

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6-13-2017				6	ARK.			
						JOB NO. 012287	1	32
② HWY. 367 - CRITTENDEN CO. LINE (S)								

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT  
CONSTRUCTION PLANS FOR STATE HIGHWAY

# HWY. 367 - CRITTENDEN CO. LINE (S)

WHITE, WOODRUFF, AND CROSS COUNTIES

ROUTE 64 SECTIONS 11 - 16

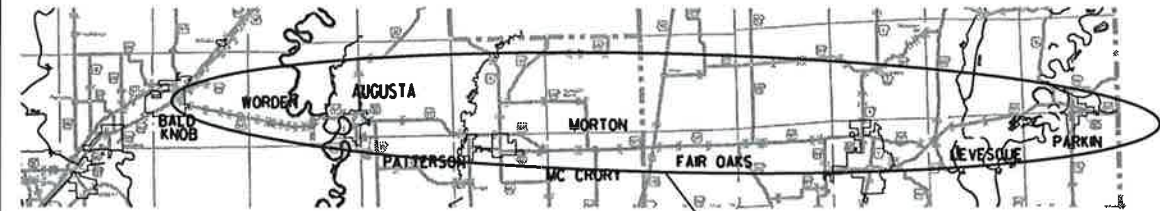
FEDERAL AID PROJ. STPF-PEN-0076(I37)

## JOB 012287



ARK. HWY. DIST. NOS. 1 & 5

DESIGN YEAR.....	2017
2017 ADT.....	7200
2037 ADT.....	9700
2037 DHV.....	1067
DIRECTIONAL DISTRIBUTION.....	0.60
TRUCKS.....	15%
AVG. RUNNING SPEED.....	55 MPH
SECTION 11	
L.M. 0.37 - L.M. 0.79.....	40 MPH
SECTION 12	
L.M. 2.53 - L.M. 3.24.....	40 MPH
SECTION 13	
L.M. 0.00 - L.M. 0.46.....	40 MPH
SECTION 14	
L.M. 1.72 - L.M. 2.07.....	45 MPH
SECTION 15	
L.M. 0.41 - L.M. 0.92.....	45 MPH
L.M. 13.31 - L.M. 14.00.....	45 MPH
SECTION 16	
L.M. 0.00 - L.M. 0.97.....	45 MPH
SECTION 16	
L.M. 14.20 - L.M. 14.52.....	50 MPH

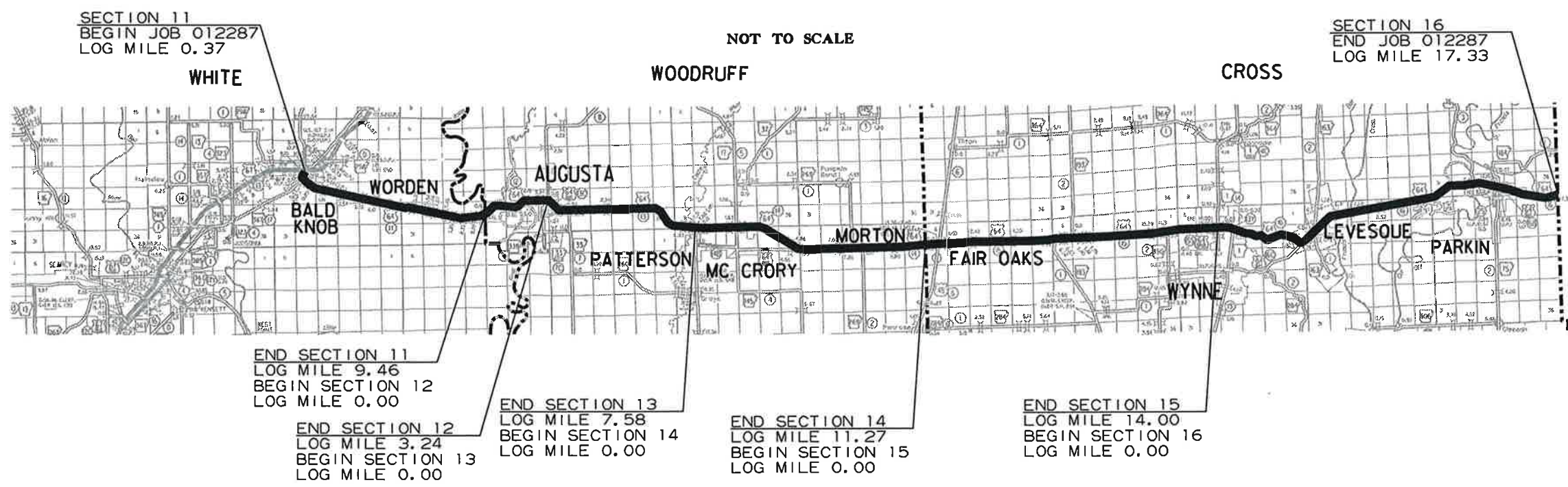


VICINITY MAP

PROJECT AREA

BRIDGE DATA  
SEE PAGE 2

STRUCTURES OVER 20' - 0" SPAN  
SEE PAGE 2



END SECTION 11  
LOG MILE 9.46  
BEGIN SECTION 12  
LOG MILE 0.00

END SECTION 12  
LOG MILE 3.24  
BEGIN SECTION 13  
LOG MILE 0.00

END SECTION 13  
LOG MILE 7.58  
BEGIN SECTION 14  
LOG MILE 0.00

END SECTION 14  
LOG MILE 11.27  
BEGIN SECTION 15  
LOG MILE 0.00

END SECTION 15  
LOG MILE 14.00  
BEGIN SECTION 16  
LOG MILE 0.00

SECTION 16  
END JOB 012287  
LOG MILE 17.33

LENGTH OF PROJECT CALCULATED ALONG C.L.

GROSS LENGTH OF PROJECT	330052.80	FEET	OR	62.510	MILES
NET ROADWAY	323080.80			61.190	MILES
NET BRIDGES	6972.00			1.320	MILES
NET PROJECT	330052.80			62.510	MILES

MID-POINT OF PROJECT	
LATITUDE	N 35°15'07"
LONGITUDE	W 91°02'12"



APPROVED



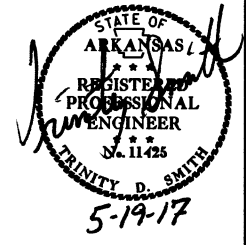
6-14-17  
DEPUTY DIRECTOR  
AND CHIEF ENGINEER

3/22/2017

RO12287.DCN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	012287		2	32

2 BRIDGE DATA



HWY. 64 BRIDGE DATA

COUNTY	BR. NO.	ROUTE	SECTION	LOG MILE	FEATURED INTERSECTION	DESCRIPTION	LENGTH FT.	WIDTH FT.
WOODRUFF	06748	64	12	0.85	WHITE RIVER	CONTINUOUS PRESTRESSED CONCRETE UNITS & CONTINUOUS COMP. PLATE GIRDER UNIT WITH R.C. COLUMN BENTS ON CONCRETE FOUNDATION PILING	3155	63.0
WOODRUFF	06960	64	13	6.93	CACHE RIVER	CONTINUOUS COMP. W-BEAM UNITS WITH CONCRETE TRESTLE PILE BENTS	506	40.0
WOODRUFF	06961	64	13	7.31	CACHE RIVER	CONTINUOUS COMP. W-BEAM UNITS WITH CONCRETE TRESTLE PILE BENTS	857	40.0
CROSS	06665	64	16	7.04	ST. FRANCIS BAYOU	CONTINUOUS COMP. W-BEAM UNITS & CONTINUOUS COMP. PLATE GIRDER UNIT WITH R.C. COLUMN BENTS ON R.C. FILLED STEEL SHELL PILING BENTS	1705	40.0
CROSS	02124	64	16	8.52	MAGGOT SLOUGH	R.C. SLAB SPANS WITH CONCRETE TRESTLE PILE BENTS	175	44.0
CROSS	06902	64	16	14.10	ST. FRANCIS RIVER	CONTINUOUS COMP. PLATE GIRDER UNIT WITH R.C. COLUMN BENTS ON R.C. FILLED STEEL SHELL FOUNDATION PILING & R.C. FILLED STEEL SHELL PILING BENTS	574	40.0

HWY. 64 BRIDGE DATA - FOR INFORMATION ONLY

COUNTY	BR. NO.	ROUTE	SECTION	LOG MILE	FEATURED INTERSECTION	DESCRIPTION	LENGTH FT.	WIDTH FT.
WHITE	A1922	64	11	0.53	GRUBBS RD. & UPRR	R.C. DECK GIRDER SPANS WITH R.C. COLUMN BENTS ON CONCRETE FOUNDATION PILING	230	27.9
WHITE	A1327	64	11	2.33	BIG MINGO CREEK	R.C. DECK GIRDER SPANS WITH CONCRETE TRESTLE PILE BENTS	102	27.9
WHITE	A1328	64	11	3.89	LITTLE MINGO CREEK	R.C. DECK GIRDER SPANS WITH CONCRETE TRESTLE PILE BENTS	102	27.9
WHITE	A1329	64	11	5.89	GLAISE CREEK	R.C. DECK GIRDER SPANS WITH CONCRETE TRESTLE PILE BENTS	272	27.9
WHITE	A1330	64	11	6.54	CUT OFF CREEK	R.C. DECK GIRDER SPANS WITH CONCRETE TRESTLE PILE BENTS	170	27.9
WHITE	A1331	64	11	6.66	WHITE RIVER RELIEF	R.C. DECK GIRDER SPANS WITH CONCRETE TRESTLE PILE BENTS	578	27.9
WHITE	A1332	64	11	7.07	WHITE RIVER RELIEF	R.C. DECK GIRDER SPANS WITH CONCRETE TRESTLE PILE BENTS	340	27.9
WHITE	A1333	64	11	7.46	WHITE RIVER RELIEF	R.C. DECK GIRDER SPANS WITH CONCRETE TRESTLE PILE BENTS	442	27.9
WHITE	A1334	64	11	7.89	WHITE RIVER RELIEF	R.C. DECK GIRDER SPANS WITH CONCRETE TRESTLE PILE BENTS	476	27.9
WHITE	A1335	64	11	8.35	BIG GREEN TOM LAKE	R.C. DECK GIRDER SPANS WITH CONCRETE TRESTLE PILE BENTS	374	27.9
WHITE	A1337	64	11	8.88	WHITE RIVER RELIEF	R.C. DECK GIRDER SPANS WITH CONCRETE TRESTLE PILE BENTS	272	27.9
WHITE	A1338	64	11	9.20	WHITE RIVER RELIEF	R.C. DECK GIRDER SPANS WITH CONCRETE TRESTLE PILE BENTS	272	27.9
WOODRUFF	A1339	64	12	0.16	WHITE RIVER RELIEF	R.C. DECK GIRDER SPANS WITH CONCRETE TRESTLE PILE BENTS	512	27.9
WOODRUFF	A1340	64	12	2.19	GOOSE POND	R.C. DECK GIRDER SPANS WITH CONCRETE TRESTLE PILE BENTS	511	27.9
WOODRUFF	03923	64	13	2.94	MAPLE CREEK	R.C. SLAB SPANS WITH CONCRETE TRESTLE PILE BENTS	90	27.9
WOODRUFF	03819	64	14	7.07	BAYOU DEVIEW RELIEF	R.C. SLAB SPANS WITH CONCRETE TRESTLE PILE BENTS	330	27.9
WOODRUFF	03820	64	14	7.26	BAYOU DEVIEW	R.C. SLAB SPANS WITH CONCRETE TRESTLE PILE BENTS	330	27.9
WOODRUFF	03821	64	14	9.80	DRAINAGE DITCH	R.C. SLAB SPANS WITH CONCRETE TRESTLE PILE BENTS	75	27.9
CROSS	00511	64	15	1.03	DRAINAGE DITCH	R.C. SLAB SPANS WITH CONCRETE TRESTLE PILE BENTS	75	27.9
CROSS	00512	64	15	2.49	DRAINAGE CANAL	R.C. SLAB SPANS WITH CONCRETE TRESTLE PILE BENTS	75	27.9
CROSS	00513	64	15	4.20	DRAINAGE CANAL	R.C. SLAB SPANS WITH CONCRETE TRESTLE PILE BENTS	75	27.9
CROSS	00515	64	15	6.52	BRUSHY CREEK	R.C. SLAB SPANS WITH CONCRETE TRESTLE PILE BENTS	240	27.9
CROSS	00516	64	15	6.65	BRUSHY CREEK RELIEF	R.C. SLAB SPANS WITH CONCRETE TRESTLE PILE BENTS	150	27.9
CROSS	00517	64	15	7.40	L'ANGUILLE RELIEF	R.C. SLAB SPANS WITH CONCRETE TRESTLE PILE BENTS	150	27.9
CROSS	00518	64	15	7.61	L'ANGUILLE RELIEF	R.C. SLAB SPANS WITH CONCRETE TRESTLE PILE BENTS	180	27.9
CROSS	00519	64	15	7.76	L'ANGUILLE RIVER	R.C. SLAB SPANS & COMP. I-BEAM SPAN WITH CONCRETE TRESTLE PILE BENTS	175	27.9
CROSS	00520	64	15	10.79	GREGORY DITCH	R.C. SLAB SPANS WITH CONCRETE TRESTLE PILE BENTS	75	27.9
CROSS	00521	64	15	11.31	CANEY CREEK	R.C. SLAB SPANS WITH CONCRETE TRESTLE PILE BENTS	90	27.9

HWY. 64 STRUCTURES OVER 20'-0" DATA - FOR INFORMATION ONLY

COUNTY	BR. NO.	ROUTE	SECTION	LOG MILE	FEATURED INTERSECTION	DESCRIPTION	LENGTH FT.
WHITE	M2186	64	11	0.10	DITCH	R.C. BOX CULVERT	60
WHITE	M1164	64	11	0.89	DITCH	R.C. BOX CULVERT	21
WHITE	M1165	64	11	1.61	DITCH	R.C. BOX CULVERT	26
WHITE	M1166	64	11	3.56	DITCH	R.C. BOX CULVERT	21
WOODRUFF	X0020	64	13	0.92	CANEY CREEK	R.C. BOX CULVERT	27
WOODRUFF	X0021	64	14	1.63	CREEK	R.C. BOX CULVERT	22
WOODRUFF	X0022	64	14	4.86	CREEK	R.C. BOX CULVERT	27
CROSS	X1274	64	15	13.92	DRAINAGE CANAL	R.C. BOX CULVERT	55
CROSS	M1175	64	16	3.82	COPPERAS CREEK	R.C. BOX CULVERT	30
CROSS	M1176	64	16	4.89	DITCH	R.C. BOX CULVERT	22
CROSS	M1177	64	16	6.41	DITCH	R.C. BOX CULVERT	22

5/11/2017

R012287.DGN

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						JOB NO. 012287	3	32

2 INDEX OF SHEETS, GOV. SPECS., AND GEN. NOTES



**INDEX OF SHEETS**

SHEET NO.	TITLE	BRIDGE NO.	DRWG. NO.
1	TITLE SHEET		
2	BRIDGE DATA		
3	INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES		
4 - 14	TYPICAL SECTIONS OF IMPROVEMENT		
15 - 17A	SPECIAL DETAILS		
18 - 21	QUANTITIES		
22	SUMMARY OF QUANTITIES AND REVISIONS		
23	LAYOUT OF BRIDGE OVER WHITE RIVER (SHEET 1 OF 4) (FOR INFORMATION ONLY)	06748	39325
24	LAYOUT OF BRIDGE OVER WHITE RIVER (SHEET 2 OF 4) (FOR INFORMATION ONLY)	06748	39326
25	LAYOUT OF BRIDGE OVER WHITE RIVER (SHEET 3 OF 4) (FOR INFORMATION ONLY)	06748	39327
26	LAYOUT OF BRIDGE OVER CACHE RIVER RELIEF (FOR INFORMATION ONLY)	06960	45688
27	LAYOUT OF BRIDGE OVER CACHE RIVER (FOR INFORMATION ONLY)	06961	45701
28	LAYOUT OF BRIDGE OVER ST. FRANCIS BAYOU (SHEET 1 OF 3) (FOR INFORMATION ONLY)	06665	37533
29	LAYOUT OF BRIDGE OVER ST. FRANCIS BAYOU (SHEET 2 OF 3) (FOR INFORMATION ONLY)	06665	37534
30	LAYOUT OF BRIDGE OVER MAGGOT SLOUGH (FOR INFORMATION ONLY)	2124W	28033
31	LAYOUT OF BRIDGE OVER ST. FRANCIS RIVER (SHEET 1 OF 3) (FOR INFORMATION ONLY)	06902	43378
32	TYPE SPECIAL APPROACH GUTTERS	SEE TABLE	59495

**GOVERNING SPECIFICATIONS**

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

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - TRAINING PROGRAM - JOB 012287
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-3	CONTRACTOR'S LICENSE
102-2	ISSUANCE OF PROPOSALS
108-1	LIQUIDATED DAMAGES
108-2	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
303-1	AGGREGATE BASE COURSE
400-1	TACK COATS
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
JOB 012287	BIDDING REQUIREMENTS AND CONDITIONS
JOB 012287	BRIDGE DECK REPAIR FOR POLYMER OVERLAYS
JOB 012287	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 012287	CARGO PREFERENCE ACT REQUIREMENTS
JOB 012287	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 012287	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 012287	INSURANCE, CONSTRUCTION, AND FLAGGING REQUIREMENTS ON RAILROAD PROPERTY (UPRR)
JOB 012287	MANDATORY ELECTRONIC CONTRACT
JOB 012287	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 012287	OFF-SITE RESTRAINING CONDITIONS FOR NORTHERN LONG-EARED BATS
JOB 012287	PARTNERING REQUIREMENTS
JOB 012287	PLASTIC PIPE
JOB 012287	POLYMER OVERLAY
JOB 012287	RUMBLE STRIPS
JOB 012287	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 012287	UTILITY ADJUSTMENTS
JOB 012287	VALUE ENGINEERING
JOB 012287	WARM MIX ASPHALT

**BRIDGE STANDARD DRAWINGS**

DRWG. NO.	TITLE	DATE
55035	STANDARD DETAILS FOR TYPE 'PT' APPROACH GUTTERS (BRIDGES WITH CONCRETE PARAPET RAILING)	9-02-15

**ROADWAY STANDARD DRAWINGS**

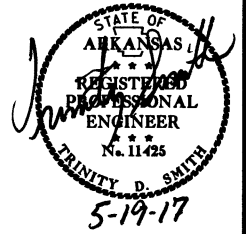
DRWG. NO.	TITLE	DATE
GR-8	GUARD RAIL DETAILS	7-14-10
GR-8A	GUARD RAIL DETAILS	7-14-10
GR-9	GUARD RAIL DETAILS	4-17-08
GR-9A	GUARD RAIL DETAILS	4-17-08
GR-10	GUARD RAIL DETAILS	7-14-10
GR-10A	GUARD RAIL DETAILS	7-14-10
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	2-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	2-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	2-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	2-27-14
PM-1	PAVEMENT MARKING DETAILS	6-01-17
RRS-1	PAVEMENT MARKING FOR RAILROAD CROSSING	12-08-16
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	4-13-17
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	9-02-15
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	9-02-15

**GENERAL NOTES**

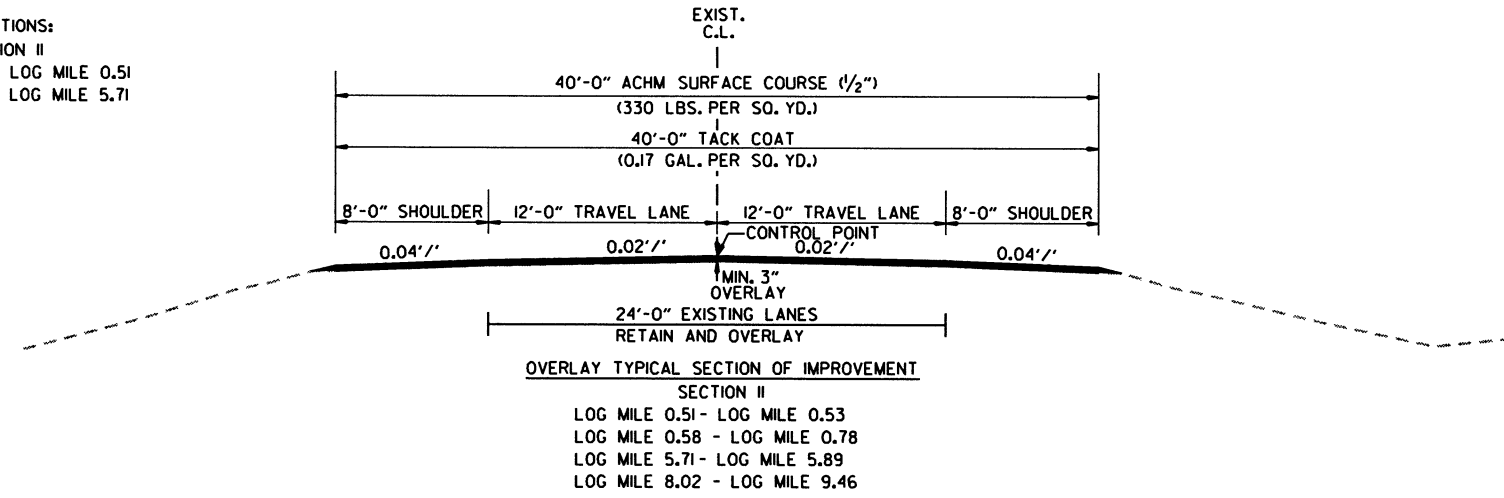
- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
- 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.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY NECESSARY SWEEPING OR CLEANING OF THE EXISTING ASPHALT PAVEMENT PRIOR TO PLACEMENT OF ACHM. THIS WORK WILL BE CONSIDERED INCLUDED IN THE CONTRACT UNIT PRICES BID FOR OTHER ITEMS OF THE CONTRACT.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING RAISED PAVEMENT MARKERS AND PLOWABLE PAVEMENT MARKERS PRIOR TO THE PLACEMENT OF ACHM. THIS WORK WILL BE CONSIDERED INCLUDED IN THE CONTRACT UNIT PRICES BID FOR OTHER ITEMS OF THE CONTRACT.

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② TYPICAL SECTIONS OF IMPROVEMENT

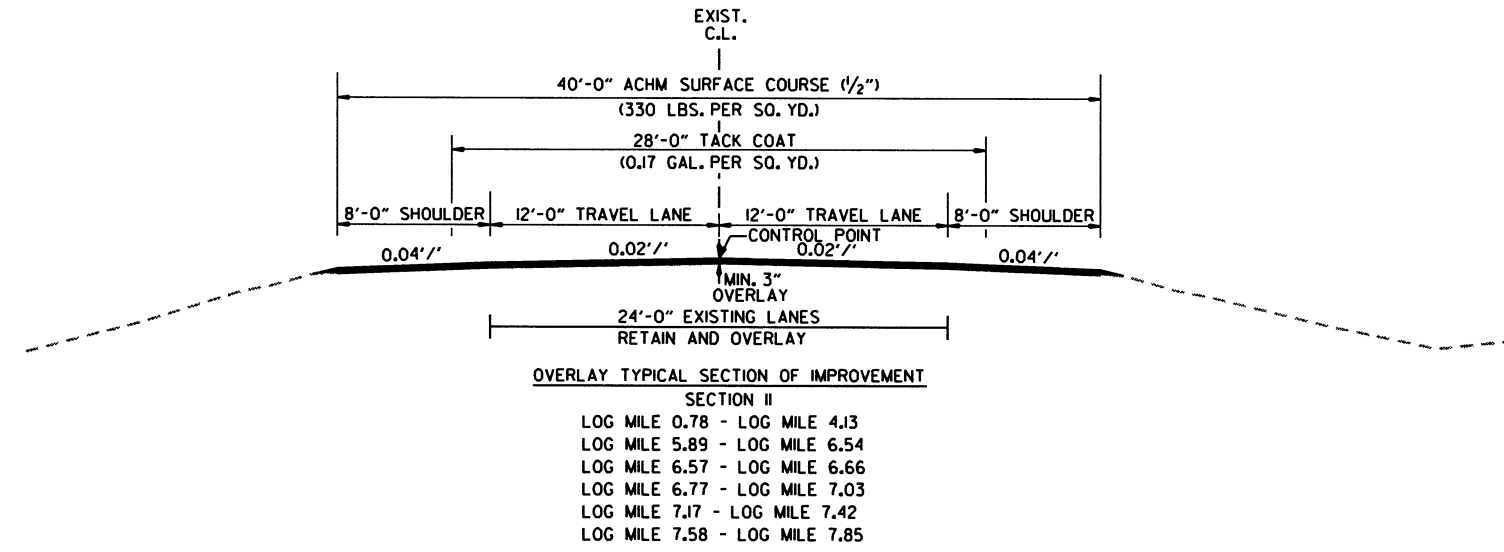


TRANSITIONS:  
SECTION II  
LOG MILE 0.37 - LOG MILE 0.51  
LOG MILE 5.54 - LOG MILE 5.71



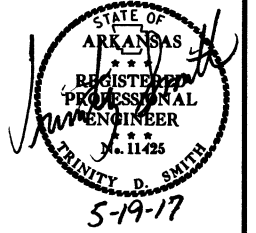
NOTES:  
LONGITUDINAL JOINTS ARE TO BE PLACED PER TYPICAL SECTION IN ACCORDANCE WITH SECTION 410.07 UNLESS OTHERWISE APPROVED BY THE ENGINEER.

SUBGRADE/BASE MATERIAL AT GUARDRAIL WIDENING LOCATIONS SHALL BE SHAPED UP PRIOR TO OVERLAYING AS DIRECTED BY THE ENGINEER.

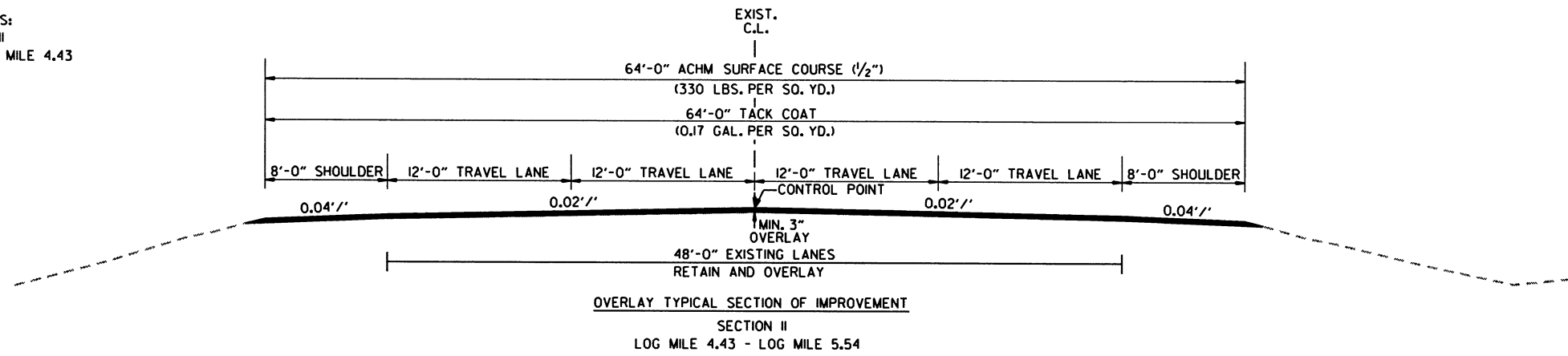


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② TYPICAL SECTIONS OF IMPROVEMENT

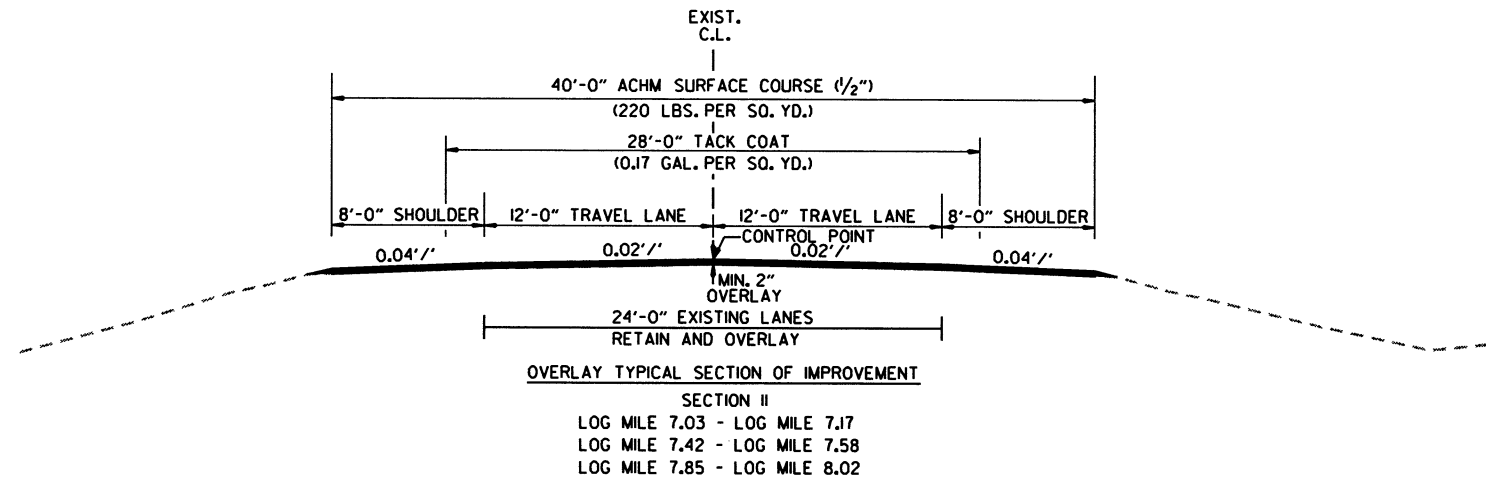


TRANSITIONS:  
SECTION II  
LOG MILE 4.13 - LOG MILE 4.43



NOTES:  
LONGITUDINAL JOINTS ARE TO BE PLACED PER TYPICAL SECTION IN ACCORDANCE WITH SECTION 410.07 UNLESS OTHERWISE APPROVED BY THE ENGINEER.

SUBGRADE/BASE MATERIAL AT GUARDRAIL WIDENING LOCATIONS SHALL BE SHAPED UP PRIOR TO OVERLAYING AS DIRECTED BY THE ENGINEER.

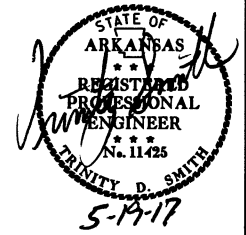


5/15/2017

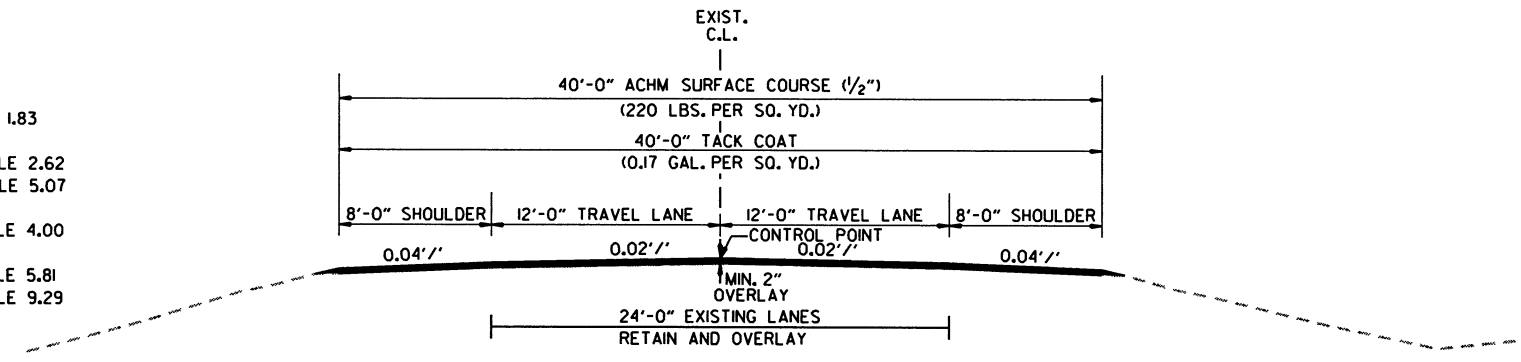
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2 TYPICAL SECTIONS OF IMPROVEMENT



TRANSITIONS:  
SECTION 12  
LOG MILE 1.61 - LOG MILE 1.83  
SECTION 13  
LOG MILE 2.50 - LOG MILE 2.62  
LOG MILE 5.00 - LOG MILE 5.07  
SECTION 14  
LOG MILE 3.75 - LOG MILE 4.00  
SECTION 15  
LOG MILE 5.73 - LOG MILE 5.81  
LOG MILE 9.02 - LOG MILE 9.29



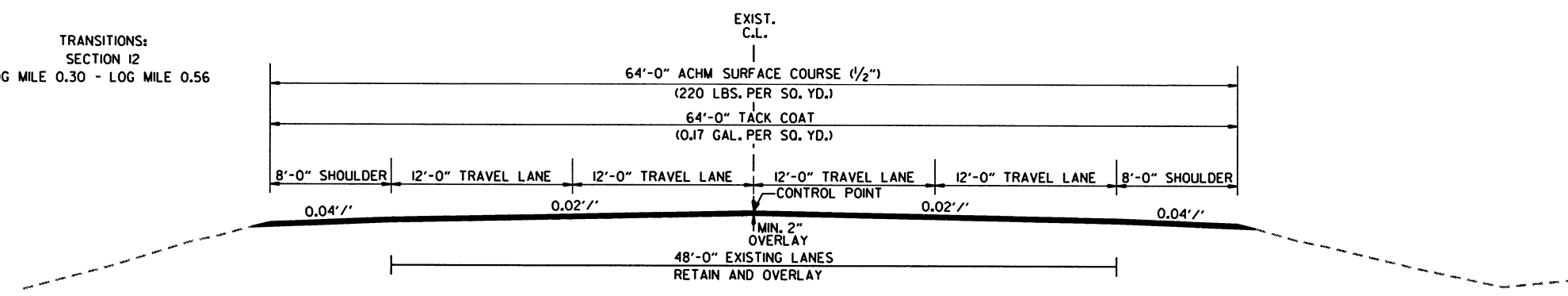
OVERLAY TYPICAL SECTION OF IMPROVEMENT

SECTION 12  
LOG MILE 0.00 - LOG MILE 0.30  
LOG MILE 1.83 - LOG MILE 2.42  
SECTION 13  
LOG MILE 2.62 - LOG MILE 3.67  
LOG MILE 5.07 - LOG MILE 6.93  
LOG MILE 7.03 - LOG MILE 7.31  
LOG MILE 7.49 - LOG MILE 7.58  
SECTION 14  
LOG MILE 0.00 - LOG MILE 0.26  
LOG MILE 4.00 - LOG MILE 7.33  
SECTION 15  
LOG MILE 0.64 - LOG MILE 2.52  
LOG MILE 5.81 - LOG MILE 8.08  
LOG MILE 9.29 - LOG MILE 12.21  
SECTION 16  
LOG MILE 7.35 - LOG MILE 7.64  
LOG MILE 13.83 - LOG MILE 14.10  
LOG MILE 14.20 - LOG MILE 14.27

NOTES:  
LONGITUDINAL JOINTS ARE TO BE PLACED PER TYPICAL SECTION IN ACCORDANCE WITH SECTION 410.07 UNLESS OTHERWISE APPROVED BY THE ENGINEER.

SUBGRADE/BASE MATERIAL AT GUARDRAIL WIDENING LOCATIONS SHALL BE SHAPED UP PRIOR TO OVERLAYING AS DIRECTED BY THE ENGINEER.

TRANSITIONS:  
SECTION 12  
LOG MILE 0.30 - LOG MILE 0.56



OVERLAY TYPICAL SECTION OF IMPROVEMENT

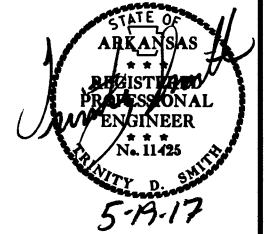
SECTION 12  
LOG MILE 0.56 - LOG MILE 0.84  
LOG MILE 1.44 - LOG MILE 1.61

5/15/2017

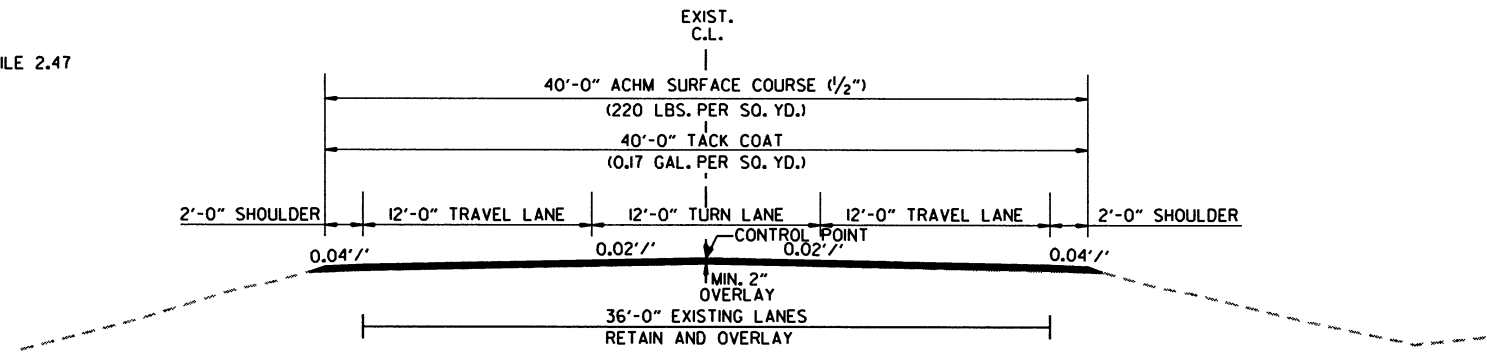
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						JOB NO. 012287	7	32

2 TYPICAL SECTIONS OF IMPROVEMENT

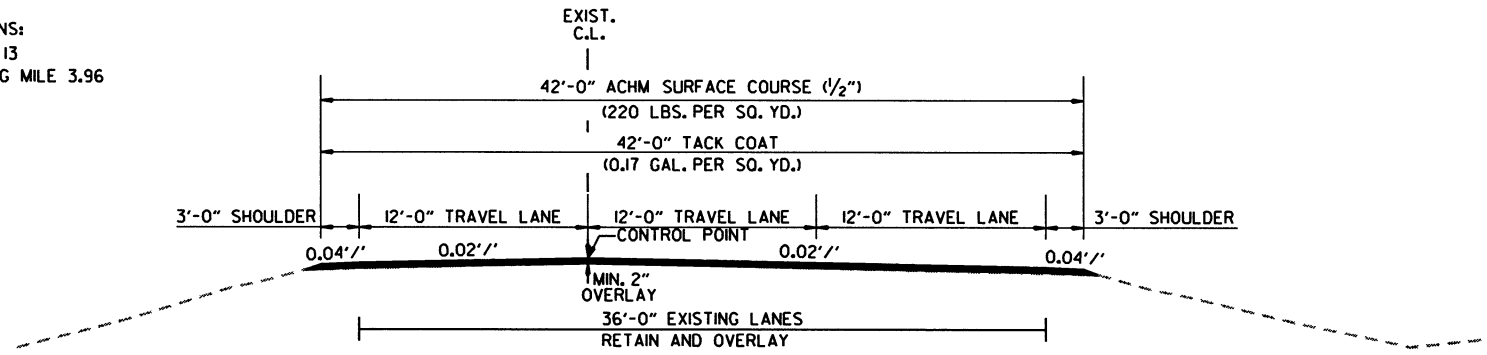


TRANSITIONS:  
SECTION 12  
LOG MILE 2.42 - LOG MILE 2.47



OVERLAY TYPICAL SECTION OF IMPROVEMENT  
SECTION 12  
LOG MILE 2.47 - LOG MILE 3.24  
SECTION 13  
LOG MILE 0.00 - LOG MILE 1.16

TRANSITIONS:  
SECTION 13  
LOG MILE 3.67 - LOG MILE 3.96



• REVERSED FOR EASTBOUND PASSING LANE  
OVERLAY TYPICAL SECTION OF IMPROVEMENT  
SECTION 13  
LOG MILE 1.16 - LOG MILE 2.50  
LOG MILE 3.96 - LOG MILE 5.00  
SECTION 16  
LOG MILE 1.15 - LOG MILE 2.46

NOTES:  
LONGITUDINAL JOINTS ARE TO BE PLACED PER TYPICAL SECTION IN ACCORDANCE WITH SECTION 410.07 UNLESS OTHERWISE APPROVED BY THE ENGINEER.

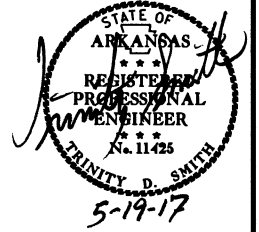
SUBGRADE/BASE MATERIAL AT GUARDRAIL WIDENING LOCATIONS SHALL BE SHAPED UP PRIOR TO OVERLAYING AS DIRECTED BY THE ENGINEER.

5/15/2017

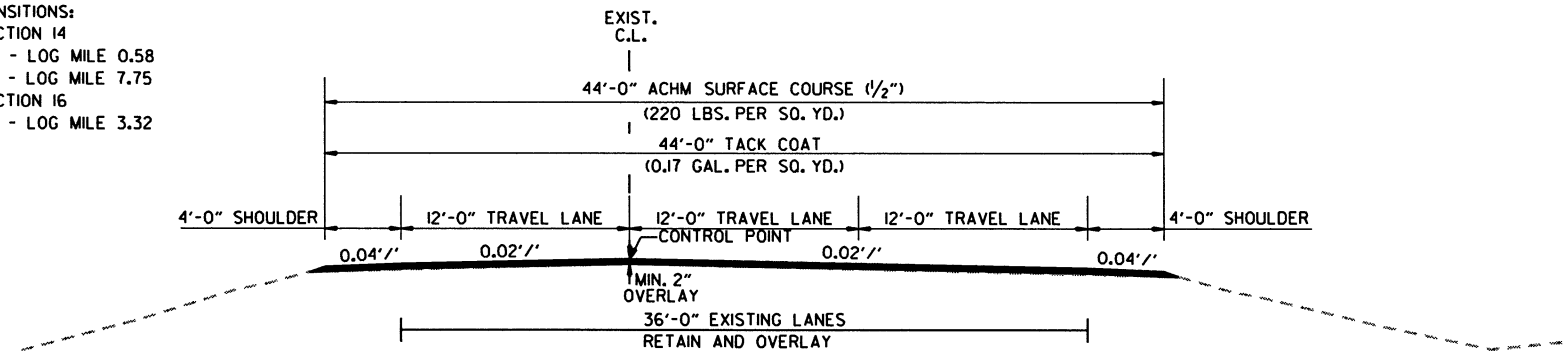
R012287.DGN

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.							012287	8	32

② TYPICAL SECTIONS OF IMPROVEMENT



TRANSITIONS:  
SECTION 14  
LOG MILE 0.26 - LOG MILE 0.58  
LOG MILE 7.69 - LOG MILE 7.75  
SECTION 16  
LOG MILE 3.05 - LOG MILE 3.32



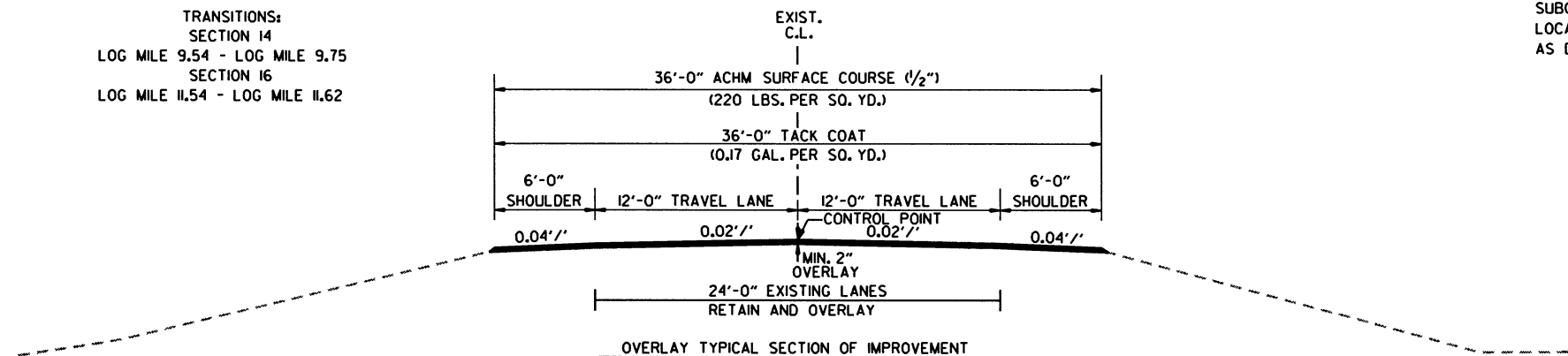
• REVERSED FOR EASTBOUND PASSING LANE  
OVERLAY TYPICAL SECTION OF IMPROVEMENT

SECTION 14  
LOG MILE 0.58 - LOG MILE 3.75  
LOG MILE 7.75 - LOG MILE 9.54  
SECTION 16  
LOG MILE 3.32 - LOG MILE 3.72

NOTES:  
LONGITUDINAL JOINTS ARE TO BE PLACED PER TYPICAL SECTION IN ACCORDANCE WITH SECTION 410.07 UNLESS OTHERWISE APPROVED BY THE ENGINEER.

SUBGRADE/BASE MATERIAL AT GUARDRAIL WIDENING LOCATIONS SHALL BE SHAPED UP PRIOR TO OVERLAYING AS DIRECTED BY THE ENGINEER.

TRANSITIONS:  
SECTION 14  
LOG MILE 9.54 - LOG MILE 9.75  
SECTION 16  
LOG MILE 11.54 - LOG MILE 11.62



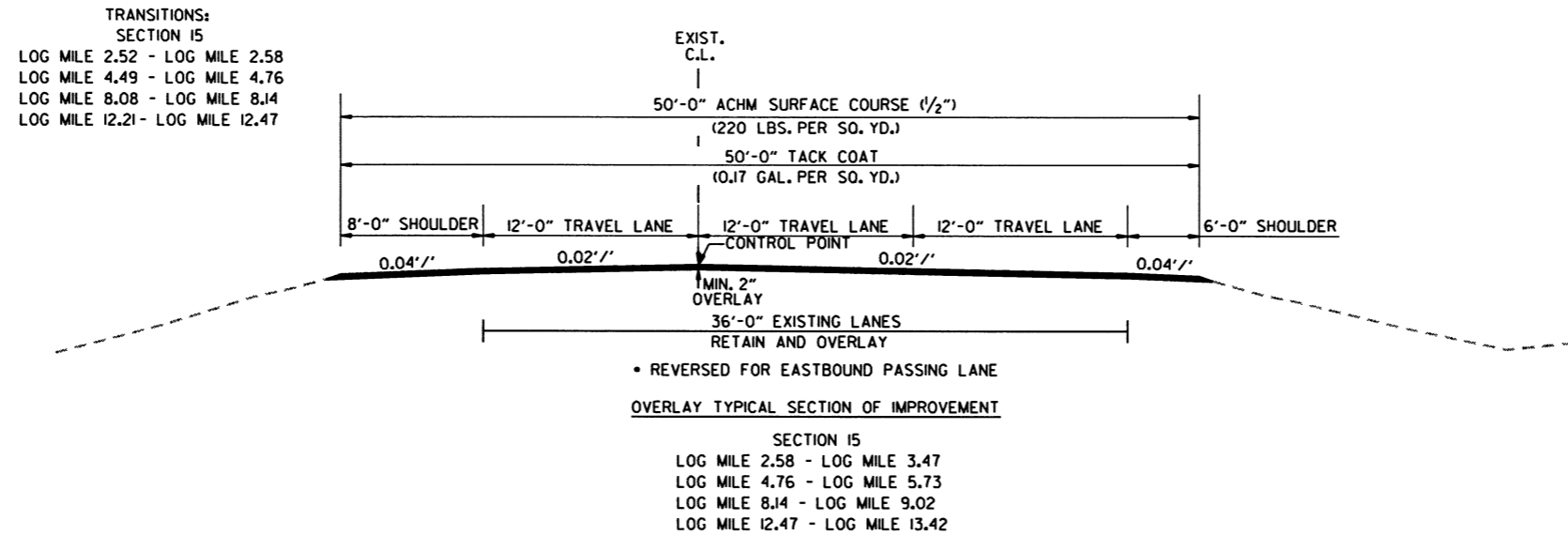
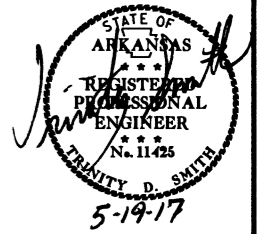
OVERLAY TYPICAL SECTION OF IMPROVEMENT

SECTION 14  
LOG MILE 7.33 - LOG MILE 7.69  
LOG MILE 9.75 - LOG MILE 11.27  
SECTION 15  
LOG MILE 0.00 - LOG MILE 0.64  
SECTION 16  
LOG MILE 6.10 - LOG MILE 7.02  
LOG MILE 7.64 - LOG MILE 8.53  
LOG MILE 11.62 - LOG MILE 13.83



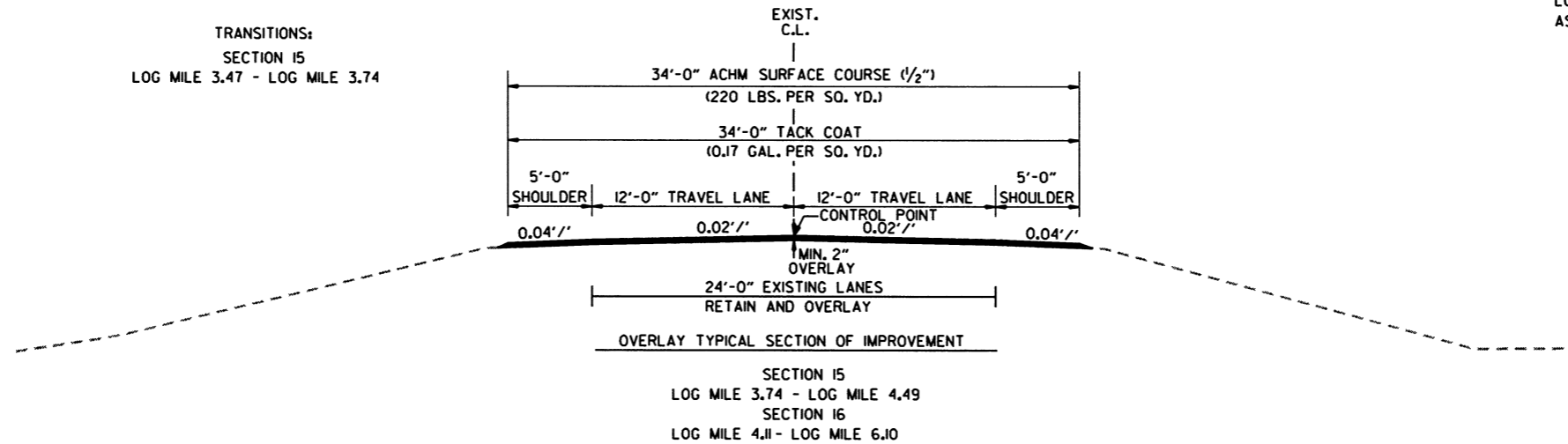
DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 012287	9	32

② TYPICAL SECTIONS OF IMPROVEMENT



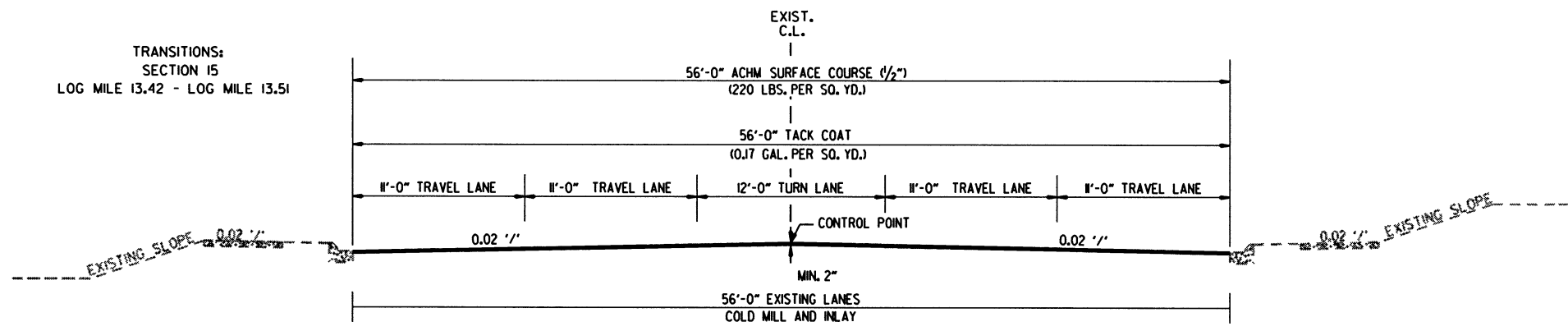
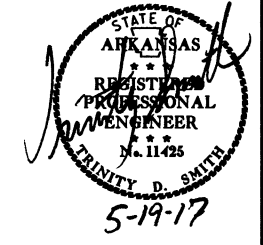
NOTES:  
LONGITUDINAL JOINTS ARE TO BE PLACED PER TYPICAL SECTION IN ACCORDANCE WITH SECTION 410.07 UNLESS OTHERWISE APPROVED BY THE ENGINEER.

SUBGRADE/BASE MATERIAL AT GUARDRAIL WIDENING LOCATIONS SHALL BE SHAPED UP PRIOR TO OVERLAYING AS DIRECTED BY THE ENGINEER.



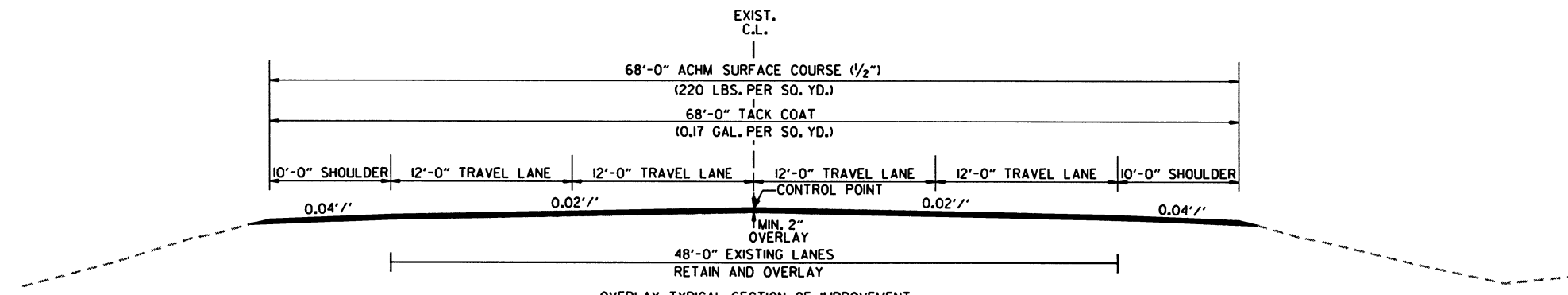
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				6	ARK.			
JOB NO. 012287							10	32

② TYPICAL SECTIONS OF IMPROVEMENT



**COLD MILL & INLAY TYPICAL SECTION OF IMPROVEMENT**  
 SECTION 15  
 LOG MILE 13.51 - LOG MILE 14.00  
 SECTION 16  
 LOG MILE 0.00 - LOG MILE 0.09

NOTES:  
 LONGITUDINAL JOINTS ARE TO BE PLACED PER TYPICAL SECTION IN ACCORDANCE WITH SECTION 410.07 UNLESS OTHERWISE APPROVED BY THE ENGINEER.  
  
 SUBGRADE/BASE MATERIAL AT GUARDRAIL WIDENING LOCATIONS SHALL BE SHAPED UP PRIOR TO OVERLAYING AS DIRECTED BY THE ENGINEER.

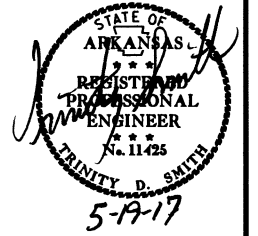


**OVERLAY TYPICAL SECTION OF IMPROVEMENT**  
 SECTION 16  
 LOG MILE 0.09 - LOG MILE 0.83

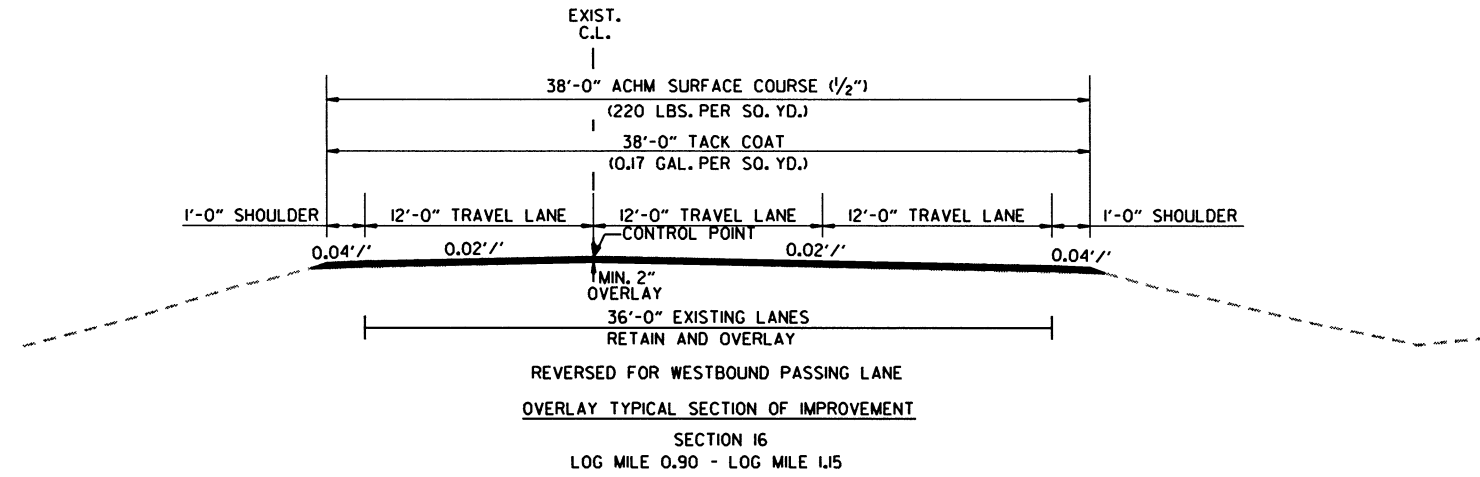
5/17/2017  
 R012287.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 012287							11	32

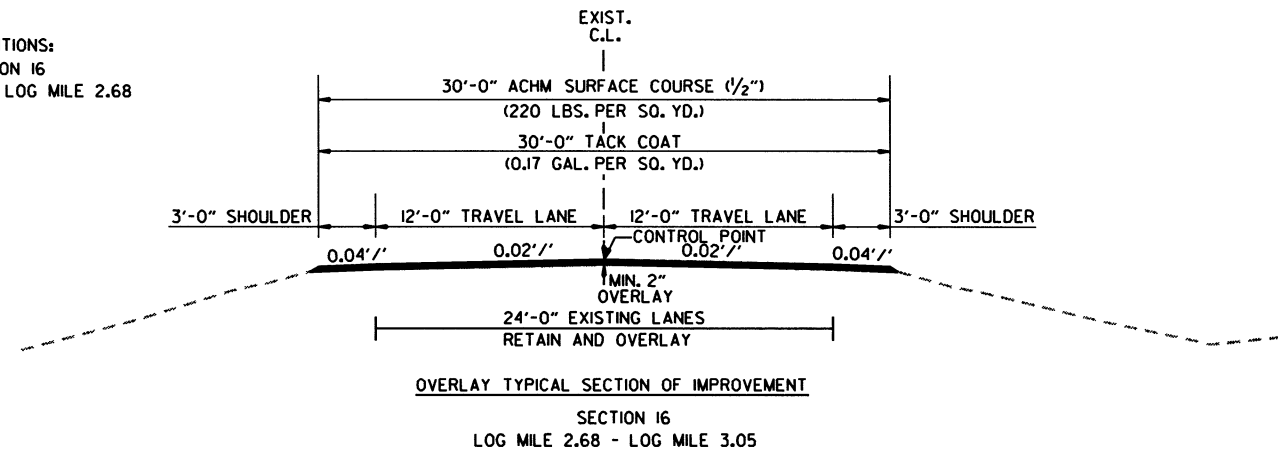
② TYPICAL SECTIONS OF IMPROVEMENT



TRANSITIONS:  
SECTION 16  
LOG MILE 0.83 - LOG MILE 0.90



TRANSITIONS:  
SECTION 16  
LOG MILE 2.46 - LOG MILE 2.68



NOTES:  
LONGITUDINAL JOINTS ARE TO BE PLACED PER TYPICAL SECTION IN ACCORDANCE WITH SECTION 410.07 UNLESS OTHERWISE APPROVED BY THE ENGINEER.

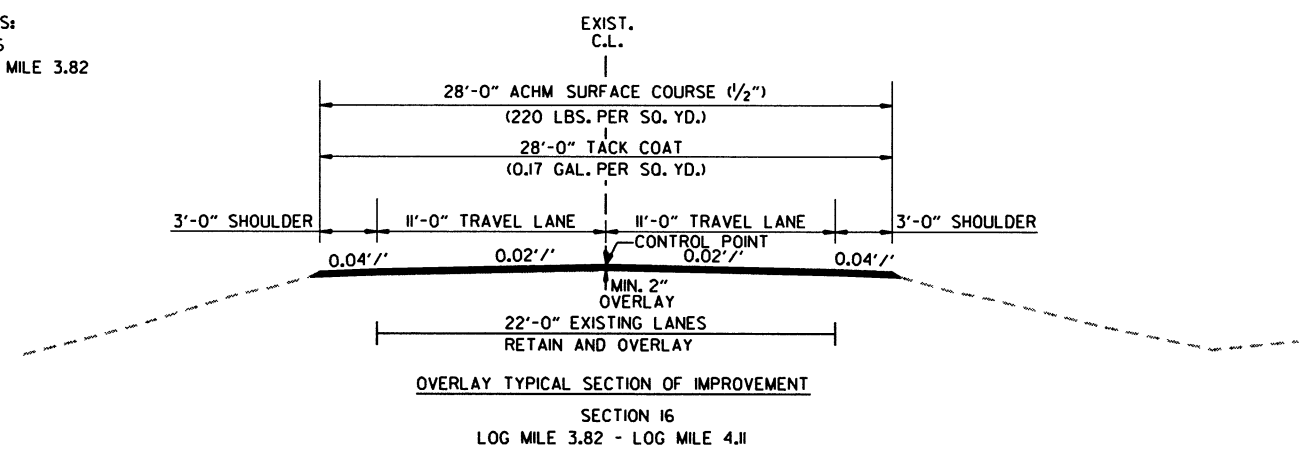
SUBGRADE/BASE MATERIAL AT GUARDRAIL WIDENING LOCATIONS SHALL BE SHAPED UP PRIOR TO OVERLAYING AS DIRECTED BY THE ENGINEER.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	012287	12
								32

2 TYPICAL SECTIONS OF IMPROVEMENT



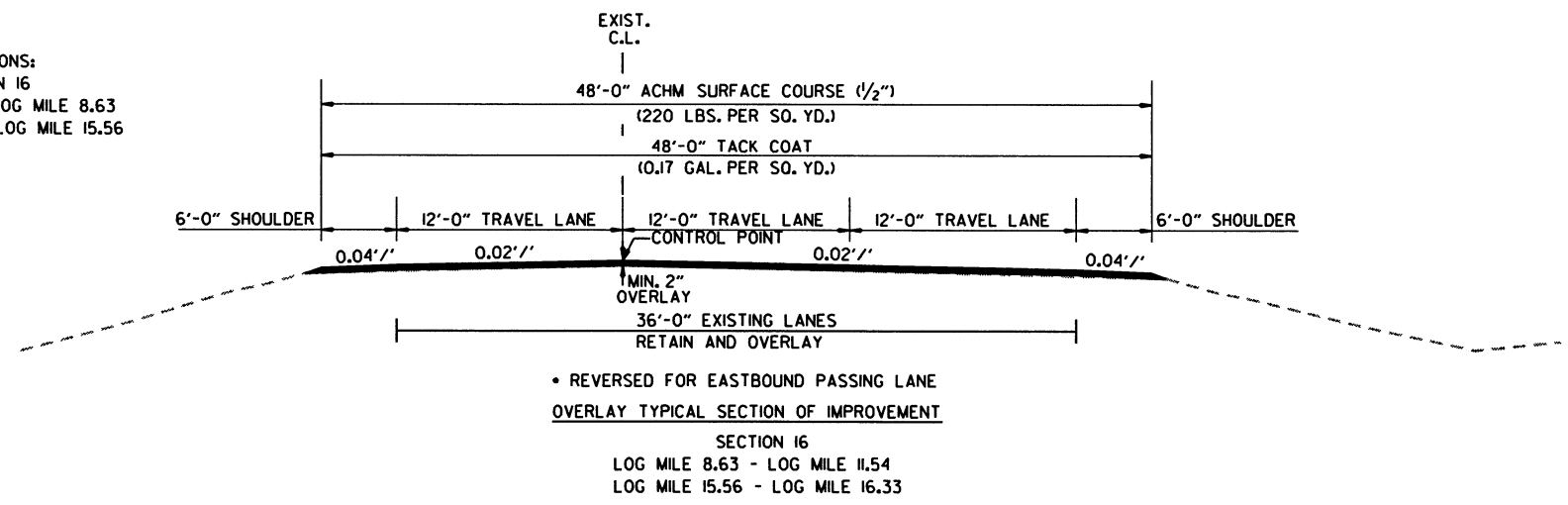
TRANSITIONS:  
SECTION 16  
LOG MILE 3.72 - LOG MILE 3.82



NOTES:  
LONGITUDINAL JOINTS ARE TO BE PLACED PER TYPICAL SECTION IN ACCORDANCE WITH SECTION 410.07 UNLESS OTHERWISE APPROVED BY THE ENGINEER.

SUBGRADE/BASE MATERIAL AT GUARDRAIL WIDENING LOCATIONS SHALL BE SHAPED UP PRIOR TO OVERLAYING AS DIRECTED BY THE ENGINEER.

TRANSITIONS:  
SECTION 16  
LOG MILE 8.56 - LOG MILE 8.63  
LOG MILE 15.50 - LOG MILE 15.56

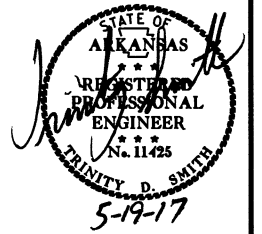


5/15/2017

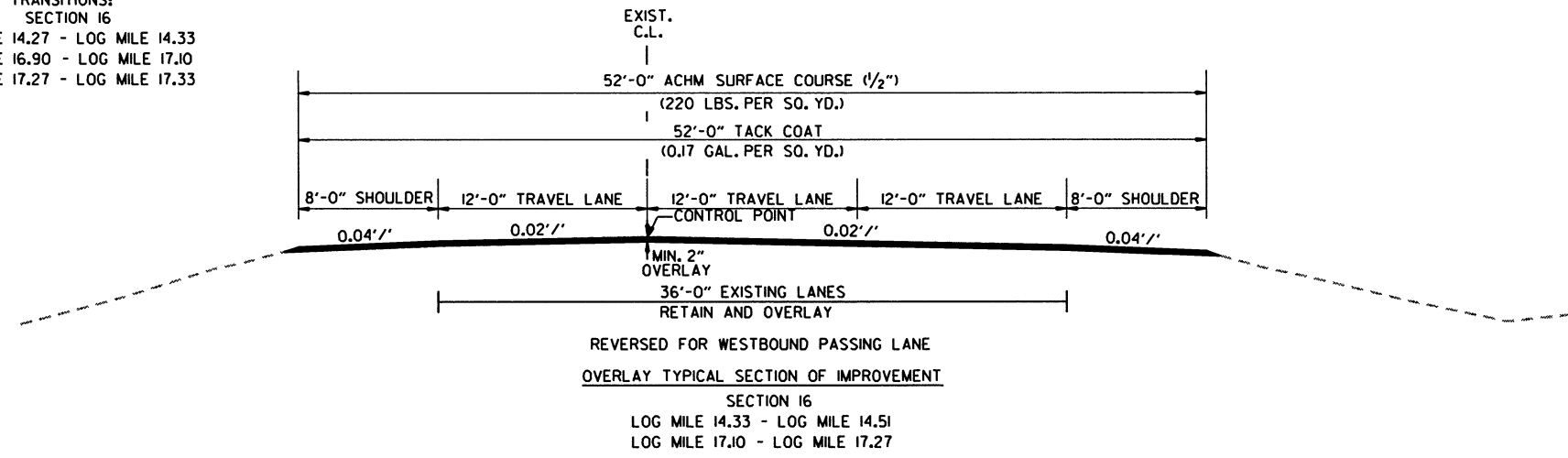
R012287.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 012287							13	32

② TYPICAL SECTIONS OF IMPROVEMENT



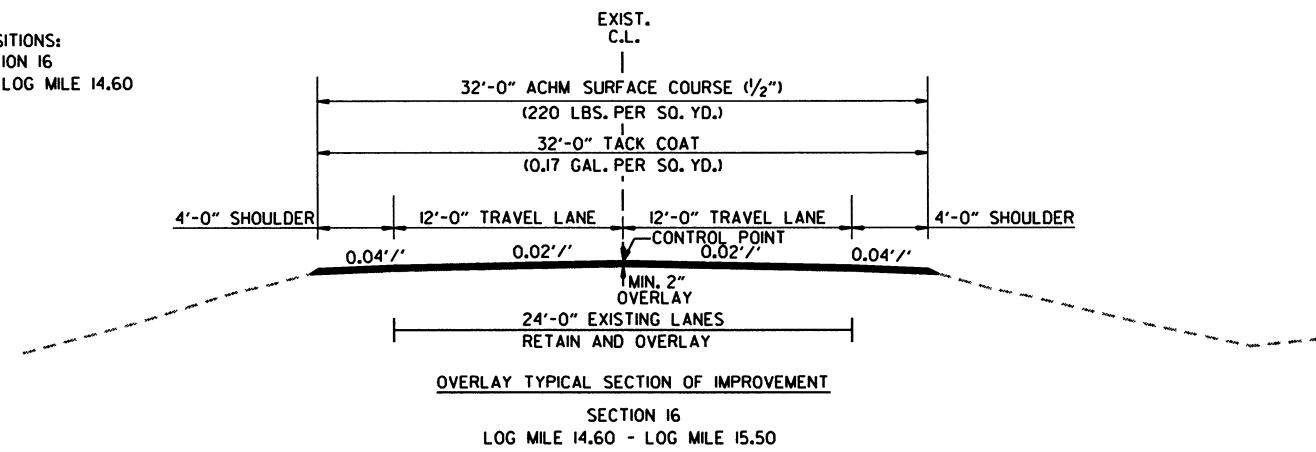
TRANSITIONS:  
SECTION 16  
LOG MILE 14.27 - LOG MILE 14.33  
LOG MILE 16.90 - LOG MILE 17.10  
LOG MILE 17.27 - LOG MILE 17.33



NOTES:  
LONGITUDINAL JOINTS ARE TO BE PLACED PER TYPICAL SECTION IN ACCORDANCE WITH SECTION 410.07 UNLESS OTHERWISE APPROVED BY THE ENGINEER.

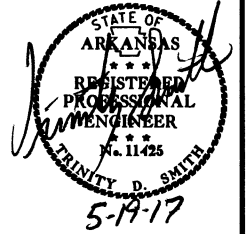
SUBGRADE/BASE MATERIAL AT GUARDRAIL WIDENING LOCATIONS SHALL BE SHAPED UP PRIOR TO OVERLAYING AS DIRECTED BY THE ENGINEER.

TRANSITIONS:  
SECTION 16  
LOG MILE 14.51 - LOG MILE 14.60

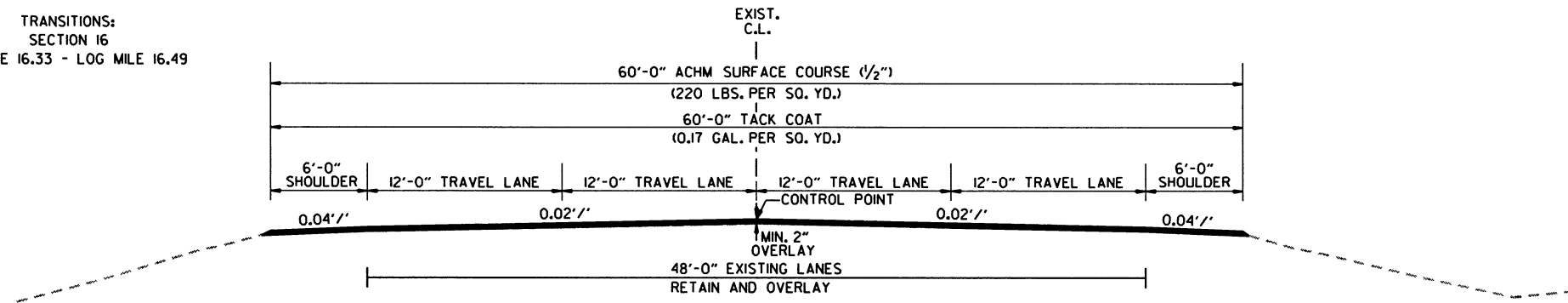


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. AID DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 012287							14	32

2 TYPICAL SECTIONS OF IMPROVEMENT

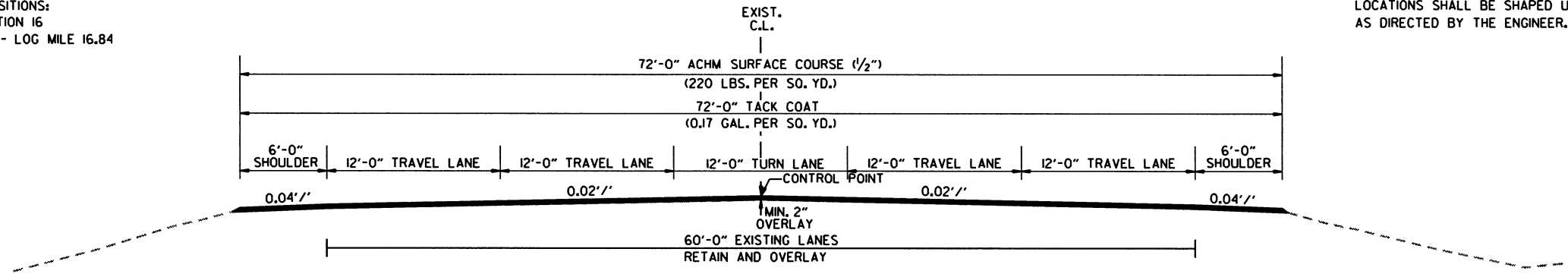


TRANSITIONS:  
SECTION 16  
LOG MILE 16.33 - LOG MILE 16.49



OVERLAY TYPICAL SECTION OF IMPROVEMENT  
SECTION 16  
LOG MILE 16.49 - LOG MILE 16.77

TRANSITIONS:  
SECTION 16  
LOG MILE 16.77 - LOG MILE 16.84



OVERLAY TYPICAL SECTION OF IMPROVEMENT  
SECTION 16  
LOG MILE 16.84 - LOG MILE 16.90

NOTES:  
LONGITUDINAL JOINTS ARE TO BE PLACED PER TYPICAL SECTION IN ACCORDANCE WITH SECTION 410.07 UNLESS OTHERWISE APPROVED BY THE ENGINEER.

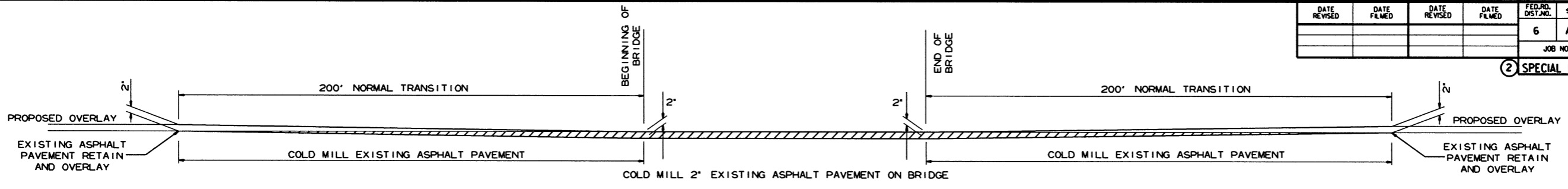
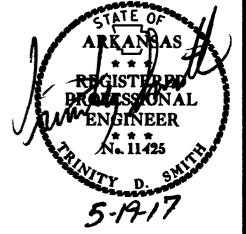
SUBGRADE/BASE MATERIAL AT GUARDRAIL WIDENING LOCATIONS SHALL BE SHAPED UP PRIOR TO OVERLAYING AS DIRECTED BY THE ENGINEER.

5/15/2017

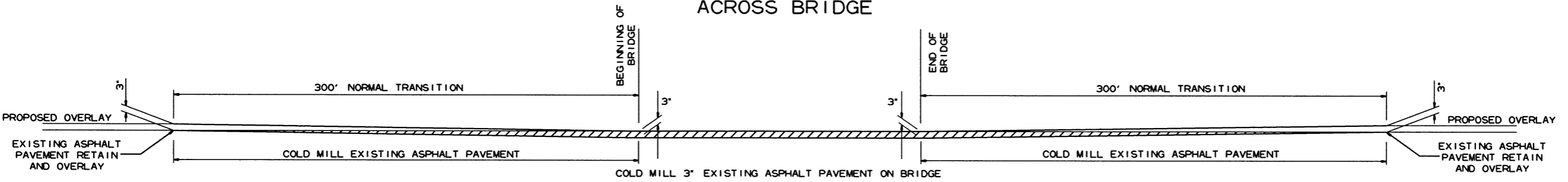
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DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		15	32
JOB NO. 012287								

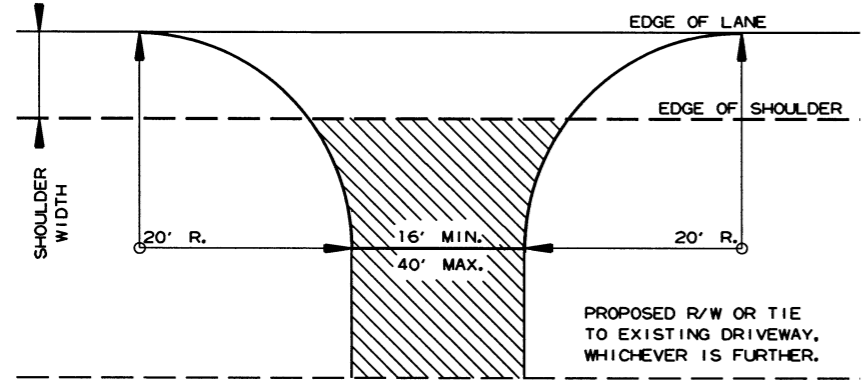
2 SPECIAL DETAILS



DETAIL FOR TRANSITIONS  
ACROSS BRIDGE



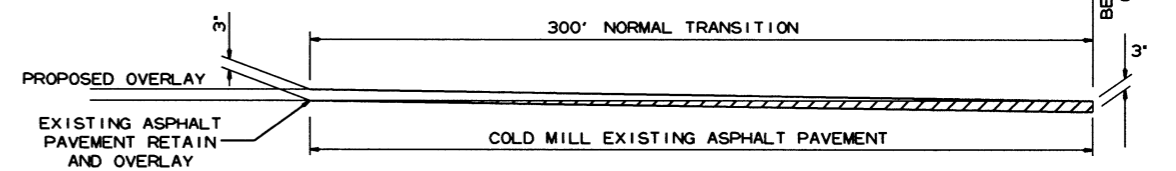
DETAIL FOR TRANSITIONS  
ACROSS BRIDGE



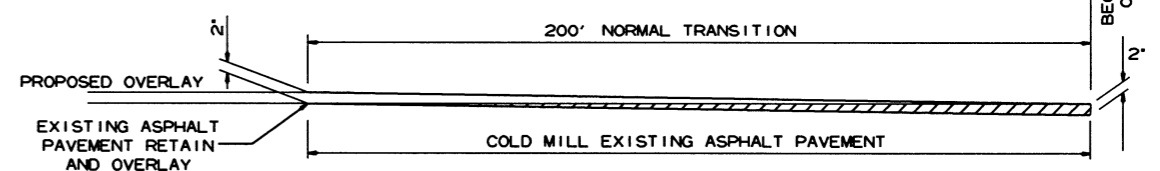
DETAIL FOR DRIVEWAY TURNOUTS  
OPEN SHOULDER SECTION

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

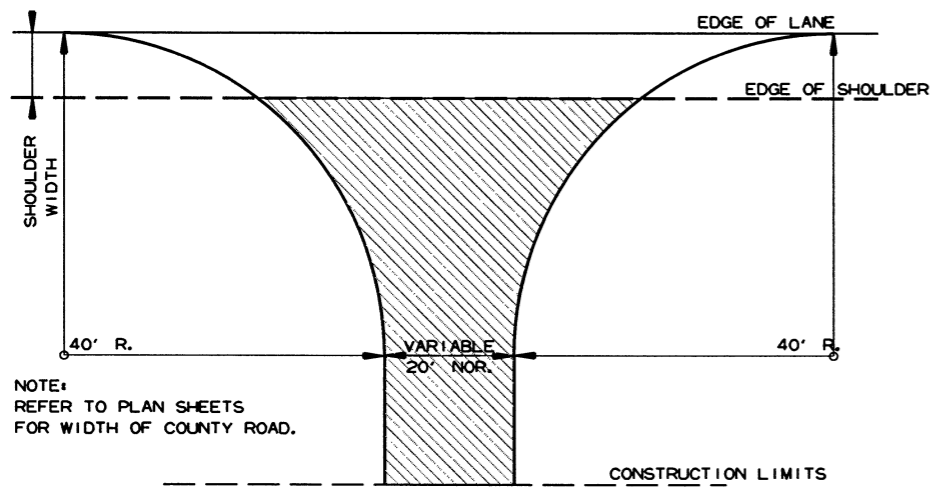
ACHM SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT OR GRAVEL DRIVE EXISTING; OR 6" CONCRETE IF CONCRETE DRIVE EXISTING.



DETAIL FOR TRANSITIONS



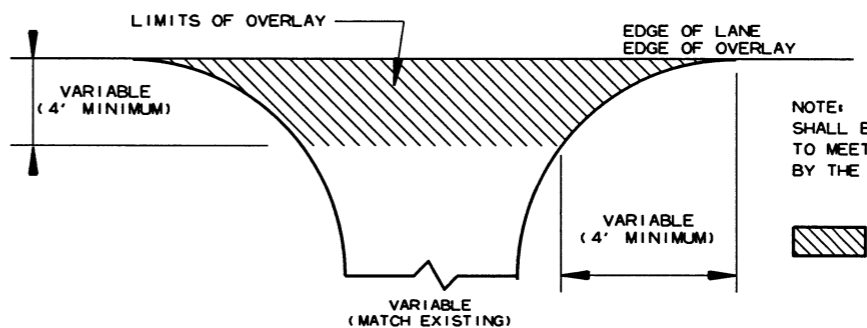
DETAIL FOR TRANSITIONS



DETAIL FOR COUNTY ROAD TURNOUTS  
OPEN SHOULDER SECTION

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

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



DETAIL FOR OVERLAY TURNOUTS

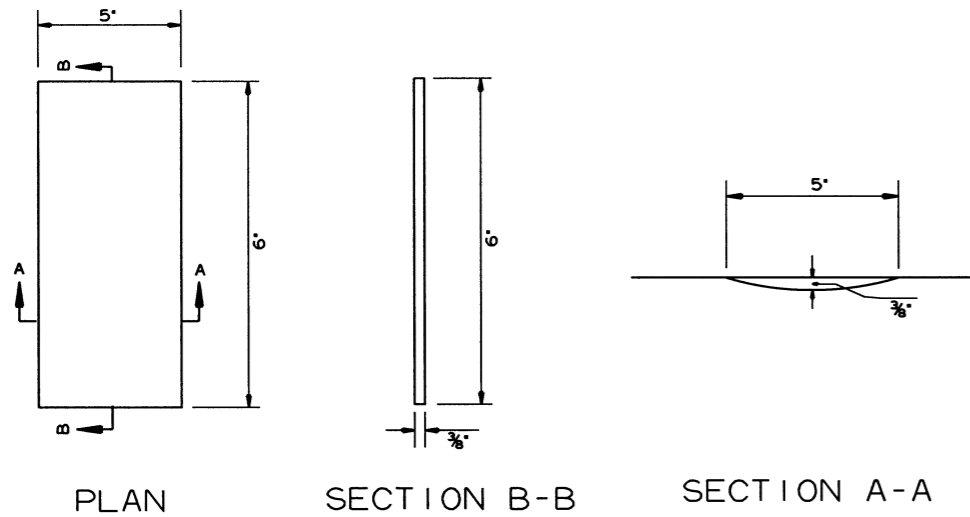
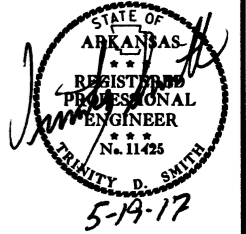
NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

ACHM SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.)

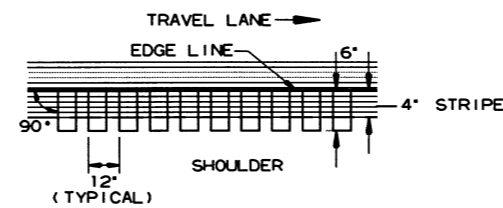
4/18/2017  
R012287.DGN

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 012287							16	32

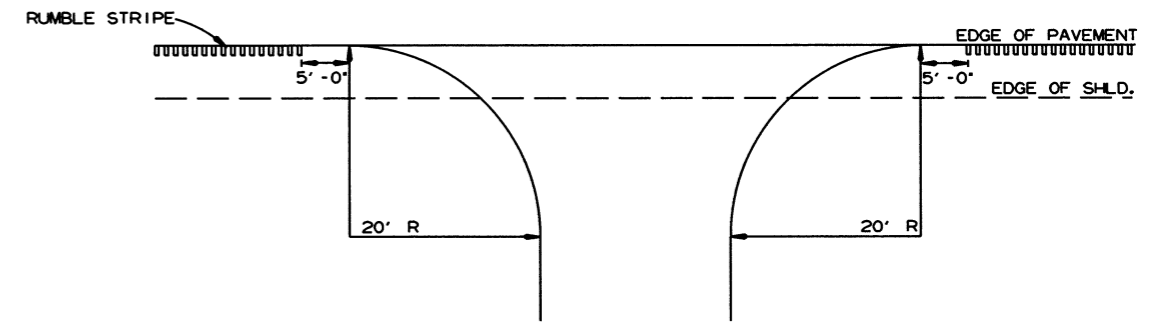
2 SPECIAL DETAILS



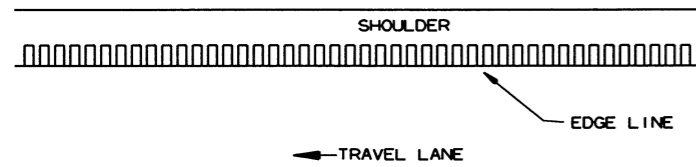
DETAILS OF RUMBLE STRIPE



LOCATION PLAN OF RUMBLE STRIPE  
LEFT OR RIGHT SHOULDER



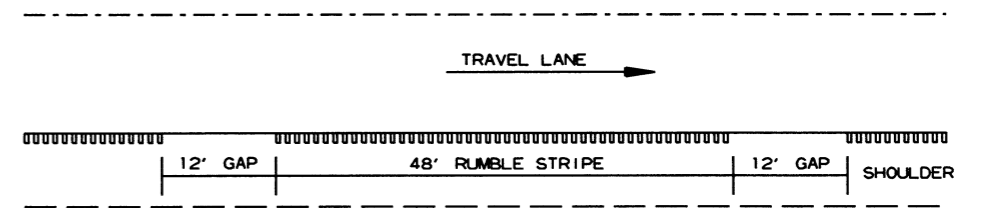
DETAIL FOR RUMBLE STRIPE GAP  
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

1. RUMBLE STRIPES SHALL NOT BE INSTALLED ON BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, RESIDENTIAL OR COMMERCIAL DRIVEWAYS OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.
2. RUMBLE STRIPES SHALL NOT BE INSTALLED ON A PAVED SHOULDER THAT IS USED AS A DECELERATION LANE FOR THE LENGTH DEEMED APPROPRIATE BY THE ENGINEER.
3. RUMBLE STRIPES SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE SHOULDER. PAYMENT SHALL ONLY INCLUDE THAT PORTION OF THE SHOULDER ON WHICH RUMBLE STRIPES HAVE BEEN CONSTRUCTED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR GAPS, DRIVEWAYS, TURNOUTS, OR OTHER PUBLIC ROAD INTERSECTIONS WHERE RUMBLE STRIPES HAVE NOT BEEN CONSTRUCTED.
4. THE 3/8" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 12' LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.



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

DETAIL FOR GAP PATTERN RUMBLE STRIPE

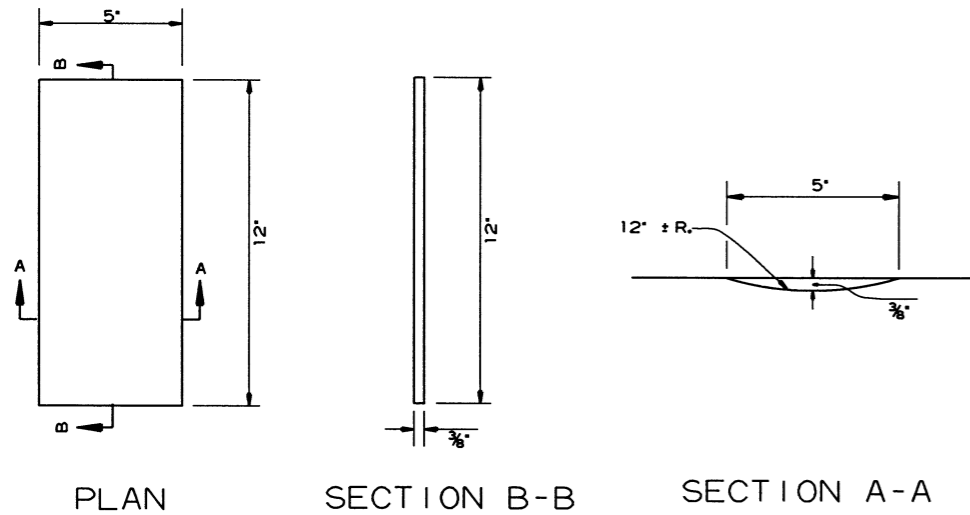
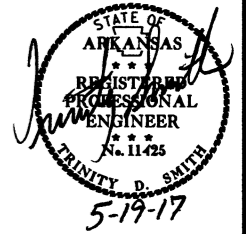
4/18/2017

R012287.DGN

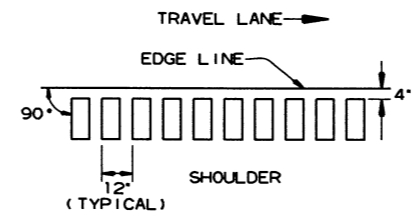


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. PROJ. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 012287							17	32

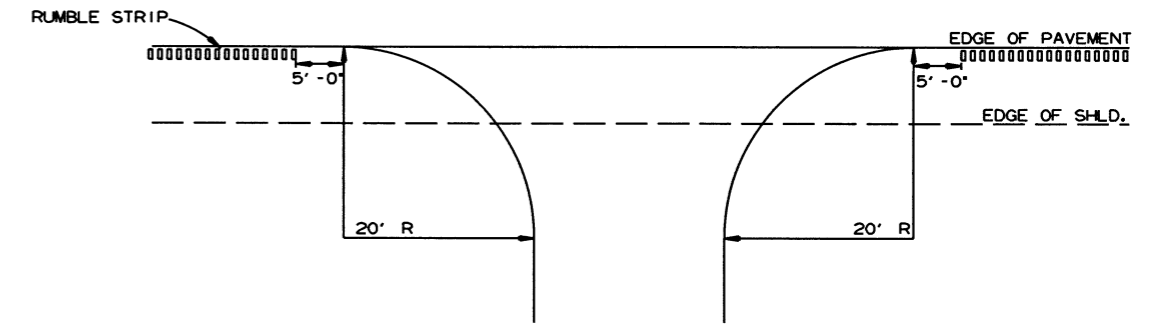
2 SPECIAL DETAILS



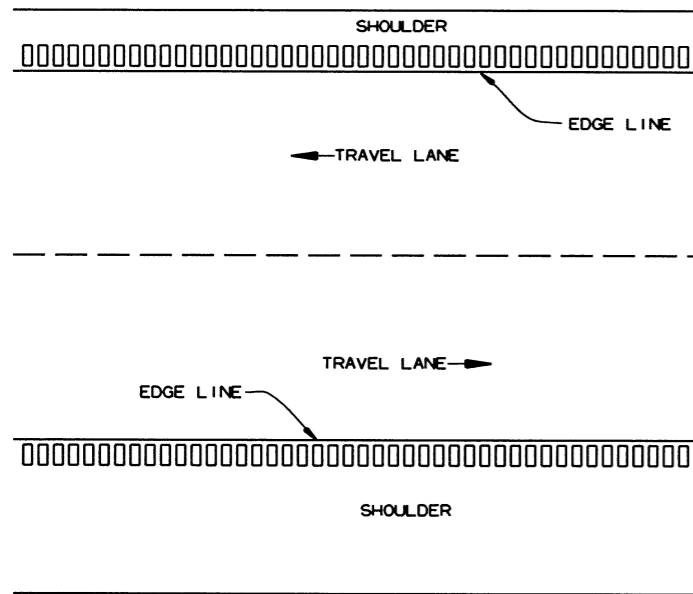
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS  
LEFT OR RIGHT SHOULDER



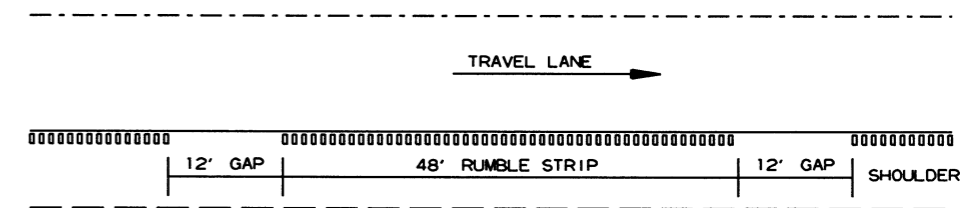
DETAIL FOR RUMBLE STRIP GAP  
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

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



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

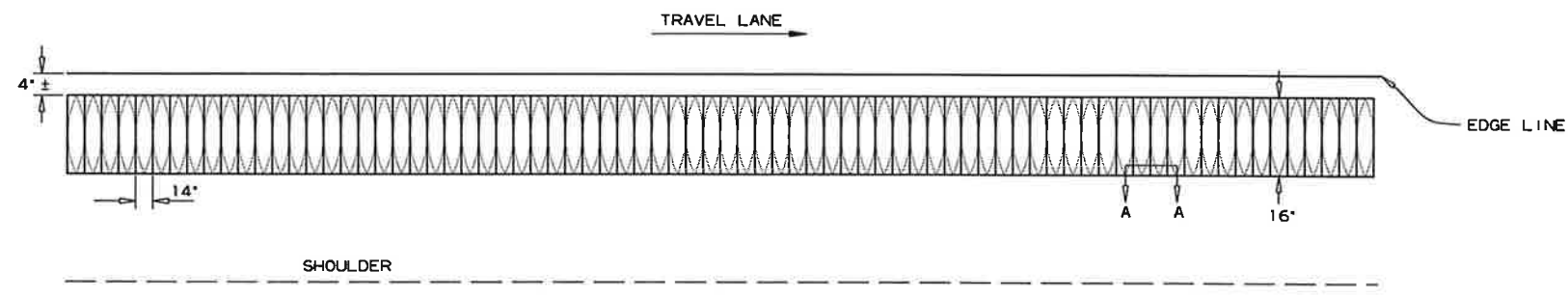
DETAIL FOR GAP PATTERN RUMBLE STRIP

4/18/2017

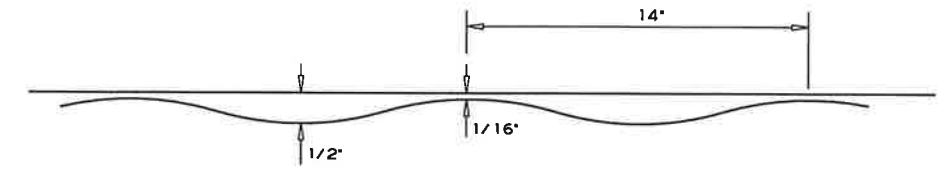
R012287.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. PROJ. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6-22-2017				6	ARK.			
JOB NO. 012287							17A	32

2 SPECIAL DETAILS

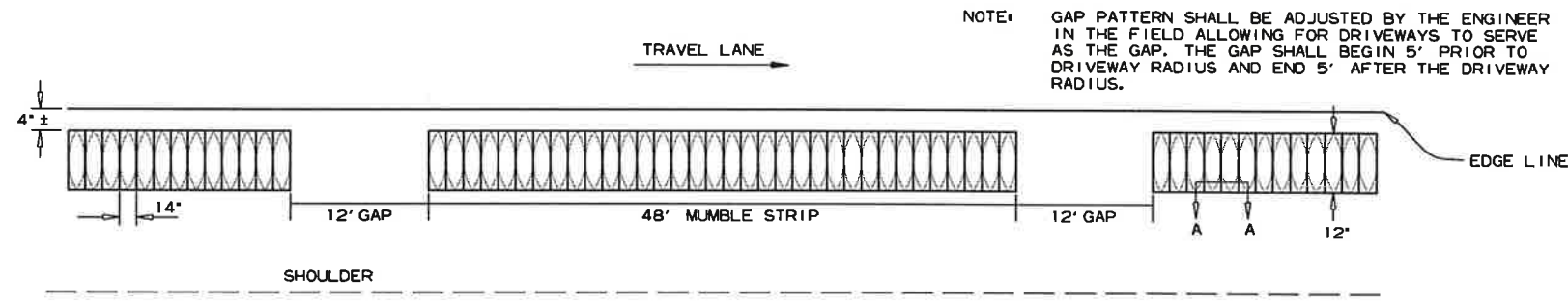


MUMBLE STRIPS (TYPE 1)



SECTION A-A

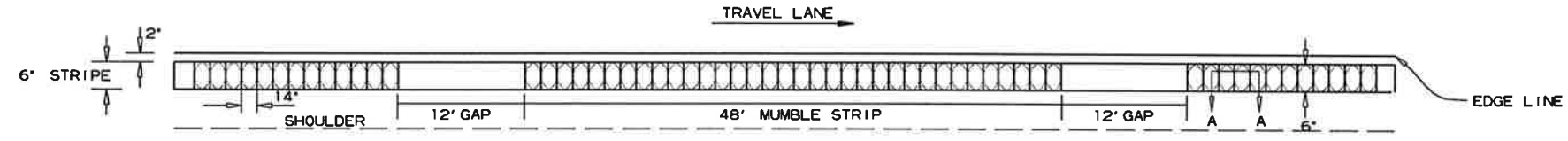
DETAIL OF MUMBLE STRIP (E)



MUMBLE STRIPS (TYPE 2)

NOTES FOR MUMBLE STRIPS (LOW NOISE RUMBLE STRIPS) (TYPE 1 AND 2)

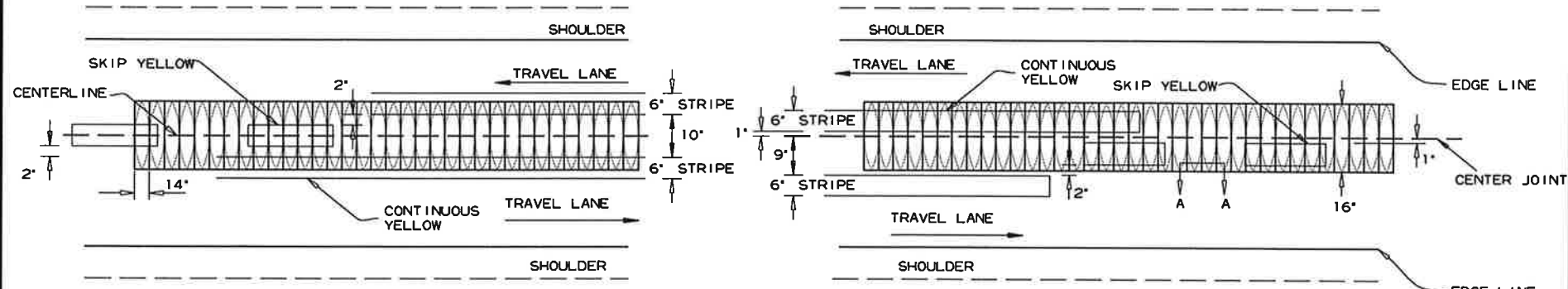
- MUMBLE STRIPS SHALL NOT BE INSTALLED ON CURB SECTIONS, BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, RESIDENTIAL OR COMMERCIAL DRIVEWAYS OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.
- MUMBLE STRIPS SHALL NOT BE INSTALLED ON A PAVED SHOULDER THAT IS USED AS A DECELERATION LANE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



MUMBLE STRIPES

NOTES FOR MUMBLE STRIPES (LOW NOISE RUMBLE STRIPES)

- MUMBLE STRIPES SHALL NOT BE INSTALLED ON BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, RESIDENTIAL OR COMMERCIAL DRIVEWAYS OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.
- MUMBLE STRIPES SHALL NOT BE INSTALLED ON A PAVED SHOULDER THAT IS USED AS A DECELERATION LANE FOR THE LENGTH DEEMED APPROPRIATE BY THE ENGINEER.
- THE 2' OFFSET FROM THE EDGE LINE MAY BE INCREASED TO AVOID LONGITUDINAL JOINTS. IN ALL CASES, THE LATERAL DEVIATION FROM THE PLANNED OFFSET SHOULD BE KEPT TO A MINIMUM.
- MUMBLE STRIPES SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE SHOULDER. PAYMENT SHALL ONLY INCLUDE THAT PORTION OF THE SHOULDER ON WHICH MUMBLE STRIPES HAVE BEEN CONSTRUCTED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR GAPS, DRIVEWAYS, TURNOUTS, OR OTHER PUBLIC ROAD INTERSECTIONS WHERE MUMBLE STRIPES HAVE NOT BEEN CONSTRUCTED.
- THE 1/2" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 6' LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.



CENTERLINE MUMBLE STRIPES

NOTES FOR CENTERLINE MUMBLE STRIPES (LOW NOISE RUMBLE STRIPES)

- CENTERLINE MUMBLE STRIPES SHALL NOT BE INSTALLED ON BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.
- CENTERLINE MUMBLE STRIPES SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE CENTERLINE.
- THE 1/2" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 16' LENGTH. SOME VARIATION TO SUIT SLOPE BREAKS MAY BE NECESSARY.
- PAYMENT SHALL ONLY INCLUDE THAT PORTION OF THE CENTERLINE ON WHICH MUMBLE STRIPES HAVE BEEN CONSTRUCTED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR GAPS, DRIVEWAYS, TURNOUTS, OR OTHER PUBLIC ROAD INTERSECTIONS WHERE MUMBLE STRIPES HAVE NOT BEEN CONSTRUCTED.

SPECIAL DETAILS

6/22/2017 R012287.DGN



**COLD MILLING ASPHALT PAVEMENT**

LOG MILE	LOG MILE	LOCATION	AVG. WIDTH		COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.	
<b>SECTION 11</b>					
0.37	0.43	MAIN LANES NORTH RAMP	33		1161.60
0.37	0.43	MAIN LANES SOUTH RAMP	30		1056.00
0.47	0.53	MAIN LANES	24		844.80
0.58	0.64	MAIN LANES	24		844.80
2.48	2.62	MAIN LANES	24		1971.20
4.03	4.17	MAIN LANES	24		1971.20
5.83	6.00	MAIN LANES	24		2393.60
6.48	6.54	MAIN LANES	24		844.80
6.60	6.63	MAIN LANES	24		844.80
6.77	6.83	MAIN LANES	24		844.80
7.03	7.17	MAIN LANES 2"	24		1971.20
7.42	7.58	MAIN LANES 2"	24		2252.80
7.85	8.02	MAIN LANES 2"	24		2393.60
8.29	8.48	MAIN LANES	24		2675.20
8.79	8.96	MAIN LANES	24		2393.60
9.15	9.32	MAIN LANES	24		2393.60
<b>SECTION 12</b>					
0.08	0.26	MAIN LANES	24		2534.40
0.81	0.84	MAIN LANES	48		844.80
1.44	1.48	MAIN LANES	48		1126.40
2.15	2.33	MAIN LANES	24		2534.40
<b>SECTION 13</b>					
2.91	3.00	MAIN LANES	24		1267.20
6.89	6.93	MAIN LANES	24		563.20
7.03	7.07	MAIN LANES	24		563.20
7.27	7.31	MAIN LANES	24		563.20
7.49	7.53	MAIN LANES	24		563.20
<b>SECTION 14</b>					
7.03	7.17	MAIN LANES	24		1971.20
7.23	7.36	MAIN LANES	24		1830.40
9.76	9.85	MAIN LANES	24		1267.20
<b>SECTION 15</b>					
0.99	1.08	MAIN LANES	24		1267.20
2.45	2.54	MAIN LANES	24		1267.20
4.16	4.25	MAIN LANES	24		1267.20
6.48	6.60	MAIN LANES	24		1689.60
6.61	6.72	MAIN LANES	24		1548.80
7.37	7.47	MAIN LANES	24		1408.00
7.58	7.69	MAIN LANES	24		1548.80
7.73	7.83	MAIN LANES	24		1408.00
10.75	10.82	MAIN LANES	24		965.60
11.28	11.37	MAIN LANES	24		1267.20
13.39	14.00	MAIN LANES	56		20040.53
<b>SECTION 16</b>					
0.00	0.11	MAIN LANES	56		3613.87
6.98	7.02	MAIN LANES	24		563.20
7.35	7.39	MAIN LANES	24		563.20
8.49	8.53	MAIN LANES	24		563.20
8.56	8.60	MAIN LANES	24		563.20
14.06	14.10	MAIN LANES	24		563.20
14.20	14.24	MAIN LANES	24		563.20
17.29	17.33	MAIN LANES	48		1126.40
<b>TOTAL:</b>					
					<b>85148.80</b>

NOTE: AVERAGE MILLING DEPTH 3" FOR SECTION 11 ONLY.

NOTE: AVERAGE MILLING DEPTH 2" FOR SECTIONS 12 THRU 16.

SECTIONS 11-12

COLD MILL MATERIAL TO BECOME THE PROPERTY OF THE DEPARTMENT CONTRACTOR TO HAUL AND STOCKPILE MATERIAL AT ROUTE 167, SECTION 16, LOG MILE 1.7 LEFT ON DEPARTMENT PROPERTY.

SECTIONS 13-16

COLD MILL MATERIAL TO BECOME THE PROPERTY OF THE DEPARTMENT. CONTRACTOR TO HAUL AND STOCKPILE MATERIAL AT CROSS COUNTY A.H.M. YARD, WYNNIE HAULING AND STOCKPILING COLD MILLED MATERIAL WILL NOT BE PAID FOR SEPARATELY BUT WILL BE CONSIDERED SUBSIDIARY TO THE VARIOUS ITEMS OF WORK.

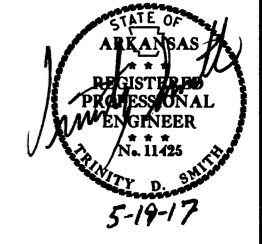
IN THE EVENT OF PRECIPITATION, THE CONTRACTOR SHALL PROVIDE OUTLETS OR OTHER MEANS APPROVED BY THE ENGINEER IN THE MILLED AREAS TO PREVENT THE ACCUMULATION OF WATER ON THE ROADWAY. OUTLETS SHALL BE CONSTRUCTED AS DIRECTED BY THE ENGINEER. PRIOR TO PLACEMENT OF THE FINAL SURFACE COURSE, DRAINAGE OUTLETS SHALL BE FILLED WITH ACHM SURFACE MATERIAL AND COMPACTED AS DIRECTED BY THE ENGINEER. PAYMENT FOR CONSTRUCTION OF THE DRAINAGE OUTLETS SHALL BE PAID FOR UNDER THE ITEM "COLD MILLING ASPHALT PAVEMENT". MATERIAL USED TO FILL THE DRAINAGE OUTLETS SHALL BE PAID FOR UNDER THE APPROPRIATE ACHM SURFACE COURSE (1/2").

**REMOVAL AND DISPOSAL OF GUARDRAIL**

LOG MILE	LOCATION	GUARDRAIL
<b>SECTION 11</b>		
0.53	LT. OF MAIN LANES	19
0.53	RT. OF MAIN LANES	19
0.58	LT. OF MAIN LANES	19
0.58	RT. OF MAIN LANES	19
2.54	LT. OF MAIN LANES	29
2.54	RT. OF MAIN LANES	27
2.56	LT. OF MAIN LANES	28
2.56	RT. OF MAIN LANES	28
6.54	LT. OF MAIN LANES	77
6.54	RT. OF MAIN LANES	83
6.57	LT. OF MAIN LANES	78
6.57	RT. OF MAIN LANES	73
6.66	LT. OF MAIN LANES	27
6.66	RT. OF MAIN LANES	28
6.77	LT. OF MAIN LANES	79
6.77	RT. OF MAIN LANES	76
7.07	LT. OF MAIN LANES	27
7.07	RT. OF MAIN LANES	27
7.14	LT. OF MAIN LANES	152
7.14	RT. OF MAIN LANES	78
7.46	LT. OF MAIN LANES	77
7.46	RT. OF MAIN LANES	42
7.54	LT. OF MAIN LANES	150
7.54	RT. OF MAIN LANES	78
7.89	LT. OF MAIN LANES	45
7.89	RT. OF MAIN LANES	50
7.98	LT. OF MAIN LANES	150
7.98	RT. OF MAIN LANES	75
8.35	LT. OF MAIN LANES	73
8.35	RT. OF MAIN LANES	153
8.43	LT. OF MAIN LANES	152
8.43	RT. OF MAIN LANES	78
8.88	LT. OF MAIN LANES	75
8.88	RT. OF MAIN LANES	135
8.94	LT. OF MAIN LANES	45
8.94	RT. OF MAIN LANES	34
9.20	LT. OF MAIN LANES	75
9.20	RT. OF MAIN LANES	154
9.20	LT. OF MAIN LANES	155
9.25	RT. OF MAIN LANES	85
<b>SECTION 12</b>		
0.16	LT. OF MAIN LANES	76
0.16	RT. OF MAIN LANES	150
0.26	LT. OF MAIN LANES	277
0.26	RT. OF MAIN LANES	128
0.85	LT. OF MAIN LANES	19
0.85	RT. OF MAIN LANES	19
1.44	LT. OF MAIN LANES	19
1.44	RT. OF MAIN LANES	19
2.19	LT. OF MAIN LANES	54
2.19	RT. OF MAIN LANES	52
2.29	LT. OF MAIN LANES	50
2.29	RT. OF MAIN LANES	48
<b>SECTION 13</b>		
2.94	LT. OF MAIN LANES	105
2.94	RT. OF MAIN LANES	227
2.96	LT. OF MAIN LANES	228
2.96	RT. OF MAIN LANES	105
<b>SECTION 14</b>		
7.07	LT. OF MAIN LANES	76
7.07	RT. OF MAIN LANES	68
7.13	LT. OF MAIN LANES	71
7.13	RT. OF MAIN LANES	75
7.27	LT. OF MAIN LANES	56
7.27	RT. OF MAIN LANES	68
7.33	LT. OF MAIN LANES	75
7.33	RT. OF MAIN LANES	76
9.80	LT. OF MAIN LANES	75
9.80	RT. OF MAIN LANES	75
9.82	LT. OF MAIN LANES	73
9.82	RT. OF MAIN LANES	75
<b>SECTION 15</b>		
1.03	LT. OF MAIN LANES	75
1.03	RT. OF MAIN LANES	75
1.05	LT. OF MAIN LANES	75
1.05	RT. OF MAIN LANES	75
2.49	LT. OF MAIN LANES	75
2.49	RT. OF MAIN LANES	75
2.51	LT. OF MAIN LANES	75
2.51	RT. OF MAIN LANES	75
4.20	LT. OF MAIN LANES	77
4.20	RT. OF MAIN LANES	75
4.22	LT. OF MAIN LANES	74
4.22	RT. OF MAIN LANES	73
6.52	LT. OF MAIN LANES	67
6.52	RT. OF MAIN LANES	64
6.56	LT. OF MAIN LANES	72
6.56	RT. OF MAIN LANES	69
6.65	LT. OF MAIN LANES	55
6.65	RT. OF MAIN LANES	55
6.68	LT. OF MAIN LANES	64
6.68	RT. OF MAIN LANES	64
7.40	LT. OF MAIN LANES	74
7.40	RT. OF MAIN LANES	73
7.43	LT. OF MAIN LANES	78
7.43	RT. OF MAIN LANES	78
7.61	LT. OF MAIN LANES	76
7.61	RT. OF MAIN LANES	76
7.64	LT. OF MAIN LANES	75
7.64	RT. OF MAIN LANES	75
7.76	LT. OF MAIN LANES	66
7.76	RT. OF MAIN LANES	75
7.80	LT. OF MAIN LANES	72
7.80	RT. OF MAIN LANES	79
10.79	LT. OF MAIN LANES	74
10.79	RT. OF MAIN LANES	75
10.81	LT. OF MAIN LANES	77
10.81	RT. OF MAIN LANES	77
11.31	LT. OF MAIN LANES	78
11.31	RT. OF MAIN LANES	75
11.33	LT. OF MAIN LANES	78
11.33	RT. OF MAIN LANES	76
<b>SECTION 16</b>		
7.02	LT. OF MAIN LANES	19
7.02	RT. OF MAIN LANES	19
7.35	LT. OF MAIN LANES	19
7.35	RT. OF MAIN LANES	19
8.53	LT. OF MAIN LANES	200
8.53	RT. OF MAIN LANES	200
8.56	LT. OF MAIN LANES	75
8.56	RT. OF MAIN LANES	75
<b>TOTAL:</b>		
		<b>8855</b>

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	012287		19	32

**2 QUANTITIES**







DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6-13-2017				6	ARK.			
6-22-2017						JOB NO. 012287	22	32

2 SUMMARY OF QUANTITIES & REVISIONS



SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	STPF-0076(137) QUANTITY	PEN-0076(137) QUANTITY	012287 TOTAL QUANTITY	UNIT
202	REMOVAL AND DISPOSAL OF GUARDRAIL	8855		8855	LIN. FT.
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	11077		11077	TON
SS & 401	TACK COAT	251395		251395	GAL.
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	172841		172841	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")	9673		9673	TON
412	COLD MILLING ASPHALT PAVEMENT	85149		85149	SQ. YD.
SP & 415	ACHM PATCHING OF EXISTING ROADWAY	100		100	TON
504	APPROACH GUTTERS	1209.40		1209.40	CU. YD.
601	MOBILIZATION	1.00		1.00	LUMP SUM
603	MAINTENANCE OF TRAFFIC	1.00		1.00	LUMP SUM
SS & 604	SIGNS	4950		4950	SQ. FT.
SS & 604	TRAFFIC DRUMS	50		50	EACH
604	CONSTRUCTION PAVEMENT MARKINGS	1320212		1320212	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	600		600	LIN. FT.
606	SELECTED PIPE BEDDING	75		75	CU. YD.
617	GUARDRAIL (TYPE A)		16150	16150	LIN. FT.
617	GUARDRAIL TERMINAL (TYPE 2)		101	101	EACH
617	THREE BEAM GUARDRAIL TERMINAL		113	113	EACH
635	ROADWAY CONSTRUCTION CONTROL	1.00		1.00	LUMP SUM
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	246970		246970	LIN. FT.
SP & 642	RUMBLE STRIPS IN ASPHALT SHOULDERS	91958		91958	LIN. FT.
SP & 642	MUMBLE STRIPS IN ASPHALT SHOULDERS	162884		162884	LIN. FT.
SP & 642	MUMBLE STRIPS IN ASPHALT SHOULDERS	70404		70404	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")	682771		682771	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")	506		506	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	686363		686363	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	15		15	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	20		20	EACH
719	THERMOPLASTIC PAVEMENT MARKING (RAILROAD EMBLEMS)	6		6	EACH
721	RAISED PAVEMENT MARKERS (TYPE II)	6111		6111	EACH
734	BRIDGE END TERMINAL		3	3	EACH
804	REINFORCING STEEL-ROADWAY (GRADE 60)	131492		131492	POUND
STRUCTURES OVER 20' SPAN					
636	BRIDGE CONSTRUCTION CONTROL	1.00		1.00	LUMP SUM
804	REINFORCING STEEL-BRIDGE (GRADE 60)	220		220	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)	10380		10380	POUND
SP	BRIDGE DECK REPAIR FOR POLYMER OVERLAYS	17780		17780	SQ. FT.
SP	POLYMER OVERLAY	40479		40479	SQ. YD.

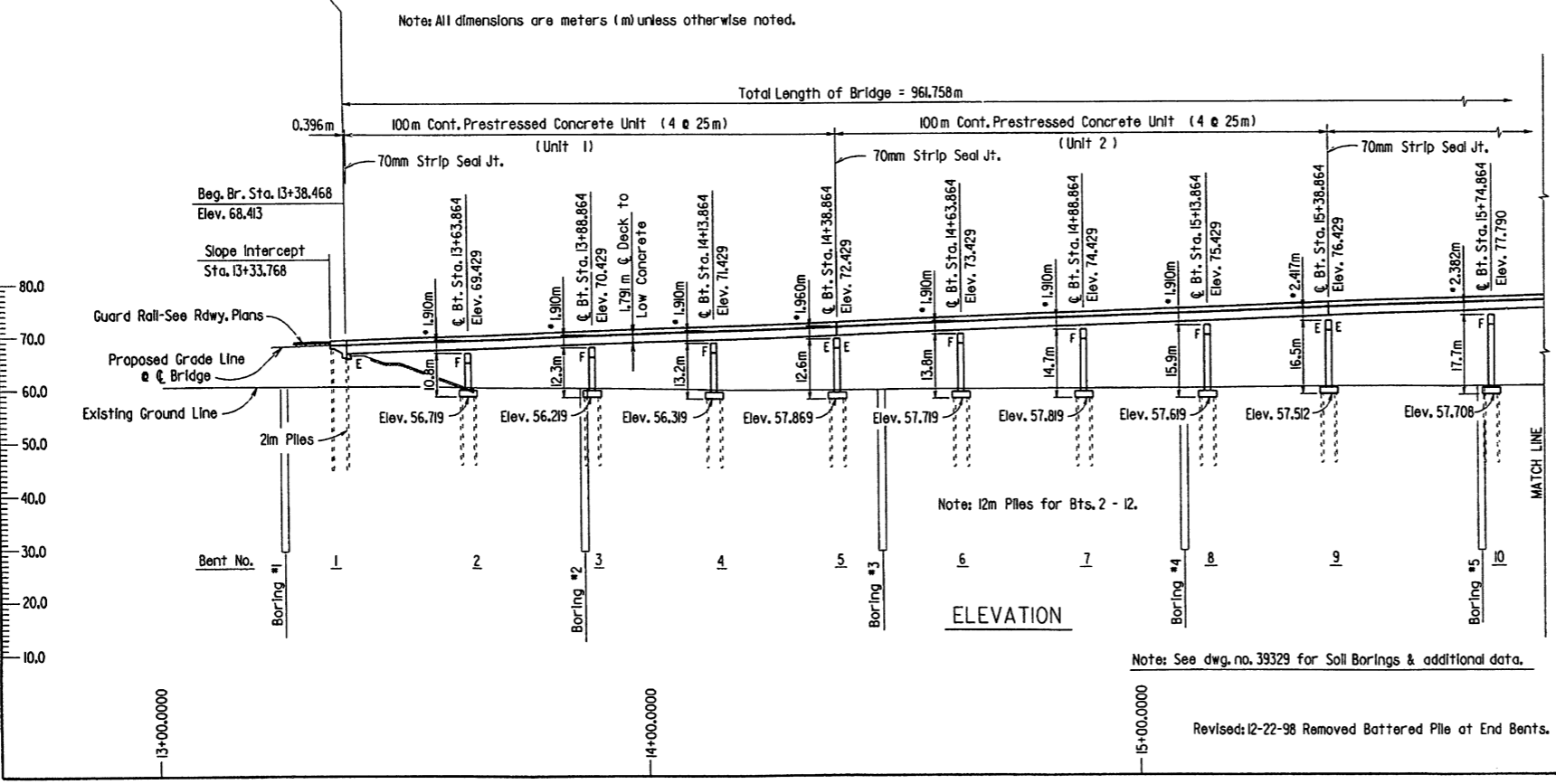
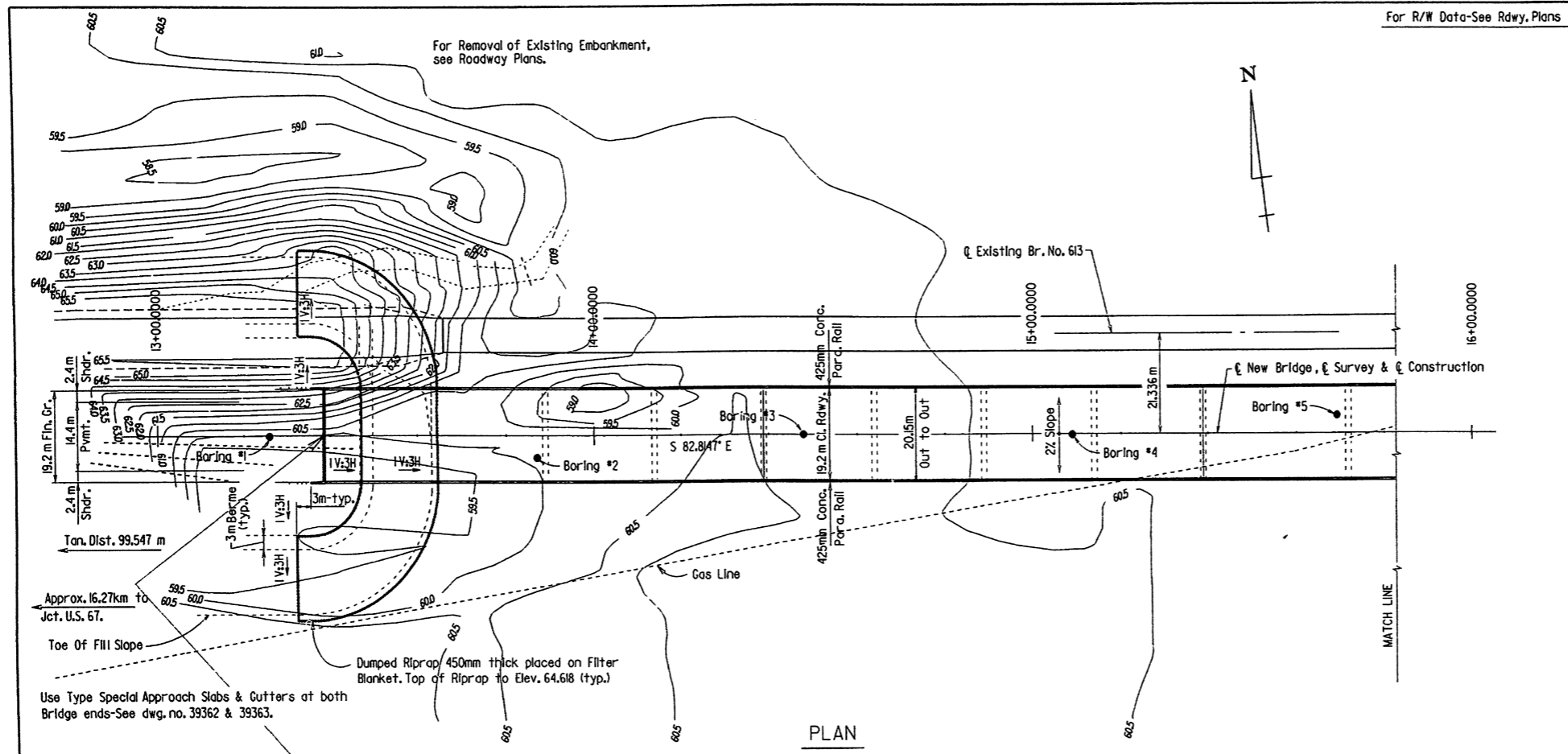
REVISIONS

DATE	REVISION	SHEET NUMBER
6/13/17	ADDED FAP NO. PEN-0076(137) TO TITLE SHEET, GUARDRAIL QUANTITIES, AND SUMMARY.	1, 20, 22
6/22/17	ADDED UTILITY ADJUSTMENTS SPECIAL PROVISION.	3, 22
6/22/17	REPLACED RUMBLE STRIPS SPECIAL PROVISION, ADDED MUMBLE STRIP(E) SPECIAL DETAIL, ADDED MUMBLE STRIPS AND STRIPES QUANTITIES TO PLANS AND TO SUMMARY, AND REVISED RUMBLE STRIPS AND STRIPES QUANTITIES TO PLANS AND TO SUMMARY.	3, 17A, 18, 22

6/22/2017

R012287.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. AID PROJ. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-22-98				6	ARK.			
				JOB NO.		012287	23	32

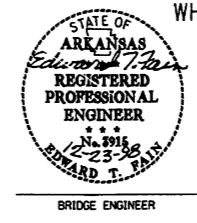


\*Top of Deck at @ Bridge & @ Bent to Low Seat of Cap.

FOR INFORMATION ONLY

ALTERNATE NO. 1  
(SHEET 1 OF 4)

LAYOUT OF BRIDGE OVER WHITE RIVER  
WHITE RIVER BRIDGE & APPROACHES (AUGUSTA) (S)  
WOODRUFF COUNTY  
ROUTE 64 SEC. 12  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.



DRAWN BY: W.MAJ. DATE: 1-20-95  
CHECKED BY: GYA DATE: 9-28-98 SCALE: 1:600  
DESIGNED BY: ARW DATE: Sept-94  
BRIDGE NO. 06748 DRAWING NO. 39325



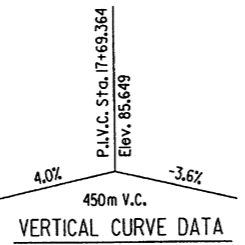
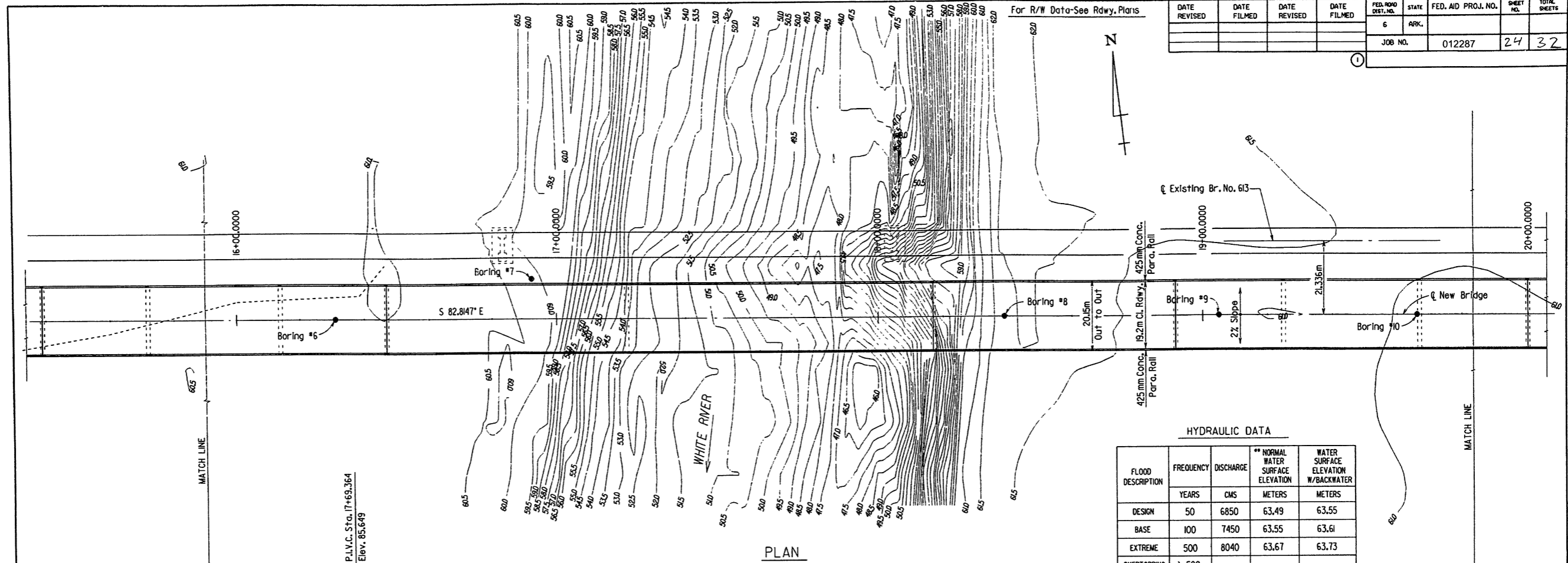
Revised: 12-22-98 Removed Battered Pile at End Bents. W.Maj.

MICROFILMED  
JAN 04 1999



1. 1/2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		24	32
				JOB NO.	012287			



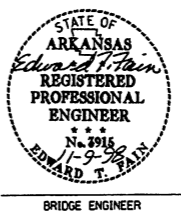
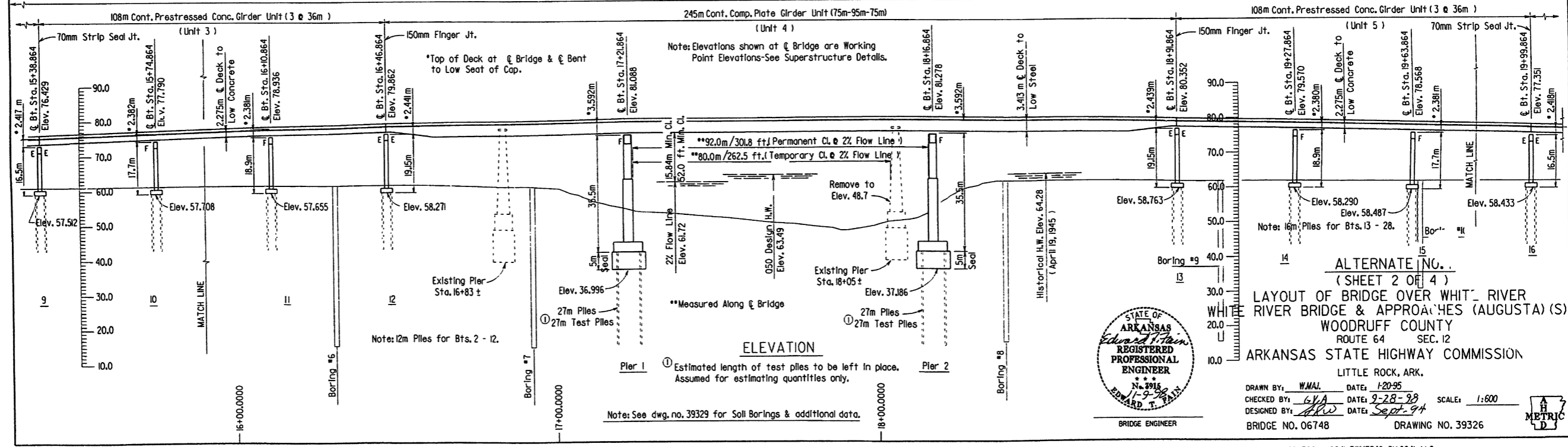
HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY YEARS	DISCHARGE CMS	NORMAL WATER SURFACE ELEVATION METERS	WATER SURFACE ELEVATION W/BACKWATER METERS
DESIGN	50	6850	63.49	63.55
BASE	100	7450	63.55	63.61
EXTREME	500	8040	63.67	63.73
OVERTOPPING	> 500	-	-	-

\*\*Unrestricted water surface without structures and roadway approaches. Drainage Area = 53,000 sq. kilometers

FOR INFORMATION ONLY

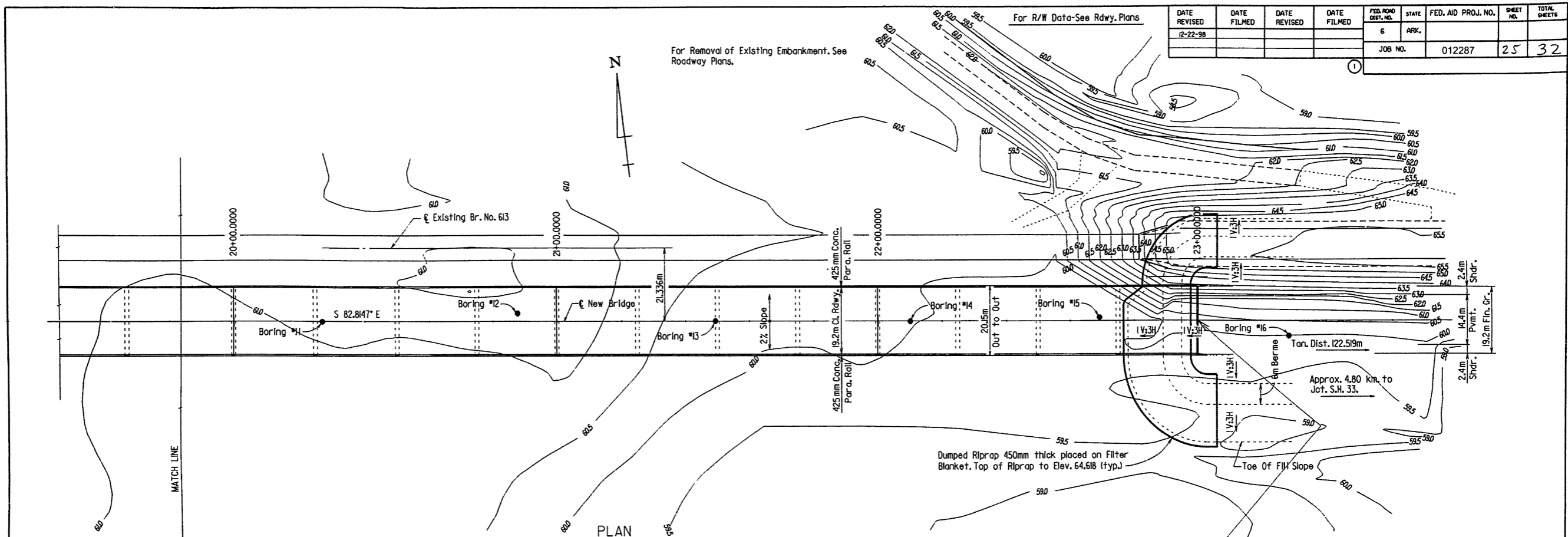
Note: All dimensions are meters (m) unless otherwise noted.  
Total Length of Bridge = 961.758 m



ALTERNATE NO. (SHEET 2 OF 4)  
LAYOUT OF BRIDGE OVER WHITE RIVER BRIDGE & APPROACHES (AUGUSTA) (S)  
WOODRUFF COUNTY  
ROUTE 64 SEC. 12  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: W.M.A.J. DATE: 1-20-95  
CHECKED BY: G.V.A. DATE: 2-28-98 SCALE: 1:600  
DESIGNED BY: A.R.W. DATE: Sept-94  
BRIDGE ENGINEER  
DRAWING NO. 06748

MICROFILMED  
JAN 04 1999

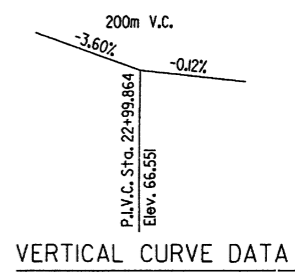
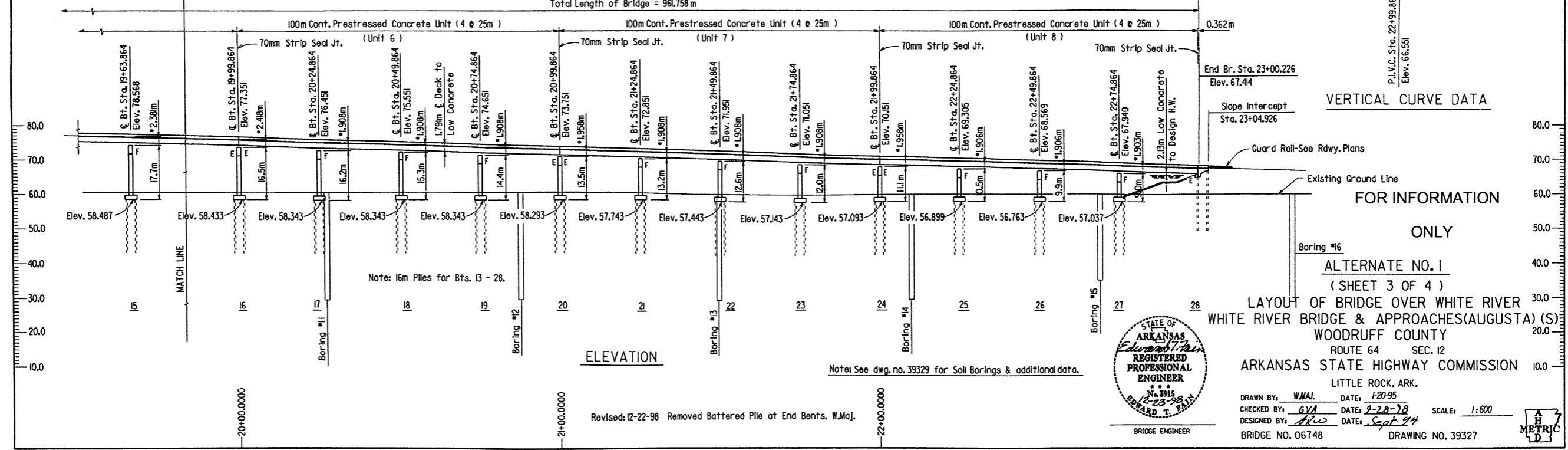
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-22-98				6	ARK.	012287	25	32
				JOB NO.				



Note: All dimensions are meters (m) unless otherwise noted.

\*Top of deck at Bridge & Bent to Low Seat of Cap.

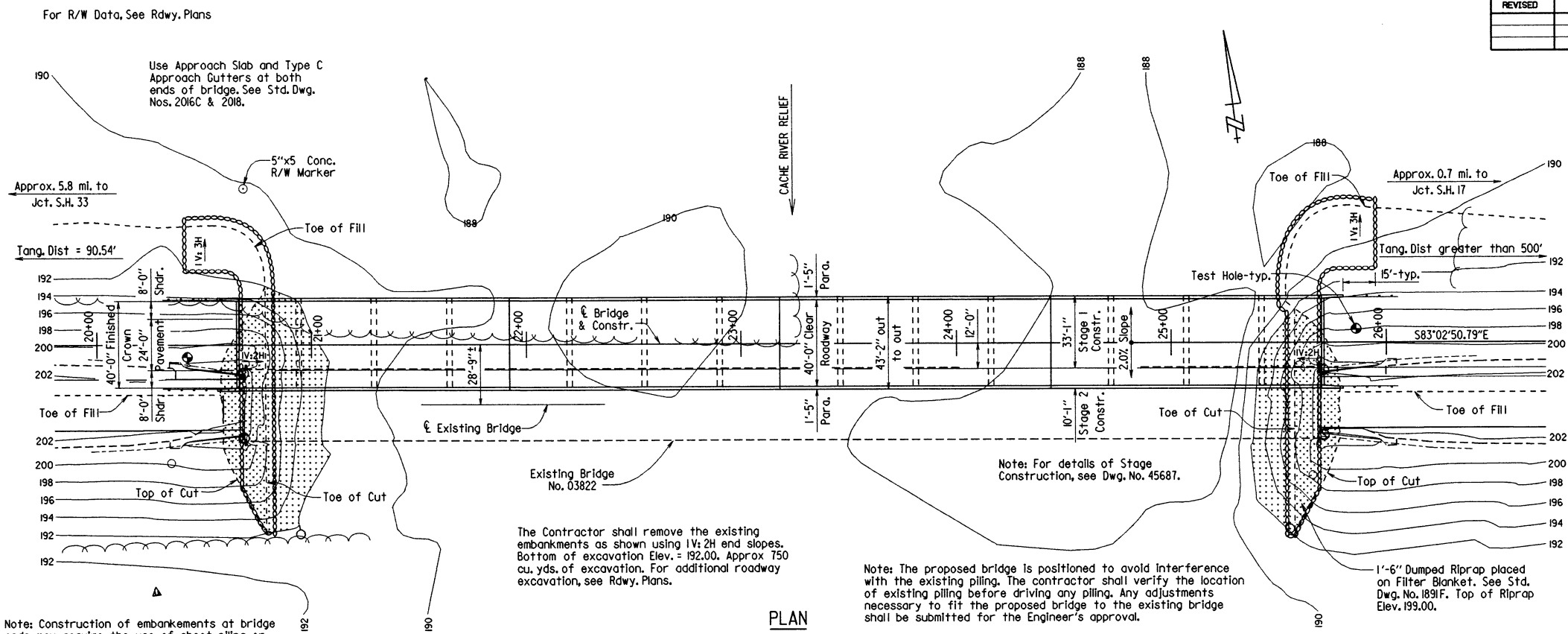
Total Length of Bridge = 961.758 m



MICROFILMED  
JAN 04 1999

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. 012287							26	32

06960-LAYOUT-CACHE RVR. RELIEF-45688



#### HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY YEARS	TOTAL DISCHARGE CFS	DISCHARGE THIS SITE CFS	*NATURAL WATER SURFACE ELEVATION FEET	WATER SURFACE ELEV. WITH BACKWATER FEET
Design	50	15850	6026	196.8	197.0
Base	100	17900	6796	197.2	197.4
Extreme	500	23020	8718	197.9	198.3
Overtopping	>500	-	-	-	-

\*Unconstricted water surface without structure or roadway approaches.  
Drainage area = 1039 square miles.  
Historical H.W. Elev. = 196.0 ft.  
Hydraulic data shown includes both Cache River Relief (Br. No. 06960) and Cache River (Br. No. 06961).

Note: Construction of embankments at bridge ends may require the use of sheet piling or other shoring methods. This shall not be paid for directly, but shall be considered subsidiary to other payment items.

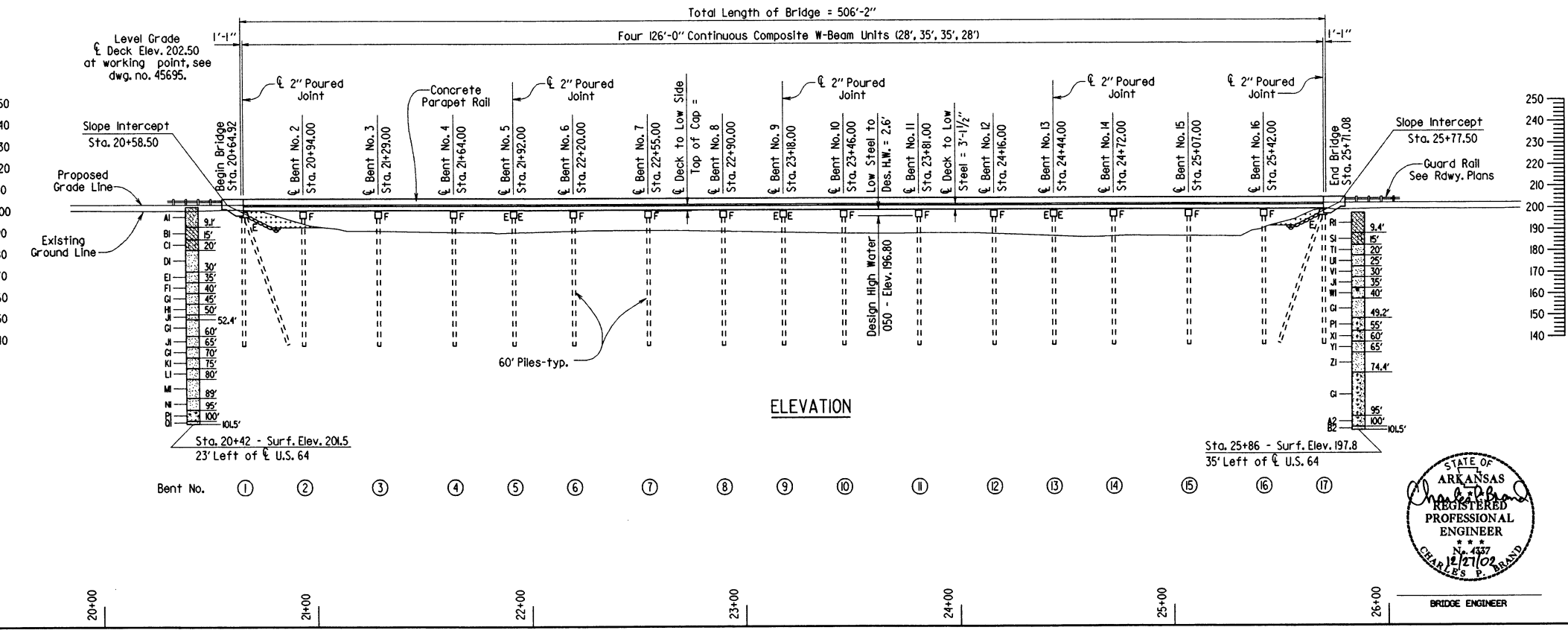
The Contractor shall remove the existing embankments as shown using 1 1/2H end slopes. Bottom of excavation Elev. = 192.00. Approx 750 cu. yds. of excavation. For additional roadway excavation, see Rdwy. Plans.

Note: The proposed bridge is positioned to avoid interference with the existing piling. The contractor shall verify the location of existing piling before driving any piling. Any adjustments necessary to fit the proposed bridge to the existing bridge shall be submitted for the Engineer's approval.

#### N' VALUES

Sta. 20+42 - 23' Left of U.S. 64	Sta. 25+86 - 35' Left of U.S. 64
4.6- 5.6, N=34	4.9- 5.9, N=23
9.6- 10.6, N=17	9.9- 10.9, N=4
15.5- 16.5, N=5	15.5- 16.5, N=14
20.5- 21.5, N=3	20.5- 21.5, N=8
25.5- 26.5, N=7	25.5- 26.5, N=5
30.5- 31.5, N=4	30.5- 31.5, N=15
35.5- 36.5, N=8	35.5- 36.5, N=8
40.5- 41.5, N=26	40.5- 41.5, N=19
45.5- 46.5, N=19	45.5- 46.5, N=13
50.5- 51.5, N=24	50.5- 51.5, N=16
55.5- 56.5, N=18	55.5- 56.5, N=13
60.5- 61.5, N=23	60.5- 61.5, N=31
65.5- 66.5, N=11	65.5- 66.5, N=64
70.5- 71.5, N=55	70.5- 71.5, N=32
75.5- 76.5, N=54	75.5- 76.5, N=21
80.5- 81.5, N=47	80.5- 81.5, N=25
85.5- 86.5, N=31	85.5- 86.5, N=22
90.5- 91.5, N=21	90.5- 91.5, N=26
95.5- 96.5, N=21	95.5- 96.5, N=33
100.5- 101.5, N=40	100.5- 101.5, N=31

For General Notes and Boring Legend, see Dwg. No. 45689.



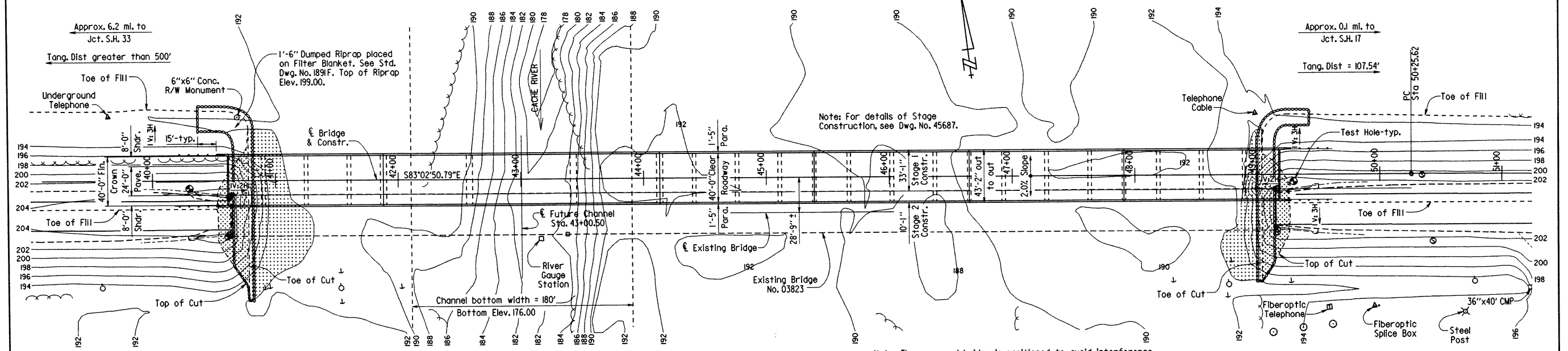
**FOR INFORMATION ONLY**  
LAYOUT OF BRIDGE OVER CACHE RIVER STRS. & APPRS. (PATTERSON) (S) WOODRUFF COUNTY  
ROUTE 64 SEC. 13  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: KDH DATE: 9-10-02 FILENAME: B110289XLLI  
CHECKED BY: R.E.F. DATE: 11-12-02  
DESIGNED BY: AKW DATE: 8-02 SCALE: 1" = 30'  
BRIDGE NO. 06960 DRAWING NO. 45688

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		27	32
				JOB NO.	012287			

For R/W Data, See Rdwy. Plans

The Contractor shall remove the existing embankments as shown using 1V:2H end slopes and 1V:3H side slopes. Bottom of excavation Elev. = 192.00. Approx 1050 cu. yds. of excavation. For additional roadway excavation, see Rdwy. Plans.

Use Approach Slab and Type C Approach Cutters at both ends of bridge. See Std. Dwg. Nos. 2016C & 2018.

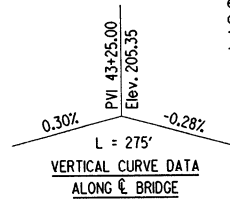


PLAN

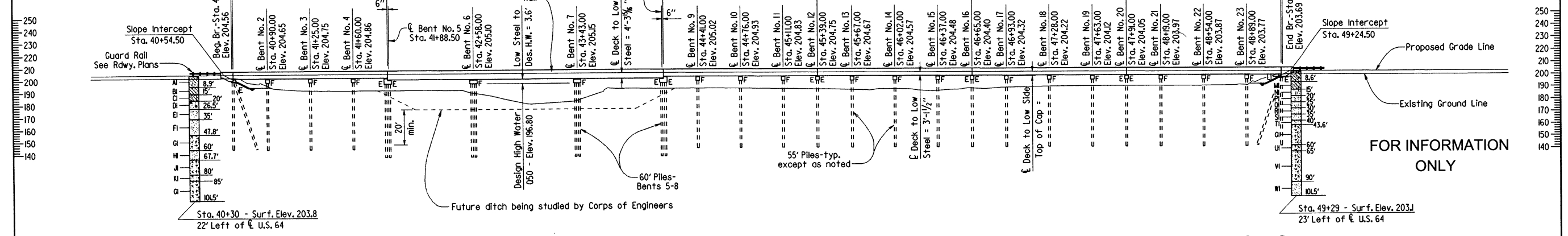
Note: Construction of embankments at bridge ends may require the use of sheet piling or other shoring methods. This shall not be paid for directly, but shall be considered subsidiary to other payment items.

Note: Elevations shown are at  $\bar{c}$  Deck at working point, see dwg. nos. 45711 & 45715.

Note: The proposed bridge is positioned to avoid interference with the existing piling. The contractor shall verify the location of existing piling before driving any piling. Any adjustments necessary to fit the proposed bridge to the existing bridge shall be submitted for the Engineer's approval.



VERTICAL CURVE DATA ALONG  $\bar{c}$  BRIDGE



ELEVATION

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY YEARS	TOTAL DISCHARGE	DISCHARGE THIS SITE	*NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
		CFS	CFS	FEET	FEET
Design	50	15850	9824	196.8	197.0
Base	100	17900	11104	197.2	197.4
Extreme	500	23020	14302	197.9	198.3
Overtopping	>500	-	-	-	-

\* Unconstricted water surface without structure or roadway approaches. Drainage area = 1039 square miles. Historical H.W. Elev. = 196.0 ft. Hydraulic data shown includes both Cache River Relief (Br. No. 06960) and Cache River (Br. No. 06961).

LAYOUT OF BRIDGE OVER CACHE RIVER CACHE RIVER STRS. & APPRS. (PATTERSON) (S) WOODRUFF COUNTY

ROUTE 64 SEC. 13 ARKANSAS STATE HIGHWAY COMMISSION LITTLE ROCK, ARK.

BRIDGE NO. 06961 DRAWING NO. 45701



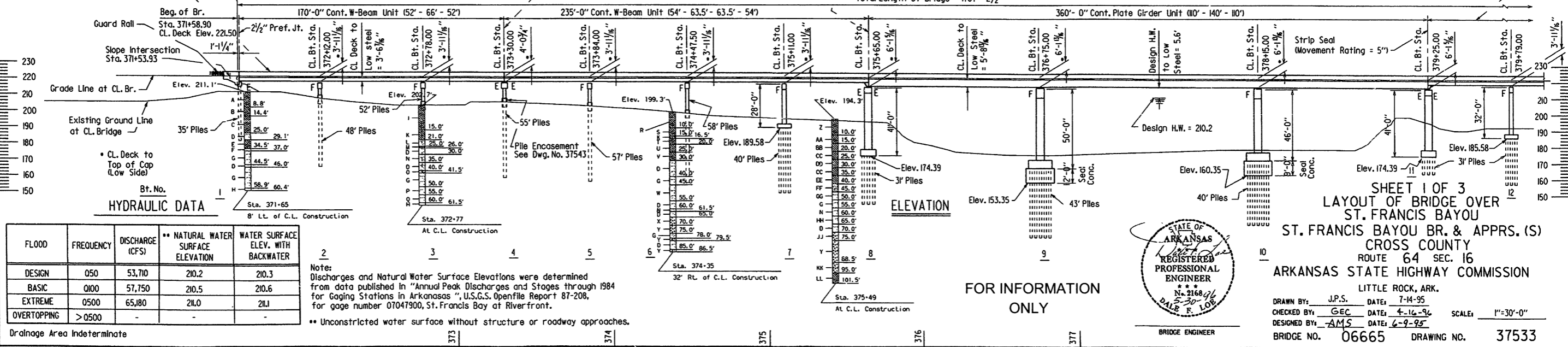
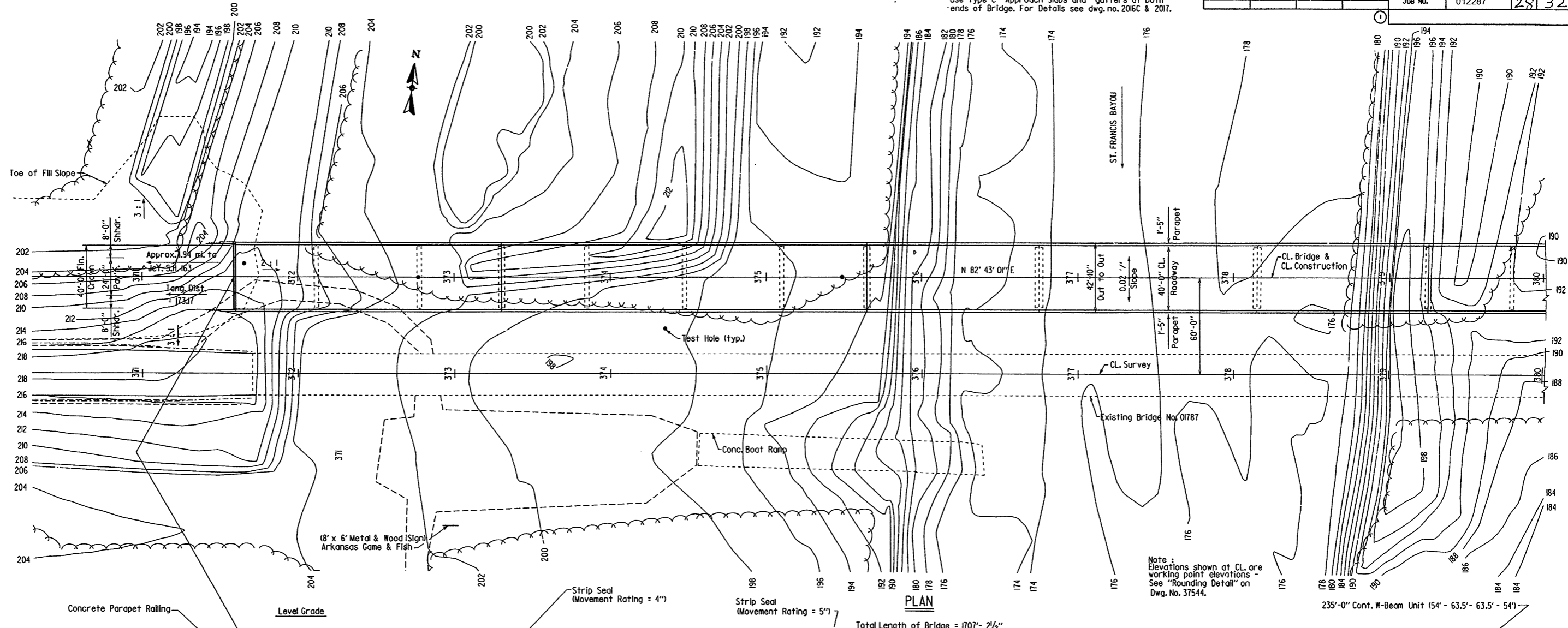
For General Notes, Boring Legend & 'N' numbers, see Dwg. No. 45702.

FOR INFORMATION ONLY

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		28	32
JOB NO.						012287		

Note:  
For Ties between CL. Survey  
and CL. Const., see Rwy. Plans.

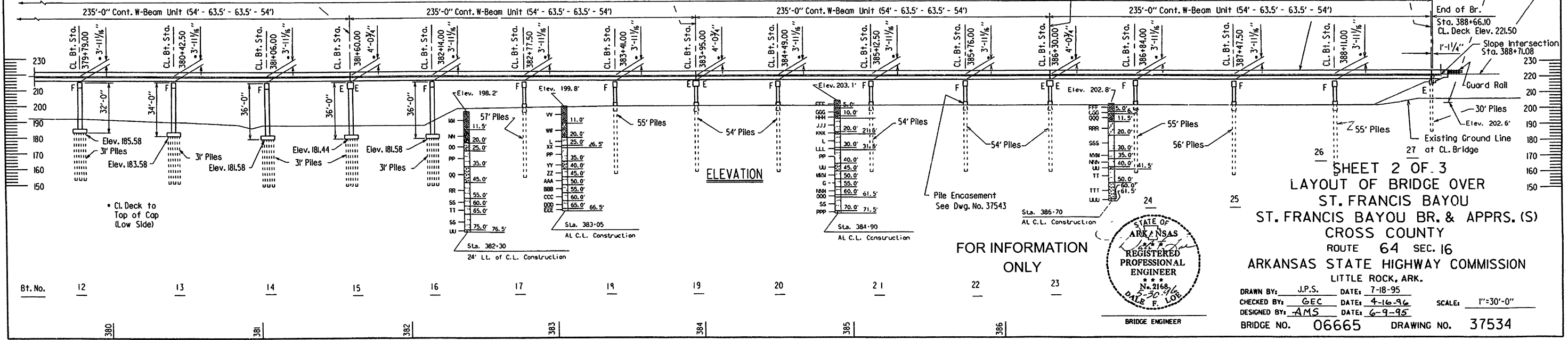
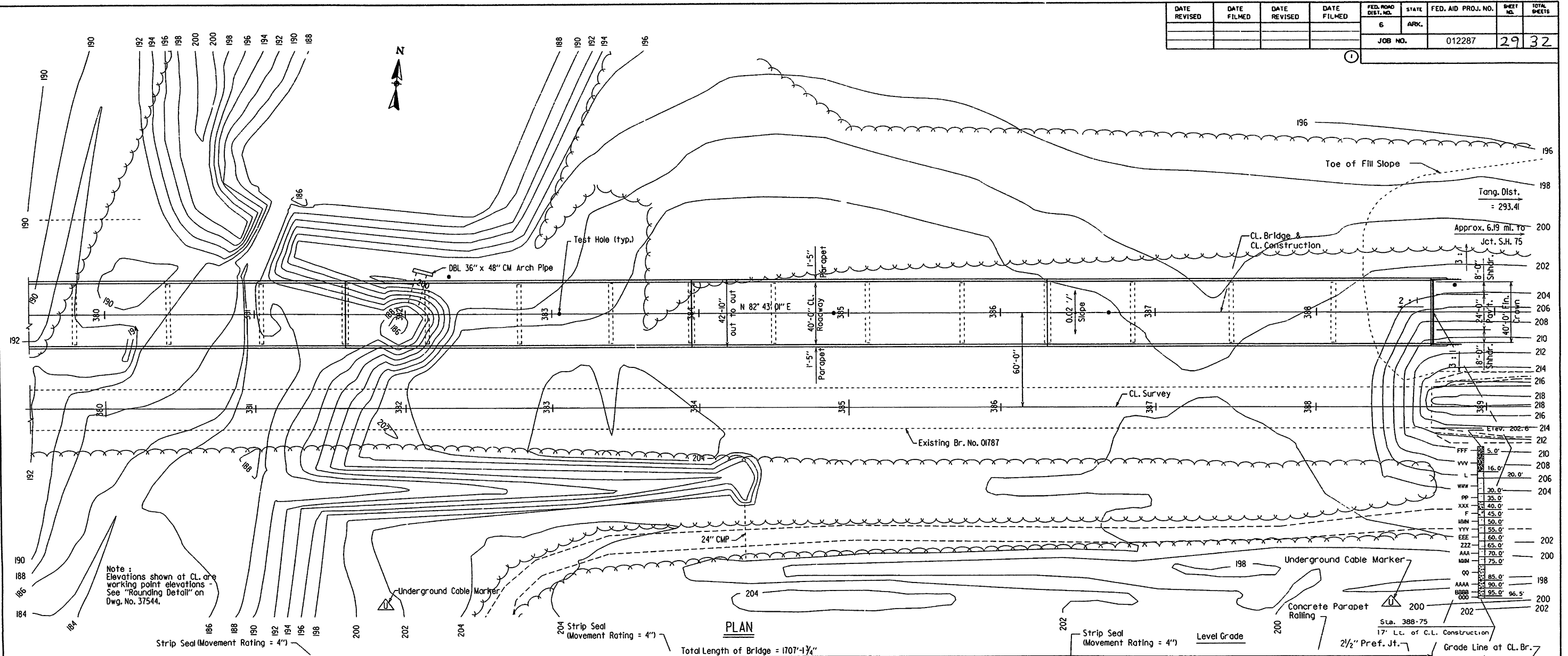
Note:  
For R/W Data and Guard Rail see  
Roadway Plans.  
Use Type C Approach Slabs and gutters at both  
ends of Bridge. For Details see dwg. no. 2016C & 2017.



SHEET 1 OF 3  
LAYOUT OF BRIDGE OVER  
ST. FRANCIS BAYOU  
ST. FRANCIS BAYOU BR. & APPRS. (S)  
CROSS COUNTY  
ROUTE 64 SEC. 16  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: J.P.S. DATE: 7-14-95  
CHECKED BY: GEC DATE: 4-16-96 SCALE: 1"=30'-0"  
DESIGNED BY: AMS DATE: 6-9-95  
BRIDGE NO. 06665 DRAWING NO. 37533

FOR INFORMATION ONLY

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		29	32
JOB NO. 012287							29	32



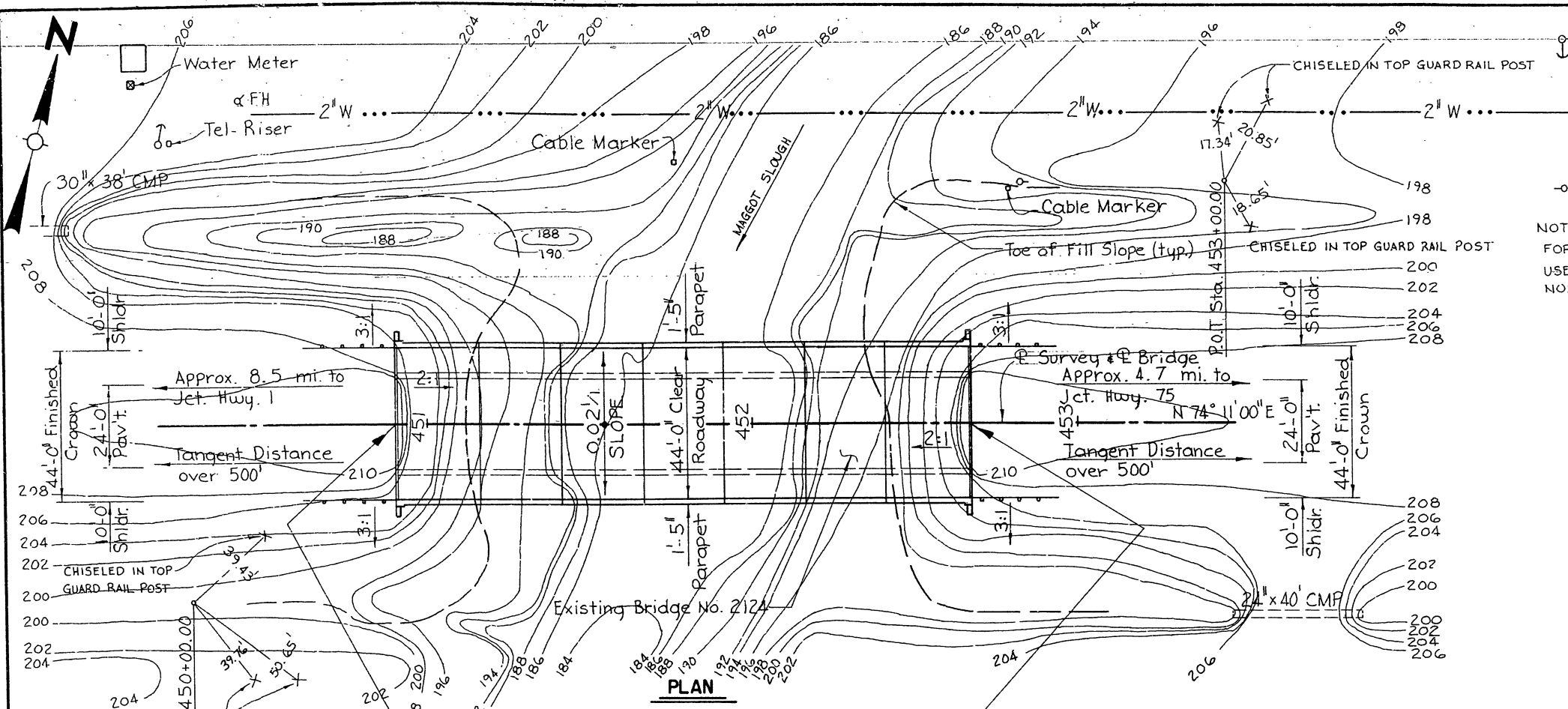
**SHEET 2 OF 3**  
**LAYOUT OF BRIDGE OVER**  
**ST. FRANCIS BAYOU BR. & APPRS. (S)**  
**CROSS COUNTY**  
**ROUTE 64 SEC. 16**  
**ARKANSAS STATE HIGHWAY COMMISSION**  
**LITTLE ROCK, ARK.**

FOR INFORMATION ONLY

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER  
 No. 2168  
 PALE P. LOB  
 BRIDGE ENGINEER

DRAWN BY: J.P.S. DATE: 7-18-95  
 CHECKED BY: GEC DATE: 4-16-96 SCALE: 1"=30'-0"  
 DESIGNED BY: AMS DATE: 6-9-95  
 BRIDGE NO. 06665 DRAWING NO. 37534

DATE REVISED	DATE PLANNED	DATE REPOWERED	DATE REPAIRED	FED. ROAD NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		30	32
							JOB NO.	012287



NOTES:  
 FOR R/W DATA AND GUARD RAIL; SEE ROADWAY PLANS.  
 USE TYPE IA APPROACH GUTTERS AT BOTH ENDS OF BRIDGE; SEE DRAWING NOS. 1898U-1 AND 1898U-2.

GENERAL NOTES  
 BENCH MARK: C.P.S. IN SIDE P. POLE, 82' LT. CENTERLINE STA. 450+17, ELEV. 208.54.

ALL CONCRETE SHALL BE POURED IN THE DRY.  
 PILING IN END BENTS AND BENTS 2 & 7 SHALL BE 16" OCT. OR SQ. PRECAST CONCRETE. PILING IN BENTS 3, 4, 5 & 6 SHALL BE 18" SQ. PRECAST CONCRETE. ALL PILING SHALL BE DRIVEN WITH AN APPROVED AIR, STEAM, OR DIESEL HAMMER TO A MINIMUM BEARING CAPACITY OF 44 TONS PER PILE AND TO A MINIMUM PENETRATION OF 20' FEET BELOW THE GROUND LINE. LENGTHS OF PILING SHOWN ARE ASSUMED FOR ESTIMATING QUANTITIES ONLY. ACTUAL LENGTHS TO BE DETERMINED IN THE FIELD. DRIVE ONE 70' TEST PILE IN BENTS 2 & 6.  
 PILES IN END BENTS TO BE DRIVEN AFTER EMBANKMENT TO SUBGRADE IS IN PLACE.

FOR DETAILS OF END BENTS, SEE DWG. NO. 28034  
 FOR DETAILS OF INTERMEDIATE BENTS, SEE DWG. NO. 28034 & 28035  
 FOR DETAILS OF 25'-0" R.C. SLAB SPANS, SEE DWG. NO. 28036  
 FOR DETAILS OF PRECAST CONCRETE PILING, SEE DWG. NO. 2383  
 SPECIFICATIONS: ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 1978 AND APPLICABLE SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES 1983 WITH INTERIM SPECIFICATIONS.

LIVE LOADING: HS20

METHOD OF DESIGN: LOAD FACTOR

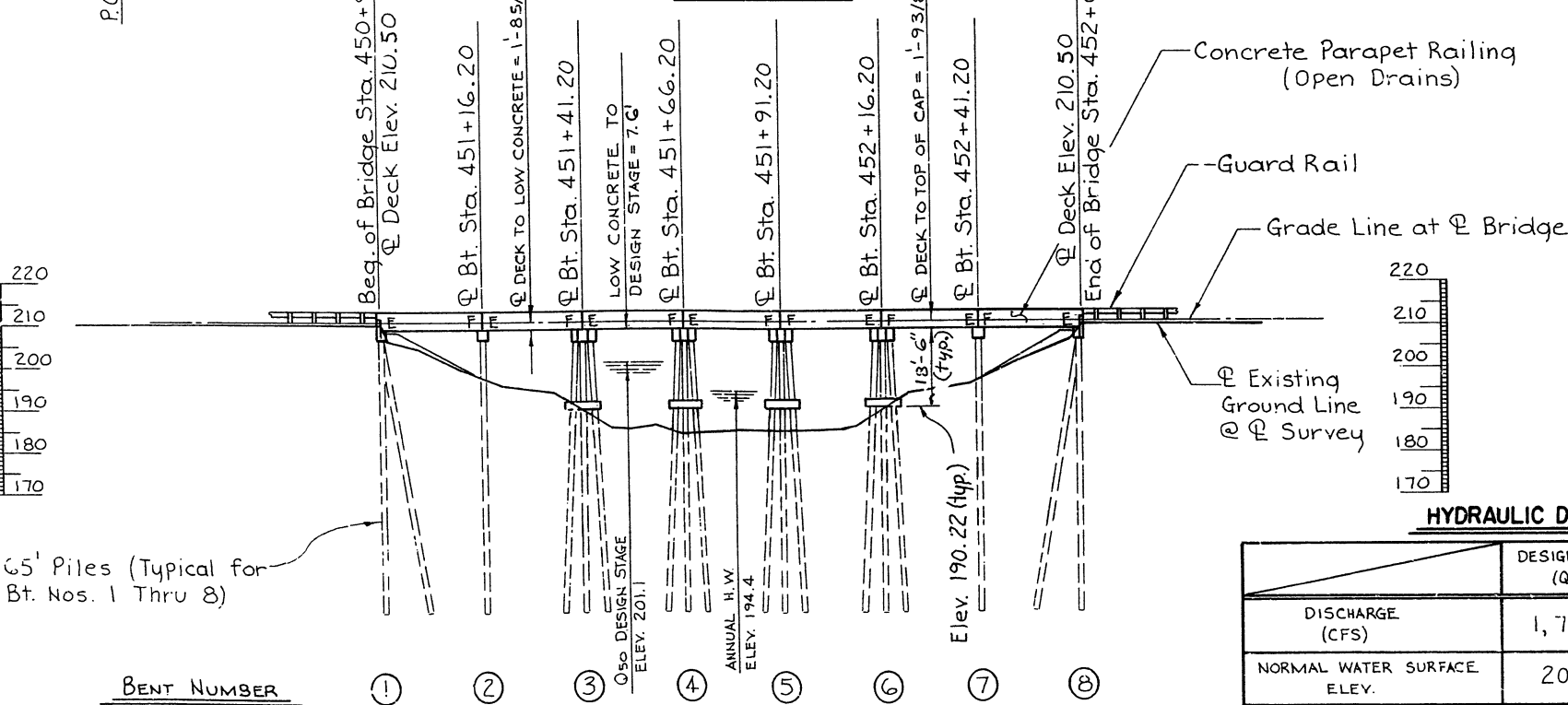
UNIT STRESSES:  
 $f'_c$  = COMPRESSIVE STRENGTH OF CLASS 5 OR 5(A) CONCRETE = 3500 PSI  
 $f_y$  = YIELD STRENGTH OF REINFORCING STEEL = 60,000 PSI

THE WORK TO BE PERFORMED CONSISTS OF REMOVING THE 26' ROADWAY, R.C. SLAB SPANS, AND BENT CAPS OF THE EXISTING BRIDGE NO. 2124, DRIVING ADDITIONAL PILES, POURING NEW BENT CAPS AND 44' ROADWAY, R.C. SLAB SPANS ACCORDING TO THESE PLANS AND SPECIFICATIONS.  
 DETOUR BRIDGE: THE CONTRACTOR SHALL CONSTRUCT A 145' DETOUR BRIDGE, 80' SOUTH OF CENTERLINE BRIDGE WITH A MIN. DECK ELEV. OF 206.0 AND A MIN. CLEAR ROADWAY OF 24' ACCORDING TO SECTION 603 OF THE STANDARD SPECIFICATIONS, SP 603-3, AND DRAWING NOS. 2391 AND 2392. IF TIMBER PILING AND PINE TIMBER ARE USED ON THIS TEMPORARY BRIDGE STRUCTURE, THE MATERIALS SHALL BE TREATED WITH A PRESERVATIVE ACCORDING TO STANDARD SPECIFICATIONS.

BRIDGE DECK: THE CONCRETE BRIDGE DECK SHALL BE GIVEN A TINE FINISH AS SPECIFIED FOR FINAL FINISHING IN SUBSECTION 802.23 FOR CLASS 6 ROADWAY SURFACE FINISH.

Total Length of Bridge = 175'-0"  
 (7-25'-0" R.C. Slab Spans)

LEVEL GRADE



HYDRAULIC DATA

	DESIGN FLOOD (Q50)	BASIC FLOOD (Q100)
DISCHARGE (CFS)	1,780	2,060
NORMAL WATER SURFACE ELEV.	201.1	202.0
NORMAL WATER SURFACE BACKWATER ELEV.	NOT DETERMINED	NOT DETERMINED

FOR INFORMATION ONLY

LAYOUT OF BRIDGE OVER  
 MAGGOT SLOUGH  
 MAGGOT SLOUGH BR. & APPRS.  
 CROSS COUNTY  
 ROUTE 64 SEC. 16

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.  
 DRAWN BY: TEB DATE: 10-30-84  
 CHECKED BY: JEB DATE: 11-19-84  
 DESIGNED BY: JEB DATE: 9-84  
 BRIDGE NO. 2124W DRAWING NO. 28033

BRIDGE ENGINEER

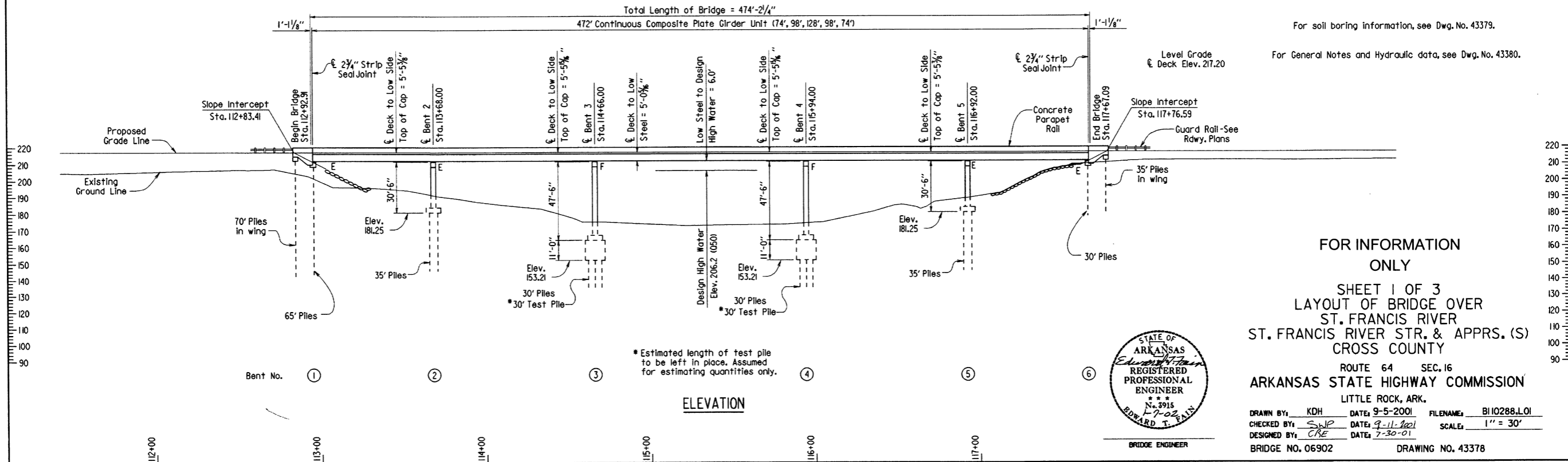
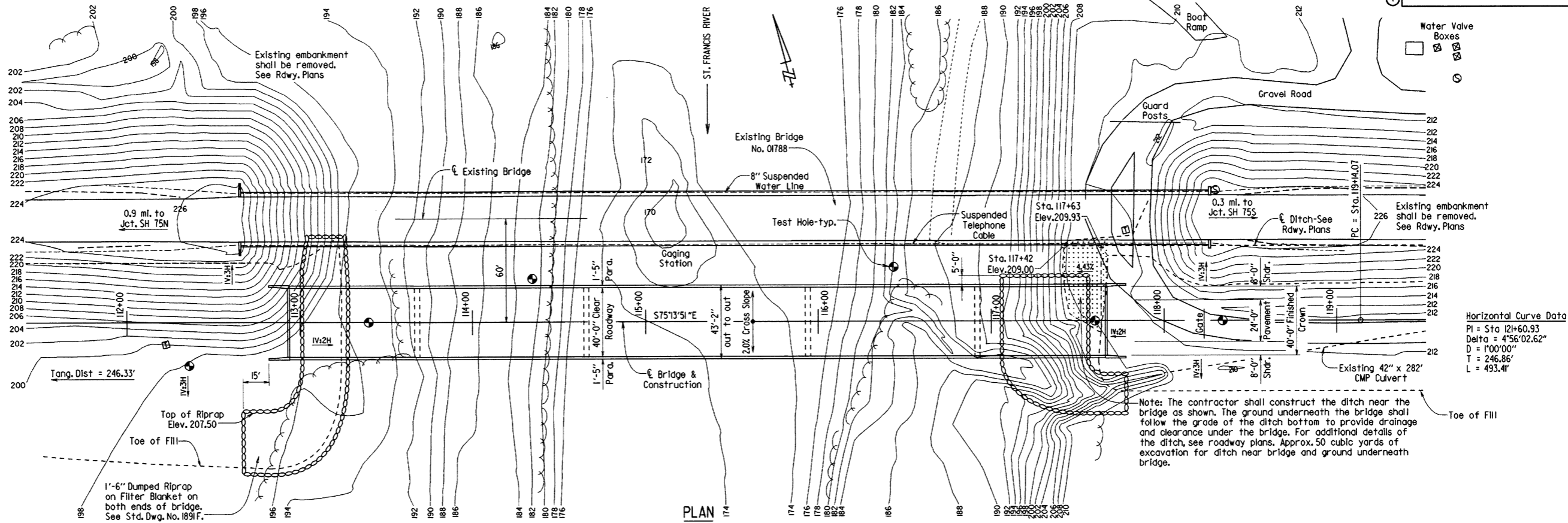
65' Piles (Typical for Bt. Nos. 1 Thru 8)

DRAINAGE AREA = 36.6 SQUARE MILES

For R/W Data & T.C.E., See Rdwy. Plans

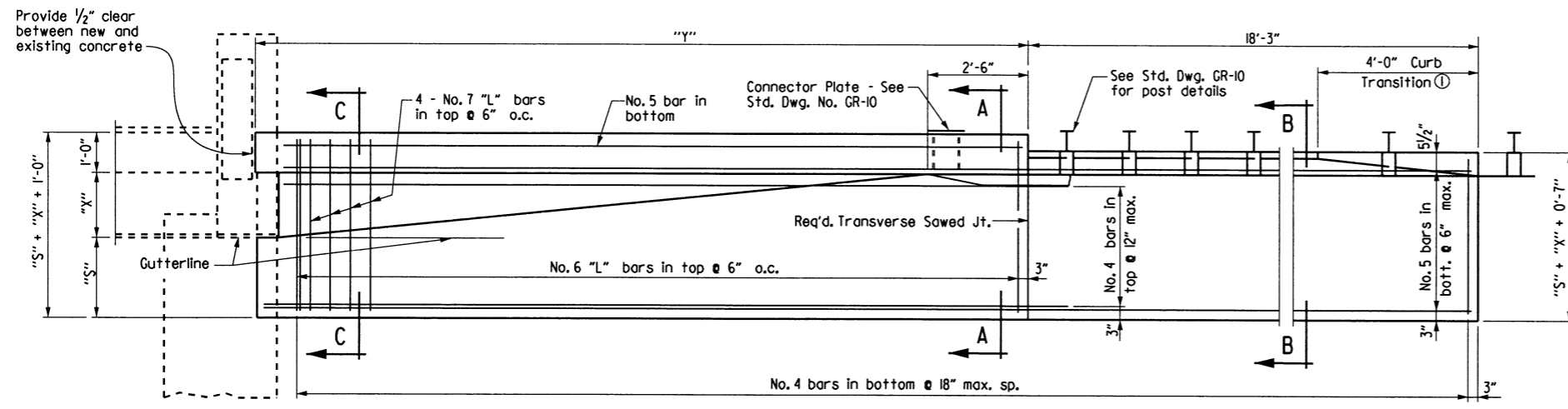
Note: Type Special Approach Slab & Gutters shall be placed at each end of bridge. See Dwg. Nos. 43400 & 43401.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		31	32
				JOB NO.	012287			

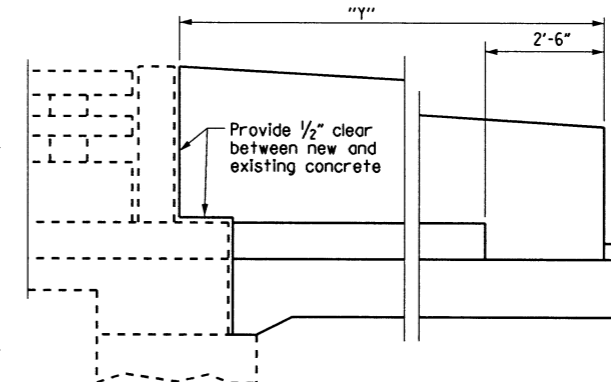




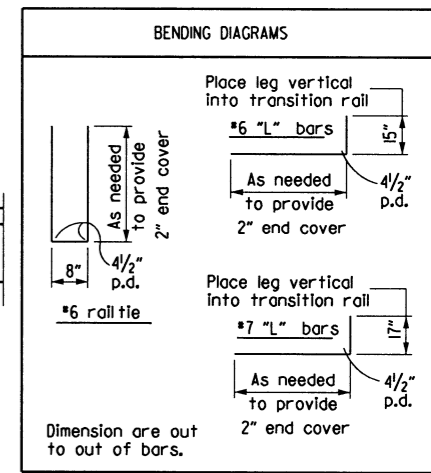
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	O12287	32	32	
				SEE TABLE APPR. GUTTER 59495				



**PLAN - SQUARE BRIDGES**  
1/2" = 1'-0"



**ALTERNATE DETAILS**  
No Scale

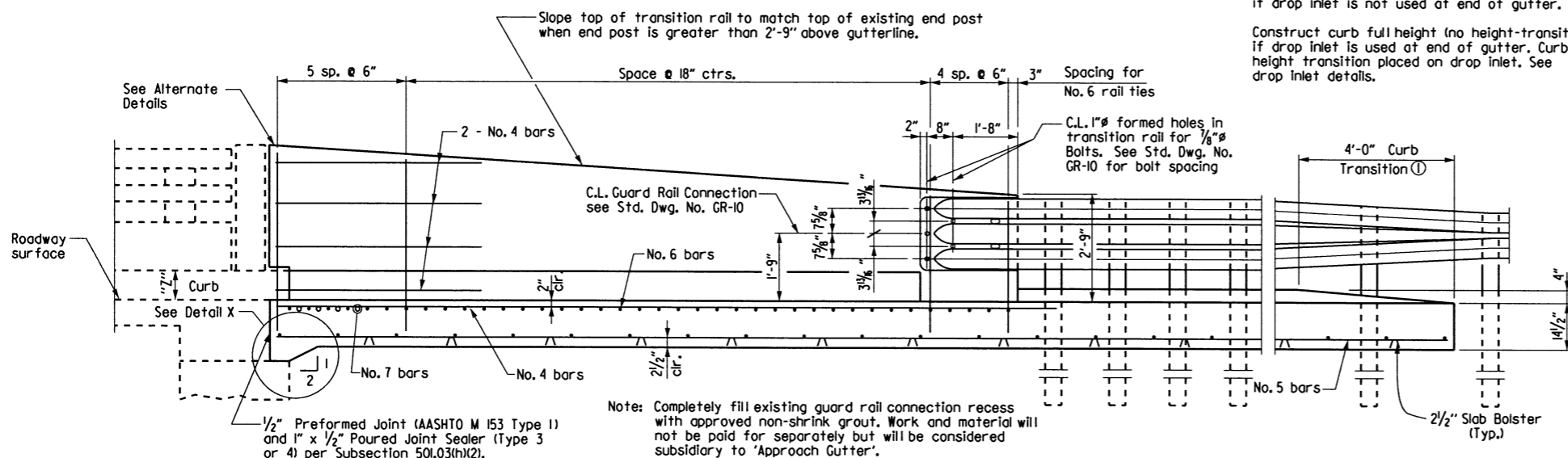


- ① Construct curb with height-transition as shown if drop inlet is not used at end of gutter.
- Construct curb full height (no height-transition) if drop inlet is used at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.

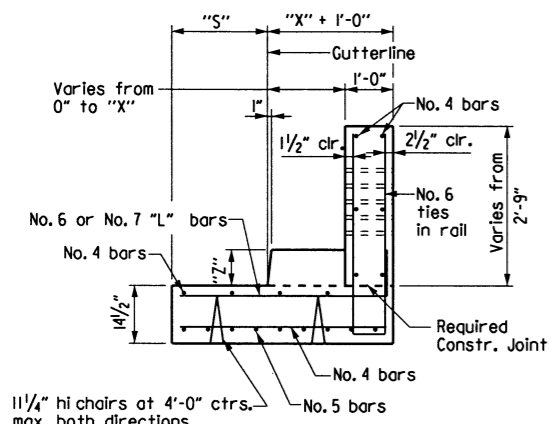
**TABLE OF VARIABLES**

BRIDGE NUMBERS	"X"	"Y"	"Z" ①	APPROX. QUANTITIES FOR INFORMATION ONLY	
				CONCRETE CU. YD.	REINFORCING STEEL LB.
A1340	1'-5 1/2"	17'-1"	10"	(1" S" x 1.58) + 5.93	(1" S" x 178) + 653
03819, 03820, 03821, 00511, 00512, 00513, 00515, 00516, 00517, 00518, 00519, 00520 & 00521	1'-5 1/2"	17'-1"	12"	(1" S" x 1.58) + 6.04	(1" S" x 178) + 657
A1922, A1327, A1330, A1331, A1332, A1333, A1334, A1335, A1337, A1338 & A1339	1'-5 1/2"	17'-1"	14"	(1" S" x 1.58) + 6.16	(1" S" x 178) + 658
03923	1'-7 1/2"	18'-9"	9"	(1" S" x 1.66) + 6.59	(1" S" x 189) + 709

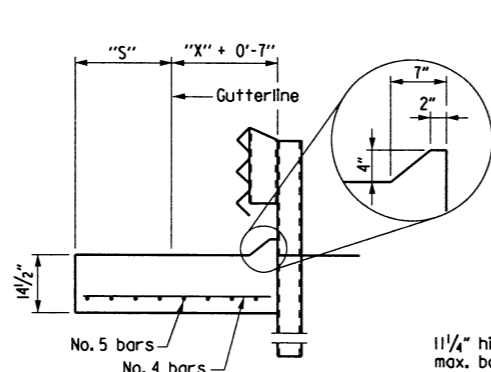
NOTE: "S" = Distance from gutterline to edge of shoulder or edge of approach slab, if present, but in no case less than 3'-0".  
"X" = Distance from gutterline to face of existing end post.  
"Z" = Height of bridge curb.



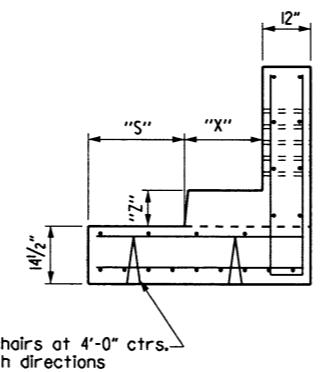
**LONGITUDINAL SECTION THRU GUTTER**  
1/2" = 1'-0"



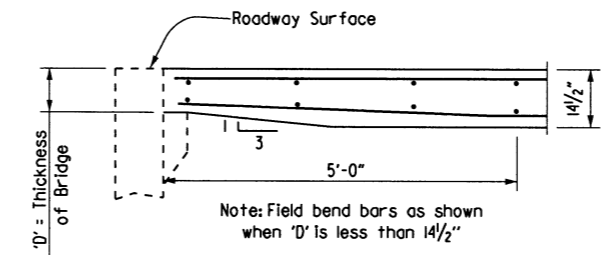
**SECTION A-A**  
1/2" = 1'-0"



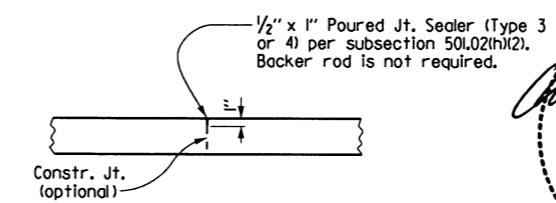
**SECTION B-B**  
1/2" = 1'-0"



**SECTION C-C**  
At end of Transition Rail  
1/2" = 1'-0"



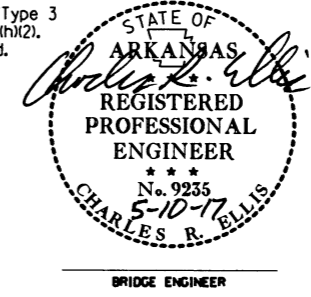
**DETAIL X**  
No Scale



**DETAILS OF TRANSVERSE SAWED JOINT**  
1/2" = 1'-0"

**GENERAL NOTES**

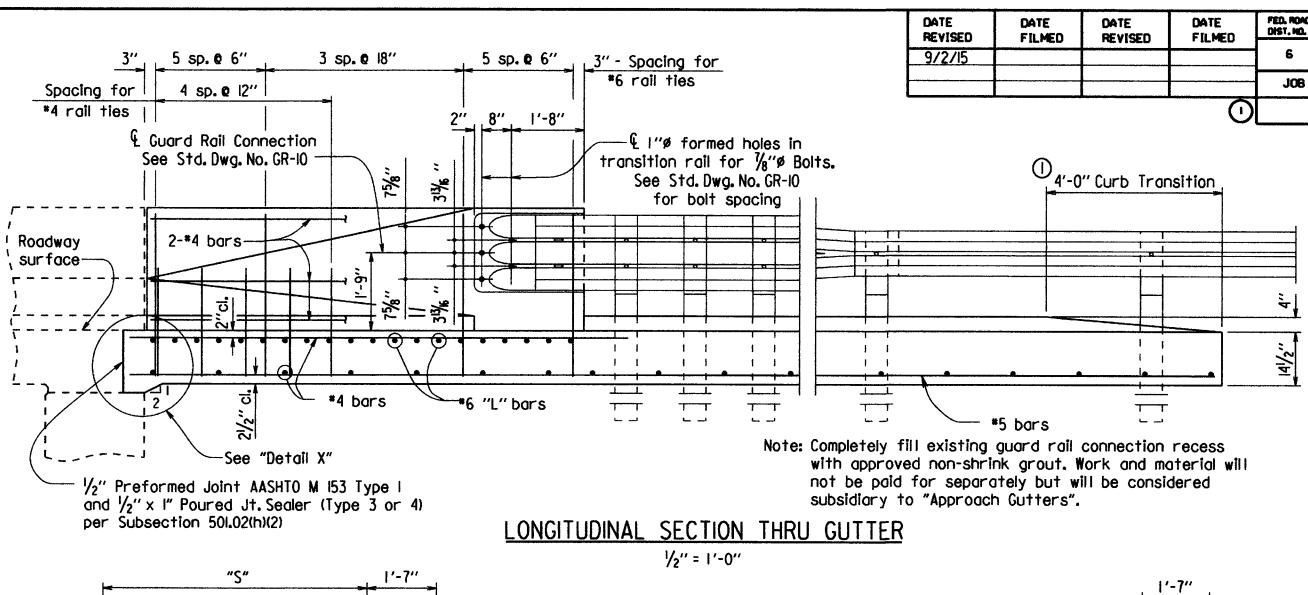
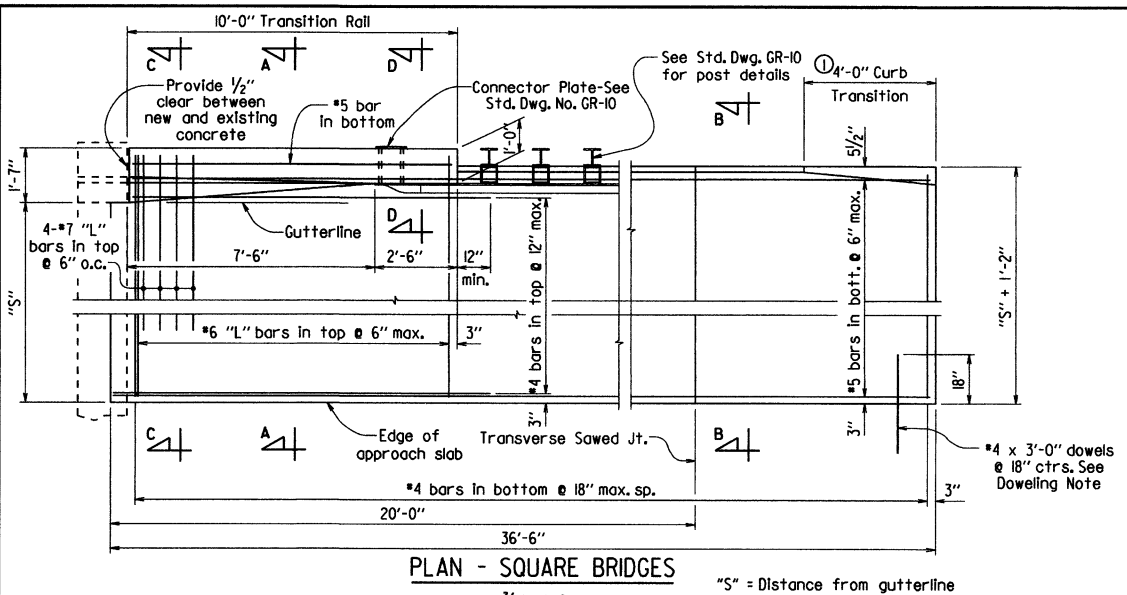
- Concrete shall be Class S or (SAE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.
- All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. Fabricate bar lengths to provide 2" minimum cover at each end.
- Approach gutters will be measured and paid for in accordance with Section 504.
- The Contractor shall verify measurements and make any adjustments required to fit the new work to the existing bridge.
- All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.



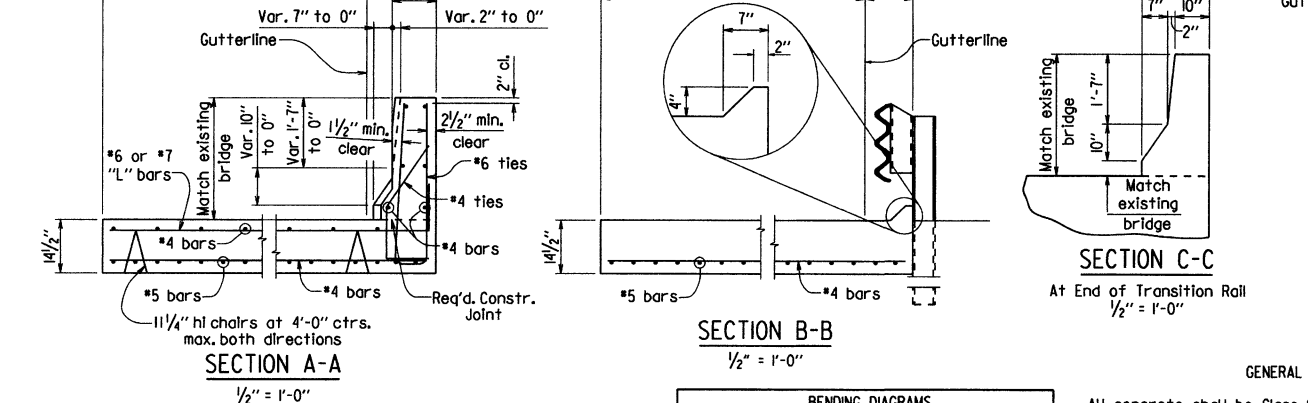
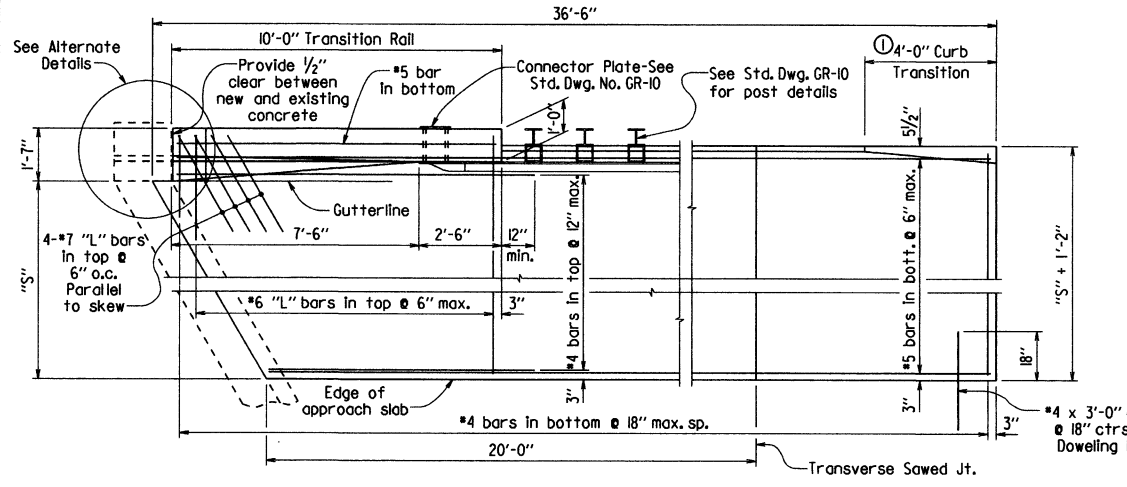
**TYPE SPECIAL APPROACH GUTTERS**  
ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 12-22-16 FILENAME: b012287\_ag.dgn  
CHECKED BY: NVA DATE: 05-10-17 SCALE: As Noted  
DESIGNED BY: STD. DATE: DATE: SCALE: As Noted  
BRIDGE NO. SEE TABLE DRAWING NO. 59495

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9/2/15				6	ARK.			
JOB NO.							TYPE PT GUTTERS	55035



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

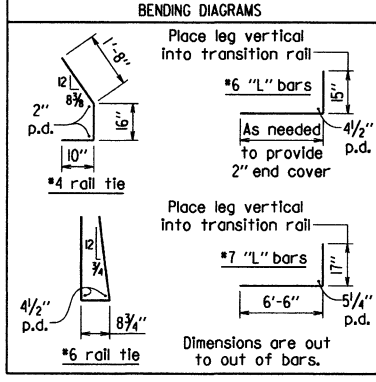


GENERAL NOTES

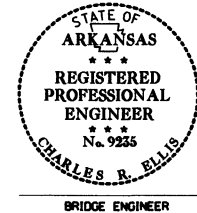
All concrete shall be Class S or (S/AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.  
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. Fabricate bar lengths to provide 2" minimum cover at each end.  
Approach gutters will be measured and paid for in accordance with Section 504.

**QUANTITIES FOR ONE SQUARE APPROACH GUTTER**  
(FOR INFORMATION ONLY)

"S"	Concrete	Reinforcing Steel
5'-6"	12.49 cu.yd.	1227 lb.
5'-9"	12.91 cu.yd.	1276 lb.
6'-0"	13.34 cu.yd.	1296 lb.
9'-6"	19.23 cu.yd.	1746 lb.
9'-9"	19.65 cu.yd.	1795 lb.
10'-0"	20.07 cu.yd.	1815 lb.



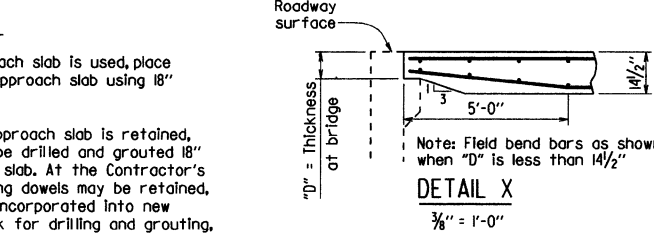
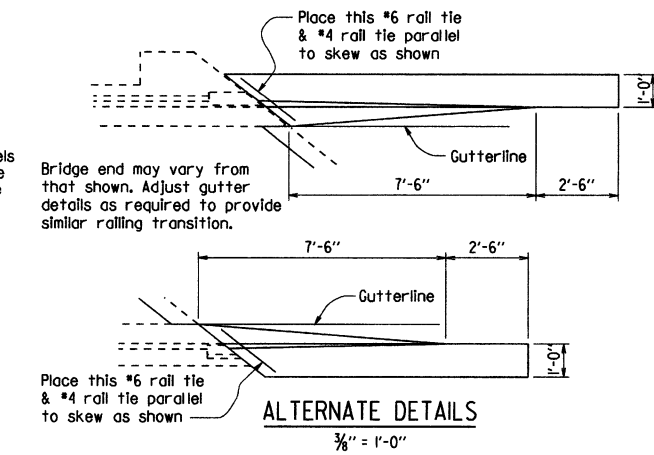
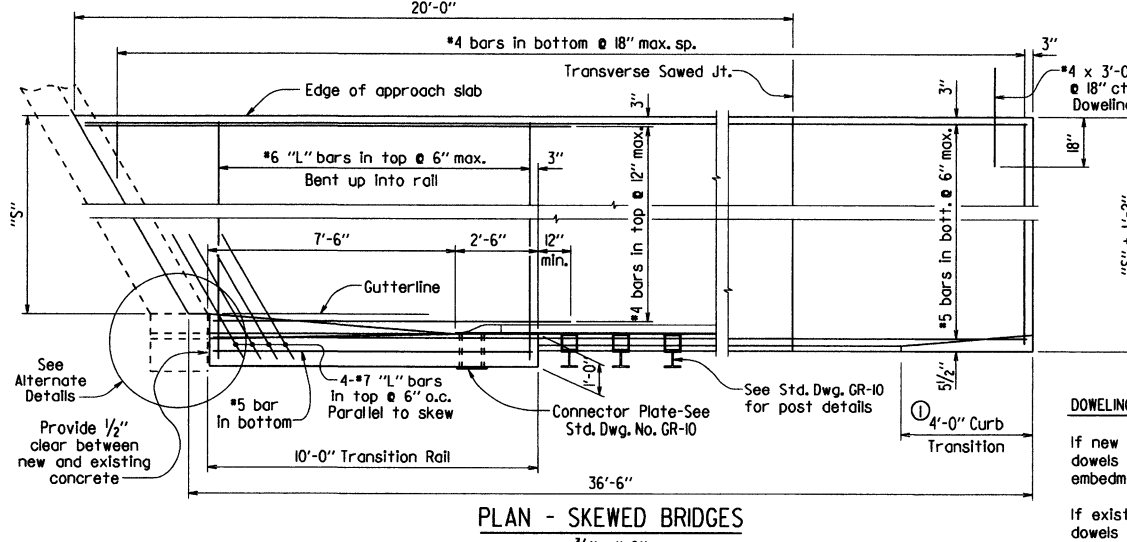
Added note for gutters within the limits of horizontal curves. By: AMS  
Checked By: KKY 9/2/15



**STANDARD DETAILS FOR TYPE 'PT' APPROACH GUTTERS (BRIDGES WITH CONCRETE PARAPET RAILING)**

ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

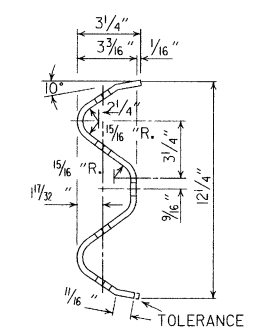
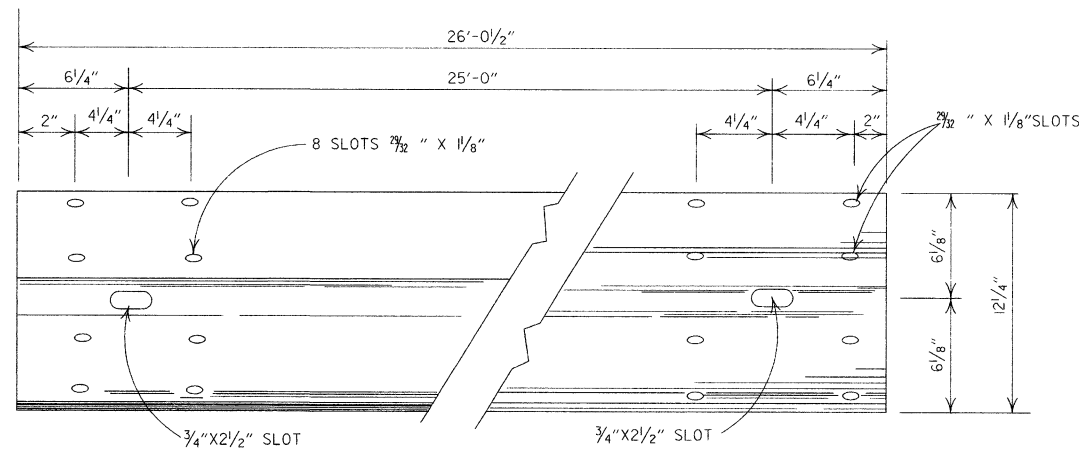
DRAWN BY: KDH DATE: 2/27/2014 FILENAME: b55035.dgn  
CHECKED BY: KKY DATE: 2/27/2014 SCALE: AS SHOWN  
DESIGNED BY: STD. DATE: DATE: DRAWING NO. 55035



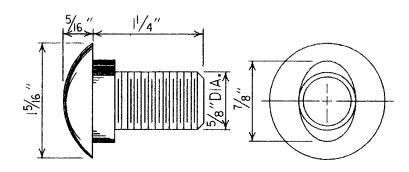
**DOWELING NOTE**  
If new approach slab is used, place dowels into approach slab using 18" embedment.  
If existing approach slab is retained, dowels shall be drilled and grouted 18" into existing slab. At the Contractor's option, existing dowels may be retained, cleaned and incorporated into new gutters. Work for drilling and grouting, or retaining and cleaning will not be paid for separately but will be considered subsidiary to "Approach Gutters".

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

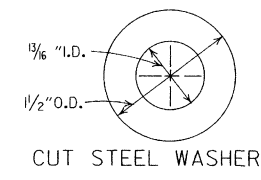
This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on September 2, 2015. This copy is not a signed and sealed document.



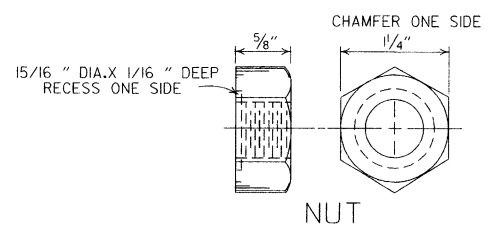
DETAILS OF W-BEAM GUARD RAIL  
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



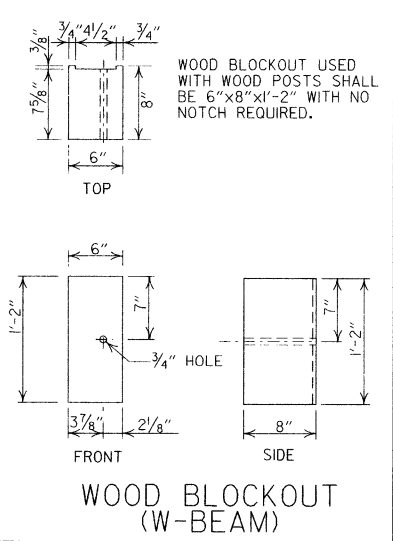
SPLICE BOLT  
POST BOLT - SAME EXCEPT LENGTH



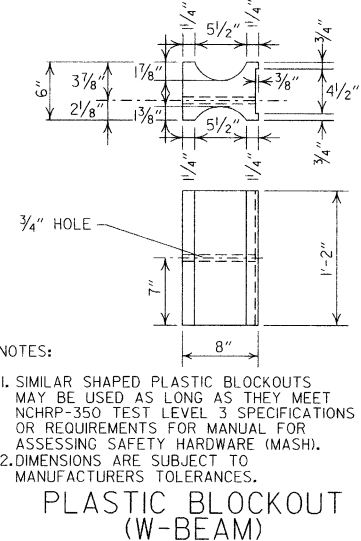
CUT STEEL WASHER



NUT

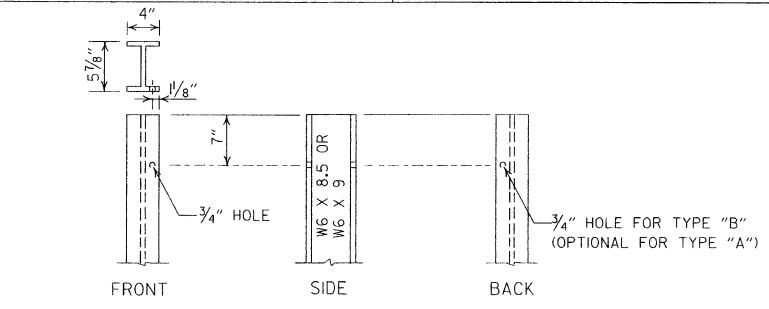


WOOD BLOCKOUT (W-BEAM)

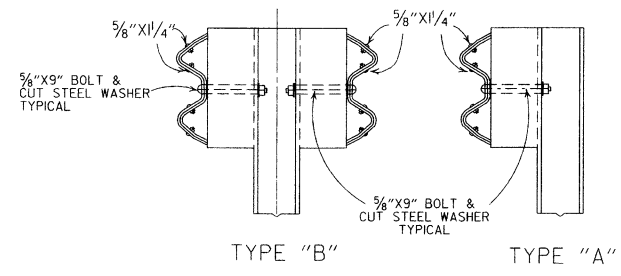


PLASTIC BLOCKOUT (W-BEAM)

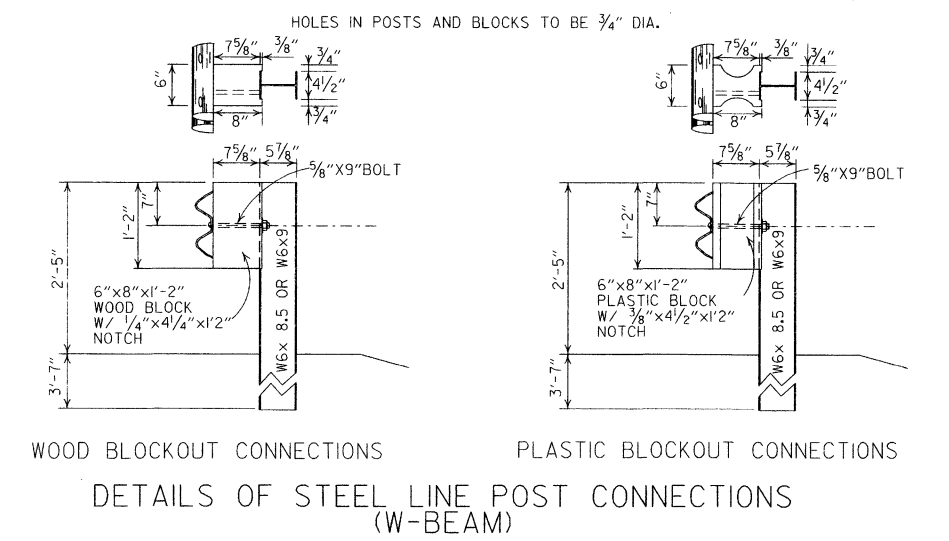
NOTES:  
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).  
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.



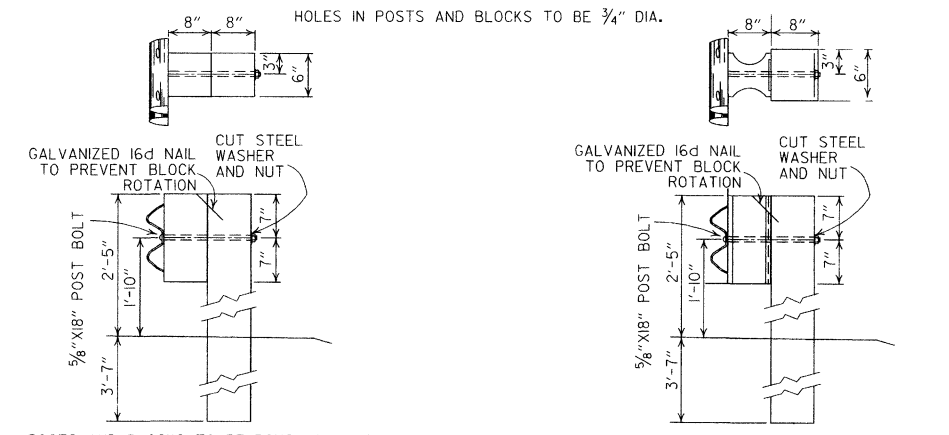
STEEL POST



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-

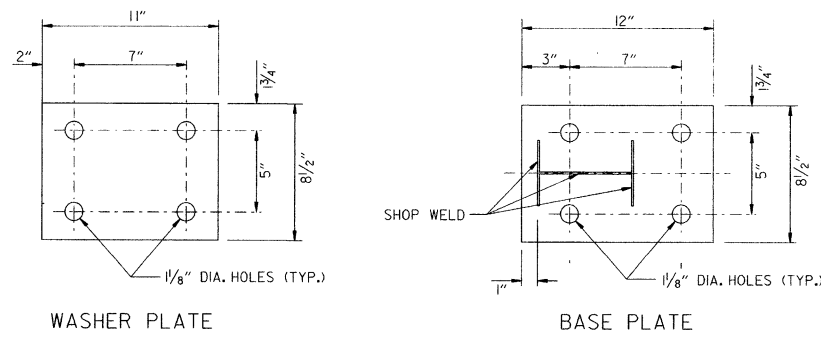
ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 1/4" BEYOND IT.  
WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.  
W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE 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.

7-14-80	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-89	ADDED REFERENCE TO MASH	
4-10-93	REVISED GENERAL NOTES	
8-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
4-16-01	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 ANC. POST IN ROCK	8-2-90
7-15-88	REVISED SECTION 3 & GENERAL NOTES	
3-4-88	REV. ANCHOR POST, ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-9-87	REDRAWN & REVISED	802-10-9-87
DATE	REVISION	DATE FILM

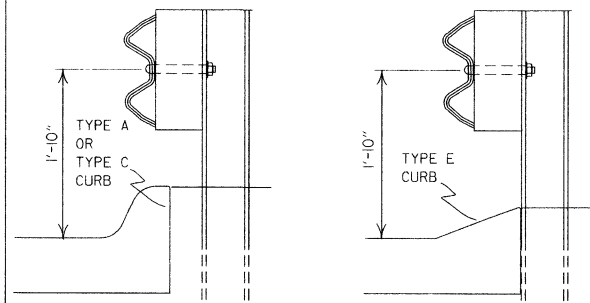
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8



Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.

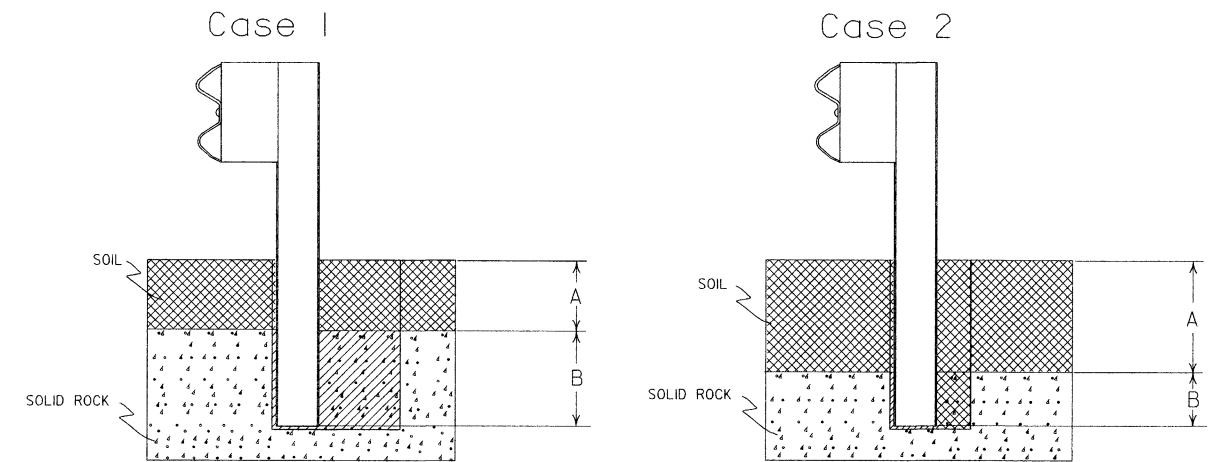


FOR DESIGN SPEEDS OF 50 MPH OR LESS  
ALIGN FACE OF GUARD RAIL WITH FACE OF CURB.

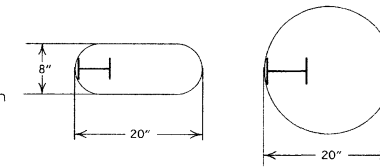
FOR DESIGN SPEEDS OF 55 MPH OR MORE  
PLACE GUARD RAIL POSTS AGAINST BACK OF CURB.

DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

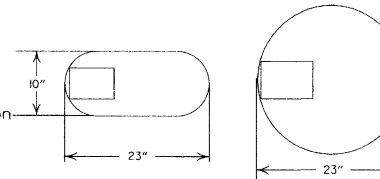
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



Plan View Steel Posts  
Either hole configuration acceptable



Plan View Wood Posts  
Either hole configuration acceptable



Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

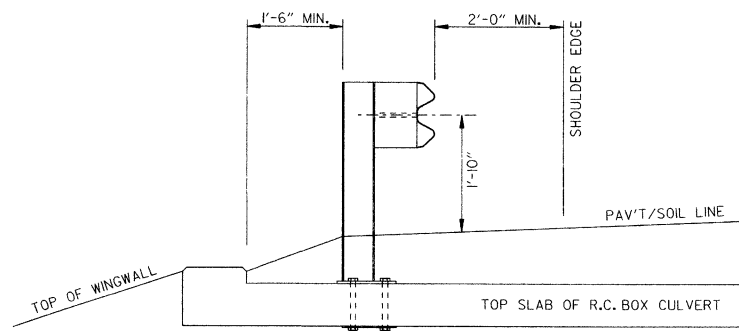
Zone A: Backfill according to Section 617.03(a).

Zone B: Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.

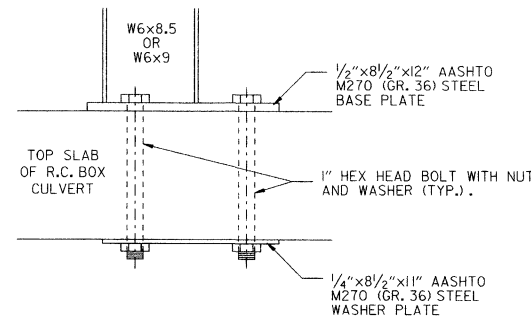
Notes: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

Zone A & B: Backfill according to Section 617.03(a).

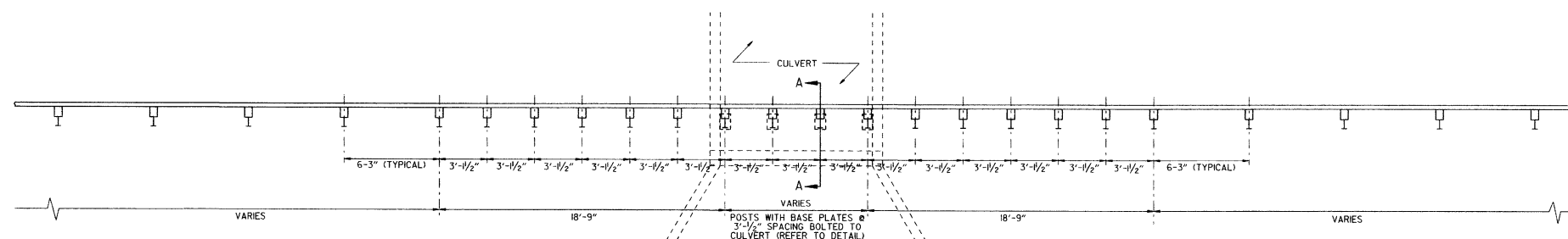
DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)



SECTION A-A



DETAIL OF CONNECTION



PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DRWG. GR-8.

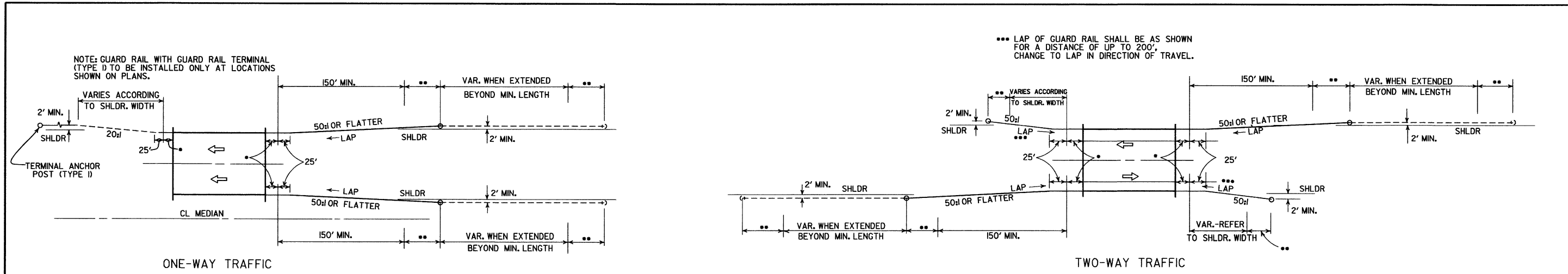
NOTE: WHEN POSSIBLE, POSTS SHALL BE SPACED TO AVOID INTERIOR AND EXTERIOR WALLS OF CULVERT. WHEN THIS IS NOT POSSIBLE AND POST(S) MUST BE INSTALLED OVER AN INTERIOR OR EXTERIOR WALL, ANCHOR BOLTS SHALL BE INSTALLED BY DRILLING AND EPOXYING USING METHODS AND MATERIALS APPROVED BY THE ENGINEER.

7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
4-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS	
3-30-00	REMOVED CONCRETE INSERT ANCHOR	
8-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCK; ADD. DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULVERT. DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK	
4-3-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
6-2-94	REVISED ALTERNATE POST SIZE	
8-5-93	REVISED STEEL POST SIZE	
10-1-92	REDRAWN & REVISED	10-1-92
8-2-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
7-15-88	CONFORMED TO 1988 SPECS	
3-4-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	72-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-9-87	REDRAWN & REVISED	803-10-9-87
DATE	REVISION	DATE FILM

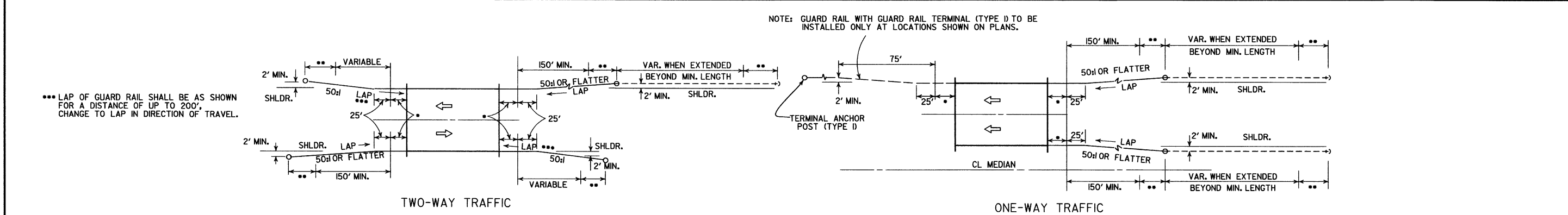
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

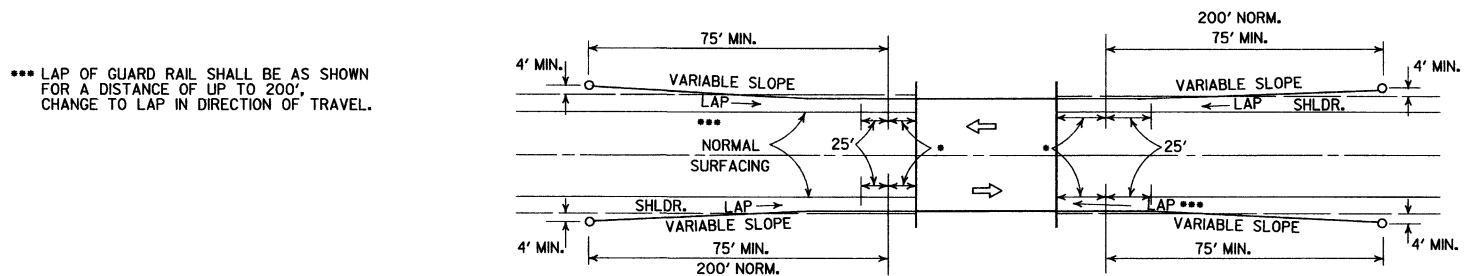
STANDARD DRAWING GR-8A



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)

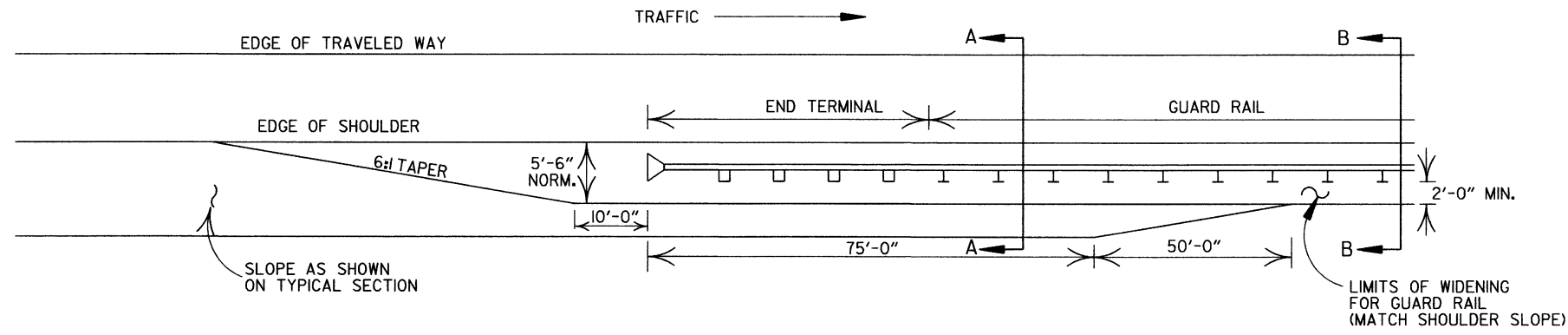


METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE 1) (FULL SHOULDER WIDTH OR LESS BRIDGES)

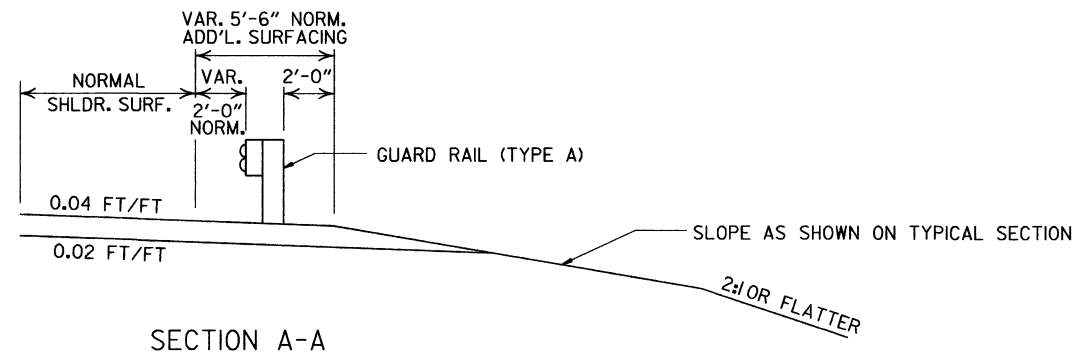
LEGEND

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

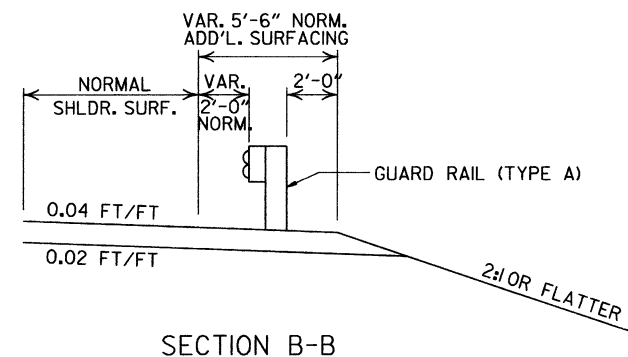
ARKANSAS STATE HIGHWAY COMMISSION		
GUARD RAIL DETAILS		
STANDARD DRAWING GR-9		
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. 1)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT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



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

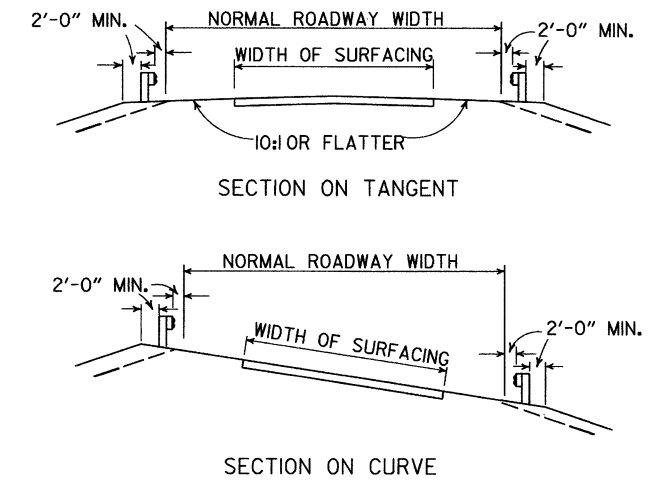


SECTION A-A

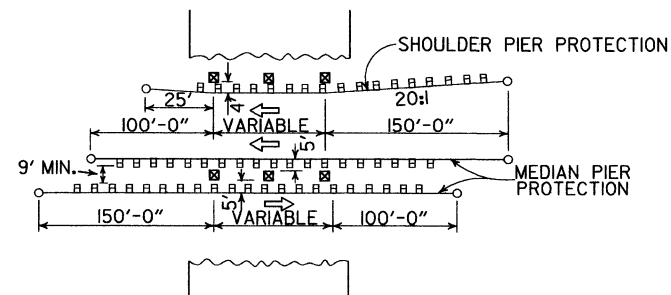


SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

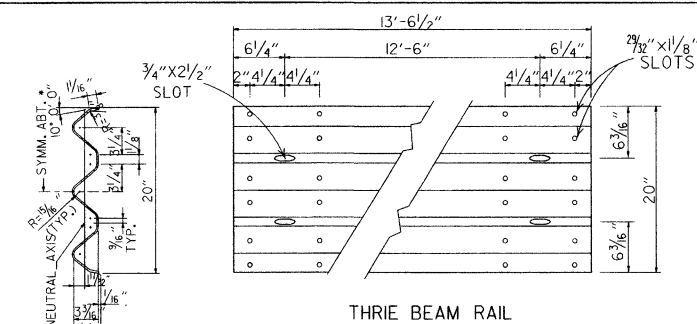


DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



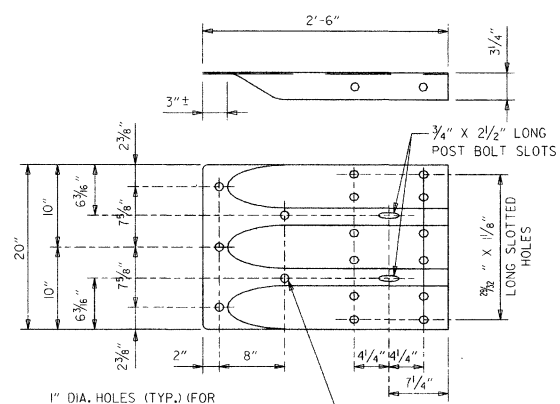
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

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



THRIE BEAM RAIL

SECTION THRU THRIE BEAM RAIL



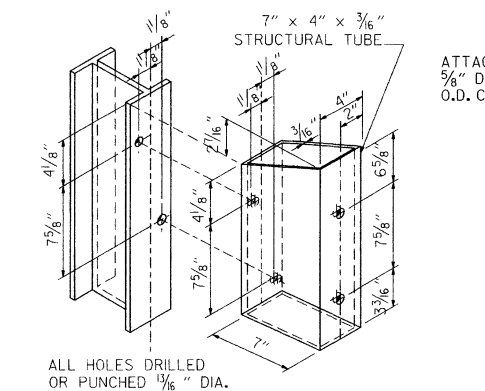
SPECIAL END SHOE

1" DIA. HOLES (TYP.) FOR 7/8" DIA. HIGH STRENGTH BOLTS WITH HEX HEADS, NUTS AND WASHERS

ATTACH BLOCKOUT TO POST USING 5/8" DIA. HEX HEAD BOLTS WITH 1/2" O.D. CUT STEEL WASHERS AND NUT.

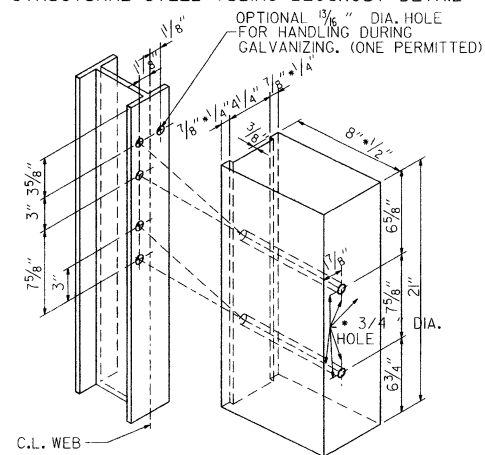
1" DIA. HOLES (TYP.) FOR 7/8" DIA. HIGH-STRENGTH BOLTS

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



STRUCTURAL STEEL TUBING BLOCKOUT DETAIL

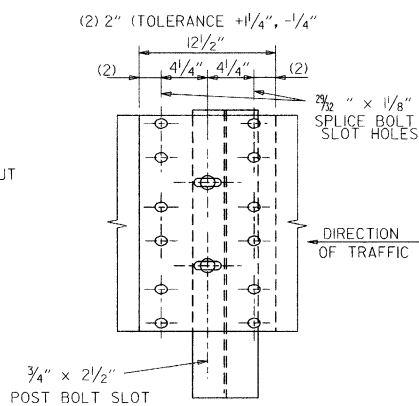
ALL HOLES DRILLED OR PUNCHED 1/8" DIA.



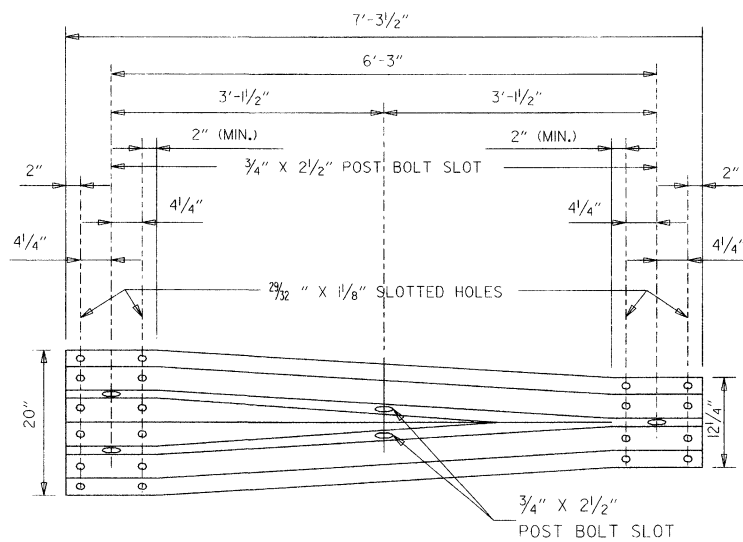
ALL HOLES 3/8" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

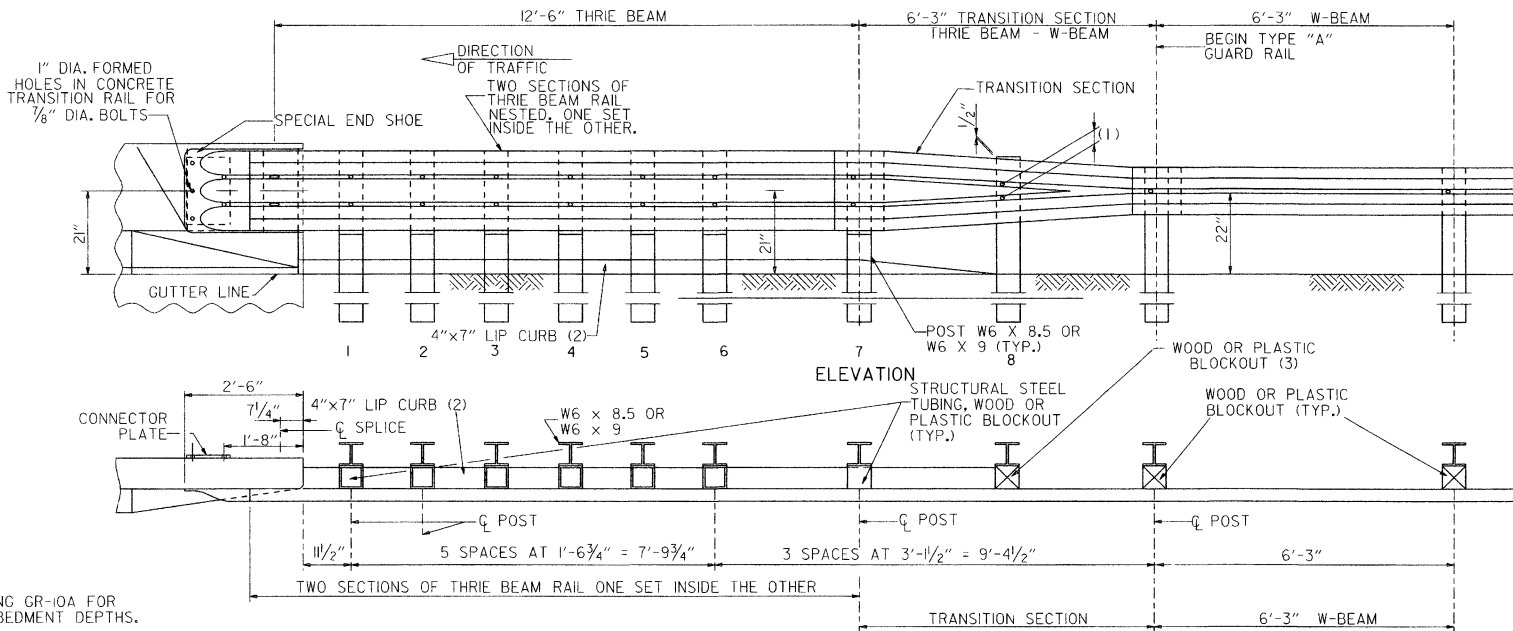
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



THRIE BEAM RAIL SPLICE AT POST

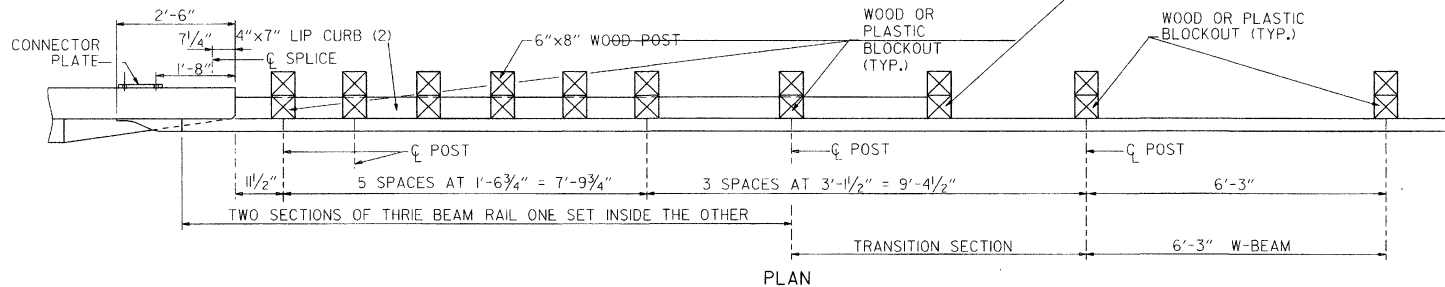


TRANSITION SECTION



ELEVATION

PLAN



PLAN

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

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE 1.

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

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.

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

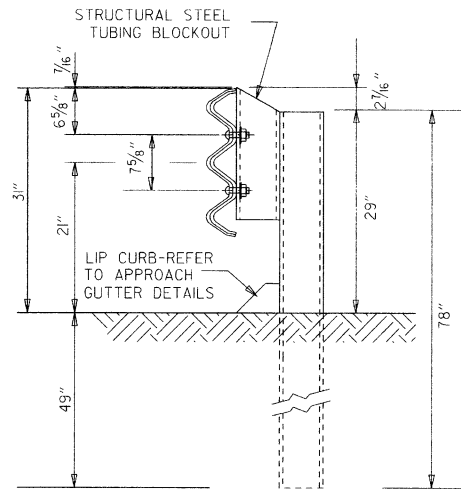
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 11350 f SOUTHERN PINE.

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

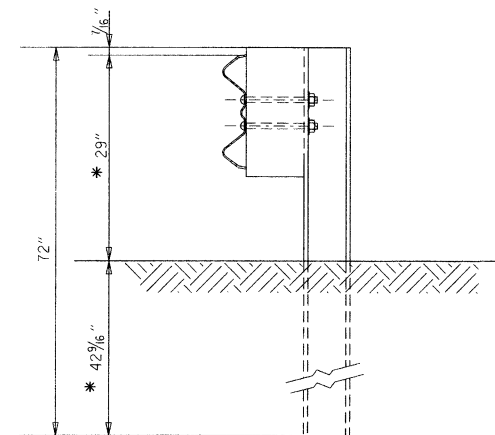
USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

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

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	DATE FILM	

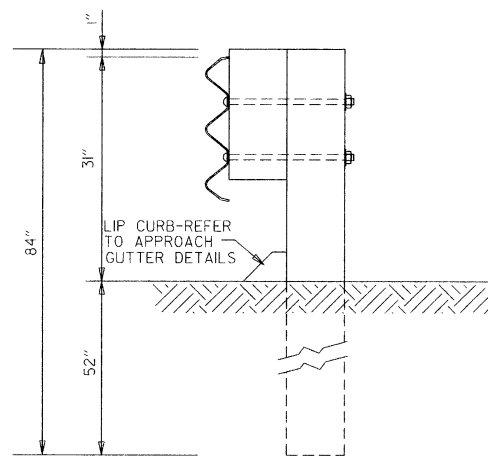


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT AND STEEL POST  
POSTS 1-7

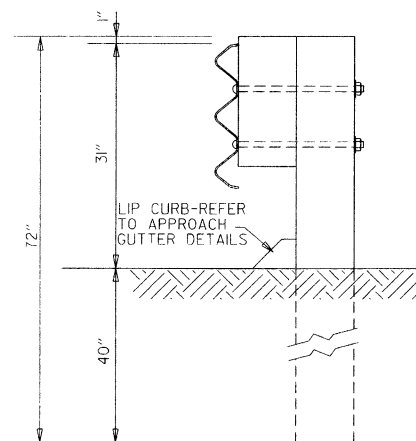


W-BEAM TO THRIE BEAM TRANSITION RAIL WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST  
POST 8

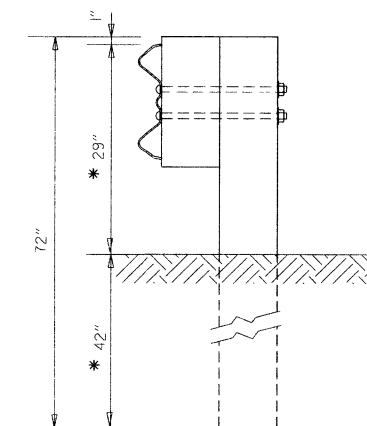
\* NOTE:  
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



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



REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43¾	44	26¾	27
42	51½	51	31¾	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87½	87
120	154	154	96¾	97
132	168¾	169	106½	107

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M206.

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

EQUIV. DIA.	AASHTO M 207	
	SPAN	RISE
INCHES	INCHES	
18	23	14
24	30	19
27	34	22
30	38	24
33	42	27
36	45	29
39	49	32
42	53	34
48	60	38
54	68	43
60	76	48
66	83	53
72	91	58
78	98	63
84	106	68

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M207.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SUBSECTION 606.03.(f)(ii).

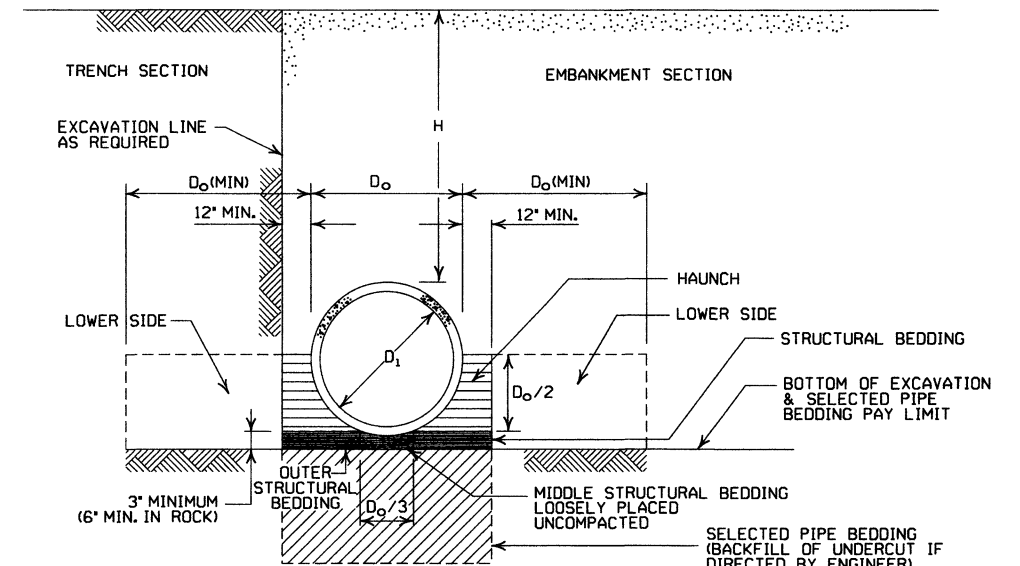
NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

- LEGEND -

- D<sub>1</sub> = NORMAL INSIDE DIAMETER OF PIPE
- D<sub>o</sub> = OUTSIDE DIAMETER OF PIPE
- H = FILL COVER HEIGHT OVER PIPE (FEET)
- MIN. = MINIMUM
- UNDISTURBED SOIL

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

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

INSTALLATION TYPE	CLASS OF PIPE			
	CLASS III		CLASS IV	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	FEET	
	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
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT  
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1



**CORRUGATED STEEL PIPE (ROUND)**

PIPE DIAMETER (INCHES)	① 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	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88		118
42	1	41	51	72		102
48	1	36	45	64		85
54	2	32	40	59		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.

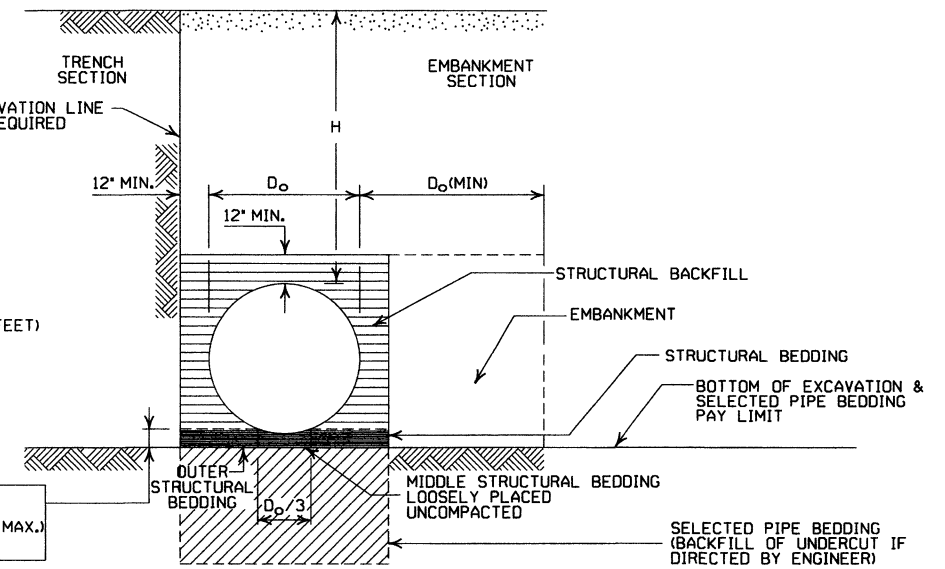
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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.

**EQUIVALENT METAL THICKNESSES AND GAUGES**

METAL THICKNESS IN INCHES			GAUGE NUMBER	
STEEL				
ZINC COATED	UNCOATED	ALUMINUM		
0.064	0.0598	0.060		16
0.079	0.0747	0.075		14
0.109	0.1046	0.105		12
0.138	0.1345	0.135		10
0.168	0.1644	0.164	8	



**EMBANKMENT AND TRENCH INSTALLATIONS**

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. 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 (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

**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	52		
18	2	30	30	39	41	
24	2	22	22	31	32	34
30	2		18	26	27	28
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

**CORRUGATED METAL PIPE ARCHES**

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	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	0.135	3	14		
66	77x52	8	0.168	3	15	0.164	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	12	12	15	15		
42	46x36	6	0.079	3	2	13	15	15		
48	53x41	7	0.079	3	2	13	15	15		
54	60x46	8	0.079	3	2	13	15	15		
60	66x51	9	0.079	3	2	13	15	15		
66	73x55	12	0.079	3	2	15	15	15		
72	81x59	14	0.079	3	2	15	15	15		
78	87x63	14	0.079	3	2	15	15	15		
84	95x67	16	0.109	3	2	15	15	15		
90	103x71	16	0.109	3	2	15	15	15		
96	112x75	18	0.109	3	2	15	15	15		
102	117x79	18	0.109	3	2	15	15	15		
108	128x83	18	0.138	3	2	15	15	15		

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

② WHERE THE STANDARD 2 2/3" 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
2-27-14	REVISED GENERAL NOTE 1	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

**METAL PIPE CULVERT FILL HEIGHTS & BEDDING**

STANDARD DRAWING PCM-1



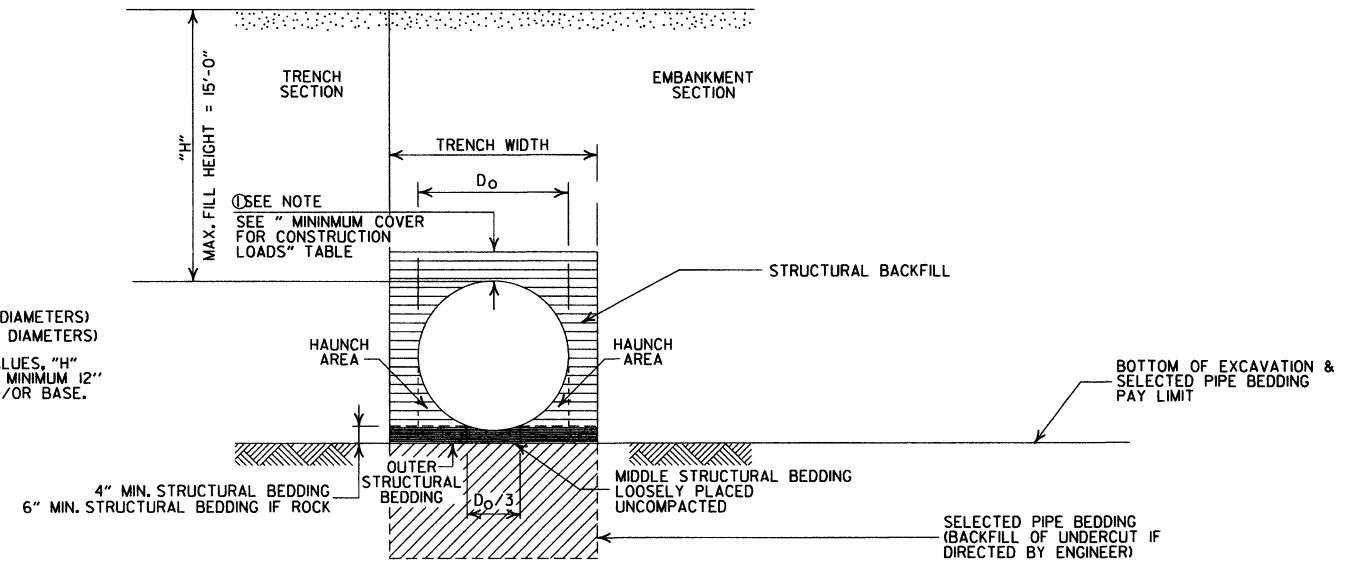
INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.
- SM3 WILL NOT BE ALLOWED.
- STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.
- STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" ≥ 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

①NOTE:  
18" MIN. (18" - 30" DIAMETERS)  
24" MIN. (36" - 48" DIAMETERS)  
MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

- 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.

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

- PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
- PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
- THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
- 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.
- 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."
- WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
- FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
- HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
- JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)  
D<sub>o</sub> = OUTSIDE DIAMETER OF PIPE  
MAX. = MAXIMUM  
MIN. = MINIMUM

===== = STRUCTURAL BACKFILL MATERIAL  
||||||| = UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE I.	
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT  
(HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1



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

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

SM3 WILL NOT BE ALLOWED.

\*\* STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1/2 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

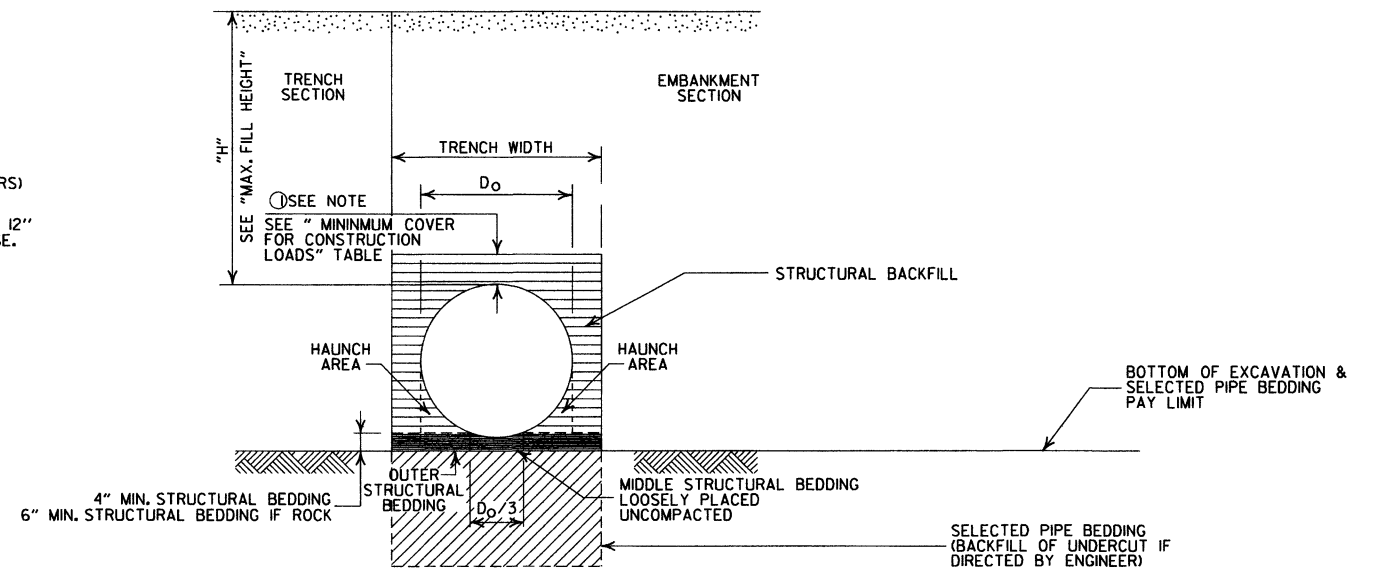
MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

- LEGEND -

H = FILL HEIGHT (FT.)  
D<sub>o</sub> = OUTSIDE DIAMETER OF PIPE  
MAX. = MAXIMUM  
MIN. = MINIMUM

==== = STRUCTURAL BACKFILL MATERIAL  
===== = UNDISTURBED SOIL

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

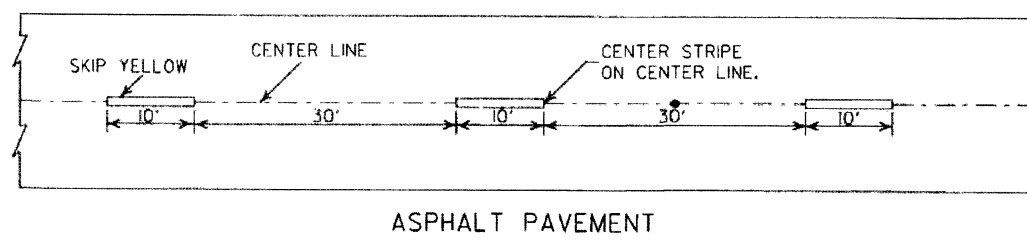
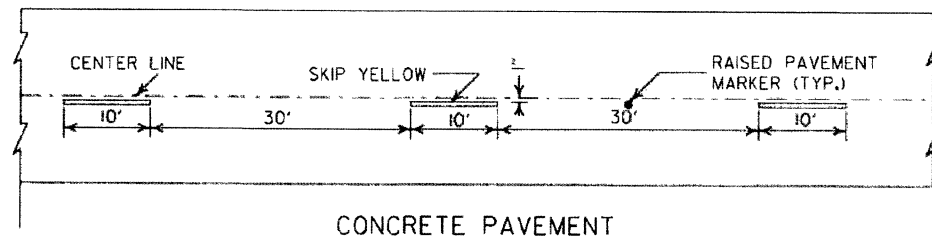
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

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PLASTIC PIPE CULVERT  
(PVC F949)

STANDARD DRAWING PCP-2

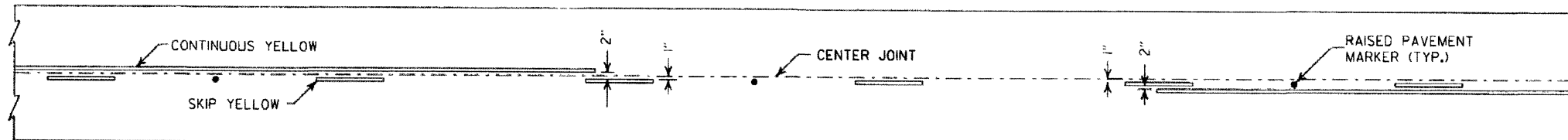




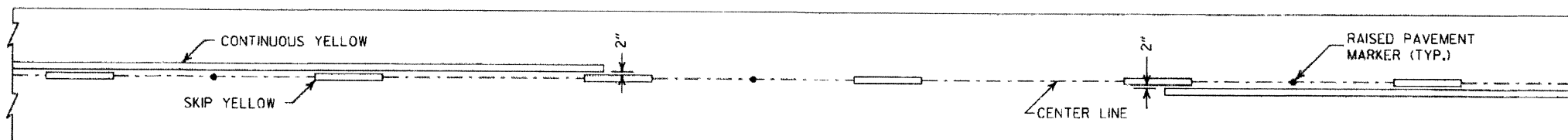
CONCRETE PAVEMENT

ASPHALT PAVEMENT

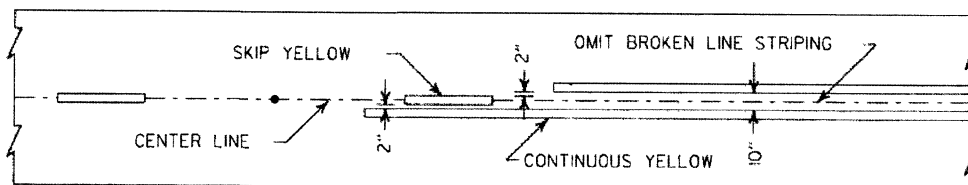
**BROKEN LINE STRIPING**



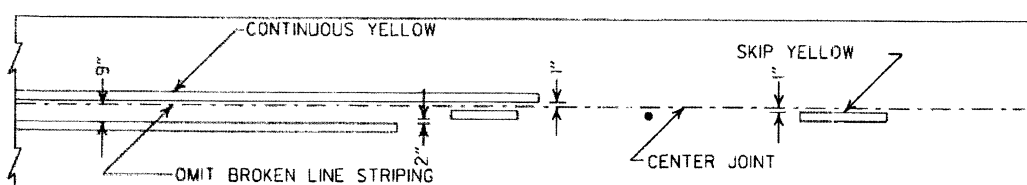
**SOLID LINE STRIPING ON CONCRETE PAVEMENT**



**SOLID LINE STRIPING ON ASPHALT PAVEMENT**

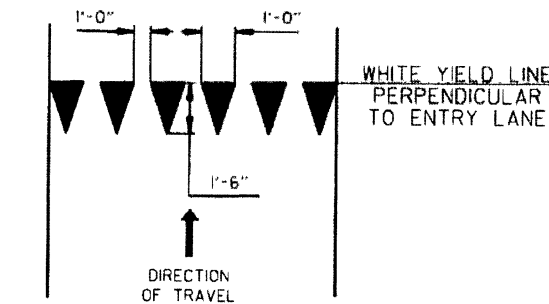


ASPHALT PAVEMENT

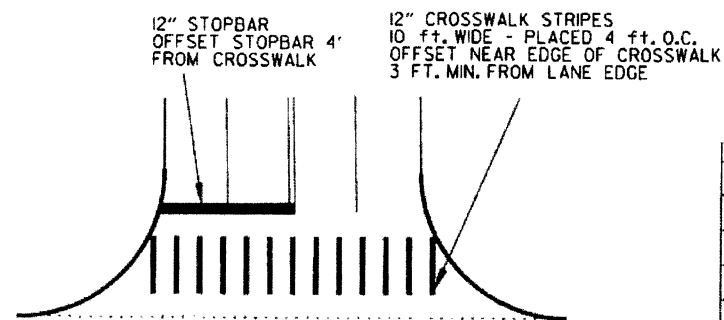


CONCRETE PAVEMENT

**STRIPING AT ADJACENT NO PASSING LANES**



**YIELD LINE DETAIL**

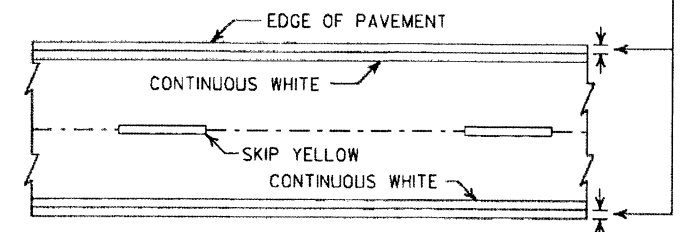


**CROSSWALK AND STOPBAR DETAILS**

**NOTES:**

1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.

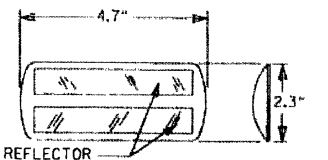
2" FOR ASPHALT OR CONCRETE PAVEMENT  
6" FOR BITUMINOUS SURFACE TREATMENT



**PAVEMENT EDGE LINE MARKING**

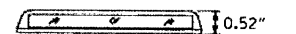
NOTE:  
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.

TYPE II  
RED/CLEAR OR  
YELLOW/YELLOW



PRISMATIC REFLECTOR

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



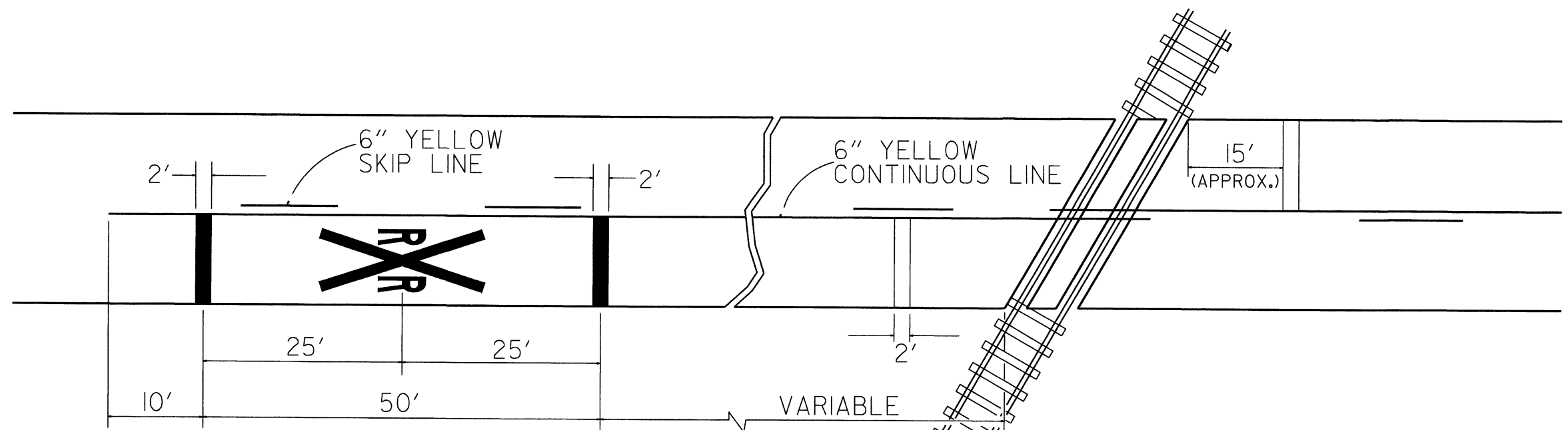
**DETAIL OF STANDARD RAISED PAVEMENT MARKERS**

6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE 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
DATE	REVISION	FILMED

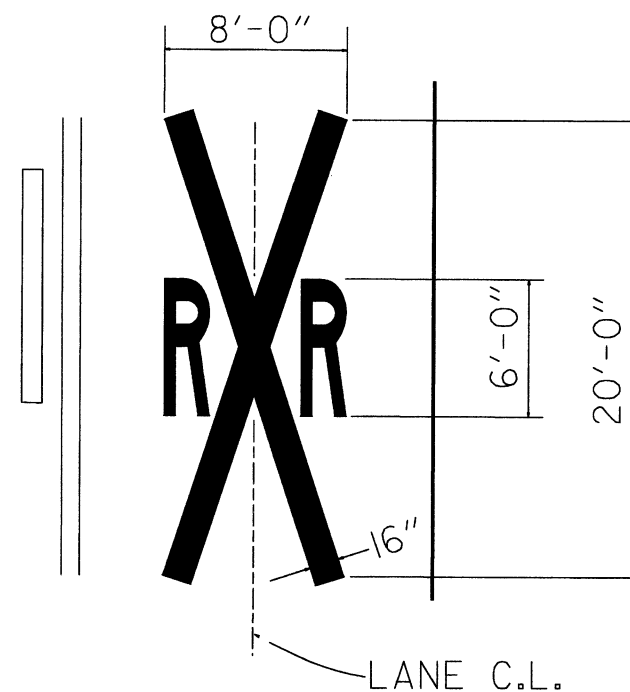
ARKANSAS STATE HIGHWAY COMMISSION

**PAVEMENT MARKING DETAILS**

STANDARD DRAWING PM-1



WIDTH MAY VARY  
ACCORDING TO LANE WIDTH



DETAIL OF PAVEMENT MARKINGS  
FOR RAILROAD CROSSING

PAVEMENT MARKING TO BE  
SYMMETRICAL ABOUT RAILROAD

NOTES:  
THE DISTANCE FROM THE RAILROAD CROSSING MARKING TO THE NEAREST TRACK WILL VARY ACCORDING TO THE APPROACH SPEED AND THE SIGHT DISTANCE OF THE VEHICULAR TRAFFIC APPROACHING, BUT PROBABLY SHOULD BE NOT LESS THAN 50 FEET.

A THREE LANE ROADWAY SHOULD BE MARKED WITH A CENTERLANE FOR TWO-LANE APPROACH OPERATION ON THE APPROACH TO A CROSSING.

ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL RRR SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.


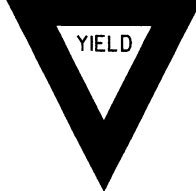
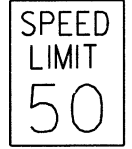






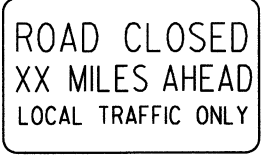
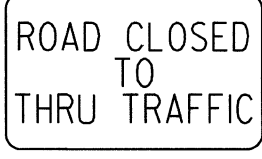

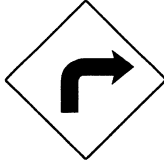



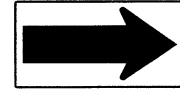

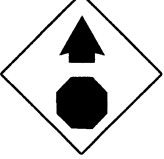
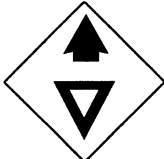
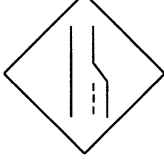













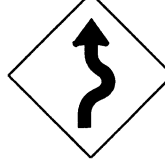




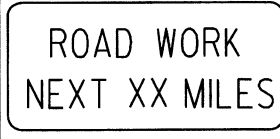
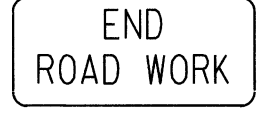
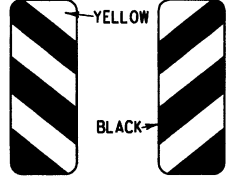


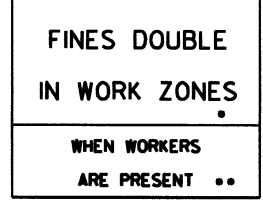
REFER TO STANDARD ALPHABET FOR HIGHWAY SIGNS AND MARKINGS FOR RRR SYMBOLS DETAILS.

DATE	REVISION	DATE FILMED
12-8-16	REVISED CENTERLINE LABELS	
11-20-08	CORRECTED SPELLING	
4-10-03	REVISED NOTES	
3-2-81	DELETED LETTER & ADDED NOTE	684-3-2-81
7-20-79	STOP LINE CHGD. TO PERP.	636-8-30-79
4-23-75	SHEET RENUMBER	697-4-20-79
4-23-75	REDRAWN	860-4-23-75

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING  
FOR RAILROAD CROSSING

STANDARD DRAWING RRS-1

<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>W3-5</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>W3-5a</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</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>W21-5a</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W1-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W1-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>W1-3</p>  <p>STD. 48"x48"</p>	<p>W1-4</p>  <p>STD. 48"x48"</p>	<p>W1-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>W1-8</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>18" 500 FEET 18" W8-2 24"</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>W1-4b</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>

ADVANCE DISTANCES (XXXX)

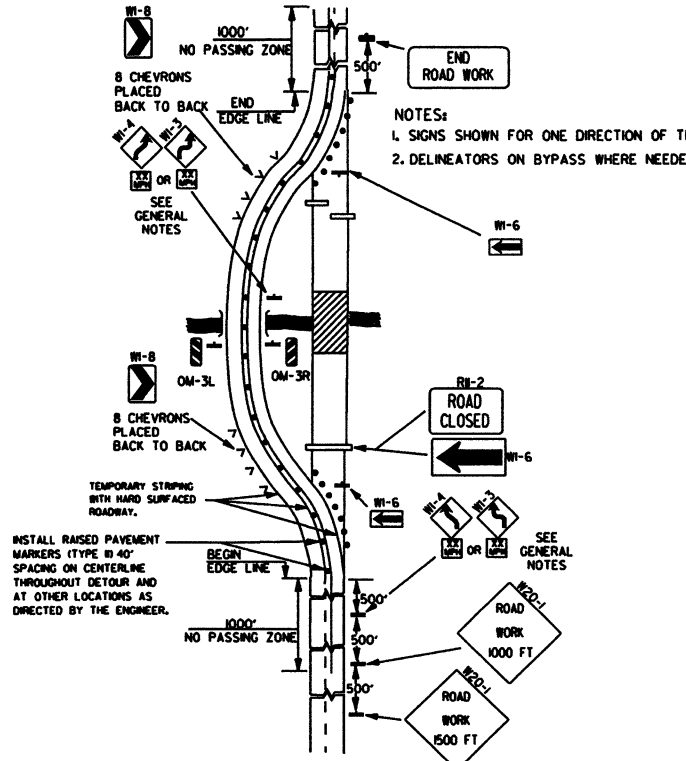
500 FT	1/2 MILE
1000 FT	3/4 MILE
1500 FT	1 MILE AHEAD

- 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, DEFACTED, 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 SO. 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.

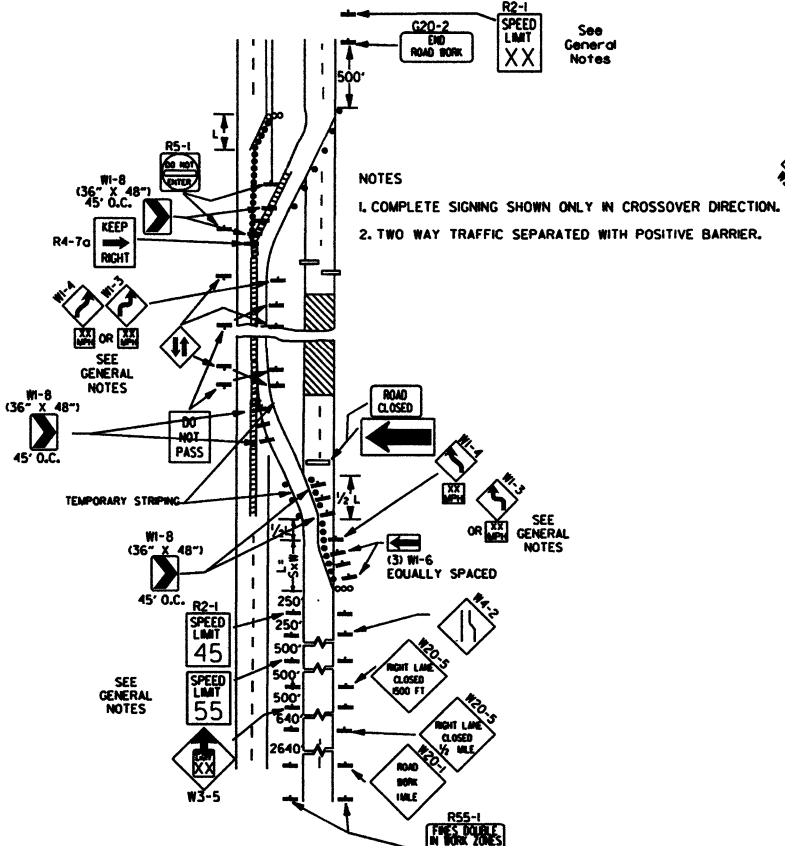
- FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
  - MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER 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.

4-13-17	DELETED RSP-1 & ADDED W21-5a	
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
1-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-2-95	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

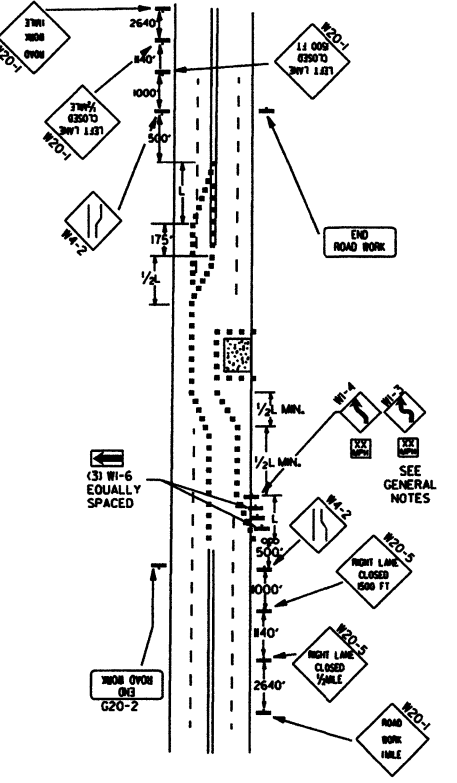
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FOR HIGHWAY CONSTRUCTION  
STANDARD DRAWING TC-1



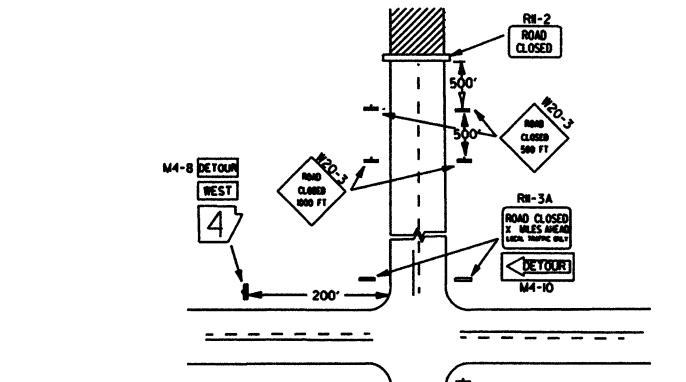
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



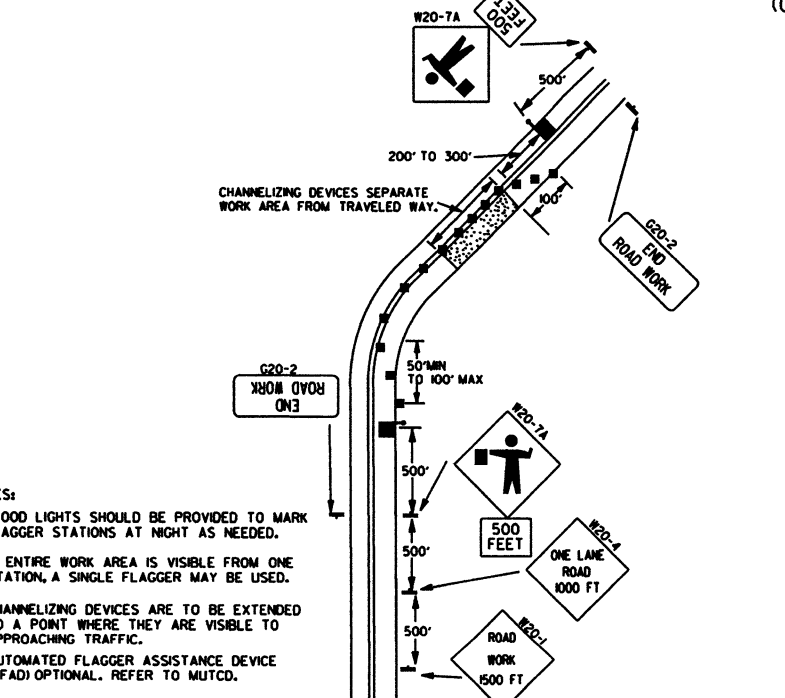
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



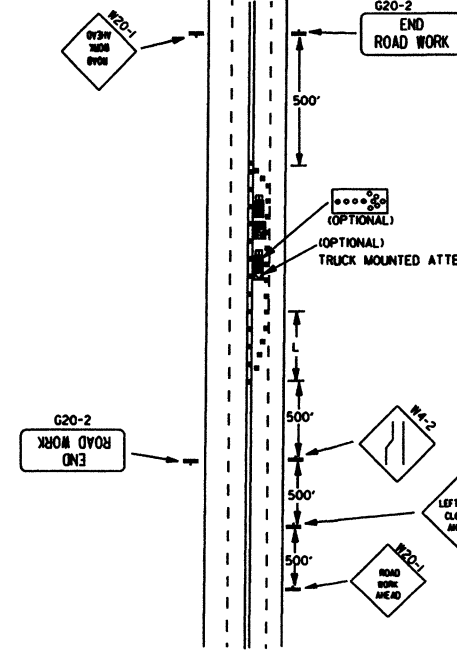
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



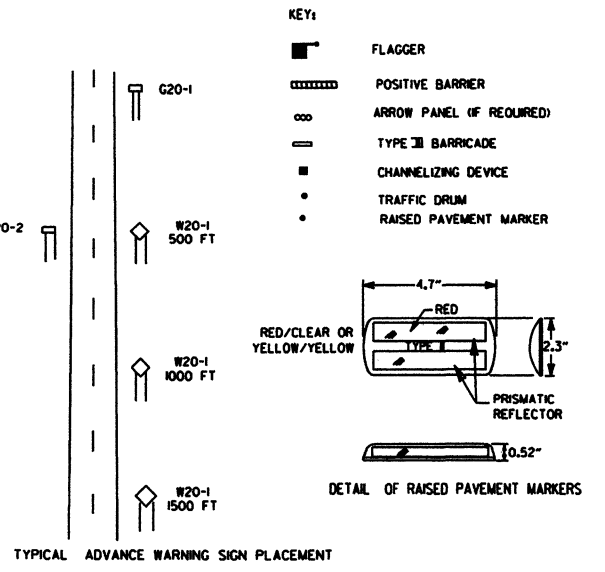
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



(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.



TAPER FORMULAE:  
 $L = SXW$  FOR SPEEDS OF 45MPH OR MORE.  
 $L = \frac{WS^2}{60}$  FOR SPEEDS OF 40MPH OR LESS.  
 WHERE:  
 L = MINIMUM LENGTH OF TAPER.  
 S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.  
 W = WIDTH OF OFFSET.

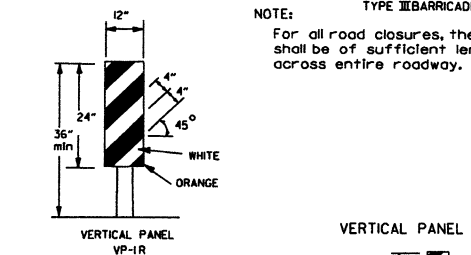
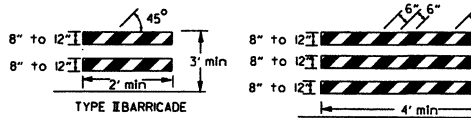
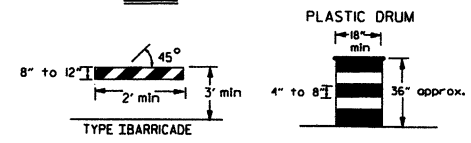
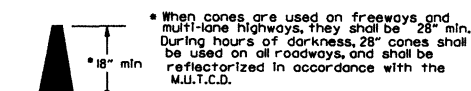
- GENERAL NOTES:  
 1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.  
 2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-K55 SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/4 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXXI SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.  
 3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-K45 SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/4 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXXI SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.  
 4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.  
 5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.  
 6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.  
 7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.  
 8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

9-2-85	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-85	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-8-90	ADDED (AFAD)	
8-20-08	REVISED SIGN DESIGNATIONS	
8-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (G) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	
DATE	REVISION	FILMED

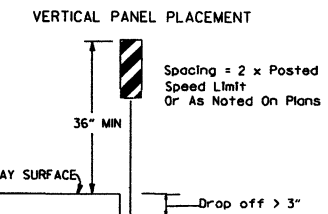
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 STANDARD TRAFFIC CONTROLS  
 FOR HIGHWAY CONSTRUCTION  
 STANDARD DRAWING TC-2



Channelizing devices



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



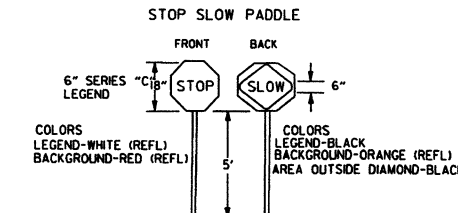
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

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

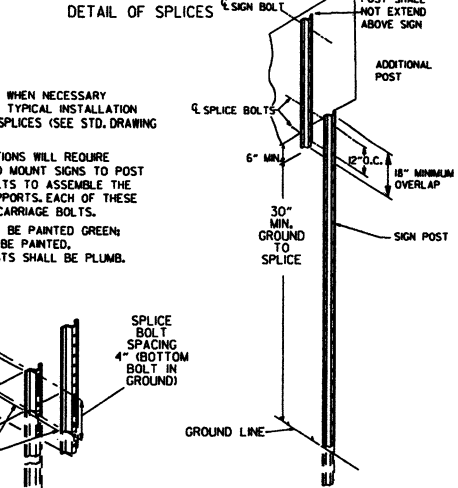
\* When shown on the plans concrete barrier will be used. When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.



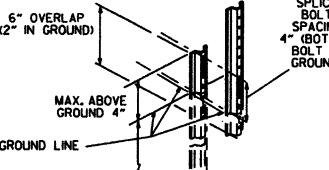
Flag shall be of good grade red material



COLORS LEGEND-WHITE (REFL) BACKGROUND-RED (REFL) AREA OUTSIDE DIAMOND-BLACK

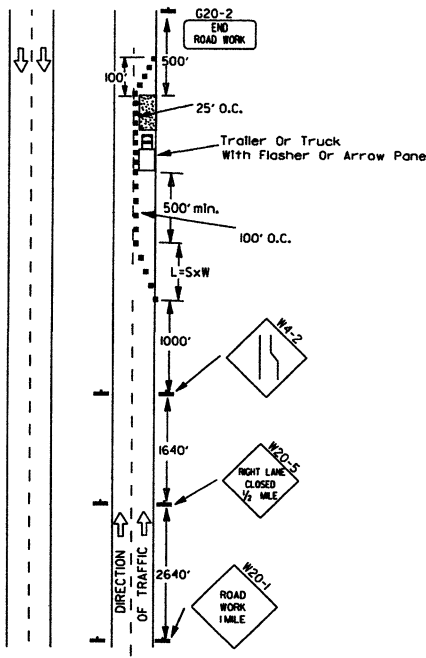


NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2). NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE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

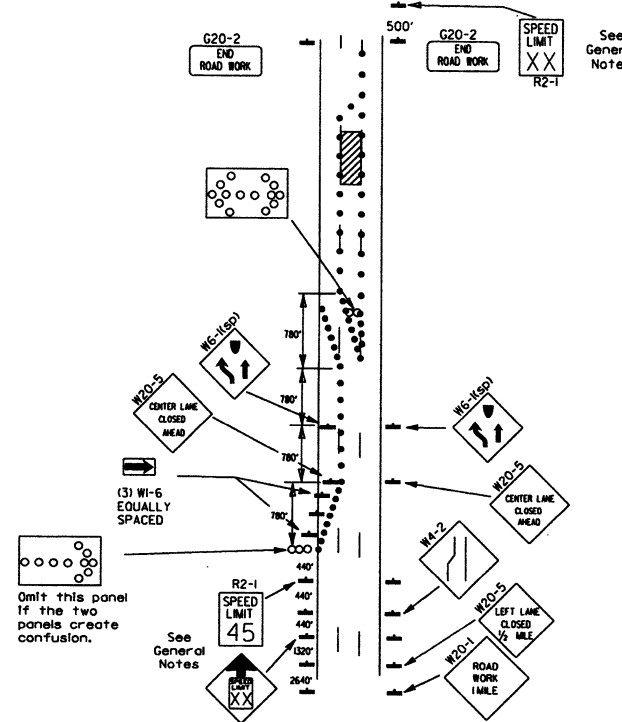


DATE	REVISION	FILED
9-2-55	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
8-20-08	REVISED SIGN DESIGNATIONS	
8-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

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STANDARD DRAWING TC-3



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

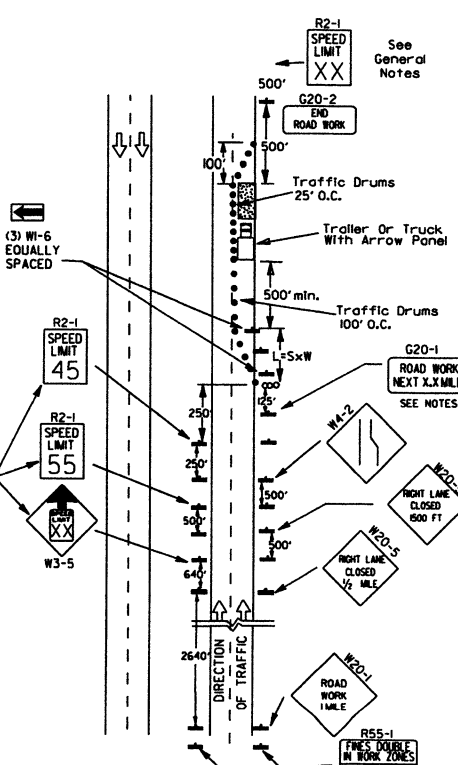


(B) Typical application - 3-lane oneway roadway where center lane is closed.

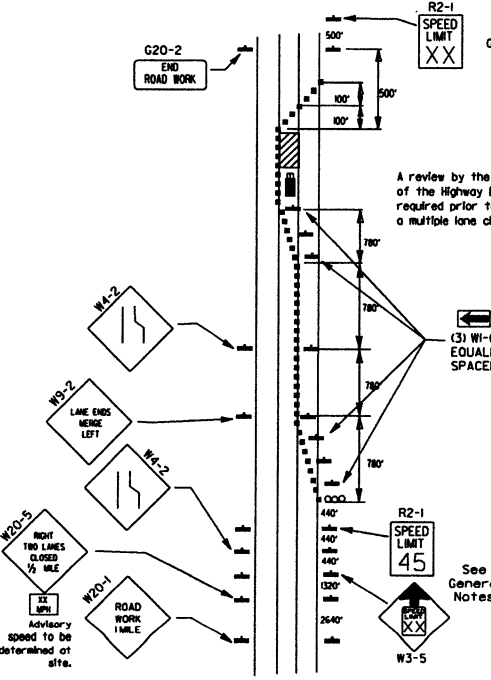
- KEY:
- Arrow Panel (if Required)
  - Channelizing Device
  - Traffic drum

GENERAL NOTES:

- 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-(K55) shall be omitted and the W3-5 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-(KXX) 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-(K65) 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-(KXX) 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.