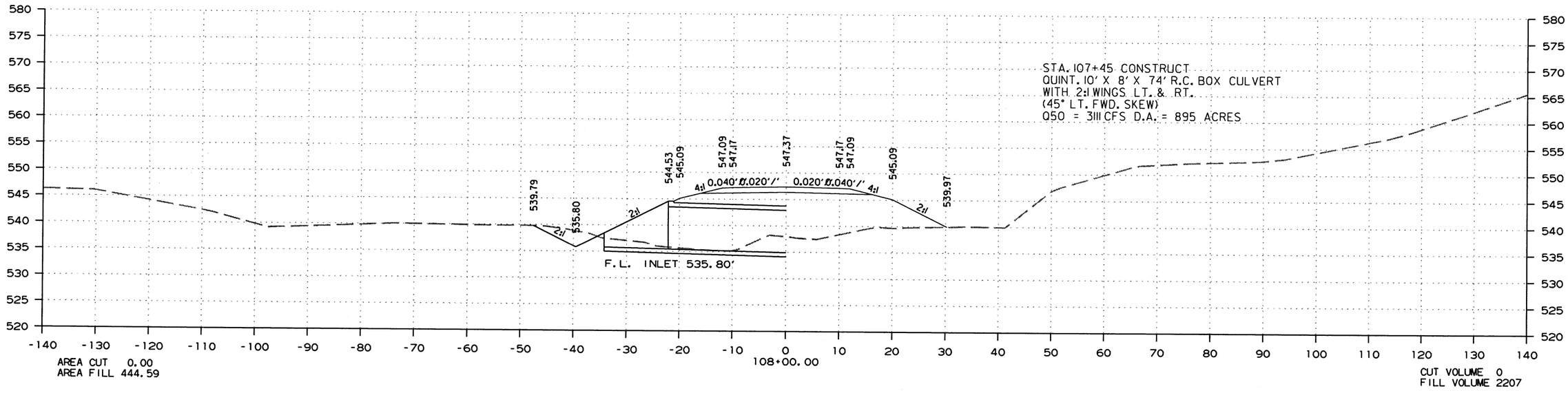


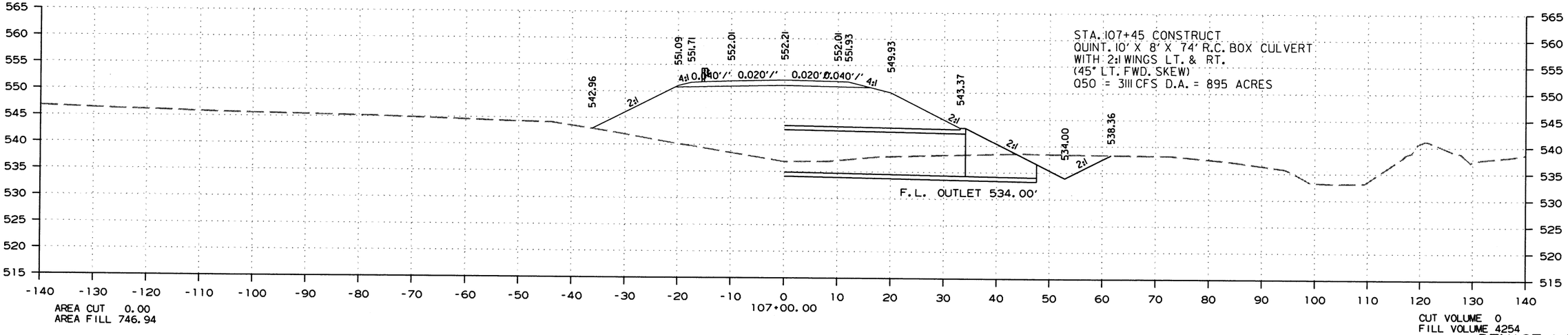
DENISE LANE
STA. 105+00.00 TO STA. 106+00.00

oh40749 9/5/2019
RR60140.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.		R60140	481	616

(2) CROSS SECTIONS- DENISE LANE



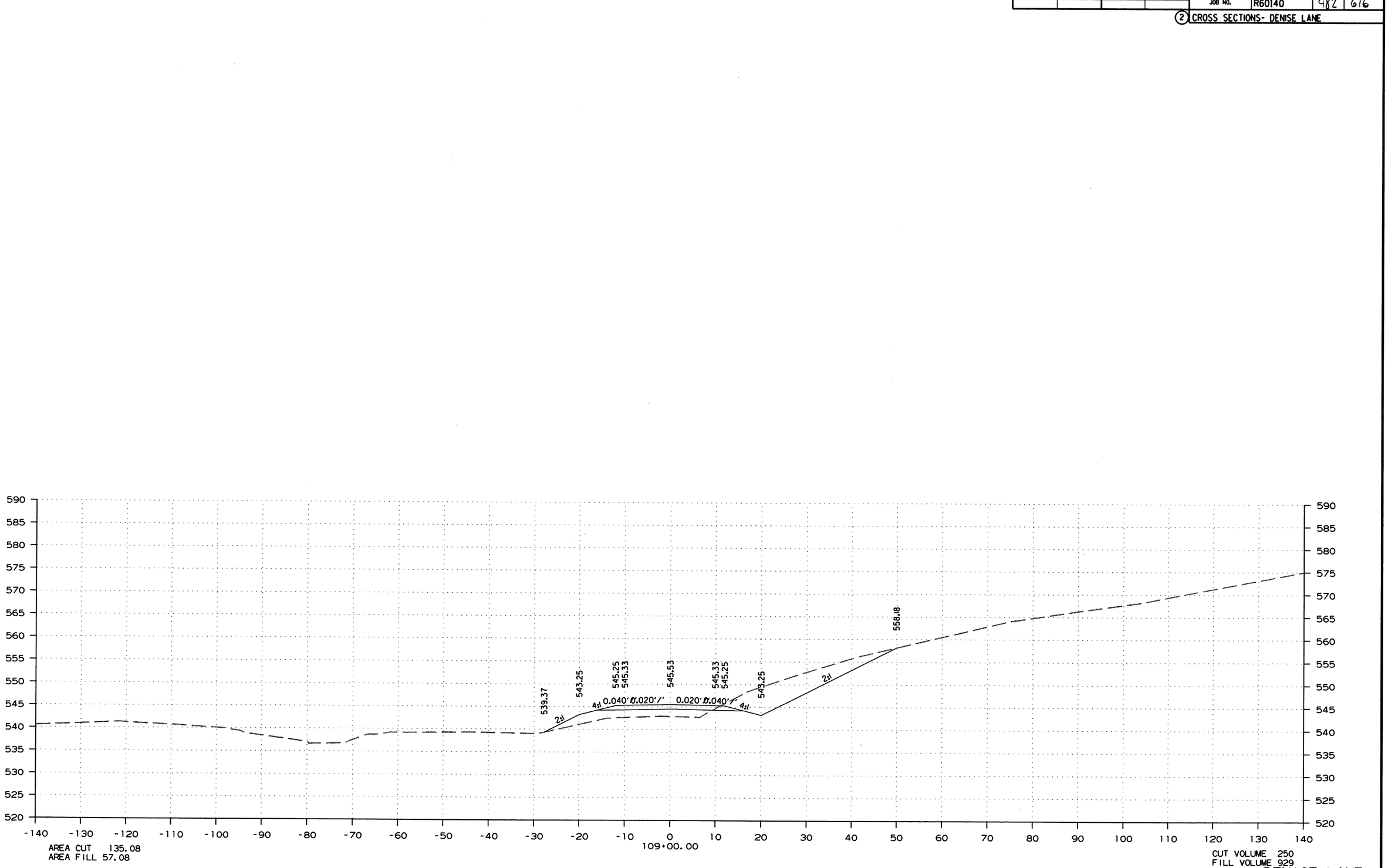


DENISE LANE
STA. 107+00.00 TO STA. 108+00.00

dn40749 9/5/2019
RR60140.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.		R60140	482	616

(2) CROSS SECTIONS- DENISE LANE



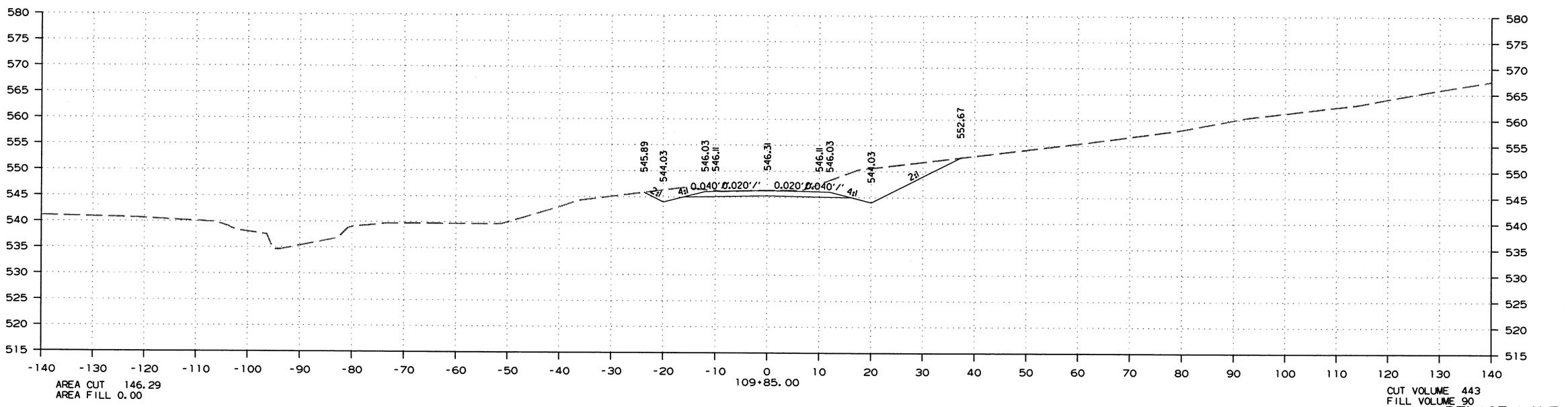
DENISE LANE
STA. 109+00.00 TO STA. 109+00.00

dh40749 9/5/2019
RR60140.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.		R60140	483	616

(2) CROSS SECTIONS- DENISE LANE



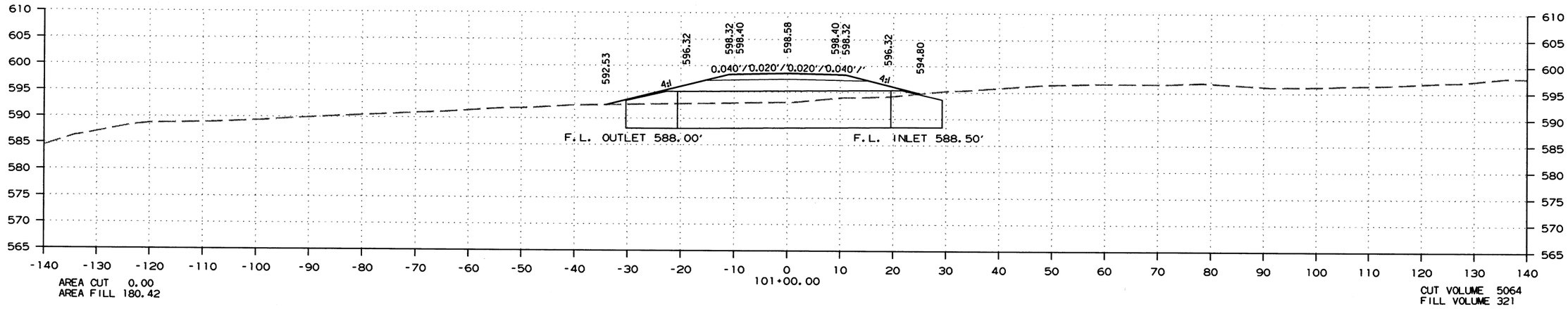
DENISE LANE
STA. 109+85.00 TO STA. 109+85.00

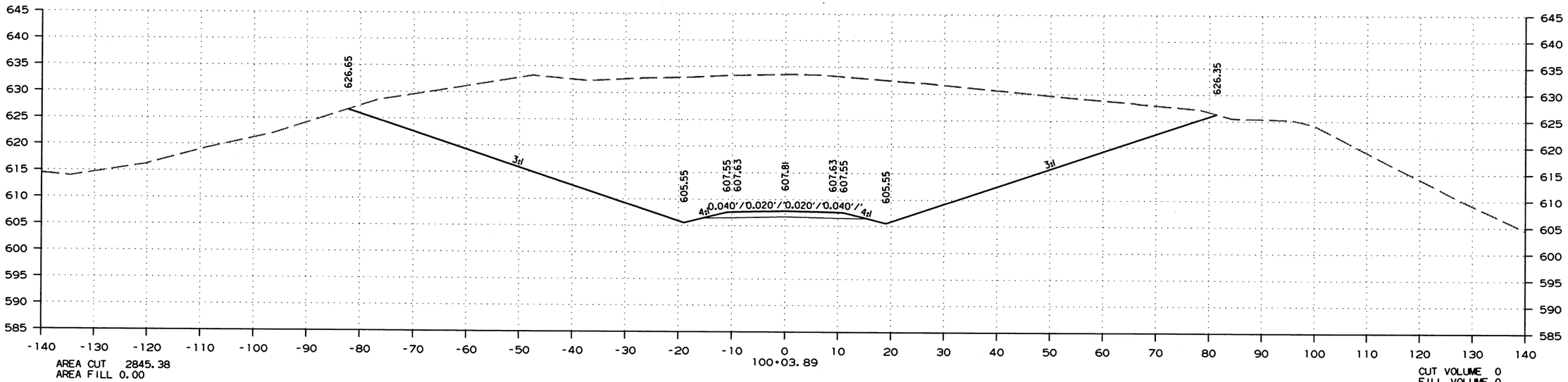
dh40749 9/5/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	484	616

(2) CROSS SECTIONS- COVENANT TRAIL

STA. 100+15 CONSTRUCT
DBL. 84" X 40' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 585 CFS D.A. = 162 ACRES
84" R.C. PIPE = 80 LIN. FT.
84" FES = 4 EA.



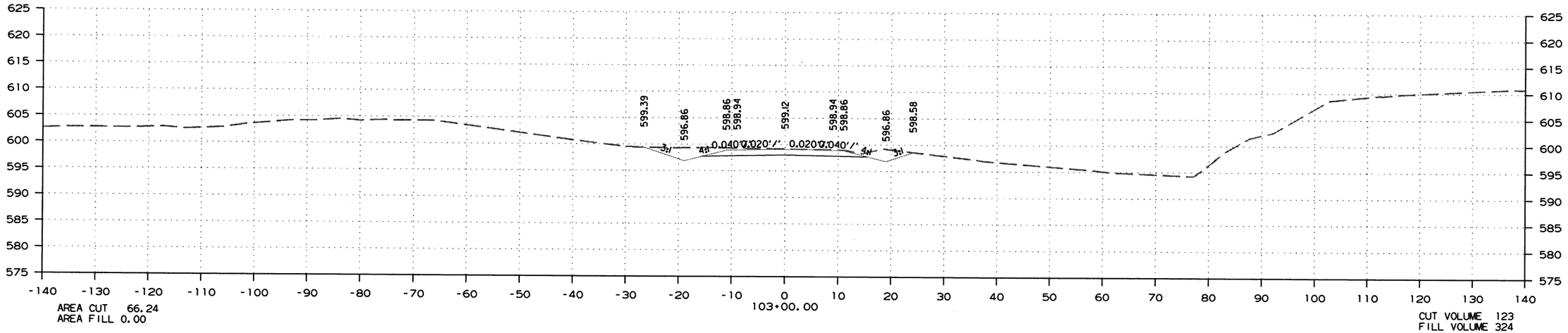


COVENANT TRAIL
STA. 100+03.89 TO STA. 101+00.00

oh40749 9/5/2019
RR60140.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.		R60140	485	616

(2) CROSS SECTIONS- COVENANT TRAIL

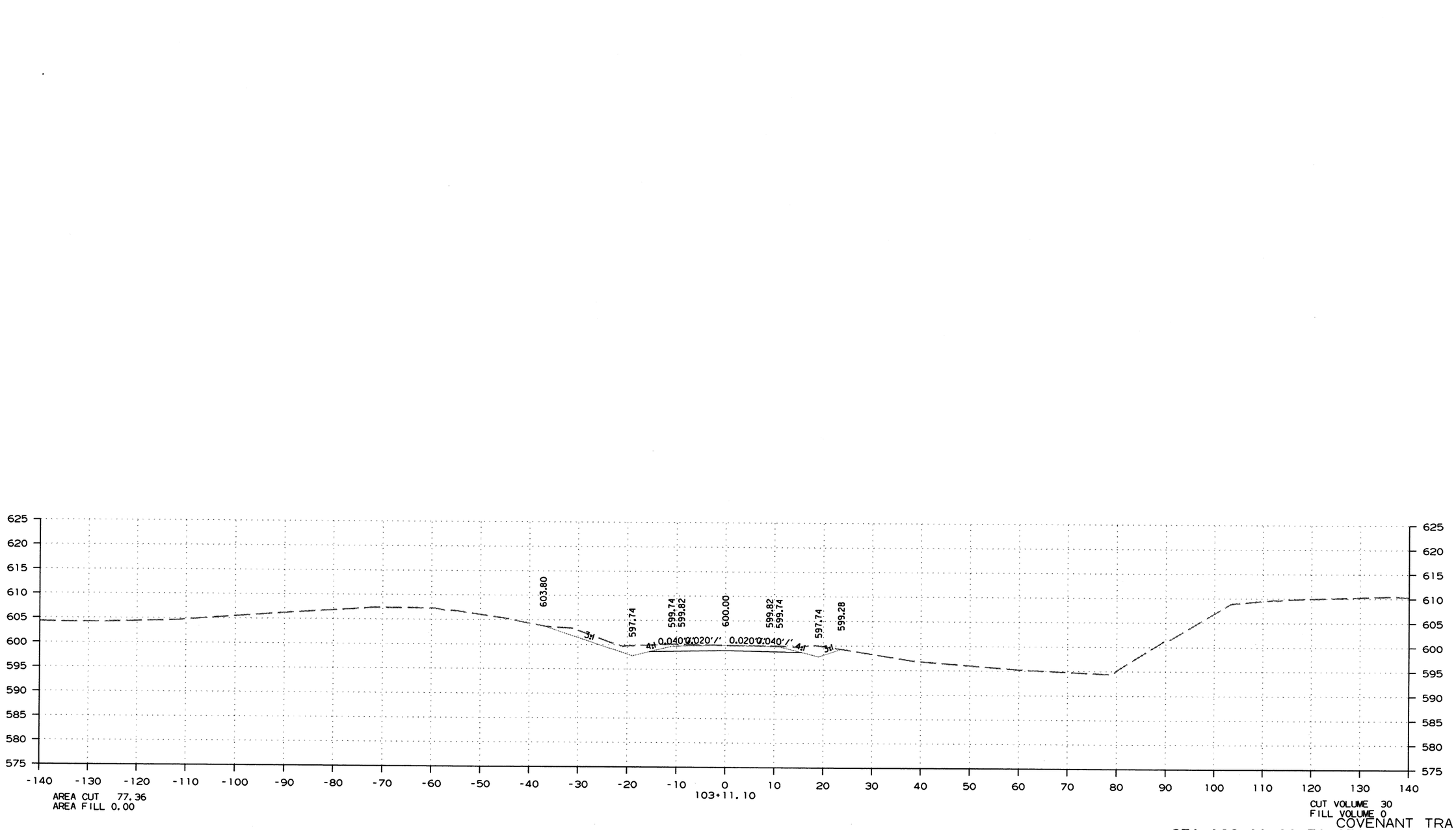


COVENANT TRAIL
STA. 102+00.00 TO STA. 103+00.00

dh40749 9/5/2019
RR60140.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.		R60140	486	616

(2) CROSS SECTIONS- COVENANT TRAIL



AREA CUT 77.36
AREA FILL 0.00

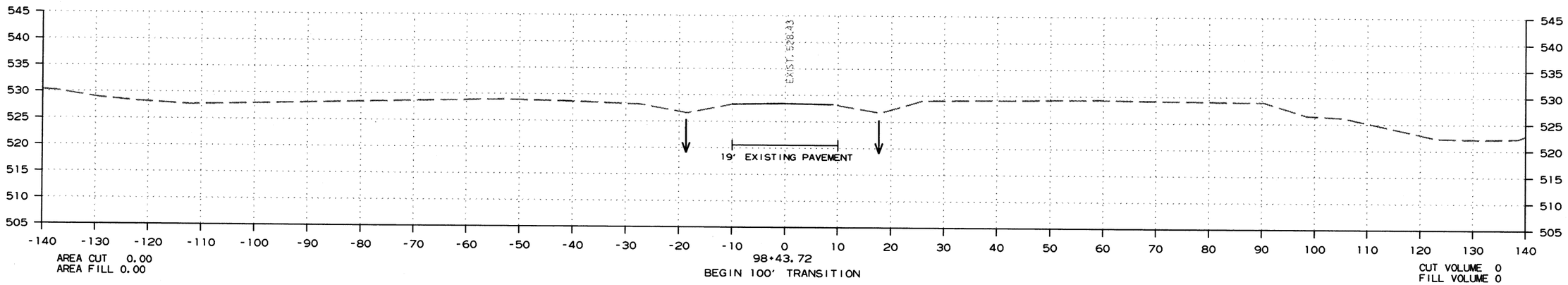
CUT VOLUME 30
FILL VOLUME 0

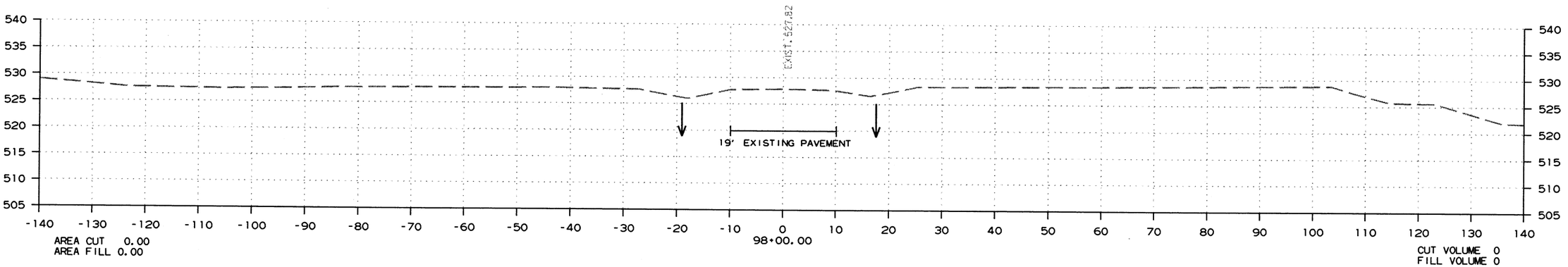
COVENANT TRAIL
STA. 103+11.10 TO STA. 103+11.10

dh40749 9/5/2019
RR60140.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.		R60140	487	616

(2) CROSS SECTIONS- MILL CREEK ROAD



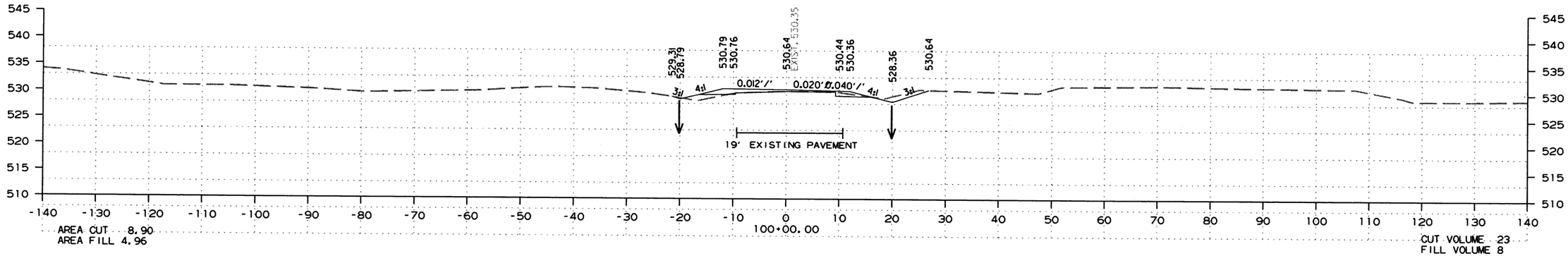


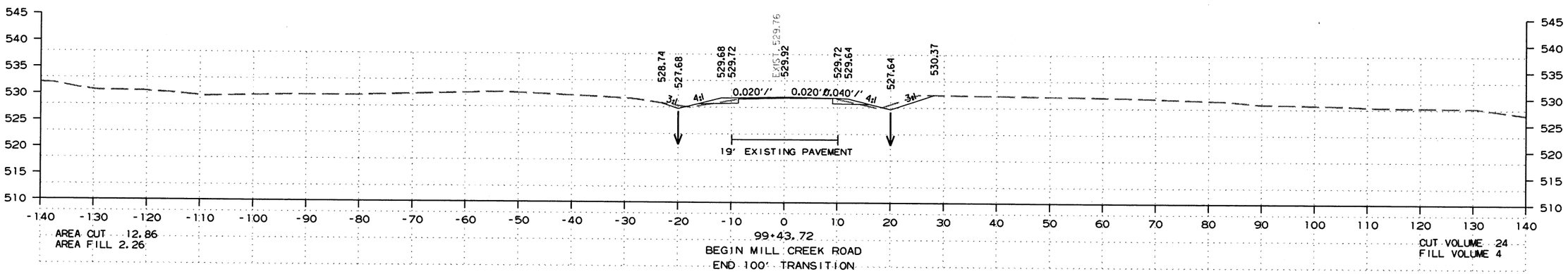
STA. 98+00.00 TO STA. 98+43.72

8/16/2019
dn40749
RR60140.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.		R60140	498	616

(2) CROSS SECTIONS- MILL CREEK ROAD



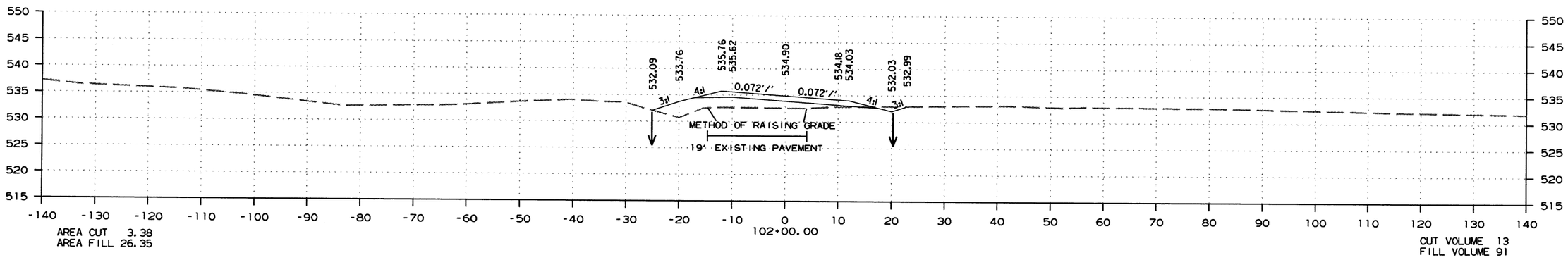


STA. 99+43.72 TO STA. 100+00.00

dh40749 8/16/2019
RR60140.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.		R60140	489	616

(2) CROSS SECTIONS- MILL CREEK ROAD

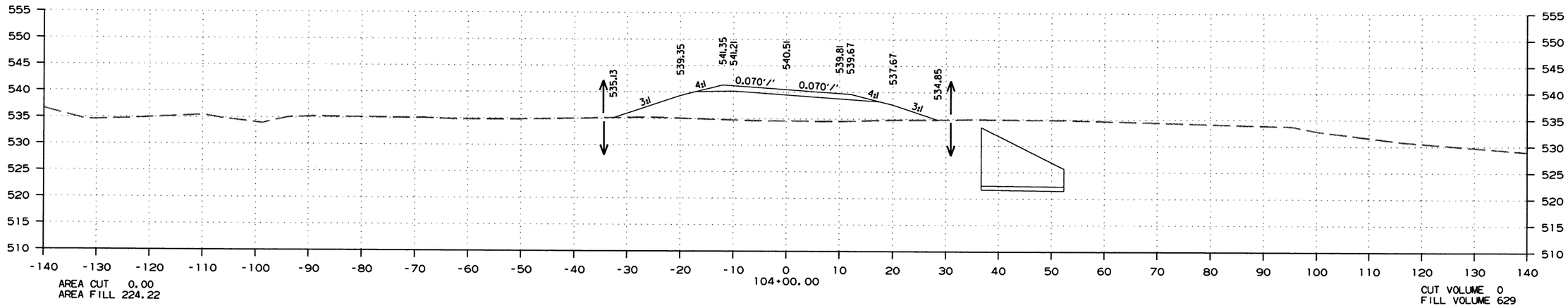


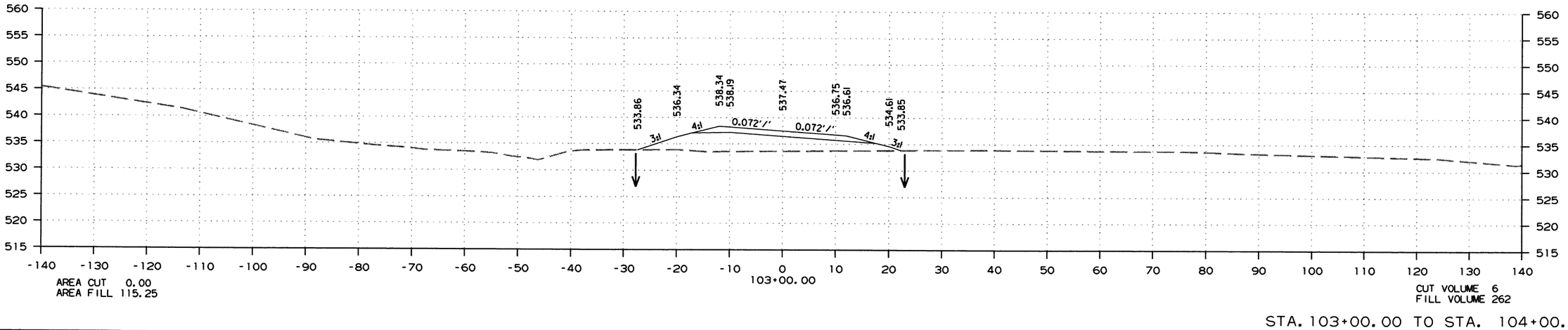
STA. 101+00.00 TO STA. 102+00.00

dh40749 8/16/2019
RR60140.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.		R60140	490	616

(2) CROSS SECTIONS- MILL CREEK ROAD



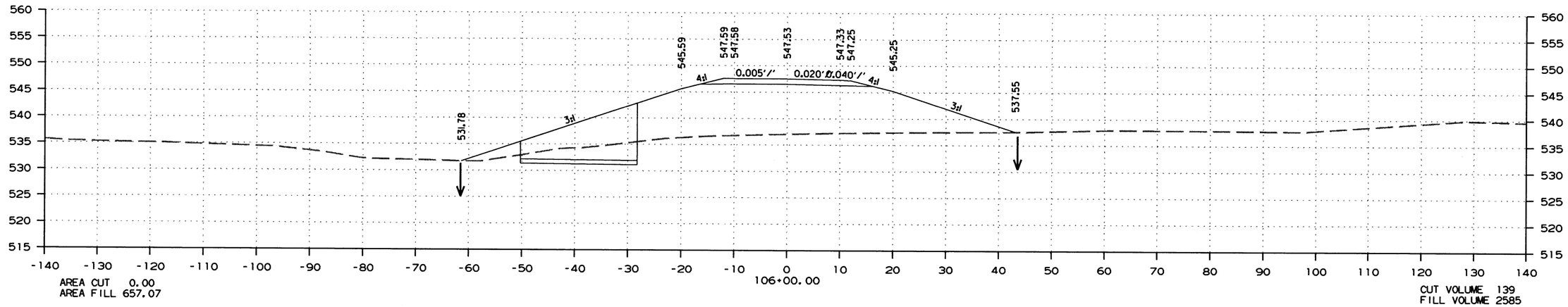


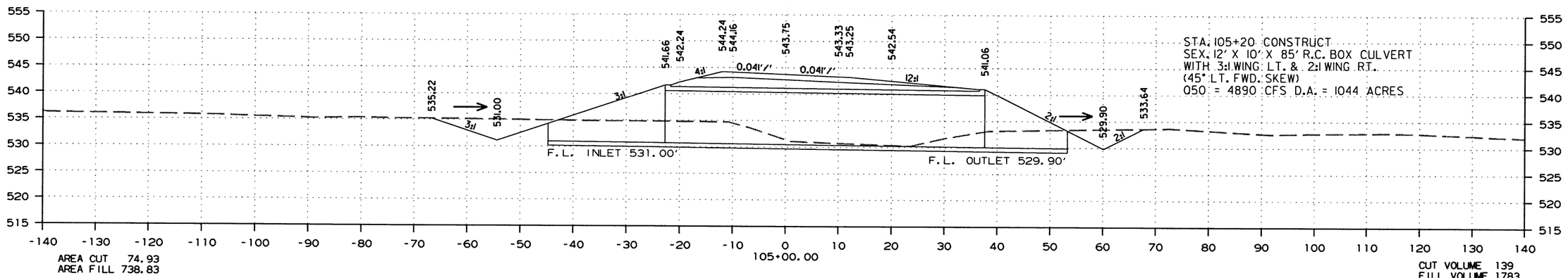
STA. 103+00.00 TO STA. 104+00.00

oh40749 8/16/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	491	616

(2) CROSS SECTIONS



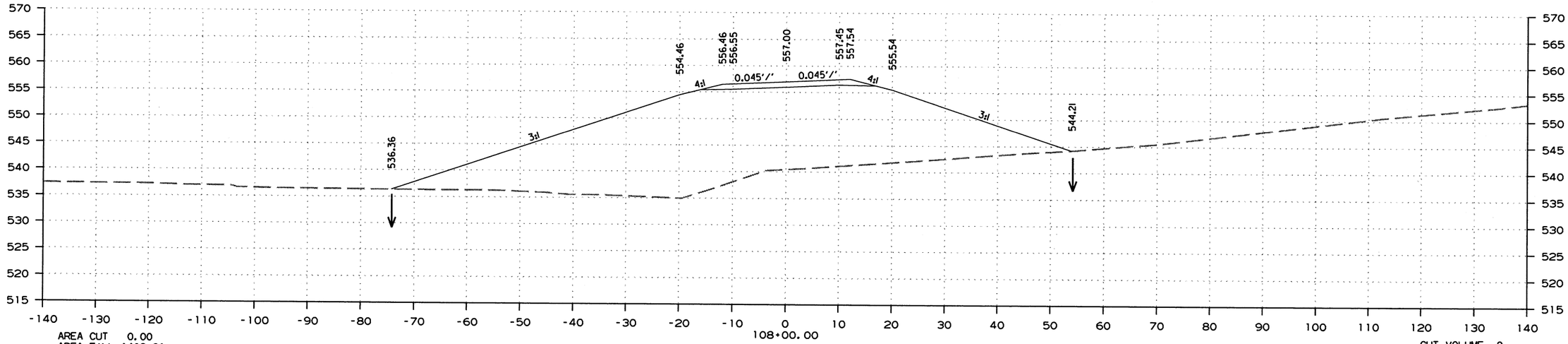


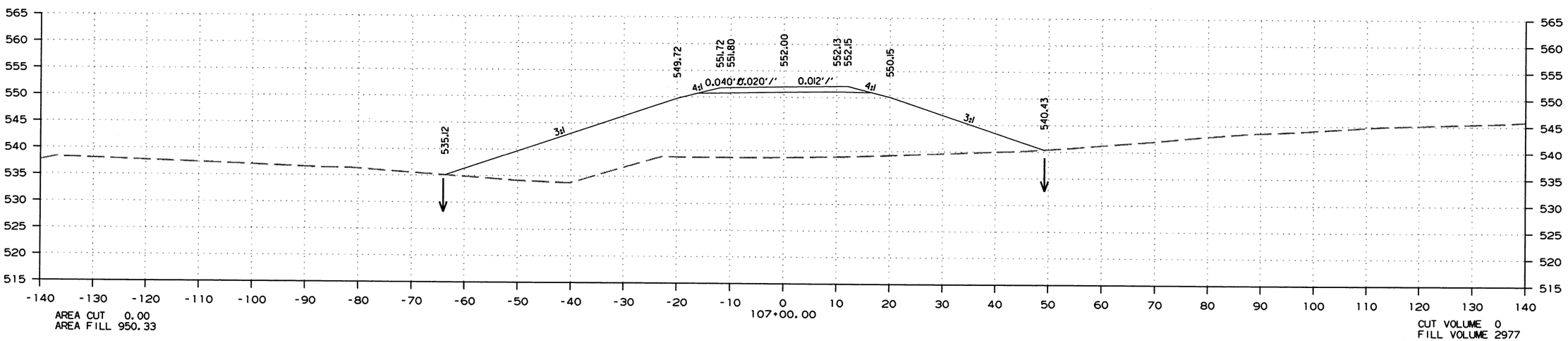
MILL CREEK ROAD
STA. 105+00.00 TO STA. 106+00.00

qh40749 10/3/2019
RR60140.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.		R60140	492	616

(2) CROSS SECTIONS- MILL CREEK ROAD



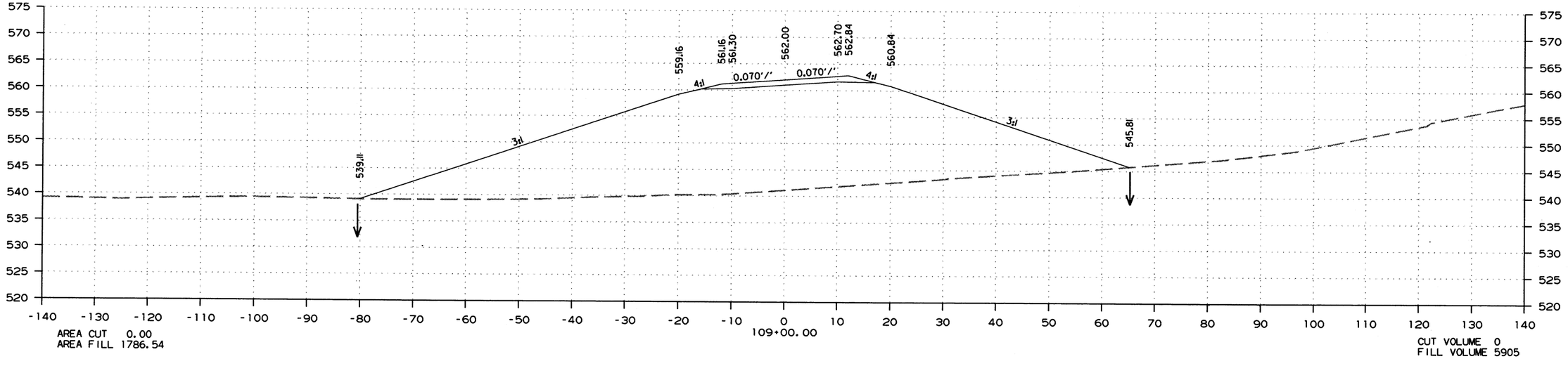


STA. 107+00.00 TO STA. 108+00.00

qh40749 8/16/2019
RR60140.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.		R60140	493	616

(2) CROSS SECTIONS- MILL CREEK ROAD

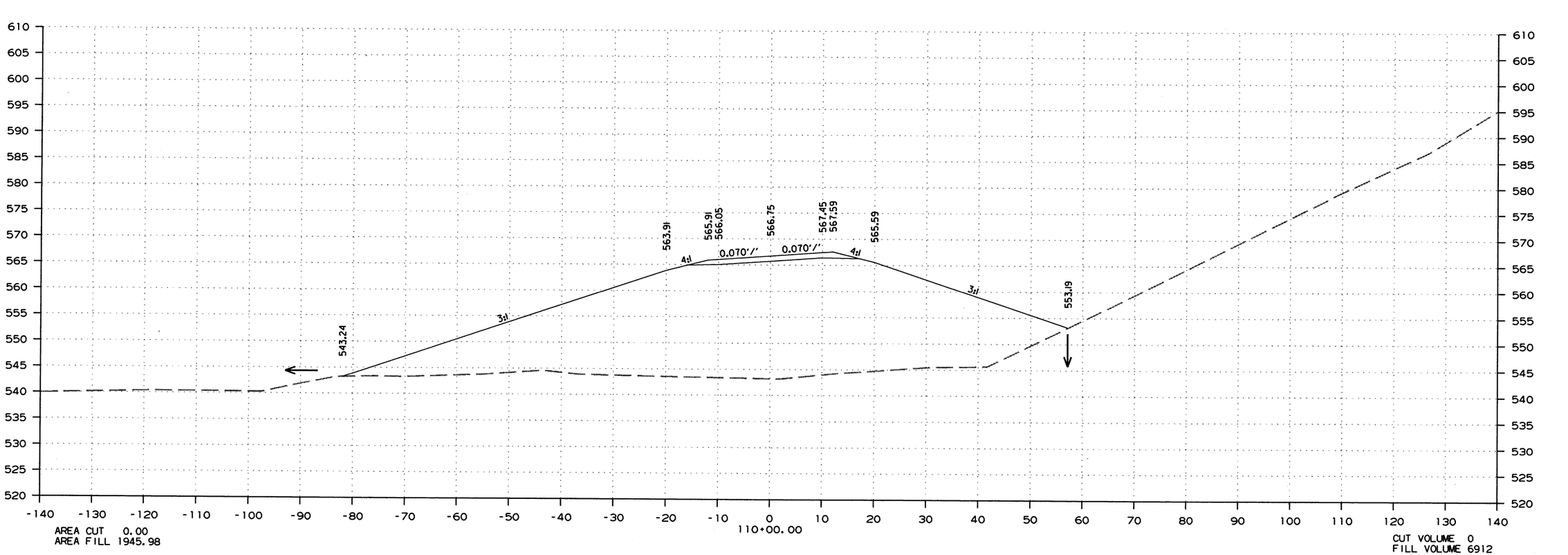


STA. 109+00.00 TO STA. 109+00.00

qh40749 8/16/2019
RR60140.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.		R60140	494	616

(2) CROSS SECTIONS- MILL CREEK ROAD

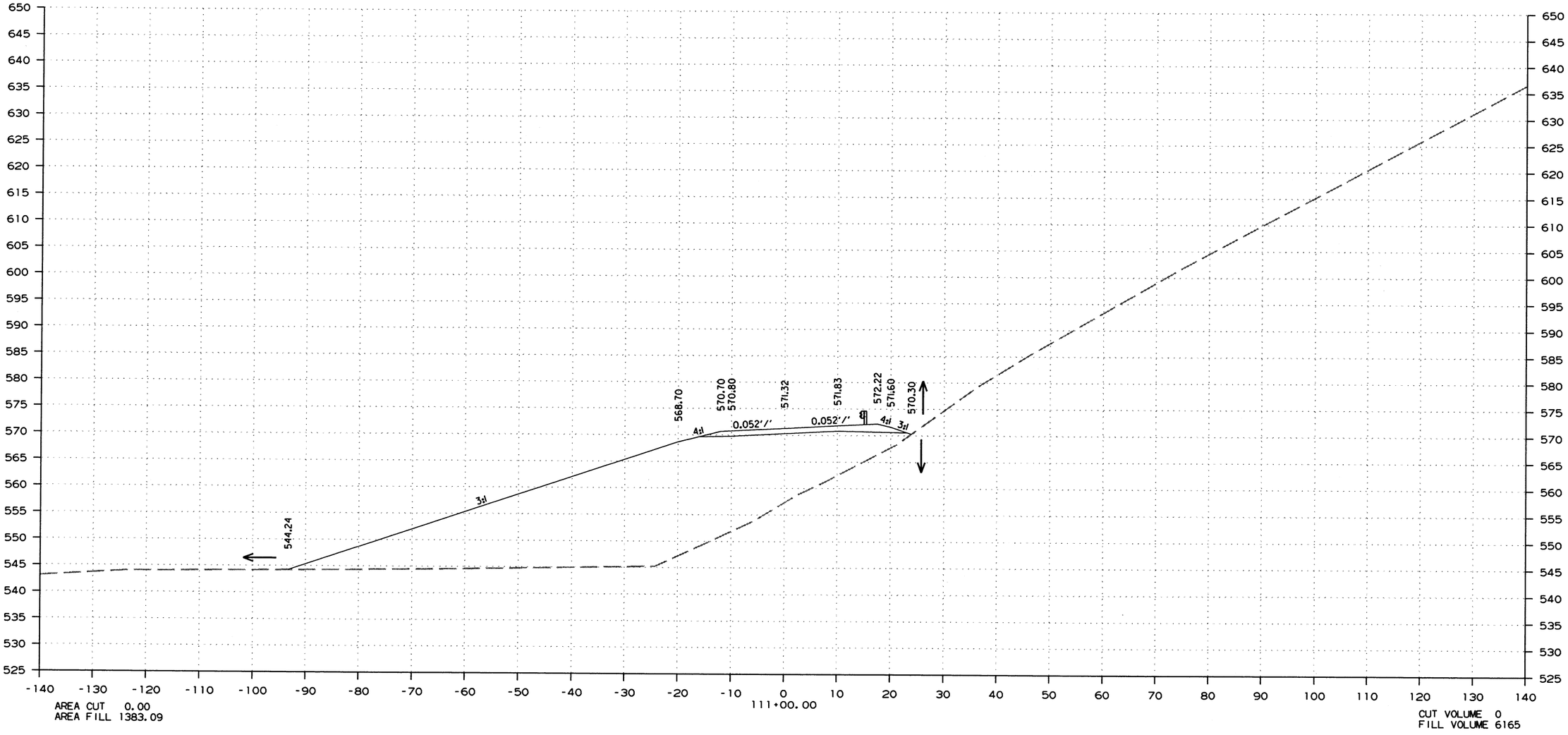


STA. 110+00.00 TO STA. 110+00.00

oh40749 8/16/2019
RR60140.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.		R60140	495	616

(2) CROSS SECTIONS- MILL CREEK ROAD



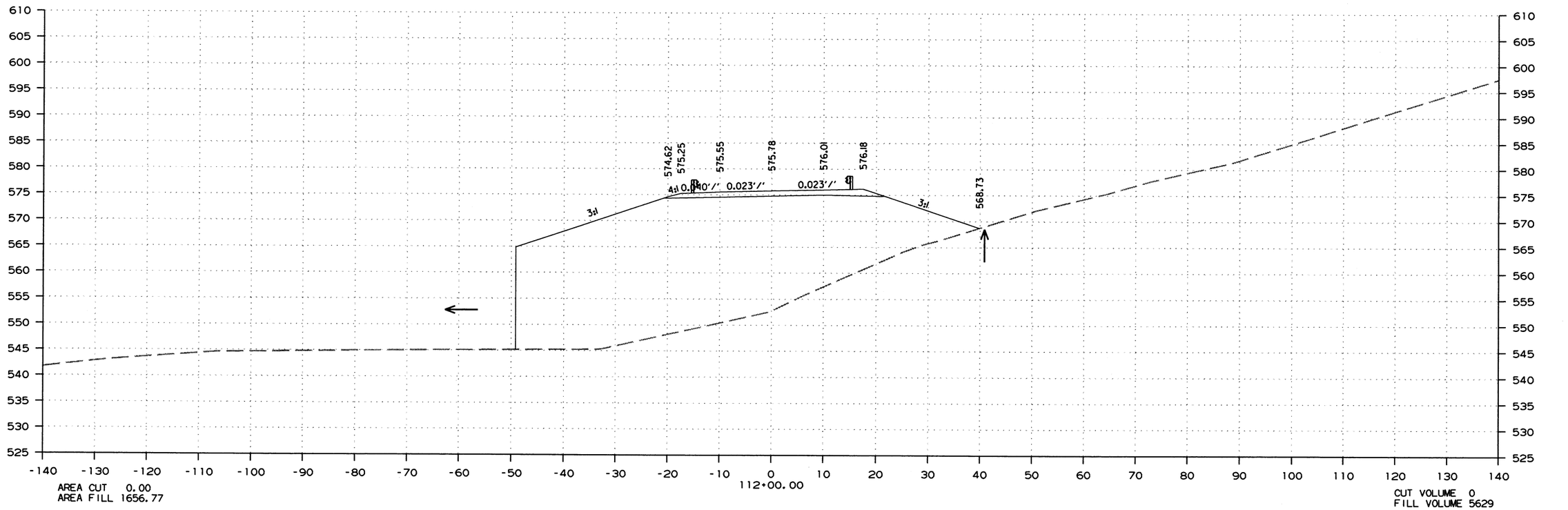
STA. 111+00.00 TO STA. 111+00.00

ah40749 8/16/2019
RR60140.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.		R60140	496	616

(2) CROSS SECTIONS- MILL CREEK ROAD

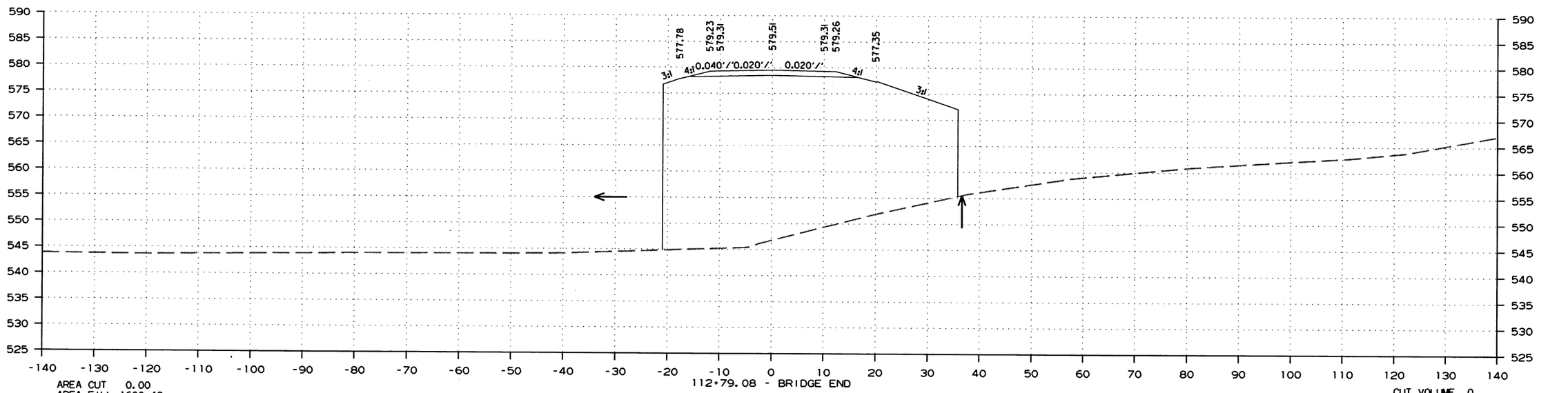


STA. 112+00.00 TO STA. 112+00.00

oh40749 8/16/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	497	616

(2) CROSS SECTIONS

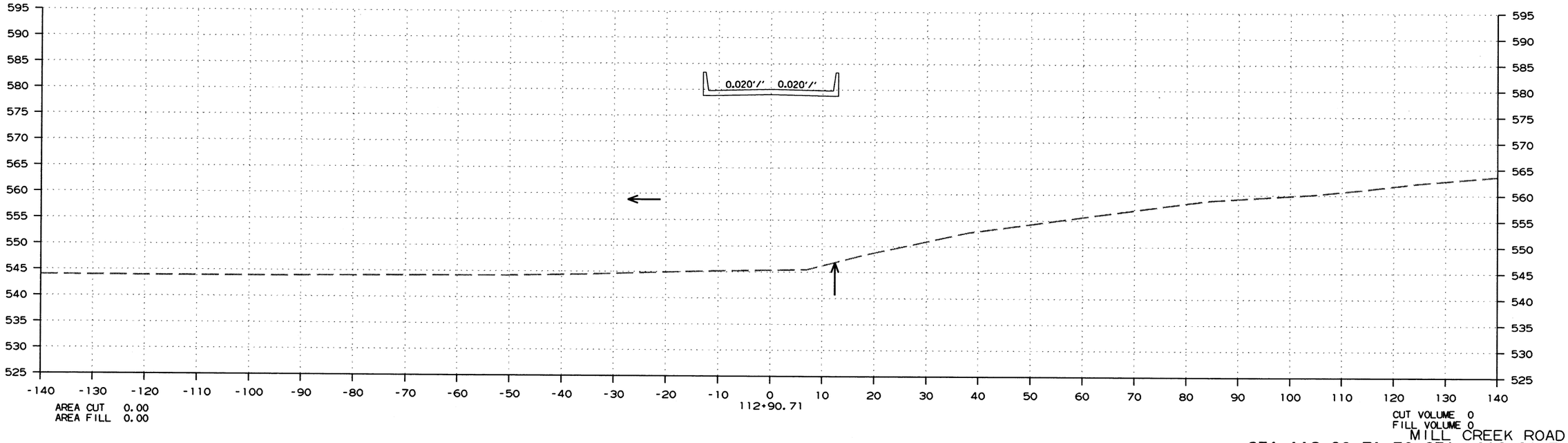


MILL CREEK ROAD
STA. 112+79.08 TO STA. 112+79.08

qh40749 10/3/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	498	616

(2) CROSS SECTIONS

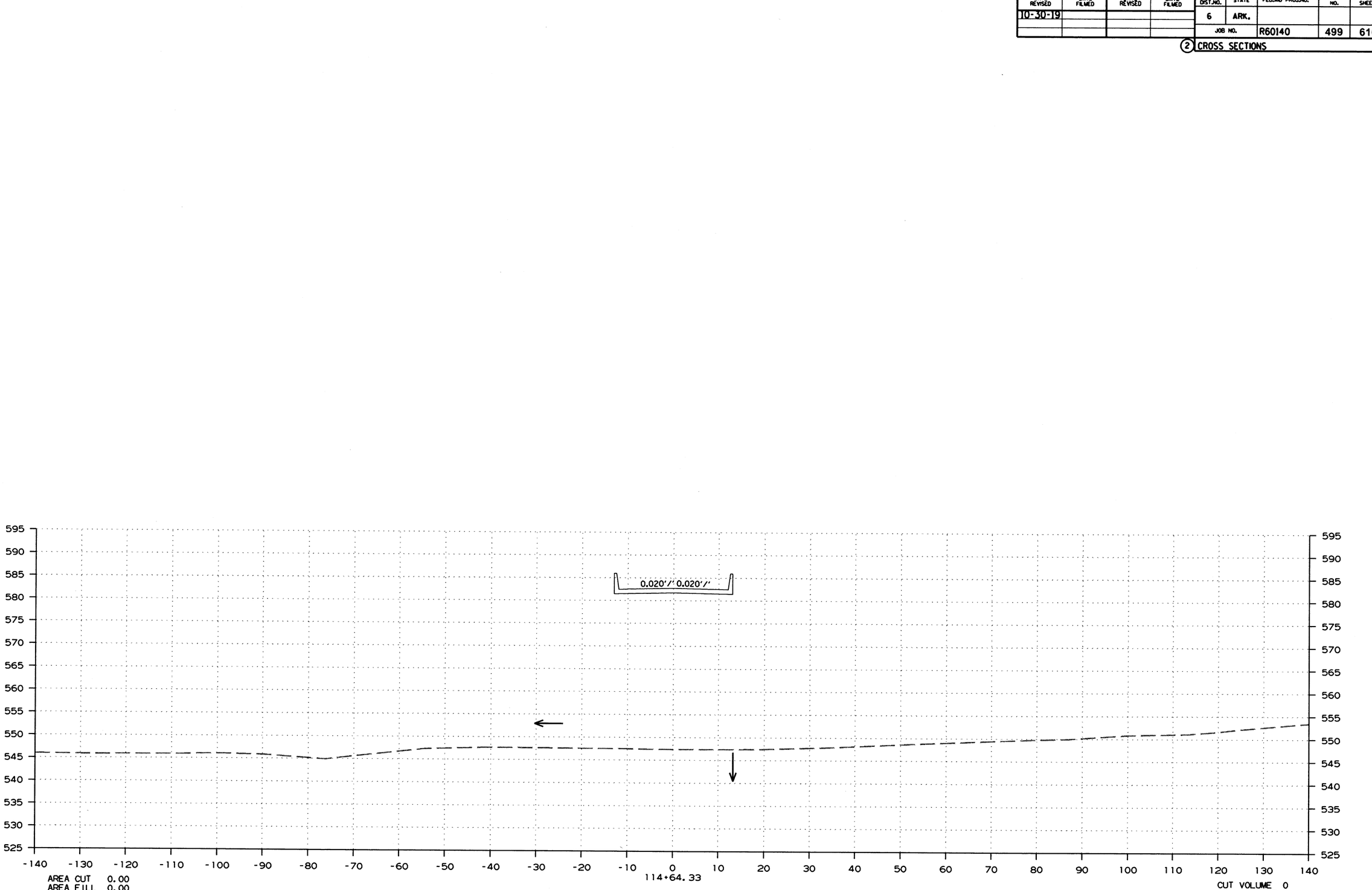


MILL CREEK ROAD
STA. 112+90.71 TO STA. 112+90.71

dn40749 10/3/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	499	616

(2) CROSS SECTIONS



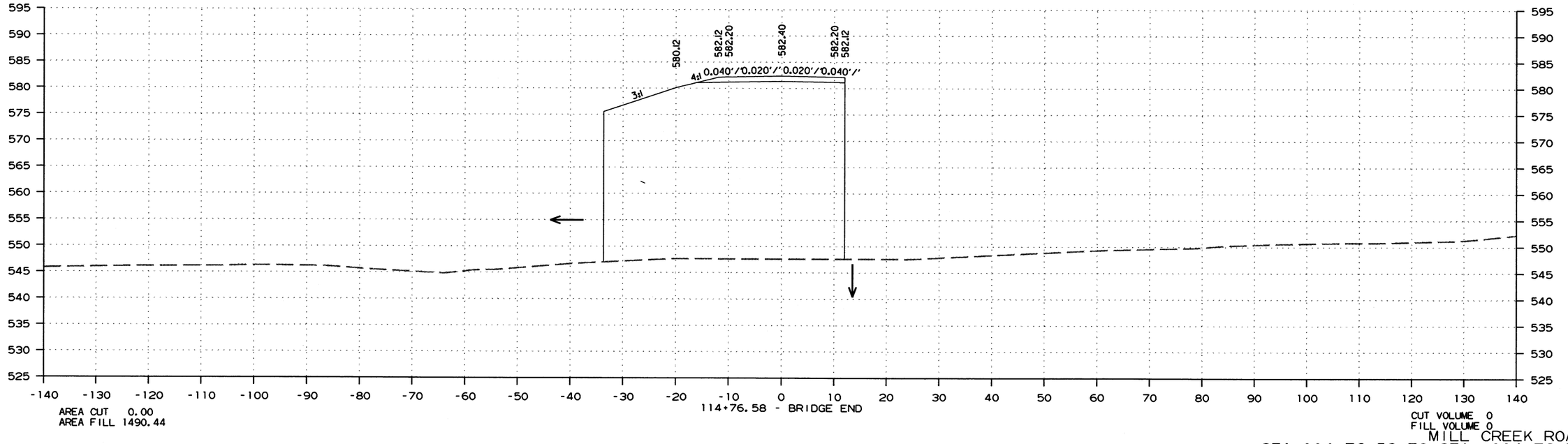
MILL CREEK ROAD
STA. 114+64.33 TO STA. 114+64.33

oh40749 10/3/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10-30-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		R60140	500	616

(2) CROSS SECTIONS

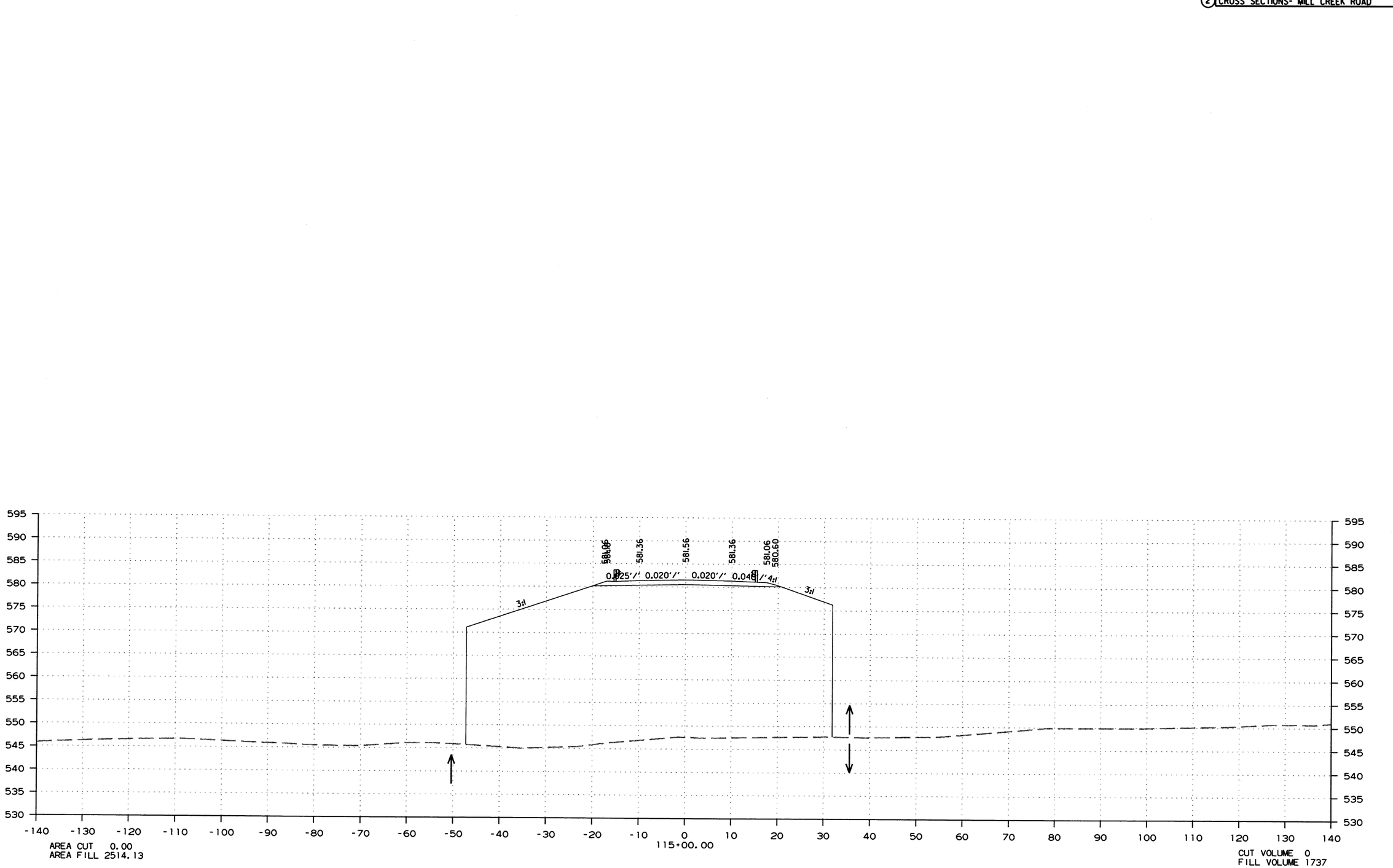


MILL CREEK ROAD
STA. 114+76.58 TO STA. 114+76.58

dh40749 10/3/2019
RR60140.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.		R60140	Sc 1	6/6

(2) CROSS SECTIONS- MILL CREEK ROAD

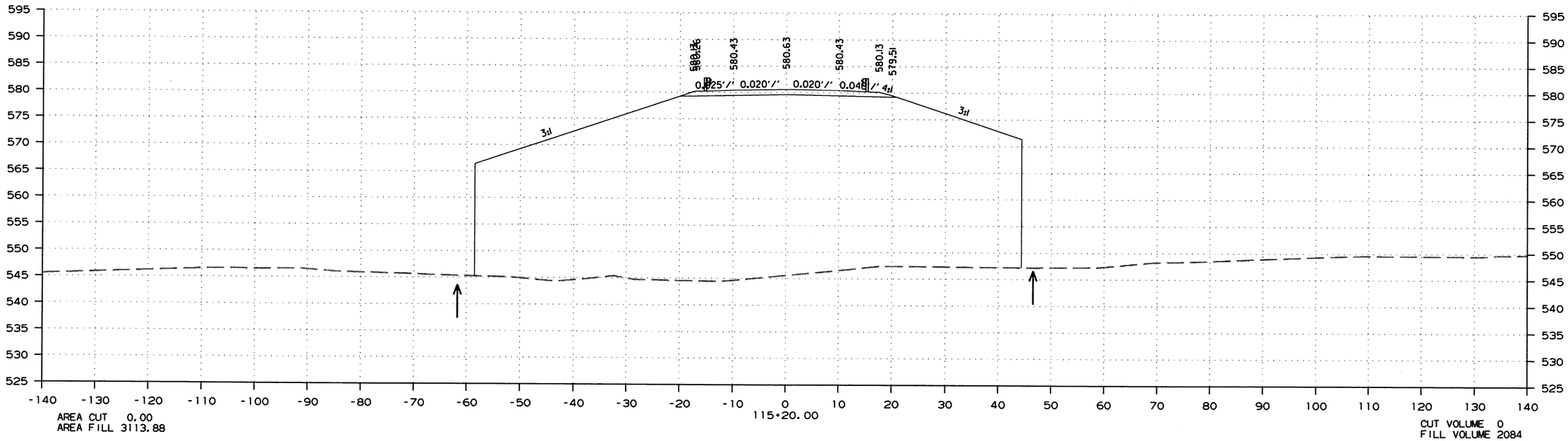


STA. 115+00.00 TO STA. 115+00.00

dh40749 8/16/2019
RR60140.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.		R60140	502	616

(2) CROSS SECTIONS- MILL CREEK ROAD

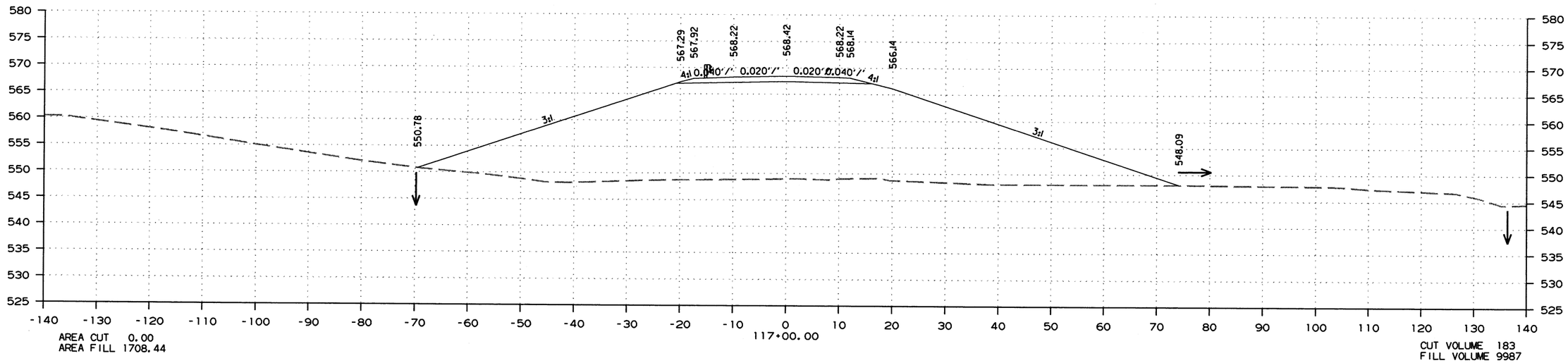


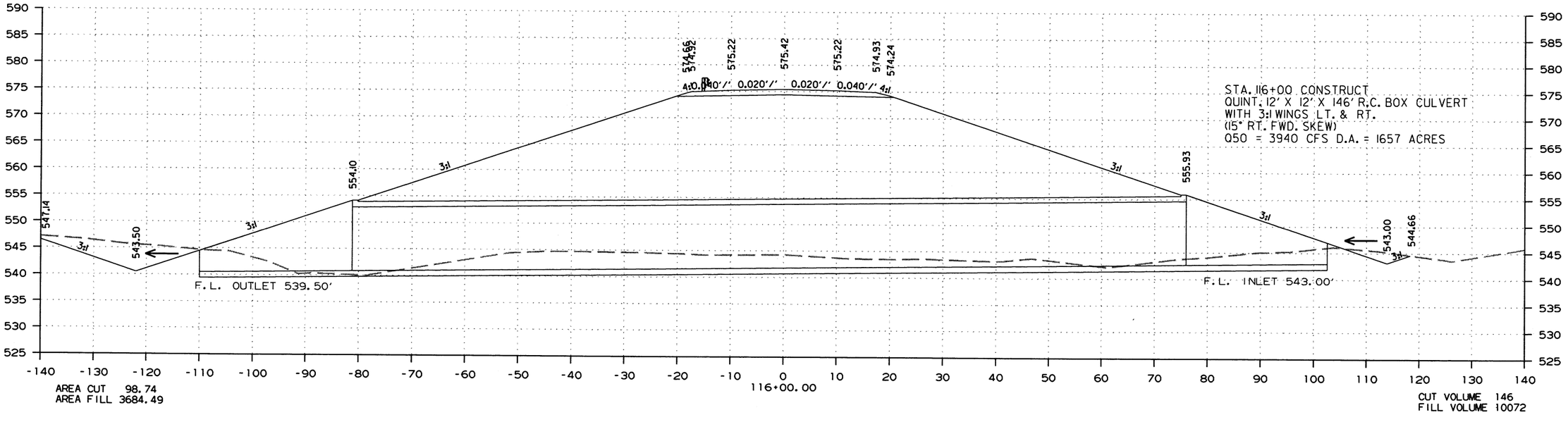
STA. 115+20.00 TO STA. 115+20.00

ah40749 8/16/2019
RR60140.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.		R60140	SC3	616

(2) CROSS SECTIONS- MILL CREEK ROAD



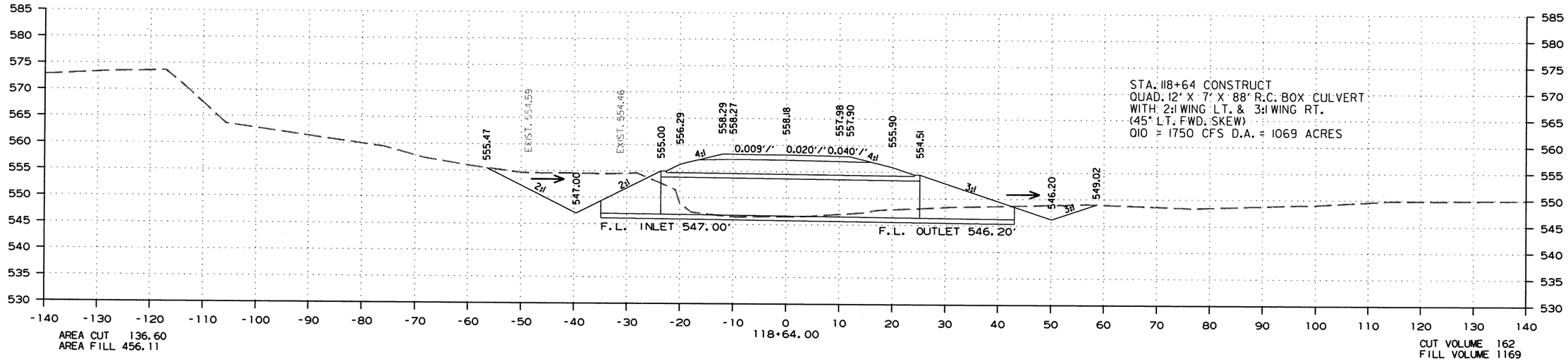


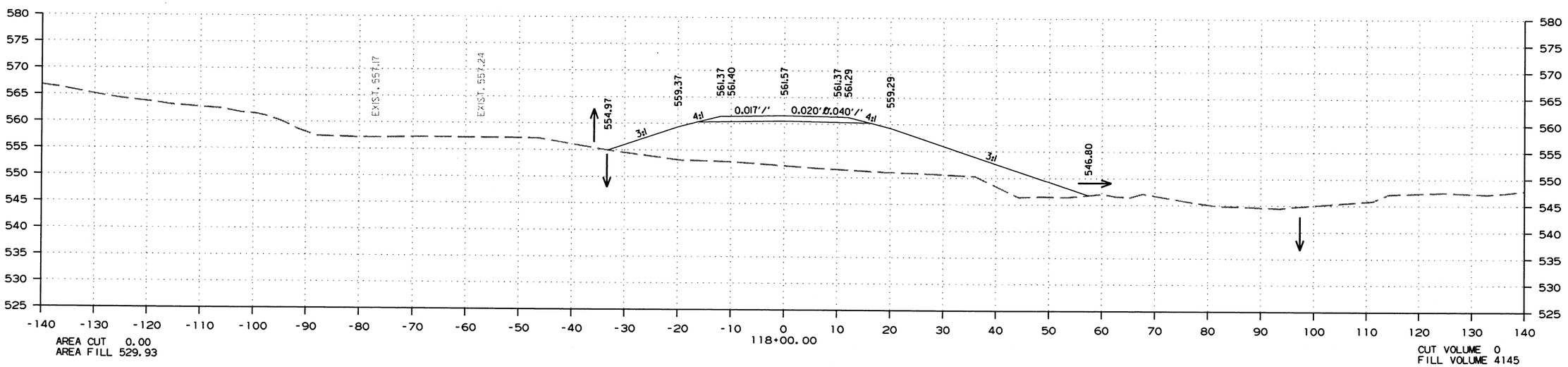
STA. 116+00.00 TO STA. 117+00.00

oh40749 8/16/2019
RR60140.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.		R60140	504	616

(2) CROSS SECTIONS- MILL CREEK ROAD



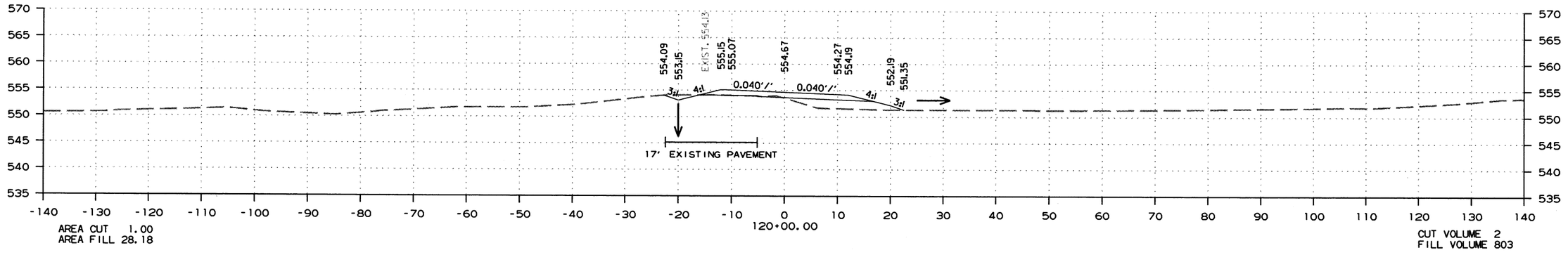


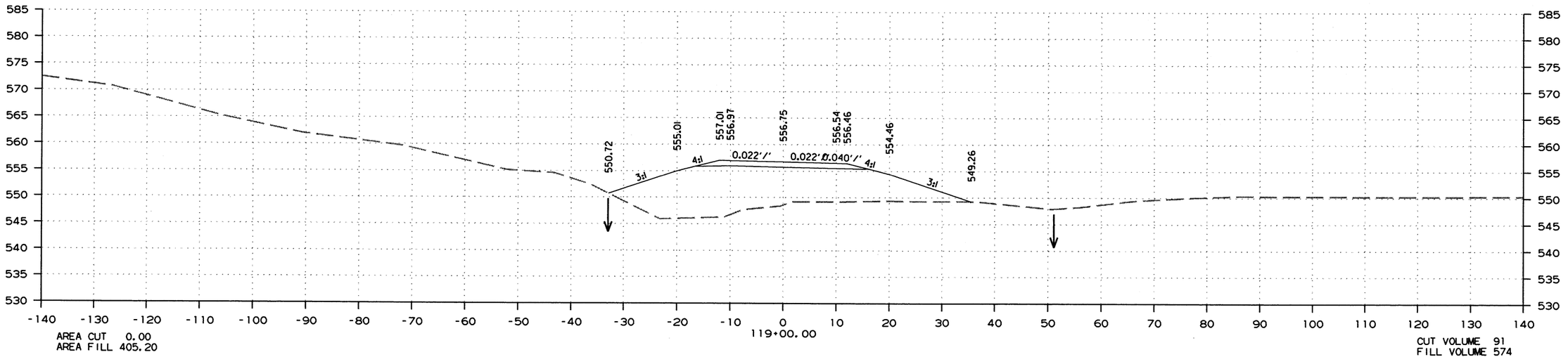
STA. 118+00.00 TO STA. 118+64.00

dh40749 8/16/2019
RR60140.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.		R60140	505	616

(2) CROSS SECTIONS- MILL CREEK ROAD



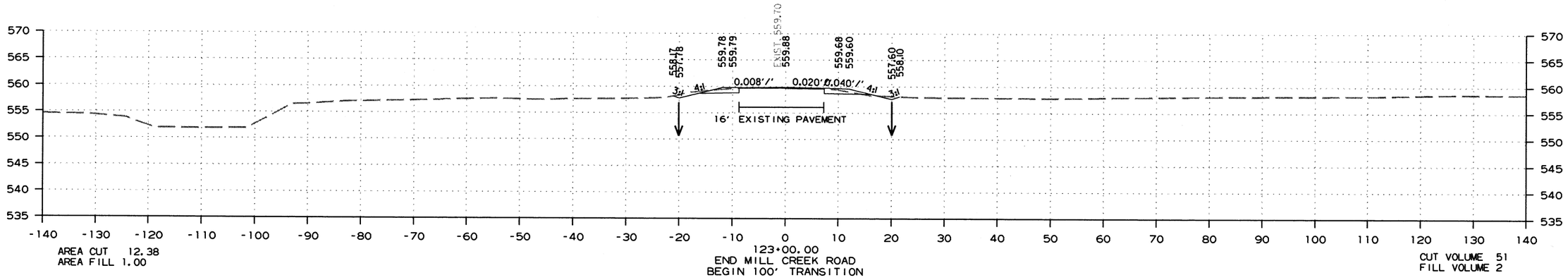


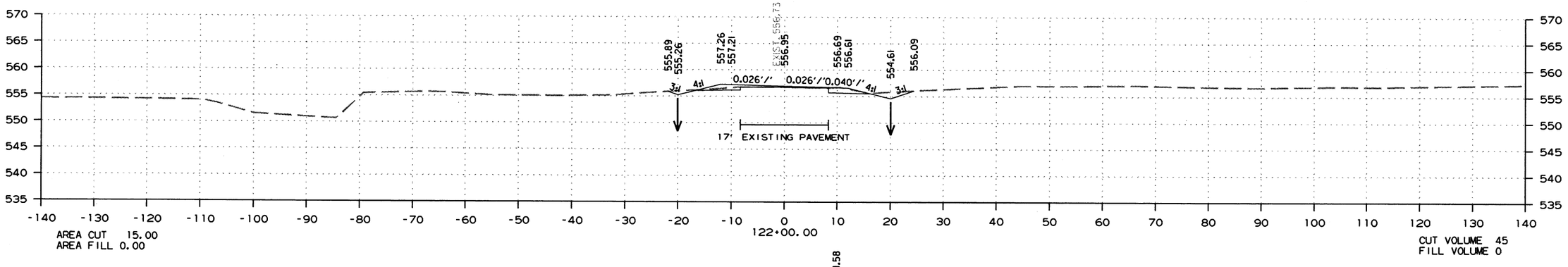
STA. 119+00.00 TO STA. 120+00.00

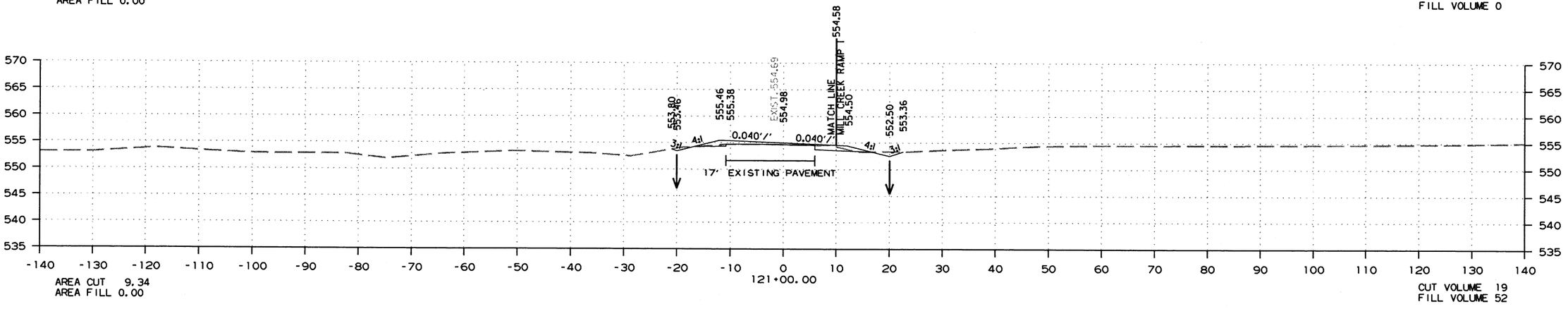
oh40749 8/16/2019
RR60140.DGN

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.		R60140	506	616

(2) CROSS SECTIONS- MILL CREEK ROAD





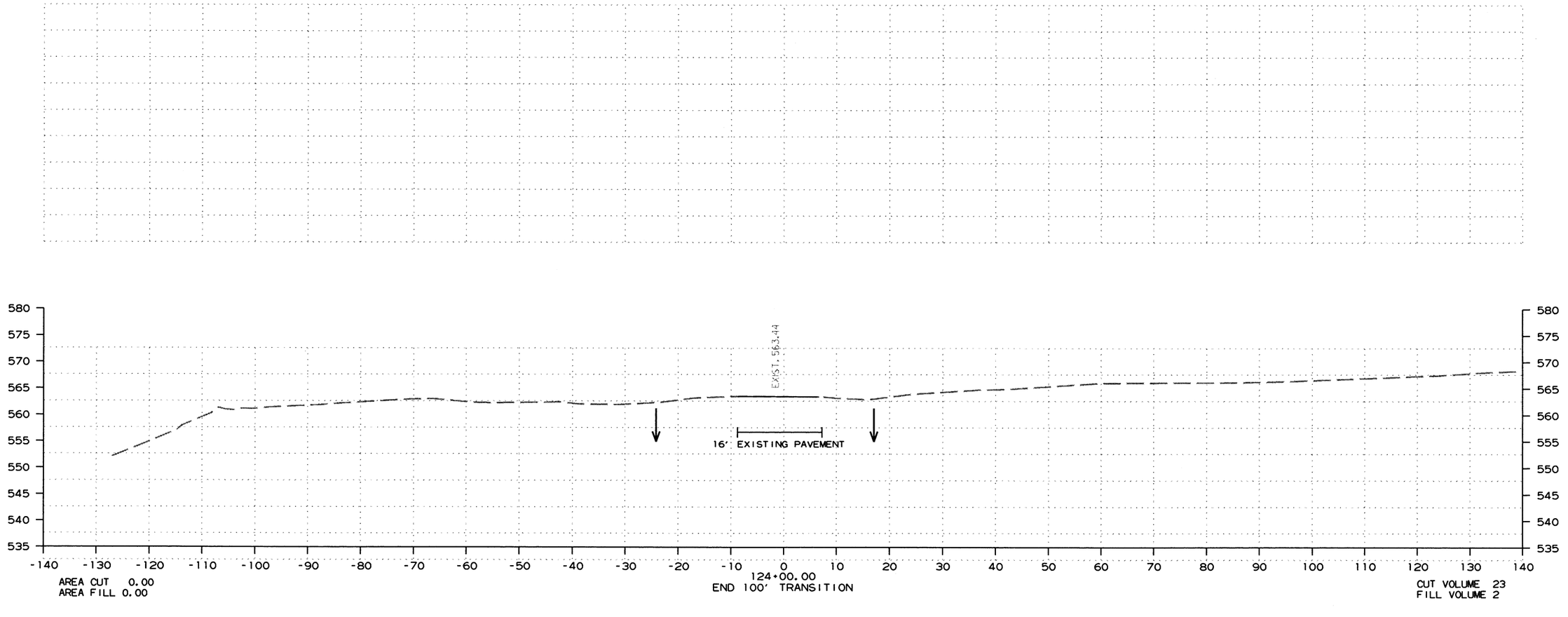


STA. 121+00.00 TO STA. 123+00.00

oh40749 8/16/2019
RR60140.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.		R60140	507	616

(2) CROSS SECTIONS- MILL CREEK ROAD

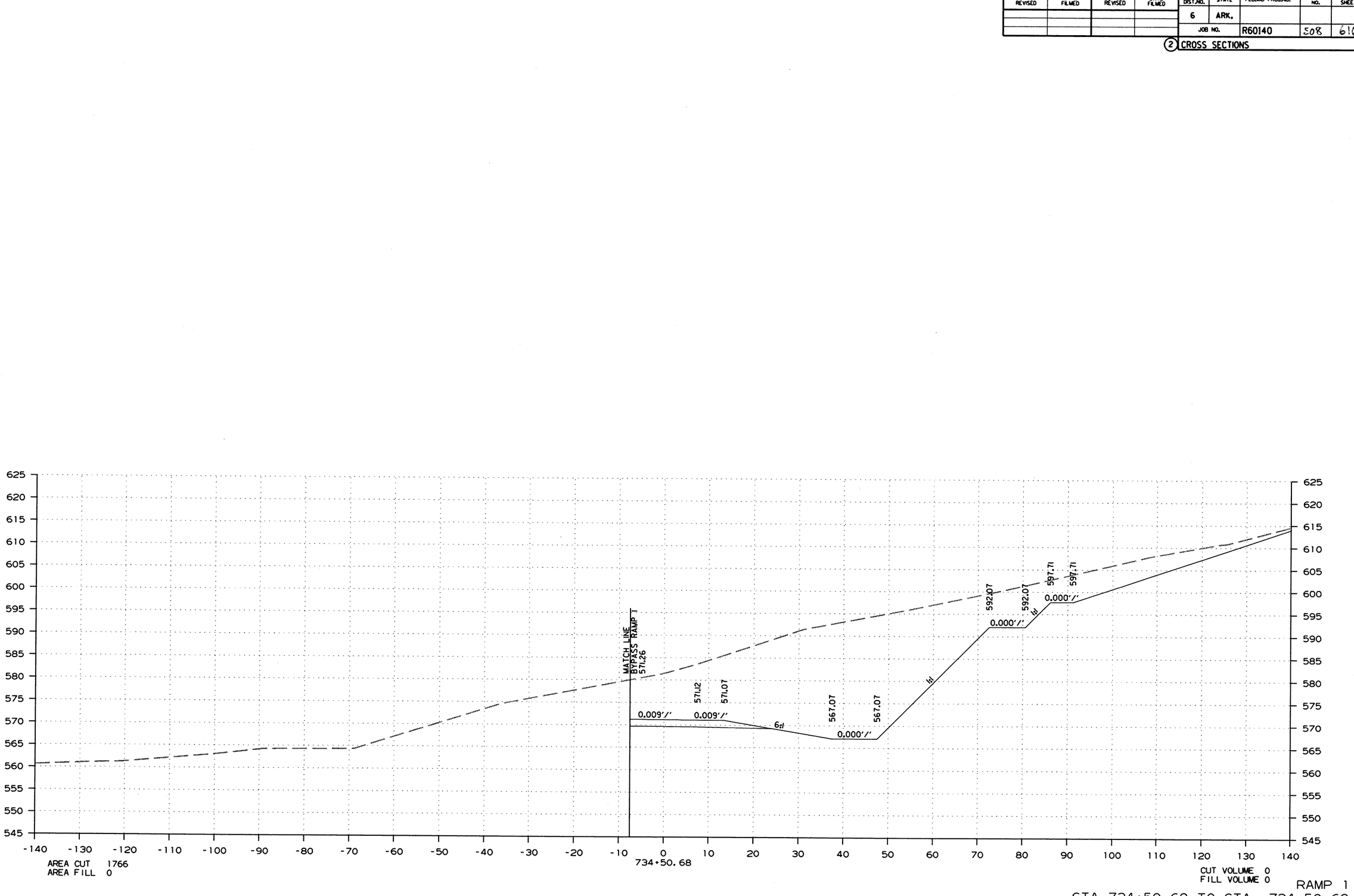


STA. 124+00.00 TO STA. 124+00.00

dh40749 8/16/2019
RR60140.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.		R60140	508	616

(2) CROSS SECTIONS

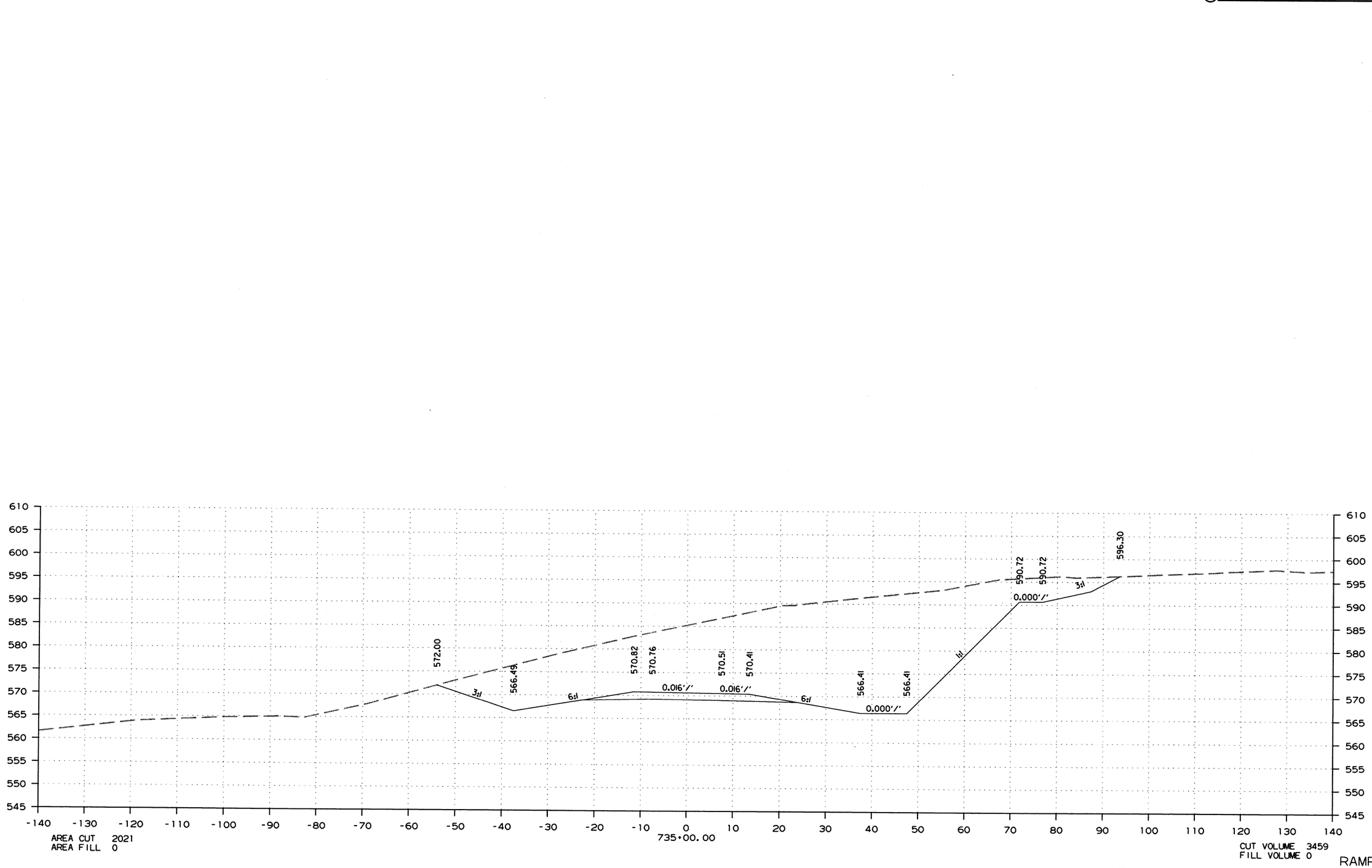


RAMP 1
STA. 734+50.68 TO STA. 734+50.68

dh40749 8/16/2019
RR60140.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.		R60140	509	616

(2) CROSS SECTIONS



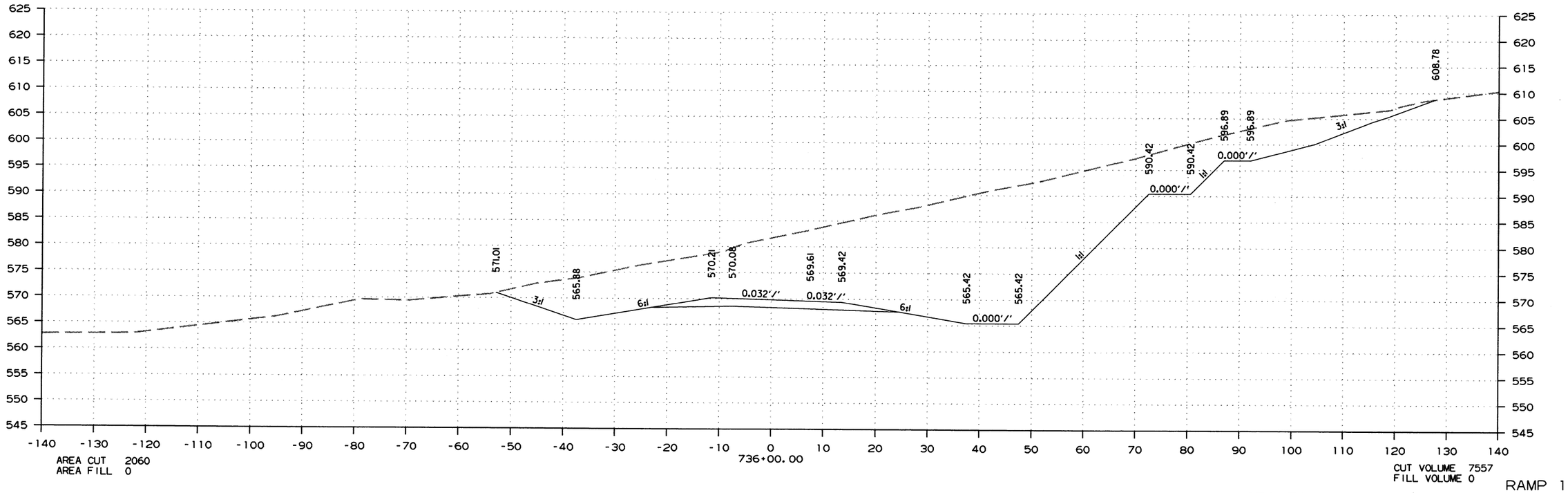
RAMP 1

STA. 735+00.00 TO STA. 735+00.00

oh40749 8/16/2019
RR60140.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.		R60140	510	616

(2) CROSS SECTIONS



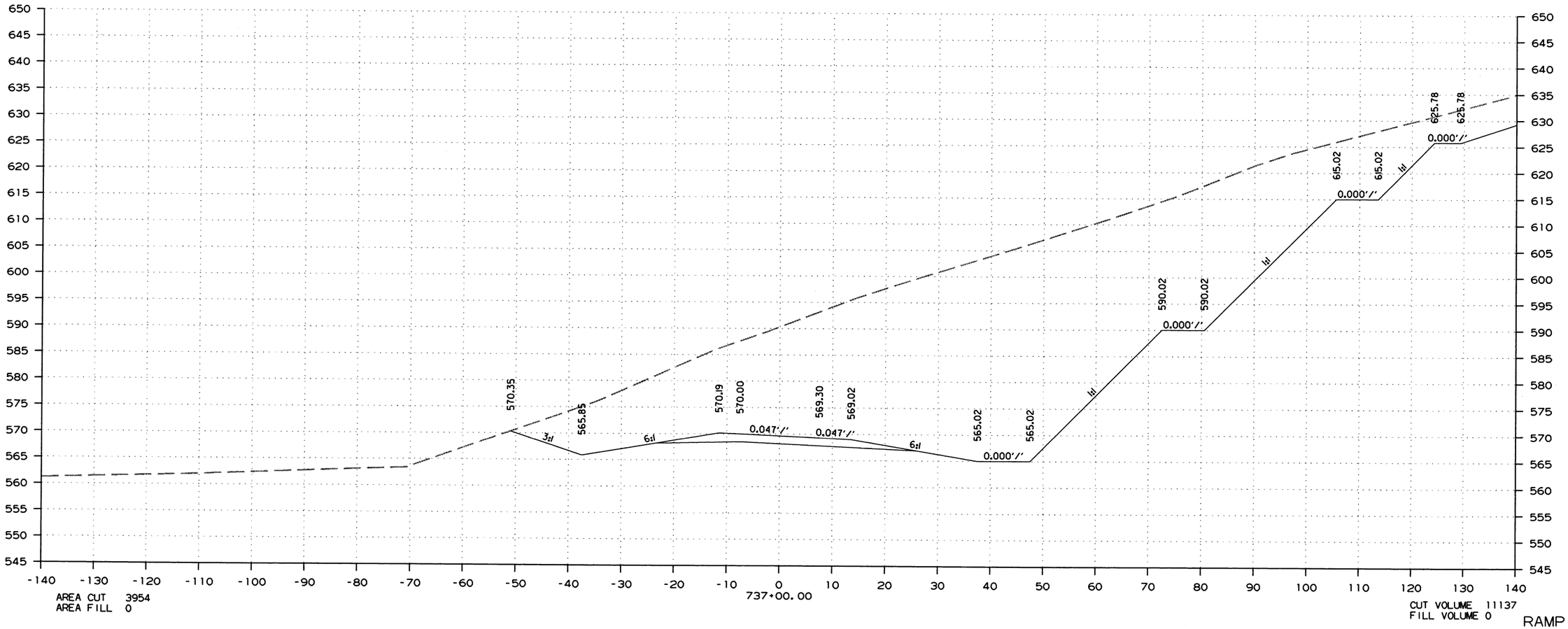
RAMP 1

STA. 736+00.00 TO STA. 736+00.00

oh40749 8/16/2019
RR60140.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.		R60140	511	616

(2) CROSS SECTIONS



AREA CUT 3954
AREA FILL 0

CUT VOLUME 11137
FILL VOLUME 0

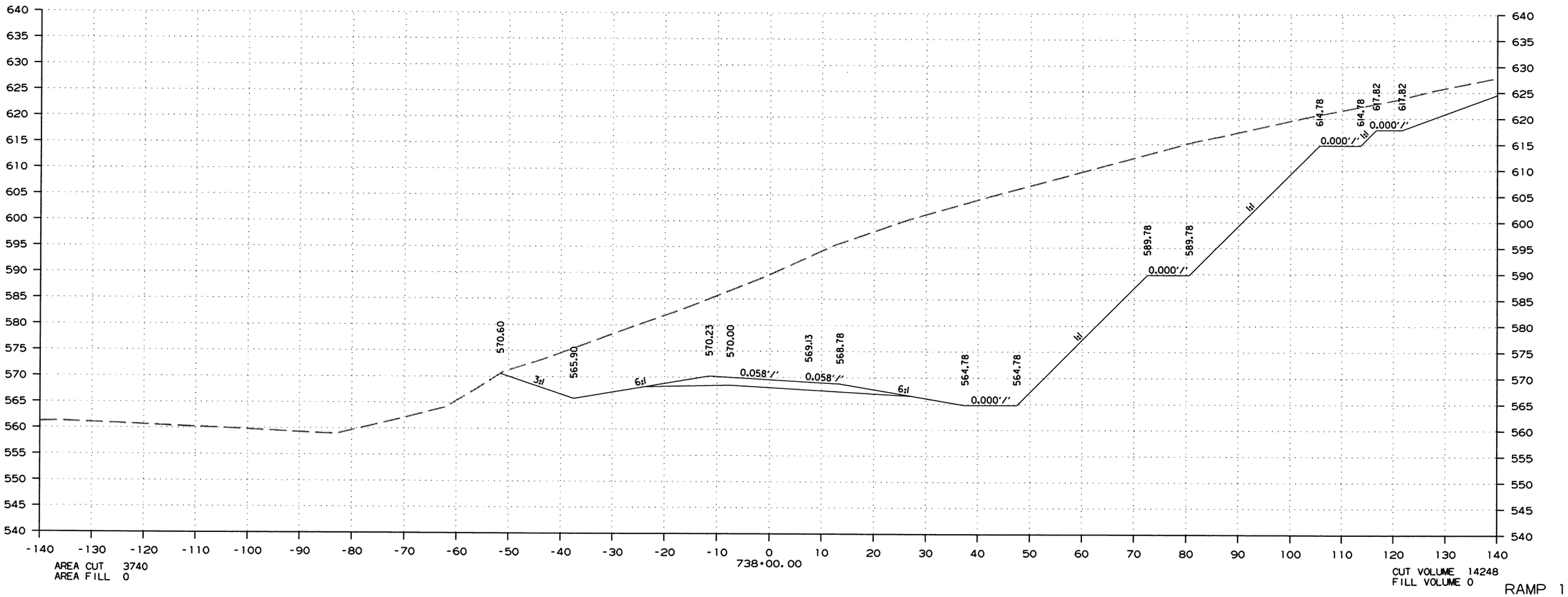
RAMP 1

STA. 737+00.00 TO STA. 737+00.00

dh40749 8/16/2019
RR60140.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.		R60140	512	616

(2) CROSS SECTIONS



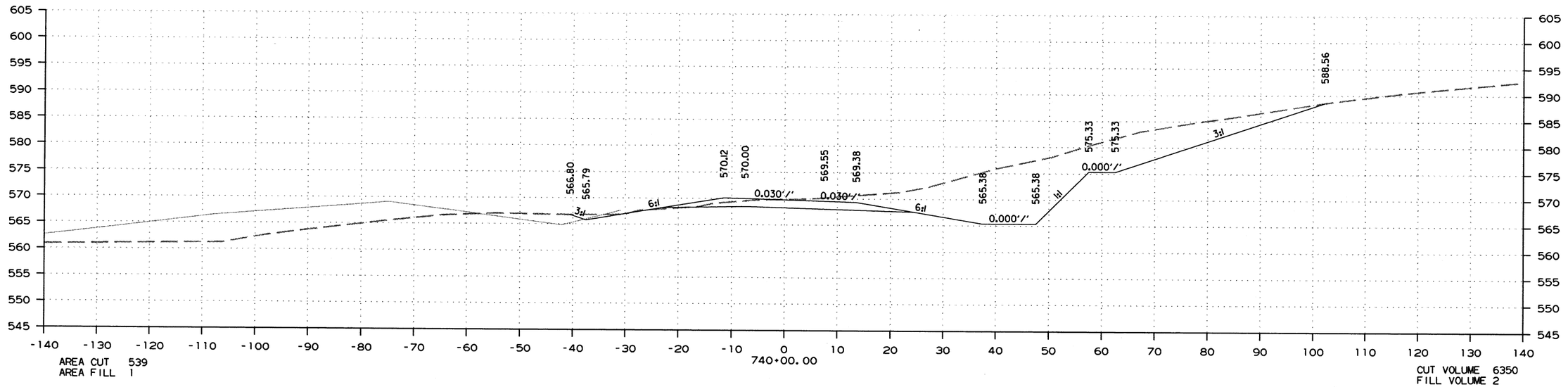
RAMP 1

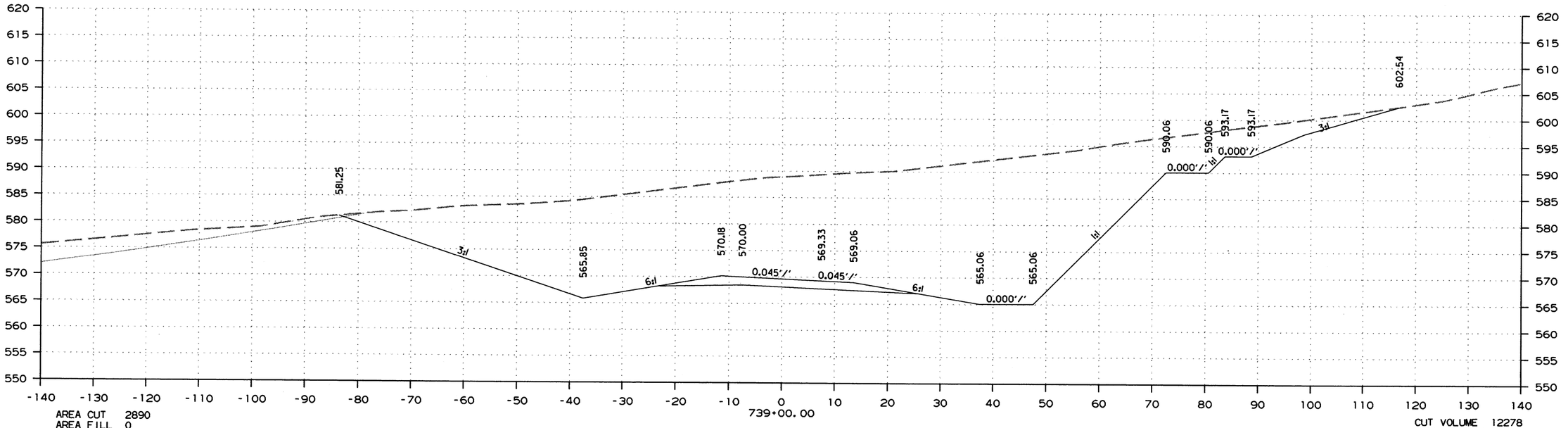
STA. 738+00.00 TO STA. 738+00.00

oh40749 8/16/2019
RR60140.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.		R60140	513	616

(2) CROSS SECTIONS





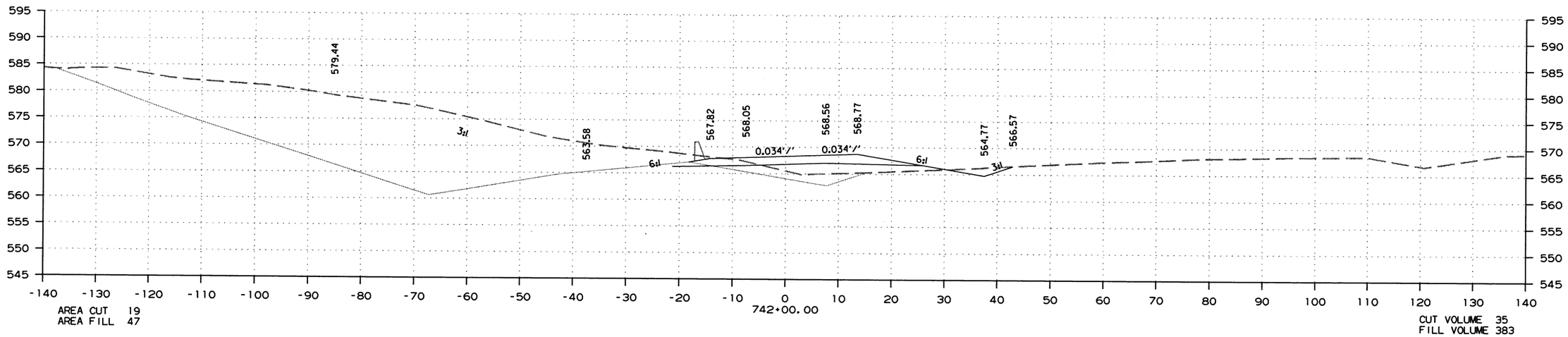
RAMP 1

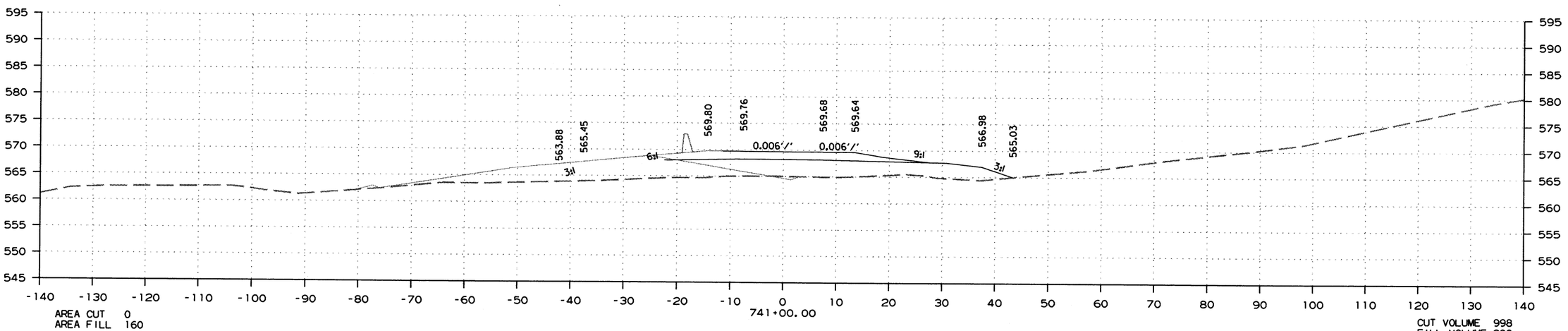
STA. 739+00.00 TO STA. 740+00.00

dh40749 8/16/2019
RR60140.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.		R60140	S14	616

(2) CROSS SECTIONS



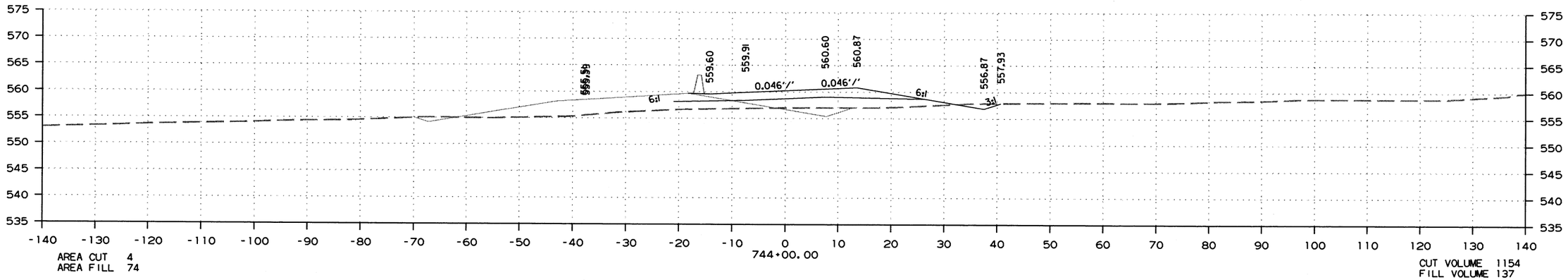


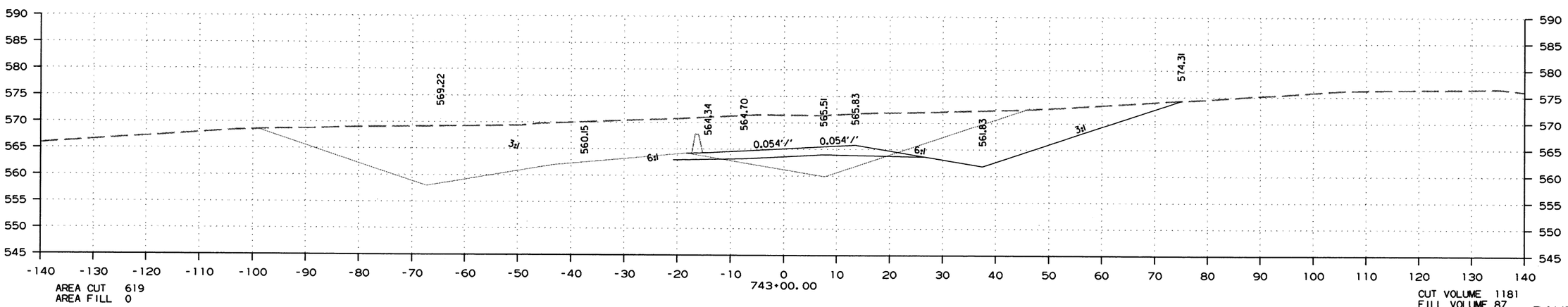
RAMP 1
STA. 741+00.00 TO STA. 742+00.00

oh40749 8/16/2019
RR60140.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.		R60140	515	616

(2) CROSS SECTIONS





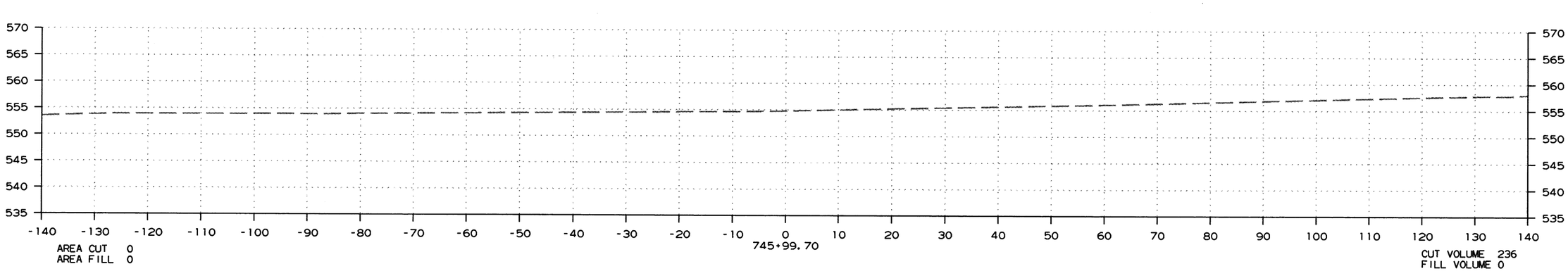
RAMP 1
STA. 743+00.00 TO STA. 744+00.00

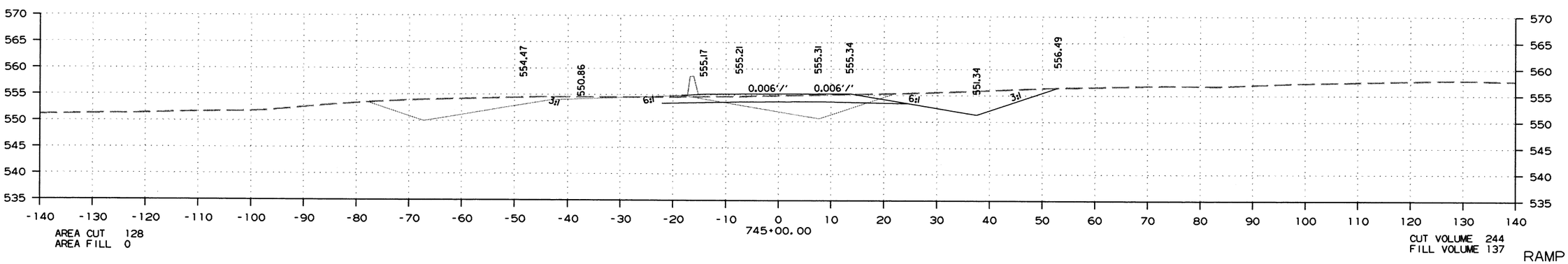
oh40749 8/16/2019
RR60140.DGN

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.		R60140	516	616

(2) CROSS SECTIONS





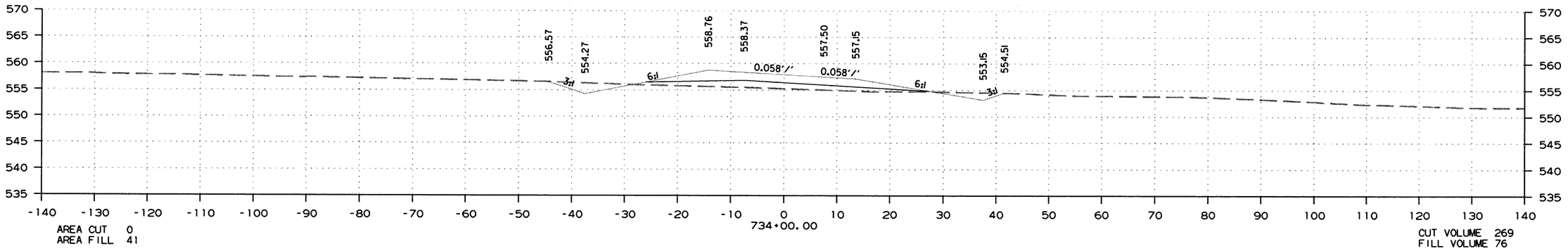
RAMP 1

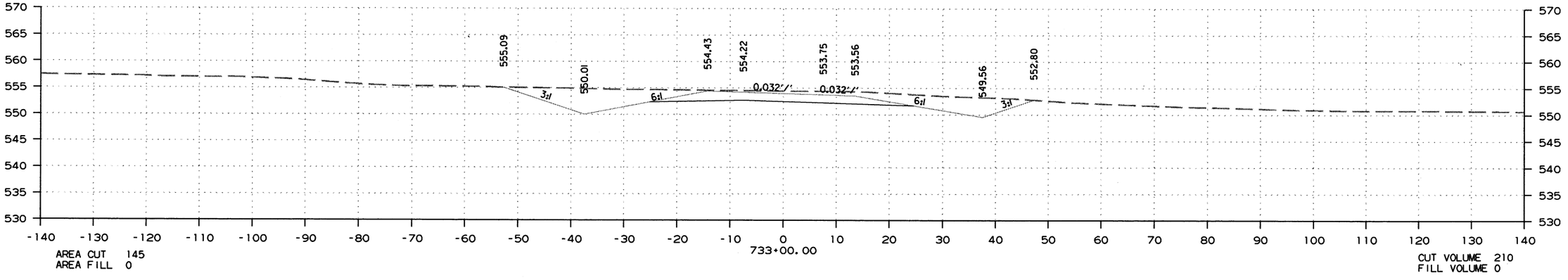
STA. 745+00.00 TO STA. 745+99.70

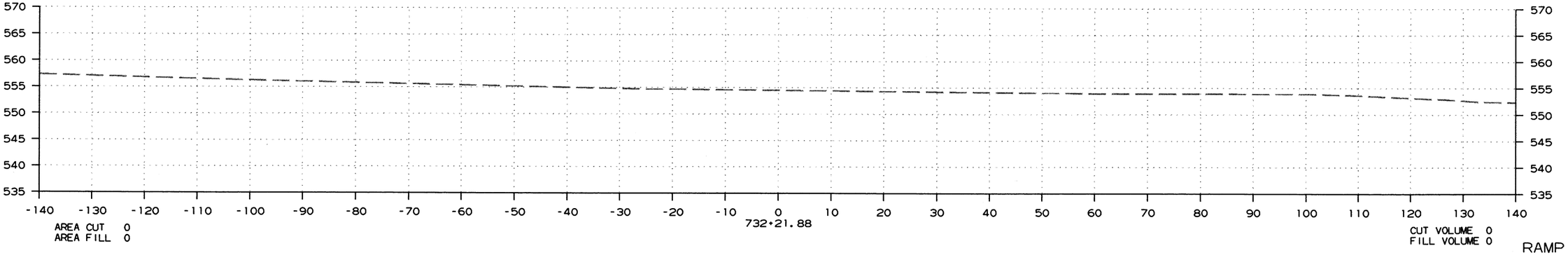
dh40749 8/16/2019
RR60140.DGN

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.		R60140	517	616

(2) CROSS SECTIONS







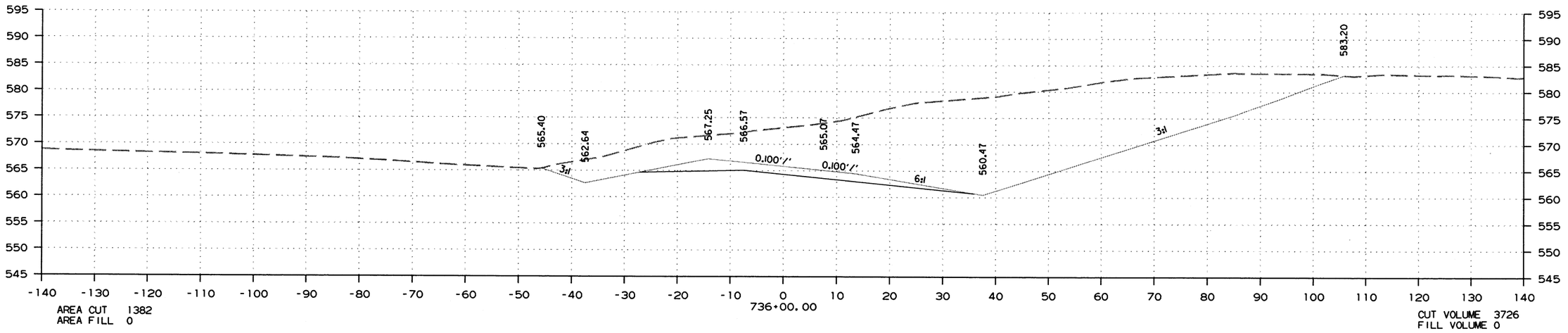
RAMP 2

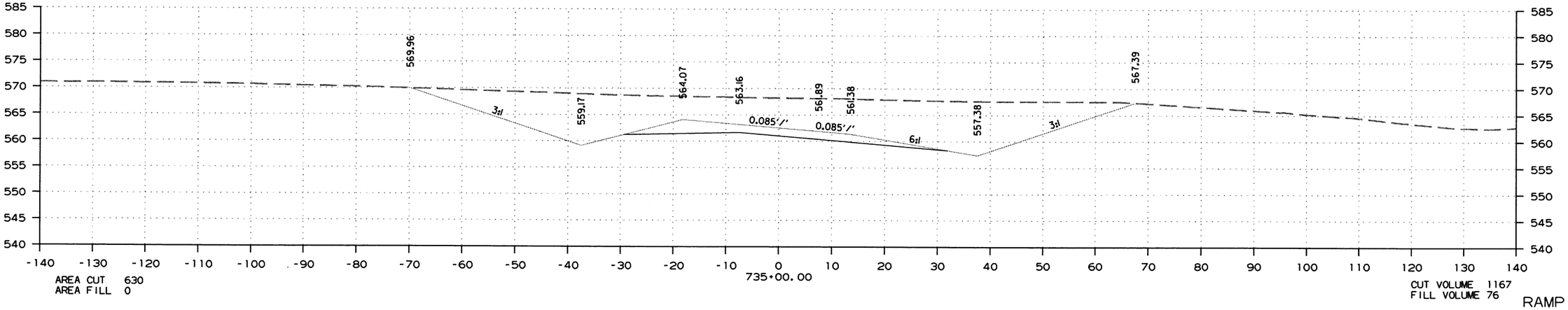
STA. 732+21.88 TO STA. 734+00.00

dh40749 8/16/2019 RR60140.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.		R60140	518	616

(2) CROSS SECTIONS





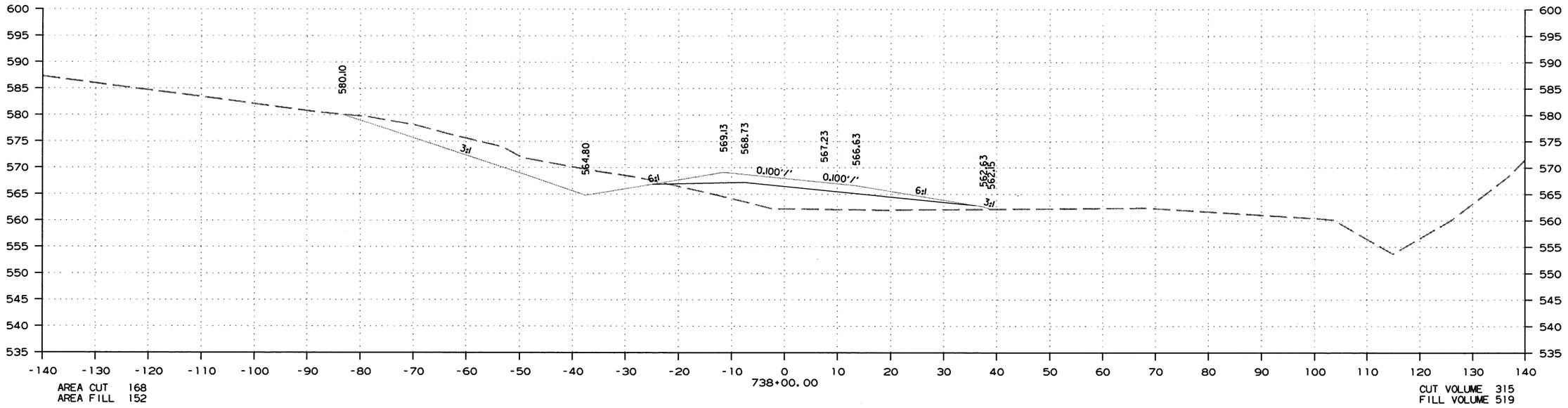
RAMP 2

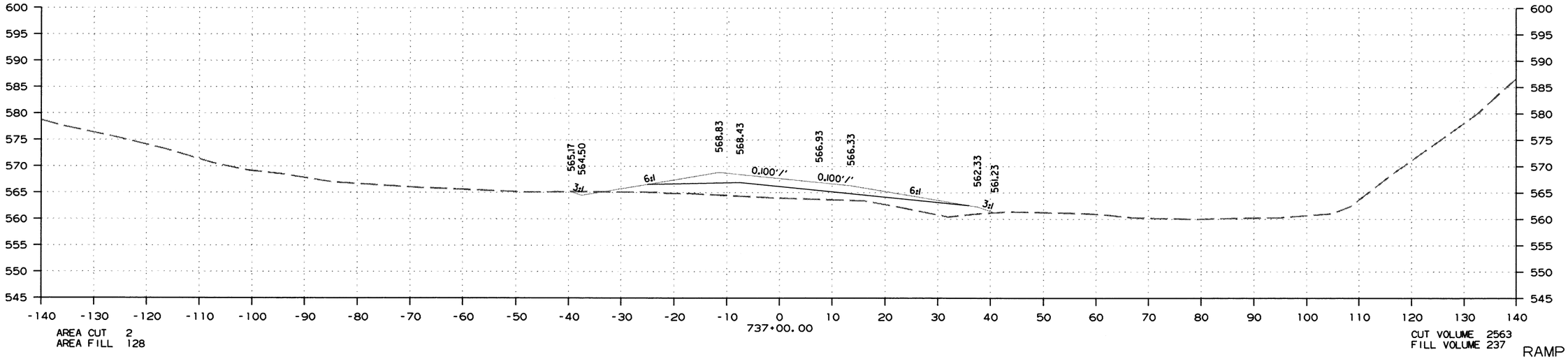
STA. 735+00.00 TO STA. 736+00.00

oh40749 8/16/2019
RR60140.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.		R60140	519	616

(2) CROSS SECTIONS





RAMP 2

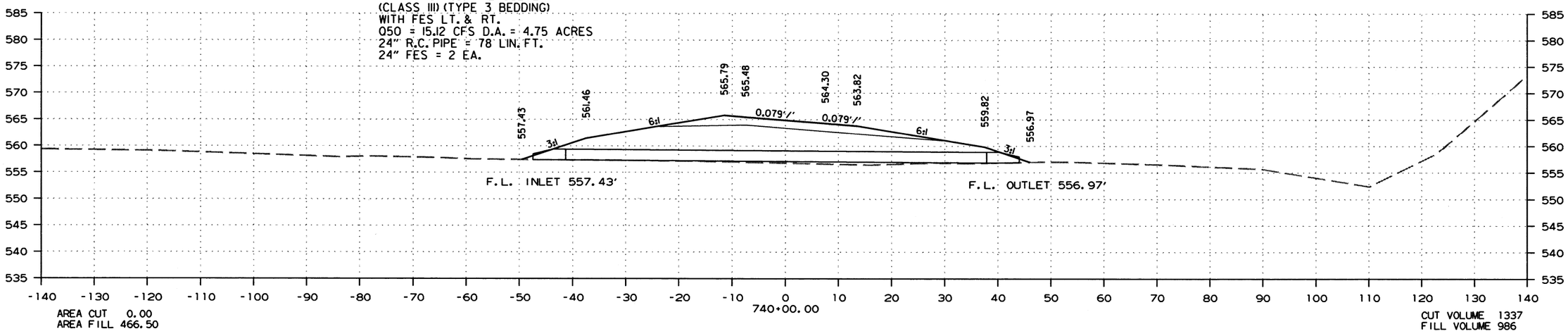
STA. 737+00.00 TO STA. 738+00.00

oh40749 8/16/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	520	616

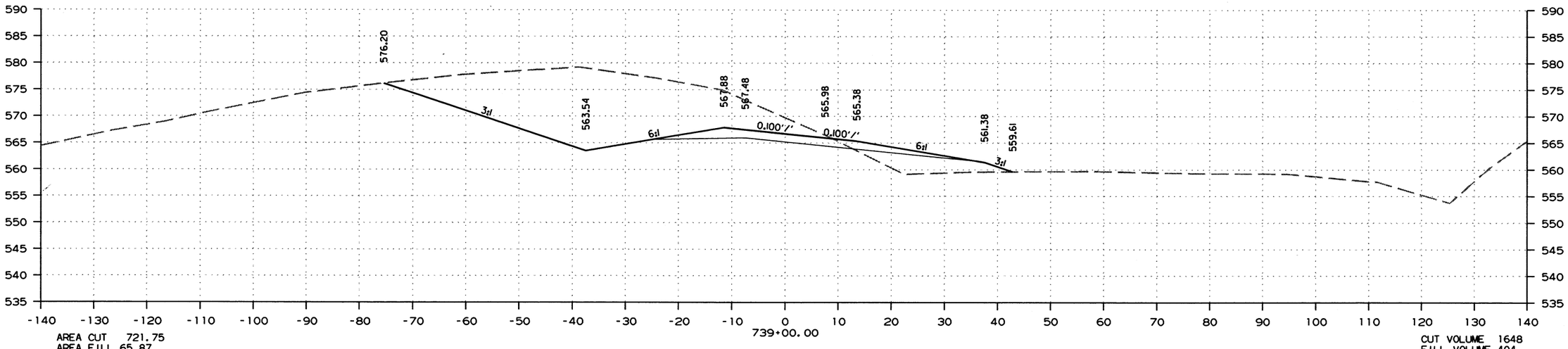
(2) CROSS SECTIONS- RAMP 2

STA. 739+90 CONSTRUCT
24" X 78' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 15.12 CFS D.A. = 4.75 ACRES
24" R.C. PIPE = 78 LIN. FT.
24" FES = 2 EA.



AREA CUT 0.00
AREA FILL 466.50

CUT VOLUME 1337
FILL VOLUME 986



AREA CUT 721.75
AREA FILL 65.87

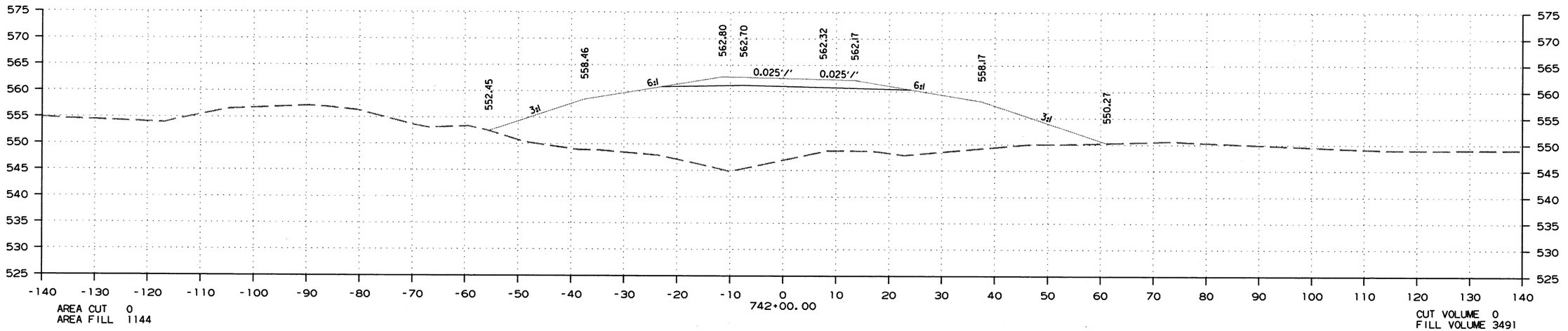
CUT VOLUME 1648
FILL VOLUME 404

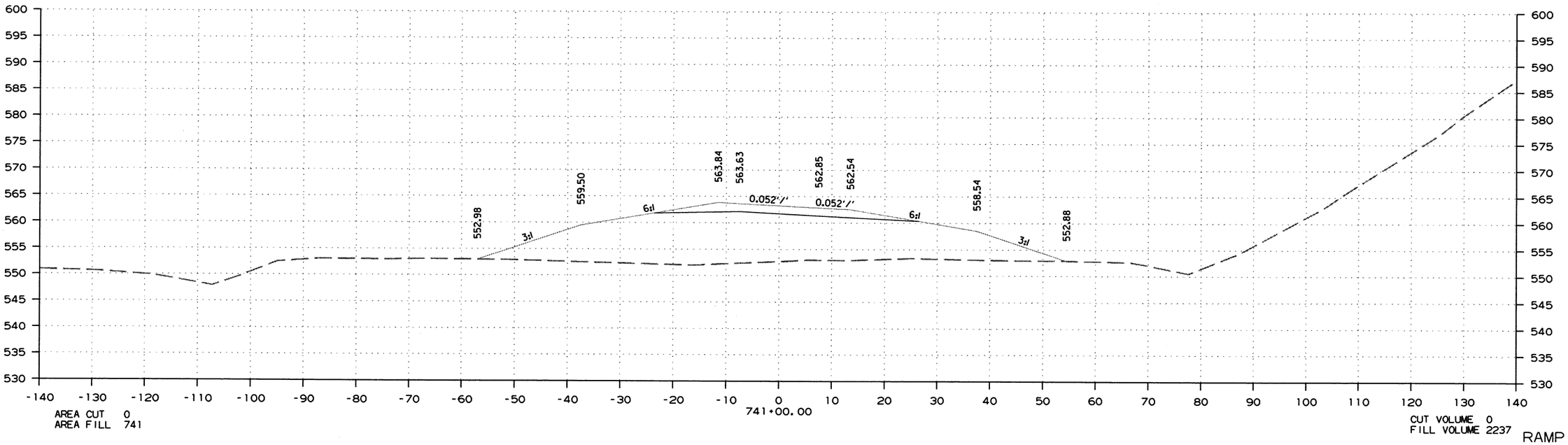
RAMP 2
STA. 739+00.00 TO STA. 740+00.00

oh40749 8/16/2019
RR60140.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.		R60140	521	616

(2) CROSS SECTIONS



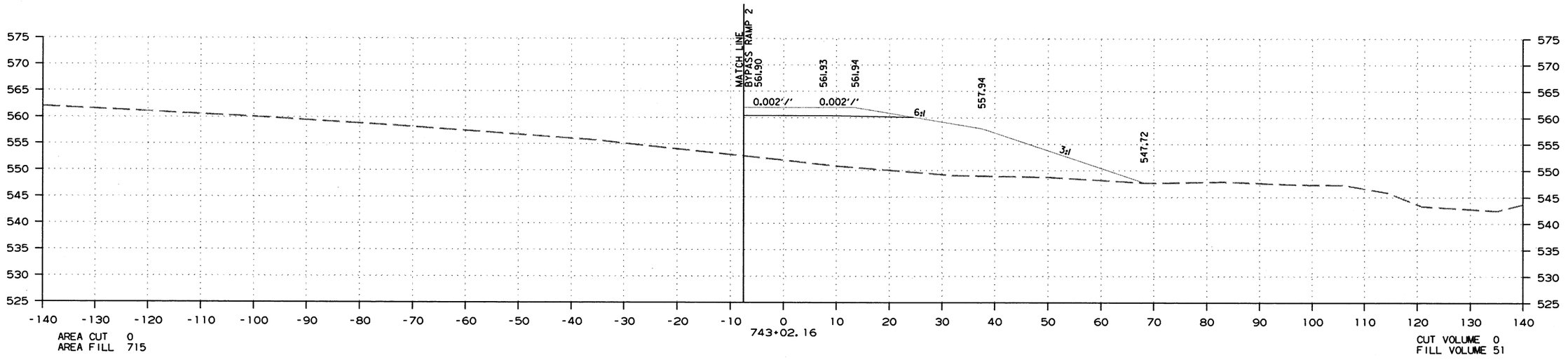


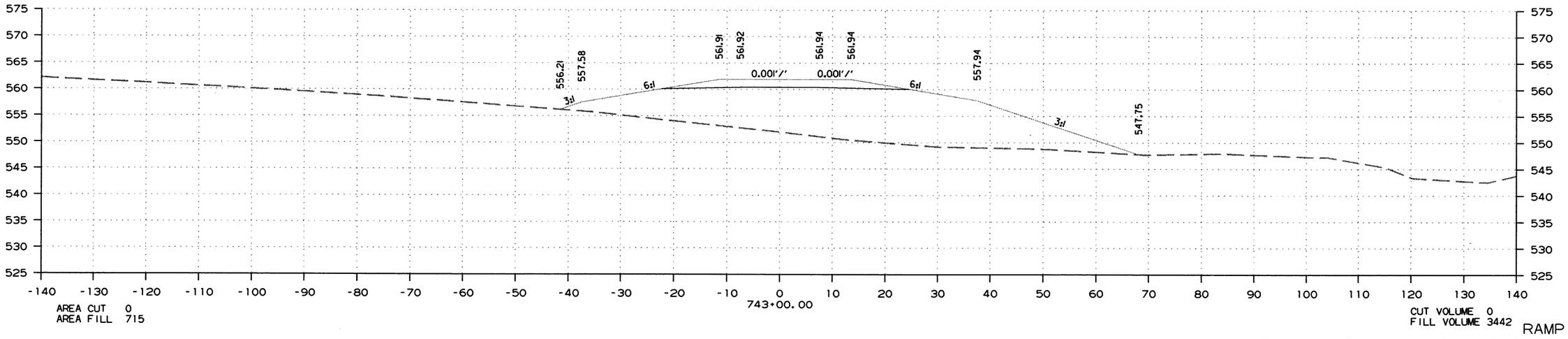
RAMP 2
STA. 741+00.00 TO STA. 742+00.00

gh40749 8/16/2019
RR60140.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.		R60140	522	616

(2) CROSS SECTIONS



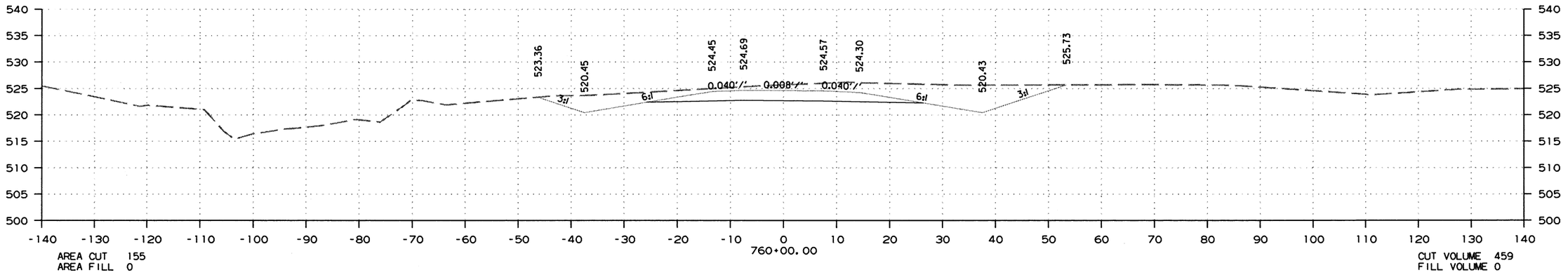


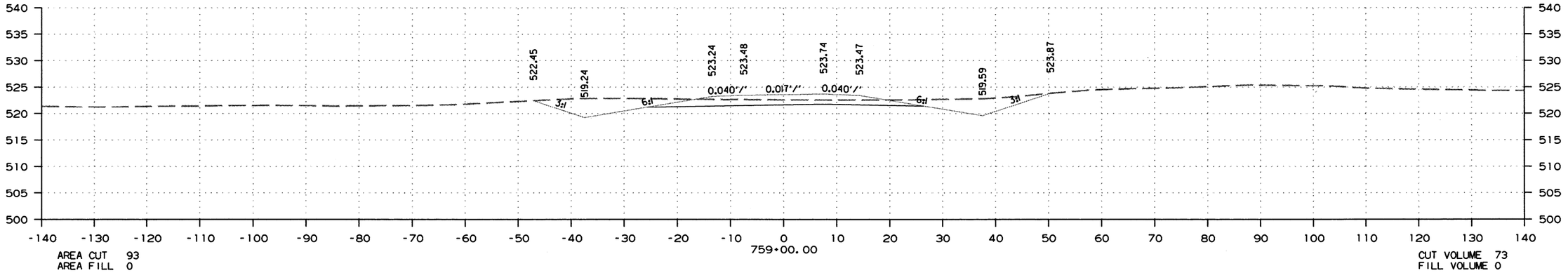
RAMP 2
STA. 743+00.00 TO STA. 743+02.16

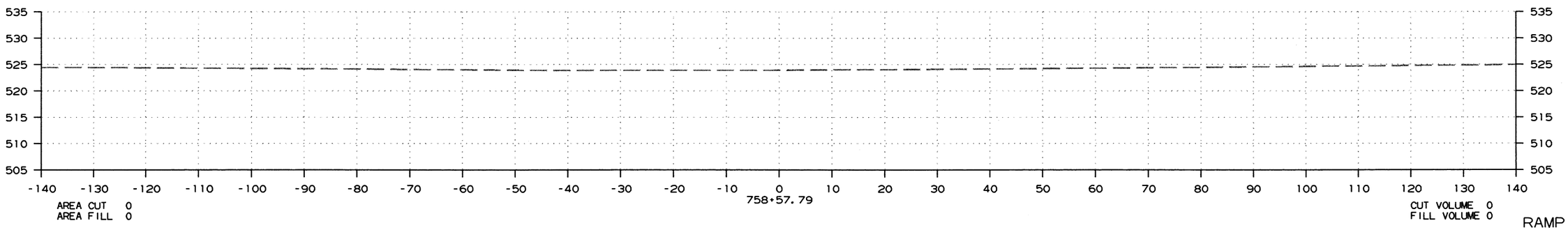
dh40749 8/16/2019
RR60140.DGN

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.		R60140	523	616

(2) CROSS SECTIONS





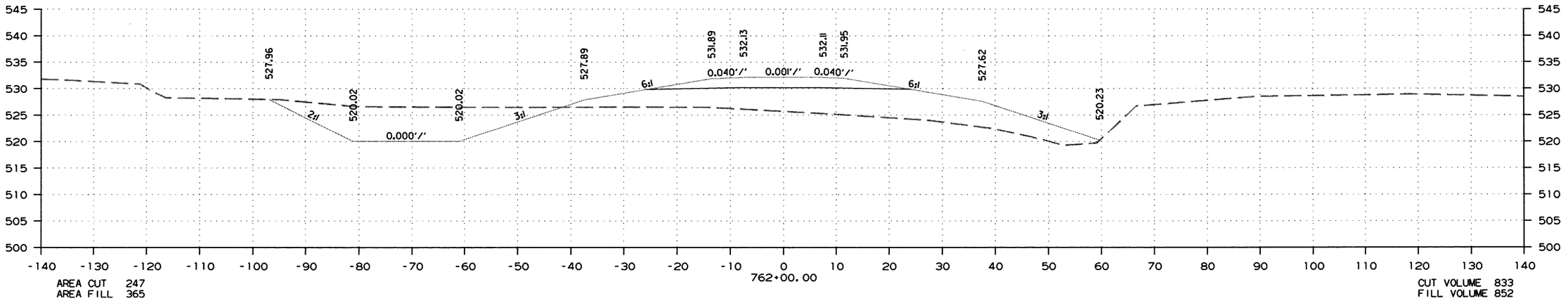


RAMP 3
STA. 758+57.79 TO STA. 760+00.00

dh40749 8/16/2019
RR60140.DGN

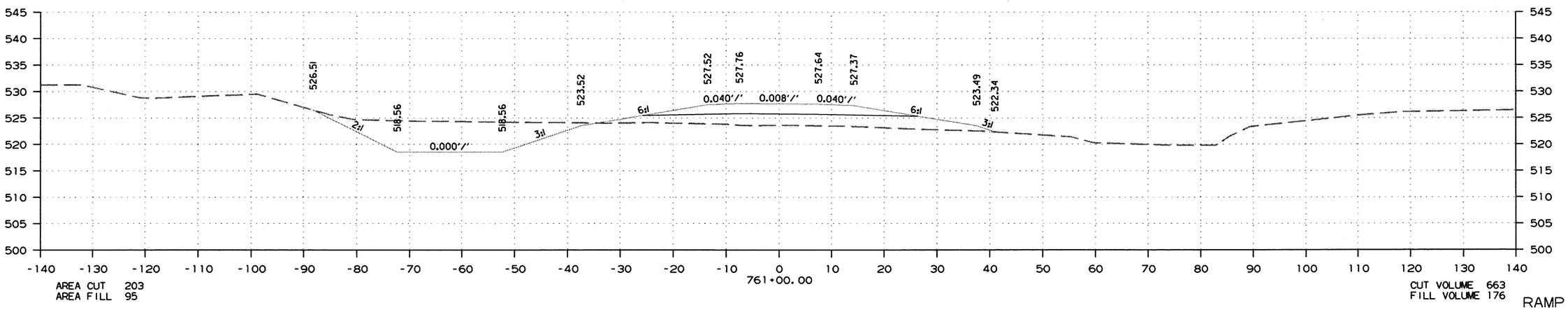
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	524	616

(2) CROSS SECTIONS



AREA CUT 247
AREA FILL 365

CUT VOLUME 833
FILL VOLUME 852



AREA CUT 203
AREA FILL 95

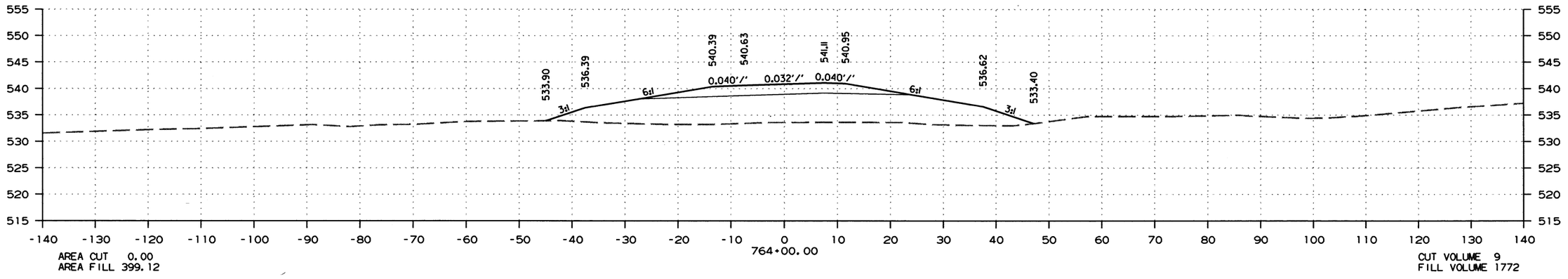
CUT VOLUME 663
FILL VOLUME 176

RAMP 3
STA. 761+00.00 TO STA. 762+00.00

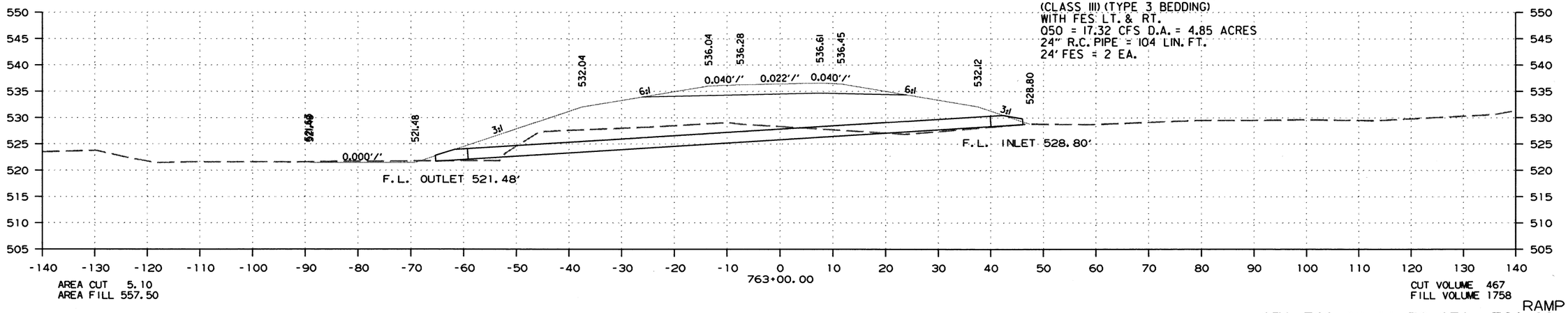
dm40749 8/16/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	525	616

(2) CROSS SECTIONS- RAMP 3



STA. 763+00 CONSTRUCT
24" X 120' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 17.32 CFS D.A. = 4.85 ACRES
24" R.C. PIPE = 104 LIN. FT.
24' FES = 2 EA.

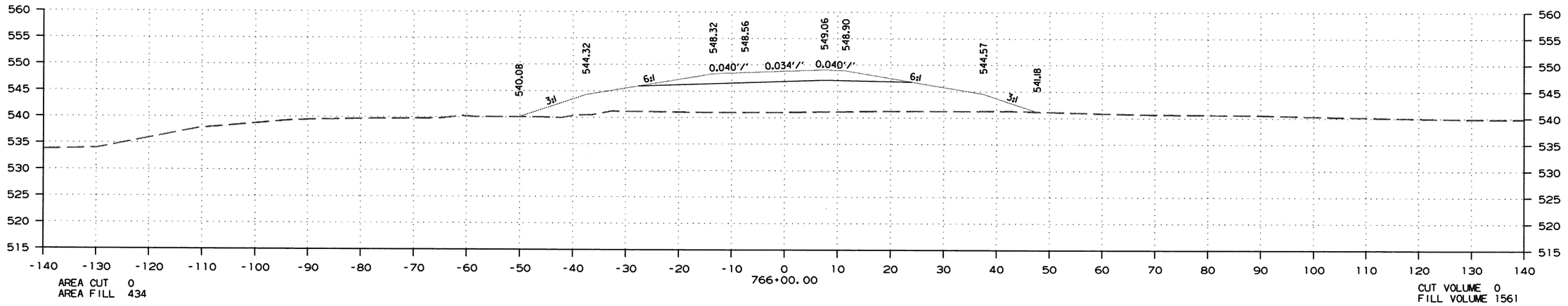


RAMP 3
STA. 763+00.00 TO STA. 764+00.00

8/16/2019
dn40749
RR60140.DGN

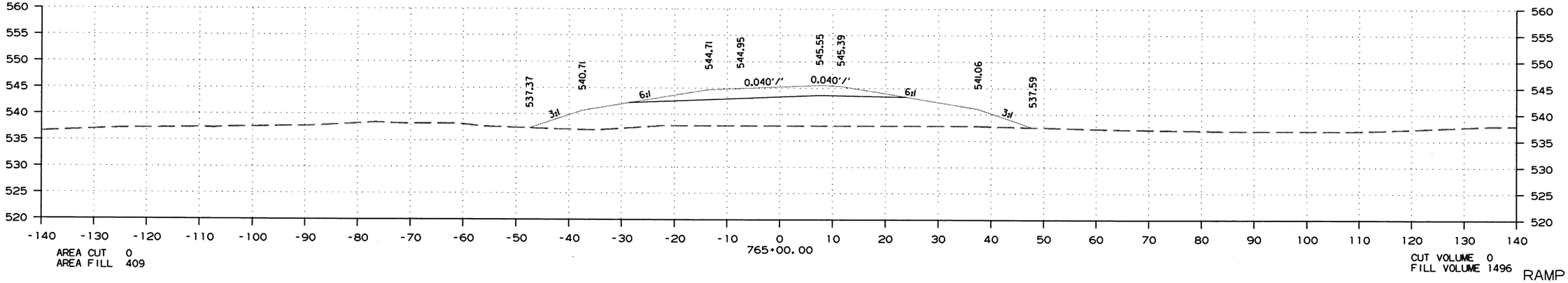
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	526	616

(2) CROSS SECTIONS



AREA CUT 0
AREA FILL 434

CUT VOLUME 0
FILL VOLUME 1561



AREA CUT 0
AREA FILL 409

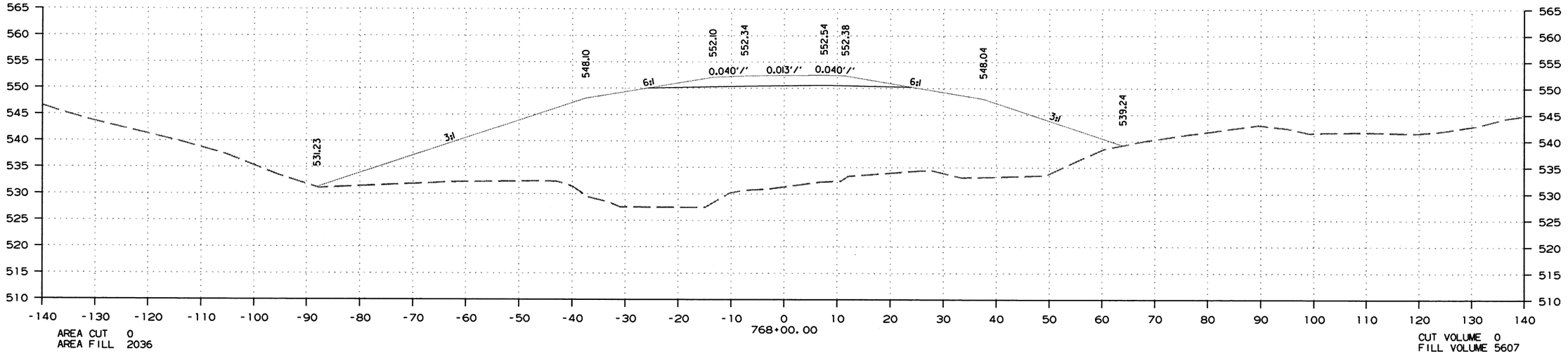
CUT VOLUME 0
FILL VOLUME 1496

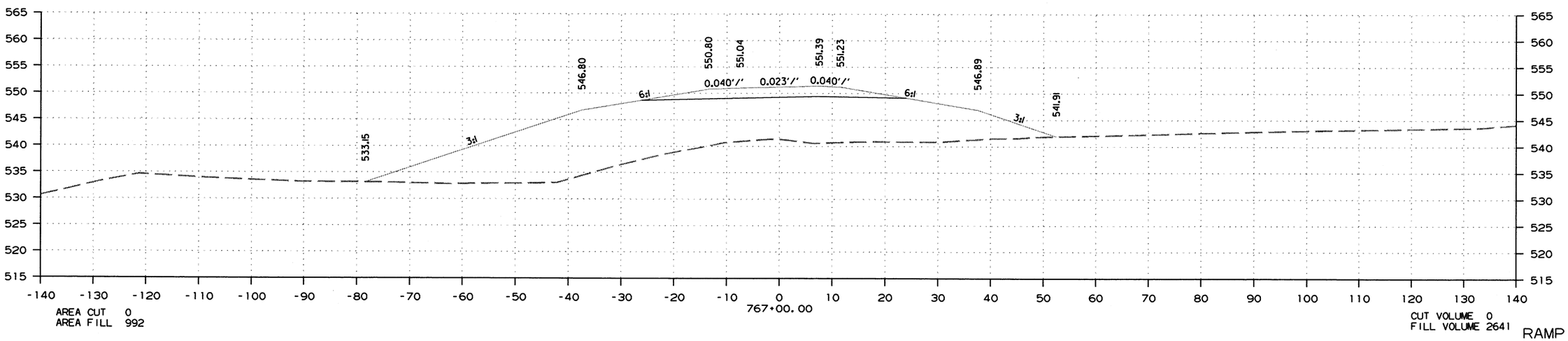
RAMP 3
STA. 765+00.00 TO STA. 766+00.00

oh40749 8/16/2019
RR60140.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.		R60140	527	616

(2) CROSS SECTIONS





RAMP 3

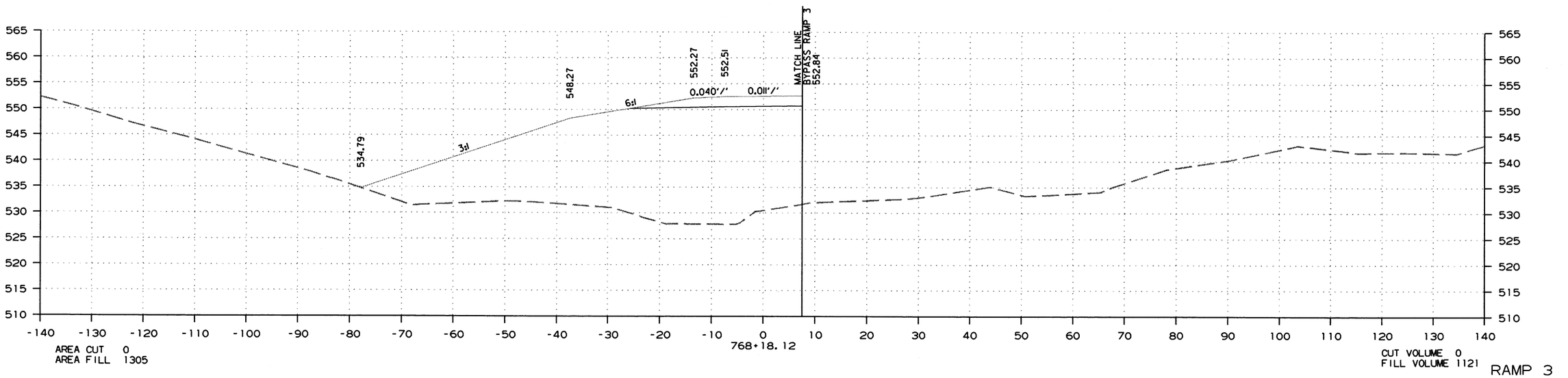
STA. 767+00.00 TO STA. 768+00.00

oh40749 8/16/2019
RR60140.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.		R60140	528	616

(2) CROSS SECTIONS

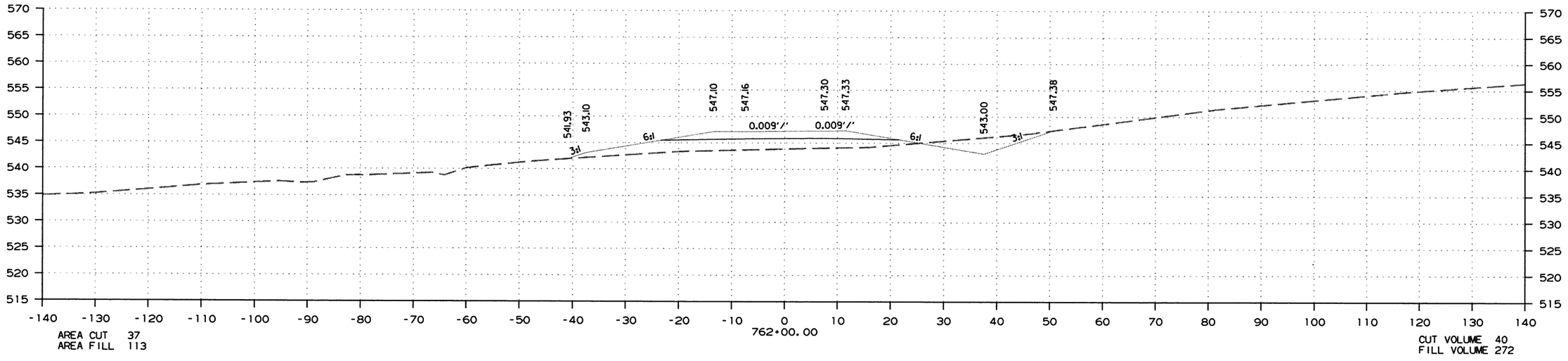


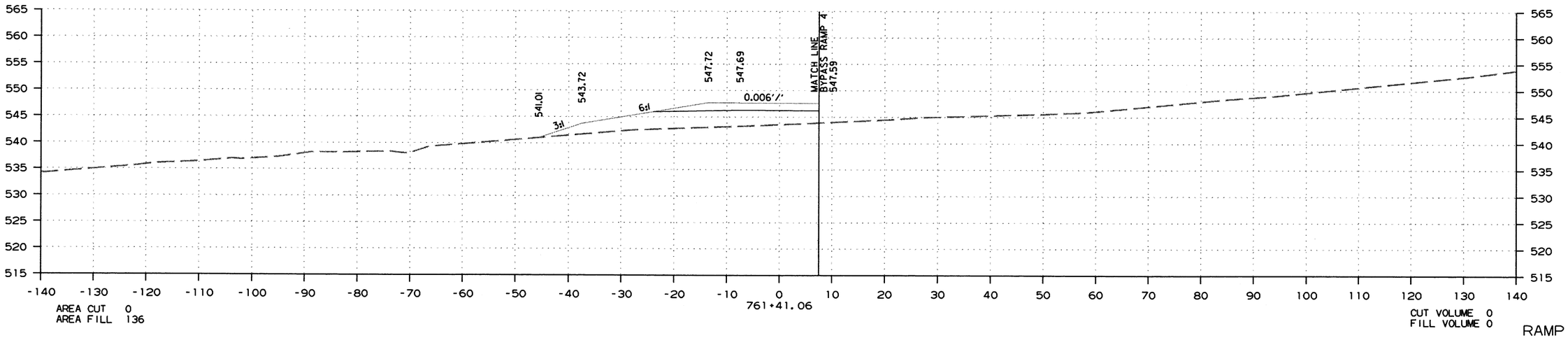
RAMP 3
STA. 768+18.12 TO STA. 768+18.12

oh40749 8/16/2019
RR60140.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.		R60140	529	616

(2) CROSS SECTIONS





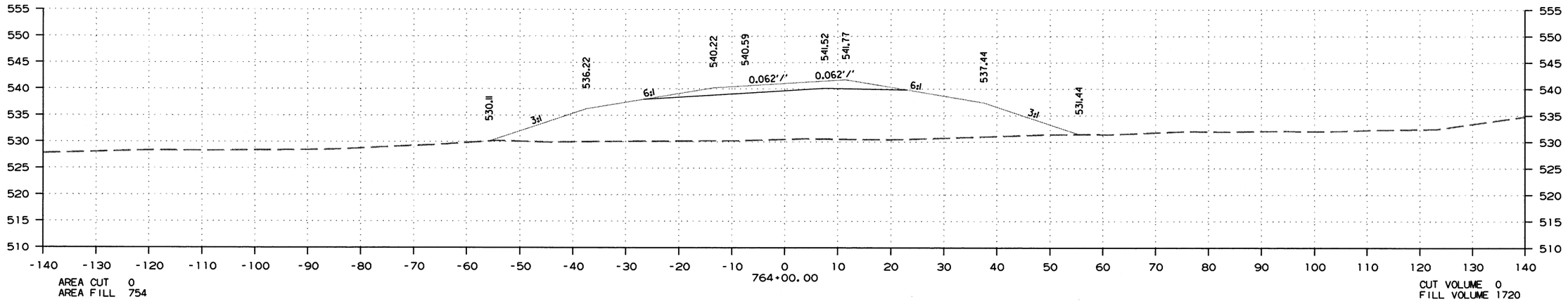
RAMP 4

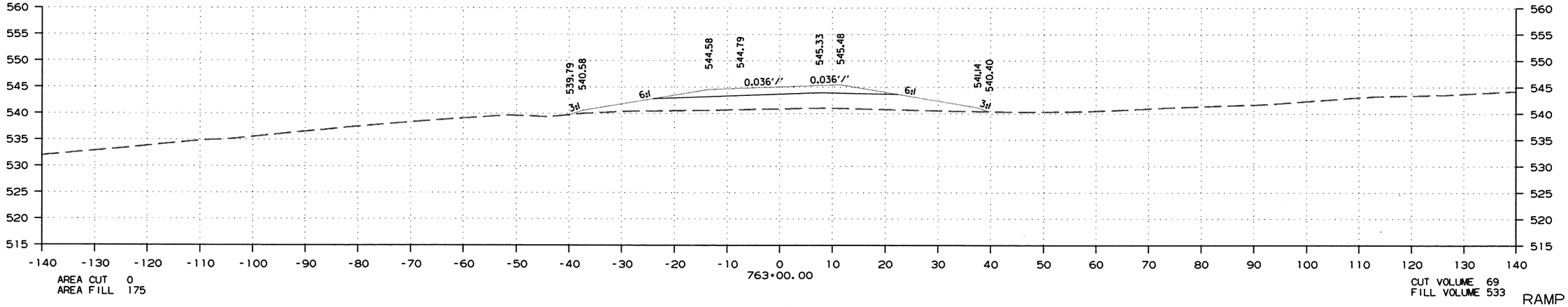
STA. 761+41.06 TO STA. 762+00.00

oh40749 8/16/2019
RR60140.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.		R60140	530	616

(2) CROSS SECTIONS



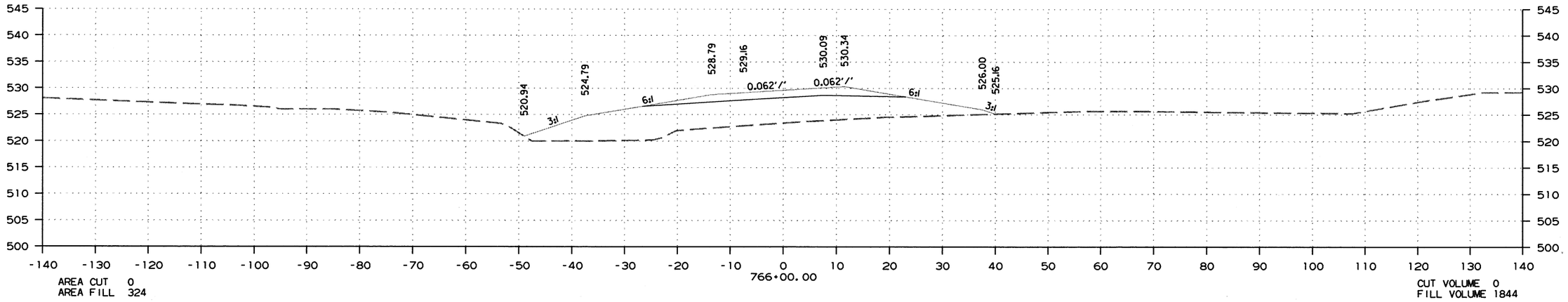


RAMP 4
STA. 763+00.00 TO STA. 764+00.00

dn40749 8/16/2019
RR60140.DGN

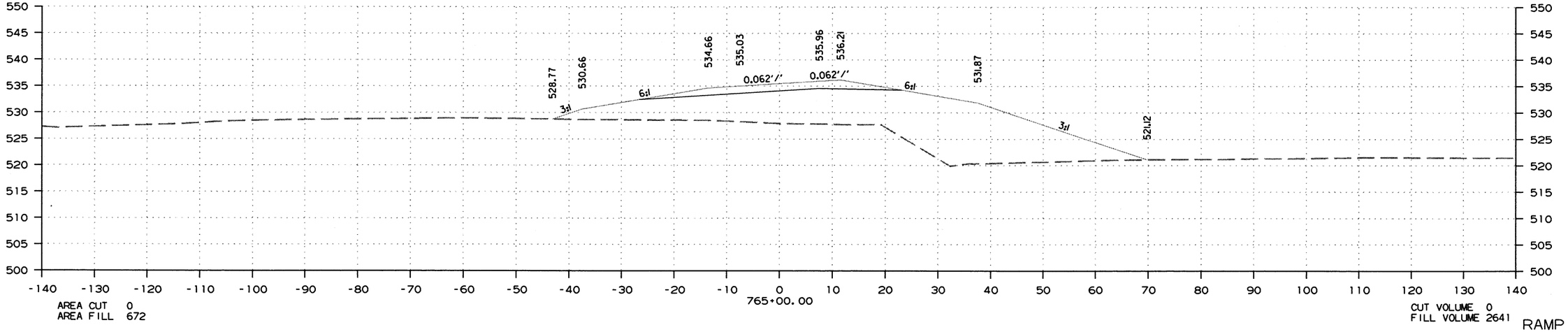
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	531	616

(2) CROSS SECTIONS



AREA CUT 0
AREA FILL 324

CUT VOLUME 0
FILL VOLUME 1844



AREA CUT 0
AREA FILL 672

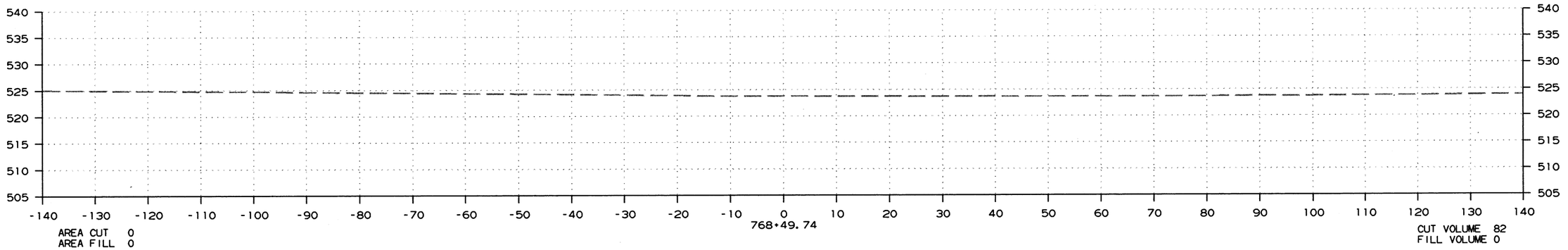
CUT VOLUME 0
FILL VOLUME 2641

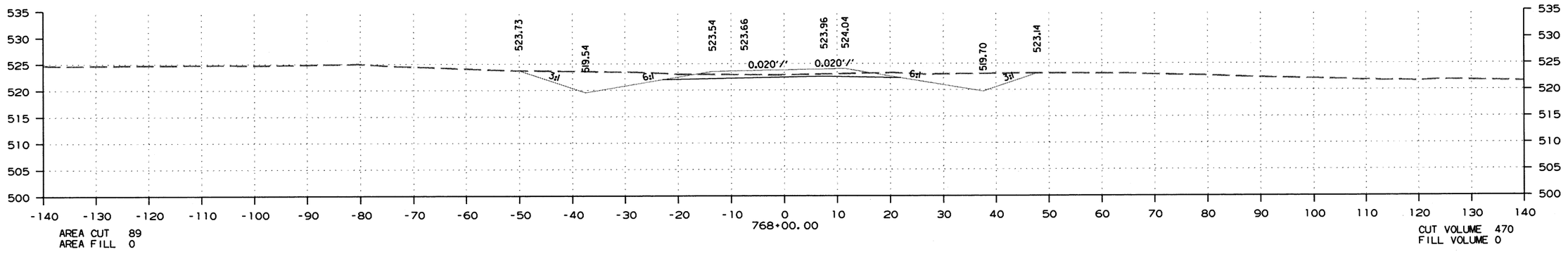
RAMP 4
STA. 765+00.00 TO STA. 766+00.00

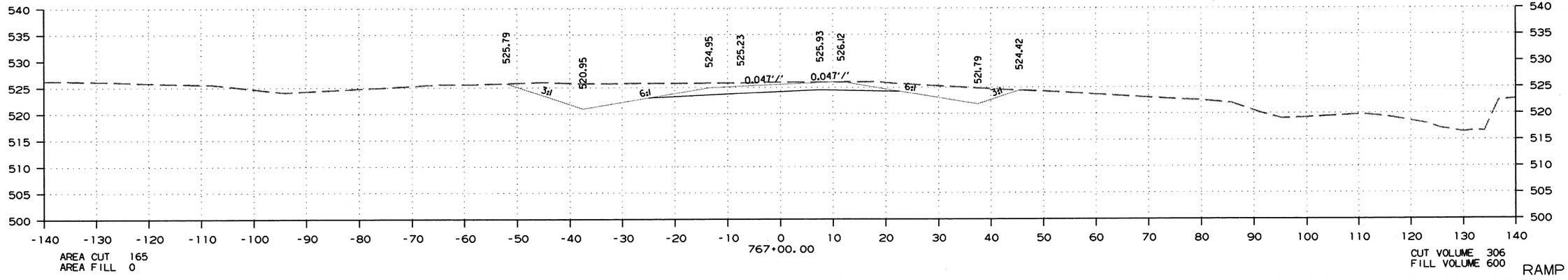
ar40749 8/16/2019
RR60140.DGN

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.		R60140	532	616

(2) CROSS SECTIONS







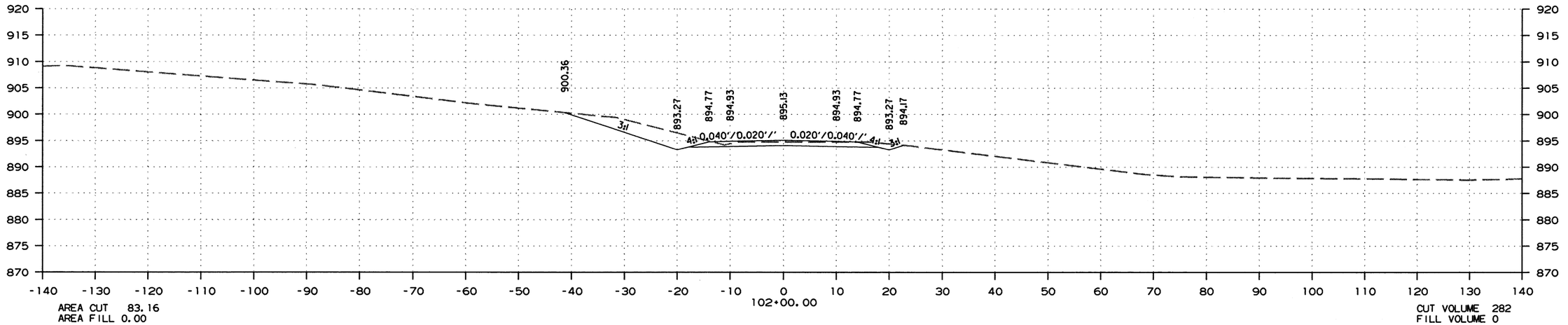
RAMP 4

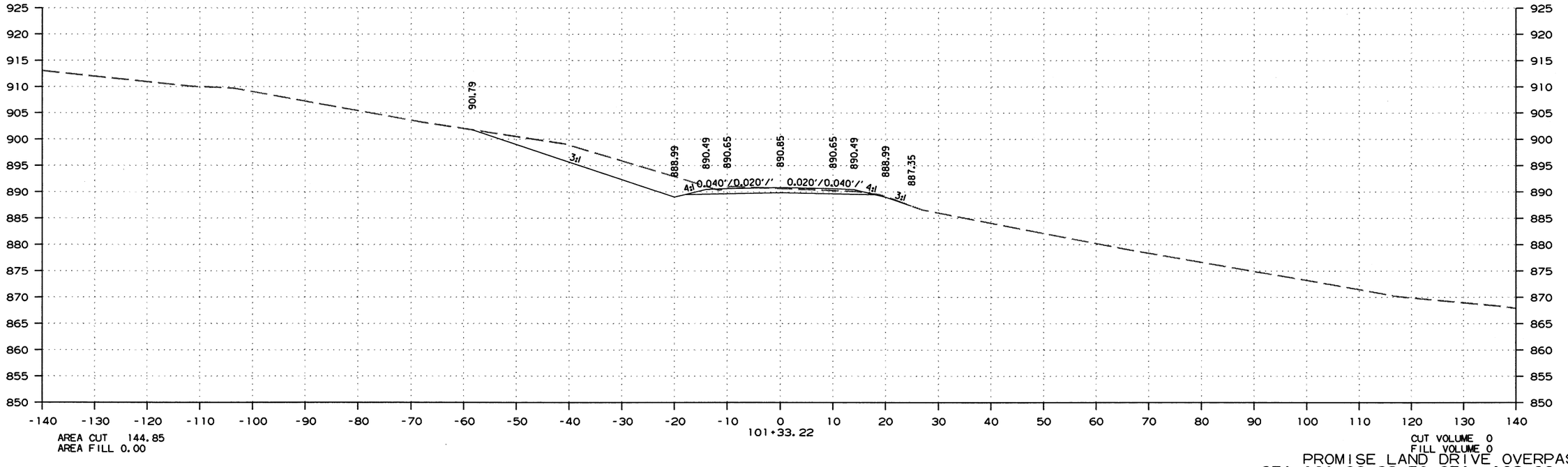
STA. 767+00.00 TO STA. 768+49.74

oh40749 8/16/2019
RR60140.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.		R60140	533	676

(2) CROSS SECTIONS



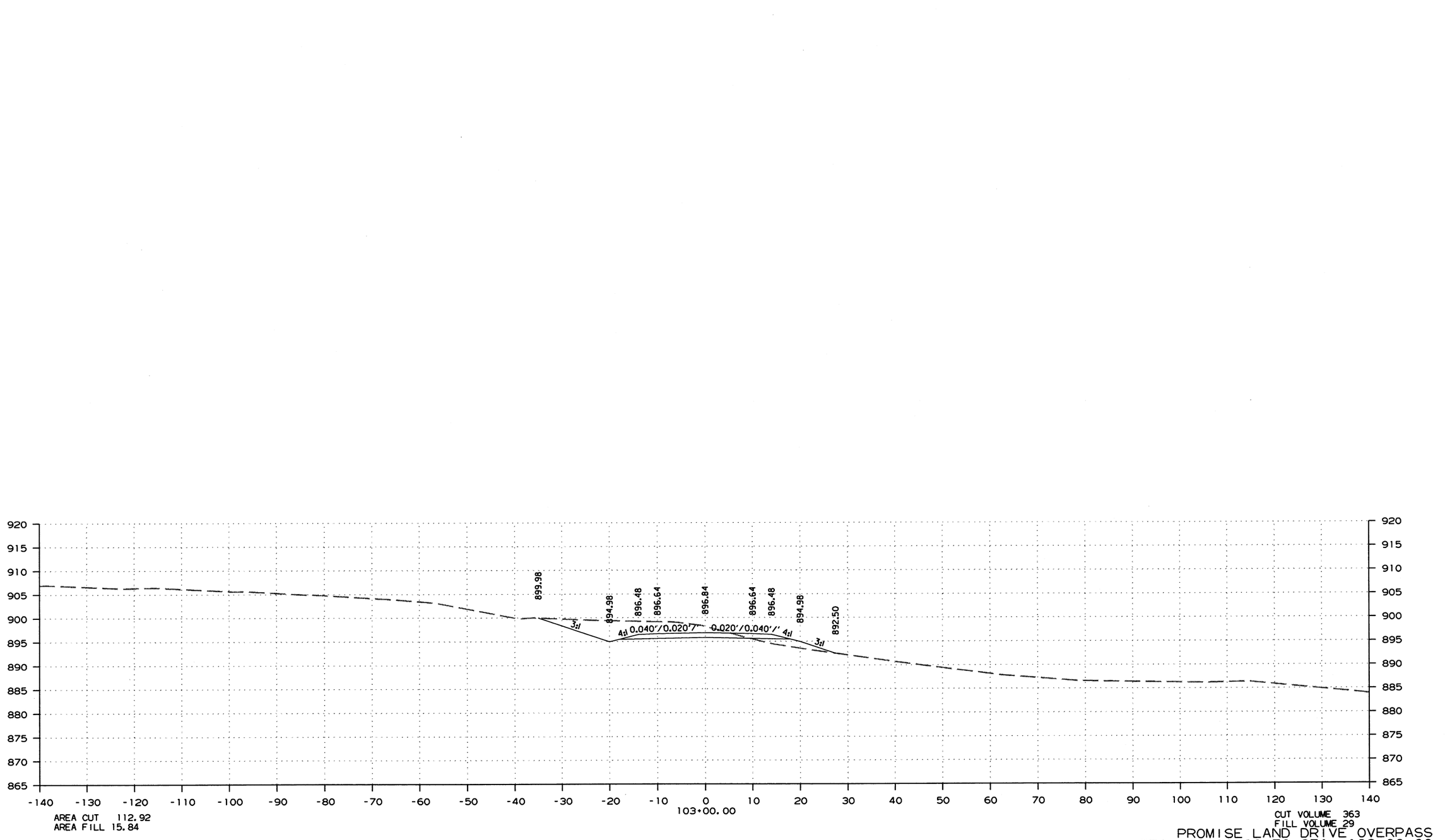


PROMISE LAND DRIVE OVERPASS
STA. 101+33.22 TO STA. 102+00.00

qh40749 9/9/2019
RR60140.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.		R60140	334	616

(2) CROSS SECTIONS



AREA CUT 112.92
AREA FILL 15.84

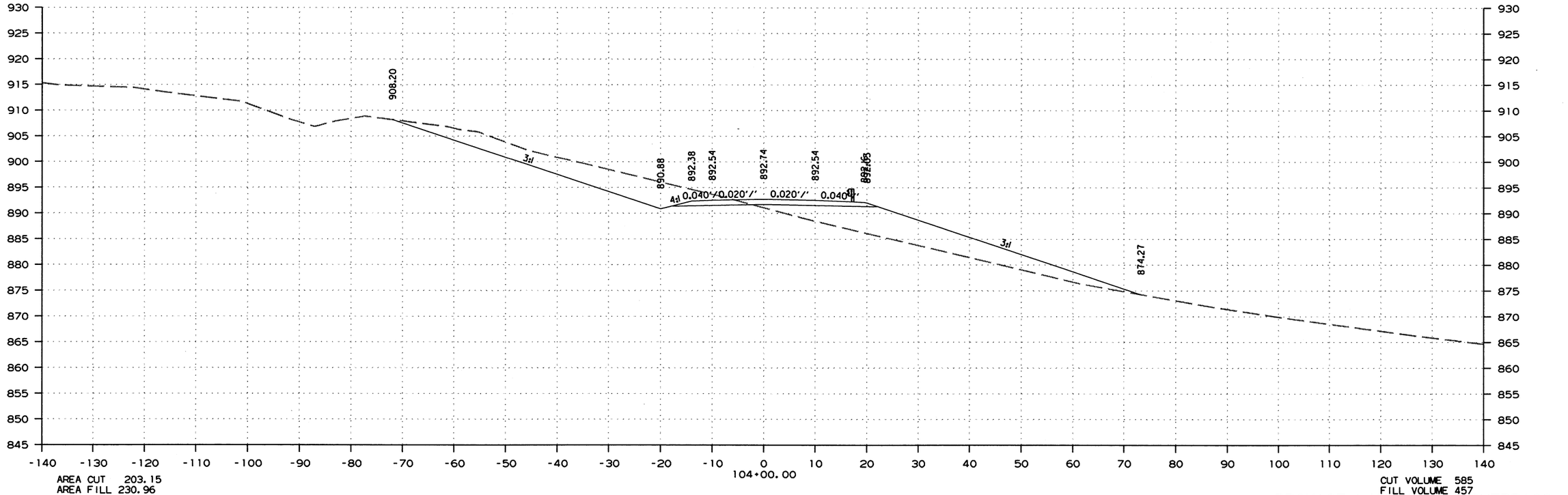
CUT VOLUME 363
FILL VOLUME 29

PROMISE LAND DRIVE OVERPASS
STA. 103+00.00 TO STA. 103+00.00

qh40749 9/9/2019
RR60140.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.		R60140	535	616

(2) CROSS SECTIONS



AREA CUT 203.15
AREA FILL 230.96

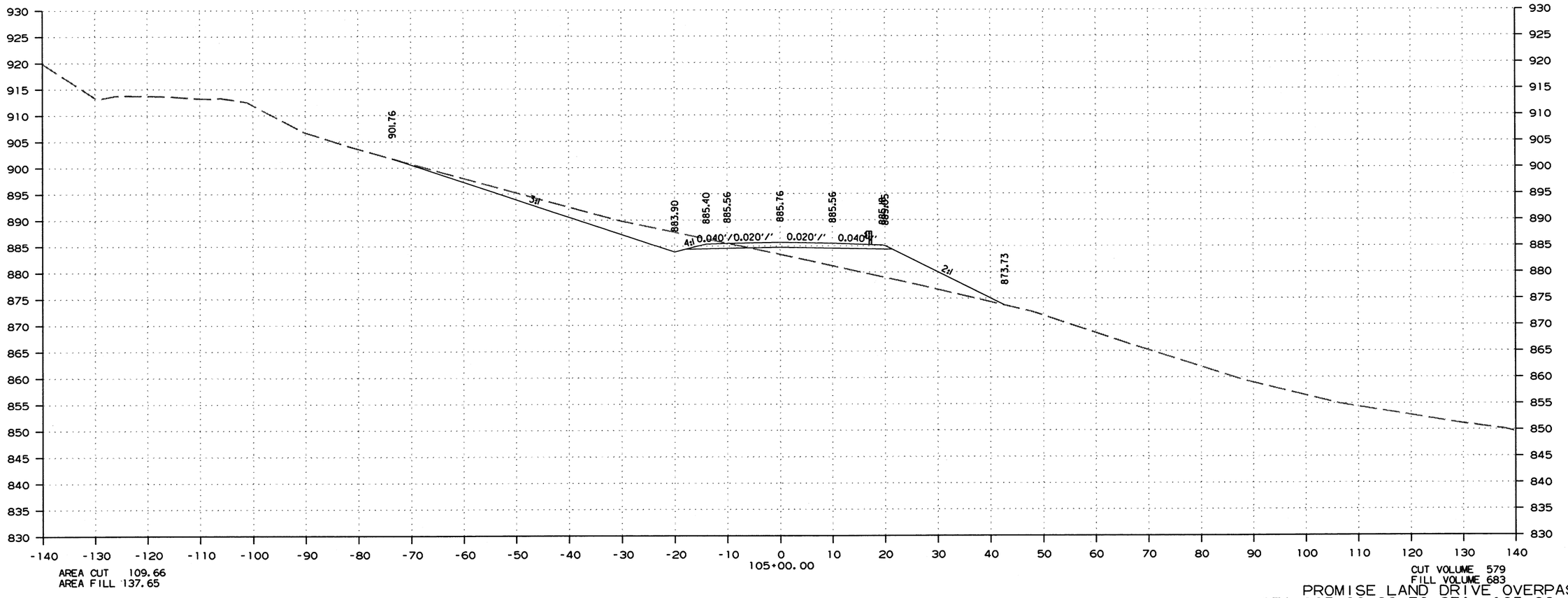
CUT VOLUME 585
FILL VOLUME 457

PROMISE LAND DRIVE OVERPASS
STA. 104+00.00 TO STA. 104+00.00

qh40749 9/9/2019
RR60140.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.		R60140	536	616

(2) CROSS SECTIONS



AREA CUT 109.66
AREA FILL 137.65

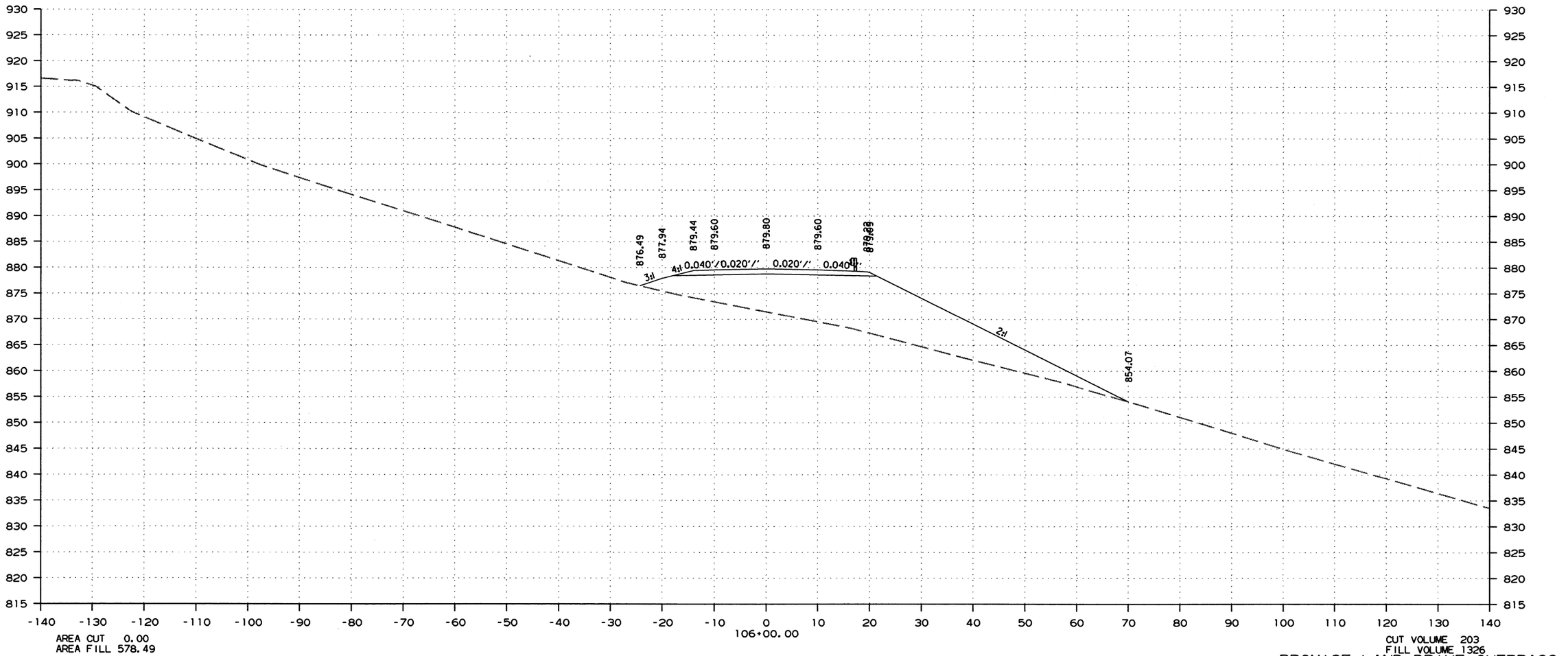
CUT VOLUME 579
FILL VOLUME 683

PROMISE LAND DRIVE OVERPASS
STA. 105+00.00 TO STA. 105+00.00

dn40749 9/9/2019
RR60140.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.		R60140	537	616

(2) CROSS SECTIONS

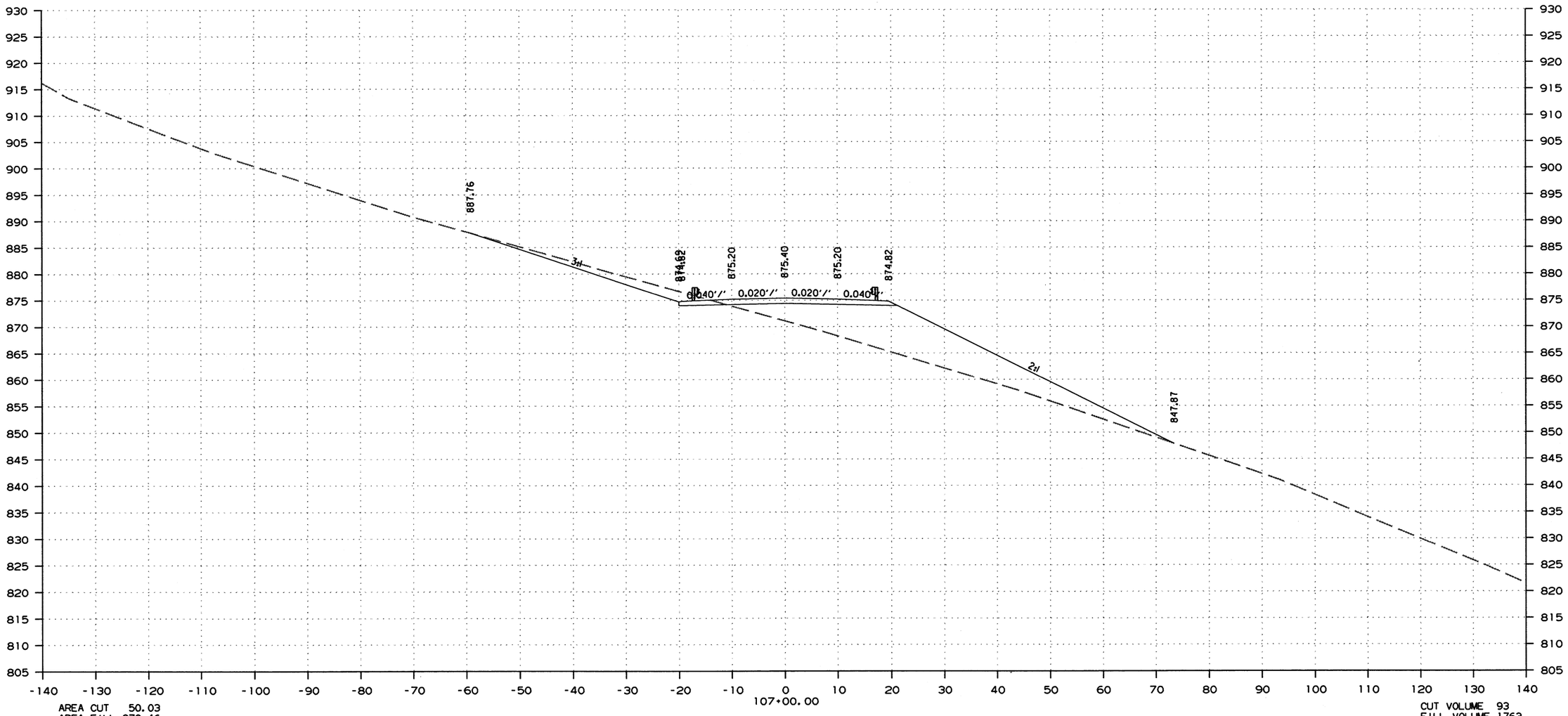


PROMISE LAND DRIVE OVERPASS
STA. 106+00.00 TO STA. 106+00.00

oh40749 9/9/2019
RR60140.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.		R60140	538	616

(2) CROSS SECTIONS



AREA CUT 50.03
AREA FILL 373.46

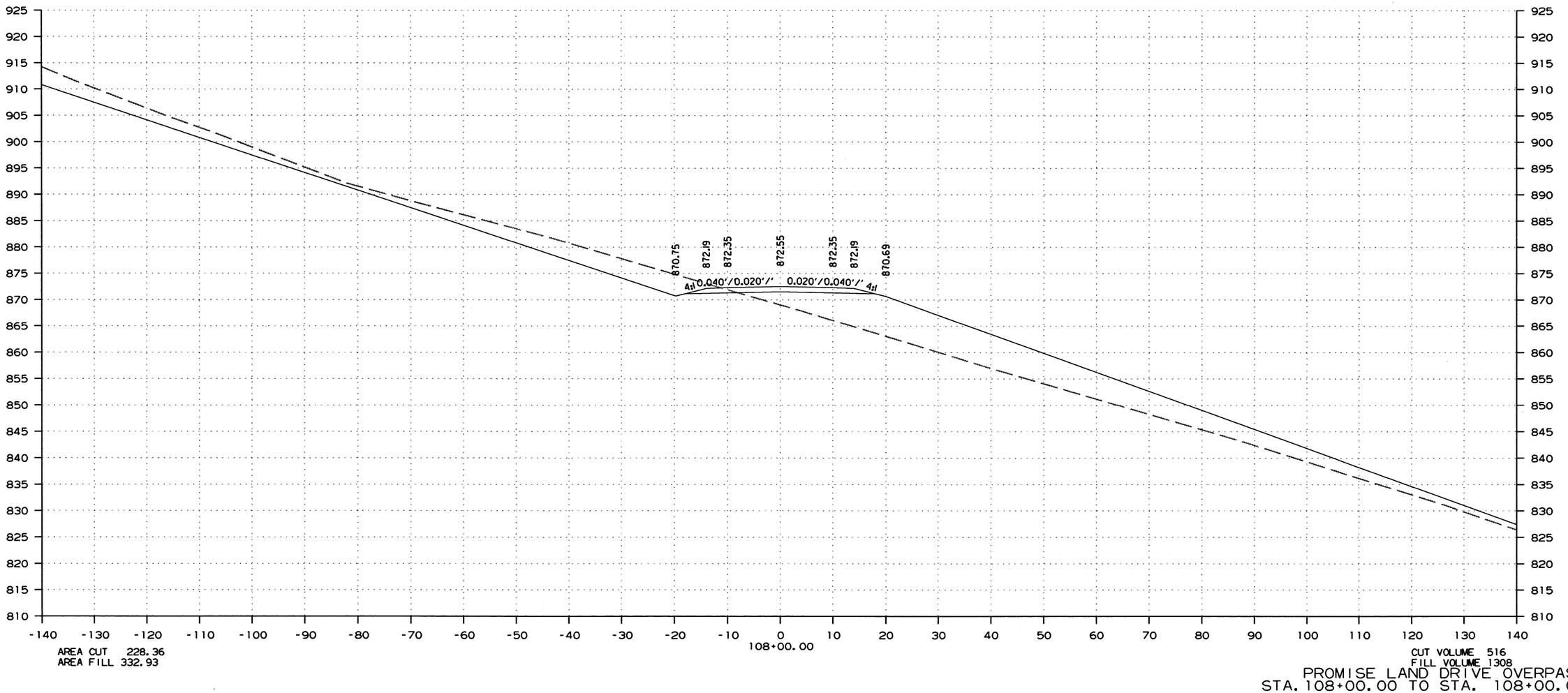
CUT VOLUME 93
FILL VOLUME 1763

PROMISE LAND DRIVE OVERPASS
STA. 107+00.00 TO STA. 107+00.00

oh40749 9/9/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	539	616

(2) CROSS SECTIONS



AREA CUT 228.36
AREA FILL 332.93

CUT VOLUME 516
FILL VOLUME 1308

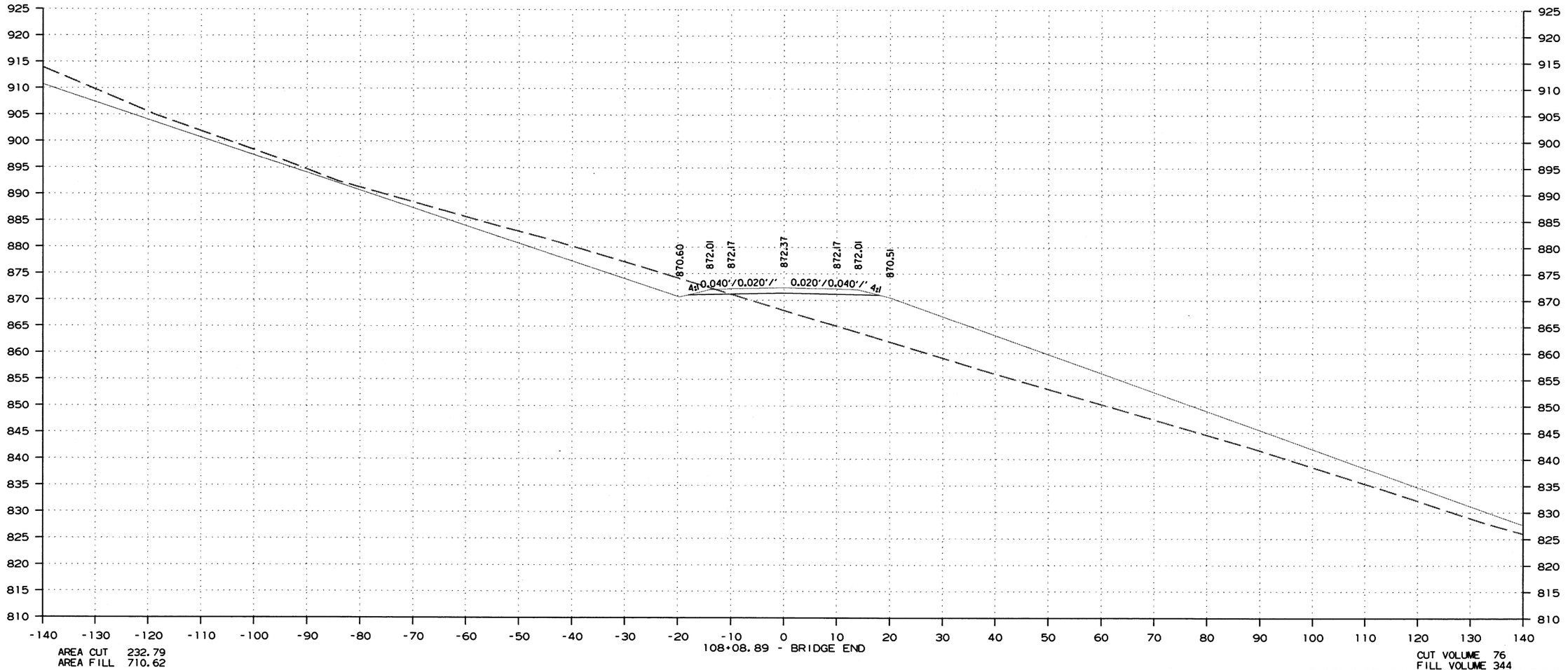
PROMISE LAND DRIVE OVERPASS
STA. 108+00.00 TO STA. 108+00.00

lc38019 10/31/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10-30-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		R60140	539A	616

(2) CROSS SECTIONS

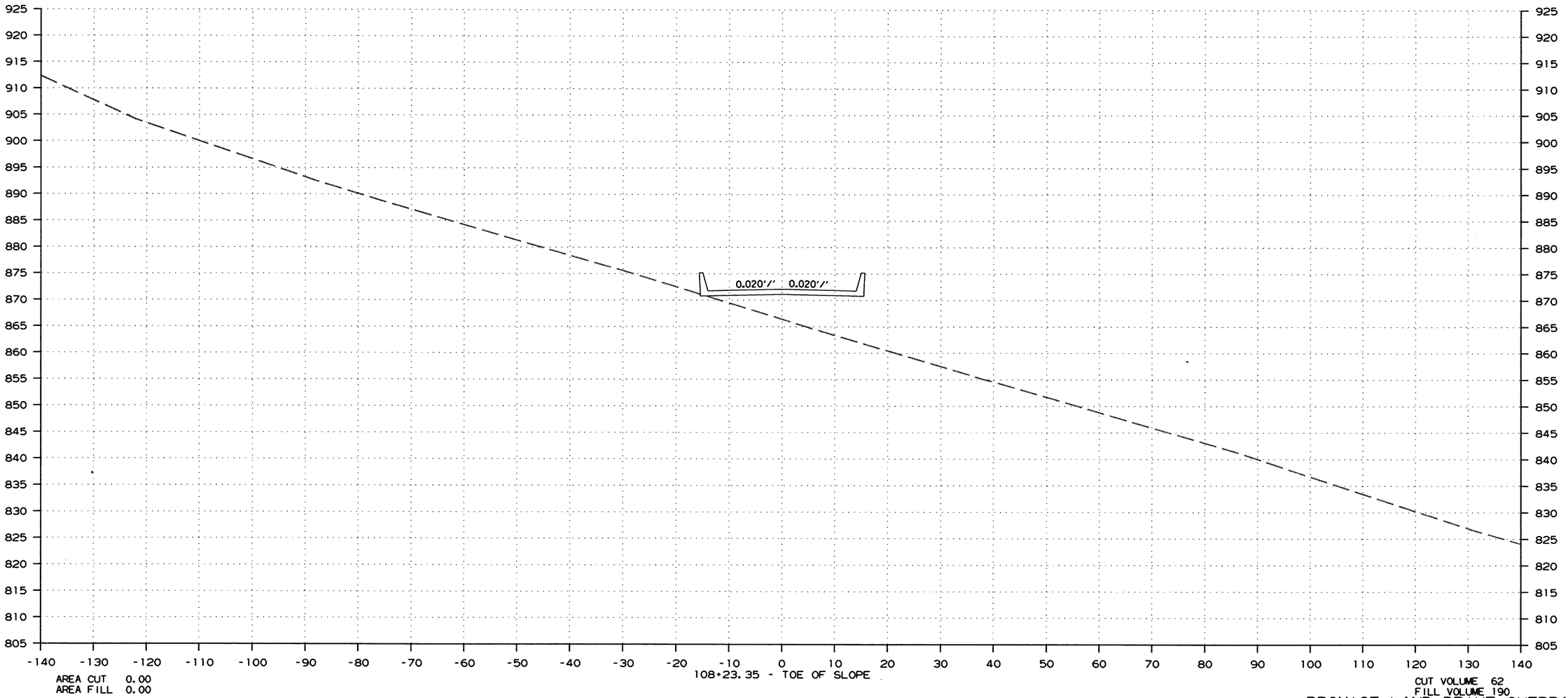


PROMISE LAND DRIVE OVERPASS
STA. 108+08.89 TO STA. 108+08.89

lc38019 10/31/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	539B	616

(2) CROSS SECTIONS



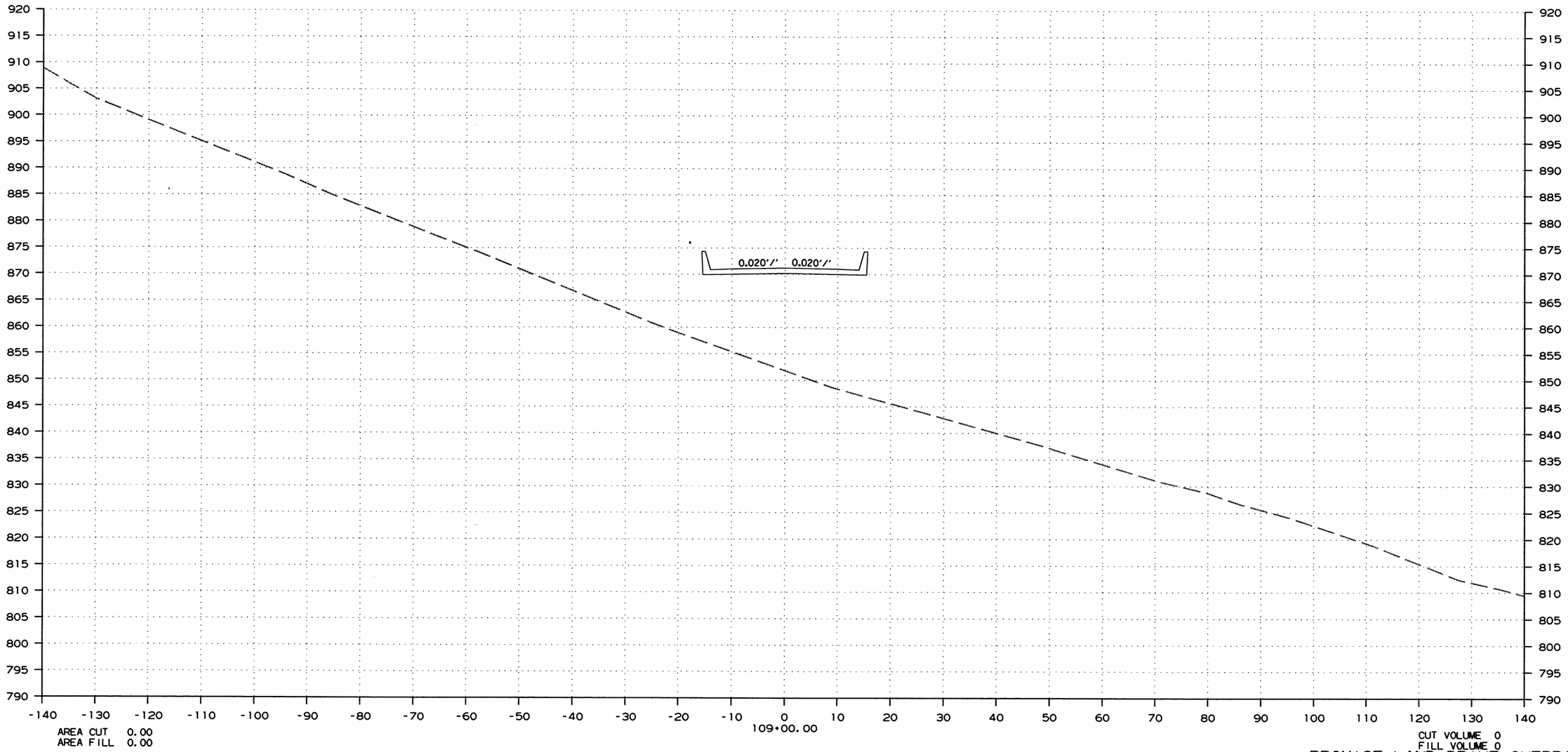
PROMISE LAND DRIVE OVERPASS
STA. 108+23.35 TO STA. 108+23.35

lc38019 10/31/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10-30-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		R60140	540	616

(2) CROSS SECTIONS

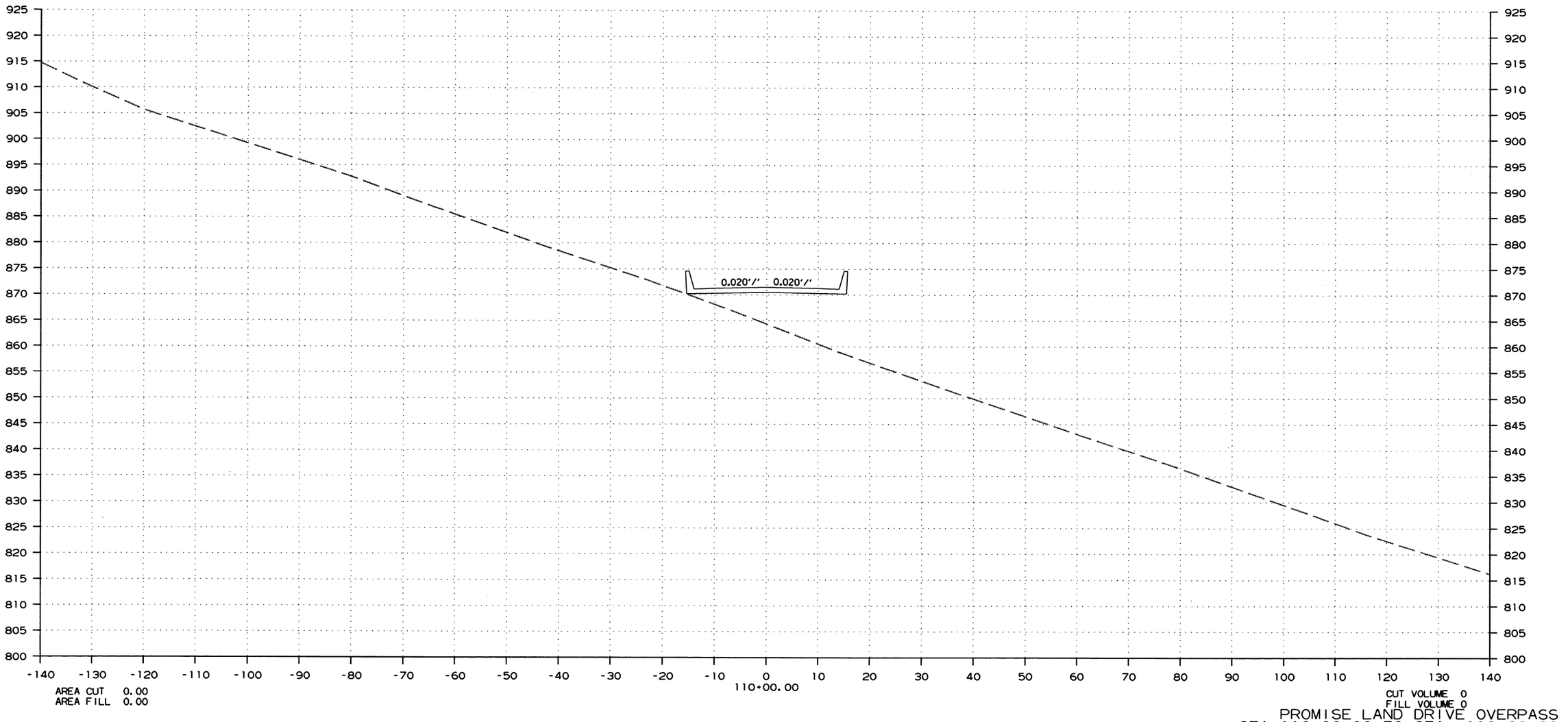


PROMISE LAND DRIVE OVERPASS
STA. 109+00.00 TO STA. 109+00.00

lc38019 10/31/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	541	616

(2) CROSS SECTIONS

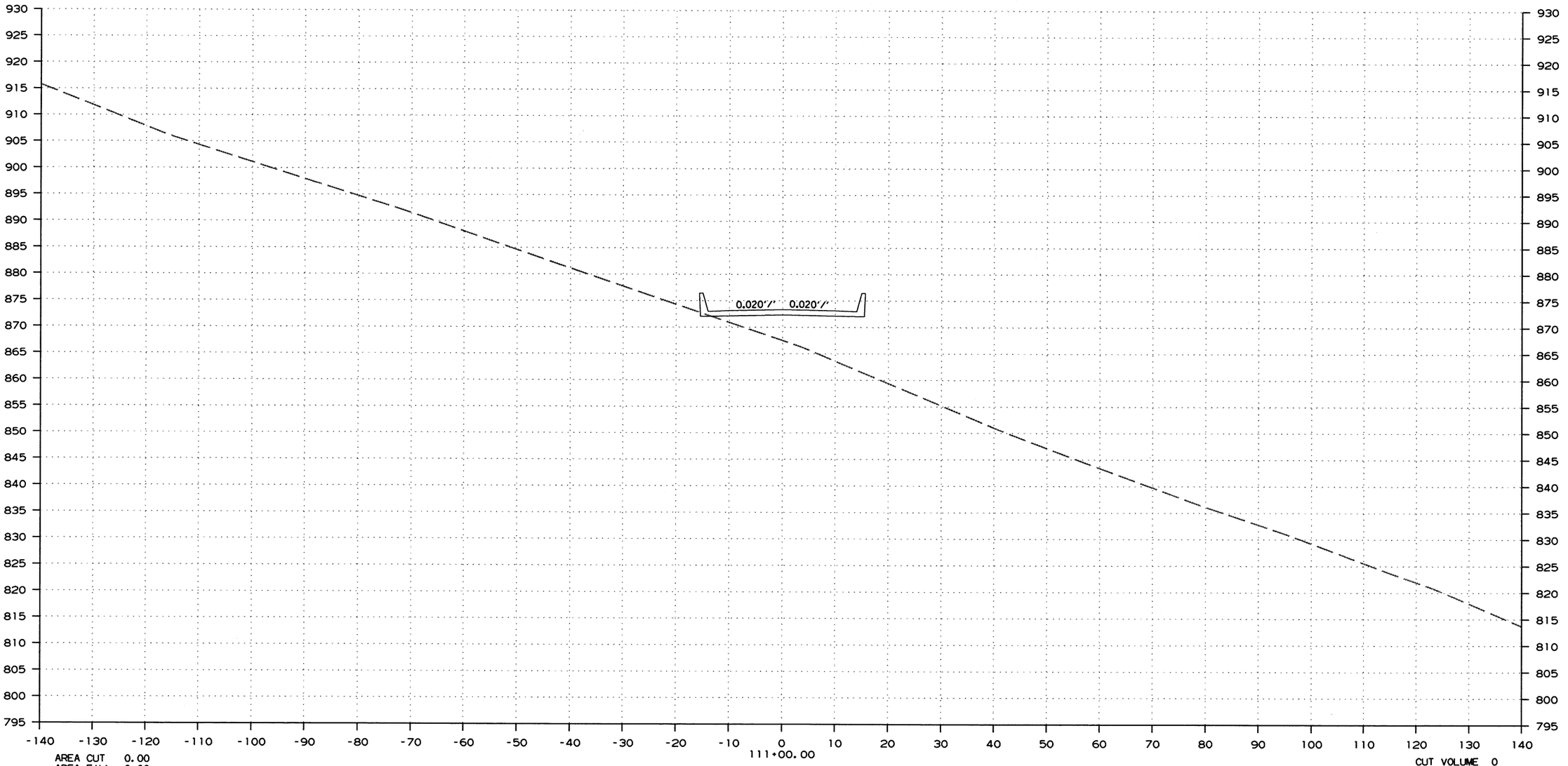


PROMISE LAND DRIVE OVERPASS
STA. 110+00.00 TO STA. 110+00.00

lc38019 10/31/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	542	616

(2) CROSS SECTIONS

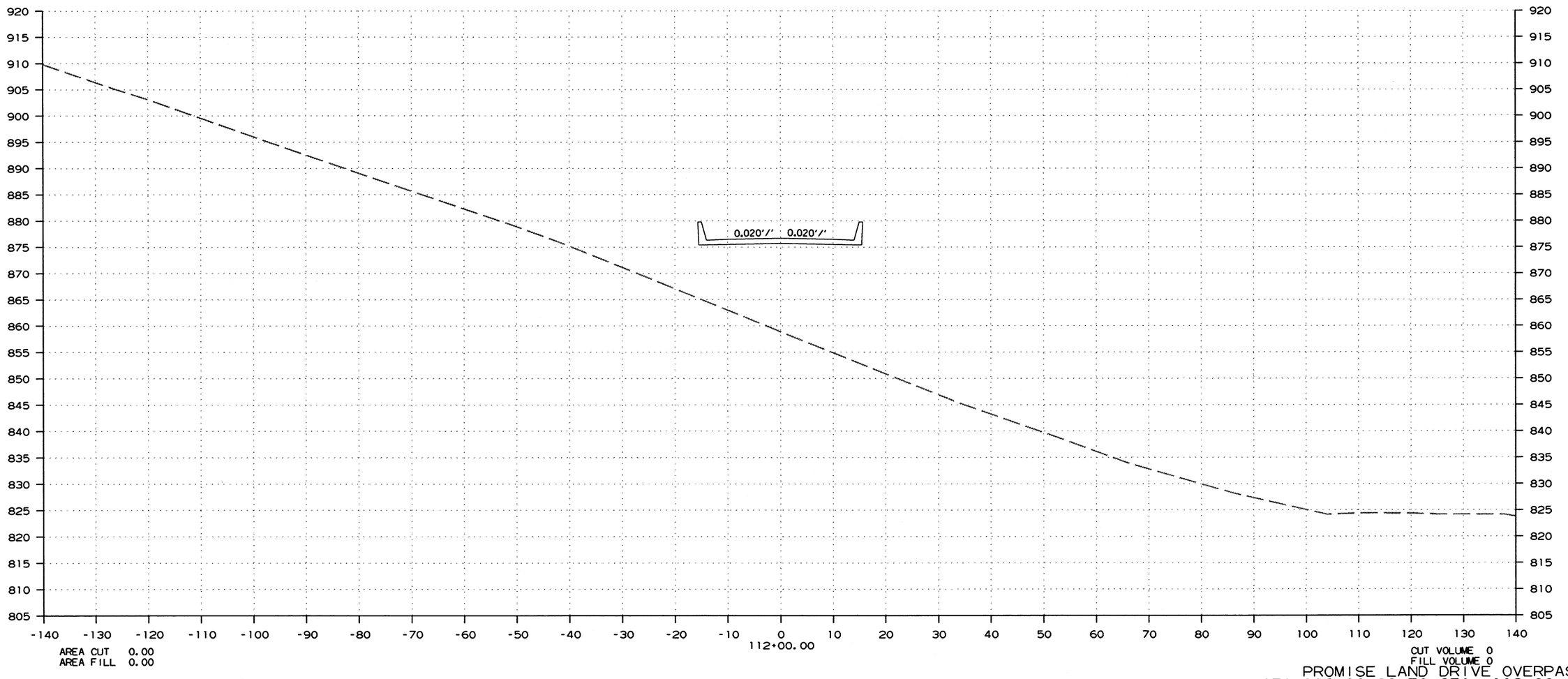


PROMISE LAND DRIVE OVERPASS
STA. 111+00.00 TO STA. 111+00.00

lc38019 10/31/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	543	616

(2) CROSS SECTIONS



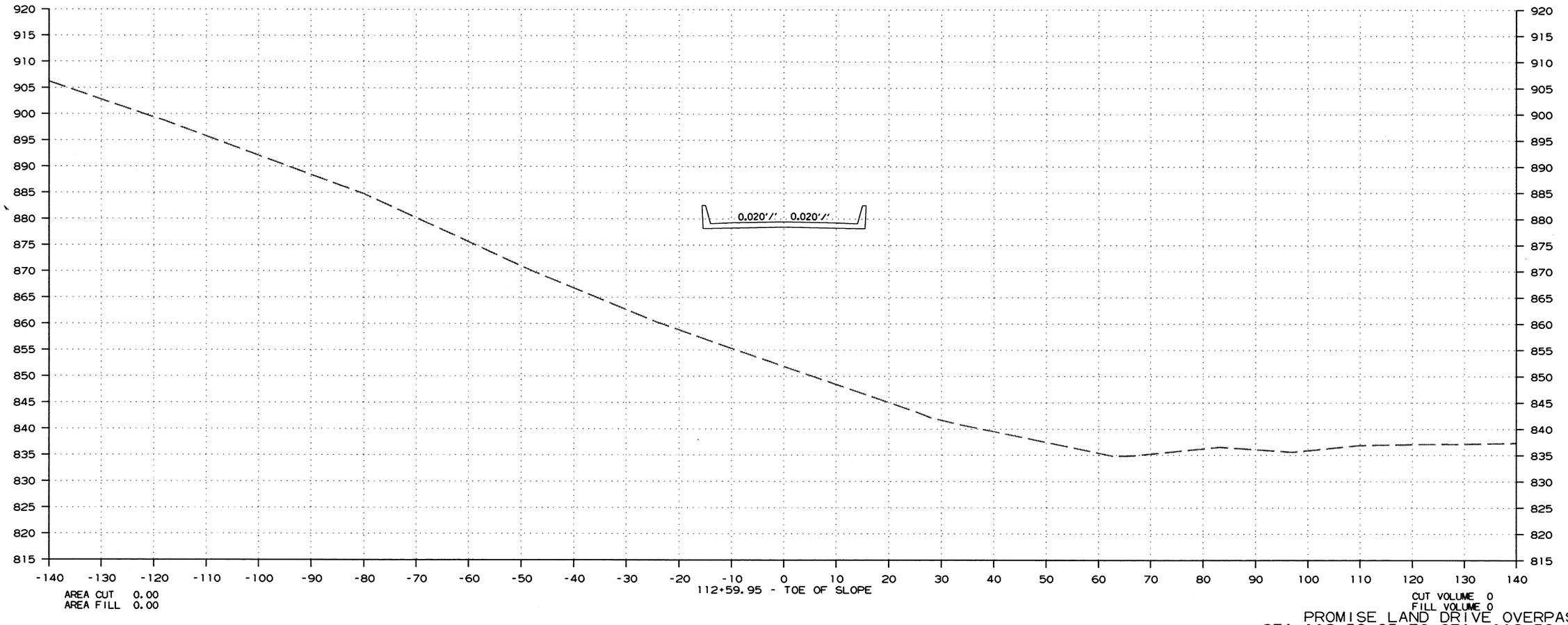
PROMISE LAND DRIVE OVERPASS
STA. 112+00.00 TO STA. 112+00.00

lc38019 10/31/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10-30-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		R60140	543A	616

(2) CROSS SECTIONS

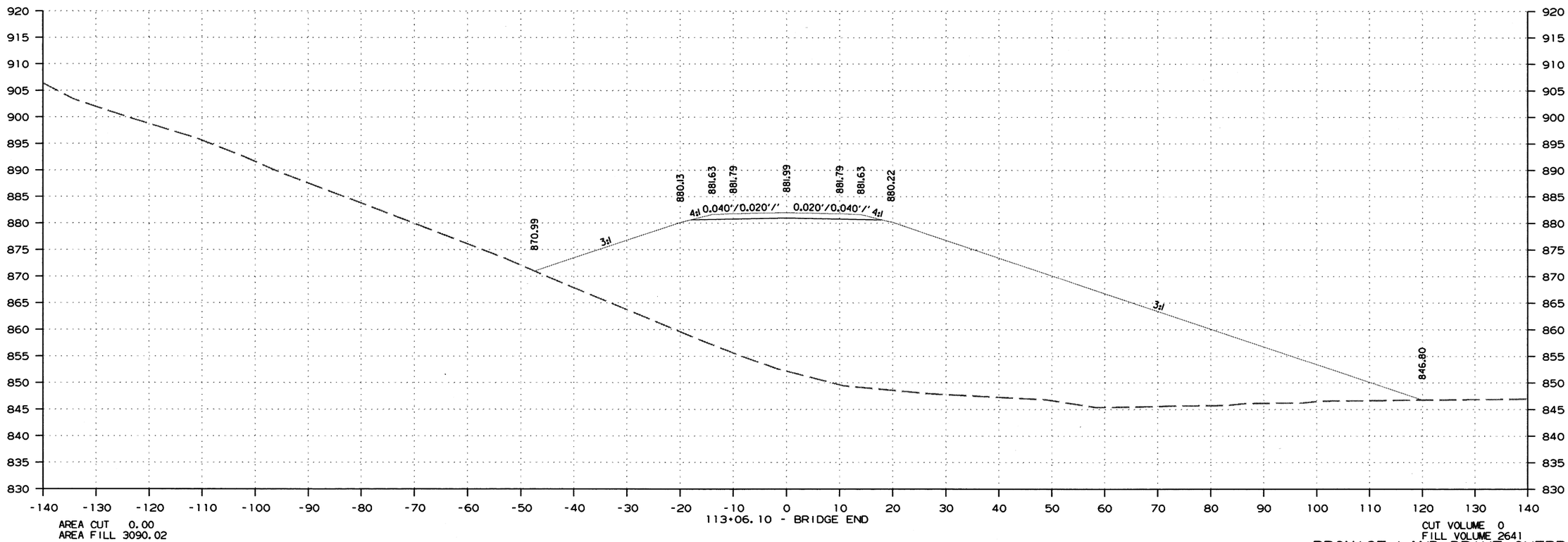


PROMISE LAND DRIVE OVERPASS
STA. 112+59.95 TO STA. 112+59.95

lc38019 10/31/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	544	616

(2) CROSS SECTIONS

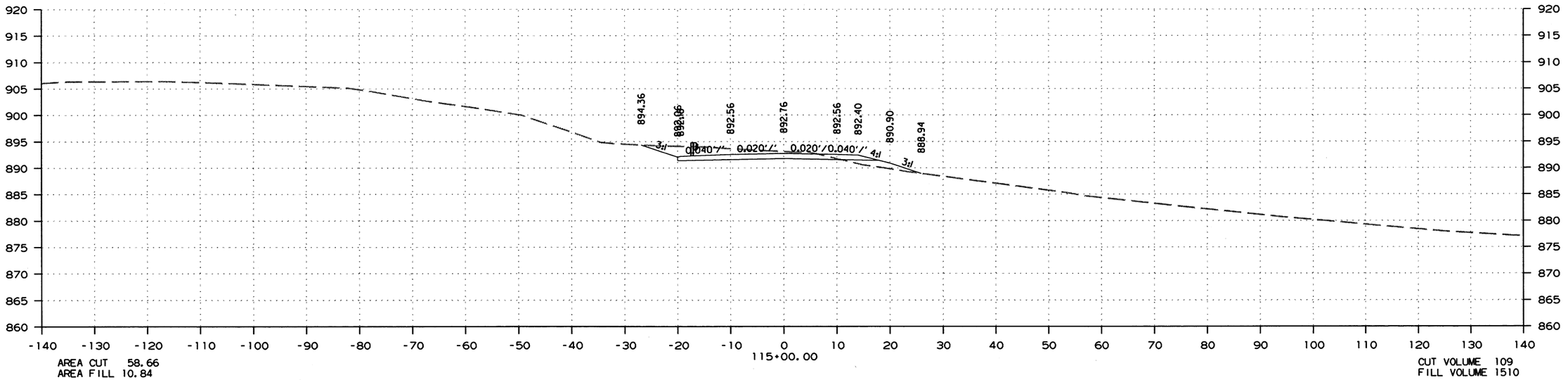


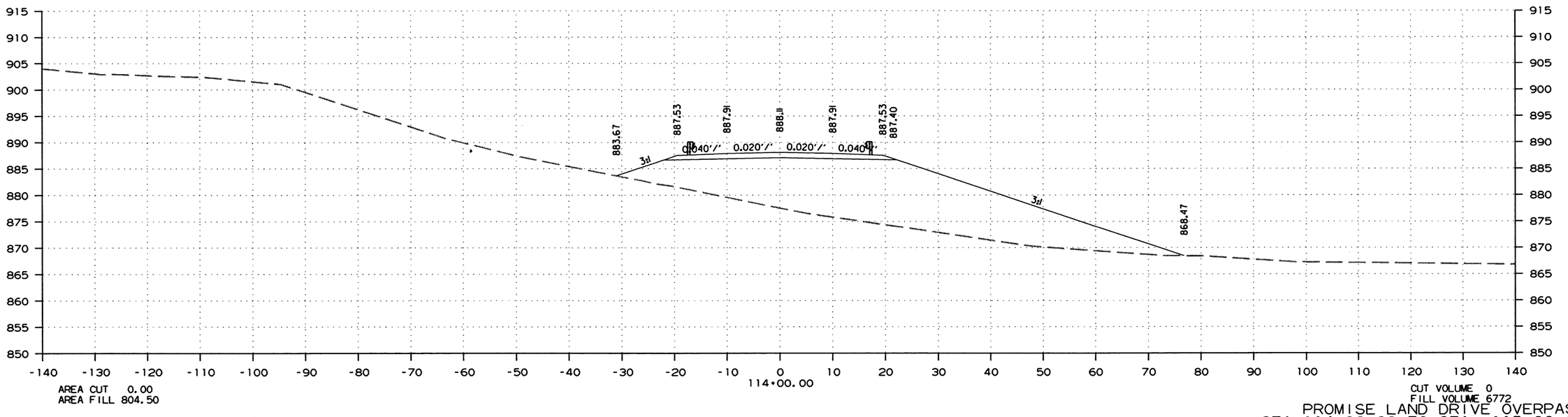
PROMISE LAND DRIVE OVERPASS
STA. 113+06.10 TO STA. 113+06.10

lc:38019 10/31/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	545	616

(2) CROSS SECTIONS



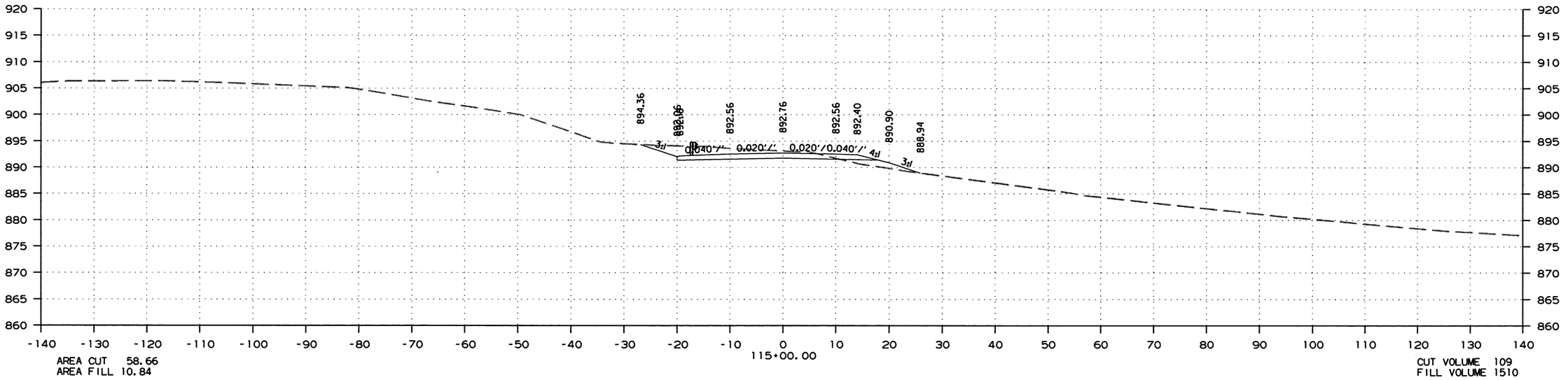


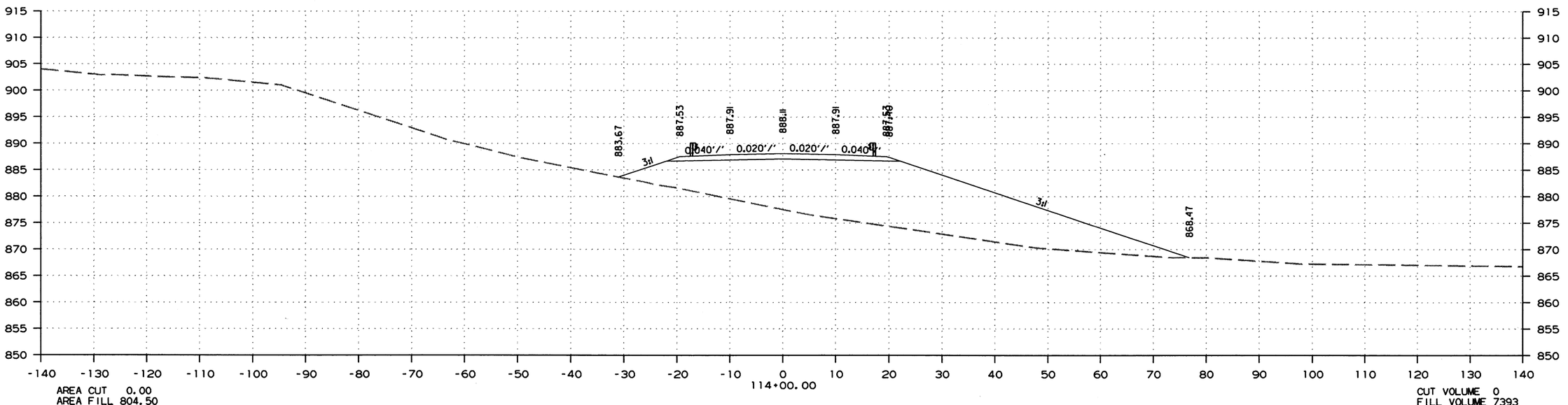
PROMISE LAND DRIVE OVERPASS
STA. 114+00.00 TO STA. 115+00.00

tc38019 10/31/2019
RR60140.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.		R60140	545	616

(2) CROSS SECTIONS



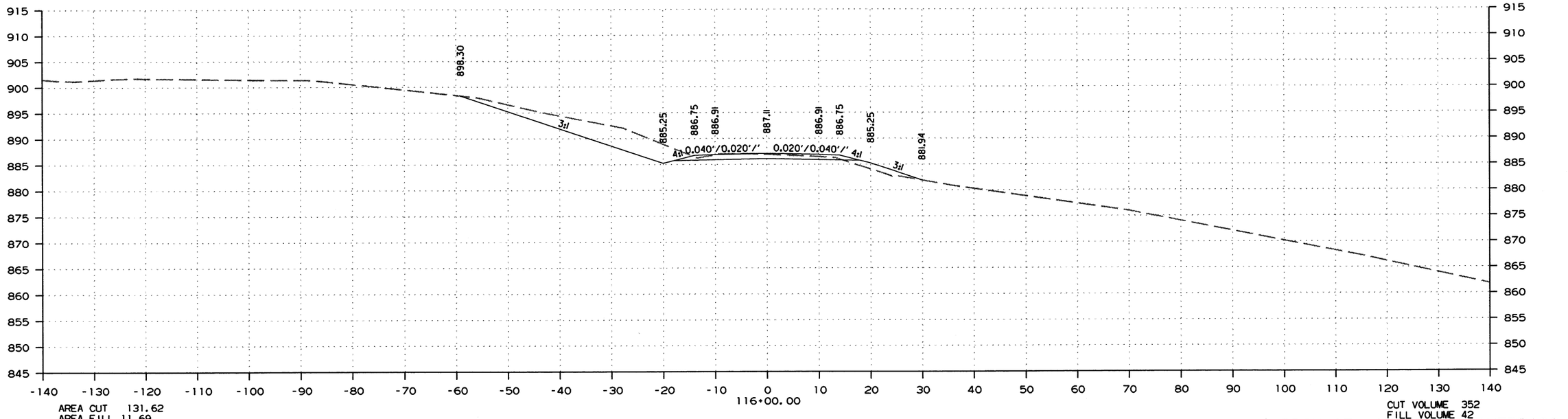


PROMISE LAND DRIVE OVERPASS
STA. 114+00.00 TO STA. 115+00.00

qh40749 9/9/2019
RR60140.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.		R60140	546	616

(2) CROSS SECTIONS



AREA CUT 131.62
AREA FILL 11.69

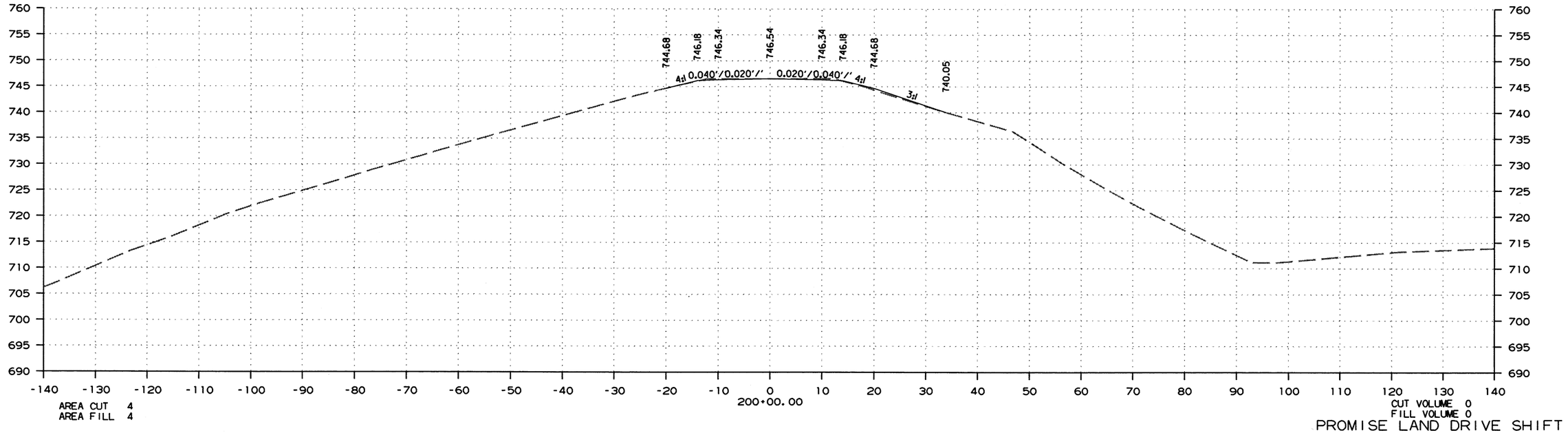
CUT VOLUME 352
FILL VOLUME 42

PROMISE LAND DRIVE OVERPASS
STA. 116+00.00 TO STA. 116+00.00

dh40749 9/9/2019
RR60140.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.		R60140	547	616

(2) CROSS SECTIONS

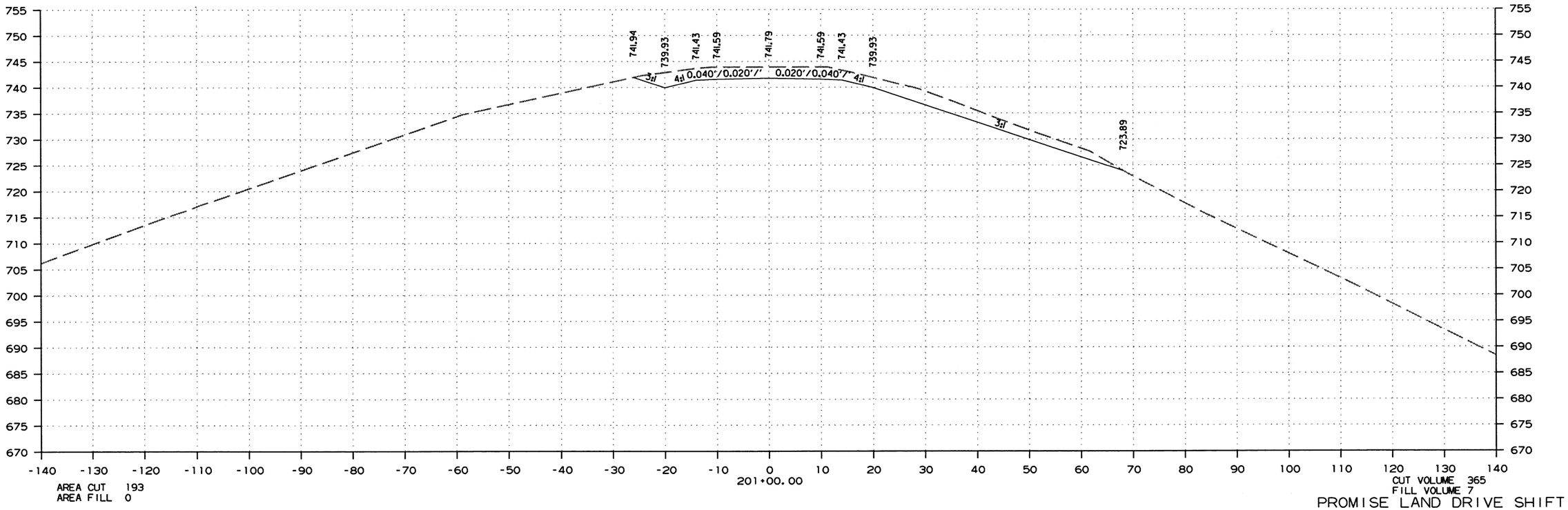


PROMISE LAND DRIVE SHIFT
STA. 200+00.00 TO STA. 200+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	548	616

(2) CROSS SECTIONS

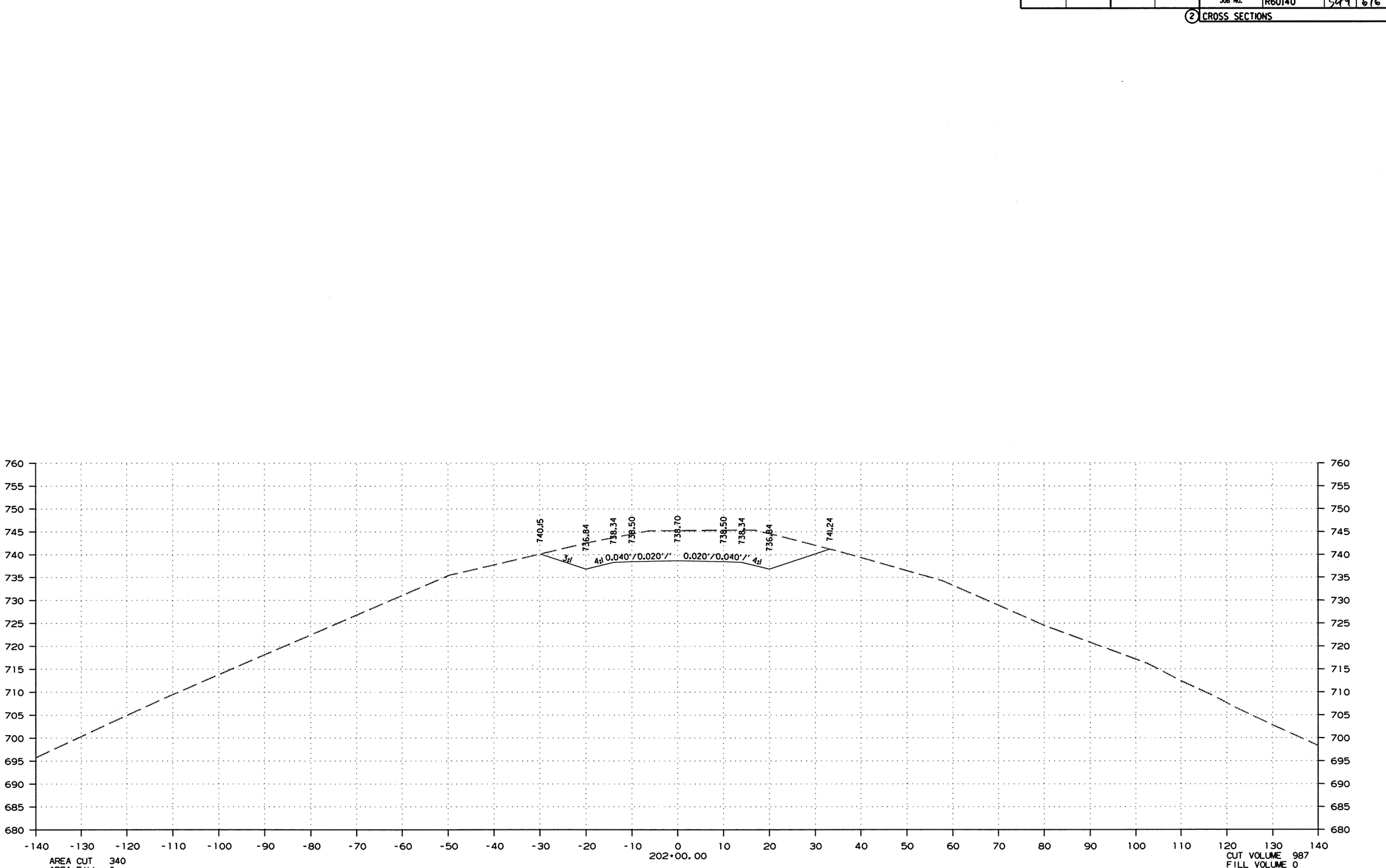


PROMISE LAND DRIVE SHIFT
STA. 201+00.00 TO STA. 201+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	549	616

(2) CROSS SECTIONS

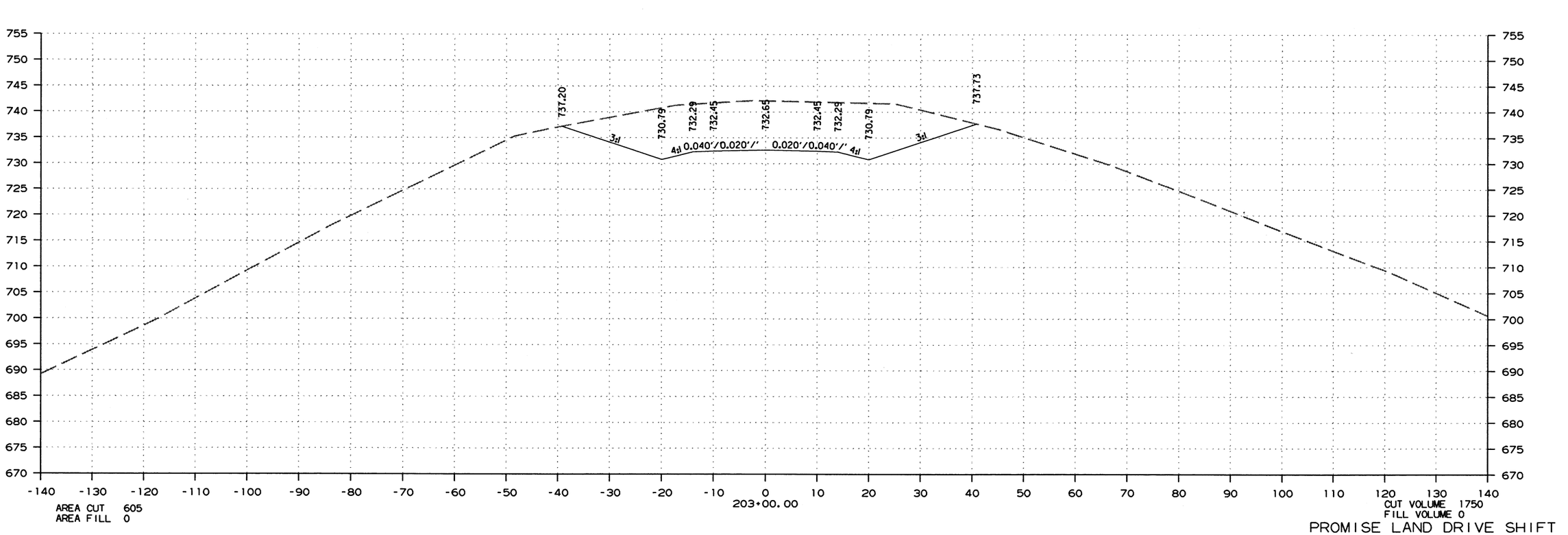


PROMISE LAND DRIVE SHIFT
STA. 202+00.00 TO STA. 202+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	550	616

(2) CROSS SECTIONS



AREA CUT 605
AREA FILL 0

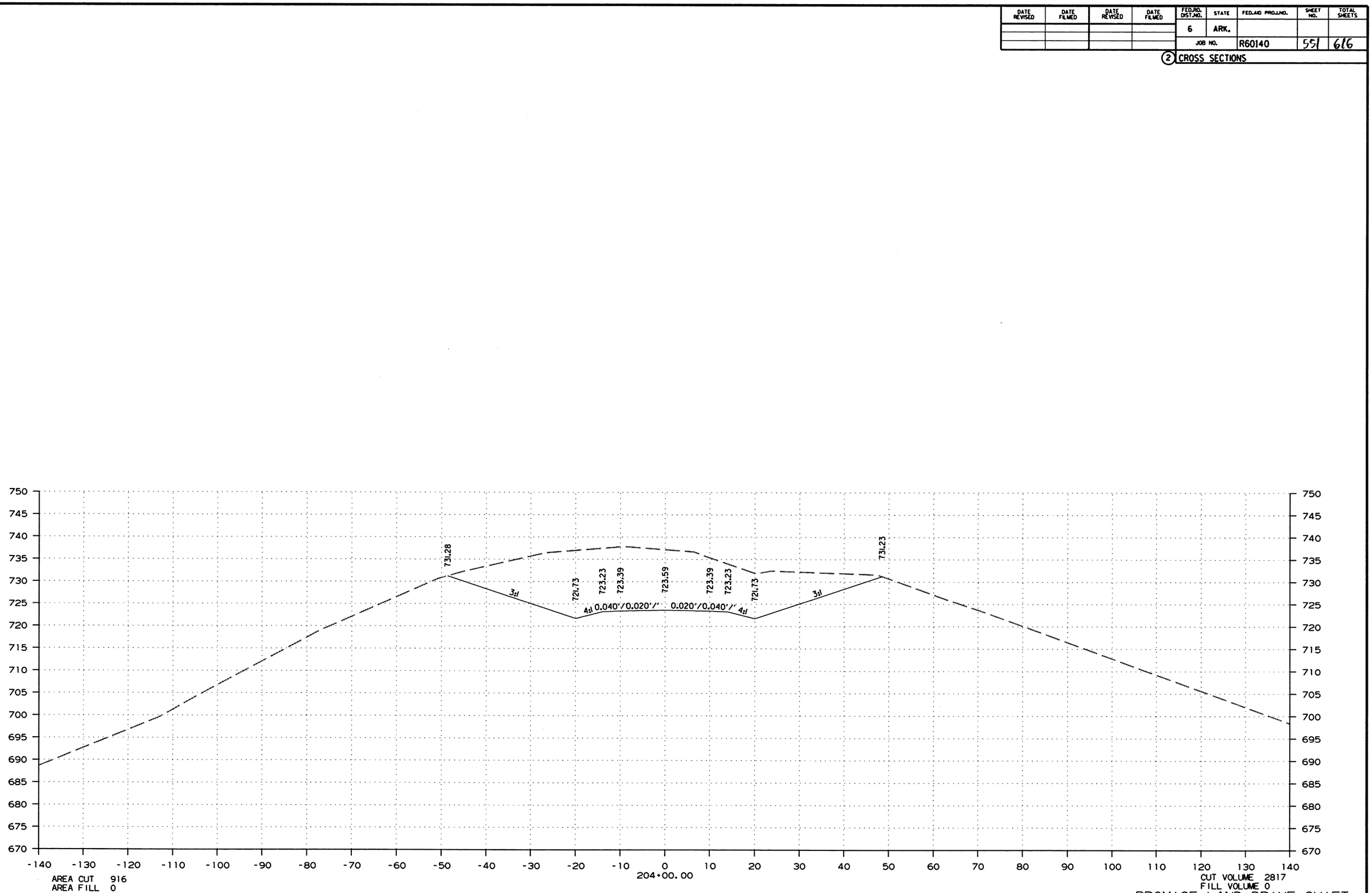
CUT VOLUME 1750
FILL VOLUME 0

PROMISE LAND DRIVE SHIFT
STA. 203+00.00 TO STA. 203+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	551	616

(2) CROSS SECTIONS



AREA CUT 916
AREA FILL 0

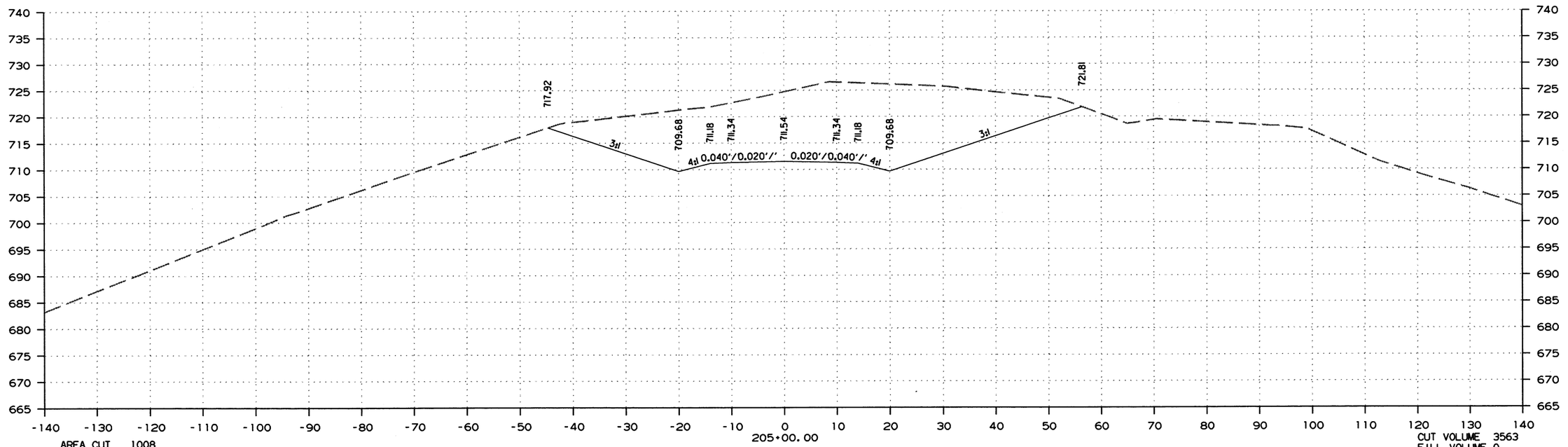
CUT VOLUME 2817
FILL VOLUME 0

PROMISE LAND DRIVE SHIFT
STA. 204+00.00 TO STA. 204+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	552	616

(2) CROSS SECTIONS

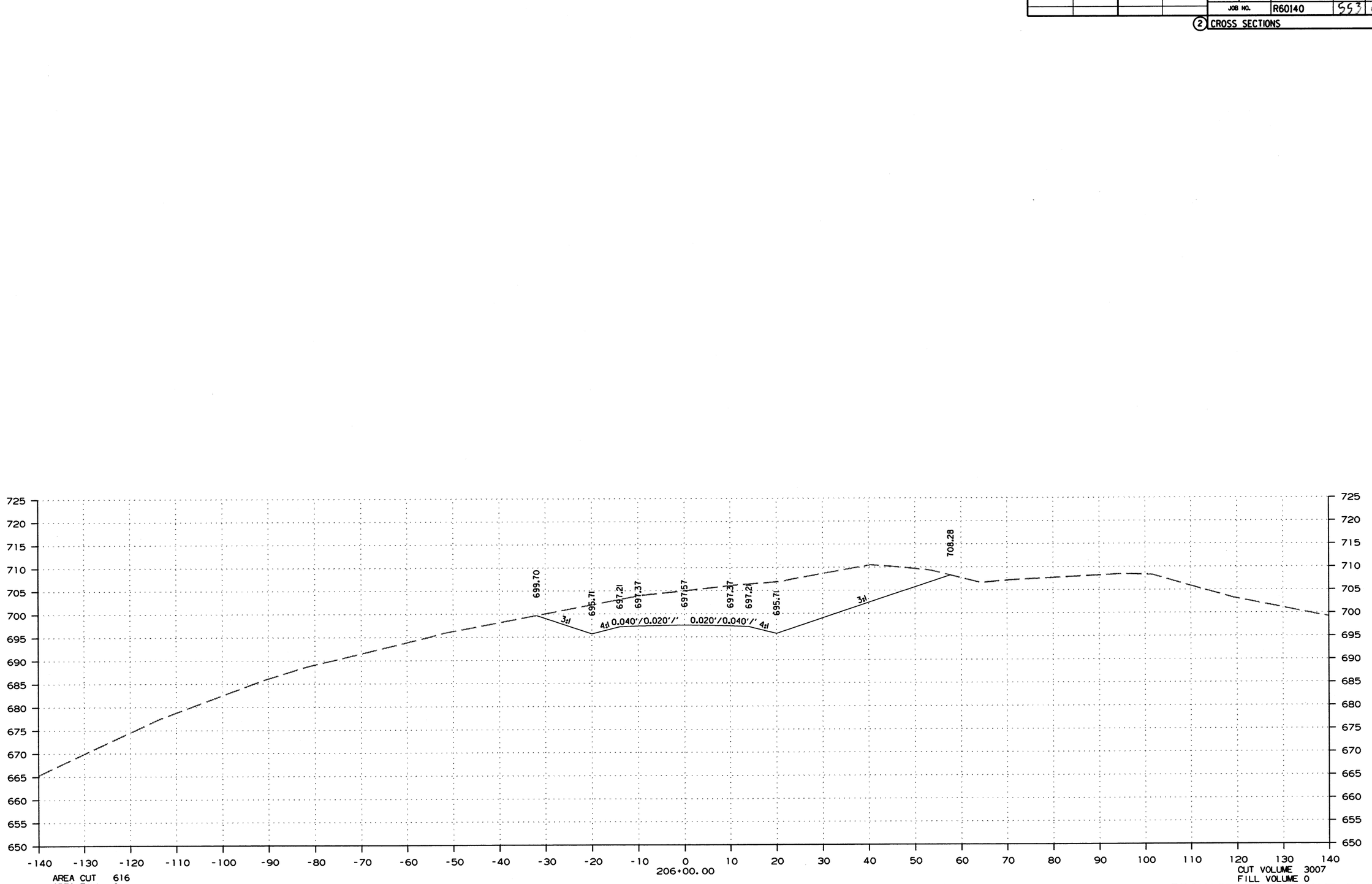


PROMISE LAND DRIVE SHIFT
STA. 205+00.00 TO STA. 205+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	553	616

(2) CROSS SECTIONS

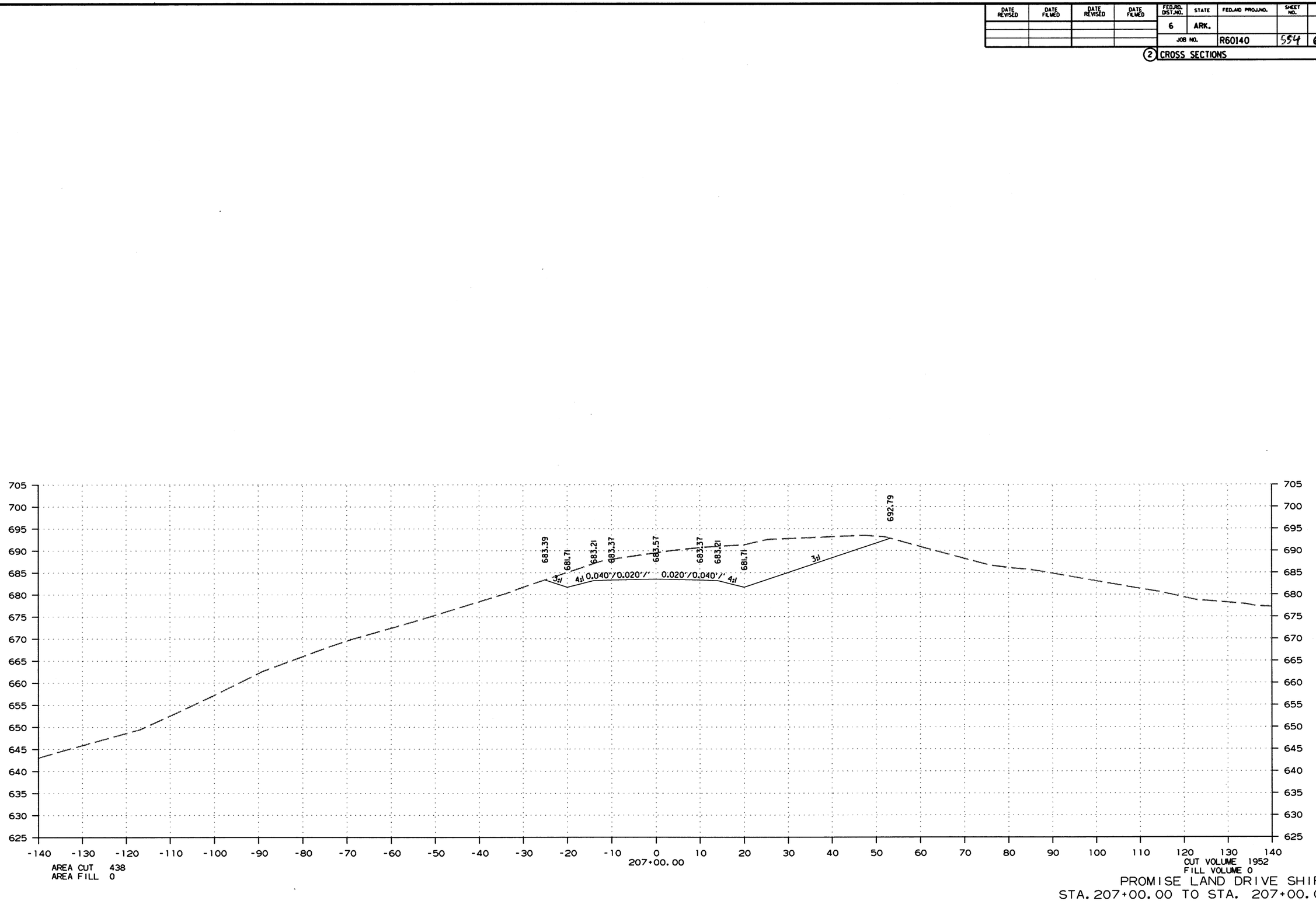


PROMISE LAND DRIVE SHIFT
STA. 206+00.00 TO STA. 206+00.00

dwbc553 6/20/2019
ZBDRDER.CEL

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.		R60140	554	616

(2) CROSS SECTIONS

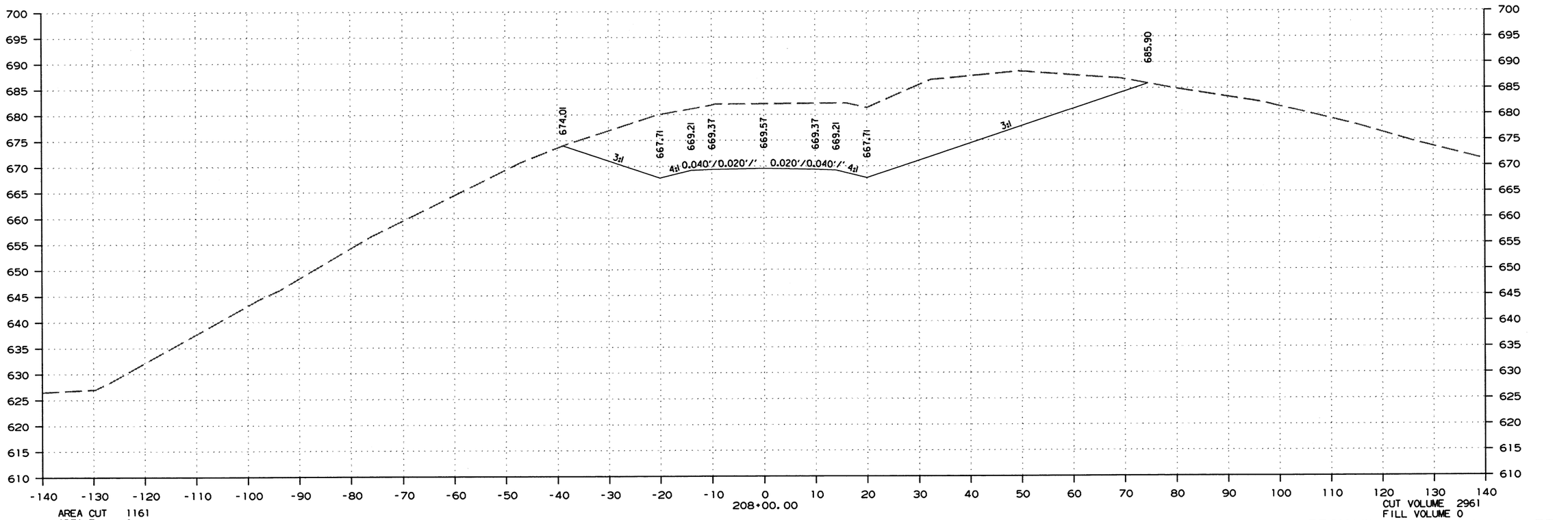


PROMISE LAND DRIVE SHIFT
STA. 207+00.00 TO STA. 207+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	555	616

(2) CROSS SECTIONS



AREA CUT 1161
AREA FILL 0

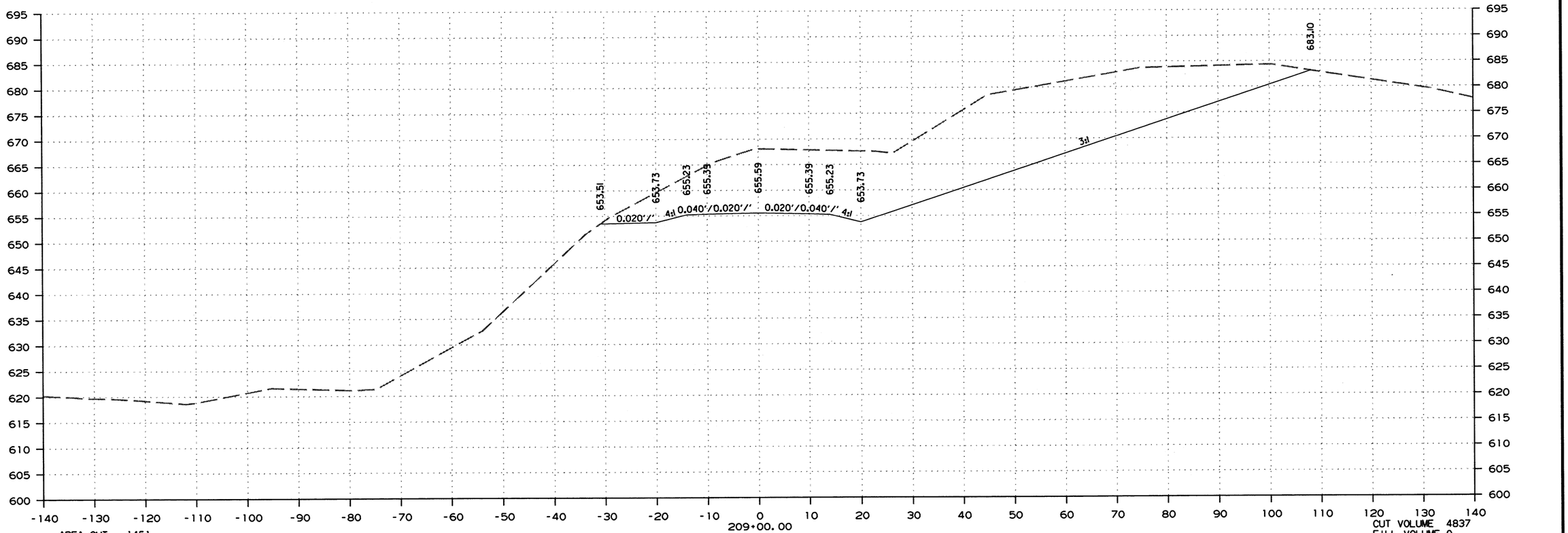
CUT VOLUME 2961
FILL VOLUME 0

PROMISE LAND DRIVE SHIFT
STA. 208+00.00 TO STA. 208+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	556	616

(2) CROSS SECTIONS



AREA CUT 1451
AREA FILL 0

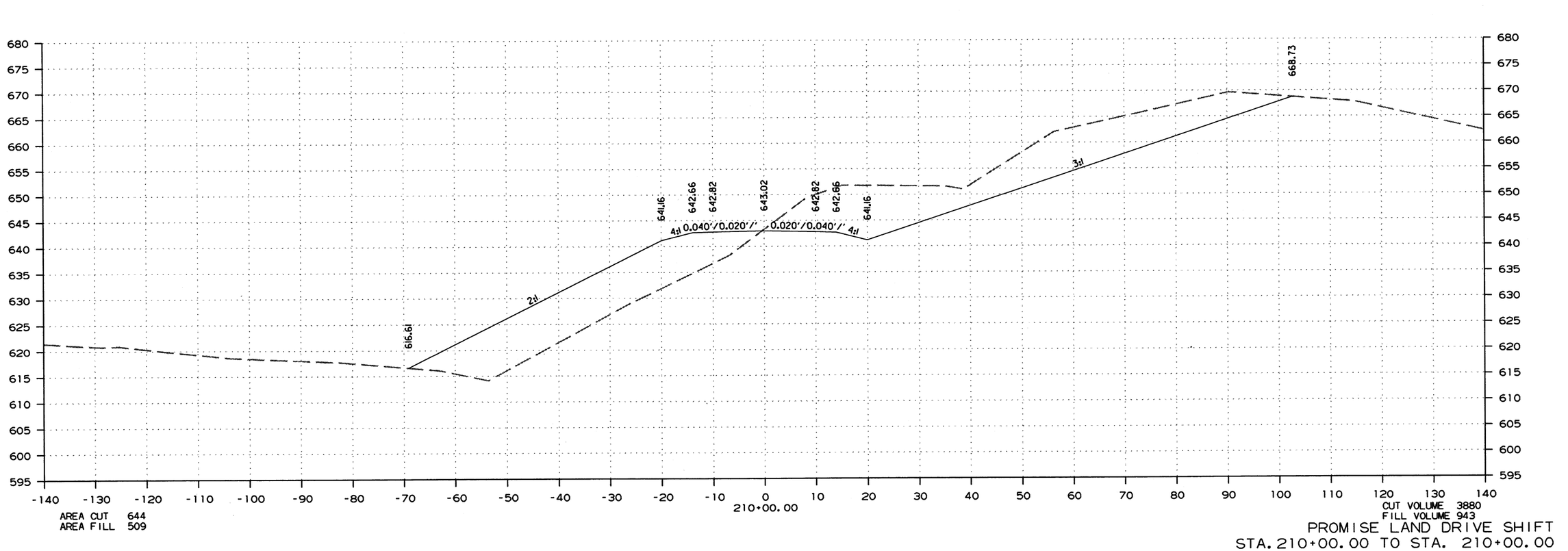
CUT VOLUME 4837
FILL VOLUME 0

PROMISE LAND DRIVE SHIFT
STA. 209+00.00 TO STA. 209+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	557	616

(2) CROSS SECTIONS



AREA CUT 644
AREA FILL 509

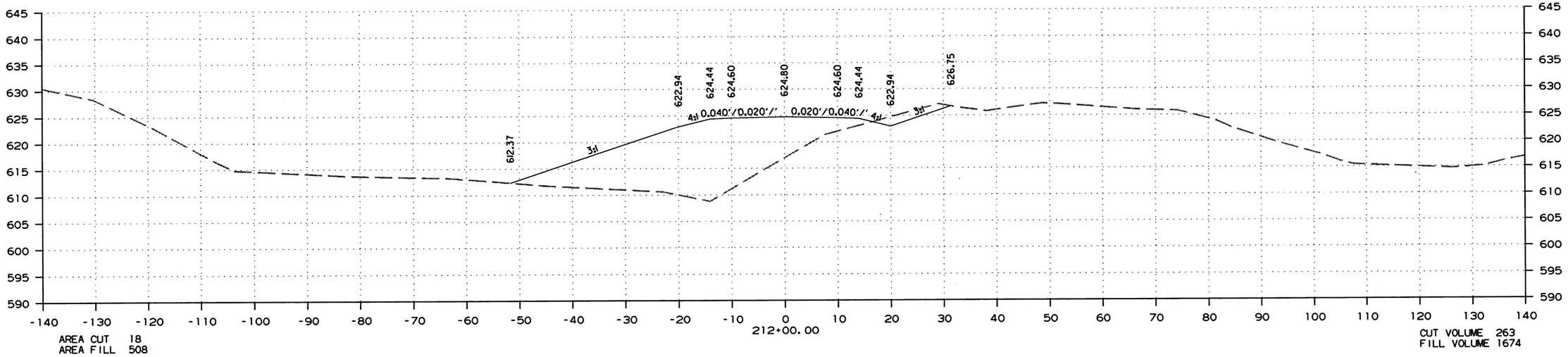
CUT VOLUME 3880
FILL VOLUME 943

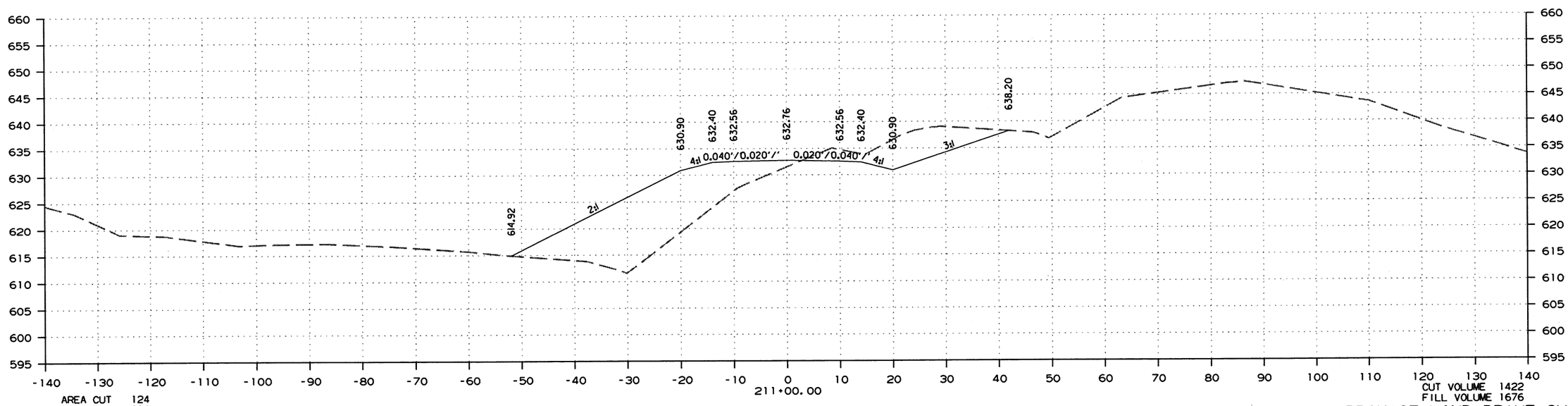
PROMISE LAND DRIVE SHIFT
STA. 210+00.00 TO STA. 210+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	558	616

(2) CROSS SECTIONS





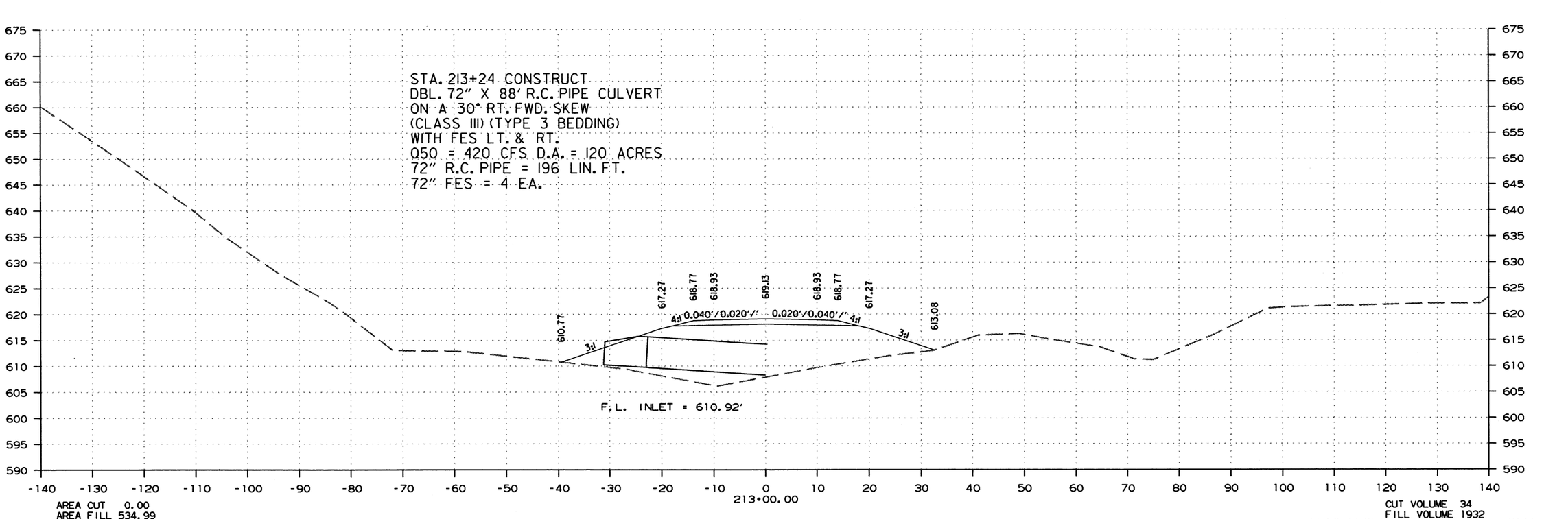
PROMISE LAND DRIVE SHIFT
STA. 211+00.00 TO STA. 212+00.00

dwbc553 6/20/2019
ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10-30-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		R60140	559	616

(2) CROSS SECTIONS

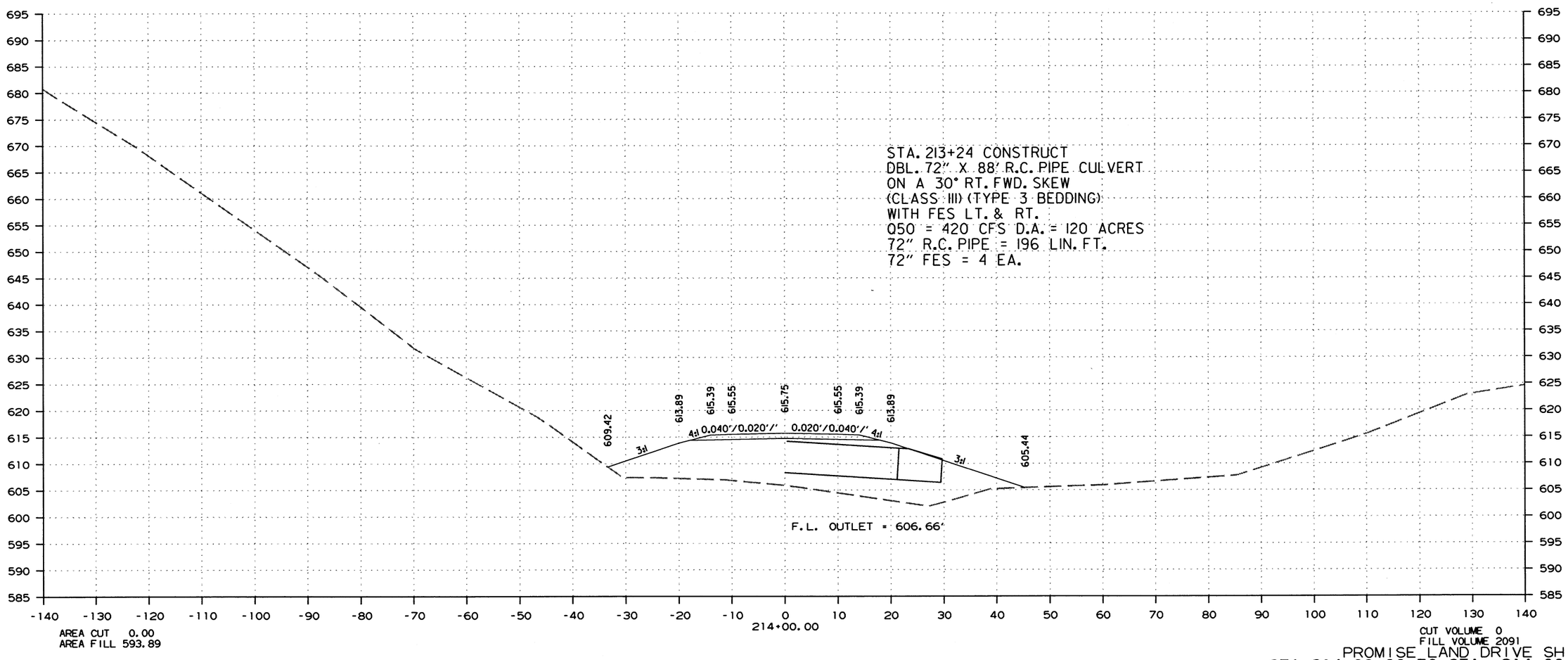


PROMISE LAND DRIVE SHIFT
STA. 213+00.00 TO STA. 213+00.00

oh40749 9/9/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	560	616

(2) CROSS SECTIONS

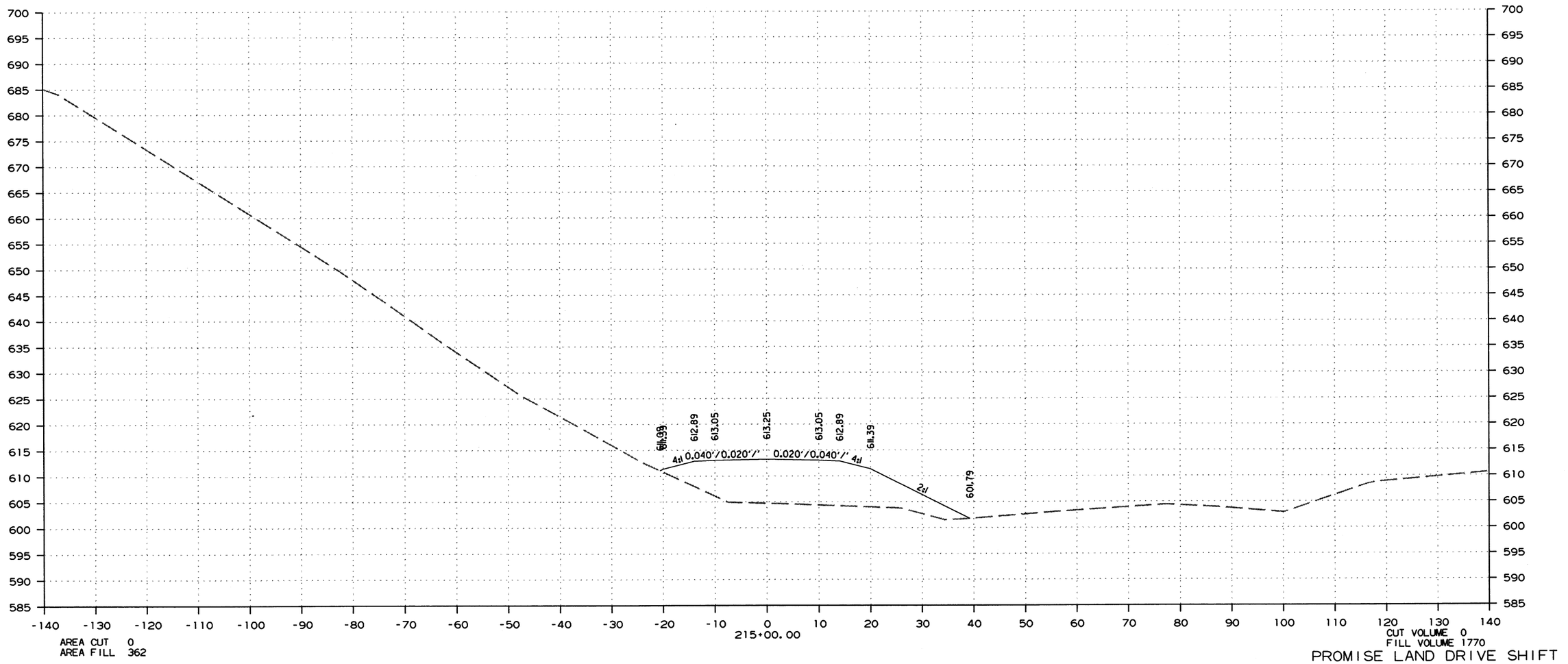


PROMISE LAND DRIVE SHIFT
STA. 214+00.00 TO STA. 214+00.00

dh40749 9/9/2019
RR60140.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.		R60140	561	616

(2) CROSS SECTIONS



AREA CUT 0
AREA FILL 362

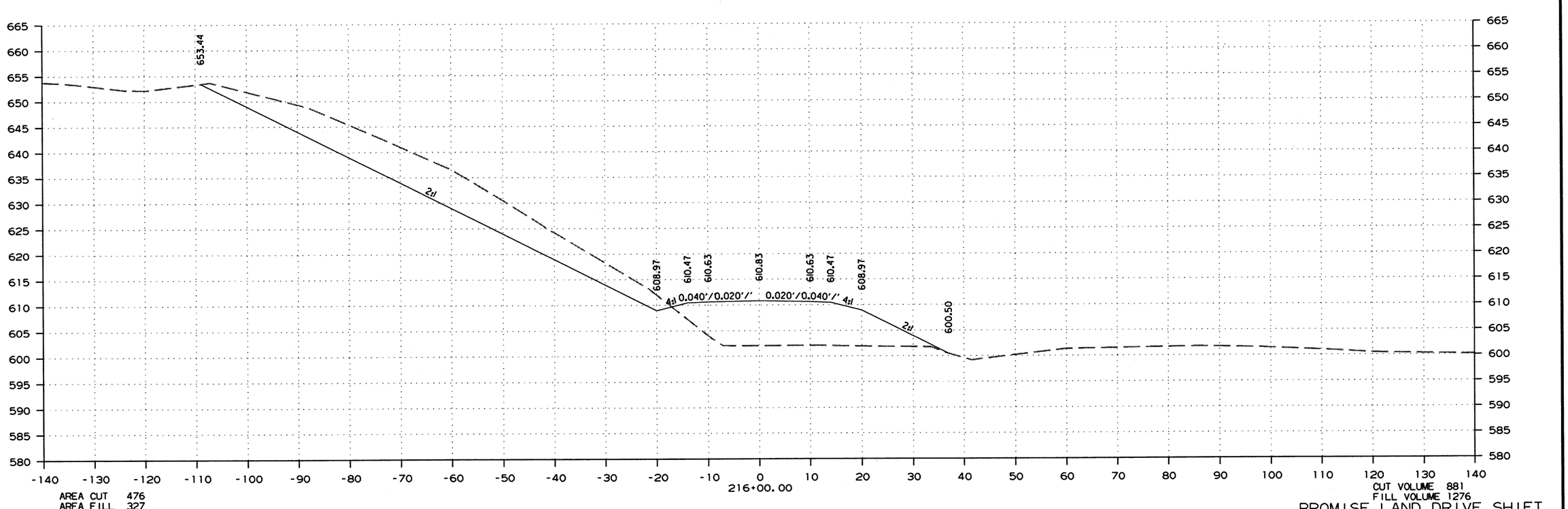
CUT VOLUME 0
FILL VOLUME 1770

PROMISE LAND DRIVE SHIFT
STA. 215+00.00 TO STA. 215+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	562	616

(2) CROSS SECTIONS



AREA CUT 476
AREA FILL 327

CUT VOLUME 881
FILL VOLUME 1276

PROMISE LAND DRIVE SHIFT
STA. 216+00.00 TO STA. 216+00.00

dwbc553 6/20/2019
ZBORDER.CEL

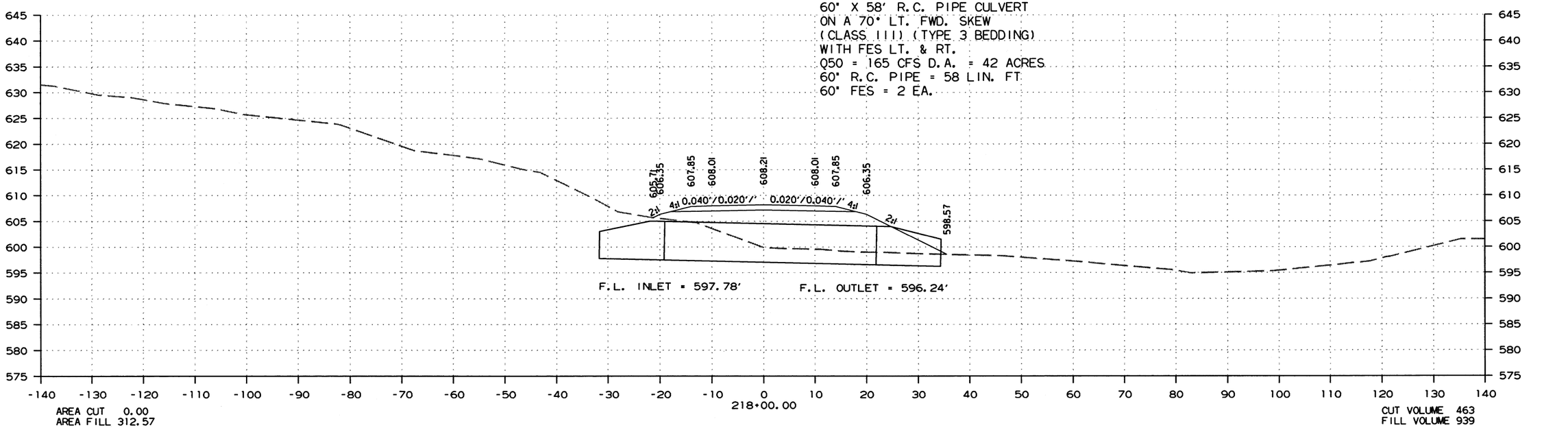
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	563	616

(2) CROSS SECTIONS

STA. 217+68 CONSTRUCT
60" X 58' R.C. PIPE CULVERT
ON A 70° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 165 CFS D.A. = 42 ACRES
60" R.C. PIPE = 58 LIN. FT
60" FES = 2 EA.

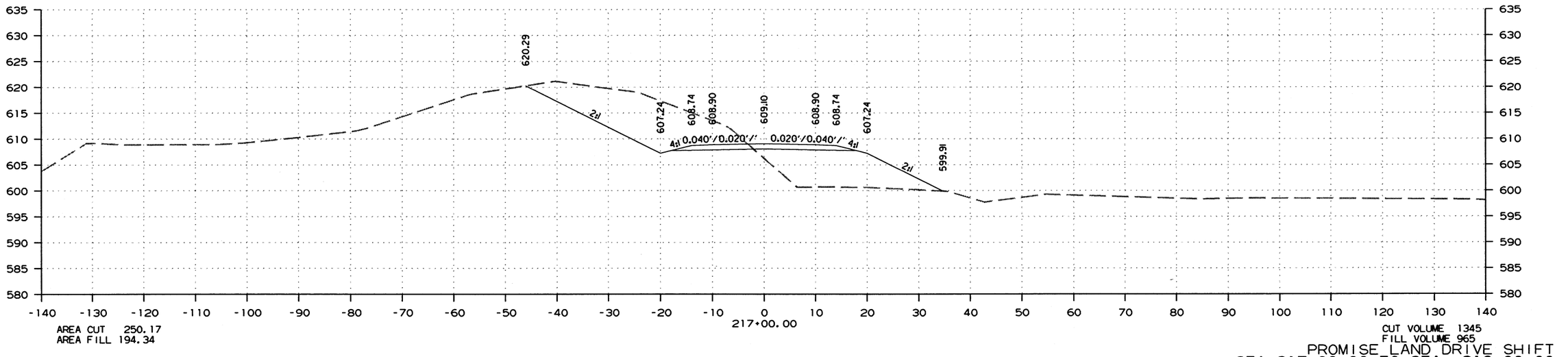
F.L. INLET = 597.78'

F.L. OUTLET = 596.24'



AREA CUT 0.00
AREA FILL 312.57

CUT VOLUME 463
FILL VOLUME 939



AREA CUT 250.17
AREA FILL 194.34

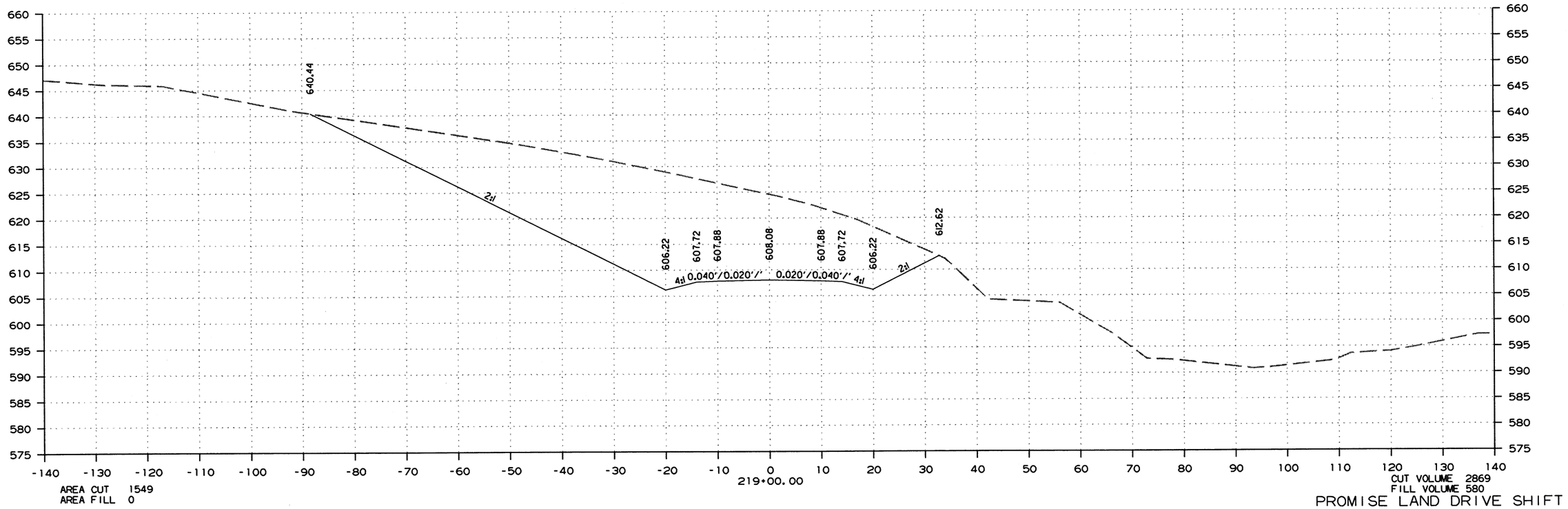
CUT VOLUME 1345
FILL VOLUME 965

PROMISE LAND DRIVE SHIFT
STA. 217+00.00 TO STA. 218+00.00

dn40749 9/9/2019
RR60140.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.		R60140	564	616

(2) CROSS SECTIONS

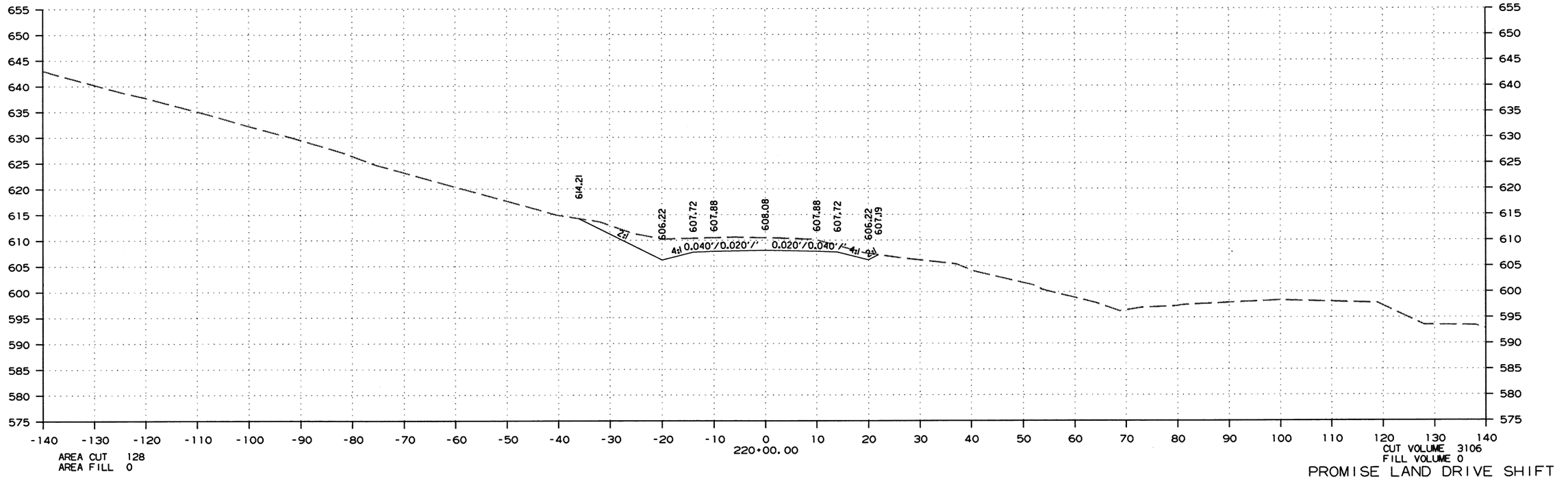


PROMISE LAND DRIVE SHIFT
STA. 219+00.00 TO STA. 219+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	565	616

(2) CROSS SECTIONS

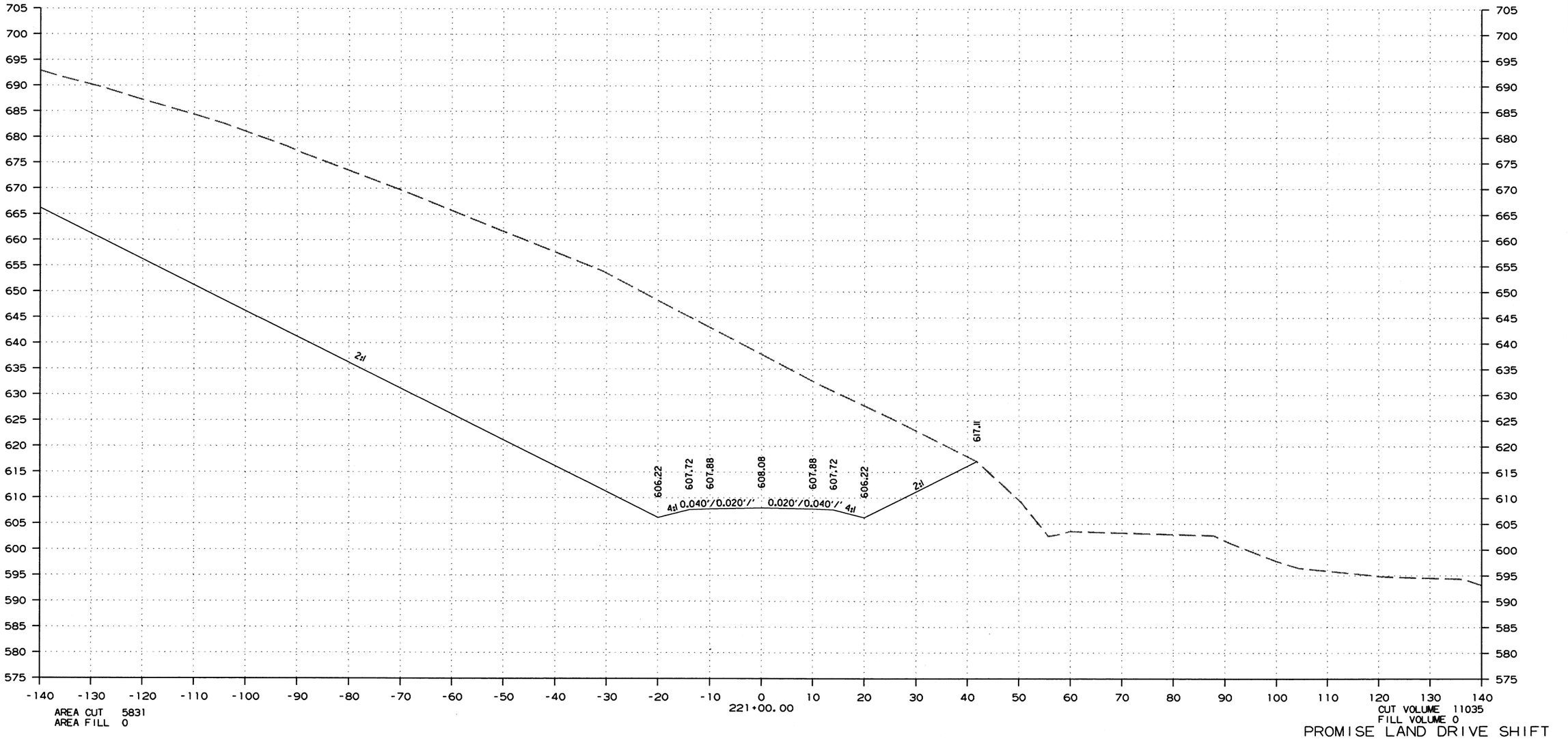


PROMISE LAND DRIVE SHIFT
STA. 220+00.00 TO STA. 220+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	566	676

(2) CROSS SECTIONS



AREA CUT 5831
AREA FILL 0

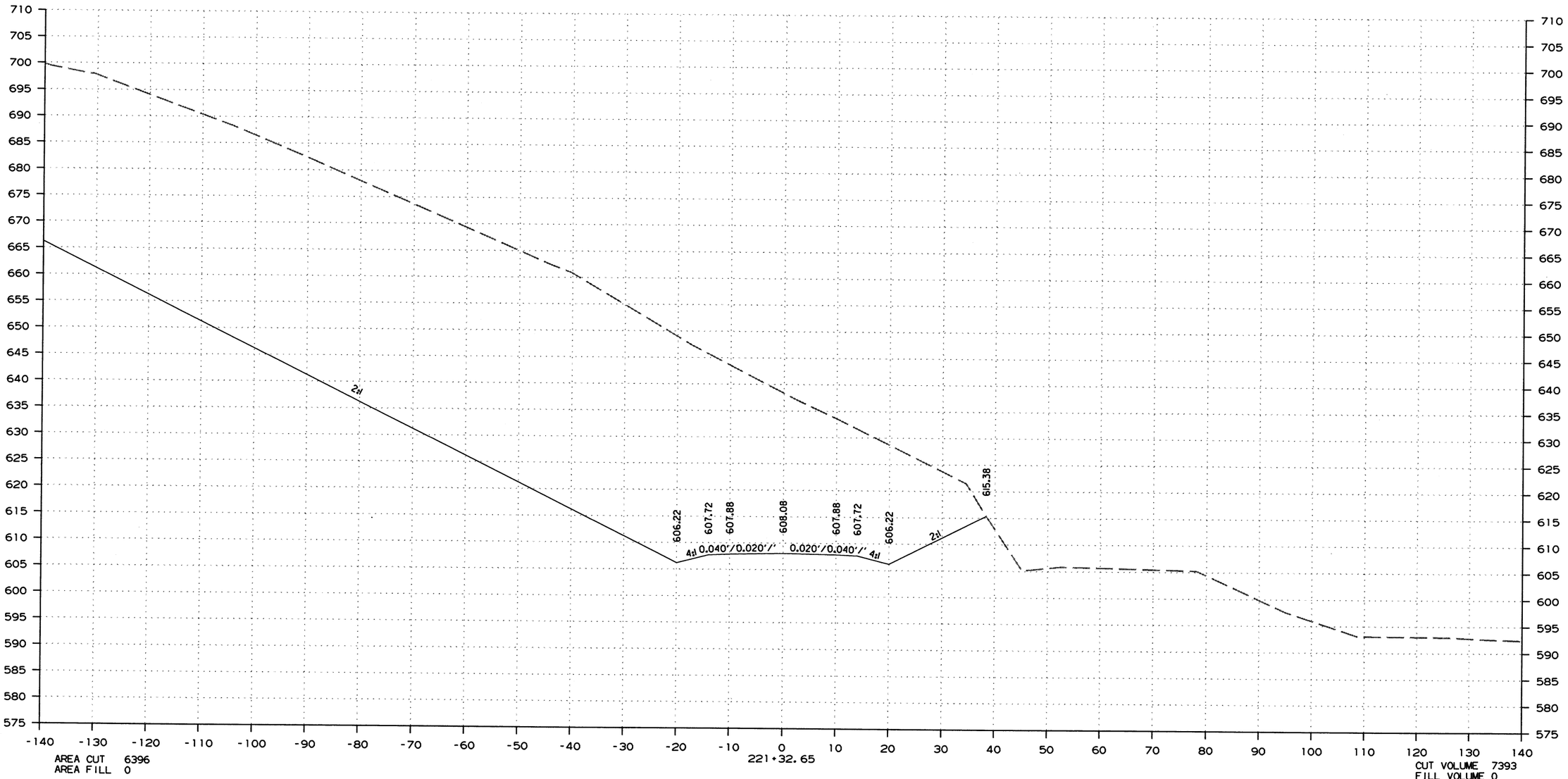
CUT VOLUME 11035
FILL VOLUME 0

PROMISE LAND DRIVE SHIFT
STA. 221+00.00 TO STA. 221+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	567	616

(2) CROSS SECTIONS

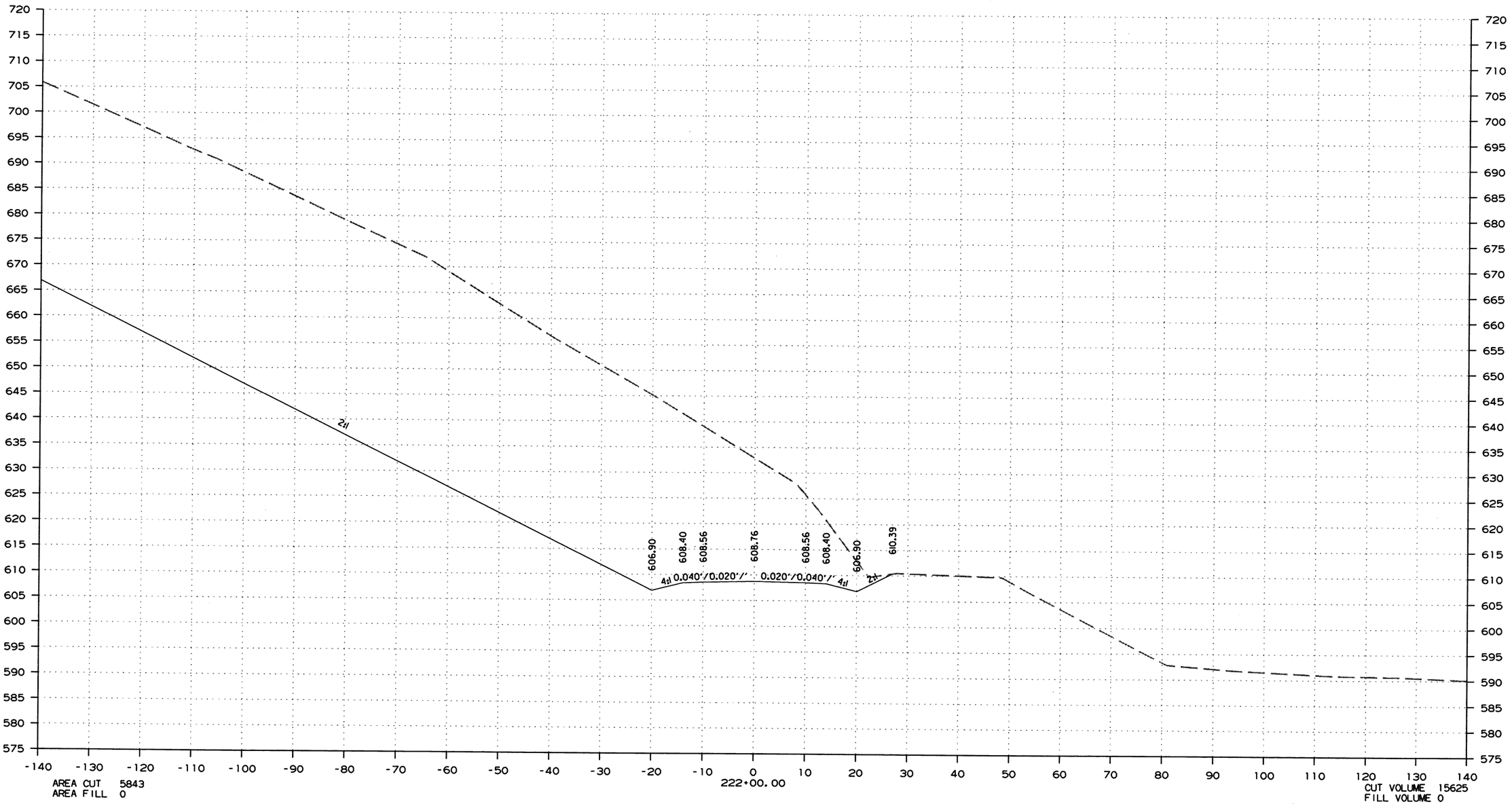


PROMISE LAND DRIVE SHIFT
STA. 221+32.65 TO STA. 221+32.65

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	568	616

(2) CROSS SECTIONS

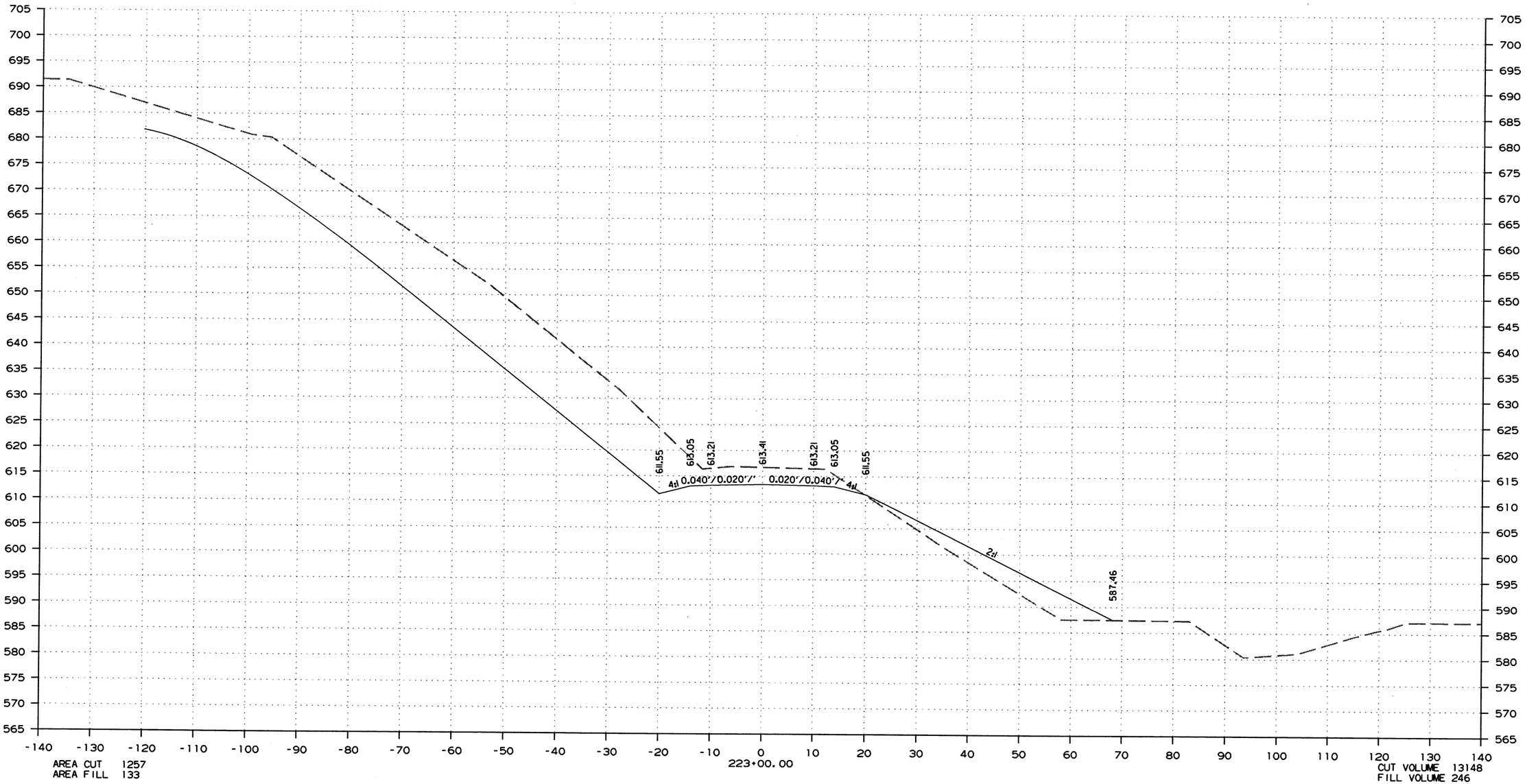


PROMISE LAND DRIVE SHIFT
STA. 222+00.00 TO STA. 222+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	569	616

(2) CROSS SECTIONS

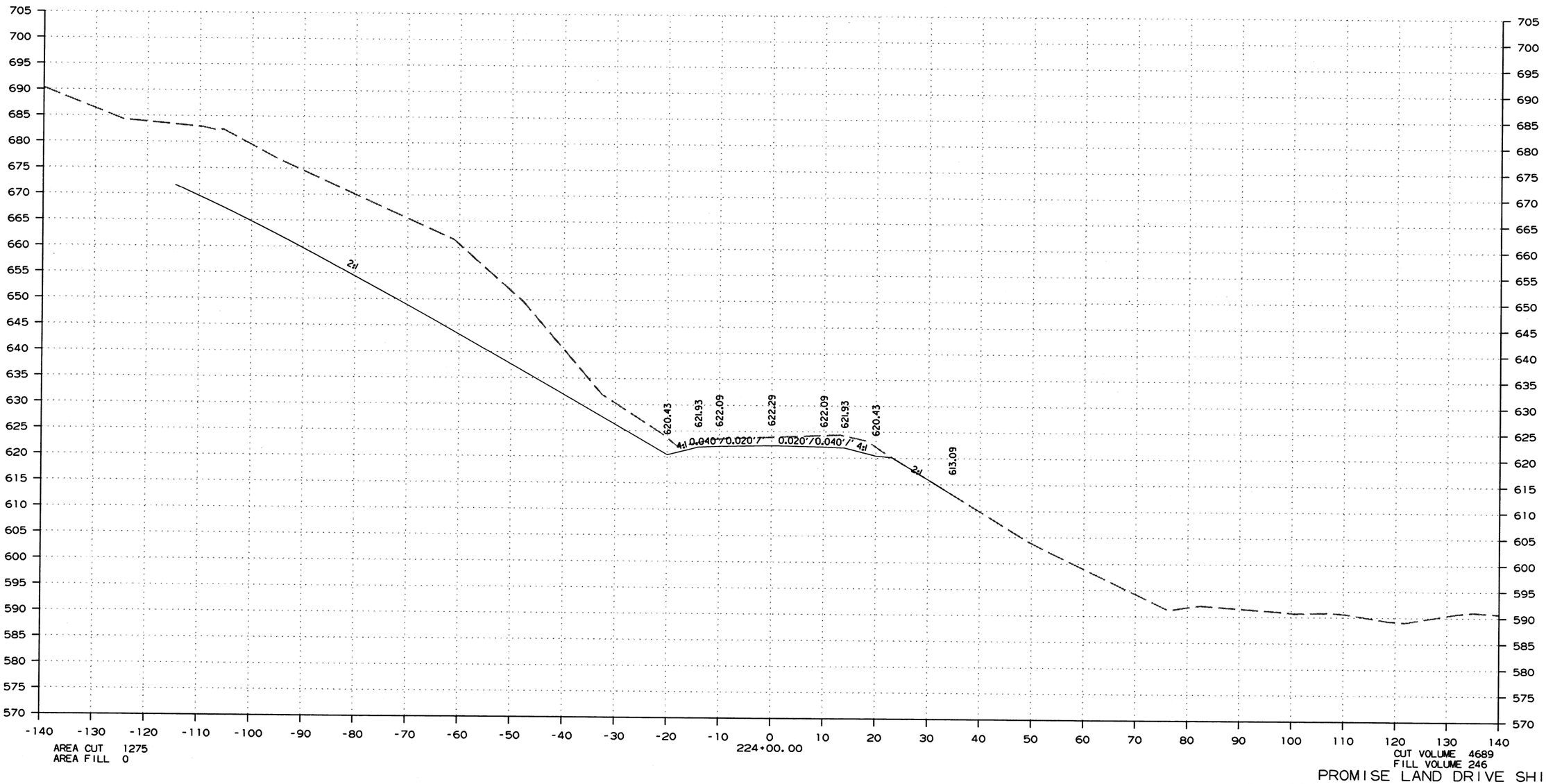


PROMISE LAND DRIVE SHIFT
STA. 223+00.00 TO STA. 223+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	570	616

(2) CROSS SECTIONS

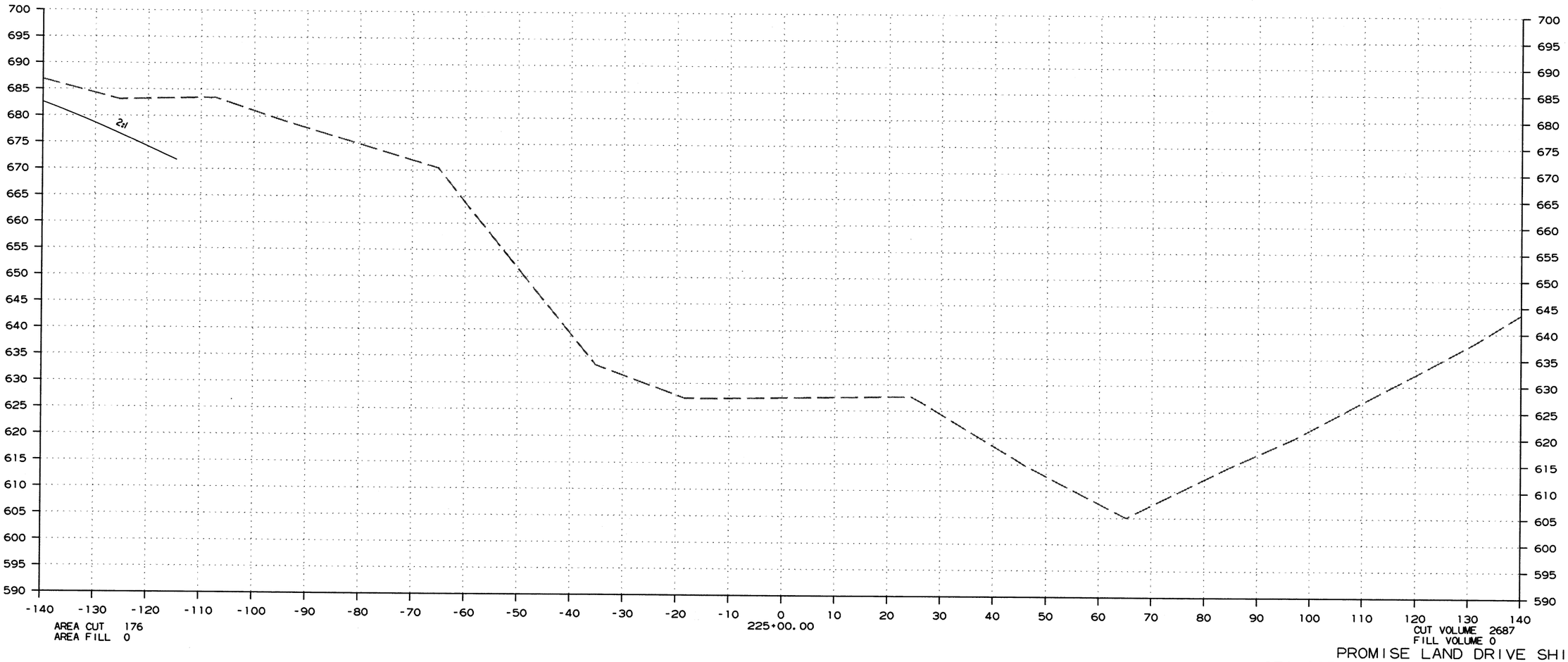


PROMISE LAND DRIVE SHIFT
STA. 224+00.00 TO STA. 224+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	571	616

(2) CROSS SECTIONS



AREA CUT 176
AREA FILL 0

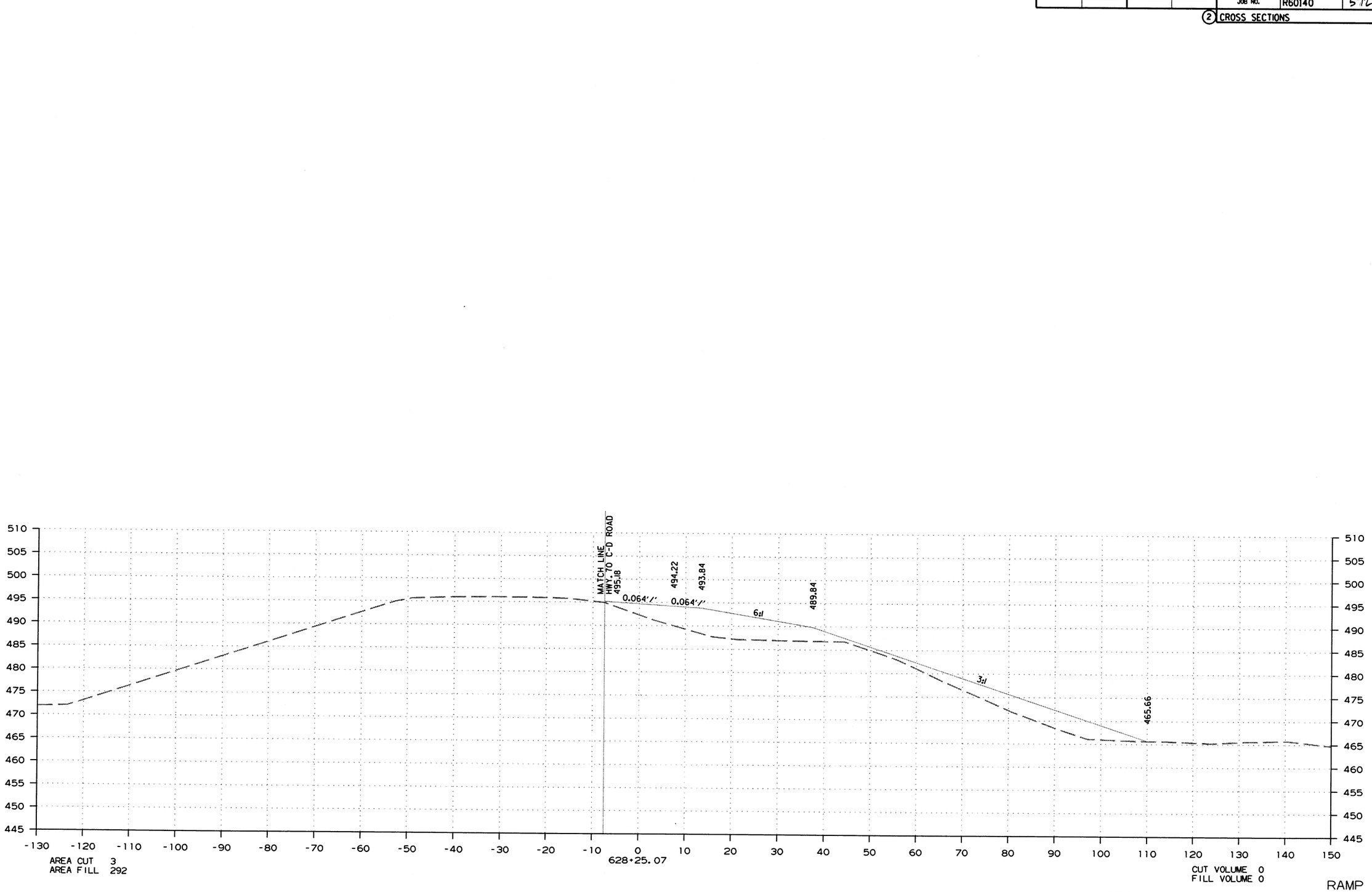
CUT VOLUME 2687
FILL VOLUME 0

PROMISE LAND DRIVE SHIFT
STA. 225+00.00 TO STA. 225+00.00

dwbc553 6/20/2019
ZBORDER.CEL

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.		R60140	572	616

(2) CROSS SECTIONS

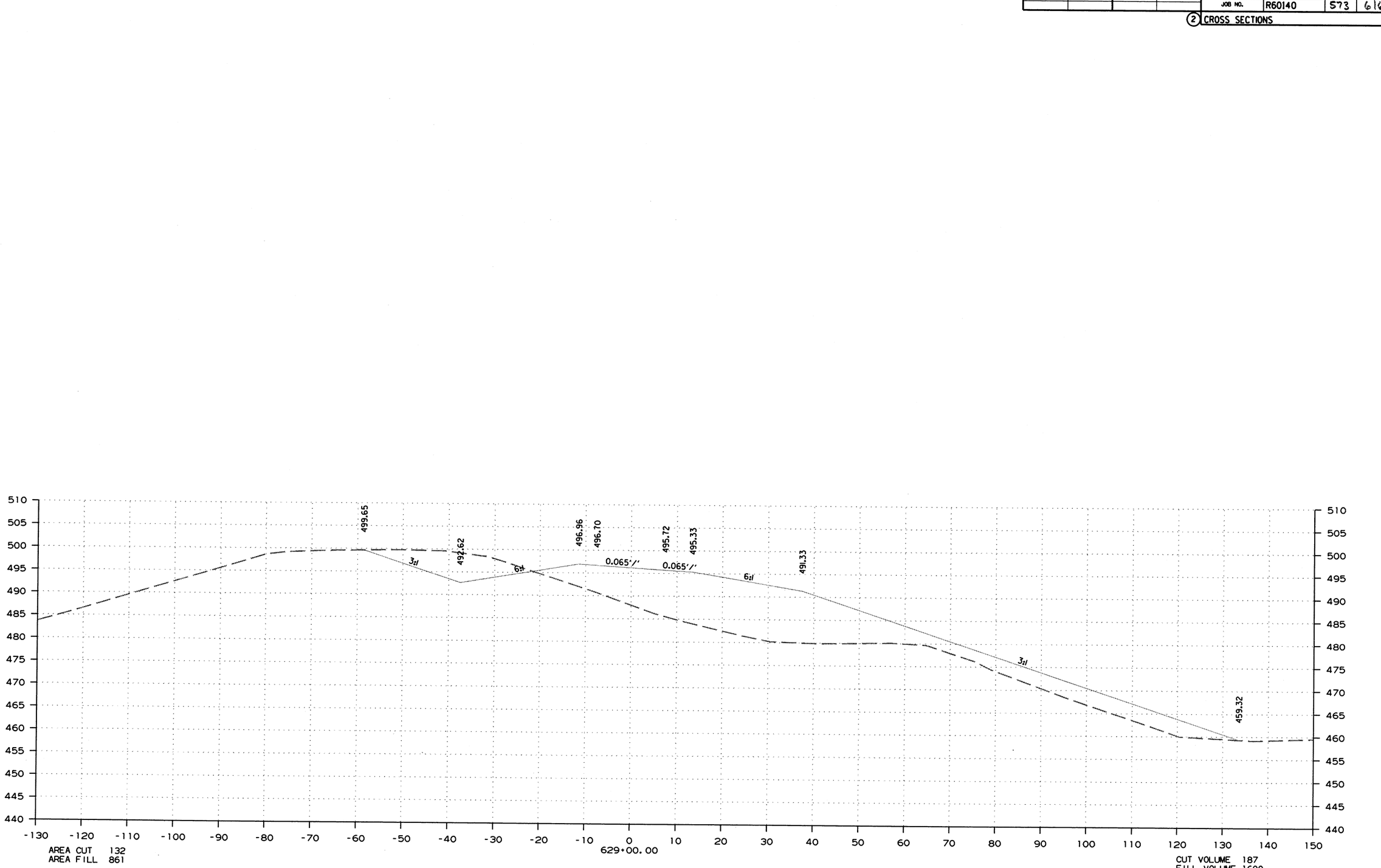


RAMP WN
STA. 628+25.07 TO STA. 628+25.07

ah40749 9/5/2019
RR60140.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.		R60140	573	616

(2) CROSS SECTIONS



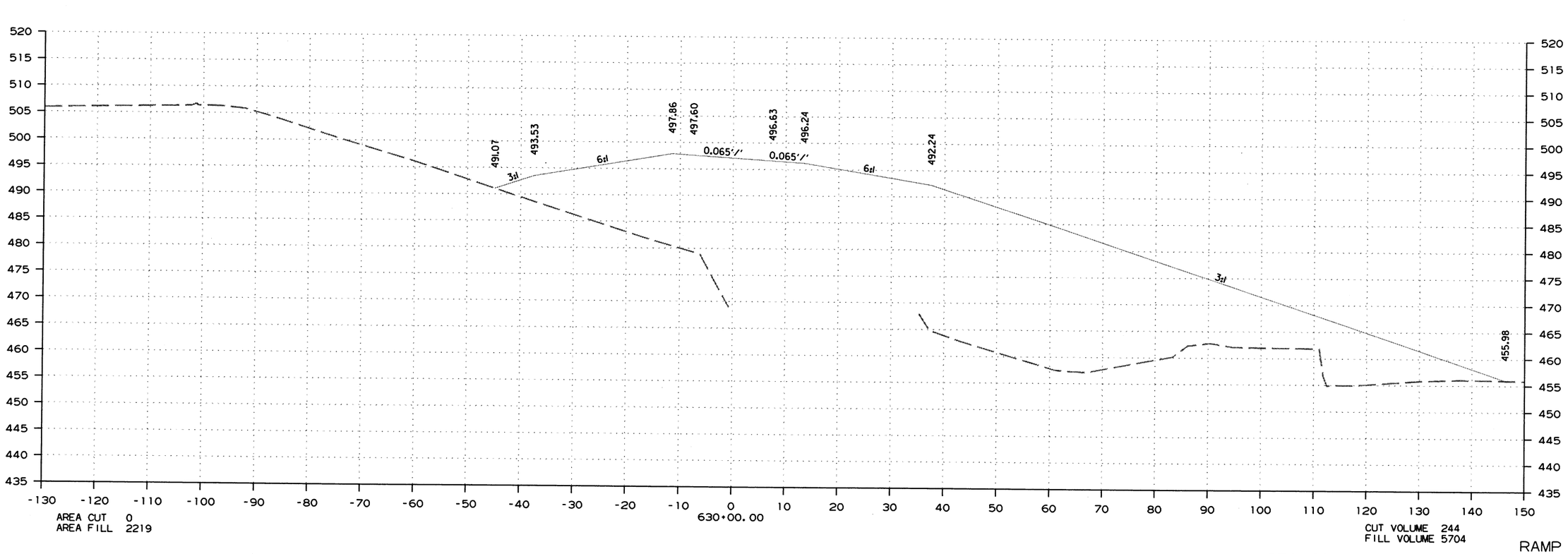
RAMP WN
STA. 629+00.00 TO STA. 629+00.00

oh40749 9/5/2019
RR60140.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.		R60140	574	618

(2) CROSS SECTIONS



RAMP WN

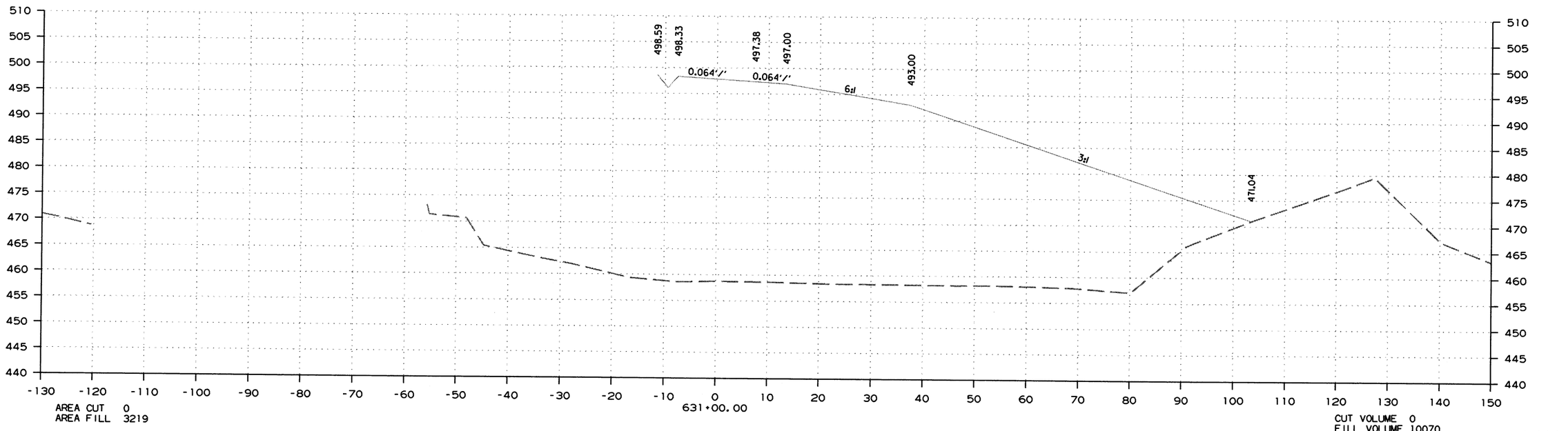
STA. 630+00.00 TO STA. 630+00.00

ah40749 9/5/2019
RR60140.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.		R60140	575	616

(2) CROSS SECTIONS

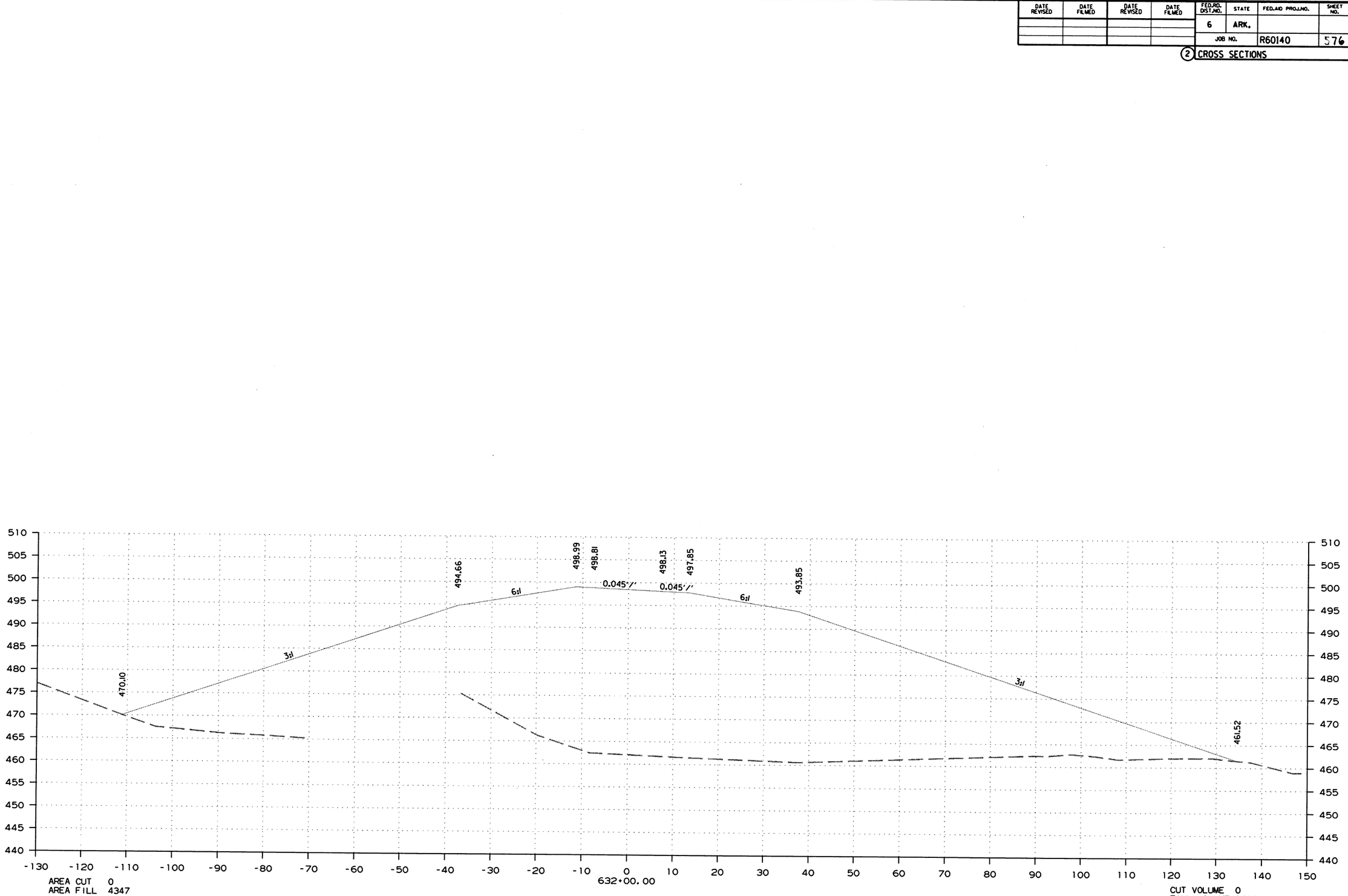


RAMP WN
STA. 631+00.00 TO STA. 631+00.00

oh40749 9/5/2019
RR60140.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.		R60140	576	616

(2) CROSS SECTIONS

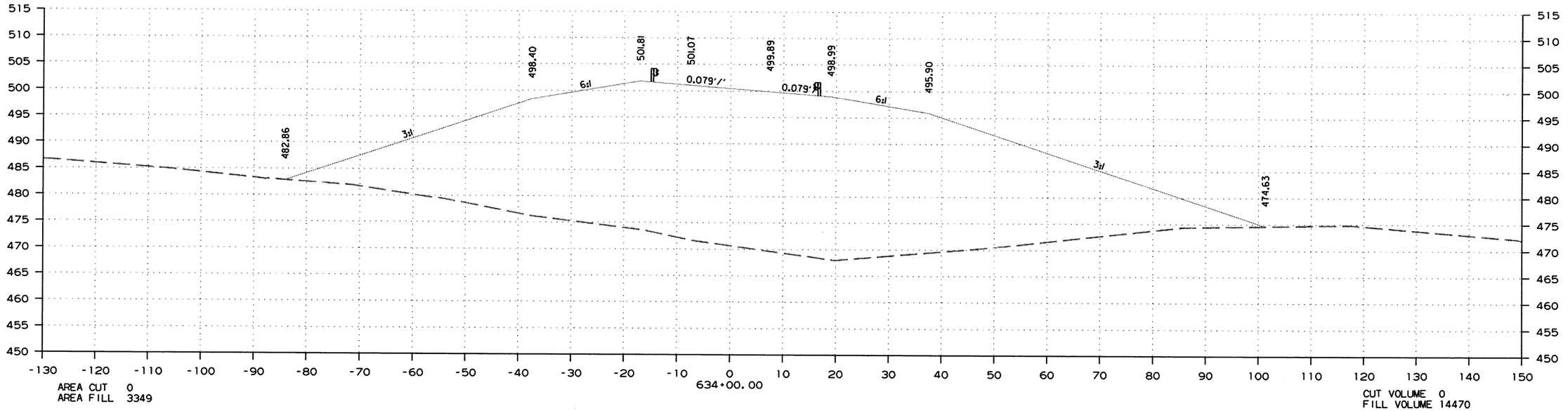


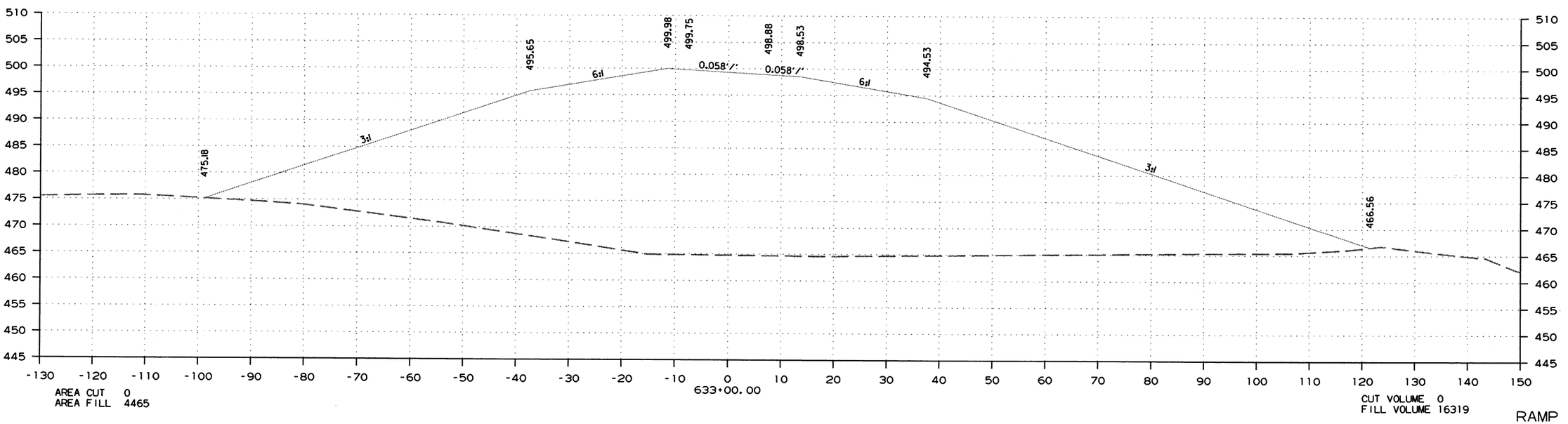
RAMP WN
STA. 632+00.00 TO STA. 632+00.00

ar40749 9/5/2019
RR60140.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.		R60140	577	616

(2) CROSS SECTIONS



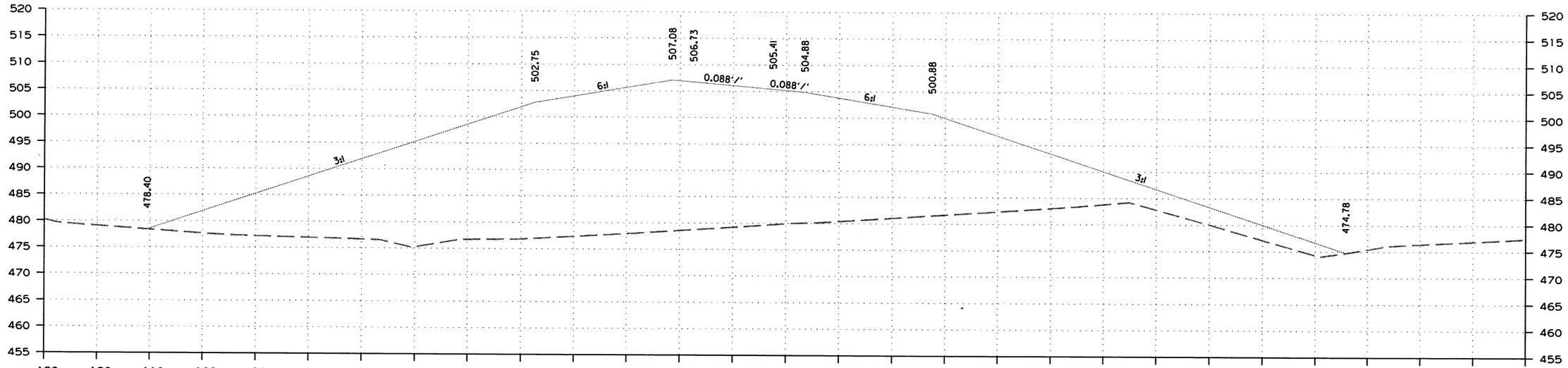


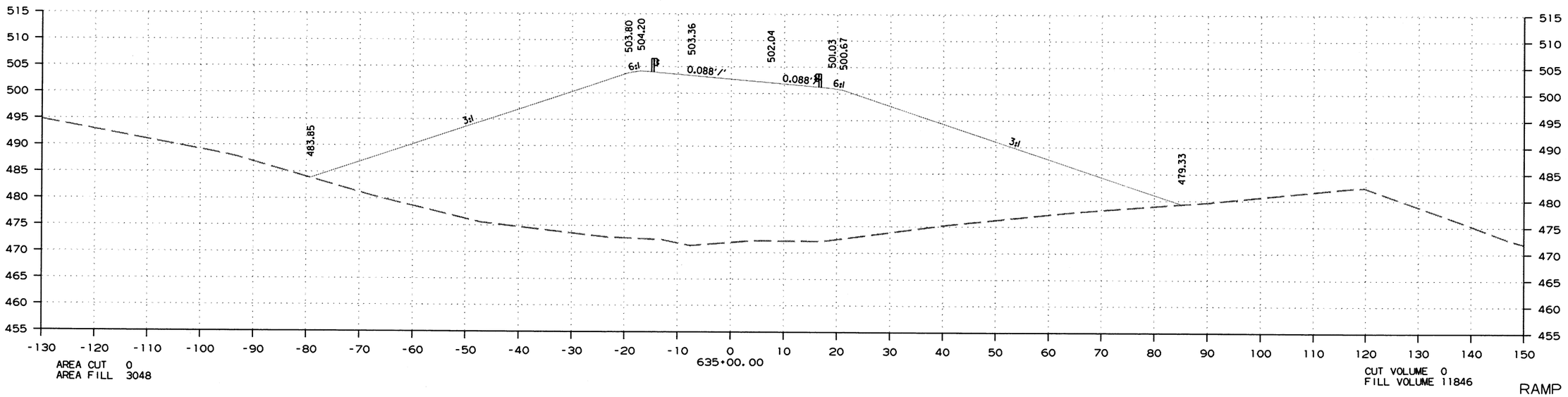
RAMP WN
STA. 633+00.00 TO STA. 634+00.00

dt40749 9/5/2019
RR60140.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.		R60140	78	116

(2) CROSS SECTIONS





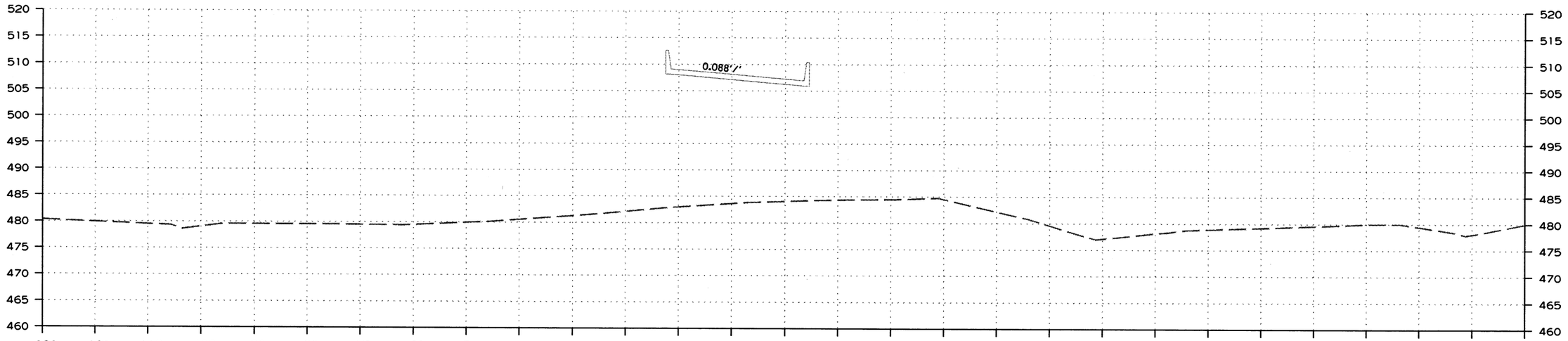
RAMP WN

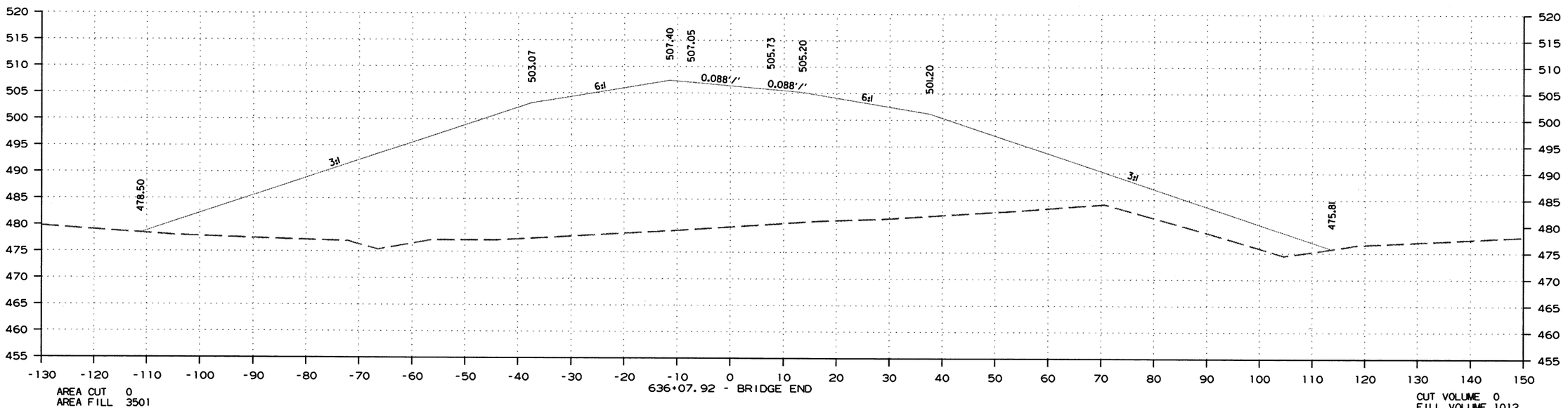
STA. 635+00.00 TO STA. 636+00.00

ah40749 9/5/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	579	616

(2) CROSS SECTIONS



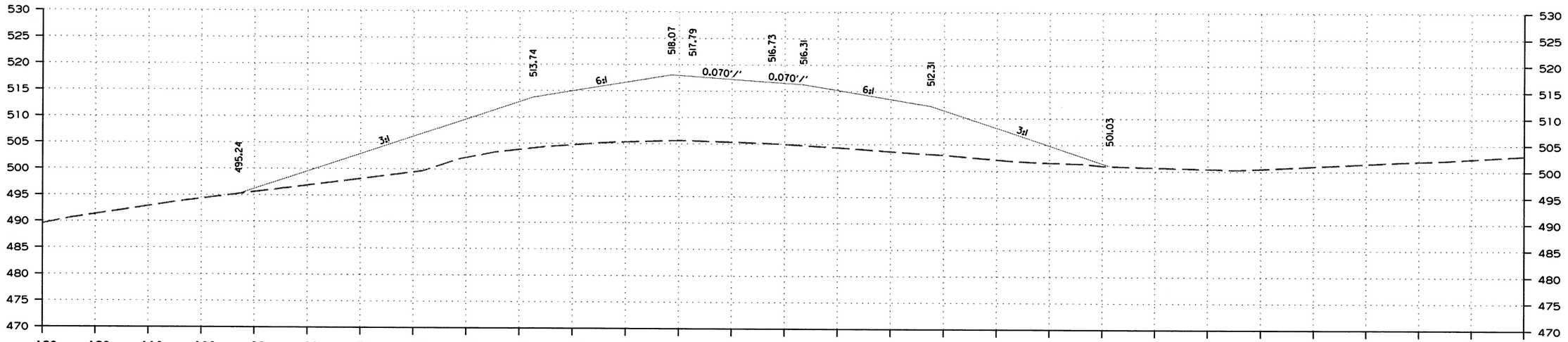


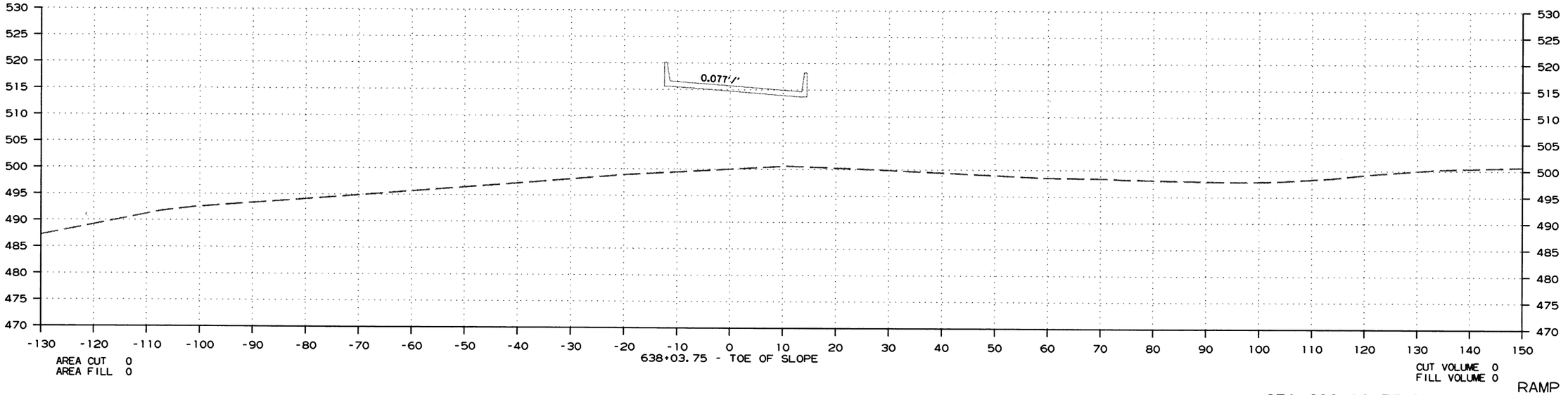
RAMP WN
STA. 636+07.92 TO STA. 636+47.78

dh40749 9/5/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	579A	616

(2) CROSS SECTIONS



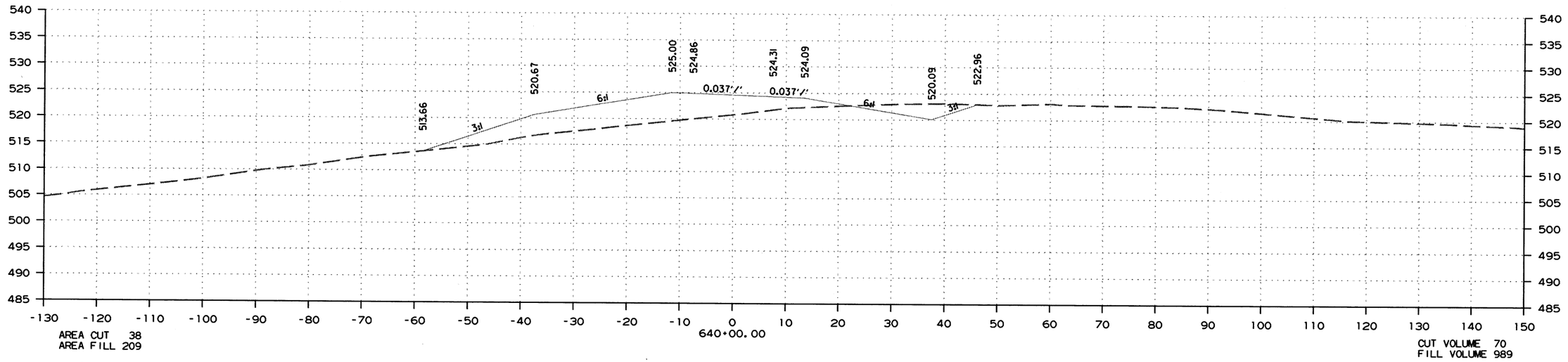


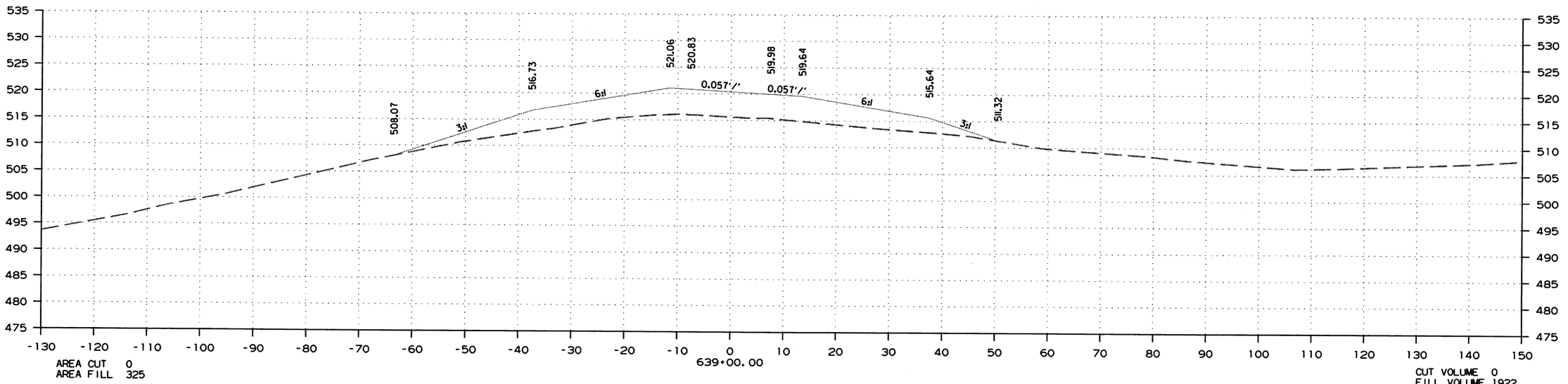
RAMP WN
STA. 638+03.75 TO STA. 638+35.08

dt40749 9/5/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-30-19				6	ARK.			
				JOB NO.		R60140	580	616

(2) CROSS SECTIONS



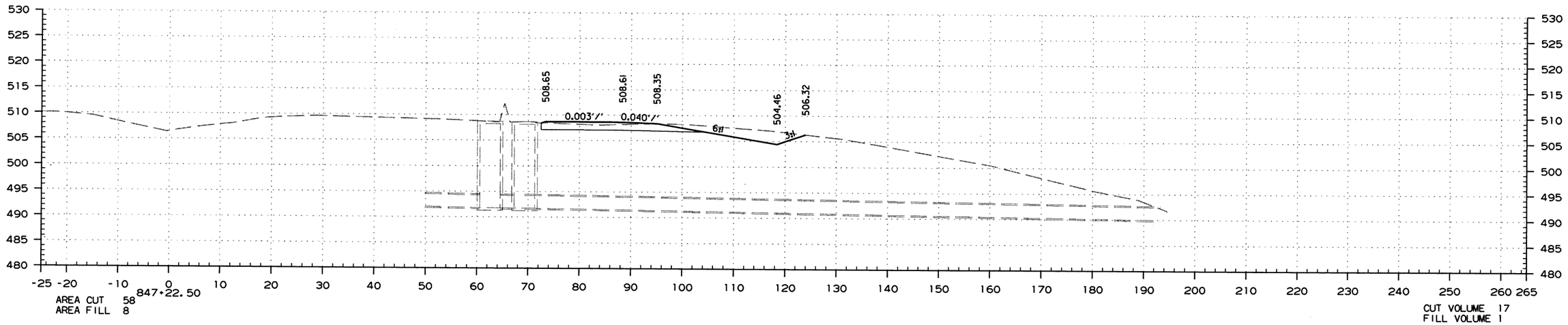


RAMP WN
STA. 639+00.00 TO STA. 640+00.00

ah40749 9/5/2019
RR60140.DGN

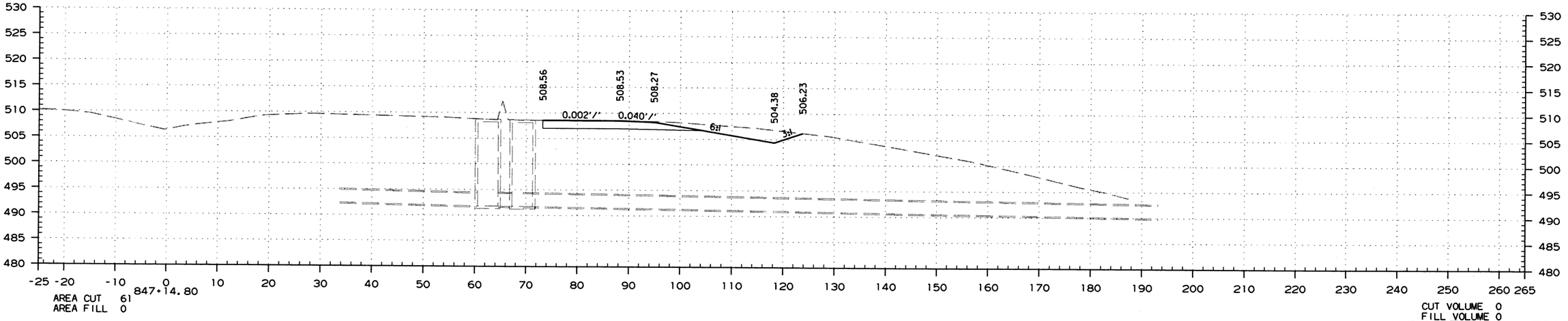
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		R60140	58-1	616

(2) CROSS SECTIONS



847+22.50
AREA CUT 58
AREA FILL 8

CUT VOLUME 17
FILL VOLUME 1



847+14.80
AREA CUT 61
AREA FILL 0

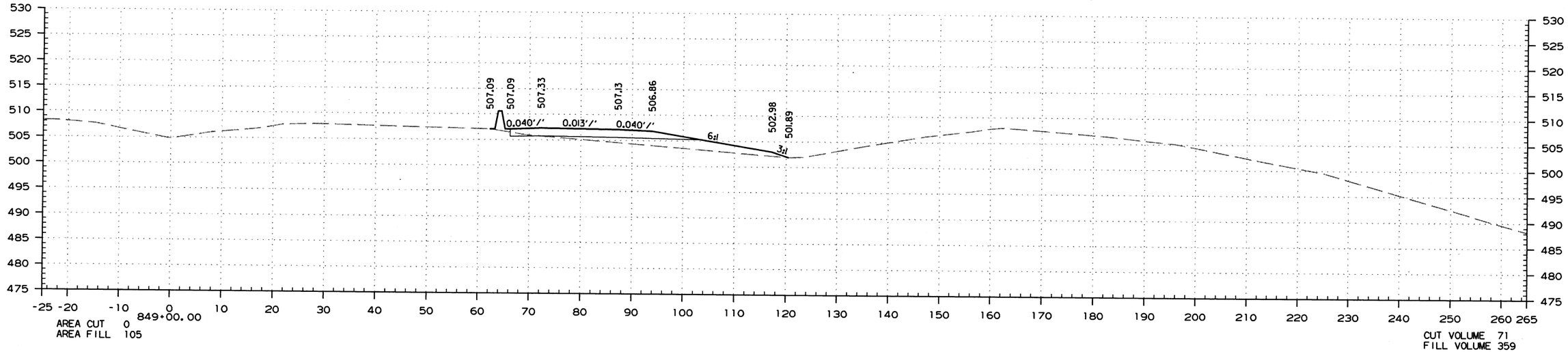
CUT VOLUME 0
FILL VOLUME 0

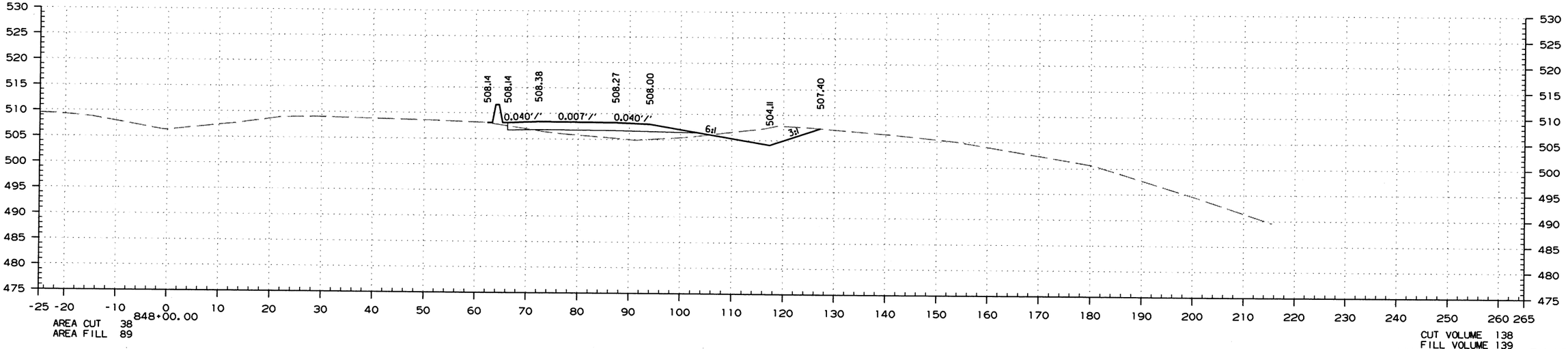
HWY. 70B C-D ROAD
STA. 847+14.80 TO STA. 847+22.50

lc38019 8/15/2019
RR60140.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.		R60140	582	616

(2) CROSS SECTIONS



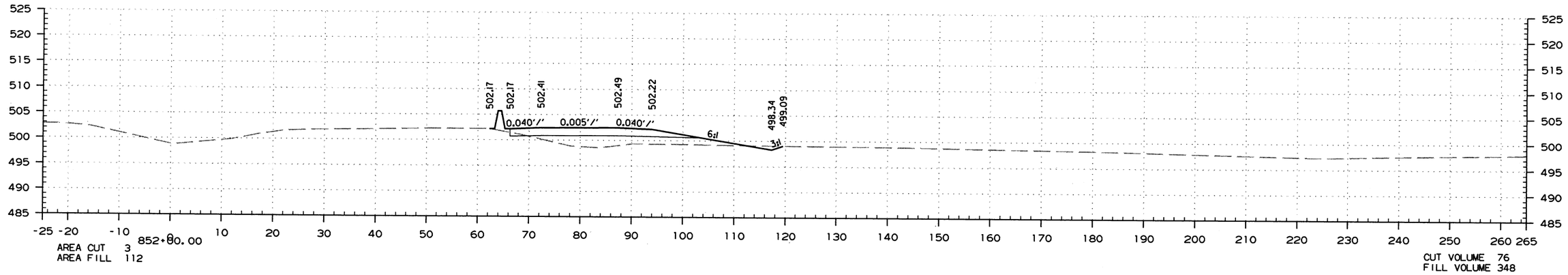


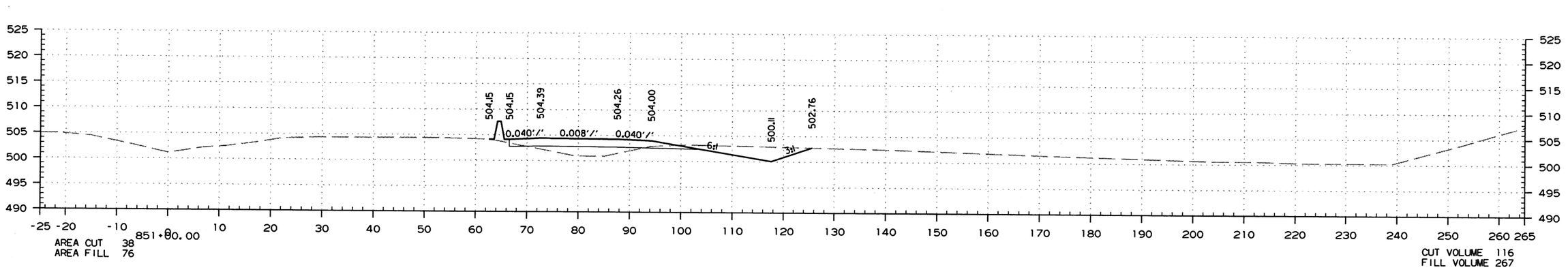
HWY. 70B C-D ROAD
STA. 848+00.00 TO STA. 849+00.00

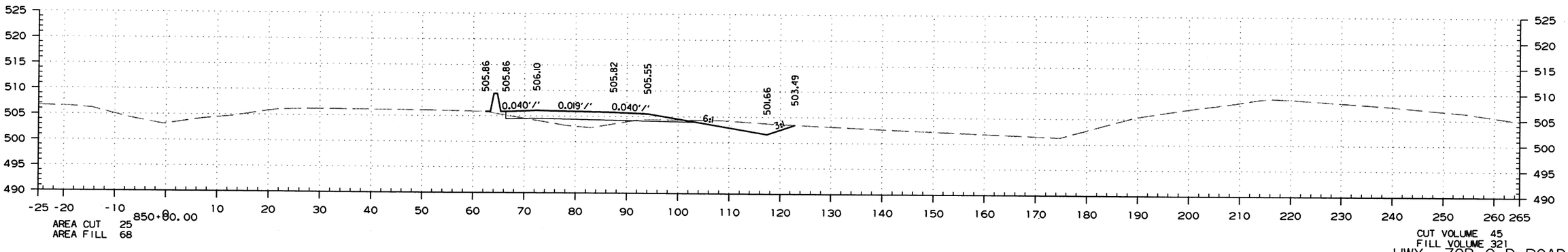
lc38019 8/15/2019
RR60140.DGN

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.		R60140	583	616

(2) CROSS SECTIONS





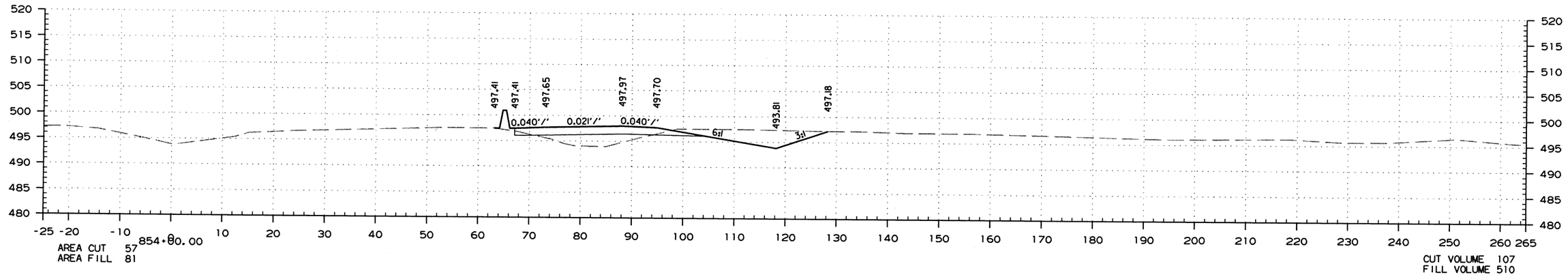


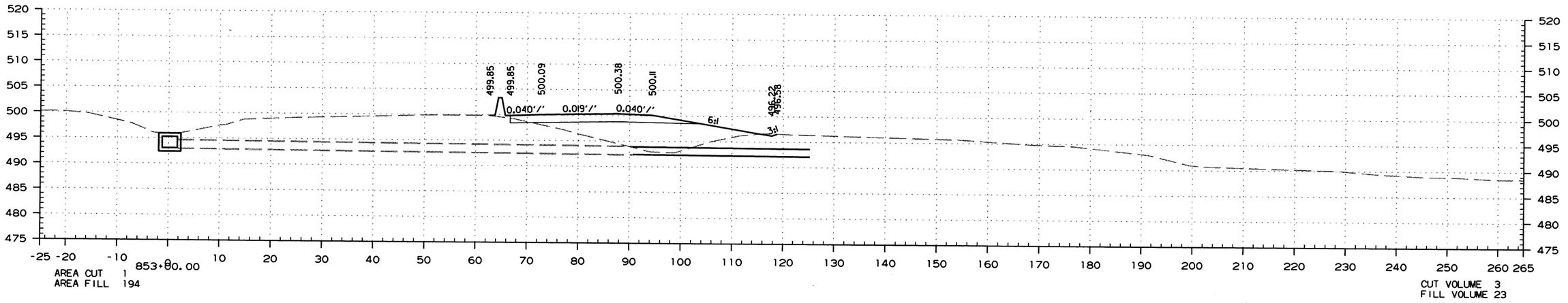
HWY. 70B C-D ROAD
STA. 850+00.00 TO STA. 852+00.00

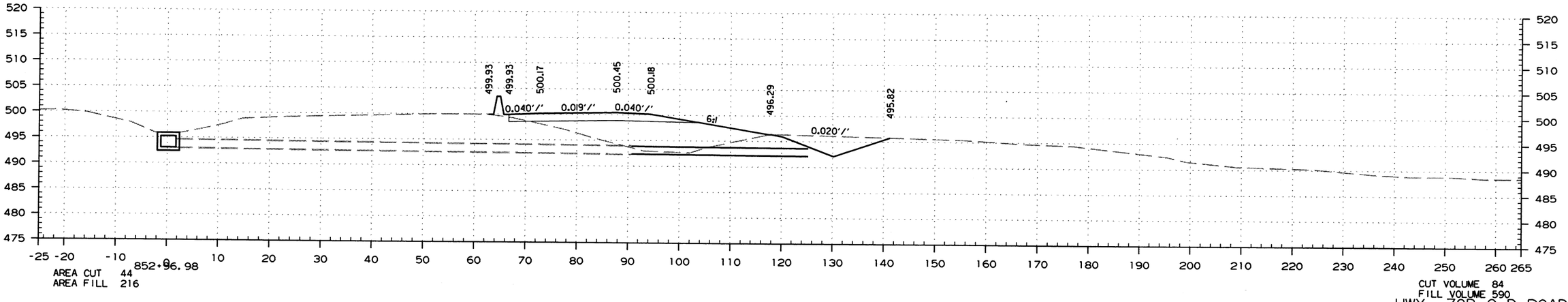
lc38019 8/15/2019
RR60140.DGN

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.		R60140	584	616

(2) CROSS SECTIONS





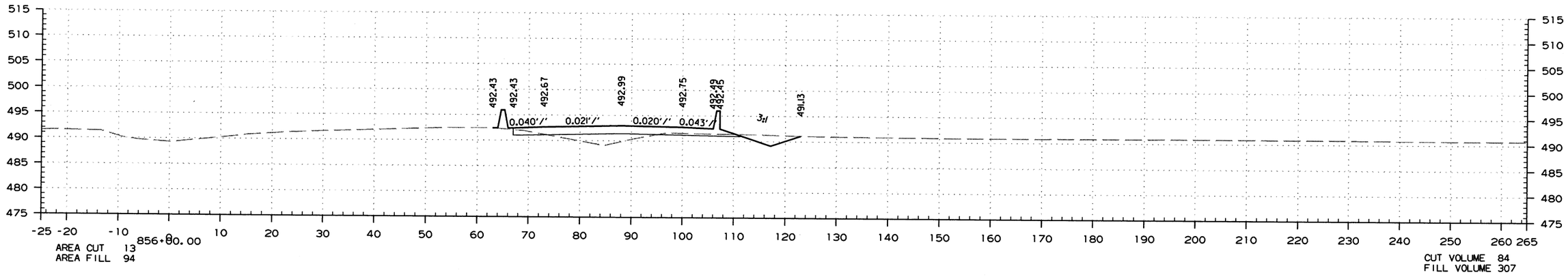


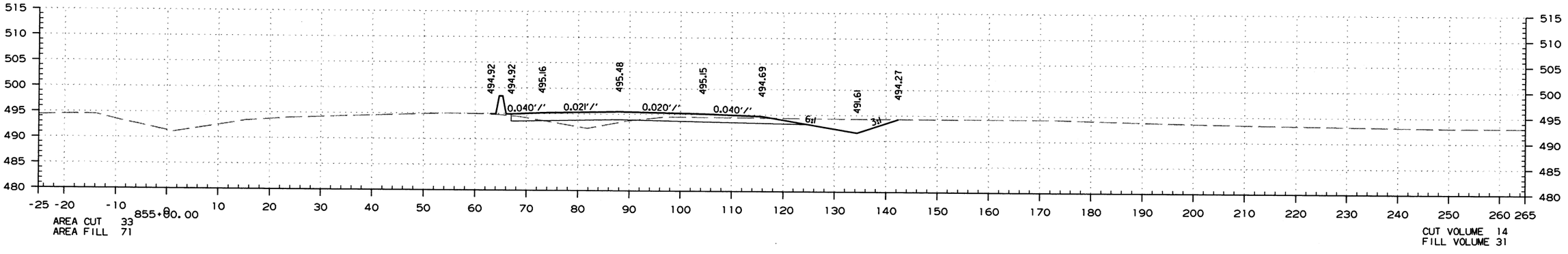
HWY. 70B C-D ROAD
STA. 852+96.98 TO STA. 854+00.00

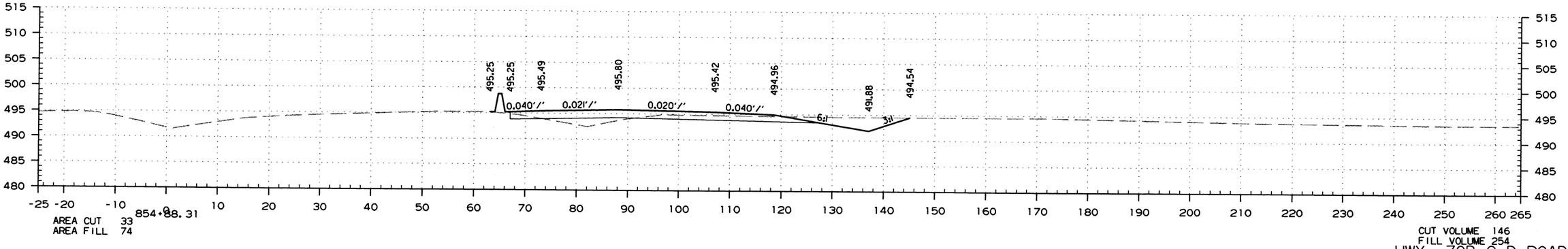
1c38019 8/15/2019
RR60140.DGN

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.		R60140	585	616

(2) CROSS SECTIONS





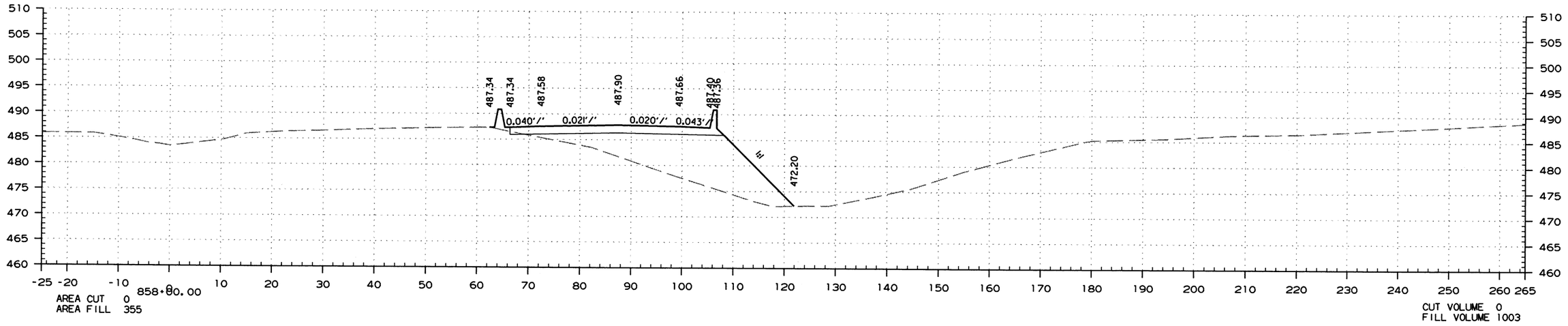


HWY. 70B C-D ROAD
STA. 854+88.31 TO STA. 856+00.00

lc38019 8/15/2019
RR60140.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.		R60140	586	616

(2) CROSS SECTIONS

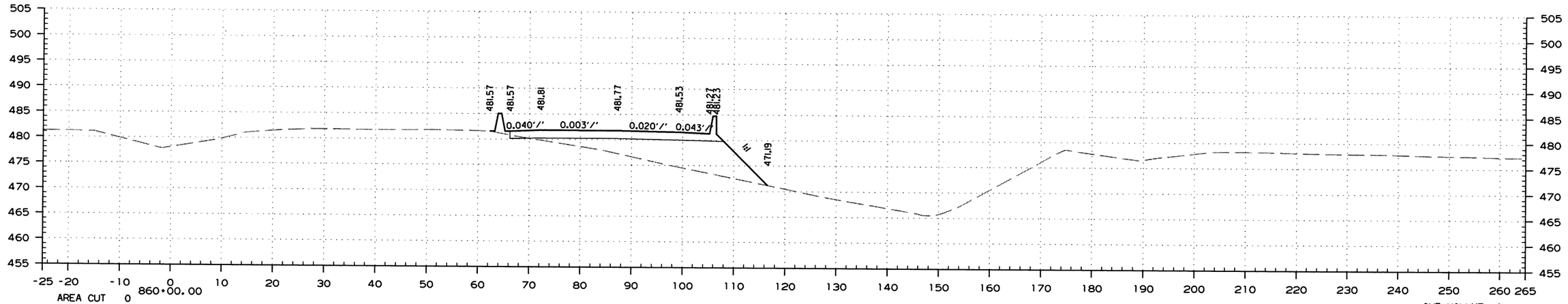


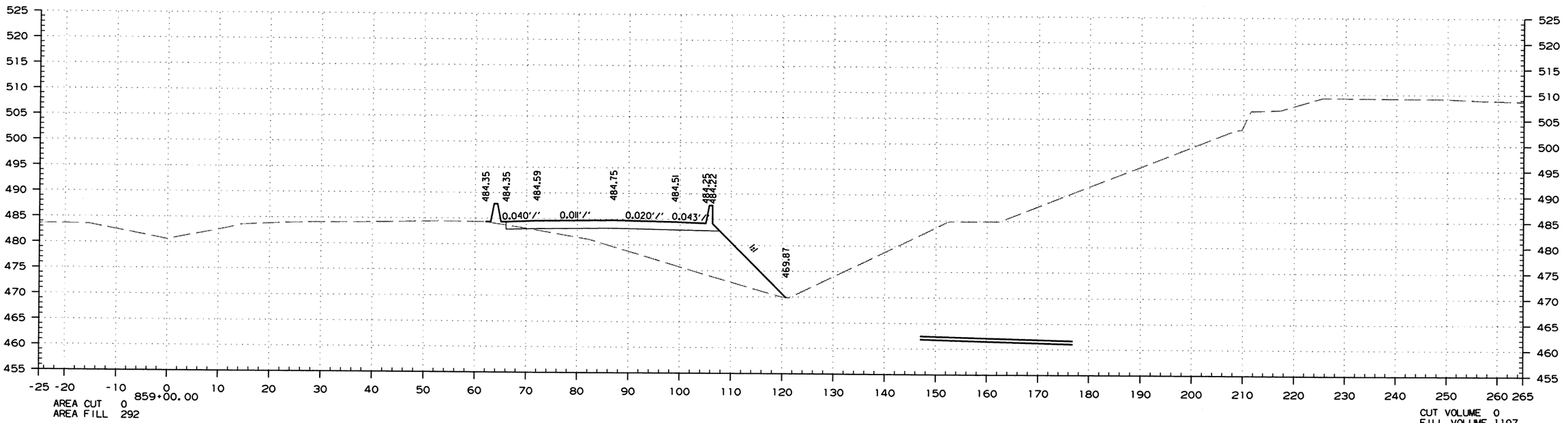
HWY. 70B C-D ROAD
STA. 857+00.00 TO STA. 858+00.00

lc38019 8/15/2019
RR60140.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.		R60140	587	Cells

(2) CROSS SECTIONS



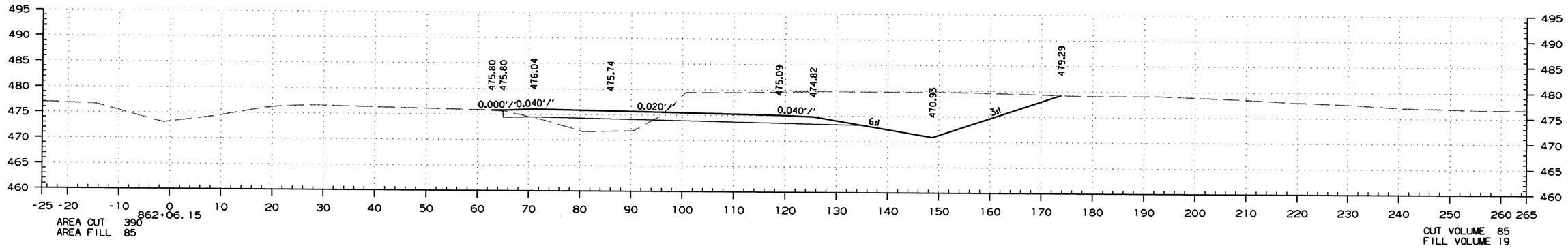


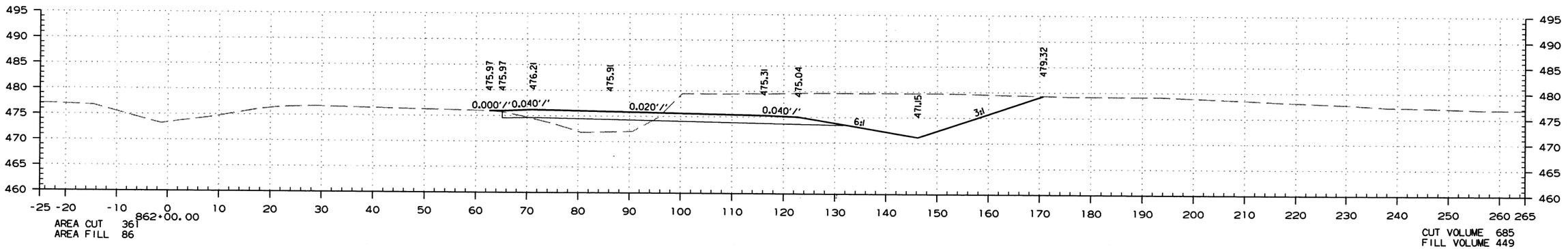
HWY. 70B C-D ROAD
STA. 859+00.00 TO STA. 860+00.00

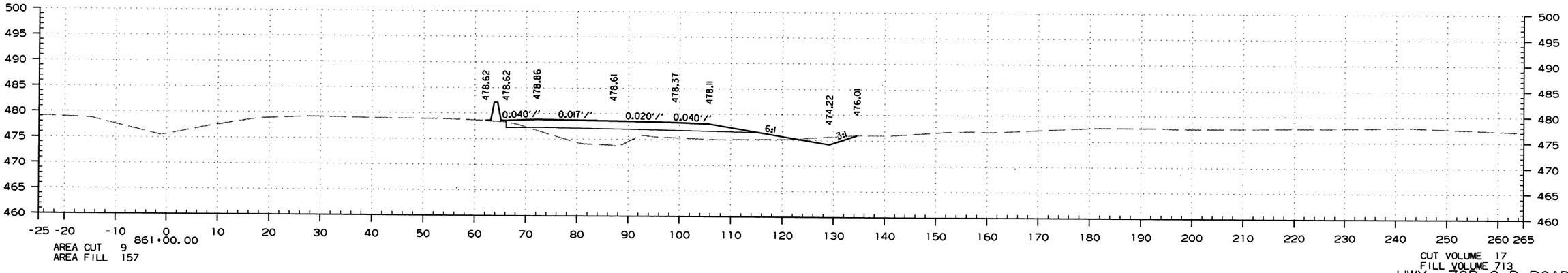
1c38019 8/15/2019
RR60140.DGN

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.		R60140	588	616

(2) CROSS SECTIONS





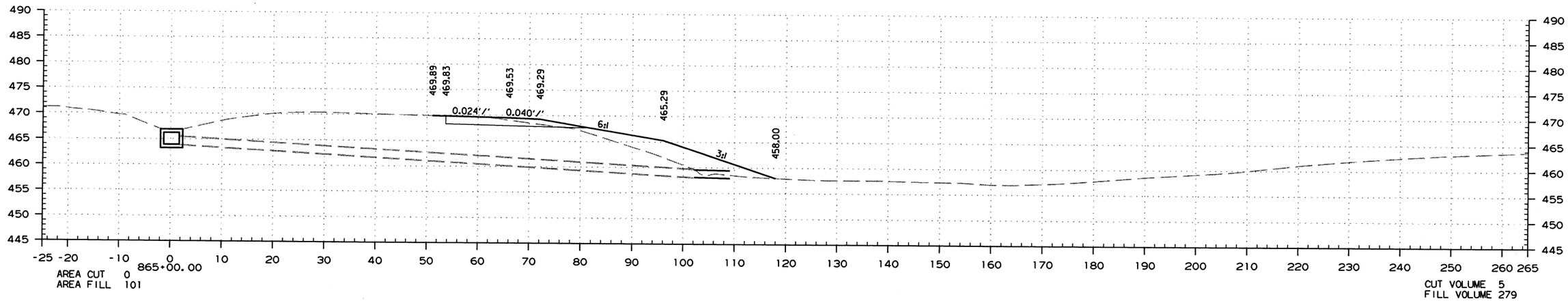


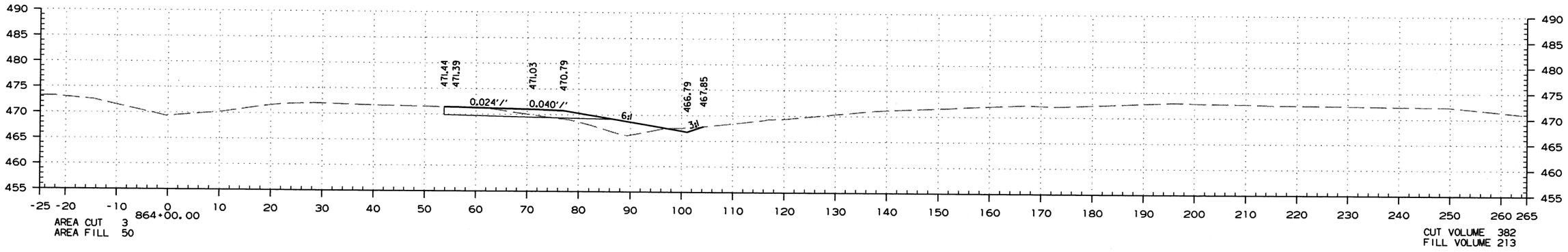
HWY. 70B C-D ROAD
STA. 861+00.00 TO STA. 862+06.15

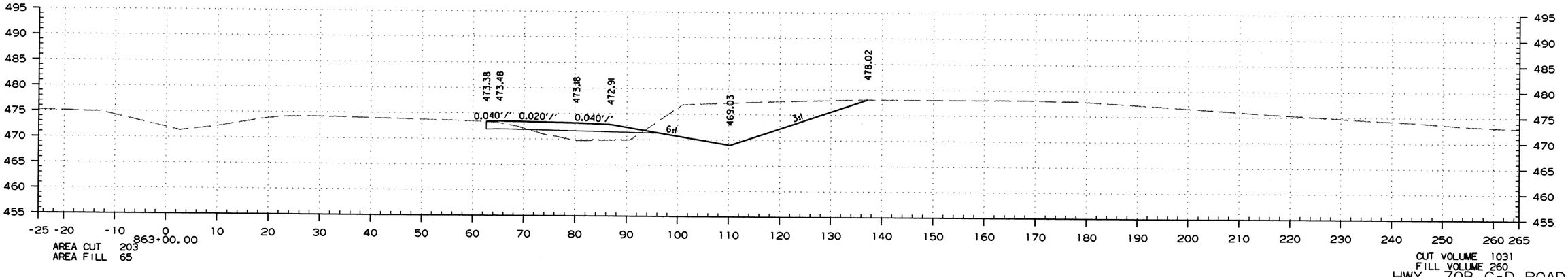
lc38019 8/15/2019
RR60140.DGN

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.		R60140	589	616

(2) CROSS SECTIONS





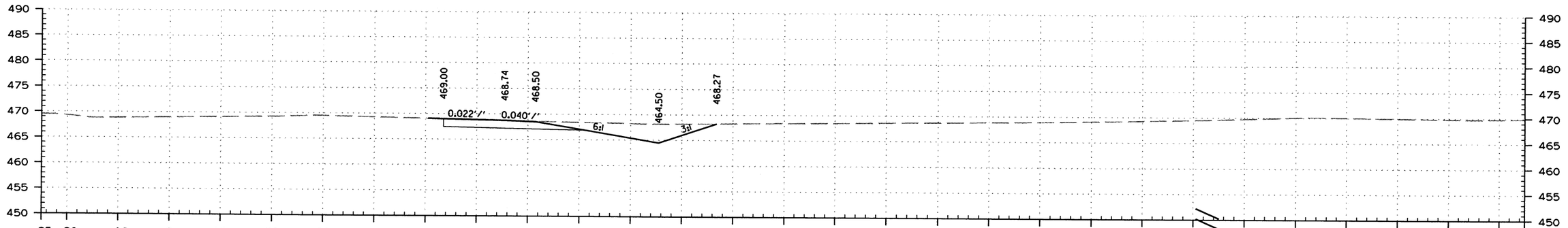


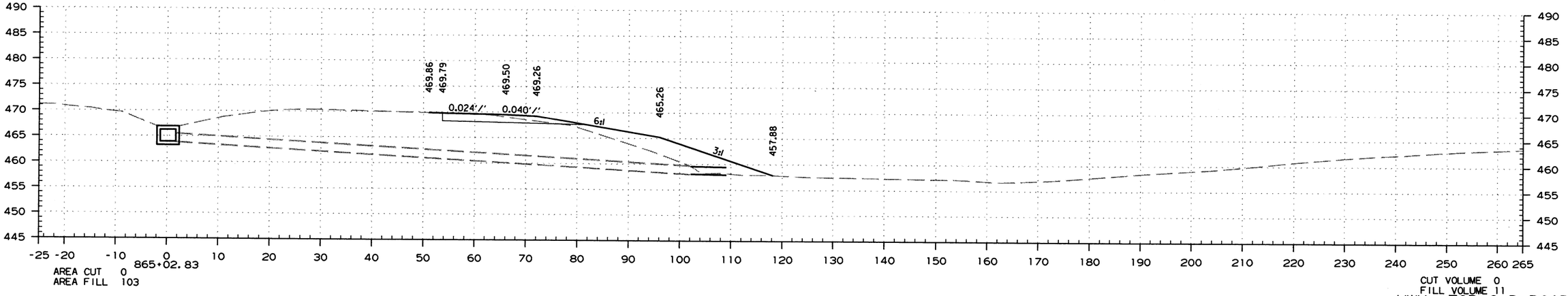
HWY. 70B C-D ROAD
STA. 863+00.00 TO STA. 865+00.00

lc38019 8/15/2019
RR60140.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.		R60140	590	616

(2) CROSS SECTIONS



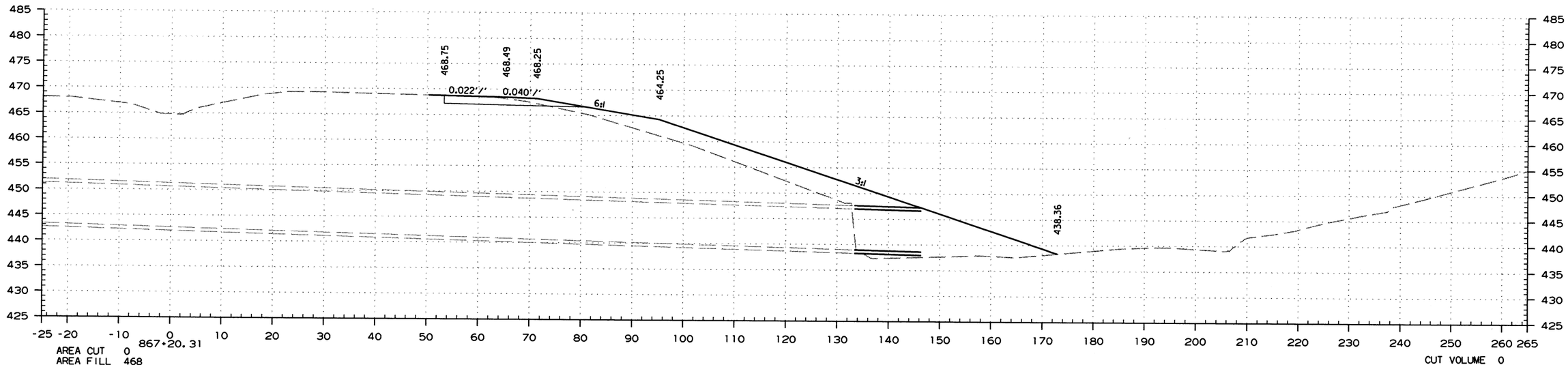


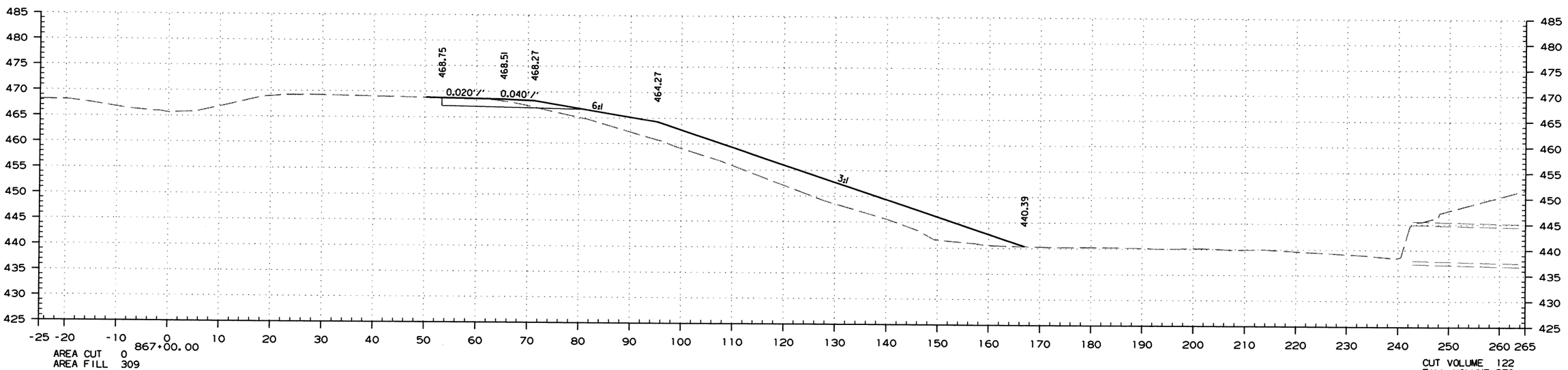
HWY. 70B C-D ROAD
STA. 865+02.83 TO STA. 866+00.00

lc38019 8/15/2019
RR60140.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.		R60140	591	616

(2) CROSS SECTIONS



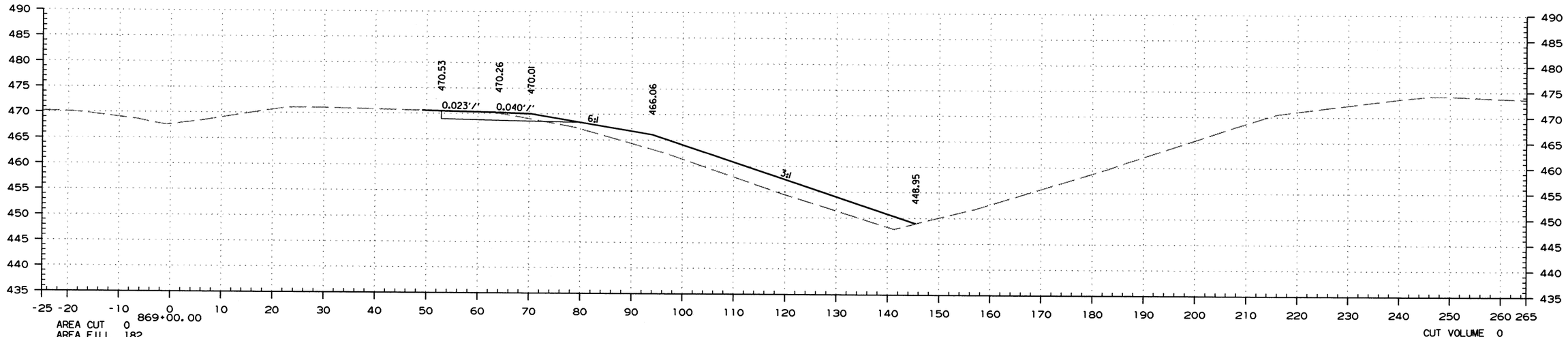


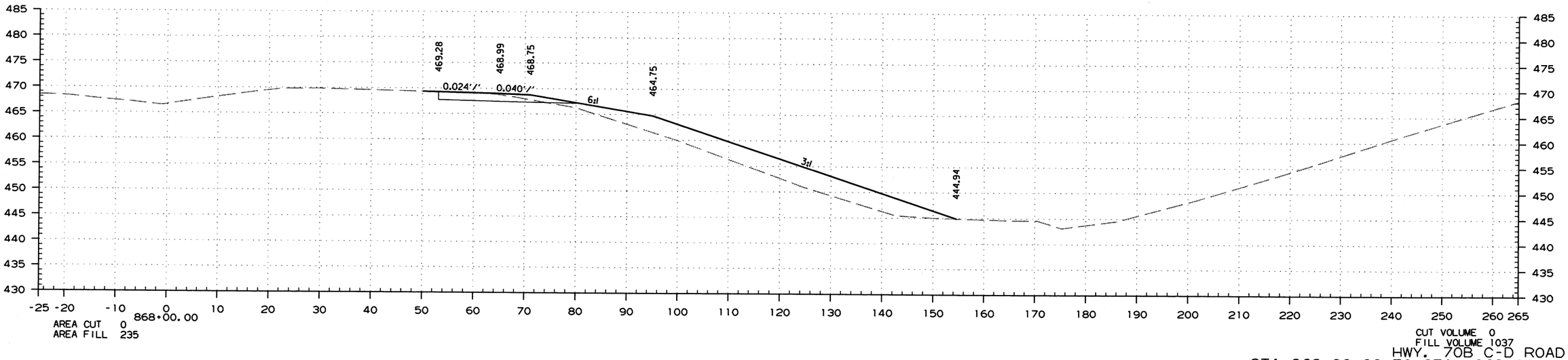
HWY. 70B C-D ROAD
STA. 867+00.00 TO STA. 867+20.31

lc38019 8/15/2019
RR60140.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.		R60140	592	616

(2) CROSS SECTIONS



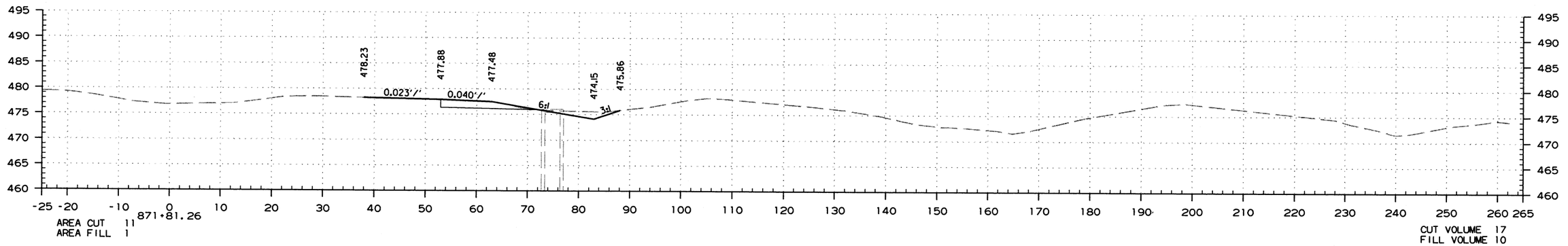


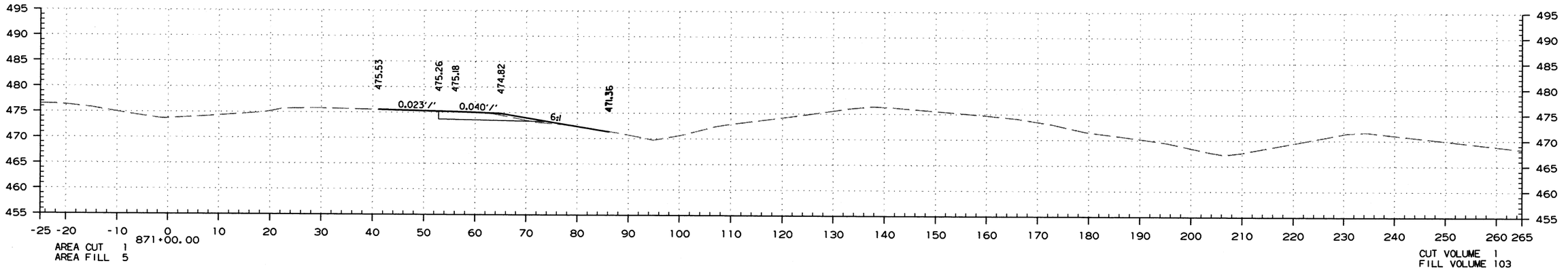
HWY. 70B C-D ROAD
STA. 868+00.00 TO STA. 869+00.00

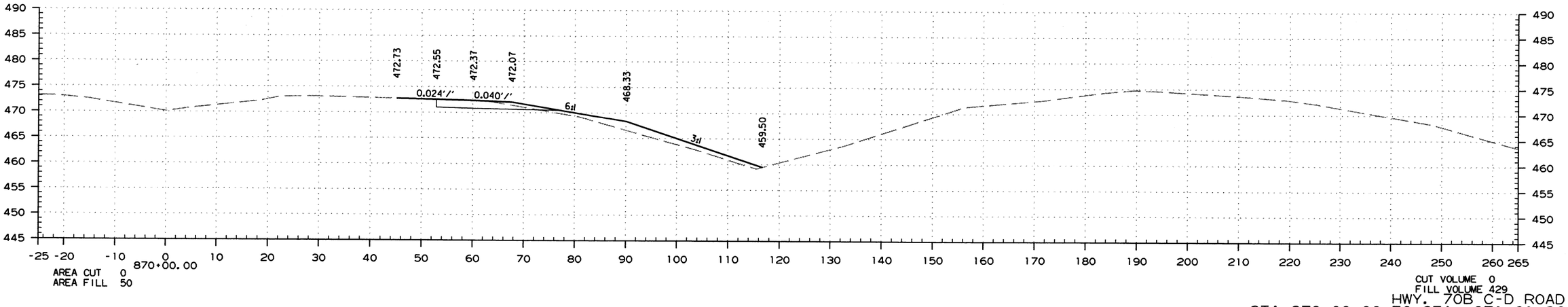
lc38019 8/15/2019
RR60140.DGN

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.		R60140	593	616

(2) CROSS SECTIONS





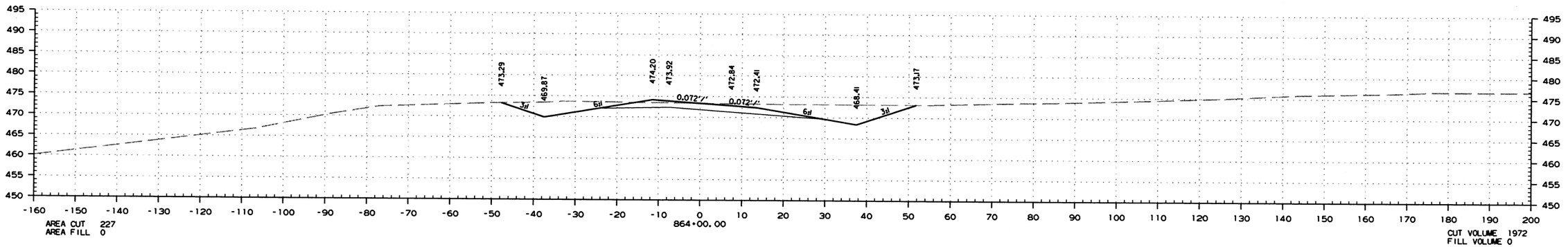


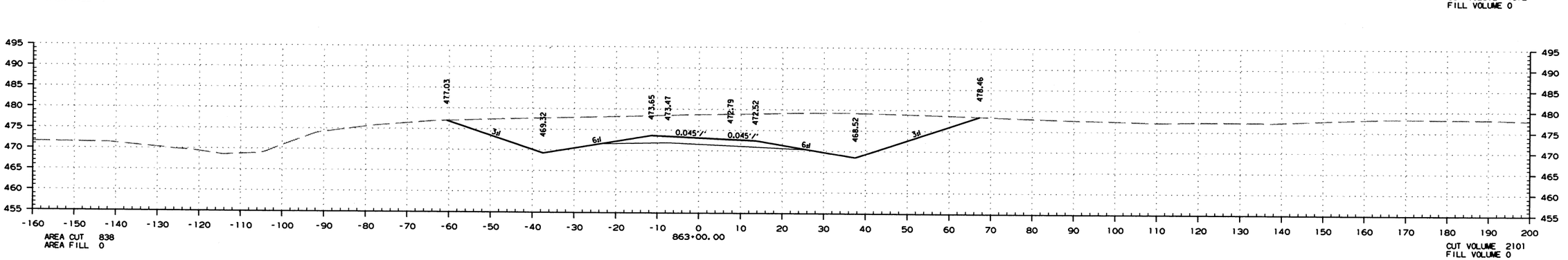
HWY. 70B C-D ROAD
STA. 870+00.00 TO STA. 871+81.26

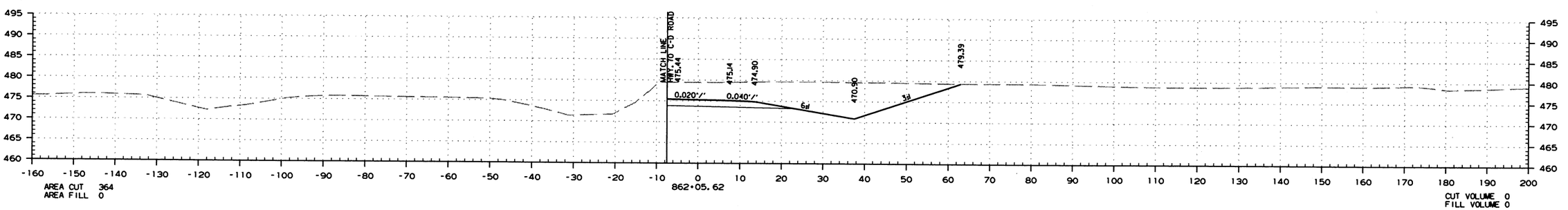
lc38019 8/15/2019
RR60140.DGN

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.		R60140	594	616

(2) CROSS SECTIONS





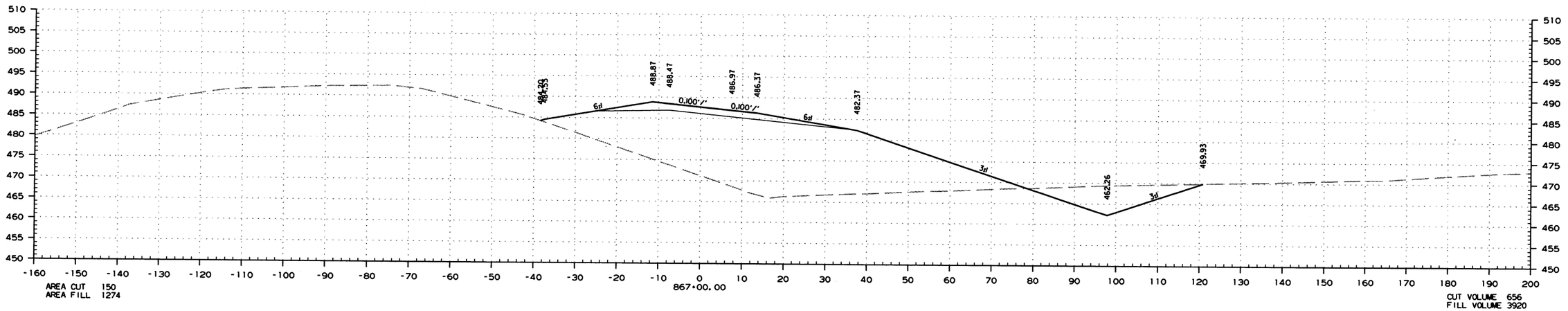


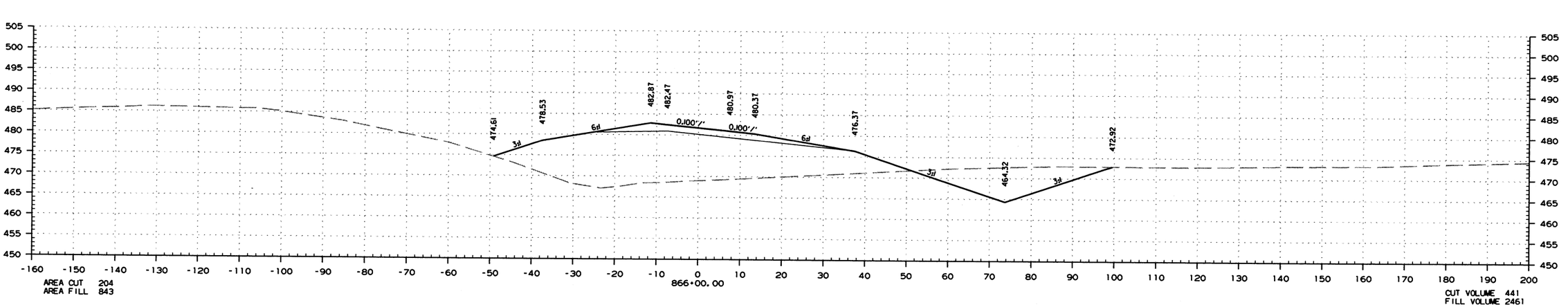
RAMP EN
STA. 862+05.62 TO STA. 864+00.00

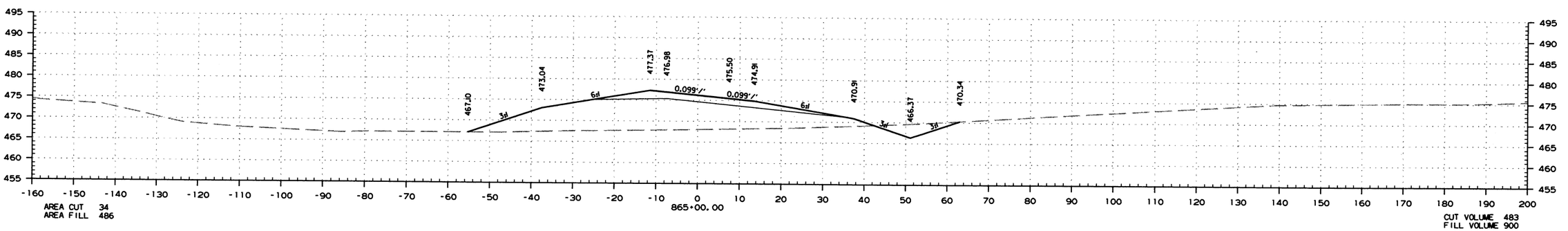
lc38019 8/15/2019
RR60140.DGN

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.		R60140	595	616

(2) CROSS SECTIONS





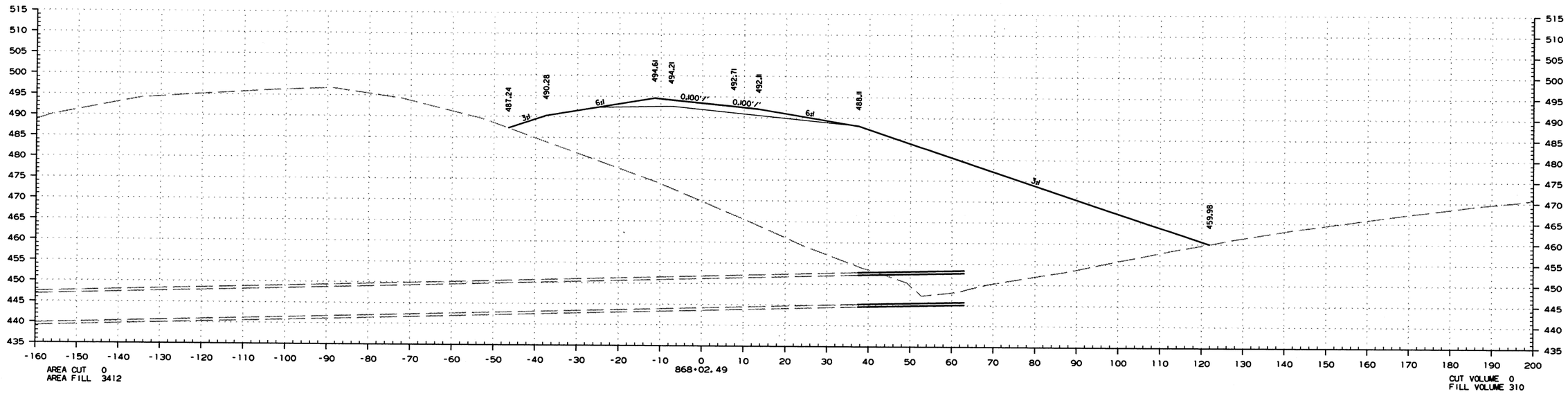


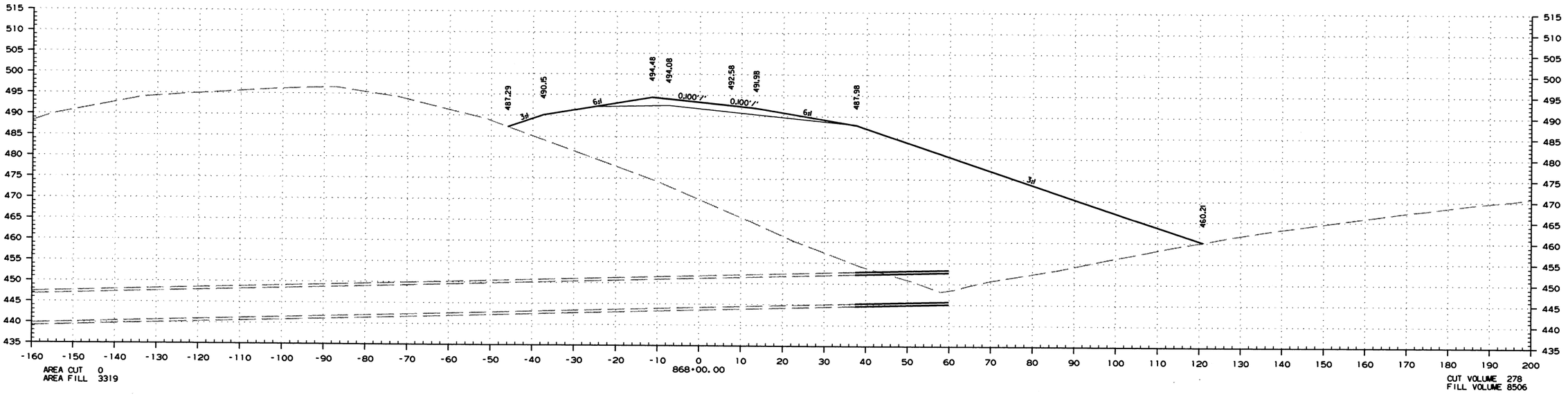
RAMP EN
STA. 865+00.00 TO STA. 867+00.00

lc38019 8/15/2019
RR60140.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.		R60140	596	616

(2) CROSS SECTIONS



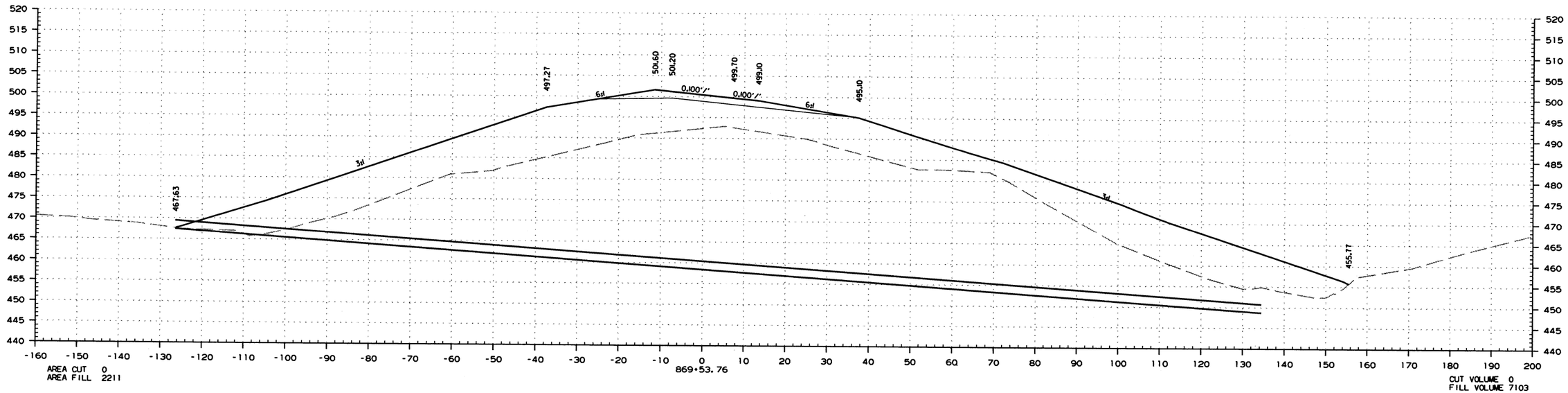


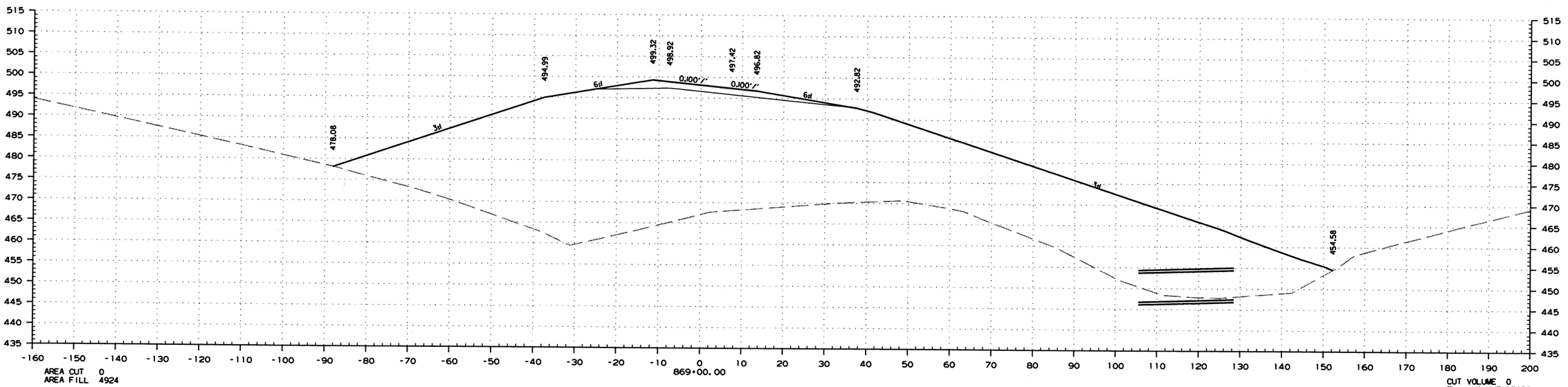
RAMP EN
STA. 868+00.00 TO STA. 868+02.49

lc38019 8/15/2019
RR60140.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.		R60140	597	616

(2) CROSS SECTIONS



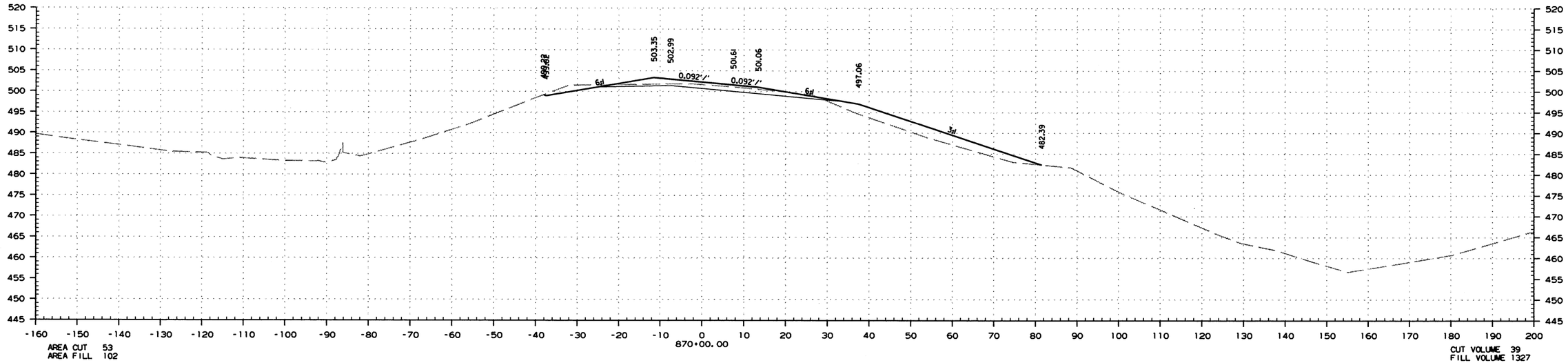


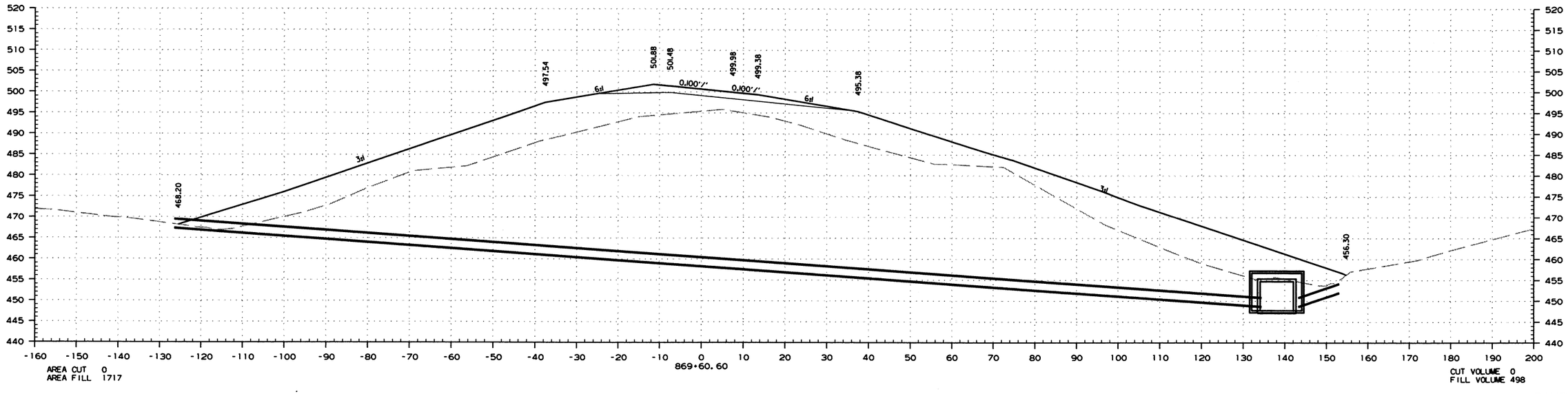
RAMP EN
STA. 869+00.00 TO STA. 869+53.76

lc38019 8/15/2019
RR60140.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.		R60140	598	616

(2) CROSS SECTIONS



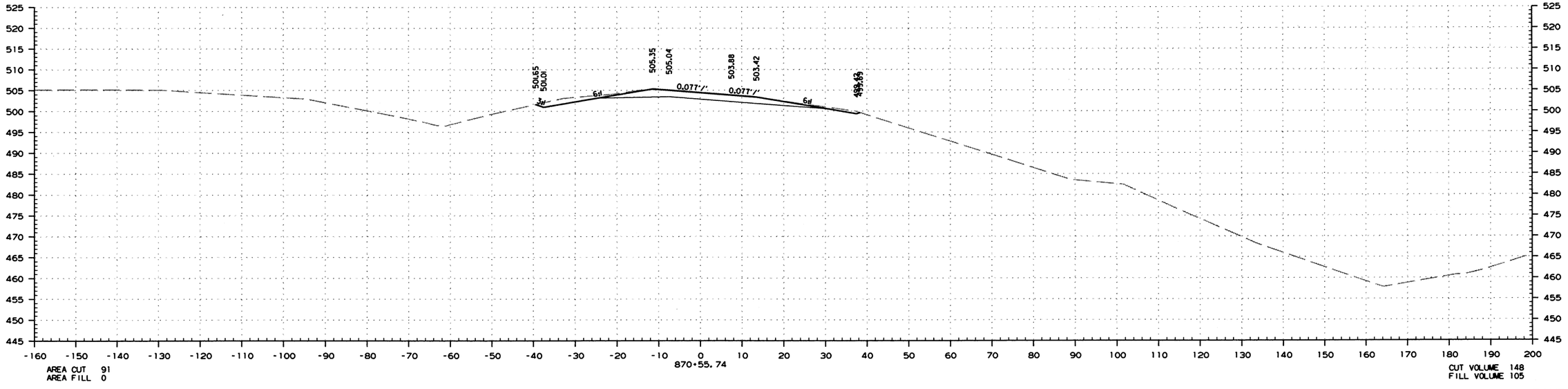


RAMP EN
STA. 869+60.60 TO STA. 870+00.00

lc38019 8/15/2019
RR60140.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.		R60140	599	616

(2) CROSS SECTIONS

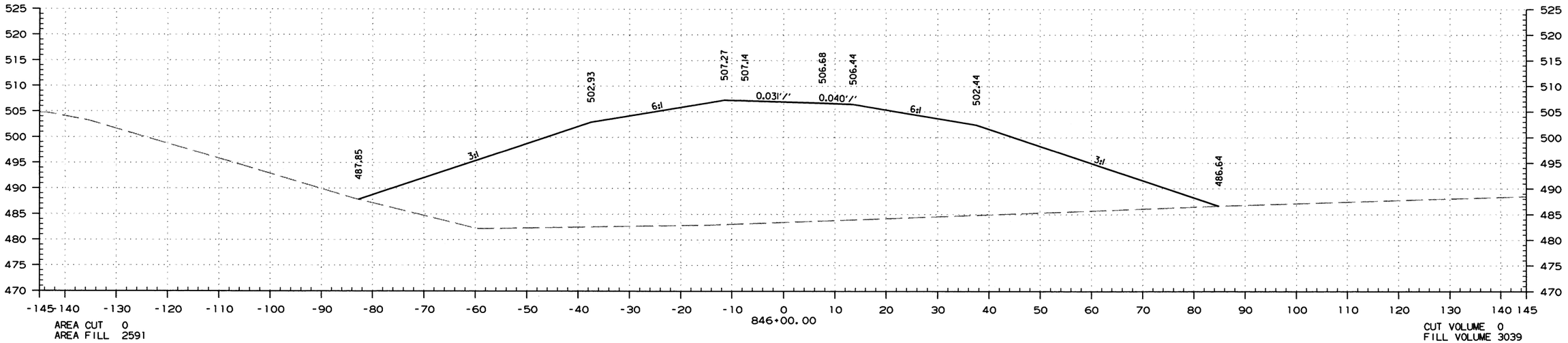


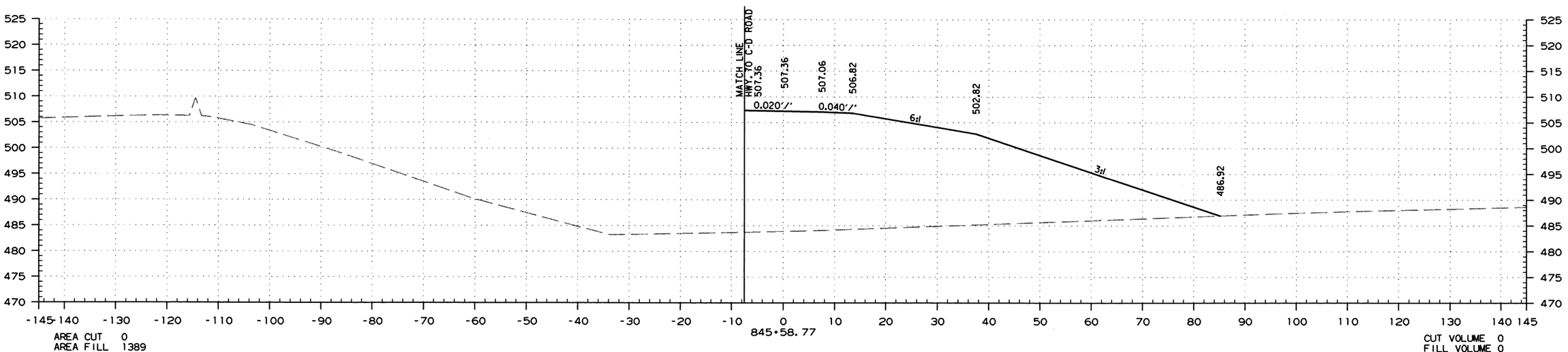
RAMP EN
STA. 870+55.74 TO STA. 870+55.74

lc38019 8/15/2019
RR60140.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.		R60140	600	616

(2) CROSS SECTIONS



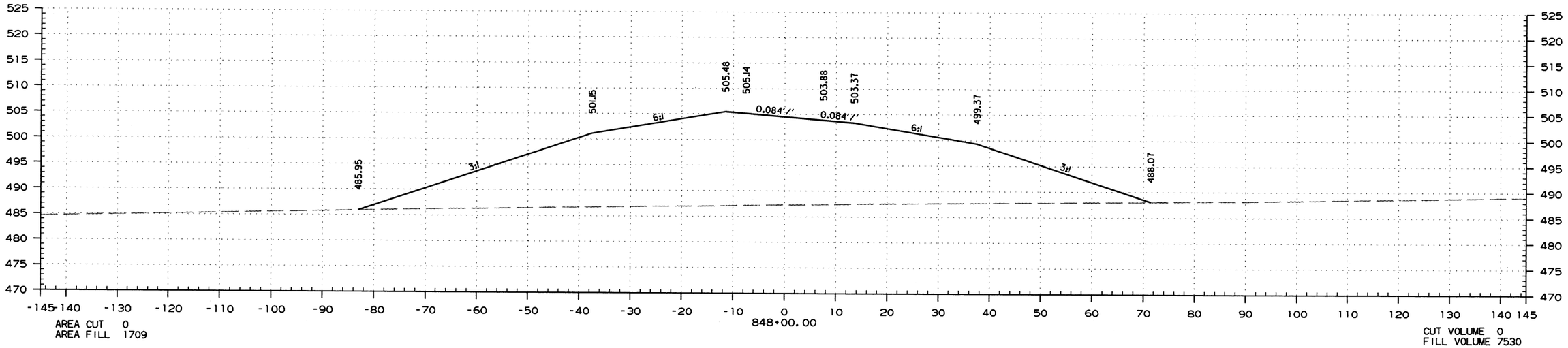


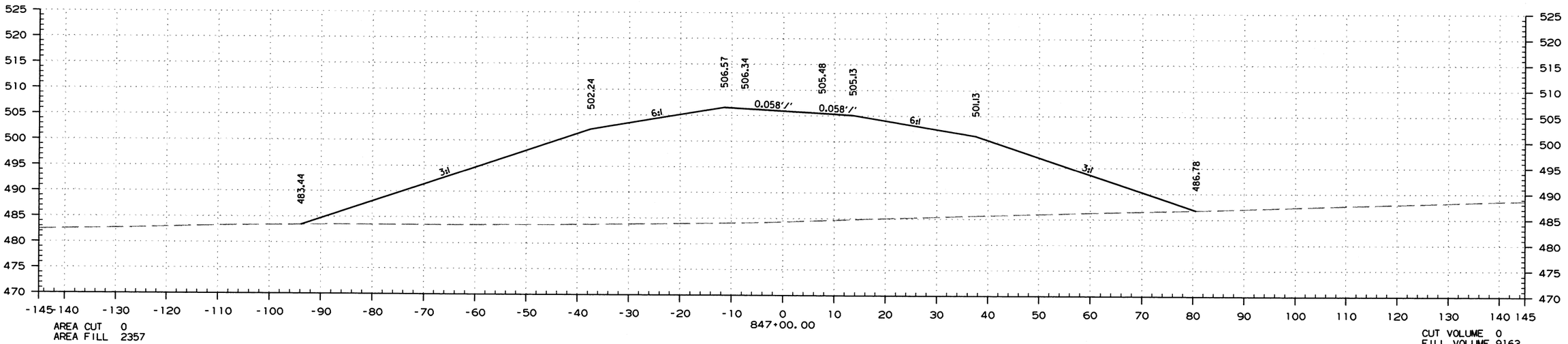
RAMP SE
STA. 845+58.77 TO STA. 846+00.00

lc38019 8/15/2019
RR60140.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.		R60140	601	616

(2) CROSS SECTIONS



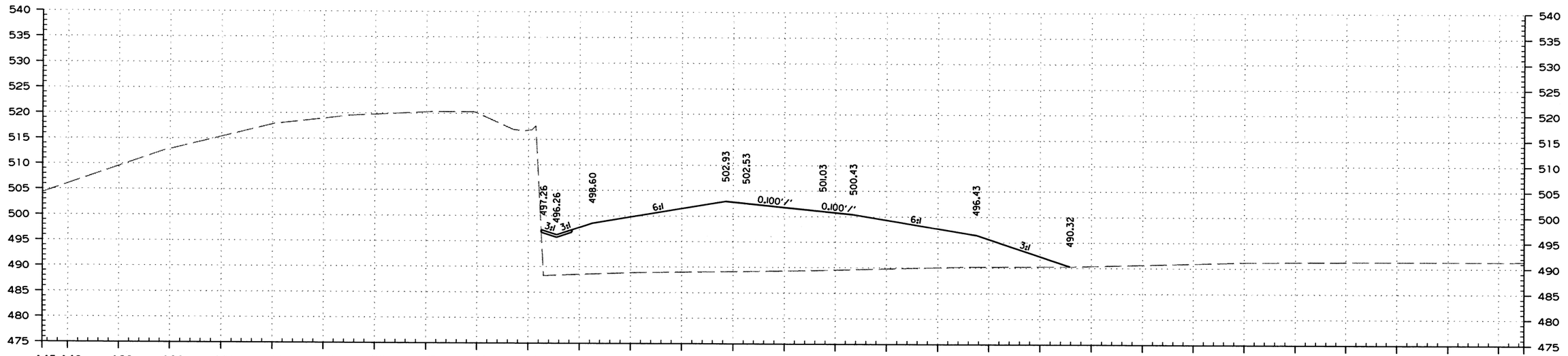


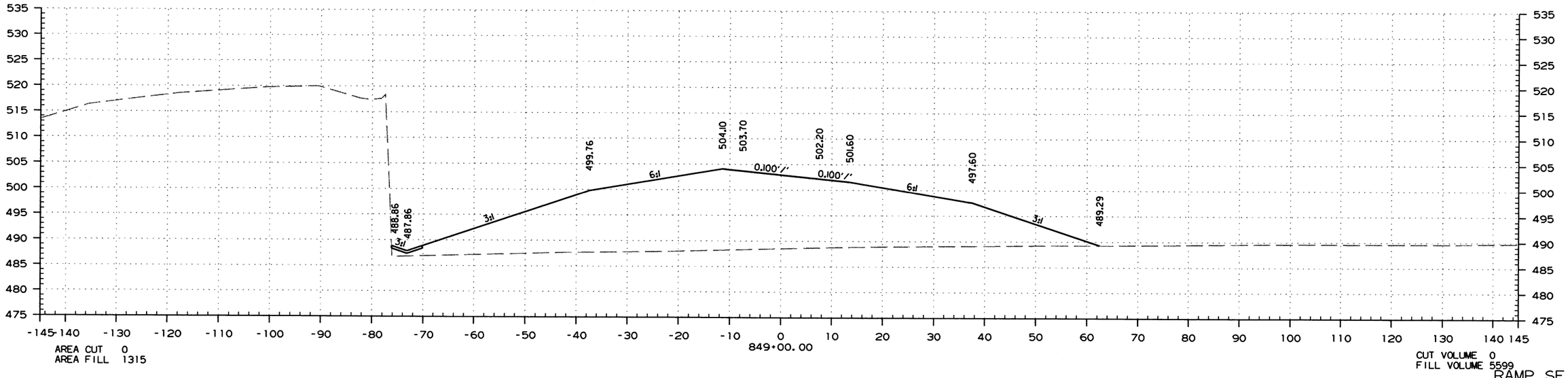
RAMP SE
STA. 847+00.00 TO STA. 848+00.00

lc38019 8/15/2019
RR60140.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-07-19				6	ARK.			
				JOB NO.		R60140	602	616

(2) CROSS SECTIONS



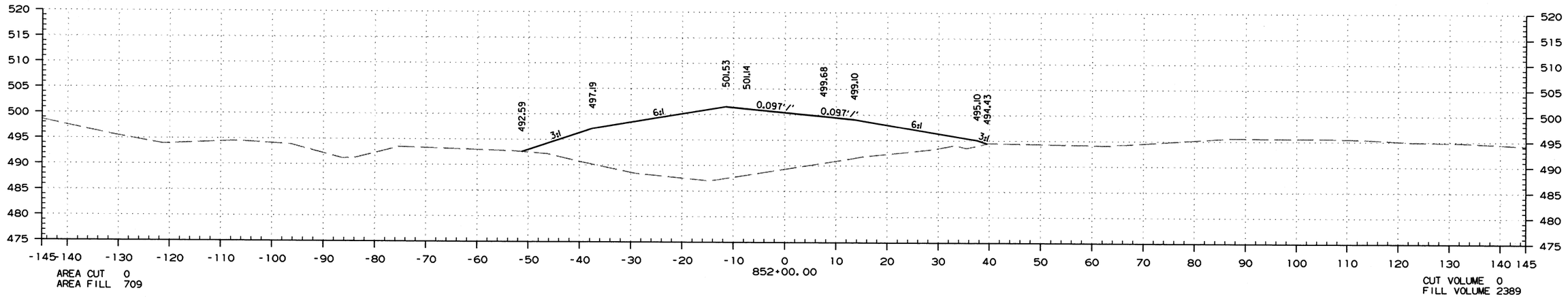


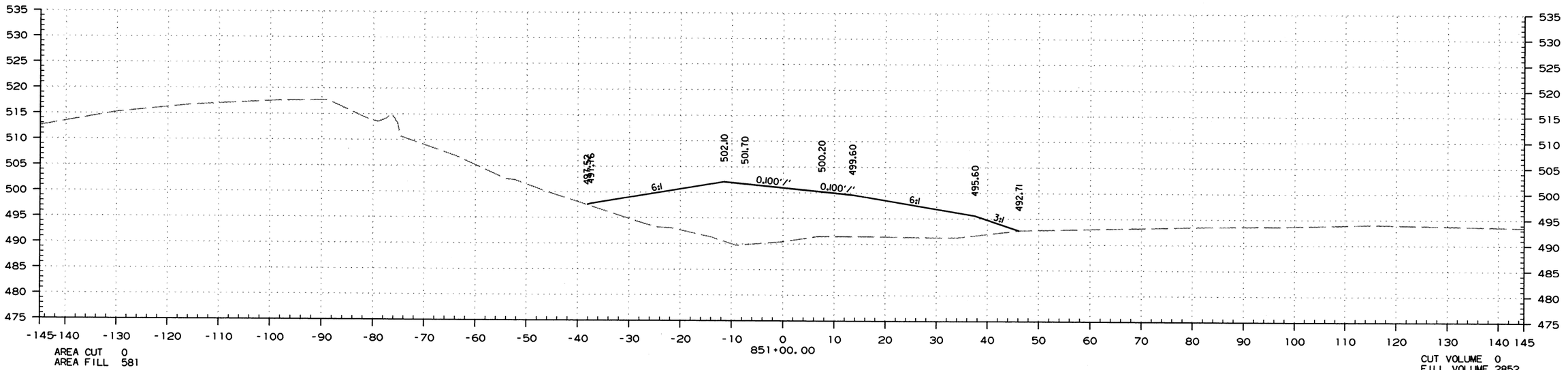
RAMP SE
STA. 849+00.00 TO STA. 850+00.00

lc38019 8/15/2019
RR60140.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.		R60140	603	616

(2) CROSS SECTIONS





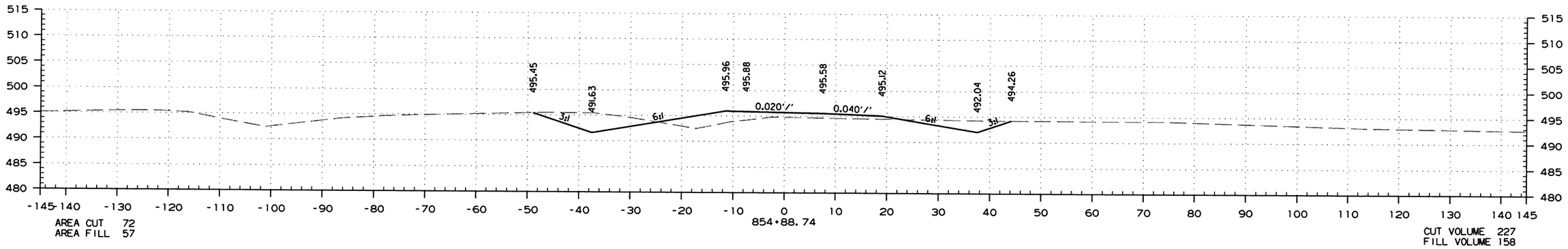
RAMP SE

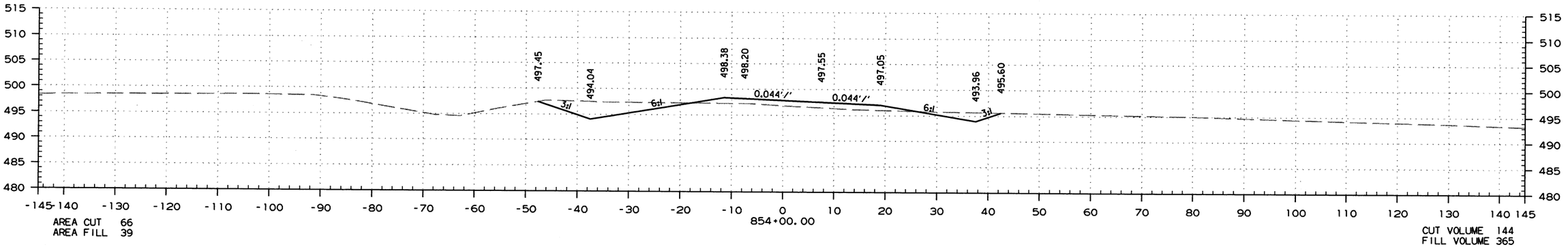
STA. 851+00.00 TO STA. 852+00.00

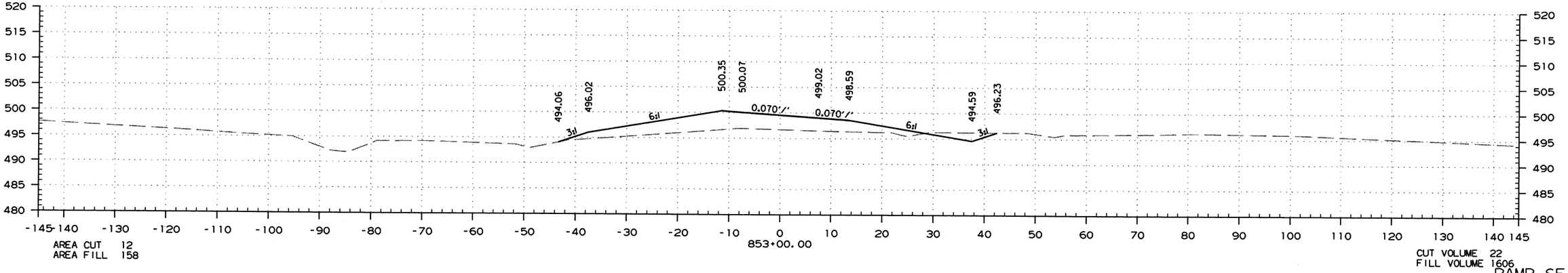
lc38019 8/15/2019
RR60140.DGN

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.		R60140	604	616

(2) CROSS SECTIONS





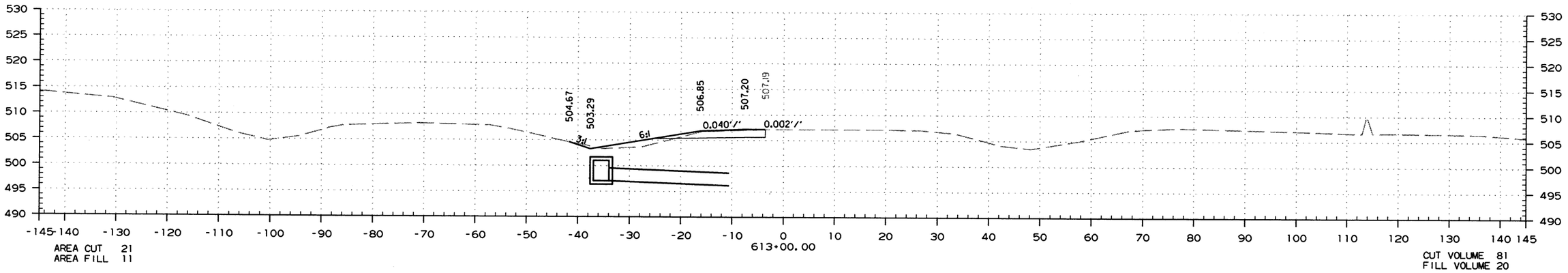


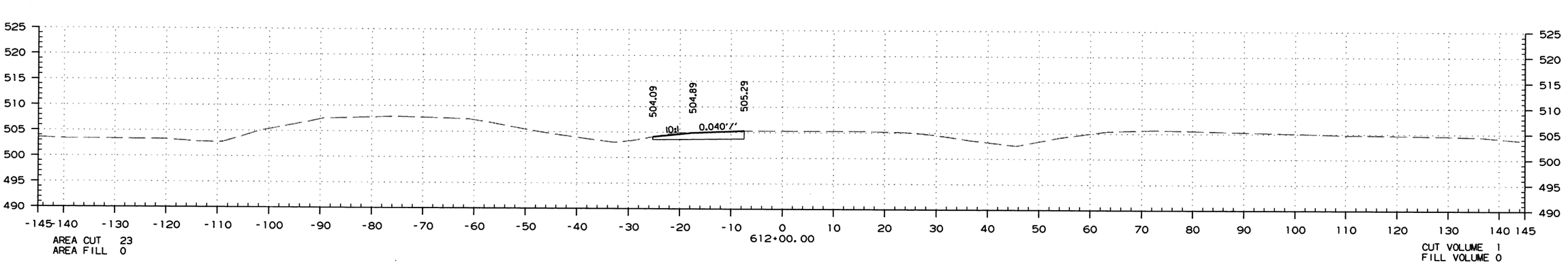
RAMP SE
STA. 853+00.00 TO STA. 854+88.74

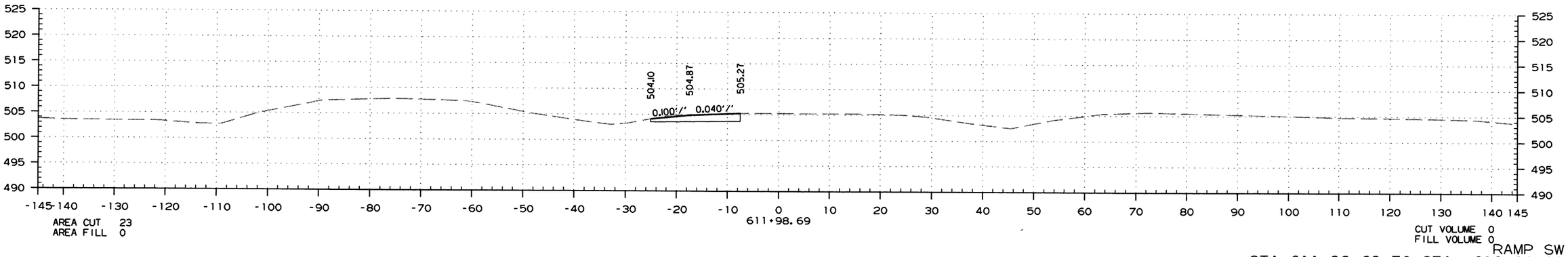
lc38019 8/15/2019
RR60140.DGN

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.		R60140	605	616

(2) CROSS SECTIONS







RAMP SW
STA. 611+98.69 TO STA. 613+00.00

lc38019 8/15/2019
RR60140.DGN

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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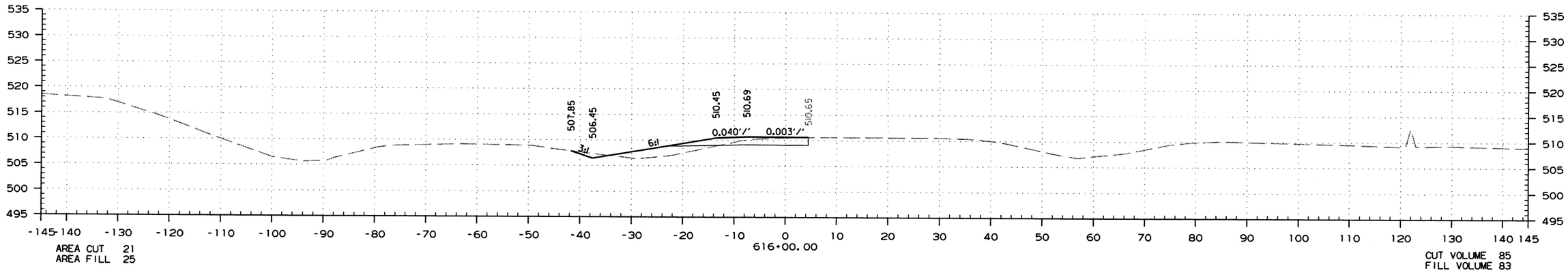
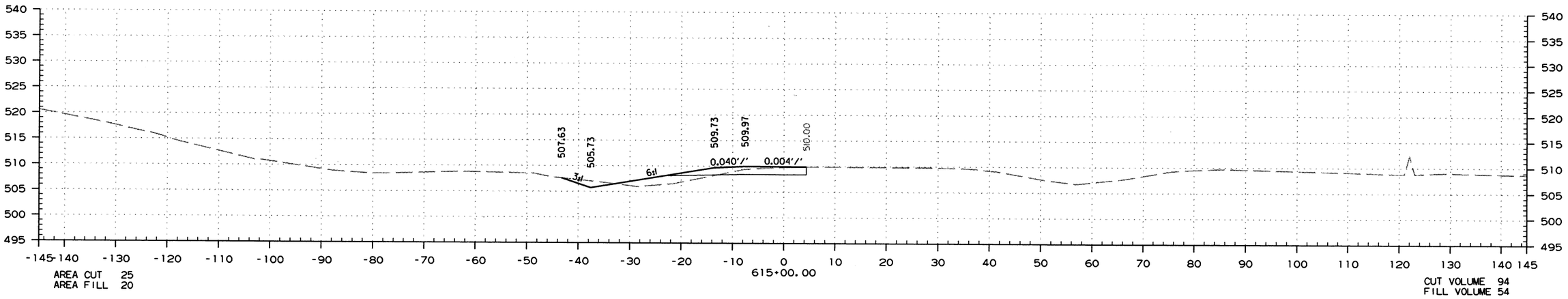
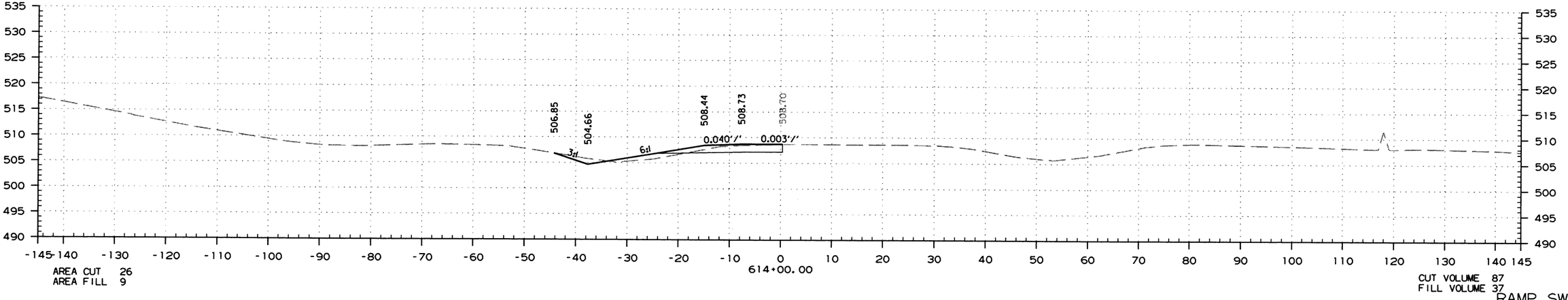
				JOB NO.		R60140	606	616

(2) CROSS SECTIONS





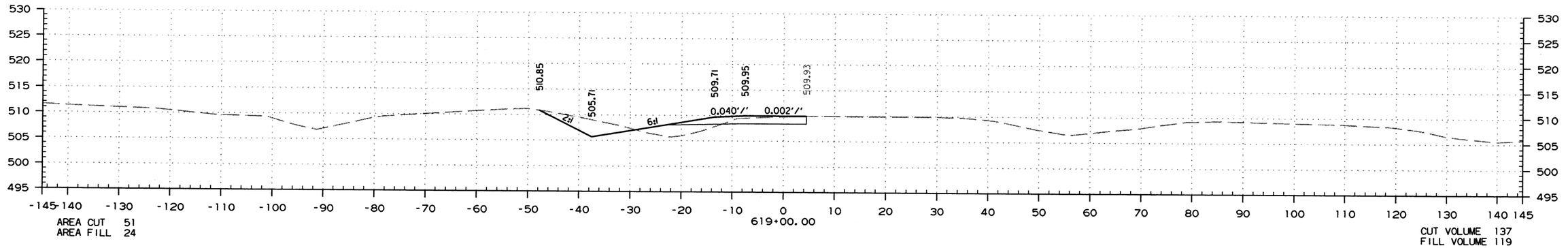


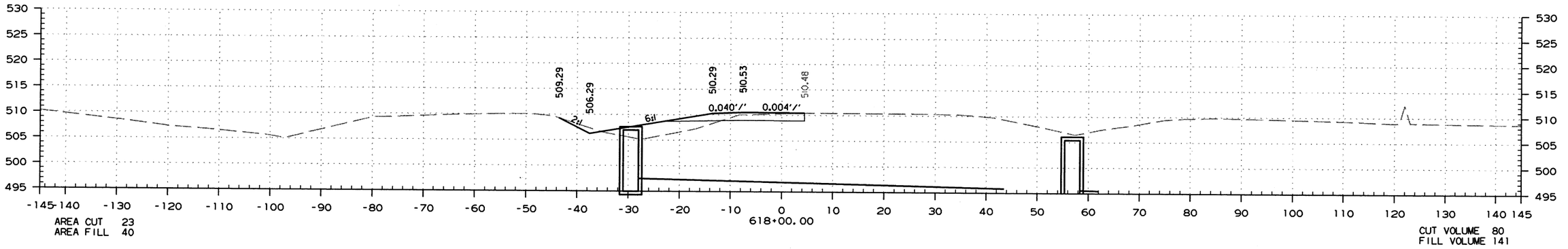
RAMP SW
STA. 614+00.00 TO STA. 616+00.00

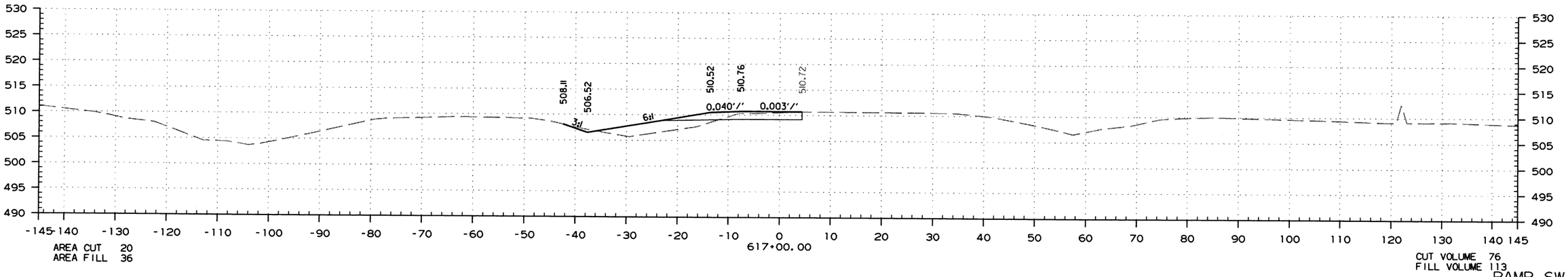
lc38019 8/15/2019
RR60140.DGN

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.		R60140	607	616

(2) CROSS SECTIONS







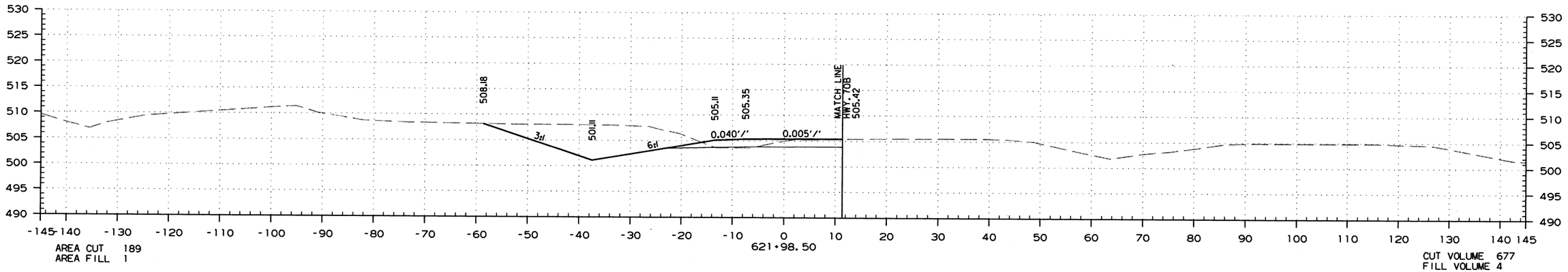
RAMP SW

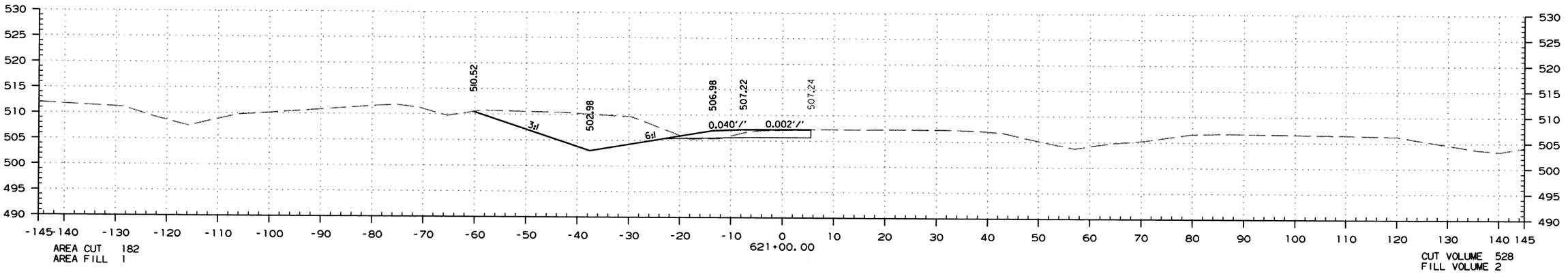
STA. 617+00.00 TO STA. 619+00.00

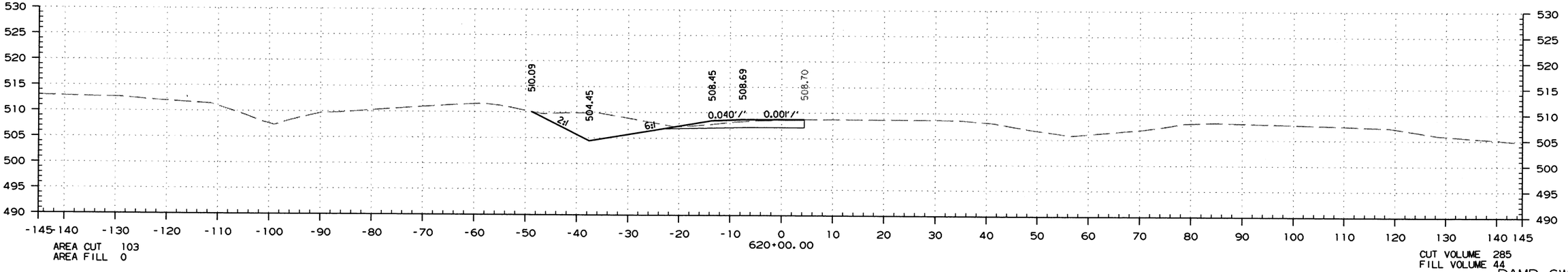
lc38019 8/15/2019
RR60140.DGN

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.		R60140	608	61c

(2) CROSS SECTIONS





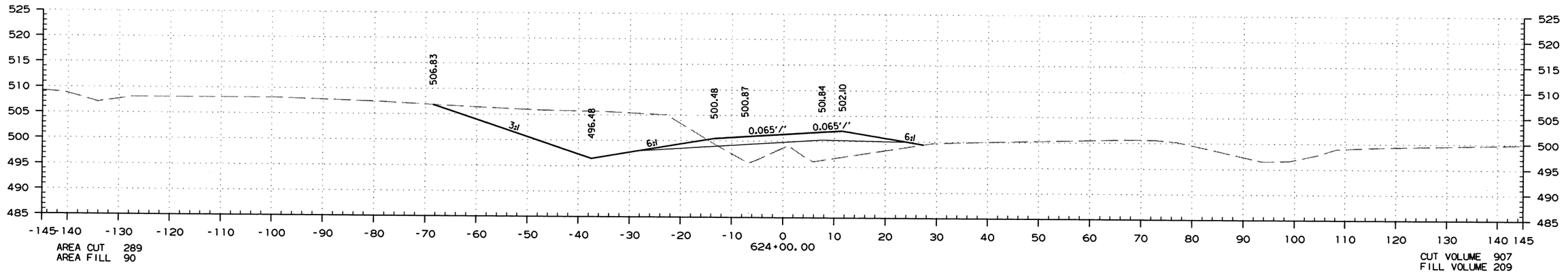


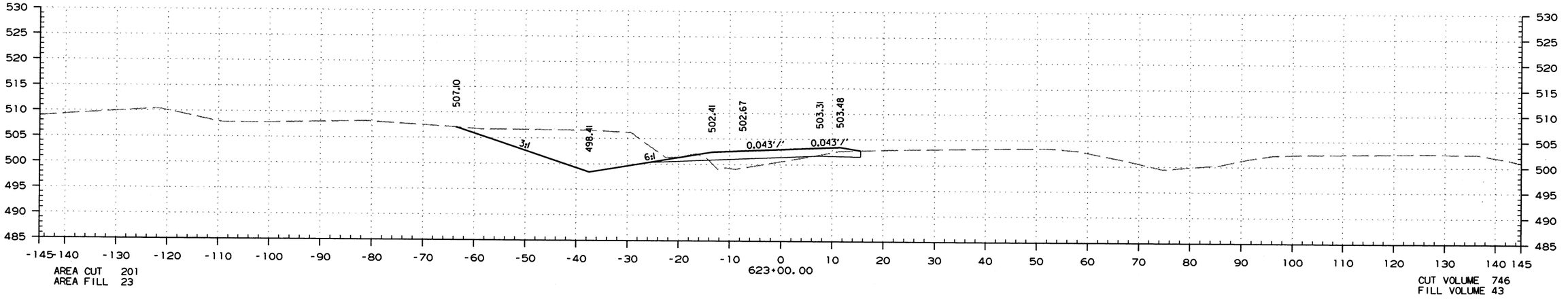
RAMP SW
STA. 620+00.00 TO STA. 621+98.50

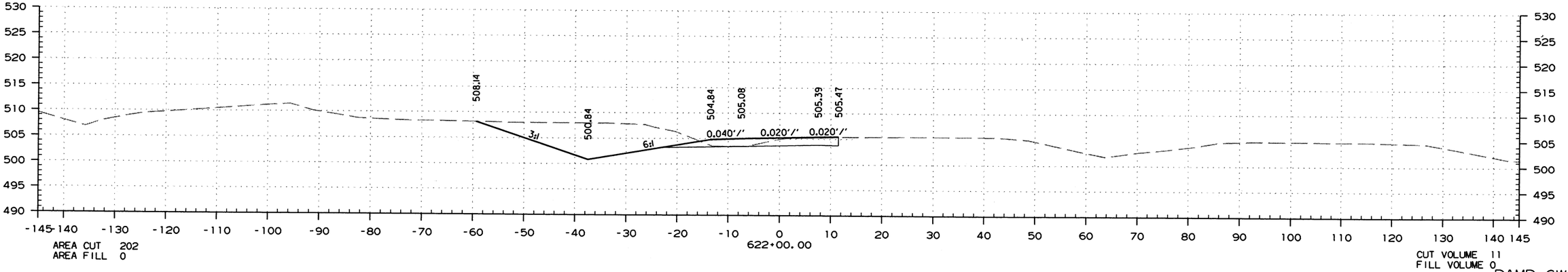
1c38019 8/15/2019
RR60140.DGN

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.		R60140	609	616

(2) CROSS SECTIONS





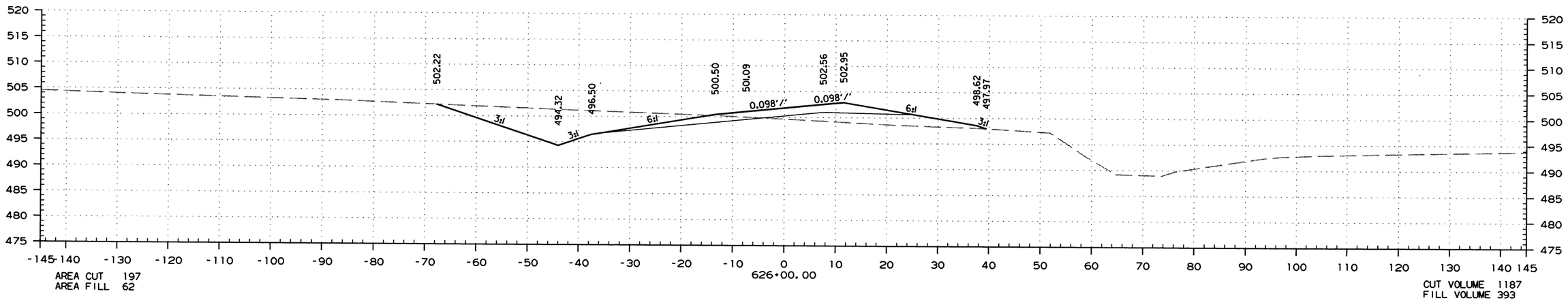


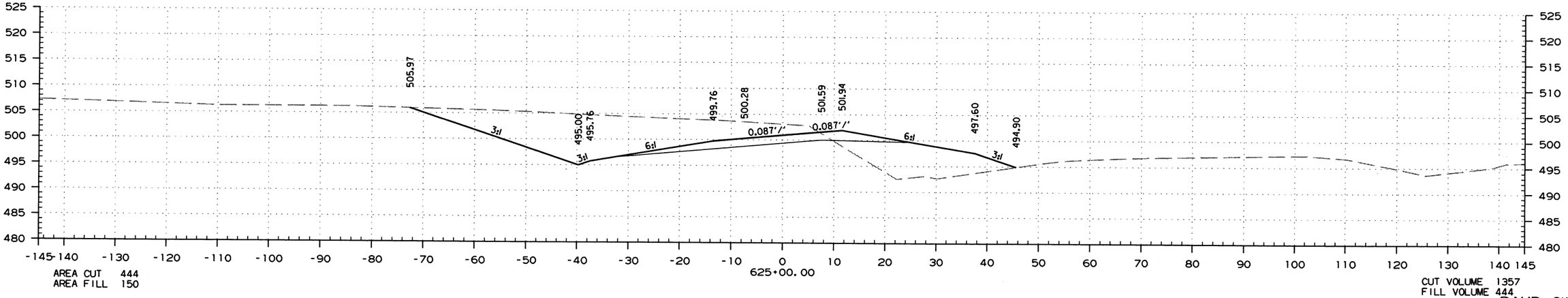
RAMP SW
STA. 622+00.00 TO STA. 624+00.00

lc38019 8/15/2019
RR60140.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.		R60140	610	616

(2) CROSS SECTIONS



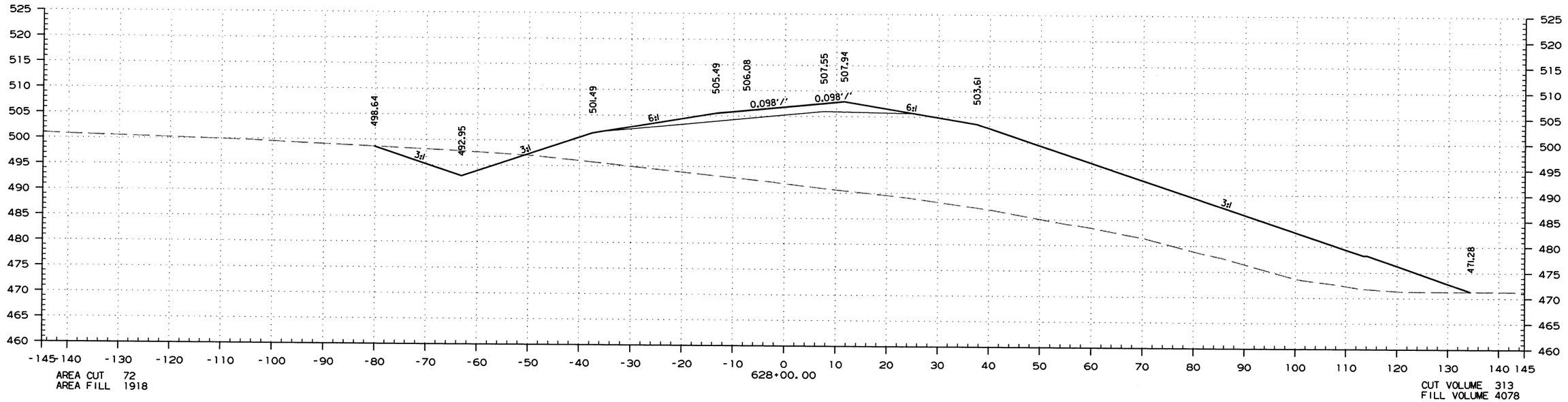


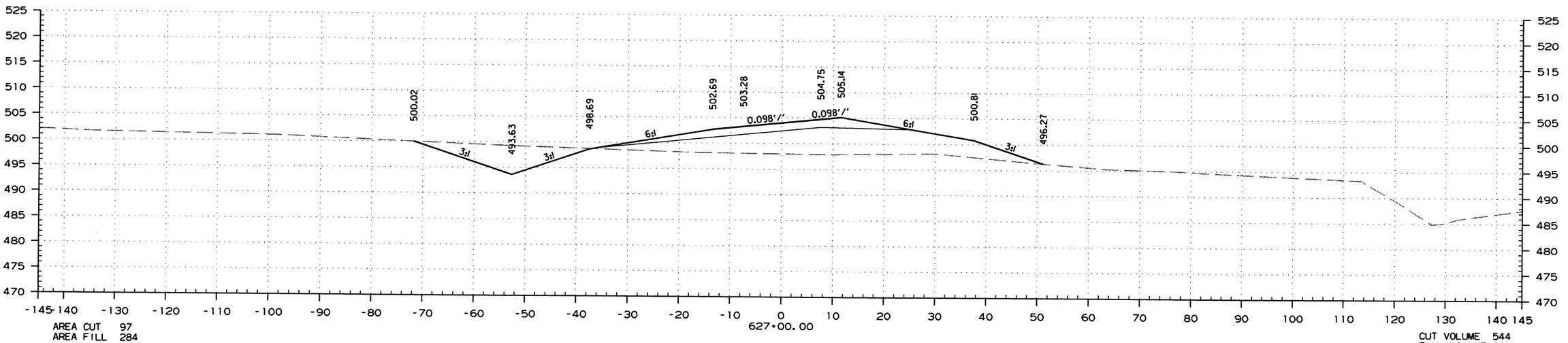
RAMP SW
STA. 625+00.00 TO STA. 626+00.00

lc38019 8/15/2019
RR60140.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.		R60140	611	616

(2) CROSS SECTIONS



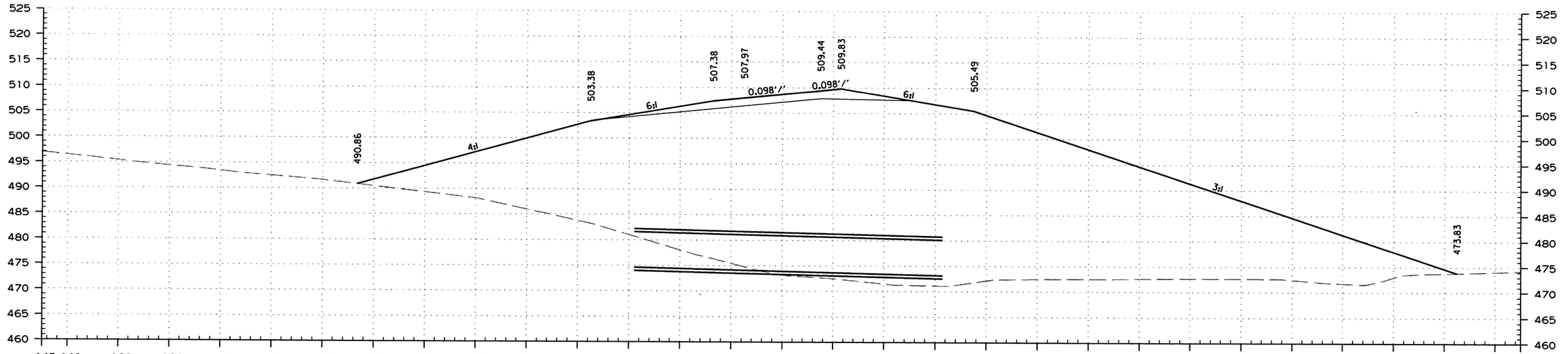


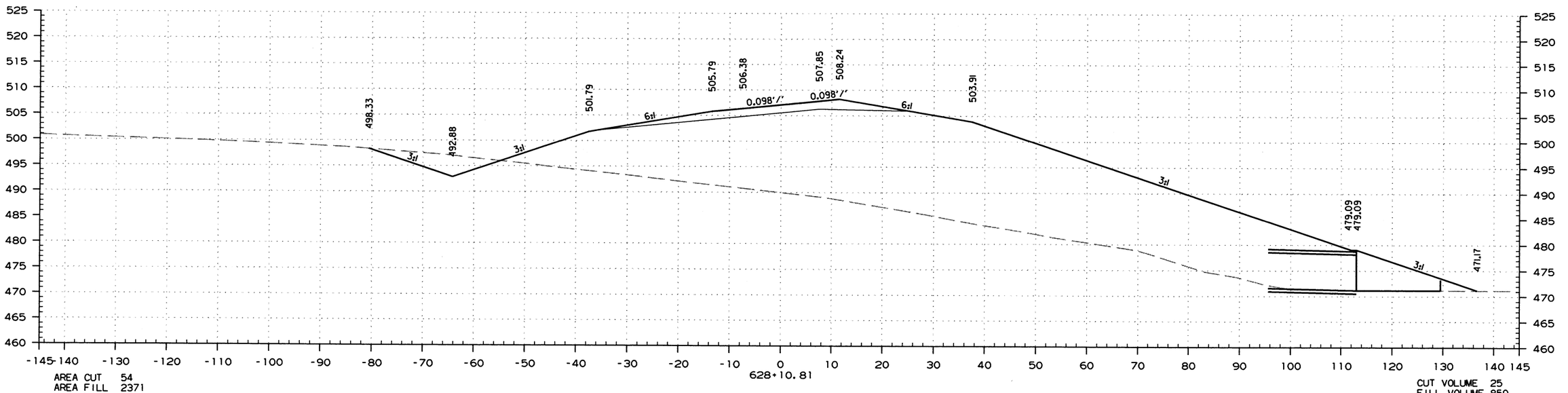
RAMP SW
STA. 627+00.00 TO STA. 628+00.00

lc38019 8/15/2019
RR60140.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.		R60140	612	616

(2) CROSS SECTIONS



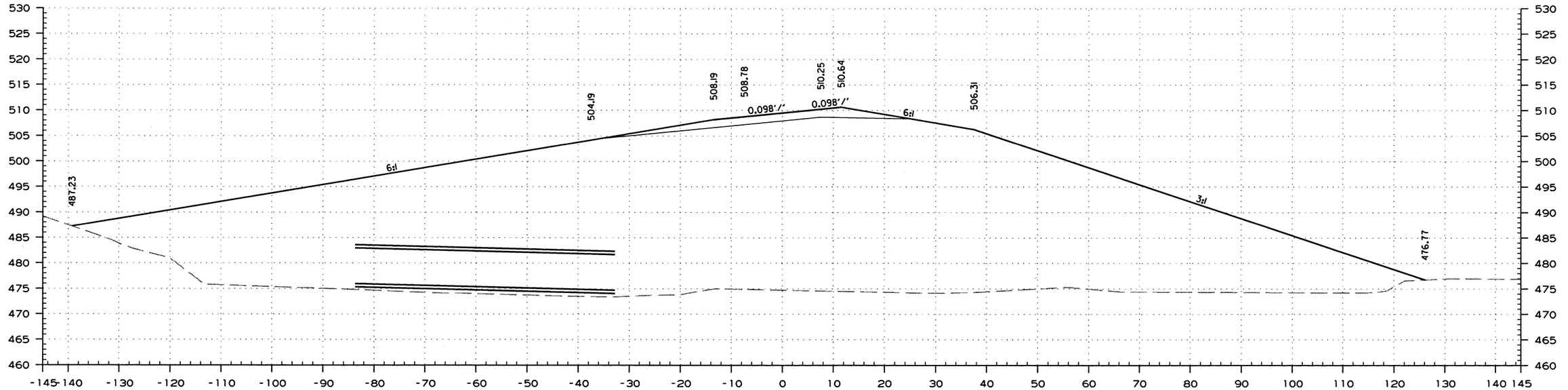


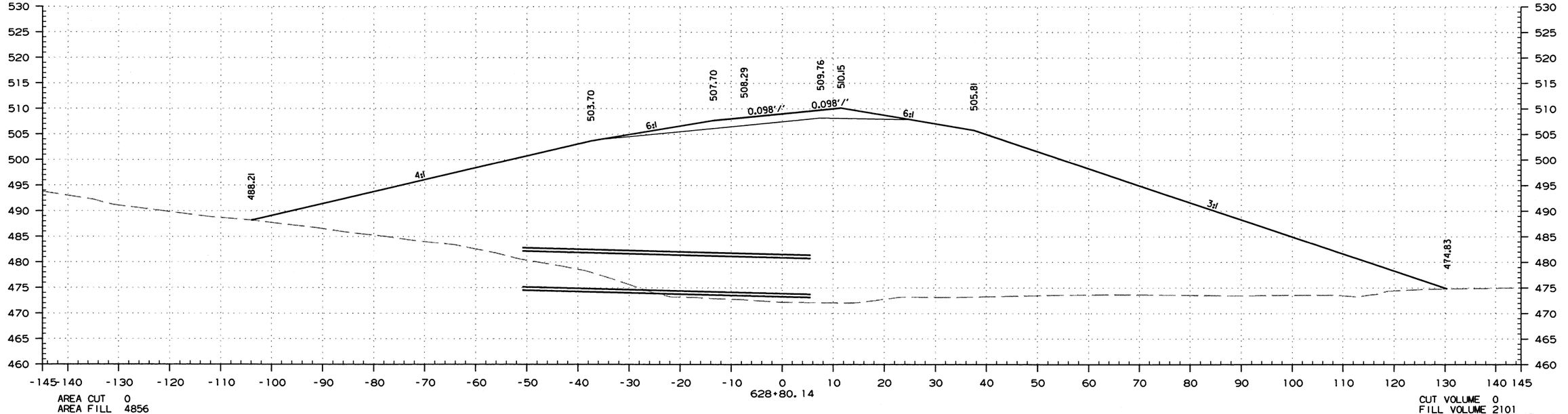
RAMP SW
STA. 628+10.81 TO STA. 628+67.90

lc38019 8/15/2019
RR60140.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.		R60140	613	616

(2) CROSS SECTIONS





RAMP SW
STA. 628+80.14 TO STA. 629+00.00

tc38019 8/15/2019
RR60140.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.		R60140	614	616

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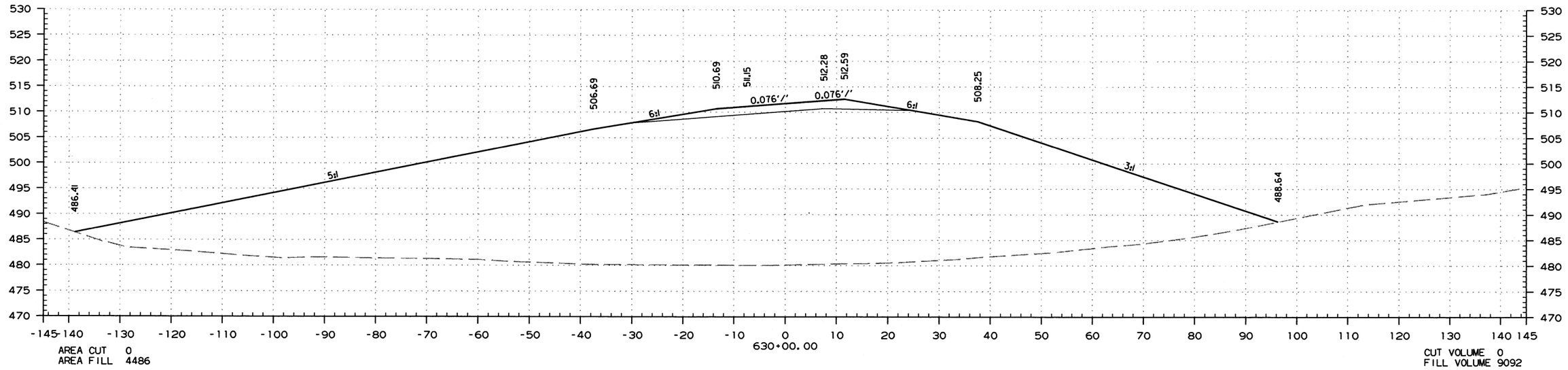
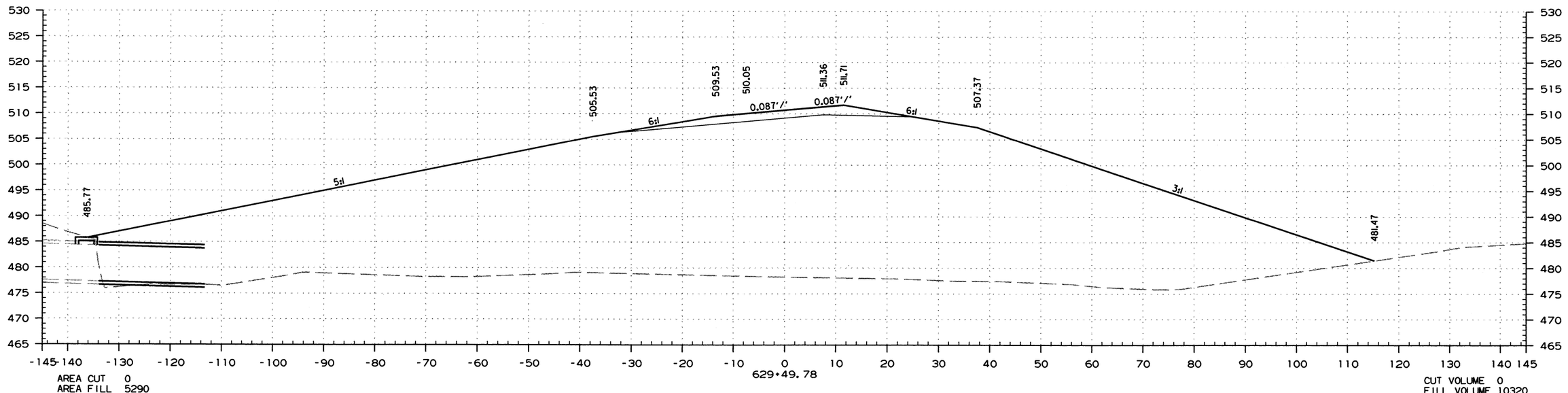


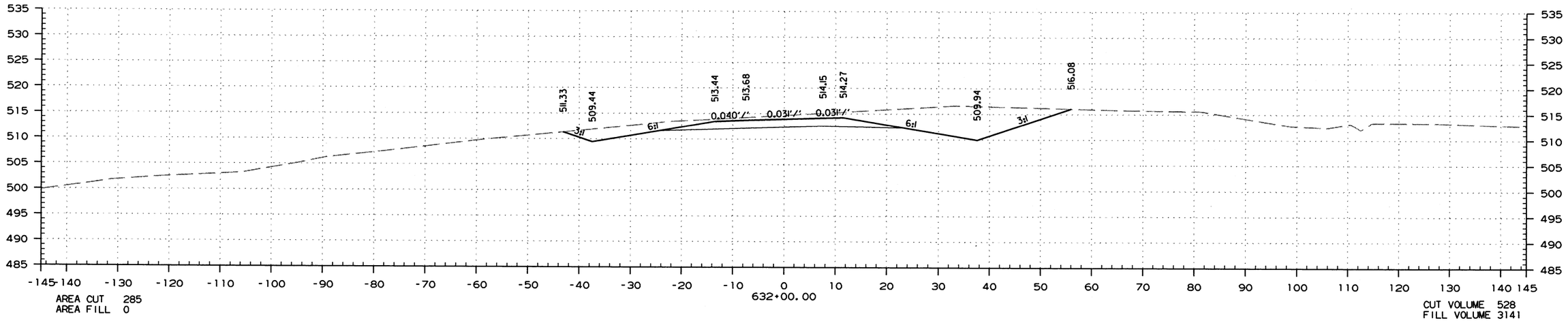


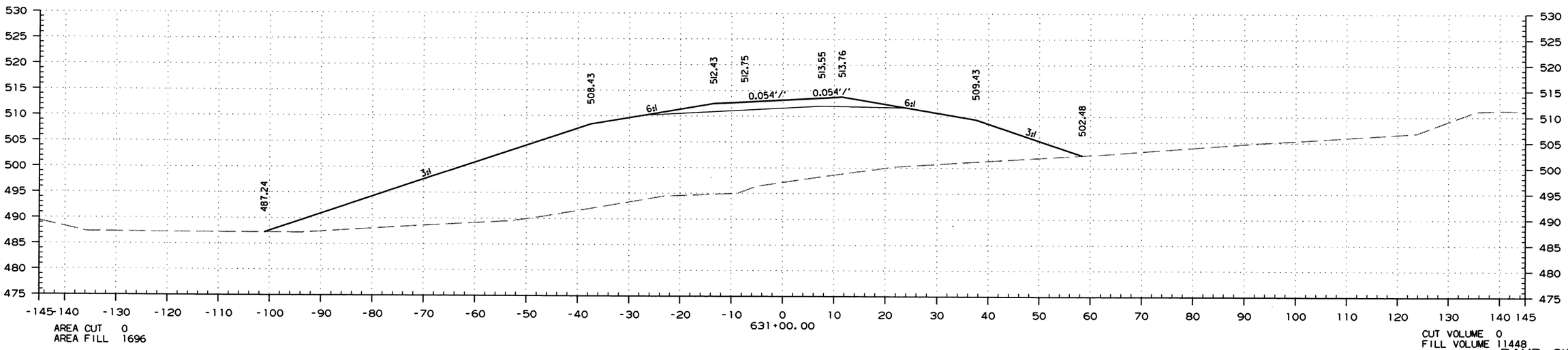
RAMP SW
STA. 629+49.78 TO STA. 630+00.00

lc38019 8/15/2019
RR60140.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.		R60140	615	616

(2) CROSS SECTIONS





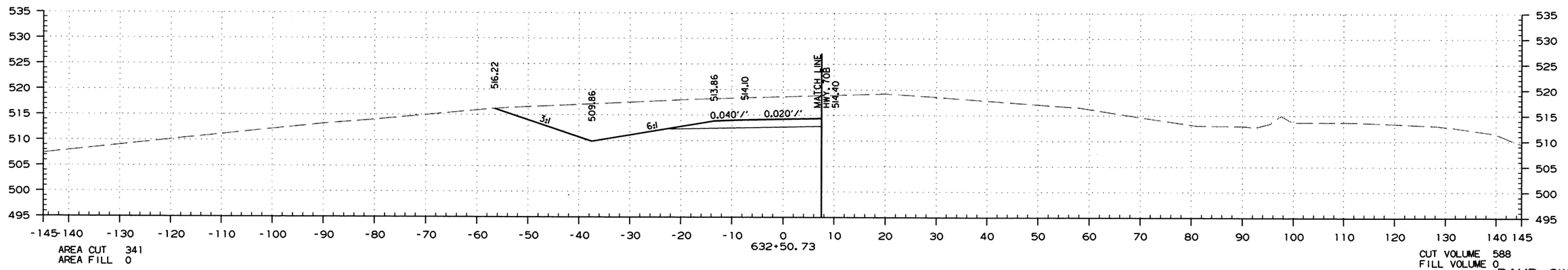
RAMP SW

STA. 631+00.00 TO STA. 632+00.00

lc38019 8/15/2019
RR60140.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.		R60140	616	616

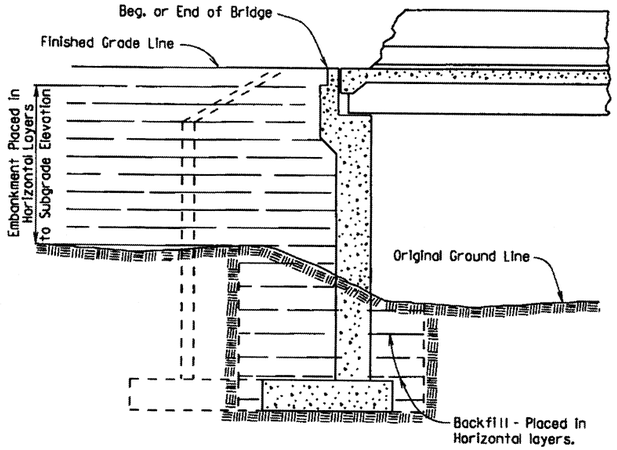
(2) CROSS SECTIONS



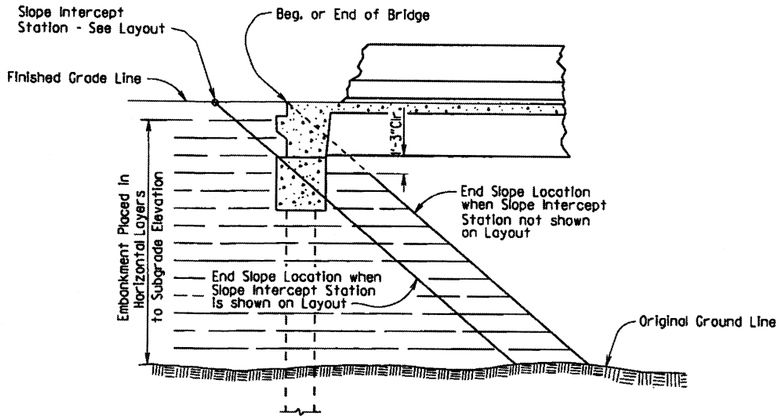
RAMP SW
STA. 632+50.73 TO STA. 632+50.73

lc38019 8/15/2019
RR60140.DGN

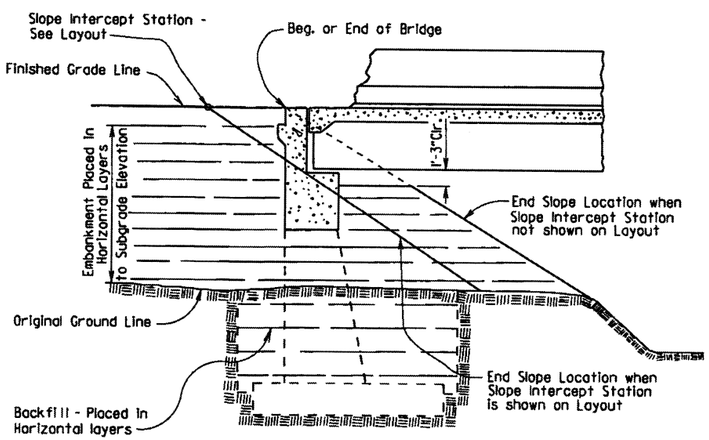
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	EMBANKMENT & BACKFILL	55000		



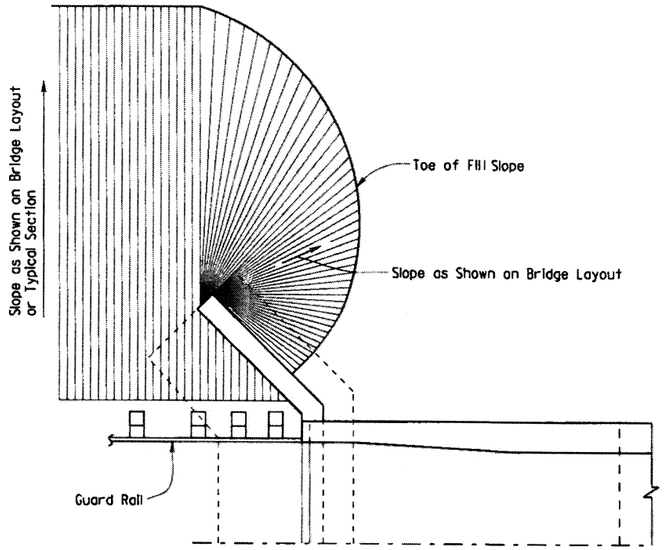
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



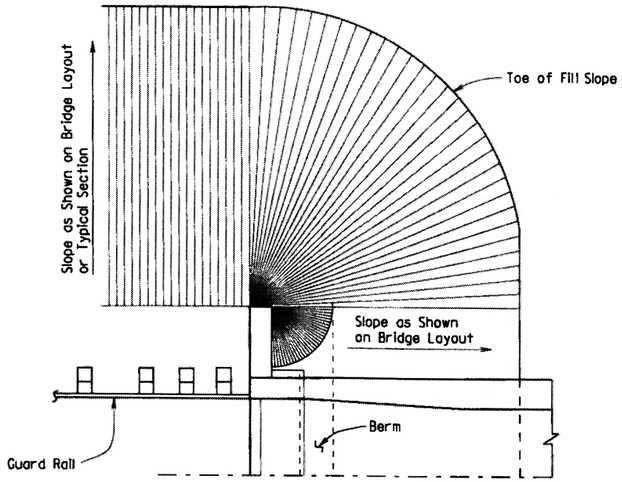
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



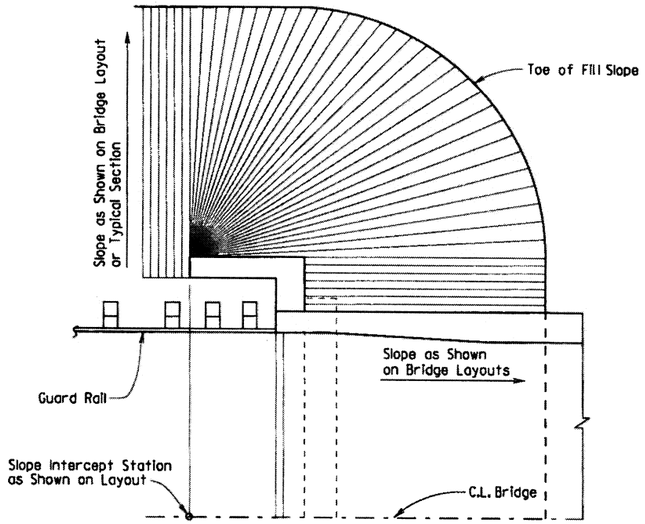
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



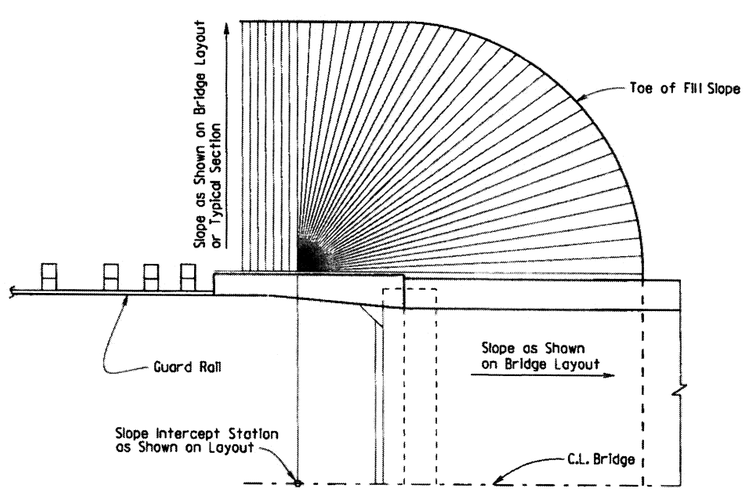
VERTICAL WALL ABUTMENTS



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

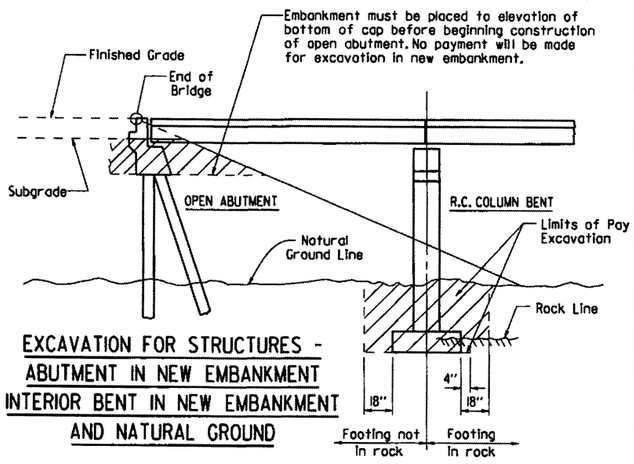
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014
CHECKED BY: BEF DATE: 2-27-2014
DESIGNED BY: STD. DATE: -
FILENAME: b55000.dgn
SCALE: NO SCALE

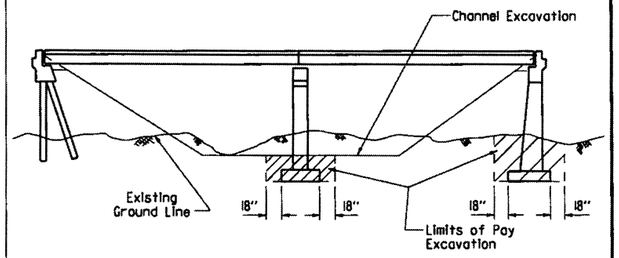
DRAWING NO. 55000

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.				

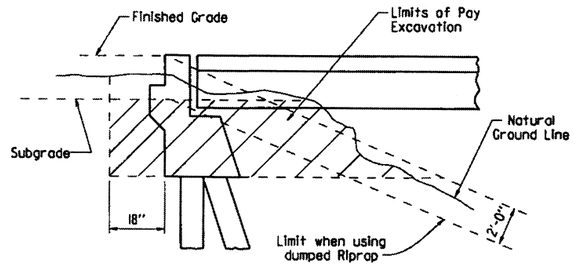
1 RIPRAP & EXCAV. 55001



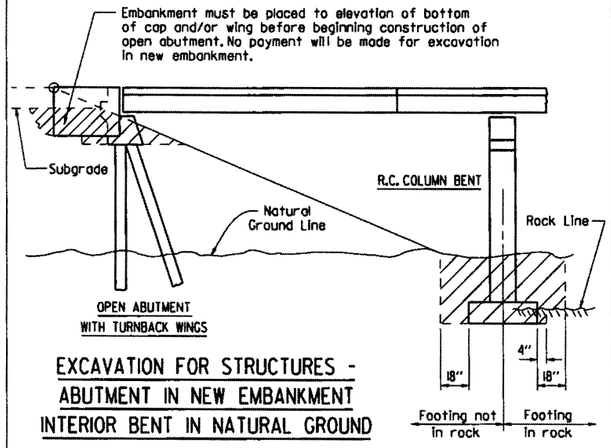
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



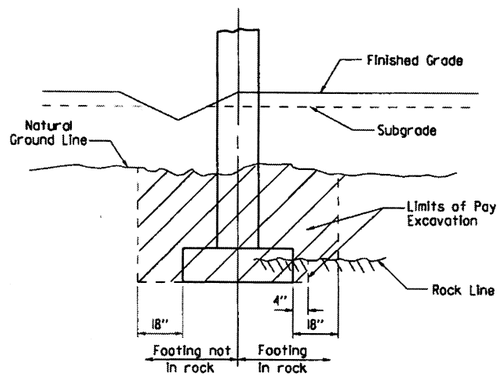
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



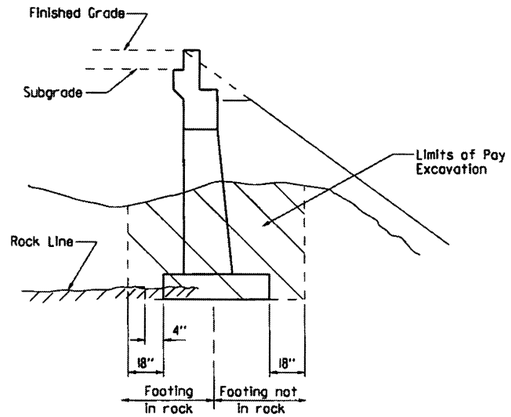
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



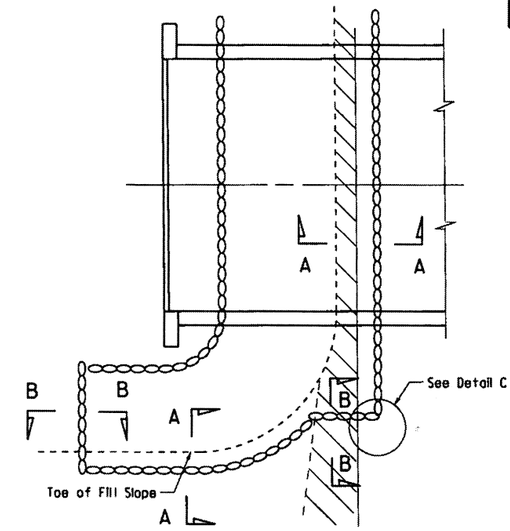
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



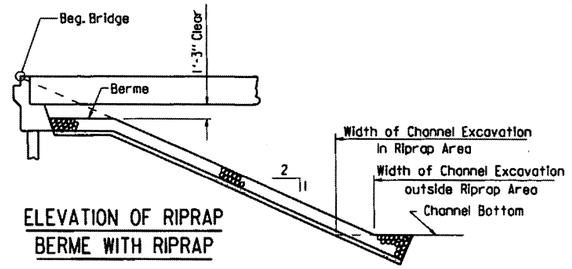
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



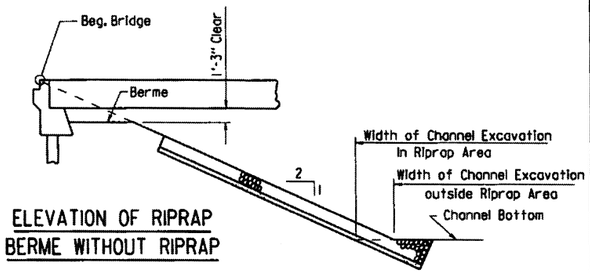
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



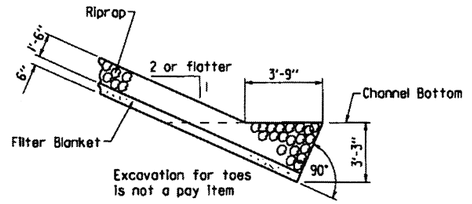
PLAN OF DUMPED RIPRAP



ELEVATION OF RIPRAP BERME WITH RIPRAP



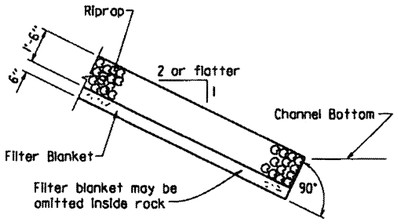
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION A-A

(Toe Excavation in Soil)

SECTION B-B



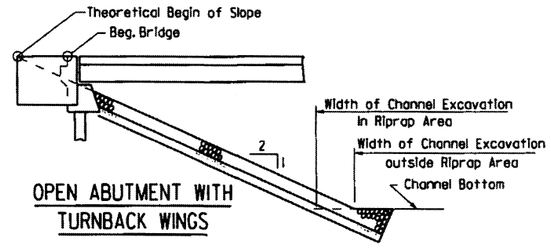
SECTION A-A

(Toe Excavation in Rock)

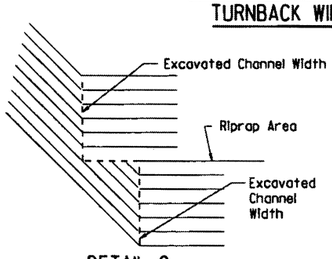
Note : Use this type of toe when rock is encountered which is in a stable condition.

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: b55001.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

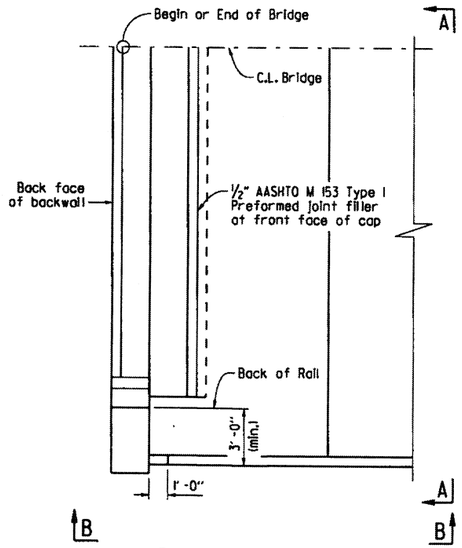
DESIGNED BY: STD. DATE:

DRAWING NO. 55001

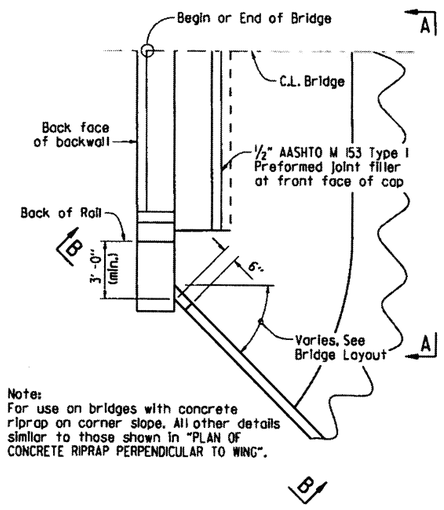
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

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.



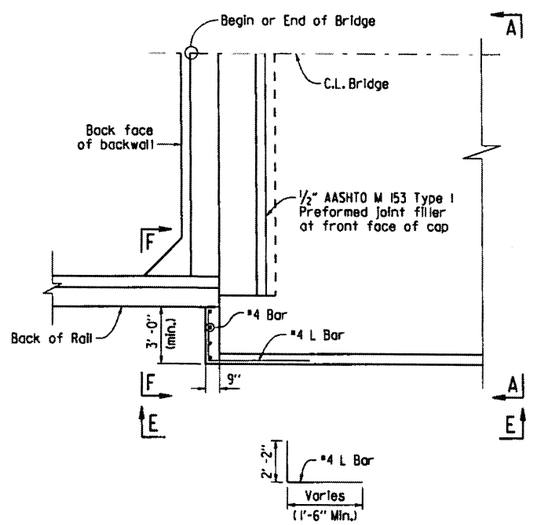
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO WING
¼" = 1'-0"



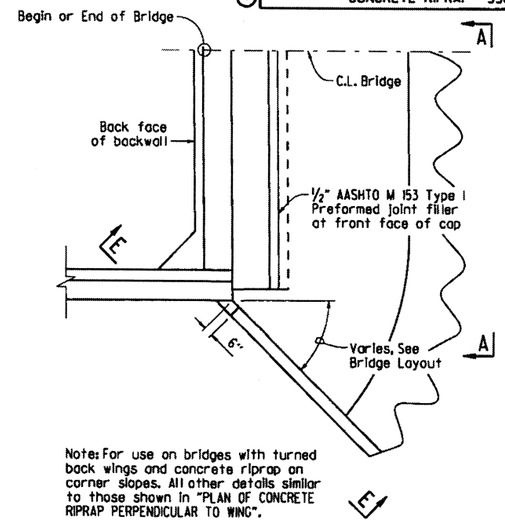
Note:
For use on bridges with concrete riprap on corner slope. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

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".



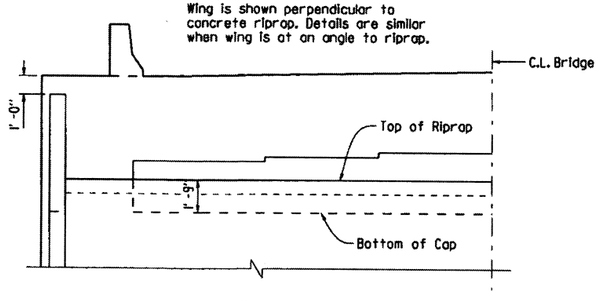
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO TURNED BACK WING
¼" = 1'-0"



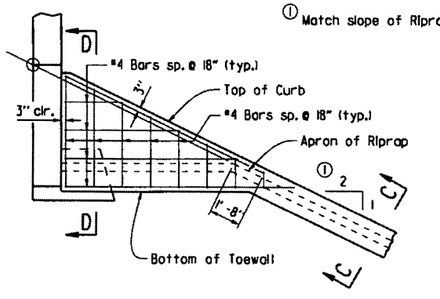
Note: For use on bridges with turned back wings and concrete riprap on corner slopes. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

PLAN OF CONCRETE RIPRAP
AT ANGLE FROM TURNED BACK WING
¼" = 1'-0"

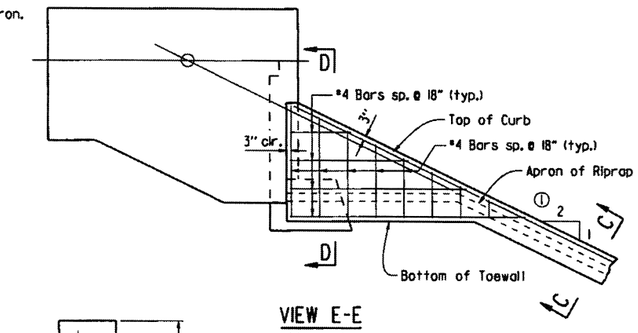
Note:
Wing is shown perpendicular to concrete riprap. Details are similar when wing is at an angle to riprap.



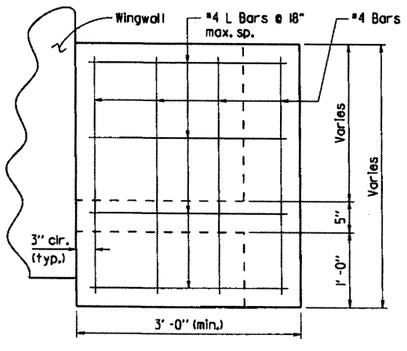
VIEW A-A
¼" = 1'-0"



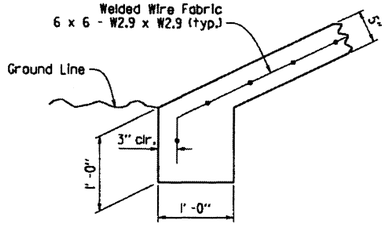
VIEW B-B
¼" = 1'-0"



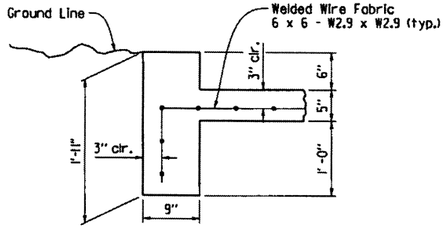
VIEW E-E
¼" = 1'-0"



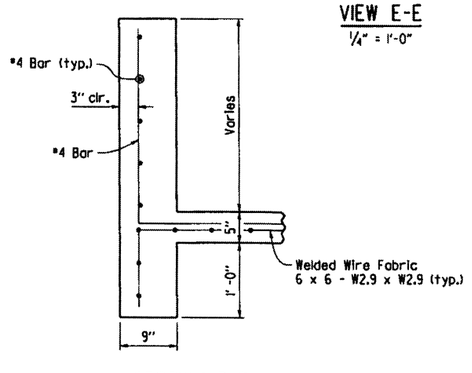
VIEW F-F
1" = 1'-0"



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

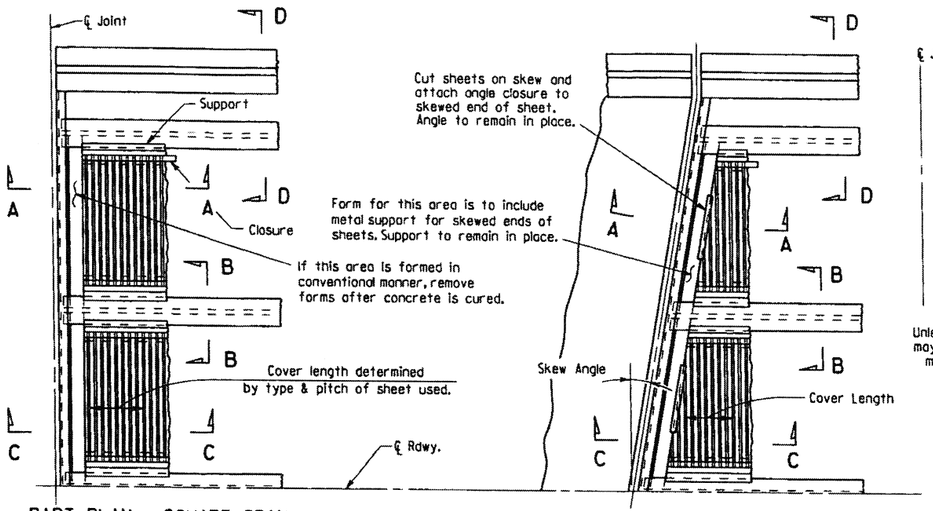
LITTLE ROCK, ARK.

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

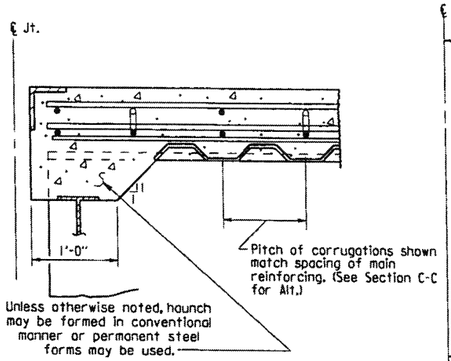


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

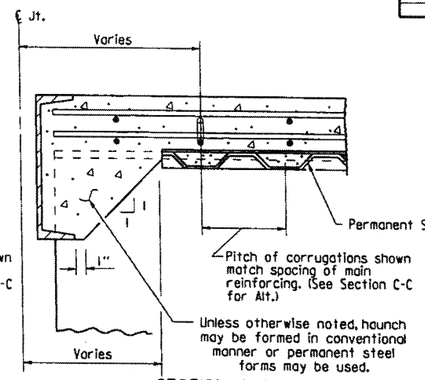
3/8" = 1'-0"



SECTION A-A

N.T.S.

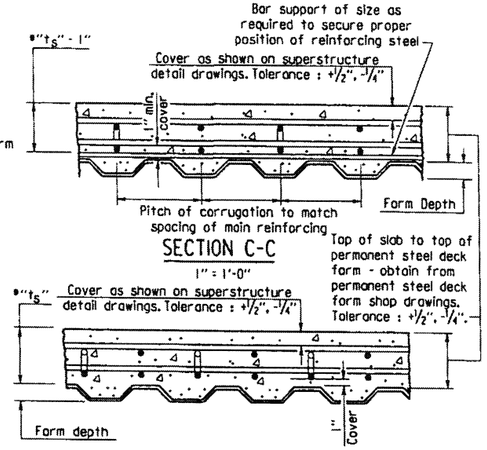
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



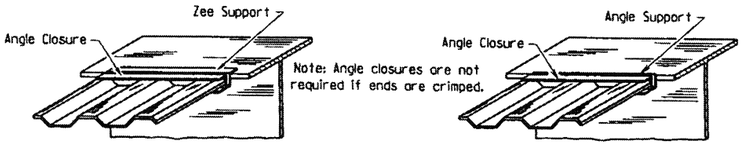
SECTION C-C

1" = 1'-0"

SECTION C-C - ALTERNATE

1" = 1'-0"

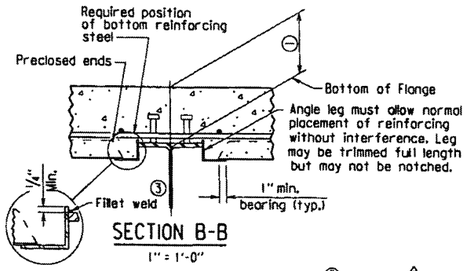
(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

*t_s = slab thickness as shown on superstructure detail drawings.

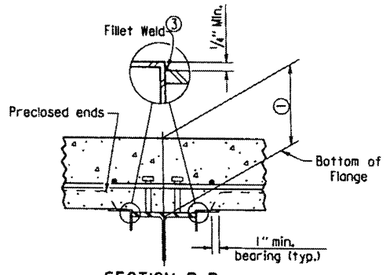


SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

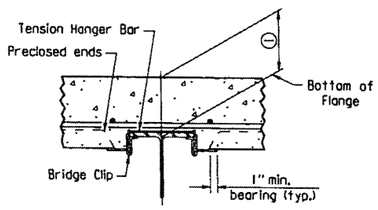
③ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

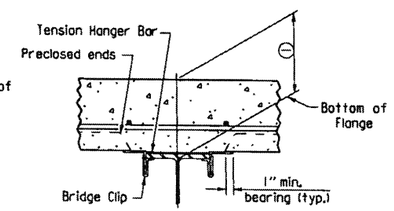
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

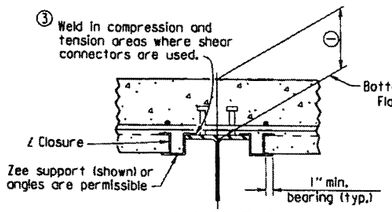
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

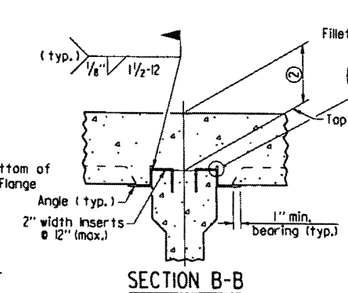
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

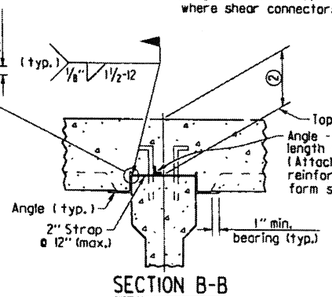


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)

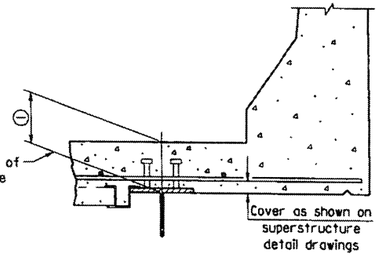


SECTION B-B

(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.

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.

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 15/16 " ø if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

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.

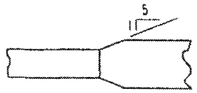
DRAWN BY: A.M.S. DATE: 9-2-2015 FILENAME: b55006.dgn
CHECKED BY: B.E.F. DATE: 9-2-2015 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

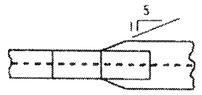
DRAWING NO. 55006

PRINT DATE: 9/21/2015

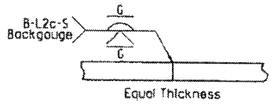
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

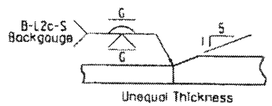
① STEEL BRIDGE STRUCTURES 55007



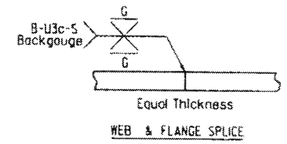


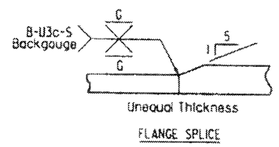
FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS





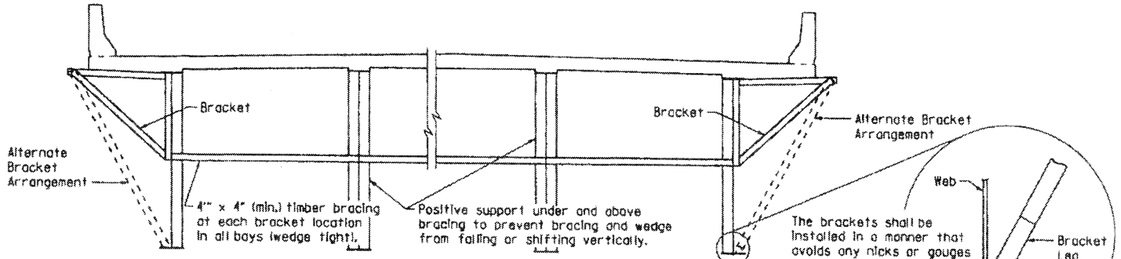
(Use when Base Metal Thickness is Equal to or Less than 2")





(Use when Base Metal Thickness is Greater than 2")

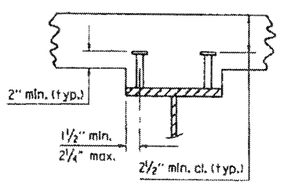
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



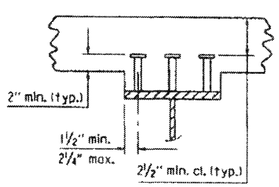
Note:
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the 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

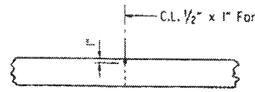
Stud Shear Connectors shall be automatically end welded to the beam or girder flange in accordance with the recommendations of the Manufacturer. See plan details for number and size.

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.

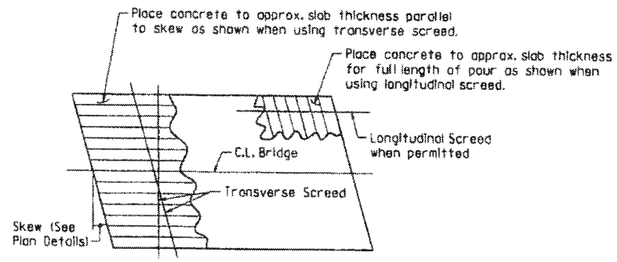
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck slab from gutterline to gutterline and across 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



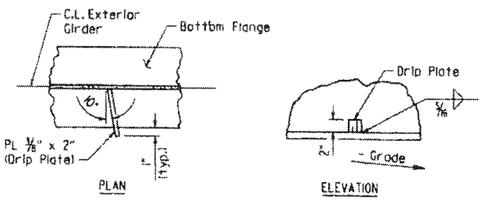
Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

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



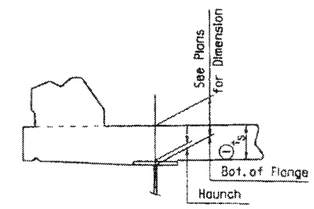
Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

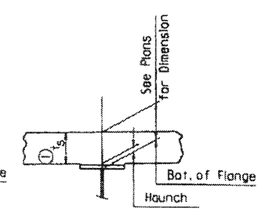
Locate drip plate 5'-0" from C.L. Bearing on high side of each Bent, unless otherwise noted in the plans.

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.



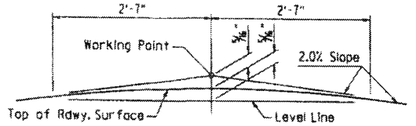


① Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

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"	5/16"	

NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.

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.

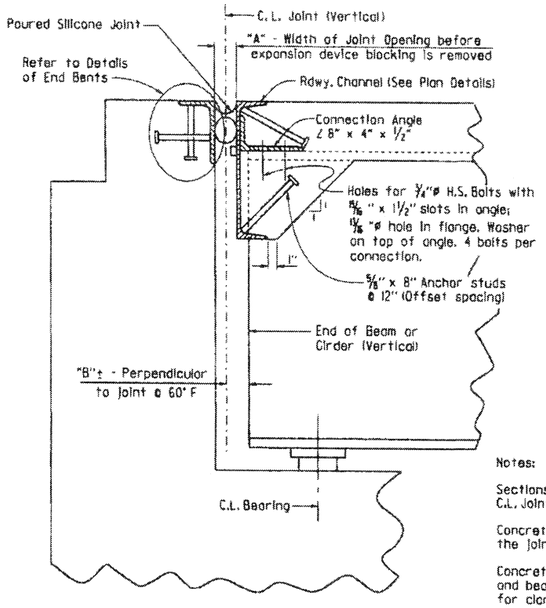
STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

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.				
				POURED SILICONE JOINT			55008	



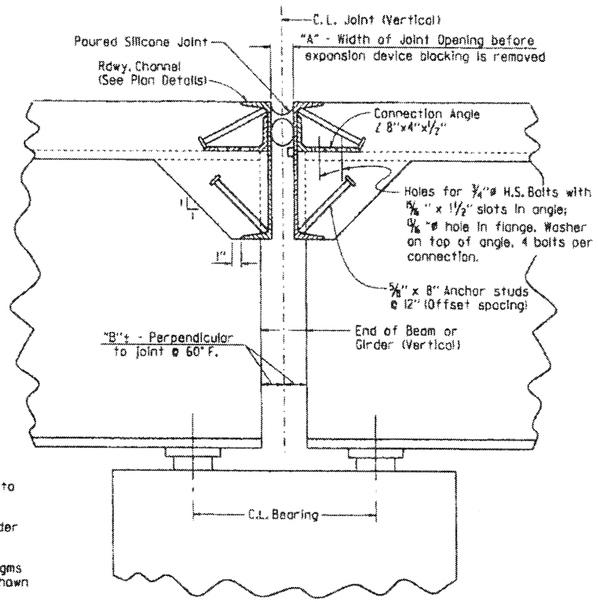
Notes:

Sections are taken perpendicular to C.L. Joint.

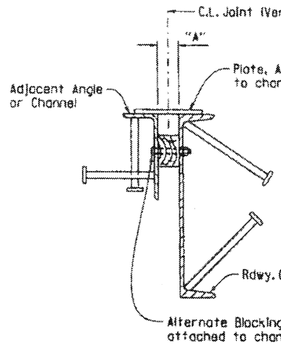
Concrete shall be hand packed under the joint armor.

Concrete diaphragms, steel diaphragms and bearing stiffeners are not shown for clarity. See plans for details.

SECTION THRU JOINT AT END BENT



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:

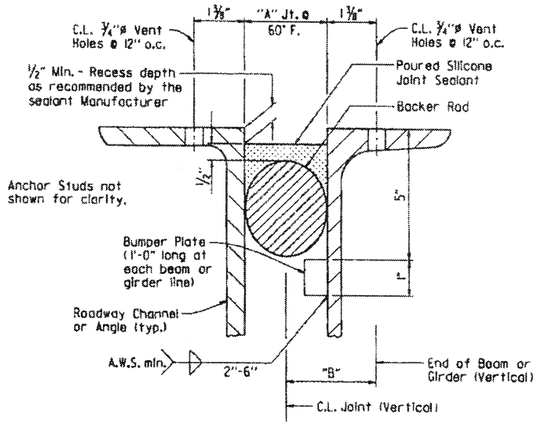
1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams or girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior 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.



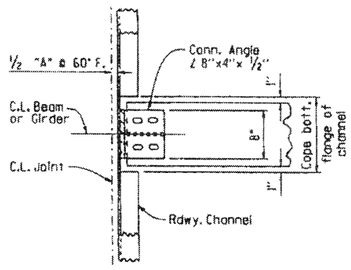
DETAIL OF POURED SILICONE JOINT

Silicone joint material and installation shall conform to Section 805. 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.

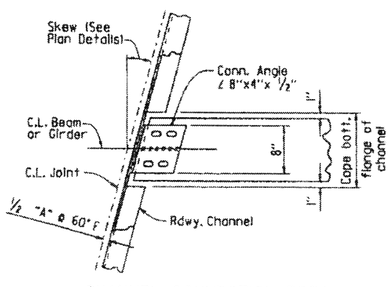
The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.

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.



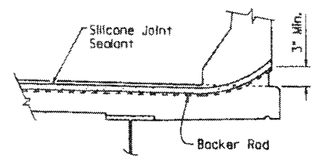
CHANNEL CONNECTION DETAIL

BENTS WITHOUT SKEW

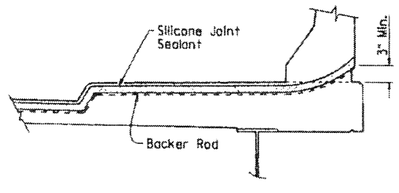


CHANNEL CONNECTION DETAIL

BENTS WITH SKEW



JOINT SEAL PLACEMENT AT RAIL



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

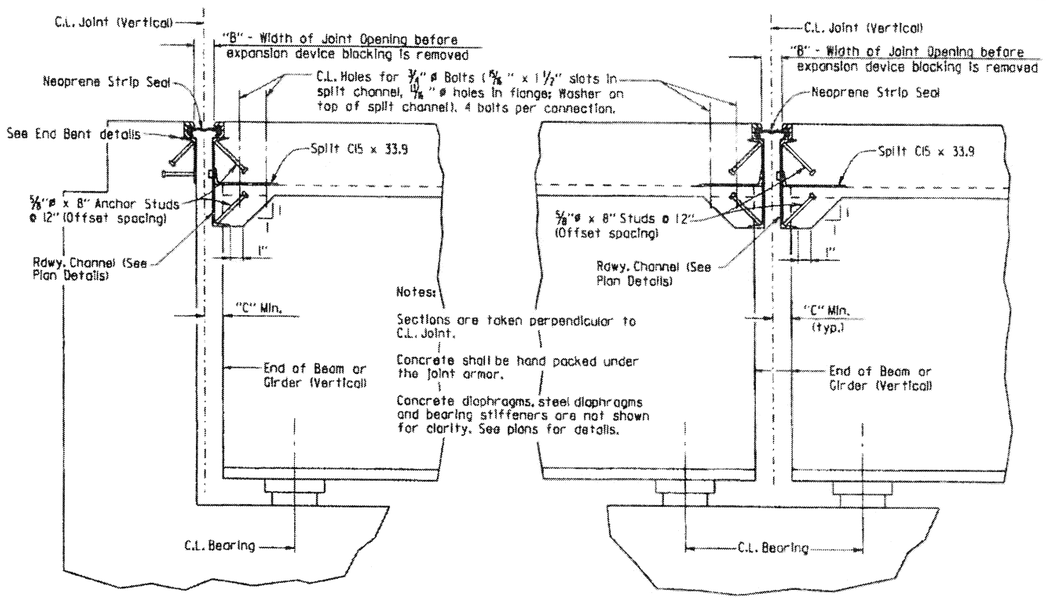
LITTLE ROCK, ARK.

DRAWN BY: A.C.P. DATE: 2/11/2016 FILENAME: 655008.dgn

CHECKED BY: A.M.S. DATE: 2/11/2016 SCALE: No Scale

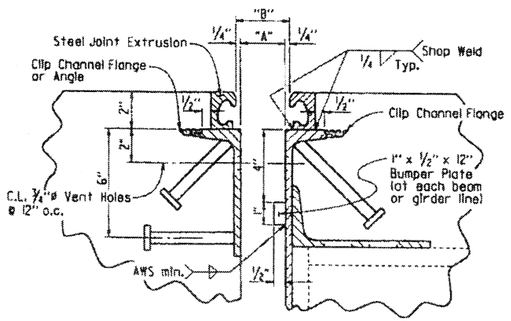
DESIGNED BY: STD. DATE: —

DRAWING NO. 55008



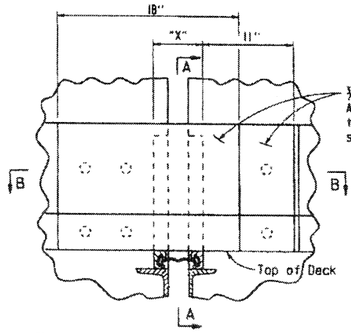
SECTION THRU JOINT AT END BENT

SECTION THRU JOINT AT INTERMEDIATE BENT



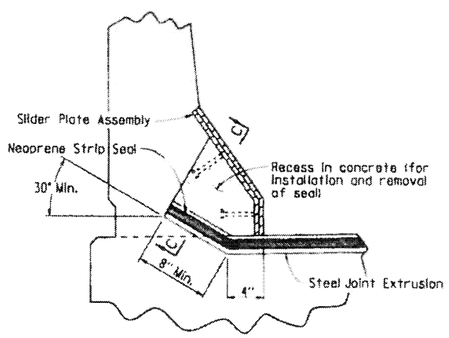
DETAIL OF STRIP SEAL JOINT

Detail shown at End Bent, Details similar at Intermediate Bent



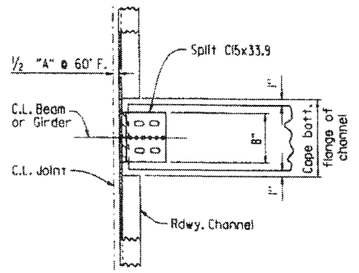
Dimension "X" equals the width of opening in parapet to allow for removal or repair of joint.

DETAIL OF PARAPET SLIDER PLATES



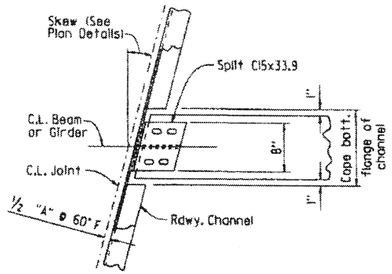
Details of joint turn-up in parapet are general and show basic design controls only. See plan details for joint installation at sidewalks.

SECTION A-A



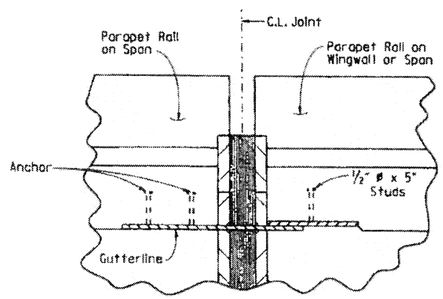
CHANNEL CONNECTION DETAIL

BENTS WITHOUT SKEW



CHANNEL CONNECTION DETAIL

BENTS WITH SKEW

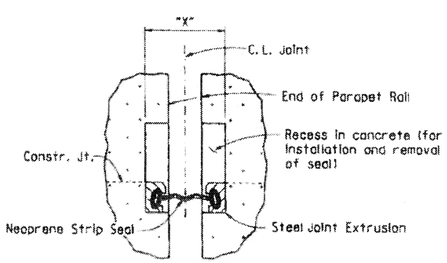


The method of attachment of the slider plate assembly shall allow for removal to provide for future replacement of the neoprene seal. Anchors shall not be paid for directly, but shall be considered subsidiary to the item "Armored Joint with Neoprene Strip Seal".

Method of installation and fabrication shall be determined by the Manufacturer.

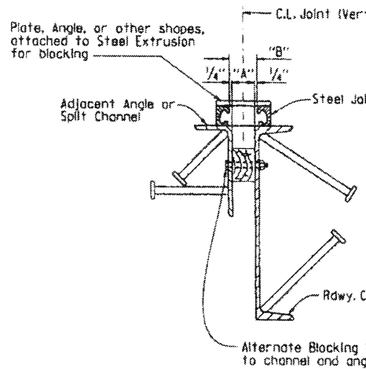
SECTION B-B

BENTS WITHOUT SKEW SHOWN



SECTION C-C

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				STRIP SEAL JOINT				55009



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.

GENERAL NOTES FOR NEOPRENE STRIP SEAL JOINTS:

The steel extrusion and neoprene strip seal material and installation shall be in accordance with Section 809.

The expansion device shall provide for the movement rating(s) shown in the "TABLE OF STRIP SEAL JOINT DATA" in the plan details. The expansion joint shall be capable of sealing the deck surface and parapet area to prevent moisture and other contaminants from descending through the joint.

Details of proposed slider plate assembly shall be submitted to the Engineer for approval prior to the fabrication of any structural steel at the expansion device.

All structural steel shall conform to AASHTO M 270, Grade 50W and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). The parapet slider plates and structural steel completely embedded in concrete shall conform to AASHTO M 270, Grade 36, 50 or 50W steel. Unless otherwise noted in the plans, all exposed surfaces of the parapet slider plates shall be cleaned and painted in accordance with Section 638. Painting shall not be paid for directly and structural steel completely embedded in concrete need not be painted. Payment for structural steel shall be as specified in the plans.

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 STRIP SEAL JOINT DATA" IN PLAN DETAILS FOR VARIABLES "A", "B", AND "C".

STANDARD DETAILS FOR NEOPRENE STRIP SEAL JOINTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: L.J.B. DATE: 2/11/2016 FILENAME: b55009.dgn
CHECKED BY: A.M.S. DATE: 2/11/2016 SCALE: No Scale
DESIGNED BY: STD. DATE: —

DRAWING NO. 55009

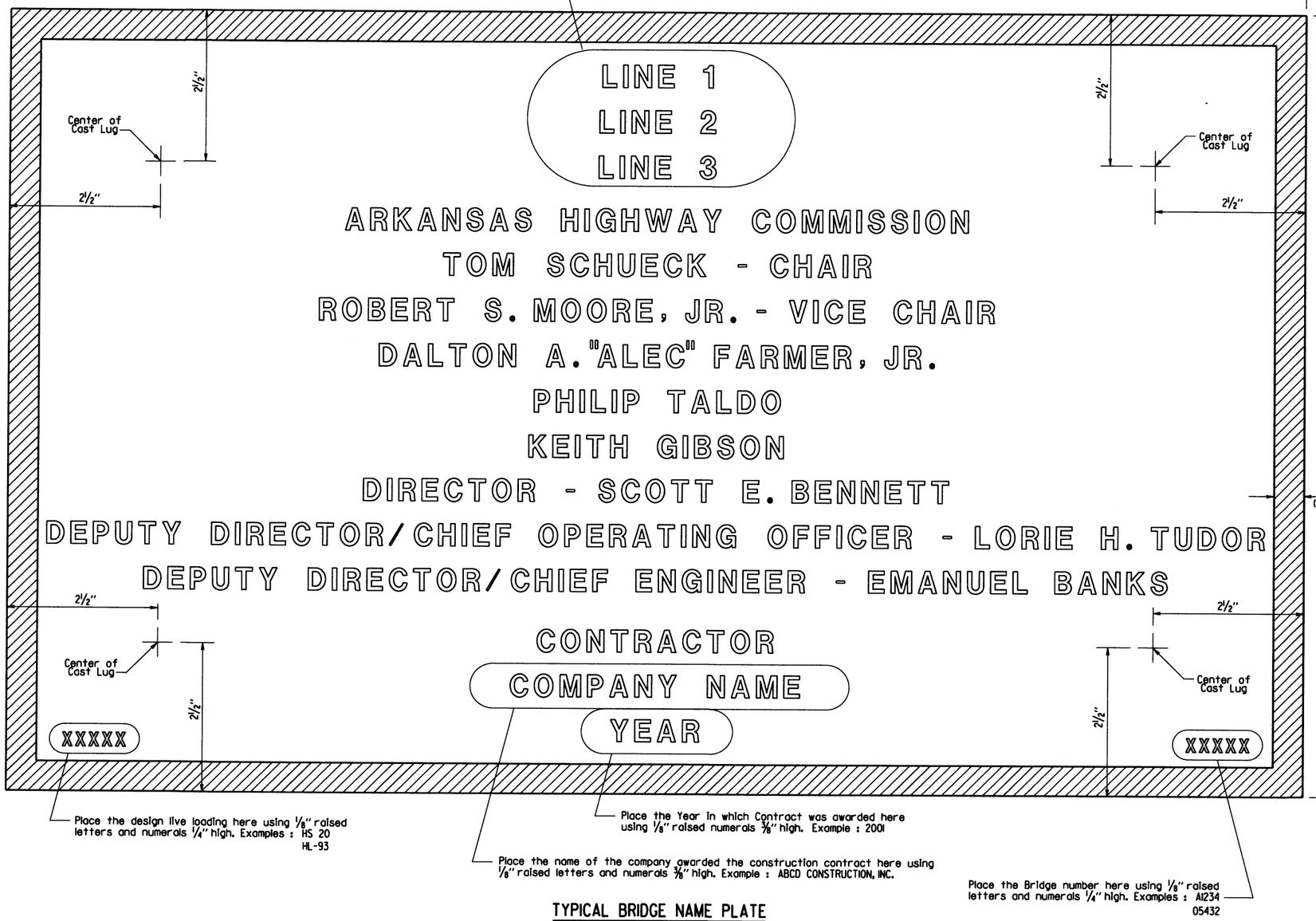
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
12-1-14		1-15-19	
1-14-15			
1-17-17			

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.				

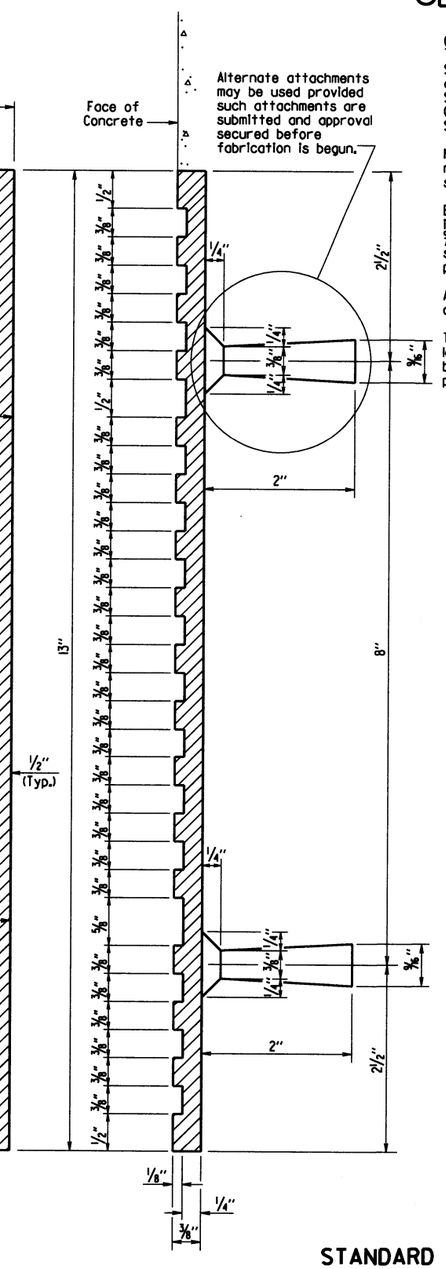
(1) TYPE D NAME PLATE 55010

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	
Line 2	Relief	Railroad	River	Highway 5
Line 3		Overpass	Relief	



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 5/8" 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
3/24/16				6	ARK.			
				JOB NO.				
				①		STEEL H-PILES		55020

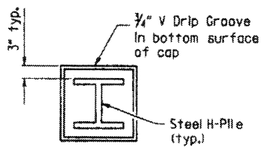
GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.

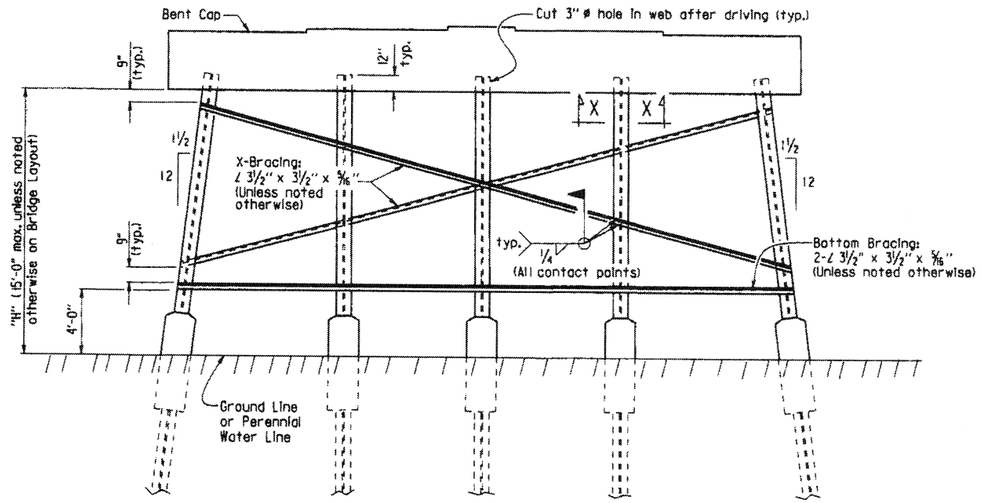
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

Steel H-Piles that extend above the ground and are not protected by pile encasement shall be painted in accordance with Subsection 805.02.

Brackets, lugs, cap plates, pile tips, driving points, pile painting, splicing and welding shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



VIEW X-X



Notes:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under Item 807.

Unless noted otherwise, omit X-Bracing when "H" is less than 8 feet.

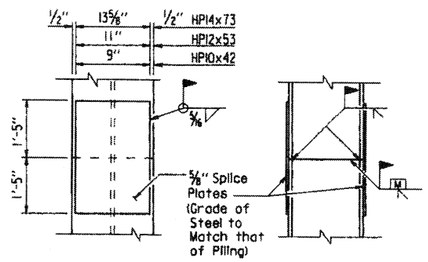
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

When required on the Bridge Layout sheet, pile encasements shall be constructed. See Notes and Details for H-Pile Encasements.

Omit all bracing (and V-groove in cap) when pile encasement is extended to bottom of bent cap.

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)



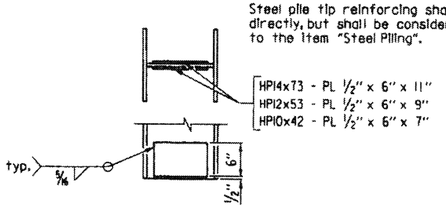
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

⚠ H-pile splicers manufactured by Associated Pile and Fitting Corporation, LB Foster Piling, Skyline Steel or equivalent may be used in lieu of the "Typical Splice Details" shown. H-pile splicers shall match the same grade of steel specified for the piling and shall be welded to the pile with a 5/16" fillet weld around the entire perimeter of the splice. Flanges shall be welded with a complete penetration groove weld complying with AASHTO/AWS Joint Designation B-U4a or B-U4b. All welding shall conform to Subsection 807.26 of the AHTD Standard Specifcations for Highway Construction (2014 Edition).

Notes:
Steel pile tip reinforcing not required when approved H-Pile driving points are used.

Steel pile tip reinforcing shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

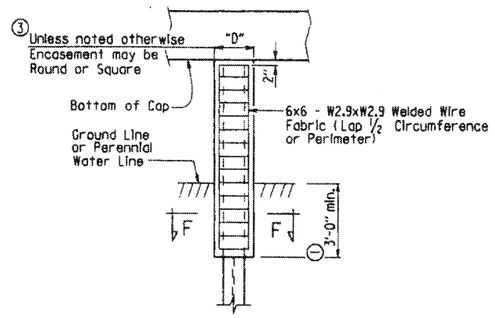
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

All concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

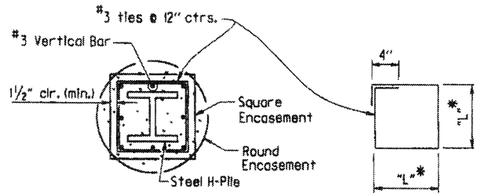
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

Concrete, welded wire fabric or reinforcing steel and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

④ (Shown with Encasement to Bottom of Cap)

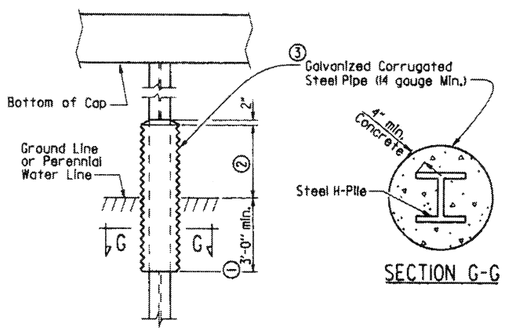


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

Pile Size	"D" Square Encsmt.	"D" Round Encsmt.	"L"*
HPI0x42	1'-7"	2'-0"	1'-4"
HPI2x53	1'-8"	2'-2"	1'-5"
HPI4x73	1'-11"	2'-6"	1'-8"



SECTION G-G

① Unless otherwise noted on Bridge Layout.

② 3'-0" minimum or as shown on Bridge Layout.

③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1½" and a minimum clearance of 1¼" from the pile.

④ Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

⚠ Added alternate method of splicing H-piles and revised pile encasement note. 3/24/2016 AMS

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on March 24, 2016. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

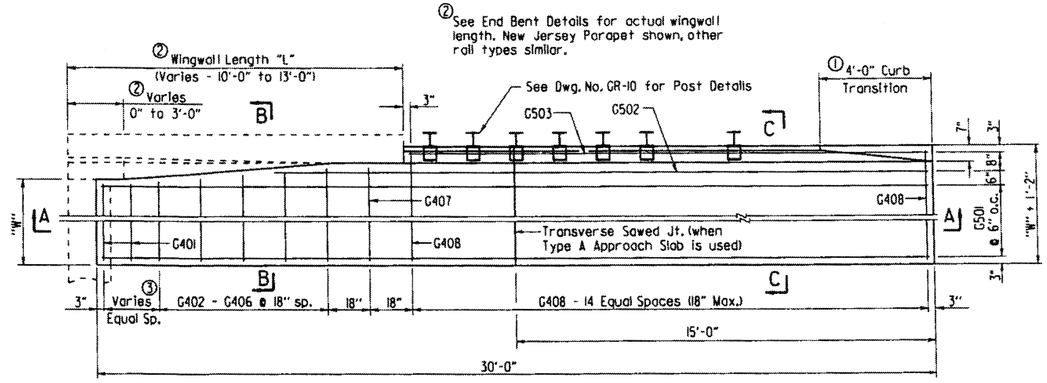
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55020.dgn
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55020

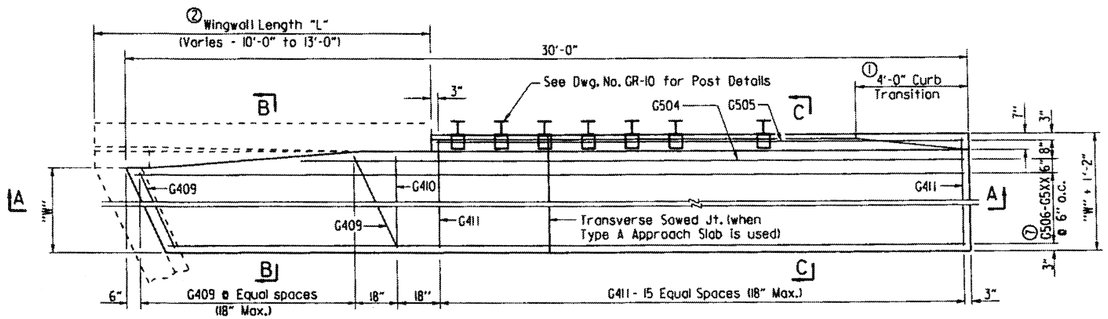
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9/2/15				6	ARK.			
				JOB NO.				

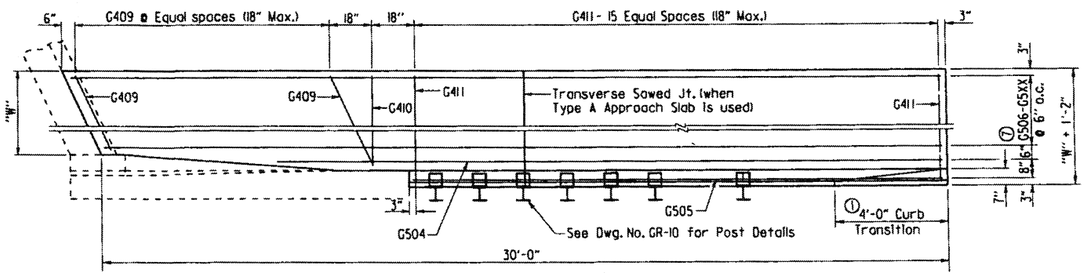
① TYPE A GUTTERS 55030A



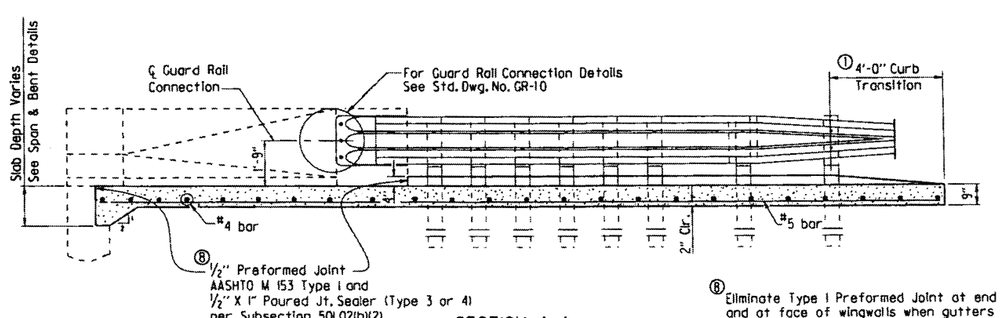
③ Number of G401 bars vary with wingwall length - See Bar List

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





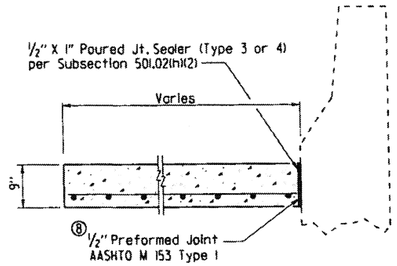
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



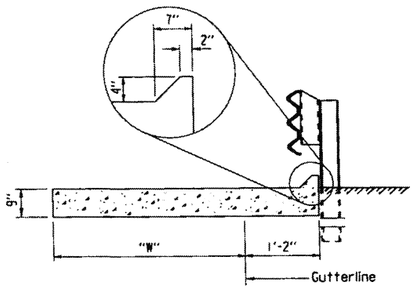
SECTION A-A

① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

BAR LIST FOR ONE TYPE A GUTTER

	Mark	⚠ No. Req'd. for Width "W" 2'-0"	3'-0"	4'-0"	6'-0"	8'-0"	Length
Square Bridge	G401	④	④	④	④	④	"W"- 4"
	G402-G406	1 each	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	1	"W"+3"
	G408	15	15	15	15	15	"W"+ 10"
	G501	4	6	8	12	16	29'-8"
	G502	1	1	1	1	1	(35'-5") - "L"
	G503	1	1	1	1	1	30'-8"-"L"
Skewed Bridge	G409	⑥	⑥	⑥	⑥	⑥	⑤
	G410	1	1	1	1	1	"W"+3"
	G411	16	16	16	16	16	"W"+ 10"
	G504	1	1	1	1	1	⑤
	G505	1	1	1	1	1	⑤
	G506 - G5XX ⑦	1 each	1 each	1 each	1 each	1 each	⑤

④ 0 for "L" = 10'
1 for "L" = 11'
2 for "L" = 12'
2 for "L" = 13'

⑦ G509 for "W" = 2' ⚠
G511 for "W" = 3'
G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'

⑤ Bar Lengths vary with Skew and Wingwall Length.

⑥ No. Req'd. varies with Skew and Wingwall length.

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

⚠ "W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
2	210	2.55
3	285	3.40
4	360	4.25
6	515	5.90
8	665	7.55

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.

⑧ Eliminate Type 1 Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type A Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

⚠ Revised to add "W" = 2'-0"; By LJB
Checked By: KWY 9/2/15

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 A APPROACH GUTTERS

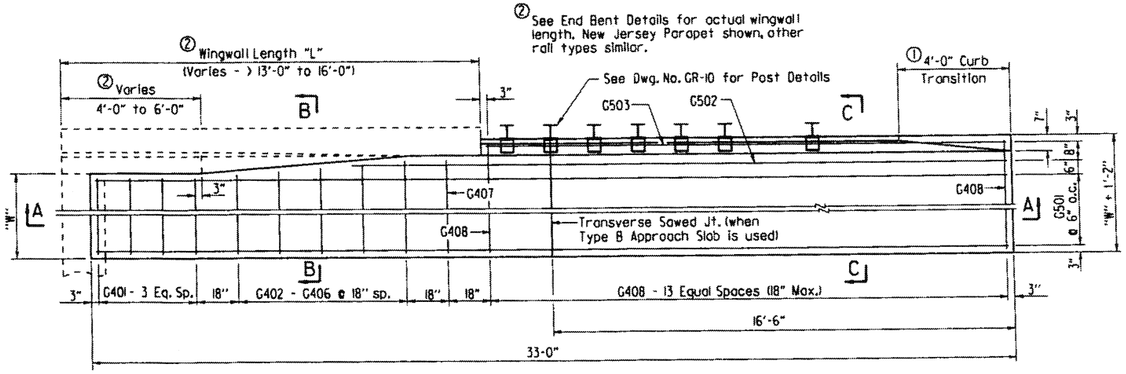
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

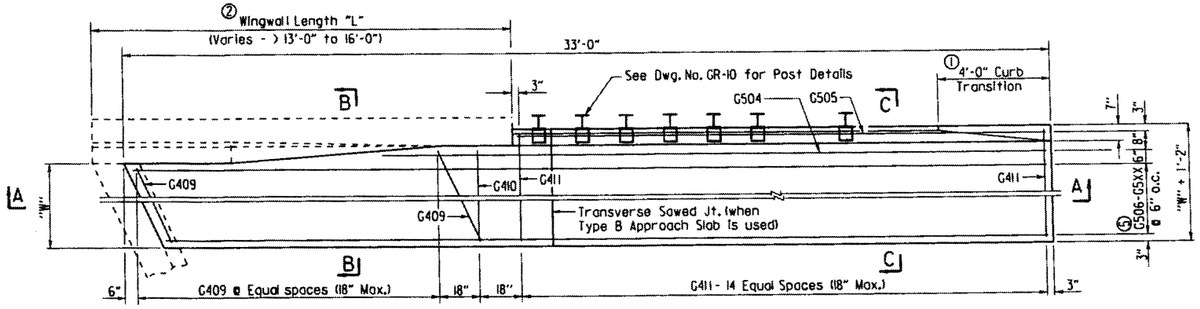
DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030a.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: ⅜" = 1'-0" or As Shown
DESIGNED BY: STD. DATE:

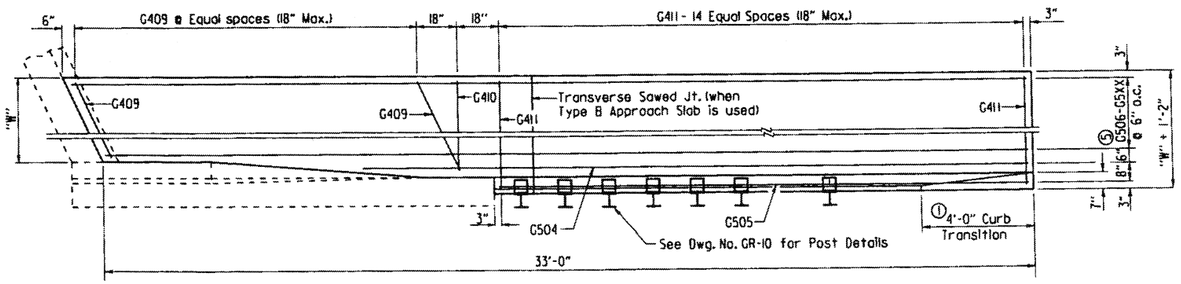
DRAWING NO. 55030A

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9/2/15				6	ARK.			
				JOB NO.				
				①	TYPE B GUTTERS		55030B	

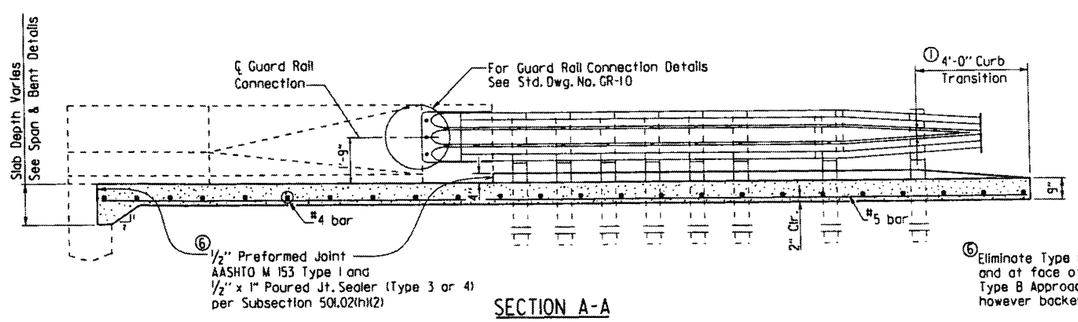


HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





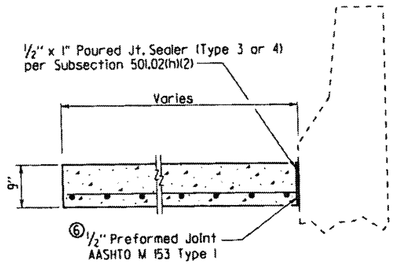
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



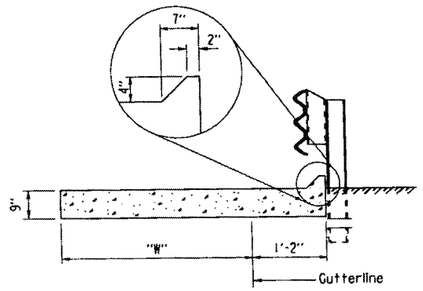
SECTION A-A

① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

BAR LIST FOR ONE TYPE B GUTTER

	Mark	⚠ No. Req'd. for Width "W" 2'-0"	3'-0"	4'-0"	6'-0"	8'-0"	Length
Square Bridge	G401	4	4	4	4	4	"W"-4"
	G402-G406	1 each	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	1	"W"+3"
	G408	14	14	14	14	14	"W"+ 10"
	G501	4	6	8	12	16	32'-8"
	G502	1	1	1	1	1	(38'-5")-"L"
	G503	1	1	1	1	1	(33'-8")-"L"
Skewed Bridge	G409	③	③	③	③	③	④
	G410	1	1	1	1	1	"W"+3"
	G411	15	15	15	15	15	"W"+ 10"
	G504	1	1	1	1	1	④
	G505	1	1	1	1	1	④
	G506 - G5XX ⑤	1 each	1 each	1 each	1 each	1 each	④

③ No. Req'd. varies with Skew and Wingwall length.

④ Bar Lengths vary with Skew and Wingwall Length.

⑤ G509 for "W" = 2' ⚠
G511 for "W" = 3'
G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

⚠ "W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
2	225	2.70
3	310	3.60
4	390	4.55
6	560	6.35
8	730	8.20

Quantities are based on "L" = 14'-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.

⚠ Revised to add "W" = 2'-0" ; By LJB
Checked By: KWY 9/2/15

⑥ Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type B 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 B APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.W.S. DATE: 2/27/2014 FILENAME: b55030b.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: ⅜" = 1'-0" or As Shown
DESIGNED BY: STD. DATE: _____

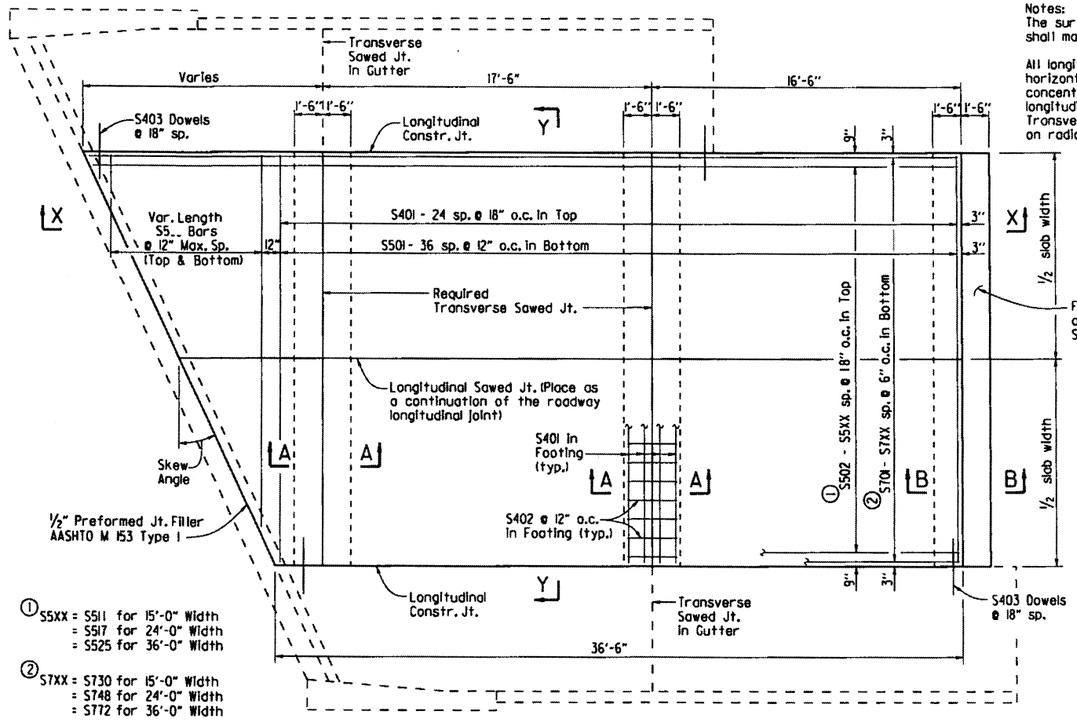
DRAWING NO. 55030B

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 CI APPROACH SLAB 55040CI

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.

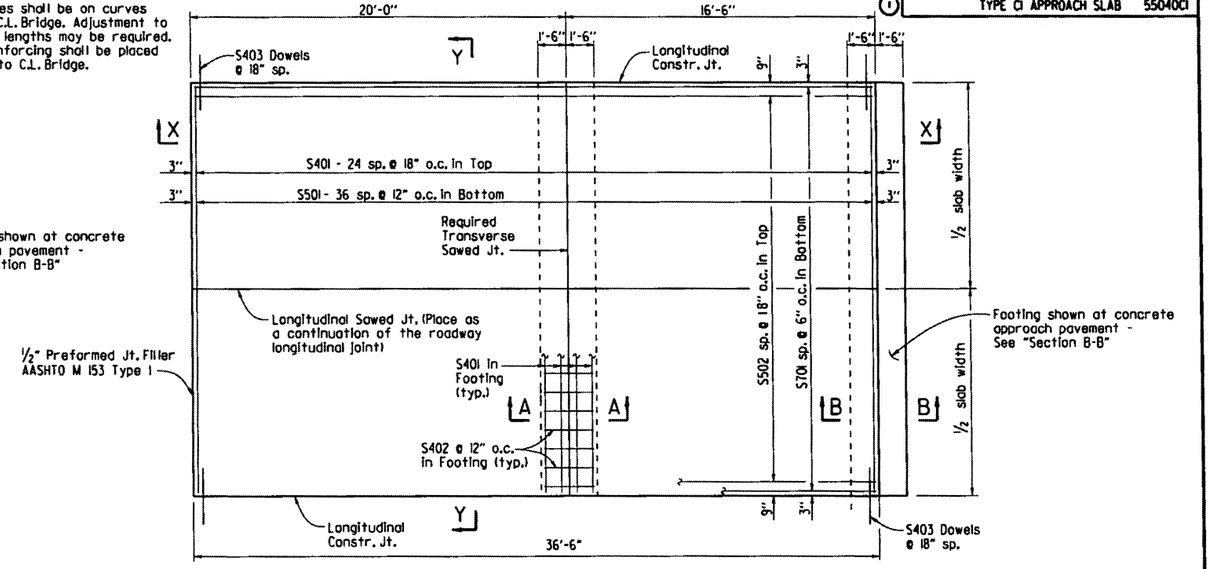


① S5XX = S511 for 15'-0" Width
= S517 for 24'-0" Width
= S525 for 36'-0" Width

② S7XX = S730 for 15'-0" Width
= S748 for 24'-0" Width
= S772 for 36'-0" Width

PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

¼" = 1'-0"



PLAN - SQUARE APPROACH SLAB

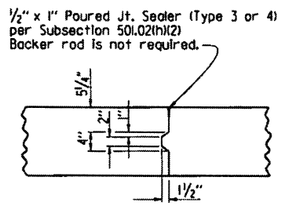
¼" = 1'-0"

BAR LIST

(Square & Skewed Approach Slabs)

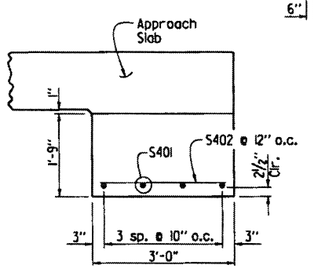
	Mark	Square No. Req'd.	Square Length	Skewed No. Req'd.	Skewed Length
15'-0" Slab Width	S401	33	14'-8"	37	14'-8"
	S402	30	2'-8"	45	2'-8"
	S403	50	3'-0"	*	3'-0"
	S501	37	14'-8"	37	14'-8"
	S502	10	36'-2"	—	—
	S502 - S511	—	—	1 Ea.	36.1' + 0.75'(tan skew angle) to 36.1' + 14.25'(tan skew angle)
	S5..	—	—	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	48	2'-8"	72	2'-8"
	S403	50	3'-0"	*	3'-0"
	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	72	2'-8"	108	2'-8"
	S403	50	3'-0"	*	3'-0"
	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



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

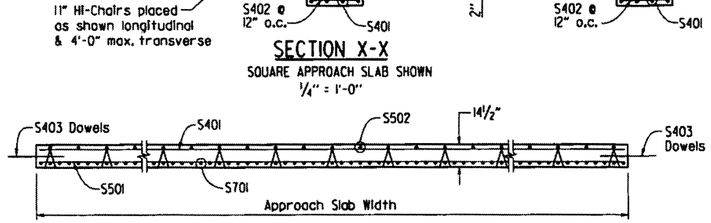
¾" = 1'-0"



SECTION B-B

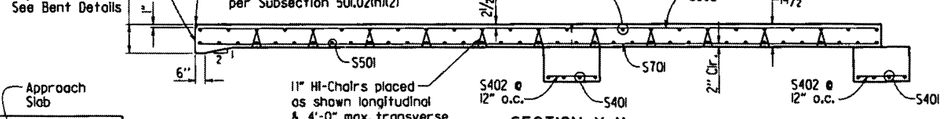
AT ASPHALT APPROACH PAVEMENT

N.T.S.



SECTION Y-Y

N.T.S.



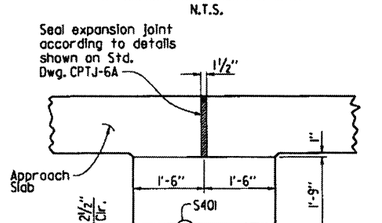
SECTION X-X

SQUARE APPROACH SLAB SHOWN

¼" = 1'-0"

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"	3640	30.75
24'-0"	5775	49.15
36'-0"	8620	73.75

GENERAL NOTES

This drawing shall be used for Approach Slabs in Seismic Performance Zone 1 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.

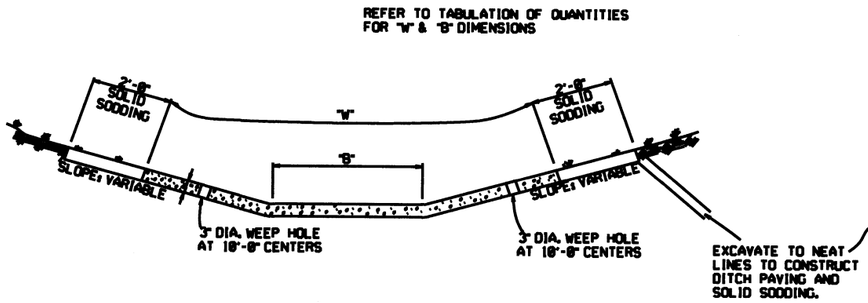
STANDARD DETAILS FOR TYPE CI APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

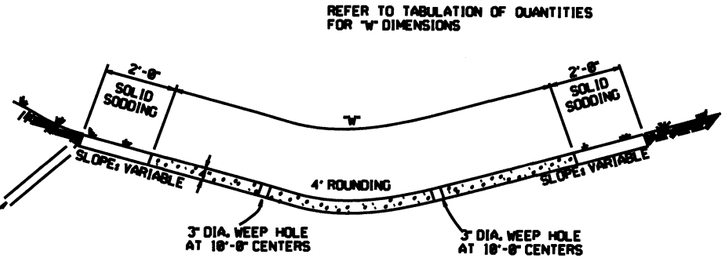
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040ci.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

DRAWING NO. 55040CI

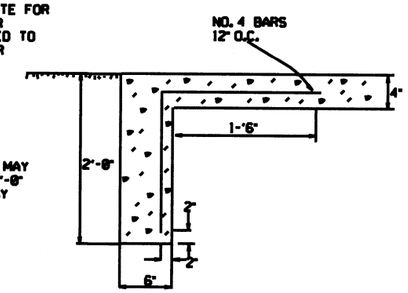


TYPE A



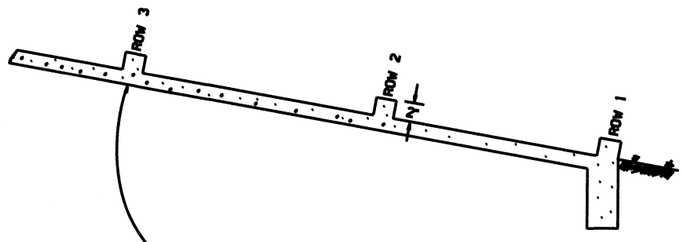
TYPE B

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 DEPTH MAY BE ALTERED TO 1'-8" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

TOE WALL DETAIL FOR CONCRETE DITCH PAVING



ENERGY DISSIPATORS
(NO SCALE)

ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 7%. THE DISSIPATORS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.

SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

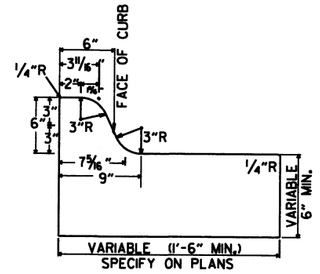
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
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	863-7-15-88
4-1-87	REVISED ENERGY DISSIPATOR	871-4-1-87
1-1-87	ADDITED NOTE ON ENERGY DISS.	812--1-87
11-1-86	ADDED NOTE TO ENERGY DISS.	808-12--86
1-1-84	ENERGY DISSIPATOR DETAILS ADDED	808-1--84
11-1-84	EXCAVATION DETAILS ADDED	
	TYPED A & B	
10-2-72	REVISED AND REDRAWN	808-10-2-72

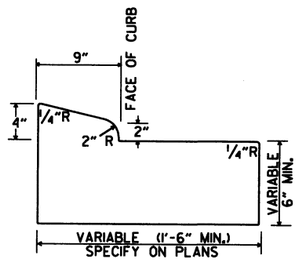
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

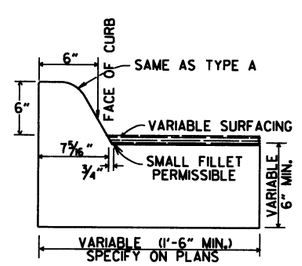
STANDARD DRAWING CDP-1



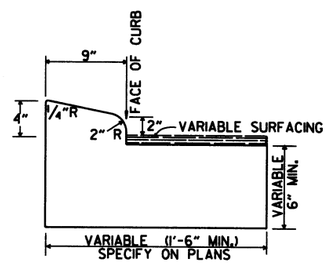
TYPE A



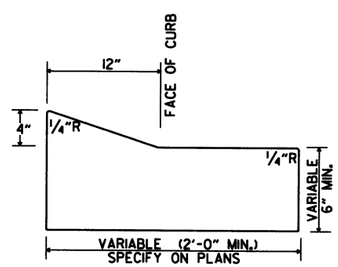
TYPE B-1



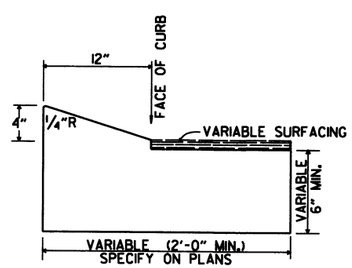
TYPE C



TYPE B-2

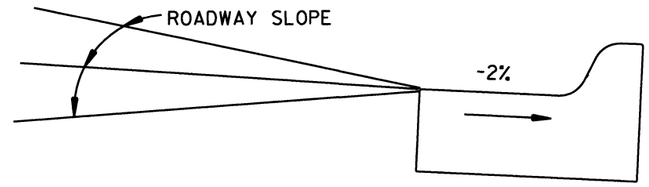


TYPE E-1



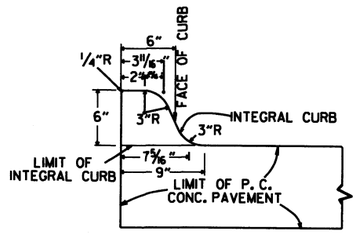
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

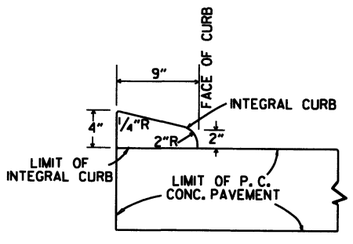


DETAIL OF GUTTER SLOPE

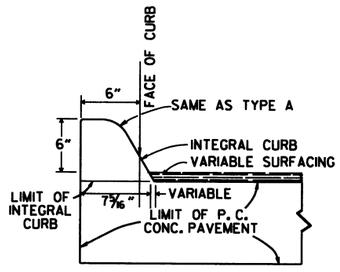
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

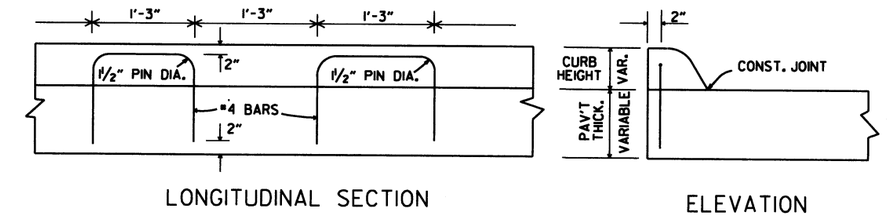


TYPE B

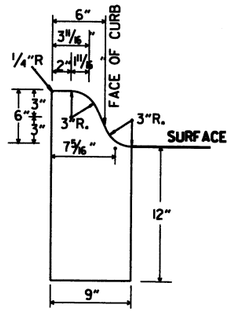


TYPE C

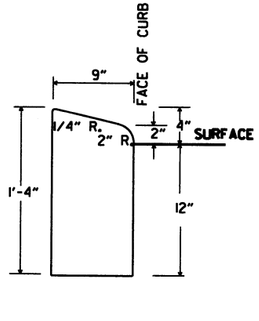
INTEGRAL CURB



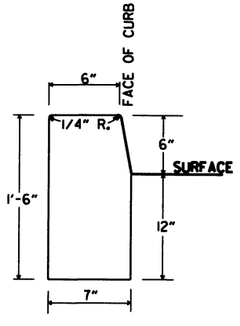
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



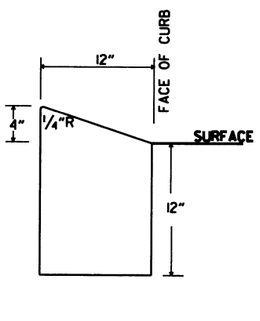
TYPE A



TYPE B

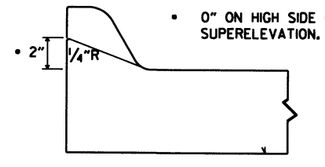


TYPE D



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.

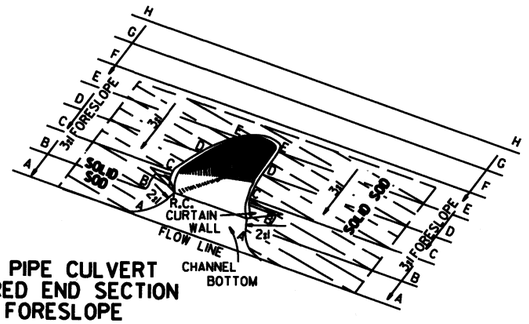
DETAILS OF MODIFIED CURB

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
1-1-74	REVISED MODIFIED CURB	500-11-1-74
10-2-72	REVISED AND REDRAWN	52-10-2-72

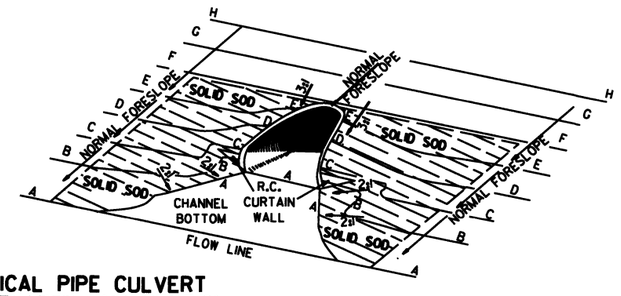
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

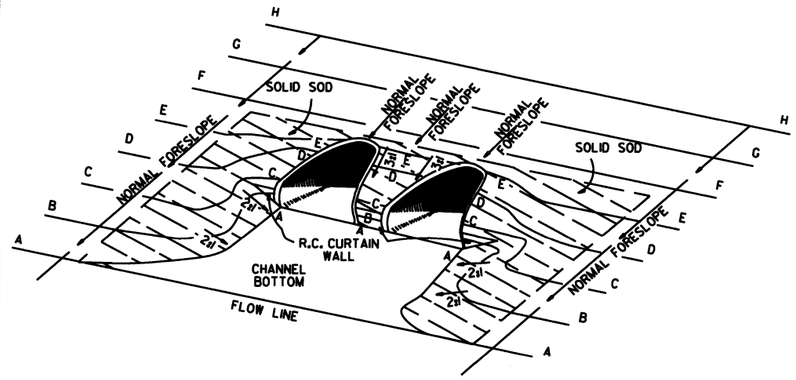
STANDARD DRAWING CG-1



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

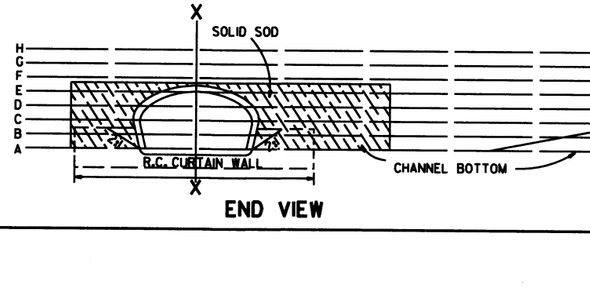
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1½"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9½"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 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

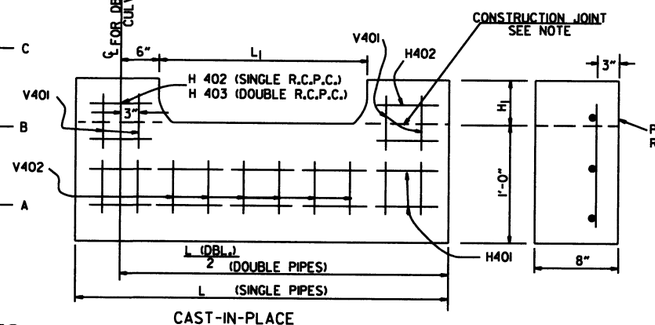
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

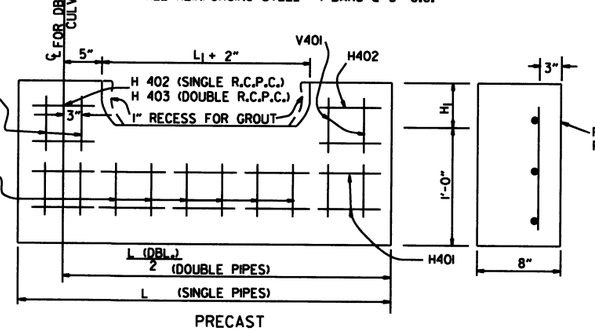
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



CAST-IN-PLACE

NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



PRECAST

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

R.C. CURTAIN WALL DETAILS

SOLID SODDING

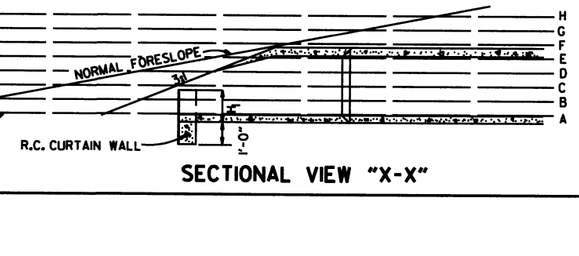
PIPE DIA.	SINGLE R.C.P.C. 3:1	SINGLE R.C.P.C. 4:1	SINGLE R.C.P.C. 6:1	DOUBLE R.C.P.C. 3:1	DOUBLE R.C.P.C. 4:1	DOUBLE R.C.P.C. 6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	18	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
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 W/10 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	
11-3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT., STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1

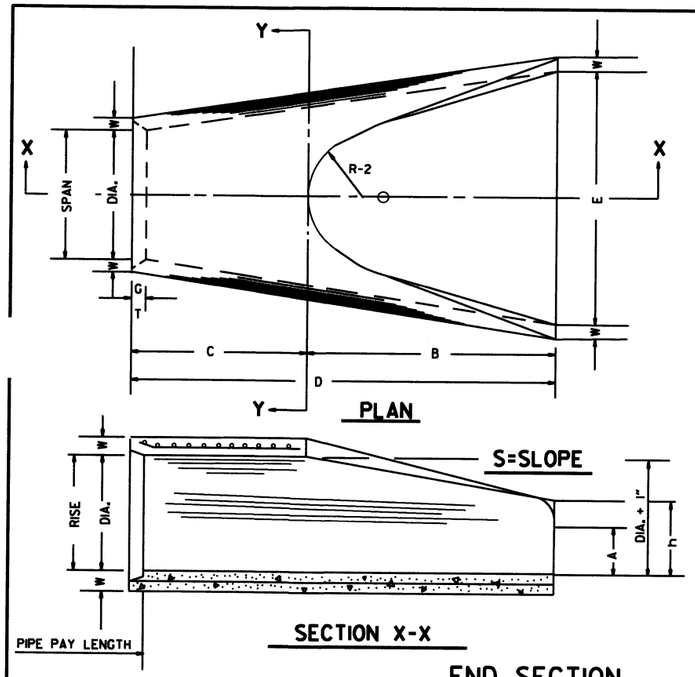


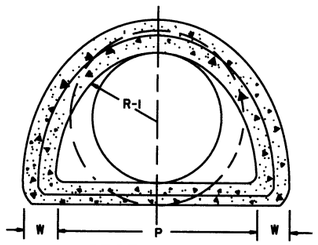
TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33⅜"	16⅝"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3:1	37"	41⅞"	24⅝"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅛"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36⅝"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77⅞"	38⅝"	24"	5"	13250	4'-6"

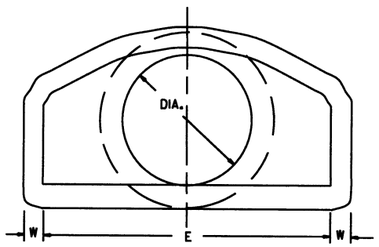
ARCH PIPE

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"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36⅝"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47⅛"	20"	3"	2½:1
36	43¾	44	26⅞	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54⅛"	22"	3½"	2½:1
42	51⅝	51	31⅜	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70⅝"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72⅛"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77⅞"	24"	5"	2¼:1

• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.

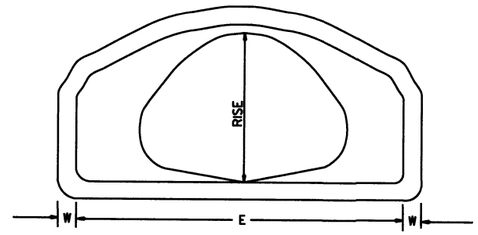


SECTION Y-Y



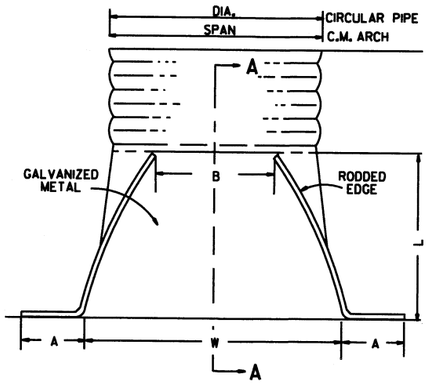
END VIEW

NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

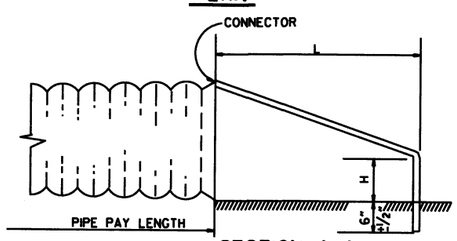


END VIEW
CONCRETE ARCH PIPE

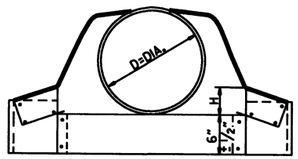
END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS



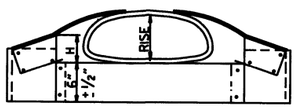
PLAN



SECTION A-A



CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

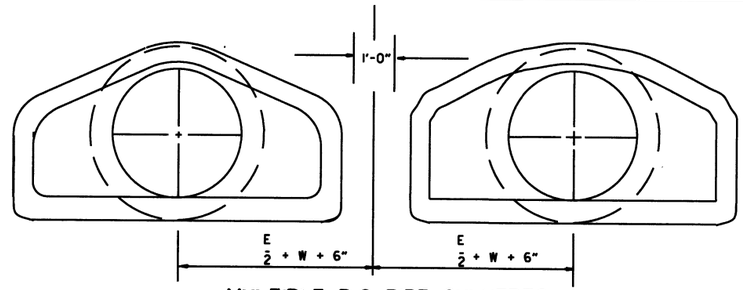
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

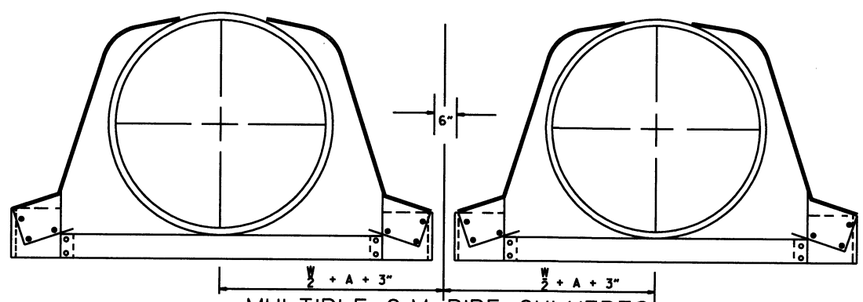
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2½:1	12
60"	71	47	18	33	12	77	114	2½:1	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



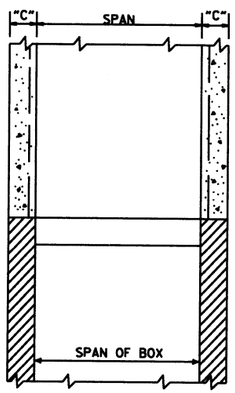
MULTIPLE C.M. PIPE CULVERTS

DATE	REVISION	FILMED
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

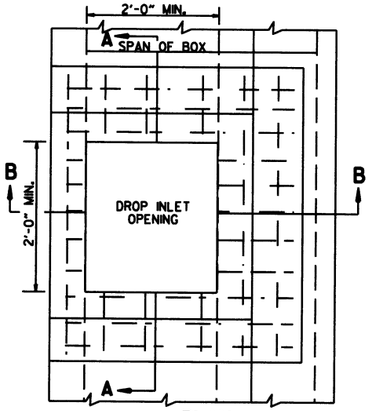
ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

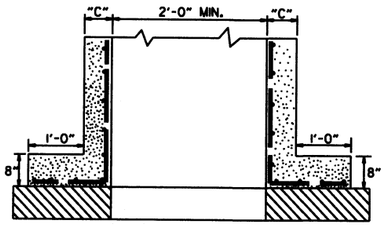
STANDARD DRAWING FES-2



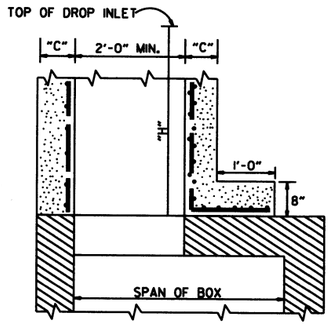
SECTION B-B



PLAN

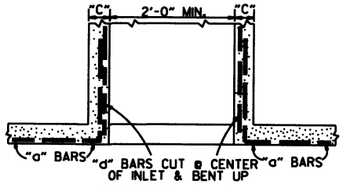


SECTION A-A

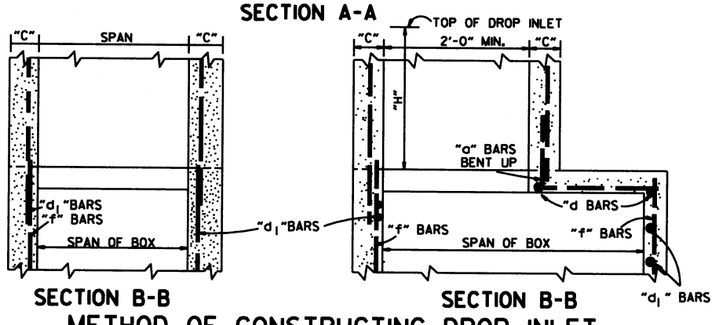


SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



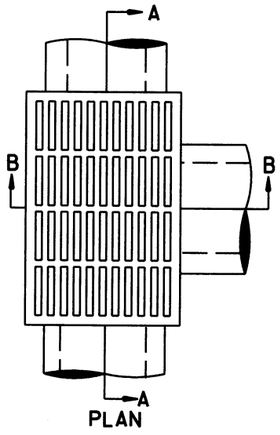
SECTION A-A



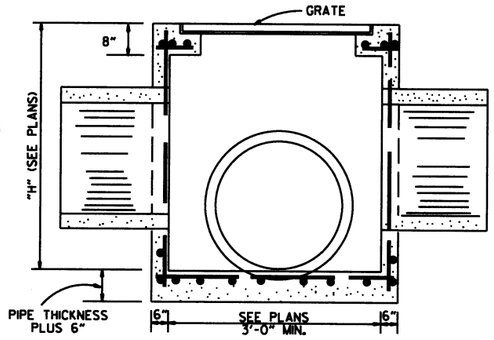
SECTION B-B SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON NEW R.C. BOX CULVERT

NOTE: "C" DIMENSIONS AND REINFORCING BAR SIZES, SHALL CONFORM TO THOSE SHOWN ON STANDARD DRAWING FOR DROP INLET.

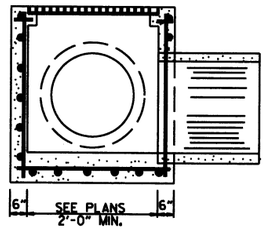


PLAN



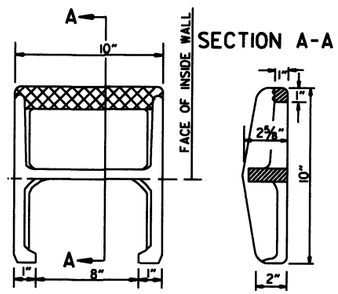
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE DROP INLET TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B

DROP INLET (TYPE E)

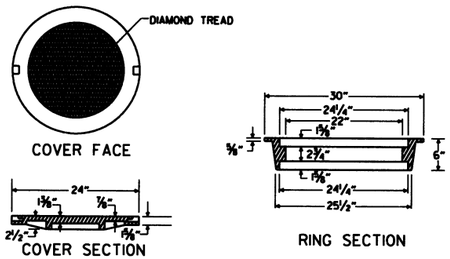


APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

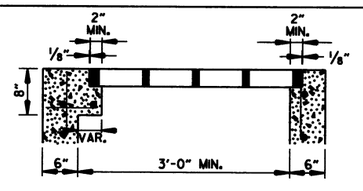
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET

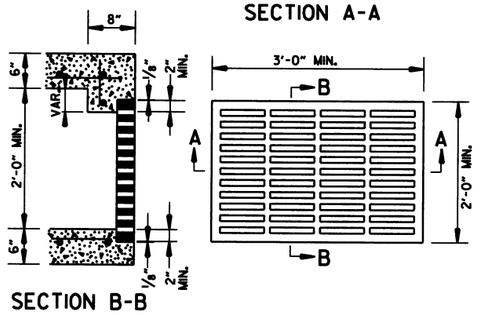


APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



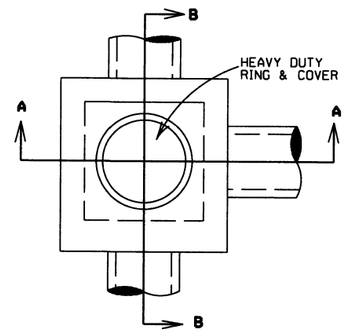
SECTION A-A



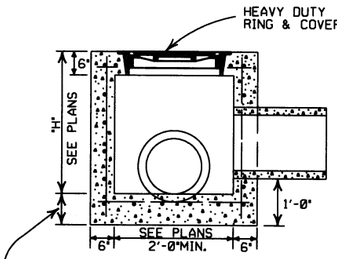
SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

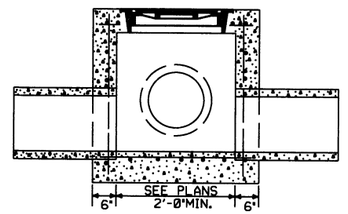


PLAN



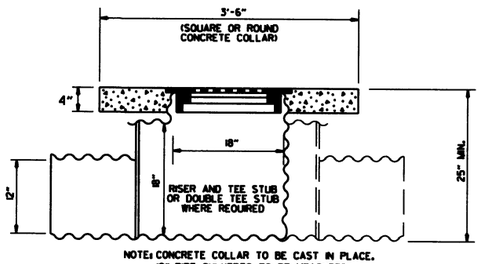
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE JUNCTION BOX TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.

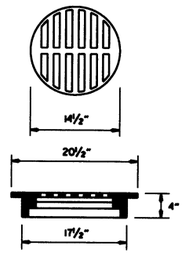


SECTION B-B

JUNCTION BOX (TYPE E)



NOTE: CONCRETE COLLAR TO BE CAST IN PLACE. 12" PIPE CULVERTS TO BE MEASURED AND PAID FOR AS " 12" SIDE DRAIN ".



USE NEENAH R-5901-C OR EQUIVALENT BICYCLE SAFE FRAME AND GRATE

DETAIL OF YARD DRAIN

GENERAL NOTES:

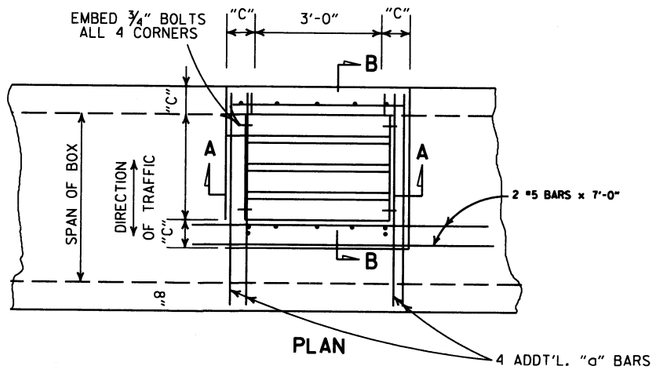
1. ALL EXPOSED CORNERS SHALL BE ¾" CHAMFERED.
2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
3. EXPANSION JOINT MATERIAL SHALL BE ¾" PREFORMED FIBER.
4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
5. GRATE AND FRAME SHALL NOT BE PAINTED.
6. GRATE SHALL BE BICYCLE SAFE.
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
9. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
10. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

DATE REV.	REVISION	DATE FILMED
11-16-01	ADDED NOTE 10	
1-12-00	REVISED HEAVY DUTY RING & COVER	
7-02-98	CHANGED GRATE DETAIL, DELETED D(TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97	ADDED DIMENSION TO TYPE IV-A	
10-18-96	ADDED DETAIL OF YARD DRAIN	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

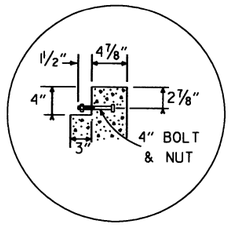
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS & JUNCTION BOXES

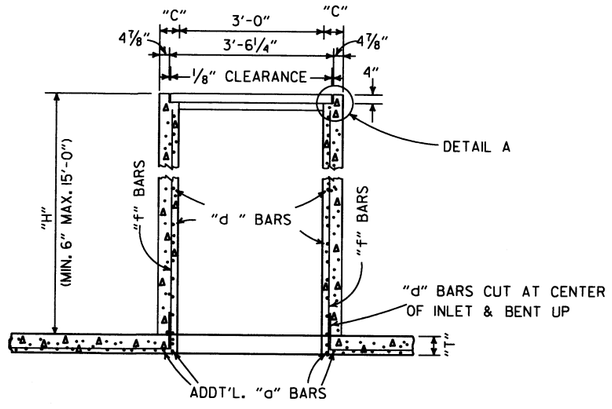
STANDARD DRAWING FPC-9



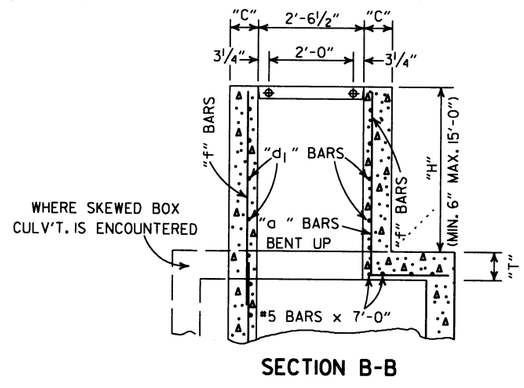
PLAN



DETAIL A



SECTION A-A

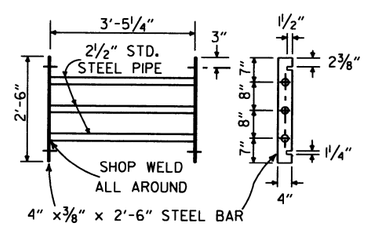


SECTION B-B

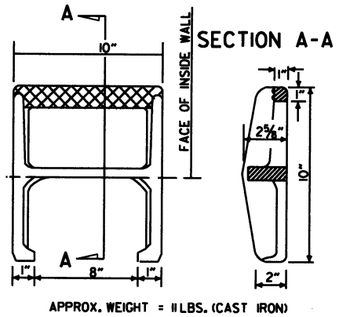
NOTE: ADDT'L.REINF. STEEL TO BE INCLUDED IN UNIT PRICE BID PER TYPE "TM" D.I.

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

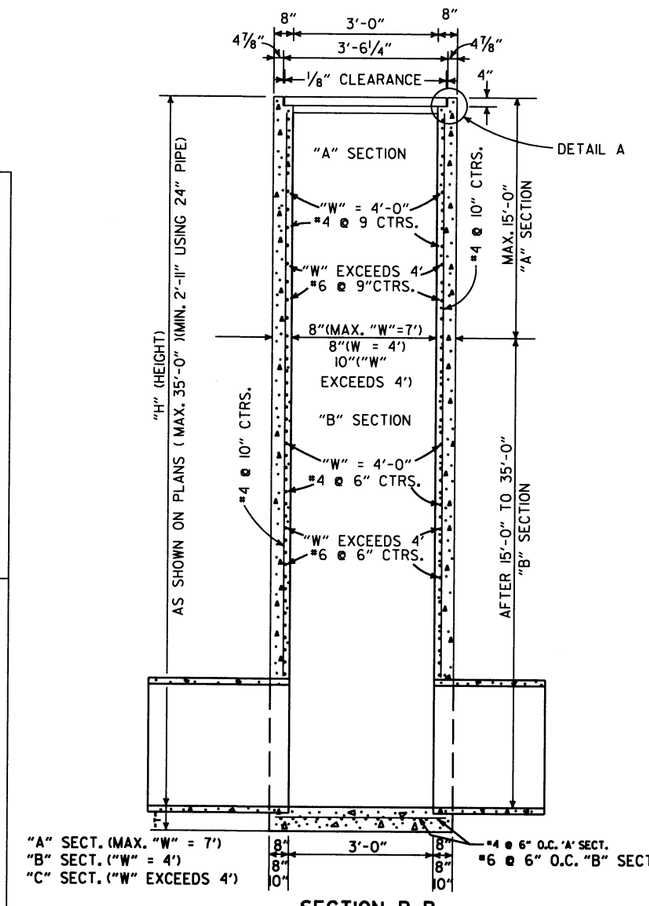
GENERAL NOTES:

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.

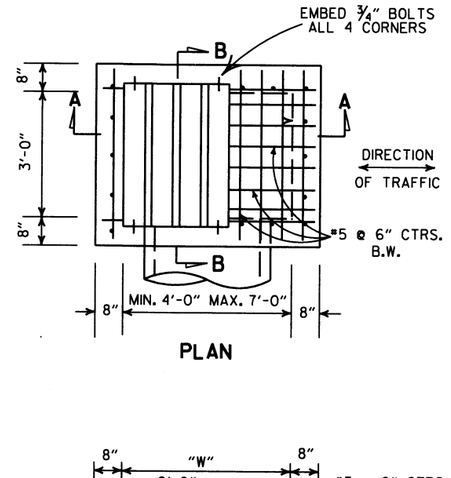
TABLE OF "W" DIMENSIONS

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"

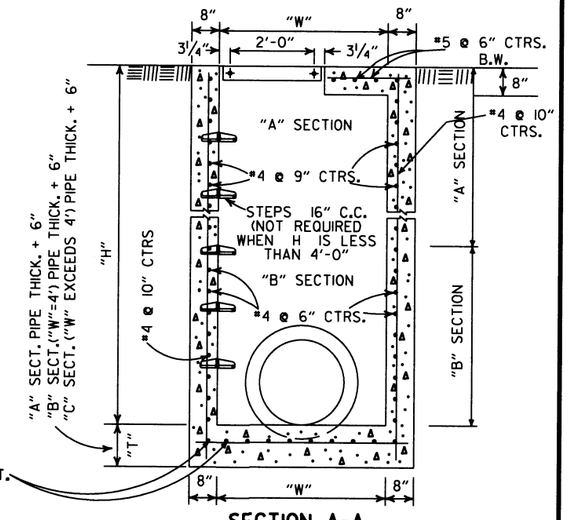
NOTE: DIMENSIONS SHOWN ABOVE ARE FOR PIPES INTERSECTING DROP INLET ON ONE SIDE ONLY. FOR SKEWED PIPES INTERSECTING BOTH SIDES OF DROP INLET, "W" WILL NEED TO BE INCREASED OR AXIS OF INTERSECTING PIPES WILL NEED TO BE SHIFTED.



SECTION B-B



PLAN



SECTION A-A

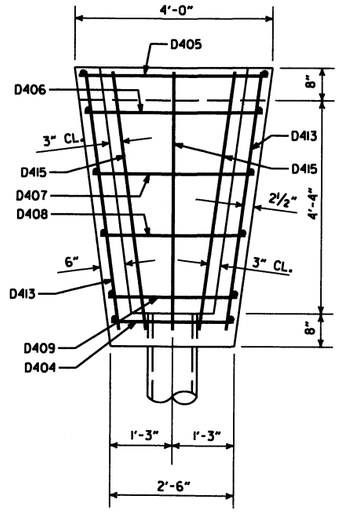
DROP INLET(TYPE RM)

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

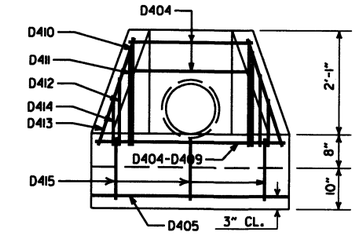
STANDARD DRAWING FPC-9D



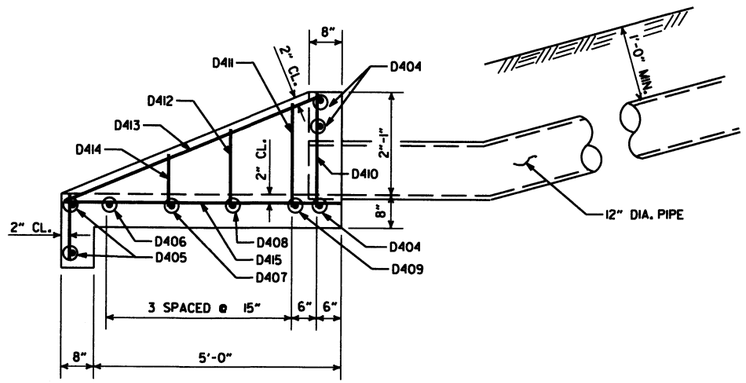
PLAN

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"	

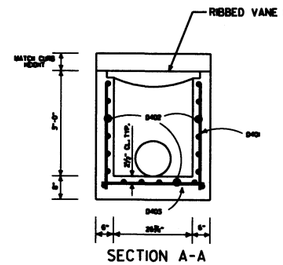


FRONT ELEVATION



SIDE ELEVATION
CONCRETE SPILLWAY

DETAILS OF CONCRETE SPILLWAY (TYPE A)

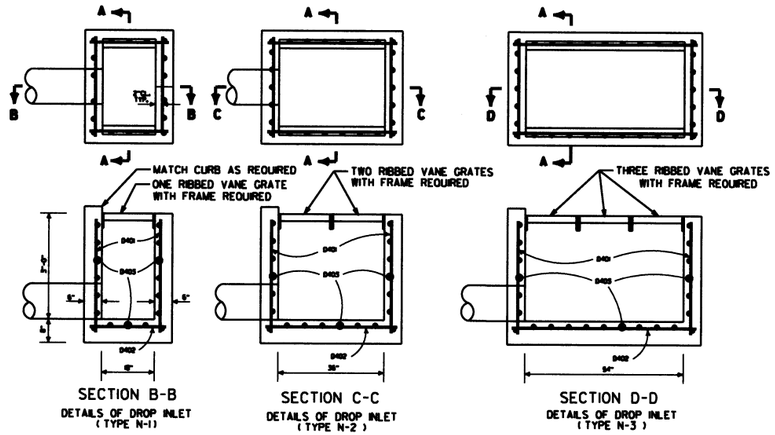


SECTION A-A

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)

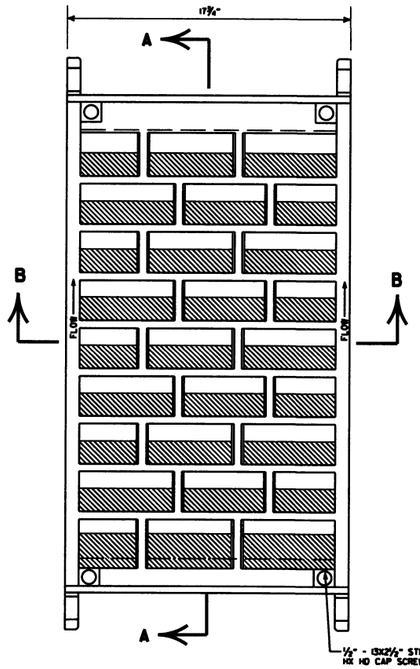
SECTION C-C
DETAILS OF DROP INLET
(TYPE N-2)

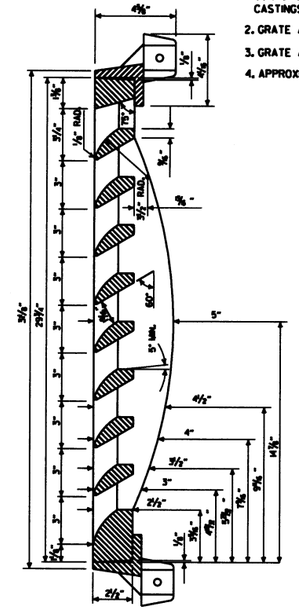
SECTION D-D
DETAILS OF DROP INLET
(TYPE N-3)

DETAILS OF DROP INLET

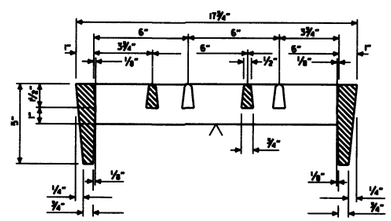
GENERAL NOTES (GRATE & FRAME)

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.

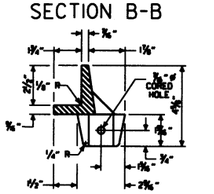




SECTION A-A



SECTION B-B



SECTION THRU FRAME

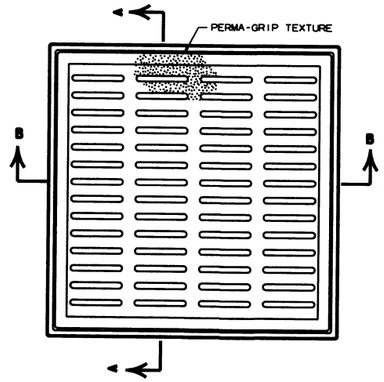
DETAILS OF RIBBED VANE GRATE AND FRAME

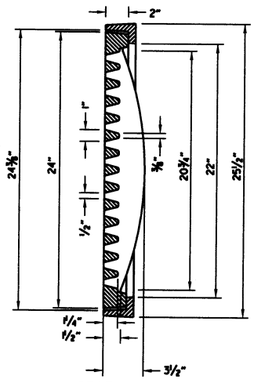
DATE REVISED	DATE FILMED	DESCRIPTION
7-02-98		REVISED SECT. A-A DETAIL OF DROP INLET & ADDED AASHTO REF. TO NOTE 1, REVISED GRATE
10-18-96		REVISED ASTM REF. TO AASHTO
8-15-91		ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

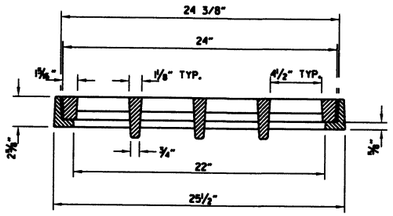
DETAILS OF DROP INLETS AND SPILLWAY OUTLET

STANDARD DRAWING FPC-9N





SECTION A-A

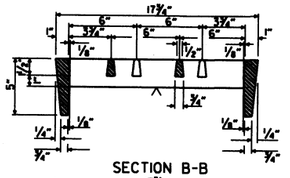


SECTION B-B

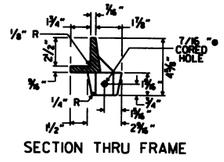
DETAILS OF PEDESTRIAN GRATE AND FRAME

GENERAL NOTES (PEDESTRIAN GRATE & FRAME)

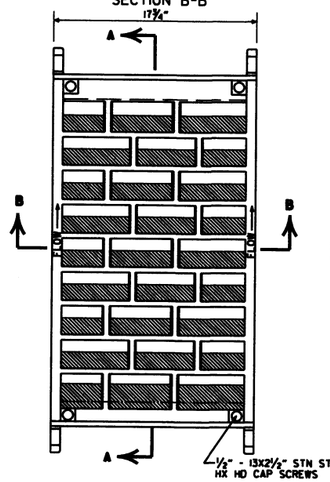
1. THE PEDESTRIAN GRATE SHALL BE ORIENTED IN THE TOP OF THE DROP INLET SO THAT THE ½" OPENINGS ARE PERPENDICULAR TO THE PATH OF PEDESTRIAN TRAVEL.
2. THE PEDESTRIAN GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS 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 211 LBS.
6. THE MINIMUM WATERWAY OPENING SHALL BE 122 SQ. IN.

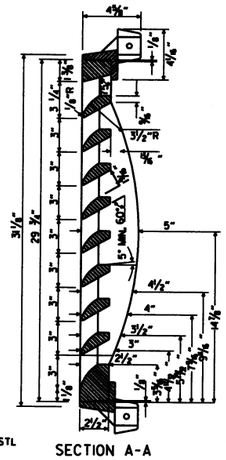


SECTION B-B



SECTION THRU FRAME



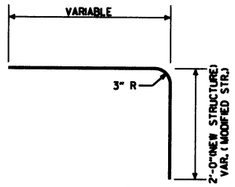


SECTION A-A

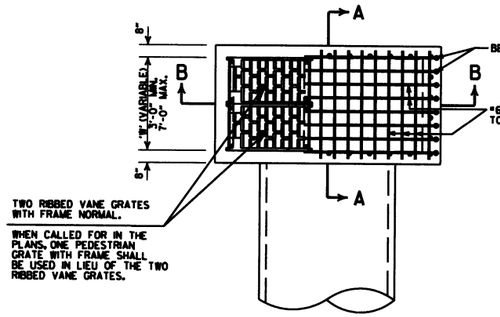
DETAILS OF RIBBED VANE GRATE AND FRAME

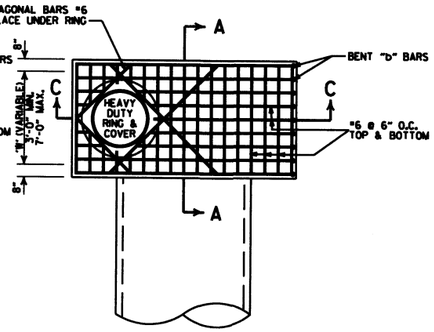
GENERAL NOTES (RIBBED VANE GRATE & FRAME)

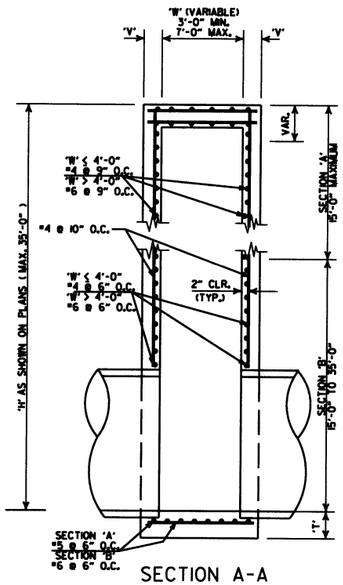
1. RIBBED VANE GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
2. GRATE AND FRAME SHALL NOT BE PAINTED.
3. GRATE AND FRAME SHALL BE INSTALLED IN DROP INLET IN ASSEMBLED POSITION.
4. APPROXIMATE WEIGHT OF GRATE SHALL BE 170 LBS.



DETAIL OF BENT "b" BAR







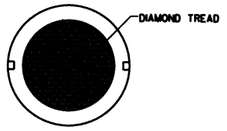
SECTION A-A

SECTION 'A'
'V' = 8"

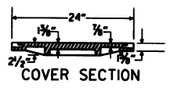
SECTION 'B' (W)≤4'-0"
'V' = 8"

SECTION 'B' (W)>4'-0"
'V' = 10"

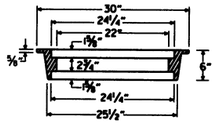
DETAILS OF DROP INLET (TYPE ST)



COVER FACE



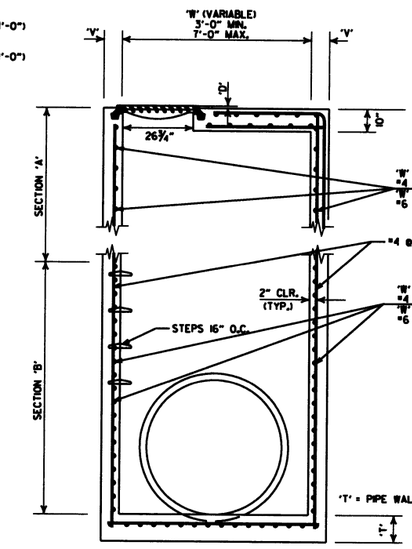
COVER SECTION



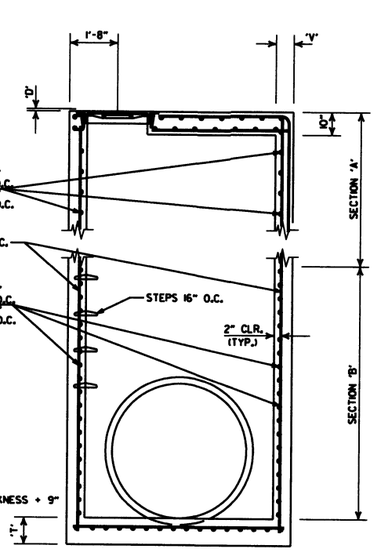
RING SECTION

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 ¾" CHAMFER.

GENERAL NOTES (HEAVY DUTY RING & COVER):

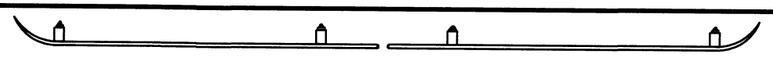
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE 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

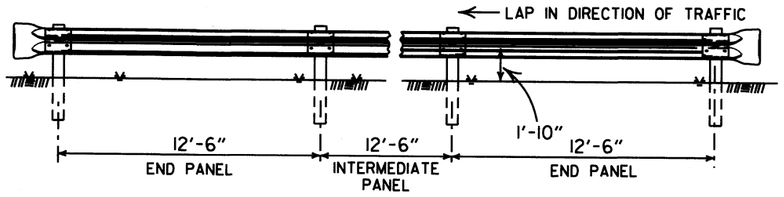
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLET & JUNCTION BOX (TYPE ST)

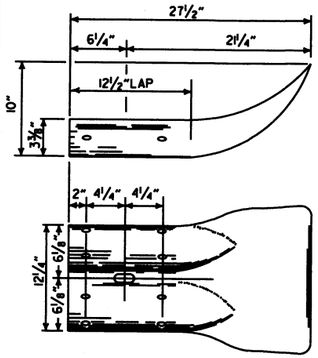
STANDARD DRAWING FPC-9S



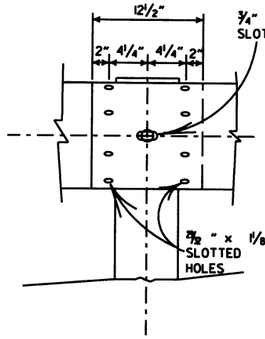
PLAN



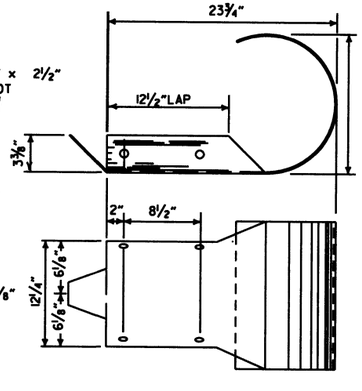
ELEVATION



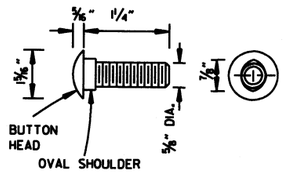
TERMINAL SECTION



RAIL SPLICE

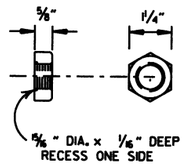


TERMINAL SECTION

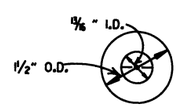


SPLICE BOLT

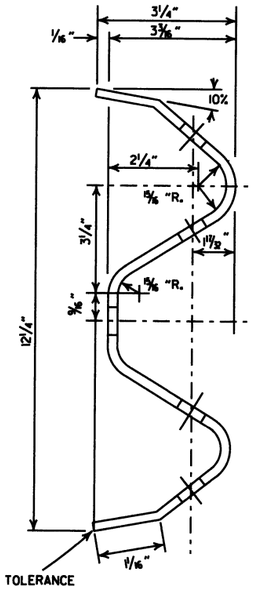
NOTE: POST BOLT SAME EXCEPT LENGTH.



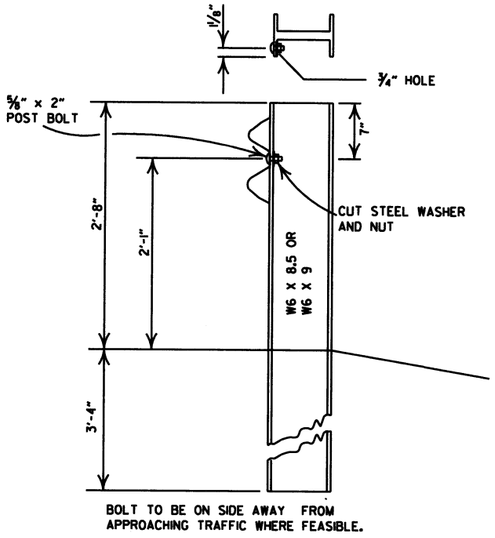
NUT



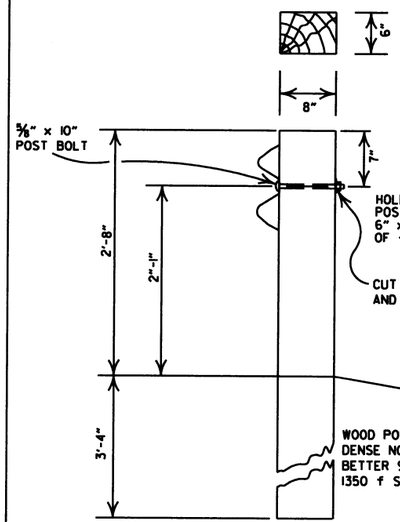
CUT STEEL WASHER



SECTION THRU RAIL



STEEL POST



WOOD POST

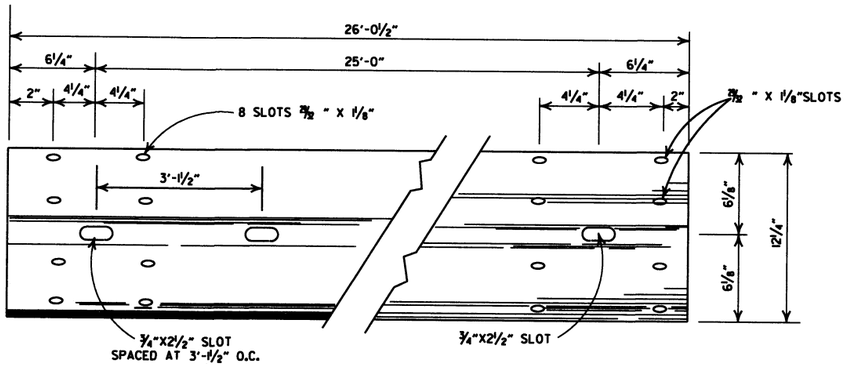
DETAILS OF POST CONNECTIONS

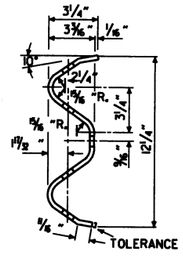
DATE	REVISION	FILMED
11-16-17	REVISED GUARD RAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
08-22-02	REVISED DIMENSION ON STEEL POST	
11-16-01	REVISED STEEL AND WOOD POST	
08-12-98	REMOVED CONCRETE POST	
10-18-96	CHANGED WOOD POST NOTE	10-18-96
06-02-94	ADDED ALTERNATE STEEL POST SIZE	
08-05-93	REVISED STEEL POSTS SIZE	8-5-93
08-15-91	DELETE STEEL PLATE WASHER & ADDED TYPE C TO TITLE	8-15-91
10-30-87	REMOVED DET. PLCMNT. ON HWY.	555-8-20-87
01-04-83	GRADE FOR WOOD POSTS	679-1-4-83
10-01-77	HARDENED WASHER	922-10-1-72
10-02-72	REVISED & REDRAWN	521-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS (TYPE C) STREET / ROAD BARRICADE OR TEMPORARY INSTALLATION

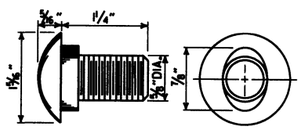
STANDARD DRAWING GR-7



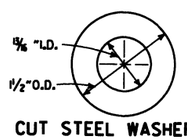


DETAILS OF W-BEAM GUARD RAIL

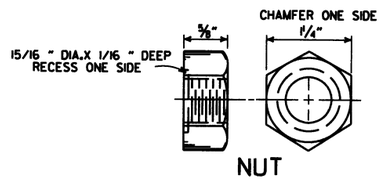
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



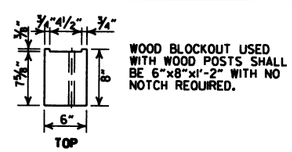
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

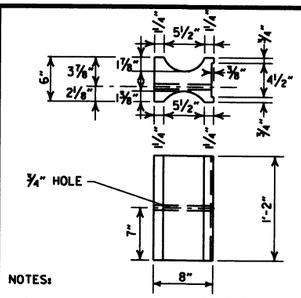


NUT



WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

WOOD BLOCKOUT (W-BEAM)

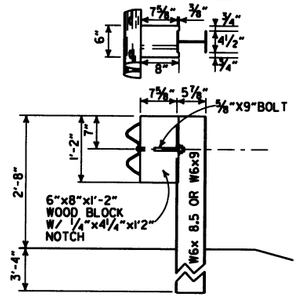


NOTES:

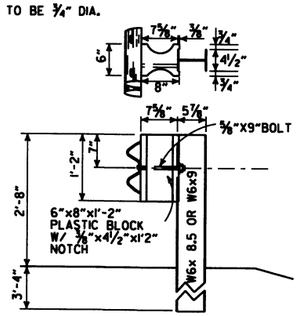
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT (W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.

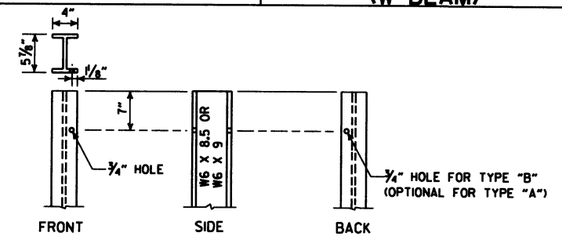


WOOD BLOCKOUT CONNECTIONS

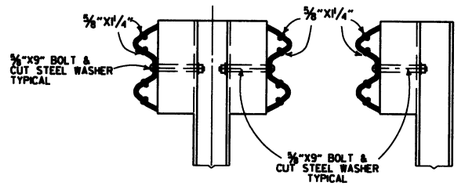


PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



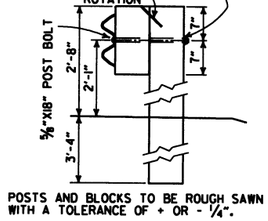
STEEL POST



TYPE "B" TYPE "A"

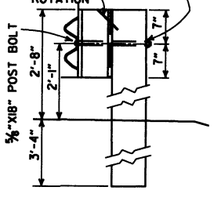
DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

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)

-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 GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

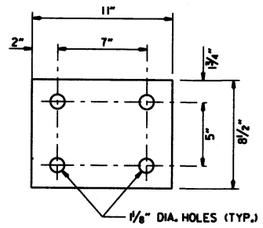
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

DATE	REVISION	FILMED
11-16-17	REVISED GENERAL NOTES AND RAISED GUARD RAIL HEIGHT 3"	
07-14-10	RAISED HEIGHT OF GUARD RAIL 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 GUARD RAIL 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 GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
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

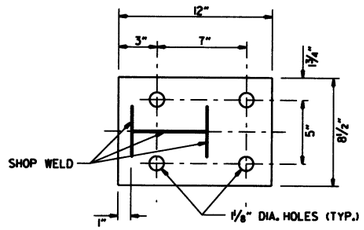
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8

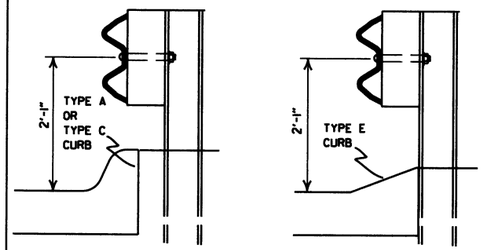


WASHER PLATE



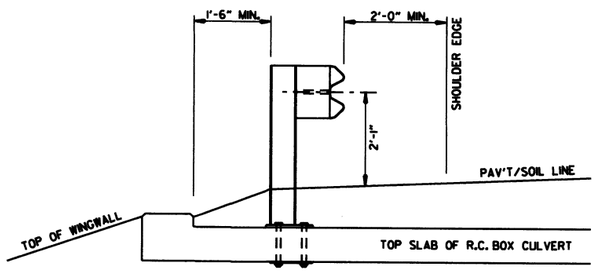
BASE PLATE

Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.

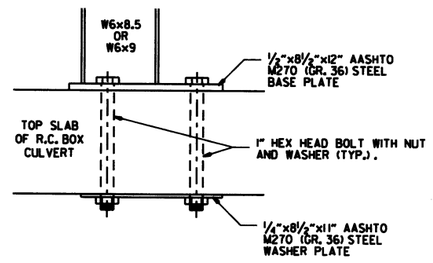


DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

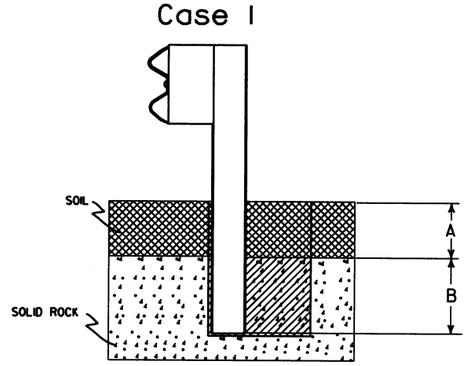
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.

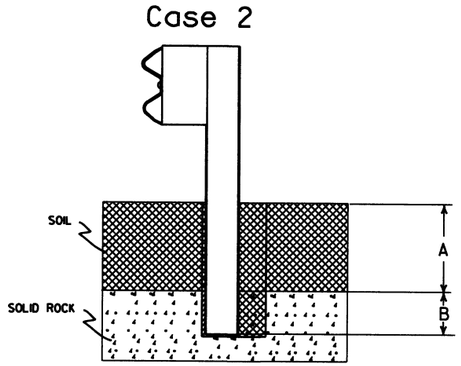


SECTION A-A



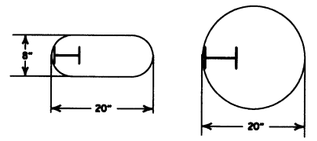
DETAIL OF CONNECTION

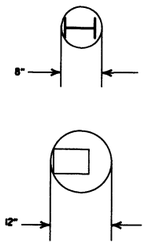




Plan View Steel Posts

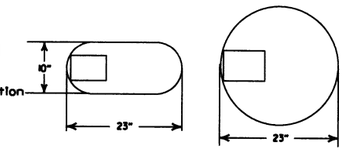
Either hole configuration acceptable





Plan View Wood Posts

Either hole configuration acceptable



Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

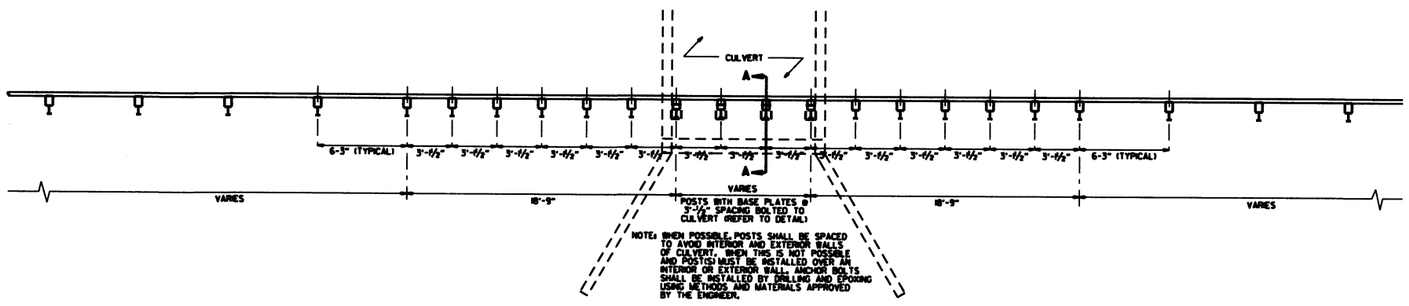
Zone A:
Backfill according to Section 617.03(a).

Zone B:
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.

Notes: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

Zone A & B:
Backfill according to Section 617.03(a).

DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)



PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DWG. GR-8.

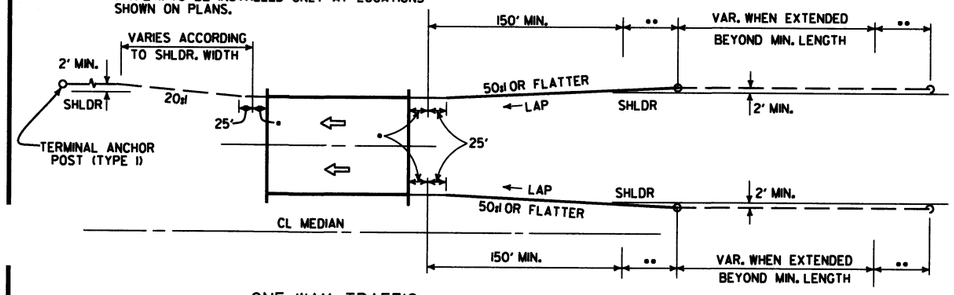
DATE	REVISION	FILMED
8-16-17	REVISED GUARD RAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
04-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURBS; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS	
03-30-00	REMOVED CONCRETE INSERT ANCHOR	
08-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADDED DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULV'T., DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK	
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	
08-06-93	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

GUARD RAIL DETAILS

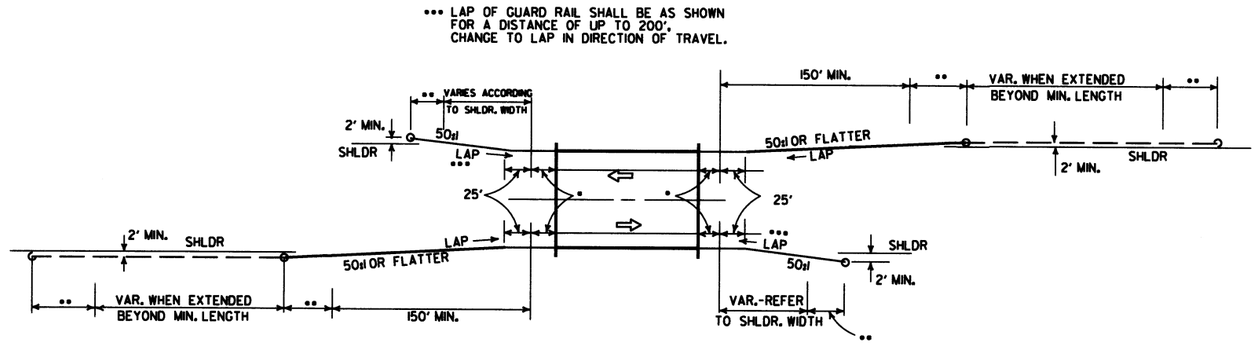
STANDARD DRAWING GR-8A

NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

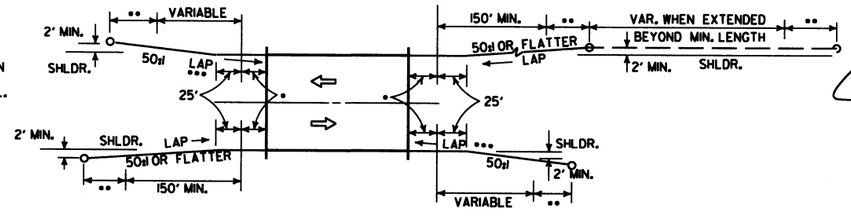
••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

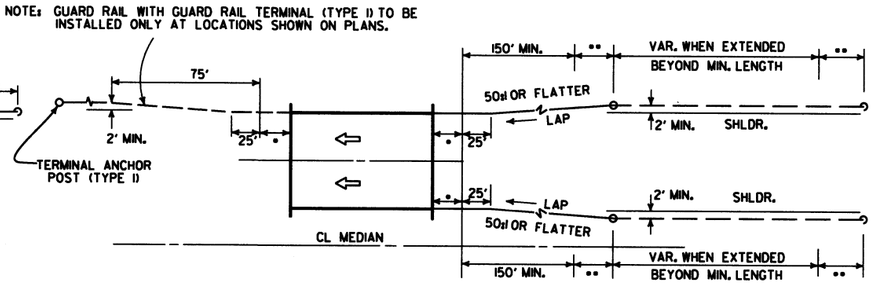
METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

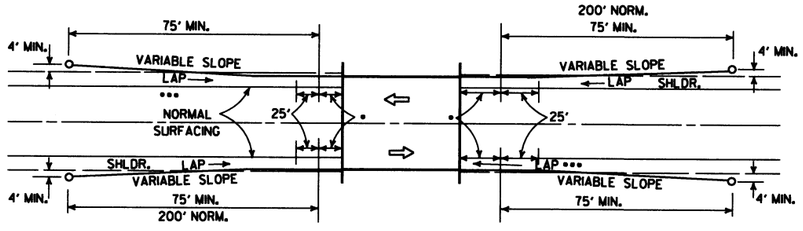
NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



LEGEND

- • THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

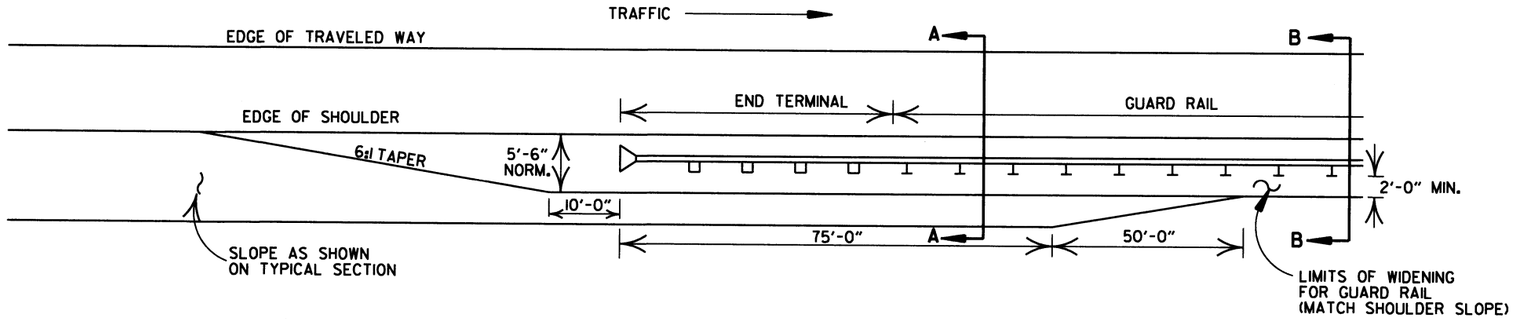
METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

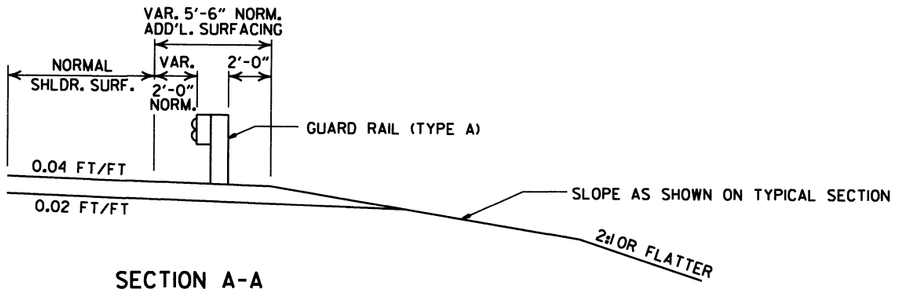
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION

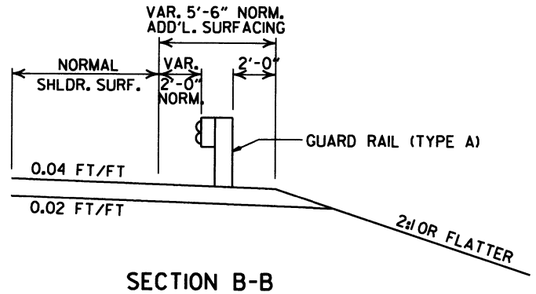
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





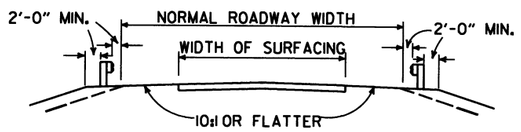
SECTION A-A



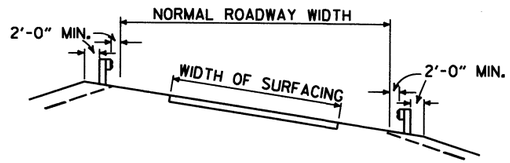
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.

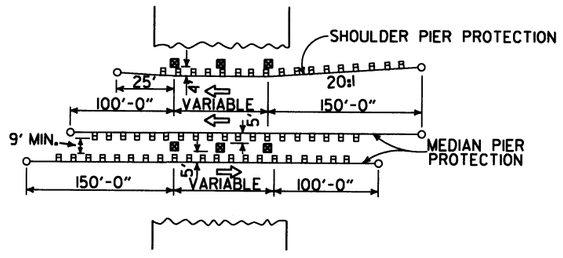


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



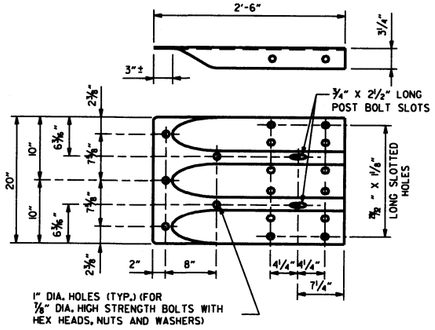
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

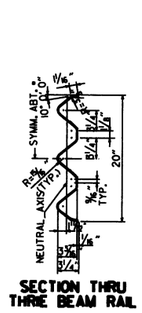
ARKANSAS STATE HIGHWAY COMMISSION

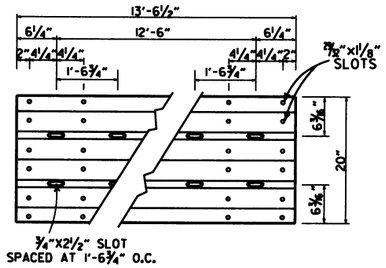
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A

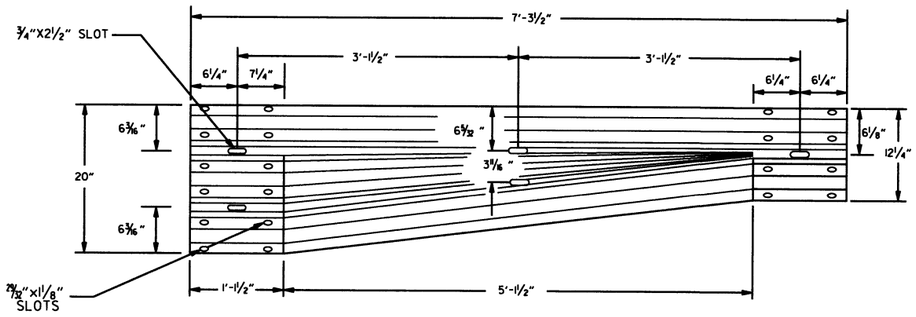


SPECIAL END SHOE

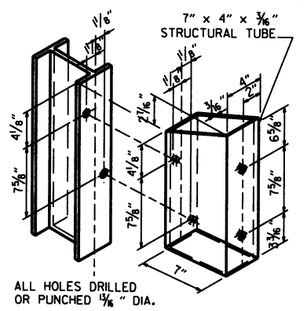




THRIE BEAM RAIL

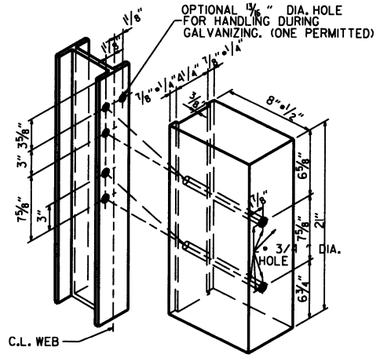


TRANSITION SECTION



ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.

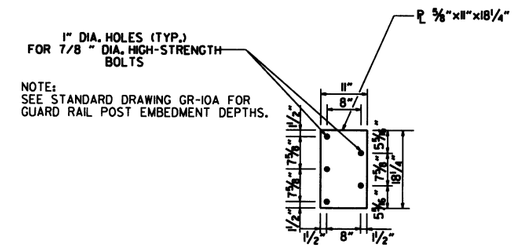
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

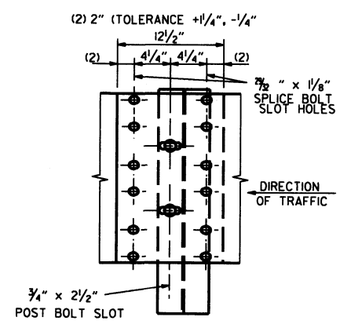
HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



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-9 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

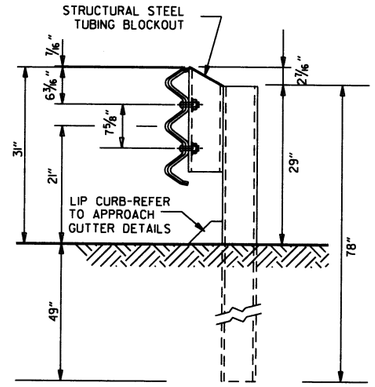
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-16-17	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	

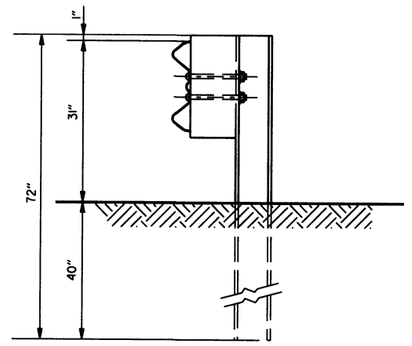
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

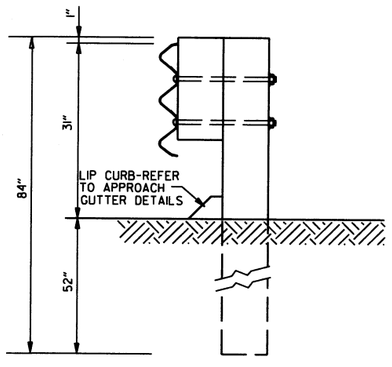
STANDARD DRAWING GR-10



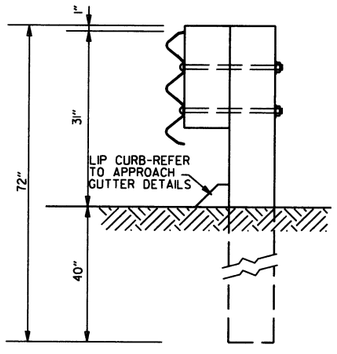
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



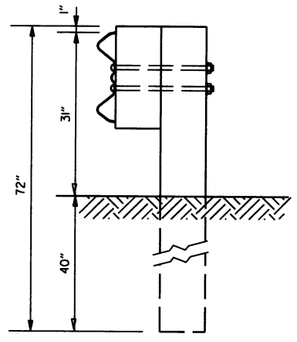
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUTS & WOOD POSTS
POSTS 1-6



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUT & WOOD POST
POST 7



W-BEAM TO THRIE BEAM
TRANSITION RAIL WITH WOOD OR
PLASTIC BLOCKOUT & WOOD POST
POST 8

GENERAL NOTES:

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

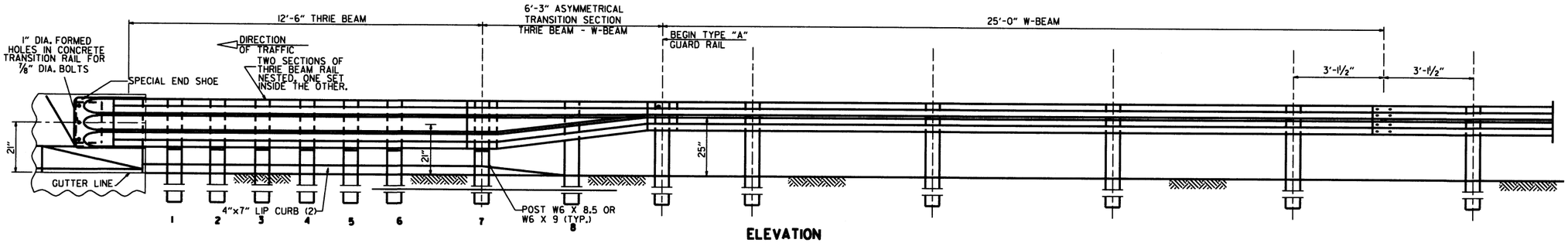
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-16-17	REVISED GUARD RAIL 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	

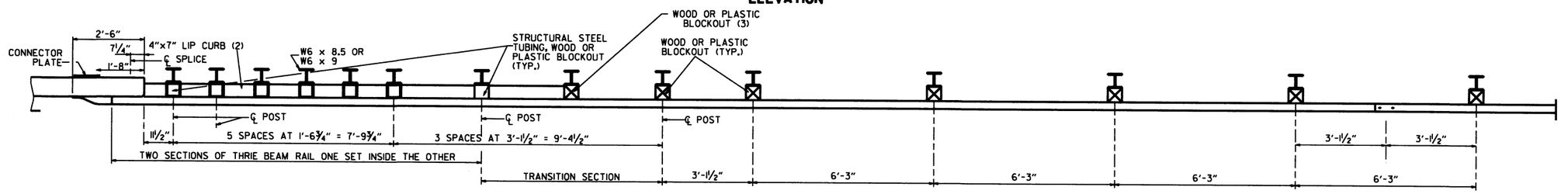
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

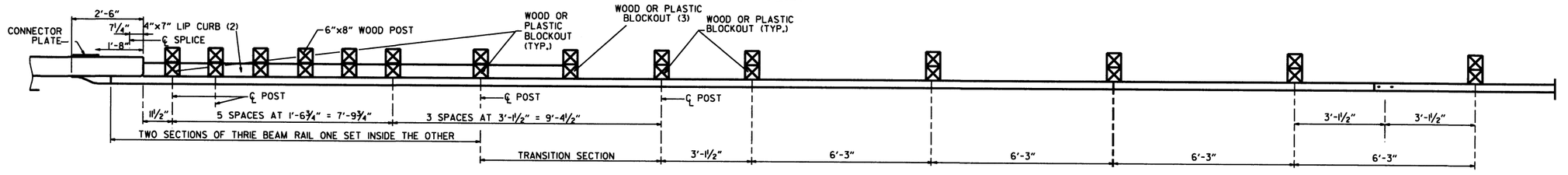
STANDARD DRAWING GR-11



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 GUARD RAIL 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-9 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

POSTS SHALL BE PLACED AT THE MID-SPAN OF THE W-BEAM.

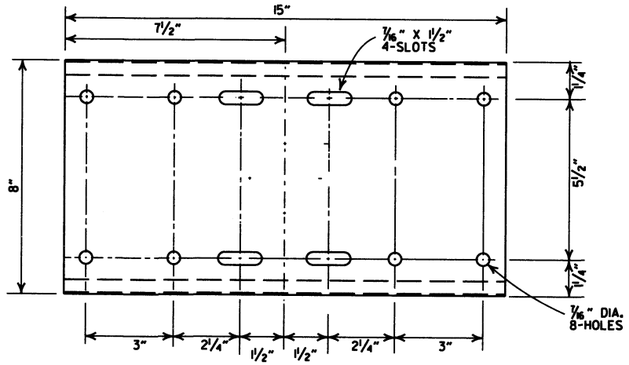
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-16-17	RE-DRAWN FROM STD. DWG. GR-10 & ISSUED	

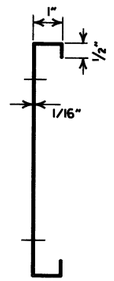
ARKANSAS STATE HIGHWAY COMMISSION

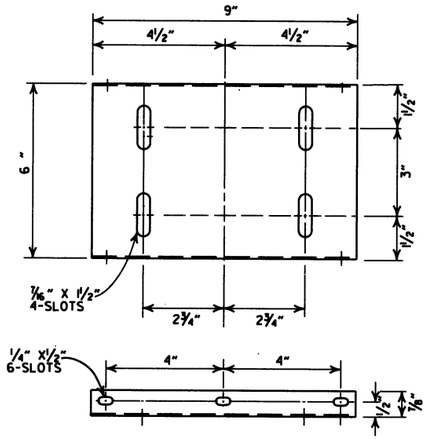
GUARD RAIL DETAILS

STANDARD DRAWING GR-12

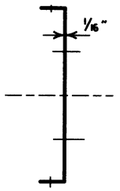


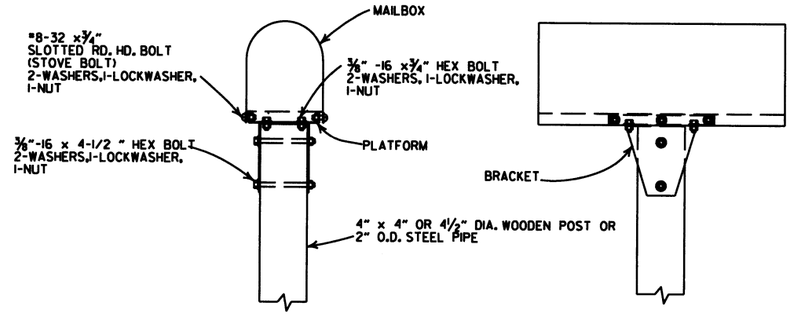
SHELF



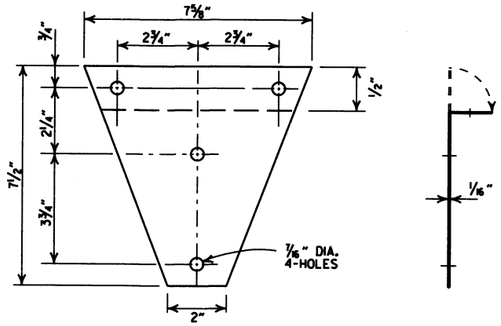


PLATFORM

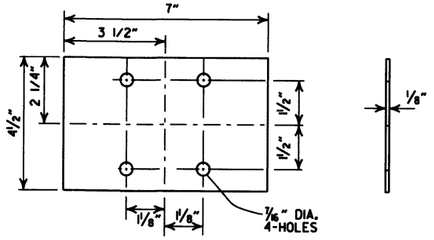




SINGLE INSTALLATION



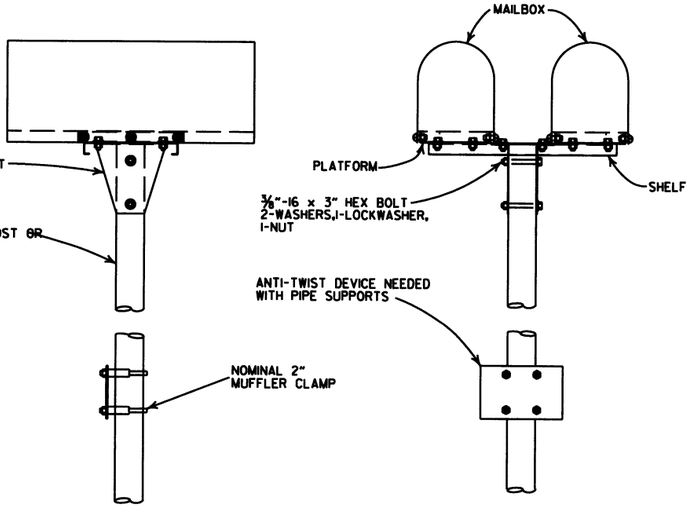
BRACKET



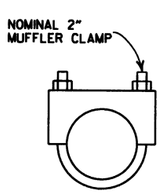
ANTI-TWIST PLATE

GENERAL NOTES

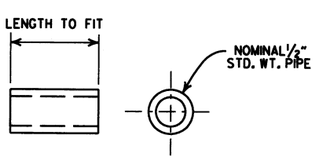
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL. HOWEVER TREATED 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 X ¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



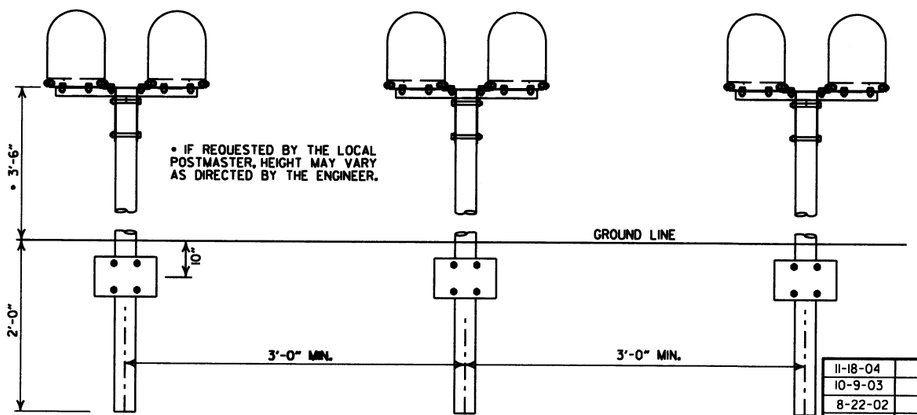
DOUBLE INSTALLATION



CLAMP



SPACER



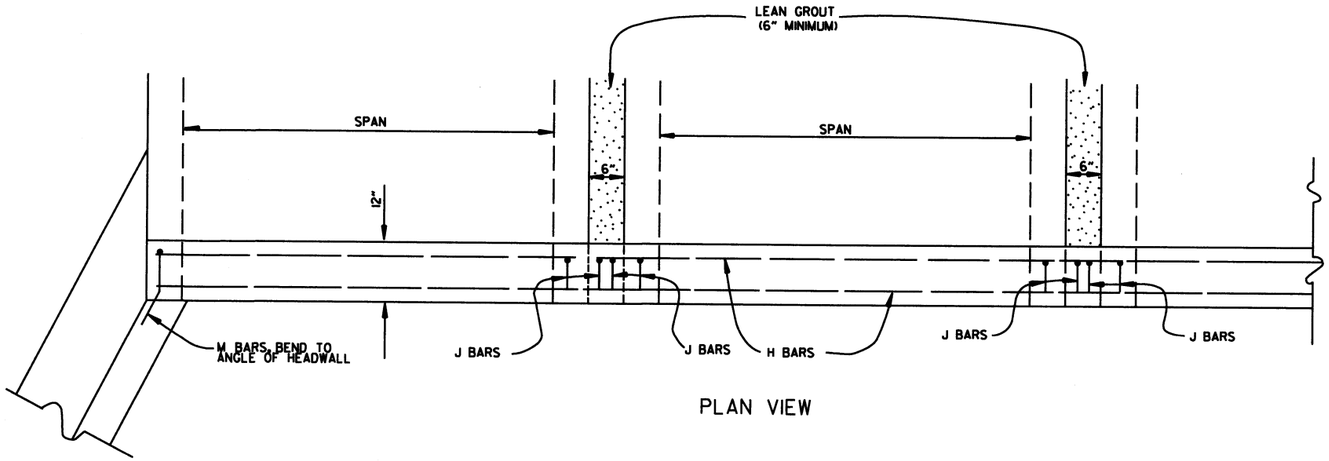
SPACING FOR MULTIPLE POST INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

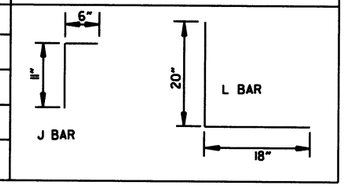
STANDARD DRAWING MB-1



PLAN VIEW

BAR LIST

BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	



• NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT

GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE WING DRAWING, STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

ALL EXPOSED CORNERS TO HAVE ¾" CHAMFERS.

WINGWALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, MEMBRANE WATERPROOFING, DRAINAGE FILL MATERIAL, GEOTEXTILE FILTER FABRIC, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.

LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS:
PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85.
SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS.
THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE.
THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

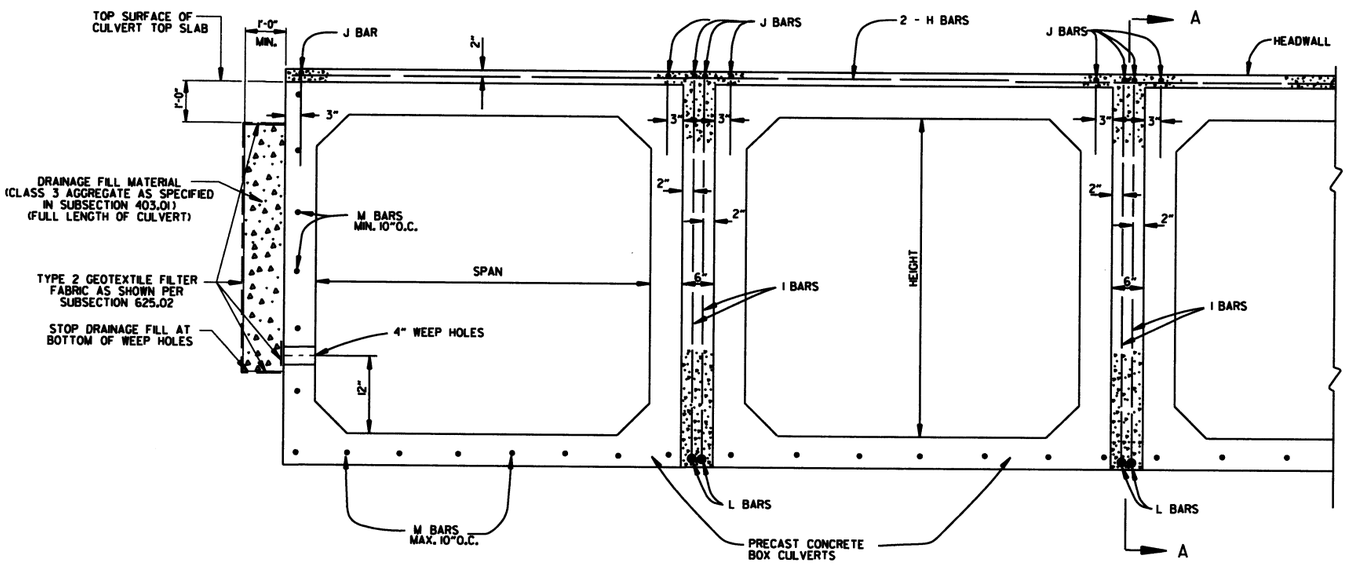
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

IN OUTER BARRELS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" IN THE ASSEMBLED CULVERT AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

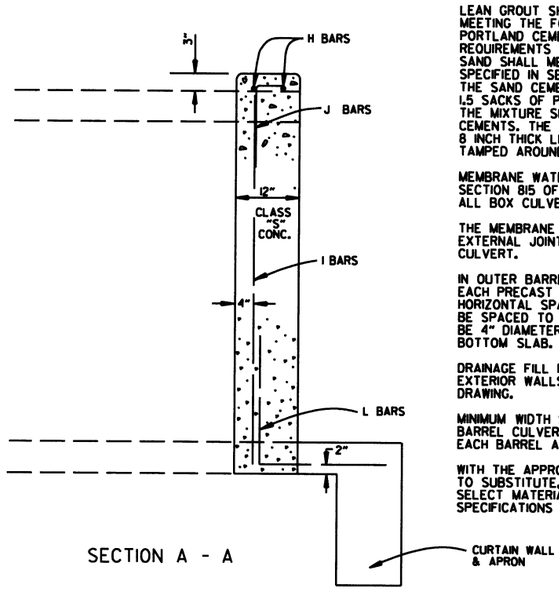
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT), ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.



END VIEW



SECTION A - A

DATE	REVISION	DATE FILMED
1-28-15	REVISED GEOTEXTILE FABRIC PLACEMENT	
12-15-11	ADDED NOTE & DTLS FOR WEEP HOLE AND DRAINAGE FILL	
10-15-09	ADDED GENERAL NOTE	
8-10-05	REVISED SPACING OF "M" BARS	
4-10-03	REVISED GENERAL NOTES	
10-18-96	CORRECTED AASHTO REF.	
10-1-92	ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91	ADDED NOTE FOR LEAN GROUT	
11- 8-90	REVISED FOR 1991 SPECS	
11-30-89	ISSUED; JABE	

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31 5/16	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M206.

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

EQUIV. DIA.	AASHTO M 207	
	SPAN	RISE
INCHES	INCHES	
18	23	14
24	30	19
27	34	22
30	38	24
33	42	27
36	45	29
39	49	32
42	53	34
48	60	38
54	68	43
60	76	48
66	83	53
72	91	58
78	98	63
84	106	68

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M207.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SUBSECTION 606.03.(f)(1).

NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

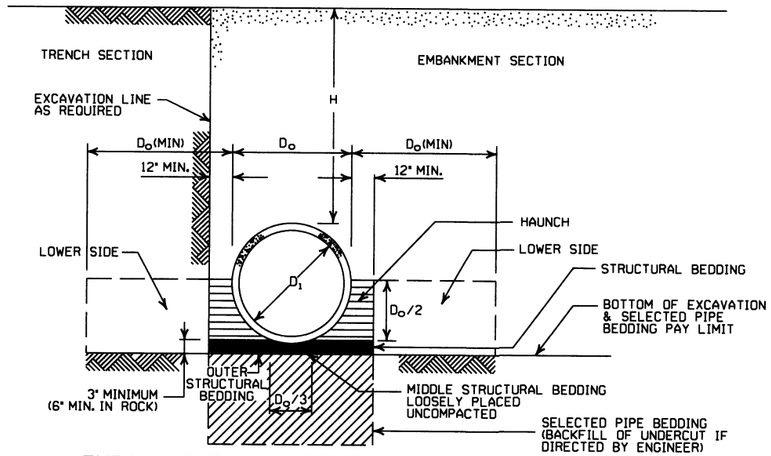
- LEGEND -

D_i = 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 STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170. R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
		2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM				
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
		② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM				
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL					ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)
				INSTALLATION		INSTALLATION			INSTALLATION		INSTALLATION
				TYPE 1		TYPE 1			TYPE 1		TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM					2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM			
15	17x13	3	0.064	2		15		0.060	2		15
18	21x15	3	0.064	2		15		0.060	2		15
21	24x18	3	0.064	2.25		15		0.060	2.25		15
24	28x20	3	0.064	2.5		15		0.075	2.5		15
30	35x24	3	0.079	3		12		0.075	3		12
36	42x29	3½	0.079	3		12		0.105	3		12
42	49x33	4	0.079	3		12		0.105	3		12
48	57x38	5	0.109	3		13		0.135	3		13
54	64x43	6	0.109	3		14		0.135	3		14
60	71x47	7	0.138	3		15		0.164	3		15
66	77x52	8	0.168	3		15					
72	83x57	9	0.168	3		15					
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM								
				INSTALLATION		INSTALLATION					
				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.

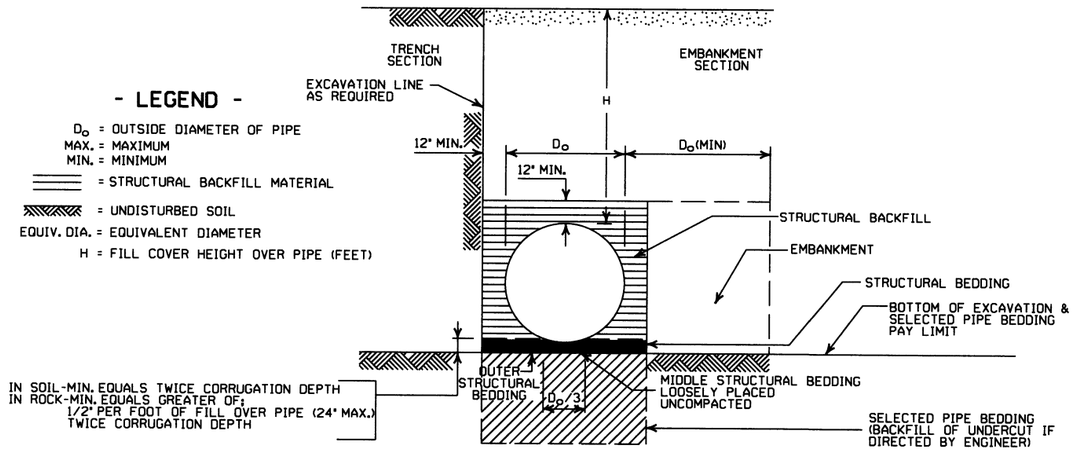
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

② WHERE THE STANDARD 2 2/3" x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

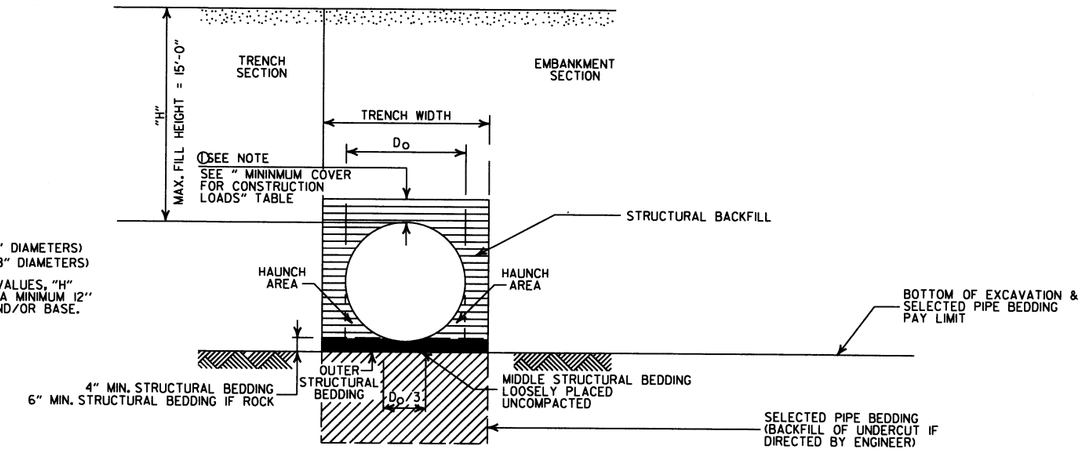
PIPE DIAMETER	TRENCH WIDTH (FEET) "H" < 10'-0"	TRENCH WIDTH (FEET) "H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

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.

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS 18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
D = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF PVC PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET) "H" < 10'-0"	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"

MULTIPLE INSTALLATION OF PVC PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

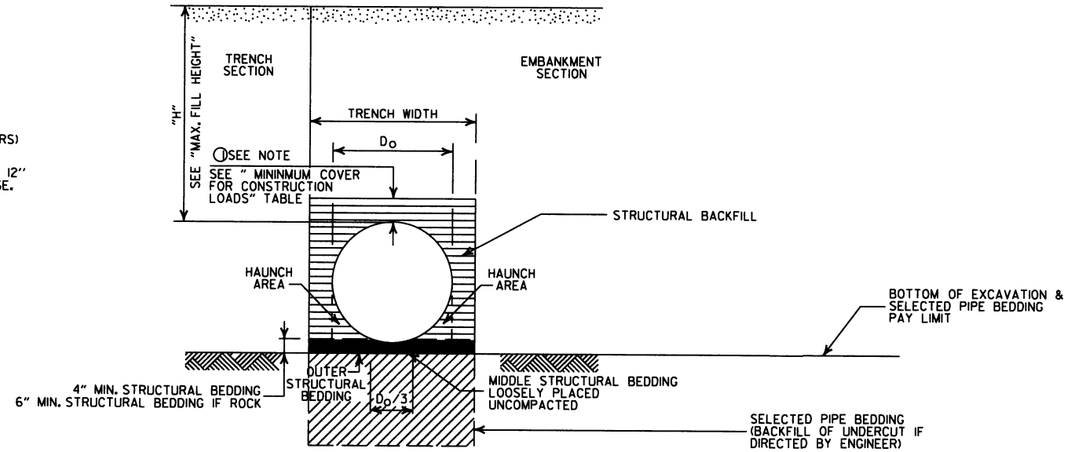
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

① NOTE:
12" MIN. (18" - 36" DIAMETERS)
MINIMUM COVER VALUE, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS 18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
18" THRU 36"	2'-0"	2'-6"	3'-0"	3'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
D_O = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

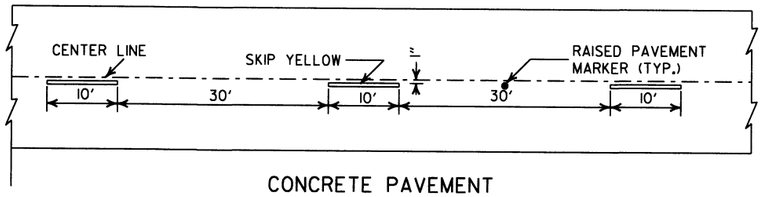
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

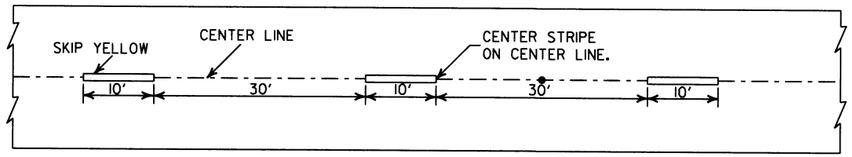
PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.

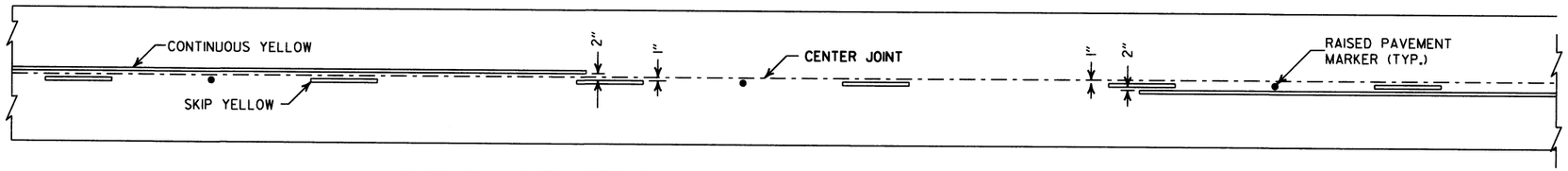


CONCRETE PAVEMENT

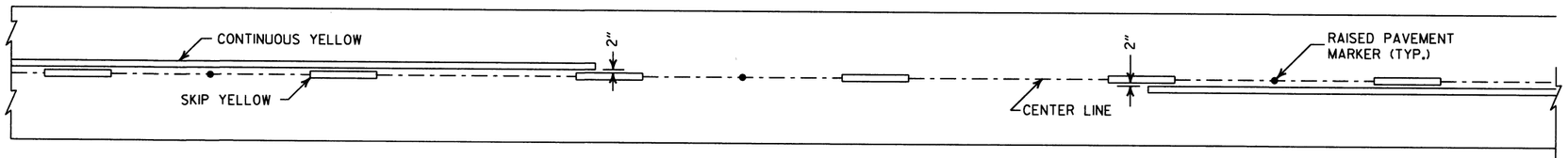


ASPHALT PAVEMENT

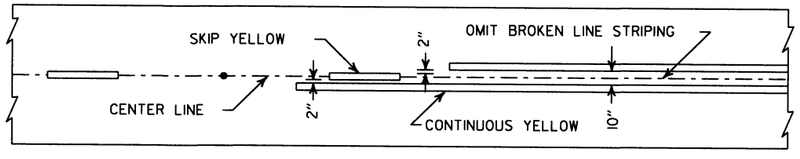
BROKEN LINE STRIPING



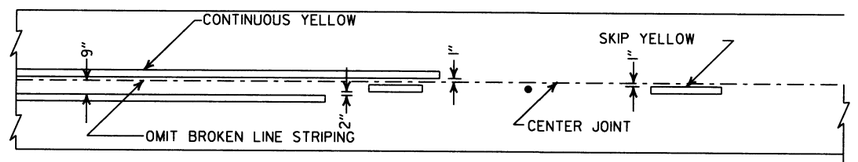
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

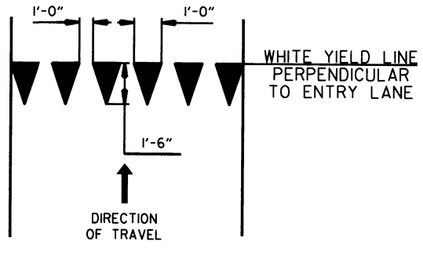


ASPHALT PAVEMENT

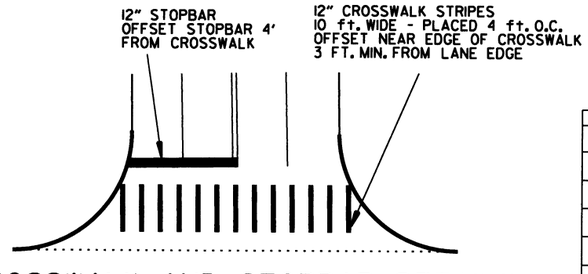


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

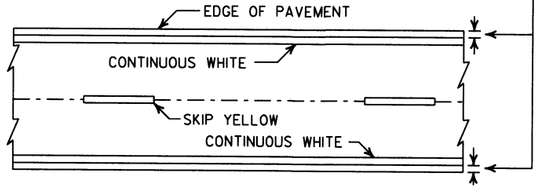


YIELD LINE DETAIL



CROSSWALK AND STOPBAR DETAILS

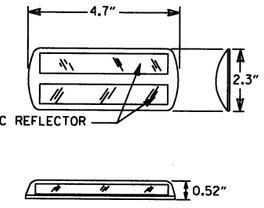
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING

NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.

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 AHTD QUALIFIED PRODUCTS LIST.

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

DATE	REVISION	FILMED
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

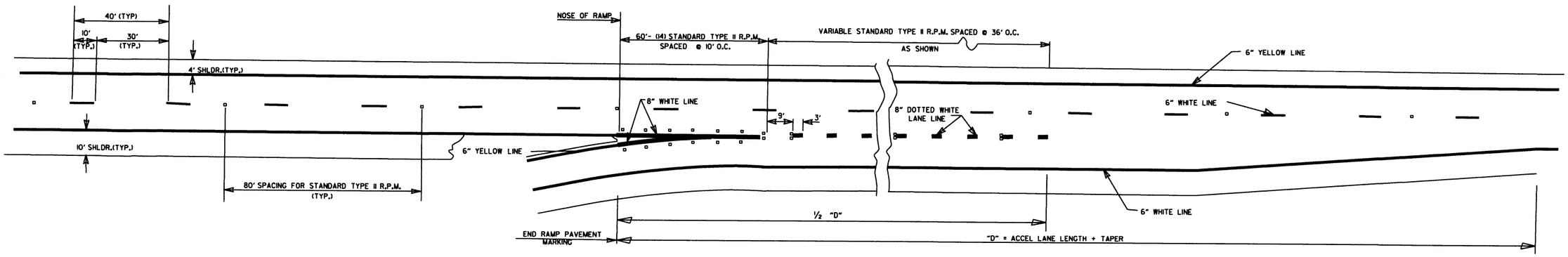
PAVEMENT MARKING QUANTITIES
(BASED ON 700' ACCEL. LANE + 300' TAPER)

ENTRANCE RAMP

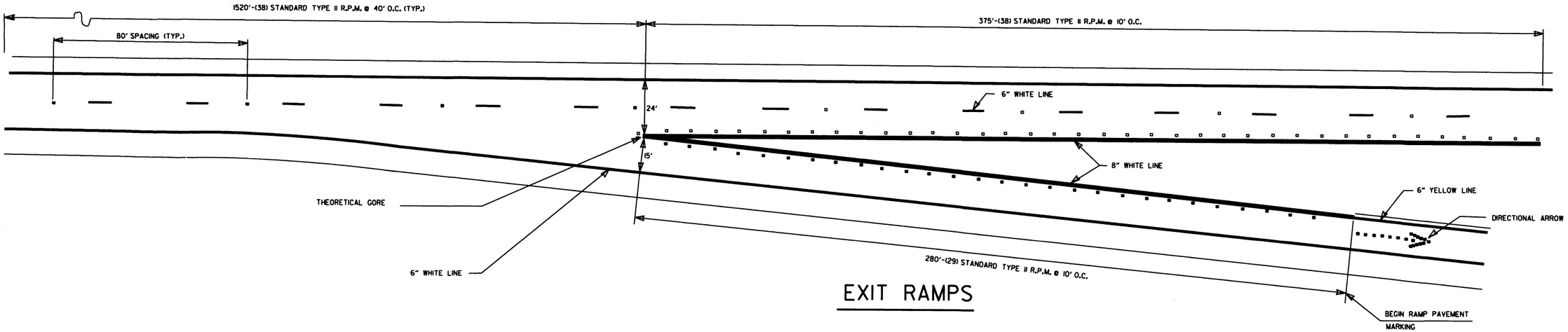
8" WHITE = 228 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH

EXIT RAMP

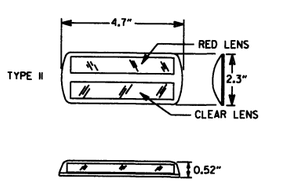
6" WHITE = 280 LIN. FT.
8" WHITE = 655 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 48 EACH
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH



ENTRANCE RAMPS

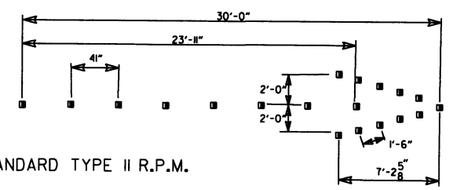


EXIT RAMPS



DETAIL OF
STANDARD
RAISED PAVEMENT MARKERS

NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.



(19) STANDARD TYPE II R.P.M.

DIRECTIONAL ARROWS

GENERAL NOTES:

THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.

NOTE:
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

DATE	REVISION	FILMED
12-8-16	REVISED RAISED PAV'T MARKERS FOR 80' SPACING; REVISED WIDTH OF STRIPING	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
7-26-12	REVISED RPM NOTATION	
12-15-11	REVISED RPMs ACCORDING TO LATEST POLICY	
11-17-10	REMOVED PLOWABLE PAVEMENT MARKERS	
6-3-10	REVISED PER 2009 MUTCD	
11-18-04	REVISED NOTES	
8-22-02	ADDED & REVISED NOTES; REV. ENTRANCE & EXIT RAMPS	
5-18-00	REMOVED HASHMARKS	
7-02-98	CHANGED TYPES TO ROMAN NUMERALS	
4-26-96	ADDED DIMENSIONS & QUANTITIES; REVISED LANE WIDTH ON EXIT RAMP	
2-2-95	PLACED IN USE	2-2-95

ARKANSAS STATE HIGHWAY COMMISSION

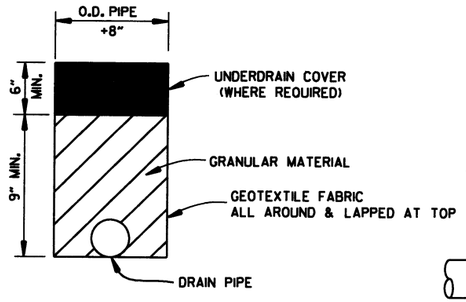
PERMANENT PAVEMENT MARKING ON ACCESS CONTROLLED ROADWAYS

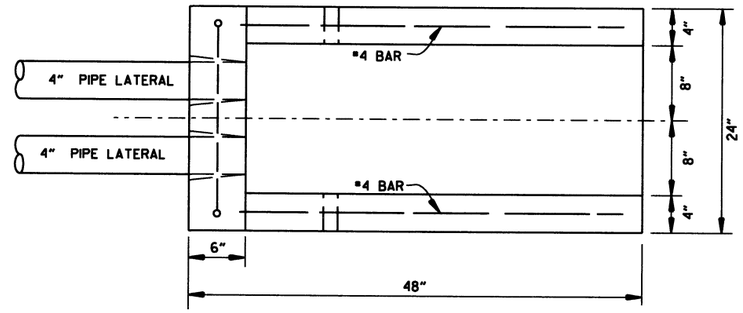
STANDARD DRAWING PM-2

NOTE:

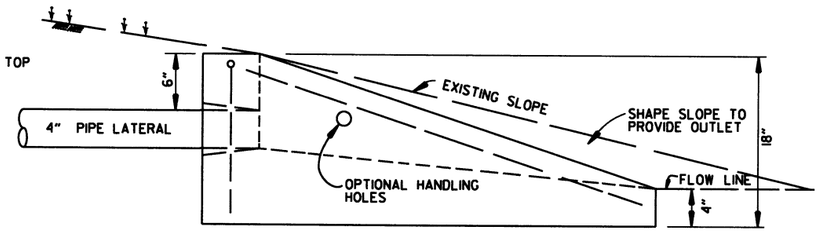
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.

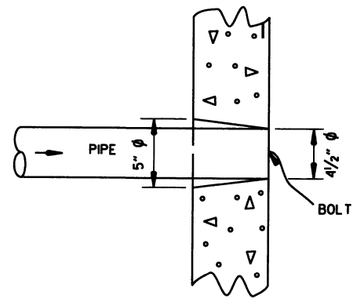




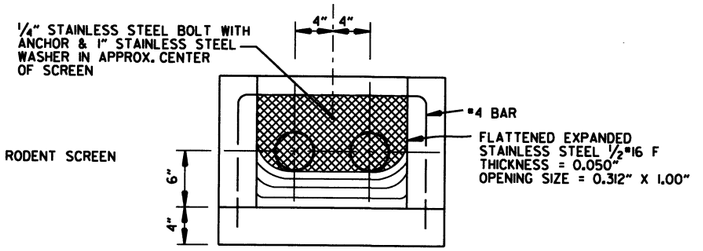
PLAN VIEW



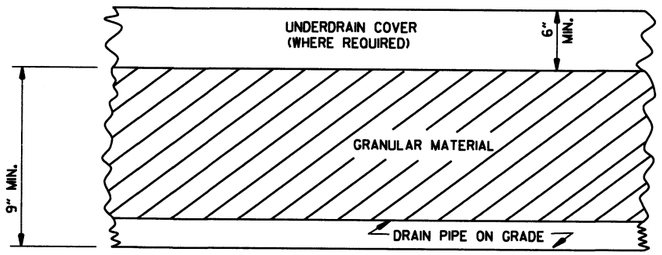
SIDE VIEW



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 I. 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."

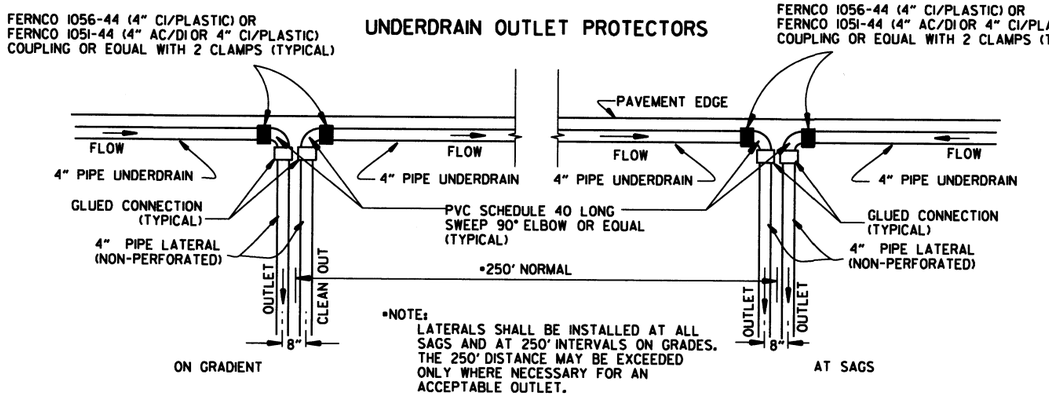
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

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

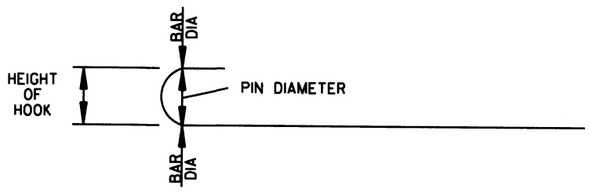
DETAILS OF PIPE UNDERDRAIN

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	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

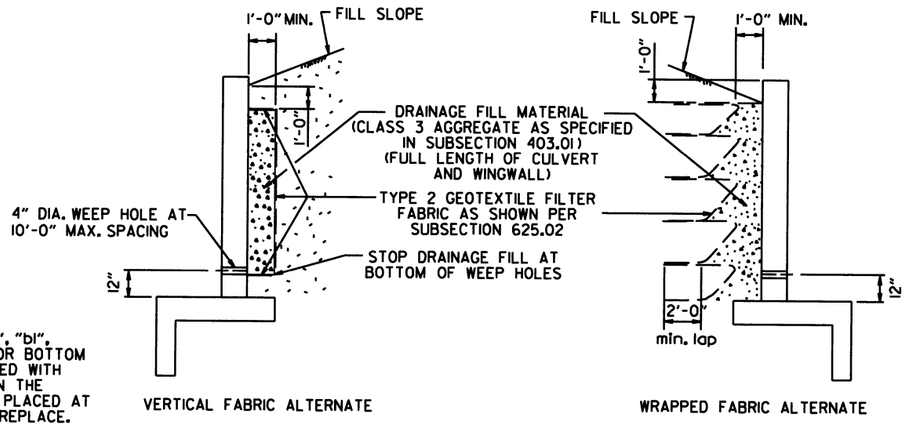
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

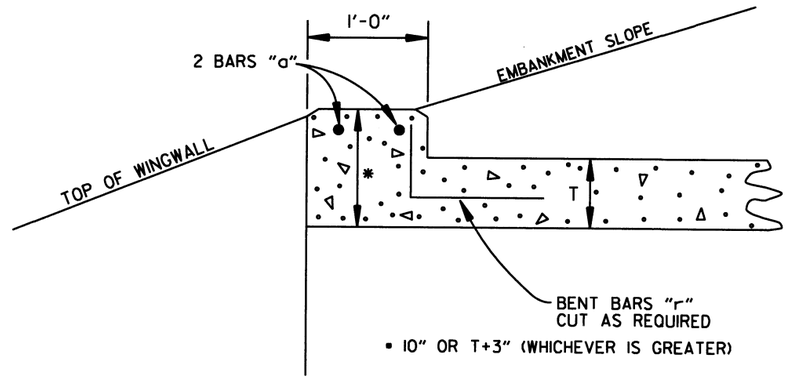
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
7/26/12	REV. DRAINAGE FILL MATERIAL & DETAIL	
12/15/11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

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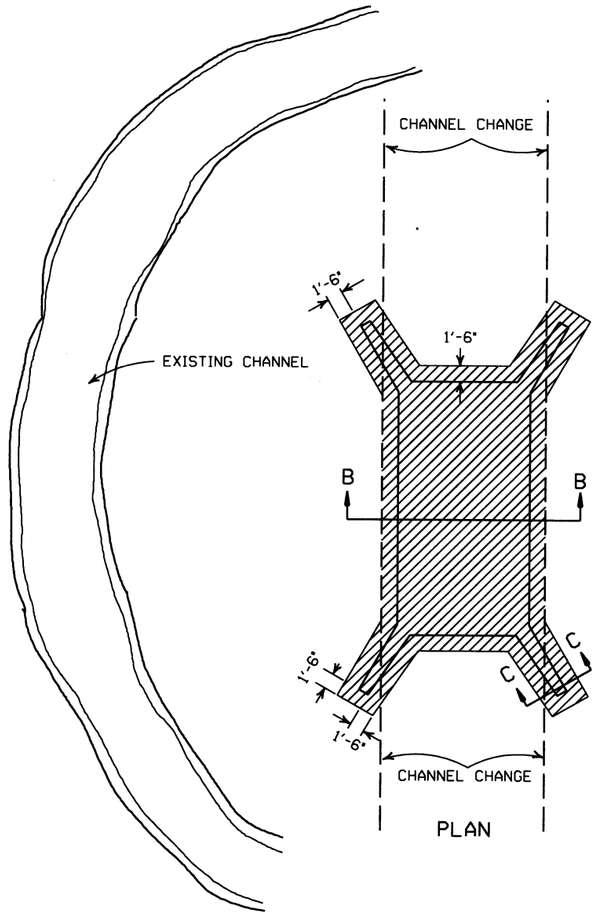
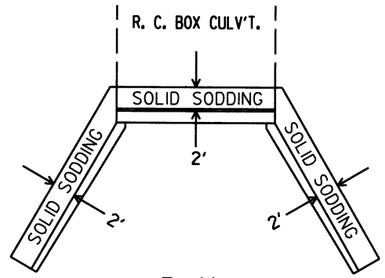
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



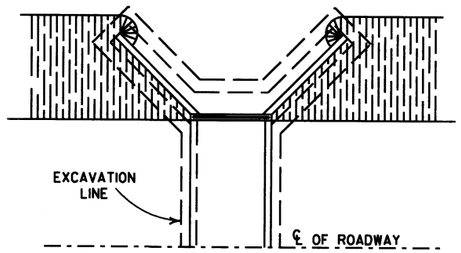
PLAN



PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.



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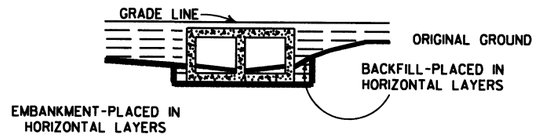
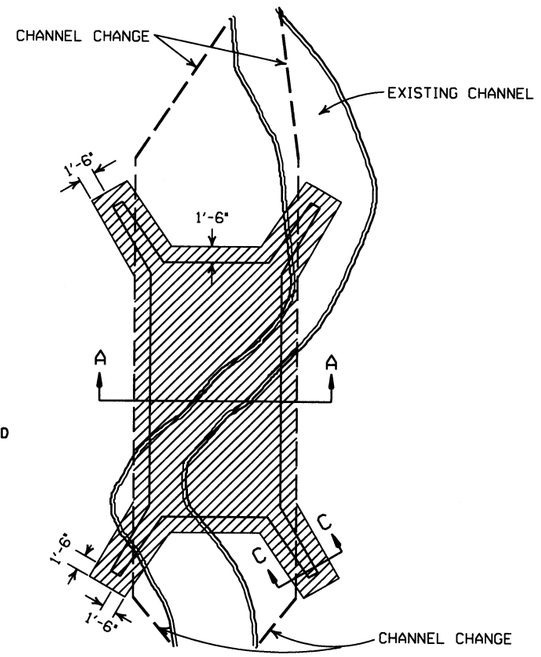
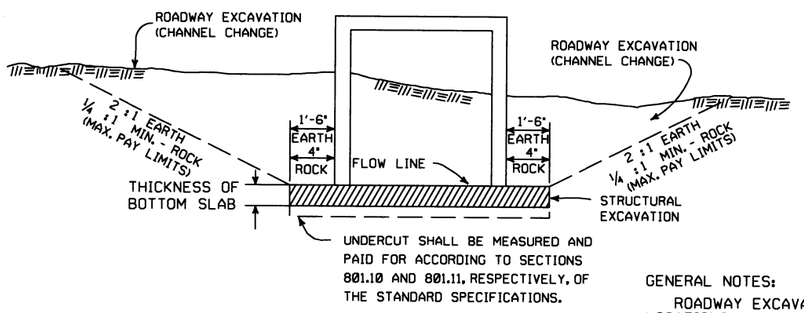


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

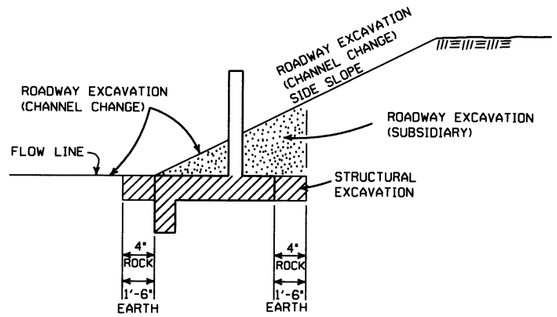


PLAN

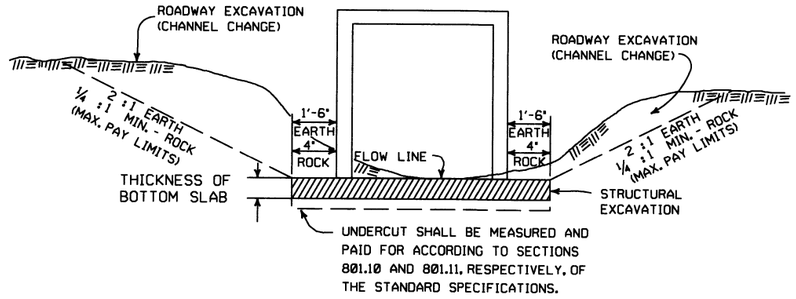


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

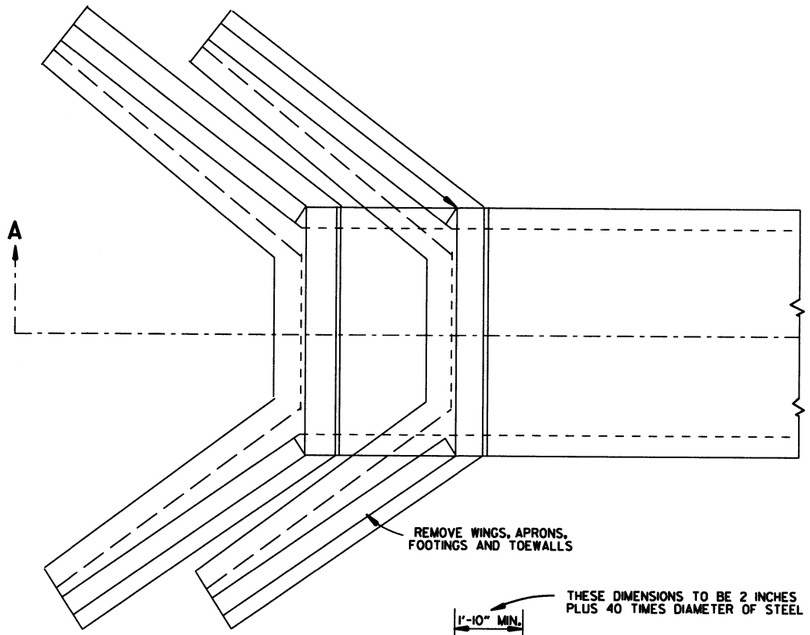
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

DATE	REVISION	FILMED
11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES	674-1-4-83
	AND ADDED MAXIMUM PAY	
	LIMIT NOTES.	
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

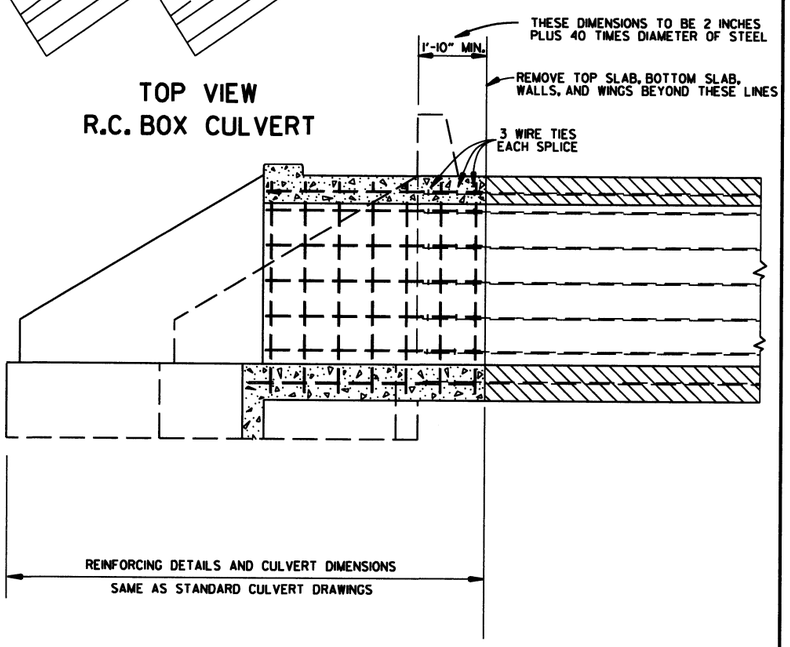
ARKANSAS STATE HIGHWAY COMMISSION

EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

STANDARD DRAWING RCB-2

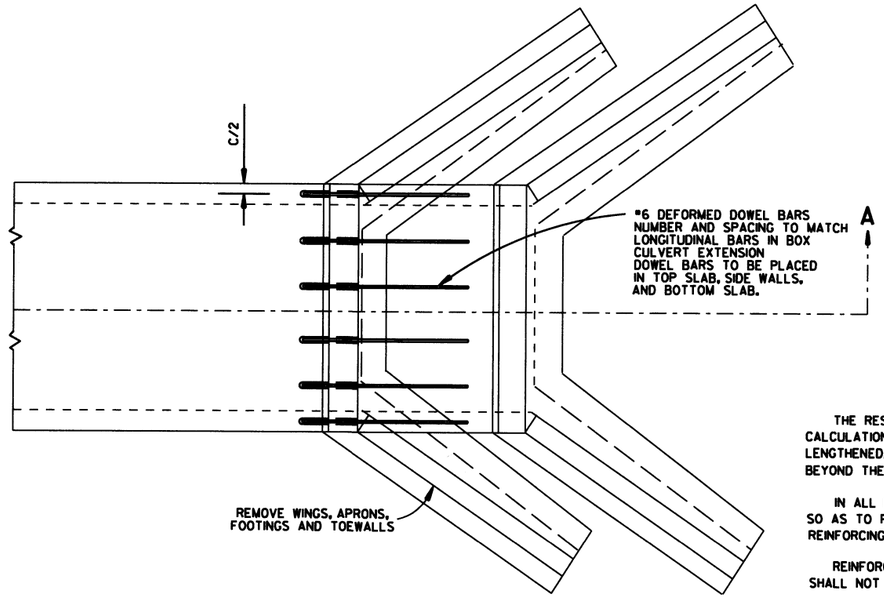


TOP VIEW
R.C. BOX CULVERT

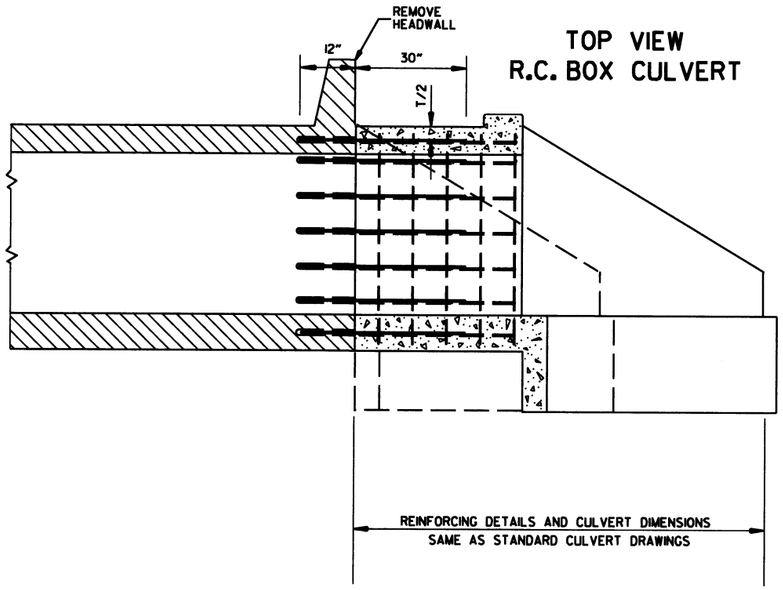


SECTION A-A

METHOD 1



TOP VIEW
R.C. BOX CULVERT



SECTION A-A

METHOD 2

GENERAL NOTES

	USE FOR METHOD
THE RESIDENT ENGINEER WILL MAKE INDIVIDUAL CALCULATIONS OF QUANTITIES FOR EACH STRUCTURE LENGTHENED, MAKING NO ALLOWANCE FOR OVERBREAKAGE BEYOND THE LINES INDICATED.	1
IN ALL INSTANCES CONCRETE SHALL BE REMOVED SO AS TO PERMIT FULL 40 DIAMETER SPLICE OF REINFORCING STEEL.	1
REINFORCING STEEL REMOVED FROM EXISTING STRUCTURE SHALL NOT BE REUSED IN CONSTRUCTING EXTENSION.	1&2
ON R.C. BOX CULVERTS THAT HAVE AN EXISTING CONCRETE APRON; THE CONCRETE APRON SHALL BE REMOVED WITH THE WINGS. THE COST OF REMOVING ALL OLD CONCRETE WILL BE INCLUDED IN THE PRICE BID PER CUBIC YARD FOR NEW CONCRETE OF THE CLASS SPECIFIED AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.	1&2
MATERIALS FOR SECURING DOWEL BARS SHALL MEET THE REQUIREMENTS OF SECTION 507.02 OF THE STANDARD SPECIFICATIONS.	2
DOWEL BARS SHALL BE INSTALLED AS FOLLOWS: THE DRILLING PROCEDURE SHALL BE APPROVED BY THE ENGINEER, THE FILLING SYSTEM SHALL BE APPROVED BY THE ENGINEER, AND SHALL BE AN INJECTION-TYPE SYSTEM WHICH WILL INSURE THAT SUFFICIENT MATERIAL IS INJECTED SO IT COMPLETELY SURROUNDS THE BARS AND FILLS THE HOLES.	2
THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER METHOD 1 OR METHOD 2, REGARDLESS OF WHICH METHOD IS USED. PAY QUANTITIES WILL BE CALCULATED BASED ON METHOD 1.	1&2

NOTE:
NO PART OF THIS STANDARD IS TO BE USED FOR ANY DETAILS RELATIVE TO NEW CONSTRUCTION.

SEE STANDARD DRAWING LISTED IN TABULATION OF STRUCTURES FOR ALL NEW CONSTRUCTION DETAILS.

DATE	REVISION	DATE FILM
10-12-95	CHANGED DRAWING # FROM 144-A	
4-1-93	ADDED GENERAL NOTE	
10-1-92	ADDED ALT. METHOD OF EXTENSION	
8-30-89	REDRAWN	
1-4-83	ELIMINATED CONCRETE CLASS	
12-20-56	RETRACED	

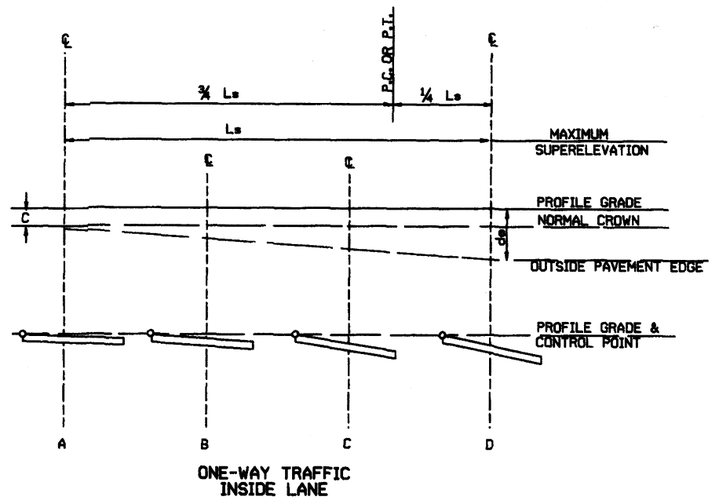
ARKANSAS STATE HIGHWAY COMMISSION

METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS

STANDARD DRAWING RCB-3

SUPERELEVATION TABLE FOR ONE - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			40 MPH			50 MPH			55 MPH			60 MPH			65 MPH			70 MPH		
	e	Le (FT)		e	Le (FT)		e	Le (FT)		e	Le (FT)		e	Le (FT)		e	Le (FT)		e	Le (FT)	
		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE
0° 15′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30′	N.C.			N.C.			N.C.			N.C.			0.023			0.025			0.028		
0° 45′	N.C.			N.C.			N.C.			0.022			0.030			0.033			0.037		
1° 00′	N.C.			N.C.			0.021			0.025			0.037			0.041			0.046		
1° 15′	N.C.			R.C.			0.026			0.029			0.043			0.048			0.054		
1° 30′	N.C.			0.021			0.031			0.034			0.049			0.055			0.062		
1° 45′	N.C.			0.025	175		0.036	200		0.037	225		0.055	250		0.062	250		0.070	275	
2° 00′	R.C.			0.028			0.040			0.040			0.061			0.069			0.078		
2° 15′	R.C.			0.031			0.045			0.043			0.067			0.075			0.087		
2° 30′	0.021			0.034			0.049			0.046			0.072			0.081			0.095		
2° 45′	0.024			0.037			0.053			0.048			0.077	260		0.087	315		0.101	350	
3° 00′	0.026			0.040			0.057			0.051			0.082	275		0.093	335		0.108	375	
3° 15′	0.028	150		0.043			0.061			0.053			0.086	285		0.098	350		0.114	400	
3° 30′	0.029			0.046			0.065	205		0.055	230		0.090	295		0.102	365		0.119	415	
3° 45′	0.031			0.048			0.069	215		0.058	240		0.093	305		0.106	380		0.123	430	
4° 00′	0.033			0.051			0.073	225		0.060	250		0.096	315		0.110	395		0.128	450	
4° 30′	0.037			0.056			0.078	240		0.063	260		0.102	335		0.116	415		0.135	475	
5° 00′	0.040			0.061			0.083	250		0.067	280		0.107	350		0.122	435		0.142	500	
5° 30′	0.043			0.066	185		0.088	260		0.071	295		0.112	365		0.128	455		0.149	525	
6° 00′	0.046			0.070	190		0.092	270		0.074	305		0.117	380		0.134	475		0.156	550	
6° 30′	0.050			0.074	200		0.096	280		0.076	315		0.122	395		0.140	495		0.163	575	
7° 00′	0.053			0.078	210		0.099	290		0.079	325		0.126	410		0.145	515		0.170	600	
7° 30′	0.056			0.081	215		0.102	295		0.081	335		0.131	425		0.151	535		0.177	625	
8° 00′	0.058			0.084	220		0.105	300		0.083	340		0.135	435		0.156	550		0.183	650	
8° 30′	0.061			0.087	225		0.108	305		0.085	345		0.139	445		0.161	565		0.189	675	
9° 00′	0.063			0.089	230		0.110	310		0.087	350		0.143	455		0.165	580		0.194	700	
10° 00′	0.068	160		0.094	235		0.115	320		0.091	355		0.150	475		0.173	605		0.203	725	
11° 00′	0.072	170		0.097	240		0.119	330		0.094	365		0.156	495		0.180	630		0.211	750	
12° 00′	0.076	175		0.099	250		0.122	340		0.096	375		0.161	510		0.186	650		0.218	775	
13° 00′	0.080	180		0.100	260		0.125	350		0.100	385		0.166	525		0.191	670		0.225	800	
14° 00′	0.083	190			270		0.127	360			395		0.170	540		0.196	685		0.230	825	
15° 00′	0.086	195			280		0.129	370			405		0.174	550		0.200	700		0.235	850	
16° 00′	0.085	200			290		0.131	380			415		0.177	560		0.204	715		0.239	875	
17° 00′	0.091	200			295		0.133	390			425		0.180	570		0.207	725		0.243	900	
18° 00′	0.093	205			300		0.135	400			435		0.183	580		0.210	735		0.247	925	
19° 00′	0.095	210			310		0.137	410			445		0.186	590		0.213	745		0.250	950	
20° 00′	0.097	215			320		0.139	420			455		0.189	600		0.216	755		0.253	975	
21° 00′	0.098	215			330		0.141	430			465		0.192	610		0.219	765		0.256	1000	
22° 00′	0.098	215			340		0.143	440			475		0.195	620		0.222	775		0.259	1025	
23° 00′	0.099	215			345		0.145	450			485		0.198	630		0.225	785		0.262	1050	
24° 00′	0.100	220			350		0.147	460			495		0.201	640		0.228	795		0.265	1075	
	D MAX = 24° 45′			D MAX = 13° 15′			D MAX = 8° 15′			D MAX = 6° 30′			D MAX = 5° 15′			D MAX = 4° 15′			D MAX = 3° 30′		



ONE-WAY TRAFFIC
INSIDE LANE

SUPERELEVATION FORMULA = $S = -\frac{L(de-C)}{Ls} - C$

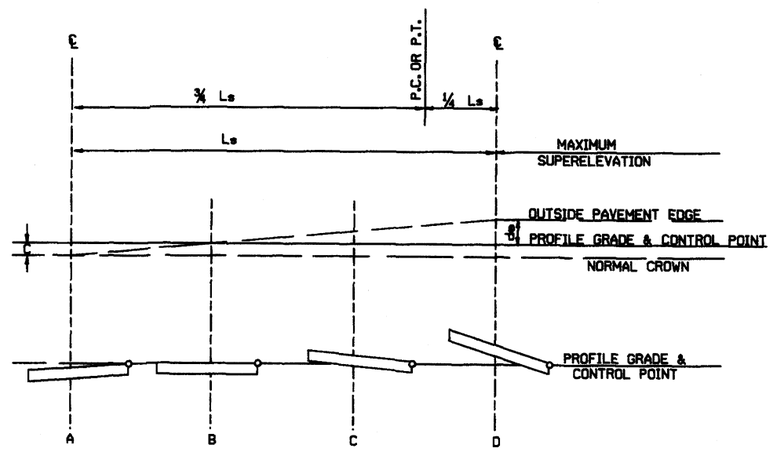
ABBREVIATIONS

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
OUTSIDE LANE

SUPERELEVATION FORMULA = $S = +\frac{L(de+C)}{Ls} - C$

01-09-87 DATE	ISSUED REVISION	578-1-15-87 DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR ONE-WAY TRAFFIC

STANDARD DRAWING SE-1

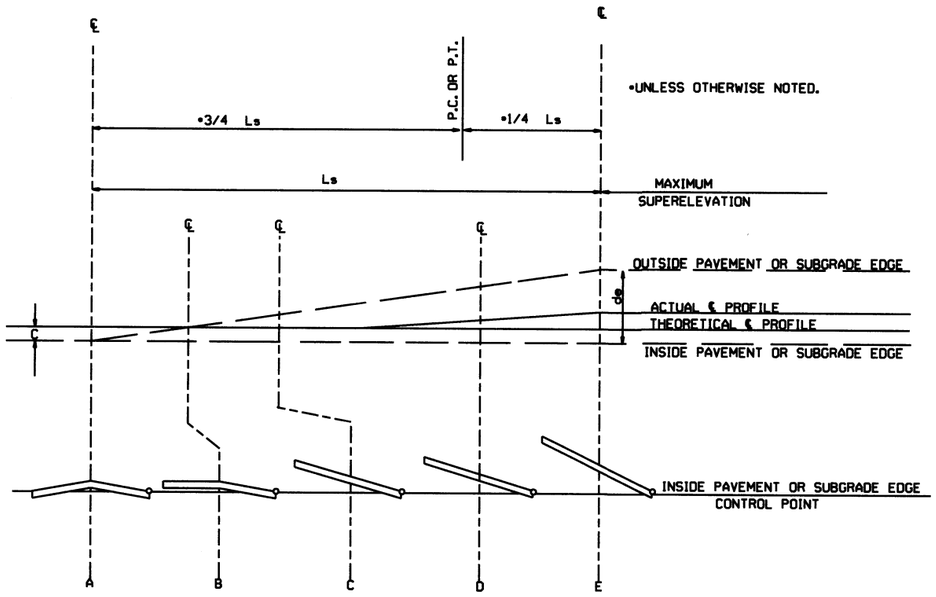
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15'	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30'	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45'	N.C.			N.C.			R.C.			R.C.			R.C.			R.C.		
1° 00'	N.C.			N.C.			0.021			0.022			0.023			0.028		
1° 15'	N.C.			R.C.			0.026			0.026			0.030			0.037	275	300
1° 30'	N.C.			0.021			0.031			0.032			0.037			0.046		
1° 45'	N.C.			0.025			0.036	200		0.037			0.043			0.054		
2° 00'	R.C.			0.028	175		0.040			0.043	225		0.049	250		0.062		
2° 15'	R.C.			0.031			0.045		250	0.048		300	0.055		300	0.070		
2° 30'	0.021			0.034			0.049			0.053			0.061			0.078	300	350
2° 45'	0.023			0.037			0.053			0.058			0.067			0.085	315	
3° 00'	0.025			0.040		200	0.057			0.063			0.072			0.091	335	
3° 15'	0.027	150		0.043			0.061			0.067	230		0.077	260		0.096	350	
3° 30'	0.029			0.046			0.065	205		0.072	245		0.082	275		0.098	360	400
3° 45'	0.031			0.049			0.069	215		0.076	255		0.086	285		0.100	360	
4° 00'	0.033		200	0.051			0.072	225		0.080	265		0.090	295				
4° 30'	0.037			0.056			0.078	240		0.083	270		0.093	305	350			
5° 00'	0.040			0.061			0.083	250		0.087	280		0.096	315				
5° 30'	0.043			0.066	185		0.088	260		0.091	295		0.098	320				
6° 00'	0.046			0.070	190		0.092	270		0.094	300	350						
6° 30'	0.050			0.074	200		0.095	280	300	0.096	305							
7° 00'	0.053			0.078	210		0.098	285		0.100	315							
7° 30'	0.056			0.081	215		0.099	290										
8° 00'	0.058			0.084	220		0.100	290										
8° 30'	0.061			0.087	225	250												
9° 00'	0.063			0.089	230													
10° 00'	0.068	160		0.094	245													
11° 00'	0.072	170		0.097	250													
12° 00'	0.076	175		0.099	255													
13° 00'	0.080	180		0.100	260													
14° 00'	0.083	190																
15° 00'	0.086	195																
16° 00'	0.089	200																
17° 00'	0.091	200																
18° 00'	0.093	205																
19° 00'	0.095	210																
20° 00'	0.097	215	250															
21° 00'	0.098	215																
22° 00'	0.099	215																
23° 00'	0.099	215																
24° 00'	0.100	220																

D MAX = 24° 45' | D MAX = 13° 15' | D MAX = 8° 15' | D MAX = 6° 30' | D MAX = 5° 15' | D MAX = 3° 30'

ABBREVIATIONS

NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
e - RATE OF SUPERELEVATION (FT. PER FT.)
Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
C - NORMAL CROWN (FT.)



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

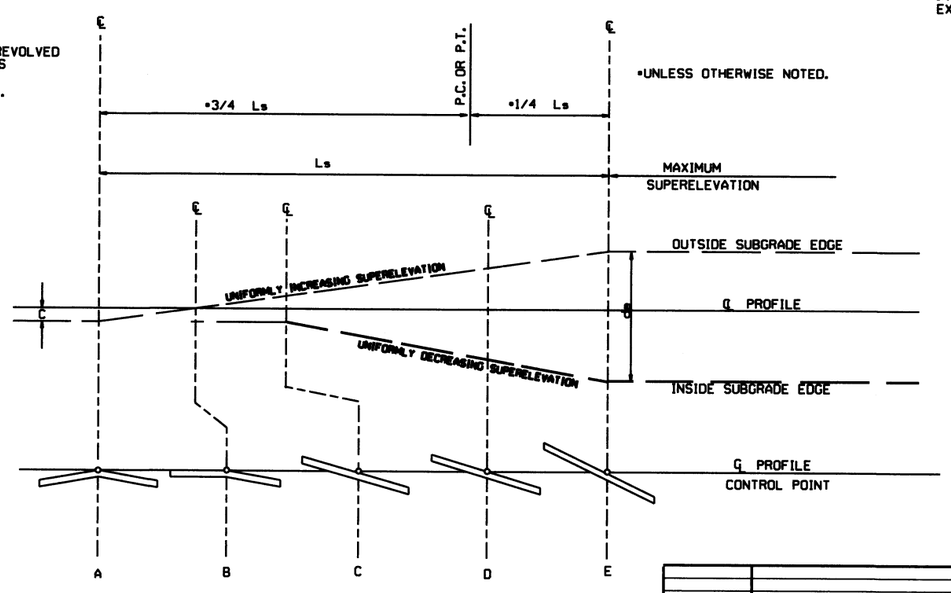
GENERAL NOTES

1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:

3 LANE UNDIVIDED - - - - - +20%
4 LANE UNDIVIDED - - - - - +50%
5 LANE UNDIVIDED - - - - - +80%
6 LANE UNDIVIDED - - - - - +100%

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

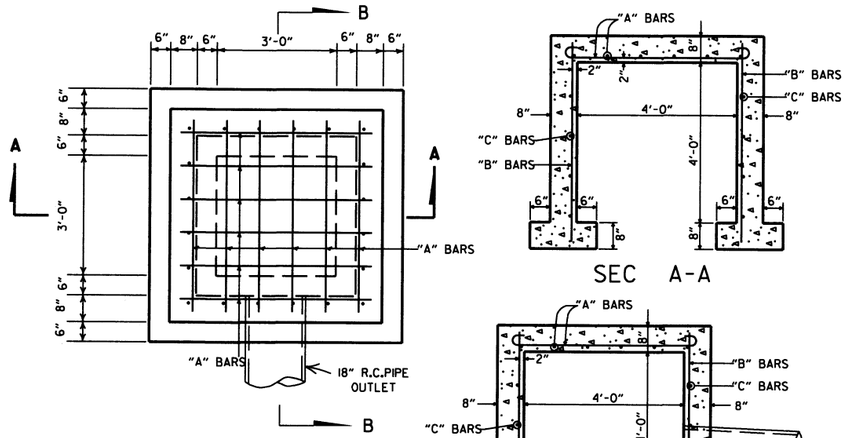
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	
01-09-87	ISSUED	534-1-9-87

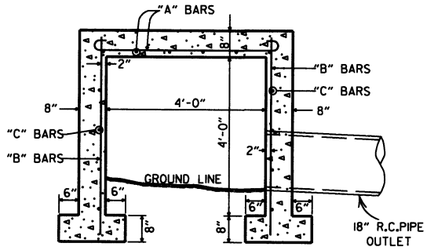
ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2



SEC A-A



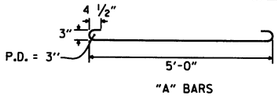
SEC B-B

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

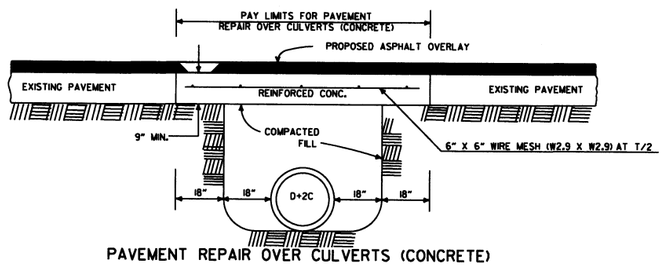
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

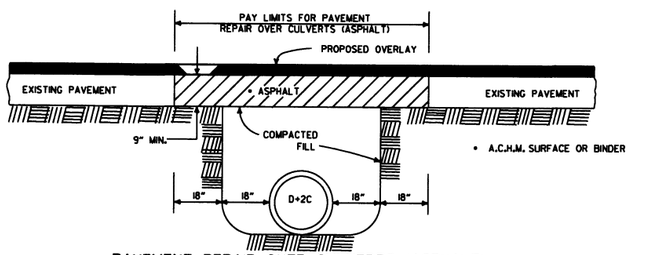
GENERAL NOTE:

THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITTIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



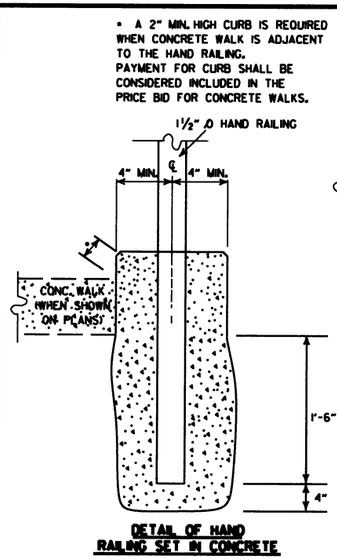
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



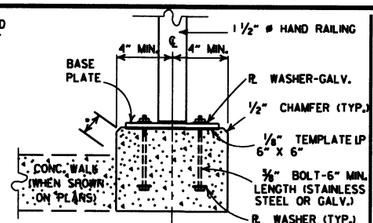
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

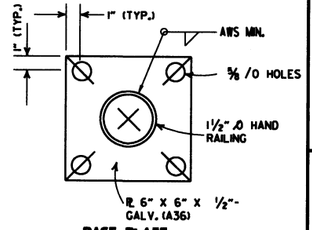
* A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

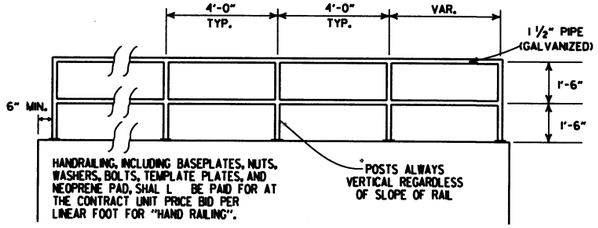


POST CONNECTION TO WALL

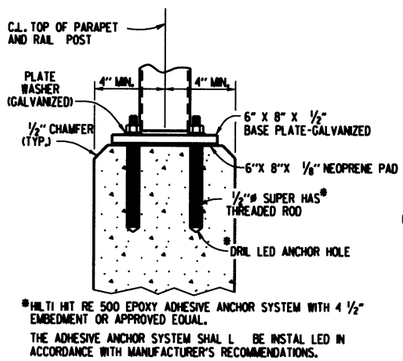


BASE PLATE

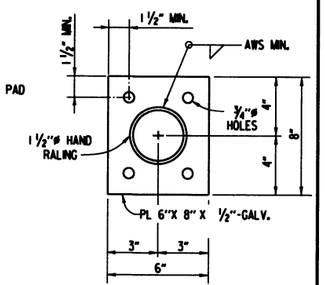
POST CONNECTION DETAILS



HAND RAILING SHALL CONFORM TO SECTION 633.



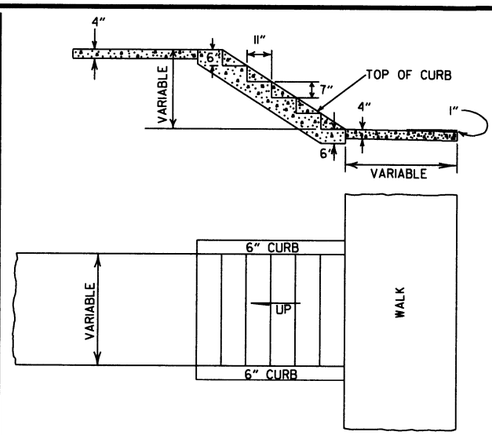
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



DETAILS OF CONCRETE STEPS & WALKS

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.

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

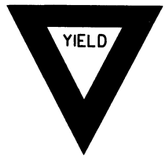
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI-1

R1-1

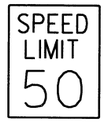
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

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"

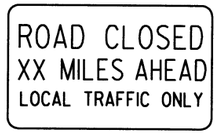
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2

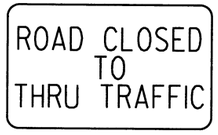
48"X30"

R11-3A



60"X30"

R11-4



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"

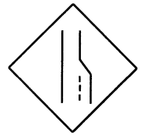
W3-1

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"

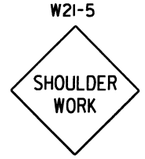
W20-7a

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"

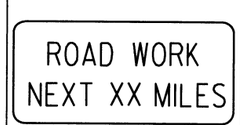
W8-11

STD. 36"X36"
FWY. 48"X48"

W8-9

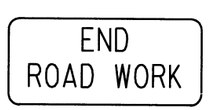
STD. 36"X36"
FWY. 48"X48"

G20-1



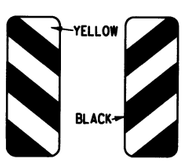
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

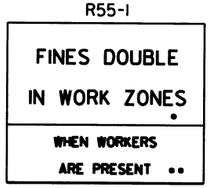
M4-9

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.

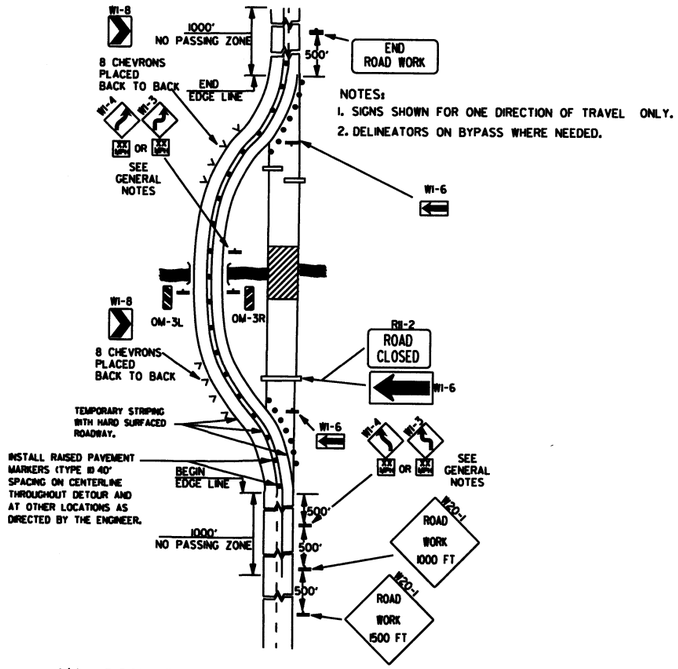
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
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	
8-18-04	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

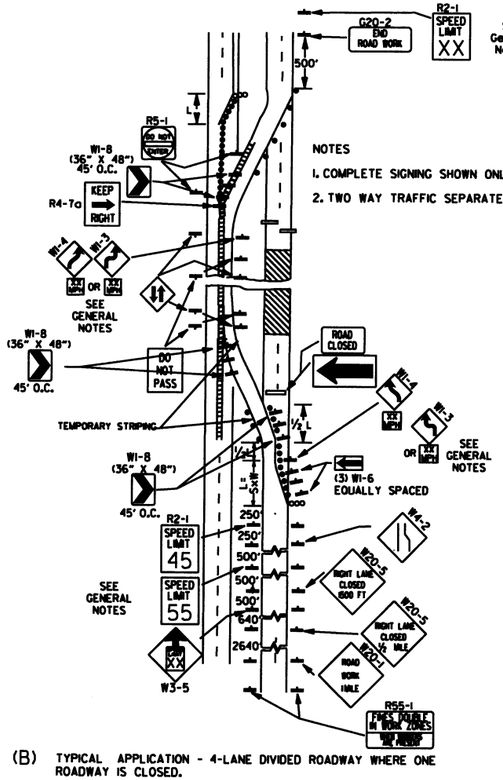
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



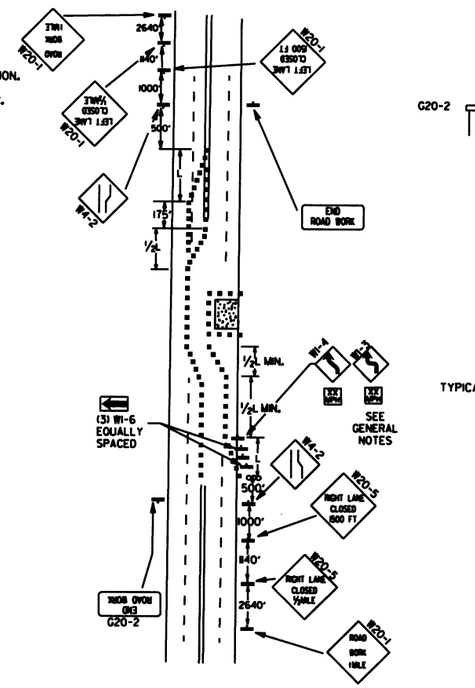
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

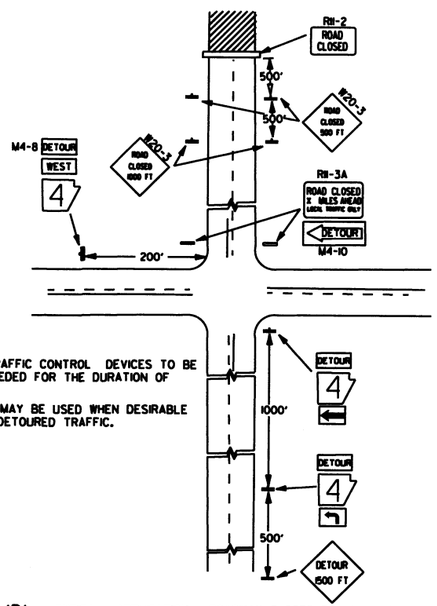


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.

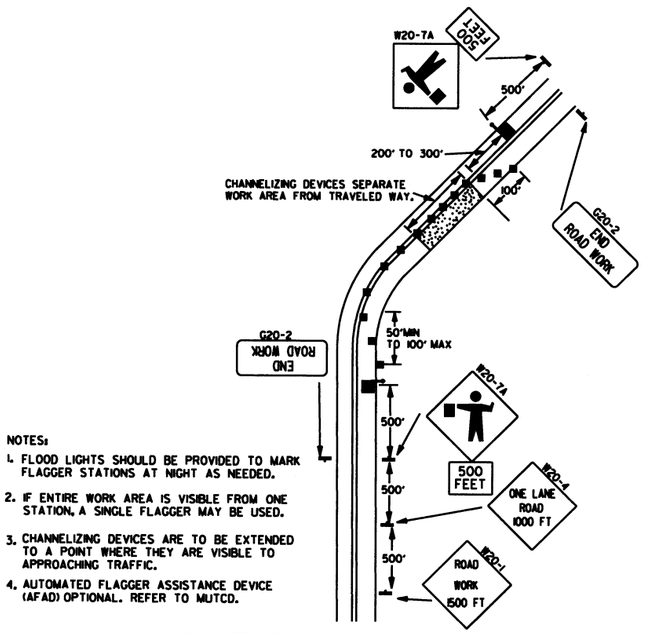


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



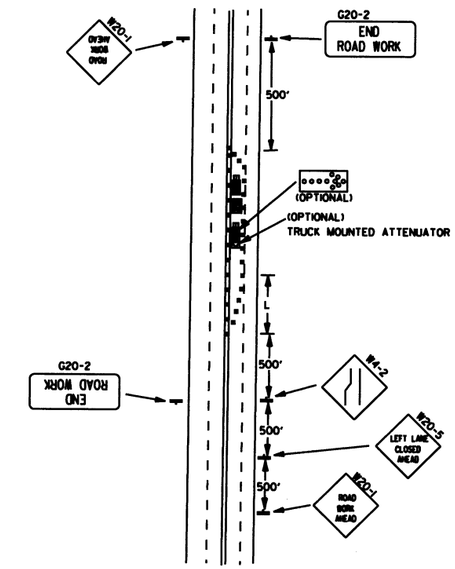
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.

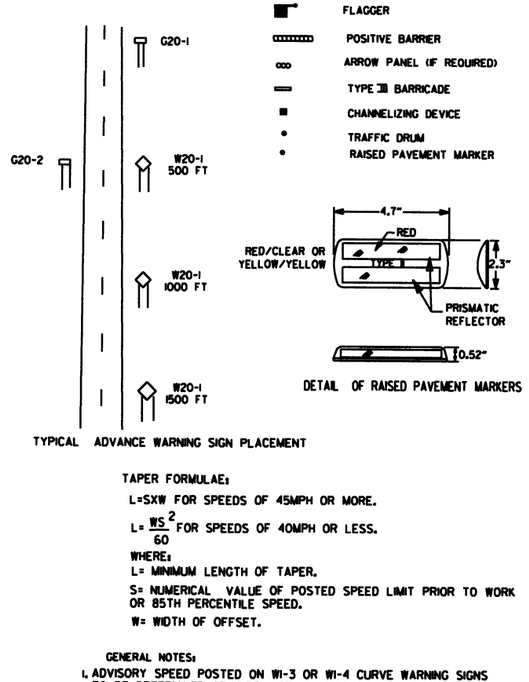


NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE 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.



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:

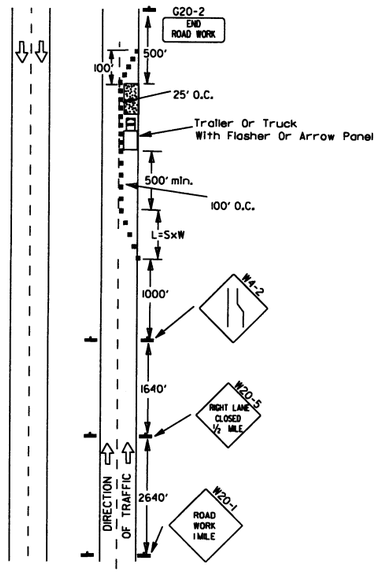
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-K(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED 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-KXX) 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-K(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-KXX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-8-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
8-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

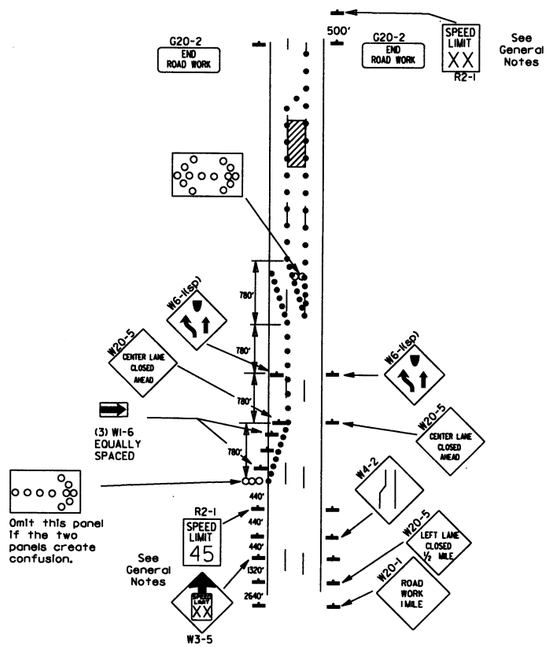
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

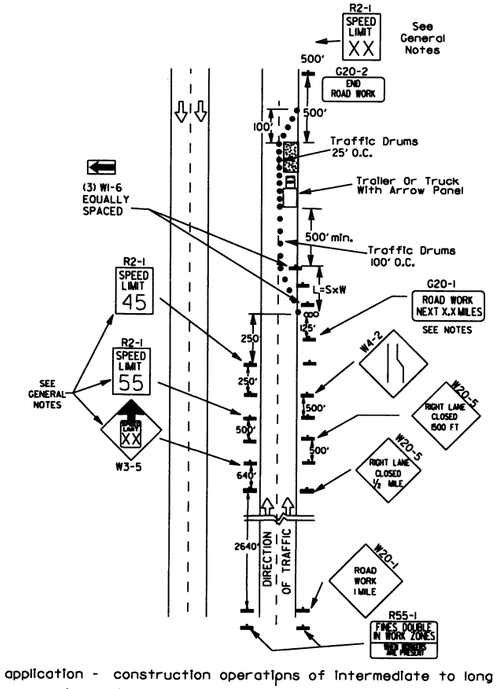
STANDARD DRAWING TC-2



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



(B) Typical application - 3-lane oneway roadway where center lane is closed.



(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

KEY:

OOO Arrow Panel (If Required)

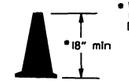
■ Channelizing Device

● Traffic drum

GENERAL NOTES:

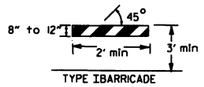
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

Channelizing devices



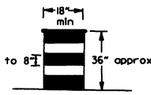
- When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

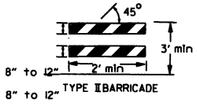
CONES



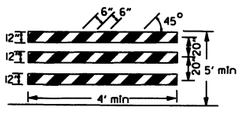
TYPE I BARRICADE

PLASTIC DRUM



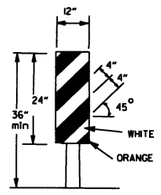


TYPE I BARRICADE



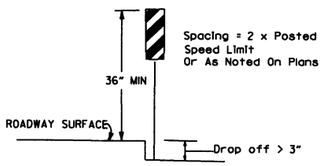
TYPE III BARRICADE

NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.

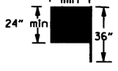


VERTICAL PANEL
VP-1R

VERTICAL PANEL PLACEMENT



FLAG



Flag shall be of good grade red material

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" ≤ 12"	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]
> 12" ≤ 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS[1]	PRECAST CONCRETE BARRIER[3] & EDGE LINES
> 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER[3] & EDGE LINES	PRECAST CONCRETE BARRIER[3] & EDGE LINES

INTERSTATE

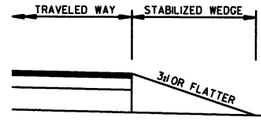
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 2"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS[2]
> 2" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS[2]
> 6"	EDGE OF TRAVELED 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:

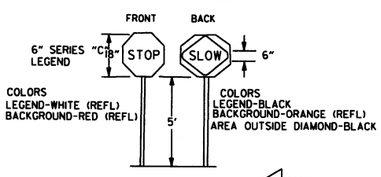
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED.
3. 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.
4. W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.



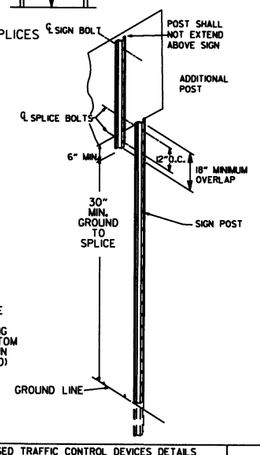
STABILIZED WEDGE

NOTE:
MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.

STOP SLOW PADDLE



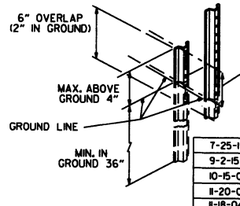
DETAIL OF SPLICES

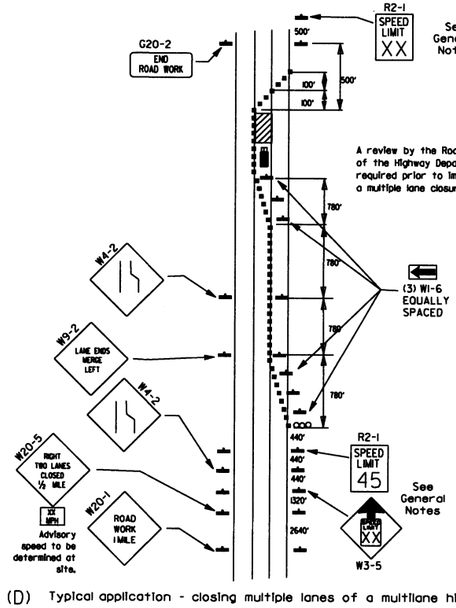


NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

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.





(D) Typical application - closing multiple lanes of a multilane highway.

DATE	REVISION	FILMED
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	
8-18-04	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	

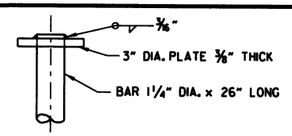
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

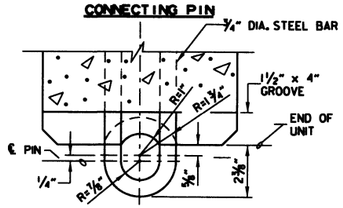
STANDARD DRAWING TC-3

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", 90°, 3 3/8" R, LIFTING HOLE
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°, 2'-1 3/8", 4 3/8", 1 1/2", 9"

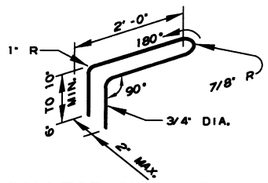


CONNECTING PIN

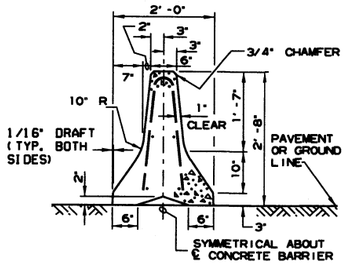


SECTION E-E

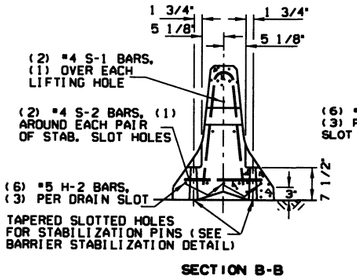
CONNECTION DETAILS



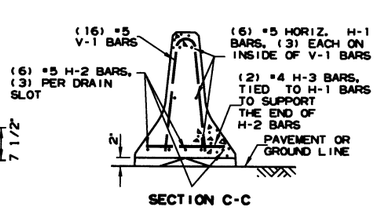
CONNECTION LOOP



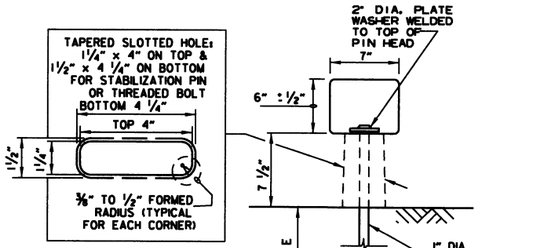
SECTION A-A



SECTION B-B



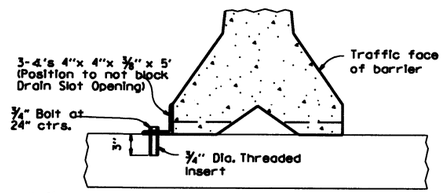
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

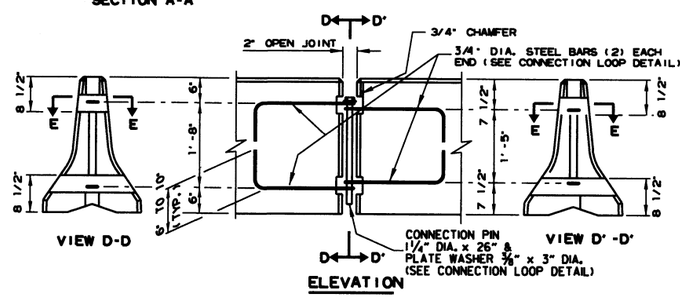
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

BARRIER STABILIZATION DETAIL

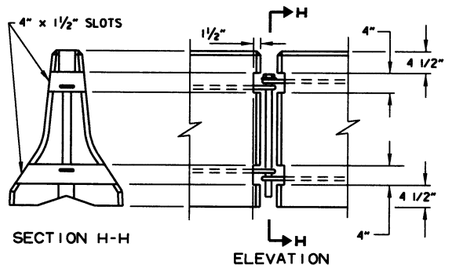
BRIDGE DECKS



VIEW D-D

VIEW D'-D'

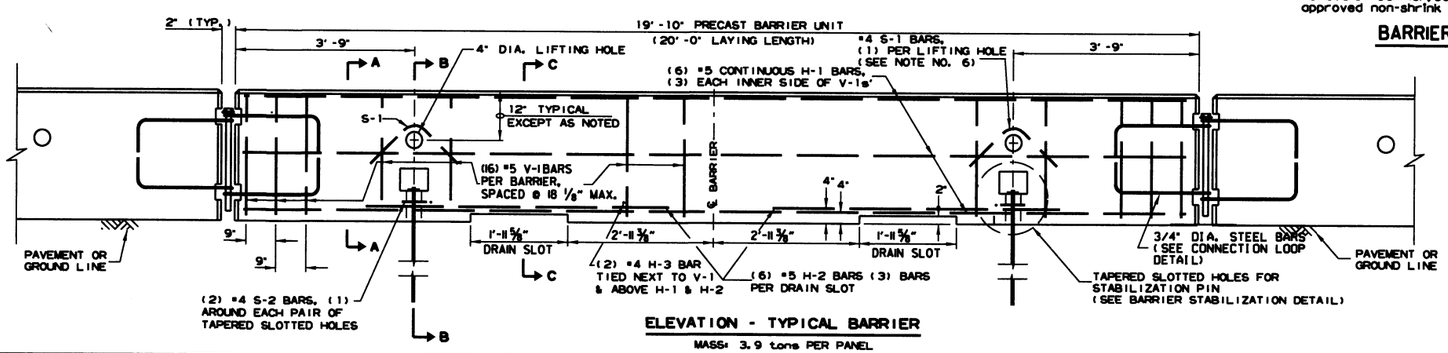
ELEVATION



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 walls within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers.
   Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices.
   Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.
3. Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.
4. Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.
5. Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.
6. A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

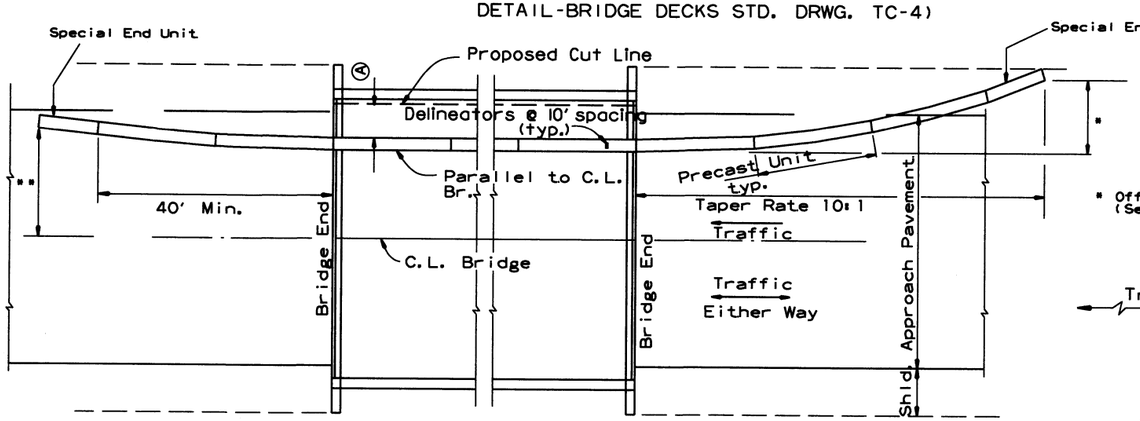
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)

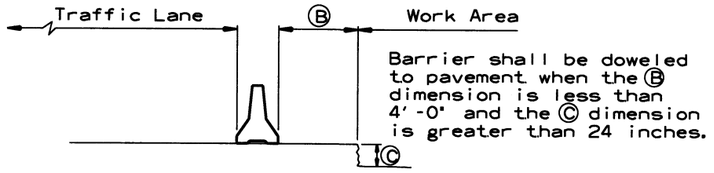


BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

** Offset Distance for Two Way Traffic Only

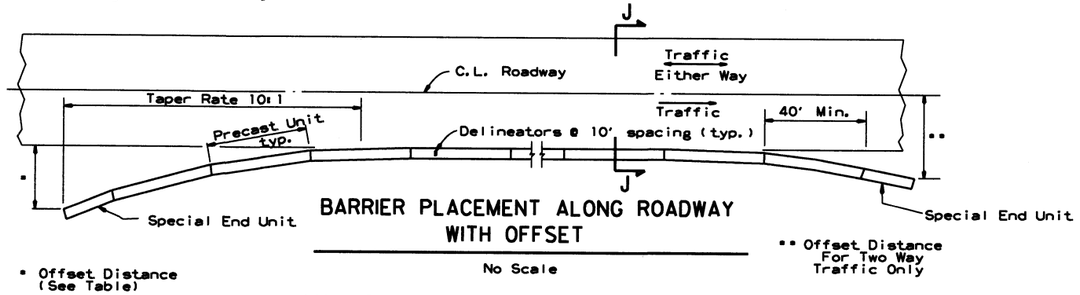
* Offset Distance (See Table)



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

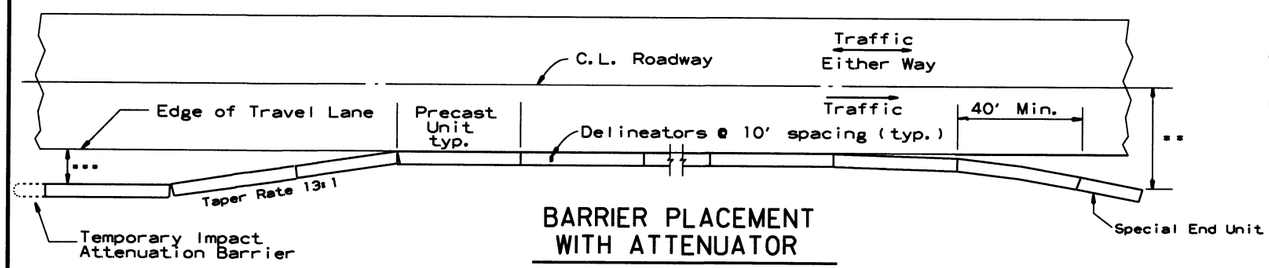
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

Speed (MPH)	Offset Distance (FT.)
≤ 45	12
> 45	18

If offset distance is not attainable, then see "Barrier Placement With Attenuator" Detail shown below.

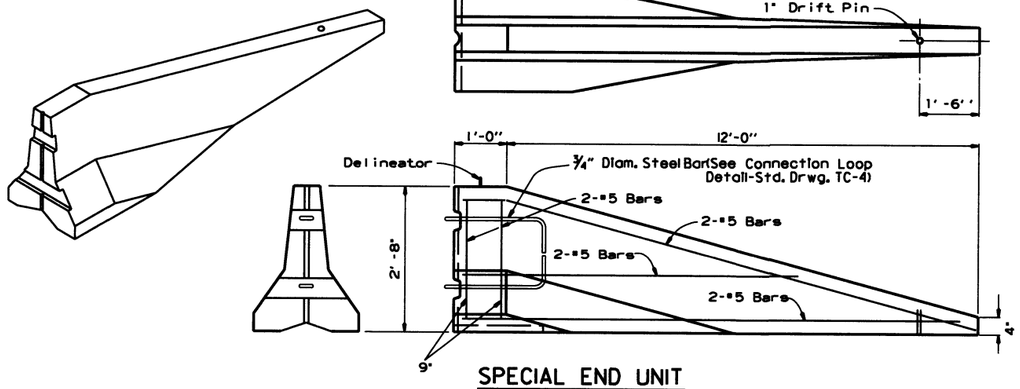


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

** Offset Distance For Two Way Traffic Only



SPECIAL END UNIT

No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."

DATE	REVISION	FILMED
10-5-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

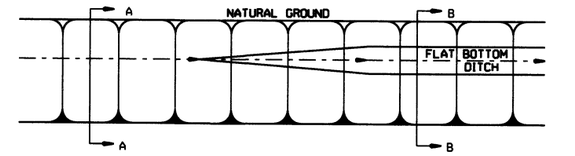
ARKANSAS STATE HIGHWAY COMMISSION

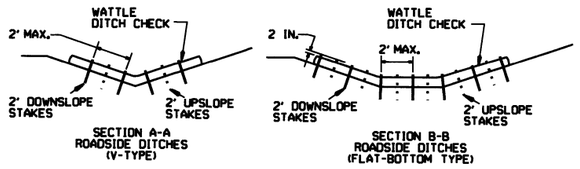
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-5

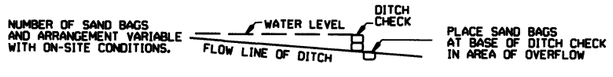
GENERAL NOTES

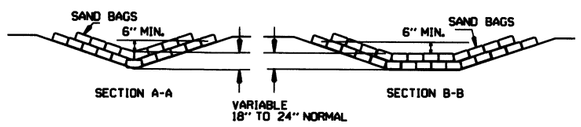
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



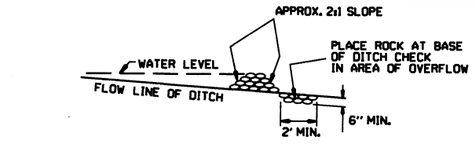


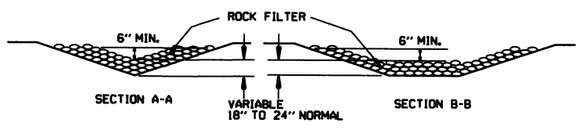
WATTLE DITCH CHECK (E-1)





SAND BAG DITCH CHECK (E-5)



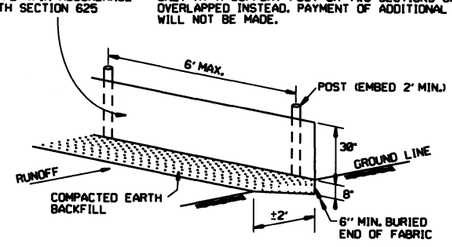


ROCK DITCH CHECK (E-6)

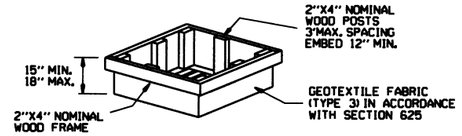
GENERAL NOTES

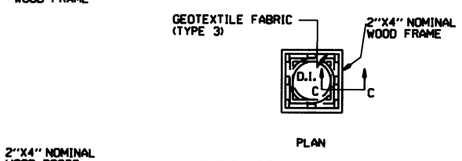
GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

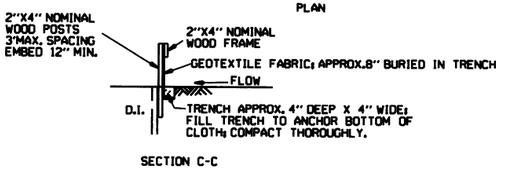
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



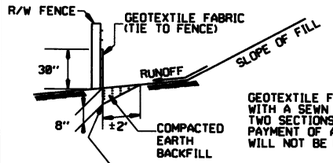
SILT FENCE (E-11)





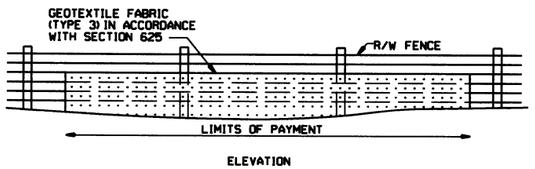


DROP INLET SILT FENCE (E-7)



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.



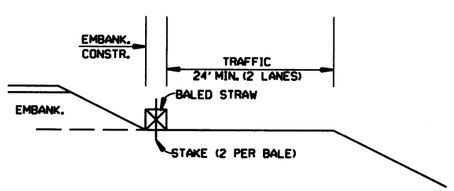
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

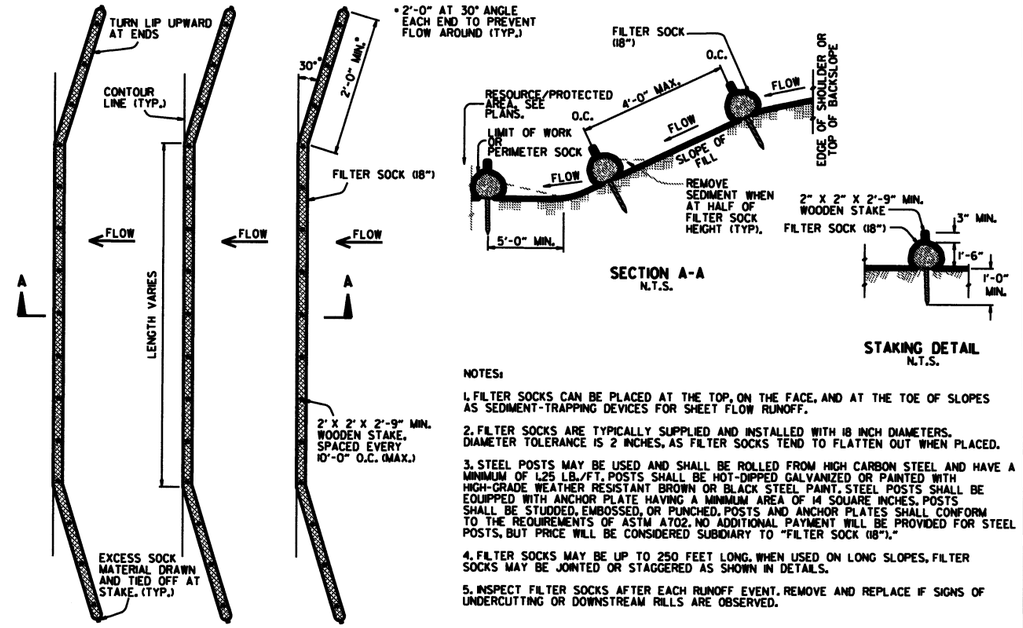
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

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.

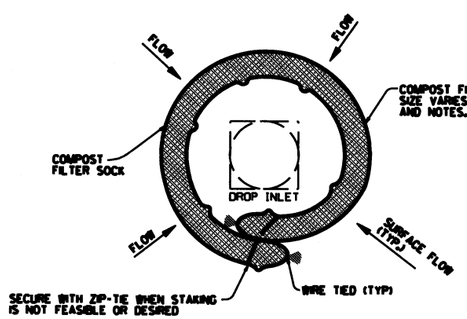
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

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 SUBSIDIARY TO "FILTER SOCK (18")."

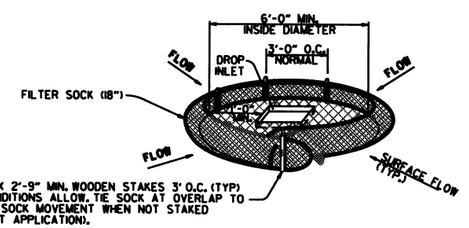
4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

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)



DROP INLET PLAN VIEW
N.T.S.



DROP INLET PERSPECTIVE VIEW
N.T.S.

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.

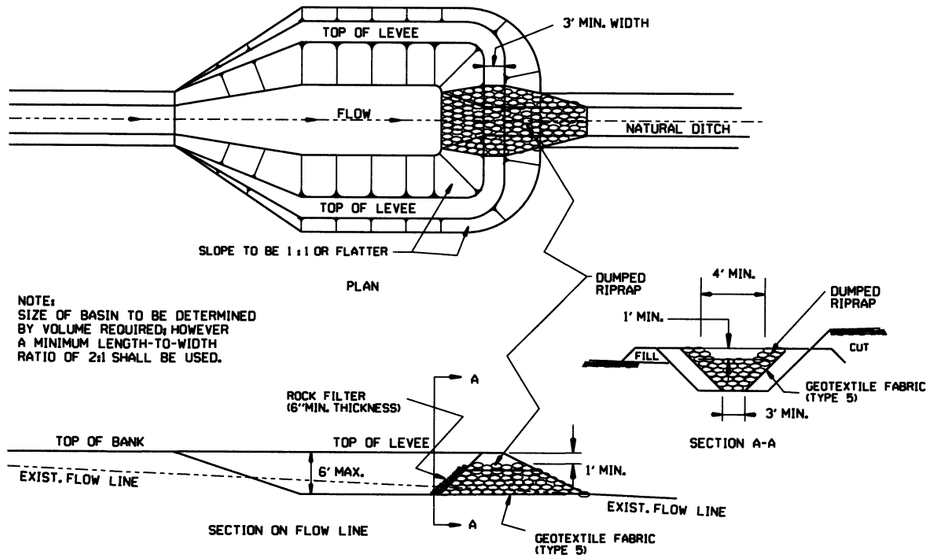
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

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. 13" 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

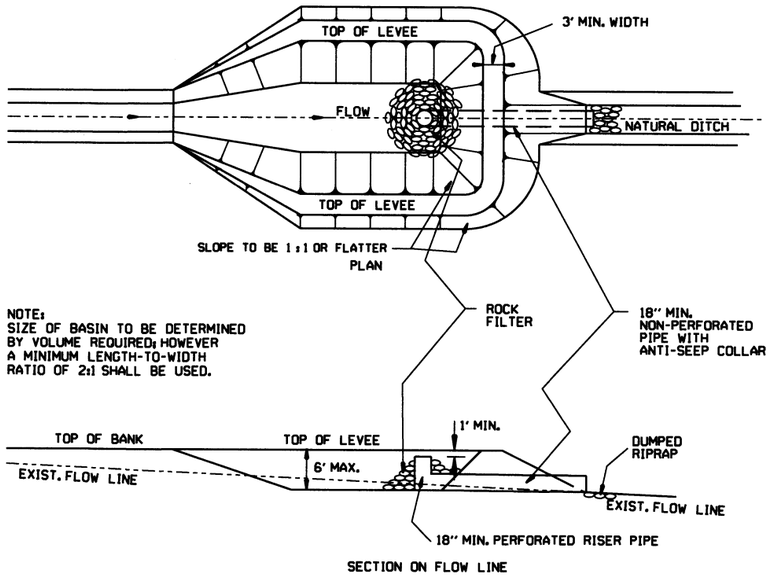
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

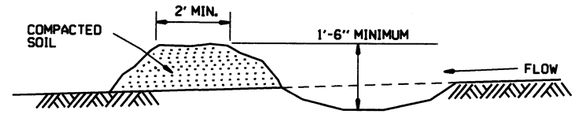
STANDARD DRAWING TEC-1



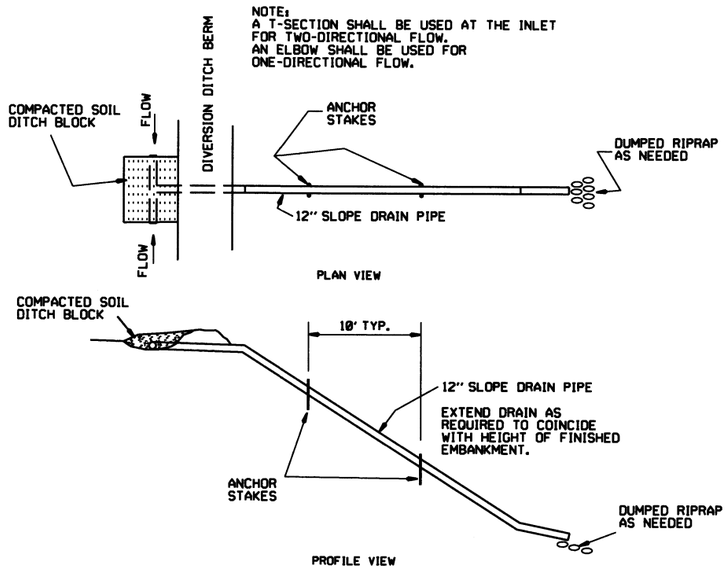
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



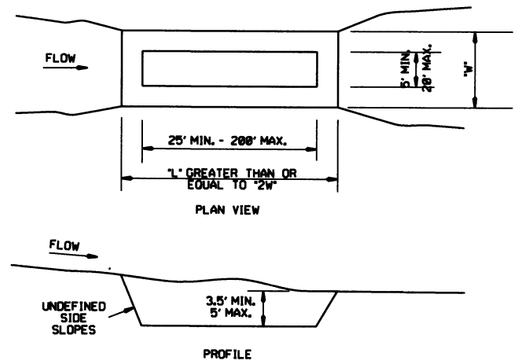
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

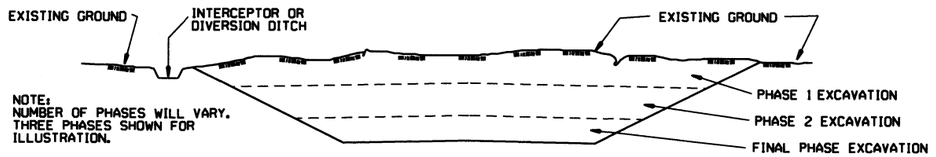
STANDARD DRAWING TEC-2

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



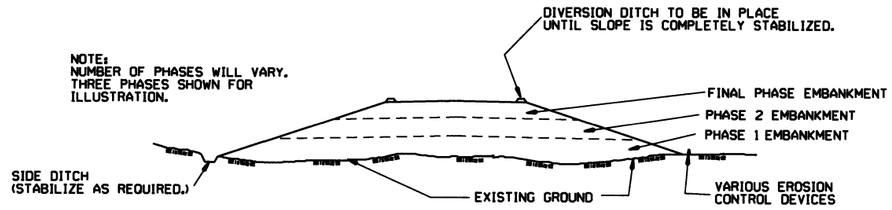
GENERAL NOTE

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

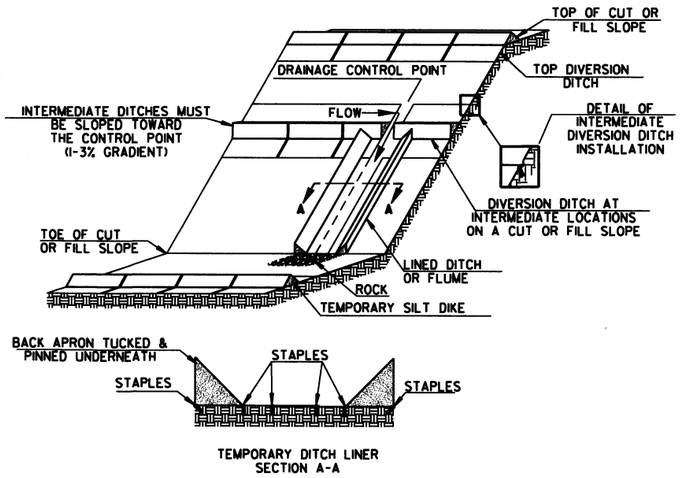
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD 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

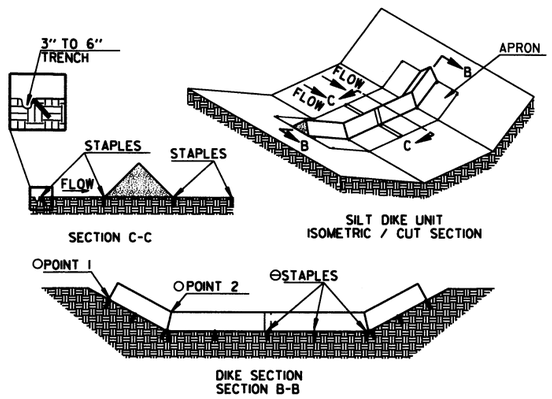
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3



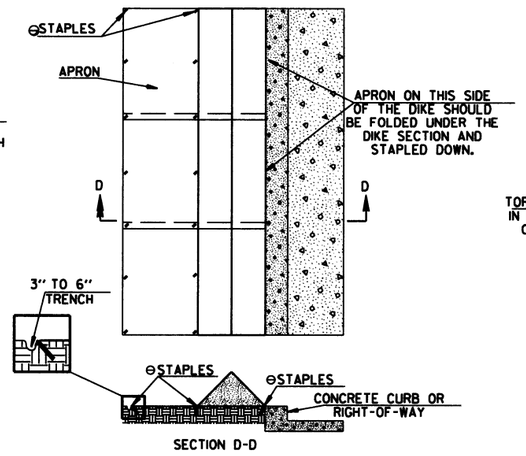
TRIANGULAR SILT DIKE INSTALLATION FOR DIVERSION DITCH AND/OR DITCH LINER



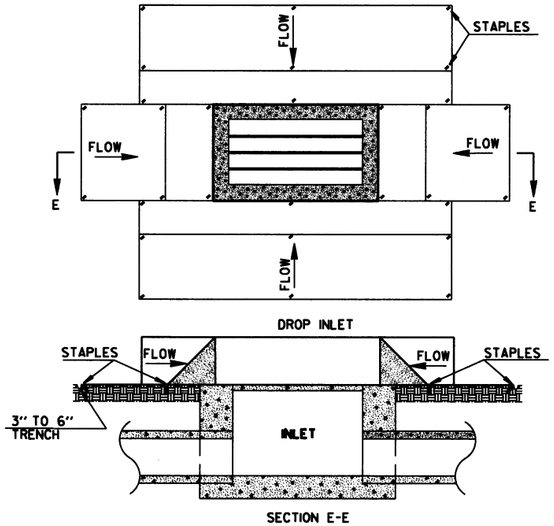
TRIANGULAR SILT DIKE INSTALLATION FOR ROADWAY DITCH OR DRAINAGE DITCH

O POINT "1" MUST BE HIGHER THAN POINT "2" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

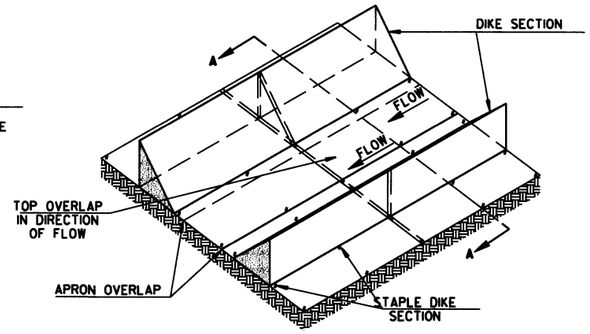
⊖ STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE UNIT AS SHOWN ON THE DIAGRAM.



TRIANGULAR SILT DIKE INSTALLATION FOR CONTINUOUS BARRIER



TRIANGULAR SILT DIKE INSTALLATION FOR DROP INLETS



TRIANGULAR SILT DIKE INSTALLATION FOR TEMPORARY DITCH LINER

GENERAL NOTES

1. THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND MAINTAINING THE TRIANGULAR SILT DIKE. THE DIKES SHALL BE USED AS A CONTINUOUS LINE BARRIER AT THE TOE OF SLOPE OR ACROSS THE ROADWAY DITCH TO CONTAIN SEDIMENT AND MINIMIZE EROSION, OR AS DIRECTED BY THE ENGINEER. THESE DIKES SHALL BE INSTALLED AND LOCATED AS SOON AS CONSTRUCTION WILL ALLOW OR AS DIRECTED BY THE ENGINEER.

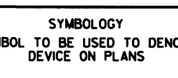
2. TRIANGULAR SILT DIKE SHALL BE TRIANGULAR SHAPED HAVING A HEIGHT OF AT LEAST 8" TO 10" IN THE CENTER WITH EQUAL SIDES AND A 16" TO 20" BASE. THE TRIANGULAR SHAPED INNER MATERIAL SHALL BE URETHANE FOAM. THE OUTER COVER SHALL BE A WOVEN GEOTEXTILE FABRIC PLACED AROUND THE INNER MATERIAL & ALLOWED TO EXTEND BEYOND BOTH SIDES OF THE TRIANGLE 24" TO 36". THIS FABRIC SHOULD BE MILDEW RESISTANT, ROT-PROOF AND RESISTANT TO HEAT AND ULTRAVIOLET RADIATION MEETING REQUIREMENTS FOR SEDIMENT CONTROL IN AASHTO M288. THE DIKES SHALL BE ATTACHED TO THE GROUND WITH WIRE STAPLES. THE STAPLES SHALL BE NO. 11 GAUGE WIRE AND BE AT LEAST 6" TO 8" LONG. STAPLES SHALL BE PLACED AS SHOWN ON THESE DETAILS.

   THE CONTRACTOR SHALL INSPECT ALL DIKES AFTER EACH RAINFALL EVENT OF AT LEAST 0.5" OR GREATER. ANY DEFICIENCIES OR DAMAGE SHALL BE REPAIRED BY THE CONTRACTOR. ACCUMULATED SILT OR DEBRIS SHALL BE REMOVED AND RELOCATED AS DIRECTED BY THE ENGINEER. IF THE DIKES ARE DAMAGED OR INADVERTENTLY MOVED DURING THE SILT REMOVAL PROCESS, THE CONTRACTOR SHALL IMMEDIATELY REPLACE AFTER DAMAGE OCCURS.

3. ACCEPTED TRIANGULAR SILT DIKE, MEASURED AS PROVIDED ABOVE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR TRIANGULAR SILT DIKE. PRICE BID WILL INCLUDE THE COST OF FURNISHING THE DIKES, INSTALLING, MAINTAINING AND REMOVAL WHEN DIRECTED BY THE ENGINEER.

SYMBOLOGY

SYMBOL TO BE USED TO DENOTE DEVICE ON PLANS



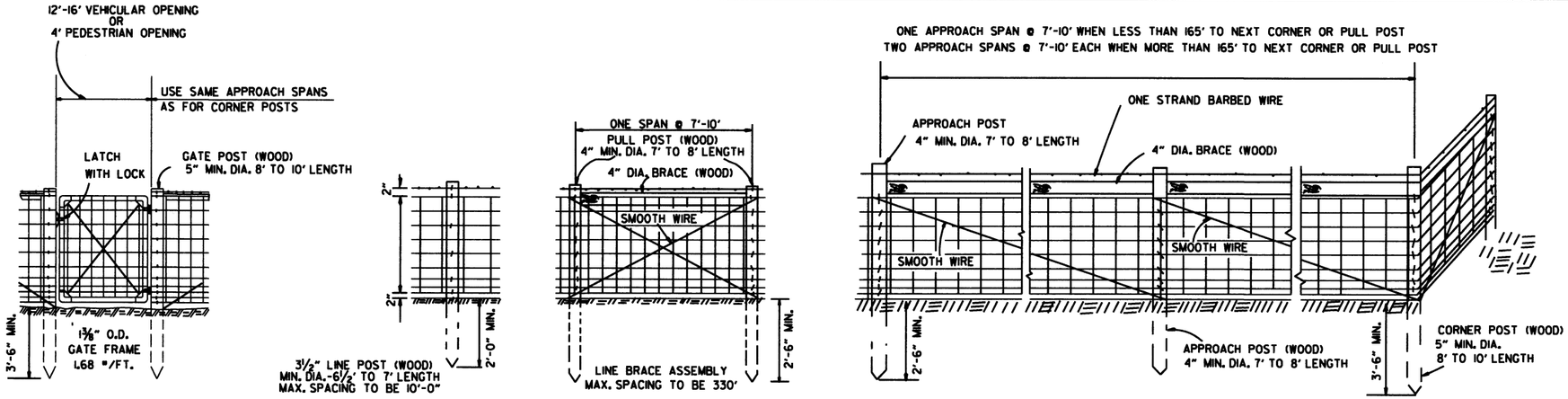
NOTE: SILT DIKE SHOULD ONLY BE USED FOR DROP INLETS IN SUMP LOCATIONS.

DATE	REVISION	FILMED
7-26-12	REVISED GENERAL NOTE 2.	
12-15-11	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

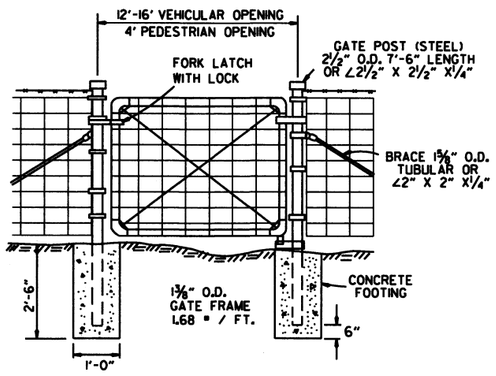
TEMPORARY EROSION CONTROL DEVICES

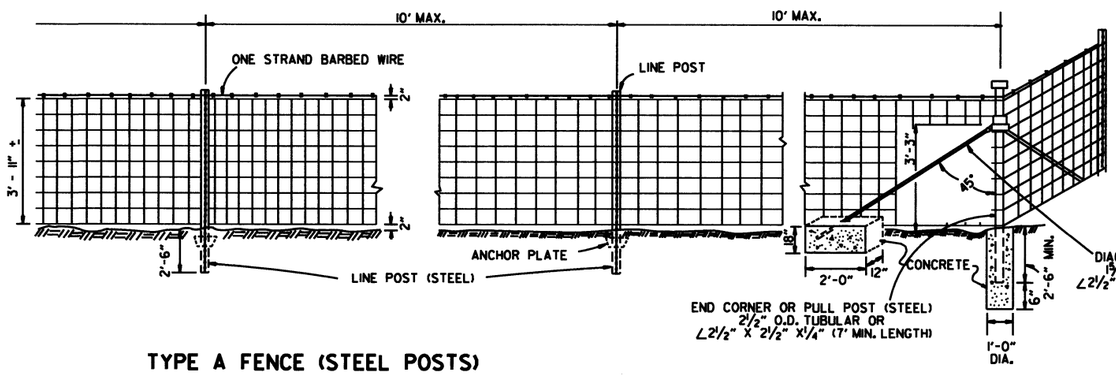
STANDARD DRAWING TEC-4



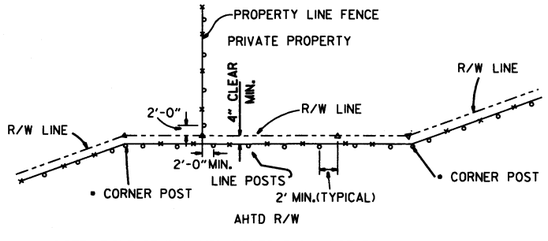
NOTE: STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE A FENCE (WOOD POSTS)





TYPE A FENCE (STEEL POSTS)

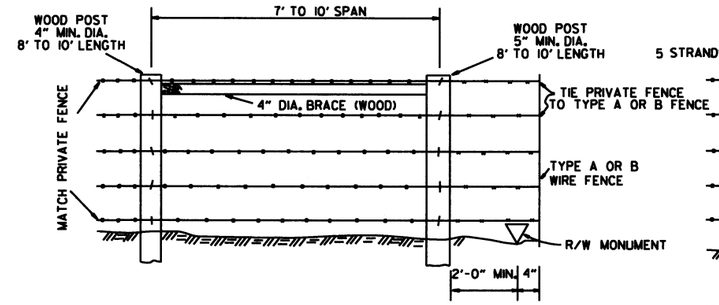


•NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

△ - R/W MONUMENTS

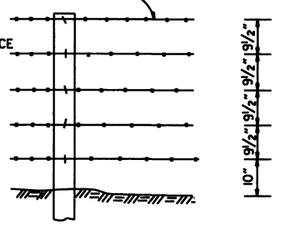
○ - FENCE POSTS

RIGHT-OF-WAY FENCE LOCATION



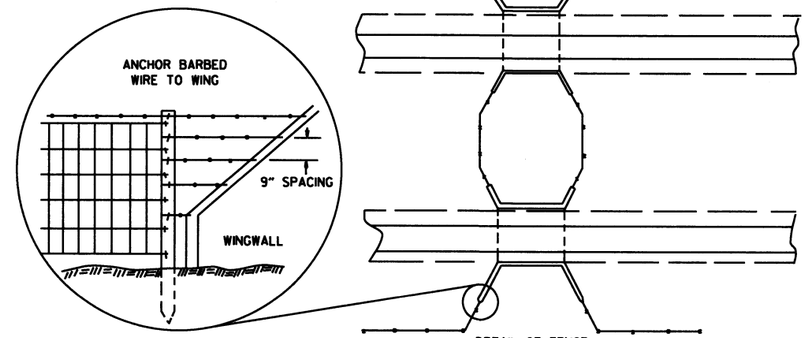
WHERE EXISTING PRIVATE FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN WITH TYPE A FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.

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)

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.

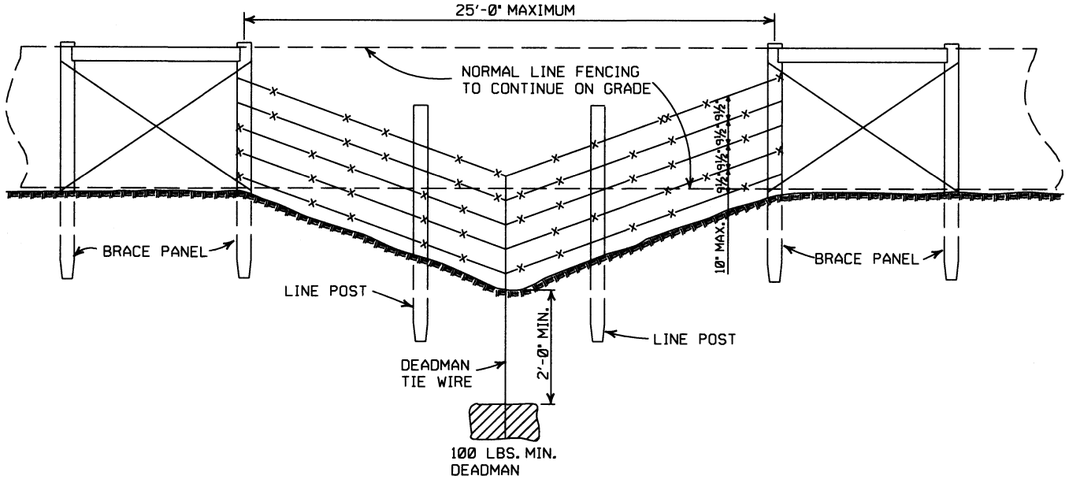
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD": AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRE A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

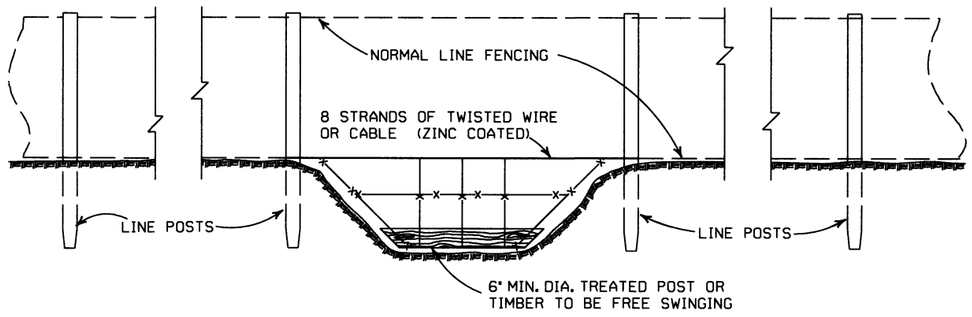
DATE	REVISION	DATE FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	ADDED CORNER POST NOTE	6-2-94
8-5-93	REVISED R-O-W LOCATION DETAIL	8-5-93
10-1-92	ADDED STAPLE NOTE	
8-2-90	REV'D PULL POST LENGTH	
11-30-89	DELETED CLASS CONC.	
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	

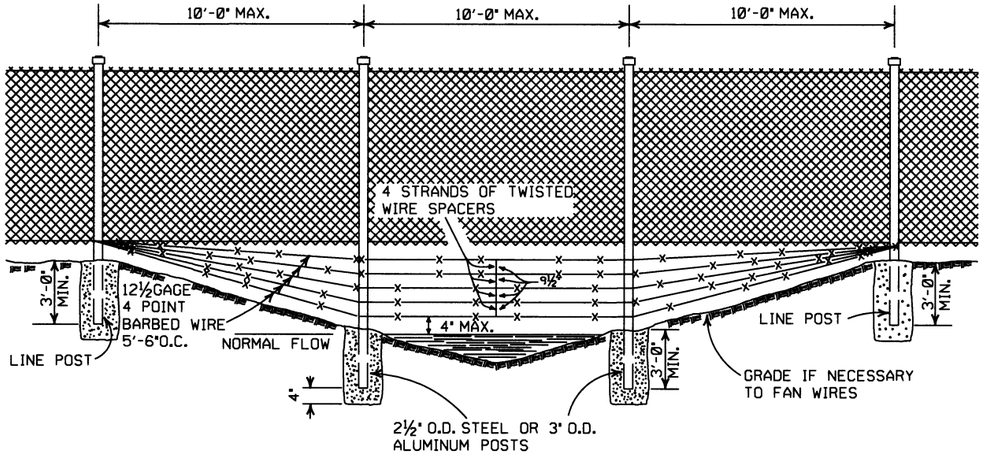
ARKANSAS STATE HIGHWAY COMMISSION

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.

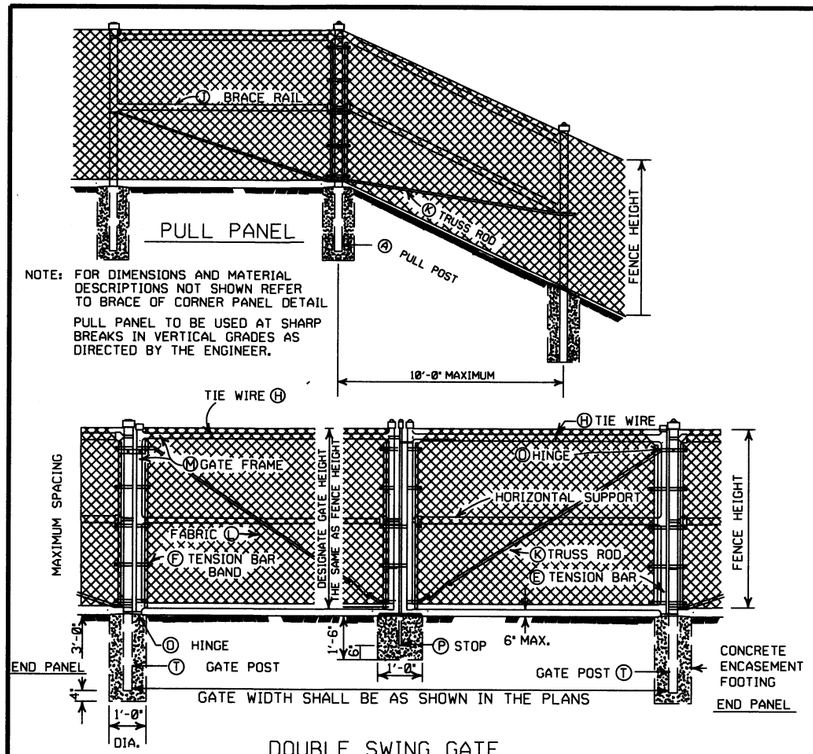
PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

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

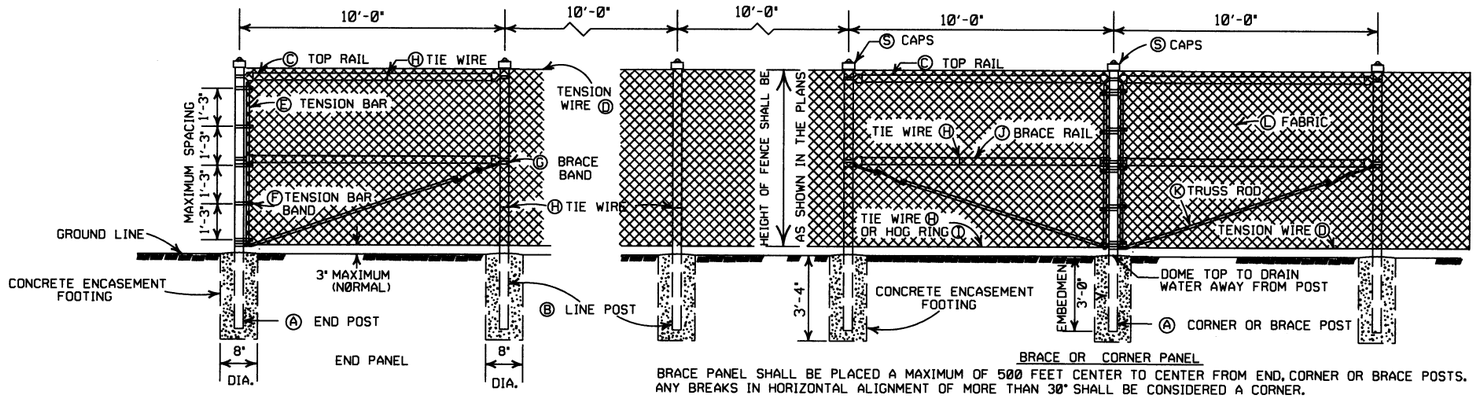
WIRE FENCE WATER GAPS

STANDARD DRAWING WF-2



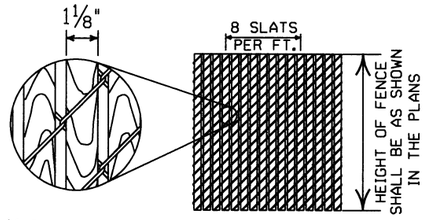
DOUBLE SWING GATE

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 SIZE	(B) LINE POSTS TIE SPACING	(C) TOP RAIL SIZE	(C) TOP RAIL TIE SPACING	(C) TOP RAIL MIN. LENGTH	(D) TENSION WIRE SIZE	(D) TENSION WIRE TIE SPACING	(E) TENSION BAR SIZE	(E) TENSION BAR LENGTH	(F) TENSION BAR BAND SIZE	(F) TENSION BAR BAND BOLT SIZE	(F) TENSION BAR BAND SPACING	(G) BRACE BAND SIZE	(G) BRACE BAND 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.

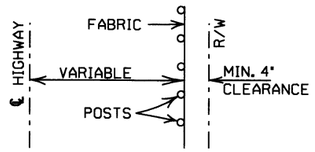
OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

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.

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



INSTALLATION MAY BE MODIFIED AS SHOWN IN THE PLANS

TYPICAL INSTALLATION DIAGRAM

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.

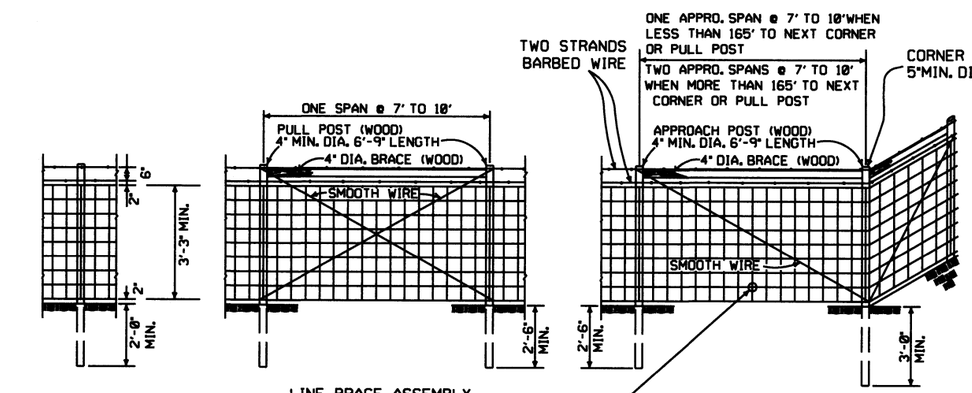
EXCAVATION FOR POSTS: IN OTHER THAN ROCK SHALL BE OF THE DIMENSIONS INDICATED. IF ROCK IS ENCOUNTERED BEFORE REACHING THE REQUIRED DEPTH, THE EXCAVATION SHALL BE CONTINUED TO THE DEPTH INDICATED OR 1'-6" INTO THE ROCK, WHICHEVER IS LESS, AND SHALL BE A MINIMUM OF 8 INCHES IN DIAMETER.

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 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

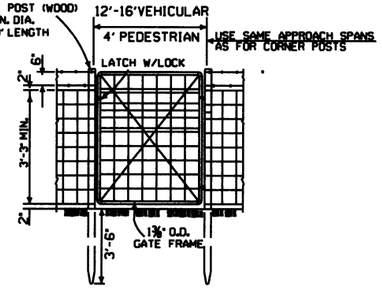
CHAIN LINK FENCE

STANDARD DRAWING WF-3



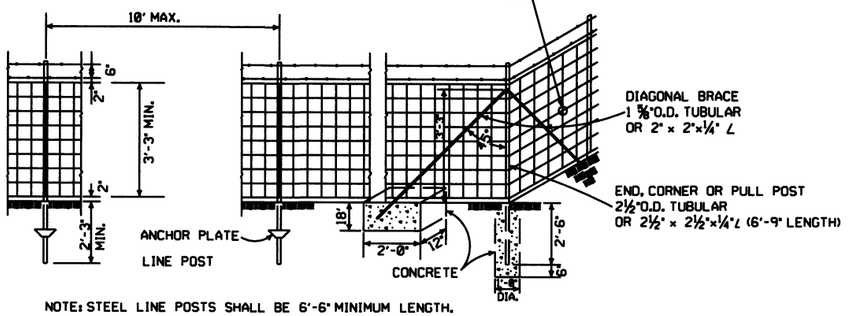
LINE POST
3" MIN. DIA. 6'-3" LENGTH
MAX. SPACING TO BE 10'-0"

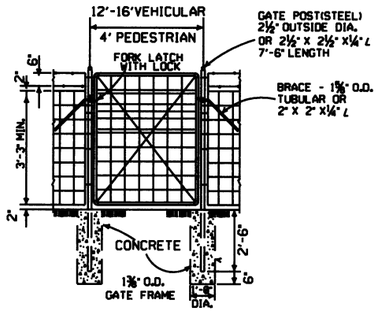
LINE BRACE ASSEMBLY
MAX. SPACING TO BE 330'



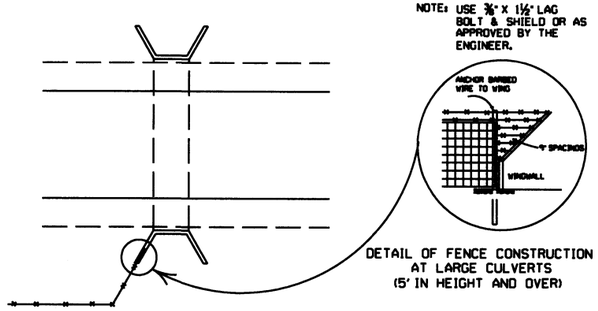
TYPE C FENCE (WOOD POSTS)

OTHER APPROVED TIES WILL BE PERMITTED





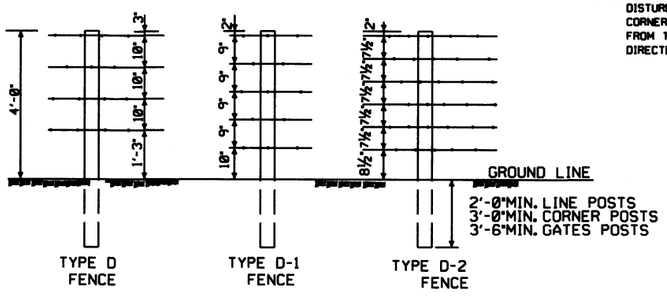
NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.



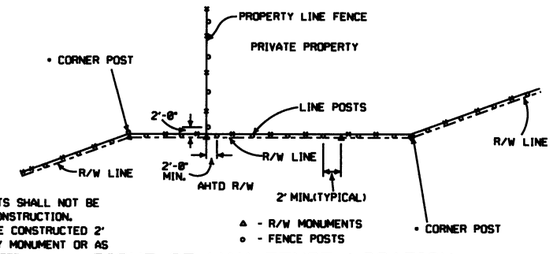
DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

TYPE C FENCE (STEEL POSTS)

4 STRANDS BARBED WIRE (D)
5 STRANDS BARBED WIRE (D-1)
6 STRANDS BARBED WIRE (D-2)

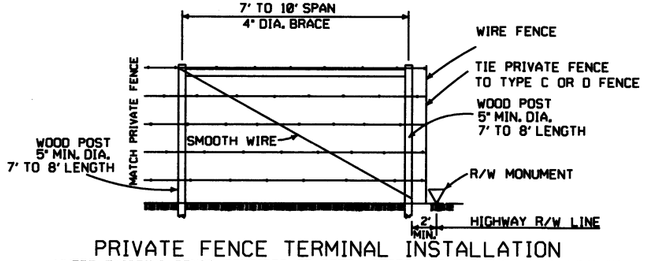


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



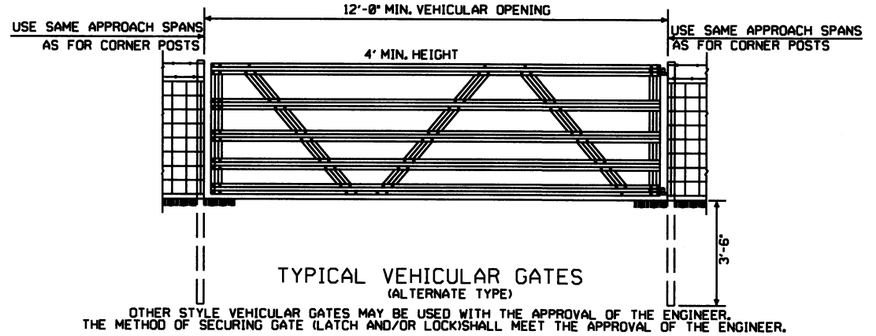
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION

WHERE EXISTING FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN IN TYPE C FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.



TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)

OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER. THE METHOD OF SECURING GATE (LATCH AND/OR LOCK) SHALL MEET THE APPROVAL OF THE ENGINEER.

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.

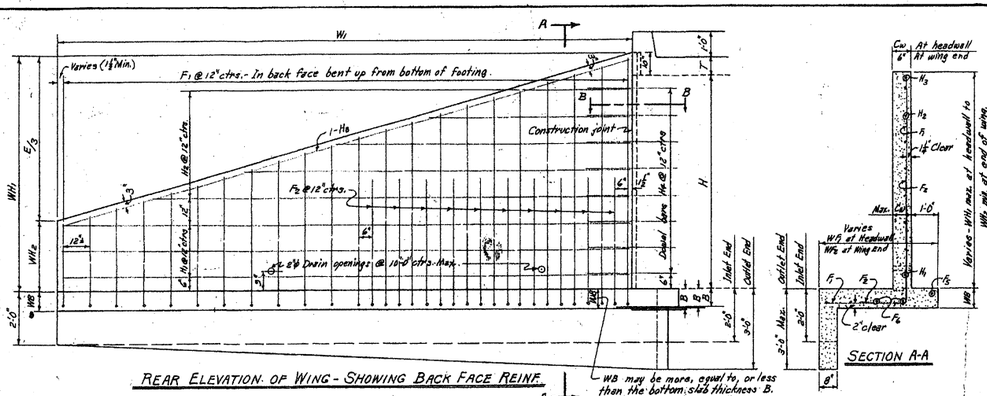
DATE	REVISION	FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	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

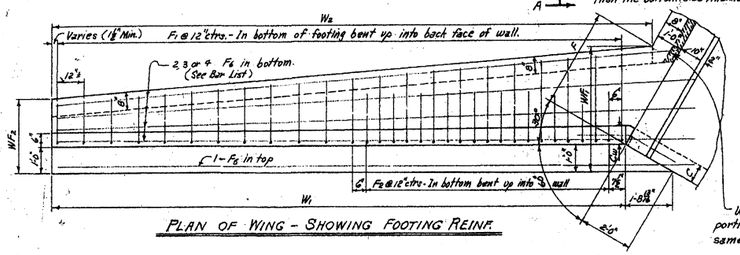
STANDARD DRAWING WF-4

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



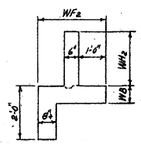
REAR ELEVATION OF WING - SHOWING BACK FACE REINF.

SECTION A-A

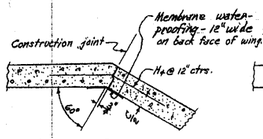


PLAN OF WING - SHOWING FOOTING REINF.

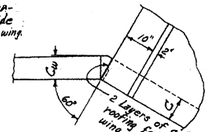
When B is more than W8 the shaded portion of the apron shall be made the same thickness as the barrel base B.



END VIEW OF WING



SECTION B-B THRU CONSTRUCTION JOINT



DETAIL AT TOP OF WING

NOTE:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

WING DIMENSIONS

CLEAR HEIGHT OF BOX	THICKNESS OF WING AT TOP	THICKNESS at WING AT HEADWALL =	WINGWALL HEIGHTS		WIDTHS OF WING FOOTINGS		PERPENDICULAR FOOTING DIMENSION	* QUANTITY PER WING CLASS S CONCRETE		LENGTH OF WINGWALLS	INSIDE FOOTING DIMENSION		
			AT HEADWALL	AT END OF WING	AT HEADWALL	AT END OF WING		PERPENDICULAR DIST. FROM HDWL. TO END OF WING				INLET END	OUTLET END
H	WB	Cw	WH1	WH2	WF1	WF2	F	E	W1	W2		CU.YD.	CU.YD.
2'	7"	6"	2'-10"	0'-8"	2'-9"	2'-0"	0'-11⅞"	6'-6"	7'-6"	7'-1½"		0.889	0.986
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1½"	1'-0⅜"	8'-6"	9'-3⅜"	9'-2¾"		1.338	1.966
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	1'-3"	10'-6"	12'-1⅜"	12'-1⅜"		1.868	2.027
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅜"	12'-6"	14'-5⅜"	14'-5⅜"		2.978	2.668
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅜"	12'-6"	14'-5⅜"	14'-5⅜"		2.582	2.772
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅝"	14'-6"	16'-9"	17'-1⅝"		3.440	3.661
		7⅛"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅝"	14'-6"	16'-9"	17'-1⅝"		3.811	3.732
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅝"	14'-6"	16'-9"	17'-1⅝"		3.588	3.803
7'	8⅝"	7⅛"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅛"	16'-6"	19'-0⅝"	19'-8⅝"		4.505	4.758
		8"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅛"	16'-6"	19'-0⅝"	19'-8⅝"		4.597	4.851
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-3"	18'-6"	21'-0⅝"	22'-4"		5.761	6.047

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W8.

APRON DIMENSION W3

W3 = (OW - 2F)

CLEAR SPAN	CLEAR HEIGHT	2 x FOOTING DIMENSION	SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT		QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT	
			OW	W3	OW	W3	OW	W3	OW	W3	OW	W3
S	H	2F										
4'	2'	1'-11½"	5'-0"	3'-0½"	9'-8"	7'-8½"	14'-4"	12'-4½"	19'-0"	17'-0½"	23'-8"	21'-8½"
	3'	2'-0¾"	5'-0"	2'-3¾"	9'-8"	6'-11¾"	14'-4"	11'-7½"	19'-0"	16'-3¼"	23'-8"	20'-11⅝"
	4'	3'-6"	5'-0"	1'-6"	9'-8"	6'-2"	14'-4"	10'-10"	19'-0"	15'-6"	23'-8"	20'-2"
	5'	4'-3⅜"	5'-0"	0'-8½"	9'-8"	5'-4⅝"	14'-4"	10'-0⅝"	19'-0"	14'-8⅝"	23'-8"	19'-9⅛"
	6'	5'-0⅝"	5'-2"	0'-1⅛"	9'-11"	4'-10⅛"	14'-8"	9'-7⅛"	19'-5"	14'-2⅛"	24'-2"	19'-1⅛"
5'	3'	2'-0¾"	6'-0"	3'-3¾"	11'-8"	8'-11⅛"	17'-4"	14'-1⅞"	23'-0"	20'-3⅜"	28'-8"	25'-11⅝"
	4'	3'-6"	6'-0"	2'-6"	11'-8"	8'-1"	17'-4"	13'-10"	23'-0"	19'-6"	28'-8"	25'-2"
	5'	4'-3⅜"	6'-0"	1'-8⅜"	11'-8"	7'-4⅜"	17'-4"	13'-0⅜"	23'-0"	18'-8⅜"	28'-8"	24'-6⅜"
	6'	5'-0⅝"	6'-2"	1'-1⅛"	11'-11"	6'-10⅛"	17'-8"	12'-7⅛"	23'-5"	18'-1⅛"	29'-2"	24'-1⅛"
	7'	6'-2⅜"	6'-5"	0'-0¼"	12'-5"	5'-10⅝"	17'-11"	11'-11⅝"	23'-11"	17'-5⅝"	29'-7"	23'-6⅝"
6'	3'	2'-0¾"	7'-0"	4'-3⅜"	13'-8"	10'-11⅛"	20'-4"	17'-1⅞"	27'-0"	24'-3⅜"	33'-8"	30'-11⅝"
	4'	3'-6"	7'-0"	3'-6"	13'-8"	10'-2"	20'-4"	16'-10"	27'-0"	23'-6"	33'-8"	30'-2"
	5'	4'-3⅜"	7'-0"	2'-8⅜"	13'-8"	9'-4⅜"	20'-4"	16'-0⅜"	27'-0"	22'-8⅜"	33'-8"	29'-6⅜"
	6'	5'-0⅝"	7'-2"	2'-1⅛"	13'-11"	8'-10⅛"	20'-8"	15'-7⅛"	27'-5"	22'-2⅛"	34'-2"	29'-1⅛"
	7'	6'-2⅜"	7'-5"	1'-0¼"	14'-5"	7'-10⅝"	20'-11"	14'-11⅝"	27'-9"	21'-5⅝"	34'-7"	28'-4⅝"
	8'	7'-4"	7'-9"	0'-0"	14'-8"	6'-10"	21'-0"	13'-8"	27'-10"	20'-6"	34'-8"	27'-6"
7'	4'	3'-6"	8'-0"	4'-6"	15'-8"	12'-2"	23'-4"	19'-10"	31'-0"	27'-6"	38'-8"	35'-2"
	5'	4'-3⅜"	8'-0"	3'-8⅜"	15'-8"	11'-4⅜"	23'-4"	19'-0⅜"	31'-0"	26'-8⅜"	38'-8"	34'-6⅜"
	6'	5'-0⅝"	8'-2"	3'-1⅛"	15'-11"	10'-11⅛"	23'-8"	18'-7⅛"	31'-5"	26'-2⅛"	39'-2"	34'-1⅛"
	7'	6'-2⅜"	8'-5"	2'-0¼"	16'-1"	9'-10⅝"	23'-11"	17'-10⅝"	31'-9"	25'-5⅝"	39'-7"	33'-4⅝"
	8'	7'-4"	8'-9"	1'-0"	16'-5"	8'-10"	24'-0"	16'-8"	31'-10"	24'-6"	39'-8"	32'-6"
8'	4'	3'-6"	9'-0"	5'-6"	17'-6"	14'-2"	26'-4"	22'-10"	35'-0"	31'-6"	43'-8"	40'-2"
	5'	4'-3⅜"	9'-2"	4'-8⅜"	17'-11"	13'-7⅜"	26'-8"	22'-0⅜"	35'-6"	31'-0⅜"	44'-2"	39'-10⅜"
	6'	5'-0⅝"	9'-2"	4'-1⅛"	17'-11"	12'-10⅛"	26'-8"	21'-7⅛"	35'-5"	30'-2⅛"	44'-2"	39'-1⅛"
	7'	6'-2⅜"	9'-5"	3'-0¼"	18'-1"	11'-10⅝"	26'-11"	20'-10⅝"	35'-9"	29'-5⅝"	44'-7"	38'-4⅝"
	8'	7'-4"	9'-9"	2'-0"	18'-2"	10'-10"	27'-0"	19'-8"	35'-10"	28'-6"	44'-8"	37'-6"
9'	5'	4'-3⅜"	10'-2"	5'-10⅜"	19'-11"	15'-7⅜"	29'-8"	25'-4⅜"	39'-5"	35'-1⅜"	49'-2"	44'-10⅜"
	6'	5'-0⅝"	10'-3"	5'-2⅛"	20'-1"	15'-0⅛"	29'-11"	24'-7⅛"	39'-9"	34'-6⅛"	49'-7"	44'-1⅛"
	7'	6'-2⅜"	10'-3"	4'-0¼"	20'-1"	13'-10⅝"	29'-11"	23'-6⅝"	39'-9"	33'-4⅝"	49'-7"	43'-4⅝"
	8'	7'-4"	10'-5"	3'-0"	20'-2"	12'-10"	30'-0"	22'-8"	39'-10"	32'-6"	49'-8"	42'-6"
10'	5'	4'-3⅜"	11'-2"	6'-10⅜"	21'-11"	17'-7⅜"	32'-8"	28'-4⅜"	43'-5"	39'-1⅜"	54'-2"	49'-10⅜"
	6'	5'-0⅝"	11'-3"	6'-2⅛"	22'-1"	17'-0⅛"	32'-11"	27'-10⅛"	43'-9"	38'-6⅛"	54'-7"	49'-1⅛"
	7'	6'-2⅜"	11'-3"	5'-0¼"	22'-1"	15'-10⅝"	32'-11"	26'-6⅝"	43'-9"	37'-4⅝"	54'-7"	48'-4⅝"
	8'	7'-4"	11'-6"	4'-0"	22'-2"	14'-10"	33'-0"	25'-8"	43'-10"	36'-6"	54'-8"	47'-6"
11'	6'	5'-0⅝"	12'-4"	7'-3⅛"	24'-2"	19'-4⅛"	36'-0"	30'-11⅛"	47'-10"	42'-9⅛"		
	7'	6'-2⅜"	12'-6"	6'-1¼"	24'-2"	17'-11⅝"	36'-0"	29'-5⅝"	47'-10"	41'-7⅝"		
	8'	7'-4"	12'-9"	5'-0"	24'-3"	16'-10"	36'-0"	28'-8"	47'-10"	40'-6"		
12'	6'	5'-0⅝"	13'-0"	7'-5⅛"	26'-2"	21'-1⅛"	39'-0"	33'-11⅛"	51'-10"	46'-9⅛"		
	7'	6'-2⅜"	13'-0"	7'-1¼"	26'-2"	19'-11⅝"	39'-0"	32'-5⅝"	51'-10"	45'-7⅝"		
	8'	7'-4"	13'-0"	6'-0"	26'-2"	18'-10"	39'-0"	31'-8"	51'-10"	44'-6"		

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL FOR 4 WINGS	CLASS S CONCRETE - 4 WINGS HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS				
					SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
S	H	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
4'	2'	6"	7"	108.0	4.50	5.96	6.92	7.38	8.34
	3'	6"	7"	169.8	6.26	7.21	8.17	9.13	10.09
	4'	6"	7"	259.6	8.33	9.28	10.24	11.20	12.16
	5'	6"	7"	351.8	10.72	11.68	12.64	13.60	14.56
	6'	7"	8"	583.1	14.55	15.53	16.52	17.51	18.49
5'	3'	6"	7"	164.9	6.47	7.43	8.79	9.96	11.12
	4'	6"	7"	259.6	8.56	9.70	10.87	10.03	12.20
	5'	6"	7"	367.8	10.94	12.10	13.26	14.43	15.59
	6'	7"	8"	583.1	14.77	15.96	17.15	18.34	19.54
	7'	7½	8½	1184.6	18.94	20.15	21.37	22.59	23.80
6'	3'	6"	7"	164.8	6.68	8.06	9.92	10.80	12.18
	4'	6"	7"	259.6	8.75	10.14	11.49	12.87	14.25
	5'	6"	7"	357.8	11.15	12.53	13.89	15.27	16.65
	6'	7"	8"	583.1	14.98	16.39	17.78	19.18	20.59
	7'	7½	8½	1139.6	19.16	20.58	22.00	23.43	24.86
	8'	8"	9"	1925.6	24.09	25.53	26.96	28.39	29.83
7'	4'	6"	7"	259.6	8.97	10.58	12.15	13.76	15.35
	5'	6"	7"	357.8	11.36	12.97	14.58	16.15	17.75
	6'	7"	8"	583.1	15.20	16.82	18.42	20.04	21.66
	7'	7½	8½	1139.6	19.38	21.02	22.69	24.28	25.92
	8'	8"	9"	1925.6	24.32	25.97	27.60	29.25	30.89
8'	4'	6"	7"	259.6	9.19	11.03	12.82	14.65	16.45
	5'	7"	7"	357.8	12.03	13.89	15.70	17.55	19.36
	6'	7"	8"	583.1	15.92	17.27	19.09	20.93	22.75
	7'	7½	8½	1139.6	19.59	21.46	23.30	25.16	26.99
	8'	8"	9"	1925.6	24.54	26.97	28.24	30.11	31.96
9'	5'	7"	7"	357.8	12.26	14.39	16.87	18.95	20.47
	6'	7½	8"	583.1	15.94	18.04	20.09	22.19	24.23
	7'	7½	8½	1139.6	19.81	21.91	23.96	26.06	28.10
	8'	8"	9"	1925.6	24.76	26.86	28.91	31.00	33.05
10'	5'	7"	7"	357.8	12.99	14.80	17.05	19.26	21.52
	6'	7½	8"	583.1	16.17	18.50	20.77	22.99	25.28
	7'	7½	8½	1139.6	20.04	22.37	24.64	26.87	29.15
	8'	8"	9"	1925.6	24.98	27.31	29.58	31.81	34.10
11'	6'	8"	8"	583.1	16.69	19.27	21.76	24.23	
	7'	8"	8½	1139.6	20.64	23.22	25.71	28.18	
	8'	8"	9"	1925.6	25.19	27.77	30.27	32.74	
12'	6'	8"	8"	583.1	16.92	19.75	22.45	25.18	
	7'	8"	8½	1139.6	20.87	23.69	26.40	29.19	
	8'	8"	9"	1925.6	25.92	28.25	30.96	33.69	

* For reinforcing steel in Headwalls and Aprons, See Details of Standard Barrel Sections for R.C. Box Culverts for the desired Span and Height.

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

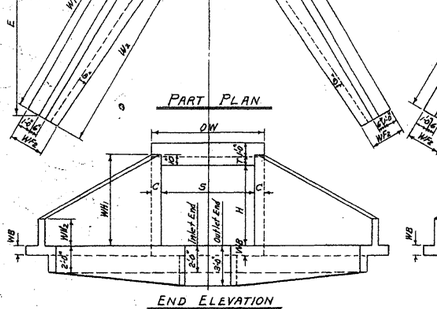
UNIT STRESSES:-

Class S Concrete (n=10) 1200#/□"

Reinforcing Steel 20,000#/□"

NOTE:- This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. as listed below.

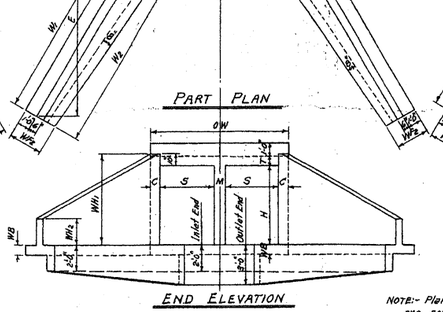
SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-X1	R-200X-X1	R-300X-X1	R-400X-X1	R-500X-X1
R-100X-X2	R-200X-X2	R-300X-X2	R-400X-X2	
	R-200X-X3	R-300X-X3		



PART PLAN

END ELEVATION

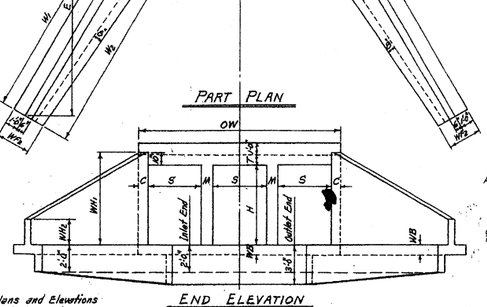
SINGLE BARREL CULVERT



PART PLAN

END ELEVATION

DOUBLE BARREL CULVERT

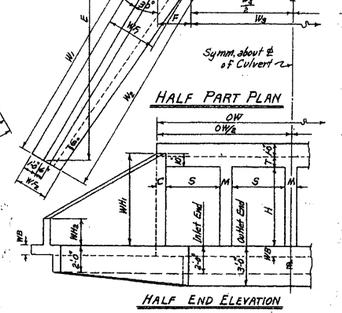


PART PLAN

END ELEVATION

TRIPLE BARREL CULVERT

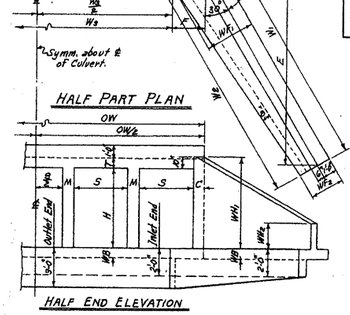
NOTE:- Plans and Elevations are not to scale.



HALF PART PLAN

HALF END ELEVATION

QUADRUPLE BARREL CULVERT



HALF PART PLAN

HALF END ELEVATION

QUINTUPLE BARREL CULVERT

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three mopings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints in wings.

BAR LIST FOR ONE WING - 4 REQUIRED

CLEAR HEIGHT	F1 BENT: In bottom of footing, bent up into back face of wing. One bar of each length.							F2 BENT: In bottom of footing, bent up into back face of wing. Alt. with F1 bars.						F3 STRAIGHT: Longitudinal in top of wing footing heel.			F4 STRAIGHT: Longitudinal in bottom of wing footing toe.			H1 STRAIGHT: Horizontal in back face of wing.			H2 STRAIGHT: Horizontal in back face of wing. One bar of each length.					H3 STRAIGHT: In back face of wing at top-on slope.			H4 BENT: Dowels thru construction joint at headwall.					QUANTITY REINFORCING STEEL PER WING	BAR BENDING DIAGRAMS
	SIZE	SPACING	NO. REQD	LENGTHS VARY MIN.	LENGTHS VARY MAX.	X MIN.	X MAX.	Y MIN.	Y MAX.	SIZE	SPACING	NO. REQD	LENGTH	X	Y	SIZE	NO. REQD	LENGTH	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTHS VARY MAX.	LENGTHS VARY MIN.	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	X	
H																																					LB.	
2'	#3	12"	8	1'-6"	3'-10"	0'-8"	1'-0"	0'-11"	2'-11"	#3		1	9'-8"	—	—	#3	2	8'-6"	#3	12"	1	7'-2"	#3	12"	1	—	4'-0"	#8	1	7'-4"	#3	12"	2	2'-8"	1'-9"	27.0	
3'	#3	12"	10	2'-2"	5'-2"	0'-10"	1'-3"	1'-5"	4'-0"	#3		1	12'-0"	—	—	#3	2	11'-0"	#3	12"	1	9'-6"	#3	12"	2	7'-6"	4'-0"	#8	1	9'-9"	#3	12"	3	2'-8"	1'-9"	41.1	
4'	#3	12"	13	2'-9"	6'-6"	0'-11"	1'-7"	1'-6"	5'-0"	#3		1	14'-4"	—	—	#3	3	13'-6"	#3	12"	1	11'-10"	#3	12"	3	10'-11"	4'-0"	#3	1	12'-2"	#3	12"	4	2'-8"	1'-9"	63.7	
5'	#3	12"	15	2'-11"	7'-10"	1'-1"	1'-11"	1'-11"	6'-0"	#3	12"	4	3'-6"	1'-1"	2'-6"	#3	3	16'-6"	#3	12"	2	14'-2"	#3	12"	3	10'-11"	4'-0"	#3	1	14'-7"	#3	12"	5	2'-8"	1'-9"	89.5	
6'	#4	12"	17	3'-6"	9'-3"	1'-2"	2'-3"	2'-5"	7'-1"	#3	12"	4	4'-6"	1'-9"	3'-3"	#3	3	18'-6"	#3	12"	2	16'-6"	#3	12"	4	14'-6"	4'-0"	#3	1	17'-0"	#3	12"	6	2'-8"	1'-9"	145.8	
7'	#4	12"	20	3'-9"	10'-3"	1'-3"	2'-9"	2'-7"	8'-1"	#4	12"	7	5'-6"	1'-7"	4'-0"	#4	4	21'-6"	#4	12"	2	18'-9"	#4	12"	5	17'-9"	4'-0"	#4	1	19'-5"	#4	12"	7	3'-6"	1'-9"	283.7	
8'	#4	12"	22	4'-6"	12'-5"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	10	6'-6"	1'-10"	4'-9"	#4	4	23'-8"	#4	12"	3	21'-1"	#4	12"	5	17'-9"	4'-0"	#4	1	21'-10"	#4	12"	8	3'-6"	1'-9"	356.4	

BAR BENDING DIAGRAMS

NOTE:- Dimensions are to bar centers.

REVISIONS:- Membrane added. 5-10-66 W.C.H.

Designed By:- W.C.H. 8-20-62. Checked By:-
Drawn By:- W.C.H. 12-4-62. Checked By:-
Quantities By:- W.C.H. 12-14-62. Checked By:-
Redrawn By:- 3-63
1-63
2-63

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS

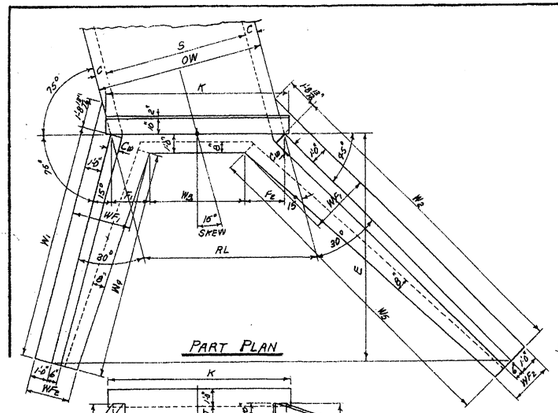
4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 SLOPES

SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X003-1

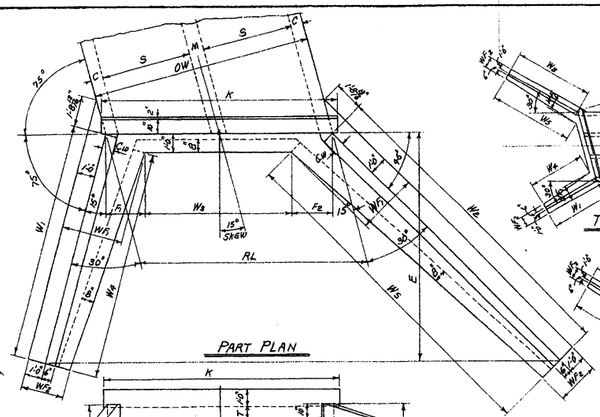
MYLAR

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



SINGLE BARREL CULVERT - 15° SKEW RIGHT FORWARD

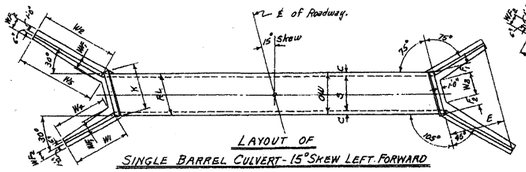
Details of Culvert with 15° Skew Left Forward is reversed, see Layout below.



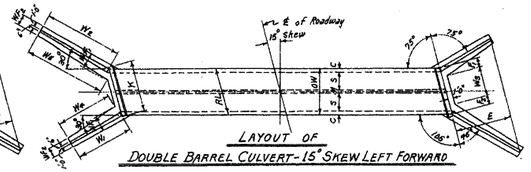
DOUBLE BARREL CULVERT - 15° SKEW RIGHT FORWARD

Details of Culvert with 15° Skew Left Forward is reversed, see Layout below.

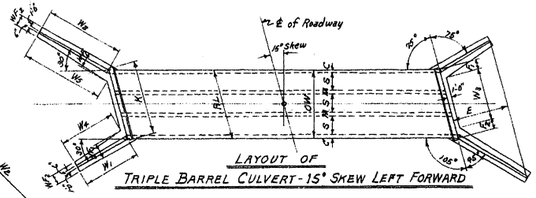
NOTE:- Plans and Elevations are not to scale.



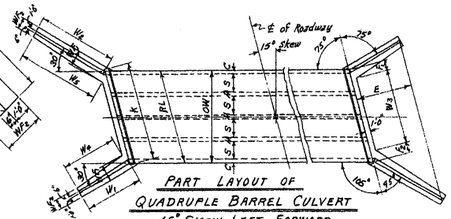
SINGLE BARREL CULVERT - 15° SKEW LEFT FORWARD



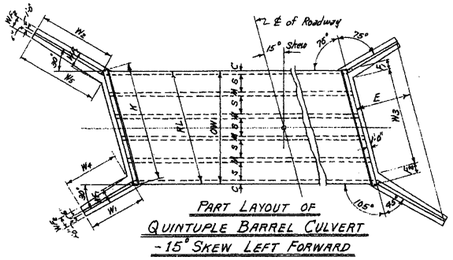
DOUBLE BARREL CULVERT - 15° SKEW LEFT FORWARD



TRIPLE BARREL CULVERT - 15° SKEW LEFT FORWARD

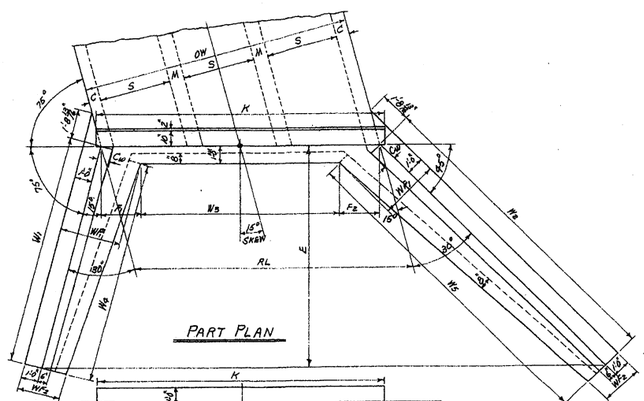


QUADRUPLE BARREL CULVERT - 15° SKEW LEFT FORWARD



QUINTUPLE BARREL CULVERT - 15° SKEW LEFT FORWARD

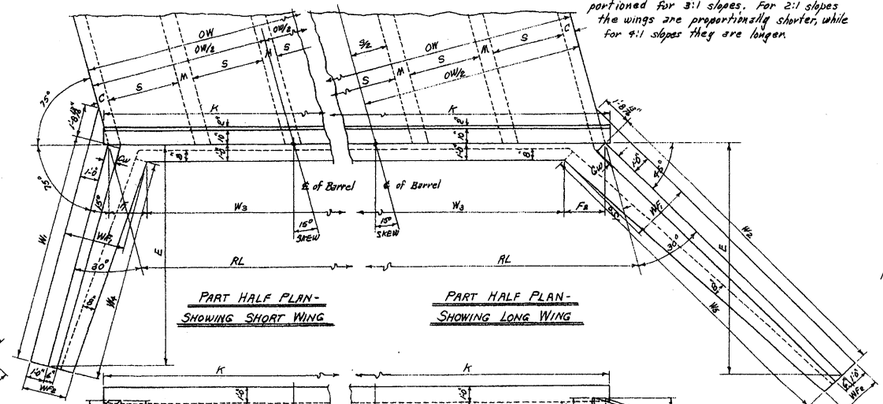
NOTE:- The length of the wings for the Plans, Elevations, and Layouts, as drawn, are proportioned for 3:1 slopes. For 2:1 slopes the wings are proportionally shorter, while for 4:1 slopes they are longer.



TRIPLE BARREL CULVERT - 15° SKEW RIGHT FORWARD

Details of Culvert with 15° Skew Left Forward is reversed, see Layout at top center of sheet.

NOTE:- Plans and Elevations are not to scale.



QUADRUPLE BARREL CULVERT - 15° SKEW RT. FWD.

Details of Culvert with 15° Skew Left Forward is reversed, see Layout at above center.

QUINTUPLE BARREL CULVERT - 15° SKEW RT. FWD.

Details of Culvert with 15° Skew Left Forward is reversed, see Layout above.

ROADWAY LENGTH RL — HEADWALL LENGTH K — APRON DIMENSION W_3

RL = OW x 1.035276 — K = RL + (6½") — W_3 = RL - (F_1 + F_2)

USE WITH DRAWING No.	CLEAR SPAN	CLEAR HEIGHT	SUM OF FOOTING DIMENSIONS	SINGLE BARREL CULVERT				DOUBLE BARREL CULVERT				TRIPLE BARREL CULVERT				QUADRUPLE BARREL CULVERT				QUINTUPLE BARREL CULVERT			
	S	H	F_1 & F_2	OW	RL	K	W_3	OW	RL	K	W_3	OW	RL	K	W_3	OW	RL	K	W_3	OW	RL	K	W_3
W-X.152-1, W-X.153-1 OR W-X154-1. (FOR H=8'0" OR LESS)	4'	2'0"	5'0"	5'2⅜"	5'8⅝"	3'2⅝"		9'8"	10'0"	10'6⅝"	8'0"	14'4"	14'10"	15'0½"	12'10"	19'0"	19'8"	20'2½"	17'8"	23'8"	24'6"	25'0½"	22'6"
	3'	2'9⅜"	5'0"	"	"	2'9⅜"		9'8"	"	"	7'2⅜"	14'4"	"	"	12'0⅜"	19'0"	"	"	16'10⅜"	23'8"	"	"	21'8⅜"
	4'	3'7⅞"	5'0"	"	"	1'6⅝"		9'8"	"	"	6'4⅝"	14'4"	"	"	11'6⅝"	19'0"	"	"	16'4⅝"	23'8"	"	"	20'10⅝"
	5'	4'5⅝"	5'0"	"	"	0'8⅝"		9'8"	"	"	5'6⅝"	14'4"	"	"	10'9⅝"	19'0"	"	"	15'2⅝"	23'8"	"	"	20'0⅝"
	6'	5'3⅜"	5'2"	5'4⅝"	5'10⅝"	0'1"		9'11"	10'3½"	10'9½"	5'0"	14'8"	15'2⅛"	15'8⅝"	9'11"	19'5"	20'1⅝"	20'7½"	14'10"	24'2"	25'0⅛"	25'6⅛"	19'9"
	3'	2'9⅜"	6'0"	6'2⅝"	6'9"	3'4⅜"		11'8"	12'1"	12'7⅜"	9'3⅜"	17'4"	17'10⅜"	18'5⅜"	15'1⅜"	23'0"	23'9⅜"	24'4⅜"	21'0"	28'8"	29'6⅜"	30'2⅜"	26'10⅜"
	4'	3'7⅞"	6'0"	"	"	2'1"		11'8"	"	"	8'5⅜"	17'4"	"	"	14'3⅜"	23'0"	"	"	20'2⅜"	28'8"	"	"	26'0⅜"
	5'	4'5⅝"	6'0"	"	"	1'9⅝"		11'8"	"	"	7'7⅜"	17'4"	"	"	13'4"	23'0"	"	"	19'4⅜"	28'8"	"	"	25'2⅜"
	6'	5'3⅜"	6'2"	6'4⅝"	6'11⅛"	1'1⅛"		11'11"	12'3"	12'8⅝"	7'10⅞"	17'8"	18'3½"	18'10"	13'10⅝"	23'8"	24'3½"	24'10⅝"	18'11"	29'2"	30'2⅝"	30'8⅝"	24'11⅝"
	7'	6'2⅝"	6'8"	6'5⅝"	7'0⅛"	⑧ 0"		12'1"	12'6⅝"	13'0⅛"	6'6⅛"	17'11"	18'6⅝"	19'1"	12'6⅝"	23'9"	24'7"	25'1½"	18'1½"	29'7"	30'7⅛"	31'2"	24'7⅛"
	3'	2'9⅜"	7'0"	7'3"	7'9⅜"	4'3⅝"		13'8"	14'1⅜"	14'8⅝"	11'4"	20'4"	21'0⅝"	21'7"	18'2⅜"	27'8"	27'11⅜"	28'5⅜"	25'1⅜"	33'8"	34'10⅜"	35'4⅜"	32'0⅜"
	4'	3'7⅞"	7'0"	"	"	3'7⅞"		13'8"	"	"	10'6⅜"	20'4"	"	"	17'5"	27'0"	"	"	24'3⅜"	33'8"	"	"	31'2⅜"
	5'	4'5⅝"	7'0"	"	"	2'5⅝"		13'8"	"	"	9'8⅝"	20'4"	"	"	16'7⅜"	27'0"	"	"	23'4"	33'8"	"	"	30'6⅜"
	6'	5'3⅜"	7'2"	7'5"	7'11⅝"	2'1⅞"		13'11"	14'5"	14'11⅝"	9'1⅝"	20'8"	21'4⅝"	21'11⅝"	16'11⅞"	27'5"	28'0⅝"	28'8"	23'1⅝"	34'2"	35'1"	35'7"	30'1⅛"
	7'	6'5⅝"	7'8"	7'6"	8'0⅝"	1'0⅝"		14'1"	14'7"	15'1⅛"	8'1⅛"	20'11"	21'7⅛"	22'2⅝"	15'2"	27'9"	28'5⅜"	29'1⅜"	22'1"	34'7"	35'6⅜"	36'1"	29'3⅜"
	8'	7'8⅜"	7'10"	7'7⅝"	8'1⅜"	⑧ 0"		14'2"	14'8"	15'2⅝"	6'11⅜"	21'0"	21'8⅜"	22'3⅝"	14'10⅝"	27'10"	28'5⅜"	29'1⅝"	21'1⅛"	34'8"	35'8⅛"	36'5"	28'8"
	4'	3'7⅞"	8'0"	8'3⅜"	8'9⅜"	4'7⅞"		15'9"	16'2⅝"	16'9"	12'7"	23'4"	24'1⅜"	24'10⅜"	20'6"	31'0"	32'1½"	32'7½"	28'5⅛"	38'8"	40'0⅜"	40'6⅜"	36'4⅜"
	5'	4'5⅝"	8'0"	"	"	3'7⅞"		15'8"	"	"	11'9⅜"	23'4"	"	"	19'8⅝"	31'0"	"	"	27'1⅞"	38'8"	"	"	35'7"
	6'	5'3⅜"	8'2"	8'5⅝"	9'0"	5'2⅛"		15'11"	16'5⅞"	17'0⅛"	11'2⅜"	23'8"	24'6"	25'0⅜"	19'2⅜"	31'5"	32'6⅛"	33'0⅛"	27'3"	39'2"	40'6⅝"	41'1"	35'3⅜"
	7'	6'5⅝"	8'3"	8'6⅛"	9'1"	4'0⅝"		16'1"	16'7⅜"	17'2⅝"	10'2"	23'11"	24'9⅜"	25'3½"	18'3⅛"	31'9"	32'10⅝"	33'5"	26'4⅝"	39'7"	40'11⅝"	41'6"	34'6"
	8'	7'8⅜"	8'4"	8'7¼"	9'2"	0'-11"		16'2"	16'8⅜"	17'3⅜"	9'0⅜"	24'0"	24'10⅝"	25'4½"	17'1⅛"	31'10"	32'11½"	33'4"	25'5"	39'8"	41'0⅛"	41'7⅛"	33'4⅛"
	4'	3'7⅞"	9'0"	9'3⅝"	9'10⅛"	5'8⅝"		17'8"	18'2⅝"	18'10"	14'8"	26'4"	27'3⅜"	27'10⅝"	23'7⅛"	35'0"	36'2⅜"	36'9⅛"	32'5⅞"	43'8"	45'2⅝"	45'9"	41'7"
	5'	4'5⅝"	9'2"	9'5⅝"	10'0⅝"	5'10⅜"		17'11"	18'6⅝"	19'1"	14'11⅛"	26'8"	27'7⅛"	28'1⅜"	23'8"	35'5"	36'8"	37'2⅛"	32'8⅝"	44'2"	45'8⅜"	46'3⅛"	41'11⅝"
	6'	5'3⅜"	9'2"	"	"	4'2⅜"		17'11"	"	"	13'3⅝"	26'8"	"	"	18'3⅝"	35'5"	"	"	31'9⅝"	44'2"	"	"	40'5⅝"
	7'	6'2⅝"	9'3"	9'4⅝"	10'1¼"	3'1"		18'1"	18'8⅝"	19'3"	12'2⅝"	26'11"	27'10⅝"	28'4⅝"	21'5⅝"	35'8"	37'0⅛"	37'6⅝"	30'4⅝"	44'7"	46'2⅜"	46'8⅝"	39'8"
	8'	7'8⅜"	9'3"	9'1⅝"	10'2⅝"	1'11⅛"		18'2"	18'9⅝"	19'4⅝"	11'1⅜"	27'0"	27'11⅜"	28'5⅝"	20'2⅜"	35'10"	37'1⅛"	37'7½"	29'1⅝"	44'8"	46'3⅝"	46'9⅝"	38'6⅝"
	5'	4'5⅝"	10'2"	10'6⅝"	11'0⅝"	6'1"		19'11"	20'7⅛"	21'2"	16'4"	29'8"	30'6⅜"	31'3"	26'3⅜"	39'6"	40'9⅜"	41'4⅝"	36'0⅜"	49'2"	50'10⅜"	51'5⅜"	46'3½"
	6'	5'3⅜"	10'3"	10'7⅛"	11'1⅝"	5'9⅛"		20'1"	20'8⅜"	21'3"	15'6⅝"	29'11"	30'9⅛"	31'4"	25'10⅝"	39'9"	41'0⅛"	41'7⅝"	35'10⅝"	49'7"	51'4"	51'10⅝"	46'8⅛"
	7'	6'2⅝"	10'3"	"	"	4'1⅝"		20'1"	"	"	14'9⅝"	29'11"	"	"	24'5⅝"	39'9"	"	"	34'1⅝"	49'7"	"	"	46'1⅝"
	8'	7'8⅜"	10'4"	10'8⅜"	11'2⅝"	2'11⅝"		20'12"	20'8⅝"	21'5"	13'2"	30'0"	31'0⅝"	31'7⅜"	23'8⅝"	39'10"	41'2⅜"	41'9⅜"	33'6⅛"	49'8"	51'11⅝"	52'6"	43'5⅜"
	5'	4'5⅝"	11'2"	11'6⅜"	12'1⅝"	7'1⅞"		21'10"	22'6⅛"	23'2⅝"	18'5"	32'8"	33'9⅝"	34'6⅛"	29'4½"	43'5"	44'11⅝"	45'6"	40'6"	54'6"	56'1"	56'7½"	51'2½"
	6'	5'3⅜"	11'3"	11'7⅝"	12'2⅝"	6'0⅝"		22'1"	22'8⅜"	23'3⅝"	17'1⅜"	32'11"	34'1"	34'7½"	28'3⅜"	43'9"	45'3⅜"	45'10"	40'0⅜"	54'7"	56'4"	57'0⅛"	51'3"
	7'	6'2⅝"	11'3"	"	"	5'1⅞"		22'1"	"	"	16'4⅝"	32'11"	"	"	27'1"	43'9"	"	"	38'3⅝"	54'7"	"	"	50'1⅝"
	8'	7'8⅜"	11'4"	11'8⅝"	12'3⅝"	4'0⅜"		22'2"	22'9⅛"	23'5⅝"	15'6⅝"	33'0"	34'2"	34'8⅝"	26'5⅞"	43'10"	45'4⅛"	45'11"	37'8"	54'8"	56'2⅝"	57'1⅛"	48'10⅝"
	6'	5'3⅜"	12'0"	12'4⅜"	12'9⅞"	7'1⅝"		24'2"	25'0⅛"	25'6⅜"	19'3"	36'0"	37'3⅜"	37'9⅞"	32'0"	49'10"	51'6⅜"	52'1⅝"	46'0"	60'2"	62'0⅛"	62'6⅜"	56'4⅛"
	7'	6'2⅝"	12'0"	"	"	6'3⅜"		24'2"	"	"	18'1⅛"	36'0"	"	"	30'7⅜"	49'10"	"	"	43'0⅛"	60'2"	"	"	54'0⅜"
	8'	7'8⅜"	12'0"	"	"	5'0⅜"		24'2"	"	"	17'1⅜"	36'0"	"	"	29'6⅜"	49'10"	"	"	41'9⅜"	60'2"	"	"	52'11⅜"
	6'	5'3⅜"	13'0"	13'4⅜"	13'9⅞"	8'1⅝"		26'1"	27'1"	27'7½"	21'1"	39'0"	40'4⅜"	40'11"	35'1⅛"	55'10"	57'8"	58'3½"	52'1⅜"	66'4"	68'4⅛"	69'0⅜"	62'8⅜"
	7'	6'2⅝"	13'0"	"	"	7'3⅜"		26'1"	"	"	20'1⅞"	39'0"	"	"	33'10⅜"	55'10"	"	"	47'5⅜"	66'4"	"	"	58'4⅜"
	8'	7'8⅜"	13'0"	"	"	6'1"		26'1"	"	"	19'1⅝"	39'0"	"	"	32'8"	55'10"	"	"	45'11⅝"	66'4"	"	"	56'10"
W-X.152-2, W-X153-2 OR W-X154-2. (FOR H=9'0" & OVER)	7'	9'	8'1¼"	8'6"	8'9⅜"	9'3⅝"	Ⓐ 0"	16'5"	17'1"	17'7½"	8'0⅜"	29'4"	29'5⅛"	29'8⅜"	16'3"	32'3"	33'1⅝"	33'7"	24'3⅝"	46'2"	47'7"	48'2½"	32'7⅝"
	8'	9'	8'11⅝"	9'6"	9'10"	10'3⅝"	0'10⅜"	18'5"	19'0⅝"	19'7⅜"	10'1⅝"	27'4"	28'3⅜"	28'10"	19'0⅝"	36'9"	37'11⅜"	38'6½"	28'7"	45'2"	46'9⅜"	47'5⅜"	37'9⅝"
	10'	10'2"	9'8"	10'0⅝"	10'6⅝"	Ⓐ 0"		18'8"	19'3⅝"	19'10⅝"	9'2"	29'8"	28'7⅜"	29'2⅝"	16'5⅜"	36'8"	37'11⅝"	38'6"	27'3⅛"	45'8"	47'3⅜"	47'10⅜"	37'1½"
	9'	8'11⅝"	10'6"	10'10⅝"	11'5"	1'11⅛"		20'5"	21'1⅞"	21'8⅛"	12'2½"	30'9"	31'9⅝"	32'3⅝"	22'5½"	40'3"	41'8"	42'2⅝"	32'8⅝"	50'2"	51'11⅝"	52'5⅝"	43'0"
	10'	10'2"	10'8"	11'0⅝"	11'7"	0'10⅝"		20'8"	21'4⅜"	21'11⅝"	11'2⅜"	30'8"	31'9"	32'3⅝"	21'7"	40'5"	42'1⅛"	42'7⅜"	31'11⅝"	50'8"	52'5½"	53'0"	42'3½"
	11'	11'0⅝"	10'10"	11'2⅝"	11'9"	Ⓐ 0"		20'10"	21'6⅜"	22'1⅛"	10'1⅝"	30'10"	31'11"	32'5½"	20'10"	40'8"	42'3⅝"	42'9⅝"	30'10⅜"	50'10"	52'7½"	53'2"	41'2⅝"
	9'	8'11⅝"	11'4"	11'10⅜"	12'5⅝"	2'11⅝"		22'5"	23'1⅞"	23'8⅝"	13'3⅛"	33'0"	34'1⅝"	34'8½"	25'1⅜"	44'3"	45'9⅞"	46'4"	35'6⅛"	55'2"	57'1⅜"	57'7½"	46'5⅜"
	10'	10'2"	11'8"	12'1"	12'7½"	1'11"		22'8"	23'5⅛"	24'0"	13'5⅜"	33'5"	34'6⅜"	35'1⅝"	25'4⅝"	44'8"	46'2⅝"	46'9½"	35'11"	55'8"	57'7⅝"	58'2⅝"	46'9⅝"
	11'	11'-4⅝"	11'10"	12'3"	12'9½"	0'10⅝"		22'10"	23'7⅜"	24'2½"	12'5"	33'10"	35'0⅜"	35'5⅝"	25'7½"	44'10"	46'5"	46'10⅝"	35'0⅝"	55'10"	57'9⅝"	58'2⅝"	46'5"
	12'	12'1⅞"	12'0"	12'5¼"	12'11⅝"	Ⓐ 0"		23'0"	23'9⅛"	24'4⅝"	11'2⅝"	34'0"	35'1⅜"	35'5⅞"	22'7"	45'0"	46'7"	47'1⅛"	33'11⅝"	56'0"	57'11⅝"	58'5"	45'9⅝"
	9'	8'11⅝"	12'6"	12'11⅝"	13'5⅞"	4'0"		26'5"	25'8⅜"	25'9⅝"	14'4"	34'6"	39'7⅞"	38'1⅝"	28'8"	48'8"	49'10⅝"	50'5⅝"	40'6⅛"	—	—	—	—
	10'	10'2"	12'8"	13'1⅞"	13'7⅝"	2'11⅝"		26'8"	26'4⅝"	26'6"	15'6⅜"	35'8"	37'11⅝"	38'4"	29'10⅝"	48'8"	50'2⅝"	50'9"	40'10⅜"	—	—	—	—
	11'	11'-0⅝"	12'10"	13'3⅜"	13'10"	1'10⅝"		26'10"	25'10⅝"	26'3"	14'3⅜"	36'1"	38'1⅝"	38'8"	29'8"	48'10"	50'4⅝"	51'1"	39'1⅝"	—	—	—	—
	12'	12'1⅞"	13'0"	13'5⅝"	14'0"	1'10⅝"		27'0"	25'11⅝"	26'5"	13'3⅝"	37'0"	38'3⅝"	38'10"	29'6⅜"	49'0"	50'6⅜"	51'3⅝"	38'1⅝"	—	—	—	—
	9'	8'11⅝"	13'6"	13'11⅝"	14'4⅝"	5'10⅝"		26'5"	27'0⅝"	27'6⅝"	18'5"	39'6"	40'8⅝"	41'3⅜"	32'3"	52'3"	53'7⅛"	54'3⅞"	44'5⅝"	—	—	—	—
	10'	10'2"	13'8"	14'1⅝"	14'8⅜"	3'10⅝"		26'8"	27'3⅞"	28'1⅛"	17'5⅝"	39'10"	41'2⅝"	41'7½"	32'8"	52'8"	54'2⅛"	54'8½"	43'10⅝"	—	—	—	—
	11'	11'-0⅝"	13'10"	14'3⅝"	14'10⅝"	2'10⅝"		26'10"	27'6⅜"	28'3⅝"	16'6⅝"	39'10"	41'5⅜"	41'9⅝"	29'10⅝"	52'10"	54'4⅝"	55'2⅝"	43'3⅜"	—	—	—	—
	12'	12'1⅞"	14'0"	14'5⅞"	15'0⅝"	1'10⅝"		27'0"	27'10⅝"	28'6"	15'8"	40'0"	41'9⅞"	41'11⅝"	28'9⅝"	53'0"	54'10⅝"	55'9⅝"	42'3"	—	—	—	—

Ⓐ Special case for these boxes, See Detail "A" and Table "A" for revised values of F_1, F_2, W_4 and W_5, when apron width is more than 1'0" and W_3=0". For Details "A" and Tables "A" for each slope, see Drawing Nos. W-X152-1, W-X.152-2, or W-X153-1, W-X153-2, or W-X154-1, W-X154-2.

NOTE:- This drawing to be used in conjunction with Standard Wing Drawings for 15° skews for each slope as listed below.

2:1 Slopes	3:1 Slopes	4:1 Slopes
W-X152-1 or W-X152-2	W-X153-1 or W-X153-2	W-X154-1 or W-X154-2.

This drawing to be used in conjunction with Std. Barrel Sections, Drawing Nos.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-115X-0	R-215X-0	R-315X-0	R-415X-0	R-515X-0
R-115X-1	R-215X-1	R-315X-1	R-415X-1	R-515X-1
	R-215X-2	R-315X-2		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF STANDARD WINGS
FOR
REINFORCED CONCRETE BOX CULVERTS
15° SKEW

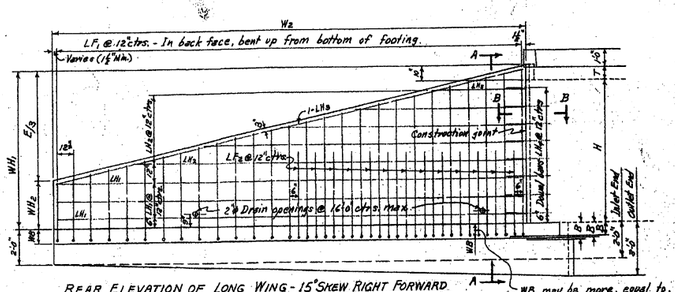
4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 2:1, 3:1 & 4:1 SLOPES

SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES — ALL DEPTHS OF COVER H=2', 3', 4', 5', 6', 7', 8', 9', 10', 11' & 12'.

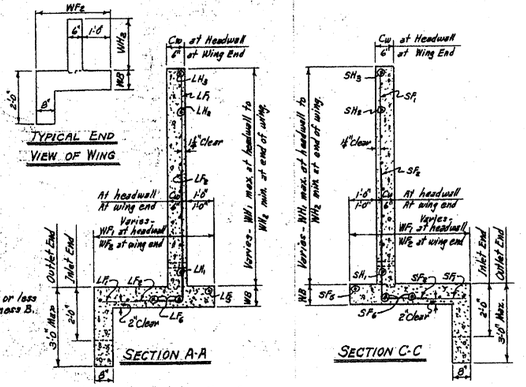
STANDARD DRAWING NO. W-X15

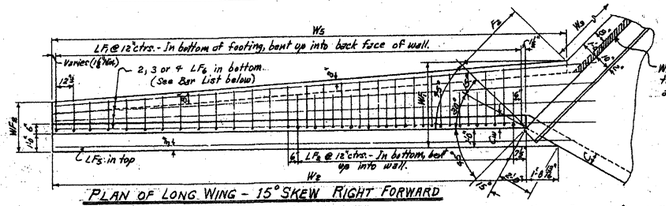
Designed by:- W.C.H. 5-22-63. Traced by:- W.C.H. 6-13-63. Quantities by:- Checked by:- Checked by:- Checked by:- 6-20-63

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



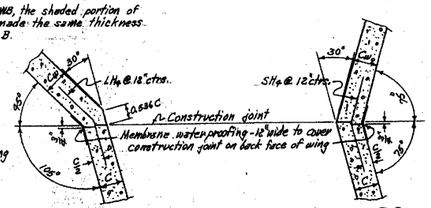
REAR ELEVATION OF LONG WING - 15° SKEW RIGHT FORWARD
SHOWING BACK FACE REINFORCING





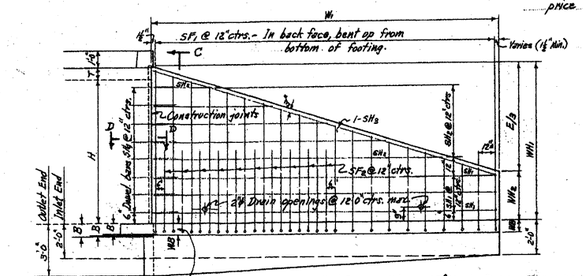
PLAN OF LONG WING - 15° SKEW RIGHT FORWARD
SHOWING FOOTING REINFORCING

When B is more than W3, the shaded portion of the apron shall be made the same thickness as the bottom slab B.

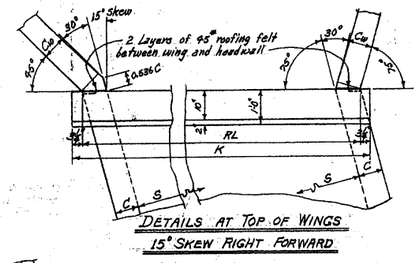


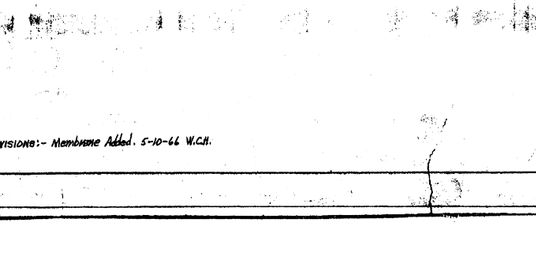
NOTE:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

SECTIONS THRU CONSTRUCTION JOINTS



REAR ELEVATION OF SHORT WING - 15° SKEW RIGHT FORWARD
SHOWING BACK FACE REINFORCING





SINGLE BARREL CULVERT - 15° SKEW RIGHT FORWARD
Details of Culvert with 15° Skew Left Forward is reversed, see Drwg. No. W-X15

TYPICAL WING DETAILS

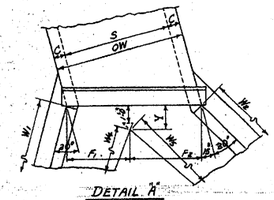


TABLE "A" - DIMENSIONS FOR DETAIL "A"

S	H	F1	F2	W4	W5	W3	Y
5'	7'	3'-0"	3'-5⅝"	16'-10⅝"	25'-0⅛"	0"	1'-0⅛"
6'	8'	3'-6"	4'-1⅞"	19'-0⅛"	28'-3⅛"	0"	1'-1"

REGULAR WING DIMENSIONS - 3:1 SLOPES

CLEAR HEIGHT OF BOX.	THICKNESS OF WING & FOOTING	WINGWALL HEIGHTS		WIDTHS OF WING FOOTINGS		FOOTING PARALLEL WITH HEADWALL		PERPENDICULAR DIST. FROM WING TO END OF WING.	LENGTHS OF WINGWALLS		INSIDE FOOTING DIMENSIONS		* QUANTITY PER WING			
													CLASS S CONCRETE			
		AT HEADWALL	AT END OF WING	AT HEADWALL	AT END OF WING	SHORT WING	LONG WING		SHORT WING	LONG WING	SHORT WING	LONG WING	INLET END		OUTLET END	
H	WB	WH1	WH2	WF1	WF2	F1	F2	E	W1	W2	W4	W5	SHORT WING	LONG WING	SHORT WING	LONG WING
													Cu.Yd.	Cu.Yd.	Cu.Yd.	Cu.Yd.
2'	7"	6"	2'-10"	0'-8"	2'-4"	2'-0"	1'-7⅜"	2'-0½"	6'-6"	6'-0⅜"	9'-2⅛"	6'-0⅜"	9'-1⅝"	0.789	1.094	0.876	1.212
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1⅝"	1'-5⅝"	2'-4½"	8'-6"	8'-0⅜"	9'-2⅛"	12'-0⅛"	8'-2⅝"	1.186	1.650	1.300	1.808
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	1'-9⅝"	1'-10"	10'-6"	10'-0⅝"	14'-10⅛"	10'-0⅝"	12'-5⅝"	1.656	2.305	1.797	2.502
5'	7'	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅝"	2'-3⅝"	12'-6"	12'-11⅝"	17'-8⅛"	12'-6⅝"	18'-7⅛"	2.196	3.059	2.363	3.295
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅝"	2'-5⅝"	12'-6"	12'-11⅝"	17'-8⅛"	12'-6⅝"	18'-7⅛"	2.287	3.188	2.455	3.429
6'	8'	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-5⅞"	2'-9⅝"	14'-6"	15'-0⅝"	20'-6"	14'-10⅝"	21'-9"	3.062	4.298	3.296	4.517
		7⅝"	6'-10"	2'-0"	3'-8"	2'-6"	2'-5⅞"	2'-9⅝"	14'-6"	15'-0⅝"	20'-6"	14'-10⅝"	21'-9"	3.114	4.329	3.309	4.605
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-5⅞"	2'-9⅝"	14'-6"	15'-0⅝"	20'-6"	14'-10⅝"	21'-9"	3.177	4.417	3.371	4.693
⊕ 7'	8⅛"	7⅛"	7'-10"	2'-8"	4'-2"	2'-7⅛"	3'-0⅜"	3'-6⅝"	16'-6"	17'-1"	23'-4"	16'-10⅝"	25'-1"	3.998	5.560	4.220	5.877
		8"	7'-10"	2'-8"	4'-2"	2'-7⅝"	3'-0⅜"	3'-5⅛"	16'-6"	17'-1"	23'-4"	16'-10⅝"	25'-1"	4.079	5.679	4.301	5.991
⊕ 8'	9"	8"	8'-10"	2'-8"	4'-6"	2'-9"	3'-6⅝"	4'-2⅜"	18'-6"	19'-1⅜"	26'-2"	19'-1⅜"	28'-5"	5.111	7.111	5.360	7.970

* Quantity per wing does not include headwall or that portion of apron or footwall for the length W3.
⊕ See Table "A" for special values of F1 & F2 and W4 & W5 for Single 5'x7' and 6'x8' Box Culverts.

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	⊕ REINFORCING STEEL - FOR 4 WINGS	CLASS S CONCRETE - 4 WINGS					
					HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS					
					SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
S	H	Cw	WB	LB.	Cu.Yd.	Cu.Yd.	Cu.Yd.	Cu.Yd.	Cu.Yd.
4'	2'	6"	7"	117	4.79	5.78	6.77	7.77	8.74
	3'	6"	7"	176	6.45	7.64	8.83	9.43	10.62
	4'	6"	7"	267	9.85	9.89	10.84	11.83	12.82
	5'	6"	7"	379	11.90	12.38	13.38	14.37	15.36
	6'	7"	8"	626	15.95	16.96	17.98	18.51	19.53
5'	3'	6"	7"	176	6.87	8.07	9.28	10.48	11.69
	4'	6"	7"	267	9.08	10.28	11.49	12.69	13.90
	5'	6"	7"	379	11.61	12.81	14.02	15.23	16.44
	6'	7"	8"	626	15.67	16.90	18.14	19.38	20.61
	7'	7⅞"	8⅛"	1210	20.11	21.34	22.62	23.88	25.14
6'	3'	6"	7"	174	7.09	8.52	9.92	11.34	12.78
	4'	6"	7"	267	9.29	10.73	12.13	13.54	14.98
	5'	6"	7"	379	11.03	13.26	14.67	16.10	17.53
	6'	7"	8"	626	15.89	17.35	18.79	20.25	21.70
	7'	7⅞"	8⅛"	1210	20.33	21.81	23.28	24.76	26.24
	8'	8"	9"	1533	25.54	27.05	28.53	30.02	31.50
7'	4'	6"	7"	267	9.52	11.18	12.81	14.47	16.09
	5'	6"	7"	379	12.05	13.72	15.35	17.01	18.63
	6'	7"	8"	626	16.12	17.80	19.45	21.13	22.78
	7'	7⅞"	8⅛"	1210	20.56	22.24	23.94	25.69	27.33
	8'	8"	9"	1533	25.80	27.50	29.20	30.90	32.60
8'	4'	6"	7"	267	9.75	11.65	13.51	15.41	17.23
	5'	7"	7"	379	12.74	14.68	16.55	18.47	20.31
	6'	7"	8"	626	16.39	18.26	20.14	22.06	23.90
	7'	7⅞"	8⅛"	1210	20.78	22.72	24.62	26.55	28.42
	8'	8"	9"	1533	26.03	27.96	29.86	31.80	33.71
9'	5'	7"	7"	379	12.99	15.15	17.25	19.40	21.55
	6'	7⅞"	8"	626	16.89	19.07	21.19	23.34	25.42
	7'	7⅞"	8⅛"	1210	21.01	23.19	25.31	27.48	29.56
	8'	8"	9"	1533	26.25	28.42	30.55	32.72	34.78
10'	5'	7"	7"	379	13.23	16.42	17.95	20.24	22.53
	6'	7⅞"	8"	626	17.13	19.54	21.89	24.20	26.56
	7'	7⅞"	8⅛"	1210	21.44	23.66	26.01	28.32	30.68
	8'	8"	9"	1533	26.48	28.89	31.25	33.56	35.92
11'	6'	8"	8"	626	17.47	20.34	22.92	25.48	———
	7'	8"	8⅛"	1210	21.88	24.55	27.13	29.69	———
	8'	8"	9"	1533	26.70	29.37	31.96	34.52	———
12'	6'	8"	8"	626	17.91	20.84	23.69	26.46	———
	7'	8"	8⅛"	1210	22.11	25.04	27.85	30.67	———
	8'	8"	9"	1538	26.93	29.86	32.67	35.49	———

⊕ For reinforcing steel in Headwalls and Aprons, see Drawings listed below.

GENERAL NOTES:-
CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.
CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.
UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

NOTE:- For remainder of General Plans and Elevations of Single, Double, Triple, Quadruple and Quintuple Span Culverts, see Std. Drawing No. W-X.15. For values of RL, K, and W5 for each box, see the above Std. also.

MEMBRANE:- A membrane waterproofing 18" wide, consisting of three mopplings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints in wings.

NOTE:- This drawing to be used in conjunction with Std. Barrel Sections, Drawing Nos.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-115X-0	R-215X-0	R-315X-0	R-415X-0	R-515X-0
R-115X-1	R-215X-1	R-315X-1	R-415X-1	R-515X-1
	R-215X-2	R-315X-2		

BAR LIST FOR ONE SHORT AND ONE LONG WING - 2 EACH REQUIRED

CLEAR HEIGHT	WING LOCATION	SF1 & LF1 BENT: In bottom of Footing, bent up into back face of wing. One bar of each length.						SF2 & LF2 BENT: In bottom of footing, bent up into back face of wing. Alt. with F1 bars.						SF3 & LF3 STRAIGHT: Longitudinal in top of wing footing heel.			SF4 & LF4 STRAIGHT: Longitudinal in bottom of wing footing toe.			SH1 & LH1 STRAIGHT: Horizontal in back face of wing.				SH2 & LH2 STRAIGHT: Horizontal in back face of wing. One bar of each length.				SH3 & LH3 STRAIGHT: In back face of wing at top on slope.			SH4 & LH4 BENT: Dowels thru construction joint at headwall.				BAR BENDING DIAGRAM	QUANTITY: REINFORCING STEEL PER WING - Lbs.	
H	Short or Long	SIZE	SPACING	NO. REQ'D	LENGTHS VARY MIN.	LENGTHS VARY MAX.	X MIN.	X MAX.	SIZE	SPACING	NO. REQ'D	LENGTH	X	Y	SIZE	NO. REQ'D	LENGTH	SIZE	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY MAX.	LENGTHS VARY MIN.	SIZE	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	X	SF1 & SF2 LF1 & LF2 ≈3" Min. Y X	SHORT WING	LONG WING
2'	Short	#3	12"	7	1'-7"	3'-11"	0'-8"	1'-0"	—	—	—	—	—	—	#3	1	5'-2"	#3	2	7'-10"	#3	18"	1	6'-3"	#3	12"	1	—	3'-6"	#3	1	6'-10"	#3	12"	2	2'-8"	1'-9"			
	Long	#3	18"	10	1'-7"	3'-11"	0'-8"	1'-0"	—	—	—	—	—	—	#3	1	11'-8"	#3	2	10'-10"	#3	12"	1	8'-11"	#3	12"	2	6'-7"	3'-6"	#3	1	9'-0"	#3	12"	3	"	"			
3'	Short	#3	12"	9	2'-2"	5'-8"	0'-10"	1'-4"	—	—	—	—	—	—	#3	1	16'-6"	#3	2	15'-10"	#3	12"	1	11'-9"	#3	12"	2	8'-11"	4'-8"	#3	1	12'-0"	#3	12"	3	"	"			
	Long	#3	12"	13	1'-11"	5'-8"	0'-10"	1'-3"	—	—	—	—	—	—	#3	1	18'-6"	#3	2	18'-0"	#3	12"	1	14'-9"	#3	12"	3	11'-2"	5'-8"	#3	1	15'-0"	#3	12"	4	"	"			
4'	Short	#3	12"	11	2'-7"	6'-7"	0'-11"	1'-8"	—	—	—	—	—	—	#3	1	17'-1"	#3	3	17'-2"	#3	12"	1	17'-6"	#3	12"	3	13'-2"	6'-8"	#3	1	17'-11"	#3	12"	4	"	"			
	Long	#3	12"	15	2'-6"	6'-7"	0'-11"	1'-7"	—	—	—	—	—	—	#3	1	19'-5"	#3	3	19'-6"	#3	12"	1	20'-0"	#3	12"	3	15'-3"	6'-8"	#3	1	20'-6"	#3	12"	5	"	"			
5'	Short	#3	12"	13	3'-1"	7'-11"	1'-1"	2'-0"	#3	12"	4	3'-6"	1'-1"	2'-6"	#3	1	20'-2"	#3	3	20'-6"	#3	12"	2	17'-5"	#3	12"	3	13'-2"	6'-8"	#3	1	17'-10"	#3	12"	5	"	"			
	Long	#3	12"	18	3'-0"	7'-10"	1'-1"	2'-0"	#3	12"	5	3'-6"	1'-1"	2'-6"	#3	1	22'-2"	#3	3	22'-6"	#3	12"	2	20'-0"	#3	12"	3	15'-3"	6'-8"	#3	1	20'-6"	#3	12"	6	"	"			
6'	Short	#4	12"	16	3'-11"	9'-4"	1'-3"	2'-5"	#3	12"	4	4'-2"	1'-6"	2'-11"	#3	1	23'-0"	#3	3	23'-6"	#3	12"	2	20'-3"	#3	12"	4	17'-5"	8'-10"	#3	1	23'-0"	#3	12"	7	3'-6"	1'-9"			
	Long	#4	12"	21	3'-5"	9'-3"	1'-2"	2'-5"	#3	12"	5	4'-2"	1'-6"	2'-11"	#3	1	25'-10"	#3	4	26'-0"	#3	12"	2	22'-6"	#3	12"	4	17'-5"	8'-10"	#3	1	25'-10"	#3	12"	8	"	"			
7'	Short	#4	12"	18	4'-8"	10'-10"	1'-3"	2'-10"	#3	12"	5	4'-10"	1'-7"	3'-5"	#4	1	26'-10"	#4	4	26'-0"	#4	12"	2	22'-1"	#4	12"	5	21'-8"	10'-8"	#4	1	28'-8"	#4	12"	7	3'-6"	1'-9"			
	Long	#4	12"	24	4'-2"	10'-9"	1'-3"	2'-10"	#3	12"	6	4'-10"	1'-7"	3'-5"	#4	1	28'-9"	#4	4	30'-3"	#4	12"	3	25'-9"	#4	12"	5	21'-8"	10'-8"	#4	1	28'-8"	#4	12"	8	3'-6"	1'-9"			
8'	Short	#4	12"	20	4'-9"	12'-5"	1'-5"	3'-2"	#3	12"	6	5'-6"	1'-10"	4'-2"	#4	1	29'-8"	#4	4	30'-3"	#4	12"	3	25'-10"	#4	12"	5	21'-8"	10'-8"	#4	1	28'-8"	#4	12"	8	3'-6"	1'-9"			
	Long	#4	12"	27	4'-9"	12'-8"	1'-5"	3'-2"	#3	12"	7	5'-6"	1'-10"	4'-2"	#4	1	32'-3"	#4	4	34'-0"	#4	12"	3	28'-9"	#4	12"	6	24'-6"	12'-1"	#4	1	32'-5"	#4	12"	9	3'-6"	1'-9"			

BAR BENDING DIAGRAM	QUANTITY: REINFORCING STEEL PER WING - Lbs.	
	SHORT WING	LONG WING
SH4 & LH4	24.9	33.4
	37.7	50.3
	57.3	76.4
	81.1	108.4
	134.8	178.1
	259.5	345.2
	328.0	438.3

Note:- Dimensions are to bar centers.

NOTE:- Bars for short wing shall be marked with prefix letter "S", while those for long wing shall be marked with letter "L".

REVISIONS:- Membrane Added. 5-10-66 W.C.H.

Designed By- W.C.H. 5-13-63 — Checked By-
Drawn By- W.C.H. 6-20-63 — Checked By-
Quantities By- W.C.H. 9-23-63 — Checked By-
7-63

CLASS S CONCRETE

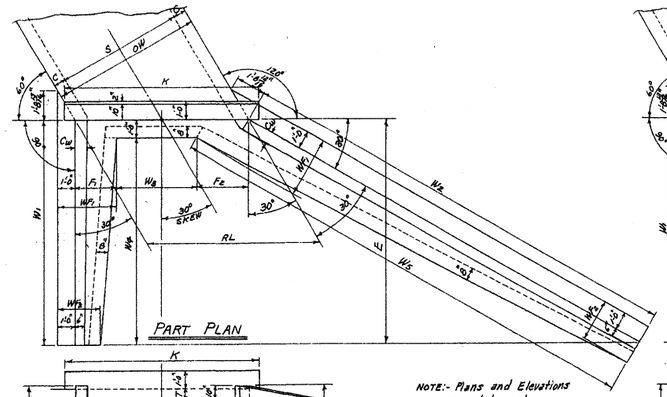
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF STANDARD WINGS
FOR
REINFORCED CONCRETE BOX CULVERTS
15° SKEW

4, 5, 6, 7, 8, 9, 10, 11 & 12 SPANS — 3:1 SLOPES
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X153-1

34

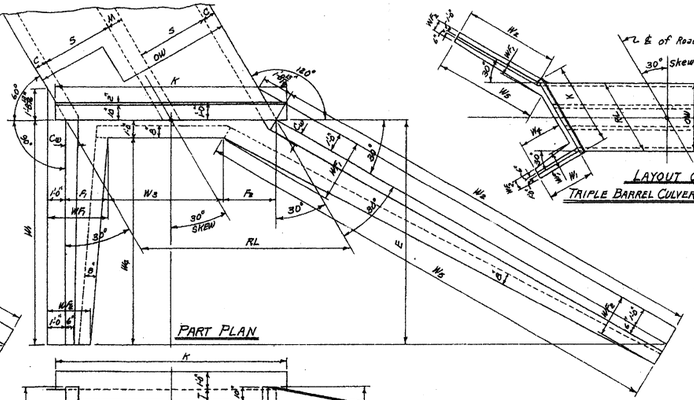
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



SINGLE BARREL CULVERT-30° SKEW RIGHT FORWARD

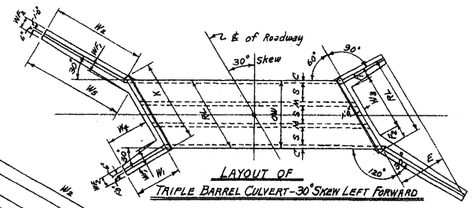
Details of Culvert with 30° Skew Left Forward is reversed, see Layout below.

NOTE:- Plans and Elevations are not to scale.

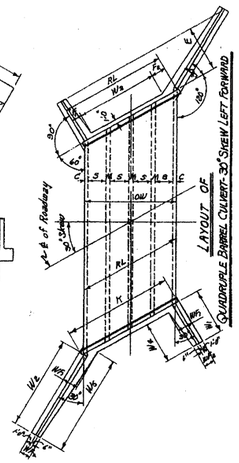


DOUBLE BARREL CULVERT-30° SKEW RIGHT FORWARD

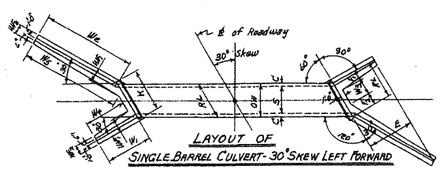
Details of Culvert with 30° Skew Left Forward is reversed, see Layout below.



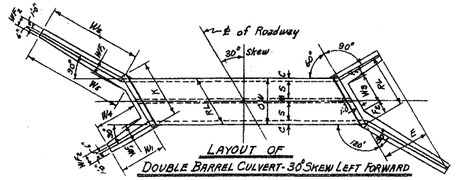
TRIPLE BARREL CULVERT-30° SKEW LEFT FORWARD



QUADRUPLE BARREL CULVERT-30° SKEW LEFT FORWARD

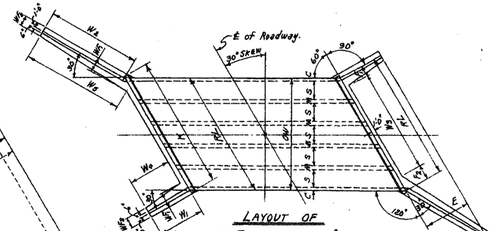


SINGLE BARREL CULVERT-30° SKEW LEFT FORWARD

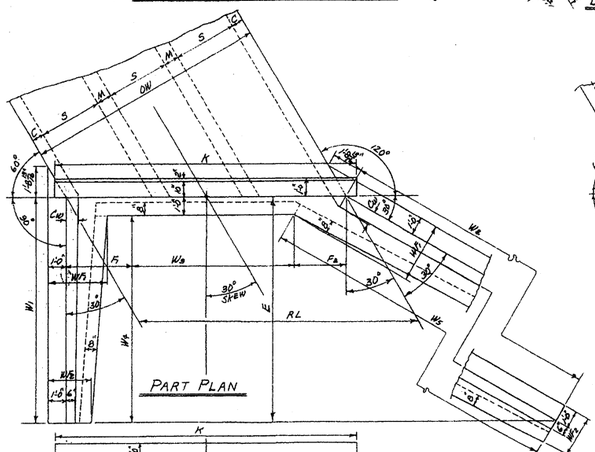


DOUBLE BARREL CULVERT-30° SKEW LEFT FORWARD

Note:- The length of the wings for the Plans, Elevations, and Layouts, as drawn, are proportioned for 3:1 slopes. For 2:1 slopes the wings are proportionally shorten, while for 4:1 slopes they are longer.

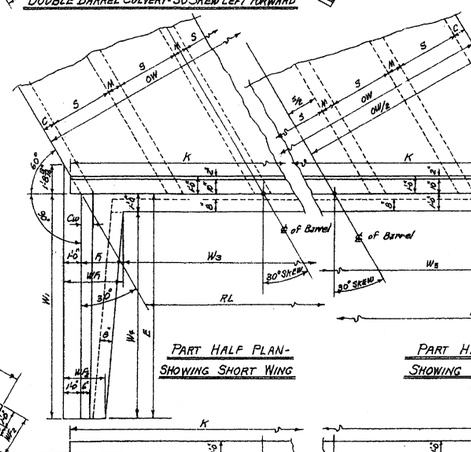


QUINTUPLE BARREL CULVERT-30° SKEW LEFT FORWARD



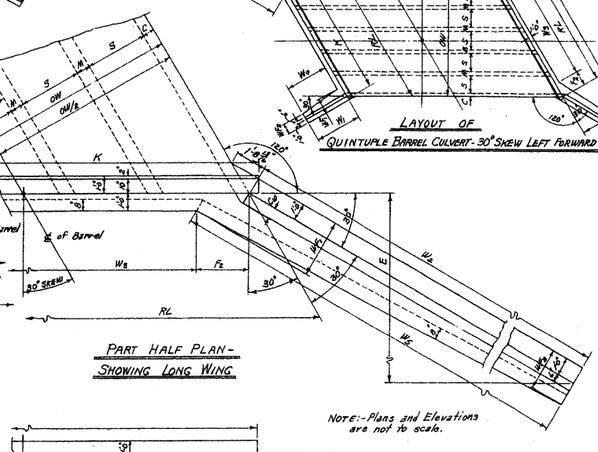
TRIPLE BARREL CULVERT-30° SKEW RIGHT FORWARD

Details of Culvert with 30° Skew Left Forward is reversed, see Layout at top center of sheet.



QUADRUPLE BARREL CULVERT-30° SKEW RT. FWD.

Details of Culvert with 30° Skew Left Forward is reversed, see Layout at above center.



QUINTUPLE BARREL CULVERT-30° SKEW RT. FWD.

Details of Culvert with 30° Skew Left Forward is reversed, see Layout above.

Note:- Plans and Elevations are not to scale.

ROADWAY LENGTH RL = OW × 1.1547 — HEADWALL LENGTH K = RL + (1'-8⅞") — APRON DIMENSION W3 = RL - (F1 + F2)

USE WITH DRAWING NO.	CLEAR SPAN S	CLEAR HEIGHT H	SUM OF FOOTING PROJECTIONS F1&F2	SINGLE BARREL CULVERT OW	SINGLE BARREL CULVERT RL	SINGLE BARREL CULVERT K	SINGLE BARREL CULVERT W3	DOUBLE BARREL CULVERT OW	DOUBLE BARREL CULVERT RL	DOUBLE BARREL CULVERT K	DOUBLE BARREL CULVERT W3	TRIPLE BARREL CULVERT OW	TRIPLE BARREL CULVERT RL	TRIPLE BARREL CULVERT K	TRIPLE BARREL CULVERT W3	QUADRUPLE BARREL CULVERT OW	QUADRUPLE BARREL CULVERT RL	QUADRUPLE BARREL CULVERT K	QUADRUPLE BARREL CULVERT W3	QUINTUPLE BARREL CULVERT OW	QUINTUPLE BARREL CULVERT RL	QUINTUPLE BARREL CULVERT K	QUINTUPLE BARREL CULVERT W3
W-X302-1, W-X303-1 or W-X304-1. (FOR H=8'0" OR LESS)	4'	2'	2'-3⅜"	5'-0"	5'-9⅛"	6'-11⅝"	3'-1⅝"	9'-8"	11'-2"	12'-3⅜"	8'-10⅛"	14'-4"	16'-6⅝"	17'-8⅜"	14'-3⅝"	19'-0"	21'-11⅛"	23'-1"	19'-8"	23'-8"	27'-4"	28'-5⅝"	25'-0⅜"
		3'	2'-3⅜"	5'-0"	"	"	2'-1"	9'-8"	"	"	7'-10⅜"	14'-9"	"	"	13'-3⅜"	19'-0"	"	"	18'-8"	23'-8"	"	"	29'-0⅝"
		4'	4'-3⅜"	5'-0"	"	"	1'-1⅝"	9'-8"	"	"	6'-10⅜"	14'-9"	"	"	12'-3⅜"	19'-0"	"	"	17'-8"	23'-8"	"	"	23'-10⅜"
		5'	5'-3⅜"	5'-0"	5'-9⅛"	6'-11⅝"	0'-6"	9'-8"	11'-2"	12'-3⅜"	5'-10⅜"	14'-4"	16'-6⅝"	17'-8⅜"	11'-3⅜"	19'-0"	21'-11⅛"	23'-1"	16'-8"	23'-8"	27'-4"	28'-5⅝"	22'-0⅜"
		6'	6'-3⅜"	5'-2"	5'-11⅝"	7'-1⅜"	Ⓐ 0"	9'-11"	11'-5⅝"	12'-7⅜"	5'-2⅜"	14'-8"	16'-11⅝"	18'-1"	10'-8"	19'-5"	22'-5"	23'-7"	16'-1⅜"	24'-2"	27'-10⅜"	29'-0⅝"	21'-7⅜"
	5'	3'	3'-3⅜"	6'-0"	6'-11⅝"	8'-1"	3'-7⅜"	11'-8"	13'-5⅜"	14'-7⅝"	10'-2⅜"	17'-4"	20'-0⅛"	21'-2"	16'-9"	23'-3"	26'-6⅜"	27'-8⅝"	23'-3⅜"	28'-8"	33'-1⅛"	34'-3"	29'-10"
		4'	4'-3⅜"	6'-0"	"	"	2'-7⅜"	11'-8"	"	"	9'-2⅜"	17'-4"	"	"	15'-9"	23'-3"	"	"	22'-3⅜"	28'-8"	"	"	28'-10"
		5'	5'-3⅜"	6'-0"	6'-11⅝"	8'-1"	1'-7⅜"	11'-8"	13'-5⅜"	14'-7⅝"	8'-2⅜"	17'-4"	20'-0⅛"	21'-2"	14'-9"	23'-3"	26'-6⅜"	27'-8⅝"	21'-3⅜"	28'-8"	33'-1⅛"	34'-3"	27'-10"
		6'	6'-3⅜"	6'-2"	7'-1⅜"	8'-5⅜"	0'-10⅛"	11'-11"	13'-9⅜"	14'-11"	7'-5⅜"	17'-8"	20'-4⅜"	21'-6⅜"	14'-1⅝"	23'-5"	27'-0⅜"	28'-2⅝"	20'-9⅛"	29'-2"	33'-5⅝"	34'-10"	27'-5"
		7'	7'-3⅜"	6'-3"	7'-2⅝"	8'-6⅛"	Ⓐ 0"	12'-1"	13'-11⅛"	15'-1⅝"	6'-2⅝"	17'-11"	20'-8⅛"	21'-10"	12'-11"	23'-8"	27'-3⅛"	28'-5⅜"	19'-8"	29'-7"	34'-0"	35'-3⅝"	26'-4⅜"
	6'	3'	3'-3⅜"	7'-0"	8'-1"	9'-2⅜"	4'-3⅜"	13'-8"	15'-9⅜"	16'-11⅝"	12'-6⅝"	20'-0"	23'-5⅛"	24'-7⅝"	20'-2⅝"	27'-0"	31'-2⅜"	32'-4"	27'-1"	33'-8"	38'-1⅛"	39'-6"	35'-2⅛"
		4'	4'-3⅜"	7'-0"	"	"	3'-1⅜"	13'-8"	"	"	11'-4⅝"	20'-0"	"	"	19'-4⅜"	27'-0"	"	"	26'-1"	33'-8"	"	"	34'-7⅜"
		5'	5'-3⅜"	7'-0"	8'-1"	9'-2⅜"	2'-3⅜"	13'-8"	15'-9⅜"	16'-11⅝"	10'-6⅜"	20'-0"	23'-5⅛"	24'-7⅝"	18'-2⅜"	27'-0"	31'-2⅜"	32'-4"	25'-1"	33'-8"	38'-1⅛"	39'-6"	33'-7⅜"
		6'	6'-3⅜"	7'-2"	8'-3⅛"	9'-5⅜"	1'-1⅞"	13'-11"	16'-0⅛"	17'-2⅝"	9'-5⅜"	20'-8"	23'-10⅝"	25'-0⅛"	17'-7⅜"	27'-5"	31'-7⅞"	32'-9⅜"	25'-0⅜"	34'-2"	39'-5⅛"	40'-7⅜"	33'-2⅝"
		7'	7'-3⅜"	7'-5"	8'-4⅝"	9'-6⅞"	0'-7⅛"	14'-1"	16'-3⅜"	17'-5"	8'-4"	20'-11"	24'-1⅛"	25'-3⅜"	16'-4"	27'-9"	32'-0⅜"	33'-2⅝"	24'-3⅜"	34'-7"	39'-11⅝"	41'-1"	32'-2"
		8'	9'-3⅜"	7'-9"	8'-7⅝"	9'-9⅞"	Ⓐ 0"	14'-2"	16'-5⅝"	17'-7⅛"	7'-1"	21'-0"	24'-3"	25'-5⅜"	14'-10⅝"	27'-10"	32'-1⅞"	33'-4⅛"	22'-10⅝"	34'-10"	40'-0⅜"	41'-2⅝"	30'-9⅝"
	7'	4'	4'-3⅜"	8'-0"	9'-2⅜"	10'-4⅝"	4'-11⅜"	15'-8"	18'-1⅞"	19'-5"	13'-9⅜"	23'-4"	26'-11⅜"	28'-1⅛"	22'-8"	31'-0"	35'-5½"	36'-7⅛"	31'-6⅛"	39'-6"	44'-7⅜"	45'-9⅜"	40'-4½"
		5'	5'-3⅜"	8'-0"	9'-2⅜"	10'-4⅝"	3'-11⅜"	15'-8"	18'-1⅞"	19'-5"	12'-9⅜"	23'-4"	26'-11⅜"	28'-1⅛"	21'-8"	31'-0"	35'-5½"	36'-7⅛"	30'-6⅛"	39'-6"	44'-7⅜"	45'-9⅜"	39'-4½"
		6'	6'-3⅜"	8'-2"	9'-3⅝"	10'-7"	3'-2"	15'-11"	18'-4⅛"	19'-6½"	12'-1⅜"	23'-8"	27'-1⅜"	28'-3⅝"	21'-0⅝"	31'-5"	36'-0⅜"	37'-2⅝"	29'-11⅝"	40'-0"	45'-1⅜"	46'-3⅝"	38'-11⅜"
		7'	7'-3⅜"	8'-3"	9'-4⅝"	10'-8⅞"	1'-9"	16'-1"	18'-6⅛"	19'-8½"	10'-9⅜"	23'-11"	27'-3⅜"	28'-5⅝"	19'-1⅛"	31'-9"	36'-3"	37'-5⅜"	28'-10⅛"	40'-3"	45'-4⅜"	46'-6⅛"	37'-1⅛"
		8'	9'-3⅜"	8'-4"	9'-5⅞"	10'-10⅜"	0'-4⅛"	16'-2"	18'-8"	19'-9⅝"	9'-4⅜"	24'-0"	27'-5⅜"	28'-8"	18'-5⅝"	31'-10"	36'-5⅜"	37'-7⅞"	27'-6"	39'-8"	45'-0⅜"	46'-1⅝"	34'-6⅛"
	8'	4'	4'-3⅜"	9'-0"	10'-0⅝"	11'-6⅞"	6'-1⅛"	17'-6"	20'-0⅝"	21'-4⅝"	16'-1⅝"	26'-0"	30'-0⅜"	31'-4⅝"	26'-1⅜"	35'-0"	40'-5"	41'-6⅝"	36'-1⅛"	44'-3"	50'-5⅜"	51'-7"	46'-1⅜"
		5'	5'-3⅜"	9'-0"	10'-1"	11'-8⅜"	5'-3⅜"	17'-11"	20'-6⅛"	21'-10"	15'-5"	26'-8"	30'-9⅛"	31'-11⅝"	25'-6⅜"	35'-5"	40'-10⅜"	42'-0"	35'-7⅜"	44'-2"	51'-0"	52'-2⅜"	45'-8⅜"
		6'	6'-3⅜"	9'-2"	10'-3"	11'-8⅝"	4'-3⅜"	17'-11"	20'-8⅝"	21'-10"	14'-5"	26'-8"	30'-9⅝"	31'-11⅝"	24'-6⅜"	35'-5"	40'-10⅜"	42'-0"	34'-7⅜"	44'-2"	51'-0"	52'-2⅜"	44'-8⅜"
		7'	7'-3⅜"	9'-3"	10'-5⅜"	11'-10⅜"	2'-11"	18'-1"	20'-10⅝"	22'-0⅝"	13'-1⅝"	26'-11"	31'-1"	32'-2⅜"	23'-3⅜"	35'-8"	41'-1⅜"	42'-3⅝"	33'-7⅛"	44'-7"	51'-5⅜"	52'-7⅛"	43'-8⅛"
		8'	9'-3⅜"	9'-4"	10'-9⅜"	11'-11⅝"	1'-7⅜"	18'-2"	20'-11⅛"	22'-1⅛"	11'-8⅜"	27'-0"	31'-2⅜"	32'-4"	21'-11"	35'-10"	41'-4½"	42'-6⅛"	32'-11⅜"	44'-8"	51'-7"	52'-9⅝"	42'-8⅜"
	9'	5'	5'-3⅜"	10'-2"	11'-0⅜"	12'-10⅜"	6'-5⅜"	19'-11"	23'-0"	24'-3⅛"	17'-8⅜"	29'-0"	34'-3⅜"	35'-5"	28'-1⅜"	39'-5"	45'-4⅝"	46'-8"	40'-3"	49'-2"	56'-9⅜"	57'-11⅝"	51'-6"
		6'	6'-3⅜"	10'-3"	11'-0"	13'-0"	5'-6⅜"	20'-1"	23'-2⅝"	24'-5⅝"	16'-11"	29'-1"	34'-4⅝"	35'-8⅜"	28'-3⅜"	39'-7"	45'-6⅜"	47'-0⅝"	39'-5⅝"	49'-4"	57'-1⅜"	58'-3"	50'-8⅝"
		7'	7'-3⅜"	10'-3"	11'-0"	13'-0"	4'-0⅜"	20'-1"	23'-2⅝"	24'-5⅝"	15'-5"	29'-1"	34'-4⅝"	35'-8⅜"	26'-9⅜"	39'-9"	45'-8⅝"	47'-1⅜"	38'-1⅞"	49'-5"	57'-3⅜"	58'-5"	49'-1⅝"
		8'	9'-3⅜"	10'-4"	11'-1⅛"	13'-1"	2'-8"	20'-2"	23'-3⅝"	24'-7⅝"	14'-0⅜"	30'-0"	34'-7⅜"	35'-11⅝"	25'-5⅜"	39'-11"	46'-0"	47'-3⅜"	36'-8⅜"	49'-6"	57'-4⅜"	58'-6"	48'-1"
	10'	5'	5'-3⅜"	11'-2"	12'-0⅜"	14'-0⅝"	7'-5⅜"	21'-9"	25'-0⅜"	26'-5⅛"	20'-0⅛"	32'-8"	37'-0⅝"	38'-10⅛"	32'-5⅛"	43'-5"	50'-1⅝"	51'-3⅝"	44'-10⅛"	54'-2"	62'-6⅛"	63'-8⅝"	57'-3⅜"
		6'	6'-3⅜"	11'-3"	12'-1⅜"	14'-1⅜"	6'-6⅜"	22'-1"	25'-4"	26'-7⅜"	19'-2⅜"	32'-11"	38'-0⅝"	39'-12"	31'-9"	43'-9"	50'-6⅝"	51'-8"	44'-1⅜"	54'-3"	62'-7⅜"	63'-10"	57'-4⅜"
		7'	7'-3⅜"	11'-3"	12'-1⅜"	14'-1⅜"	5'-1⅜"	22'-1"	25'-4"	26'-7⅜"	17'-8⅜"	32'-11"	38'-0⅝"	39'-12"	30'-3"	43'-9"	50'-6⅝"	51'-8"	42'-9"	54'-3"	62'-7⅜"	63'-10"	56'-3"
		8'	9'-3⅜"	11'-4"	12'-3"	14'-3⅜"	3'-9⅜"	22'-2"	25'-5⅛"	26'-8"	16'-4"	33'-0"	38'-1⅜"	39'-3"	28'10"	43'-10"	50'-7⅝"	51'-10⅛"	41'-6⅝"	54'-4"	62'-8⅜"	63'-11⅛"	53'-10⅛"
	11'	6'	6'-3⅜"	12'-4"	13'-2⅝"	15'-4⅜"	7'-7⅛"	24'-2"	27'-10⅜"	29'-0⅜"	21'-7⅜"	36'-0"	41'-6⅜"	42'-8⅞"	35'-3⅜"	47'-10"	55'-2⅜"	56'-4⅞"	48'-0⅜"	59'-5"	—	—	—
		7'	7'-3⅜"	12'-5"	"	"	6'-5⅛"	24'-2"	"	"	20'-1⅜"	36'-0"	"	"	33'-5⅜"	47'-10"	"	"	47'-5⅝"	—	—	—	—
		8'	9'-3⅜"	12'-6"	"	"	4'-11⅜"	24'-2"	"	"	18'-7⅜"	36'-0"	"	"	32'-3⅜"	47'-10"	"	"	45'-11⅝"	—	—	—	—
	12'	6'	6'-3⅜"	13'-6"	15'-0⅝"	16'-6⅝"	9'-1⅜"	26'-2"	30'-2⅝"	31'-6⅛"	23'-10⅝"	39'-0"	45'-0⅜"	46'-2⅝"	38'-9⅝"	51'-10"	59'-10⅝"	61'-0"	53'-7"	—	—	—	—
		7'	7'-3⅜"	13'-6"	"	"	7'-7⅝"	26'-2"	"	"	22'-5⅜"	39'-0"	"	"	37'-3⅜"	51'-10"	"	"	52'-1"	—	—	—	—
		8'	9'-3⅜"	13'-6"	"	"	6'-1⅞"	26'-2"	"	"	20'-11⅛"	39'-0"	"	"	35'-9⅜"	51'-10"	"	"	50'-7"	—	—	—	—
	7'	9'	10'-9⅜"	8'-6"	9'-9⅜"	10'-11⅜"	Ⓐ 0"	16'-5"	18'-11⅝"	20'-1⅛"	8'-2⅜"	26'-9"	28'-11⅛"	29'-5"	17'-9"	32'-3"	37'-2⅜"	38'-6⅛"	26'-5⅜"	40'-2"	46'-6⅛"	47'-6⅝"	35'-7⅜"
	8'	9'	10'-9⅜"	9'-6"	10'-11⅜"	12'-1⅛"	0'-2⅜"	18'-5"	21'-3⅜"	22'-5"	10'-6"	27'-9"	31'-6⅜"	32'-10⅝"	20'-0½"	34'-3"	41'-10⅜"	43'-0⅝"	31'-1"	45'-2"	52'-1⅜"	53'-3⅝"	41'-9⅜"
		10'	12'-3⅜"	9'-8"	11'-2"	12'-3⅜"	Ⓐ 0"	18'-8"	21'-1⅝"	22'-8⅛"	9'-3⅜"	27'-8"	31'-11⅜"	33'-1⅛"	19'-5⅜"	36'-8"	42'-6⅜"	43'-4"	30'-0⅜"	45'-8"	52'-8⅜"	53'-10⅝"	40'-5⅝"
	9'	9'	10'-9⅜"	10'-6"	12'-1½"	13'-3⅜"	1'-4⅜"	20'-5"	23'-2⅝"	24'-10⅜"	12'-9⅜"	30'-9"	35'-0⅜"	36'-2⅝"	26'-3"	40'-3"	46'-5⅜"	47'-7½"	35'-10⅝"	50'-8"	57'-11⅝"	59'-1"	47'-2"
		10'	12'-3⅜"	10'-8"	12'-3½"	13'-5⅝"	0'-0⅝"	20'-8"	23'-10⅝"	25'-0⅝"	11'-7⅛"	30'-8"	35'-4⅜"	36'-6⅝"	23'-1⅜"	40'-8"	46'-11⅝"	48'-1⅛"	34'-9⅝"	50'-8"	58'-2"	59'-5"	46'-10⅜"
		11'	13'-9⅜"	10'-10"	12'-6⅜"	13'-8"	Ⓐ 0"	20'10"	24'-0⅝"	25'-2⅝"	10'-1⅝"	30'-10"	35'-7⅛"	36'-9"	21'-10"	40'-10"	47'-1⅝"	48'-3⅝"	33'-4⅝"	50'-10"	58'-3⅝"	59'-10⅝"	44'-11⅜"
	10'	9'	10'-9⅜"	11'-6"	13'-3⅝"	14'-5⅝"	2'-6⅜"	22'-5"	25'-10⅜"	27'-0⅜"	15'-3⅜"	33'-9"	38'-5⅜"	39'-7⅝"	27'-8⅜"	44'-3"	51'-1⅞"	52'-3"	40'-0"	55'-2"	63'-8⅜"	64'-10⅝"	52'-11⅝"
		10'	12'-3⅜"	11'-8"	13'-5⅜"	14'-7⅝"	1'-2⅜"	22'-8"	26'-1⅛"	27'-2⅝"	13'-10⅜"	33'-8"	38'-10⅝"	40'-0⅛"	24'-7⅜"	44'-8"	51'-7⅜"	52'-9⅛"	39'-3⅜"	55'-8"	64'-2⅜"	65'-5⅛"	52'-6"
		11'	13'-9⅜"	11'-10"	13'-8"	14'-9⅜"	Ⓐ 0"	22'-10"	26'-4⅛"	27'-4⅝"	12'-7⅛"	33'-10"	39'-0⅜"	40'-2⅝"	25'-3⅜"	44'-10"	51'-9⅝"	52'-11"	38'-6"	55'-10"	64'-3⅝"	65'-7⅛"	50'-8⅜"
		12'	15'-3⅜"	12'-0"	13'-10⅛"	15'-0⅛"	Ⓐ 0"	23'-0"	26'-6⅛"	27'-8⅝"	11'-3⅝"	34'-0"	39'-3⅜"	40'-5"	25'-10"	45'-0"	52'-1⅛"	53'-3⅛"	36'-8⅛"	56'-0"	64'-10"	65'-9⅜"	49'-3⅝"
	11'	9'	10'-9⅜"	12'-6"	14'-5⅝"	15'-7⅞"	3'-1⅜"	24'-5"	28'-0⅜"	29'-2⅝"	17'-5"	36'-9"	41'-11⅜"	43'-1⅞"	31'-2⅜"	48'-3"	55'-5⅜"	56'-7⅞"	43'-11⅜"	—	—	—	—
		10'	12'-3⅜"	12'-8"	14'-7⅝"	15'-9⅞"	2'-9⅜"	24'-10"	28'-5⅜"	29'-7⅞"	16'-1⅞"	36'-10"	42'-0⅜"	43'-3"	30'-0⅜"	48'-8"	55'-10⅜"	57'-0⅞"	43'-11⅜"	—	—	—	—
		11'	13'-9⅜"	13'-0"	14'-9⅜"	15'-11⅝"	2'-0⅝"	25'-4"	28'-10⅜"	29'-11"	16'-11"	36'-10"	42'-0⅜"	43'-3"	28'-9⅜"	48'-10"	56'-0⅜"	57'-1⅝"	42'-7⅜"	—	—	—	—
		12'	15'-3⅜"	13'-0"	15'-0⅛"	16'-2"	Ⓐ 0"	25'0"	28'-10⅜"	30'-0⅝"	15'-7⅜"	37'-0"	42'-3⅜"	43'-5⅝"	27'-3⅜"	49'-0"	56'-2⅜"	57'-3⅝"	41'-3⅜"	—	—	—	—
	12'	9'	10'-9⅜"	13'-4"	15'-2⅞"	16'-5"	4'-9⅜"	26'-5"	30'-0"	31'-0"	19'-0⅜"	39'-4"	44'-5"	45'-7"	31'-7⅜"	52'-3"	60'-0"	61'-2⅝"	47'-5⅜"	—	—	—	—
		10'	12'-3⅜"	13'-8"	15'-9⅜"	16'-11⅝"	3'-4⅜"	26'-8"	30'-3⅝"	31'-4⅛"	18'-6⅜"	39'-8"	44'-9⅜"	46'-0⅛"	33'-6⅜"	52'-8"	60'-5⅜"	61'-7⅞"	48'-0⅜"	—	—	—	—
		11'	13'-9⅜"	13'-10"	15'-11⅝"	17'-1⅞"	2'-2⅜"	26'-10"	30'-6⅛"	31'-7⅝"	17'-10⅜"	39'-10"	45'-0"	46'-2⅜"	32'-10⅜"	52'-10"	60'-8"	62'-0"	47'-7⅜"	—	—	—	—
		12'	15'-3⅜"	14'-0"	16'-0⅛"	17'-2⅝"	0'-10⅜"	27'-0"	30'-9⅛"	32'-0⅝"	15'-11"	40'-0"	45'-2⅜"	46'-4⅞"	30'-11"	53'-0"	61'-0⅜"	62'-2⅝"	45'-11⅜"	—	—	—	—

Ⓐ Special case for these boxes, See Detail 'A' and Table 'A' for revised values of F1, F2, W2 and W3, when apron width is more than 1'-0" and W3=0". For Details 'A' and Tables 'A' for each slope, see Drawing Nos. W-X302-1, W-X302-2, or W-X303-1, W-X303-2, or W-X304-1, W-X304-2.

Note:- This drawing to be used in conjunction with Standard Wing Drawings for 30° Skews for each slope as listed below.

2:1 Slopes	3:1 Slopes	4:1 Slopes
W-X302-1 or W-X302-2	W-X303-1 or W-X303-2	W-X304-1 or W-X304-2.

Note:- This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos.-

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-130X-0	R-230X-01	R-330X-01	R-430X-01	R-530X-01
	R-230X-02	R-330X-02	R-430X-02	R-530X-02
R-130X-1	R-230X-1	R-330X-1	R-430X-1	R-530X-1
	R-230X-2	R-330X-2		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 30° SKEW

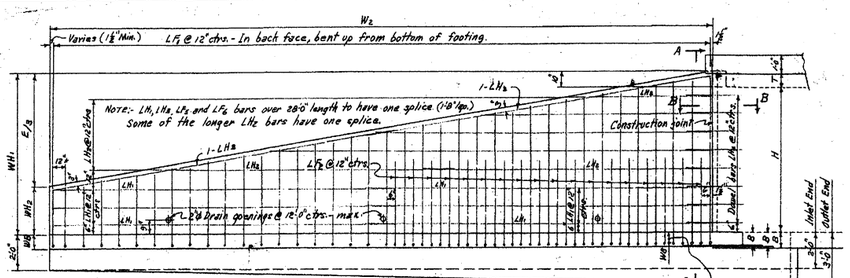
4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 2:1, 3:1 & 4:1 SLOPES

SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER H=2', 3', 4', 5', 6', 7', 8', 9', 10', 11' & 12'.

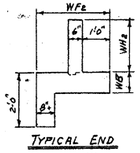
STANDARD DRAWING NO. W-X30

Designed by:- W.C.H. 5-16-63 Checked by:- Checked by:-
Drawn by:- W.C.H. 7-15-63 Checked by:-
Quantities by:- 8-27-63

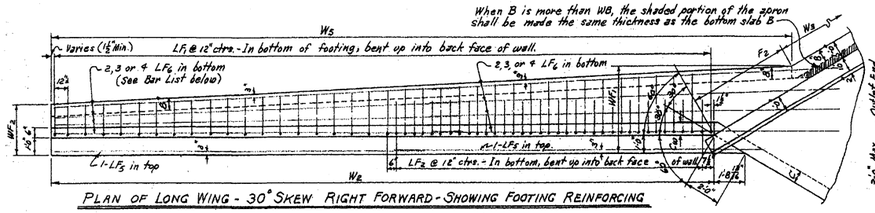
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



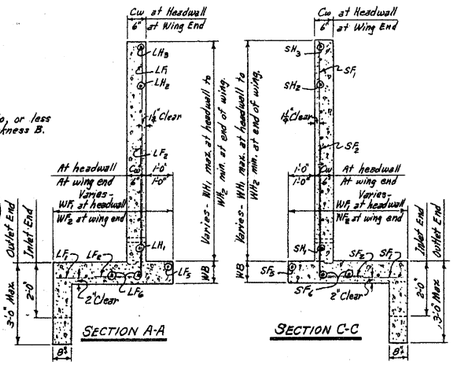
REAR ELEVATION OF LONG WING - 30° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING



TYPICAL END VIEW OF WING

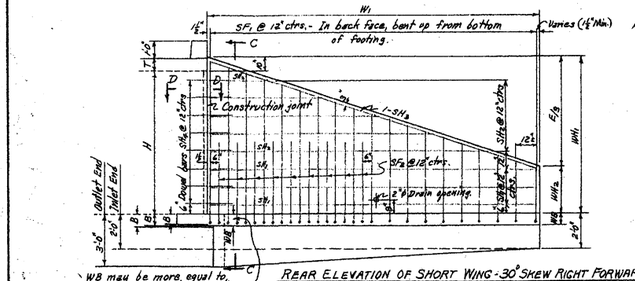


PLAN OF LONG WING - 30° SKEW RIGHT FORWARD - SHOWING FOOTING REINFORCING

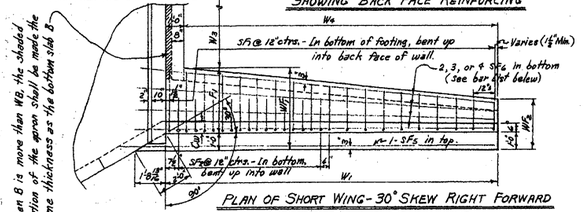


SECTION A-A

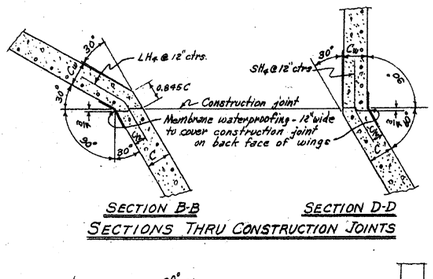
SECTION C-C



REAR ELEVATION OF SHORT WING - 30° SKEW RIGHT FORWARD SHOWING BACK FACE REINFORCING



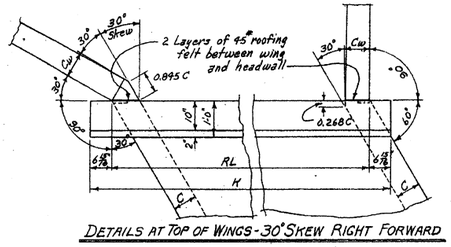
PLAN OF SHORT WING - 30° SKEW RIGHT FORWARD SHOWING FOOTING REINFORCING



SECTION B-B SECTION D-D

SECTIONS THRU CONSTRUCTION JOINTS

NOTE:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.



DETAILS AT TOP OF WINGS - 30° SKEW RIGHT FORWARD

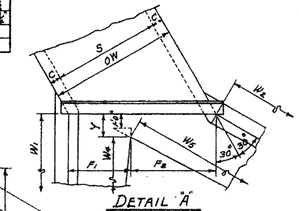
REGULAR WING DIMENSIONS - 3:1 SLOPES

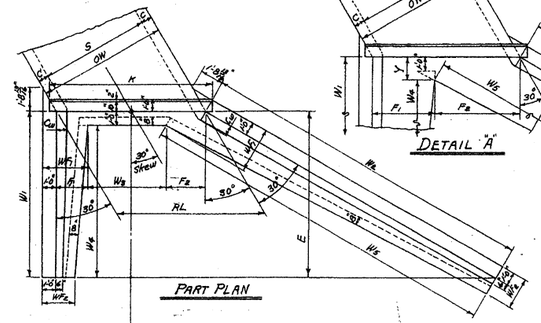
CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEAD WALL = C	WINGWALL HEIGHTS AT HEADWALL	WINGWALL HEIGHTS AT END OF WING	WIDTHS OF WING FOOTINGS AT HEADWALL	WIDTHS OF WING FOOTINGS AT END OF WING	FOOTING DIMENSION PARALLEL WITH HEADWALL SHORT WING	FOOTING DIMENSION PARALLEL WITH HEADWALL LONG WING	PERPENDICULAR DIST. FROM HEAD TO END OF WING	LENGTHS OF WINGWALLS SHORT WING	LENGTHS OF WINGWALLS LONG WING	INSIDE FOOTING DIMENSION SHORT WING	INSIDE FOOTING DIMENSION LONG WING	* QUANTITY PER WING CLASS S CONCRETE INLET END SHORT WING	INLET END LONG WING	OUTLET END SHORT WING	OUTLET END LONG WING
H	WB	Cw	WH1	WH2	WF1	WF2	F1	F2	E	W1	W2	W4	W5	CU.YD.	CU.YD.	CU.YD.	CU.YD.
2'	7"	6"	2'-10"	0'-8"	2'-6"	2'-0"	1'-4"	0'-11½"	6'-6"	6'-4"	13'-0"	5'-6"	13'-3⅜"	0.752	1.599	0.836	1.717
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1½"	1'-8"	1'-3½"	8'-6"	8'-6"	17'-0"	7'-6"	17'-10⅜"	1.130	2.340	1.239	2.565
4'	7"	6"	4'-10"	1'-8"	3'-0"	2'-3"	2'-0"	2'-3⅜"	10'-6"	10'-6"	21'-0"	9'-6"	22'-5½"	1.577	3.270	1.711	3.552
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-6½"	2'-4"	2'-11⅝"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0⅝"	2.098	4.391	2.252	9.680
		7"	5'-10"	1'-8"	3'-4"	2'-6½"	2'-9"	2'-11⅝"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0⅝"	2.179	4.524	2.337	4.862
* 6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-2⅝"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7⅛"	2.908	6.024	3.092	6.419
		7½"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-2⅝"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7⅛"	2.966	6.147	3.150	6.543
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-2⅝"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7⅛"	3.025	6.272	3.208	6.667
* 7'	8½"	7½"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-2"	3'-7⅛"	16'-6"	16'-6"	33'-0"	15'-6"	36'-5⅜"	3.811	7.895	4.019	8.350
		8"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-2"	3'-7⅛"	16'-6"	16'-6"	33'-0"	15'-6"	36'-5⅜"	3.887	8.057	4.095	8.512
* 8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	3'-7½"	18'-6"	18'-6"	37'-0"	17'-6"	41'-4½"	4.874	10.097	5.107	10.612

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W_3.
* See Table "A" for special values of F, & F_2 and W_4 & W_5 for Single 4'x6', 5'x7' and 6'x8' Box Culverts.

TABLE "A" - DIMENSIONS FOR DETAIL "A"

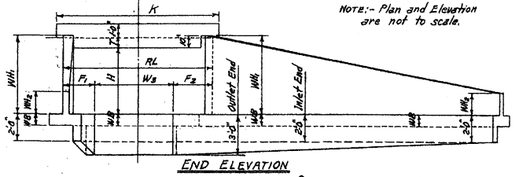
S	H	F_1	F_2	W_3	Y	W_4	W_5
4'	6'	2'-7⅞"	3'-3⅝"	0"	1'-1⅜"	13'-4⅝"	31'-3⅝"
5'	7'	3'-1⅝"	4'-1"	0"	1'-3⅛"	15'-2⅜"	35'-10⅝"
6'	8'	3'-7⅛"	4'-10⅝"	0"	1'-6⅜"	17'-1⅛"	40'-6"





PART PLAN

Note:- Plan and Elevation are not to scale.



END ELEVATION

SINGLE BARREL CULVERT - 30° SKEW RIGHT FORWARD

Details of Culvert with 30° Skew Left Forward is reversed, see Drawing No. W-X30.

TYPICAL WING DETAILS

NOTE:-
For remainder of General Plans and Elevations of Single, Double, Triple, Quadruple and Quintuple Span Culverts, see Std. Drawing No. W-X30.
For values of RL, K and W_3 for each box, see above Std. 2/30.

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three mopings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints of wings.

REVISIONS:- Membrane Added 5-10-66 W.C.H.

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL FOR 4 WINGS	CLASS S CONCRETE - 4 WINGS HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS				
					SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
S	H	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
4'	2'	6"	7"	164	5.80	6.90	8.01	9.12	10.23
	3'	6"	7"	213	8.08	9.18	10.29	11.40	12.51
	4'	6"	7"	327	10.78	11.88	12.99	14.10	15.21
	5'	6"	7"	460	13.90	15.00	16.11	17.22	18.32
	6'	7"	8"	762	18.85	19.99	21.13	22.27	23.41
5'	3'	6"	7"	213	8.33	9.47	11.01	12.36	13.70
	4'	6"	7"	327	11.03	12.36	13.71	15.06	16.40
	5'	7"	7"	460	14.14	15.49	16.83	18.17	19.52
	6'	7"	8"	762	19.11	20.98	21.84	23.24	24.62
	7'	7⅞"	8½"	1474	29.51	25.94	27.35	28.75	30.16
6'	3'	6"	7"	213	8.57	10.17	11.73	13.33	14.92
	4'	6"	7"	327	11.27	12.86	14.93	16.03	17.62
	5'	6"	7"	460	14.38	15.98	17.55	19.16	20.73
	6'	7"	8"	762	19.35	20.98	22.59	24.21	25.83
	7'	7⅞"	8½"	1474	29.79	26.94	28.06	29.73	31.38
	8'	8"	9"	1870	31.15	32.97	34.51	36.17	37.83
7'	4'	6"	7"	327	11.52	13.37	15.19	17.05	18.85
	5'	6"	7"	460	14.68	14.49	18.31	20.16	21.97
	6'	7"	8"	762	19.61	21.98	23.52	25.20	27.04
	7'	7⅞"	8½"	1474	25.05	26.94	28.82	30.71	32.59
	8'	8"	9"	1870	31.49	33.37	35.25	37.16	39.05
8'	4'	6"	7"	327	11.77	13.89	15.97	18.09	20.12
	5'	7"	7"	460	15.56	17.60	19.70	21.83	23.89
	6'	7"	8"	762	19.86	21.98	24.05	26.17	28.20
	7'	7⅞"	8½"	1474	25.30	27.46	29.58	31.78	33.91
	8'	8"	9"	1870	31.72	33.88	36.00	38.16	40.27
9'	5'	7"	7"	460	15.72	18.13	20.47	22.87	25.15
	6'	7⅞"	8"	762	20.50	22.93	25.29	27.71	30.01
	7'	7⅞"	8½"	1474	25.55	27.98	30.34	32.76	35.07
	8'	8"	9"	1870	31.97	34.39	36.76	39.18	41.49
10'	5'	7"	7"	460	15.98	18.65	21.25	23.80	26.42
	6'	7⅞"	8"	762	20.76	23.45	26.07	28.69	31.28
	7'	7⅞"	8½"	1474	25.81	28.50	31.12	33.70	36.34
	8'	8"	9"	1870	32.22	34.91	37.54	40.12	42.76
11'	6'	8"	8"	762	21.39	24.58	27.25	30.11	——
	7'	8"	8½"	1474	26.55	29.53	32.41	35.27	——
	8'	8"	9"	1870	32.47	35.45	38.33	41.19	——
12'	6'	8"	8"	762	21.66	24.93	28.05	31.20	——
	7'	8"	8½"	1474	26.81	30.08	33.21	36.36	——
	8'	8"	9"	1870	32.73	35.99	39.13	42.28	——

● For reinforcing steel in Headwalls and Aprons, see Drawing Nos. of Barrel Sections listed below.

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.
CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.
UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing steel 20,000#/□"

NOTE:-
This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos...

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-130X-0	R-230X-01	R-330X-01	R-430X-01	R-530X-01
	R-230X-02	R-330X-02	R-430X-02	R-530X-02
R-130X-1	R-230X-1	R-330X-1	R-430X-1	R-530X-1
	R-230X-2	R-330X-2		

CLASS S CONCRETE

BAR LIST FOR ONE SHORT AND ONE LONG WING - 2 EACH REQUIRED

| CLEAR HEIGHT | WING LOCATION | SF1 & LF1 BENT: In bottom of footing, bent up into back face of wing. One bar (or two bars) of each length — SIZE | SPACING | No./BAND | LENGTHS VARY MIN. | LENGTHS VARY MAX. | X MIN. | X MAX. | Y MIN. | Y MAX. | SF2 & LF2 BENT: In bottom of footing, bent up into back face of wing. Alt. with F1 bars. SIZE | SPACING | No./BAND | LENGTH | X | Y | SF5 & LF5 STRAIGHT: Longitudinal in top of wing footing heel. SIZE | No./BAND | LENGTH | SF6 & LF6 STRAIGHT: Longitudinal in bottom of wing footing pad. SIZE | No./BAND | LENGTH | SH1 & LH1 STRAIGHT: Horizontal in back face of wing. SIZE | SPACING | No./BAND | LENGTH | SH2 & LH2 STRAIGHT: Horizontal in back face of wing. One bar of each length.* SIZE | SPACING | No./BAND | LENGTHS VARY MAX. | LENGTHS VARY MIN. | SH3 & LH3 STRAIGHT: In back face of wing at top - on slope. SIZE | No./BAND | LENGTH | SH4 & LH4 BENT: Dowels thru construction joint at headwall. SIZE | SPACING | No./BAND | LENGTH | X | BAR BENDING DIAGRAM | QUANTITY: REINFORCING STEEL PER WING - LBS. SHORT WING | LONG WING |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					

BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH

DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	"a" bars STRAIGHT In Top and Bottom Slabs of Barrel. 2 Add'l. In Apron and Headwall. Each.				"b" bars BENT - See Diagram below. In Top and Bottom Slabs of Barrel. Alternate with "a" bars.				"d" bars STRAIGHT. Longitudinal in Top Slab of Barrel			"d1" bars STRAIGHT. Longitudinal in Sidewalls			"e" bars. Longitudinal in Bottom Slab of Barrel			"f" bars STRAIGHT Verticals in Side walls			
					NUMBER REQ'D				NUMBER REQ'D													
D	S	H	SIZE	SPACING	3:1	4:1	LENGTH	SIZE	SPACING	3:1	4:1	LENGTH	X	SIZE	SPACING	NO. HEAD.	LENGTH	SIZE	SPACING	NO. HEAD.	LENGTH	SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
0'-0" TO 5'-0" MAXIMUM.	1 @ 4'	2'	#5	13"	120	120	4'-9"	#6	13"	110	110	5'-10"	4'-8"	#5	10½"	6		#4	12"	4		#4	12"	5		120	120	2'-11"
		3'			120	120	4'-9"			110	110	5'-10"	4'-8"			6				6				5		120	120	3'-11"
		4'			120	120	4'-9"			110	110	5'-10"	4'-8"			6				8				5		120	120	4'-11"
		5'			120	120	4'-9"			110	110	5'-10"	4'-8"			6				10				5		120	120	5'-11"
		6'			120	120	4'-11"			110	110	6'-0"	4'-10"			6				12				5		120	120	6'-11"
	1 @ 5'	3'	#6	13"	120	120	5'-9"	#6	13"	110	110	6'-10"	5'-8"	#5	10½"	6		#4	12"	6		#4	12"	6		120	120	4'-0"
		4'			120	120	5'-9"			110	110	6'-10"	5'-8"			7				8				6		120	120	5'-0"
		5'			120	120	5'-9"			110	110	6'-10"	5'-8"			7				10				6		120	120	7'-0"
		6'			120	120	5'-11"			110	110	7'-0"	5'-10"			7				12				6		120	120	8'-0"
		7'			120	120	6'-0"			110	110	7'-1"	5'-11"			7				16				6		120	120	9'-0"
	1 @ 6'	3'	#6	12"	128	128	6'-9"	#6	12"	118	118	7'-10"	6'-8"	#5	10½"	8		#4	12"	6		#4	12"	7		120	120	4'-11"
		4'			128	128	6'-9"			118	118	7'-10"	6'-8"			8				8				7		120	120	5'-11"
		5'			128	128	6'-9"			118	118	7'-10"	6'-8"			8				10				7		120	120	6'-11"
		6'			128	128	6'-11"			118	118	8'-0"	6'-10"			8				12				7		120	120	7'-11"
		7'			128	128	7'-0"			118	118	8'-1"	6'-11"			8				14				7		120	120	8'-11"
		8'			128	128	7'-1"			118	118	8'-2"	7'-0"			8				16				7		120	120	9'-11"
	1 @ 7'	4'	#6	11"	140	140	7'-9"	#6	11"	130	130	8'-10"	7'-8"	#5	10½"	9		#4	12"	8		#4	12"	8		#5	12"	5'-2"
		5'			140	140	7'-9"			130	130	8'-10"	7'-8"			9				10				8		120	120	6'-2"
		6'			140	140	7'-11"			130	130	9'-0"	7'-10"			9				12				8		120	120	7'-2"
		7'			140	140	8'-0"			130	130	9'-1"	7'-11"			9				14				8		120	120	8'-2"
		8'			140	140	8'-1"			130	130	9'-2"	8'-0"			9				16				8		120	120	9'-2"
		9'			140	140	8'-3"			130	130	9'-4"	8'-2"			9				18				8		#5	12"	10'-2"
	1 @ 8'	4'	#7	12"	128	128	8'-9"	#6	12"	118	118	9'-10"	8'-8"	#5	10"	11		#4	12"	8		#4	12"	9		#4	12"	5'-9"
		5'			128	128	8'-11"			118	118	10'-0"	8'-10"			11				10				9		120	120	6'-9"
		6'			128	128	8'-11"			118	118	10'-0"	8'-10"			11				12				9		120	120	7'-9"
		7'			128	128	9'-0"			118	118	10'-1"	8'-11"			11				14				9		120	120	8'-9"
		8'			128	128	9'-1"			118	118	10'-2"	9'-0"			11				16				9		120	120	9'-9"
		9'			128	128	9'-3"			118	118	10'-3"	9'-1"			11				18				9		120	120	10'-9"
		10'			128	128	9'-4"			118	118	10'-4"	9'-2"			11				20				9		#5	12"	11'-2"
	1 @ 9'	5'	#7	11"	140	140	9'-11"	#6	11"	130	130	11'-0"	9'-10"			12		#4	12"	10		#4	12"	10		#4	12"	6'-5"
		6'			140	140	10'-0"			130	130	11'-1"	9'-11"			12				12				10		120	120	7'-5"
		7'			140	140	10'-0"			130	130	11'-1"	9'-11"			12				14				10		120	120	8'-5"
		8'			140	140	10'-1"			130	130	11'-2"	10'-0"			12				16				10		144	144	9'-5"
		9'			140	140	10'-3"			130	130	11'-3"	10'-1"			12				18				10		144	144	10'-5"
		10'			140	140	10'-5"			130	130	11'-4"	10'-2"			12				20				10		144	144	11'-5"
		11'			140	140	10'-7"			130	130	11'-5"	10'-3"			12				22				10		144	144	12'-5"
	1 @ 10'	5'	#7	12"	128	128	10'-11"	#7	12"	118	118	12'-2"	10'-10"	#5	10"	13		#4	12"	10		#4	12"	11		#4	12"	6'-6"
		6'			128	128	11'-0"			118	118	12'-3"	10'-11"			13				12				11		120	120	7'-6"
		7'			128	128	11'-0"			118	118	12'-3"	10'-11"			13				14				11		120	120	8'-6"
		8'			128	128	11'-1"			118	118	12'-4"	11'-0"			13				16				11		144	144	9'-6"
		9'			128	128	11'-1"			118	118	12'-6"	11'-1"			13				18				11		#5	12"	11'-2"
		10'			128	128	11'-3"			118	118	12'-8"	11'-2"			13				20				11		144	144	12'-6"
		11'			128	128	11'-4"			118	118	12'10"	11'-4"			13				22				11		#6	12"	13'-6"
		12'			128	128	11'-5"			118	118	13'-0"	11'-5"			13				24				11				
	1 @ 11'	6'	#7	11"	140	140	12'-1"	#7	11"	130	130	13'-4"	12'-0"	#5	9½"	15		#4	12"	12		#4	12"	12		#4	12"	7'-7"
		7'			140	140	12'-1"			130	130	13'-4"	12'-0"			15				14				12		120	120	8'-7"
		8'			140	140	12'-1"			130	130	13'-4"	12'-0"			15				16				12		120	120	9'-7"
		9'			140	140	12'-3"			130	130	13'-5"	12'-2"			15				18				12		120	120	10'-7"
		10'			140	140	12'-5"			130	130	13'-8"	12'-4"			15				20				12		144	144	11'-7"
		11'			140	140	12'-7"			130	130	13'-10"	12'-6"			15				22				12		144	144	12'-7"
		12'			140	140	12'-9"			130	130	14'-0"	12'-8"			15				24				12		#5	12"	13'-7"
	1 @ 12'	6'	#8	12"	128	128	13'-1"	#7	12"	118	118	14'-4"	13'-0"	#5	9½"	16		#4	12"	12		#4	12"	13		#4	12"	7'-8"
		7'			128	128	13'-1"			118	118	14'-4"	13'-0"			16				14				13		120	120	8'-8"
		8'			128	128	13'-1"			118	118	14'-4"	13'-0"			16				16				13		120	120	9'-8"
		9'			128	128	13'-3"			118	118	14'-6"	13'-2"			16				18				13		144	144	10'-8"
		10'			128	128	13'-3"			118	118	14'-8"	13'-4"			16				20				13		144	144	11'-8"
		11'			128	128	13'-7"			118	118	14'-10"	13'-6"			16				22				13		144	144	12'-8"
		12'			128	128	13'-9"			118	118	15'-0"	13'-8"			16				24				13		#6	12"	13'-9"

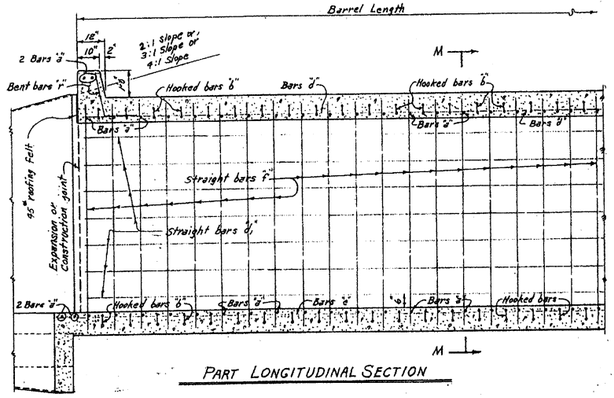
DIMENSIONS AND QUANTITIES

MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS: CLEAR SPAN	CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	UNIT QUANTITIES: CLASS S CONC. PER LIN. FT. OF BARREL	REINFORCING STEEL PER LIN. FT. OF BARREL	REINFORCING STEEL ADDITIONAL PER LAP	REINFORCING STEEL ADDITIONAL TWO HEADWALLS & APRONS
D	S	H	A	OW	T	C	B	OH	CU.YD.	LB.	LB.	LB.
5'-0"	1 @ 4'	2'	8	5'-0"	7"	6"	6½"	3'-1⅞"	0.282	41.99	17.95	66.35
		3'	12	5'-0"		6"		3'-7⅞"	0.319	44.16	19.62	66.35
		4'	16	5'-0"		6"		4'-1⅞"	0.356	46.83	21.29	66.85
		5'	20	5'-0"		6"		4'-7⅞"	0.394	49.50	22.96	66.85
		6'	24	5'-2"		7"		5'-1⅞"	0.474	52.96	24.63	67.75
	1 @ 5'	3'	15	6'-0"	7⅞"	6"	6½"	4'-1⅝"	0.380	55.55	22.19	101.27
		4'	20	6'-0"		6"		4'-7⅝"	0.417	58.23	23.86	101.27
		5'	25	6'-0"		6"		5'-1⅝"	0.456	60.90	25.53	101.27
		6'	30	6'-2"		7"		5'-7⅝"	0.535	64.99	27.20	103.27
		7'	35	6'-3"		7⅞"		6'-1⅝"	0.609	67.63	28.87	104.27
	1 @ 6'	3'	18	7'-0"	8"	6"	7⅛"	4'-2⅛"	0.496	66.29	29.76	118.96
		4'	24	7'-0"		6"		4'-8⅛"	0.583	68.96	26.93	118.96
		5'	30	7'-0"		6"		5'-2⅛"	0.520	71.64	28.10	118.96
		6'	36	7'-2"		7"		5'-8⅛"	0.602	75.31	29.77	120.96
		7'	42	7'-3"		7⅛"		6'-2⅛"	0.671	78.98	31.44	121.97
		8'	48	7'-4"		8"		6'-8⅛"	0.746	88.97	33.11	122.97
	1 @ 7'	4'	28	8'-0"	8½"	6"	8½"	5'-5"	0.568	81.32	29.01	136.88
		5'	35	8'-0"		6"		6'-5"	0.605	84.00	30.68	136.88
		6'	42	8'-2"		7"		7'-5"	0.688	87.76	32.35	138.88
		7'	49	8'-3"		7⅛"		8'-5"	0.757	90.98	34.02	139.88
		8'	56	8'-6"		8"		9'-5"	0.832	96.65	35.69	140.88
		9'	63	8'-6"		9"		10'-5"	0.996	105.59	32.36	142.89
	1 @ 8'	4'	32	9'-0"	9½"	6"	9⅝"	5'-7"	0.676	95.26	33.32	199.07
		5'	40	9'-2"		7"		6'-7"	0.759	99.12	34.99	196.80
		6'	48	9'-2"		7"		7'-7"	0.787	101.79	36.66	196.80
		7'	56	9'-3"		7⅛"		8'-7"	0.867	105.05	38.33	198.16
		8'	64	9'-6"		8"		9'-7"	0.992	110.81	40.00	199.52
		9'	72	9'-6"		9"		10'-7"	1.057	119.92	41.67	202.25
		10'	80	9'-8"		10"		11'-7"	1.184	126.67	43.34	204.97
	1 @ 9'	5'	45	10'-2"	10"	7"	10"	6'-8"	0.842	119.92	37.56	219.61
		6'	54	10'-3"		7⅛"		7'-8"	0.910	118.04	39.23	220.97
		7'	63	10'-3"		7⅛"		8'-8"	0.957	120.71	40.90	220.97
		8'	72	10'-4"		8"		9'-8"	1.033	126.54	42.57	222.33
		9'	81	10'-6"		9"		10'-8"	1.198	135.80	44.24	225.02
		10'	90	10'-8"		10"		11'-8"	1.276	142.66	45.91	227.78
		11'	99	10'-10"		11"		12'-8"	1.916	180.90	47.58	230.51
	1 @ 10'	5'	50	11'-2"	11"	7"	11"	6'-9½"	0.957	130.64	90.13	242.64
		6'	60	11'-3"		7⅛"		7'-9½"	1.024	133.98	41.80	244.00
		7'	70	11'-3"		7⅛"		8'-9½"	1.071	136.66	43.47	244.00
		8'	80	11'-4"		8"		9'-9½"	1.147	142.55	95.14	245.36
		9'	90	11'-6"		9"		10'-9½"	1.263	151.92	96.81	248.09
		10'	100	11'-8"		10"		11'-9½"	1.391	158.89	98.98	250.81
		11'	110	11'-10"		11"		12'-9½"	1.532	166.71	50.15	253.54
		12'	120	12'-0"		12"		13'-9½"	1.685	178.67	51.82	256.26
	1 @ 11'	6'	66	12'-3"	11⅞"	8"	11⅝"	7'-10⅝"	1.153	186.16	96.12	268.62
		7'	77	12'-3"		8"		8'-10⅝"	1.202	157.88	47.79	268.62
		8'	88	12'-4"		8"		9'-10⅝"	1.252	163.06	99.46	268.62
		9'	99	12'-6"		9"		10'-10⅝"	1.368	172.60	51.13	271.34
		10'	110	12'-8"		10"		11'-10⅝"	1.497	179.70	52.80	274.07
		11'	121	12'-9"		11"		12'-10⅝"	1.638	187.67	54.47	276.79
		12'	132	13'-0"		12"		13'-10⅝"	1.792	199.79	56.14	279.52
	1 @ 12'	6'	72	13'-4"	12"	8"	12⅝"	8'-0"	1.284	172.20	98.69	357.62
		7'	84	13'-4"		8"		9'-0"	1.333	179.87	50.86	357.62
		8'	96	13'-4"		8"		10'-0"	1.388	180.15	52.031	357.62
		9'	108	13'-6"		9"		11'-0"	1.500	189.86	58.70	361.18
		10'	120	13'-8"		10"		12'-0"	1.630	197.07	55.37	364.74
		11'	132	13'-10"		11"		13'-0"	1.772	205.16	57.04	368.30
		12'	144	14'-0"		12"		14'-0"	1.926	217.45	58.71	371.86

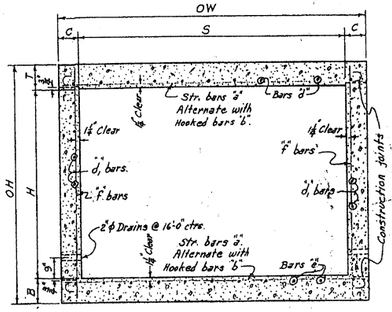
W-X002-1, W-X003-2 or W-X004-2.

W-X002-1 or W-X003-1 or W-X004-1 and

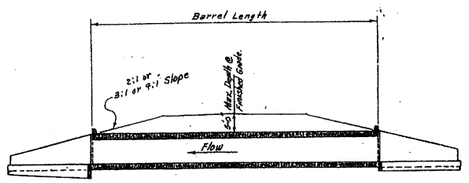
Note-For details of wings and bar lists, see Drawing Nos.



PART LONGITUDINAL SECTION



TYPICAL SECTION M-M



LONGITUDINAL SECTION

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM Bars "b".
#6	3"	5"	1'-2"	K, Pin Diam., X
#7	3⅝"	5⅝"	1'-4"	

NOTE:- Dimensions are to centers of bars.

DOWEL BARS FOR TWO HEADWALLS

SPAN	SIZE	SPACING	NO. REQ'D	LENGTH	X	Bars "r" Dowel bars in Headwalls.
4'	#4	11"c	12	2'-6"	1'-3"	X, 12
5'	#4	11"c	14	2'-7"	1'-3⅜"	
6'	#4	11"c	16	2'-8"	1'-4"	
7'	#4	11"c	18	2'-9"	1'-4⅜"	
8'	#4	11½"c	20	2'-11"	1'-5⅝"	
9'	#4	11½"c	22	3'-0"	1'-6"	
10'	#4	11½"c	24	3'-1"	1'-6⅝"	
11'	#4	12"c	26	3'-2"	1'-7"	
12'	#4	12"c	28	3'-3"	1'-7⅜"	

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.

BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diameters.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls and slabs shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 9'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200 #/□"
Reinforcing Steel 20000 #/□"

NOTE:- This drawing to be used in conjunction with Standard Drawing Nos. W-X003-1 or W-X003-2 and W-X004-1 or W-X004-2. Also Drawing Nos. W-X002-1 or W-X002-2.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS SINGLES — 3:1 OR 4:1 SLOPES UNDER 5'-0" COVER

STANDARD DRAWING NO. R-100X-0

Designed By:- W.C.H. 1-23-63. Checked L -5-24-63
Drawn By:- W.C.H. 2-8-63. Checked B -5-24-63
Quantities By:- W.C.H. 2-12-63. Checked By:- -5-24-63

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					

BAR LIST FOR VARIOUS SECTIONS OF BARREL

SECTION & BAR GROUP | LENGTH OF SECTIONS | DEPTH OF COVER D | S | H | "A" bars STRAIGHT: In Top and Bottom Slabs of Barrel & Apron and Headwall - Each. SIZE | SPACING | NUMBER REQ'D 3:1 | NUMBER REQ'D 4:1 | LENGTH | "B" bars BENT - See Diagram at Right. In Top and Bottom Slabs of Barrel Alternate with "A" bars. SIZE | SPACING | NUMBER REQ'D 3:1 | NUMBER REQ'D 4:1 | LENGTH | X | "J" bars STRAIGHT: Longitudinal in Top Slab of Barrel SIZE | SPACING | NO. REQ'D | LENGTH | "D" bars STRAIGHT: Longitudinal in Sidewalls SIZE | SPACING | NO. REQ'D | LENGTH | "G" bars. STRAIGHT: Longitudinal in Bottom Slab of Barrel SIZE | SPACING | NO. REQ'D | LENGTH | "F" bars STRAIGHT: Verticals in Sidewalls SIZE | SPACING | NUMBER REQ'D 3:1 | NUMBER REQ'D 4:1 | LENGTH

SECTION "A" & BAR GROUP "A"

SECTION "A" & BAR GROUP "A" | 3:1 = 32'-0" 4:1 = 32'-0" | 10'-0" TO 15'-0"

D	S	H	A	OW	T	C	B	OH	CU.YD.	LB.	LB.	LB
5'-0" to 7'-0"	1	5'	35	8'-0"	8"	6"		6'-4½"	0.533	68.80	21.71	107.42
	@	6'	42	8'-8"		7"		7'-4½"	0.676	71.72	23.38	108.81
	7'	7'	49	9'-3"	8½"	7½"	8½"	8'-4½"	0.744	75.80	25.05	109.50
		8'	56	9'-9"		8"		9'-4½"	0.819	89.72	26.72	110.28
		9'	63	10'-4"		8½"		10'-4½"	0.933	90.91	28.39	111.59
7'-0" to 9'-0"	1	6'	48	9'-2"	8"	7"	9½"	7'-6"	0.769	86.55	25.05	157.02
	@	7'	56	9'-9"		7½"		8'-6"	0.838	89.72	26.72	158.02
	8'	8'	64	10'-4"	8½"	8"	9½"	9'-6"	0.916	92.89	28.39	159.02
		9'	72	10'-10"		8½"		10'-6"	1.028	106.20	30.06	161.03
		10'	80	11'-5"		9"		11'-6"	1.154	113.38	31.73	163.03
9'-0" to 11'-0"	1	7'	63	10'-3"	8½"	7½"	10½"	8'-9"	0.957	116.90	28.39	177.61
	@	8'	72	10'-9"		8"		9'-9"	1.033	127.29	30.06	178.61
	9'	9'	81	11'-4"	9½"	8½"	11½"	10'-9"	1.148	138.97	31.73	180.61
		10'	90	11'-10"		9"		11'-9"	1.276	141.46	33.40	182.62
		11'	99	12'-5"		9½"		12'-9"	1.416	152.81	35.07	184.62
11'-0" to 13'-0"	1	8'	80	11'-9"	9½"	8"	12½"	9'-10"	1.165	194.10	31.73	249.37
	@	9'	90	12'-4"		9"		10'-10"	1.281	195.89	33.40	252.10
	10'	10'	100	12'-10"	10½"	10"	13½"	11'-10"	1.409	155.50	35.07	254.82
		11'	110	13'-5"		10½"		12'-10"	1.550	167.01	36.74	257.55
		12'	120	13'-11"		11"		13'-10"	1.704	176.42	38.41	260.27

Varies with Length of Barrel — Varies with Length of Barrel — Varies with Length of Barrel — Varies with Length of Barrel

SECTION "B" & BAR GROUP "B"

SECTION "B" & BAR GROUP "B" | 3:1 = 11'-0" 4:1 = 16'-0" | 10'-0" TO 15'-0"

D	S	H	A	OW	T	C	B	OH	CU.YD.	LB.	LB.	LB
5'-0" to 7'-0"	1	5'	35	8'-0"	8"	6"		6'-4½"	0.533	68.80	21.71	107.42
	@	6'	42	8'-8"		7"		7'-4½"	0.676	71.72	23.38	108.81
	7'	7'	49	9'-3"	8½"	7½"	8½"	8'-4½"	0.744	75.80	25.05	109.50
		8'	56	9'-9"		8"		9'-4½"	0.819	89.72	26.72	110.28
		9'	63	10'-4"		8½"		10'-4½"	0.933	90.91	28.39	111.59
7'-0" to 9'-0"	1	6'	48	9'-2"	8"	7"	9½"	7'-6"	0.769	86.55	25.05	157.02
	@	7'	56	9'-9"		7½"		8'-6"	0.838	89.72	26.72	158.02
	8'	8'	64	10'-4"	8½"	8"	9½"	9'-6"	0.916	92.89	28.39	159.02
		9'	72	10'-10"		8½"		10'-6"	1.028	106.20	30.06	161.03
		10'	80	11'-5"		9"		11'-6"	1.154	113.38	31.73	163.03
9'-0" to 11'-0"	1	7'	63	10'-3"	8½"	7½"	10½"	8'-9"	0.957	116.90	28.39	177.61
	@	8'	72	10'-9"		8"		9'-9"	1.033	127.29	30.06	178.61
	9'	9'	81	11'-4"	9½"	8½"	11½"	10'-9"	1.148	138.97	31.73	180.61
		10'	90	11'-10"		9"		11'-9"	1.276	141.46	33.40	182.62
		11'	99	12'-5"		9½"		12'-9"	1.416	152.81	35.07	184.62
11'-0" to 13'-0"	1	8'	80	11'-9"	9½"	8"	12½"	9'-10"	1.165	194.10	31.73	249.37
	@	9'	90	12'-4"		9"		10'-10"	1.281	195.89	33.40	252.10
	10'	10'	100	12'-10"	10½"	10"	13½"	11'-10"	1.409	155.50	35.07	254.82
		11'	110	13'-5"		10½"		12'-10"	1.550	167.01	36.74	257.55
		12'	120	13'-11"		11"		13'-10"	1.704	176.42	38.41	260.27

Varies with Length of Barrel — Varies with Length of Barrel — Varies with Length of Barrel — Varies with Length of Barrel

SECTION "C" & BAR GROUP "C"

SECTION "C" & BAR GROUP "C" | 3:1 = 11'-0" 4:1 = 16'-0" | 15'-0" TO 20'-0"

D	S	H	A	OW	T	C	B	OH	CU.YD.	LB.	LB.	LB
5'-0" to 7'-0"	1	5'	35	8'-0"	8"	6"		6'-4½"	0.533	68.80	21.71	107.42
	@	6'	42	8'-8"		7"		7'-4½"	0.676	71.72	23.38	108.81
	7'	7'	49	9'-3"	8½"	7½"	8½"	8'-4½"	0.744	75.80	25.05	109.50
		8'	56	9'-9"		8"		9'-4½"	0.819	89.72	26.72	110.28
		9'	63	10'-4"		8½"		10'-4½"	0.933	90.91	28.39	111.59
7'-0" to 9'-0"	1	6'	48	9'-2"	8"	7"	9½"	7'-6"	0.769	86.55	25.05	157.02
	@	7'	56	9'-9"		7½"		8'-6"	0.838	89.72	26.72	158.02
	8'	8'	64	10'-4"	8½"	8"	9½"	9'-6"	0.916	92.89	28.39	159.02
		9'	72	10'-10"		8½"		10'-6"	1.028	106.20	30.06	161.03
		10'	80	11'-5"		9"		11'-6"	1.154	113.38	31.73	163.03
9'-0" to 11'-0"	1	7'	63	10'-3"	8½"	7½"	10½"	8'-9"	0.957	116.90	28.39	177.61
	@	8'	72	10'-9"		8"		9'-9"	1.033	127.29	30.06	178.61
	9'	9'	81	11'-4"	9½"	8½"	11½"	10'-9"	1.148	138.97	31.73	180.61
		10'	90	11'-10"		9"		11'-9"	1.276	141.46	33.40	182.62
		11'	99	12'-5"		9½"		12'-9"	1.416	152.81	35.07	184.62
11'-0" to 13'-0"	1	8'	80	11'-9"	9½"	8"	12½"	9'-10"	1.165	194.10	31.73	249.37
	@	9'	90	12'-4"		9"		10'-10"	1.281	195.89	33.40	252.10
	10'	10'	100	12'-10"	10½"	10"	13½"	11'-10"	1.409	155.50	35.07	254.82
		11'	110	13'-5"		10½"		12'-10"	1.550	167.01	36.74	257.55
		12'	120	13'-11"		11"		13'-10"	1.704	176.42	38.41	260.27

Varies with Length of Barrel — Varies with Length of Barrel — Varies with Length of Barrel — Varies with Length of Barrel

SECTION "D" & BAR GROUP "D"

SECTION "D" & BAR GROUP "D" | 3:1 = 11'-0" 4:1 = 16'-0" | 20'-0" TO 25'-0"

D	S	H	A	OW	T	C	B	OH	CU.YD.	LB.	LB.	LB
5'-0" to 7'-0"	1	5'	35	8'-0"	8"	6"		6'-4½"	0.533	68.80	21.71	107.42
	@	6'	42	8'-8"		7"		7'-4½"	0.676	71.72	23.38	108.81
	7'	7'	49	9'-3"	8½"	7½"	8½"	8'-4½"	0.744	75.80	25.05	109.50
		8'	56	9'-9"		8"		9'-4½"	0.819	89.72	26.72	110.28
		9'	63	10'-4"		8½"		10'-4½"	0.933	90.91	28.39	111.59
7'-0" to 9'-0"	1	6'	48	9'-2"	8"	7"	9½"	7'-6"	0.769	86.55	25.05	157.02
	@	7'	56	9'-9"		7½"		8'-6"	0.838	89.72	26.72	158.02
	8'	8'	64	10'-4"	8½"	8"	9½"	9'-6"	0.916	92.89	28.39	159.02
		9'	72	10'-10"		8½"		10'-6"	1.028	106.20	30.06	161.03
		10'	80	11'-5"		9"		11'-6"	1.154	113.38	31.73	163.03
9'-0" to 11'-0"	1	7'	63	10'-3"	8½"	7½"	10½"	8'-9"	0.957	116.90	28.39	177.61
	@	8'	72	10'-9"		8"		9'-9"	1.033	127.29	30.06	178.61
	9'	9'	81	11'-4"	9½"	8½"	11½"	10'-9"	1.148	138.97	31.73	180.61
		10'	90	11'-10"		9"		11'-9"	1.276	141.46	33.40	182.62
		11'	99	12'-5"		9½"		12'-9"	1.416	152.81	35.07	184.62
11'-0" to 13'-0"	1	8'	80	11'-9"	9½"	8"	12½"	9'-10"	1.165	194.10	31.73	249.37
	@	9'	90	12'-4"		9"		10'-10"	1.281	195.89	33.40	252.10
	10'	10'	100	12'-10"	10½"	10"	13½"	11'-10"	1.409	155.50	35.07	254.82
		11'	110	13'-5"		10½"		12'-10"	1.550	167.01	36.74	257.55
		12'	120	13'-11"		11"		13'-10"	1.704	176.42	38.41	260.27

Varies with Length of Barrel — Varies with Length of Barrel — Varies with Length of Barrel — Varies with Length of Barrel

SECTION "E" & BAR GROUP "E"

SECTION "E" & BAR GROUP "E" | 3:1 = 11'-0" 4:1 = 16'-0" | 25'-0" TO 30'-0"

D	S	H	A	OW	T	C	B	OH	CU.YD.	LB.	LB.	LB
5'-0" to 7'-0"	1	5'	35	8'-0"	8"	6"		6'-4½"	0.533	68.80	21.71	107.42
	@	6'	42	8'-8"		7"		7'-4½"	0.676	71.72	23.38	108.81
	7'	7'	49	9'-3"	8½"	7½"	8½"	8'-4½"	0.744	75.80	25.05	109.50
		8'	56	9'-9"		8"		9'-4½"	0.819	89.72	26.72	110.28
		9'	63	10'-4"		8½"		10'-4½"	0.933	90.91	28.39	111.59
7'-0" to 9'-0"	1	6'	48	9'-2"	8"	7"	9½"	7'-6"	0.769	86.55	25.05	157.02
	@	7'	56	9'-9"		7½"		8'-6"	0.838	89.72	26.72	158.02
	8'	8'	64	10'-4"	8½"	8"	9½"	9'-6"	0.916	92.89	28.39	159.02
		9'	72	10'-10"		8½"		10'-6"	1.028	106.20	30.06	161.03
		10'	80	11'-5"		9"		11'-6"	1.154	113.38	31.73	163.03
9'-0" to 11'-0"	1	7'	63	10'-3"	8½"	7½"	10½"	8'-9"	0.957	116.90	28.39	177.61
	@	8'	72	10'-9"		8"		9'-9"	1.033	127.29	30.06	178.61
	9'	9'	81	11'-4"	9½"	8½"	11½"	10'-9"	1.148	138.97	31.73	180.61
		10'	90	11'-10"		9"		11'-9"	1.276	141.46	33.40	182.62
		11'	99	12'-5"		9½"		12'-9"	1.416	152.81	35.07	184.62
11'-0" to 13'-0"	1	8'	80	11'-9"	9½"	8"	12½"	9'-10"	1.165	194.10	31.73	249.37
	@	9'	90	12'-4"		9"		10'-10"	1.281	195.89	33.40	252.10
	10'	10'	100	12'-10"	10½"	10"	13½"	11'-10"	1.409	155.50	35.07	254.82
		11'	110	13'-5"		10½"		12'-10"	1.550	167.01	36.74	257.55
		12'	120	13'-11"		11"		13'-10"	1.704	176.42	38.41	260.27

Varies with Length of Barrel — Varies with Length of Barrel — Varies with Length of Barrel — Varies with Length of Barrel

NOTE:- Bars for each Section to be marked with the Section letter, thus for Section B, the bars should be marked Ba, Bb, Bd, Be and Bf.

Designed By: W.C.H. 7-18-62. Checked G 7-25-62
Drawn By: M.C.H. 8-3-62. Checked MS 8-10-62
Quantities By: M.C.H. 8-7-62. Checked By:- BMS 8-10-62

DIMENSIONS — BARREL DIMENSIONS

MARK DESIGN DEPTH OF COVER D | CLEAR SPAN S | CLEAR HEIGHT H | SQ.FT. OPENING A | OVERALL WIDTH OW | THICKNESS OF TOP SLAB T | THICKNESS OF SIDEWALLS C | THICKNESS OF BOTTOM SLAB B | OVERALL HEIGHT OH

SECTION "A" - 10'-0"

D	S	H	A	OW	T	C	B	OH
5'-0" to 7'-0"	5'	35	8'-0"	8"	6"		6'-4½"
	1	6'	42	8'-8"		7"		7'-4½"
	@	7'	49	9'-3"	8½"	7½"	8½"	8'-4½"
	7'	8'	56	9'-9"		8"		9'-4½"
		9'	63	10'-4"		8½"		10'-4½"
7'-0" to 9'-0"	6'	48	9'-2"	8"	7"	9½"	7'-6"
	1	7'	56	9'-9"		7½"		8'-6"
	@	8'	64	10'-4"	8½"	8"	9½"	9'-6"
	8'	9'	72	10'-10"		8½"		10'-6"
		10'	80	11'-5"		9"		11'-6"
9'-0" to 11'-0"	7'	63	10'-3"	8½"	7½"	10½"	8'-9"
	1	8'	72	10'-9"		8"		9'-9"
	@	9'	81	11'-4"	9½"	8½"	11½"	10'-9"
	9'	10'	90	11'-10"		9"		11'-9"
		11'	99	12'-5"		9½"		12'-9"
11'-0" to 13'-0"	8'	80	11'-9"	9½"	8"	12½"	9'-10"
	1	9'	90	12'-4"		9"		10'-10"
	@	10'	100	12'-10"	10½"	10"	13½"	11'-10"
	10'	11'	110	13'-5"		10½"		12'-10"
		12'	120	13'-11"		11"		13'-10"

SECTION "B" - 15'-0"

D	S	H	A	OW	T	C	B	OH
5'-0" to 7'-0"	5'	35	8'-0"	8"	6"		6'-6"
	1	6'	42	8'-8"		7"		7'-6"
	@	7'	49	9'-3"	8½"	7½"	9½"	8'-6"
	7'	8'	56	9'-9"		8"		9'-6"
		9'	63	10'-4"		8½"		10'-6"
7'-0" to 9'-0"	6'	48	9'-2"	8"	7"	10½"	7'-10½"
	1	7'	56	9'-9"		7½"		8'-10½"
	@	8'	64	10'-4"	9½"	8"		9'-10½"
	8'	9'	72	10'-10"		8½"		10'-10½"
		10'	80	11'-5"		9"		11'-10½"
9'-0" to 11'-0"	7'	63	10'-3"	8½"	7½"	11½"	8'-10½"
	1	8'	72	10'-9"		8"		9'-10½"
	@	9'	81	11'-4"	10½"	9"	13½"	10'-10½"
	9'	10'	90	11'-10"		10"		11'-10½"
		11'	99	12'-5"		11"		12'-10½"
11'-0" to 13'-0"	8'	80	11'-9"	9½"	8"	14½"	9'-10½"
	1	9'	90	12'-4"		9"		10'-10½"
	@	10'	100	12'-10"	11½"	10"	15½"	11'-10½"
	10'	11'	110	13'-5"		10½"		12'-10½"
		12'	120	13'-11"		11"		13'-10½"

SECTION "C" - 20'-0"

D	S	H	A	OW	T	C	B	OH
5'-0" to 7'-0"	5'	35	8'-0"	8"	6"		6'-6"
	1	6'	42	8'-8"		7"		7'-6"
	@	7'	49	9'-3"	8½"	7½"	9½"	8'-6"
	7'	8'	56	9'-9"		8"		9'-6"
		9'	63	10'-4"		8½"		10'-6"
7'-0" to 9'-0"	6'	48	9'-2"	8"	7"	10½"	7'-10½"
	1	7'	56	9'-9"		7½"		8'-10½"
	@	8'	64	10'-4"	9½"	8"		9'-10½"
	8'	9'	72	10'-10"		8½"		10'-10½"
		10'	80	11'-5"		9"		11'-10½"
9'-0" to 11'-0"	7'	63	10'-3"	8½"	7½"	11½"	8'-10½"
	1	8'	72	10'-9"		8"		9'-10½"
	@	9'	81	11'-4"	10½"	9"	13½"	10'-10½"
	9'	10'	90	11'-10"		10"		11'-10½"
		11'	99	12'-5"		11"		12'-10½"
11'-0" to 13'-0"	8'	80	11'-9"	9½"	8"	14½"	9'-10½"
	1	9'	90	12'-4"		9"		10'-10½"
	@	10'	100	12'-10"	11½"	10"	15½"	11'-10½"
	10'	11'	110	13'-5"		10½"		12'-10½"
		12'	120	13'-11"		11"		13'-10½"

SECTION "D" - 25'-0"

D	S	H	A	OW	T	C	B	OH
5'-0" to 7'-0"	5'	35	8'-0"	8"	6"		6'-6"
	1	6'	42	8'-8"		7"		7'-6"
	@	7'	49	9'-3"	8½"	7½"	9½"	8'-6"
	7'	8'	56	9'-9"		8"		9'-6"
		9'	63	10'-4"		8½"		10'-6"
7'-0" to 9'-0"	6'	48	9'-2"	8"	7"	10½"	7'-10½"
	1	7'	56	9'-9"		7½"		8'-10½"
	@	8'	64	10'-4"	9½"	8"		9'-10½"
	8'	9'	72	10'-10"		8½"		10'-10½"
		10'	80	11'-5"		9"		11'-10½"
9'-0" to 11'-0"	7'	63	10'-3"	8½"	7½"	11½"	8'-10½"
	1	8'	72	10'-9"		8"		9'-10½"
	@	9'	81	11'-4"	10½"	9"	13½"	10'-10½"
	9'	10'	90	11'-10"		10"		11'-10½"
		11'	99	12'-5"		11"		12'-10½"
11'-0" to 13'-0"	8'	80	11'-9"	9½"	8"	14½"	9'-10½"
	1	9'	90	12'-4"		9"		10'-10½"
	@	10'	100	12'-10"	11½"	10"	15½"	11'-10½"
	10'	11'	110	13'-5"		10½"		12'-10½"
		12'	120	13'-11"		11"		13'-10½"

SECTION "E" - 30'-0"

D	S	H	A	OW	T	C	B	OH
5'-0" to 7'-0"	5'	35	8'-0"	8"	6"		6'-6"
	1	6'	42	8'-8"		7"		7'-6"
	@	7'	49	9'-3"	8½"	7½"	9½"	8'-6"
	7'	8'	56	9'-9"		8"		9'-6"
		9'	63	10'-4"		8½"		10'-6"
7'-0" to 9'-0"	6'	48	9'-2"	8"	7"	10½"	7'-10½"
	1	7'	56	9'-9"		7½"		8'-10½"
	@	8'	64	10'-4"	9½"	8"		9'-10½"
	8'	9'	72	10'-10"		8½"		10'-10½"
		10'	80	11'-5"		9"		11'-10½"
9'-0" to 11'-0"	7'	63	10'-3"	8½"	7½"	11½"	8'-10½"
	1	8'	72	10'-9"		8"		9'-10½"
	@	9'	81	11'-4"	10½"	9"	13½"	10'-10½"
	9'	10'	90	11'-10"		10"		11'-10½"
		11'	99	12'-5"		11"		12'-10½"
11'-0" to 13'-0"	8'	80	11'-9"	9½"	8"	14½"	9'-10½"
	1	9'	90	12'-4"		9"		10'-10½"
	@	10'	100	12'-10"	11½"	10"	15½"	11'-10½"
	10'	11'	110	13'-5"		10½"		12'-10½"
		12'	120	13'-11"		11"		13'-10½"

QUANTITIES — UNIT QUANTITIES

MARK DESIGN DEPTH OF COVER D | CLEAR SPAN S | CLEAR HEIGHT H | CLASS S CONC. PER LIN. FT. OF BARREL CU.YD. | REINFORCING STEEL PER LIN. FT. OF BARREL LB. | REINFORCING STEEL ADDITIONAL PER LAP LB. | REINFORCING STEEL ADDITIONAL TWO HEADWALLS & APRONS LB.

SECTION "A" - 10'-0"

D	S	H	CU.YD.	LB.	LB.	LB
5'-0" to 7'-0"	5'	35	0.533	68.80	21.71	107.42
	1	6'	0.676	71.72	23.38	108.81
	@	7'	0.744	75.80	25.05	109.50
	7'	8'	0.819	89.72	26.72	110.28
		9'	0.933	90.91	28.39	111.59
7'-0" to 9'-0"	6'	48	0.769	86.55	25.05	157.02
	1	7'	0.838	89.72	26.72	158.02
	@	8'	0.916	92.89	28.39	159.02
	8'	9'	1.028	106.20	30.06	161.03
		10'	1.154	113.38	31.73	163.03
9'-0" to 11'-0"	7'	63	0.957	116.90	28.39	177.61
	1	8'	1.033	127.29	30.06	178.61
	@	9'	1.148	138.97	31.73	180.61
	9'	10'	1.276	141.46	33.40	182.62
		11'	1.416	152.81	35.07	184.62
11'-0" to 13'-0"	8'	80	1.165	194.10	31.73	249.37
	1	9'	1.281	195.89	33.40	252.10
	@	10'	1.409	155.50	35.07	254.82
	10'	11'	1.550	167.01	36.74	257.55
		12'	1.704	176.42	38.41	260.27

SECTION "B" - 15'-0"

D	S	H	CU.YD.	LB.	LB.	LB
5'-0" to 7'-0"	5'	35	0.680	80.06	21.71	
	1	6'	0.713	89.88	28.38	
	@	7'	0.782	93.23	25.05	
	7'	8'	0.858	105.69	26.72	
		9'	0.972	111.13	28.39	
7'-0" to 9'-0"	6'	48	0.839	96.99	25.05	
	1	7'	0.909	106.02	26.72	
	@	8'	0.986	113.96	28.39	
	8'	9'	1.101	124.20	30.06	
		10'	1.229	136.50	31.73	
9'-0" to 11'-0"	7'	63	1.086	127.99	28.39	
	1	8'	1.113	135.59	30.06	
	@	9'	1.229	146.09	31.73	
	9'	10'	1.358	158.75	33.40	
		11'	1.499	171.16	35.07	
11'-0" to 13'-0"	8'	80	1.252	160.73	33.40	
	1	9'	1.370	171.52	35.07	
	@	10'	1.499	180.69	36.74	
	10'	11'	1.642	197.17	38.41	
		12'	1.796	203.27	40.08	

SECTION "C" - 20'-0"

D	S	H	CU.YD.	LB.	LB.	LB
5'-0" to 7'-0"	5'	35	0.679	89.15	21.71	
	1	6'	0.768	98.69	23.38	
	@	7'	0.833	106.20	25.05	
	7'	8'	0.924	117.96	26.72	
		9'	1.041	132.28	28.39	
7'-0" to 9'-0"	6'	48	0.896	111.55	26.72	
	1	7'	0.966	122.89	28.39	
	@	8'	1.074	132.89	30.06	
	8'	9'	1.177	149.27	31.73	
		10'	1.307	156.17	33.40	
9'-0" to 11'-0"	7'	63	1.193	192.63	30.06	
	1	8'	1.284	157.60	31.73	
	@	9'	1.327	167.52	33.40	
	9'	10'	1.459	179.25	35.07	
		11'	1.603	197.28	36.74	
11'-0" to 13'-0"	8'	80	1.905	173.91	35.07	
	1	9'	1.511	194.05	36.74	
	@	10'	1.626	203.28	38.41	
	10'	11'	1.792	221.31	40.08	
		12'	1.929	241.22	41.75	

SECTION "D" - 25'-0"

D	S	H	CU.YD.	LB.	LB.	LB
5'-0" to 7'-0"	5'	35	0.977	128.84	28.39	
	1	6'	1.065	136.70	30.06	
	@	7'	1.178	144.59	31.73	
	7'	8'	1.304	159.36	33.40	
		9'	1.441	173.92	35.07	
7'-0" to 9'-0"	6'	48	1.251	160.30	31.73	
	1	7'	1.367	179.69	33.40	
	@	8'	1.478	186.52	35.07	
	8'	9'	1.617	199.04	36.74	
		10'	1.769	216.88	38.41	
9'-0" to 11'-0"	7'	63	1.542	200.20	36.74	
	1	8'	1.671	214.77	38.41	
	@	9'	1.784	230.33	40.08	
	9'	10'	1.917	248.61	41.75	
		11'	2.172	268.06	43.42	
11'-0" to 13'-0"	8'	80	1.808	203.80	23.38	
	1	9'	1.901	213.71	25.05	
	@	10'	2.005	222.23	26.72	
	10'	11'	2.107	234.29	28.39	
		12'	2.235	249.09	30.06	

SECTION "E" - 30'-0"

D	S	H	CU.YD.	LB.	LB.	LB
5'-0" to 7'-0"	5'	35	0.808	103.80	23.38	
	1	6'	0.901	113.71	25.05	
	@	7'	1.005	122.23	26.72	
	7'	8'	1.107	134.29	28.39	
		9'	1.235	149.09	30.06	
7'-0" to 9'-0"	6'	48	1.060	138.22	28.39	
	1	7'	1.166	149.08	30.06	
	@	8'	1.284	159.60	31.73	
	8'	9'	1.415	170.21	33.40	
		10'	1.559	187.05	35.07	
9'-0" to 11'-0"	7'	63	1.360	173.52	33.40

BAR LIST FOR VARIOUS SECTIONS OF BARREL

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					

SECTION & BAR GROUP	LENGTH OF SECTION	DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	"a" bars STRAIGHT — In Top and Bottom Slabs of Barrel. 2 Rod in Apron and Headwall - Each. SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH
"A"	2:1=6'0", 3:1=6'0", 4:1=6'0"	D	S	H						
		0' TO 10'-0"	4'	2'	#4	12"	28	48	68	4'-3"
			6'	3'	#5	12"	28	48	68	6'-3"
			7'	4'	#5	12"	28	48	68	7'-3"
			8'	4'	#6	12"	28	48	68	8'-3"
				5'			28	48	68	8'-11"
			9'	5'	#6	11"	30	52	74	9'-11"
				6'			30	52	74	10'-8"
			10'	5'	#7	12"	28	48	68	10'11"
				6'			28	48	68	11'-10"
				7'			28	48	68	11'-0"
"B"	2:1=6'0", 3:1=16'0", 4:1=16'0"	10'-0" TO 15'-0"	4'	2'	#5	12"	12	22	32	4'-9"
			6'	3'	#6	12"	12	22	32	6'-9"
			7'	4'	#6	11"	14	24	36	7'-9"
			8'	4'	#7	12"	12	22	32	8'-3"
				5'			12	22	32	8'-11"
			9'	5'	#7	12"	12	22	32	9'-11"
				6'			12	22	32	10'-0"
			10'	5'-5"			12	22	32	10'11"
				6'	#8	12"	12	22	32	11'-0"
				7'			12	22	32	11'-0"
"C"	2:1=6'0", 3:1=16'0", 4:1=16'0"	15'-0" TO 20'-0"	4'	2'	#5	11"	14	24	36	4'-9"
			6'	3'	#6	11"	14	24	36	6'-9"
			7'	4'	#7	12"	12	20	30	7'-9"
			8'	4'	#7	12"	12	22	32	8'-3"
				5'			12	22	32	8'-11"
			9'	5'	#8	12"	12	22	32	9'-11"
				6'			12	22	32	10'-0"
			10'	5'	#8	12"	12	22	32	10'11"
				6'			12	22	32	11'-0"
				7'			12	22	32	11'0"
"D"	2:1=6'0", 3:1=16'0", 4:1=16'0"	20'-0" TO 25'-0"	4'	2'	#5	11"	14	24	36	4'-9"
			6'	3'	#7	12"	12	22	32	6'-9"
			7'	4'	#7	12"	12	22	32	7'-9"
			8'	5'	#8	12"	12	22	32	8'-3"
				6'			12	22	32	8'-11"
			9'	5'	#8	12"	12	22	32	9'-11"
				6'			12	22	32	10'-0"
			10'	5'	#8	12"	12	22	32	10'11"
				6'			12	22	32	11'-0"
				7'			12	22	32	11'12"
"E"	2:1=6'0", 3:1=16'0", 4:1=16'0"	25'-0" TO 30'-0"	4'	2'	#6	12"	12	22	32	4'-9"
			6'	3'	#7	11"	14	24	36	6'-9"
			7'	4'	#7	11"	14	24	36	7'-9"
			8'	4'	#8	11"	14	24	36	8'-10"
				5'			14	24	36	8'11"
			9'	5'	#8	11"	14	24	36	10'-0"
				6'			14	24	36	10'11"
			10'	5'	#8	11"	14	24	36	11'-0"
				6'			14	24	36	11'12"
"F"	2:1=6'0", 3:1=16'0", 4:1=16'0"	30'-0" TO 35'-0"	4'	2'	#6	12"	12	22	32	4'-9"
			6'	3'	#7	11"	14	24	36	6'-9"
			7'	4'	#7	11"	14	24	36	7'-9"
			8'	4'	#8	11"	14	24	36	8'-10"
				5'			14	24	36	8'11"
			9'	5'	#8	11"	14	24	36	10'-0"
				6'			14	24	36	10'-11"
			10'	5'	#8	11"	14	24	36	11'-0"
				6'			14	24	36	11'12"
"G"	Varies with Length of Barrel	35'-0" TO 40'-0"	4'	2'	#6	12"	12	22	32	4'-9"
			6'	3'	#7	11"	16	24	36	6'-9"
				4'			16	24	36	6'11"
			7'	5'	#8	11"	16	24	36	7'-9"
				6'			16	24	36	8'11"
			8'	5'	#8	11"	16	24	36	8'-10"
				6'			16	24	36	9'11"
			9'	5'	#8	11"	16	24	36	10'-0"
				6'			16	24	36	10'11"
			10'	5'	#8	11"	16	24	36	11'-0"
				6'			16	24	36	11'12"

SECTION & BAR GROUP	"b" bars STRAIGHT — In Top and Bottom slabs of Barrel - Hooked. Alternate with "a" bars. SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH	X
"A"	#4	12"	26	44	66	5'-7"	4'-8½"
	#5	12"	26	44	66	7'-10"	6'-8"
	#5	12"	26	44	66	8'-10"	7'-8"
	#6	12"	26	44	66	9'-10"	8'-8"
			26	44	66	10'-0"	8'-11"
	#7	11"	26	44	66	11'-2"	9'-10"
			26	44	66	11'-3"	9'-11"
	#7	12"	26	44	66	12'-3"	10'-10"
			26	44	66	12'-3"	10'-11"
			26	44	66	13'-3"	11'-10"
"B"	#5	12"	12	22	32	5'-8"	4'-8½"
	#6	12"	12	22	32	7'-10"	6'-8"
	#6	11"	12	24	34	8'-10"	7'-8"
	#7	12"	12	22	32	9'-0"	7'-8"
			12	22	32	9'-10"	8'-8"
	#7	12"	12	22	32	10'-0"	8'-11"
			12	22	32	10'-0"	8'-11"
	#7	12"	12	22	32	11'-2"	9'-10"
			12	22	32	11'-3"	9'-11"
			12	22	32	12'-3"	10'-10"
"C"	#5	12"	12	22	32	5'-8"	4'-8½"
	#6	11"	12	24	34	7'-10"	6'-8"
	#7	13"	10	20	30	9'-0"	7'-8"
	#7	12"	12	22	32	10'-0"	8'-8"
			12	22	32	10'-2"	8'-10"
	#7	12"	12	22	32	11'-2"	9'-10"
			12	22	32	11'-3"	9'-11"
			12	22	32	12'-3"	10'-11"
"D"	#5	11"	12	24	34	5'-8"	4'-8½"
	#6	12"	12	22	32	7'-10"	6'-8"
	#7	12"	12	22	32	9'-0"	7'-8"
			12	22	32	10'-0"	8'-8"
	#7	12"	12	22	32	10'-2"	8'-10"
			12	22	32	11'-3"	9'-11"
	#8	12"	12	22	32	11'-4"	10'-0"
			12	22	32	12'-3"	10'-11"
"E"	#5	12"	12	22	32	5'-8"	4'-8½"
	#6	11"	12	24	34	7'-10"	6'-8"
	#7	12"	12	22	32	9'-0"	7'-8"
	#8	12"	12	22	32	10'-0"	8'-8"
			12	22	32	10'-2"	8'-10"
	#8	11"	12	24	34	11'-5"	9'-11"
			12	24	34	11'-6"	10'-0"
"F"	#5	12"	12	22	32	5'-8"	4'-8½"
	#6	11"	12	24	34	7'-10"	6'-8"
	#7	12"	12	22	32	9'-0"	7'-8"
	#8	12"	12	22	32	10'-0"	8'-8"
			12	22	32	10'-2"	8'-10"
	#8	11"	12	24	34	11'-5"	9'-11"
			12	24	34	11'-6"	10'-0"
"G"	#5	12"	12	22	32	5'-8"	4'-8½"
	#6	12"	12	22	32	7'-10"	6'-8"
	#7	11"	16	28	40	9'-2"	7'-10"
			16	28	40	9'-3"	7'-11"
	#7	10"	16	28	40	9'-5"	8'-1"
			16	28	40	9'-9"	8'-5"
	#8	11"	16	26	36	10'-1"	8'-9"
			16	26	36	10'-2"	8'-10"
	#8	11"	16	26	36	11'-5"	9'-11"
			16	26	36	11'-6"	10'-0"

SECTION & BAR GROUP	"j" bars STRAIGHT — Longitudinal in Top Slab of Barrel. SIZE	SPACING	HOOKED	LENGTH
"A"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	11	
	#4	12"	11	
"B"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"C"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"D"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"E"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"F"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"G"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	

SECTION & BAR GROUP	"k" bars STRAIGHT — Longitudinal in Sidewalls. SIZE	SPACING	HOOKED	LENGTH
"A"	#4	12"	4	
	#4	12"	6	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
	#4	12"	11	
"B"	#4	12"	4	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"C"	#4	12"	4	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"D"	#4	12"	4	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"E"	#4	12"	4	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"F"	#4	12"	4	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"G"	#4	12"	4	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	

SECTION & BAR GROUP	"l" bars STRAIGHT — Longitudinal in Bottom Slab of Barrel. SIZE	SPACING	HOOKED	LENGTH
"A"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"B"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"C"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"D"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"E"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"F"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"G"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	

SECTION & BAR GROUP	"e" bars STRAIGHT — Longitudinal in Bottom Slabs of Barrel. SIZE	SPACING	HOOKED	LENGTH
"A"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"B"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"C"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"D"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"E"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"F"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	
"G"	#4	12"	5	
	#4	12"	6	
	#4	12"	7	
	#4	12"	8	
	#4	12"	9	
	#4	12"	10	
	#4	12"	10	
	#4	12"	11	

SECTION & BAR GROUP	"f" bars STRAIGHT — Verticals in Sidewalls. SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH
"A"	#4	12"	24	44	66	2'-10"
	#4	12"	24	44	66	4'-0"
	#4	12"	24	44	66	5'-1"
	#4	12"	24	44	66	5'-3"
			24	44	66	6'-3"
	#4	12"	24	44	66	7'-5"
			24	44	66	7'-7"
	#4	12"	24	44	66	8'-7"
"B"	#4	12"	12	22	32	2'-10"
	#4	12"	12	22	32	4'-1"
	#4	12"	12	22	32	5'-3"
	#4	12"	12	22	32	5'-5"
			12	22	32	6'-5"
	#4	12"	12	22	32	6'-7"
			12	22	32	7'-7"
	#4	11"	12	22	32	7'-9"
"C"	#4	12"	12	22	32	2'-10"
	#4	12"	12	22	32	4'-2"
	#4	12"	12	22	32	5'-3"
	#4	12"	12	22	32	5'-5"
			12	22	32	6'-7"
	#4	11"	12	22	32	6'-10"
			12	22	32	7'-10"
	#4	11"	12	22	32	8'-0"
"D"	#4	12"	12	22	32	2'-11"
	#4	12"	12	22	32	4'-3"
	#4	11"	12	22	32	5'-3"
	#4	12"	12	22	32	5'-5"
			12	22	32	6'-8"
	#4	11"	12	22	32	6'-10"
			12	22	32	7'-10"
	#4	11"	12	22	32	8'-0"
"E"	#4	12"	12	22	32	3'-0"
	#4	12"	12	22	32	4'-5"
	#4	12"	12	22	32	5'-8"
	#4	11"	12	22	32	5'-10"
			12	22	32	7'-0"
	#4	11"	12	22	32	7'-2"
			12	22	32	8'-2"
	#4	11"	12	22	32	8'-4"
"F"	#4	12"	12	22	32	3'-1"
	#4	12"	12	22	32	4'-7"
	#4	12"	12	22	32	5'-10"
	#4	12"	12	22	32	6'-0"
			12	22	32	7'-0"
	#4	12"	12	22	32	7'-2"
			12	22	32	8'-2"
	#4	12"	12	22	32	8'-4"
"G"	#4	12"	12	22	32	3'-2"
	#4	12"	12	22	32	4'-8"
	#4	12"	12	22	32	6'-0"
	#4	12"	12	22	32	6'-2"
			12	22	32	7'-2"
	#4	12"	12	22	32	7'-4"
			12	22	32	8'-4"
	#4	12"	12	22	32	8'-6"

NOTE:- Bars for each Section to be marked with the Section Letter, thus for Section B, the bars should be marked Ba, Bb, Bd, Be, and Bf.

Designed By:- W.C.H. 12-9-64 Checked B
Drawn By:- W.C.H. 12-11-64 Checked
Quantities By:- W.C.H. 12-17-64 Checked

DIMENSIONS — BARREL DIMENSIONS

	MAX. DESIGN DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT
	D	S	H	A	OW	T	C	B	OH
SECTION "A"-10'-0"	1@ 4'	2'	8	5'-0"	6'-8"	6"	6"	6'-8"	3'-1"
	6'	3'	18	7'-0"	7'-8"	6"	7'-0"	9'-8"	4'-9"
	7'	4'	28	8'-0"	8'-8"	6"	8'-0"	10'-8"	5'-9"
	8'	5'	32	9'-0"		6"			5'-9"
		5'	40	9'-2"	9'-8"	7"	8'-0"	10'-8"	6'-1"
	9'	5'	45	10'-2"	10'-8"	7"	10'-0"	12'-8"	6'-5"
		6'	54	10'-3"		7"			6'-5"
	10'	5'	50	11'-2"	11'-8"	7"	10'-0"	12'-8"	6'-10"
		6'	60	11'-3"		7"			6'-10"
		7'	70	11'-3"		7"			7'-0"
SECTION "B"-15'-0"	1@ 4'	2'	8	5'-0"	6'-8"	6"	6"	6'-8"	3'-1"
	6'	3'	18	7'-0"	7'-8"	6"	8"	9'-8"	4'-9"
	7'	4'	28	8'-0"	8'-8"	6"	9'-0"	10'-8"	5'-9"
	8'	5'	32	9'-0"		6"			5'-9"
		5'	40	9'-2"	9'-8"	7"	10'-0"	12'-8"	6'-1"
	9'	5'	45	10'-2"	10'-8"	7"	11'-0"	13'-8"	6'-5"
		6'	54	10'-3"		7"			6'-5"
	10'	5'	50	11'-2"	11'-8"	7"	11'-0"	13'-8"	6'-10"
		6'	60	11'-3"		7"			6'-10"
		7'	70	11'-3"		7"			7'-0"
SECTION "C"-20'-0"	1@ 4'	2'	8	5'-0"	6'-8"	6"	6"	6'-8"	3'-1"
	6'	3'	18	7'-0"	8'-8"	6"	9"	11'-8"	4'-9"
	7'	4'	28	8'-0"	9'-8"	6"	10'-0"	12'-8"	5'-9"
	8'	5'	32	9'-0"		6"			5'-9"
		5'	40	9'-2"	10'-8"	7"	11'-0"	13'-8"	6'-1"
	9'	5'	45	10'-2"	11'-8"	7"	12'-0"	14'-8"	6'-5"
		6'	54	10'-3"		7"			6'-5"
	10'	5'	50	11'-2"	12'-8"	7"	12'-0"	14'-8"	6'-10"
		6'	60	11'-3"		7"			6'-10"
		7'	70	11'-3"		7"			7'-0"
SECTION "D"-25'-0"	1@ 4'	2'	8	5'-0"	6'-8"	6"	6"	6'-8"	3'-1"
	6'	3'	18	7'-0"	9'-8"	6"	10'-0"	12'-8"	4'-9"
	7'	4'	28	8'-0"	10'-8"	6"	11'-0"	14'-8"	5'-9"
	8'	5'	32	9'-0"		6"			5'-9"
		5'	40	9'-2"	11'-8"	7"	12'-0"	15'-8"	6'-1"
	9'	5'	45	10'-2"	12'-8"	7"	13'-0"	16'-8"	6'-5"
		6'	54	10'-3"		7"			6'-5"
	10'	5'	50	11'-2"	13'-8"	7"	13'-0"	16'-8"	6'-10"
		6'	60	11'-3"		7"			6'-10"
		7'	70	11'-3"		7"			7'-0"
SECTION "E"-30'-0"	1@ 4'	2'	8	5'-0"	7'-0"	6"	6"	7'-0"	3'-1"
	6'	3'	18	7'-0"	10'-0"	6"	11'-0"	14'-0"	4'-9"
	7'	4'	28	8'-0"	11'-0"	6"	12'-0"	16'-0"	5'-9"
	8'	5'	32	9'-0"		6"			5'-9"
		5'	40	9'-2"	12'-0"	7"	13'-0"	17'-0"	6'-1"
	9'	5'	45	10'-2"	13'-0"	7"	14'-0"	18'-0"	6'-5"
		6'	54	10'-3"		7"			6'-5"
	10'	5'	50	11'-2"	14'-0"	7"	14'-0"	18'-0"	6'-10"
		6'	60	11'-3"		7"			6'-10"
		7'	70	11'-3"		7"			7'-0"
SECTION "F"-35'-0"	1@ 4'	2'	8	5'-0"	7'-8"	6"	6"	7'-8"	3'-1"
	6'	3'	18	7'-0"	10'-8"	6"	11'-6"	15'-8"	4'-9"
	7'	4'	28	8'-0"	11'-8"	6"	12'-6"	17'-8"	5'-9"
	8'	5'	32	9'-0"		6"			5'-9"
		5'	40	9'-2"	12'-8"	7"	13'-6"	18'-8"	6'-1"
	9'	5'	45	10'-2"	13'-8"	7"	14'-6"	19'-8"	6'-5"
		6'	54	10'-3"		7"			6'-5"
	10'	5'	50	11'-2"	14'-8"	7"	14'-6"	19'-8"	6'-10"
		6'	60	11'-3"		7"			6'-10"
		7'	70	11'-3"		7"			7'-0"
SECTION "G"-40'-0"	1@ 4'	2'	8	5'-0"	8'-8"	6"	6"	8'-8"	3'-1"
	6'	3'	18	7'-0"	11'-8"	6"	12'-0"	17'-8"	4'-9"
	7'	4'	28	8'-0"	12'-8"	6"	13'-0"	19'-8"	5'-9"
	8'	5'	32	9'-0"		6"			5'-9"
		5'	40	9'-2"	13'-8"	7"	14'-0"	20'-8"	6'-1"
	9'	5'	45	10'-2"	14'-8"	7"	15'-0"	21'-8"	6'-5"
		6'	54	10'-3"		7"			6'-5"
	10'	5'	50	11'-2"	15'-8"	7"	15'-0"	21'-8"	6'-10"
		6'	60	11'-3"		7"			6'-10"
		7'	70	11'-3"		7"			7'-0"

QUANTITIES — UNIT QUANTITIES

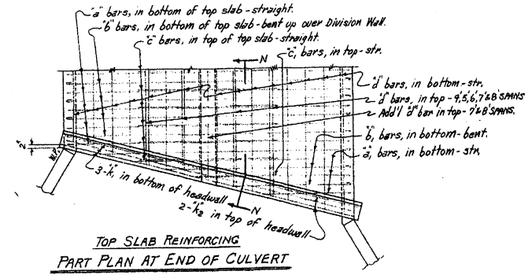
	CLASS 'S' CONC. PER LIN. FT OF BARREL CU.YD.	REINFORCING STEEL PER LIN. FT. OF BARREL. LB.	ADDITIONAL PER LAP LB.	ADDITIONAL TWO HEADWALL & FOOTINGS LB.
SECTION "A"-10'-0"	0.275	24.94	11.69	51.93
	0.385	54.32	16.70	93.29
	0.566	65.53	20.04	107.98
	0.498	80.21	21.71	144.94
	0.725	83.98	28.38	164.35
	0.899	110.91	25.05	176.61
	0.911	114.25	26.72	179.61
	0.974	129.58	26.72	209.97
	1.092	128.22	28.39	245.84
	1.088	130.56	30.06	245.84
SECTION "B"-15'-0"	0.275	31.30	11.69	51.93
	0.462	62.62	16.70	118.07
	0.593	77.39	20.04	135.88
	0.718	89.91	21.71	192.88
	0.796	93.77	23.38	195.61
	0.922	115.02	25.05	219.61
	0.990	118.38	26.72	220.97
	1.060	139.74	28.39	298.66
	1.128	193.22	30.06	300.92
	1.175	152.65	31.73	300.92
SECTION "C"-20'-0"	0.279	34.87	11.69	
	0.483	66.72	16.70	
	0.642	86.96	20.04	
	0.773	102.81	23.38	
	0.853	106.85	25.05	
	1.001	129.11	26.72	
	1.069	134.64	28.39	
	1.164	157.54	30.06	
	1.233	163.24	31.73	
	1.293	170.56	33.90	
SECTION "D"-25'-0"	0.290	36.95	11.69	
	0.522	70.27	16.70	
	0.691	93.30	21.71	
	0.889	115.33	25.05	
	0.903	119.57	26.72	
	1.079	145.59	28.39	
	1.198	155.10	30.06	
	1.250	176.16	31.73	
	1.393	181.05	33.90	
	1.483	190.98	35.07	
SECTION "E"-30'-0"	0.306	39.95	11.69	
	0.556	76.37	18.37	
	0.728	99.69	21.71	
	0.903	124.37	25.05	
	1.073	131.96	28.39	

BAR LIST FOR VARIOUS SECTIONS OF BARREL

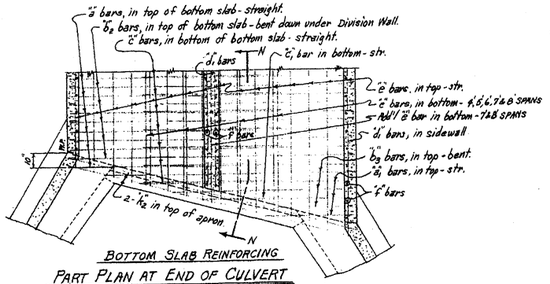
| SECTION & BAR GROUP | LENGTHS OF SECTION | DEPTH OF COVER | CLEAR SPAN | CLEAR HEIGHT | "a" bars STRAIGHT — In Top and Bottom Slab of Barrel, 2 Rdy Mix Apron and Headwall - Each. | | | | | | | "b" bars BENT - see Diagram at Right. — In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars. | | | | | | | | | | "b2" bars BENT - See Diagram at Right. — In Top of Bottom Slab, bent down under Division Wall - hooked. Alternate with "a" and "c" bars. | | | | | | | | | | "c" bars STRAIGHT — In Top and Bottom Slab of Barrel. Alternate with "a" and "b2" bars. | | | | "d" bars STRAIGHT — Longitudinal in Top Slab of Barrel | | | "d1" bars STRAIGHT — Longitudinal in Sidewalls and Division Walls | | | | "e" bars STRAIGHT — Longitudinal in Bottom Slab of Barrel | | | | "f" bars STRAIGHT — Vertical in Sidewalls and Division Walls | | | |
|---|---|---

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					

NOTE:- For Details of Standard Wings and bar lists, see Drawing No. W-X152-1 or W-X152-2; W-X153-1 or W-X153-2, and W-X154-1 or W-X154-2. Also W-X15.

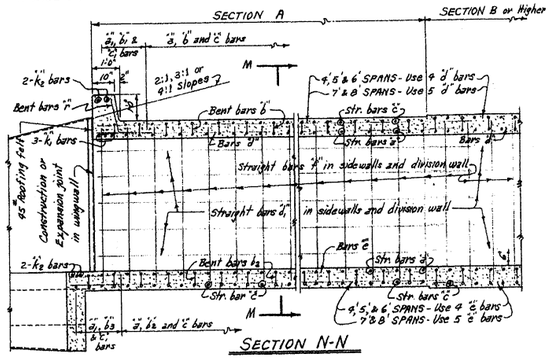


TOP SLAB REINFORCING
PART PLAN AT END OF CULVERT

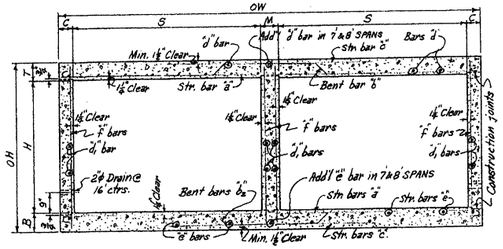


BOTTOM SLAB REINFORCING
PART PLAN AT END OF CULVERT

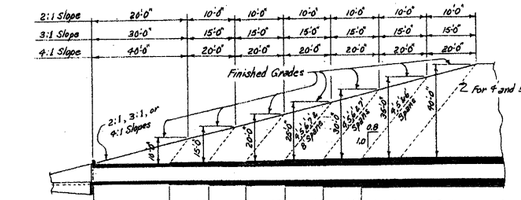
NOTE:- The "j", "ji" and "e" bars vary in length. They should extend 1'-9" into SECTION B.



SECTION N-N



TYPICAL SECTION M-M



2:1 Slope = Sections	A=12'-0"	B=6'-8"	C=6'-8"	D=6'-8"	E=6'-8"	F=6'-8"	MID-SECTION G-Varies
Bar Group	A	B	C	D	E	F	G
3:1 Slope = Sections	A=22'-0"	B=11'-0"	C=11'-0"	D=11'-0"	E=11'-0"	F=11'-0"	MID-SECTION G-Varies
Bar Group	A	B	C	D	E	F	G
4:1 Slope = Sections	A=32'-0"	B=16'-0"	C=16'-0"	D=16'-0"	E=16'-0"	F=16'-0"	MID-SECTION G-Varies
Bar Group	A	B	C	D	E	F	G

Those lengths are perpendicular to ℄ of roadway. See Table of Skew Lengths below.

TYPICAL LONGITUDINAL SECTION - SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.

PART PLAN

LENGTH OF SECTIONS ON 15° SKEW

SLOPE	2:1		3:1		4:1	
SECTIONS	A	B, C, D, E & F	A	B, C, D, E & F	A	B, C, D, E & F
LENGTHS	12'-5"	6'-2⅝"	22'-9⅝"	11'-4⅞"	33'-1½"	16'-6⅝"

NOTE:- For Details and Bar Lists for Sections B thru G, see Barrel Drawing Nos. R-200X-X1, R-200X-X2, or R-200X-X3.

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS						MID-SECTION AND BAR GROUP
	A	B	C	D	E	F	
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0 to 24.5'	A	B	C				D
25.0' to 29.5'	A	B	C	D			E
30.0' to 34.5'	A	B	C	D	E		F
35.0' to 40.0'	A	B	C	D	E	F	G

OR ALT.

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS						MID-SECTION AND BAR GROUP
	A	B	C	D	E	F	
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0' to 24.5'	A		2@C				D
25.0' to 29.5'	A	B		2@D			E
30.0' to 34.5'	A		2@C		2@E		F
35.0' to 40.0'	A	B		2@D		2@F	G

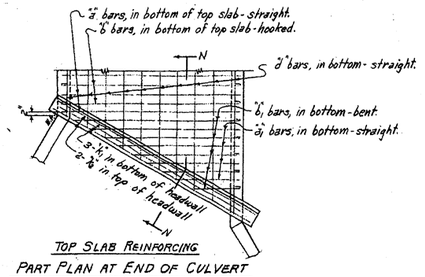
MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS											QUANTITIES - ONE SECTION "A"					
	CLEAR SPANS	CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS OR DIVISION WALL	THICKNESS OF DIVISION WALL	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	ROADWAY LENGTH	LENGTH OF HEADWALL	CLASS S CONCRETE BARREL ONLY			REINFORCING STEEL BARREL, APRON AND HEADWALL.		
												2:1	3:1	4:1	2:1	3:1	4:1
D	S	H	A	OW	T	C	M	B	OH	RL	K	CU.YD.	CU.YD.	CU.YD.	LB.	LB.	LB.
2 @ 4'	2	2'	16	9'-8"	6"	6"	8"	6"	3'-0"	10'-0"	10'-6½"	5.97	10.95	16.93	967	1629	2303
	3	2'	24	9'-8"		6"	8"		4'-0"	"	"	6.74	12.36	17.99	1039	1756	2485
	4	3'	32	9'-8"		6"	8"		5'-0"	"	"	7.51	13.78	20.04	1112	1882	2668
	5	4'	40	9'-8"		6"	8"		6'-0"	"	"	8.28	15.19	22.09	1184	2009	2850
	6	5'	48	9'-11"		7"	9"		7'-0"	10'-3½"	10'-9"	9.85	18.06	26.27	1270	2157	3062
2 @ 5'	2	3'	30	11'-8"	6½"	6"	8"	6½"	4'-1"	12'-1"	12'-7½"	8.11	14.87	21.63	1396	2386	3409
	3	4'	40	11'-8"		6"	8"		5'-1"	"	"	8.88	16.28	23.68	1968	2513	3592
	4	5'	50	11'-8"		6"	8"		6'-1"	"	"	9.65	17.69	25.74	1591	2690	3775
	5	6'	60	11'-11"		7"	9"		7'-1"	12'-9"	13'-10½"	11.22	20.58	29.94	1630	2795	3997
	6	7'	70	12'-1"		7½"	10"		8'-1"	12'-6⅜"	13'-0½"	12.73	23.34	33.95	1868	3213	4602
2 @ 6'	2	3'	36	13'-8"	7½"	6"	8"	7¾"	4'-3"	14'-1⅜"	14'-6½"	10.16	18.63	27.10	1580	2732	3898
	3	4'	48	13'-8"		6"	8"		5'-3"	"	"	10.93	20.04	29.15	1653	2859	4080
	4	5'	60	13'-8"		6"	8"		6'-3"	"	"	11.68	21.43	31.17	1725	2986	4263
	5	6'	72	13'-11"		7"	9"		7'-3"	14'-5"	14'-11⅜"	13.29	24.36	35.44	1815	3142	4484
	6	7'	84	14'-1"		7⅞"	10"		8'-3"	14'-7"	15'-1⅜"	14.80	27.14	39.48	2056	3565	5100
	7	8'	96	14'-2"		8"	10"		9'-3"	14'-8"	15'-2⅝"	16.12	29.66	43.00	2190	3772	5381
2 @ 7'	2	4'	56	15'-8"	8½"	6"	8"	8¾"	5'-5"	16'-3"	16'-9⅜"	13.27	24.34	35.41	2186	3667	5154
	3	5'	70	15'-8"		6"	8"		6'-5"	"	"	14.04	25.75	37.46	2209	3794	5337
	4	6'	84	15'-11"		7"	9"		7'-5"	16'-5⅜"	17'-0⅝"	15.66	28.71	41.77	2902	3956	5568
	5	7'	98	16'-1"		7⅞"	10"		8'-5"	16'-7⅜"	17'-2⅝"	17.18	31.51	45.84	2549	4330	6196
	6	8'	112	16'-2"		8"	10"		9'-5"	16'-8⅜"	17'-3⅝"	18.50	33.93	49.34	2686	4638	6558
	7	9'	126	16'-5"		9"	11"		10'-5"	17'-0"	17'-6⅜"	20.70	37.96	55.22	2896	4950	7000
2 @ 8'	2	4'	64	17'-8"	9½"	6"	8"	9¾"	5'-7"	18'-3⅜"	18'-10"	15.93	29.21	42.50	2384	4168	5978
	3	5'	80	17'-11"		6"	8"		6'-7"	18'-6⅜"	19'-1"	17.46	32.02	46.57	2690	4493	6369
	4	6'	96	17'-11"		7"	9"		7'-7"	"	"	18.94	33.63	48.93	2712	4620	6552
	5	7'	112	18'-1"		7⅞"	10"		8'-7"	18'-8⅜"	19'-3"	19.88	36.46	53.03	2847	4875	6919
	6	8'	128	18'-2"		8"	10"		9'-7"	18'-9⅜"	19'-4⅝"	21.20	38.87	56.54	3064	5235	7444
	7	9'	144	18'-5"		9"	11"		10'-7"	19'-0⅜"	19'-7⅝"	23.42	42.95	62.47	3229	5523	7866
	8	10'	160	18'-8"		10"	12"		11'-7"	19'-3⅜"	19'-10⅝"	25.85	47.41	68.97	3568	6114	8714

* For remainder of quantities see Std. Wing and Barrel Drawings listed below.

BAR LIST FOR SECTION "A" ON 15° SKEW - ONE END ONLY.

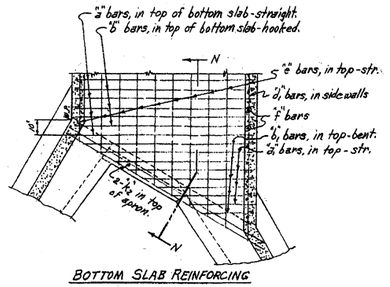
| SECTION & BAR GROUP | LENGTH OF SECTION | DEPTH OF COVER | CLEAR SPAN | CLEAR HEIGHT | "a" bars STRAIGHT In Top and Bottom Slab of Barrel. | | | | | "ai" bars STRAIGHT In Top and Bottom Slab of Barrel - (Two of each Length) | | | | | "b" bars BENT - See Diagrams below. In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars. | | | | | | | "b1" bars BENT - See Diagrams below. In Bottom of Top Slab - may or may not be bent up over Division Wall - one end hooked. Alternate with "b" and "c" bars. | | | | "b2" bars BENT - See Diagrams below. In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars | | | | | | | "b3" bars BENT - See Diagrams below. In Top of Bottom Slab - may or may not be bent down under Division Wall - one end hooked. Alternate with "a1" and "c" or "ci" bars. | | | | "c" bars STRAIGHT In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars. | | | | "ci" bars STRAIGHT In Top and Bottom Slab of Barrel. Alt. with "b" & "b2" bars. (Two of each Length) | | | | "d" bars STRAIGHT Longitudinal in Top Slab of Barrel. | | | | "di" bars STRAIGHT Longitudinal in Sidewalls and Division Wall. | | | | "e" bars STRAIGHT Longitudinal in Bottom Slab of Barrel. | | | | "f" bars STRAIGHT Verticals in Sidewalls and Division Wall. | | | | | "k1" bars STRAIGHT In Bottom of Headwall. | | | "k2" bars STRAIGHT In Top of Headwall and Apron. (2 Each) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



TOP SLAB REINFORCING

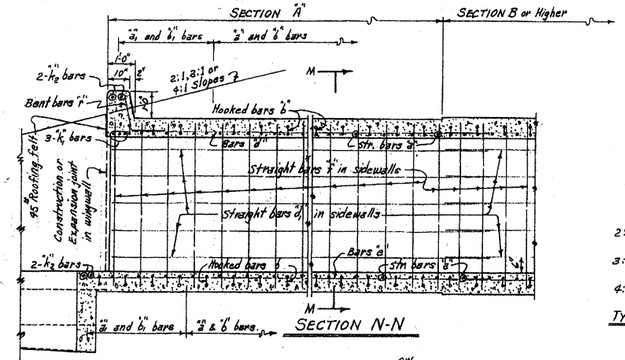
PART PLAN AT END OF CULVERT

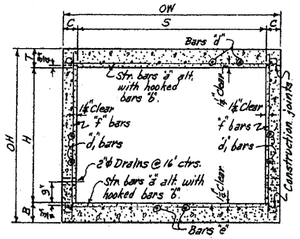


BOTTOM SLAB REINFORCING

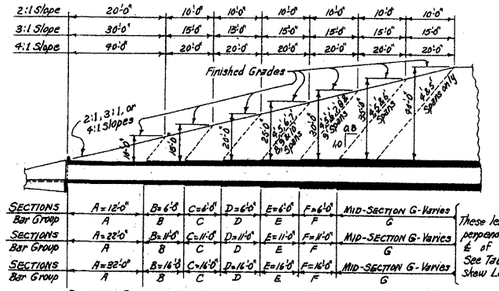
PART PLAN AT END OF CULVERT

NOTE:- The "d", "d1" and "e" bars vary in length. They should extend 1'-8" min. into Section "B".





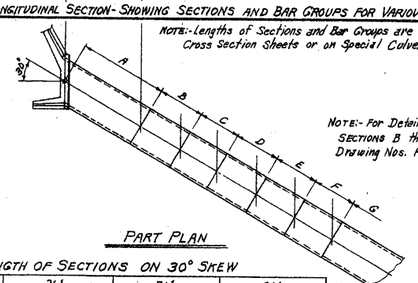
TYPICAL SECTION M-M



2:1 Slope =	Sections	A=12'-0"	B=6'-0"	C=6'-0"	D=6'-0"	E=6'-0"	F=6'-0"	Mid-Section G-Varies	These lengths are perpendicular to ℄ of roadway. See Table of Skew Lengths below.
	Bar Group	A	B	C	D	E	F	G	
3:1 Slope =	Sections	A=22'-0"	B=11'-0"	C=11'-0"	D=11'-0"	E=11'-0"	F=11'-0"	Mid-Section G-Varies	
	Bar Group	A	B	C	D	E	F	G	
4:1 Slope =	Sections	A=32'-0"	B=16'-0"	C=16'-0"	D=16'-0"	E=16'-0"	F=16'-0"	Mid-Section G-Varies	
	Bar Group	A	B	C	D	E	F	G	

TYPICAL LONGITUDINAL SECTION - SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.



PART PLAN

NOTE:- For Details and Bar Lists for Sections B thru G, see Barrel Drawing Nos. R-100X-X.1 or R-100X-X.2.

LENGTH OF SECTIONS ON 30° SKEW

SLOPE	2:1		3:1		4:1	
SECTIONS	A	B, C, D, E & F	A	B, C, D, E & F	A	B, C, D, E & F
LENGTHS	13'-10½"	6'-11⅝"	25'-4¾"	12'-8⅜"	36'-11⅝"	18'-5⅞"

NOTE:- Minimum ℄ Length of Section "A" on 30° Skew = (0.288675 OW + 2').

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS						MID-SECTION AND BAR GROUP
	A	B	C	D	E	F	
5.0 to 9.5'	A						A
10.0 to 19.5'	A						B
15.0 to 19.5'	A	B					C
20.0 to 24.5'	A	B	C				D
25.0 to 29.5'	A	B	C	D			E
30.0 to 34.5'	A	B	C	D	E		F
35.0 to 40.0'	A	B	C	D	E	F	G

OR ALT.

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS						MID-SECTION AND BAR GROUP
	A	B	C	D	E	F	
5.0 to 9.5'	A						A
10.0 to 19.5'	A	B					B
20.0 to 29.5'	A	B	2@C				C
30.0 to 39.5'	A	B	2@C	2@E			D
40.0 to 49.5'	A	B	2@D	2@E			E
50.0 to 59.5'	A	B	2@D	2@F			F
60.0 to 69.5'	A	B	2@D	2@F			G

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM FOR BARS "b"
#4	2"	4"	0'-10½"	K, Pin diam., X
#5	2½"	4½"	0'-11⅝"	
#6	3"	5"	1'-2"	
#7	3½"	5⅝"	1'-4"	

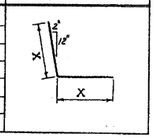
BAR SIZE	PIN DIAM.	K	ADD FOR 1 HOOK	BENDING DIAGRAM FOR BARS "b1"
#4	2"	4"	0'-5½"	K, Pin diam., X
#5	2½"	4½"	0'-5⅝"	
#6	3"	5"	0'-7"	
#7	3½"	5⅝"	0'-8"	

Note:- Dimensions are to centers of bars. ("b" and "b1")

DOWEL BARS FOR ONE HEADWALL

SKEW	SIZE	SPACING	No. REQ'D	LENGTH	X
4'	#4	12"	6	2'-5"	1'-2½"
5'	#4	12"	8	2'-6"	1'-3"
6'	#4	12"	9	2'-7"	1'-3½"
7'	#4	12"	10	2'-8"	1'-4"
8'	#4	12"	11	2'-10"	1'-5"
9'	#4	12"	13	3'-0"	1'-6"
10'	#4	12"	14	3'-2"	1'-7"

Dowel bars "f" in One Headwall



DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961

AND

SPECIAL MILITARY LOADING

Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-

Class S Concrete (n=10) 1200 #/□"

Reinforcing Steel 20,000 #/□"

GENERAL NOTES

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls and slabs shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

Note:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X302-1 or W-X302-2, W-X303-1 or W-X303-2, and W-X304-1 or W-X304-2, Also W-X30.

For Barrels of 4', 5' & 6' Spans, See Drawing No. R-100X-X.1.

For Barrels of 7', 8', 9' & 10' Spans, See Drawing No. R-100X-X.2.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

30° SKEW – SECTIONS "A" ONLY

4, 5, 6, 7, 8, 9' & 10' SPANS SINGLES

2:1, 3:1 OR 4:1 SLOPES OVER 5'-0" COVER

STANDARD DRAWING No. R-130X-1

SECTION "A" & BAR GROUP "A"

SECTION "A" = 10'-0"

Designed by:- W.C.H. 9-5-62 — Checked by:-

Drawn by:- W.C.H. 1-24-64 — Checked by:-

Quantities by:- W.C.H 4-21-64 — Checked by:-

0'-0" TO 10'-0" MAXIMUM.

2:1 = 13'-10½", 3:1 = 25'-4¾", 4:1 = 36'-11⅝"

BAR LIST FOR SECTION "A" ON 30° SKEW – ONE END ONLY.

SECTION & BAR GROUP	LENGTH OF SECTION	DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	"a" bars STRAIGHT In Top and Bottom Slabs of Barrel.				"a1" bars STRAIGHT In Top and Bottom Slab of Barrel - (two of each Length.)				"b" bars BENT - See Diagrams at Right. In Top and Bottom Slabs of Barrel - one end hooked. Alternate with "a" bars					"b1" bars STRAIGHT In Top and Bottom Slabs of Barrel - (two of each Length.) Alternate with "a1" bars.					"d" bars Longitudinal in Top Slab of Barrel.		"d1" bars Longitudinal in Sidewalls		"e" bars Longitudinal in Bottom Slab of Barrel.		"f" bars STRAIGHT Verticals in Sidewalls.				"h" bars STRAIGHT In Bottom of Headwall.		"h1" bars STRAIGHT In Top of Headwall and Apron. (2 Each)	
		D	S	H	SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH	SIZE	SPACING	NUMBER REQ'D	LENGTH	SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH	X MAX.	X MIN.	SIZE	SPACING	NUMBER REQ'D	LENGTH MAX.	LENGTH MIN.	SIZE	SPACING	Mk. REQ'D	LENGTH	SIZE	SPACING	Mk. REQ'D	LENGTH	SIZE	SPACING	NUMBER REQ'D	LENGTH	SIZE	Mk. REQ'D	LENGTH	SIZE	Mk. REQ'D	LENGTH
1 @ 4'	2:1 = 13'-10½", 3:1 = 25'-4¾", 4:1 = 36'-11⅝"	2'	4'	2'	#4	12"	27	49	73	4'-9"	#4	12"	2	3'-0"	—	#4	12"	25	49	71	5'-7"	4'-0½"	#4	12"	4	4'-3"	2'-6"	3'-16"	2'-1"	#5	12"	5	#4	12"	5	#5	12"	28	51	74	2'-10"	#5	3	6'-6"	#4	4	6'-8"
		3'	4'	3'	"	"	27	49	73	"	"	"	2	"	—	"	"	25	49	71	"	"	"	"	4	"	"	"	"	"	"	12"	5	"	5	"	12"	28	51	74	3'-10"	"	3	"	"	4	"
		4'	4'	4'	"	"	27	49	73	"	"	"	2	"	—	"	"	25	49	71	"	"	"	"	4	"	"	"	"	"	"	12"	5	"	5	"	12"	28	51	74	4'-10"	"	3	"	"	4	"
		5'	4'	5'	"	"	27	49	73	"	"	"	2	"	—	"	"	25	49	71	"	"	"	"	4	"	"	"	"	"	"	12"	5	"	5	"	12"	28	51	74	5'-10"	"	3	"	"	4	6'-10"
		6'	4'	6'	"	"	27	49	73	4'-11"	"	"	2	3'-2"	—	"	"	25	49	71	5'-9"	4'-0½"	"	"	4	4'-5"	2'-8"	4'-0"	2'-3"	"	"	12"	5	"	5	"	12"	28	51	74	6'-10"	"	3	5'-8"	"	4	6'-10"
1 @ 5'		3'	5'	3'	#4	12"	25	49	73	5'-9"	#4	12"	4	4'-0"	2'-3"	#4	12"	25	47	71	6'-8"	5'-0½"	#4	12"	6	4'-5"	3'-2"	4'-10"	3'-1"	#5	12"	6	#4	12"	6	#5	12"	28	51	74	7'-10"	#5	3	6'-8"	#4	4	9'-1"
		4'	5'	4'	"	"	25	49	73	"	"	"	4	"	"	"	"	25	47	71	"	"	"	"	6	5'-4"	3'-7"	4'-10"	3'-1"	"	"	12"	6	"	6	"	12"	28	51	74	8'-10"	"	3	"	"	4	"
		5'	5'	5'	"	"	25	49	73	5'-11"	"	"	4	4'-2"	2'-5"	"	"	25	47	71	6'-10"	5'-0½"	"	"	6	5'-7"	3'-9"	5'-0"	3'-3"	"	"	12"	6	"	6	"	12"	28	51	74	9'-10"	"	3	"	"	4	9'-11"
		6'	5'	6'	"	"	25	49	73	"	"	"	4	4'-5"	2'-6"	"	"	25	47	71	6'-11"	5'-0½"	"	"	6	5'-7"	3'-10"	5'-0"	3'-3"	"	"	12"	6	"	6	"	12"	28	51	74	10'-10"	"	3	"	"	4	"
		7'	5'	7'	"	"	25	49	73	"	"	"	4	4'-5"	2'-6"	"	"	25	47	71	7'-0"	5'-0½"	"	"	6	5'-7"	3'-10"	5'-0"	3'-3"	"	"	12"	6	"	6	"	12"	28	51	74	11'-10"	"	3	"	"	4	"
1 @ 6'		3'	6'	3'	#4	12"	25	49	71	6'-9"	#4	12"	4	5'-0"	3'-3"	#4	12"	25	47	71	7'-10"	6'-0½"	#4	12"	6	6'-3"	3'-11"	5'-10"	3'-7"	#5	12"	7	#4	12"	7	#5	12"	28	51	74	9'-0"	#5	3	7'-10"	#4	4	9'-2"
		4'	6'	4'	"	"	25	49	71	"	"	"	4	"	"	"	"	25	47	71	"	"	"	"	6	6'-3"	3'-11"	5'-10"	3'-7"	"	"	12"	7	"	7	"	12"	28	51	74	10'-0"	"	3	"	"	4	"
		5'	6'	5'	"	"	25	49	71	7'-11"	"	"	4	5'-2"	3'-5"	"	"	25	47	71	8'-0"	6'-0½"	"	"	6	6'-3"	3'-11"	5'-10"	3'-7"	"	"	12"	7	"	7	"	12"	28	51	74	11'-0"	"	3	"	"	4	9'-3"
		6'	6'	6'	"	"	25	49	71	"	"	"	4	5'-3"	3'-6"	"	"	25	47	71	8'-1"	6'-0½"	"	"	6	6'-3"	3'-11"	5'-10"	3'-7"	"	"	12"	7	"	7	"	12"	28	51	74	11'-10"	"	3	"	"	4	"
		7'	6'	7'	"	"	25	49	71	"	"	"	4	5'-3"	3'-6"	"	"	25	47	71	8'-2"	6'-0½"	"	"	6	6'-3"	3'-11"	5'-10"	3'-7"	"	"	12"	7	"	7	"	12"	28	51	74	12'-10"	"	3	"	"	4	"
		8'	6'	8'	"	"	25	49	71	"	"	"	4	5'-3"	3'-6"	"	"	25	47	71	8'-3"	6'-0½"	"	"	6	6'-3"	3'-11"	5'-10"	3'-7"	"	"	12"	7	"	7	"	12"	28	51	74	13'-10"	"	3	"	"	4	"
1 @ 7'		4'	7'	4'	#4	12"	25	47	71	7'-9"	#4	12"	6	6'-0"	2'-6"	#4	12"	23	47	69	8'-10"	7'-0½"	#4	12"	6	6'-3"	3'-11"	6'-0"	3'-8"	#5	12"	8	#4	12"	8	#5	12"	28	51	74	10'-0"	#5	3	9'-10"	#4	4	10'-2"
		5'	7'	5'	"	"	25	47	71	"	"	"	6	6'-2"	2'-8"	"	"	23	47	69	9'-0"	7'-0½"	"	"	6	6'-3"	3'-11"	6'-0"	3'-8"	"	"	12"	8	"	8	"	12"	28	51	74	11'-0"	"	3	"	"	4	"
		6'	7'	6'	"	"	25	47	71	7'-11"	"	"	6	6'-3"	2'-9"	"	"	23	47	69	9'-1"	7'-1"	"	"	6	6'-3"	3'-11"	6'-0"	3'-8"	"	"	12"	8	"	8	"	12"	28	51	74	12'-0"	"	3	"	"	4	"
		7'	7'	7'	"	"	25	47	71	8'-0"	"	"	6	6'-3"	2'-9"	"	"	23	47	69	9'-2"	7'-1"	"	"	6	6'-3"	3'-11"	6'-0"	3'-8"	"	"	12"	8	"	8	"	12"	28	51	74	13'-0"	"	3	"	"	4	"
		8'	7'	8'	"	"	25	47	71	8'-1"	"	"	6	6'-4"	2'-10"	"	"	23	47	69	9'-3"	7'-1"	"	"	6	6'-3"	3'-11"	6'-0"	3'-8"	"	"	12"	8	"	8	"	12"	28	51	74	14'-0"	"	3	"	"	4	"
		9'	7'	9'	"	"	25	47	71	8'-3"	"	"	6	6'-6"	3'-0"	"	"	23	47	69	9'-4"	7'-1"	"	"	6	6'-3"	3'-11"	6'-0"	3'-8"	"	"	12"	8	"	8	"	12"	28	51	74	15'-0"	"	3	"	"	4	"
1 @ 8'		4'	8'	4'	#4	12"	25	47	71	8'-9"	#4	12"	6	7'-0"	3'-0"	#4	12"	23	47	69	9'-10"	8'-0½"	#4	12"	8	8'-5"	3'-3"	7'-0"	3'-11"	#5	12"	9	#4	12"	9	#5	12"	28	51	74	11'-0"	#5	3	10'-1"	#4	4	11'-8"
		5'	8'	5'	"	"	25	47	71	8'-11"	"	"	6	7'-2"	3'-3"	"	"	23	47	69	10'-0"	8'-0½"	"	"	8	8'-7"	3'-4"	8'-0"	3'-11"	"	"	12"	9	"	9	"	12"	28	51	74	12'-0"	"	3	10'-9"	"	4	11'-6"
		6'	8'	6'	"	"	25	47	71	"	"	"	6	7'-3"	3'-4"	"	"	23	47	69	10'-1"	8'-0½"	"	"	8	8'-8"	3'-5"	8'-0"	3'-11"	"	"	12"	9	"	9	"	12"	28	51	74	13'-0"	"	3	10'-5"	"	4	11'-7"
		7'	8'	7'	"	"	25	47	71	9'-0"	"	"	6	7'-4"	3'-5"	"	"	23	47	69	10'-2"	8'-0½"	"	"	8	8'-9"	3'-6"	8'-0"	3'-11"	"	"	12"	9	"	9	"	12"	28	51	74	14'-0"	"	3	10'-6"	"	4	11'-8"
		8'	8'	8'	"	"	25	47	71	9'-1"	"	"	6	7'-6"	3'-6"	"	"	23	47	69	10'-3"	8'-0½"	"	"	8	8'-10"	3'-6"	8'-0"	3'-11"	"	"	12"	9	"	9	"	12"	28	51	74	15'-0"	"	3	10'-8"	"	4	11'-9"
		9'	8'	9'	"	"	25	47	71	9'-3"	"	"	6	7'-7"	3'-7"	"	"	23	47	69	10'-4"	8'-0½"	"	"	8	8'-11"	3'-7"	8'-0"	3'-11"	"	"	12"	9	"	9	"	12"	28	51	74	16'-0"	"	3	10'-11"	"	4	11'-10"
		10'	8'	10'	"	"	25	47	71	9'-5"	"	"	6	7'-8"	3'-8"	"	"	23	47	69	10'-6"	8'-0½"	"	"	8	9'-0"	3'-8"	8'-0"	3'-11"	"	"	12"	9	"	9	"	12"	28	51	74	17'-0"	"	3	11'-1"	"	4	12'-0"
1 @ 9'		5'	9'	5'	#4	12"	25	51	75	9'-11"	#4	12"	8	8'-4"	3'-7"	#4	12"	25	49	75	11'-2"	9'-0½"	#4	12"	10	9'-3"	3'-8"	8'-5"	4'-3"	#5	12"	10	#4	12"	10	#5	12"	28	51	74	12'-0"	#5	3	11'-5"	#4	4	12'-5"
		6'	9'	6'	"	"	25	51	75	"	"	"	8	8'-5"	3'-8"	"	"	25	49	75	11'-3"	9'-0½"	"	"	10	9'-4"	3'-8"	8'-5"	4'-3"	"	"	12"	10	"	10	"	12"	28	51	74	13'-0"	"	3	11'-8"	"	4	12'-6"
		7'	9'	7'	"	"	25	51	75	10'-1"	"	"	8	8'-6"	3'-8"	"	"	25	49	75	11'-4"	9'-0½"	"	"	10	9'-5"	3'-9"	8'-5"	4'-3"	"	"	12"	10	"	10	"	12"	28	51	74	14'-0"	"	3	11'-11"	"	4	12'-7"
		8'	9'	8'	"	"	25	51	75	10'-3"	"	"	8	8'-8"	3'-11"	"	"	25	49	75	11'-5"	9'-0½"	"	"	10	9'-6"	3'-9"	8'-5"	4'-3"	"	"	12"	10	"	10	"	12"	28	51	74	15'-0"	"	3	12'-2"	"	4	12'-8"
		9'	9'	9'	"	"	25	51	75	10'-5"	"	"	8	8'-10"	4'-1"	"	"	25	49	75	11'-8"	9'-0½"	"	"	10	9'-7"	3'-10"	8'-5"	4'-3"	"	"	12"	10	"	10	"	12"	28	51	74	16'-0"	"	3	12'-5"	"	4	12'-9"
		10'	9'	10'	"	"	25	51	75	10'-7"	"	"	8	9'-0"	4'-3"	"	"	25	49	75	11'-10"	10'-0½"	"	"	10	9'-8"	3'-10"	8'-5"	4'-3"	"	"	12"	10	"	10	"	12"	28	51	74	17'-0"	"	3	12'-8"	"	4	12'-10"
		11'	9'	11'	"	"	25	51	75	10'-9"	"	"	8	9'-2"	4'-4"	"	"	25	49	75	12'-0"	10'-0½"	"	"	10	9'-9"	3'-11"	8'-5"	4'-3"	"	"	12"	10	"	10	"	12"	28	51	74	18'-0"	"	3	12'-11"	"	4	13'-0"
1 @ 10'		5'	10'	5'	#4	12"	23	95	69	10'-11"	#4	12"	10	9'-2"	2'-2"	#4	12"	21	95	69	12'-2"	10'-10½"	#4	12"	10	9'-10"	3'-8"	10'-0"	3'-10"	#5	12"	11	#4	12"	11	#5	12"	28	51	74	13'-0"	#5	3	12'-7"	#4	4	13'-2"
		6'	10'	6'	"	"	23	95	69	11'-0"	"	"	10	9'-3"	2'-3"	"	"	21	95	69	12'-3"	10'-10½"	"	"	10	9'-10"	3'-8"	10'-0"	3'-10"	"	"	12"	11	"	11	"	12"	28	51	74	14'-0"	"	3	12'-10"	"	4	13'-3"
		7'	10'	7'	"	"	23	95	69	"	"	"	10	"	"	"	"	21	95	69	"	"	"	"	10	9'-10"	3'-8"	10'-0"	3'-10"	"	"	12"	11	"	11	"	12"	28	51	74	15'-0"	"	3	13'-1"	"	4	13'-4"
		8'	10'	8'	"	"	23	95	69	11'-2"	"	"	10	9'-4"	2'-4"	"	"	21	95	67	12'-4"	11'-2"	"	"	10	10'-0"	3'-8"	10'-2"	3'-9"	"	"	12"	11	"	11	"	12"	28	51	74	16'-0"	"	3	13'-4"	"	4	13'-5"
		9'	10'	9'	"	"	23	95	69	11'-3"	"	"	10	9'-5"	2'-5"	"	"	21	95	67	12'-5"	11'-2"	"	"	10	10'-1"	3'-8"	10'-2"	3'-9"	"	"	12"	11	"	11	"	12"	28	51	74	17'-0"	"	3	13'-7"	"	4	13'-6"
		10'	10'	10'	"	"	23	95	69	11'-5"	"	"	10	9'-6"	2'-6"	"	"	21	95	67	12'-6"	11'-2"	"	"	10	10'-2"	3'-8"	10'-2"	3'-9"	"	"	12"	11	"	11	"	12"	28	51	74	18'-0"	"	3	13'-10"	"	4	13'-7"
		11'	10'	11'	"	"	23	95	69	11'-7"	"	"	10	9'-7"	2'-7"	"	"	21	95	67	12'-7"	11'-2"	"	"	10	10'-3"	3'-8"	10'-2"	3'-9"	"	"	12"	11	"	11	"	12"	28	51	74	19'-0"	"	3	14'-0"	"	4	13'-8"
		12'	10'	12'	"	"	23	95	69	11'-9"	"	"	10	9'-8"	2'-8"	"	"	21	95	67	13'-0"	11'-6"	"	"	10	10'-4"	3'-8"	10'-2"	3'-9"	"	"	12"	11	"	11	"	12"	28	51	74	20'-0"	"	3	14'-3"	"	4	13'-9"

Lengths Vary - Average Length; 2:1 = 15'-6", 3:1 = 28'-3", 4:1 = 39'-10"

These bars are in the skewed portion of barrel only. The length of "a1" bars and overall length X of "b1" bars vary by 1'-8" for 12" spacing and 1'-7" for 11" spacing.

MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS: CLEAR SPANS	CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	ROADWAY LENGTH	LENGTH OF HEADWALL	*QUANTITIES - ONE SECTION "A": CLASS S CONCRETE, BARREL ONLY			REINFORCING STEEL, BARREL, APRON AND HEADWALL.		
											2:1	3:1	4:1	2:1	3:1	4:1
D	S	H	A	OW	T	C	B	OH	AL	K	CU.YD.	CU.YD.	CU.YD.	LB.	LB.	LB.
1 @ 4'	4'	2'	8	5'-0"	6"			3'-1"	5'-9⅜"	6'-11⅝"	3.81	6.98	10.16	953	764	1094
		3'	12	5'-0"	"	6"	6"	4'-1"	"	"	4.32	7.92	11.53	992	834	1175
		4'	16	5'-0"	6½"	6"	6"	5'-1"	"	"	4.84	8.84	12.89	1031	904	1276
		5'	20	5'-0"	"	6"	6"	6'-1"	"	"	5.35	9.80	14.24	1071	975	1377
		6'	24	5'-2"	"	7"	7"	7'-1"	5'-11⅝"	7'-1½"	6.49	11.86	17.25	1148	1059	1492
	5'	3'	15	6'-0"	"	6"	6"	4'-2"	6'-1½"	8'-1"	5.13	9.40	13.67	1087	1188	1693
		4'	20	6'-0"	"	6"	6"	5'-2"	"	"	5.64	10.34	15.03	1126	1258	1794
		5'	25	6'-0"	7"	6"	7"	6'-2"	"	"	6.15	11.28	16.40	1165	1323	1895
		6'	30	6'-2"	"	7"	7"	7'-2"	7'-1¼"	8'-3½"	7.29	12.36	19.93	1216	1419	2029
		7'	35	6'-8"	7½"	7"	8"	8'-2"	7'-2⅜"	8'-4½"	8.23	15.09	21.96	1293	1525	2171
1 @ 6'	6'	3'	18	7'-0"	"	6"	6"	4'-3"	8'-1"	9'-3⅛"	6.09	11.05	16.07	1294	1538	2192
		4'	24	7'-0"	"	6"	6"	5'-3"	"	"	6.54	11.99	17.44	1334	1609	2293
		5'	30	7'-0"	"	6"	6"	6'-3"	"	"	7.05	12.98	19.80	1378	1679	2394
		6'	36	7'-2"	7½"	7"	7½"	7'-3"	8'-3⅝"	9'-5⅞"	8.19	15.01	21.83	1427	1783	2529
		7'	42	7'-9"	"	7½"	"	8'-3"	8'-4½"	9'-6⅝"	9.14	16.76	24.38	1485	1908	2727
		8'	48	7'-9"	"	8"	"	9'-3"	8'-5⅝"	9'-7½"	10.18	18.67	27.15	1542	2156	3080
1 @ 7'	7'	4'	28	8'-0"	"	6"	6"	5'-4½"	9'-2⅝"	10'-4⅜"	7.70	14.12	20.54	1059	1815	2565
		5'	35	8'-0"	"	6"	6"	6'-4½"	"	"	8.22	15.06	21.90	1094	1885	2666
		6'	42	8'-2"	"	7"	7"	7'-4½"	9'-5⅝"	10'-7"	9.35	17.14	24.93	1147	1979	2800
		7'	49	8'-8"	7½"	7½"	8½"	8'-4½"	9'-6½"	10'-8⅝"	10.31	18.89	27.48	1210	2088	2956
		8'	56	8'-9"	"	8"	"	9'-4½"	9'-7⅝"	10'-9⅝"	11.86	20.80	30.25	1282	2263	3234
		9'