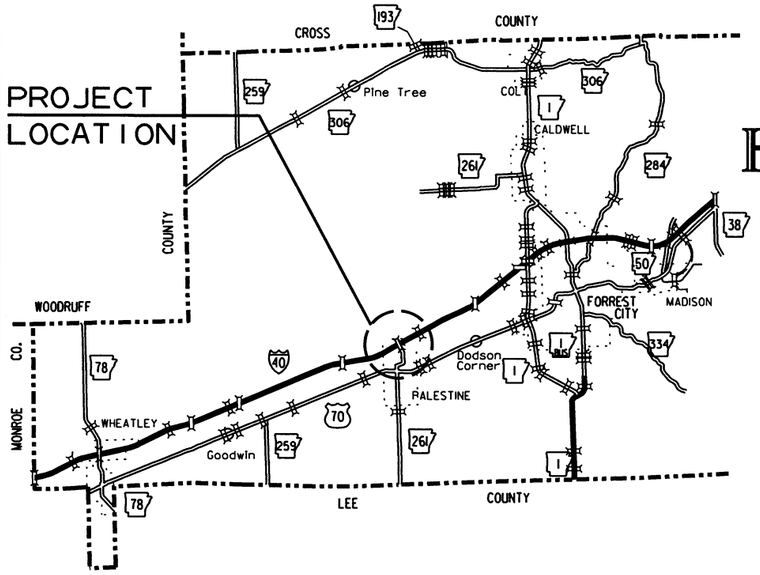
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	1	130
				(2)	HWY. 261 STR. & APPRS. (S)			

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY



VICINITY MAP

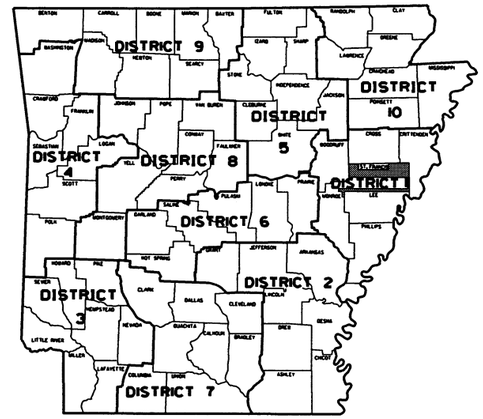
HWY. 261 STR. & APPRS. (S)

ST. FRANCIS COUNTY

ROUTE 261 SECTION 2

JOB 110586

FED. AID PROJ. NHPP-0068(38)



ARK. HWY. DIST. NO. 1

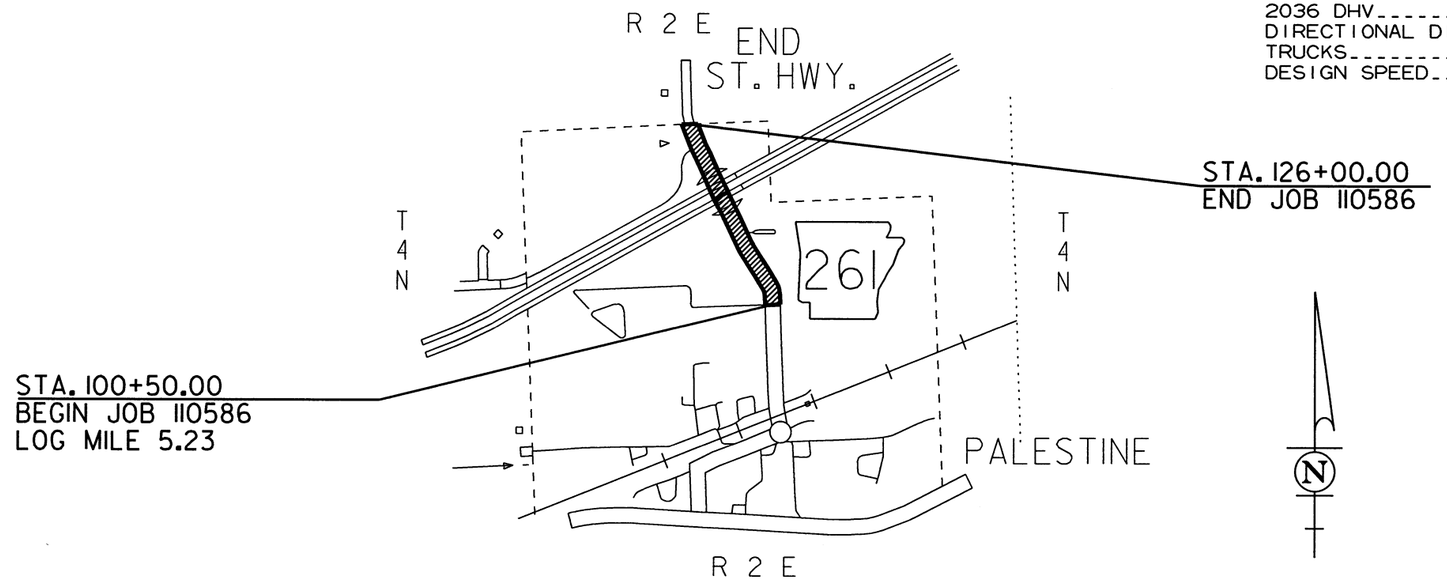
NOT TO SCALE

DESIGN TRAFFIC DATA

DESIGN YEAR	2036
2016 ADT	3,000
2036 ADT	3,600
2036 DHV	396
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	5%
DESIGN SPEED	40 MPH

BRIDGE DATA

(1) HWY. 261 OVER INTERSTATE 40
STA. 114+17.92 BR. END
296'-2" BRIDGE LENGTH
40'-0" CLEAR ROADWAY
294'-0" CONT. COMP. W-BEAM (60'-87'-87'-60')
BR. NO. 07232
STA. 117+14.08 BR. END



APPROVED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7836
M.E. BANES

9-30-16

DEPUTY DIRECTOR
AND CHIEF ENGINEER

BEGINNING OF PROJECT	MID POINT OF PROJECT	END OF PROJECT
LATITUDE = N 34°58'49"	LATITUDE = N 34°58'59"	LATITUDE = N 34°59'10"
LONGITUDE = W 90°54'10"	LONGITUDE = W 90°54'16"	LONGITUDE = W 90°54'21"

GROSS LENGTH OF	PROJECT	2550.00	FEET	OR	0.483	MILES
NET " "	ROADWAY	2253.84	"	"	0.427	"
NET " "	BRIDGES	296.16	"	"	0.056	"
NET " "	PROJECT	2550.00	"	"	0.483	"

P.E. 110586

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	2	130

(2) INDEX OF SHEETS

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.	DATE
1	TITLE SHEET			
2	INDEX OF SHEETS			
3	GOVERNING SPECIFICATIONS AND GENERAL NOTES			
4 - 8	TYPICAL SECTIONS OF IMPROVEMENT			
9 - 13	SPECIAL DETAILS			
14 - 16	TEMPORARY EROSION CONTROL DETAILS			
17 - 22	MAINTENANCE OF TRAFFIC DETAILS			
23	PERMANENT PAVEMENT MARKING DETAILS			
24 - 29	QUANTITIES			
30	SCHEDULE OF BRIDGE QUANTITIES	07232	53306	
31	SUMMARY OF QUANTITIES AND REVISIONS			
32 - 34	SURVEY CONTROL DETAILS			
35 - 42	PLAN AND PROFILE SHEETS			
43	LAYOUT OF BRIDGE HWY. 261 OVER INTERSTATE 40 (SHEET 1 OF 2)	07232	53307	
44	LAYOUT OF BRIDGE HWY. 261 OVER INTERSTATE 40 (SHEET 2 OF 2)	07232	53308	
45	DETAILS OF END BENTS HWY. 261 OVER INTERSTATE 40 (SHEET 1 OF 3)	07232	53309	
46	DETAILS OF END BENTS HWY. 261 OVER INTERSTATE 40 (SHEET 2 OF 3)	07232	53310	
47	DETAILS OF END BENTS HWY. 261 OVER INTERSTATE 40 (SHEET 3 OF 3)	07232	53311	
48	DETAILS OF STATE OF ARKANSAS FORM INSERT	07232	53312	
49	DETAILS OF BENTS 2 & 4 HWY. 261 OVER INTERSTATE 40	07232	53313	
50	DETAILS OF BENT 3 HWY. 261 OVER INTERSTATE 40	07232	53314	
51	DETAILS COMMON TO INTERMEDIATE BENTS HWY. 261 OVER INTERSTATE 40	07232	53315	
52	DETAILS OF CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS	07232	53316	
53	DETAILS OF ELASTOMERIC BEARINGS HWY. 261 OVER INTERSTATE 40	07232	53317	
54	DETAILS OF 294'-0" CONTINUOUS W-BEAM UNIT HWY. 261 OVER INTERSTATE 40 (SHEET 1 OF 7)	07232	53318	
55	DETAILS OF 294'-0" CONTINUOUS W-BEAM UNIT HWY. 261 OVER INTERSTATE 40 (SHEET 2 OF 7)	07232	53319	
56	DETAILS OF 294'-0" CONTINUOUS W-BEAM UNIT HWY. 261 OVER INTERSTATE 40 (SHEET 3 OF 7)	07232	53320	
57	DETAILS OF 294'-0" CONTINUOUS W-BEAM UNIT HWY. 261 OVER INTERSTATE 40 (SHEET 4 OF 7)	07232	53321	
58	DETAILS OF 294'-0" CONTINUOUS W-BEAM UNIT HWY. 261 OVER INTERSTATE 40 (SHEET 5 OF 7)	07232	53322	
59	DETAILS OF 294'-0" CONTINUOUS W-BEAM UNIT HWY. 261 OVER INTERSTATE 40 (SHEET 6 OF 7)	07232	53323	
60	DETAILS OF 294'-0" CONTINUOUS W-BEAM UNIT HWY. 261 OVER INTERSTATE 40 (SHEET 7 OF 7)	07232	53324	
61	DETAILS OF PARAPET RAIL	07232	53325	
62	DETAILS OF TYPE SPECIAL 1 APPROACH SLAB	07232	53326	
63	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS		55000	2-27-14
64	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES		55001	2-27-14
65	STANDARD DETAILS FOR CONCRETE RIPRAP		55002	2-27-14
66	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS		55005	3-24-16
67	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE		55010	1-14-15
68	STANDARD DETAILS FOR TYPE C APPROACH GUTTERS		55030C	2-27-14
69	CONCRETE DITCH PAVING		CDP-1	11-17-10
70	CURBING DETAILS		CG-1	11-29-07
71	DETAILS OF DRIVEWAYS & ISLANDS		DR-1	2-27-14
72	FLARED END SECTION		FES-1	10-18-96
73	FLARED END SECTION		FES-2	10-18-96
74	DETAILS OF DROP INLETS AND SPILLWAY OUTLET		FPC-9N	7-02-98
75	GUARD CABLE		GC-1	10-18-96
76	GUARD RAIL DETAILS		GR-8	7-14-10
77	GUARD RAIL DETAILS		GR-9	4-17-08
78	GUARD RAIL DETAILS		GR-9A	4-17-08
79	GUARD RAIL DETAILS		GR-10	7-14-10
80	GUARD RAIL DETAILS		GR-10A	7-14-10
81	CONCRETE BARRIER WALL (PIER PROTECTION TYPE A)		GR-11	7-14-10
82	MAILBOX DETAILS		MB-1	11-18-04
83	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING		PCC-1	2-27-14
84	METAL PIPE CULVERT FILL HEIGHTS & BEDDING		PCM-1	2-27-14
85	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)		PCP-1	2-27-14
86	PLASTIC PIPE CULVERT (PVC F949)		PCP-2	2-27-14
87	PAVEMENT MARKING DETAILS		PM-1	5-12-16
88	PERMANENT PAVEMENT MARKING ON ACCESS CONTROLLED ROADWAYS		PM-2	9-12-13
89	DETAILS OF PIPE UNDERDRAIN		PU-1	4-10-03
90	TABLES AND METHOD OF SUPERELEVATION FOR ONE-WAY TRAFFIC		SE-1	1-09-87
91	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC		SE-2	10-18-96
92	DETAILS OF SPECIAL ITEMS		SI-1	9-12-13
93	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-1	9-02-15
94	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-2	9-02-15
95	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-3	9-02-15
96	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER		TC-4	2-27-14
97	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER		TC-5	10-15-09
98	TEMPORARY EROSION CONTROL DEVICES		TEC-1	12-15-11
99	TEMPORARY EROSION CONTROL DEVICES		TEC-2	6-02-94
100	TEMPORARY EROSION CONTROL DEVICES		TEC-3	11-03-94
101	WIRE FENCE TYPE A AND B		WF-1	8-22-02
102	WIRE FENCE WATER GAPS		WF-2	4-20-79
103 - 130	CROSS SECTIONS			

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

9/28/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	3	130

(2) GOVERNING SPECIFICATIONS & GENERAL NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
11425
TRINITY D. SMITH
9-28-16

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA____	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273__	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273__	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273__	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__	SUPPLEMENT - WAGE RATE DETERMINATION
100-3_____	CONTRACTOR'S LICENSE
102-2_____	ISSUANCE OF PROPOSALS
108-1_____	LIQUIDATED DAMAGES
108-2_____	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
303-1_____	AGGREGATE BASE COURSE
400-1_____	TACK COATS
410-1_____	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1_____	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1_____	PIPE CULVERTS FOR SIDE DRAINS
620-1_____	MULCH COVER
JOB 110586__	BIDDING REQUIREMENTS AND CONDITIONS
JOB 110586__	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 110586__	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 110586__	CARGO PREFERENCE ACT REQUIREMENTS
JOB 110586__	CONCRETE DITCH PAVING
JOB 110586__	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 110586__	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 110586__	EXTENSION FOR PIPE CULVERTS
JOB 110586__	GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION
JOB 110586__	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 110586__	GUARD CABLE MOVED AND RECONSTRUCTED
JOB 110586__	HIGH PERFORMANCE PAVEMENT MARKING
JOB 110586__	MAINTENANCE OF TRAFFIC
JOB 110586__	MANDATORY ELECTRONIC CONTRACT
JOB 110586__	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 110586__	NESTING SITES OF MIGRATORY BIRDS
JOB 110586__	PARTNERING REQUIREMENTS
JOB 110586__	PLASTIC PIPE
JOB 110586__	PORTLAND CEMENT CONCRETE DRIVEWAY
JOB 110586__	REMOVAL AND DISPOSAL OF WIRE ROPE SAFETY FENCE
JOB 110586__	SCARIFYING CONCRETE PAVEMENT
JOB 110586__	SHORING
JOB 110586__	SHORING FOR CULVERTS
JOB 110586__	SOIL STABILIZATION
JOB 110586__	SPECIAL SAFETY REQUIREMENTS FOR BRIDGES
JOB 110586__	STORM WATER POLLUTION PREVENTION PLAN
JOB 110586__	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 110586__	TEMPORARY TERMINAL ANCHOR FOR WIRE ROPE SAFETY FENCE
JOB 110586__	TEXTURED COATING FINISH
JOB 110586__	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
JOB 110586__	UTILITY ADJUSTMENTS
JOB 110586__	VALUE ENGINEERING
JOB 110586__	WARM MIX ASPHALT
JOB 110586__	WIRE ROPE SAFETY FENCE (WRSF) SPECIFICATIONS
JOB 110586__	WIRE ROPE SAFETY FENCE (POST REPAIR)

GENERAL NOTES

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

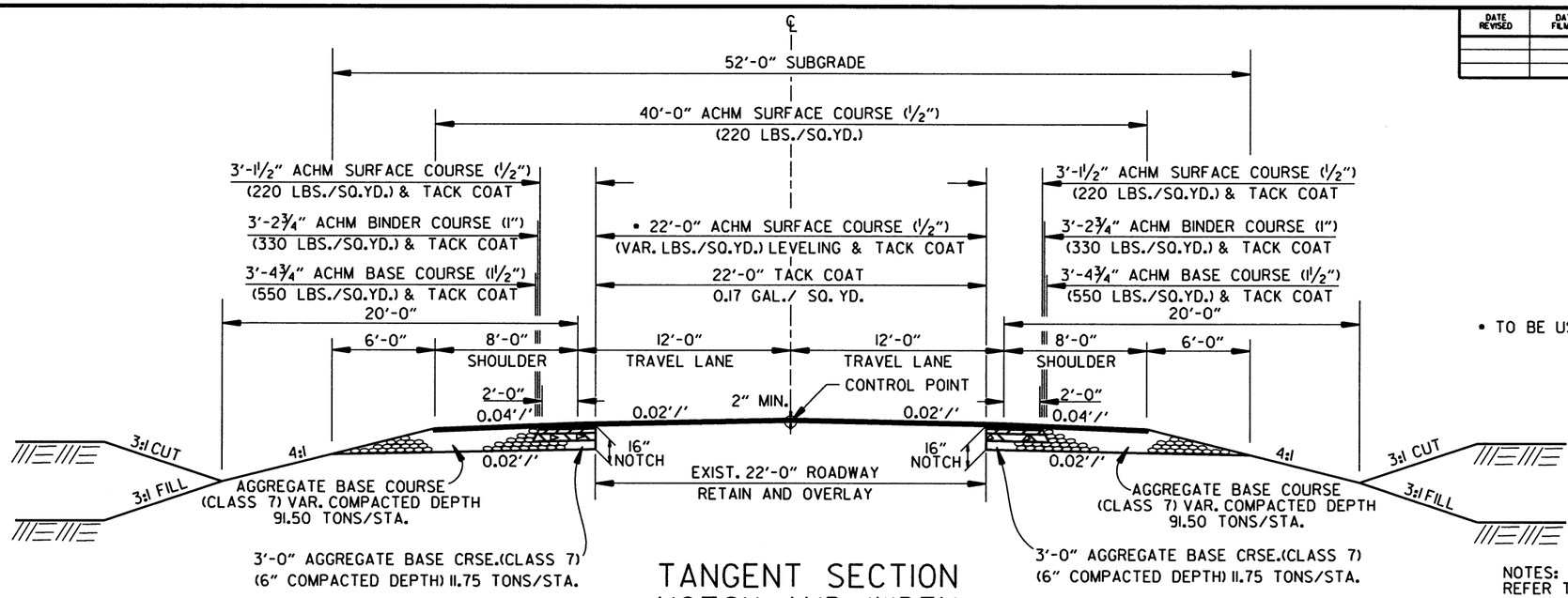
9/28/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	4	130

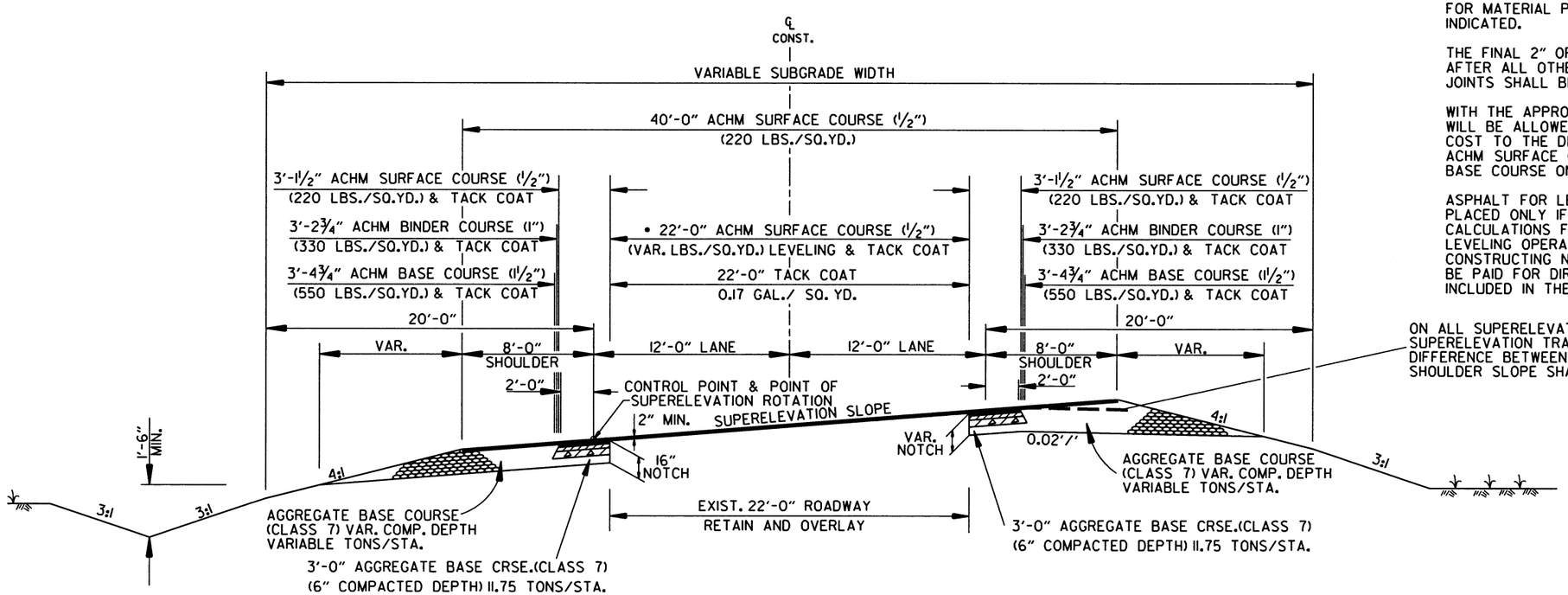
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16



TANGENT SECTION
NOTCH AND WIDEN

STA. 101+50.00 - STA. 101+12.48
STA. 108+21.46 - STA. 110+88.35
STA. 121+58.13 - STA. 123+00.00



SUPERELEVATION - NOTCH & WIDEN
STA. 101+12.48 - STA. 107+50.00

• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

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

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

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

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

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.

9/27/2016

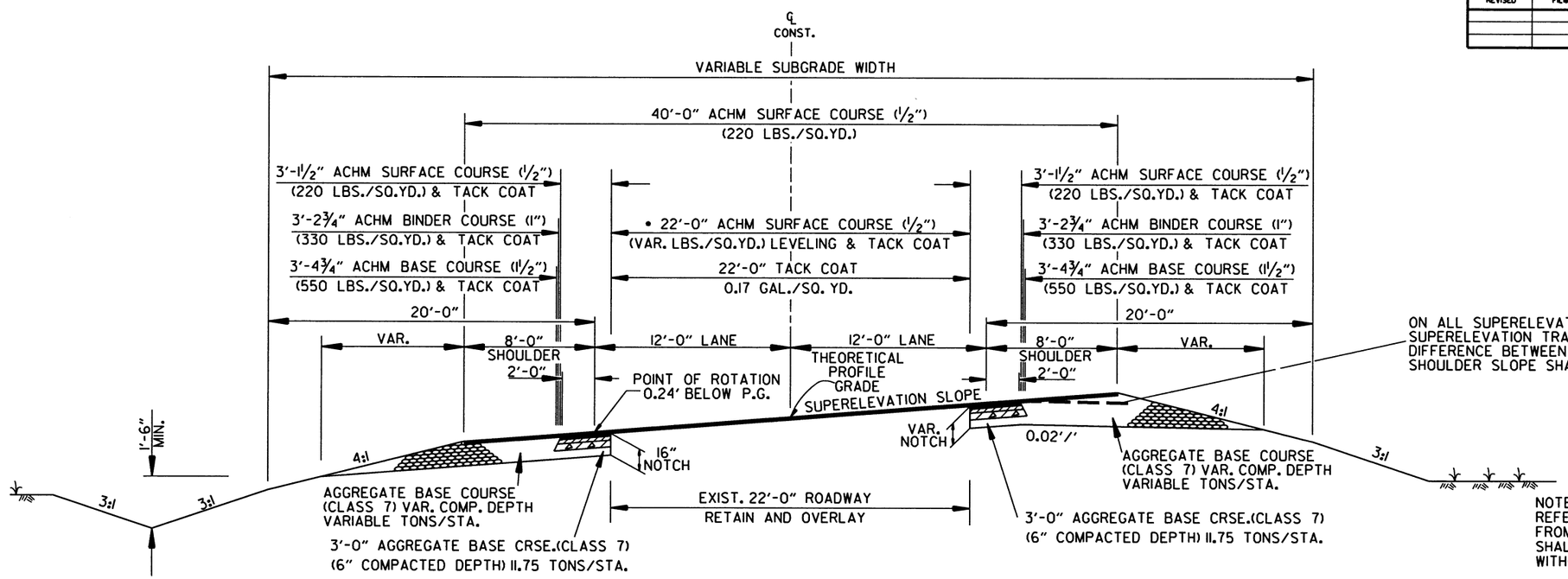
R110586.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	5	130

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16



SUPERELEVATION - NOTCH & WIDEN
STA. 107+50.00 - STA. 108+21.46

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

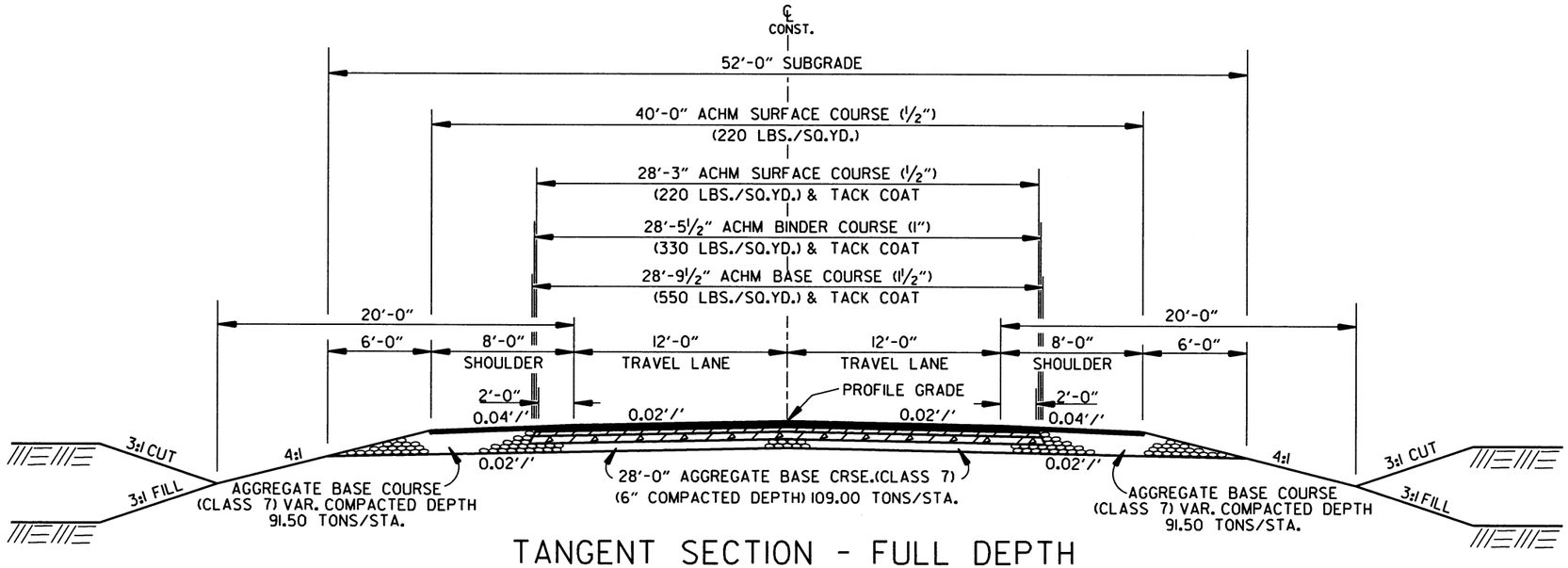
NOTES:
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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

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

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

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.



TANGENT SECTION - FULL DEPTH
STA. 108+21.46 - STA. 112+62.25
STA. 119+45.23 - STA. 120+89.86

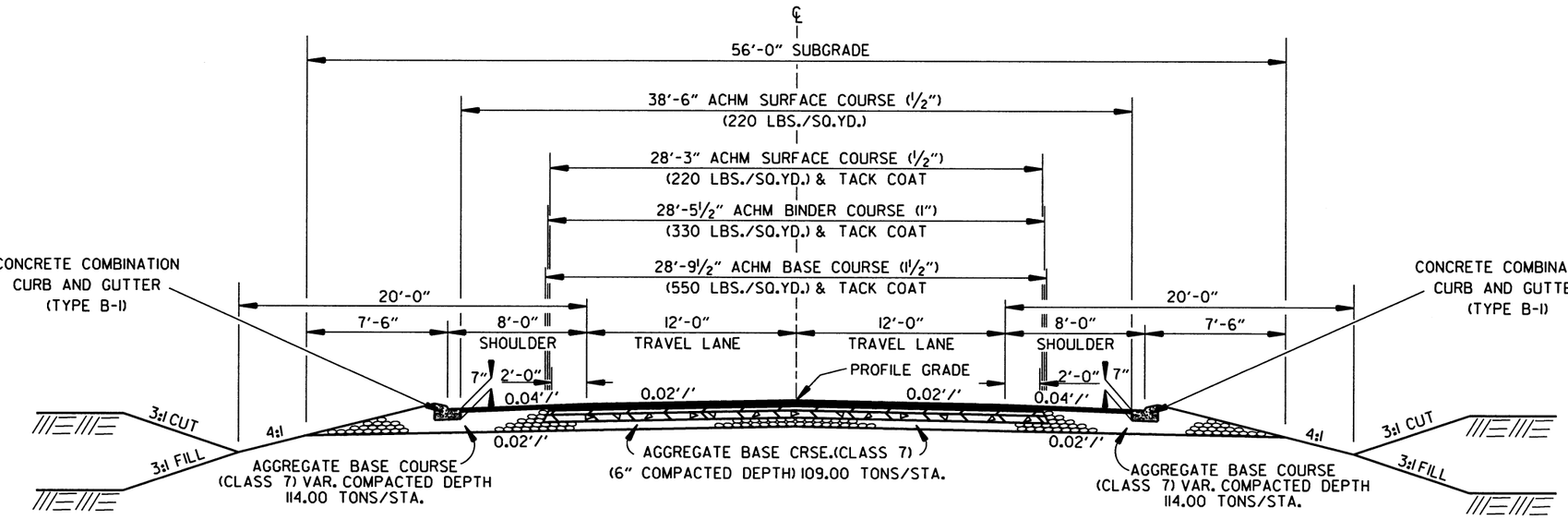
9/27/2016

R110586.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	6	130

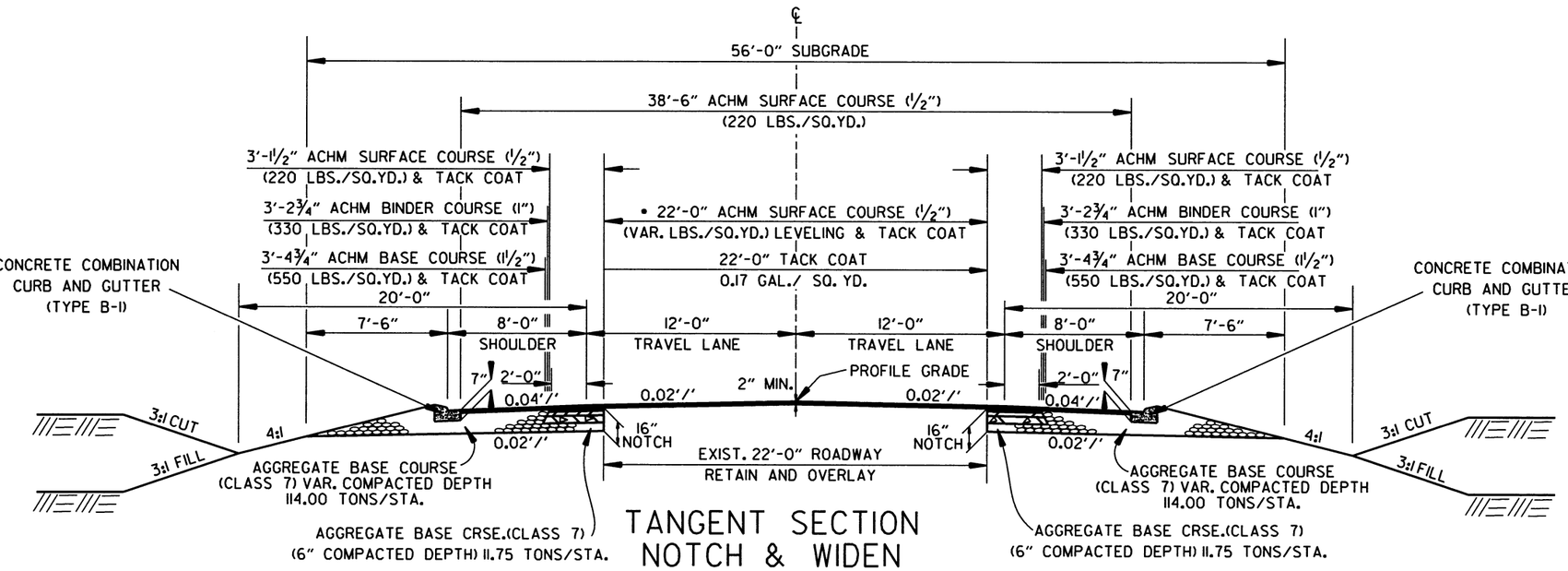
(2) TYPICAL SECTIONS OF IMPROVEMENT



TANGENT SECTION - FULL DEPTH

STA. 112+62.25 - STA. 113+81.42

STA. 117+50.58 - STA. 119+45.23



TANGENT SECTION NOTCH & WIDEN

STA. 120+89.86 - STA. 121+58.13

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

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

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

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

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

9/27/2016

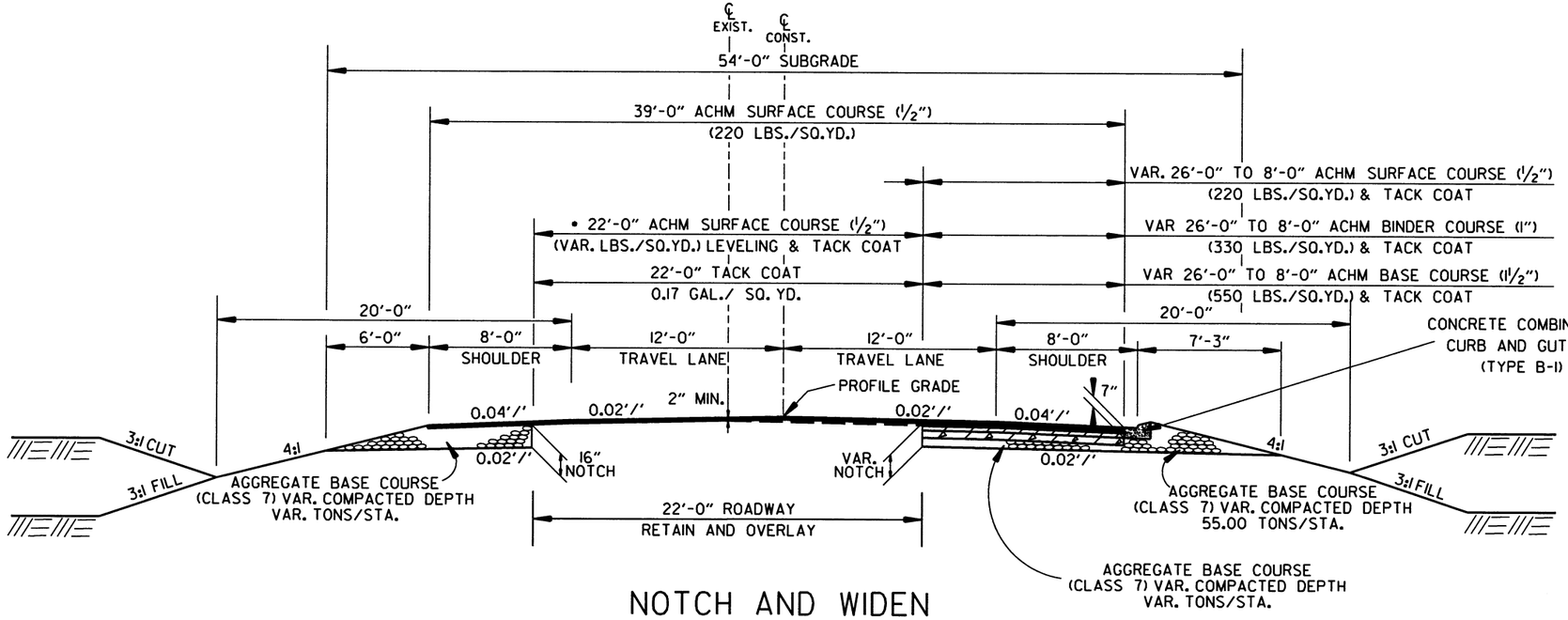
R110586.DGN

TYPICAL SECTIONS OF IMPROVEMENT

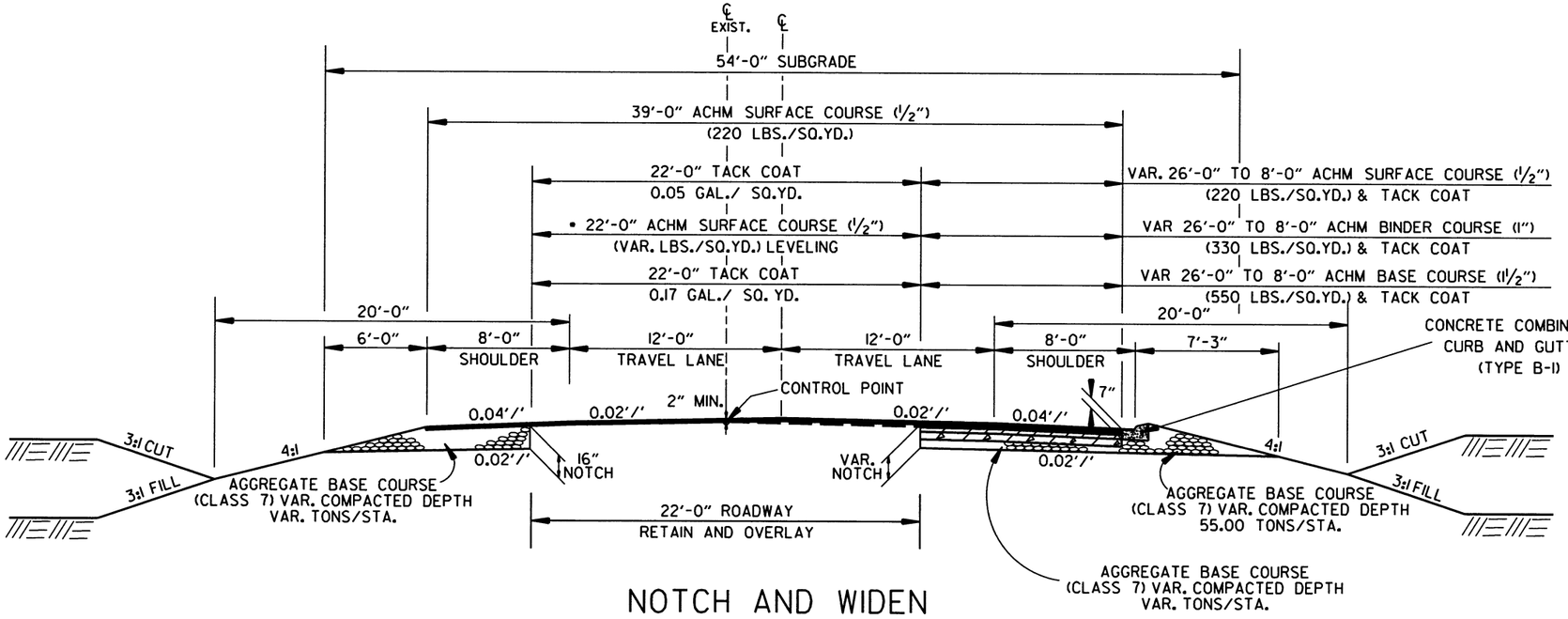
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	7	130

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16



NOTCH AND WIDEN CURB AND GUTTER ON RIGHT
STA. 123+00.00 - STA. 124+50.00



NOTCH AND WIDEN CURB AND GUTTER ON RIGHT
STA. 124+50.00 - STA. 126+00.00

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

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

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

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

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.

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

9/27/2016

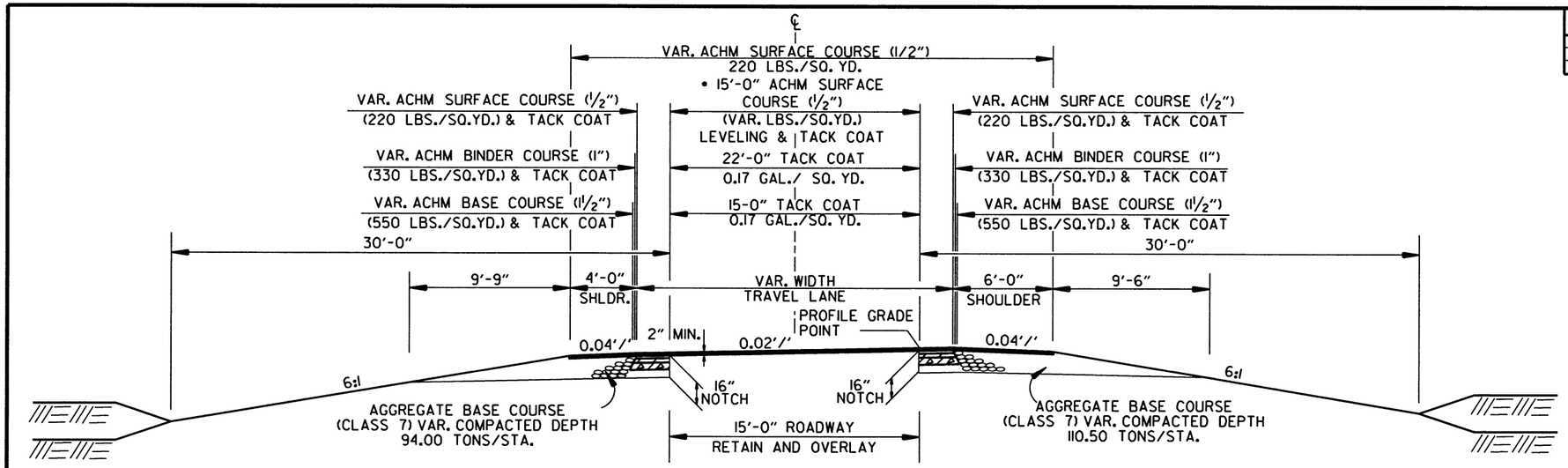
R110586.DGN

TYPICAL SECTIONS OF IMPROVEMENT

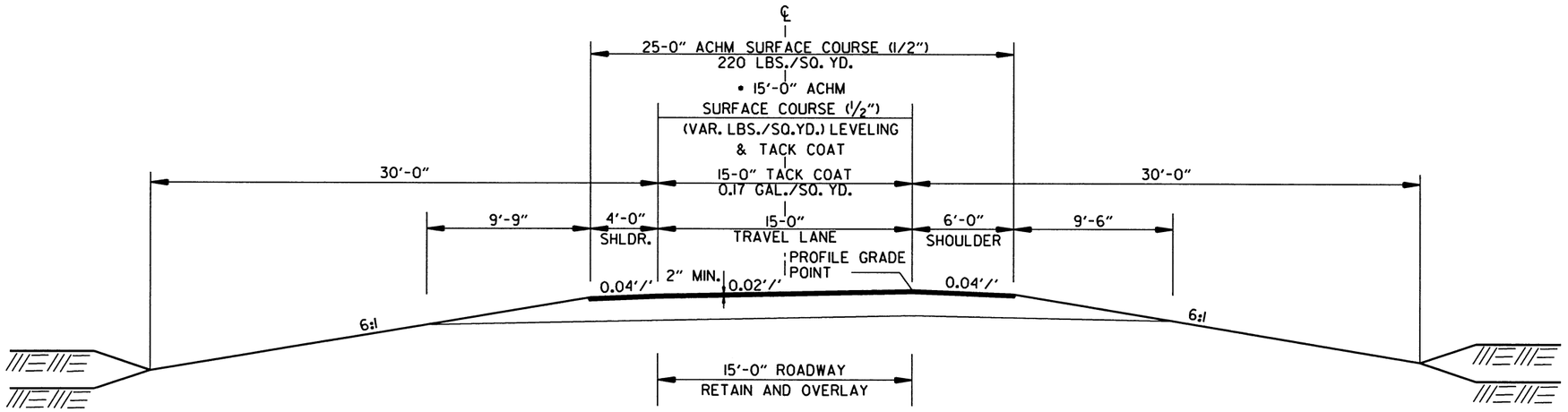
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	8	130

(2) TYPICAL SECTIONS OF IMPROVEMENT

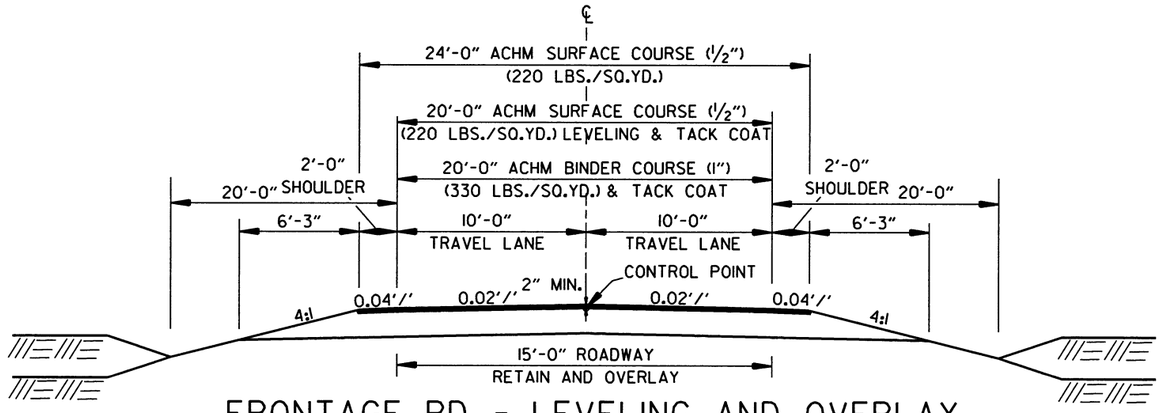
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-22-16



NOTCH AND WIDEN - RAMPS 1& 3



LEVELING AND OVERLAY- RAMPS 2 & 4



FRONTAGE RD. - LEVELING AND OVERLAY

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

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

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

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

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.

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

9/27/2016

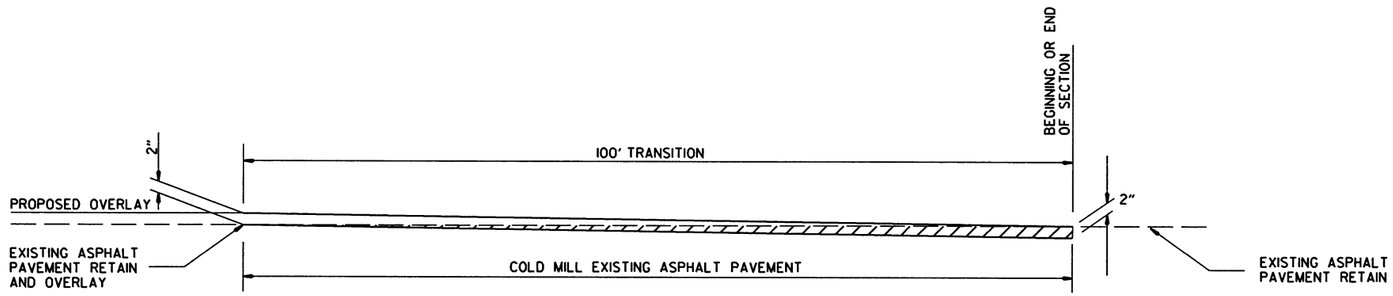
R110586.DGN

TYPICAL SECTIONS OF IMPROVEMENT

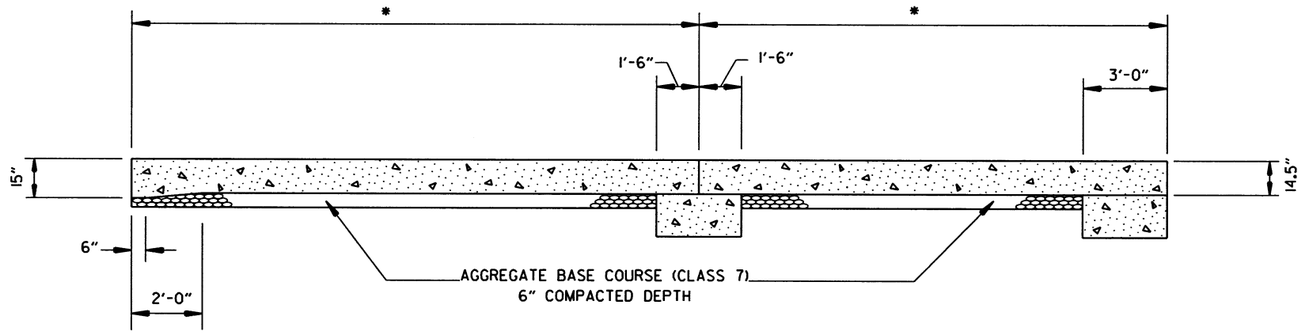
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	9	130

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

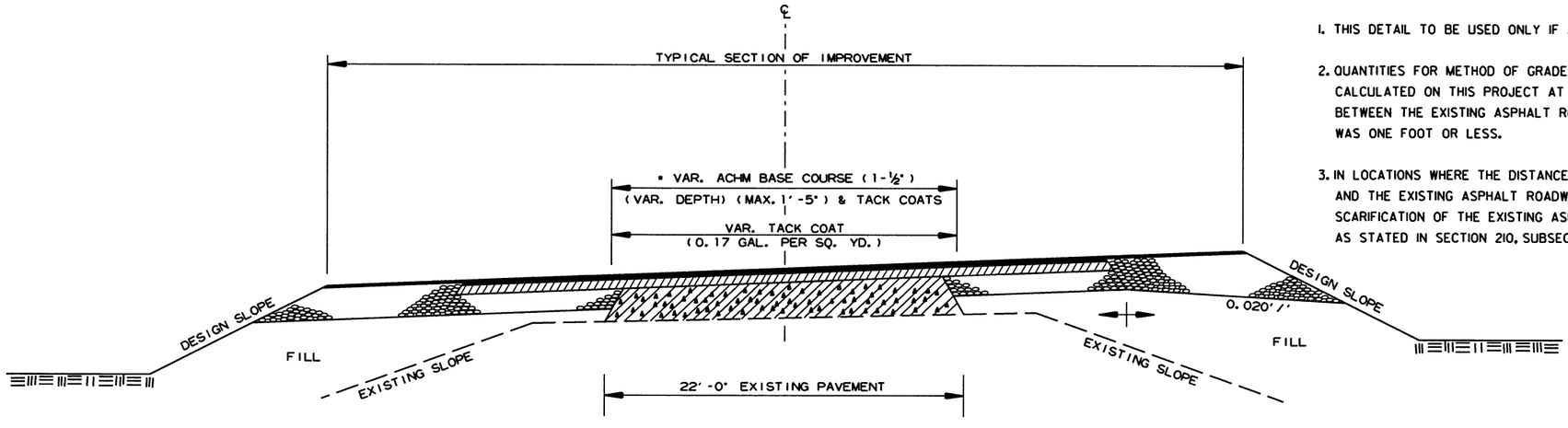


DETAIL FOR TRANSITIONS



• REFER TO BRIDGE DRAWINGS

SECTION OF APPROACH SLAB



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

METHOD OF RAISING GRADE

NOTES:

1. THIS DETAIL TO BE USED ONLY IF AND 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.

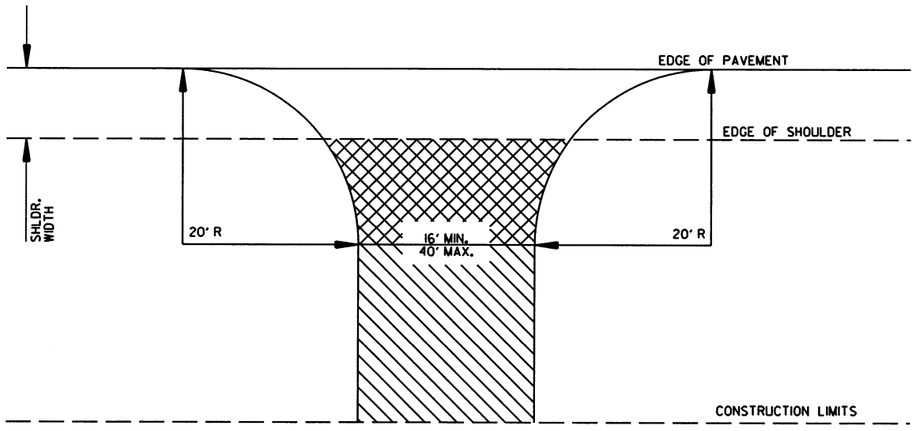
9/27/2016

R110586.DGN

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	10	130

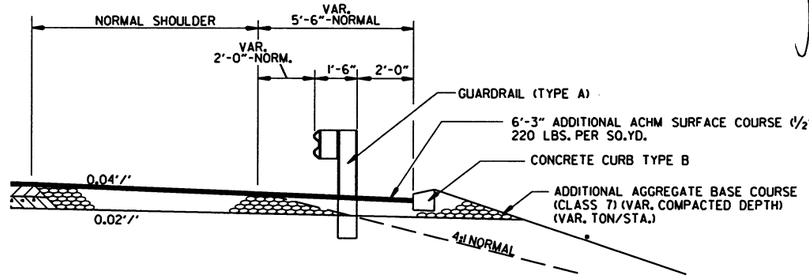
(2) SPECIAL DETAILS



ASPHALT CONCRETE HOT MIX SURFACE COURSE (½") (220 LBS. PER SQ. YD.) AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT DRIVE EXISTS OR 6" CONCRETE IF CONCRETE DRIVE EXISTS.

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

DETAIL FOR DRIVEWAY TURNOUTS

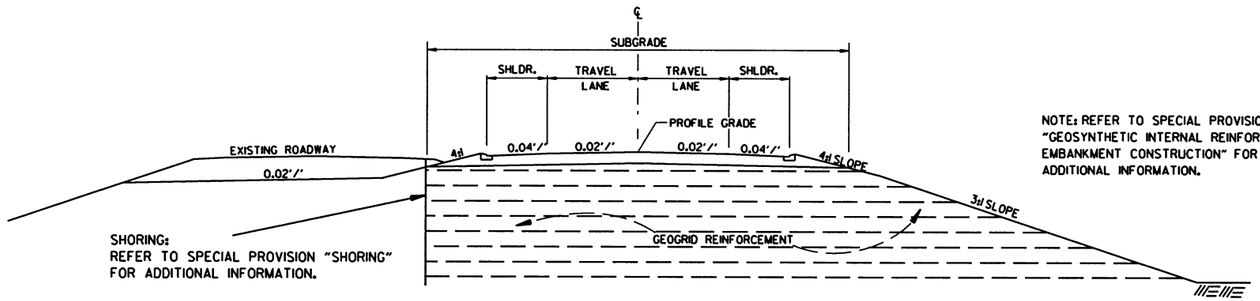


WIDENING FOR GUARDRAIL DETAIL

STA. 111+45.65 RT. - STA. 113+81.42 RT.
STA. 117+50.58 RT. - STA. 119+11.60 RT.

STA. 112+19.00 LT. - STA. 113+81.42 LT.
STA. 117+50.58 LT. - STA. 119+88.01 LT.

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



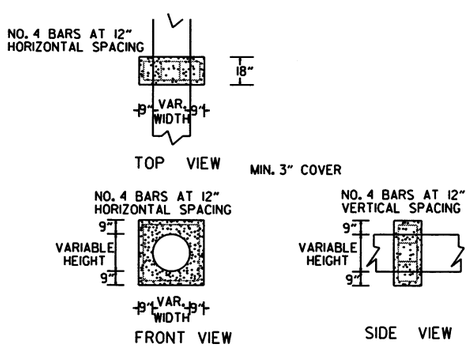
NOTE: REFER TO SPECIAL PROVISION "GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION" FOR ADDITIONAL INFORMATION.

GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION HWY. 261

NOTES:

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

NATURAL SURFACE ELEVATION APPROXIMATELY 211.0.



PIPE EXTENSION REINFORCED CONCRETE COLLAR DETAIL

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

9/27/2016

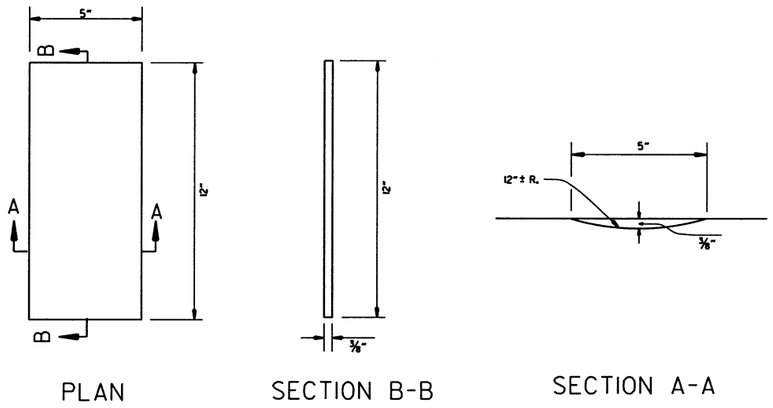
R110586.DGN

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	11	130

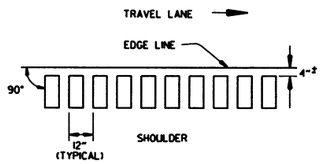
(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

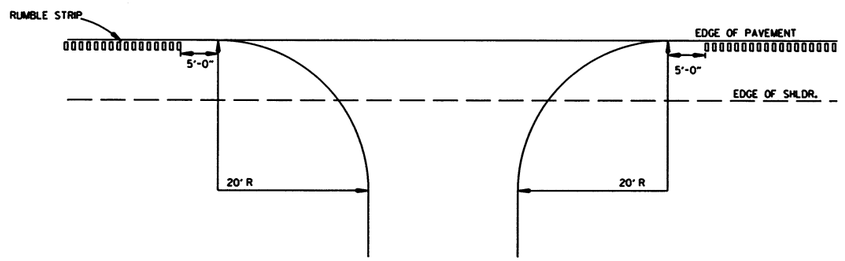


PLAN SECTION B-B SECTION A-A

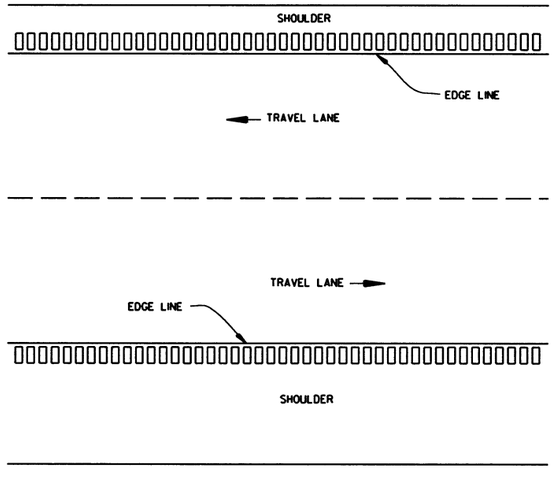
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



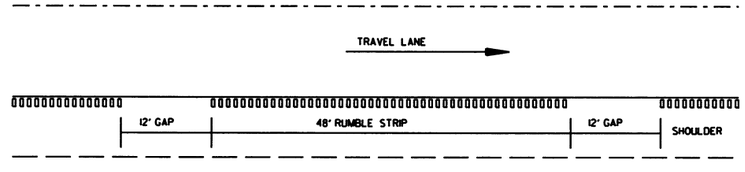
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

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



DETAIL FOR GAP PATTERN RUMBLE STRIP

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

9/27/2016

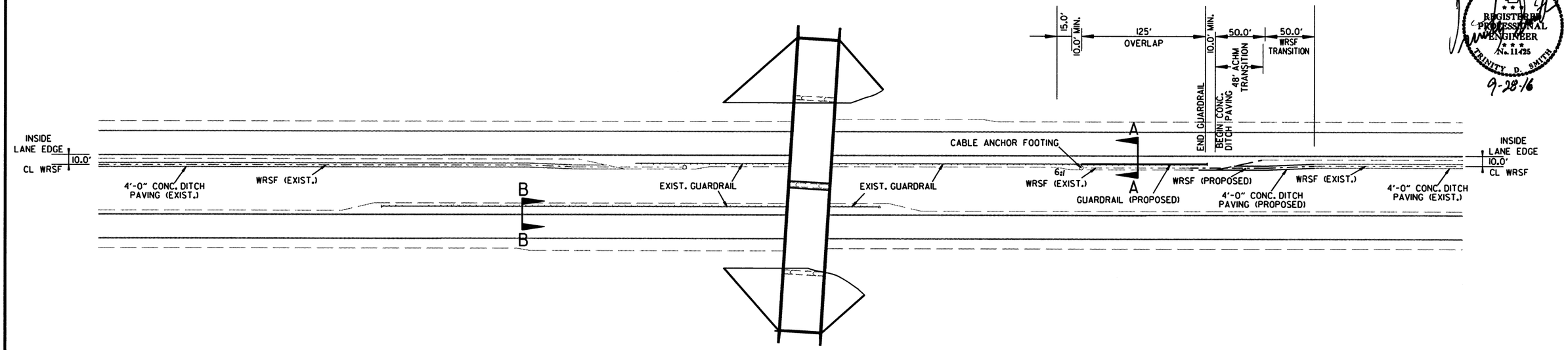
R110586.DGN

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	12	130

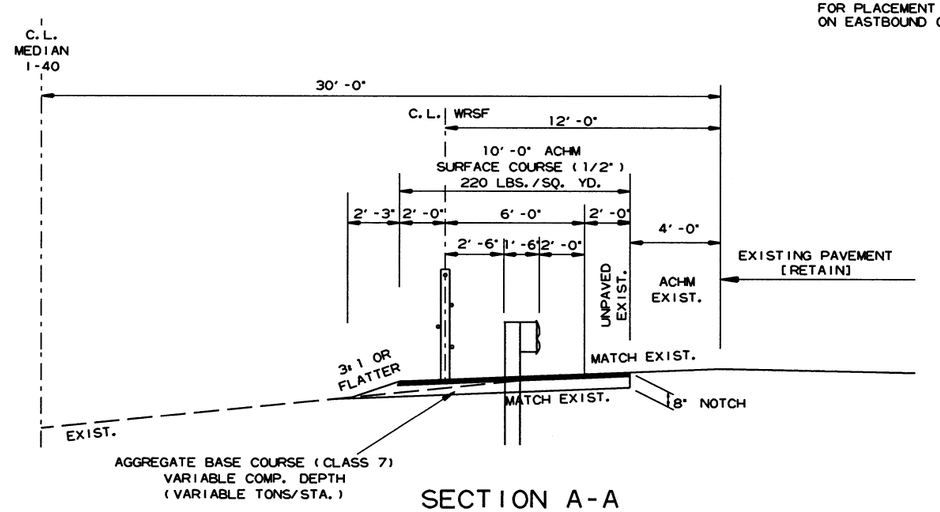
(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

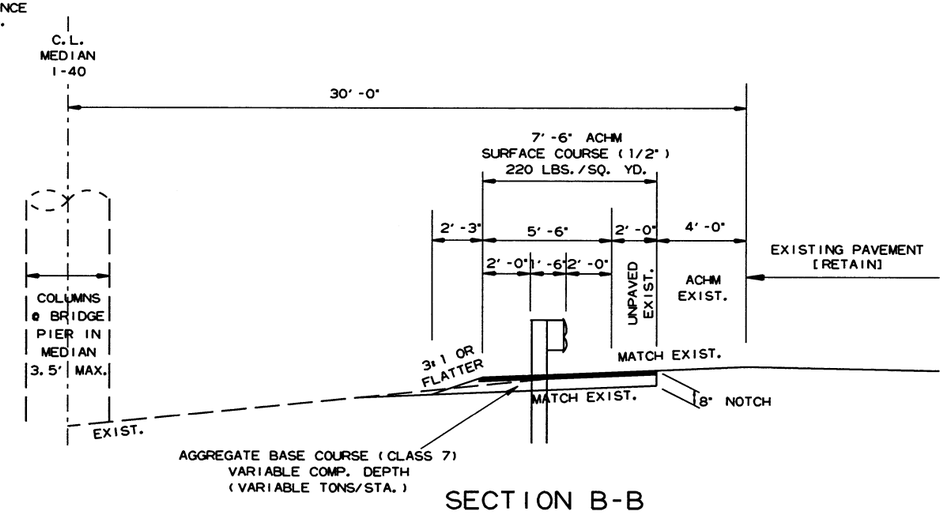


DETAIL AT OVERPASSES

NOTE: REFER TO PLAN SHEETS FOR PLACEMENT OF WIRE ROPE SAFETY FENCE ON EASTBOUND OR WESTBOUND FORESLOPES.



SECTION A-A



SECTION B-B

DETAILS OF SHOULDER WIDENING FOR GUARDRAIL AND OVERLAPS WITH ENDS OF WIRE ROPE SAFETY FENCE

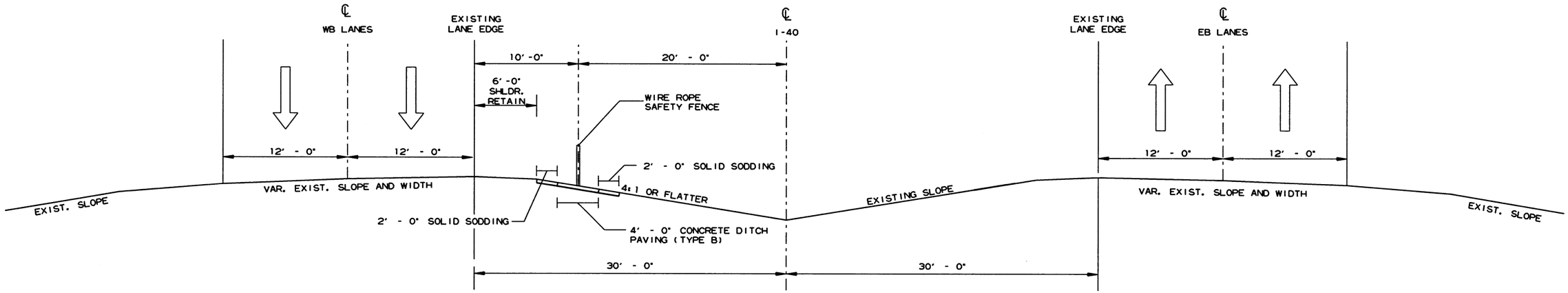
9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	13	130

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16



TYPICAL SECTION OF IMPROVEMENT
FOR WIRE ROPE SAFETY FENCE LEFT OF CENTERLINE

9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	14	130

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

STA. 100+50.00
BEGIN JOB 110586

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

STA. 126+00.00
END JOB 110586

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	15	130

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

STA. 100+50.00
BEGIN JOB 110586

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

STA. 126+00.00
END JOB 110586

STAGE I
TEMPORARY EROSION CONTROL DETAILS

9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	16	130

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

STA. 100+50.00
BEGIN JOB 110586

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

STA. 126+00.00
END JOB 110586

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

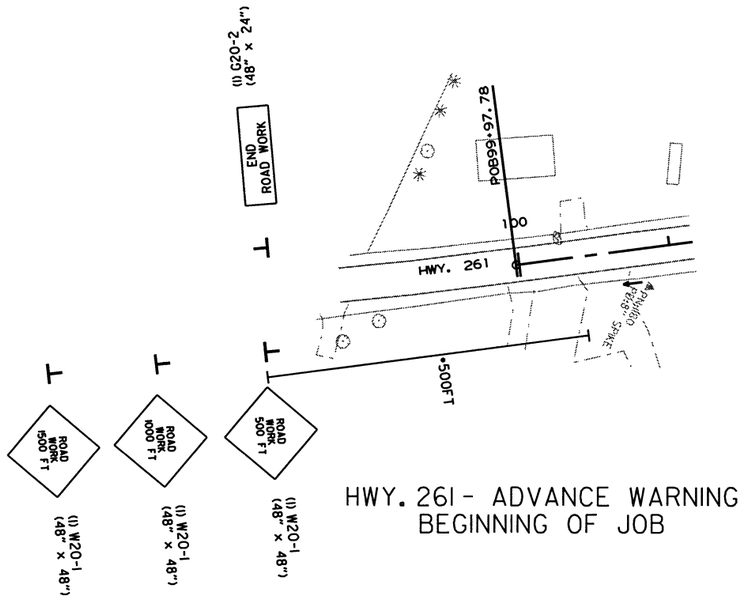
9/27/2016

R110586.DGN

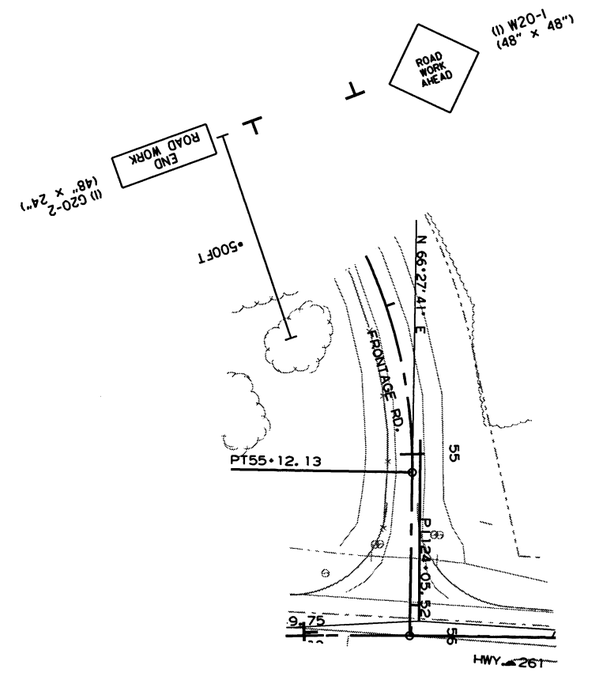
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	17	130

(2) MAINTENANCE OF TRAFFIC DETAILS

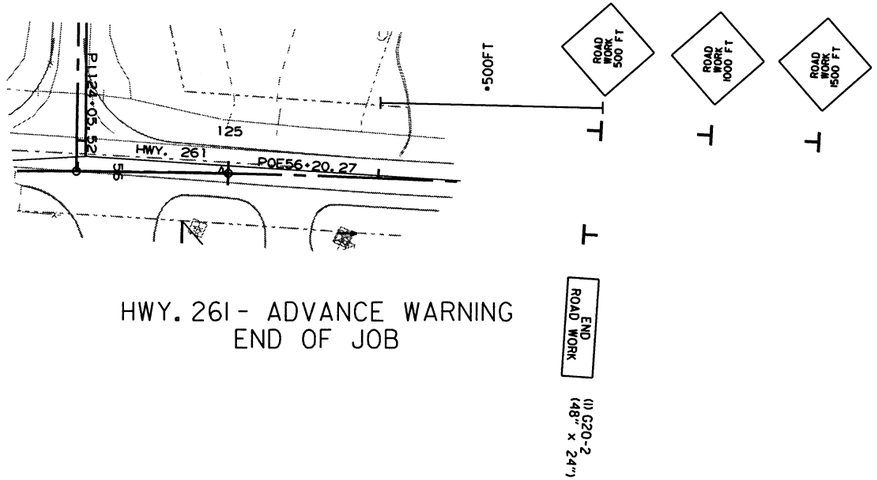
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16



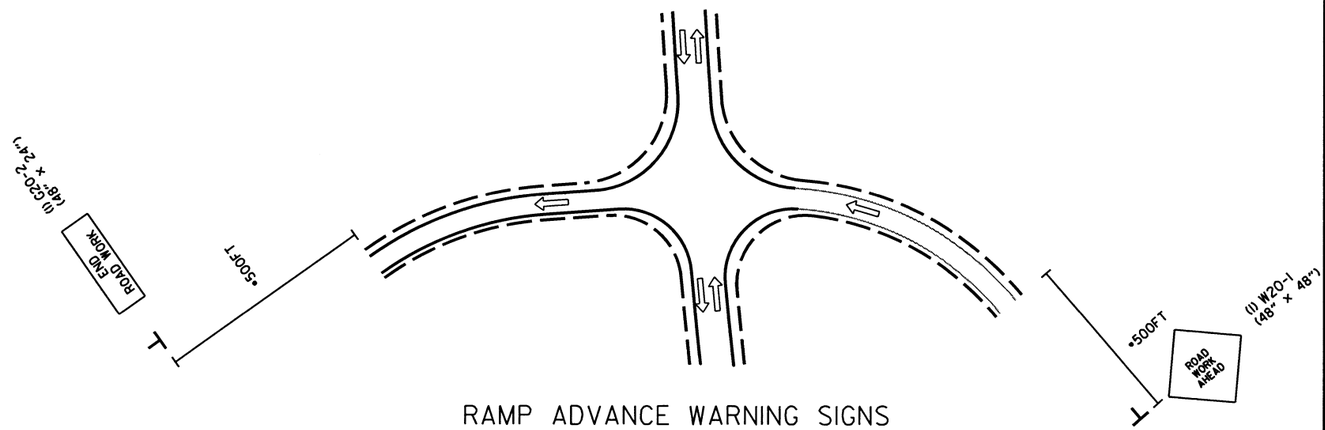
HWY. 261 - ADVANCE WARNING
BEGINNING OF JOB



FRONTAGE RD. - ADVANCE WARNING



HWY. 261 - ADVANCE WARNING
END OF JOB



RAMP ADVANCE WARNING SIGNS
2 SETS NEEDED

9/27/2016

R110586.DGN

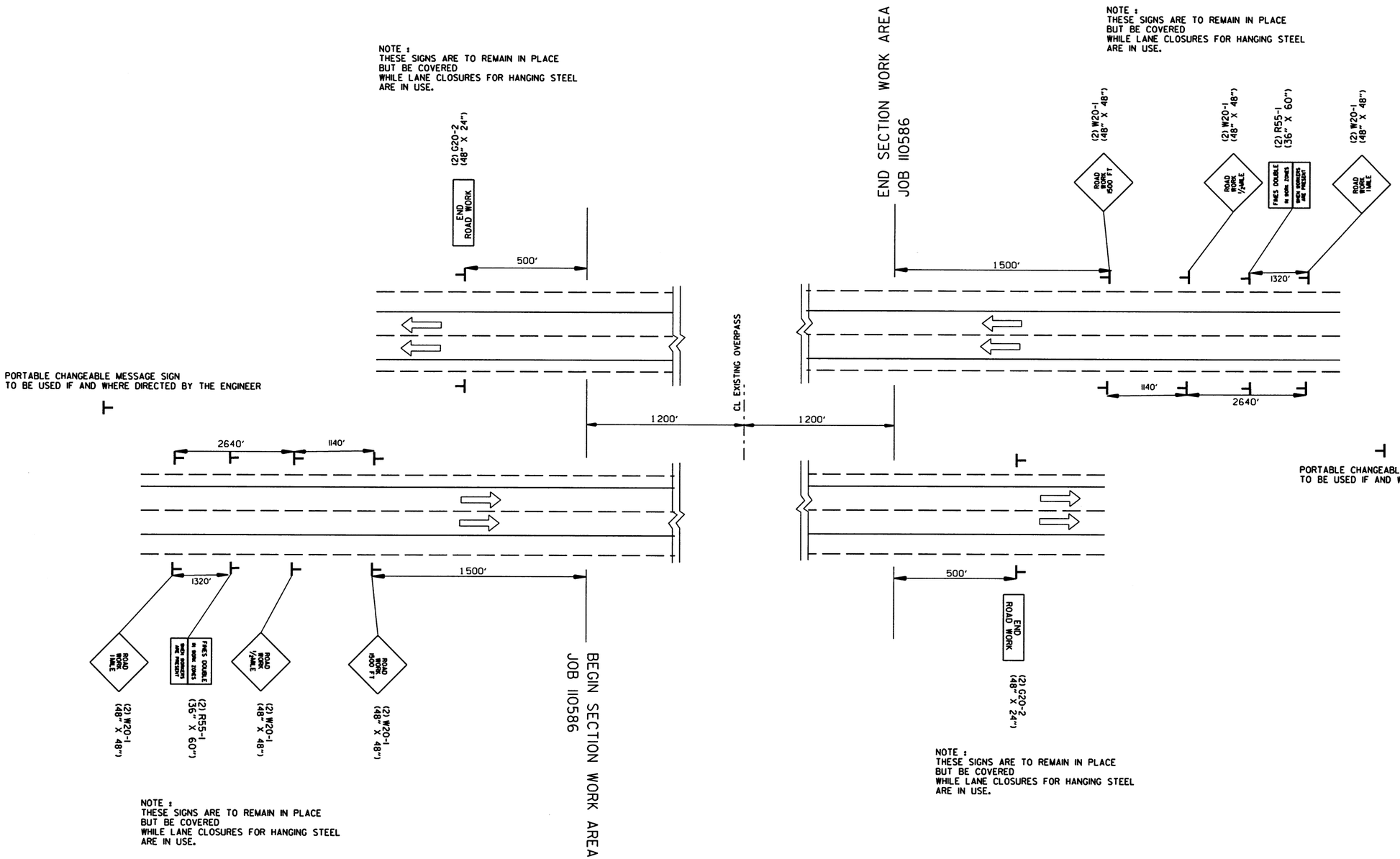
* NOT TO SCALE

ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	18	130

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16



ADVANCE SIGNS AT BEGINNING AND END OF JOB ON I-40
ALL STAGES
ONE SET NEEDED

9/27/2016

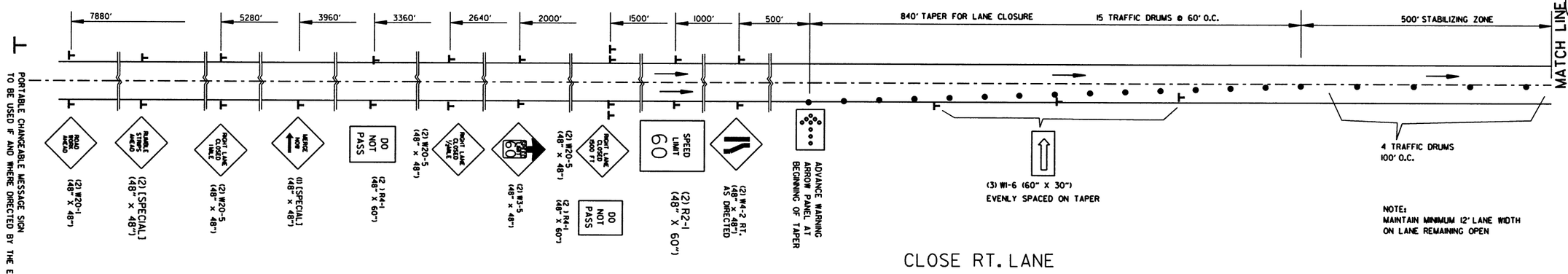
R110586.DGN

I-40 - ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

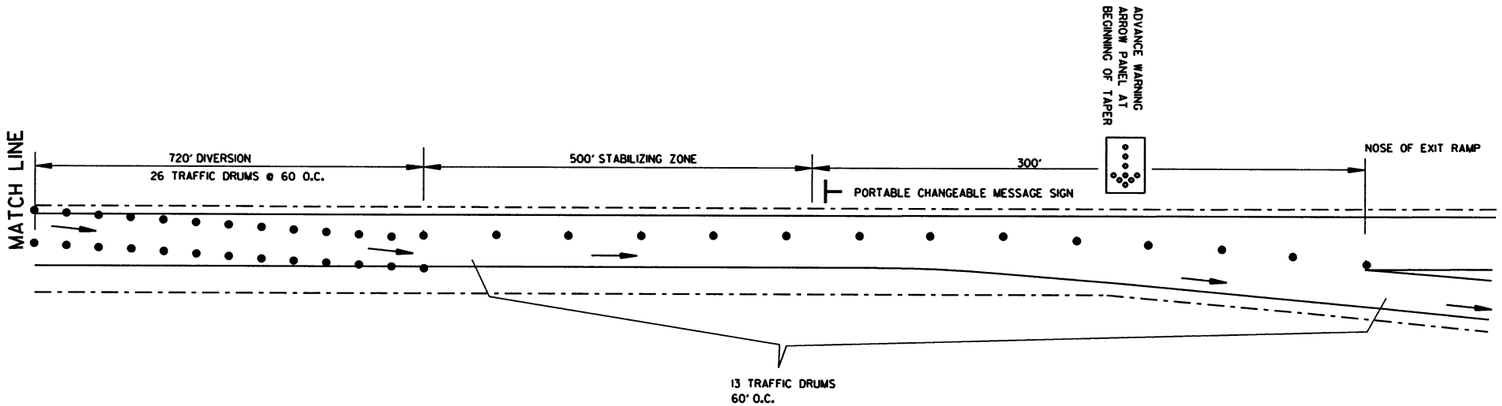
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	19	130

(2) MAINTENANCE OF TRAFFIC DETAILS

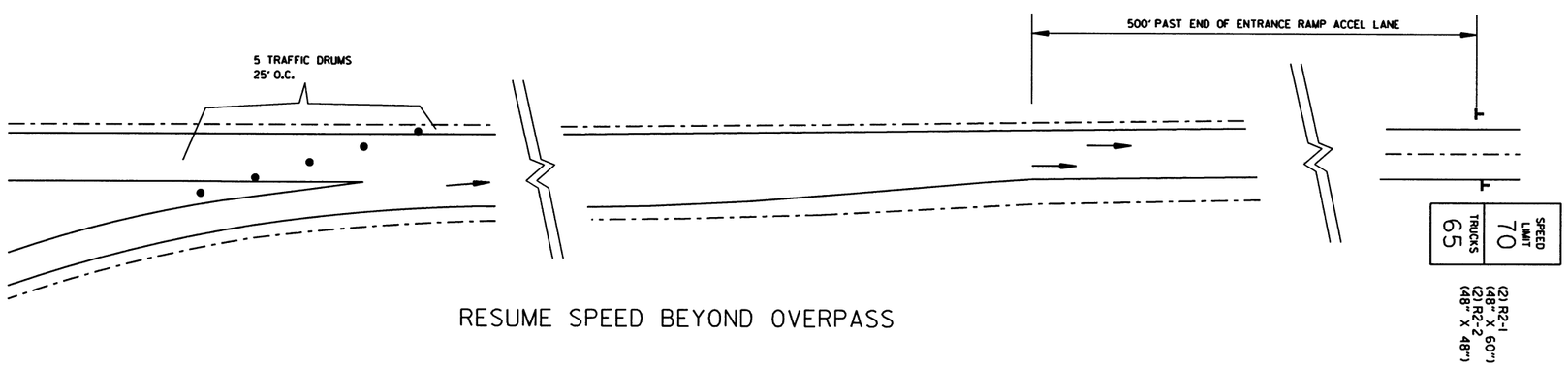
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16



CLOSE RT. LANE



DIVERT TRAFFIC TOWARD EXIT RAMP



RESUME SPEED BEYOND OVERPASS

DIVERSION FOR HANGING STEEL

9/27/2016

R110586.DGN

I-40 - STAGE I
MAINTENANCE OF TRAFFIC DETAILS

ALL STAGES: USE ADVANCE WARNING SIGNS LOCATED AS SHOWN IN THE MAINTENANCE OF TRAFFIC PLAN SHEETS. USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED AT 45' O.C. AS SHOWN TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS AS SHOWN.

STAGE 1: CONSTRUCT RELOCATED HWY. 261 AND CROSS DRAINS STA. 110+23 TO STA. 122+05 AND NEW BRIDGE STA. 114+17.92 TO STA. 117+14.08. NOTCH & WIDEN & CONSTRUCT CROSS DRAINS STA. 101+50 TO STA. 110+23 ON RT. & STA. 122+05 RT. OF HWY. 261. CONSTRUCT NEW APPROACHES FOR RAMP 2 & RAMP 3.

STAGE 2: NOTCH & WIDEN AND CONSTRUCT CROSS DRAINS STA. 110+23 TO STA. 122+05 LT. OF HWY. 261. CONSTRUCT NEW APPROACHES FOR RAMP 1, RAMP 2, & THE FRONTAGE ROAD. REMOVE EXISTING HWY. 261 AND EXISTING BRIDGE. FINISH SHAPING SLOPES WHERE NEEDED.

STAGE 3: PLACE FINAL ACHM LIFT AND FINAL STRIPING. REMOVE PAVEMENT FROM EXISTING HWY. 261.

SIGNS = 887.5 SQ. FT.
TRAFFIC DRUMS = 56 EACH
VERTICAL PANELS = 105 EACH
P.C.C.B. = 2599 LIN. FT.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	20	130

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

STA. 100+50.00
BEGIN JOB 110586

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

PRECAST CONCRETE BARRIER WALL= 360 LIN. FT. WITH TEMP. IMPACT ATTENUATION BARRIER

TRAFFIC DRUMS = 10 EACH 45' O.C. SPACING

VERTICAL PANELS = 6 EACH 45' O.C. SPACING

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

VERTICAL PANELS = 6 EACH 45' O.C. SPACING

VERTICAL PANELS = 5 EACH 45' O.C. SPACING

TRAFFIC DRUMS = 6 EACH

TRAFFIC DRUMS = 6 EACH

TRAFFIC DRUMS = 12 EACH

VERTICAL PANELS = 3 EACH 45' O.C. SPACING

TRAFFIC DRUMS = 6 EACH

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

PRECAST CONCRETE BARRIER WALL= 400 LIN. FT. WITH TEMP. IMPACT ATTENUATION BARRIER

VERTICAL PANELS = 11 EACH 45' O.C. SPACING

VERTICAL PANELS = 7 EACH 45' O.C. SPACING

VERTICAL PANELS = 8 EACH 45' O.C. SPACING

TRAFFIC DRUMS = 12 EACH

STA. 126+00.00
END JOB 110586

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

9/27/2016

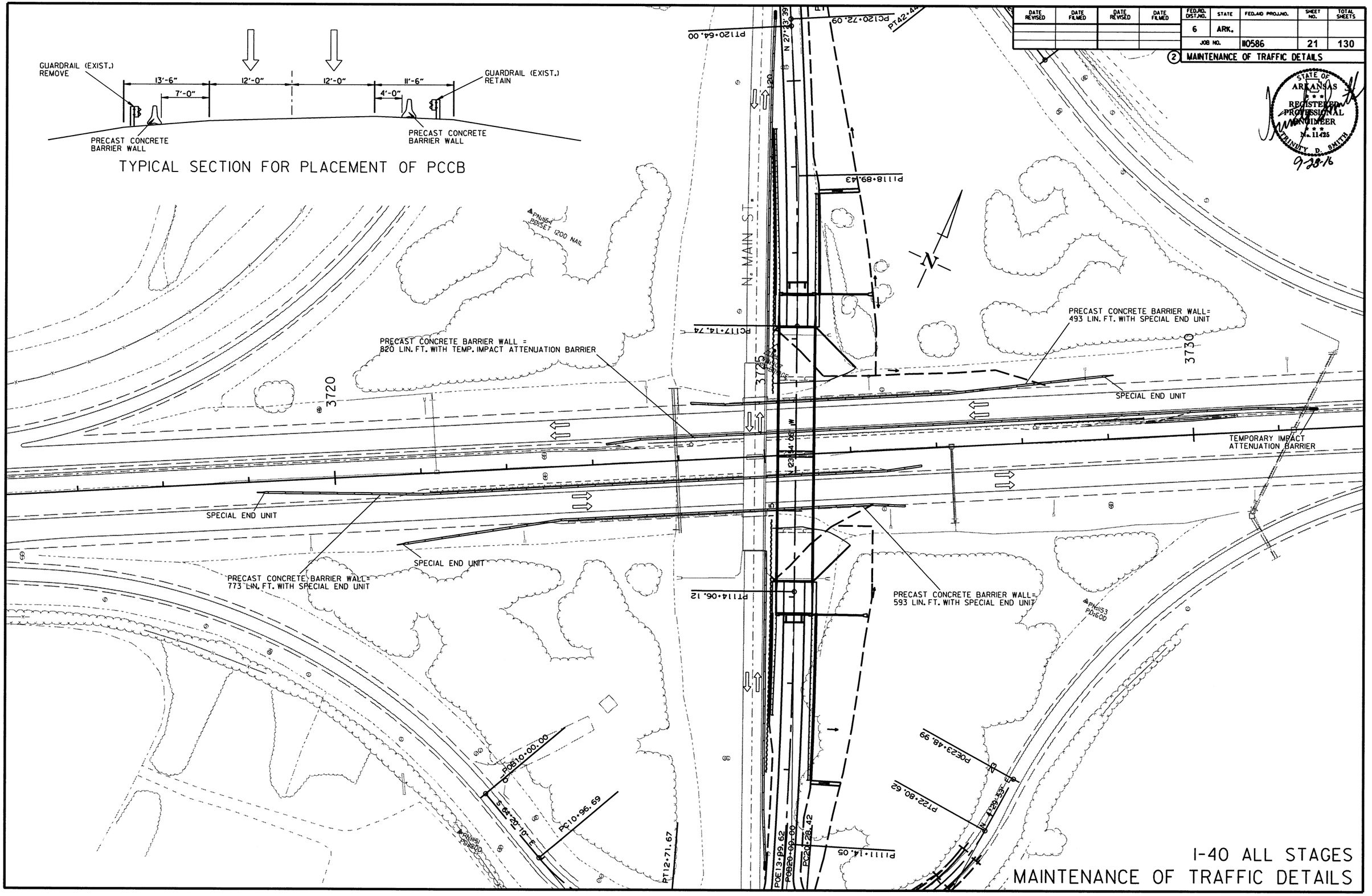
R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	21	130

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

TYPICAL SECTION FOR PLACEMENT OF PCCB



I-40 ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

9/27/2016

R110586.DGN

ALL STAGES: USE ADVANCE WARNING SIGNS LOCATED AS SHOWN IN THE MAINTENANCE OF TRAFFIC PLAN SHEETS. USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED AT 45' O.C. AS SHOWN TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS AS SHOWN.

STAGE 1: CONSTRUCT RELOCATED HWY. 261 AND CROSS DRAINS STA. 110+23 TO STA. 122+05 AND NEW BRIDGE STA. 114+17.92 TO STA. 117+14.08. NOTCH & WIDEN & CONSTRUCT CROSS DRAINS STA. 101+50 TO STA. 110+23 ON RT. & STA. 122+05 RT. OF HWY. 261. CONSTRUCT NEW APPROACHES FOR RAMP 2 & RAMP 3.

STAGE 2: NOTCH & WIDEN AND CONSTRUCT CROSS DRAINS STA. 110+23 TO STA. 122+05 LT. OF HWY. 261. CONSTRUCT NEW APPROACHES FOR RAMP 1, RAMP 2, & THE FRONTAGE ROAD. REMOVE EXISTING HWY. 261 AND EXISTING BRIDGE. FINISH SHAPING SLOPES WHERE NEEDED.

STAGE 3: PLACE FINAL ACHM LIFT AND FINAL STRIPING. CONSTRUCT GUARDRAIL LT. & RT. OF HWY. 261. REMOVE PAVEMENT FROM EXISTING HWY. 261.

SIGNS = 534 SQ. FT.
TRAFFIC DRUMS = 44 EACH
VERTICAL PANELS = 46 EACH

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	22	130

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

STA. 100+50.00
BEGIN JOB 110586

TRAFFIC DRUMS = 17 EACH
VERTICAL PANELS = 8 EACH 45' O.C. SPACING
TRAFFIC DRUMS = 16 EACH
VERTICAL PANELS = 5 EACH 45' O.C. SPACING
VERTICAL PANELS = 5 EACH 45' O.C. SPACING
ROAD CLOSED
(1) R11-2 (48" X 30")
(1) W1-6 (48" X 24")
24' BARR. TYP. III LT.
TRAFFIC DRUMS = 5 EACH 45' O.C. SPACING
ROAD CLOSED
(2) R11-2 (48" X 30")
16' BARR. TYP. III RT.
16' BARR. TYP. III LT.

P0899+97.78
P1105+39.61
P1111+89.09
PT108+14.06
PT108+21.47
PT111+14.05
PT112+71.67
PT114+06.12
POE13+89.62
POB20+00.00
PC20+28.42
P1121+70.36
PT122+80.62
POE23+48.99
RAMP 1
RAMP 2
N 31°50'40" W
N 18°03'18" W
N 20°43'59" W
N 23°54'05" W
N 27°23'39" W
N 84°37'17" E
N 84°41'29" E
N 20°43'59" W

ROAD CLOSED
(1) R11-2 (48" X 30")
16' BARR. TYP. III RT.
16' BARR. TYP. III LT.
ROAD CLOSED
(1) R11-2 (48" X 30")
(1) W1-6 (48" X 24")
24' BARR. TYP. III RT.
TRAFFIC DRUMS = 2 EACH 45' O.C. SPACING
VERTICAL PANELS = 3 EACH 45' O.C. SPACING
VERTICAL PANELS = 5 EACH 45' O.C. SPACING
VERTICAL PANELS = 5 EACH 45' O.C. SPACING
VERTICAL PANELS = 4 EACH 45' O.C. SPACING
VERTICAL PANELS = 4 EACH 45' O.C. SPACING
VERTICAL PANELS = 5 EACH 45' O.C. SPACING
TRAFFIC DRUMS = 6 EACH

PC30+44.8
PT33+33.32
PT42+44.45
PC40+40.72
PT114+06.12
PT114+74.74
PT120+64.00
PC120+72.09
P1118+89.43
PT127+38.20
PC127+39.31
PT155+12.13
POE56+20.27
POB40+00.00
P1141+50.53
RAMP 3
RAMP 4
FRONTAGE RD.
N. MAIN ST.
N 84°37'17" E
N 84°41'29" E
N 20°43'59" W

STA. 126+00.00
END JOB 110586

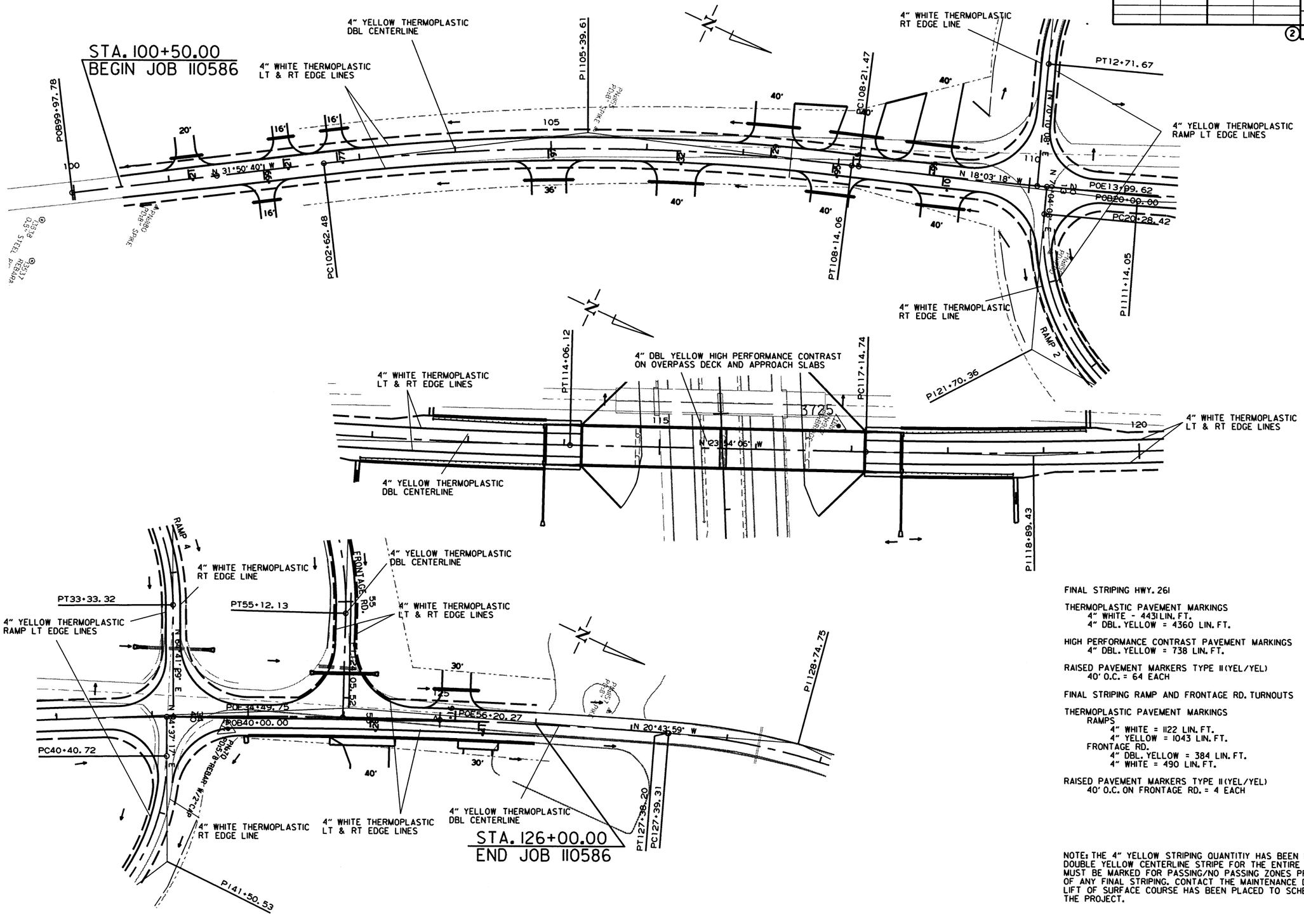
STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

9/27/2016
R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	23	130

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16



FINAL STRIPING HWY. 261

THERMOPLASTIC PAVEMENT MARKINGS
- 4" WHITE - 4431 LIN. FT.
- 4" DBL. YELLOW = 4360 LIN. FT.

HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS
- 4" DBL. YELLOW = 738 LIN. FT.

RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)
- 40' O.C. = 64 EACH

FINAL STRIPING RAMP AND FRONTAGE RD. TURNOUTS

THERMOPLASTIC PAVEMENT MARKINGS
- RAMPS
  - 4" WHITE = 1122 LIN. FT.
  - 4" YELLOW = 1043 LIN. FT.
- FRONTAGE RD.
  - 4" DBL. YELLOW = 384 LIN. FT.
  - 4" WHITE = 490 LIN. FT.

RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)
- 40' O.C. ON FRONTAGE RD. = 4 EACH

NOTE: THE 4" YELLOW STRIPING QUANTITIY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

9/27/2016

R110586.DGN

PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	24	130

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 2	STAGE 3	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKINGS		HIGH PERFORMANCE CONTRAST PAVEMENT MARKING
				TYPE II (YEL/YEL)	4"		4"
					WHITE	YELLOW	YELLOW
			LIN. FT.	EACH			LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS	12568		12568				
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)		68		68			
THERMOPLASTIC PAVEMENT MARKING WHITE (4")		6043			6043		
* THERMOPLASTIC PAVEMENT MARKING YELLOW (4")		5787				5787	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")		738					738
TOTALS:			**12568**	**68**	**6043**	**5787**	**738**

NOTES: I-40 AND HWY. 261 ARE HIGH TRAFFIC VOLUME ROADS AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2014 EDITION.

THE THERMOPLASTIC PAVEMENT MARKING YELLOW (4") QUANTITY IS ESTIMATED AND IS BASED ON THE PLACEMENT OF A DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT.
THE CONTRACTOR SHALL NOT PLACE ANY PERMANENT PAVEMENT MARKINGS UNTIL THE PASSING/NO PASSING ZONES HAVE BEEN ESTABLISHED BY THE MAINTENANCE DIVISION.

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

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)	ADVANCE WARNING ARROW PANEL	PORTABLE CHANGEABLE MESSAGE SIGN
										RIGHT	LEFT					
			LIN. FT. - EACH			NO.	SQ. FT.	EACH		LIN. FT.			EACH		DAY	WEEK
W20-1	ROAD WORK 1 MILE	48"x48"	4	4	4	4	64.0									
W20-1	ROAD WORK 1/2 MILE	48"x48"	4	4	4	4	64.0									
W20-1	ROAD WORK 1500 FT.	48"x48"	6	6	6	6	96.0									
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	32.0									
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	32.0									
W20-1	ROAD WORK AHEAD	48"x48"	5	3	5	5	80.0									
G20-2	END ROAD WORK	48"x24"	9	9	9	9	72.0									
SPECIAL [1]	MERGE NOW [LEFT GRAPHIC]	48"x48"	1		1	1	16.0									
W20-5	RIGHT LANE CLOSED 1 MILE	48"x48"	2		2	2	32.0									
W20-5	RIGHT LANE CLOSED 1/2 MILE	48"x48"	2		2	2	32.0									
W20-5	RIGHT LANE CLOSED 1500 FT	48"x48"	2		2	2	32.0									
WR-2 RT	LANE CLOSED [GRAPHIC]	48"x48"	2		2	2	32.0									
R11-2	ROAD CLOSED	48"x30"	4	4	4	4	40.0									
W1-6	LARGE ARROW	48"x24"	2	2	2	2	16.0									
W1-6	LARGER ARROW	60"x30"	3		3	3	37.5									
W3-5	REDUCED SPEED AHEAD	48"x48"	2		2	2	32.0									
R2-1	SPEED LIMIT 60 MPH	48"x60"	2		2	2	40.0									
R2-1	SPEED LIMIT 70 MPH	48"x60"	2		2	2	40.0									
R4-1	DO NOT PASS	24"x30"	4		4	4	20.0									
RSP-1	SHOULDER CLOSED	48"x30"	1	1	1	1	10.0									
R55-1	FINES DOUBLE IN WORK ZONES	36"x60"	4	4	4	4	60.0									
	VERTICAL PANELS		105	46	105	105		105								
	TRAFFIC DRUMS		56	44	56	56			56							
	TYPE III BARRICADE-RT. (16')		2	2	2					32						
	TYPE III BARRICADE-LT. (16')		2	2	2						32					
	TYPE III BARRICADE-RT. (24')		1	1	1					24						
	TYPE III BARRICADE-LT. (24')		1	1	1						24					
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		2679		2679							2679				
	TEMPORARY IMPACT ATTENUATION BARRIER		1		1								1			
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		1		1									1		
	ADVANCE WARNING ARROW PANEL		2	2	2										570	
	PORTABLE CHANGEABLE MESSAGE SIGN		4	4	4											81
TOTALS:							**879.5**	**105**	**56**	**56**	**56**	**2679**	**1**	**1**	**570**	**81**

NOTES: I-40 AND HWY. 261 ARE HIGH TRAFFIC VOLUME ROADS AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2014 EDITION.

9/28/2016

R110586.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	25	130

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CURB	BUILDINGS	POSTS	CONCRETE DRIVEWAYS	WIRE ROPE SAFETY FENCE	SIGN FOUNDATIONS	GUARDRAIL	CONCRETE DITCH PAVING	LUMINAIRE POLE AND FOUNDATION	SIGNS
			LIN. FT.	EACH		SQ. YD.	LIN. FT.	EACH	LIN. FT.	SQ. YD.	EACH	
3722+70	3724+70	I-40 LEFT MAIN LANES ON LT.							200			
3725+07	3727+07	I-40 RIGHT MAIN LANES ON RT.							200			
3728+15	3728+65	I-40 LEFT MAIN LANES ON RT.							50			
3729+25	3730+50	I-40 LEFT MAIN LANES ON RT.					125			31		
101+07		HWY. 261 LT.		1								
102+25		HWY. 261 LT.		1								
103+76		HWY. 261 RT.										1
105+69		HWY. 261 RT.										1
105+69		HWY. 261 RT.						1				
106+86		HWY. 261 RT.										1
106+86		HWY. 261 RT.						1				
107+42		HWY. 261 RT.										1
107+61	108+02	HWY. 261 LT.	58									
107+99		HWY. 261 LT.										1
108+43	108+88	HWY. 261 LT.	66									
108+98		HWY. 261 RT.										1
109+29	109+48	HWY. 261 LT.	61									
112+03	114+55	HWY. 261 LT.							250			
112+06	144+55	HWY. 261 LT.							250			
116+71	119+76	HWY. 261 LT.							300			
116+71	119+73	HWY. 261 LT.							300			
123+63	124+05	HWY. 261 RT.	67									
123+80		HWY. 261 RT.										1
124+05		HWY. 261 RT.									1	
124+28		HWY. 261 RT.				386						
124+48		HWY. 261 LT.										1
124+51	125+25	HWY. 261 RT.	108									
125+00		HWY. 261 LT.			1							
125+36		HWY. 261 LT.			1							
125+41		HWY. 261 RT.				169						
125+56	126+00	HWY. 261 RT.	53									
TOTALS:			413	2	2	555	125	2	1550	31	1	8

NOTE: PAYMENT FOR REMOVAL AND DISPOSAL OF GUARDRAIL SHALL INICLUDE THE REMOVAL AND DISPOSAL OF GUARDRAIL TERMINAL POSTS IF APPLICABLE.

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
100+00	104+00	HWY. 261	4	4
105+00	106+00	HWY. 261	1	1
111+00	115+00	HWY. 261	4	4
116+00	119+00	HWY. 261	3	3
TOTALS:			12	12

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
122+67	123+83	HWY. 261 RT.	66
TOTAL:			66

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (DOUBLE)
	EACH	
ENTIRE PROJECT	4	2
TOTALS:	4	2

COLD MILLING PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT	SCARIFYING CONCRETE PAVEMENT
			FEET	SQ. YD.	SQ. YD.
95+50	100+50	HWY. 261	22	1222	
126+00	127+00	HWY. 261	22	244	
11+50	12+50	HWY. 261 RAMP 1	15		167
21+50	22+37	HWY. 261 RAMP 2	15		145
22+37	22+50	HWY. 261 RAMP 2	15	22	
32+00	33+00	HWY. 261 RAMP 3	15		167
41+50	42+50	HWY. 261 RAMP 4	15		167
54+00	55+00	HWY. 261 FRONTAGE ROAD	20	222	
TOTALS:				1710	646

NOTE: AVERAGE MILLING DEPTH 1".

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE A)
			LIN. FT.
122+54	122+89	HWY. 261 RT.	34
TOTAL:			34

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
111+86		HWY. 261 RT.	34.50	4	15	15	0.19
112+63		HWY. 261 LT.	97.00	4	43	43	0.54
118+71		HWY. 261 RT.	46.75	4	21	21	0.26
119+47		HWY. 261 LT.	89.25	4	40	40	0.50
3729+50	3730+50	I-40 LEFT MAIN LANES ON RT.	100.00	4	44	44	0.55
TOTALS:					163	163	2.04

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

9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	110586		26	130

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	**MODIFIED CURB		PORTLAND CEMENT CONCRETE DRIVEWAY (SPECIAL)	PORTLAND CEMENT CONCRETE DRIVEWAY	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS		STANDARD DRAWINGS
											18"	24"	
			FEET	STATION	STATION	SQ. YD.		SQ. YD.	TON	TON	LIN. FT.		
101+21	LT.	HWY. 261 / DRIVE	20					59.40	6.53	24.26	34		PCC-1, PCM-1, PCP-1, PCP-1
101+99	RT.	HWY. 261 / DRIVE	16					24.70	2.72	27.10	30		PCC-1, PCM-1, PCP-1, PCP-1
102+21	LT.	HWY. 261 / DRIVE	16					49.10	5.40	20.05	28		PCC-1, PCM-1, PCP-1, PCP-1
102+77	LT.	HWY. 261 / DRIVE	16					24.70	2.72	26.73	30		PCC-1, PCM-1, PCP-1, PCP-1
104+97	RT.	HWY. 261 / DRIVE	36					111.90	12.31	45.69	52		PCC-1, PCM-1, PCP-1, PCP-1
106+32	RT.	HWY. 261 / DRIVE	40					124.00	13.64	50.63	58		PCC-1, PCM-1, PCP-1, PCP-1
107+29	LT.	HWY. 261 / DRIVE	40					184.90	20.34	75.50	56		PCC-1, PCM-1, PCP-1, PCP-1
107+95	RT.	HWY. 261 / DRIVE	40					106.40	11.70	43.45	52		PCC-1, PCM-1, PCP-1, PCP-1
108+15	LT.	HWY. 261 / DRIVE	40					197.90	21.77	80.81	56		PCC-1, PCM-1, PCP-1, PCP-1
108+95	LT.	HWY. 261 / DRIVE	40					312.10	34.33	127.44	56		PCC-1, PCM-1, PCP-1, PCP-1
109+10	RT.	HWY. 261 / DRIVE	40					117.10	12.88	47.82	52		PCC-1, PCM-1, PCP-1, PCP-1
124+28	RT.	HWY. 261 / DRIVE	40	123+78	124+62	154.60							
125+16	LT.	HWY. 261 / DRIVE	30					43.40	4.77	51.64		48	PCC-1, PCM-1, PCP-1, PCP-1
125+41	RT.	HWY. 261 / DRIVE	30	125+12	125+70		60.30						
* ENTIRE	PROJECT	ADDITIONAL FOR TEMPORARY DRIVES								500.00			
TOTALS:						**154.60**	**60.30**	**1355.60**	**149.11**	**1121.12**	**504**	**48**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
* QUANTITY ESTIMATED
SEE SECTION 104.03 OF THE STD. SPECS.
TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
NOTE: FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

THE CONTRACTOR, WITH THE 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 ADDITIONAL COST TO THE DEPARTMENT.

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	50
ENGINEER	
TOTAL:	**50**

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

GUARD CABLE MOVED AND RECONSTRUCTED

STATION	STATION	LOCATION	GUARD CABLE
			LIN. FT.
54+50	55+50	FRONTAGE ROAD RT.	100
TOTAL:			**100**

WIRE ROPE SAFETY FENCE

STATION	STATION	LOCATION	WIRE ROPE SAFETY FENCE	WIRE ROPE SAFETY FENCE (POST REPAIR)	TEMPORARY TERMINAL ANCHOR FOR WIRE ROPE SAFETY FENCE
			LIN. FT.	EACH	
3729+25	3730+50	I-40 LML ON RT.	125		
ENTIRE	PROJECT			10	1
TOTALS:			**125**	**10**	**1**

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL									
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	DROP INLET SILT FENCE (E-7)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE		M.GAL.	BAG	CU.YD.	LIN. FT.			CU. YD.	
100+50	126+00	CLEARING AND GRUBBING									352						16
100+50	126+00	STAGE 1						3.04	3.04	62.0	176		50	1699			73
100+50	126+00	STAGE 2						3.81	3.81	77.7	286			908			47
100+50	126+00	STAGE 3	3.44	6.88	3.44	350.9	3.44										
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.											198	27	25	652	222	222	247
TOTALS:			**3.44**	**6.88**	**3.44**	**350.9**	**3.44**	**6.85**	**6.85**	**139.7**	**1012**	**27**	**75**	**3259**	**222**	**222**	**383**

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING
DROP INLET SILT FENCE.....25FT./DROP INLET
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

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

9/28/2016

R110586.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	110586		27	130

(2) QUANTITIES

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TIMOTHY D. SMITH 9-28-16

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 24" LIN. FT.	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 24" EACH	SOLID SODDING SQ.YD.	WATER M.GAL.	STD. DWG. NOS.
33+79	EXTEND R.C. PIPE CULVERT 8' LT. & 10' RT. W/FES LT. & RT.	26	2	16.00	0.20	FES-1, FES-2, PCC-1
55+75	CONSTRUCT R.C. PIPE CULVERT W/FES LT. & RT.	60	2	16.00	0.20	FES-1, FES-2, PCC-1
3723+98	REMOVE HDWLS. LT. & RT. AND ADD FES LT. & RT.	8	2	16.00	0.20	FES-1, FES-2, PCC-1
TOTALS:		94	6	48.00	0.60	

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

NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	35	70
DIRECTED BY THE ENGINEER		
TOTALS:	35	70

BASIS OF ESTIMATE:
ASPHALT CONCRETE PATCHING FOR MAINT. OF TRAFFIC=25 TONS/MI
TACK COAT = 50 GAL/MI

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	50
DIRECTED BY THE ENGINEER	
TOTAL:	50

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

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTERS (TYPE C)	APPROACH SLABS TYPE SPECIAL 1	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)	DROP INLETS (TYPE N2)	CONCRETE SPILLWAY (TYPE A)	12" ZINC COATED (GALVANIZED) CORR. STEEL PIPE CULVERTS (16 GAUGE)	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18"
			CU.YD.		POUND	TON	EACH		LIN. FT.	
113+81.42	114+17.92	LT. SIDE	14.79		807		1			46
113+81.42	114+17.92	LANES		49.15	5802	56.80				
113+81.42	114+17.92	RT. SIDE	14.79		807		1	1	62	
117+14.08	117+50.58	LT. SIDE	14.79		807		1			46
117+14.08	117+50.58	LANES		49.15	5802	56.80				
117+14.08	117+50.58	RT. SIDE	14.79		807		1	1	62	
TOTALS:			59.16	98.30	14832	113.60	4	2	124	92

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

EARTHWORK

	STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	COMPACTED EMBANKMENT (SPECIAL)	** GEOGRID REINFORCEMENT	* SOIL STABILIZATION
				CU. YD.			SQ. YD.	TON
	100+50	126+00	STAGE 1-HWY. 261 RT.	11468	4865	27475	72902	
	100+50	126+00	STAGE 2-HWY. 261 LT.	3146	107			
	3721+44	3726+23	I-40 RIGHT MAIN LANES ON RT.	2703	2			
	3723+98	3728+31	I-40 RIGHT MAIN LANES ON LT.	2547				
	20+12	22+50	STAGE 1-RAMP 2 RT.	13	3			
	20+12	22+50	STAGE 2-RAMP 2 LT.		23			
	32+00	34+37.75	STAGE 1-RAMP 3 RT.		26			
	32+00	34+37.75	STAGE 2-RAMP 3 LT.	8	8			
	40+12	42+50	STAGE 1-RAMP 4 RT.	7	16			
	40+12	42+50	STAGE 2-RAMP 4 LT.	19	7			
	54+00	56+08.26	FRONTAGE ROAD RT.	8				
	54+00	56+08.26	FRONTAGE ROAD LT.	8	12			
	100+50	126+00	APPROACHES		750			
*	ENTIRE	PROJECT	TO BE USED IF AND WHERE					250
			DIRECTED BY THE ENGINEER					
	TOTALS:			19927	5819	27475	72902	250

NOTE: EARTHWORK QUANTITIES SHOWN ABOVE SHALL BE PAID AS PLAN QUANTITY.
* QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.
** QUANTITY ESTIMATED FOR BIDDING PURPOSES ONLY, NOT FOR PAYMENT.
SEE SPECIAL PROVISION "GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION".

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS LIN.FT.
101+56	101+88	HWY. 261 - LEFT	32
103+09	106+85	HWY. 261 - LEFT	304
110+72	113+80	HWY. 261 - LEFT	248
117+51	121+61	HWY. 261 - LEFT	338
122+99	123+21	HWY. 261 - LEFT	22
102+32	104+53	HWY. 261 - LEFT	185
102+32	104+53	HWY. 261 - RIGHT	185
105+41	105+86	HWY. 261 - RIGHT	45
106+78	107+54	HWY. 261 - RIGHT	64
108+40	108+65	HWY. 261 - RIGHT	25
110+84	113+80	HWY. 261 - RIGHT	248
117+51	121+50	HWY. 261 - RIGHT	327
122+91	123+80	HWY. 261 - RIGHT	77
TOTAL:			2100

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

CONCRETE BARRIER WALL

STATION	LOCATION	PIER PROTECTION (TYPE A) LIN. FT.
3725+36	I-40 MEDIAN ON RT.	27
3725+37	I-40 MEDIAN ON LT.	27
TOTAL:		54

9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	28	130

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
07-28-16

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
114+18	RIGHT CORNER OF BRIDGE END	1
TOTAL:		1

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

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			1000	10
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			1000	10

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

PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

STATION	LOCATION	WIDTH	LENGTH	TON
		FEET		
55+74	PALESTINE - FRONTAGE ROAD	8.5	32	18
TOTAL:				18

AVG. DEPTH = 14"

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.	EACH	
111+88.57	114+06.51	HWY. 261 RT.	75	1	1
112+62.25	114+06.51	HWY. 261 LT.	150	1	1
117+25.44	118+68.66	HWY. 261 RT.	150	1	1
117+25.52	119+45.07	HWY. 261 LT.	75	1	1
3728+65.39	3729+40.39	I-40 WEST ON LT	75		1
TOTALS:			525	4	5

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE A (1' 6")	TYPE B-1 (1' 6")
			LIN. FT.	
107+49	108+02	HWY. 261 LT. ON R/W	55	
108+42	108+83	HWY. 261 LT. ON R/W	43	
123+00	126+00	HWY. 261 RT.		299
112+62	113+78	HWY. 261 LT.		116
111+88	113+78	HWY. 261 RT.		190
117+54	119+45	HWY. 261 LT.		191
117+54	118+20	HWY. 261 RT.		66
TOTALS:			98	862

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
101+30	18"X24' C.M. PIPE CULVERT ON LT.	1
101+95	18"X16' C.M. PIPE CULVERT ON LT.	1
101+97	18"X24' C.M. PIPE CULVERT ON RT.	1
102+78	18"X20' C.M. PIPE CULVERT ON LT.	1
104+96	18"X48' C.M. PIPE CULVERT ON RT.	1
106+41	18"X77' C.M. PIPE CULVERT ON RT.	1
106+99	18"X22' C.M. PIPE CULVERT ON RT.	1
125+17	24"X46' C.M. PIPE CULVERT ON LT.	1
TOTAL:		8

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

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
102+00	34	58	51.40	90	54	11.80	5' RT.	0-5	ND	NP	A-2-4(0)	BROWN
102+00	34	58	51.50	90	54	11.70	20' RT.	0-5	35	16	A-6(14)	BROWN
102+00	34	58	51.50	90	54	11.70	20' RT.	0-5	ND	NP	A-4(0)	BROWN
124+00	34	59	11.00	90	59	22.10	5' LT.	0-5	35	17	A-6(15)	BROWN

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

9/27/2016

R110586.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	29	130

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT							ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
						(0.17 GAL. PER SQ. YD.)			(0.05 GAL. PER SQ. YD.)																			
				TON / STATION	TON	AVG. WID.	SQ.YD.	GALLON	AVG. WID.	SQ.YD.	GALLONS	TOTAL GALLONS	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 76-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 76-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 76-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 76-22	TOTAL PG 76-22
			FEET			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	FEET			TON	TON
HWY. 261																													
99+50.00	100+50.00	TRANSITION	100.00			31.00	344.44	58.55				58.55													31.00	344.44	220.00	37.89	37.89
100+50.00	108+82.13	NOTCH & WIDEN - OPEN SHOULDER	832.13	VAR.	1555.88				VAR.	1764.20	88.21	88.21	VAR.	592.80	550.00	163.02	VAR.	593.58	330.00	97.94	VAR.	577.82	220.00	63.56	40.00	3698.36	220.00	406.82	470.38
108+82.13	112+62.25	FULL DEPTH - OPEN SHOULDER	380.12	206.50	784.95				85.50	3611.14	180.56	180.56	28.79	1215.96	550.00	334.39	28.46	1202.02	330.00	198.33	28.25	1193.15	220.00	131.25	40.00	1689.42	220.00	185.84	317.09
112+62.25	113+81.42	FULL DEPTH - CURB & GUTTER	119.17	337.00	401.60				85.50	1132.12	56.61	56.61	28.79	381.21	550.00	104.83	28.46	376.84	330.00	62.18	28.25	374.06	220.00	41.15	38.50	509.78	220.00	56.08	97.23
117+50.58	119+45.23	FULL DEPTH - CURB & GUTTER	194.65	337.00	655.97				85.50	1849.18	92.46	92.46	28.79	622.66	550.00	171.23	28.46	615.53	330.00	101.56	28.25	610.98	220.00	67.21	38.50	832.67	220.00	91.59	158.80
119+45.23	120+89.86	FULL DEPTH - OPEN SHOULDER	144.63	206.50	298.66				85.50	1373.99	68.70	68.70	28.79	462.66	550.00	127.23	28.46	457.35	330.00	75.46	28.25	453.98	220.00	49.94	40.00	642.80	220.00	70.71	120.65
120+89.86	121+58.13	NOTCH & WIDEN - CURB & GUTTER	68.27	VAR.	171.70				VAR.	632.05	31.60	31.60	VAR.	211.85	550.00	58.26	VAR.	210.52	330.00	34.74	VAR.	209.68	220.00	23.06	40.00	303.42	220.00	33.38	56.44
121+58.13	123+00.00	NOTCH & WIDEN - OPEN SHOULDER	141.87	VAR.	292.96				VAR.	1107.31	55.37	55.37	VAR.	371.33	550.00	102.12	VAR.	368.79	330.00	60.85	VAR.	367.19	220.00	40.39	39.25	618.71	220.00	68.06	108.45
123+00.00	126+00.00	NOTCH & WIDEN - CURB & GUTTER ON LT.	300.00	VAR.	663.18				VAR.	1141.89	57.09	57.09	VAR.	385.48	550.00	106.01	VAR.	379.94	330.00	62.69	VAR.	376.47	220.00	41.41	39.25	1308.33	220.00	143.92	185.33
126+00.00	127+00.00	TRANSITION	100.00			31.00	344.44	58.55				58.55													31.00	344.44	220.00	37.89	37.89
RAMPS AND FRONTAGE RD.																													
11+50.00	13+88.00	HWY. 261-RAMP 1	238.00			VAR.	798.47	135.74				135.74													VAR.	798.47	220.00	87.83	87.83
20+12.00	22+50.00	HWY. 261-RAMP 2	238.00	VAR.	99.92	VAR.	654.47	111.26	VAR.	344.46	17.22	128.48	VAR.	116.58	550.00	32.06	VAR.	114.57	330.00	18.90	VAR.	113.31	220.00	12.46	VAR.	802.61	220.00	88.29	100.75
32+00.00	34+38.00	HWY. 261-RAMP 3	238.00	VAR.	106.92	VAR.	654.51	111.27	VAR.	315.64	15.78	127.05	VAR.	107.18	550.00	29.47	VAR.	104.93	330.00	17.31	VAR.	103.53	220.00	11.39	VAR.	797.01	220.00	87.67	99.06
40+12.00	42+50.00	HWY. 261-RAMP 4	238.00			VAR.	801.99	136.34				136.34													VAR.	801.99	220.00	88.22	88.22
54+00.00	56+08.00	FRONTAGE RD.	208.00			VAR.	661.68	112.49				112.49													VAR.	661.68	220.00	72.78	72.78
ADDITIONAL FOR LEVELING																													
100+50.00	126+00.00	HWY. 261	2550.00																						VAR.	VAR.	VAR.	334.00	334.00
20+12.00	22+50.00	HWY. 261-RAMP 2	238.00																						VAR.	VAR.	VAR.	104.87	104.87
32+00.00	34+38.00	HWY. 261-RAMP 3	238.00																						VAR.	VAR.	VAR.	80.67	80.67
ADDITIONAL FOR SUPERELEVATION																													
101+12.48	108+12.46		699.98	VAR.	236.68																								
ADDITIONAL FOR GUARDRAIL WIDENING																													
111+45.65	113+81.42	HWY. 261 - ON RT.	235.77	57.00	134.39																				VAR.	138.20	220.00	15.20	15.20
112+19.00	113+81.42	HWY. 261 - ON LT.	162.42	57.00	92.58																				VAR.	89.60	220.00	9.86	9.86
117+50.58	119+11.60	HWY. 261 - ON RT.	161.02	57.00	91.78																				VAR.	89.90	220.00	9.89	9.89
117+50.58	119+88.01	HWY. 261 - ON LT.	237.43	57.00	135.34																				VAR.	137.50	220.00	15.13	15.13
3728+75.29	3729+97.25	I-40 LEFT MAIN LANES ON RT.	121.96	VAR.	35.50																				VAR.	83.30	220.00	9.16	9.16
TOTALS:					**5758.01**		4260.00	724.20		13271.98	663.60	1387.80		**4467.71**		**1228.62**		**4424.07**		**729.96**		**4380.17**		**481.82**		**14692.63**		**2135.75**	**2617.57**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.8% MIN. AGGR.....4.2% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.0% MIN. AGGR.....4.0% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 205 FOR PG 76-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

9/27/2016

R110586.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	30	130
				① 07232		QUANTITIES		53306

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 110586

BRIDGE NO. / CODE NO. / NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	802	802	803	804	804	805	SP & 807	807	808	809	812	816	SP JOB 110586
		ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	① STEEL SHELL PILING (18" DIAMETER)	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50)	② PAINTING STRUCTURAL STEEL	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	CONCRETE RIPRAP	SHORING (SITE NO. 1)
		UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LB.	TON	CU. IN.	LIN. FT.	EACH	CU. YD.	LUMP SUM
07232 X771 Highway 261	BENT NO. 1			5	33.07		0.3	4,347	500	450	760		1,687.5			112	
	BENT NO. 2			109	81.88			13,310		910			1,812.5				
	BENT NO. 3			144	107.00			19,206		1260			2,103.0				
	BENT NO. 4			109	81.88			13,310		910			1,812.5				
	BENT NO. 5			5	33.07		0.3	4,347	500	450	760		1,687.5			119	
	294'-0" CONT. COMP. W-BEAM UNIT					400.70	30.8		100,140		293,090	146		86	1		
TOTALS FOR JOB NO. 110586			1	372	336.90	400.70	31.4	54,520	101,140	3,980	294,610	146	9,103.0	86	1	231	1

① STEEL SHELL PILES SHALL CONFORM TO ASTM A252, GRADE 3, Fy = 45 ksi.

ONLY CONICAL OR VANED PILE TIPS SHALL BE PERMITTED FOR STEEL SHELL PILES IN BENTS 1 AND 5 OF ALL BRIDGES. FLAT PILE TIPS MAY BE USED AT INTERIOR BENTS.

② PAINT SHALL CONFORM TO FEDERAL STANDARD 595B, COLOR CHIP NO. 36270, GRAY.

AILEEN SCHUBEL
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9225
9-20-16
CHARLES R. ELLIS

BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
HWY. 261 STR. & APPRS. (S)
ST. FRANCIS COUNTY

ROUTE 261 SEC. 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 9-14-11 FILENAME: b110586_q1.dgn
CHECKED BY: K.WY DATE: 4-8-14 SCALE: NONE
DESIGNED BY: — DATE: —
BRIDGE NO. 07232 DRAWING NO. 53306

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	110586		31	130

(2) SUMMARY OF QUANTITIES & REVISIONS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

SUMMARY OF QUANTITIES (BOX 1 OF 2)

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	12	STATION
201	GRUBBING	12	STATION
202	REMOVAL AND DISPOSAL OF CURB	413	LIN. FT.
202	REMOVAL AND DISPOSAL OF FENCE	66	LIN. FT.
202	REMOVAL AND DISPOSAL OF POSTS	2	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS	555	SQ. YD.
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS	2	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	8	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	1550	LIN. FT.
SP & 202	REMOVAL AND DISPOSAL OF WIRE ROPE SAFETY FENCE	125	LIN. FT.
202	REMOVAL AND DISPOSAL OF LUMINAIRE POLE AND FOUNDATION	1	EACH
202	REMOVAL AND DISPOSAL OF BUILDINGS	2	EACH
202	REMOVAL AND DISPOSAL OF SIGNS	8	EACH
210	UNCLASSIFIED EXCAVATION	19927	CU. YD.
210	COMPACTED EMBANKMENT	5819	CU. YD.
SP & 210	COMPACTED EMBANKMENT (SPECIAL)	27475	CU. YD.
SP & 210	SOIL STABILIZATION	250	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	6993	TON
SS & 401	TACK COAT	1458	GAL.
SP & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")	1180	TON
SP & 405	ASPHALT BINDER (PG 76-22) IN ACHM BASE COURSE (1 1/2")	49	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	699	TON
SP, SS, & 406	ASPHALT BINDER (PG 76-22) IN ACHM BINDER COURSE (1")	31	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	2620	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	8	TON
SP, SS, & 407	ASPHALT BINDER (PG 76-22) IN ACHM SURFACE COURSE (1/2")	139	TON
412	COLD MILLING ASPHALT PAVEMENT	1710	SQ. YD.
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	35	TON
SP & 415	ACHM PATCHING OF EXISTING ROADWAY	50	TON
504	APPROACH SLABS	98.30	CU. YD.
504	APPROACH GUTTERS	59.16	CU. YD.
505	PORTLAND CEMENT CONCRETE DRIVEWAY	60.30	SQ. YD.
SP & 505	PORTLAND CEMENT CONCRETE DRIVEWAY (SPECIAL)	154.60	SQ. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SP & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SS & 604	SIGNS	880	SQ. FT.
SS & 604	BARRICADES	112	LIN. FT.
SS & 604	TRAFFIC DRUMS	56	EACH
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	2679	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	12568	LIN. FT.
604	ADVANCE WARNING ARROW PANEL	570	DAY
SP & 604	PORTABLE CHANGEABLE MESSAGE SIGN	81	WEEK
SS & 604	VERTICAL PANELS	105	EACH
SP & 605	CONCRETE DITCH PAVING (TYPE B)	163	SQ. YD.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	92	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	94	LIN. FT.
606	12" ZINC COATED (GALVANIZED) CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	124	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN	504	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	48	LIN. FT.
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	6	EACH
606	SELECTED PIPE BEDDING	50	CU. YD.
609	DROP INLETS (TYPE N2)	4	EACH
611	UNDERDRAIN OUTLET PROTECTORS	10	EACH
611	4" PIPE UNDERDRAINS	1000	LIN. FT.
614	CONCRETE SPILLWAY (TYPE A)	2	EACH
615	PAVEMENT REPAIR OVER CULVERTS (ASPHALT)	18	TON
617	GUARDRAIL (TYPE A)	525	LIN. FT.
617	GUARDRAIL TERMINAL (TYPE 2)	5	EACH
617	THRIE BEAM GUARDRAIL TERMINAL	4	EACH
619	WIRE FENCE (TYPE A)	34	LIN. FT.
620	LIME	7	TON
620	SEEDING	3.44	ACRE
SS & 620	MULCH COVER	10.29	ACRE
620	WATER	493.2	M.GAL.
621	TEMPORARY SEEDING	6.85	ACRE
621	SILT FENCE	3259	LIN. FT.
621	SAND BAG DITCH CHECKS	1012	BAG
621	DROP INLET SILT FENCE	75	LIN. FT.
621	SEDIMENT BASIN	222	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	222	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	383	CU. YD.

SUMMARY OF QUANTITIES (BOX 2 OF 2)

ITEM NUMBER	ITEM		QUANTITY	UNIT
621	ROCK DITCH CHECKS		27	CU. YD.
623	SECOND SEEDING APPLICATION		3.44	ACRE
624	SOLID SODDING		211	SQ. YD.
631	CONCRETE BARRIER WALL (PIER PROTECTION TYPE A)		54	LIN. FT.
634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")		98	LIN. FT.
634	CONCRETE COMBINATION CURB AND GUTTER (TYPE B-1) (1' 6")		862	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
637	MAILBOXES		4	EACH
637	MAILBOX SUPPORTS (DOUBLE)		2	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS		2100	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")		6043	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")		5787	LIN. FT.
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	(ALTERNATE NO. 1)	738	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	(ALTERNATE NO. 2)	738	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)		68	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER		1	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		1	EACH
804	REINFORCING STEEL-ROADWAY (GRADE 60)		14832	POUND
SP	SCARIFYING CONCRETE PAVEMENT		646	SQ. YD.
SP	GUARD CABLE MOVED AND RECONSTRUCTED		100	LIN. FT.
SP	WIRE ROPE SAFETY FENCE		125	LIN. FT.
SP	WIRE ROPE SAFETY FENCE (POST REPAIR)		10	EACH
SP	TEMPORARY TERMINAL ANCHOR FOR WIRE ROPE SAFETY FENCE		1	EACH
SP	REMOVAL AND DISPOSAL OF CONCRETE DITCH PAVING		125	LIN. FT.
	STRUCTURES OVER 20' SPAN			
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)		1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL		1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE		372	CU. YD.
802	CLASS S CONCRETE-BRIDGE		336.90	CU. YD.
802	CLASS S(AE) CONCRETE-BRIDGE		400.70	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT		31.4	GAL.
804	REINFORCING STEEL-BRIDGE (GRADE 60)		54520	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)		101140	POUND
805	STEEL SHELL PILING (18" DIAMETER)		3980	LIN. FT.
SP & 807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50)		294610	POUND
807	PAINTING STRUCTURAL STEEL		146	TON
808	ELASTOMERIC BEARINGS		9103.0	CU. IN.
809	SILICONE JOINT SEALANT		86.0	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)		1	EACH
816	CONCRETE RIPRAP		231	CU. YD.
SP	SHORING (SITE NO. 1)		1.00	LUMP SUM

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER

9/28/2016

R110586.DGN

SUMMARY OF QUANTITIES & 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.		110586	32	130

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

SURVEY CONTROL COORDINATES

Project Name: s110543
Date: 12/16/2011
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL,
PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
4	238231.2161	1639829.6339	212.664	CTL	5/8"REBAR W/2"CAP
5	238597.2389	1640547.7864	211.791	CTL	5/8"REBAR W/2"CAP
6	238957.8585	1641239.5855	209.410	CTL	5/8"REBAR W/2"CAP
12	265160.5552	1703836.4102	208.009	CTL	5/8"REBAR W/2"CAP
13	265645.0565	1704480.0241	207.083	CTL	5/8"REBAR W/2"CAP
14	266104.1770	1705102.9702	207.138	CTL	5/8"REBAR W/2"CAP
20	294348.2562	1763656.1102	207.676	CTL	5/8"REBAR W/2"CAP
22	294455.3646	1765532.0169	205.430	CTL	5/8"REBAR W/2"CAP
67	265885.6765	1704585.7514	227.187	CTL	5/8"REBAR W/2"CAP
68	238432.7153	1640490.8480	232.317	CTL	5/8"REBAR W/2"CAP
69	238660.2608	1640388.9844	232.631	CTL	5/8"REBAR W/2"CAP
70	239233.2986	1640203.2305	207.445	CTL	5/8"REBAR W/2"CAP
71	264791.5352	1704533.6876	203.769	CTL	5/8"REBAR W/2"CAP
72	266626.9989	1704637.6605	201.162	CTL	5/8" REBAR W/2"CAP
73	265574.2778	1704583.9229	227.564	CTL	5/8"REBAR W/2"CAP
74	294411.9403	1764729.8846	206.794	CTL	5/8"REBAR W/2"CAP
75	293275.0525	1765290.9624	207.393	CTL	5/8" REBAR W/2"CAP
76	293830.4147	1765106.7189	210.334	CTL	5/8"REBAR W/2"CAP
77	294303.5324	1764885.1274	228.437	CTL	5/8"REBAR W/2"CAP
78	237986.1140	1640657.7507	212.975	GPS	AHTD GPS 680011A
79	294598.3792	1764745.3917	228.443	CTL	5/8"REBAR W/2"CAP
80	295183.9581	1764476.3857	204.677	CTL	5/8"REBAR W/2"CAP
81	263471.4275	1704586.0667	201.849	GPS	AHTD GPS 680012
82	293263.3347	1764089.0851	204.129	GPS	AHTD GPS 680013
100	236850.5490	1641325.2938	210.816	GPS	AHTD GPS 680011
103	261232.6802	1704582.3306	201.459	GPS	AHTD GPS 680012A
105	291327.2243	1765118.1705	202.568	GPS	AHTD GPS 680013A
900	233243.8110	1638622.0395	212.880	TBM	5/8" REBAR W/2"CAP
901	256195.6771	1704904.6868	205.657	TBM	5/8" REBAR W/2"CAP
902	258618.7036	1704622.9219	201.880	TBM	5/8" REBAR W/2"CAP
903	277874.2421	1764125.7242	202.302	TBM	AHTD ALUM CAP
904	280200.7005	1764173.1537	200.241	TBM	5/8" REBAR W/2"CAP
905	283536.8338	1764121.9791	200.786	TBM	5/8" REBAR W/2"CAP
906	288390.6659	1764130.6094	199.762	TBM	5/8" REBAR W/2"CAP
907	238683.4776	1640425.9604	233.803	TBM	BRIDGE
908	239630.4005	1640107.5324	205.526	TBM	GAS FILLER ISLAND
909	264785.6711	1704540.8513	202.226	TBM	CH SQ IN IN CTR HEAD WALL
910	265897.7472	1704526.0518	229.015	TBM	CH SQ IN NE COR BR
911	266607.6456	1704682.8918	201.657	TBM	CH SQ IN CTR OF N HEADWAL
912	293259.8115	1765135.8571	210.420	TBM	CH SQ NE COR OF BR,16' N OF C/L US-70
913	294266.9303	1764871.1567	230.168	TBM	CH SQ SE COR OF BR
990	234268.6493	1639859.1595	205.140	BM	NGS MARK S 169
991	232911.1765	1635962.2306	210.170	BM	NGS MARK R169
992	253679.3177	1705769.9961	205.502	BM	NGS MARK G 170
993	277274.0482	1764550.5216	199.209	BM	NGS MARK H 173

*Note - Rebar and Cap - Standard -t" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 0.9999684494 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME.s110543gi.ctl
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE
AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 680011 - 680011A 680012 - 680012A 680013 - 680013A
CONVERGENCE ANGLE:00-45-45.9 RIGHT AT LT:35-03-20.8 LG:090-41-22.4
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

CONST. 261

POINT NO.	TYPE	STATION	NORTHING	EASTING
8034	POB	99+97.78	237161.8531	1641146.6330
8035	PC	102+62.48	237386.7154	1641006.9712
8037	PT	108+14.06	237885.6080	1640774.8665
8038	PC	108+21.47	237892.6536	1640772.5697
8040	PT	114+06.12	238438.3126	1640563.3478
8041	PC	117+14.74	238720.4743	1640438.3018
8043	PT	120+64.00	239035.2673	1640287.1551
8044	PC	120+72.09	239042.4556	1640283.4300
8046	PT	127+38.20	239650.3336	1640011.9771
8047	PC	127+39.31	239651.3674	1640011.5857
8049	PT	130+07.03	239913.4644	1639965.2561
8050	POE	133+09.98	240216.3979	1639968.8743

CONST. 261 FRONTAGE RD.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8058	POB	50+00.00	238861.7497	1639857.1703
8059	PC	50+99.51	238960.7626	1639847.2073
8061	PT	55+12.13	239293.7028	1640042.2116
8062	POE	56+20.27	239336.8904	1640141.3528

CONST. 261 RAMP 1

POINT NO.	TYPE	STATION	NORTHING	EASTING
8063	POB	10+00.00	238076.5085	1640334.0415
8064	PC	10+96.69	238034.6335	1640421.1919
8066	PT	12+71.67	238025.9625	1640591.3909
8067	POE	13+99.62	238069.3707	1640711.7572

CONST. 261 RAMP 2

POINT NO.	TYPE	STATION	NORTHING	EASTING
8068	POB	20+00.00	238078.7836	1640708.3360
8069	PC	20+28.42	238088.4732	1640735.0581
8071	PT	22+80.62	238278.3602	1640879.6268
8072	POE	23+48.99	238346.5150	1640884.9883

CONST. 261 RAMP 3

POINT NO.	TYPE	STATION	NORTHING	EASTING
8073	POB	30+00.00	238848.4473	1639974.0712
8074	PC	30+44.85	238893.2340	1639971.6466
8076	PT	33+33.32	239126.8239	1640110.8735
8077	POE	34+49.75	239176.5975	1640216.1287

CONST. 261 RAMP 4

POINT NO.	TYPE	STATION	NORTHING	EASTING
8078	POB	40+00.00	239170.3073	1640219.1869
8079	PC	40+40.72	239187.7593	1640255.9759
8081	PT	42+44.46	239183.9580	1640452.5041
8082	POE	43+78.83	239121.7171	1640571.5860

I-40 WEST

POINT NO.	TYPE	STATION	NORTHING	EASTING
8103	POB	20+00.00	238372.0656	1639973.9215
8104	POE	29+85.58	238825.1537	1640849.1865

I-40 EAST

POINT NO.	TYPE	STATION	NORTHING	EASTING
8101	POB	10+00.00	238278.3400	1640022.5200
8102	POE	19+85.58	238732.0215	1640897.4773

9/27/2016

R110586.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	33	130

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

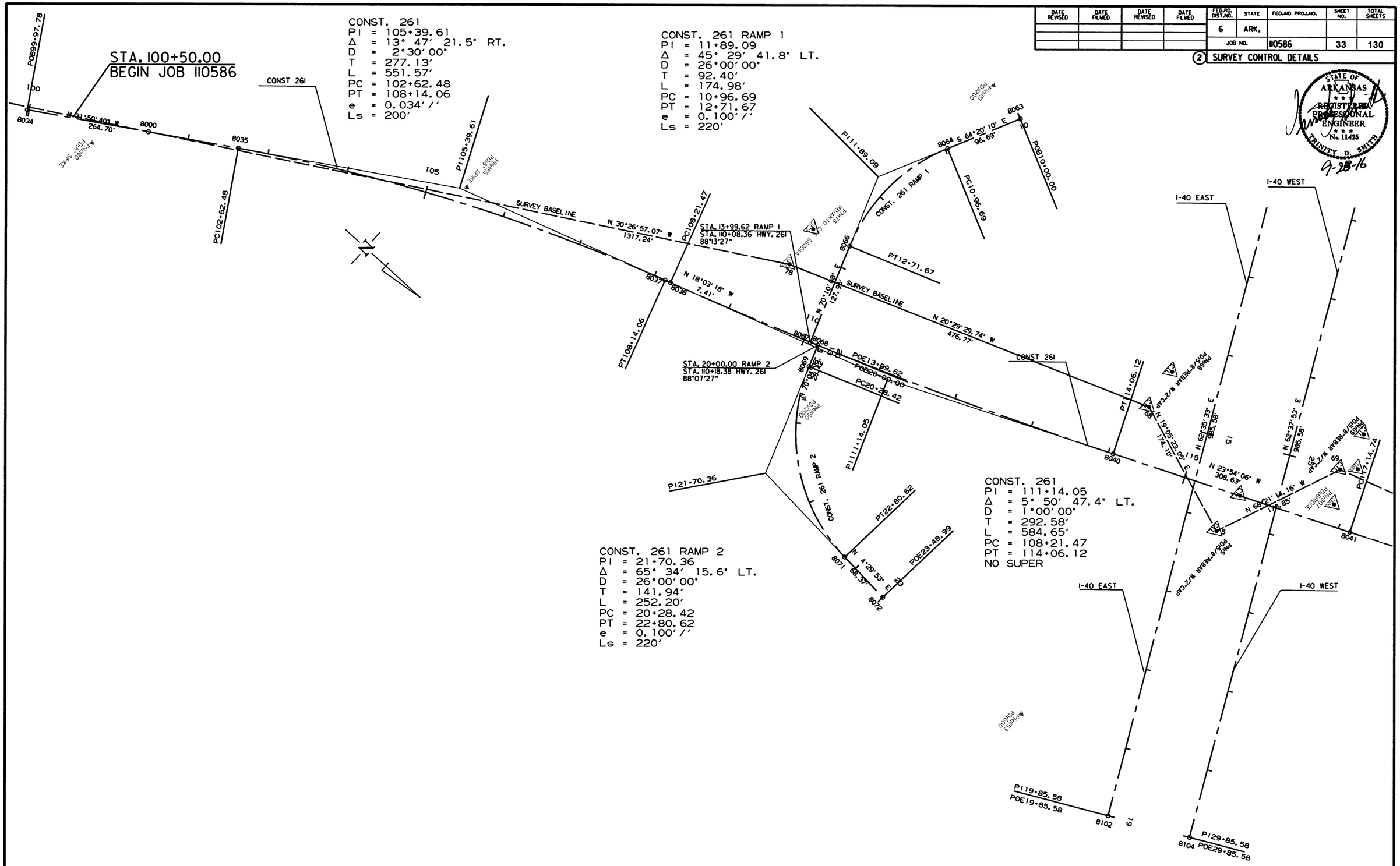
STA. 100+50.00
BEGIN JOB 110586

CONST. 261
PI = 105+39.61
Δ = 13° 47' 21.5" RT.
D = 2°30'00"
T = 277.13'
L = 551.57'
PC = 102+62.48
PT = 108+14.06
e = 0.034'/'
Ls = 200'

CONST. 261 RAMP 1
PI = 11+89.09
Δ = 45° 29' 41.8" LT.
D = 26°00'00"
T = 92.40'
L = 174.98'
PC = 10+96.69
PT = 12+71.67
e = 0.100'/'
Ls = 220'

CONST. 261 RAMP 2
PI = 21+70.36
Δ = 65° 34' 15.6" LT.
D = 26°00'00"
T = 141.94'
L = 252.20'
PC = 20+28.42
PT = 22+80.62
e = 0.100'/'
Ls = 220'

CONST. 261
PI = 111+14.05
Δ = 5° 50' 47.4" LT.
D = 1°00'00"
T = 292.58'
L = 584.65'
PC = 108+21.47
PT = 114+06.12
NO SUPER



SURVEY CONTROL DETAILS

9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	34	130

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

CONST. 261 RAMP 3
PI = 32+08.66
Δ =67° 47' 24.1" RT.
D = 23°30'00"
T = 163.80'
L = 288.47'
PC = 30+44.85
PT = 33+33.32
e = 0.100'/'
Ls = 220'

CONST. 261 FRONTAGE RD.
PI = 53+38.29
Δ =72° 12' 26.0" RT.
D = 17°30'00"
T = 238.78'
L = 412.61'
PC = 50+99.51
PT = 55+12.13
e = 0.092'/'
Ls = 205'

CONST. 261
PI = 118+89.43
Δ = 3° 29' 33.1" LT.
D = 1°00'00"
T = 174.68'
L = 349.25'
PC = 117+14.74
PT = 120+64.00
NO SUPER

CONST. 261
PI = 124+05.52
Δ = 6° 39' 39.9" RT.
D = 1°00'00"
T = 333.43'
L = 666.11'
PC = 120+72.09
PT = 127+38.20
NO SUPER

CONST. 261
PI = 128+74.75
Δ = 21° 25' 02.3" RT.
D = 8°00'00"
T = 135.44'
L = 267.72'
PC = 127+39.31
PT = 130+07.03
NO SUPER

STA. 126+00.00
END JOB 110586

CONST. 261 RAMP 4
PI = 41+50.53
Δ =52° 58' 25.0" RT.
D = 26°00'00"
T = 109.81'
L = 203.74'
PC = 40+40.72
PT = 42+44.46
e = 0.100'/'
Ls = 220'

STA. 40+00.00 RAMP 4
STA. 122+15.18 HWY. 261
87°59'05"

STA. 34+49.75 RAMP 3
STA. 122+22.18 HWY. 261
87°54'53"

STA. 56+20.27 FRONTAGE RD.
STA. 123+99.06 HWY. 261
86°08'41"

STA. 125+00.00 - END
JOB 110543, HWY. 261

9/27/2016

R110586.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	110586		35	130

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

STA. 101+30 IN PLACE
18"X 24' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL AT 101+21
18" X 34' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. ON LT. = 30 CU. YDS.

STA. 102+78 IN PLACE
18"X 20' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL AT 102+77
18" X 30' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. ON LT. = 35 CU. YDS.

STA. 107+29 INSTALL
18" X 56' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. ON LT. = 70 CU. YDS.

STA. 108+15 INSTALL
18" X 56' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. ON LT. = 80 CU. YDS.

C.L. CONSTRUCT
PI = 111+14.05
Δ = 5°50'47.4" LT.
D = 1°00'00"
T = 292.58'
L = 584.65'
PC = 108+21.47
PT = 114+06.12
NO SUPER

STA. 100+39 IN PLACE
18"X 24' C.M. PIPE CULV'T.
LT. SIDE DRAIN
RETAIN

STA. 101+95 IN PLACE
18"X 16' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL AT 102+21
18" X 28' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. ON LT. = 25 CU. YDS.

STA. 113+65.01 CONSTRUCT
TYPE N-2 DROP INLET LT.
H = 3'-0"
WITH 18" x 46' R.C. PIPE OUTLET
(CLASS III)(TYPE 3 BEDDING)
CONNECT TO D.I. AT STA. 113+65.26 RT.

STA. 108+95 INSTALL
18" X 56' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. ON LT. = 120 CU. YDS.

STA. 99+99 IN PLACE
18"X 20' C.M. PIPE CULV'T.
RT. SIDE DRAIN
RETAIN

STA. 100+55 IN PLACE
18"X 40' C.M. PIPE CULV'T.
RT. SIDE DRAIN
RETAIN

STA. 101+97 IN PLACE
18"X 24' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL AT 101+99
18" X 30' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 40 CU. YDS.

STA. 100+50.00
BEGIN JOB 110586
BEGIN HWY. 261
LOG MILE 5.23

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

C.L. CONSTRUCT
PI = 105+39.61
Δ = 13°47'21.5" RT.
D = 2°30'00"
T = 277.13'
L = 551.57'
PC = 102+62.48
PT = 108+14.06
e = 0.034'/'
Ls = 200'

STA. 104+96 IN PLACE
18"X 48' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL AT 104+97
18" X 52' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 60 CU. YDS.

STA. 106+41 IN PLACE
18"X 77' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL AT 106+32
18" X 58' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 80 CU. YDS.

STA. 106+99 IN PLACE
18" X 22' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE

STA. 107+95 INSTALL
18" X 52' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 55 CU. YDS.

STA. 109+10 INSTALL
18" X 52' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 60 CU. YDS.

STA. 113+65.26 CONSTRUCT
TYPE N-2 DROP INLET RT.
H = 4'-0"
WITH 12" x 62' C.M. PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

HWY. 261

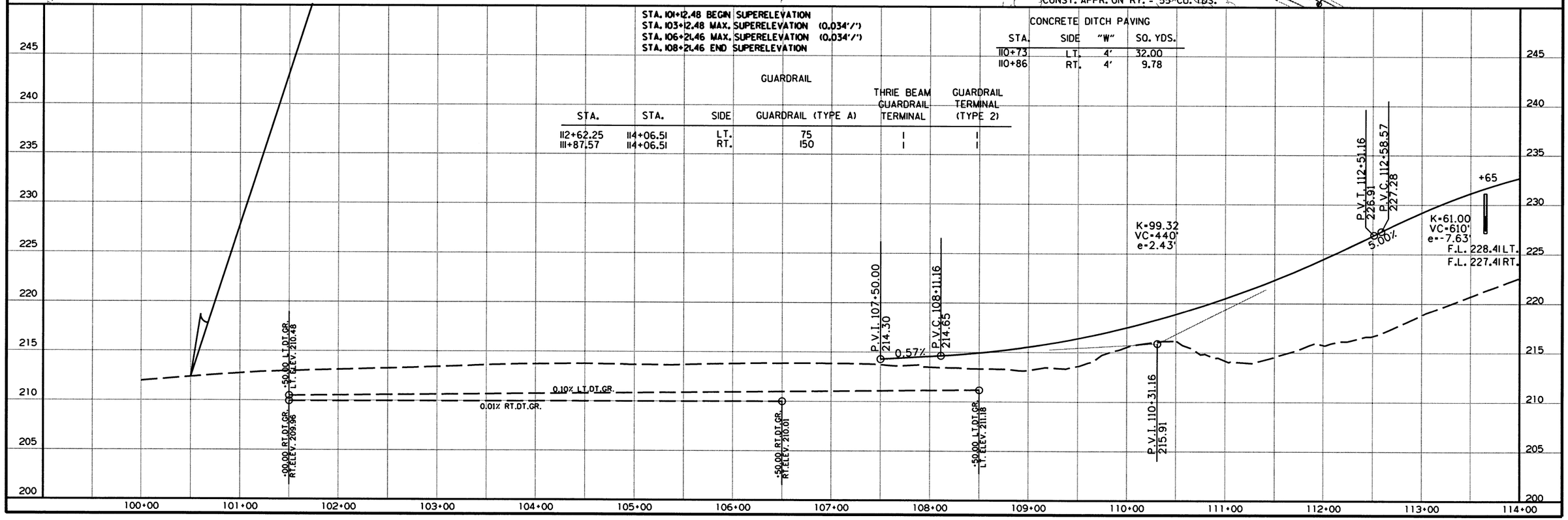
STA. 101+12.48 BEGIN SUPERELEVATION
STA. 103+12.48 MAX. SUPERELEVATION (0.034'/')
STA. 106+21.46 MAX. SUPERELEVATION (0.034'/')
STA. 108+21.46 END SUPERELEVATION

CONCRETE DITCH PAVING

STA.	SIDE	"W"	SQ. YDS.
110+73	LT.	4'	32.00
110+86	RT.	4'	9.78

GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
112+62.25	114+06.51	LT.	75	1	1
111+87.57	114+06.51	RT.	150	1	1



9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	36	130

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

C.L. CONSTRUCT
PI = 118+89.43
Δ = 3°29'33.1" LT.
D = 1°00'00"
T = 174.68'
L = 349.25'
PC = 117+14.74
PT = 120+64.00
NO SUPER

STA. 114+54.03 TO STA. 116+71.38 - IN PLACE
31'-X-218' CONCRETE DECK AND CONCRETE PIERS
WITH STEEL GIRDERS
BRIDGE NO. 03774
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 1) = 1.00 LUMP SUM

STA. 117+50.58 CONSTRUCT
TYPE N-2 DROP INLET LT.
H = 3'-0"
WITH 18" x 46' R.C. PIPE OUTLET
(CLASS III)(TYPE 3 BEDDING)
CONNECT TO D.I. AT STA. 117+50.58 RT.

REMOVE AND RECONSTRUCT GUARD CABLE

STA. 125+17 IN PLACE
24"X 46' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL AT 125+16
24" X 48' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. ON LT. = 80 CU. YDS.

STA. 126+33 IN PLACE
24"X 34' C.M. PIPE CULV'T.
LT. SIDE DRAIN
RETAIN

STA. 126+97 IN PLACE
24"X 34' C.M. PIPE CULV'T.
LT. SIDE DRAIN
RETAIN

BRIDGE END
STA. 114+17.92

BRIDGE END
STA. 117+14.08

N. MAIN ST.

3725

PT114+06.12
PC117+14.74
PT120+64.00
PT33+33.32
PT55+12.13
PC125+05.52
PC126+97.84
PT127+38.20
PC127+39.31
P1118+89.43
P1141+50.53
PC120+72.09
PT42+44.46
PC40+40.72
POE34+49.75
POE56+20.27
POB40+00.00

C.D.P.
CONST. LIMITS
EXIST. C OF A
PROPOSED C OF A
30' EXIST. R/W
65' RADIUS PROPOSED R/W
50' RADIUS
65' RADIUS
100' TRANSITION
CULTIVATED FIELD

N 23°54'06" W
N 27°23'39" W
N 84°37'17" E
N 20°43'59" W

STA. 117+50.58 CONSTRUCT
TYPE N-2 DROP INLET RT.
H = 4'-0"
WITH 12" x 62' C.M. PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)

HWY. 261 OVER INTERSTATE 40
STA. 114+17.92 BR. END
296'-2" BRIDGE LENGTH
40'-0" CLEAR ROADWAY
294'-0" CONT. COMP. W-BEAM (60'-87'-87'-60')
BR. NO. 07232
STA. 117+14.08 BR. END

STA. 124+28 CONSTRUCT
APPR. ON RT. = 10 CU. YDS.

STA. 125+41 CONSTRUCT
APPR. ON RT. = 5 CU. YDS.

REMOVE AND RECONSTRUCT GUARD CABLE
(MEASURED ALONG CL OF FRONTAGE ROAD)

STA.	STA.	SIDE	LIN. FT.
54+50	55+50	RT.	100

STA. 128+33 IN PLACE
18" X 39' C.M. PIPE CULVERT
RETAIN

C.L. CONSTRUCT
PI = 124+05.52
Δ = 6°39'39.9" RT.
D = 1°00'00"
T = 333.43'
L = 666.11'
PC = 120+72.09
PT = 127+38.20
NO SUPER

C.L. CONSTRUCT
PI = 128+74.75
Δ = 21°25'02.3" RT.
D = 8°00'00"
T = 135.44'
L = 267.72'
PC = 127+39.31
PT = 130+07.03

CONCRETE DITCH PAVING

STA.	SIDE	"W"	SQ. YDS.
121+47	RT.	4'	6.67
121+60	LT.	4'	24.44

STA. 126+00.00
END JOB 110586
END HWY. 261

HWY. 261

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

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
122+54	122+89	RT.	A	34

GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
117+26.48	119+45.23	LT.	150	1	1
117+26.48	118+20.23	RT.	75	1	1

STA. 125+50.00 BEGIN SUPERELEVATION
STA. 126+00.00 MATCH EXISTING

BRIDGE END
STA. 114+17.92

BRIDGE END
STA. 117+14.08

P.V.I. 115+63.57
242.53

K=61.00
VC=610'
e=-7.63'

+67

F.L. 228.00 LT.
F.L. 227.00 RT.

P.V.I. 118+68.57
227.28

-5.00%

P.V.C. 120+53.02
218.06

K=86.85
VC=350'
e=1.76'

P.V.I. 122+28.02
209.31

-0.12% RT.DT.GR.

-65.00 RT.DT.GR.
RT.ELEV. 203.35

-00.00 RT.DT.GR.
RT.ELEV. 202.95

P.V.T. 124+03.02
207.62

-0.97%

P.V.I. 124+50.00
207.17

3:1

3:1

240
235
230
225
220
215
210
205
200
195

114+00 115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00 124+00 125+00 126+00 127+00 128+00 129+00

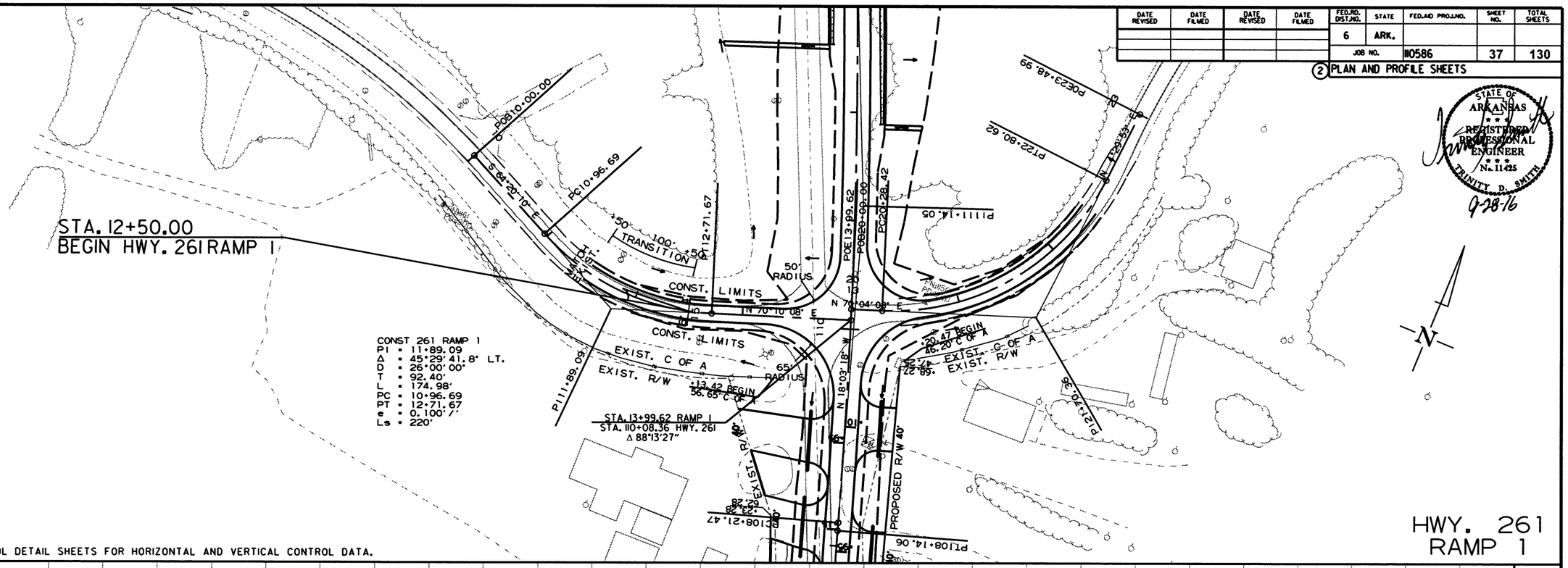
9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	37	130

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16



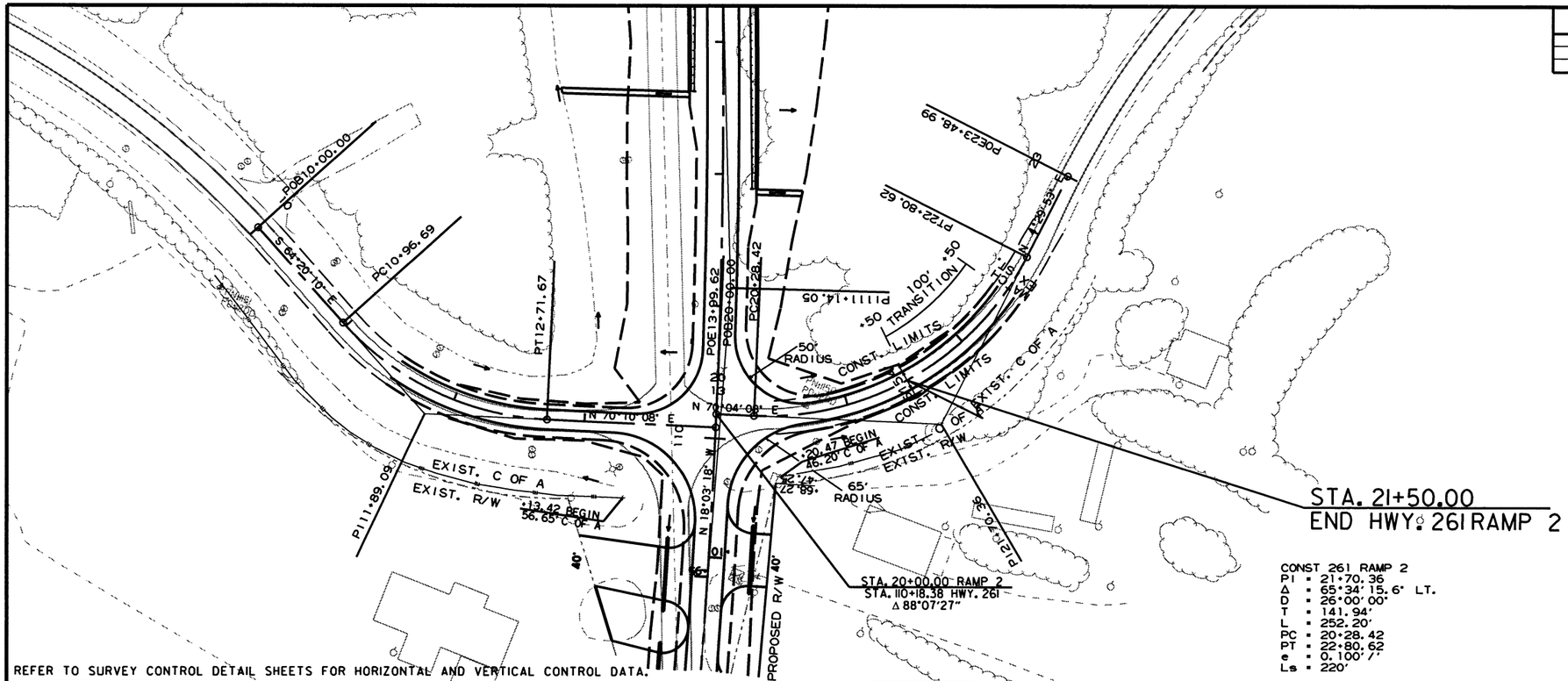
9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	38	130

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16



CONST 261 RAMP 2
PI = 21+70.36
Δ = 65°34'15.6" LT.
D = 26°00'00"
T = 141.94'
L = 252.20'
PC = 20+28.42
PT = 22+80.62
e = 0.100'/'
Ls = 220'

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

HWY. 261 RAMP 2

STA. 20+73.60 BEGIN SUPERELEVATION
STA. 21+50.00 MATCH EXISTING (0.034'/')

K 37.78
VC=34'
e=0.04'

P.V.I. 20+12.00
ELEV. 217.84
-1.70%
P.V.C. 21+15.38
ELEV. 216.08
-0.80%
P.V.T. 21+49.38
ELEV. 215.66
P.V.I. 21+50.00
ELEV. 215.65
P.V.I. 21+32.38
ELEV. 215.79

245 240 235 230 225 220 215 210 205 200

15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00

9/27/2016
R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	110586		39	130

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-23-16

STA. 33+79 IN PLACE
24" X 57' R.C. PIPE CULVERT
W/HDWL. LT. & RT.
REMOVE HDWLS. LT. & RT.
EXTEND 8' LT. & 10' RT.
(CLASS III)(TYPE 3 BEDDING) WITH
FES LT. & RT.
D.A. = 12.8 AC.; Q50 = 19.7 C.F.S.
24" R.C. PIPE = 26 LIN. FT.
24" FES = 2 EACH

STA. 33+00.00
BEGIN HWY. 261 RAMP 3

P153+38.29
EXIST. R/W
N 66°27'41" E
EXIST. C OF A
P132+08.23
PT128+05.52
P1 46.85' LT
R 1130.00'
PT55+12.13
100' TRANSITION
+00
CONST. LIMITS
65' RADIUS
POB40+00.00
P141+50.53
END C OF A
88°10'69"
66°58'
66°58'
N 66°41'09" E
N 24°37'17" E
CONST. LIMITS
50' RADIUS
STA. 34+49.75 RAMP 3
STA. 122+22.18 HWY. 261
Δ 87°54'53"
PC50+99.51
N 5°45'46" W
POB50+00.00
PT33+33.32
PC40+40.72
N 27°13'39" W
PC120+72.60
PT42+44.46
POE43+78.83
S 82°28'18" E
EXIST. R/W
EXIST. C OF A
P120+64.00
PC30+44.85
POB30+00.00
N 5°45'46" W

CONST 261 RAMP 3
PI = 32+08.66
Δ = 67°47'24.1" RT.
D = 23°30'00"
T = 163.80'
L = 288.47'
PC = 30+44.85
PT = 33+33.32
e = 0.100'/'
Ls = 220'

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

HWY. 261
RAMP 3

STA. 33+00.00 MATCH EXISTING (0.021'/')
STA. 33+72.47 END SUPERELEVATION

P.V.I. 32+00.00
ELEV. 210.00
-0.22%
P.V.I. 33+00.00
ELEV. 209.78
-2.20%
P.V.C. 33+44.16
ELEV. 209.87
K 38.89
VC=70'
e=0.16'
P.V.T. 34+14.16
ELEV. 210.64
0.0%
P.V.I. 34+37.75
ELEV. 211.11
P.V.I. 33+79.16
ELEV. 209.94
+79

F.L. INLET RT.= 204.04
F.L. OUTLET LT.= 203.35

235 230 225 220 215 210 205 200 195 190

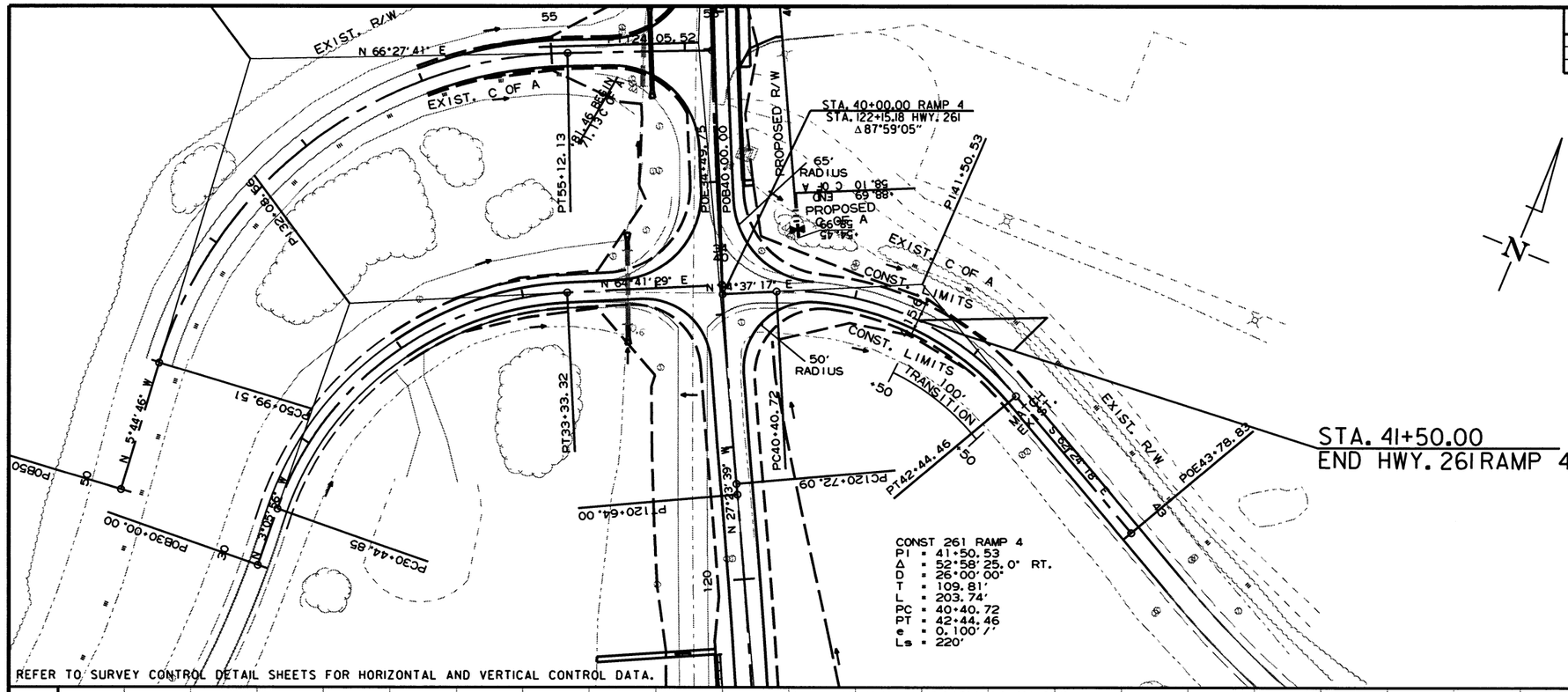
25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00 39+00 40+00

9/27/2016
R110586.DGN

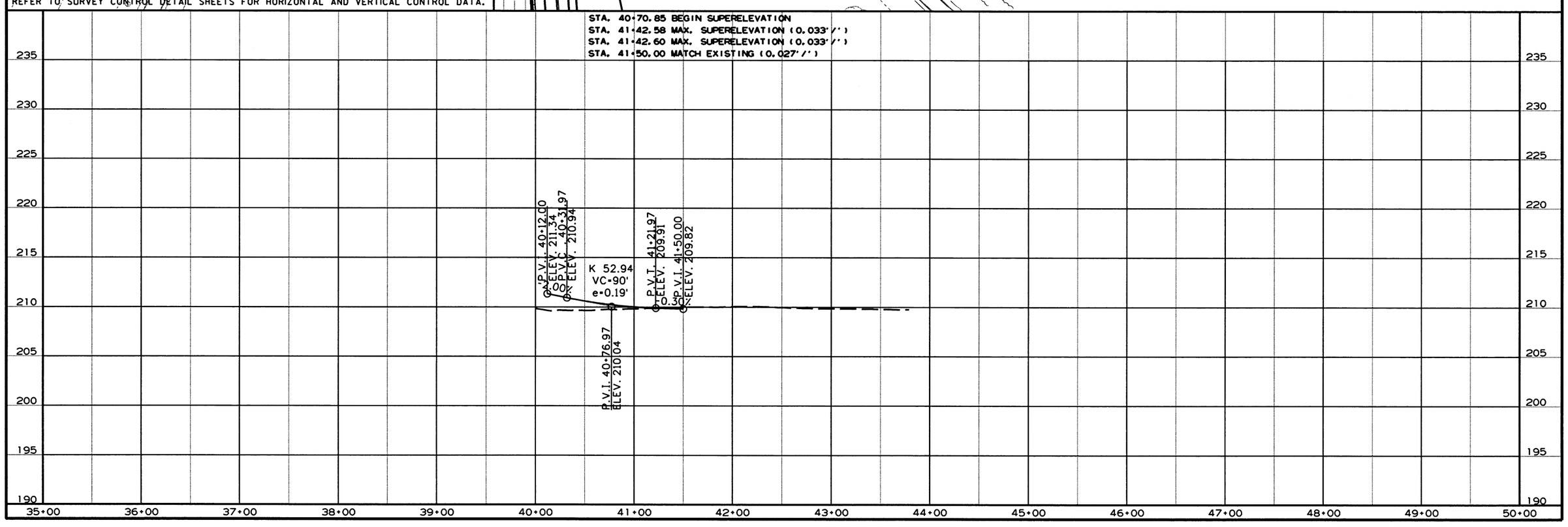
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	40	130

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16



STA. 40+70.85 BEGIN SUPERELEVATION
STA. 41+42.58 MAX. SUPERELEVATION (0.033'/')
STA. 41+42.60 MAX. SUPERELEVATION (0.033'/')
STA. 41+50.00 MATCH EXISTING (0.027'/')



9/27/2016
R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	110586		41	130

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

HWY. 261 FRONTAGE ROAD

STA. 55+00.00
BEGIN FRONTAGE ROAD

REMOVE AND RECONSTRUCT GUARD CABLE
(MEASURED ALONG CL OF FRONTAGE ROAD)

STA.	STA.	SIDE	LIN. FT.
54+50	55+50	RT.	100

STA. 55+75 CONSTRUCT
24" X 60' R.C. PIPE CULVERT
(CLASS III)(TYPE 3 BEDDING) WITH
FES LT. & RT.
D.A. = 16.6 AC.; Q50 = 19.1 C.F.S.
24" R.C. PIPE = 60 LIN. FT.
24" FES = 2 EACH

STA. 55+69 IN PLACE
24" X 45' R.C. PIPE CULVERT
W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT.
PLUG AND ABANDON

CONST 261 FRONTAGE RD
PI = 53+38.29
Δ = 72°12'26.0" RT.
D = 17°30'00"
T = 238.78'
L = 412.61'
PC = 50+99.51
PT = 55+12.13
e = 0.092'/'
Ls = 205'

STA. 56+20.27 FRONTAGE RD
STA. 123+99.06 HWY. 261
Δ 86°08'41"

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

STA. 55+00.00 MATCH EXISTING (0.02'/')
STA. 55+44.50 END SUPERELEVATION

P.V.I. 54+00.00
ELEV 206.37

P.V.C. 55+02.36
ELEV. 206.16

P.V.I. 55+00.00
ELEV. 206.17

K 37.14
VC-65'
e-0.14'

P.V.T. 55+67.30
ELEV. 206.90

P.V.I. 56+08.26
ELEV. 207.72

-0.21%
.25%
2.00%

+69 +75

F.I. INLET RT.= 203.23
F.I. OUTLET LT.= 203.14

F.I. INLET RT.= 202.51
F.I. OUTLET LT.= 202.08

P.V.I. 55+34.80
ELEV. 206.25

9/27/2016

R110586.DGN

45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00

235 230 225 220 215 210 205 200 195 190

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	42	130

(2) PLAN AND PROFILE SHEETS

I-40
STA. 3723+98 IN PLACE
24" X 166' R.C. PIPE CULVERT
W/HDWL. LT. & RT.
REMOVE HDWLS. LT. & RT.
CONSTRUCT FES LT. & RT.
(CLASS III (TYPE 3 BEDDING)
D.A. = 5.8 AC.; Q50 = 7.36 C.F.S.
24" R.C. PIPE = 8 LIN. FT.
24" FES = 2 EACH

N. MAIN

PL 17+14.74

PL 11+06.12

N 23° 34' 06" W

3720

3725

3730

GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	GUARDRAIL TERMINAL (TYPE 2)
3728+15.36	3729+40.38	LML-RT.	75	1

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-28-16

STA. 3730+50
END WRSF

EXIST. GUARDRAIL RETAIN

EXIST. WRSF RETAIN

STA. 3729+25
BEGIN WRSF

TEMPORARY TERMINAL ANCHOR

EXIST. WRSF RETAIN

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	SQ. YDS.
3729+50	3730+50	LML-RT.	4'	44

N

PK NAIL SET

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

I-40

-97.29 RT.DT.GR.
RT. ELEV. 210.97

-0.98% RT.DT.GR.

-97.65 RT.DT.GR.
RT. ELEV. 208.82

-92.80 LT.DT.GR.
LT. ELEV. 208.55

0.77% RT.DT.GR.

1.13% LT.DT.GR.

-97.79 RT.DT.GR.
RT. ELEV. 209.59

-97.80 LT.DT.GR.
LT. ELEV. 209.82

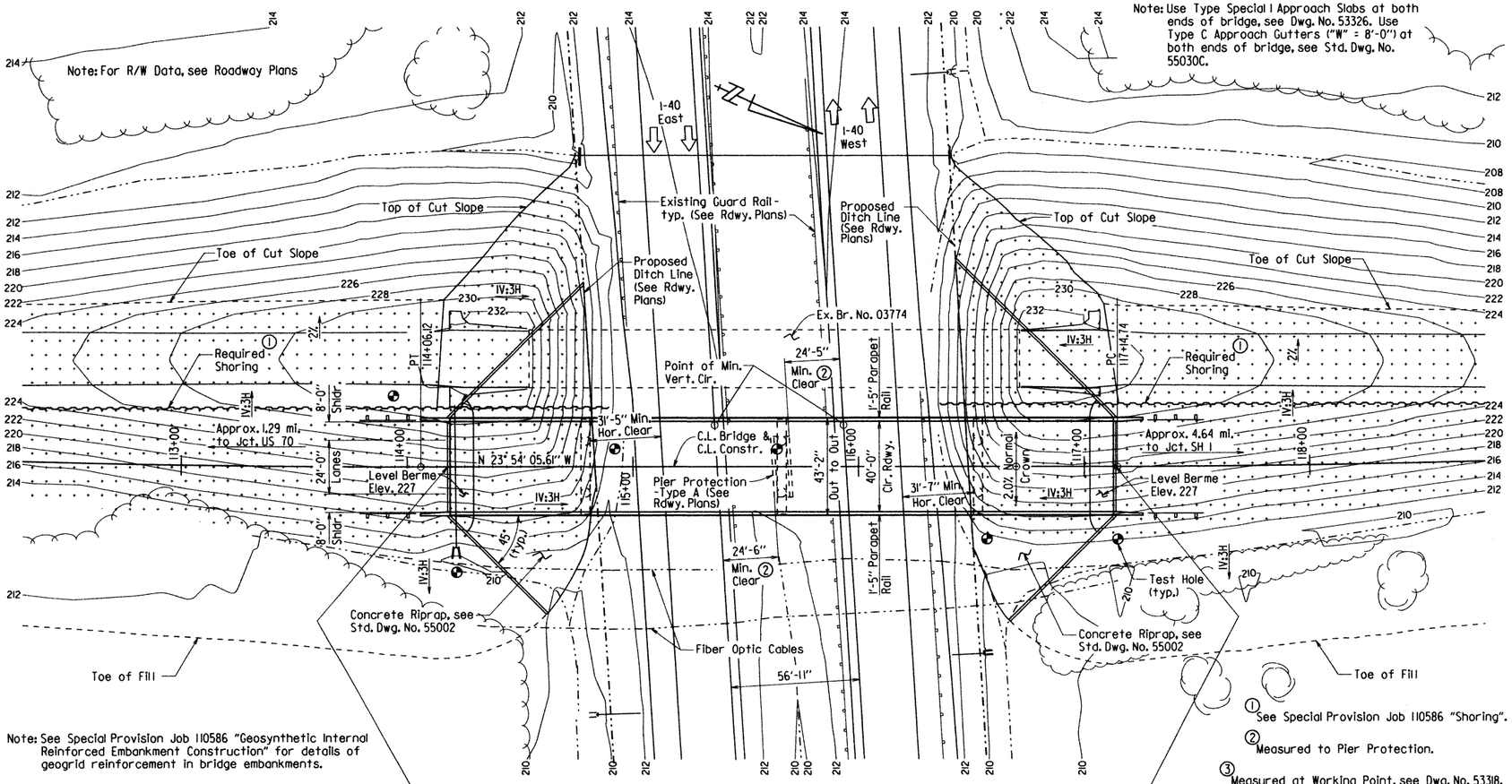
235 230 225 220 215 210 205 200 195 190

3720+00 3721+00 3722+00 3723+00 3724+00 3725+00 3726+00 3727+00 3728+00 3729+00 3730+00 3731+00 3732+00 3733+00 3734+00 3735+00

9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	43	130
				① 07232		LAYOUT		53307



PLAN

① See Special Provision Job 110586 "Shoring".

② Measured to Pier Protection.

③ Measured at Working Point, see Dwg. No. 53318.

610' V.C.

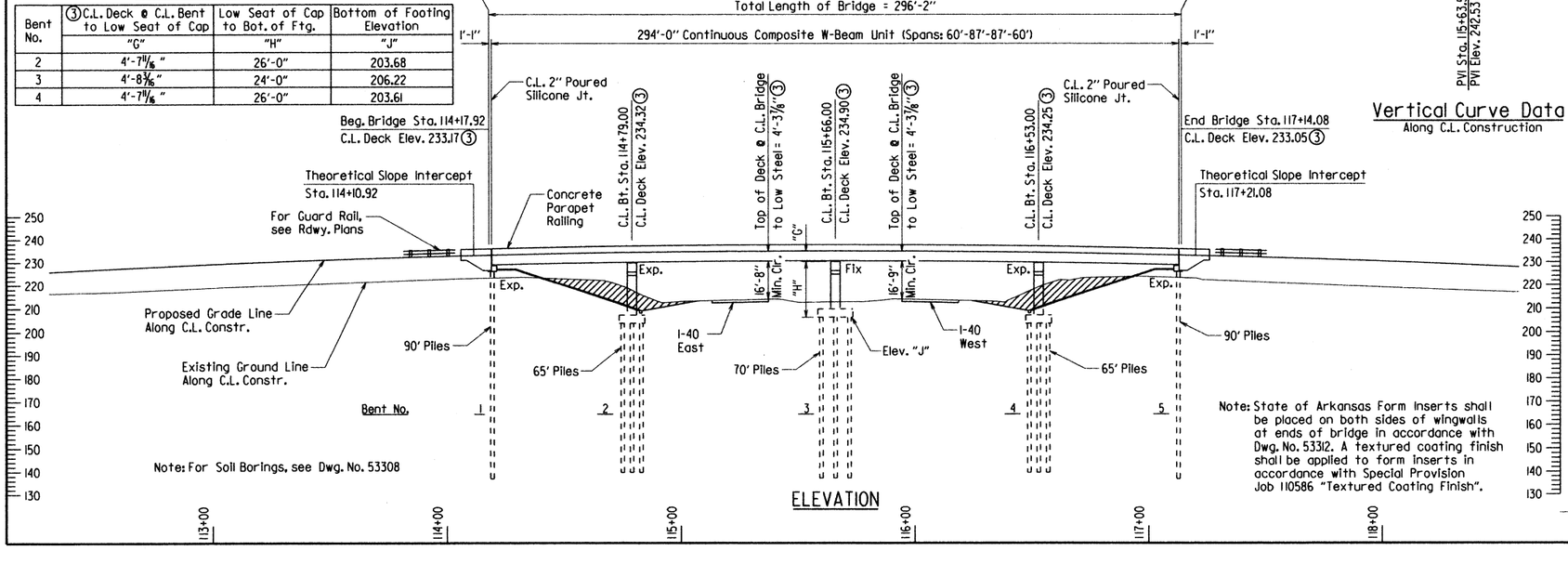
+5.00% -5.00%

PVI Sta. 115+63.57
PVI Elev. 242.53

Vertical Curve Data
Along C.L. Construction

TABLE OF VARIABLES

Bent No.	③C.L. Deck @ C.L. Bent to Low Seat of Cap "G"	Low Seat of Cap to Bot. of Ftg. "H"	Bottom of Footing Elevation "J"
2	4'-7 11/16"	26'-0"	203.68
3	4'-8 3/16"	24'-0"	206.22
4	4'-7 11/16"	26'-0"	203.61



ELEVATION

Note: State of Arkansas Form Inserts shall be placed on both sides of wingwalls at ends of bridge in accordance with Dwg. No. 53312. A textured coating finish shall be applied to form inserts in accordance with Special Provision Job 110586 "Textured Coating Finish".

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-20-16
CHARLES R. ELLIS

BRIDGE ENGINEER

GENERAL NOTES

BENCH MARK: 5/8" Rebar with 2" Cap, 0.21' Lt. of Sta. 115+71.81, Elevation = 211.79

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable supplemental specifications and special provisions. Unless otherwise noted, Section and subsection refer to the Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Fifth Edition, with 2010 Interim Revisions.

LIVE LOADING: HL93
SEISMIC PERFORMANCE ZONE: 3

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Programs and Contracts Division.

STEEL SHELL PILING: All piling shall be 18" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 210 tons per pile. All piling shall be driven with an approved air, steam or diesel hammer to a minimum tip elevation of 140.0 or lower. Piling in end bents shall be driven after embankment to bottom of cap is in place.

Lengths of piling shown are assumed for estimating quantities only. Actual lengths to be determined in the field. No additional payment will be made for cut-off or build-up. Test Piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g).

Water jetting or other methods as approved by the Engineer may be required to achieve minimum penetration. This work shall not be paid for directly, but shall be considered incidental to the item "Steel Shell Piling (18" Dia.)".

DRIVING SYSTEM: The driving system approval and ultimate bearing capacity determination for piling shall be based on the requirements of Subsection 805.09(b) "Method B-Wave Equation Analysis (WEAP)". It is estimated that a minimum rated hammer energy of 33,000 ft.-lbs. per blow will be required to obtain the ultimate bearing capacity at all bents.

FOOTINGS: Footings at Bents 2 thru 4 shall be set a minimum of 2' below natural ground or at the elevations shown on the plans, whichever is lower. Foundations for footings shall be prepared in accordance with Subsection 801.04.

PAINTING: All Grade 50 structural steel except galvanized members shall be painted as specified in Subsection 807.75. The color of paint shall be Gray and shall match Federal Std. 595B, Color Chip 36270.

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class S Tined Bridge Roadway Surface Finish.

DETAIL DRAWINGS	DRAWING NOS.
End Bents	53309-53311
Intermediate Bents	53313-53315
Steel Shell Piling	53316
Elastomeric Bearings	53317
294'-0" Cont. Comp. W-Beam Unit	53318-53325
Type Special I Approach Slabs	53326

EXISTING BRIDGE: Existing Bridge No. 03774 (I-40 Logmile 233.22) is 31' wide and 218' long and consists of steel I-beam spans supported by concrete columns on steel shell pile footings.

REMOVAL AND SALVAGE: After the new bridge is open to traffic, existing bridge no. 03774 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans for maintenance of traffic.

SHEET 1 OF 2

LAYOUT OF BRIDGE
HWY. 261 OVER INTERSTATE 40
HWY. 261 STR. & APPRS. (S)
ST. FRANCIS COUNTY

ROUTE 261 SEC. 2

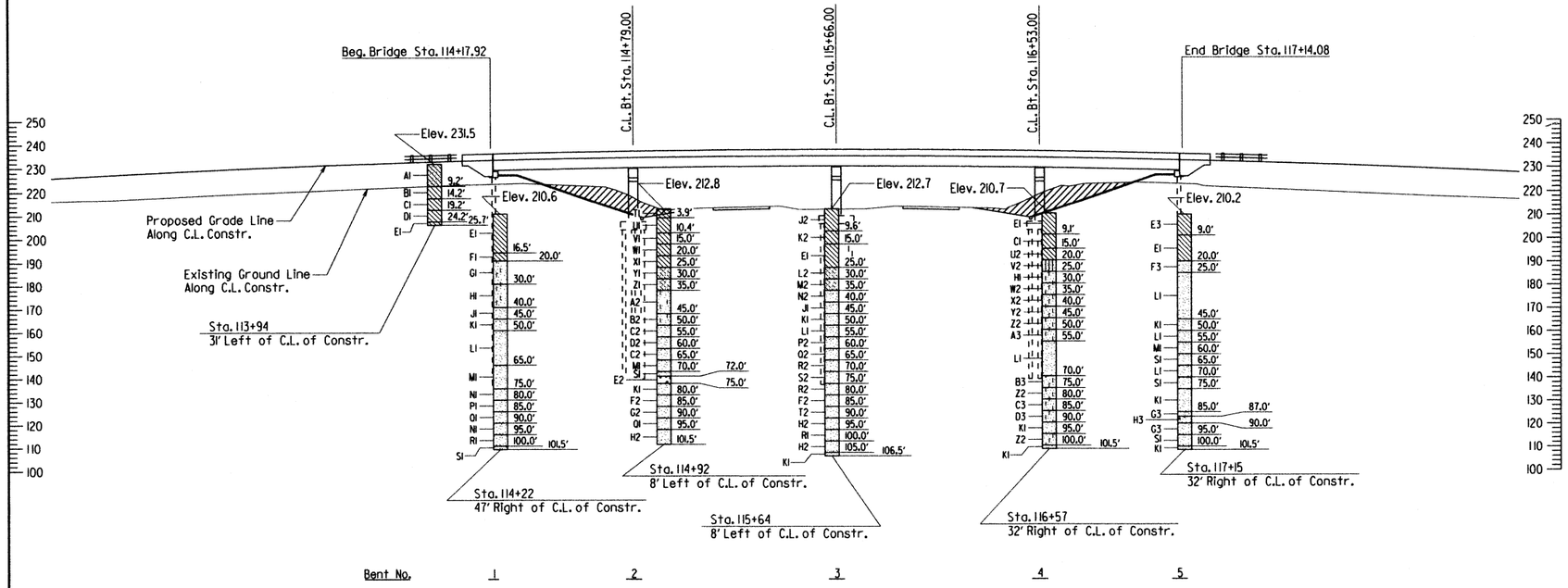
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: PGT DATE: 5-11 FILENAME: bll0586xl_Ll.dgn
CHECKED BY: AMS DATE: 6-6-11 SCALE: 1" = 30'
DESIGNED BY: PGT DATE: 5-11

BRIDGE NO. 07232 DRAWING NO. 53307

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	44	130
				① 07232		LAYOUT		53308



ELEVATION OF SOIL BORINGS

BORING LEGEND

A1-Moist, Medium Stiff, Brown and Gray Clay with Sand and some Organic Matter
B1-Moist, Medium Stiff, Brown and Gray Clay with some Organic Matter
C1-Moist, Medium Stiff, Brown and Gray Clay
D1-Moist, Medium Stiff, Brown Clay
E1-Moist, Stiff, Brown Clay
F1-Moist, Very Stiff, Brown Clay
G1-Moist, Medium Dense, Brown Silty Sand
H1-Wet, Medium Dense, Brown Silty Sand
J1-Wet, Medium Dense, Brown and Gray Sand
K1-Wet, Dense, Brown Sand
L1-Wet, Medium Dense, Brown Sand
M1-Wet, Medium Dense, Brown Sand with Trace of Gravel
N1-Wet, Very Dense, Brown Sand with Trace of Gravel
P1-Wet, Very Dense, Brown and Gray Sand
Q1-Wet, Very Dense, Brown Sand with some Gravel
R1-Wet, Dense, Brown Sand with some Gravel
S1-Wet, Dense, Brown Sand with Trace of Gravel
T1-Moist, Medium Stiff, Light Brown Clay with some Organic Matter
U1-Moist, Stiff, Light Brown Clay with some Organic Matter
V1-Moist, Medium Stiff, Light Gray and Light Brown Clay with some Organic Matter
W1-Moist, Stiff, Light Gray and Light Brown Clay with some Organic Matter
X1-Moist, Stiff, Light Gray and Light Brown Clay
Y1-Wet, Medium Dense, Light Brown Clayey Sand
Z1-Wet, Loose, Light Brown Clayey Sand
A2-Wet, Medium Dense, Light Brown to Brown Silty Sand
B2-Wet, Dense, Brown Silty Sand
C2-Wet, Dense, Light Brown Sand
D2-Wet, Medium Dense, Light Brown Sand with Trace of Organic Matter
E2-Gravel
F2-Wet, Medium Dense, Brown Sand with some Gravel
G2-Wet, Dense, Gray Sand
H2-Wet, Very Dense, Brown Sand
J2-Moist, Stiff, Brown Clay with some Organic Matter
K2-Moist, Medium Stiff, Brown Clay with some Organic Matter
L2-Wet, Medium Dense, Brown Sand with Clay
M2-Wet, Medium Dense, Brown Sand with Clay and some Organic Matter
N2-Wet, Medium Dense, Brown Sand with some Organic Matter
P2-Wet, Medium Dense, Brown and Gray Sand with some Organic Matter
Q2-Wet, Medium Dense, Reddish Brown Sand
R2-Wet, Medium Dense, Reddish Brown Sand with Trace of Gravel
S2-Wet, Dense, Reddish Brown Sand
T2-Wet, Dense, Gray Sand with Trace of Gravel
U2-Moist, Stiff, Brown and Gray Clay
V2-Moist, Loose, Brown Sandy Silt
W2-Wet, Loose, Brown Silty Sand with Trace of Organic Matter
X2-Wet, Medium Dense, Brown Sand with Silt
Y2-Wet, Medium Dense, Brown and Gray Sand with Silt
Z2-Wet, Dense, Brown Sand with Silt
A3-Wet, Medium Dense, Brown and Gray Sand with Silt and Trace of Organic Matter
B3-Wet, Dense, Brown Sand with Silt and Trace of Gravel
C3-Wet, Very Dense, Gray and Brown Sand with Silt
D3-Wet, Medium Dense, Gray Sand with Silt
E3-Moist, Stiff, Brown Clay with Trace of Organic Matter
F3-Moist, Medium Dense, Brown Sand
G3-Wet, Dense, Light Gray and Brown Sand with some Gravel
H3-Wet, Dense, Light Gray and Brown Sand with Gravel

"N" VALUES

Sta. 113+94 - 31' Left of C.L. of Constr.

4.7	5.7	N=6
9.7	10.7	N=5
14.7	15.7	N=7
19.7	20.7	N=8
24.7	25.7	N=10

Sta. 114+22 - 47' Right of C.L. of Constr.

7.0	8.0	N=10
12.0	13.0	N=15
17.0	18.0	N=20
20.5	21.5	N=13
25.5	26.5	N=15
30.5	31.5	N=22
35.5	36.5	N=26
40.5	41.5	N=19
45.5	46.5	N=34
50.5	51.5	N=25
55.5	56.5	N=19
60.5	61.5	N=22
65.5	66.5	N=16
70.5	71.5	N=19
75.5	76.5	N=56
80.5	81.3	N=90(10")
85.5	86.5	N=56
90.5	91.5	N=51
95.5	96.5	N=33
100.5	101.5	N=35

Sta. 114+92 - 8' Left of C.L. of Constr.

4.4	5.4	N=12
10.9	11.9	N=6
15.5	16.5	N=13
20.5	21.5	N=14
25.5	26.5	N=12
30.5	31.5	N=10
35.5	36.5	N=21
40.5	41.5	N=15
45.5	46.5	N=38
50.5	51.5	N=38
55.5	56.5	N=14
60.5	61.5	N=33
65.5	66.5	N=21
70.5	71.5	N=33
75.5	76.5	N=32
80.5	81.5	N=25
85.5	86.5	N=32
90.5	91.5	N=82
95.5	96.5	N=60
100.5	101.5	N=63

Sta. 115+64 - 8' Left of C.L. of Constr.

5.1	6.1	N=11
10.1	11.1	N=8
15.5	16.5	N=13
20.5	21.5	N=10
25.5	26.5	N=18
30.5	31.5	N=12
35.5	36.5	N=14
40.5	41.5	N=14
45.5	46.5	N=32
50.5	51.5	N=20
55.5	56.5	N=15
60.5	61.5	N=29
65.5	66.5	N=21
70.5	71.5	N=32
75.5	76.5	N=21
80.5	81.5	N=20
85.5	86.5	N=31
90.5	91.5	N=53
95.5	96.5	N=40
100.5	101.5	N=55
105.5	106.5	N=47

Sta. 116+57 - 32' RIght of C.L. of Constr.

4.6	5.6	N=9
9.6	10.6	N=8
15.5	16.5	N=11
20.5	21.5	N=9
25.5	26.5	N=15
30.5	31.5	N=9
35.5	36.5	N=13
40.5	41.5	N=15
45.5	46.5	N=37
50.5	51.5	N=18
55.5	56.5	N=21
60.5	61.5	N=20
65.5	66.5	N=25
70.5	71.5	N=41
75.5	76.5	N=50
80.5	81.5	N=54
85.5	86.5	N=26
90.5	91.5	N=45
95.5	96.5	N=35
100.5	101.5	N=35

Sta. 117+15 - 32' RIght of C.L. of Constr.

4.5	5.5	N=15
9.5	10.5	N=10
15.5	16.5	N=9
20.5	21.5	N=12
25.5	26.5	N=16
30.5	31.5	N=12
35.5	36.5	N=14
40.5	41.5	N=12
45.5	46.5	N=33
50.5	51.5	N=30
55.5	56.5	N=20
60.5	61.5	N=31
65.5	66.5	N=25
70.5	71.5	N=39
75.5	76.5	N=37
80.5	81.5	N=40
85.5	86.5	N=32
90.5	91.5	N=40
95.5	96.5	N=32
100.5	101.5	N=32

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-20-16
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2

LAYOUT OF BRIDGE
HWY. 261 OVER INTERSTATE 40
HWY. 261 STR. & APPRS. (S)
ST. FRANCIS COUNTY

ROUTE 261 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: PGT DATE: 5-11 FILENAME: bll0586xl_LL.dgn
CHECKED BY: AMS DATE: 6-6-11 SCALE: 1" = 30'
DESIGNED BY: PGT DATE: 5-11

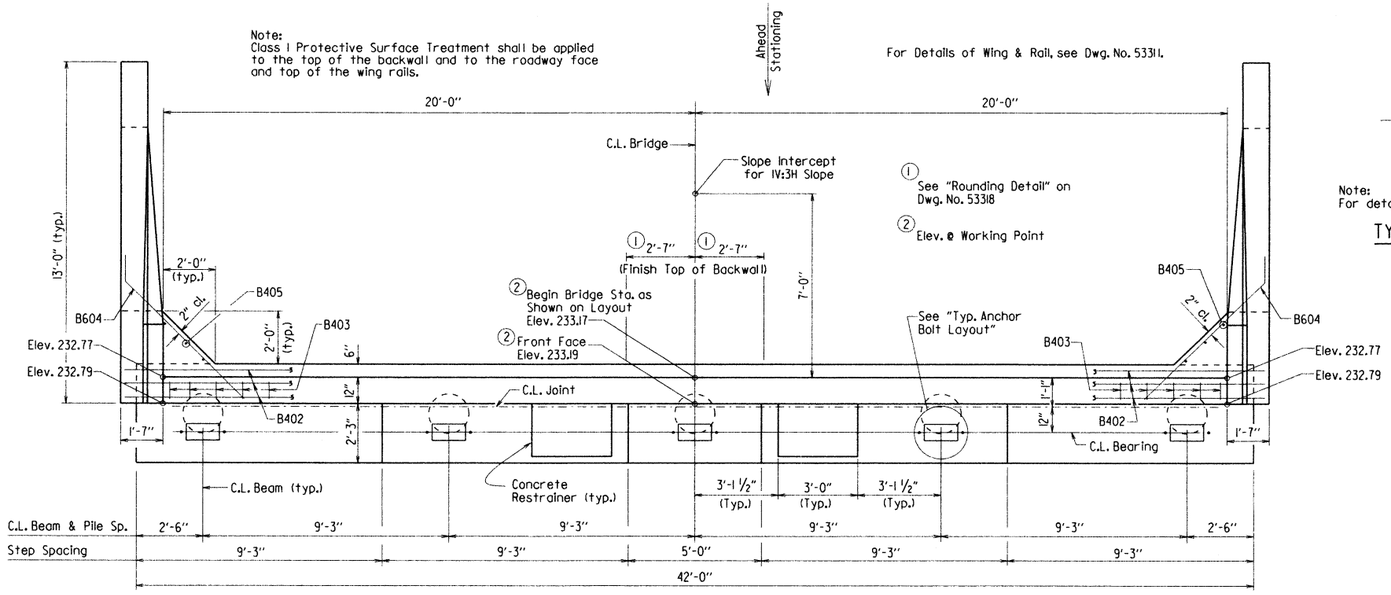
BRIDGE NO. 07232 DRAWING NO. 53308

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	415	132
				(1) 07232		END BENT		53309

Note:
Class I Protective Surface Treatment shall be applied to the top of the backwall and to the roadway face and top of the wing rails.

Ahead Stationing

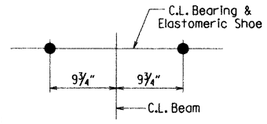
For Details of Wing & Rail, see Dwg. No. 53311.



(4) Adjust spacing of D601E bars as necessary to provide 3" clear from the longitudinal construction joint between the approach slab and gutters.

PLAN - BENT 1

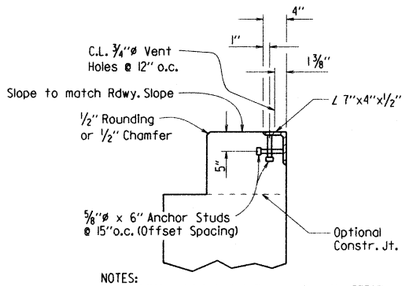
3/8" = 1'-0"



Note:
For details of elastomeric bearings, see Dwg. No. 53317.

TYP. ANCHOR BOLT LAYOUT

No Scale

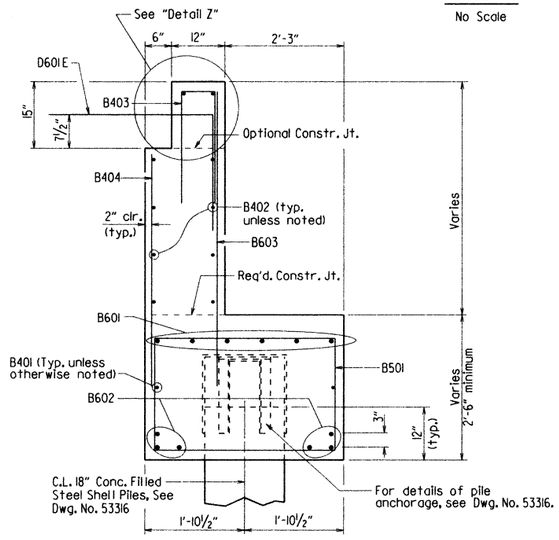


NOTES:
For additional joint details, see Dwg. No. 53323.

Concrete shall be hand packed under the joint armor in the backwall.

DETAIL Z

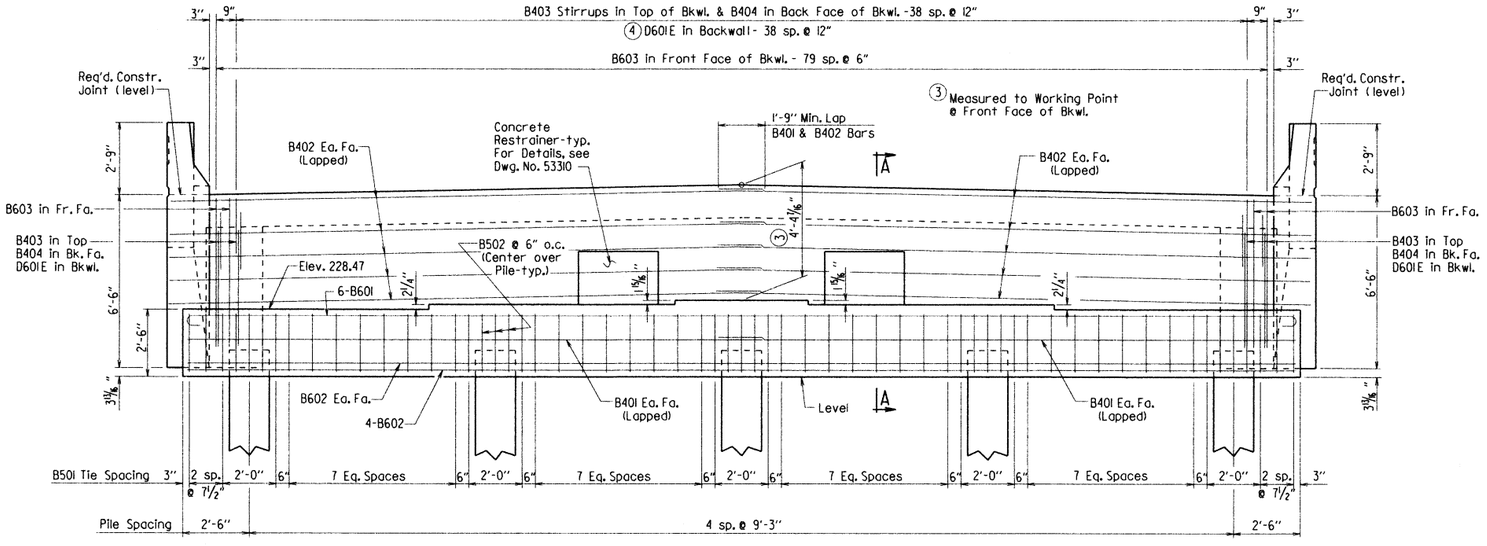
No Scale



SECTION A-A

3/4" = 1'-0"

NOTE: The Backwall above the required construction joint shall not be poured until the beams are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See Dwg. No. 53323, "Expansion Device Installation at End Bents", for additional information.



ELEVATION - BENT 1

Looking Back
3/8" = 1'-0"

Note:
For General Notes & Bar List, See Dwg. No. 53311

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/1/12
CARL J. FUSELIER
BRIDGE ENGINEER

SHEET 1 OF 3

DETAILS OF END BENTS

HWY. 261 OVER INTERSTATE 40

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

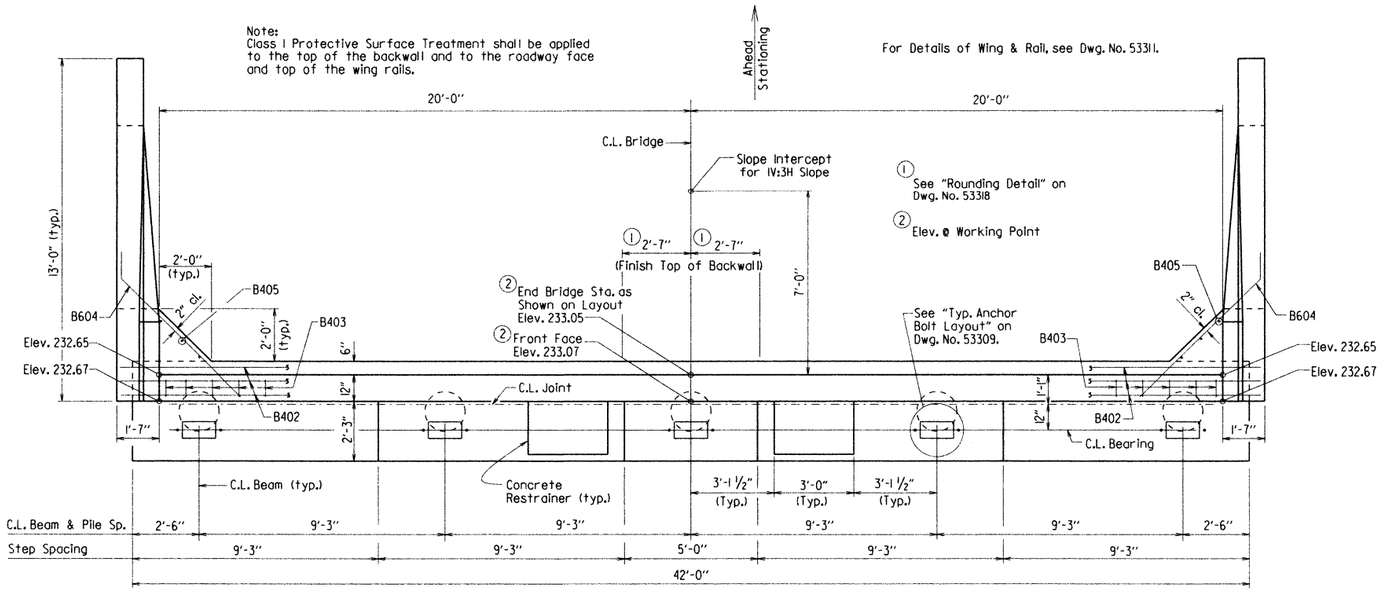
DRAWN BY:	A.M.S.	DATE:	9/13/11	FILENAME:	bl10586x1_bl.dgn
CHECKED BY:	K.W.W.	DATE:	9/26/12	SCALE:	As Shown
DESIGNED BY:	J.N.P.	DATE:	7/11		

BRIDGE NO. 07232 DRAWING NO. 53309

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	46	130
				① 07232		END BENT		53310

Note:
Class I Protective Surface Treatment shall be applied to the top of the backwall and to the roadway face and top of the wing rails.

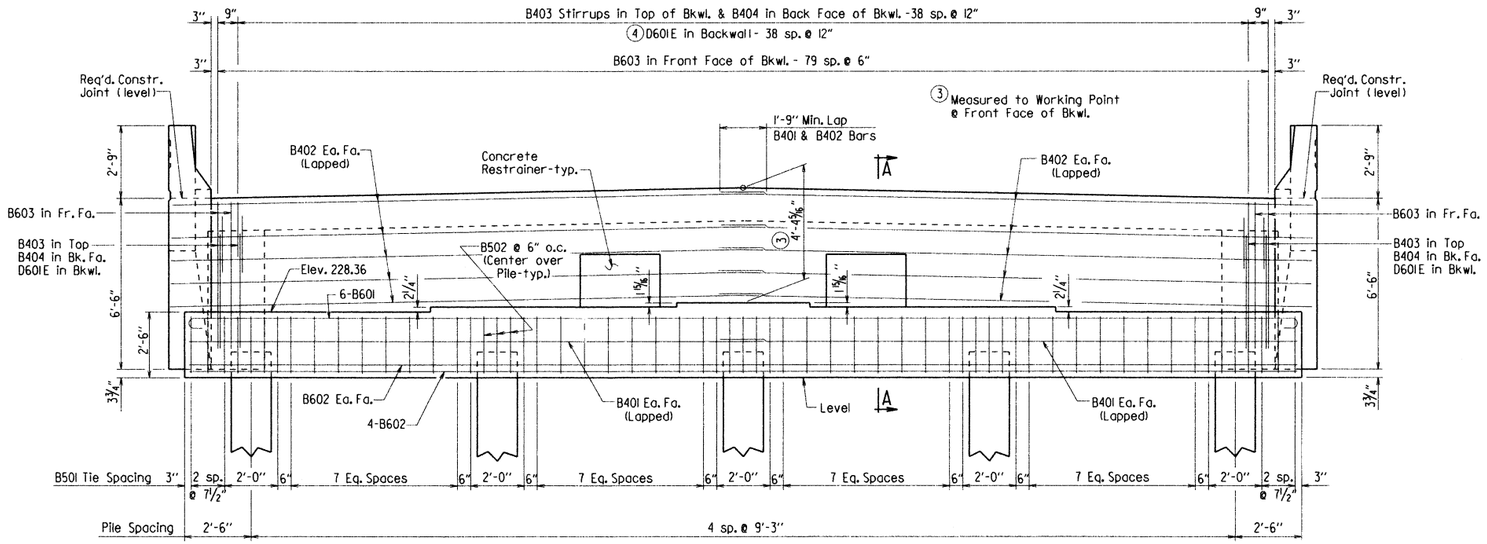
For Details of Wing & Rail, see Dwg. No. 53311.



④ Adjust spacing of D601E bars as necessary to provide 3" clear from the longitudinal construction joint between the approach slab and gutters.

PLAN - BENT 5

3/8" = 1'-0"

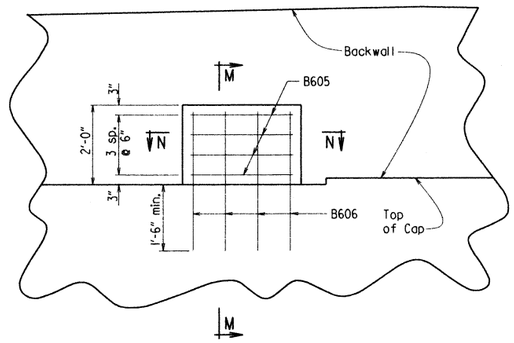


ELEVATION - BENT 5

Looking Ahead
3/8" = 1'-0"

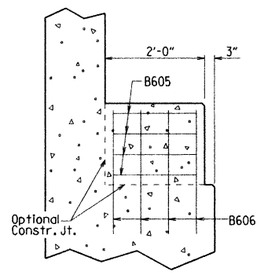
Notes:
For "Section A-A" & Typ. Anchor Bolt Layout, see Dwg. No. 53309.

For General Notes & Bar List, See Dwg. No. 53311.



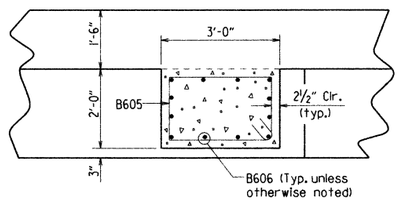
ELEVATION - CONCRETE RESTRAINER

Looking Back Bent 1; Looking Ahead Bent 5
No Scale



SECTION M-M

No Scale



SECTION N-N

No Scale

STATE OF ARKANSAS
Carl J. Puseliier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/1/12
CARL J. PUSELIER
BRIDGE ENGINEER

SHEET 2 OF 3

DETAILS OF END BENTS

HWY. 261 OVER INTERSTATE 40

ROUTE SEC.

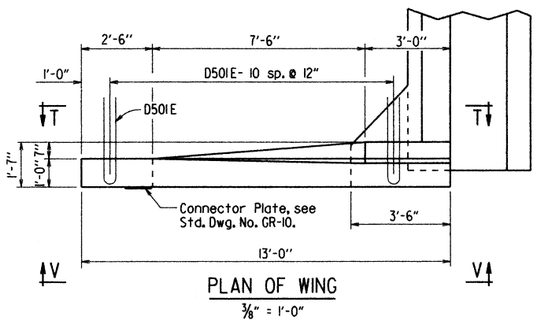
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: AMS. DATE: 9/13/11 FILENAME: bl10586xl_bl.dgn
CHECKED BY: KWY DATE: 9/28/12 SCALE: As Shown
DESIGNED BY: JHP DATE: 7/11

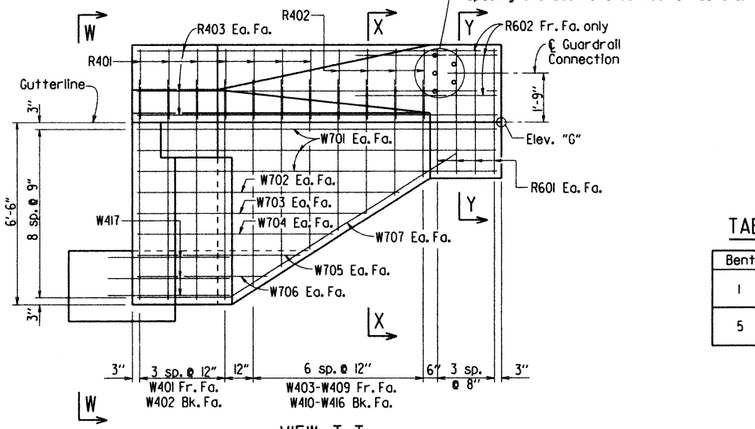
BRIDGE NO. 07232 DRAWING NO. 53310

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	47	138
				(1) 07232		END BENTS		53311



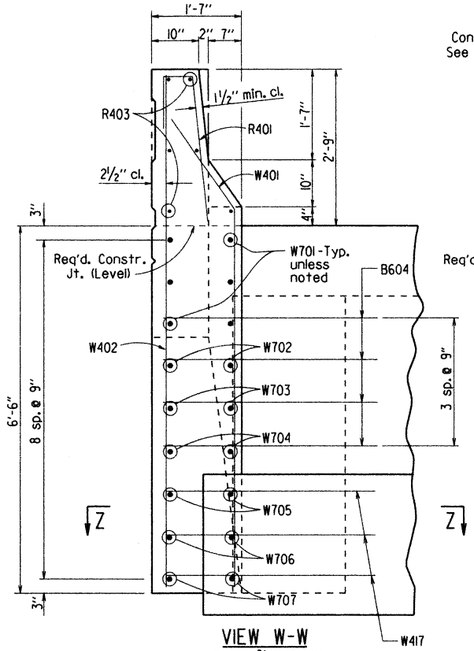
PLAN OF WING

3/8" = 1'-0"



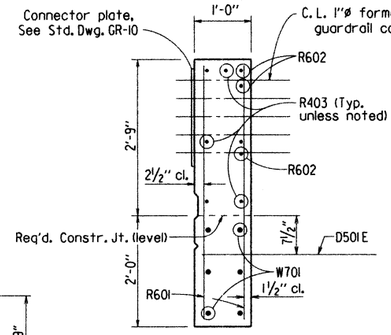
VIEW T-T

Scale: 3/8" = 1'-0"



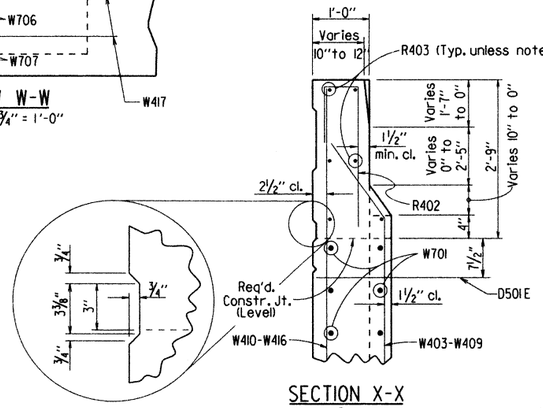
VIEW W-W

Scale: 3/4" = 1'-0"



SECTION Y-Y

Scale: 3/4"= 1'-0"



SECTION X-X

Scale: 3/4" = 1'-0"

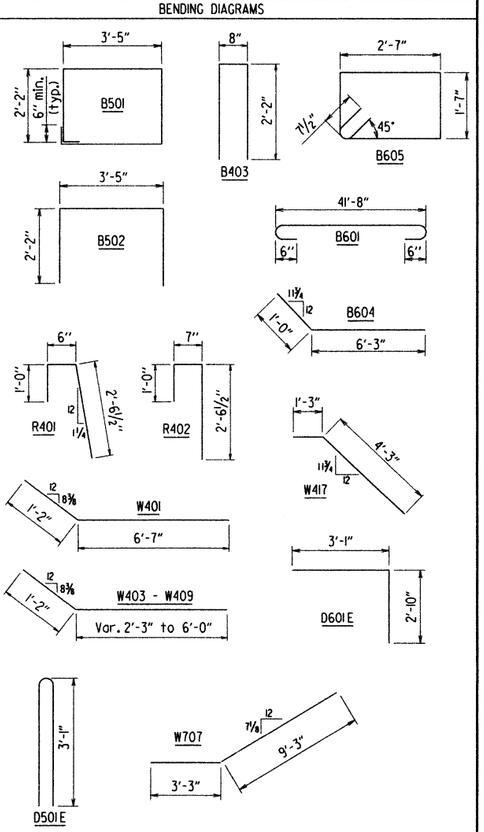
TABLE OF VARIABLES

Bent	"F"	Elev. "G"
1	4'-2 3/16"	232.47
5	4'-2 1/16"	232.34

BAR LIST - PER BENT

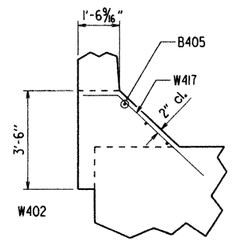
MARK	NO. REQ'D.	LENGTH	P.D.
B401	4	21'-9"	Str.
B402	20	22'-4"	Str.
B403	41	4'-10"	2"
B404	41	4'-5"	Str.
B405	6	4'-11"	Str.
B501	46	11'-8"	2½"
B502	15	7'-7"	2½"
B601	6	43'-0"	4½"
B602	6	41'-8"	Str.
B603	80	6'-0"	Str.
B604	8	7'-3"	4½"
B605	8	9'-2"	4½"
B606	24	3'-4"	Str.
R401	14	3'-11"	2"
R402	8	4'-0"	2"
R403	12	12'-8"	Str.
R601	16	4'-5"	Str.
R602	6	5'-0"	Str.
W401	8	7'-9"	2"
W402	8	8'-10"	Str.
W403-W409	2 each	Var. 3'-5" to 7'-2"	2"
W410-W416	2 each	Var. 4'-7" to 8'-4"	Str.
W417	6	5'-6"	2"
W701	12	12'-8"	Str.
W702	4	9'-8"	Str.
W703	4	8'-5"	Str.
W704	4	7'-2"	Str.
W705	4	5'-11"	Str.
W706	4	4'-8"	Str.
W707	4	12'-6"	5¼"
D501E	22	6'-4"	3¾"
D601E	41	5'-9"	4½"

BENDING DIAGRAMS



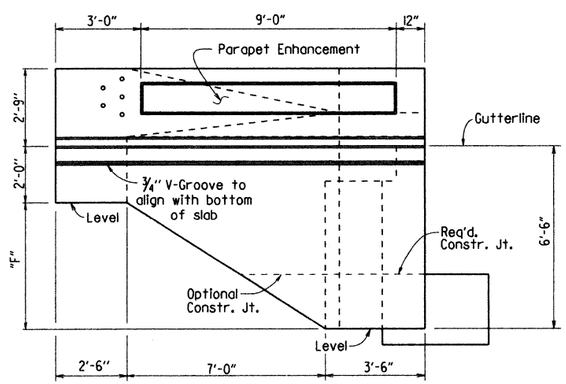
Dimensions are out to out of bars.

Note: Bars designated with an "E" suffix shall be epoxy coated.



SECTION Z-Z

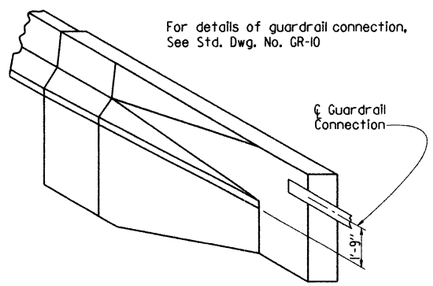
3/8" = 1'-0"



VIEW V-V

Scale: 3/8" = 1'-0"

Note:
For additional details of parapet enhancement, See Dwg. No. 53325.



THREE DIMENSIONAL VIEW OF RAIL

No Scale

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Structural steel in end bents shall be M270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50)".

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see Layout.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
41944
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 3 OF 3

DETAILS OF END BENTS

HWY. 261 OVER INTERSTATE 40

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

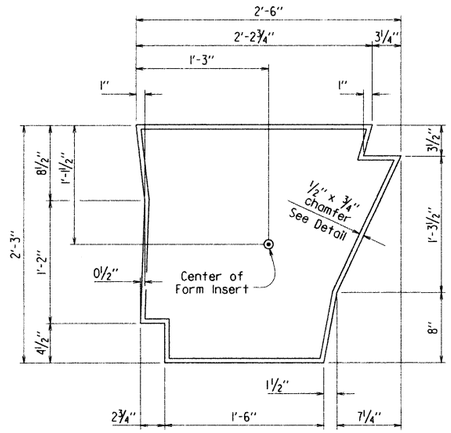
LITTLE ROCK, ARK.

DRAWN BY: AMS. DATE: 9/13/11
CHECKED BY: KWY DATE: 9/9/14
DESIGNED BY: JNP DATE: 9/11

FILENAME: bii0586x1_bi.dgn
SCALE: As Shown

BRIDGE NO. 07232 DRAWING NO. 53311

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	48	130
				(1) 07232		ARK. FORM INSERT		53312



FORM INSERT DETAILS

Scale: 1½" = 1'-0"

GENERAL NOTES:

Use form insert on designated bents as noted on layout or as shown on detail drawings.

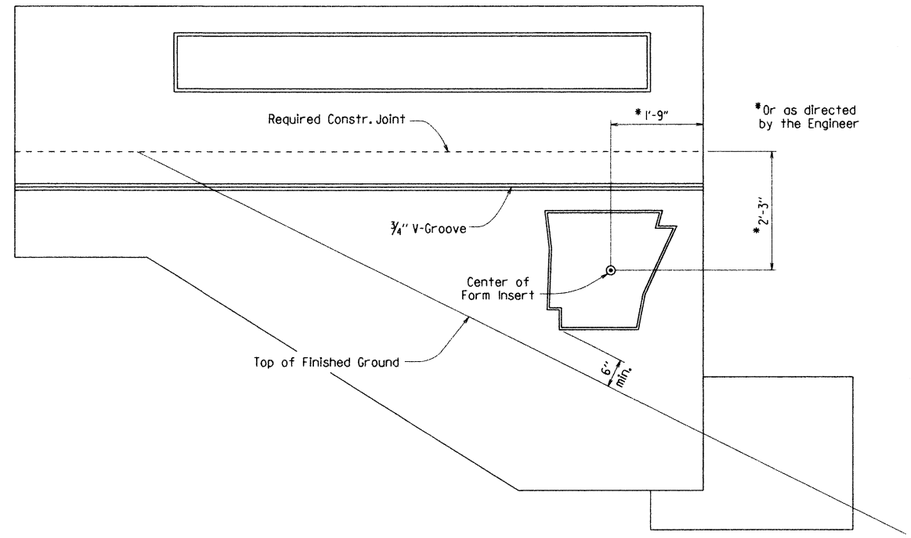
Fabricate form insert as a one piece unit, without the use of splices, joints or glue.

Wash and clean multi-use form inserts before each use.

All work and materials for form inserts shall be included in the unit price bid for Class S Concrete-Bridge.

Damaged or worn form inserts shall be replaced at the Contractor's expense.

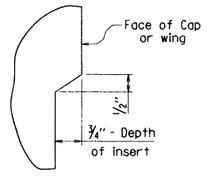
The form insert shall be approved by the Engineer before its use.



PLACEMENT AT WINGS

END BENT

No Scale



CHAMFER DETAILS

Scale: 1½" = 1'-0"

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/1/11
CARL J. FUSELIER

BRIDGE ENGINEER

DETAILS OF STATE OF ARKANSAS FORM INSERT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

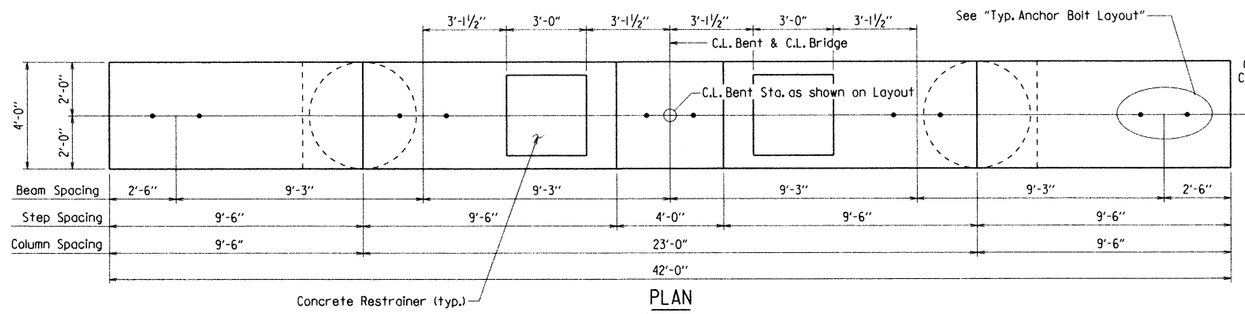
DRAWN BY: JYP DATE: 9-14-11
CHECKED BY: AMS DATE: 9-22-11
DESIGNED BY: STD DATE:

FILENAME: BI10586_LOGO.DGN
SCALE: AS NOTED

BRIDGE NO. 07232

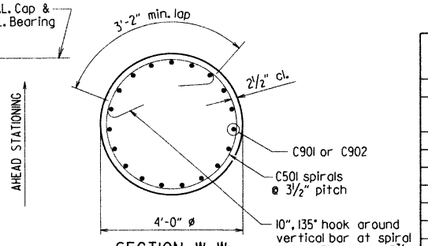
DRAWING NO. 53312

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	49	138
				07232		INT. BENTS		53313



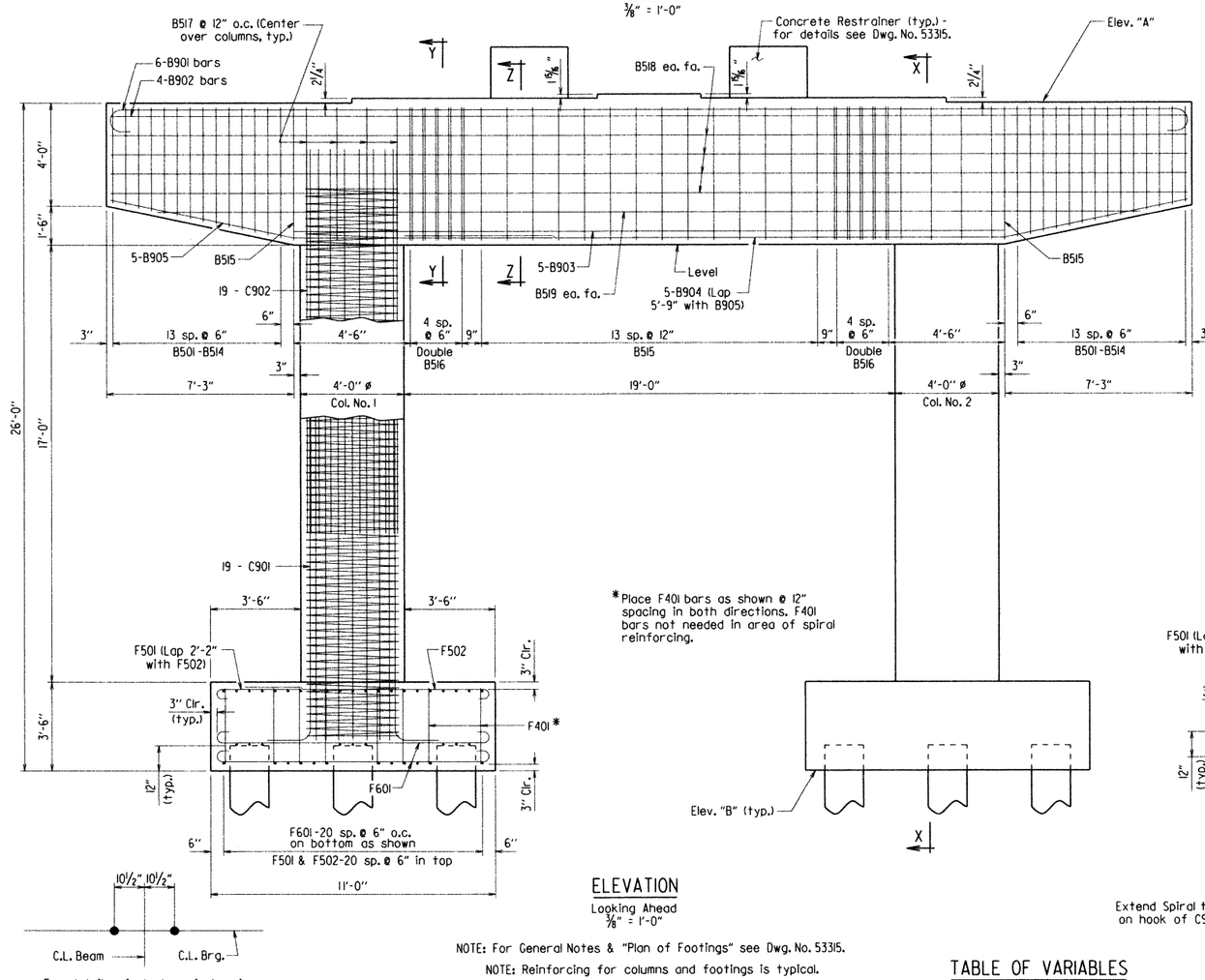
PLAN

⅜" = 1'-0"



SECTION W-W

½" = 1'-0"



For details of elastomeric bearings, see Dwg. No. 53317.

TYPICAL ANCHOR BOLT LAYOUT

½" = 1'-0"

* Place F401 bars as shown @ 12" spacing in both directions. F401 bars not needed in area of spiral reinforcing.

ELEVATION

Looking Ahead

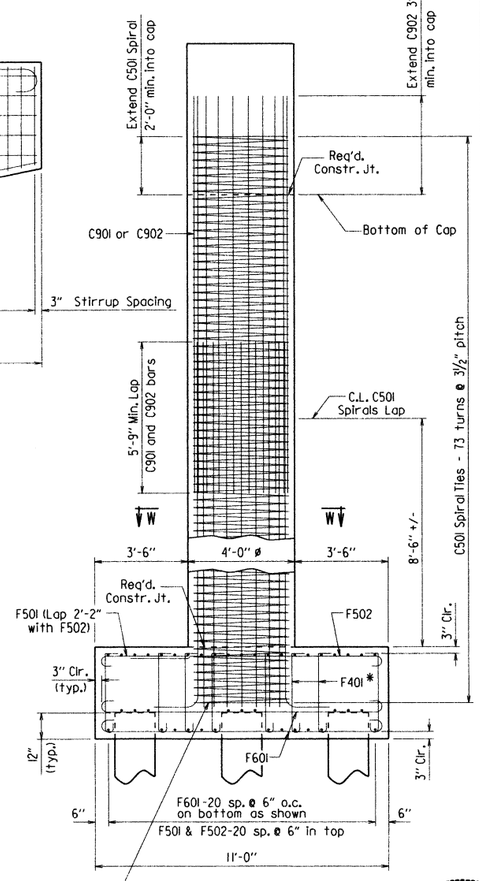
⅜" = 1'-0"

NOTE: For General Notes & "Plan of Footings" see Dwg. No. 53315.

NOTE: Reinforcing for columns and footings is typical.

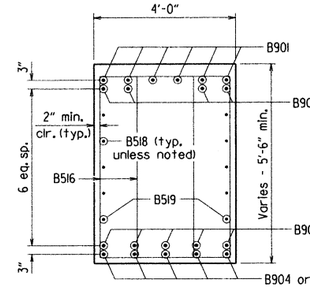
TABLE OF VARIABLES

Bent	Elev. "A"	Elev. "B"
2	229.68	203.68
4	229.61	203.61



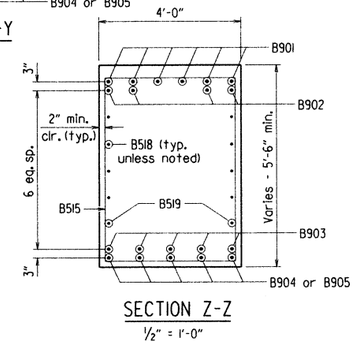
SECTION X-X

¾" = 1'-0"



SECTION Y-Y

½" = 1'-0"



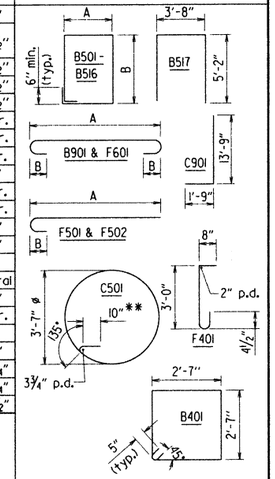
SECTION Z-Z

½" = 1'-0"

BAR LIST - PER BENT

Mark	No. Req'd.	Length	A	B	Pin Dia.
B401	8	10'-10"			3"
B501 - B514	2 ea.	15'-2" - 17'-10"	3'-8"	3'-8" - 5'-0"	2½"
B515	16	18'-2"	3'-8"	5'-2"	2½"
B516	20	16'-1"	2'-7½"	5'-2"	2½"
B517	8	13'-10"			2½"
B518	8	41'-8"			Str.
B519	2	38'-0"			Str.
B601	24	3'-4"			Str.
B901	6	44'-2"	41'-8"	10"	9"
B902	4	41'-8"			Str.
B903	5	27'-6"			Str.
B904	5	30'-5"	23'-2"		9"
B905	5	17'-4"	10'-1"		9"
C501	4	427'-0"			Spiral
C901	38	15-3"			9"
C902	38	15-0"			Str.
F401	120	4'-1"			3"
F501	84	3'-10"	3'-3"	5"	3¾"
F502	84	10'-0"	9'-5"	5"	3¾"
F601	84	11'-10"	10'-6"	6"	4½"

Bending Diagrams



** At the lapped splice end of the spiral, the hook may be field bent around a vertical bar.

(Dimensions are out to out of bars.)

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/1/11
CARL J. FUSELIER

BRIDGE ENGINEER

DETAILS OF BENTS 2 & 4
HWY. 261 OVER INTERSTATE 40

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

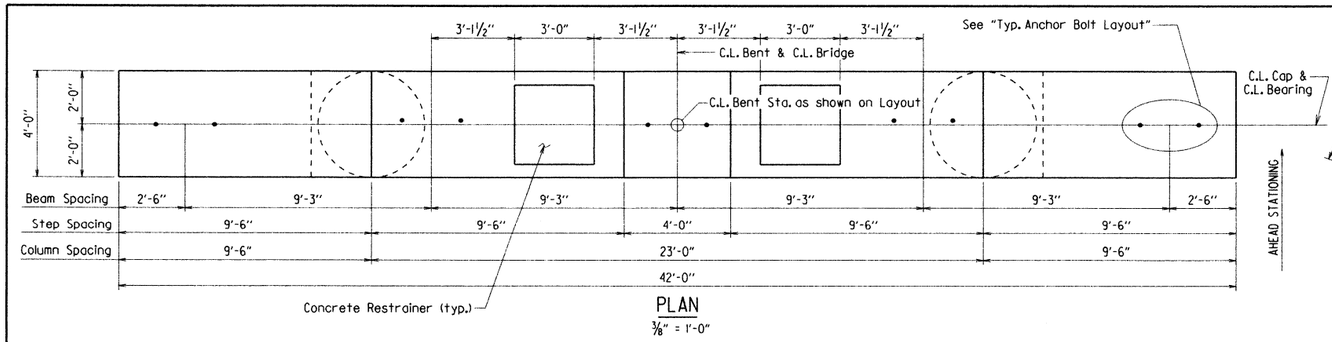
DRAWN BY: ACW DATE: 08/11 FILENAME: bll0586xl_b2.dgn

CHECKED BY: BWY DATE: 11/2/13 SCALE: As Shown

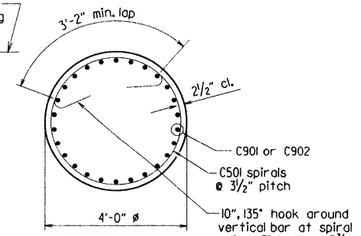
DESIGNED BY: JYP DATE: 7/11

BRIDGE NO. 07232 DRAWING NO. 53313

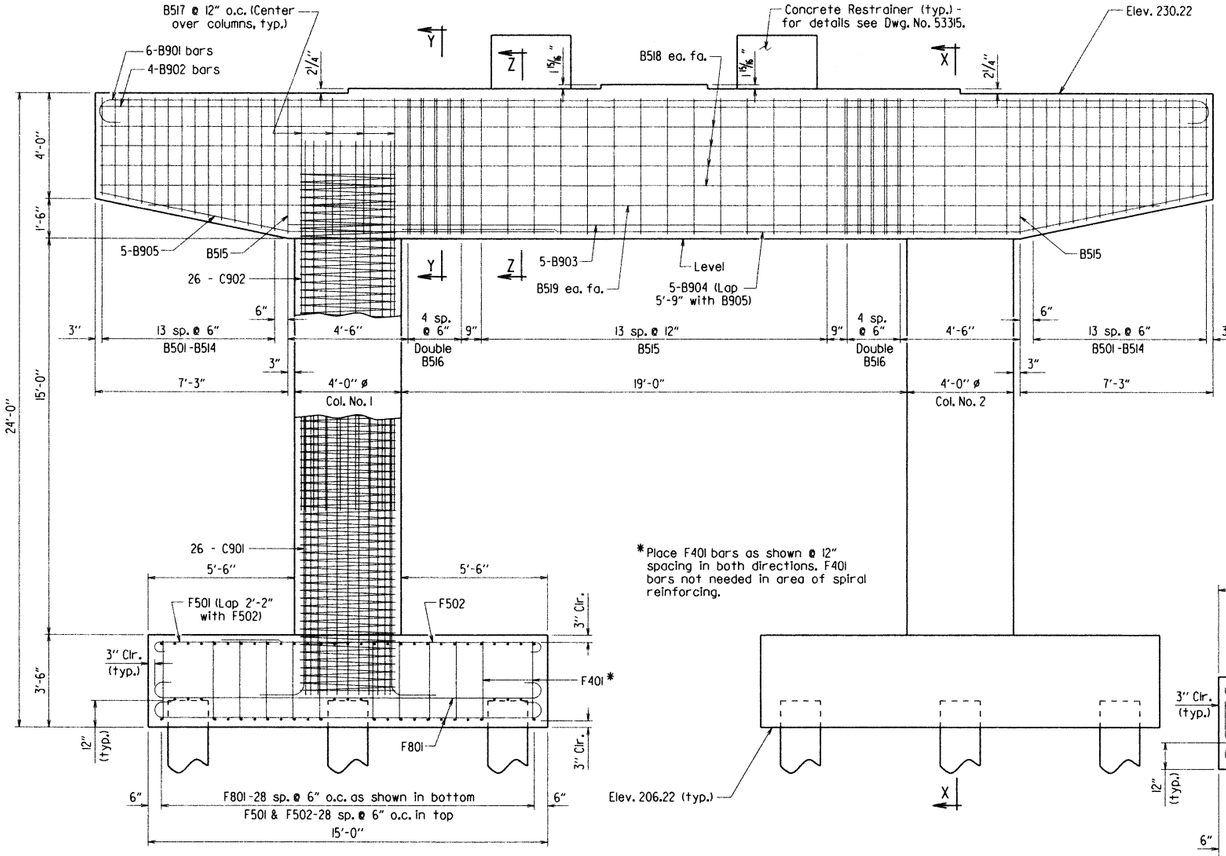
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	50	130
				① 07232		INT. BENTS		53314



PLAN
⅜" = 1'-0"

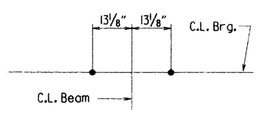


SECTION W-W
½" = 1'-0"



ELEVATION
Looking Ahead
⅜" = 1'-0"

*Place F401 bars as shown @ 12" spacing in both directions. F401 bars not needed in area of spiral reinforcing.

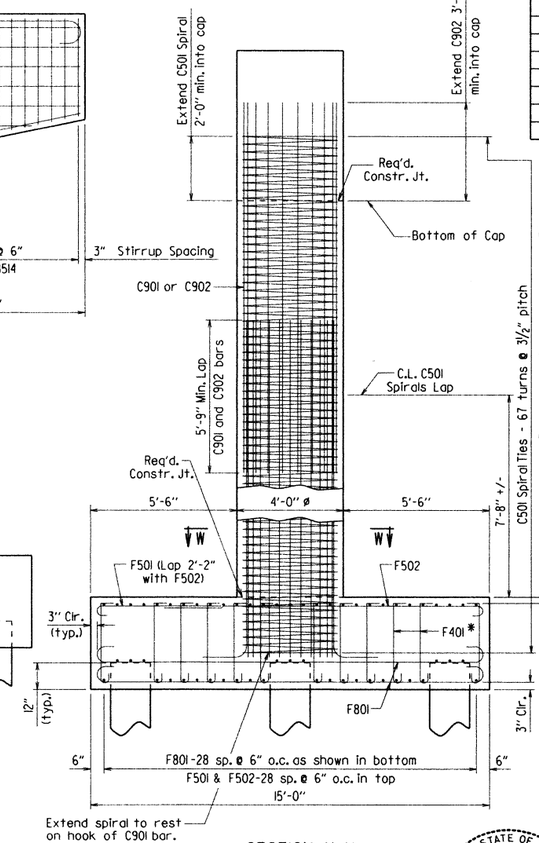


For details of elastomeric bearings, see Dwg. No. 53317.

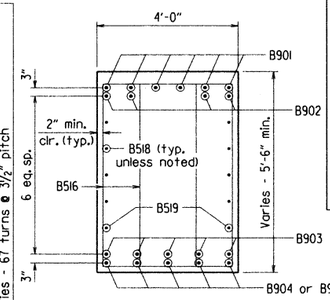
TYPICAL ANCHOR BOLT LAYOUT
½" = 1'-0"

NOTE: For General Notes & "Plan of Footings" see Dwg. No. 53315.

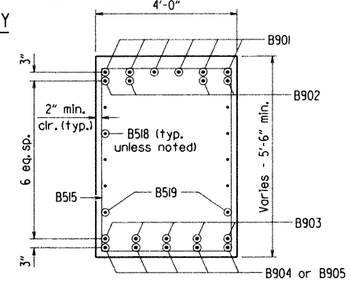
NOTE: Reinforcing for columns and footings is typical.



SECTION X-X
⅜" = 1'-0"



SECTION Y-Y
½" = 1'-0"

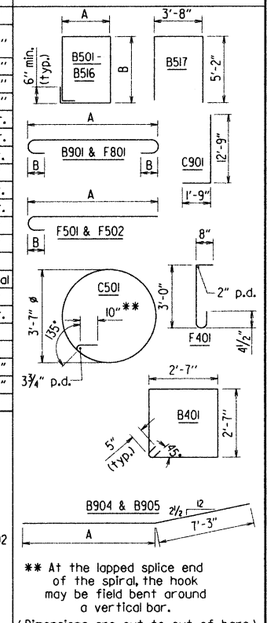


SECTION Z-Z
½" = 1'-0"

BAR LIST

Mark	No. Req'd.	Length	A	B	Pin Dia.
B401	8	10'-10"			3"
B501-B514	2 ea.	15'-2"-17'-10"	3'-8"	3'-8"-5'-0"	2½"
B515	16	18'-2"	3'-8"	5'-2"	2½"
B516	20	16'-1"	2'-7½"	5'-2"	2½"
B517	8	13'-10"			2½"
B518	8	41'-8"			Str.
B519	2	38'-0"			Str.
B601	24	3'-4"			Str.
B901	6	44'-2"	41'-8"	10"	9"
B902	4	41'-8"			Str.
B903	5	27'-6"			Str.
B904	5	30'-5"	23'-2"		9"
B905	5	17'-4"	10'-1"		9"
C501	4	393'-9"			Spiral
C901	52	14'-3"			9"
C902	52	14'-0"			Str.
F401	280	4'-1"			3"
F501	116	5'-3"	4'-8"	5"	3¾"
F502	116	12'-7"	12'-0"	5"	3¾"
F801	116	16'-4"	14'-6"	8"	6"

Bending Diagrams



** At the lapped splice end of the spiral, the hook may be field bent around a vertical bar.
(Dimensions are out to out of bars.)

STATE OF ARKANSAS
Carl J. Fusselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/11
CARL J. FUSSELIER

BRIDGE ENGINEER

DETAILS OF BENT 3
HWY. 261 OVER INTERSTATE 40

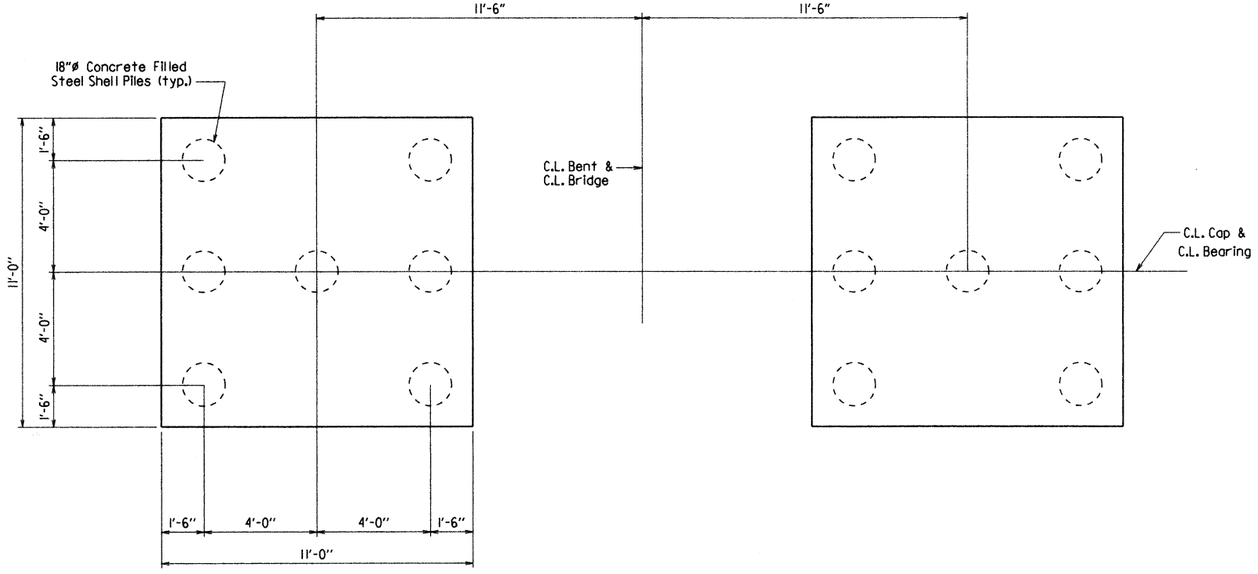
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: ACW DATE: 08/11 FILENAME: bll0586xl_b2.dgn
CHECKED BY: KWY DATE: 11/15/13 SCALE: As Shown
DESIGNED BY: JYP DATE: 7/11

BRIDGE NO. 07232 DRAWING NO. 53314

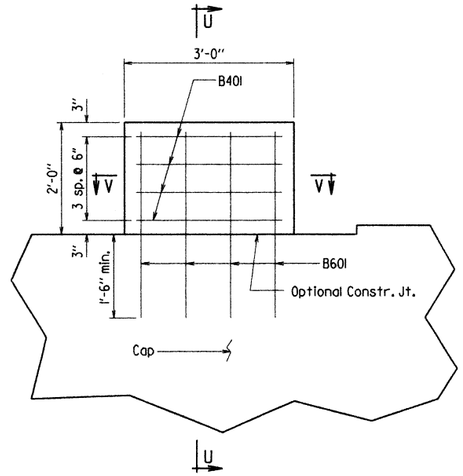
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	51	130
				(1) 07232		INT. BENTS		53315



NOTE: For details of piles and pile anchorage, see Dwg. No. 53316.

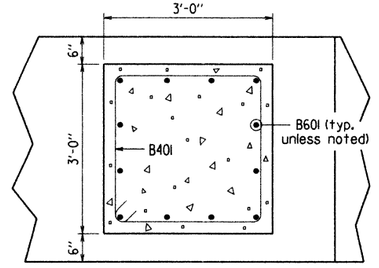
BENTS 2 & 4 - PLAN OF FOOTINGS

3/8" = 1'-0"



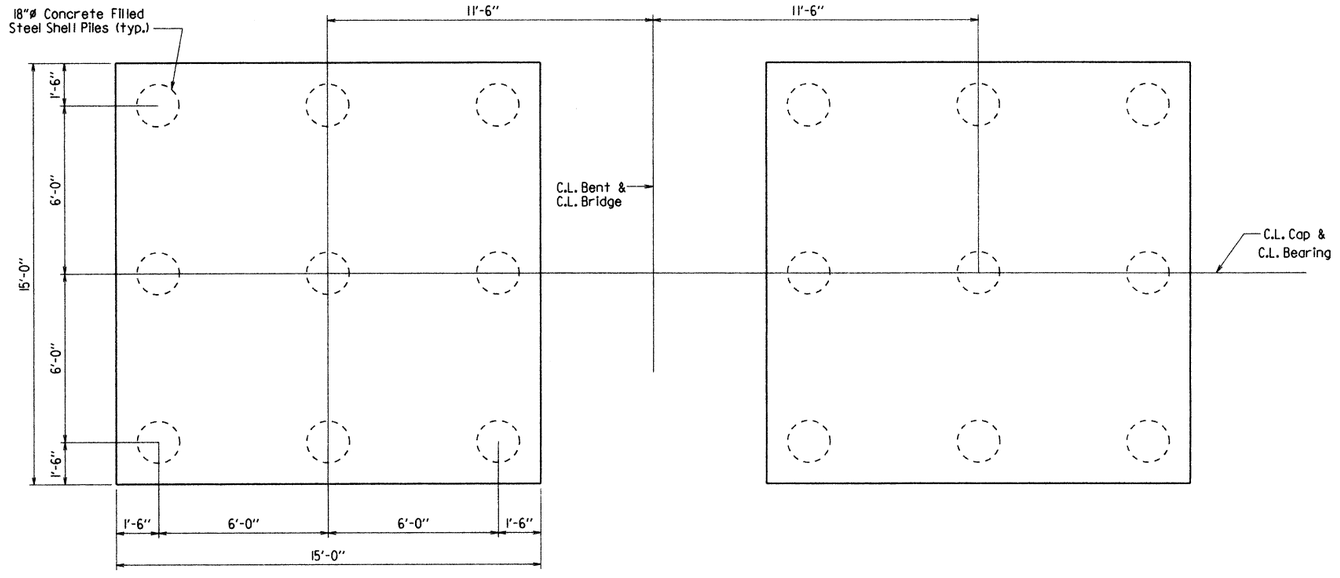
ELEVATION - CONCRETE RESTRAINER

3/4" = 1'-0"



SECTION V-V

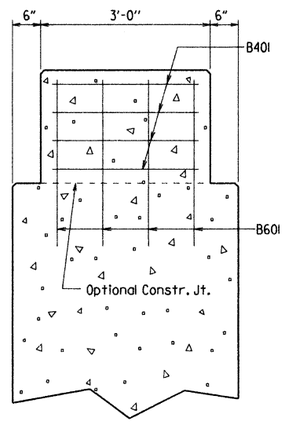
3/4" = 1'-0"



NOTE: For details of piles and pile anchorage, see Dwg. No. 53316.

BENT 3 - PLAN OF FOOTINGS

3/8" = 1'-0"



SECTION U-U

3/4" = 1'-0"

GENERAL NOTES

All concrete shall be Class "S" and shall be poured in the dry. All exposed corners to be chamfered 3/4" unless otherwise noted.

All reinforcing steel shall be Grade 60 conforming to AASHTO M31 or M322, Type A, with mill test reports.

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

All piling shall be Grade 3, Fy = 45 ksi.

For additional information, see Layout.

NOTES FOR SPIRAL REINFORCING:

Spiral reinforcing shall be plain round or deformed Grade 60 steel bars meeting the requirements of AASHTO M31 or M322 Type A with mill test reports or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum diameter of 0.625".

Spiral reinforcement shall be paid for at the contract unit price bid per pound for "Reinforcing Steel-Bridge (Grade 60)". No additional payment shall be made for spacers, additional splices or bracing needed for assembly, shipping, handling or erecting.

The Contractor may elect to use a different number of spiral lapped splices per column. In no case shall a spiral be lapped within 4'-0" of the top or bottom of the column.

Splices in spiral reinforcement shall be lapped a minimum of 60 bar diameters.

Spiral reinforcement at lapped splices shall be terminated by a 135° hook with a 10" tail around a vertical bar. Hook may be field bent. Ends of spirals not lapped shall be terminated with 1½ turns and a 135° hook with a 10" tail around a vertical bar.

STATE OF ARKANSAS
CARL J. FUSELIER
REGISTERED PROFESSIONAL ENGINEER
No. 7510
4/9/14

BRIDGE ENGINEER

DETAILS COMMON TO INTERMEDIATE BENTS HWY. 261 OVER INTERSTATE 40

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

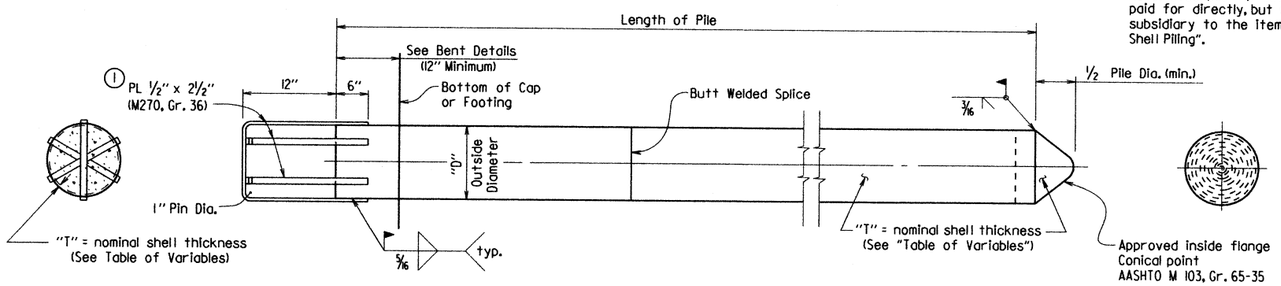
LITTLE ROCK, ARK.

DRAWN BY: ACW DATE: 08/11
CHECKED BY: KWY DATE: 4/9/14
DESIGNED BY: JNP DATE: 7/11

FILENAME: bll0586xl_b2.dgn
SCALE: As Shown

BRIDGE NO. 07232 DRAWING NO. 53315

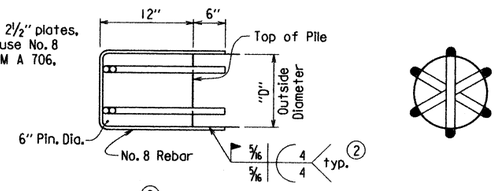
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	52	130
				① 07232		STEEL SHELL PILES		53316



Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".

① Pile anchorage shall be placed to minimize interference with anchor bolts and reinforcing in cap or footing.

CONCRETE FILLED STEEL SHELL PILE



① In place of the ½" x 2½" plates, the Contractor may use No. 8 reinforcing bars (ASTM A 706, Grade 60).

② Welding shall comply with ANSI/AWS D1.4 Structural Welding Code-Reinforcing Steel and applicable portions of ANSI/AWS D1.5 Bridge Welding Code.

ALTERNATE FOR ½" x 2½" PLATE

GENERAL NOTES FOR CONCRETE FILLED STEEL SHELL PILES:

Seismic Performance Zone: 3

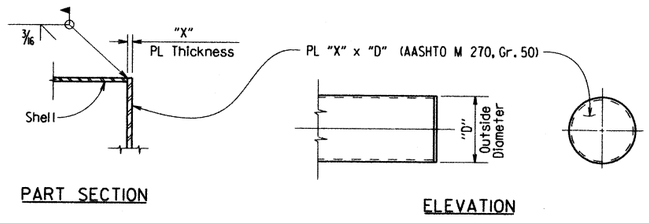
Steel shell piles shall conform to ASTM A252, Grade 3, (Fy = 45,000 psi).

Steel shell piles 50' in length or less shall be completely filled with Class S Concrete with a minimum 28-day compressive strength, f'c = 3,500 psi, and shall be poured in the dry. At the Contractor's option, pile lengths greater than 50' may be filled with sand up to 50' below the top plan elevation of the steel shell pile and the remaining 50' filled with Class S Concrete. Sand used for filling of steel shell piles shall be clean and free of any organic matter.

Steel shell piles that extend above the ground and are not protected by pile encasement shall be painted in accordance with subsection 805.02 of the Standard Specifications for Highway Construction.

See Bridge Layout for size and estimated length of steel shell piles and for additional driving information.

Concrete, sand, structural steel, reinforcing steel (including welding), and painting will not be paid for separately, but will be considered included in the contract unit price bid for "Steel Shell Piling".

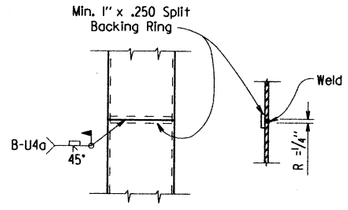


PART SECTION

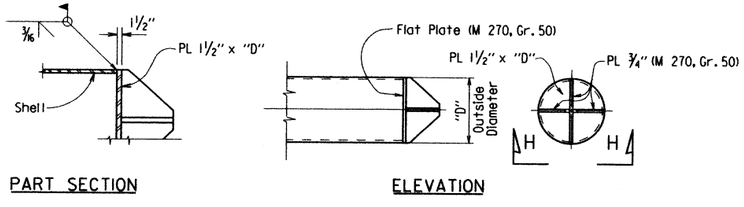
ELEVATION

ALTERNATE FLAT TIP DETAIL

(ALTERNATE FLAT PILE TIPS SHALL NOT BE USED ON PILES IN END BENTS)



TYPICAL SPLICE DETAILS



PART SECTION

ELEVATION

VIEW H-H

ALTERNATE VANED TIP DETAIL

TABLE OF VARIABLES

OUTSIDE DIAMETER "D"	NOMINAL SHELL THICKNESS "T"	PLATE THICKNESS "X"
18"	0.50"	2½"

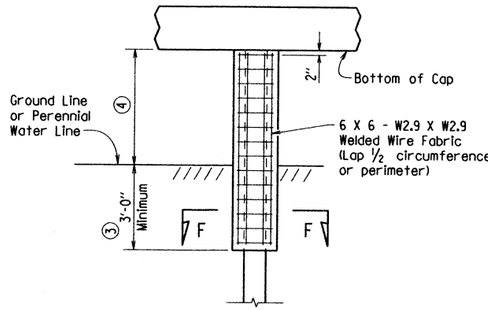
GENERAL NOTES FOR PILE ENCASEMENTS:

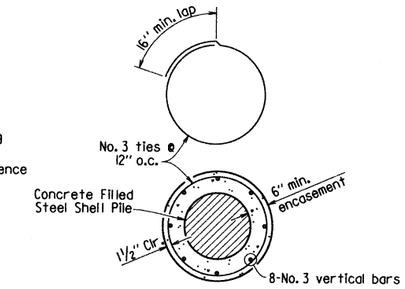
See Bridge Layout for required location of pile encasements. Only interior trestle pile bents shall have pile encasements.

Concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall conform to AASHTO M 31 or M 53, Grade 60.

Concrete, welded wire fabric or reinforcing steel, and galvanized pipe will not be paid for separately, but will be considered included in the unit price bid for "Pile Encasement".





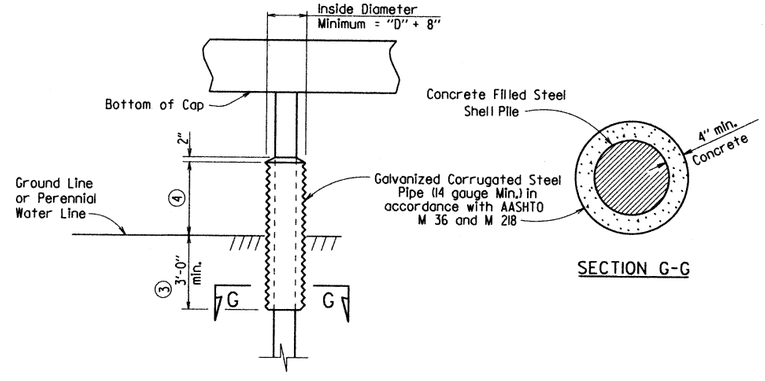
SECTION F-F (REINF. ALTERNATE)

PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES
(Shown with Encasement to Bottom of Cap)⑤

③ Unless otherwise noted on Bridge Layout.

④ See Bridge Layout for height of pile encasement (3'-0" Minimum).

⑤ Pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the detail for partial height encasement.



SECTION G-G

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES
(Shown with Partial Height Encasement)

STATE OF ARKANSAS
CHARLES R. ELLIS
REGISTERED PROFESSIONAL ENGINEER
No. 9225
8-23-16

BRIDGE ENGINEER

DETAILS OF CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS

ROUTE SECTION

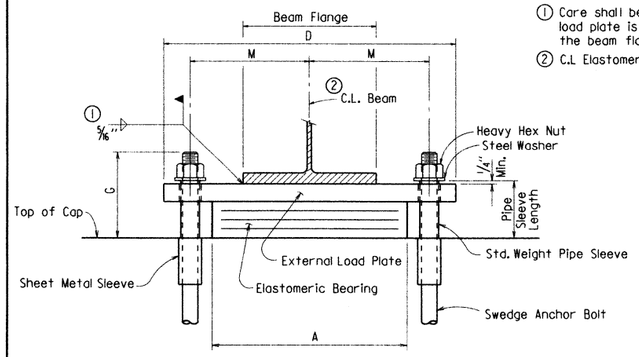
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 9/14/11
CHECKED BY: LJB DATE: 8/22/16
DESIGNED BY: STD. DATE: —
FILENAME: b110586_piles.dgn
SCALE: NONE

BRIDGE NO. 07232 DRAWING NO. 53316

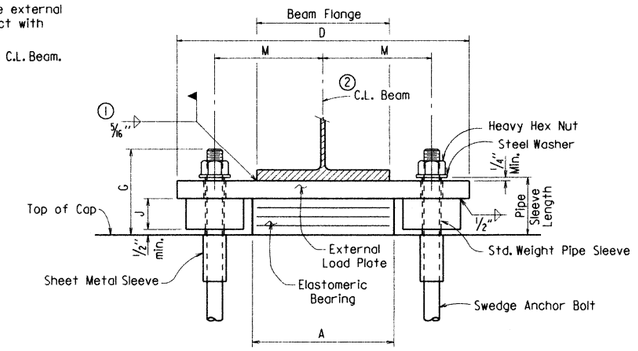
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	53	130
				①	07232	ELASTOMERIC BEARINGS		53317



FRONT VIEW AT BENTS 1-2 & 4-5

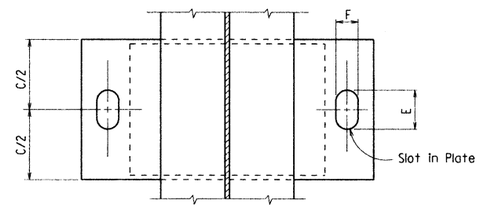
① Care shall be taken to ensure that the external load plate is in full and complete contact with the beam flange before welding begins.

② C.L Elastomeric pad shall be aligned with C.L. Beam.

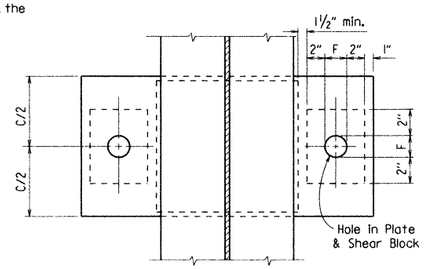


FRONT VIEW AT BENT 3

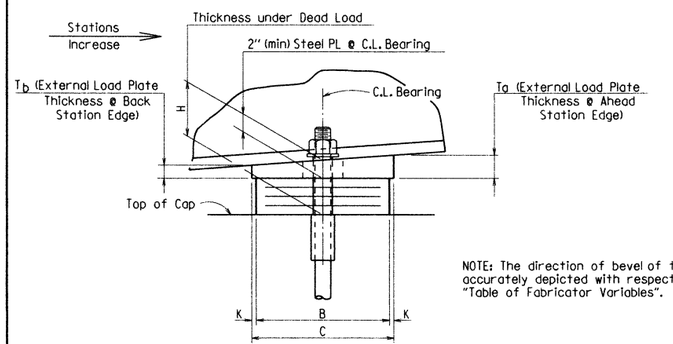
Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.



PLAN VIEW AT BENTS 1-2 & 4-5

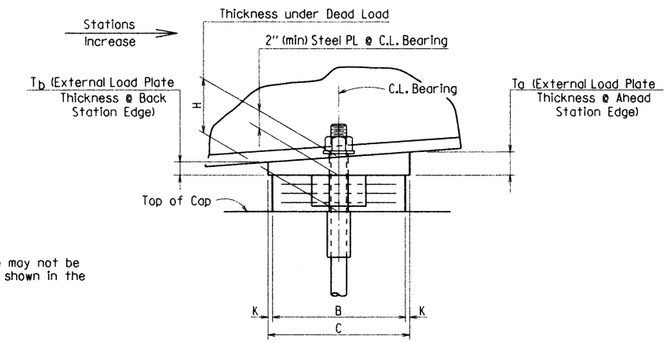


PLAN VIEW AT BENT 3

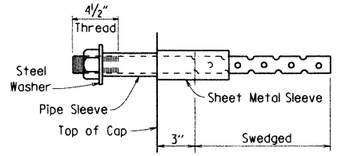


SIDE VIEW AT BENTS 1-2 & 4-5

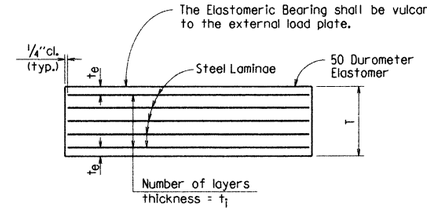
NOTE: The direction of bevel of the external load plate may not be accurately depicted with respect to T_a and T_b values shown in the "Table of Fabricator Variables".



SIDE VIEW AT BENT 3



ANCHOR BOLT DETAIL



t_e = thickness of elastomer cover on top and bottom of pad

t_i = thickness of elastomer between steel laminae

N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

NOTE: Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the masonry. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50)".

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 of the Standard Specifications and shall be paid for at the unit price bid for "Elastomeric Bearings."

External load plates and shear blocks shall conform to AASHTO M 270, Grade 50. Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or AASHTO M 298, Class 50.

External load plates and shear blocks shall be completely fabricated (including bevel, bolt holes and all shop welding) and shall be cleaned before vulcanizing to the elastomeric bearing. Surfaces in contact with the elastomeric bearing shall be cleaned in accordance with subsection 808.03. Other surfaces shall be blast cleaned in accordance with subsection 807.84(b) for painted steel and 807.84(e) for unpainted Grade 50W steel.

Anchor Bolts, Washers and Nuts shall conform to subsection 807.07 of the Standard Specifications. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50)". External load plates and shear blocks will not be measured or paid for separately but will be considered included in the unit bid price for "Elastomeric Bearings".

Bearings shall be seated in accordance with subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

* Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION: BENT NO(S).	LOCATION: BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD: A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	EXTERNAL LOAD PLATE: C	D	E	F	J	K	M	T_a	T_b	ANCHOR BOLT: ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
07232	1	All	Exp.	5	108	7¾"	5"	15"	7½"	4	½"	¼"	5 @ 12 ga.	3"	8½"	25"	4⅝"	2¼"	N/A	½"	9¾"	2.10"	1.90"	1½"ø x 25"	55	1½"ø x 5¼"	3"ø x 9"	3"
	2	All	Exp.	5	245	6⅞"	3 15/16"	16"	12½"	2	½"	¼"	3 @ 12 ga.	1 15/16"	13½"	27"	4¼"	2⅝"	N/A	½"	10½"	2.09"	1.91"	1¾"ø x 27"	55	2"ø x 4⅛"	4"ø x 9"	3⅜"
	3	All	Fix	5	284	6⅞"	3 15/16"	16"	14½"	2	½"	¼"	3 @ 12 ga.	1 15/16"	15½"	35⅜"	N/A	3⅛"	1¼"	½"	13⅛"	2.00"	2.00"	2"ø x 30"	55	2½"ø x 4⅛"	4"ø x 9"	3¾"
	4	All	Exp.	5	245	6⅞"	3 15/16"	16"	12½"	2	½"	¼"	3 @ 12 ga.	1 15/16"	13½"	27"	4¼"	2⅝"	N/A	½"	10½"	1.90"	2.10"	1¾"ø x 27"	55	2"ø x 4⅛"	4"ø x 9"	3⅜"
	5	All	Exp.	5	108	7¾"	5"	15"	7½"	4	½"	¼"	5 @ 12 ga.	3"	8½"	25"	4⅝"	2¼"	N/A	½"	9¾"	1.90"	2.10"	1½"ø x 25"	55	1½"ø x 5¼"	3"ø x 9"	3"

TABLE OF FABRICATOR VARIABLES

STATE OF ARKANSAS
Carl J. Pusellier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. PUSELLIER
BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS
HWY. 261 OVER INTERSTATE 40

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: PGT DATE: 9-7-11 FILENAME: bl10586xl_el.dgn

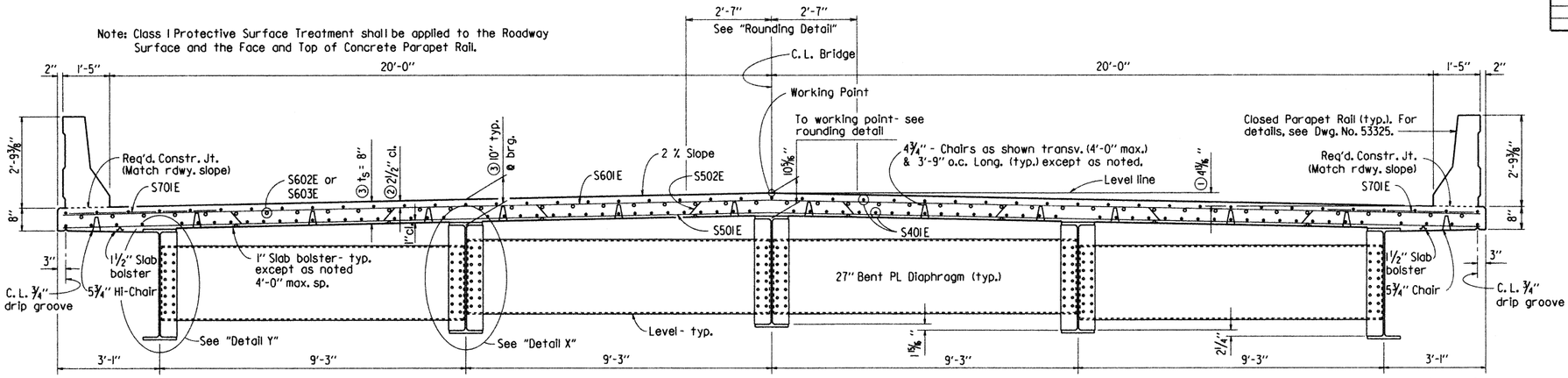
CHECKED BY: AMS DATE: 9-14-11 SCALE: NONE

DESIGNED BY: PGT DATE: 5-11

BRIDGE NO. 07232 DRAWING NO. 53317

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	54	130
				① 07232		294' UNIT		53318

Note: Class I Protective Surface Treatment shall be applied to the Roadway Surface and the Face and Top of Concrete Parapet Rail.



TYP. ROADWAY SECTION

½" = 1'-0"

Slab Reinforcing:

Longitudinal: S401E Top & Bottom
S602E or S603E placed as shown over interior supports (See "Reinf. Plan & Pouring Sequence", Dwg. No. 53321)

Transverse: S502E @ 15"o.c. bent up over beams — Alternate
S601E @ 15"o.c. in top, S501E @ 15"o.c. in bottom,
S701E @ 15"o.c. in top (Overhangs)

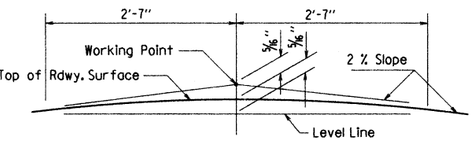
① Working point to gutterline

② Tolerance: Minus = ¼"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance-
See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE"

③ See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE"

Note: At the Contractor's option, two straight epoxy coated #5 bars, top and bottom, may be substituted for bar S502E. Payment will be based on weight of S502E.

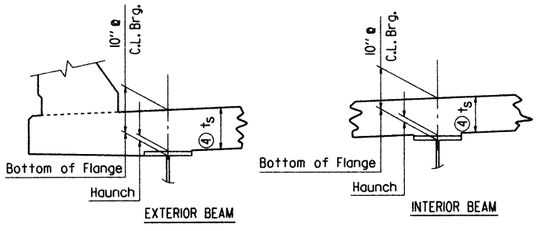
Note: Bars with an "E" suffix are epoxy coated.



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

N.T.S.



④ Tolerance when removable deck forming is used is + ½" , - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

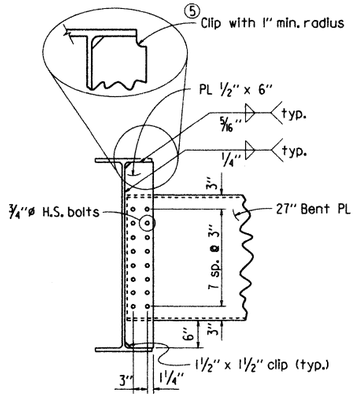
Notes:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance : Minimum - occurs when top flange contacts bottom reinforcing steel; Maximum - top flange thickness plus 1¾". No increase in concrete and structural steel quantities will be made to maintain tolerances.

Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

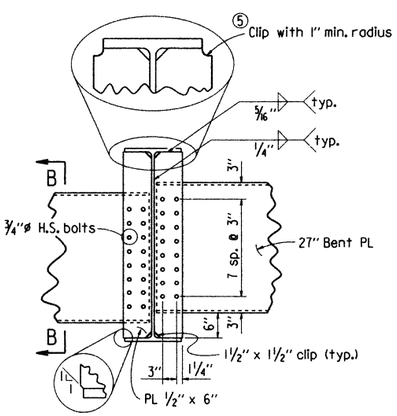
NTS

⑤ If permanent steel bridge deck forms are used, the fabricator shall clip plates connected to beams as necessary to accomodate the deck form support.



DETAIL Y

NTS

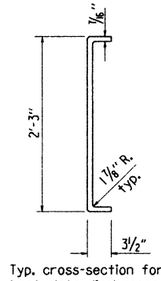


DETAIL X

NTS

Notes: Stop welds ¼" to 1" from end of clip (typ.)

Bolts in connections shall be properly installed and tightened in accordance with Subsection 807.71.



Typ. cross-section for all 27" bent plate diaphragms.

SECTION B-B

NTS

TABLE FOR WELD

Material Thickness Of Thicker Part Joined (Inches)	Minimum Size Of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	5/16"	

Note: When a fillet weld size, as shown on the plans, is larger than the minimum, the First Pass shall be that specified for minimum size of fillet weld.

STATE OF ARKANSAS
Carl Publieler
REGISTERED PROFESSIONAL ENGINEER
No. 7510
9/9/14
CARL J. PUBLIELER

BRIDGE ENGINEER

SHEET 1 OF 7

DETAILS OF 294'-0" CONTINUOUS W-BEAM UNIT HWY. 261 OVER INTERSTATE 40

ROUTE SEC.

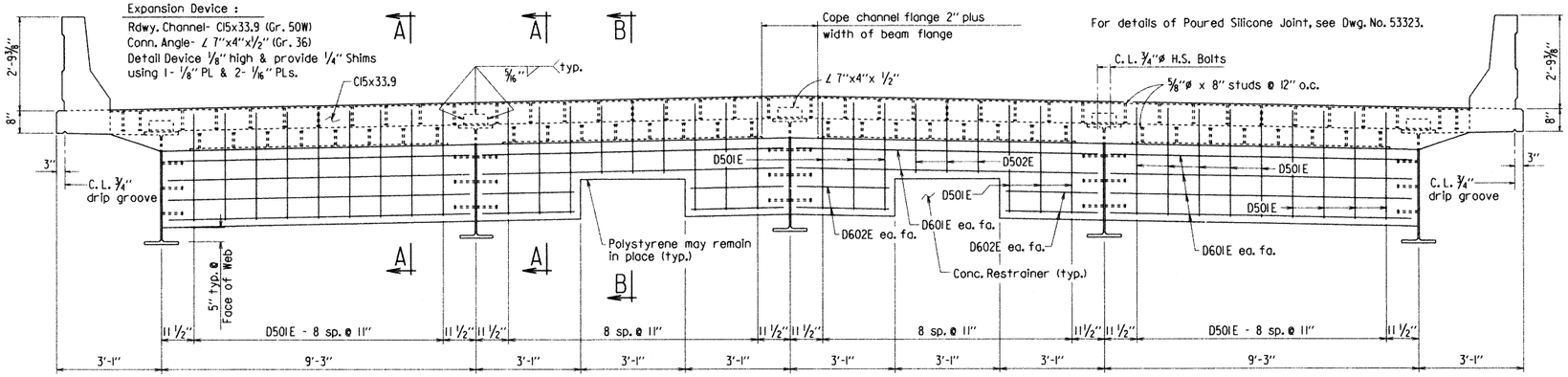
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: PGT DATE: 6-11 FILENAME: bll0586xl_sl.dgn
CHECKED BY: AMS DATE: 9-14-11 SCALE: As Noted
DESIGNED BY: PGT DATE: 5-11

BRIDGE NO. 07232 DRAWING NO. 53318

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	55	130
				(1) 07232		294' UNIT		53319

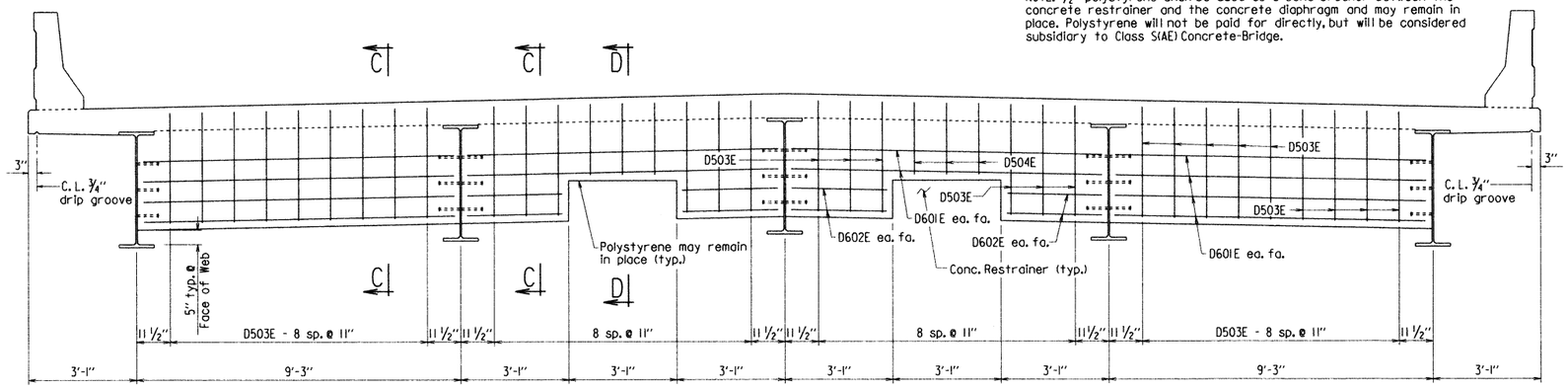


NOTE: For dimensions and reinforcing not shown, see "Typ. Roadway Section" on Dwg. No. 53318.

TYPICAL ROADWAY SECTION NEAR JOINT

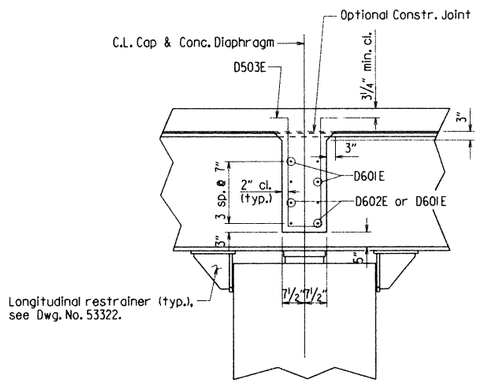
½" = 1'-0"

NOTE: ½" polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place. Polystyrene will not be paid for directly, but will be considered subsidiary to Class S(AE) Concrete-Bridge.



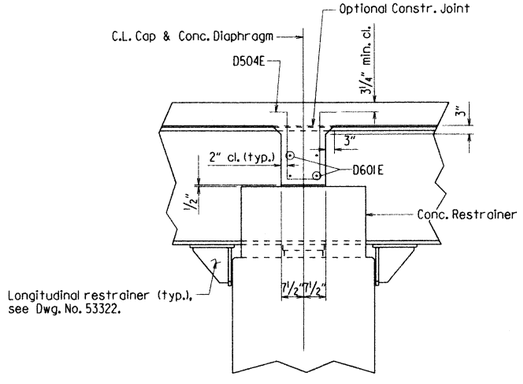
TYPICAL ROADWAY SECTION AT INTERMEDIATE BENTS

½" = 1'-0"



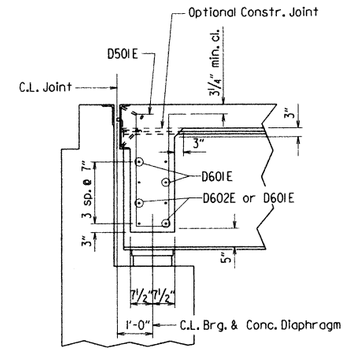
SECTION C-C

½" = 1'-0"



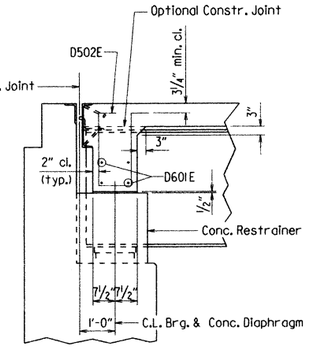
SECTION D-D

½" = 1'-0"



SECTION A-A

½" = 1'-0"



SECTION B-B

½" = 1'-0"

NOTES: Forms for concrete diaphragms shall be removable.

Concrete diaphragms shall be vertical.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/11/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 7

DETAILS OF 294'-0" CONTINUOUS W-BEAM UNIT HWY. 261 OVER INTERSTATE 40

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

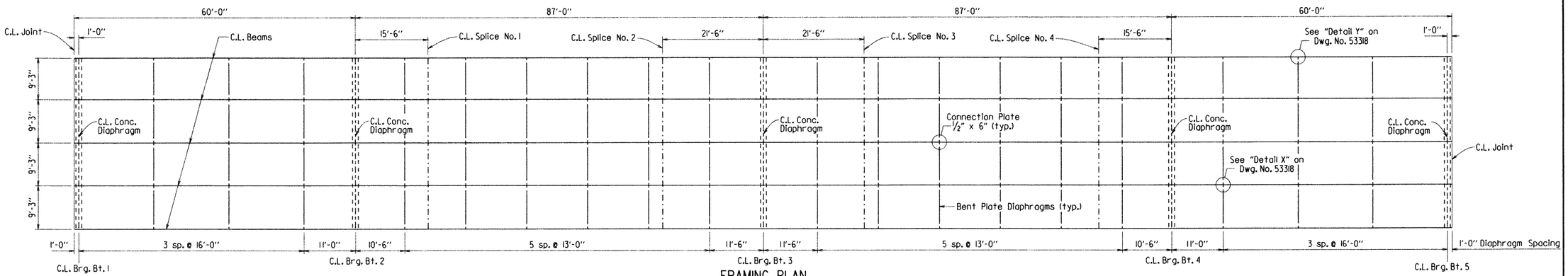
DRAWN BY: PGT DATE: 6-11 FILENAME: bll0586xl_sl.dgn

CHECKED BY: AMS DATE: 9-14-11 SCALE: ½" = 1'-0"

DESIGNED BY: PGT DATE: 5-11

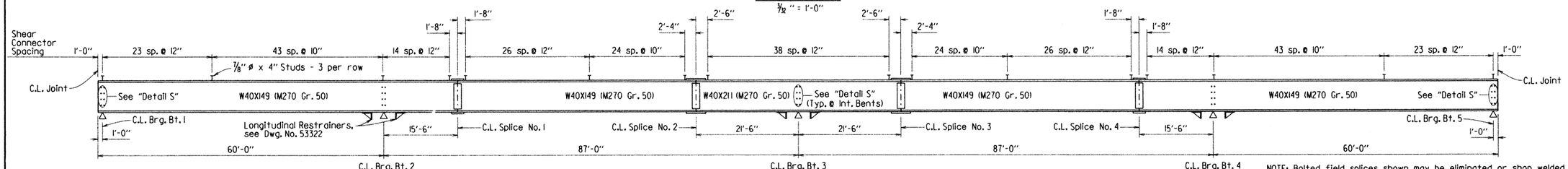
BRIDGE NO. 07232 DRAWING NO. 53319

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	56	130
				07232		294' UNIT		53320



FRAMING PLAN

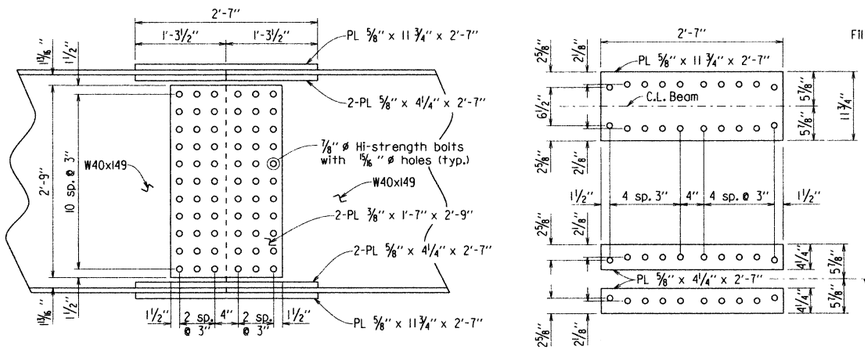
3/32" = 1'-0"



BEAM ELEVATION

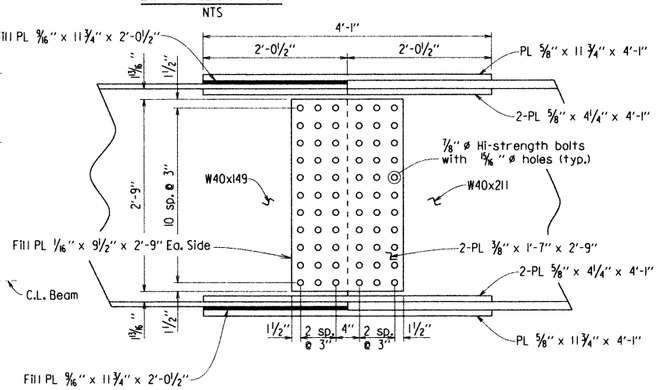
NTS

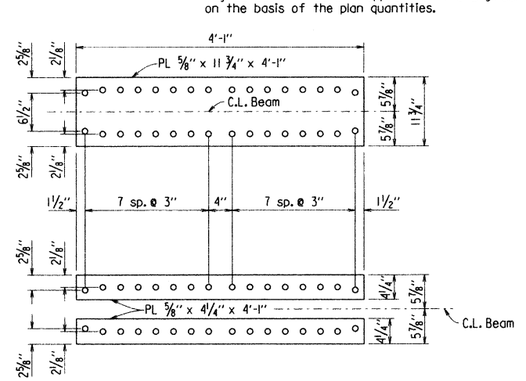
NOTE: Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.



DETAILS OF BOLTED FIELD SPLICE NOS. 1 AND 4

1" = 1'-0"

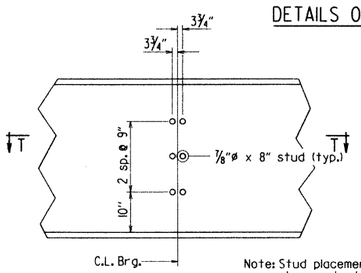




DETAILS OF BOLTED FIELD SPLICE NOS. 2 AND 3

1" = 1'-0"

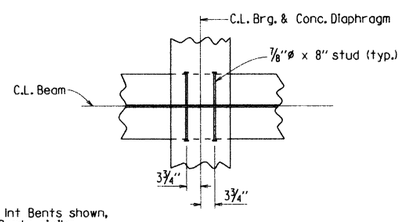
NOTE: All field splice plates shall be AASHTO M270, Gr. 50 steel.



DETAIL S

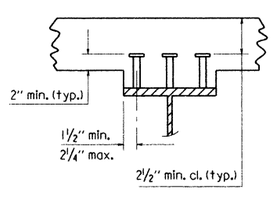
NTS

Note: Stud placement at Int Bents shown, placement at End Bents similar.



SECTION T-T

NTS



SHEAR CONNECTOR DETAIL

NTS

Stud Shear Connectors shown shall be 7/8"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. 3/4"ø studs may be used in place of the 7/8"ø studs shown, at the ratio of 1.361 - 3/4"ø studs in place of one 7/8"ø stud. 7/8"ø studs will be used as basis for measurement of structural steel in shear connectors.

STATE OF ARKANSAS
Carl T. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/11/11
CARL T. FUSELIER

BRIDGE ENGINEER

SHEET 3 OF 7
DETAILS OF
294'-0" CONTINUOUS W-BEAM UNIT
HWY. 261 OVER INTERSTATE 40

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: PGT DATE: 6-11 FILENAME: bll0586x1_sl.dgn
CHECKED BY: AMS DATE: 9-14-11 SCALE: As Noted
DESIGNED BY: PGT DATE: 5-11

BRIDGE NO. 07232 DRAWING NO. 53320

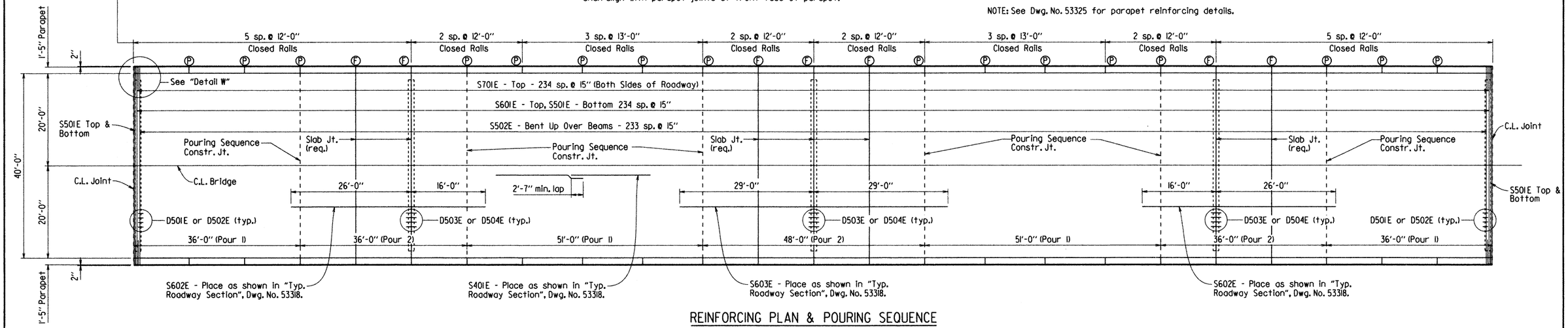
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	5-7	130
				① 07232		294' UNIT		53321

Ⓟ Partial depth parapet joint at this location (typ. both sides).
Ⓕ Full depth parapet joint at this location (typ. both sides).

NOTE: Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pour (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between adjacent pours. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

NOTE: Required Slab Joints and Pouring Sequence Construction Joints shall align with parapet joints at front face of parapet.

NOTE: See Dwg. No. 53325 for parapet reinforcing details.



REINFORCING PLAN & POURING SEQUENCE

1/32" = 1'-0"

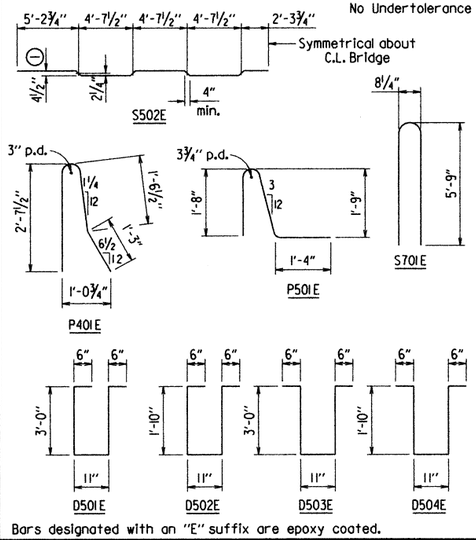
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401E	984	39'-0"	Str.
S501E	239	42'-10"	Str.
S502E	234	43'-8"	3"
S601E	235	42'-8"	Str.
S602E	92	42'-0"	Str.
S603E	46	58'-0"	Str.
S701E	470	11'-11"	6½"
P401E	1,176	5'-6"	3"
P402E	128	5'-6"	Str.
P403E	252	11'-8"	Str.
P404E	84	12'-8"	Str.
P501E	1,176	5'-0"	3¾"
D501E	60	7'-6"	2½"
D502E	12	5'-2"	2½"
D503E	90	7'-6"	2½"
D504E	18	5'-2"	2½"
D601E	120	8'-10"	Str.
D602E	80	2'-8"	Str.

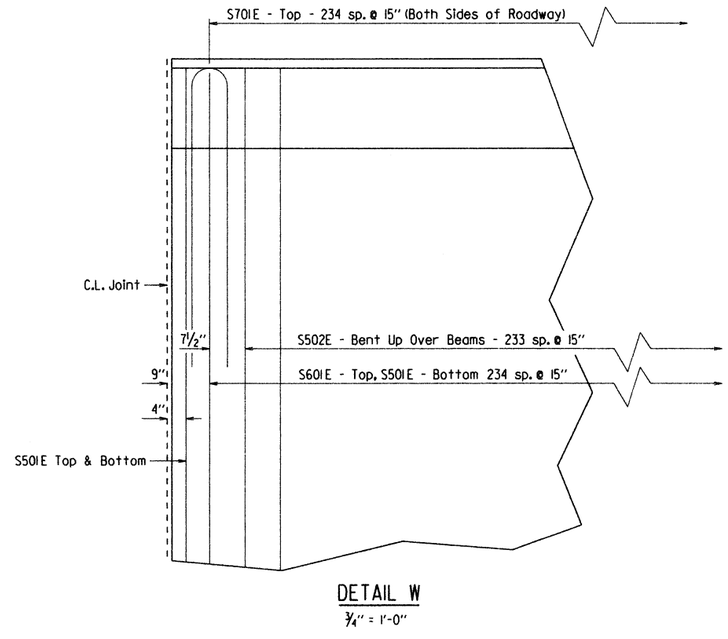
BENDING DIAGRAMS

Dimensions are out to out of bars.

① ½" Overtolerance
No Undertolerance

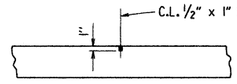


Bars designated with an "E" suffix are epoxy coated.



DETAIL W

¾" = 1'-0"



Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to the outside edge of the deck slab and shall align with open joints at the front face of the parapet. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck from gutterline to gutterline.

SLAB JOINT DETAIL

No Scale

STATE OF ARKANSAS
Carl P. Puebler
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL P. PUEBLER 4/9/14

BRIDGE ENGINEER

SHEET 4 OF 7
DETAILS OF
294'-0" CONTINUOUS W-BEAM UNIT
HWY. 261 OVER INTERSTATE 40

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

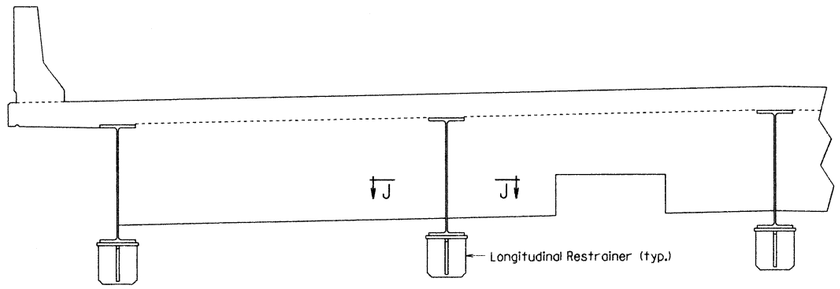
LITTLE ROCK, ARK.

DRAWN BY: PGT DATE: 6-11
CHECKED BY: AMS DATE: 9-14-11
DESIGNED BY: PGT DATE: 5-11

FILENAME: bll0586x1_sl.dgn
SCALE: As Noted

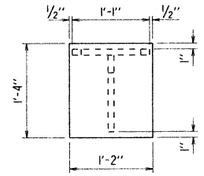
BRIDGE NO. 07232 DRAWING NO. 53321

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	59	132
				(1) 07232		294' UNIT		53322



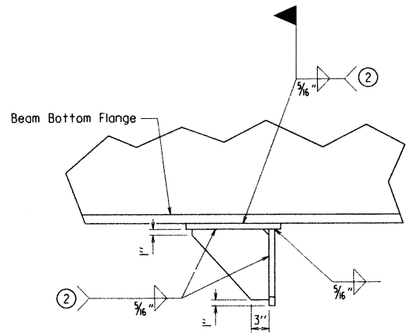
SKETCH OF LONGITUDINAL RESTRAINER DEVICES AT INTERMEDIATE BENTS

1/2" = 1'-0"



PLAN OF LONGITUDINAL RESTRAINER

1" = 1'-0"

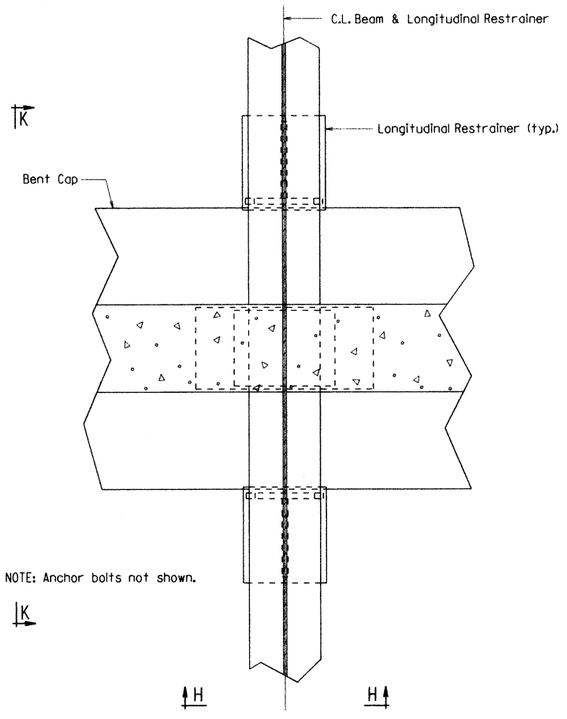


VIEW L-L

1" = 1'-0"

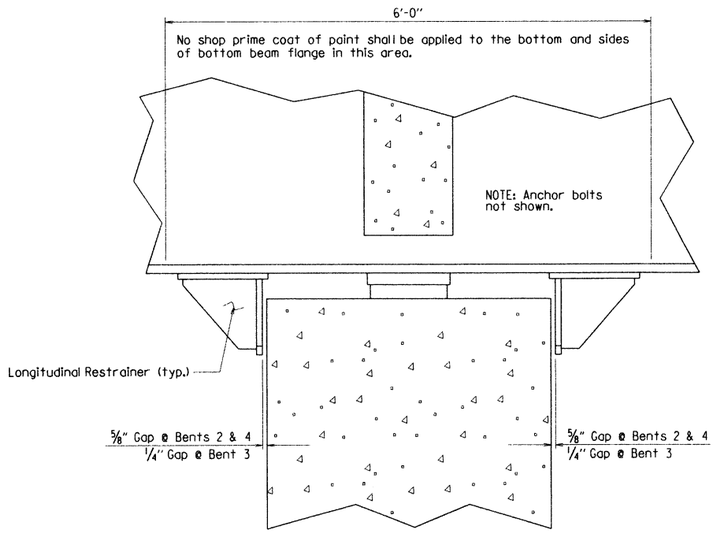
(1) Stop weld 1/2" from end of clip.

(2) Lonitudinal restrainer shall not be welded to beam until deck has been poured.



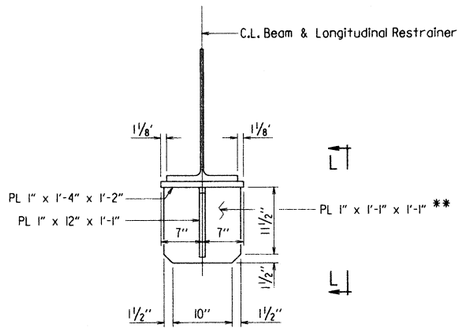
VIEW J-J

1" = 1'-0"



VIEW K-K

1" = 1'-0"



NOTE: All plates shall be Grade 50.

VIEW H-H

1" = 1'-0"

** Longitudinal restrainer shall be fabricated to account for grade so the final position of this plate will be vertical.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10-1-11
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 5 OF 7

DETAILS OF 294'-0" CONTINUOUS W-BEAM UNIT HWY. 261 OVER INTERSTATE 40

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

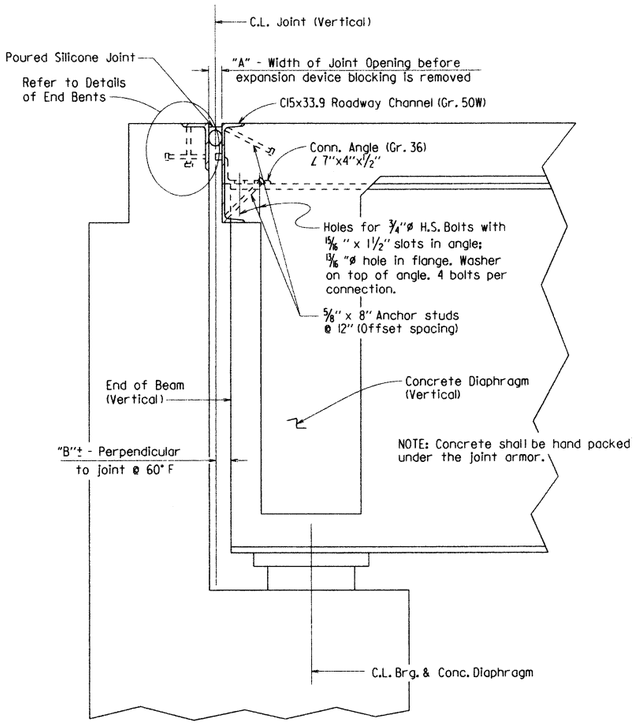
DRAWN BY: PGT DATE: 6-11 FILENAME: bll0586xl_sl.dgn

CHECKED BY: ~~ARLS~~ DATE: 9-14-11 SCALE: As Noted

DESIGNED BY: PGT DATE: 5-11

BRIDGE NO. 07232 DRAWING NO. 53322

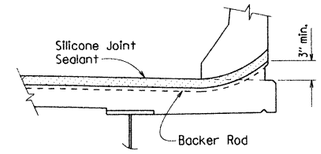
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	59	130
				(1) 07232		294' UNIT		53323



NOTE: Section taken normal to C.L. Joint

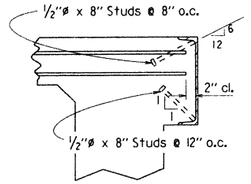
SECTION THRU JOINT AT END BENT

No Scale



JOINT SEAL PLACEMENT AT CURB

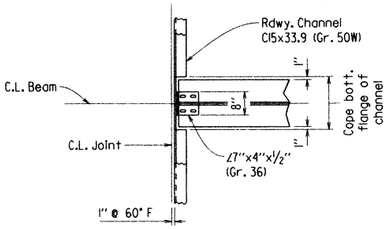
No Scale



NOTE: As an alternate to 5/8"ø studs, 1/2"ø x 8" studs spaced as shown may be used. Use weight of 5/8" ø stud as basis of measurement of structural steel in anchors.

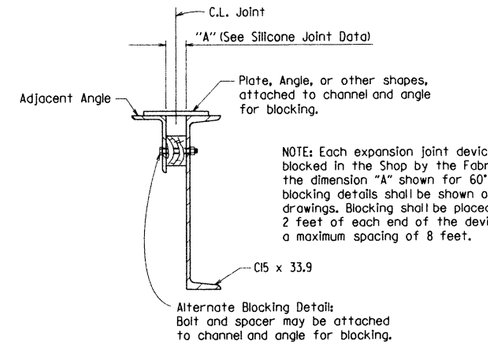
DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

No Scale



CHANNEL CONNECTION DETAIL

No Scale

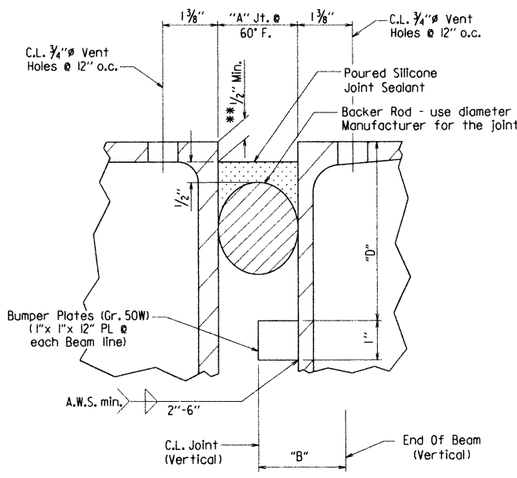


NOTE: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

No Scale

**Recess depth as recommended by the sealant Manufacturer.



DETAIL OF POURED SILICONE JOINT

No Scale

SILICONE JOINT DATA

"A" Width Perpendicular to Joint at 24 Hour Average Temperature* Of:			"B" Perpendicular to Joint at 60°F	"D"	Bumper Plate Size
40°F	60°F	80°F			
2 1/4"	2"	1 3/4"	2 1/4" ±	4 1/2"	1"x 1"x 12"

*The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

NOTES:
The temperature limitations recommended by the sealant Manufacturer shall be observed. The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80° F.

Use an appropriately sized backer rod at the depth shown in the Manufacturer's literature based on the joint width at the time of sealing. Unless otherwise noted, do not install more backer rod than can be sealed in the same day.

The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.

EXPANSION DEVICE INSTALLATION AT END BENTS:

The Contractor may elect to install the expansion device using one of the following two alternatives:

1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to pouring the backwall concrete, the blocking shall be removed, the opening adjusted for temperature and grade, and the backwall constructed.

2) The backwall shall be poured to the optional construction joint after beams are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. PUSELLER
10/11/12

BRIDGE ENGINEER

SHEET 6 OF 7
DETAILS OF 294'-0" CONTINUOUS W-BEAM UNIT HWY. 261 OVER INTERSTATE 40

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: PGT DATE: 6-11 FILENAME: bll0586xl_sl.dgn
CHECKED BY: AMS DATE: 9-14-11 SCALE: As Noted
DESIGNED BY: PGT DATE: 5-11

BRIDGE NO. 07232 DRAWING NO. 53323

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	60	130
				(1) 07232		294' UNIT		53324

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable supplemental specifications and special provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Fifth Edition with 2010 Interim Revisions.

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c = 4,000 psi
Reinforcing Steel (Gr. 60, AASHTO M31 or M322, Type A)	fy = 60,000 psi
Structural Steel (M 270, Gr. 50)	Fy = 50,000 psi
Structural Steel (M 270, Gr. 36)	Fy = 36,000 psi

CONCRETE :
Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted. All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Standard Drawing No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The concrete deck shall be given a tine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future dead load deflection due to the railing. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing.

REINFORCING STEEL :
All reinforcing steel shall be Grade 60 conforming to AASHTO M31 or M322, Type A, with mill test reports. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL :
All structural steel shall be AASHTO M 270, Grade 50 unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50)". All exposed surfaces shall be cleaned in accordance with Subsection 807.84. Structural steel completely embedded in concrete may be AASHTO M 270, Grade 36 unless otherwise noted.

All Grade 50 and Grade 36 structural steel except galvanized steel and steel which is completely encased in concrete shall be painted in accordance with Subsection 807.75. The color of paint shall conform to Federal Standard 595B, Color Chip No. 36270, Gray.

Drawings show general features of design only. Shop drawings shall be made in accordance with the specifications, submitted and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

Beams and field splice plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M270, Gr. 50)".

All beams shall be assembled in the shop as specified in Subsection 807.54 and blocked in their true position with webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shallbe measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Flange field splice plates for main members shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching falsework support devices or screed rail supports to the structural steel that do not exceed the limitations of Subsection 802.13 will not require approval prior to construction. All welding shall conform to Subsection 807.26.

Field connections shall be bolted with high-strength bolts and shall be ¾" ø bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges. Holes for ¾" ø high-strength bolts may be ⅞" ø diameter if a washer is supplied for use under both the nut and head of the bolt.

Diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck unless otherwise noted.

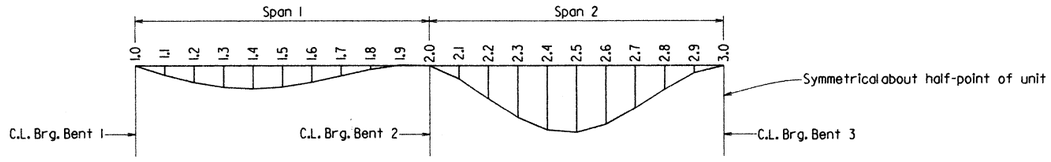
All shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with recommendations of the Manufacturer.

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Exterior	Interior	Exterior	Interior	Exterior	Interior
1	1.0	0	0	0	0	0	0
	1.1	0.020	0.022	0.124	0.154	0.133	0.163
	1.2	0.036	0.039	0.226	0.279	0.243	0.295
	1.3	0.046	0.050	0.290	0.358	0.312	0.379
	1.4	0.049	0.054	0.310	0.384	0.333	0.406
	1.5	0.045	0.049	0.285	0.352	0.306	0.372
	1.6	0.035	0.038	0.222	0.275	0.238	0.290
	1.7	0.021	0.023	0.136	0.169	0.146	0.178
	1.8	0.007	0.008	0.050	0.062	0.053	0.065
	1.9	-0.002	-0.002	-0.008	-0.010	-0.009	-0.011
	2.0	0	0	0	0	0	0
2	2.1	0.029	0.032	0.175	0.216	0.189	0.230
	2.2	0.074	0.080	0.446	0.550	0.482	0.584
	2.3	0.116	0.126	0.700	0.864	0.757	0.918
	2.4	0.143	0.156	0.864	1.066	0.934	1.132
	2.5	0.149	0.162	0.895	1.104	0.968	1.173
	2.6	0.132	0.143	0.789	0.973	0.854	1.034
	2.7	0.097	0.105	0.575	0.709	0.623	0.754
	2.8	0.054	0.059	0.318	0.392	0.345	0.417
	2.9	0.017	0.018	0.097	0.119	0.105	0.127
	3.0	0	0	0	0	0	0

Half-point of unit

Note: Table is symmetrical about half-point of unit.



DEAD LOAD DEFLECTION DIAGRAM

NOTE: Camber for Dead Load Deflection +/- ¼" tolerance. Deflections shown are along C.L. Beam from a chord from C.L. Bearing to C.L. Bearing. Negative sign (-) indicates point above chord. Vertical curve corrections not included.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. PUSELLER
4/9/14

BRIDGE ENGINEER

SHEET 7 OF 7

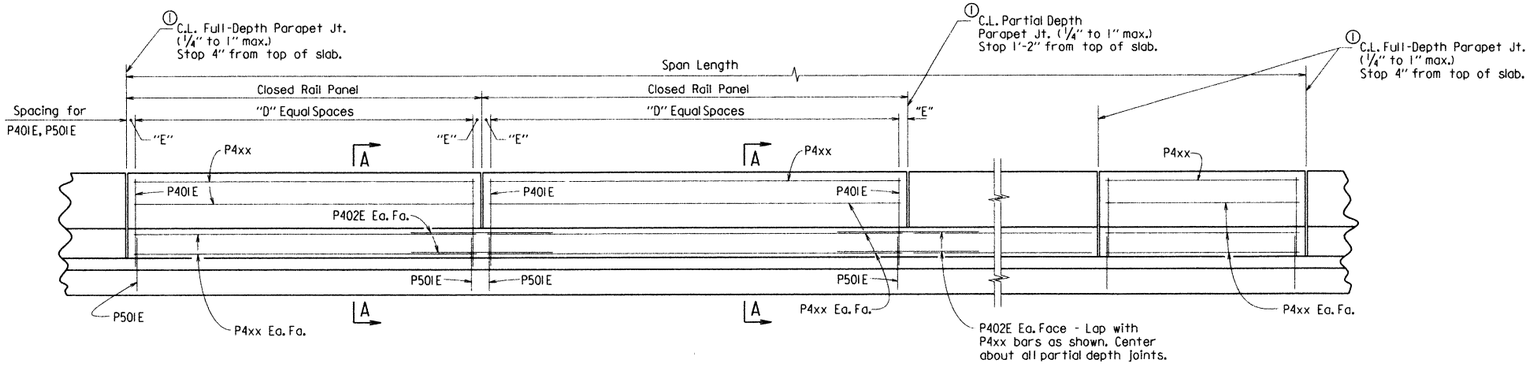
DETAILS OF
294'-0" CONTINUOUS W-BEAM UNIT
HWY. 261 OVER INTERSTATE 40
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: PGT DATE: 6-11
CHECKED BY: AMS DATE: 9-14-11
DESIGNED BY: PGT DATE: 5-11
FILENAME: bll0586xl_sl.dgn
SCALE: As Noted

BRIDGE NO. 07232 DRAWING NO. 53324

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	61	130
				① 07232		PARAPET		53325



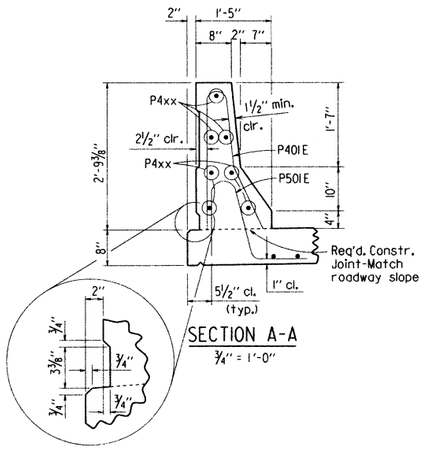
ELEVATION - CONCRETE PARAPET RAIL

½" = 1'-0"

TABLE OF VARIABLES

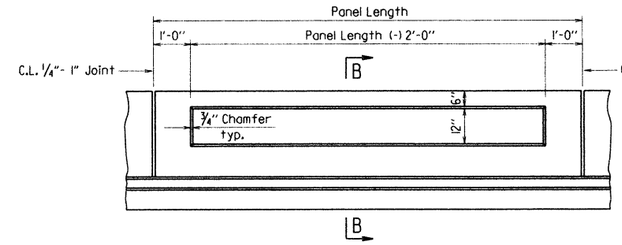
Bridge No.	Closed Rail Panels			
	Length	"D"	"E"	P4xx Bar
07232 (Hwy. 261)	12'-0"	23	3"	P403E
	13'-0"	25	3"	P404E

① For location of full and partial depth parapet joints, see "Reinforcing Plan & Pouring Sequence".



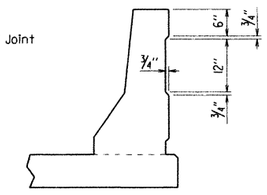
SECTION A-A

¾" = 1'-0"



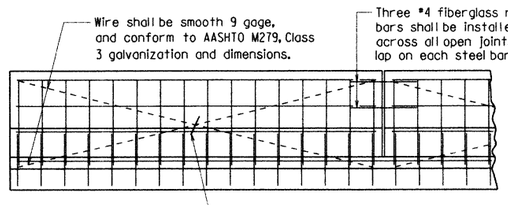
DETAILS OF PARAPET ENHANCEMENT

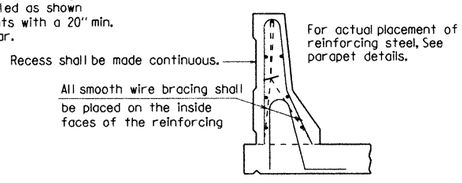
No Scale



SECTION B-B

No Scale



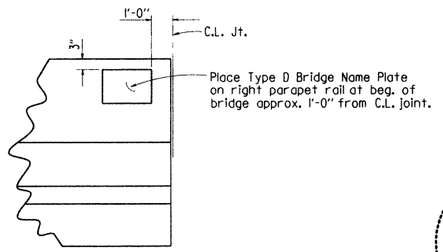


All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Unless otherwise noted, exposed surfaces may be given a light brush finish or a Class 3 Textured Coating Finish in place of Class 2 Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale



VIEW SHOWING LOCATION OF NAME PLATE

No Scale

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
10/11/11
CARL J. FUSELIER

BRIDGE ENGINEER

DETAILS OF PARAPET RAIL

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

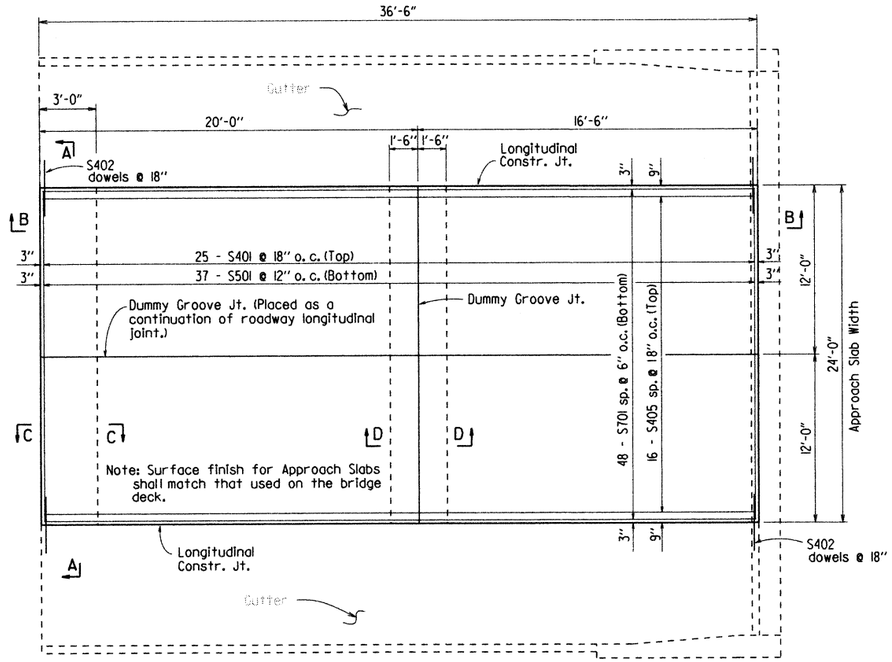
LITTLE ROCK, ARK.

DRAWN BY: PGT DATE: 6-11
CHECKED BY: ARS DATE: 9-19-11
DESIGNED BY: PGT DATE: 5-11
FILENAME: bll0586xl_sl.dgn
SCALE: As Noted

BRIDGE NOS. 07232

DRAWING NO. 53325

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	62	130
				(1) 07232		APPROACH SLAB		53326



PLAN OF TYPE SPECIAL I APPROACH SLAB

3/16" = 1'-0"

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

Slab Width	Reinforcing Steel (lbs.)	Concrete (Cu. Yds.)
24'-0"	5802	49.15

BAR LIST
TYPE SPECIAL I APPROACH SLAB

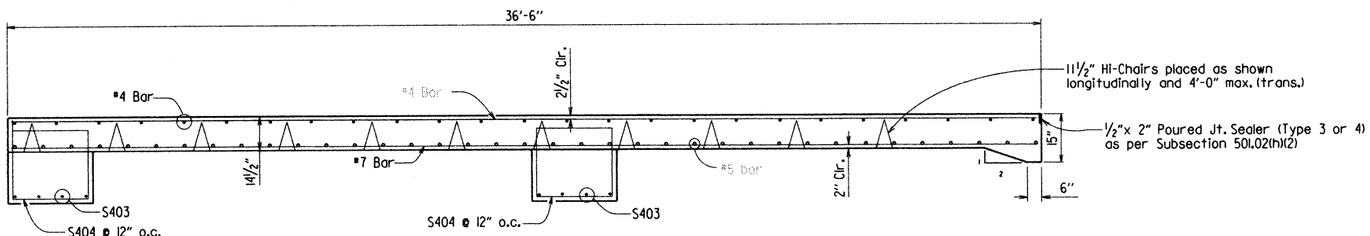
Mark	No. Req'd.	Length	P.D.	Bending Diagram
S401	25	23'-8"	Str.	2'-7", S404, 2'-5", 4½" Min. (Typ.)
S402	50	3'-0"	Str.	
S403	8	23'-8"	Str.	
S404	48	10'-4"	2"	
S405	16	36'-2"	Str.	
S501	37	23'-8"	Str.	
				Dimensions are out to out of bar.
S701	48	36'-2"	Str.	

GENERAL NOTES

Concrete shall be Class S (AE) (f'c = 4,000 psi).

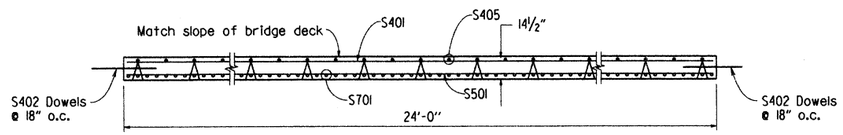
Reinforcing Steel shall be Grade 60 (fy = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Approach Slabs will be measured and paid for in accordance with Section 504 of the Standard Specifications.



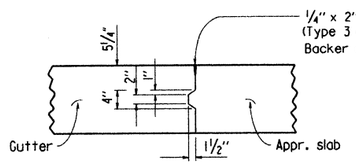
SECTION B-B

N.T.S.



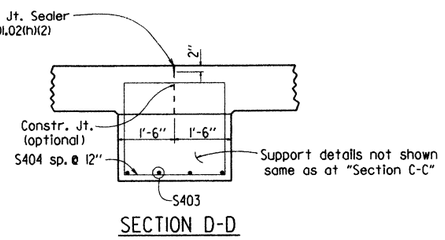
SECTION A-A

N.T.S.



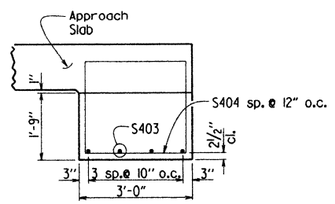
DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

3/4" = 1'-0"



SECTION D-D

N.T.S.



SECTION C-C

N.T.S.

STATE OF ARKANSAS
Carl J. Fusselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
4/9/14
CARL J. FUSSELIER

BRIDGE ENGINEER

DETAILS OF TYPE SPECIAL I APPROACH SLAB

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

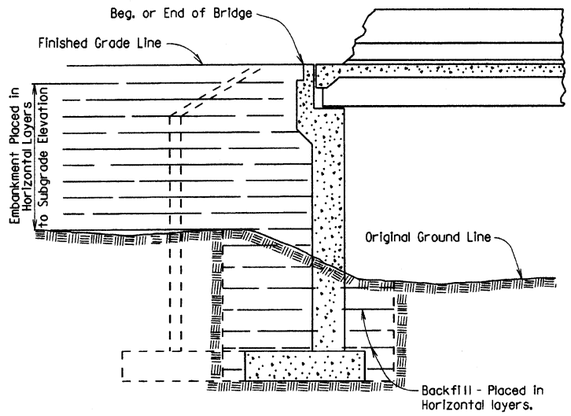
DRAWN BY: ACW DATE: 6-13-11 FILENAME: bii0586_as.dgn

CHECKED BY: PGT DATE: 9-19-11 SCALE: AS SHOWN

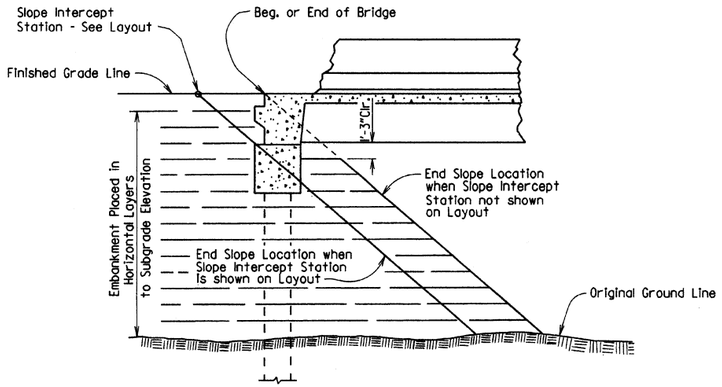
DESIGNED BY: STD. DATE: ---

BRIDGE NO. 07232 DRAWING NO. 53326

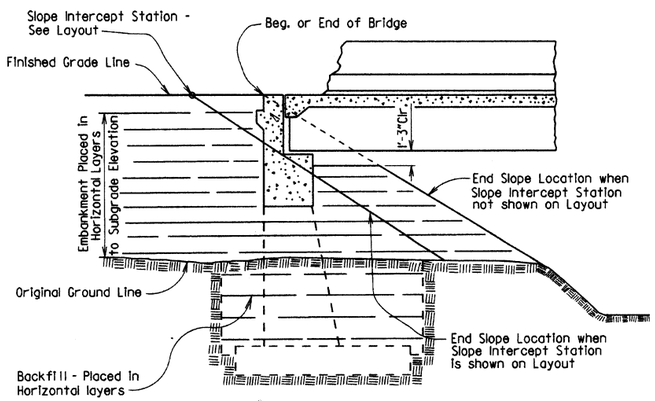
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		63	
				JOB NO.				
				① EMBANKMENT & BACKFILL 55000				



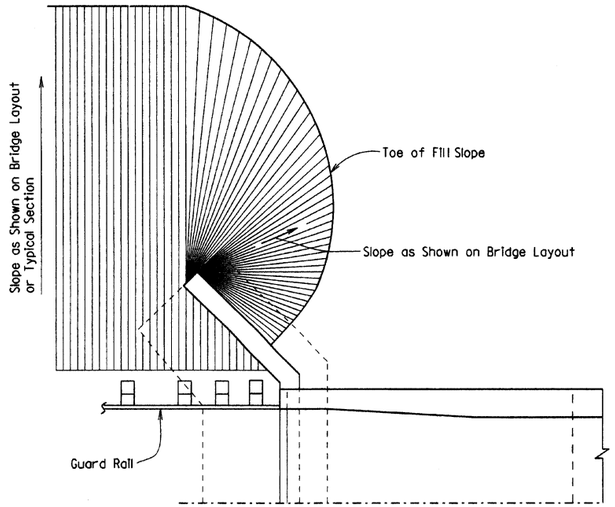
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



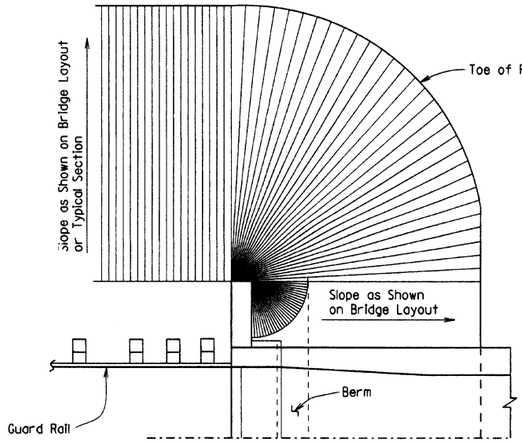
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



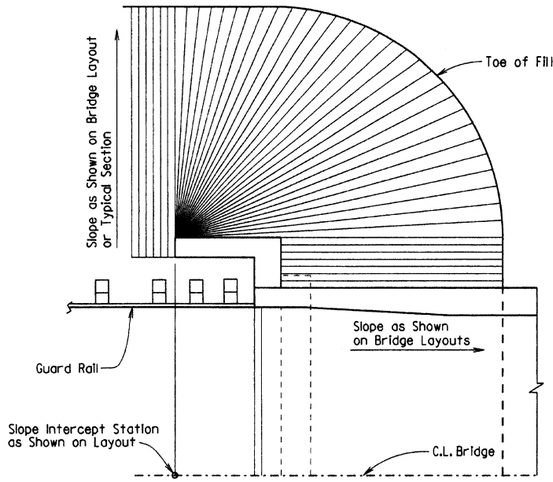
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



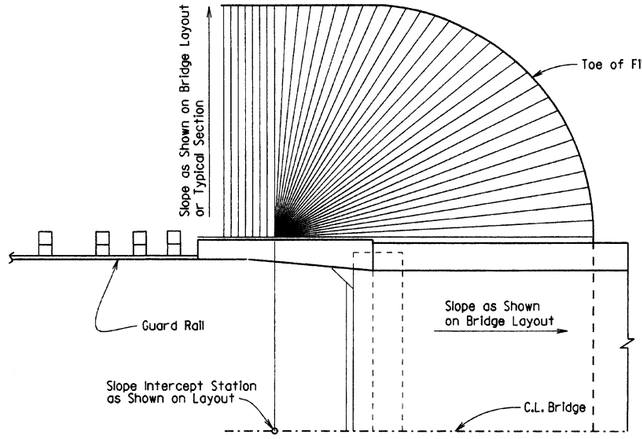
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 6 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to Subsections 210.09, 210.10 and 801.08 for construction requirements.

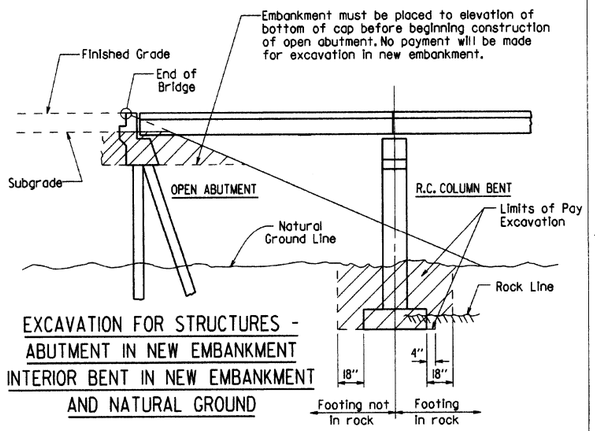
STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

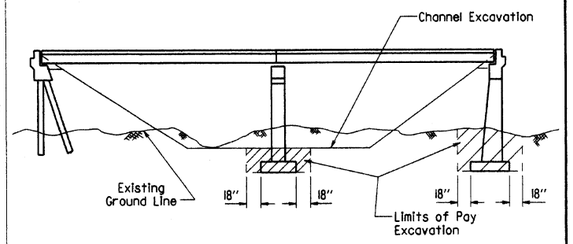
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: -

DRAWING NO. 55000

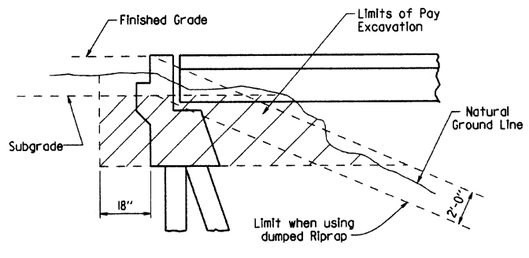
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		64	
				JOB NO.				
				①	RIPRAP & EXCAV. 55001			



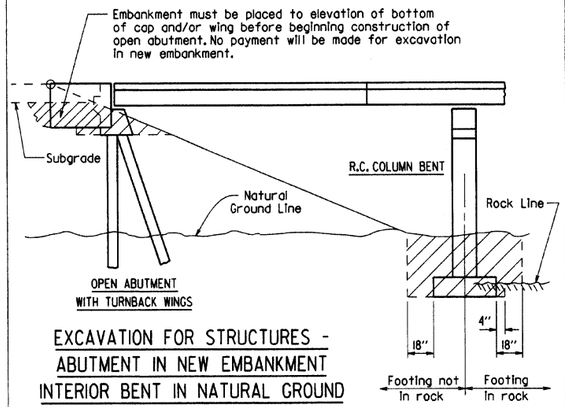
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



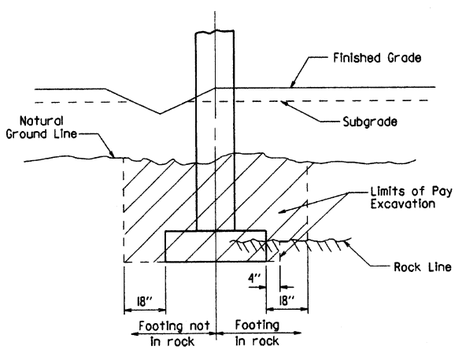
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



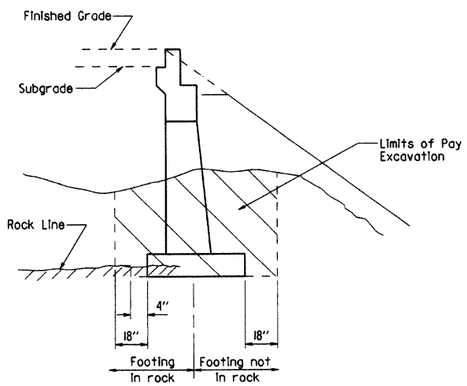
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



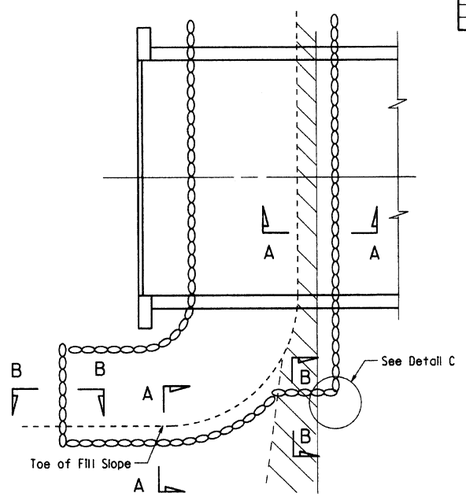
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



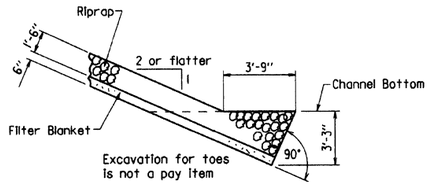
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

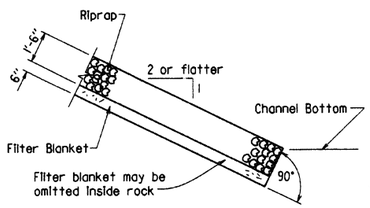


PLAN OF DUMPED RIPRAP



SECTION A-A

(Toe Excavation in Soil)



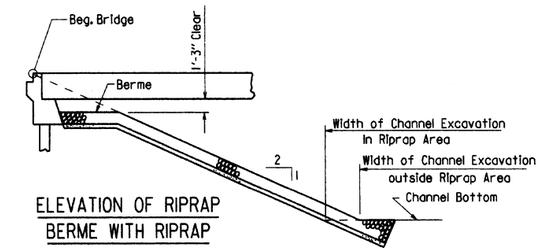
SECTION A-A

(Toe Excavation in Rock)

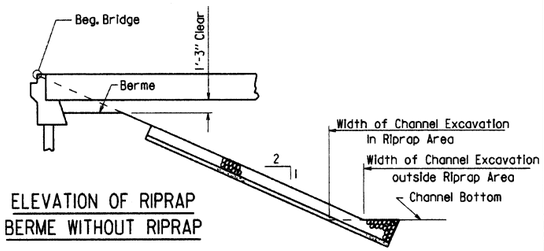
Note : Use this type of toe when rock is encountered which is in a stable condition.

Note : In lieu of an aggregate filter blanket, a synthetic fiber geotextile fabric complying with the requirements of Subsection 816.02(e) may be used.

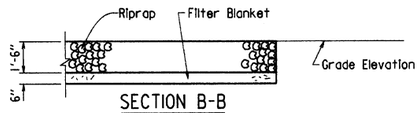
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



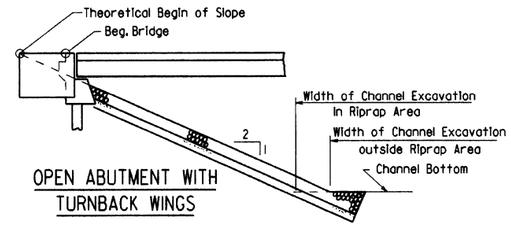
ELEVATION OF RIPRAP BERME WITH RIPRAP



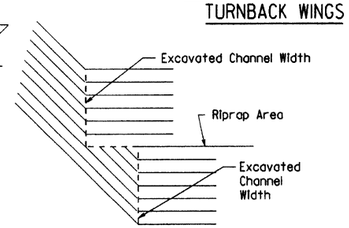
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn

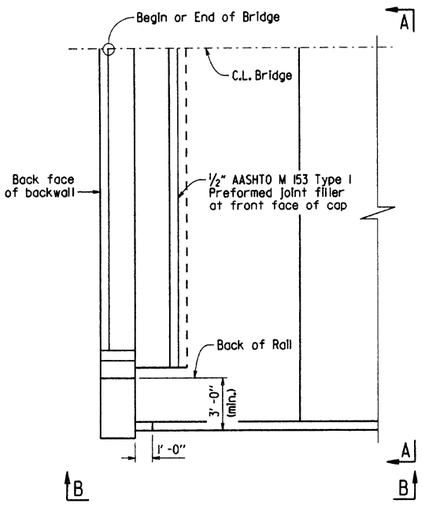
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE:

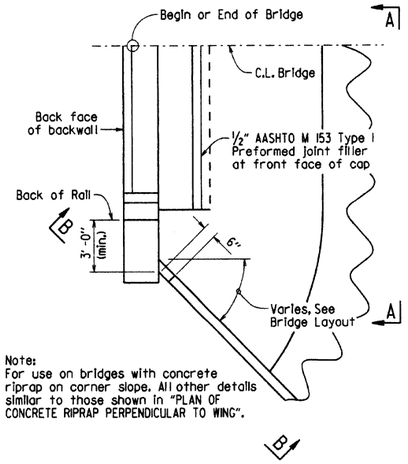
DRAWING NO. 55001

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		65	
				JOB NO.				
				①	CONCRETE RIPRAP 55002			

Note:
Sloped surfaces of concrete riprap to be marked off into blocks (construction joints optional) with an approved grooving tool, spacing the grooved lines about 5' apart.



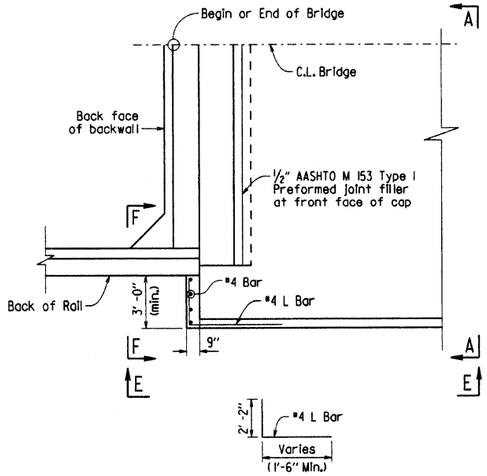
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO WING
¼" = 1'-0"



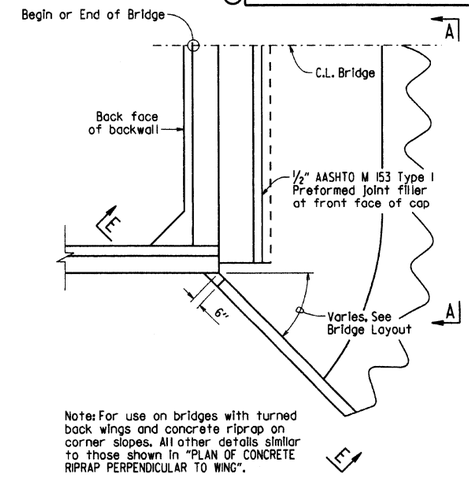
Note:
For use on bridges with concrete riprap on corner slope. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

PLAN OF CONCRETE RIPRAP
AT ANGLE TO WING
¼" = 1'-0"

Note:
For use on bridges with turned back wings. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".



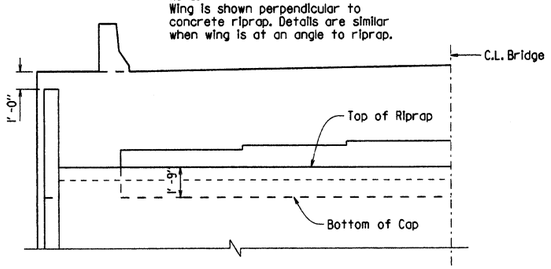
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO TURNED BACK WING
¼" = 1'-0"



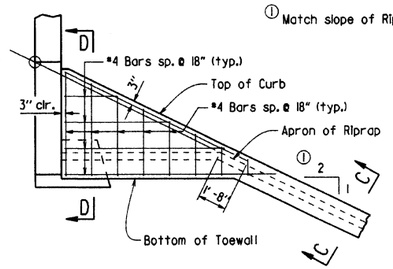
Note: For use on bridges with turned back wings and concrete riprap on corner slopes. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

PLAN OF CONCRETE RIPRAP
AT ANGLE FROM TURNED BACK WING
¼" = 1'-0"

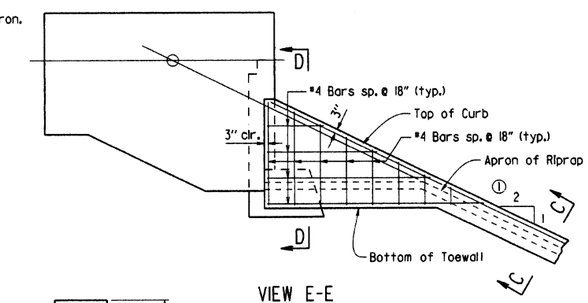
Note:
Wing is shown perpendicular to concrete riprap. Details are similar when wing is at an angle to riprap.



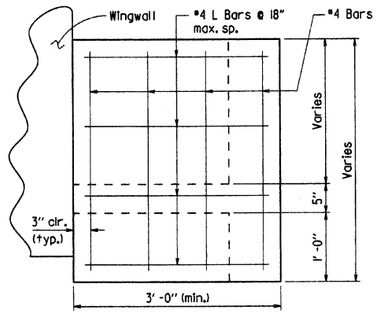
VIEW A-A
¼" = 1'-0"



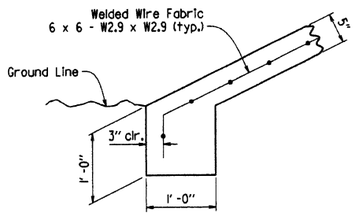
VIEW B-B
¼" = 1'-0"



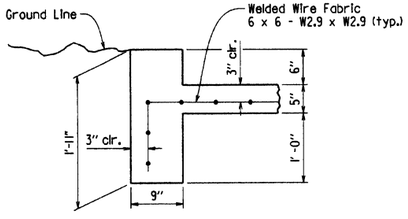
VIEW E-E
¼" = 1'-0"



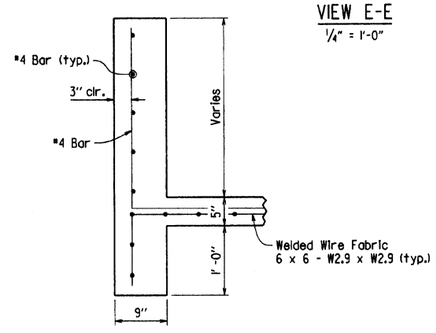
VIEW F-F
1" = 1'-0"



TOE OF CONCRETE RIPRAP
1" = 1'-0"



SECTION C-C
1" = 1'-0"



SECTION D-D
1" = 1'-0"

GENERAL NOTES

All concrete shall be Class A with a minimum compressive strength, f'c = 2,100 psi.

Welded wire fabric shall conform to AASHTO M55 or M221.

STANDARD DETAILS FOR CONCRETE RIPRAP

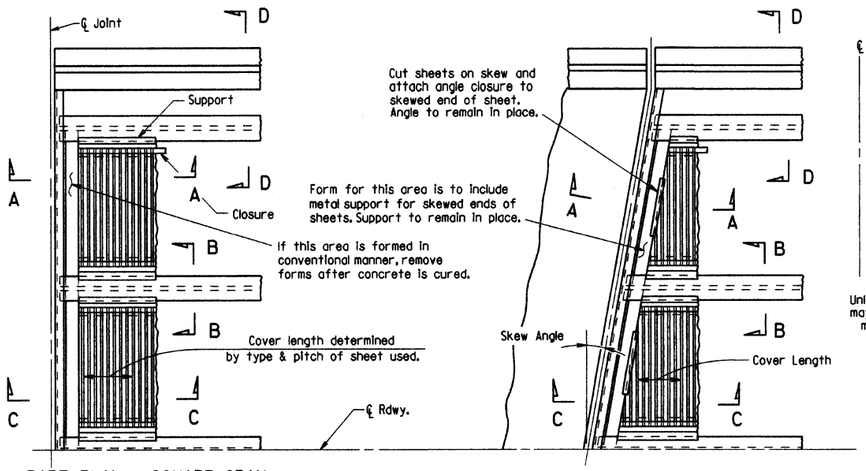
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 2/27/2014 FILENAME: b55002.dgn
CHECKED BY: BEF DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: Std. DATE: ---

DRAWING NO. 55002

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.		66	
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

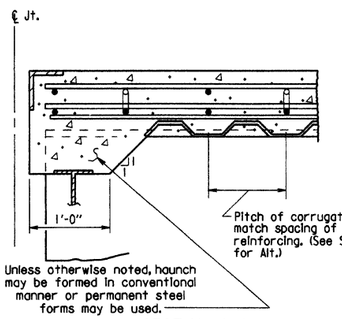


PART PLAN - SQUARE SPAN

⅜" = 1'-0"

PART PLAN - SKEWED SPAN

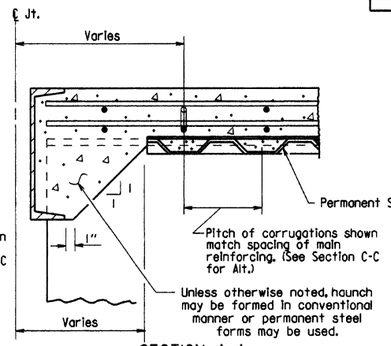
⅜" = 1'-0"



SECTION A-A

N.T.S.

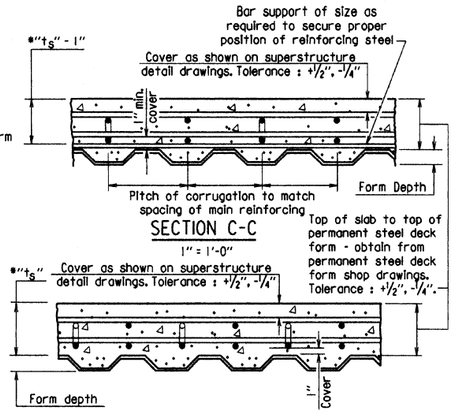
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



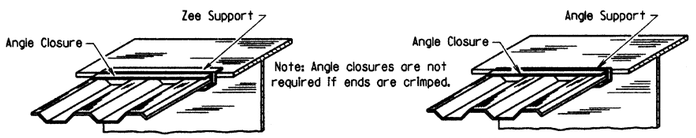
SECTION C-C

1" = 1'-0"

SECTION C-C - ALTERNATE

1" = 1'-0"

(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

*t_s = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

Permanent steel deck forms may be used at the Contractor's option and shall be at no additional cost to the Department. Such use may result in changes to the dead load deflection of the girder. Any cost for adjustments due to a change in the dead load deflection will be borne by the Contractor. Payment for deck concrete and structural steel will not be increased due to use of permanent steel deck forms.

Permanent steel deck forms shall conform to Subsection 802.14(b). Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Engineer before work of forming the bridge deck is started.

Welding of form supports to the tension flange of steel girders will be permitted only in areas where shear connectors are used. When welding is not allowed, the method of fastening Z or ∠ supports to the flange must be approved by the Engineer.

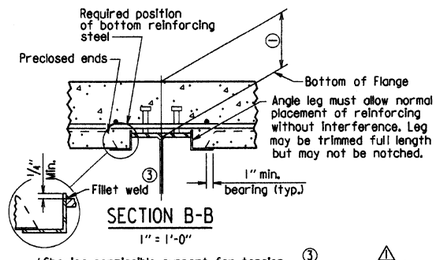
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

When the pitch of form corrugations match the reinforcing spacing, transversely align form sheets across the bridge to maintain the correct orientation of continuous reinforcing bars in the corrugations.

Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

High chairs shall be sized to support the top mat of reinforcing at the proper position. High chairs shall be placed at locations shown on the detail drawings.

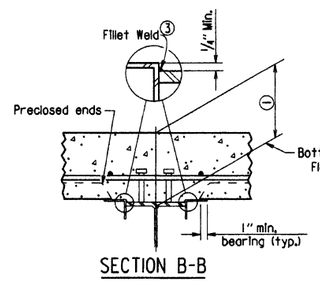
Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions.



SECTION B-B

1" = 1'-0"

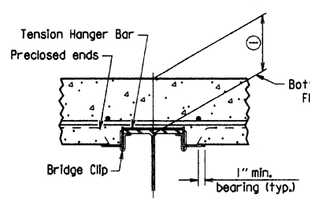
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)



SECTION B-B

1" = 1'-0"

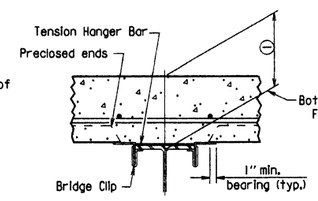
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are not used)



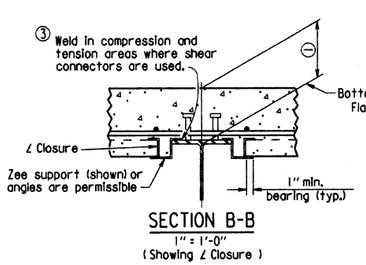
SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are not used)

③ Minimum weld: ⅛" x 1" @ 18". More weld may be required; maximum length per weld = 1½" (typ.)

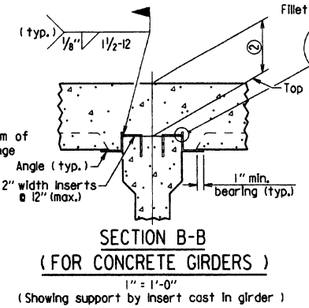
⚠ Revised weld dimension by KWY, Ck'd. by BEF, 3/24/16.



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

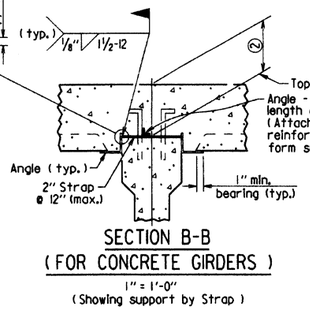


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)

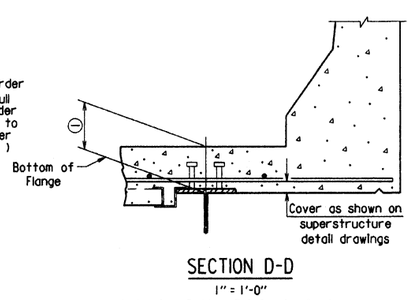


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_s + 1¾" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

② Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top of girder or the support angle leg contacts the bottom reinforcing steel; Maximum - value shown on the superstructure detail drawings when removable forms are used. See Section C-C for slab thickness tolerance between adjacent girder flanges.

STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55005.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NONE

DESIGNED BY: STD. DATE: —

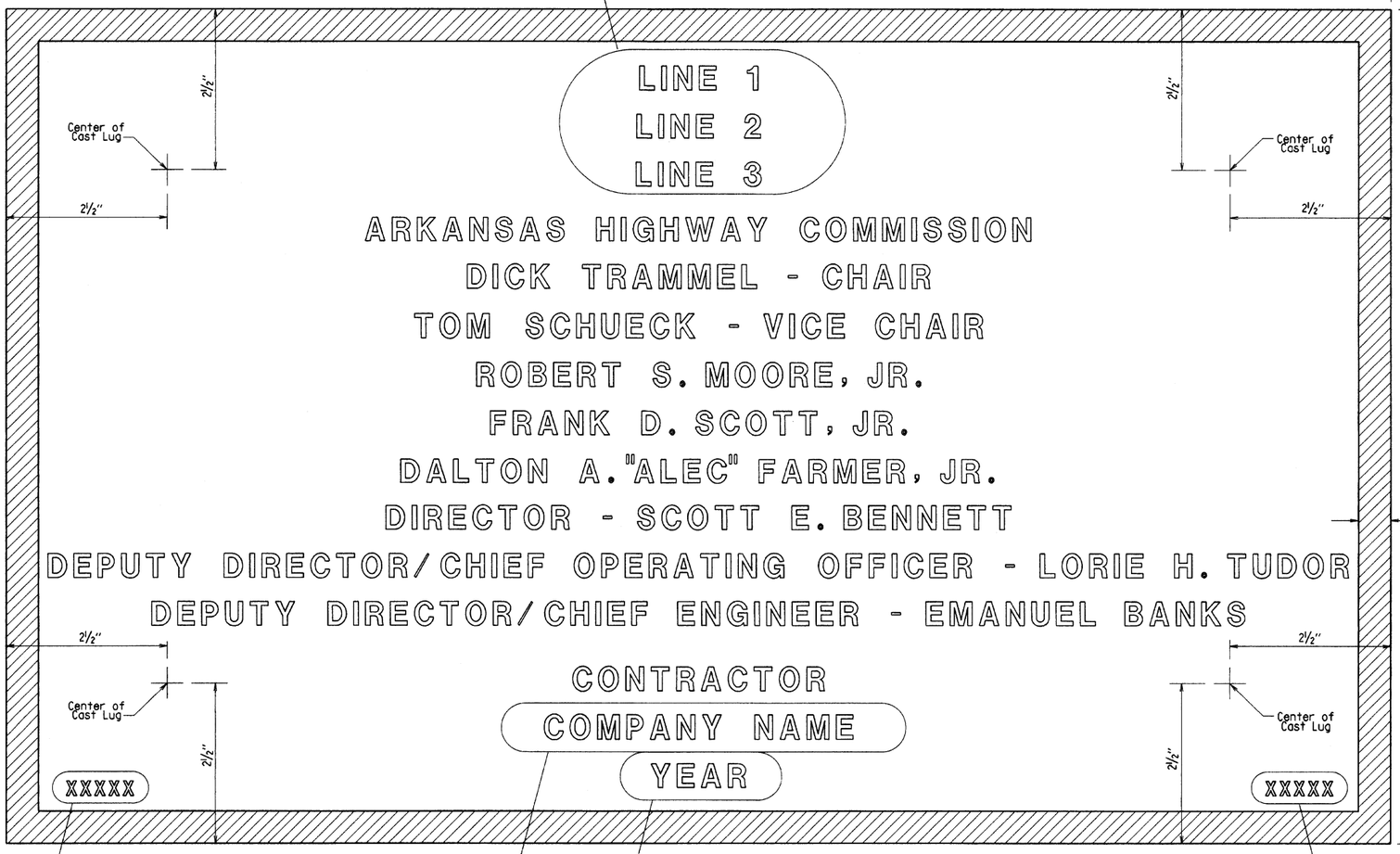
DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-1-14				6	ARK.		67	
1-14-15				JOB NO.				

(1) TYPE D NAME PLATE 55010

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	
Line 2	Relief	Railroad	River	Highway 5
Line 3		Overpass	Relief	



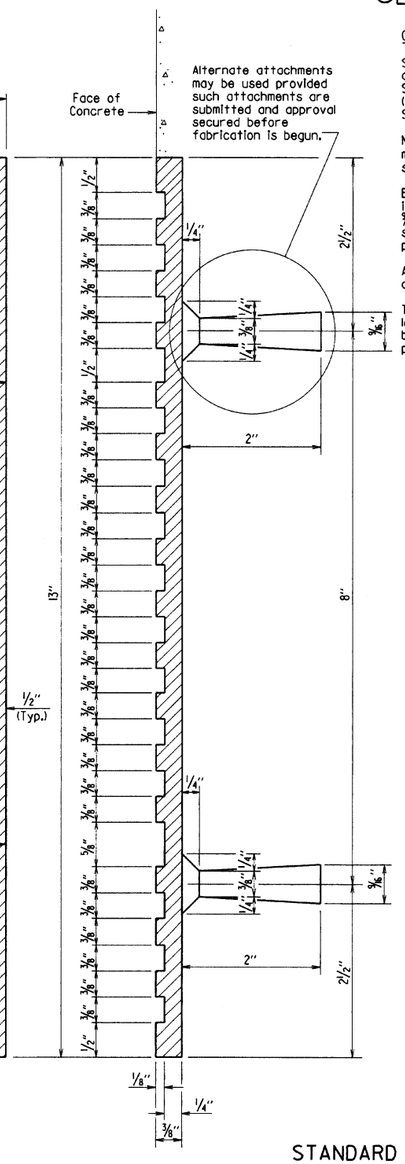
Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20, HL-93

Place the Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example : 2001

Place the name of the company awarded the construction contract here using 1/8" raised letters and numerals 3/8" high. Example : ABCD CONSTRUCTION, INC.

Place the Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples : AI234, 05432

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812.

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 5/16" x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered.

The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

(2) Revised Chair and Vice Chair Added New Commissioner
1-14-15 KDH Checked By: CRE

(1) Revised Deputy Director/ Chief Engineer Added Deputy Director/ Chief Operating Officer
12-1-14 KDH Checked By: CRE

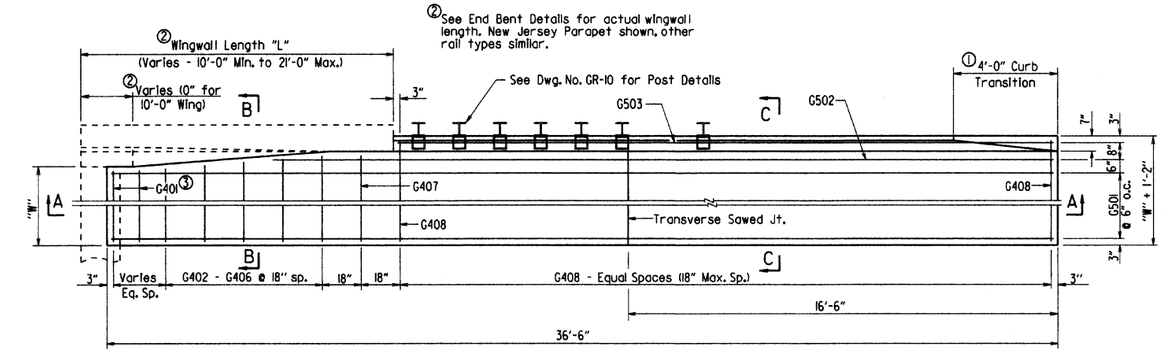
STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

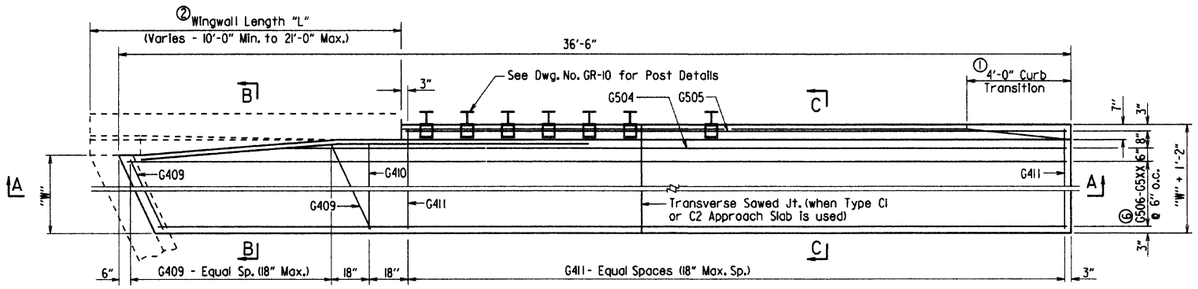
DRAWING NO. 55010

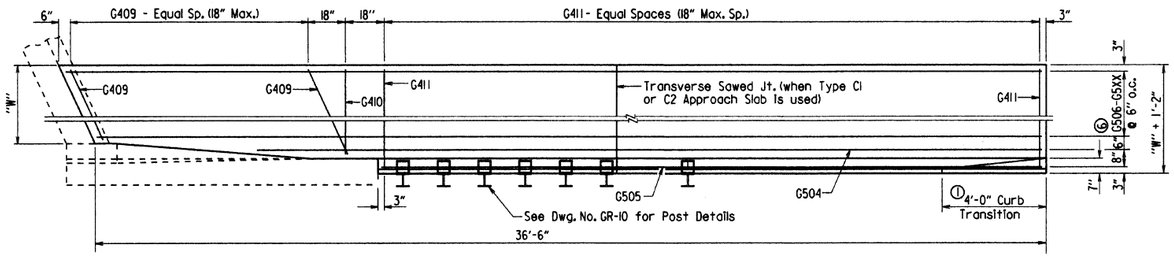
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		63	
				JOB NO.				
				①	TYPE C GUTTERS		55030C	



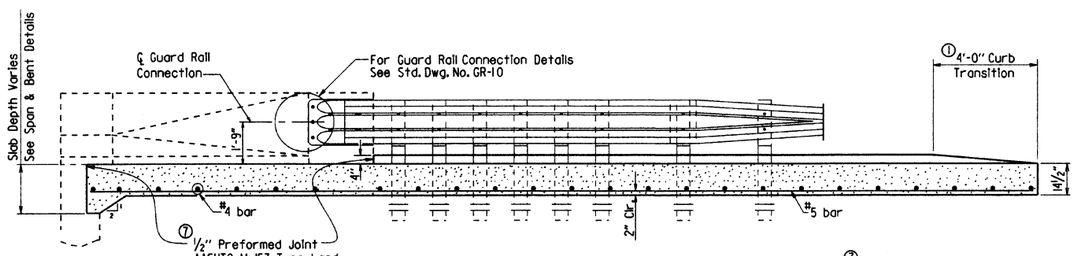
③Provide G401 bars @ 18" max. spacing. Number of G401 bars vary with wingwall length. No G401 bars required for 10'-0" wingwalls.

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





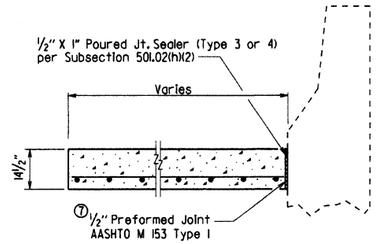
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



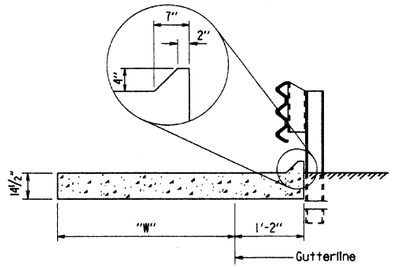
SECTION A-A

①Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

Note:
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

⑦Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type C2 Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

BAR LIST FOR ONE TYPE C GUTTER

	Mark	No. Req'd. for Width "W" 4'-0"	6'-0"	8'-0"	10'-0"	Length
Square Bridge	G401	④	④	④	④	"W" - 4"
	G402-G406	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	"W"+3"
	G408	④	④	④	④	"W"+ 10"
	G501	8	12	16	20	36'-2"
	G502	1	1	1	1	(41'-11") - "L"
	G503	1	1	1	1	(37'-2") - "L"
Skewed Bridge	G409	④	④	④	④	⑤
	G410	1	1	1	1	"W"+3"
	G411	④	④	④	④	"W"+ 10"
	G504	1	1	1	1	⑤
	G505	1	1	1	1	⑤
	G506 - G5XX ⑥	1 each	1 each	1 each	1 each	⑤

④No. Req'd. varies with Skew and Wingwall Length.

⑤Bar Lengths vary with Skew and Wingwall Length.

⑥G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'
G525 for "W" = 10'

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

"W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
4	445	8.30
6	630	11.55
8	810	14.80
10	995	18.10

Quantities are based on "L" = 10'-0".

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Gutters will be measured and paid for in accordance with Section 504.

STANDARD DETAILS FOR TYPE C APPROACH GUTTERS

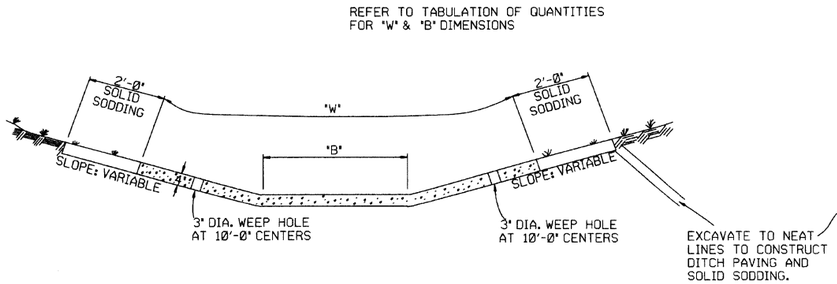
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

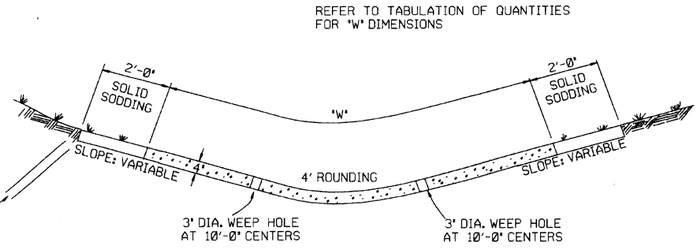
DRAWN BY: A.M.S. DATE: 2/27/2014
CHECKED BY: K.W.Y. DATE: 2/27/2014
DESIGNED BY: STD. DATE:

FILENAME: b55030c.dgn
SCALE: 3/16" = 1'-0" or As Shown

DRAWING NO. 55030C

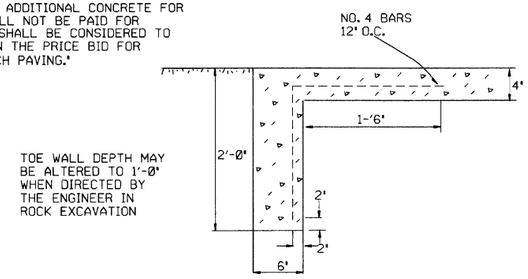


TYPE A



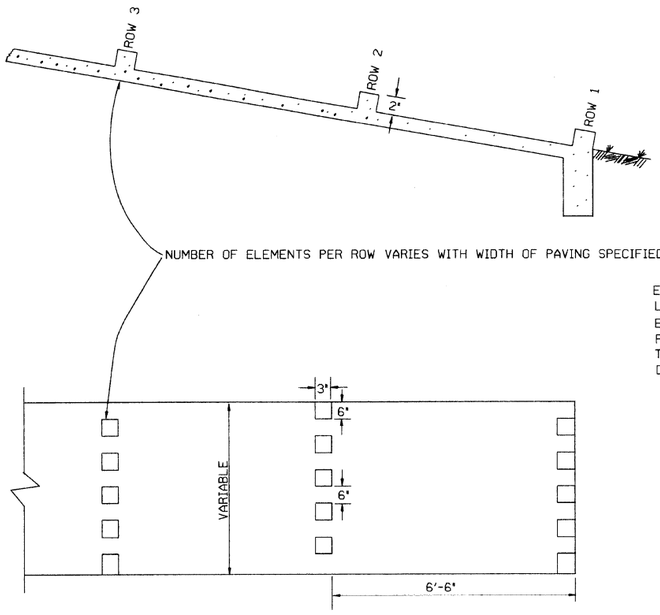
TYPE B

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



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

TOE WALL DETAIL FOR CONCRETE DITCH PAVING



ENERGY DISSIPATORS
(NO SCALE)

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

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

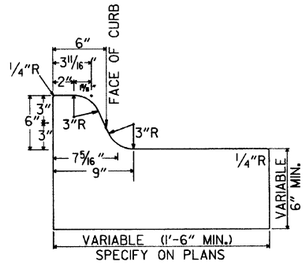
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

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

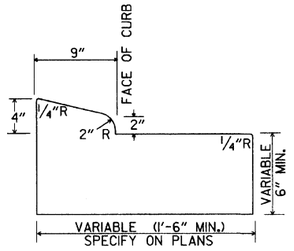
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

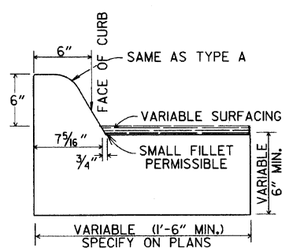
STANDARD DRAWING CDP-1



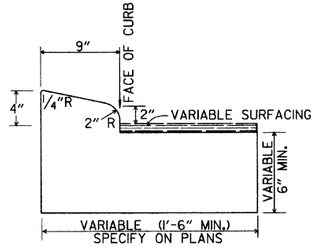
TYPE A



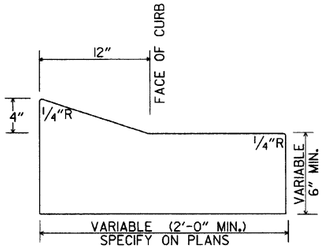
TYPE B-I



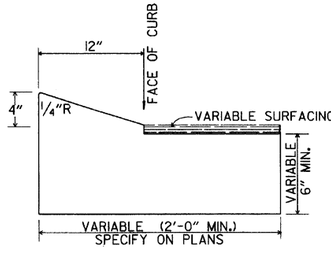
TYPE C



TYPE B-2

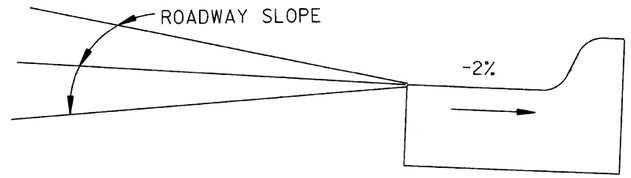


TYPE E-1



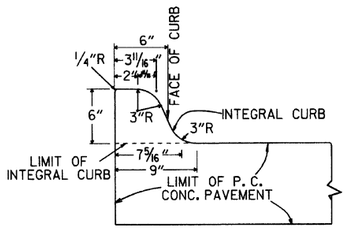
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

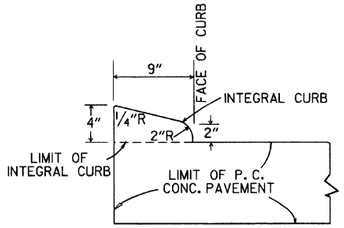


DETAIL OF GUTTER SLOPE

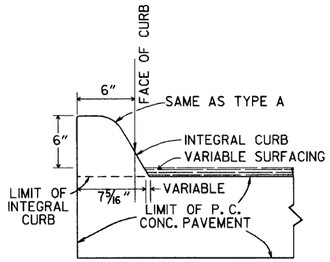
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

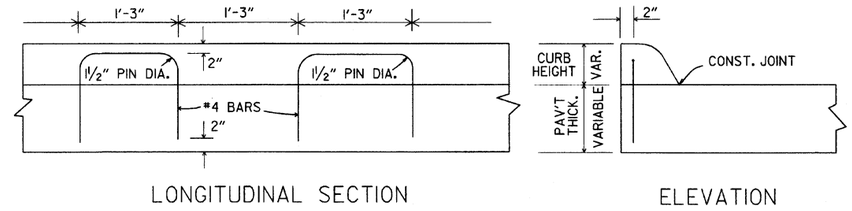


TYPE B



TYPE C

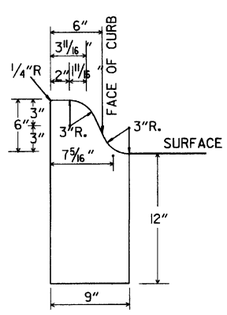
INTEGRAL CURB



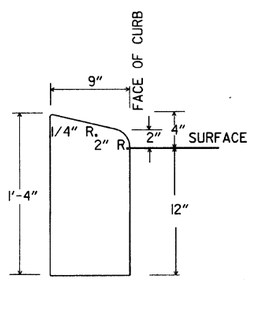
LONGITUDINAL SECTION

ELEVATION

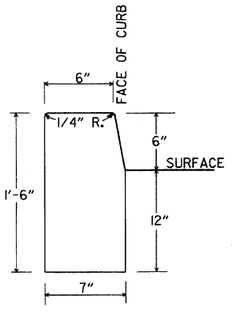
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



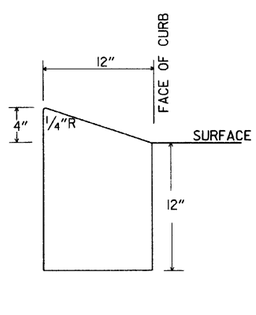
TYPE A



TYPE B

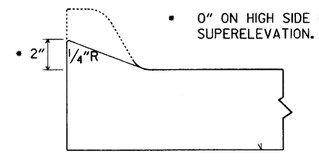


TYPE D



TYPE E

CONCRETE CURB



NOTE: USE MODIFIED CURB AS SPECIFIED ON STD. DR-1. COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR CURB AND GUTTER SPECIFIED.

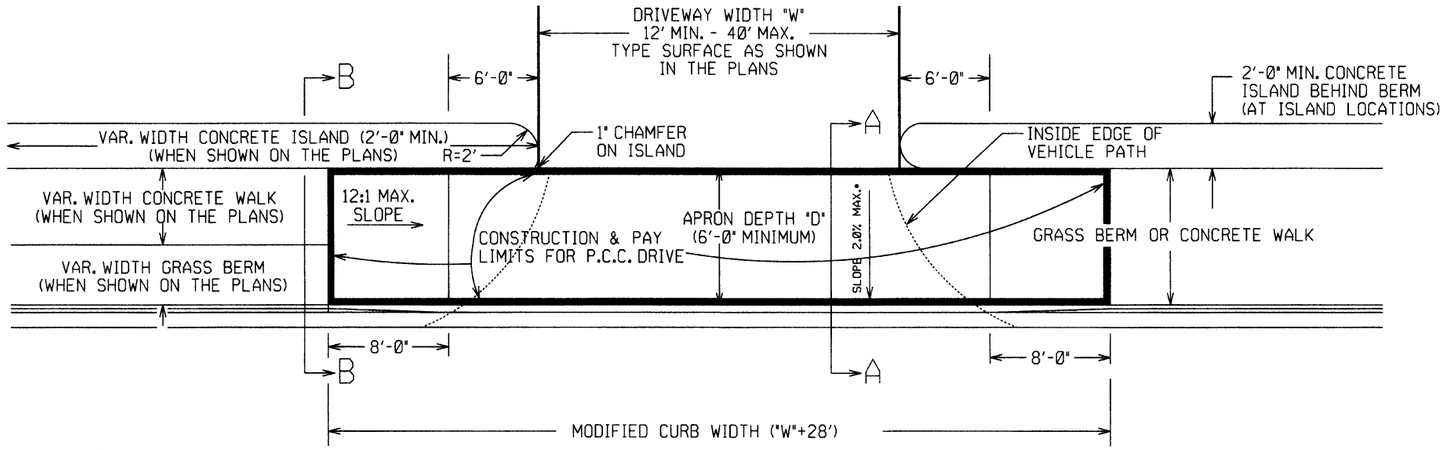
DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIBLE DEPTH TYPE A & B I	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	500-11-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72

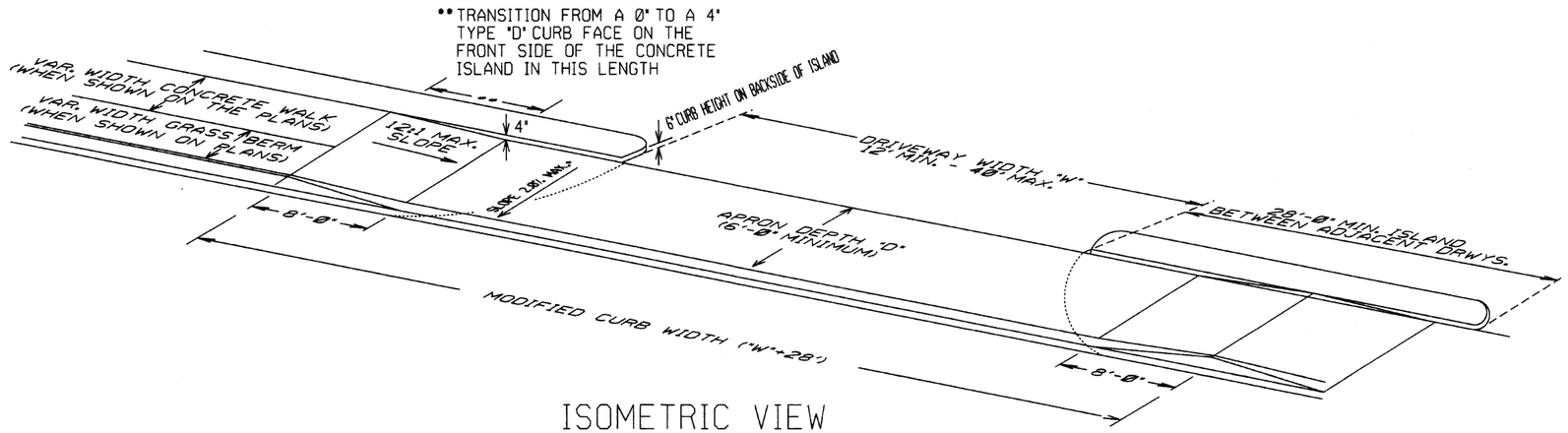
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

STANDARD DRAWING CG-1

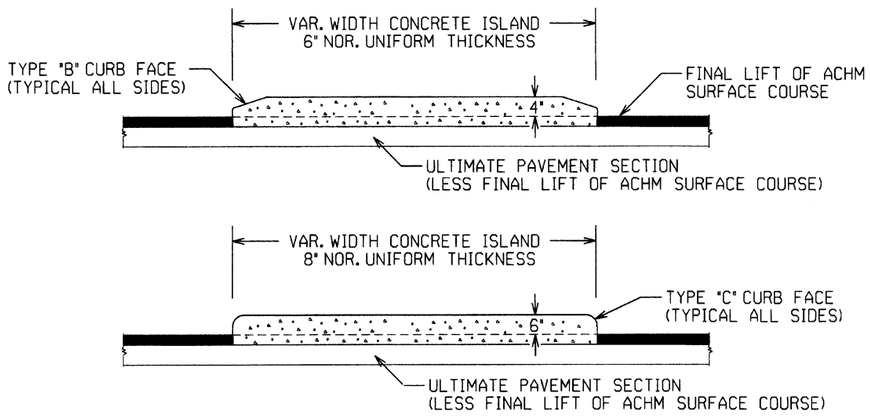


PLAN VIEW

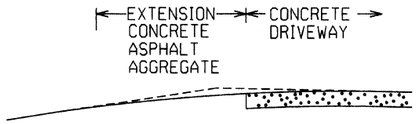


ISOMETRIC VIEW

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



CURBED ISLANDS FOR CHANNELIZATION



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

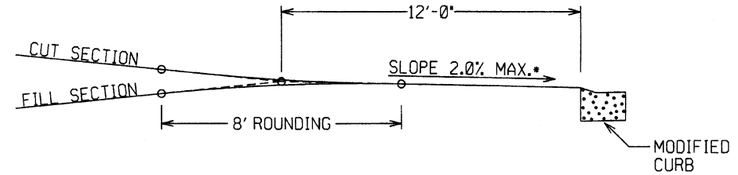
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

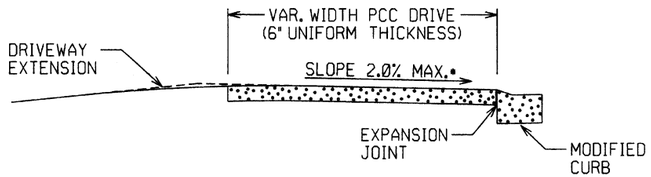
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

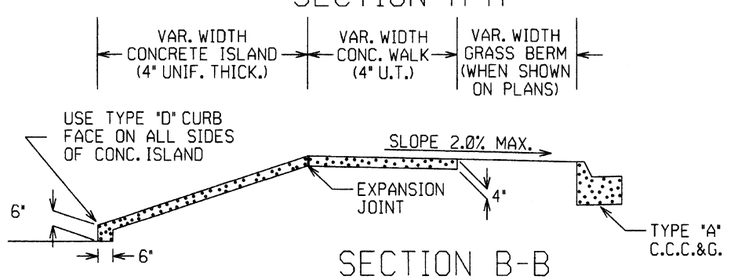


DRIVEWAY VERTICAL ALIGNMENT DETAILS

- NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



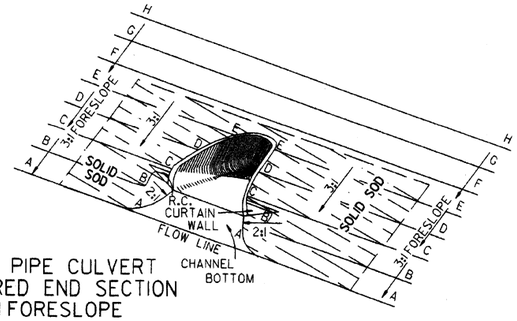
SECTION A-A



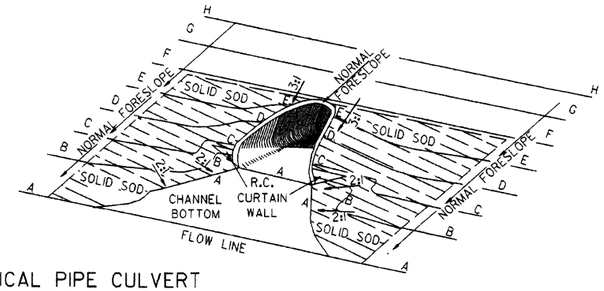
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
2-27-14		REVISED PLAN & ISOMETRIC VIEW
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

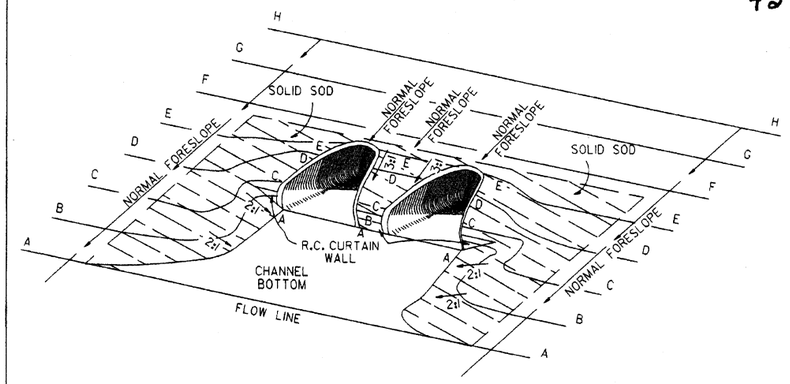
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC. CU. YDS.	SINGLE R.C.P.C. REINF. STEEL LBS.	DOUBLE R.C.P.C. CONC. CU. YDS.	DOUBLE R.C.P.C. REINF. STEEL LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1½"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9½"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.

REINFORCING STEEL SCHEDULE

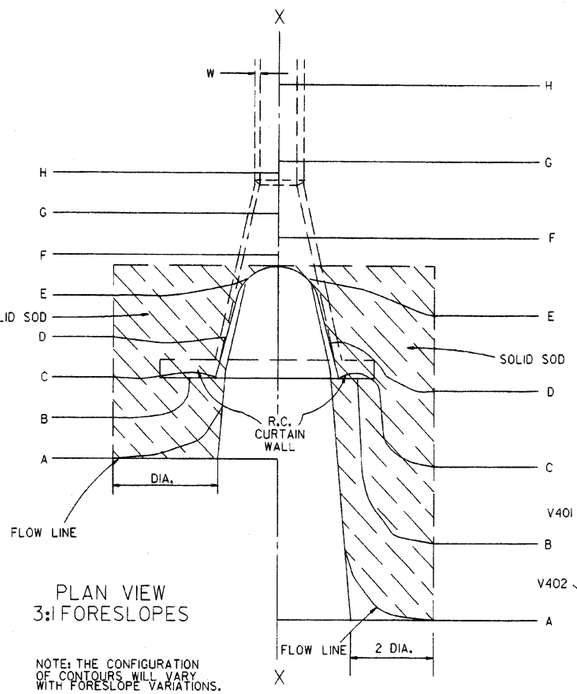
PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	V401 L	V401 NO.	V402 L	V402 NO.	DOUBLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	H403 L	H403 NO.	V401 L	V401 NO.	V402 L	V402 NO.
18"	7'-8"	2	1'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

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

SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C. 3:1	4:1	6:1	DOUBLE R.C.P.C. 3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

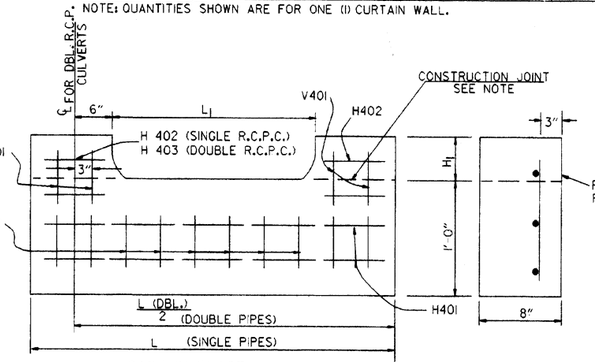
NOTE: QUANTITIES SHOWN ABOVE ARE FOR ONE (1) END OF F.E.S.



PLAN VIEW
3:1 FORESLOPES

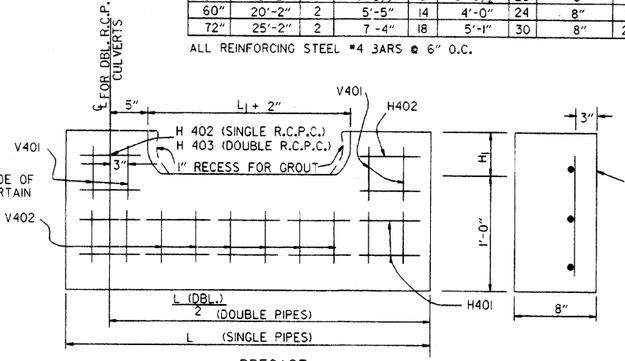
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



CAST-IN-PLACE

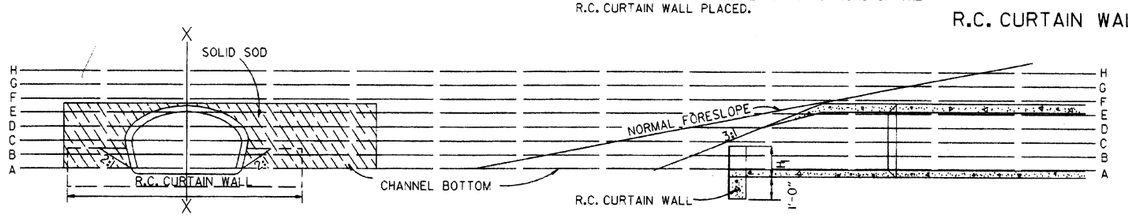
NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



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



END VIEW

SECTIONAL VIEW "X-X"

GENERAL NOTES

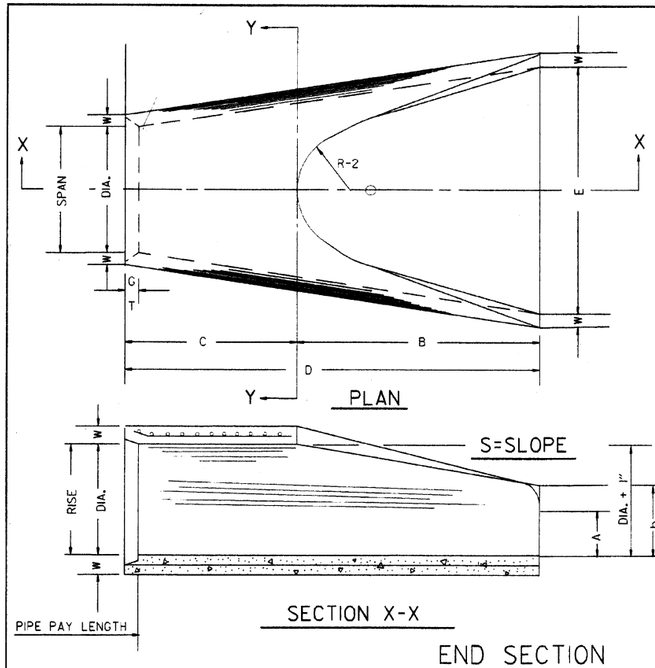
1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: 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 W/10 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

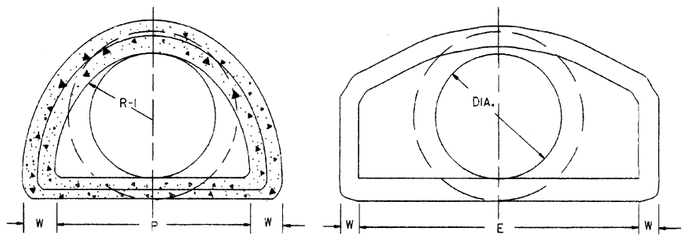
STANDARD DRAWING FES-1



END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. ± 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-11½"	4'-0"	3:1	25"	33⅜"	16¹³⁄₁₆"	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"	47¹³⁄₁₆"	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'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36¹¹⁄₁₆"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77¹³⁄₁₆"	38⅛"	24"	5"	13250	4'-6"

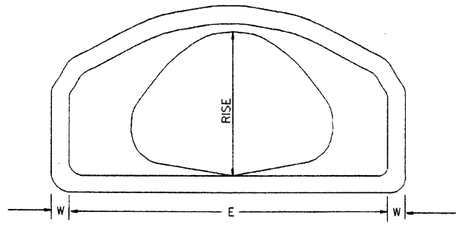


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

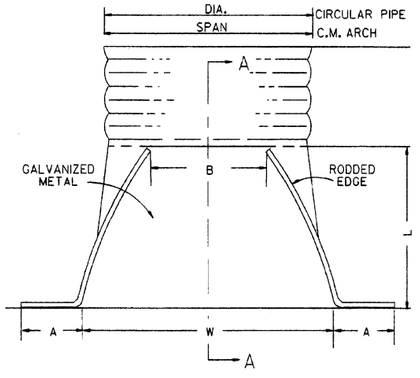
ARCH PIPE

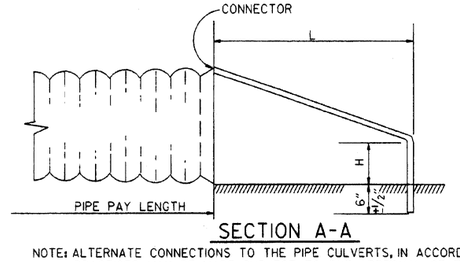
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36¹⁄₁₆"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47¹³⁄₁₆"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-11½"	6'-1½"	6'-6"	54⅝"	22"	3½"	2½:1
42	51⅛	51	31⅜	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70⅝"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72¹⁄₁₆"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77¹³⁄₁₆"	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.

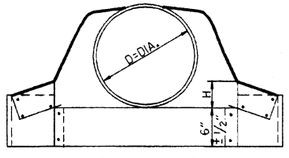


END VIEW
CONCRETE ARCH PIPE

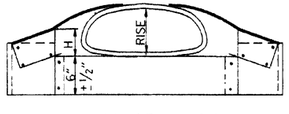




NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.



CIRCULAR PIPE



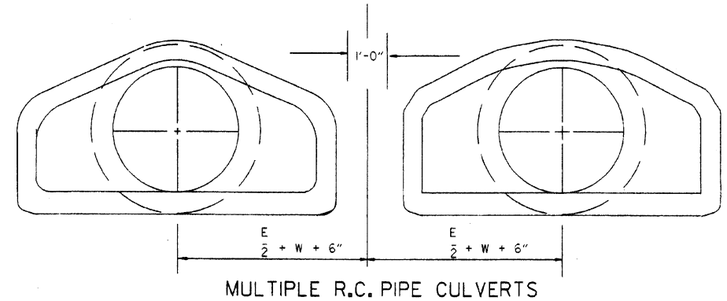
C.M. ARCH PIPE

CIRCULAR PIPE

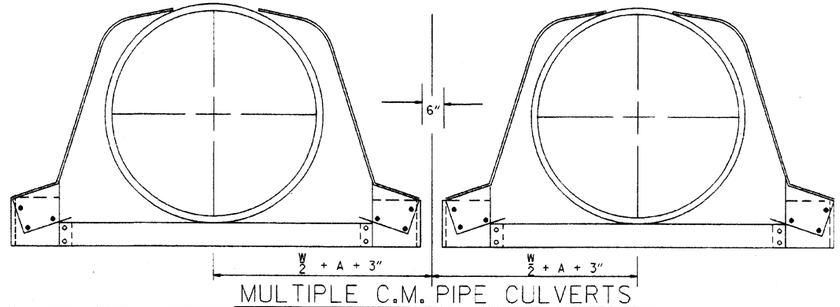
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12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



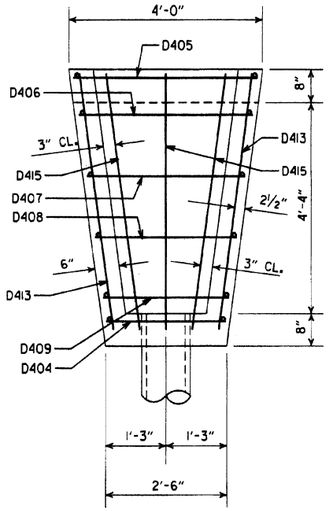
MULTIPLE R.C. PIPE CULVERTS



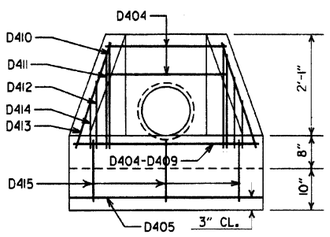
MULTIPLE C.M. PIPE CULVERTS

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS

DATE	REVISION	FILMED	
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96	ARKANSAS STATE HIGHWAY COMMISION
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	FLARED END SECTION
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	STANDARD DRAWING FES-2



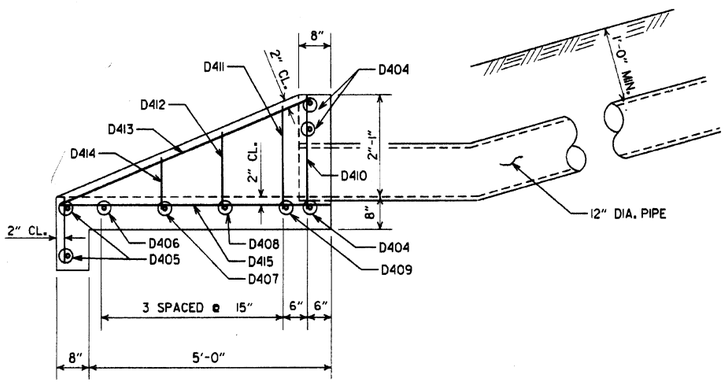
PLAN



FRONT ELEVATION

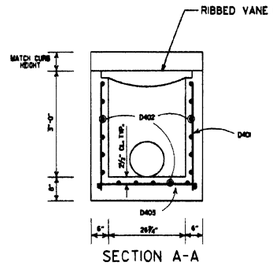
BAR LIST (CONCRETE SPILLWAY)

MARK	NO. REQ'D.	LENGTH	BENDING DIAGRAM
D404	3	2'-2"	5'-4", 1'-2", 2" P.D., D415
D405	2	3'-8"	
D406	1	3'-5"	
D407	1	3'-1"	
D408	1	2'-9"	
D409	1	2'-5"	
D410	2	2'-5"	
D411	2	2'-2"	
D412	2	1'-9"	
D413	2	5'-6"	
D414	2	1'-2"	
D415	3	6'-5"	



SIDE ELEVATION
CONCRETE SPILLWAY

DETAILS OF CONCRETE SPILLWAY (TYPE A)

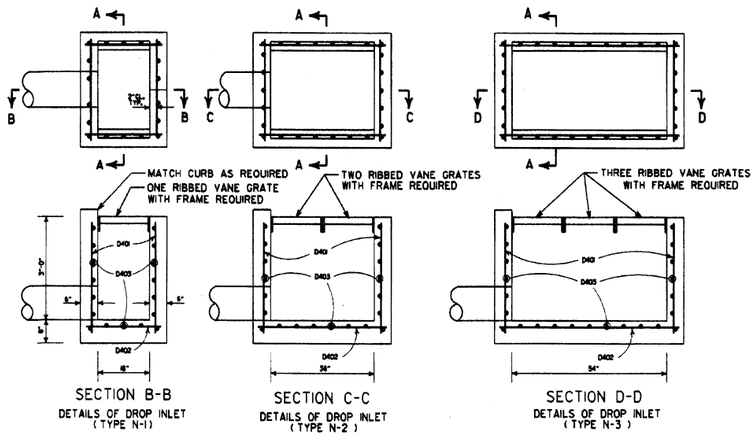


SECTION A-A

BAR LIST (DROP INLET)

MARK	TYPE N-1		TYPE N-2		TYPE N-3	
	NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH
D401	20	3'-0"	26	3'-0"	32	3'-0"
D402	19	2'-2"	19	3'-8"	19	5'-2"
D403	17	2'-11"	20	2'-11"	23	2'-11"

ALL BARS #4 @ 6" SPACING



SECTION B-B
DETAILS OF DROP INLET
(TYPE N-1)

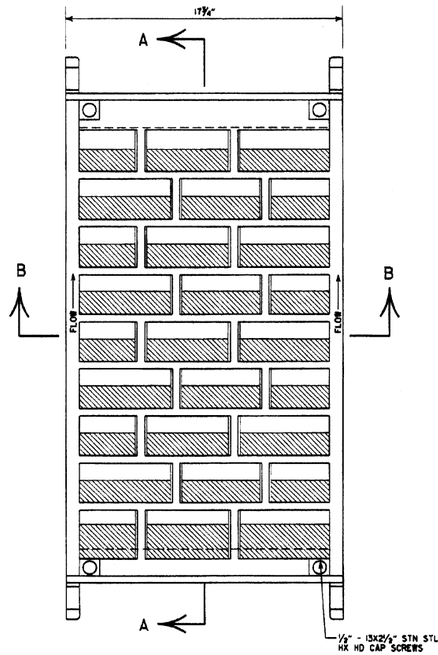
SECTION C-C
DETAILS OF DROP INLET
(TYPE N-2)

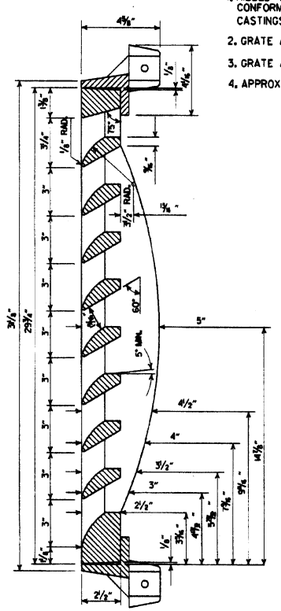
SECTION D-D
DETAILS OF DROP INLET
(TYPE N-3)

DETAILS OF DROP INLET

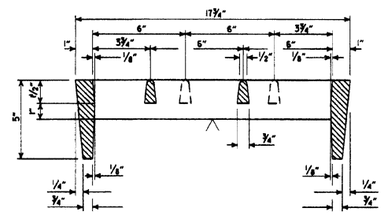
GENERAL NOTES (GRATE & FRAME)

1. RIBBED VANE GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B & AASHTO M 306.
2. GRATE AND FRAME SHALL NOT BE PAINTED.
3. GRATE AND FRAME SHALL BE INSTALLED IN DROP INLET IN ASSEMBLED POSITION.
4. APPROXIMATE WEIGHT OF GRATE SHALL BE 170 LBS.

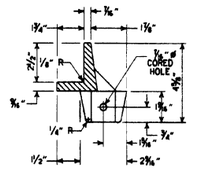




SECTION A-A



SECTION B-B



SECTION THRU FRAME

DETAILS OF RIBBED VANE GRATE AND FRAME

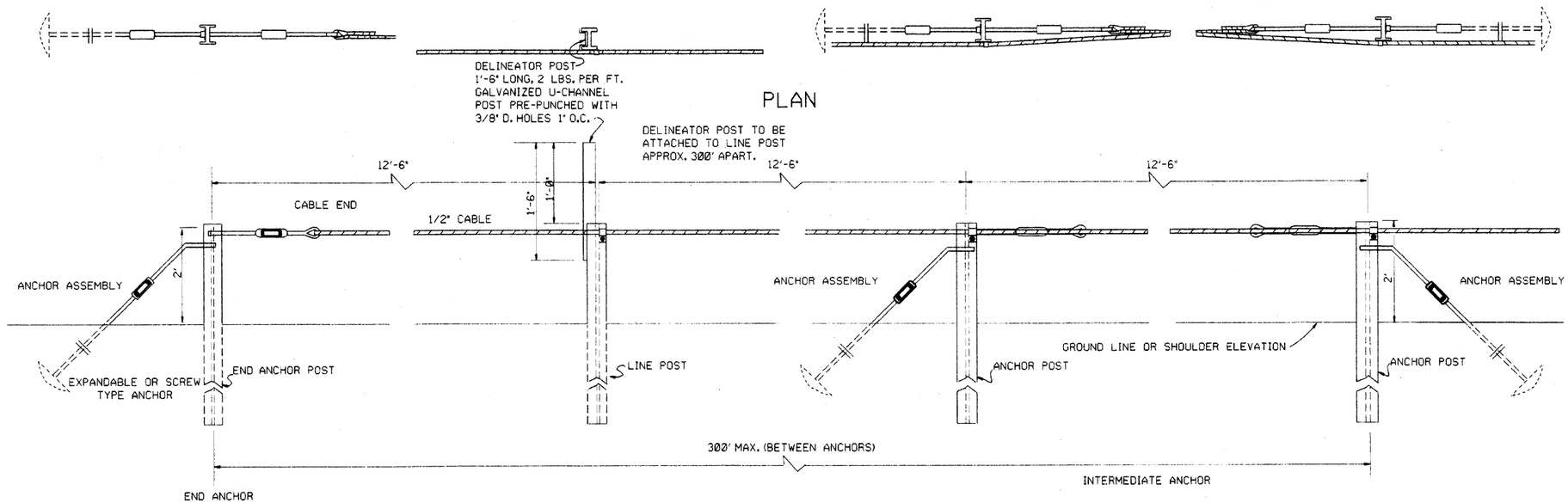
DATE REVISED	DATE FILMED	DESCRIPTION
7-02-98	7-2-98	REVISED SECT. A-A DETAIL OF DROP INLET & ADDED AASHTO REF. TO NOTE 1. REVISED GRATE
10-18-96		REVISED ASTM REF. TO AASHTO
8-15-91		ISSUED

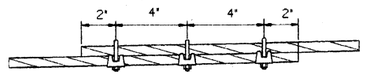
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS AND SPILLWAY OUTLET

STANDARD DRAWING FPC-9N

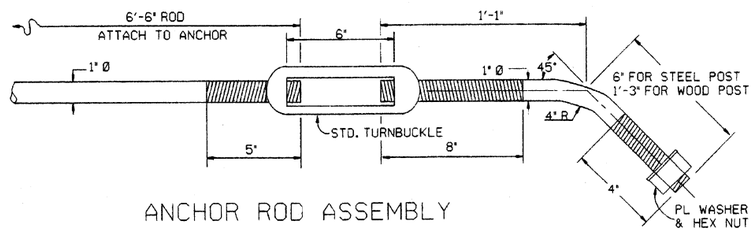
STDfpc9N.DGN



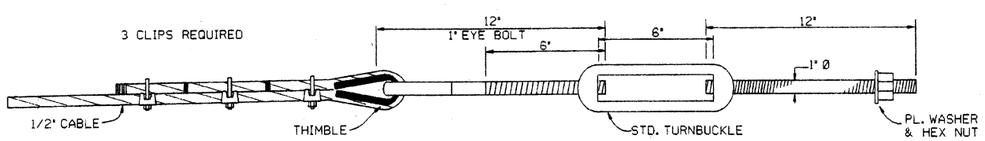


ONLY ONE SPLICE PERMITTED BETWEEN ANCHORS, LOCATED BETWEEN LINE POSTS ONLY. SPLICES WILL NOT BE PERMITTED IN SPANS ADJACENT TO THE ANCHOR AND CABLE END ASSEMBLIES. GUARD CABLE GREATER THAN 300 FEET IN LENGTH REQUIRES AN INTERMEDIATE ANCHOR AS SHOWN.

SPLICE DETAIL

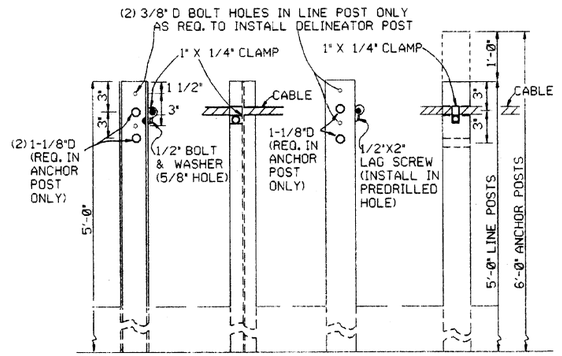


ANCHOR ROD ASSEMBLY



CABLE END

ELEVATION



STEEL POST

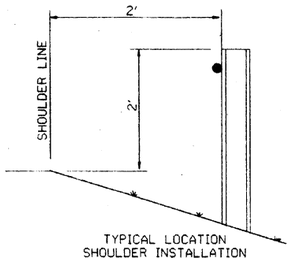
S 3 X 5.7 OR
WELDED BEAM CONSTRUCTION (ASTM A769)

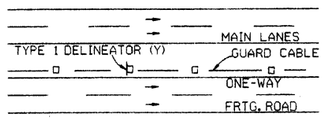
WOOD POST

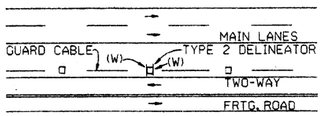
3 1/2"X3 1/2" SQUARE (4X4 NOMINAL) OR 4" ROUND SOUTHERN PINE INSPECTION BUREAU, TIMBER, NO. 1 1350 f SOUTHERN PINE OR WEST COAST LUMBER INSPECTION BUREAU, POSTS AND TIMBERS DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400f).

POST DETAILS

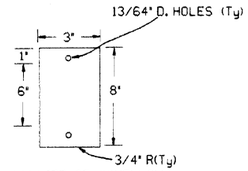
NOTE: POST MAY BE WOOD OR STEEL. IN GENERAL, ONLY ONE MATERIAL WILL BE ALLOWED WITHIN A SINGLE PROJECT. HOWEVER, WITH APPROVAL OF THE ENGINEER, POSTS MAY BE MIXED ON A JOB PROVIDED DEFINITE LIMITS ARE ESTABLISHED AND ALL POSTS ARE OF THE SAME TYPE WITHIN THOSE LIMITS. ONLY ONE TYPE POST MAY BE USED WITHIN A SINGLE ASSEMBLY.







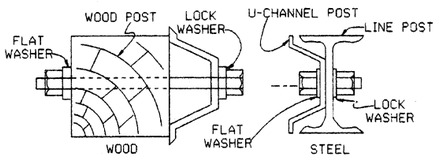
DELINEATOR PLACEMENT



(W)WHITE OR (Y)YELLOW

NOTE: DELINEATORS ARE TO BE MOUNTED TO POST USING PIN AND COLLAR (FASTENERS) WHICH ARE 6061 ALLUMINUM ALLOY. PIN LENGTH SHOULD NOT EXTEND FURTHER THAN 1/8" PAST THE COLLAR.
TYPE 2 DELINEATOR CONSIST OF 2 REFLECTORS MOUNTED BACK-TO-BACK ON A SINGLE POST.

TYPE 1 & 2 DELINEATORS



NOTE: USE 5/8 D. HEX. HEAD BOLT AND NUT (A307) WITH 1 FLAT WASHER AND 1 LOCK WASHER. BOLT, NUT AND WASHERS TO BE GALV. (AASHTO M 232) BOLT SHALL NOT EXTEND MORE THAN ONE(1) BOLT DIA. PAST NUT.

DELINEATOR POST DETAIL

NOTE: IN LIEU OF THE U-CHANNEL DELINEATOR POST THE CONTRACTOR SHALL HAVE THE OPTION OF EXTENDING THE GUARD CABLE LINE POST 1'-0" TALLER WHERE DELINEATOR POSTS ARE REQUIRED.
FOR WOOD POSTS, DELINEATORS MAY BE MOUNTED ON THE ANCHOR POSTS AT SPECIFIED INTERVALS.

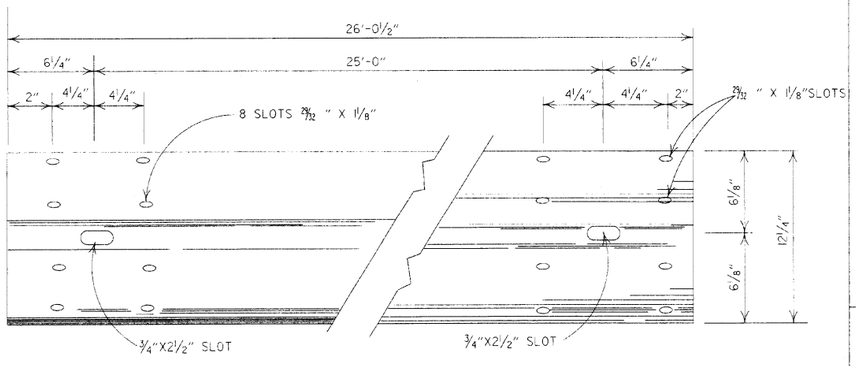
DATE	REVISION	FILMED
10-18-96	REV. ASTM REF. TO AASHTO & CHANGED WOOD POST NOTE	10-18-96
11-30-89	RE-ABED & LENGTHENED ANCHOR POST	11-30-89
3-23-89	LABELED POSTS	514-3-23-89
1-9-87	ISSUED	535-1-9-87

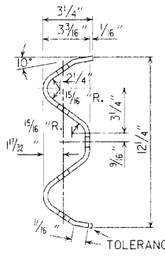
ARKANSAS STATE HIGHWAY COMMISSION

GUARD CABLE

STANDARD DRAWING GC-1

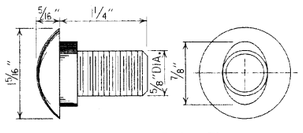
FILE stdgcl.dgn



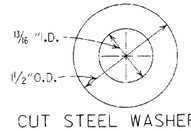


DETAILS OF W-BEAM GUARD RAIL

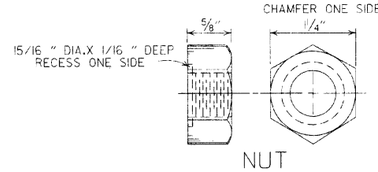
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



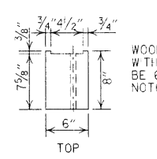
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

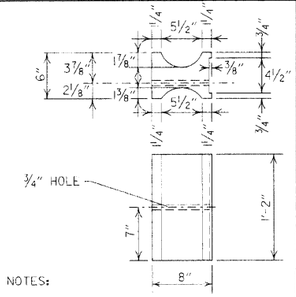


NUT



WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

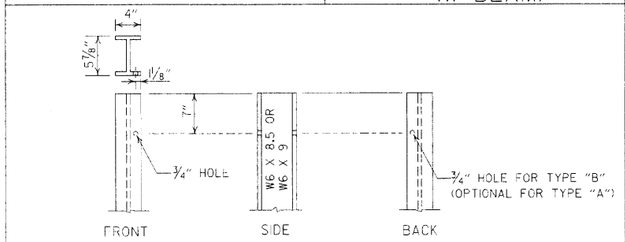
WOOD BLOCKOUT (W-BEAM)



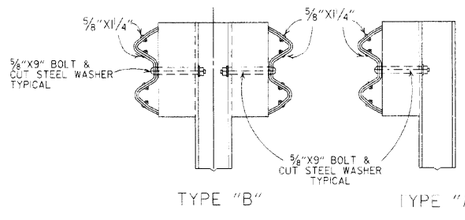
NOTES:

1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT (W-BEAM)

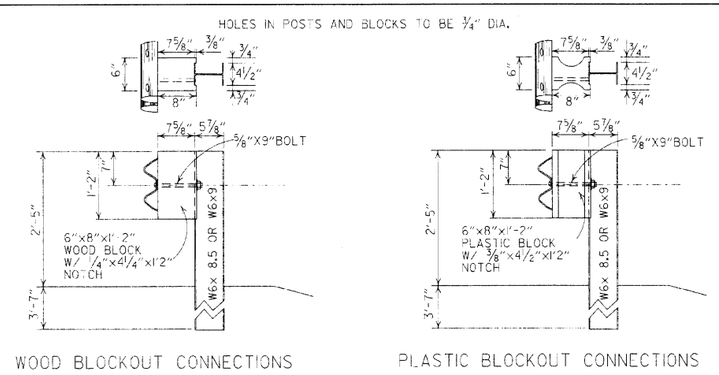


STEEL POST



TYPE "B" TYPE "A"

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



WOOD BLOCKOUT CONNECTIONS PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - ¼".

WOOD BLOCKOUT CONNECTIONS PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO.1 STRUCTURAL OR BETTER 9.7# (1400 F) OR NO.1 1350 F SOUTHERN PINE.

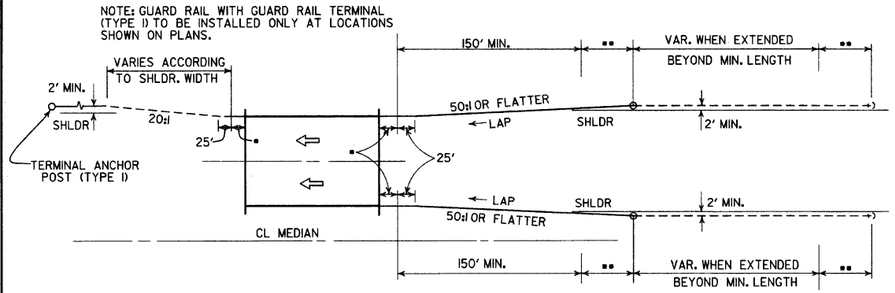
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HAROWARE (MASH) FOR W-BEAM GUARD RAIL.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-5-09	ADDED REFERENCE TO MASH	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
1-12-00	ADDED PLASTIC BLOCKOUT	
8-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
4-3-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
6-2-94	ADDED ALT. STEEL POST SIZE	
8-5-93	REVISED STEEL POST SIZE	8-5-93
10-1-92	REDRAWN & REVISED	10-1-92
8-15-91	REVISED WASHER NOTE	8-15-91
8-2-90	REV. GEN. NOTE & DEPHT OF ANC. POST IN ROCK	8-2-90
7-15-88	REVISED SECTION 3 & GENERAL NOTES	
3-4-88	REV. ANCHOR POST, ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-9-87	REDRAWN & REVISED	802-10-9-87

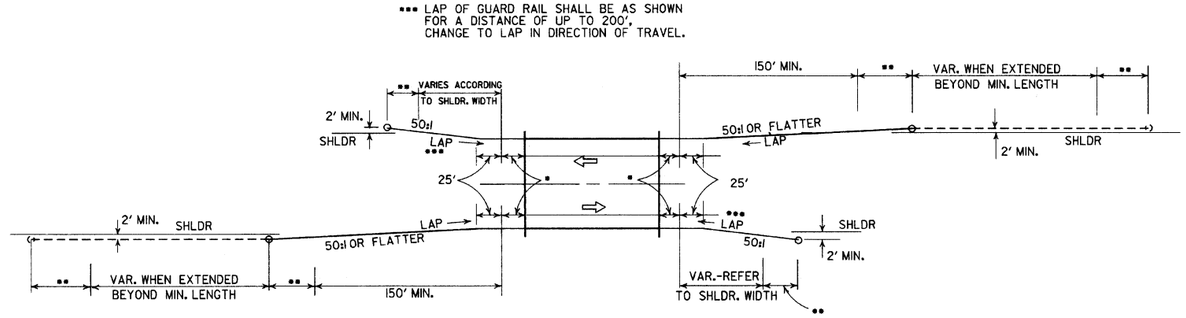
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8



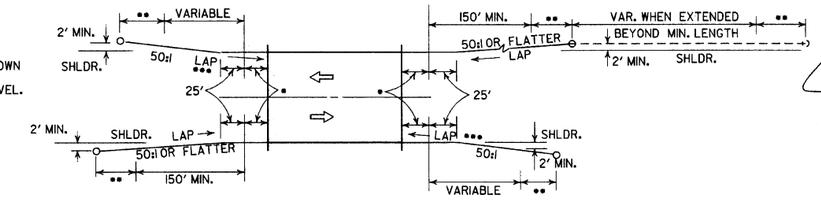
ONE-WAY TRAFFIC



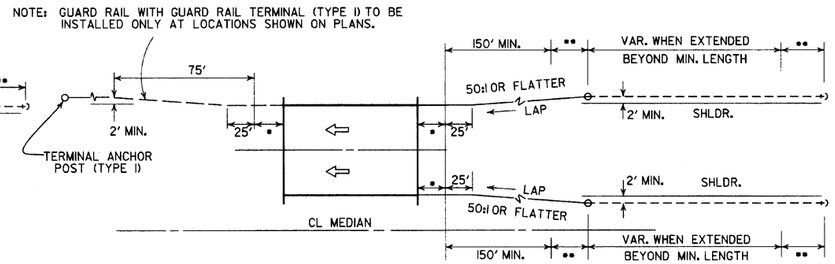
TWO-WAY TRAFFIC

METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



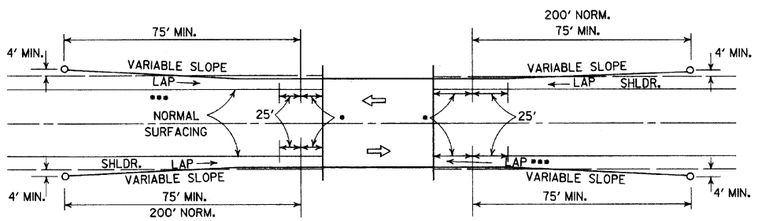
TWO-WAY TRAFFIC



ONE-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



LEGEND

- • THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

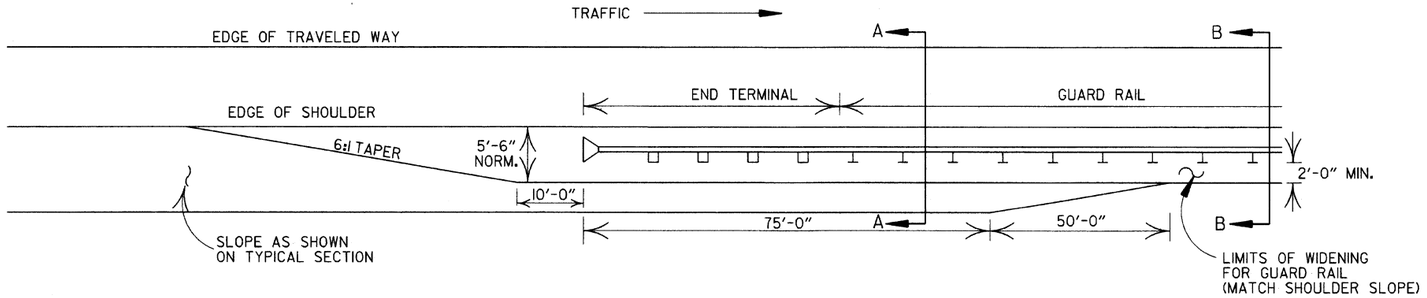
METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

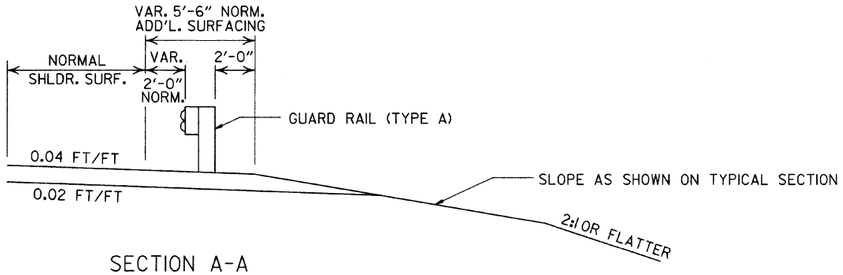
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION

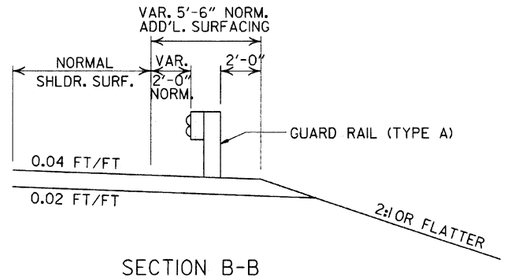
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





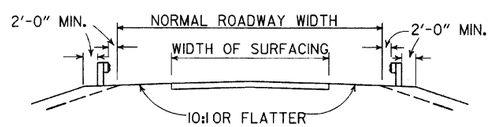
SECTION A-A



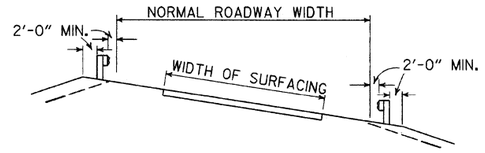
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.

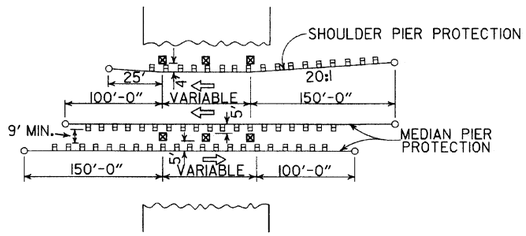


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



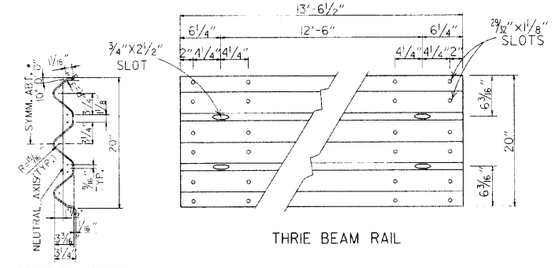
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

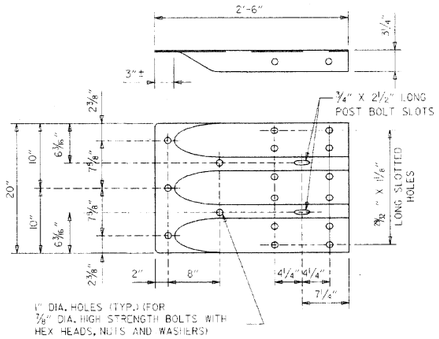
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A



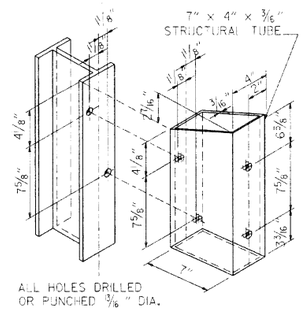
THRIE BEAM RAIL

SECTION THRU THRIE BEAM RAIL



1" DIA. HOLES (TYP.) (FOR ⅞" DIA. HIGH STRENGTH BOLTS WITH HEX HEADS, NUTS AND WASHERS)

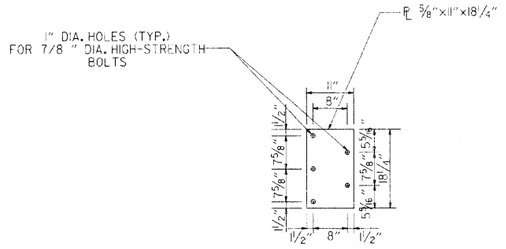
SPECIAL END SHOE



ALL HOLES DRILLED OR PUNCHED ⅜" DIA.

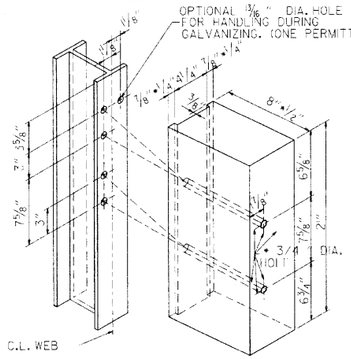
ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.

STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



CONNECTOR PLATE

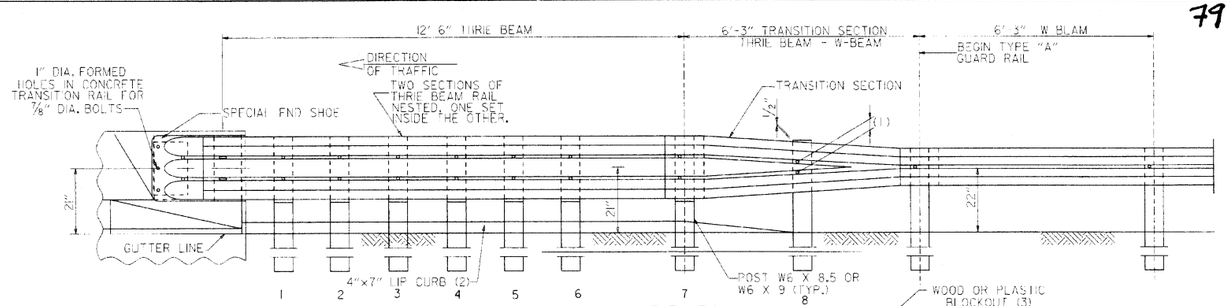
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.9 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



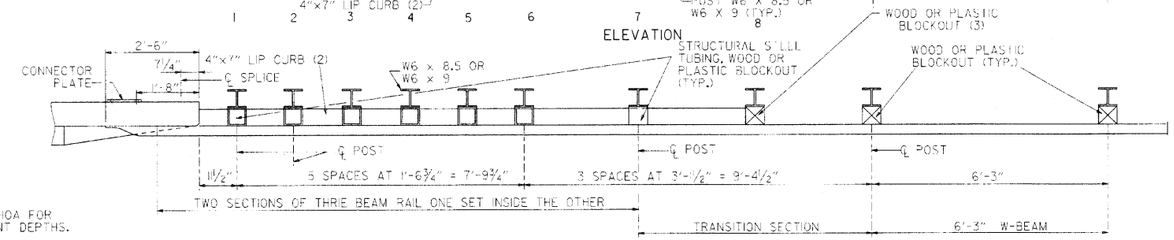
ALL HOLES ⅜" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

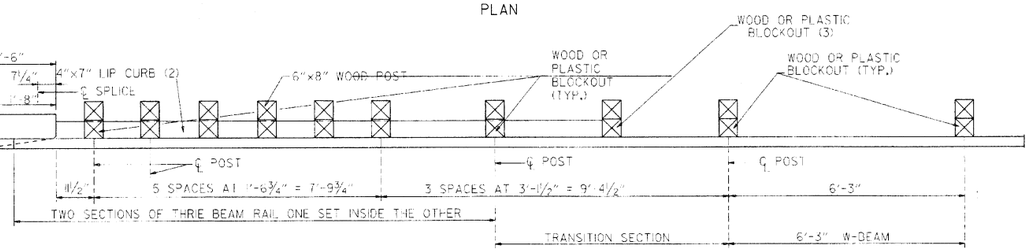
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



ELEVATION



PLAN

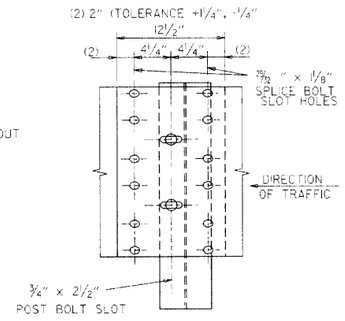


PLAN

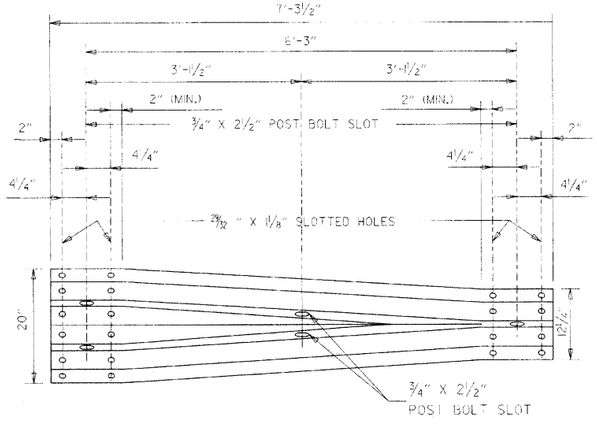
NOTE:
SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.

(1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
(2) REFER TO APPROACH GUTTER DETAILS.
(3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS



THRIE BEAM RAIL SPLICE AT POST



TRANSITION SECTION

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE II.

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

ALL LAP SPLICES, NCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR 11.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

REFER TO STD. DRWG. GR-10A FOR POST DETAILS.

USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

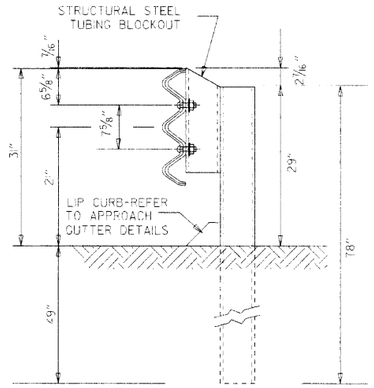
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF W-BEAM 1"	
11-29-07	ADDED PLASTIC BLOCKOUTS	
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
11-18-04	REVISED GENERAL NOTES	
10-9-03	REVISED GENERAL NOTES	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED NOTE (2)	
6-29-00	MOVED DIMENSION LINES	
5-18-00	ADDED NOTE	
3-30-00	DRAWN & ISSUED	

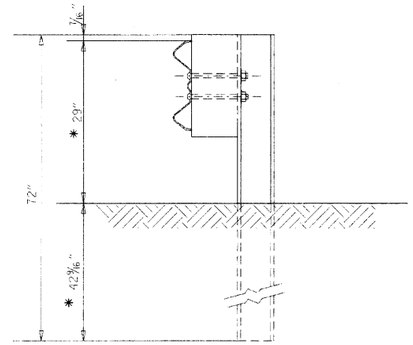
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

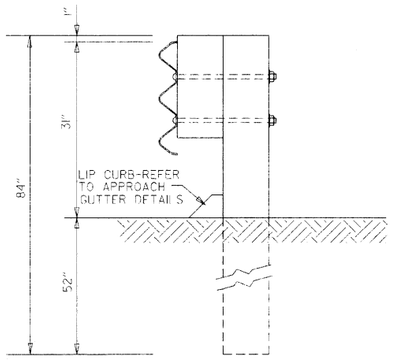


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

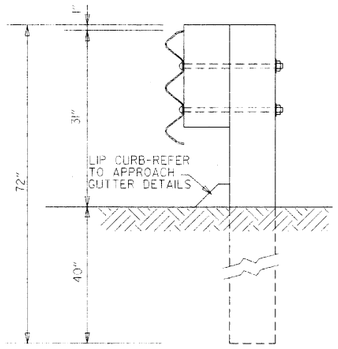


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

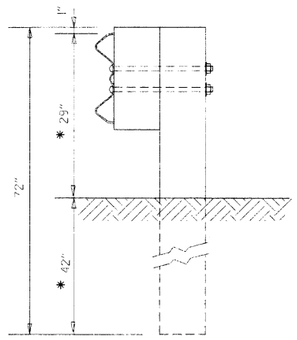
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUTS & WOOD POSTS
POSTS 1-6



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUT & WOOD POST
POST 7



W-BEAM TO THRIE BEAM
TRANSITION RAIL WITH WOOD OR
PLASTIC BLOCKOUT & WOOD POST
POST 8

GENERAL NOTES:
RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

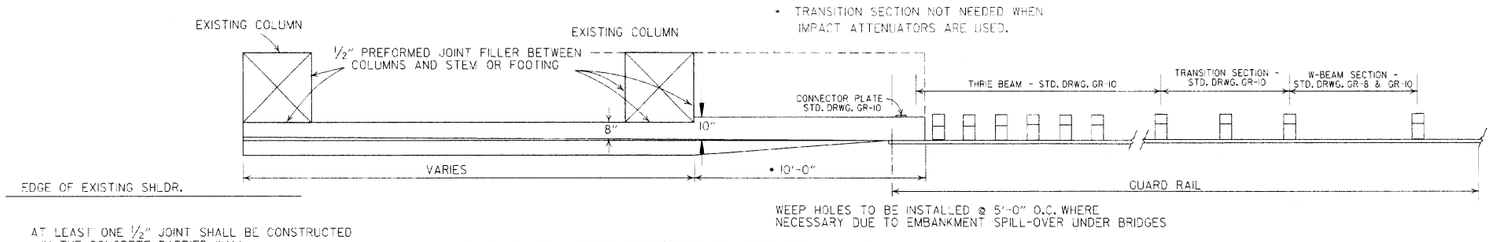
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO. 1 (1350 f) SOUTHERN PINE.

DATE	REVISION	DATE FILM
7-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
8-22-02	REVISED LIP CURB NOTE	
3-30-00	DRAWN & ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

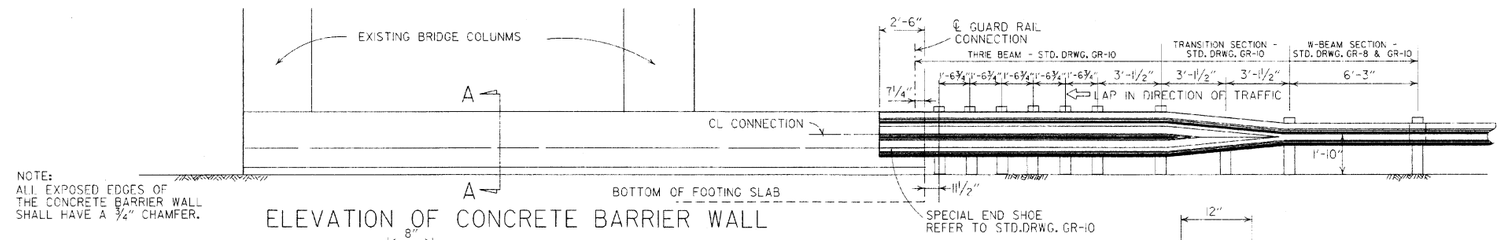


• TRANSITION SECTION NOT NEEDED WHEN IMPACT ATTENUATORS ARE USED.

WEEP HOLES TO BE INSTALLED @ 5'-0" O.C. WHERE NECESSARY DUE TO EMBANKMENT SPILL-OVER UNDER BRIDGES

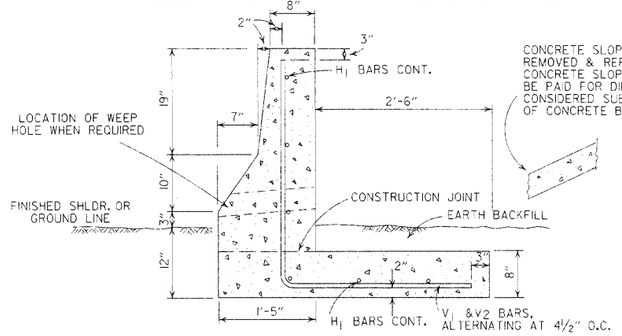
PLAN OF CONCRETE BARRIER WALL

AT LEAST ONE ½" JOINT SHALL BE CONSTRUCTED IN THE CONCRETE BARRIER WALL. JOINTS SHALL BE EQUALLY SPACED AT A MAXIMUM OF 25'-0" O.C. FILL JOINT WITH PREFORMED JOINT FILLER.



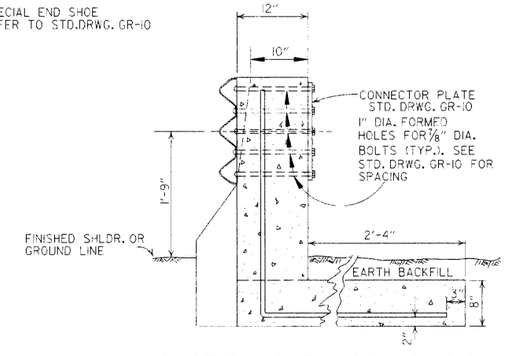
NOTE:
ALL EXPOSED EDGES OF THE CONCRETE BARRIER WALL SHALL HAVE A ¾" CHAMFER.

ELEVATION OF CONCRETE BARRIER WALL



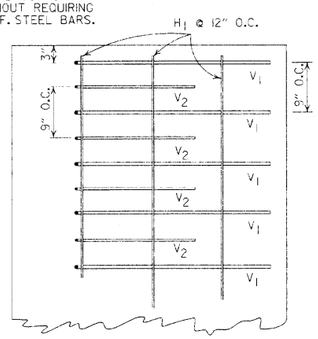
CONCRETE SLOPE PAVING TO BE REMOVED & REPLACED WHERE REQ'D. CONCRETE SLOPE PAVING WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO THE ITEM OF CONCRETE BARRIER WALL.

SECTION A-A



SECTION THRU CONNECTION

IF FOR ANY REASON IT IS NECESSARY TO CONSTRUCT THE FOOTING AT A LOWER ELEVATION THAN IS SHOWN, THE STEM MAY BE LENGTHENED 1'-0" BETWEEN FIN. SHLDR. AND TOP OF FOOTING WITHOUT REQUIRING HEAVIER REINF. STEEL BARS.

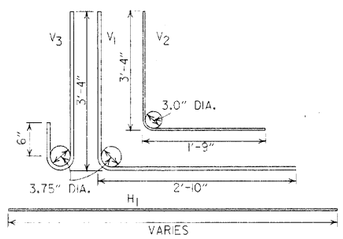


PLAN OF REINFORCING STEEL IN FOOTING

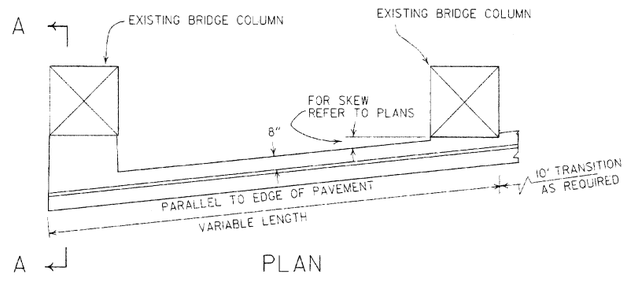
BAR LIST

MARK	NO.	SIZE	LENGTH
V1		#5	6'-2½"
V2		#4	5'-1"
V3		#5	4'-1⅛"
H1	6	4	VAR.

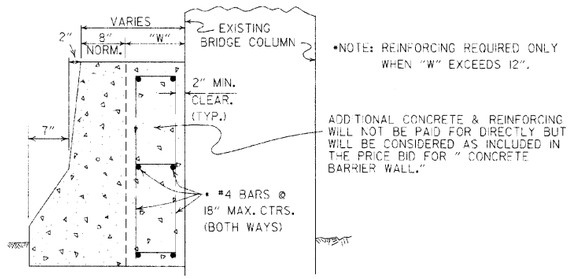
THE V3 BARS SHALL BE USED IN PLACE OF THE V1 & V2 BARS IN FRONT OF PIERS.



BEND DIAGRAMS



PLAN



•NOTE: REINFORCING REQUIRED ONLY WHEN "W" EXCEEDS 12".

ADDITIONAL CONCRETE & REINFORCING WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED AS INCLUDED IN THE PRICE BID FOR " CONCRETE BARRIER WALL."

SECTION A-A

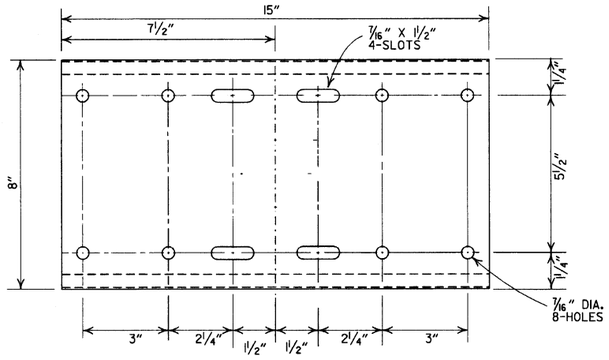
DETAILS OF CONCRETE BARRIER WALL WHEN PIERS ARE SKEWED TO ROADWAY

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF W-BEAM 1"	
8-22-02	REV. SECTION A-A OF DETAILS OF CONCRETE BARRIER WALL	
6-29-00	MOVED DIMENSION LINE	
5-18-00	ADDED NOTE	
3-30-00	REVISED TO INCLUDE THRIE BEAM	
6-2-94	ADDED TRANSITION SECTION NOTE	
10-1-92	REDRAWN & REVISED	10-1-92
8-15-91	REVISED DRAWING PLAN CONC. BARR.	8-15-9.
2-16-89	ADDED SKEWED DETAILS	594-2-16-89
7-14-88	CHANGED TITLE	
10-9-87	REDRAWN & REVISED	

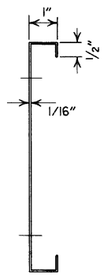
ARKANSAS STATE HIGHWAY COMMISSION

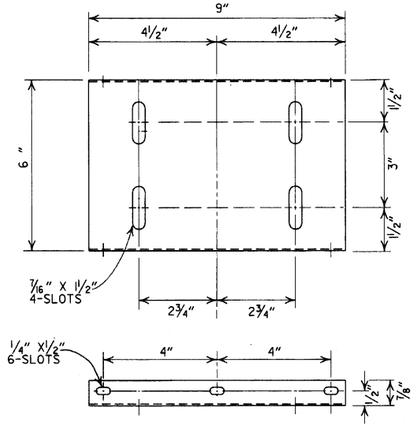
CONCRETE BARRIER WALL (PIER PROTECTION TYPE A)

STANDARD DRAWING GR-11

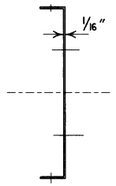


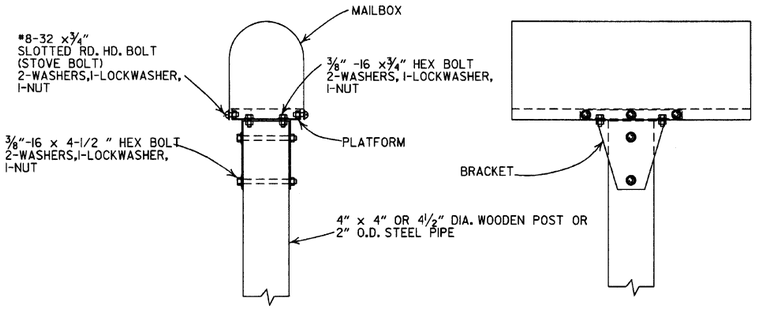
SHELF



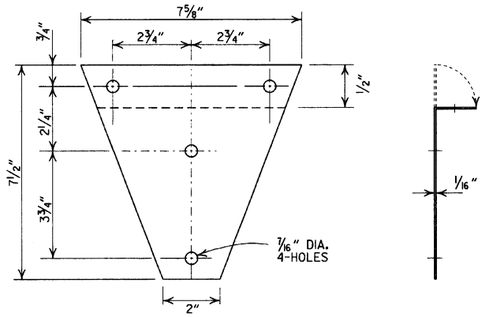


PLATFORM

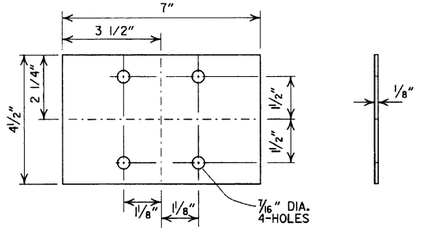




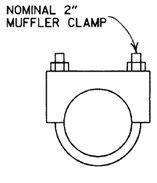
SINGLE INSTALLATION



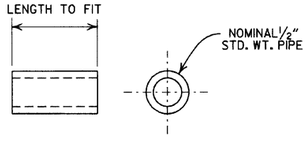
BRACKET



ANTI-TWIST PLATE



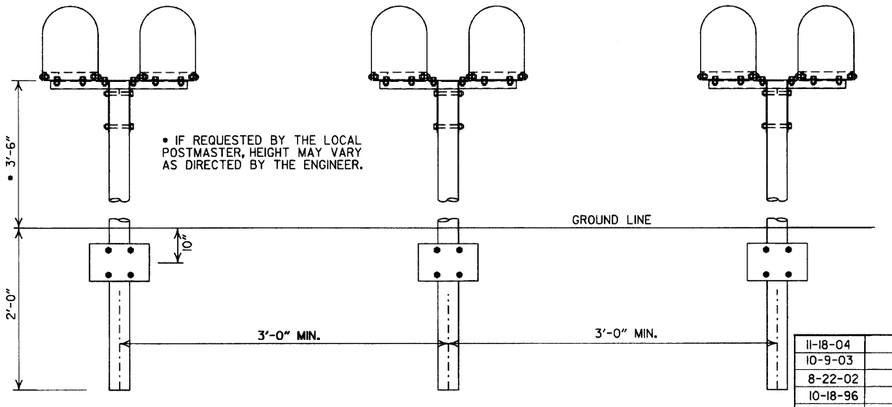
CLAMP



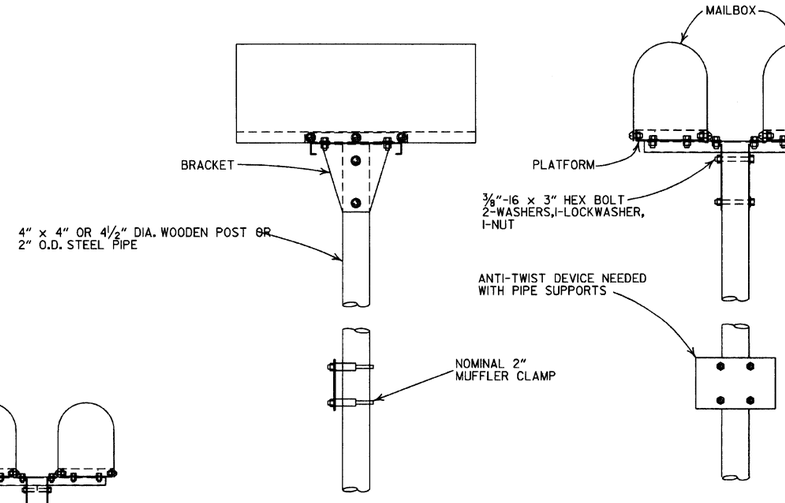
SPACER

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 X ¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



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.

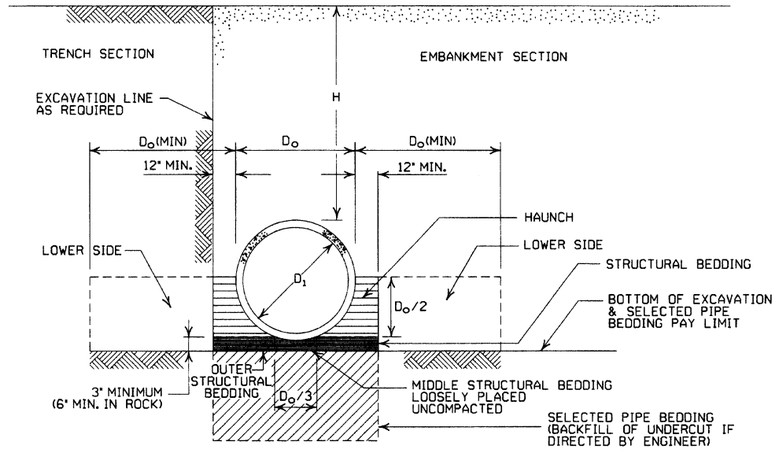
- LEGEND -

D_1 = NORMAL INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
▨ = UNDISTURBED SOIL

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL*
TYPE 3**	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

*SM-3 WILL NOT BE ALLOWED.

**MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

1. MATERIAL IN THE HAUNCH AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. FOR TRENCHES WITH WALLS OF NATURAL SOIL, THE DENSITY OF THE SOIL IN THE LOWER SIDE ZONE SHALL BE AS FIRM AS THE 95% DENSITY REQUIRED FOR THE HAUNCH. IF THE EXISTING SOIL DOES NOT MEET THIS CRITERIA, IT SHALL BE REMOVED AND RECOMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OF MATERIAL USED.
3. FOR EMBANKMENTS, THE MATERIAL IN THE LOWER SIDE ZONE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

GENERAL NOTES

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

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

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

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

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

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

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

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2 OR TYPE 3	2.5	1.5

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

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

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

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

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

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL			ALUMINUM		
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1
			2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM			2⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM		
15	17x13	3	0.064	2	15	0.060	2	15
18	21x15	3	0.064	2	15	0.060	2	15
21	24x18	3	0.064	2.25	15	0.060	2.25	15
24	28x20	3	0.064	2.5	15	0.075	2.5	15
30	35x24	3	0.079	3	12	0.075	3	12
36	42x29	3½	0.079	3	12	0.105	3	12
42	49x33	4	0.079	3	12	0.105	3	12
48	57x38	5	0.109	3	13	0.135	3	13
54	64x43	6	0.109	3	14	0.135	3	14
60	71x47	7	0.138	3	15	0.164	3	15
66	77x52	8	0.168	3	15			
72	83x57	9	0.168	3	15			
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM					
				INSTALLATION TYPE 2	INSTALLATION TYPE 1			
36	40x31	5	0.079	3	2	12	15	
42	46x36	6	0.079	3	2	13	15	
48	53x41	7	0.079	3	2	13	15	
54	60x46	8	0.079	3	2	13	15	
60	66x51	9	0.079	3	2	13	15	
66	73x55	12	0.079	3	2	15	15	
72	81x59	14	0.079	3	2	15	15	
78	87x63	14	0.079	3	2	15	15	
84	95x67	16	0.109	3	2	15	15	
90	103x71	16	0.109	3	2	15	15	
96	112x75	18	0.109	3	2	15	15	
102	117x79	18	0.109	3	2	15	15	
108	128x83	18	0.138	3	2	15	15	

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. COMPLETE STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT EXCEED 24 INCHES OR 1/3 THE SIZE OF THE PIPE, WHICHEVER IS LESS.

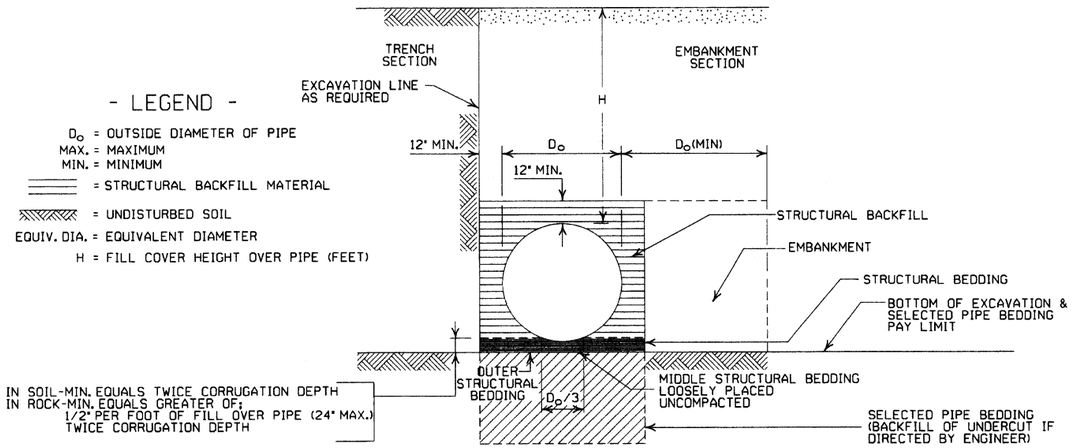
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL ③

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

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

  SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

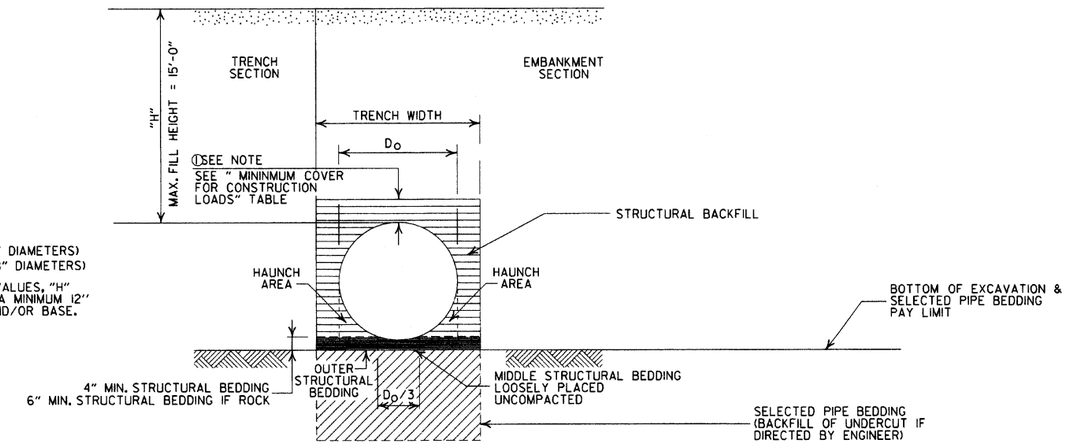
PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

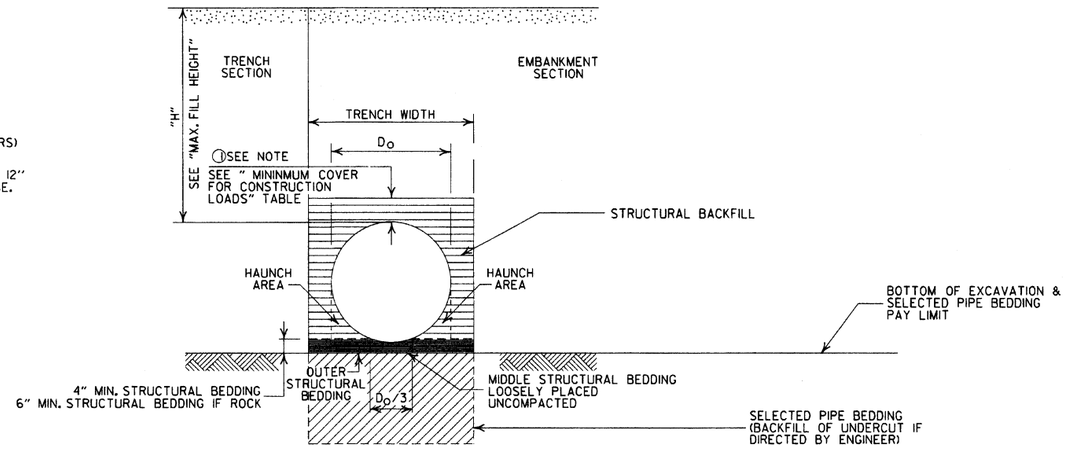
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

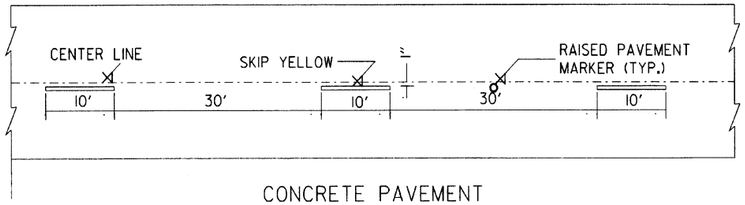
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

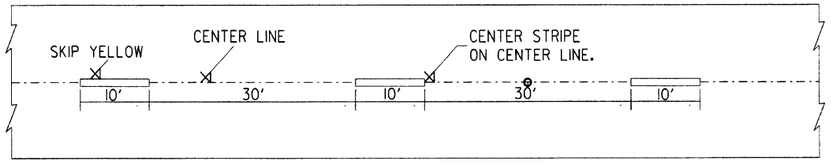
PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.

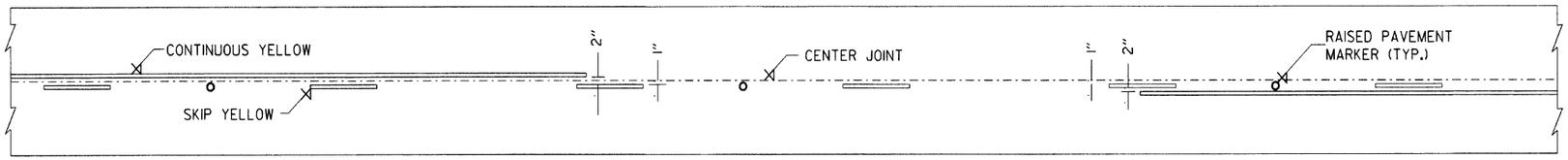


CONCRETE PAVEMENT

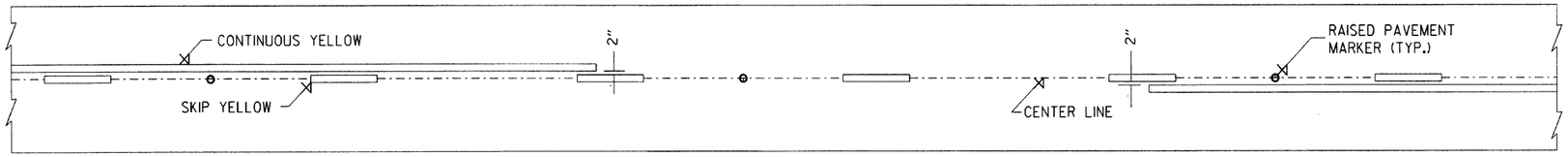


ASPHALT PAVEMENT

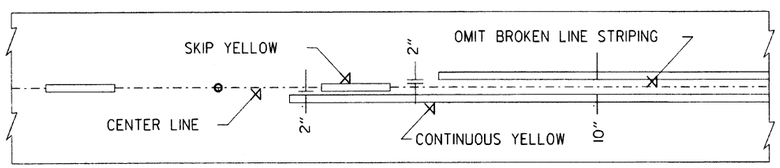
BROKEN LINE STRIPING



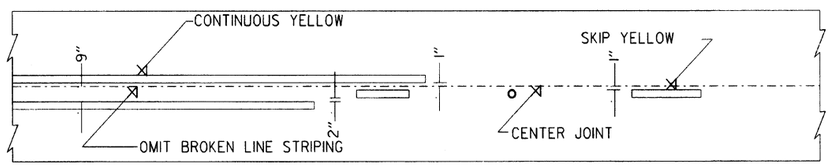
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

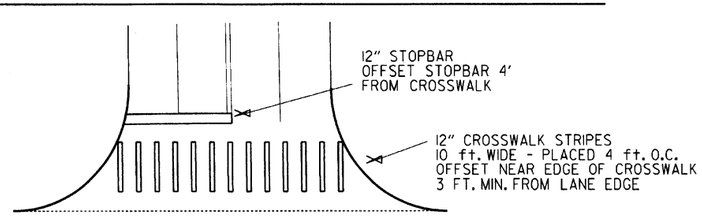


ASPHALT PAVEMENT



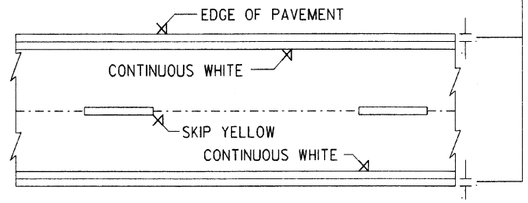
CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

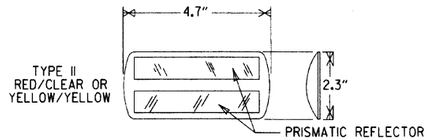


CROSSWALK AND STOPBAR DETAILS

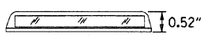
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING



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



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

NOTE:
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

DATE	REVISION	FILMED
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

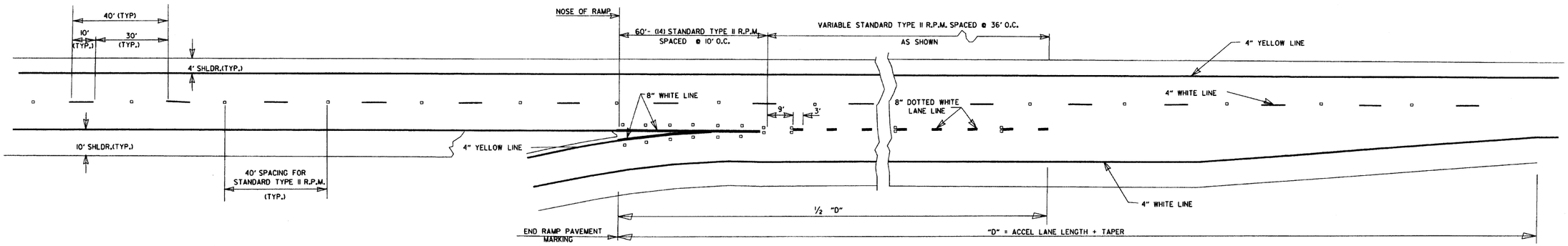
PAVEMENT MARKING QUANTITIES
(BASED ON 700' ACCEL. LANE + 300' TAPER)

ENTRANCE RAMP

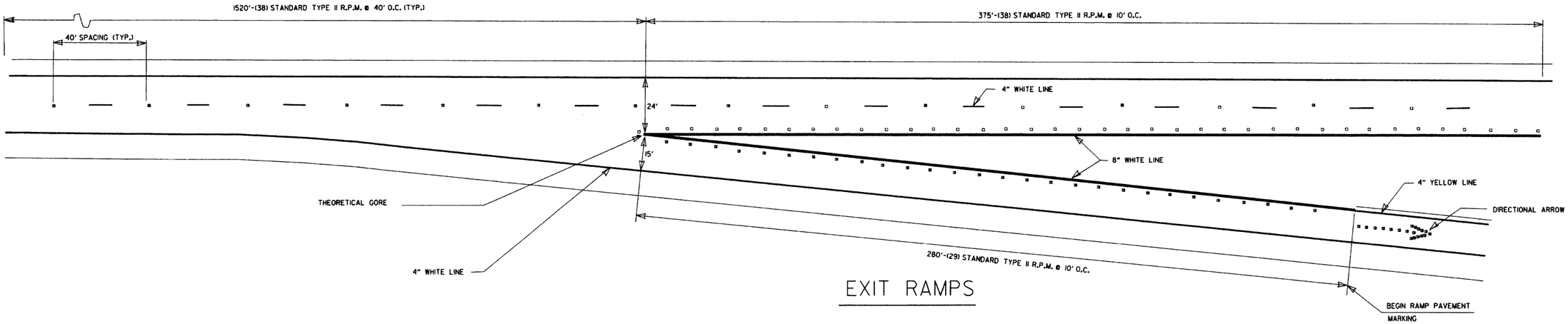
8" WHITE = 228 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH

EXIT RAMP

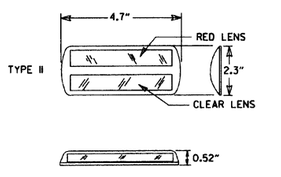
4" WHITE = 280 LIN. FT.
8" WHITE = 655 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 48 EACH
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH



ENTRANCE RAMPS

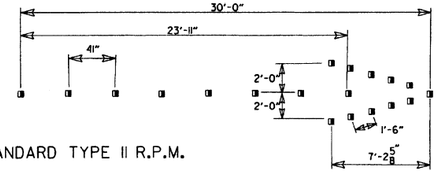


EXIT RAMPS



DETAIL OF
STANDARD
RAISED PAVEMENT MARKERS

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



(19) STANDARD TYPE II R.P.M.

DIRECTIONAL ARROWS

GENERAL NOTES:

THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.

NOTE:
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
7-26-12	REVISED RPM NOTATION	
12-15-11	REVISED RPMs ACCORDING TO LATEST POLICY	
11-17-10	REMOVED PLOWABLE PAVEMENT MARKERS	
6-3-10	REVISED PER 2009 MUTCD	
11-18-04	REVISED NOTES	
8-22-02	ADDED & REVISED NOTES; REV. ENTRANCE & EXIT RAMPS	
5-18-00	REMOVED HASHMARKS	
7-02-98	CHANGED TYPES TO ROMAN NUMERALS	
4-26-96	ADDED DIMENSIONS & QUANTITIES; REVISED LANE WIDTH ON EXIT RAMP	
2-2-95	PLACED IN USE	2-2-95

ARKANSAS STATE HIGHWAY COMMISSION

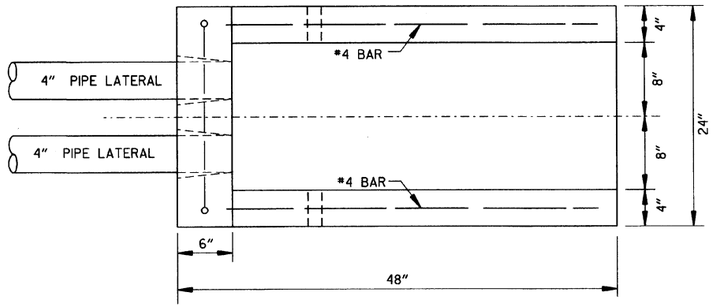
PERMANENT PAVEMENT MARKING ON ACCESS CONTROLLED ROADWAYS

STANDARD DRAWING PM-2

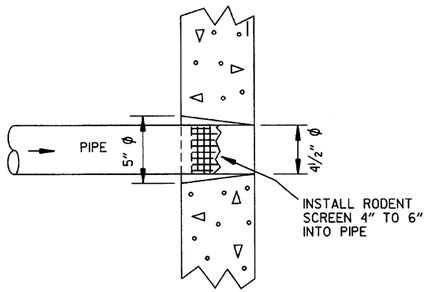
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

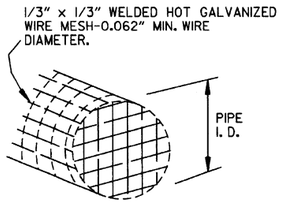
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



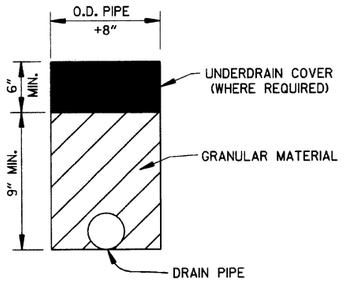
PLAN VIEW

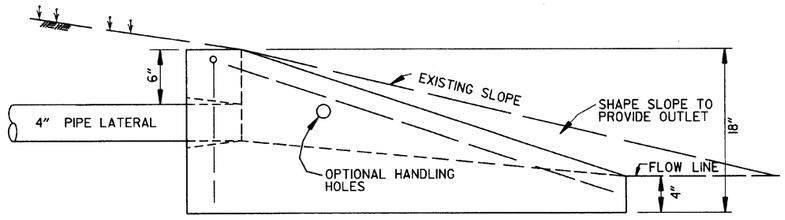


DETAIL OF HOLE FOR 4" PIPE

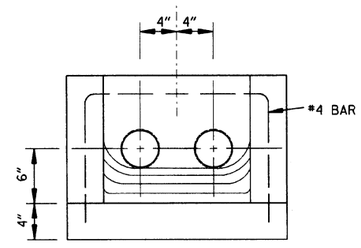


DETAIL OF RODENT SCREEN

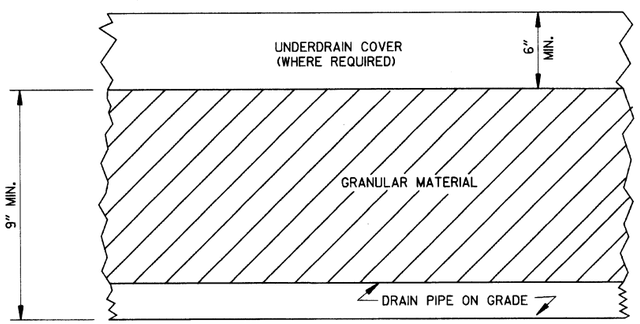




SIDE VIEW

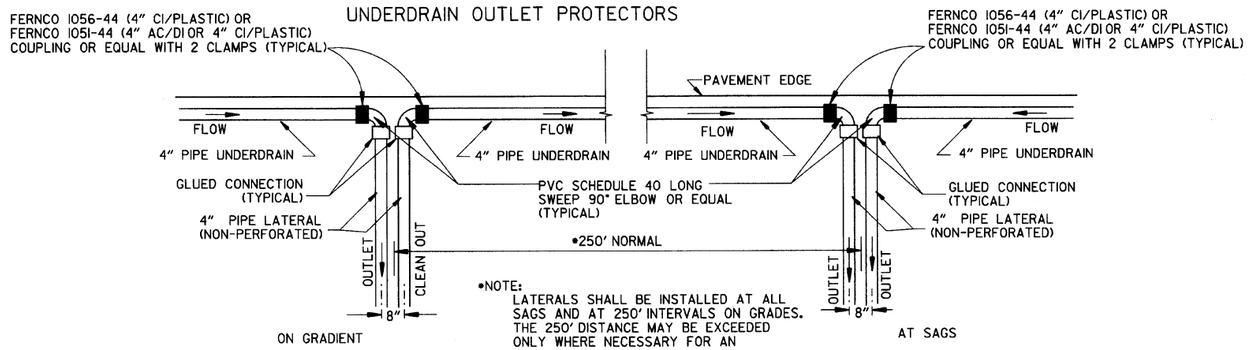


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



•NOTE:
LATERALS SHALL BE INSTALLED AT ALL SAGS AND AT 250' INTERVALS ON GRADES. THE 250' DISTANCE MAY BE EXCEEDED ONLY WHERE NECESSARY FOR AN ACCEPTABLE OUTLET.

DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

DATE	REVISION	DATE FILMED
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

7-20-95 INSTD.PUI

SUPERELEVATION TABLE FOR ONE - 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	65 MPH e	65 MPH Ls (FT) MINIMUM	65 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.			N. C.		
0° 30′	N. C.			N. C.			N. C.			N. C.			N. C.			N. C.			N. C.		
0° 45′	N. C.			N. C.			N. C.			N. C.			N. C.			N. C.			N. C.		
1° 00′	N. C.			N. C.			R. C.			0.022			0.023			0.025			0.028		
1° 15′	N. C.			R. C.			0.021			0.026			0.030			0.033	250		0.037	275	
1° 30′	N. C.			R. C.			0.026			0.032			0.037	250		0.041		350	0.046		350
1° 45′	N. C.			0.021			0.031	200		0.037	225		0.043		350	0.048			0.054		
2° 00′	R. C.			0.025	175		0.036			0.043			0.049			0.055			0.062		
2° 15′	R. C.			0.028			0.040		300	0.048			0.055			0.061	265		0.070		
2° 30′	0.021			0.031			0.045			0.053			0.061			0.067	280		0.078	300	
2° 45′	0.023			0.034			0.049			0.058			0.067			0.075	280		0.085	315	400
3° 00′	0.025			0.037			0.053			0.063			0.072			0.081	300		0.091	335	
3° 15′	0.027	150		0.040		250	0.057			0.067	230		0.077	260		0.087	315		0.096	350	
3° 30′	0.029			0.043			0.061			0.072	245		0.082	275		0.090	325		0.098	360	450
3° 45′	0.031			0.046			0.065	205		0.076	255		0.086	285		0.095	340	400	0.100	370	
4° 00′	0.033			0.049			0.069	215		0.080	265		0.090	295	400	0.099	345				
4° 30′	0.037			0.055			0.078	225		0.087	270		0.097	305							
5° 00′	0.040			0.061			0.083	250		0.091	295		0.098	320							
5° 30′	0.043			0.066	185		0.088	260		0.094	300	400									
6° 00′	0.046			0.070	190		0.092	270		0.096	305										
6° 30′	0.050			0.074	200		0.095	280	350	0.100	315										
7° 00′	0.053			0.078	210		0.098	285													
7° 30′	0.056			0.081	215		0.099	290													
8° 00′	0.058			0.084	220		0.100	290													
8° 30′	0.061			0.087	225	300															
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	300																		
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 = 4° 15′ | D MAX = 3° 30′

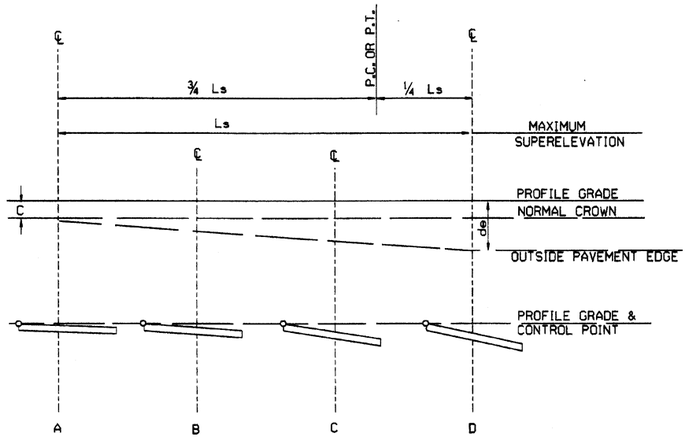
GENERAL NOTES

1. ON PAVEMENT WITH ONE-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE PROFILE GRADE POINT.
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR Ls MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. MINIMUM Ls VALUES MAY BE USED FOR RAMPS; DESIRABLE VALUES SHALL APPLY TO MAIN LANES.
5. DIVIDED PAVEMENTS WIDER THAN 4 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLOWS:

6 LANE DIVIDED---------+20%
8 LANE DIVIDED---------+50%

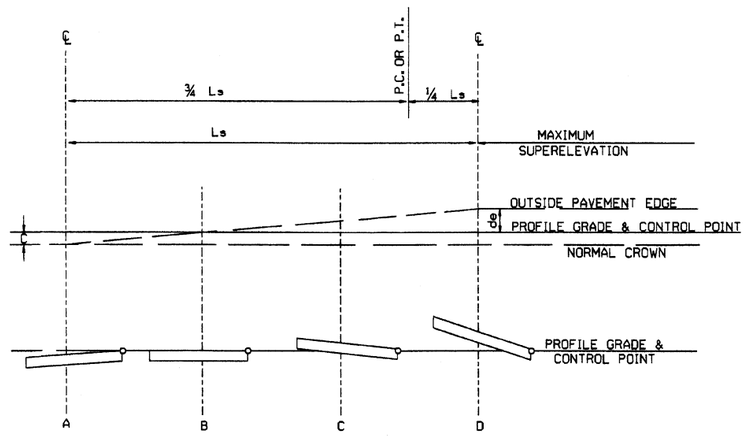
ABBREVIATIONS

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



ONE-WAY TRAFFIC
INSIDE LANE

SUPERELEVATION FORMULA = $S = -\frac{L(de-C)}{Ls} - C$



ONE-WAY TRAFFIC
OUTSIDE LANE

SUPERELEVATION FORMULA = $S = +\frac{L(de+C)}{Ls} - C$

DATE	REVISION	DATE FILMED
01-09-87	ISSUED	578-1-15-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR ONE-WAY TRAFFIC

STANDARD DRAWING SE-1

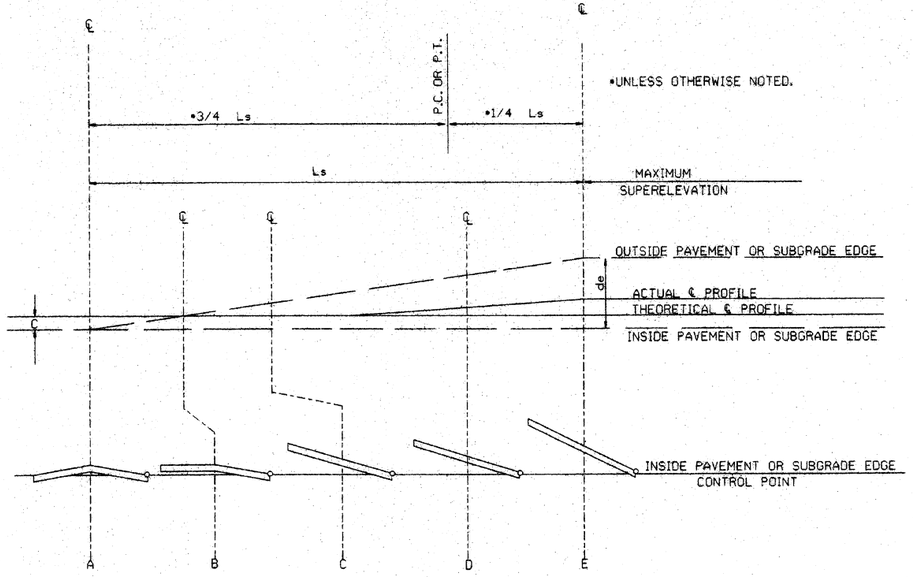
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH 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		
1° 15′	N.C.			R.C.			0.026			0.032			0.037			0.046		
1° 30′	N.C.			0.021			0.031			0.037			0.043			0.054		
1° 45′	N.C.			0.025			0.036			0.043			0.049			0.062		
2° 00′	R.C.			0.028			0.040			0.048			0.055			0.070		
2° 15′	R.C.			0.031			0.045			0.053			0.061			0.078		
2° 30′	0.021			0.034			0.049			0.058			0.067			0.085		
2° 45′	0.023			0.037			0.053			0.063			0.072			0.091		
3° 00′	0.025			0.040			0.057			0.067			0.077			0.098		
3° 15′	0.027	150		0.043			0.061			0.072			0.082			0.098		
3° 30′	0.029			0.046			0.065			0.076			0.086			0.100		
3° 45′	0.031		200	0.049			0.069			0.080			0.090					
4° 00′	0.033			0.051			0.072			0.083			0.093					
4° 30′	0.037			0.056			0.078			0.087			0.096					
5° 00′	0.040			0.061			0.083			0.091			0.098					
5° 30′	0.043			0.066	185		0.088			0.094								
6° 00′	0.046			0.070	190		0.092			0.096								
6° 30′	0.050			0.074	200		0.095			0.100								
7° 00′	0.053			0.078	210		0.098											
7° 30′	0.056			0.081	215		0.099											
8° 00′	0.058			0.084	220		0.100											
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.

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

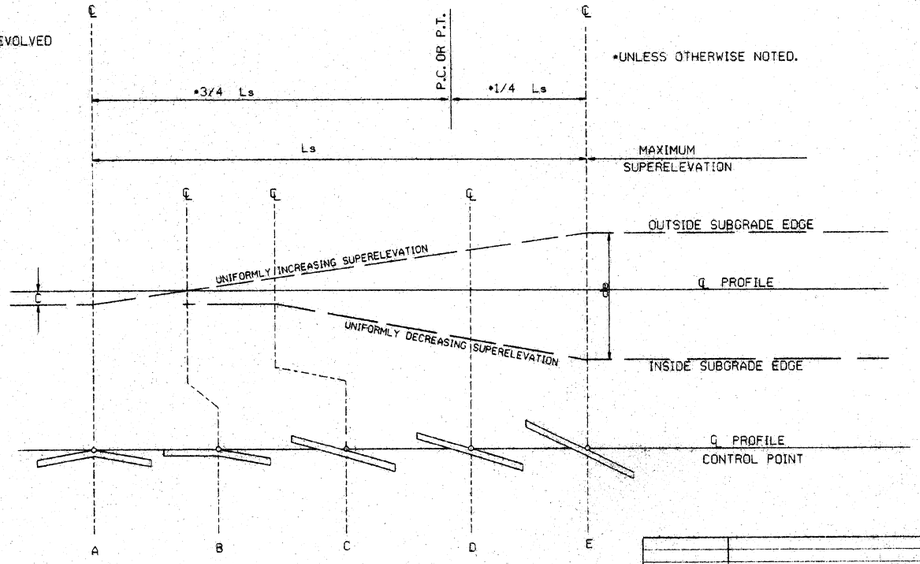
GENERAL NOTES

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

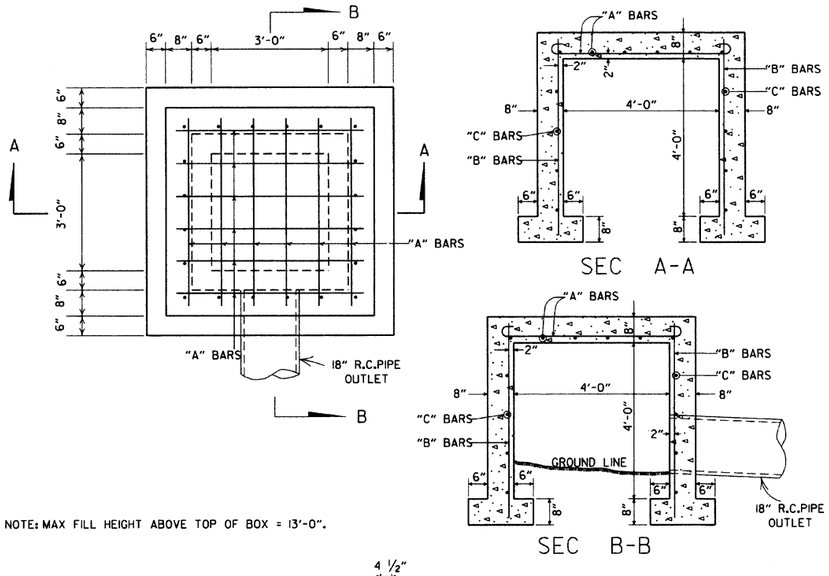
DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	12-12-96
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

FILE STDSE2.DGN

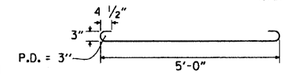


NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 ½"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS

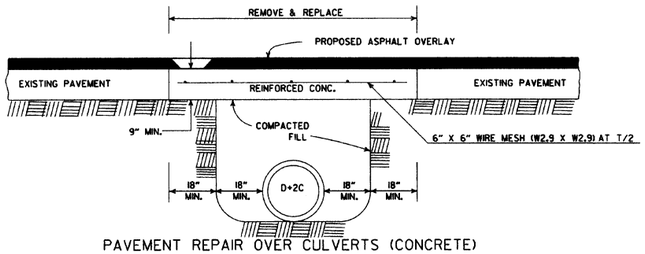


QUANTITIES

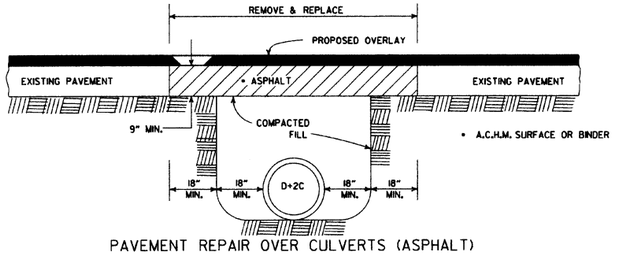
CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

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

REINFORCED CONCRETE SPRING BOX



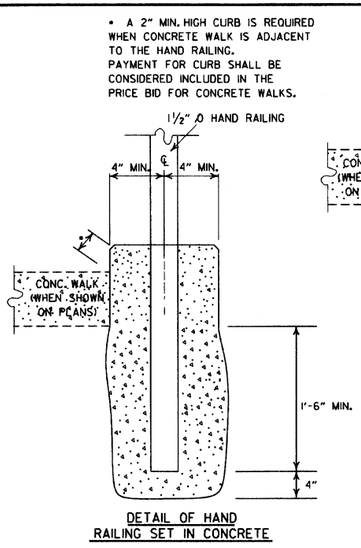
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



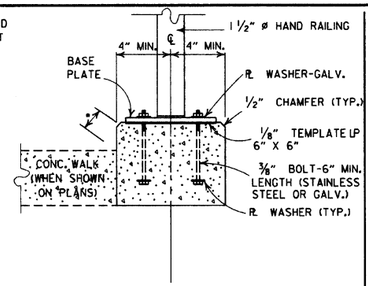
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

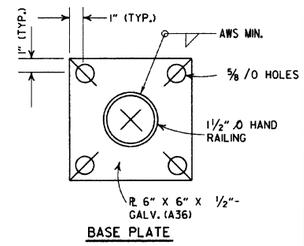
• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

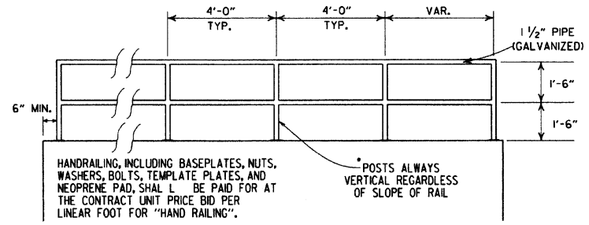


POST CONNECTION TO WALL

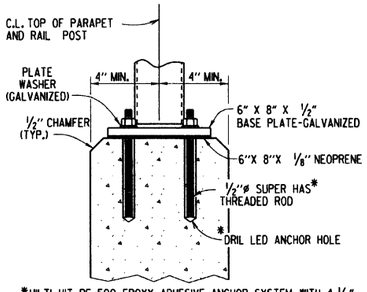


BASE PLATE

POST CONNECTION DETAILS



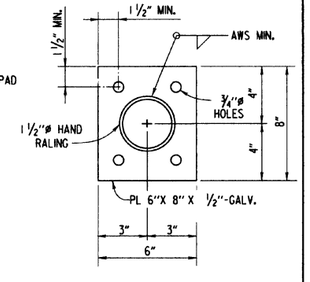
HAND RAILING SHALL CONFORM TO SECTION 633.



*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 ½" EMBEDMENT OR APPROVED EQUAL.

THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

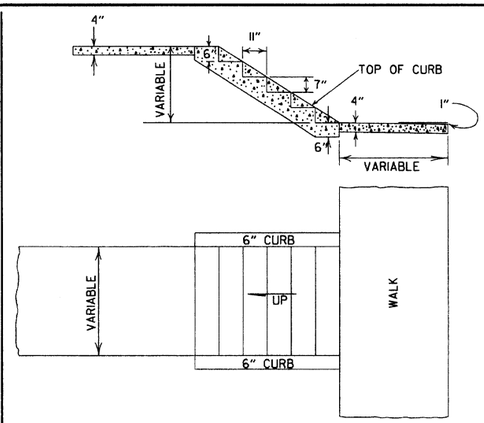
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

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

DETAILS OF CONCRETE STEPS & WALKS

DATE	REVISION	DATE FILMED
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE;REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET& PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI-1

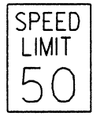
R1-1

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

R1-2

STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1



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

W3-5

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

W3-5a

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

R4-1

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

R4-2

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

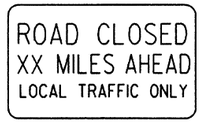
R5-1

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

R11-2

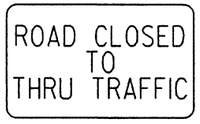
48"X30"

R11-3A



60"X30"

R11-4



60"X30"

RSP-1

48"X30"

W1-1

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

W1-2

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

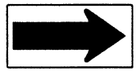
W1-3

STD. 48"X48"

W1-4

STD. 48"X48"

W1-6



STD. 48"X24"
SPECIAL 60"X30"

W1-8

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

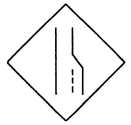
W3-1

STD. 36"X36"
SPECIAL 48"X48"

W3-2

STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

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

W9-2

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

W13-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

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

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

W1-4b

STD. 48"X48"

R56-1

STD. 18"X18"

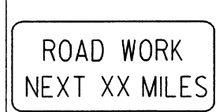
W8-11

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

W8-9

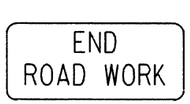
STD. 36"X36"
FWY. 48"X48"

G20-1



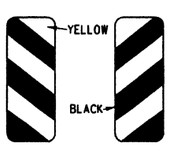
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

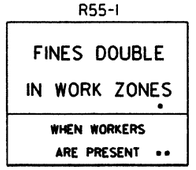
M4-9

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

M4-10

48"X18"

R55-1



36"X60"

• USE 6" C LETTERS
•• USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	½ MILE
1000 FT	¾ MILE
1500 FT	1 MILE
	AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
- 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
- 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.
8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

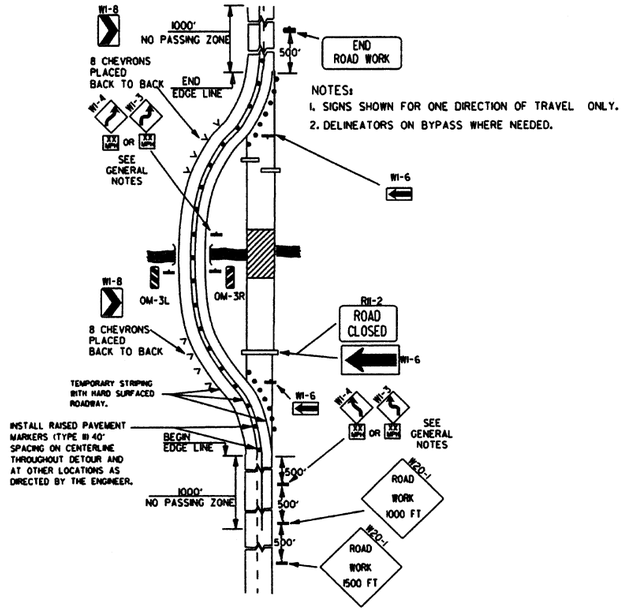
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

DATE	REVISION	FILMED
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
4-17-10	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	
8-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
8-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

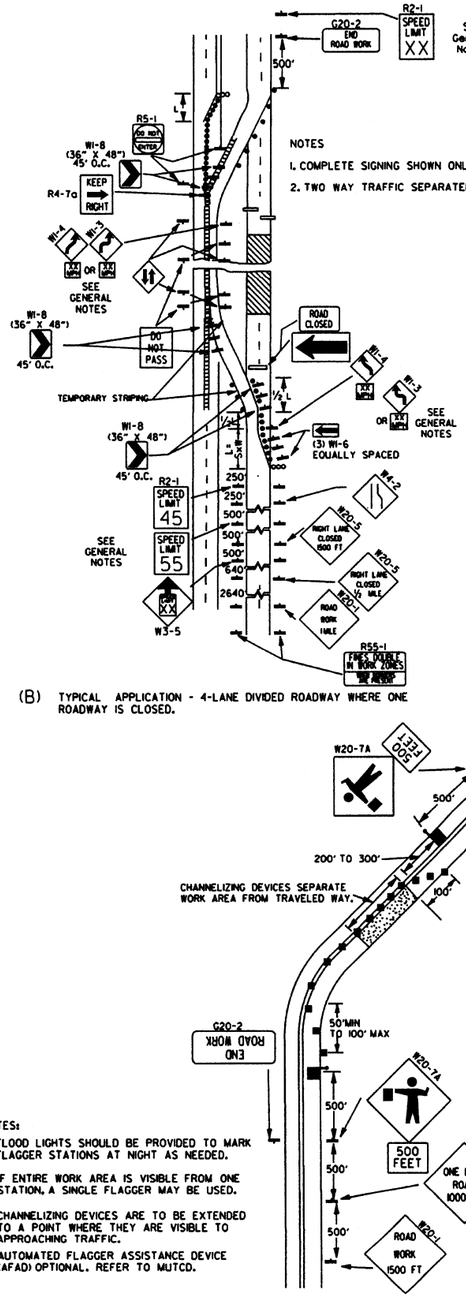
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



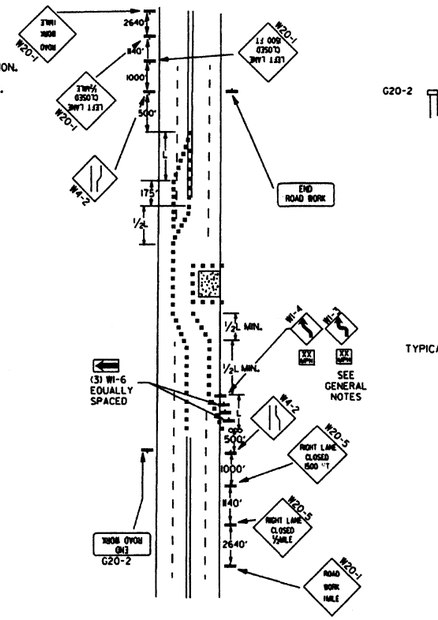
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

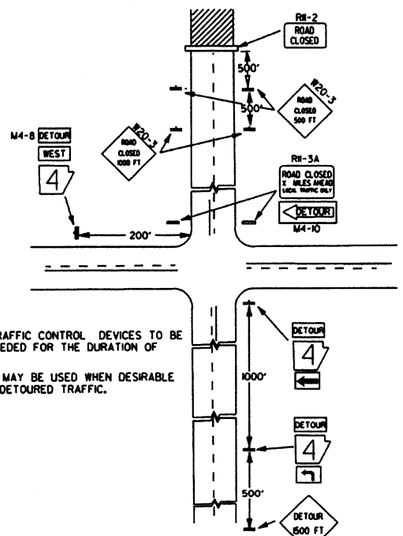


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.

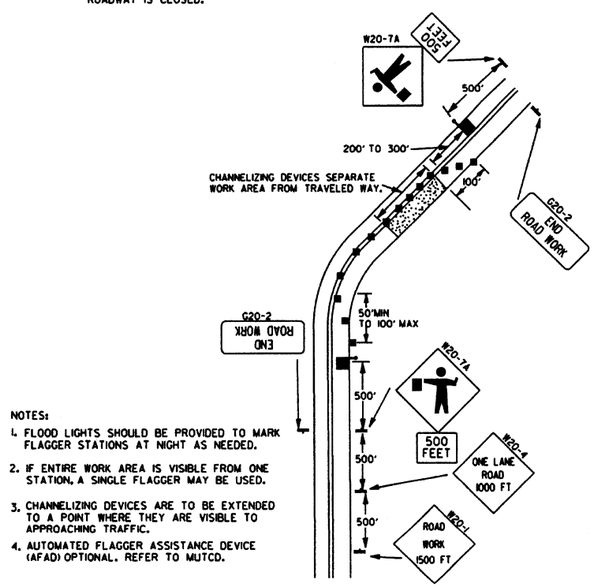


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



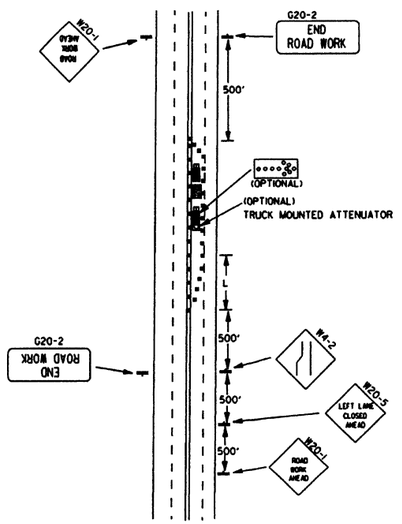
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.

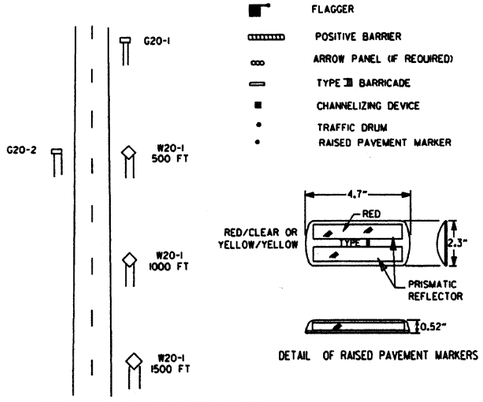


NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

GENERAL NOTES:

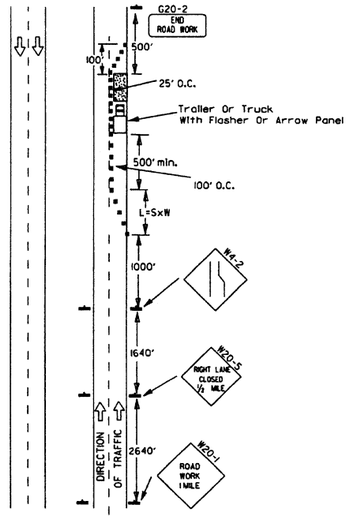
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-K55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(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-K45) 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-(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-8-10	ADDED (AFAD)	
8-20-08	REVISED SIGN DESIGNATIONS	
8-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

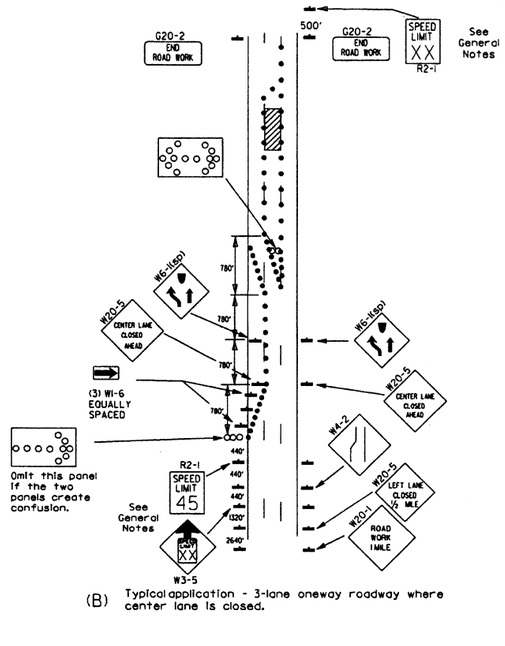
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-2



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



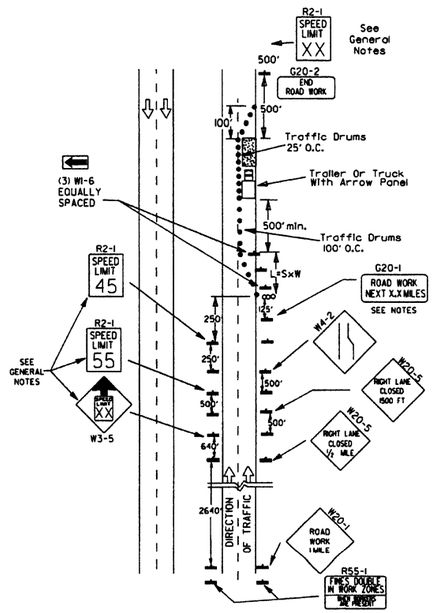
(B) Typical application - 3-lane oneway roadway where center lane is closed.

KEY:

- ○○○ Arrow Panel (If Required)
- ■ Channelizing Device
- ● Traffic drum

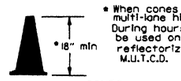
GENERAL NOTES:

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 W3-5 shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.



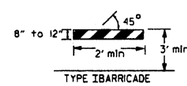
(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

Channelizing devices



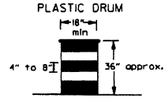
* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

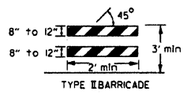
CONES



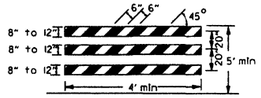
TYPE I BARRICADE

PLASTIC DRUM



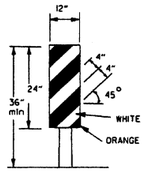


TYPE II BARRICADE



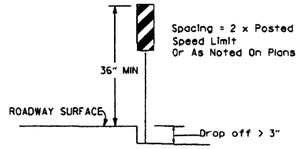
TYPE III BARRICADE

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



VERTICAL PANEL
VP-1R

VERTICAL PANEL PLACEMENT



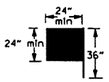
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

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-I 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.

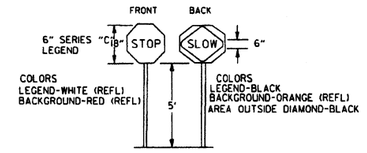
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

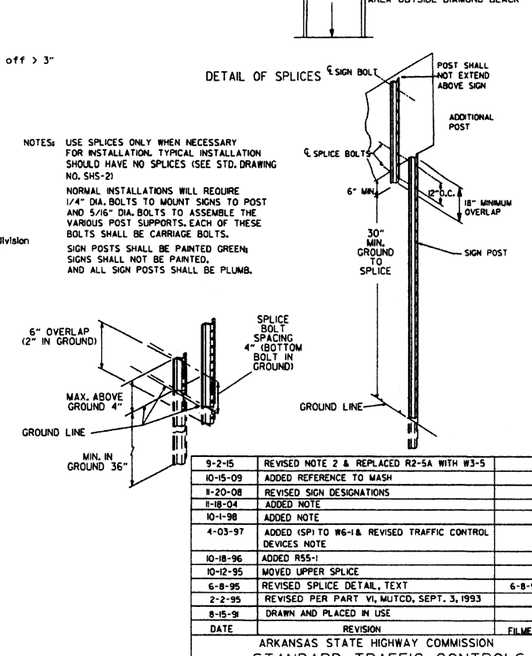
FLAG



Flag shall be of good grade red material

STOP SLOW PADDLE





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

NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.

DETAIL OF SPLICES

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

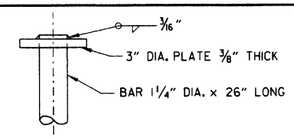
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

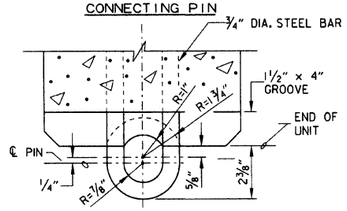
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT

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

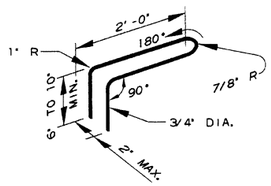


CONNECTING PIN

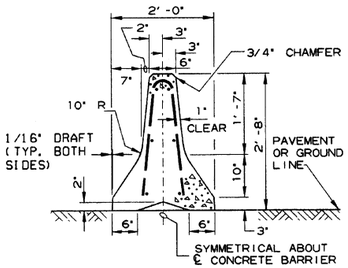


SECTION E-E

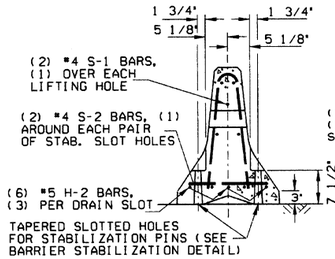
CONNECTION DETAILS



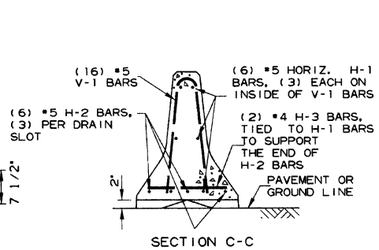
CONNECTION LOOP



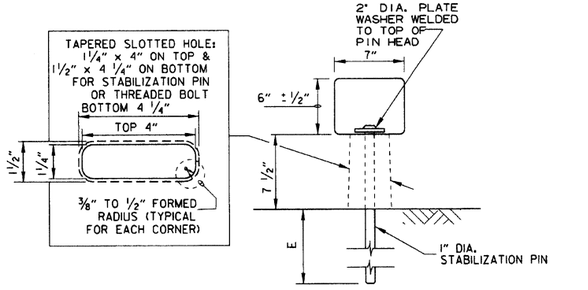
SECTION A-A



SECTION B-B



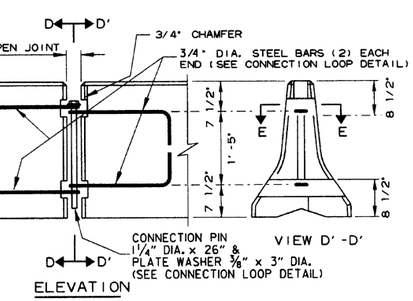
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

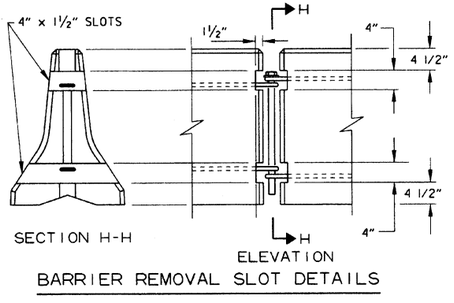
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



VIEW D-D

VIEW D'-D'

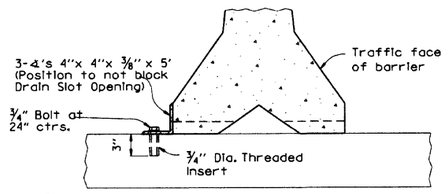
ELEVATION



SECTION H-H

ELEVATION

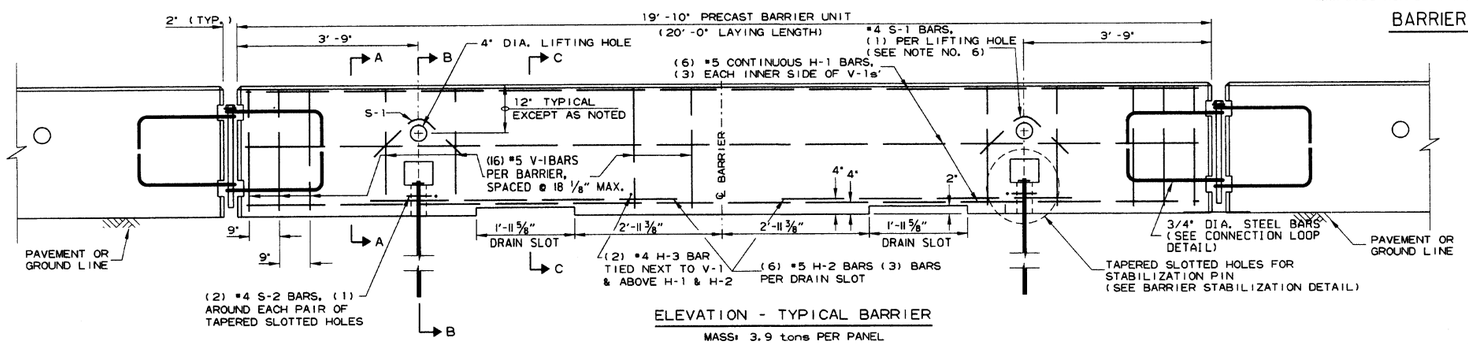
BARRIER REMOVAL SLOT DETAILS



NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

BARRIER STABILIZATION DETAIL

BRIDGE DECKS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

General Notes

1. The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.
2. Materials shall meet the following minimum requirements:
   Concrete: 2500 psi compressive strength at 28 days.
   Reinforcing Steel: AASHTO M 31 or M 53, Grade 60
   Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin.
   Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.

   In applications where barrier wall is within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers.
   Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices.
   Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.
3. Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.
4. Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.
5. Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.
6. A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

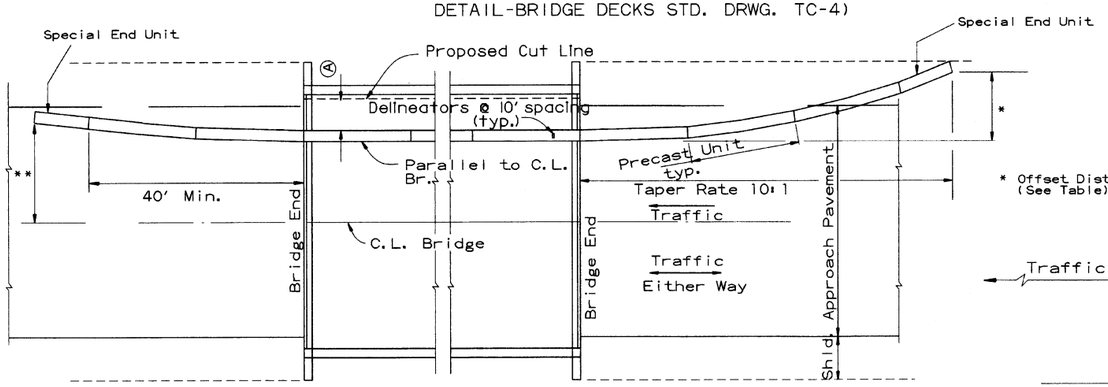
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

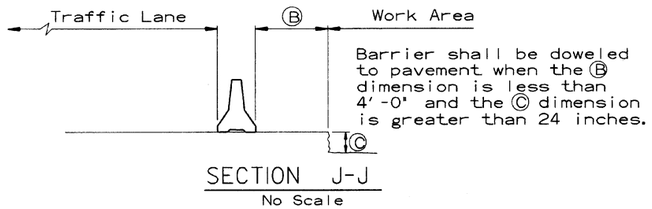
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

* Offset Distance (See Table)

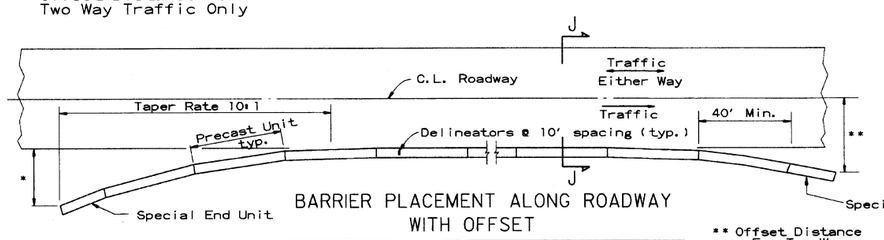


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

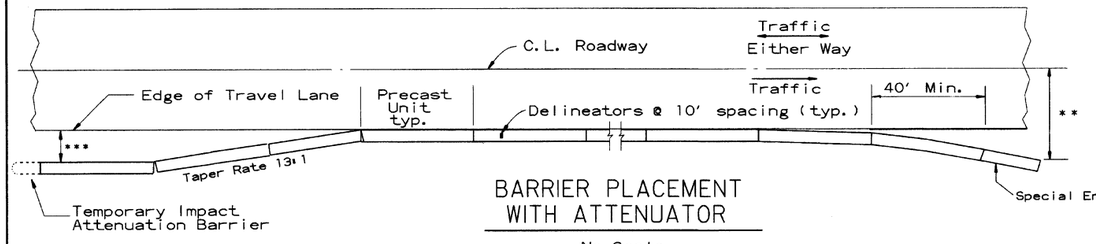
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

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

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

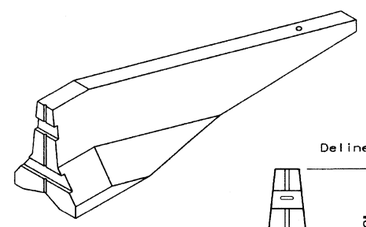


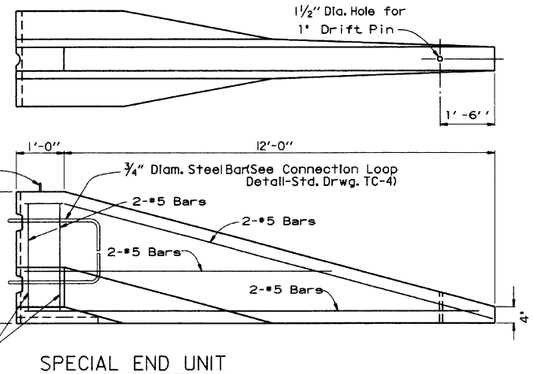
BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

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





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	

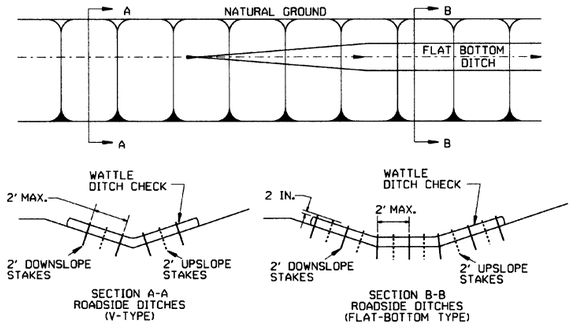
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

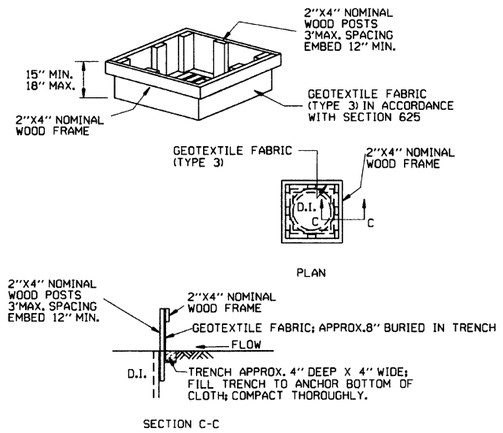
STANDARD DRAWING TC-5

GENERAL NOTES

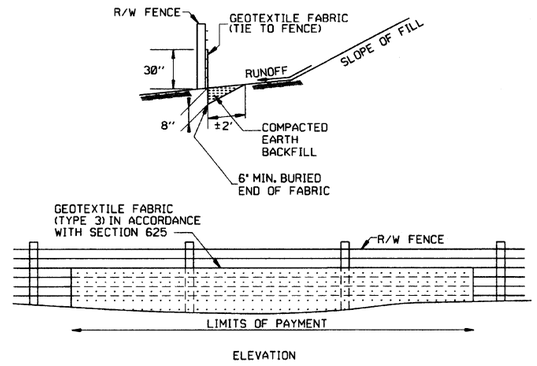
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



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

GENERAL NOTES

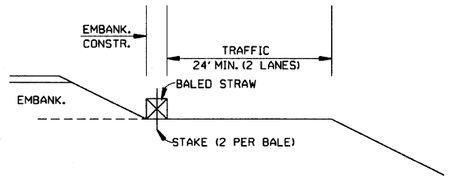
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

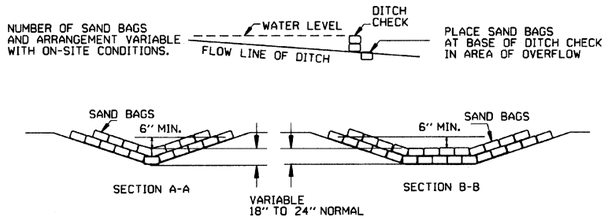
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

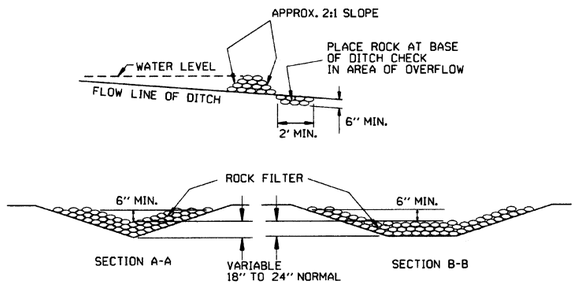
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



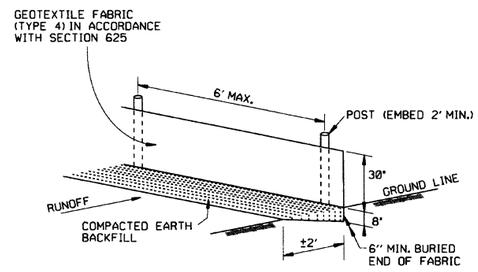
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

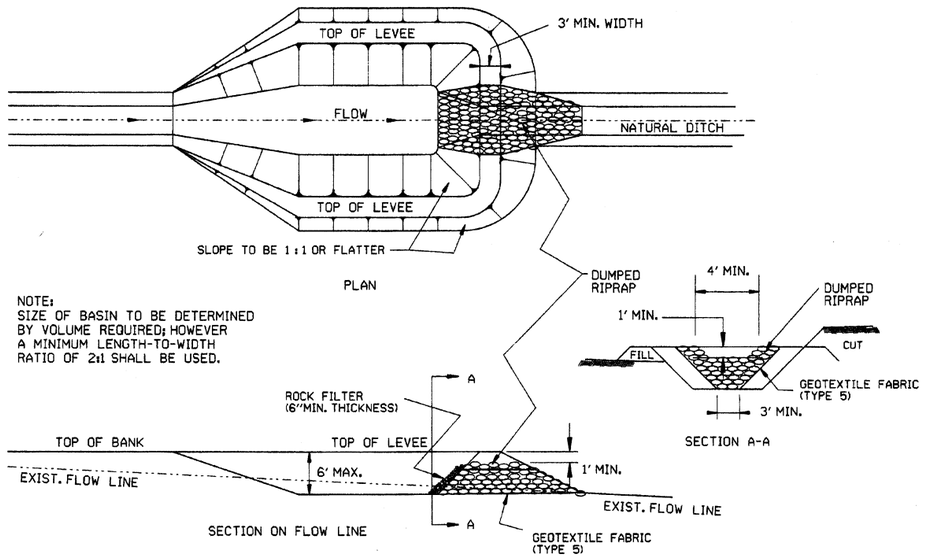
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

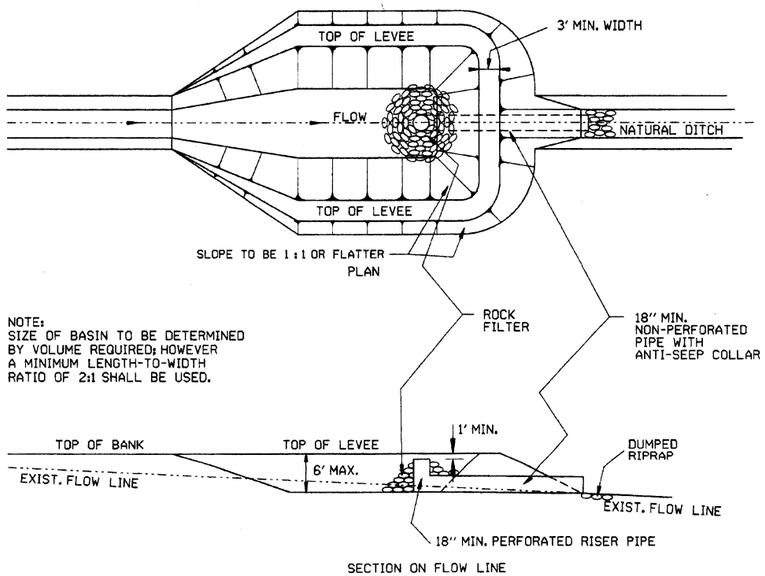
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

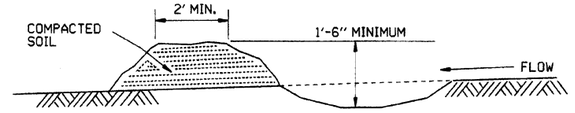
STANDARD DRAWING TEC-1



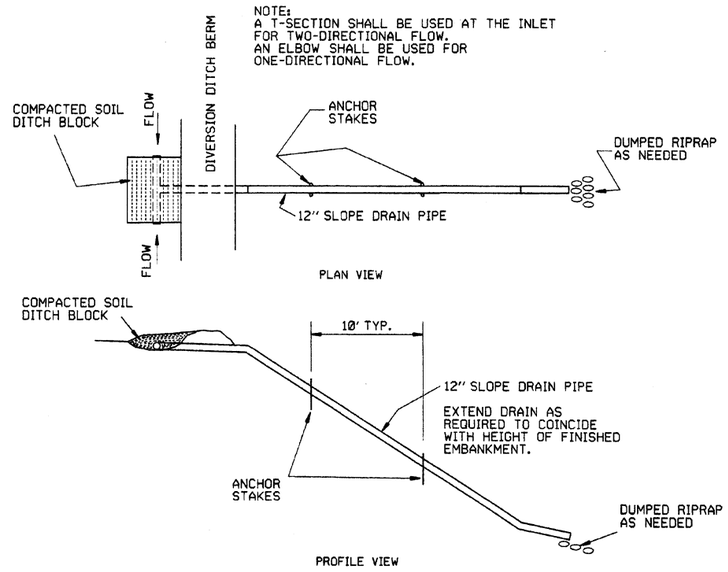
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



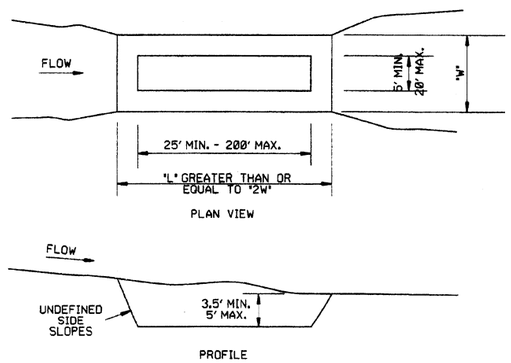
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

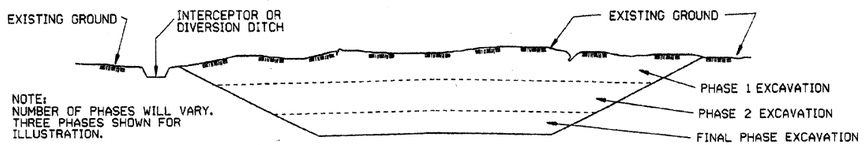
STANDARD DRAWING TEC-2

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



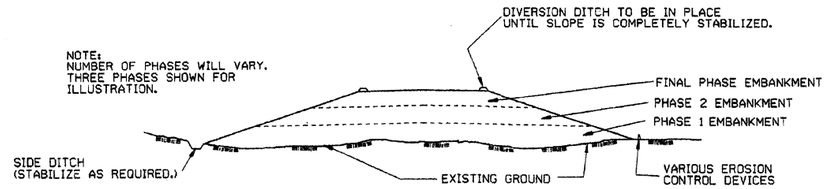
GENERAL NOTE

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

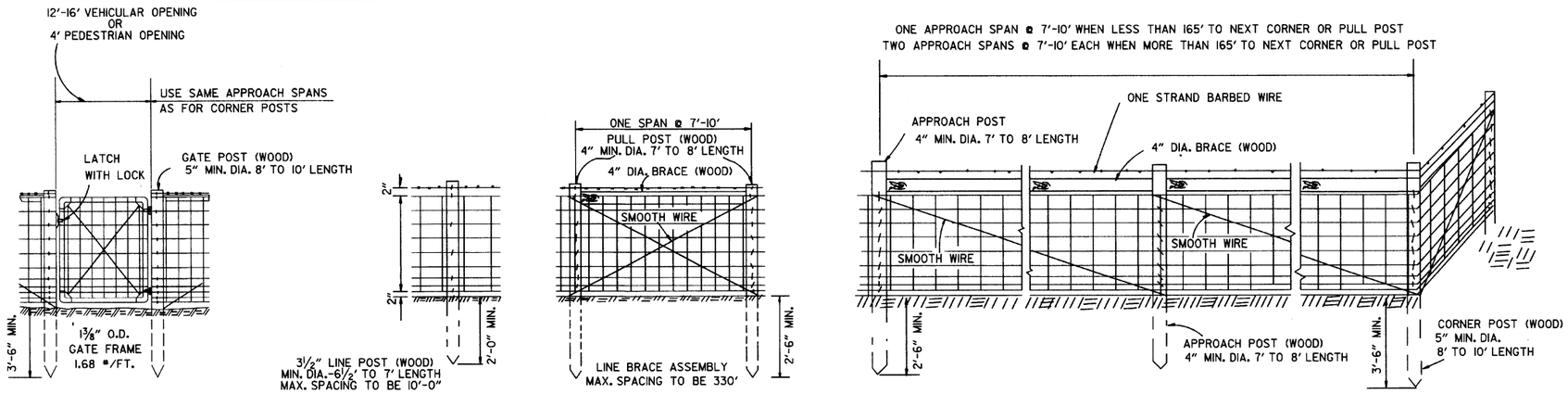
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD 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

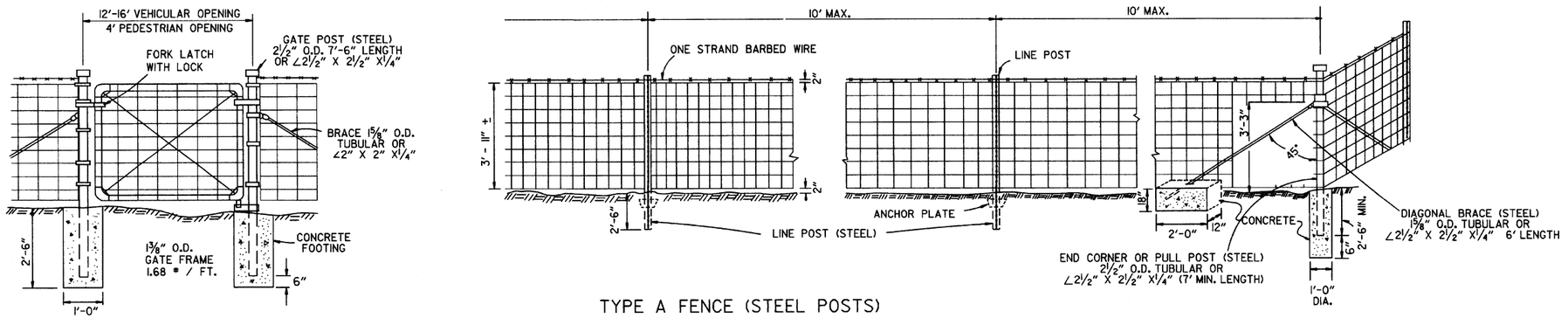
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

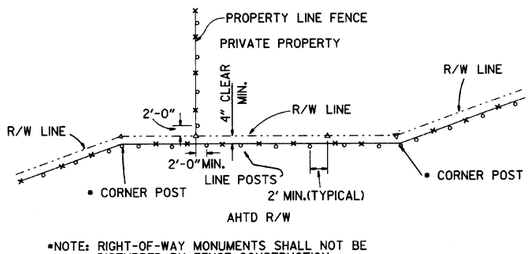


NOTE: STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE A FENCE (WOOD POSTS)



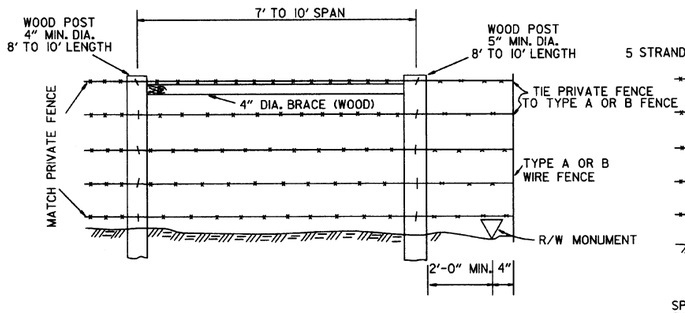
TYPE A FENCE (STEEL POSTS)



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

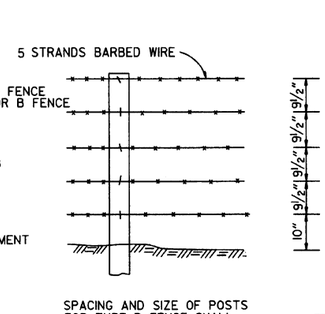
△ - R/W MONUMENTS
○ - FENCE POSTS

RIGHT-OF-WAY FENCE LOCATION



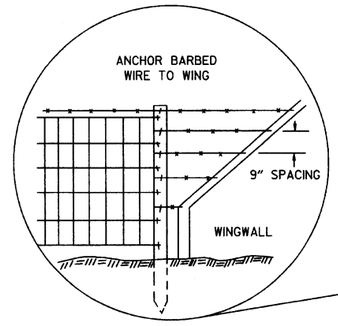
WHERE EXISTING PRIVATE FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN WITH TYPE A FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.

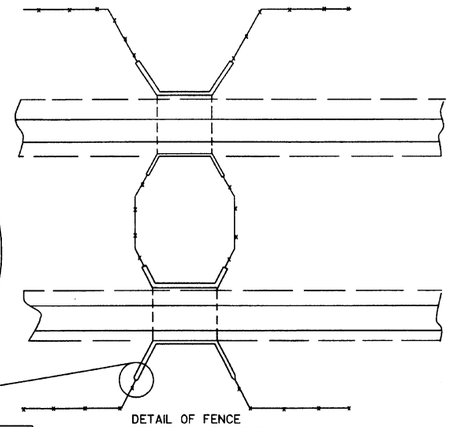
PRIVATE FENCE TERMINAL INSTALLATION



SPACING AND SIZE OF POSTS FOR TYPE B FENCE SHALL BE THE SAME AS TYPE A FENCE.

TYPE B FENCE





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

GENERAL NOTES:

STEEL LINE POSTS SHALL BE GALVANIZED, 7 FT. IN LENGTH.

TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK).

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

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

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

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

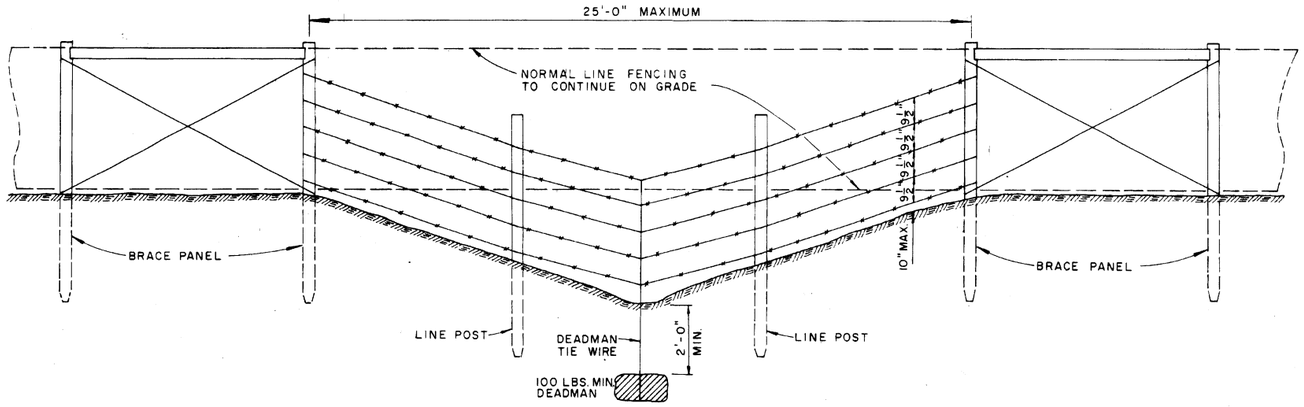
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD"; AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRE A MINIMUM OF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

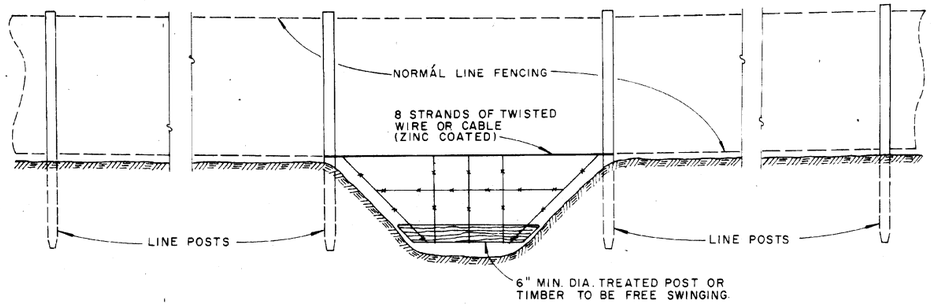
DATE	REVISION	DATE FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	ADDED CORNER POST NOTE	6-2-94
8-5-93	REVISED R-O-W LOCATION DETAIL	8-5-93
10-1-92	ADDED STAPLE NOTE	
8-2-90	REV'D PULL POST LENGTH	
11-30-89	DELETED CLASS CONC.	
7-15-88	ADDED SPLICE NOTES	
7-15-88	ADDED HEIGHT DIMENSION	
4-3-87	REVISED VARIOUS NOTES AND GENERAL NOTES	
11-1-84	MAX. POST SPACING	
1-4-83	MIN. DIA. LINE POST	
10-2-72	REVISED & REDRAWN	

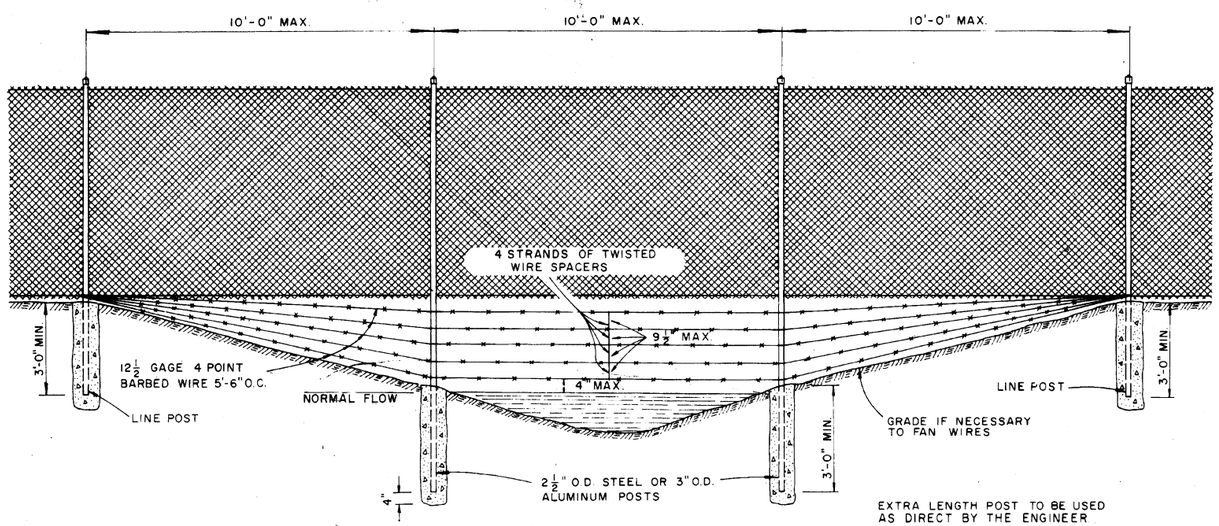
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE A AND B

STANDARD DRAWING WF-1







GENERAL NOTES:

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

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

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

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

4-20-79	REVISED TOP RAIL & TENSION WIRE	696-4-20-79
10-2-72	REVISED & REDRAWN	529 10-2-72
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE WATER GAPS

STANDARD DRAWING

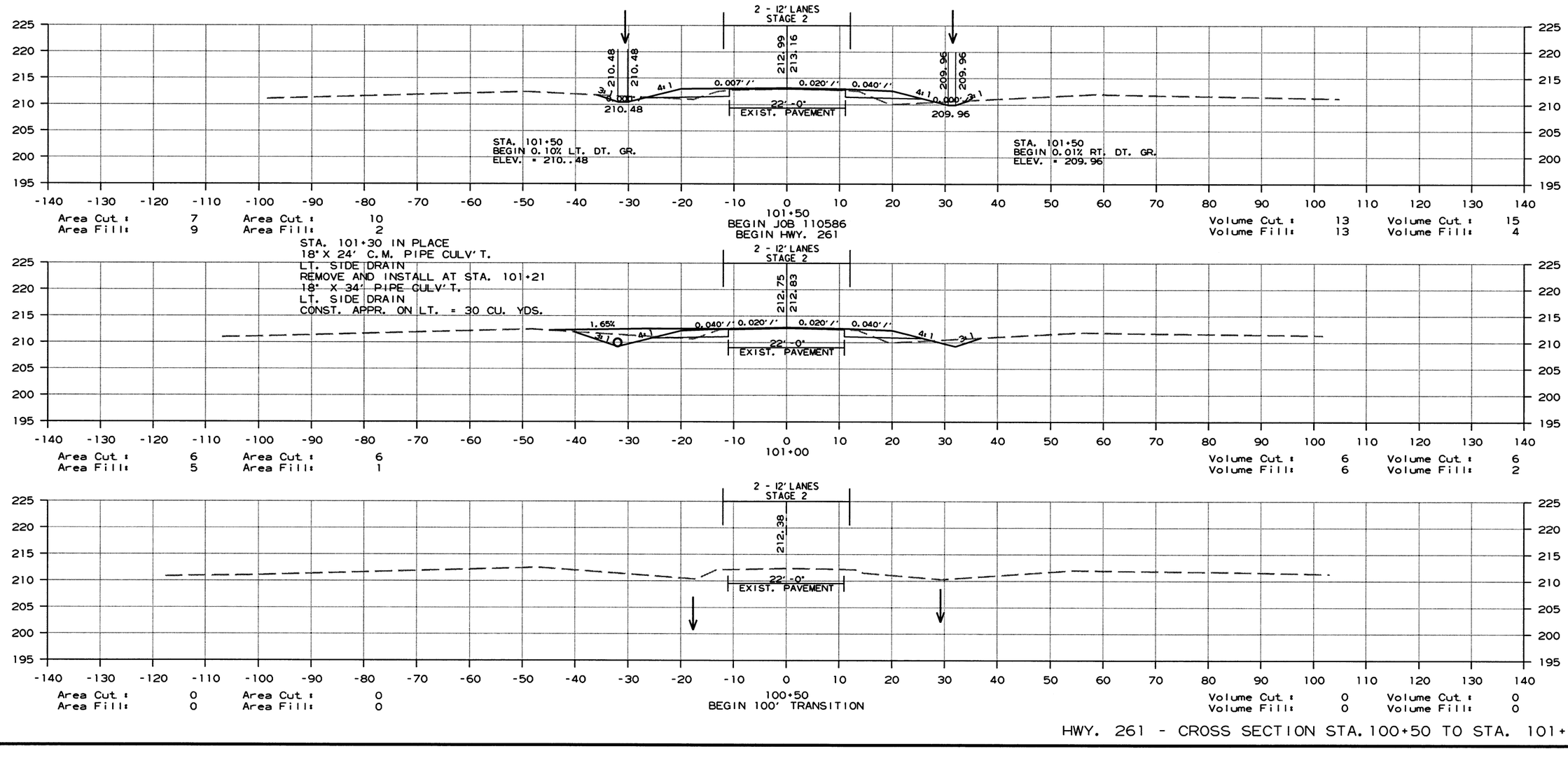
WF-2

73

1M—11-71—67001—PP&SC

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	103	130
				(2) CROSS SECTIONS				

STAGE 1 STAGE 2 STAGE 1 STAGE 2



HWY. 261 - CROSS SECTION STA. 100+50 TO STA. 101+50

9/27/2016

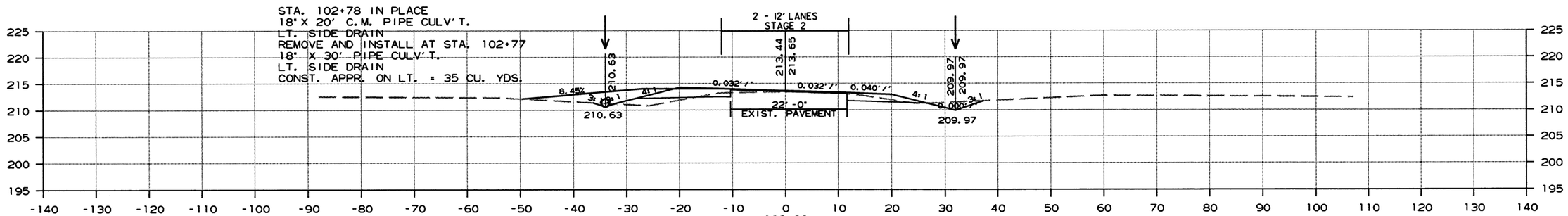
R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	104	130

(2) CROSS SECTIONS

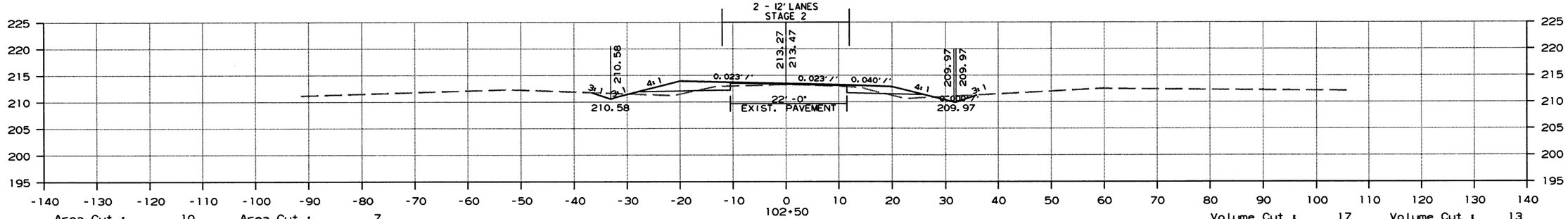
STAGE 1 STAGE 2 STAGE 1 STAGE 2

STA. 102+78 IN PLACE
18" X 20' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL AT STA. 102+77
18" X 30' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. ON LT. = 35 CU. YDS.



Area Cut : 16 Area Cut : 5
Area Fill: 0 Area Fill: 12

Volume Cut : 24 Volume Cut : 11
Volume Fill: 4 Volume Fill: 19

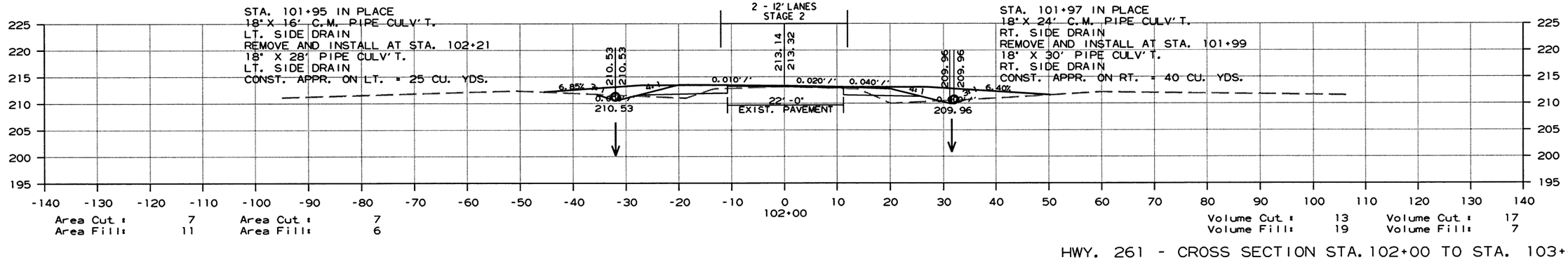


Area Cut : 10 Area Cut : 7
Area Fill: 4 Area Fill: 7

Volume Cut : 17 Volume Cut : 13
Volume Fill: 15 Volume Fill: 13

STA. 101+95 IN PLACE
18" X 16' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL AT STA. 102+21
18" X 28' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. ON LT. = 25 CU. YDS.

STA. 101+97 IN PLACE
18" X 24' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL AT STA. 101+99
18" X 30' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 40 CU. YDS.



Area Cut : 7 Area Cut : 7
Area Fill: 11 Area Fill: 6

Volume Cut : 13 Volume Cut : 17
Volume Fill: 19 Volume Fill: 7

HWY. 261 - CROSS SECTION STA. 102+00 TO STA. 103+00

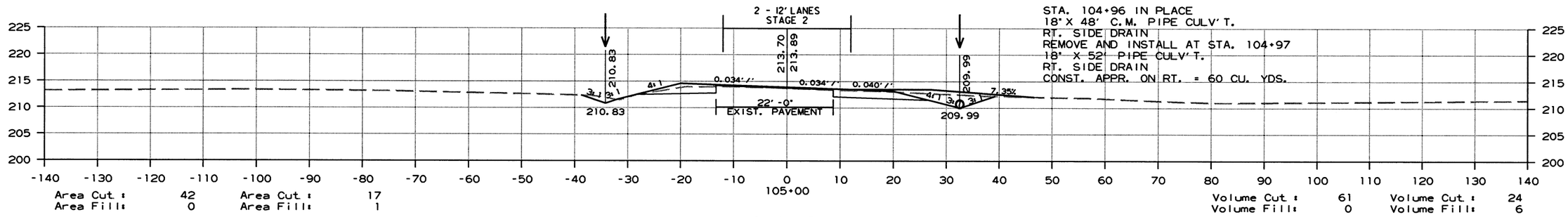
9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	105	130

(2) CROSS SECTIONS

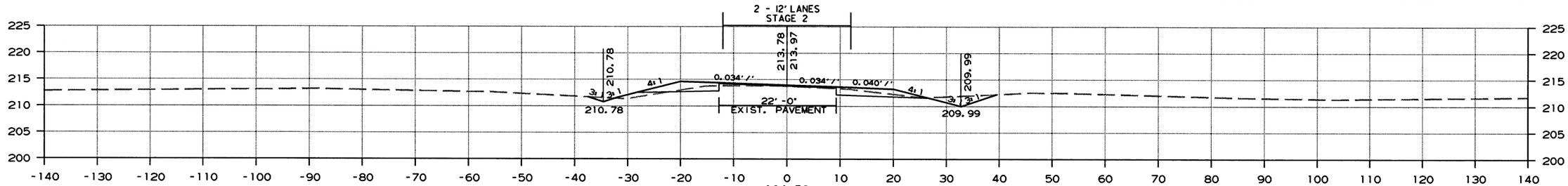
STAGE 1 STAGE 2 STAGE 1 STAGE 2



STA. 104+96 IN PLACE
18" X 48' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL AT STA. 104+97
18" X 52' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 60 CU. YDS.

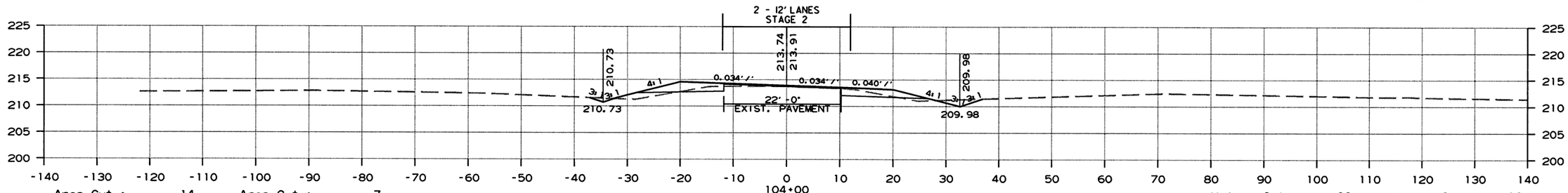
Area Cut : 42 Area Cut : 17
Area Fill: 0 Area Fill: 1

Volume Cut : 61 Volume Cut : 24
Volume Fill: 0 Volume Fill: 6



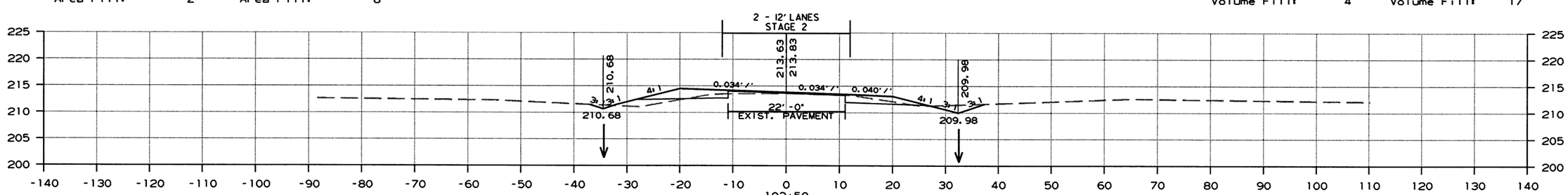
Area Cut : 24 Area Cut : 8
Area Fill: 0 Area Fill: 5

Volume Cut : 35 Volume Cut : 15
Volume Fill: 2 Volume Fill: 13



Area Cut : 14 Area Cut : 7
Area Fill: 2 Area Fill: 8

Volume Cut : 28 Volume Cut : 13
Volume Fill: 4 Volume Fill: 17



Area Cut : 16 Area Cut : 6
Area Fill: 1 Area Fill: 10

Volume Cut : 30 Volume Cut : 11
Volume Fill: 2 Volume Fill: 20

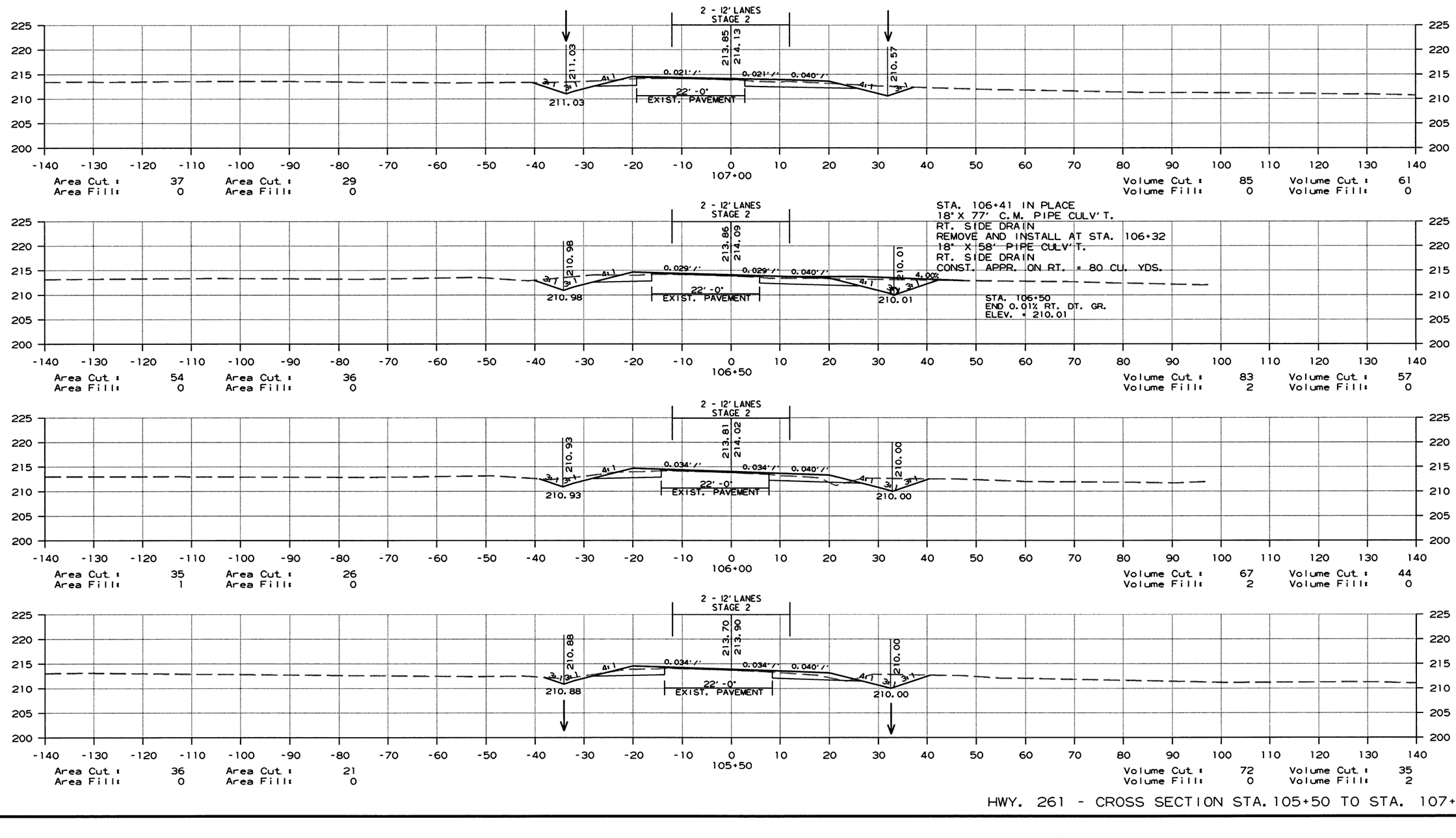
HWY. 261 - CROSS SECTION STA. 103+50 TO STA. 105+00

9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	106	130

(2) CROSS SECTIONS



HWY. 261 - CROSS SECTION STA. 105+50 TO STA. 107+00

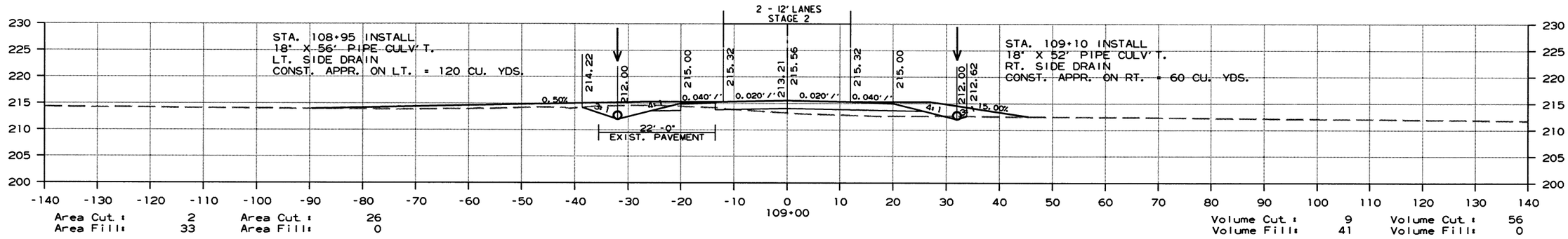
9/27/2016

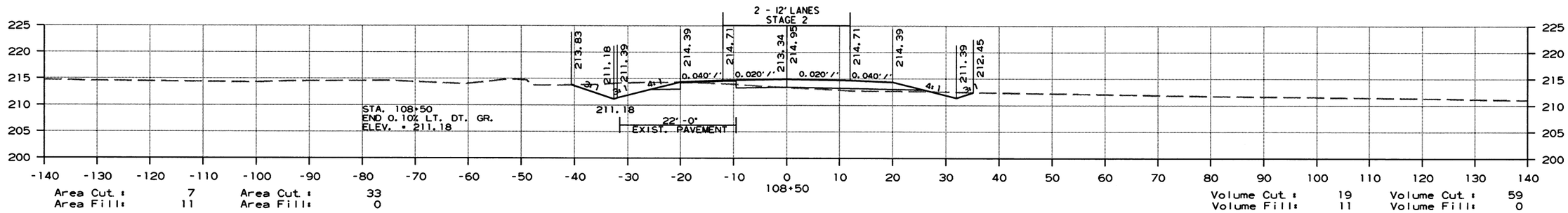
R110586.DGN

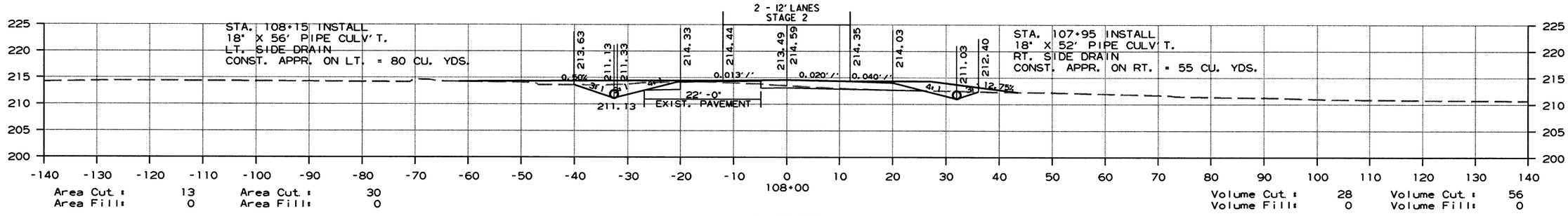
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	107	130

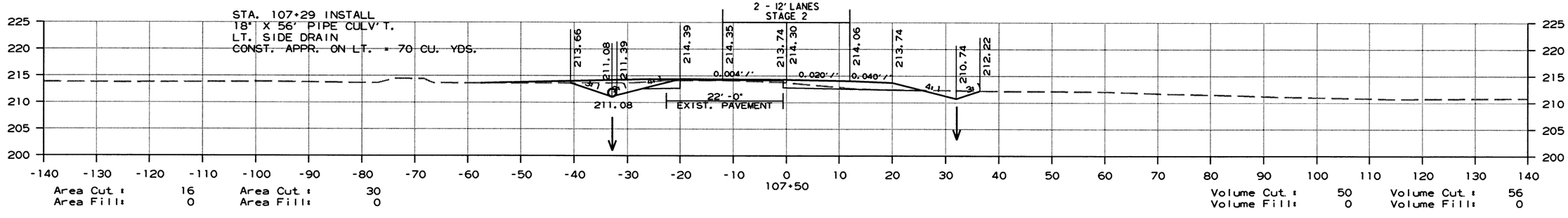
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 1 STAGE 2









HWY. 261 - CROSS SECTION STA. 107+50 TO STA. 109+00

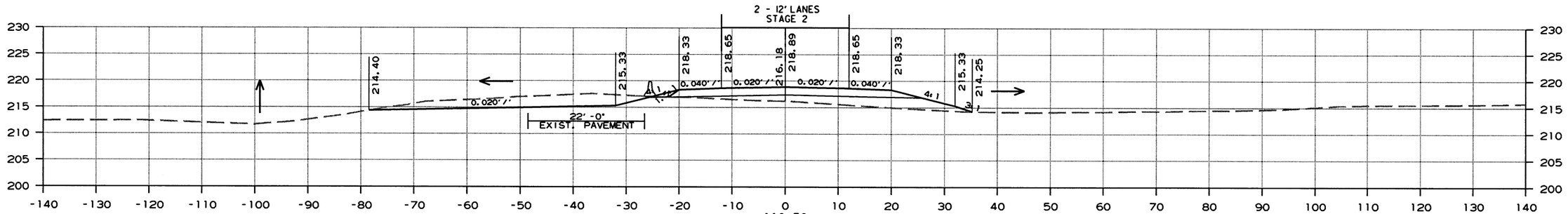
9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	108	130

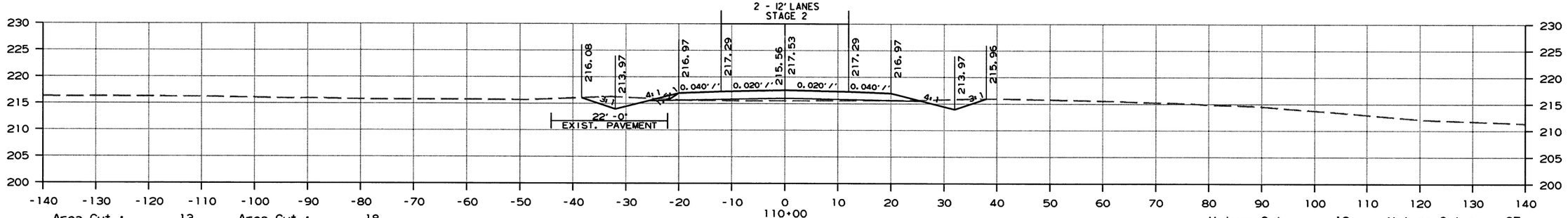
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 1 STAGE 2



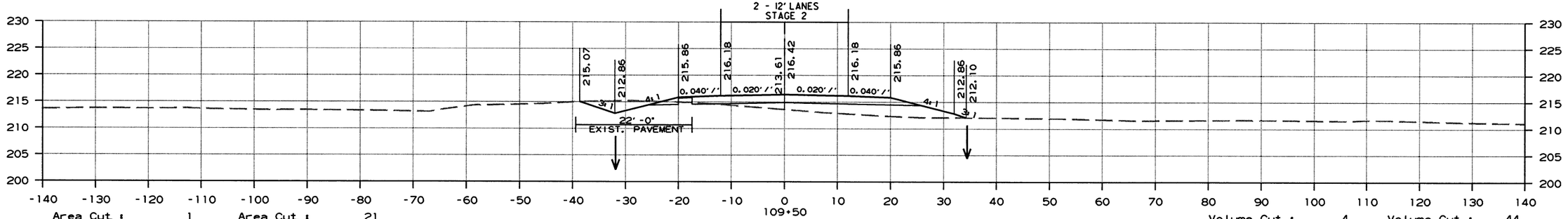
Area Cut : 0 Area Cut : 87
Area Fill: 70 Area Fill: 0

Volume Cut : 13 Volume Cut : 98
Volume Fill: 74 Volume Fill: 0



Area Cut : 13 Area Cut : 18
Area Fill: 9 Area Fill: 0

Volume Cut : 13 Volume Cut : 37
Volume Fill: 72 Volume Fill: 0



Area Cut : 1 Area Cut : 21
Area Fill: 68 Area Fill: 0

Volume Cut : 4 Volume Cut : 44
Volume Fill: 94 Volume Fill: 0

HWY. 261 - CROSS SECTION STA. 109+50 TO STA. 110+50

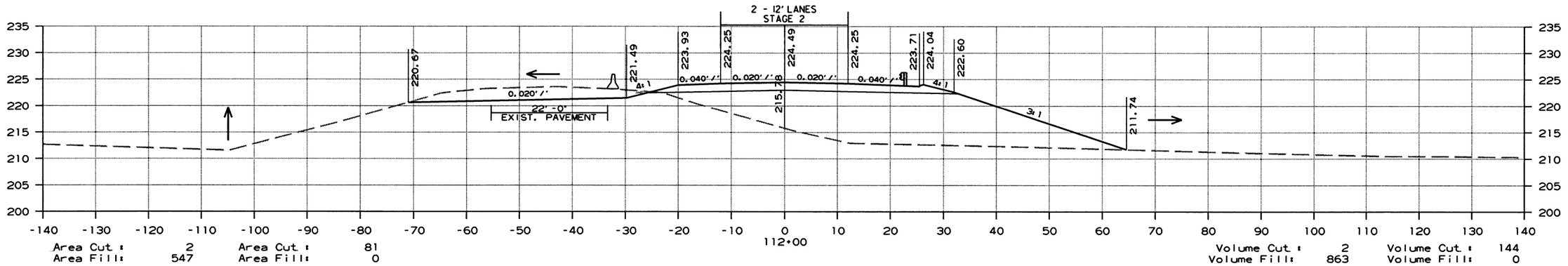
9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	109	130

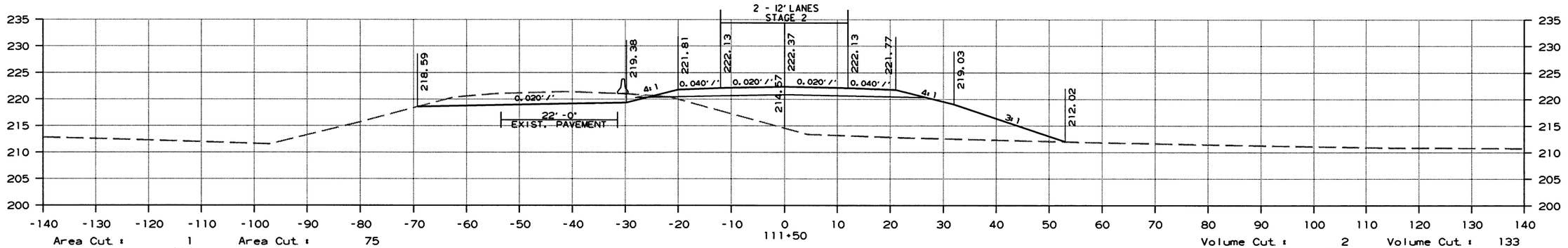
(2) CROSS SECTIONS

STAGE 1 STAGE 2



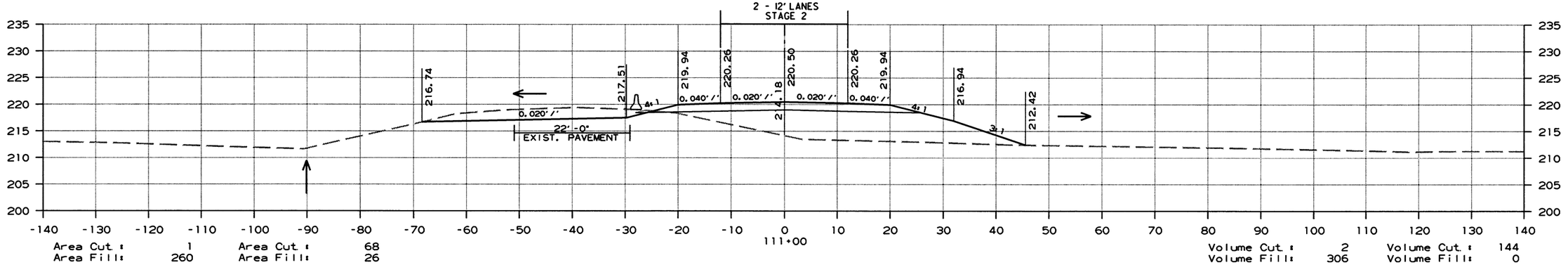
Area Cut : 2 Area Cut : 81
Area Fill: 547 Area Fill: 0

Volume Cut : 2 Volume Cut : 144
Volume Fill: 863 Volume Fill: 0



Area Cut : 1 Area Cut : 75
Area Fill: 385 Area Fill: 0

Volume Cut : 2 Volume Cut : 133
Volume Fill: 598 Volume Fill: 0



Area Cut : 1 Area Cut : 68
Area Fill: 260 Area Fill: 26

Volume Cut : 2 Volume Cut : 144
Volume Fill: 306 Volume Fill: 0

HWY. 261 - CROSS SECTION STA. 111+00 TO STA. 112+00

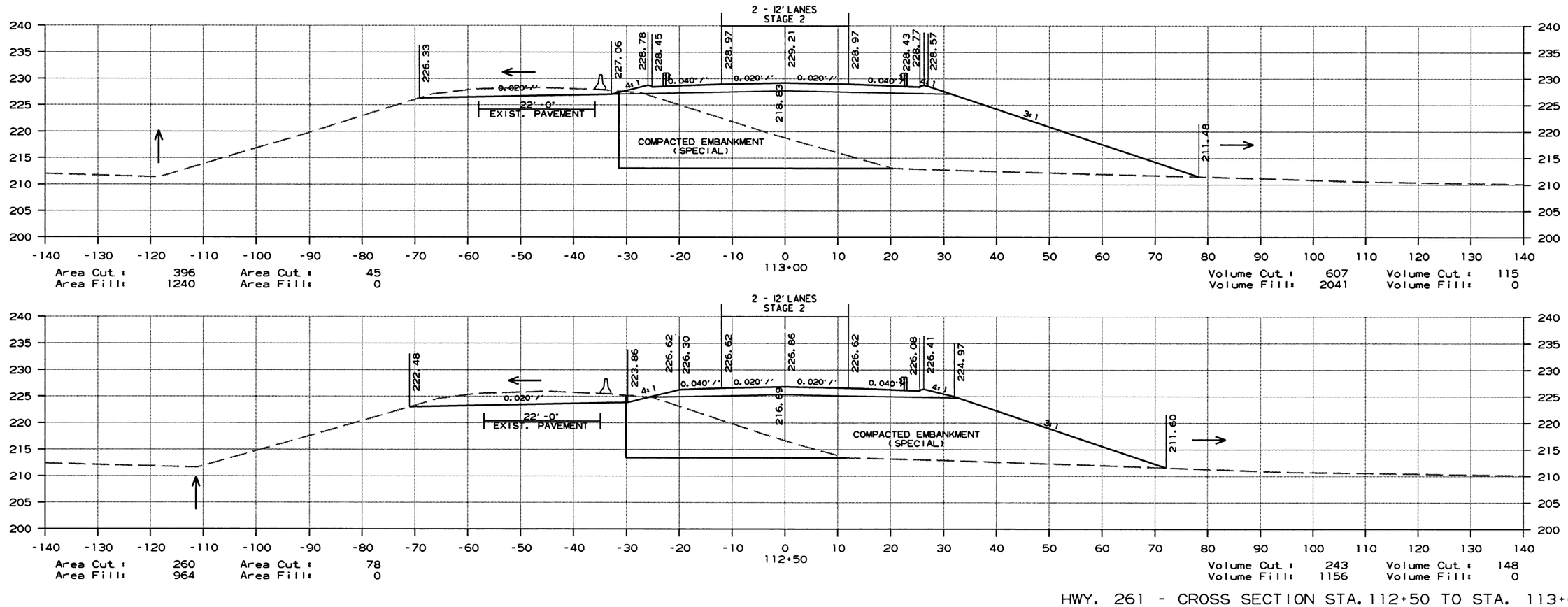
9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	110	130

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 1 STAGE 2



HWY. 261 - CROSS SECTION STA. 112+50 TO STA. 113+00

9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	111	130

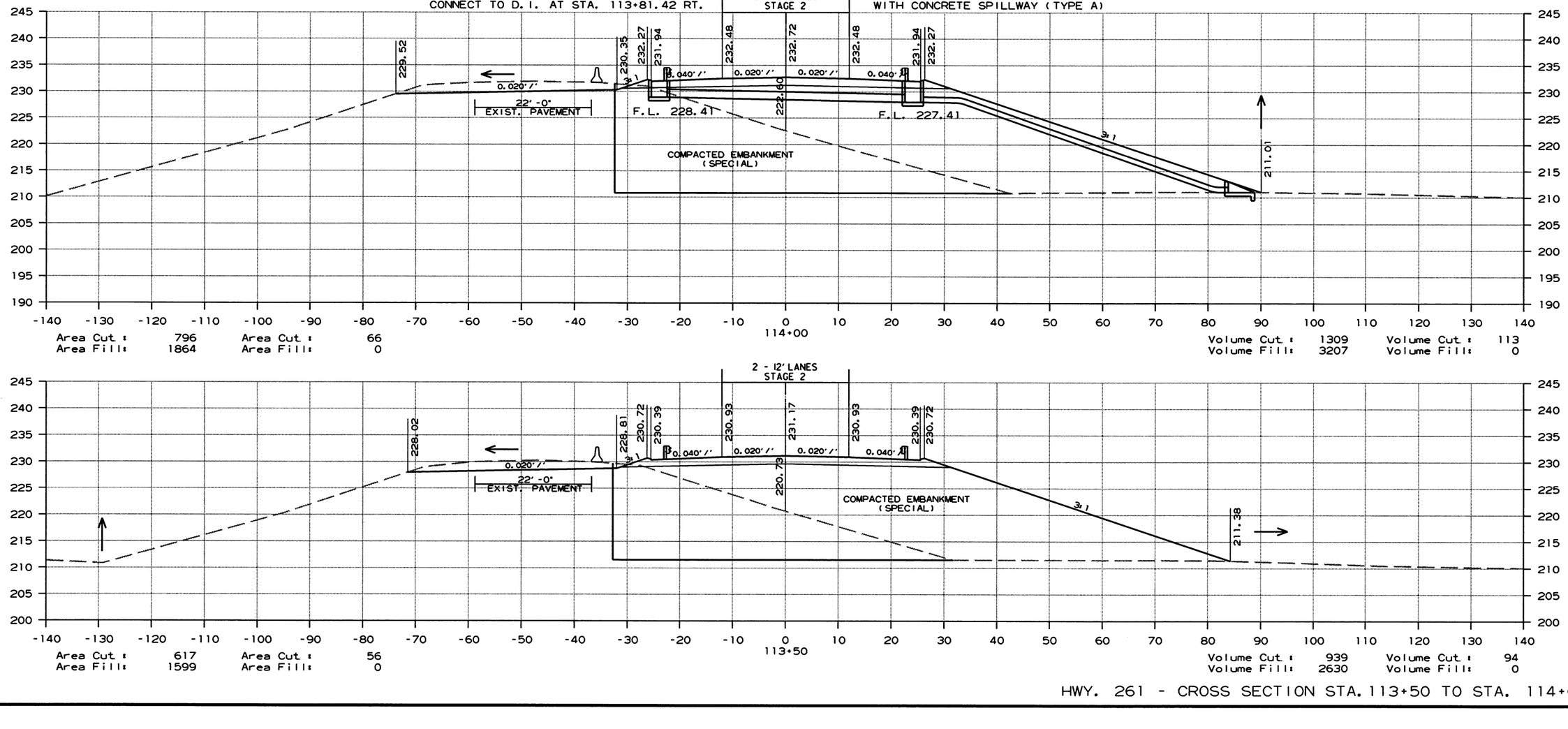
(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2

STA. 113+81.42 CONSTRUCT
TYPE N-2 DROP INLET LT.
H = 3'-0"
WITH 18" x 46' R.C. PIPE OUTLET
(CLASS III)(TYPE 3 BEDDING)
CONNECT TO D.I. AT STA. 113+81.42 RT.

STA. 113+81.42 CONSTRUCT
TYPE N-2 DROP INLET RT.
H = 4'-0"
WITH 12" x 62' C.M. PIPE OUTLET
WITH CONCRETE SPILLWAY (TYPE A)



Area Cut : 796 Area Cut : 66
Area Fill: 1864 Area Fill: 0

Volume Cut : 1309 Volume Cut : 113
Volume Fill: 3207 Volume Fill: 0

Area Cut : 617 Area Cut : 56
Area Fill: 1599 Area Fill: 0

Volume Cut : 939 Volume Cut : 94
Volume Fill: 2630 Volume Fill: 0

HWY. 261 - CROSS SECTION STA. 113+50 TO STA. 114+00

9/27/2016

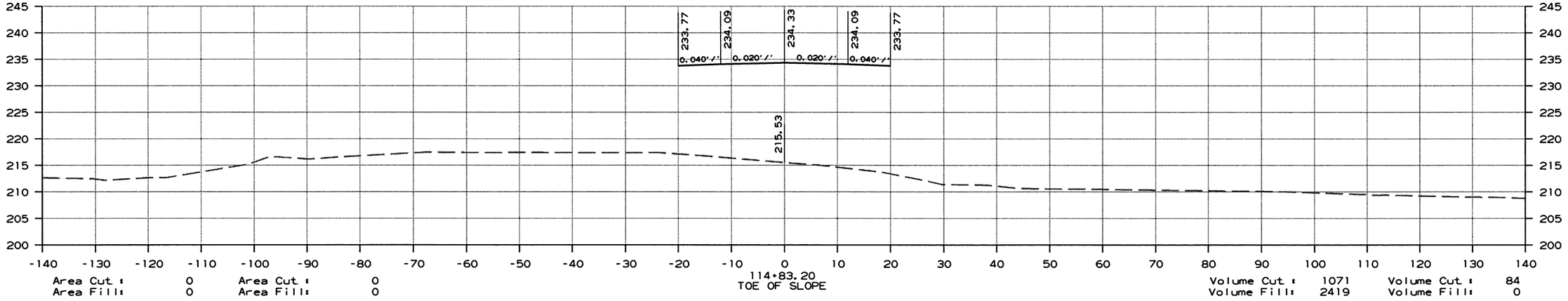
R110586.DGN

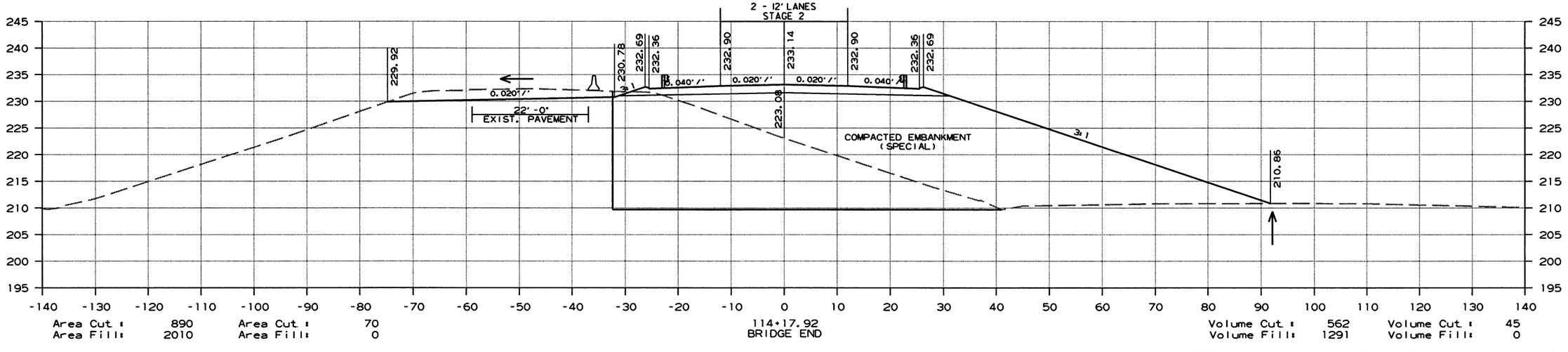
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	112	130

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2





HWY. 261 - CROSS SECTION STA. 114+17.92 TO STA. 114+83.20

9/27/2016

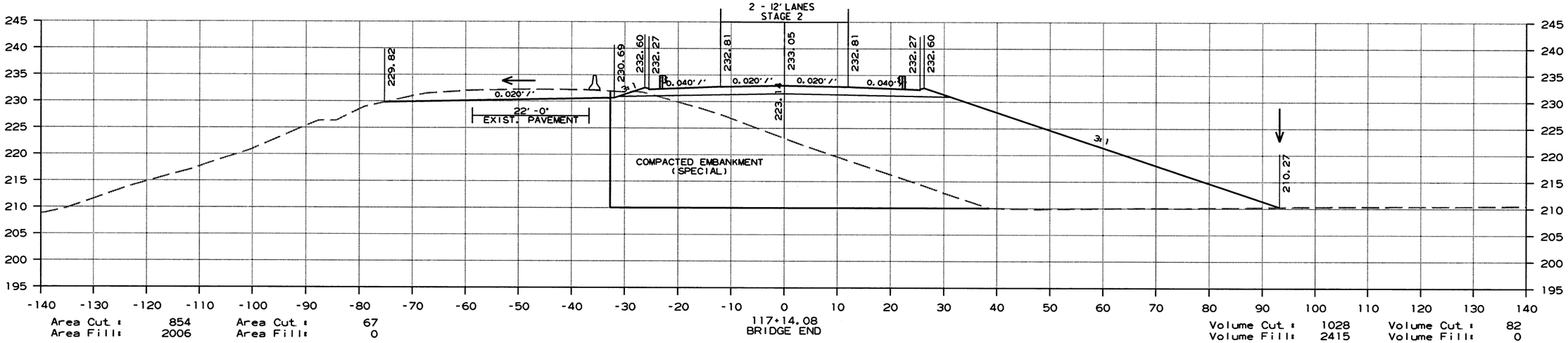
R110586.DGN

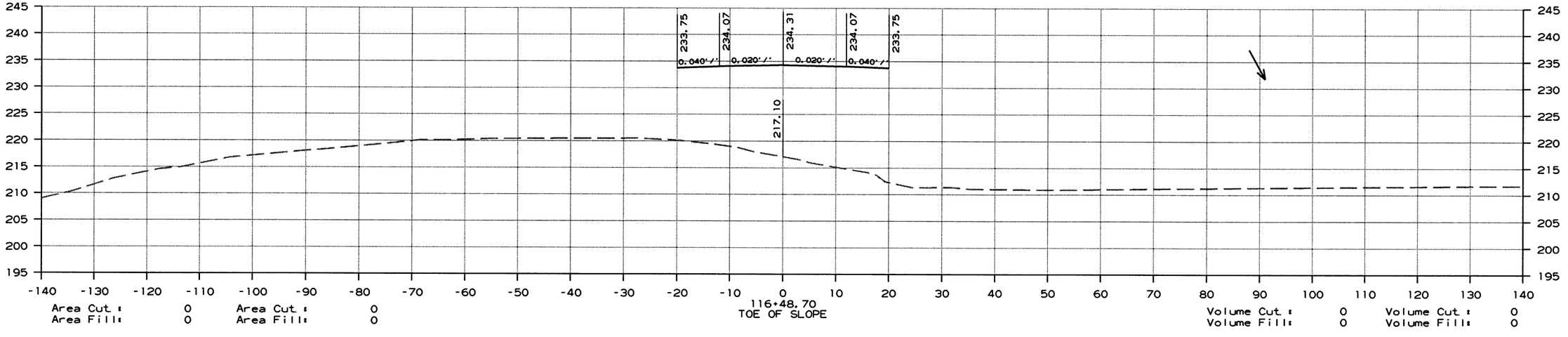
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	113	130

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2





HWY. 261 - CROSS SECTION STA. 116+48.70 TO STA. 117+14.08

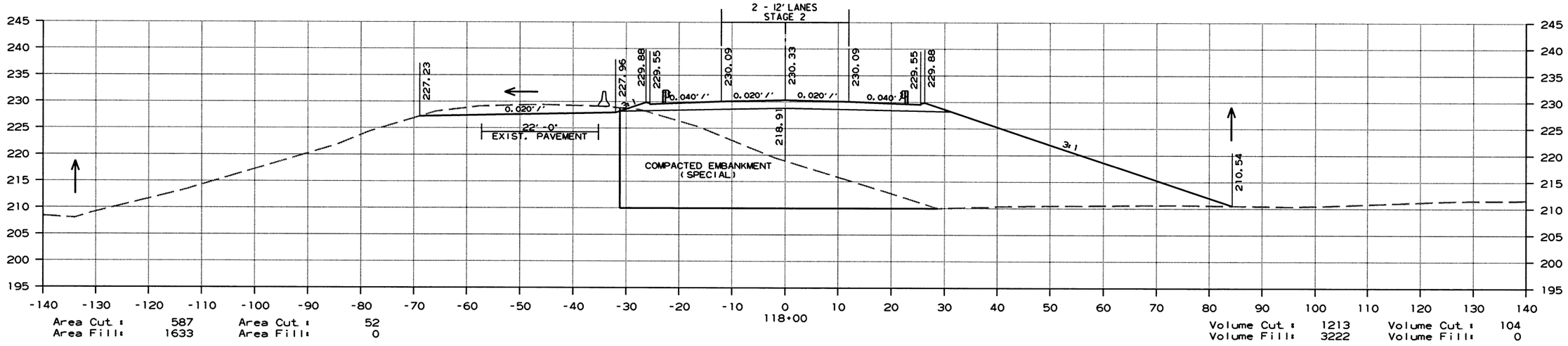
9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	114	130

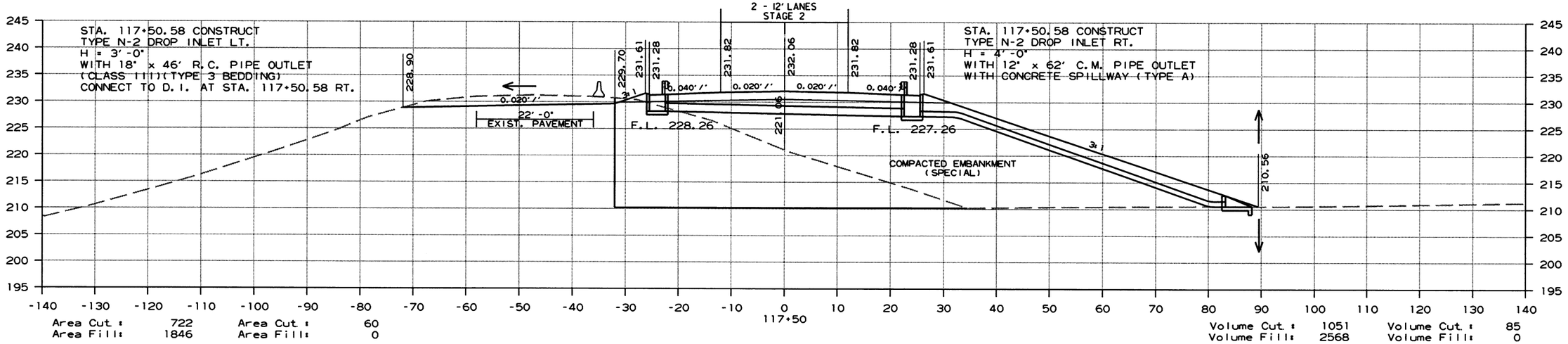
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 1 STAGE 2



Area Cut : 587 Area Cut : 52
Area Fill: 1633 Area Fill: 0

Volume Cut : 1213 Volume Cut : 104
Volume Fill: 3222 Volume Fill: 0



Area Cut : 722 Area Cut : 60
Area Fill: 1846 Area Fill: 0

Volume Cut : 1051 Volume Cut : 85
Volume Fill: 2568 Volume Fill: 0

HWY. 261 - CROSS SECTION STA. 117+50 TO STA. 118+00

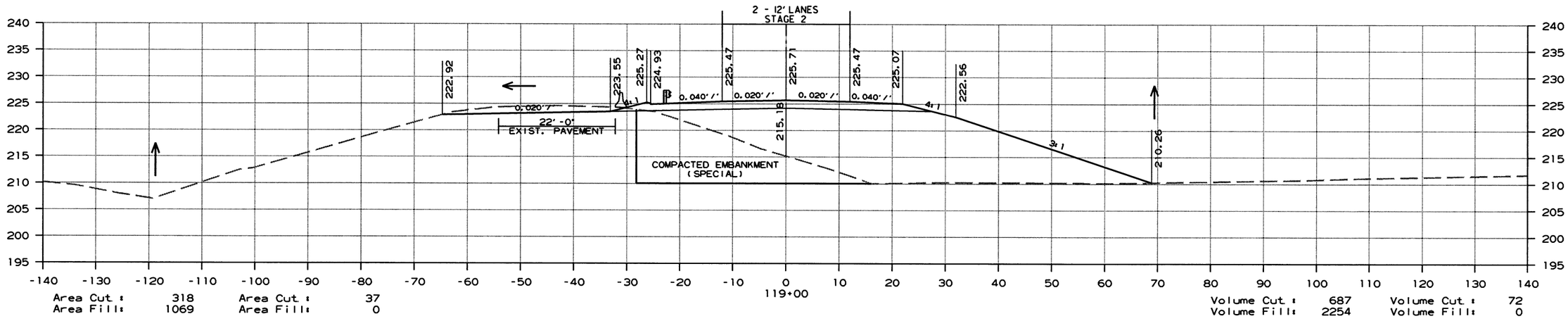
9/27/2016

R110586.DGN

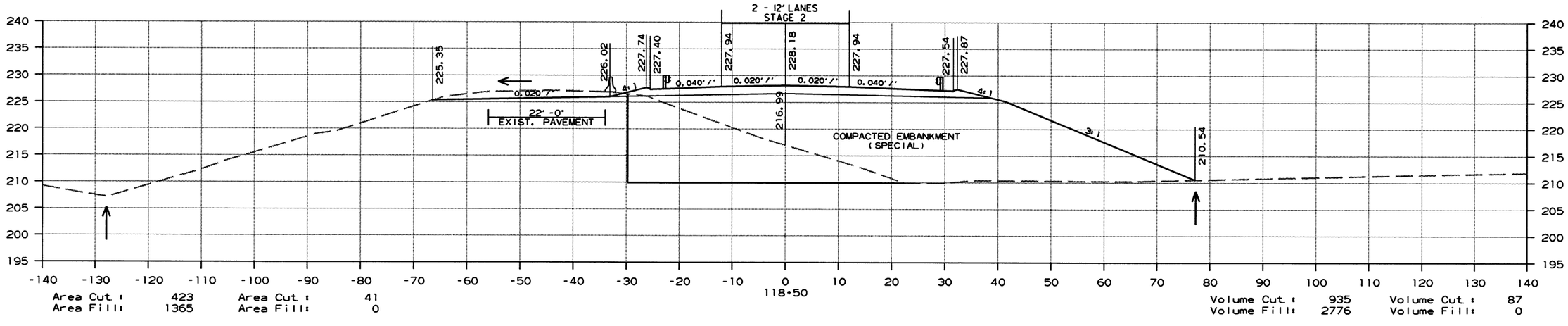
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	115	130

(2) CROSS SECTIONS

STAGE 1 STAGE 2



STAGE 1 STAGE 2



HWY. 261 - CROSS SECTION STA. 118+50 TO STA. 119+00

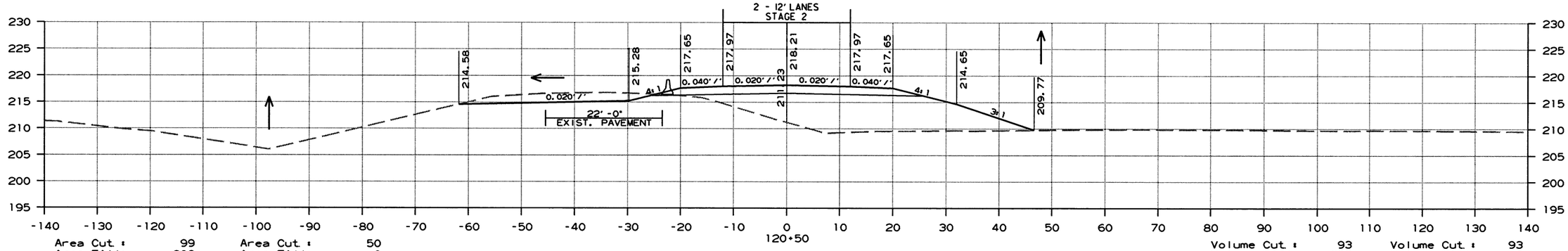
9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	116	130

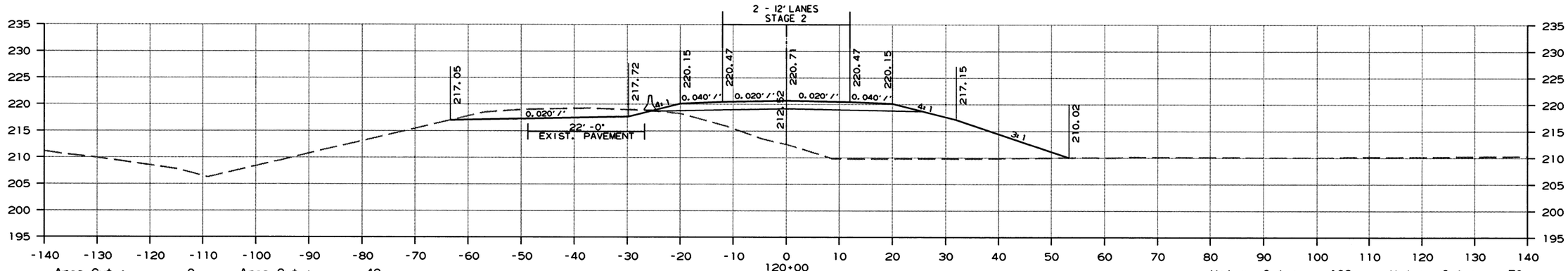
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 1 STAGE 2



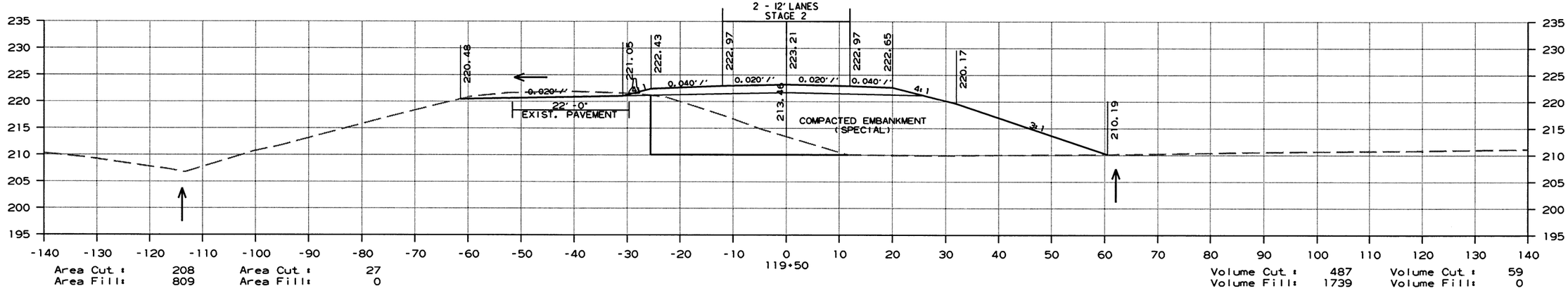
Area Cut : 99 Area Cut : 50
Area Fill: 308 Area Fill: 0

Volume Cut : 93 Volume Cut : 93
Volume Fill: 693 Volume Fill: 0



Area Cut : 0 Area Cut : 49
Area Fill: 439 Area Fill: 0

Volume Cut : 193 Volume Cut : 70
Volume Fill: 1156 Volume Fill: 0



Area Cut : 208 Area Cut : 27
Area Fill: 809 Area Fill: 0

Volume Cut : 487 Volume Cut : 59
Volume Fill: 1739 Volume Fill: 0

HWY. 261 - CROSS SECTION STA. 119+50 TO STA. 120+50

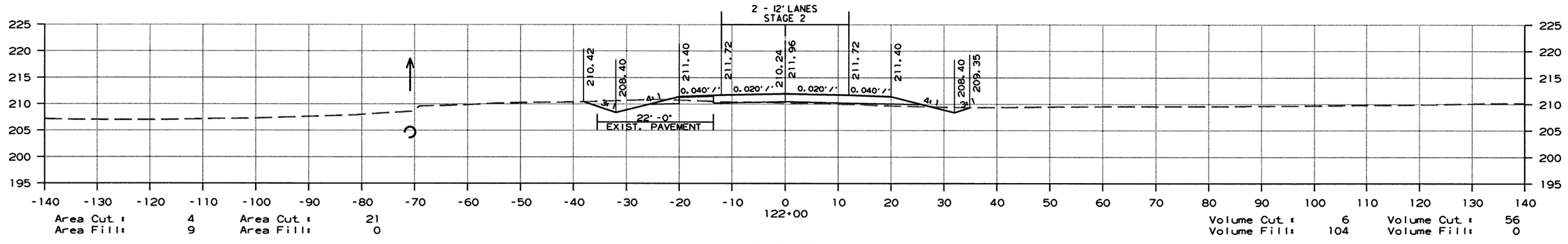
9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	117	130

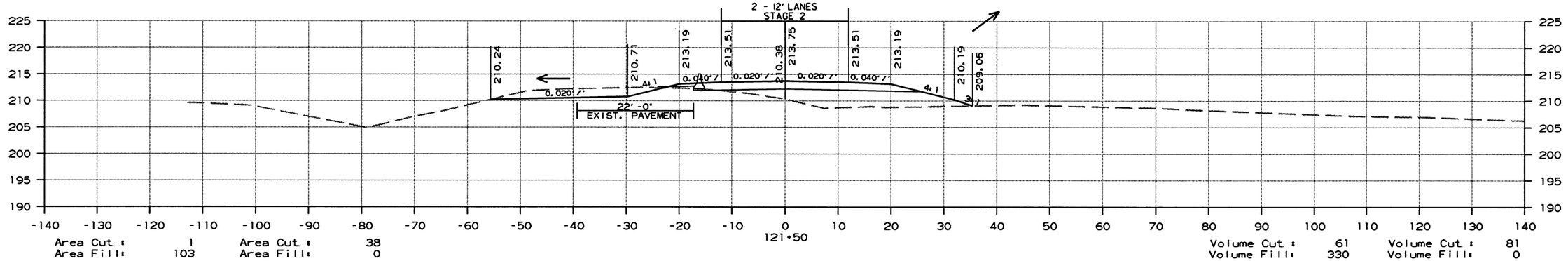
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 1 STAGE 2



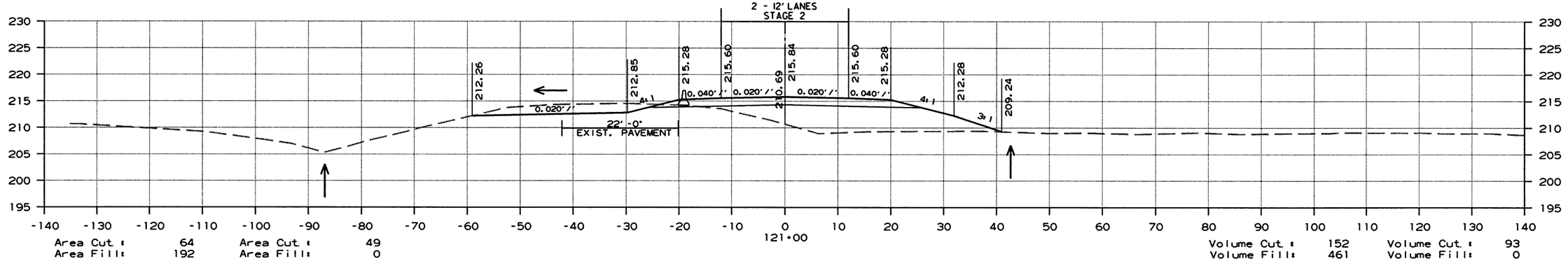
Area Cut : 4 Area Cut : 21
Area Fill: 9 Area Fill: 0

Volume Cut : 6 Volume Cut : 56
Volume Fill: 104 Volume Fill: 0



Area Cut : 1 Area Cut : 38
Area Fill: 103 Area Fill: 0

Volume Cut : 61 Volume Cut : 81
Volume Fill: 330 Volume Fill: 0



Area Cut : 64 Area Cut : 49
Area Fill: 192 Area Fill: 0

Volume Cut : 152 Volume Cut : 93
Volume Fill: 461 Volume Fill: 0

HWY. 261 - CROSS SECTION STA. 121+00 TO STA. 122+00

9/27/2016

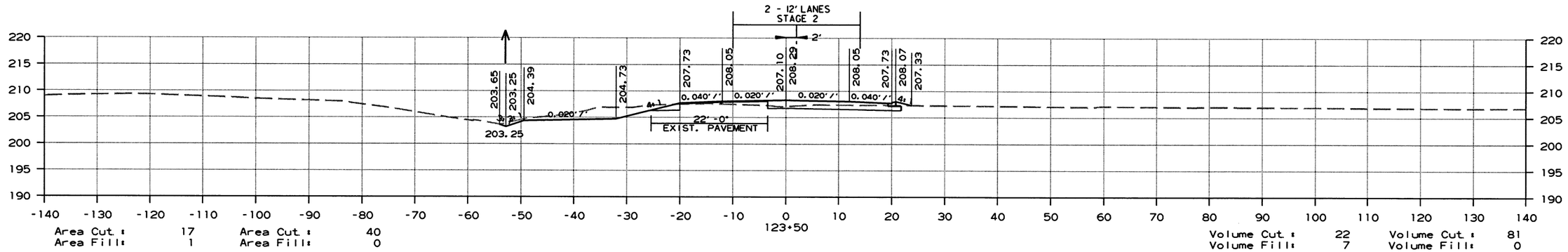
R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	118	130

(2) CROSS SECTIONS

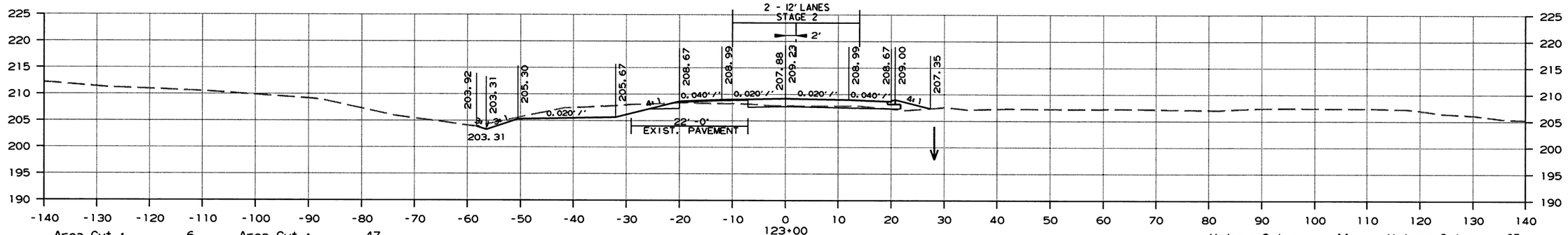
STAGE 1 STAGE 2

STAGE 1 STAGE 2



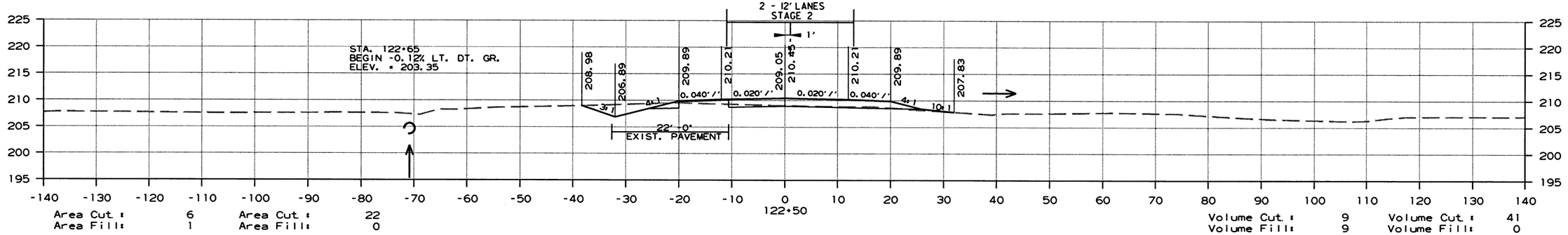
Area Cut : 17 Area Cut : 40
Area Fill: 1 Area Fill: 0

Volume Cut : 22 Volume Cut : 81
Volume Fill: 7 Volume Fill: 0



Area Cut : 6 Area Cut : 47
Area Fill: 6 Area Fill: 0

Volume Cut : 11 Volume Cut : 65
Volume Fill: 7 Volume Fill: 0



Area Cut : 6 Area Cut : 22
Area Fill: 1 Area Fill: 0

Volume Cut : 9 Volume Cut : 41
Volume Fill: 9 Volume Fill: 0

HWY. 261 - CROSS SECTION STA. 122+50 TO STA. 123+50

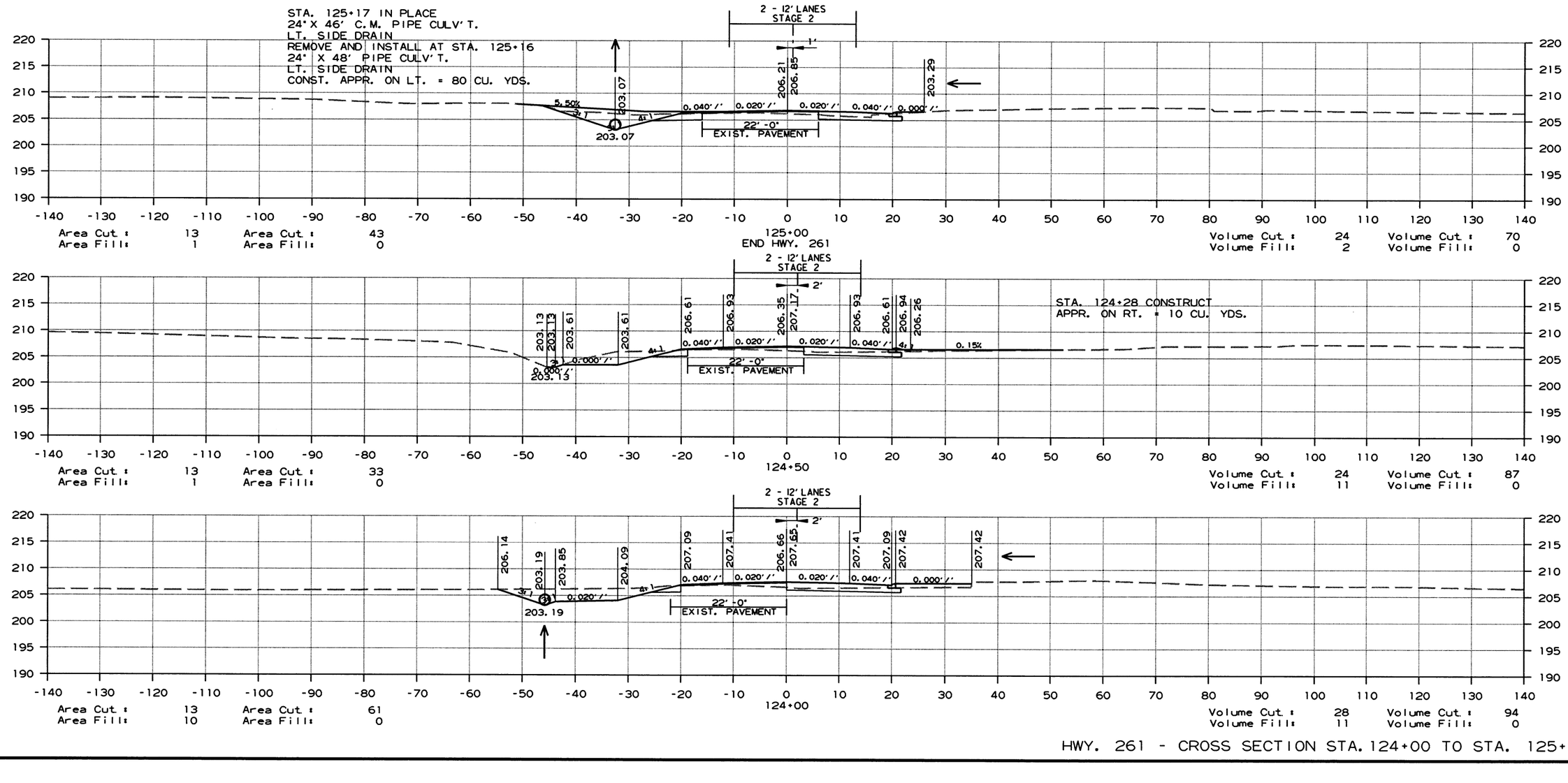
9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	119	130

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 1 STAGE 2



HWY. 261 - CROSS SECTION STA. 124+00 TO STA. 125+00

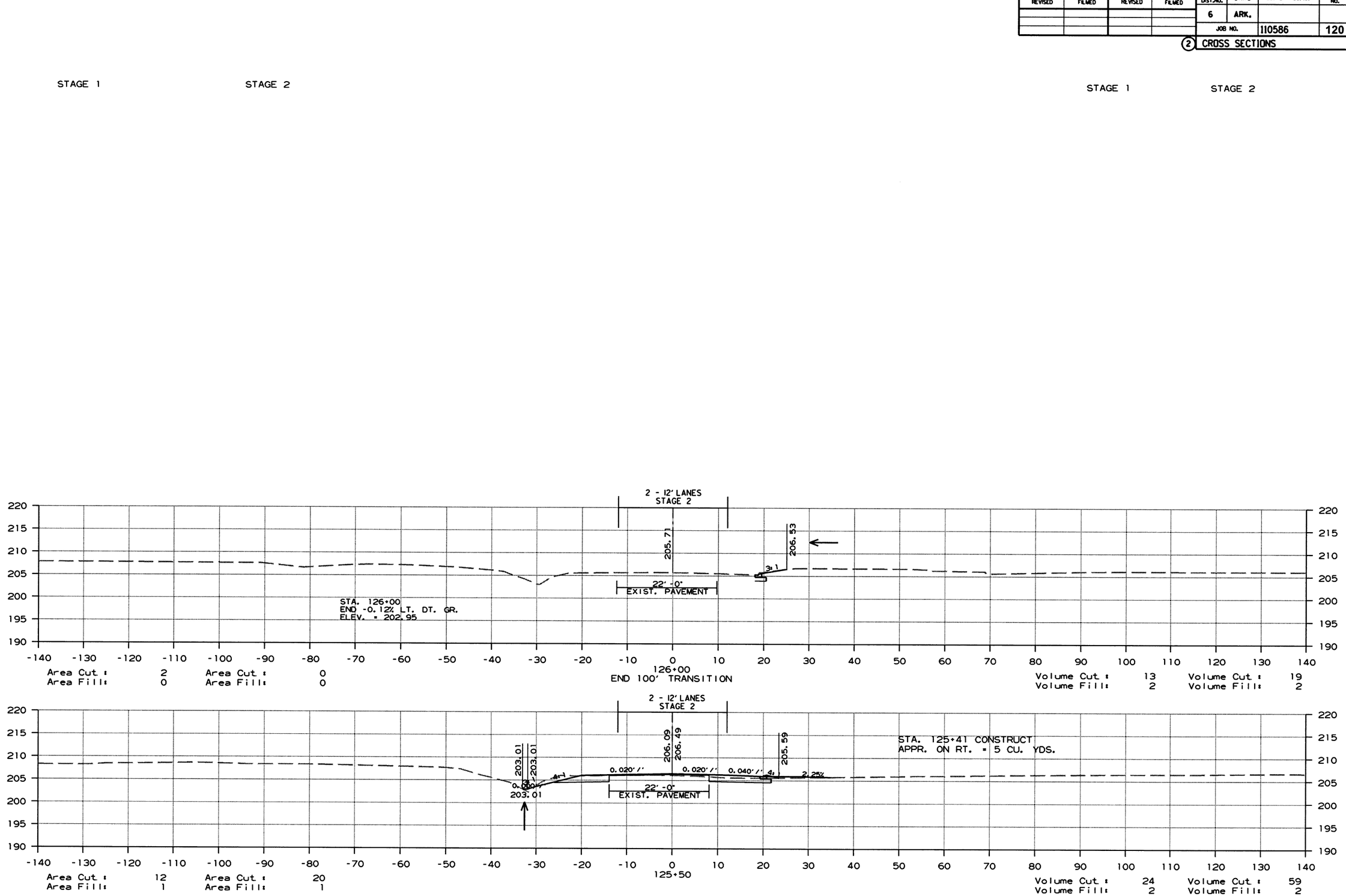
9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	120	130

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 1 STAGE 2



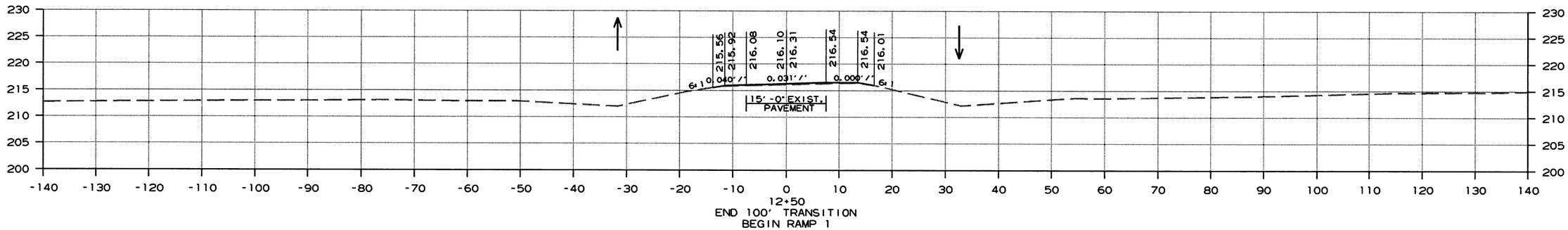
HWY. 261 - CROSS SECTION STA. 125+50 TO STA. 126+00

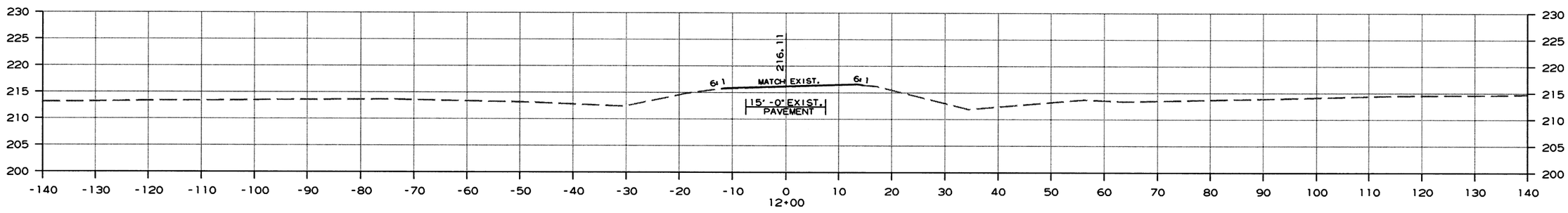
9/27/2016

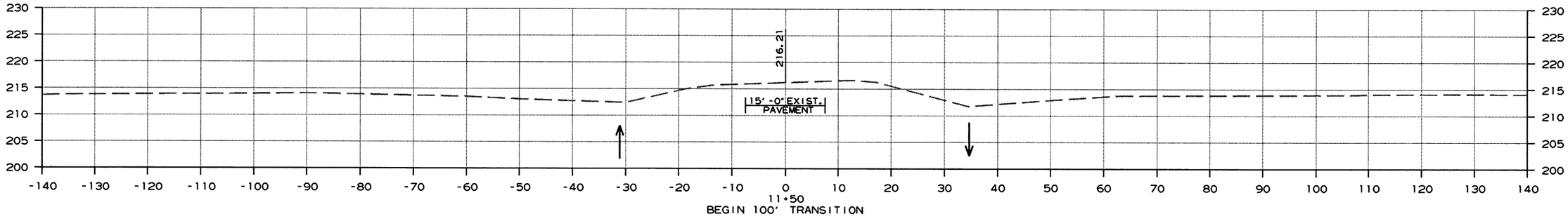
R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	121	130

(2) CROSS SECTIONS







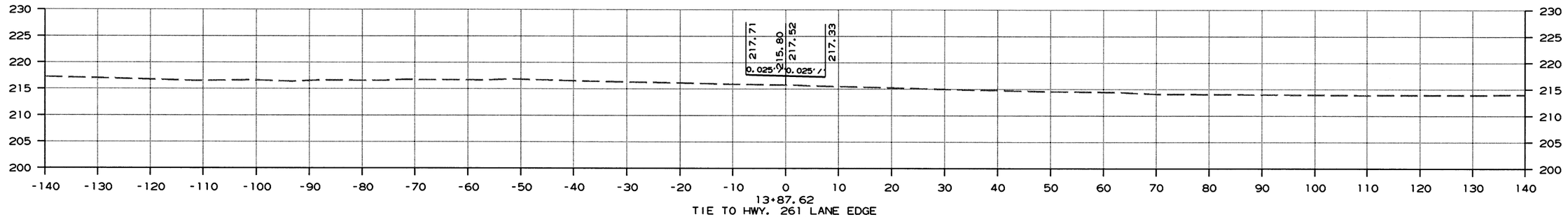
HWY. 261 RAMP 1 - CROSS SECTION STA. 11+50 TO STA. 12+50

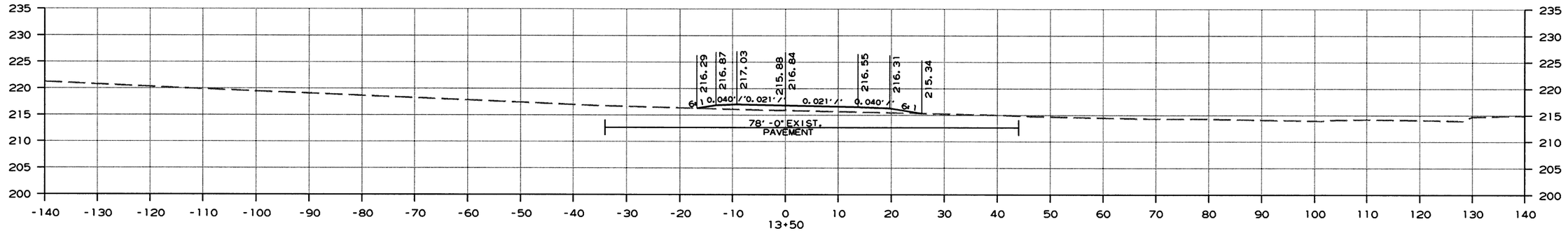
9/27/2016

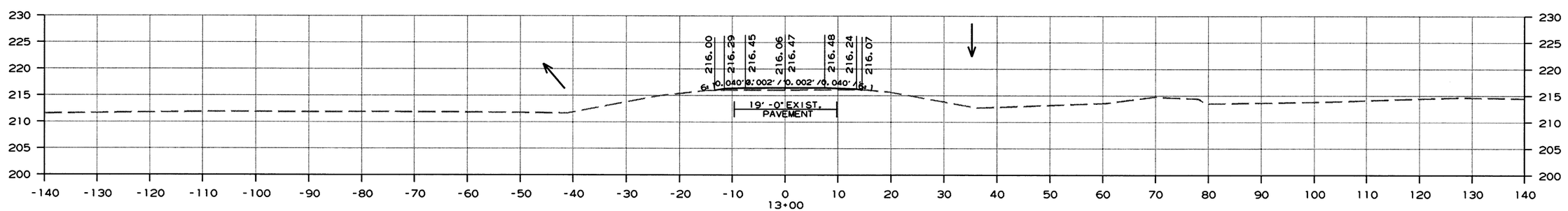
R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	122	130

(2) CROSS SECTIONS







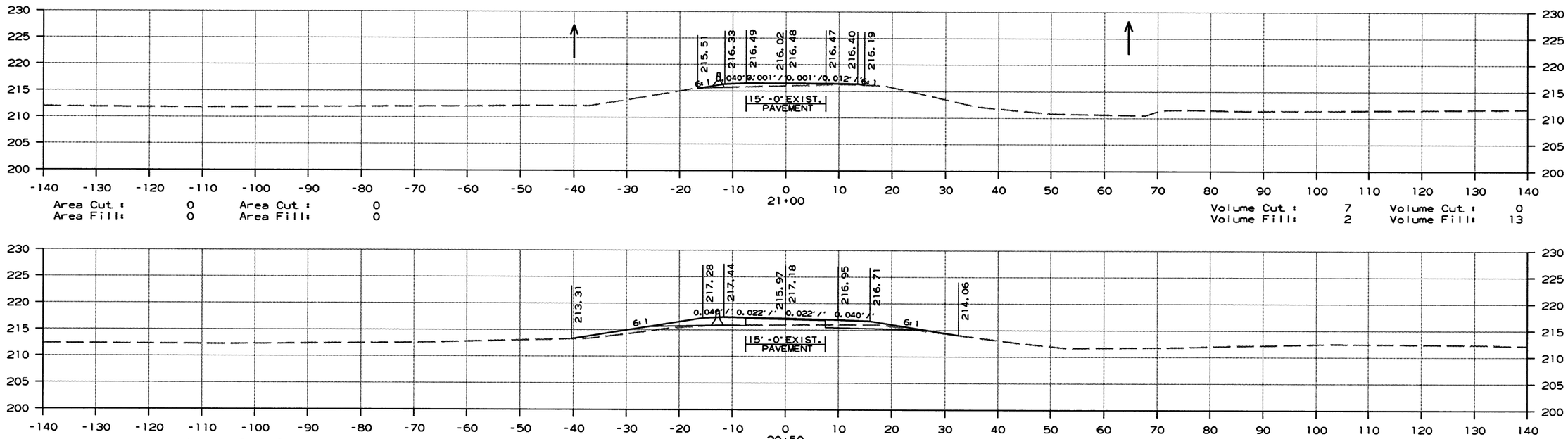
HWY. 261 RAMP 1 - CROSS SECTION STA. 13+00 TO STA. 13+88

9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	123	130

(2) CROSS SECTIONS



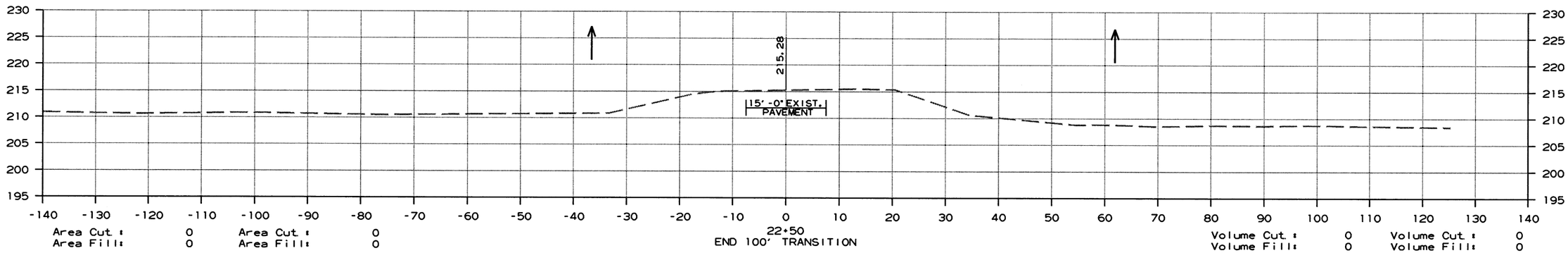
HWY. 261 RAMP 2 - CROSS SECTION STA. 20+12 TO STA. 21+00

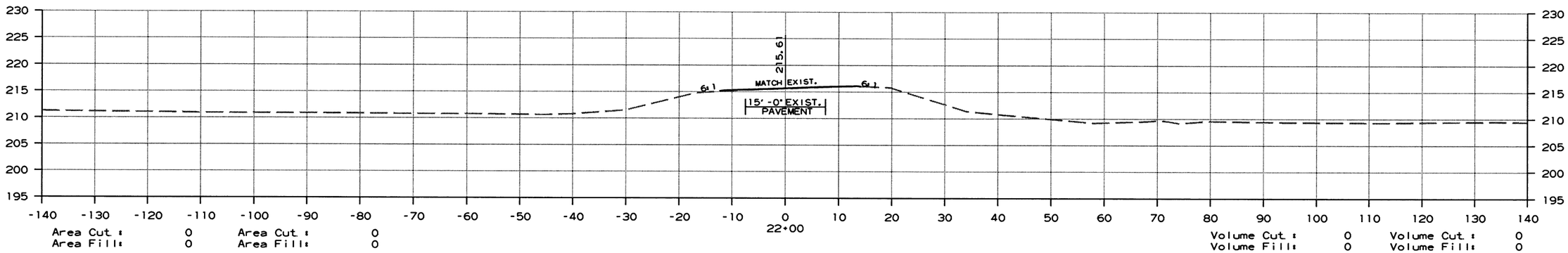
9/27/2016

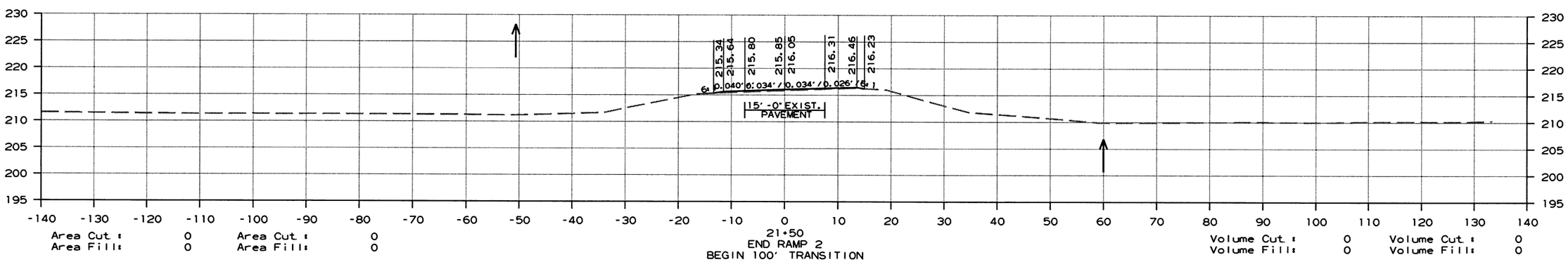
R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	124	130

(2) CROSS SECTIONS







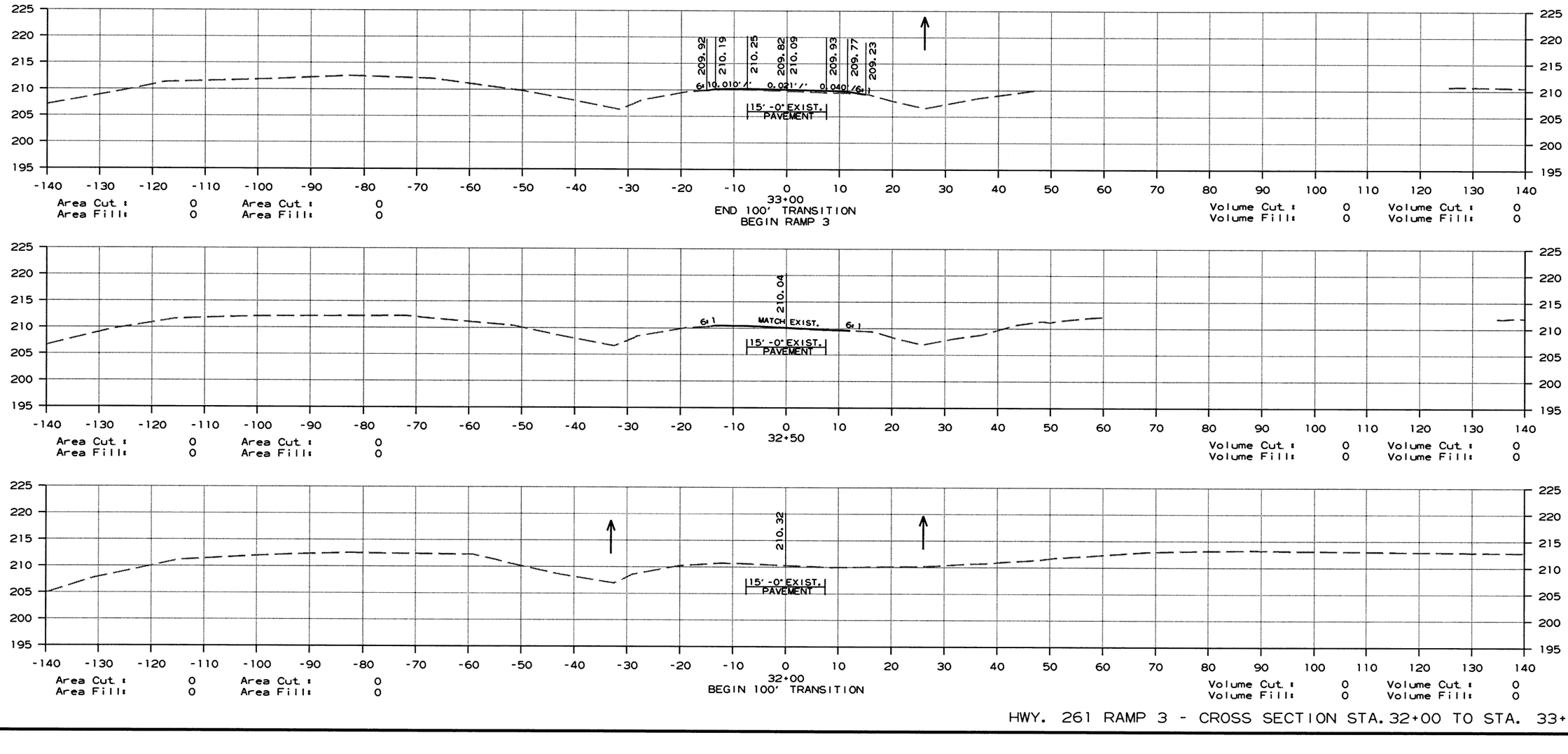
HWY. 261 RAMP 2 - CROSS SECTION STA. 21+50 TO STA. 22+50

9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	125	130

(2) CROSS SECTIONS



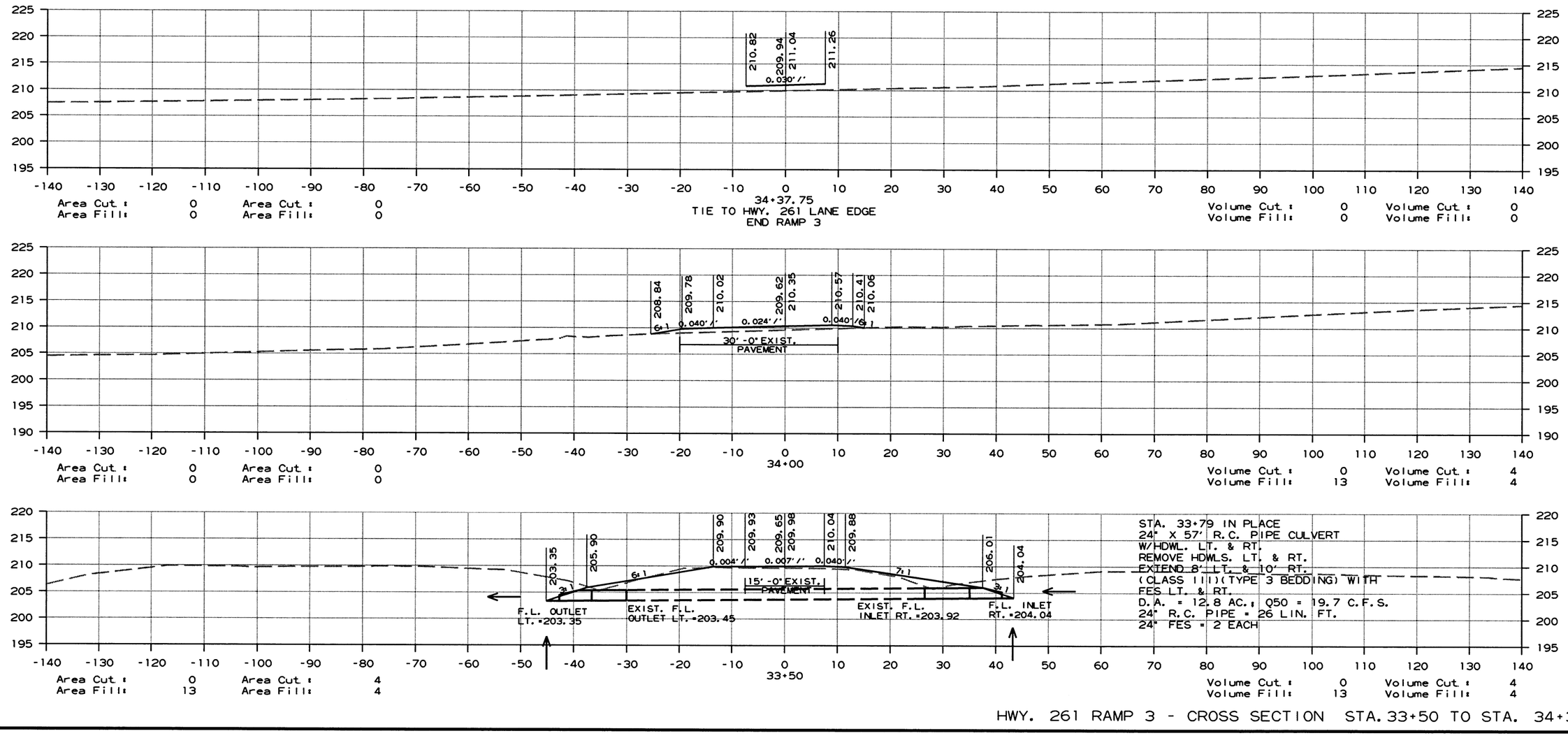
HWY. 261 RAMP 3 - CROSS SECTION STA. 32+00 TO STA. 33+00

9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	126	130

(2) CROSS SECTIONS



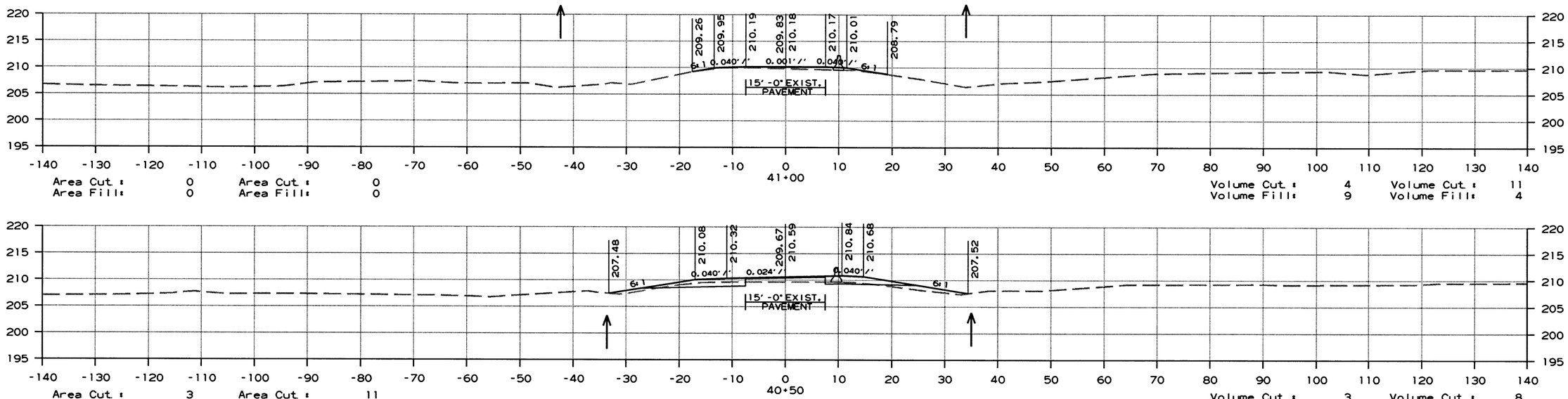
HWY. 261 RAMP 3 - CROSS SECTION STA. 33+50 TO STA. 34+38

9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	127	130

(2) CROSS SECTIONS



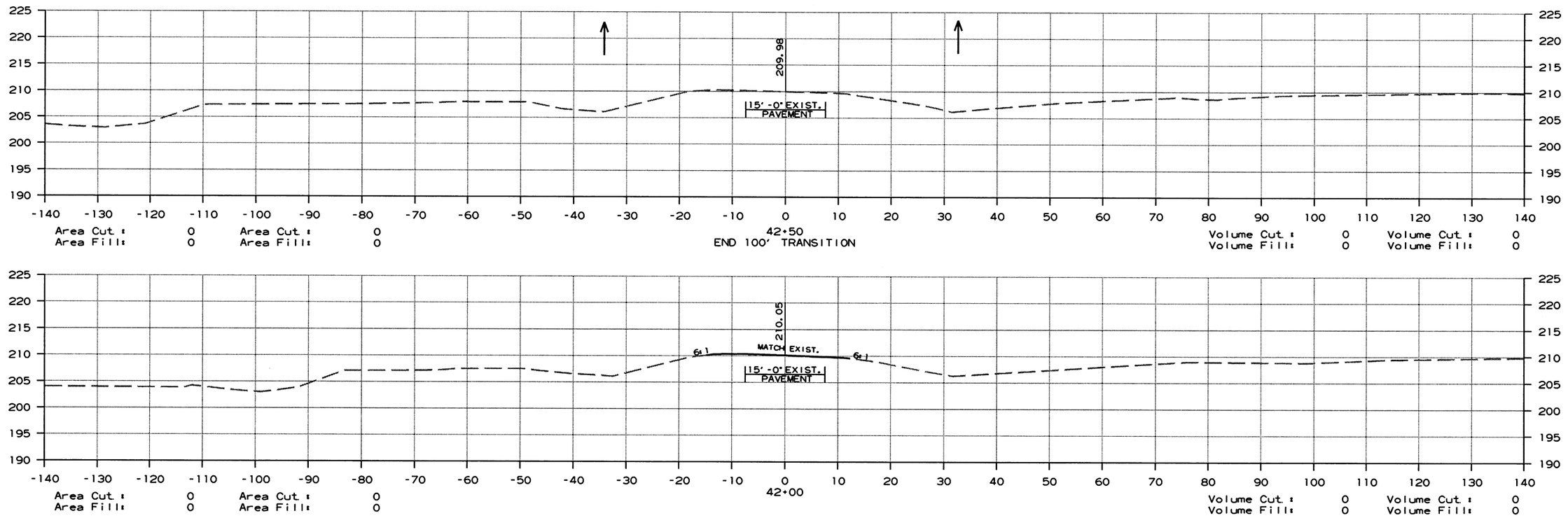
HWY. 261 RAMP 4 - CROSS SECTION STA. 40+12 TO STA. 41+00

9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	128	130

(2) CROSS SECTIONS

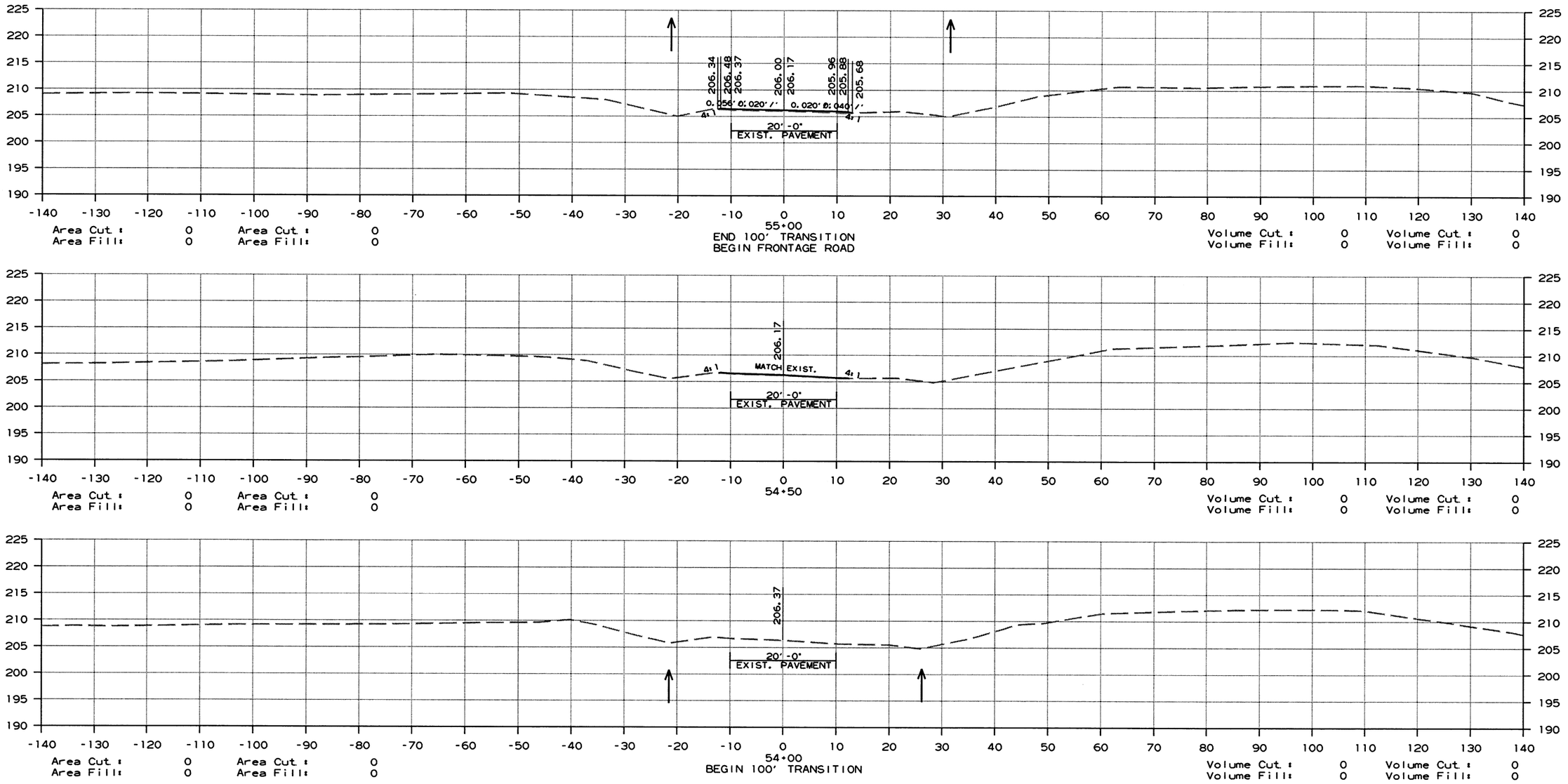


HWY. 261 RAMP 4 - CROSS SECTION STA. 41+50 TO STA. 42+50

9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	129	130
				(2)	CROSS SECTIONS			



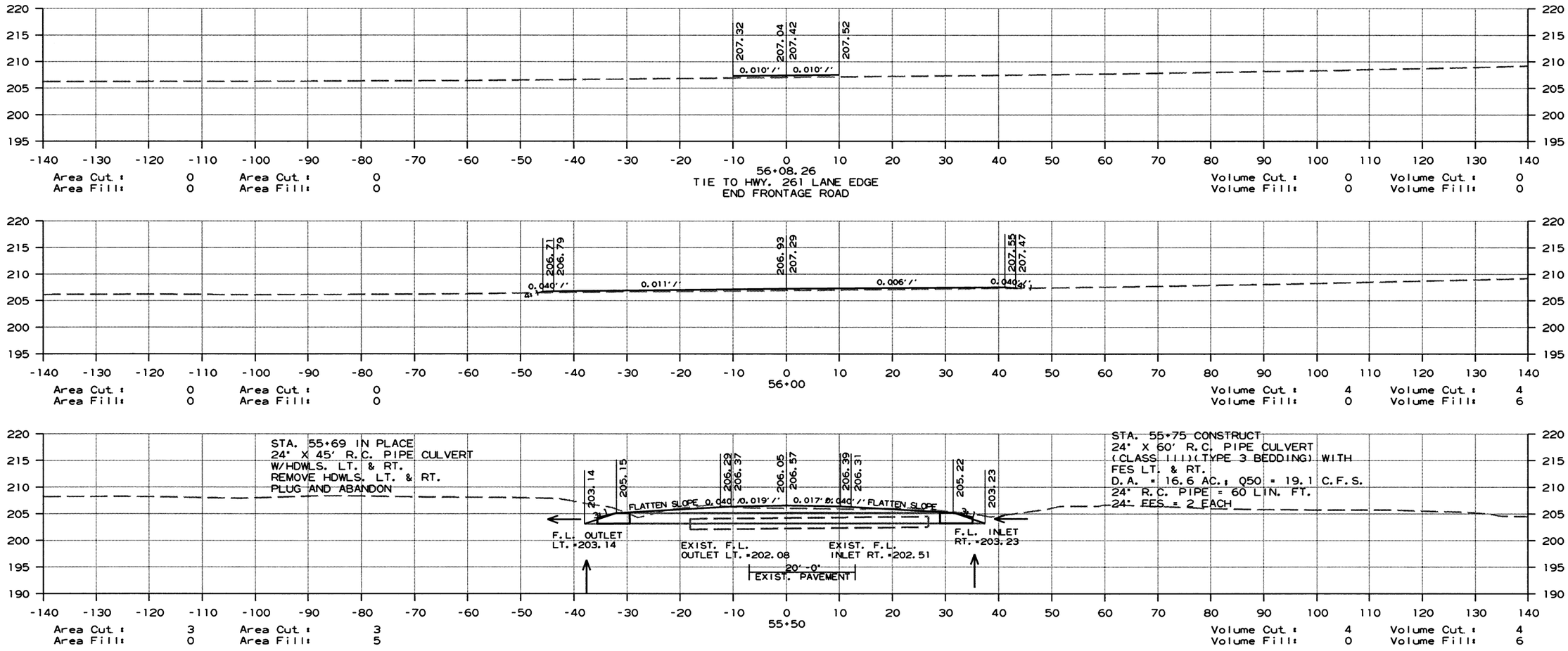
FRONTAGE ROAD - CROSS SECTION STA. 54+00 TO STA. 55+00

9/27/2016

R110586.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110586	130	130

(2) CROSS SECTIONS



FRONTAGE ROAD - CROSS SECTION STA. 55+50 TO STA. 56+08

9/27/2016

R110586.DGN