

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

SCROGGINS CREEK
STR. & APPRS. (S)

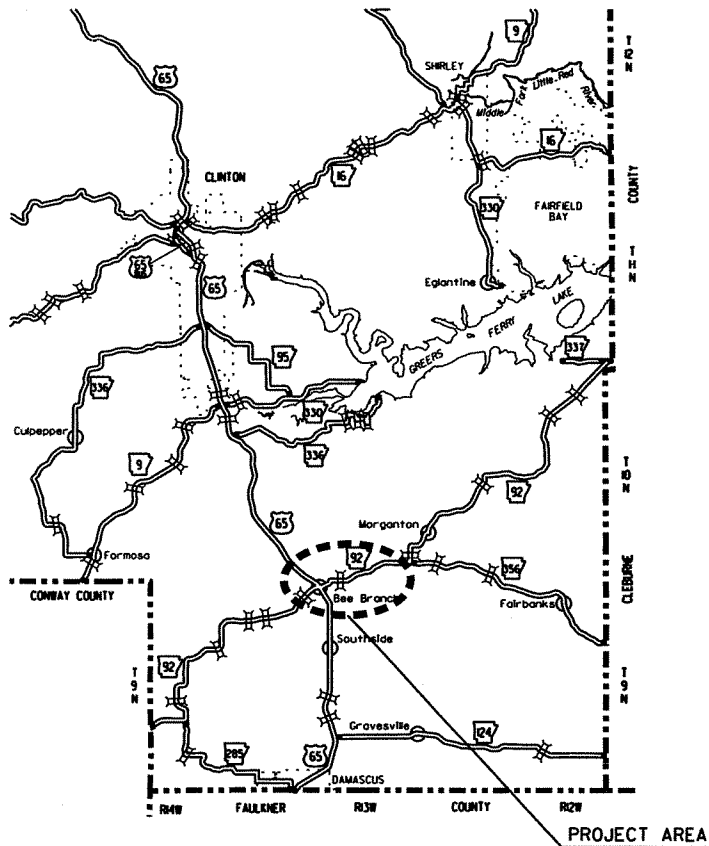
VAN BUREN COUNTY
ROUTE 92 SECTION 3

JOB 080381

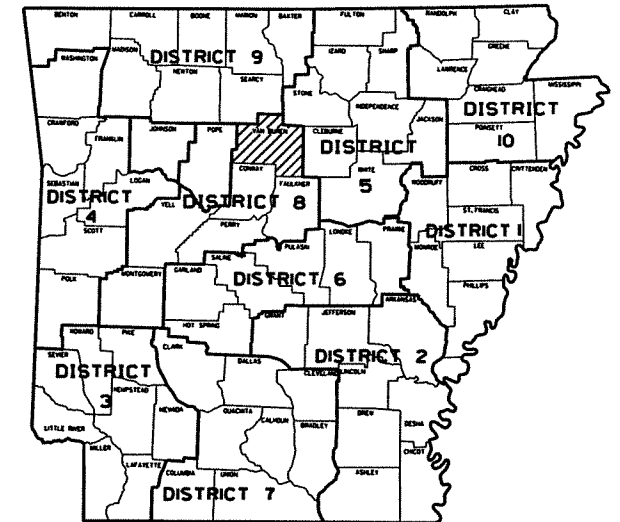
FEDERAL AID PROJ. BRN-0071(22)

SCALE: NOT TO SCALE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080381	1	98
				2 SCROGGINS CREEK STR. & APPRS. (S)				



VICINITY MAP



ARK. HWY. DIST. NO. 8

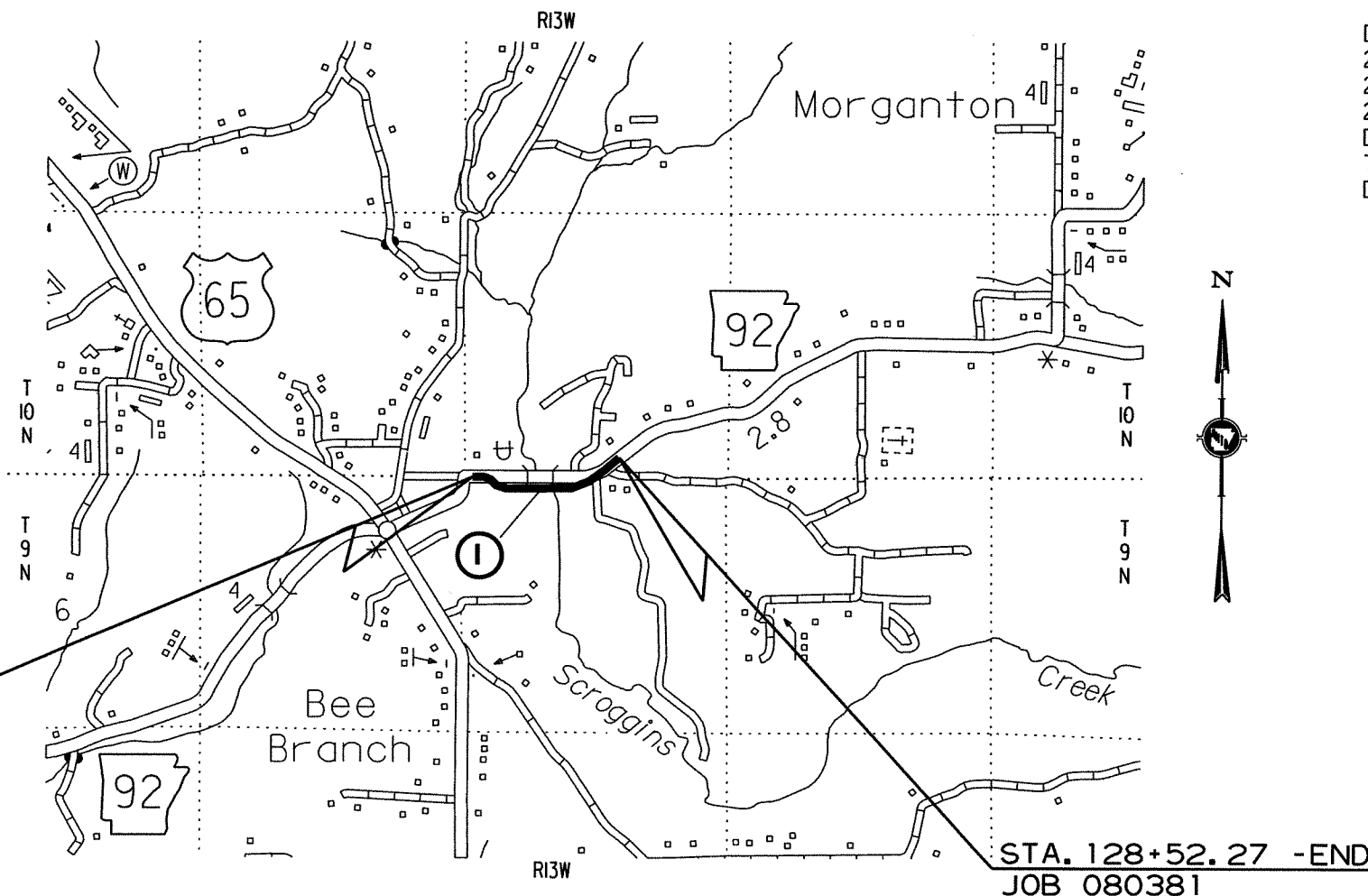
DESIGN TRAFFIC DATA

DESIGN YEAR	_____	2032
2012 ADT	_____	4000
2032 ADT	_____	5400
2032 DHV	_____	594
DIRECTIONAL DISTRIBUTION	_____	0.60
TRUCKS	_____	14%
DESIGN SPEED	_____	60 MPH

BRIDGE DATA

- ① SCROGGINS CREEK
502'-2" BRIDGE LENGTH
STA. 111+51.92 BRIDGE END
40'-0" CLEAR ROADWAY
2 - 250'-0" CONTINUOUS
COMPOSITE W-BEAM UNIT
(59'-66'-66'-59' SPANS)
BR. NO. 07222
STA. 116+54.08 BRIDGE END

STA. 101+43.08-BEGIN
JOB 080381
LOG MILE 8.37



STA. 128+52.27 -END
JOB 080381

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°27' 14"	N 35°27' 14"	N 35°27' 16"
LONGITUDE	W 92°23' 17"	W 92°23' 01"	W 92°22' 45"

GROSS LENGTH OF PROJECT	2709.19	FEET OR	0.513	MILES
NET " " ROADWAY	2207.03	" "	0.418	"
NET " " BRIDGES	502.16	" "	0.095	"
NET " " PROJECT	2709.19	" "	0.513	"

P.E. JOB 080381
NON-PART.

APPROVED



12/12/11
DEPUTY DIRECTOR
AND CHIEF ENGINEER

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1-19-12				6	ARK.			
						JOB NO. 080381	2	98

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO	DRWG. NO.	DATE
1	TITLE SHEET			
2	INDEX OF SHEETS, GOVERNING SPECIFICATIONS AND GENERAL NOTES			
3 - 5	TYPICAL SECTIONS OF IMPROVEMENT			
6 - 7	SPECIAL DETAILS			
8 - 11	TEMPORARY EROSION CONTROL DETAILS			
12 - 17	MAINTENANCE OF TRAFFIC DETAILS			
18 - 19	PERMANENT PAVEMENT MARKING DETAILS			
20 - 23	QUANTITIES			
24	SCHEDULE OF BRIDGE QUANTITIES	07222	52098	
25	SUMMARY OF QUANTITIES AND REVISIONS			
26 - 28	SURVEY CONTROL DETAILS			
29 - 32	PLAN AND PROFILE SHEETS			
33	LAYOUT OF BRIDGE OVER SCROGGINS CREEK	07222	52099	
34	BORINGS	07222	52100	
35	DETAILS OF END BENTS (SHEET 1 OF 2)	07222	52101	
36	DETAILS OF END BENTS (SHEET 2 OF 2)	07222	52102	
37	DETAILS OF INTERMEDIATE BENT (NOS. 2-4 & 6-8)	07222	52103	
38	DETAILS OF INTERMEDIATE BENT (NO. 5)	07222	52104	
39	DETAILS OF 250'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 1 OF 6)	07222	52105	
40	DETAILS OF 250'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 2 OF 6)	07222	52106	
41	DETAILS OF 250'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 3 OF 6)	07222	52107	
42	DETAILS OF 250'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 4 OF 6)	07222	52108	
43	DETAILS OF 250'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 5 OF 6)	07222	52109	
44	DETAILS OF 250'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 6 OF 6)	07222	52110	
45	DETAILS OF ELASTOMERIC BEARINGS	07222	52111	
46	EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	1888A		4-10-03
47	DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES	1891F		4-10-03
48	DETAILS OF STANDARD TYPE B APPROACH GUTTERS	2016B		7-14-10
49	DETAILS OF STANDARD TYPE D BRIDGE NAME PLATES	2387		9-08-11
50	DETAILS OF PERMISSIBLE TYPE PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	14991		4-10-03
51	DETAILS OF CONCRETE RIPRAP AND MISCELLANEOUS DETAILS OF STEEL PILINGS	14995A		4-10-03
52	CONCRETE DITCH PAVING	CDP-1		11-17-10
53	GUARD RAIL DETAILS	GR-8		7-14-10
54	GUARD RAIL DETAILS	GR-9		4-17-08
55	GUARD RAIL DETAILS	GR-9A		4-17-08
56	GUARD RAIL DETAILS	GR-10		7-14-10
57	GUARD RAIL DETAILS	GR-10A		7-14-10
58	GUARD RAIL DETAILS	GRT-1		7-14-10
59	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	PCC-1		12-15-11
60	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	PCM-1		12-15-11
61	PAVEMENT MARKING DETAILS	PM-1		11-17-10
62	DETAILS OF PIPE UNDERDRAIN	PU-1		4-10-03
63	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	SE-2		10-18-96
64	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-1		12-15-11
65	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-2		3-11-10
66	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-3		10-15-09
67	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	TC-4		10-15-09
68	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	TC-5		10-15-09
69	TEMPORARY EROSION CONTROL DEVICES	TEC-1		12-15-11
70	TEMPORARY EROSION CONTROL DEVICES	TEC-2		6-02-94
71	TEMPORARY EROSION CONTROL DEVICES	TEC-3		11-03-94
72 - 98	CROSS SECTIONS			

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	FHWA-1273 REVISIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-2	MANUAL FOR ASSESSING SAFETY HARDWARE (MASH)
103-1	DETERMINATION OF DBE PARTICIPATION
105-1	CONSTRUCTION CONTROL MARKINGS
105-2	EQUIPMENT AND MATERIAL STORAGE ON BRIDGE STRUCTURES
107-1	WORKER VISIBILITY
108-1	LIQUIDATED DAMAGES
110-1	PROTECTION OF WATER QUALITY AND WETLANDS
303-1	AGGREGATE BASE COURSE
404-1	PRODUCTION VERIFICATION OF ASPHALT CONCRETE HOT MIX
409-1	MINERAL AGGREGATES
410-3	DENSITY TESTING FOR ACHM LEVELING COURSES AND BOND BREAKERS
411-1	ASPHALT CONCRETE COLD PLANT MIX
600-1	WATER FOR VEGETATION
603-1	MAINTENANCE OF TRAFFIC
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
606-2	PIPE CULVERTS
718-2	REFLECTORIZED PAINT PAVEMENT MARKINGS
804-1	INSTALLATION OF DOWEL BARS AND TIE BARS
JOB 080381	ARMORED JOINT WITH NEOPRENE STRIP SEAL
JOB 080381	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 080381	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 080381	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 080381	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 080381	HIGH PERFORMANCE PAVEMENT MARKING
JOB 080381	INTERNET BIDDING
JOB 080381	NESTING SITES OF MIGRATORY BIRDS
JOB 080381	PARTNERING REQUIREMENTS
JOB 080381	SHORING
JOB 080381	STORM WATER POLLUTION PREVENTION PLAN
JOB 080381	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 080381	TEMPORARY IMPACT ATTENUATION BARRIER
JOB 080381	UTILITY ADJUSTMENTS
JOB 080381	VALUE ENGINEERING
JOB 080381	WARM MIX ASPHALT



1-20-12

GENERAL NOTES CONTINUED

- 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.
- 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.
- THIS PROJECT IS COVERED UNDER A NATIONWIDE 14 SECTION 404 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2003, FOR PERMIT REQUIREMENTS.
- ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
- 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.

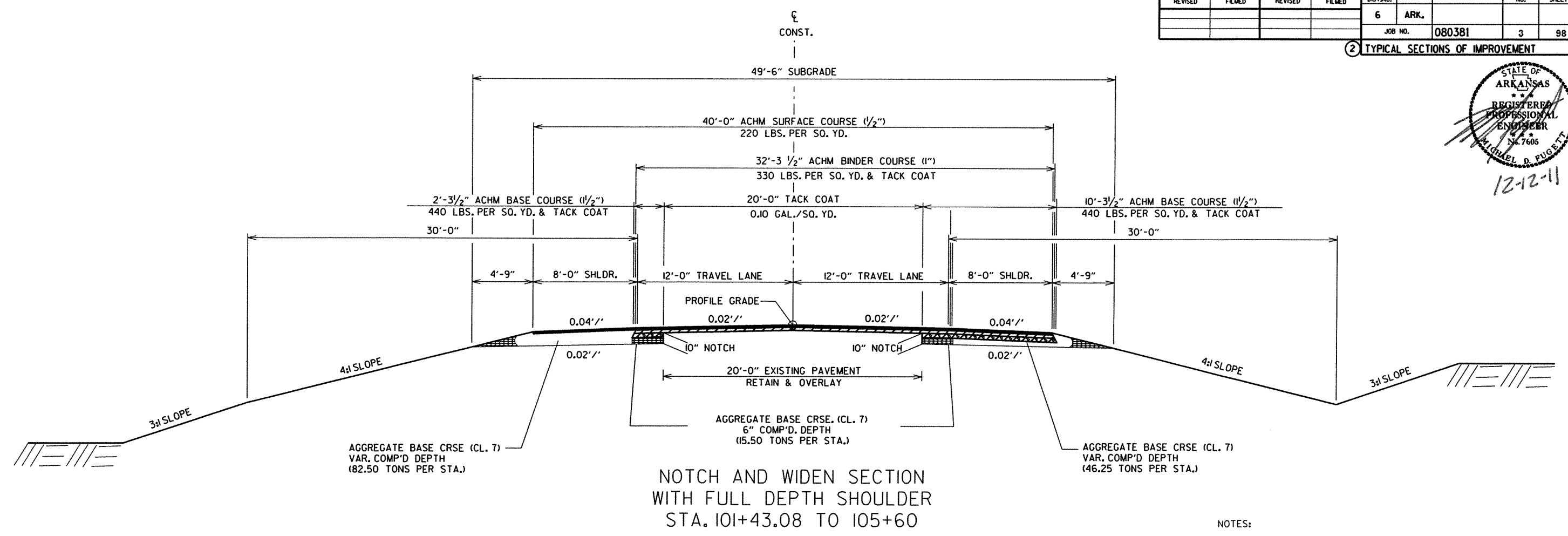
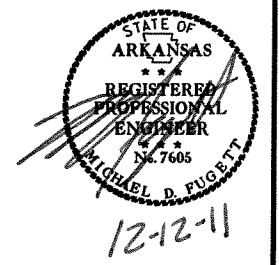
GENERAL NOTES

- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- ALL PIPE LINES, POWER, TELEPHONE AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- 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.
- ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.

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

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				6	ARK.			
JOB NO. 080381							3	98

2 TYPICAL SECTIONS OF IMPROVEMENT



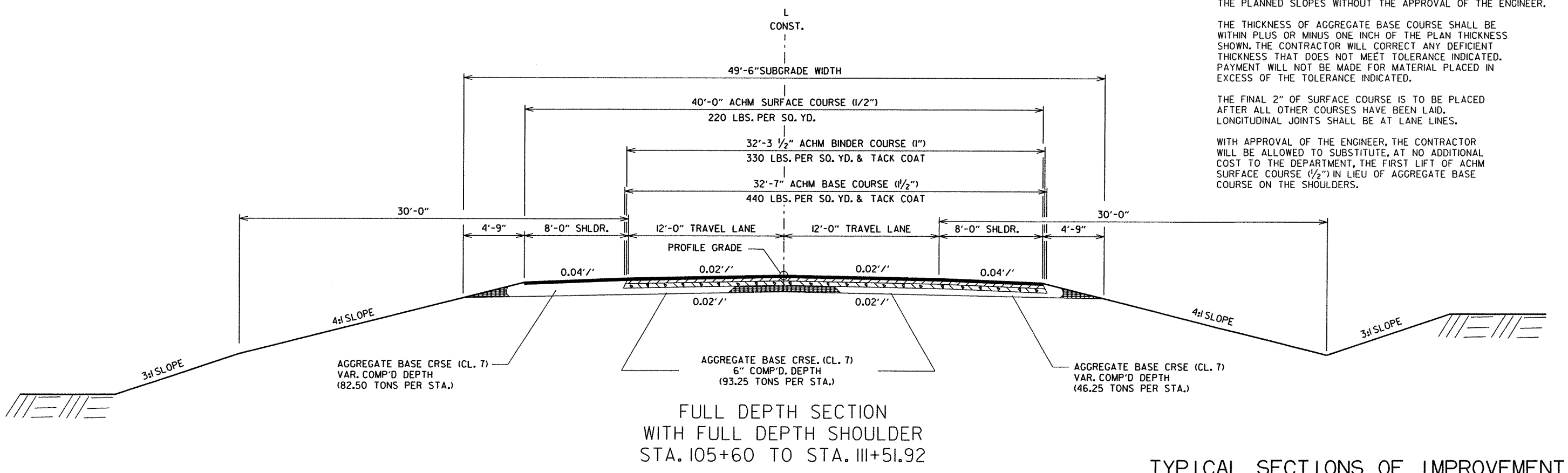
NOTES:

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.

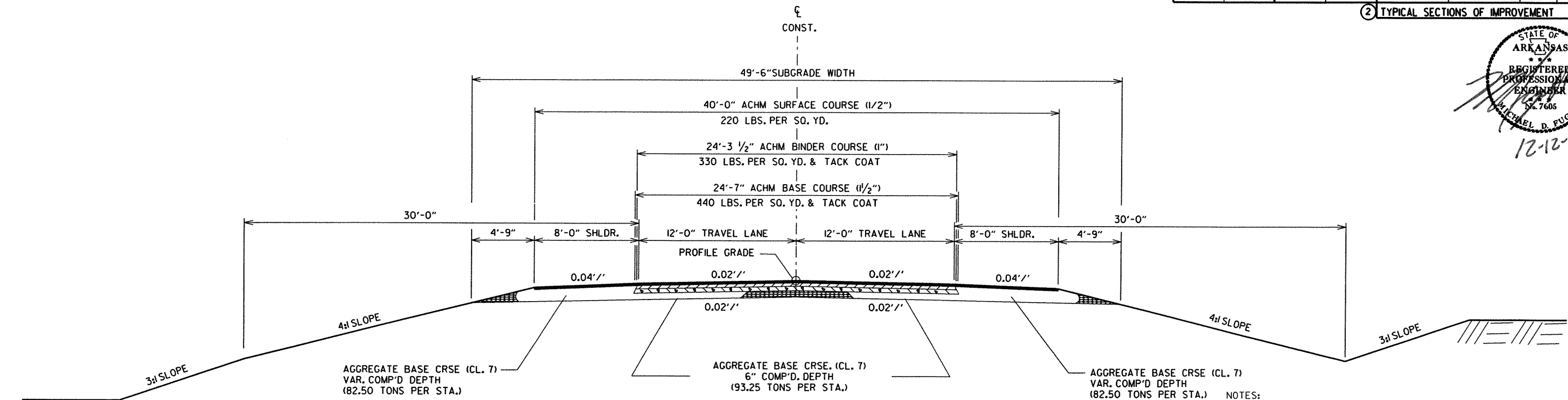
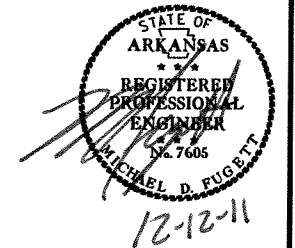
WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.



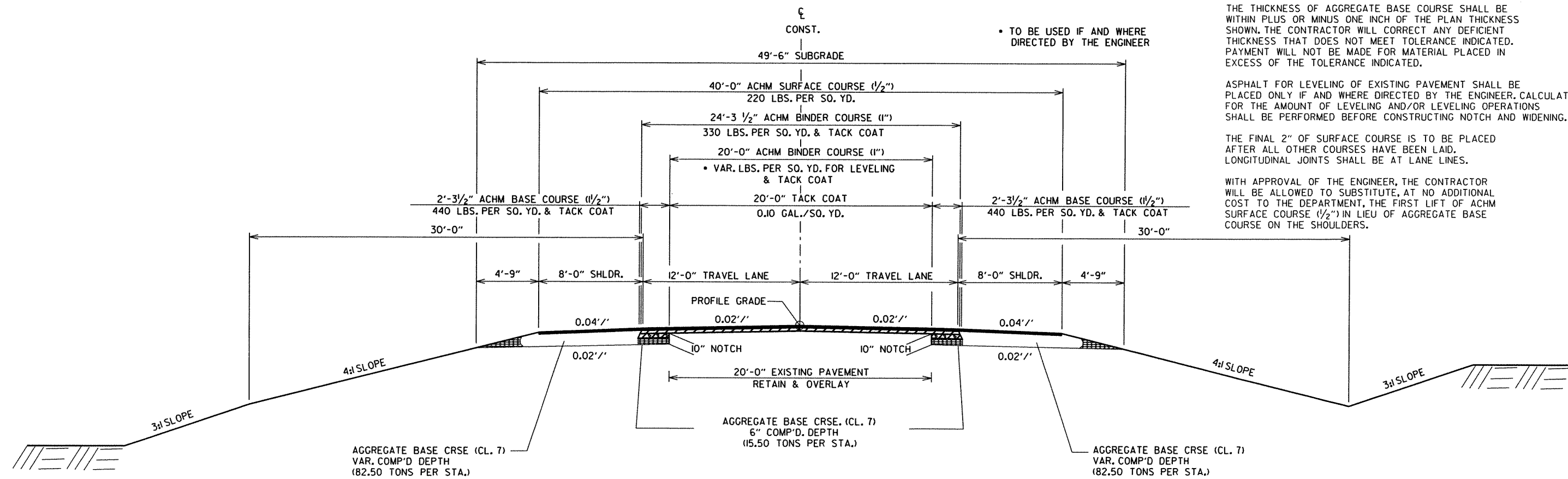
TYPICAL SECTIONS OF IMPROVEMENT

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2 TYPICAL SECTIONS OF IMPROVEMENT



FULL DEPTH SECTION
STA. 116+54.08 TO STA. 122+40



NOTCH AND WIDEN SECTION
STA. 122+40 TO STA. 128+52.27

NOTES:

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

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

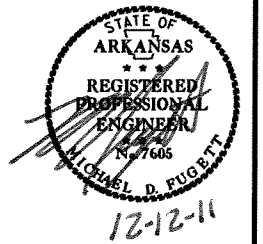
THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.

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

* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

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② TYPICAL SECTIONS OF IMPROVEMENT



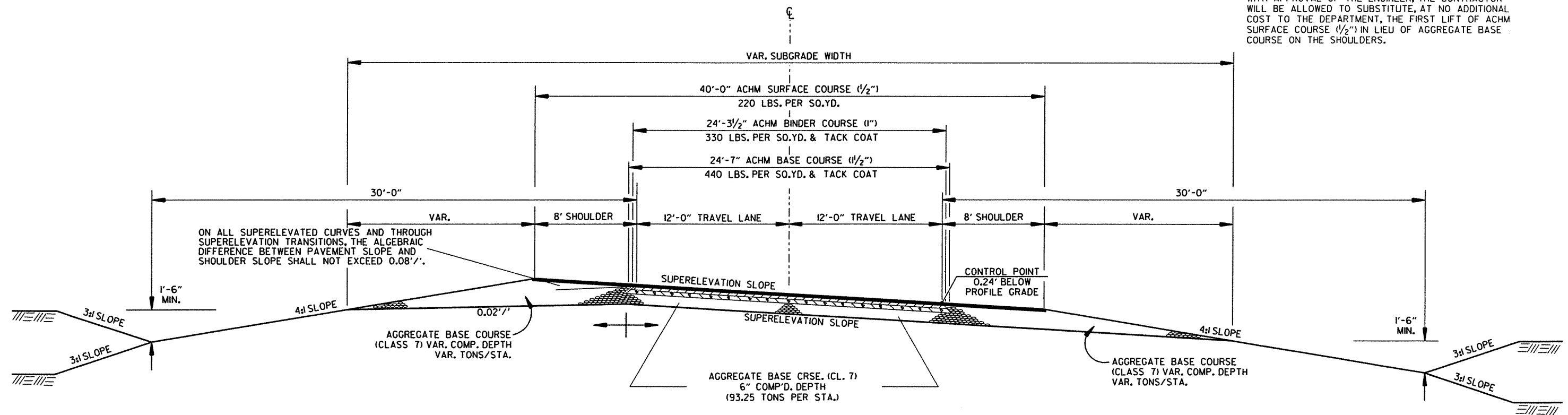
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THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS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

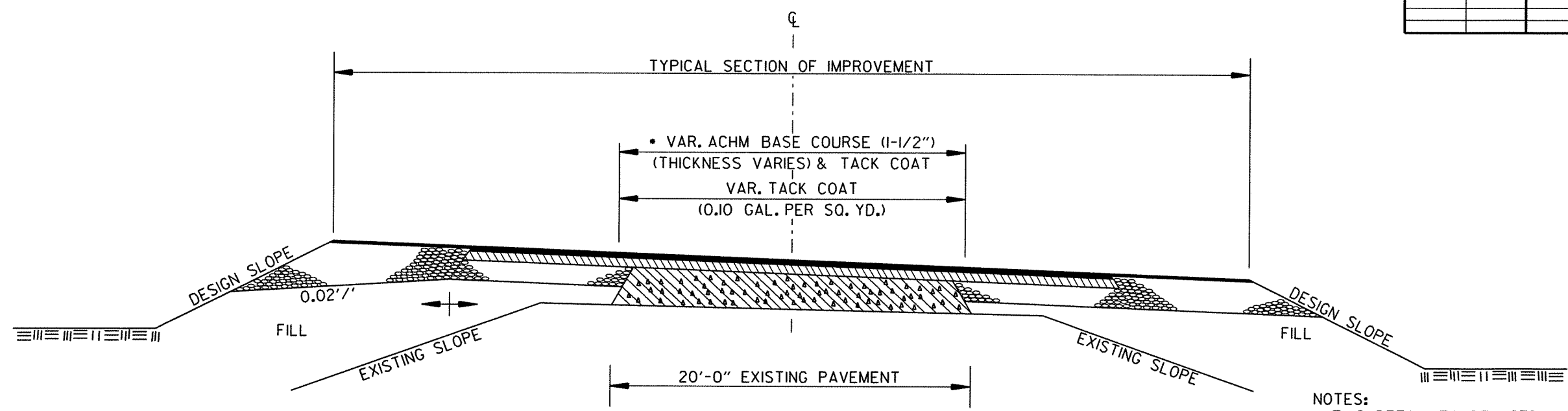
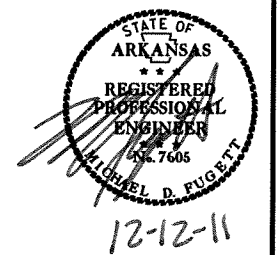
WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.



OPEN SHOULDER
 FULL DEPTH SECTION
 SUPERELEVATION
 STA. 101+77.81 TO STA. 107+44.33
 STA. 108+47.54 TO STA. 111+47.54
 STA. 117+02.00 TO STA. 128+52.27

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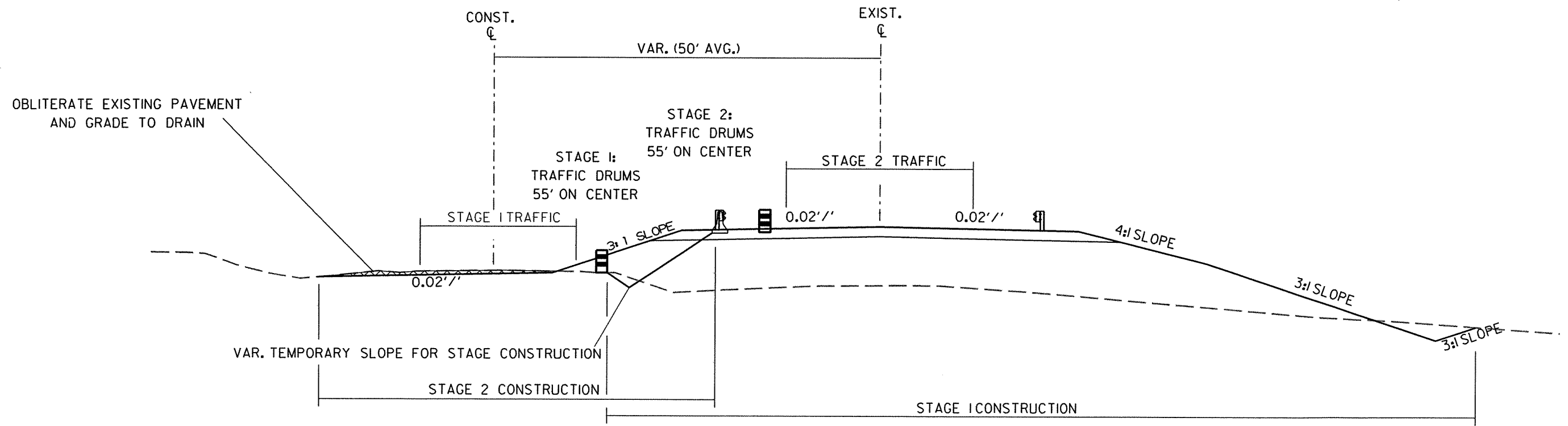
② SPECIAL DETAILS



• 6" AGGREGATE BASE COURSE (CLASS 7) TO BE REPLACED WITH A.C.H.M. BASE COURSE (1 1/2")

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, EDITION OF 2003.

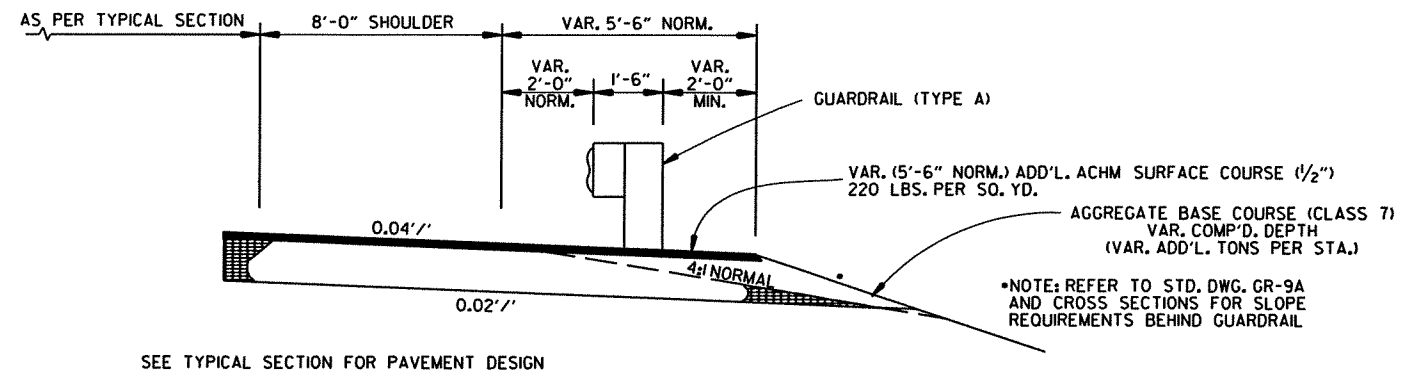
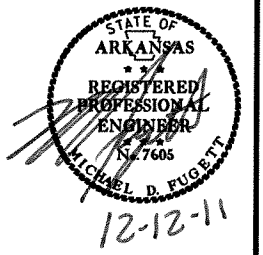


DETAIL FOR STAGE CONSTRUCTION

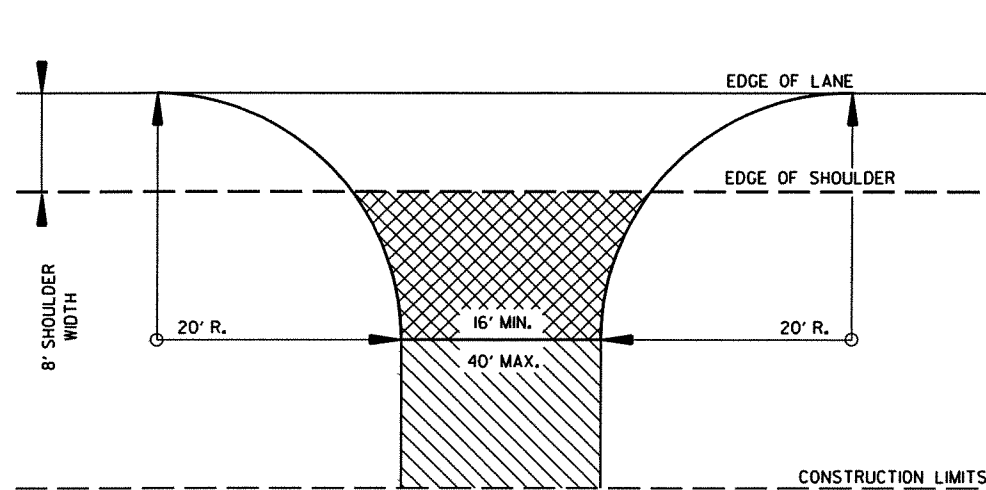
SPECIAL DETAILS

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2 SPECIAL DETAILS



WIDENING FOR GUARDRAIL

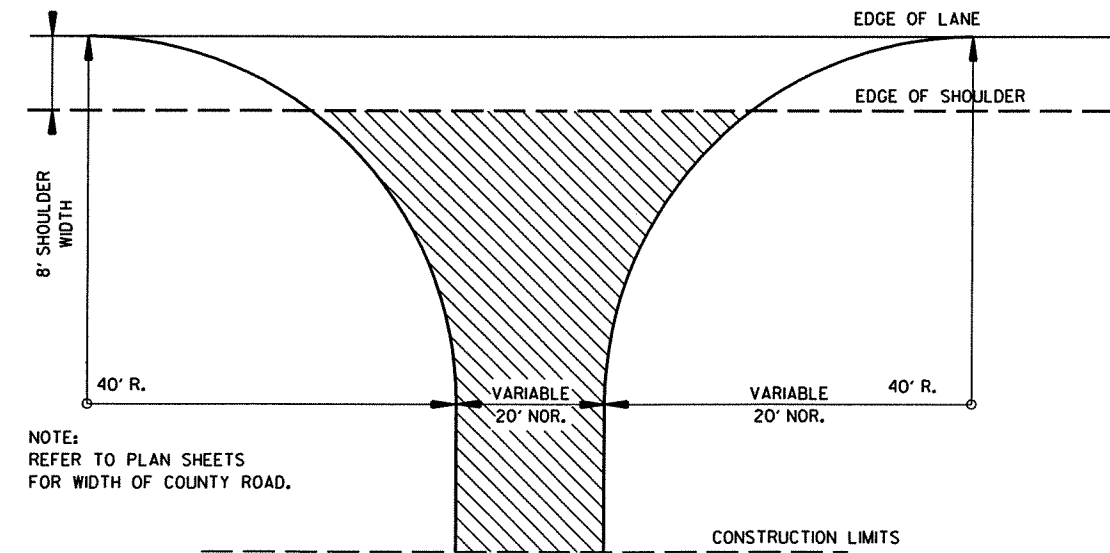


NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

A.C.H.M SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT OR GRAVEL DRIVE EXISTING.

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

DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)



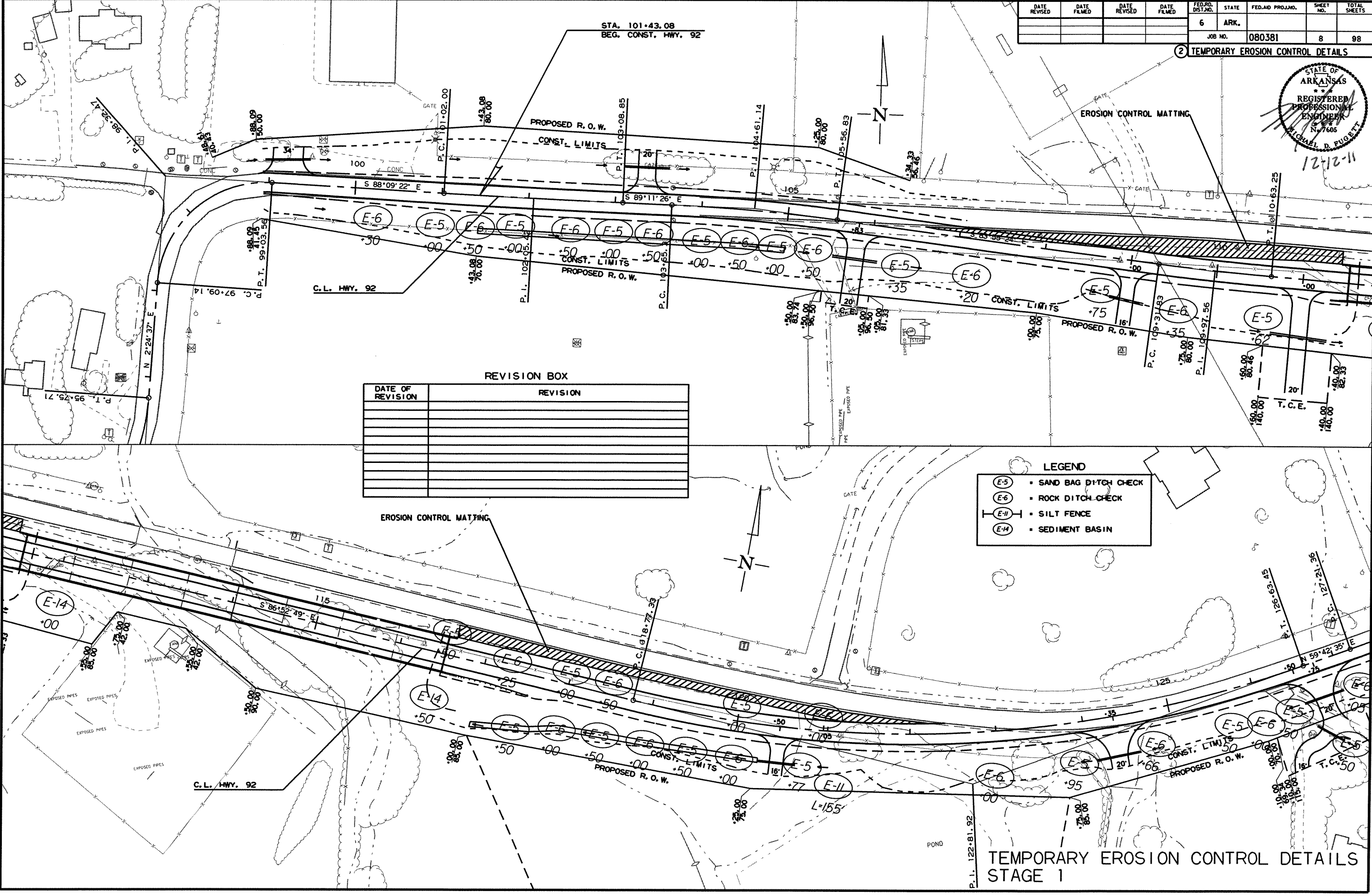
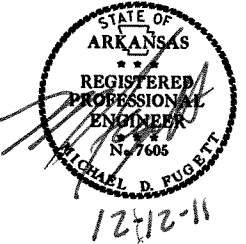
NOTE: REFER TO PLAN SHEETS FOR WIDTH OF COUNTY ROAD.

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

DETAIL FOR COUNTY ROAD TURNOUTS

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2 TEMPORARY EROSION CONTROL DETAILS



REVISION BOX

DATE OF REVISION	REVISION

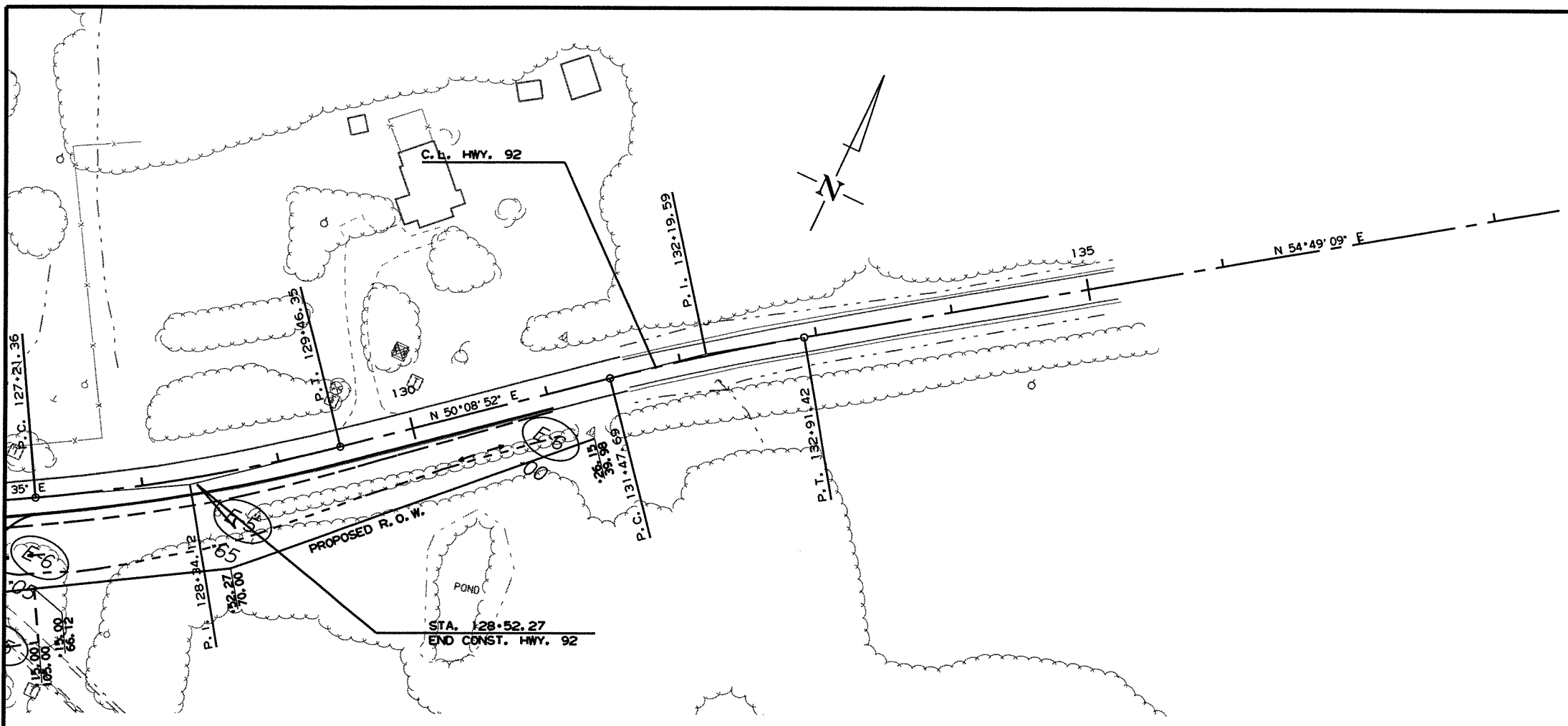
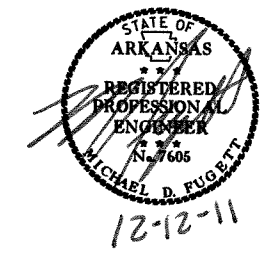
LEGEND

(E-5)	SAND BAG DITCH CHECK
(E-6)	ROCK DITCH CHECK
(E-11)	SILT FENCE
(E-14)	SEDIMENT BASIN

TEMPORARY EROSION CONTROL DETAILS
STAGE 1

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② TEMPORARY EROSION CONTROL DETAILS



LEGEND

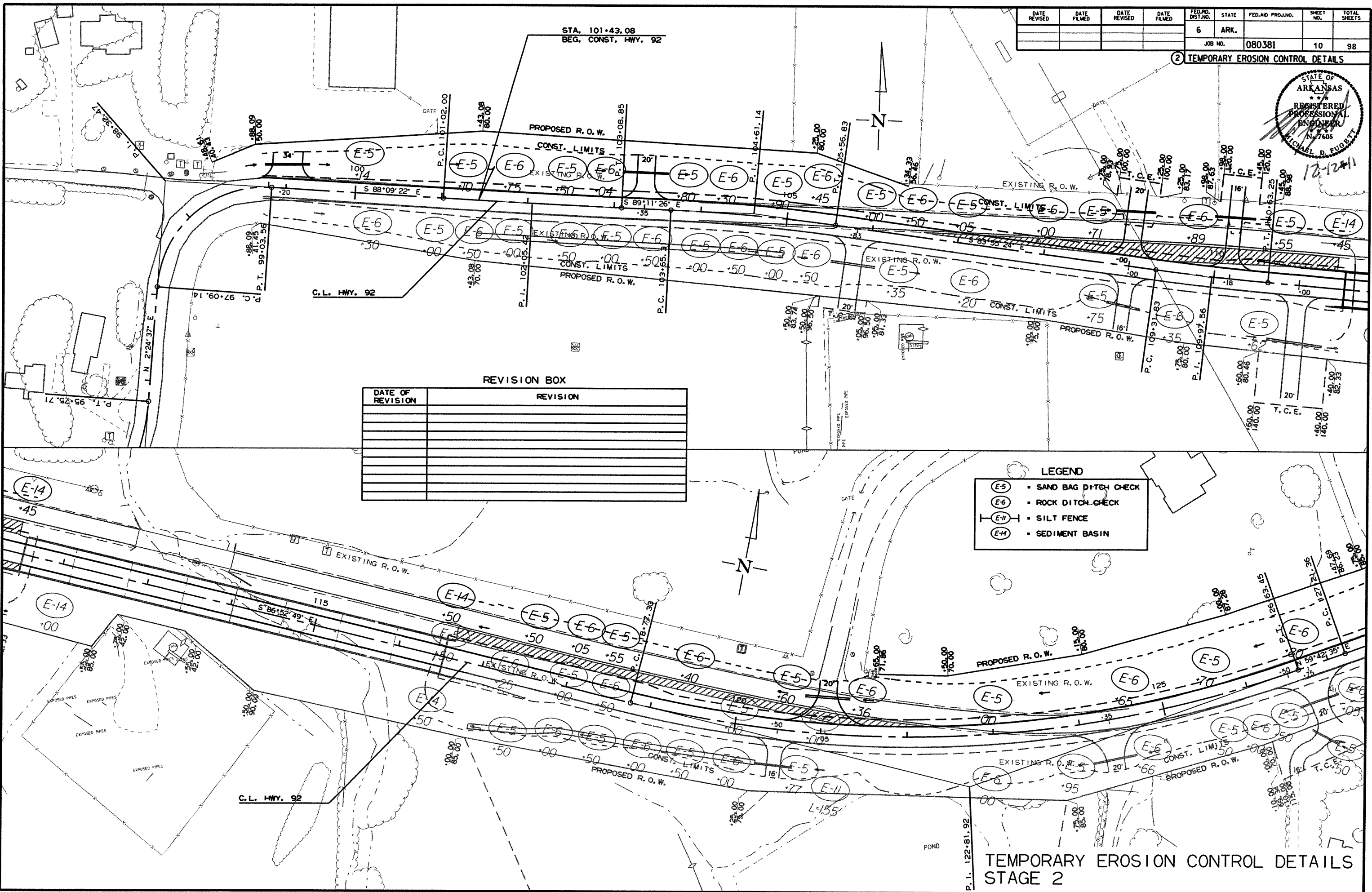
(E-5)	SAND BAG DITCH CHECK
(E-6)	ROCK DITCH CHECK
(E-11)	SILT FENCE
(E-14)	SEDIMENT BASIN

REVISION BOX

DATE OF REVISION	REVISION

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				6	ARK.			
JOB NO. 080381							10	98

2 TEMPORARY EROSION CONTROL DETAILS



REVISION BOX

DATE OF REVISION	REVISION

LEGEND

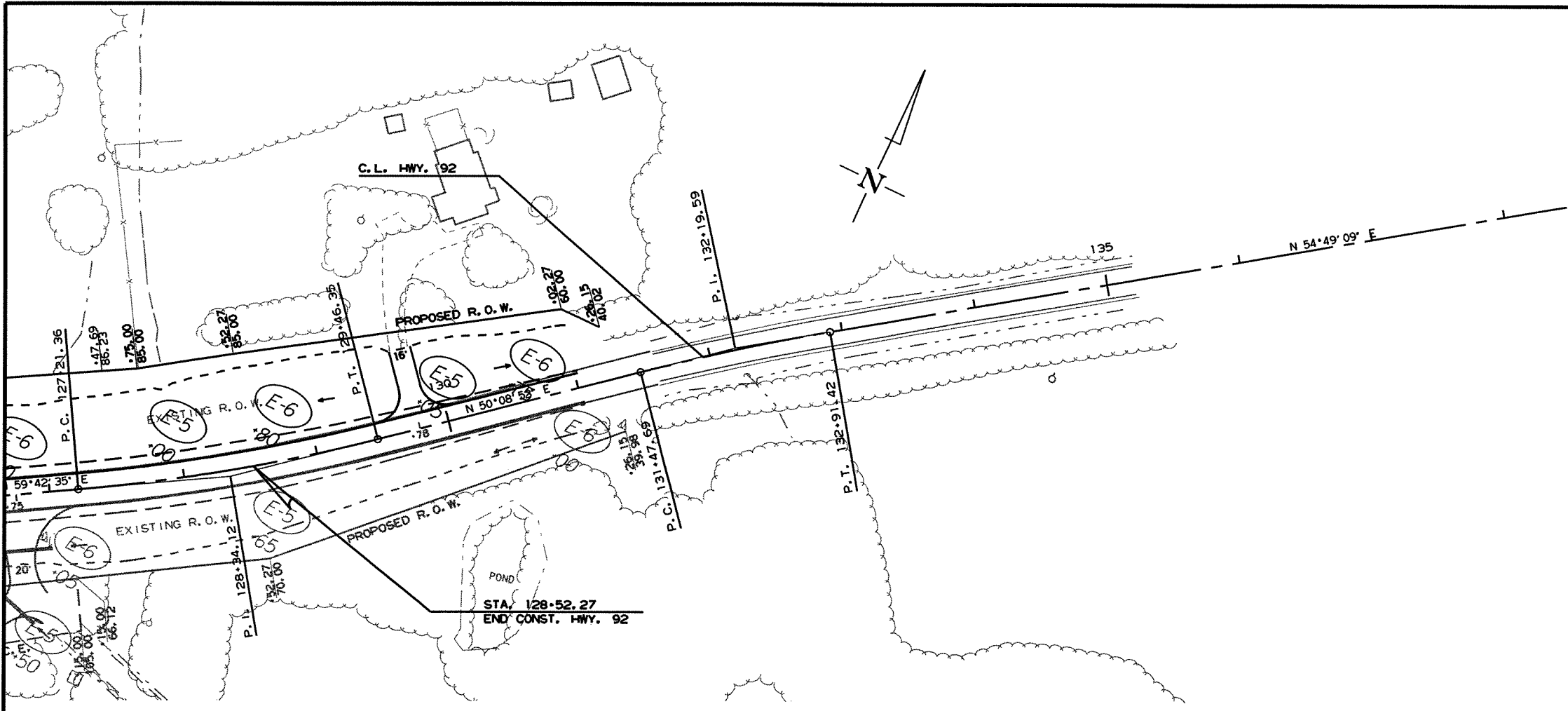
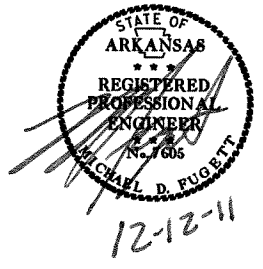
(E-5)	SAND BAG DITCH CHECK
(E-6)	ROCK DITCH CHECK
(E-11)	SILT FENCE
(E-14)	SEDIMENT BASIN

R080381.DGN 11/23/2011

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080381	11	98

2 TEMPORARY EROSION CONTROL DETAILS



LEGEND

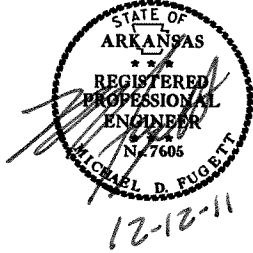
- (E-5) SAND BAG DITCH CHECK
- (E-6) ROCK DITCH CHECK
- (E-11) SILT FENCE
- (E-14) SEDIMENT BASIN

REVISION BOX

DATE OF REVISION	REVISION

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							12	98

② MAINTENANCE OF TRAFFIC DETAILS



DO
NOT
PASS

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

ALL STAGES
TO BE USED IF AND
WHERE DIRECTED BY
THE ENGINEER

STAGE 1A CONSTRUCTION SEQUENCE

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AS SHOWN IN THE STAGE 1A MAINTENANCE OF TRAFFIC PLANS. INSTALL ROAD WORK AHEAD (W20-1) SIGN AS SHOWN IN THE STAGE 1A MAINTENANCE OF TRAFFIC PLANS.

CONSTRUCT PROPOSED BRIDGE OVER SCROGGINS CREEK.

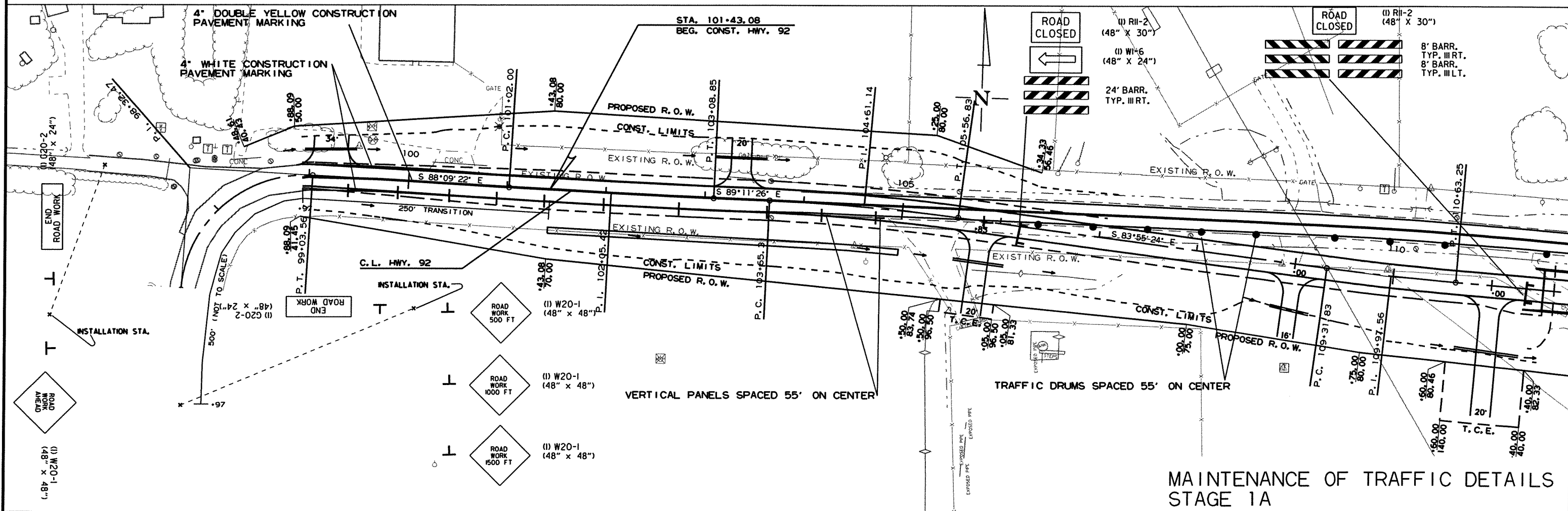
APPLY LEVELING COURSE TO EXISTING LANES IF AND WHERE DIRECTED BY THE ENGINEER.

APPLY CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 1A MAINTENANCE OF TRAFFIC PLANS.

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 55' ON CENTER TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

NOTCH AND WIDEN HWY. 92 ON THE RIGHT FROM STATION 95+00 TO STATION 105+60.00 AND FROM STATION 122+40.00 TO STATION 131+02.27. CONSTRUCT FULL DEPTH SECTION OF HWY. 92 FROM STATION 101+43.08 TO STATION 111+51.92 AND FROM STATION 116+54.08 TO STATION 131+02.27.

INSTALL TYPE III BARRICADES WITH ROAD CLOSED (R11-2) SIGNS AS SHOWN IN THE STAGE 1A MAINTENANCE OF TRAFFIC PLANS AS PROPOSED ROADWAY EMBANKMENT IS CONSTRUCTED.

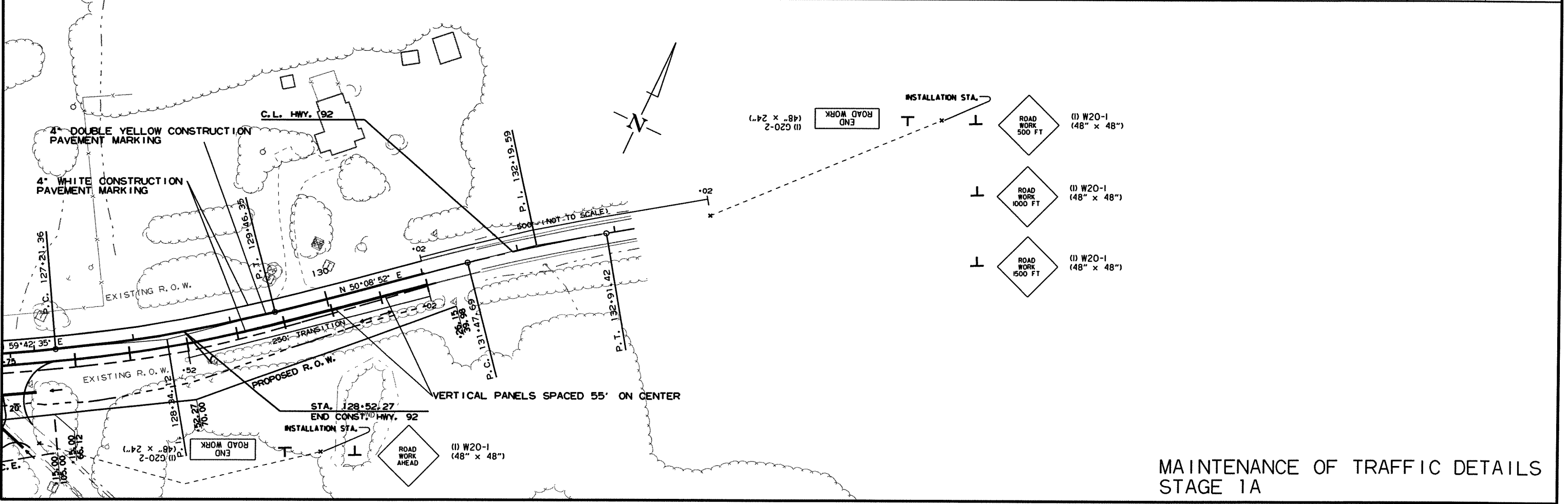
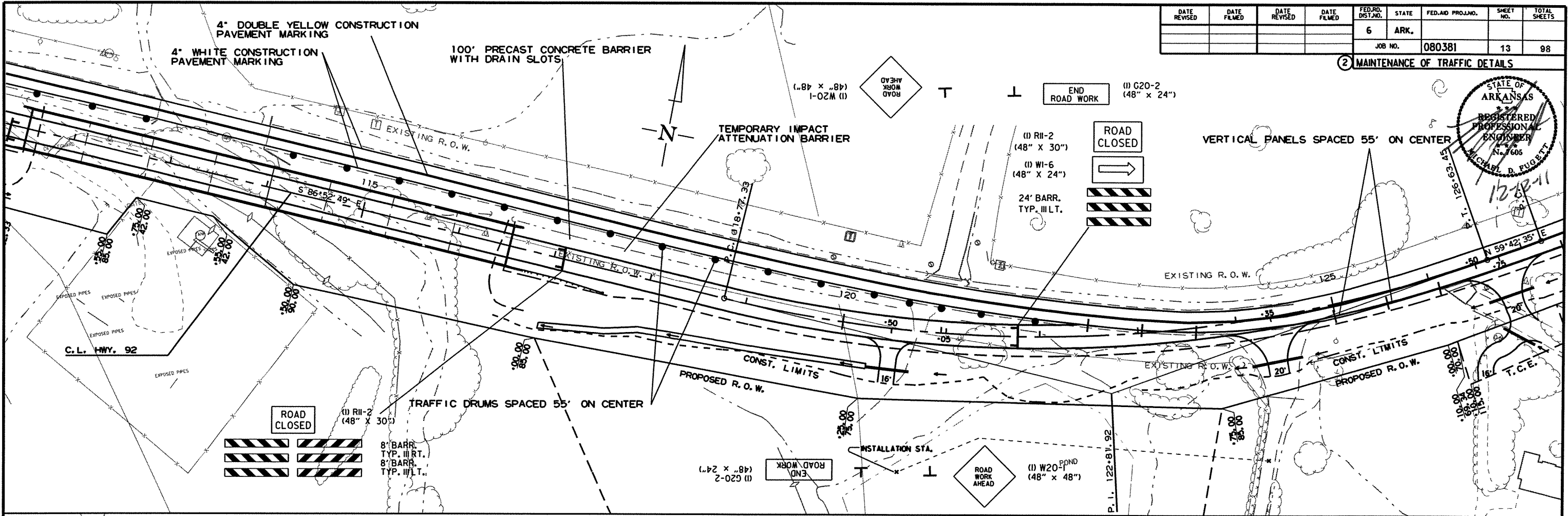


RO80381.DGN 11/23/2011

MAINTENANCE OF TRAFFIC DETAILS
STAGE 1A

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							13	98

2 MAINTENANCE OF TRAFFIC DETAILS

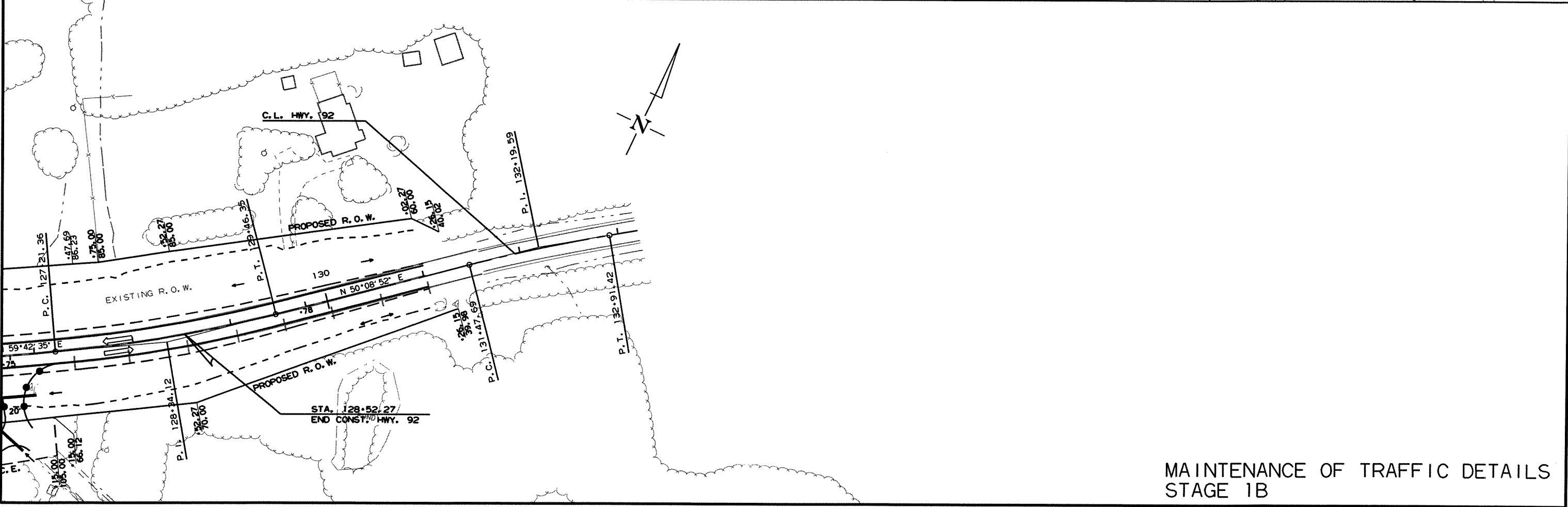
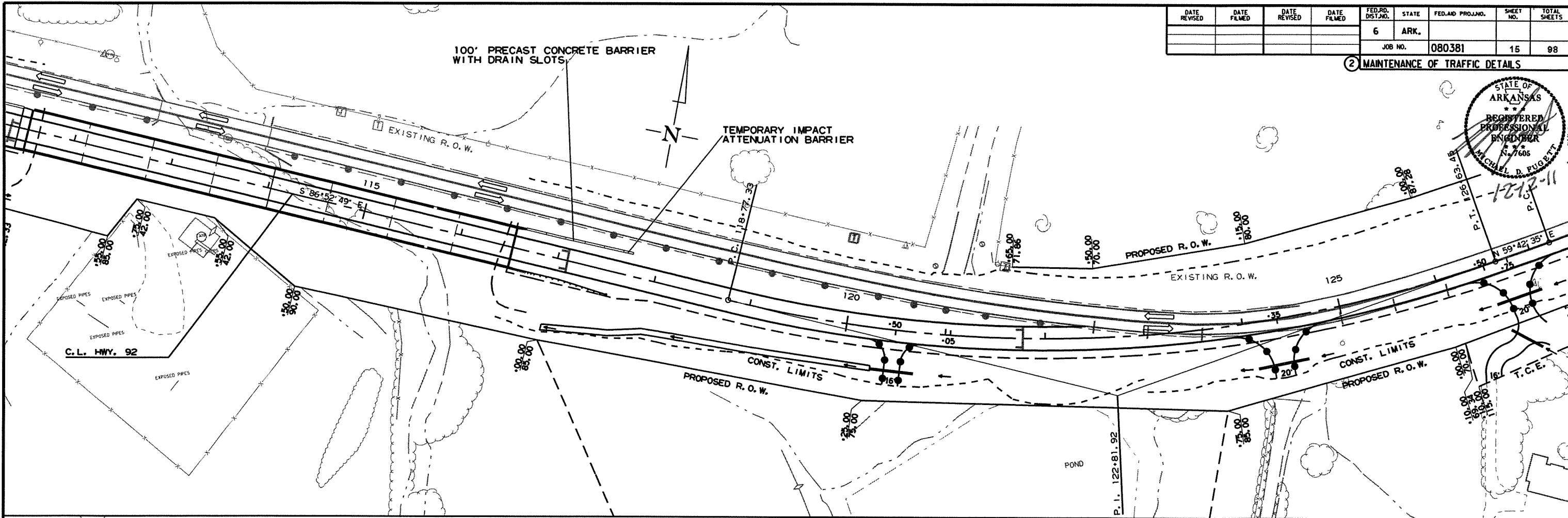


MAINTENANCE OF TRAFFIC DETAILS
STAGE 1A

R080381.DGN 11/23/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080381	15	98

2 MAINTENANCE OF TRAFFIC DETAILS



R080381.DGN 11/23/2011

MAINTENANCE OF TRAFFIC DETAILS
STAGE 1B

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080381	16	98

② MAINTENANCE OF TRAFFIC DETAILS



12-12-11

STAGE 2 CONSTRUCTION SEQUENCE

MAINTAIN TEMPORARY PRECAST BARRIER IN PLACE UNTIL DIRECT ACCESS TO PROPERTIES CAN BE ESTABLISHED.

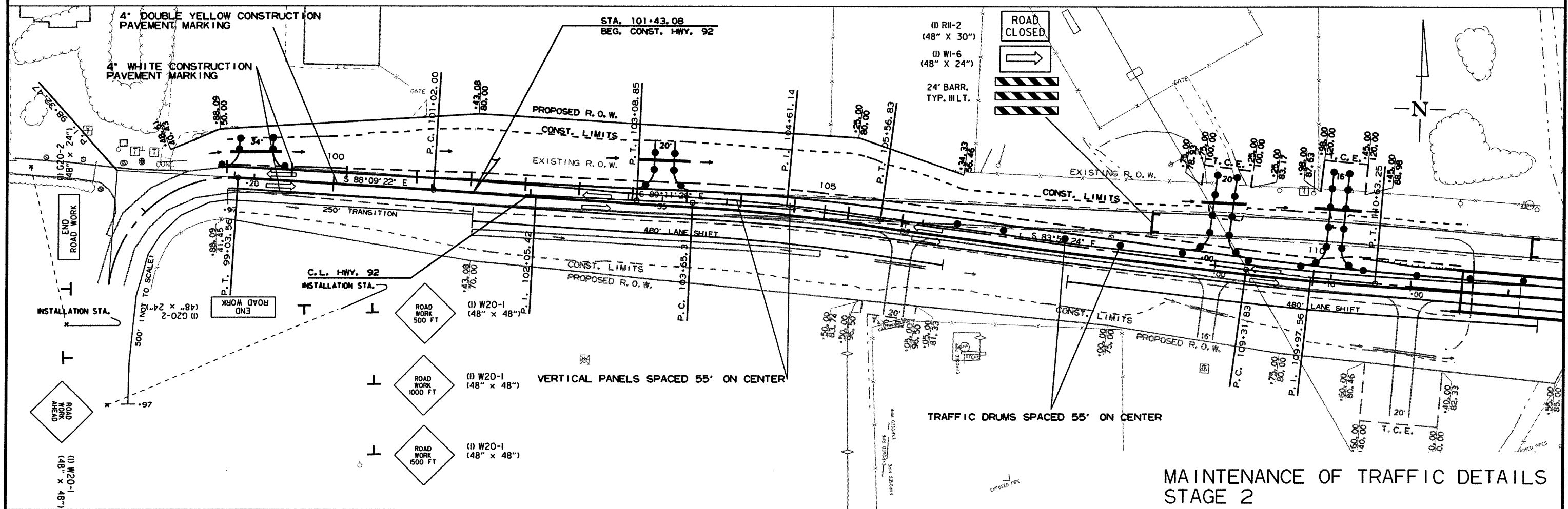
APPLY CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC PLANS AND SHIFT TRAFFIC ONTO THE PROPOSED ROADWAY CONSTRUCTED IN STAGE 1.

USE TRAFFIC DRUMS SPACED 55' ON CENTER TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

OBLITERATE THE PORTIONS OF EXISTING PAVEMENT ON HWY. 92 THAT ARE NOT NEEDED AND GRADE EMBANKMENT TO DRAIN AS SHOWN ON THE CROSS SECTIONS.

NOTCH AND WIDEN HWY. 92 ON THE LEFT FROM STATION 95+00 TO STATION 105+60.00 AND FROM STATION 122+40.00 TO STATION 131+02.27. CONSTRUCT REMAINDER OF FULL DEPTH SECTION OF HWY. 92 FROM STATION 101+43.08 TO STATION 111+51.92 AND FROM STATION 116+54.08 TO STATION 131+02.27.

APPLY FINAL 2" LIFT OF A.C.H.M. SURFACE COURSE TO HWY. 92 AND INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKINGS PLANS.

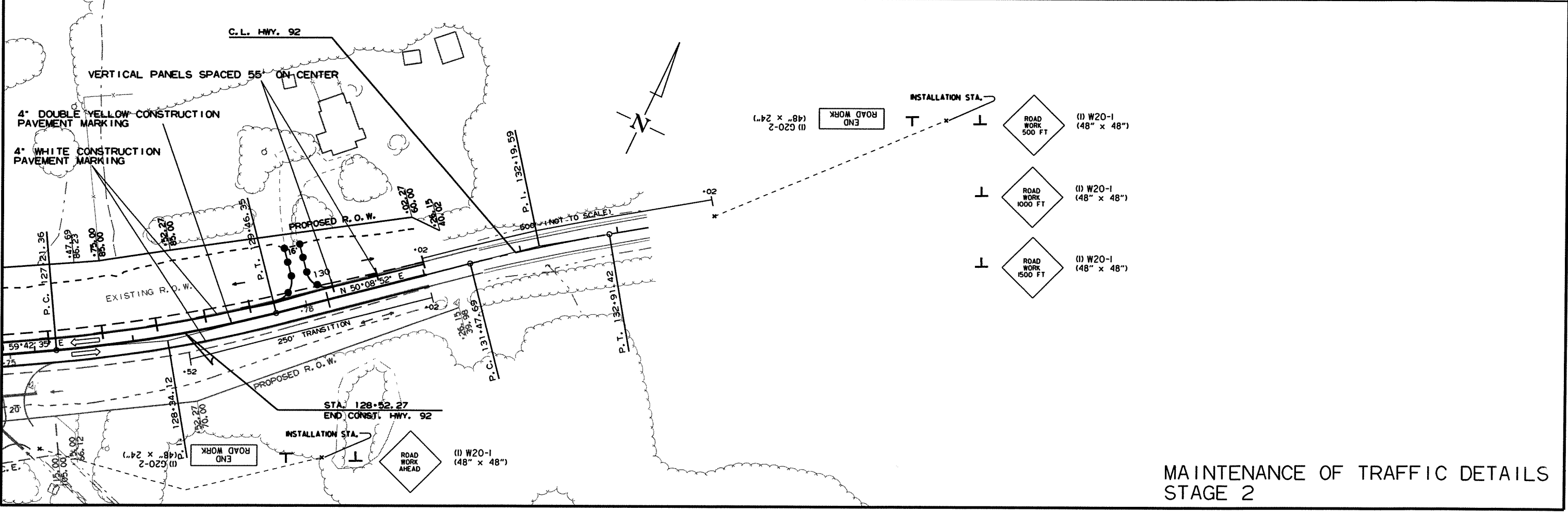
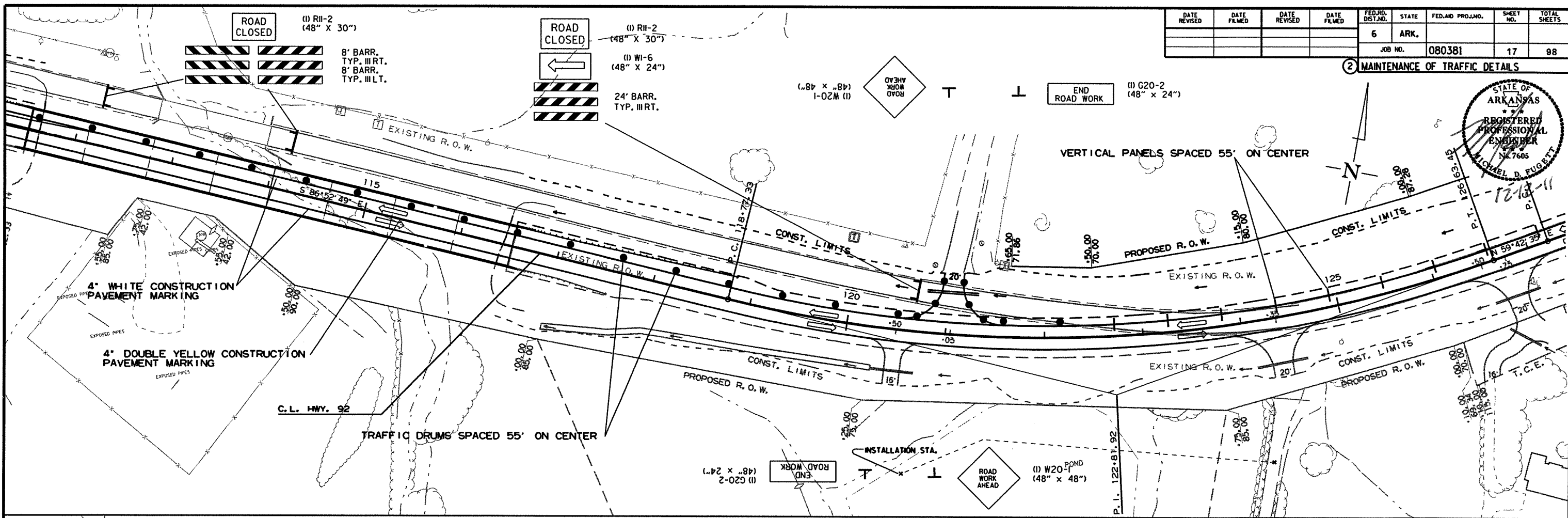
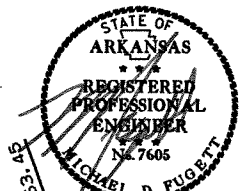


MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

RO80381.DGN 11/23/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		17	98
JOB NO. 080381								

② MAINTENANCE OF TRAFFIC DETAILS



MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

RO80381.DGN 11/23/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							18	98

2 PERMANENT PAVEMENT MARKING DETAILS

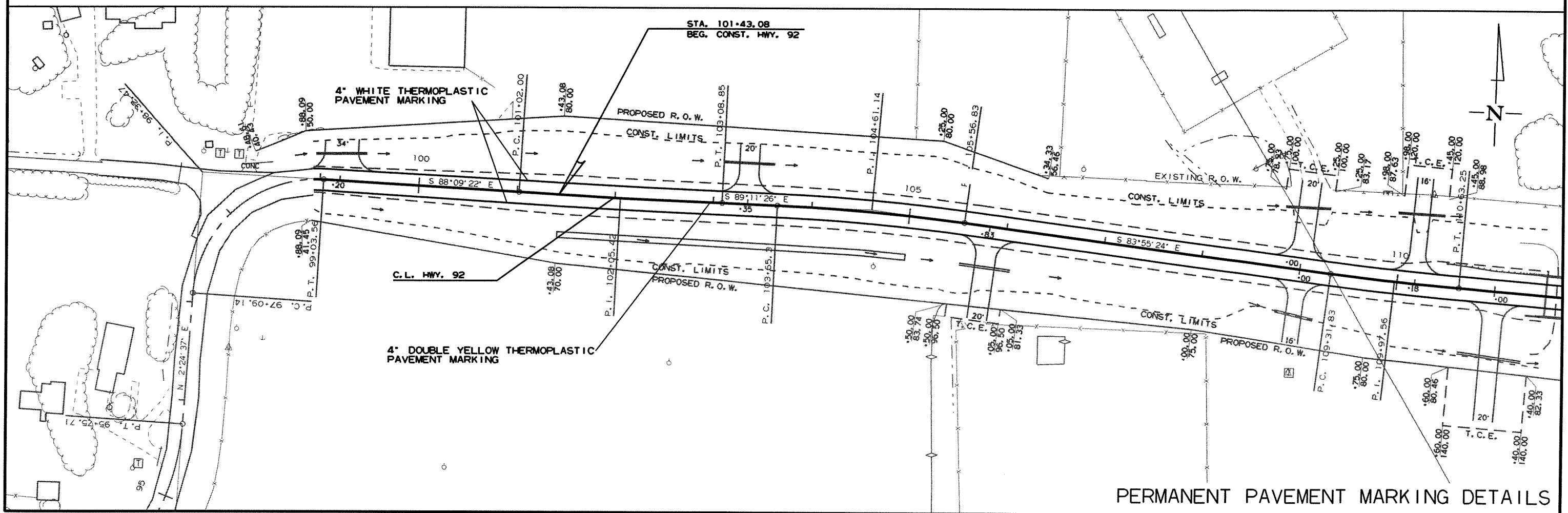


PERMANENT PAVEMENT MARKING QUANTITIES

THERMOPLASTIC PAVEMENT MARKING WHITE (4") = 6418 LIN. FT.
 THERMOPLASTIC PAVEMENT MARKING YELLOW (4") = 5414 LIN. FT.
 HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4") = 1004 LIN. FT.

NOTES:

REFER TO THE PERMANENT PAVEMENT MARKING DETAILS, STD. DRWG. PM-1,
 AND THE LATEST EDITION OF THE MUTCD FOR ADDITIONAL PAVEMENT
 MARKING DETAILS.

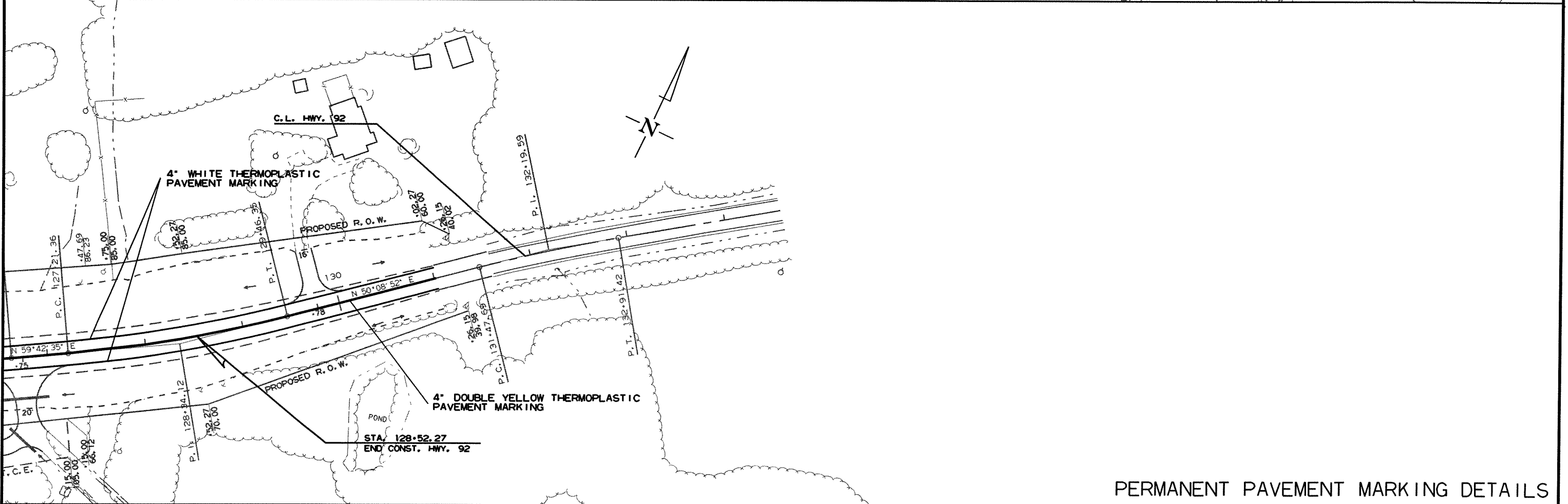
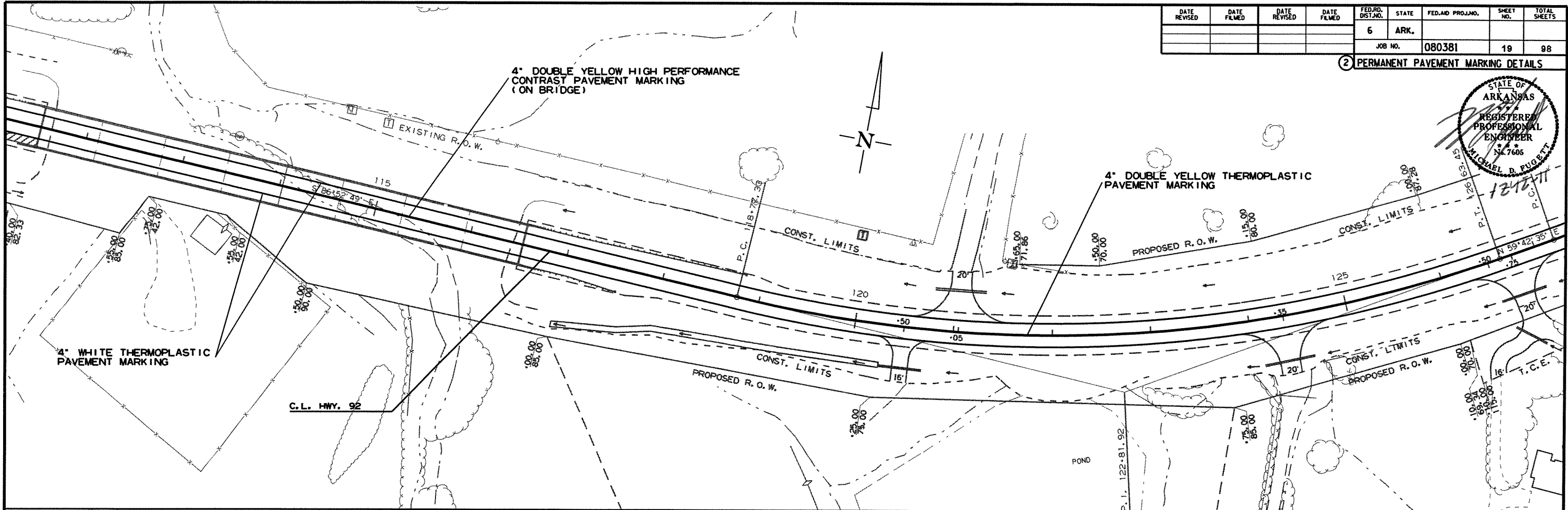


R080381.DGN 11/23/2011

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. 080381							19	98

2 PERMANENT PAVEMENT MARKING DETAILS

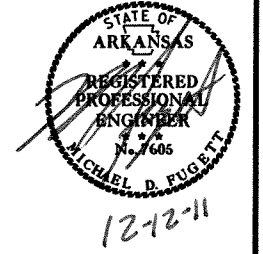


R080381.DGN 11/23/2011

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.	080381		20	98

2 QUANTITIES



ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1A	STAGE 1B	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)	
			LIN. FT. - EACH				NO.	SQ. FT.			EACH	RIGHT				LEFT
												LIN. FT.				EACH
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	32.0								
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	32.0								
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	32.0								
W20-1	ROAD WORK AHEAD	48"x48"	4	4	4	4	4	64.0								
G20-2	END ROAD WORK	48"x24"	6	6	6	6	6	48.0								
R11-2	ROAD CLOSED	48"x30"	4	4	4	4	4	40.0								
W1-6	LARGE ARROW	48"x24"	2	2	2	2	2	16.0								
R4-1	DO NOT PASS	24"x30"	2	2	2	2	2	10.0								
	VERTICAL PANELS		25		29	29	29		29							
	TRAFFIC DRUMS		70	46	122	122	122			122						
	TYPE III BARRICADE-RT. (24')		1	1	1	1					24					
	TYPE III BARRICADE-LT. (24')		1	1	1	1						24				
	TYPE III BARRICADE-RT. (8')		2	2	2	2	2				32					
	TYPE III BARRICADE-LT. (8')		2	2	2	2	2					32				
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			560		560						560				
	TEMPORARY IMPACT ATTENUATION BARRIER			2		2							2			
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)			2		2								2		
TOTALS:								274.0	29	122	56	56	560	2	2	

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1A	STAGE 1B	STAGE 2	END OF JOB	CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	THERMOPLASTIC PAVEMENT MARKINGS		HIGH PERFORMANCE CONTRAST PAVEMENT MARKING		
	LIN. FT. - EACH						LIN. FT.	LIN. FT.	4"		4"
									WHITE	YELLOW	YELLOW
							LIN. FT.		LIN. FT.		
CONSTRUCTION PAVEMENT MARKINGS	12800		10829		23629						
REMOVABLE CONSTRUCTION PAV'T MARKINGS			2008			2008					
THERMOPLASTIC PAVEMENT MARKINGS WHITE (4")				6418			6418				
THERMOPLASTIC PAVEMENT MARKINGS YELLOW (4")				5414				5414			
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")				1004					1004		
TOTALS:					23629	2008	6418	5414	1004		

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

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. 080381							21	98

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
99+00.00	100+00.00	LT. OF EXISTING C.L.	1	1
102+00.00	106+00.00	LT. OF EXISTING C.L.	4	4
112+00.00	117+00.00	RT. OF EXISTING C.L.	5	5
121+00.00	122+00.00	RT. OF EXISTING C.L.	1	1
123+00.00	125+00.00	RT. OF EXISTING C.L.	2	2
124+00.00	126+00.00	LT. OF EXISTING C.L.	2	2
126+00.00	131+00.00	RT. OF EXISTING C.L.	5	5
127+00.00	128+00.00	LT. OF EXISTING C.L.	1	1
128+00.00	130+00.00	LT. OF EXISTING C.L.	2	2
TOTALS:			23	23

2 QUANTITIES

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH FEET	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC						
105+85.00	35	27	13.60	92	23	7.60	6.65'LT	0-5	21	5	A-4(1)	BROWN
105+87.00	35	27	13.60	92	23	7.60	8.28'RT	0-5	22	4	A-4(0)	BROWN
105+87.00	35	27	13.60	92	23	7.60	8.28'RT	0-5	24	4	A-4(1)	BROWN
113+85.00	35	27	13.60	92	22	58.00	55.02'LT	0-5	31	11	A-6(6)	BROWN
113+86.00	35	27	13.40	92	22	58.00	72.02'LT	0-5	38	21	A-6(16)	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.



REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CONCRETE DRIVEWAYS	CATTLE GUARD	SIGNS
			SQ. YD.	EACH	EACH
100+00.00	101+00.00	LT. OF EXISTING C.L.	84		
120+00.00	122+00.00	LT. OF EXISTING C.L.	22		
103+66.00		LT. AND RT. OF EXISTING C.L.			2
105+56.00		LT. OF EXISTING C.L.			1
107+92.00		RT. OF EXISTING C.L.			1
110+19.00		RT. OF EXISTING C.L.			1
110+59.00		LT. OF EXISTING C.L.			1
118+71.00		LT. OF EXISTING C.L.			1
119+80.00		LT. OF EXISTING C.L.			1
120+83.00		LT. OF EXISTING C.L.			1
111+85.00		RT. OF EXISTING C.L.		1	
TOTALS:			106	1	9

Z- AUGER REFUSAL
NP - NON-PLASTIC
ND - NOT DETERMINABLE

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
111+52.00	BRIDGE END	1
TOTAL:		1

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

SELECTED PIPE BEDDING & BACKFILL

LOCATION	SELECTED PIPE BEDDING	SELECTED PIPE BACKFILL
	CU. YD.	
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	10	20
TOTALS:	10	20

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

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
100+00	105+53	RT. OF EXISTING C.L.	677	
100+90	106+25	LT. OF EXISTING C.L.	472	1
105+58	111+80	RT. OF EXISTING C.L.	692	1
111+92	115+56	RT. OF EXISTING C.L.	389	
112+78	113+45	RT. OF EXISTING C.L.	89	
115+65	124+13	RT. OF EXISTING C.L.	878	1
121+65	127+76	LT. OF EXISTING C.L.	642	
TOTALS:			3839	3

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
98+93.00	101+43.00	MAIN LANES	20	555.56
128+52.00	131+02.00	MAIN LANES	20	555.56
TOTAL:				1111.12

NOTE: AVERAGE MILLING DEPTH 1".

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			1500	6
TOTALS:			1500	6

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

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
100+50.00	LT. OF EXISTING C.L., 18"X55' C.M. PIPE CULVERT	1
103+35.00	LT. OF EXISTING C.L., 18"X25' H.D.P.E. PIPE CULVERT	1
105+83.00	RT. OF EXISTING C.L., 24"X90' C.M. PIPE CULVERT	1
109+00.00	LT. OF EXISTING C.L., 18"X40' C.M. PIPE CULVERT	1
109+00.00	RT. OF EXISTING C.L., 24"X44' H.D.P.E. PIPE CULVERT	1
110+18.00	LT. OF EXISTING C.L., 18"X20' C.M. PIPE CULVERT	1
111+00.00	RT. OF EXISTING C.L., 24"X80' C.M. PIPE CULVERT	1
121+05.00	LT. OF EXISTING C.L., 24"X41' C.M. PIPE CULVERT	1
126+50.00	RT. OF EXISTING C.L., 12"X24' H.D.P.E. PIPE CULVERT	1
126+75.00	RT. OF EXISTING C.L., 18"X31' C.M. PIPE CULVERT	1
TOTAL:		10

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
ENTIRE PROJECT		STAGE 1-MAIN LANES	6838	12510
ENTIRE PROJECT		STAGE 2-MAIN LANES	12026	2278
ENTIRE PROJECT		APPROACHES	25	2730
		EXISTING APPROACH EMBANKMENT	895	
TOTALS:			19784	17518

EARTHWORK QUANTITIES SHOWN ABOVE SHALL BE PAID AS PLAN QUANTITY.

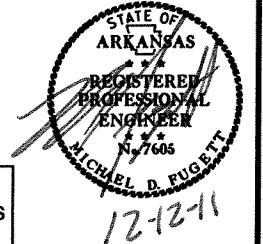
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080381		22	98

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.
101+43.00	105+00.00	RT. OF C.L.	357.00	6	238.00	158.67	2.0
117+00.00	120+44.00	RT. OF C.L.	344.00	6	229.33	152.89	1.9
TOTALS:					467.33	311.56	3.9

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

QUANTITIES



EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
114+00.00	131+00.00	LT. OF C.L.	1700.0	1511.1
99+00.00	105+50.00	RT. OF C.L.	650.0	577.8
115+50.00	120+00.00	RT. OF C.L.	450.0	400.0
127+00.00	128+00.00	RT. OF C.L.	100.0	88.9
ENTIRE PROJECT			TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	680.0 604.4
TOTAL:				3182.2

NOTE: AVERAGE WIDTH = 8'-0"

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	TERMINAL ANCHOR POST (TYPE 1)	BRIDGE END TERMINAL
			LIN.FT.	EACH		
110+49.25	111+43.00	LT. SIDE	75	1	1	
111+33.00	111+43.00	RT. SIDE				1
116+63.00	117+56.75	RT. SIDE	75	1	1	
116+63.00	118+81.75	LT. SIDE	200	1	1	
TOTALS:			350	3	3	1

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	PORTLAND CEMENT CONCRETE DRIVEWAY	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS		
			FEET	SQ. YD.	SQ. YD.	TON	TON	18"	24"	
99+20.00	LT.	DRIVE ON LT.	34	48.70				52		
103+35.00	LT.	DRIVE ON LT.	20		30.1	3.3	12.3	52		
105+83.00	RT.	DRIVE ON RT.	20		30.1	3.3	12.3		52	
109+00.00	LT.	DRIVE ON LT.	20		30.1	3.3	12.3	46		
109+00.00	RT.	DRIVE ON RT.	16		24.7	2.7	10.1		40	
110+18.00	LT.	DRIVE ON LT.	16		24.7	2.7	10.1	48		
111+00.00	RT.	DRIVE ON RT.	20		30.1	3.3	12.3		66	
120+50.00	RT.	DRIVE ON RT.	16		24.7	2.7	10.1	44		
121+05.00	LT.	MEADOW BROOK DR.	20		105.3	11.6	43.0	52		
124+35.00	RT.	CO. RD. ON RT.	20		105.3	11.6	43.0	52		
126+50.00	RT.	DRIVE ON HARDIN CEMETERY RD.	16		24.7	2.7	10.1	36		
126+75.00	RT.	HARDIN CEMETERY RD.	20		105.3	11.6	43.0	48		
129+78.00	LT.	DRIVE ON LT.	16		24.7	2.7	10.1			
* ENTIRE PROJECT TEMPORARY DRIVES								50.0		
TOTALS:				48.70	61.5	278.7	430	158		

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.6% MIN. AGGR.....5.4% 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

NOTES: 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.

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	ROCK DITCH CHECKS	SILT FENCE	SEDIMENT BASIN	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL	EROSION CONTROL MATTING (CLASS 2)
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN.FT.	CU.YD.	CU.YD.	CU. YD.	SQ. YD.
ENTIRE PROJECT		STAGE 1	2.12	4.24	2.12	216.2	2.12	5.78	5.78	117.9	440	57	155	267	267	312	1291
ENTIRE PROJECT		STAGE 2	2.80	5.60	2.80	285.6	2.80	3.44	3.44	70.2	352	42		267	267	297	
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			1.00	2.00	1.00	102.0	1.00	1.00	1.00	20.4	110	15	31	133	133	134	
TOTALS:			5.92	11.84	5.92	603.8	5.92	10.22	10.22	208.5	902	114	186	667	667	743	1291

BASIS OF ESTIMATE:
LIME2 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.
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

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

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

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.	080381	24	98	
				① 07222	QUANTITIES	52098		

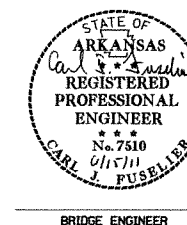
SCHEDULE OF BRIDGE QUANTITIES-JOB 080381

BRIDGE NO. CODE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	802	802	803	SS & 804	SS & 804	805	807	808	812	816	816	SP JOB 080381		
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	② UNCLASSIFIED EXCAVATION FOR STRUCTURES- BRIDGE	CLASS S CONCRETE- BRIDGE	CLASS S(AE) CONCRETE- BRIDGE	CLASS I PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL- BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	① STEEL PILING (HP 12x53)	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	ARMORED JOINT WITH NEOPRENE STRIP SEAL		
			UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LB.	CU. IN.	EACH	SQ. YD.	CU. YD.	LIN. FT.		
07222 X071	SCROGGINS CREEK	END BENT 1 & 9				61.90		0.6	6628		150	1450			740	351			
		BENTS 2, 3, 4		302		129.50			23158										
		BENT 5		109		43.70			7806										
		BENTS 6, 7, 8		334		129.50			23158										
		2-250' CONT. COMP. W-BEAM UNITS					650.60	52.4		148710			435600	24660	1			126	
		EXISTING BR. NO. M1671 (SITE NO. 1)		1															
		TOTALS FOR JOB 080381		1	745	364.60	650.60	53.0	60750	148710	150	437050	24660	1	740	351	126		

① STEEL PILES ARE REQUIRED TO HAVE APPROVED DRIVING POINTS WHICH WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM "STEEL PILING (HP 12 X 53)".

② INCLUDES APPROXIMATELY 168 CU. YDS. OF ROCK EXCAVATION.

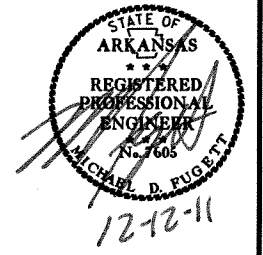
JIM TRIBO
DESIGN SECTION SUPERVISOR



SCHEDULE OF BRIDGE QUANTITIES
SCROGGINS CREEK STR. & APPRS. (S)
VAN BUREN COUNTY
ROUTE 92 SEC. 3
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: MJT DATE: 06/02/11 FILENAME: B080381X1.0LDGN
CHECKED BY: BEF DATE: 6/2/11 SCALE: No Scale
DESIGNED BY: DATE: BRIDGE NO. 07222 DRAWING NO. 52098

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							26	98

2 SURVEY CONTROL DETAILS



SURVEY CONTROL COORDINATES

Project Name: s080381
 Date: 3/24/2011
 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
12	407317.4203	1195580.9454	757.176	CTL	5/8" Rebar with 2" Aluminum Cap CAP
15	408072.0437	1197594.4157	728.195	CTL	5/8" Rebar with 2" Aluminum Cap RT SH, HWY. 92E
16	408092.3462	1198161.9591	726.288	CTL	5/8" Rebar with 2" Aluminum Cap LT SH, HWY. 92E CAP\REB
17	408011.4429	1198792.6237	742.971	CTL	5/8" Rebar with 2" Aluminum Cap RT SH, HWY. 92E CAP\REB
100	408075.9781	1196863.2337	754.202	GPS	5/8" Rebar with 2" Aluminum Cap RT BANK, HWY. 92E GPS=7
101	408091.4094	1198764.9138	742.617	GPS	5/8" Rebar with 2" Aluminum Cap LT BANK, HWY. 92E GPS=7
910	408064.5245	1198089.3309	726.966	BM	CHISELED SQ. COR. CON. HW
1504	408147.4369	1196548.8290	756.686	CTL	REBAR/CAP N. BANK HWY. 92E
1505	407694.8609	1196441.4291	752.122	CTL	REBAR/CAP S. BANK HWY. 92E
1506	407439.5824	1195709.3606	753.989	CTL	REBAR/CAP N. BANK HWY. 92E
1510	408321.3172	1198795.3981	751.686	CTL	REBAR/CAP
1511	408604.4700	1199191.1355	758.682	CTL	REBAR/CAP

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
 *(standard markings common to all caps), or as indicated
 (other markings indicated in the point description of the individual point).
 USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
 A PROJECT CAF OF 0.9999047538 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, s080363gi.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

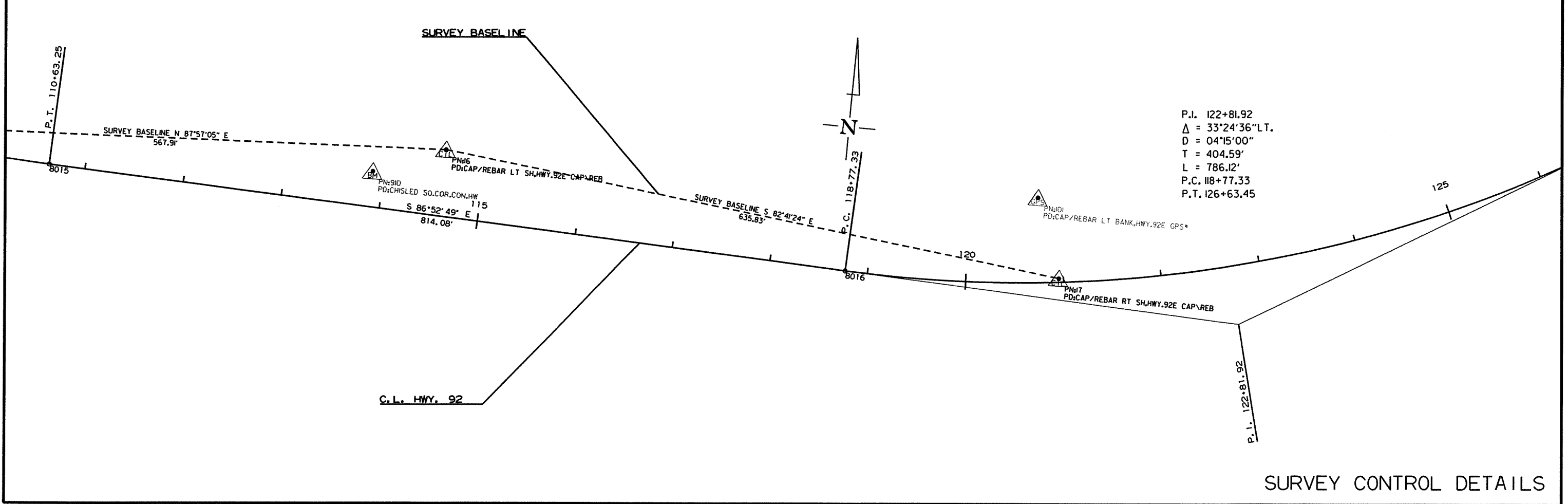
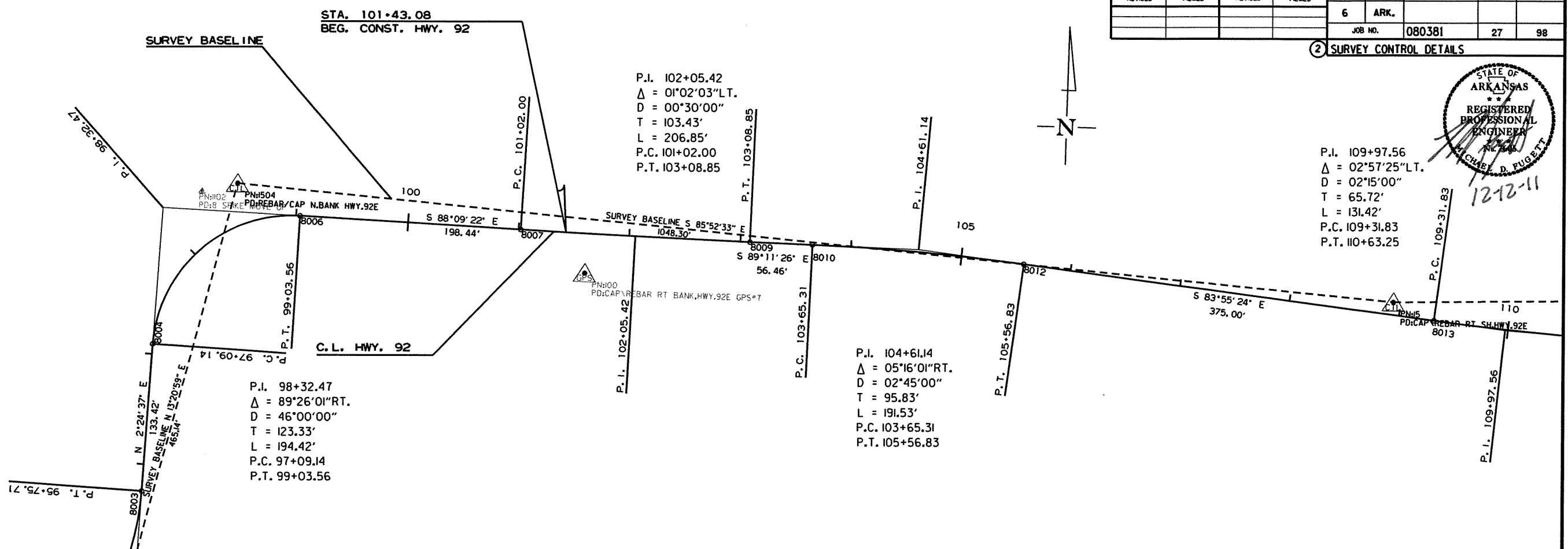
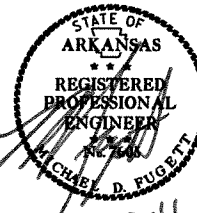
BASIS OF BEARING:
 ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
 DETERMINED FROM GPS CONTROL POINTS: 710009 - 710009A, 710006
 CONVERGENCE ANGLE: 0-13-46.9 LEFT AT LT: 35-27-03.2 LG: 092-23-41
 GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

HWY. 92 - CONST

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	88+32.58	407481.3546	1195886.6487
8001	PC	93+01.63	407655.6069	1196322.1270
8003	PT	95+75.71	407867.2139	1196471.9584
8004	PC	97+09.14	408000.5163	1196477.5694
8006	PT	99+03.56	408119.7697	1196606.0228
8007	PC	101+02.00	408113.3849	1196804.3599
8009	PT	103+08.85	408108.5958	1197011.1531
8010	PC	103+65.31	408107.7981	1197067.6065
8012	PT	105+56.83	408096.2997	1197258.7213
8013	PC	109+31.83	408056.6032	1197631.6143
8015	PT	110+63.25	408046.0691	1197762.5949
8016	PC	118+77.33	408001.7660	1198575.4645
8018	PT	126+63.45	408183.8156	1199328.8087
8019	PC	127+21.36	408213.0279	1199378.8189
8021	PT	129+46.35	408342.1531	1199562.7410
8022	PC	131+47.69	408471.1713	1199717.3068
8024	PT	132+91.42	408558.6783	1199831.2796
8025	POE	140+51.02	408996.3321	1200452.1312

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							27	98

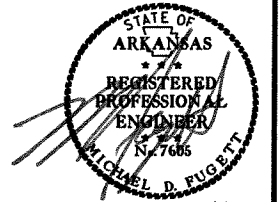
2 SURVEY CONTROL DETAILS



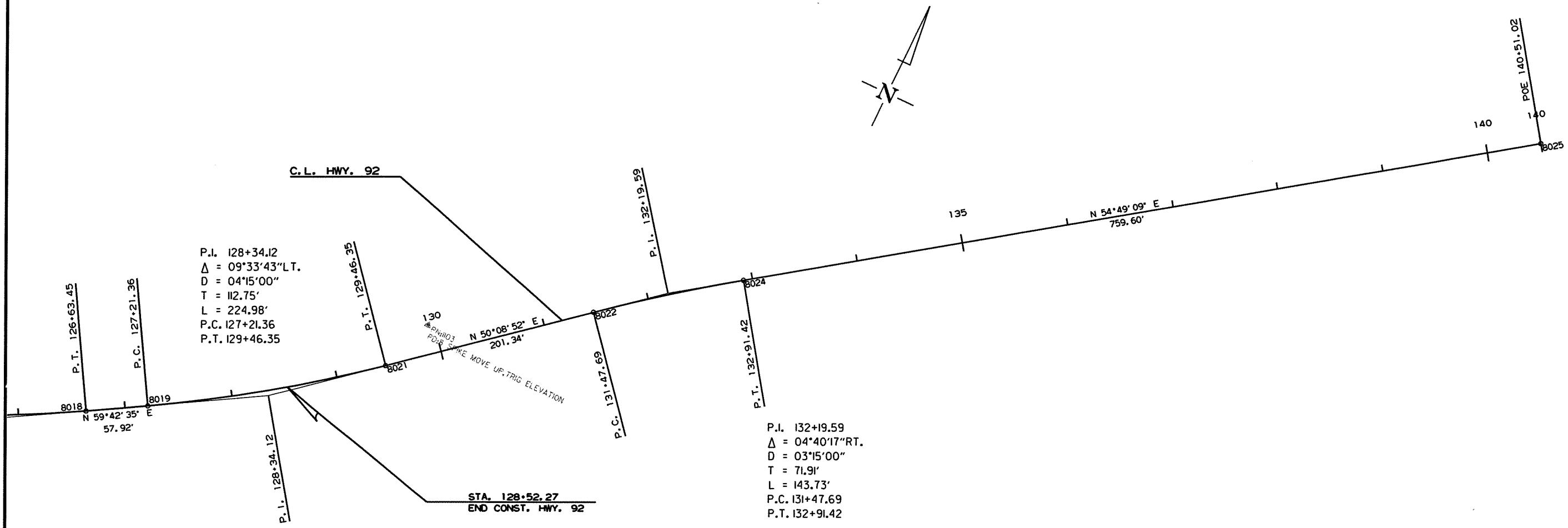
SURVEY CONTROL DETAILS

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. 080381							28	98

2 SURVEY CONTROL DETAILS

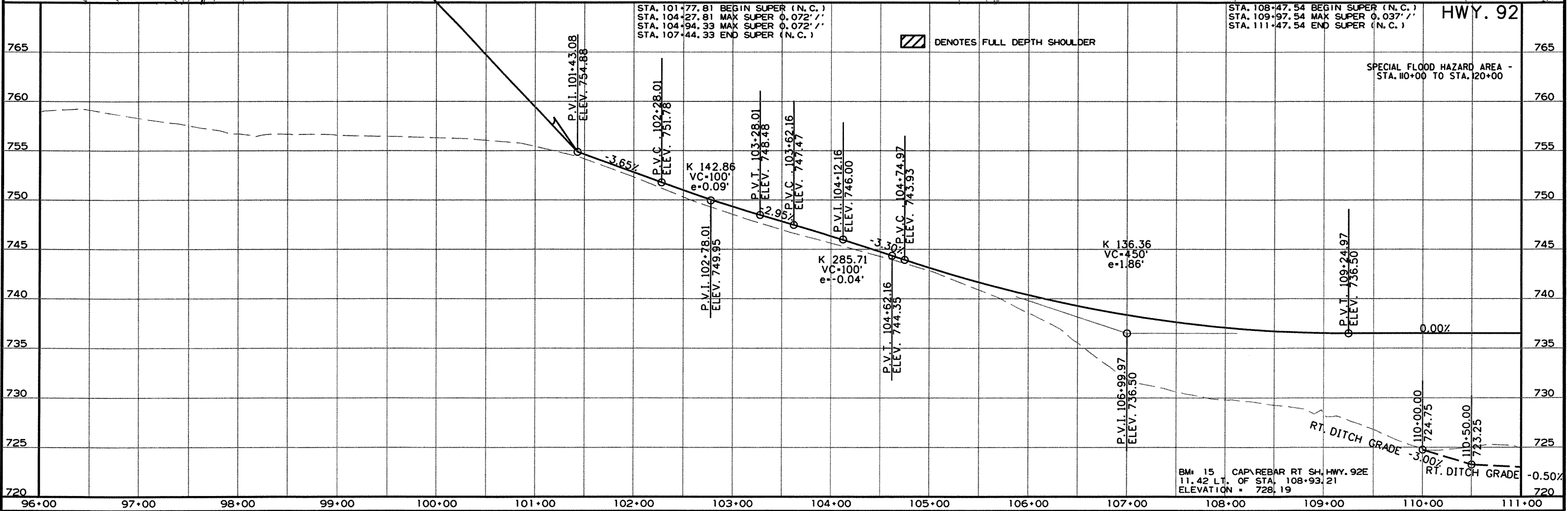
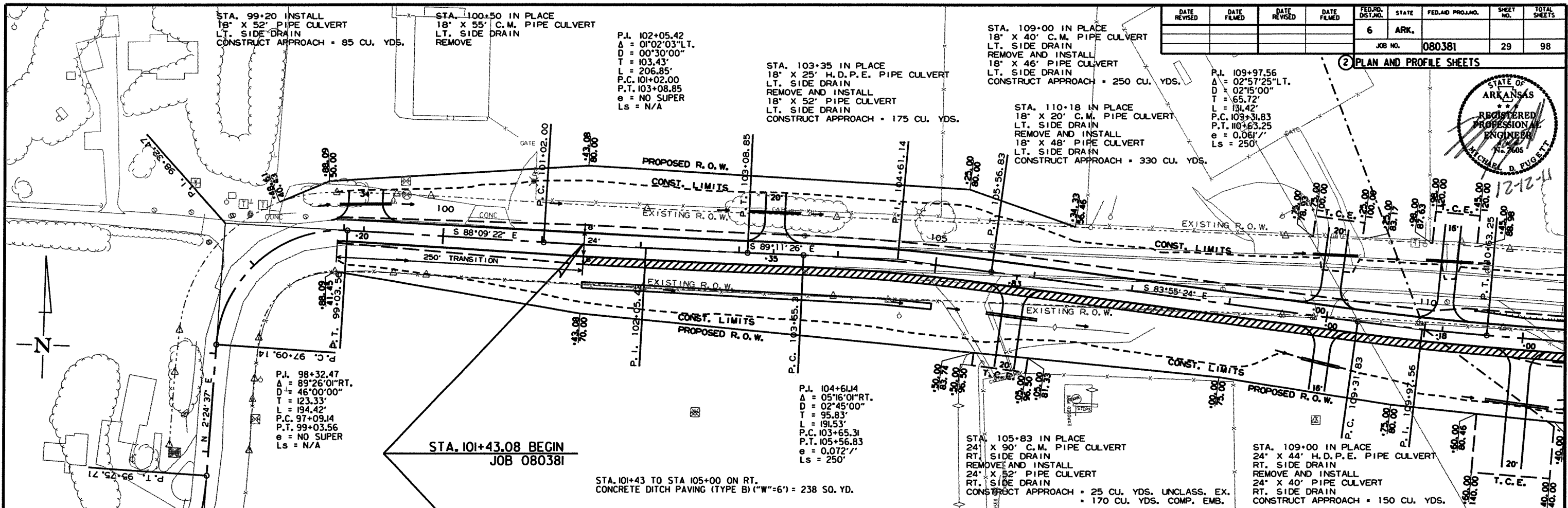


12-12-11



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		29	98

JOB NO. 080381



BM 15 CAP REBAR RT SH, HWY. 92E
 11.42 LT. OF STA. 108+93.21
 ELEVATION = 728.19

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							30	98

2 PLAN AND PROFILE SHEETS



12-12-11

STA. 113+84 - STA. 115+22 IN PLACE
 114' X 21.6' BRIDGE NO. M1671 CONSISTING
 OF SIX 19' PRECAST SPANS ON VERTICAL
 ABUTMENTS AND MULTI-COLUMN INTERMEDIATE
 BENTS WITH SPREAD FOOTINGS REMOVE
 AS EXISTING BRIDGE STRUCTURE
 (SITE NO. 1) = 1.00 LUMP SUM

P.I. 109+97.56
 $\Delta = 02^{\circ}57'25''$ LT.
 $D = 02^{\circ}15'00''$
 $T = 65.72'$
 $L = 131.42'$
 P.C. 109+31.83
 P.T. 110+63.25
 $e = 0.0617'$
 $Ls = 250'$

/// DENOTES FULL DEPTH SHOULDER

STA. 121+05 IN PLACE
 24" X 41" C.M. PIPE CULVERT
 LT. SIDE DRAIN
 REMOVE AND INSTALL
 24" X 52" PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH = 170 CU. YDS.

P.I. 122+81.92
 $\Delta = 33^{\circ}24'36''$ LT.
 $D = 04^{\circ}15'00''$
 $T = 404.59'$
 $L = 786.12'$
 P.C. 118+77.33
 P.T. 126+63.45
 $e = 0.0957'$
 $Ls = 350'$

STA. 111+00 IN PLACE
 24" X 80' C.M. PIPE CULVERT
 RT. SIDE DRAIN
 REMOVE AND INSTALL
 24" X 66' PIPE CULVERT
 RT. SIDE DRAIN
 CONSTRUCT APPROACH = 760 CU. YDS.

STA. 117+00 TO STA. 120+44 ON RT.
 CONCRETE DITCH PAVING (TYPE B) ("W"=6') = 229.33 SQ. YD.

STA. 120+50 INSTALL
 18" X 44' PIPE CULVERT
 RT. SIDE DRAIN
 CONSTRUCT APPROACH = 110 CU. YDS.

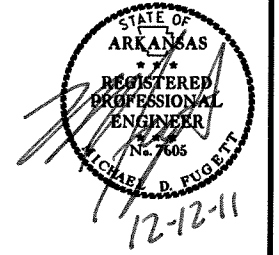
STA. 124+35 IN PLACE
 15" X 44' C.M. PIPE CULVERT
 RT. SIDE DRAIN
 RETAIN AND INSTALL
 18" X 52' PIPE CULVERT
 RT. SIDE DRAIN
 CONSTRUCT APPROACH = 170 CU. YDS.

STA.	STA.	SIDE	THREE BEAM GUARDRAIL (TYPE A)	TERMINAL GUARDRAIL TERMINAL	ANCHOR POST (TYPE 1)	BRIDGE END TERMINAL
110+49.25	111+43.00	LT.	75'	1	1	
111+33.00	111+43.00	RT.				1
116+63.00	117+56.75	RT.	75'	1	1	
116+63.00	118+81.75	LT.	200'	1	1	

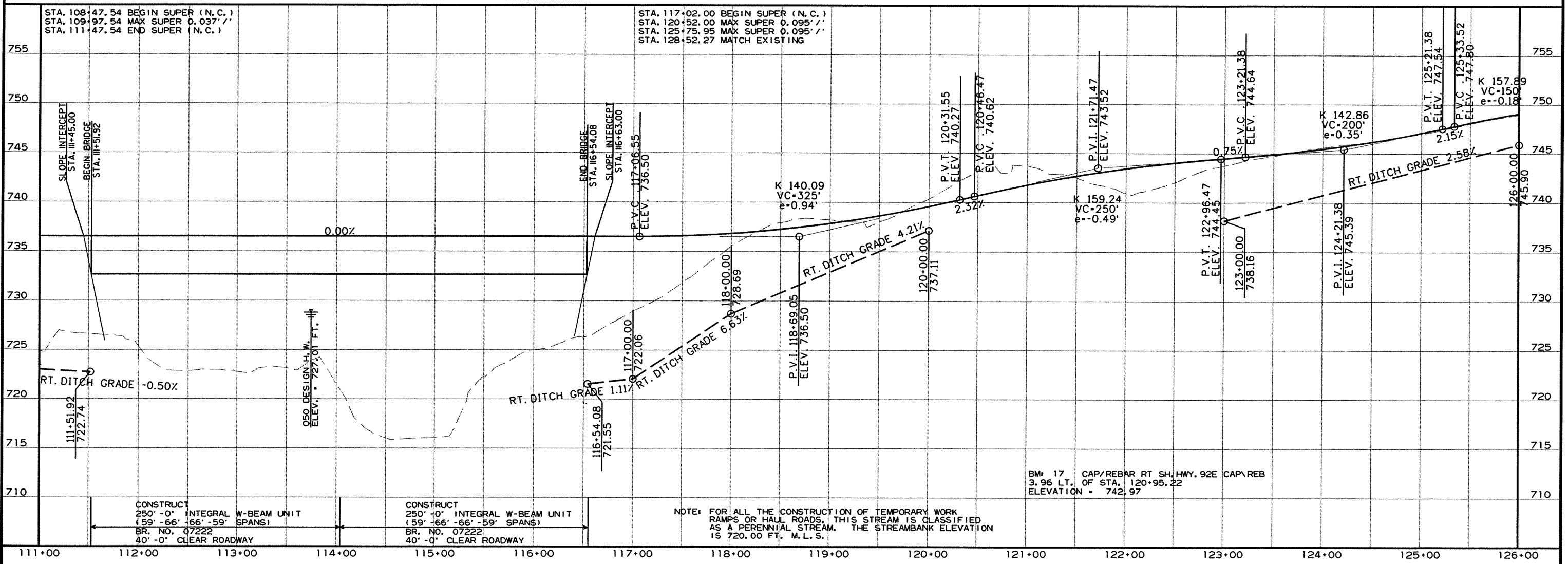
SPECIAL FLOOD HAZARD AREA -
 STA. 110+00 TO STA. 120+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							31	98

2 PLAN AND PROFILE SHEETS



HWY. 92



CONSTRUCT 250'-0" INTEGRAL W-BEAM UNIT (59'-66'-66'-59' SPANS)
 BR. NO. 07222
 40'-0" CLEAR ROADWAY

CONSTRUCT 250'-0" INTEGRAL W-BEAM UNIT (59'-66'-66'-59' SPANS)
 BR. NO. 07222
 40'-0" CLEAR ROADWAY

NOTE: FOR ALL THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HALL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAMBANK ELEVATION IS 720.00 FT. M.L.S.

BM 910 CHISELED SQ. COR. CON. HW
 36.21 LT. OF STA. 113+88.50
 ELEVATION = 726.97

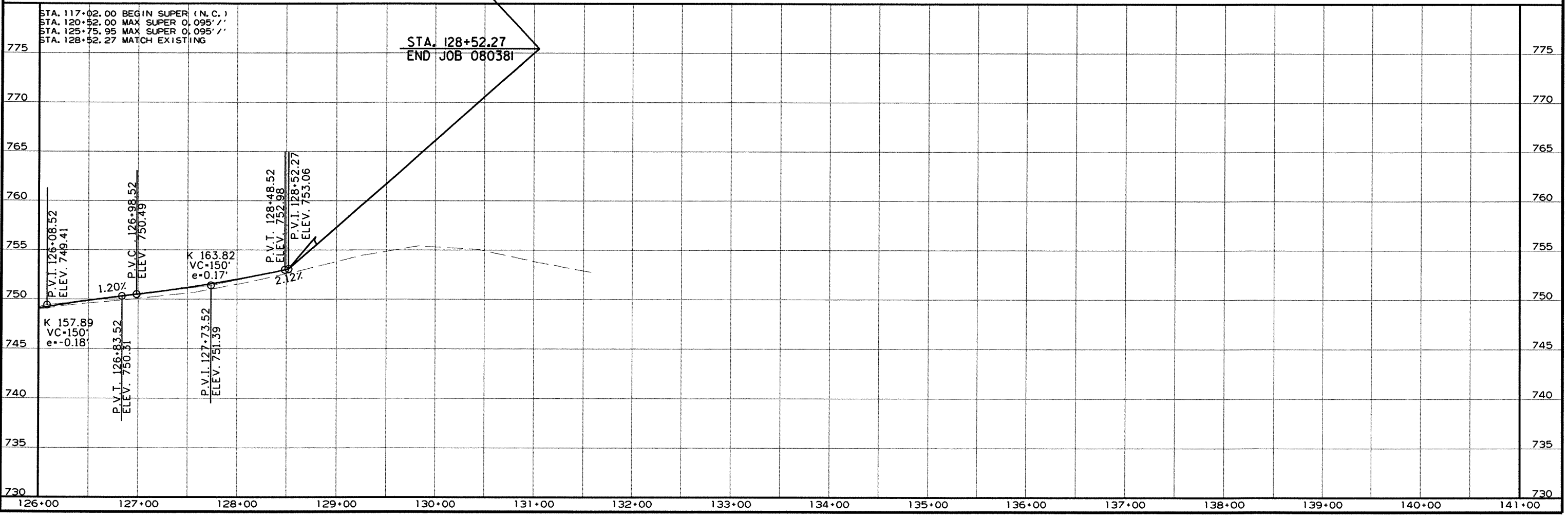
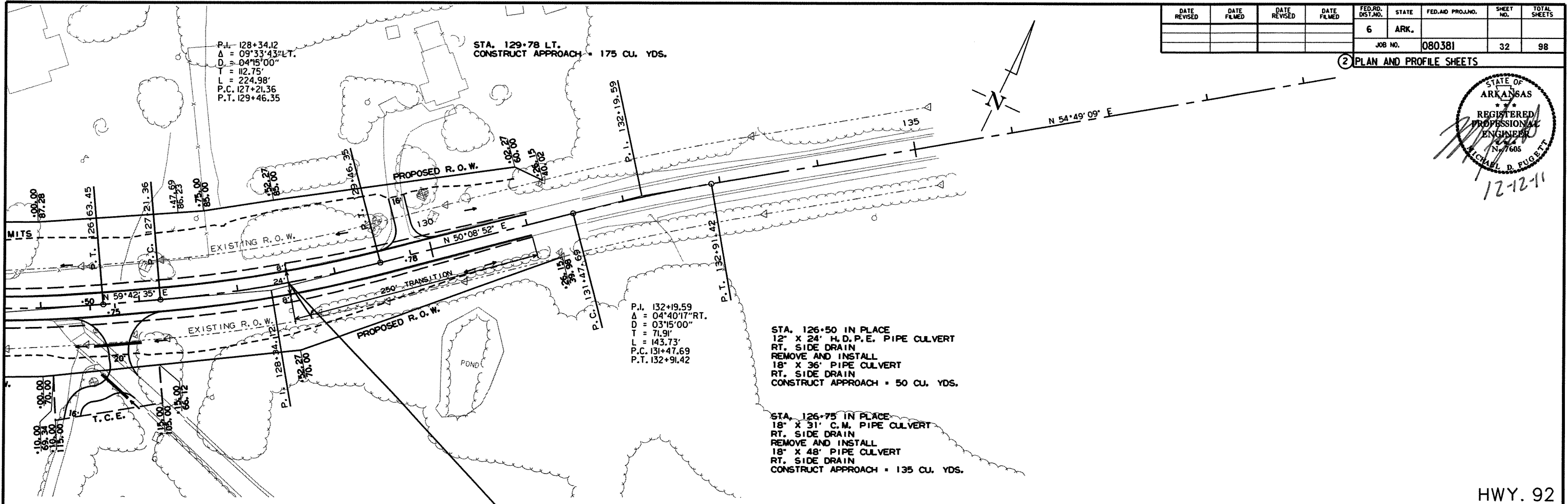
BM 16 CAP/REBAR LT SH. HWY. 92E CAP/REB
 67.94 LT. OF STA. 114+59.51
 ELEVATION = 726.29

SPECIAL FLOOD HAZARD AREA -
 STA. 110+00 TO STA. 120+00

R080381.DGN 11/23/2011

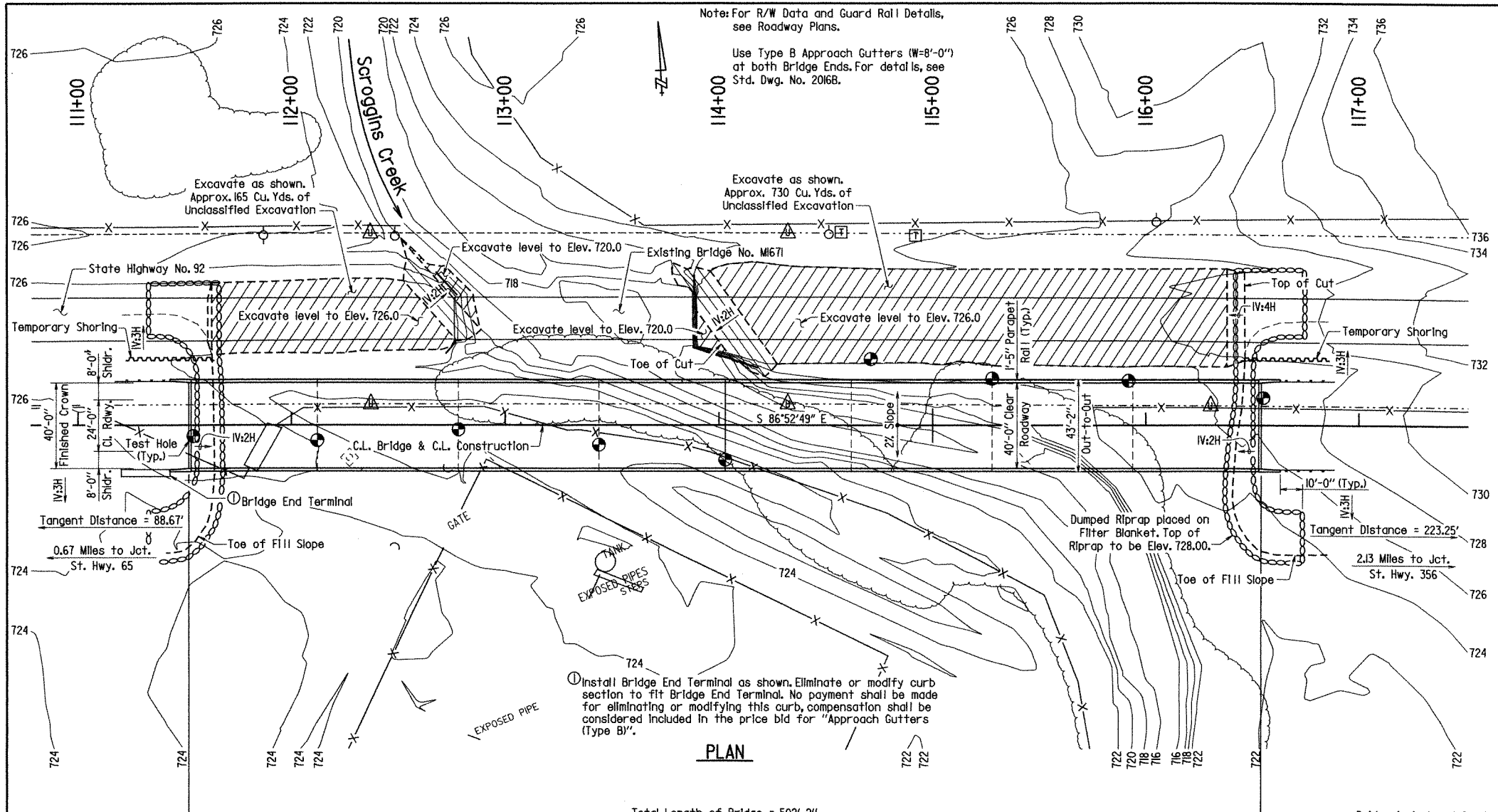
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							32	98

2 PLAN AND PROFILE SHEETS



HWY. 92

R080381.DGN 11/23/2011



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		33	98
						080381	07222	LAYOUT
								52099

GENERAL NOTES

BENCH MARK: BM 910 Chiseled Square in South Corner of Concrete Headwall, 36.21' Left of Sta. 113+88.50, Elevation 726.97

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2003 edition, with applicable supplemental specifications and special provisions. Unless otherwise noted in the plans Section and Subsection refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications Fifth edition (2010) with 2010 interim specifications.

LIVE LOADING: HL-93

SEISMIC ZONE: 1

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 53, Gr. 60)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

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

PILING: Piling in Bents 1 and 9 shall be HP12 X 53 and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 70 tons per pile after embankment to bottom of cap is in place. Piling shall be driven into the material designated as medium hard shale on the boring legend. Lengths shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with the specifications. On all piles the Contractor shall use steel H-Pile driving points. Test Piles are not required but may be driven for the Contractor's information in accordance with subsection 805.08(g).

FOOTINGS: Footings shall be set a minimum of 2 feet into material designated as medium hard shale on the boring legend. The top of the footings shall be set a minimum of 2 feet below natural or excavated ground line. Foundations for footings shall be prepared in accordance with subsection 801.04. Rock excavations shall be made to neat lines of the concrete footings. Care shall be exercised to avoid shattering of the rock faces by excessive blasting. Concrete in footings shall be poured directly against excavated surfaces of rock.

BRIDGE DECKS: The concrete bridge decks shall be given a fine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

DETAIL DRAWINGS:

End Bents	52101 & 52102
Intermediate Bents	52103 & 52104
25'-0" Cont. Comp. W-Beam Unit	52105-52110
Elastomeric Bearings	52111
Steel Piling	14995A

EXISTING BRIDGE: Existing Bridge No. M1671 is 114' long, 21.6' wide and is comprised of 6 - 19' Precast Spans. It is supported by Vertical Abutments and Multi-Column Intermediate Bents on spread footings. Centerline of existing bridge is located approximately 48' upstream of the proposed roadway centerline.

TEMPORARY SHORING: Temporary shoring may be required for construction and/or maintenance of traffic at Bents 1 and 9. See SP Job 080381 "Shoring".

REMOVAL AND SALVAGE: After the new bridge is open to traffic, existing Bridge No. M1671 shall be removed in accordance with Section 205 of the Standard Specifications. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: For details of maintenance of traffic, see Roadway Plans.

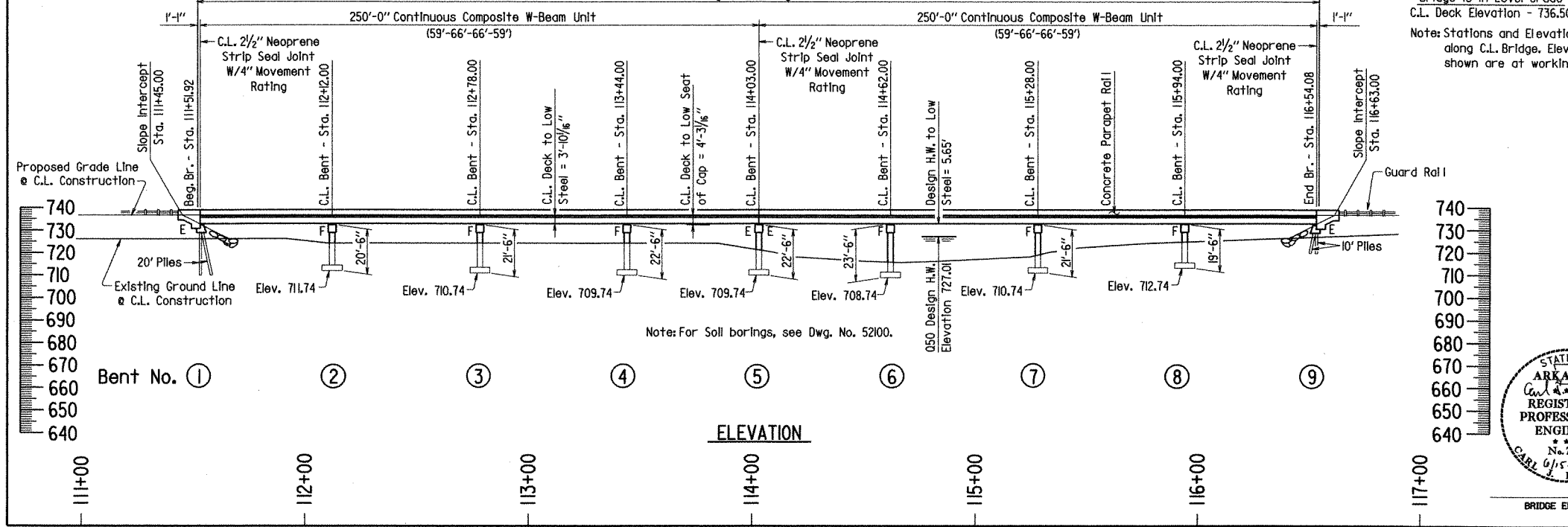
HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY YEARS	DISCHARGE CFS	*NATURAL WATER SURFACE ELEVATION FEET	WATER SURFACE ELEV. WITH BACKWATER FEET
			Design	50
Base	100	10935	730.46	730.46
Extreme	500	13300	731.10	731.10
Overtopping	>500	-	-	-

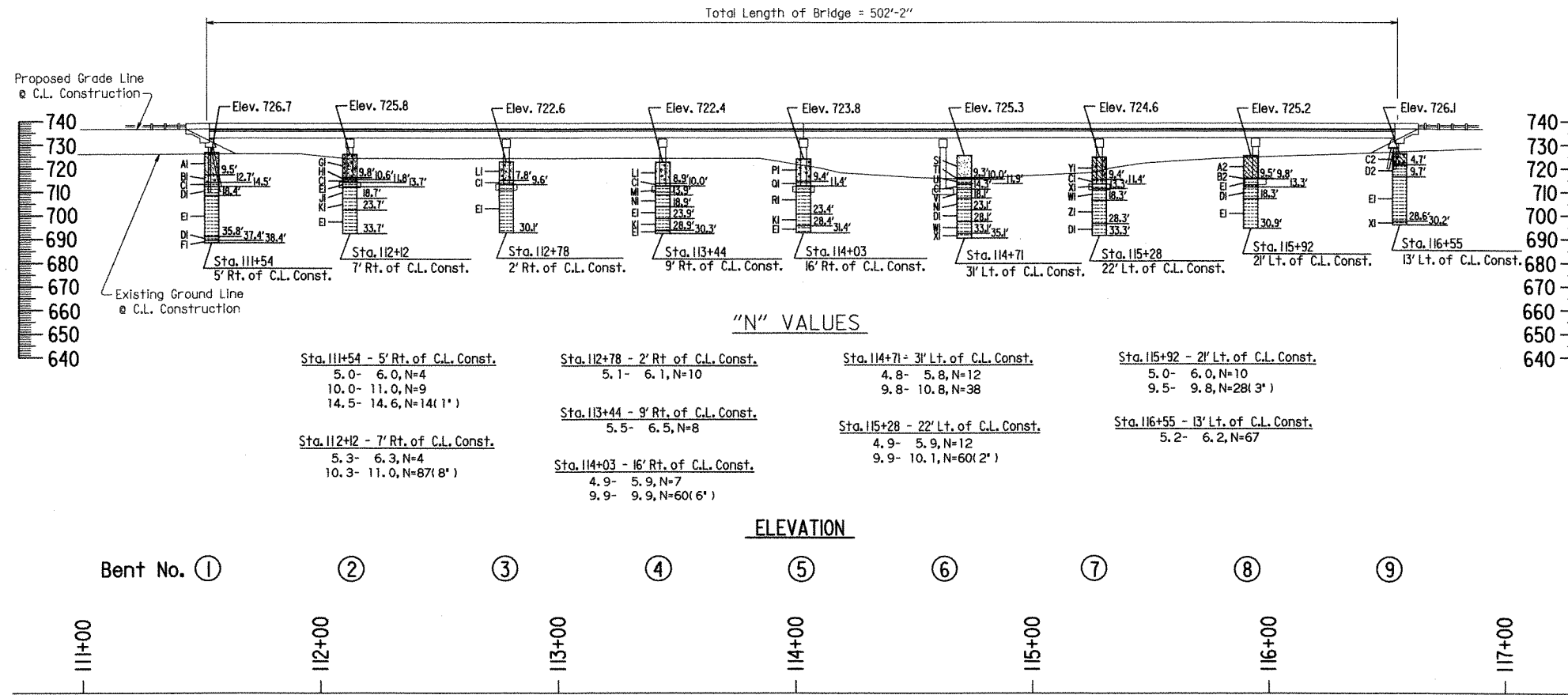
*Unconstricted water surface without structure or roadway approaches.
 Drainage area = 5.8 square miles.
 Historical H.W. Elev. = 729.83 ft.
 1000 backwater elevation for existing structure = 730.39 ft.
 Proposed low bridge chord elevation = 732.66 ft.

LAYOUT OF BRIDGE OVER SCROGGINS CREEK
 SCROGGINS CREEK STR. & APPRS. (S)
 VAN BUREN COUNTY
 ROUTE 92 SEC. 3
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 04/12/11 FILENAME: B080381X.LLDGN
 CHECKED BY: BEF DATE: 4/22/11 SCALE: 1" = 30'-0" OR
 DESIGNED BY: DBS DATE: 3/11 AS NOTED
 BRIDGE NO. 07222 DRAWING NO. 52099



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.		080381	34	98
				07222		LAYOUT		52100



BORING LEGEND

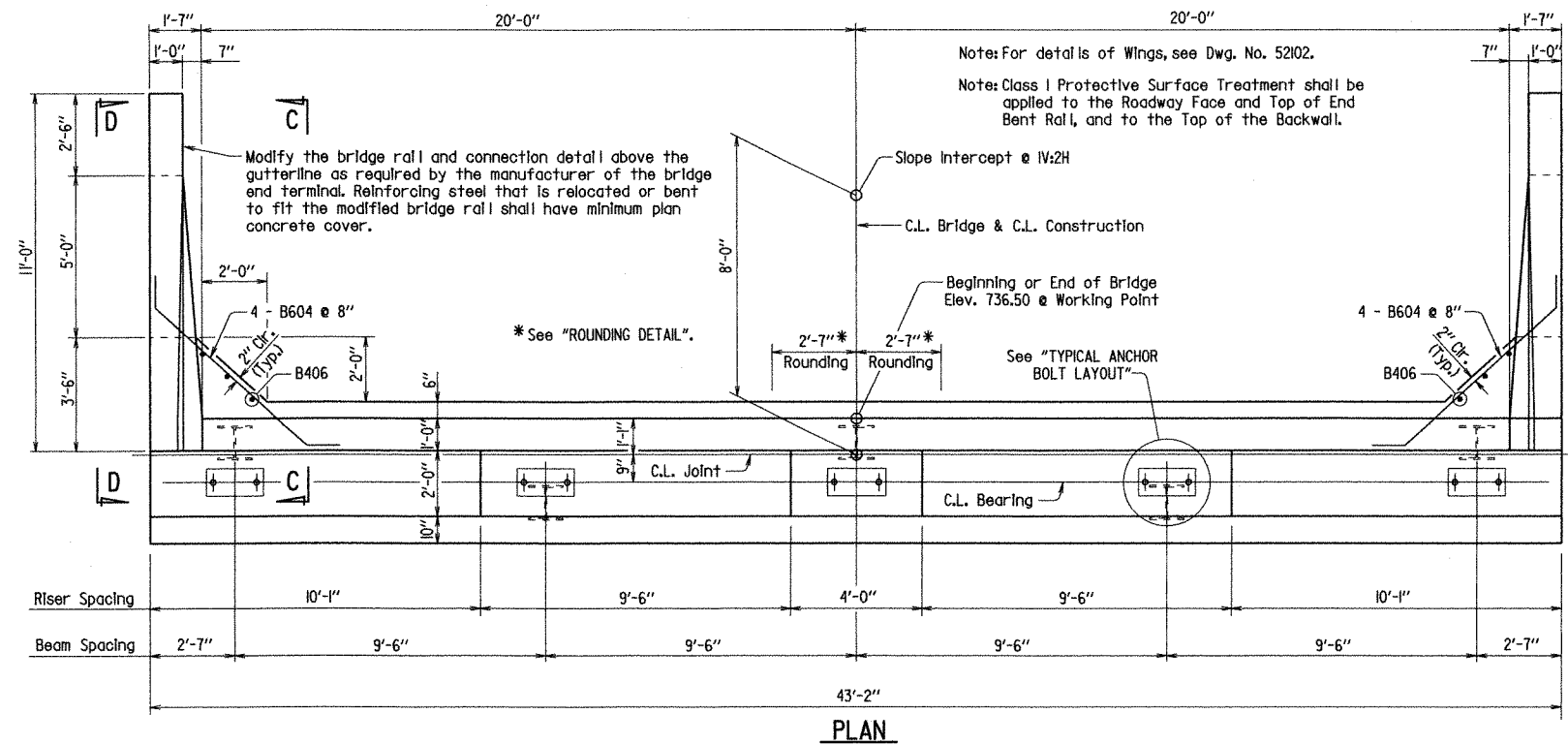
- AI-Molst, Very Loose, Brown Clayey Sand with some Organic Matter
- BI-Wet, Loose, Brown Sand with Gravel (Sandstone Fragments)
- CI-SHALE - Dark Gray, Weathered, Medium Hard
- DI-SHALE WITH SANDSTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip and Vertically Fractured Seams
- EI-SHALE WITH SANDSTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip
- FI-SHALE WITH SANDSTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip, Fractured Seams and Siliclesides
- GI-Molst to Wet, Very Loose, Brown Clayey Sand with Gravel (Sandstone and Shale Fragments)
- HI-Wet, Dense, Brown Sand with Gravel (Sandstone and Shale Fragments)
- JI-SHALE WITH SANDSTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip and Vertically Fractured Seams
- KI-SHALE WITH SANDSTONE LAYERS AND SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip
- LI-Wet, Loose, Brown Sand with Gravel (Sandstone Fragments)
- MI-SHALE WITH SANDSTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip
- NI-SHALE WITH SANDSTONE LAYERS AND SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip and Fractured Seams
- OI-Molst, Loose, Brown Sand with Gravel (Sandstone Fragments)
- PI-SHALE - Dark Gray, Highly Weathered, Medium Hard
- RI-SHALE WITH SANDSTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip
- SI-Molst, Medium Dense, Brown Sand with some Gravel (Sandstone Fragments)
- TI-Molst, Medium Dense, Brown Clayey Sand
- UI-SHALE - Dark Gray, Highly Weathered, Medium Hard
- VI-SHALE WITH SANDSTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip and Fractured Seams
- WI-SHALE WITH SANDSTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip, Pyrite Partings and Vertically Fractured Seams
- XI-SHALE WITH SANDSTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip and Pyrite Partings
- YI-Molst, Stiff, Brown Clay with Sand and Gravel (Shale Fragments)
- ZI-SHALE WITH SANDSTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip and Pyrite Partings
- A2-Molst, Stiff, Brown clay with Sand and some Organic Matter
- B2-SHALE - Brown and Gray, Weathered, Medium Hard
- C2-Molst, Very Stiff, Brown and Dark Gray Clay with Sand and Weathered Shale
- D2-SHALE - Brown and Dark Gray, Weathered, Medium Hard



BORINGS
SCROGGINS CREEK STR. & APPRS. (S)
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

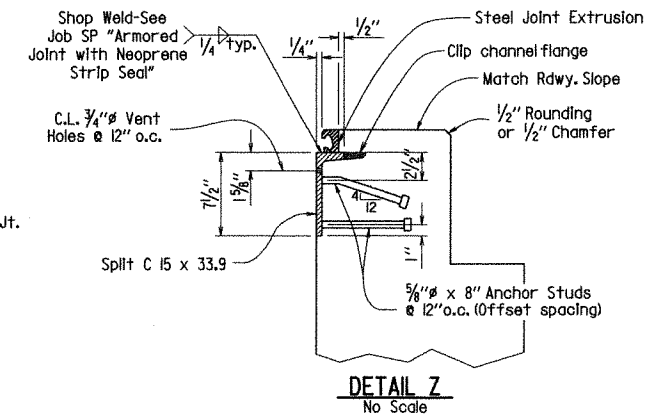
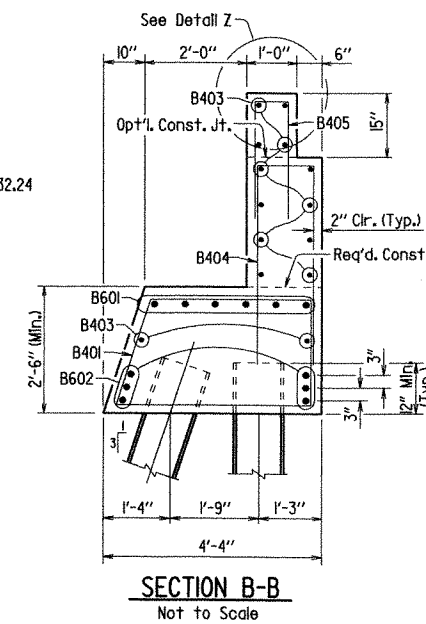
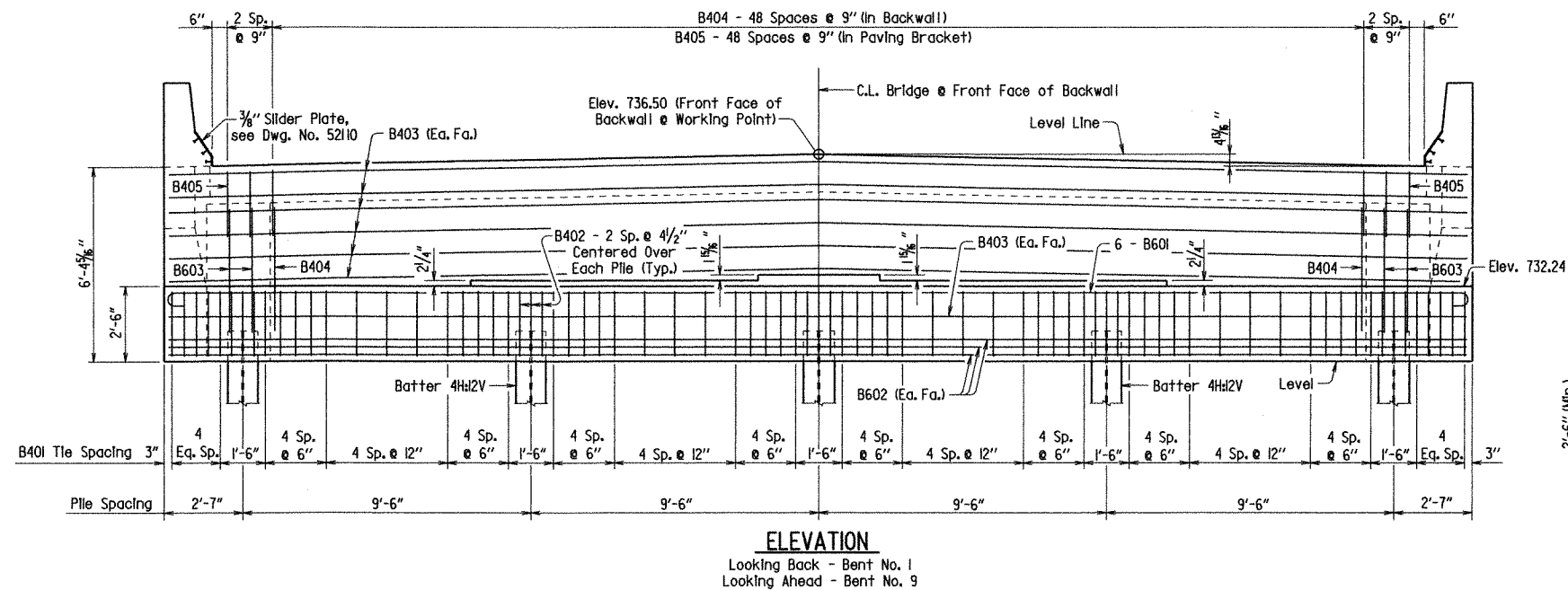
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 CHECKED BY: JGT DATE: 5/20/11 SCALE: 1" = 30'-0" OR
 DESIGNED BY: DATE: AS NOTED
 BRIDGE NO. 07222 DRAWING NO. 52100

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.	080381	35	48	
				07222	END BENTS	52101		



BAR LIST PER END BENT

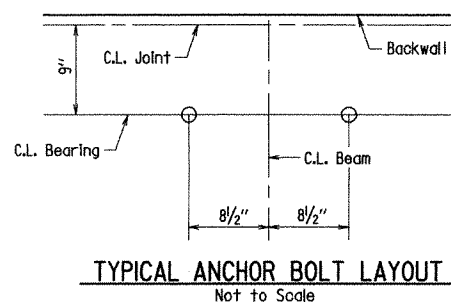
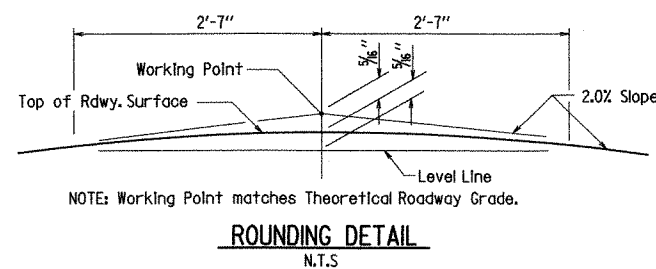
Mark	No. Req'd.	Length	Pin Dia.	Bending Diagrams (Dimensions are out to out of bars.)
B401	62	12'-1"	2"	
B402	15	7'-7"	2"	
B403	14	42'-10"	Str.	
B404	49	9'-4"	2"	
B405	53	5'-6"	2"	
B406	6	4'-10"	Str.	
B601	6	44'-2"	4 1/2"	
B602	6	42'-10"	Str.	
B603	4	9'-10"	4 1/2"	
B604	8	8'-1"	4 1/2"	



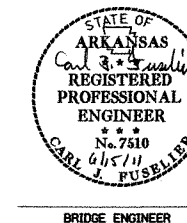
Notes: Transverse spacing between bent anchor studs and vent holes shall be 6".

Concrete shall be hand packed under the joint armor.

For additional joint details, see Dwg. No. 52110.



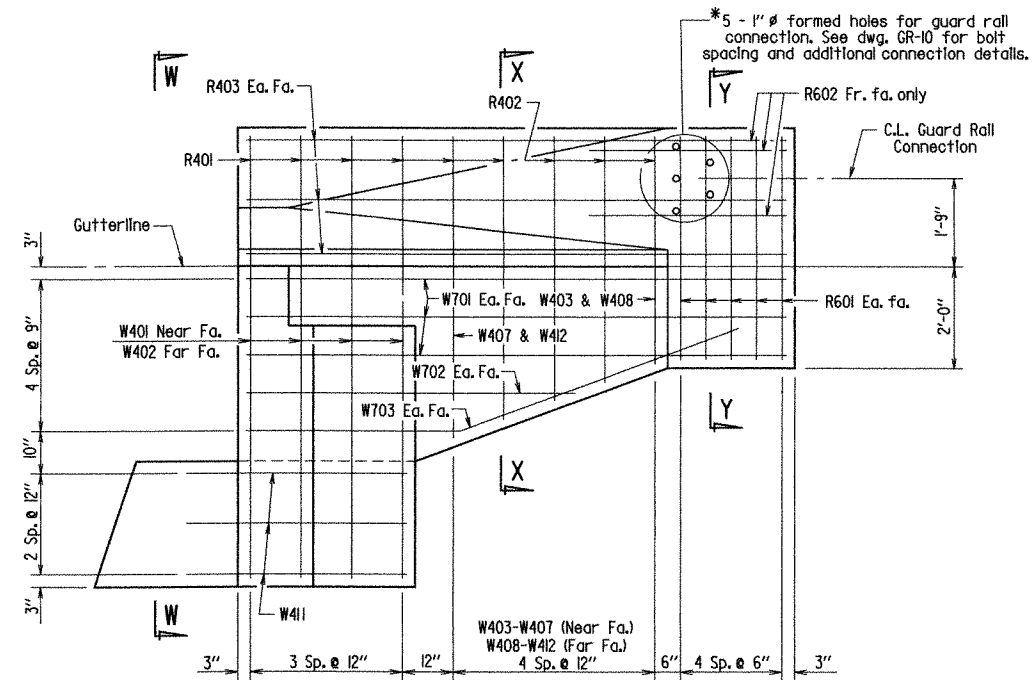
Note: For details of Elastomeric Bearings, see Dwg. No. 52111.



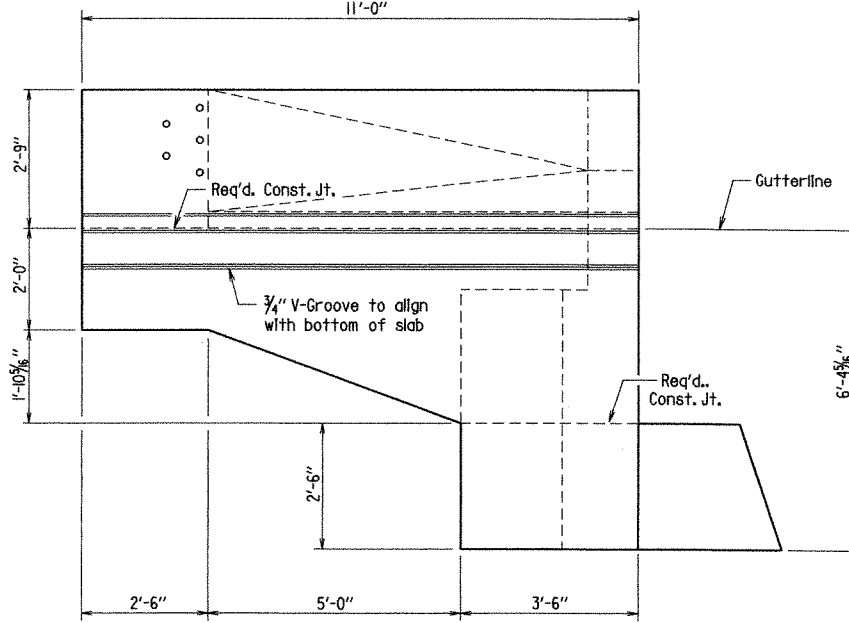
SHEET 1 OF 2
 DETAILS OF END BENTS
 SCROGGINS CREEK
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 05/10/11 FILENAME: B080381X1.BLDGN
 CHECKED BY: JGT DATE: 5/26/11 SCALE: 3/8" = 1'-0"
 DESIGNED BY: BEF DATE: 4/11 OR AS NOTED
 BRIDGE NO. 07222 DRAWING NO. 52101

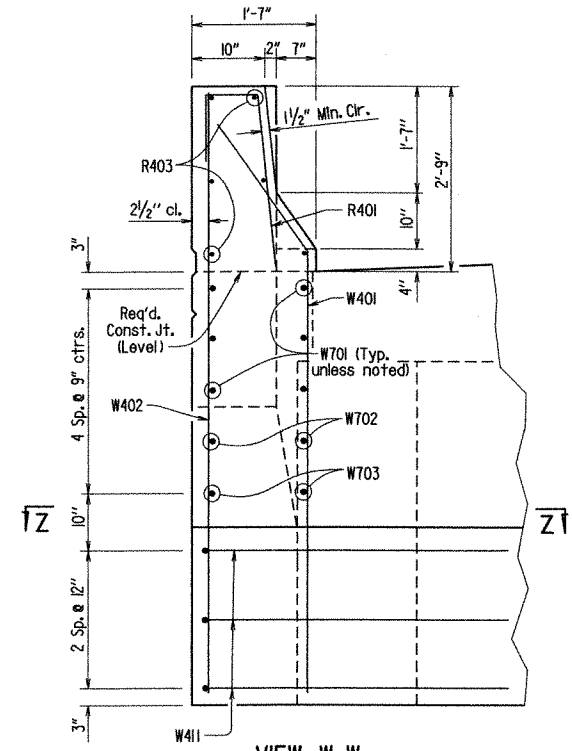
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080381	36	98
				07222		END BENTS		52102



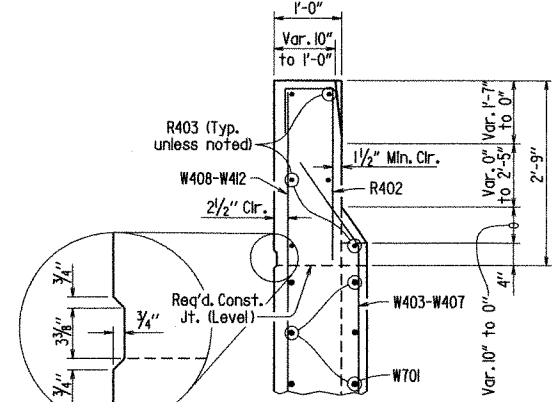
SECTION C-C
No Scale



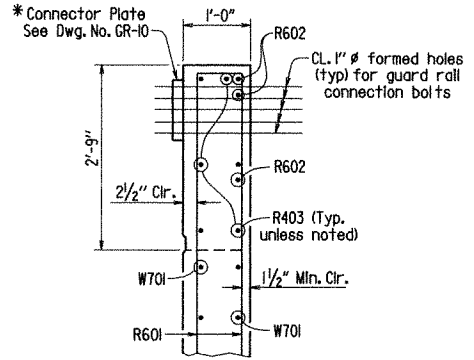
VIEW D-D
No Scale



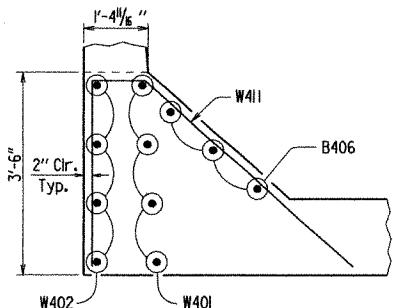
VIEW W-W
Not to Scale



SECTION X-X
3/4"=1'-0"



SECTION Y-Y
3/4"=1'-0"



SECTION Z-Z
Not to Scale

*Eliminate Connection Details where Bridge End Terminal is used.

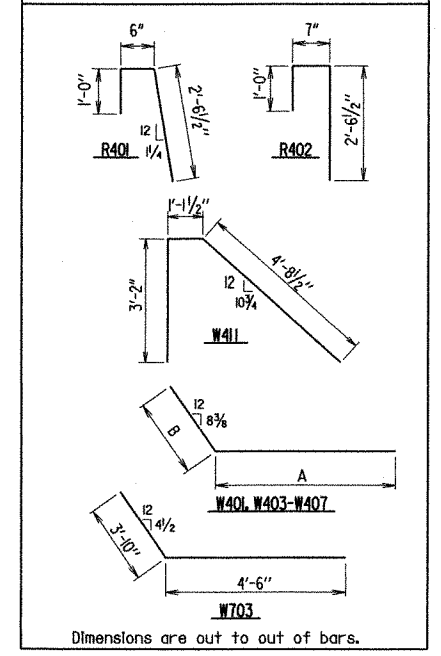
General Notes

- All concrete shall be Class "S" with a minimum 28-Day compressive Strength $f'_c=3500$ psi. Concrete shall be poured in the dry and all exposed corners to be chamfered $3/4"$ unless otherwise noted.
- All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 ($f_y=60,000$ psi).
- Structural Steel in End Bents shall be AASHTO M270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)".
- No Portion of the Backwall shall be poured before beams are in place. The portion of the backwall above the optional construction joint shall not be placed until the adjacent deck pour has been made.
- If anchor bolts are drilled into cap, top reinforcing bars and pile anchorage shall be placed to avoid damage.
- For additional information, see layout.

BAR LIST OF WINGS & RAILS PER END BENT

MARK	NO. REQ'D.	LENGTH	A	B	PIN DIA.
R401	12	3'-11"	-	-	2"
R402	6	4'-0"	-	-	2"
R403	12	10'-8"	-	-	Str.
R601	20	4'-5"	-	-	Str.
R602	6	5'-0"	-	-	Str.
W401	8	7'-7"	6'-5"	1'-2"	2"
W402	8	8'-10"	-	-	Str.
W403-W407	2 ea.	Var. 3'-5" to 5'-5"	Var. 2'-3" to 3'-8"	1'-2"	2"
W408-W412	2 ea.	Var. 4'-6" to 6'-0"	-	-	Str.
W411	6	8'-9"	-	-	2"
W701	12	10'-8"	-	-	Str.
W702	4	6'-0"	-	-	Str.
W703	4	8'-4"	-	-	5/4"

BENDING DIAGRAMS

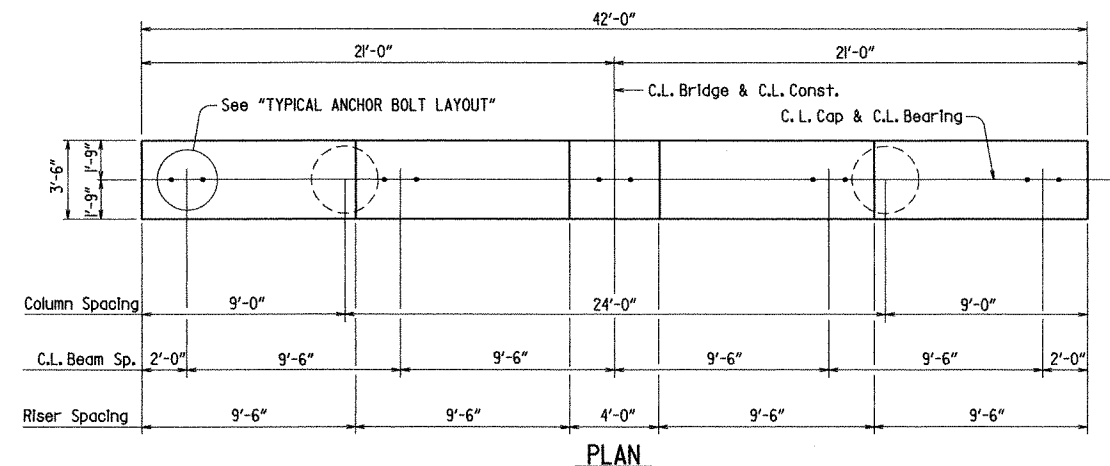


BRIDGE ENGINEER

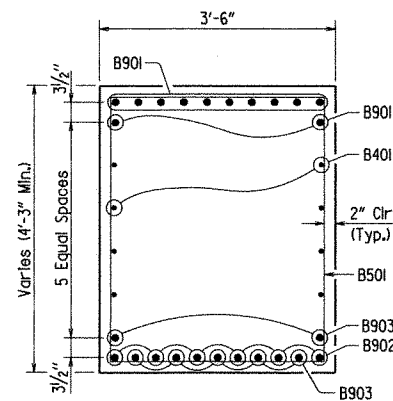
SHEET 2 OF 2
DETAILS OF END BENTS
SCROGGINS CREEK
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 05/10/11 FILENAME: B080381X1-BLDGN
CHECKED BY: JGT DATE: 05/20/11 SCALE: 3/8" = 1'-0"
DESIGNED BY: BEF DATE: 4/11 OR AS NOTED
BRIDGE NO. 07222 DRAWING NO. 52102

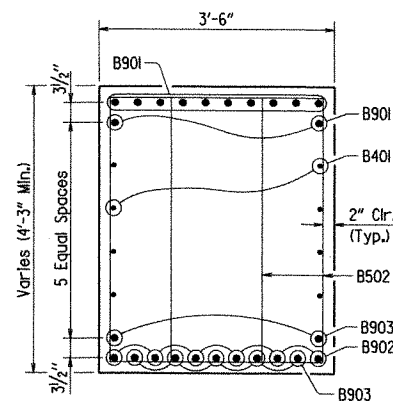
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	080381	37	98
				JOB NO. 07222		INT. BENTS		52103



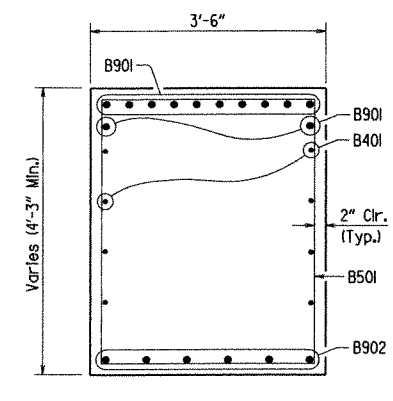
PLAN



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



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

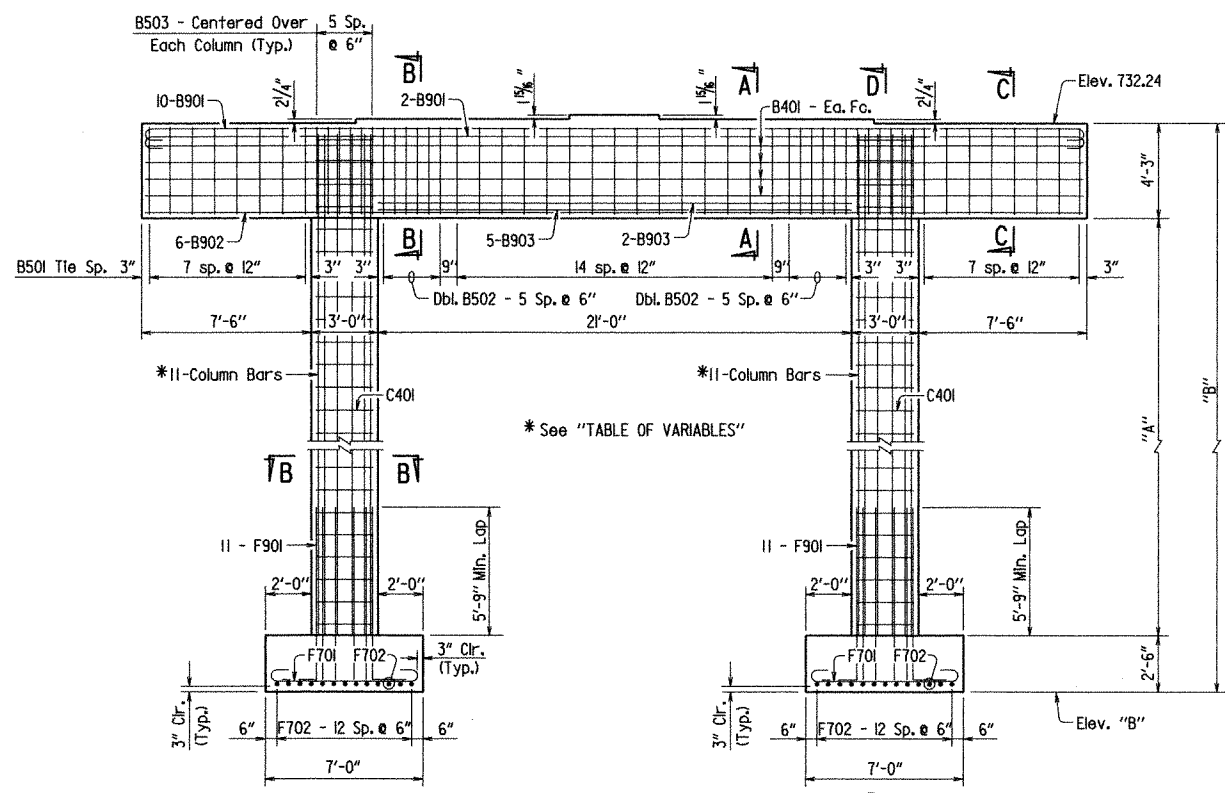
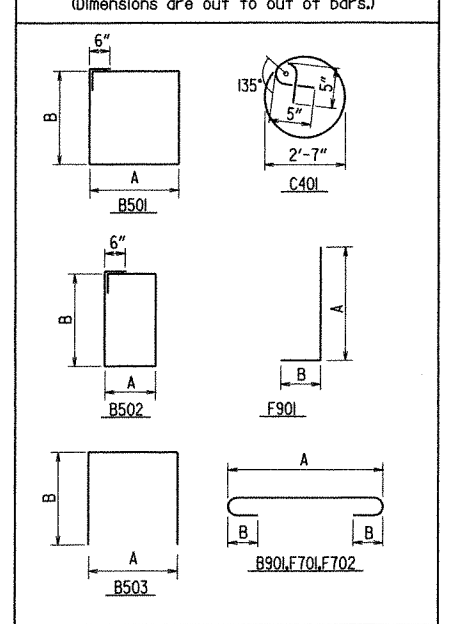


SECTION C-C
Scale: 3/4" = 1'-0"

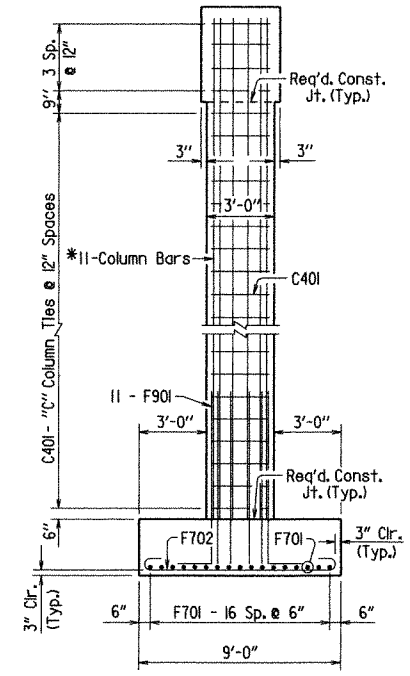
BAR LIST (PER BENT)

Mark	No. Req'd.	Length	A	B	Pin Dia.
B401	8	4'-8"	-	-	Str.
B501	31	14'-8"	3'-2"	3'-11"	2 1/2"
B502	12	12'-10"	2'-3"	3'-11"	2 1/2"
B503	12	10'-10"	3'-2"	3'-11"	2 1/2"
B901	12	44'-2"	4'-8"	10"	9"
B902	6	4'-8"	-	-	Str.
B903	7	2'-0"	-	-	Str.
C401	"D"	9'-3"	See Diagram		3"
*	*	*	-	-	Str.
F701	34	8'-2"	6'-6"	7"	5 1/4"
F702	26	10'-2"	8'-6"	7"	5 1/4"
F901	22	11'-4"	10'-0"	1'-7"	9"

Bending Diagrams
(Dimensions are out to out of bars.)



ELEVATION
(Looking Ahead)



SECTION D-D

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28-day compressive strength $f'_c = 3500$ psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

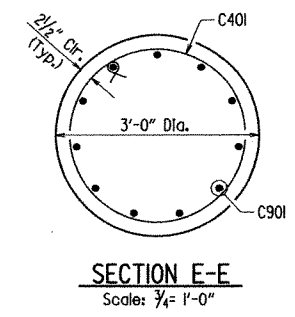
All reinforcing steel shall conform to AASHTO M31 or M53 Grade 60 ($f_y = 60,000$ psi).

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

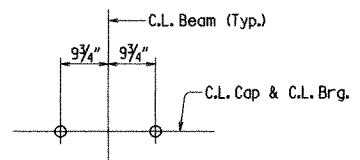
For additional information, see Layout.

TABLE OF VARIABLES

Bent No.	"A"	"B"	"C"	"D"	Column Bars			Elev. "B"
					Mark	Length	No. Req'd.	
2	13'-9"	20'-6"	14	36	C901	17'-6"	22	711.74
3	14'-9"	21'-6"	15	38	C902	18'-6"	22	710.74
4	15'-9"	22'-6"	16	40	C903	19'-6"	22	709.74
6	16'-9"	23'-6"	17	42	C904	20'-6"	22	708.74
7	14'-9"	21'-6"	15	38	C902	18'-6"	22	710.74
8	12'-9"	19'-6"	13	34	C905	16'-6"	22	712.74

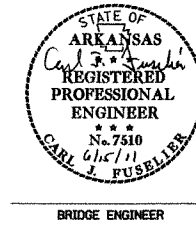


SECTION E-E
Scale: 3/4" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT
Scale: 3/4" = 1'-0"

Note: For Details of Elastomeric Bearings, See Dwg. No. 52111.

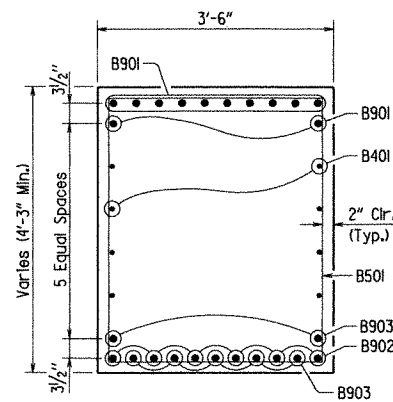
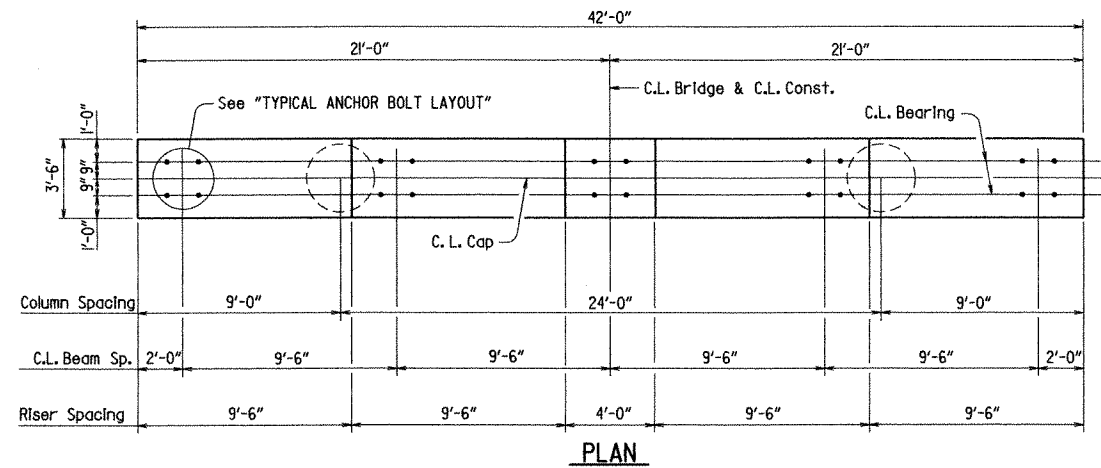


DETAILS OF INTERMEDIATE BENT
NOS. 2-4 & 6-8
SCROGGINS CREEK
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

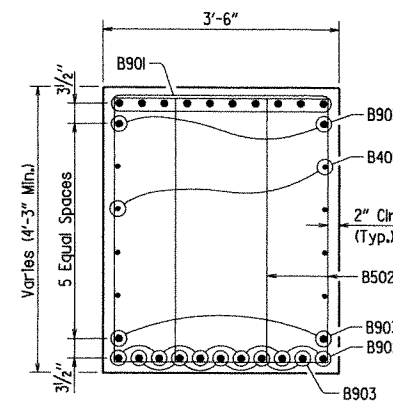
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 CHECKED BY: JGT DATE: 5/26/11 SCALE: 1/4" = 1'-0" OR
 DESIGNED BY: BEF DATE: 4/11 AS NOTED
 BRIDGE NO. 07222 DRAWING NO. 52103

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.		080381	38	98

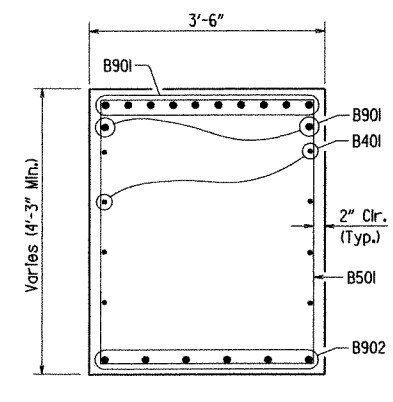
07222 INT. BENT NO. 5 52104



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



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

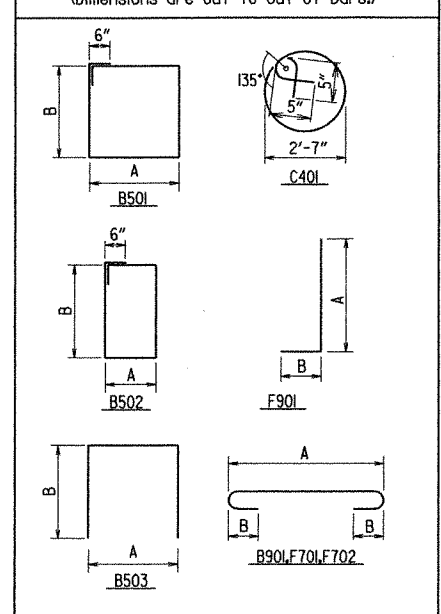


SECTION C-C
Scale: 3/4" = 1'-0"

BAR LIST (PER BENT)

Mark	No. Req'd.	Length	A	B	Pin Dia.
B401	8	4'-8"	-	-	Str.
B501	31	14'-8"	3'-2"	3'-11"	2 1/2"
B502	12	12'-10"	2'-3"	3'-11"	2 1/2"
B503	12	10'-10"	3'-2"	3'-11"	2 1/2"
B901	12	44'-2"	4'-8"	10"	9"
B902	6	4'-8"	-	-	Str.
B903	7	2'-0"	-	-	Str.
C401	40	9'-3"	See Diagram		3"
C901	22	19'-6"	-	-	Str.
F701	34	8'-2"	6'-6"	7"	5 1/4"
F702	26	10'-2"	8'-6"	7"	5 1/4"
F901	22	11'-4"	10'-0"	1'-7"	9"

Bending Diagrams
(Dimensions are out to out of bars.)



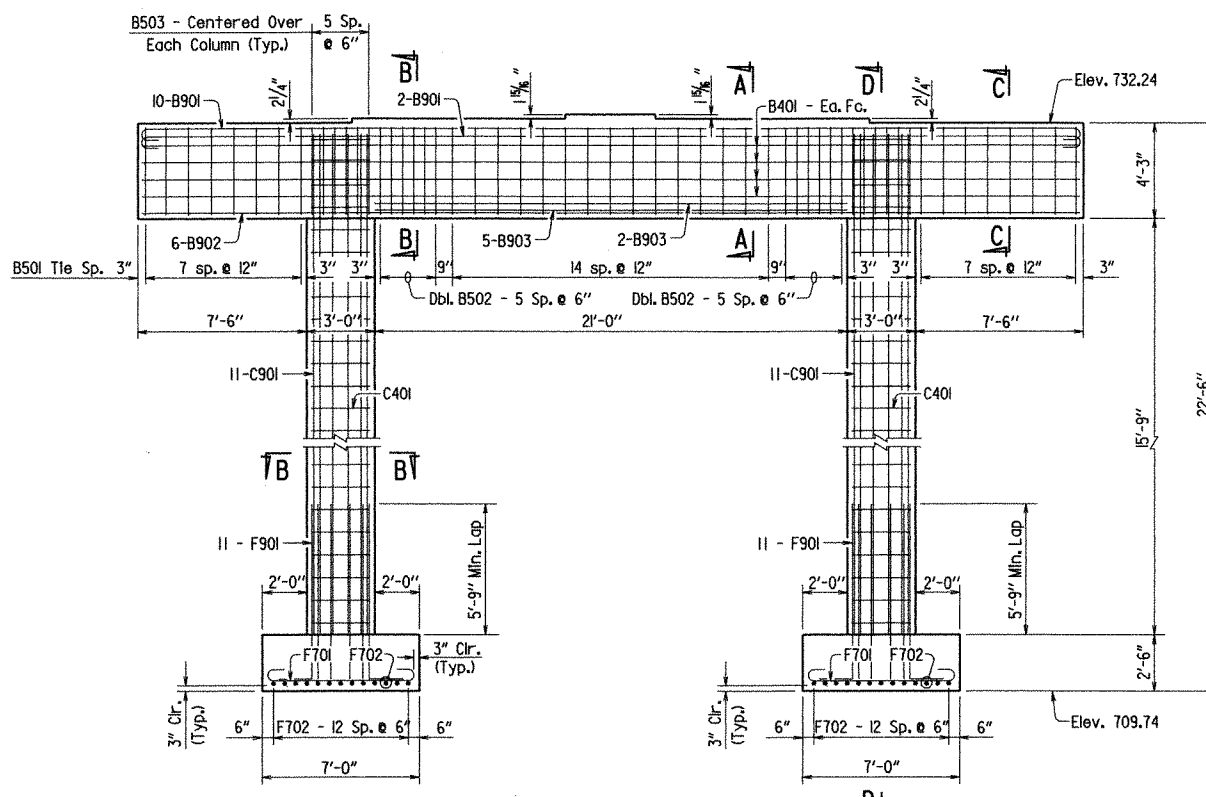
GENERAL NOTES

All concrete shall be Class "S" with a minimum 28-day compressive strength $f'_c = 3500$ psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

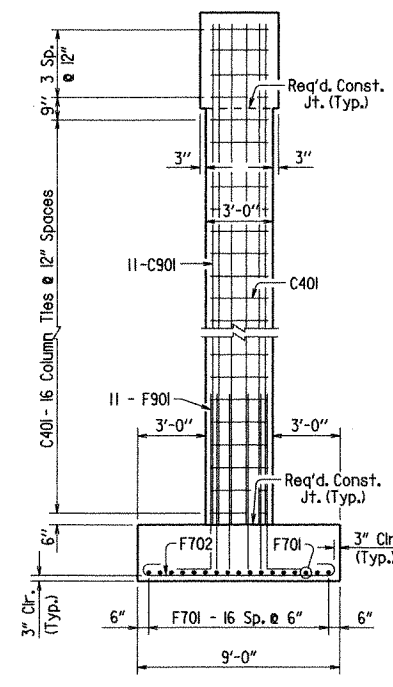
All reinforcing steel shall conform to AASHTO M31 or M53 Grade 60 ($f_y = 60,000$ psi).

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

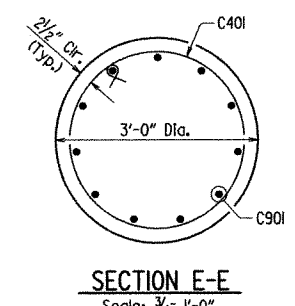
For additional information, see Layout.



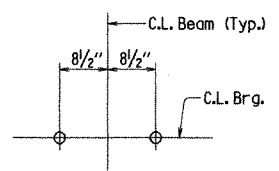
ELEVATION
(Looking Ahead)



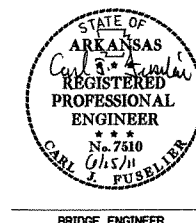
SECTION D-D



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



Note: For Details of Elastomeric Bearings, See Dwg. No. 52111.
TYPICAL ANCHOR BOLT LAYOUT
Scale: 3/4" = 1'-0"



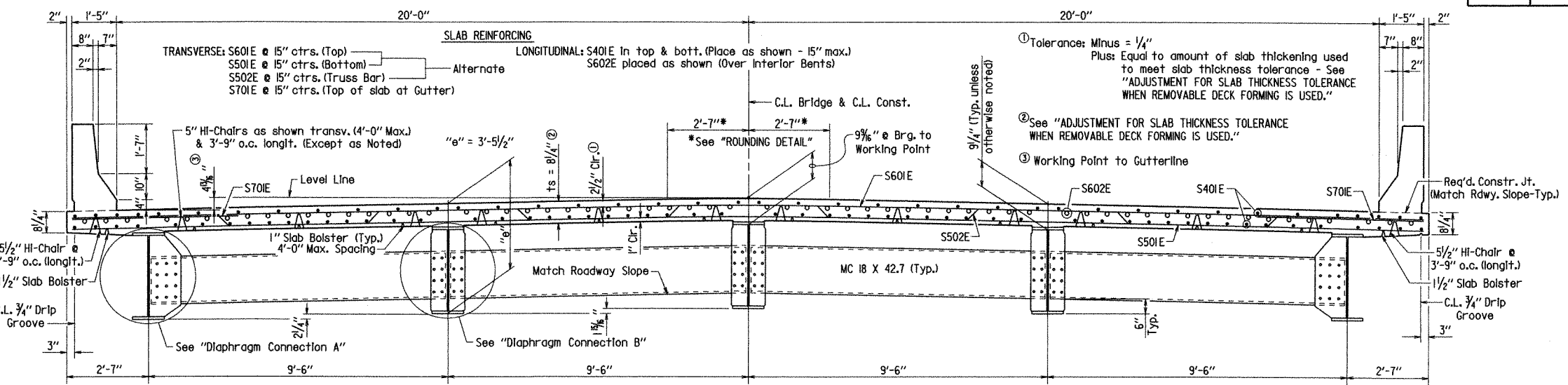
DETAILS OF
INTERMEDIATE BENT NO. 5
SCROGGINS CREEK
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 05/27/11 FILENAME: B080381X1.B2.DGN
CHECKED BY: JGT DATE: 5/24/11 SCALE: 1/4" = 1'-0" OR
DESIGNED BY: BEF DATE: 4/11 AS NOTED
BRIDGE NO. 07222 DRAWING NO. 52104

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

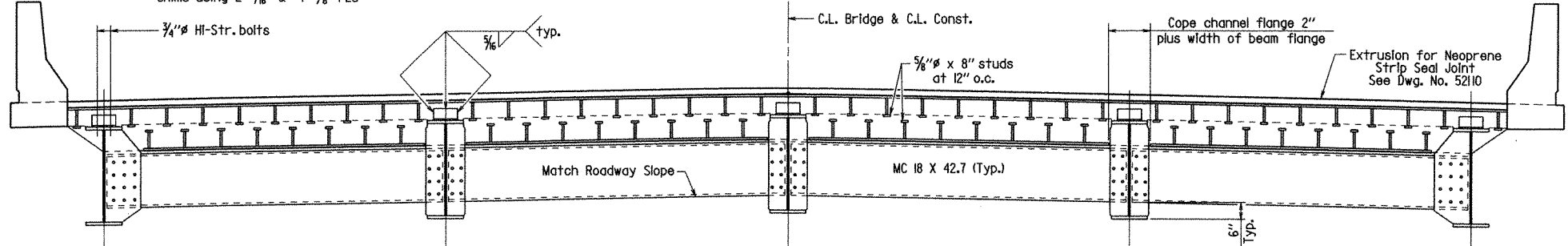
Note: At the Contractor's option, one epoxy coated No. 5 straight bar top and bottom may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	080381	39	98
				JOB NO.	07222		SPAN DETAILS 52105	

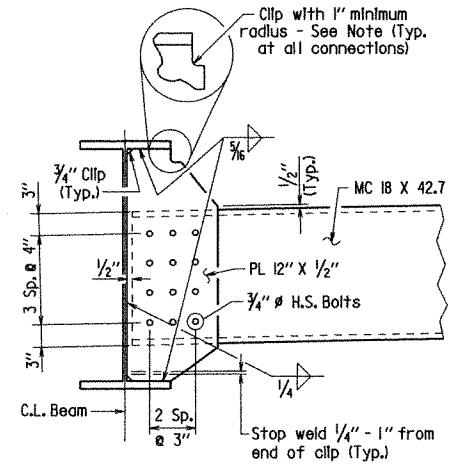


TYPICAL ROADWAY SECTION
(LOOKING AHEAD)
Scale: 1/2" = 1'-0"

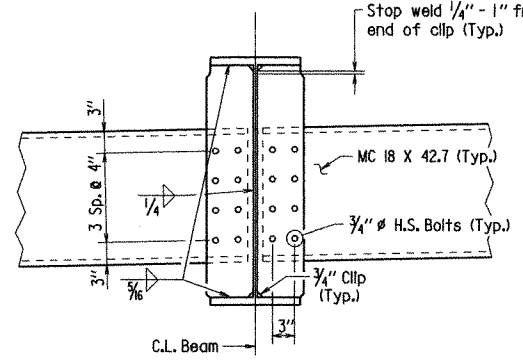
Expansion Device:
Rdwy. Channel - C15x33.9
Conn. L's 8"x4"x 1/2"x8"
Detail Device 1/8" high & provide 1/4"
shims using 2- 1/16" & 1- 1/8" PLS



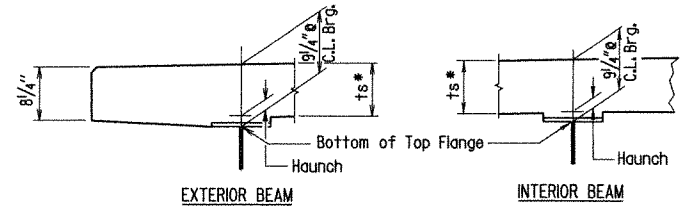
EXPANSION DEVICE
(LOOKING BACK)
Scale: 1/2" = 1'-0"



DIAPHRAGM CONNECTION A
Scale: 1" = 1'-0"



DIAPHRAGM CONNECTION B
Scale: 1" = 1'-0"



ADJUSTMENT FOR SLAB THICKNESS TOLERANCE WHEN REMOVABLE DECK FORMING IS USED
No Scale

*Tolerance when removable deck forming is used is + 1/2", - 1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

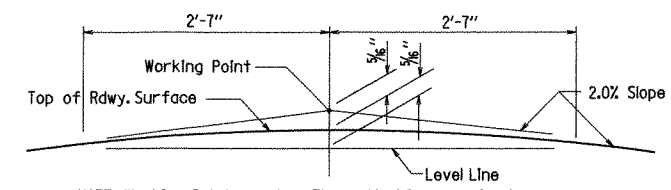
Notes:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum - occurs when top flange contacts bottom reinforcing steel; Maximum - top flange thickness plus 1 3/4". No increase in concrete and structural steel quantities will be made to maintain tolerances.

Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 14991 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

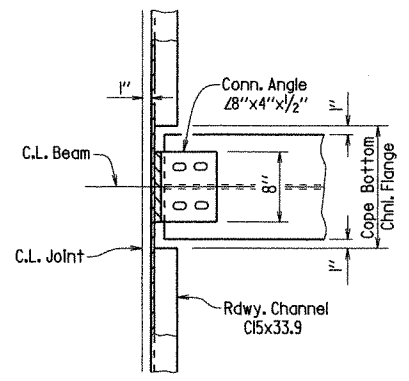
TABLE FOR WELD

Material Thickness Of Thicker Part Joined (inches)	Minimum Size Of Fillet Weld (inches)	Single Pass Weld Must Be Used
To 3/4" Inclusive	1/4"	Must Be Used
Over 3/4"	5/16"	

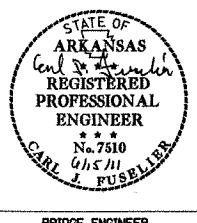
Note: When a fillet weld size, as shown on the Plans, is larger than the minimum, the First Pass shall be that specified for minimum size of fillet weld.



ROUNDING DETAIL
No Scale



CHANNEL CONNECTION DETAIL
No Scale



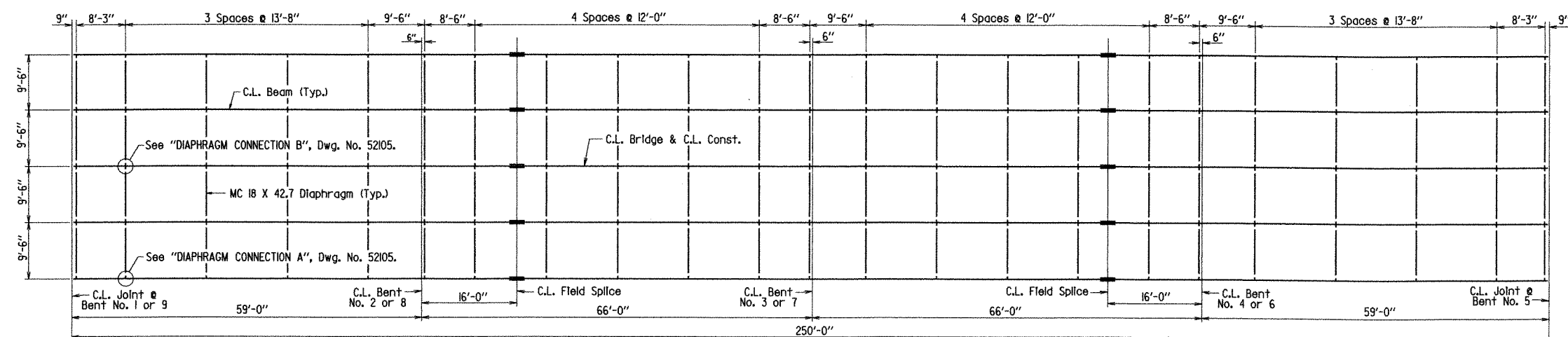
SHEET 1 OF 6
DETAILS OF 250'-0" CONTINUOUS
COMPOSITE W-BEAM UNIT
SCROGGINS CREEK
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

BRIDGE ENGINEER

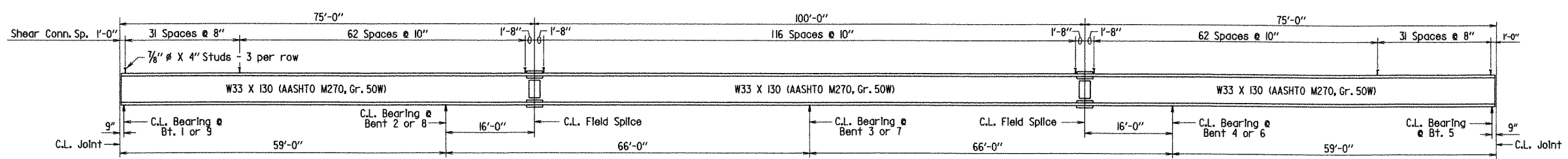
DRAWN BY: MJT DATE: 04/27/11 FILENAME: B080381X.SLDGN
CHECKED BY: JCT DATE: 5/2/11 SCALE: 1/2" = 1'-0"
DESIGNED BY: BEF DATE: 4/1/11 OR AS NOTED
BRIDGE NO. 07222 DRAWING NO. 52105

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	080381	40	43
				07222		SPAN DETAILS		52106

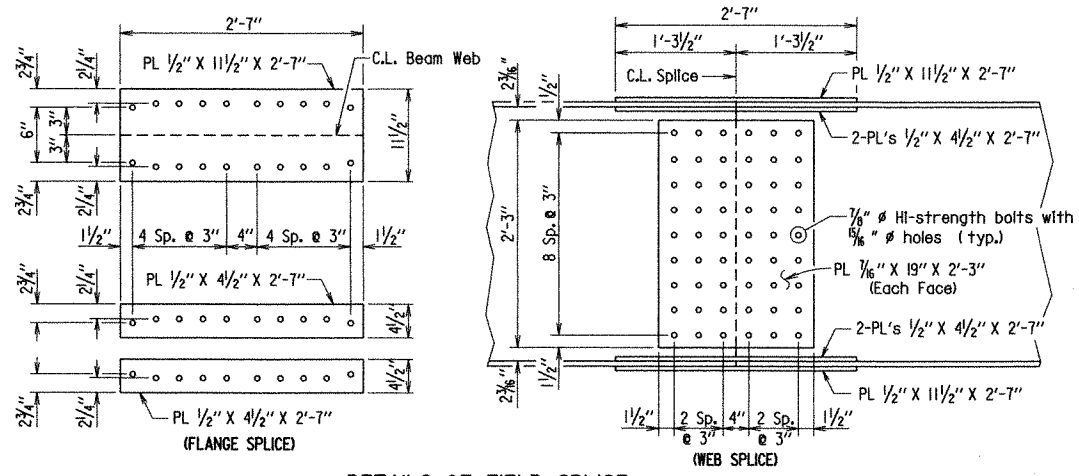
Note: Bolted field splices may be eliminated or shop welds substituted with the approval of the Engineer. Payment will be made on the basis of the splices shown.



FRAMING PLAN

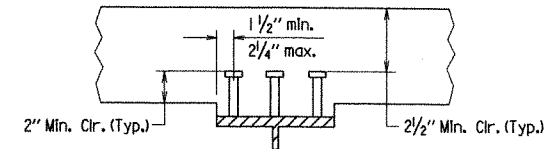


TYPICAL BEAM ELEVATION



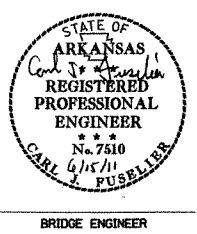
DETAILS OF FIELD SPLICE
No Scale

- Notes: 1. All Field Splice Bolts to be 7/8" H.S. Bolts.
- 2. All Field Splice plates to be AASHTO M270, Gr. 50W steel.
- 3. All holes for splice bolts to be 5/8" ϕ .



Stud Shear Connectors shown shall be 7/8" ϕ 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" ϕ studs may be used in place of the 7/8" ϕ studs shown, at the ratio of 1.361 - 3/4" ϕ studs in place of one 7/8" ϕ stud. 7/8" ϕ studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

SHEAR CONNECTOR DETAIL
No Scale

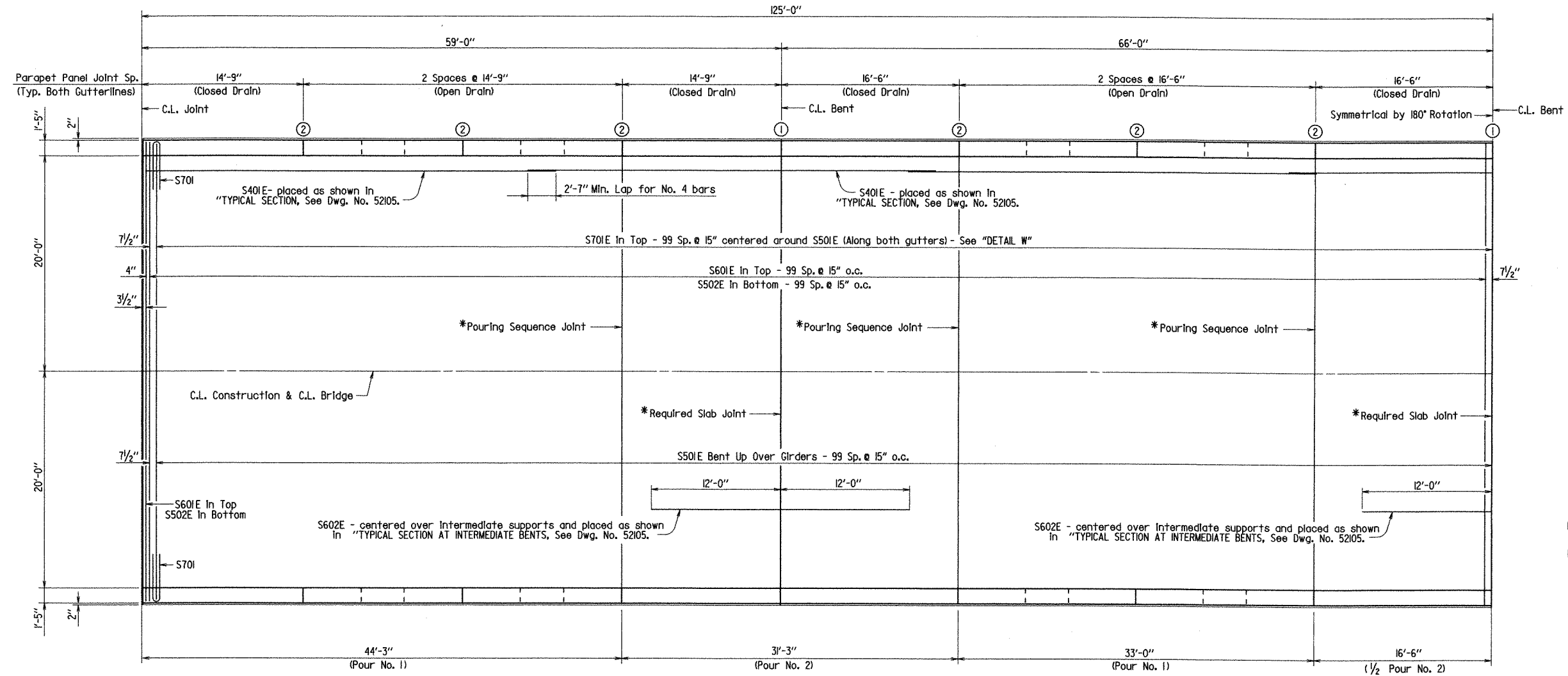


SHEET 2 OF 6
 DETAILS OF 250'-0" CONTINUOUS
 COMPOSITE W-BEAM UNIT
 SCROGGINS CREEK
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: MJT DATE: 04/27/11 FILENAME: B080381X1.SLDGN
 CHECKED BY: JCT DATE: 5/2/11 SCALE: 1/8" = 1'-0"
 DESIGNED BY: BEP DATE: 4/11 OR AS NOTED
 BRIDGE NO. 07222 DRAWING NO. 52106

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.	080381		41	48
				07222	SPAN DETAILS		52107	

- ① C.L. Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab.
- ② C.L. Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab.

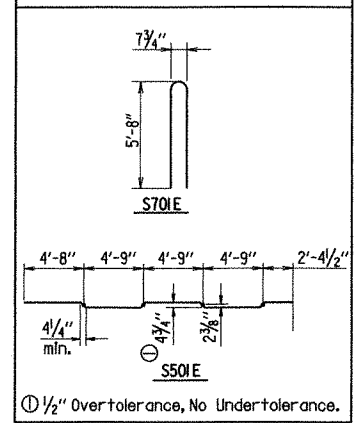
*Required Slab Joints and Pouring Sequence Joints shall align with Parapet Open Joints at the gutterline.



BAR LIST (PER UNIT)

Mark	No. Req'd.	Length	Pin Dia.
S401E	672	38'-0"	Str.
S501E	199	43'-8"	3"
S502E	202	42'-10"	Str.
S601E	202	42'-10"	Str.
S602E	186	24'-0"	Str.
S701E	398	11'-7"	6"

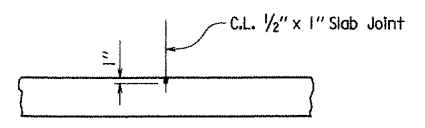
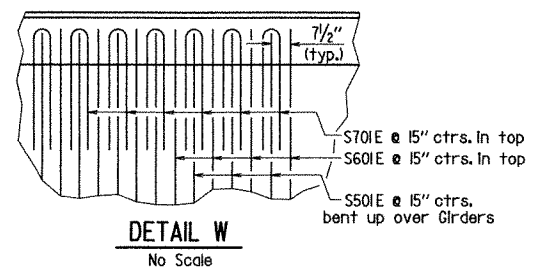
Bending Diagrams (Dimensions are out to out of bars.)



Note: All Bars designated with an "E" suffix are to be Epoxy Coated.
 Note: For Parapet reinforcing steel quantities, see Dwg. No. 52108.

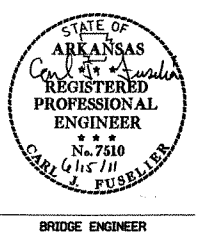
HALF-REINFORCING PLAN & DECK POURING SEQUENCE

Note: Pours with the same number may be poured simultaneously or separately. All pours (1) must be placed before pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour.
 No ralling pours shall be made before the entire slab unit has been placed unless approval of the Engineer has been obtained. The Contractor must obtain approval from the Engineer for any deviation from the pouring sequence as shown.



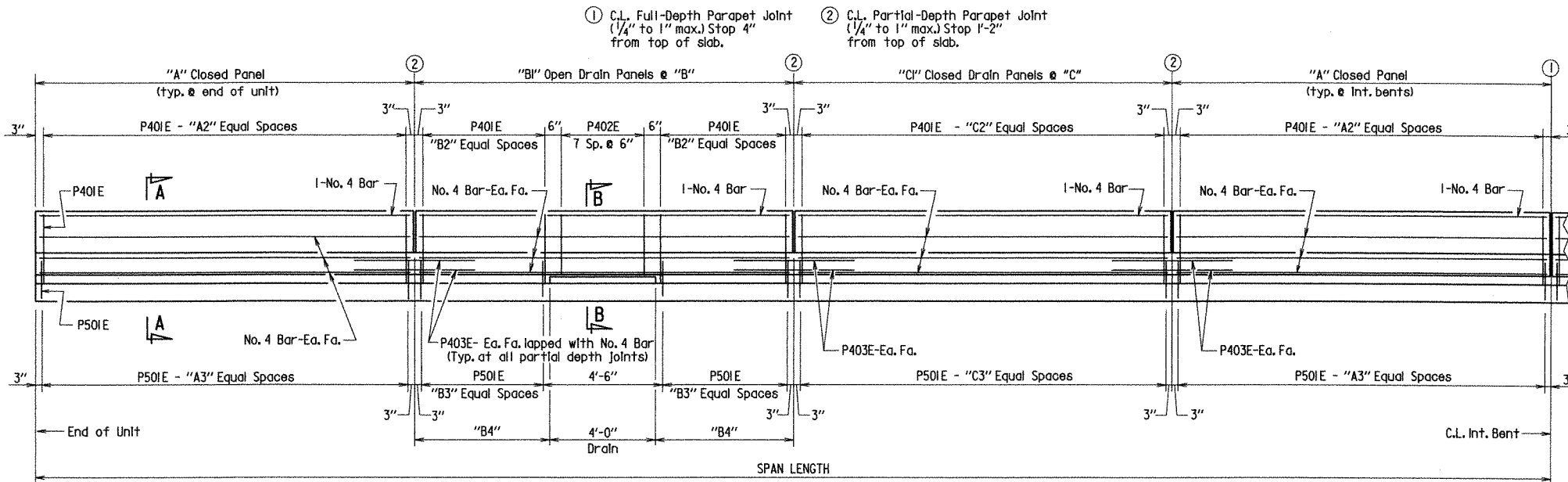
Use 1/2" x 1" Type 3, 4 or 6 Joint Sealer. See subsections 501.02 (h) and 501.05 (j). Backer rod shall not be installed. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to the outside edge of the deck slab. Slab Joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab Joints shall be placed at all pouring sequence construction joints and required slab joint locations.

SLAB JOINT DETAIL
No Scale



SHEET 3 OF 6
 DETAILS OF 250'-0" CONTINUOUS
 COMPOSITE W-BEAM UNIT
 SCROGGINS CREEK
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: MJT DATE: 04/29/11 FILENAME: B080381X1.SLDGN
 CHECKED BY: JGT DATE: 5/2/11 SCALE: 1/8" = 1'-0"
 DESIGNED BY: BEE DATE: 4/11 OR AS NOTED
 BRIDGE NO. 07222 DRAWING NO. 52107

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.	080381	42	48	
				07222	SPAN DETAILS	52108		

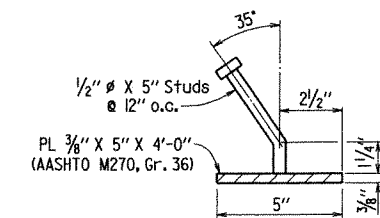


① C.L. Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab.
 ② C.L. Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab.

BAR LIST (PER UNIT)

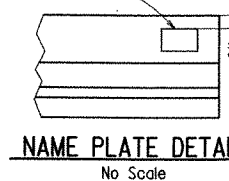
Mark	No. Req'd.	Length	Pin Dia.	Bending Diagrams (Dimensions are out to out of bars.)
P401E	728	5'-6"	2"	
P402E	128	4'-10"	2"	
P403E	96	5'-0"	Str.	
P404E	112	14'-4"	Str.	
P405E	112	16'-1"	Str.	
P501E	888	4'-9"	2 1/2"	

Note: All Bars designated with an "E" suffix are to be Epoxy Coated.



Note: Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)". The surfaces of the 3/8" Plates which will not be in contact with concrete shall be painted in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly but will be included in the item for structural steel.

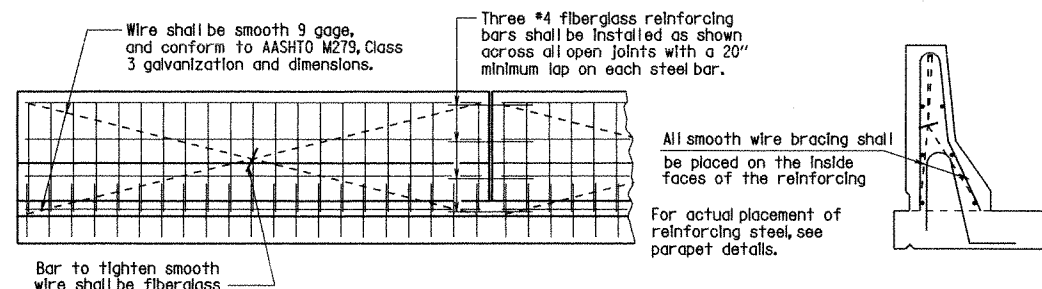
Place Type D Bridge Name Plate on front face of span rail approx. 2'-0" from beginning of bridge (Right side of roadway only).



DETAILS OF PARAPET RAIL
Not to Scale

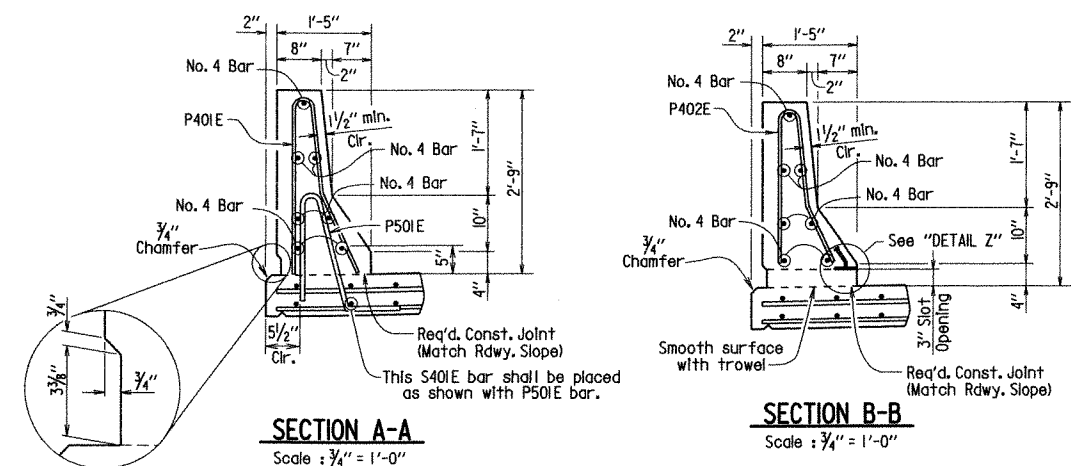
TABLE OF VARIABLES

SPAN LENGTH	"A"	"A2"	"A3"	"B"	"B1"	"B2"	"B3"	"B4"	"C"	"C1"	"C2"	"C3"	Longit. No. 4 Bar	
													MARK	LENGTH
59'-0"	14'-9"	23	29	14'-9"	2	8	10	5'-4 1/2"	—	—	—	—	P404E	14'-4"
66'-0"	16'-6"	26	32	16'-6"	2	10	12	6'-3"	—	—	—	—	P405E	16'-1"



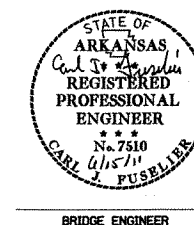
Wire shall be smooth 9 gage, and conform to AASHTO M279, Class 3 galvanization and dimensions.
 Three #4 fiberglass reinforcing bars shall be installed as shown across all open joints with a 20" minimum lap on each steel bar.
 All smooth wire bracing shall be placed on the inside faces of the reinforcing
 For actual placement of reinforcing steel, see parapet details.
 Bar to tighten smooth wire shall be fiberglass
 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.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL
Not to Scale



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

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



SHEET 4 OF 6
 DETAILS OF 250'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
 SCROGGINS CREEK
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: MJT DATE: 04/29/11 FILENAME: B080381X1.SLDGN
 CHECKED BY: JCT DATE: 5/23/11 SCALE: AS SHOWN
 DESIGNED BY: BEF DATE: 4/11
 BRIDGE NO. 07222 DRAWING NO. 52108

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						080381	43	98
				07222		SPAN DETAILS		52109

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2003 edition, with applicable supplemental specifications and special provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications Fifth edition (2010) with 2010 Interim specifications.

MATERIALS AND STRENGTHS:
 Class (S/AE) Concrete $f'_c = 4,000$ psi
 Reinforcing Steel (AASHTO M31 or M53, Gr. 60) $f_y = 60,000$ psi
 Structural Steel (AASHTO M 270, Gr. 50W) $F_y = 50,000$ psi
 Structural Steel (AASHTO M 270, Gr. 36) $F_y = 36,000$ psi

CONCRETE :
 Concrete shall be poured in the dry and all exposed corners to be chamfered $\frac{3}{4}$ " unless otherwise noted. All concrete shall be Class (S/AE) with a minimum 28 day compressive strength $f'_c = 4,000$ psi.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class (S/AE) Concrete. See Standard Drawing No. 14991 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 fine 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. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing. A longitudinal strike-off shall not be allowed.

REINFORCING STEEL :
 All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel".

STRUCTURAL STEEL :
 All structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with subsection 807.84(e) unless otherwise noted. Structural steel completely embedded in concrete may be AASHTO M 270, Grade 36 unless otherwise noted.

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

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes and materials 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.

All beams shall be blocked in their true position with webs horizontal in the shop. The camber, length of sections, distance between bearings and openings of joints shall be measured with the beams in their true position and this information shall become part of the permanent records for this job. 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 $\frac{1}{4}$ " +/- is allowed for camber.

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 the Contractor or Erector should want to make additional welds, whether temporary or permanent, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used to attach falsework support devices and scissor rail supports to the structural steel that does 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 $\frac{3}{4}$ " ϕ 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 $\frac{3}{4}$ " ϕ high-strength bolts may be $\frac{3}{8}$ " ϕ diameter if a washer is supplied for use under both the nut and head of the bolt.

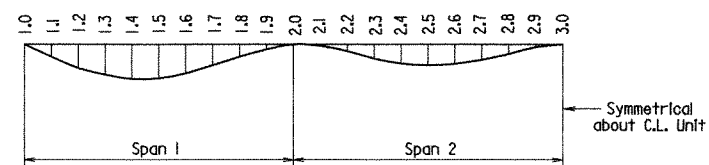
Diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with subsection 807.71 prior to pouring the concrete deck unless otherwise noted.

Bearings shall be seated in accordance with subsection 808.08. This work and material are to be considered as subsidiary to the item "Structural Steel in Beam Spans" and will not be paid for directly.

TABLE OF DEAD LOAD DEFLECTIONS - INCHES

POINT OF DEFLECTION	STRUCTURAL STEEL		STRUCTURAL STEEL + SLAB		STRUCTURAL STEEL + SLAB + PARAPET	
	INT. BEAM	EXT. BEAM	INT. BEAM	EXT. BEAM	INT. BEAM	EXT. BEAM
1.0	0.000	0.000	0.000	0.000	0.000	0.000
1.1	0.041	0.036	0.272	0.215	0.286	0.237
1.2	0.075	0.067	0.503	0.398	0.528	0.439
1.3	0.099	0.088	0.664	0.525	0.697	0.578
1.4	0.110	0.098	0.739	0.584	0.776	0.644
1.5	0.108	0.096	0.723	0.571	0.759	0.630
1.6	0.093	0.083	0.624	0.493	0.655	0.544
1.7	0.069	0.061	0.463	0.366	0.486	0.404
1.8	0.041	0.036	0.273	0.215	0.287	0.237
1.9	0.015	0.013	0.099	0.078	0.104	0.086
2.0	0.000	0.000	0.000	0.000	0.000	0.000
2.1	0.004	0.004	0.030	0.024	0.032	0.026
2.2	0.023	0.020	0.152	0.120	0.160	0.132
2.3	0.044	0.039	0.293	0.232	0.308	0.256
2.4	0.060	0.054	0.404	0.320	0.424	0.353
2.5	0.067	0.060	0.453	0.358	0.476	0.395
2.6	0.063	0.056	0.426	0.336	0.447	0.371
2.7	0.049	0.044	0.330	0.261	0.347	0.288
2.8	0.029	0.026	0.194	0.153	0.204	0.169
2.9	0.009	0.008	0.062	0.049	0.065	0.054
3.0	0.000	0.000	0.000	0.000	0.000	0.000

Symmetrical about C.L. Unit



DEAD LOAD DEFLECTION DIAGRAM

No Scale

Note: Camber for Dead Load Deflection plus Vertical curve +/- $\frac{1}{4}$ " tolerance. Deflections shown are from a chord from C.L. Bearing to C.L. Bearing.



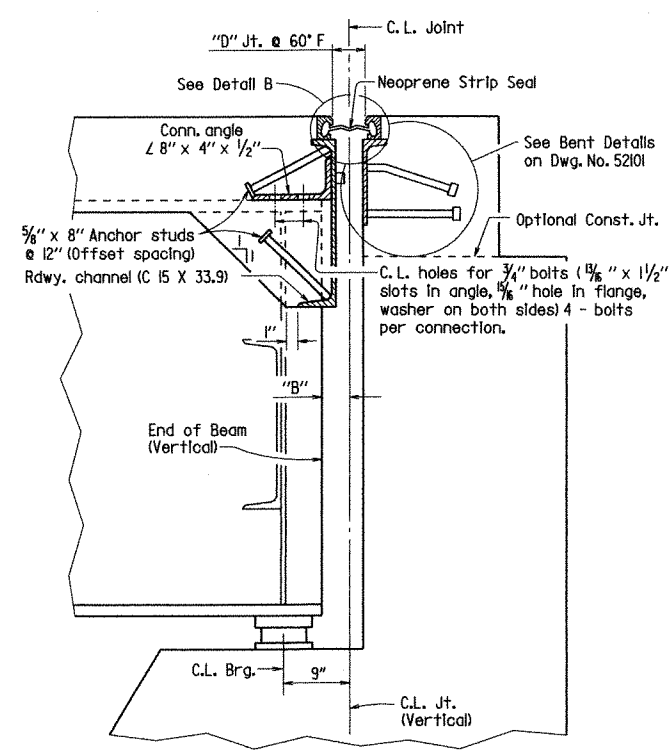
BRIDGE ENGINEER

SHEET 5 OF 6
 DETAILS OF 250'-0" CONTINUOUS
 COMPOSITE W-BEAM UNIT
 SCROGGINS CREEK
 ARKANSAS STATE HIGHWAY COMMISSION

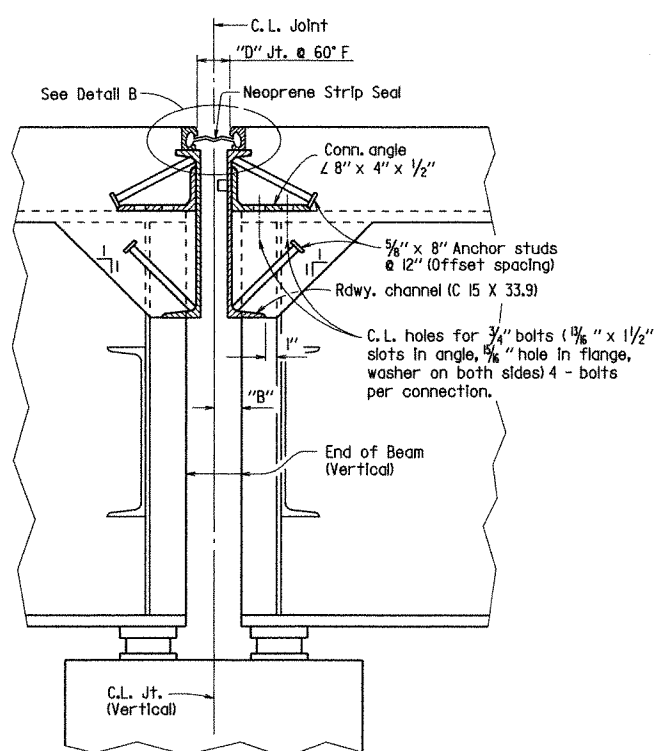
LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 04/29/11 FILENAME: B080381X.SLDGN
 CHECKED BY: JGT DATE: 5/20/11 SCALE: $\frac{3}{8}$ " = 1'-0"
 DESIGNED BY: BEF DATE: 4/11 OR AS NOTED
 BRIDGE NO. 07222 DRAWING NO. 52109

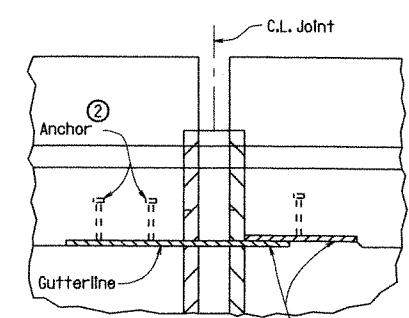
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080381		44	98
				①	07222	SPAN DETAILS		5210



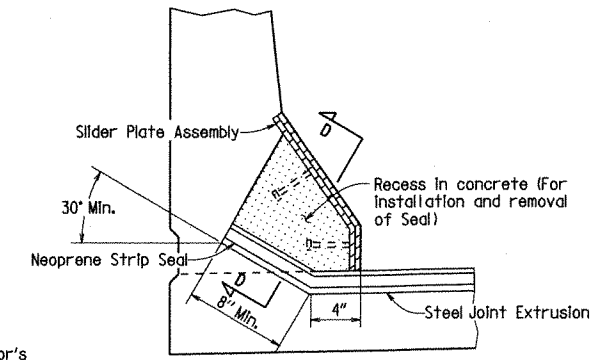
DETAILS OF JOINT AT BENTS 1 & 9



DETAILS OF JOINT AT BENT 5



SECTION C-C



SECTION B-B

NOTE: Details of Joint turn-up in curb and parapet are general and show basic design controls only. See Special Provision Job 080381, "Armored Joint with Neoprene Strip Seal." Method of installation and fabrication shall be determined by the manufacturer.

② The method of attachment of the slider plate assembly must be such that it may be removed in order to provide for future replacement of the neoprene seal.

Slider plates shall be AASHTO M270 - Gr. 36 and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)". The surfaces of the plates which will not be in contact with the concrete shall be cleaned and painted in accordance with Section 638, or as directed by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting shall not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M270, Gr. 50W)".

EXPANSION DEVICE INSTALLATION

Bent 1 or 9

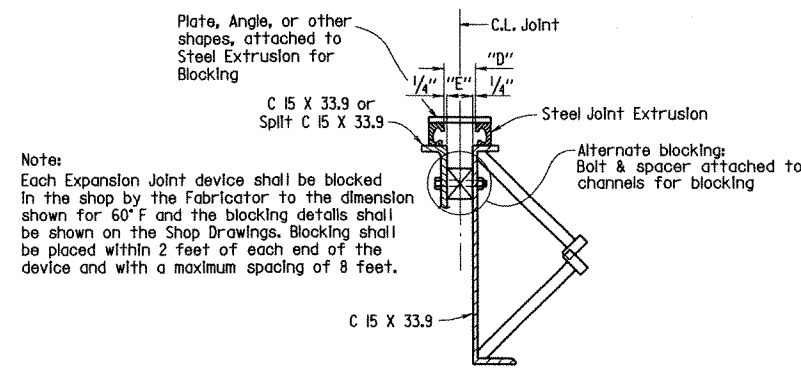
The Contractor may elect to install the expansion device using one of the following two alternatives.

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

Bent 5

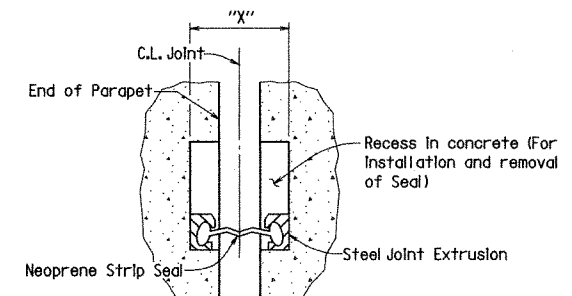
After all beams on both sides of the joint are erected, the blocked expansion device shall be installed and adjusted for grade. Connection bolts shall be tightened only on the unit whose concrete will be poured first. Connection bolts on the second unit shall be loosely installed to allow for thermal movements and for end rotation of the beams of the first unit while the concrete deck is poured.

After the concrete on the first unit has hardened and immediately prior to pouring concrete for the second unit, the blocking shall be removed and the joint width shall be adjusted for temperature. After the joint width has been set, the connection bolts on the second unit shall be tightened and concrete in the second unit can then be poured. A joint opening adjustment is not required for end rotation of the beams caused by the weight of the slab and parapets.

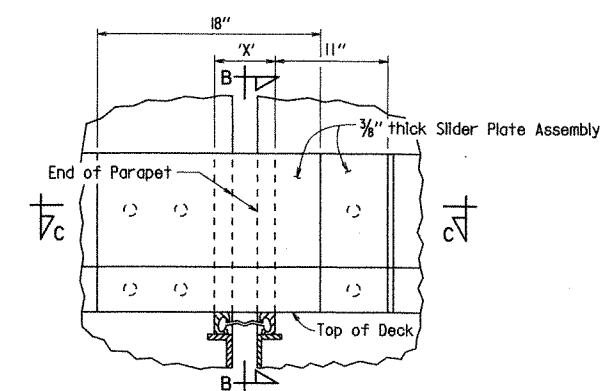


Note: Each Expansion Joint device shall be blocked in the shop by the Fabricator to the dimension shown for 60° F and the blocking details shall be shown on the Shop Drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE



SECTION D-D



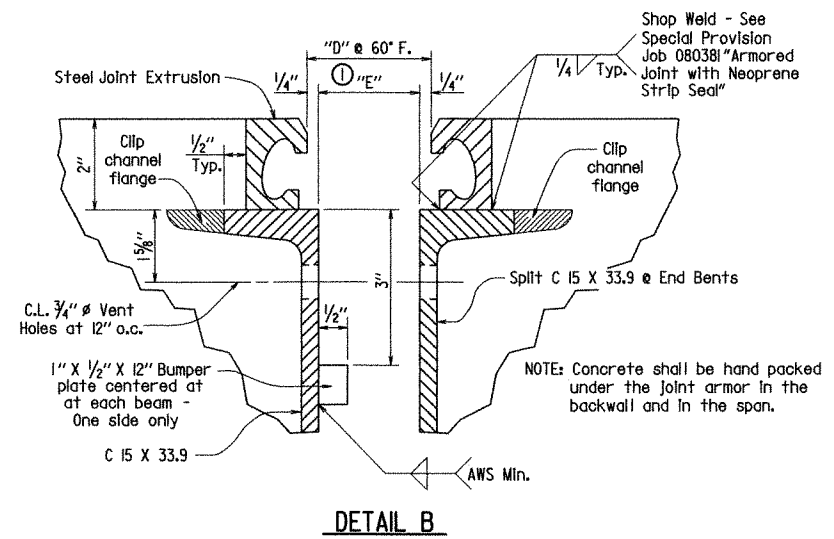
NOTE: Dimension 'X' equals the width of opening in parapet at curb to allow for removal or repair of joint.

DETAIL OF NEOPRENE STRIP SEAL AT CURB

STRIP SEAL DATA

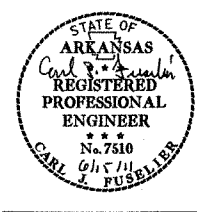
Bent Number	① "E" width perpendicular to joint at 24 hour average temperature of:			Movement Rating	"D" joint width perpendicular to joint at 60° F	"B" perpendicular to joint
	40°	60°	80°			
1 & 9	2 3/8"	2"	1 3/4"	4"	2 1/2"	2 1/4"
5	2 3/8"	2"	1 5/8"	4"	2 1/2"	2 1/4"

① The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.



DETAIL B

NOTE: Concrete shall be hand packed under the joint armor in the backwall and in the span.

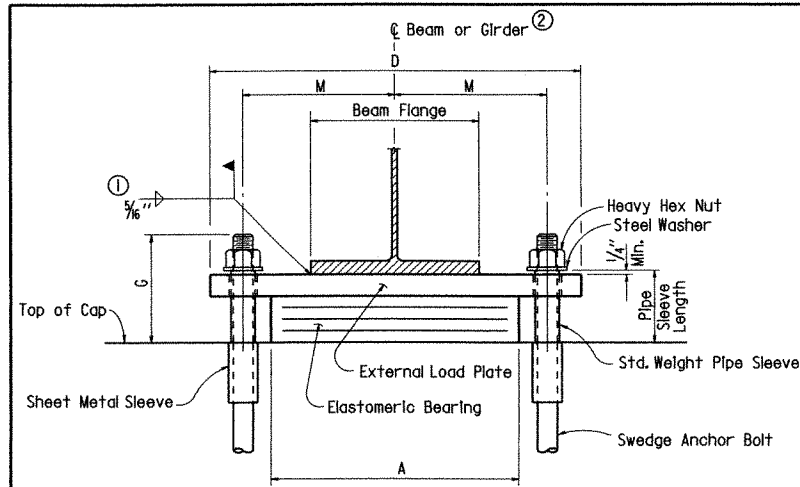


SHEET 6 OF 6
 DETAILS OF 250'-0" CONTINUOUS
 COMPOSITE W-BEAM UNIT
 SCROGGINS CREEK
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 04/29/11 FILENAME: B080381X1.SLDGN
 CHECKED BY: JGT DATE: 5/22/11 SCALE: NOT TO SCALE
 DESIGNED BY: BEF DATE: 4/11
 BRIDGE NO. 07222 DRAWING NO. 52110

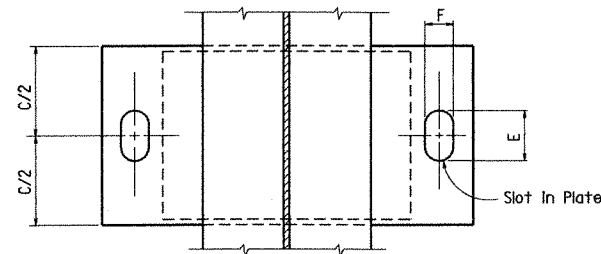
BRIDGE ENGINEER

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.	080381	45	98	
				07222	ELASTO	52111		

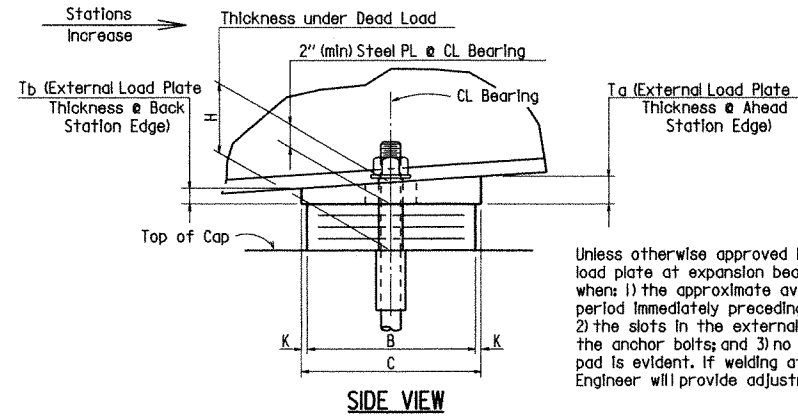


FRONT VIEW

- ① Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.
- ② C.L. Elastomeric pad shall be aligned with C.L. Beam.

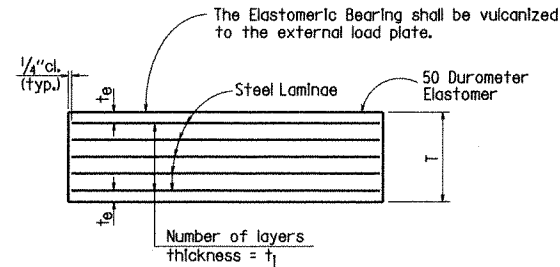


PLAN VIEW



SIDE VIEW

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



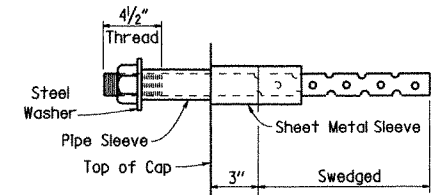
ELASTOMERIC BEARING

t_e = thickness of elastomer cover on top and bottom of pad
 t_1 = thickness of elastomer between steel laminae
 N = number of elastomer layers of thickness t_1

TABLE OF FABRICATOR VARIABLES

*Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION		BEARING TYPE	NO. OF BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD					EXTERNAL LOAD PLATE							ANCHOR BOLT							
	BENT NO(S)	BEAM OR GIRDER NO.						A	B	N	t_1	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT (ϕ x L)	PIPE SLEEVE SIZE (ϕ x L)	SHEET METAL SLEEVE SIZE (ϕ x L)	STEEL WASHER SIZE (O.D.)	
07222	1	All	Exp.	5	108	7 3/4"	5"	13"	9"	4	1/2"	1/4"	5 @ 12 Ga	3"	10"	22"	4"	2"	1/2"	8 1/2"	2"	2"	1 1/4" x 20"	55	1 1/4" x 5 1/2"	3" x 6"	2 1/2"
	2-4	All	Flx.	5	224	8 1/2"	5"	14"	14"	4	1/2"	1/4"	5 @ 12 Ga	3"	15"	26"	3 1/8"	3 1/8"	1/2"	9 3/4"	2"	2"	2" x 29"	55	2 1/2" x 5 1/2"	4" x 6"	3 3/4"
	5	All	Exp.	10	108	7 3/4"	5"	13"	9"	4	1/2"	1/4"	5 @ 12 Ga	3"	10"	22"	4"	2"	1/2"	8 1/2"	2"	2"	1 1/4" x 20"	55	1 1/4" x 5 1/2"	3" x 6"	2 1/2"
	6-8	All	Flx.	5	224	8 1/2"	5"	14"	14"	4	1/2"	1/4"	5 @ 12 Ga	3"	15"	26"	3 1/8"	3 1/8"	1/2"	9 3/4"	2"	2"	2" x 29"	55	2 1/2" x 5 1/2"	4" x 6"	3 3/4"
	9	All	Exp.	5	108	7 3/4"	5"	13"	9"	4	1/2"	1/4"	5 @ 12 Ga	3"	10"	22"	4"	2"	1/2"	8 1/2"	2"	2"	1 1/4" x 20"	55	1 1/4" x 5 1/2"	3" x 6"	2 1/2"



ANCHOR BOLT DETAIL

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

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

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 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 shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with subsection 808.03. Other surfaces shall be blast cleaned in accordance with subsection 807.84(b) for painted steel and 807.84(e) for unpainted Grade 50W steel.

Anchor Bolts, Washers and Nuts shall conform to subsection 807.07 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.

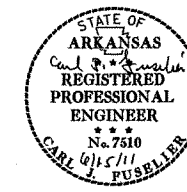
Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)".

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

Tabular Data by: MJT Date: 05/20/11

Checked by: JCT Date: 6/20/11

Designed by: BEF Date: 4/11

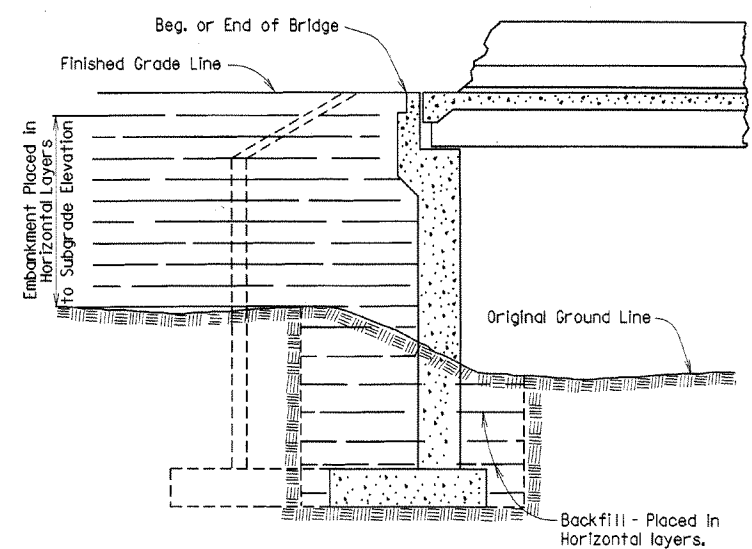


DETAILS OF ELASTOMERIC BEARINGS
SCROGGINS CREEK
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

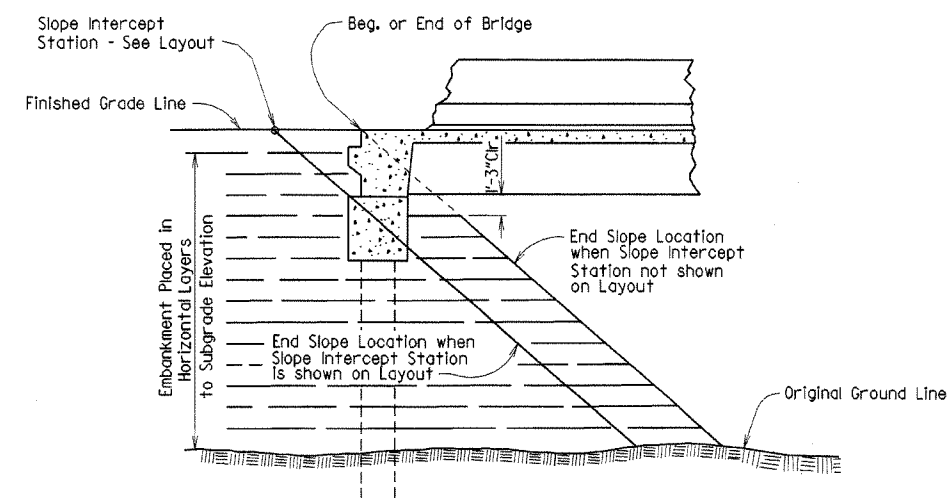
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 DESIGNED BY: SID DATE: —
 BRIDGE NO. 07222 DRAWING NO. 52111

BRIDGE ENGINEER

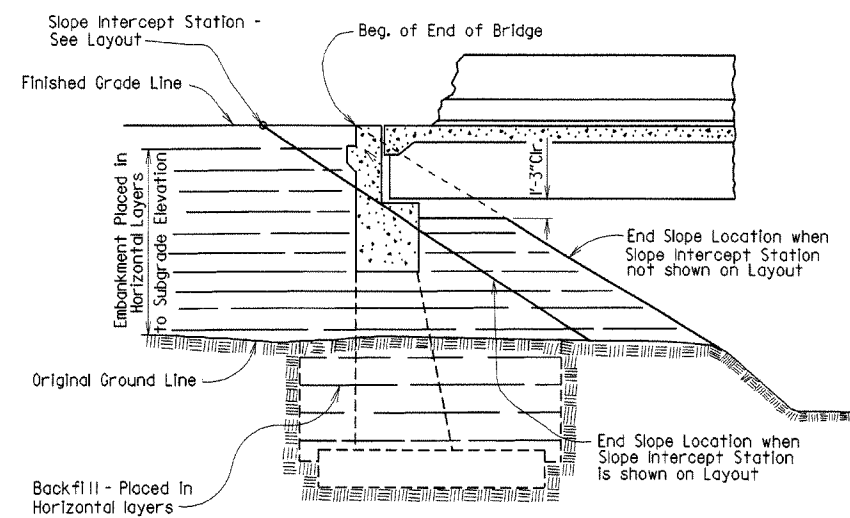
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04-10-2003				6	ARK.		46	
							JOB NO.	
① EMBANKMENT & BACKFILL								1888A



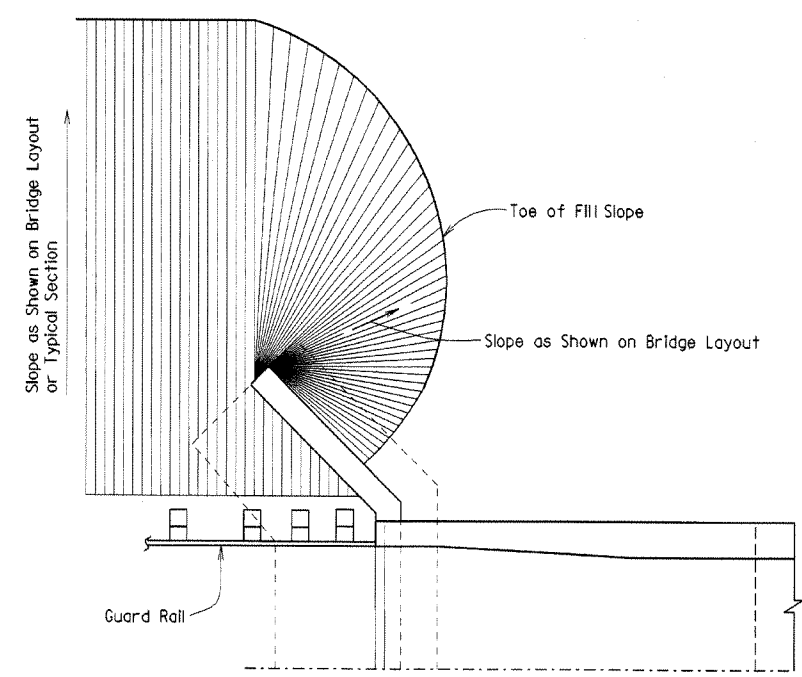
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



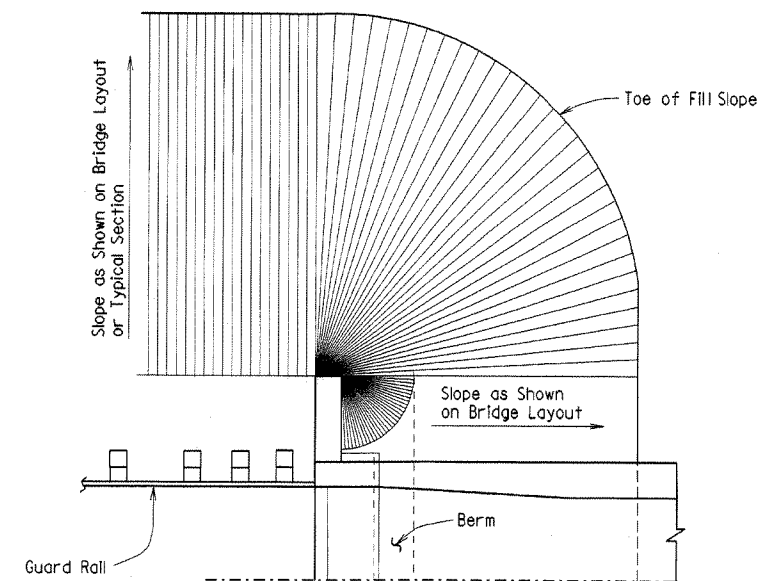
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



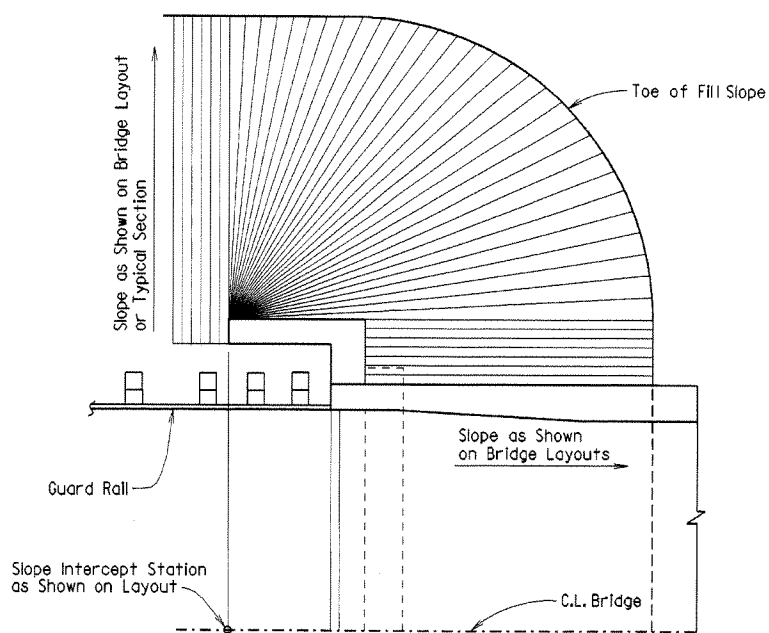
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



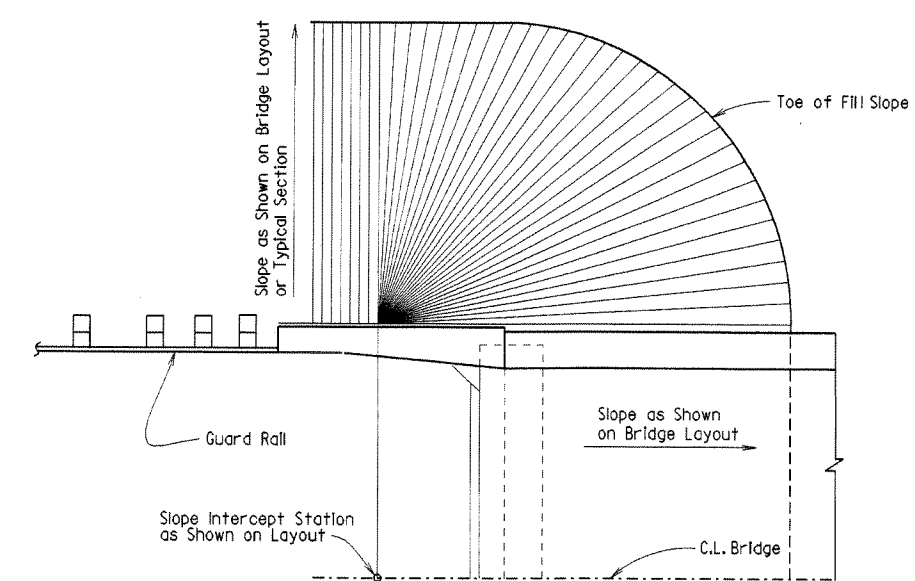
VERTICAL WALL ABUTMENTS



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 4 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 of the Specifications for construction requirements.



BRIDGE ENGINEER

EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

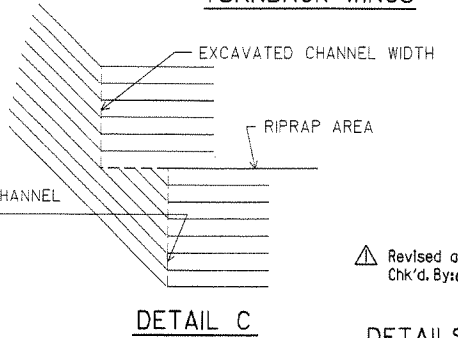
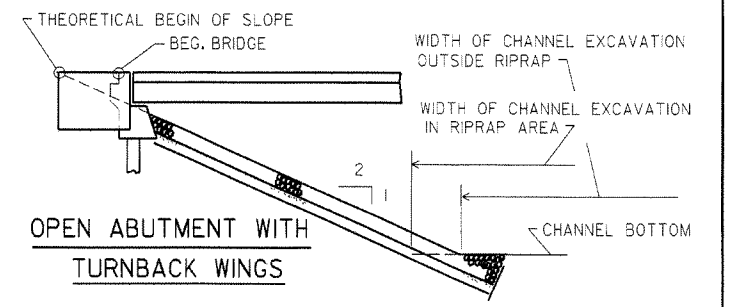
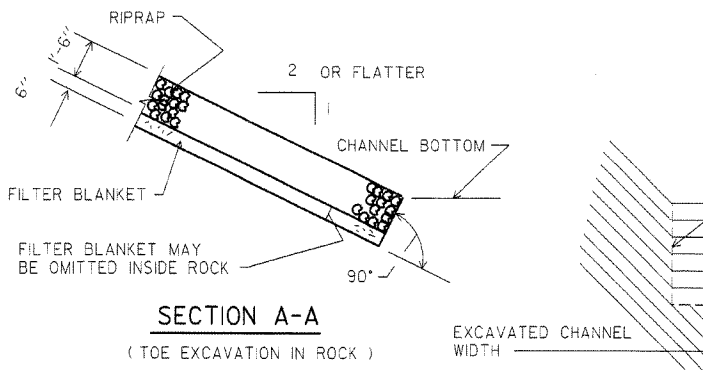
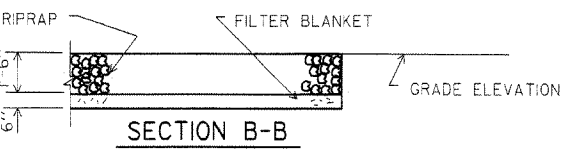
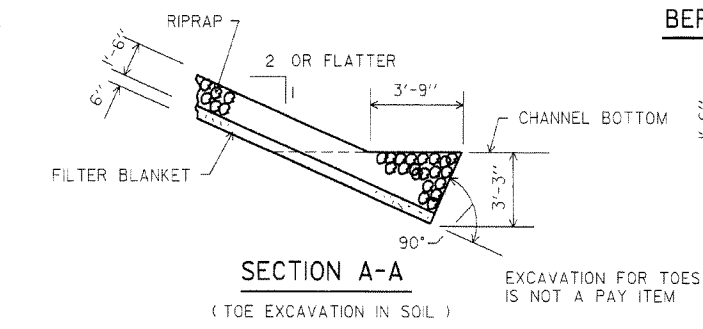
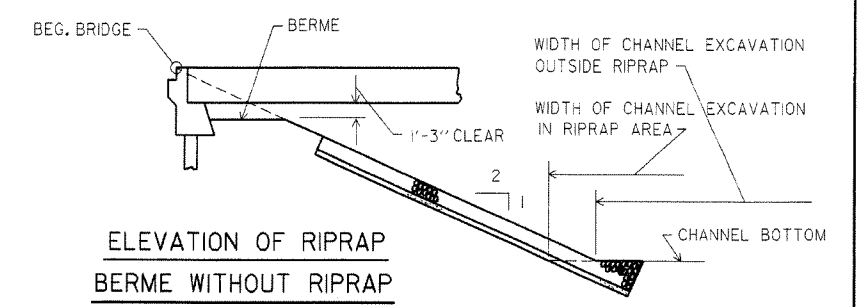
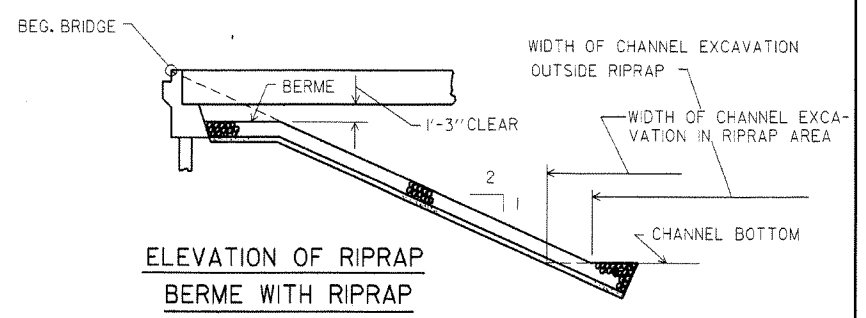
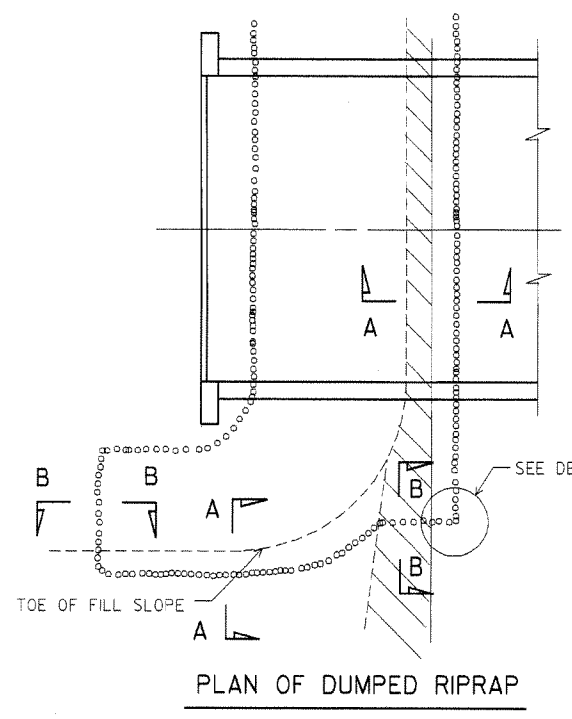
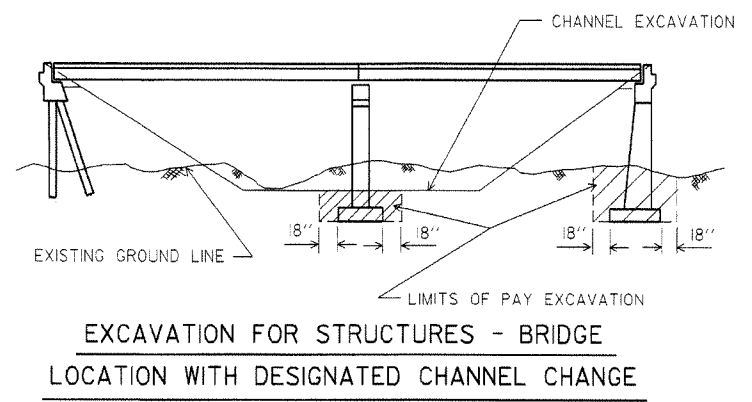
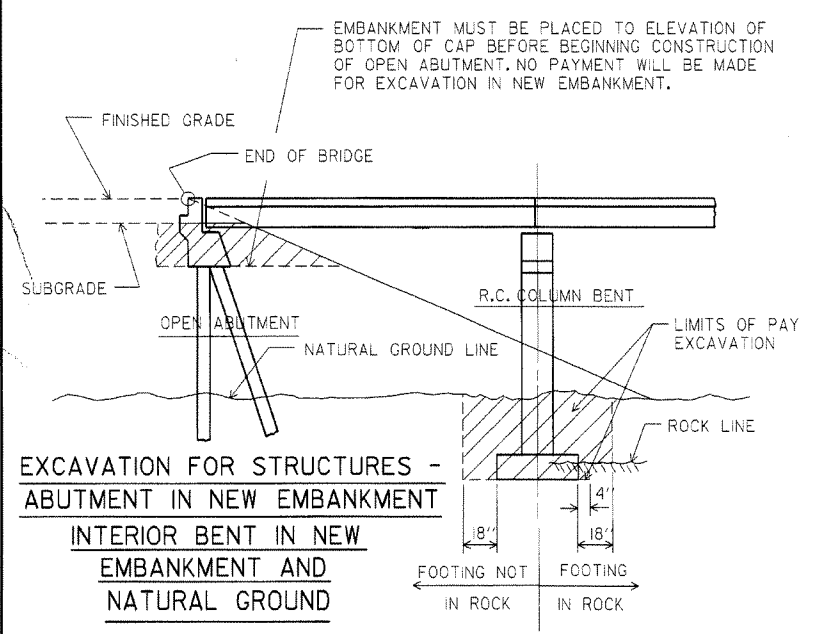
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 04-10-2003 FILENAME: B1888A.STD
 CHECKED BY: CJF DATE: 04-10-2003 SCALE: NO SCALE
 DESIGNED BY: STD DATE: _____
 BRIDGE NO. _____ DRAWING NO. **1888A**

Revised and redrawn MJT 04-10-2003
 Chk'd. By: CJF 04-10-2003

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		47	

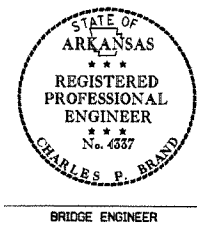
JOB NO. _____ RIP. & EXCAV. 1891F



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.



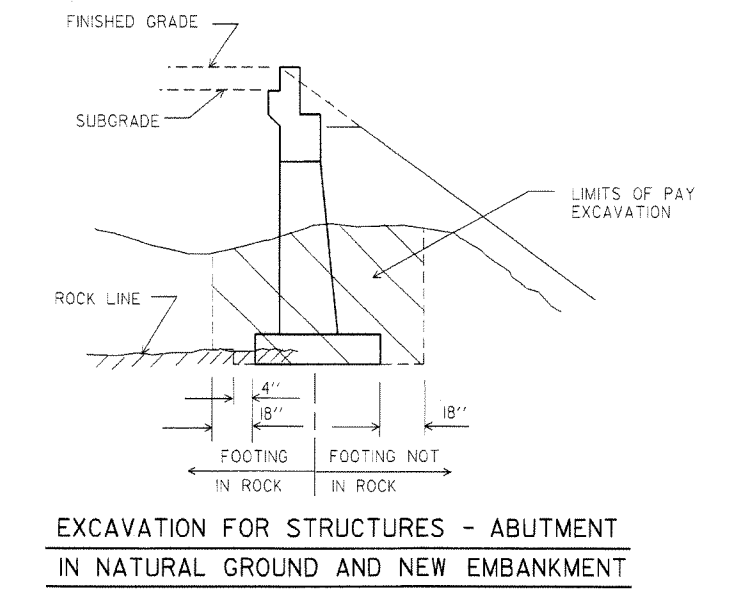
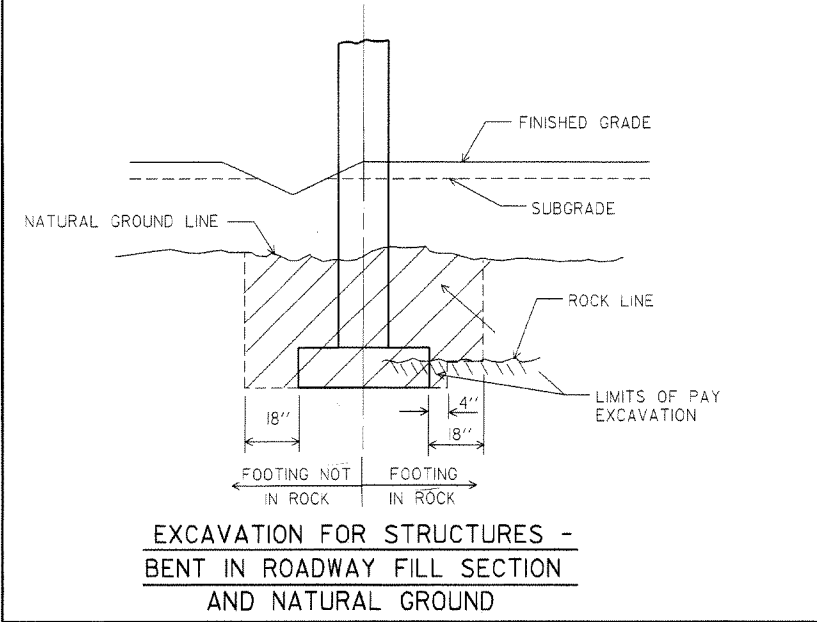
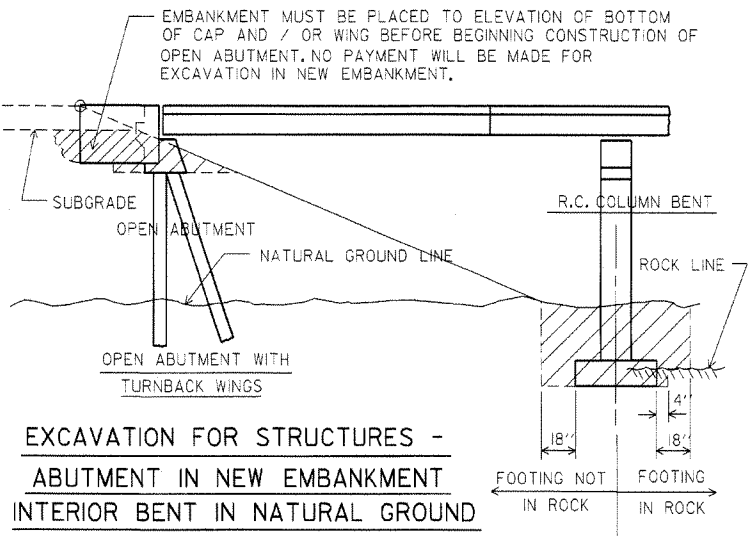
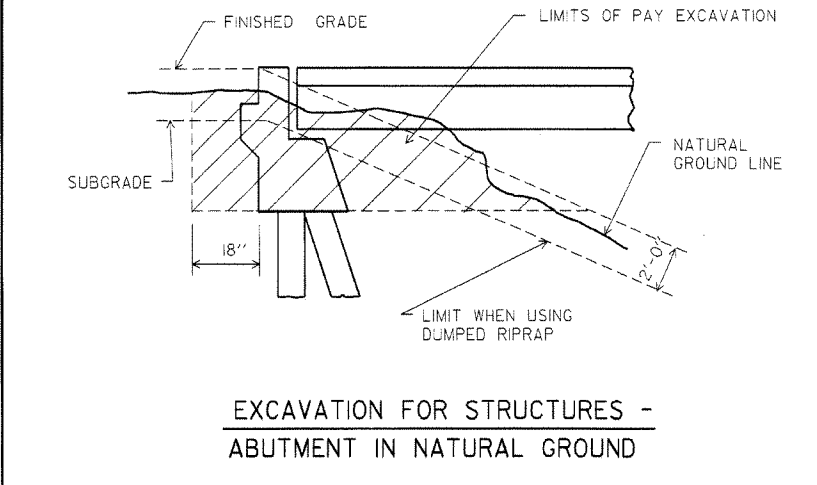
Revised and redrawn MJT 04-10-2003
 Chk'd. By: CJF 04-10-2003

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

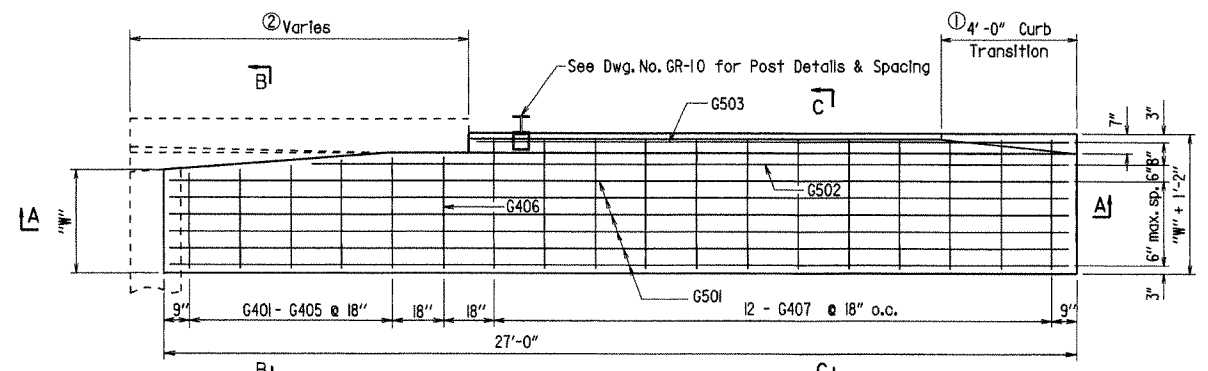
ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 04-10-2003 FILENAME: B1891F.STD
 CHECKED BY: CJF DATE: 04-10-2003 SCALE: NO SCALE
 DESIGNED BY: STD. DATE: _____

BRIDGE NO. _____ DRAWING NO. 1891F

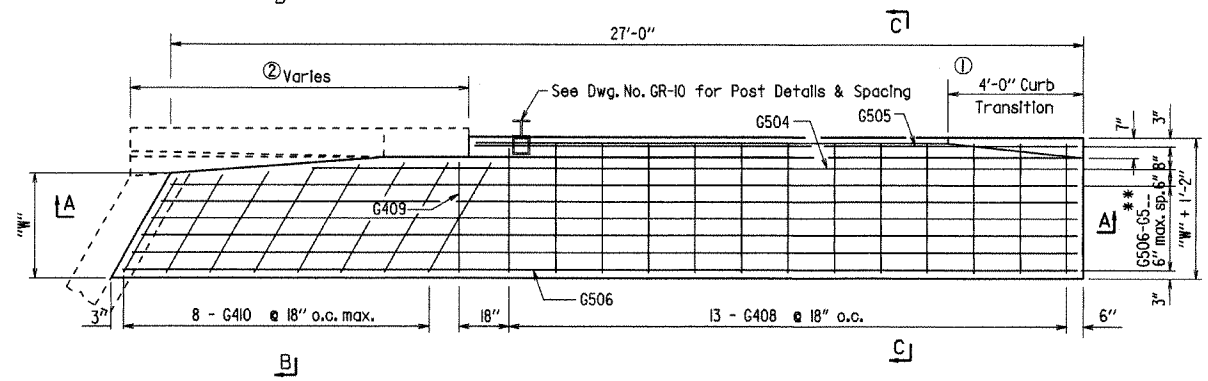


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4-10-2003				6	ARK.		48	
07-14-2010								
JOB NO.							TYPE B GUTTERS	2016B



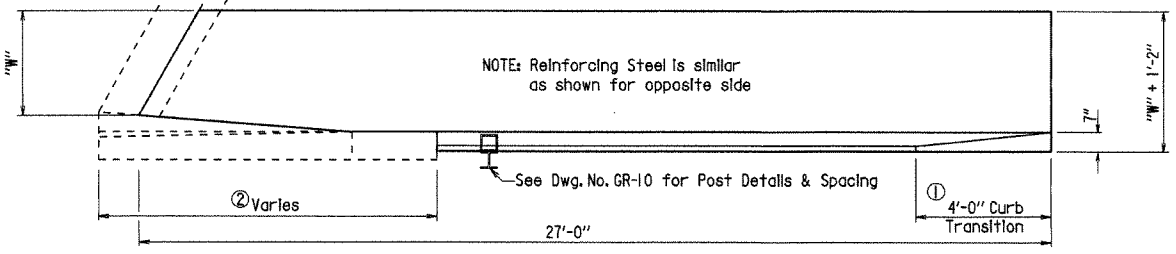
HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE

② Length varies. See End Bent details for actual length. Quantities shown are for 10'-0" Transition Rail.



PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE

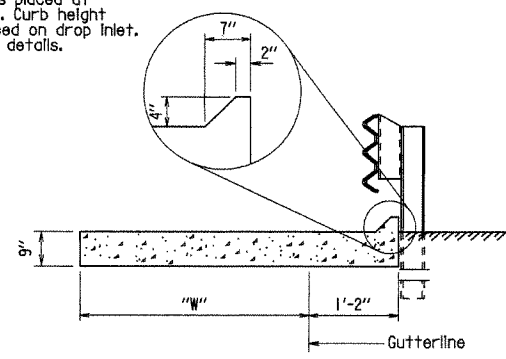
NOTE: Reinforcing Steel is similar as shown for opposite side



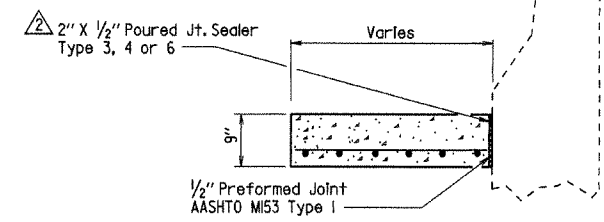
SECTION A - A

Slab Depth Varies - See Span and Bent Details

① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.
Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION C - C
N.T.S.



SECTION B - B
N.T.S.

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

"W" Width (ft.)	Reinforcing Steel (lbs.)	Concrete (cubic yards)
3	252	3.00
4	319	3.75
6	459	5.25
8	590	6.75

*** BAR LIST ②
TYPE B GUTTER

Mark	No. Required for Width "W"				Length	Square or Skewed
	3'-0"	4'-0"	6'-0"	8'-0"		
G401-G405	1 each	1 each	1 each	1 each	"W" - 3" to "W" + 3"	Square
G406	1	1	1	1	"W" + 3"	Square
G407	12	12	12	12	"W" + 10"	Square
G408	13	13	13	13	"W" + 10"	Skewed
G409	1	1	1	1	"W" + 3"	Skewed
G410	8	8	8	8	*	Skewed
G501	6	8	12	16	26'-8"	Square
G502	1	1	1	1	22'-2"	Square
G503	1	1	1	1	17'-8"	Square
G504	1	1	1	1	*	Skewed
G505	1	1	1	1	*	Skewed
G506-G505	1 each	1 each	1 each	1 each	*	Skewed

* Bar Lengths vary with Skew.
** G512 for "W" = 3'
G514 for "W" = 4'
G518 for "W" = 6'
G522 for "W" = 8'

*** Special bar list required when skew angle exceeds 40° for W = 8'; 50° for W = 6'; or 60° for W = 4'.

GENERAL NOTES

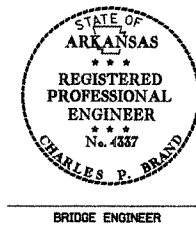
Concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement.
Reinforcement Steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi).
Approach Gutters will be measured and paid for in accordance with Section 504 of the Standard Specifications.

Revised and redrawn 4-10-2003. By KDH Ck. By: CJF 4-10-2003
Added joint sealer type & revised transition rail length 07-14-2010 by MJT Checked by: CJF 07-14-2010

DETAILS OF STANDARD TYPE B APPROACH GUTTERS

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

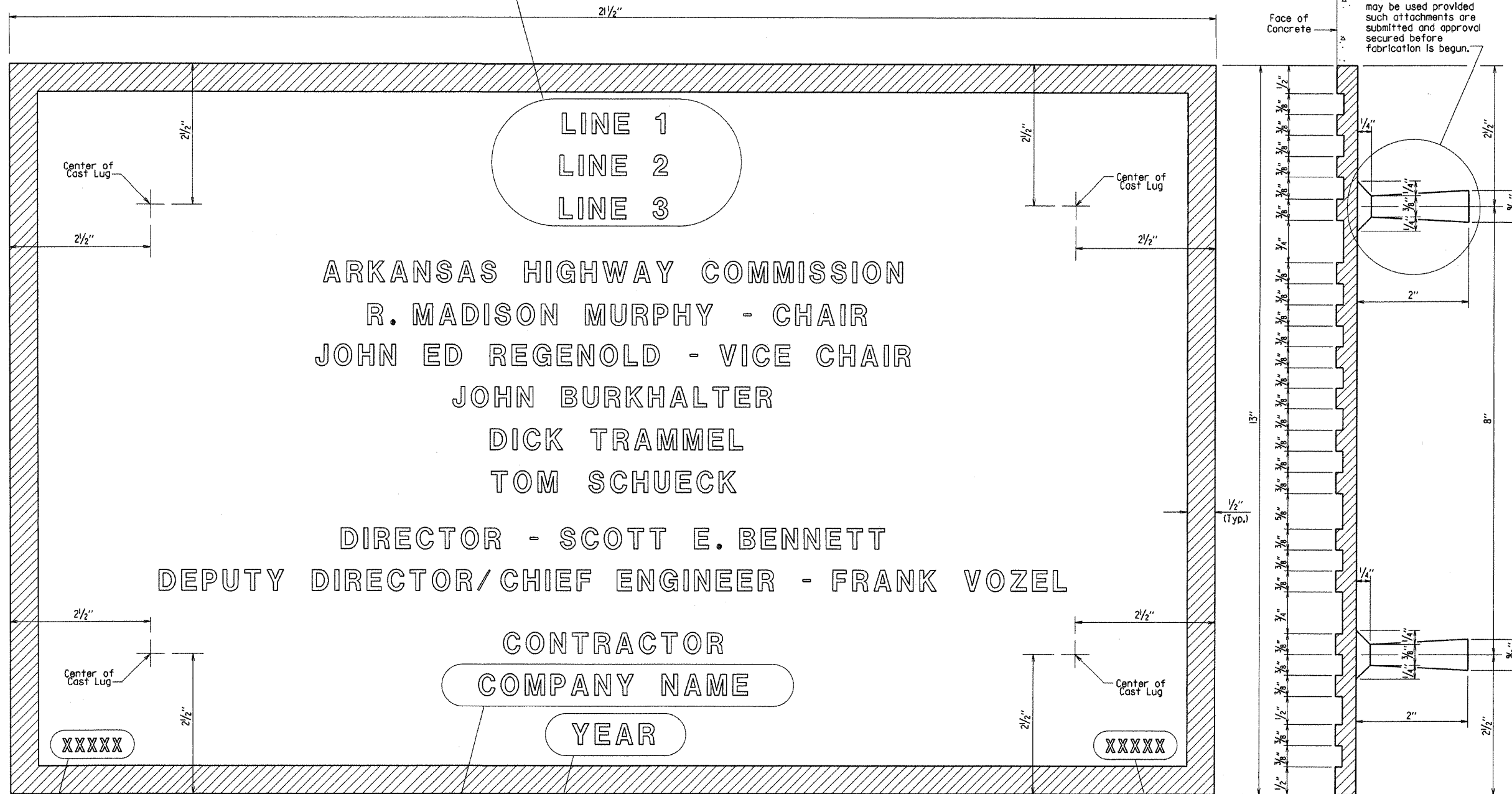
DRAWN BY: KDH DATE: 4-10-2003 FILENAME: B2016B.STD
CHECKED BY: CJF DATE: 4-10-2003 SCALE: 3/8" = 1'-0"
DESIGNED BY: STD DATE: _____
BRIDGE NO. DRAWING NO. 2016B



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9-8-11				6	ARK.		49	
JOB NO.							NAME PLATE 2387	

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.

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



GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2003 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 of the Standard Specifications.

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

All lettering shall be plain gothic, square cut and not tapered. The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

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

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

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

Place the Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples: A1234 05432

Revised and Redrawn 9-8-11 KDH Checked By: CRE

TYPICAL BRIDGE NAME PLATE



DETAILS OF STANDARD TYPE D BRIDGE NAME PLATE

ROUTE SEC.

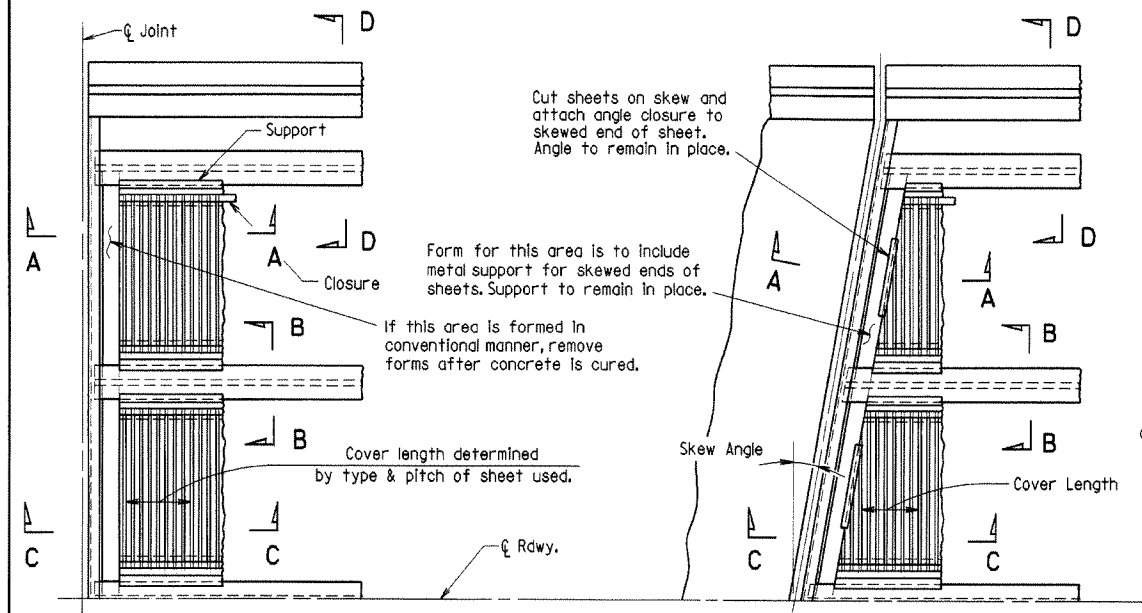
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-8-11 FILENAME: B2387.STD
 CHECKED BY: CRE DATE: 9-8-11 SCALE: 1'-0" = 1'-0"
 DESIGNED BY: STD DATE: OR AS NOTED
 BRIDGE NO. DRAWING NO. 2387

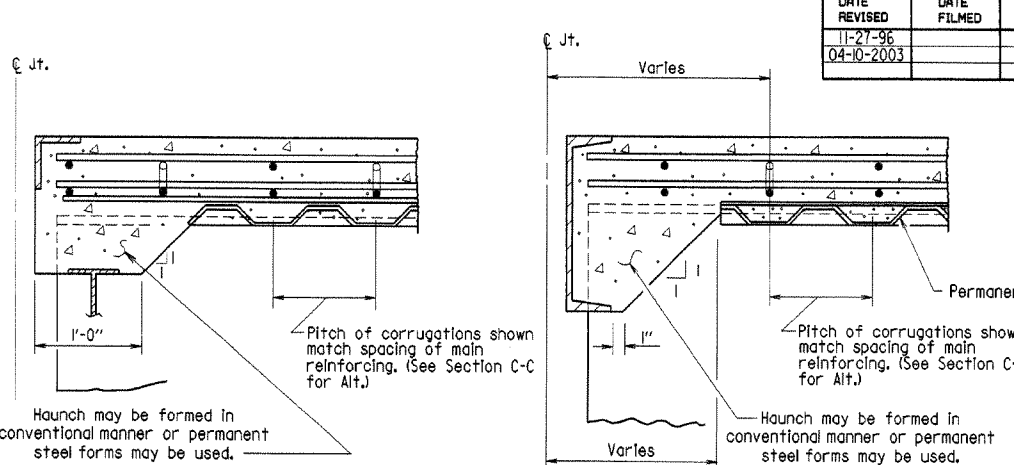
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11-27-96						6	ARK.		50	
04-10-2003										

BR. DECK FORMS 14991



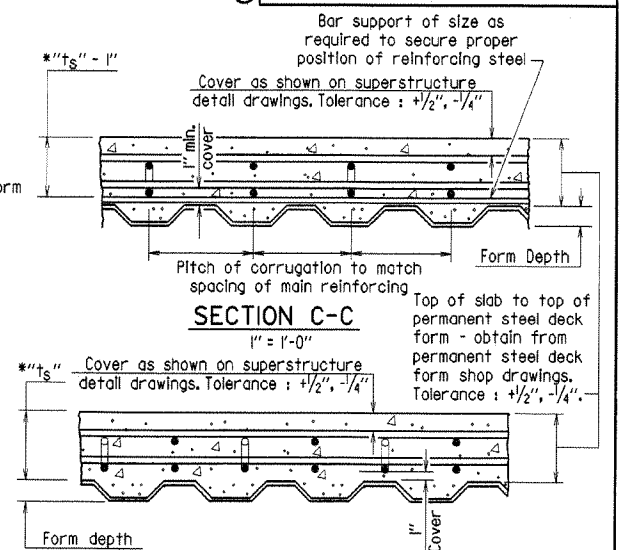
PART PLAN - SQUARE SPAN
3/8" = 1'-0"

PART PLAN - SKEWED SPAN
3/8" = 1'-0"



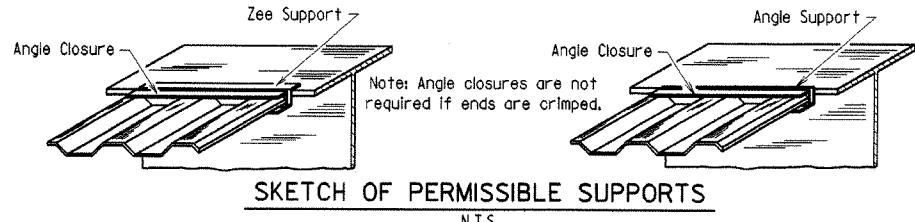
SECTION A-A
N.T.S.
(Angle at end of span)

SECTION A-A
N.T.S.
(Channel at end of span)

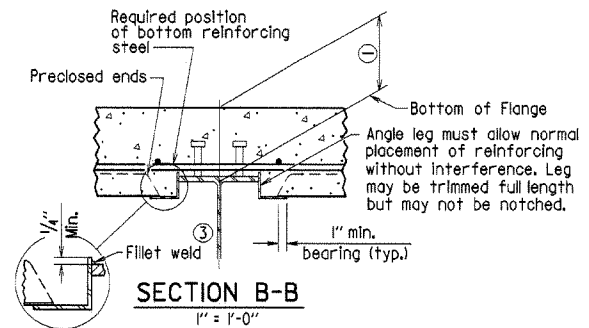


SECTION C-C
1" = 1'-0"

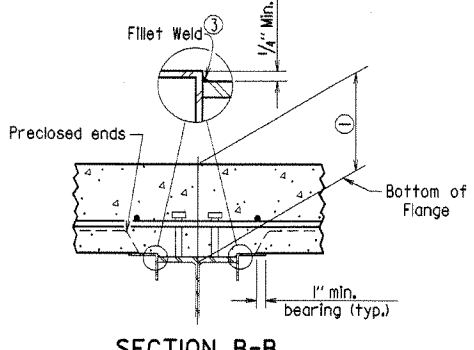
SECTION C-C - ALTERNATE
1" = 1'-0"



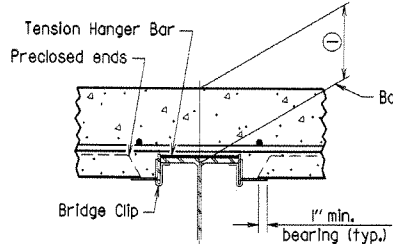
SKETCH OF PERMISSIBLE SUPPORTS
N.T.S.



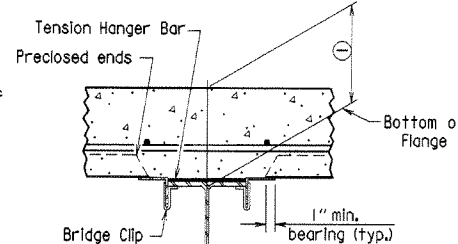
SECTION B-B
1" = 1'-0"



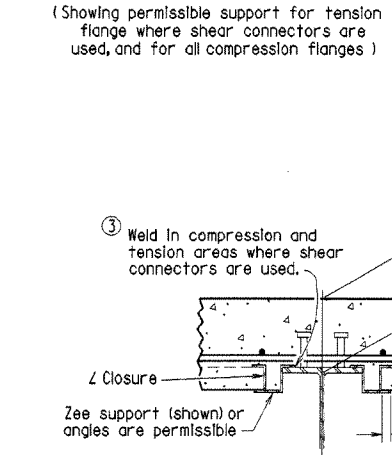
SECTION B-B
1" = 1'-0"



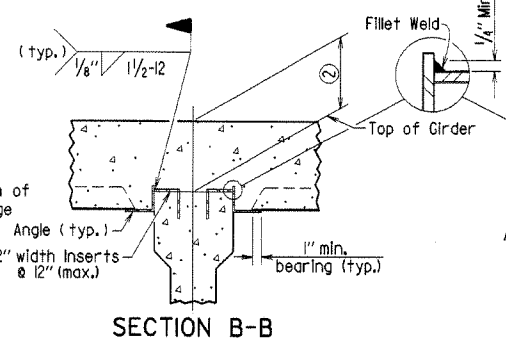
SECTION B-B
1" = 1'-0"



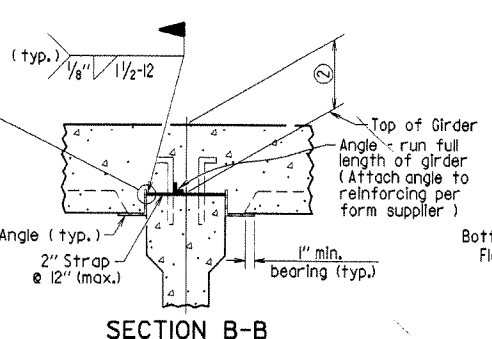
SECTION B-B
1" = 1'-0"



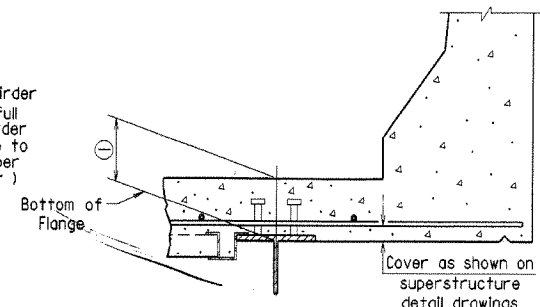
SECTION B-B
1" = 1'-0"



SECTION B-B (FOR CONCRETE GIRDERS)
1" = 1'-0"



SECTION B-B (FOR CONCRETE GIRDERS)
1" = 1'-0"



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

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

③ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1/2" (typ.)

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

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

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

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances: Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = $t_s + 1/4"$ + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

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

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) of the Standard Specifications. Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Bridge 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 L supports to the flange must be approved by the Bridge 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 Bridge 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.

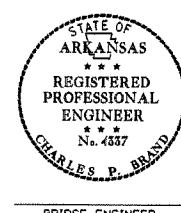
Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

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 (2003 Edition), with applicable supplemental specifications and special provisions.

DETAILS OF PERMISSIBLE TYPE PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

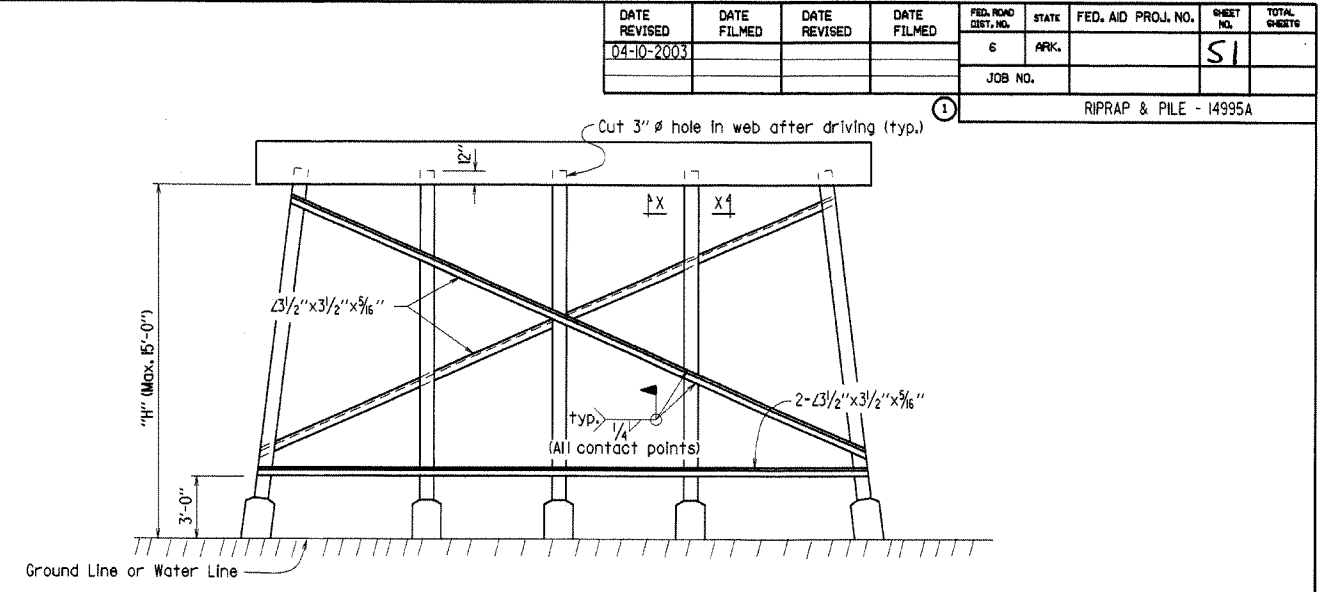
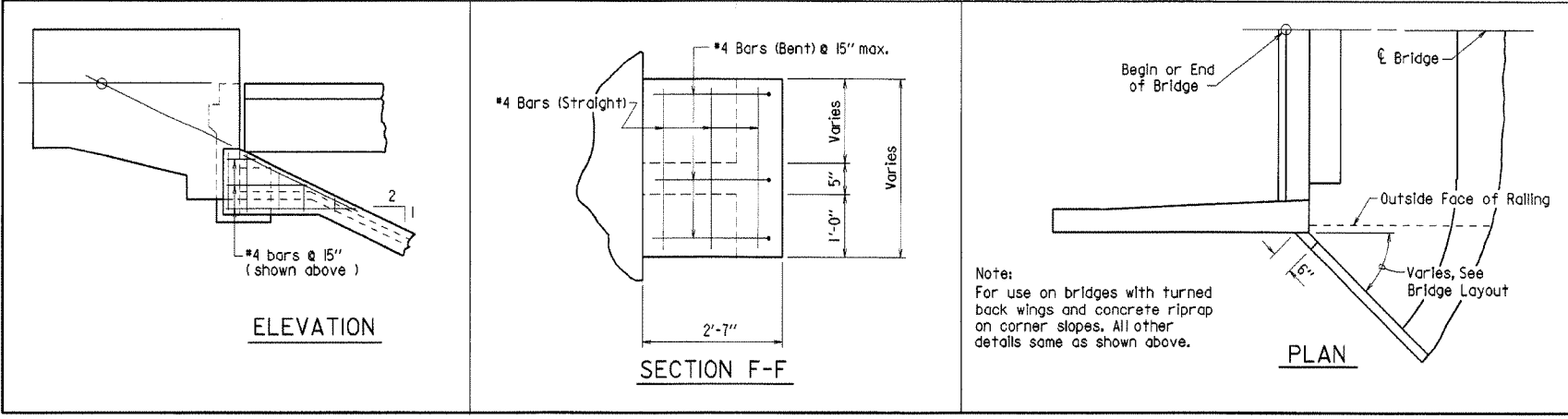
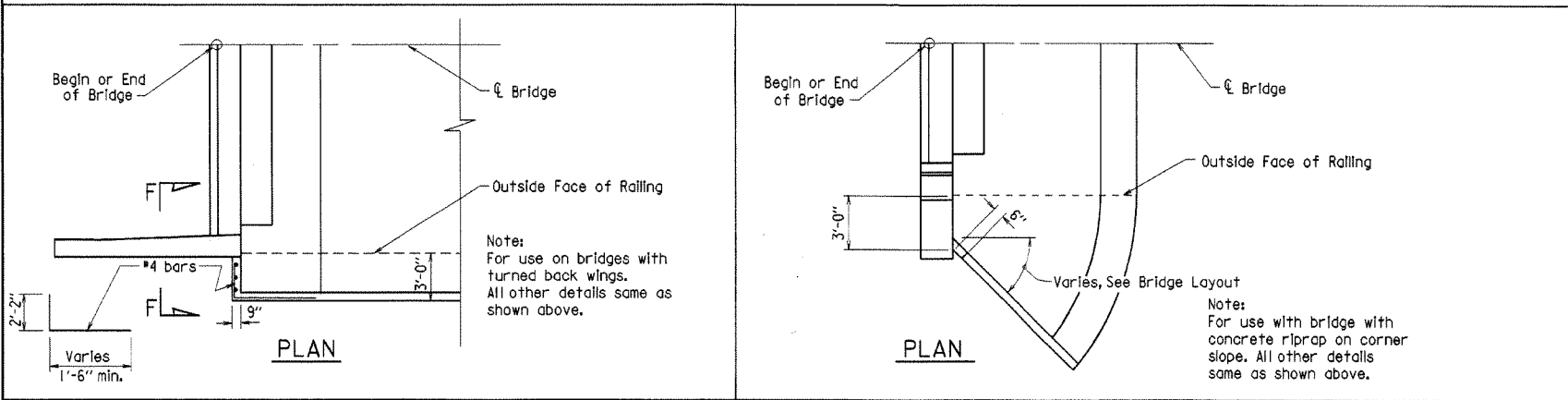
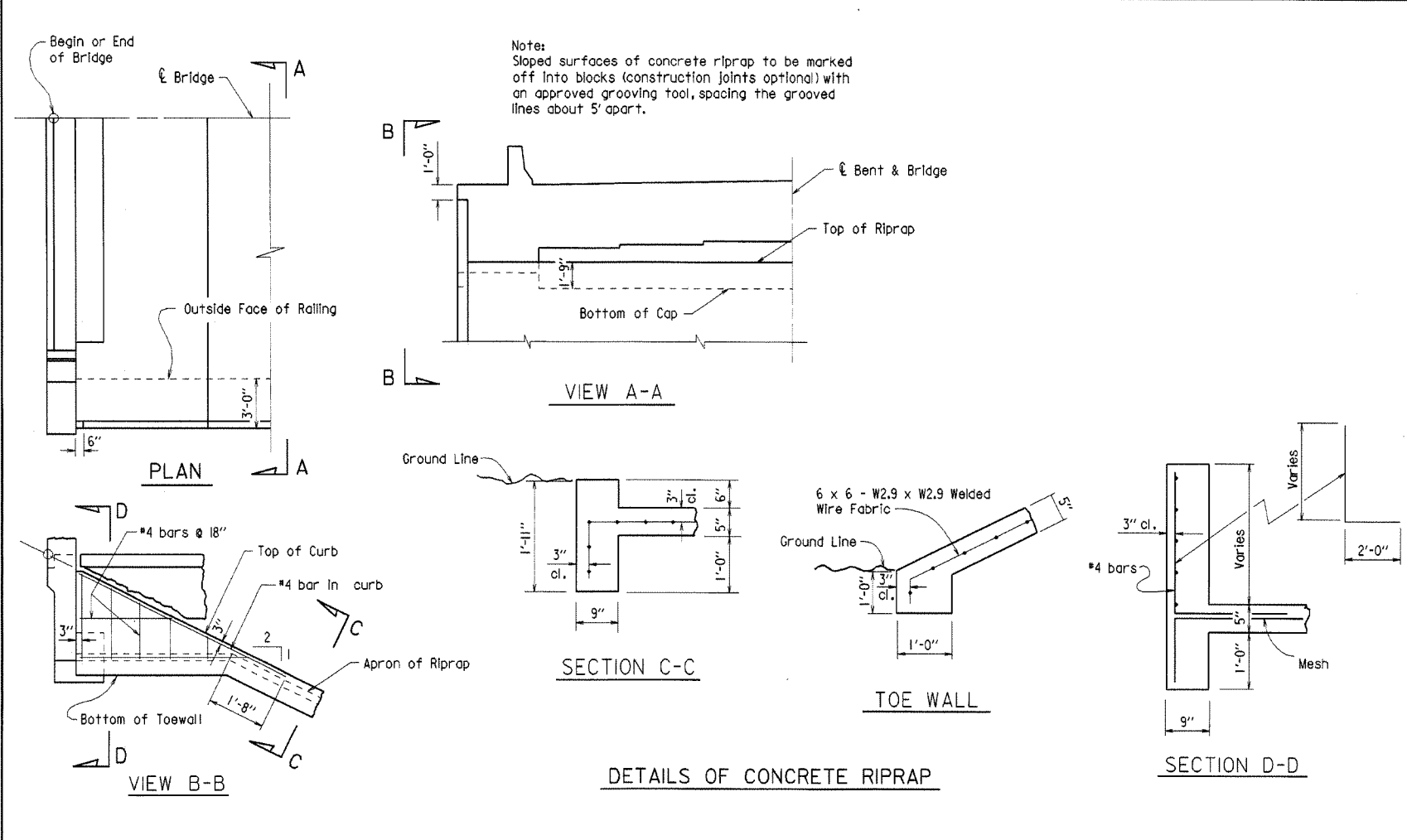
DRAWN BY: MJT DATE: 10-17-96
CHECKED BY: CPB DATE: 10-17-96 SCALE: as noted
DESIGNED BY: STD. DATE: ---
BRIDGE NO. DRAWING NO. 14991



Redrawn and revised 11/27/96; MJT

Revised for 2003 AHTD Construction Specifications and CPB Sed. MJT 04-10-2003
Chk'd. By: csp 04-10-2003

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		51	
				JOB NO.		RIPRAP & PILE - I4995A		



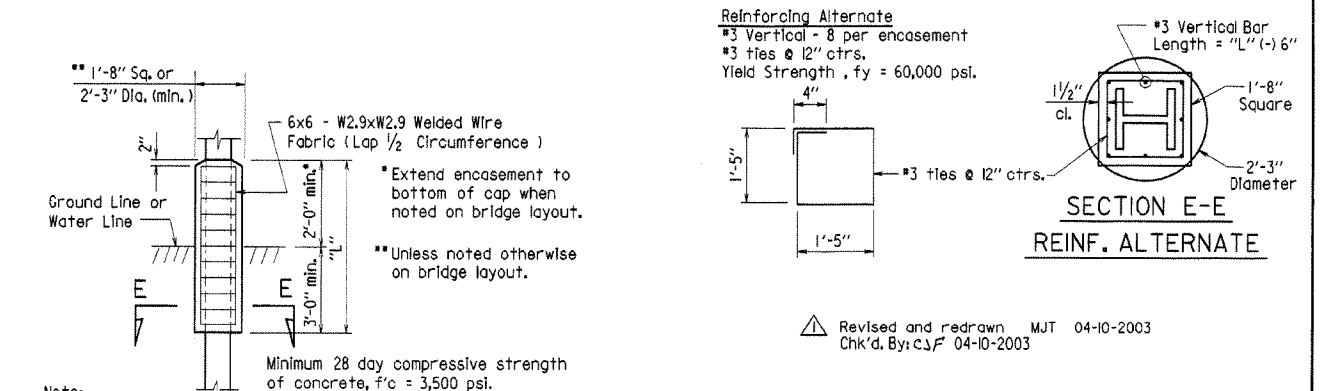
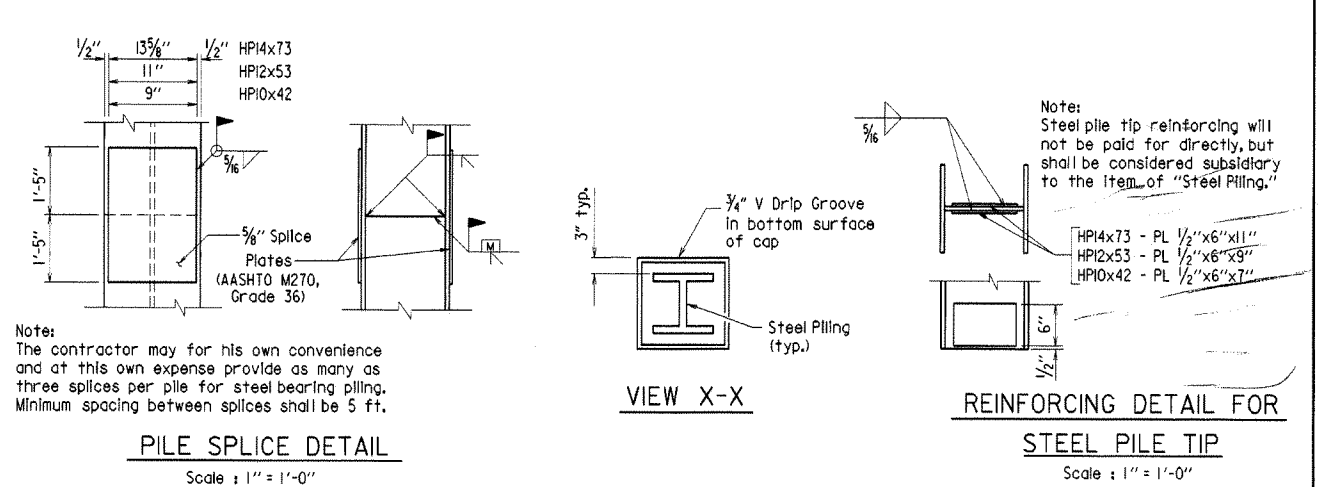
Note:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under item 807.

Note:
Where required by the bridge layout sheet, pile encasements shall be constructed.

Omit bottom bracing where "H" is less than 10 ft. Omit all bracing where "H" is less than 5 ft.

Omit bracing (and V-groove in cap) where pile encasement is extended to bottom of bent cap.

TYPICAL BRACING FOR INT. STEEL PILE BENTS



DETAILS OF CONCRETE RIPRAP AND MISC. DETAILS OF STEEL PILING

ROUTE 6 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

PILE ENCASEMENT DETAIL

SECTION E-E REINFORCING ALTERNATE

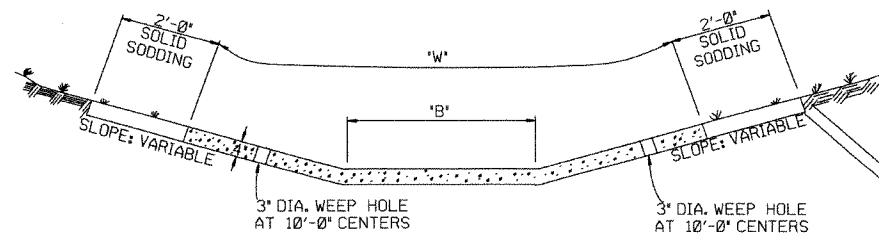
Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER
CHARLES P. BRANDY No. 4337
BRIDGE ENGINEER

DRAWN BY: MJT DATE: 04-10-2003 FILENAME: B14995A-STD
CHECKED BY: CJF DATE: 04-10-2003 SCALE: No Scale or As Noted
DESIGNED BY: STD. DATE: —

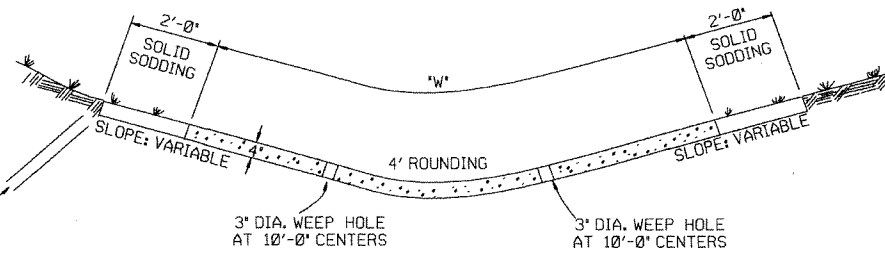
BRIDGE NO. DRAWING NO. I4995A

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



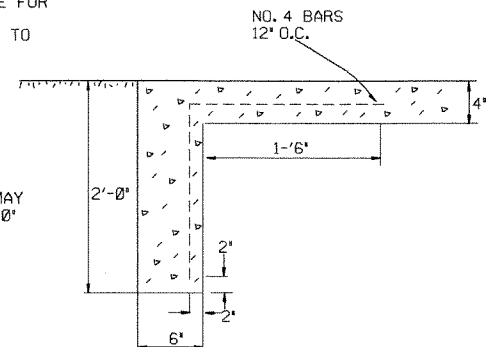
TYPE A

REFER TO TABULATION OF QUANTITIES FOR 'W' DIMENSIONS



TYPE B

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



TOE WALL DETAIL FOR CONCRETE DITCH PAVING

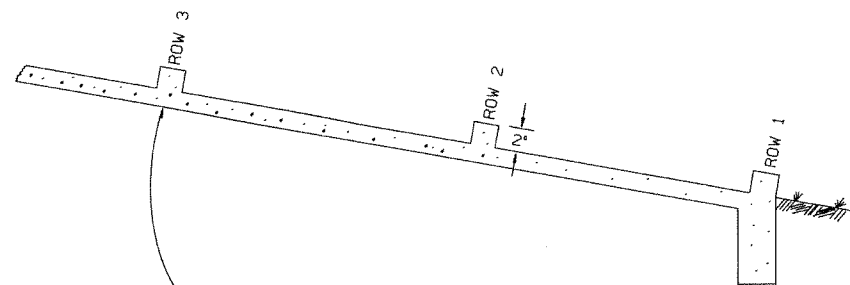
GENERAL NOTES:

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.

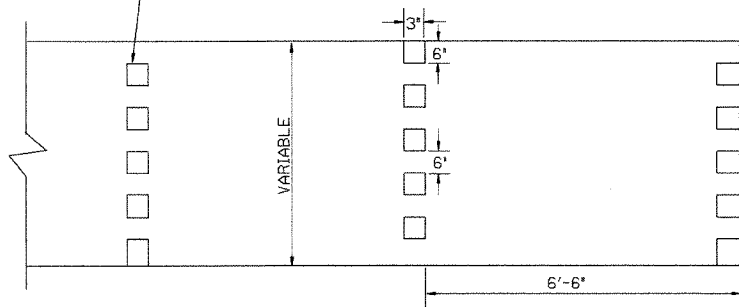
SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

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.



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

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



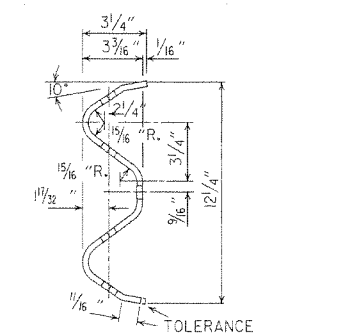
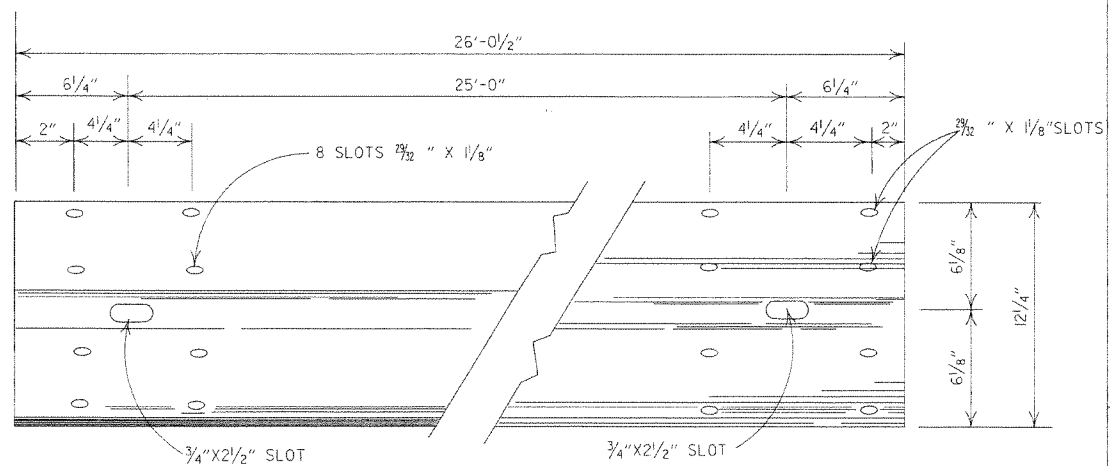
ENERGY DISSIPATORS
(NO SCALE)

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	508-11-1-84
11-1-84	ADDED EXCAVATION DETAILS ADDED	
10-2-72	TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72
DATE	REVISION	DATE FILM'D

ARKANSAS STATE HIGHWAY COMMISSION

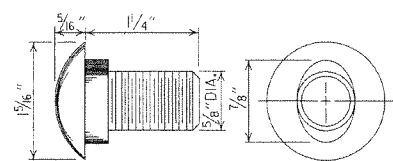
CONCRETE DITCH PAVING

STANDARD DRAWING CDP-1

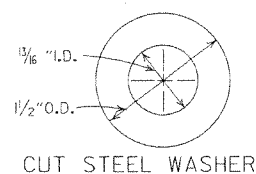


DETAILS OF W-BEAM GUARD RAIL

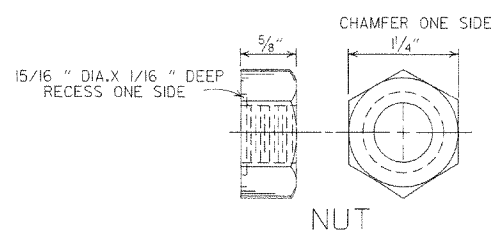
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



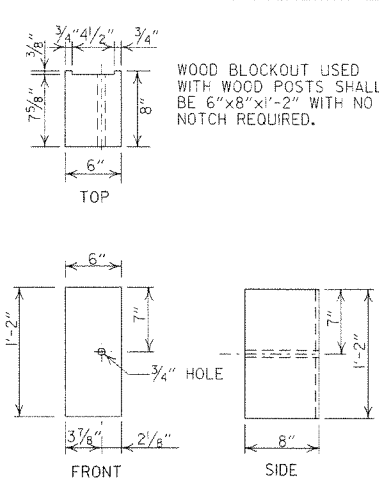
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



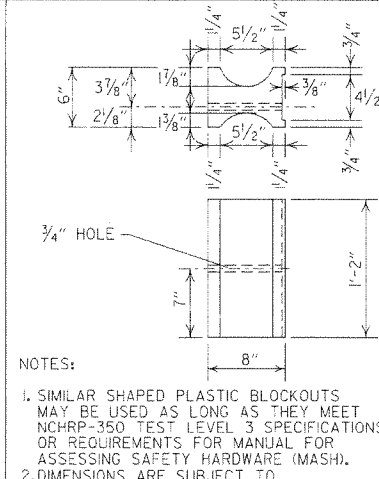
CUT STEEL WASHER



NUT

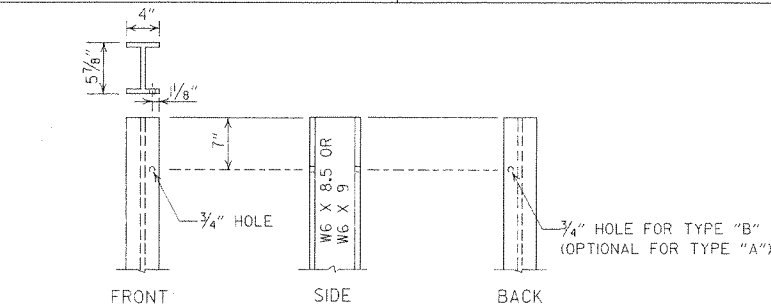


WOOD BLOCKOUT (W-BEAM)

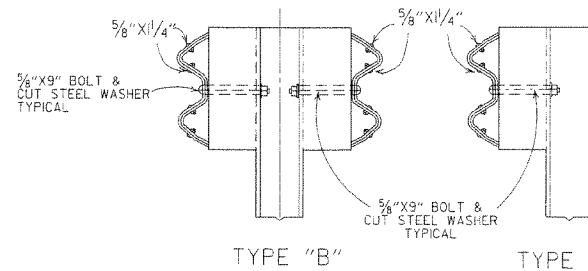


PLASTIC BLOCKOUT (W-BEAM)

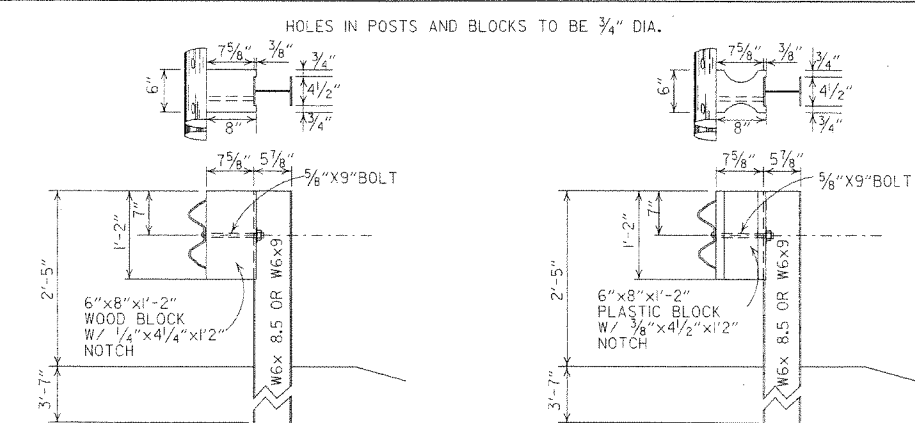
NOTES:
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.



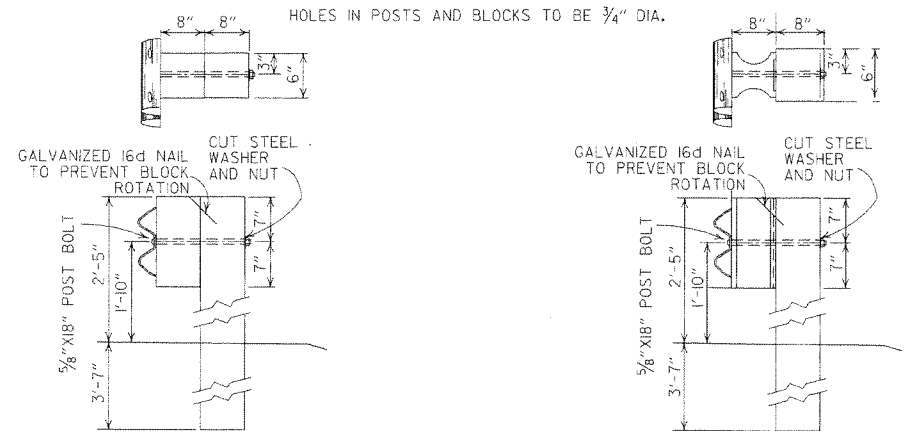
STEEL POST



DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



WOOD BLOCKOUT CONNECTIONS
PLASTIC BLOCKOUT CONNECTIONS
DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



WOOD BLOCKOUT CONNECTIONS
PLASTIC BLOCKOUT CONNECTIONS
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

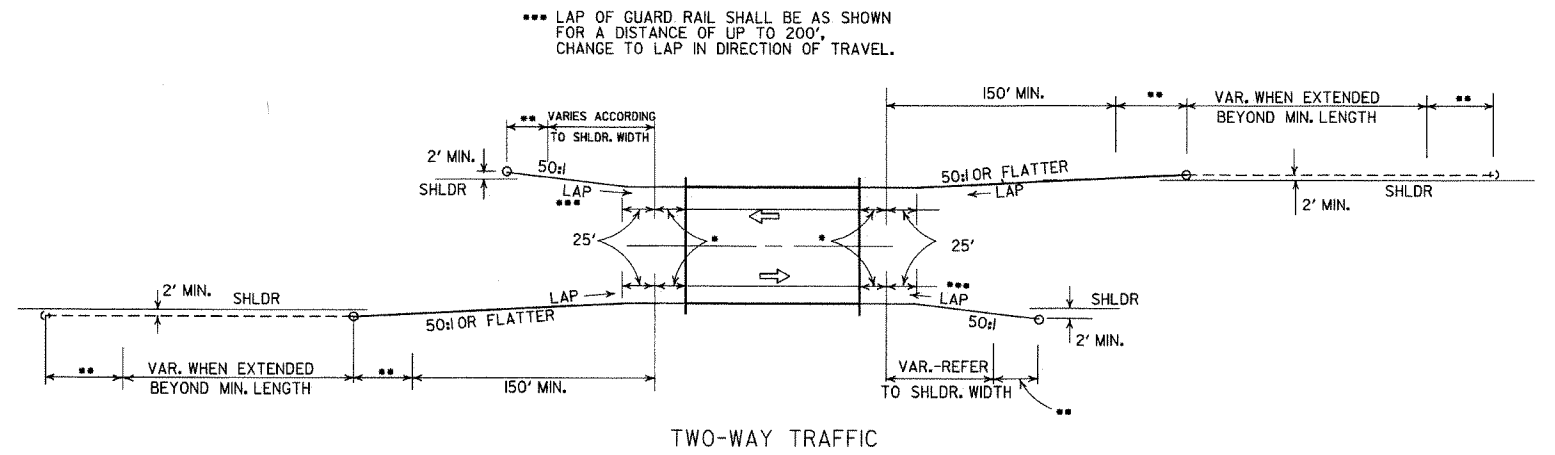
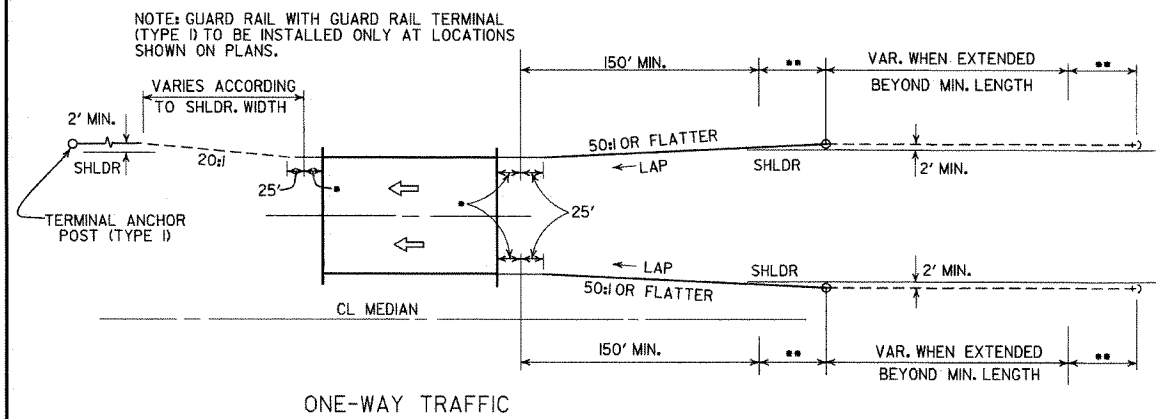
ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.
WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.
W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.
USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.
ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (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 HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

7-14-90	RAISED HEIGHT OF GUARD RAIL 1"	
0-15-09	ADDED REFERENCE TO MASH	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
1-12-00	ADDED PLASTIC BLOCKOUT	
8-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE IN SOLID ROCK & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
4-3-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
6-2-94	ADDED ALT. STEEL POST SIZE	
8-5-93	REVISED STEEL POST SIZE	8-5-93
10-1-92	REDRAWN & REVISED	10-1-92
8-15-91	REVISED WASHER NOTE	8-15-91
8-2-90	REV. GEN. NOTE & DEPTH OF ANCH. 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
DATE	REVISION	DATE FILM

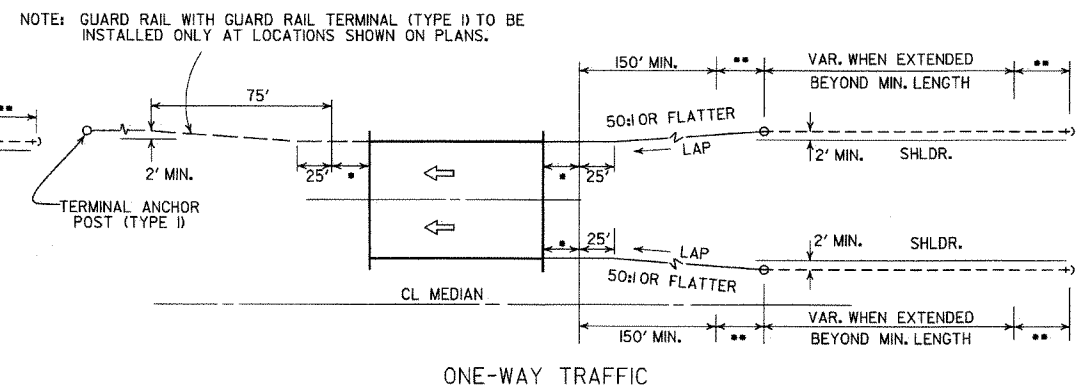
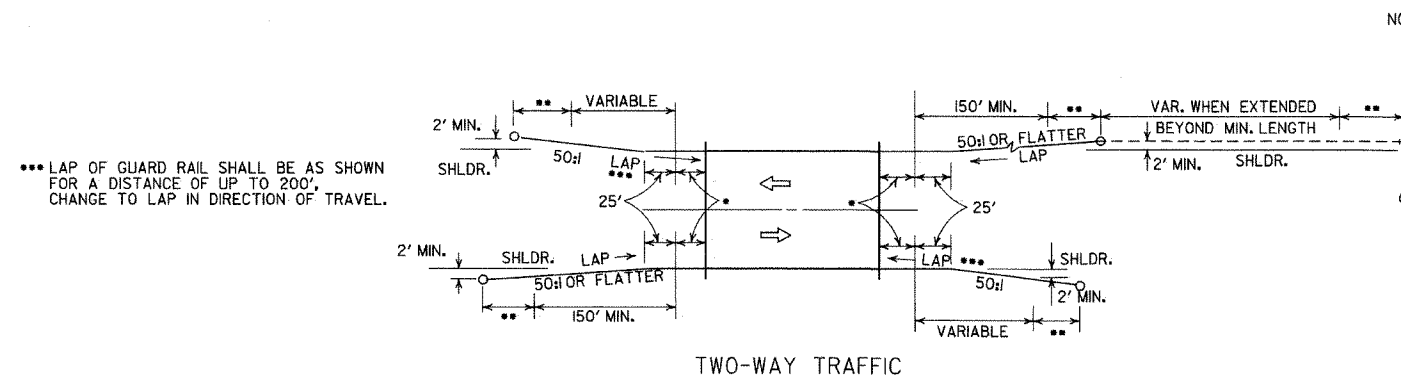
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

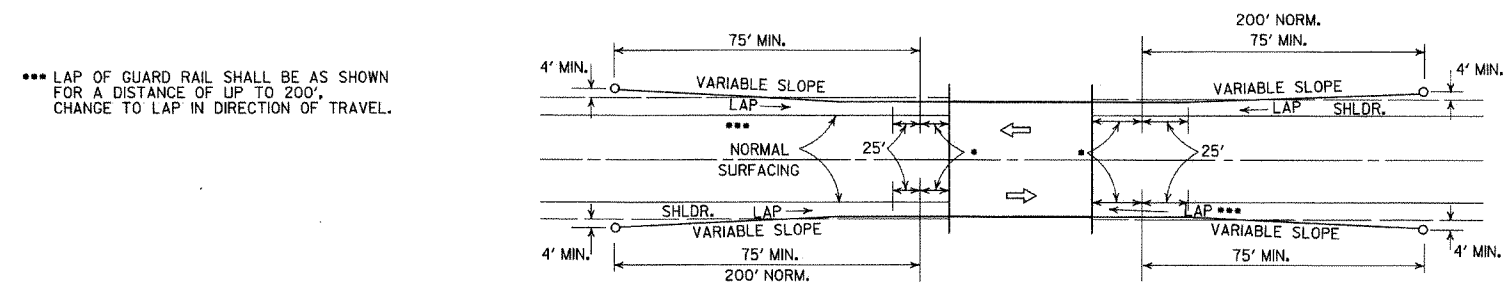
STANDARD DRAWING GR-8



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



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

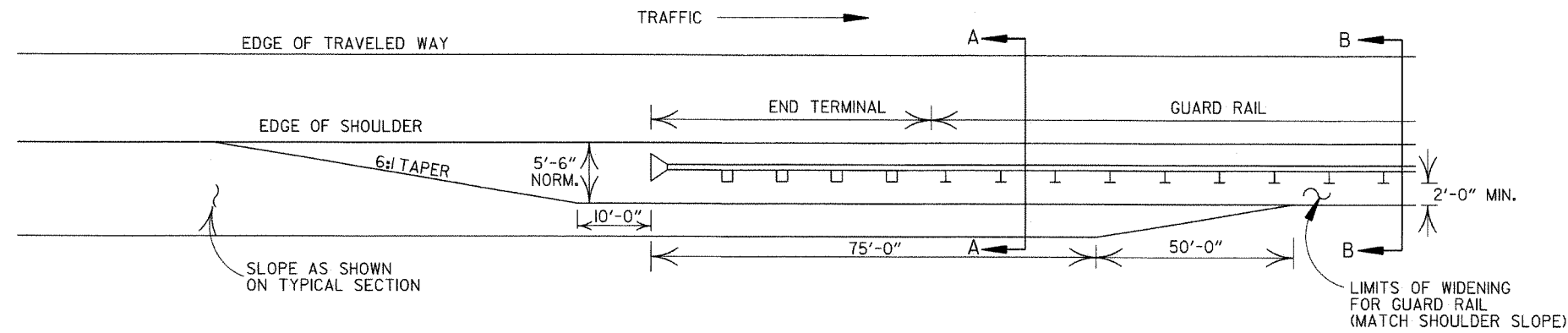


LEGEND

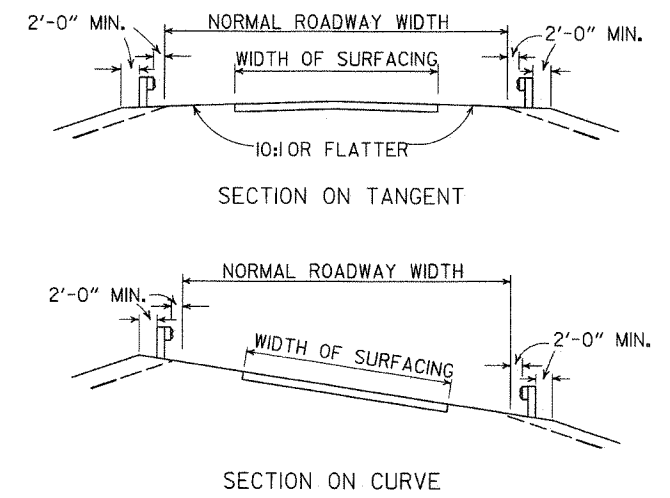
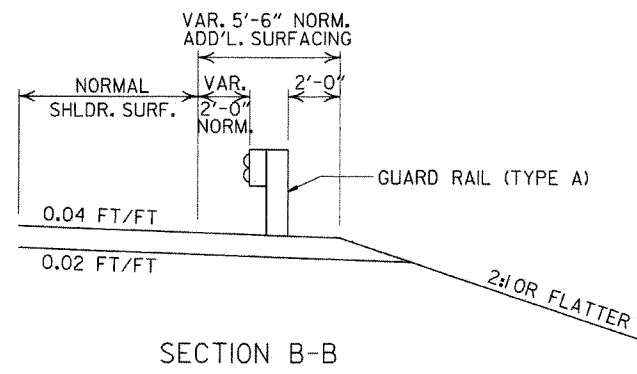
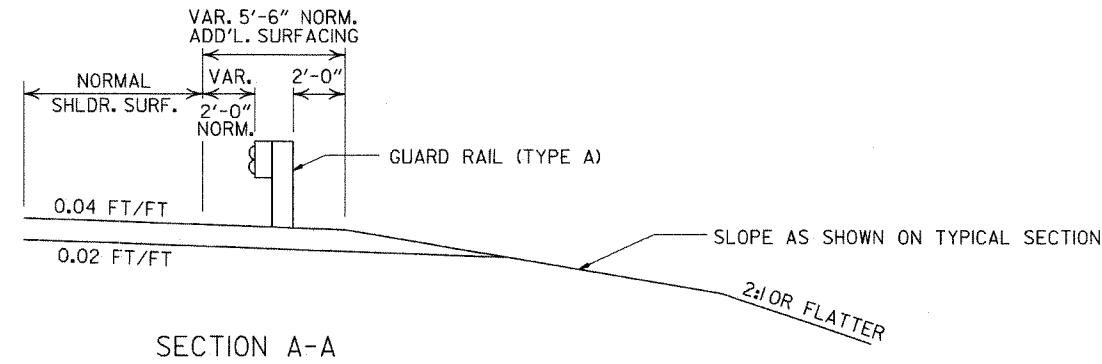
- THREE BEAM GUARD RAIL TERMINAL
- GUARD RAIL TERMINAL (TYPE 2)

METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE 1) (FULL SHOULDER WIDTH OR LESS BRIDGES)

ARKANSAS STATE HIGHWAY COMMISSION		
GUARD RAIL DETAILS		
STANDARD DRAWING GR-9		
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. 1)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
10-9-87	REDRAWN & REVISED	
DATE	REVISION	DATE FILM

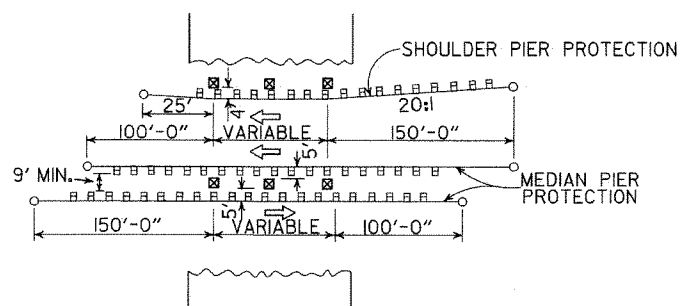


NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.



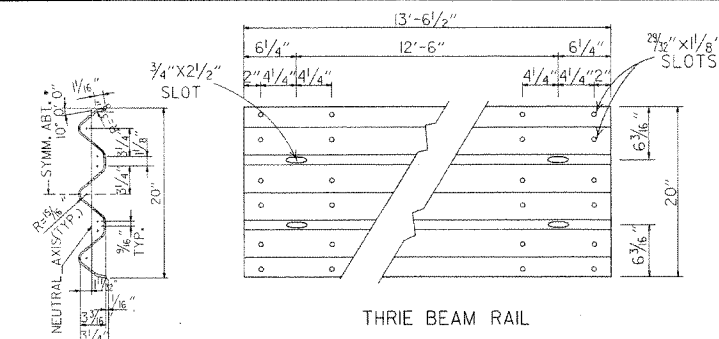
DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY

DETAILS OF WIDENING FOR GUARD RAIL

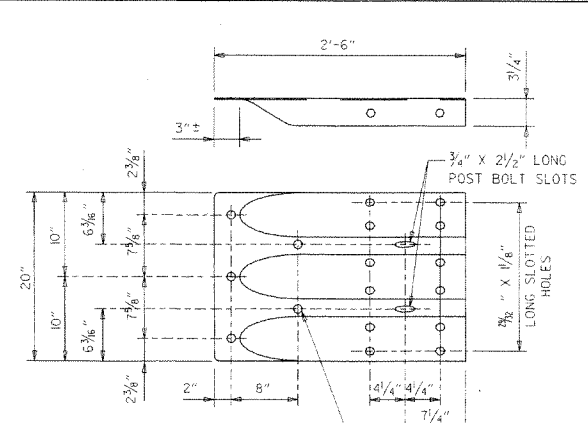


METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

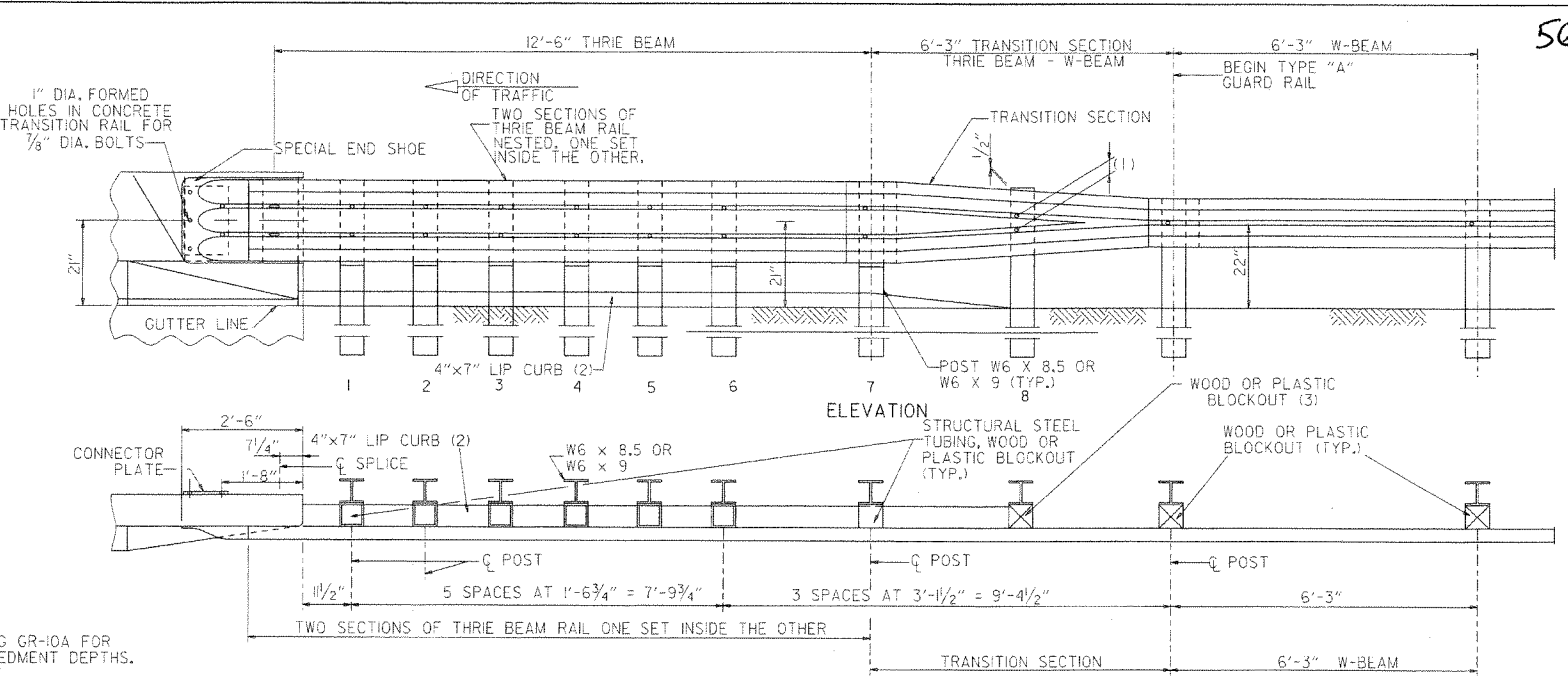
				ARKANSAS STATE HIGHWAY COMMISSION	
				GUARD RAIL DETAILS	
				STANDARD DRAWING GR-9A	
4-17-08	MINOR REVISION				
11-10-05	DRAWN				
DATE	REVISION	DATE	FILM		



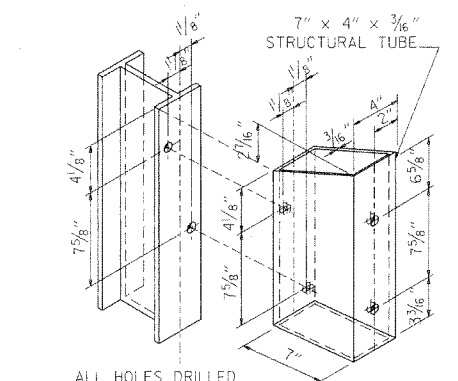
SECTION THRU THRIE BEAM RAIL



SPECIAL END SHOE



ELEVATION

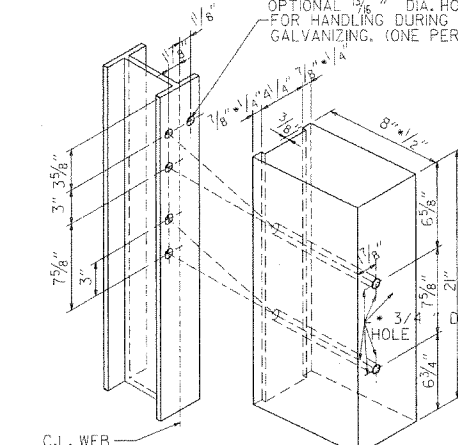


STRUCTURAL STEEL TUBING BLOCKOUT DETAIL

ATTACH BLOCKOUT TO POST USING 5/8\"/>

1\"/>

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

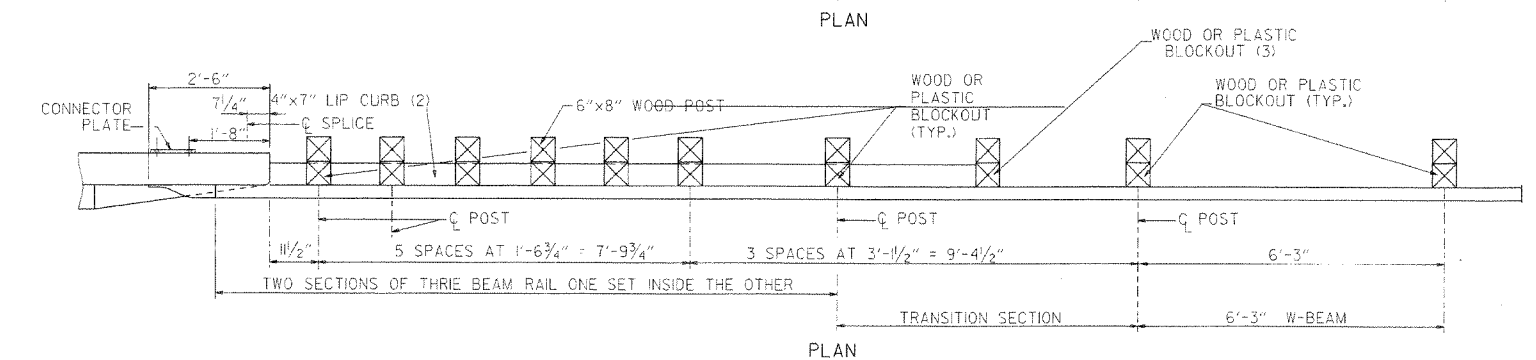


HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

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

CONNECTOR PLATE

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING 7/8\"/>



PLAN

PLAN

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

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

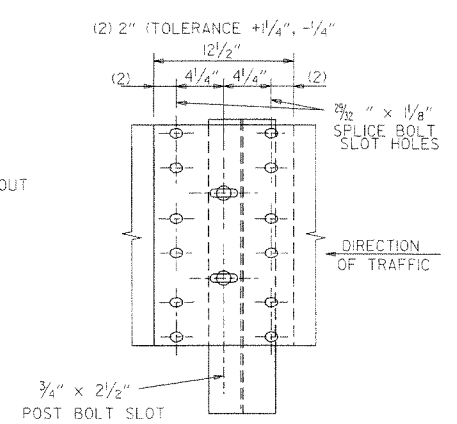
GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE I. RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION. ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4\"/>

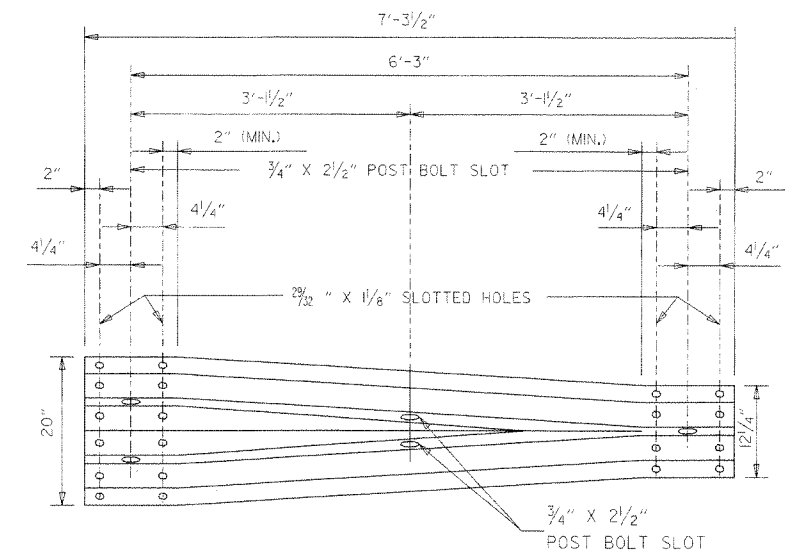
ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-11. WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 350 f SOUTHERN PINE.

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.

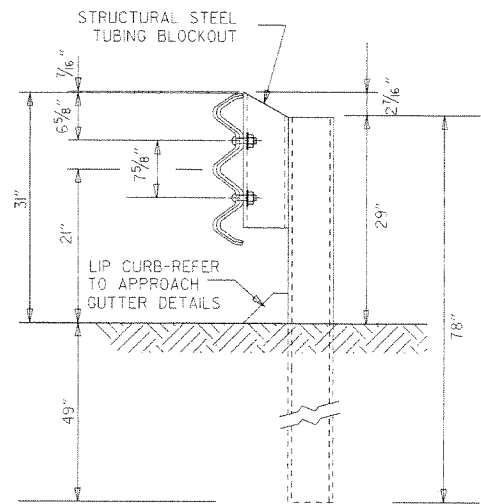


THRIE BEAM RAIL SPLICE AT POST

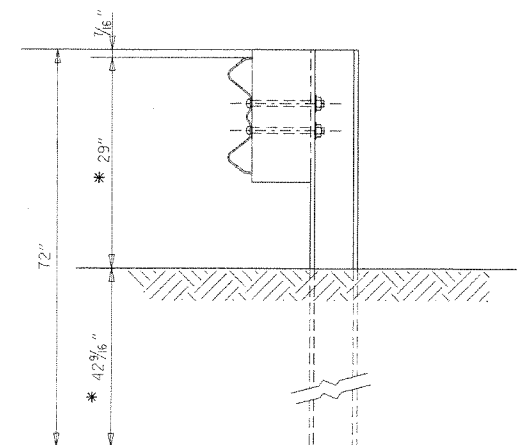


TRANSITION SECTION

7-14-10	RAISED HEIGHT OF W-BEAM 1"		ARKANSAS STATE HIGHWAY COMMISSION
11-29-07	ADDED PLASTIC BLOCKOUTS		
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT		GUARD RAIL DETAILS
11-18-04	REVISED GENERAL NOTES		
10-9-03	REVISED GENERAL NOTES		STANDARD DRAWING GR-10
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		
	DATE	REVISION	

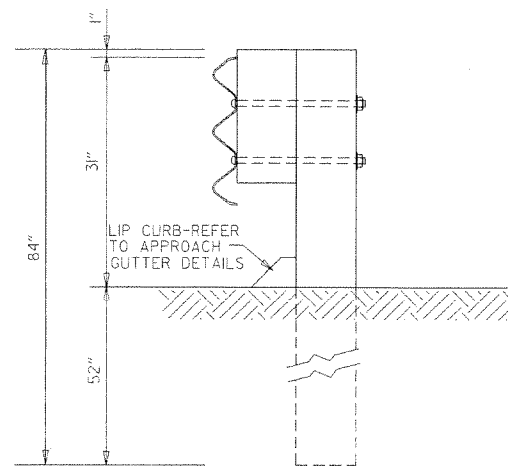


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT AND STEEL POST
POSTS 1-7

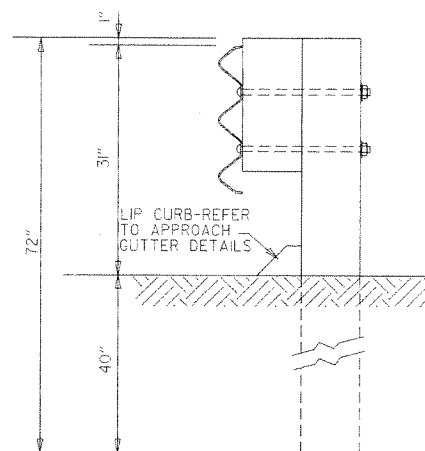


W-BEAM TO THRIE BEAM TRANSITION RAIL WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

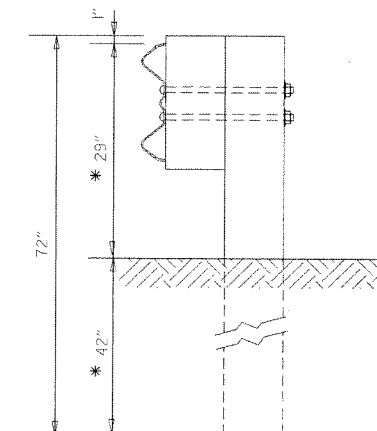
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



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

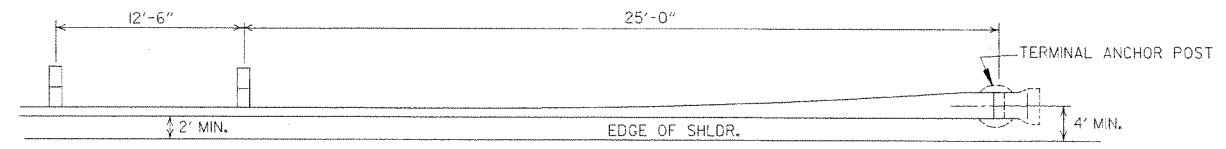


W-BEAM TO THRIE BEAM TRANSITION RAIL WITH WOOD OR PLASTIC BLOCKOUT & WOOD POST
POST 8

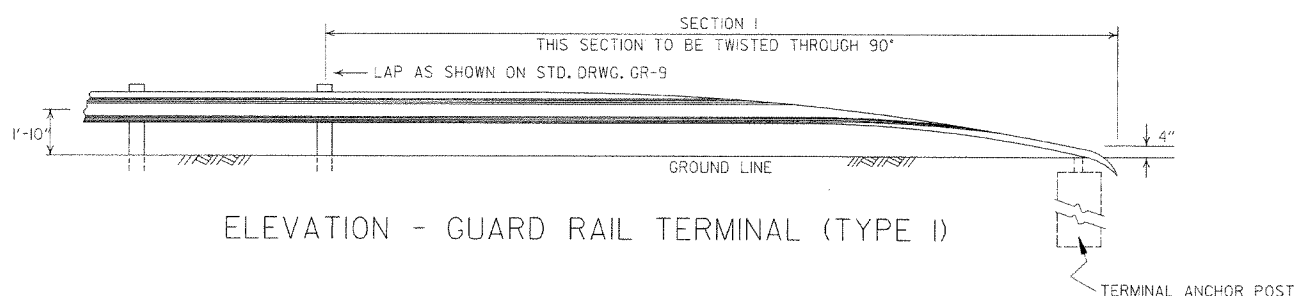
GENERAL NOTES:
RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 (350 f) SOUTHERN PINE.

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

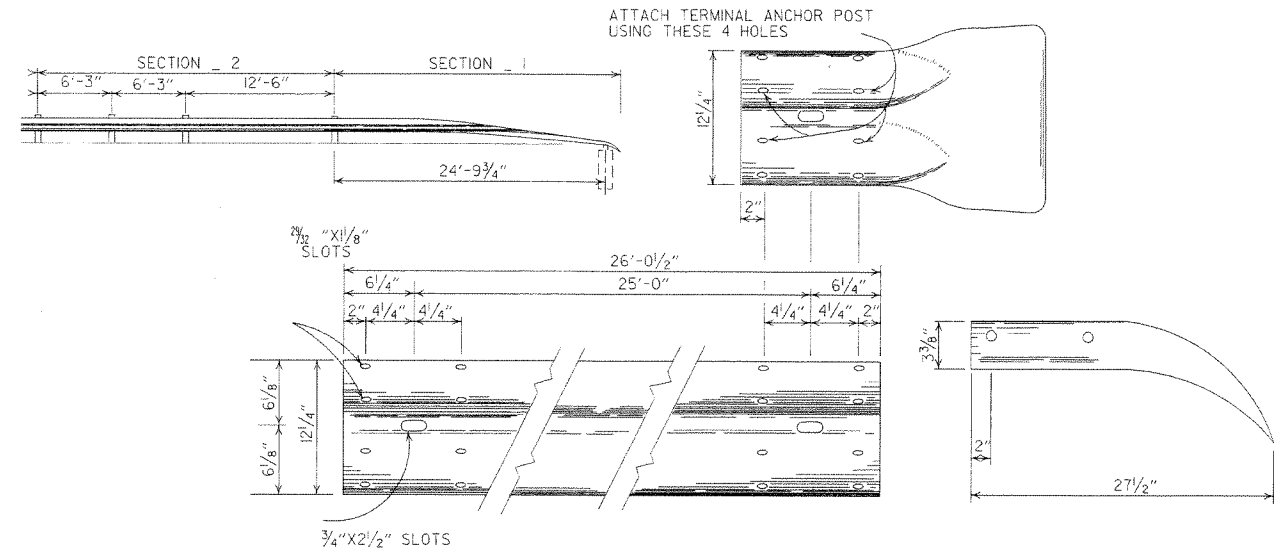


PLAN - GUARD RAIL TERMINAL (TYPE I)



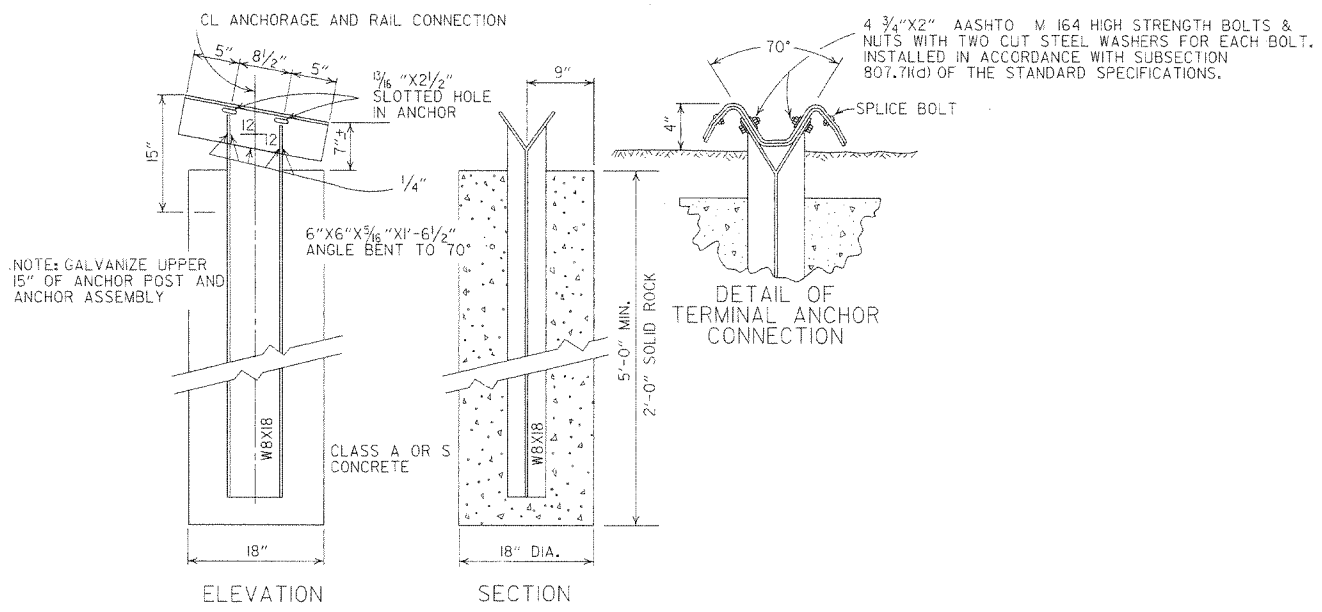
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

NOTE:
SECTIONS 1 AND 2 OF GUARD RAIL TERMINAL
SHALL BE PAID FOR AT THE PRICE BID PER
LINEAR FOOT OF THE TYPE OF GUARD RAIL SPECIFIED.



SECTION 1

TERMINAL SECTION



ELEVATION SECTION

DETAIL OF TERMINAL ANCHOR CONNECTION

NOTE: GALVANIZE UPPER 15" OF ANCHOR POST AND ANCHOR ASSEMBLY

DETAIL OF TERMINAL ANCHOR POST (TYPE I)

			ARKANSAS STATE HIGHWAY COMMISSION
			GUARD RAIL DETAILS
			STANDARD DRAWING GRT-1
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"		
6-26-97	REVISED LAP NOTE		
10-18-96	REVISED ASTM REF. TO AASHTO		
11-3-94	DIMENSION TERMINAL DETAIL		
11-11-92	ADDED NOTE FOR PAYMENT	11-11-92	
10-1-92	DRAWN & ISSUED	10-1-92	
DATE	REVISION	DATE	FILM

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA. INCHES	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
15	18	18	11	11
18	22	22	13 1/2	14
21	26	26	15 1/2	16
24	28 1/2	29	18	18
30	36 1/4	36	22 1/2	23
36	43 3/8	44	26 3/8	27
42	51 1/8	51	31 3/8	31
48	58 1/2	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	77 1/2	77
108	138	138	87 1/8	87
120	154	154	96 1/8	97
132	168 3/4	169	106 1/2	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. INCHES	AASHTO M 207	
	SPAN	RISE
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)(II).

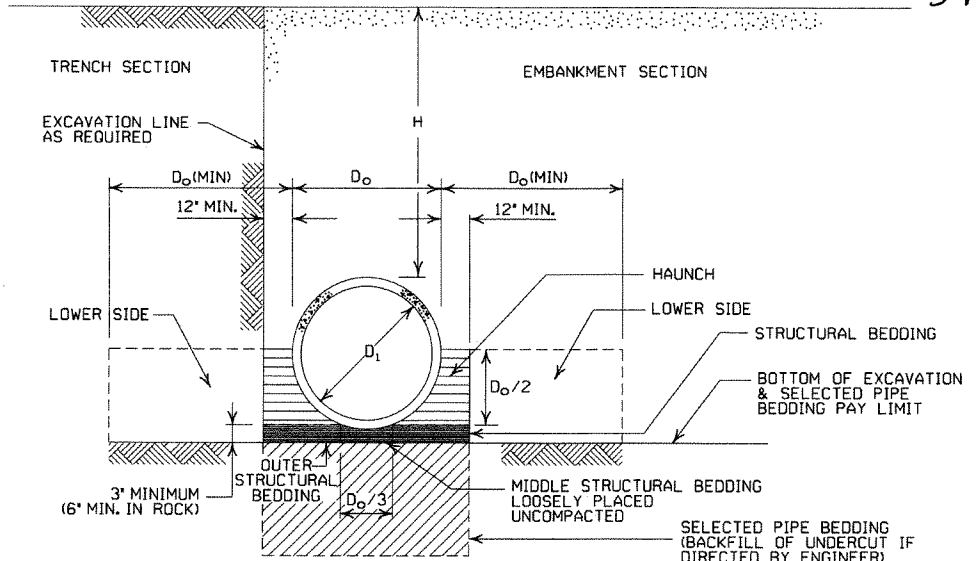
NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

- LEGEND -

- D_i = NORMAL INSIDE DIAMETER OF PIPE
- D_o = OUTSIDE DIAMETER OF PIPE
- H = FILL COVER HEIGHT OVER PIPE (FEET)
- MIN. = MINIMUM
- UNDISTURBED SOIL

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL*
TYPE 3**	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

*SM-3 WILL NOT BE ALLOWED.
** MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

1. MATERIAL IN THE HAUNCH AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. FOR TRENCHES WITH WALLS OF NATURAL SOIL, THE DENSITY OF THE SOIL IN THE LOWER SIDE ZONE SHALL BE AS FIRM AS THE 95% DENSITY REQUIRED FOR THE HAUNCH. IF THE EXISTING SOIL DOES NOT MEET THIS CRITERIA, IT SHALL BE REMOVED AND RECOMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OF MATERIAL USED.
3. FOR EMBANKMENTS, THE MATERIAL IN THE LOWER SIDE ZONE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

GENERAL NOTES

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINIMUM 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
2 3/8 INCH BY 1/2 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	36	36	47		
36	2	34	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

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.

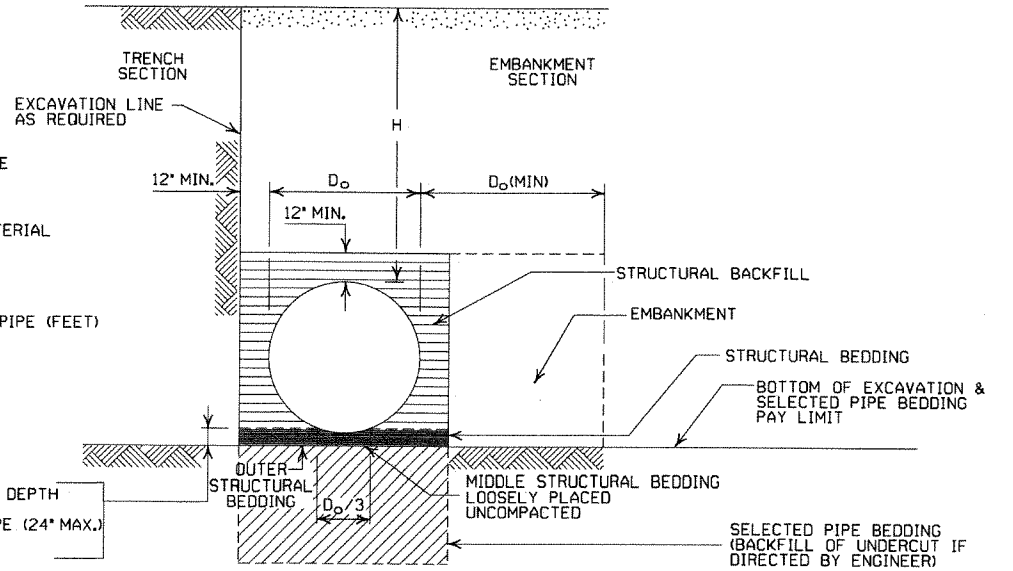
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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.

- LEGEND -
- D_o = OUTSIDE DIAMETER OF PIPE
 - MAX. = MAXIMUM
 - MIN. = MINIMUM
 - [Symbol] = STRUCTURAL BACKFILL MATERIAL
 - [Symbol] = UNDISTURBED SOIL
 - EQUIV. DIA. = EQUIVALENT DIAMETER
 - H = FILL COVER HEIGHT OVER PIPE (FEET)

IN SOIL - MIN. EQUALS TWICE CORRUGATION DEPTH
IN ROCK - MIN. EQUALS GREATER OF:
1/2" PER FOOT OF FILL OVER PIPE (24" MAX.)
TWICE CORRUGATION DEPTH



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. INSTALLATION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2 3/8" X 1/2" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2003 EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINIMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
2 3/8 INCH BY 1/2 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

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

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINIMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)			
				INSTALLATION			INSTALLATION			
				TYPE 1	TYPE 1		TYPE 1	TYPE 1		
2 3/8 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, 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	3 1/2	0.079	3	12	0.105	3	12		
42	49x33	4	0.079	3	12	0.105	3	12		
48	57x38	5	0.109	3	13	0.135	3	13		
54	64x43	6	0.109	3	14	0.135	3	14		
60	71x47	7	0.138	3	15	0.164	3	15		
66	77x52	8	0.168	3	15					
72	83x57	9	0.168	3	15					
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM										
			INSTALLATION				INSTALLATION			
			TYPE 2		TYPE 1		TYPE 2		TYPE 1	
36	40x31	5	0.079	3	2	12	15			
42	46x36	6	0.079	3	2	13	15			
48	53x41	7	0.079	3	2	13	15			
54	60x46	8	0.079	3	2	13	15			
60	66x51	9	0.079	3	2	13	15			
66	73x55	12	0.079	3	2	15	15			
72	81x59	14	0.079	3	2	15	15			
78	87x63	14	0.079	3	2	15	15			
84	95x67	16	0.109	3	2	15	15			
90	103x71	16	0.109	3	2	15	15			
96	112x75	18	0.109	3	2	15	15			
102	117x79	18	0.109	3	2	15	15			
108	128x83	18	0.138	3	2	15	15			

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

② WHERE THE STANDARD 2 3/8" X 1/2" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" X 1" OR 5" X 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

DATE	REVISION	DATE FILMED
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

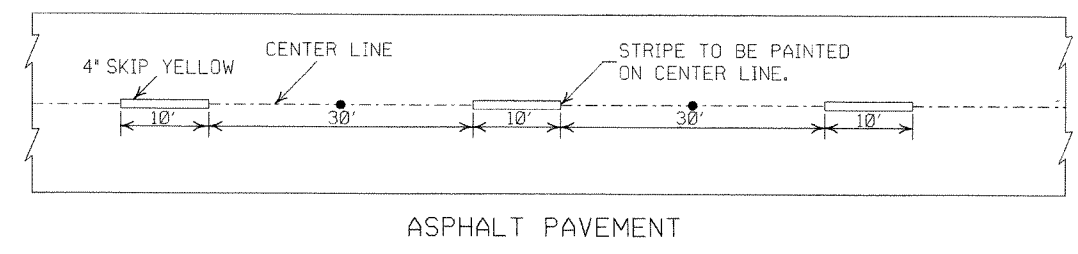
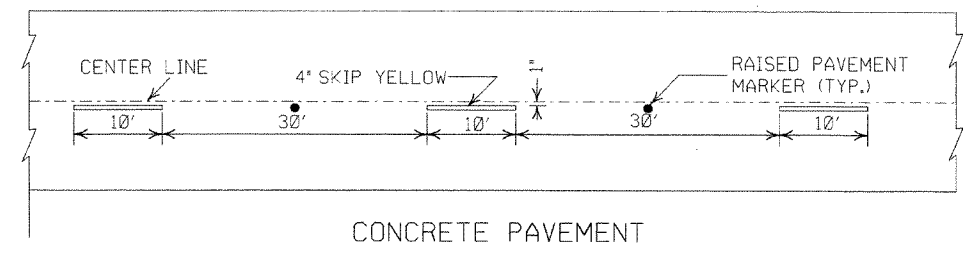
ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

NOTES:

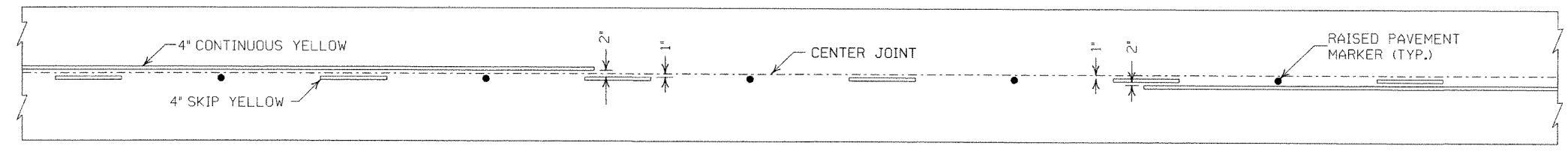
1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.'
4. RAISED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



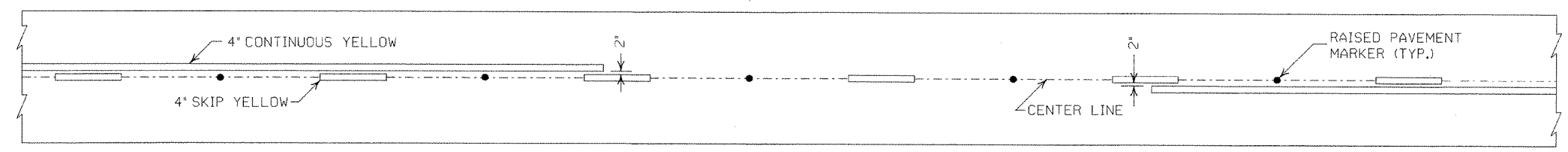
CONCRETE PAVEMENT

ASPHALT PAVEMENT

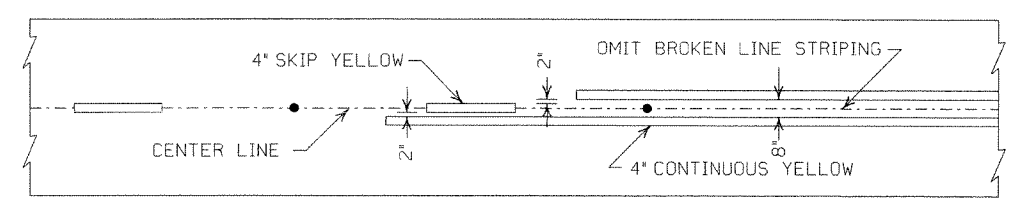
BROKEN LINE STRIPING



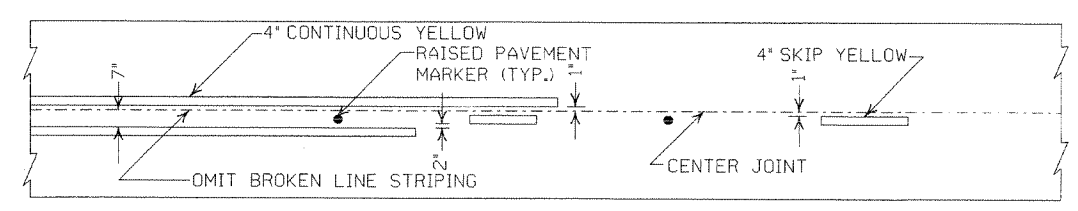
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT



ASPHALT PAVEMENT



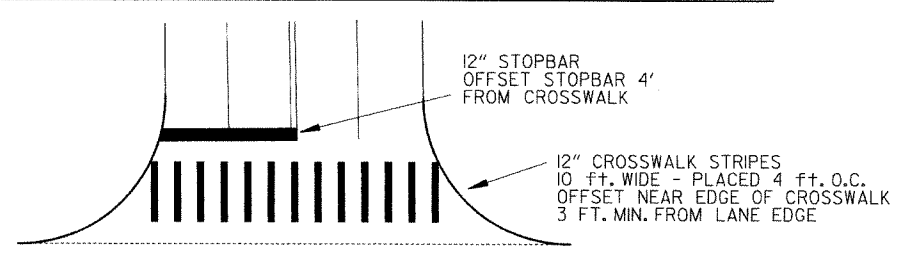
CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

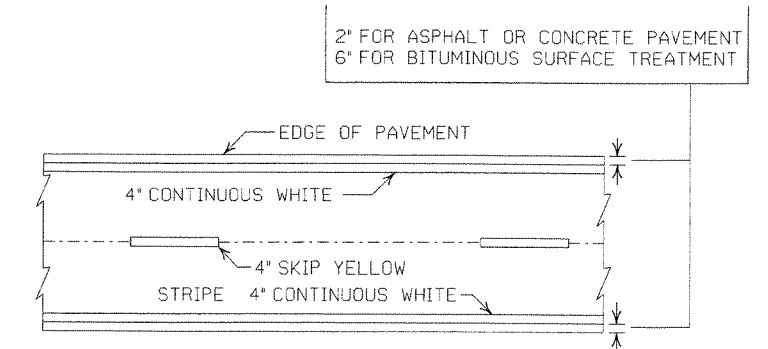
GENERAL NOTES:
THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.

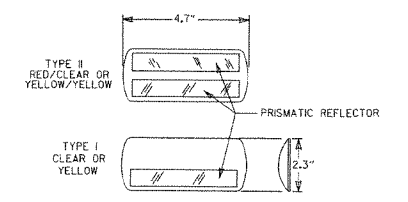
NOTE:
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.



CROSSWALK AND STOPBAR DETAILS



PAVEMENT EDGE LINE MARKING



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

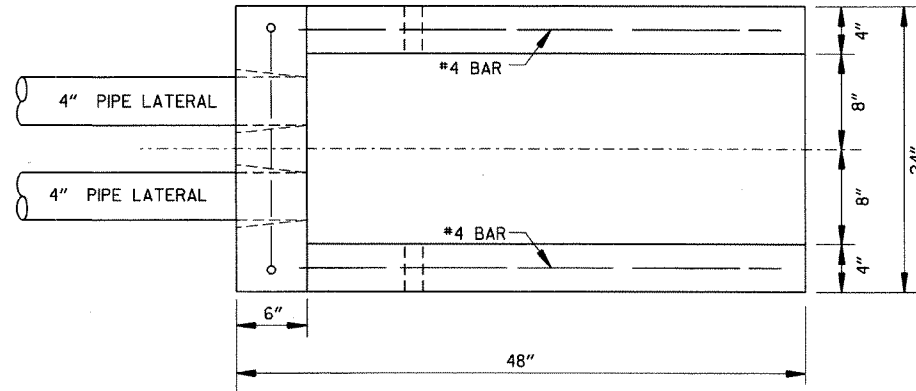
DATE	REVISION	FILMED
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PAVT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAVT. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

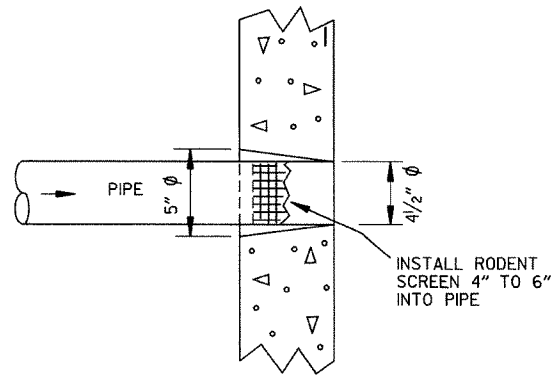
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

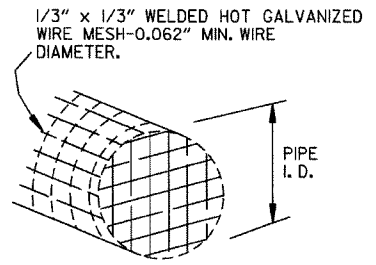
NOTE:
 1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.
 2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.
 3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC, LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



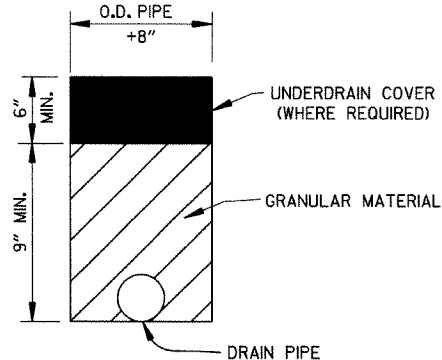
PLAN VIEW



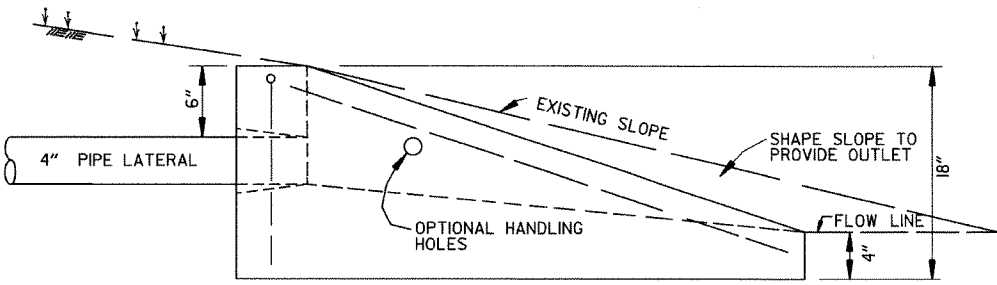
DETAIL OF HOLE FOR 4" PIPE



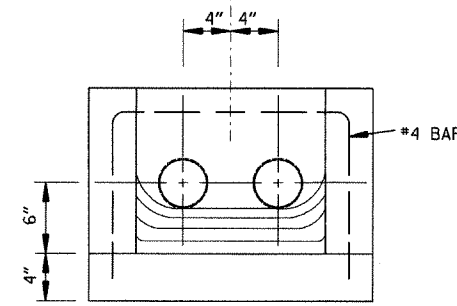
DETAIL OF RODENT SCREEN



DETAILS OF PIPE UNDERDRAIN



SIDE VIEW

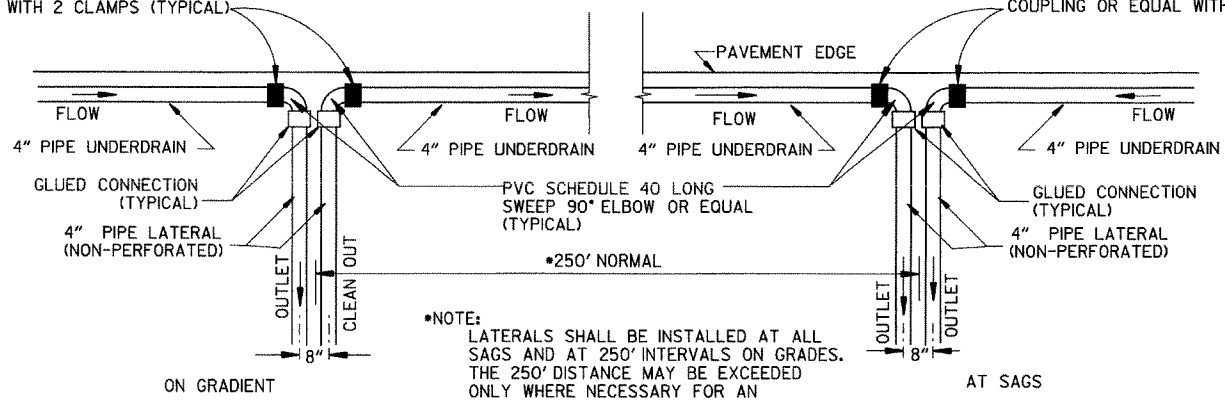


FRONT VIEW

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DIOR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)

UNDERDRAIN OUTLET PROTECTORS

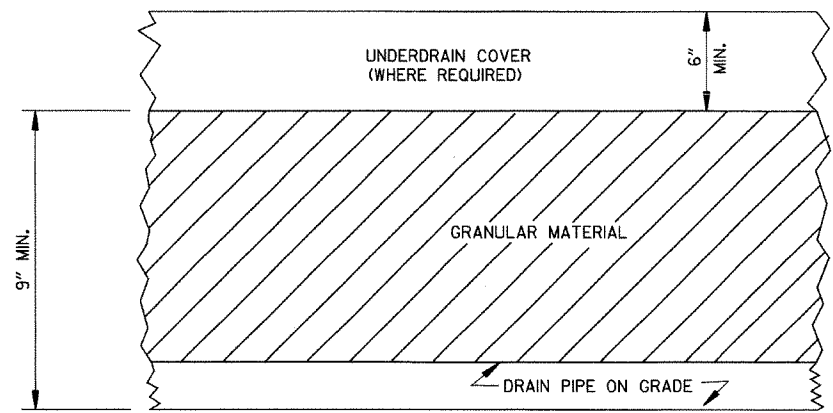
FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DIOR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)



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.



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; 5 1/2" 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 POLYETHYLENE 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
DATE	REVISION	DATE FILMED

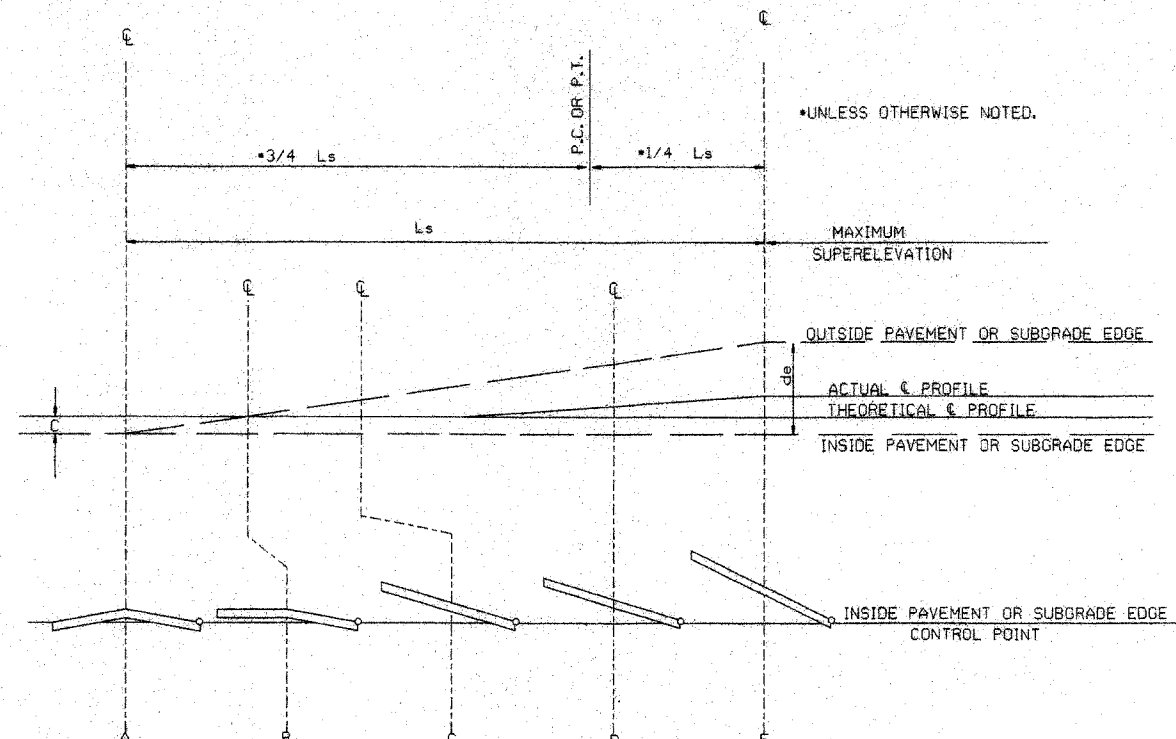
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH		40 MPH		50 MPH		55 MPH		60 MPH		70 MPH	
	Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)	
	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE
0° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
0° 30'	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.	
1° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 15'	N.C.		N.C.		0.021		0.022		0.023		0.028	
1° 30'	N.C.		N.C.		0.026		0.030		0.037		0.046	
1° 45'	N.C.		N.C.		0.031		0.036		0.043		0.054	
2° 00'	N.C.		0.034	175	0.040	200	0.049	225	0.055	250	0.070	300
2° 15'	N.C.		0.037		0.045		0.053		0.061		0.078	
2° 30'	N.C.		0.040		0.049	250	0.058	300	0.067	350	0.085	400
2° 45'	N.C.		0.043		0.052		0.062		0.072		0.091	
3° 00'	N.C.	150	0.046		0.057		0.067	230	0.077	260	0.098	350
3° 15'	N.C.		0.049		0.061		0.072	245	0.082	275	0.098	360
3° 30'	N.C.		0.051		0.065	205	0.076	255	0.086	285	0.100	360
3° 45'	N.C.		0.054		0.069	215	0.080	265	0.090	295	0.100	360
4° 00'	N.C.	200	0.056		0.072	225	0.083	270	0.093	305		
4° 15'	N.C.		0.059		0.076	230	0.087	280	0.096	315		
4° 30'	N.C.		0.061		0.080	240	0.091	295	0.098	320		
4° 45'	N.C.		0.064		0.084	250	0.094	300				
5° 00'	N.C.		0.066	185	0.088	260	0.096	305				
5° 15'	N.C.		0.070	190	0.092	270	0.099	310				
5° 30'	N.C.		0.074	200	0.095	280	0.100	315				
5° 45'	N.C.		0.078	210	0.098	285						
6° 00'	N.C.		0.081	215	0.101	290						
6° 15'	N.C.		0.084	220	0.104	295						
6° 30'	N.C.		0.087	225	0.107	300						
6° 45'	N.C.		0.089	230	0.110	305						
7° 00'	N.C.		0.091	235								
7° 15'	N.C.		0.094	240								
7° 30'	N.C.		0.097	245								
7° 45'	N.C.		0.099	250								
8° 00'	N.C.		0.100	250								
8° 15'	N.C.											
8° 30'	N.C.											
8° 45'	N.C.											
9° 00'	N.C.											
9° 15'	N.C.											
9° 30'	N.C.											
9° 45'	N.C.											
10° 00'	N.C.											
10° 15'	N.C.											
10° 30'	N.C.											
10° 45'	N.C.											
11° 00'	N.C.											
11° 15'	N.C.											
11° 30'	N.C.											
11° 45'	N.C.											
12° 00'	N.C.											
12° 15'	N.C.											
12° 30'	N.C.											
12° 45'	N.C.											
13° 00'	N.C.											
13° 15'	N.C.											
13° 30'	N.C.											
13° 45'	N.C.											
14° 00'	N.C.											
14° 15'	N.C.											
14° 30'	N.C.											
14° 45'	N.C.											
15° 00'	N.C.											
15° 15'	N.C.											
15° 30'	N.C.											
15° 45'	N.C.											
16° 00'	N.C.											
16° 15'	N.C.											
16° 30'	N.C.											
16° 45'	N.C.											
17° 00'	N.C.											
17° 15'	N.C.											
17° 30'	N.C.											
17° 45'	N.C.											
18° 00'	N.C.											
18° 15'	N.C.											
18° 30'	N.C.											
18° 45'	N.C.											
19° 00'	N.C.											
19° 15'	N.C.											
19° 30'	N.C.											
19° 45'	N.C.											
20° 00'	N.C.											
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20° 30'	N.C.											
20° 45'	N.C.											
21° 00'	N.C.											
21° 15'	N.C.											
21° 30'	N.C.											
21° 45'	N.C.											
22° 00'	N.C.											
22° 15'	N.C.											
22° 30'	N.C.											
22° 45'	N.C.											
23° 00'	N.C.											
23° 15'	N.C.											
23° 30'	N.C.											
23° 45'	N.C.											
24° 00'	N.C.											



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

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

ABBREVIATIONS

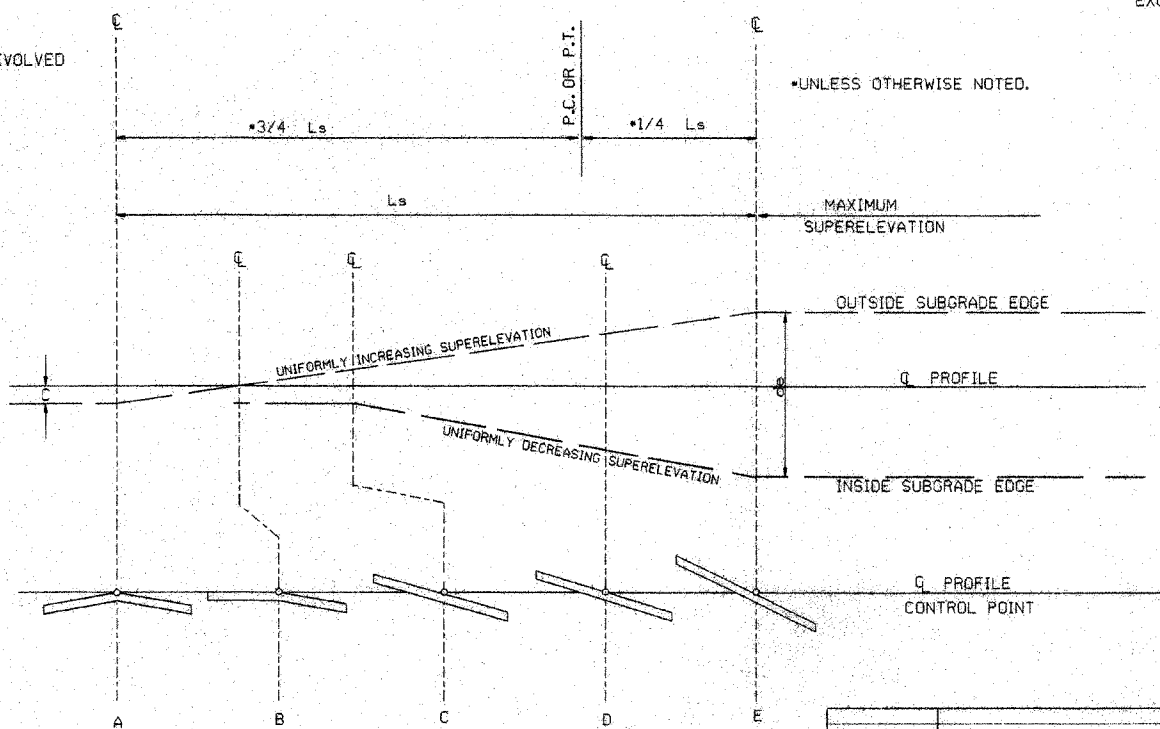
- NC - NORMAL CROWN
- RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
- e - RATE OF SUPERELEVATION (FT. PER FT.)
- Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
- L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
- d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)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

GENERAL NOTES

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

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

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.
RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

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

10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87
DATE	REVISION	DATE FILLED

ARKANSAS STATE HIGHWAY COMMISSION
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC
STANDARD DRAWING SE-2

ADVANCE DISTANCES (XXXX)
500 FT 1/2 MILE
1000 FT 3/4 MILE
1500 FT 1 MILE AHEAD


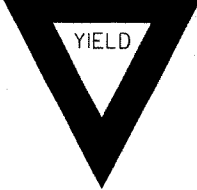
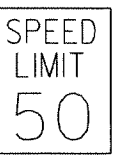
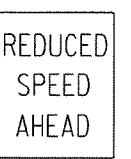
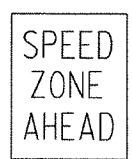
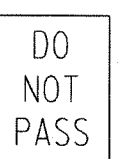



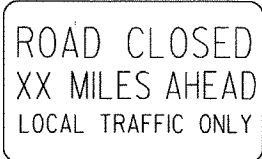

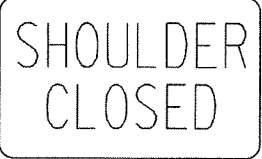
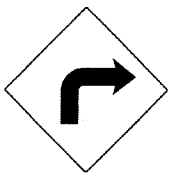
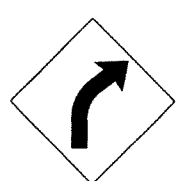


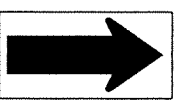
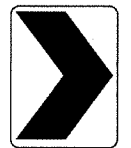
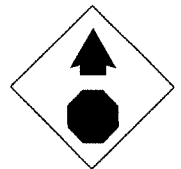
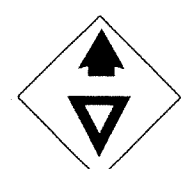
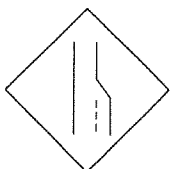

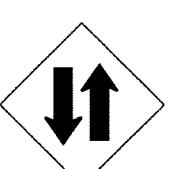
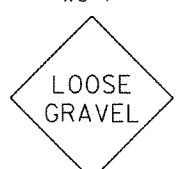
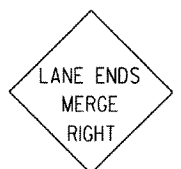


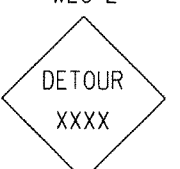
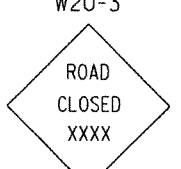

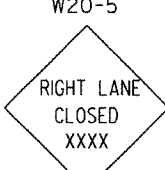


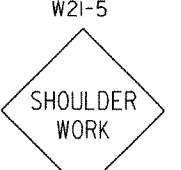



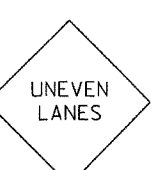
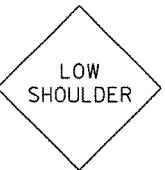
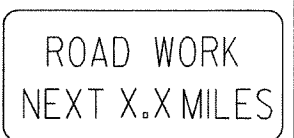
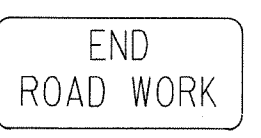
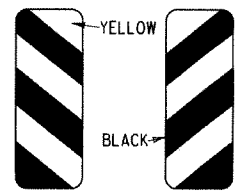
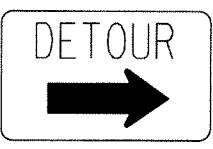

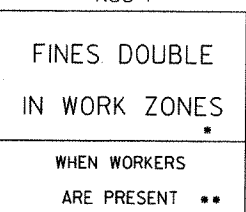
GENERAL NOTES:

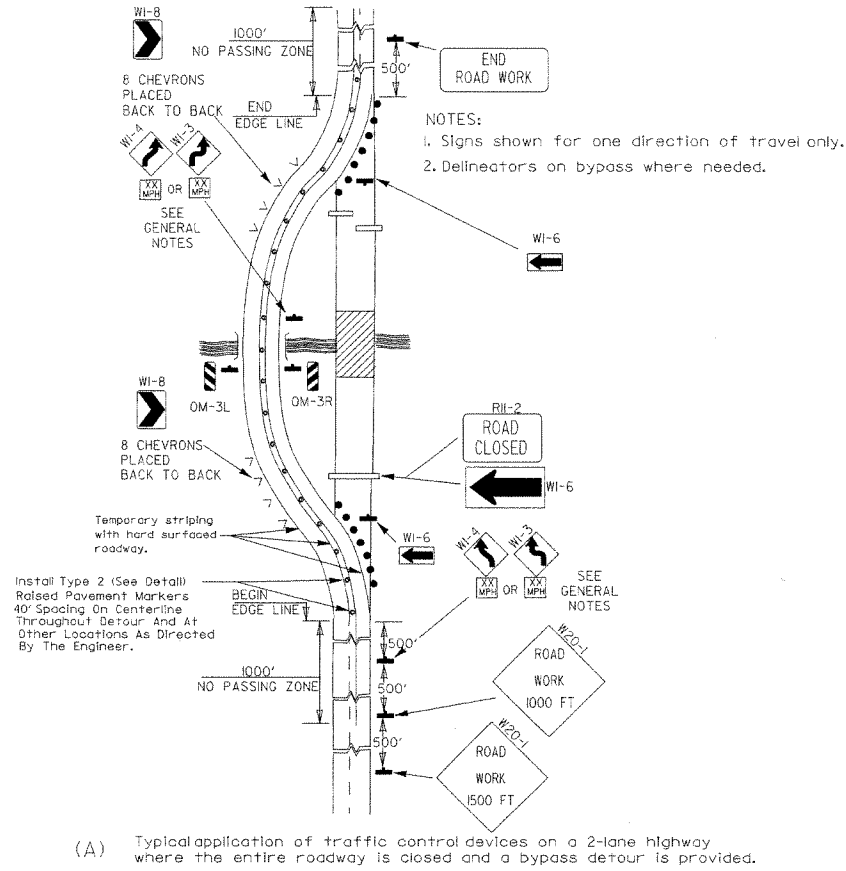
- ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
- TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START 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.
- 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.
- 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.
- 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.
- 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.
- 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.

- FLAGGERS FLAG USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
- 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.
- 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.

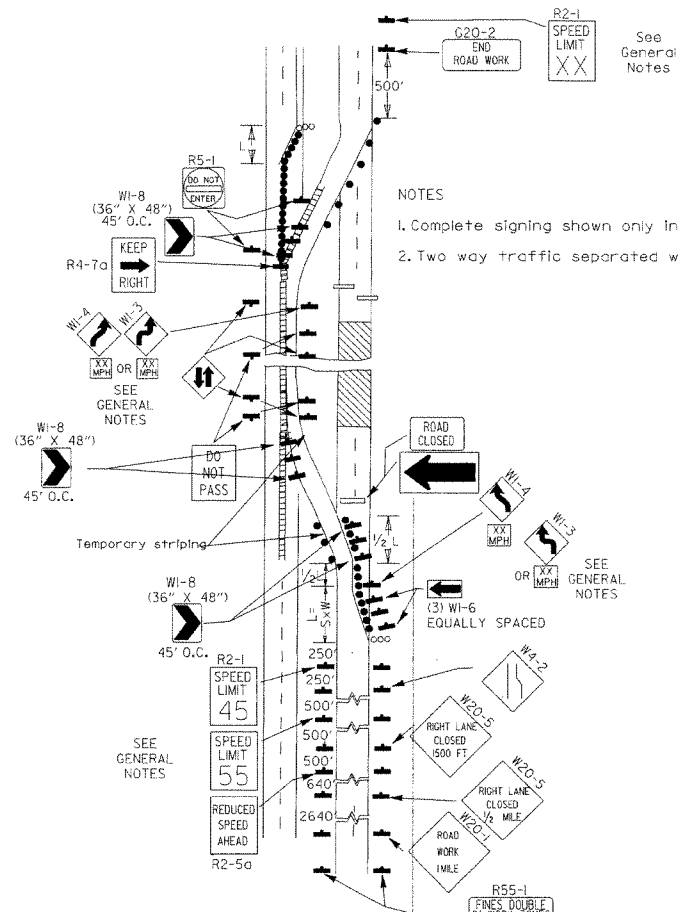
* NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-95	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	
DATE	REVISION	FILMED

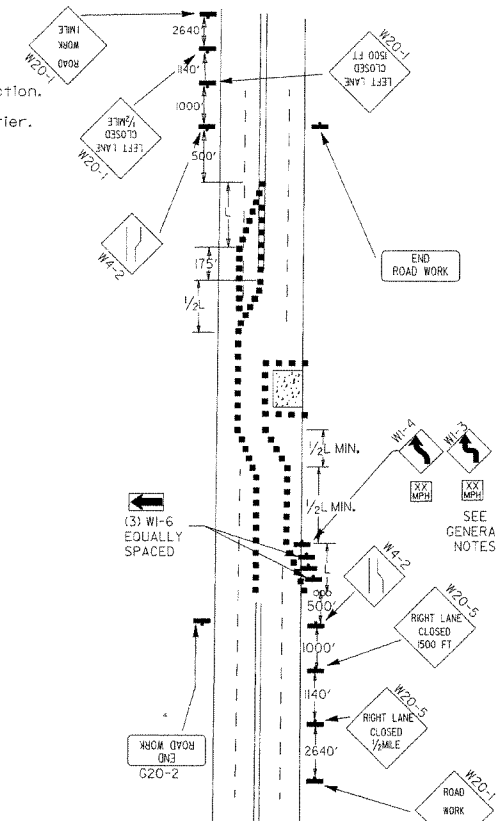
<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5A</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5C</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	
<p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>R11-2</p>  <p>48"x30"</p>	<p>R11-3A</p>  <p>60"x30"</p>	<p>R11-4</p>  <p>60"x30"</p>	<p>RSP-1</p>  <p>48"x30"</p>	<p>WI-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>WI-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>WI-3</p>  <p>STD. 48"x48"</p>	<p>WI-4</p>  <p>STD. 48"x48"</p>	<p>WI-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>WI-8</p>  <p>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</p>	<p>W3-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W3-2</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W4-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>W5-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W6-3</p>  <p>EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>W8-7</p>  <p>EXPWY. 36"x36" FWY. 48"x48"</p>	<p>W9-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W13-1</p>  <p>STD. 24"x24"</p>	<p>W20-1</p>  <p>STD. 48"x48"</p>	<p>W20-2</p>  <p>STD. 48"x48"</p>	<p>W20-3</p>  <p>STD. 48"x48"</p>
<p>W20-4</p>  <p>STD. 48"x48"</p>	<p>W20-5</p>  <p>STD. 48"x48"</p>	<p>W20-7a</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W21-2</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W21-5</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W24-1</p>  <p>STD. 36"x36"</p>	<p>WI-4b</p>  <p>STD. 48"x48"</p>	<p>R56-1</p>  <p>STD. 18"x18"</p>
<p>W8-11</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W8-9</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>G20-1</p>  <p>60"x24"</p>	<p>G20-2</p>  <p>48"x24"</p>	<p>OM-3L OM-3R</p>  <p>12"x36"</p>	<p>M4-9</p>  <p>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</p>	<p>M4-10</p>  <p>48"x18"</p>	<p>R55-1</p>  <p>36"x60"</p> <p>* USE 6" C LETTERS ** USE 4" D LETTERS</p>



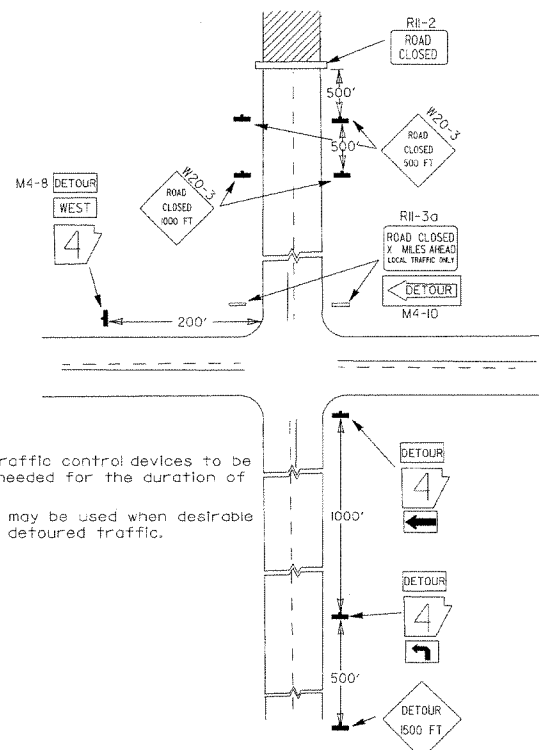
(A) Typical application of traffic control devices on a 2-lane highway where the entire roadway is closed and a bypass detour is provided.



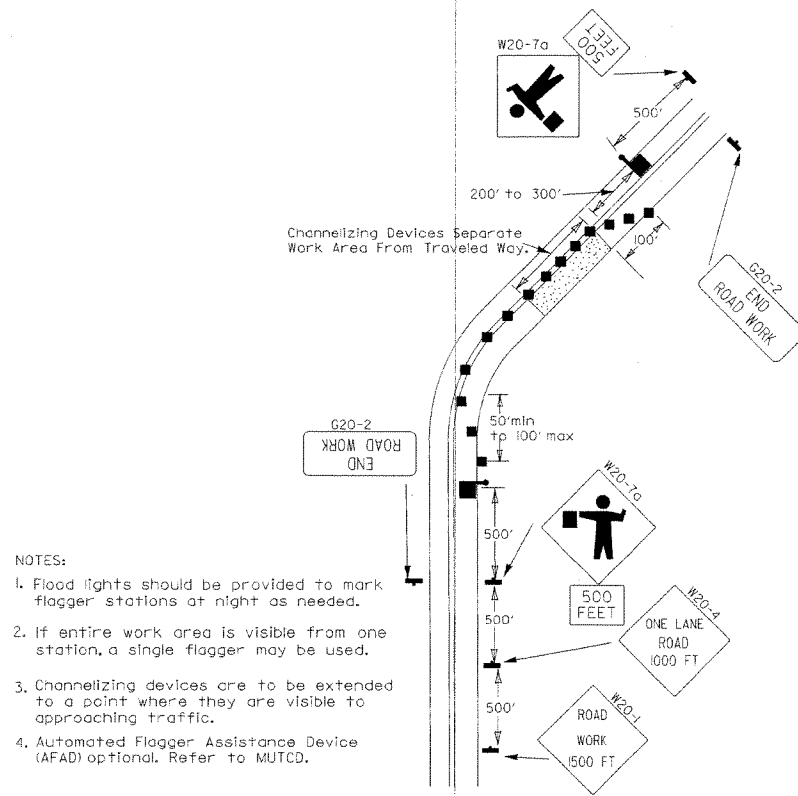
(B) Typical application - 4-lane divided roadway where one roadway is closed.



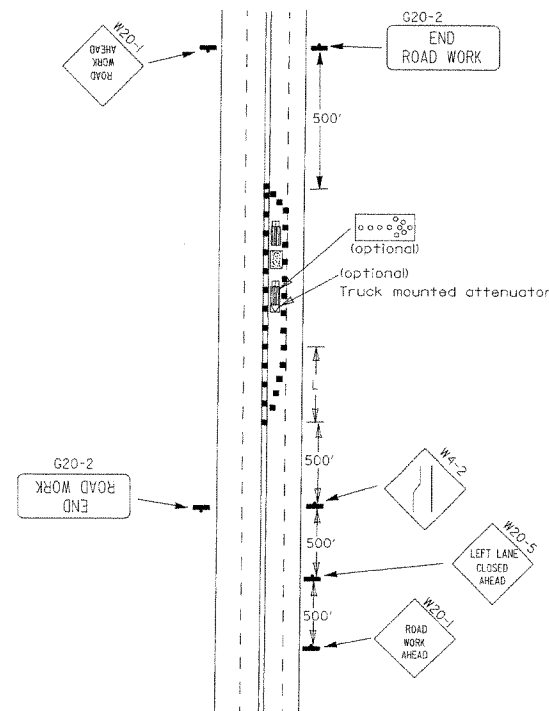
(C) Typical application - 4-lane undivided roadway where half of the roadway is closed.



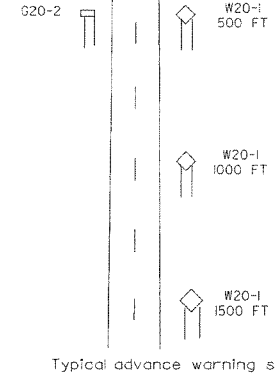
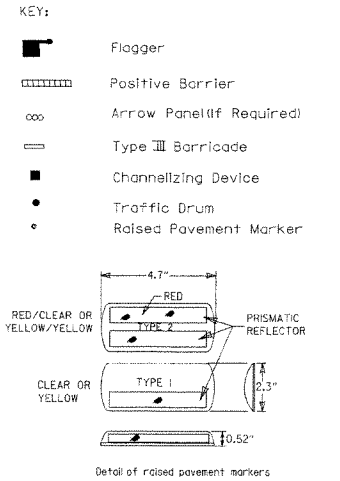
(D) Typical application - roadway closed beyond detour point.



(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.



Typical advance warning sign placement

Taper formulae:

$L = S \times W$ 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.

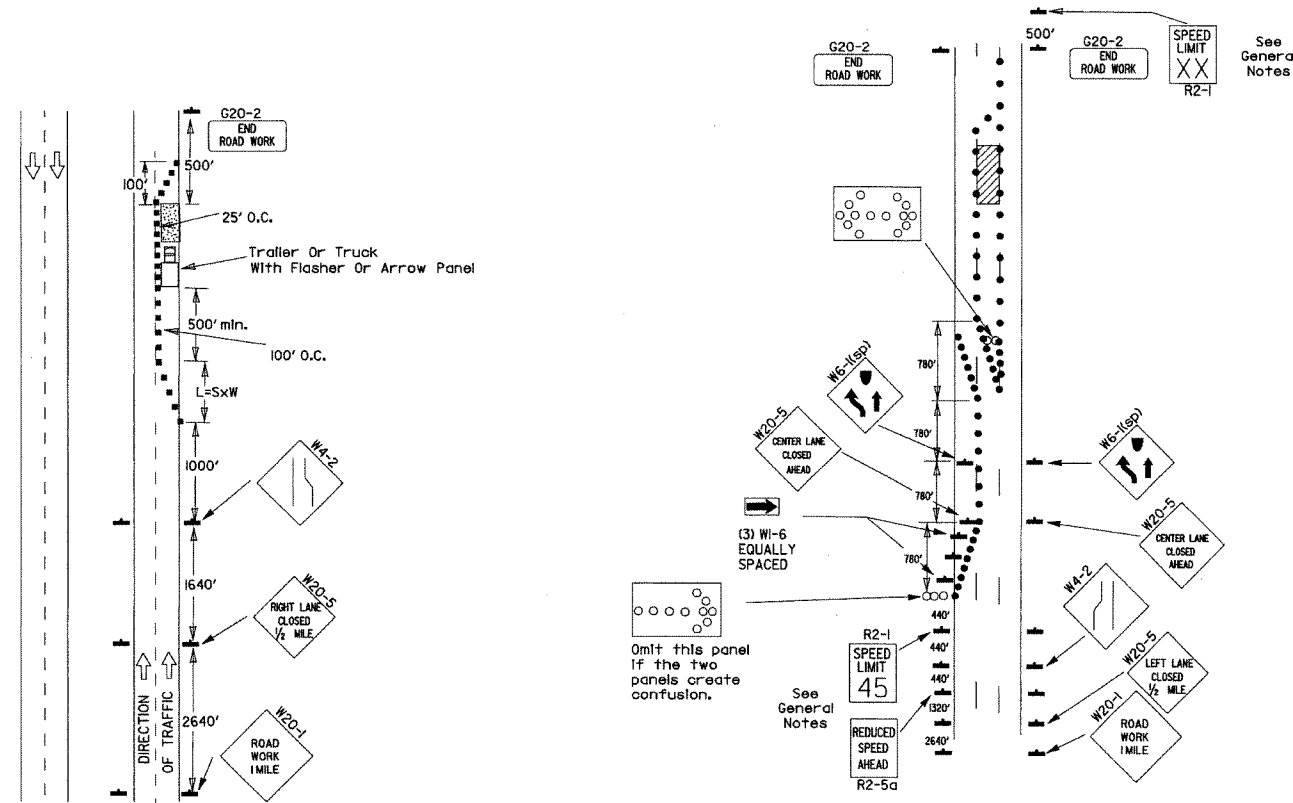
W = Width of offset.

GENERAL NOTES:

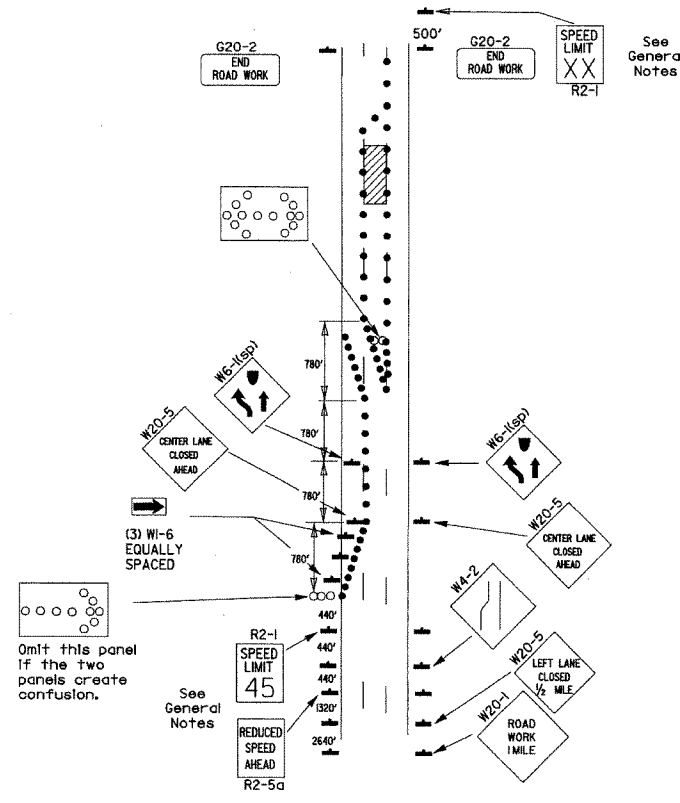
- Advisory speed posted on W1-3 or W1-4 curve warning signs to be determined at site. Use W1-4 when speed is greater than 30mph and W1-3 when 30mph or less.
- When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-1(45) shall be installed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

DATE	REVISION	FILMED
3-8-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI MUTCD, SEPT. 3, 1993	
8-5-91	DRAWN AND PLACED IN USE	

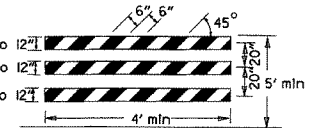
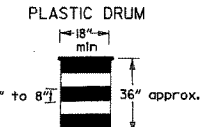
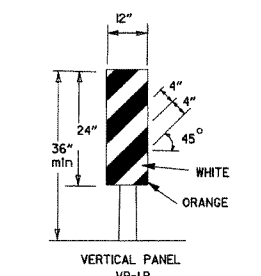
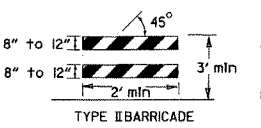
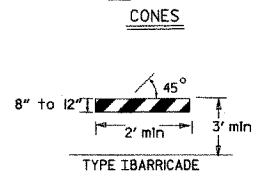
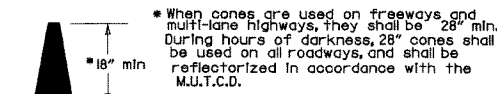
Channelizing devices



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

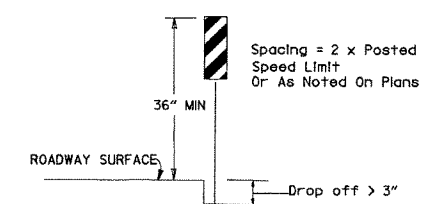


(B) Typical application - 3-lane oneway roadway where center lane is closed.



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

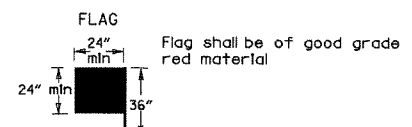
VERTICAL PANEL PLACEMENT



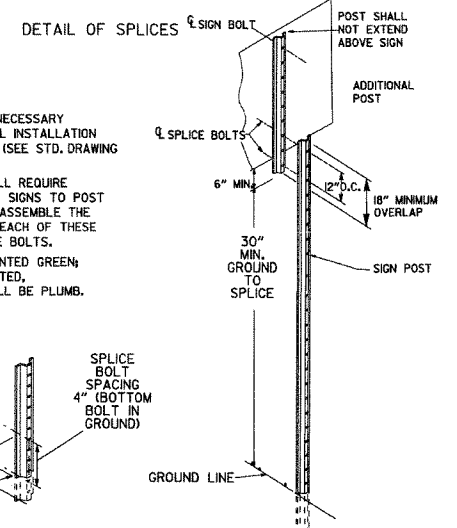
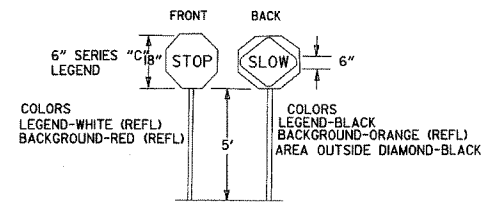
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

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

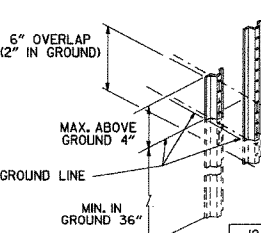
* When shown on the plans concrete barrier will be used. When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.



STOP SLOW PADDLE



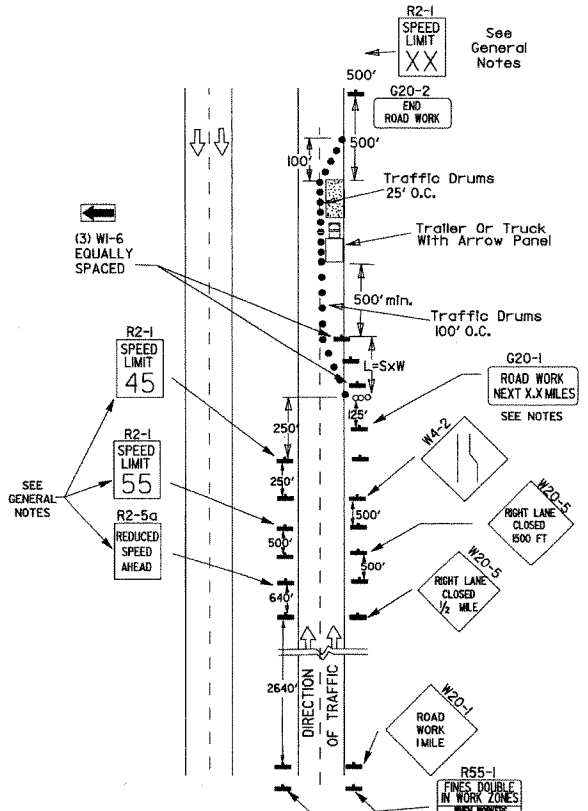
NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2). NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS. SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



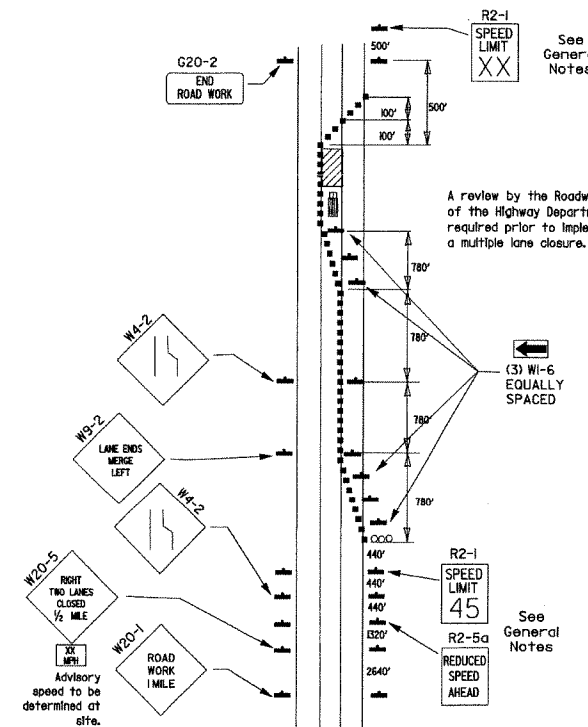
- KEY:
- Arrow Panel (if Required)
 - Channelizing Device
 - Traffic drum

GENERAL NOTES:

- A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
- When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5a shall be installed at that location. Additional R2-145mph 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.
- When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(65) shall be omitted. Additional R2-155mph 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.
- 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.
- Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
- Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
- 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.
- Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
- All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual for Assessing Safety Hardware (MASH).
- 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.

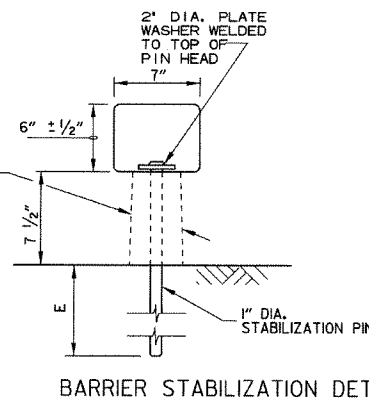
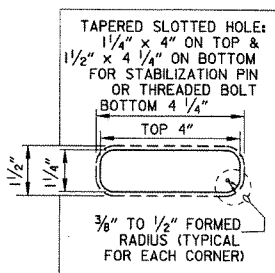
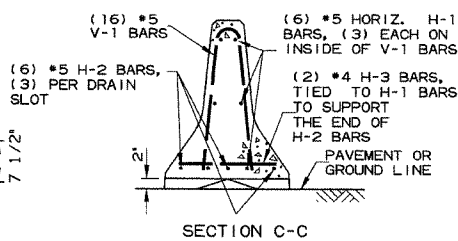
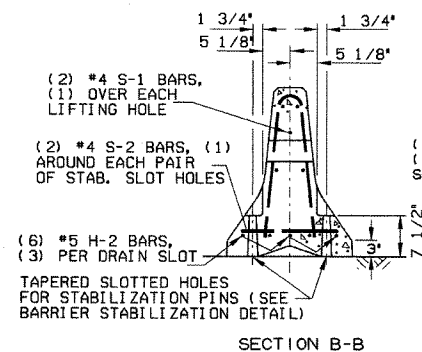
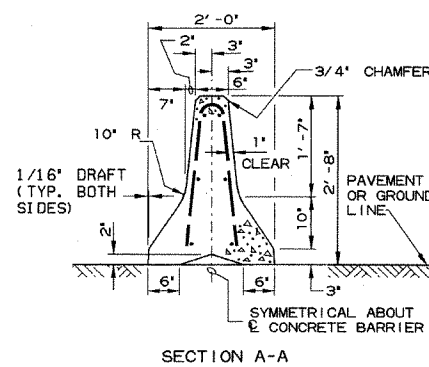
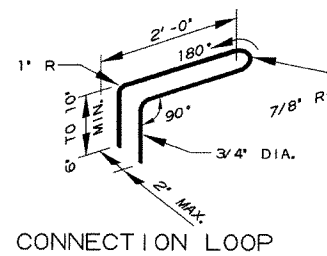
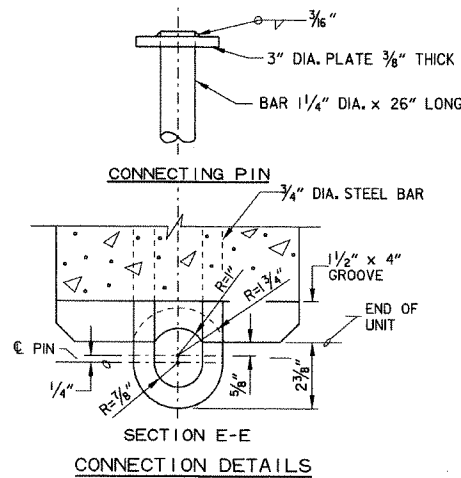


(D) Typical application - closing multiple lanes of a multilane highway.

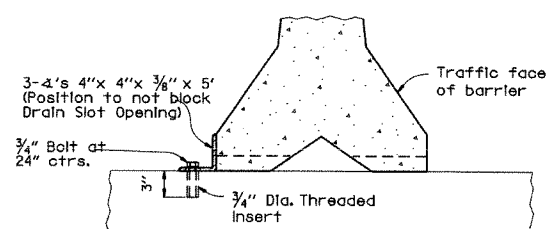
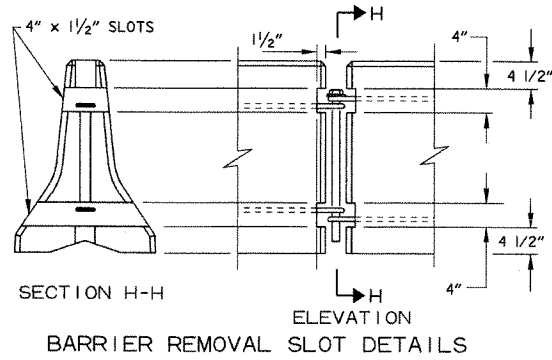
DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED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

ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT			
MARK	LOCATION	BAR SIZE	(NO. BARS)
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)
S-1	OVER LIFT HOLES	#4	(2)
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S & DRAIN SLOTS	#4	(2)
V-1	VERTICAL IN BARRIER (3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)

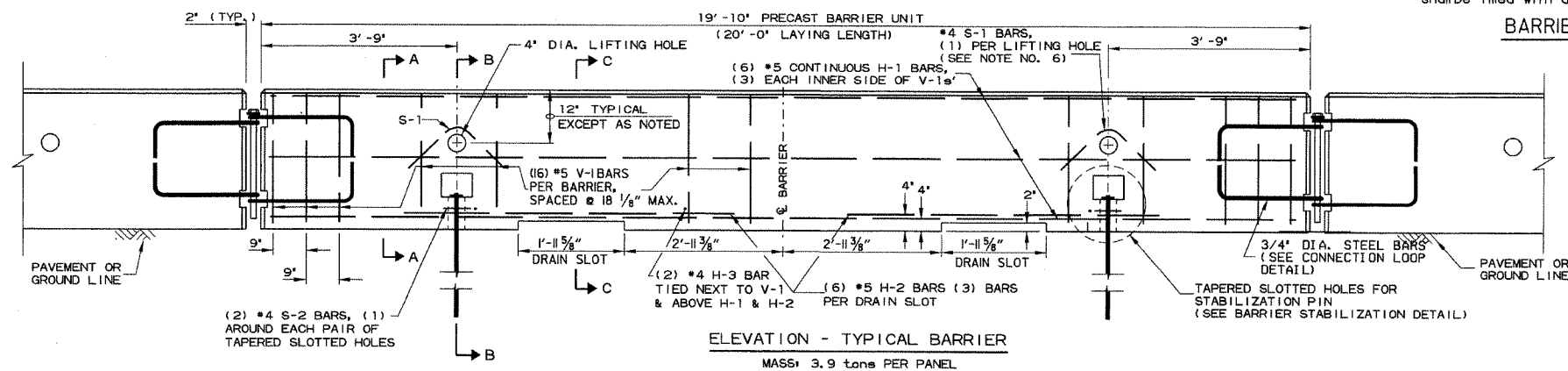
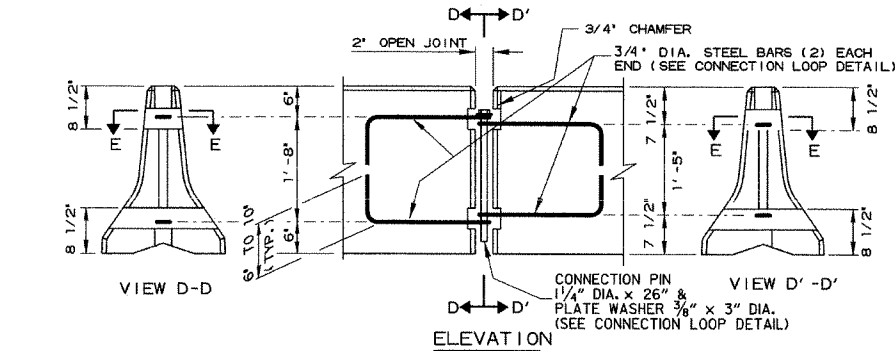


ROADWAY SECTION
 (E) 4" - Concrete Pavement
 8" - Asphalt Pavement
 12" - Shoulder Areas



NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks to be retained. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

BARRIER STABILIZATION DETAIL BRIDGE DECKS



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.
 Delimiters: Delimiters shall be mounted at 10' spacing on top of precast barrier.

In applications where barrier walls within 6 feet of a traffic lane, additional delimiters shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delimiters shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers. Delimiter color shall be in accordance with the Manual Uniform Traffic Control Devices. Payment for delimiters shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.

3 Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.

4 Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.

5 Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.

6 A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

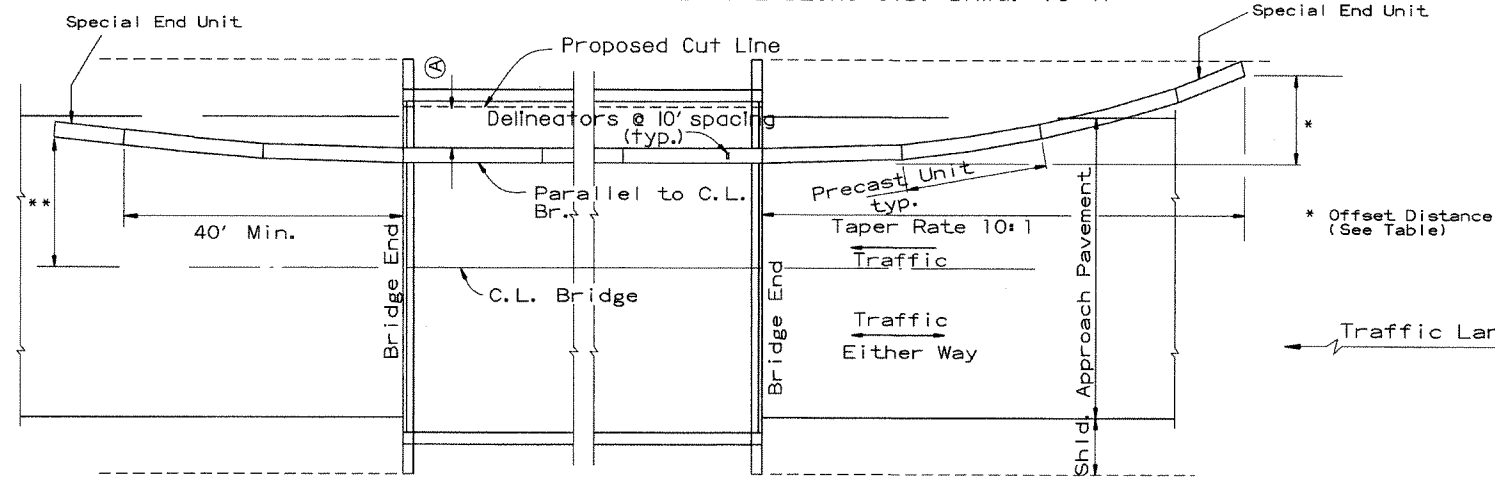
DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

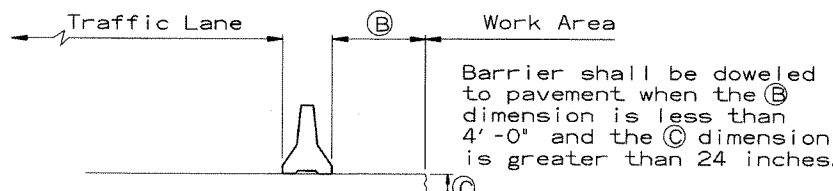
STANDARD DRAWING TC-4

(A) 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

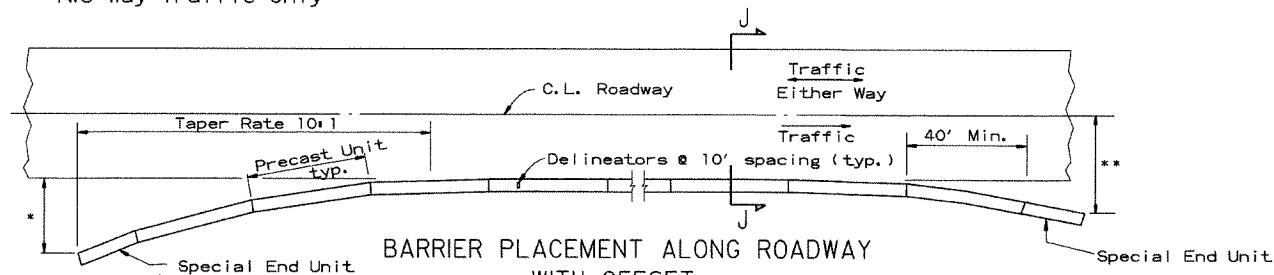
No Scale



SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

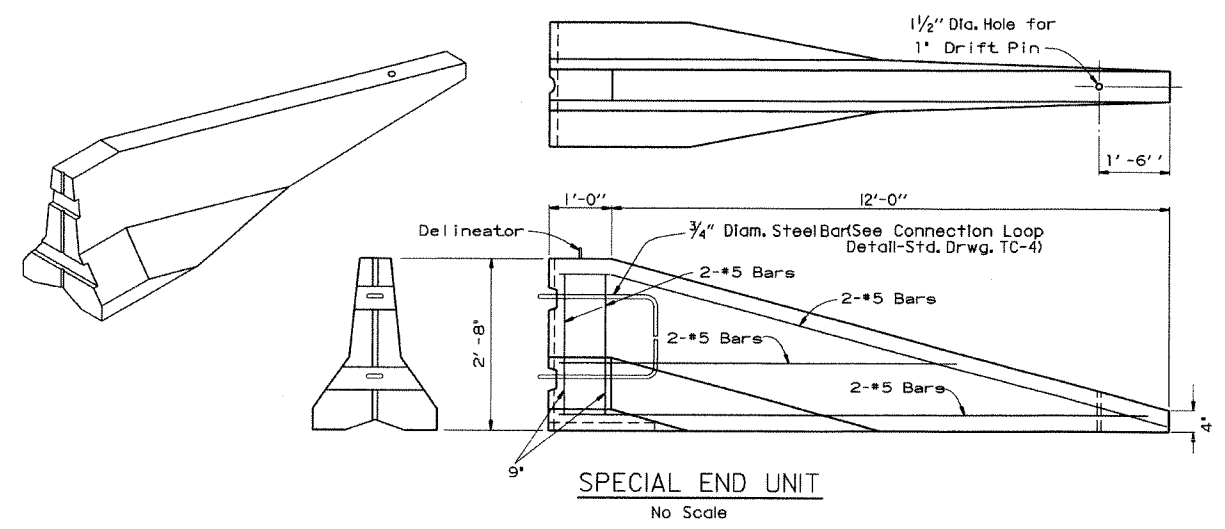
No Scale

** Offset Distance For Two Way Traffic Only

* Offset Distance (See Table)

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

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

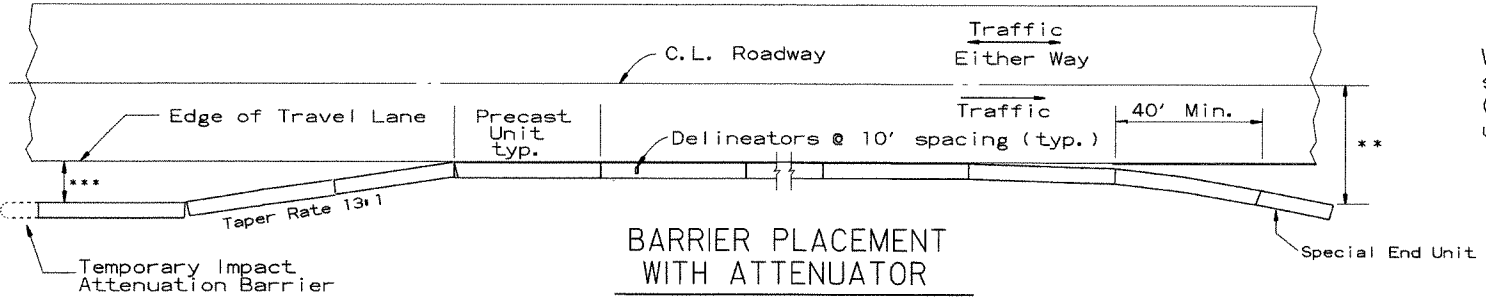


SPECIAL END UNIT

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."



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

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

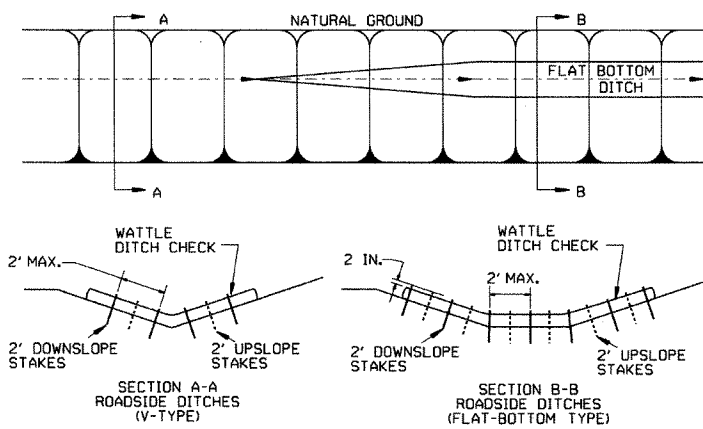
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

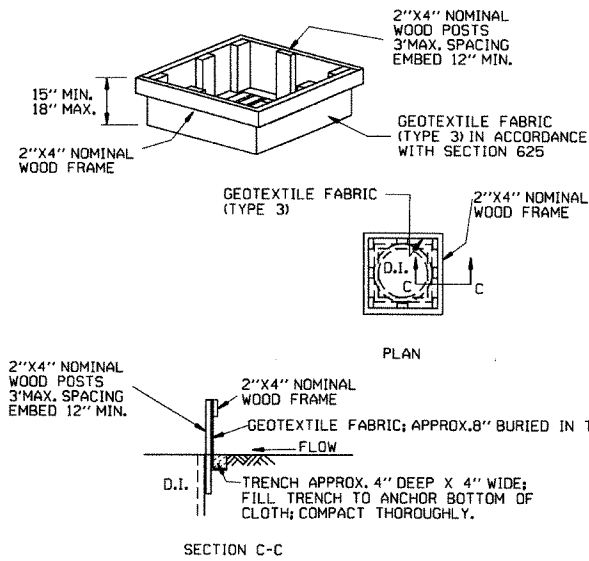
STANDARD DRAWING TC-5

GENERAL NOTES

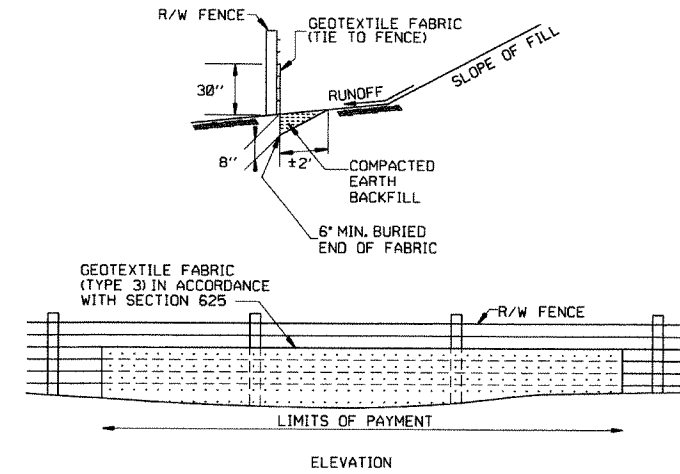
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



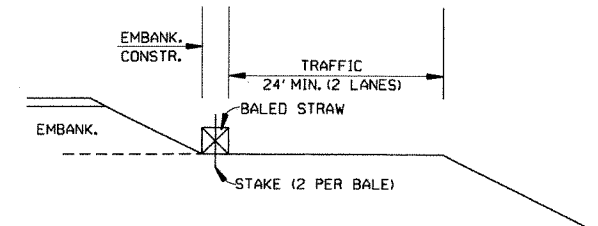
DROP INLET SILT FENCE (E-7)



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

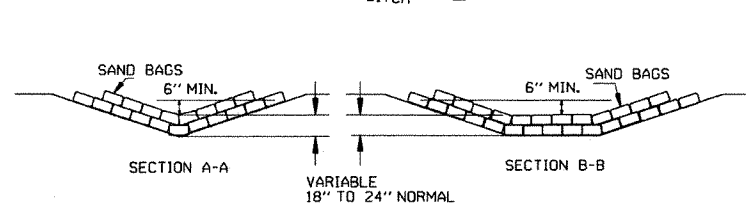
GENERAL NOTES
 GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

- 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.

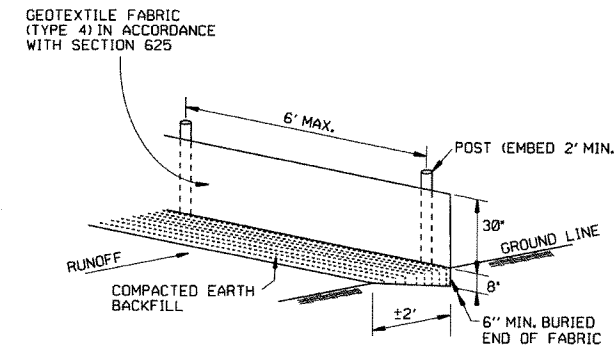


BALED STRAW FILTER BARRIER (E-2)

NUMBER OF SAND BAGS AND ARRANGEMENT VARIABLE WITH ON-SITE CONDITIONS. PLACE SAND BAGS AT BASE OF DITCH CHECK IN AREA OF OVERFLOW.



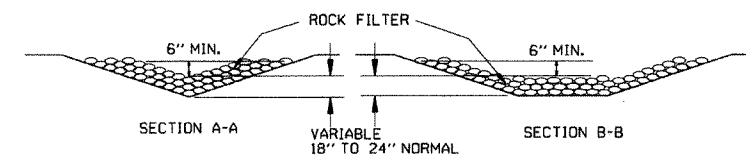
SAND BAG DITCH CHECK (E-5)



SILT FENCE (E-11)

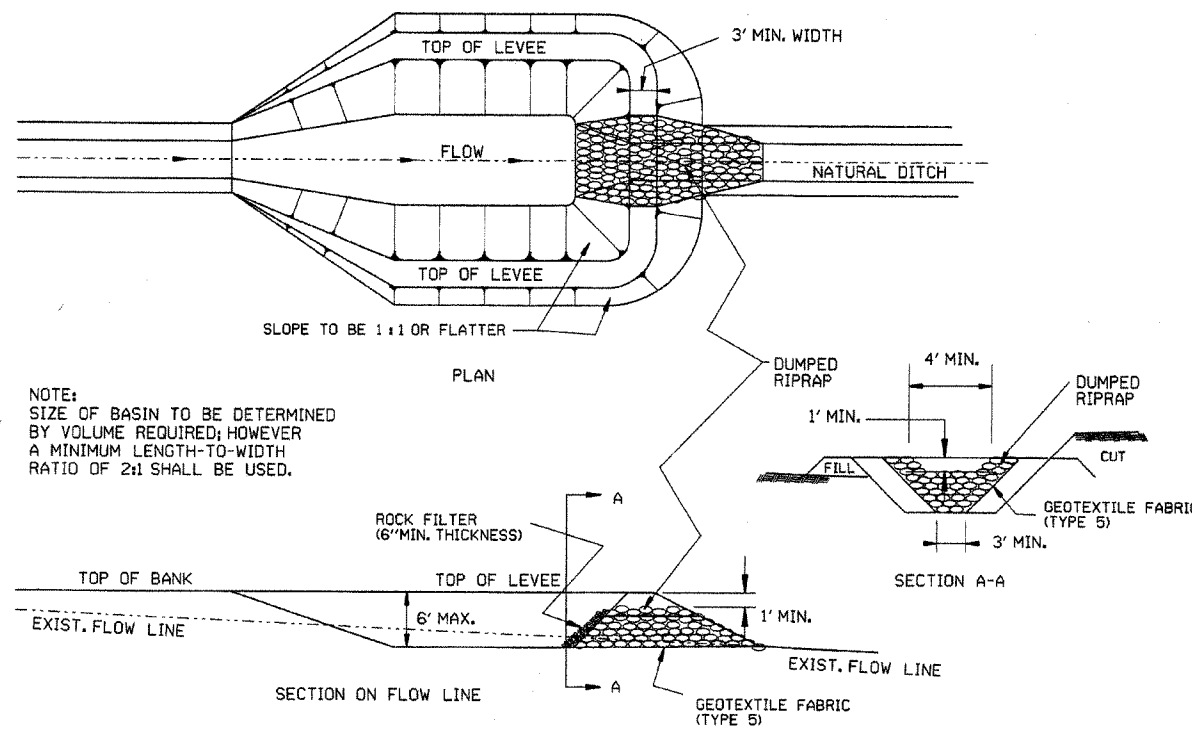
GENERAL NOTES
 GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

APPROX. 2:1 SLOPE. PLACE ROCK AT BASE OF DITCH CHECK IN AREA OF OVERFLOW.

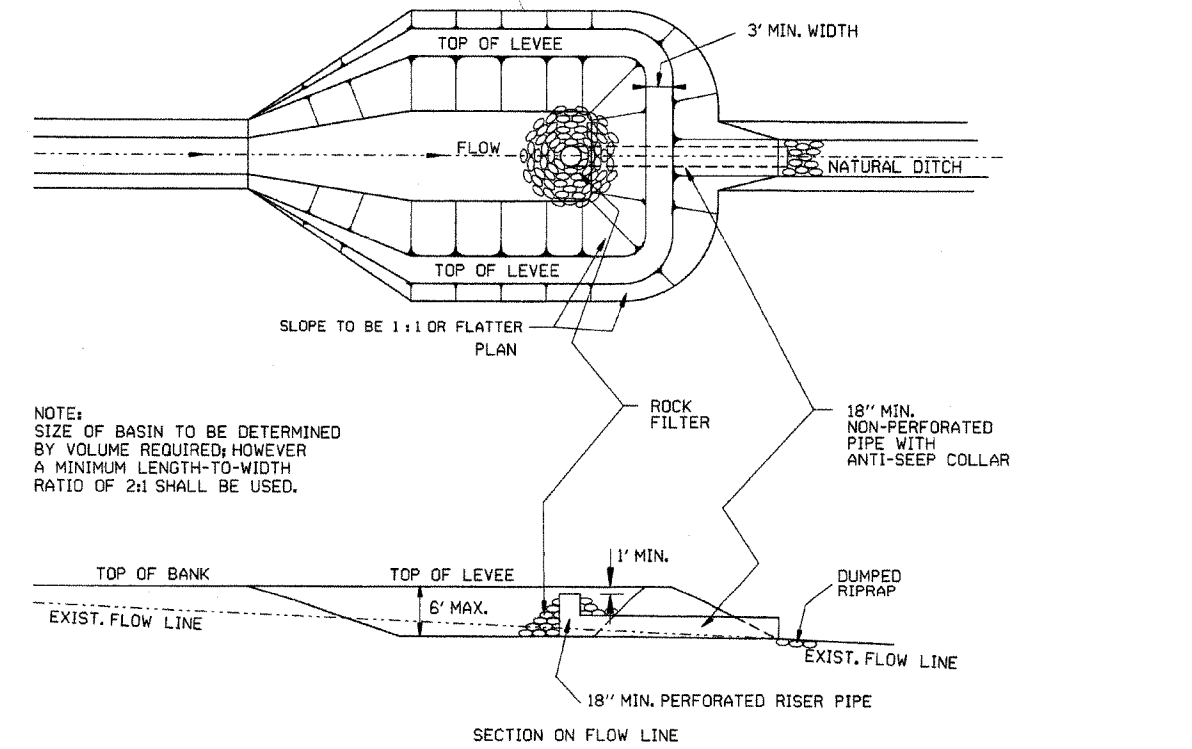


ROCK DITCH CHECK (E-6)

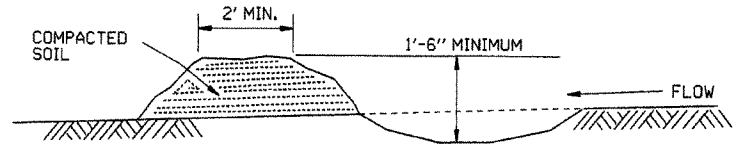
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK		ARKANSAS STATE HIGHWAY COMMISSION
11-18-98	ADDED NOTES		
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)		
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95	TEMPORARY EROSION CONTROL DEVICES
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END 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	STANDARD DRAWING TEC-1
DATE	REVISION	FILMED	



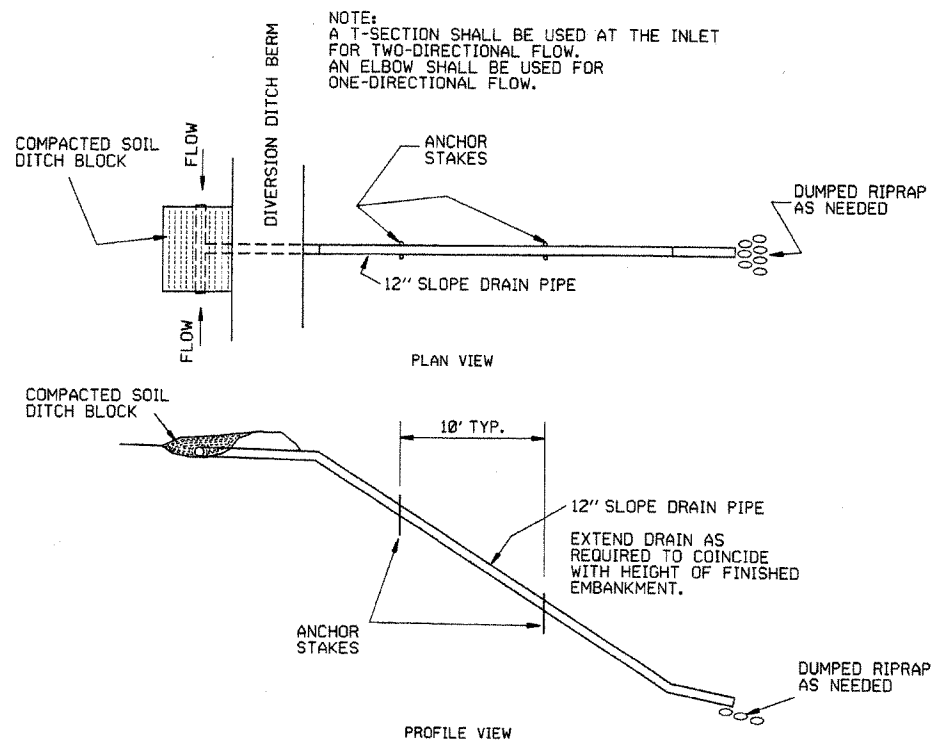
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



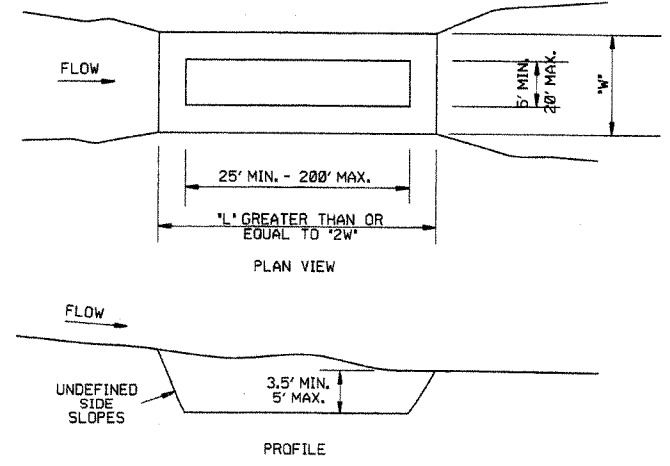
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

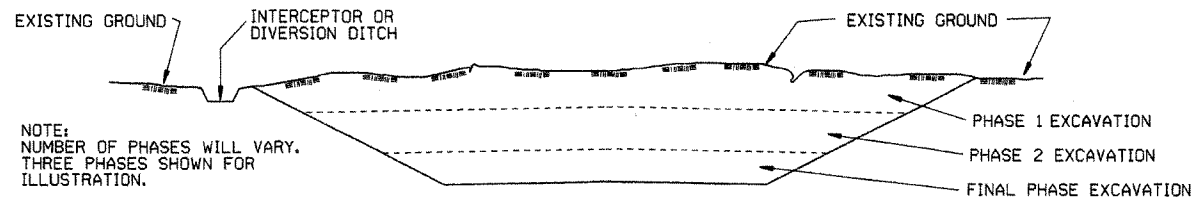
ARKANSAS STATE HIGHWAY COMMISSION
 TEMPORARY EROSION CONTROL DEVICES
 STANDARD DRAWING TEC-2

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



NOTE:
NUMBER OF PHASES WILL VARY.
THREE PHASES SHOWN FOR
ILLUSTRATION.

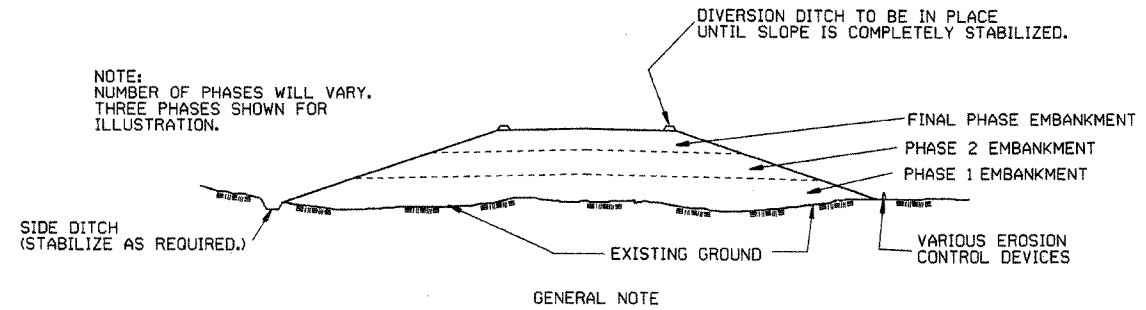
GENERAL NOTE

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



NOTE:
NUMBER OF PHASES WILL VARY.
THREE PHASES SHOWN FOR
ILLUSTRATION.

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.

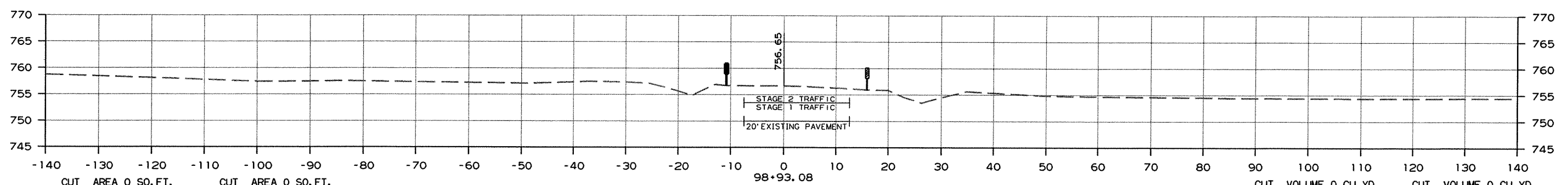
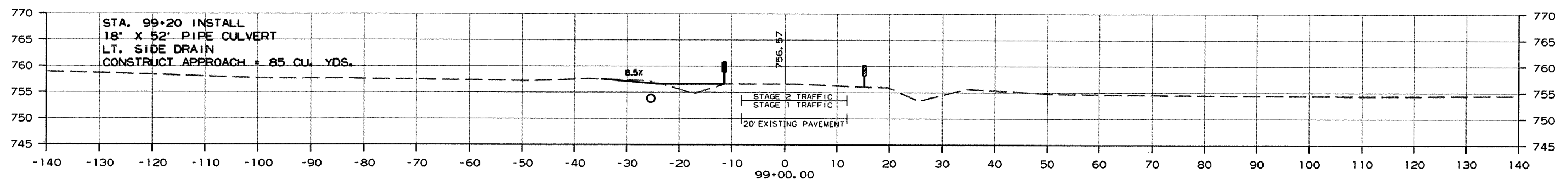
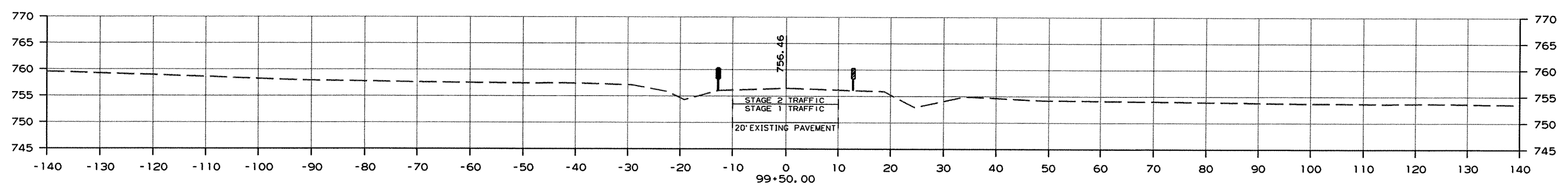
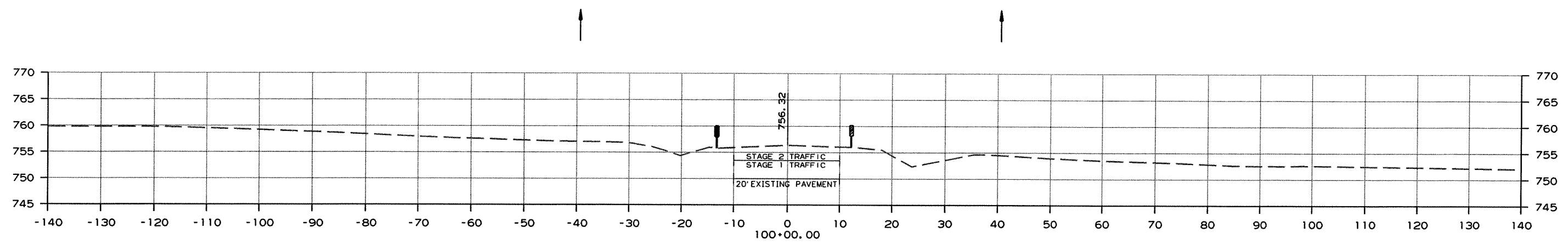
CONSTRUCTION SEQUENCE

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.

ARKANSAS STATE HIGHWAY COMMISSION		
TEMPORARY EROSION CONTROL DEVICES		
STANDARD DRAWING TEC-3		
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94
DATE	REVISION	FILMED

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							72	98

2 CROSS SECTIONS



CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT.
STAGE 1

CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT.
STAGE 2

BEGIN 250' TRANSITION

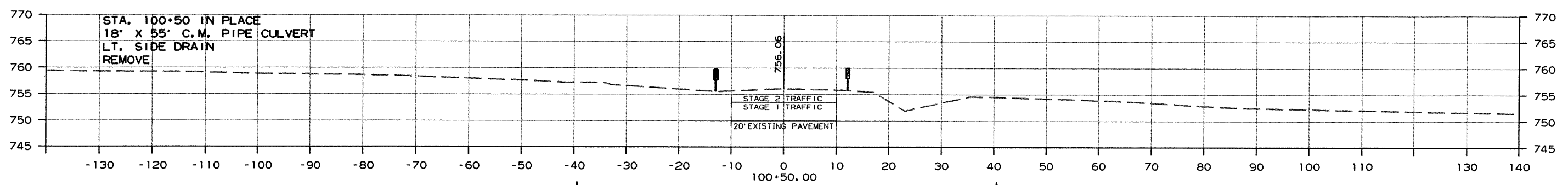
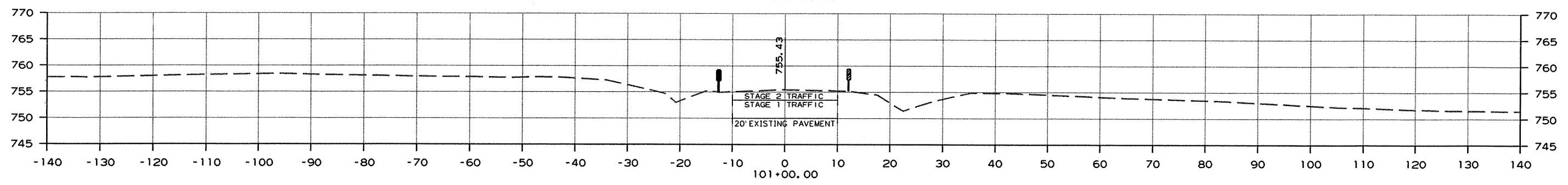
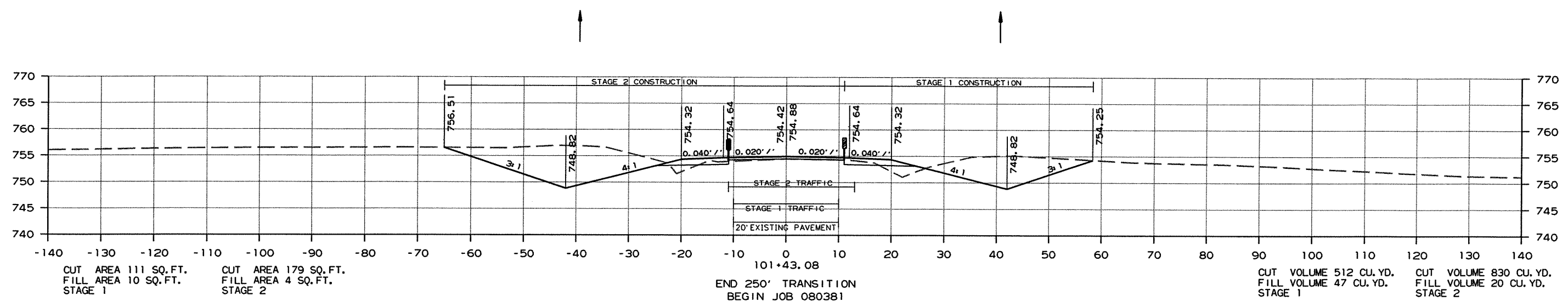
CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD.
STAGE 1

CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD.
STAGE 2

CROSS SECTION STA. 98+93 TO STA. 100+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							73	98

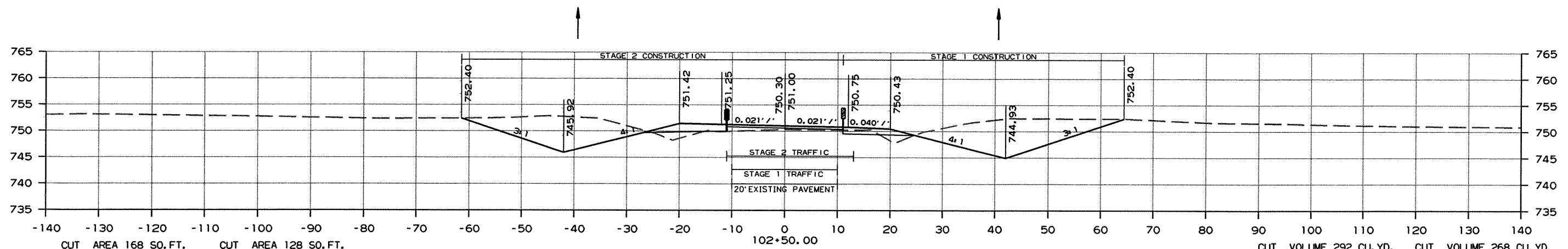
② CROSS SECTIONS



CROSS SECTION STA. 100+50 TO STA. 101+43

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							74	98

2 CROSS SECTIONS

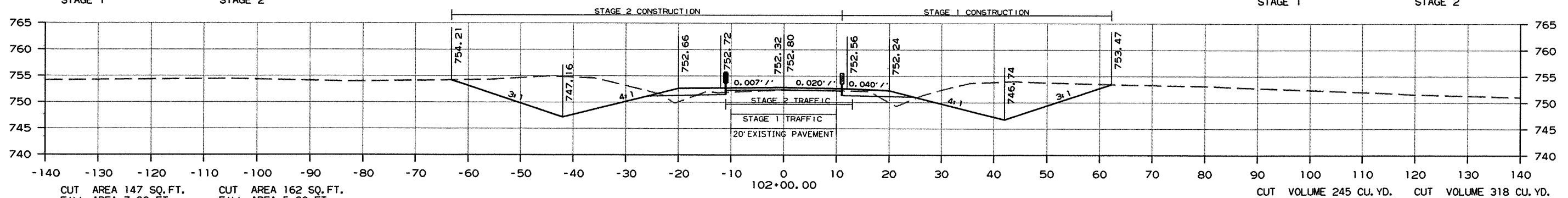


CUT AREA 168 SQ. FT.
FILL AREA 6 SQ. FT.
STAGE 1

CUT AREA 128 SQ. FT.
FILL AREA 8 SQ. FT.
STAGE 2

CUT VOLUME 292 CU. YD.
FILL VOLUME 12 CU. YD.
STAGE 1

CUT VOLUME 268 CU. YD.
FILL VOLUME 12 CU. YD.
STAGE 2

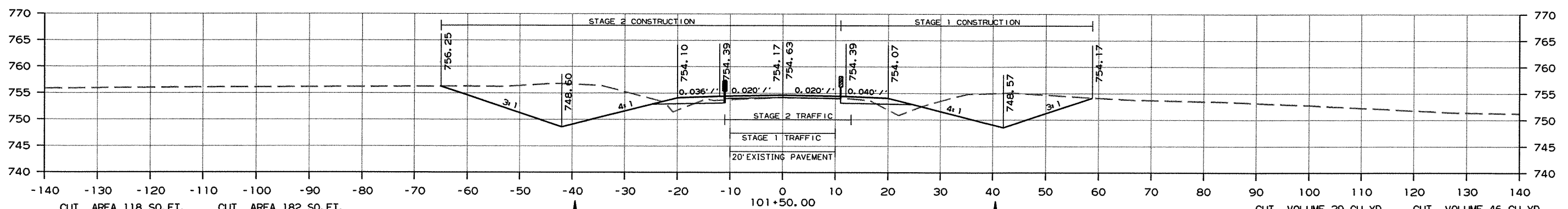


CUT AREA 147 SQ. FT.
FILL AREA 7 SQ. FT.
STAGE 1

CUT AREA 162 SQ. FT.
FILL AREA 5 SQ. FT.
STAGE 2

CUT VOLUME 245 CU. YD.
FILL VOLUME 16 CU. YD.
STAGE 1

CUT VOLUME 318 CU. YD.
FILL VOLUME 8 CU. YD.
STAGE 2



CUT AREA 118 SQ. FT.
FILL AREA 10 SQ. FT.
STAGE 1

CUT AREA 182 SQ. FT.
FILL AREA 4 SQ. FT.
STAGE 2

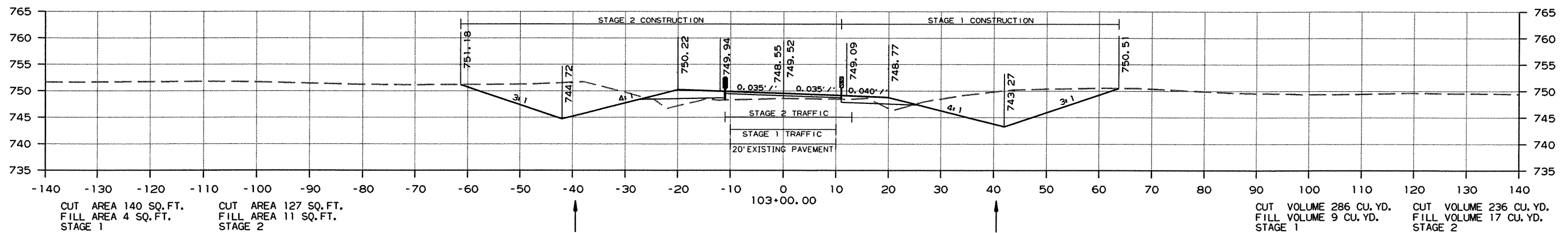
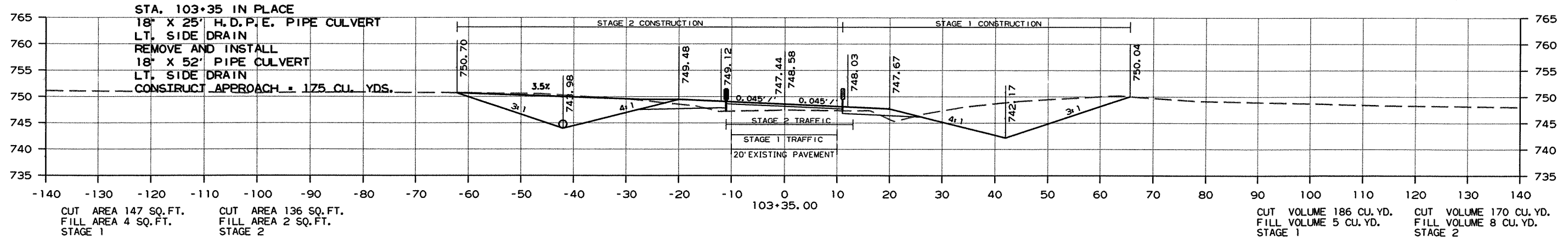
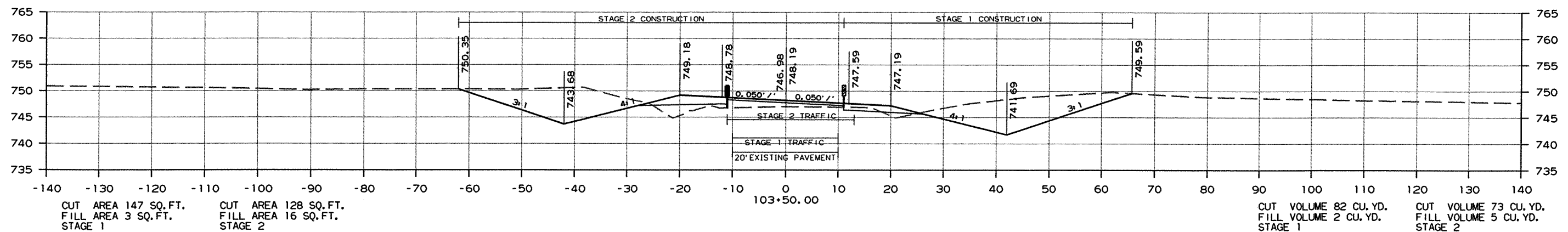
CUT VOLUME 29 CU. YD.
FILL VOLUME 3 CU. YD.
STAGE 1

CUT VOLUME 46 CU. YD.
FILL VOLUME 1 CU. YD.
STAGE 2

CROSS SECTION STA. 101+50 TO STA. 102+50

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080381		75	98

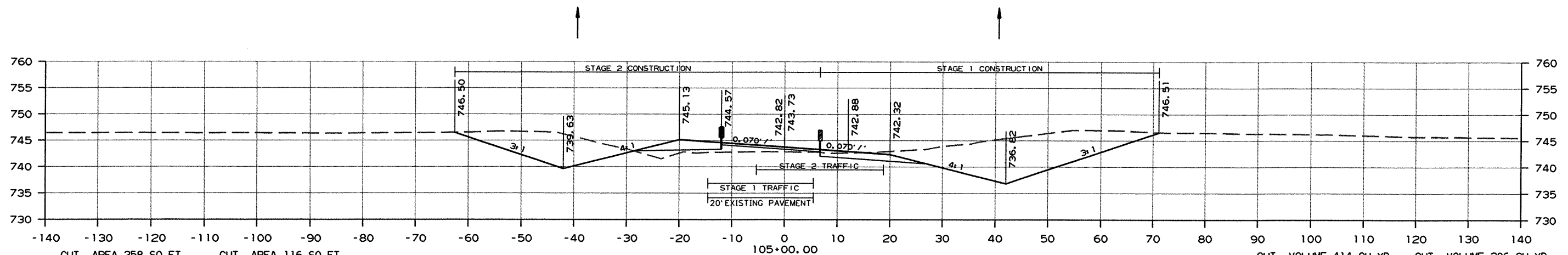
② CROSS SECTIONS



CROSS SECTION STA. 103+00 TO STA. 103+50

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080381		76	98

② CROSS SECTIONS

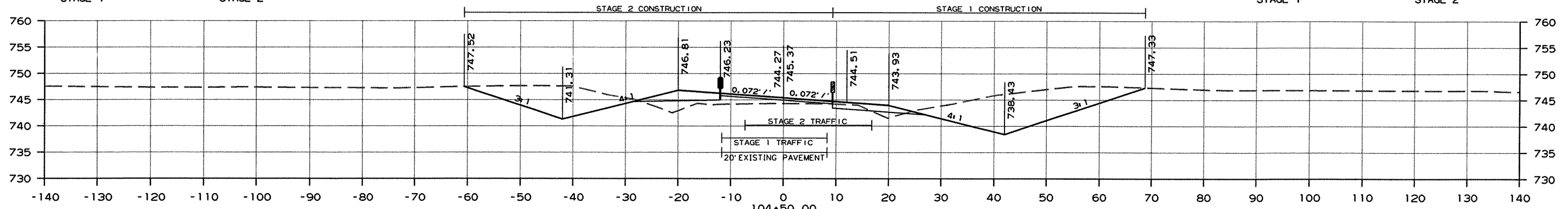


CUT AREA 258 SQ. FT.
FILL AREA 0 SQ. FT.
STAGE 1

CUT AREA 116 SQ. FT.
FILL AREA 11 SQ. FT.
STAGE 2

CUT VOLUME 414 CU. YD.
FILL VOLUME 4 CU. YD.
STAGE 1

CUT VOLUME 206 CU. YD.
FILL VOLUME 26 CU. YD.
STAGE 2

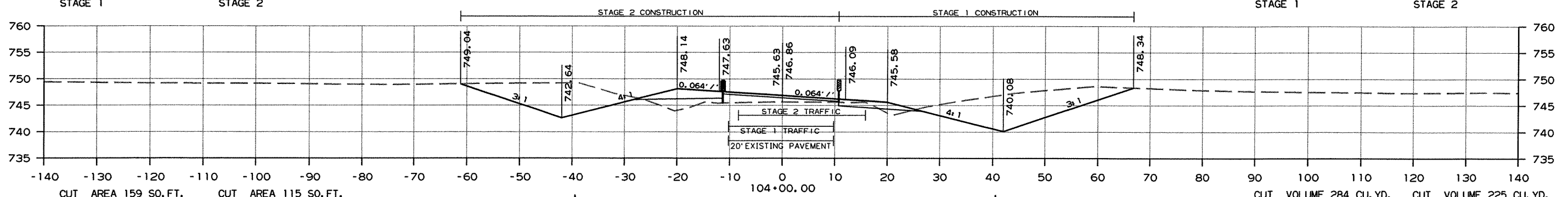


CUT AREA 188 SQ. FT.
FILL AREA 4 SQ. FT.
STAGE 1

CUT AREA 106 SQ. FT.
FILL AREA 17 SQ. FT.
STAGE 2

CUT VOLUME 322 CU. YD.
FILL VOLUME 7 CU. YD.
STAGE 1

CUT VOLUME 205 CU. YD.
FILL VOLUME 33 CU. YD.
STAGE 2



CUT AREA 159 SQ. FT.
FILL AREA 4 SQ. FT.
STAGE 1

CUT AREA 115 SQ. FT.
FILL AREA 19 SQ. FT.
STAGE 2

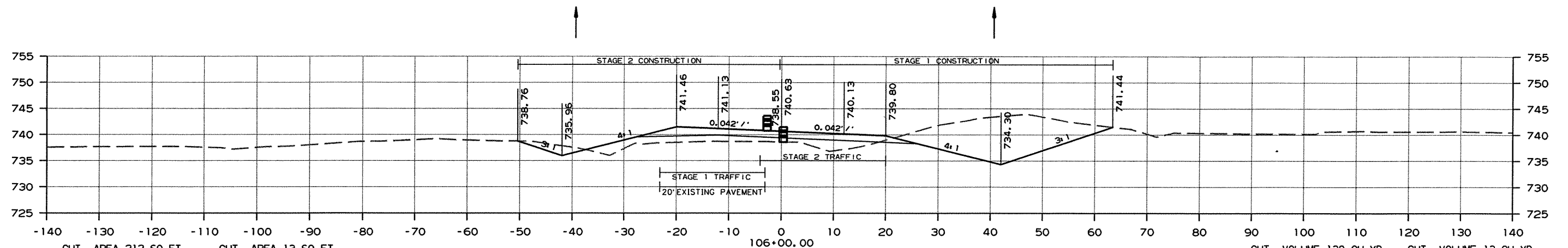
CUT VOLUME 284 CU. YD.
FILL VOLUME 7 CU. YD.
STAGE 1

CUT VOLUME 225 CU. YD.
FILL VOLUME 32 CU. YD.
STAGE 2

CROSS SECTION STA. 104+00 TO STA. 105+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							77	98

② CROSS SECTIONS

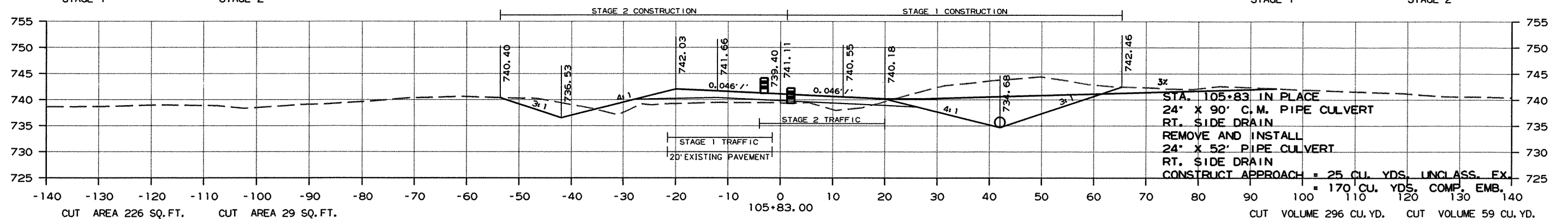


CUT AREA 212 SQ. FT.
FILL AREA 25 SQ. FT.
STAGE 1

CUT AREA 13 SQ. FT.
FILL AREA 19 SQ. FT.
STAGE 2

CUT VOLUME 138 CU. YD.
FILL VOLUME 12 CU. YD.
STAGE 1

CUT VOLUME 13 CU. YD.
FILL VOLUME 11 CU. YD.
STAGE 2

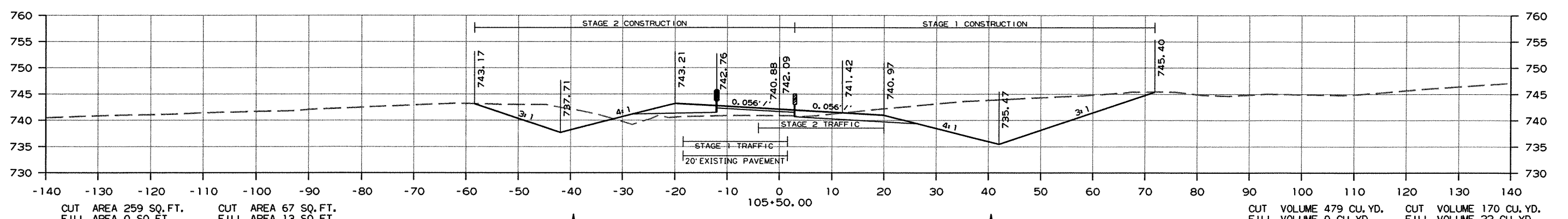


CUT AREA 226 SQ. FT.
FILL AREA 12 SQ. FT.
STAGE 1

CUT AREA 29 SQ. FT.
FILL AREA 17 SQ. FT.
STAGE 2

CUT VOLUME 296 CU. YD.
FILL VOLUME 7 CU. YD.
STAGE 1

CUT VOLUME 59 CU. YD.
FILL VOLUME 18 CU. YD.
STAGE 2



CUT AREA 259 SQ. FT.
FILL AREA 0 SQ. FT.
STAGE 1

CUT AREA 67 SQ. FT.
FILL AREA 13 SQ. FT.
STAGE 2

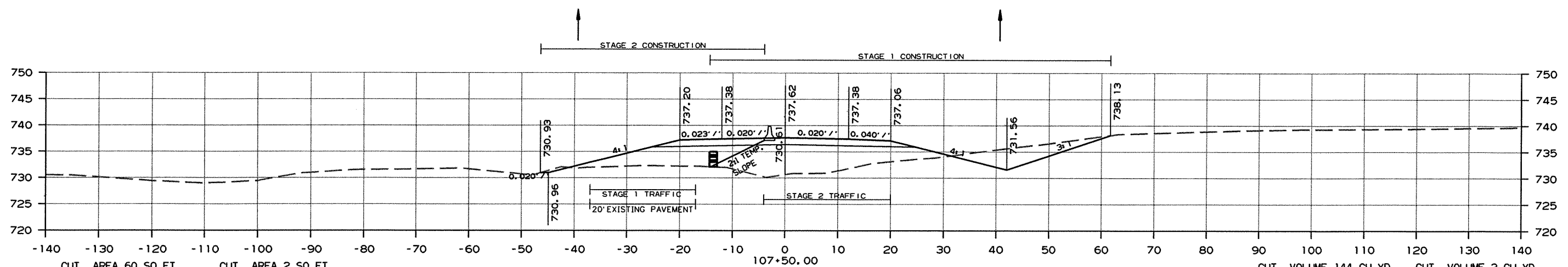
CUT VOLUME 479 CU. YD.
FILL VOLUME 0 CU. YD.
STAGE 1

CUT VOLUME 170 CU. YD.
FILL VOLUME 22 CU. YD.
STAGE 2

CROSS SECTION STA. 105+50 TO STA. 106+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							78	98

2 CROSS SECTIONS

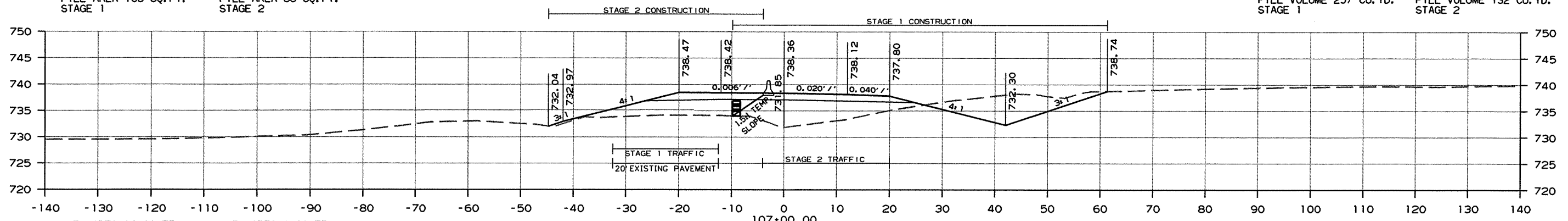


CUT AREA 60 SQ. FT.
FILL AREA 168 SQ. FT.
STAGE 1

CUT AREA 2 SQ. FT.
FILL AREA 88 SQ. FT.
STAGE 2

CUT VOLUME 144 CU. YD.
FILL VOLUME 257 CU. YD.
STAGE 1

CUT VOLUME 2 CU. YD.
FILL VOLUME 132 CU. YD.
STAGE 2

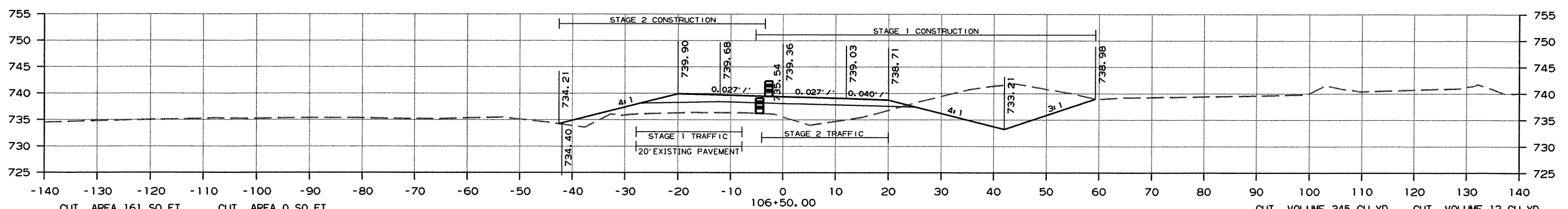


CUT AREA 96 SQ. FT.
FILL AREA 110 SQ. FT.
STAGE 1

CUT AREA 0 SQ. FT.
FILL AREA 55 SQ. FT.
STAGE 2

CUT VOLUME 238 CU. YD.
FILL VOLUME 169 CU. YD.
STAGE 1

CUT VOLUME 0 CU. YD.
FILL VOLUME 67 CU. YD.
STAGE 2



CUT AREA 161 SQ. FT.
FILL AREA 72 SQ. FT.
STAGE 1

CUT AREA 0 SQ. FT.
FILL AREA 17 SQ. FT.
STAGE 2

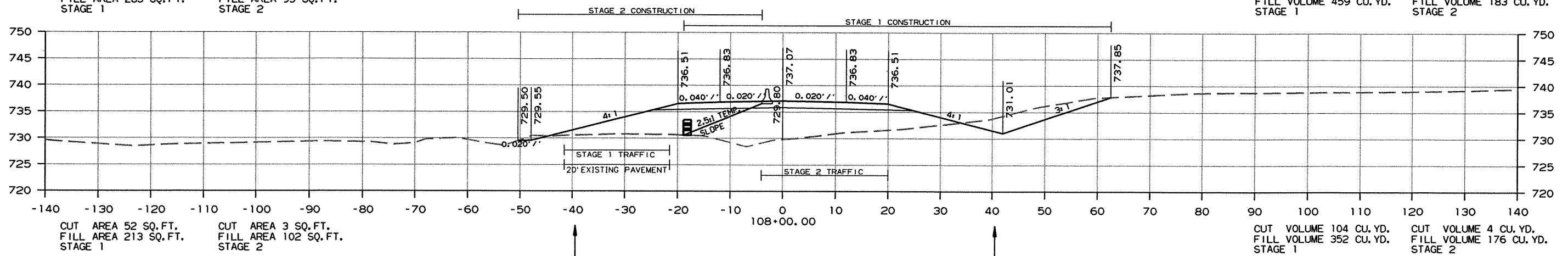
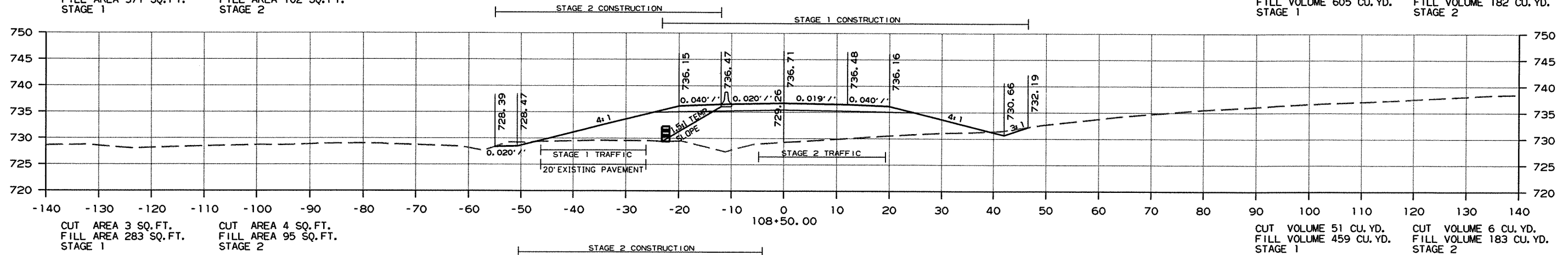
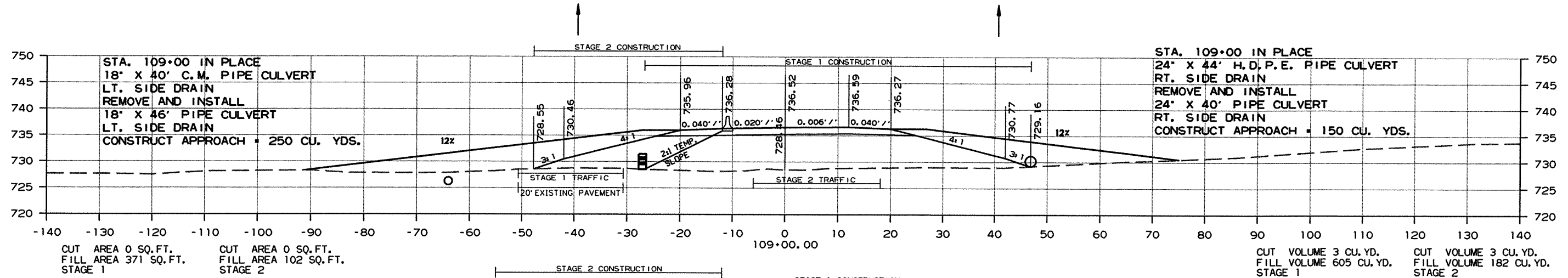
CUT VOLUME 345 CU. YD.
FILL VOLUME 90 CU. YD.
STAGE 1

CUT VOLUME 12 CU. YD.
FILL VOLUME 34 CU. YD.
STAGE 2

CROSS SECTION STA. 106+50 TO STA. 107+50

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080381		79	98

2 CROSS SECTIONS

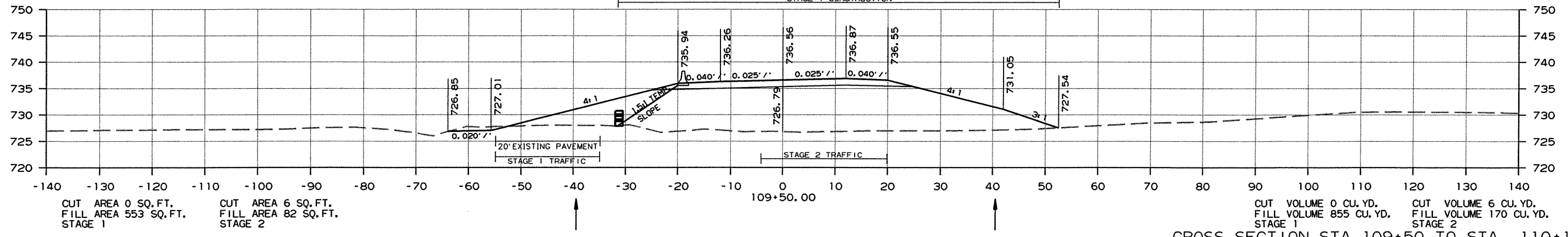
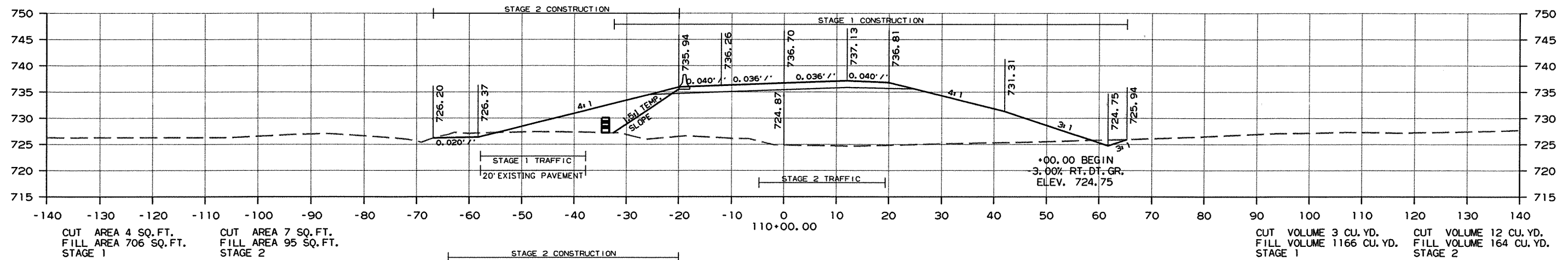
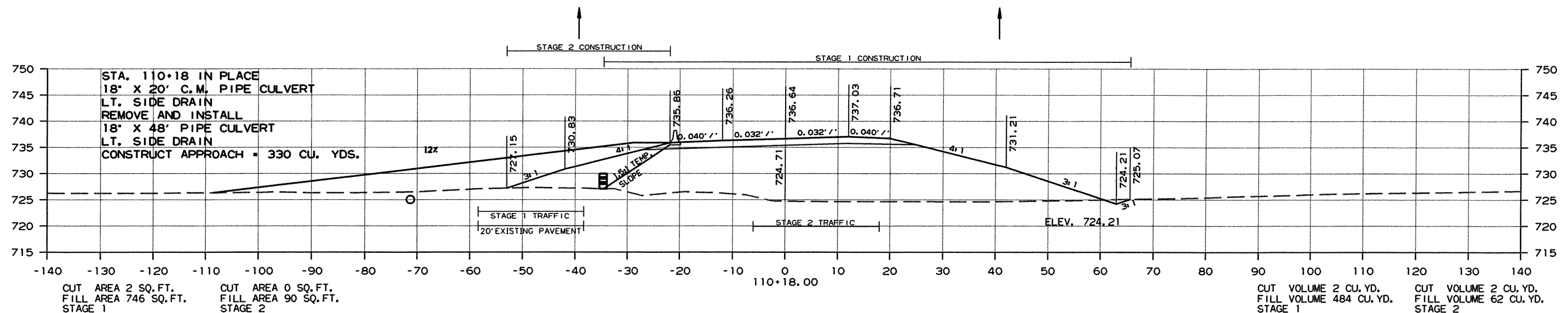


CROSS SECTION STA. 108+00 TO STA. 109+00

R080381.DGN 4/28/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							80	98

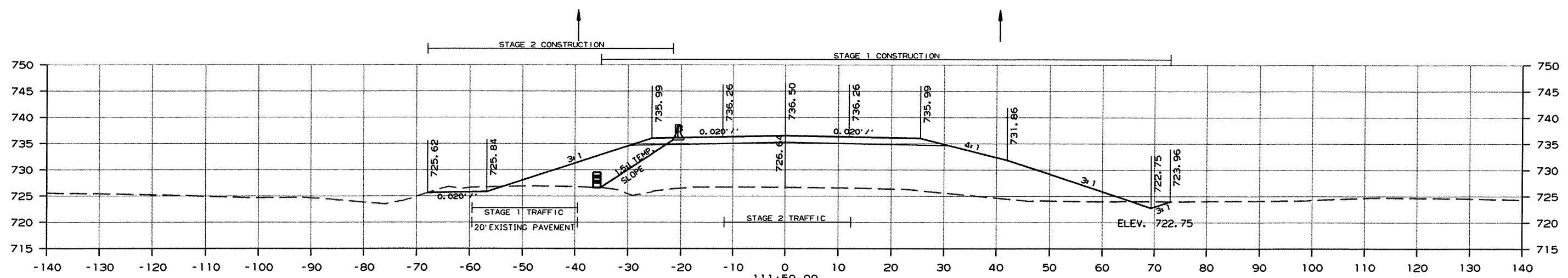
2 CROSS SECTIONS



CROSS SECTION STA. 109+50 TO STA. 110+18

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							81	98

2 CROSS SECTIONS

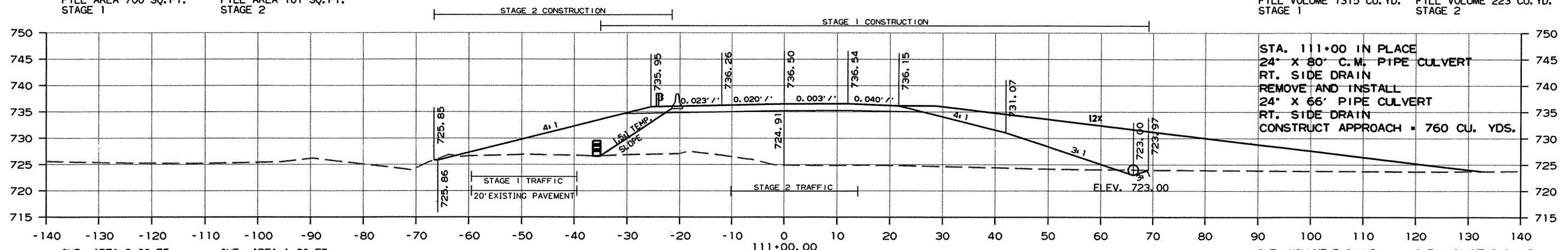


CUT AREA 5 SQ. FT.
FILL AREA 700 SQ. FT.
STAGE 1

CUT AREA 10 SQ. FT.
FILL AREA 101 SQ. FT.
STAGE 2

CUT VOLUME 7 CU. YD.
FILL VOLUME 1315 CU. YD.
STAGE 1

CUT VOLUME 10 CU. YD.
FILL VOLUME 223 CU. YD.
STAGE 2



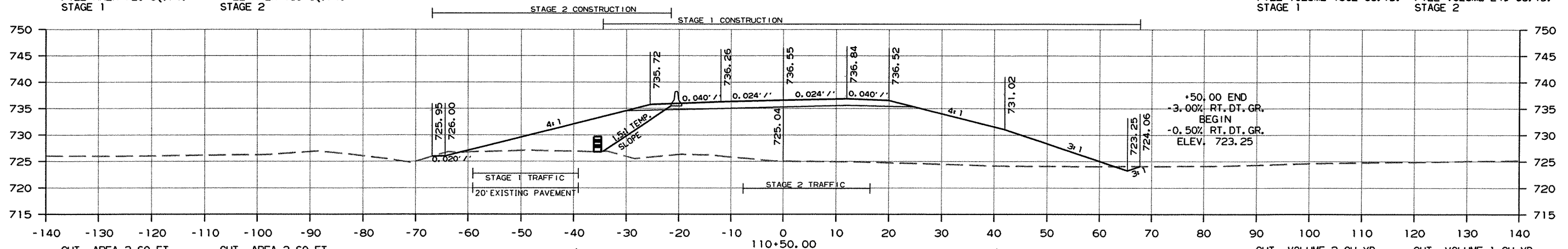
CUT AREA 3 SQ. FT.
FILL AREA 720 SQ. FT.
STAGE 1

CUT AREA 1 SQ. FT.
FILL AREA 139 SQ. FT.
STAGE 2

STA. 111+00 IN PLACE
24" X 80' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 66' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 760 CU. YDS.

CUT VOLUME 5 CU. YD.
FILL VOLUME 1362 CU. YD.
STAGE 1

CUT VOLUME 3 CU. YD.
FILL VOLUME 249 CU. YD.
STAGE 2



CUT AREA 2 SQ. FT.
FILL AREA 751 SQ. FT.
STAGE 1

CUT AREA 2 SQ. FT.
FILL AREA 130 SQ. FT.
STAGE 2

+50.00 END
-3.00% RT. DT. GR.
BEGIN
-0.50% RT. DT. GR.
ELEV. 723.25

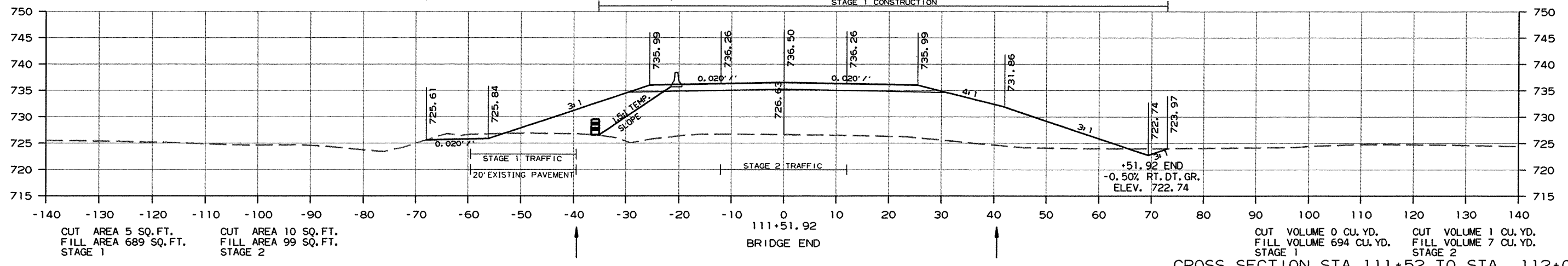
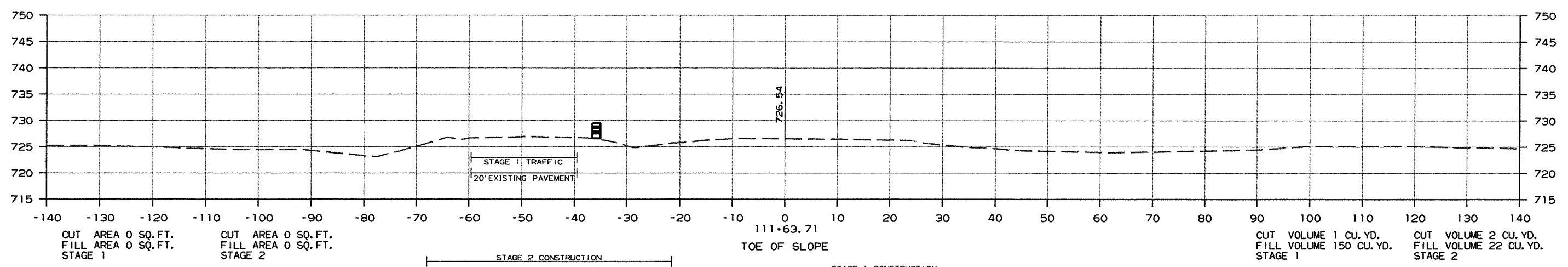
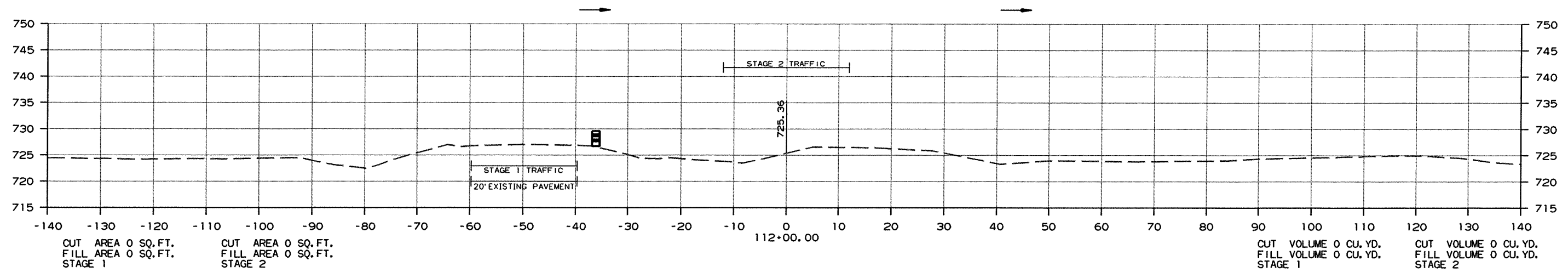
CUT VOLUME 2 CU. YD.
FILL VOLUME 887 CU. YD.
STAGE 1

CUT VOLUME 1 CU. YD.
FILL VOLUME 130 CU. YD.
STAGE 2

CROSS SECTION STA. 110+50 TO STA. 111+50

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080381	82	98

2 CROSS SECTIONS

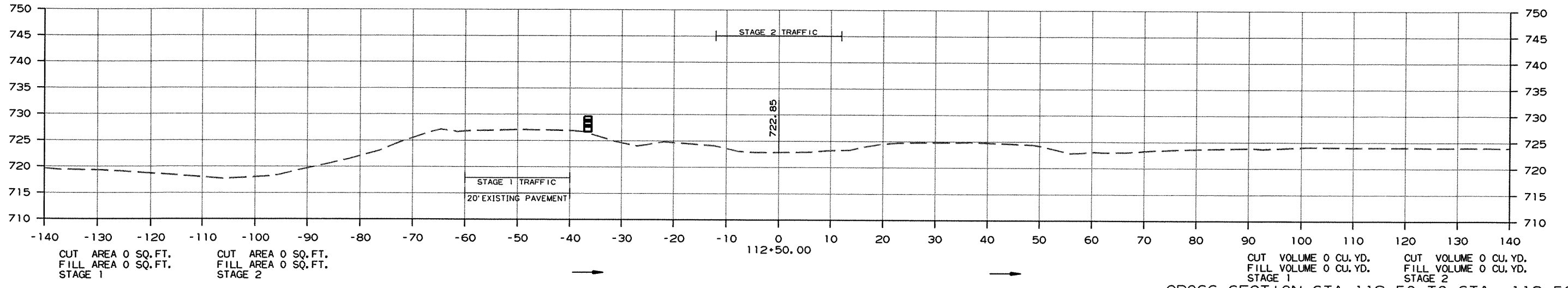
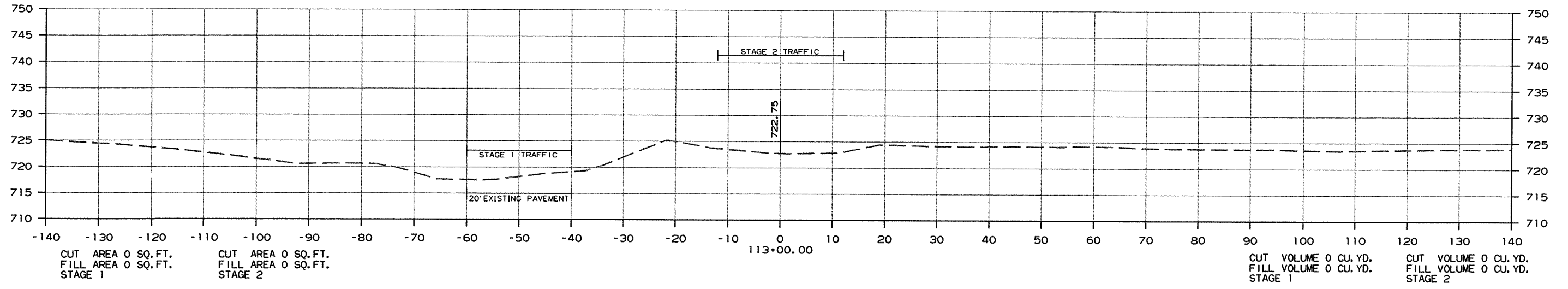
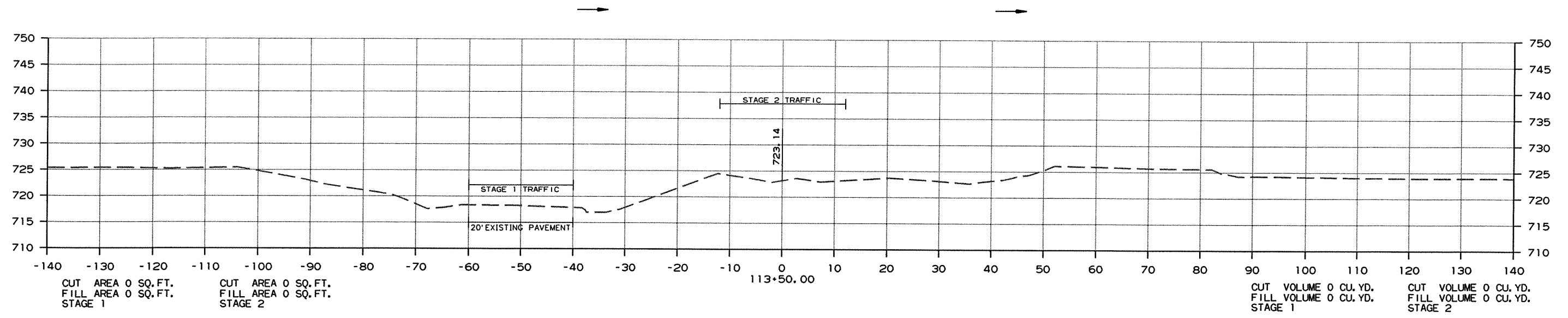


CROSS SECTION STA. 111+52 TO STA. 112+00

R080381.DGN 4/28/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080381		83	98

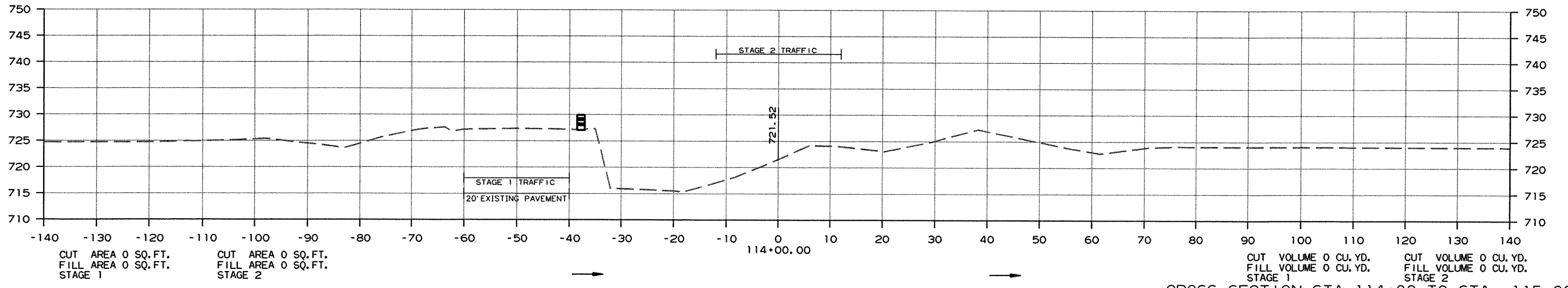
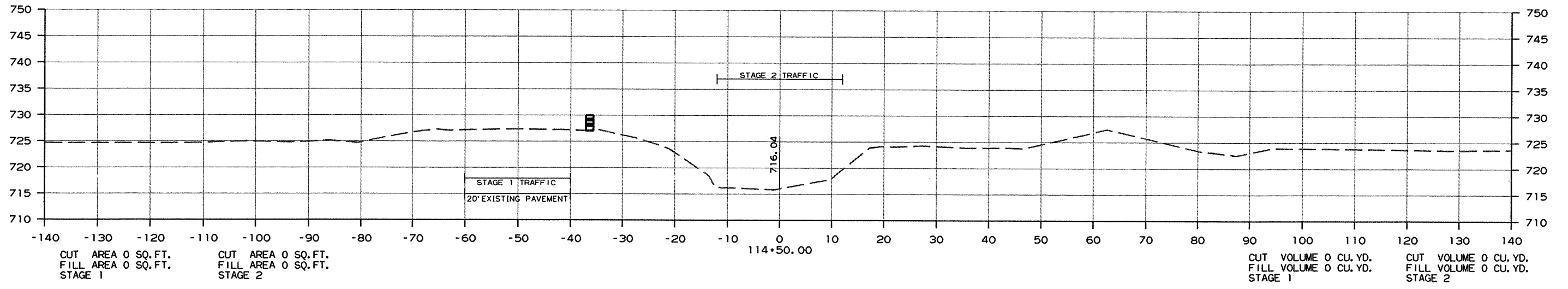
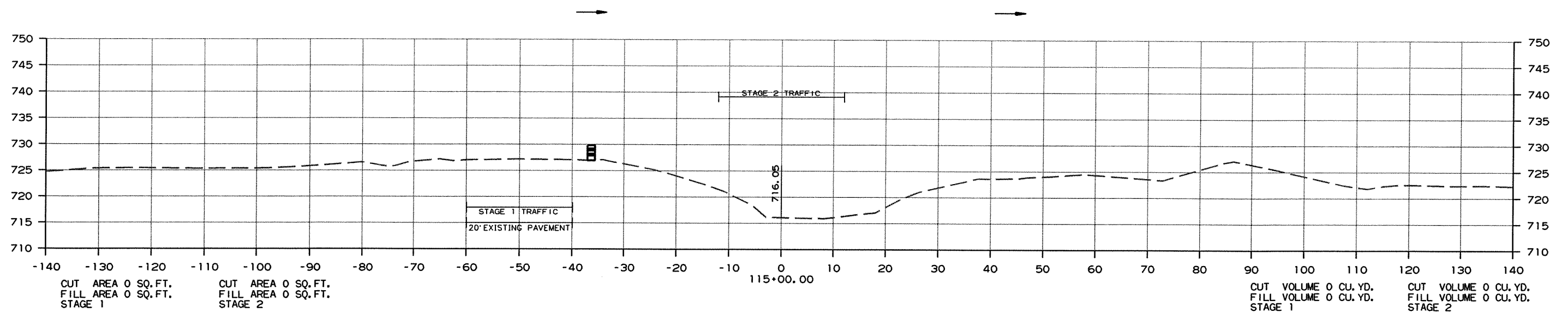
② CROSS SECTIONS



CROSS SECTION STA. 112+50 TO STA. 113+50

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080381		84	98

② CROSS SECTIONS

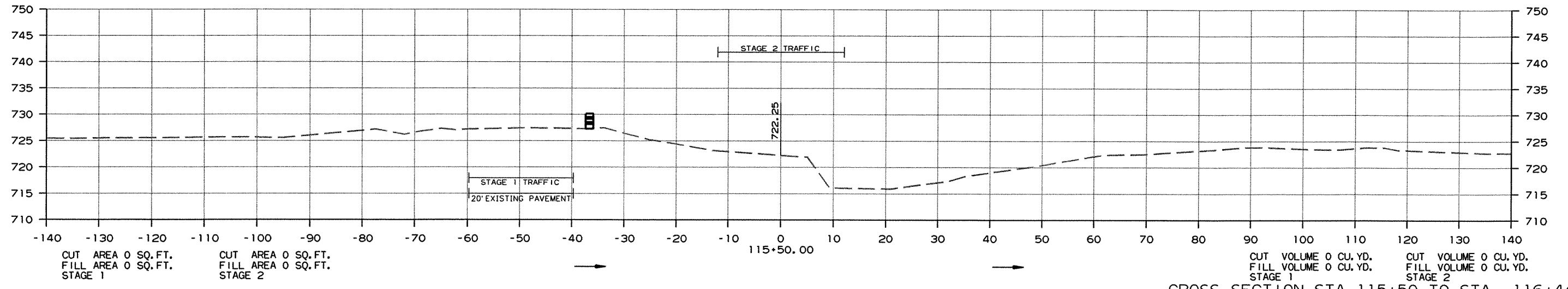
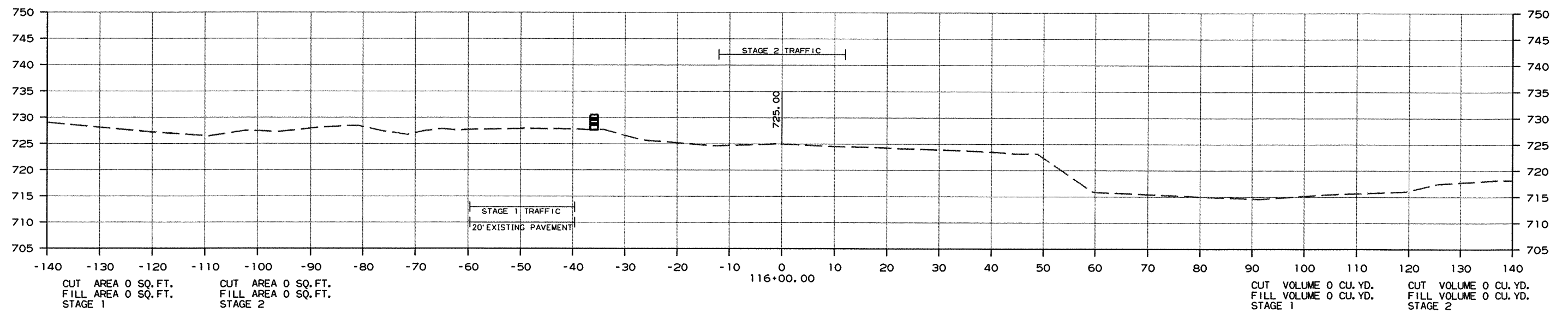
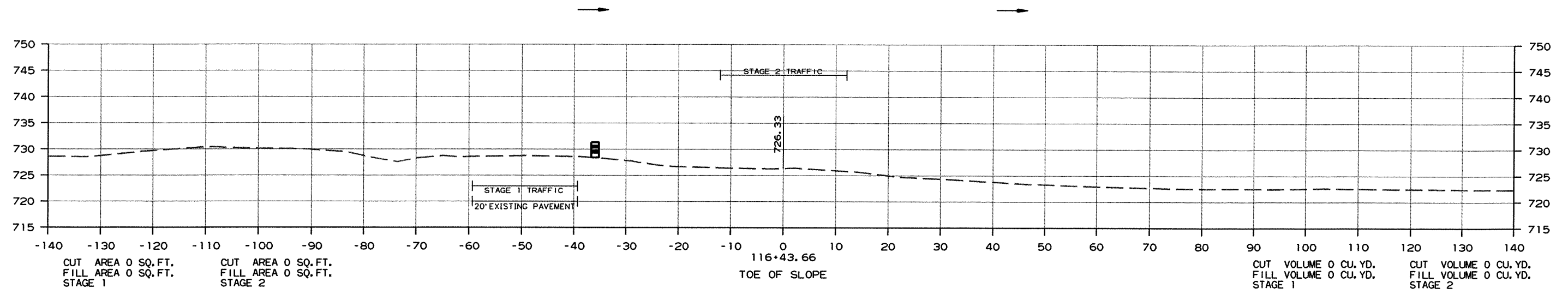


CROSS SECTION STA. 114+00 TO STA. 115+00

R080381.DGN 4/28/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080381		85	98

② CROSS SECTIONS

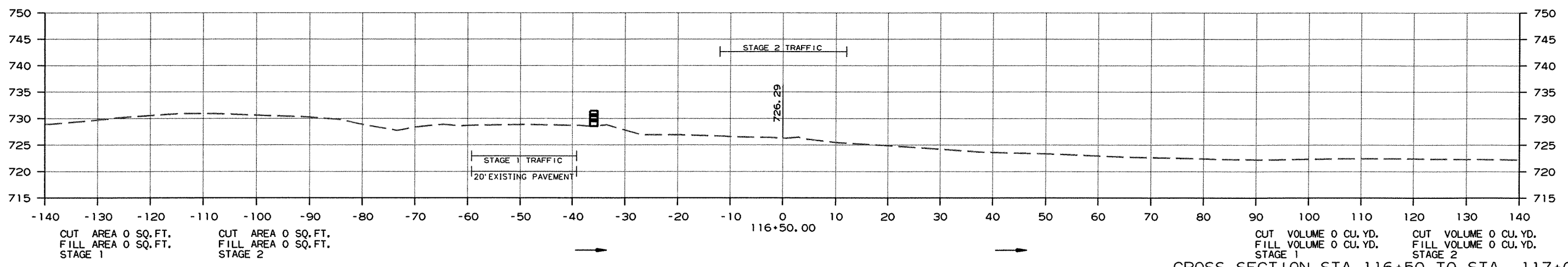
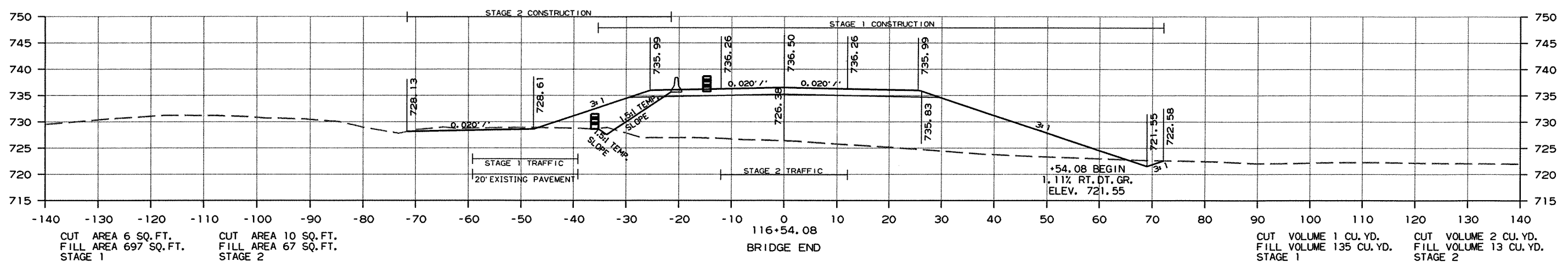
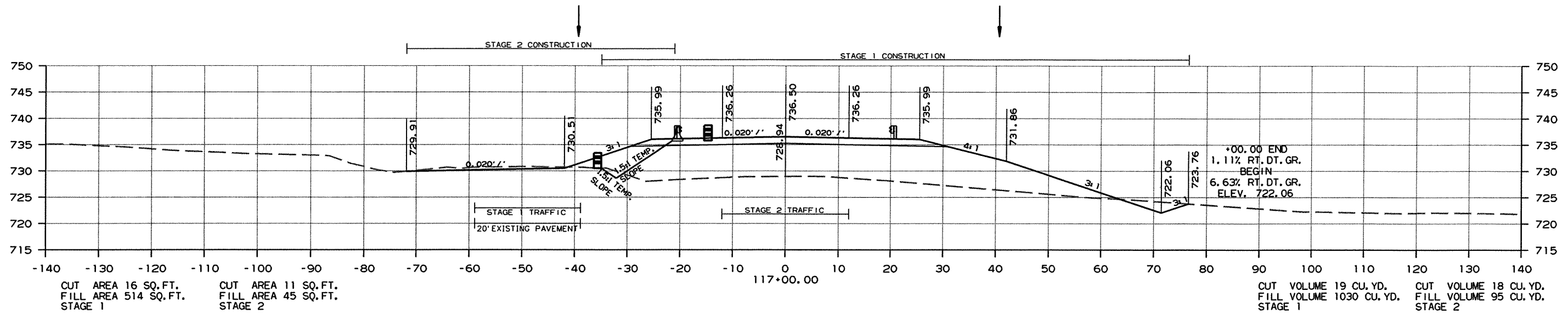


CROSS SECTION STA. 115+50 TO STA. 116+44

R080381.DGN 4/28/2011

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080381		86	98

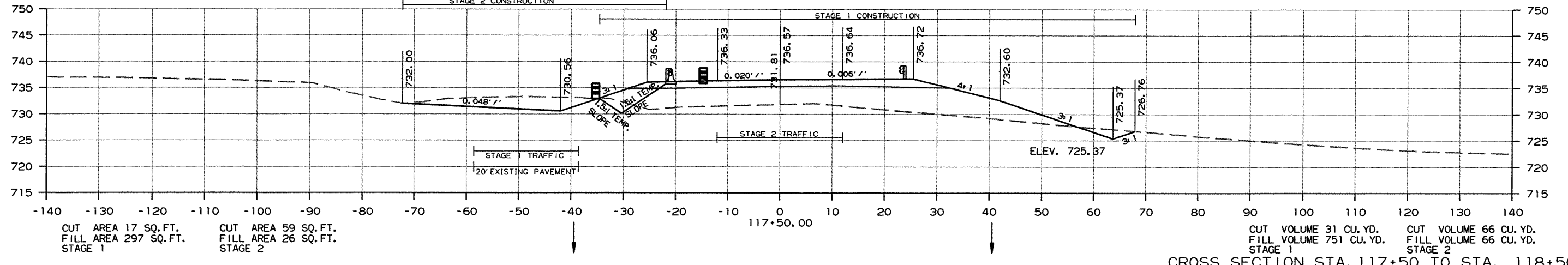
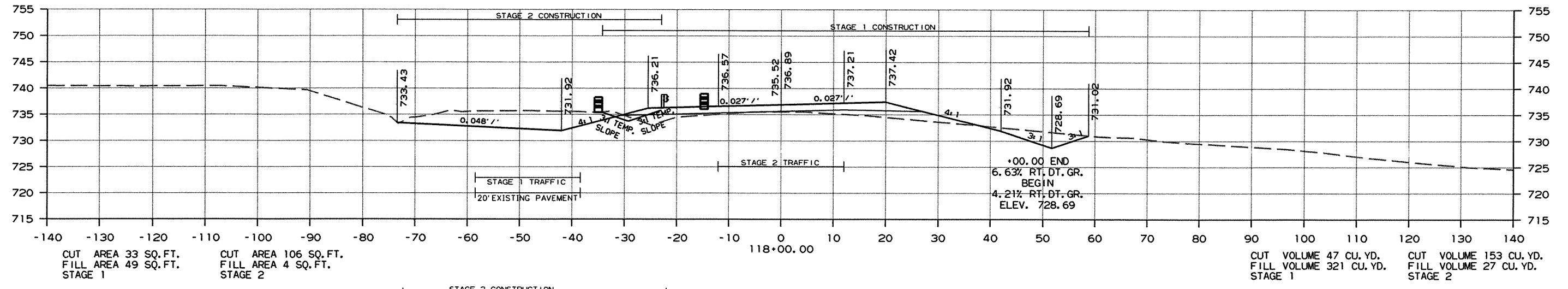
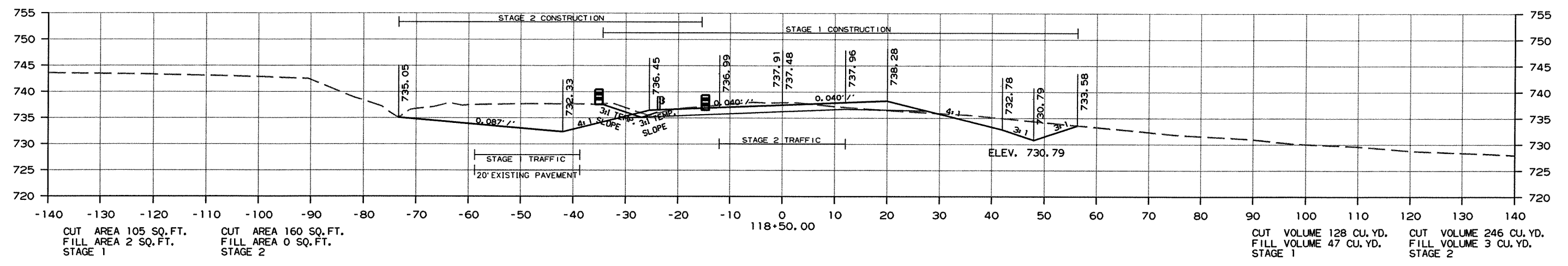
2 CROSS SECTIONS



CROSS SECTION STA. 116+50 TO STA. 117+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							87	98

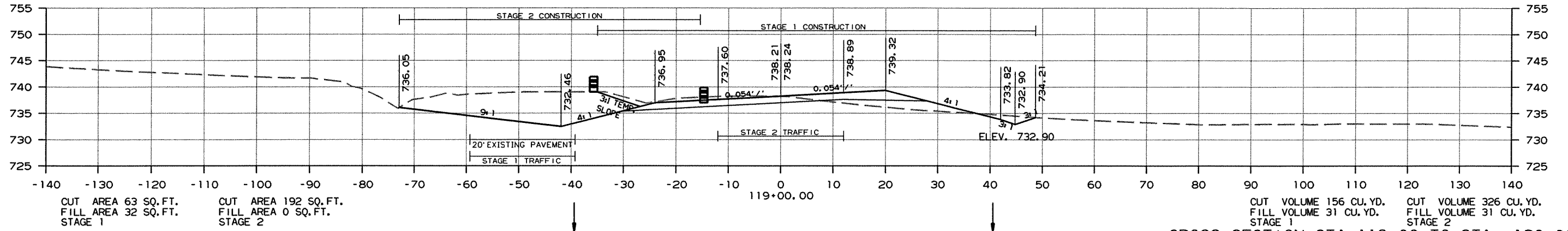
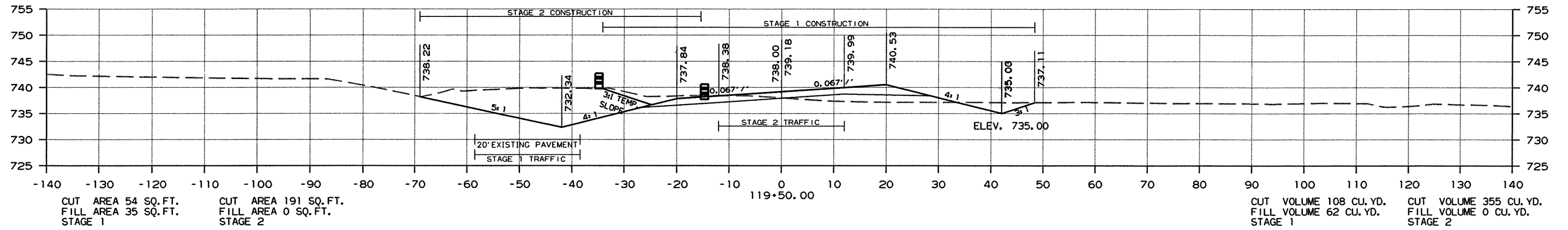
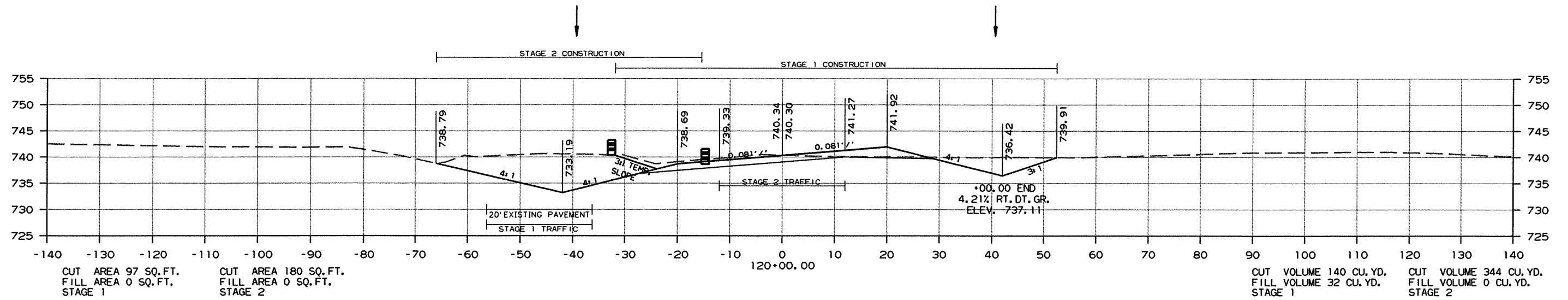
2 CROSS SECTIONS



CROSS SECTION STA. 117+50 TO STA. 118+50

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							88	98

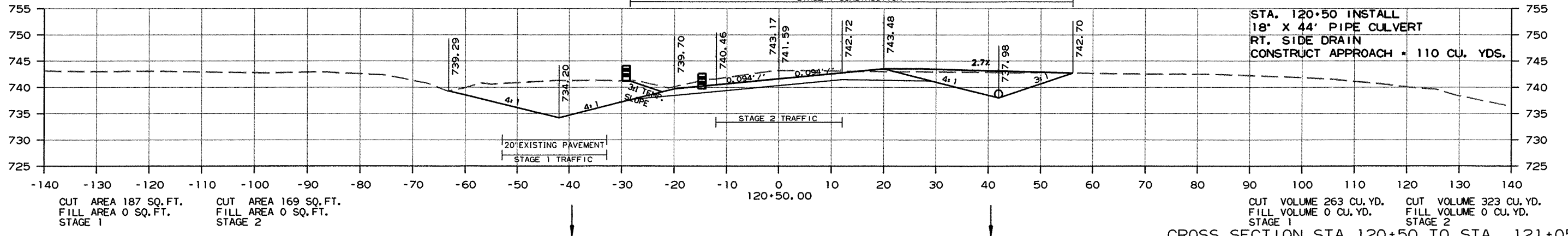
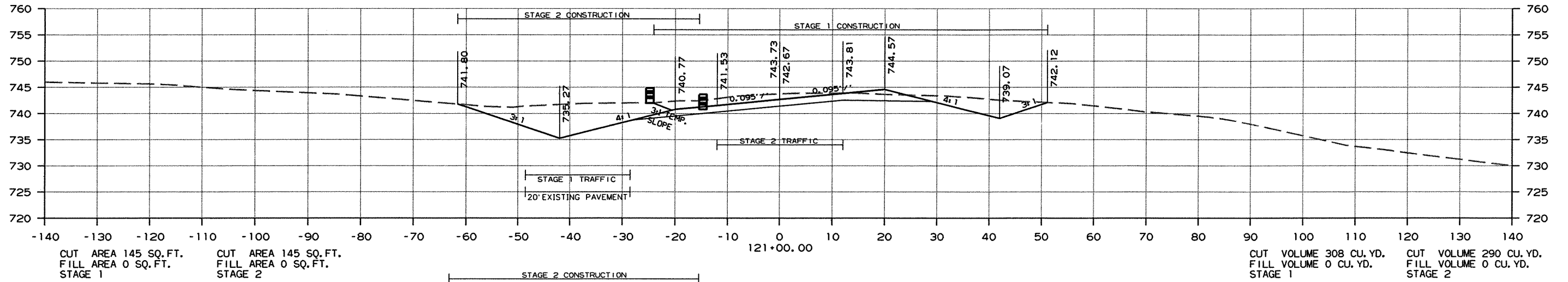
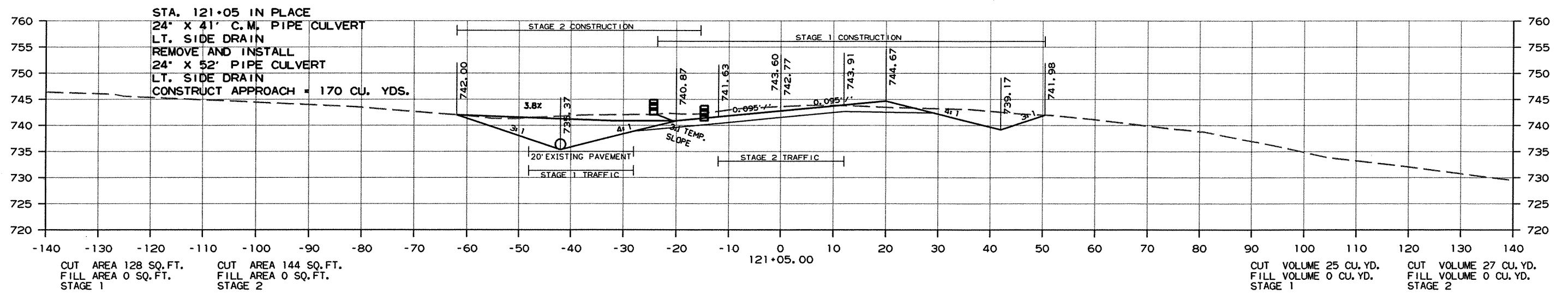
2 CROSS SECTIONS



CROSS SECTION STA. 119+00 TO STA. 120+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381						89	98	

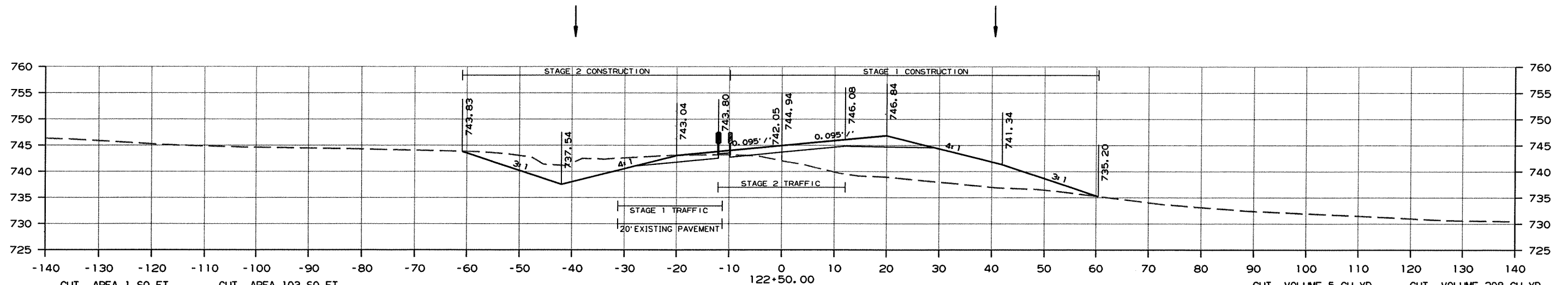
2 CROSS SECTIONS



CROSS SECTION STA. 120+50 TO STA. 121+05

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							90	98

2 CROSS SECTIONS

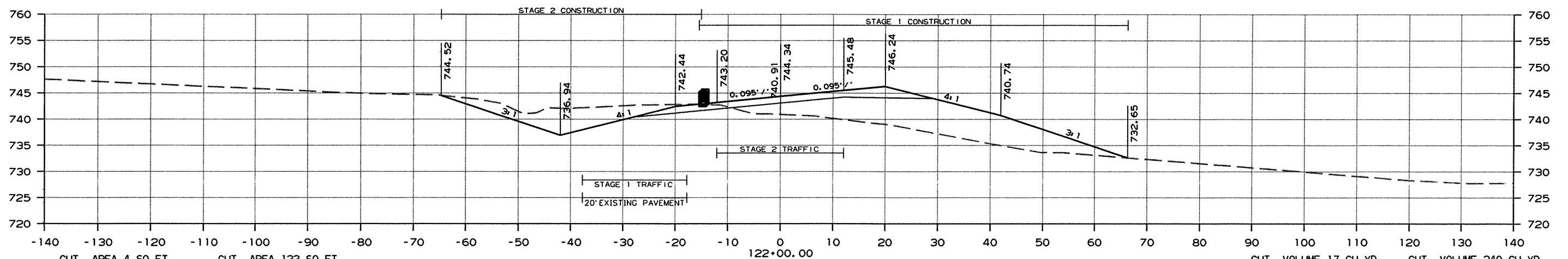


CUT AREA 1 SQ. FT.
FILL AREA 257 SQ. FT.
STAGE 1

CUT AREA 103 SQ. FT.
FILL AREA 0 SQ. FT.
STAGE 2

CUT VOLUME 5 CU. YD.
FILL VOLUME 512 CU. YD.
STAGE 1

CUT VOLUME 208 CU. YD.
FILL VOLUME 0 CU. YD.
STAGE 2

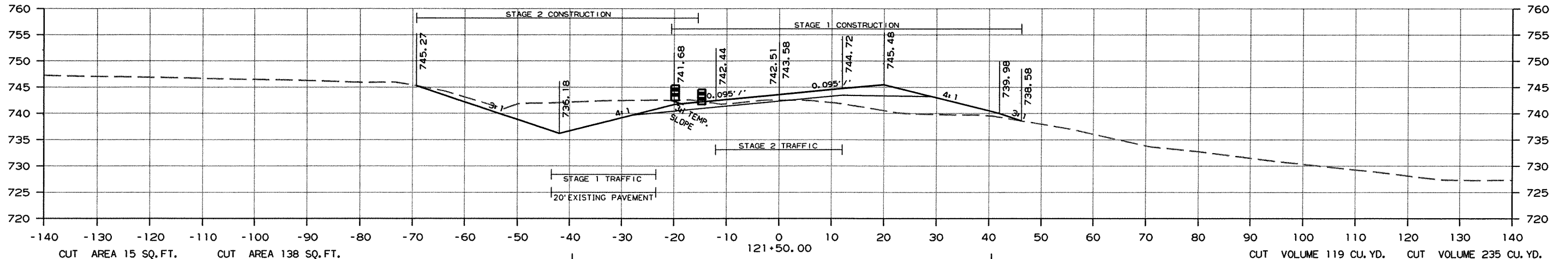


CUT AREA 4 SQ. FT.
FILL AREA 296 SQ. FT.
STAGE 1

CUT AREA 122 SQ. FT.
FILL AREA 0 SQ. FT.
STAGE 2

CUT VOLUME 17 CU. YD.
FILL VOLUME 349 CU. YD.
STAGE 1

CUT VOLUME 240 CU. YD.
FILL VOLUME 0 CU. YD.
STAGE 2



CUT AREA 15 SQ. FT.
FILL AREA 81 SQ. FT.
STAGE 1

CUT AREA 138 SQ. FT.
FILL AREA 0 SQ. FT.
STAGE 2

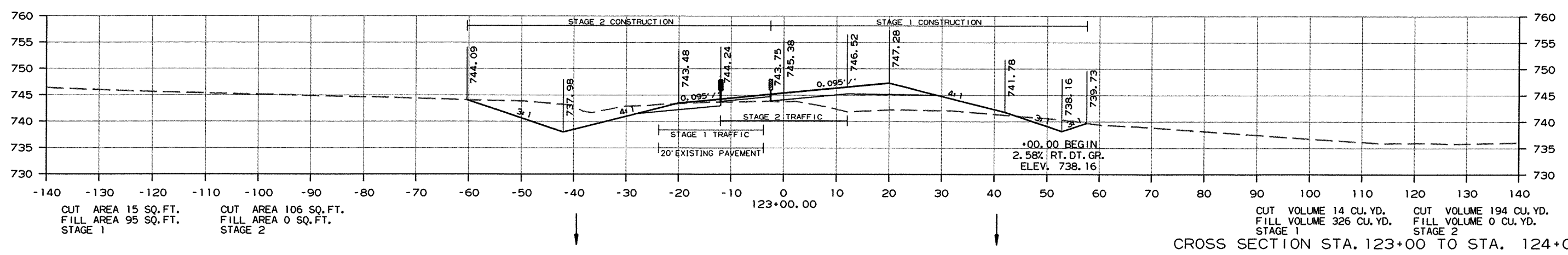
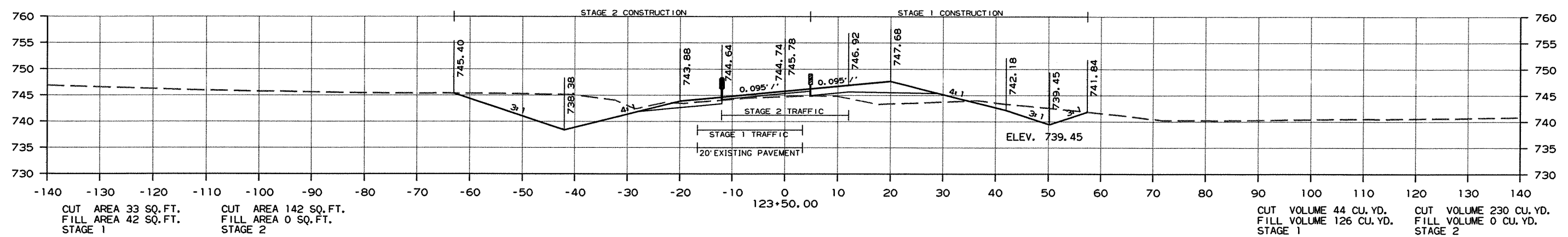
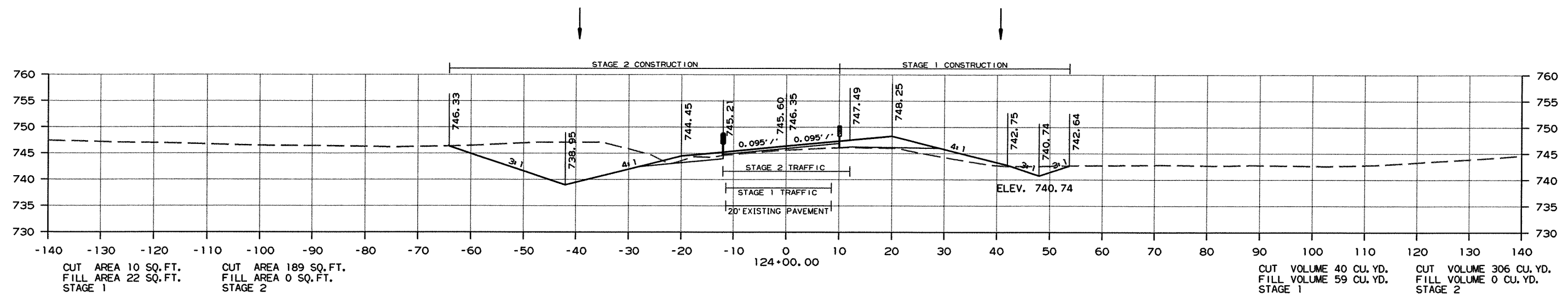
CUT VOLUME 119 CU. YD.
FILL VOLUME 68 CU. YD.
STAGE 1

CUT VOLUME 235 CU. YD.
FILL VOLUME 0 CU. YD.
STAGE 2

CROSS SECTION STA. 121+50 TO STA. 122+50

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080381	91	98

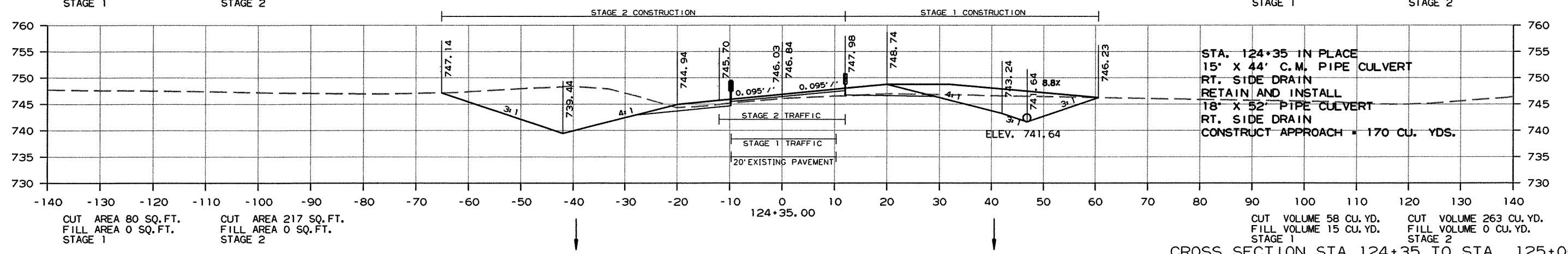
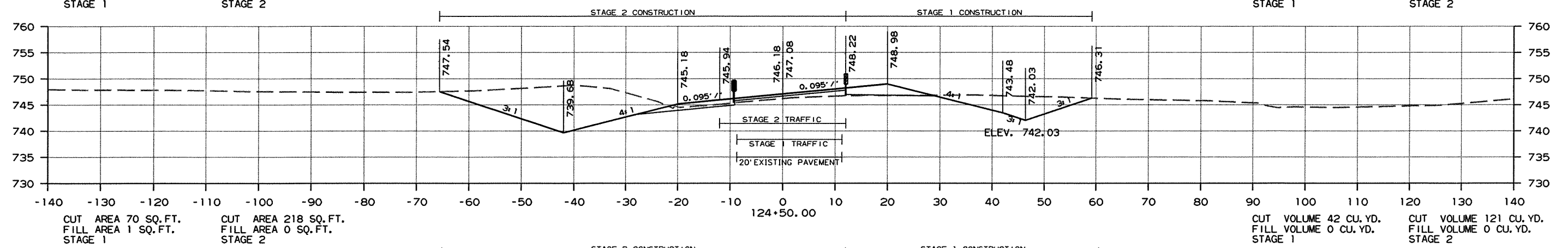
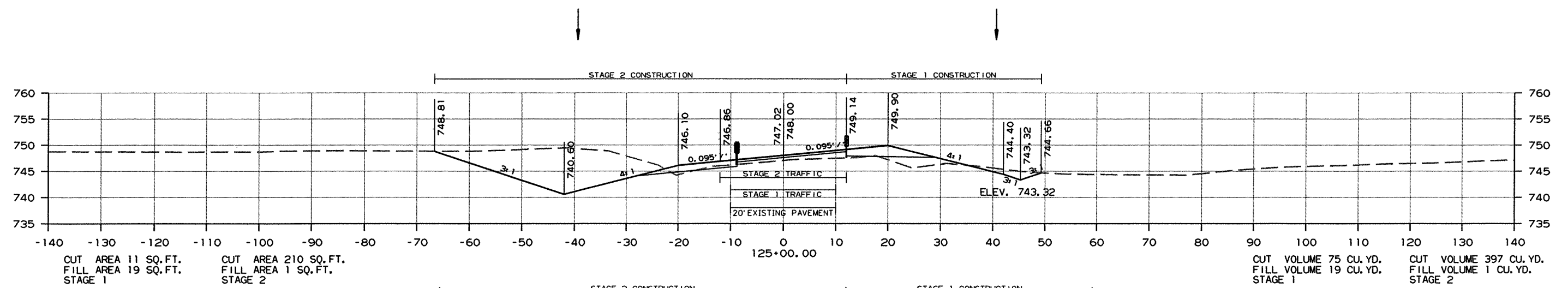
2 CROSS SECTIONS



R080381.DGN 4/28/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							92	98

2 CROSS SECTIONS

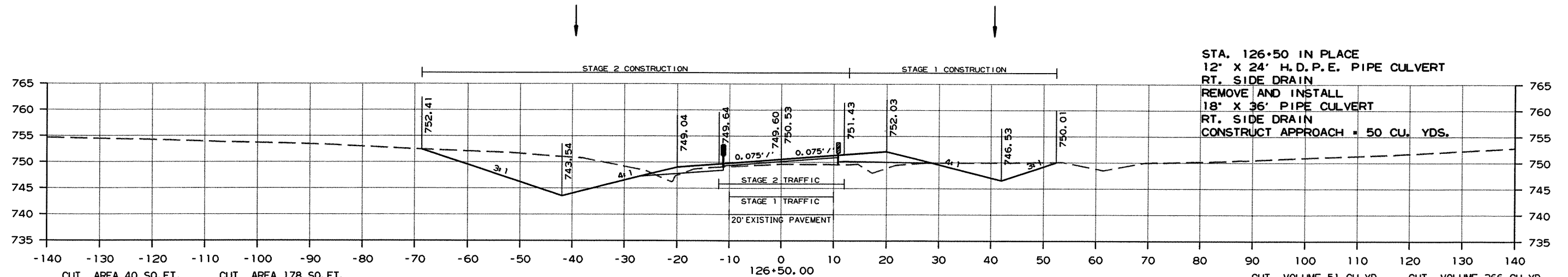


CROSS SECTION STA. 124+35 TO STA. 125+00

R080381.DGN 4/28/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							93	98

2 CROSS SECTIONS

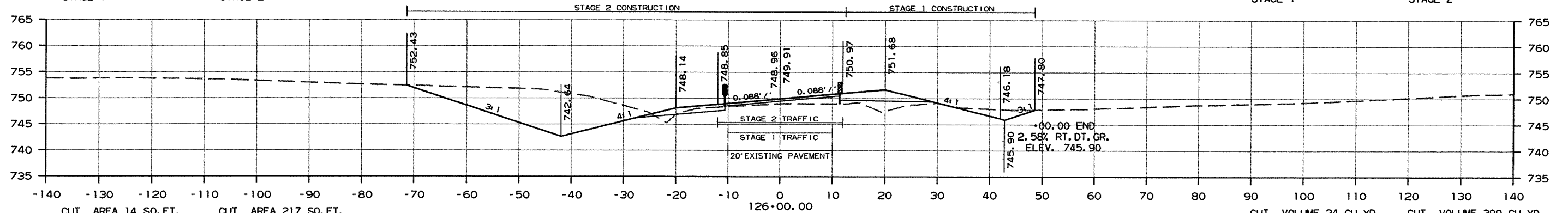


CUT AREA 40 SQ. FT.
FILL AREA 13 SQ. FT.
STAGE 1

CUT AREA 178 SQ. FT.
FILL AREA 3 SQ. FT.
STAGE 2

CUT VOLUME 51 CU. YD.
FILL VOLUME 30 CU. YD.
STAGE 1

CUT VOLUME 366 CU. YD.
FILL VOLUME 6 CU. YD.
STAGE 2

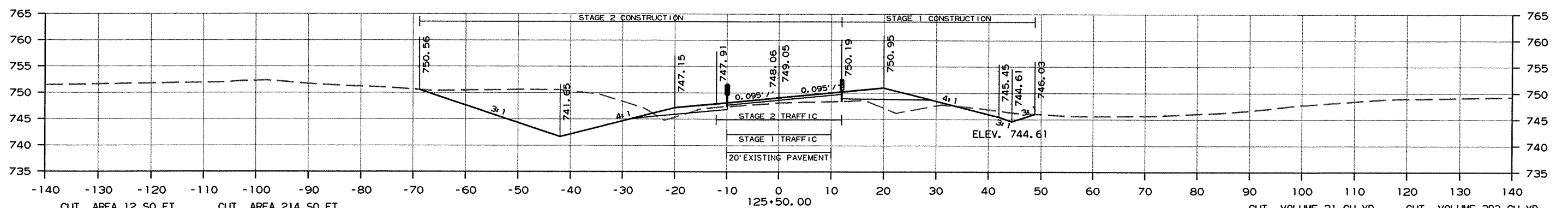


CUT AREA 14 SQ. FT.
FILL AREA 19 SQ. FT.
STAGE 1

CUT AREA 217 SQ. FT.
FILL AREA 3 SQ. FT.
STAGE 2

CUT VOLUME 24 CU. YD.
FILL VOLUME 41 CU. YD.
STAGE 1

CUT VOLUME 399 CU. YD.
FILL VOLUME 5 CU. YD.
STAGE 2



CUT AREA 12 SQ. FT.
FILL AREA 26 SQ. FT.
STAGE 1

CUT AREA 214 SQ. FT.
FILL AREA 3 SQ. FT.
STAGE 2

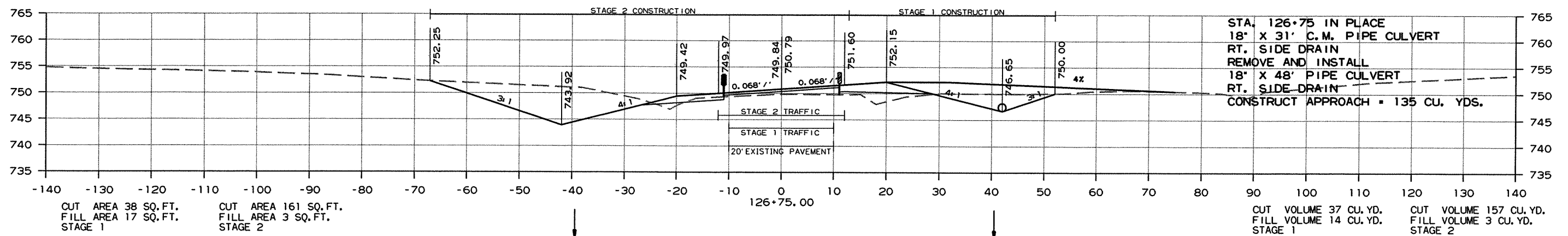
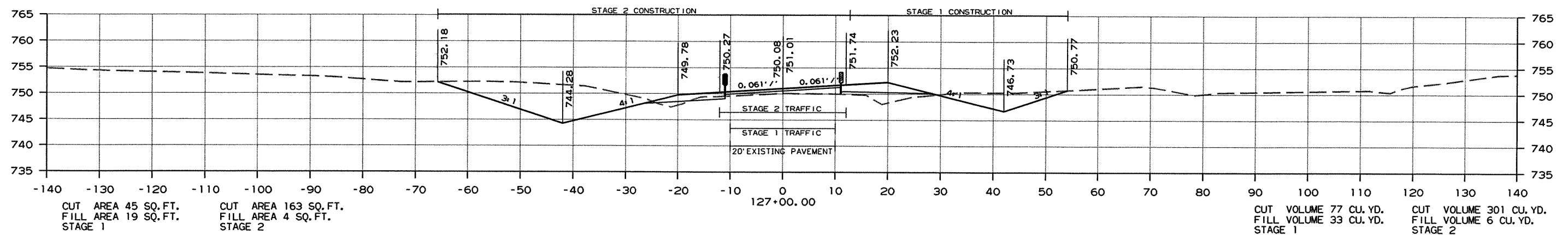
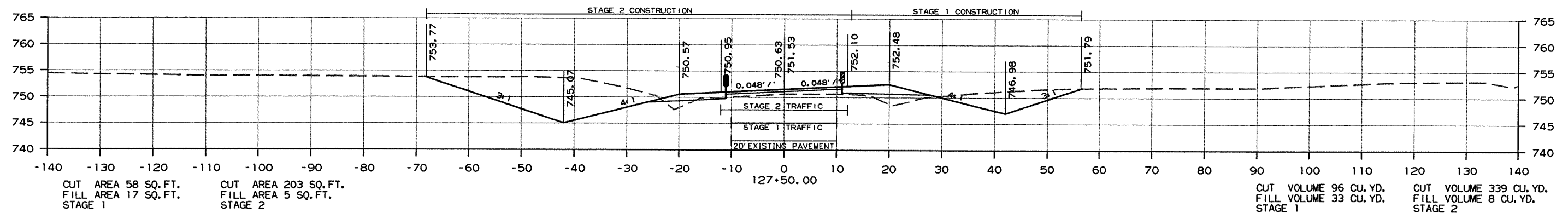
CUT VOLUME 21 CU. YD.
FILL VOLUME 42 CU. YD.
STAGE 1

CUT VOLUME 393 CU. YD.
FILL VOLUME 4 CU. YD.
STAGE 2

CROSS SECTION STA. 125+50 TO STA. 126+50

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080381	94	98

2 CROSS SECTIONS

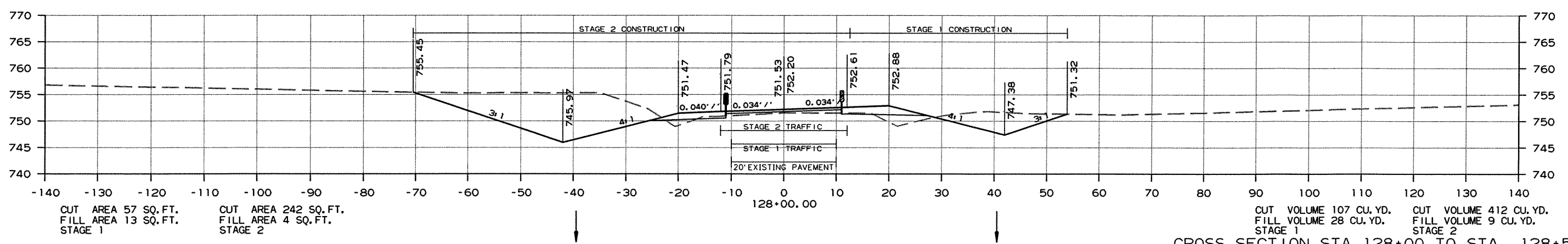
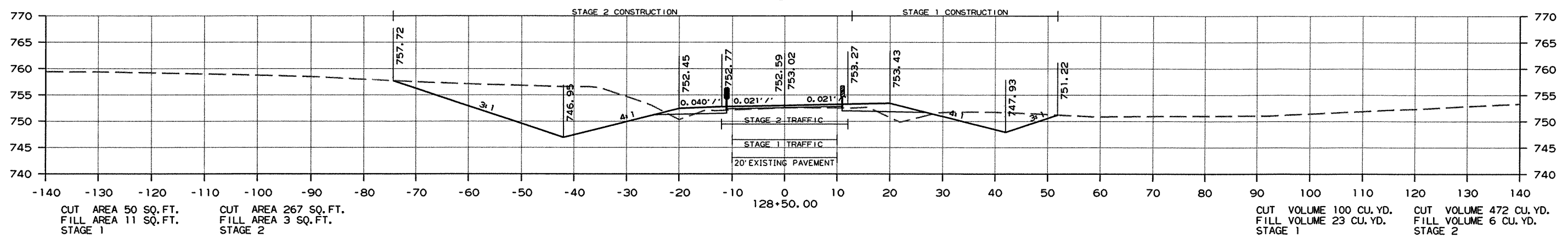
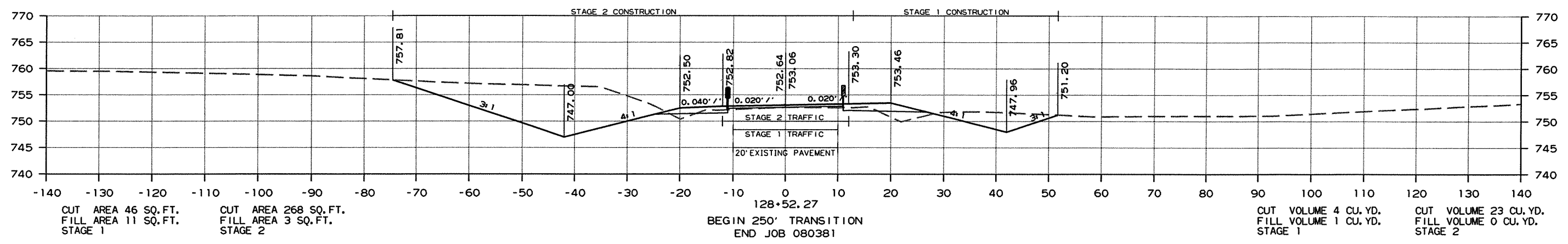


CROSS SECTION STA. 126+75 TO STA. 127+50

R080381.DGN 4/28/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080381							95	98

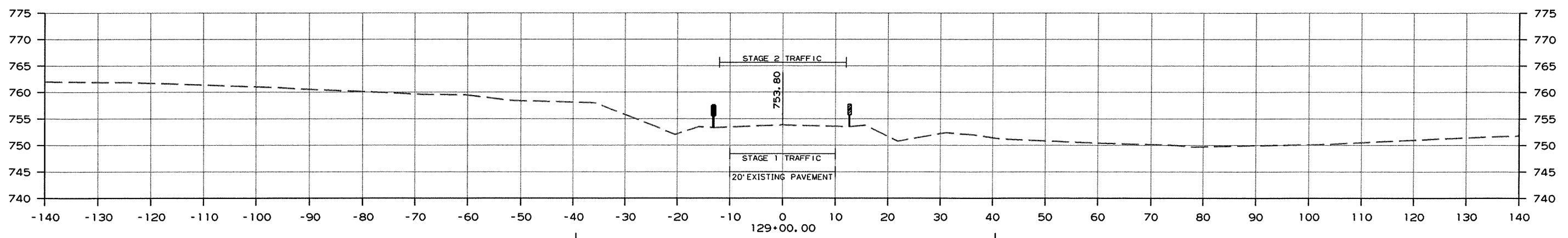
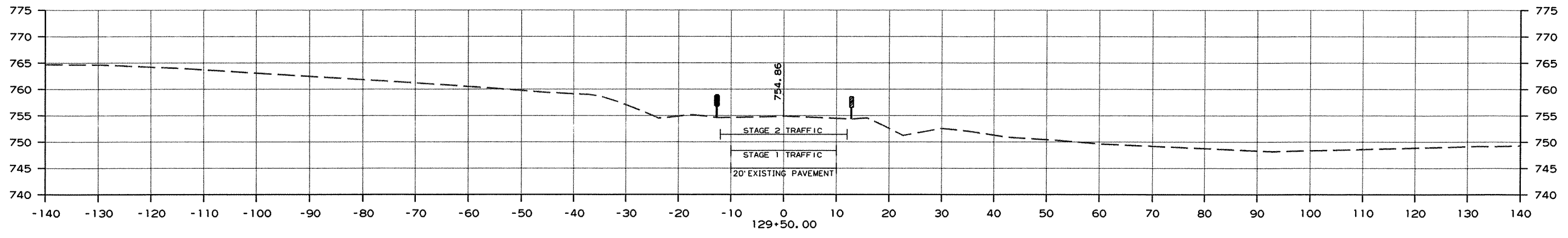
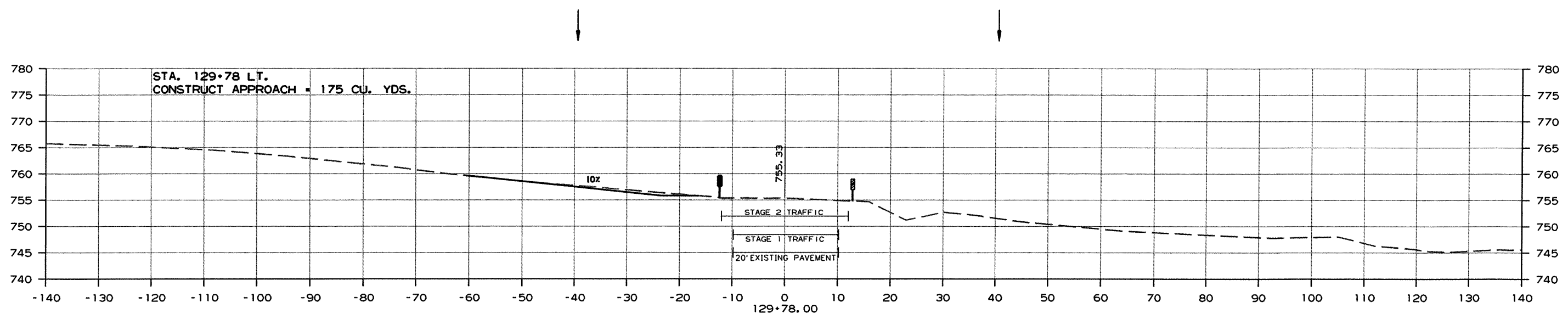
2 CROSS SECTIONS



CROSS SECTION STA. 128+00 TO STA. 128+52

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO.						080381	96	98

② CROSS SECTIONS

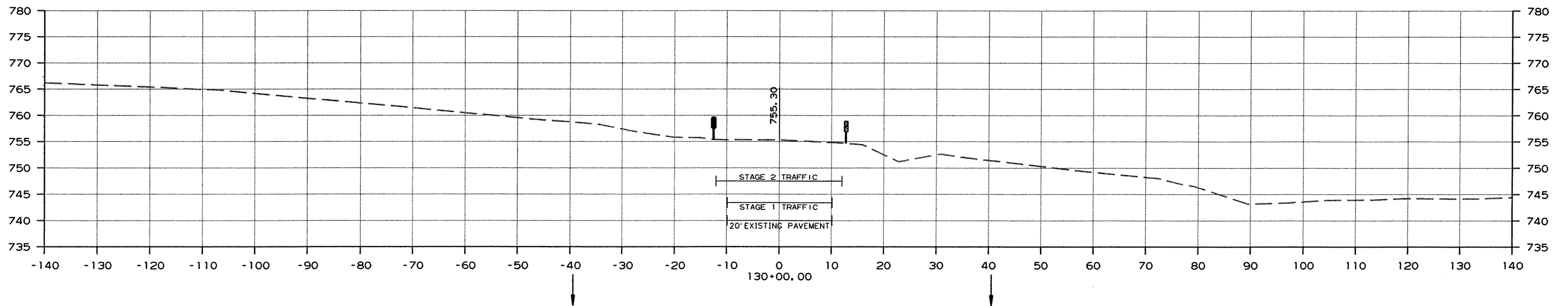
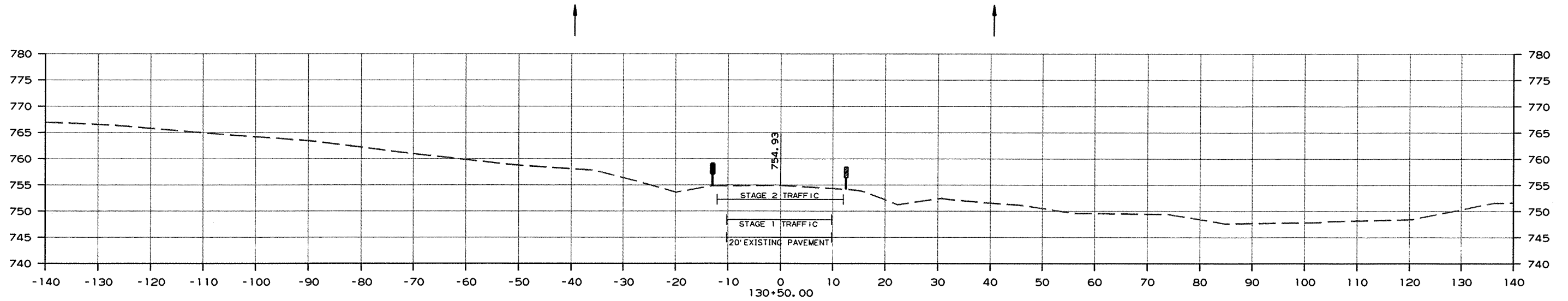


CROSS SECTION STA. 129+00 TO STA. 129+78

R080381.DGN 4/28/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO.						080381	97	98

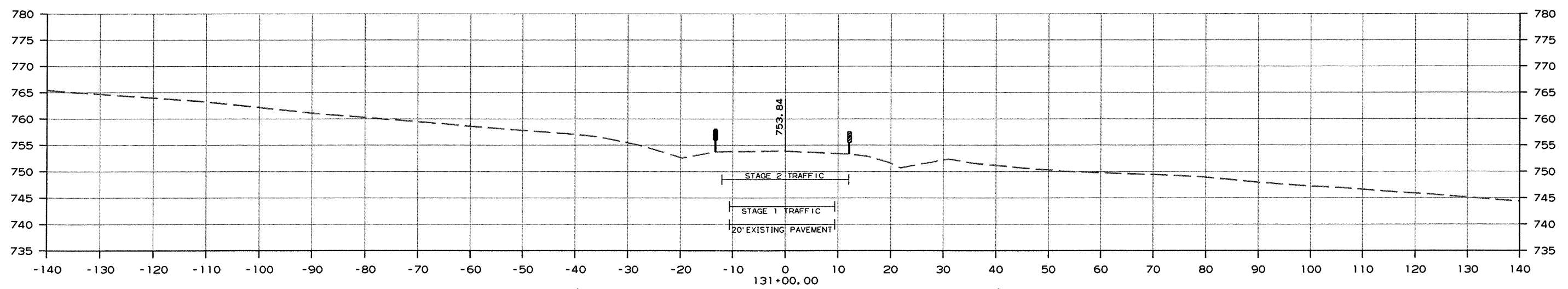
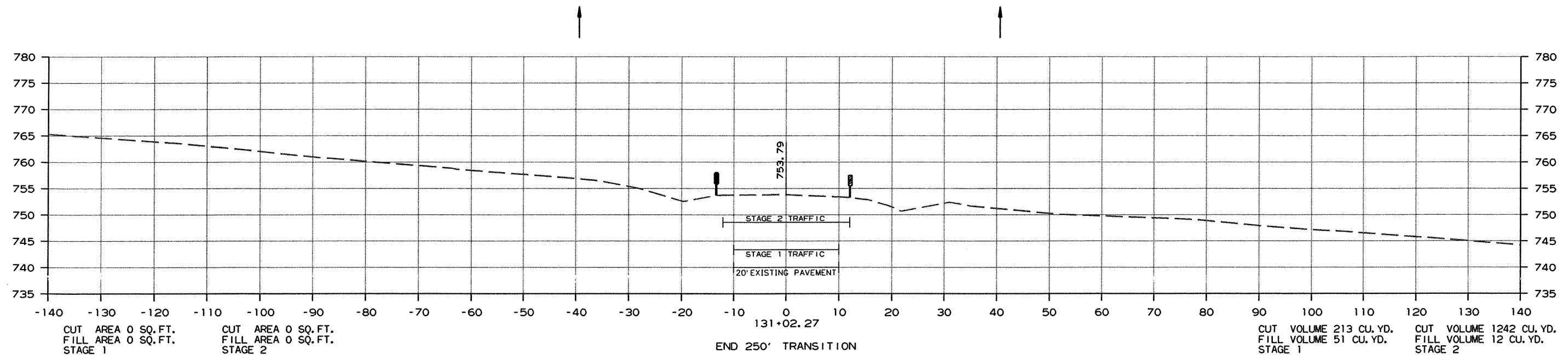
② CROSS SECTIONS



CROSS SECTION STA. 130+00 TO STA. 130+50

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080381		98	98

② CROSS SECTIONS



CROSS SECTION STA. 131+00 TO STA. 131+02