DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	1	118
				(2) FAULKNER CO. LINE - HWY. 107 (PASSING LANES) (S)				

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

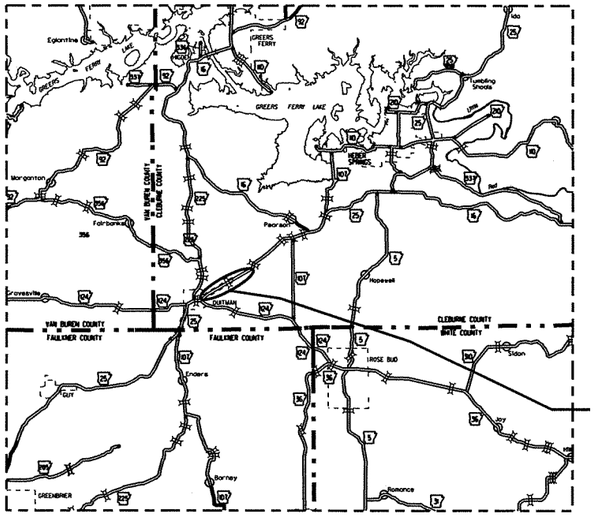
FAULKNER CO. LINE- HWY. 107 (PASSING LANES) (S)

CLEBURNE COUNTY

ROUTE 25 SECTION 2

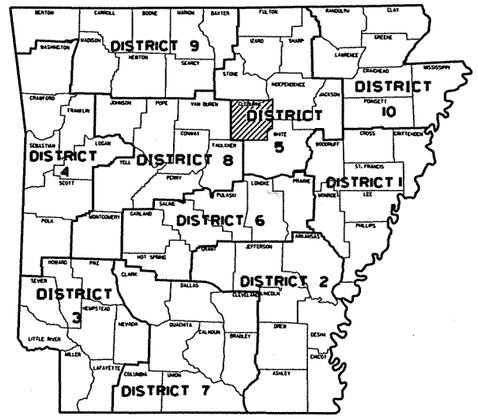
JOB 050166

F. A. P. NO. STP-0012(26)



PROJECT LOCATION

VICINITY MAP



ARK. HWY. DIST. NO. 5

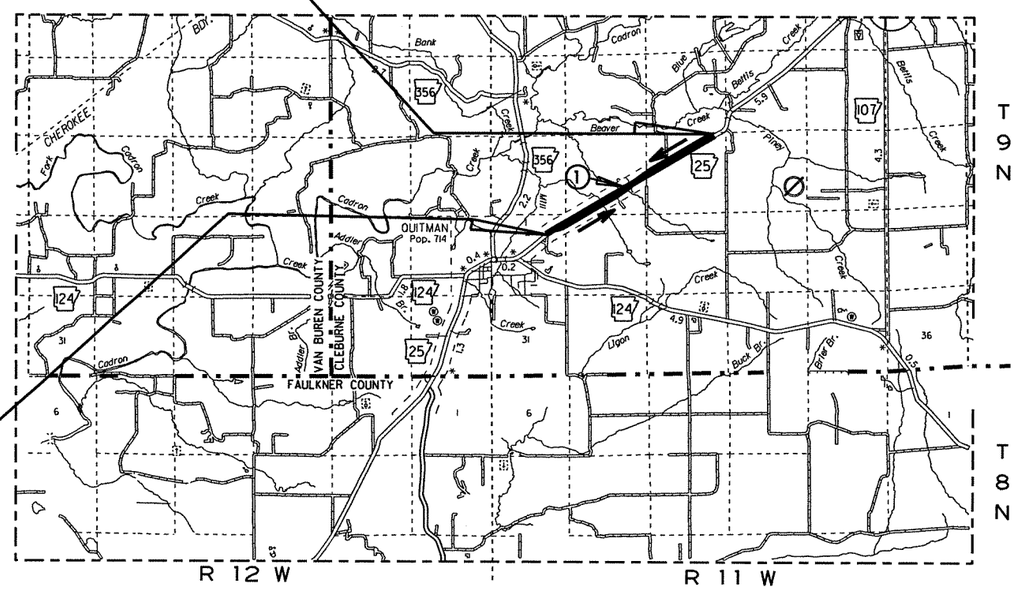
STRUCTURES OVER 20'-0" SPAN

① STA. 283+00 IN PLACE
DBL. 10' X 4' X 30' R.C. BOX CULVERT
W/ HDWL'S LT. & RT.
RETAIN & EXTEND
22' LT. & 32' RT.
TO A COMPLETED LENGTH = 84'
W/ 3:1 WINGS LT. & RT.
Q25 = 525 CFS D.A. = 328 ACRES
SPAN LENGTH = 22.08'

STA. 350+00.15
END JOB 050166
L.M. 4.93

STA. 222+00.00
BEGIN JOB 050166
LOG MILE 2.51

0 1 2 MILE
BAR SCALE



GROSS LENGTH OF	PROJECT	12800.15	FEET	OR	2.424	MILES
NET	" "	ROADWAY	12778.07	"	"	2.420	"
NET	" "	BRIDGES	22.08	"	"	0.004	"
NET	" "	PROJECT	12800.15	"	"	2.424	"

P.E. 050166
NON-PART.

BEGINNING:	
LAT: N35° 23' 18"	
LONG: W92° 12' 15"	
MID POINT:	
LAT: N35° 23' 50"	
LONG: W92° 11' 06"	
ENDING:	
LAT: N35° 24' 20"	
LONG: W92° 09' 59"	

r050166.dgn 4/28/2010

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2032
2012 ADT	5200
2032 ADT	6500
2032 DHV	715
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	20%
AVERAGE RUNNING SPEED	55 MPH

N

APPROVED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 3917
FRANK VOZEH

12/6/11

DEPUTY DIRECTOR
AND CHIEF ENGINEER

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	2	118

(2) INDEX, GOV. SPECS. AND GENERAL NOTES

INDEX OF SHEETS

SHEET NO.	TITLE	DRAWING NO.	DATE
1	TITLE SHEET		
2	INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES		
3-5	TYPICAL SECTIONS OF IMPROVEMENT		
6-8	SPECIAL DETAILS		
9-18	TEMPORARY EROSION CONTROL DETAILS		
19-31	MAINTENANCE OF TRAFFIC DETAILS		
32-36	QUANTITY SHEETS		
37	SUMMARY OF QUANTITIES AND REVISIONS		
38-43	SURVEY CONTROL DETAILS		
44-53	PLAN AND PROFILE SHEETS		
54	CONCRETE DITCH PAVING	CDP-1	11-17-10
55	FLARED END SECTION	FES-1	10-18-96
56	FLARED END SECTION	FES-2	10-18-96
57	MAILBOX DETAILS	MB-1	11-18-04
58	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	PCC-1	12-15-11
59	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	PCM-1	12-15-11
60	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	PCP-1	12-15-11
61	PLASTIC PIPE CULVERT (PVC F949)	PCP-2	12-15-11
62	PAVEMENT MARKING DETAILS	PM-1	11-17-10
63	DETAILS OF PIPE UNDERDRAIN	PU-1	4-10-03
64	REINFORCED CONCRETE BOX CULVERT DETAILS	RCB-1	12-15-11
65	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	RCB-2	11-20-03
66	METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS	RCB-3	10-12-95
67	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	SE-2	10-18-96
68	DETAILS OF SPECIAL ITEMS	SI-1	4-17-08
69	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-1	12-15-11
70	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-2	3-11-10
71	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-3	10-15-09
72	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER	TC-4	10-15-09
73	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER	TC-5	10-15-09
74	TEMPORARY EROSION CONTROL DEVICES	TEC-1	12-15-11
75	TEMPORARY EROSION CONTROL DEVICES	TEC-2	6-2-94
76	TEMPORARY EROSION CONTROL DEVICES	TEC-3	11-3-94
77	WIRE FENCE WATER GAPS	WF-2	4-20-79
78	WIRE FENCE TYPE C AND D	WF-4	8-22-02
79	DETAILS OF STANDARD WINGS FOR REINFORCED BOX CULVERTS	W-X003-1	5-10-66
80	DETAILS OF STANDARD WINGS FOR 15^ SKEW BARRELS FOR REINFORCED BOX CULVERTS	W-X15	6-13-63
81	DETAILS OF STANDARD WINGS FOR 15^ SKEW BARRELS FOR REINFORCED BOX CULVERTS	W-X153-1	5-10-66
82	DETAILS OF STANDARD BARRELS FOR REINFORCED BOX CULVERTS	R-100X-0	2-8-63
83	DETAILS OF STANDARD BARRELS FOR REINFORCED BOX CULVERTS	R-200X-0	2-15-63
84	DETAILS OF STANDARD BARRELS FOR 15^ SKEW BARRELS FOR REINFORCED BOX CULVERTS	R-115X-0	8-14-63
85	DETAILS OF STANDARD BARRELS FOR 15^ SKEW BARRELS FOR REINFORCED BOX CULVERTS	R-215X-0	8-23-63
86-118	CROSS SECTIONS		

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

GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2003, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	FHWA-1273 REVISIONS
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 - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-2	MANUAL FOR ASSESSING SAFETY HARDWARE (MASH)
103-1	DETERMINATION OF DBE PARTICIPATION
105-1	CONSTRUCTION CONTROL MARKINGS
105-2	EQUIPMENT AND MATERIAL STORAGE ON BRIDGE STRUCTURES
107-1	WORKER VISIBILITY
108-1	LIQUIDATED DAMAGES
110-1	PROTECTION OF WATER QUALITY AND WETLANDS
303-1	AGGREGATE BASE COURSE
404-1	PRODUCTION VERIFICATION OF ASPHALT CONCRETE HOT MIX
409-1	MINERAL AGGREGATES
410-3	DENSITY TESTING FOR ACHM LEVELING COURSES AND BOND BREAKERS
411-1	ASPHALT CONCRETE COLD PLANT MIX
600-1	WATER FOR VEGETATION
603-1	MAINTENANCE OF TRAFFIC
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
606-2	PIPE CULVERTS
718-2	REFLECTORIZED PAINT PAVEMENT MARKINGS
719-2	THERMOPLASTIC PAVEMENT MARKING MATERIAL
804-1	INSTALLATION OF DOWEL BARS AND TIE BARS
JOB 050166	ASPHALT CONCRETE HOT MIX SURFACE COURSE SURFACE TOLERANCE AND INCENTIVE PAYMENTS
JOB 050166	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 050166	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 050166	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 050166	INTERNET BIDDING
JOB 050166	NESTING SITES OF MIGRATORY BIRDS
JOB 050166	PARTNERING REQUIREMENTS
JOB 050166	PLASTIC PIPE
JOB 050166	SOIL STABILIZATION
JOB 050166	STORM WATER POLLUTION PREVENTION PLAN
JOB 050166	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 050166	TEMPORARY IMPACT ATTENUATION BARRIER
JOB 050166	UTILITY ADJUSTMENTS
JOB 050166	VALUE ENGINEERING
JOB 050166	WARM MIX ASPHALT

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 SECTION 107.12 OF SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS, EDITION OF 2003.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. THIS PROJECT IS COVERED UNDER A NATIONWIDE 14 SECTION 404 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2003, FOR PERMIT REQUIREMENTS.
9. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
10. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210, UNCLASSIFIED EXCAVATION.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT

12-16-11

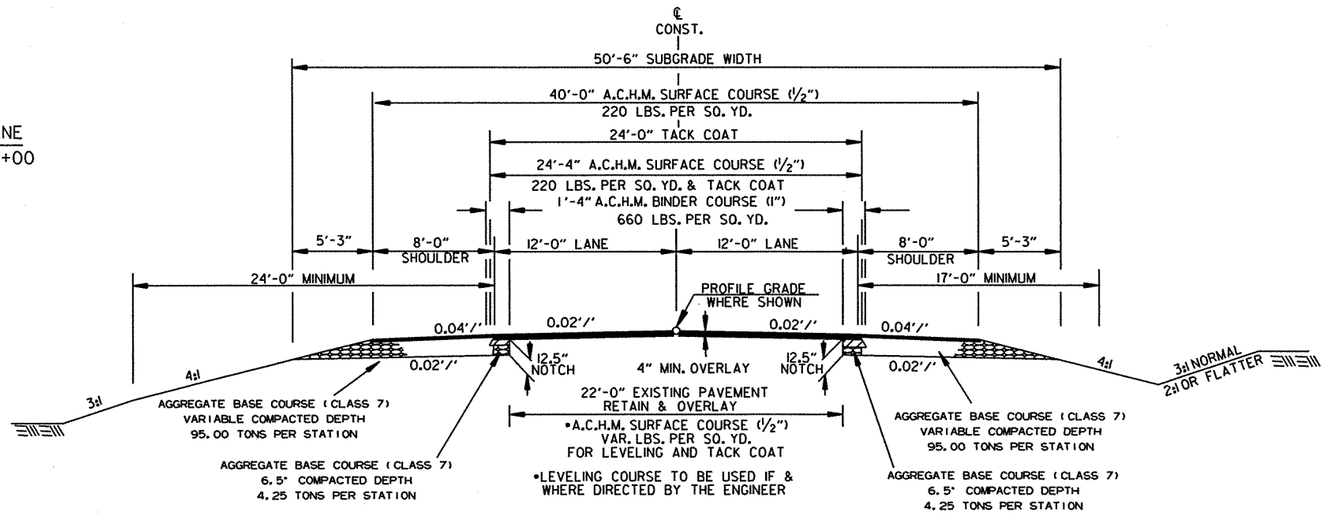
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				6	ARK.			
				JOB NO.		050166	3	118

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT

12-12-11

TAPER 2 LANE TO 3 LANE
STA. 225+00 TO STA. 227+00



TYPICAL SECTION OF IMPROVEMENT
NORMAL CROWN - NOTCH & WIDENING - 2 LANE

STA. 222+00.00 TO STA. 225+00.00
STA. 288+00.00 TO STA. 291+00.00

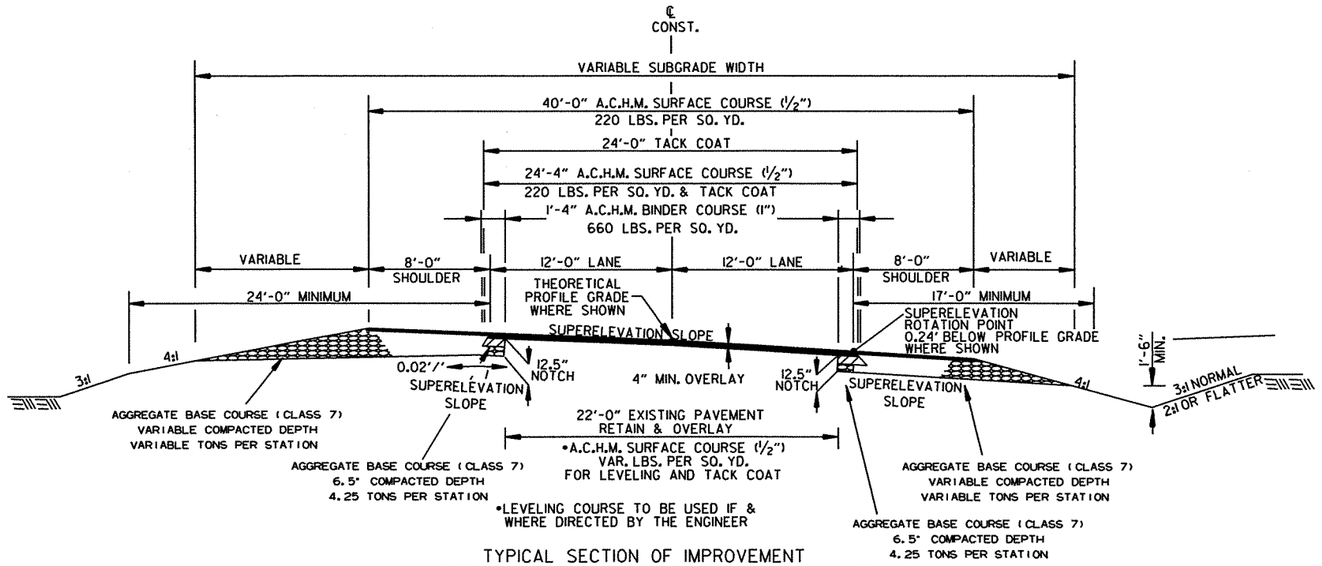
NOTES:

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

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

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

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



TYPICAL SECTION OF IMPROVEMENT
SUPERELEVATION - NOTCH & WIDENING - 2 LANE

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TYPICAL SECTIONS OF IMPROVEMENT

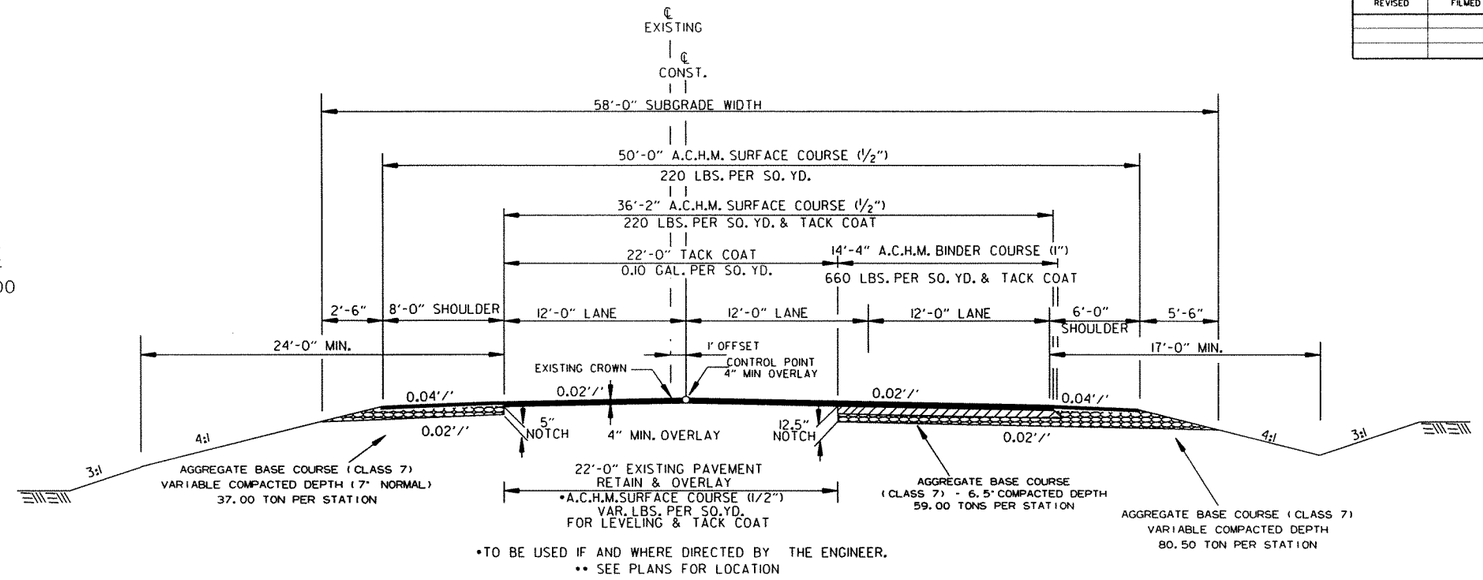
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(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11

TAPER 3 LANE TO 2 LANE

STA. 281+40 TO STA. 288+00



•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.
•• SEE PLANS FOR LOCATION

TYPICAL SECTION OF IMPROVEMENT

STA. 227+00 TO STA. 281+40

NOTES:

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

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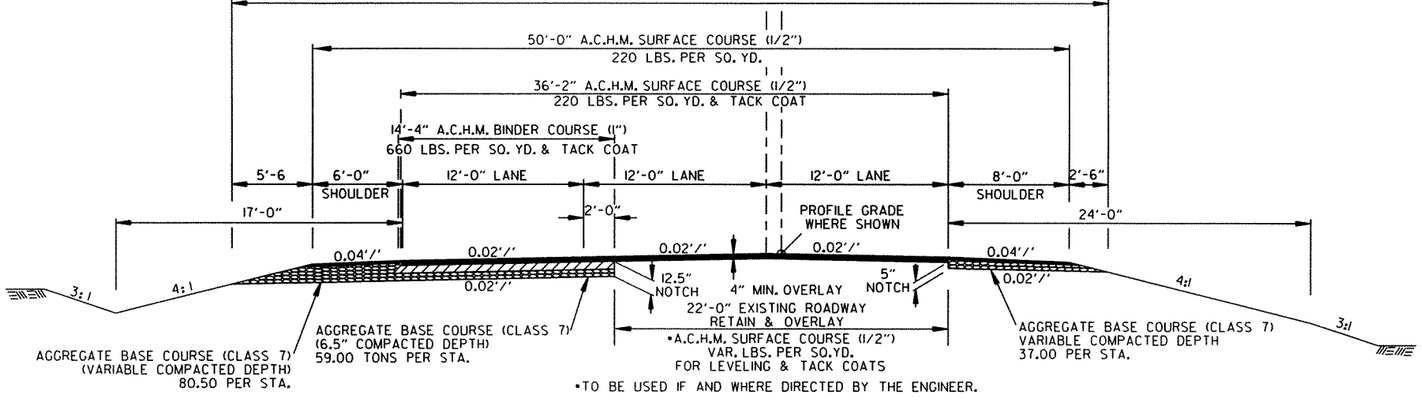
THE FINAL 2 INCHES OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.

TAPER 2 LANE TO 3 LANE

STA. 291+00 TO STA. 297+60

TAPER 3 LANE TO 2 LANE

STA. 348+00 TO STA. 350+00



•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

TYPICAL SECTION OF IMPROVEMENT

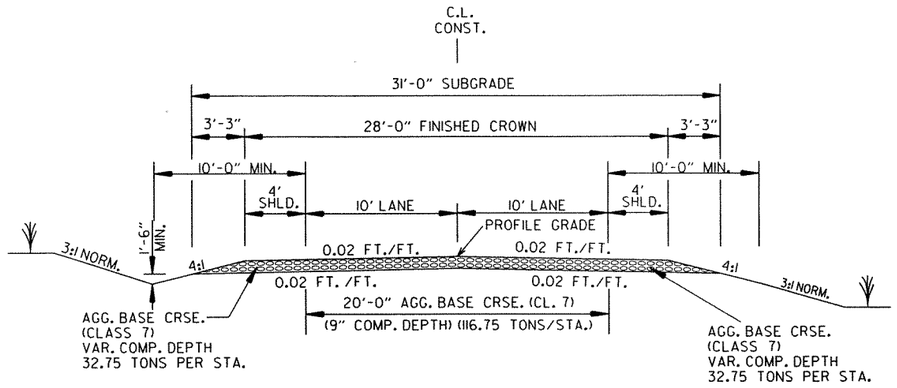
STA. 297+60.00 - STA. 348+00.00

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				JOB NO.		050166	5	118

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11

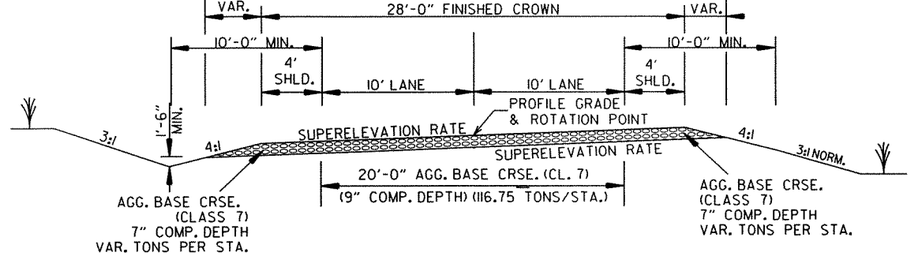


TYPICAL SECTION OF IMPROVEMENT
JEFFERSON CIRCLE

NOTES:

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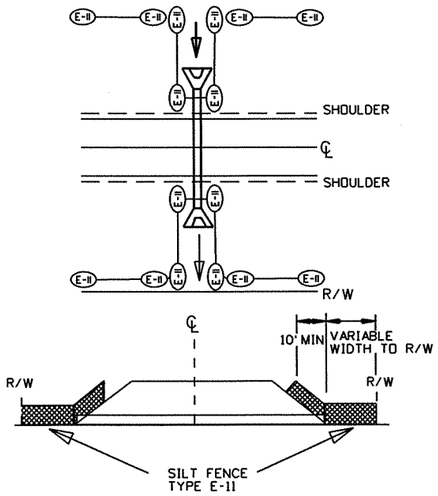


TYPICAL SECTION OF IMPROVEMENT
JEFFERSON CIRCLE - SUPERELEVATION

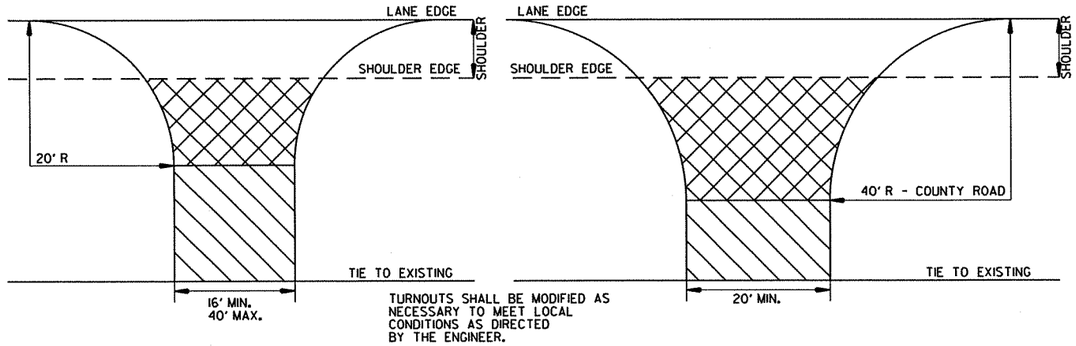
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				JOB NO.		050166	6	118

(2) SPECIAL DETAILS

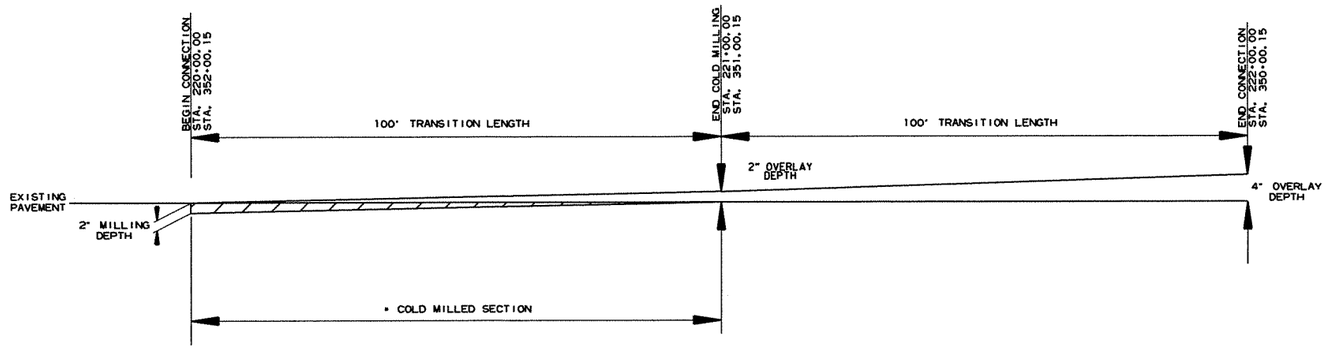


DETAILS OF SILT FENCE AT CROSS DRAINS



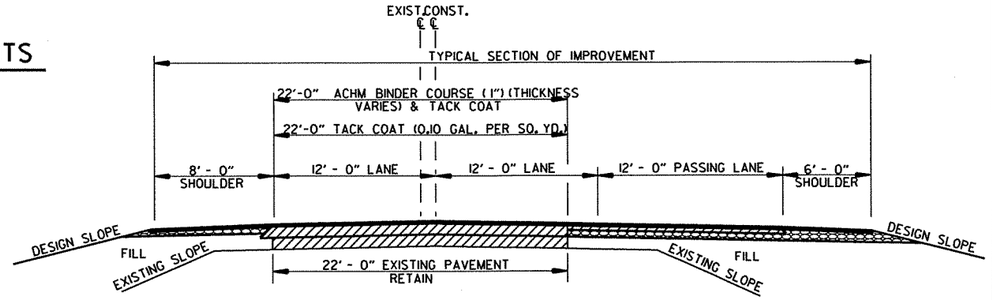
DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)

DETAIL FOR COUNTY ROAD TURNOUTS



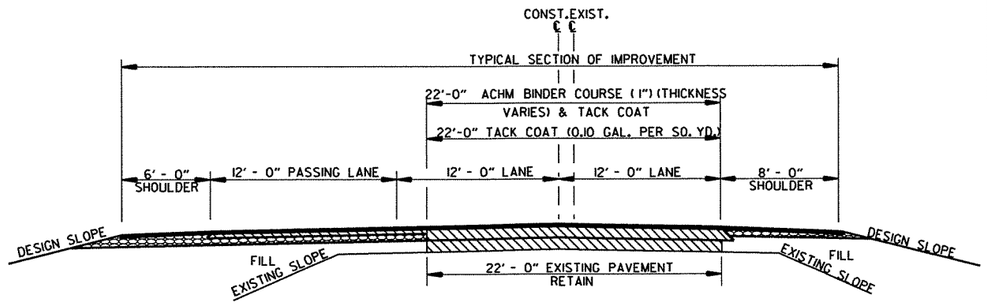
DETAIL SHOWING TAPER TO EXISTING PAVEMENT

• TO BE USED AS DIRECTED BY THE ENGINEER



METHOD OF RAISING GRADE - NORTHBOUND

NOTES:
(1) THIS DETAIL TO BE USED ONLY WHERE DIRECTED BY THE ENGINEER.
(2) QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.
(3) IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09 OF THE STANDARD SPECIFICATIONS, EDITION OF 2003.



METHOD OF RAISING GRADE - SOUTHBOUND

NOTES:
(1) THIS DETAIL TO BE USED ONLY WHERE DIRECTED BY THE ENGINEER.
(2) QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.
(3) IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09 OF THE STANDARD SPECIFICATIONS, EDITION OF 2003.

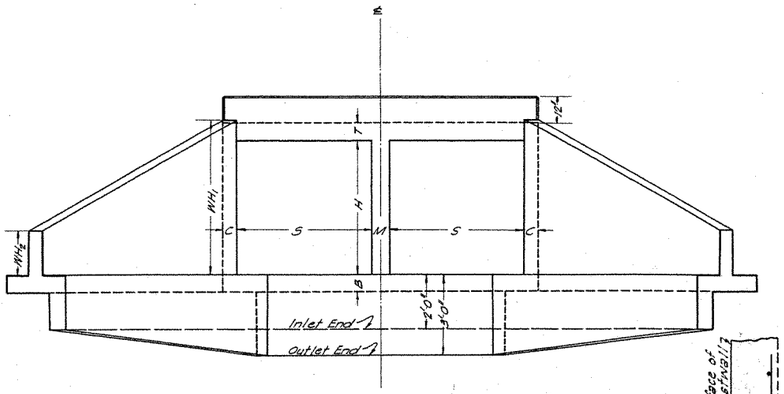
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11

r050166.dgn 7/28/2011

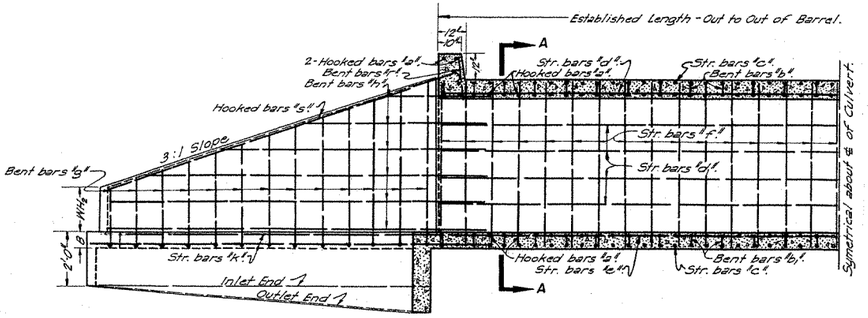
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	7	118

(2) SPECIAL DETAILS

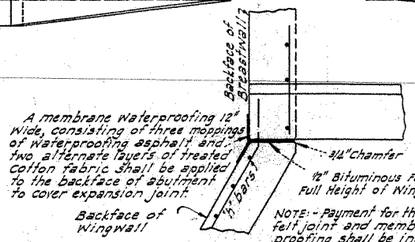
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11



END ELEVATION

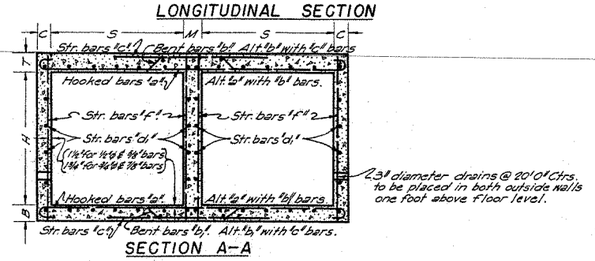


LONGITUDINAL SECTION



DETAIL OF EXPANSION JOINT

FOR CULVERTS WHEN HEIGHT "H"= 8' OR MORE



SECTION A-A

3" diameter drains @ 20'-0" Ctrs. to be placed in both outside walls one foot above floor level.

DIMENSIONS AND QUANTITIES

NUMBER OF SPANS	SPAN	HEIGHT	AREA OF DRAINING	MAXIMUM DEPTH OF COVER	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS, INTERIOR WALL & DIVISION WALL	THICKNESS OF BOTTOM SLAB	WINGWALL HEIGHTS AT HEADWALL	WINGWALL HEIGHTS AT WING END	MAXIMUM WIDTH OF WING FOOTING	PERPENDICULAR DISTANCE FROM HEADWALL TO END OF WING	LENGTH OF WINGWALLS	INSIDE LENGTH OF WING FOOTING	FOOTING DIMENSION FROM ℄ OF BOX	CONCRETE CU. YD. HEADWALLS, WINGWALLS & FOOTINGS	CONCRETE CU. YD. PER LINEAR FOOT OF BARREL	STEEL LB. HEADWALLS, WINGWALLS & FOOTINGS	STEEL LB. PER LINEAR FOOT OF BARREL	STEEL LB. ADD'L STEEL FOR LAPS
	S	H	A	D	T	C	M	B	WH1	WH2	W.F.	E	W1	W2	W3					
2	10'	4	80						5'-0"	1'-4"	2'-7½"	11'-0"	12'-8½"	12'-3⅝"	9'-9"	14.92	1.944	762	260.14	80.2
		5	100						6'-0"	1'-8"	3'-0"	13'-0"	15'-0⅛"	14'-3⅝"	10'-9"	18.09	2.022	918	265.55	84.6
		6	120						7'-0"	2'-0"	3'-6"	15'-0"	17'-3⅝"	16'-7⅛"	8'-0⅜"	21.83	2.039	1082	270.96	89.1
		7	140						8'-0"	2'-4"	4'-0"	17'-0"	19'-7⅛"	20'-3"	8'-1⅞"	26.02	2.176	1263	276.37	93.5
		8	160	6'	12"	8"		12"	9'-0"	2'-8"	4'-6"	19'-0"	21'-11⅛"	22'-10⅝"	7'-1½"	31.57	2.284	1758	297.48	98.0
		9	180			9"	11"		10'-0"	3'-0"	5'-0"	21'-0"	24'-3"	25'-4"	7'-2"	39.08	2.466	2165	315.44	102.4
		10	200			10"			11'-0"	3'-4"	5'-6"	23'-0"	26'-6⅞"	28'-1½"	6'-9½"	47.93	2.667	2619	328.26	106.9
		12	240			12"	12"		13'-0"	4'-0"	6'-6"	27'-0"	31'-2"	33'-4½"	5'-8¾"	69.97	3.037	3945	360.42	115.8
2	12'	4	96						5'-0"	1'-4"	2'-8"	11'-0"	12'-8½"	12'-4"	11'-8⅞"	16.89	2.582	826	317.78	93.5
		5	120						6'-0"	1'-8"	3'-0"	13'-0"	15'-0⅛"	14'-10⅝"	11'-4⅜"	20.32	2.663	983	333.19	98.0
		6	144						7'-0"	2'-0"	3'-6"	15'-0"	17'-3⅝"	17'-7⅛"	10'-9⅛"	24.43	2.743	1148	338.61	102.4
		7	168						8'-0"	2'-4"	4'-0"	17'-0"	19'-7⅛"	20'-3"	10'-2⅝"	29.04	2.829	1329	358.10	106.9
		8	192	5'	14"	8"	10"	14"	9'-0"	2'-8"	4'-6"	19'-0"	21'-11⅛"	22'-10⅝"	9'-7⅛"	34.15	2.903	1829	363.26	111.3
		9	216			9"	11"		10'-0"	3'-0"	5'-0"	21'-0"	24'-3"	25'-6"	9'-2"	42.01	3.089	2241	383.49	115.8
		10	240			10"			11'-0"	3'-4"	5'-6"	23'-0"	26'-6⅞"	28'-1½"	8'-8⅛"	51.24	3.252	2698	393.51	120.2
		11	264			11"	12"		12'-0"	3'-8"	6'-0"	25'-0"	28'-10⅛"	30'-9"	8'-2⅝"	61.92	3.473	3308	418.98	124.7
		12	288			12"			13'-0"	4'-0"	6'-6"	27'-0"	31'-2"	33'-0⅛"	7'-9⅜"	74.14	3.667	4052	429.33	129.2

LAP NOTE :- In computing quantities of Steel from the above table, add one Lap for culverts up to 60'-0" in length and one Lap for each additional 25'-0" in length.
SPECIFICATIONS :- Arkansas Standard Road and Bridge Specifications.
* REINFORCING STEEL :- To be deformed bars of structural or intermediate grade.
CHAMFER :- All exposed corners to have ¾" Chamfer.
CONCRETE :- All concrete to be Class 'A'.
* REINFORCING STEEL :- To be deformed bars of intermediate or rail grade on all Interstate Highways.

STEEL SCHEDULE

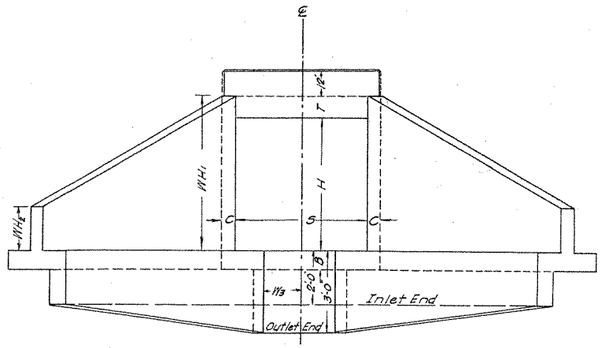
For Culvert 30'-0" in Length - Out to Out of Barrel.

| NUMBER OF SPANS | SPAN | HEIGHT | 'a' bars (3 for ½ & ⅝ bars, 4 for ¾ & ⅞ bars; Z in each Headwall balance in top and bottom slab of barrel) SIZE | SPACING | NUMBER | LENGTH | X | 'a1' bars (3 for ½ & ⅝ bars, 4 for ¾ & ⅞ bars; In top slab of barrel - Alt. with 'a' bars.) SIZE | SPACING | NUMBER | LENGTH | X | Y | Z | 'a' bars (3 for ½ & ⅝ bars, 4 for ¾ & ⅞ bars; In bottom slab of barrel - Alt. with 'a' bars.) SIZE | SPACING | NUMBER | LENGTH | X | Y | Z | 'b' bars STRAIGHT In top & bottom slab of barrel. Alt. with 'b1' & 'b' bars. SIZE | SPACING | NUMBER | LENGTH | 'c' bars STRAIGHT In Sidewalls & Division Wall. SPACING | NUMBER | LENGTH | 'd' bars STRAIGHT ½ & ⅝ bars. In top slab of barrel. SPACING | NUMBER | LENGTH | 'd1' bars STRAIGHT ½ & ⅝ bars. In Sidewalls & Division Wall. SPACING | NUMBER | LENGTH | 'e' bars STRAIGHT In bottom slab of barrel. SPACING | NUMBER | LENGTH | 'f' bars STRAIGHT Vertical bars in Sidewalls and Division Wall. SIZE | SPACING | NUMBER | LENGTH | 'g' bars Vertical bars in back face of Wing-wall, bent into bottom of footing. SIZE | SPACING | NUMBER | LENGTH | X Min. | X Max. | Y Min. | Y Max. | 'h' bars ½ & ⅝ bars @ 12" Ctrs. Horizontal bars in Wingwalls. NUMBER | LENGTH | Z Min. | Z Max. | 'k' bars STRAIGHT In Wing Footings NUMBER | LENGTH | 'k1' bars ½ & ⅝ bars @ 12" Ctrs. Dowels in Headwalls NUMBER | LENGTH | 's' bars ½ & ⅝ bars In top of each Wingwall. NUMBER | LENGTH | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

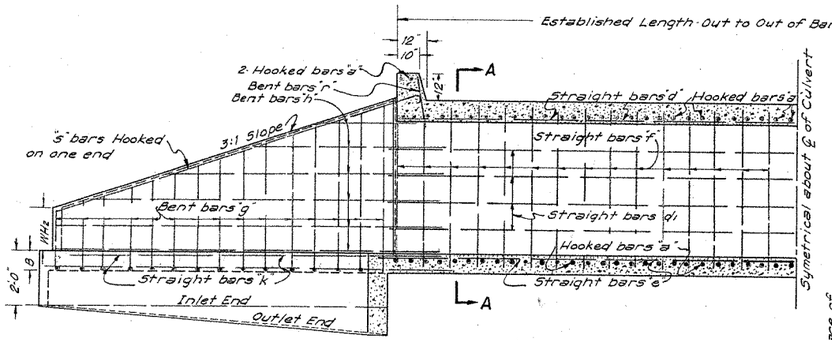
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	8	118

(2) SPECIAL DETAILS

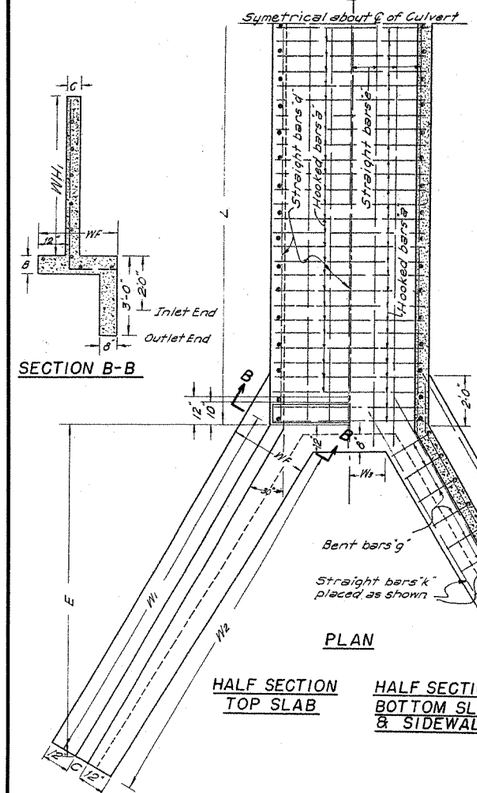
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11



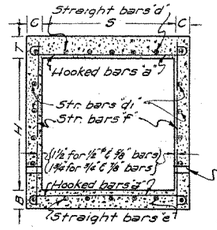
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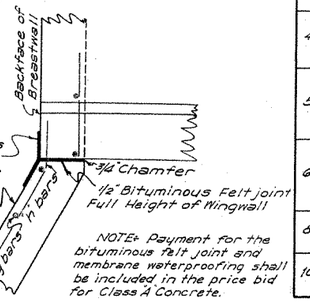
LONGITUDINAL SECTION



SECTION B-B



SECTION A-A



DETAIL OF EXPANSION JOINT
FOR CULVERT WHEN HEIGHT "H" = 8' OR MORE
Scale ¾" = 1'-0"

DIMENSIONS AND QUANTITIES

SPAN S	HEIGHT H	AREA OF OPENING SQ. FT. A	MAXIMUM DEPTH OF COVER D	THICKNESS OF TOP SLAB T	THICKNESS OF SIDE WALLS & WINGWALLS AT BOTTOM OF BARREL C	B	WINGWALL HEIGHTS AT HEADWALL WH	WH½	WING END WF	MAXIMUM WIDTH OF WING FOOTING FROM FACE OF BARREL TO END OF WING E	LENGTH OF WINGWALLS W1	INSIDE LENGTH OF WINGWALLS W2	FOOTING DIMENSION FROM ℄ OF BOX W3	CONCRETE Cu. Yds. HEADWALLS WINGWALLS & FOOTINGS	CONCRETE Cu. Yds. PER LINEAR FOOT OF BARREL	STEEL LB. HEADWALLS WINGWALLS & FOOTINGS	STEEL LB. PER LINEAR FOOT OF BARREL	STEEL LB. ADDL STEEL FOR LAPS
3	2	6	16'	6½"	6"	6½"	2'-9"	1'-0"	2'-6"	5'-3"	6'-0⅝"	5'-9¼"	0'-10⅛"	3.65	0.235	233	22.56	111
	3	9					3'-9"	1'-0"	2'-6"	8'-3"	9'-6⅛"	9'-2¾"	0'-10⅛"	5.86	0.272	350	25.27	134
	4	12					4'-9"	1'-4"	2'-6"	10'-3"	11'-10"	11'-6½"	0'-10⅛"	7.71	0.309	459	27.97	156
4	2	8	13'	7½"	6"	7½"	2'-9"	1'-0"	2'-6"	5'-3"	6'-0⅝"	5'-9¼"	1'-4⅛"	4.02	0.306	245	31.05	156
	3	12	13'				3'-9"	1'-0"	2'-6"	8'-3"	9'-6⅛"	9'-2⅝"	1'-4⅛"	6.30	0.343	362	33.76	178
	4	16	13'				4'-9"	1'-4"	2'-6"	10'-3"	11'-10"	11'-6½"	1'-4⅛"	8.20	0.390	471	36.46	200
	6	24	11'		7"		6'-9"	2'-0"	3'-4½"	14'-3"	16'-5½"	16'-8¼"	0'-5"	13.57	0.498	776	42.41	245
5	2	10	11'	8"	6"	8"	2'-10"	1'-0"	2'-6"	5'-6"	6'-6⅝"	6'-0⅜"	1'-10⅛"	4.56	0.370	288	38.31	178
	3	15	11'		6"		3'-10"	1'-0"	2'-6"	8'-6"	9'-9⅜"	9'-6¼"	1'-10⅛"	6.82	0.407	407	41.06	200
	4	20	11'		6"		4'-10"	1'-4"	2'-6"	10'-6"	12'-1⅛"	11'-10"	1'-10⅛"	8.78	0.444	512	43.77	223
	5	25	11'		6"		5'-10"	1'-8"	2'-11"	12'-6"	14'-5⅛"	14'-6⅞"	1'-4⅜"	11.20	0.491	648	46.47	245
	7	35	9'		7½"		7'-10"	2'-4"	3'-11"	16'-6"	19'-0⅜"	19'-7½"	0'-4"	19.17	0.633	1231	58.60	289
6	3	18	9'	9"	6"	9"	3'-10"	1'-0"	2'-6"	8'-6"	9'-9⅜"	9'-6¼"	2'-4⅛"	7.28	0.500	402	50.41	223
	4	24	9'		6"		4'-10"	1'-4"	2'-6"	10'-6"	12'-1⅛"	11'-10"	2'-4⅛"	9.38	0.537	525	53.11	245
	5	30	9'		6"		5'-10"	1'-8"	2'-11"	12'-6"	14'-5⅛"	14'-6⅜"	2'-10⅜"	11.50	0.576	663	55.82	267
	6	36	9'		7"		6'-10"	2'-0"	3'-5"	14'-6"	16'-9"	17'-0"	1'-4½"	15.76	0.657	824	58.55	289
	8	48	7'		8"		8'-10"	2'-8"	4'-5"	16'-6"	21'-4⅛"	22'-3"	0'-3⅝"	24.90	0.802	1499	72.69	334
8	7	56	7'	11"	7½"	11"	8'-0"	2'-4"	4'-0"	17'-0"	19'-7½"	20'-3"	1'-8⅞"	22.58	0.952	1337	64.24	401
	8	64	7'		8"		9'-0"	2'-8"	4'-6"	19'-0"	21'-11⅛"	22'-10½"	1'-2½"	27.97	1.029	1592	68.05	423
	10	80	7'		10"		11'-0"	3'-4"	5'-6"	23'-0"	26'-6⅜"	28'-1½"	0'-2⅛"	43.93	1.274	2449	101.18	468
10	8	80	6'	13"	8"	13"	9'-0"	2'-8"	4'-6"	19'-0"	21'-11⅛"	22'-10½"	2'-2⅛"	30.05	1.305	1659	136.74	445
	10	100	6'		10"		11'-0"	3'-4"	5'-6"	23'-0"	26'-6⅜"	28'-1½"	1'-2⅛"	46.74	1.553	2524	151.04	480
	12	120	6'		12"		13'-0"	4'-0"	6'-6"	27'-0"	31'-2"	33'-4½"	0'-2⅜"	69.22	1.852	3847	169.90	534

LAP NOTE - In computing quantities of Steel from the above table, add one lap for culverts up to 50'-0 in length and one lap for each additional 28'-0 in length.
SPECIFICATIONS - Arkansas Standard Road and Bridge Specifications.
*REINFORCING STEEL - To be deformed bars of Structural or intermediate grade.
CHAMFER - All exposed corners to have ¾" Chamfer
CONCRETE - All concrete to be Class "A".
*Reinforcing Steel to be deformed bars of intermediate or rail grade on all Interstate Highways.

STEEL SCHEDULE

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

| SPAN S | HEIGHT H | 'a' bars: SIZE | 'a' bars: SPACING (3" for ½" ℄ ⅝" bars; 6" for ¾" ℄ ⅞" bars) | 'a' bars: NUMBER (2 in each headwall balance in Top and Bottom slab of barrel.) | 'a' bars: LENGTH | 'a' bars: X | 'd' bars STRAIGHT In Bottom of Top Slab: SIZE | SPACING | NUMBER | LENGTH | 'd' bars STRAIGHT In Sidewalls: SIZE | SPACING | NUMBER | LENGTH | 'd' bars STRAIGHT In Top of Bottom Slab: SIZE | SPACING | NUMBER | LENGTH | 'e' bars: SIZE | SPACING | NUMBER | LENGTH | 'f' bars STRAIGHT Vertical bars in Sidewalls: SIZE | SPACING | NUMBER | LENGTH | 'g' bars Vertical bars in back face of Wingwall bent into Bottom of footing: SIZE | SPACING | NUMBER | HEIGHT (WH½ + 1'-0) | X Min | X Max | Y Min | Y Max | 'h' bars Horizontal bars in Wingwalls: NUMBER | Z Min | Z Max | 'k' bars ½" ℄ bars: NUMBER | LENGTH | 'r' bars ½" ℄ bars @ 12" Ctrs STRAIGHT In Wing footing: NUMBER | LENGTH | 's' bars ½" ℄ bars Dowels in Headwalls: NUMBER | LENGTH | 's' bars ½" ℄ bars In Top of each Wingwall: NUMBER | LENGTH | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

EROSION CONTROL GENERAL NOTES

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED, AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EROSION CONTROL QUANTITIES - STAGE 1

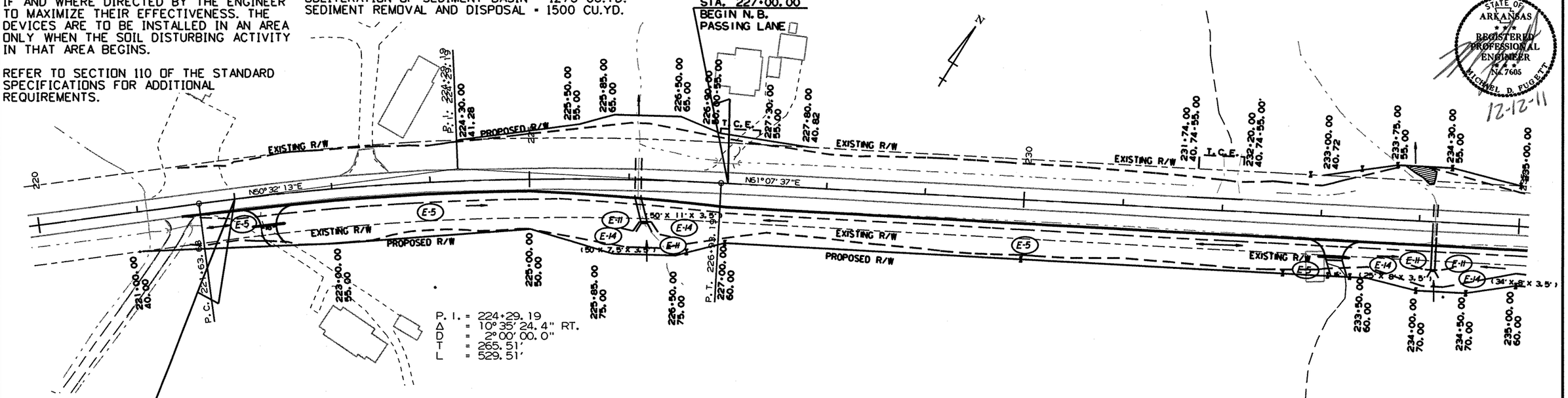
SAND BAG DITCH CHECKS (E-5) = 1275 BAGS
SILT FENCE (E-11) = 862 LIN.FT.
SEDIMENT BASIN (E-14) = 1273 CU.YD.
OBLITERATION OF SEDIMENT BASIN = 1273 CU.YD.
SEDIMENT REMOVAL AND DISPOSAL = 1500 CU.YD.

(E-5) SAND BAG DITCH CHECKS
(E-11) SILT FENCE
(E-14) SEDIMENT BASIN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	9	118

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11



STA. 222+00.00
BEGIN JOB 050166
LOG MILE 2.51

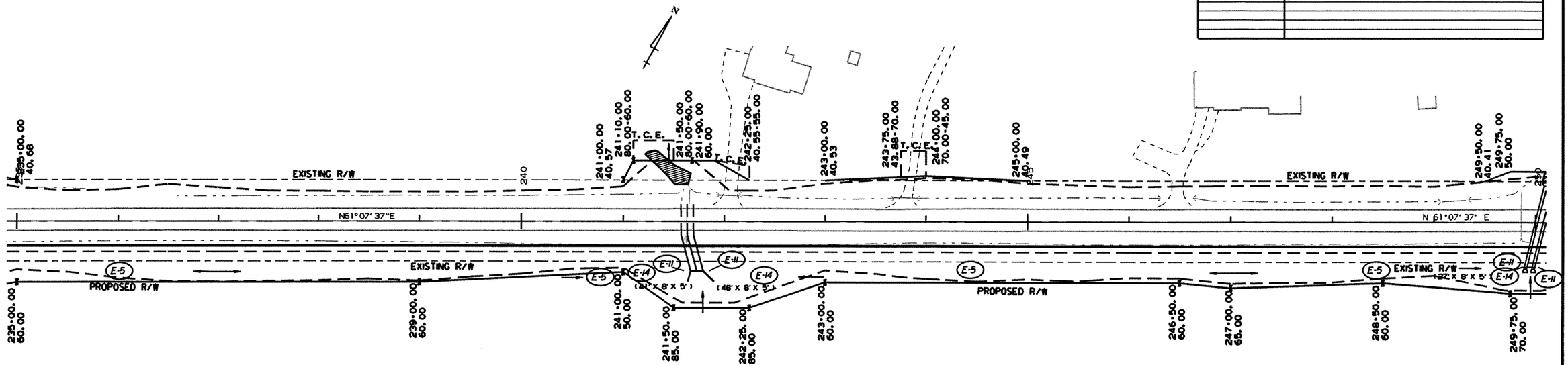
SAND BAG DITCH CHECK (E-5)	SIDE	BAG
STA. 222+00	RT.	25
STA. 224+00	RT.	25
STA. 230+00	RT.	25
STA. 232+90	RT.	25
STA. 236+00	RT.	25
STA. 240+75	RT.	25
STA. 244+50	RT.	25
STA. 248+50	RT.	25

SILT FENCE (E-11)	SIDE	LIN.FT.
STA. 225+90 - STA. 226+50	RT.	68
STA. 233+90 - STA. 234+38	RT.	45
STA. 241+47 - STA. 242+00	RT.	54
STA. 249+73 - STA. 250+10	RT.	35

SEDIMENT BASIN (E-14)	SIDE	CU. YD.
STA. 225+50 - STA. 226+00	RT.	49
STA. 226+25 - STA. 226+75	RT.	71
STA. 233+75 - STA. 234+00	RT.	25
STA. 234+25 - STA. 234+59	RT.	35
STA. 241+00 - STA. 241+41	RT.	60
STA. 242+00 - STA. 242+48	RT.	71
STA. 249+51 - STA. 249+78	RT.	40

REVISION BOX

DATE	REVISION



TEMPORARY EROSION CONTROL DETAILS
STAGE 1

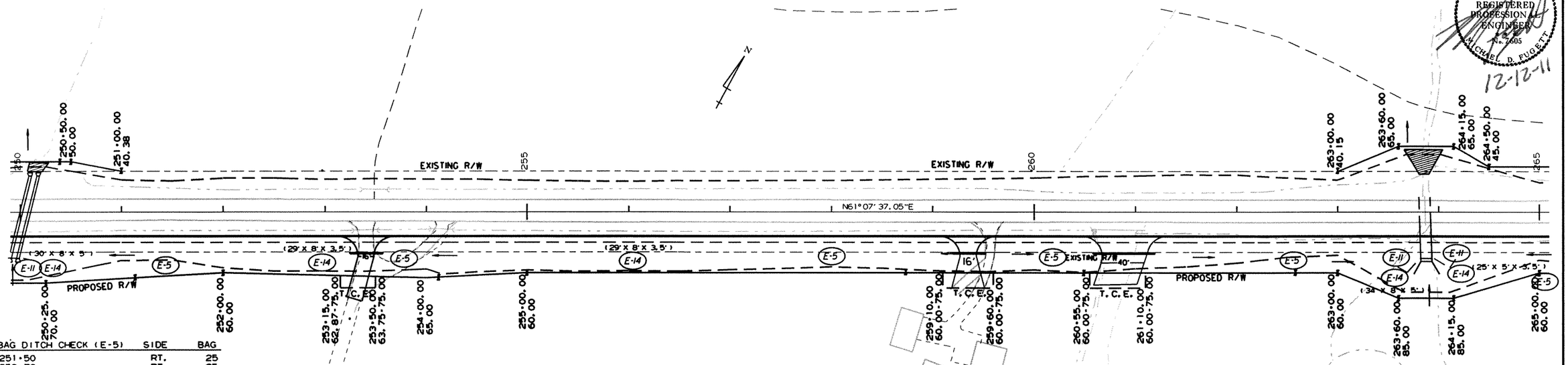
r050166.dgn 11/22/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	10	118

(2) TEMPORARY EROSION CONTROL DETAILS

(E-5) SAND BAG DITCH CHECKS
(E-11) SILT FENCE
(E-14) SEDIMENT BASIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13605
MICHAEL D. FUGETT
12-12-11



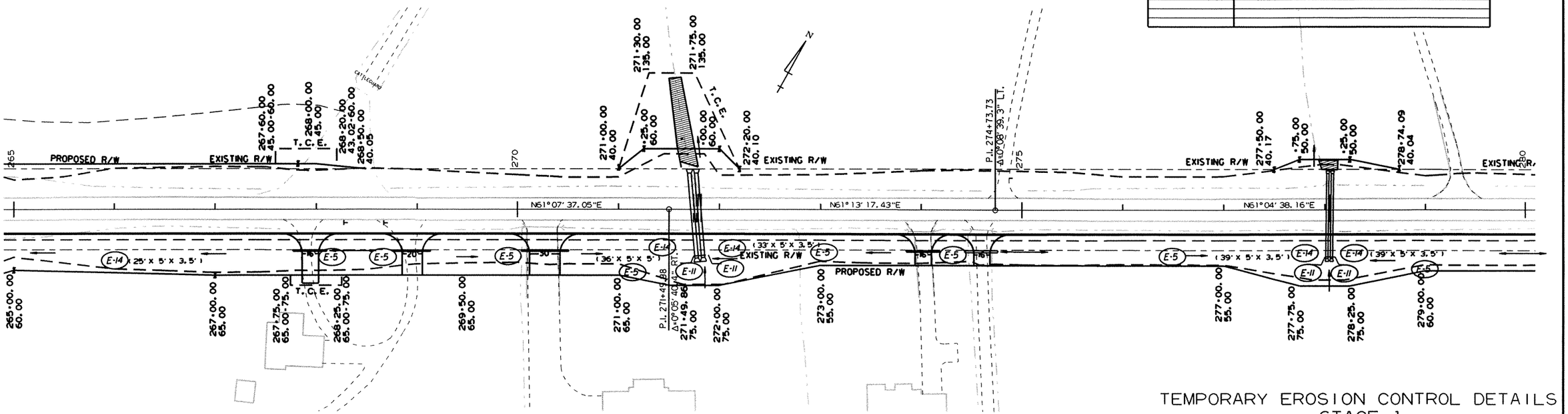
SAND BAG DITCH CHECK (E-5)	SIDE	BAG
STA. 251+50	RT.	25
STA. 253+78	RT.	25
STA. 258+00	RT.	25
STA. 260+10	RT.	25
STA. 262+50	RT.	25
STA. 268+13	RT.	25
STA. 268+65	RT.	25
STA. 269+90	RT.	25
STA. 271+00	RT.	25
STA. 273+00	RT.	25
STA. 274+32	RT.	25
STA. 276+50	RT.	25
STA. 279+00	RT.	25

SILT FENCE (E-11)	SIDE	LIN. FT.
STA. 263+56 - STA. 264+10	RT.	72
STA. 271+61 - STA. 272+00	RT.	50
STA. 277+87 - STA. 278+21	RT.	44

SEDIMENT BASIN (E-14)	SIDE	CU. YD.
STA. 250+05 - STA. 250+35	RT.	45
STA. 252+82 - STA. 253+11	RT.	30
STA. 255+85 - STA. 256+14	RT.	30
STA. 263+38 - STA. 263+72	RT.	50
STA. 264+00 - STA. 264+25	RT.	16
STA. 265+88 - STA. 265+13	RT.	16
STA. 271+32 - STA. 271+68	RT.	33
STA. 271+84 - STA. 272+17	RT.	21
STA. 277+56 - STA. 277+95	RT.	25
STA. 278+10 - STA. 278+49	RT.	25

REVISION BOX

DATE	REVISION



TEMPORARY EROSION CONTROL DETAILS
STAGE 1

r050166.dgn 11/22/2011

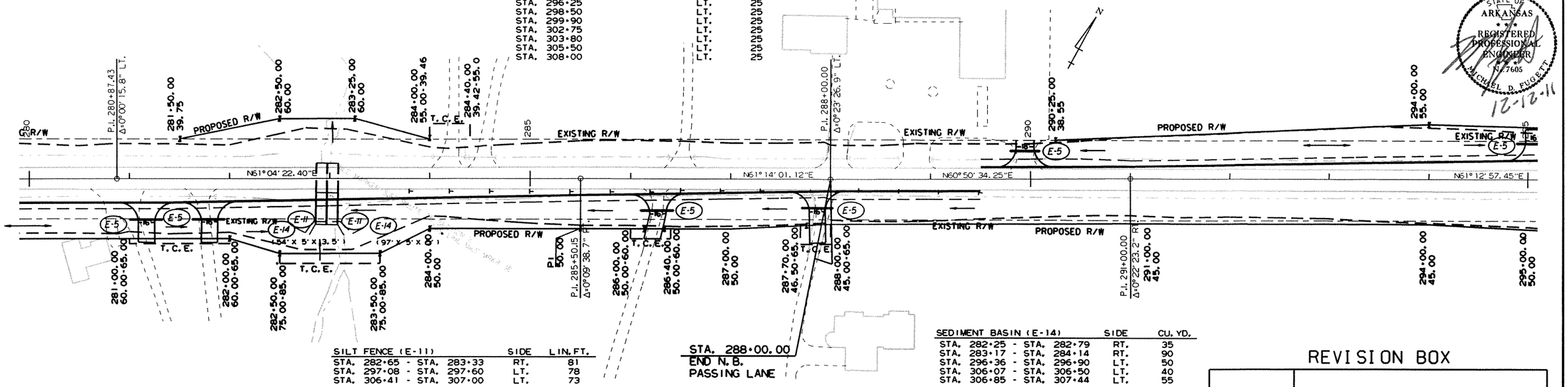
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	11	118

(2) TEMPORARY EROSION CONTROL DETAILS

(E-5) SAND BAG DITCH CHECKS
(E-11) SILT FENCE
(E-14) SEDIMENT BASIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
MICHAEL D. FUGETT
N.T.7605
12-12-11

SAND BAG DITCH CHECK (E-5)	SIDE	BAG
STA. 280+87	RT.	25
STA. 281+50	RT.	25
STA. 286+50	RT.	25
STA. 288+20	RT.	25
STA. 290+25	LT.	25
STA. 294+75	LT.	25
STA. 296+25	LT.	25
STA. 298+50	LT.	25
STA. 299+90	LT.	25
STA. 302+75	LT.	25
STA. 303+80	LT.	25
STA. 305+50	LT.	25
STA. 308+00	LT.	25



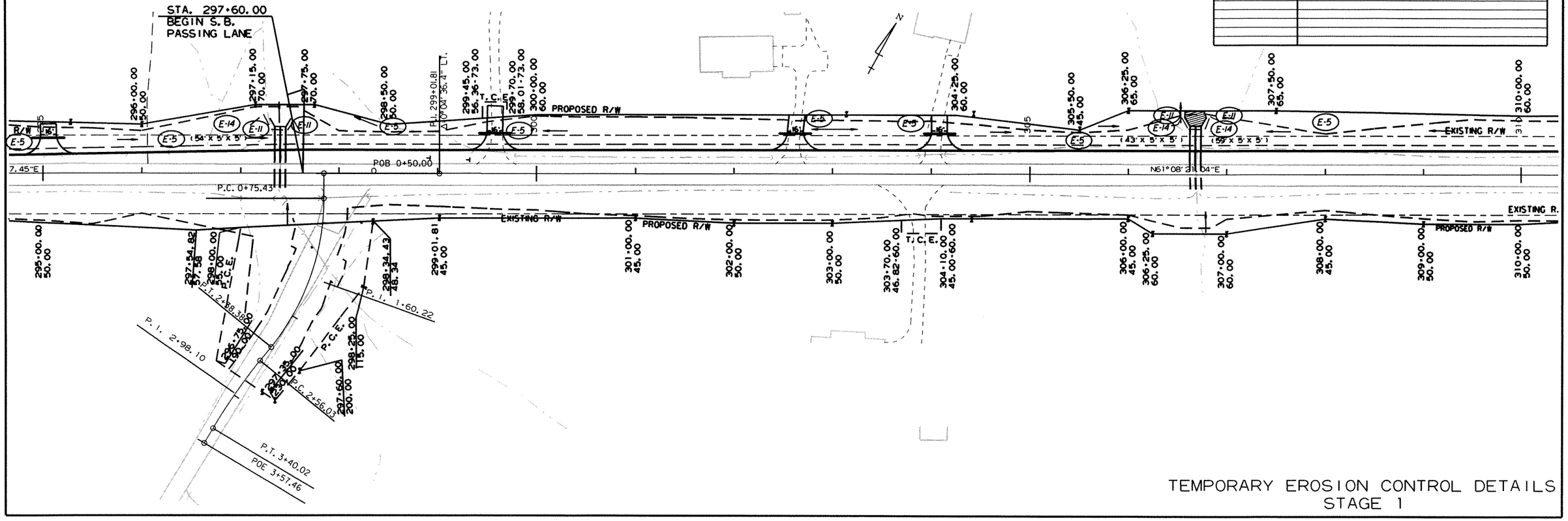
SILT FENCE (E-11)		SIDE	LIN. FT.
STA. 282+65	STA. 283+33	RT.	81
STA. 297+08	STA. 297+60	LT.	78
STA. 306+41	STA. 307+00	LT.	73

STA. 288+00.00
END N.B.
PASSING LANE

SEDIMENT BASIN (E-14)		SIDE	CU. YD.
STA. 282+25	STA. 282+79	RT.	35
STA. 283+17	STA. 284+14	RT.	90
STA. 296+36	STA. 296+90	LT.	50
STA. 306+07	STA. 306+50	LT.	40
STA. 306+85	STA. 307+44	LT.	55

REVISION BOX

DATE	REVISION



TEMPORARY EROSION CONTROL DETAILS
STAGE 1

r050166.dgn 11/22/2011

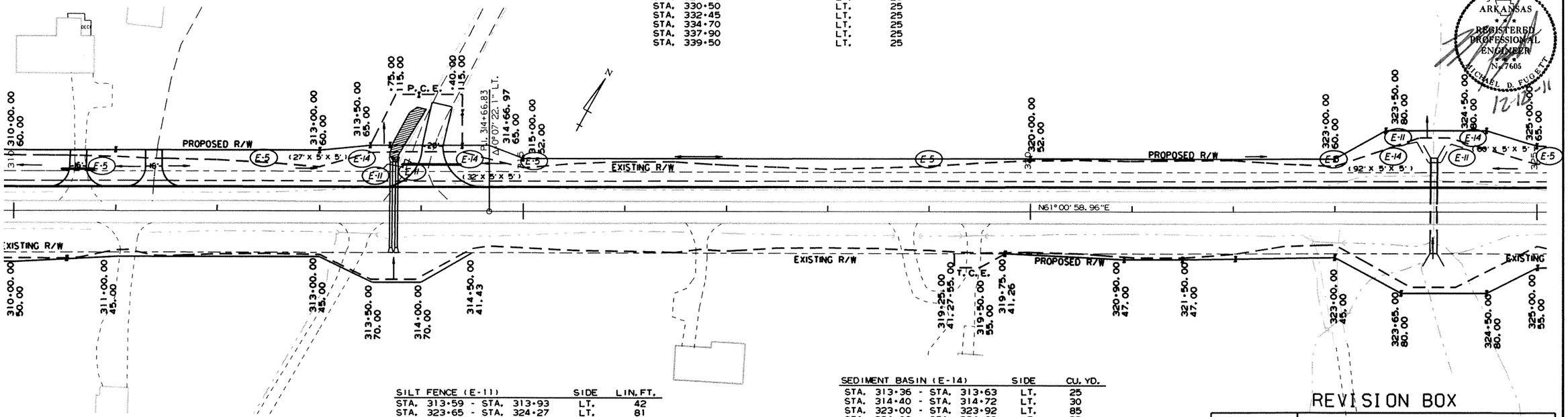
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	12	118

(2) TEMPORARY EROSION CONTROL DETAILS

(E-5) SAND BAG DITCH CHECKS
(E-11) SILT FENCE
(E-14) SEDIMENT BASIN

SAND BAG DITCH CHECK (E-5)	SIDE	BAG
STA. 310+85	LT.	25
STA. 312+50	LT.	25
STA. 315+10	LT.	25
STA. 319+00	LT.	25
STA. 323+00	LT.	25
STA. 325+00	LT.	25
STA. 327+50	LT.	25
STA. 330+50	LT.	25
STA. 332+45	LT.	25
STA. 334+70	LT.	25
STA. 337+90	LT.	25
STA. 339+50	LT.	25

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-16-11

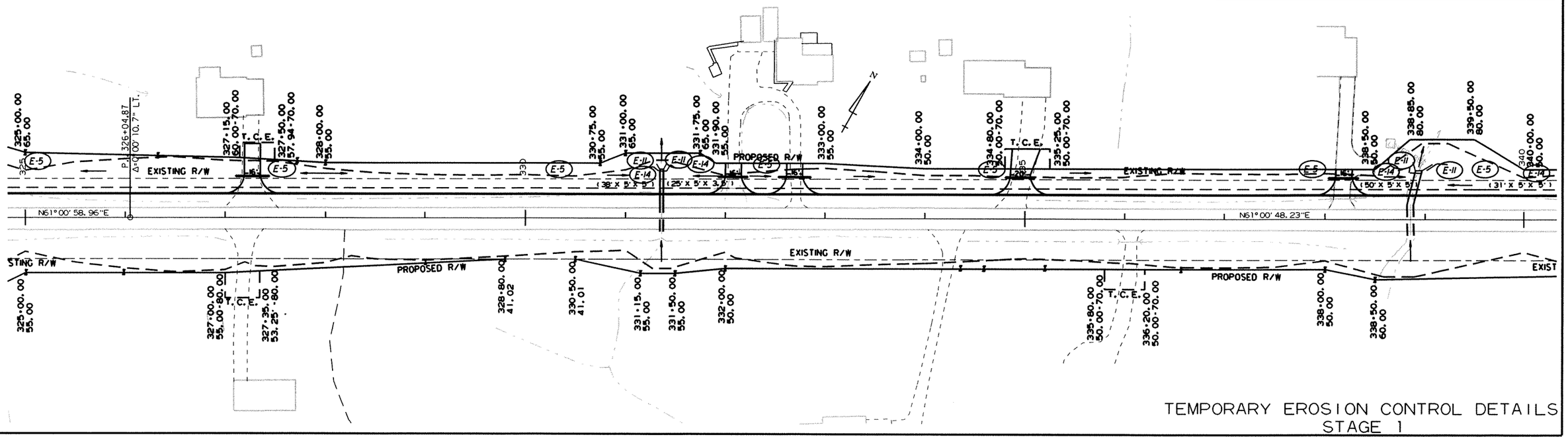


SILT FENCE (E-11)	SIDE	LIN. FT.
STA. 313+59 - STA. 313+93	LT.	42
STA. 323+65 - STA. 324+27	LT.	81
STA. 331+20 - STA. 331+50	LT.	36
STA. 338+75 - STA. 339+25	LT.	60

SEDIMENT BASIN (E-14)	SIDE	CU. YD.
STA. 313+36 - STA. 313+63	LT.	25
STA. 314+40 - STA. 314+72	LT.	30
STA. 323+00 - STA. 323+92	LT.	85
STA. 324+09 - STA. 324+69	LT.	55
STA. 330+87 - STA. 331+25	LT.	35
STA. 331+50 - STA. 331+75	LT.	16
STA. 339+40 - STA. 339+90	LT.	46
STA. 339+85 - STA. 340+16	LT.	29

REVISION BOX

DATE	REVISION



TEMPORARY EROSION CONTROL DETAILS
STAGE 1

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SAND BAG DITCH CHECK (E-5)	SIDE	BAG
STA. 341+20	LT.	25
STA. 342+20	LT.	25
STA. 345+50	LT.	25
STA. 347+00	LT.	25
STA. 349+50	LT.	25

SILT FENCE (E-11)	SIDE	LIN. FT.
STA. 344+00 - STA. 344+32	LT.	43

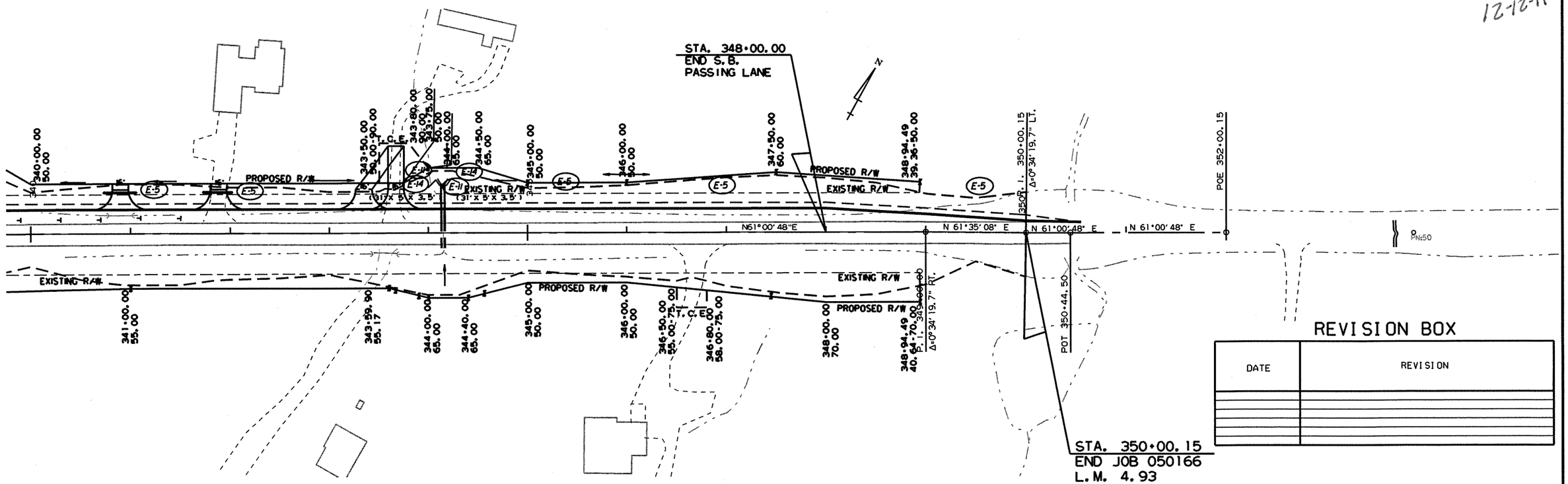
SEDIMENT BASIN (E-14)	SIDE	CU. YD.
STA. 343+69 - STA. 344+00	LT.	20
STA. 344+30 - STA. 344+61	LT.	20

(E-5) SAND BAG DITCH CHECKS
(E-11) SILT FENCE
(E-14) SEDIMENT BASIN

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				6	ARK.			
				JOB NO.		050166	13	118

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11



REVISION BOX

DATE	REVISION

STA. 350+00.15
END JOB 050166
L.M. 4.93

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TEMPORARY EROSION CONTROL DETAILS
STAGE 1

EROSION CONTROL GENERAL NOTES

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED, AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

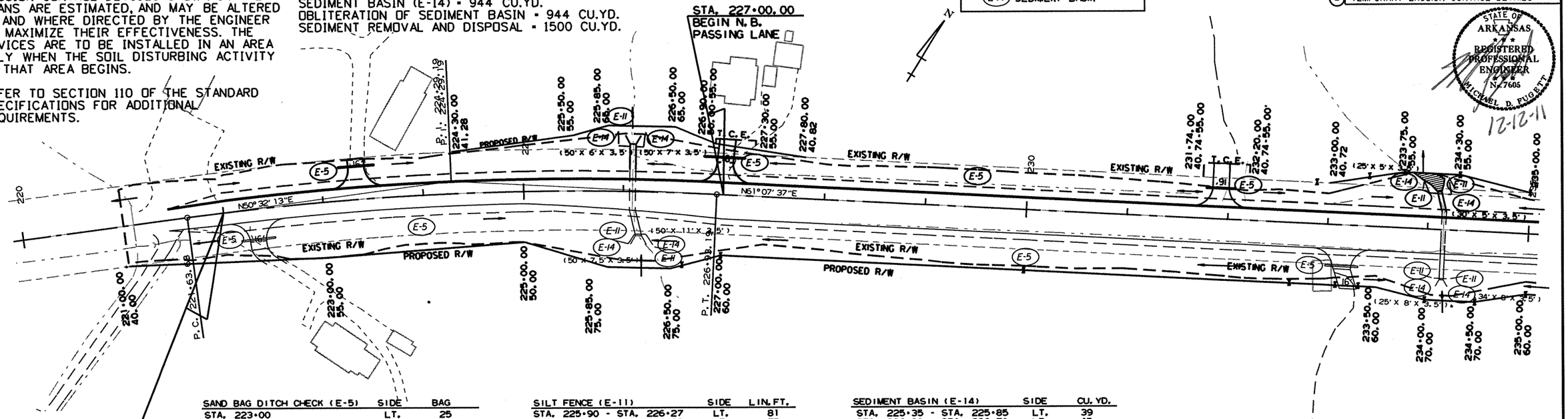
EROSION CONTROL QUANTITIES - STAGE 2

SAND BAG DITCH CHECKS (E-5) = 1250 BAGS
SILT FENCE (E-11) = 1451 LIN.FT.
SEDIMENT BASIN (E-14) = 944 CU.YD.
OBLITERATION OF SEDIMENT BASIN = 944 CU.YD.
SEDIMENT REMOVAL AND DISPOSAL = 1500 CU.YD.

E-5	SAND BAG DITCH CHECKS		
E-11	SILT FENCE		
E-14	SEDIMENT BASIN		

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				6	ARK.			
				JOB NO.		050166	14	118

(2) TEMPORARY EROSION CONTROL DETAILS



STA. 222+00.00
BEGIN JOB 050166
LOG MILE 2.51

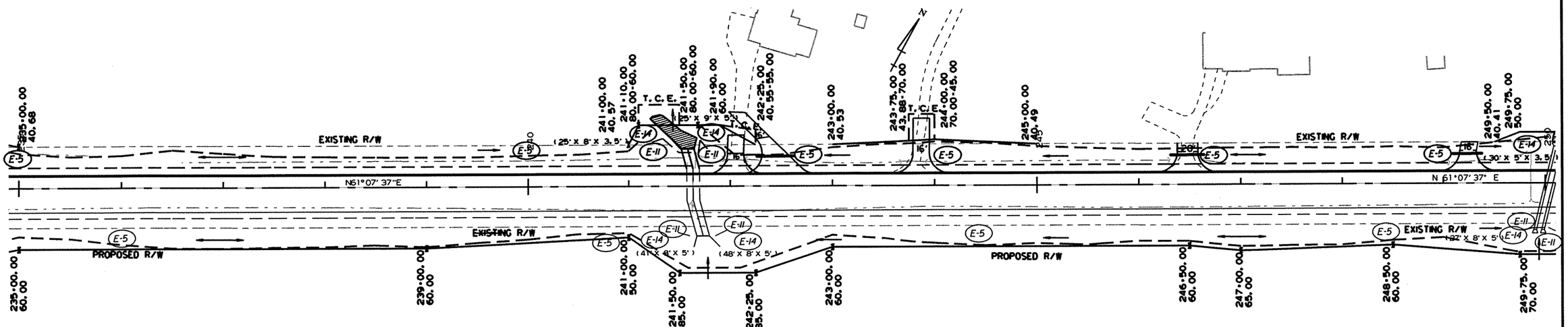
SAND BAG DITCH CHECK (E-5)	SIDE	BAG
STA. 223+00	LT.	25
STA. 227+30	LT.	25
STA. 229+50	LT.	25
STA. 232+10	LT.	25
STA. 235+00	LT.	25
STA. 240+00	LT.	25
STA. 242+75	LT.	25
STA. 244+14	LT.	25
STA. 246+75	LT.	25
STA. 249+00	LT.	25

SILT FENCE (E-11)	SIDE	LIN.FT.
STA. 225+90 - STA. 226+27	LT.	81
STA. 233+92 - STA. 234+32	LT.	75
STA. 241+23 - STA. 241+78	LT.	75

SEDIMENT BASIN (E-14)	SIDE	CU. YD.
STA. 225+35 - STA. 225+85	LT.	39
STA. 226+20 - STA. 226+70	LT.	45
STA. 233+50 - STA. 233+75	LT.	16
STA. 234+30 - STA. 234+60	LT.	20
STA. 241+00 - STA. 241+25	LT.	25
STA. 241+72 - STA. 241+90	LT.	42
STA. 249+70 - STA. 250+00	LT.	20

REVISION BOX

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TEMPORARY EROSION CONTROL DETAILS
STAGE 2

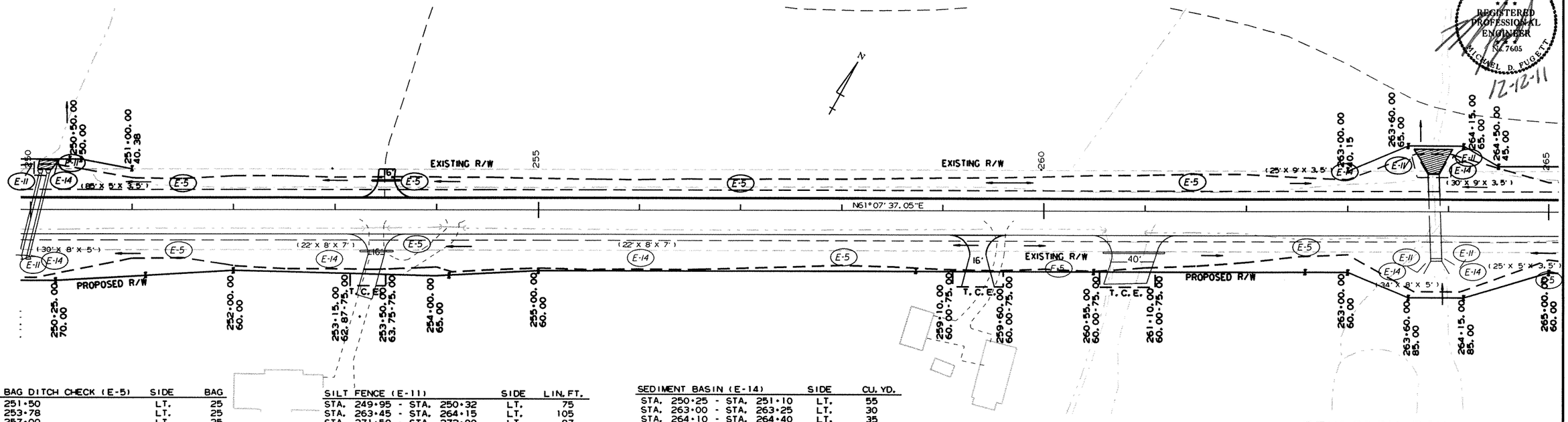
r050166.dgn 11/22/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	15	118

(2) TEMPORARY EROSION CONTROL DETAILS

(E-5) SAND BAG DITCH CHECKS
(E-11) SILT FENCE
(E-14) SEDIMENT BASIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11



SAND BAG DITCH CHECK (E-5)	SIDE	BAG
STA. 251+50	LT.	25
STA. 253+78	LT.	25
STA. 257+00	LT.	25
STA. 261+50	LT.	25
STA. 266+00	LT.	25
STA. 270+00	LT.	25
STA. 273+00	LT.	25
STA. 275+00	LT.	25
STA. 279+63	LT.	25

SILT FENCE (E-11)		SIDE	LIN. FT.
STA. 249+95	STA. 250+32	LT.	75
STA. 263+45	STA. 264+15	LT.	105
STA. 271+50	STA. 272+00	LT.	87
STA. 277+83	STA. 278+28	LT.	79

SEDIMENT BASIN (E-14)		SIDE	CU. YD.
STA. 250+25	STA. 251+10	LT.	55
STA. 263+00	STA. 263+25	LT.	30
STA. 264+10	STA. 264+40	LT.	35
STA. 271+00	STA. 271+39	LT.	25
STA. 271+90	STA. 272+21	LT.	20
STA. 277+50	STA. 277+81	LT.	20
STA. 278+10	STA. 278+35	LT.	16

REVISION BOX

DATE	REVISION

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

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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.		050166	16	118

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11

(E-5) SAND BAG DITCH CHECKS
(E-11) SILT FENCE
(E-14) SEDIMENT BASIN

SILT FENCE (E-11)	SIDE	LIN. FT.
STA. 282+70 - STA. 283+36	LT.	131
STA. 297+10 - STA. 297+50	RT.	86
STA. 297+90 - STA. 298+05	RT.	62
STA. 306+36 - STA. 307+00	RT.	96

SAND BAG DITCH CHECK (E-5)	SIDE	BAG
STA. 280+50	LT.	25
STA. 284+85	LT.	25
STA. 286+83	LT.	25
STA. 288+40	LT.	25
STA. 289+27	LT.	25
STA. 290+00	RT.	25
STA. 293+50	RT.	25
STA. 295+50	RT.	25
STA. 298+00	RT.	25
STA. 298+15	RT.	25
STA. 300+50	RT.	25
STA. 303+53	RT.	25
STA. 309+00	RT.	25

SEDIMENT BASIN (E-14)	SIDE	CU. YD.
STA. 282+40 - STA. 282+71	LT.	20
STA. 283+25 - STA. 284+17	LT.	85
STA. 296+57 - STA. 297+00	RT.	40
STA. 298+34 - STA. 298+83	RT.	45
STA. 306+15 - STA. 306+47	RT.	30
STA. 306+85 - STA. 307+26	RT.	40

STA. 288+00.00
END N.B.
PASSING LANE

STA. 297+60.00
BEGIN S.B.
PASSING LANE

REVISION BOX

DATE	REVISION

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

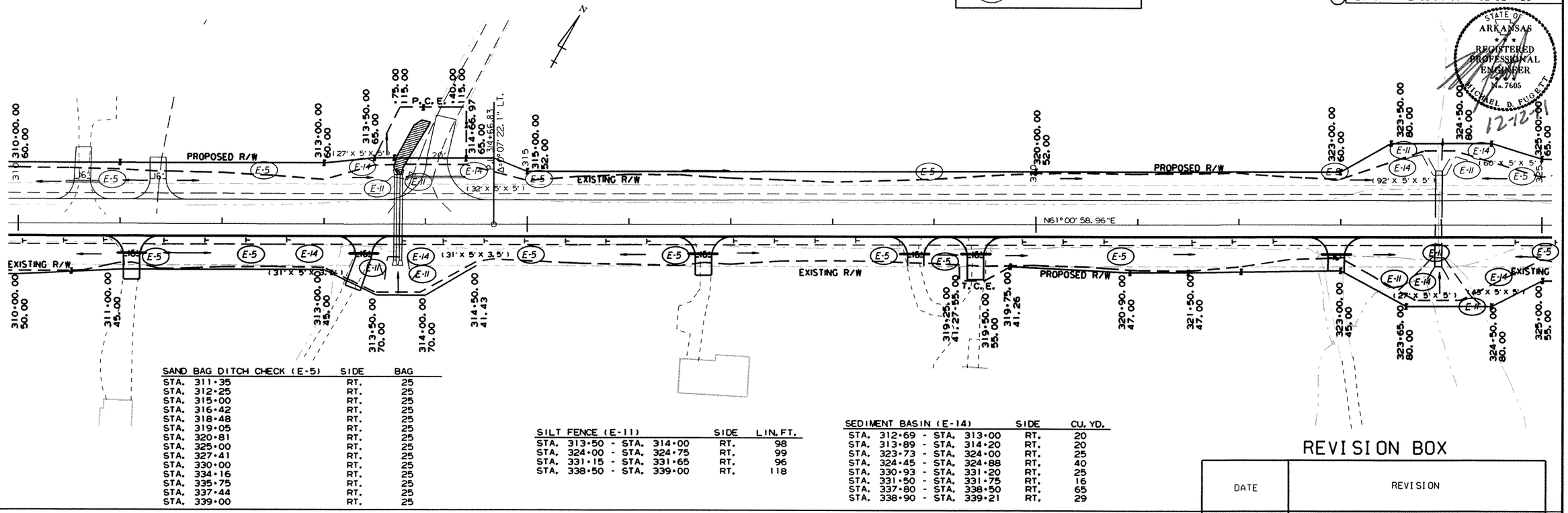
r050166.dgn 11/22/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	17	118

(2) TEMPORARY EROSION CONTROL DETAILS

(E-5) SAND BAG DITCH CHECKS
(E-11) SILT FENCE
(E-14) SEDIMENT BASIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11



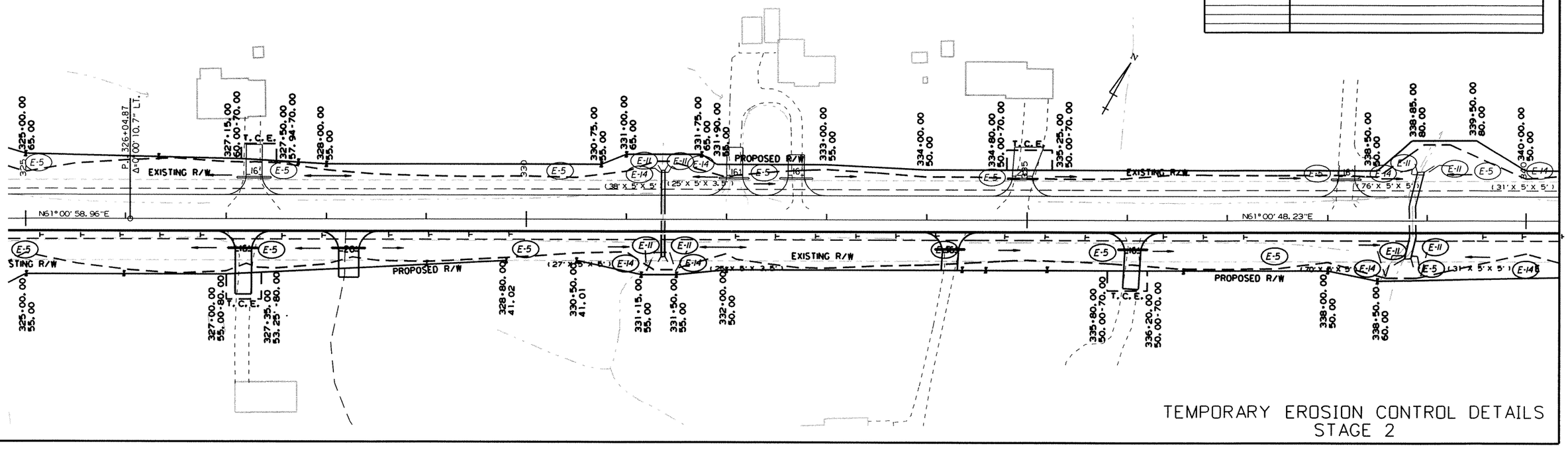
SAND BAG DITCH CHECK (E-5)	SIDE	BAG
STA. 311+35	RT.	25
STA. 312+25	RT.	25
STA. 315+00	RT.	25
STA. 316+42	RT.	25
STA. 318+48	RT.	25
STA. 319+05	RT.	25
STA. 320+81	RT.	25
STA. 325+00	RT.	25
STA. 327+41	RT.	25
STA. 330+00	RT.	25
STA. 334+16	RT.	25
STA. 335+75	RT.	25
STA. 337+44	RT.	25
STA. 339+00	RT.	25

SILT FENCE (E-11)	SIDE	LIN.FT.
STA. 313+50 - STA. 314+00	RT.	98
STA. 324+00 - STA. 324+75	RT.	99
STA. 331+15 - STA. 331+65	RT.	96
STA. 338+50 - STA. 339+00	RT.	118

SEDIMENT BASIN (E-14)	SIDE	CU. YD.
STA. 312+69 - STA. 313+00	RT.	20
STA. 313+89 - STA. 314+20	RT.	20
STA. 323+73 - STA. 324+00	RT.	25
STA. 324+45 - STA. 324+88	RT.	40
STA. 330+93 - STA. 331+20	RT.	25
STA. 331+50 - STA. 331+75	RT.	16
STA. 337+80 - STA. 338+50	RT.	65
STA. 338+90 - STA. 339+21	RT.	29

REVISION BOX

DATE	REVISION



TEMPORARY EROSION CONTROL DETAILS
STAGE 2

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SAND BAG DITCH CHECK (E-5)	SIDE	BAG
STA. 343+47	RT.	25
STA. 345+00	RT.	25
STA. 346+37	RT.	25
STA. 349+00	RT.	25

SILT FENCE (E-11)	SIDE	LIN. FT.
STA. 343+92 - STA. 344+40	RT.	88

SEDIMENT BASIN (E-14)	SIDE	CU. YD.
STA. 343+69 - STA. 344+00	RT.	20
STA. 344+28 - STA. 344+53	RT.	16

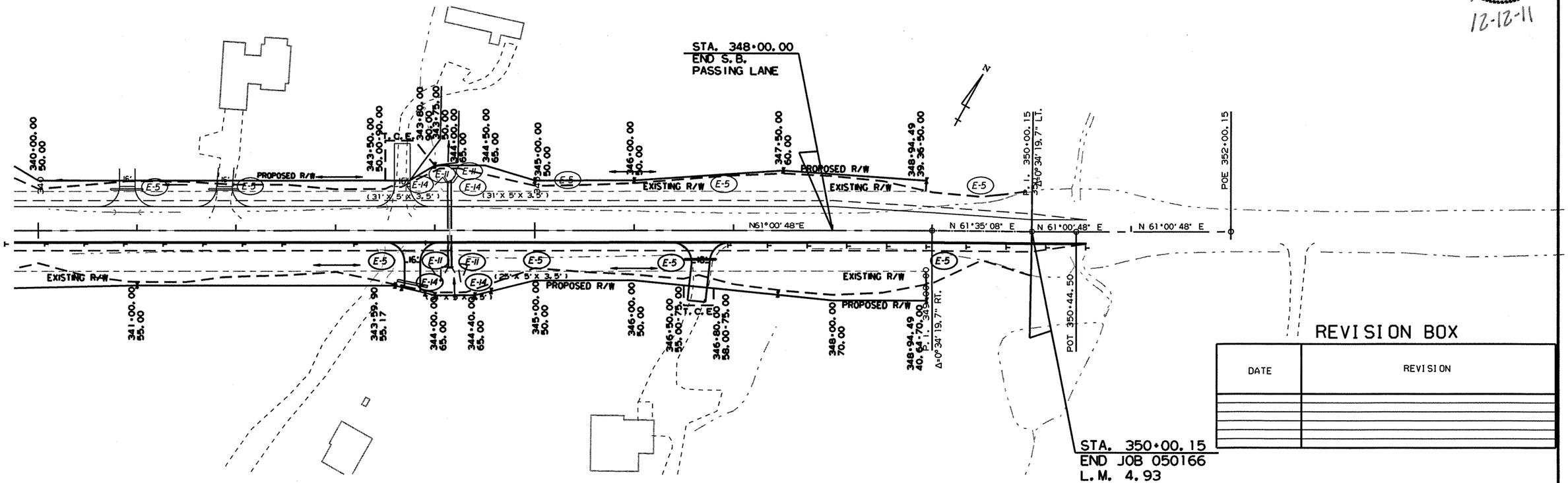
(E-5) SAND BAG DITCH CHECKS
(E-11) SILT FENCE
(E-14) SEDIMENT BASIN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	18	118

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT

12-12-11



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DATE	REVISION

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

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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.		050166	19	118

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11

DO NOT PASS (1) R4-1 (24" X 30")

SPACE @ 1/2 MILE INTERVAL

(1) G20-2 (48" X 24")

END ROAD WORK

P.I. 216+05.61

P.C. 211+92.12

210

215

220

225

P.I. 224+29.19

N 50° 32' 13" E

N50° 32' 13"E

P.C. 221+63.68

STA. 222+00.00
BEGIN JOB 050166
LOG MILE 2.51

ROAD WORK 1500 FT

(1) W20-1 (48" X 48")

P.I. 213+98.95

ROAD WORK 1000 FT

(1) W20-1 (48" X 48")

ROAD WORK 500 FT

(1) W20-1 (48" X 48")

DO NOT PASS

(1) R4-1 (24" X 30")

ROAD WORK NEXT XX MILES

(1) G20-1 (60" X 24")

ROAD WORK AHEAD

(1) W20-1 (48" X 48")

P.I. 350+00.15
Δ=0° 34' 19.7" LT.

POE 352+00.15

N 61°35' 08" E

N 61°00' 48" E

N 61°00' 48" E

P.I. 349+00.00
Δ=0° 34' 19.7" RT.

P.I. 350+44.59
Δ=0° 0' 0.0"

STA. 350+00.15
END JOB 050166

(1) G20-1 (60" X 24")

ROAD WORK NEXT XX MILES

(1) R4-1 (24" X 30")

DO NOT PASS

(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

STORM SHELTER

DO NOT PASS (1) R4-1 (24" X 30")

SPACE @ 1/2 MILE INTERVAL

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

MAINTENANCE OF TRAFFIC DETAILS
ADVANCE WARNING SIGNS

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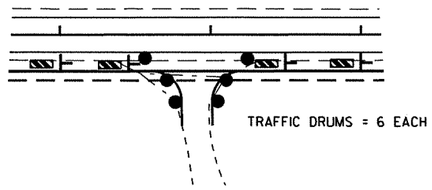
SEQUENCING:

STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING ON LT. AND TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT.

STAGE 4: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

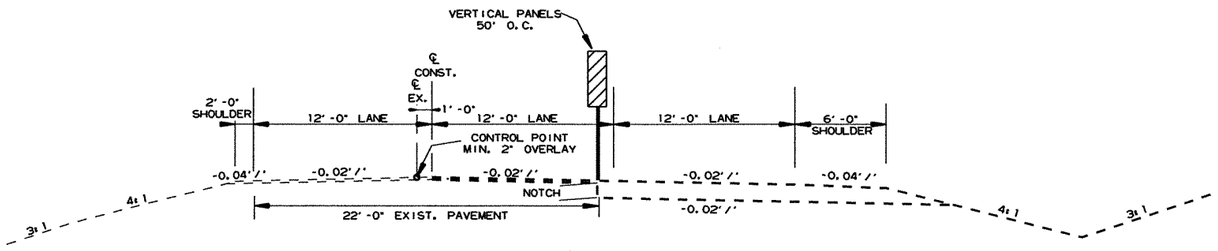


DRIVEWAY/TRAFFIC DRUM DETAIL

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				6	ARK.			
				JOB NO.		050166	20	118

(2) MAINTENANCE OF TRAFFIC DETAILS

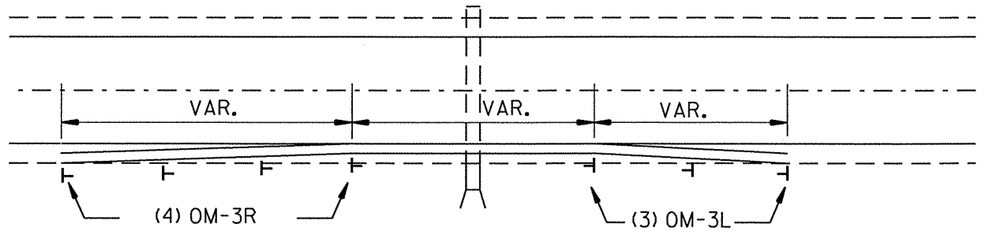
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11



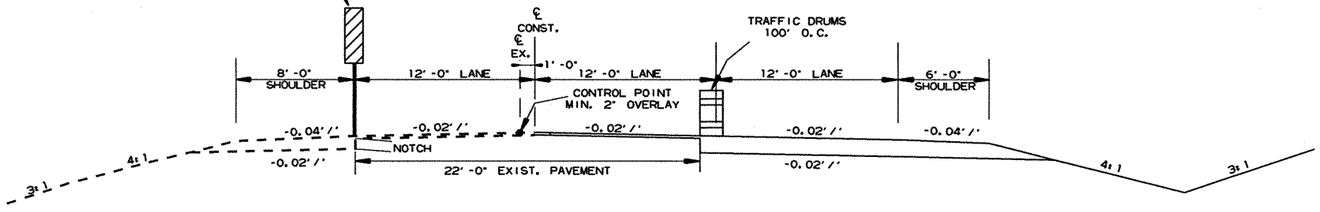
OVERLAY TANGENT - NORTHBOUND (RIGHT SIDE) WIDENING

STA. 227+00.00 - STA. 288+00.00

TYPICAL INSTALLATION OF PRECAST CONCRETE BARRIER *



* TO BE INSTALLED AT LOCATIONS DETERMINED BY THE ENGINEER



OVERLAY TANGENT - NORTHBOUND (LEFT SIDE) WIDENING

STA. 227+00.00 - STA. 288+00.00

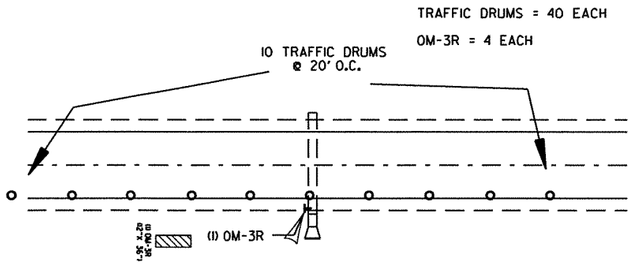
CONSTRUCTION PAVEMENT MARKINGS - NORTHBOUND:

AS DIRECTED BY THE ENGINEER OVER LEVELING COURSE:
RT. AND LT. EDGE LINES - NORTHBOUND = 13400 LIN. FT.
DBL. CENTERLINE - NORTHBOUND = 13400 LIN. FT.

FINAL STRIPING - NORTHBOUND:

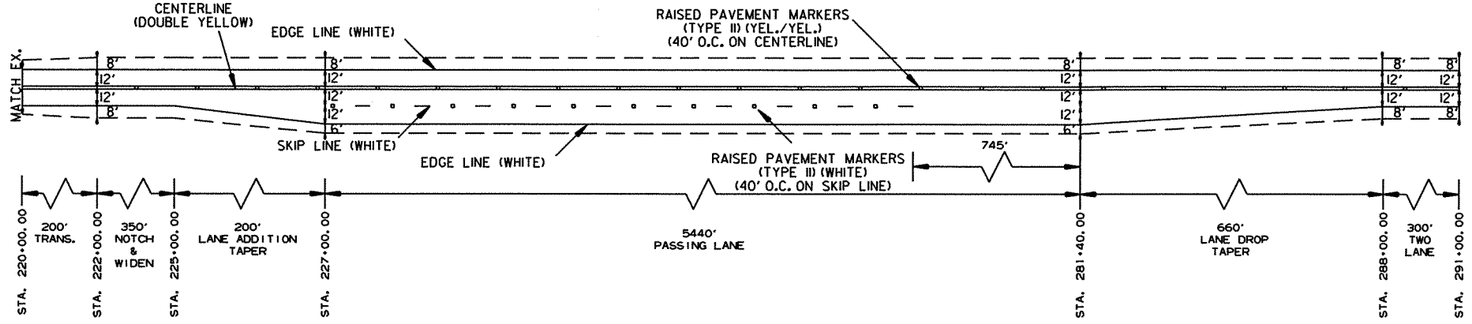
THERMOPLASTIC PAVEMENT MARKINGS:
RT. AND LT. EDGE LINES - NORTHBOUND = 14300 LIN. FT. WHITE
DBL. CENTERLINE - NORTHBOUND = 14300 LIN. FT. YELLOW
SKIP LINE - NORTHBOUND = 1174 LIN. FT. WHITE

RAISED PAVEMENT MARKERS:
TYPE II (YEL./YEL.) 40' O.C. ON CENTERLINE - NORTHBOUND = 179 EACH
TYPE II (WHITE) 40' O.C. ON SKIP LINE - NORTHBOUND = 118 EACH



TRAFFIC DRUMS ON EXISTING SHOULDER FOR EXTENDING PIPE CULVERTS LT. AND RT.

STA. 250+05 STA. 271+77 STA. 278+05



FINAL STRIPING DETAIL - NORTHBOUND PASSING LANE

MAINTENANCE OF TRAFFIC DETAILS NORTHBOUND

r050166.dgn 11/22/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	21	118

(2) MAINTENANCE OF TRAFFIC DETAILS

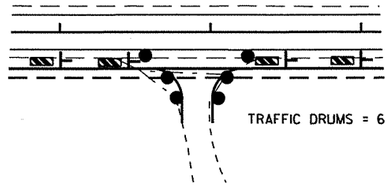
SEQUENCING:

STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

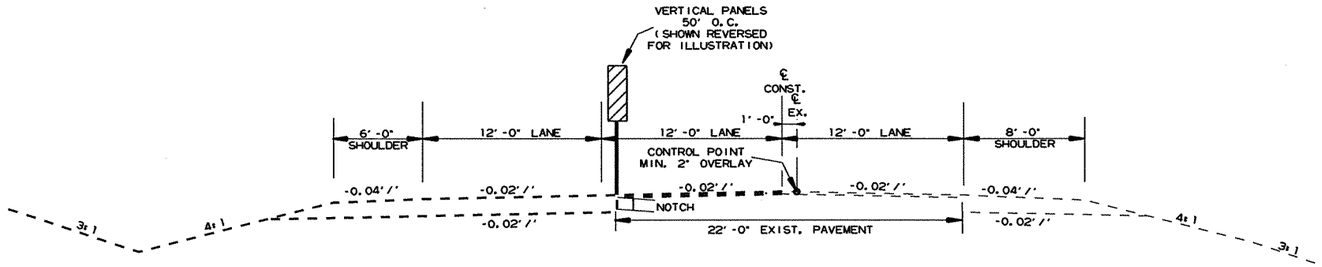
STAGE 3: NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING ON LT. AND TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT.

STAGE 4: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.



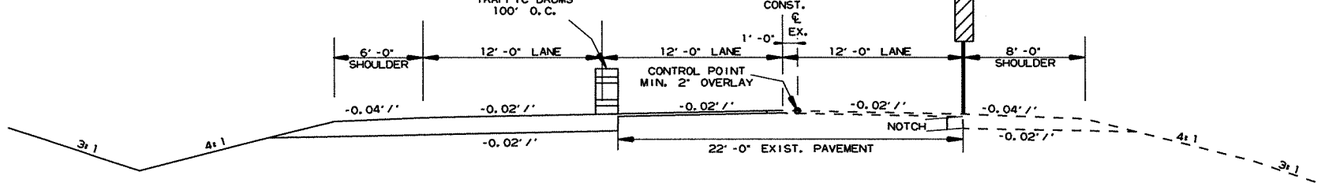
DRIVEWAY/TRAFFIC DRUM DETAIL

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
RAPHAEL D. FUGETT
12-12-11



OVERLAY TANGENT - SOUTHBOUND (LEFT SIDE) WIDENING

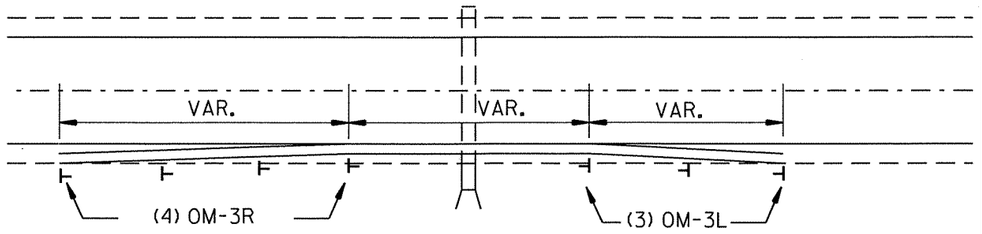
STA. 297+60.00 - STA. 348+00.00



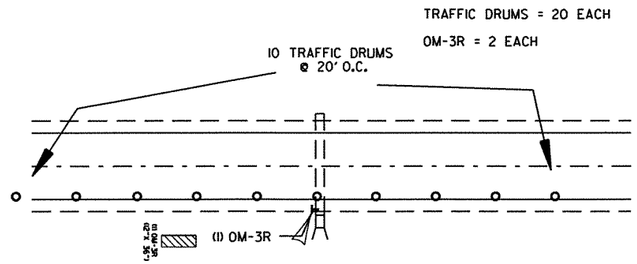
OVERLAY TANGENT - SOUTHBOUND (RIGHT SIDE) WIDENING

STA. 297+60.00 - STA. 348+00.00

TYPICAL INSTALLATION OF PRECAST CONCRETE BARRIER *



* TO BE INSTALLED AT LOCATIONS DETERMINED BY THE ENGINEER



TRAFFIC DRUMS ON EXISTING SHOULDER FOR EXTENDING PIPE CULVERTS LT. AND RT.

STA. 313+73

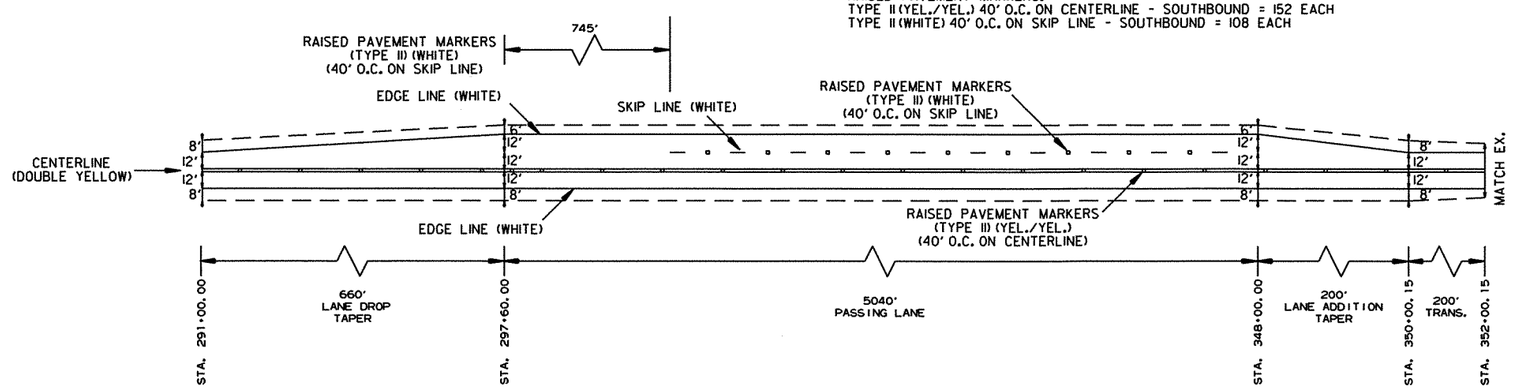
CONSTRUCTION PAVEMENT MARKINGS - SOUTHBOUND:

AS DIRECTED BY THE ENGINEER OVER LEVELING COURSE:
RT. AND LT. EDGE LINES - SOUTHBOUND = 12000 LIN. FT.
DBL. CENTERLINE - SOUTHBOUND = 12000 LIN. FT.

FINAL STRIPING - SOUTHBOUND:

THERMOPLASTIC PAVEMENT MARKINGS:
RT. AND LT. EDGE LINES - SOUTHBOUND = 12200 LIN. FT. WHITE
DBL. CENTERLINE - SOUTHBOUND = 12200 LIN. FT. YELLOW
SKIP LINE - SOUTHBOUND = 1074 LIN. FT. WHITE
EDGE LINES ON COUNTY ROADS - SOUTHBOUND = 240 LIN. FT. WHITE

RAISED PAVEMENT MARKERS:
TYPE II (YEL./YEL.) 40' O.C. ON CENTERLINE - SOUTHBOUND = 152 EACH
TYPE II (WHITE) 40' O.C. ON SKIP LINE - SOUTHBOUND = 108 EACH



FINAL STRIPING DETAIL - SOUTHBOUND PASSING LANE

MAINTENANCE OF TRAFFIC DETAILS
SOUTHBOUND

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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.		050166	22	118

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCING:

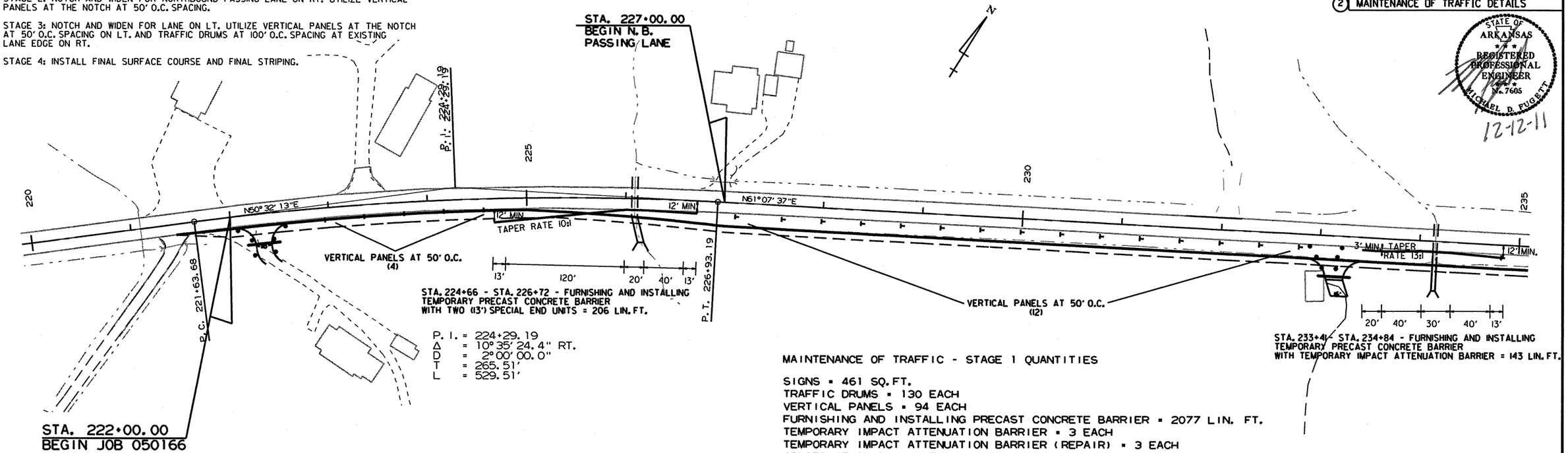
STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING ON LT. AND TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT.

STAGE 4: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

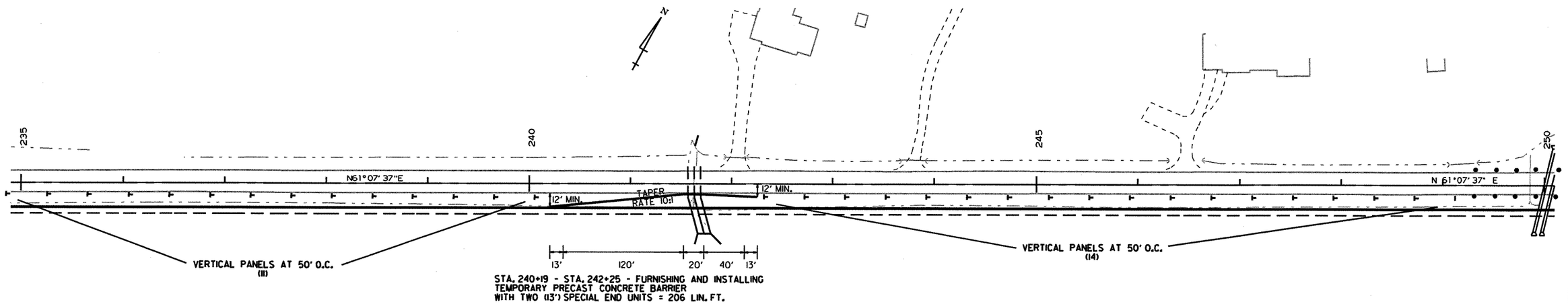
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11



P. I. = 224+29.19
Δ = 10° 35' 24.4" RT.
D = 2° 00' 00.0"
T = 265.51'
L = 529.51'

MAINTENANCE OF TRAFFIC - STAGE 1 QUANTITIES

SIGNS = 461 SQ. FT.
TRAFFIC DRUMS = 130 EACH
VERTICAL PANELS = 94 EACH
FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 2077 LIN. FT.
TEMPORARY IMPACT ATTENUATION BARRIER = 3 EACH
TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR) = 3 EACH
CONSTRUCTION PAVEMENT MARKING = 50800 LIN. FT.
RAISED PAVEMENT MARKERS (TY. II) (YEL./YEL.) = 318 EACH



MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

r050166.dgn 11/22/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	23	118

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCING:

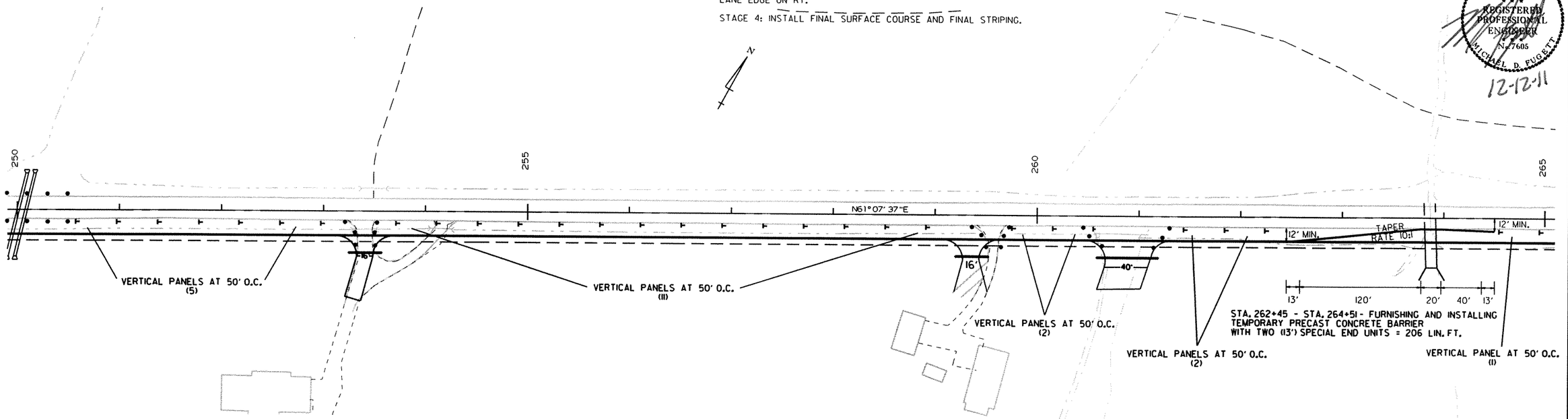
STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

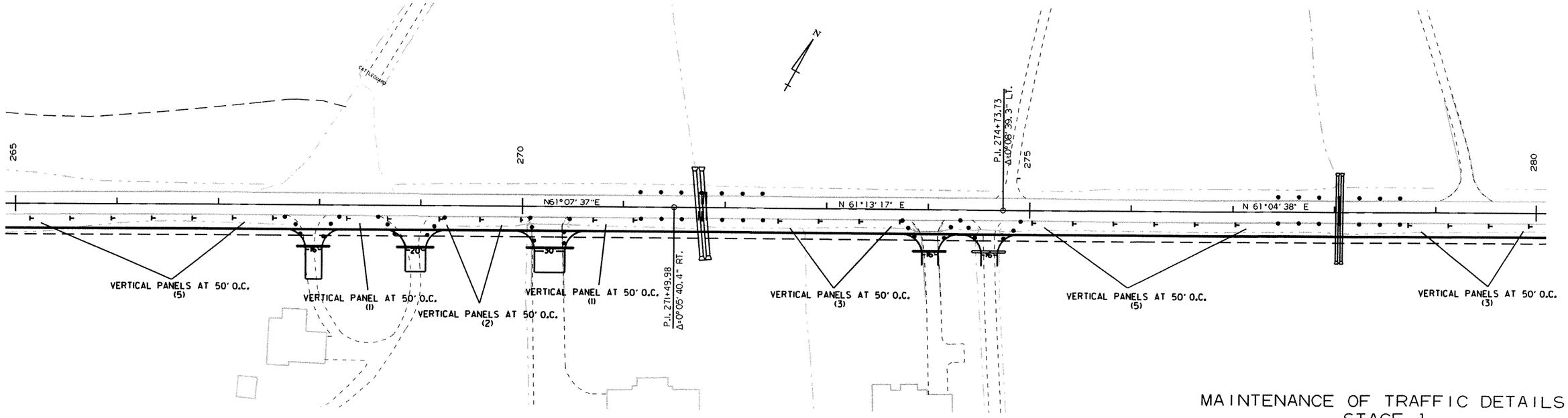
STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING ON LT. AND TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT.

STAGE 4: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11





MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

r050166.dgn 11/22/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	24	118

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCING:

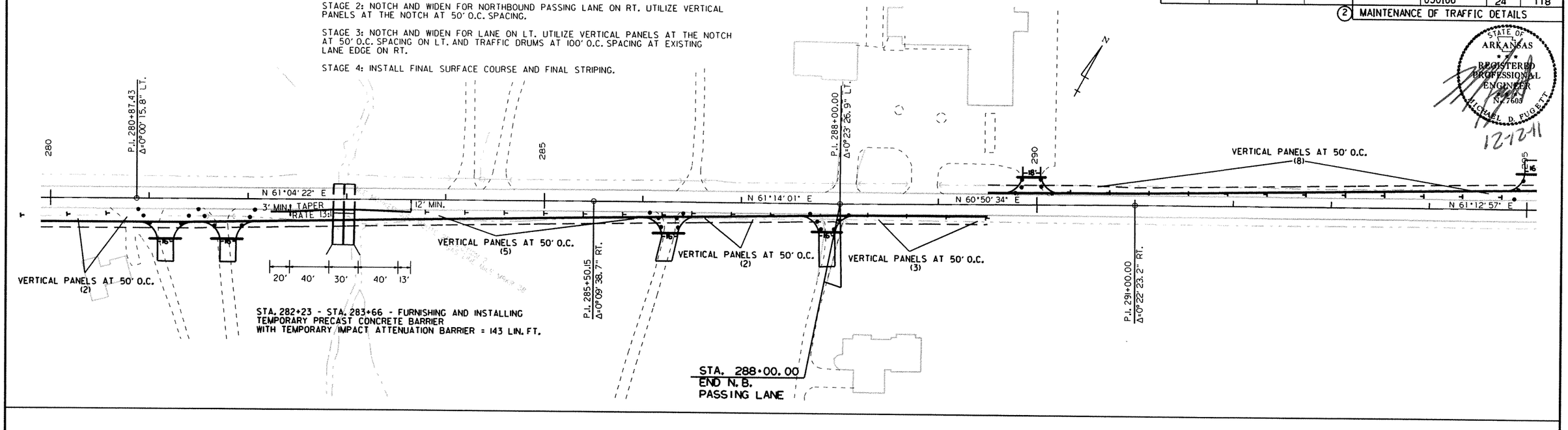
STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

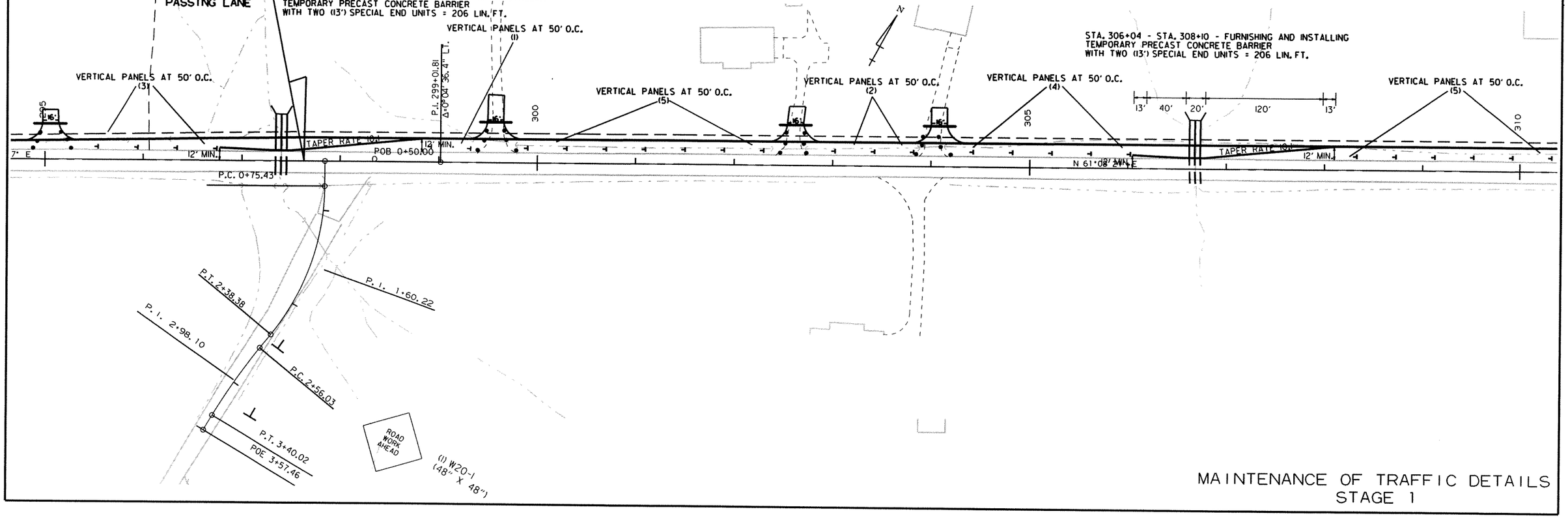
STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING ON LT. AND TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT.

STAGE 4: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7603
MICHAEL D. PUGETT
12-12-11





MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

r050166.dgn 11/22/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	25	118

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCING:

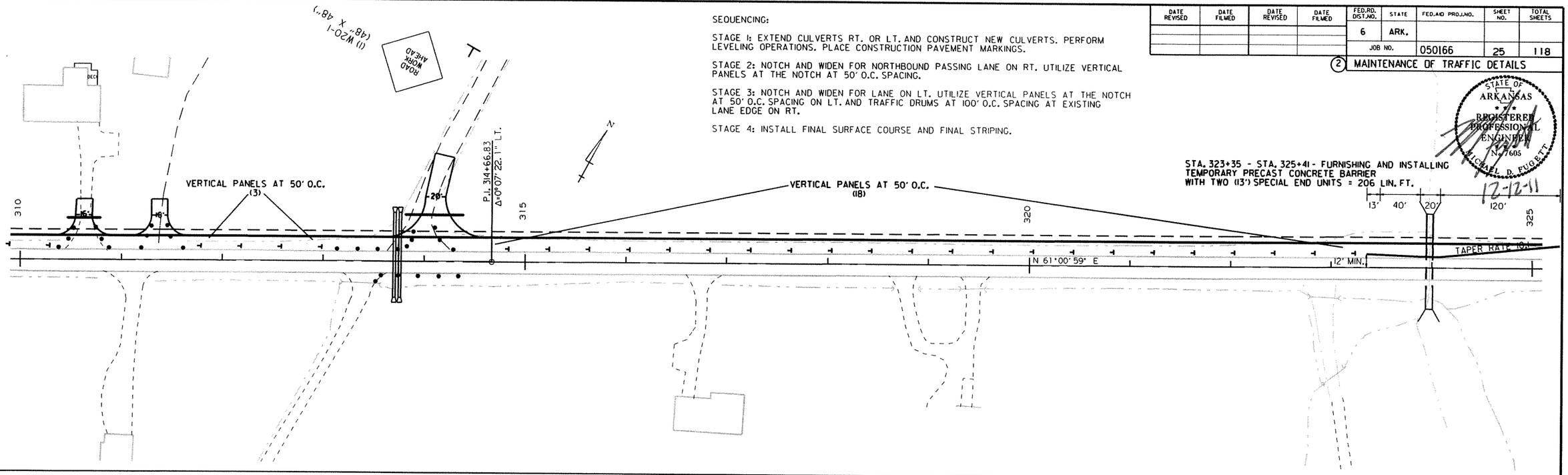
STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING ON LT. AND TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT.

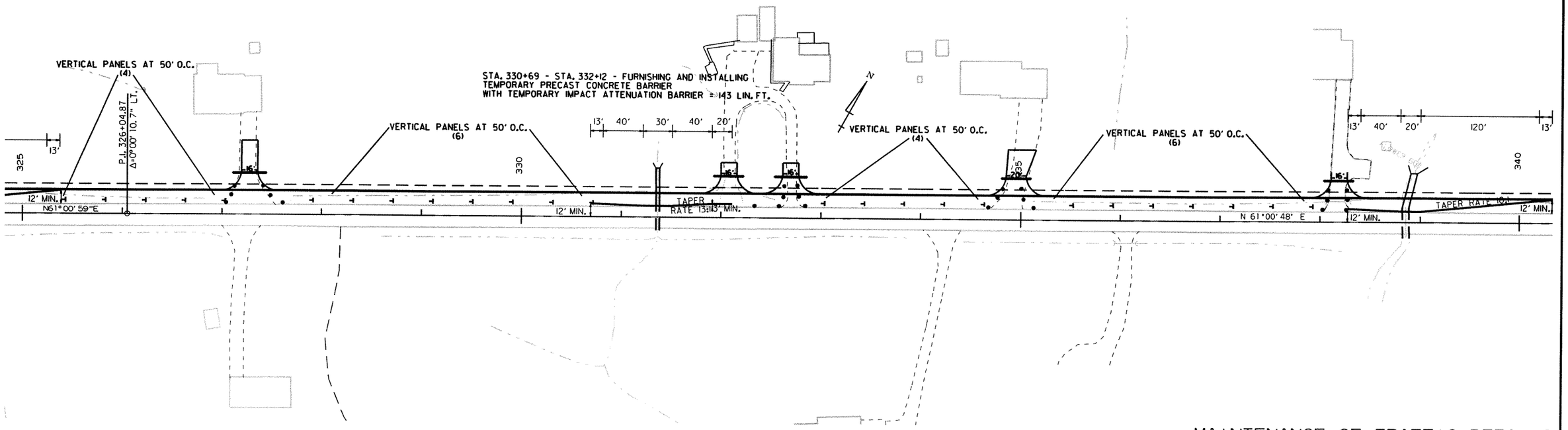
STAGE 4: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11



STA. 323+35 - STA. 325+41 - FURNISHING AND INSTALLING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (13') SPECIAL END UNITS = 206 LIN. FT.

STA. 338+27 - STA. 340+33 - FURNISHING AND INSTALLING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (13') SPECIAL END UNITS = 206 LIN. FT.



MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

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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.		050166	26	118

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCING:

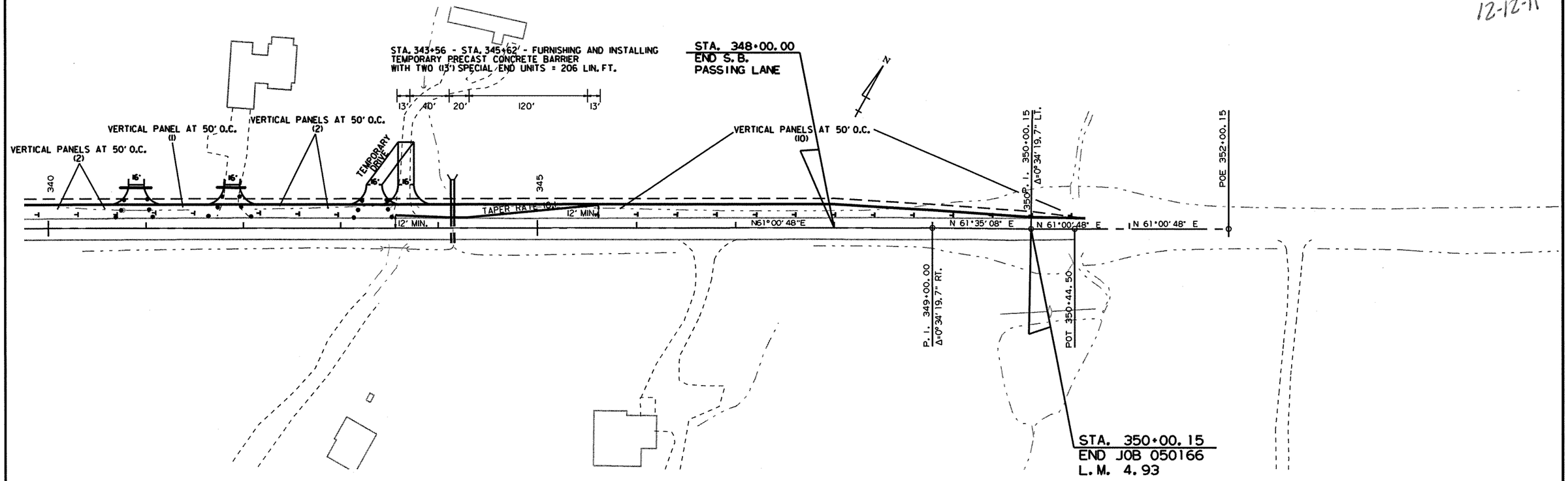
STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING ON LT. AND TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT.

STAGE 4: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
12-12-11



MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

r050166.dgn 11/22/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	27	118

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCING:

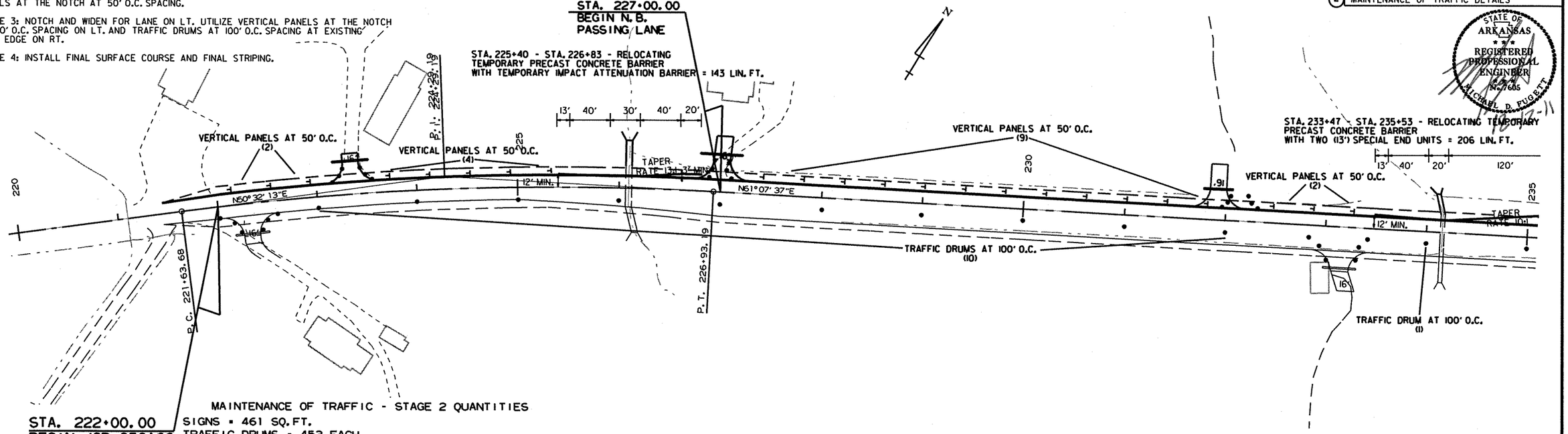
STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING ON LT. AND TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT.

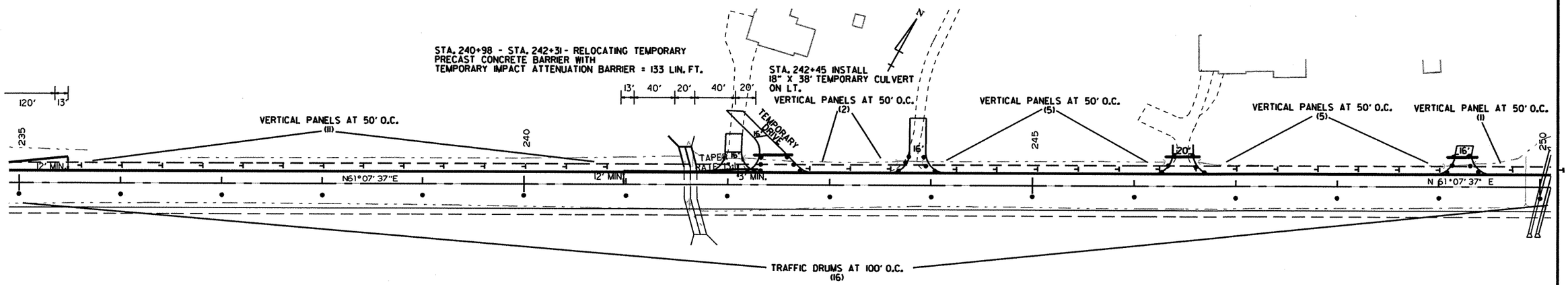
STAGE 4: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT



MAINTENANCE OF TRAFFIC - STAGE 2 QUANTITIES

SIGNS = 461 SQ.FT.
TRAFFIC DRUMS = 453 EACH
VERTICAL PANELS = 189 EACH
RELOCATING TEMPORARY PRECAST CONCRETE BARRIER WALL = 2067 LIN. FT.
TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR) = 3 EACH
18" TEMPORARY CULVERT = 38 LIN. FT.



MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

r050166.dgn 11/22/2011

SEQUENCING:

STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

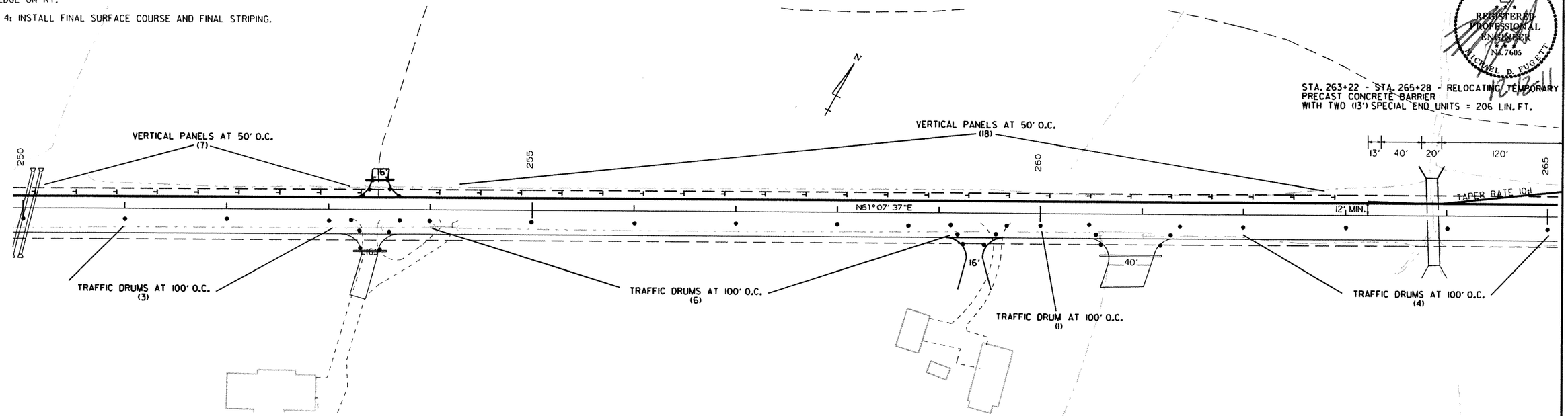
STAGE 3: NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING ON LT. AND TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT.

STAGE 4: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

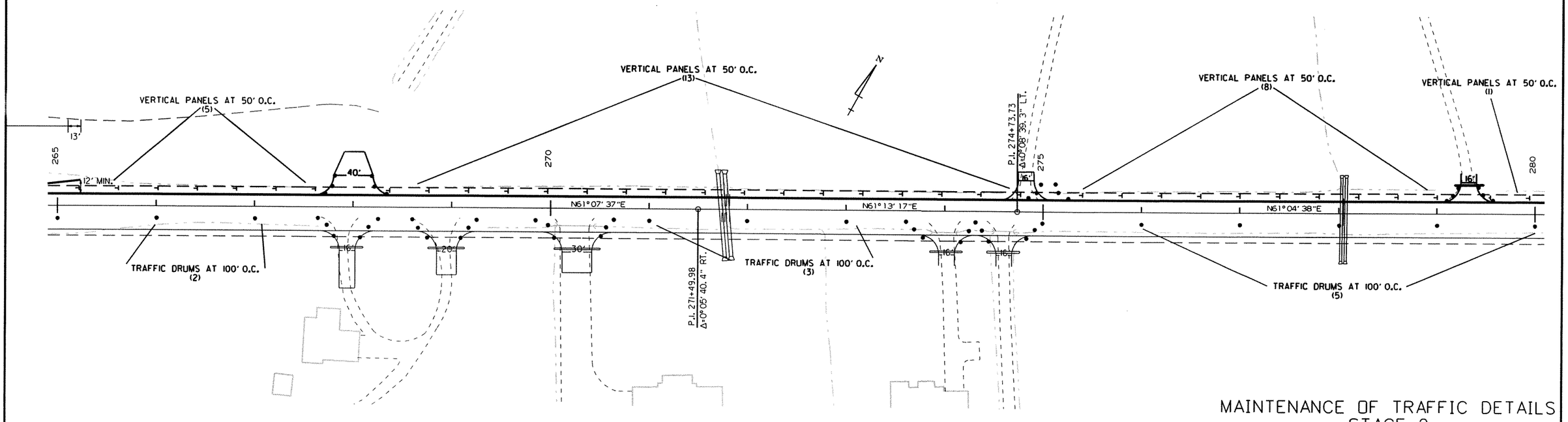
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	28	118

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT



STA. 263+22 - STA. 265+28 - RELOCATING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (13') SPECIAL END UNITS = 206 LIN. FT.



MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

r050166.dgn 11/22/2011

SEQUENCING:

STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

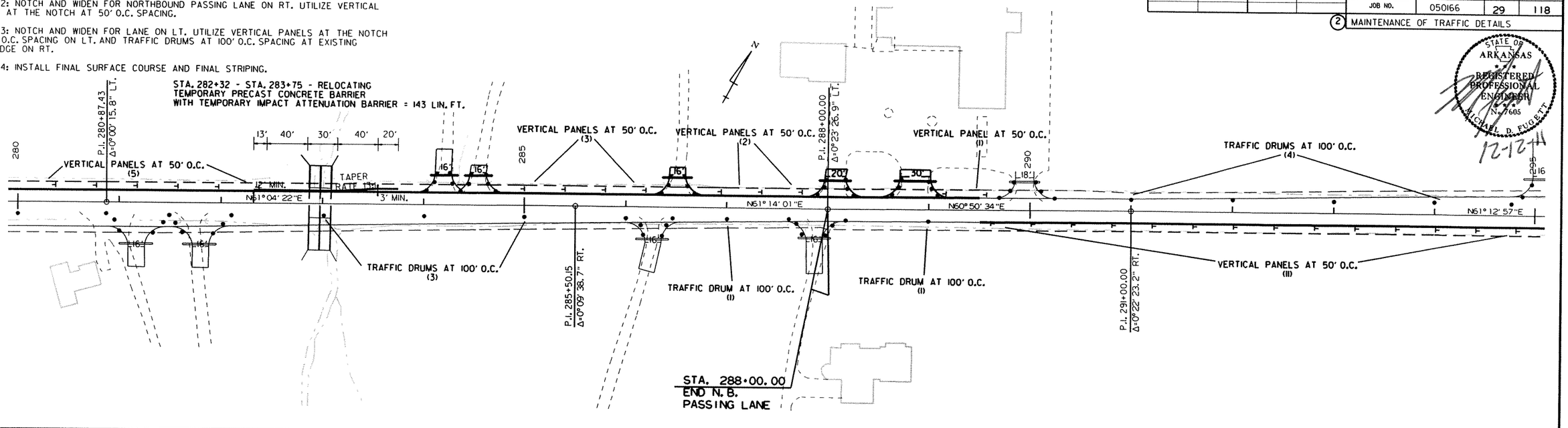
STAGE 3: NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING ON LT. AND TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT.

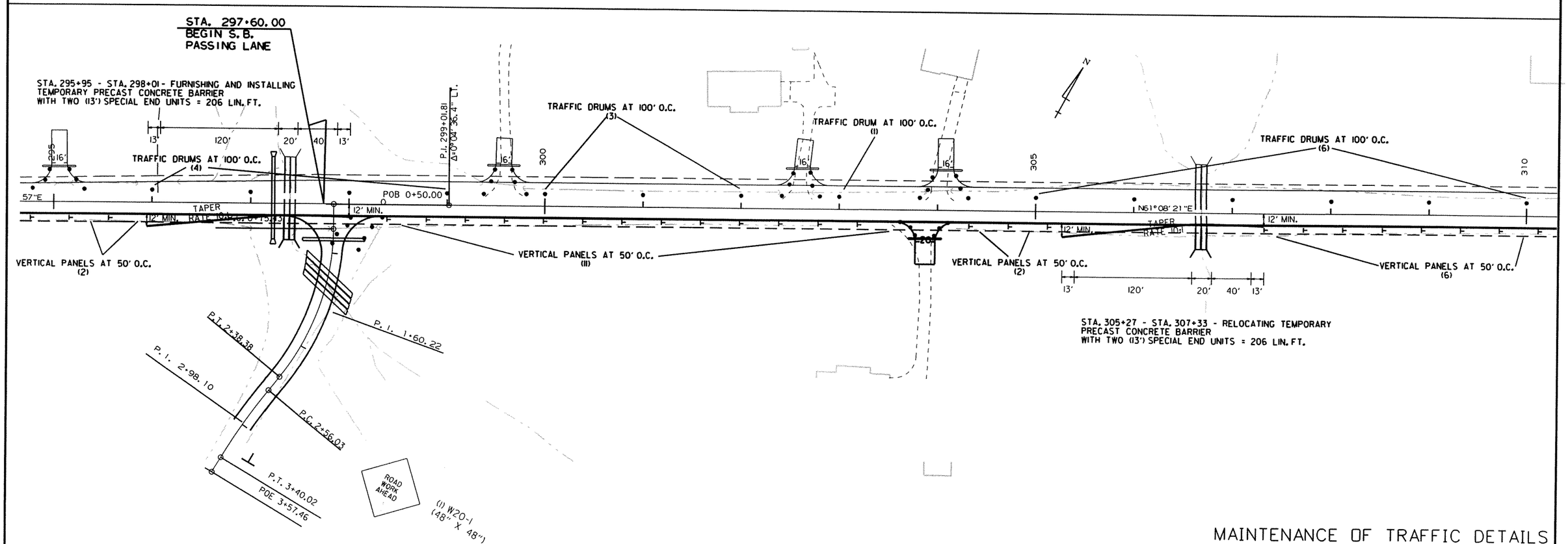
STAGE 4: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	29	118

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11





MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

r050166.dgn 11/22/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	30	118

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCING:

STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING ON LT. AND TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT.

STAGE 4: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11

(1) W20-1 (48" X 48")

ROAD WORK AHEAD

N

TRAFFIC DRUMS AT 100' O.C. (2)

P.I. 314+66.83
Δ=0°07'22.1" LT.

310 315 320 325

TRAFFIC DRUMS AT 100' O.C. (11)

N61°00'59"E

VERTICAL PANELS AT 50' O.C. (2)

VERTICAL PANELS AT 50' O.C. (3)

VERTICAL PANELS AT 50' O.C. (6)

VERTICAL PANELS AT 50' O.C. (3)

VERTICAL PANELS AT 50' O.C. (2)

VERTICAL PANELS AT 50' O.C. (2)

12' MIN.

TAPER RATE 10:1

VERTICAL PANELS AT 50' O.C. (1)

13' 120' 20' 40' 13'

STA. 262+45 - STA. 264+51 - FURNISHING AND INSTALLING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (13') SPECIAL END UNITS = 206 LIN. FT.

TRAFFIC DRUM AT 100' O.C. (1)

P.I. 326+04.87
Δ=0°00'10.7" LT.

325 330 335 340

TRAFFIC DRUMS AT 100' O.C. (4)

TRAFFIC DRUM AT 100' O.C. (1)

TRAFFIC DRUMS AT 100' O.C. (2)

TRAFFIC DRUMS AT 100' O.C. (2)

N61°00'59"E

N61°00'48"E

VERTICAL PANELS AT 50' O.C. (4)

VERTICAL PANEL AT 50' O.C. (1)

VERTICAL PANELS AT 50' O.C. (3)

VERTICAL PANELS AT 50' O.C. (5)

VERTICAL PANELS AT 50' O.C. (2)

VERTICAL PANELS AT 50' O.C. (2)

STA. 329+94 - STA. 332+00 - RELOCATING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (13') SPECIAL END UNITS = 206 LIN. FT.

STA. 337+39 - STA. 339+45 - RELOCATING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (13') SPECIAL END UNITS = 206 LIN. FT.

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MAINTENANCE OF TRAFFIC DETAILS STAGE 2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	31	118

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCING:

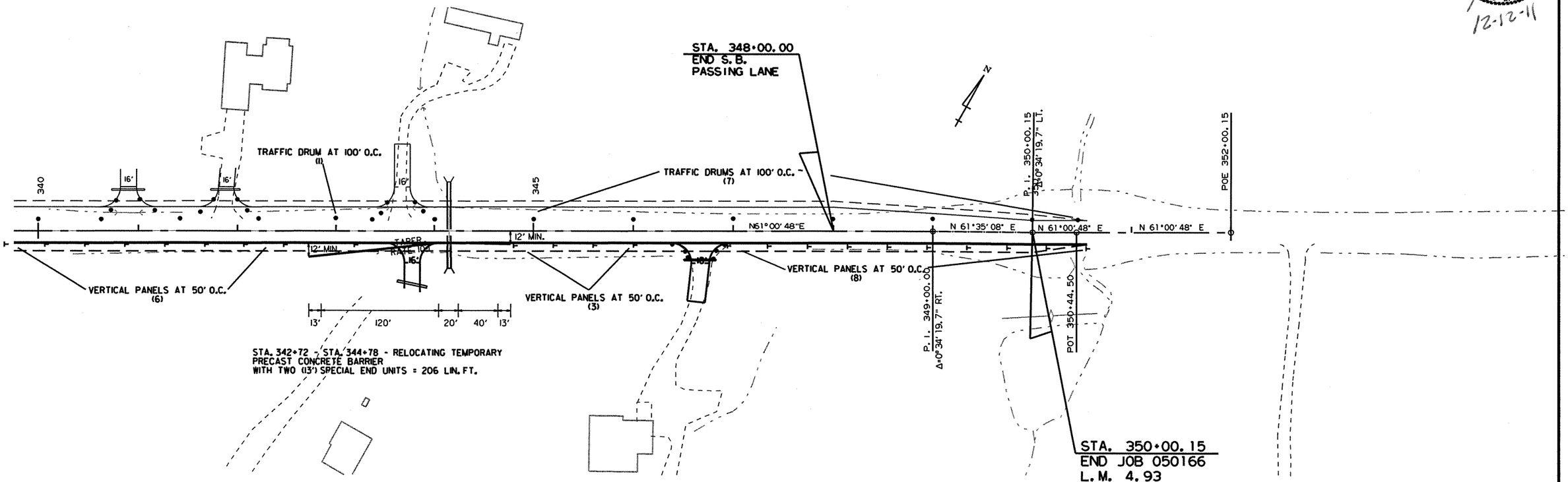
STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING ON LT. AND TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT.

STAGE 4: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11



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MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	32	118

(2) QUANTITY SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11

MAINTENANCE OF TRAFFIC ITEMS

LOCATION	TRAFFIC DRUMS	VERTICAL PANELS	CONST. PAVEMENT MARKING	FURNISHING & INSTALLING PRECAST CONCRETE BARRIER	RELOCATING PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	RAISED PAVEMENT MARKERS (TY.II)(YEL./YEL.)
	EACH		LIN. FT.			EACH		
MAIN LANES-STAGE 1	130	94	50800	2077		3	3	318
MAIN LANES-STAGE 2	453	189			2067		3	
TOTALS	**453**	**189**	**50800**	**2077**	**2067**	**3**	**6**	**318**

NOTE: THIS IS A HIGH VOLUME ROAD AS DEFINED IN SECTION 604.03 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2003. THE QUANTITY OF VERTICAL PANELS PROVIDED IN THE CONTRACT IS FOR ONE SIDE OF THE ROADWAY FOR 2 MILES. THIS IS THE MAXIMUM QUANTITY REQUIRED TO ALLOW THE CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 4" OR LESS, AND THEN NOTCH ANOTHER ONE-MILE SECTION. THIS IS THE MAXIMUM NUMBER OF VERTICAL PANELS THAT WILL BE PAID FOR. REFER TO SECTION 603.02 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.

THE CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 4" OR LESS, AND THEN NOTCH ANOTHER ONE-MILE S
THE MAXIMUM NUMBER OF VERTICAL PANELS THAT WILL BE PAID FOR. REFER TO SECTION 603.02 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTIC

SIGNS

SIGN NO.	DESCRIPTION	SIZE	QUANTITY		MAXIMUM REQUIRED	SIGNS
			STAGE 1	STAGE 2		SQ. FT.
G20-1	ROAD WORK AHEAD NEXT 2.4 MILES	60" X 24"	2	2	2	20
G20-2	END ROAD WORK	48" X 24"	2	2	2	16
OM-3L	OBJECT MARKER	12" X 36"	33	33	33	99
OM-3R	OBJECT MARKER	12" X 36"	44	44	44	132
R4-1	DO NOT PASS	24" X 30"	10	10	10	50
W20-1	ROAD WORK 1500 FT.	48" X 48"	2	2	2	32
W20-1	ROAD WORK 1000 FT.	48" X 48"	2	2	2	32
W20-1	ROAD WORK 500 FT.	48" X 48"	2	2	2	32
W20-1	ROAD WORK AHEAD	48" X 48"	3	3	3	48
TOTAL						**461**

PERMANENT PAVEMENT MARKING ITEMS

LOCATION	THERMOPLASTIC PAVEMENT MARKING		RAISED PAVEMENT MARKERS	
	WHITE	YELLOW	(TY. II)	(TY. II)
	4"	4"	(WHITE/RED)	(YEL./YEL.)
	LIN. FT.		EACH	
ENTIRE PROJECT	28888	26400	226	331
TOTALS	**28888**	**26400**	**226**	**331**

NOTE: THIS IS A HIGH VOLUME ROAD AS DEFINED IN SECTION 604.03 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2003.

TEMPORARY PIPE CULVERT

LOCATION	TEMPORARY PIPE CULVERT
	18"
	LIN. FT.
STA. 242+45 ON LT.	38
TOTAL	**38**

EROSION CONTROL ITEMS - TEMPORARY

LOCATION	SAND BAG DITCH CHECKS (E-5)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL	TEMPORARY SEEDING	MULCH COVER	WATER
	BAG	LIN. FT.	CU.YD.			ACRE		M. GAL.
MAIN LANES-STAGE 1	1275	862	1273	1273	1500	6.88	6.88	140.4
MAIN LANES-STAGE 2	1250	1451	944	944	1500	6.23	6.23	127.1
JEFFERSON CIRCLE						0.17	0.17	3.5
ENTIRE PROJECT								
TOTALS	**2525**	**2313**	**2217**	**2217**	**3000**	**13.28**	**13.28**	**271.0**

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

BASIS OF ESTIMATE: WATER 20.4 M.G. PER ACRE TEMP. SEEDING
* QUANTITIES ESTIMATED - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

BENCH MARKS

LOCATION	BENCH MARKS
	EACH
STA. 297+35 RT. R.C. BOX CULVERT HEADWALL	1

SHOWN FOR INFORMATIONAL PURPOSES ONLY. BENCH MARKS TO BE FURNISHED, PLACED AND RECORDED BY STATE FORCES.

EROSION CONTROL ITEMS - PERMANENT

LOCATION	SEEDING	LIME	MULCH COVER	SECOND SEEDING APPL.	WATER
	ACRE	TON	ACRE		M. GAL.
MAIN LANES	13.11	26	26.22	13.11	1337.2
JEFFERSON CIRCLE	0.17	1	0.34	0.17	17.3
TOTALS	**13.28**	**27**	**26.56**	**13.28**	**1354.5**

BASIS OF ESTIMATE: LIME: 2 TONS PER ACRE SEEDING;
WATER: 102.0 M.GAL. PER ACRE SEEDING

EARTHWORK

STATION	STATION	LOCATION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
222+00	350+00	MAIN LANES	42143	14438
		JEFFERSON CIRCLE	427	38
ENTIRE	PROJECT	DRIVES	225	1550
233+80	234+14	CHANNEL EXCAVATION	55	
250+07	250+49	CHANNEL EXCAVATION	50	
263+73	263+97	CHANNEL EXCAVATION	65	
271+50	271+60	CHANNEL EXCAVATION	60	
306+57	306+79	CHANNEL EXCAVATION	20	
313+68	313+86	CHANNEL EXCAVATION	40	
344+01	344+20	CHANNEL EXCAVATION	10	
TOTALS			**43095**	**16026**

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				6	ARK.			
				JOB NO.		050166	33	118

(2) QUANTITY SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
12-12-11

REMOVAL AND DISPOSAL OF PIPE CULVERTS

STATION	SIDE	DESCRIPTION	EACH
		HWY. 25	
226+97	LT.	15" X 24" C.M. SIDE DRAIN	1
242+05	LT.	15" X 20" C.M. SIDE DRAIN	1
243+79	LT.	18" X 24' C.M. SIDE DRAIN	1
249+20	LT.	18" X 24' C.M. SIDE DRAIN	1
253+40	RT.	18" X 23' C.M. SIDE DRAIN	1
253+50	LT.	18" X 25' R.C. SIDE DRAIN	1
260+89	RT.	18" X 57' C.M. SIDE DRAIN	1
270+32	RT.	18" X 40' C.M. SIDE DRAIN	1
274+00	RT.	18" X 24' C.M. SIDE DRAIN	1
274+58	RT.	24" X 20' C.M. SIDE DRAIN	1
281+80	RT.	18" X 25' PLASTIC SIDE DRAIN	1
284+17	LT.	18" X 30' C.M. SIDE DRAIN	1
284+55	LT.	18" X 25' C.M. SIDE DRAIN	1
286+24	RT.	18" X 24' C.M. SIDE DRAIN	1
286+52	LT.	18" X 24' C.M. SIDE DRAIN	1
287+94	RT.	18" X 25' C.M. SIDE DRAIN	1
288+10	LT.	18" X 25' C.M. SIDE DRAIN	1
288+85	LT.	18" X 32' C.M. SIDE DRAIN	1
290+00	LT.	18" X 20' C.M. SIDE DRAIN	1
295+00	LT.	18" X 16' C.M. SIDE DRAIN	1
298+00	RT.	18" X 49' C.M. SIDE DRAIN	1
299+54	LT.	12" X 35' R.C. SIDE DRAIN	1
302+60	LT.	18" X 24' C.M. SIDE DRAIN	1
304+00	LT.	18" X 24' C.M. SIDE DRAIN	1
313+37	RT.	18" X 39' C.M. SIDE DRAIN	1
319+43	RT.	18" X 24' C.M. SIDE DRAIN	1
321+00	RT.	18" X 30' C.M. SIDE DRAIN	1
336+05	RT.	15" X 21" X 20' SIDE DRAIN	1
338+18	LT.	18" X 24' C.M. SIDE DRAIN	1
340+90	LT.	18" X 25' R.C. SIDE DRAIN	1
343+56	RT.	24" X 20' C.M. SIDE DRAIN	1
		JEFFERSON CIRCLE	
1+30	LT.	24" X 40' C.M. SIDE DRAIN	1
TOTAL			**32**

REMOVAL AND DISPOSAL OF PIPE CULVERTS INCLUDES HEADWALLS AND FLARED END SECTIONS IF APPLICABLE.

PIPE UNDERDRAINS

LOCATION	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
	LIN. FT.	EACH
ENTIRE PROJECT - IF AND WHERE DIRECTED BY THE ENGINEER.	1000	8
TOTALS	**1000**	**8**

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

REMOVAL AND DISPOSAL OF STRUCTURES

STATION	DESCRIPTION	SIDE	REMOVAL AND DISPOSAL ITEMS							
			BOX CULVERTS	CONCRETE DRIVEWAY	BUILDINGS	LUMINAIRE POLES	FLAG POLE	CANOPY	SIGNS	SIGN FOUNDATIONS
			EACH	SQ. YD.	EACH					
223+62	WOOD CANOPY	LT.						1		
232+90	BUILDING	RT.			1					
249+85	3' X 2' R.C. BOX CULVERT		1							
253+80	LUMINAIRE POLE	RT.				1				
260+62	SIGN	RT.							1	
260+89	CONCRETE DRIVEWAY	RT.		127						
261+50	SIGN AND FOUNDATION	RT.							1	1
271+77	3' X 2' R.C. BOX CULVERT		1							
274+00	CONCRETE DRIVEWAY	RT.		42						
278+05	3' X 2' R.C. BOX CULVERT		1							
279+33	CONCRETE DRIVEWAY	LT.		44						
281+56	SIGN	RT.							1	
297+63	SIGN	LT.							1	
327+10	FLAG POLE	LT.					1			
338+18	CONCRETE DRIVEWAY	LT.		30						
TOTALS			**3**	**243**	**1**	**1**	**1**	**1**	**4**	**1**

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO SOIL CLASS	COLOR
229+32	5'RTCL	0-5'	63	41	A-7-6(22)	BROWN
235+88	5'LTCL	0-5'	20	6	A-4(0)	BROWN
242+45	5'RTCL	0-5'	30	11	A-6(5)	BROWN
249+00	5'LTCL	0-5'	26	8	A-4(1)	BROWN
255+57	5'RTCL	0-5'	ND	NP	A-4(0)	BROWN
262+14	5'LTCL	0-5'	20	5	A-4(0)	BROWN
268+70	5'RTCL	0-5'	29	9	A-4(5)	BROWN
275+26	5'LTCL	0-5'	22	4	A-4(0)	BROWN
281+83	5'RTCL	0-5'	21	5	A-4(0)	BROWN
288+39	5'LTCL	0-5'	19	4	A-4(0)	BROWN
294+96	5'RTCL	0-5'	21	6	A-4(1)	BROWN
301+52	5'LTCL	0-5'	28	11	A-6(4)	BROWN
308+08	5'RTCL	0-5'	24	8	A-4(3)	BROWN
314+65	5'LTCL	0-5'	ND	NP	A-4(0)	BROWN
321+21	5'RTCL	0-5'	ND	NP	A-4(0)	BROWN
327+78	5'LTCL	0-5'	19	6	A-4(0)	BROWN
334+34	5'RTCL	0-5'	ND	NP	A-4(0)	BROWN
340+90	5'LTCL	0-5'	18	4	A-4(0)	BROWN
347+47	5'RTCL	0-5'	ND	NP	A-4(0)	BROWN

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

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
	EACH	
ENTIRE PROJECT	35	35
TOTALS	**35**	**35**

SOIL STABILIZATION

LOCATION	SOIL STABILIZATION
	TON
ENTIRE PROJECT - IF AND WHERE DIRECTED BY THE ENGINEER.	200
TOTAL	**200**

QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

CONCRETE DITCH PAVING

LOCATION	TYPE B W=4'	SOLID SODDING	WATER
	SQ.YD.		M.GAL.
ENTIRE PROJECT - IF AND WHERE DIRECTED BY THE ENGINEER.	489	489	6.2
TOTALS	**489**	**489**	**6.2**

BASIS OF ESTIMATE:
WATER = 12.6 GAL. PER SQ. YD. SOLID SODDING
*QUANTITIES ESTIMATED. TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	34	118

(2) QUANTITY SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
12-12-11

STRUCTURES - R.C. BOX CULVERTS

STATION	DESCRIPTION	SPAN	HEIGHT	LENGTH	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	CLASS S CONCRETE-ROADWAY	REINFORCING STEEL- ROADWAY (GRADE 60)	SOLID SODDING	WATER	STANDARD DRAWINGS
		LIN.FT.			CU.YD.		POUND	SQ.YD.	M.GAL.	
226+09	EXTEND 6' X 3' X 40' R.C. BOX CULVERT 23' LT. & 26' RT. ON A 15^ RT. FWD. SKEW WITH 3:1 WINGS LT. & RT. TO A COMPLETED LENGTH OF 89'.	6	3	53	21	30.53	3849	12	0.2	RCB-1, RCB-2, RCB-3, R-100X-0, R115X-0, W-X003-1, W-X15, W-X153-1
234+16	EXTEND 4' X 2' X 33' R.C. BOX CULVERT 20' LT. ON A 15^ RT. FWD. SKEW & 34' RT. WITH 3:1 WINGS LT. & RT. TO A COMPLETED LENGTH OF 87'.	4	2	58	17	21.00	2623	9	0.1	RCB-1, RCB-2, RCB-3, R-100X-0, R115X-0, W-X003-1, W-X15, W-X153-1
241+63	EXTEND DBL. 6' X 4' X 31' R.C. BOX CULVERT 21' LT. & 36' RT. ON A 15^ RT. FWD. SKEW WITH 3:1 WINGS LT. & RT. TO A COMPLETED LENGTH OF 88'.	6	4	61	37	64.41	10165	18	0.2	RCB-1, RCB-2, RCB-3, R215X-0, W-X15, W-X153-1
263+86	EXTEND 10' X 5' X 29' R.C. BOX CULVERT 22' LT. & 36' RT. WITH 3:1 WINGS LT. & RT. TO A COMPLETED LENGTH OF 87'.	10	5	62	42	71.82	8740	18	0.2	RCB-1, RCB-2, RCB-3, R-100X-0, W-X003-1
297+40	EXTEND DBL. 5' X 3' X 30' R.C. BOX CULVERT 34' LT. & 22' RT. WITH 3:1 WINGS LT. & RT. TO A COMPLETED LENGTH OF 86'.	5	3	60	27	47.89	7815	14	0.2	RCB-1, RCB-2, RCB-3, R-200X-0, W-X003-1
306+68	EXTEND DBL. 5' X 3' X 32' R.C. BOX CULVERT 32' LT. & 22' RT. WITH 3:1 WINGS LT. & RT. TO A COMPLETED LENGTH OF 86'.	5	3	58	27	46.55	7568	14	0.2	RCB-1, RCB-2, RCB-3, R-200X-0, W-X003-1
323+97	EXTEND 6' X 5' X 39' R.C. BOX CULVERT 34' LT. & 22' RT. WITH 3:1 WINGS LT. & RT. TO A COMPLETED LENGTH OF 93'.	6	5	60	26	42.35	4803	18	0.2	RCB-1, RCB-2, RCB-3, R-100X-0, W-X003-1
331+36	EXTEND 3' X 2' X 33' R.C. BOX CULVERT 32' LT. & 21' RT. WITH 3:1 WINGS LT. & RT. TO A COMPLETED LENGTH OF 86'.	3	2	57	17	17.05	1530	7	0.1	RCB-1, RCB-2, RCB-3, SPECIAL DETAIL
338+85	EXTEND 6' X 3' X 31' R.C. BOX CULVERT 35' LT. & 22' RT. ON 15 ^ LT. FWD. SKEW WITH 3:1 WINGS LT. & RT. TO A COMPLETED LENGTH OF 88'.	6	3	61	22	34.30	4464	12	0.2	RCB-1, RCB-2, RCB-3, R-115X-0, W-X15, W-X153-1
344+14	EXTEND 3' X 2' X 29' R.C. BOX CULVERT 35' LT. & 22' RT. WITH 3:1 WINGS LT. & RT. TO A COMPLETED LENGTH OF 86'.	3	2	61	18	17.99	1620	7	0.1	RCB-1, RCB-2, RCB-3, SPECIAL DETAIL
TOTALS					**254**	**393.89**	**53177**	**129**	**1.7**	
	STRUCTURE OVER 20'-0" SPAN									
283+00	EXTEND DBL. 10' X 4' X 30' R.C. BOX CULVERT 22' LT. & 32' RT. WITH 3:1 WINGS LT. & RT. TO A COMPLETED LENGTH OF 83'.	10	4	58	60	127.67	12979	21	0.3	RCB-1, RCB-2, RCB-3, SPECIAL DETAIL
TOTALS					**60**	**127.67**	**12979**	**21**	**0.3**	

NOTE: LENGTH AND QUANTITIES INCLUDE "BREAKBACK" DISTANCE.
BASIS OF ESTIMATE: WATER = 12.6 GAL. PER SQ. YD. SOLID SODDING

STRUCTURES - PIPE CULVERTS

STATION	DESCRIPTION	CONCRETE (CLASS III) - ALTERNATE 1										CORRUGATED METAL ALTERNATES 2,3,4, PLASTIC PIPE ALTERNATES 5,6										SOLID SODDING	WATER	STANDARD DRAWINGS
		PIPE CULVERTS					FLARED END SECTIONS					PIPE CULVERTS					FLARED END SECTIONS							
		30"	36"	29" X 18"	36" X 23"	44" X 27"	30"	36"	29" X 18"	36" X 23"	44" X 27"	30"	36"	28" X 20"	35" X 24"	42" X 29"	30"	36"	28" X 20"	35" X 24"	42" X 29"			
		LIN. FT.					EACH					LIN. FT.					EACH					SQ.YD.	M.GAL.	
250+05	CONSTRUCT DBL. 35" X 23" X 84' CROSS DRAIN W/FES LT. & RT.				156					4					168					4		28	0.4	FES-1&2, PCC-1, PCM-1, PCP-1&2
271+77	CONSTRUCT DBL. 42" X 29" X 84' CROSS DRAIN W/FES LT. & RT.					162					4					168					4	36	0.5	FES-1&2, PCC-1, PCM-1, PCP-1&2
278+05	CONSTRUCT DBL. 28" X 20" X 84' CROSS DRAIN W/FES LT. & RT.			156					4					168					4			18	0.2	FES-1&2, PCC-1, PCM-1, PCP-1&2
297+23	CONSTRUCT 36" X 84' CROSS DRAIN W/FES LT. & RT.		78					2					84					2				34	0.4	FES-1&2, PCC-1, PCM-1, PCP-1&2
313+73	CONSTRUCT DBL. 30" X 84' CROSS DRAIN W/FES LT. & RT.	162					4					168					4					28	0.4	FES-1&2, PCC-1, PCM-1, PCP-1&2
TOTALS		**162**	**78**	**156**	**156**	**162**	**4**	**2**	**4**	**4**	**4**	**168**	**84**	**168**	**168**	**168**	**4**	**2**	**4**	**4**	**4**	**144**	**1.9**	

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

NOTE: FOR R.C. PIPE CULVERT INSTALLATION USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED
FOR C.M. PIPE CULVERT INSTALLATION USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	ACHM PATCHING FOR M.O.T.	TACK COAT
	TON	GALLON
ENTIRE PROJECT - IF AND WHERE DIRECTED BY THE ENGINEER.	61	122
TOTALS	**61**	**122**

BASIS OF ESTIMATE:
PATCHING: 25 TONS PER MILE; TACK COAT: 50 GAL. PER MILE
QUANTITIES ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

SELECTED PIPE BEDDING AND BACKFILL

LOCATION	SELECTED PIPE BEDDING	SELECTED PIPE BACKFILL
	CU. YD.	
ENTIRE PROJECT - IF AND	100	200
WHERE DIRECTED		
BY THE ENGINEER.		
TOTALS	**100**	**200**

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

ASPHALT CONCRETE HOT MIX PATCHING OF EXISTING ROADWAY

LOCATION	ACHM PATCHING OF EXISTING ROADWAY
	TON
ENTIRE PROJECT - IF AND WHERE DIRECTED BY THE ENGINEER.	100
TOTAL	**100**

QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

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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.		050166	35	118

(2) QUANTITY SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11

DRIVEWAYS

STATION	DESCRIPTION	SIDE	WIDTH	TURNOUT AREA	EXTENSION AREA			TOTAL DRIVEWAY AREA	PORTLAND CEMENT CONCRETE DRIVEWAY	*AGGREGATE BASE COURSE (CL.7)	ACHM SURFACE COURSE (1/2") (220 LB./SQ.YD.)	SIDE DRAIN			
					*AGGREGATE (CLASS 7) (9" COMP. DEPTH)	ASPHALT	CONCRETE					18"	24"	36"	57" X 38"
			LIN. FT.	SQ. YD.						TON	TON	LIN.FT.			
222+32	PRIVATE DRIVE	RT.	16	55.56	44.56			100.12		46	6	34			
223+36	PRIVATE DRIVE	LT.	16	55.56		15.67		71.23		29	8	38			
226+97	PRIVATE DRIVE	LT.	16	55.56	79.44			135.00		64	6	42			
231+95	PRIVATE DRIVE	LT.	16	55.56	78.00			133.56		64	6	30			
233+07	PRIVATE DRIVE	RT.	16	55.56	35.67			91.23		41	6	34			
242+05	PRIVATE DRIVE	LT.	16	55.56	78.33			133.89		64	6	28			
243+79	PRIVATE DRIVE	LT.	16	55.56	59.56			115.12		54	6	30			
246+45	PRIVATE DRIVE	LT.	16	55.56		20.44		76.00		31	8	34			
249+20	PRIVATE DRIVE	LT.	16	55.56	21.67			77.23		34	6	30			
253+40	PRIVATE DRIVE	RT.	24	72.95		76.56		149.51		61	16	42			
253+50	PRIVATE DRIVE	LT.	16	55.56	51.78			107.34		50	6	28			
259+36	PRIVATE DRIVE	RT.	16	55.56		120.56		176.12		72	19	34			
260+89	COMMERCIAL DRIVE	RT.	40	146.44			101.33	247.77	247.77			62			
267+81	PRIVATE DRIVE	RT.	16	55.56	67.44			123.00		58	6	34			
267+94	COMMERCIAL DRIVE	LT.	40	146.44	80.11			226.55		102	16				
268+89	PRIVATE DRIVE	RT.	20	64.56	54.22			118.78		55	7	38			
270+32	COMMERCIAL DRIVE	RT.	30	88.56		69.89		158.45		64	17	48			
274+00	PRIVATE DRIVE	RT.	16	55.56			19.56	75.12	75.12			34			
274+58	PRIVATE DRIVE	RT.	16	55.56	19.78			75.34		33	6		34		
275+00	PRIVATE DRIVE	LT.	16	55.56	23.00			78.56		35	6				
279+33	PRIVATE DRIVE	LT.	16	55.56			16.00	71.56	71.56			30			
281+40	PRIVATE DRIVE	RT.	16	55.56	35.33			90.89		41	6	34			
281+80	PRIVATE DRIVE	RT.	16	55.56	36.78			92.34		42	6	34			
284+17	PRIVATE DRIVE	LT.	16	55.56	79.56			135.12		64	6	28			
284+55	PRIVATE DRIVE	LT.	16	55.56	24.56			80.12		35	6	28			
286+24	PRIVATE DRIVE	RT.	16	55.56	51.00			106.56		49	6	34			
286+52	PRIVATE DRIVE	LT.	16	55.56		15.00		70.56		29	8	30			
287+94	PRIVATE DRIVE	RT.	16	55.56		55.478		111.04		45	12	32			
288+10	COMMERCIAL DRIVE	LT.	20	64.56		19.33		83.89		34	9	32			
288+85	COMMERCIAL DRIVE	LT.	30	88.56		26.11		114.67		47	13	42			
290+00	COMMERCIAL DRIVE	LT.	18	59.33		14.44		73.77		30	8	30			
295+00	PRIVATE DRIVE	LT.	16	55.56	59.89			115.45		54	6	34			
298+00	JEFFERSON CIRCLE	RT.	20	160.44	447.78			608.22		300	18			50	216
299+54	PRIVATE DRIVE	LT.	16	55.56	45.22			100.78		46	6	34			
302+60	PRIVATE DRIVE	LT.	16	55.56	48.89			104.45		48	6	34			
303+81	PRIVATE DRIVE	RT.	20	64.56	50.56			115.12		53	7	34			
304+00	PRIVATE DRIVE	LT.	16	55.56	51.67			107.23		50	6	34			
310+64	PRIVATE DRIVE	LT.	16	55.56	54.22			109.78		51	6	34			
311+12	PRIVATE DRIVE	RT.	16	55.56	41.22			96.78		44	6	30			
311+38	PRIVATE DRIVE	LT.	16	55.56	38.56			94.12		43	6				
313+37	PRIVATE DRIVE	RT.	16	55.56	57.78			113.34		53	6	30			
314+00	BETTIS MOUNTAIN RD.	LT.	20	167.89	92.67			260.56		117	18	58			
316+74	PRIVATE DRIVE	RT.	16	55.56	32.00			87.56		39	6				
318+73	PRIVATE DRIVE	RT.	16	55.56	16.11			71.67		31	6	30			
319+43	PRIVATE DRIVE	RT.	16	55.56	47.00			102.56		47	6	30			
323+00	PRIVATE DRIVE	RT.	16	55.56	76.11			131.67		63	6	34			
327+20	PRIVATE DRIVE	RT.	16	55.56	76.89			132.45		63	6	30			
327+30	PRIVATE DRIVE	LT.	16	55.56	52.67			108.23		50	6	34			
328+26	PRIVATE DRIVE	RT.	20	64.56	58.33			122.89		57	7	34			
332+10	PRIVATE DRIVE	LT.	16	55.56	50.44			106.00		49	6	30			
332+70	PRIVATE DRIVE	LT.	16	55.56	36.67			92.23		42	6	34			
334+80	PRIVATE DRIVE	RT.	16	55.56	63.56			119.12		56	6	30			
334+87	PRIVATE DRIVE	LT.	20	64.56	77.78			142.34		67	7	30			
336+05	PRIVATE DRIVE	RT.	16	55.56	63.33			118.89		56	6	30			
338+18	PRIVATE DRIVE	LT.	16	55.56			19.67	75.23	75.23			30			
340+90	PRIVATE DRIVE	LT.	16	55.56	32.11			87.67		39	6	34			
341+86	PRIVATE DRIVE	LT.	16	55.56	34.00			89.56		40	6	30			
343+56	PRIVATE DRIVE	RT.	16	55.56	75.56			131.12		62	6				
343+66	PRIVATE DRIVE	LT.	16	55.56	77.00			132.56		63	6		30		
346+65	PRIVATE DRIVE	RT.	18	59.33	78.56			137.89		65	7	32			
ENTIRE PROJECT TEMPORARY DRIVES										1000					
332+33	TEMP. DRIVE STAGE 1									100					
242+48	TEMP. DRIVE STAGE 2									100					
TOTALS									**469.68**	**4321**	**433**	**1768**	**64**	**50**	**216**

VOLUME CONTROL:
ACHM SURFACE COURSE (1/2"): MIN. AGGR. 94.3%, ASPHALT BINDER (PG-64-22) 5.7%

NOTE: THE CONTRACTOR, WITH APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO COST TO THE DEPARTMENT.

Nmax = 160 GYRATIONS

* REFER TO DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS).

CLEARING AND GRUBBING

STATION	STATION	CLEARING	GRUBBING
		STATION	
222+00	276+00	54	54
277+00	279+00	2	2
282+00	284+00	2	2
288+00	289+00	1	1
290+00	298+00	8	8
299+00	302+00	3	3
303+00	332+00	29	29
333+00	335+00	2	2
336+00	350+00	14	14
TOTALS		115	115

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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.		050166	36	118

(2) QUANTITY SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		ACHM BINDER COURSE (1") (660 LBS./SQ. YD.)			ACHM SURFACE COURSE (1/2") (220 LBS./SQ. YD.)			LEVELING			TACK COAT (0.03 GAL./SQ. YD.)			TACK COAT (0.10 GAL./SQ. YD.)		
			LIN. FT.	TONS/STA.	TON	AVG. WIDTH	SQ.YD.	TON	AVG. WIDTH	SQ.YD.	TON	SQ.YD.	LBS./ SQ.YD.	TON	AVG. WIDTH	SQ.YD.	GAL.	AVG. WIDTH	SQ.YD.	GAL.
220+00.00	221+45.00	MAIN LANES-TRANSITION TO EXISTING	145.00						22.00	354	39				22.00	354	11			
221+45.00	222+00.00	MAIN LANES-TRANSITION TO EXISTING	55.00	99.25	55	1.33	8	3	32.33	198	22				24.17	148	4			
222+00.00	225+00.00	MAIN LANES-2 LANE NOTCH & WIDENING	300.00	198.50	596	2.67	89	29	64.33	2144	236	733	275	101	48.50	1617	49	22	244	24
225+00.00	227+00.00	MAIN LANES-TRANSITION FROM 2 LANES TO 3 LANES	200.00	187.50	375	8.51	189	62	75.25	1672	184	489	275	67	60.38	1342	40	22	244	24
227+00.00	281+40.00	MAIN LANES-NB PASSING LANE	5440.00	176.50	9602	14.33	8662	2858	86.17	52085	5729	13298	275	1828	72.25	43671	1310	22	244	24
281+40.00	288+00.00	MAIN LANES-TRANSITION FROM 3 LANES TO 2 LANES	660.00	187.50	1238	8.51	624	206	75.25	5518	607	1613	275	222	60.38	4428	133	22	244	24
288+00.00	291+00.00	MAIN LANES-2 LANE NOTCH & WIDENING	300.00	198.50	596	2.67	89	29	64.33	2144	236	733	275	101	48.50	1617	49	22	244	24
291+00.00	297+60.00	MAIN LANES-TRANSITION FROM 2 LANES TO 3 LANES	660.00	187.50	1238	8.51	624	206	75.25	5518	607	1613	275	222	60.38	4428	133	22	244	24
297+60.00	348+00.00	MAIN LANES-SB PASSING LANE	5040.00	176.50	8896	14.33	8025	2648	86.17	48255	5308	12320	275	1694	72.25	40460	1214	22	244	24
348+00.00	350+00.00	MAIN LANES-TRANSITION FROM 3 LANES TO 2 LANES	200.00	187.50	375	8.51	189	62	75.25	1672	184	489	275	67	60.38	1342	40	22	244	24
350+00.15	350+55.15	MAIN LANES-TRANSITION TO EXISTING	55.00	99.25	55	1.33	8	3	32.33	198	22				24.17	148	4			
350+55.15	352+00.15	MAIN LANES-TRANSITION TO EXISTING	145.00						22.00	354	39				22.00	354	11			
		ADDITIONAL AGGREGATE FOR SUPERELEVATION			353															
		ADDITIONAL FOR GRADE RAISE						2226								6172	185			
TOTALS					**23379**			**8332**			**13213**			**4302**			**3183**			**192**

VOLUME CONTROL:
ACHM BINDER COURSE (1"): MIN. AGGR. 95.3%, ASPHALT BINDER (PG 70-22) 4.7%
ACHM SURFACE COURSE (1/2"): MIN. AGGR. 94.3%, ASPHALT BINDER (PG 70-22) 5.7%
Nmax = 160 GYRATIONS

COLD MILLING ASPHALT PAVEMENT

LOCATION	COLD MILLING ASPHALT PAVEMENT
	SQ. YD.
220+00 - 221+00	244
351+00 - 352+00	244
TOTAL	**488**

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

STATION	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)
	CU. YD.
249+85	9.5
250+05	17.2
271+77	18.1
278+05	14.3
297+23	9.1
313+37	13.8
TOTAL	**82.0**

FENCING ITEMS

	STATION	STATION	SIDE	REMOVAL AND DISPOSAL OF FENCE	WIRE FENCE (TYPE D)	WIRE FENCE (TYPE D-1)	WIRE FENCE (TYPE D-2)	16' GATES
				LIN. FT.				EACH
	226+50	233+11	RT.	713	652			
	228+11	231+19	LT.	318	307			
	233+19	251+14	RT.	1818		1791		
	233+54	241+70	LT.	877	826			
*	250+50	251+00	LT.	50				
	254+09	258+80	RT.	520		463		
*	260+46	267+00	RT.	713				
*	263+00	267+60	LT.	460				
	268+25	272+20	LT.		406			
	277+50	278+74	LT.		134			1
*	281+50	284+13	LT.	276				
	282+03	286+03	RT.	400		400		
*	286+44	287+69	RT.	125				
	290+25	297+81	LT.	779			779	1
	297+22	302+13	RT.	610		606		
	304+36	309+61	LT.	576		522		
	304+40	310+53	RT.	657		649		1
	314+14	326+35	LT.	1304		1241		
	320+22	320+94	RT.	90			120	
	327+71	331+15	LT.	397		346		
	329+00	331+50	RT.	283			256	
	338+00	343+59	RT.	591		585		
	345+00	348+94	LT.	450		497		
	347+43	348+95	RT.	200			200	
	TOTALS			**12207**	**2325**	**7100**	**1355**	**3**

*NOTE: PROPERTY OWNER WAS COMPENSATED FOR FENCING - REMOVAL AND DISPOSAL ONLY - DO NOT REPLACE. TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

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SUMMARY OF QUANTITIES

ITEM NO.	ITEM		QUANTITY	UNIT
201	CLEARING		115	STATION
201	GRUBBING		115	STATION
202	REMOVAL AND DISPOSAL OF FENCE		12207	LIN. FT.
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS		243	SQ. YD.
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS		1	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		32	EACH
202	REMOVAL AND DISPOSAL OF BOX CULVERTS		3	EACH
202	REMOVAL AND DISPOSAL OF LUMINAIRE POLES		1	EACH
202	REMOVAL AND DISPOSAL OF BUILDINGS		1	EACH
202	REMOVAL AND DISPOSAL OF SIGNS		4	EACH
202	REMOVAL AND DISPOSAL OF FLAG POLE		1	EACH
202	REMOVAL AND DISPOSAL OF CANOPY		1	EACH
210	UNCLASSIFIED EXCAVATION		43095	CU. YD.
210	COMPACTED EMBANKMENT		16026	CU. YD.
SP&210	SOIL STABILIZATION		200	TON
SS&303	AGGREGATE BASE COURSE (CLASS 7)		27700	TON
401	TACK COAT		3497	GAL
SPSS&406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		7940	TON
SPSS&406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")		392	TON
SPSS&407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		16925	TON
SPSS&407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		25	TON
SPSS&407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")		998	TON
412	COLD MILLING ASPHALT PAVEMENT		488	SQ. YD.
SPSS&414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		61	TON
SPSS&415	ACHM PATCHING OF EXISTING ROADWAY		100	TON
505	PORTLAND CEMENT CONCRETE DRIVEWAY		469.68	SQ. YD.
601	MOBILIZATION		1.00	LUMP SUM
SP&602	FURNISHING FIELD OFFICE		1	EACH
SS&603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
603	18" TEMPORARY CULVERT		38	LIN. FT.
SS&604	SIGNS		461	SQ. FT.
SS&604	TRAFFIC DRUMS		453	EACH
SS&604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		2077	LIN. FT.
SS&604	RELOCATING PRECAST CONCRETE BARRIER		2067	LIN. FT.
SS&604	CONSTRUCTION PAVEMENT MARKINGS		50800	LIN. FT.
SS&604	VERTICAL PANELS		189	EACH
605	CONCRETE DITCH PAVING (TYPE B)		489	SQ. YD.
SS&606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	162	LIN. FT.
606	30" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 2)	168	LIN. FT.
606	30" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 3)	168	LIN. FT.
606	30" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (16 GAUGE)	(ALTERNATE NO. 4)	168	LIN. FT.
SP&606	30" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	168	LIN. FT.
SP&606	30" PVC PIPE	(ALTERNATE NO. 6)	168	LIN. FT.
SS&606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	78	LIN. FT.
606	36" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	84	LIN. FT.
606	36" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	84	LIN. FT.
606	36" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	84	LIN. FT.
SP&606	36" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	84	LIN. FT.
SP&606	36" PVC PIPE	(ALTERNATE NO. 6)	84	LIN. FT.
SS&606	29" X 18" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	156	LIN. FT.
606	28" X 20" ALUMINUM COATED CORRUGATED STEEL ARCH PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 2)	168	LIN. FT.
606	28" X 20" ASPHALT COATED CORRUGATED STEEL ARCH PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 3)	168	LIN. FT.
606	28" X 20" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL ARCH PIPE CULVERT (16 GAUGE)	(ALTERNATE NO. 4)	168	LIN. FT.
SS&606	36" X 23" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	156	LIN. FT.
606	35" X 24" ALUMINUM COATED CORRUGATED STEEL ARCH PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	168	LIN. FT.
606	35" X 24" ASPHALT COATED CORRUGATED STEEL ARCH PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	168	LIN. FT.
606	35" X 24" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL ARCH PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	168	LIN. FT.
SS&606	44" X 27" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	162	LIN. FT.
606	42" X 29" ALUMINUM COATED CORRUGATED STEEL ARCH PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	168	LIN. FT.
606	42" X 29" ASPHALT COATED CORRUGATED STEEL ARCH PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	168	LIN. FT.
606	42" X 29" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL ARCH PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	168	LIN. FT.
SS&606	18" SIDE DRAIN		1768	LIN. FT.
SS&606	24" SIDE DRAIN		64	LIN. FT.
SS&606	36" SIDE DRAIN		50	LIN. FT.
SS&606	57" X 38" SIDE DRAIN		216	LIN. FT.
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	4	EACH
606	30" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	4	EACH
606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	2	EACH
606	36" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	2	EACH
606	29" X 18" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS	(ALTERNATE NO. 1)	4	EACH
606	28" X 20" FLARED END SECTIONS FOR CORRUGATED STEEL ARCH PIPE CULVERT	(ALTERNATE NO. 2)	4	EACH
606	36" X 23" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS	(ALTERNATE NO. 1)	4	EACH
606	35" X 24" FLARED END SECTIONS FOR CORRUGATED STEEL ARCH PIPE CULVERT	(ALTERNATE NO. 2)	4	EACH
606	44" X 27" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS	(ALTERNATE NO. 1)	4	EACH
606	42" X 29" FLARED END SECTIONS FOR CORRUGATED STEEL ARCH PIPE CULVERT	(ALTERNATE NO. 2)	4	EACH
606	SELECTED PIPE BEDDING		100	CU. YD.
606	SELECTED PIPE BACKFILL		200	CU. YD.
611	UNDERDRAIN OUTLET PROTECTORS		8	EACH
611	4" PIPE UNDERDRAINS		1000	LIN. FT.
615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)		82.0	CU. YD.
619	WIRE FENCE (TYPE D)		2325	LIN. FT.
619	WIRE FENCE (TYPE D-1)		7100	LIN. FT.
619	WIRE FENCE (TYPE D-2)		1355	LIN. FT.
619	16' STEEL GATES	(ALTERNATE NO. 1)	3	EACH
619	16' ALUMINUM GATES	(ALTERNATE NO. 2)	3	EACH
620	LIME		27	TON
620	SEEDING		13.28	ACRE
620	MULCH COVER		39.84	ACRE
SS&620	WATER		1635.6	MGAL
621	TEMPORARY SEEDING		13.28	ACRE
621	SILT FENCE		2313	LIN. FT.
621	SAND BAG DITCH CHECKS		2525	BAG
621	SEDIMENT BASIN		2217	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN		2217	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL		3000	CU. YD.
623	SECOND SEEDING APPLICATION		13.28	ACRE
624	SOLID SODDING		783	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
637	MAILBOXES		35	EACH
637	MAILBOX SUPPORTS (SINGLE)		35	EACH
SS&719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")		28888	LIN. FT.
SS&719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")		26400	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)		875	EACH
SP	TEMPORARY IMPACT ATTENUATION BARRIER		3	EACH
SP	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		6	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY		254	CU. YD.
802	CLASS S CONCRETE-ROADWAY		393.89	CU. YD.
SS&804	REINFORCING STEEL-ROADWAY (GRADE 60)		53177	POUND
	STRUCTURES OVER 20'-0" SPAN			
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY		60	CU. YD.
802	CLASS S CONCRETE-ROADWAY		127.67	CU. YD.
SS&804	REINFORCING STEEL-ROADWAY (GRADE 60)		12979	POUND

* DENOTES ALTERNATE BID ITEMS

REVISIONS

DATE	DESCRIPTION	PAGE NO.(S)

12-12-11

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 17605
MICHAEL D. BUGETT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		37	118

JOB NO. 050166

(2) SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	38	118

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11

ARKANSAS STATE PLANE COORDINATES (FEET)
BASED ON GPS CONTROL
PROJECTED TO GROUND

Point	Northing	Easting	Elevation
34	382625.85040	1249618.73940	598.84067
35	383204.43663	1250385.26493	611.70153
36	383816.37545	1251237.50318	619.73957
37	384225.91178	1251717.97078	622.99744
38	384859.17132	1252887.85101	633.01054
39	385359.34861	1253797.42355	634.08338
40	385685.83323	1254354.48563	635.87143
41	386340.13131	1255579.73806	639.35568
42	386974.11270	1256729.90204	637.94492
43	387365.36663	1257360.39888	642.14110
44	387627.84315	1257912.10617	647.10500
45	388071.84438	1258685.46627	652.66930
46	388734.33542	1259921.67436	655.42192
47	389251.20377	1260819.46112	647.79398
48	389733.02648	1261725.40146	631.83929
49	390154.08283	1262488.50806	631.64244
50	390752.03095	1263509.45167	613.31898
51	391421.89795	1263711.67041	593.22716
52	391998.96830	1263971.71234	594.07033
1624	382799.95322	1249652.72197	0.00000
1625	382688.73964	1249492.08159	0.00000
1626	382580.21329	1249789.68906	0.00000
1627	382517.45202	1249523.06521	0.00000
1628	383367.01615	1250386.45270	0.00000
1629	383332.18705	1250481.24427	0.00000
1630	383176.62585	1250526.21859	0.00000
1631	383050.89659	1250338.96176	0.00000
1632	383846.64050	1251378.75870	0.00000
1633	383617.71344	1251203.39921	0.00000
1634	383744.49922	1251336.86535	0.00000
1635	383814.64630	1251147.67922	0.00000
1636	384249.44398	1251661.32223	0.00000
1637	383966.52608	1251654.05127	0.00000
1638	384131.67800	1251752.95080	0.00000
1639	384027.96506	1251623.67794	0.00000
1640	384753.66361	1252885.40658	0.00000
1641	384827.87928	1252987.49208	0.00000
1642	384979.24393	1252861.37237	0.00000
1643	384920.01970	1252769.34678	0.00000
1644	385405.73710	1253709.98497	0.00000
1645	385384.14404	1253635.93008	0.00000
1646	385253.67029	1253862.32412	0.00000
1647	385187.73945	1253817.97977	0.00000
1648	385576.06991	1254424.59005	0.00000
1649	385706.82912	1253982.34423	0.00000
1650	385453.85145	1254200.07938	0.00000
1651	385592.95127	1253963.64512	0.00000
1652	386250.86515	1255571.05950	0.00000
1653	386449.81261	1255592.33100	0.00000
1654	386327.50884	1255735.58800	0.00000
1655	386428.05222	1255515.89402	0.00000
1656	386875.28207	1256887.40239	0.00000
1657	386918.66176	1256798.84167	0.00000
1658	387205.85824	1256702.73765	0.00000
1659	387254.24165	1256792.69941	0.00000
1660	387342.46769	1257190.47293	0.00000
1661	387166.41589	1257235.66708	0.00000
1662	387398.54204	1257159.17432	0.00000
1663	387072.70709	1257261.73559	0.00000
1664	387550.41855	1257935.03792	0.00000
1665	387779.45717	1257893.52518	0.00000
1666	387587.24585	1258005.64435	0.00000
1667	387729.53492	1257776.01513	0.00000
1668	388020.84264	1258811.63520	0.00000
1669	387932.37379	1258653.15052	0.00000
1670	388214.20892	1258762.64479	0.00000
1671	388146.01083	1258639.26810	0.00000
1672	388681.49297	1260056.71216	0.00000
1673	388597.57176	1260042.12101	0.00000
1674	388606.84092	1259814.03392	0.00000
1675	388836.81466	1259831.38121	0.00000
1676	389132.18113	1260799.03942	0.00000
1677	389183.11724	1260885.19837	0.00000
1678	389254.79332	1260691.71069	0.00000
1679	389302.70752	1260677.14908	0.00000
1680	389641.85726	1261900.43283	0.00000
1681	389557.93604	1261668.23121	0.00000
1682	389609.50213	1261788.97645	0.00000
1683	389593.80197	1261727.55059	0.00000
1684	390251.75194	1262494.84718	0.00000
1685	390046.00928	1262603.44571	0.00000
1686	390216.77520	1262440.84650	0.00000
1687	389970.70756	1262379.45346	0.00000
1688	390918.61016	1263428.25707	0.00000
1689	390945.56128	1263481.40794	0.00000
1690	390804.48294	1263634.08176	0.00000
1691	390884.30932	1263681.01162	0.00000
1692	391468.83110	1263640.36182	0.00000
1693	391245.50491	1263604.05622	0.00000
1694	391356.94489	1263817.51280	0.00000
1695	391314.55609	1263781.25314	0.00000
1696	391909.57745	1264055.33497	0.00000
1697	392000.09701	1264096.94286	0.00000
1698	391920.99247	1263786.75886	0.00000
1699	392101.92986	1263891.04271	0.00000

USE CAF 1.0 FOR STAKEOUT ON THIS PROJECT
TO CONVERT TO GRID USE CAF 0.999912476
GRID DISTANCE=GROUND DISTANCE X CAF
GRID COORDINATES ARE STORED UNDER FILENAME 001657G1.CTL
HORIZONTAL DATUM: NAD-83
VERTICAL DATUM: NAVD88
REFERENCE POINTS (1600 SERIES) TO BE USED TO ESTABLISH CONTROL POINTS BY RESECTION

BASIS OF BEARINGS

GRID NORTH, BASED ON GPS CONTROL AT POINT NO. 102
ARKANSAS STATE PLANE GRID COORDINATES, NORTH ZONE
CONVERGENCE ANGLE AT POINT NO. 102=0°05'36" LT.
GRID AZIMUTH=ASTRONOMICAL AZIMUTH-CONVERGENCE ANGLE

CONST

POINT NO.	TYPE	STATION	NORTHING	EASTING
300	POB	200+00.00	382801.7962	1249845.1228
8000	P.C.	211+92.12	383491.1496	1250817.7157
8002	P.T.	216+05.61	383742.2163	1251146.1488
8003	P.C.	221+63.68	384096.9144	1251576.9963
8005	P.T.	226+93.19	384393.8735	1252014.4822
8006	P.I.	271+49.98	386545.9260	1255917.2578
8007	P.I.	274+73.73	386701.7867	1256201.0196
8008	P.I.	280+87.43	386998.5922	1256738.1780
8009	P.I.	285+50.15	387222.4066	1257143.1640
8010	P.I.	288+00.00	387342.6461	1257362.1833
8011	P.I.	291+00.00	387488.8091	1257624.1710
8012	P.I.	299+01.81	387874.8867	1258326.9072
8013	P.I.	314+66.83	388630.2974	1259697.5456
8014	P.I.	326+04.87	389181.7428	1260693.0504
8015	P.I.	349+00.00	390293.9777	1262700.6823
8016	P.I.	350+00.15	390341.6323	1262788.7644
308	POT	350+44.50	390363.1230	1262827.5561
8017	POE	352+00.15	390438.5518	1262963.7083

CO. RD. 298+00

POINT NO.	TYPE	STATION	NORTHING	EASTING
8100	POB	0+50.00	387818.4128	1258224.1137
8101	P.C.	0+75.43	387796.1234	1258236.3593
8103	P.T.	2+38.38	387638.3878	1258261.9920
8104	P.C.	2+56.03	387621.0226	1258258.8287
8106	P.T.	3+40.02	387537.5916	1258249.8763
8107	POE	3+57.46	387520.1591	1258249.2903

r050166.dgn 7/29/2011

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.		050166	39	118

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11

STA. 227+00.00
BEGIN N.B.
PASSING LANE

P.I.: 224+29.19

P.T.: 226+93.19

P.C. = 221+63.68
P.I. = 224+29.19
P.T. = 226+93.19
Δ = 10°35'24.4" RT.
D = 2°00'00.0"
T = 265.51'
L = 529.51'

STA. 222+00.00
BEGIN JOB 050166
LOG MILE 2.51

SURVEY BASELINE N 49°33'24" E
CONST C.L. N 50°32'13" E 265.51'
CONST C.L. N 61°07'37" E 265.51'
SURVEY BASELINE N 61°34'23" E 1330.28'

PN1636 PN1637 PN1638 PN1639 PN1640 PN1641 PN1642 PN1643 PN1644 PN1645 PN1646 PN1647 PN1651

PN933 PDI:TBM-31 RR SPK TP RT. C/L

PN932 PDI:TBM-32 BM D 207 1962

PN933 PDI:TBM-33 RR SPK CP LT C/L

PN:38 PN:39

CONST C.L.
SURVEY BASELINE N 61°11'36" E 1038.03'
N 61°07'37" E 4456.79'

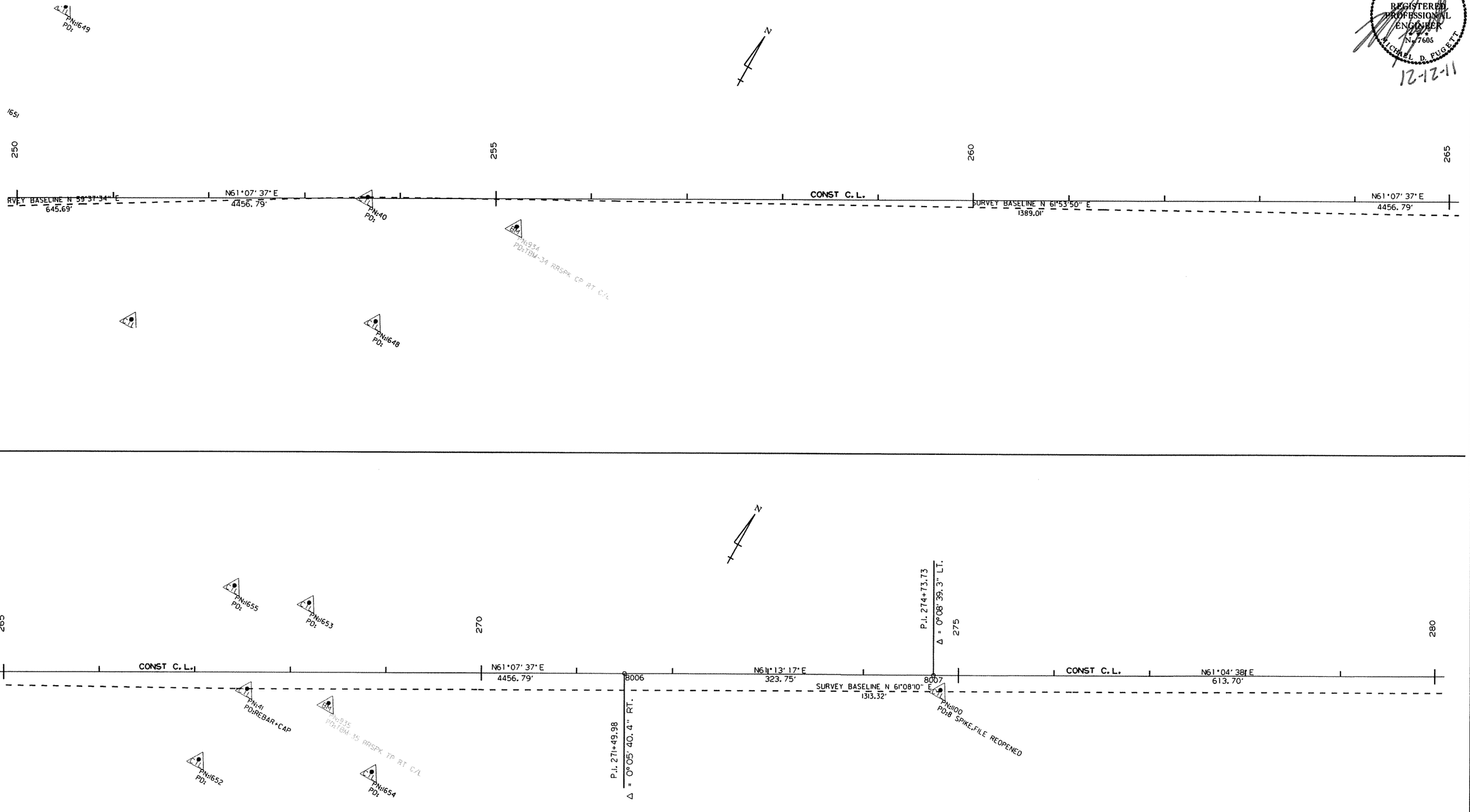
SURVEY CONTROL DETAILS

r050166.dgn 7/29/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	40	118

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11



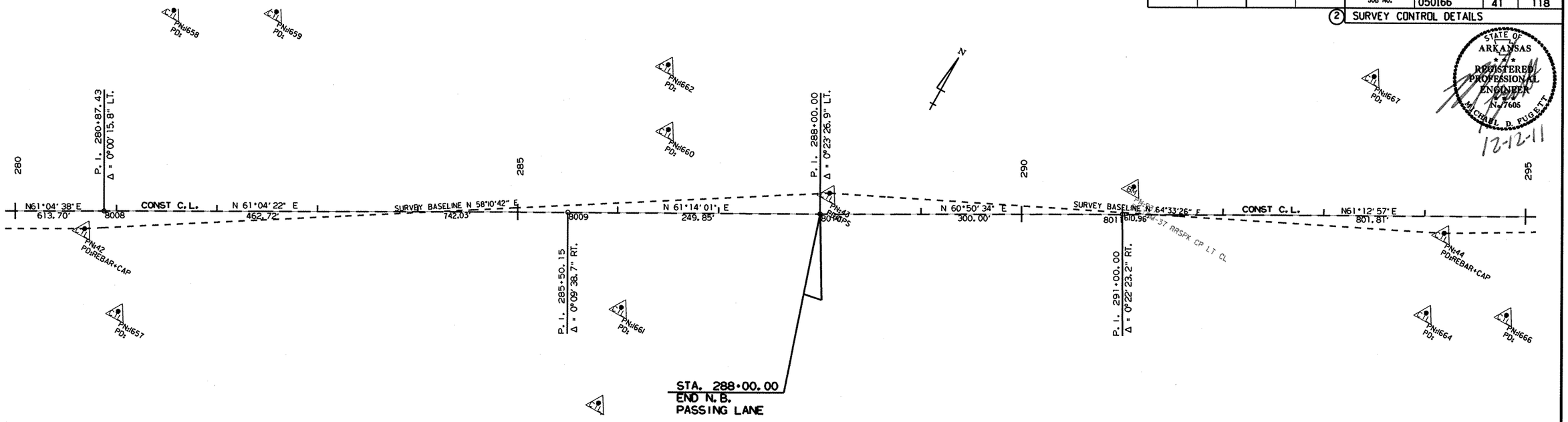
r050166.dgn 7/29/2011

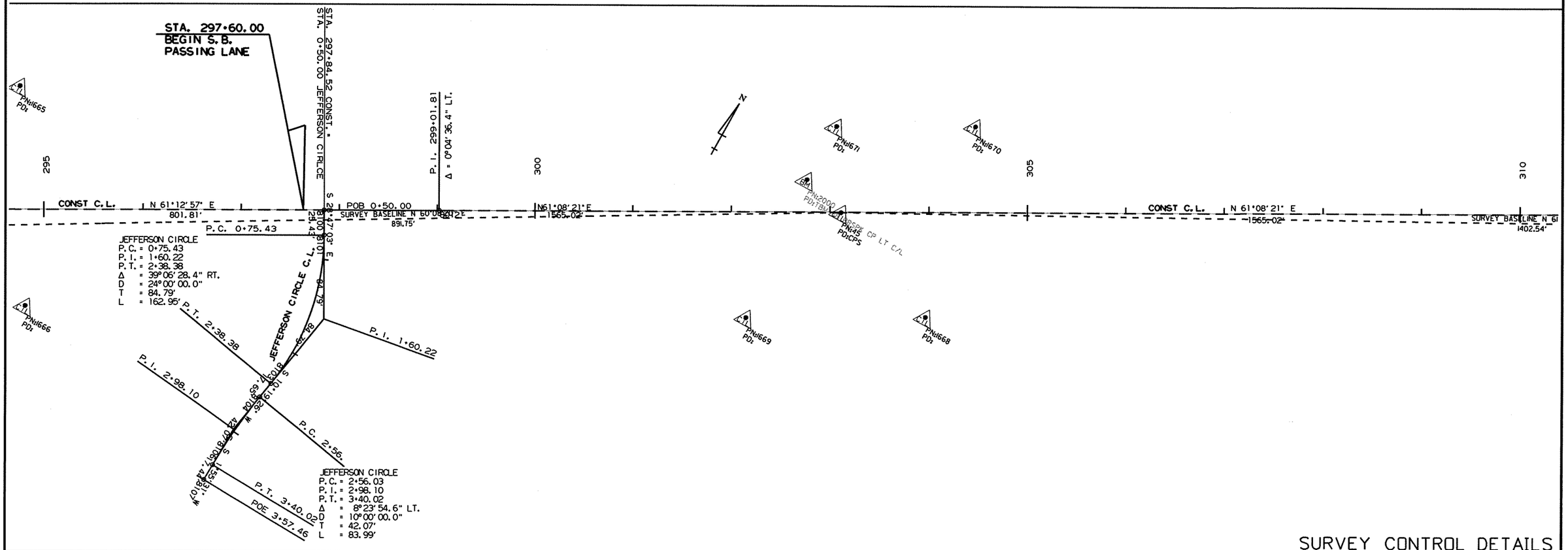
SURVEY CONTROL DETAILS

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.		050166	41	118

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
CHARL D. FUGETT
12-12-11





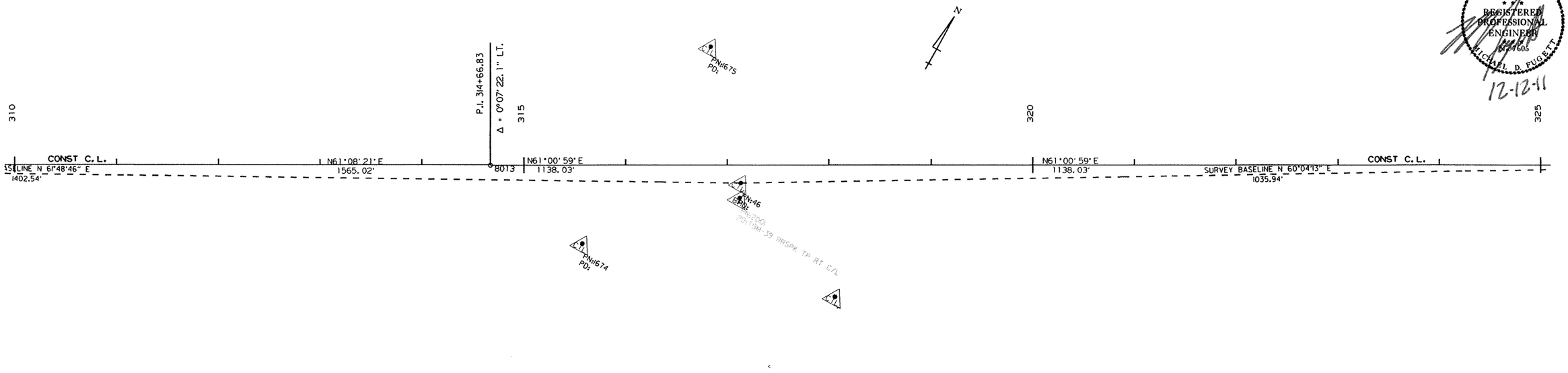
r050166.dgn 7/29/2011

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.		050166	42	118

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
84297605
MICHAEL D. FUGETT
12-12-11



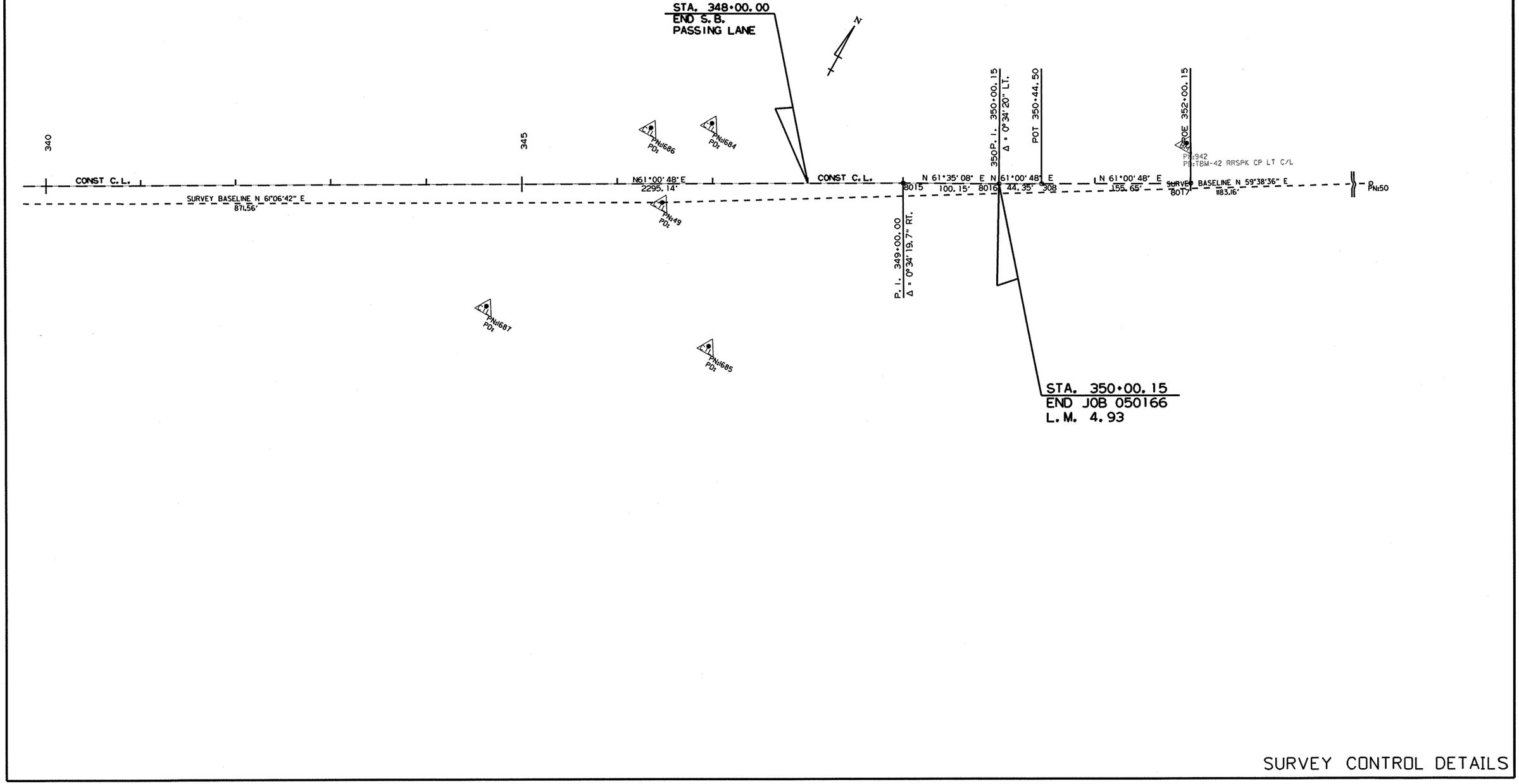
SURVEY CONTROL DETAILS

r050166.dgn 7/29/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	43	118

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11



r050166.dgn 7/29/2011

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.		050166	44	118

(2) PLAN & PROFILE STA. 220+00-STA. 235+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11

FENCING

STATION	STATION	SIDE	WIRE FENCE TYPE D LIN. FT.
228+11	231+19	LT.	307
233+54	241+70	LT.	826

STA. 223+36 INSTALL
18" X 38"
LT. SIDE DRAIN
CONST. APPR. = 40 CU. YD.

STA. 226+97 IN PLACE
15" X 24" C.M. SIDE
DRAIN ON LT.
REMOVE & INSTALL
18" X 42"
LT. SIDE DRAIN
CONST. APPR. = 70 CU. YD.

STA. 232+16 INSTALL
18" X 30"
LT. SIDE DRAIN
CONST. APPR. = 20 CU. YD.

200' TRANSITION
PAVED PARKING
EXISTING R/W
CONST. LIMITS
PROPOSED R/W
N 50° 32' 13" E
N 61° 07' 37" E
P.I. 224+29.19
224+30.00 28
225+50.00 55.00
225+85.00 65.00
226+50.00 65.00
226+90.00 50.00
T.C.E.
227+30.00 55.00
227+80.00 40.82
231+74.00 40.74
232+20.00 40.74
233+00.00 40.72
233+75.00 55.00
234+30.00 55.00
221+00.00 40.00
221+63.68 P.C.
223+00.00 55.00
225+00.00 50.00
225+85.00 75.00
226+50.00 75.00
226+93.19 P.T.
227+00.00 60.00
STA. 225+00 END N.B. PASSING LANE
STA. 227+00 BEGIN N.B. PASSING LANE
200' N.B. PASSING LANE ADDITION TAPER
232+75.00 60.00
233+10.00 60.00
233+50.00 60.00
234+00.00 70.00
234+50.00 70.00
239+00.00 60.00
8.12°24'.9"

STA. 221+09 IN PLACE
2' X 3' X 34' R.C. BOX
CULVERT CROSS DRAIN
RETAIN
STORM SEWER

STA. 222+32 INSTALL
18" X 34'
RT. SIDE DRAIN
CONST. APPR. = 30 CU. YD.

STA. 221+39 IN PLACE
18" X 25' R.C. SIDE
DRAIN ON RT.
RETAIN

P.C. = 221+63.68
P.T. = 226+93.19
P.I. = 224+29.19
Δ = 10°35'24.4" RT.
D = 2°00'00.0"
T = 265.51'
L = 529.51'
e = 0.048'/'
Ls = 300.00'

STA. 226+09 IN PLACE
6' X 3' X 40' R.C. BOX CULVERT
W/ HDWLS. LT. & RT.
RETAIN & EXTEND
23' LT. & 26' RT.
@ 15° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
TO A COMPLETED LENGTH = 89'
Q25 = 77 CFS D.A. = 45 ACRES

FENCING

STATION	STATION	SIDE	WIRE FENCE TYPE D LIN. FT.	WIRE FENCE TYPE D-1 LIN. FT.
226+61	233+11	RT.	652	
233+19	251+14	RT.		1791

STA. 233+07 INSTALL
18" X 34'
RT. SIDE DRAIN
CONST. APPR. = 30 CU. YD.

STA. 234+16 IN PLACE
4' X 2' X 33' R.C. BOX CULVERT
W/ HDWLS. LT. & RT.
RETAIN & EXTEND
20' LT. @ 15° RT. FWD. SKEW
& 34' RT.
WITH 3:1 WINGS LT. & RT.
TO A COMPLETED LENGTH = 87'
Q25 = 29 CFS D.A. = 11 ACRES

STA. 222+00.00
BEGIN JOB 050166
LOG MILE 2.51

STA. 221+00.00 MATCH EXISTING SUPERELEVATION
STA. 222+38.68 MAX. SUPERELEVATION (0.048 FT./FT.)
STA. 226+18.19 MAX. SUPERELEVATION (0.048 FT./FT.)
STA. 229+18.19 END SUPERELEVATION

670 660 650 640 630 620 610 600 590 580

STREAM NAME TRIBUTARY TO MILL CREEK | STATION STA. 226+09 | STREAM TYPE INTERMITTENT | TOP OF CHANNEL 614.0 FT. MSL.

STREAM NAME TRIBUTARY TO MILL CREEK | STATION STA. 234+16 | STREAM TYPE INTERMITTENT | TOP OF CHANNEL 628.0 FT. MSL.

LT. DITCH GRADE 2.64%
RT. DITCH GRADE 0.18%
LT. DITCH GRADE -0.42%
RT. DITCH GRADE -0.89%
LT. DITCH GRADE -1.44%
RT. DITCH GRADE -2.08%
LT. DITCH GRADE -2.80%
RT. DITCH GRADE -2.35%
VC-285'
e-2.07'
K-49
RT. DITCH GRADE 5.08%
LT. DITCH GRADE 4.83%
3.73%

221+00.00LT. 619.50
221+00.00RT. 620.13
222+00.00RT. 620.31
222+00.00LT. 622.14
223+00.00LT. 621.72
224+00.00RT. 618.53
224+00.00LT. 620.28
224+72.01 620.95
226+00.00RT. 613.83
226+00.00LT. 612.66
226+14.51 617.99
226+09.00RT. 611.77
227+00.00RT. 616.39
226+97.00LT. 617.70
227+57.01 623.30
228+00.00LT. 622.67

STA. 226+09
F.L. INLET RT. 611.77
F.L. OUTLET LT. 610.31

BM: 931 TBM-31 RRSPK TP
31.75 RT. OF STA. 225+88.34
ELEVATION = 616.59

STA. 234+16
F.L. INLET RT. 625.96
F.L. OUTLET LT. 624.46

BM: 932 TBM-32 BM D 207 1962 CM
15 RT. OF STA. 234+16.54
ELEVATION = 629.23

220+00 221+00 222+00 223+00 224+00 225+00 226+00 227+00 228+00 229+00 230+00 231+00 232+00 233+00 234+00 235+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.		050166	45	118

(2) PLAN & PROFILE STA. 235+00-STA. 250+00

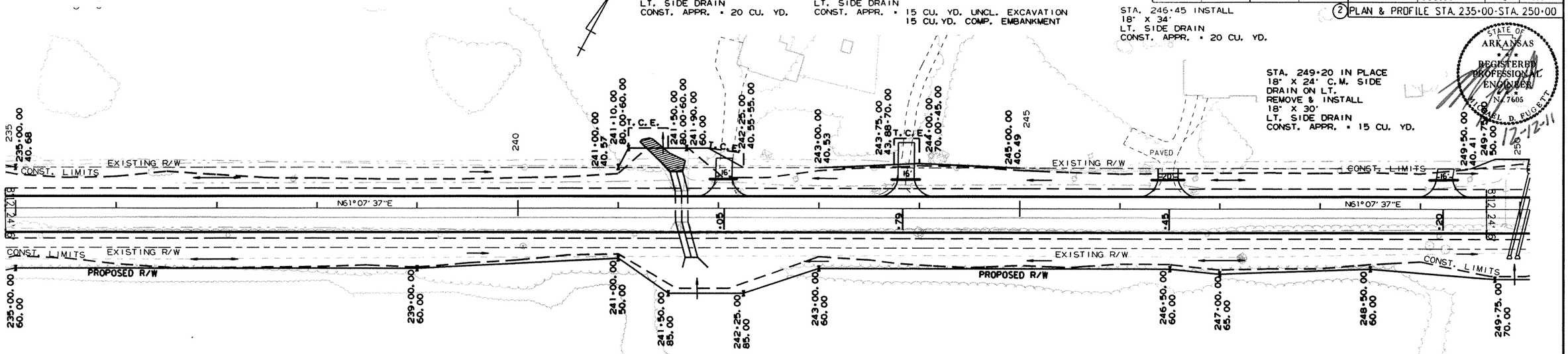
STA. 242+05 IN PLACE
15" X 20' C.M. SIDE DRAIN ON LT.
REMOVE & INSTALL
18" X 28'
LT. SIDE DRAIN
CONST. APPR. = 20 CU. YD.

STA. 243+79 IN PLACE
18" X 24' C.M. SIDE DRAIN ON LT.
REMOVE & INSTALL
18" X 30'
LT. SIDE DRAIN
CONST. APPR. = 15 CU. YD. UNCL. EXCAVATION
15 CU. YD. COMP. EMBANKMENT

STA. 246+45 INSTALL
18" X 34'
LT. SIDE DRAIN
CONST. APPR. = 20 CU. YD.

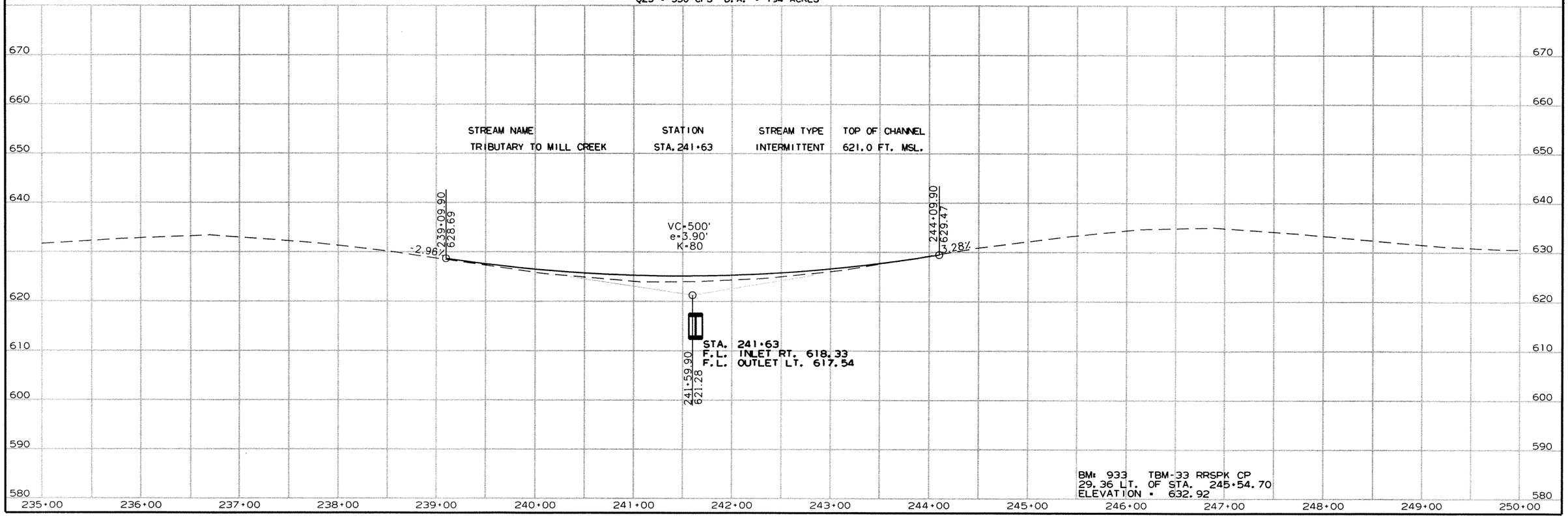
STA. 249+20 IN PLACE
18" X 24' C.M. SIDE DRAIN ON LT.
REMOVE & INSTALL
18" X 30'
LT. SIDE DRAIN
CONST. APPR. = 15 CU. YD.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
12-12-11



STA. 241+63 IN PLACE
DBL. 6' X 4' X 31' R.C. BOX CULVERT
W/ HDWLS. LT. & RT.
RETAIN & EXTEND
21' LT. @ 15° RT. FWD. SKEW
& 36' RT. @ 15° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
TO A COMPLETED LENGTH = 88'
Q25 = 350 CFS D.A. = 194 ACRES

STA. 249+85 IN PLACE
3' X 2' X 32' R.C. BOX CULVERT
REMOVE



BM: 933 TBM-33 RRSPK CP
29.36 LT. OF STA. 245+54.70
ELEVATION = 632.92

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				6	ARK.			
				JOB NO.		050166	46	118

(2) PLAN & PROFILE STA. 250+00-STA. 265+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL R. PUGETT
12-12-11

STA. 253+50 IN PLACE
18" X 25' R.C. SIDE
DRAIN ON LT.
REMOVE & INSTALL
18" X 28'
LT. SIDE DRAIN
CONST. APPR. = 10 CU. YD.

N61°07'37"E

EXISTING R/W
CONST. LIMITS
PROPOSED R/W
T.C.E.

STA. 250+05 CONSTRUCT
DBL. 35" X 23" X 84' ARCH PIPE CULVERT
W/ FES, LT. & RT.
15° LT. FWD. SKEW
Q25 = 65 CFS D.A. = 28 ACRES
35" X 24" C.M. ARCH PIPE
(TYPE 2 BEDDING) = 168 LIN. FT.
36" X 23" R.C. ARCH PIPE
(CLASS III) (TYPE 3 BEDDING) = 156 LIN. FT.
35" X 24" C.M. F.E.S. = 4 EACH
36" X 23" R.C. F.E.S. = 4 EACH

STA. 253+40 IN PLACE
18" X 23' C.M. SIDE
DRAIN ON RT.
REMOVE & INSTALL
18" X 42'
RT. SIDE DRAIN
CONST. APPR. = 15 CU. YD. UNCL. EXCAVATION
30 CU. YD. COMP. EMBANKMENT

FENCING

STATION	STATION	SIDE	WIRE FENCE TYPE D LIN. FT.	WIRE FENCE TYPE D-1 LIN. FT.
254+09	258+80	RT.		463
262+58	267+00	RT.	454	

STA. 259+36 & INSTALL
18" X 34'
RT. SIDE DRAIN
CONST. APPR. = 20 CU. YD. UNCL. EXCAVATION
30 CU. YD. COMP. EMBANKMENT

STA. 260+89 IN PLACE
18" X 57' C.M. SIDE
DRAIN ON RT.
REMOVE & INSTALL
18" X 62'
RT. SIDE DRAIN
CONST. APPR. = 15 CU. YD. UNCL. EXCAVATION
55 CU. YD. COMP. EMBANKMENT

STA. 263+86 IN PLACE
10' X 5' X 29' R.C. BOX CULVERT
W/ HDWLS. LT. & RT.
RETAIN & EXTEND
22' LT. & 36' RT.
WITH 3:1 WINGS LT. & RT.
TO A COMPLETED LENGTH = 87'
Q25 = 350 CFS D.A. = 194 ACRES

-2.34%
262+68.78
633.35
VC=300'
e=2.04'
K=55
264+18.78
629.84

STA. 250+05
F.L. INLET RT. 626.14
F.L. OUTLET LT. 625.14

STA. 263+86
F.L. INLET RT. 623.50
F.L. OUTLET LT. 622.29

BM: 934 TBM-34 RRSPK CP
29.3 RT. OF STA. 255+22.15
ELEVATION = 639.99

680 670 660 650 640 630 620 610 600 590

250+00 251+00 252+00 253+00 254+00 255+00 256+00 257+00 258+00 259+00 260+00 261+00 262+00 263+00 264+00 265+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.		050166	47	118

(2) PLAN & PROFILE STA. 265·00-STA. 280·00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. PUGETT
12-2-11

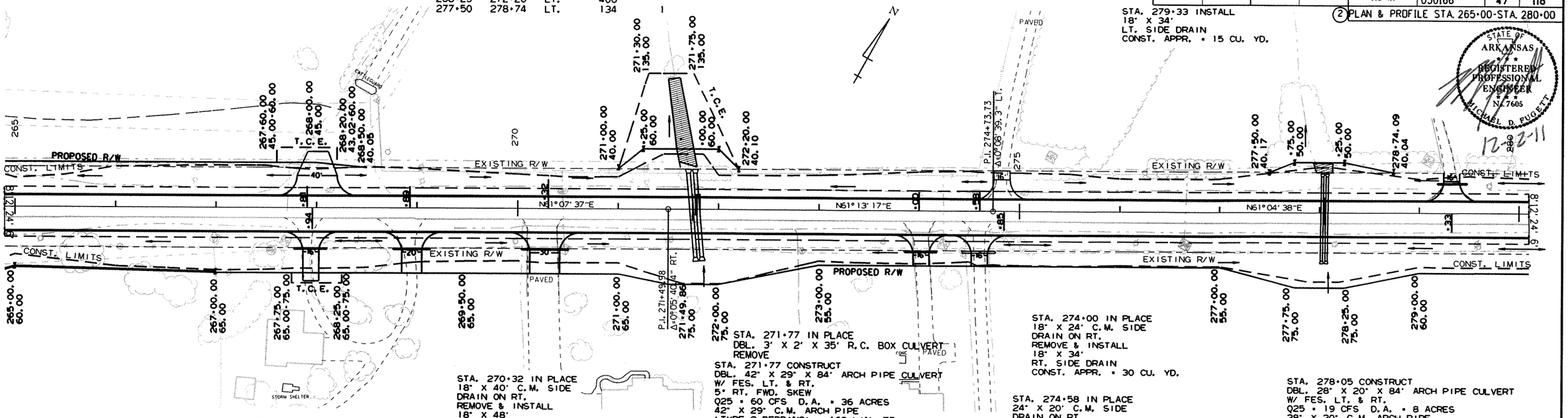
STA. 267·94
CONST. APPR. = 20 CU. YD.

FENCING

STATION	STATION	SIDE	WIRE FENCE TYPE D LIN. FT.	16' GATES EACH
268·25	272·20	LT.	406	
277·50	278·74	LT.	134	1

STA. 274·85
CONST. APPR. = 15 CU. YD.

STA. 279·33 INSTALL
18" X 34'
LT. SIDE DRAIN
CONST. APPR. = 15 CU. YD.



STA. 267·81 INSTALL
18" X 34'
RT. SIDE DRAIN
CONST. APPR. = 20 CU. YD. UNCL. EXCAVATION
25 CU. YD. COMP. EMBANKMENT

STA. 268·89 INSTALL
18" X 38'
RT. SIDE DRAIN
CONST. APPR. = 5 CU. YD. UNCL. EXCAVATION
35 CU. YD. COMP. EMBANKMENT

STA. 270·32 IN PLACE
18" X 40' C.M. SIDE
DRAIN ON RT.
REMOVE & INSTALL
18" X 48'
RT. SIDE DRAIN
CONST. APPR. = 5 CU. YD. UNCL. EXCAVATION
45 CU. YD. COMP. EMBANKMENT

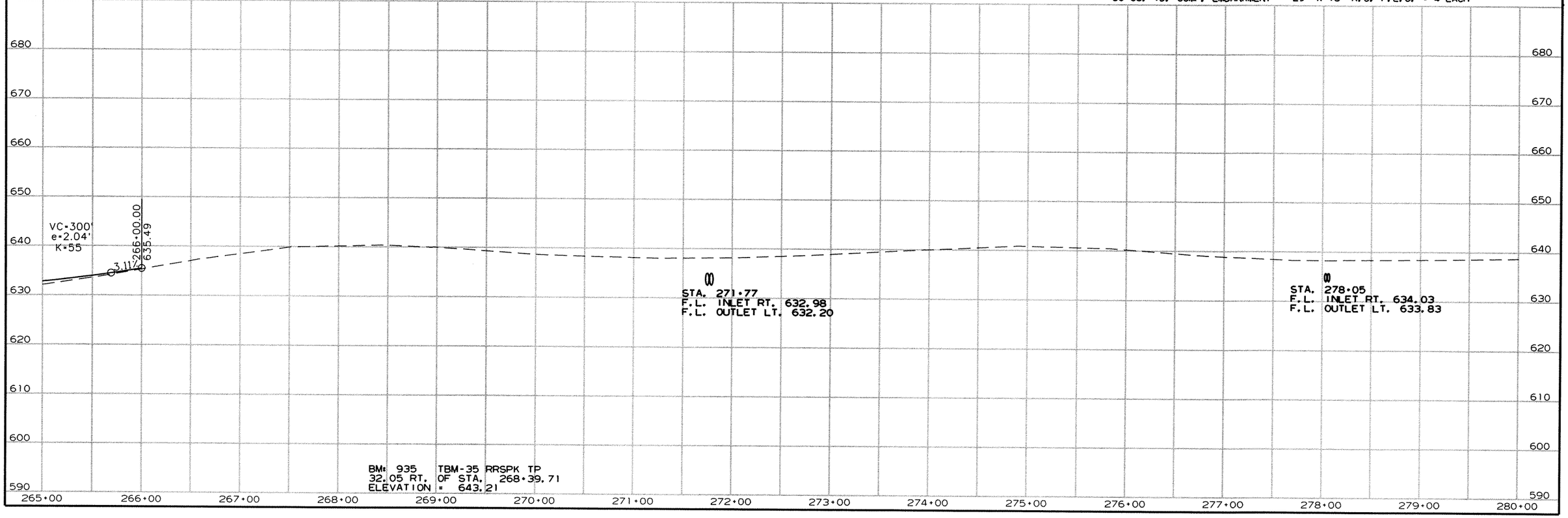
STA. 271·77 IN PLACE
DBL. 3' X 2' X 35' R.C. BOX CULVERT
REMOVE

STA. 271·77 CONSTRUCT
DBL. 42" X 29" X 84" ARCH PIPE CULVERT
W/ FES, LT. & RT.
5° RT. FWD. SKEW
Q25 = 60 CFS D.A. = 36 ACRES
42" X 29" C.M. ARCH PIPE
(TYPE 2 BEDDING) = 168 LIN. FT.
44" X 27" R.C. ARCH PIPE
(CLASS III) (TYPE 3 BEDDING) = 162 LIN FT.
42" X 29" C.M. F.E.S. = 4 EACH
44" X 27" R.C. F.E.S. = 4 EACH

STA. 274·00 IN PLACE
18" X 24' C.M. SIDE
DRAIN ON RT.
REMOVE & INSTALL
18" X 34'
RT. SIDE DRAIN
CONST. APPR. = 30 CU. YD.

STA. 274·58 IN PLACE
24" X 20' C.M. SIDE
DRAIN ON RT.
REMOVE & INSTALL
24" X 34'
RT. SIDE DRAIN
CONST. APPR. = 5 CU. YD. UNCL. EXCAVATION
30 CU. YD. COMP. EMBANKMENT

STA. 278·05 CONSTRUCT
DBL. 28" X 20" X 84" ARCH PIPE CULVERT
W/ FES, LT. & RT.
Q25 = 19 CFS D.A. = 8 ACRES
28" X 20" C.M. ARCH PIPE
(TYPE 2 BEDDING) = 168 LIN. FT.
29" X 18" R.C. ARCH PIPE
(CLASS III) (TYPE 3 BEDDING) = 156 LIN FT.
28" X 20" C.M. F.E.S. = 4 EACH
29" X 18" R.C. F.E.S. = 4 EACH



BM: 935 TBM-35 RRSPK TP
32.05 RT. OF STA. 268·39.71
ELEVATION = 643.21

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				6	ARK.			
				JOB NO.		050166	48	118

(2) PLAN & PROFILE STA. 280+00-STA. 295+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-19-11

FENCING

STATION	STATION	SIDE	WIRE FENCE TYPE D-2 LIN. FT.	16' GATES EACH
290+25	297+81	LT.	779	1

STA. 284+17 IN PLACE
18" X 30' C.M. SIDE
DRAIN ON LT.
REMOVE & INSTALL
18" X 28'
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YD.

STA. 284+55 IN PLACE
18" X 25' C.M. SIDE
DRAIN ON LT.
REMOVE & INSTALL
18" X 28'
LT. SIDE DRAIN
CONST. APPR. = 10 CU. YD.

STA. 286+52 IN PLACE
18" X 24' C.M. SIDE
DRAIN ON LT.
REMOVE & INSTALL
18" X 30'
LT. SIDE DRAIN
CONST. APPR. = 15 CU. YD.

STA. 288+10 IN PLACE
18" X 25' C.M. SIDE
DRAIN ON LT.
REMOVE & INSTALL
18" X 32'
LT. SIDE DRAIN
CONST. APPR. = 15 CU. YD.

STA. 288+85 IN PLACE
18" X 32' C.M. SIDE
DRAIN ON LT.
REMOVE & INSTALL
18" X 42'
LT. SIDE DRAIN
CONST. APPR. = 20 CU. YD.

STA. 290+00 IN PLACE
18" X 20' C.M. SIDE
DRAIN ON LT.
REMOVE & INSTALL
18" X 30'
LT. SIDE DRAIN
CONST. APPR. = 15 CU. YD.

STA. 291+00

660' SB PASSING LANE DROP TAPER

P.I. 280+87.43
Δ=0°00'15.8" LT.

281+50.00
99.75

282+50.00
60.00

283+25.00
60.00

284+00.00
55.00-39.46

284+40.00
39.42-55.00

T.C.E.

PROPOSED R/W

EXISTING R/W

CONST. LIMITS

N61°04'38"E

N51°04'22"E

N61°14'01"E

P.I. 288+00.00
Δ=0°23'26.9" LT.

290+25.00
38.55

N60°50'34"E

N61°12'57"E

B 212.74

B 212.28

285

290

281+00.00
60.00-65.00

282+00.00
60.00-65.00

282+50.00
75.00-85.00

283+50.00
75.00-85.00

284+00.00
50.00

P.I. 285+50.15
Δ=0°09'38.7" RT.
50.00

285+00.00
50.00-60.00

286+40.00
50.00-60.00

287+00.00
50.00

287+70.00
46.50-65.00

288+00.00
45.00-65.00

STA. 288+00
END N.B. PASSING LANE

291+00.00
45.00

294+00.00
45.00

295+00.00
50.00

P.I. 291+00.00
Δ=0°22'23.2" RT.

STA. 281+40

STA. 281+80 IN PLACE
18" X 25' PLASTIC SIDE
DRAIN ON RT.
REMOVE & INSTALL
18" X 34'
RT. SIDE DRAIN
CONST. APPR. = 5 CU. YD. UNCL. EXCAVATION
25 CU. YD. COMP. EMBANKMENT

660' NB PASSING LANE DROP TAPER

2 LANE

STA. 281+40 INSTALL
18" X 34'
RT. SIDE DRAIN
CONST. APPR. = 5 CU. YD. UNCL. EXCAVATION
25 CU. YD. COMP. EMBANKMENT

STA. 283+00 IN PLACE
DBL. 10' X 4' X 30' R.C. BOX CULVERT
W/ HDWLS. LT. & RT.
RETAIN & EXTEND
22' LT. & 32' RT.
WITH 3:1 WINGS LT. & RT.
TO A COMPLETED LENGTH = 84'
Q25 = 525 CFS D.A. = 328 ACRES

STA. 286+24 IN PLACE
18" X 24' C.M. SIDE
DRAIN ON RT.
REMOVE & INSTALL
18" X 34'
RT. SIDE DRAIN
CONST. APPR. = 5 CU. YD. UNCL. EXCAVATION
30 CU. YD. COMP. EMBANKMENT

STA. 287+94 IN PLACE
18" X 25' C.M SIDE
DRAIN ON RT.
REMOVE & INSTALL
18" X 32'
RT. SIDE DRAIN
CONST. APPR. = 5 CU. YD. UNCL. EXCAVATION
30 CU. YD. COMP. EMBANKMENT

FENCING

STATION	STATION	SIDE	WIRE FENCE TYPE D-1 LIN. FT.
282+03	286+03	RT.	400

690 680 670 660 650 640 630 620 610 600

STREAM NAME: TRIBUTARY TO BEAVER CREEK
STATION: STA. 283+00
STREAM TYPE: INTERMITTENT
TOP OF CHANNEL: 634.0 FT. MSL.

281+25.00
638.27

-0.76%

VC=450'
e=1.18'
K=214

285+75.00
639.57

1.34%

283+50.00
636.55

STA. 283+00
F.L. INLET RT. 630.43
F.L. OUTLET LT. 630.13

BM: 937 TBM-37 RRSPK CP
27.24 LT. OF STA. 291+11.14
ELEVATION = 647.34

280+00 281+00 282+00 283+00 284+00 285+00 286+00 287+00 288+00 289+00 290+00 291+00 292+00 293+00 294+00 295+00

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				6	ARK.			
				JOB NO.		050166	49	118

(2) PLAN & PROFILE STA. 295+00-STA. 310+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-9-11

STA. 295+00 IN PLACE
18" X 16" C.M. SIDE
DRAIN ON LT.
REMOVE & INSTALL
18" X 34"
LT. SIDE DRAIN
CONST. APPR. = 30 CU. YD.

STA. 299+54 IN PLACE
12" X 35" R.C. SIDE
DRAIN ON LT.
REMOVE & INSTALL
18" X 34"
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YD.

STA. 302+60 IN PLACE
18" X 24" C.M. SIDE
DRAIN ON LT.
REMOVE & INSTALL
18" X 34"
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YD.

STA. 304+00 IN PLACE
18" X 24" C.M. SIDE
DRAIN ON LT.
REMOVE & INSTALL
18" X 34"
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YD.

FENCING

STATION	STATION	SIDE	WIRE FENCE TYPE D-1 LIN. FT.
304+36	309+61	LT.	522

660' SB PASSING LANE DROP TAPER

STA. 297+60 BEGIN S.B. PASSING LANE

STA. 297+84.52 CONST. = STA. 0+50.00 JEFFERSON CIRCLE

PROPOSED R/W

EXISTING R/W

CONST. LIMITS

N61° 12' 57"E

N61° 08' 21"E

P.C. 0+75.43

P.I. 299+01.81
Δ 0° 04' 36.4" LT.

T.C.E.

CONC

STA. 297+23 CONSTRUCT
36" X 84" PIPE CULVERT
W/ FES, LT. & RT.
Q25 = 272 CFS D.A. = 144 ACRES
36" C.M. PIPE
(TYPE 2 BEDDING) = 84 LIN. FT.
36" R.C. PIPE
(CLASS III) (TYPE 3 BEDDING) = 78 LIN FT.
36" F.E.S. = 2 EACH

STA. 297+40 IN PLACE
DBL. 5' X 3' X 30' R.C. BOX CULVERT
W/ HDWLS, LT. & RT.
RETAIN & EXTEND
34' LT. & 22' RT.
WITH 3:1 WINGS LT. & RT.
TO A COMPLETED LENGTH = 86'
Q25 = 272 CFS D.A. = 144 ACRES

STA. 298+00 IN PLACE
18" X 49" C.M. SIDE
DRAIN ON RT.
REMOVE & INSTALL
36" X 64"
RT. SIDE DRAIN
CONST. APPR. = 30 CU. YD.

STA. 303+81 INSTALL
18" X 34"
RT. SIDE DRAIN
CONST. APPR. = 5 CU. YD. UNCL. EXCAVATION
20 CU. YD. COMP. EMBANKMENT

FENCING

STATION	STATION	SIDE	WIRE FENCE TYPE D-1 LIN. FT.	16' GATES EACH
297+22	302+13	RT.	606	
304+40	310+53	RT.	649	1

STA. 306+68 IN PLACE
DBL. 5' X 3' X 32' R.C. BOX CULVERT
W/ HDWLS, LT. & RT.
RETAIN & EXTEND
32' LT. & 22' RT.
WITH 3:1 WINGS LT. & RT.
TO A COMPLETED LENGTH = 86'
Q25 = 182 CFS D.A. = 96 ACRES

STREAM NAME	STATION	STREAM TYPE	TOP OF CHANNEL
TRIBUTARY TO BEAVER CREEK	STA. 297+40	INTERMITTENT	639.0 FT. MSL.

STA. 297+23
F.L. INLET RT. 636.06
F.L. OUTLET LT. 635.00
STA. 297+40
F.L. INLET RT. 636.06
F.L. OUTLET LT. 635.00

STREAM NAME	STATION	STREAM TYPE	TOP OF CHANNEL
TRIBUTARY TO BEAVER CREEK	STA. 306+58	INTERMITTENT	641.0 FT. MSL.

305+60.50
648.00
-2.27%
VC-320'
e-2.36'
K-54
307+20.50
644.36
308+80.50
650.17
3.63%

STA. 306+68
F.L. INLET RT. 640.00
F.L. OUTLET LT. 638.54

BM: 938 TBM-38 RRSPK CP
32.56 LT. OF STA. 302+76.60
ELEVATION = 653.68

690 680 670 660 650 640 630 620 610 600

295+00 296+00 297+00 298+00 299+00 300+00 301+00 302+00 303+00 304+00 305+00 306+00 307+00 308+00 309+00 310+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.		050166	50	118

(2) PLAN & PROFILE STA. 310+00-STA. 325+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGATT
12-12-11

STA. 310+64 INSTALL
18" X 34'
LT. SIDE DRAIN
CONST. APPR. = 30 CU. YD.

STA. 311+38
CONST. APPR. = 25 CU. YD.

STA. 314+00 INSTALL
18" X 58'
LT. SIDE DRAIN
CONST. APPR. = 90 CU. YD.

FENCING

STATION	STATION	SIDE	WIRE FENCE TYPE D-1 LIN. FT.
314+14	326+35	LT.	1241

N

P.C.C. 314+66.97
P.I. 314+86.83
Δ=07° 22.1" LT.
P.T.C.E. 315+00.00

PROPOSED R/W
CONST. LIMITS
EXISTING R/W
N61°08'21"E
N61°00'59"E
CONST. LIMITS
EXISTING R/W
PROPOSED R/W
EXISTING R/W
CONST. LIMITS
T.C.E.
CONST. LIMITS
EXISTING R/W
PROPOSED R/W
EXISTING R/W
CONST. LIMITS

FENCING

STATION	STATION	SIDE	WIRE FENCE TYPE D-2 LIN. FT.
320+22	320+94	RT.	120

GARDEN

STORM SHELTER

STA. 311+12 INSTALL
18" X 30'
RT. SIDE DRAIN
CONST. APPR. = 15 CU. YD.

STA. 313+37 IN PLACE
18" X 39' C.M. SIDE
DRAIN ON RT.
REMOVE & INSTALL
18" X 30'
RT. SIDE DRAIN
CONST. APPR. = 30 CU. YD.

STA. 313+73 CONSTRUCT
DBL. 30" X 84' PIPE CULVERT
W/ FES. LT. & RT.
Q25 = 31 CFS D.A. = 14 ACRES
30" C.M. ARCH PIPE
(TYPE 2 BEDDING) = 168 LIN. FT.
30" R.C. ARCH PIPE
(CLASS III) (TYPE 3 BEDDING) = 162 LIN FT.
30" F.E.S. = 4 EACH

STA. 316+74
CONST. APPR. = 15 CU. YD.

STA. 318+73 INSTALL
18" X 30'
RT. SIDE DRAIN
CONST. APPR. = 15 CU. YD.

STA. 319+43 IN PLACE
18" X 24' C.M SIDE
DRAIN ON RT.
REMOVE & INSTALL
18" X 30'
RT. SIDE DRAIN
CONST. APPR. = 5 CU. YD. UNCL. EXCAVATION
15 CU. YD. COMP. EMBANKMENT

STA. 323+00 IN PLACE
18" X 30' C.M SIDE
DRAIN ON RT.
REMOVE & INSTALL
18" X 34'
RT. SIDE DRAIN
CONST. APPR. = 30 CU. YD. UNCL. EXCAVATION
15 CU. YD. COMP. EMBANKMENT

STA. 323+97 IN PLACE
6' X 5' X 39' R.C. BOX CULVERT
W/ HDWLS. LT. & RT.
RETAIN & EXTEND
34' LT. & 22' RT.
WITH 3:1 WINGS LT. & RT.
TO A COMPLETED LENGTH = 95'
Q25 = 260 CFS D.A. = 139 ACRES

STREAM NAME	STATION	STREAM TYPE	TOP OF CHANNEL
TRIBUTARY TO BEAVER CREEK	STA. 313+73	INTERMITTENT	650.0 FT. MSL.

STA. 313+73
F.L. INLET RT. 648.67
F.L. OUTLET LT. 646.03

STREAM NAME	STATION	STREAM TYPE	TOP OF CHANNEL
TRIBUTARY TO BEAVER CREEK	STA. 323+97	INTERMITTENT	631.0 FT. MSL.

-4.30%
321+73.25
644.56
VC=390'
e=3.87'
K=49
323+68.25
636.18

STA. 323+97
F.L. INLET RT. 628.47
F.L. OUTLET LT. 626.88

BM: 939 TBM-39 RRSPK TP
32.27 RT. OF STA. 317+12.19
ELEVATION = 657.25

690 680 670 660 650 640 630 620 610 600

310+00 311+00 312+00 313+00 314+00 315+00 316+00 317+00 318+00 319+00 320+00 321+00 322+00 323+00 324+00 325+00

r050166.dgn 11/23/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	51	118

(2) PLAN & PROFILE STA. 325+00-STA. 340+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
12-12-11

FENCING

STATION	STATION	SIDE	WIRE FENCE TYPE D-1 LIN. FT.
327+71	331+15	LT.	346

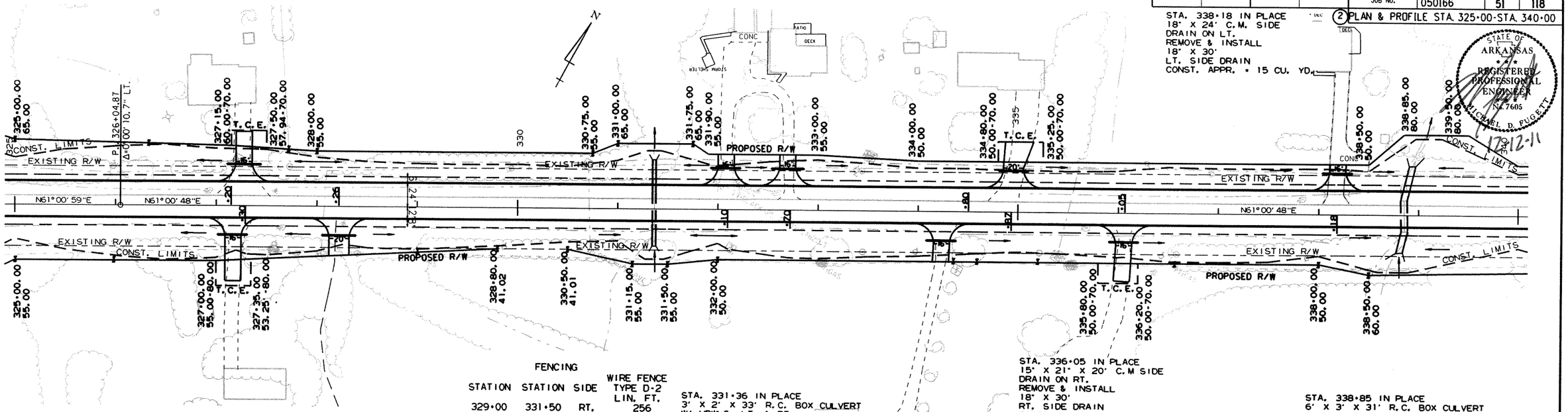
STA. 327+ INSTALL
18" X 34'
LT. SIDE DRAIN
CONST. APPR. = 5 CU. YD. UNCL. EXCAVATION
30 CU. YD. COMP. EMBANKMENT

STA. 332+10 INSTALL
18" X 30'
LT. SIDE DRAIN
CONST. APPR. = 20 CU. YD.

STA. 332+70 INSTALL
18" X 34'
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YD.

STA. 334+87 INSTALL
18" X 30'
LT. SIDE DRAIN
CONST. APPR. = 30 CU. YD.

STA. 338+18 IN PLACE
18" X 24' C.M. SIDE
DRAIN ON LT.
REMOVE & INSTALL
18" X 30'
LT. SIDE DRAIN
CONST. APPR. = 15 CU. YD.



FENCING

STATION	STATION	SIDE	WIRE FENCE TYPE D-2 LIN. FT.
329+00	331+50	RT.	256

STA. 327+20 INSTALL
18" X 30'
RT. SIDE DRAIN
CONST. APPR. = 15 CU. YD.

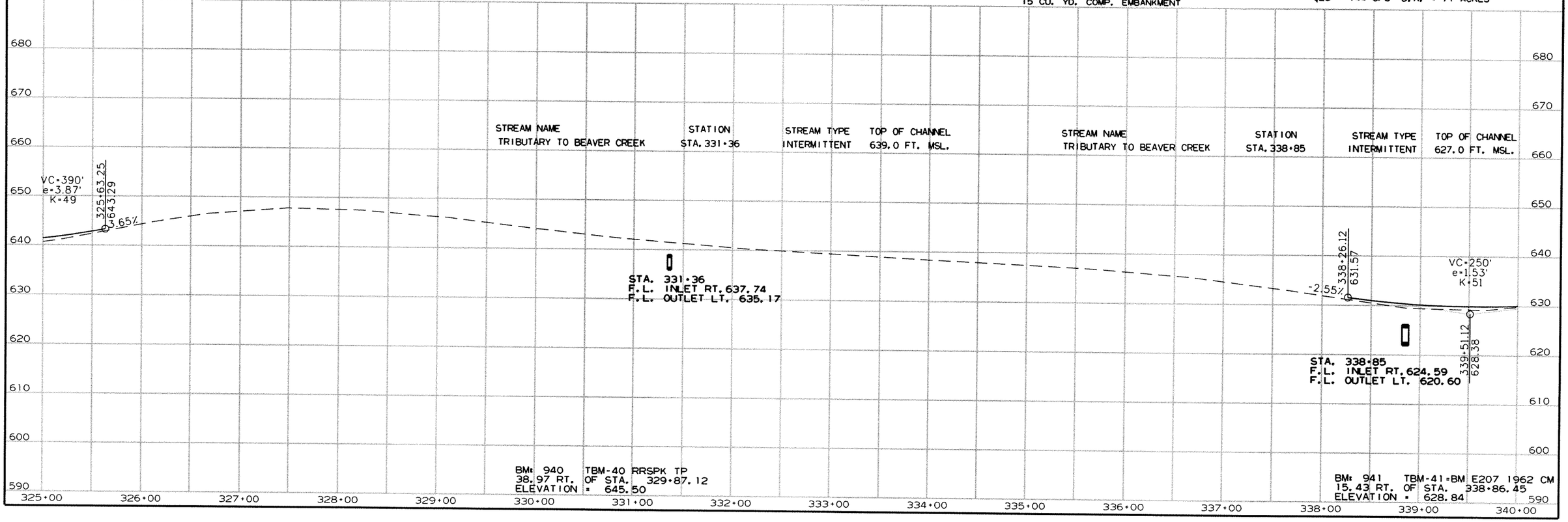
STA. 328+26 INSTALL
18" X 34'
RT. SIDE DRAIN
CONST. APPR. = 20 CU. YD.

STA. 331+36 IN PLACE
3' X 2' X 33' R.C. BOX CULVERT
W/ HDWLS. LT. & RT.
RETAIN & EXTEND
32' LT. & 21' RT.
WITH 3:1 WINGS LT. & RT.
TO A COMPLETED LENGTH = 86'
Q25 = 37 CFS D.A. = 17 ACRES

STA. 334+80 INSTALL
18" X 30'
RT. SIDE DRAIN
CONST. APPR. = 5 CU. YD. UNCL. EXCAVATION
15 CU. YD. COMP. EMBANKMENT

STA. 336+05 IN PLACE
15" X 21" X 20' C.M SIDE
DRAIN ON RT.
REMOVE & INSTALL
18" X 30'
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YD. UNCL. EXCAVATION
15 CU. YD. COMP. EMBANKMENT

STA. 338+85 IN PLACE
6' X 3' X 31' R.C. BOX CULVERT
W/ HDWLS. LT. & RT.
RETAIN & EXTEND
35' LT. & 22' RT. ON A 15° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
TO A COMPLETED LENGTH = 88'
Q25 = 144 CFS D.A. = 71 ACRES



r050166.dgn 11/23/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	52	118

(2) PLAN & PROFILE STA. 340+00-STA. 350+44.50

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
12-12-11

STA. 340+90 IN PLACE
18" X 25' R.C. SIDE
DRAIN ON LT.
REMOVE & INSTALL
18" X 34'
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YD.

STA. 341+86 INSTALL
18" X 30'
LT. SIDE DRAIN
CONST. APPR. = 15 CU. YD.

STA. 343+56
CONST. APPR. = 75 CU. YD.

FENCING

STATION	STATION	SIDE	WIRE FENCE TYPE D-1 LIN. FT.
345+00	348+94	LT.	497

STA. 348+00.15
END S.B. PASSING LANE

200' S.B. PASSING LANE ADDITION TAPER

200' TRANSITION

STA. 350+00.15

STA. 352+00.15

STORM SHELTER

DECK

CONST. LIMITS

PROPOSED R/W

EXISTING R/W

T.C.E.

POT 350+44.50

POE 352+00.15

Δ=0°34'19.7" LT.

N 61°35'08" E

N 61°00'48" E

Δ=0°34'19.7" RT.

POND

FENCING

STATION	STATION	SIDE	WIRE FENCE TYPE D-1 LIN. FT.	WIRE FENCE TYPE D-2 LIN. FT.
338+00	343+59	RT.	585	
347+43	348+95	RT.		200

STA. 343+66 IN PLACE
24" X 24' C.M. SIDE
DRAIN ON RT.
REMOVE & INSTALL
24" X 30'
RT. SIDE DRAIN
CONST. APPR. = 15 CU. YD.

STA. 344+14 IN PLACE
3' X 2' X 29' R.C. BOX CULVERT
W/ HDWLS. LT. & RT.
RETAIN & EXTEND
35' LT. & 22' RT.
WITH 3:1 WINGS LT. & RT.
TO A COMPLETED LENGTH = 86'
Q25 = 28 CFS D.A. = 12 ACRES

STA. 346+65 INSTALL
18" X 32'
RT. SIDE DRAIN
CONST. APPR. = 30 CU. YD. UNCL. EXCAVATION
20 CU. YD. COMP. EMBANKMENT

STA. 350+00.15
END JOB 050166
L.M. 4.93

STREAM NAME
TRIBUTARY TO BEAVER CREEK

STATION
STA. 344+14

STREAM TYPE
INTERMITTENT

TOP OF CHANNEL
633.0 FT. MSL.

VC=250'
e=1.53'
K=51

340+76.12
631.33
2.36%

STA. 344.14
F.L. INLET RT. 630.28
F.L. OUTLET LT. 629.49

670 660 650 640 630 620 610 600 590 580

340+00 341+00 342+00 343+00 344+00 345+00 346+00 347+00 348+00 349+00 350+00 351+00 352+00 353+00 354+00 355+00

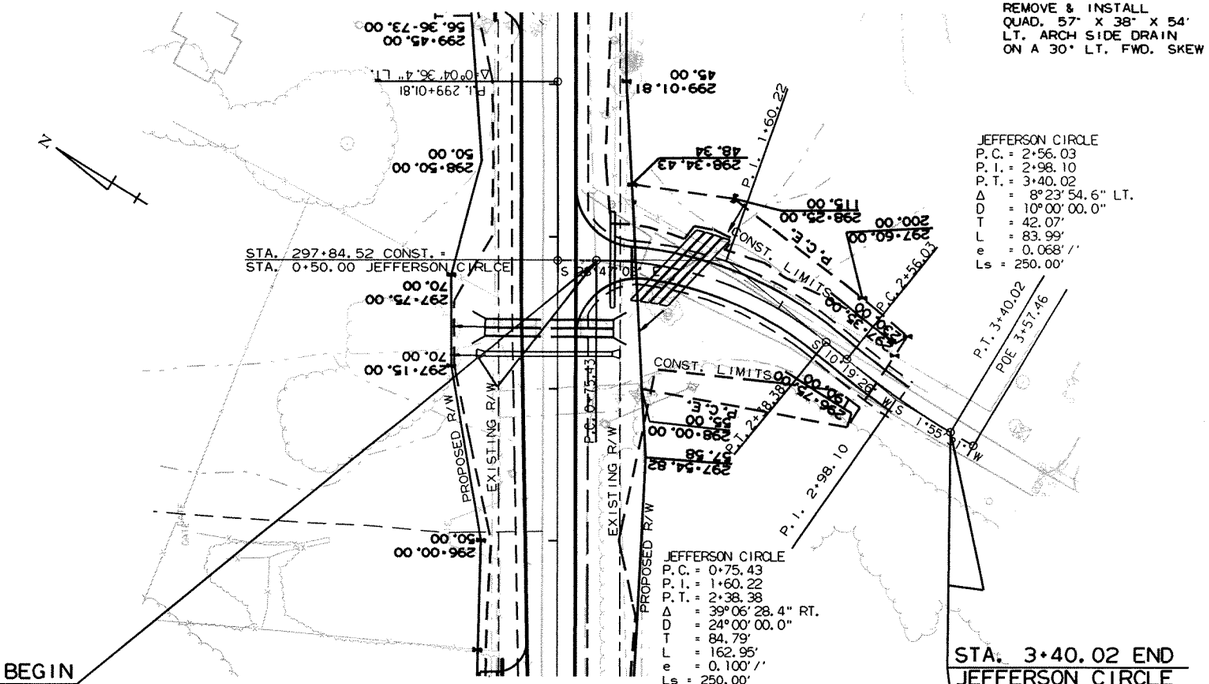
r050166.dgn 11/23/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	53	118

(2) PLAN & PROFILE JEFFERSON CIRCLE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. PUGETT
12-12-11

STA. 1+30 IN PLACE
24" X 40" C.M. SIDE DRAIN ON LT.
REMOVE & INSTALL
QUAD. 57" X 38" X 54" LT. ARCH SIDE DRAIN ON A 30° LT. FWD. SKEW



JEFFERSON CIRCLE
P.C. = 2+56.03
P.I. = 2+98.10
P.T. = 3+40.02
Δ = 8°23'54.6" LT.
D = 10°00'00.0"
T = 42.07'
L = 83.99'
e = 0.068'/'
Ls = 250.00'

JEFFERSON CIRCLE
P.C. = 0+75.43
P.I. = 1+60.22
P.T. = 2+38.38
Δ = 39°06'28.4" RT.
D = 24°00'00.0"
T = 84.79'
L = 162.95'
e = 0.100'/'
Ls = 250.00'

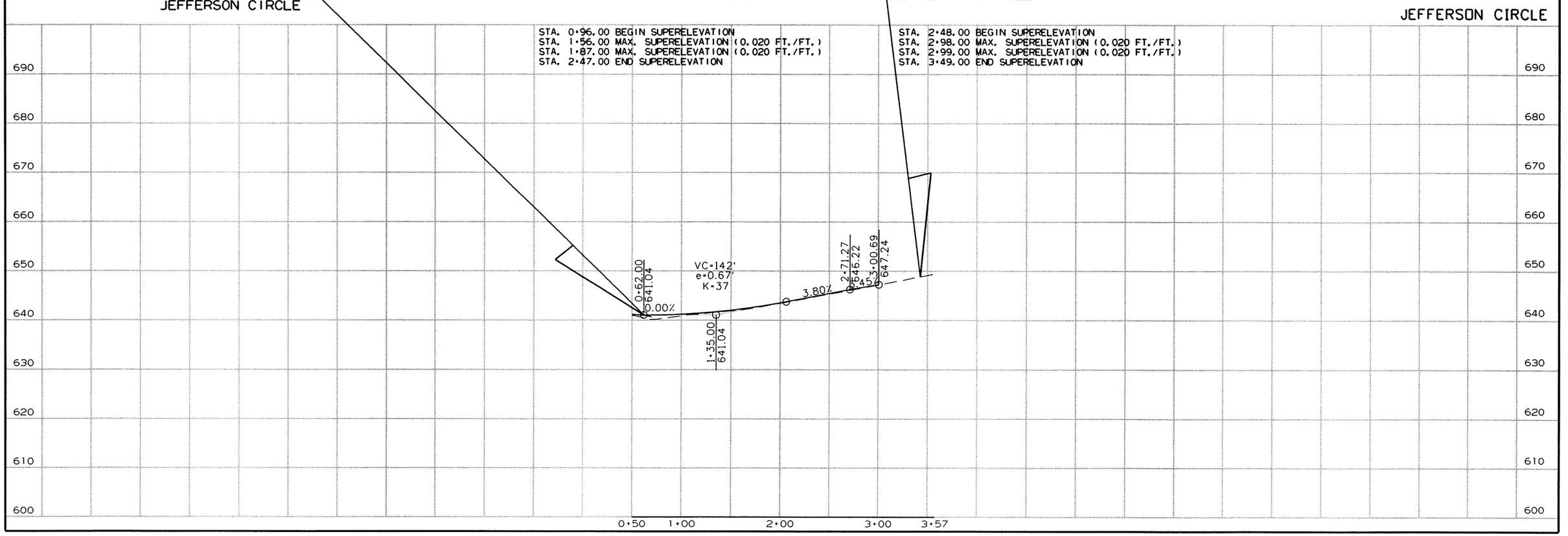
STA. 0+62.00 BEGIN
JEFFERSON CIRCLE

STA. 3+40.02 END
JEFFERSON CIRCLE

JEFFERSON CIRCLE

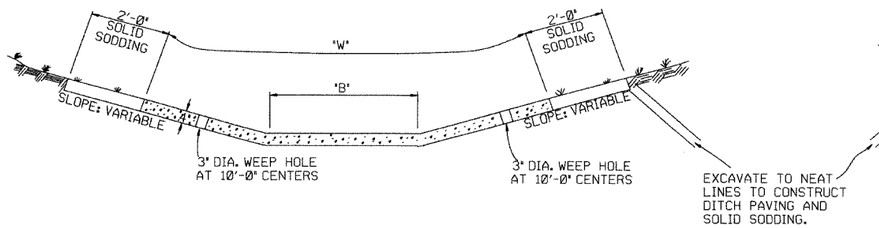
STA. 0+96.00 BEGIN SUPERELEVATION
STA. 1+56.00 MAX. SUPERELEVATION (0.020 FT./FT.)
STA. 1+87.00 MAX. SUPERELEVATION (0.020 FT./FT.)
STA. 2+47.00 END SUPERELEVATION

STA. 2+48.00 BEGIN SUPERELEVATION
STA. 2+98.00 MAX. SUPERELEVATION (0.020 FT./FT.)
STA. 2+99.00 MAX. SUPERELEVATION (0.020 FT./FT.)
STA. 3+49.00 END SUPERELEVATION



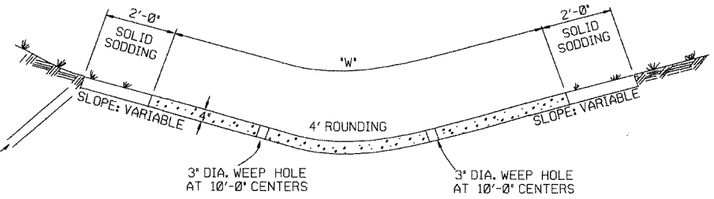
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REFER TO TABULATION OF QUANTITIES
FOR 'W' & 'B' DIMENSIONS



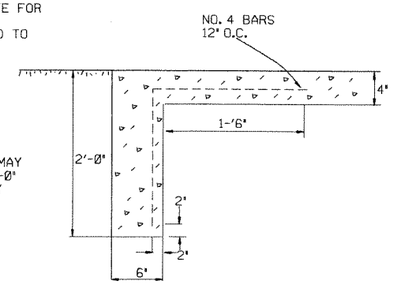
TYPE A

REFER TO TABULATION OF QUANTITIES
FOR 'W' DIMENSIONS



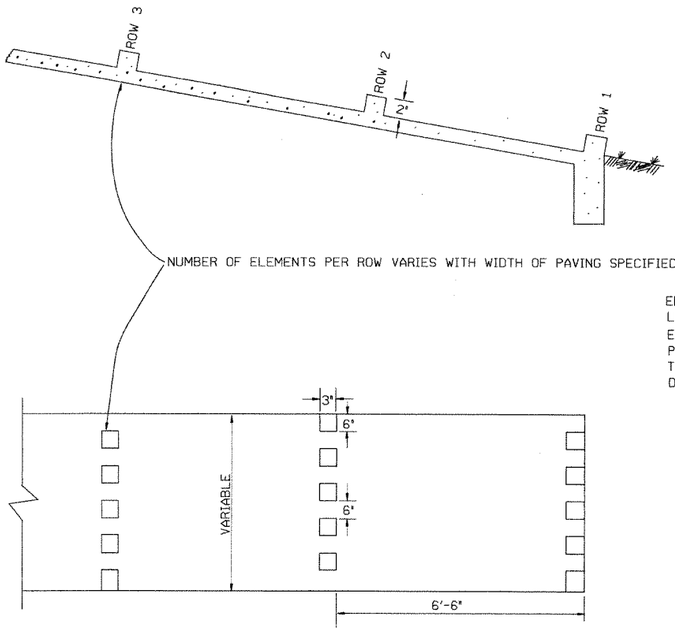
TYPE B

THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR 'CONCRETE DITCH PAVING.'



TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

TOE WALL DETAIL FOR
CONCRETE DITCH PAVING



ENERGY DISSIPATORS
(NO SCALE)

ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 7%. THE DISSIPATORS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE UNCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.

SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

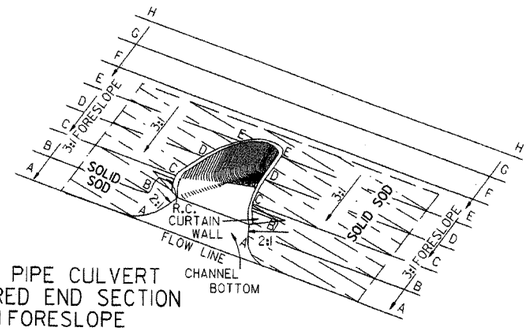
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

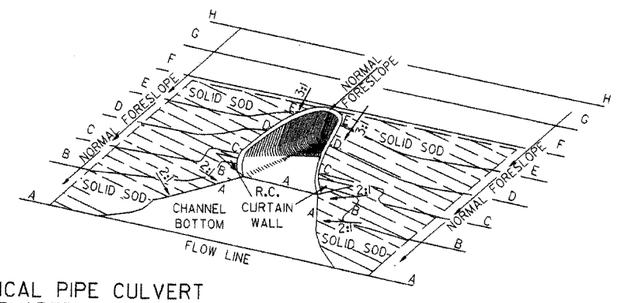
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

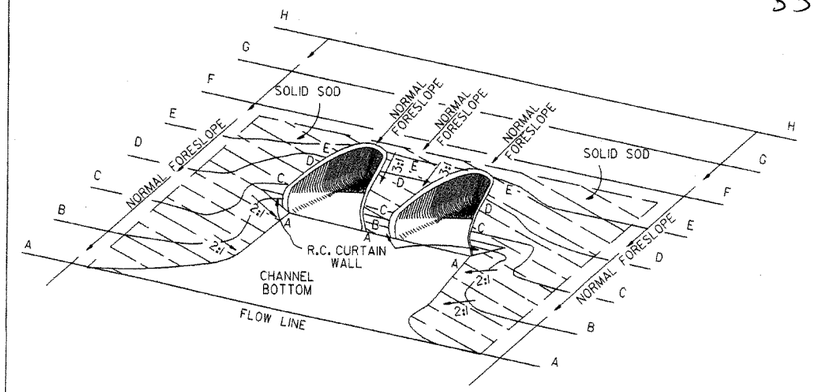
STANDARD DRAWING CDP-1



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

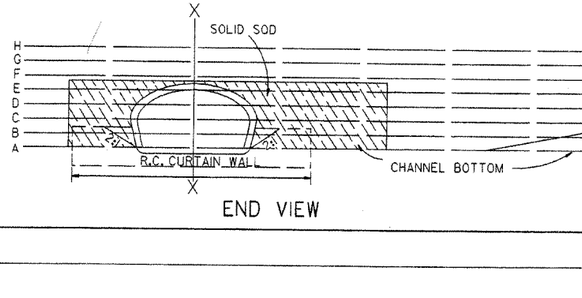
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	1'-11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	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								DOUBLE R.C. PIPE CULVERT											
	H401		H402		V401		V402		H401		H402		H403		V401		V402	
	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	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

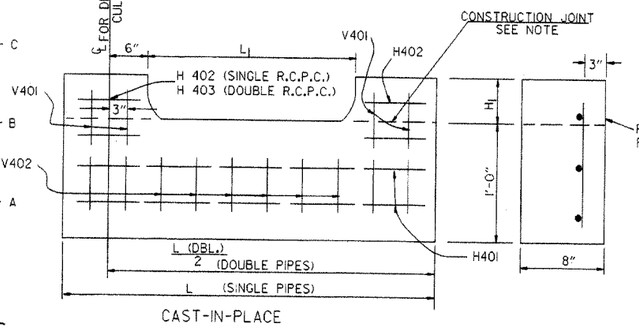
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

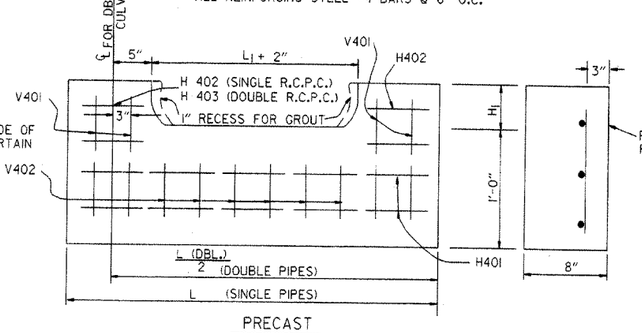
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

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.

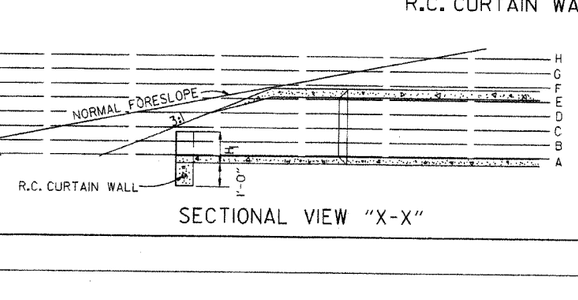
R.C. CURTAIN WALL DETAILS

SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C.			DOUBLE R.C.P.C.		
	3:1	4:1	6:1	3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	28	46	68	31	48	70
54"	35	57	85	39	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.

END VIEW



SECTIONAL VIEW "X-X"

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	10-18-96
10-12-95	CORRECTED SPELLING	
11- 3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1

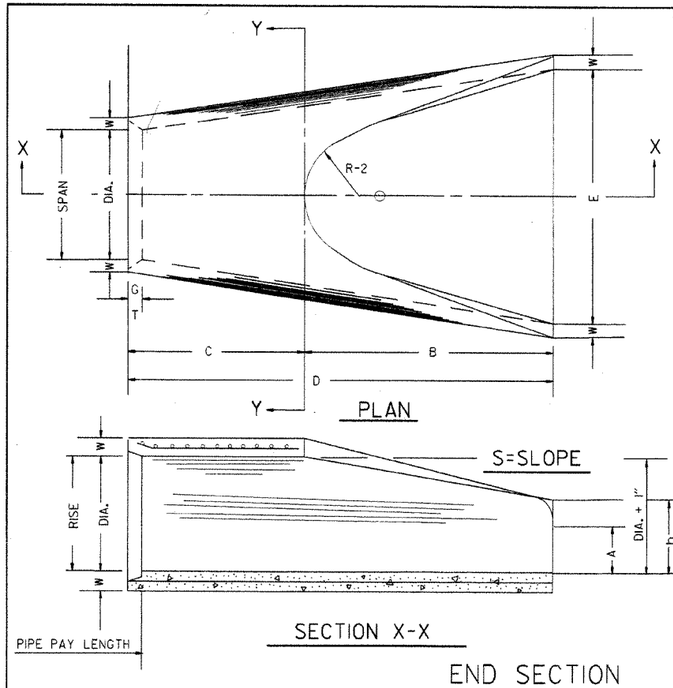
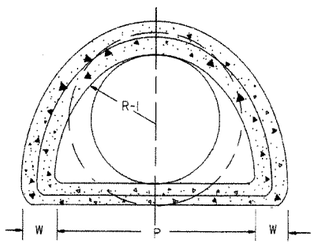
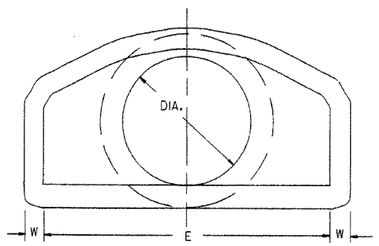


TABLE OF DIMENSIONS

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"	9¼"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33⅜"	16Ⅼ"	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"	47Ⅼ"	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"	33⅜"	24"	4"	8750	2'-10½"
60"	6"	2'-0"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36Ⅼ"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77Ⅼ"	38⅛"	24"	5"	13250	4'-6"



SECTION Y-Y



END VIEW

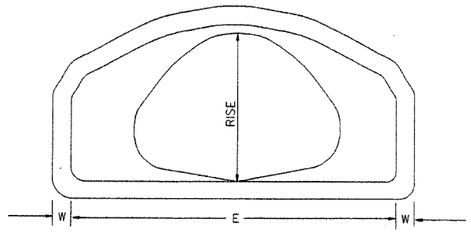
NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

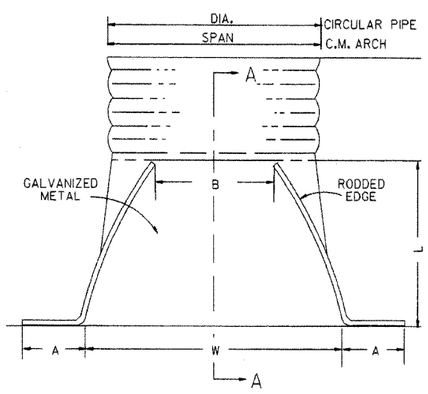
ARCH PIPE

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"	36Ⅼ"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47Ⅼ"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54⅝"	22"	3½"	2½:1
42	51⅛	51	31⅝	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"	72Ⅼ"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77Ⅼ"	24"	5"	2¼:1

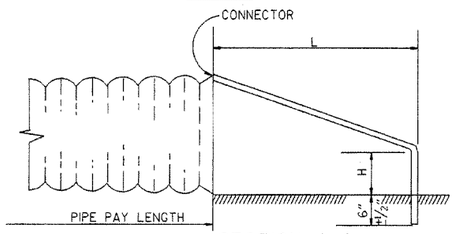
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



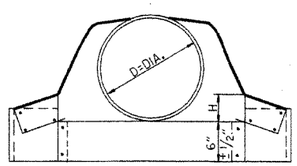
END VIEW
CONCRETE ARCH PIPE



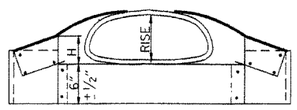
PLAN



SECTION A-A



CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

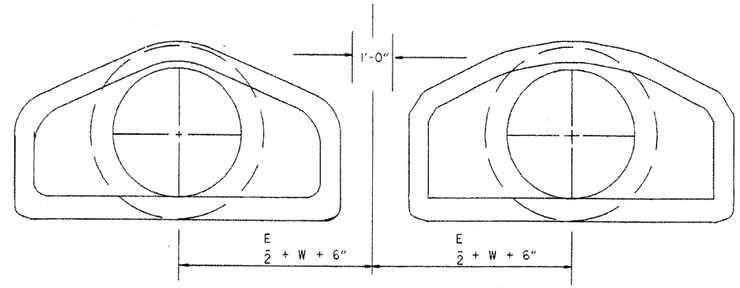
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

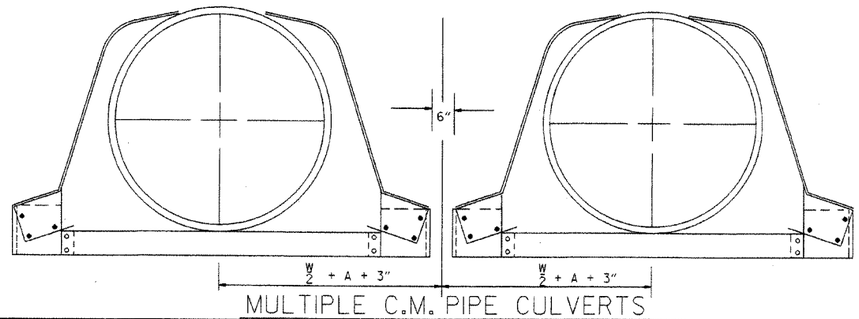
EQUIV. DIA.	SPAN	RISE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2¼:1	12
60"	71	47	18	33	12	77	114	2¼:1	12

NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

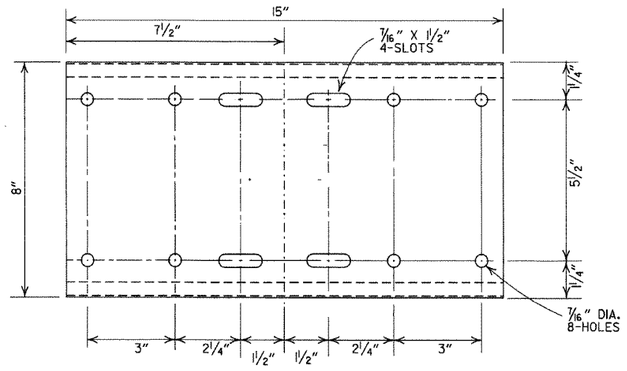
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

ARKANSAS STATE HIGHWAY COMMISION

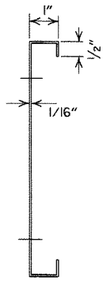
FLARED END SECTION

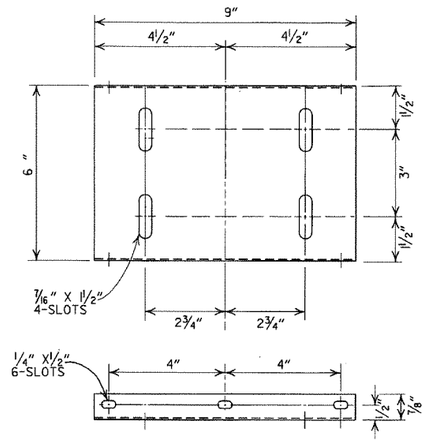
STANDARD DRAWING FES-2

stdfes2.dgn

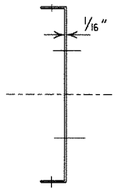


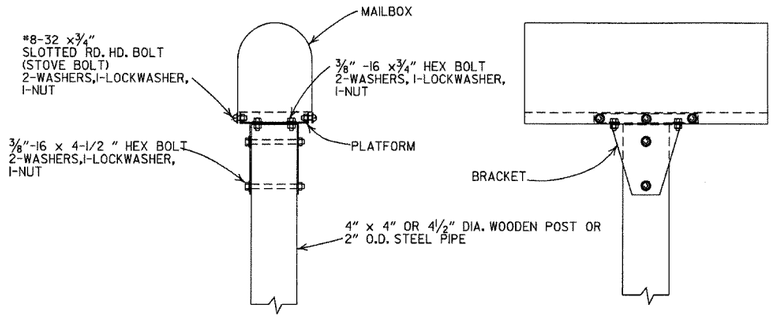
SHELF



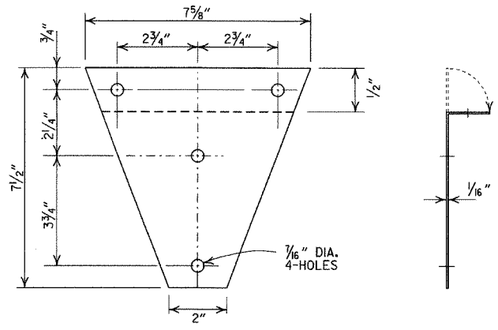


PLATFORM

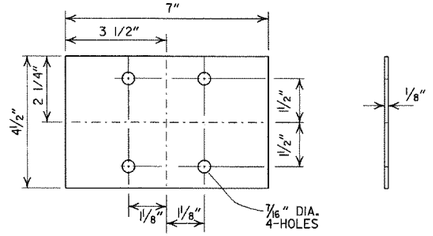




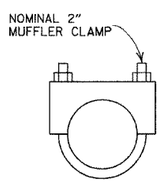
SINGLE INSTALLATION



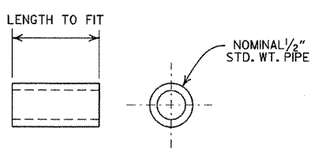
BRACKET



ANTI-TWIST PLATE



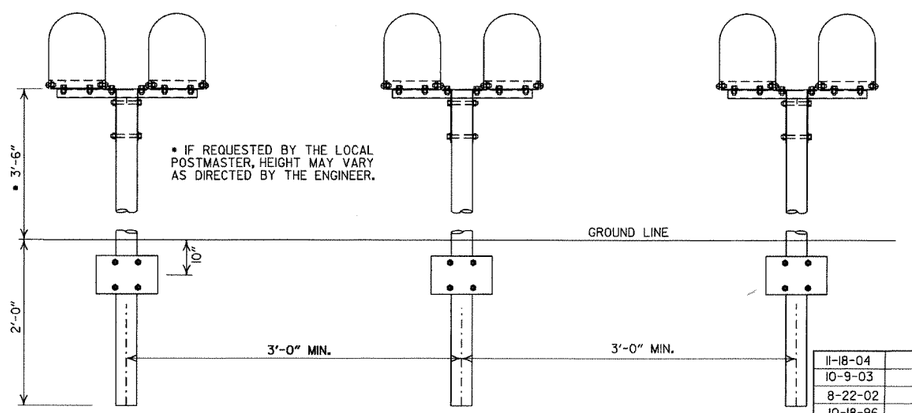
CLAMP



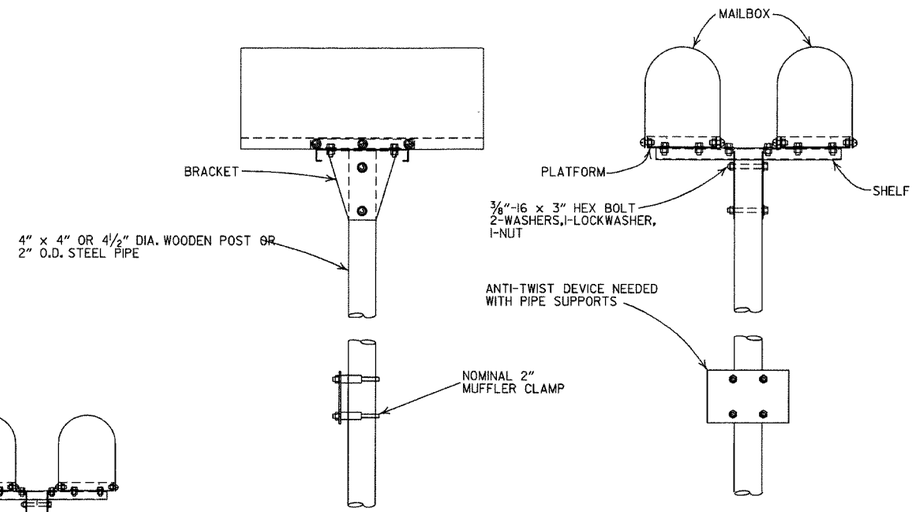
SPACER

GENERAL NOTES

1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



SPACING FOR MULTIPLE POST INSTALLATION



DOUBLE INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-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.

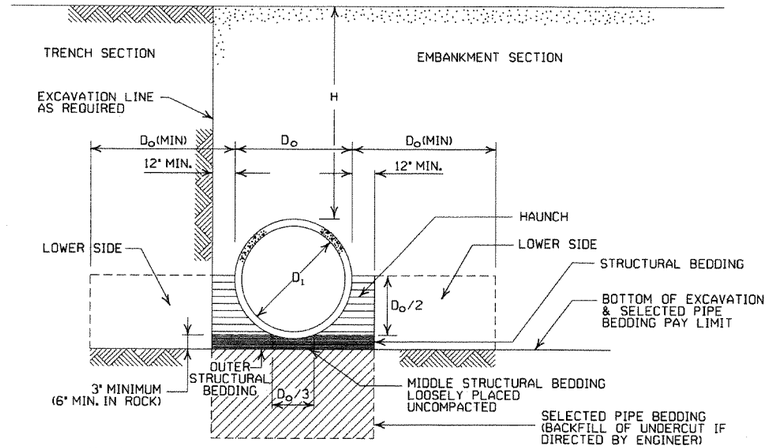
- LEGEND -

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.

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2003 EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

MINIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
INSTALLATION TYPE	TYPE 1 OR 2	TYPE 3	ALL	ALL
PIPE ID (IN.)	FEET			
12-15	2	2.5	2	1
18-24	2.5	3	2	1
27-33	3	4	2	1
36-42	3.5	5	2	1
48	4.5	5.5	2	1
54-60	5	7	2	1
66-78	6	8	2	1
84-108	7.5	8	2	1

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

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 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.

MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2	13	21
TYPE 3	10	16

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

DATE	REVISION	DATE FILMED
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL			ALUMINUM		
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM		
15	17x13	3	0.064	2	15	0.060	2	15
18	21x15	3	0.064	2	15	0.060	2	15
21	24x18	3	0.064	2.25	15	0.060	2.25	15
24	28x20	3	0.064	2.5	15	0.075	2.5	15
30	35x24	3	0.079	3	12	0.075	3	12
36	42x29	3½	0.079	3	12	0.105	3	12
42	49x33	4	0.079	3	12	0.105	3	12
48	57x38	5	0.109	3	13	0.135	3	13
54	64x43	6	0.109	3	14	0.135	3	14
60	71x47	7	0.138	3	15	0.164	3	15
66	77x52	8	0.168	3	15			
72	83x57	9	0.168	3	15			

			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM					
				INSTALLATION		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.

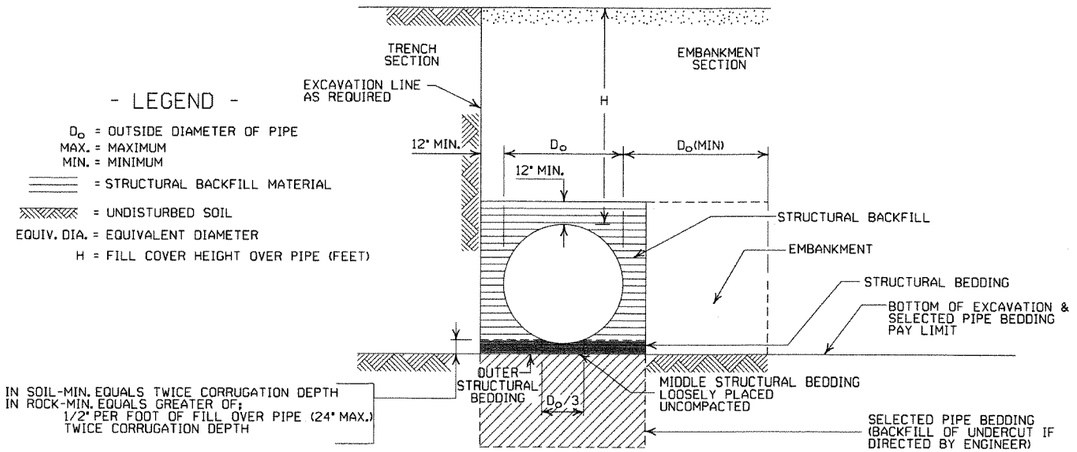
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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 (2003 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
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 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF 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"

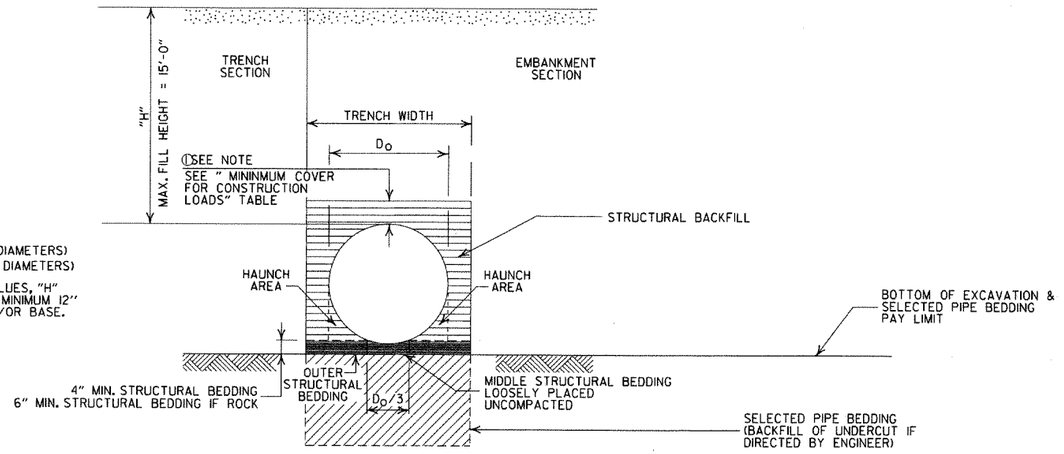
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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, 2003 EDITION.
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
Ø = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF PVC PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"

MULTIPLE INSTALLATION OF PVC PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

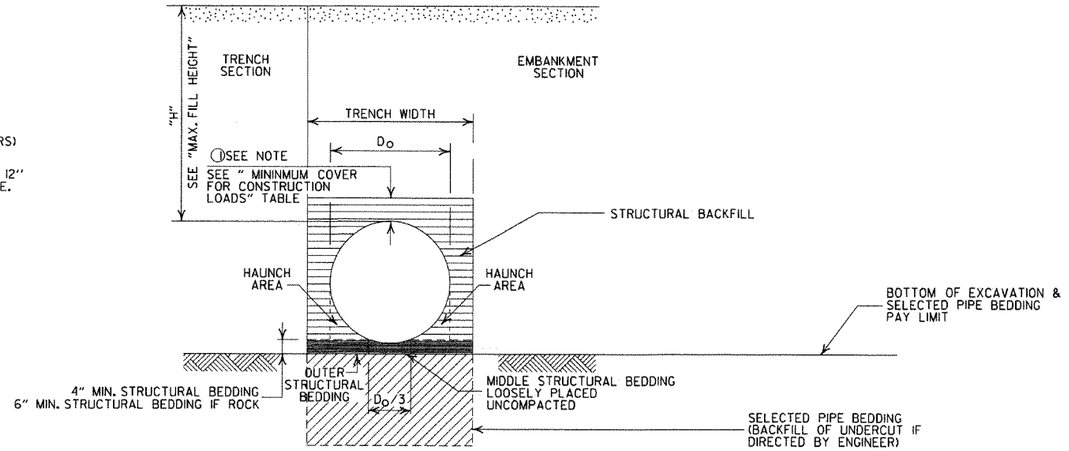
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

① NOTE:
12" MIN. (18" - 36" DIAMETERS)
MINIMUM COVER VALUE, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
18" THRU 36"	2'-0"	2'-6"	3'-0"	3'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8", THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION, 2003 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

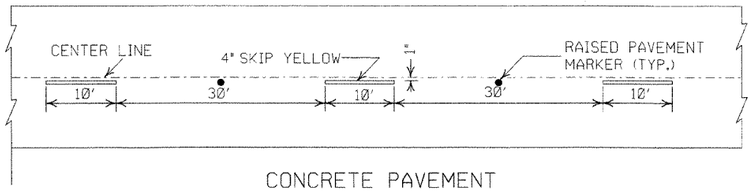
= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

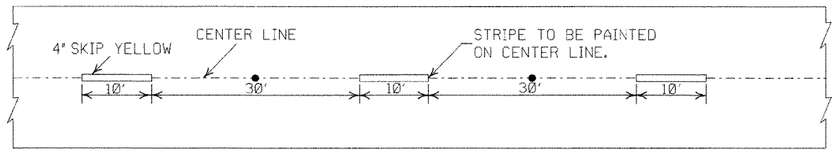
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT
(PVC F949)

STANDARD DRAWING PCP-2

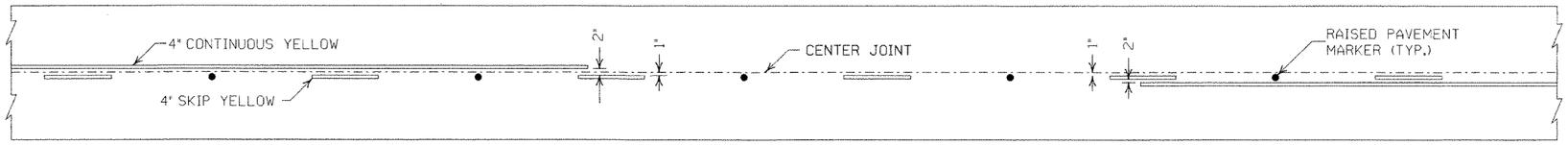


CONCRETE PAVEMENT

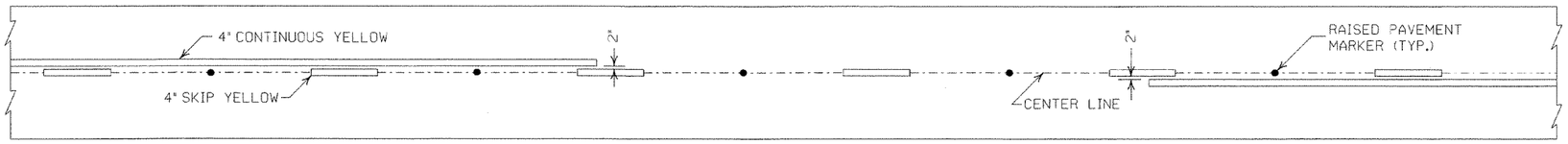


ASPHALT PAVEMENT

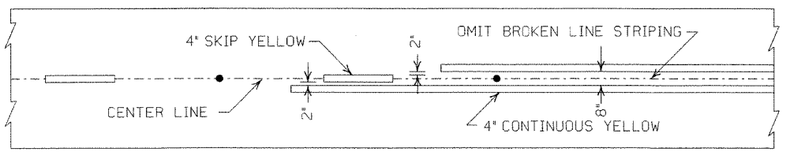
BROKEN LINE STRIPING



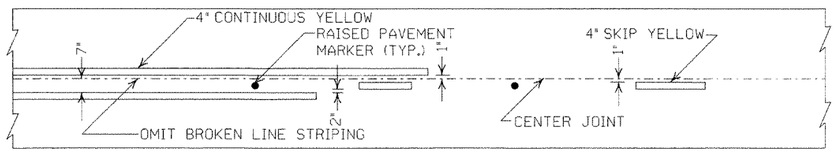
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

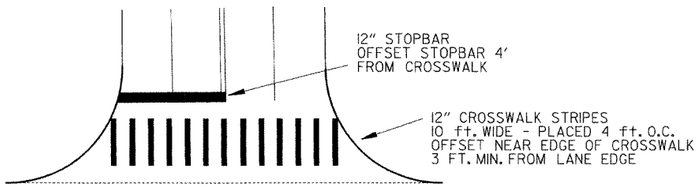


ASPHALT PAVEMENT



CONCRETE PAVEMENT

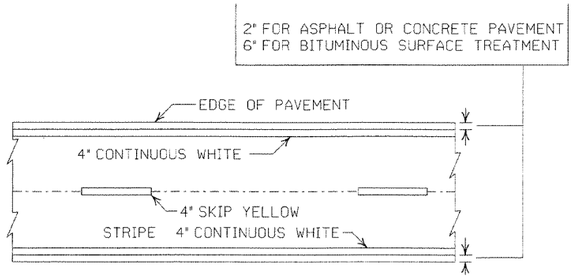
STRIPING AT ADJACENT NO PASSING LANES



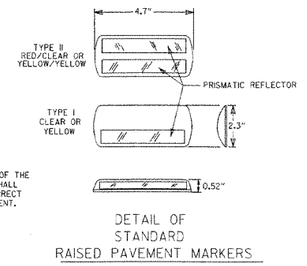
CROSSWALK AND STOPBAR DETAILS

NOTES:

1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.'
4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.



PAVEMENT EDGE LINE MARKING



NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED 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
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

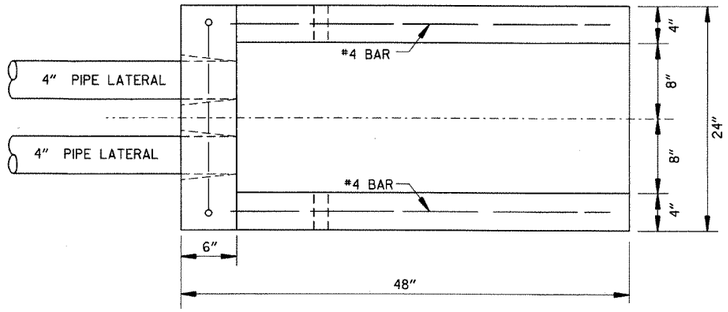
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

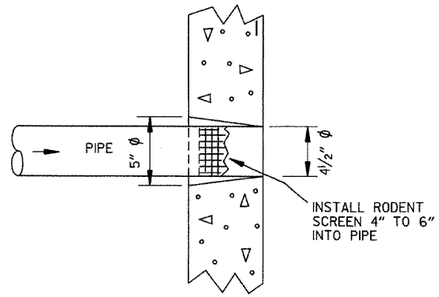
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

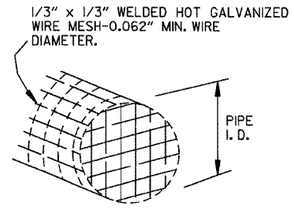
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



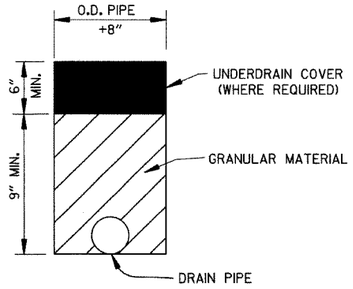
PLAN VIEW

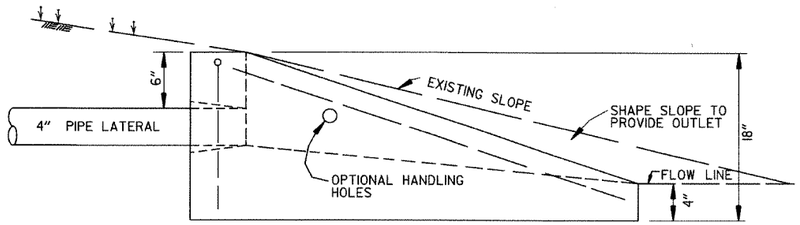


DETAIL OF HOLE FOR 4" PIPE

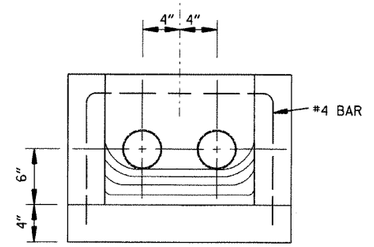


DETAIL OF RODENT SCREEN

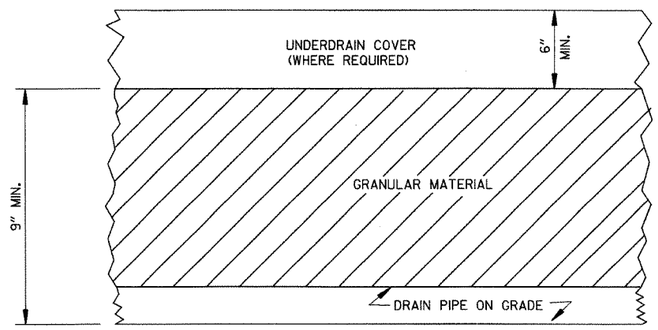




SIDE VIEW

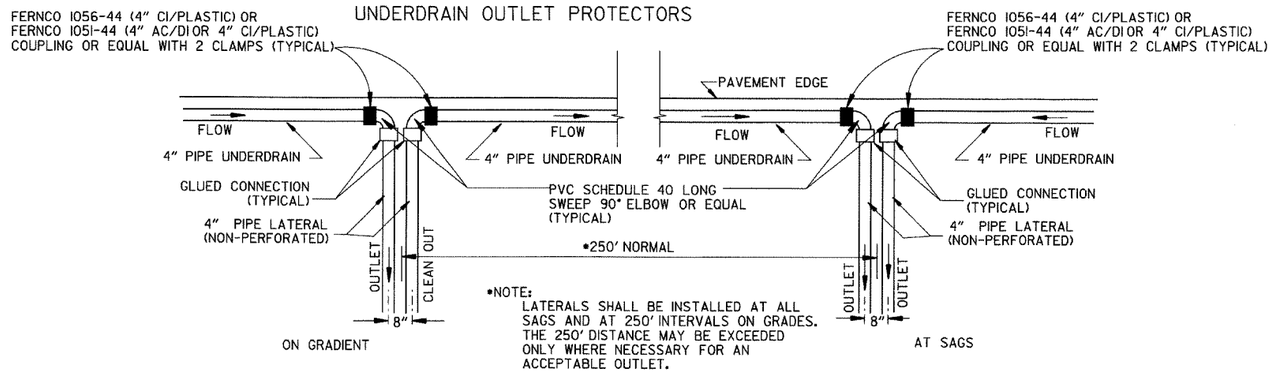


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



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
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

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DETAILS OF PIPE UNDERDRAIN

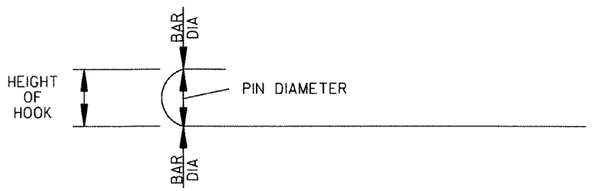
STANDARD DRAWING PU-1

7-20-95 INSTD.PUI

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

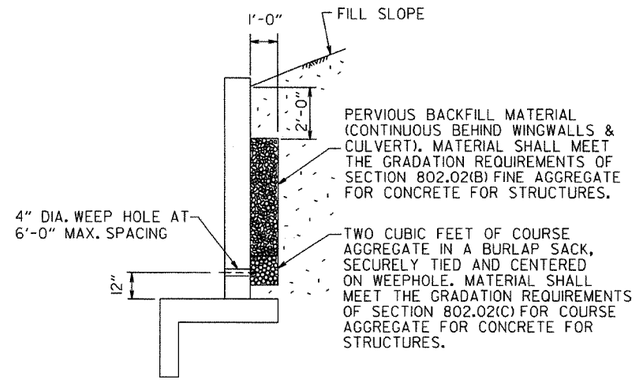
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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.

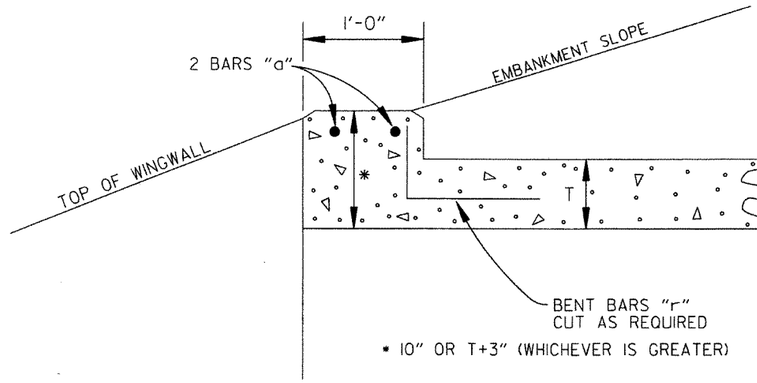
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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.

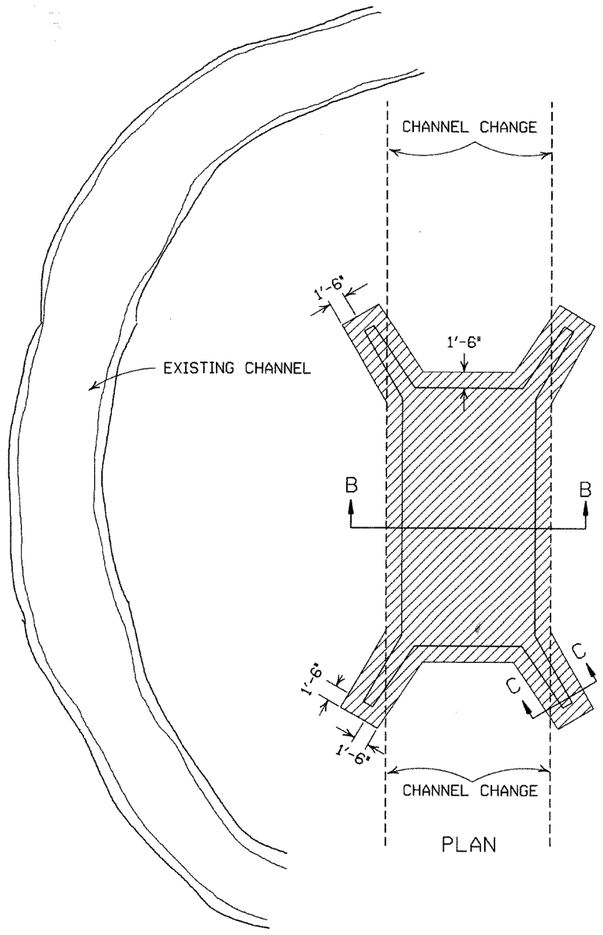
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
12-15-11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

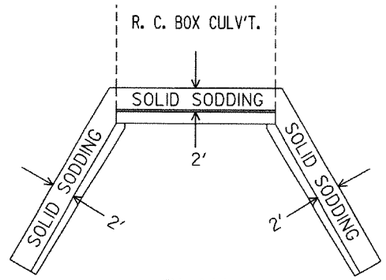
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

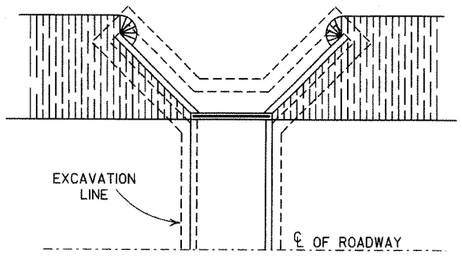
SOLID SODDING



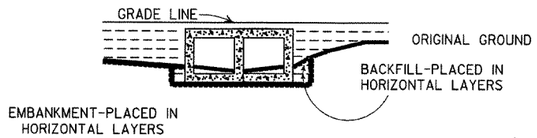
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

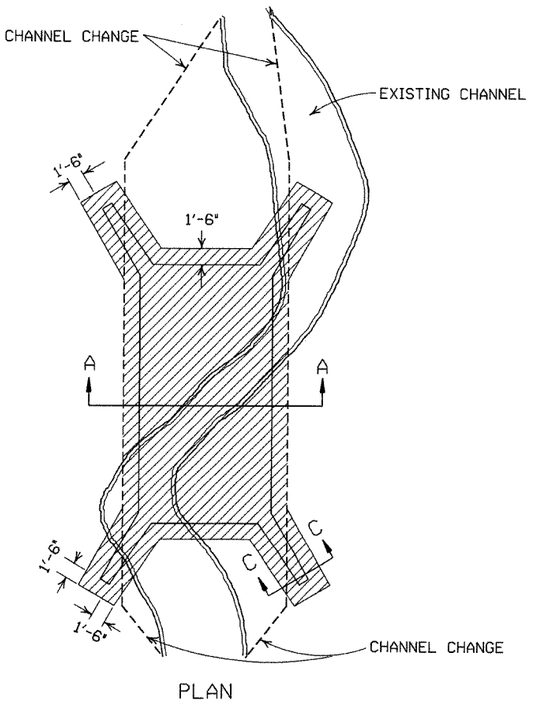


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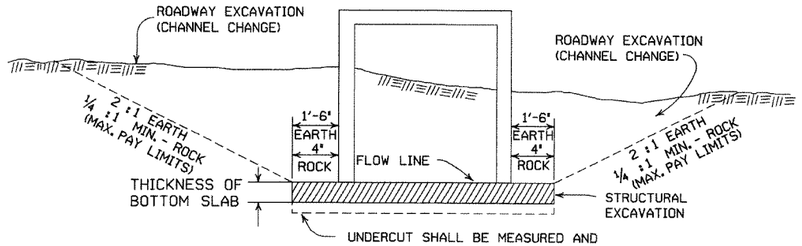


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

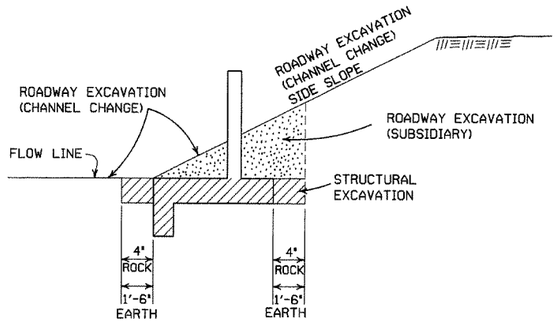


PLAN

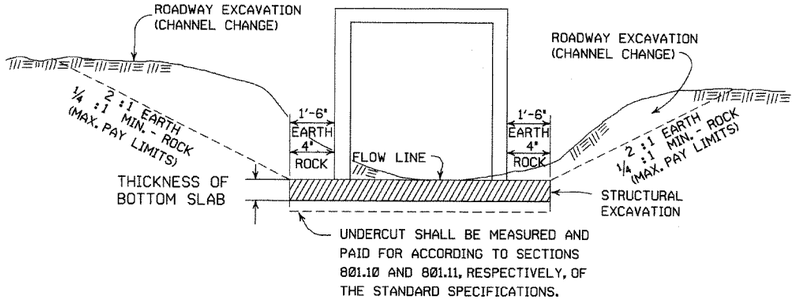


SECTION B-B

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.

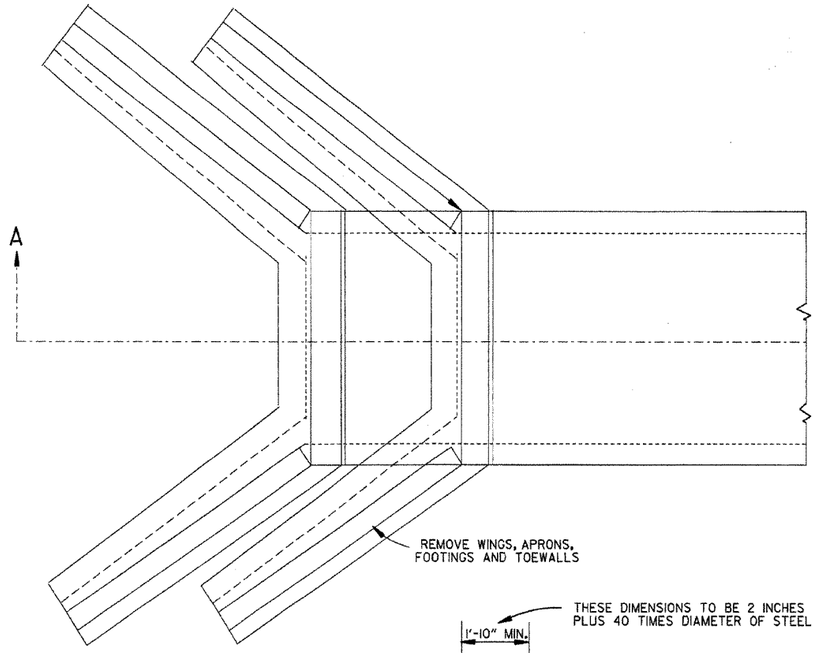
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

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 AND ADDED MAXIMUM PAY LIMIT NOTES.	674-1-4-83
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

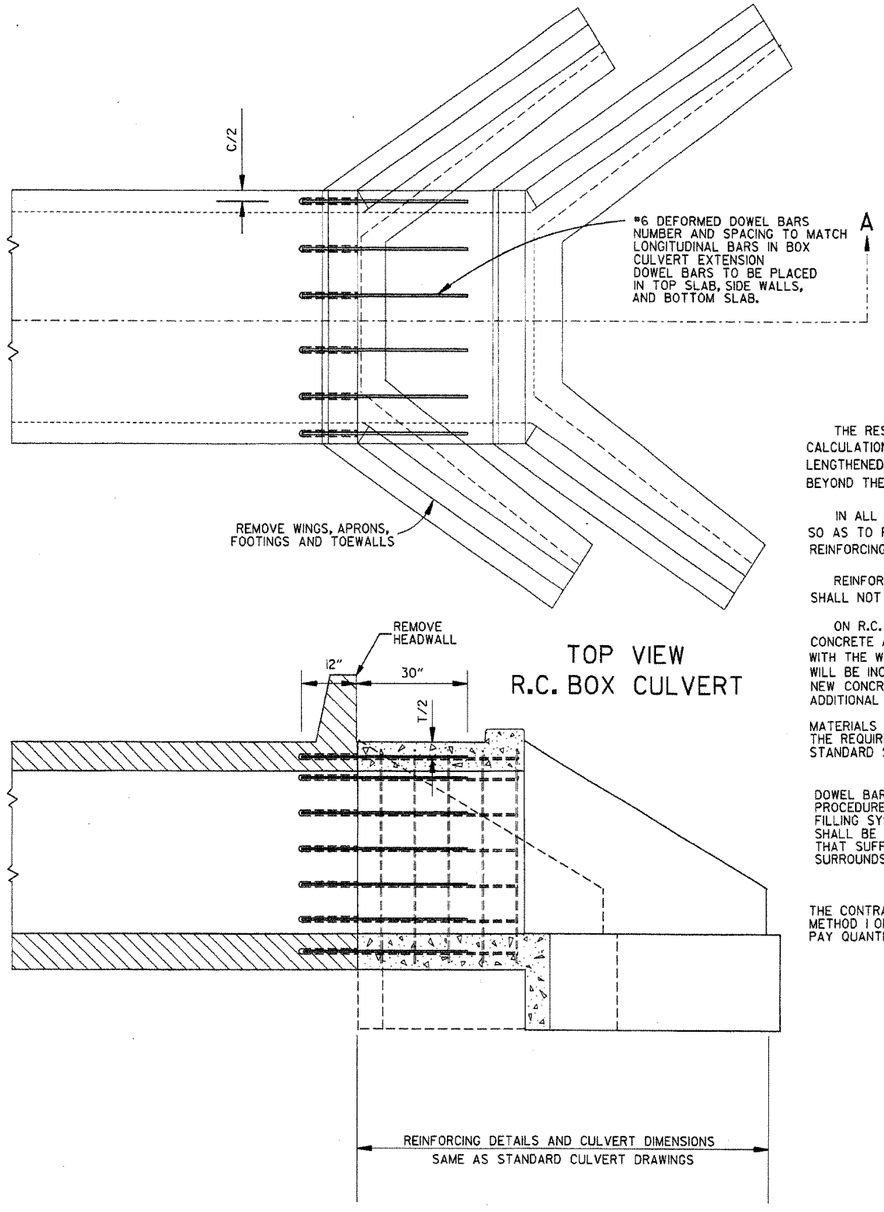
STANDARD DRAWING RCB-2



TOP VIEW
R.C. BOX CULVERT

SECTION A-A

METHOD 1



TOP VIEW
R.C. BOX CULVERT

SECTION A-A

METHOD 2

GENERAL NOTES

	USE FOR METHOD
THE RESIDENT ENGINEER WILL MAKE INDIVIDUAL CALCULATIONS OF QUANTITIES FOR EACH STRUCTURE LENGTHENED, MAKING NO ALLOWANCE FOR OVERBREAKAGE BEYOND THE LINES INDICATED.	1
IN ALL INSTANCES CONCRETE SHALL BE REMOVED SO AS TO PERMIT FULL 40 DIAMETER SPLICE OF REINFORCING STEEL.	1
REINFORCING STEEL REMOVED FROM EXISTING STRUCTURE SHALL NOT BE REUSED IN CONSTRUCTING EXTENSION.	1&2
ON R.C. BOX CULVERTS THAT HAVE AN EXISTING CONCRETE APRON; THE CONCRETE APRON SHALL BE REMOVED WITH THE WINGS. THE COST OF REMOVING ALL OLD CONCRETE WILL BE INCLUDED IN THE PRICE BID PER CUBIC YARD FOR NEW CONCRETE OF THE CLASS SPECIFIED AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.	1&2
MATERIALS FOR SECURING DOWEL BARS SHALL MEET THE REQUIREMENTS OF SECTION 507.02 OF THE STANDARD SPECIFICATIONS.	2
DOWEL BARS SHALL BE INSTALLED AS FOLLOWS: THE DRILLING PROCEDURE SHALL BE APPROVED BY THE ENGINEER, THE FILLING SYSTEM SHALL BE APPROVED BY THE ENGINEER, AND SHALL BE AN INJECTION-TYPE SYSTEM WHICH WILL INSURE THAT SUFFICIENT MATERIAL IS INJECTED SO IT COMPLETELY SURROUNDS THE BARS AND FILLS THE HOLES.	2
THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER METHOD 1 OR METHOD 2. REGARDLESS OF WHICH METHOD IS USED, PAY QUANTITIES WILL BE CALCULATED BASED ON METHOD 1.	1&2

NOTE:
NO PART OF THIS STANDARD IS TO BE USED FOR ANY DETAILS RELATIVE TO NEW CONSTRUCTION.

SEE STANDARD DRAWING LISTED IN TABULATION OF STRUCTURES FOR ALL NEW CONSTRUCTION DETAILS.

DATE	REVISION	DATE FILM
10-12-95	CHANGED DRAWING # FROM 144-A	
4-1-93	ADDED GENERAL NOTE	
10-1-92	ADDED ALT. METHOD OF EXTENSION	
11-30-89	REDRAWN	
1-4-83	ELIMINATED CONCRETE CLASS	
12-20-56	RETRACED	

ARKANSAS STATE HIGHWAY COMMISSION

METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS

STANDARD DRAWING RCB-3

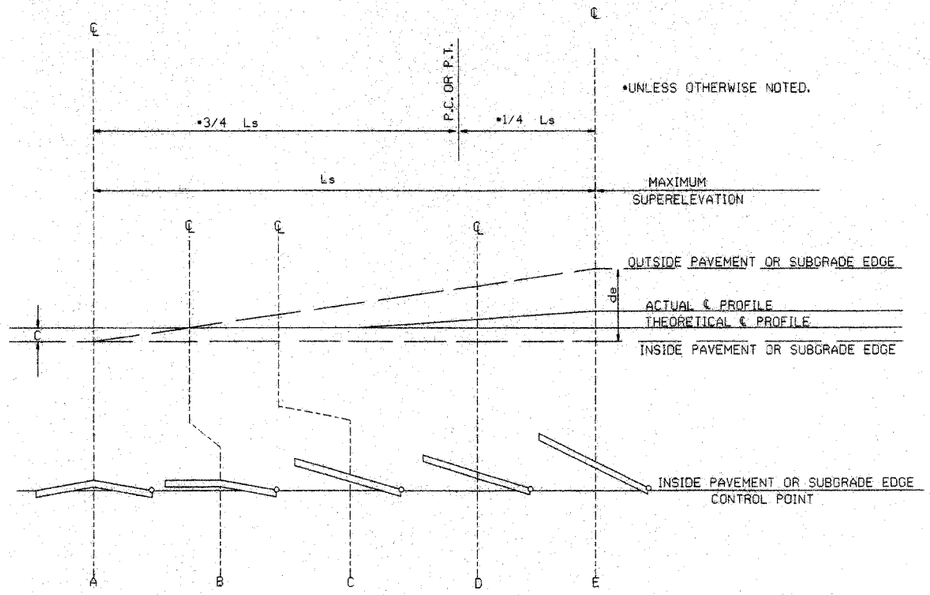
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15'	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30'	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45'	N.C.			N.C.			R.C.			0.022			0.023			0.028		
1° 00'	N.C.			N.C.			0.021			0.026			0.030			0.037	275	300
1° 15'	N.C.			R.C.			0.026			0.032			0.037	250	300	0.046		
1° 30'	N.C.			0.021			0.031	200		0.037	225		0.043			0.054		
1° 45'	N.C.			0.025			0.036			0.043		300	0.049			0.062		
2° 00'	R.C.			0.028	175		0.040			0.048			0.055			0.070		
2° 15'	R.C.			0.031			0.045		250	0.053			0.061			0.078	300	350
2° 30'	0.021			0.034			0.049			0.058			0.067			0.085	315	
2° 45'	0.023			0.037			0.053			0.063			0.072			0.091	335	
3° 00'	0.025	150		0.040		200	0.057			0.067	230		0.077	260		0.096	350	400
3° 15'	0.027			0.043			0.061			0.072	245		0.082	275		0.098	360	
3° 30'	0.029			0.046			0.065	205		0.076	255		0.086	285	350	0.100	360	
3° 45'	0.031		200	0.049			0.069	215		0.080	265		0.090	295				
4° 00'	0.033			0.051			0.072	225		0.083	270		0.093	305				
4° 30'	0.037			0.056			0.078	240		0.087	280		0.096	315				
5° 00'	0.040			0.061			0.083	250		0.091	295	350						
5° 30'	0.043			0.066	185		0.088	260		0.094	300							
6° 00'	0.046			0.070	190		0.092	270		0.096	305							
6° 30'	0.050			0.074	200		0.095	280	300	0.100	315							
7° 00'	0.053			0.079	210		0.098	285										
7° 30'	0.056			0.081	215		0.099	290										
8° 00'	0.058			0.084	220		0.100	290										
8° 30'	0.061			0.087	225	250												
9° 00'	0.063			0.089	230													
10° 00'	0.068	160		0.094	235													
11° 00'	0.072	170		0.097	250													
12° 00'	0.076	175		0.099	250													
13° 00'	0.080	180		0.100	250													
14° 00'	0.083	190																
15° 00'	0.086	195																
16° 00'	0.089	200																
17° 00'	0.091	200																
18° 00'	0.093	205																
19° 00'	0.095	210																
20° 00'	0.097	215	250															
21° 00'	0.098	215																
22° 00'	0.099	215																
23° 00'	0.099	215																
24° 00'	0.100	220																

D MAX = 24° 45' | D MAX = 13° 15' | D MAX = 8° 15' | D MAX = 6° 30' | D MAX = 5° 15' | D MAX = 3° 30'

ABBREVIATIONS

NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
e - RATE OF SUPERELEVATION (FT. PER FT.)
Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
C - NORMAL CROWN (FT.)



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

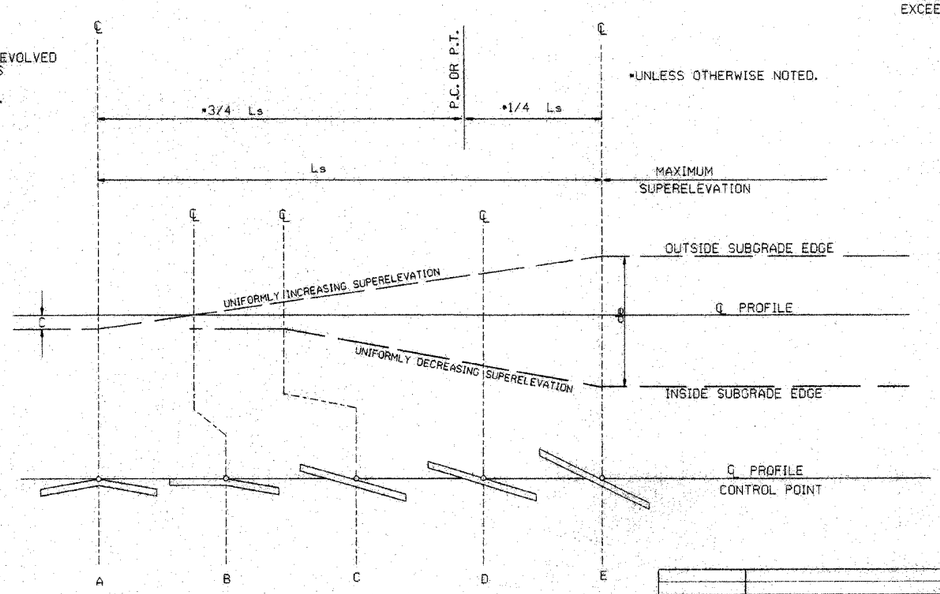
GENERAL NOTES

1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:

3 LANE UNDIVIDED - - - - - +20%
4 LANE UNDIVIDED - - - - - +50%
5 LANE UNDIVIDED - - - - - +80%
6 LANE UNDIVIDED - - - - - +100%

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

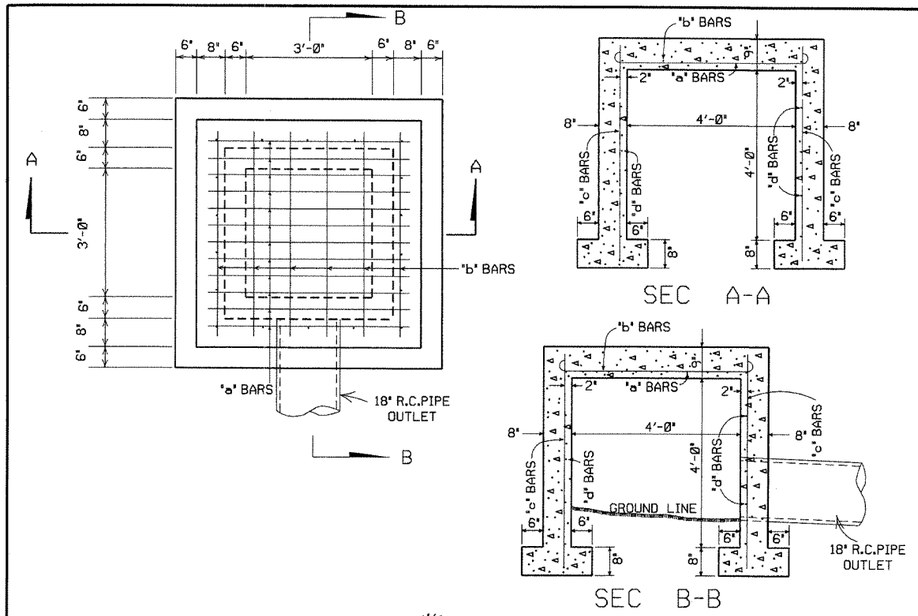
DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	12-13-96
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

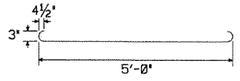
FILE STDSE2.DGN



STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"a"	11	6'-0"	5"
"b"	6	6'-0"	10"
"c"	16	5'-1"	12"
"d"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



"a" & "b" BARS

QUANTITIES

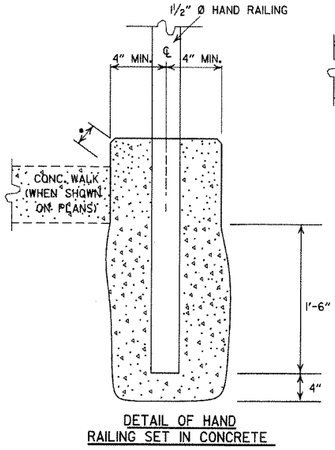
CONCRETE 3.40 CU. YDS.
REINFORCING STEEL 176 LB.

GENERAL NOTE:

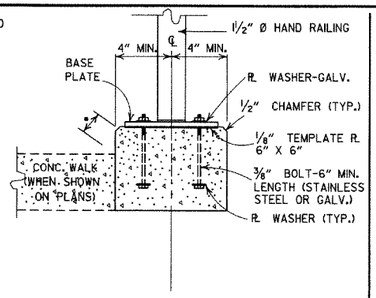
THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITTIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX

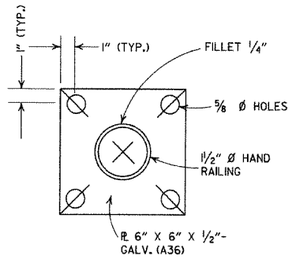
- A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

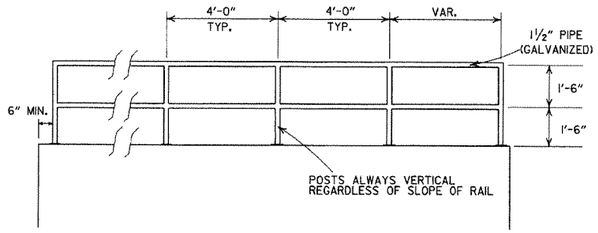


POST CONNECTION TO WALL

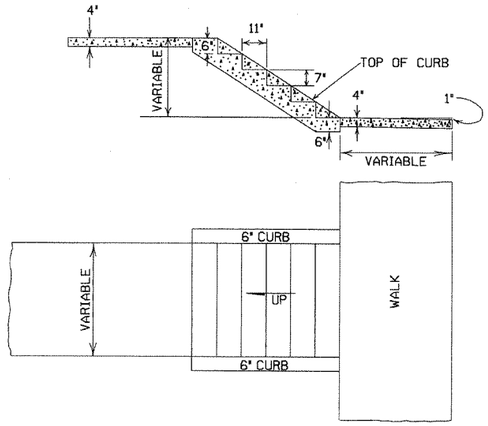


BASE PLATE

POST CONNECTION DETAILS



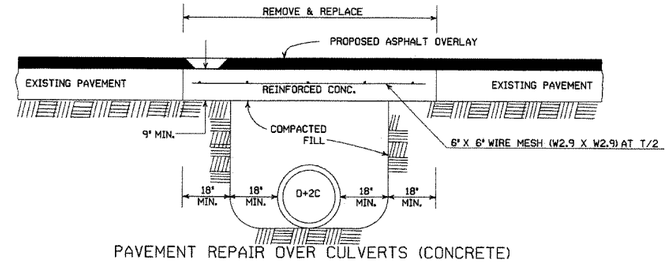
HAND RAILING DETAILS



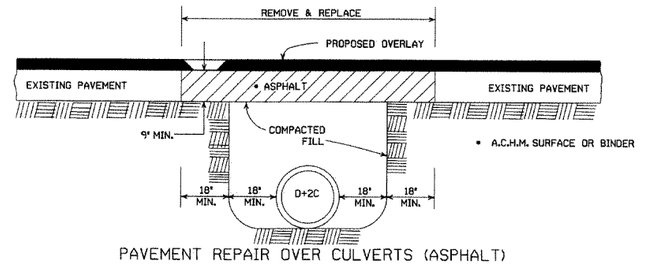
GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

DETAILS OF CONCRETE STEPS & WALKS



PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

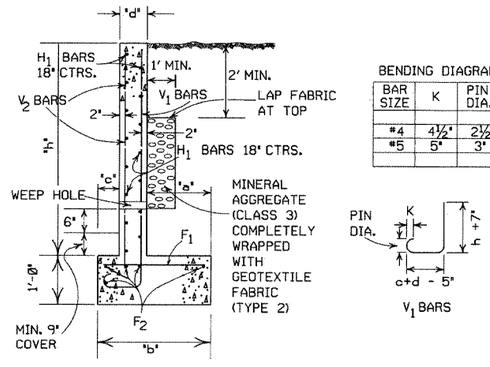
GENERAL NOTES

THE PAY ITEMS FOR THE CONSTRUCTION OF REINFORCED CONCRETE RETAINING WALL SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL AND EXCAVATION FOR STRUCTURES.

MINERAL AGGREGATE WRAPPED WITH GEOTEXTILE FABRIC (CONTINUOUS) TO BE PLACED 1'-0" IN WIDTH AND 1'-0" IN HEIGHT AS A SUBSIDIARY ITEM TO THE VARIOUS PAY ITEMS.

3" WEEP HOLES (MAX. SPACING 10'-0"CTRS.) TO BE PLACED WHERE SPECIFIED BY THE ENGINEER. THE CONTRACTOR WILL BE REQUIRED TO PLACE CONTRACTION JOINTS ON 20' CENTERS AND EXPANSION JOINTS ON 60' CENTERS.

ALL EXPOSED EDGES TO BE CHAMFERED ¾".



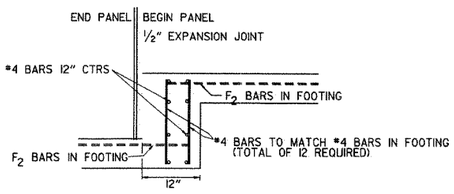
BENDING DIAGRAM

BAR SIZE	K	PIN DIA.
#4	4½"	2½"
#5	5"	3"

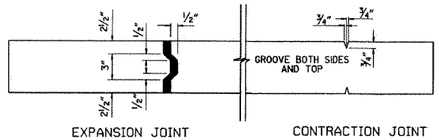
V1 BARS

STEEL SCHEDULE

'c'	'd'	'h'	'a'	'b'	V1 BARS SIZE	V1 BARS SPACING	F1 BARS SIZE	F1 BARS SPACING	H1 SPAC.	V2 SPAC.	F2 NO. REQ'D.
					* 4 BARS						
8"	8"	1'-0"	8"	2'-0"	#4	12"	#4	18"	18"	18"	5
8"	8"	2'-0"	8"	2'-0"	#4	12"	#4	18"	18"	18"	5
8"	8"	3'-0"	8"	2'-0"	#4	12"	#4	18"	18"	18"	5
8"	8"	4'-0"	1'-2"	2'-6"	#4	12"	#4	12"	18"	18"	5
8"	8"	5'-0"	1'-8"	3'-0"	#4	9"	#4	9"	18"	18"	5
8"	8"	6'-0"	2'-2"	3'-6"	#4	6"	#4	6"	18"	18"	6
12"	8"	7'-0"	2'-4"	4'-0"	#4	8"	#4	8"	18"	18"	6
12"	8"	8'-0"	2'-10"	4'-6"	#4	6"	#4	6"	18"	18"	6
15"	10"	9'-0"	2'-11"	5'-0"	#4	5"	#4	5"	18"	18"	6
17"	10"	10'-0"	3'-3"	5'-6"	#5	6"	#5	6"	18"	18"	7



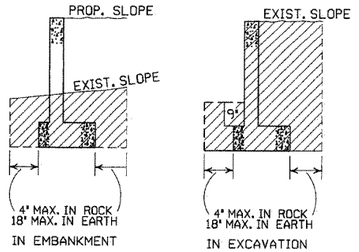
FOOTING STEPS



JOINT DETAILS

NOTE: JOINT MATERIAL SHALL BE PREFORMED MEETING THE REQUIREMENTS OF SUBSECTION 501.02(h) FOR TYPE 2

REINFORCED CONCRETE RETAINING WALL



NOTE: HATCHED AREA DENOTES MAX. LIMITS OF EXCAVATION FOR STRUCTURES FOR RETAINING WALL.

DATE	REVISION	DATE FILMED
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	V1 BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR	649-7-15-88
	ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	
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

4-17-08	REV. JOINT & FOOTING STEP DETAILS
11-29-07	REVISED RETAINING WALL DRAINAGE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF SPECIAL ITEMS

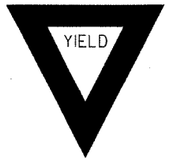
STANDARD DRAWING SI - 1

R1-1



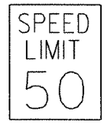
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

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"

R2-5A



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5C



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-1



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R5-1



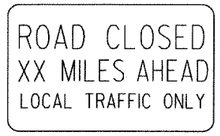
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2



48"X30"

R11-3A



60"X30"

R11-4



60"X30"

RSP-1



48"X30"

W1-1



STD. 36"X36"
FWY. 48"X48"

W1-2



STD. 36"X36"
FWY. 48"X48"

W1-3



STD. 48"X48"

W1-4



STD. 48"X48"

W1-6



STD. 48"X24"
SPECIAL 60"X30"

W1-8



STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



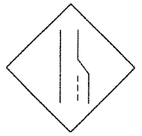
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



STD. 36"X36"
FWY. 48"X48"

W5-1



STD. 36"X36"
SPECIAL 48"X48"

W6-3



EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7



EXPWY. 36"X36"
FWY. 48"X48"

W9-2



STD. 36"X36"
FWY. 48"X48"

W13-1



STD. 24"X24"

W20-1



STD. 48"X48"

W20-2



STD. 48"X48"

W20-3



STD. 48"X48"

W20-4



STD. 48"X48"

W20-5



STD. 48"X48"

W20-7a



STD. 36"X36"
FWY. 48"X48"

W21-2



STD. 30"X30"
SPECIAL 36"X36"

W21-5



STD. 30"X30"
SPECIAL 36"X36"

W24-1



STD. 36"X36"

W1-4b



STD. 48"X48"

R56-1



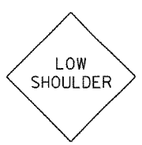
STD. 18"X18"

W8-11



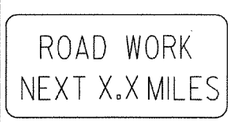
STD. 36"X36"
FWY. 48"X48"

W8-9



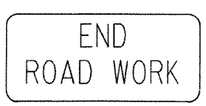
STD. 36"X36"
FWY. 48"X48"

G20-1



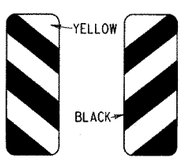
60"X24"

G20-2



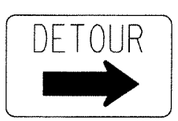
48"X24"

OM-3L OM-3R



12"X36"

M4-9



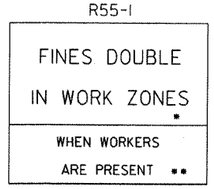
STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10



48"X18"

R55-1



36"X60"

* USE 6" C LETTERS
** USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	1/2 MILE
1000 FT	3/4 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.

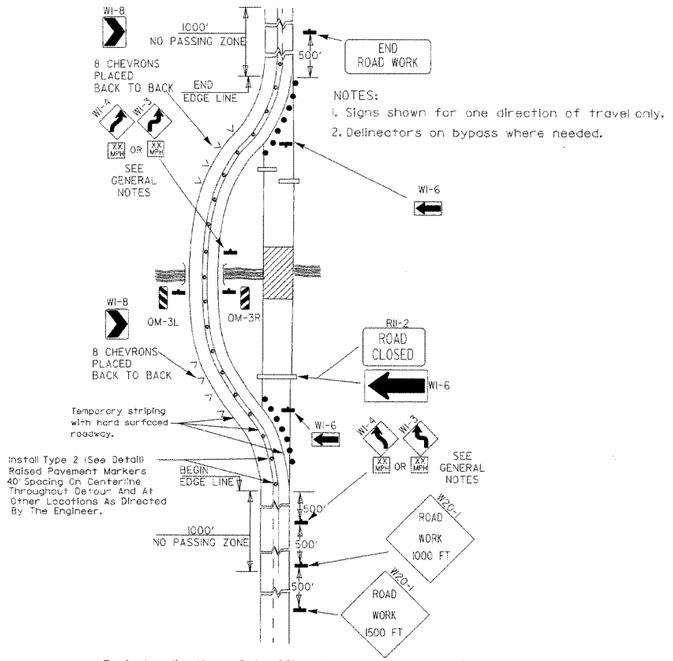
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

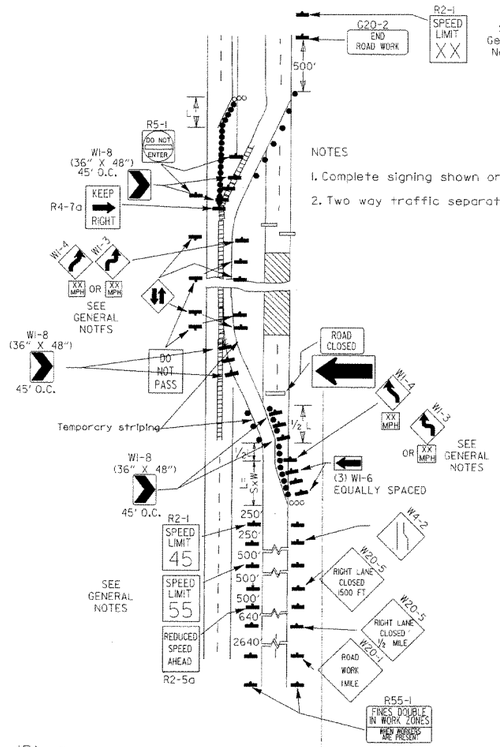
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



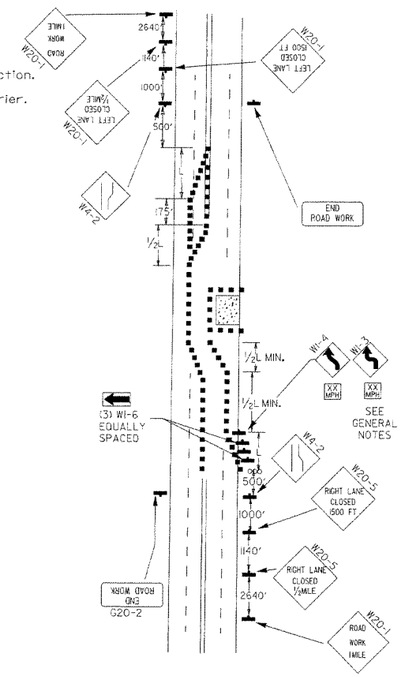
NOTES:
1. Signs shown for one direction of travel only.
2. Delineators on bypass where needed.

(A) Typical application of traffic control devices on a 2-lane highway where the entire roadway is closed and a bypass detour is provided.

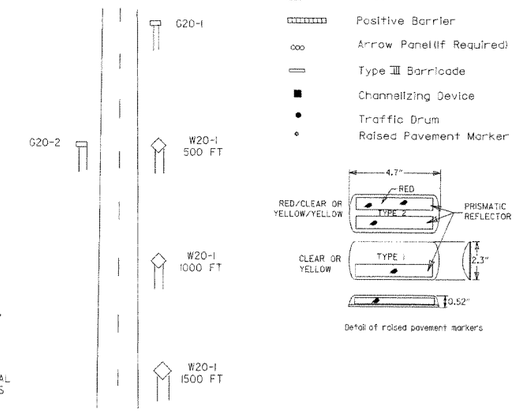


NOTES
1. Complete signing shown only in crossover direction.
2. Two way traffic separated with positive barrier.

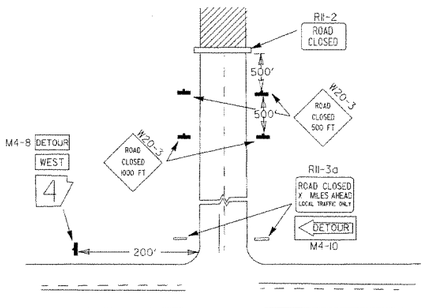
(B) Typical application - 4-lane divided roadway where one roadway is closed.



(C) Typical application - 4-lane undivided roadway where half of the roadway is closed.

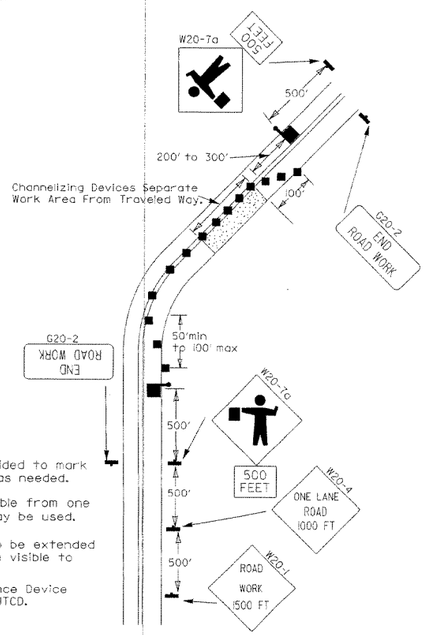


Typical advance warning sign placement



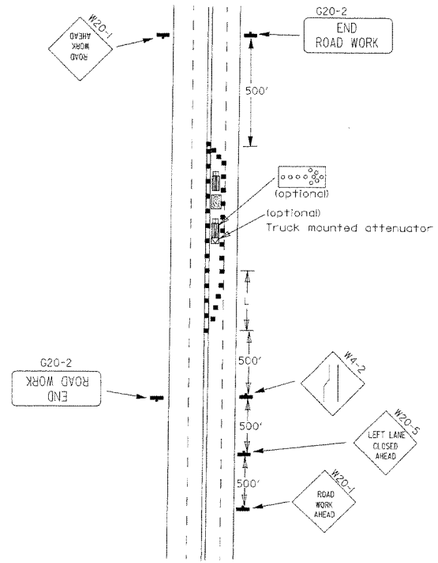
NOTES:
1. Regulatory traffic control devices to be modified as needed for the duration of the detour.
2. Street names may be used when desirable for directing detoured traffic.

(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.

Taper formulae:

L=SxW for speeds of 45mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40mph or less.

Where:
L= Minimum length of taper.
S= Numerical value of posted speed limit prior to work or 85th percentile speed.
W= Width of offset.

GENERAL NOTES:

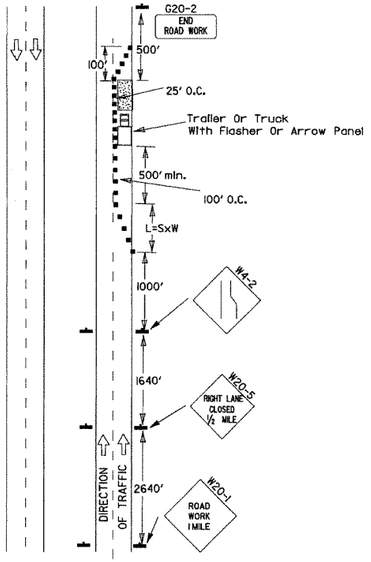
1. Advisory speed posted on W1-3 or W1-4 curve warning signs to be determined at site. Use W1-4 when speed is greater than 30mph and W1-3 when 30mph or less.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1mile intervals. At the end of the work area a R2-1(xx) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1mile intervals. At the end of the work area a R2-1(xx) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit, or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

DATE	REVISION	FILMED
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

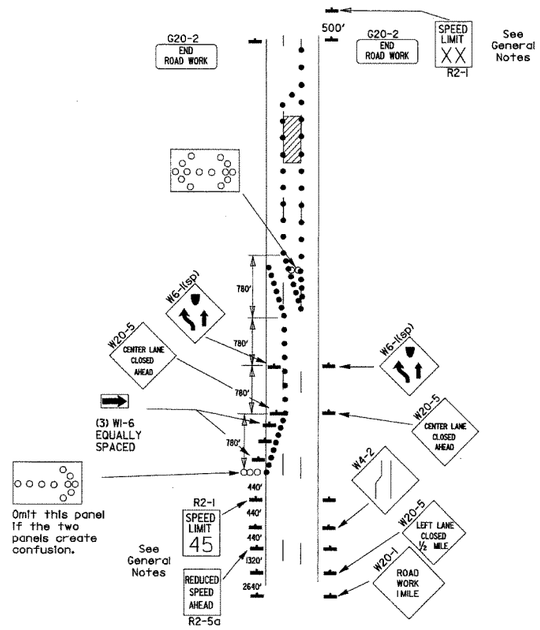
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

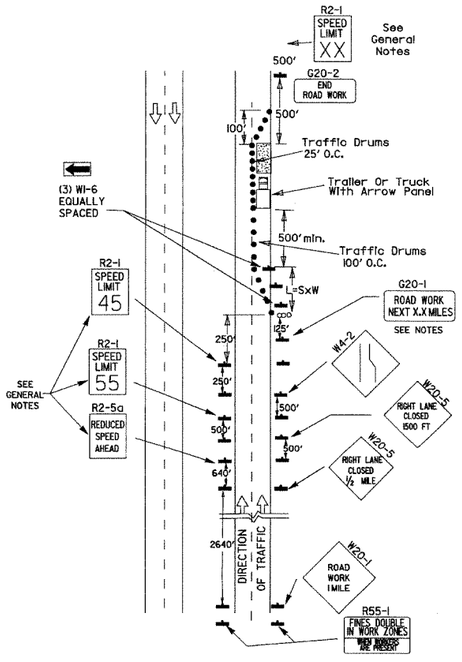
STANDARD DRAWING TC-2



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



(B) Typical application - 3-lane oneway roadway where center lane is closed.



(C) Typical application - construction operatipns of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

KEY:

○○○ Arrow Panel (If Required)

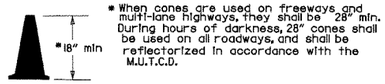
■ Channelizing Device

● Traffic drum

GENERAL NOTES:

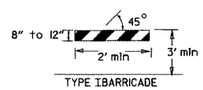
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional 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



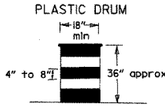
* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

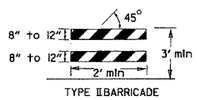
CONES



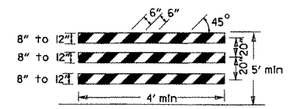
TYPE I BARRICADE

PLASTIC DRUM

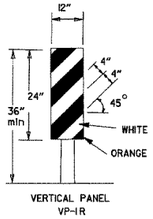




TYPE II BARRICADE



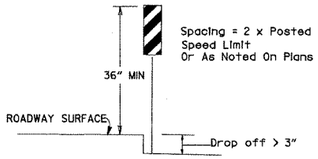
TYPE III BARRICADE



VERTICAL PANEL
VP-1R

NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.

VERTICAL PANEL PLACEMENT



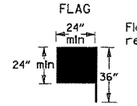
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

* When shown on the plans concrete barrier will be used.

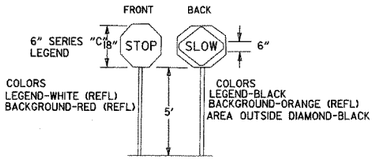
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

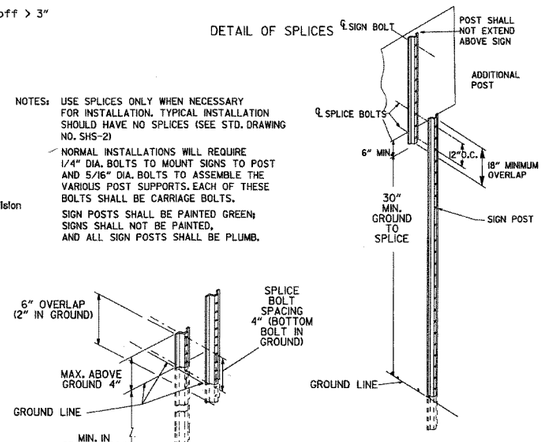
FLAG

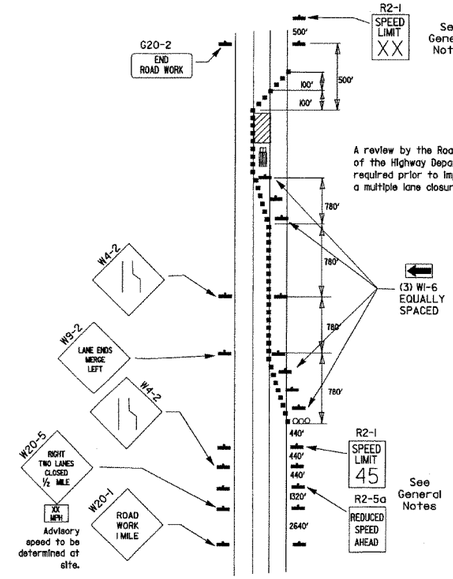


Flag shall be of good grade red material

STOP SLOW PADDLE







(D) Typical application - closing multiple lanes of a multilane highway.

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

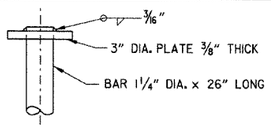
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

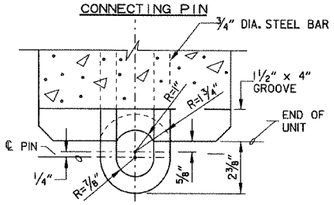
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT

MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1'-6", 1" MIN. CLEAR TO BAR; 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9", 2 3/16" R, 12°, 9 1/2", 2'-1 3/8", 4 3/8"

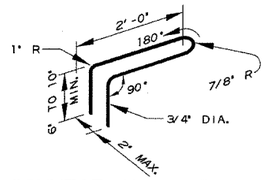


CONNECTING PIN

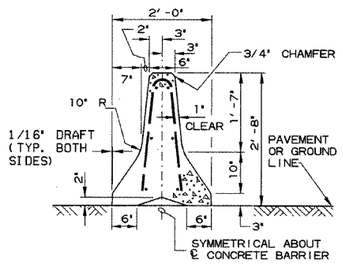


SECTION E-E

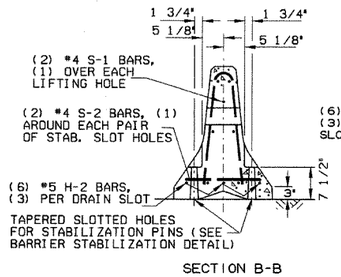
CONNECTION DETAILS



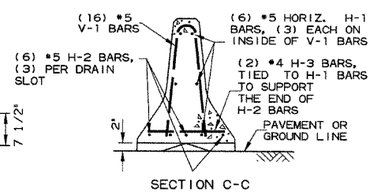
CONNECTION LOOP



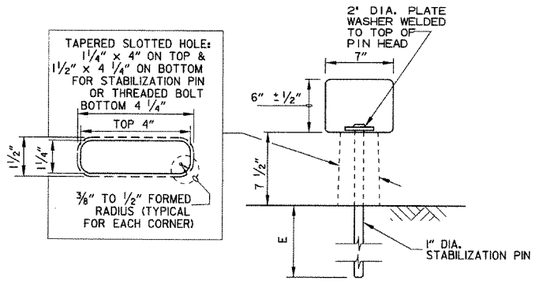
SECTION A-A



SECTION B-B



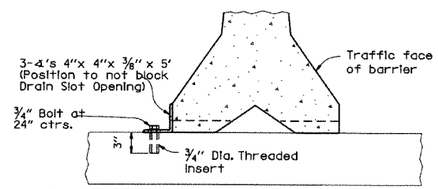
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

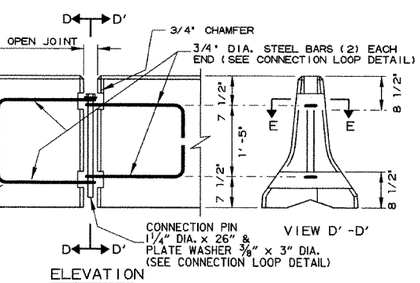
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks to be retained. 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

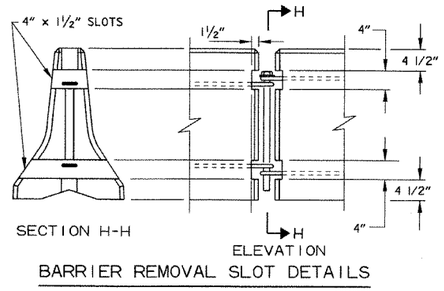
BRIDGE DECKS



VIEW D-D

VIEW D'-D'

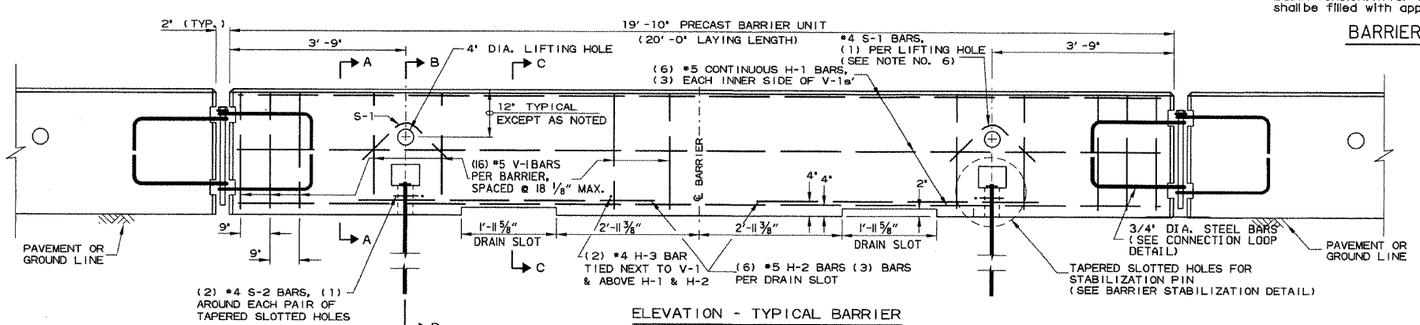
ELEVATION



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.

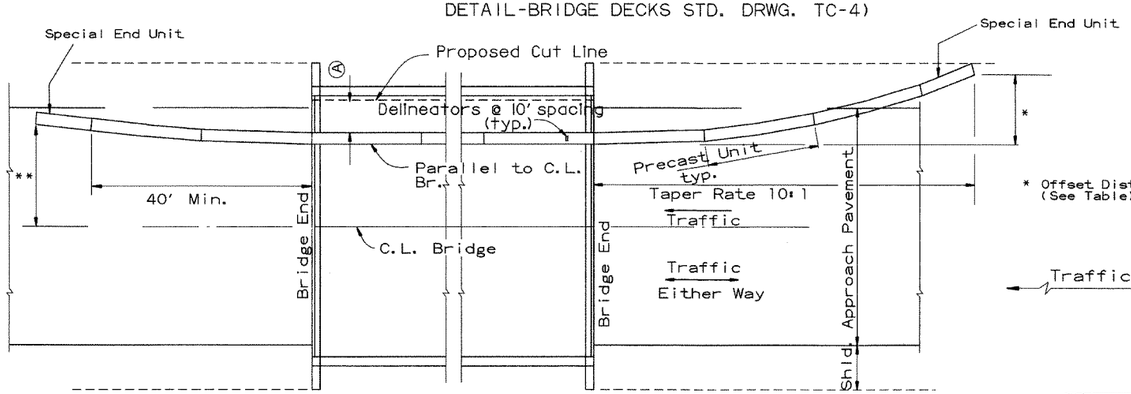
DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

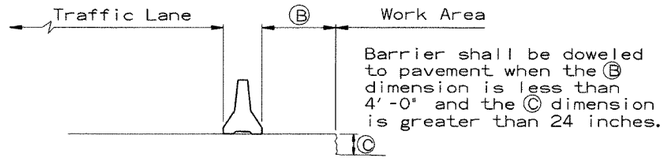
STANDARD DRAWING TC-4

Ⓐ 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

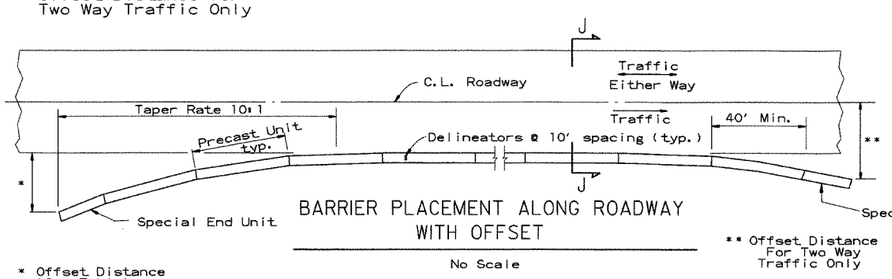


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

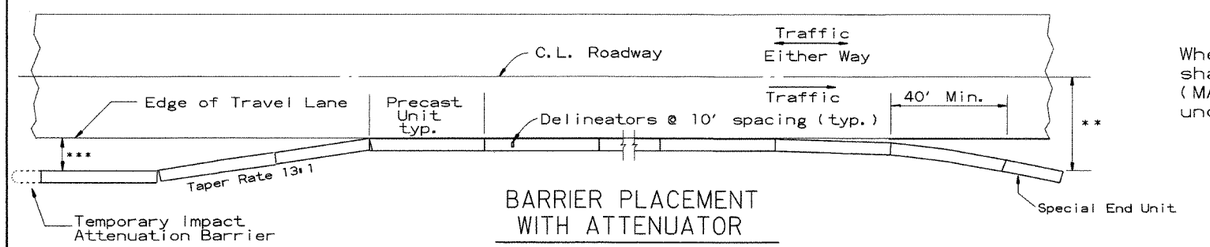
** Offset Distance For Two Way Traffic Only

* Offset Distance (See Table)

Offset Distance Table

Speed (MPH)	Offset Distance (FT.)
≤ 45	12
> 45	18

If offset distance is not attainable, then see "Barrier Placement With Attenuator" Detail shown below.

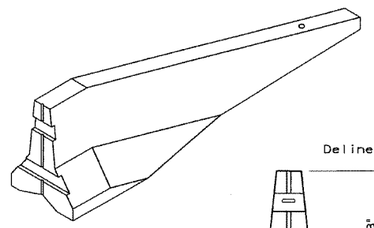


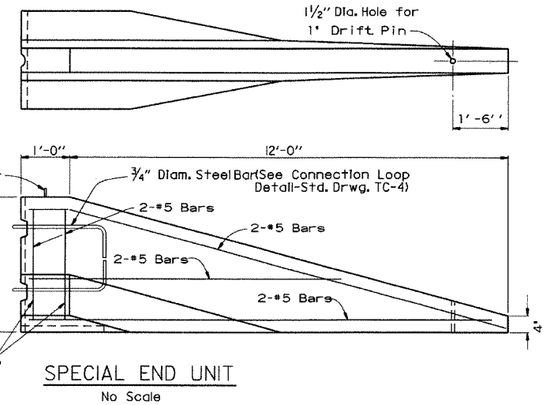
BARRIER PLACEMENT WITH ATTENUATOR

No Scale

*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

** Offset Distance For Two Way Traffic Only





SPECIAL END UNIT

No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

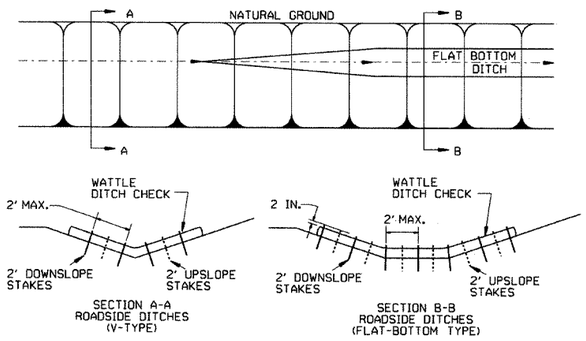
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

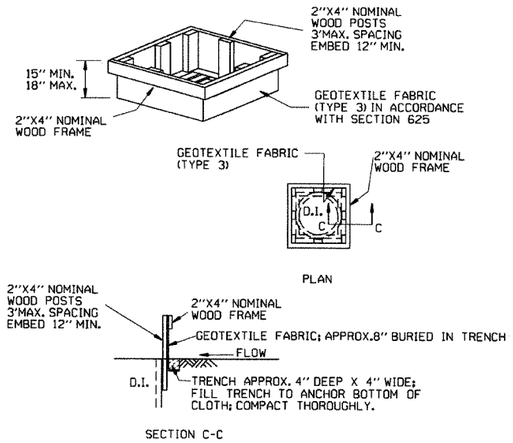
STANDARD DRAWING TC-5

GENERAL NOTES

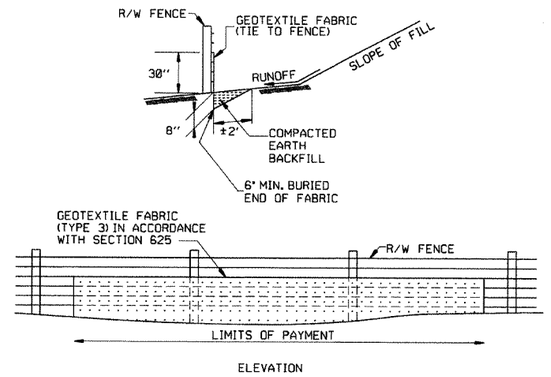
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



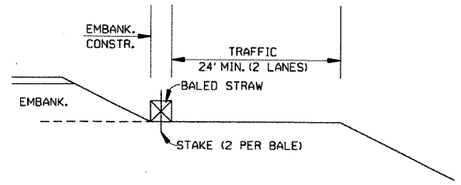
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

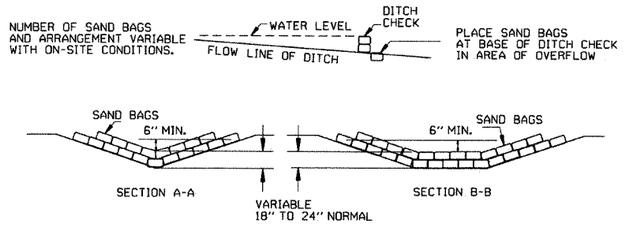
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

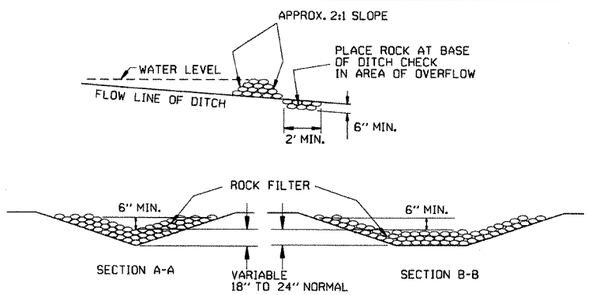
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
2. NO GAPS SHALL BE LEFT BETWEEN BALES.
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED 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.



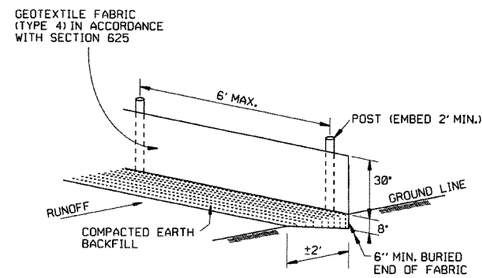
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

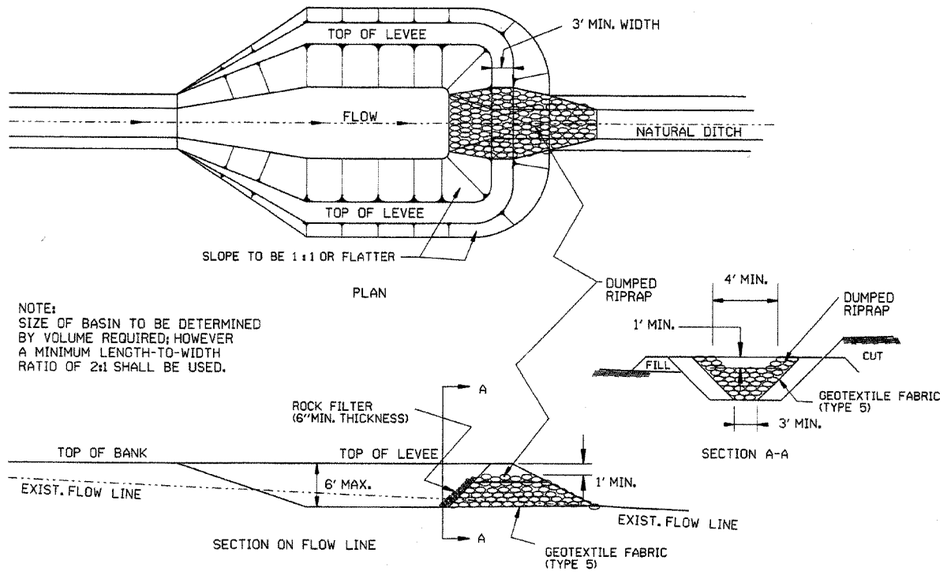
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

DATE	REVISION	FILMED
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
6-2-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
4-1-93	REDRAWN	
10-1-92	REDRAWN	
8-2-76	ISSUED R.D.M.	298-7-28-76

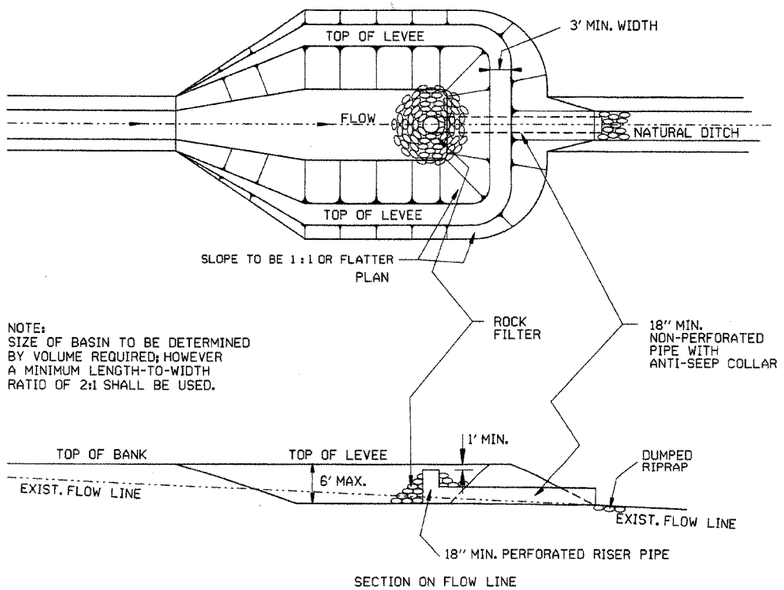
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

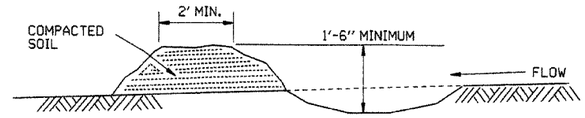
STANDARD DRAWING TEC-1



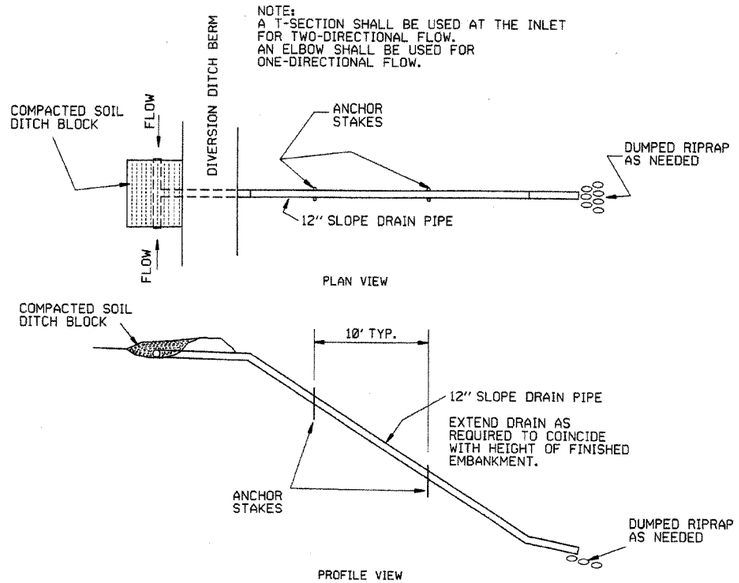
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



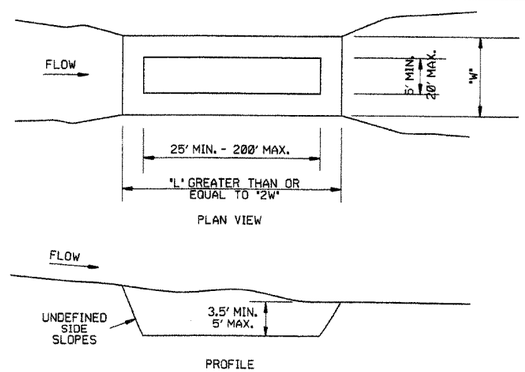
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

DATE	REVISION	FILMED
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13	
4-1-93	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

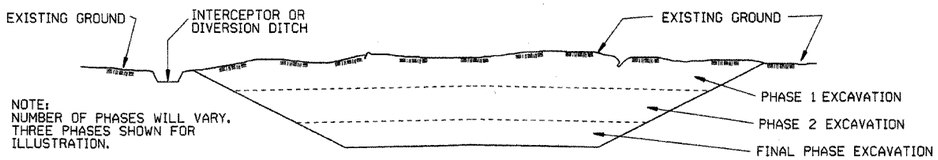
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES , DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



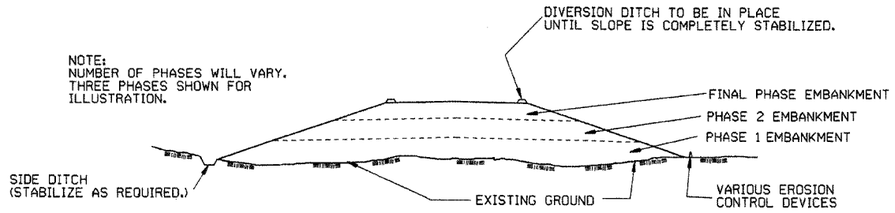
GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

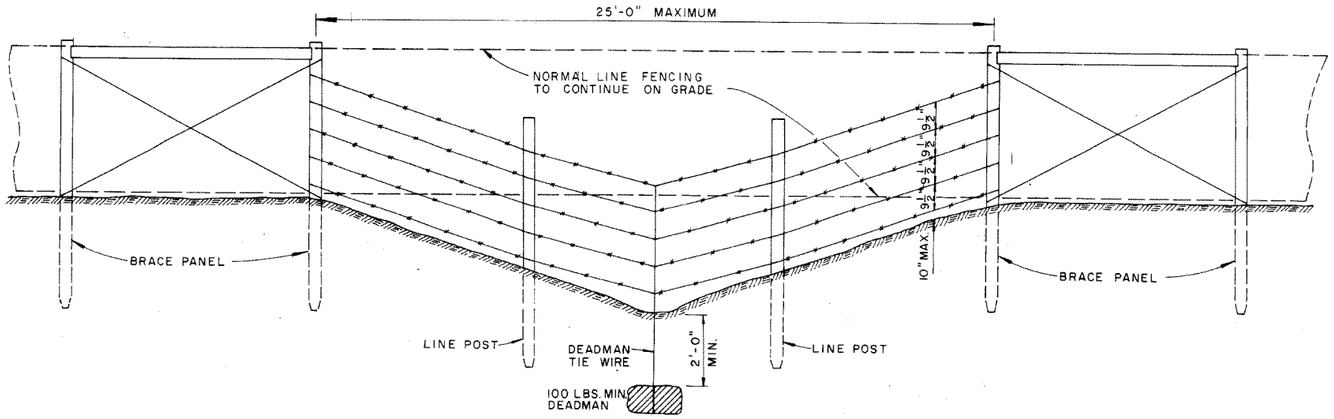
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

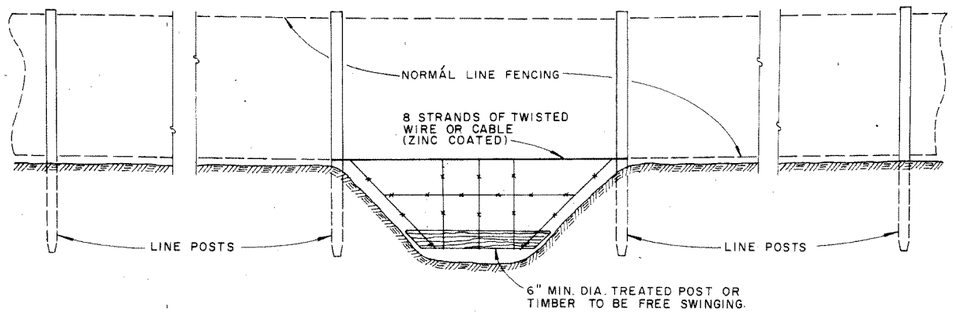
ARKANSAS STATE HIGHWAY COMMISSION

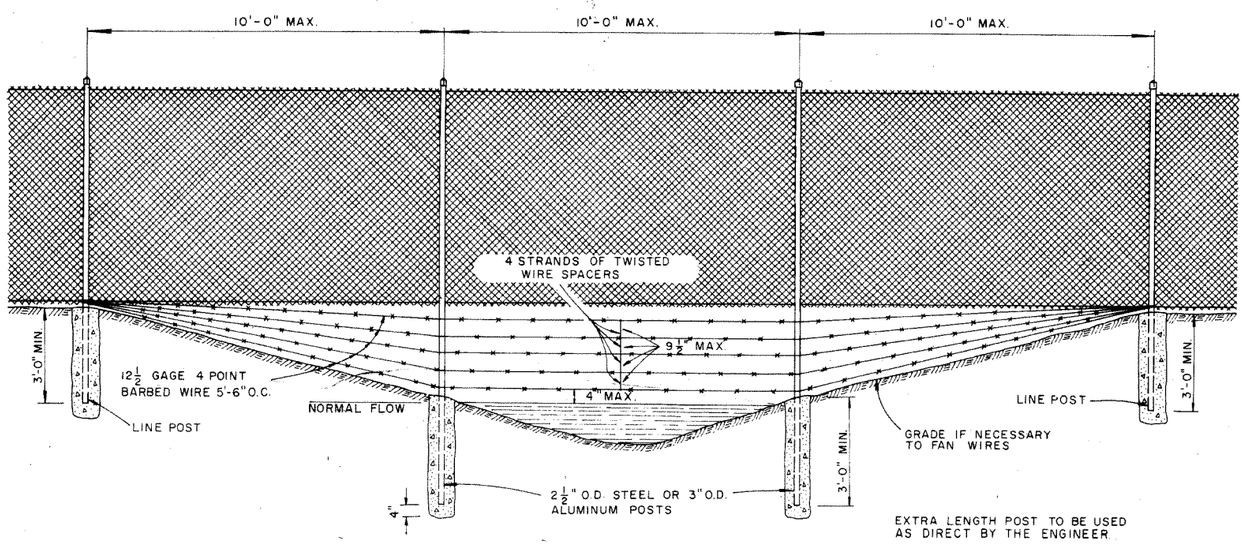
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

stdtec3.dgn







GENERAL NOTES:

THESE INSTALLATIONS TO BE USED WHERE NORMAL FENCING INSTALLATION WOULD CAUSE THE COLLECTING OF DRIFT IN THE CHANNEL OR THE DEPRESSION WILL NOT PERMIT NORMAL INSTALLATION. INSTALLATIONS WILL BE MADE ONLY WHERE DIRECTED BY THE ENGINEER.

WHEN A FENCE LINE APPROACHES A DITCH, GULLY OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP OFF THAT THE FENCE MAY BE STRUNG TO THE POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.

IN TERRAIN OF SUCH EXTREME IRREGULARITY THAT MINOR GRADING WILL NOT BE FEASIBLE, THE NORMAL FENCE SHALL CONTINUE ON GRADE AND THE GULLIES OR DEPRESSIONS TREATED BY AUXILIARY FENCES AS SHOWN.

PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

DATE	REVISION	DATE FILM'D.
4-20-79	REVISED TOP RAIL & TENSION WIRE	696-4-20-79
10-2-72	REVISED & REDRAWN	529 10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE WATER GAPS

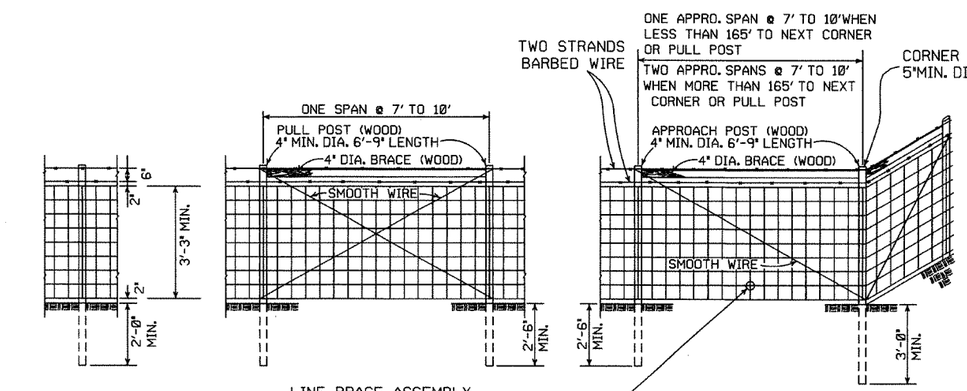
STANDARD DRAWING

WF-2

73

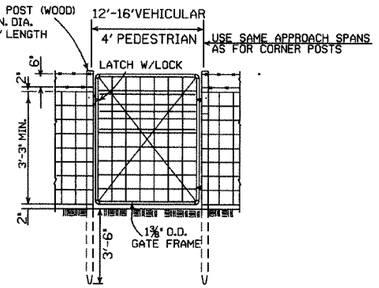
1M—11-71—67001—PP&SCo

TYPE C FENCE (WOOD POSTS)

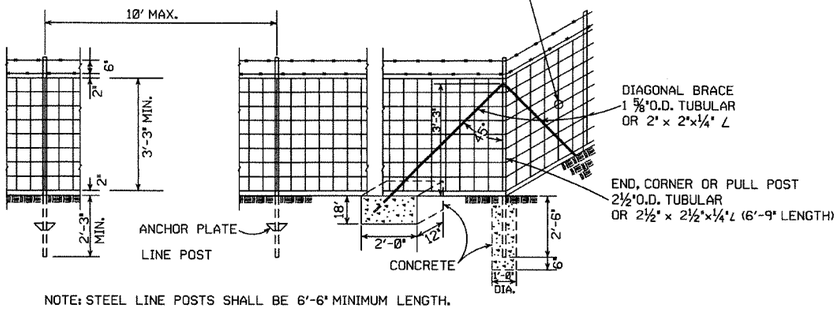


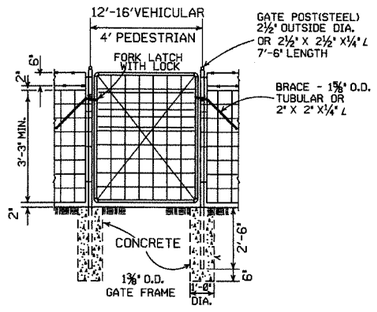
LINE POST
3" MIN. DIA. 6'-3" LENGTH
MAX. SPACING TO BE 10'-0"

LINE BRACE ASSEMBLY
MAX. SPACING TO BE 330'

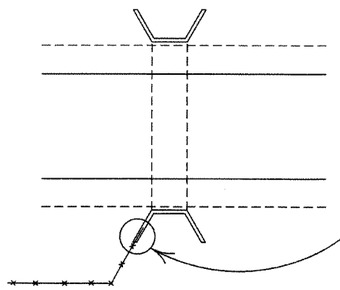


OTHER APPROVED TIES WILL BE PERMITTED

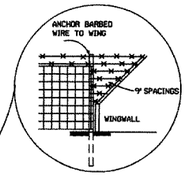




NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.



NOTE: USE ⅜" X 1½" LAG BOLT & SHIELD OR AS APPROVED BY THE ENGINEER.



DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

GENERAL NOTES:

STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED. TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE.
AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS SHALL BE - 1" TO +2".
TUBULAR POSTS MUST BE PAINTED OR GALVANIZED.

THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF TIMBER LINE POSTS OF 7 FOOT LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED BY THE ENGINEER.

AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

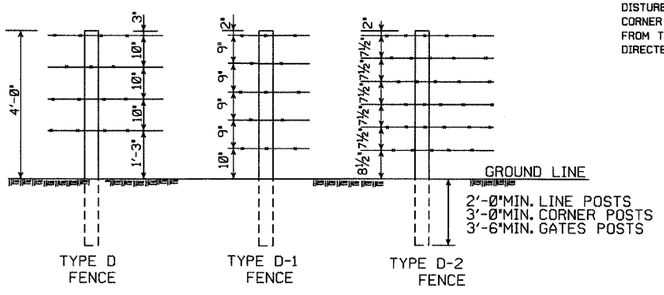
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD" AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

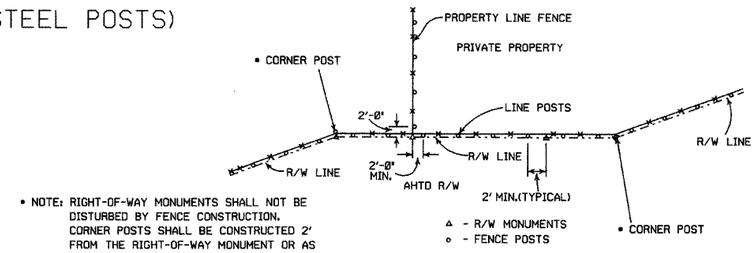
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE C FENCE (STEEL POSTS)

4 STRANDS BARBED WIRE (D)
5 STRANDS BARBED WIRE (D-1)
6 STRANDS BARBED WIRE (D-2)

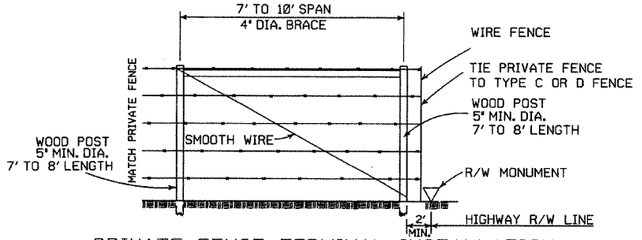


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.

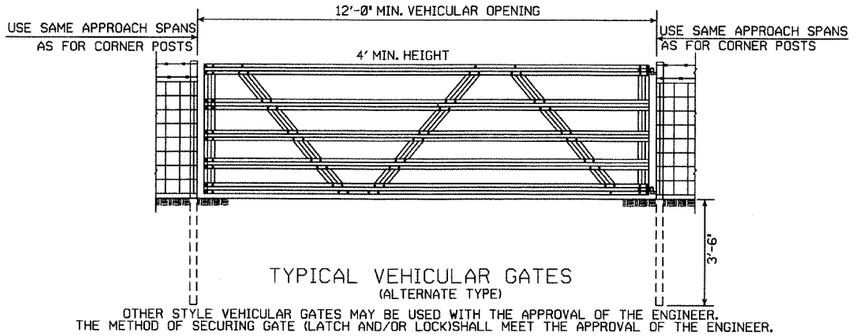


• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION
WHERE EXISTING FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN IN TYPE C FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.



TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)

OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
THE METHOD OF SECURING GATE (LATCH AND/OR LOCK) SHALL MEET THE APPROVAL OF THE ENGINEER.

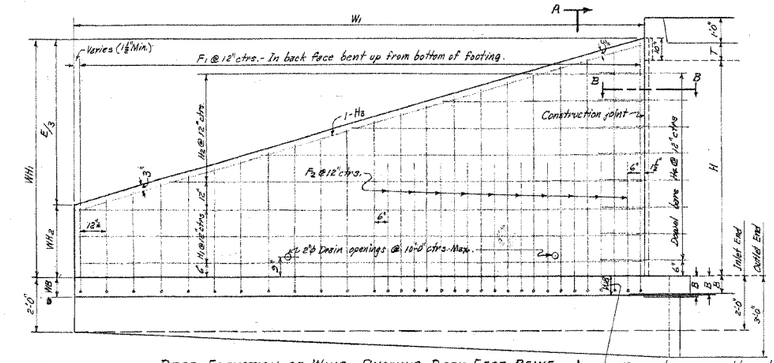
DATE	REVISION	FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
7-15-88	ADDED SPLICE NOTE	700-7-15-88
10-30-87	GENERAL REVISIONS	549-10-30-87
11-1-84	MAX. POST SPACING MIN. WIRE GAUGE	507-11-1-84
1-4-83	MIN. DIA. LINE POST	648-1-4-83
3-2-81	TOLERANCE FOR POST LENGTH	722-3-2-81
12-1-72	ADDED D-1 & FENCE INSTALLATION	564-12-1-72
10-2-72	REVISED AND REDRAWN	540-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE C AND D

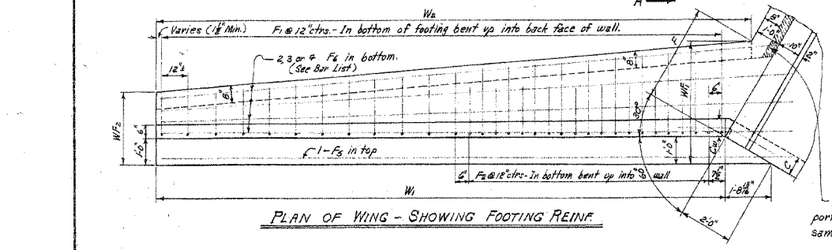
STANDARD DRAWING WF-4

FED. ROAD NO.	STATE	FED. AID PROJECT	SHEET NO.	TOTAL SHEETS
	ARK.		79	
JOB NO.				

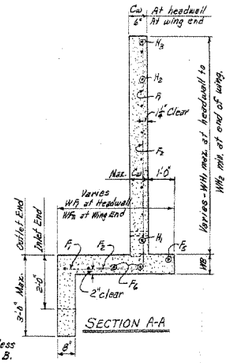


REAR ELEVATION OF WING - SHOWING BACK FACE REINF.

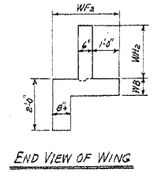
WB may be more, equal to, or less than the bottom slab thickness B.



PLAN OF WING - SHOWING FOOTING REINF.

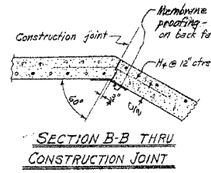


SECTION A-A

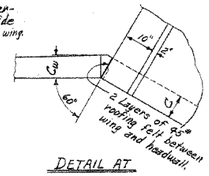


END VIEW OF WING

When B is more than WB, the shaded portion of the apron shall be made the same thickness as the barrel base B.



SECTION B-B THRU CONSTRUCTION JOINT



DETAIL AT TOP OF WING

Note:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

WING DIMENSIONS

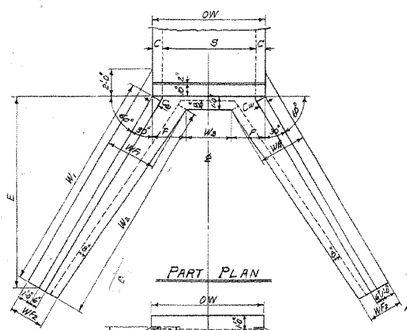
CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL = C	WINGWALL HEIGHTS AT HEADWALL	WINGWALL HEIGHTS AT END OF WING	WIDTHS OF WING FOOTINGS AT HEADWALL	WIDTHS OF WING FOOTINGS AT END OF WING	PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM HEAD TO END OF WING	LENGTH OF WING WALLS	INSIDE FOOTING DIMENSION	* QUANTITY PER WING CLASS S CONCRETE	
											INLET END	OUTLET END
H	WB	Cw	WH1	WH2	WF1	WF2	F	E	W1	W2	CU.YD.	CU.YD.
2'	7"	6"	2'-10"	0'-8"	2'-9"	2'-0"	0'-11⅞"	6'-6"	7'-6"	7'-1½"	0.889	0.986
3'	7"	6"	3'-10"	1'-0"	3'-8"	2'-1½"	1'-3⅜"	8'-6"	9'-3⅞"	9'-3½"	1.338	1.466
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	1'-9"	10'-6"	12'-1⅞"	12'-1½"	1.868	2.027
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅞"	12'-6"	14'-5⅞"	14'-5½"	2.478	2.648
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅞"	12'-6"	14'-5⅞"	14'-5½"	2.582	2.772
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-5½"	14'-6"	16'-9"	17'-1⅝"	3.440	3.661
		7½"	6'-10"	2'-0"	3'-8"	2'-6"	2'-5⅝"	14'-6"	16'-9"	17'-1⅝"	3.511	3.732
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-5⅝"	14'-6"	16'-9"	17'-1⅝"	3.582	3.803
7'	8½"	7½"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅛"	16'-6"	19'-0⅝"	19'-0⅝"	4.505	4.798
		8"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅛"	16'-6"	19'-0⅝"	19'-0⅝"	4.597	4.851
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-4"	18'-6"	21'-4⅝"	22'-4"	5.761	6.097

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W3.

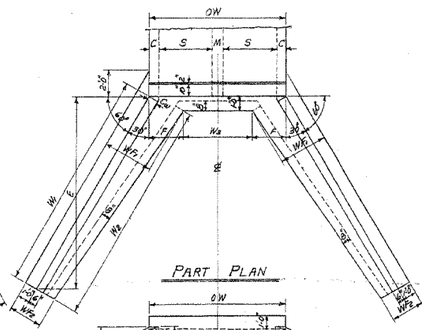
APRON DIMENSION W3

W3 = (CW - 2F)

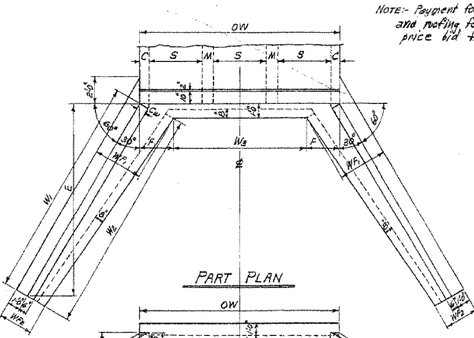
CLEAR SPAN S	CLEAR HEIGHT H	2 x F DIMENSION	SINGLE BARREL CULVERT OW	SINGLE BARREL CULVERT W3	DOUBLE BARREL CULVERT OW	DOUBLE BARREL CULVERT W3	TRIPLE BARREL CULVERT OW	TRIPLE BARREL CULVERT W3	QUADRUPLE BARREL CULVERT OW	QUADRUPLE BARREL CULVERT W3	QUINTUPLE BARREL CULVERT OW	QUINTUPLE BARREL CULVERT W3
4'	2'	1'-11½"	5'-0"	3'-0½"	9'-8"	7'-8½"	14'-4"	12'-4½"	19'-0"	17'-0½"	23'-8"	21'-8½"
	3'	2'-0⅜"	5'-0"	2'-3⅝"	9'-8"	6'-11⅝"	14'-4"	11'-7⅝"	19'-0"	16'-3⅝"	23'-8"	20'-11⅝"
	4'	3'-6"	5'-0"	1'-6"	9'-8"	6'-5"	14'-4"	10'-10"	19'-0"	15'-6"	23'-8"	20'-2"
	5'	4'-3⅜"	5'-0"	0'-8⅝"	9'-8"	5'-4⅝"	14'-4"	10'-0⅝"	19'-0"	14'-10⅝"	23'-8"	19'-2⅝"
	6'	5'-0½"	5'-2"	0'-1½"	9'-11"	4'-10½"	14'-8"	9'-7½"	19'-5"	14'-0½"	24'-2"	19'-1½"
5'	3'	2'-0⅜"	6'-0"	3'-3⅝"	11'-8"	8'-11⅝"	17'-4"	14'-7⅝"	23'-0"	20'-3⅝"	28'-8"	26'-1⅝"
	4'	3'-6"	6'-0"	2'-6"	11'-8"	8'-5"	17'-4"	13'-10"	23'-0"	19'-6"	28'-8"	25'-2"
	5'	4'-3⅜"	6'-0"	1'-8⅝"	11'-8"	7'-4⅝"	17'-4"	13'-0⅝"	23'-0"	18'-8⅝"	28'-8"	24'-2⅝"
	6'	5'-0½"	6'-2"	1'-1½"	11'-11"	6'-10½"	17'-8"	12'-7½"	23'-5"	18'-0½"	29'-2"	24'-1½"
	7'	6'-2⅝"	6'-5"	0'-0½"	12'-1"	5'-10½"	17'-11"	11'-8½"	23'-9"	17'-0½"	29'-7"	23'-4½"
6'	3'	2'-0⅜"	7'-0"	4'-3⅝"	13'-8"	10'-11⅝"	20'-4"	17'-7⅝"	27'-0"	24'-3⅝"	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'-4⅜"
	6'	5'-0½"	7'-2"	2'-1½"	13'-11"	8'-10½"	20'-8"	15'-7½"	27'-5"	22'-0½"	34'-2"	29'-1½"
	7'	6'-2⅝"	7'-5"	1'-0½"	14'-1"	7'-10½"	20'-11"	14'-8½"	27'-9"	21'-0½"	34'-7"	28'-4½"
	8'	7'-4"	7'-4"	0'-0"	14'-2"	6'-10"	21'-0"	13'-8"	27'-10"	20'-6"	34'-8"	27'-4"
7'	4'	3'-6"	8'-0"	4'-6"	15'-8"	12'-6"	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'-4⅜"
	6'	5'-0½"	8'-2"	3'-1½"	15'-11"	10'-10½"	23'-8"	18'-7½"	31'-5"	26'-0½"	39'-3"	34'-1½"
	7'	6'-2⅝"	8'-5"	2'-0½"	16'-1"	9'-10½"	23'-11"	17'-8½"	31'-9"	25'-0½"	39'-7"	33'-4½"
	8'	7'-4"	8'-8"	1'-0"	16'-2"	8'-10"	24'-0"	16'-8"	31'-10"	24'-6"	39'-8"	32'-4"
8'	4'	3'-6"	9'-0"	5'-6"	17'-8"	14'-6"	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'-5"	31'-1⅜"	44'-2"	39'-10⅜"
	6'	5'-0½"	9'-2"	4'-1⅛"	17'-11"	12'-10½"	26'-8"	21'-2½"	35'-5"	30'-1½"	44'-2"	39'-1½"
	7'	6'-2⅝"	9'-5"	3'-0½"	18'-1"	11'-10½"	26'-11"	20'-3½"	35'-9"	29'-1½"	44'-7"	38'-4½"
	8'	7'-4"	9'-8"	2'-0"	18'-2"	10'-10"	27'-0"	19'-8"	35'-10"	28'-6"	44'-8"	37'-4"
9'	5'	4'-3⅜"	10'-2"	5'-0⅜"	19'-11"	15'-7⅜"	29'-8"	25'-1⅜"	39'-5"	35'-1⅜"	49'-2"	44'-10⅜"
	6'	5'-0½"	10'-3"	5'-2½"	20'-1"	15'-0½"	29'-11"	24'-2½"	39'-9"	34'-2½"	49'-7"	44'-1½"
	7'	6'-2⅝"	10'-5"	4'-1½"	20'-1"	13'-10½"	29'-11"	23'-2½"	39'-9"	33'-1½"	49'-7"	43'-1½"
	8'	7'-4"	10'-8"	3'-0"	20'-2"	12'-10"	30'-0"	22'-8"	39'-10"	32'-6"	49'-8"	42'-8"
10'	5'	4'-3⅜"	11'-2"	6'-0⅜"	21'-11"	17'-7⅜"	32'-8"	28'-1⅜"	43'-5"	39'-1⅜"	54'-2"	49'-10⅜"
	6'	5'-0½"	11'-3"	6'-2½"	22'-1"	17'-0½"	32'-11"	27'-10½"	43'-9"	38'-2½"	54'-7"	49'-1½"
	7'	6'-2⅝"	11'-5"	5'-1½"	22'-1"	15'-10½"	32'-11"	26'-10½"	43'-9"	37'-1½"	54'-7"	48'-1½"
	8'	7'-4"	11'-8"	4'-0"	22'-2"	14'-10"	33'-0"	25'-8"	43'-10"	36'-6"	54'-8"	47'-4"
11'	6'	5'-0½"	12'-4"	7'-3½"	24'-2"	19'-1½"	36'-0"	30'-11½"	47'-10"	42'-9½"		
	7'	6'-2⅝"	12'-6"	6'-1½"	24'-2"	17'-10½"	36'-0"	29'-10½"	47'-10"	41'-7½"		
	8'	7'-4"	12'-8"	5'-0"	24'-2"	16'-10"	36'-0"	28'-8"	47'-10"	40'-6"		
12'	6'	5'-0½"	13'-0"	8'-3½"	26'-2"	21'-1½"	39'-0"	33'-11½"	51'-10"	46'-9½"		
	7'	6'-2⅝"	13'-0"	7'-1½"	26'-2"	19'-10½"	39'-0"	32'-9½"	51'-10"	45'-7½"		
	8'	7'-4"	13'-0"	6'-0"	26'-2"	18'-10"	39'-0"	31'-8"	51'-10"	44'-6"		



END ELEVATION
SINGLE BARREL CULVERT

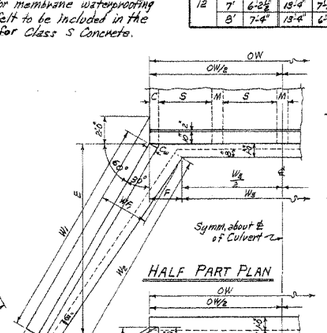


END ELEVATION
DOUBLE BARREL CULVERT

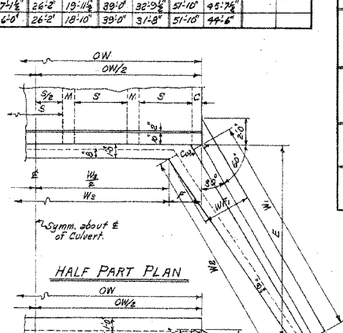


END ELEVATION
TRIPLE BARREL CULVERT

NOTE:- Plans and Elevations are not to scale.



HALF END ELEVATION
QUADRUPLE BARREL CULVERT



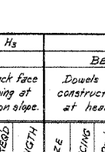
HALF END ELEVATION
QUINTUPLE BARREL CULVERT

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 H	F1 BENT: In bottom of footing bent up into back face of wing. One bar of each length. SIZE	SPACING	NO. REQD	LENGTHS VARY MIN.	LENGTHS VARY MAX.	X MIN.	X MAX.	Y MIN.	Y MAX.	F2 BENT: In bottom of footing, bent up into back face of wing. Alt. with F1 bars. SIZE	SPACING	NO. REQD	LENGTH	X	Y	F3 STRAIGHT: Longitudinal in top of wing footing heel. SIZE	NO. REQD	LENGTH	F4 STRAIGHT: Longitudinal in bottom of wing footing toe. SIZE	NO. REQD	LENGTH	H1 STRAIGHT: Horizontal in back face of wing. SIZE	SPACING	NO. REQD	LENGTH	H2 STRAIGHT: Horizontal in back face of wing. One bar of each length. SIZE	SPACING	NO. REQD	LENGTHS VARY MAX.	LENGTHS VARY MIN.	H3 STRAIGHT: In back face of wing at top - on slope. SIZE	NO. REQD	LENGTH	H4 BENT: Dowels thru construction joint at headwall. SIZE	SPACING	NO. REQD	LENGTH	X	QUANTITY REINFORCING STEEL PER WING LB.
2'	#3	12"	8	1'-6"	3'-10"	0'-8"	1'-0"	0'-11"	2'-11"	—	—	—	—	—	—	#3	1	3'-8"	#3	2	8'-6"	#3	12"	1	7'-2"	#3	12"	2	7'-6"	4'-0"	#3	1	——	4'-0"	#3	1	7'-9"	#3	12"	2	2'-8"	1'-4"	27.0
3'	#3	12"	10	2'-2"	5'-2"	0'-10"	1'-3"	1'-5"	4'-0"	—	—	—	—	—	—	#3	1	12'-6"	#3	2	11'-6"	#3	12"	1	9'-6"	#3	12"	3	10'-11"	4'-0"	#3	1	14'-7"	4'-0"	#3	1	12'-2"	#3	12"	3	2'-8"	1'-4"	41.1
4'	#3	12"	13	2'-9"	6'-6"	0'-11"	1'-7"	1'-6"	5'-0"	—	—	—	—	—	—	#3	1	16'-9"	#3	3	13'-6"	#3	12"	1	11'-10"	#3	12"	3	10'-11"	4'-0"	#3	1	19'-2"	4'-0"	#3	1	16'-7"	#3	12"	4	2'-8"	1'-4"	63.7
5'	#3	12"	15	2'-11"	7'-10"	1'-1"	1'-11"	1'-11"	6'-10"	#3	12"	4	3'-6"	1'-1"	2'-6"	#3	1	16'-8"	#3	3	16'-0"	#5	12"	2	14'-2"	#3	12"	3	10'-11"	4'-0"	#3	1	14'-7"	4'-0"	#3	1	20'-7"	#3	12"	5	2'-8"	1'-4"	89.5
6'	#4	12"	17	3'-6"	9'-3"	1'-2"	2'-3"	2'-5"	7'-1"	#3	12"	4	4'-6"	1'-3"	3'-3"	#3	1	19'-0"	#3	3	18'-6"	#3	12"	2	16'-4"	#3	12"	4	14'-4"	4'-0"	#3	1	17'-9"	4'-0"	#4	1	17'-0"	#3	12"	6	2'-8"	1'-4"	145.8
7'	#4	12"	20	3'-9"	10'-5"	1'-3"	2'-9"	2'-7"	8'-1"	#4	12"	7	5'-6"	1'-7"	4'-0"	#4	1	21'-4"	#4	4	21'-0"	#4	12"	2	18'-9"	#4	12"	5	17'-9"	4'-0"	#4	1	19'-5"	4'-0"	#4	1	19'-5"	#4	12"	7	3'-6"	1'-9"	283.7
8'	#4	12"	22	4'-4"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	10	6'-6"	1'-10"	4'-9"	#4	1	23'-8"	#4	4	23'-9"	#4	12"	3	21'-1"	#4	12"	5	17'-9"	4'-0"	#4	1	21'-10"	4'-0"	#4	1	21'-10"	#4	12"	8	3'-6"	1'-9"	356.4

BAR BENDING DIAGRAMS



REVISIONS:- Membrane added. 5-10-66 W.C.H.

QUANTITIES

CLEAR SPAN S	CLEAR HEIGHT H	THICKNESS OF WING AT HEADWALL Cw	THICKNESS OF WING FOOTING WB	REINFORCING STEEL - FOR 4 WINGS LB.	CLASS S CONCRETE - 4 WINGS: HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS. SINGLE BARREL CULVERT CU.YD.	DOUBLE BARREL CULVERT CU.YD.	TRIPLE BARREL CULVERT CU.YD.	QUADRUPLE BARREL CULVERT CU.YD.	QUINTUPLE BARREL CULVERT CU.YD.
4'	2'	6"	7"	108.0	4.50	5.96	6.92	7.38	8.34
	3'	6"	7"	164.9	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"	357.8	10.72	11.68	12.64	13.60	14.56
	6'	7"	8"	583.1	14.55	15.53	16.52	17.51	18.49
5'	3'	6"	7"	164.9	6.97	7.63	8.29	9.36	11.12
	4'	6"	7"	259.6	8.54	9.70	10.87	10.03	12.20
	5'	6"	7"	357.8	10.36	12.10	13.26	14.93	15.59
	6'	7"	8"	583.1	14.27	15.96	17.15	18.34	19.54
	7'	7½"	8½"	1139.6	18.39	20.15	21.37	22.59	23.80
6'	3'	6"	7"	164.9	6.68	8.06	9.42	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	19.15	20.58	22.00	23.43	24.86
	8'	8"	9"	1925.6	24.22	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	22.68	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	18.99	20.93	22.75
	7'	7½"	8½"	1139.6	19.59	21.96	23.30	25.16	26.93
	8'	8"	9"	1925.6	24.54	26.94	28.24	30.11	31.96
9'	5'	7"	7"	357.8	12.26	14.39	16.87	18.95	20.97
	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	12.49	14.90	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	22.95	25.18	
	7'	8"	8½"	1139.6	20.87	23.69	26.90	29.13	
	8'	8"	9"	1925.6	25.42	28.25	30.96	33.69	

* For reinforcing steel in Headwalls and Aprons, See Details of Standard Barrel Sections for R.C. Box Culverts for the desired Span and Height.

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		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 SLOPES

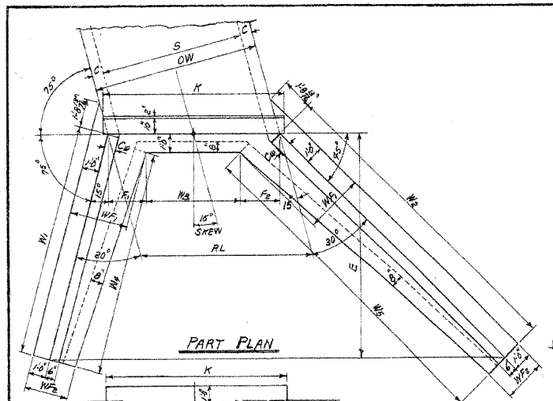
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X003-1

Designed By:- W.C.H. 8-20-62 Checked By:- RMS - 1-9-63
Drawn By:- W.C.H. 12-7-62 Checked By:- RMS - 1-31-63
Quantities By:- W.C.H. 12-14-62 Rechecked By:- RMS - 3-20-63

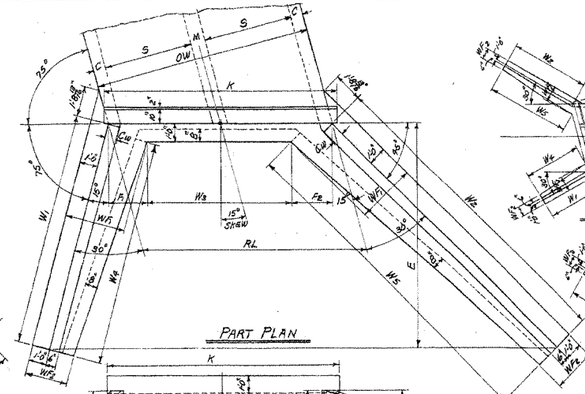
"Reshot 3-5-93

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			80	
JOB No.					



SINGLE BARREL CULVERT - 15° SKEW RIGHT FORWARD

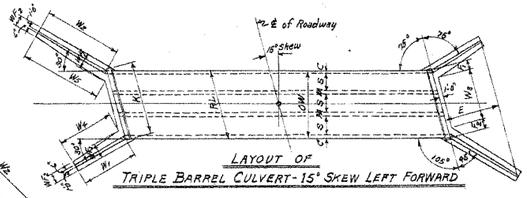
Details of Culvert with 15° Skew Left Forward is reversed, see Layout below.



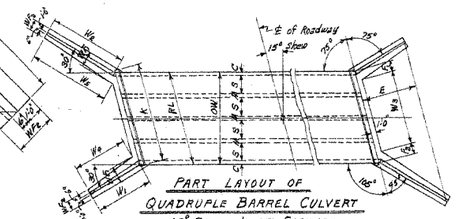
DOUBLE BARREL CULVERT - 15° SKEW RIGHT FORWARD

Details of Culvert with 15° Skew Left Forward is reversed, see Layout below.

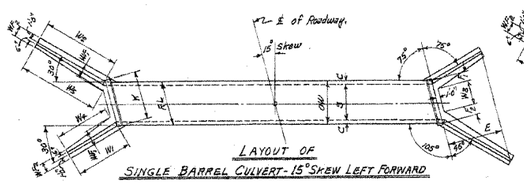
NOTE:- Plans and Elevations are not to scale.



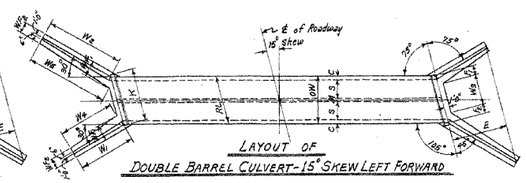
LAYOUT OF TRIPLE BARREL CULVERT - 15° SKEW LEFT FORWARD



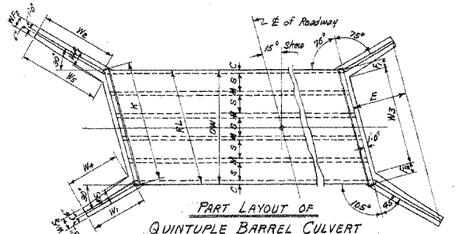
PART LAYOUT OF QUADRUPLE BARREL CULVERT - 15° SKEW LEFT FORWARD



LAYOUT OF SINGLE BARREL CULVERT - 15° SKEW LEFT FORWARD

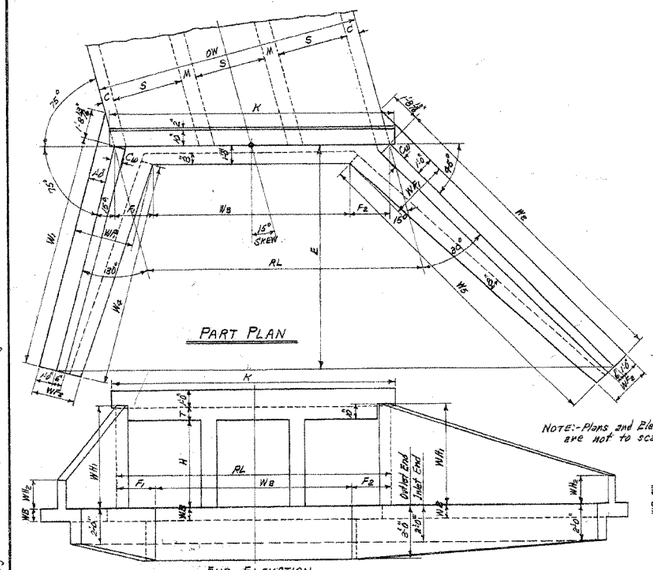


LAYOUT OF DOUBLE BARREL CULVERT - 15° SKEW LEFT FORWARD



PART LAYOUT OF QUINTUPLE BARREL CULVERT - 15° SKEW LEFT FORWARD

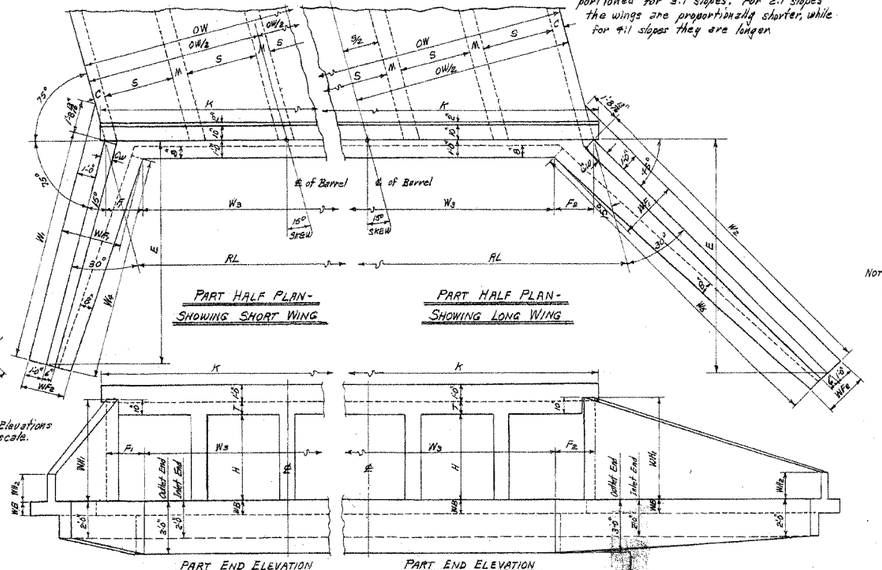
NOTE:- The length of the wings for the Plans, Elevations, and Layouts, as drawn, are proportioned for 3:1 slopes. For 2:1 slopes the wings are proportionally shorter, while for 4:1 slopes they are longer.



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 BARREL DIMENSIONS	SINGLE BARREL CULVERT				DOUBLE BARREL CULVERT				TRIPLE BARREL CULVERT				QUADRUPLE BARREL CULVERT				QUINTUPLE BARREL CULVERT			
	S	H	F1 & F2	OW	RL	K	W3	OW	RL	K	W3	OW	RL	K	W3	OW	RL	K	W3	OW	RL	K	W3
(FOR H = 8'0" OR LESS) W-X152-1, W-X153-1 OR W-X154-1	4'	2'	2'-0"	5'-0"	5'-2⅜"	5'-8⅝"	8'-2⅝"	9'-8"	14'-0"	15'-4⅝"	8'-0"	14'-4"	14'-10"	15'-4⅝"	12'-10"	19'-0"	19'-8"	20'-2⅝"	17'-8"	23'-8"	24'-6"	25'-0½"	22'-6"
		3'	2'-9⅝"	5'-0"	"	"	2'-2⅝"	9'-8"	"	"	7'-2⅝"	14'-4"	"	"	12'-0⅝"	19'-0"	"	"	16'-10⅛"	23'-8"	"	"	21'-8⅝"
		4'	3'-7⅛"	5'-0"	"	"	1'-6⅛"	9'-8"	"	"	6'-4⅛"	14'-4"	"	"	11'-2⅛"	19'-0"	"	"	16'-0⅛"	23'-8"	"	"	20'-10⅛"
		5'	4'-5⅝"	5'-0"	"	"	0'-10⅝"	9'-8"	"	"	5'-6⅝"	14'-4"	"	"	10'-4⅝"	19'-0"	"	"	15'-2⅝"	23'-8"	"	"	20'-0⅝"
		6'	5'-3⅝"	5'-2"	5'-5⅝"	6'-1"	9'-5"	9'-11"	15'-2⅛"	16'-3⅝"	9'-11"	14'-8"	15'-2⅛"	15'-8⅝"	9'-11"	19'-5"	20'-1⅛"	20'-7⅝"	19'-10"	24'-2"	25'-0⅛"	25'-6⅝"	19'-8"
	5'	3'	2'-9⅝"	6'-0"	6'-2½"	6'-9"	9'-4½"	11'-8"	12'-1"	12'-7½"	9'-3½"	17'-4"	17'-10⅜"	18'-3½"	15'-1½"	23'-0"	23'-5½"	24'-0"	21'-0"	28'-8"	29'-3½"	30'-0½"	26'-10⅝"
		4'	3'-7⅛"	6'-0"	"	"	2'-7"	11'-8"	"	"	8'-5⅛"	17'-4"	"	"	14'-3⅜"	23'-0"	"	"	20'-2⅜"	28'-8"	"	"	26'-0⅛"
		5'	4'-5⅝"	6'-0"	"	"	1'-9½"	11'-8"	"	"	7'-1⅝"	17'-4"	"	"	13'-6"	23'-0"	"	"	19'-4½"	28'-8"	"	"	25'-2⅝"
		6'	5'-3⅝"	6'-2"	6'-4⅝"	6'-11⅝"	1'-1½"	11'-11"	12'-2"	12'-10⅛"	7'-0⅞"	17'-8"	18'-3½"	18'-10"	13'-10⅛"	23'-5"	24'-0⅞"	24'-9⅛"	18'-11⅝"	28'-2"	30'-2⅝"	30'-8½"	26'-11⅛"
		7'	6'-1⅝"	6'-3"	6'-5⅝"	7'-0⅛"	Ⓐ 0"	12'-1"	12'-6⅝"	13'-1⅛"	6'-0⅝"	17'-11"	18'-4⅝"	19'-1"	12'-10⅜"	23'-9"	24'-7"	25'-1½"	18'-1⅛"	28'-7"	30'-7¼"	31'-2⅝"	26'-4⅝"
	6'	3'	2'-9⅝"	7'-0"	7'-3"	7'-9⅝"	9'-3⅝"	13'-8"	14'-3⅛"	14'-8⅝"	11'-6"	20'-0"	21'-0⅝"	21'-7"	18'-2⅝"	27'-0"	27'-7⅜"	28'-5⅝"	25'-1⅜"	33'-8"	34'-6½"	35'-4⅞"	32'-0⅛"
		4'	3'-7⅛"	7'-0"	"	"	3'-7⅝"	13'-8"	"	"	10'-6⅝"	20'-0"	"	"	17'-1"	27'-0"	"	"	23'-3⅝"	33'-8"	"	"	31'-2⅝"
		5'	4'-5⅝"	7'-0"	"	"	2'-3⅝"	13'-8"	"	"	9'-3⅝"	20'-0"	"	"	14'-7⅛"	27'-0"	"	"	23'-6"	33'-8"	"	"	30'-6⅝"
		6'	5'-3⅝"	7'-2"	7'-5"	7'-11⅝"	2'-1⅞"	13'-11"	14'-5"	14'-11⅝"	9'-1⅝"	20'-8"	21'-2⅝"	21'-10⅛"	16'-1⅛"	27'-5"	28'-0⅝"	28'-10"	23'-1⅛"	34'-2"	35'-1⅛"	35'-11"	30'-1⅛"
		7'	6'-1⅝"	7'-3"	7'-6"	8'-0⅛"	1'-0⅜"	14'-1"	14'-7⅜"	15'-1⅝"	8'-1⅛"	20'-11"	21'-7⅝"	22'-2⅝"	15'-2"	27'-9"	28'-5⅜"	29'-3⅛"	22'-3"	34'-7"	35'-6⅝"	36'-4"	29'-3⅛"
		8'	7'-0⅝"	7'-4"	7'-7½"	8'-1⅝"	Ⓐ 0"	14'-2"	14'-8"	15'-2⅝"	6'-11⅝"	21'-2"	21'-8⅝"	22'-3⅝"	14'-0⅝"	27'-10"	28'-5⅝"	29'-4⅛"	21'-1⅛"	34'-8"	35'-7⅛"	36'-5"	28'-8"
	7'	4'	3'-7⅛"	8'-0"	8'-3⅜"	8'-9⅝"	9'-7⅛"	15'-8"	16'-2⅝"	16'-9"	12'-7"	23'-4"	24'-1⅛"	24'-10⅝"	20'-6⅜"	31'-0"	32'-1⅛"	32'-7⅝"	28'-5⅜"	38'-8"	40'-0⅝"	40'-8½"	36'-9⅝"
		5'	4'-5⅝"	8'-0"	"	"	8'-1⅝"	15'-11"	16'-5⅝"	17'-0⅛"	11'-10⅝"	23'-4"	"	"	19'-8⅝"	31'-0"	32'-1⅛"	32'-7⅝"	27'-7⅜"	38'-8"	40'-0⅝"	40'-8½"	35'-7"
		6'	5'-3⅝"	8'-2"	8'-5⅜"	9'-0"	8'-3⅜"	15'-11"	16'-5⅝"	17'-0⅛"	11'-10⅝"	23'-8"	24'-1⅝"	25'-0⅛"	19'-2⅜"	31'-5"	32'-6⅛"	33'-0⅝"	27'-3"	39'-2"	40'-6⅝"	41'-1"	35'-3⅝"
		7'	6'-1⅝"	8'-3"	8'-6"	9'-1"	6'-0⅜"	16'-1"	16'-7⅜"	17'-2⅝"	10'-2"	23'-11"	24'-6⅛"	25'-3⅜"	18'-3⅛"	31'-9"	32'-10⅛"	33'-5"	26'-9⅛"	39'-7"	40'-11⅛"	41'-6⅝"	35'-6"
		8'	7'-0⅝"	8'-4"	8'-7½"	9'-2"	5'-11"	16'-2"	16'-8⅛"	17'-3⅜"	9'-10⅛"	24'-1"	24'-10⅛"	25'-6½"	17'-1⅛"	31'-10"	32'-11½"	33'-6"	25'-3"	39'-11"	41'-0⅝"	41'-7½"	33'-9⅝"
	8'	4'	3'-7⅛"	9'-0"	9'-3⅜"	9'-10⅛"	5'-8⅛"	17'-8"	18'-2⅝"	18'-10"	14'-8"	26'-4"	27'-1⅜"	27'-10⅝"	23'-1⅞"	35'-0"	36'-2⅜"	36'-9⅝"	32'-7⅛"	48'-8"	49'-5⅝"	49'-9"	41'-7"
		5'	4'-5⅝"	9'-2"	9'-5⅝"	10'-0⅝"	5'-10¼"	17'-11"	18'-5⅝"	19'-1"	14'-11⅝"	26'-8"	27'-3⅞"	28'-1⅝"	23'-2"	35'-5"	36'-8"	37'-2⅝"	32'-2⅝"	49'-2"	49'-10⅝"	50'-2⅛"	41'-10⅝"
		6'	5'-3⅝"	9'-5"	"	"	4'-2⅝"	17'-11"	"	"	13'-3⅛"	26'-8"	"	"	21'-5⅛"	35'-5"	36'-8"	37'-2⅝"	31'-4⅝"	49'-2"	49'-10⅝"	50'-2⅛"	41'-4⅝"
		7'	6'-1⅝"	9'-8"	9'-11⅜"	10'-11⅝"	3'-1"	18'-1"	18'-8⅜"	19'-3"	12'-2⅜"	26'-11"	27'-6⅜"	28'-4⅝"	21'-8⅜"	35'-8"	37'-0⅛"	37'-6⅝"	30'-6⅝"	49'-7"	50'-4⅛"	50'-8"	41'-1"
		8'	7'-0⅝"	9'-9"	9'-12⅝"	11'-0⅝"	1'-11⅛"	18'-2"	18'-9⅝"	19'-4⅝"	11'-1⅛"	27'-0"	27'-7⅛"	28'-5⅝"	20'-2⅝"	35'-10"	37'-1⅛"	37'-7⅝"	29'-4⅝"	49'-8"	50'-5⅛"	50'-9⅝"	38'-6⅝"
	9'	5'	4'-5⅝"	10'-2"	10'-6⅝"	11'-0⅝"	6'-1"	18'-11"	19'-6⅝"	20'-2⅛"	16'-2"	28'-2"	28'-11⅝"	29'-8⅞"	24'-3⅝"	36'-11"	38'-2⅝"	38'-9⅛"	33'-8⅝"	50'-2"	51'-0⅝"	51'-5"	42'-6"
		6'	5'-3⅝"	10'-3"	10'-7⅝"	11'-1⅝"	5'-10⅝"	20'-1"	20'-7⅛"	21'-2"	15'-10⅝"	29'-1"	30'-0⅛"	31'-0"	25'-10⅝"	38'-3"	39'-6"	40'-0⅛"	34'-8"	51'-7"	52'-5"	52'-10⅝"	43'-10⅝"
		7'	6'-1⅝"	10'-5"	"	"	4'-11⅝"	20'-1"	"	"	14'-10⅝"	29'-1"	"	"	24'-5⅝"	38'-3"	"	"	33'-8"	51'-7"	"	"	42'-10⅝"
		8'	7'-0⅝"	10'-6"	10'-9⅝"	11'-3⅝"	3'-11⅝"	20'-2"	20'-8⅛"	21'-5"	13'-8"	29'-10"	30'-7⅛"	31'-7⅝"	23'-4⅝"	38'-5"	39'-8"	40'-3⅛"	32'-8"	51'-10"	52'-8"	53'-3⅛"	41'-3⅝"
	10'	6'	5'-3⅝"	12'-4"	12'-8⅝"	13'-2⅝"	7'-6"	24'-6"	25'-1⅛"	25'-8⅝"	19'-3"	36'-0"	37'-0⅜"	37'-9⅝"	32'-0"	47'-10"	49'-1⅛"	49'-8"	43'-0⅝"	64'-2"	65'-1"	65'-8"	56'-0"
		7'	6'-1⅝"	12'-6"	"	"	6'-3⅝"	24'-6"	"	"	18'-6⅛"	36'-0"	"	"	30'-9⅝"	47'-10"	"	"	42'-10⅝"	64'-2"	"	"	55'-10"
		8'	7'-0⅝"	12'-8"	"	"	5'-0⅝"	24'-8"	"	"	17'-1⅝"	36'-0"	"	"	29'-6⅝"	47'-10"	"	"	41'-9⅝"	64'-2"	"	"	55'-9"
	12'	6'	5'-3⅝"	13'-8"	13'-12⅝"	14'-8⅝"	8'-6⅝"	26'-8"	27'-1"	27'-7⅝"	21'-10"	39'-0"	40'-0⅝"	40'-9⅛"	35'-1⅝"	51'-10"	53'-0"	53'-7⅝"	47'-0⅝"	69'-6"	70'-5"	71'-0"	61'-2"
		7'	6'-1⅝"	13'-10"	"	"	7'-3⅝"	26'-8"	"	"	20'-7⅛"	39'-0"	"	"	33'-3⅝"	51'-10"	"	"	45'-11⅝"	—	—	—	—
		8'	7'-0⅝"	13'-11"	"	"	6'-1"	26'-8"	"	"	19'-5⅝"	39'-0"	"	"	32'-8"	51'-10"	"	"	44'-9⅝"	—	—	—	—
W-X152-2, W-X153-2 OR W-X154-2 (FOR H = 9'0" & OVER)	4'	9'	8'-11⅛"	8'-6"	8'-9⅜"	9'-4"	Ⓐ 0"	16'-5"	17'-0"	17'-6⅝"	6'-0⅜"	24'-8"	25'-5⅛"	26'-0⅝"	16'-3"	32'-8"	33'-4⅝"	33'-11"	26'-5⅝"	40'-8"	41'-7"	42'-1½"	32'-7⅝"
	8'	9'	8'-11⅛"	9'-6"	9'-10"	10'-4⅝"	6'-10⅝"	18'-5"	19'-0⅝"	19'-7⅝"	10'-1½"	27'-6"	28'-3⅝"	28'-10"	19'-4½"	36'-8"	37'-4⅝"	38'-0⅝"	28'-7"	45'-2"	46'-0⅝"	46'-7½"	37'-3⅝"
		10'	10'-2"	9'-8"	10'-0⅝"	10'-6⅝"	Ⓐ 0"	18'-8"	19'-3⅝"	19'-10⅝"	9'-2"	27'-6"	28'-3⅝"	29'-2⅝"	18'-5⅛"	36'-8"	37'-4⅝"	38'-6"	27'-9⅛"	45'-8"	46'-7⅝"	47'-3⅛"	37'-1⅝"
	9'	9'	8'-11⅛"	10'-6"	10'-10⅝"	11'-5"	7'-1⅛"	20'-5"	21'-0⅛"	21'-8⅛"	12'-2⅝"	30'-4"	31'-2⅝"	31'-11⅝"	22'-5⅛"	40'-3"	41'-1⅝"	41'-8½"	31'-2"	50'-2"	51'-1⅛"	51'-8"	41'-0"
		10'	10'-2"	10'-8"	11'-0⅛"	11'-7"	6'-10⅝"	20'-6"	21'-2⅛"	21'-10⅝"	11'-2⅝"	30'-6"	31'-5"	32'-3⅝"	21'-7"	40'-3"	42'-1⅛"	42'-7½"	31'-11⅝"	50'-3"	52'-1"	53'-0"	42'-3½"
		11'	11'-9⅝"	10'-10"	11'-2⅝"	11'-9"	Ⓐ 0"	20'-10"	21'-6⅛"	22'-1⅝"	10'-2⅜"	30'-10"	31'-11"	32'-5⅞"	20'-6"	40'-10"	42'-3⅛"	42'-9½"	30'-10⅝"	50'-10"	52'-7½"	53'-6"	41'-2⅝"
	10'	9'	8'-11⅛"	11'-6"	11'-10⅜"	12'-5⅛"	8'-3⅛"	22'-5"	23'-1⅛"	23'-9"	14'-5⅛"	33'-6"	34'-6⅝"	35'-4⅝"	25'-6⅜"	44'-5"	45'-5⅜"	46'-0⅝"	36'-0⅝"	55'-2"	57'-1⅜"	57'-10⅜"	46'-8"
		10'	10'-2"	11'-8"	12'-1"	12'-7⅝"	7'-10"	22'-6"	23'-2⅝"	23'-10⅝"	13'-8⅝"	33'-6"	34'-6⅝"	35'-5⅜"	24'-8⅝"	44'-6"	45'-6⅜"	46'-1⅞"	35'-1"	55'-3"	57'-2⅝"	58'-0"	46'-9"
		11'	11'-9⅝"	11'-10"	12'-3⅝"	12'-9⅞"	6'-10⅝"	22'-6"	23'-2⅝"	23'-10⅝"	12'-3"	33'-10"	34'-10⅝"	35'-9⅝"	23'-7⅝"	44'-10"	46'-0"	46'-6⅛"	33'-10⅝"	55'-10"	57'-9⅝"	58'-8"	46'-5"
		12'	12'-7⅝"	12'-0"	12'-5⅝"	12'-11⅞"	Ⓐ 0"	23'-0"	23'-8⅝"	24'-4⅝"	11'-2⅝"	34'-0"	35'-0⅜"	35'-10⅝"	22'-7"	45'-0"	46'-1⅞"	47'-1½"	32'-10⅝"	56'-0"	57'-10⅝"	58'-9"	45'-9⅝"
	11'	9'	8'-11⅛"	12'-4"	12'-11⅛"	13'-5⅝"	9'-0"	24'-5"	25'-0⅛"	25'-8"	16'-1"	36'-4"	37'-4⅝"	38'-3⅛"	28'-5"	48'-0"	49'-1⅝"	49'-8"	39'-1⅝"	60'-0"	61'-10⅝"	62'-8"	50'-4"
		10'	10'-2"	12'-6"	13'-1⅜"	13'-7⅞"	8'-2"	24'-8"	25'-4⅛"	26'-0"	15'-4"	36'-8"	37'-8⅛"	38'-6"	27'-3⅛"	48'-3"	49'-5⅜"	50'-0⅝"	39'-2"	60'-4"	62'-3"	63'-1"	50'-8"
		11'	11'-9⅝"	12'-10"	13'-3⅝"	13'-10"	7'-10⅝"	24'-10"	25'-6⅛"	26'-2"	14'-10⅝"	36'-10"	38'-0⅛"	38'-10"	26'-0"	48'-6"	49'-9⅝"	50'-4⅝"	38'-2"	60'-8"	62'-7"	63'-5"	50'-0"
		12'	12'-7⅝"	13'-0"	13'-5⅝"	14'-0"	8'-0⅝"	25'-0"	25'-8⅛"	26'-4"	13'-8⅛"	37'-0"	38'-0⅝"	38'-10"	25'-8"	49'-0"	50'-2⅝"	50'-8⅛"	38'-1⅝"	61'-0"	62'-11"	63'-9"	49'-8"
	12'	9'	8'-11⅛"	13'-6"	14'-1⅛"	14'-8⅝"	9'-6"	25'-8"	26'-3⅝"	26'-11⅝"	17'-0"	38'-5"	39'-5⅝"	40'-3⅝"	30'-0"	50'-4"	51'-6⅛"	52'-1⅜"	41'-3"	62'-8"	64'-7"	65'-5"	52'-8"
		10'	10'-2"	13'-8"	14'-3⅜"	14'-10⅝"	8'-11⅝"	26'-0"	26'-7⅛"	27'-3⅝"	16'-0⅝"	38'-8"	39'-9⅛"	40'-7⅝"	29'-1⅝"	50'-8"	51'-10⅝"	52'-5⅜"	40'-4⅝"	63'-0"	64'-11"	65'-9"	52'-8"
		11'	11'-9⅝"	13'-10"	14'-3⅝"	14'-10⅝"	8'-11⅝"	26'-10"	27'-5⅞"	28'-3⅝"	16'-0⅝"	39'-0"	40'-1⅛"	40'-9⅝"	29'-0⅝"	52'-10"	54'-0⅝"	54'-5⅝"	40'-2⅝"	65'-0"	66'-10"	67'-8"	52'-8"
		12'	12'-7⅝"	14'-0"	14'-5⅝"	15'-0⅛"	7'-10⅝"	27'-0"	27'-10⅛"	28'-6"	15'-9"	40'-0"	41'-1⅝"	41'-11⅝"	28'-7⅝"	53'-0"	54'-2⅝"	54'-10⅝"	39'-10⅝"	66'-3"	68'-2"	69'-0"	52'-8"

Ⓐ Special case for these boxes, See Detail "A" and Table "A" for revised values of F_1, F_2, W_6 and W_8, 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-X152-2, 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.

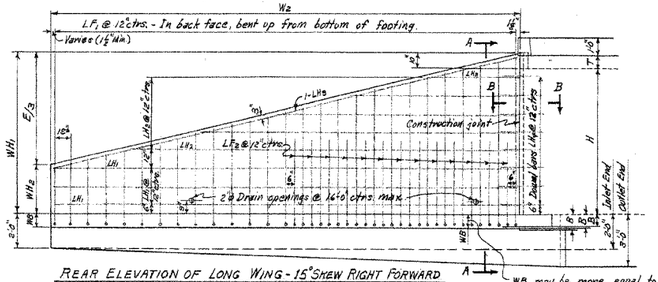
STANDARD DRAWING NO. W-X15

Designed by:- W.C.H. 5-22-63 — Checked by:-
Traced by:- W.C.H. 6-13-63 — Checked by:- J.E.M. 6-20-63
Quantities by:- — Checked by:-

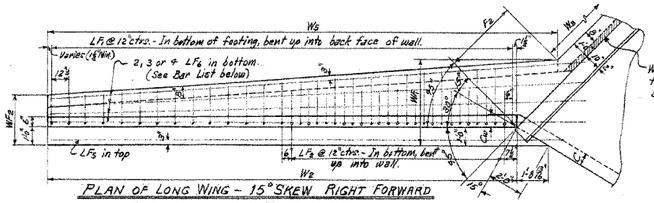
RESHOT 3-8-93

175

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			81	
JOB No.					



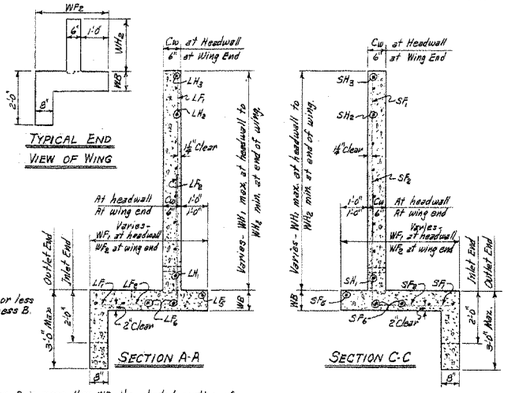
REAR ELEVATION OF LONG WING - 15° SKEW RIGHT FORWARD
SHOWING BACK FACE REINFORCING

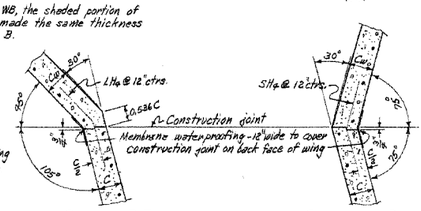


PLAN OF LONG WING - 15° SKEW RIGHT FORWARD
SHOWING FOOTING REINFORCING.

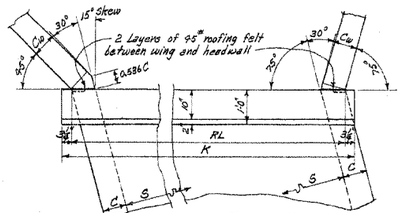
When B is more than WB, the shaded portion of the apron shall be made the same thickness as the bottom slab B.

Note:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

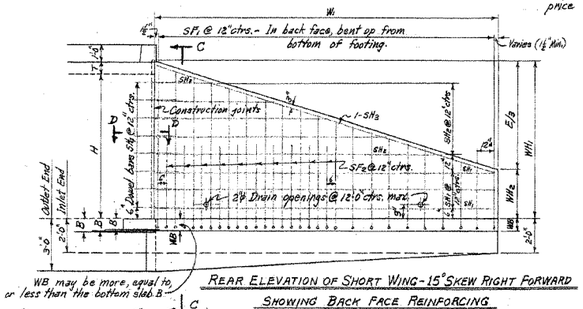




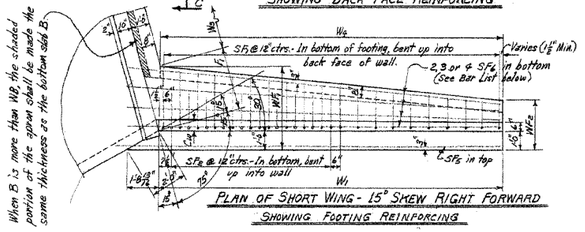
SECTIONS THRU CONSTRUCTION JOINTS



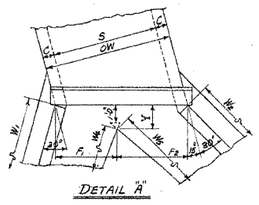
DETAILS AT TOP OF WINGS
15° SKEW RIGHT FORWARD



REAR ELEVATION OF SHORT WING - 15° SKEW RIGHT FORWARD
SHOWING BACK FACE REINFORCING



PLAN OF SHORT WING - 15° SKEW RIGHT FORWARD
SHOWING FOOTING REINFORCING



DETAIL "A"

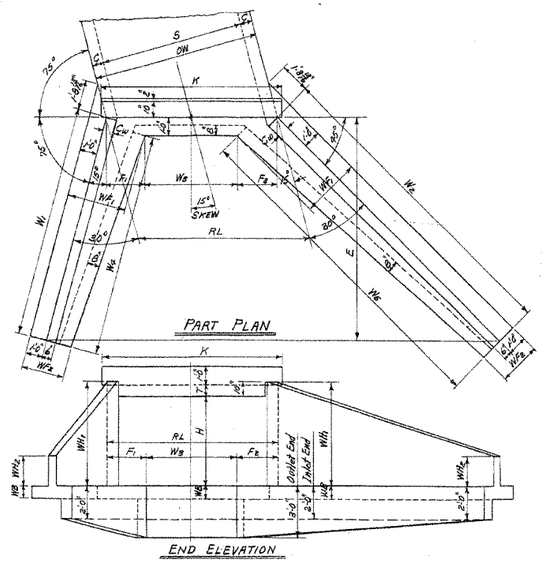
TABLE "A" - DIMENSIONS FOR DETAIL "A"

S	H	F_1	F_2	W_4	W_5	W_3	Y
5'	7"	3'-0"	3'-5⅝"	16'-10⅝"	25'-0⅝"	0"	1'-0⅝"
6'	8"	3'-6"	4'-1⅛"	19'-0⅝"	28'-3⅞"	0"	1'-1"

REGULAR WING DIMENSIONS - 3:1 SLOPES

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HDWL'S C	WINGWALL HEIGHTS AT HEADWALL	WINGWALL HEIGHTS AT END OF WING	WIDTHS OF WING FOOTINGS AT HEADWALL	WIDTHS OF WING FOOTINGS AT END OF WING	FOOTING DIMENSION PARALLEL WITH HEADWALL SHORT WING	FOOTING DIMENSION PARALLEL WITH HEADWALL LONG WING	PERPENDICULAR DIST. FROM HDWL TO END OF WING	LENGTHS OF WINGWALLS SHORT WING	LENGTHS OF WINGWALLS LONG WING	INSIDE FOOTING DIMENSIONS SHORT WING	INSIDE FOOTING DIMENSIONS LONG WING	* QUANTITY PER WING CLASS S CONCRETE INLET END SHORT WING	INLET END LONG WING	OUTLET END SHORT WING	OUTLET END LONG WING
H	WB	Cw	WH1	WH2	WF1	WF2	F1	F2	E	W1	W2	W4	W5	CU.YD.	CU.YD.	CU.YD.	CU.YD.
2'	7"	6"	2'-10"	0'-8"	2'-9"	2'-0"	1'-9⅝"	0'-10⅝"	6'-6"	6'-0⅝"	9'-2⅛"	6'-0⅝"	9'-1⅛"	0.789	1.094	0.876	1.212
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1½"	1'-5⅝"	1'-1½"	8'-6"	8'-3½"	12'-0⅛"	8'-2⅝"	12'-3⅛"	1.186	1.650	1.320	1.808
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	1'-9⅝"	1'-1½"	10'-6"	10'-10⅝"	14'-10⅛"	10'-9⅛"	15'-5⅛"	1.656	2.305	1.797	2.502
5'	7"	6"	5'-10"	1'-8"	3'-8"	2'-4½"	2'-1⅞"	2'-3⅝"	12'-6"	12'-11⅛"	17'-10⅛"	12'-6⅛"	18'-7⅛"	2.196	3.059	2.363	3.295
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅞"	2'-3⅝"	12'-6"	12'-11⅛"	17'-8⅛"	12'-6⅛"	18'-7⅛"	2.287	3.188	2.455	3.428
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-5⅝"	2'-9⅛"	14'-6"	15'-0⅛"	20'-6"	14'-8⅛"	21'-3"	3.052	4.242	3.246	4.517
		7½"	6'-10"	2'-0"	3'-8"	2'-6"	2'-5⅝"	2'-9⅛"	14'-6"	15'-0⅛"	20'-6"	14'-8⅛"	21'-3"	3.114	4.329	3.309	4.605
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-5⅝"	2'-9⅛"	14'-6"	15'-0⅛"	20'-6"	14'-8⅛"	21'-3"	3.177	4.417	3.371	4.693
@ 7'	8½"	7½"	7'-10"	2'-6"	4'-2"	2'-7½"	3'-0⅞"	3'-5⅝"	16'-6"	17'-1"	23'-4"	16'-10⅝"	25'-1"	3.998	5.560	4.220	5.877
		8"	7'-10"	2'-6"	4'-2"	2'-7½"	3'-0⅞"	3'-5⅝"	16'-6"	17'-1"	23'-4"	16'-10⅝"	25'-1"	4.079	5.675	4.301	5.991
@ 8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-6⅝"	4'-2⅛"	18'-6"	19'-1⅝"	26'-2"	19'-1⅛"	28'-5"	5.111	7.111	5.360	7.970

* 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_1 & F_2 and W_4 & W_5 for Single 5'x7' and 6'x8' Box Culverts.



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

Note:- For remainder of General Plans and Elevations of Single, Double, Triple, Quadruple and Quintuple Span Culverts, see Std. Drawing No. W-X15. For values of RL, K, and W_5 for each box, see the above Std. also.

MEMBRANE:- A membrane waterproofing 18" wide, consisting of three moppings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints in wings.

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL @ 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	8.76
	3'	6"	7"	176	6.65	7.64	8.63	9.63	10.62
	4'	6"	7"	267	8.85	9.84	10.84	11.83	12.82
	5'	6"	7"	379	11.40	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'	7½"	8½"	1210	20.11	21.36	22.62	23.88	25.14
6'	3'	6"	7"	176	7.03	8.52	9.92	11.36	12.78
	4'	6"	7"	267	9.29	10.73	12.18	13.56	14.96
	5'	6"	7"	379	11.83	13.26	14.67	16.10	17.53
	6'	7"	8"	624	15.85	17.35	18.79	20.25	21.70
	7'	7½"	8½"	1210	20.33	21.81	23.28	24.74	26.24
	8'	8"	9"	1533	25.56	27.05	28.53	30.05	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'	7½"	8½"	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	14.69	16.55	18.47	20.31
	6'	7"	8"	626	16.39	18.26	20.14	22.06	23.90
	7'	7½"	8½"	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'	7½"	8"	624	16.89	19.07	21.19	23.36	25.42
	7'	7½"	8½"	1210	21.01	23.19	25.31	27.48	29.59
	8'	8"	9"	1533	26.25	28.42	30.55	32.73	34.78
10'	5'	7"	7"	379	13.23	15.42	17.55	20.24	22.59
	6'	7½"	8"	624	17.19	19.54	21.89	24.20	26.56
	7'	7½"	8½"	1210	21.44	23.66	26.01	28.32	30.66
	8'	8"	9"	1533	26.48	28.89	31.25	33.56	35.92
11'	6'	8"	8"	626	17.67	20.34	22.92	25.98	——
	7'	8"	8½"	1210	21.88	24.55	27.13	29.63	——
	8'	8"	9"	1533	26.70	29.37	31.96	34.52	——
12'	6'	8"	8"	624	17.91	20.84	23.46	26.46	——
	7'	8"	8½"	1210	22.11	25.04	27.85	30.67	——
	8'	8"	9"	1533	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 20000 #/□"

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. SIZE | SPACING | NO. REQ'D | LENGTHS VARY MIN. | MAX. | X MIN. | X MAX. | Y MIN. | Y MAX. | SF2 & LF2 BENT In bottom of footing, bent up into back face of wing. Alt. with F1 bars. SIZE | SPACING | NO. REQ'D | LENGTH | X | Y | SF3 & LF3 STRAIGHT Longitudinal in top of wing footing heel. SIZE | NO. REQ'D | LENGTH | SF4 & LF4 STRAIGHT Longitudinal in bottom of wing footing toe. SIZE | NO. REQ'D | LENGTH | SH1 & LH1 Horizontal in back face of wing. SIZE | SPACING | NO. REQ'D | LENGTH | SH2 & LH2 STRAIGHT Horizontal in back face of wing. One bar of each length. SIZE | SPACING | NO. REQ'D | LENGTHS VARY MAX. | MIN. | SH3 & LH3 In back face of wing at top - on slope. SIZE | NO. REQ'D | LENGTH | SH4 & LH4 BENT Dowels thru construction joint at headwall. SIZE | SPACING | NO. REQ'D | LENGTH | X | BAR BENDING DIAGRAM | QUANTITY REINFORCING STEEL PER WING - LBS. SHORT WING | LONG WING |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

RESHOT 3-4-93

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			82	
JOB No.					

BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH

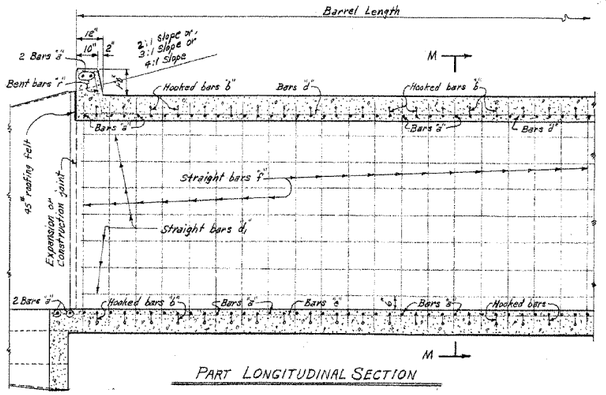
DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	'a' bars STRAIGHT In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall - Each. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	'b' bars BENT - See Diagram below. In Top and Bottom Slabs of Barrel. Alternate with 'a' bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	'd' bars STRAIGHT Longitudinal in Top Slab of Barrel SIZE	SPACING	NO. REQ'D	LENGTH	'd1' bars STRAIGHT Longitudinal in Sidewalls SIZE	SPACING	NO. REQ'D	LENGTH	'e' bars. 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
D	S	H																												
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	#4	12"	5	#4	12"	120	120	2'-11"
		3'			120	120	4'-9"			110	110	5'-10"	4'-8"			6			6			5			5			120	120	3'-11"
		4'			120	120	4'-9"			110	110	5'-10"	4'-8"			6			8			5			5			120	120	4'-11"
		5'			120	120	4'-9"			110	110	5'-10"	4'-8"			6			10			5			5			120	120	5'-11"
		6'			120	120	4'-11"			110	110	6'-0"	4'-10"			6			12			5			5			120	120	6'-11"
	1 @ 5'	3'			120	120	5'-9"			110	110	6'-10"	5'-8"			6			6			6			6			120	120	4'-0"
		4'			120	120	5'-9"			110	110	6'-10"	5'-8"			6			8			6			6			120	120	5'-0"
		5'	#6	13"	120	120	5'-9"	#6	13"	110	110	6'-10"	5'-8"	#5	10½"	7	#4	12"	10	#4	12"	6	#4	12"	6	#4	12"	120	120	6'-0"
		6'			120	120	5'-11"			110	110	7'-0"	5'-10"			7			12			6			6			120	120	7'-0"
		7'			120	120	6'-0"			110	110	7'-1"	5'-11"			7			14			6			6			120	120	8'-0"
		3'			128	128	6'-9"			118	118	7'-10"	6'-8"			8			6			7			7			120	120	4'-1"
		4'			128	128	6'-9"			118	118	7'-10"	6'-8"			8			8			7			7			120	120	5'-1"
	1 @ 6'	5'	#6	12"	128	128	6'-9"	#6	12"	118	118	7'-10"	6'-8"	#5	10½"	8	#4	12"	10	#4	12"	7	#4	12"	7	#4	12"	120	120	6'-1"
		6'			128	128	6'-11"			118	118	8'-0"	6'-10"			8			12			7			7			120	120	7'-1"
		7'			128	128	7'-0"			118	118	8'-1"	6'-11"			8			14			7			7			120	120	8'-1"
		8'			128	128	7'-1"			118	118	8'-2"	7'-0"			8			16			7			7	#5	12"	120	120	9'-1"
		4'			140	140	7'-9"			130	130	8'-10"	7'-8"			9			8			8			8			120	120	5'-2"
		5'			140	140	7'-9"			130	130	8'-10"	7'-8"			9			10			8			8	#4	12"	120	120	6'-2"
	1 @ 7'	6'	#6	11"	140	140	7'-11"	#6	11"	130	130	9'-0"	7'-10"	#5	10½"	9	#4	12"	12	#4	12"	8	#4	12"	8			120	120	7'-2"
		7'			140	140	8'-0"			130	130	9'-1"	7'-11"			9			14			8			8			120	120	8'-2"
		8'			140	140	8'-1"			130	130	9'-2"	8'-0"			9			16			8			8	10"	144"	144	9'-2"
		9'			140	140	8'-3"			130	130	9'-4"	8'-2"			9			18			8			8	#5	12"	120	120	10'-2"
		4'			128	128	8'-9"			118	118	9'-10"	8'-8"			9			8			9			9			120	120	5'-8"
		5'			128	128	8'-11"			118	118	10'-0"	8'-10"			9			10			9			9	#4	12"	120	120	6'-8"
	1 @ 8'	6'			128	128	8'-11"			118	118	10'-0"	8'-10"			9			12			9			9			120	120	7'-8"
		7'	#7	12"	128	128	9'-0"	#6	12"	118	118	10'-1"	8'-11"	#5	10"	10	#4	12"	14	#4	12"	9	#4	12"	9			120	120	8'-8"
		8'			128	128	9'-1"			118	118	10'-2"	9'-0"			10			16			9			9	10"	144"	144"	9'-10"
		9'			128	128	9'-3"			118	118	10'-4"	9'-2"			10			18			9			9	#5	12"	120	120	10'-10"
		10'			128	128	9'-5"			118	118	10'-6"	9'-4"			10			20			9			9	11"	132	132	11'-9"
		5'			140	140	9'-11"			130	130	11'-0"	9'-10"			10			10			10			10			120	120	6'-5"
		6'			140	140	10'-0"			130	130	11'-1"	9'-11"			10			12			10			10	#4	12"	120	120	7'-5"
		7'			140	140	10'-0"			130	130	11'-1"	9'-11"			10			14			10			10			120	120	8'-5"
	1 @ 9'	8'	#7	11"	140	140	10'-1"	#6	11"	130	130	11'-2"	10'-0"	#5	10"	10	#4	12"	16	#4	12"	10	#4	12"	10			144	144	9'-5"
		9'			140	140	10'-3"			130	130	11'-4"	10'-2"			10			18			10			10	12"	120	120	10'-5"
		10'			140	140	10'-5"			130	130	11'-6"	10'-4"			10			20			10			10	#5	11"	132	132	11'-5"
		11'			140	140	10'-7"			130	130	11'-8"	10'-6"			10			22			10			10	10"	144	144	12'-5"
		5'			128	128	10'-11"			118	118	12'-2"	10'-10"			11			10			11			11			120	120	6'-6"
		6'			128	128	11'-0"			118	118	12'-3"	10'-11"			11			12			11			11	#4	12"	120	120	7'-6"
	1 @ 10'	7'			128	128	11'-0"			118	118	12'-3"	10'-11"			11			14			11			11			120	120	8'-6"
		8'	#7	12"	128	128	11'-1"	#7	12"	118	118	12'-4"	11'-0"	#5	10"	11	#4	12"	16	#4	12"	11	#4	12"	11			144	144	9'-6"
		9'			128	128	11'-3"			118	118	12'-6"	11'-2"			11			18			11			11	12"	120	120	10'-6"
		10'			128	128	11'-5"			118	118	12'-8"	11'-4"			11			20			11			11	#5	11"	132	132	11'-6"
		11'			128	128	11'-7"			118	118	12'-10"	11'-6"			11			22			11			11	10"	144	144	12'-6"
		12'			128	128	11'-9"			118	118	13'-0"	11'-8"			11			24			11			11	#6	12"	120	120	13'-6"
		6'			140	140	12'-1"			130	130	13'-2"	12'-0"			12			12			12			12	#4	12"	120	120	7'-7"
		7'			140	140	12'-1"			130	130	13'-3"	12'-0"			12			14			12			12			120	120	8'-7"
	1 @ 11'	8'			140	140	12'-1"			130	130	13'-4"	12'-0"			12			16			12			12	10"	144	144	9'-7"
		9'	#7	11"	140	140	12'-3"	#7	11"	130	130	13'-6"	12'-2"	#5	9½"	15	#4	12"	18	#4	12"	12	#4	12"	12	#5	12"	144	144	9'-8"
		10'			140	140	12'-5"			130	130	13'-8"	12'-4"			15			20			12			12					
		11'			140	140	12'-7"			130	130	13'-10"	12'-6"			15			22			12			12					
		12'			140	140	12'-9"			130	130	14'-0"	12'-8"			15			24			12			12					
		6'			128	128	13'-1"			118	118	14'-4"	13'-0"			16			12			13			13					
		7'			128	128	13'-1"			118	118	14'-4"	13'-0"			16			14			13			13	#4	12"			
	1 @ 12'	8'			128	128	13'-1"			118	118	14'-4"	13'-0"			16			16			13			13					
		9'	#8	12"	128	128	13'-3"	#7	12"	118	118	14'-6"	13'-2"	#5	9½"	16	#4	12"	18	#4	12"	13	#4	12"	13					
		10'			128	128	13'-5"			118	118	14'-8"	13'-4"			16			20			13			13					
		11'			128	128	13'-7"			118	118	14'-10"	13'-6"			16			22			13			13					
		12'			128	128	13'-8"			118	118	15'-0"	13'-8"			16			24			13			13					

Designed By:- W.C.H. 1-23-63. Checked By:- RBMS-5-30-63
Drawn By:- W.C.H. 2-8-63. Checked By:- RBMS-5-30-63
Quantities By:- W.C.H. 2-12-63. Checked By:- RBMS-5-30-63

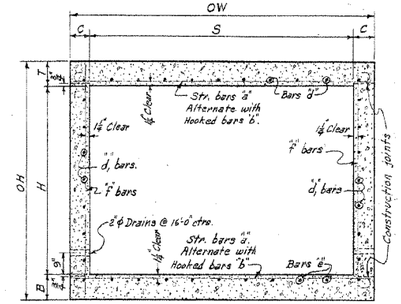
DIMENSIONS — QUANTITIES

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 @ 2'	2'	8	5'-0"	7"	6"	6½"	3'-1½"	0.282	41.49	17.95	66.35
		3'	12	5'-0"		6"		4'-1½"	0.319	44.16	19.62	66.35
		4'	16	5'-0"		6"		5'-1½"	0.356	46.83	21.29	66.35
		5'	20	5'-0"		6"		6'-1½"	0.394	49.50	22.96	66.35
		6'	24	5'-2"		7"		7'-1½"	0.474	52.96	24.63	67.75
	1 @ 5'	3'	15	6'-0"		6"		4'-2½"	0.380	55.55	22.19	101.27
		4'	20	6'-0"		6"		5'-2½"	0.417	58.23	23.86	101.27
		5'	25	6'-0"	7½"	6"	7"	6'-2½"	0.454	60.90	25.53	101.27
		6'	30	6'-2"		7"		7'-2½"	0.535	64.99	27.20	103.27
		7'	35	6'-3"		7½"		8'-2½"	0.604	67.63	28.87	104.27
	1 @ 6'	3'	18	7'-0"		6"		4'-3½"	0.496	66.23	26.76	118.96
		4'	24	7'-0"		6"		5'-3½"	0.983	68.96	26.93	118.96
		5'	30	7'-0"		6"		6'-3½"	0.520	71.64	28.10	118.96
		6'	36	7'-2"	8"	7"	7½"	7'-3½"	0.602	75.31	29.77	120.96
		7'	42	7'-3"		7½"		8'-3½"	0.671	78.98	31.44	121.97
		8'	48	7'-4"		8"		9'-3½"	0.746	88.97	88.11	122.97
	1 @ 7'	4'	28	8'-0"		6"		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"	8½"	7"	8½"	7'-5"	0.688	87.76	32.35	138.88
		7'	49	8'-3"		7½"		8'-5"	0.757	90.98	34.02	139.88
		8'	56	8'-4"		8"		9'-5"	0.832	96.65	35.69	140.88
		9'	63	8'-6"		9"		10'-5"	0.996	105.59	37.36	142.89
	1 @ 8'	4'	32	9'-0"		6"		5'-7"	0.676	95.26	38.32	184.07
		5'	40	9'-2"		7"		6'-7"	0.759	99.12	39.99	196.80
		6'	48	9'-2"		7"		7'-7"	0.797	101.79	36.66	196.80
		7'	56	9'-5"	9½"	7½"	9½"	8'-7"	0.867	105.05	38.39	198.16
		8'	64	9'-9"		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"		7"		6'-8"	0.844	119.72	37.56	219.61
		6'	54	10'-3"		7½"		7'-8"	0.910	118.04	39.23	220.97
		7'	63	10'-3"		7½"		8'-8"	0.957	120.71	40.90	220.97
		8'	72	10'-4"	10"	8"	10"	9'-8"	1.033	126.54	92.57	222.33
		9'	81	10'-6"		9"		10'-8"	1.198	135.80	94.28	223.06
		10'	90	10'-8"		10"		11'-8"	1.276	142.68	95.91	223.78
		11'	99	10'-10"		11"		12'-8"	1.976	150.90	97.58	230.51
	1 @ 10'	5'	50	11'-2"		7"		6'-9½"	0.957	130.69	40.13	242.64
		6'	60	11'-3"		7½"		7'-9½"	1.024	133.99	41.80	244.00
		7'	70	11'-3"		7½"		8'-9½"	1.071	136.66	43.47	244.00
		8'	80	11'-4"	10½"	8"	11"	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	176.67	51.82	256.26
	1 @ 11'	6'	66	12'-4"		8"		7'-10½"	1.153	156.16	96.12	268.62
		7'	77	12'-4"		8"		8'-10½"	1.202	157.83	97.79	268.62
		8'	88	12'-4"		8"		9'-10½"	1.252	162.06	99.46	268.62
		9'	99	12'-6"	11"	9"	11⅛"	10'-10½"	1.368	172.60	51.18	271.34
		10	110	12'-8"		10"		11'-10½"	1.497	179.70	52.80	274.07
		11'	121	12'-10"		11"		12'-10½"	1.638	187.67	54.97	276.79
		12'	132	13'-0"		12"		13'-10½"	1.792	199.79	56.14	279.52
	1 @ 12'	6'	72	13'-9"	11"	8"	12½"	8'-0"	1.284	172.20	98.69	357.62
		7'	84	13'-9"		8"		9'-0"	1.333	174.87	50.36	357.62
		8'	96	13'-9"		8"		10'-0"	1.383	180.15	52.03	357.62
		9'	108	13'-6"		9"		11'-0"	1.500	189.85	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	217.95	58.71	371.86

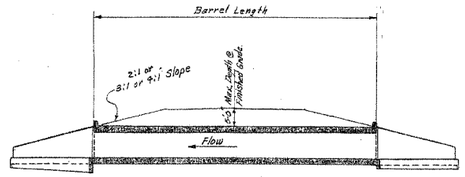
W-X002-1, W-X003-1 or W-X004-1 and W-X002-2, W-X003-2 or W-X004-2



PART LONGITUDINAL SECTION



TYPICAL SECTION M-M



LONGITUDINAL SECTION

NOTE:- For details of wings and bar data, see Drawing Nos. W-X002-1 and W-X002-2.

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM Bars 'b'.
#6	3"	5"	1'-2"	K, Pin Diam., X
#7	3½"	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"±	12	2'-6"	1'-3"	
5'	#4	11"±	14	2'-7"	1'-3½"	
6'	#4	11"±	16	2'-8"	1'-4"	
7'	#4	11"±	18	2'-9"	1'-4½"	
8'	#4	11⅝"±	20	2'-11"	1'-5½"	
9'	#4	11⅝"±	22	3'-0"	1'-6"	
10'	#4	11⅝"±	24	3'-1"	1'-6½"	
11'	#4	12"±	26	3'-2"	1'-7"	
12'	#4	12"±	28	3'-3"	1'-7½"	

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 38'-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 20,000 #/□"

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 — 3:1 OR 4:1 SLOPES
SINGLES — UNDER 5'-0" COVER

STANDARD DRAWING NO. R-100X-0

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			83	
JOB No.					

BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH

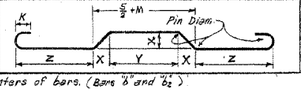
DIMENSIONS — QUANTITIES

DEPTH OF COVER	CLEAR SPANS	CLEAR HEIGHT	"a" bars STRAIGHT In Top and Bottom Slab of Barrel. 2 Add'l in Apron and Headwall - Each.					"b" bars BENT - See Diagram below. In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars.									"b2" bars BENT - See Diagram below. In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars.									"c" bars STRAIGHT In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars.					"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.			
					NUMBER REQ'D					NUMBER REQ'D							NUMBER REQ'D							NUMBER REQ'D															NUMBER REQ'D		
D	S	H	SIZE	SPACING	3:1	4:1	LENGTH	SIZE	SPACING	3:1	4:1	LENGTH	X	Y	Z	SIZE	SPACING	3:1	4:1	LENGTH	X	Y	Z	SIZE	SPACING	3:1	4:1	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	3:1	4:1	LENGTH
0'-0" TO 5'-0" MAXIMUM.	2 @ 4'	2'	#5	12"	128	128	9'-5"	#5	12"	59	59	10'-6"	0'-3"	2'-2½"	3'-4"	#5	12"	59	59	10'-6"	0'-2½"	2'-3½"	3'-4"	#5	12"	120	120	6'-8"	#5	12"	14		#4	12"	8		#4	12"	14		#4	12"	240	240	2'-10"
		3'			128	128	9'-5"			59	59	10'-6"	0'-3"	2'-2½"	3'-4"			59	59	10'-6"	0'-2½"	2'-3½"	3'-4"			120	120	6'-8"			14				12			14			240	240	3'-10"
		4'			128	128	9'-5"			59	59	10'-6"	0'-3"	2'-2½"	3'-4"			59	59	10'-6"	0'-2½"	2'-3½"	3'-4"			120	120	6'-8"			14				16			14			240	240	4'-10"
		5'			128	128	9'-5"			59	59	10'-6"	0'-3"	2'-2½"	3'-4"			59	59	10'-6"	0'-2½"	2'-3½"	3'-4"			120	120	6'-8"			14				20			14			240	240	5'-10"
		6'			128	128	9'-5"			59	59	10'-9"	0'-3"	2'-3½"	3'-5"			59	59	10'-9"	0'-2½"	2'-3½"	3'-5"			120	120	6'-9"			14				24			14			240	240	6'-10"
	2 @ 5'	3'			128	128	11'-5"			59	59	12'-7"	0'-3½"	2'-7½"	4'-1"			59	59	12'-6"	0'-3"	2'-8½"	4'-1"			120	120	6'-8"			16				12			16			240	240	3'-11"
		4'			128	128	11'-5"			59	59	12'-7"	0'-3½"	2'-7½"	4'-1"			59	59	12'-6"	0'-3"	2'-8½"	4'-1"			120	120	6'-8"			16				16			16			240	240	4'-11"
		5'	#6	12"	128	128	11'-5"	#5	12"	59	59	12'-7"	0'-3½"	2'-7½"	4'-1"	#5	12"	59	59	12'-6"	0'-3"	2'-8½"	4'-1"	#6	12"	120	120	6'-8"	#5	11½"	16		#4	12"	20		#4	12"	16		#4	12"	240	240	5'-11"
		6'			128	128	11'-8"			59	59	12'-10"	0'-3½"	2'-8½"	4'-2"			59	59	12'-9"	0'-3"	2'-9½"	4'-2"			120	120	6'-9"			16				24			16			240	240	6'-11"
		7'			128	128	11'-10"			59	59	13'-0"	0'-3½"	2'-9½"	4'-2½"			59	59	12'-11"	0'-3"	2'-10½"	4'-2½"			120	120	6'-10"			16				28			16			240	240	7'-11"
	2 @ 6'	3'			140	140	13'-5"			65	65	14'-7"	0'-4"	3'-0½"	4'-10"			65	65	14'-7"	0'-4"	3'-0½"	4'-10"			132	132	6'-8"			18				12			18			240	240	4'-0"
		4'			140	140	13'-5"			65	65	14'-7"	0'-4"	3'-0½"	4'-10"			65	65	14'-7"	0'-4"	3'-0½"	4'-10"			132	132	6'-8"			18				16			18			240	240	5'-0"
		5'	#6	11"	140	140	13'-5"	#5	11"	65	65	14'-7"	0'-4"	3'-0½"	4'-10"	#5	11"	65	65	14'-7"	0'-4"	3'-0½"	4'-10"	#6	11"	132	132	6'-8"	#5	11½"	18		#4	12"	20		#4	12"	18		#4	12"	240	240	6'-0"
		6'			140	140	13'-8"			65	65	14'-10"	0'-4"	3'-1½"	4'-11"			65	65	14'-10"	0'-4"	3'-1½"	4'-11"			132	132	6'-9"			18				24			18			240	240	7'-0"
		7'			140	140	13'-10"			65	65	15'-0"	0'-4"	3'-2½"	4'-11½"			65	65	15'-0"	0'-4"	3'-2½"	4'-11½"			132	132	6'-10"			18				28			18			240	240	8'-0"
		8'			140	140	13'-11"			65	65	15'-1"	0'-4"	3'-2½"	5'-0"			65	65	15'-1"	0'-4"	3'-2½"	5'-0"			132	132	6'-10"			18				32			18			240	240	9'-0"
	2 @ 7'	4'			128	128	15'-5"			59	59	16'-9"	0'-4½"	3'-5"	5'-7"			59	59	16'-9"	0'-4½"	3'-5"	5'-7"			120	120	7'-8"			20				16			20			240	240	5'-1"
		5'			128	128	15'-6"			59	59	16'-9"	0'-4½"	3'-5"	5'-7"			59	59	16'-9"	0'-4½"	3'-5"	5'-7"			120	120	7'-8"			20				20			20			240	240	6'-1"
		6'	#6	12"	128	128	15'-8"	#6	12"	59	59	17'-0"	0'-4½"	3'-6"	5'-8"	#6	12"	59	59	17'-0"	0'-4½"	3'-6"	5'-8"	#6	12"	120	120	7'-9"	#5	11½"	20		#4	12"	24		#4	12"	20		#4	12"	240	240	7'-1"
		7'			128	128	15'-10"			59	59	17'-2"	0'-4½"	3'-7"	5'-8½"			59	59	17'-2"	0'-4½"	3'-7"	5'-8½"			120	120	7'-10"			20				28			20			240	240	8'-1"
		8'			128	128	15'-11"			59	59	17'-3"	0'-4½"	3'-7"	5'-9"			59	59	17'-3"	0'-4½"	3'-7"	5'-9"			120	120	7'-10"			20				32			20			240	240	8'-2"
		9'			128	128	16'-2"			59	59	17'-6"	0'-4½"	3'-8"	5'-10"			59	59	17'-6"	0'-4½"	3'-8"	5'-10"			120	120	7'-11"			20				36			20			240	240	10'-1"
	2 @ 8'	4'			140	140	17'-5"			65	65	18'-10"	0'-5"	3'-10"	6'-4"			65	65	18'-10"	0'-5"	3'-10"	6'-4"			132	132	8'-8"			22				16			22			240	240	5'-2"
		5'			140	140	17'-8"			65	65	19'-1"	0'-5"	3'-11"	6'-5"			65	65	19'-1"	0'-5"	3'-11"	6'-5"			132	132	8'-9"			22				20			22			240	240	6'-2"
		6'	#6	11"	140	140	17'-10"	#6	11"	65	65	19'-1"	0'-5"	3'-11"	6'-5"	#6	11"	65	65	19'-1"	0'-5"	3'-11"	6'-5"	#6	11"	132	132	8'-9"	#5	11½"	23		#4	12"	24		#4	12"	22		#4	12"	240	240	7'-2"
		7'			140	140	17'-10"			65	65	19'-2"	0'-5"	4'-0"	6'-5½"			65	65	19'-2"	0'-5"	4'-0"	6'-5½"			132	132	8'-10"			23				28			22			240	240	8'-2"
		8'			140	140	17'-11"			65	65	19'-4"	0'-5"	4'-0"	6'-6"			65	65	19'-4"	0'-5"	4'-0"	6'-6"			132	132	8'-10"			23				32			22			240	240	9'-2"
		9'			140	140	18'-2"			65	65	19'-7"	0'-5"	4'-1"	6'-7"			65	65	19'-7"	0'-5"	4'-1"	6'-7"			132	132	8'-11"			23				36			22			240	240	10'-2"
		10'			140	140	18'-5"			65	65	19'-10"	0'-5"	4'-2"	6'-8"			65	65	19'-10"	0'-5"	4'-2"	6'-8"			132	132	9'-0"			23				40			22			240	240	11'-2"
	2 @ 9'	5'			140	140	19'-8"			65	65	21'-1"	0'-5½"	4'-3½"	7'-1"			65	65	21'-1"	0'-5½"	4'-3½"	7'-1"			132	132	9'-3"			26				20			25			240	240	6'-8"
		6'			140	140	19'-10"			65	65	21'-3"	0'-5½"	4'-4½"	7'-2"			65	65	21'-3"	0'-5½"	4'-4½"	7'-2"			132	132	9'-4"			26				24			25			240	240	7'-8"
		7'			140	140	19'-10"			65	65	21'-3"	0'-5½"	4'-4½"	7'-2½"			65	65	21'-3"	0'-5½"	4'-4½"	7'-2½"			132	132	9'-4"			26				28			25			240	240	8'-8"
		8'	#6	11"	140	140	19'-11"	#6	11"	65	65	21'-4"	0'-5½"	4'-5"	7'-3"	#6	11"	65	65	21'-4"	0'-5½"	4'-5"	7'-3"	#6	11"	132	132	9'-5"	#5	11½"	26		#4	12"	32		#4	12"	25		#4	12"	240	240	9'-8"
		9'			140	140	20'-2"			65	65	21'-7"	0'-5½"	4'-5½"	7'-3½"			65	65	21'-7"	0'-5½"	4'-5½"	7'-3½"			132	132	9'-6"			26				36			25			240	240	10'-8"
		10'			140	140	20'-5"			65	65	21'-10"	0'-5½"	4'-6"	7'-4"			65	65	21'-10"	0'-5½"	4'-6"	7'-4"			132	132	9'-7"			26				40			25			240	240	11'-8"
		11'			140	140	20'-7"			65	65	22'-0"	0'-5½"	4'-7"	7'-5"			65	65	22'-0"	0'-5½"	4'-7"	7'-5"			132	132	9'-8"			26				44			25			240	240	12'-8"
	2 @ 10'	5'			128	128	21'-8"			59	59	23'-2"	0'-6"	4'-9"	7'-11"			59	59	23'-2"	0'-6"	4'-9"	7'-11"			120	120	10'-9"			28				20			27			240	240	6'-5"
		6'			128	128	21'-10"			59	59	23'-4"	0'-6"	4'-10"	7'-11½"			59	59	23'-4"	0'-6"	4'-9"	7'-11½"			120	120	10'-10"			28				24			27			240	240	7'-5"
		7'			128	128	21'-10"			59	59	23'-4"	0'-6"	4'-10"	7'-11½"			59	59	23'-4"	0'-6"	4'-9"	7'-11½"			120	120	10'-10"			28				28			27			240	240	8'-5"
		8'	#7	12"	128	128	21'-11"	#6	12"	59	59	23'-5"	0'-6"	4'-10"	8'-0"	#6	12"	59	59	23'-5"	0'-6½"	4'-9"	8'-0"	#7	12"	120	120	10'-11"	#5	11½"	28		#4	12"	32		#4	12"	27		#4	12"	240	240	9'-5"
		9'			128	128	22'-2"			59	59	23'-8"	0'-6"	4'-10½"	8'-1"			59	59	23'-8"	0'-6½"	4'-10"	8'-1"			120	120	10'-11"			28				36			27			240	240	10'-4"
		10'			128	128	22'-5"			59	59	23'-11"	0'-6"	5'-0"	8'-1½"			59	59	23'-11"	0'-6½"	4'-11"	8'-1½"			120	120	11'-0"			28				40			27			240	240	11'-4"
		11'			128	128	22'-8"			59	59	24'-1"	0'-6"	5'-0"	8'-2"			59	59	24'-1"	0'-6½"	4'-11"	8'-2"			120	120	11'-0"			28				44			27			240	240	12'-4"
		12'			128	128	22'-8"			59	59	24'-3"	0'-6"	5'-0"	8'-2½"			59	59	24'-3"	0'-6½"	4'-11"	8'-2½"			120	120	11'-0"			28				48			27			240	240	13'-4"
	2 @ 11'	6'			128	128	23'-11"			59	59	25'-5"	0'-6½"	5'-3"	8'-3"			59	59	25'-4"	0'-7"	5'-1"	8'-3"			120	120	11'-10"			30				24			29			240	240	7'-6"
		7'			128	128	23'-11"			59	59	25'-5"	0'-6½"	5'-3"	8'-3"			59	59	25'-4"	0'-7"	5'-1"	8'-3"			120	120	11'-10"			30				28			29			240	240	8'-6"
		8'			128	128	23'-11"			59	59	25'-5"	0'-6½"	5'-3"	8'-3"			59	59	25'-4"	0'-7"	5'-1"	8'-3"			120	120	11'-10"			30				32			29			240	240	9'-6"
		9'	#7	12"	128	128	24'-2"	#6	12"	59	59	25'-8"	0'-6½"	5'-3½"	8'-3½"	#6	12"	59	59	25'-7"	0'-7½"	5'-2"	8'-3½"	#7	12"	120	120	11'-11"	#5	11½"	30		#4	12"	36		#4	12"	29		#4	12"	240	240	10'-6"
		10'			128	128	24'-5"			59	59	25'-11"	0'-6½"	5'-4"	8'-4"			59	59	25'-10"	0'-7½"	5'-3"	8'-4"			120	120	12'-0"			30				40			29			240	240	11'-6"
		11'			128	128	24'-8"			59	59	26'-2"	0'-6½"	5'-5"	8'-4½"			59	59	26'-1"	0'-7½"	5'-3"	8'-4½"			120	120	12'-0"			30				44			29			240	240	12'-6"
		12'			128	128	24'-11"			59	59	26'-4"	0'-6½"	5'-5½"	9'-1"			59	59	26'-4"	0'-7½"	5'-3½"	9'-1"			120	120	12'-0"			30				48			29			240	240	13'-6"
	2 @ 12'	6'			140	140	25'-11"			65	65	27'-5"	0'-7"	5'-8"	9'-4"			65	65	27'-4"	0'-8"	5'-5"	9'-4"			132	132	12'-6"			32				24			31			240	240	7'-7"
		7'			140	140	25'-11"			65	65	27'-5"	0'-7"	5'-8"	9'-4½"			65	65	27'-4"	0'-8"	5'-5"	9'-4½"			132	132	12'-6"			32				28			31			240	240	8'-7"
		8'			140	140	25'-11"			65	65	27'-5"	0'-7"	5'-8"	9'-4½"			65	65	27'-4"	0'-8"	5'-5"	9'-4½"			132	132	12'-6"			32				32			31			240	240	9'-7"
		9'	#7	11"	140	140	26'-2"	#6	11"	65	65	27'-8"	0'-7"	5'-9"	9'-5"	#6	11"	65	65	27'-7"	0'-8"	5'-6"	9'-5"	#7	11"	132	132	12'-7"	#5	11½"	32		#4	12"	36		#4	12"	31		#4	12"	240	240	10'-7"
		10'			140	140	26'-5"			65	65	28'-1"	0'-7"	5'-10"	9'-6"			65	65	28'-0"	0'-8"	5'-7"	9'-6"			132	132	12'-8"			32				40			31			240	240	11'-7"
		11'			140	140	26'-8"			65	65	28'-4"	0'-7"	5'-10"	9'-6"			65	65	28'-3"	0'-8"	5'-7"	9'-6"			132	132	12'-8"			32				44			31			240	240	12'-7"
		12'			140	140	26'-9"			65	65	28'-5"	0'-7"	5'-10"	9'-10"			65	65	28'-5"	0'-8"	5'-7"	9'-10"			132	132	13'-0"			32				48			31			240	240	13'-7"

DESIGN DEPTH OF COVER	CLEAR SPANS	CLEAR HEIGHT	BARREL DIMENSIONS: SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF DIVISION WALL	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	M	B	OH	CU.YD.	LB.	LB.	LB.
5'-0"	2 @ 4'	2'	16	9'-8"	6½"	6"	8"	6"	3'-0½"	0.496	88.15	42.71	129.56
		3'	24	9'-8"					4'-0½"	0.558	93.49	44.05	129.56
		4'	32	9'-8"					5'-0½"	0.620	98.84	49.39	123.34
		5'	40	9'-8"					6'-0½"	0.682	109.18	52.73	129.56
		6'	48	9'-11"					7'-0½"	0.809	110.76	56.07	131.65
	2 @ 5'	3'	30	11'-8"	7"	6"	8"	6½"	4'-1½"	0.671	123.34	51.19	138.64
		4'	40	11'-8"					5'-1½"	0.733	128.68	54.53	138.64
		5'	50	11'-8"					6'-1½"	0.795	134.03	57.87	138.64
		6'	60	11'-11"					7'-1½"	0.922	140.89	61.21	201.64
		7'	70	12'-1"					8'-1½"	1.044	147.74	64.55	203.65
	2 @ 6'	3'	36	13'-8"	7½"	6"	8"	7½"	4'-3"	0.818	198.50	56.39	233.58
		4'	48	13'-8"					5'-3"	0.880	163.85	59.68	233.58
		5'	60	13'-8"					6'-3"	0.941	159.19	63.02	233.58
		6'	72	13'-11"					7'-3"	1.070	166.20	66.36	236.59
		7'	84	14'-1"					8'-3"	1.192	172.74	69.70	238.59
		8'	96	14'-2"					9'-3"	1.298	183.36	73.04	239.59
	2 @ 7'	4'	56	15'-8"	8"	6"	8"	8"	5'-4"	1.021	178.15	69.83	268.97
		5'	70	15'-8"					6'-4"	1.082	183.49	69.17	268.97
		6'	84	15'-11"					7'-4"	1.212	190.59	71.51	271.97
		7'	98	16'-1"					8'-4"	1.339	197.19	74.85	273.98
		8'	112	16'-2"					9'-4"	1.440	207.89	78.19	274.98
		9'	126	16'-5"					10'-4"	1.616	228.25	81.53	277.98
	2 @ 8'	4'	64	17'-8"	8½"	6"	8"	8½"	5'-5"	1.176	210.87	71.71	304.80
		5'	80	17'-11"		7"	9"		6'-5"	1.295	217.83	75.05	307.81
		6'	96	17'-11"					7'-5"	1.366	222.97	78.39	307.81
		7'	112	18'-1"		7½"	10"		8'-5"	1.489	229.48	81.73	309.81
		8'	128	18'-2"		8"	10"		9'-5"	1.595	239.97	85.07	310.81
		9'	144	18'-5"		9"	11"		10'-5"	1.772	258.08	88.41	313.82
		10'	160	18'-8"		10"	12"		11'-5"	1.967	271.07	91.75	316.82
	2 @ 9'	5'	90	19'-11"	9"	7"	9"	9½"	6'-6½"	1.977	239.37	82.77	345.92
		6'	108	20'-1"		7½"	10"		7'-6½"	1.594	246.06	86.11	347.93
		7'	126	20'-1"		7½"	10"		8'-6½"	1.671	251.93	89.45	347.93
		8'	144	20'-2"		8"	10"		9'-6½"	1.778	262.26	92.79	348.93
		9'	162	20'-5"		9"	11"		10'-6½"	1.956	273.85	96.13	351.93
		10'	180	20'-6"		10"	12"		11'-6½"	2.152	292.97	99.47	356.93
		11'	198	20'-10"		11"	12"		12'-6½"	2.326	306.86	102.81	356.99
	2 @ 10'	5'	100	21'-11"	9½"	7"	9"	10"	6'-7½"	1.674	279.64	87.32	478.99
		6'	120	22'-1"		7½"	10"		7'-7½"	1.792	286.50	91.26	982.71
		7'	140	22'-1"		8"	10"		8'-7½"	1.869	291.85	94.60	982.71
		8'	160	22'-2"		8"	10"		9'-7½"	1.976	302.77	97.94	984.08
		9'	180	22'-5"		9"	11"		10'-7½"	2.155	320.74	101.28	988.16
		10'	200	22'-8"		10"	12"		11'-7½"	2.352	333.99	104.62	992.25
		11'	220	22'-10"		11"	12"		12'-7½"	2.529	398.01	107.96	994.98
		12'	240	23'-0"		12"	12"		13'-7½"	2.718	370.23	111.30	997.70
	2 @ 11'	6'	132	24'-2"	10"	8"	10"	11"	7'-9"	2.048	309.36	96.41	530.03
		7'	154	24'-2"		8"	10"		8'-9"	2.128	314.70	99.75	530.03
		8'	176	24'-2"		8"	10"		9'-9"	2.208	325.12	103.09	530.03
		9'	198	24'-5"		9"	11"		10'-9"	2.388	343.25	106.43	534.12
		10'	220	24'-8"		10"	12"		11'-9"	2.584	356.57	109.77	538.21
		11'	242	24'-10"		11"	12"		12'-9"	2.764	370.67	113.11	540.03
		12'	264	25'-0"		12"	12"		13'-9"	2.959	393.05	116.45	543.46
	2 @ 12'	6'	144	26'-2"	10½"	8"	10"	11½"	7'-10½"	2.299	353.31	101.55	576.93
		7'	168	26'-2"		8"	10"		8'-10½"	2.379	368.65	104.89	576.93
		8'	192	26'-2"		8"	10"		9'-10½"	2.459	368.12	108.23	576.93
		9'	216	26'-5"		9"	11"		10'-10½"	2.690	387.52	111.57	580.52
		10'	240	26'-8"		10"	12"		11'-10½"	2.890	401.07	114.91	584.60
		11'	264	26'-10"		11"	12"		12'-10½"	3.018	415.31	118.25	587.39
		12'	288	27'-0"		12"	12"		13'-10½"	3.208	437.88	121.59	590.05

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS
#5	2⅝"	4½"	0'-11½"
#6	3"	5"	1'-2"

BENDING DIAGRAM FOR Bars "b" and "b2".

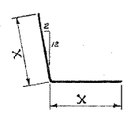


Note:- Dimensions are to centers of bars. (Bars "b" and "b2")

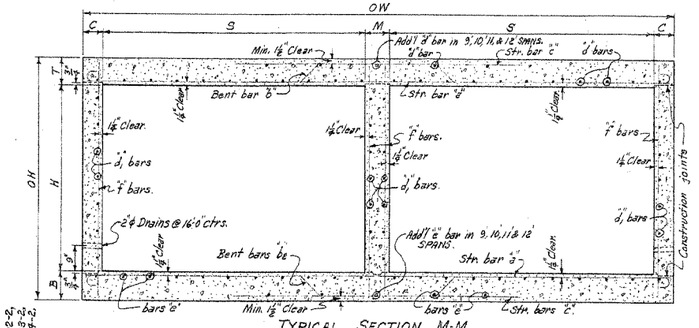
DOWEL BARS FOR TWO HEADWALLS

2 SPANS @	SIZE	SPACING	NO. REQ'D	LENGTH	X
4'	#4	12"c	20	2'-5"	1'-2½"
5'	#4	12"c	24	2'-6"	1'-3"
6'	#4	12"c	28	2'-7"	1'-3½"
7'	#4	12"c	32	2'-8"	1'-4"
8'	#4	12"c	36	2'-9"	1'-4½"
9'	#4	12"c	40	2'-10"	1'-5"
10'	#4	12"c	46	2'-11"	1'-5½"
11'	#4	12"c	50	3'-0"	1'-6"
12'	#4	12"c	54	3'-1"	1'-6½"

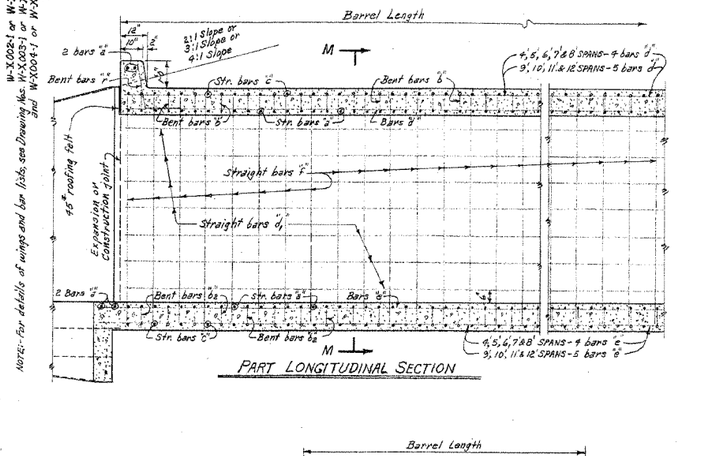
Bars "r" Dowel bars in Headwalls.



Designed by:- W.C.H. 1-17-63.
Drawn by:- W.C.H. 2-15-63.
Quantities by:- W.C.H. 2-19-63.
Checked by:- TAHS - 5-14-63
Checked by:- TAHS - 5-24-63
Checked by:- TAHS - 5-24-63



TYPICAL SECTION M-M



PART LONGITUDINAL SECTION

KESHOI 3-8-93

#17

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK			84	
JOB No.					

BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH

DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	"a" bars STRAIGHT In Top and Bottom Slabs of Barrel. SIZE	SPACING	NO. REQD	LENGTH	"b" bars BENT- See Diagram. In Top and Bottom Slabs of Barrel. Alternate with "a" bars SIZE	SPACING	NO. REQD	LENGTH	X	"d" bars STRAIGHT Longitudinal in Top Slab of Barrel. SIZE	SPACING	NO. REQD	LENGTH	"d" bars STRAIGHT Longitudinal in Sidewalls SIZE	SPACING	NO. REQD	LENGTH	"e" bars STRAIGHT Longitudinal in Bottom Slab of Barrel SIZE	SPACING	NO. REQD	LENGTH	"f" bars STRAIGHT Verticals in Sidewalls SIZE	SPACING	NO. REQD	LENGTH	"k" bars STRAIGHT 2 in Top of Headwalls and Aprons-Each. SIZE	NO. REQD	LENGTH
0'-0" TO 5'-0" MAXIMUM	1 @ 4'	2'			112	4'-11"			110	6'-0"	4'-10"			6				4					5					8	5'-5"
		3'			112	4'-11"			110	6'-0"	4'-10"			6				6					5					8	5'-5"
		4'	#6	13"	112	4'-11"	#6	13"	110	6'-0"	4'-10"	#5	10½"	6	#4	12"	4	6	#4	12"	5	#4	12"	5	#4	12"	5	#5	8	5'-5"
		5'			112	4'-11"			110	6'-0"	4'-10"			6				8					5					8	5'-5"
		6'			112	5'-1"			110	6'-2"	5'-0"			6				10					5					8	5'-5"
																		12					5					8	5'-7"
	1 @ 5'	3'			112	5'-11"			110	7'-1"	5'-11"			7				6					6					8	6'-6"
		4'			112	5'-11"			110	7'-1"	5'-11"			7				8					6					8	6'-6"
		5'	#6	13"	112	5'-11"	#6	13"	110	7'-1"	5'-11"	#5	10½"	7	#4	12"	6	10	#4	12"	6	#4	12"	6	#6	12"	6	#6	8	6'-6"
		6'			112	6'-1"			110	7'-3"	6'-1"			7				12					6					8	6'-8"
		7'			112	6'-2"			110	7'-4"	6'-2"			7				14					6					8	6'-9"
	1 @ 6'	3'			120	7'-0"			118	8'-1"	6'-11"			8				6					7					8	7'-6"
		4'			120	7'-0"			118	8'-1"	6'-11"			8				9					7					8	7'-6"
		5'	#6	12"	120	7'-0"	#6	12"	118	8'-1"	6'-11"	#5	10½"	8	#4	12"	8	10	#4	12"	7	#4	12"	7	#6	12"	7	#6	8	7'-6"
		6'			120	7'-2"			118	8'-3"	7'-1"			8				12					7					8	7'-8"
		7'			120	7'-3"			118	8'-4"	7'-2"			8				14					7					8	7'-9"
		8'			120	7'-4"			118	8'-5"	7'-3"			8				16					7					8	7'-10"
	1 @ 7'	4'			132	8'-0"			130	9'-1"	7'-11"			9				8					8					8	8'-7"
		5'			132	8'-0"			130	9'-1"	7'-11"			9				10					8					8	8'-7"
		6'	#6	11"	132	8'-2"	#6	11"	130	9'-3"	8'-1"	#5	10½"	9	#4	12"	8	12	#4	12"	8	#4	12"	8	#6	12"	8	#6	8	8'-9"
		7'			132	8'-3"			130	9'-4"	8'-2"			9				14					8					8	8'-10"
		8'			132	8'-4"			130	9'-5"	8'-3"			9				16					8					8	8'-11"
		9'			132	8'-6"			130	9'-7"	8'-5"			9				18					8					8	9'-0"
	1 @ 8'	4'			120	9'-1"			118	10'-2"	9'-0"			11				8					9					8	9'-7"
		5'			120	9'-3"			118	10'-4"	9'-2"			11				10					9					8	9'-9"
		6'			120	9'-3"			118	10'-4"	9'-2"			11				12					9					8	9'-9"
		7'	#6	12"	120	9'-5"	#6	12"	118	10'-5"	9'-3"	#5	10"	11	#4	12"	9	14	#4	12"	9	#4	12"	9	#7	12"	9	#7	8	9'-11"
		8'			120	9'-5"			118	10'-6"	9'-4"			11				16					9					8	9'-11"
		9'			120	9'-7"			118	10'-8"	9'-6"			11				18					9					8	10'-1"
		10'			120	9'-9"			118	10'-10"	9'-8"			11				20					9					8	10'-3"
	1 @ 9'	5'			132	10'-3"			130	11'-4"	10'-2"			12				10					10					8	10'-9"
		6'			132	10'-4"			130	11'-5"	10'-3"			12				12					10					8	10'-10"
		7'			132	10'-4"			130	11'-5"	10'-3"			12				14					10					8	10'-10"
		8'	#7	11"	132	10'-5"	#6	11"	130	11'-6"	10'-4"	#5	10"	12	#4	12"	10	16	#4	12"	10	#4	12"	10	#7	12"	10	#7	8	10'-11"
		9'			132	10'-7"			130	11'-8"	10'-6"			12				18					10					8	11'-2"
		10'			132	10'-9"			130	11'-10"	10'-8"			12				20					10					8	11'-3"
		11'			132	10'-11"			130	12'-0"	10'-10"			12				22					10					8	11'-6"
	1 @ 10'	5'			120	11'-3"			118	12'-2"	11'-0"			13				10					11					8	11'-10"
		6'			120	11'-9"			118	12'-8"	11'-6"			13				12					11					8	11'-11"
		7'			120	11'-8"			118	12'-8"	11'-6"			13				14					11					8	11'-11"
		8'	#7	12"	120	11'-8"	#6	12"	118	12'-9"	11'-7"	#5	10"	13	#4	12"	12	16	#4	12"	11	#4	12"	11	#7	12"	11	#7	8	12'-0"
		9'			120	11'-8"			118	12'-11"	11'-7"			13				18					11					8	12'-2"
		10'			120	11'-10"			118	13'-1"	11'-9"			13				20					11					8	12'-4"
		11'			120	12'-0"			118	13'-3"	11'-11"			13				22					11					8	12'-6"
		12'			120	12'-2"			118	13'-5"	12'-1"			13				24					11					8	12'-8"
	1 @ 11'	6'			132	12'-6"			130	13'-9"	12'-5"			15				12					12					8	13'-0"
		7'			132	12'-6"			130	13'-9"	12'-5"			15				14					12					8	13'-0"
		8'	#7	11"	132	12'-8"	#7	11"	130	13'-11"	12'-7"	#5	9½"	15	#4	12"	12	18	#4	12"	12	#4	12"	12	#7	12"	12	#7	8	13'-2"
		9'			132	12'-10"			130	14'-1"	12'-9"			15				20					12					8	13'-4"
		10'			132	13'-0"			130	14'-3"	12'-11"			15				22					12					8	13'-7"
		11'			132	13'-2"			130	14'-5"	13'-1"			15				24					12					8	13'-9"
	1 @ 12'	6'			120	12'-6"			118	13'-9"	12'-5"			15				12					13					8	13'-0"
		7'			132	12'-6"			130	13'-9"	12'-5"			15				14					13					8	13'-0"
		8'	#7	12"	132	12'-8"	#7	12"	130	13'-11"	12'-7"	#5	9½"	15	#4	12"	12	18	#4	12"	13	#4	12"	13	#7	12"	13	#7	8	13'-2"
		9'			132	12'-10"			130	14'-1"	12'-9"			15				20					13					8	13'-4"
		10'			132	13'-0"			130	14'-3"	12'-11"			15				22					13					8	13'-7"
		11'			132	13'-2"			130	14'-5"	13'-1"			15				24					13					8	13'-9"
		6'			120	13'-6"			118	14'-10"	13'-6"			14				12					12					8	14'-1"
		7'			120	13'-6"			118	14'-10"	13'-6"			14				14					12					8	14'-1"
	1 @ 13'	8'			120	13'-8"			118	14'-10"	13'-6"			14				16					12					8	14'-1"
		9'	#8	12"	120	13'-8"	#7	12"	118	15'-0"	13'-8"	#5	9½"	16	#4	12"	12	18	#4	12"	13	#4	12"	13	#8	12"	13	#8	8	14'-3"
		10'			120	13'-10"			118	15'-2"	13'-10"			16				20					13					8	14'-5"
		11'			120	14'-0"			118	15'-4"	14'-0"			16				22					13					8	14'-7"
		12'			120	14'-2"			118	15'-6"	14'-2"			16				24					13					8	14'-9"

NOTE:- The "a" and "b" bars are to be placed parallel with the headwalls, spacing to be parallel with barrel.

DIMENSIONS AND QUANTITIES

MAX. DESIGN DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	BARREL DIMENSIONS SQ. FT. OF OPENING A	OVERALL WIDTH OW	THICKNESS OF TOP SLAB T	THICKNESS OF SIDEWALLS C	THICKNESS OF BOTTOM SLAB B	OVERALL HEIGHT OH	ROADWAY LENGTH RL	LENGTH OF HEADWALL K	UNIT QUANTITIES CLASS S CONC. PER LIN. FT. OF BARREL CU.YD.	REINFORCING STEEL PER LIN. FT. BARREL LB.	ADDITIONAL PER LAP LB.	ADDITIONAL TWO HEADWALLS & APRONS LB.
5'-0"	1 @ 4'	2'	8	5'-0"	7"	6"	6⅝"	3'-1⅛"	5'-2⅛"	5'-8⅝"	0.282	92.27	17.95	71.32
		3'	12	5'-0"		6"		4'-1⅛"	"	"	0.313	94.94	19.62	71.32
		4'	16	5'-0"		6"		5'-1⅛"	"	"	0.356	97.62	21.29	71.32
		5'	20	5'-0"		6"		6'-1⅛"	"	"	0.394	50.29	22.96	71.92
		6'	24	5'-2"		7"		7'-1⅛"	5'-6⅝"	5'-10⅝"	0.474	53.74	24.63	73.31
	1 @ 5'	3'	15	6'-0"	7"	6"	6⅝"	4'-2⅝"	6'-2⅝"	6'-9"	0.380	56.71	22.19	110.28
		4'	20	6'-0"		6"		5'-2⅝"	"	"	0.417	59.38	23.86	110.28
		5'	25	6'-0"		6"		6'-2⅝"	"	"	0.454	62.05	25.53	110.28
		6'	30	6'-2"		7"		7'-2⅝"	6'-6⅝"	6'-11⅝"	0.535	65.65	27.20	112.28
		7'	35	6'-3"		7½"		8'-2⅝"	6'-5⅝"	7'-0⅝"	0.609	68.78	28.87	113.28
	1 @ 6'	3'	18	7'-0"	8"	6"	7⅛"	4'-3⅛"	7'-3⅛"	7'-9⅛"	0.446	67.79	29.76	127.97
		4'	24	7'-0"		6"		5'-3⅛"	"	"	0.483	70.47	26.43	127.97
		5'	30	7'-0"		6"		6'-3⅛"	"	"	0.520	73.14	28.10	127.97
		6'	36	7'-2"		7"		7'-3⅛"	7'-5"	7'-11⅛"	0.602	76.81	29.77	129.96
		7'	42	7'-3"		7½"		8'-3⅛"	7'-6"	8'-0⅛"	0.671	79.38	31.44	130.96
		8'	48	7'-4"		8"		9'-3⅛"	7'-7⅝"	8'-1⅝"	0.746	83.97	33.11	131.98
	1 @ 7'	4'	28	8'-0"	8"	6"	8⅛"	5'-5"	8'-3⅝"	8'-9⅝"	0.568	82.36	29.01	196.89
		5'	35	8'-0"		6"		6'-5"	"	"	0.605	85.63	30.69	196.89
		6'	42	8'-2"		7"		7'-5"	8'-5⅛"	9'-0"	0.688	88.90	32.35	198.89
		7'	49	8'-3"		7½"		8'-5"	8'-6⅝"	9'-1"	0.757	92.62	34.02	199.90
		8'	56	8'-4"		8"		9'-5"	8'-7½"	9'-2"	0.832	96.28	35.69	150.90
		9'	63	8'-6"		9"		10'-5"	8'-8⅝"	9'-8"	0.946	107.22	37.36	152.90
	1 @ 8'	4'	32	9'-0"	8"	6"	8⅝"	5'-7"	9'-3⅜"	9'-10⅜"	0.676	97.69	33.32	207.70
		5'	40	9'-2"		7"		6'-7"	9'-5⅞"	10'-0⅜"	0.754	101.98	34.99	210.92
		6'	48	9'-2"		7"		7'-7"	"	"	0.797	104.15	36.66	210.92
		7'	56	9'-3"		7½"		8'-7"	9'-6⅞"	10'-1⅜"	0.867	107.92	38.33	211.79
		8'	64	9'-6"		8"		9'-7"	9'-8"	10'-2⅝"	0.942	113.17	40.00	213.15
		9'	72	9'-6"		9"		10'-7"	9'-10"	10'-9⅝"	1.057	122.28	41.67	215.87
		10'	80	9'-8"		10"		11'-7"	10'-0⅝"	10'-6⅝"	1.184	129.04	43.34	218.60
	1 @ 9'	5'	45	10'-2"	9"	7"	9⅛"	6'-8"	10'-6⅝"	11'-0⅝"	0.844	117.30	37.56	233.23
		6'	54	10'-3"		7½"		7'-8"	10'-7⅝"	11'-1⅝"	0.910	120.62	39.23	234.60
		7'	63	10'-3"		7½"		8'-8"	"	"	0.957	123.29	40.90	234.60
		8'	72	10'-4"	10"	8"	10"	9'-8"	10'-8⅝"	11'-2⅝"	1.035	129.12	42.57	235.96
		9'	81	10'-4"		9"		10'-8"	10'-10⅝"	11'-5"	1.148	138.38	44.24	240.05
		10'	90	10'-8"		10"		11'-8"	11'-0⅝"	11'-7"	1.276	145.26	45.91	242.77
		11'	99	10'-10"		11"		12'-8"	11'-2⅝"	11'-9"	1.416	152.98	47.58	245.50
	1 @ 10'	5'	50	11'-2"	10"	7"	10⅛"	6'-9⅛"	11'-6⅝"	12'-1⅝"	0.957	133.70	40.13	267.43
		6'	60	11'-3"		7½"		7'-9⅛"	11'-7⅝"	12'-2⅝"	1.024	137.06	41.80	258.99
		7'	70	11'-3"		7½"		8'-9⅛"	"	"	1.071	139.73	43.47	258.99
		8'	80	11'-4"		8"		9'-9⅛"	11'-8⅝"	12'-3⅝"	1.147	145.62	45.14	260.35
		9'	90	11'-6"		9"		10'-9⅛"	11'-10⅝"	12'-5⅝"	1.263	155.33	46.81	263.08
		10'	100	11'-8"		10"		11'-9⅛"	12'-1⅝"	12'-7⅝"	1.391	162.30	48.48	265.80
		11'	110	11'-10"		11"		12'-9⅛"	12'-3"	12'-9⅛"	1.532	170.12	50.15	268.53
		12'	120	12'-0"		12"		13'-9⅛"	12'-5⅛"	12'-10⅝"	1.685	182.08	51.82	271.25
	1 @ 11'	6'	66	12'-4"	11"	8"	11⅝"	7'-10⅝"	12'-3⅝"	13'-3⅝"	1.153	158.87	46.12	283.61
		7'	77	12'-5"		8"		8'-10⅝"	"	"	1.202	161.55	47.79	283.61
		8'	88	12'-4"		8"		9'-10⅝"	"	"	1.252	166.78	49.46	283.61
		9'	99	12'-6"		9"		10'-10⅝"	12'-11⅝"	13'-5⅝"	1.368	176.31	51.13	286.33
		10'	110	12'-8"		10"		11'-10⅝"	13'-1⅝"	13'-7⅝"	1.497	183.92	52.80	289.04
		11'	121	12'-10"		11"		12'-10⅝"	13'-3⅝"	13'-10"	1.638	191.38	54.47	293.15
		12'	132	13'-0"		12"		13'-10⅝"	13'-5¼"	14'-0"	1.792	208.51	56.14	295.87
	1 @ 12'	6'	72	13'-0"	11"	8"	11⅝"	8'-0"	13'-5⅝"	14'-0"	1.284	176.97	48.69	378.98
		7'	84	13'-1"		8"		9'-0"	"	"	1.338	179.14	50.36	378.98
		8'	96	13'-1"		8"		10'-0"	"	"	1.388	184.42	52.03	378.98
		9'	108	13'-1"	11"	9"	12½"	11'-0"	13'-11⅝"	14'-6⅝"	1.500	194.12	53.70	382.54
		10'	120	13'-5"		10"		12'-0"	14'-1⅝"	14'-8⅝"	1.630	201.59	55.37	386.10
		11'	132	13'-10"		11"		13'-0"	14'-3⅝"	14'-10⅝"	1.772	209.48	57.04	389.66
		12'	144	14'-0"		12"		14'-0"	14'-5⅝"	15'-0⅝"	1.926	221.72	59.71	393.22

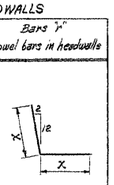
BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM Bars "b"
#6	3"	5"	1'-2"	Pin diam. K 1" X
#7	3½"	5⅝"	1'-4"	

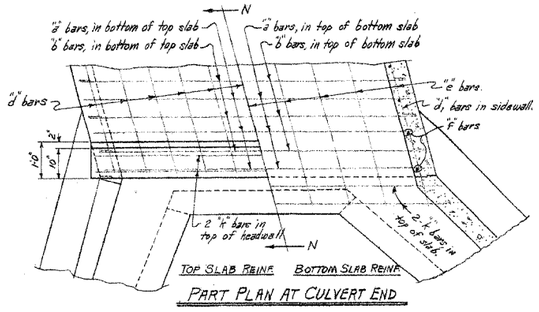
NOTE:-Dimensions are to centers of bars

DOWEL BARS FOR TWO HEADWALLS

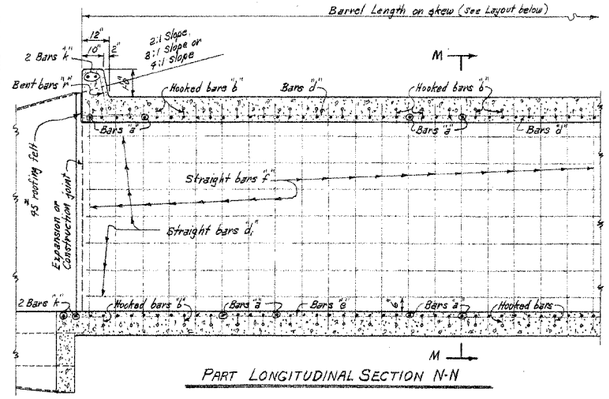
SPAN @	SIZE	SPACING	NO. REQD	LENGTH	X
4'	#4	11⅜"	12	2'-6"	1'-3"
5'	#4	11⅜"	14	2'-7"	1'-3½"
6'	#4	11⅜"	16	2'-8"	1'-4"
7'	#4	11⅝"	18	2'-9"	1'-4½"
8'	#4	11⅝"	20	2'-11"	1'-5½"
9'	#4	11⅝"	22	3'-0"	1'-6"
10'	#4	12"	24	3'-1"	1'-6½"
11'	#4	12"	26	3'-2"	1'-7"
12'	#4	12"	28	3'-3"	1'-7½"

Bars "k" Dowel bars in headwalls



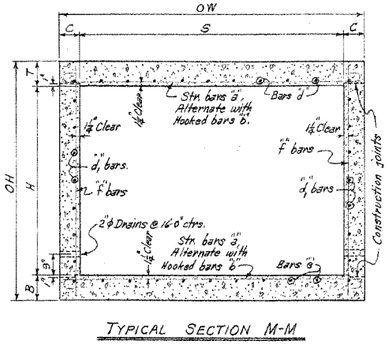


PART PLAN AT CULVERT END

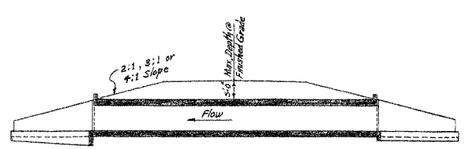


NOTE:- For details of wings and bar lists, see Drawing Nos. W-X152-1 or W-X152-2 and W-X15 W-X153-1 or W-X153-2 " " W-X154-1 or W-X154-2 " "

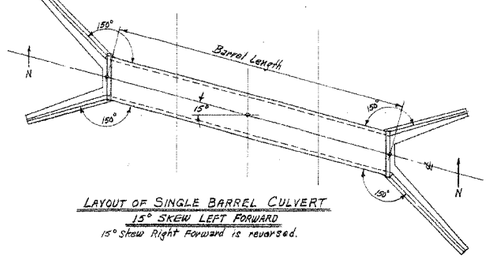
PART LONGITUDINAL SECTION N-N



TYPICAL SECTION M-M



LONGITUDINAL SECTION N-N



LAYOUT OF SINGLE BARREL CULVERT
15° SKEW LEFT FORWARD
15° Skew Right Forward is reversed.

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.

BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 38-0" length of barrel over 38-0". 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 @ 4'-0" ctrs.

UNIT STRESSES:-

Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

NOTE:- This drawing to be used in conjunction with Standard Drawing Nos. W-X152-1 or W-X152-2 ; W-X153-1 or W-X153-2 and W-X154-1 or W-X154-2. Also W-X15.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS 15° SKEW

4,5,6,7,8,9,10,11&12' SPANS 2:1, 3:1 OR 4:1 SLOPES
SINGLES UNDER 5'-0" COVER

STANDARD DRAWING NO. R-115X-0

Designed By:- W.C.H. 1-23-63 Checked By:- R.M.S. 5-8-63
Drawn By:- W.C.H. 8-14-63 Checked By:- JBS 10-7-63
Quantities By:- W.C.H. 8-21-63 Checked By:- R. G. 12-10-63.

Reshot 3-8-93

385 ~~87~~

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			85	
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 Slab of Barrel.			"b" bars BENT - See Diagram below. In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars.						"b_2" bars BENT - See Diagram below In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars.						"c" bars STRAIGHT In Top and Bottom Slab of Barrel. Alt. with "b" and "b_2" bars.			"d" bars STRAIGHT Longitudinal in Top Slab of Barrel			"d_1" 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			"k" bars STRAIGHT 2 in Top of Headwalls and Aprons - Each.		
D	S	H	Size	Spacing	No. Reqd	Length	Size	Spacing	No. Reqd	Length	X	Y	Z	Size	Spacing	No. Reqd	Length	X	Y	Z	Size	Spacing	No. Reqd	Length	Size	Spacing	No. Reqd	Length	Size	Spacing	No. Reqd	Length	Size	Spacing	No. Reqd	Length	Size	No. Reqd	Length
0'-0" TO 5'-0" MAXIMUM	2 @ 4'	2'	#5	12"	120	9'-9"	#5	12"	59	10'-10"	0'-3"	2'-3½"	3'-5½"	#5	12"	59	10'-10"	0'-2½"	2'-1½"	3'-5½"	#5	12"	120	4'-10"	#4	12"	14												
		3'			120	9'-9"			59	10'-10"	"	2'-3½"	3'-5½"			59	10'-10"	"	2'-1½"	3'-5½"			120	4'-10"			16												
		4'			120	9'-9"			59	10'-10"	"	2'-3½"	3'-5½"			59	10'-10"	"	2'-1½"	3'-5½"			120	4'-10"			16												
		5'			120	9'-9"			59	10'-10"	"	2'-3½"	3'-5½"			59	10'-10"	"	2'-1½"	3'-5½"			120	4'-10"			16												
		6'			120	10'-0"			59	11'-1"	0'-3"	2'-4½"	3'-6½"			59	11'-1"	0'-2½"	2'-0½"	3'-6½"			120	4'-11"			16												
	2 @ 5'	3'	#6	12"	120	11'-10"	#5	12"	59	12'-11"	0'-3½"	2'-8"	4'-3"	#5	12"	59	12'-11"	0'-3"	2'-8"	4'-3"	#6	12"	120	5'-10"	#4	12"	16												
		4'			120	11'-10"			59	12'-11"	"	2'-8"	4'-3"			59	12'-11"	"	2'-9"	4'-3"			120	5'-10"			16												
		5'			120	11'-10"			59	12'-11"	"	2'-8"	4'-3"			59	12'-11"	"	2'-8"	4'-3"			120	5'-10"			16												
		6'			120	12'-1"			59	13'-2"	"	2'-8"	4'-4"			59	13'-2"	"	2'-10"	4'-4"			120	5'-11"			16												
		7'			120	12'-9"			59	13'-9"	0'-3½"	2'-10"	4'-6½"			59	13'-9"	0'-3"	2'-11"	4'-6½"			120	6'-0"			16												
	2 @ 6'	3'	#6	11"	132	13'-11"	#5	11"	65	15'-0"	0'-4"	3'-2"	5'-0"	#5	11"	65	15'-0"	0'-4"	3'-2"	5'-0"	#6	11"	132	6'-11"	#4	12"	18												
		4'			132	13'-11"			65	15'-0"	"	3'-2"	5'-0"			65	15'-0"	"	3'-2"	5'-0"			132	6'-11"			18												
		5'			132	19'-11"			65	15'-0"	"	3'-2"	5'-0"			65	15'-0"	"	3'-2"	5'-0"			132	6'-11"			18												
		6'			132	14'-2"			65	15'-3"	"	3'-3"	5'-1"			65	15'-3"	"	3'-3"	5'-1"			132	7'-0"			18												
		7'			132	14'-9"			65	15'-5"	"	3'-4"	5'-1½"			65	15'-5"	"	3'-4"	5'-1½"			132	7'-1"			18												
		8'			132	19'-5"			65	15'-6"	0'-4"	3'-4"	5'-2"			65	15'-6"	0'-4"	3'-4"	5'-2"			132	7'-11"			18												
	2 @ 7'	4'	#6	12"	120	15'-11"	#5	12"	59	17'-3"	0'-4½"	3'-7"	5'-9"	#5	12"	59	17'-3"	0'-4½"	3'-7"	5'-9"	#6	12"	120	7'-11"	#4	12"	20												
		5'			120	15'-11"			59	17'-3"	"	3'-7"	5'-9"			59	17'-3"	"	3'-7"	5'-9"			120	7'-11"			20												
		6'			120	16'-2"			59	17'-6"	"	3'-8"	5'-10"			59	17'-6"	"	3'-8"	5'-10"			120	8'-0"			20												
		7'			120	16'-9"			59	17'-8"	"	3'-9"	5'-10½"			59	17'-8"	"	3'-8"	5'-10½"			120	8'-1"			20												
		8'			120	16'-5"			59	17'-9"	"	3'-9"	5'-11"			59	17'-9"	"	3'-9"	5'-11"			120	8'-1"			20												
		9'			120	16'-3"			59	18'-0"	0'-4½"	3'-10"	6'-0"			59	18'-0"	0'-4½"	3'-10"	6'-0"			120	8'-2"			20												
	2 @ 8'	4'	#6	12"	132	18'-0"	#5	12"	65	19'-5"	0'-5"	4'-0"	6'-6½"	#5	12"	65	19'-5"	0'-5"	4'-0"	6'-6½"	#6	12"	132	9'-0"	#4	12"	23	#5	12"	65	19'-5"	0'-5"	4'-0"	6'-6½"	#5	12"	240	5'-2"	#6	11"	23
		5'			132	18'-3"			65	19'-6"	"	4'-1"	6'-7½"			65	19'-6"	"	4'-1"	6'-7½"			132	9'-0"			23			65	19'-6"	"	4'-1"	6'-7½"			240	6'-4"			23
		6'			132	18'-3"			65	19'-8"	"	4'-1"	6'-7½"			65	19'-8"	"	4'-1"	6'-7½"			132	9'-0"			23			65	19'-8"	"	4'-1"	6'-7½"			240	7'-2"			23
		7'			132	18'-5"			65	19'-10"	"	4'-2"	6'-8"			65	19'-10"	"	4'-2"	6'-8"			132	9'-2"			23			65	19'-10"	"	4'-2"	6'-8"			240	8'-2"			23
		8'			132	18'-6"			65	19'-11"	"	4'-2"	6'-8½"			65	19'-11"	"	4'-2"	6'-8½"			132	9'-2"			23			65	19'-11"	"	4'-2"	6'-8½"			288	9'-2"			23
		9'			132	18'-9"			65	20'-2"	"	4'-3"	6'-9½"			65	20'-2"	"	4'-3"	6'-9½"			132	9'-3"			23			65	20'-2"	"	4'-3"	6'-9½"			264	10'-2"			23
		10'			132	19'-0"			65	20'-5"	0'-5"	4'-4"	6'-10½"			65	20'-5"	0'-5"	4'-4"	6'-10½"			132	9'-4"			23			65	20'-5"	0'-5"	4'-4"	6'-10½"			240	10'-1"			23
	2 @ 9'	5'	#6	11"	132	20'-4"	#5	11"	65	21'-9"	0'-5½"	4'-6"	7'-5"	#5	11"	65	21'-9"	0'-5½"	4'-6"	7'-5"	#6	11"	132	10'-1"	#4	12"	26	#5	12"	65	21'-9"	0'-5½"	4'-6"	7'-5"	#5	12"	240	6'-3"	#6	11"	26
		6'			132	20'-6"			65	21'-11"	"	4'-7"	7'-5½"			65	21'-11"	"	4'-6"	7'-5½"			132	10'-2"			26			65	21'-11"	"	4'-7"	7'-5½"			240	6'-3"			26
		7'			132	20'-6"			65	21'-11"	"	4'-7"	7'-5½"			65	21'-11"	"	4'-7"	7'-5½"			132	10'-2"			26			65	21'-11"	"	4'-7"	7'-5½"			240	6'-3"			26
		8'			132	20'-7"			65	22'-0"	"	4'-7"	7'-6"			65	22'-0"	"	4'-6½"	7'-6"			132	10'-2"			26			65	22'-0"	"	4'-7"	7'-6"			288	9'-8"			26
		9'			132	20'-10"			65	22'-3"	"	4'-8"	7'-7"			65	22'-3"	"	4'-7½"	7'-7"			132	10'-3"			26			65	22'-3"	"	4'-8"	7'-7"			288	9'-8"			26
		10'			132	21'-1"			65	22'-6"	"	4'-9"	7'-8"			65	22'-6"	"	4'-8"	7'-8"			132	10'-4"			26			65	22'-6"	"	4'-9"	7'-8"			264	10'-11"			26
		11'			132	21'-3"			65	22'-8"	0'-5½"	4'-9"	7'-9"			65	22'-8"	0'-5½"	4'-8½"	7'-9"			132	10'-5"			26			65	22'-8"	0'-5½"	4'-9"	7'-9"			240	10'-11"			26
	2 @ 10'	5'	#7	12"	120	22'-5"	#6	12"	59	23'-11"	0'-6"	5'-0"	8'-2"	#6	12"	59	23'-11"	0'-6"	5'-0"	8'-2"	#7	12"	120	11'-2"	#4	12"	28	#6	12"	59	23'-11"	0'-6"	5'-0"	8'-2"	#6	12"	240	6'-4"	#7	11"	28
		6'			120	22'-7"			59	24'-1"	"	5'-1"	8'-2½"			59	24'-1"	"	5'-0"	8'-2½"			120	11'-3"			28			59	24'-1"	"	5'-1"	8'-2½"			240	7'-1"			28
		7'			120	22'-7"			59	24'-1"	"	5'-1"	8'-2½"			59	24'-1"	"	5'-0"	8'-2½"			120	11'-3"			28			59	24'-1"	"	5'-1"	8'-2½"			240	7'-1"			28
		8'			120	22'-8"			59	24'-2"	"	5'-1"	8'-3"			59	24'-2"	"	5'-0"	8'-3"			120	11'-3"			28			59	24'-2"	"	5'-1"	8'-3"			288	9'-6"			28
		9'			120	22'-11"			59	24'-5"	"	5'-1"	8'-3½"			59	24'-5"	"	5'-1"	8'-3½"			120	11'-4"			28			59	24'-5"	"	5'-1"	8'-3½"			264	10'-4"			28
		10'			120	23'-2"			59	24'-8"	"	5'-2"	8'-4"			59	24'-8"	"	5'-2"	8'-4"			120	11'-5"			28			59	24'-8"	"	5'-2"	8'-4"			240	8'-10"			28
		11'			120	23'-6"			59	24'-10"	"	5'-3"	8'-4½"			59	24'-10"	"	5'-2"	8'-4½"			120	11'-5"			28			59	24'-10"	"	5'-3"	8'-4½"			240	8'-11"			28
		12'			120	23'-6"			59	25'-0"	0'-6"	5'-3"	8'-5"			59	25'-0"	0'-6"	5'-2"	8'-5"			120	11'-5"			28			59	25'-0"	0'-6"	5'-3"	8'-5"			240	8'-11"			28
	2 @ 11'	6'	#7	12"	120	24'-9"	#6	12"	59	26'-3"	0'-6½"	5'-5"	9'-1"	#6	12"	59	26'-3"	0'-6½"	5'-3"	9'-1"	#7	12"	120	12'-3"	#4	12"	30	#6	12"	59	26'-3"	0'-6½"	5'-5"	9'-1"	#6	12"	240	7'-6"	#7	11"	30
		7'			120	24'-9"			59	26'-3"	"	5'-5"	9'-1"			59	26'-3"	"	5'-4"	9'-1"			120	12'-3"			30			59	26'-3"	"	5'-5"	9'-1"			240	8'-4"			30
		8'			120	24'-9"			59	26'-3"	"	5'-5"	9'-1"			59	26'-3"	"	5'-5"	9'-1"			120	12'-3"			30			59	26'-3"	"	5'-5"	9'-1"			288	9'-6"			30
		9'			120	25'-1"			59	26'-6"	"	5'-6"	9'-2"			59	26'-6"	"	5'-5"	9'-2"			120	12'-5"			30			59	26'-6"	"	5'-6"	9'-2"			264	10'-5"			30
		10'			120	25'-3"			59	26'-9"	"	5'-6"	9'-3"			59	26'-9"	"	5'-5"	9'-3"			120	12'-5"			30			59	26'-9"	"	5'-6"	9'-3"			240	9'-0"			30
		11'			120	25'-5"			59	27'-0"	"	5'-7"	9'-3½"			59	27'-0"	"	5'-6"	9'-3½"			120	12'-6"			30			59	27'-0"	"	5'-7"	9'-3½"			240	9'-0"			30
		12'			120	25'-7"			59	27'-1"	0'-6½"	5'-7"	9'-5"			59	27'-2"	0'-7"	5'-6"	9'-5"			120	12'-7"			30			59	27'-1"	0'-6½"	5'-7"	9'-5"			240	9'-0"			30
	2 @ 12'	6'	#7	11"	132	26'-10"	#6	11"	65	28'-4"	0'-7"	5'-11"	9'-10"	#6	11"	65	28'-6"	0'-8"	5'-8"	9'-10"	#7	11"	132	13'-3"	#4	12"	32	#6	11"	65	28'-6"	0'-8"	5'-8"	9'-10"	#6	11"	240	7'-7"	#7	11"	32
		7'			132	26'-10"			65	28'-4"	"	5'-11"	9'-10"			65	28'-6"	"	5'-8"	9'-10"			132	13'-3"			32			65	28'-6"	"	5'-8"	9'-10"			240	8'-5"			32
		8'			182	26'-10"			65	28'-4"	"	5'-11"	9'-10"			65	28'-6"	"	5'-8"	9'-10"			132	13'-3"			32			65	28'-6"	"	5'-8"	9'-10"			288	9'-7"			32
		9'			132	27'-1"			65	28'-7"	"	6'-0"	9'-11"			65	28'-9"	"	5'-9"	9'-11"			132	13'-4"			32			65	28'-9"	"	6'-0"	9'-11"			240	10'-7"			32
		10'			132	27'-6"			65	28'-10"	"	6'-1"	10'-0"			65	29'-0"	"	5'-10"	10'-0"			132	13'-6"			32			65	29'-0"	"	6'-1"	10'-0"			264	11'-7"			32
		11'			132	27'-6"			65	29'-0"	"	6'-1"	10'-1"			65	29'-2"	"	5'-10"	10'-1"			132	13'-6"			32			65	29'-2"	"	6'-1"	10'-1"			288	12'-7"			32
		12'			132	27'-8"			65	29'-2"	0'-7"	6'-1"	10'-2"			65	29'-4"	0'-8½"	5'-10"	10'-2"			132	13'-6"			32			65	29'-4"	0'-8½"	6'-1"	10'-2"			312	13'-7"			32

NOTE:- The "a", "b", "b_2", and "c" bars are to be placed parallel with the headwalls, spacing to be parallel with barrel.

2 @ 30'-8" for 60'-0" Length Barrel (1'-3 Lap)

2 @ 30'-6" for 60'-0" Length Barrel (1'-3 Lap)

2 @ 31'-6" for 60'-0" Length Barrel (1'-3 Lap)

Designed by:- W.C.H. 1-17-63.
Drawn by:- W.C.H. 8-23-63.
Quantities by:- W.C.H. 8-26-63.

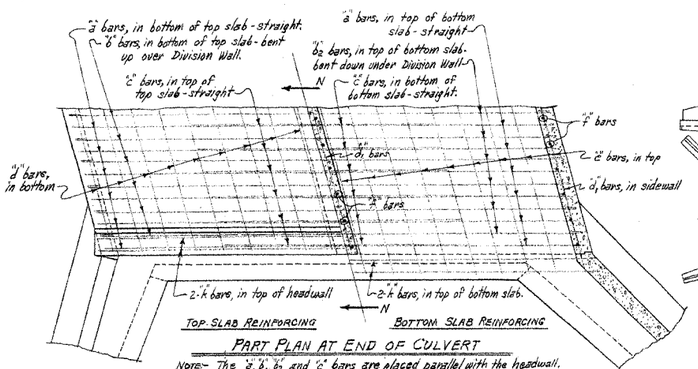
Checked by:- RMS - 5-14-63
Checked by:- ZMG - 10-7-63
Checked by:- R.G - 12-16-63

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM FOR BARS "b" and "b_2"
#5	2½"	4½"	0'-11½"	
#6	3"	5"	1'-2"	

NOTE:- Dimensions are to centers of bars.

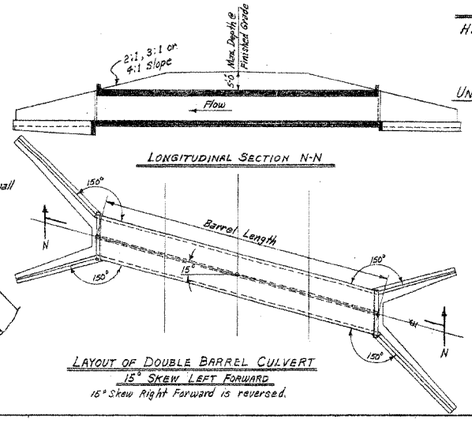
DOWEL BARS FOR TWO HEADWALLS

"a" & "c" SPANS	SIZE	SPACING	No. REQD	LENGTH	X	Bars "k" Dowel bars in Headwalls
4'	#4	12"	20	2'-5"	1'-2½"	
5'	#4	12"	24	2'-6"	1'-3"	
6'	#4	12"	28	2'-7"	1'-3½"	
7'	#4	12"	32	2'-8"	1'-4"	
8'	#4	12"	38	2'-9"	1'-4½"	
9'	#4	12"	42	2'-10"	1'-5"	
10'	#4	12"	46	2'-11"	1'-5½"	
11'	#4	12"	50	3'-0"	1'-6"	
12'	#4	12"	54	3'-1"	1'-6½"	



PART PLAN AT END OF CULVERT

NOTE:- The "a", "b", "b_2" and "c" bars are placed parallel with the headwall. The "d" bars in top of top slab and "e" bars in bottom of bottom slab are not shown.



LONGITUDINAL SECTION N-N

LAYOUT OF DOUBLE BARREL CULVERT
15° SKEW LEFT FORWARD
15° Skew Right Forward is reversed.

DIMENSIONS

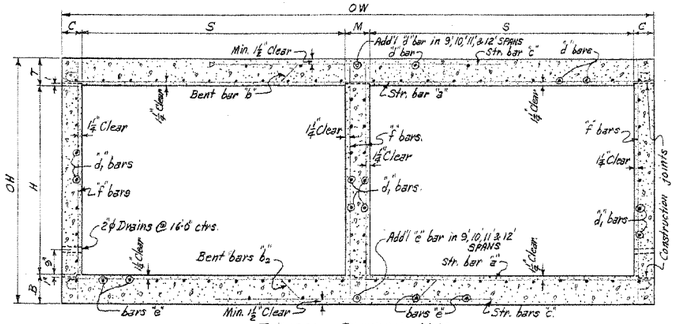
BARREL DIMENSIONS

MAX. DESIGN DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS OF TOP SLAB	THICKNESS OF DIVISION WALL	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	ROADWAY LENGTH	LENGTH OF HEADWALL
D	S	H	A	OW	T	C	M	B	OH	RL	K
5'-0"	2 @ 4'	2'	16	3'-8"	6⅝"	6"	8"	6"	3'-0⅝"	10'-0"	10'-6⅝"
		3'	24	3'-8"		6"	8"		4'-0⅝"	"	"
		4'	32	3'-8"		6"	8"		5'-0⅝"	"	"
		5'	40	3'-8"		6"	8"		6'-0⅝"	"	"
		6'	48	3'-11"		7"	9"		7'-0⅝"	10'-3⅞"	10'-9⅝"
	2 @ 5'	3'	30	11'-8"	7"	6"	8"	6½"	4'-1⅛"	12'-1"	12'-7⅛"
		4'	40	11'-8"		6"	8"		5'-1⅛"	"	"
		5'	50	11'-8"		6"	8"		6'-1⅛"	"	"
		6'	60	11'-11"		7"	9"		7'-1⅛"	12'-4"	12'-10⅛"
	2 @ 6'	3'	34	13'-8"	7½"	6"	8"	7⅛"	4'-3"	14'-1⅞"	14'-8⅝"
		4'	48	13'-8"		6"	8"		5'-3"	"	"
		5'	60	13'-8"		6"	8"		6'-3"	"	"
		6'	72	13'-11"		7"	9"		7'-3"	14'-5"	14'-11⅛"
		7'	84	14'-1"		7½"	10"		8'-3"	14'-7"	15'-1⅛"
		8'	96	14'-2"		8"	10"		9'-3"	14'-8"	15'-2⅛"
	2 @ 7'	4'	56	15'-6"	8"	6"	8"	7⅞"	5'-4"	16'-2⅝"	16'-9"
		5'	70	15'-8"		6"	8"		6'-4"	"	"
		6'	84	15'-11"		7"	9"		7'-4"	16'-5⅞"	17'-0⅝"
		7'	98	16'-1"		7½"	10"		8'-4"	16'-7⅞"	17'-2⅝"
		8'	112	16'-5"		8"	10"		9'-4"	16'-8⅞"	17'-3⅝"
		9'	126	16'-5"		9"	11"		10'-4"	17'-0"	17'-6⅛"
	2 @ 8'	4'	69	17'-8"	8½"	6"	8"	8⅛"	5'-5"	18'-3⅛"	18'-10"
		5'	80	17'-11"		7"	9"		6'-5"	18'-6⅝"	19'-1"
		6'	96	17'-11"		7"	9"		7'-5"	"	"
		7'	112	18'-1"		7½"	10"		8'-5"	18'-8⅞"	19'-3"
		8'	128	18'-2"		8"	10"		9'-5"	18'-9⅞"	19'-4⅝"
		9'	144	18'-5"		9"	11"		10'-5"	19'-0⅞"	19'-7⅝"
		10'	160	18'-8"		10"	12"		11'-5"	19'-3⅞"	19'-10⅝"
	2 @ 9'	5'	90	19'-11"	9"	7"	9"	8½"	6'-6"	20'-7⅛"	21'-2"
		6'	108	20'-1"		7½"	10"		7'-6"	20'-9⅝"	21'-4"
		7'	126	20'-1"		7½"	10"		8'-6"	"	"
		8'	144	20'-3"		8"	10"		9'-6"	20'-10⅝"	21'-5"
		9'	162	20'-5"		9"	11"		10'-6"	21'-1⅛"	21'-8⅛"
		10'	180	20'-8"		10"	12"		11'-6"	21'-3⅛"	21'-10⅛"
		11'	198	20'-10"		11"	12"		12'-6"	21'-6"	22'-1⅛"
	2 @ 10'	5'	100	21'-11"	9½"	7"	9"	9"	6'-7"	22'-0¼"	23'-2⅛"
		6'	120	22'-1"		7½"	10"		7'-7"	22'-2⅝"	23'-5⅛"
		7'	140	22'-1"		7½"	10"		8'-7"	"	"
		8'	160	22'-3"		8"	10"		9'-7"	22'-3⅞"	23'-5⅝"
		9'	180	22'-5"		9"	11"		10'-7"	23'-1⅛"	23'-9"
		10'	200	22'-8"		10"	12"		11'-7"	23'-3⅛"	24'-0"
		11'	220	22'-10"		11"	12"		12'-7"	23'-5⅛"	24'-2"
		12'	240	23'-0"		12"	12"		13'-7"	23'-7⅛"	24'-4⅛"
	2 @ 11'	6'	132	23'-2"	10"	8"	10"	10"	7'-9"	25'-0⅝"	25'-6⅛"
		7'	154	24'-2"		8"	10"		8'-9"	"	"
		8'	176	24'-2"		8"	10"		9'-9"	"	"
		9'	198	24'-5"		9"	11"		10'-9"	25'-3⅜"	25'-9⅛"
		10'	220	24'-8"		10"	12"		11'-9"	25'-5⅝"	26'-1"
		11'	242	24'-10"		11"	12"		12'-9"	25'-8⅛"	26'-3"
		12'	264	25'-0"		12"	12"		13'-9"	25'-10⅝"	26'-5"
	2 @ 12'	6'	144	26'-5"	10⅝"	8"	10"	11"	7'-10¾"	27'-1"	27'-7¾"
		7'	168	26'-5"		8"	10"		8'-10¾"	"	"
		8'	192	26'-5"		8"	10"		9'-10¾"	"	"
		9'	216	26'-5"		9"	11"		10'-10¾"	27'-4⅛"	27'-10⅝"
		10'	240	26'-8"		10"	12"		11'-10¾"	27'-6⅛"	28'-1⅜"
		11'	264	26'-10"		11"	12"		12'-10¾"	27'-8⅛"	28'-3⅜"
		12'	288	27'-0"		12"	12"		13'-10¾"	27'-10⅛"	28'-5⅜"

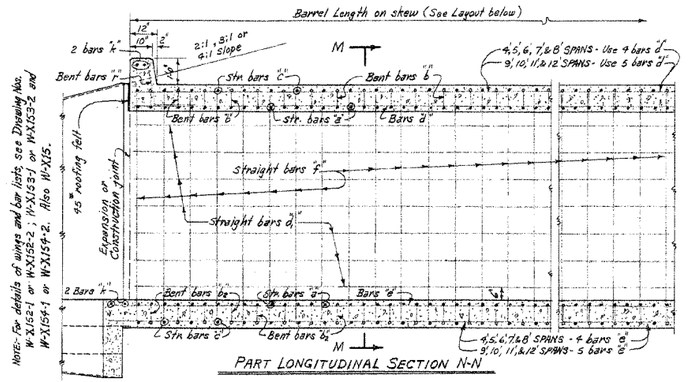
QUANTITIES

UNIT QUANTITIES

CLASS S CONC. PER BARREL	REINFORCING STEEL PER LIN. FT.	REINFORCING STEEL PER BARREL ADDITIONAL PER LAP	REINFORCING STEEL PER BARREL ADDITIONAL TWO HEADWALLS & APRONS
CU.YD.	LB.	LB.	LB.
0.936	83.89	92.71	136.52
0.558	93.23	96.05	136.52
0.620	100.58	99.39	136.52
0.682	105.92	52.73	186.52
0.809	112.98	56.07	138.60
0.671	125.87	51.13	209.65
0.733	131.22	54.53	209.65
0.795	136.56	57.87	209.65
0.922	143.93	61.21	212.66
1.049	149.87	64.55	219.66
0.818	151.91	56.34	245.60
0.880	157.25	59.68	245.60
0.941	162.60	63.02	245.60
1.070	169.60	66.36	248.60
1.192	176.15	69.70	250.61
1.298	186.76	78.04	251.61
1.021	181.91	69.83	281.99
1.082	187.25	68.17	281.99
1.212	194.35	71.51	284.99
1.336	200.04	74.85	286.99
1.440	211.64	78.19	288.00
1.616	229.01	81.53	291.00
1.176	215.29	71.71	322.50
1.295	222.27	75.05	325.50
1.366	227.62	78.39	325.50
1.489	239.60	81.73	327.50
1.595	245.39	85.07	328.50
1.772	263.00	88.41	331.51
1.947	275.99	91.75	339.51
1.977	249.83	82.77	864.23
1.594	251.54	86.11	366.23
1.671	256.89	89.45	366.23
1.778	262.78	92.79	367.23
1.956	285.41	96.13	370.24
2.152	298.49	99.47	373.24
2.328	312.32	102.81	375.24
1.679	296.66	87.92	506.93
1.732	299.52	91.26	508.15
1.869	298.87	94.60	508.15
1.976	303.79	97.94	509.52
2.155	322.76	101.28	509.97
2.352	334.02	104.62	514.06
2.529	355.09	107.96	514.78
2.719	377.25	111.30	519.51
2.048	316.97	96.41	551.83
2.208	322.31	99.25	551.83
2.208	332.74	103.08	551.83
2.388	350.87	106.43	555.92
2.586	364.19	109.77	561.37
2.769	378.28	113.11	564.10
2.956	390.66	116.45	566.82
2.299	362.26	101.55	599.59
2.379	367.60	104.89	599.59
2.459	378.07	108.23	599.59
2.690	396.97	111.57	600.66
2.890	410.99	114.91	602.77
3.018	424.63	118.25	610.49
3.208	442.20	121.59	614.58

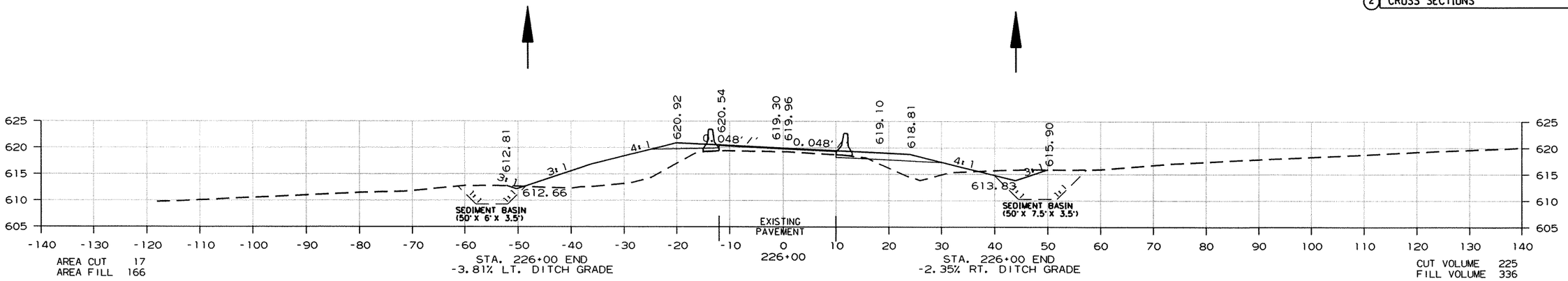


TYPICAL SECTION M-M


Barrel Length on skew (See Layout below)
2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	86	118

(2) CROSS SECTIONS

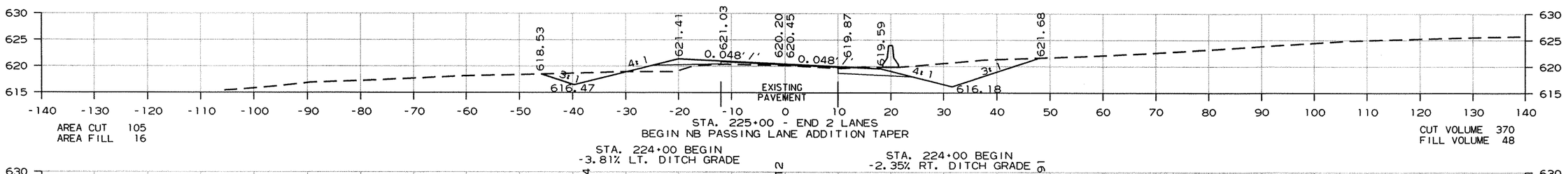


AREA CUT 17
AREA FILL 166

STA. 226+00 END
-3.81% LT. DITCH GRADE

STA. 226+00 END
-2.35% RT. DITCH GRADE

CUT VOLUME 225
FILL VOLUME 336



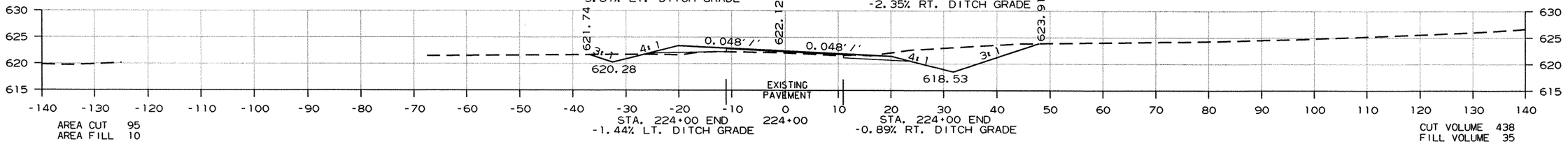
AREA CUT 105
AREA FILL 16

STA. 225+00 - END 2 LANES
BEGIN NB PASSING LANE ADDITION TAPER

CUT VOLUME 370
FILL VOLUME 48

STA. 224+00 BEGIN
-3.81% LT. DITCH GRADE

STA. 224+00 BEGIN
-2.35% RT. DITCH GRADE



AREA CUT 95
AREA FILL 10

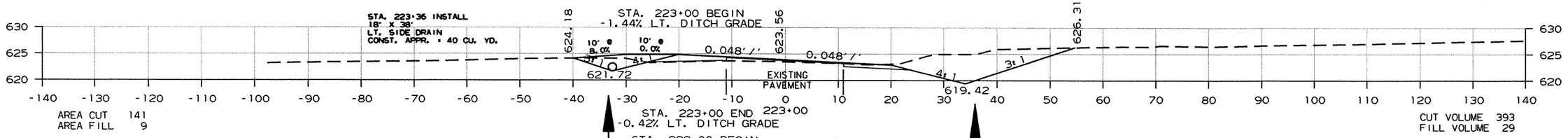
STA. 224+00 END
-1.44% LT. DITCH GRADE

224+00

STA. 224+00 END
-0.89% RT. DITCH GRADE

CUT VOLUME 438
FILL VOLUME 35

STA. 223+00 BEGIN
-1.44% LT. DITCH GRADE



AREA CUT 141
AREA FILL 9

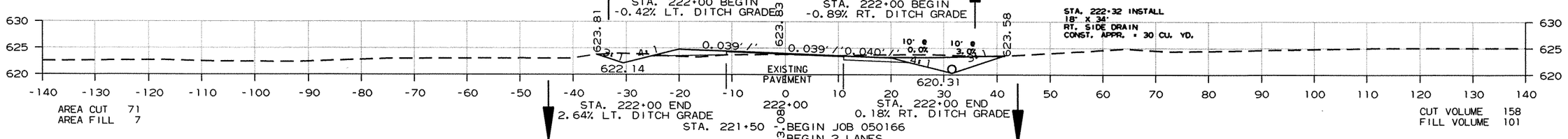
STA. 223+00 END
-0.42% LT. DITCH GRADE

223+00

CUT VOLUME 393
FILL VOLUME 29

STA. 222+00 BEGIN
-0.42% LT. DITCH GRADE

STA. 222+00 BEGIN
-0.89% RT. DITCH GRADE



AREA CUT 71
AREA FILL 7

STA. 222+00 END
2.64% LT. DITCH GRADE

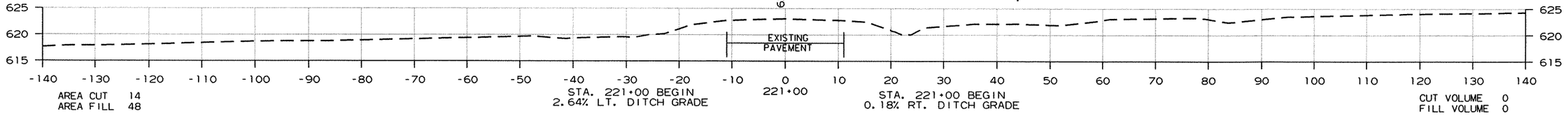
222+00

STA. 222+00 END
0.18% RT. DITCH GRADE

CUT VOLUME 158
FILL VOLUME 101

STA. 221+50 - BEGIN JOB 050166
BEGIN 2 LANES

623.08



AREA CUT 14
AREA FILL 48

STA. 221+00 BEGIN
2.64% LT. DITCH GRADE

221+00

STA. 221+00 BEGIN
0.18% RT. DITCH GRADE

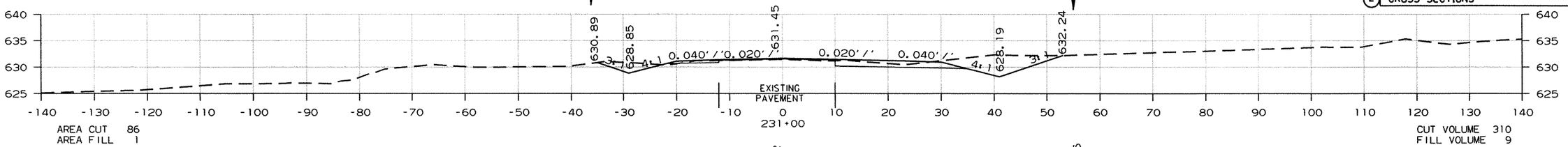
CUT VOLUME 0
FILL VOLUME 0

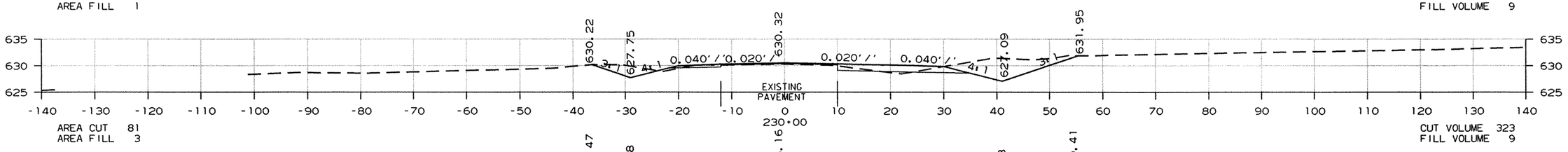
CROSS SECTION STA. 221+00 TO STA. 226+00

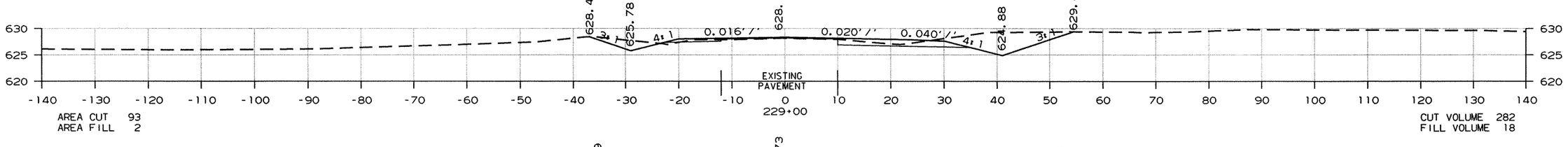
r050166.dgn 8/3/2011

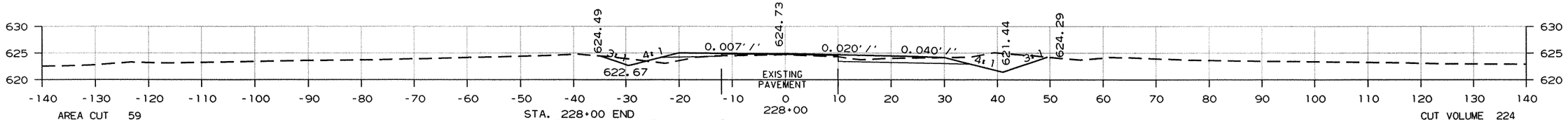
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	87	118

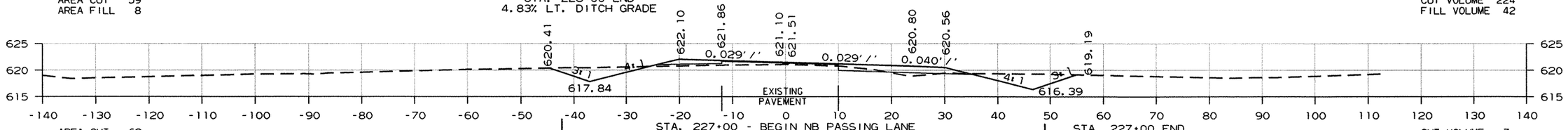
(2) CROSS SECTIONS

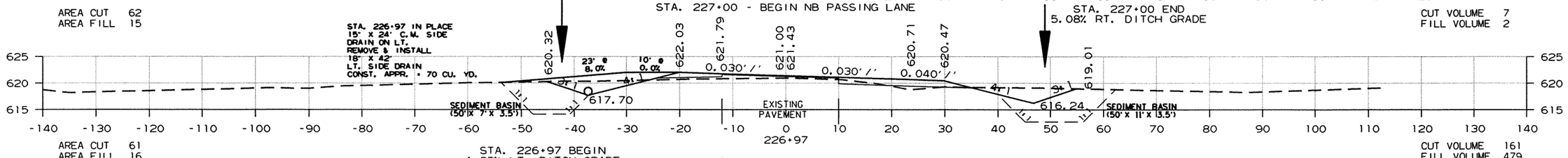


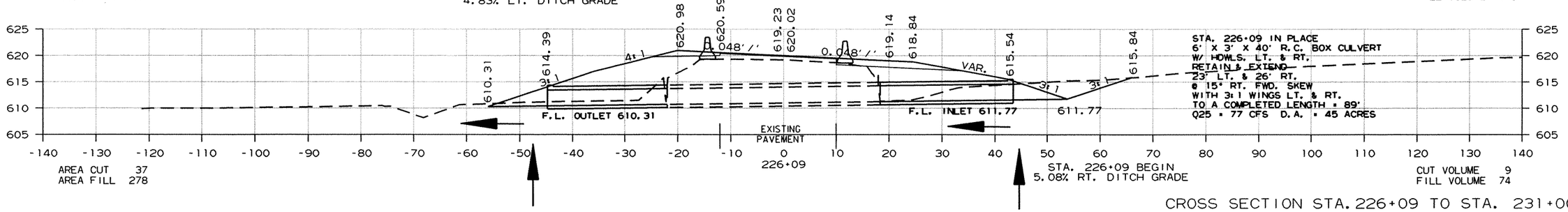










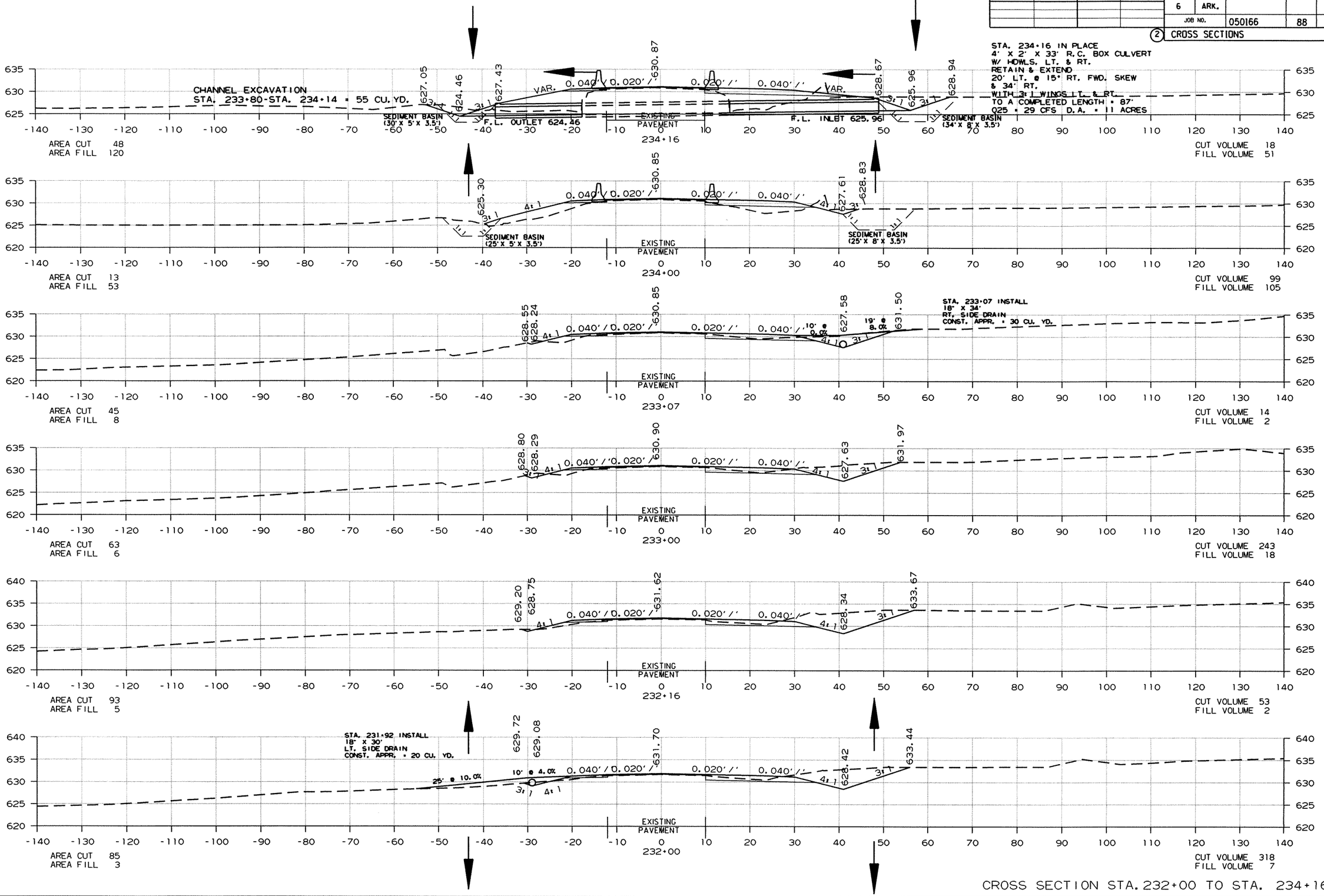


CROSS SECTION STA. 226+09 TO STA. 231+00

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	88	118

(2) CROSS SECTIONS

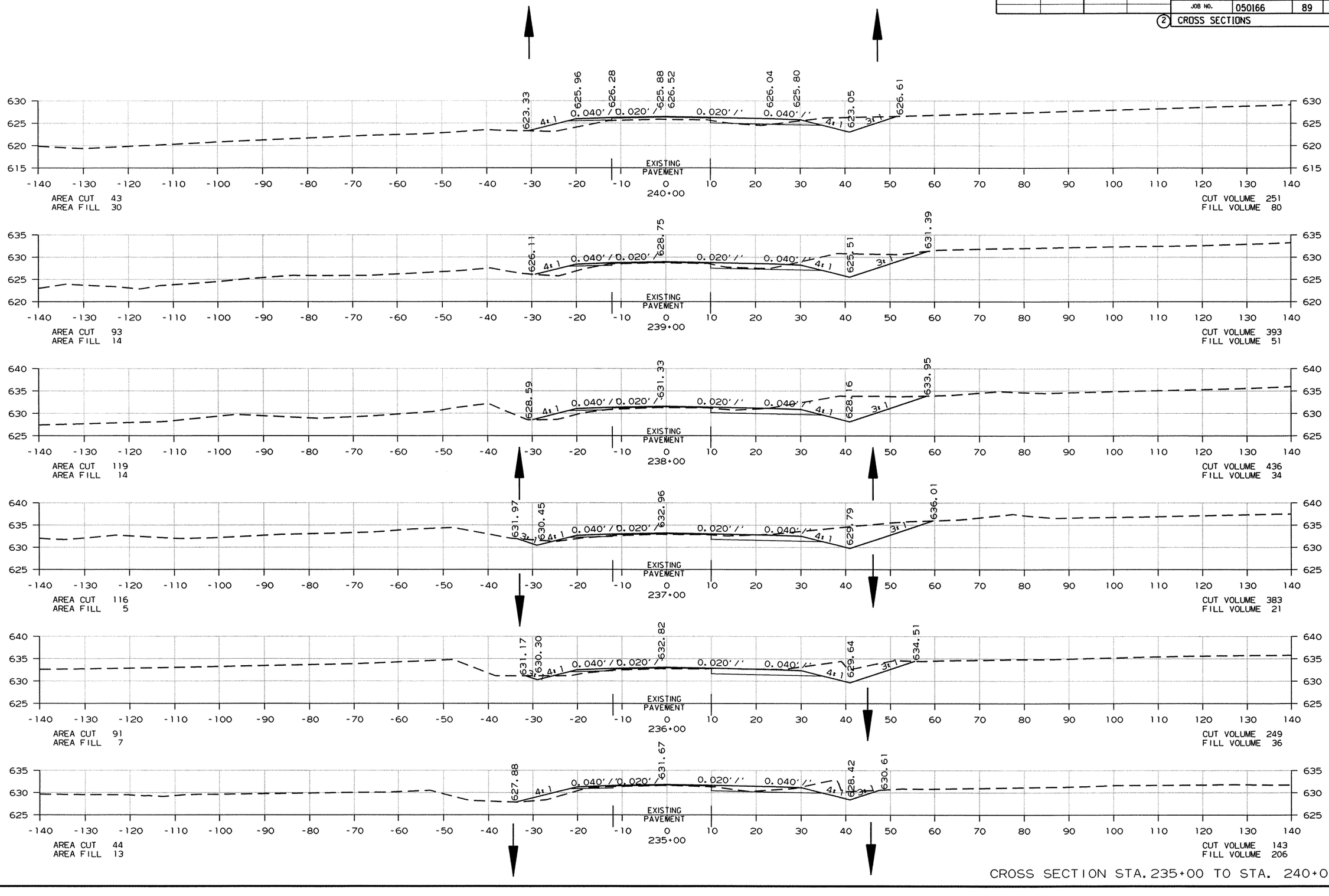


CROSS SECTION STA. 232+00 TO STA. 234+16

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	89	118

(2) CROSS SECTIONS

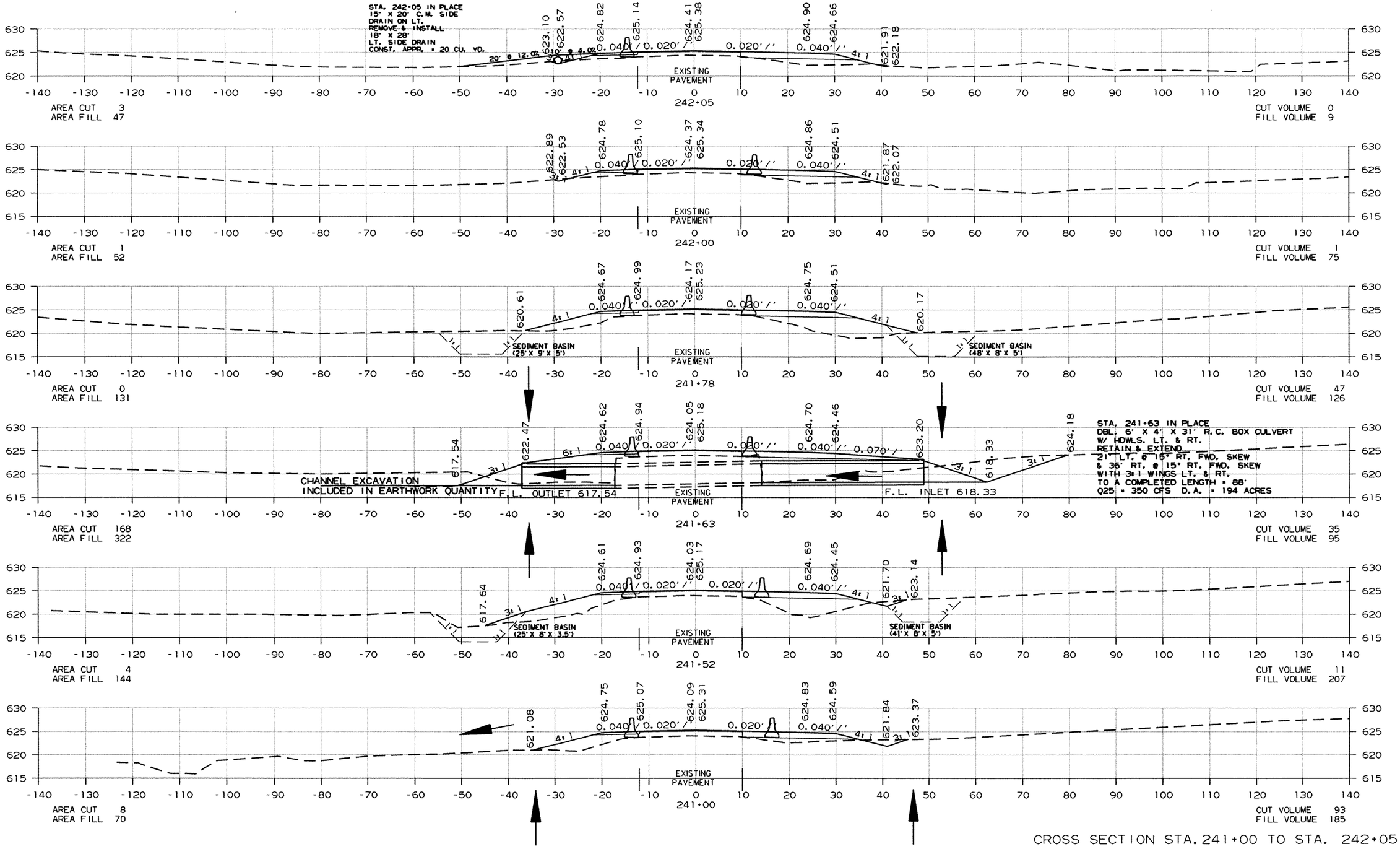


CROSS SECTION STA. 235+00 TO STA. 240+00

r050166.dgn 8/3/2011

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.		050166	90	118

(2) CROSS SECTIONS

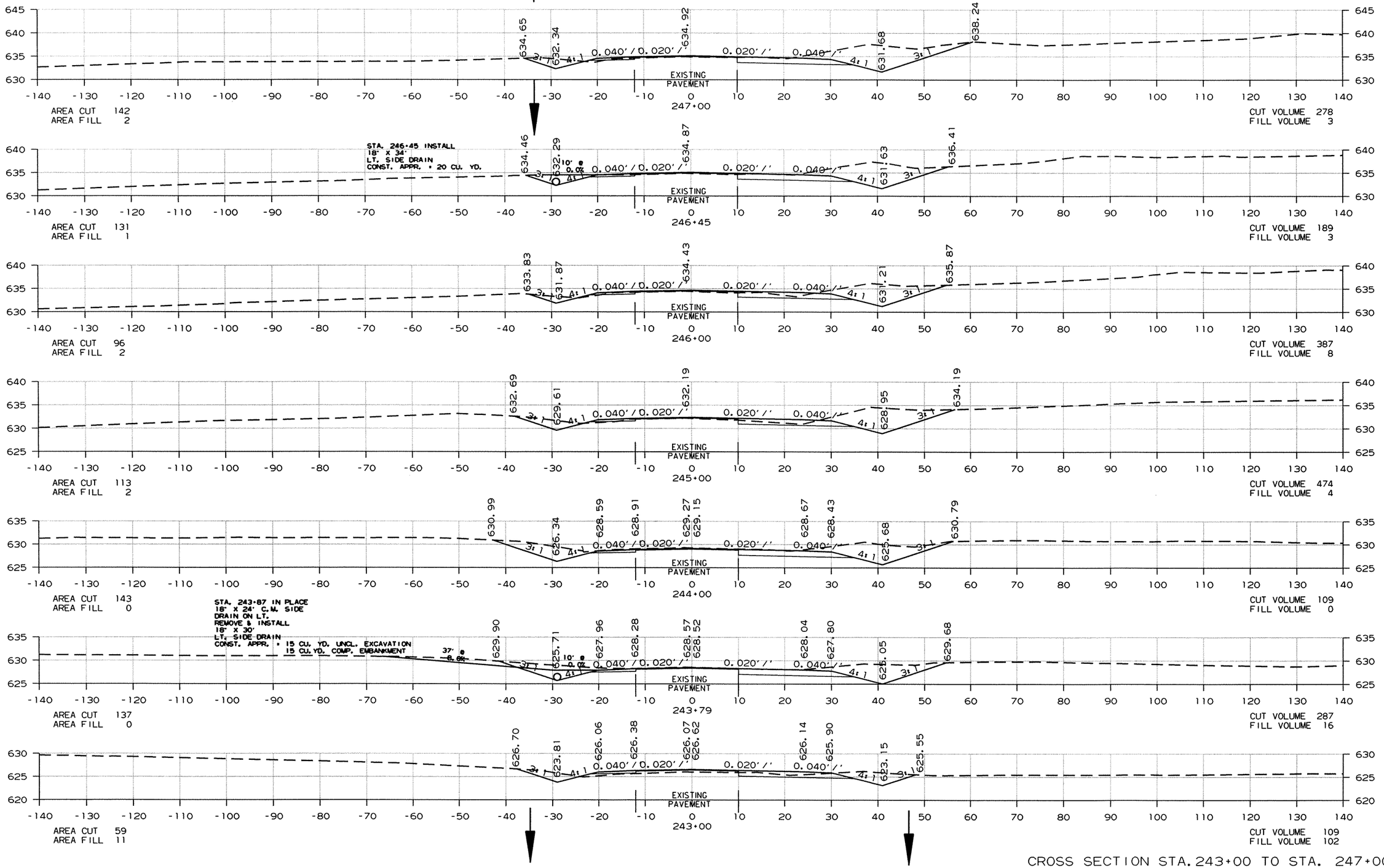


CROSS SECTION STA. 241+00 TO STA. 242+05

r050166.dgn 8/3/2011

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.		050166	91	118

(2) CROSS SECTIONS

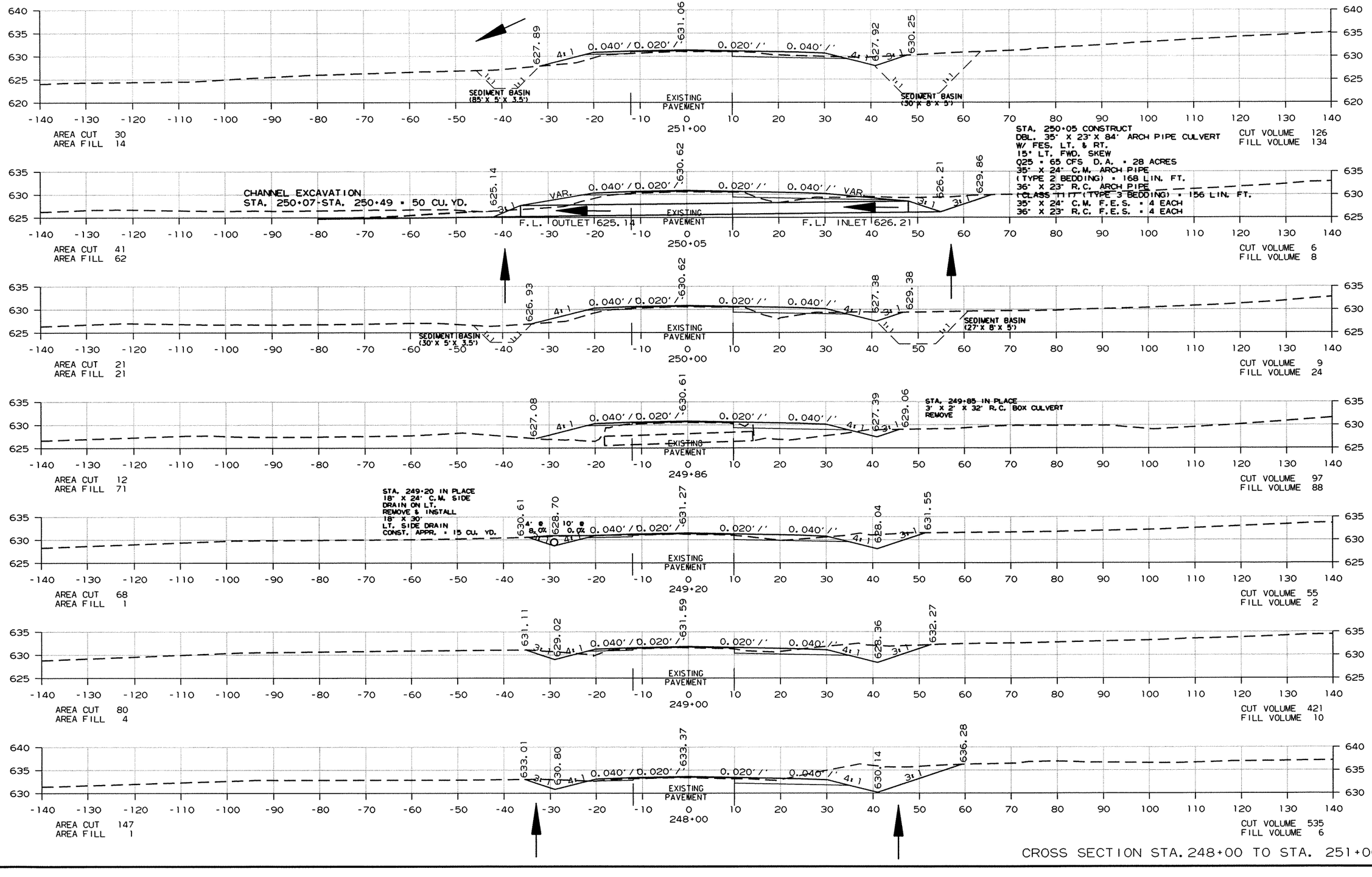


CROSS SECTION STA. 243+00 TO STA. 247+00

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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
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				JOB NO.		050166	92	118

(2) CROSS SECTIONS

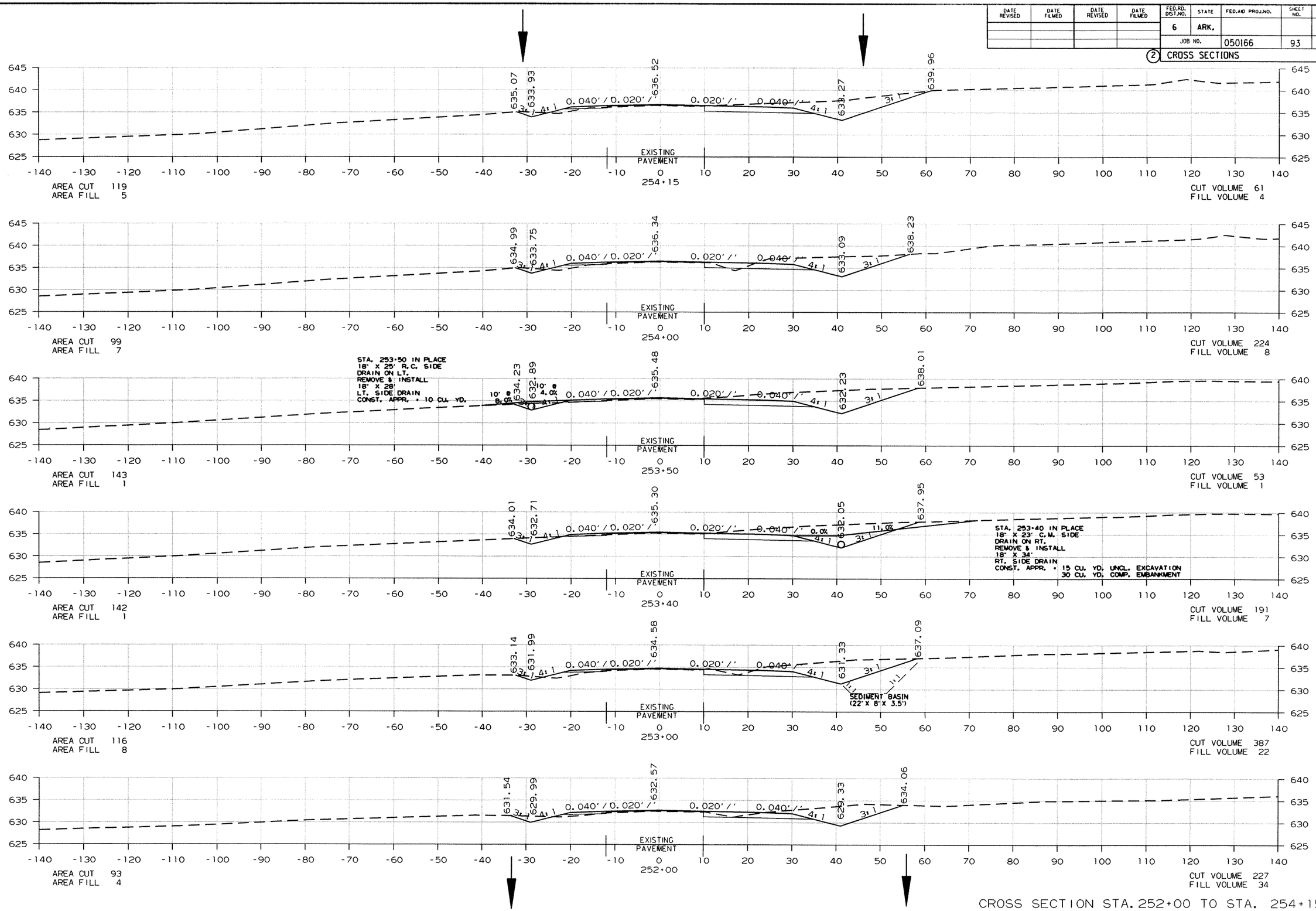


CROSS SECTION STA. 248+00 TO STA. 251+00

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	93	118

(2) CROSS SECTIONS

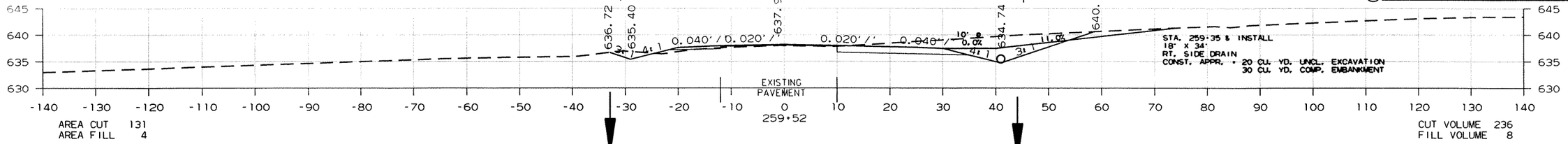


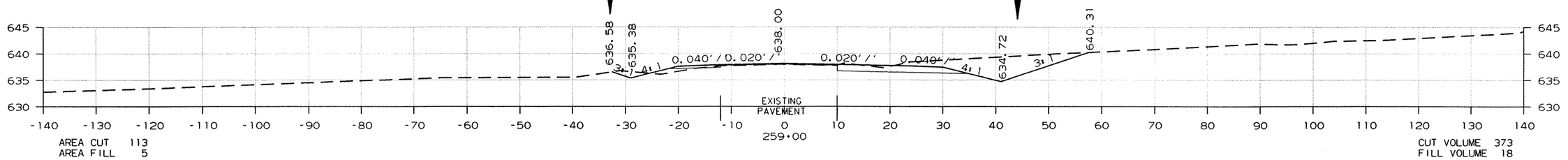
CROSS SECTION STA. 252+00 TO STA. 254+15

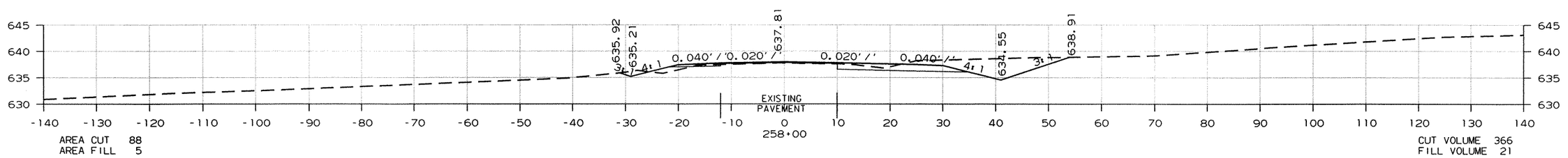
r050166.dgn 8/3/2011

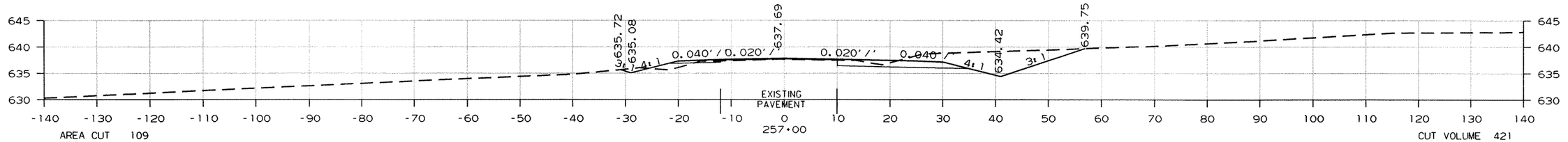
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	94	118

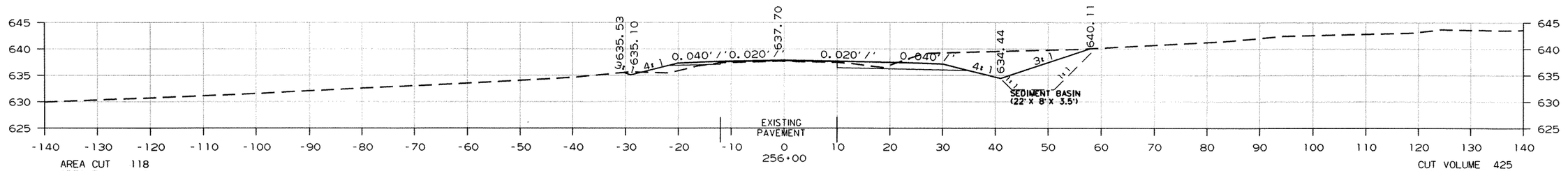
(2) CROSS SECTIONS

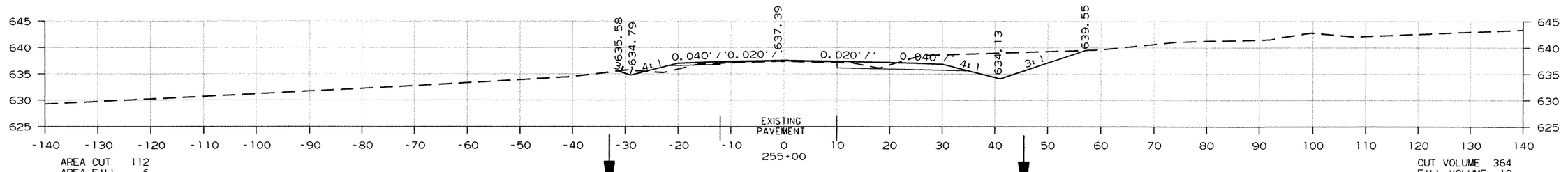










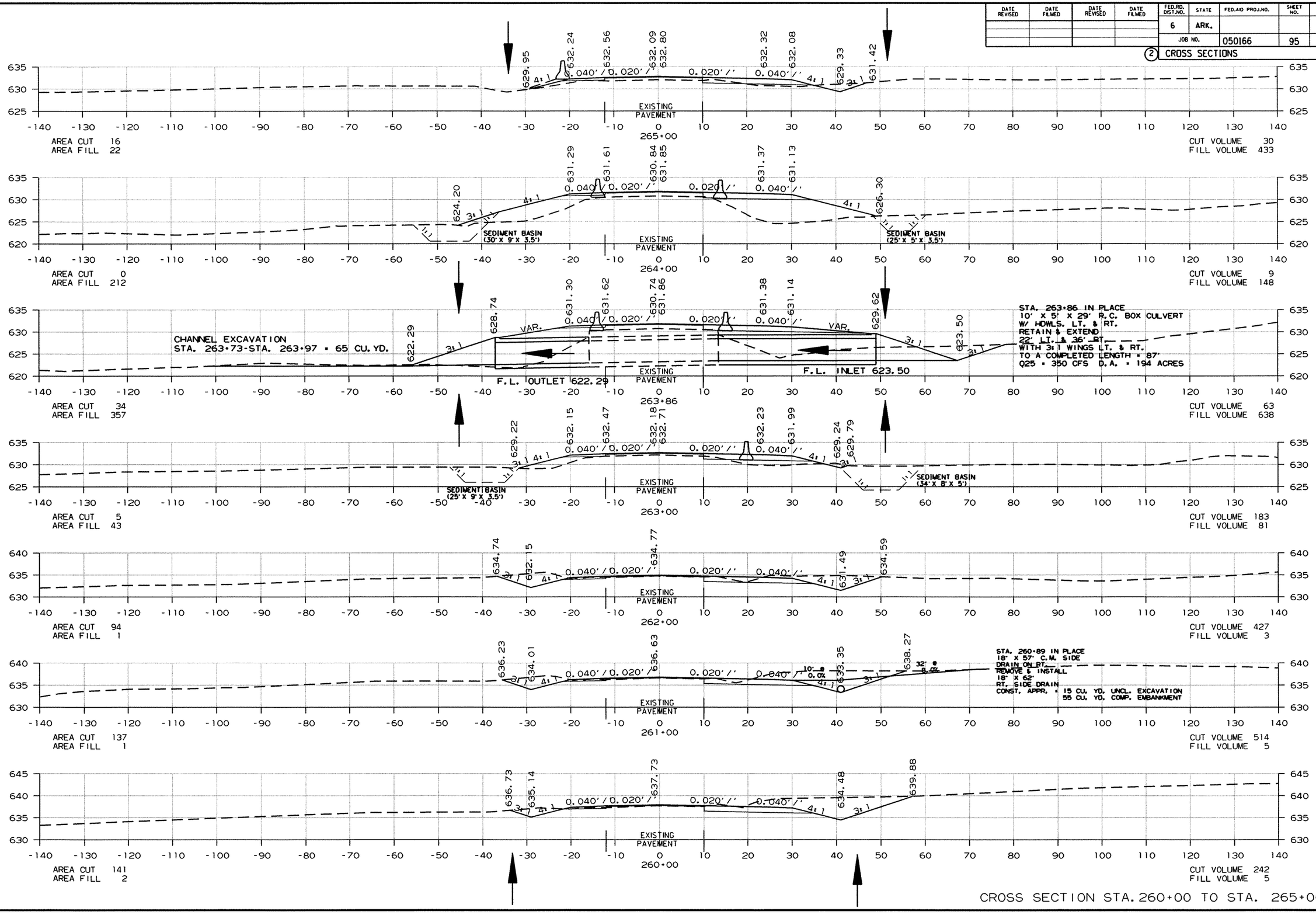


CROSS SECTION STA. 255+00 TO STA. 259+52

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
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(2) CROSS SECTIONS

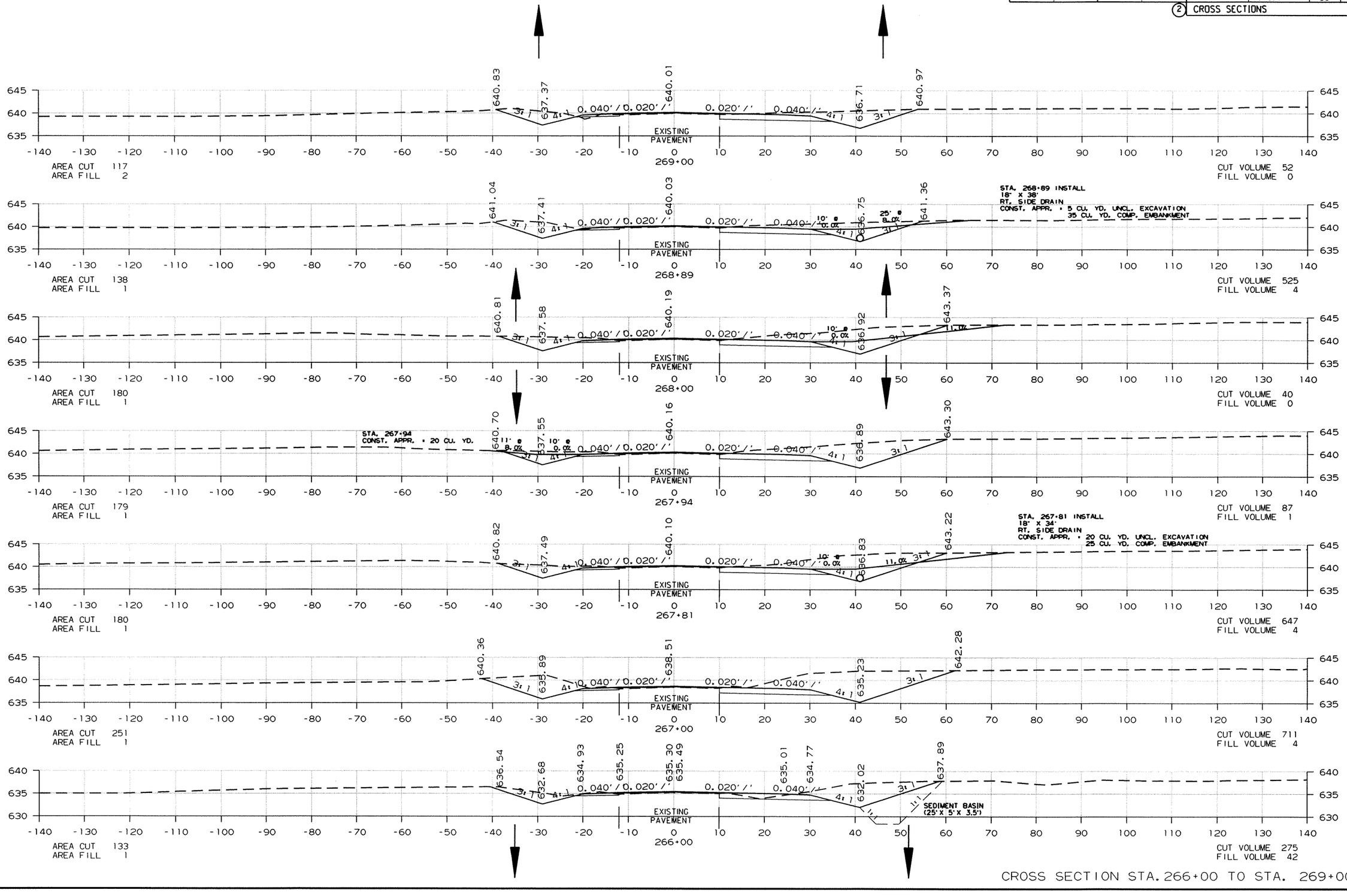


CROSS SECTION STA. 260+00 TO STA. 265+00

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	96	118

(2) CROSS SECTIONS

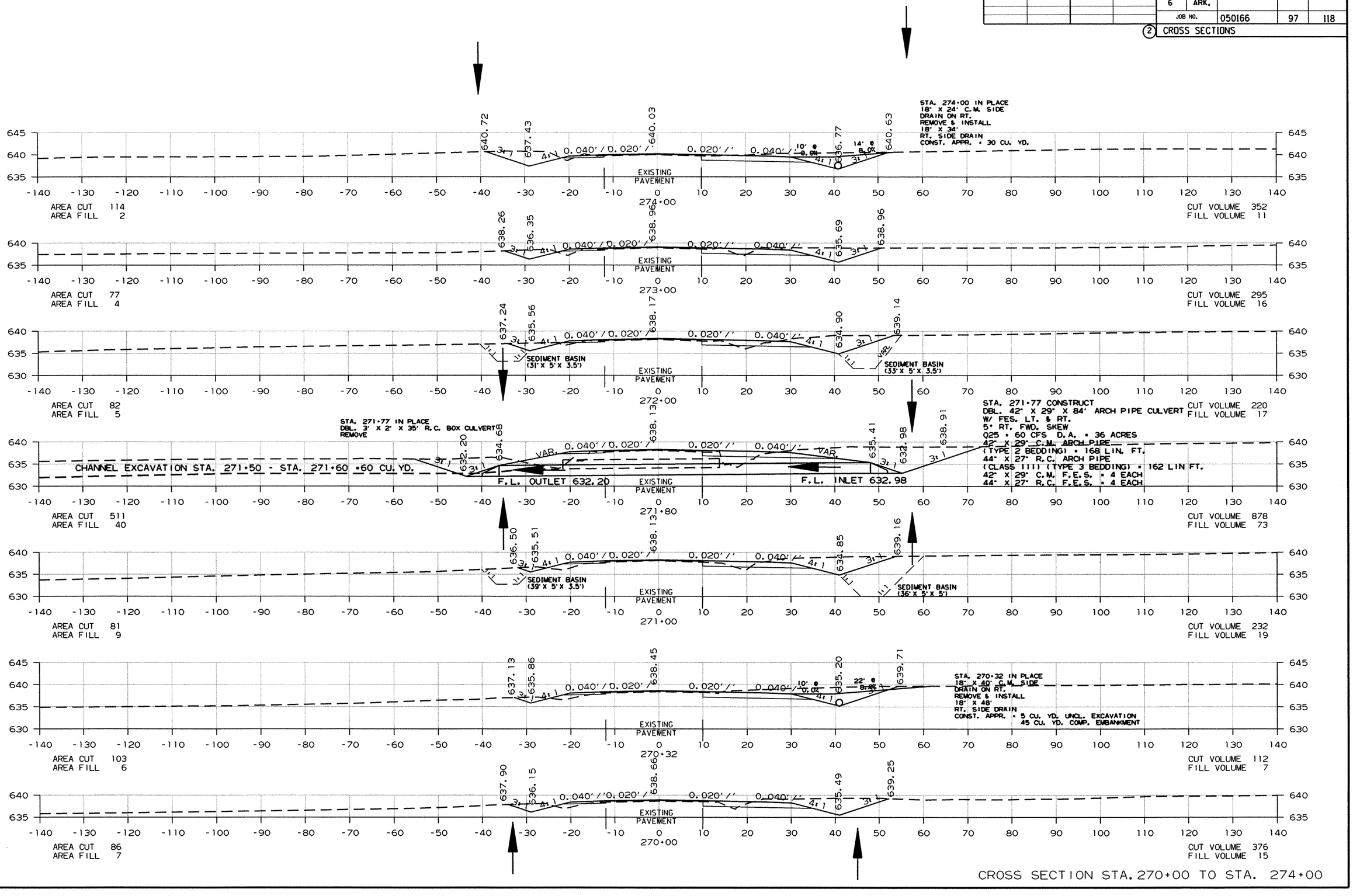


CROSS SECTION STA. 266+00 TO STA. 269+00

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	97	118

(2) CROSS SECTIONS

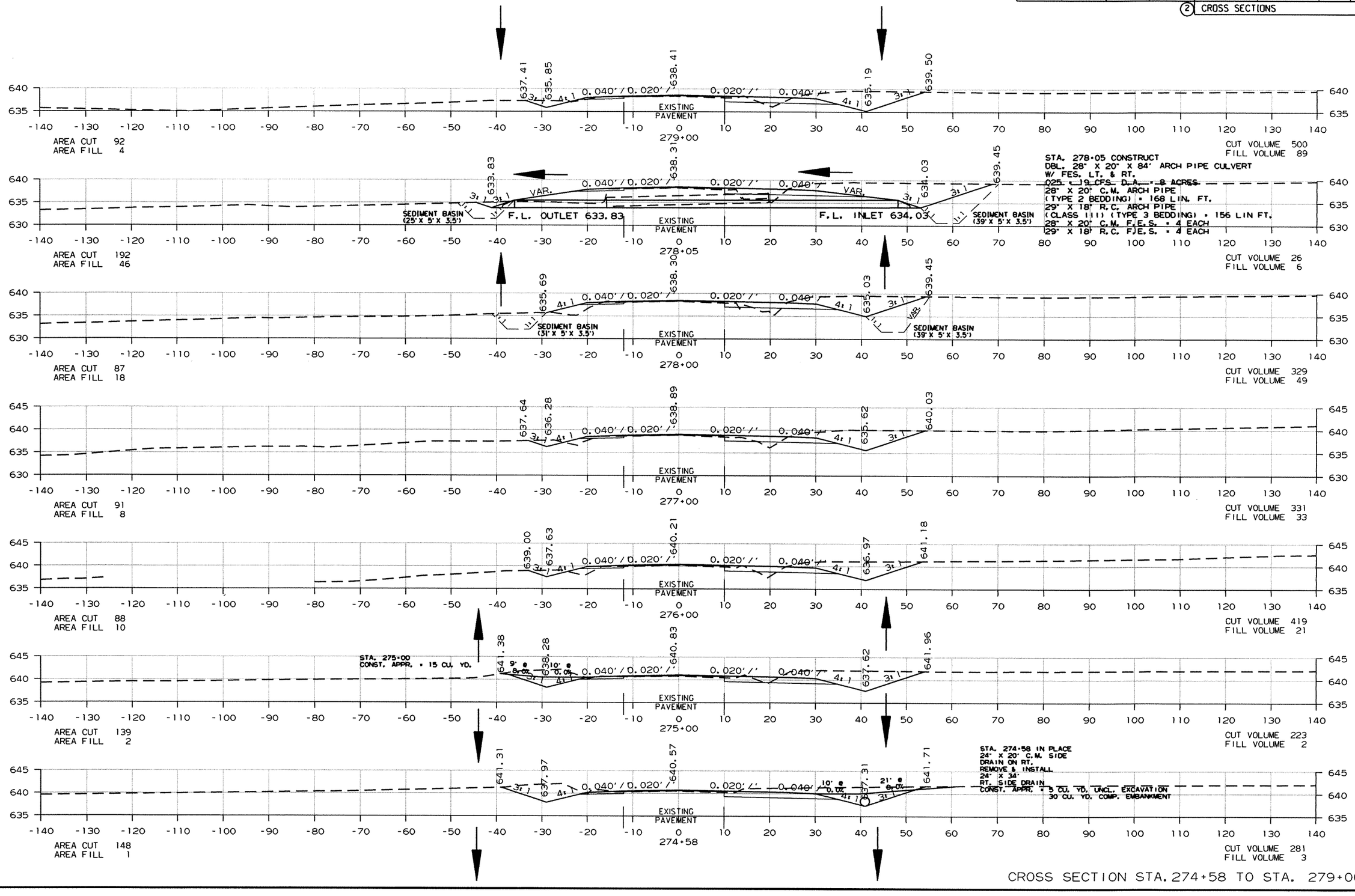


CROSS SECTION STA. 270+00 TO STA. 274+00

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	98	118

(2) CROSS SECTIONS

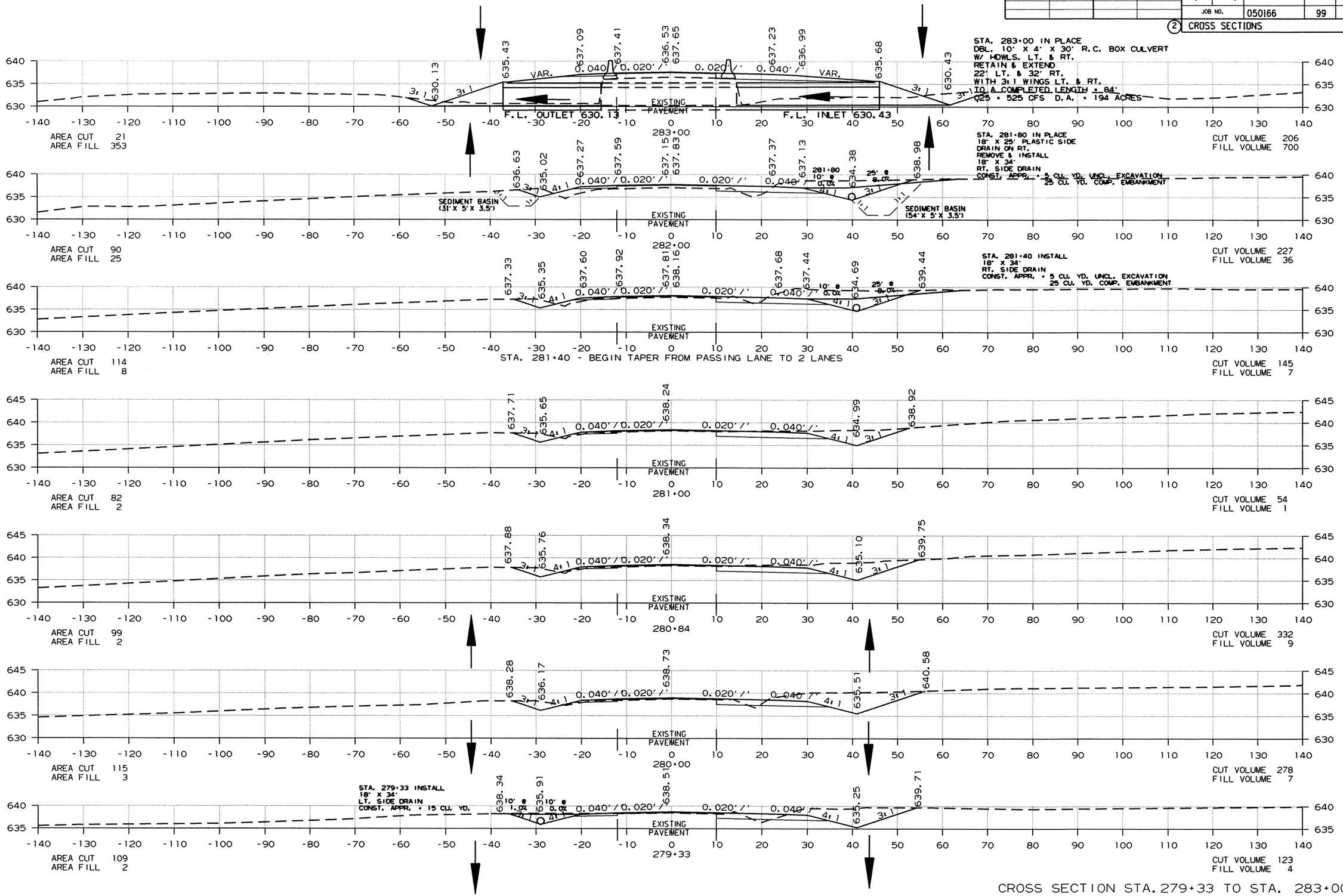


CROSS SECTION STA. 274+58 TO STA. 279+00

r050166.dgn 8/3/2011

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.		050166	99	118

(2) CROSS SECTIONS

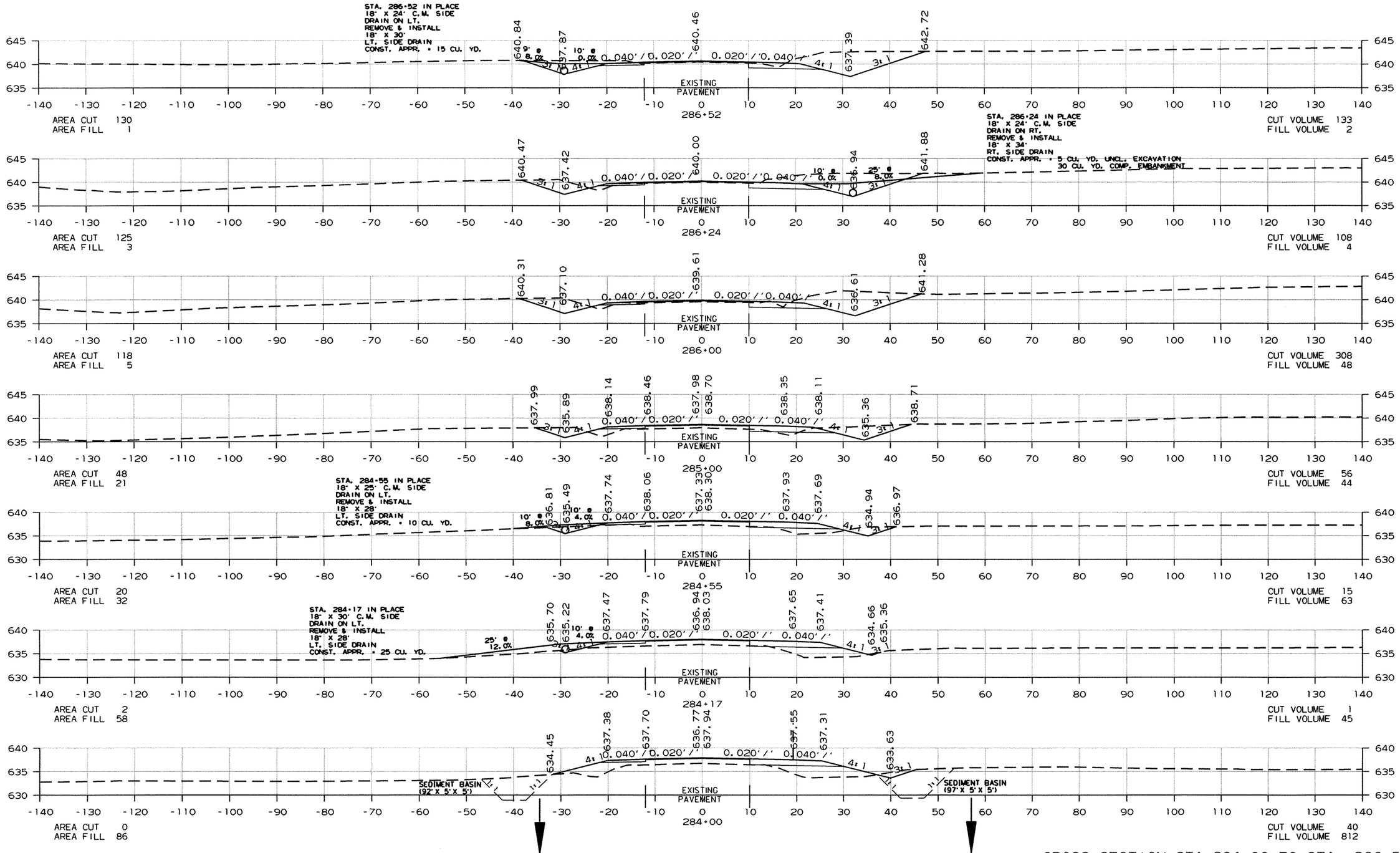


CROSS SECTION STA. 279+33 TO STA. 283+00

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	100	118

(2) CROSS SECTIONS

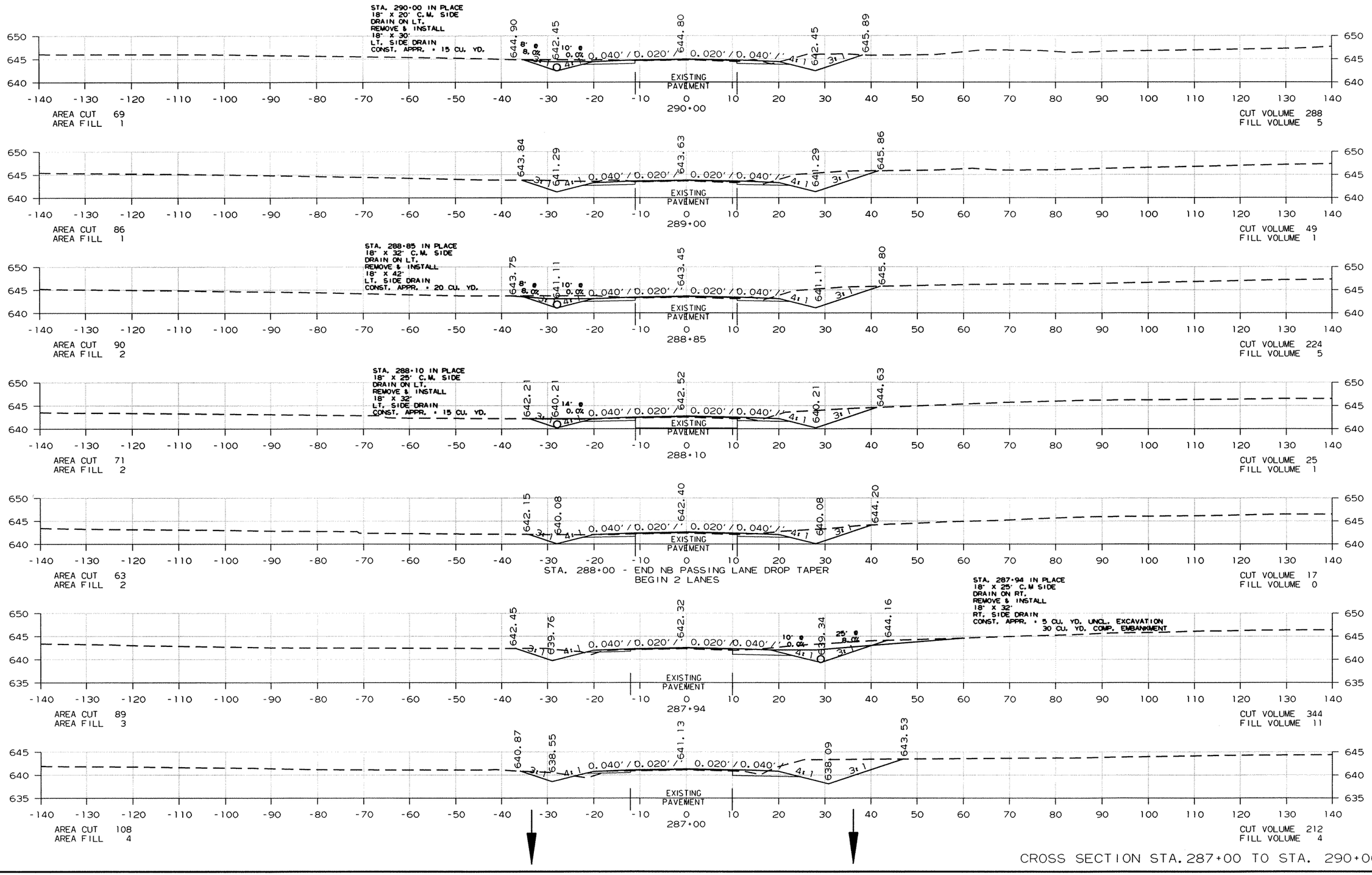


CROSS SECTION STA. 284+00 TO STA. 286+52

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	101	118

(2) CROSS SECTIONS

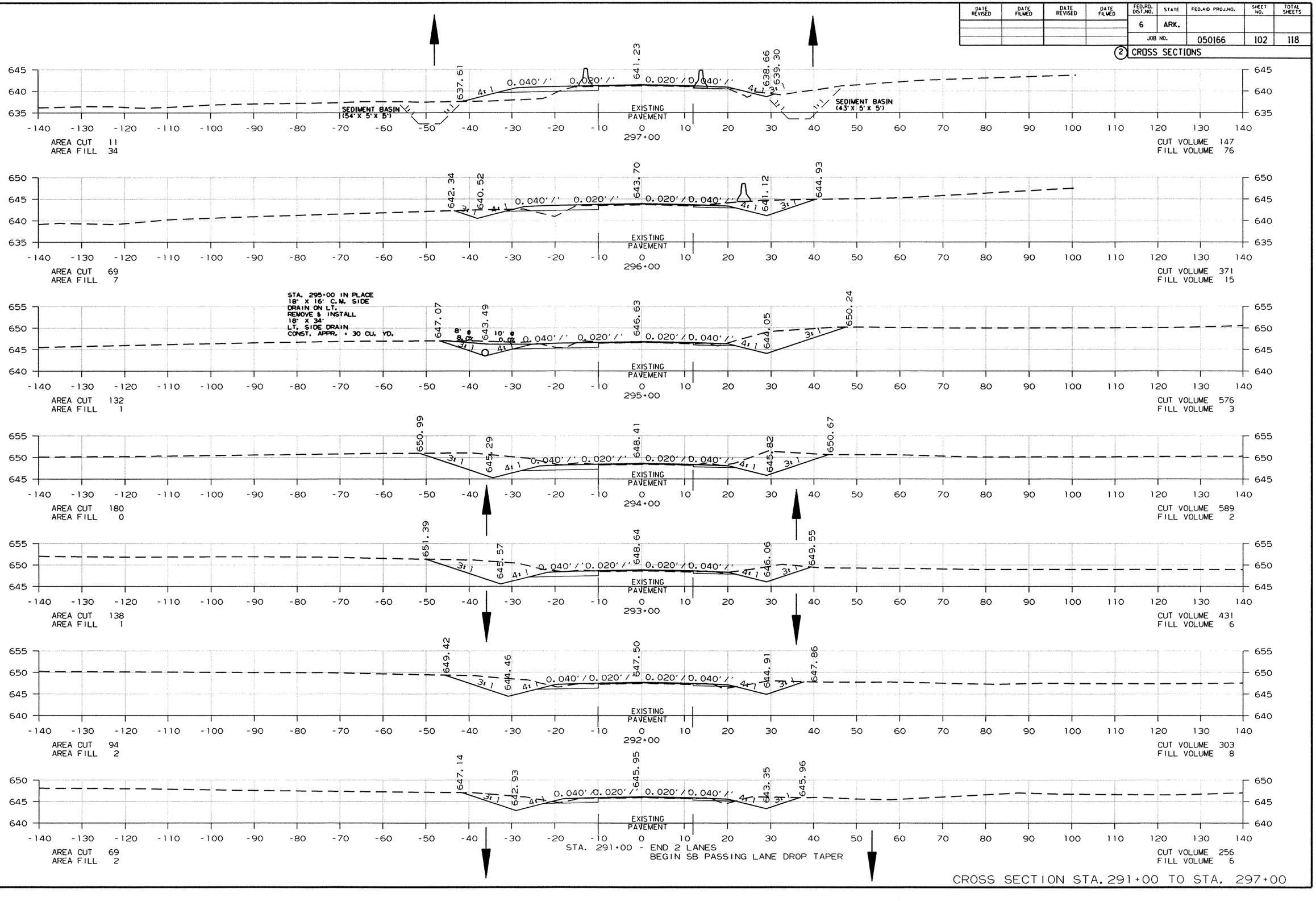


CROSS SECTION STA. 287+00 TO STA. 290+00

r050166.dgn 8/3/2011

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.		050166	102	118

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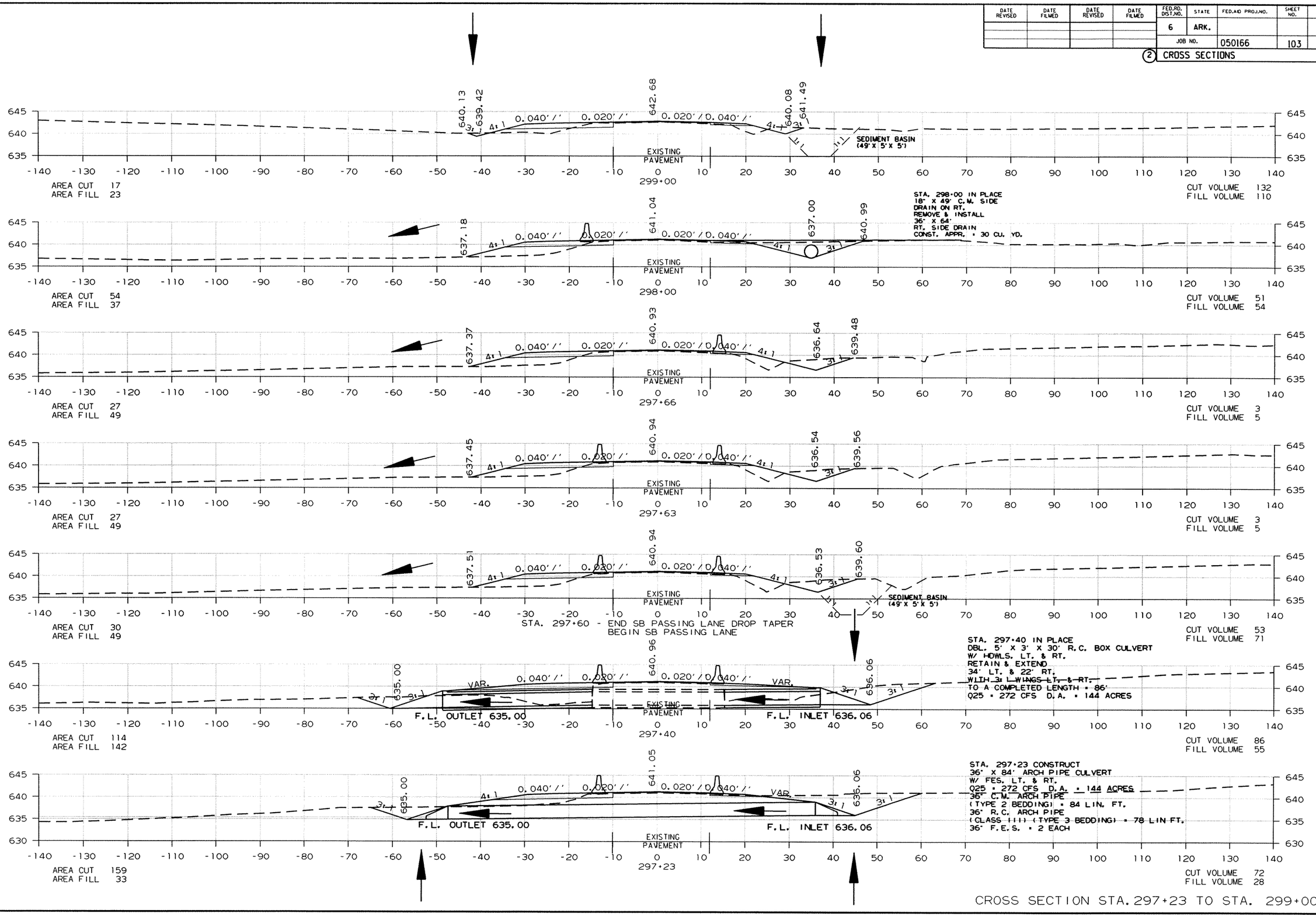


CROSS SECTION STA. 291+00 TO STA. 297+00

r050166.dgn 8/3/2011

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.		050166	103	118

(2) CROSS SECTIONS

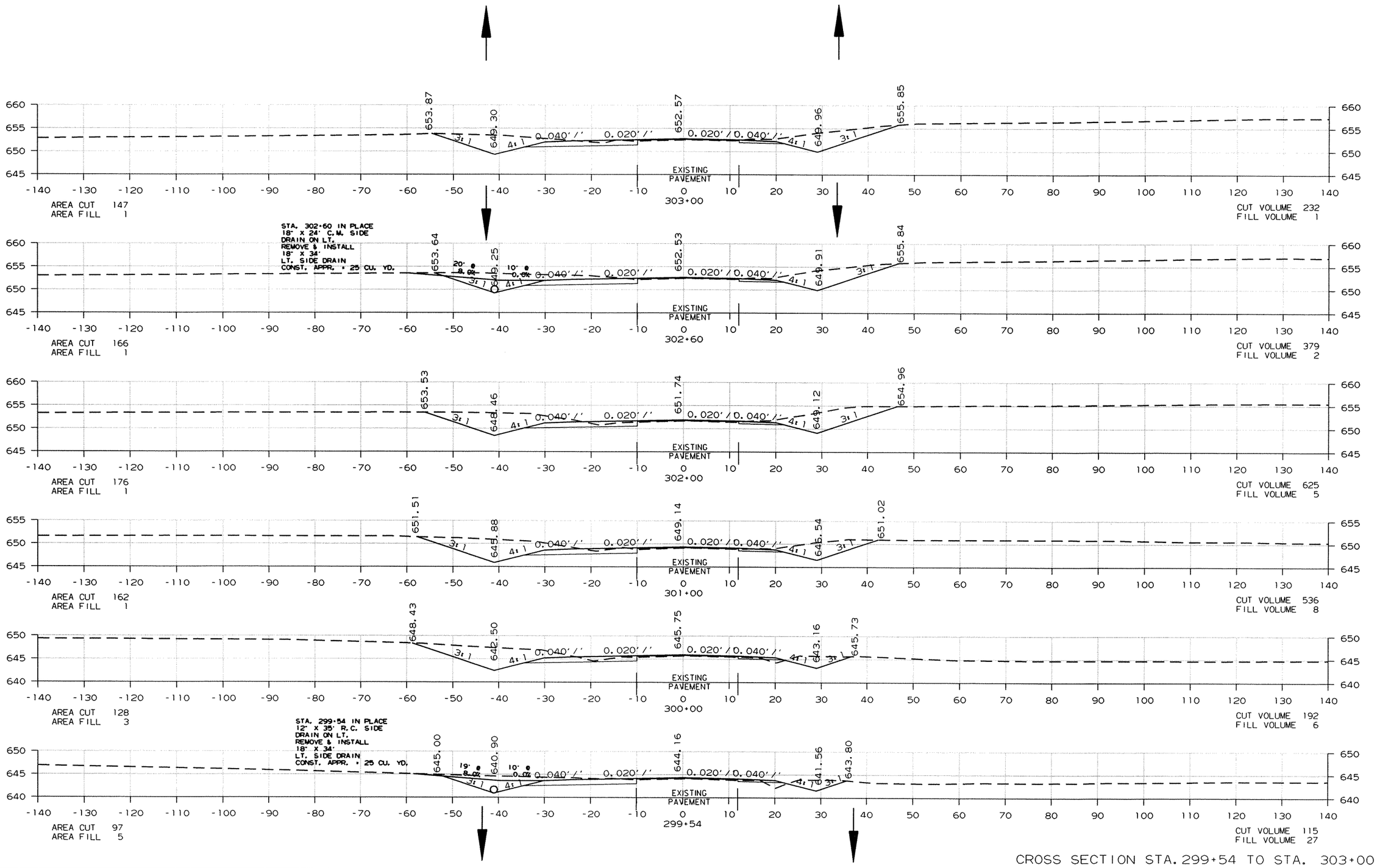


CROSS SECTION STA. 297+23 TO STA. 299+00

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	104	118

(2) CROSS SECTIONS

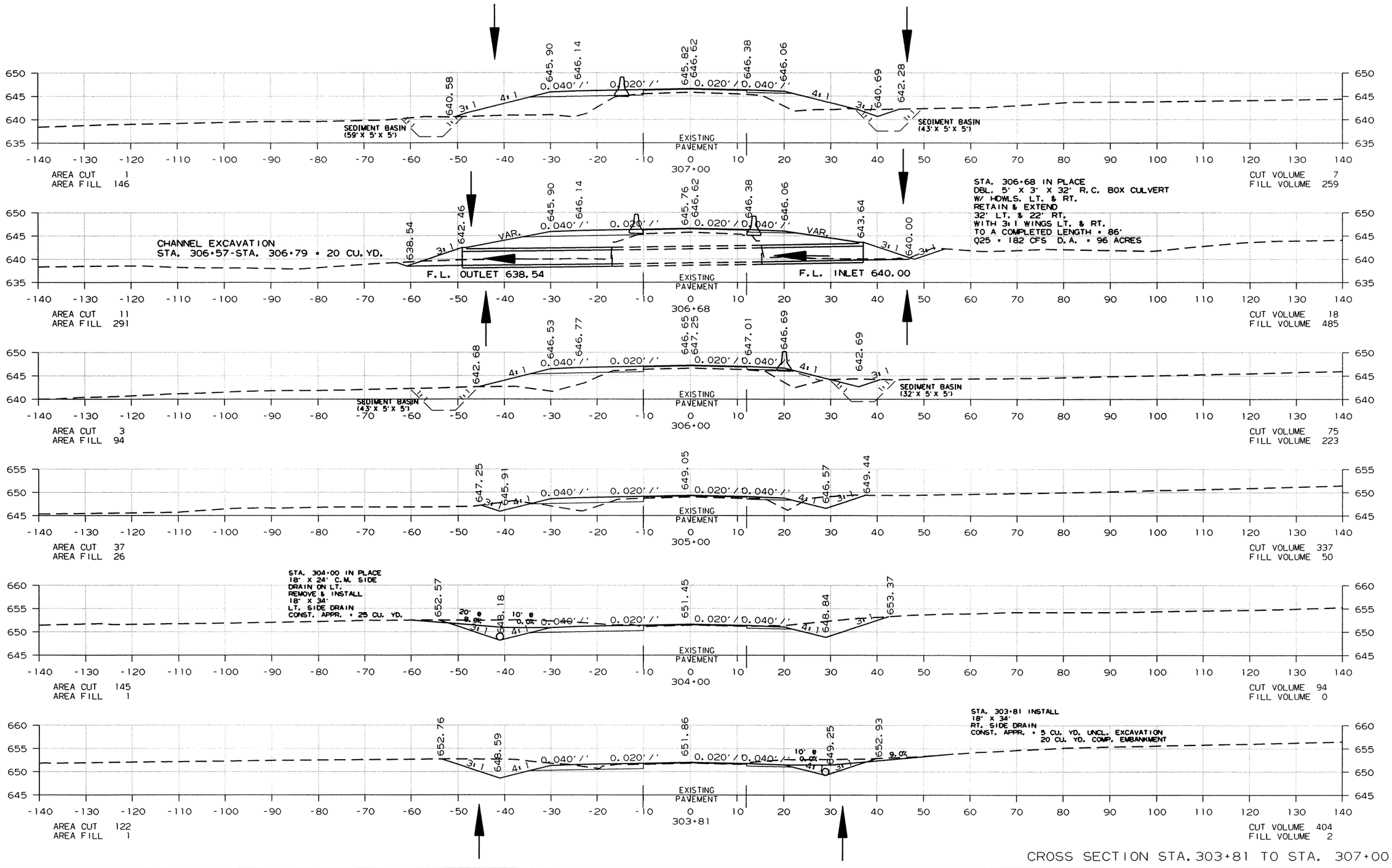


CROSS SECTION STA. 299+54 TO STA. 303+00

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	105	118

(2) CROSS SECTIONS

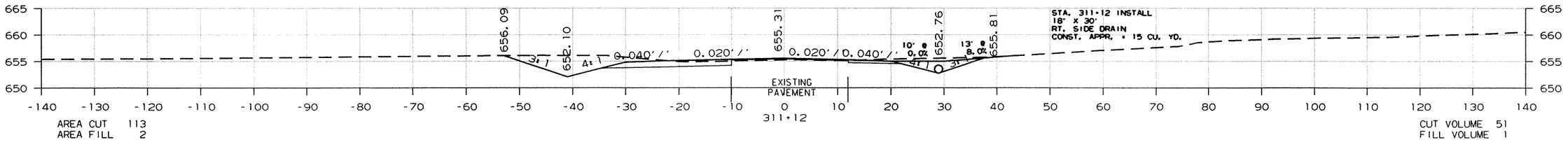


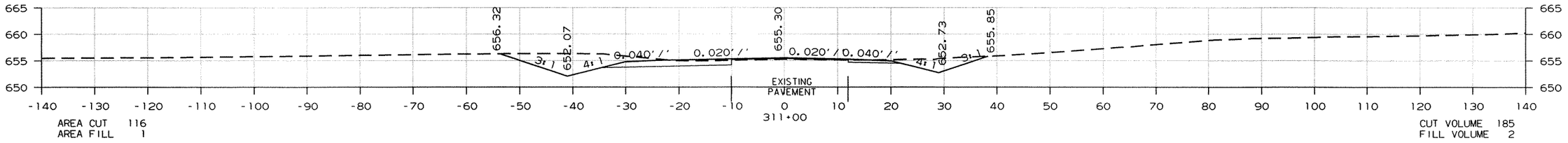
CROSS SECTION STA. 303+81 TO STA. 307+00

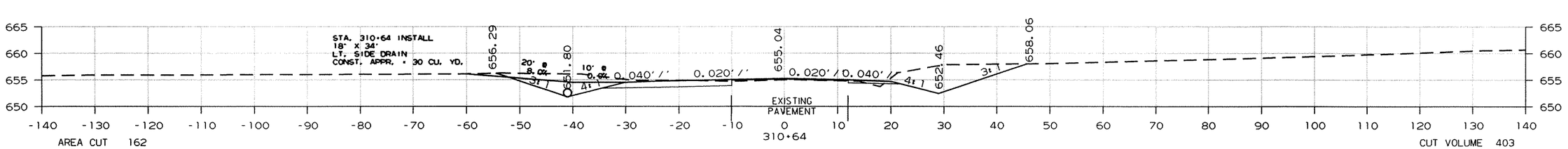
r050166.dgn 8/3/2011

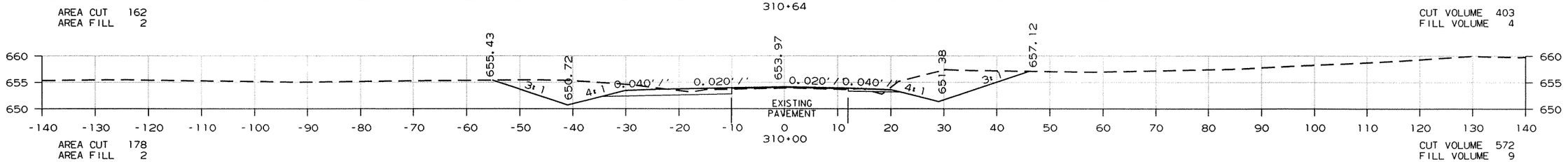
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	106	118

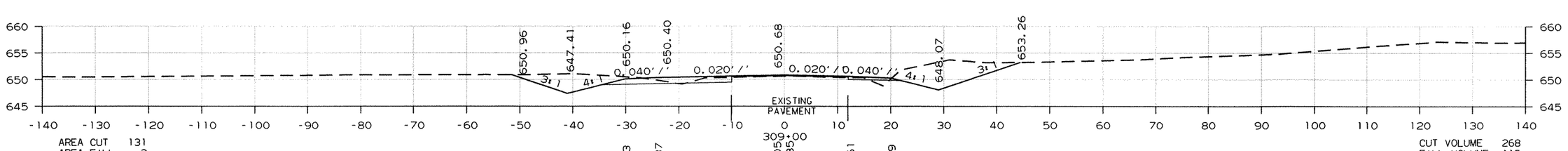
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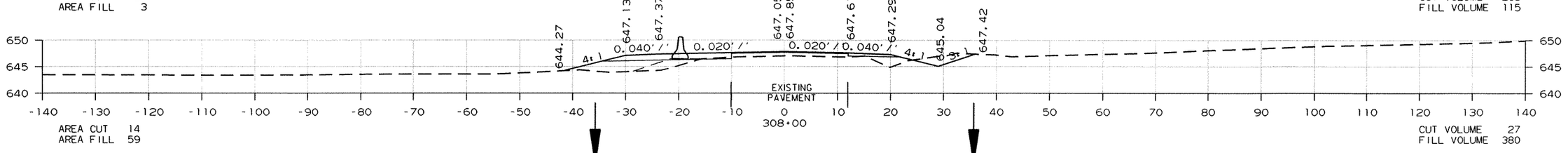










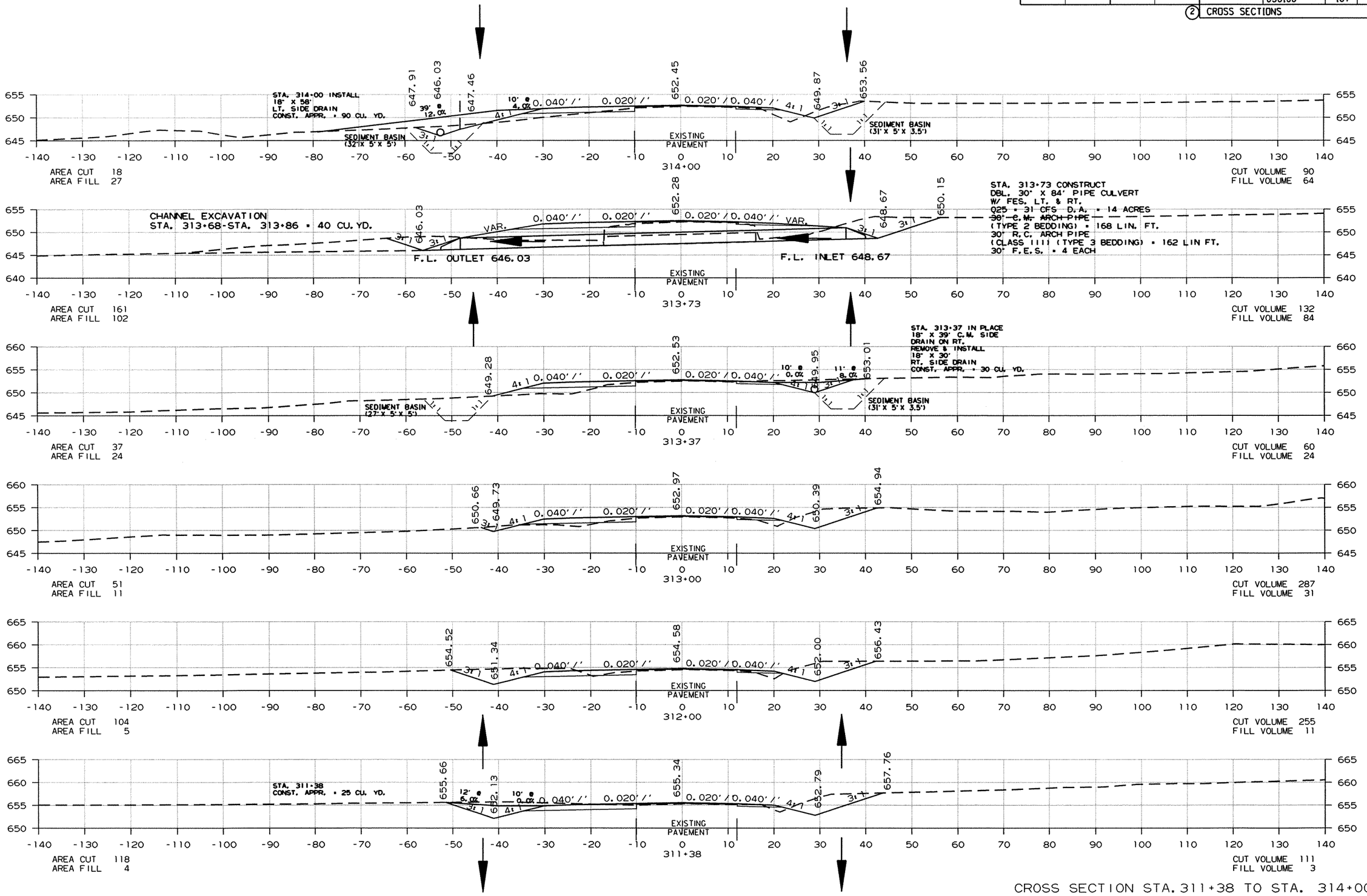


CROSS SECTION STA. 308+00 TO STA. 311+12

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	107	118

(2) CROSS SECTIONS

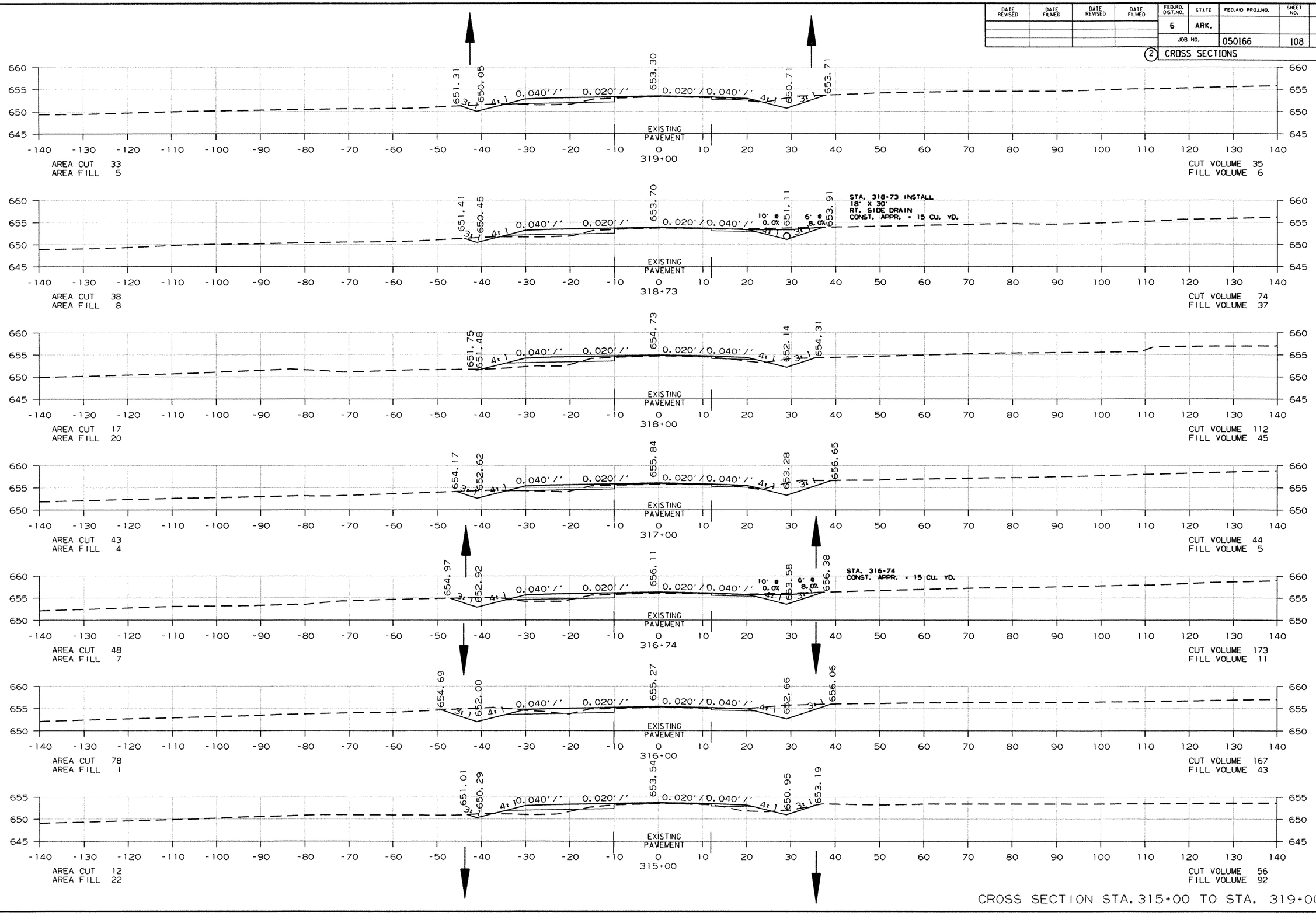


CROSS SECTION STA. 311+38 TO STA. 314+00

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	108	118

(2) CROSS SECTIONS

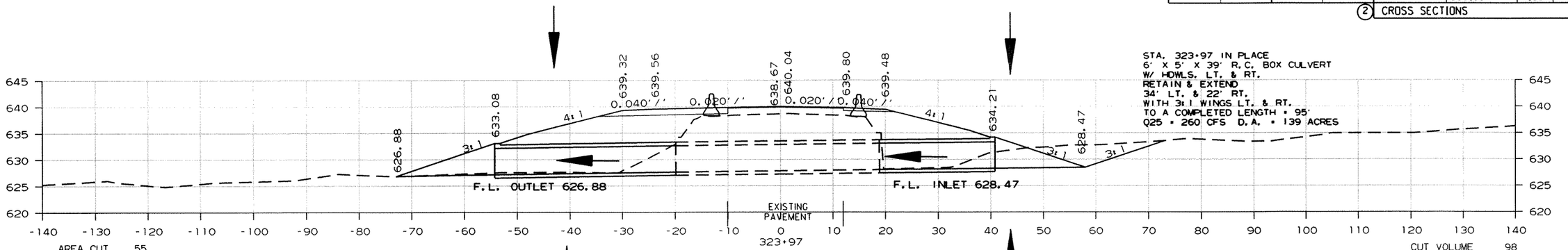


CROSS SECTION STA. 315+00 TO STA. 319+00

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	109	118

(2) CROSS SECTIONS

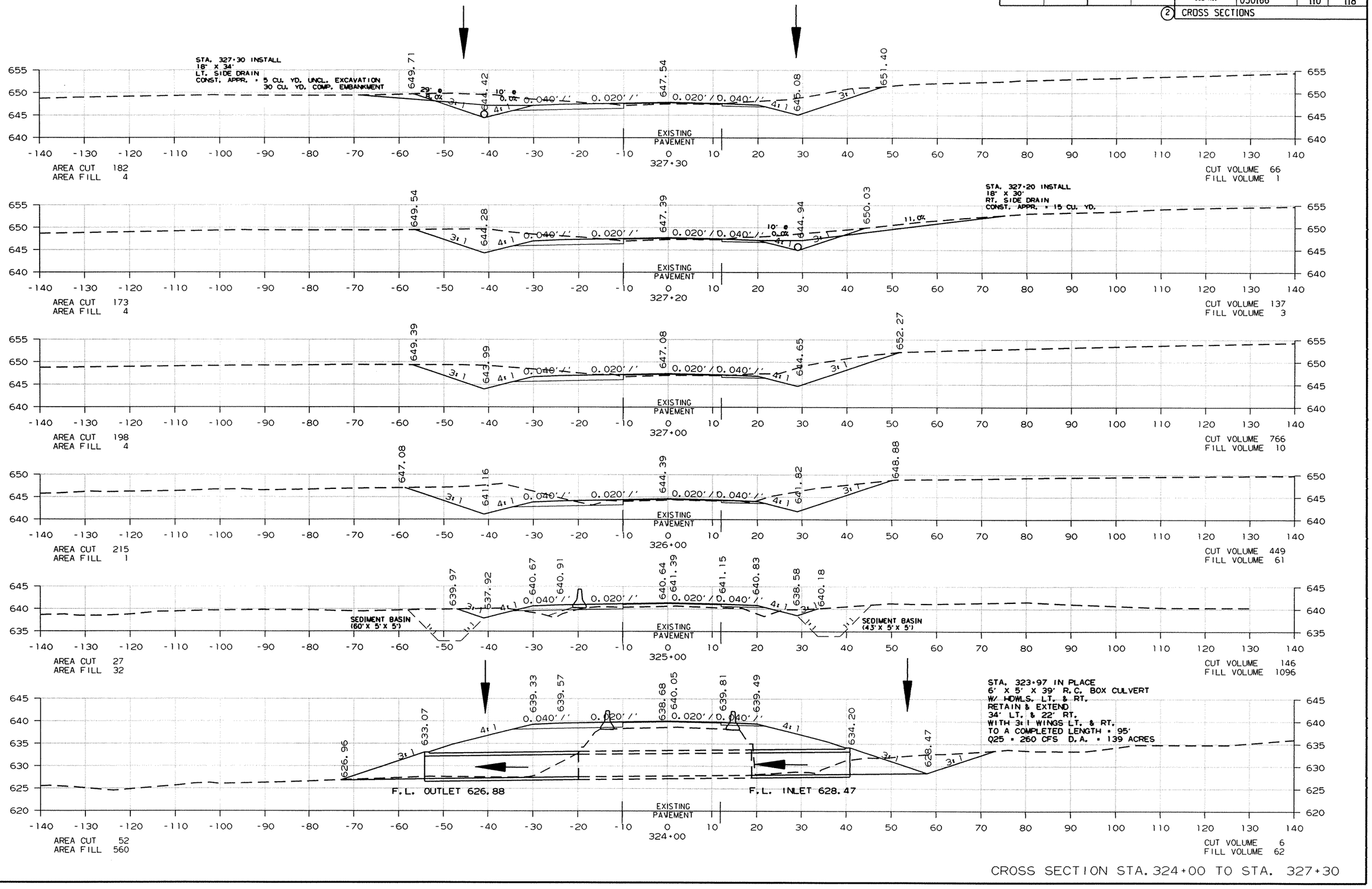


CROSS SECTION STA. 319+43 TO STA. 323+97

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	110	118

(2) CROSS SECTIONS



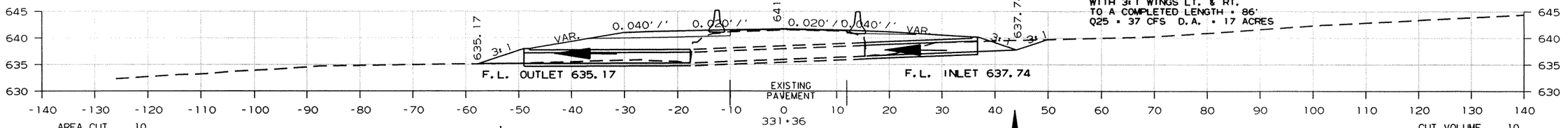
CROSS SECTION STA. 324+00 TO STA. 327+30

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	111	108

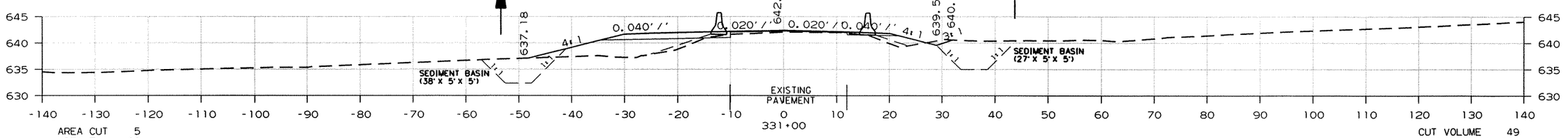
(2) CROSS SECTIONS

STA. 331+36 IN PLACE
3' X 2' X 33' R.C. BOX CULVERT
W/ HDWLS. LT. & RT.
RETAIN & EXTEND
32' LT. & 21' RT.
WITH 3:1 WINGS LT. & RT.
TO A COMPLETED LENGTH = 86'
Q25 = 37 CFS D.A. = 17 ACRES



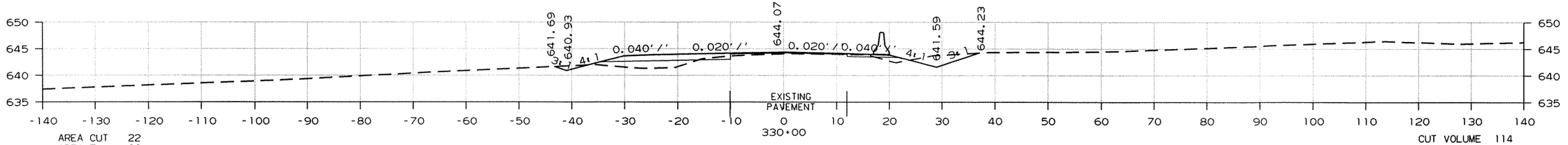
AREA CUT 10
AREA FILL 224

CUT VOLUME 10
FILL VOLUME 205



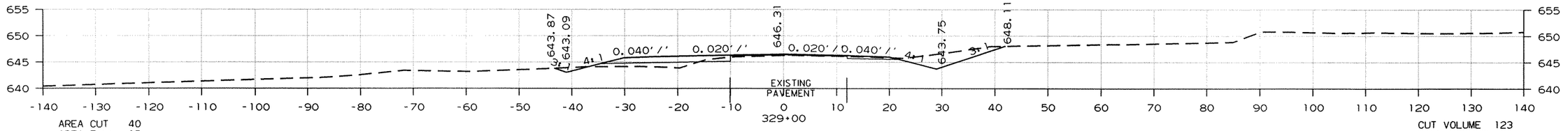
AREA CUT 5
AREA FILL 83

CUT VOLUME 49
FILL VOLUME 203



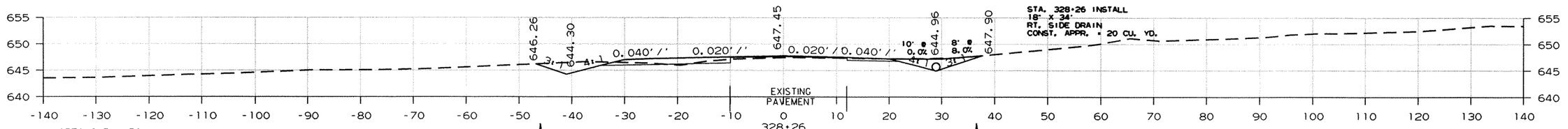
AREA CUT 22
AREA FILL 26

CUT VOLUME 114
FILL VOLUME 76



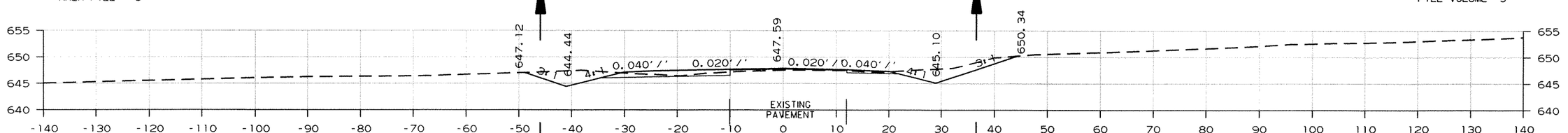
AREA CUT 40
AREA FILL 15

CUT VOLUME 123
FILL VOLUME 25



AREA CUT 50
AREA FILL 3

CUT VOLUME 61
FILL VOLUME 3



AREA CUT 77
AREA FILL 3

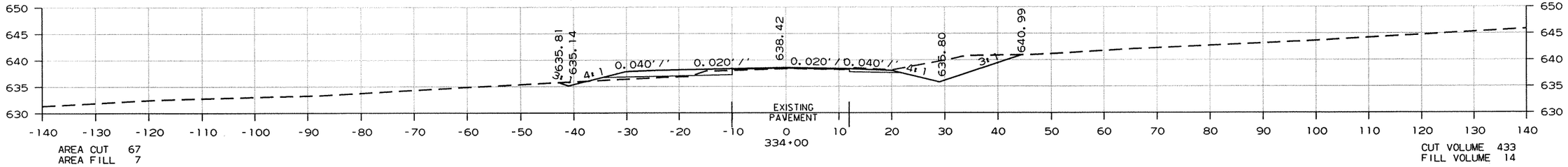
CUT VOLUME 337
FILL VOLUME 8

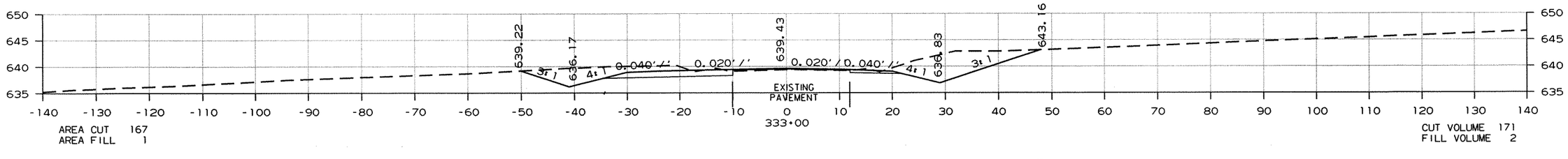
CROSS SECTION STA. 328+00 TO STA. 331+36

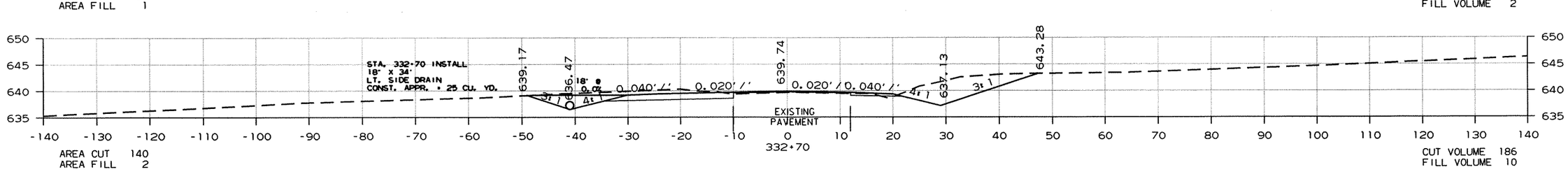
r050166.dgn 8/3/2011

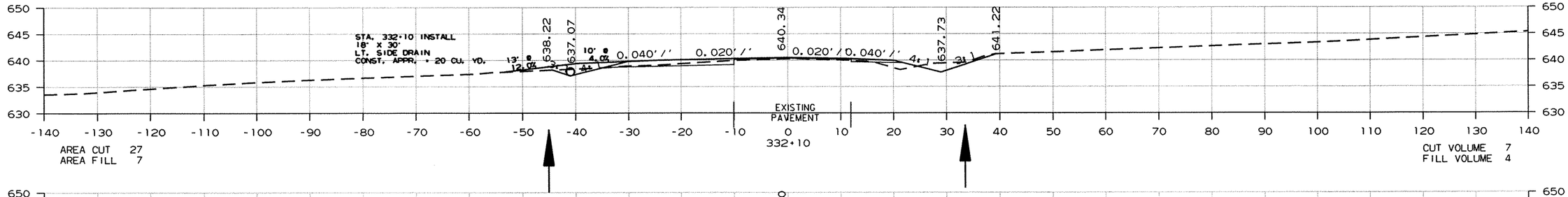
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	112	118

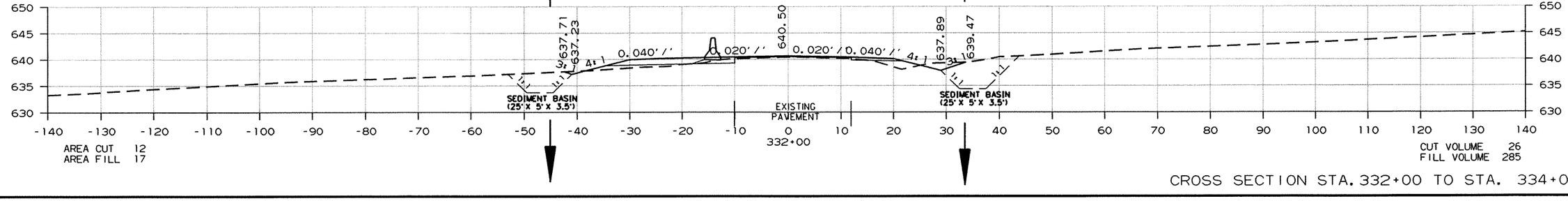
(2) CROSS SECTIONS









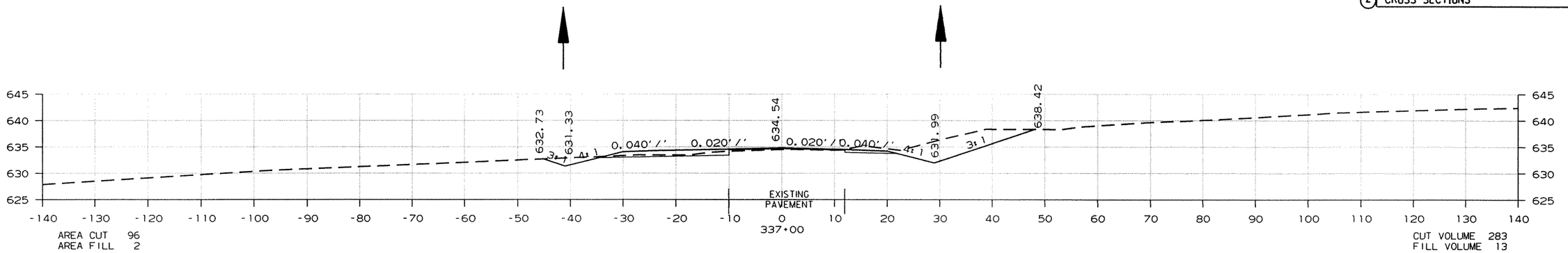


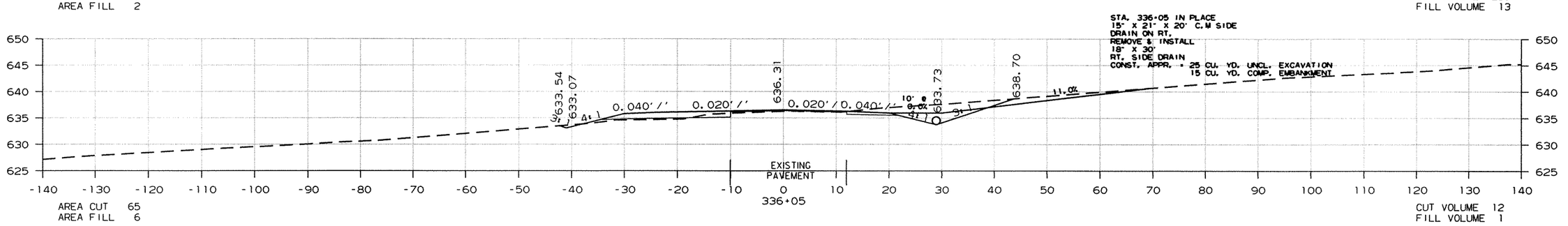
CROSS SECTION STA. 332+00 TO STA. 334+00

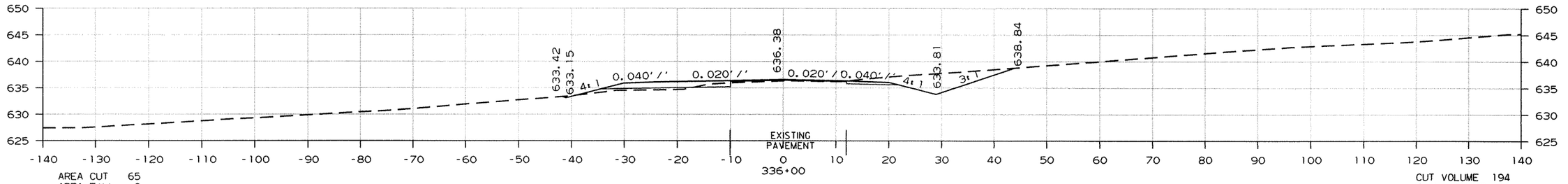
r050166.dgn 8/3/2011

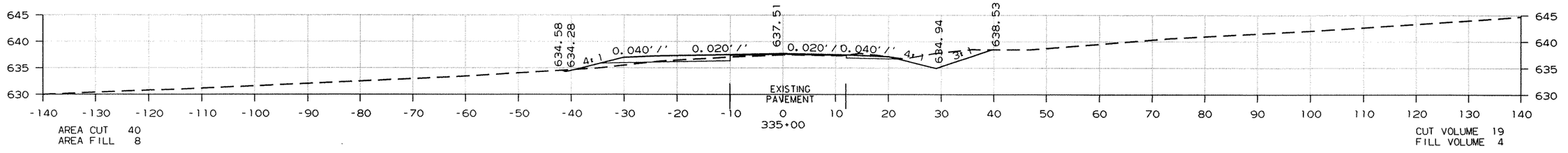
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	113	118

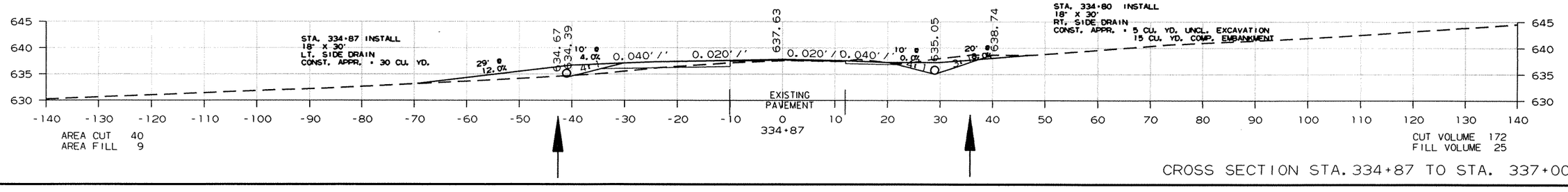
(2) CROSS SECTIONS









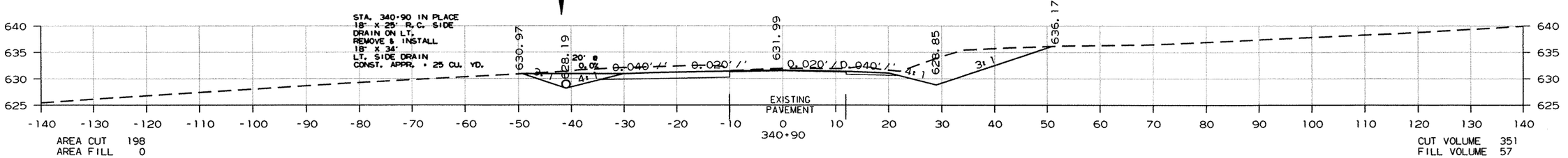


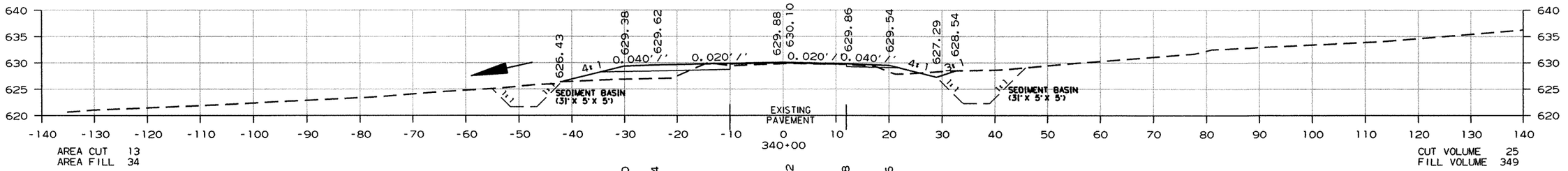
CROSS SECTION STA. 334+87 TO STA. 337+00

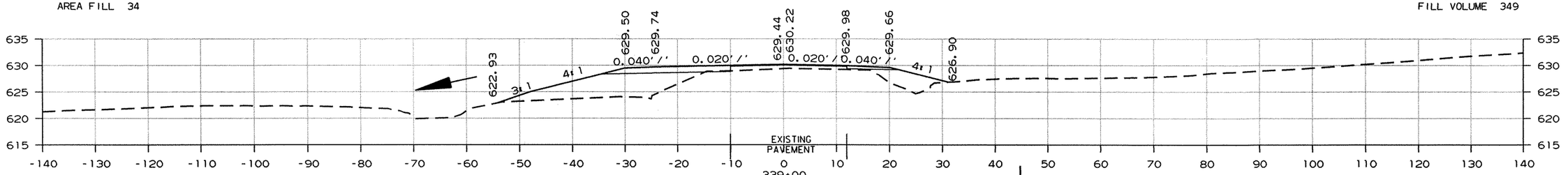
r050166.dgn 8/3/2011

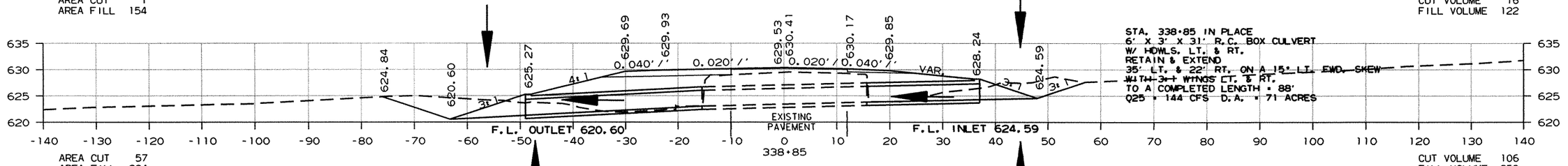
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	114	118

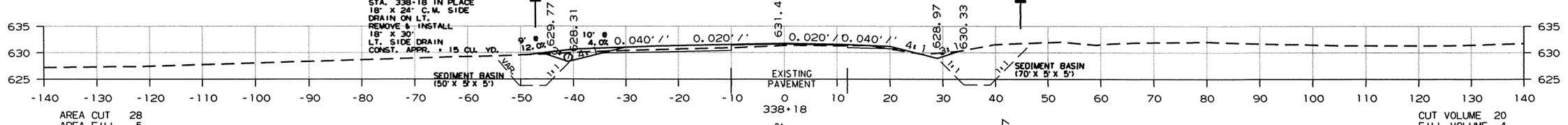
(2) CROSS SECTIONS

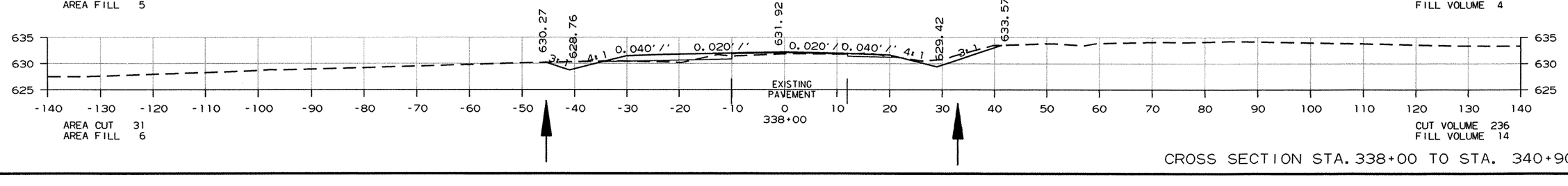










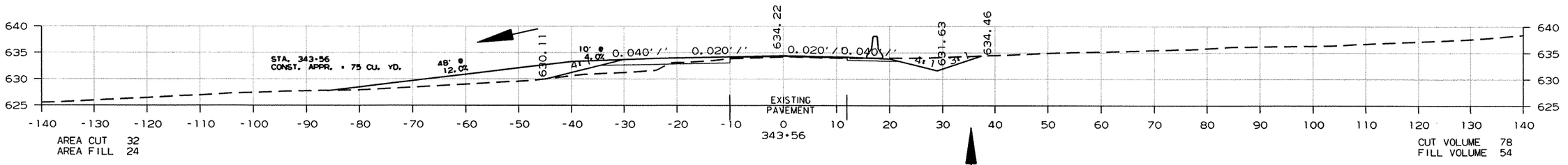


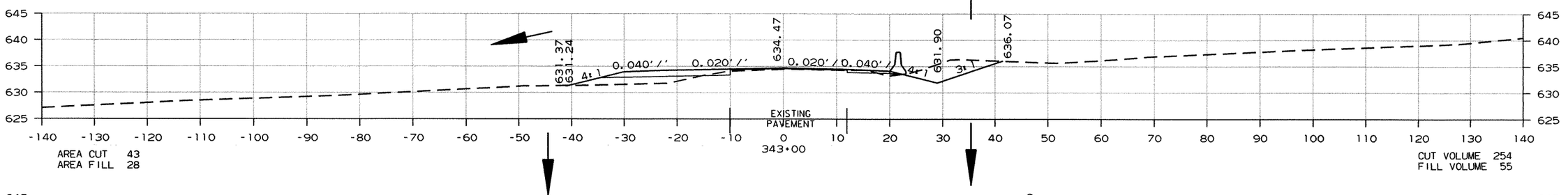
CROSS SECTION STA. 338+00 TO STA. 340+90

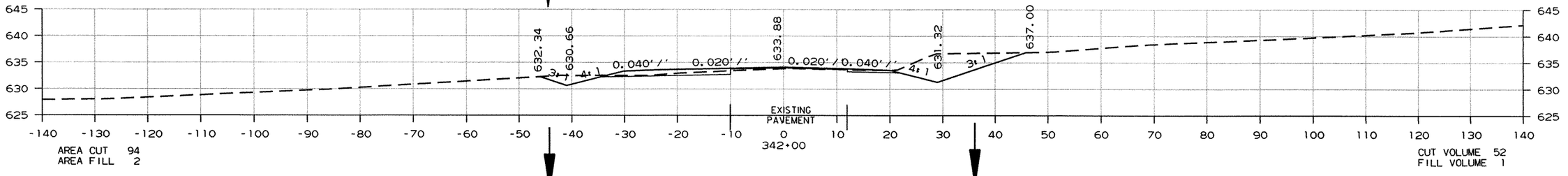
r050166.dgn 8/3/2011

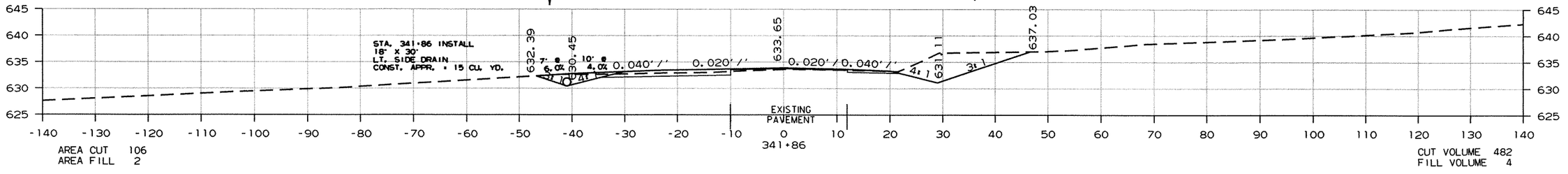
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	115	118

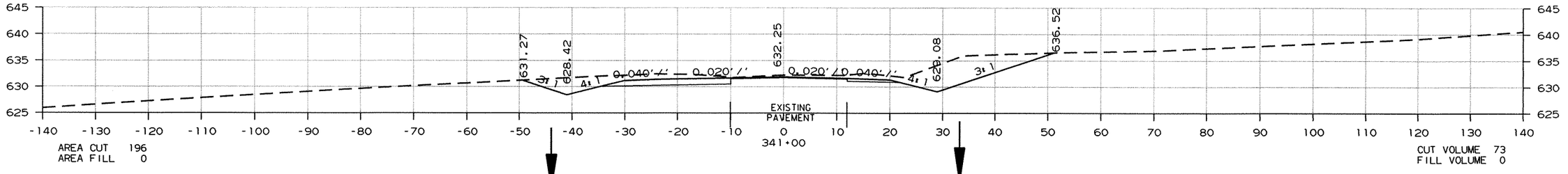
(2) CROSS SECTIONS









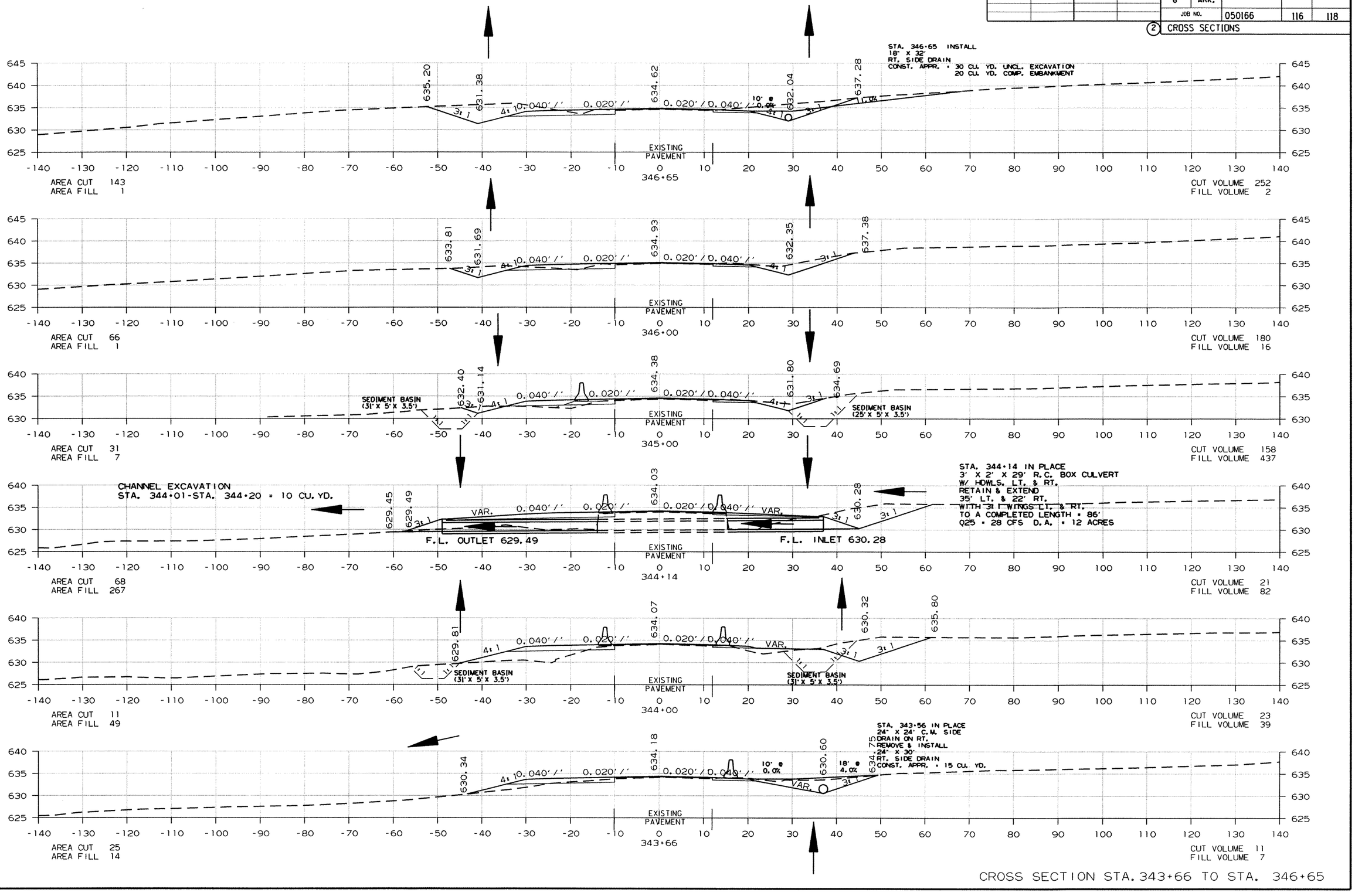


CROSS SECTION STA. 341+00 TO STA. 343+56

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	116	118

(2) CROSS SECTIONS

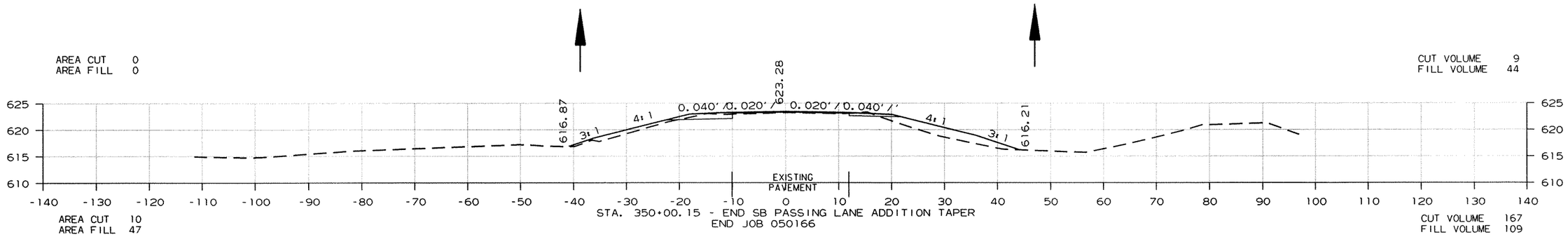


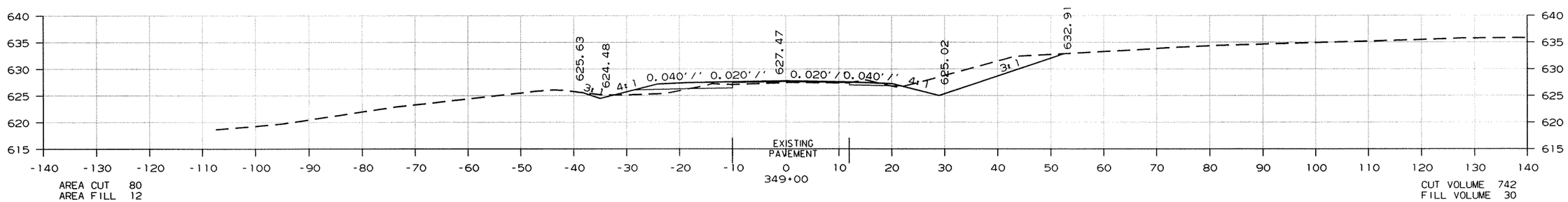
CROSS SECTION STA. 343+66 TO STA. 346+65

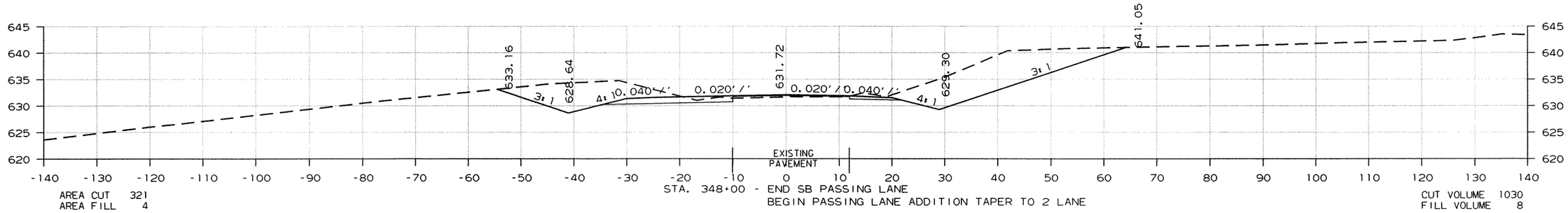
r050166.dgn 8/3/2011

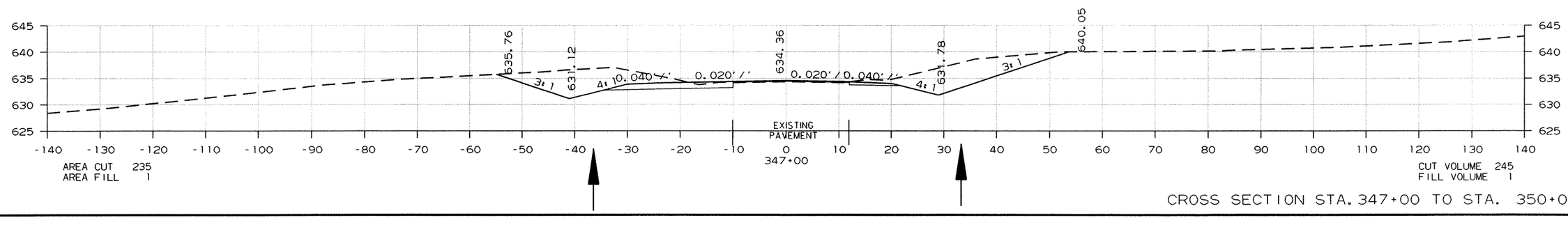
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	117	118

(2) CROSS SECTIONS







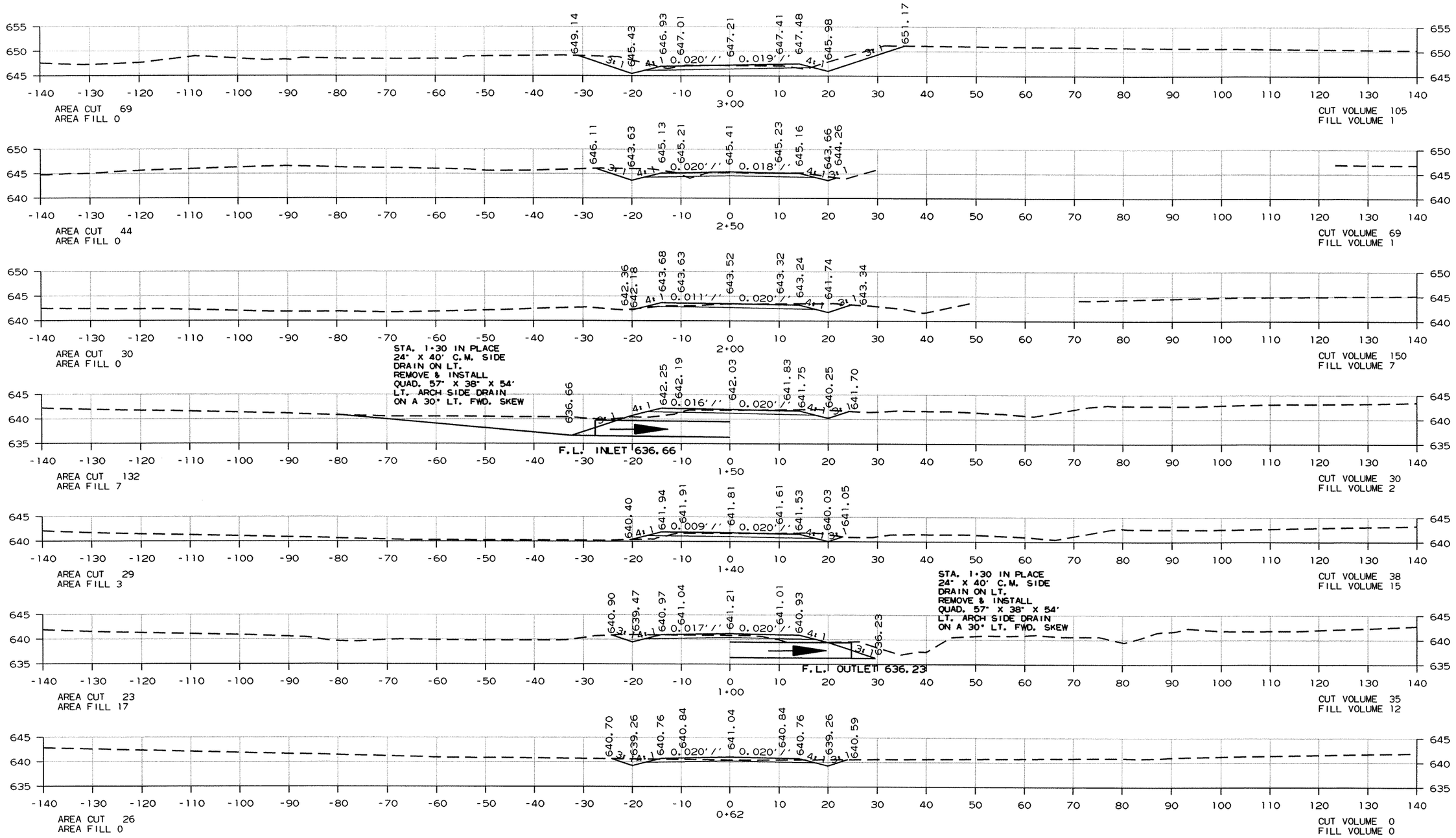


CROSS SECTION STA. 347+00 TO STA. 350+00

r050166.dgn 8/3/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050166	118	118

(2) CROSS SECTIONS - JEFFERSON CIRCLE



CROSS SECTION STA. 0+62 TO STA. 3+00

r050166.dgn 8/3/2011