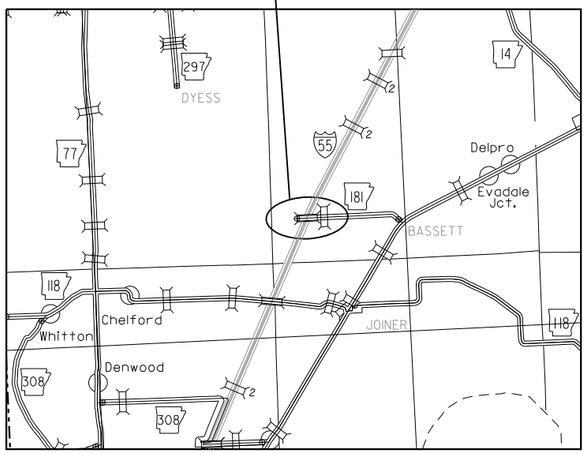
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
1-04-23		6	ARK.	A00031	1	41
		HWY. 181 DECK REPLACEMENT (S)				

PROJECT LOCATION



VICINITY MAP

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

HWY. 181 DECK REPLACEMENT (S)

MISSISSIPPI COUNTY

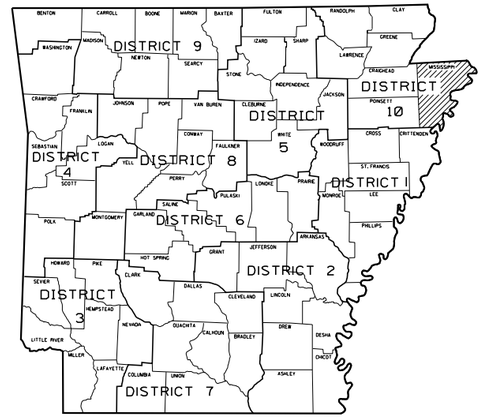
ROUTE 181 SECTION 0

JOB A00031

FED. AID PROJ. NHPP-0047(91)

N

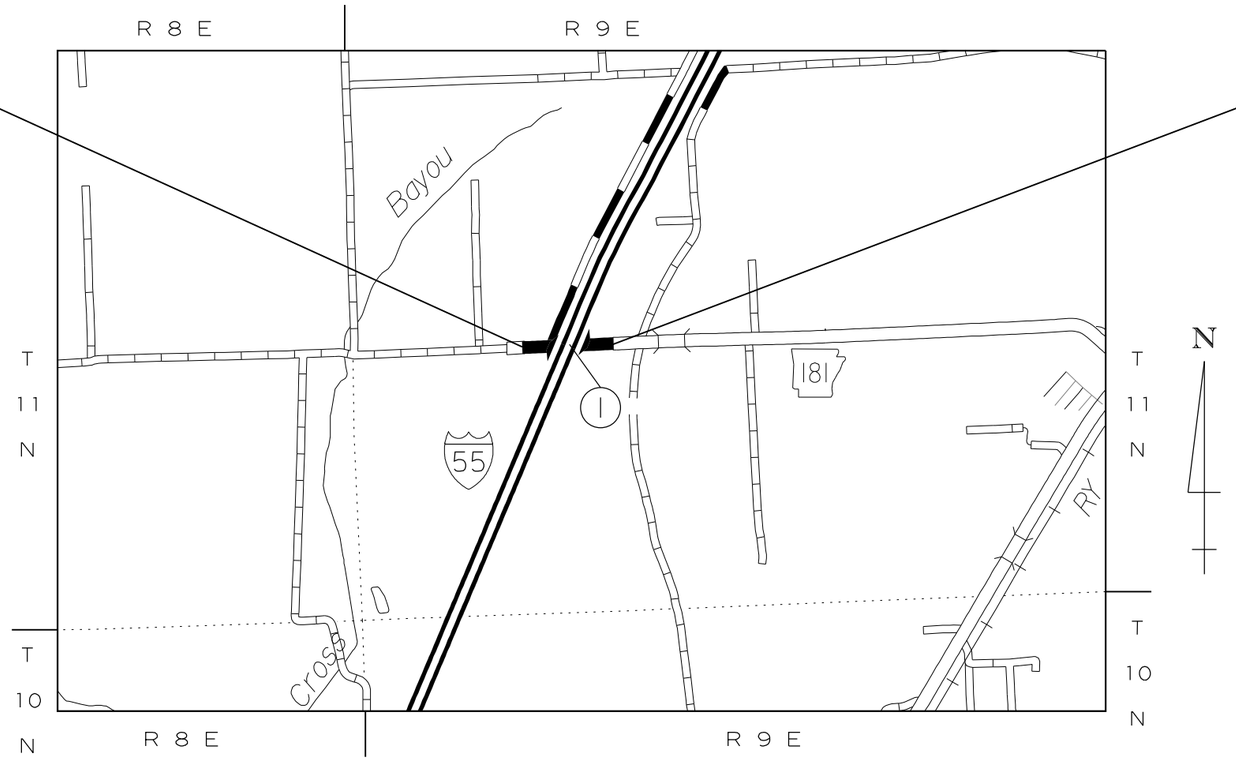
NOT TO SCALE



ARKANSAS HIGHWAY DISTRICT 10

STA. 7+81.91
BEGIN JOB A00031
L.M. 2.13

STA. 16+02.88
END JOB A00031



BRIDGE CONSTRUCTION DATA

(1) STA. 10+78.57 BRIDGE END
EXISTING BRIDGE NO. 03180 OVER INTERSTATE 55
239'-0" SIMPLE W-BEAM SPAN (47.5'-72'-72'-47.5')
26'-0" CLEAR ROADWAY
25°00'00" LT. FORWARD SKEW
242'-10 1/4" BRIDGE LENGTH
STA. 13+21.43 BRIDGE END
BRIDGE DECK REPLACEMENT

PROJECT COORDINATES

	BEGIN	MID-POINT	END
LATITUDE	N 35°32'19"	N 35°32'19"	N 35°32'19"
LONGITUDE	W 90°09'56"	W 90°09'51"	W 90°09'46"
STATION	7+81.91	11+92.40	16+02.88

GROSS LENGTH OF	PROJECT	820.97	FEET	OR	0.155	MILES
NET	" "	ROADWAY	578.11	"	"	0.109 "
NET	" "	BRIDGES	242.86	"	"	0.046 "
NET	" "	PROJECT	820.97	"	"	0.155 "

CERTIFICATE OF AUTHORIZATION
GARVER LLC
No. 766
ARKANSAS ENGINEER

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14994
DUSTIN L. TACKETT
DIGITALLY SIGNED 1/04/2023

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WORKSPACE: AHTD
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REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	2	41
		INDEX OF SHEETS AND STANDARD DRAWINGS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK

DIGITALLY SIGNED 11/09/2022

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.
1	TITLE SHEET		
2	INDEX OF SHEETS AND STANDARD DRAWINGS		
3	GOVERNING SPECIFICATIONS AND GENERAL NOTES		
4	TYPICAL SECTION OF IMPROVEMENT		
5	SPECIAL DETAILS		
6	TEMPORARY EROSION CONTROL DETAILS		
7 - 9	MAINTENANCE OF TRAFFIC DETAILS		
10	PERMANENT PAVEMENT MARKING DETAILS		
11 - 12	QUANTITIES		
13	SCHEDULE OF BRIDGE QUANTITIES	03180	65783
14	SUMMARY OF QUANTITIES AND REVISIONS		
15 - 16	SURVEY CONTROL DETAILS		
17	PLAN AND PROFILE SHEET		
18	LAYOUT OF BRIDGE HIGHWAY 181 OVER I-55	03180	65784
19	DETAILS OF STAGED CONSTRUCTION HIGHWAY 181 OVER I-55	03180	65785
20	DETAILS OF END BENT MODIFICATIONS	03180	65786
21	DETAILS OF BEARINGS	03180	65787
22	DETAILS OF 47'-6" SIMPLE W-BEAM SPAN (SHEET 1 OF 3)	03180	65788
23	DETAILS OF 47'-6" SIMPLE W-BEAM SPAN (SHEET 2 OF 3)	03180	65789
24	DETAILS OF 47'-6" SIMPLE W-BEAM SPAN (SHEET 3 OF 3)	03180	65790
25	DETAILS OF 72'-0" SIMPLE W-BEAM SPAN (SHEET 1 OF 3)	03180	65791
26	DETAILS OF 72'-0" SIMPLE W-BEAM SPAN (SHEET 2 OF 3)	03180	65792
27	DETAILS OF 72'-0" SIMPLE W-BEAM SPAN (SHEET 3 OF 3)	03180	65793
28	COMMON SUPERSTRUCTURE DETAILS	03180	65794
29	DETAILS OF DECK DRAINS	03180	65795
30	DETAILS OF TYPE A RAIL	03180	65796
31	DETAILS OF TYPE SPECIAL APPROACH SLAB	03180	65797
32 - 41	CROSS SECTIONS		

BRIDGE STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
55005	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	03-24-16
55006	STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES	09-02-15
55007	STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES	02-11-16
55008	STANDARD DETAILS FOR POURED SILICONE JOINTS	02-11-16
55038	STANDARD DETAILS FOR TYPE 'AT2' APPROACH GUTTERS (BRIDGES WITH CURBS & TYPE A, B, C, D, OR E RAILING)	11-07-19

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
FPC-9N	DETAILS OF DROP INLETS AND SPILLWAY OUTLET	07-02-98
GR-6	GUARDRAIL DETAILS	05-19-22
GR-8	GUARDRAIL DETAILS	11-07-19
GR-9	GUARDRAIL DETAILS	11-07-19
GR-10	GUARDRAIL DETAILS	11-07-19
GR-11	GUARDRAIL DETAILS	11-07-19
GR-12	GUARDRAIL DETAILS	05-14-20
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PM-1	PAVEMENT MARKING DETAILS	02-27-20
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	05-20-21
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	08-12-21
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
1-04-23		6	ARK.	A00031	3	41
		GOVERNING SPECIFICATIONS AND GENERAL NOTES				

DIGITALLY SIGNED 01/04/2023

GOVERNING SPECIFICATIONS

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

NUMBER **TITLE**

ERRATA_____ ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273__ REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273__ SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273__ SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273__ SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273__ SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273__ SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__ SUPPLEMENT - WAGE RATE DETERMINATION
100-3_____ CONTRACTOR'S LICENSE
100-4_____ DEPARTMENT NAME CHANGE
102-2_____ ISSUANCE OF PROPOSALS
105-4_____ MAINTENANCE DURING CONSTRUCTION
107-2_____ RESTRAINING CONDITIONS
108-1_____ LIQUIDATED DAMAGES
108-2_____ WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
210-1_____ UNCLASSIFIED EXCAVATION
303-1_____ AGGREGATE BASE COURSE
306-1_____ QUALITY CONTROL AND ACCEPTANCE
307-1_____ CEMENT
308-1 CEMENT
400-1_____ TACK COATS
400-4_____ DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5_____ PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6_____ LIQUID ANTI-STRIP ADDITIVE
400-7_____ TRACKLESS TACK
404-3_____ DESIGN OF ASPHALT MIXTURES
410-1_____ CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2_____ DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
410-4_____ EVALUATION OF ACHM SUBLOT REPLACEMENT MATERIAL
501-2_____ CEMENT
600-2_____ INCIDENTAL CONSTRUCTION
603-1_____ LANE CLOSURE NOTIFICATION
604-1_____ RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3_____ TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
617-1_____ GUARDRAIL TERMINAL (TYPE 2)
620-1_____ MULCH COVER
621-1_____ FILTER SOCKS
800-1_____ STRUCTURES
802-3_____ CONCRETE FOR STRUCTURES
802-4_____ CEMENT
804-2_____ REINFORCING STEEL FOR STRUCTURES
807-2_____ STEEL STRUCTURES
JOB A00031__ ASSESSMENT OF WORKING DAYS – MAINTENANCE OF TRAFFIC
JOB A00031__ BIDDING REQUIREMENTS AND CONDITIONS
JOB A00031__ BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB A00031__ BUY AMERICA - CONSTRUCTION MATERIALS
JOB A00031__ CARGO PREFERENCE ACT REQUIREMENTS
JOB A00031__ CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB A00031__ COLD MILLING - COUNTY PROPERTY
JOB A00031__ CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENT RESTRICTIONS
JOB A00031__ COORDINATION OF WORK
JOB A00031__ DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
JOB A00031__ DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB A00031__ DOCUMENTATION OF PAYMENTS MADE TO DISADVANTAGED BUSINESS ENTERPRISES
JOB A00031__ ESTABLISHING CONTRACT TIME – WORKING DAY CONTRACT
JOB A00031__ JACKING EXISTING STRUCTURE
JOB A00031__ LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
JOB A00031__ MAINTENANCE OF TRAFFIC
JOB A00031__ MANDATORY ELECTRONIC CONTRACT
JOB A00031__ MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB A00031__ PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB A00031__ PRICE ADJUSTMENT FOR FUEL
JOB A00031__ PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLENCE SERVICES OR EQUIPMENT
JOB A00031__ SPECIAL SAFETY REQUIREMENTS FOR BRIDGES
JOB A00031__ SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB A00031__ TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
JOB A00031__ WARM MIX ASPHALT

GENERAL NOTES

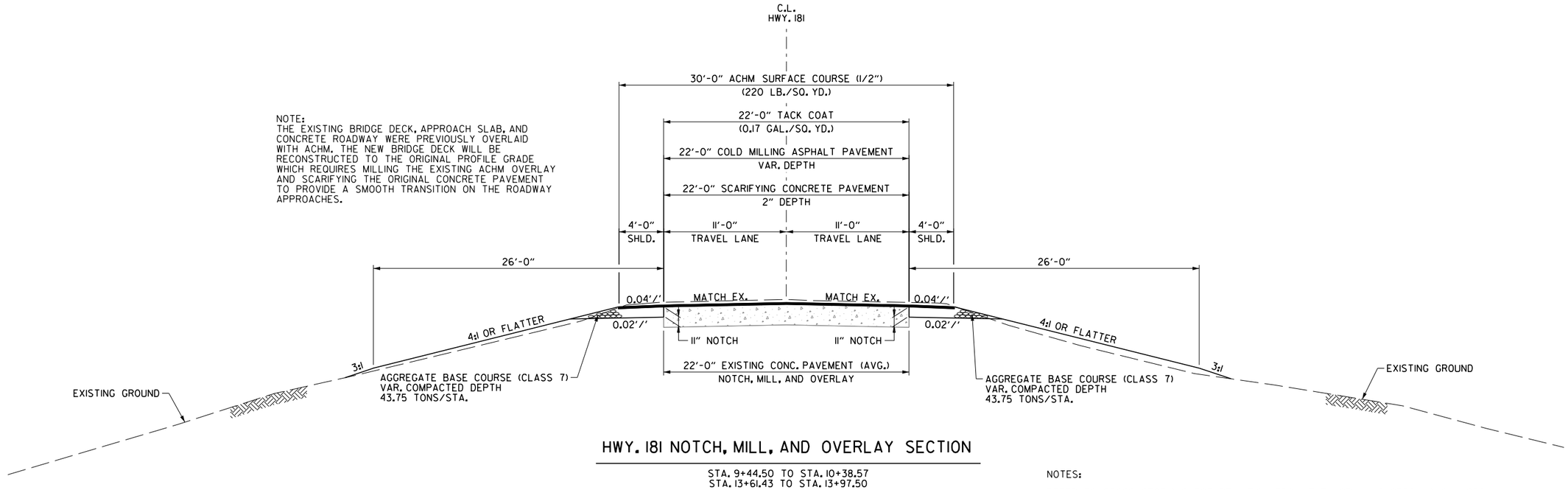
1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
5. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
6. THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
7. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
8. 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.

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	4	41
		TYPICAL SECTION OF IMPROVEMENT				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 13653
ADAM E. WIERCIAK

DIGITALLY SIGNED 11/09/2022

NOTE:
THE EXISTING BRIDGE DECK, APPROACH SLAB, AND CONCRETE ROADWAY WERE PREVIOUSLY OVERLAID WITH ACHM. THE NEW BRIDGE DECK WILL BE RECONSTRUCTED TO THE ORIGINAL PROFILE GRADE WHICH REQUIRES MILLING THE EXISTING ACHM OVERLAY AND SCARIFYING THE ORIGINAL CONCRETE PAVEMENT TO PROVIDE A SMOOTH TRANSITION ON THE ROADWAY APPROACHES.



HWY. 181 NOTCH, MILL, AND OVERLAY SECTION

STA. 9+44.50 TO STA. 10+38.57
STA. 13+61.43 TO STA. 13+97.50

NOTE:
SEE BRIDGE LAYOUTS FOR APPROACH SLABS AND BRIDGE STRUCTURE FOR STA. 10+38.57 TO STA. 13+61.43

NOTES:

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

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

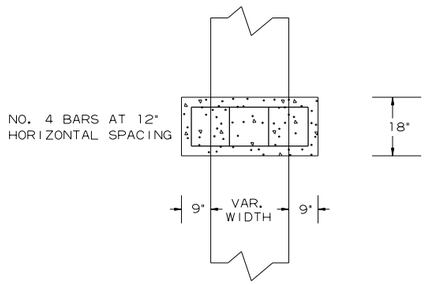
IT IS INTENDED THAT THE SUBGRADE SHALL BE FINISHED IN CONFORMITY WITH THE LINES, GRADES, AND CROSS SECTIONS SHOWN ON THE PLANS. HOWEVER, A TOLERANCE OF PLUS OR MINUS ONE-TENTH FOOT WILL BE ALLOWED.

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

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	5	41
		SPECIAL DETAILS				

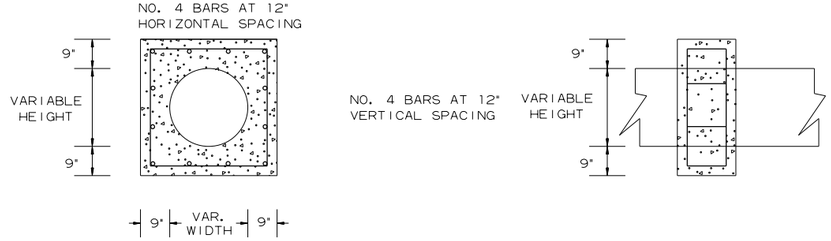
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK

DIGITALLY SIGNED 11/09/2022



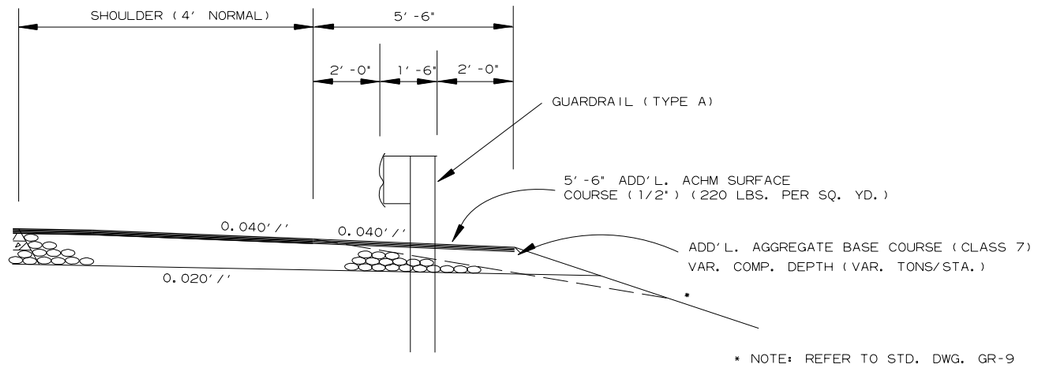
TOP VIEW

MIN 3" COVER



FRONT VIEW SIDE VIEW

PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL



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

WIDENING FOR GUARDRAIL

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REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	6	41
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 13653
ADAM E. WIERCIAK

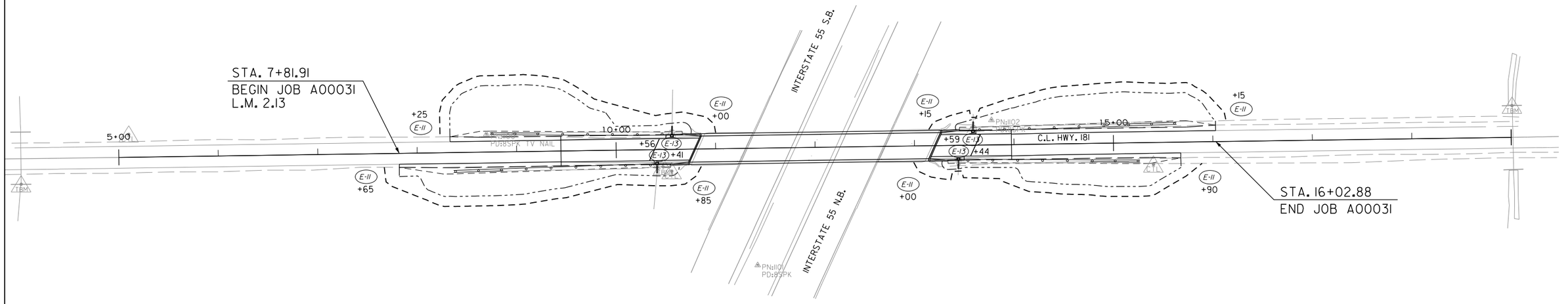
DIGITALLY SIGNED 11/09/2022

N

HWY. 181

SILT FENCE	(E-11)	LIN. FT.
STA. 7+65 TO 10+85	RT.	350
STA. 8+25 TO 11+00	LT.	340
STA. 13+00 TO 15+90	RT.	320
STA. 13+15 TO 16+15	LT.	340

FILTER SOCK	(E-13)	DIA.	LIN. FT.
STA. 10+41	RT.	18"	30
STA. 10+56	LT.	18"	30
STA. 13+44	RT.	18"	30
STA. 13+59	LT.	18"	30



REVISIONS

DATE	REVISION

LEGEND

(E-11) = SILT FENCE

(E-13) = COMPOST FILTER SOCK DROP INLET PROTECTION

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

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REVISED DATE:

TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	7	41
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
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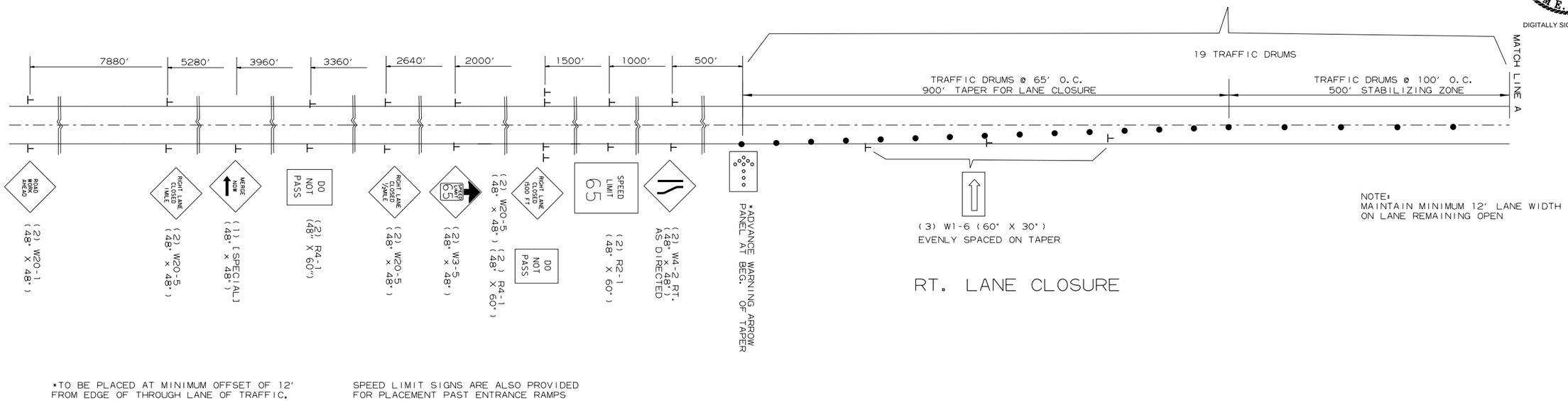
ADAM E. WIERCIAK

DIGITALLY SIGNED 11/16/2022

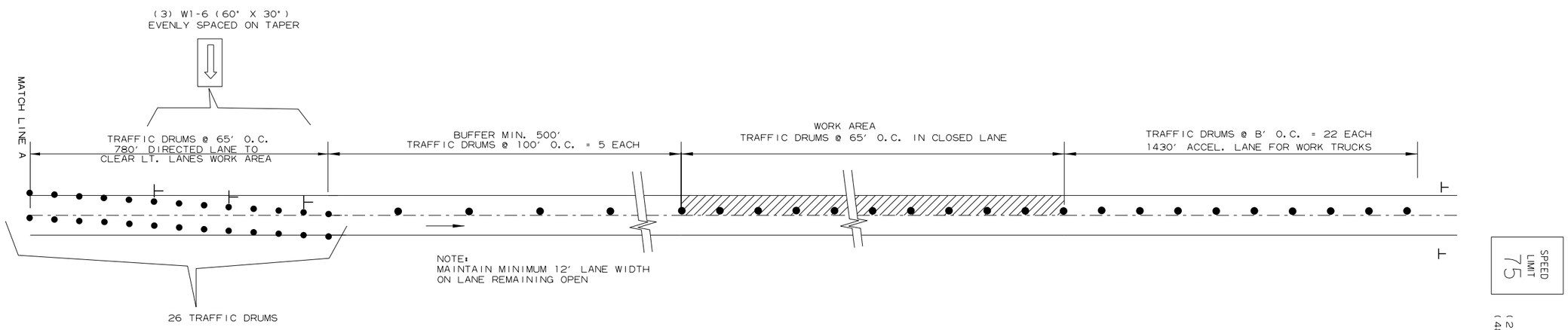
*PORTABLE CHANGEABLE MESSAGE SIGN TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



RT. LANE CLOSURE

*TO BE PLACED AT MINIMUM OFFSET OF 12' FROM EDGE OF THROUGH LANE OF TRAFFIC, OR FURTHER IF PRACTICAL.

SPEED LIMIT SIGNS ARE ALSO PROVIDED FOR PLACEMENT PAST ENTRANCE RAMPS WITHIN THE WORK ZONE.



DIVERSION FOR LT. LANE WORK ZONE

LANE CLOSURE
MAINTENANCE OF TRAFFIC DETAILS

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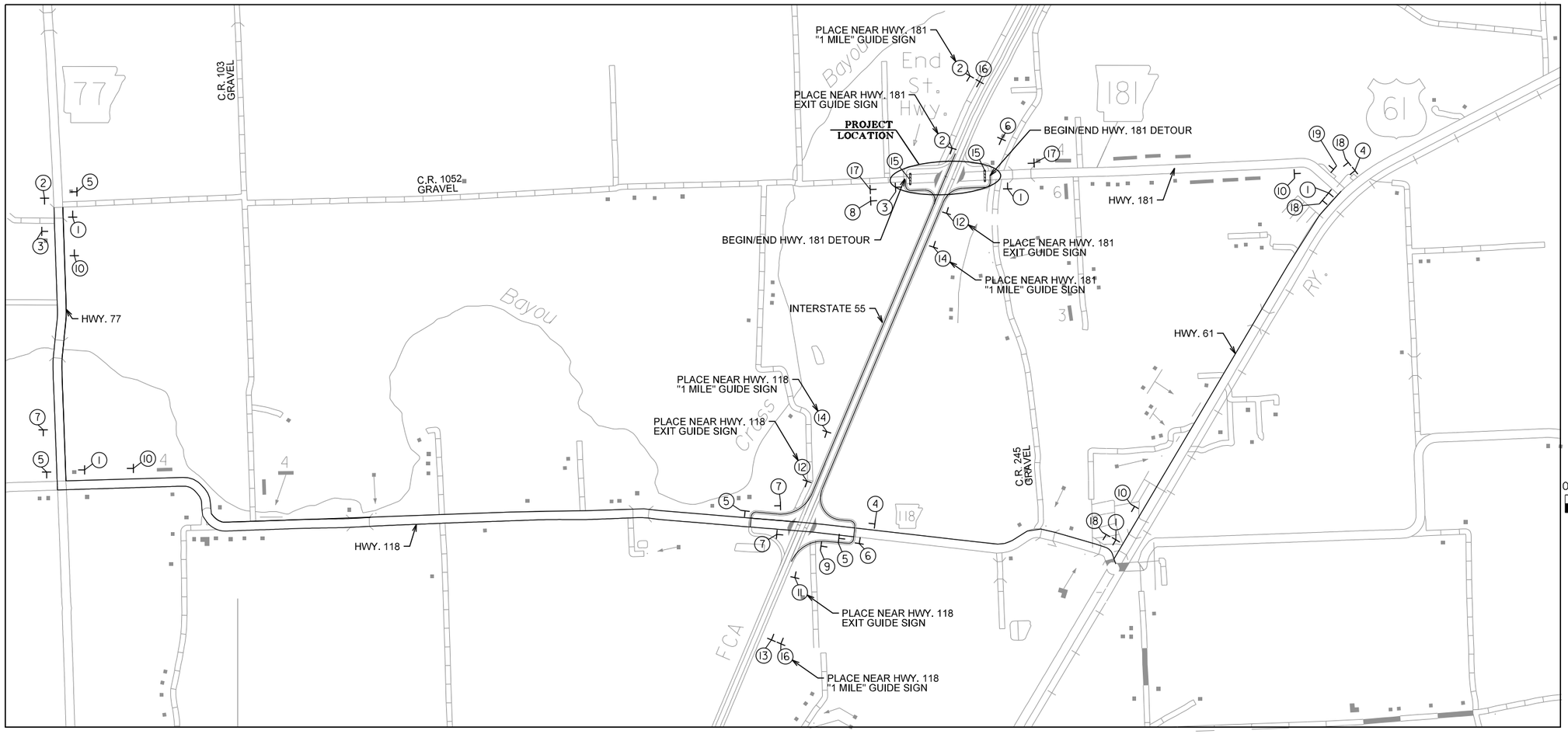
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	8	41
		MAINTENANCE OF TRAFFIC DETAILS				

HWY. 181 DETOUR PLAN



STATE OF ARKANSAS
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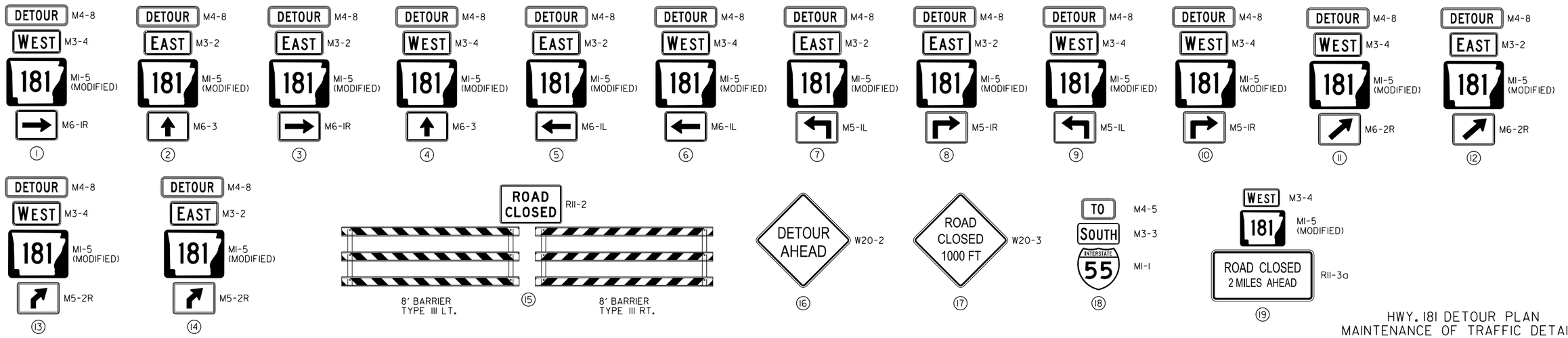

HWY. 181 DETOUR PLAN
MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	9	41
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
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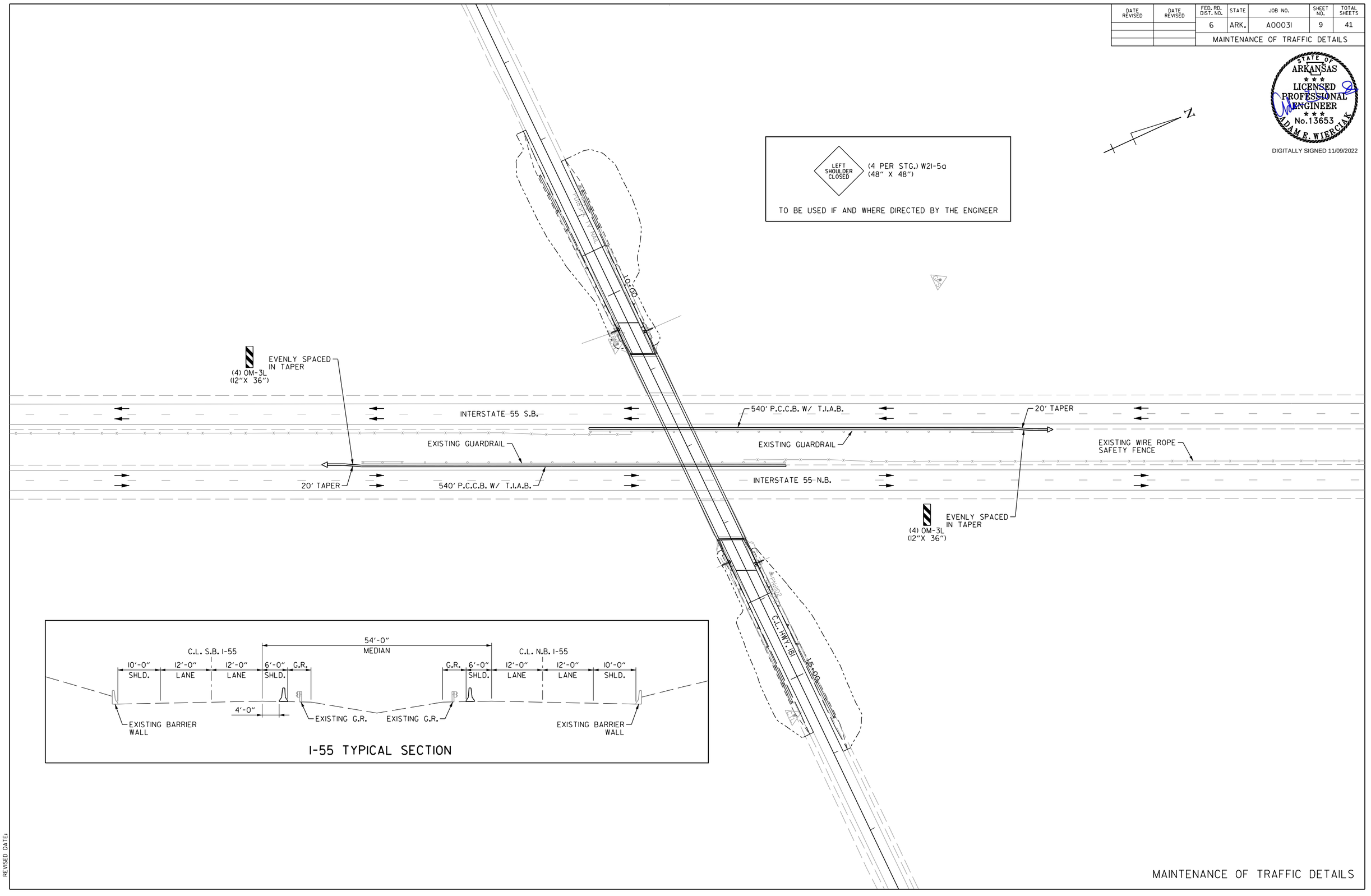
DIGITALLY SIGNED 11/09/2022

LEFT SHOULDER CLOSED (4 PER STG.) W21-5a (48" X 48")

TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



I-55 TYPICAL SECTION

MAINTENANCE OF TRAFFIC DETAILS

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REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	10	41
		PERMANENT PAVEMENT MARKING DETAILS				

STATE OF ARKANSAS
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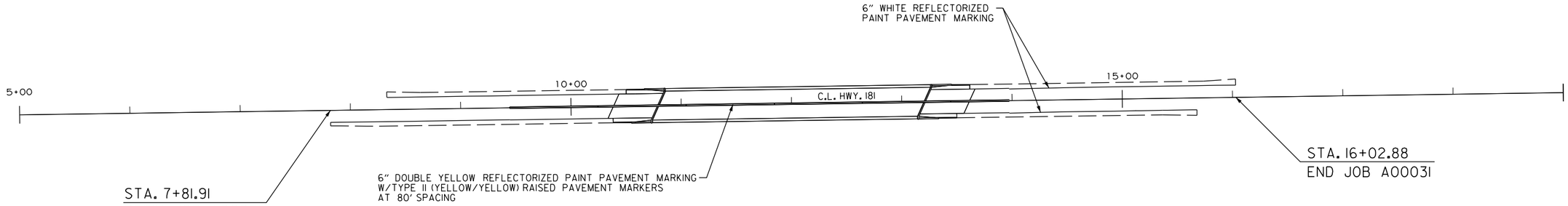
DIGITALLY SIGNED 11/09/2022

N



HWY. 181

6" WHITE REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
7+81.91	15+67.59	RT.	786
8+33.11	16+02.88	LT.	770

6" YELLOW REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
9+44.50	13+97.50	C.L.	906

TYPE II (YELLOW/YELLOW) RAISED PAVEMENT MARKERS AT 80' SPACING

STA.	STA.	LOCATION	EA.
9+44.50	13+97.50	C.L.	6

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WORKSPACE: AHTD
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REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	11	41
		QUANTITIES				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13653
ADAM E. WIERCIAK

DIGITALLY SIGNED 11/09/2022

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	END OF JOB	RAISED PAVEMENT MARKERS	REFLECTORIZED PAINT PAVEMENT MARKING	
		TYPE II	6"	
		(YELLOW/YELLOW)	WHITE	YELLOW
		EACH	LIN. FT.	
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)	6	6		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	1556		1556	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	906			906
TOTALS:		**6**	**1556**	**906**

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

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)	* ADVANCE WARNING ARROW PANEL	* PORTABLE CHANGEABLE MESSAGE SIGN
								RIGHT	LEFT					
			EACH		NO.	SQ. FT.	EACH	LIN. FT.			EACH		DAY	WEEK
M1-1	INTERSTATE ROUTE SIGN	24"x24"	3	3	3	12.0								
M1-5	STATE ROUTE SIGN	30"x24"	26	26	26	130.0								
M1-5	STATE ROUTE SIGN (I-55 MAIN LANES SIZE)	45"x36"	8	8	8	90.0								
M3-2	CARDINAL DIRECTION	24"x12"	11	11	11	22.0								
M3-2	CARDINAL DIRECTION (I-55 MAIN LANES SIZE)	36"x18"	6	6	6	27.0								
M3-3	CARDINAL DIRECTION	24"x12"	3	3	3	6.0								
M3-4	CARDINAL DIRECTION	24"x12"	15	15	15	30.0								
M3-4	CARDINAL DIRECTION (I-55 MAIN LANES SIZE)	36"x18"	2	2	2	9.0								
M4-5	TO	24"x12"	3	3	3	6.0								
M4-8	DETOUR	24"x12"	25	25	25	50.0								
M4-8	DETOUR (I-55 MAIN LANES SIZE)	30"x15"	8	8	8	25.0								
M5-1L	DIRECTIONAL ARROW	21"x15"	4	4	4	8.8								
M5-1R	DIRECTIONAL ARROW	21"x15"	5	5	5	10.9								
M5-2R	DIRECTIONAL ARROW (I-55 MAIN LANES SIZE)	30"x21"	3	3	3	13.1								
M6-1L	DIRECTIONAL ARROW	21"x15"	6	6	6	13.1								
M6-1R	DIRECTIONAL ARROW	21"x15"	7	7	7	15.3								
M6-2R	DIRECTIONAL ARROW (I-55 MAIN LANES SIZE)	30"x21"	3	3	3	13.1								
M6-3	DIRECTIONAL ARROW	21"x15"	3	3	3	6.6								
M6-3	DIRECTIONAL ARROW (I-55 MAIN LANES SIZE)	30"x21"	2	2	2	8.8								
OM-3L	OBJECT MARKER	12"x36"	8	8	8	24.0								
R2-1	SPEED LIMIT	48"x60"	8	8	8	160.0								
R4-1	DO NOT PASS	48"x60"	8	8	8	160.0								
R11-2	ROAD CLOSED	48"x30"	2	2	2	20.0								
R11-3a	ROAD CLOSED AHEAD	60"x30"	1	1	1	12.5								
W1-6	ONE DIRECTION LARGE ARROW	60"x30"	12	12	12	150.0								
W3-5	REDUCED SPEED LIMIT AHEAD	48"x48"	4	4	4	64.0								
W4-2	LANE ENDS	48"x48"	4	4	4	64.0								
W20-1	ROAD WORK AHEAD	48"x48"	4	4	4	64.0								
W20-2	DETOUR AHEAD	48"x48"	2	2	2	32.0								
W20-3	ROAD CLOSED	36"x36"	2	2	2	18.0								
W20-5	LANE CLOSED	48"x48"	12	12	12	192.0								
* W21-5a	LEFT SHOULDER CLOSED	48"x48"	4	4	4	64.0								
SPECIAL	MERGE NOW	48"x48"	2	2	2	32.0								
	TRAFFIC DRUMS		160	160			160							
	TYPE III BARRICADE-RT. (8')		2	2				16						
	TYPE III BARRICADE-LT. (8')		2	2					16					
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		1080	1080						1080				
	TEMPORARY IMPACT ATTENUATION BARRIER		2	2							2			
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		2	2								2		
	ADVANCE WARNING ARROW PANEL		2	2									112	
	PORTABLE CHANGEABLE MESSAGE SIGN		2	2										16
TOTALS:						**1553.2**	**160**	**16**	**16**	**1080**	**2**	**2**	**112**	**16**

NOTE: THE QUANTITY OF TRAFFIC DRUMS PROVIDED IS FOR BOTH SIDES OF THE ROADWAY FOR THE FULL LENGTH OF THE JOB. HOWEVER, THE INSTALLATION OF TRAFFIC DRUMS SHALL NEVER EXCEED THE ACTUAL WORK AREA BY MORE THAN 1/4 MILE, UNLESS APPROVED BY THE ENGINEER.

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

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
10+41.00	HWY. 181 RT.	1
10+56.25	HWY. 181 LT.	1
13+44.00	HWY. 181 RT.	1
13+59.00	HWY. 181 LT.	1
TOTAL:		**4**

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
10+85	NW CORNER OF BRIDGE NO. 03180	1
13+15	SE CORNER OF BRIDGE NO. 03180	1
TOTAL:		**2**

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

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.	EACH	
8+36.36	10+55.11	HWY. 181 RT.	150	1	1
8+73.48	10+67.23	HWY. 181 LT.	125	1	1
13+32.77	15+26.52	HWY. 181 RT.	125	1	1
13+44.89	15+63.64	HWY. 181 LT.	150	1	1
TOTALS:			**550**	**4**	**4**

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WORKSPACE: AHTD
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REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	12	41
		QUANTITIES				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 13653
ADAM E. WIERCIAK

DIGITALLY SIGNED 11/09/2022

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	APPROACH GUTTERS	APPROACH SLABS	GUARDRAIL
			EACH	EACH	LIN. FT.
8+72	10+47	HWY. 181 RT.			175
8+85	10+60	HWY. 181 LT.			175
10+33	10+85	HWY. 181		1	
10+47	10+74	HWY. 181 RT.	1		
10+59	10+86	HWY. 181 LT.	1		
13+15	13+41	HWY. 181 RT.	1		
13+16	13+66	HWY. 181		1	
13+27	13+53	HWY. 181 LT.	1		
13+41	15+15	HWY. 181 RT.			174
13+54	15+28	HWY. 181 LT.			174
TOTALS:			4	2	698

NOTE: THE QUANTITY SHOWN ABOVE FOR THE REMOVAL AND DISPOSAL OF GUARDRAIL SHALL INCLUDE THE REMOVAL AND DISPOSAL OF ALL GUARDRAIL TERMINALS AND TERMINAL ANCHOR POSTS.

STRUCTURES

STATION	DESCRIPTION	PIPE CULVERT	DROP INLETS	STD. DWG. NOS.
		Z.C.C.S.P.	TYPE	
		12"	N1	
		LIN. FT.	EACH	
10+41.00	HWY. 181 RT.	9	1	FPC-9N, PCM-1
10+56.25	HWY. 181 LT.	9	1	FPC-9N, PCM-1
13+44.00	HWY. 181 RT.	9	1	FPC-9N, PCM-1
13+59.00	HWY. 181 LT.	9	1	FPC-9N, PCM-1
TOTALS:		36	4	

SCARIFYING CONCRETE PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	SCARIFYING CONCRETE PAVEMENT
			FEET	SQ. YD.
09+44.50	10+38.57	HWY. 181	22.00	229.95
13+61.43	13+97.50	HWY. 181	22.00	88.17
TOTAL:				318.12

NOTE: AVERAGE MILLING DEPTH 2".

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
09+44.50	10+38.57	HWY. 181	22.00	229.95
13+61.43	13+97.50	HWY. 181	22.00	88.17
TOTAL:				318.12

NOTE: AVERAGE MILLING DEPTH 2".

COORDINATE COLD MILLING STOCKPILE LOCATIONS WITH THE DISTRICT ENGINEER. STOCKPILE LOCATIONS SHALL BE NO FURTHER THAN FIVE MILES FROM THE PROJECT SITE.

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL						
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	* SAND BAG DITCH CHECKS (E-5)	SILT FENCE (E-11)	FILTER SOCK (18") (E-13)	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	LIN. FT.	LIN. FT.	CU. YD.
ENTIRE	PROJECT	HWY. 181	0.48	0.96	0.48	49.0	0.48	0.48	0.48	9.8	176	1350	120	50
TOTALS:			0.48	0.96	0.48	49.0	0.48	0.48	0.48	9.8	176	1350	120	50

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
FILTER SOCK (18").....30 LIN. FT. PER DROP INLET LOCATION

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

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
ENTIRE	PROJECT	HWY. 181	336	289
TOTALS:			336	289

NOTE: EARTHWORK QUANTITIES SHOWN ABOVE SHALL BE PAID AS PLAN QUANTITY.

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE AT2)	TYPE SPECIAL APPROACH SLABS	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	POUND	TON
10+38.57	10+78.57	HWY. 181	18.28	49.27	7780	34.22
13+21.43	13+61.43	HWY. 181	18.28	49.27	7780	34.22
TOTALS:			36.56	98.54	15560	68.44

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT (0.17 GAL. PER SQ. YD.)			ACHM SURFACE COURSE (1/2")			
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22
			FEET			FEET			FEET			TON
MAIN LANES												
9+44.50	10+38.57	HWY. 181 NOTCH AND WIDEN SECTION	94.07	87.50	82.31	22.00	229.95	39.09	30.00	313.57	220.00	34.49
13+61.43	13+97.50	HWY. 181 NOTCH AND WIDEN SECTION	36.07	87.50	31.56	22.00	88.17	14.99	30.00	120.23	220.00	13.23
ADDITIONAL FOR GUARDRAIL												
7+81.91	10+54.51	HWY. 181 NOTCH AND WIDEN SECTION RT.	272.60	VAR.	128.57				6.62	200.51	220.00	22.06
8+33.11	10+66.63	HWY. 181 NOTCH AND WIDEN SECTION LT.	233.52	VAR.	101.05				6.07	157.50	220.00	17.33
13+33.37	15+67.59	HWY. 181 NOTCH AND WIDEN SECTION RT.	234.22	VAR.	117.54				7.04	183.21	220.00	20.15
13+45.49	16+02.88	HWY. 181 NOTCH AND WIDEN SECTION LT.	257.39	VAR.	138.17				7.53	215.35	220.00	23.69
TOTALS:					599.20		318.12	54.08		1190.37		130.95

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.9% MIN. AGGR.....5.1% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

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.		A00031	13	41
03180	BRIDGE QUANTITIES			65783

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. A00031

Hwy. 181 Log Mile	UNIT OF STRUCTURE	ITEM NO.	SP, SS & 802	SP & 803	SS & 804	SS & 804	SP, SS & 807	SS & 807	SS & 809	SP & 821
		ITEM	CLASS S(AE) CONCRETE -BRIDGE	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50)	PAINTING STRUCTURAL STEEL	SILICONE JOINT SEALANT	MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. _)
		UNIT	CU. YD.	SQ. YD.	LB.	LB.	LB.	TON	LIN. FT.	LUMP SUM
2.19	BENT NO. 1		2.00	4.8	280		598	0.3	35	
	BENT NO. 2								35	
	BENT NO. 3								35	
	BENT NO. 4								35	
	BENT NO. 5		2.00	4.8	280		598	0.3	35	
	47'-6" SIMPLE W-BEAM SPAN (SPAN 1)		37.50	182.9		11,600	3,644	1.5		
	72'-0" SIMPLE W-BEAM SPAN (SPAN 2)		57.05	273.4		17,365	4,313	1.8		
	72'-0" SIMPLE W-BEAM SPAN (SPAN 3)		57.05	273.4		17,365	4,313	1.8		
	47'-6" SIMPLE W-BEAM SPAN (SPAN 4)		37.50	182.9		11,600	3,644	1.5		
	EXISTING BRIDGE NO. 03180									1
	TOTALS FOR JOB NO. A00031		193.10	922.2	560	57,930	17,110	7.2	175	

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14498
ADAM B. HALL

DIGITALLY SIGNED 11/18/2022
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
HWY. 181 DECK REPLACEMENT (S)
MISSISSIPPI COUNTY
ROUTE 181 SEC. 0
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: RAK DATE: AUG. 2022 FILENAME: bA00031_Q1.dgn
CHECKED BY: ABH DATE: SEP. 2022 SCALE: No Scale
DESIGNED BY: RAK DATE: AUG. 2022
BRIDGE NO. 03180 DRAWING NO. 65783

abhall
11/18/20229:59:36 AM
WORKSPACE\ARDOT Bridge (2019)
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REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
1-04-23		6	ARK.	A00031	14	41
		SUMMARY OF QUANTITIES AND REVISIONS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 13653
ADAM E. WIERCIAK

DIGITALLY SIGNED 01/04/2023

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
202	REMOVAL AND DISPOSAL OF APPROACH SLABS	2	EACH
202	REMOVAL AND DISPOSAL OF APPROACH GUTTERS	4	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	4	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	698	LIN. FT.
SP, SS, & 210	UNCLASSIFIED EXCAVATION	336	CU. YD.
SP & 210	COMPACTED EMBANKMENT	289	CU. YD.
SP, SS, & 303	AGGREGATE BASE COURSE (CLASS 7)	668	TON
SS & 401	TACK COAT	54	GAL.
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	124	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	7	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT	318	SQ. YD.
SP, SS, & 504	APPROACH SLABS	98.54	CU. YD.
SP, SS, & 504	APPROACH GUTTERS	36.56	CU. YD.
SP	SCARIFYING CONCRETE PAVEMENT	318	SQ. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP, SS, & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SS & 604	SIGNS	1553	SQ. FT.
SS & 604	BARRICADES	32	LIN. FT.
SS & 604	TRAFFIC DRUMS	160	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	1080	LIN. FT.
SS & 604	ADVANCE WARNING ARROW PANEL	112	DAY
SP, SS, & 604	PORTABLE CHANGEABLE MESSAGE SIGN	16	WEEK
SS & 606	12" ZINC COATED (GALVANIZED) CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	36	LIN. FT.
SS & 609	DROP INLETS (TYPE N1)	4	EACH
SS & 617	GUARDRAIL (TYPE A)	550	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)	4	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL	4	EACH
620	LIME	1	TON
620	SEEDING	0.48	ACRE
SS & 620	MULCH COVER	0.96	ACRE
620	WATER	58.8	M. GAL.
621	TEMPORARY SEEDING	0.48	ACRE
621	SILT FENCE	1350	LIN. FT.
621	SAND BAG DITCH CHECKS	176	BAG
621	SEDIMENT REMOVAL AND DISPOSAL	50	CU. YD.
SS & 621	FILTER SOCK (18")	120	LIN. FT.
623	SECOND SEEDING APPLICATION	0.48	ACRE
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	1556	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	906	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	6	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER	2	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	2	EACH
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	15560	POUND
	STRUCTURES OVER 20' SPAN		
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	193.10	CU. YD.
SP & 803	CLASS 2 PROTECTIVE SURFACE TREATMENT	922.2	SQ. YD.
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	560	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	57930	POUND
SP, SS, & 807	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50)	17110	POUND
SS & 807	PAINTING STRUCTURAL STEEL	7.2	TON
SS & 809	SILICONE JOINT SEALANT	175	LIN. FT.
SP & 821	MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)	1.00	LUMP SUM

REVISIONS

DATE	REVISION	SHEET NUMBER
1-04-23	REVISED JOB TITLE, ADDED DOCUMENTATION OF PAYMENTS MADE TO DISADVANTAGED BUSINESS ENTERPRISES SP, REMOVED DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES SP & GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION SP, REVISED MAINTENANCE OF TRAFFIC SP	1, 3, 14

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WORKSPACE: AHTD
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REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	15	41
		SURVEY CONTROL DETAILS				

DIGITALLY SIGNED 11/09/2022

SURVEY CONTROL COORDINATES

Project Name: sA00031
Date: 7/7/2022
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	443775.1505	1857408.8754	233.284	CTL	*ARDOT STD. MON. STAMPED PN: 1
2	443829.3743	1857908.7931	236.630	CTL	*ARDOT STD. MON. STAMPED PN: 2
3	443792.4186	1858454.7497	255.696	CTL	*ARDOT STD. MON. STAMPED PN: 3
4	443799.1109	1858939.0157	250.746	CTL	*ARDOT STD. MON. STAMPED PN: 4
5	443848.5550	1859462.7328	235.812	CTL	*ARDOT STD. MON. STAMPED PN: 5
6	443814.3545	1860066.2710	230.693	CTL	*ARDOT STD. MON. STAMPED PN: 6
100	445398.8553	1859194.2224	236.782	GPS	*ARDOT GPS #470026
101	444169.0427	1858544.9145	232.633	GPS	*ARDOT GPS #470026
900	443779.2537	1857800.6554	232.865	TBM	*2X2 CHISEL SQUARE ON HW
901	443796.6613	1858446.1329	258.302	TBM	*2X2 CHISEL SQUARE ON BR WW
902	443858.3695	1859299.4858	234.038	TBM	*2X2 CHISEL SQUARE ON HW

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 0.9999291221 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME sA00031gi.ctl
HORIZONTAL DATUM: NAD 83 (2011)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 470026 - 470026A
CONVERGENCE ANGLE: 0-99-99.9 LEFT/RIGHT AT LAT N 35-32'18.75" W 90-09'52.83"
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

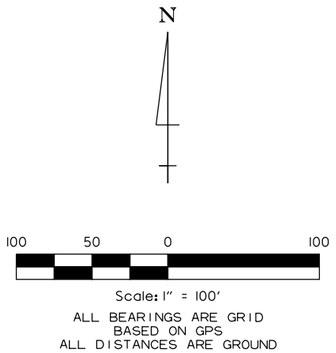
ALIGNMENT NAME: HWY. 181

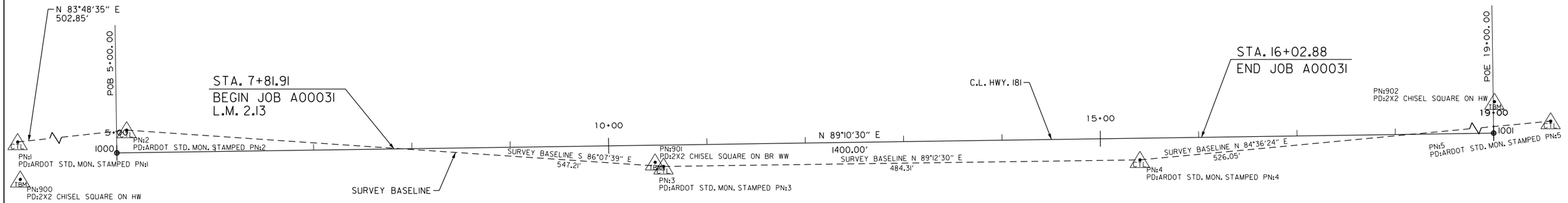
POINT	STATION	TYPE	NORTHING	EASTING
1000	5+00.00	POB	443806.2468	1857898.8580
1001	19+00.00	POE	443826.4047	1859298.7128

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	16	41
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 13653
ADAM E. WIERCIAK

DIGITALLY SIGNED 11/09/2022





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REVISED DATE:

SURVEY CONTROL DETAILS

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	17	41
		PLAN & PROFILE - HWY. 181				

C.L. HWY. 181 STATIONING	GUARDRAIL (TYPE A)	GUARDRAIL TERMINAL (TYPE 2)	THRIE BEAM GUARDRAIL TERMINAL
STA. 8+36.36 TO STA. 10+55.11 RT.	= 150 LIN. FT.	1 EACH	1 EACH
STA. 8+73.48 TO STA. 10+67.23 LT.	= 125 LIN. FT.	1 EACH	1 EACH
STA. 13+32.77 TO STA. 15+26.52 RT.	= 125 LIN. FT.	1 EACH	1 EACH
STA. 13+44.89 TO STA. 15+63.64 LT.	= 150 LIN. FT.	1 EACH	1 EACH

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	SIDE	UNIT
8+72	10+47	RT.	175 LIN. FT.
8+85	10+60	LT.	175 LIN. FT.
13+41	15+15	RT.	174 LIN. FT.
13+54	15+28	LT.	174 LIN. FT.

STATE OF ARKANSAS
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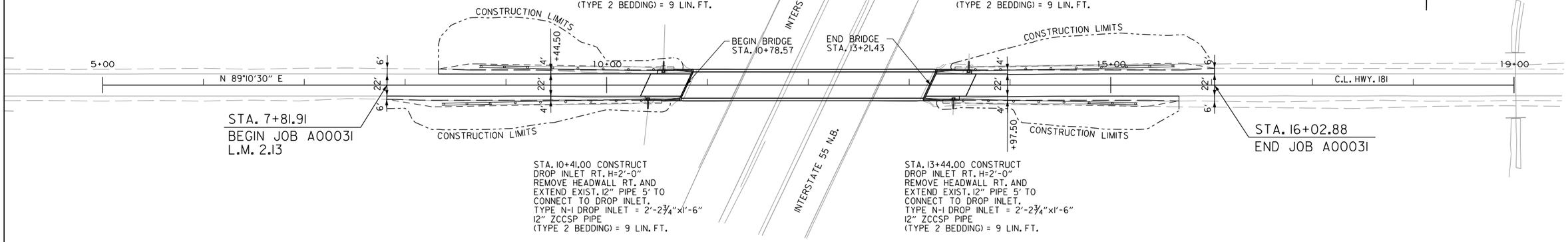
DIGITALLY SIGNED 11/09/2022

N

STA. 10+56.25 CONSTRUCT
DROP INLET LT. H=2'-0"
REMOVE HEADWALL LT. AND
EXTEND EXIST. 12" PIPE 5' TO
CONNECT TO DROP INLET.
TYPE N-1 DROP INLET = 2'-2¾"x1'-6"
12" ZCCSP PIPE
(TYPE 2 BEDDING) = 9 LIN. FT.

STA. 13+59.00 CONSTRUCT
DROP INLET LT. H=2'-0"
REMOVE HEADWALL LT. AND
EXTEND EXIST. 12" PIPE 5'
TO CONNECT TO DROP INLET.
TYPE N-1 DROP INLET = 2'-2¾"x1'-6"
12" ZCCSP PIPE
(TYPE 2 BEDDING) = 9 LIN. FT.



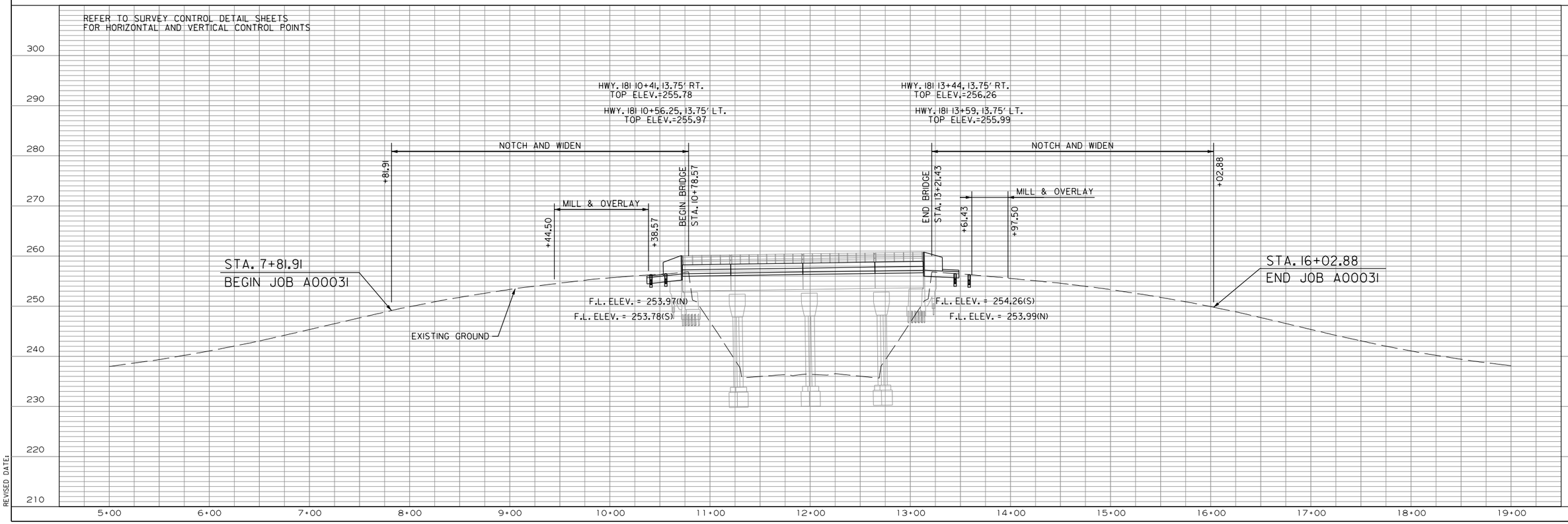
STA. 10+41.00 CONSTRUCT
DROP INLET RT. H=2'-0"
REMOVE HEADWALL RT. AND
EXTEND EXIST. 12" PIPE 5' TO
CONNECT TO DROP INLET.
TYPE N-1 DROP INLET = 2'-2¾"x1'-6"
12" ZCCSP PIPE
(TYPE 2 BEDDING) = 9 LIN. FT.

STA. 13+44.00 CONSTRUCT
DROP INLET RT. H=2'-0"
REMOVE HEADWALL RT. AND
EXTEND EXIST. 12" PIPE 5' TO
CONNECT TO DROP INLET.
TYPE N-1 DROP INLET = 2'-2¾"x1'-6"
12" ZCCSP PIPE
(TYPE 2 BEDDING) = 9 LIN. FT.

STA. 10+78.57 BRIDGE END
EXISTING BRIDGE NO. 03180 OVER INTERSTATE 55
239'-0" SIMPLE W-BEAM SPAN (47.5'-72'-72'-47.5')
26'-0" CLEAR ROADWAY
25°00'00" LT. FORWARD SKEW
242'-10¼" BRIDGE LENGTH
STA. 13+21.43 BRIDGE END
BRIDGE DECK REPLACEMENT

HWY. 181

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



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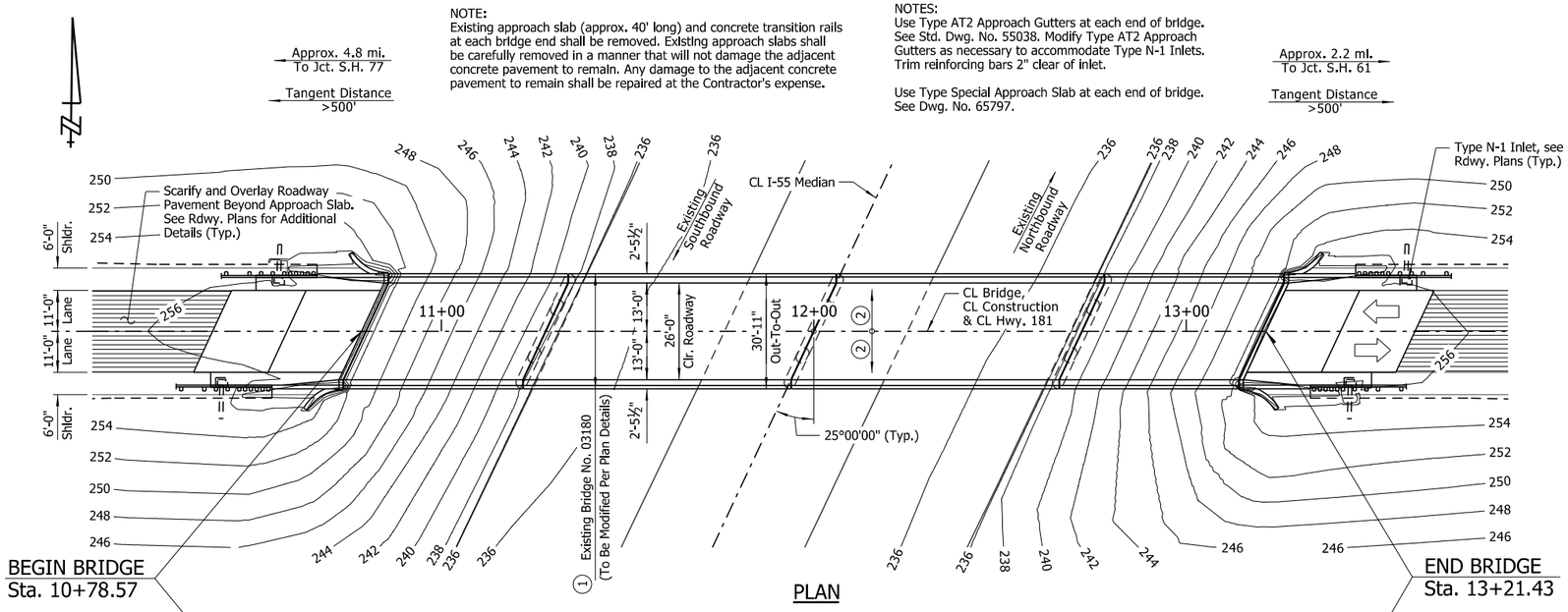
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		18	41
				JOB NO.		A00031		
				①	03180	LAYOUT		65784

NOTE:
Existing approach slab (approx. 40' long) and concrete transition rails at each bridge end shall be removed. Existing approach slabs shall be carefully removed in a manner that will not damage the adjacent concrete pavement to remain. Any damage to the adjacent concrete pavement to remain shall be repaired at the Contractor's expense.

NOTES:
Use Type AT2 Approach Gutters at each end of bridge. See Std. Dwg. No. 55038. Modify Type AT2 Approach Gutters as necessary to accommodate Type N-1 Inlets. Trim reinforcing bars 2" clear of inlet.

Use Type Special Approach Slab at each end of bridge. See Dwg. No. 65797.

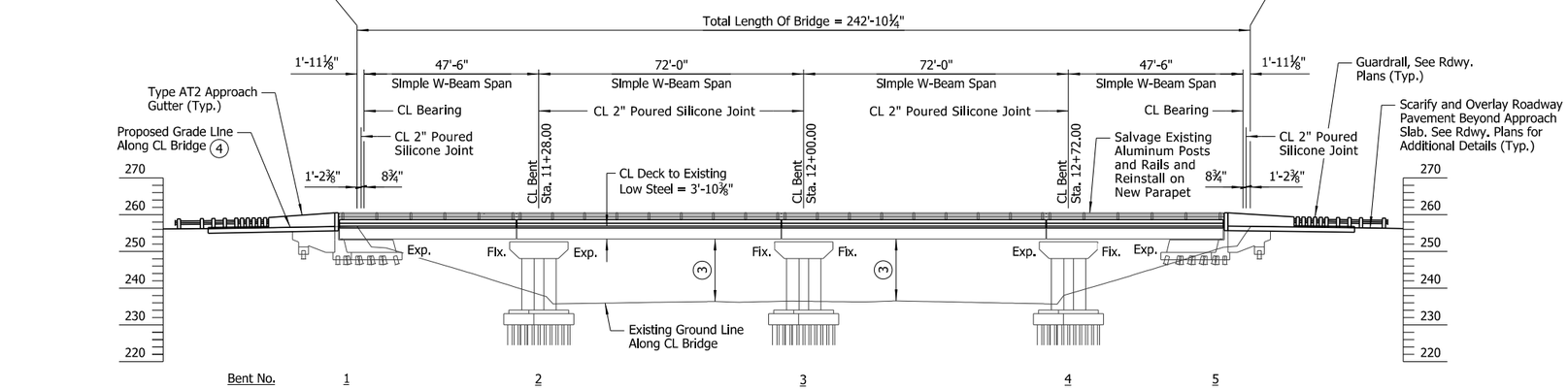


PLAN

① Cost associated with the removal of portions of the existing bridge shall be included in the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)".

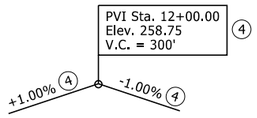
② 2" Parabolic Crown

③ Prior to demolition, the Contractor shall measure and record the minimum vertical clearance for both the Southbound I-55 Roadway and the Northbound I-55 Roadway. Vertical clearances shall be measured from the top of the I-55 pavement to Low Steel. For each direction of travel, the vertical clearance window shall include the lanes and shoulders. Existing minimum vertical clearances shall not be reduced during construction and in the final condition. Payment for this work shall be considered subsidiary to the pay item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)"



ELEVATION

NOTE:
Stations shown are along CL Construction. Any vertical dimension referenced to CL Deck Is based on top of concrete deck elevation at CL Bridge.



VERTICAL CURVE DATA
Highway 181
(Profile Grade Along CL Construction)

④ Vertical Curve Data shown is from existing bridge plans and is for information only. Actual Profile Grade shall be determined by the Contractor. See "DETERMINATION OF PROFILE GRADE" note on Drawing No. 65785.

REFERENCE TABLE	
BRIDGE NO.	EXISTING DRAWING NO.
03180	10281-10289

GENERAL NOTES

BENCHMARK: Vertical Control Data are shown on the Survey Control Data Sheets.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable Supplemental Specifications and Special Provisions. Unless otherwise noted in the plans, Section and Subsection numbers refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges, 17th Edition

LIVE LOADING: HS20

METHOD OF DESIGN: Load Factor Design

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (Superstructure and Backwall)	f'c = 4,000 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi

PAINTING: All new Grade 50 structural steel, except galvanized members and surfaces in contact with concrete, shall be painted as specified in Subsection 807.75. The color of paint shall be Aluminum and match Federal Standard 595B, Color Chip No. 27200.

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

PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface (including curbing) and to the roadway face and top of the concrete parapets in accordance with Section 803.

EXISTING BRIDGE: Existing Bridge No. 03180 (Log Mile 2.19) is 242.85' in length, 30.92' wide (26.0' clear roadway) and consists of a concrete slab on steel I-beam spans (4 spans total) supported by concrete columns on pile-supported concrete footings. Plans of the existing structure, if available, may be obtained upon request to the Construction Contract Development Section of the Program Management Division. See "REFERENCE TABLE" for a list of existing bridge drawings.

REMODELING OF THE EXISTING BRIDGE: The proposed work consists of verification of the existing bridge geometry; removal of the existing asphalt overlay (bridge and approaches); removal of the existing approach slabs and transition rails; removal of the existing aluminum bridge posts and rails; removal of the existing bridge deck (including curbing and parapet); removal of portions of the existing end bents; removal of existing joint armor; removal of existing bearings; installation of new steel bearings; installation of new shear connectors attached to top of existing beam flanges; installation of new joint armor; construction of a new bridge deck (including curbing and parapet); construction of new backwall above the paving notch (including curbing and posts); installation of new poured silicone joints at each bent; re-installation of the existing aluminum bridge posts and rails (using new anchor bolts); and construction of new approach gutters and slabs. For additional requirements in conducting the work, see Section 821. The cost associated with the removal and disposal of portions of the existing bridge shall be included in the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)".

VERIFICATION: Except as noted, components of the existing bridge are to be retained and joined to the proposed work. The information and dimensions shown are based on existing bridge plans. The Contractor is to adhere strictly to the requirements for verification of the geometry of the existing bridge and its relationship to proposed work, as described in Subsection 821.02, and make necessary adjustments to fit the proposed work to the existing structure. Payment for this work shall be considered subsidiary to the pay item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)". Verification of the existing bridge geometry must be completed prior to the submission of any shop drawings and form grade details.

REMOVAL AND SALVAGE: Unless noted otherwise, all material removed from the existing bridge under Item 821 shall be disposed of per Section 205. All material from the existing bridge shall become the property of the Contractor, except the existing aluminum posts and rails to be re-installed per plan details.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

DETAIL DRAWINGS:	DRAWING NO(S).
Stage Construction	65785
End Bent Modification Details	65786
Details of Bearings	65787
47'-6" Simple W-Beam Span	65788-65790
72'-0" Simple W-Beam Span	65791-65793
Common Superstructure Details	65794
Details of Deck Drains	65795
Details of Type A Rail	65796
Type Special Approach Slabs	65797
General Notes For Steel Bridge Structures	55006
Details For Steel Bridge Structures	55007
Poured Silicone Joint	55008
Type AT2 Approach Gutters	55038

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14498
ADAM B. HALL

DIGITALLY SIGNED 11/09/2022
BRIDGE ENGINEER

LAYOUT OF BRIDGE
HIGHWAY 181 OVER I-55
HWY. 181 DECK REPLACEMENT (S)
MISSISSIPPI COUNTY

ROUTE 181 SEC. 0

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: AUG. 2022 FILENAME: bA00031_L1.dgn
CHECKED BY: ABH DATE: AUG. 2022 SCALE: 1" = 20'-0"
DESIGNED BY: RAK DATE: JUNE 2022

BRIDGE NO. 03180 DRAWING NO. 65784

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WORKSPACE:ARDOT Bridge (2019)
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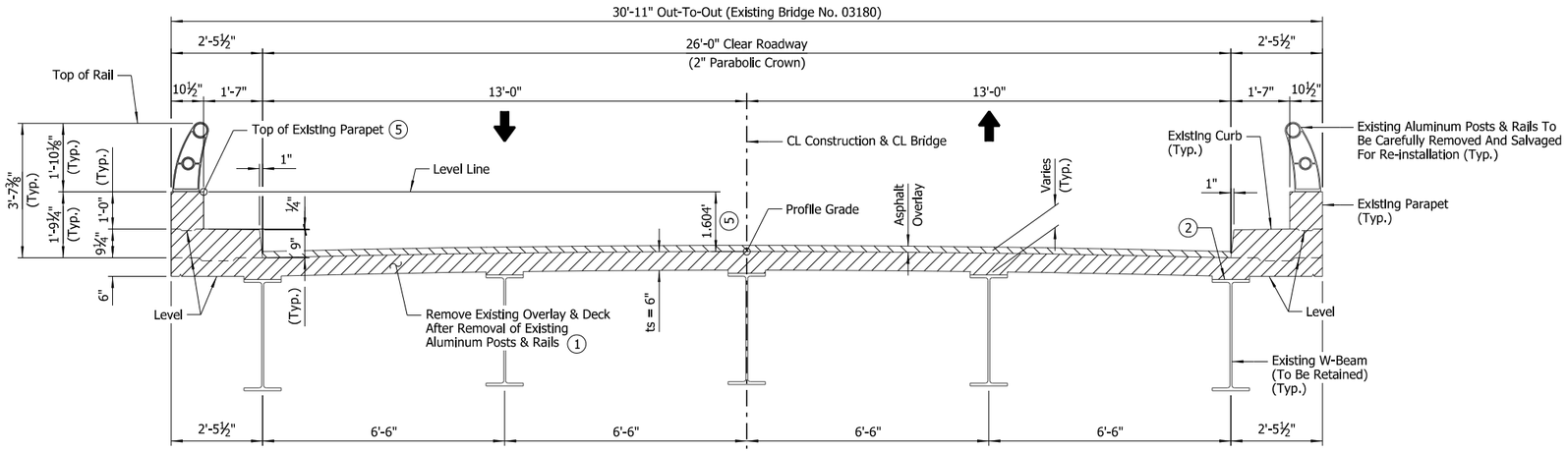
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		19	41
				JOB NO.		A00031		
				(I) 03180		STAGED CONSTRUCTION		65785

NOTE:
Prior to removal, the Contractor shall submit a deck removal plan for review and approval by the Engineer. The deck removal plan shall include an outline of the methods to be used for removal, including descriptions of the proposed equipment and the sequence of removal.



TYPICAL ROADWAY SECTION - EXISTING CONDITION & DEMOLITION

(Looking Ahead)
Scale: ½" = 1'-0"

NOTE:
After existing deck removal, existing beams shall be jacked to facilitate existing bearing removal. For additional jacking information, see Dwg. Nos. 65790 & 65793.

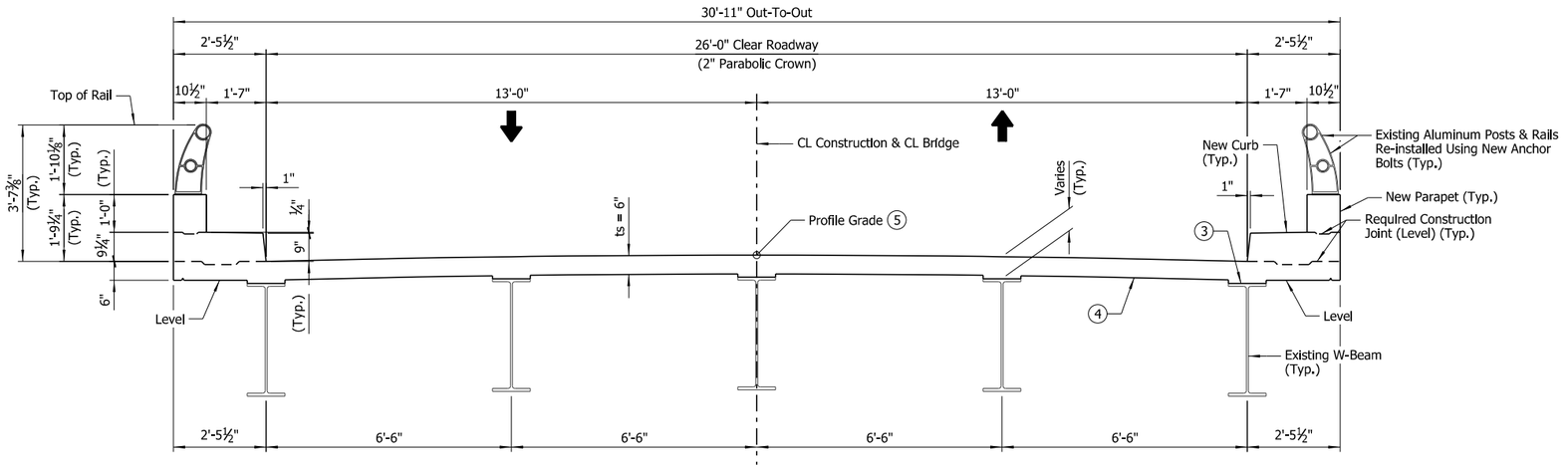
NOTES:
Details which relate to Maintenance of Traffic are shown on Bridge plans for information only. See Roadway plans for Maintenance of Traffic.

(1) Removal shall also include removal of existing roadway channels and expansion devices. Existing roadway channels shall be carefully removed at the bolted connections to the existing beams to avoid any damage to the beams.

(2) After deck removal, the existing tops of beams and shear connectors shall be blast cleaned in accordance with SSPC-SP6, Commercial Blast Cleaning. This work will not be paid for directly but shall be considered subsidiary to the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)".

(5) DETERMINATION OF PROFILE GRADE

Prior to any superstructure removal, the Contractor shall field survey and record existing top of parapet elevations. The intervals of the survey points shall be the approximate 1/10 points of each span. Top of parapet elevations shall be used to establish Profile Grade data based on the relationship shown between top of parapet and Profile Grade (1.604'). This information shall be submitted to the Engineer for review prior to any superstructure removal. This work shall be considered subsidiary to the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)".



TYPICAL ROADWAY SECTION - CONSTRUCTION & FINAL CONDITION

(Looking Ahead)
Scale: ½" = 1'-0"

NOTE:
New steel bearings and new poured silicone joint (including new joint armor) required at each bent location. See plan details for additional information.

(3) Prior to construction of the new deck, new shear connectors shall be installed per details and at the locations shown in the plans. This work will not be paid for directly but shall be considered subsidiary to the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)".

(4) If permanent steel deck forms are used, the corrugations shall be non-matching and shall be filled with lightweight expanded-polystyrene foam.

STATE OF ARKANSAS
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BRIDGE ENGINEER

DETAILS OF STAGED CONSTRUCTION
HIGHWAY 181 OVER I-55
HWY. 181 DECK REPLACEMENT (S)
MISSISSIPPI COUNTY

ROUTE 181 SEC. 0

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: JUNE 2022 FILENAME: bA00031_sc1.dgn
CHECKED BY: ABH DATE: AUG. 2022 SCALE: As Shown
DESIGNED BY: RAK DATE: JUNE 2022

BRIDGE NO. 03180 DRAWING NO. 65785

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WORKSPACE\ARDOT Bridge (2019)
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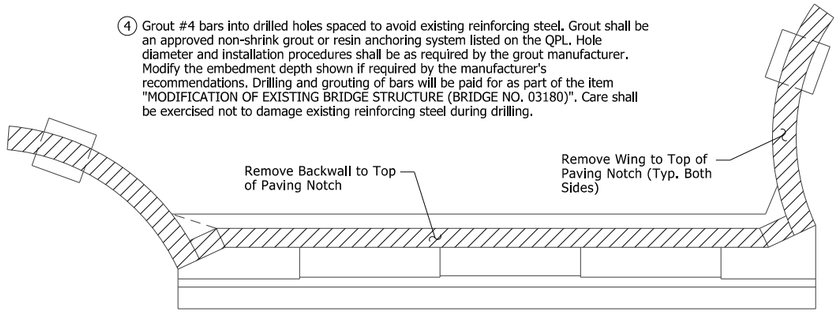
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		20	41
				JOB NO.		A00031		
				03180		END BENTS		65786

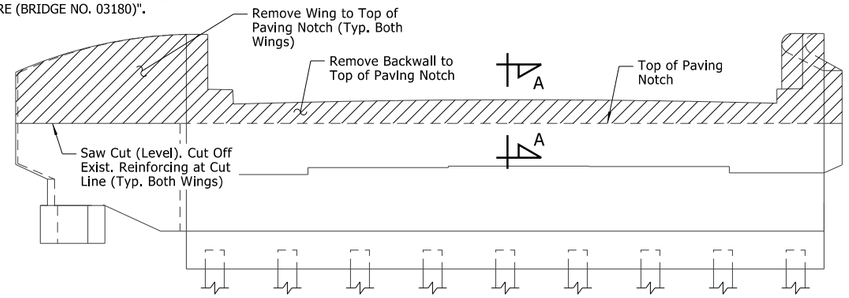
(4) Grout #4 bars into drilled holes spaced to avoid existing reinforcing steel. Grout shall be an approved non-shrink grout or resin anchoring system listed on the QPL. Hole diameter and installation procedures shall be as required by the grout manufacturer. Modify the embedment depth shown if required by the manufacturer's recommendations. Drilling and grouting of bars will be paid for as part of the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)". Care shall be exercised not to damage existing reinforcing steel during drilling.



TYPICAL PLAN OF END BENT - REMOVAL

Scale: ¼" = 1'-0"

NOTE:
Carefully remove and retain existing Bridge Name Plate. Place name plate on front face of Type AT2 Approach Gutter rail approx. 2'-0" from Begin Bridge and approx. 3" from top of rail (Right side of Roadway only). This work will not be paid for directly but shall be considered subsidiary to "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)".



TYPICAL ELEVATION OF END BENT - REMOVAL

Scale: ¼" = 1'-0"

GENERAL NOTES

Portions of end bent to be removed shall be removed and disposed of in accordance with Section 821. Payment for all materials, labor, tools, and equipment required for this work will be included in the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)".

Structural steel shall be ASTM A709, Gr. 50 and shall be paid for at the unit price bid for "STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50)."

Concrete shall be Class S(AE) with a minimum 28-day compressive strength f'c = 4,000 psi and shall be paid for at the unit price bid for "CLASS S(AE) CONCRETE-BRIDGE". Concrete shall be poured in the dry, and all exposed corners shall be chamfered ¾" unless otherwise noted.

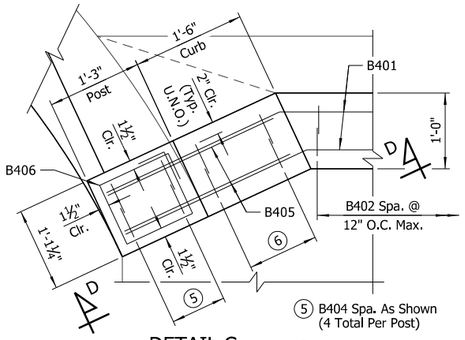
All reinforcing steel shall conform to AASHTO M 31 or M 322, Type A, with mill test reports, Grade 60 (yield strength = 60,000 psi).

All information required to complete the work should be field verified by the Contractor.

See Section 821 for additional material and construction requirements.

New backwall concrete shall not be placed until the adjacent deck pour has been made. Refer to "EXPANSION DEVICE INSTALLATION AT END BENTS" note on Std. Dwg. No. 55008. No heavy construction equipment shall be allowed within 10' of the backwall before the new deck concrete has been placed.

Class 2 Protective Surface Treatment shall be applied to the top of backwall (including curbing) and to the roadway face and top of the concrete posts in accordance with Section 803.

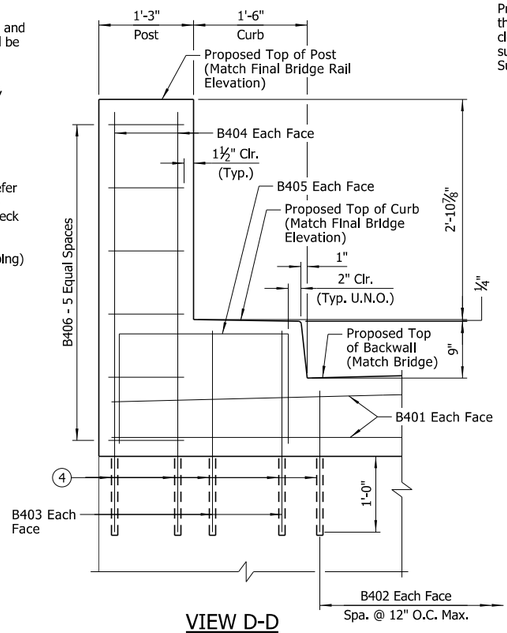


(5) B404 Spa. As Shown (4 Total Per Post)

(6) B403 Spa. As Shown (4 Total Per Curb)

DETAIL C

Scale: 1" = 1'-0"

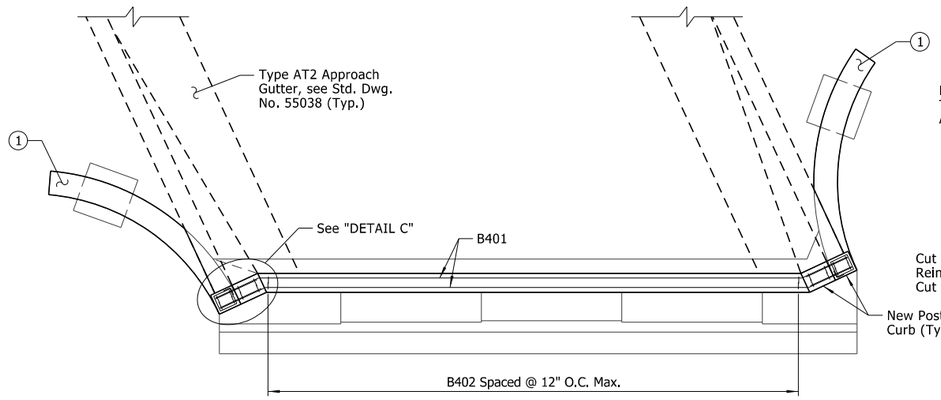


VIEW D-D

Scale: 1" = 1'-0"

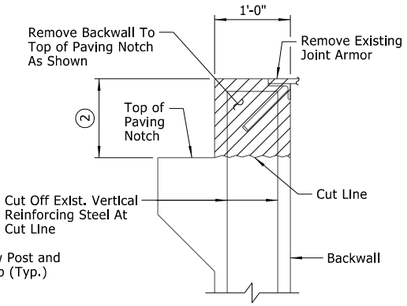
LEGEND

U.N.O. = Unless Noted Otherwise



TYPICAL PLAN OF END BENT - NEW CONSTRUCTION

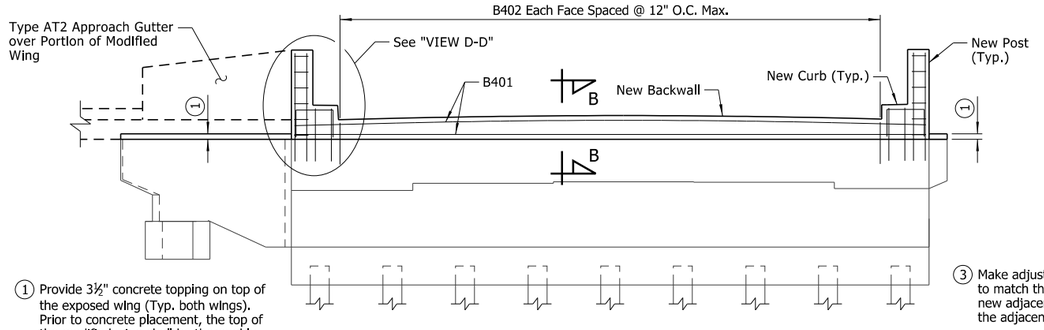
Scale: ¼" = 1'-0"



SECTION A-A

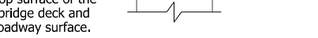
Scale: 1" = 1'-0"

(2) Paving Notch Varies (1'-0⅛" Min., 1'-2¾" Max.)



TYPICAL ELEVATION OF END BENT - NEW CONSTRUCTION

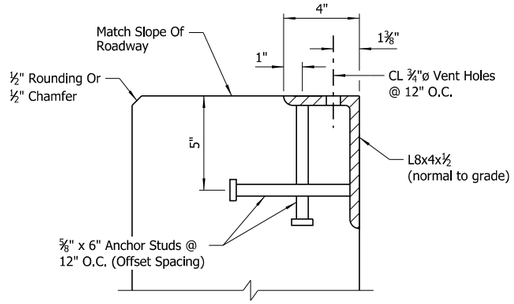
Scale: ¼" = 1'-0"



(3) Make adjustments as necessary to match the top surface of the new adjacent bridge deck and the adjacent roadway surface.

SECTION B-B

Scale: 1" = 1'-0"



NOTES:
Transverse spacing between vertical anchor studs and vent holes shall be 6".

Concrete shall be hand packed under joint armor.

Special care shall be taken to properly and thoroughly consolidate the concrete in the vicinity of the expansion joint device in the backwall, see Section 802.09(a)(3).

For details of joint armor at curb, see "CURB JOINT ARMOR DETAIL" on Dwg. No. 65794.

END BENT WALL ARMOR DETAIL

No Scale

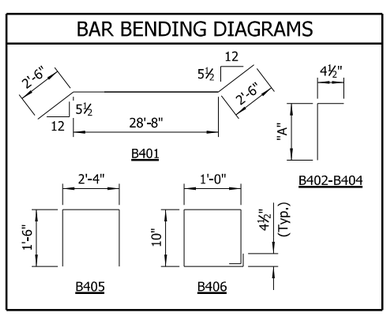
BAR LIST (PER END BENT)

MARK	NO. REQ'D	LENGTH	"A"	P.D.
B401	4	33'-7"		3"
B402	58	2'-5"	2'-1"	2"
B403	8	3'-1"	2'-9"	2"
B404	8	6'-0"	5'-8"	2"
B405	4	5'-2"		2"
B406	12	4'-0"		2"

NOTES:
Dimensions of bars are out-to-out.

Number of bars shown is for one end bent modification. Two end bent modifications required.

BAR BENDING DIAGRAMS



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14498
ADAM B. HALL

DIGITALLY SIGNED 11/09/2022
BRIDGE ENGINEER

DETAILS OF END BENT MODIFICATIONS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	CWT	DATE:	SEP. 2022	FILENAME:	bA00031_b1.dgn
CHECKED BY:	CSW	DATE:	SEP. 2022	SCALE:	As Shown
DESIGNED BY:	ABH	DATE:	SEP. 2022		

BRIDGE NO. 03180 DRAWING NO. 65786

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11/8/2022 9:37:19 PM
WORKSPACE\ARDOT Bridge (2019)
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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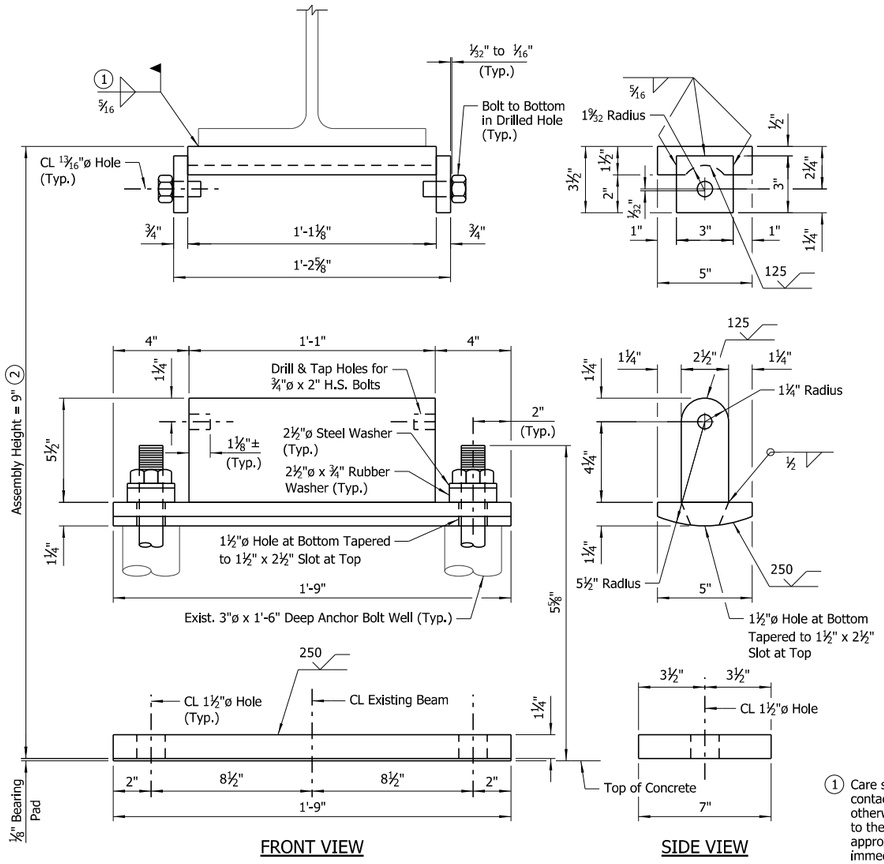
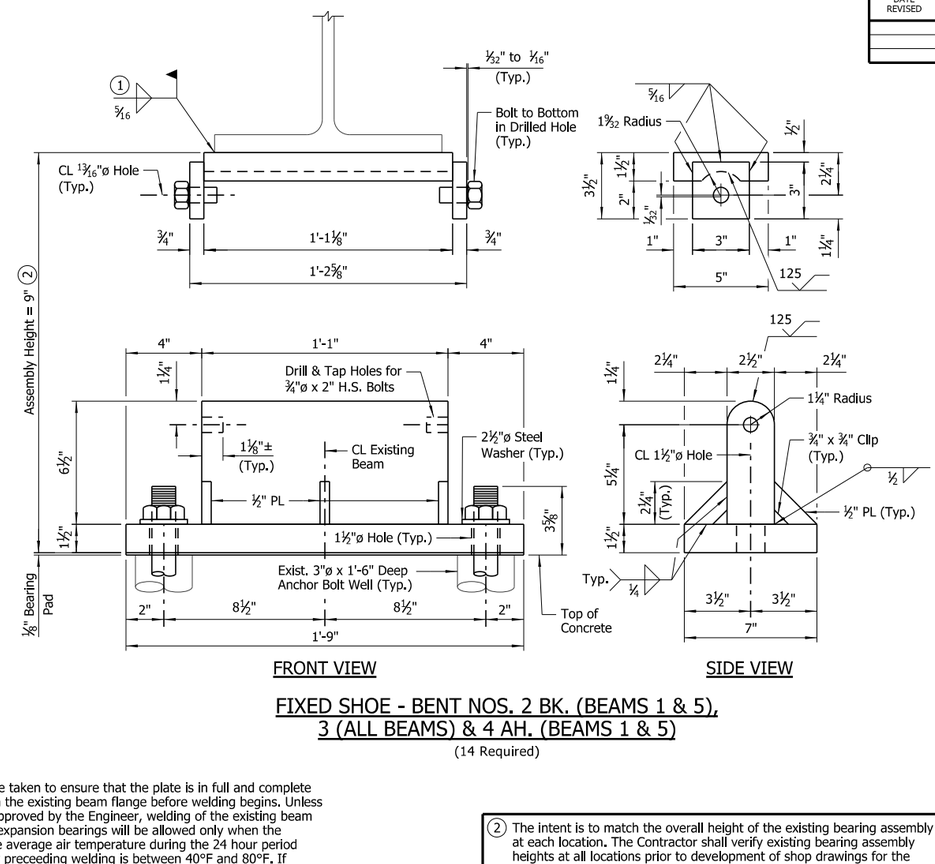
				JOB NO.		A00031		
				(I) 03180		BEARINGS		65787



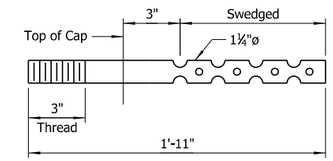
EXPANSION SHOE - BENT NOS. 2 AH. & 4 BK.

(10 Required)
(Beams 1-5)



FIXED SHOE - BENT NOS. 2 BK. (BEAMS 1 & 5), 3 (ALL BEAMS) & 4 AH. (BEAMS 1 & 5)

(14 Required)



ANCHOR BOLT DETAIL

NOTE:
After removal of existing anchor bolts, new anchor bolts shall be drilled and grouted into place. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes.

GENERAL NOTES

The Contractor shall locate existing reinforcement in cap prior to core drilling for removal of existing anchor bolts. If there are any conflicts, the Contractor shall notify the Engineer prior to drilling.

All structural steel shall conform to ASTM A709, Grade 50 and shall be measured and paid for as "STRUCTURAL STEEL IN BEAM SPANS (A709, GR.50)".

All surfaces shall be blast-cleaned in accordance with Subsection 807.84(b) for painted steel.

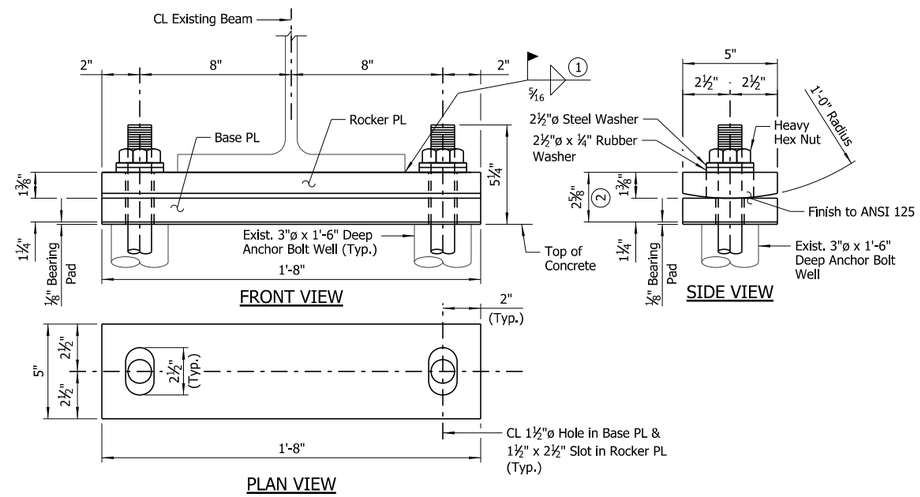
Bearing pads shall conform to Subsection 807.15.

Bearing plates shall be seated in accordance with Section 807.66.

Anchor bolts, steel washers and nuts shall conform to Subsection 807.07. Anchor Bolts shall be Grade 55. Indentations shall be circular with rounded bottoms and staggered as shown in the details. Rubber washer shall be closed cell expanded rubber, meeting the requirements of ASTM D1056 - 85 2B2 E2, and shall be considered subsidiary to the item of Structural Steel.

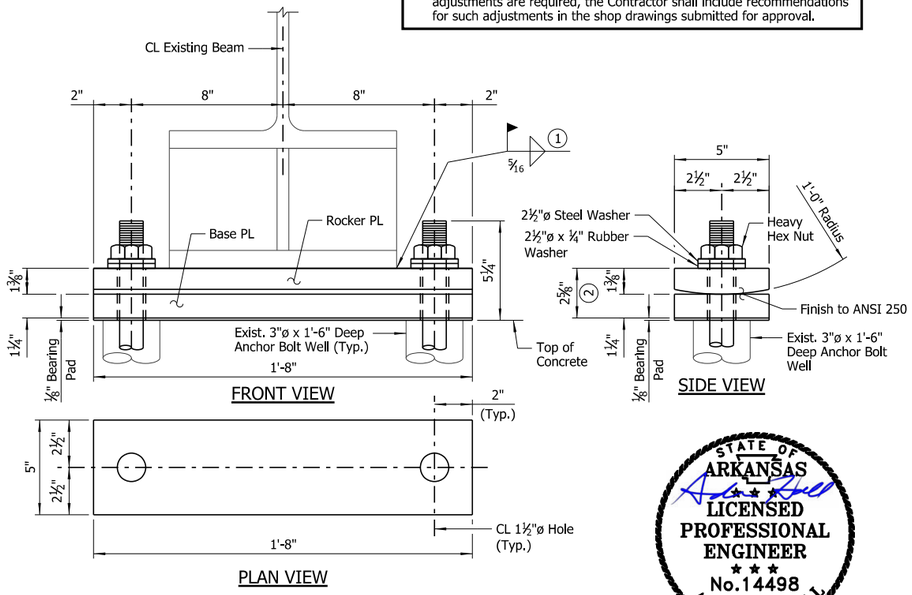
(1) Care shall be taken to ensure that the plate is in full and complete contact with the existing beam flange before welding begins. Unless otherwise approved by the Engineer, welding of the existing beam to the new expansion bearings will be allowed only when the approximate average air temperature during the 24 hour period immediately preceeding welding is between 40°F and 80°F. If welding at other temperatures is required, the Engineer will provide adjustment data.

(2) The intent is to match the overall height of the existing bearing assembly at each location. The Contractor shall verify existing bearing assembly heights at all locations prior to development of shop drawings for the new bearing assemblies. If the verification process reveals that adjustments are required, the Contractor shall include recommendations for such adjustments in the shop drawings submitted for approval.



EXPANSION SHOE - BENT NOS. 1 & 5

(10 Required)
(Beams 1-5)



FIXED SHOE - BENT NOS. 2 BK. (BEAMS 2-4) & 4 AH. (BEAMS 2-4)

(6 Required)

BEARING LOADS (3)

BENT NO(S).	BEAM NO(S).	MAX. LOAD
1, 2 (Bk.), 4 (Ah.) & 5	1 & 5	50 Kips
	2-4	56 Klps
2 (Ah.), 3 & 4 (Bk.)	1 & 5	65 Kips
	2-4	69 Kips

(3) Service (unfactored) loads. Includes live load based on AASHTO H20 Loading (live load used for design of original structure).

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14498
ADAM B. HALL

DIGITALLY SIGNED 11/09/2022
BRIDGE ENGINEER

DETAILS OF BEARINGS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: JUNE 2022 FILENAME: bA00031_e1.dgn
CHECKED BY: ABH DATE: AUG. 2022 SCALE: No Scale
DESIGNED BY: RAK DATE: JUNE 2022

BRIDGE NO. 03180 DRAWING NO. 65787

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WORKSPACE\ARDOT Bridge (2019)
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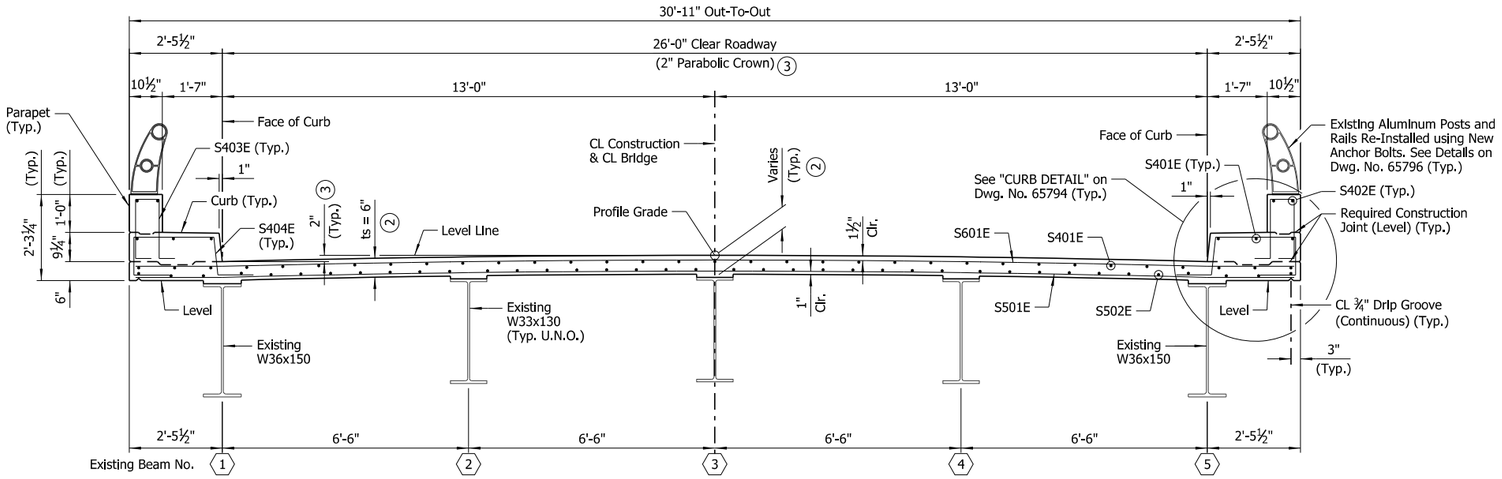
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		22	41
				JOB NO.		A00031		
				(I) 03180		47'-6" SPAN		65788

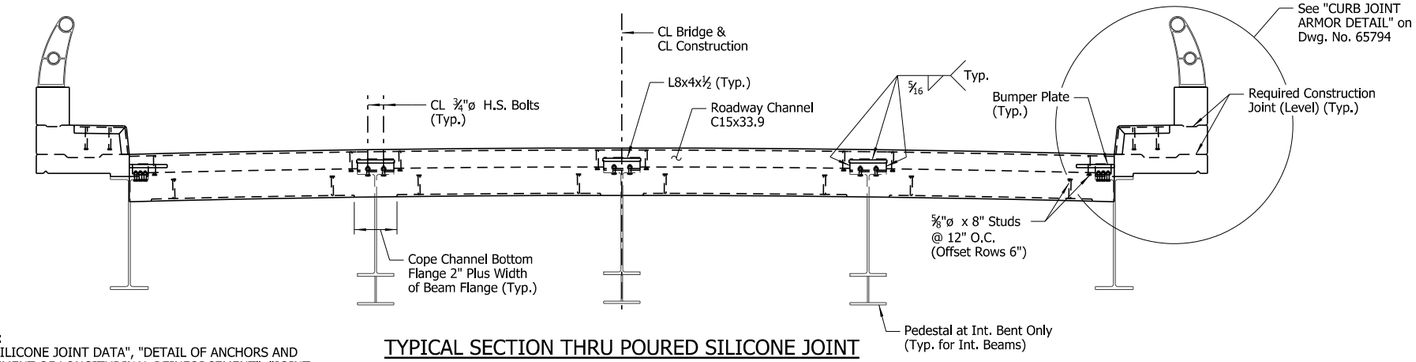
③ Intent is to match the cross-slope of the existing deck, which was constructed with a 2" parabolic crown.



TYPICAL ROADWAY SECTION

(Looking Ahead)
Scale: ½" = 1'-0"

NOTE:
If a transverse screed is utilized, the Contractor shall locate screed rail supports directly over the exterior beams. See "TRANSVERSE SCREED RAIL SUPPORT DETAIL" on Dwg. No. 65794.



NOTE:
For "SILICONE JOINT DATA", "DETAIL OF ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT", "JOINT SEAL PLACEMENT AT CURB" and "CHANNEL CONNECTION DETAIL", see Dwg. No. 65794.

TYPICAL SECTION THRU POURED SILICONE JOINT

No Scale

NOTE:
The profile of the Roadway Channel shall be established based on the vertical curve in conjunction with skew.

EXPANSION DEVICE:
Rdwy. Channel: C15x33.9
Conn. Angles: L8x4x½
Detail device ⅛" high and provide ¼" shims using 2 - 1/16" and 1 - ⅛" plates

SLAB REINFORCING:
Transverse: S601E @ 6" O.C. in Top
S501E @ 6" O.C. in Bottom
Longitudinal: S401E in Top (Placed as Shown)
S502E in Bottom (Placed as Shown)

CURB REINFORCING:
Transverse: S404E @ 12" O.C.
Longitudinal: S401E (Placed as Shown)

PARAPET REINFORCING:
Transverse: S403E @ 12" O.C.
Longitudinal: S402E (Placed as Shown)

① TOLERANCE:
Minus = ¼"
Plus = Amount of slab thickening used to meet slab thickness tolerance - See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Dwg. No. 65794.

② Haunch dimension shall be determined in the field. For allowable haunch limits, see "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Dwg. No. 65794.

GENERAL NOTES

The Contractor shall make check measurements in the field and make any adjustments necessary to fit the new work to the existing structure.

The operation or placement of vehicles, equipment, and/or materials on the subject bridge necessary for the completion of this work shall be evaluated in accordance with Subsection 105.14. Certifications of the adequacy of all components for the anticipated loads shall address the capacity of the existing structure at all phases of this work.

Care shall be exercised during the removal of the existing deck to ensure that the beams, diaphragms, shear connectors and connection plates are not damaged. Damaged items that are not salvageable, as determined by the Engineer, shall be replaced by the Contractor at no additional payment.

Construction activities for the existing bridge shall be in accordance with Special Provision "SPECIAL SAFETY REQUIREMENTS FOR BRIDGES".

Bar positions and clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices per Subsection 804.06. Placement of slab bolsters or high-chairs with full-length lower runners directly on removable deck forms will not be allowed.

Class 2 Protective Surface Treatment shall be applied to the roadway surface (including curbing) and to the roadway face and top of the concrete parapets in accordance with Section 803.

For Standard "GENERAL NOTES", see Std. Dwg. No. 55006.

For "CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW", see Std. Dwg. No. 55007.

LEGEND

U.N.O. = Unless Noted Otherwise

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14498
ADAM B. HALL

DIGITALLY SIGNED 11/09/2022
BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF 47-6" SIMPLE W-BEAM SPAN
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: JUNE 2022 FILENAME: bA00031_s1.dgn
CHECKED BY: ABH DATE: AUG. 2022 SCALE: As Shown
DESIGNED BY: RAK DATE: JUNE 2022
BRIDGE NO. 03180 DRAWING NO. 65788

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WORKSPACE\ARDOT Bridge (2019)
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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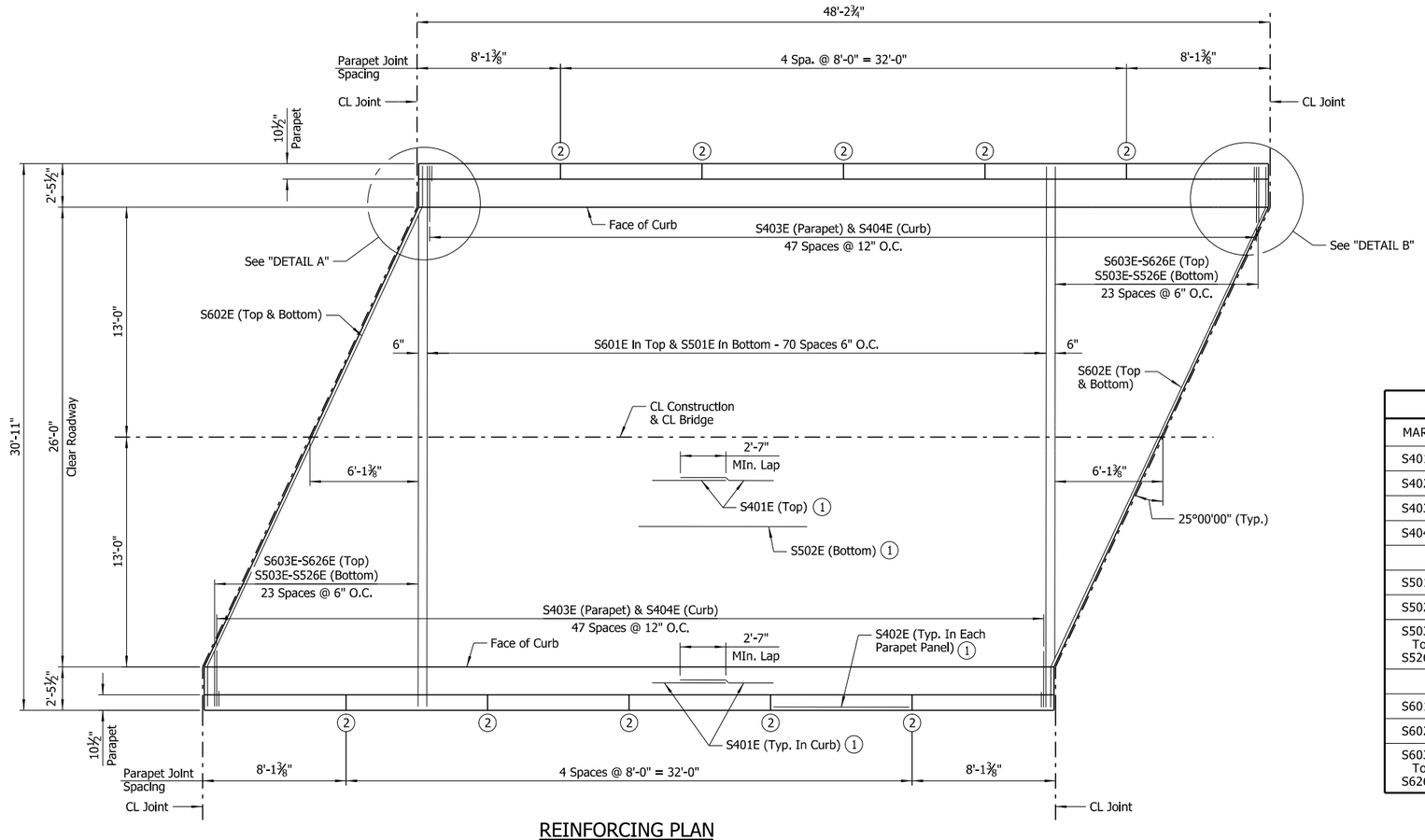
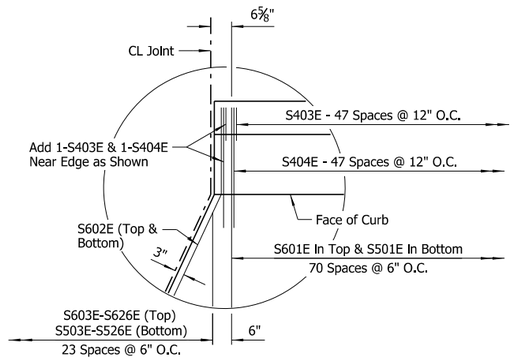
				JOB NO.		A00031		
				03180		47'-6" SPAN		65789



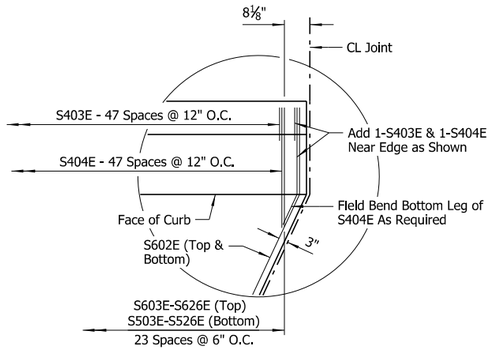
REINFORCING PLAN

Scale: ¼" = 1'-0"



DETAIL A

Scale: 1" = 1'-0"



DETAIL B

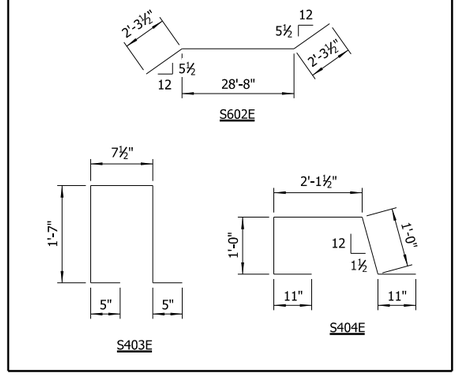
Scale: 1" = 1'-0"

1. Placed as shown in "TYPICAL ROADWAY SECTION" on Dwg. No. 65788.
2. CL ¼" Joint in Parapet. Edges of concrete adjacent to ¼" joints shall be beveled ½". Stop joint at top of curb.

BAR LIST (PER SPAN)

MARK	NO. REQ'D	LENGTH	P.D.
S401E	78	25'-2"	Str.
S402E	24	7'-8"	Str.
S403E	100	4'-3"	2"
S404E	100	5'-7"	2"
S501E	71	30'-7"	Str.
S502E	38	47'-8"	Str.
S503E To S526E	2 Each	3'-2" To 27'-10"	Str.
S601E	71	30'-7"	Str.
S602E	4	33'-3"	4½"
S603E To S626E	2 Each	3'-2" To 27'-10"	Str.

BAR BENDING DIAGRAMS



NOTES:
Dimensions of bars are out-to-out.

Bar designations ending with "E" indicate epoxy coated bars.

Number of bars shown is for one 47'-6" span. Two 47'-6" spans are required.

NOTES:
Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set.

Concrete placement for entire span shall be made in one continuous deck pour.

A minimum of 72 hours shall elapse between completion of the entire deck slab and the start of a curb pour. A minimum of 72 hours shall elapse between completion of the entire curb and the start of a parapet pour.

For standard "GENERAL NOTES", see Std. Dwg. No. 55006.

Parapets are included in span construction and are included in span quantities.

Deck drains are required in the span. For details and locations, see Dwg. No. 65795.

STATE OF ARKANSAS
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No.14498
ADAM B. HALL

DIGITALLY SIGNED 11/09/2022
BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF 47'-6" SIMPLE W-BEAM SPAN
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: JUNE 2022 FILENAME: bA00031_s2.dgn
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BRIDGE NO. 03180 DRAWING NO. 65789

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WORKSPACE\ARDOT Bridge (2019)
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REVISED DATE:

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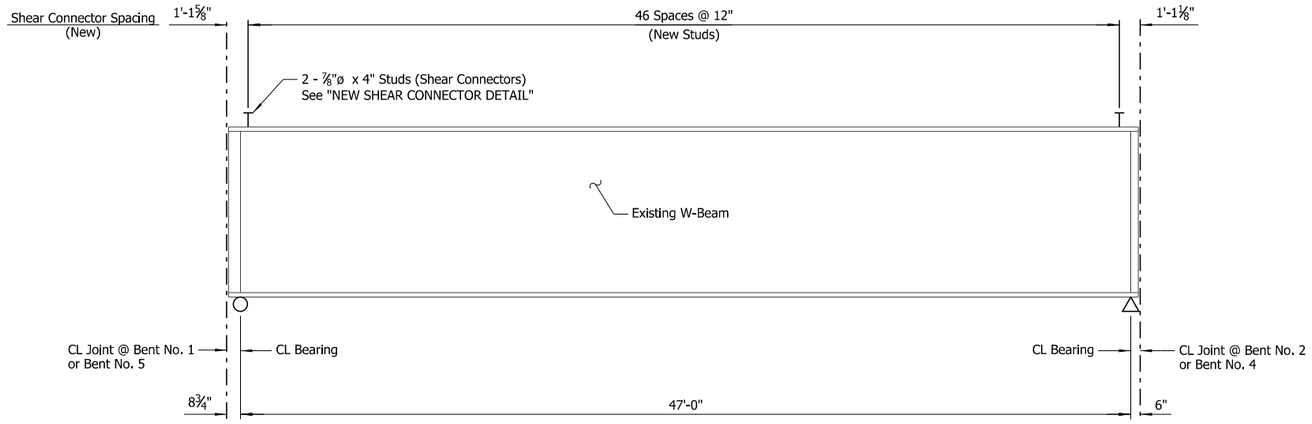
				JOB NO.		A00031		
				(1) 03180		47'-6" SPAN		65790



EXISTING BEAM ELEVATION

(Exterior Beam Shown, New Stud Placement For Interior Beam Similar)
No Scale

NOTE:
Information and dimensions shown are based on existing plans. See Section 821 for geometry verification requirements. Placement of new studs shall be adjusted as necessary to fit existing conditions. Spacings shown in beam elevation are maximum dimensions.

NOTES REGARDING JACKING AND TEMPORARY SUPPORTS

Jacking and temporary supports will be required at all locations where new bearings are to be installed. Temporary supports shall be capable of supporting two times the loads shown in the "JACKING INFORMATION" table. The minimum bearing plate provided under each jacking device shall be sized to ensure the maximum bearing stress on concrete does not exceed 1050 psi at any time. The Contractor shall take extreme care when jacking the existing structure. If any damage occurs to the existing structure during jacking operations, it shall be the full responsibility of the Contractor to repair the damaged structure to the full satisfaction of the Engineer.

All jacking operations shall occur after existing deck removal and prior to existing beam modifications, installation of stay-in-place metal deck forms and pouring of the new concrete deck.

At locations where the beam is welded to the existing bearing assembly, removal of the existing bearing assembly shall include removal of the weld by grinding the weld flush with the beam flange or pedestal.

Beams shall be jacked simultaneously and uniformly across the five bearing locations along each bearing line at each bent and only to the degree required to accomplish removal of existing bearing assemblies and installation of new bearing assemblies.

Once the new bearing assemblies are installed, beams shall be lowered onto the new bearings and attached per the details on Dwg. No. 65787.

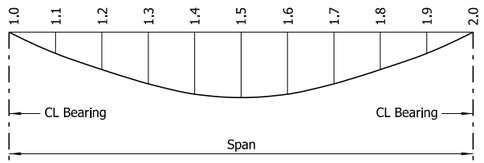
Cost associated with jacking and temporary supports shall be included in the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)".

For additional information, see Special Provision "JACKING EXISTING STRUCTURE".

JACKING INFORMATION		
BENT NO(S).	BEAM NO(S).	DEAD LOAD (1)
1, 2 (Bk.), 4 (Ah.) & 5	1 & 5	5.0 Kips
	2-4	4.6 Kips

(1) Service (unfactored) load due to the weight of the existing steel and safety platform (assumed 5 psf) only. Loads shown are per bearing. Jacking operations shall not begin until after the existing concrete deck is fully removed. Except for the safety platform, no live or construction loading shall be allowed on the bridge during jacking operations.

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)		
Point Of Deflection	All Beams	
	Slab	Slab + Curb + Parapet + Type A Rail
1.0	0.000	0.000
1.1	0.076	0.092
1.2	0.143	0.174
1.3	0.195	0.238
1.4	0.229	0.279
1.5	0.240	0.293
1.6	0.229	0.279
1.7	0.195	0.238
1.8	0.143	0.174
1.9	0.076	0.092
2.0	0.000	0.000



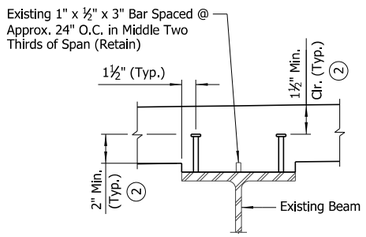
DEAD LOAD DEFLECTION DIAGRAM

No Scale

NOTES:
Deflections shown are along CL Girder from a chord from CL Bearing to CL Bearing. Negative sign (-) indicates a point above chord. Vertical curve corrections are not included.

Dead load deflections shown include an assumed loading of 5 psf to account for stay-in-place metal deck forms. If stay-in-place forms are used, the corrugations shall be non-matching and shall be filled with lightweight expanded-polystyrene foam.

Revision to the deflection tables may be necessary upon review of the Contractor's submitted forming details.



NEW SHEAR CONNECTOR DETAIL

No Scale

NOTE:
After deck removal and prior to installation of new shear connectors, the existing tops of beams and attached bars shall be blast cleaned in accordance with SSPC-SP6, Commercial Blast Cleaning. This work will not be paid for directly but will be considered subsidiary to the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)".

(2) The Contractor shall verify the existing beam profile before placement of new shear studs on existing beams. Adjustments to all new shear stud lengths shall be made if the minimum 1½" cover or the minimum 2" embedment is violated. This work will not be paid for directly but will be considered subsidiary to the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)". All new shear studs shall be paid for as "STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50)".

NOTE:
New stud shear connectors shown shall be ⅞"ø, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

STATE OF ARKANSAS
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ADAM B. HALL

DIGITALLY SIGNED 11/09/2022
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF 47'-6" SIMPLE W-BEAM SPAN

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: JUNE 2022 FILENAME: bA00031_s3.dgn
CHECKED BY: ABH DATE: AUG. 2022 SCALE: As Shown
DESIGNED BY: RAK DATE: JUNE 2022

BRIDGE NO. 03180 DRAWING NO. 65790

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WORKSPACE\ARDOT Bridge (2019)
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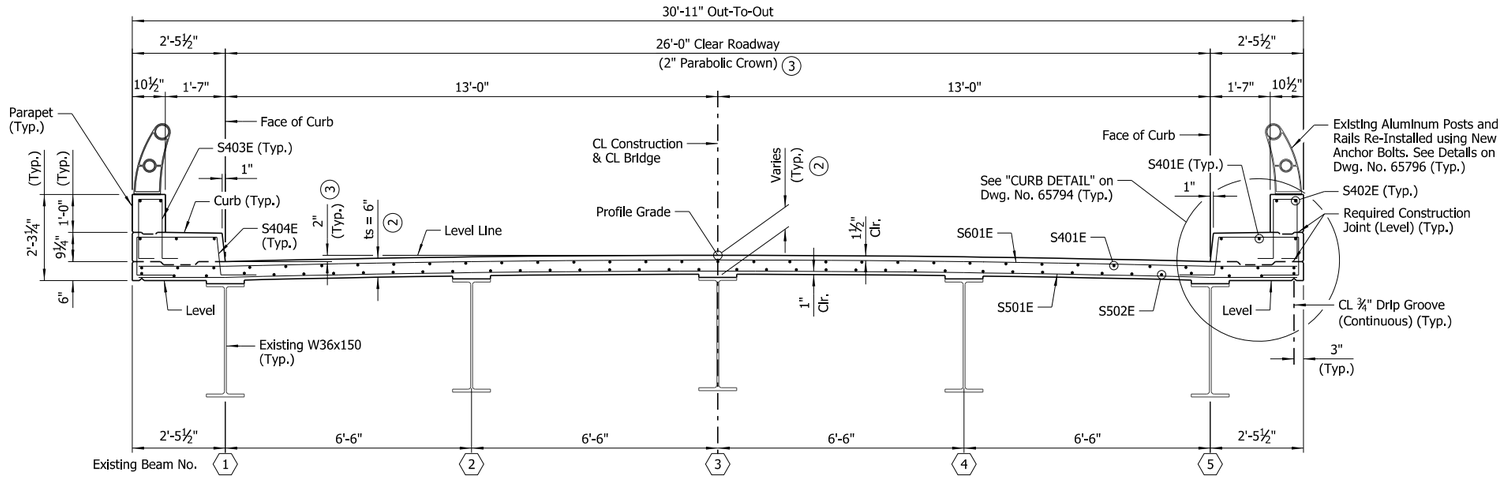
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		25	41
				JOB NO.		A00031		
				(I) 03180		72'-0" SPAN		65791

(3) Intent is to match the cross-slope of the existing deck, which was constructed with a 2" parabolic crown.



TYPICAL ROADWAY SECTION

(Looking Ahead)
Scale: ½" = 1'-0"

NOTE:
If a transverse screed is utilized, the Contractor shall locate screed rail supports directly over the exterior beams. See "TRANSVERSE SCREED RAIL SUPPORT DETAIL" on Dwg. No. 65794.

SLAB REINFORCING:

Transverse: S601E @ 6" O.C. in Top
S501E @ 6" O.C. in Bottom

Longitudinal: S401E in Top (Placed as Shown)
S502E in Bottom (Placed as Shown)

CURB REINFORCING:

Transverse: S404E @ 12" O.C.
Longitudinal: S401E (Placed as Shown)

PARAPET REINFORCING:

Transverse: S403E @ 12" O.C.
Longitudinal: S402E (Placed as Shown)

(1) TOLERANCE:
Minus = ¼"
Plus = Amount of slab thickening used to meet slab thickness tolerance - See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Dwg. No. 65794.

(2) Haunch dimension shall be determined in the field. For allowable haunch limits, see "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Dwg. No. 65794.

GENERAL NOTES

The Contractor shall make check measurements in the field and make any adjustments necessary to fit the new work to the existing structure.

The operation or placement of vehicles, equipment, and/or materials on the subject bridge necessary for the completion of this work shall be evaluated in accordance with Subsection 105.14. Certifications of the adequacy of all components for the anticipated loads shall address the capacity of the existing structure at all phases of this work.

Care shall be exercised during the removal of the existing deck to ensure that the beams, diaphragms, shear connectors and connection plates are not damaged. Damaged items that are not salvageable, as determined by the Engineer, shall be replaced by the Contractor at no additional payment.

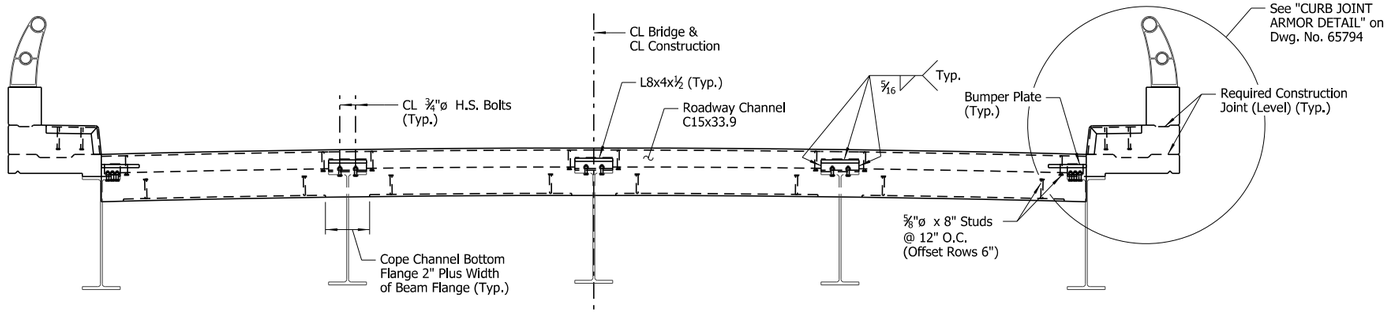
Construction activities for the existing bridge shall be in accordance with Special Provision "SPECIAL SAFETY REQUIREMENTS FOR BRIDGES".

Bar positions and clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices per Subsection 804.06. Placement of slab bolsters or high-chairs with full-length lower runners directly on removable deck forms will not be allowed.

Class 2 Protective Surface Treatment shall be applied to the roadway surface (including curbing) and to the roadway face and top of the concrete parapets in accordance with Section 803.

For Standard "GENERAL NOTES", see Std. Dwg. No. 55006.

For "CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW", see Std. Dwg. No. 55007.



TYPICAL SECTION THRU POURED SILICONE JOINT

No Scale

NOTE:
For "SILICONE JOINT DATA", "DETAIL OF ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT", "JOINT SEAL PLACEMENT AT CURB" and "CHANNEL CONNECTION DETAIL", see Dwg. No. 65794.

NOTE:
The profile of the Roadway Channel shall be established based on the vertical curve in conjunction with skew.

EXPANSION DEVICE:

Rdwy. Channel: C15x33.9
Conn. Angles: L8x4x½
Detail device ⅛" high and provide ¼" shims using 2 - 1/16" and 1 - ⅛" plates

STATE OF ARKANSAS
ADAM B. HALL
LICENSED PROFESSIONAL ENGINEER
No.14498

DIGITALLY SIGNED 11/09/2022
BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF 72'-0" SIMPLE W-BEAM SPAN

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: JUNE 2022 FILENAME: bA00031_s4.dgn
CHECKED BY: ABH DATE: AUG. 2022 SCALE: As Shown
DESIGNED BY: RAK DATE: JUNE 2022

BRIDGE NO. 03180 DRAWING NO. 65791

abhall
11/8/2022 9:37:27 PM
WORKSPACE\ARDOT Bridge (2019)
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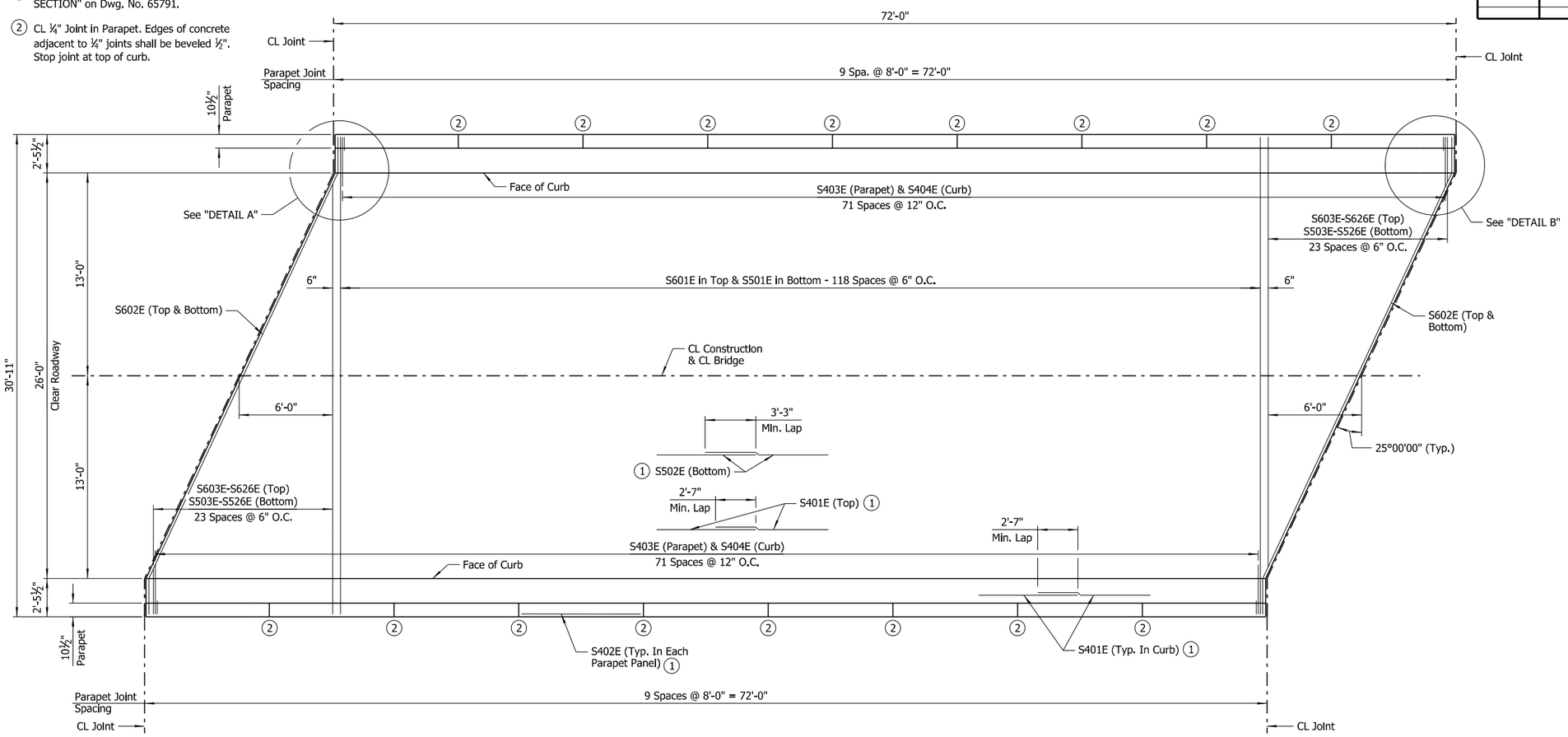
REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		26	41
				JOB NO.		A00031		
				03180		72'-0" SPAN		65792

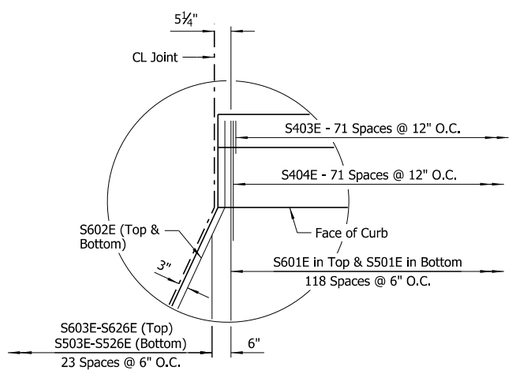
(1) Placed as shown in "TYPICAL ROADWAY SECTION" on Dwg. No. 65791.

(2) CL ¼" Joint in Parapet. Edges of concrete adjacent to ¼" joints shall be beveled ½". Stop joint at top of curb.



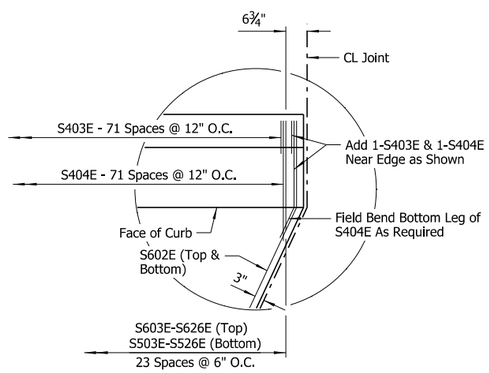
REINFORCING PLAN

Scale: ¼" = 1'-0"



DETAIL A

Scale: 1" = 1'-0"



DETAIL B

Scale: 1" = 1'-0"

NOTES:
Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set.

Concrete placement for entire span shall be made in one continuous deck pour.

A minimum of 72 hours shall elapse between completion of the entire deck slab and the start of a curb pour. A minimum of 72 hours shall elapse between completion of the entire curb and and the start of a parapet pour.

For standard "GENERAL NOTES", see Std. Dwg. No. 55006.

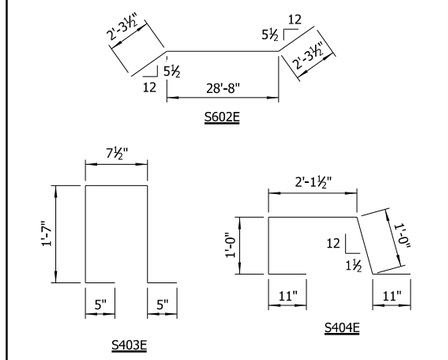
Parapets are included in span construction and are included in span quantities.

Deck drains are required in the span. For details and locations, see Dwg. No. 65795.

BAR LIST (PER SPAN)

MARK	NO. REQ'D	LENGTH	P.D.
S401E	78	37'-1"	Str.
S402E	36	7'-7"	Str.
S403E	146	4'-3"	2"
S404E	146	5'-7"	2"
S501E	119	30'-7"	Str.
S502E	76	37'-5"	Str.
S503E To S526E	2 Each	2'-11" To 27'-7"	Str.
S601E	119	30'-7"	Str.
S602E	4	33'-3"	4½"
S603E To S626E	2 Each	2'-11" To 27'-7"	Str.

BAR BENDING DIAGRAMS



NOTES:
Dimensions of bars are out-to-out.

Bar designations ending with "E" indicate epoxy coated bars.

Number of bars shown is for one 72'-0" span. Two 72'-0" spans are required.

STATE OF ARKANSAS
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BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF 72'-0" SIMPLE W-BEAM SPAN

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: JUNE 2022 FILENAME: bA00031_s5.dgn
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DESIGNED BY: RAK DATE: JUNE 2022

BRIDGE NO. 03180 DRAWING NO. 65792

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WORKSPACE\ARDOT Bridge (2019)
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REVISED DATE:

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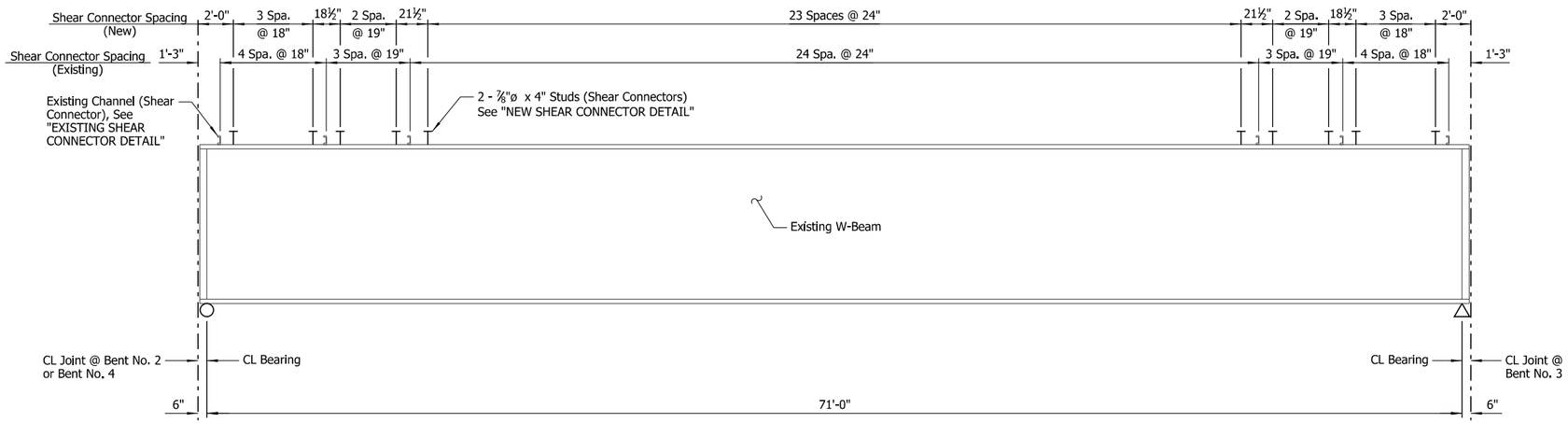
				6	ARK.		27	41
				JOB NO.		A00031		
				(1) 03180		72'-0" SPAN		65793



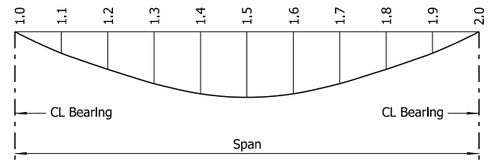
EXISTING BEAM ELEVATION

No Scale

NOTE:
Information and dimensions shown are based on existing plans. See Section 821 for geometry verification requirements. Placement of new studs shall be adjusted as necessary to fit existing conditions. Spacings shown in beam elevation are maximum dimensions.

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Point Of Deflection	All Beams	
	Slab	Slab + Curb + Parapet + Type A Rail
1.0	0.000	0.000
1.1	0.305	0.371
1.2	0.574	0.698
1.3	0.778	0.946
1.4	0.907	1.104
1.5	0.951	1.157
1.6	0.907	1.104
1.7	0.778	0.946
1.8	0.574	0.698
1.9	0.305	0.371
2.0	0.000	0.000



DEAD LOAD DEFLECTION DIAGRAM

No Scale

NOTES:
Deflections shown are along CL Girder from a chord from CL Bearing to CL Bearing. Negative sign (-) indicates a point above chord. Vertical curve corrections are not included.

Dead load deflections shown include an assumed loading of 5 psf to account for stay-in-place metal deck forms. If stay-in-place forms are used, the corrugations shall be non-matching and shall be filled with lightweight expanded-polystyrene foam.

Revision to the deflection tables may be necessary upon review of the Contractor's submitted forming details.

NOTES REGARDING JACKING AND TEMPORARY SUPPORTS

Jacking and temporary supports will be required at all locations where new bearings are to be installed. Temporary supports shall be capable of supporting two times the loads shown in the "JACKING INFORMATION" table. The minimum bearing plate provided under each jacking device shall be sized to ensure the maximum bearing stress on concrete does not exceed 1050 psi at any time. The Contractor shall take extreme care when jacking the existing structure. If any damage occurs to the existing structure during jacking operations, it shall be the full responsibility of the Contractor to repair the damaged structure to the full satisfaction of the Engineer.

All jacking operations shall occur after existing deck removal and prior to existing beam modifications, installation of stay-in-place metal deck forms and pouring of the new concrete deck.

At locations where the beam is welded to the existing bearing assembly, removal of the existing bearing assembly shall include removal of the weld by grinding the weld flush with the beam flange or pedestal.

Beams shall be jacked simultaneously and uniformly across the five bearing locations along each bearing line at each bent and only to the degree required to accomplish removal of existing bearing assemblies and installation of new bearing assemblies.

Once the new bearing assemblies are installed, beams shall be lowered onto the new bearings and attached per the details on Dwg. No. 65787.

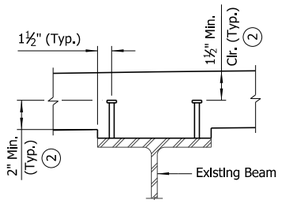
Cost associated with jacking and temporary supports shall be included in the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)".

For additional information, see Special Provision "JACKING EXISTING STRUCTURE".

JACKING INFORMATION

BENT NO(S).	BEAM NO(S).	DEAD LOAD (1)
2 (Ah.), 3 & 4 (Bk.)	1 & 5	7.5 Kips
	2-4	7.5 Kips

(1) Service (unfactored) load due to the weight of the existing steel and safety platform (assumed 5 psf) only. Loads shown are per bearing. Jacking operations shall not begin until after the existing concrete deck is fully removed. Except for the safety platform, no live or construction loading shall be allowed on the bridge during jacking operations.

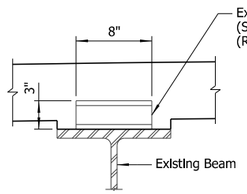


NEW SHEAR CONNECTOR DETAIL

No Scale

(2) The Contractor shall verify the existing beam profile before placement of new shear studs on existing beams. Adjustments to all new shear stud lengths shall be made if the minimum 1½" cover or the minimum 2" embedment is violated. This work will not be paid for directly but will be considered subsidiary to the Item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)". All new shear studs shall be paid for as "STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50)".

NOTE:
New stud shear connectors shown shall be ⅞"ø, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.



EXISTING SHEAR CONNECTOR DETAIL

No Scale

NOTE:
After deck removal and prior to installation of new shear connectors, the existing tops of beams and shear connectors shall be blast cleaned in accordance with SSPC-SP6, Commercial Blast Cleaning. This work will not be paid for directly but shall be considered subsidiary to the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)".

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14498
ADAM B. HALL

DIGITALLY SIGNED 11/09/2022
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF 72'-0" SIMPLE W-BEAM SPAN
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: JUNE 2022 FILENAME: bA00031_s6.dgn
CHECKED BY: ABH DATE: AUG. 2022 SCALE: As Shown
DESIGNED BY: RAK DATE: JUNE 2022
BRIDGE NO. 03180 DRAWING NO. 65793

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WORKSPACE\ARDOT Bridge (2019)
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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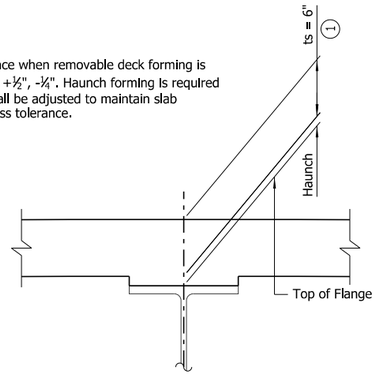
				JOB NO.		A00031		
				03180		COMMON SUPERSTR.		65794



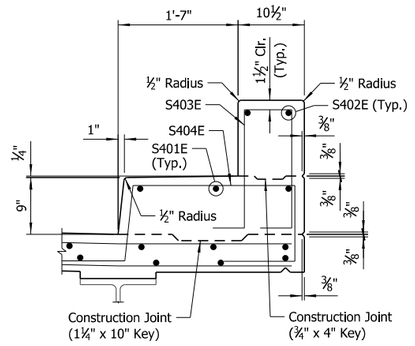
(1) Tolerance when removable deck forming is used is +½", -¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

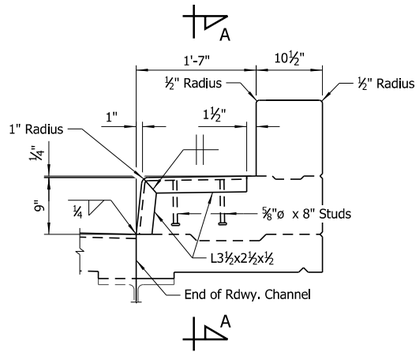
NOTES:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = 2". No increase in concrete and structural steel quantities will be made to maintain tolerances.

Tolerances shown are applicable when removable deck forming or permanent steel deck forming is used. Payment for concrete shall be based on removable deck forming.



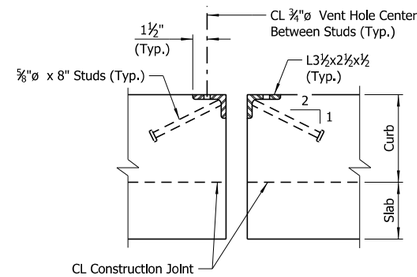
CURB DETAIL

Scale: 1" = 1'-0"



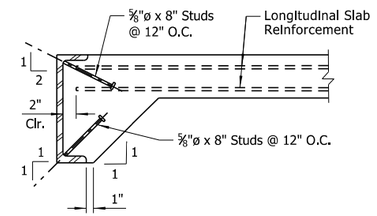
CURB JOINT ARMOR DETAIL

(Shown in Span; Curb Joint Armor in Backwall Similar)
Scale: 1" = 1'-0"



SECTION A-A

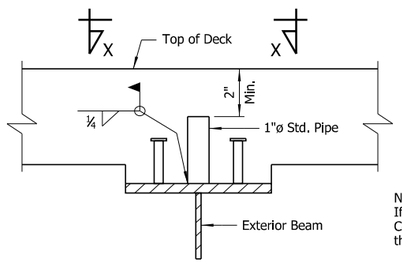
No Scale



DETAIL OF ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

No Scale

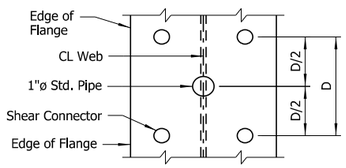
NOTE:
As an alternate to ⅝"ø studs, ½"ø x 8" studs spaced at 8" O.C. may be used. Use weight of ⅝"ø stud as basis of measurement of Structural Steel in anchors.



NOTE:
If a transverse screed is utilized, the Contractor shall support the screed rail on the exterior beam.

TRANSVERSE SCREED RAIL SUPPORT DETAIL

No Scale



VIEW X-X

No Scale

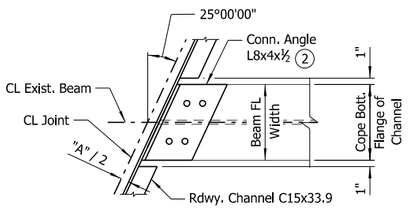
NOTES:
The transverse screed rail supports shall be centered over the beam web and centered longitudinally between adjacent rows of shear connectors.

The pipe shall not interfere with the proper vertical position of the deck reinforcing steel.

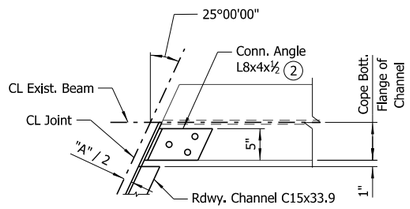
The pipe shall be free of dirt, grease, rust, or other foreign substance before the deck is poured.

Care shall be exercised so as air voids do not exist in the pipe after placement of the deck concrete.

All welding shall be performed by a certified welder and in accordance with Subsections 802.13 and 807.26.



INTERIOR BEAM

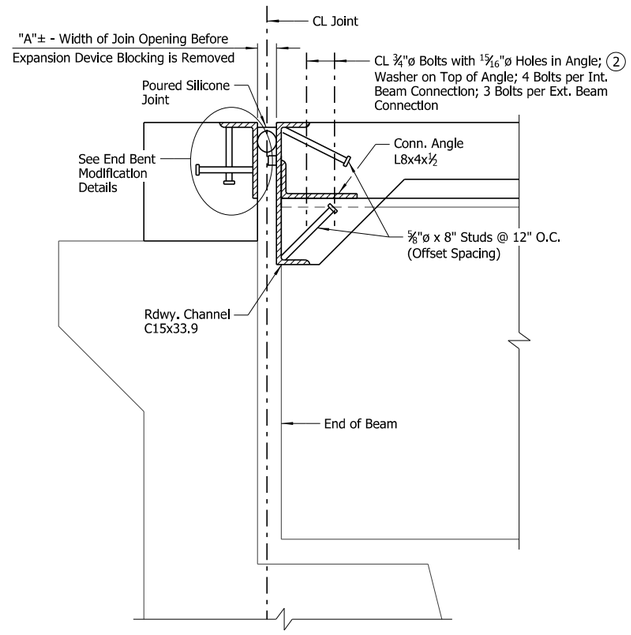


EXTERIOR BEAM

CHANNEL CONNECTION DETAIL

No Scale

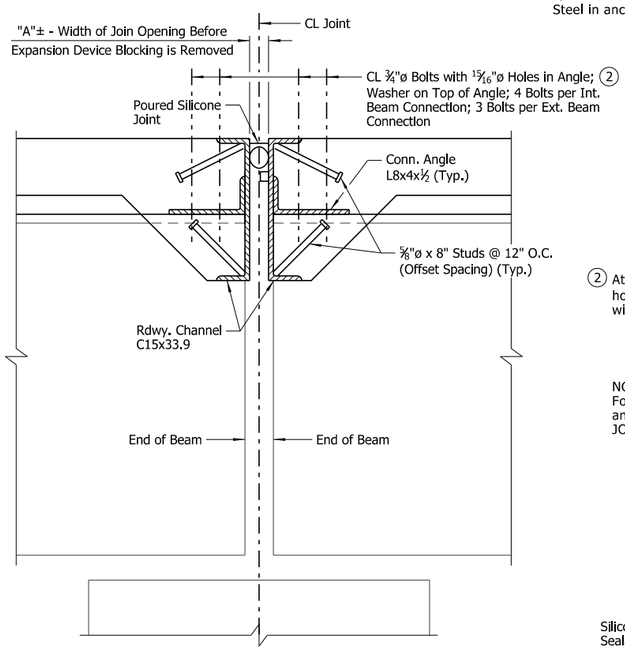
NOTE:
This detail shall supersede similar detail shown on Std. Dwg. No. 55008.



SECTION THRU JOINT AT END BENT

Scale: 1½" = 1'-0"

NOTE:
This detail shall supersede similar detail shown on Std. Dwg. No. 55008.



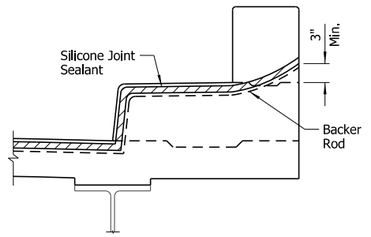
SECTION THRU JOINT AT INTERMEDIATE BENT

Scale: 1½" = 1'-0"

NOTE:
This detail shall supersede similar detail shown on Std. Dwg. No. 55008.

(2) At new connection to existing beams, 15/16"ø holes in angle shall be field drilled to align with existing holes in existing beam flange.

NOTE:
For "DETAIL OF POURED SILICONE JOINT" and "DETAILS FOR BLOCKING EXPANSION JOINT DEVICE", see Std. Dwg. No. 55008.



JOINT SEAL PLACEMENT AT CURB

No Scale

SILICONE JOINT DATA

Bent No(s).	"A" - Width Perpendicular To Joint At 24 Hour Average Temperature Of: (3)			"B" - Perpendicular To Joint At 60°F	Bumper Plate Size
	40°F	60°F	80°F		
1 & 5	2 1/16"	2"	1 15/16"	2¼"±	1" x 1" x 12"
2 & 4	2⅛"	2"	1⅞"	2¼"±	1" x 1" x 12"
3	2"	2"	2"	2¼"±	1" x 1" x 12"

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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DIGITALLY SIGNED 11/09/2022
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COMMON SUPERSTRUCTURE DETAILS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: JUNE 2022 FILENAME: bA00031_s7.dgn
CHECKED BY: ABH DATE: SEP. 2022 SCALE: As Shown
DESIGNED BY: RAK DATE: JUNE 2022

BRIDGE NO. 03180 DRAWING NO. 65794

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WORKSPACE:ARDOT Bridge (2019)
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REVISED DATE:

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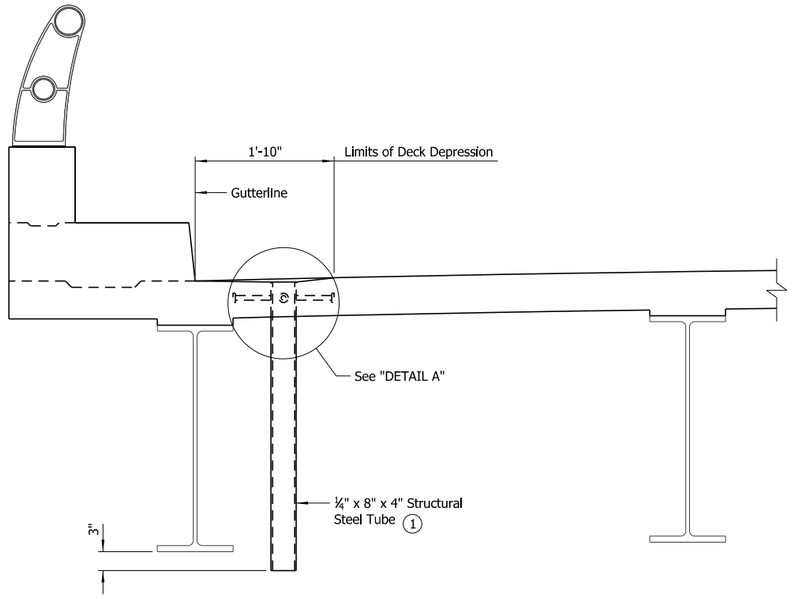
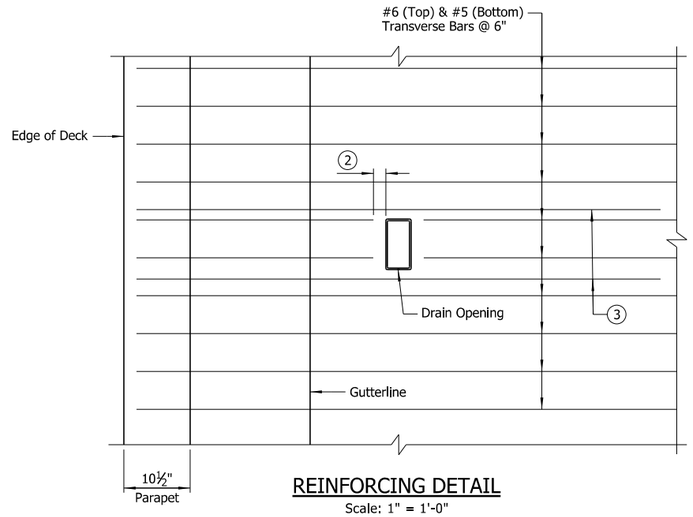
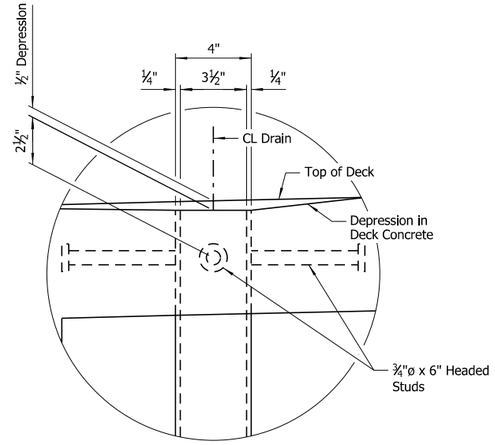


PART SECTION NEAR DECK DRAIN
Scale: 1" = 1'-0"



REINFORCING DETAIL
Scale: 1" = 1'-0"

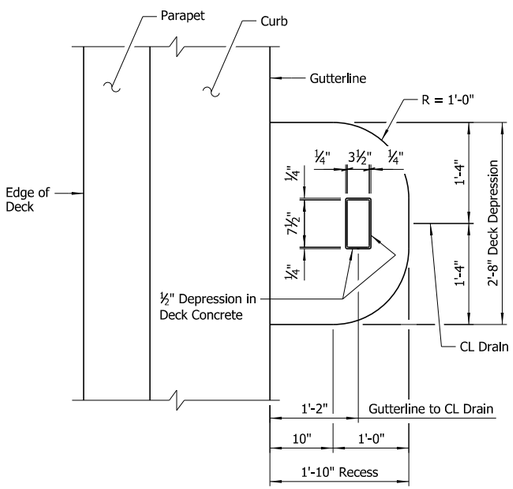


DETAIL A
Scale: 3" = 1'-0"

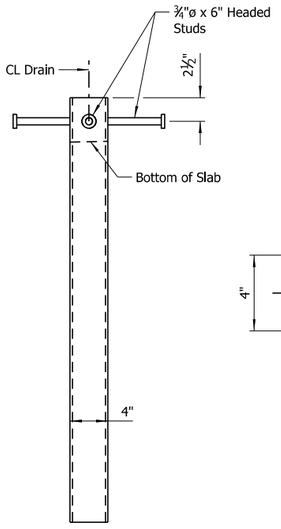
(1) Contractor may substitute a downspout fabricated using ¼" plate.

(2) Trim transverse bars 2" clear of drain. Adjust longitudinal bars to avoid conflicts with drains.

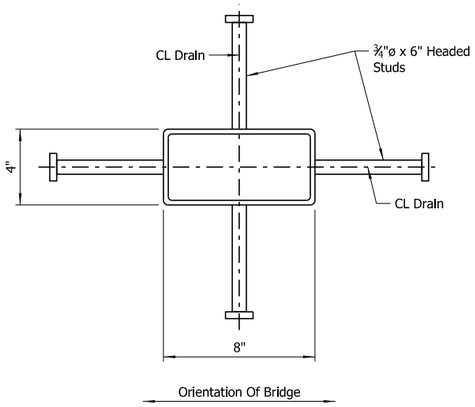
(3) Add 2-#6 x 6'-11" epoxy-coated transverse reinforcing bars (top & bottom) both sides of drain as shown. Center on drain.



PART PLAN VIEW
Scale: 1" = 1'-0"



ELEVATION OF DRAIN
Scale: 1½" = 1'-0"



PLAN VIEW OF DRAIN
Scale: 3" = 1'-0"

DRAIN LOCATIONS	
STATION	LOCATION
11+05.95	Left
11+21.95	Left
11+38.06	Left
11+94.06	Left
12+18.06	Left
12+74.06	Left
12+90.18	Left
13+06.18	Left

DRAIN LOCATIONS	
STATION	LOCATION
10+93.83	Right
11+09.83	Right
11+25.94	Right
11+81.94	Right
12+05.94	Right
12+61.94	Right
12+78.06	Right
12+94.06	Right

NOTE:
Stations shown are at CL Drain.

GENERAL NOTES

Drain assembly may be adjusted to clear diaphragm connections and minimize conflicts with reinforcing bars.

Drain assembly shall conform to ASTM A709, Gr. 36 or Gr. 50 or ASTM A 500-Grade B and shall be galvanized after fabrication in accordance with Subsection 806.02(c).

Structural steel in deck drains shall not be paid for directly but shall be considered subsidiary to the Item "CLASS S(AE) CONCRETE-BRIDGE".

Longitudinal reinforcing steel in the slab shall be adjusted as required to avoid conflicts with the drains.

Top and bottom transverse reinforcing steel in the slab shall be cut as shown in the "REINFORCING DETAIL".

Repair all cut or damaged epoxy bars according to the Standard Construction Specifications.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14498
ADAM B. HALL

DIGITALLY SIGNED 11/09/2022
BRIDGE ENGINEER

DETAILS OF DECK DRAINS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

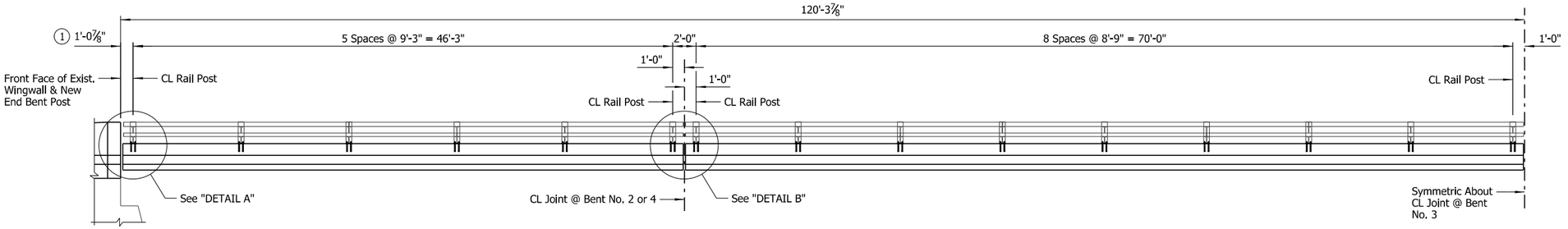
DRAWN BY: HEW DATE: JUNE 2022 FILENAME: bA00031_s8.dgn
CHECKED BY: ABH DATE: AUG. 2022 SCALE: As Shown
DESIGNED BY: RAK DATE: JUNE 2022

BRIDGE NO. 03180 DRAWING NO. 65795

abhall 11/8/2022 9:37:32 PM
WORKSPACE\ARDOT Bridge (2019)
L:\2021\21T01040 - ARDOT A00031 Hwy 181 - Deck Replacement\Drawings\bA00031_S602_MD.dgn
REVISED DATE:

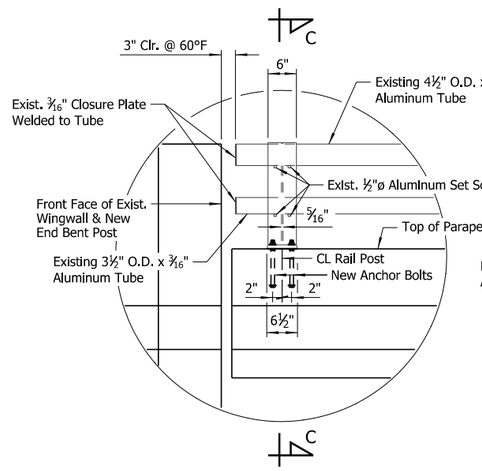
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		30	41
				JOB NO.		A00031		
				03180		TYPE A RAIL		65796

(1) Measured Horizontally at Top of Parapet



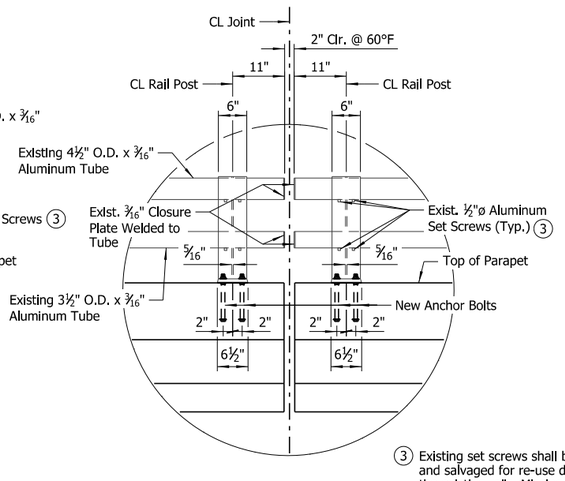
HALF ELEVATION OF TYPE A RAIL

Scale: 3/16" = 1'-0"



DETAIL A

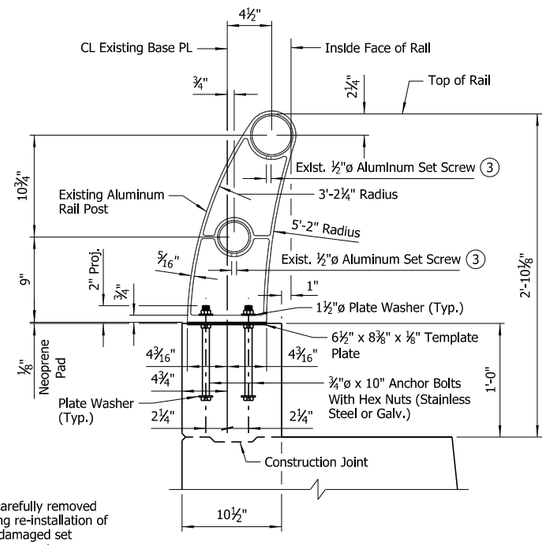
Scale: ¾" = 1'-0"



DETAIL B

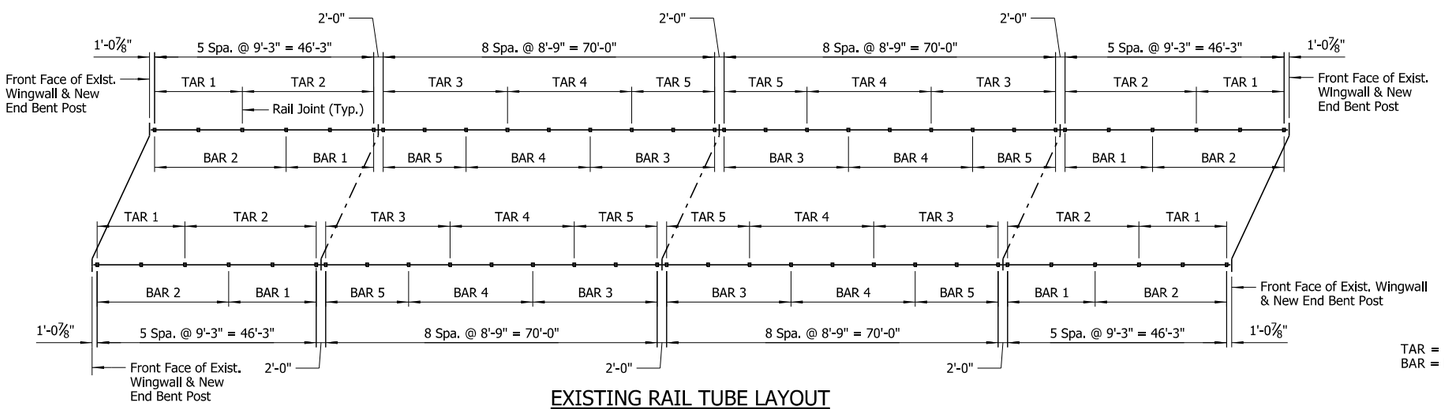
Scale: ¾" = 1'-0"

(3) Existing set screws shall be carefully removed and salvaged for re-use during re-installation of the existing rails. Missing or damaged set screws shall be replaced with new set screws. This work will not be paid for directly but shall be considered subsidiary to the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)".



SECTION C-C

(Cast-in-Place Bolts)
Scale: 1½" = 1'-0"



EXISTING RAIL TUBE LAYOUT

(Plan View)
Scale: 1/16" = 1'-0"

(2) HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4½" embedment or an approved equal

The HILTI Epoxy Adhesive Anchor System (or approved equal) shall be installed in accordance with Manufacturer's recommendations.

NOTE:
Existing Rail Tube Layout is based on information shown in shop drawings developed during construction of the original structure. The Contractor shall verify individual tube lengths and make minor adjustments to the new post spacing as needed to ensure all re-installed set screws engage re-installed rail tubes. This work will not be paid for directly but shall be considered subsidiary to the item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)".

LEGEND

TAR = Top Aluminum Rail
BAR = Bottom Aluminum Rail

GENERAL NOTES

Existing posts and rails shall be carefully removed from the existing structure and re-installed on the new structure per details on this drawing.

Damaged posts and rails that are not salvageable, as determined by the Engineer, shall be replaced by the Contractor at no additional payment.

Information and dimensions shown for the existing rail system and its re-installation are based on dimensions shown in the existing bridge plans and rail shop drawings. Per the existing shop drawings, an alternate set screw connection system was used for the original installation of the rail members. The Contractor is to adhere strictly to the requirements for verification of the geometry of the existing rail system and its relationship to re-installation details shown on this drawing. See Section 821 for additional requirements. Payment for this work shall be considered subsidiary to the pay item "MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 03180)".

Rail posts shall be set normal to grade. Aluminum washer shims (max. thickness ⅛") may be used between fabric pads and post bases for adjusting rail alignment. Where more tilting of the post is required, concrete bearing areas shall be ground down.

Post bases shall not be placed upon areas that are improperly finished, deformed or irregular.

Bearing pads shall conform to Subsection 807.15.

MATERIALS:

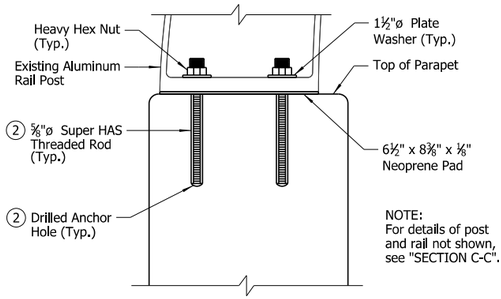
Cast-in-place anchor bolts, nuts, plate washers and set screws shall be galvanized high-strength steel or stainless steel. Mixing of galvanized and stainless steel fasteners will not be permitted.

High-Strength Steel:
Cast-in-place anchor bolts shall conform to ASTM F3125, Grade A325, Type 1.
Nuts shall conform to ASTM A563, Grade DH or AASHTO M292, Grade 2H.
Plate Washers shall conform to ASTM A709, Grade 36.
Template Plates shall conform to ASTM A709, Grade 36.
Set Screws (if required) shall conform to ASTM A307, Grade A.
Anchor bolts, nuts, plate washers and set screws shall be galvanized in accordance with AASHTO M 232, Class C or ASTM B695, Class 50.

Stainless Steel:
Cast-in-place anchor bolts shall conform to ASTM A193, Grade B8, Class 2 or A320, Grade B8, Class 2 with a minimum yield strength of 80,000 psi.
Nuts shall conform to ASTM A194, Grade 8.
Plate Washers shall conform to ASTM A240, Type 302.
Template Plates shall conform to ASTM A240, Type 302.
Set Screws (if required) shall conform to ASTM A193, Grade B8, Class 1 or A320, Grade B8, Class 1.

Aluminum (If Required):
Rail tubes shall conform to ASTM B221 or ASTM B429, Alloy 6061-T6.
Rail closure plates shall conform to ASTM B209, Alloy 6061-T6.
Cast aluminum posts shall conform to ASTM B108, Alloy A344-T4.
The outside surfaces of flanges and edges of flanges of cast aluminum posts shall be given a #220 grit finish, after which all exposed surfaces of the cast posts shall be given a coat of clear lacquer suitable for use on aluminum materials. The inside surfaces of posts shall have no special finish. See Subsection 806.02(a) for additional information.

Threads on bolts, screws and nuts shall conform to American Standard Coarse Series, Class 2 FIT, ASA Specification B1.1. Plate washers shall have dimensions meeting the requirements of ANSI/ASME B18.22.1, Type A plain washer (Wide Series) unless otherwise noted. Neoprene pads shall conform to the requirements of Subsection 807.15(b).



NOTE:
For details of post and rail not shown, see "SECTION C-C".

DETAILS OF ALTERNATE POST ANCHOR SYSTEM

(Epoxy Adhesive Anchors)
Scale: 3" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14498
ADAM B. HALL

DIGITALLY SIGNED 11/09/2022
BRIDGE ENGINEER

DETAILS OF TYPE A RAIL

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: HEW DATE: JUNE 2022 FILENAME: bA00031_s9.dgn
CHECKED BY: ABH DATE: SEP. 2022 SCALE: As Shown
DESIGNED BY: RAK DATE: JUNE 2022

BRIDGE NO. 03180 DRAWING NO. 65796

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11/8/2022 9:37:33 PM
WORKSPACE\ARDOT Bridge (2019)
L:\2021\21T01040 - ARDOT A00031 Hwy 181 - Deck Replacement\Drawings\bA00031_S603_MD.dgn
REVISED DATE:

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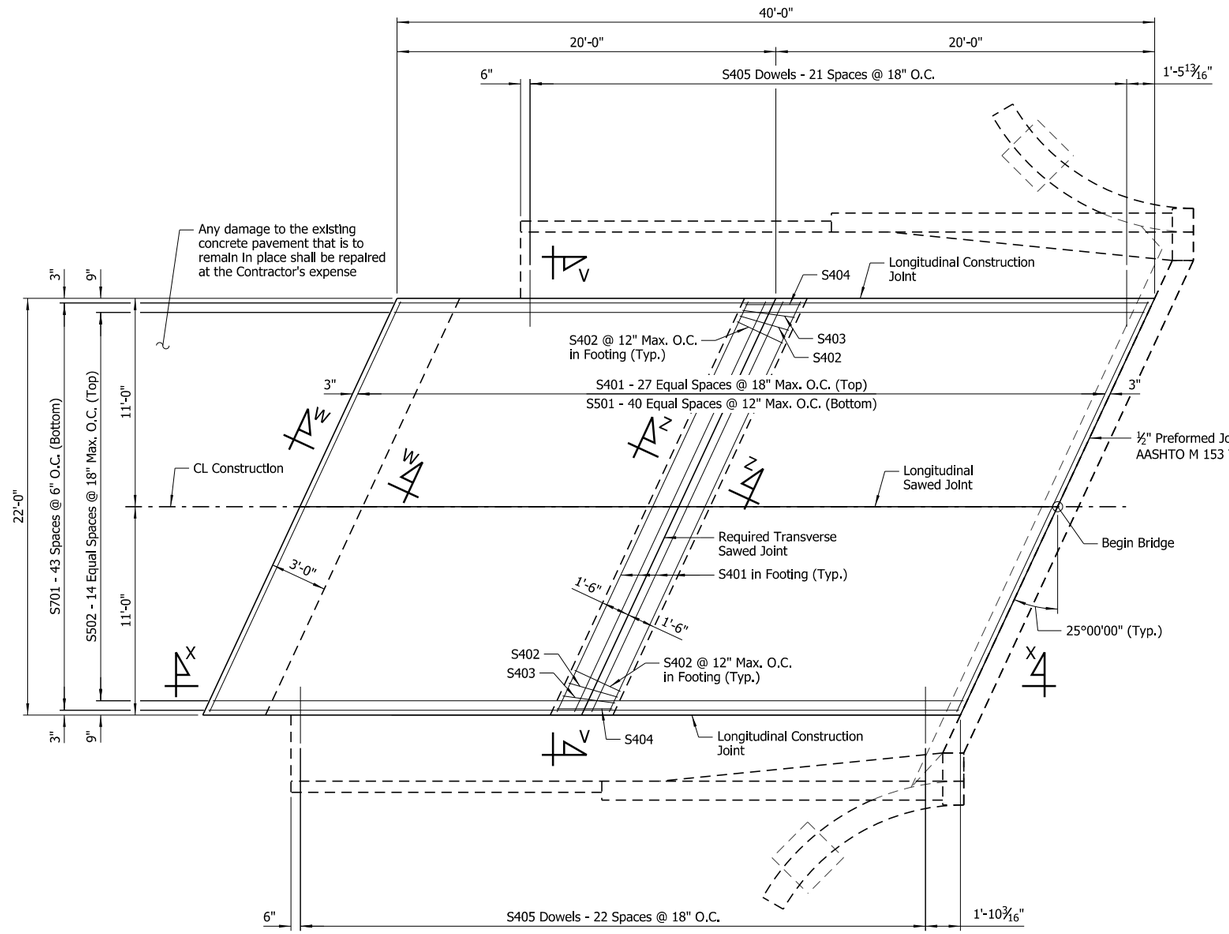
				JOB NO.		A00031		
				03180		APPROACH SLAB		65797



PLAN - TYPE SPECIAL APPROACH SLAB

(Begin Bridge Shown, End Bridge Similar)
Scale: ¼" = 1'-0"

GENERAL NOTES

All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi and shall be poured in the dry.

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

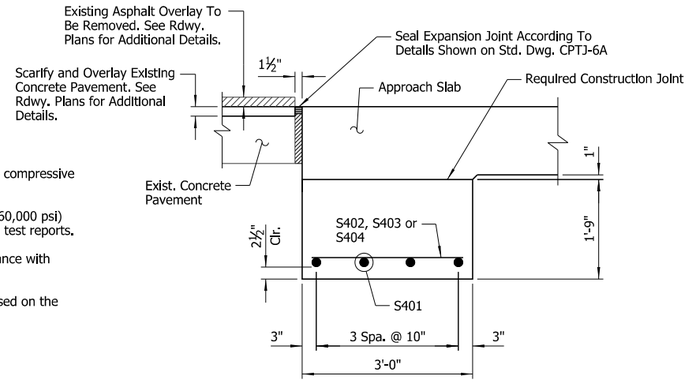
Approach Slabs will be measured and paid for in accordance with Section 504.

The surface finish for Approach Slabs shall match that used on the bridge deck.

BAR LIST			
Mark	No. Req'd.	Length	Pin. Dia.
S401	36	23'-11"	Str.
S402	46	2'-8"	Str.
S403	4	2'-9"	Str.
S404	4	2'-11"	Str.
S405	45	3'-0"	Str.
S501	41	23'-11"	Str.
S502	15	39'-8"	Str.
S701	44	39'-8"	Str.

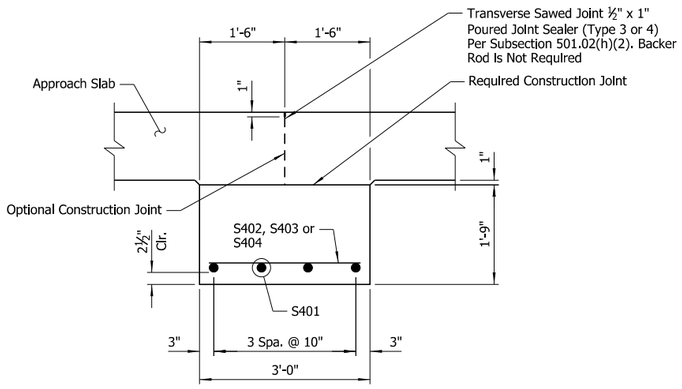
NOTES:
Dimensions of bars are out-to-out.

Number of bars shown is for one Type Special Approach Slab. Two Type Special Approach Slabs are required.



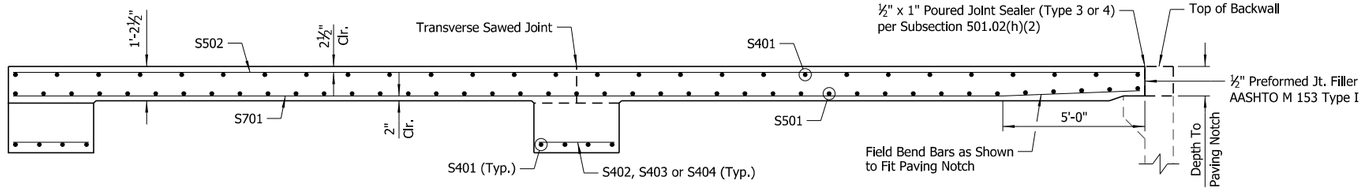
SECTION W-W

Scale: ¾" = 1'-0"



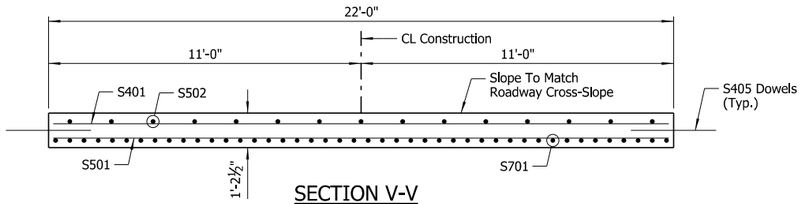
SECTION Z-Z

Scale: ¾" = 1'-0"



SECTION X-X

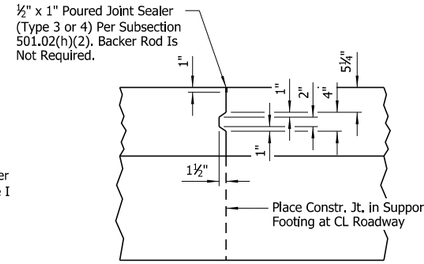
No Scale



SECTION V-V

No Scale

NOTE:
Bar positions and clearances from the forms shall be maintained by means of stays, ties, hangers or other approved devices sufficient in size and number to prevent displacement during construction, per Subsection 804.06.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

No Scale

QUANTITIES (FOR INFORMATION ONLY)	
Class S(AE) Concrete	Reinforcing Steel (Gr. 60)
49.27 Cu. Yds.	5,973 Lbs.

NOTE:
Quantities shown are for one Type Special Approach Slab. Two Type Special Approach Slabs are required.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14498
ADAM B. HALL

DIGITALLY SIGNED 11/09/2022
BRIDGE ENGINEER

DETAILS OF TYPE SPECIAL APPROACH SLAB

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: SEP. 2022 FILENAME: bA00031_as1.dgn
CHECKED BY: ABH DATE: SEP. 2022 SCALE: As Shown
DESIGNED BY: RAK DATE: SEP. 2022

BRIDGE NO. 03180 DRAWING NO. 65797

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11/8/2022 9:37:35 PM
WORKSPACE\ARDOT Bridge (2019)
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REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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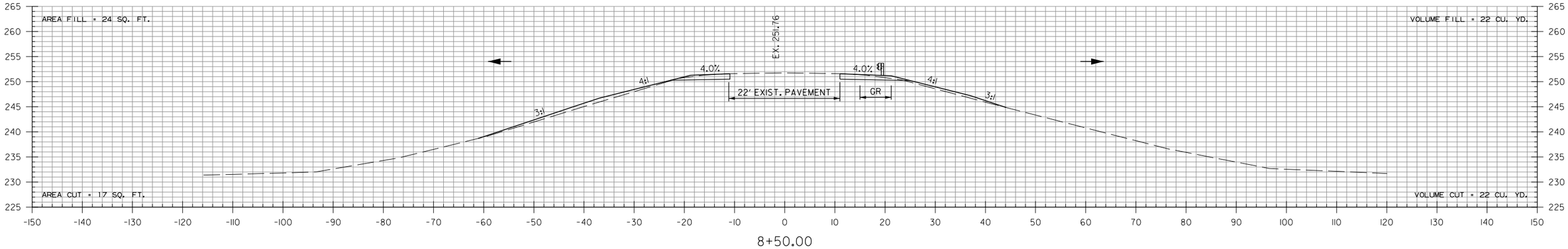

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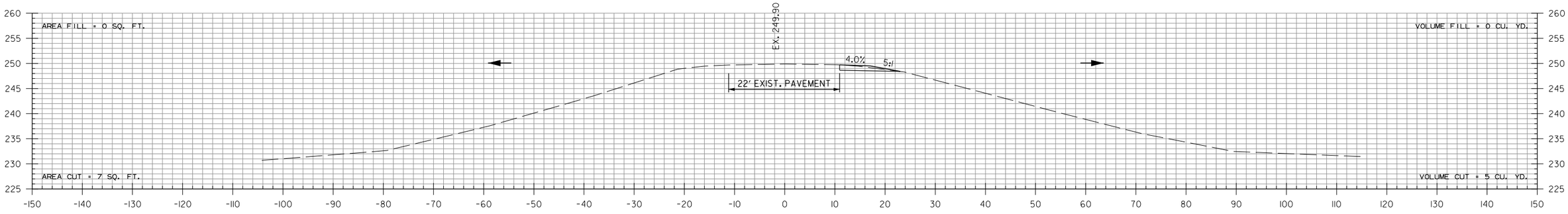

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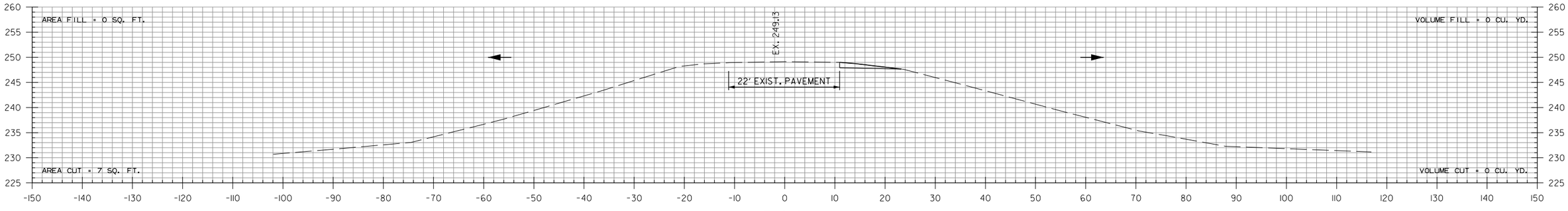

7+81.91

STA. 7+81.91 BEGIN JOB A00031

HWY. 181
STA. 7+82 TO STA. 8+50

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WORKSPACE: AHTD
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REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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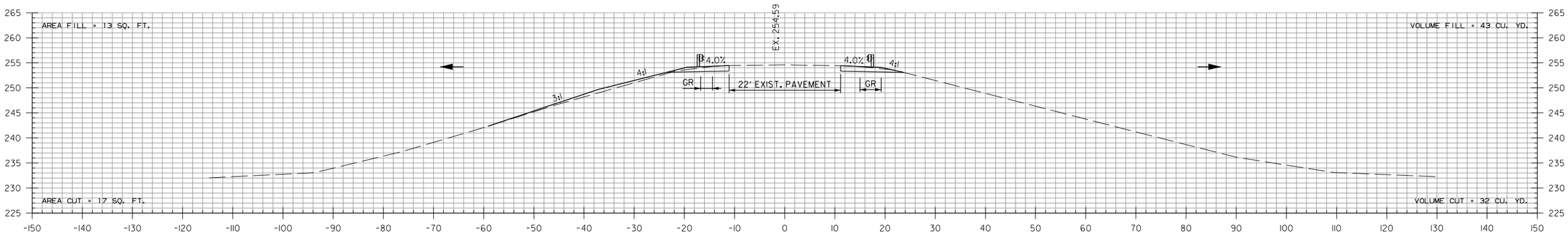
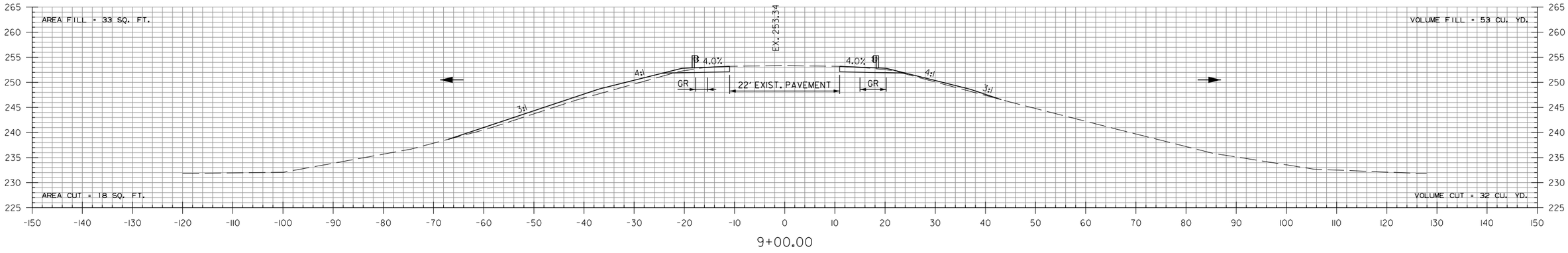


9+50.00



9+00.00

HWY. 181
STA. 9+00 TO STA. 9+50

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WORKSPACE: AHTD
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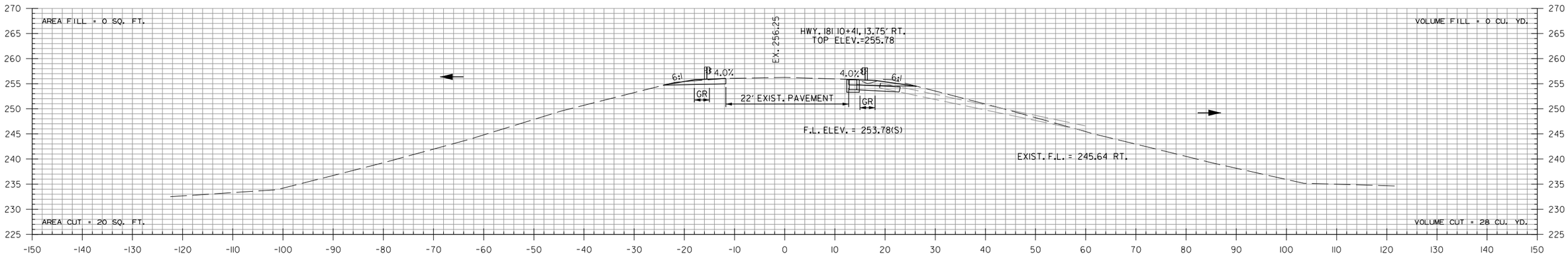
REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	34	41
		CROSS SECTIONS				

STA. 10+41.00 CONSTRUCT
DROP INLET RT. H=2'-0"
REMOVE HEADWALL RT. AND
EXTEND EXIST. 12" PIPE 5' TO
CONNECT TO DROP INLET.
TYPE N-1 DROP INLET = 2'-2¾"×2'-6"
12" ZCCSP PIPE
(TYPE 2 BEDDING) = 9 LIN. FT.



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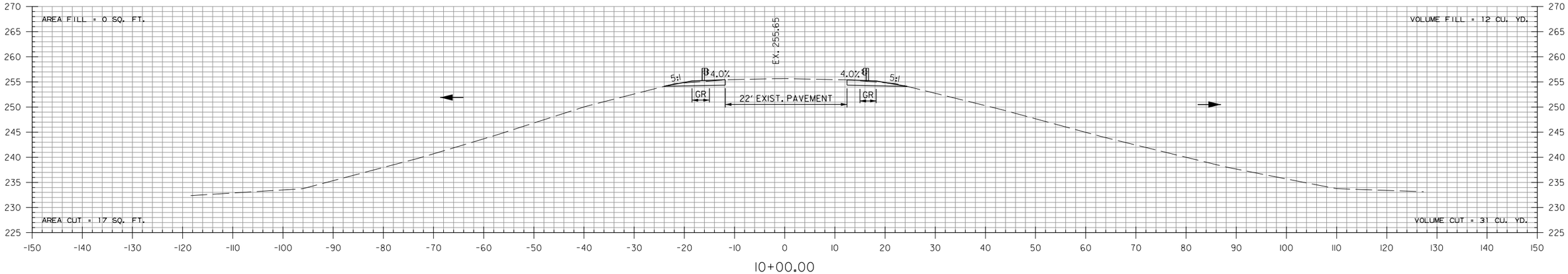

10+00.00

HWY. 181
STA. 10+00 TO STA. 10+41

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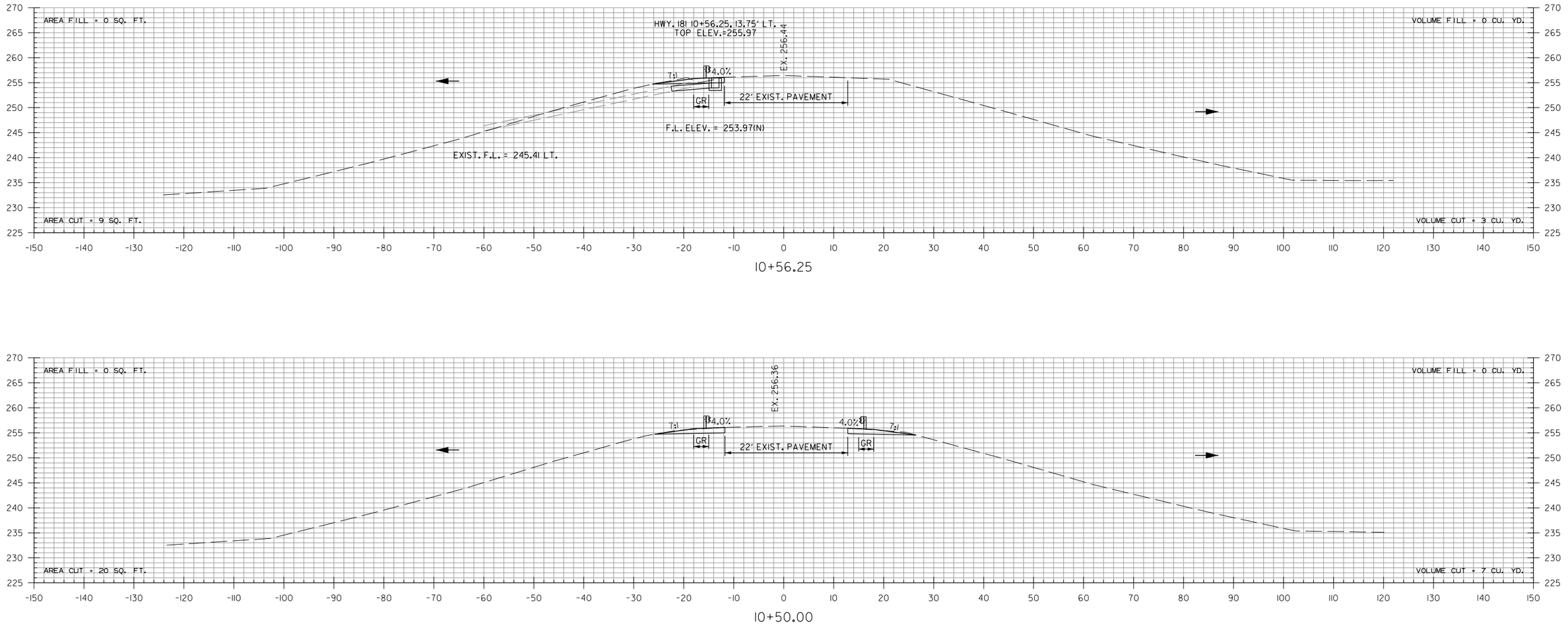
REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	35	41
		CROSS SECTIONS				

STA. 10+56.25 CONSTRUCT
DROP INLET LT. H=2'-0"
REMOVE HEADWALL LT. AND
EXTEND EXIST. 12" PIPE 5' TO
CONNECT TO DROP INLET.
TYPE N-1 DROP INLET = 2'-2¾"x2'-6"
12" ZCCSP PIPE
(TYPE 2 BEDDING) = 9 LIN. FT.



10+56.25

10+50.00

HWY. 181
STA. 10+50 TO STA. 10+56

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WORKSPACE: AHTD
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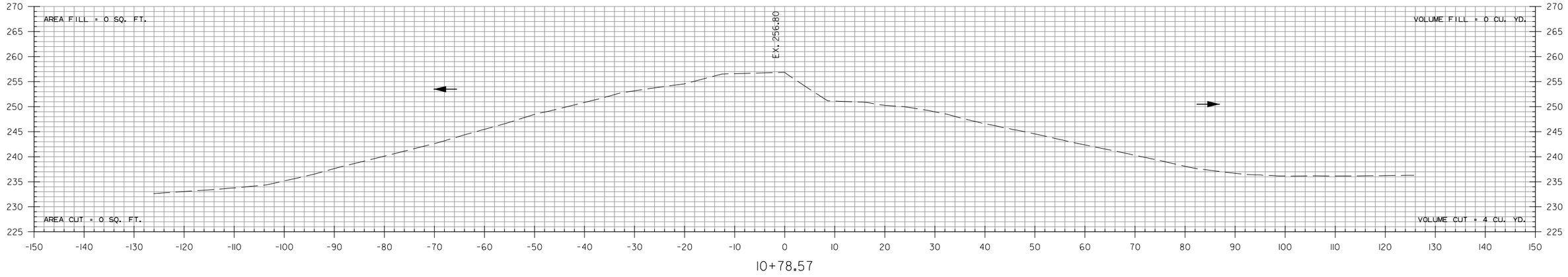
REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	36	41
		CROSS SECTIONS				



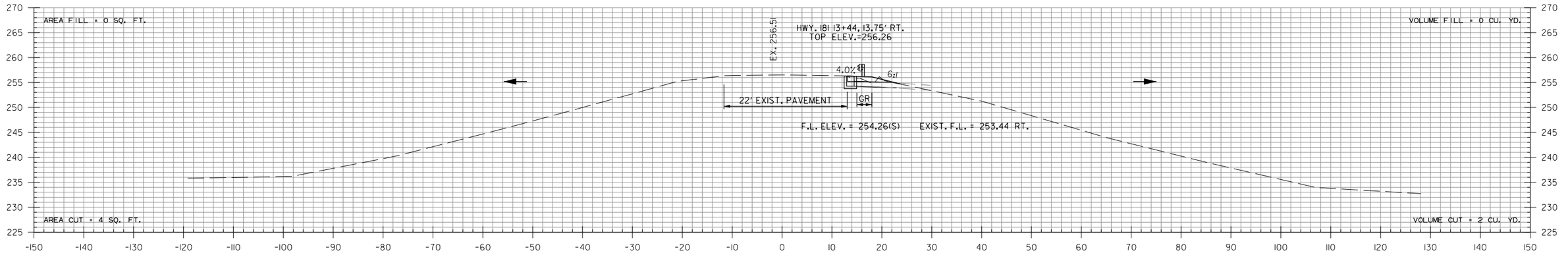
10+78.57

STA. 10+78.57 BEGIN BRIDGE

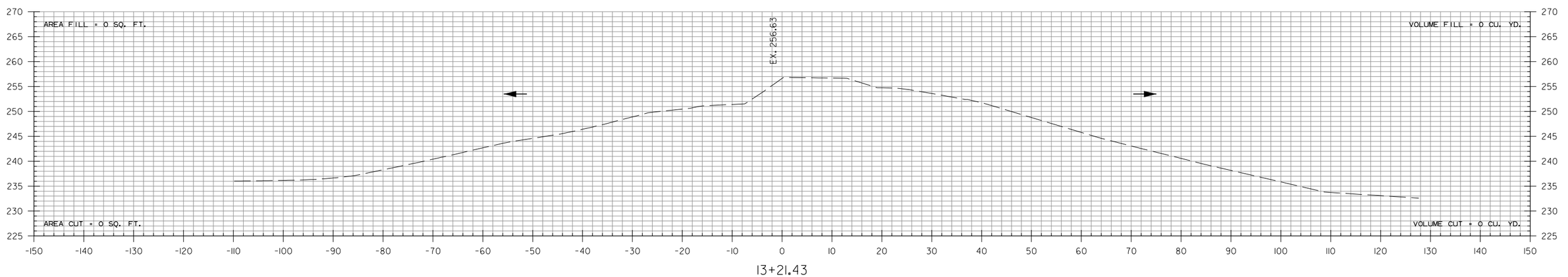
HWY. 181
STA. 10+79

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	37	41
		CROSS SECTIONS				

STA. 13+44.00 CONSTRUCT
DROP INLET RT. H=2'-0"
REMOVE HEADWALL RT. AND
EXTEND EXIST. 12" PIPE 5' TO
CONNECT TO DROP INLET.
TYPE N-1 DROP INLET = 2'-2¾"x2'-6"
12" ZCCSP PIPE
(TYPE 2 BEDDING) = 9 LIN. FT.



13+44.00



13+21.43

STA. 13+21.43 END BRIDGE

HWY. 181
STA. 13+21 TO STA. 13+44

AEWtercick 11/8/2022 10:10:44 PM
WORKSPACE: AHTD
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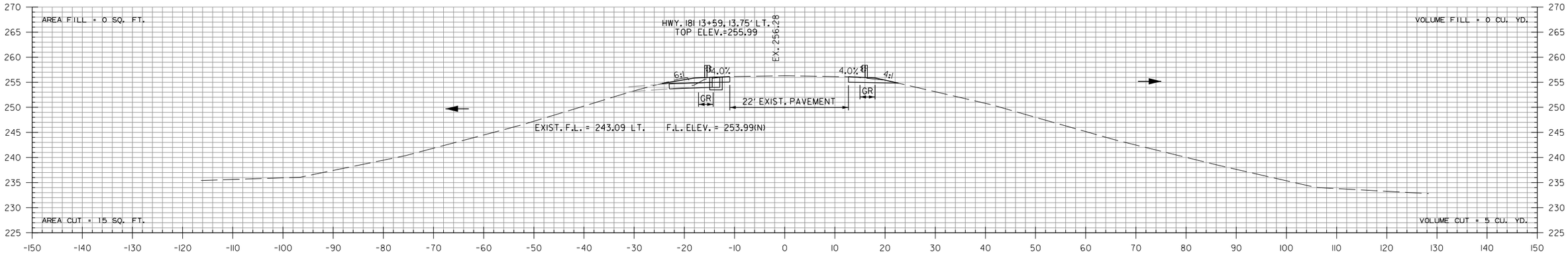
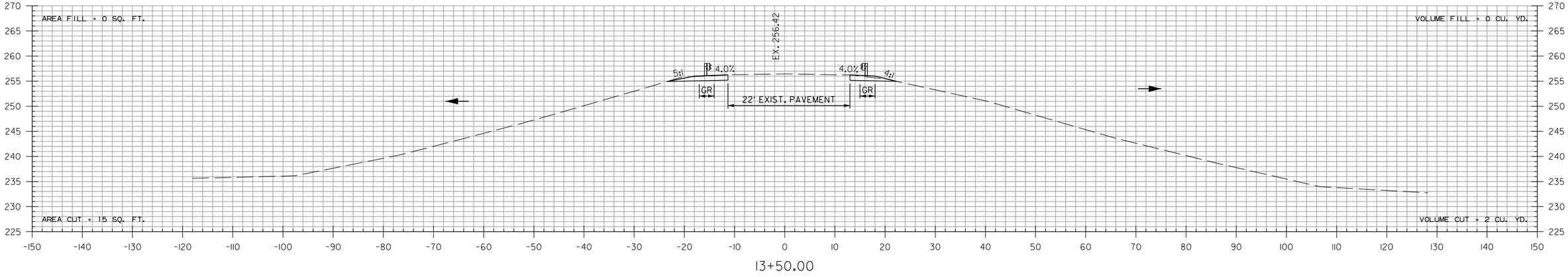
REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A000311	38	41
		CROSS SECTIONS				

STA. 13+59.00 CONSTRUCT
DROP INLET LT. H=2'-0"
REMOVE HEADWALL LT. AND
EXTEND EXIST. 12" PIPE 5'
TO CONNECT TO DROP INLET,
TYPE N-1 DROP INLET = 2'-2¾"x2'-6"
12" ZCCSP PIPE
(TYPE 2 BEDDING) = 9 LIN. FT.



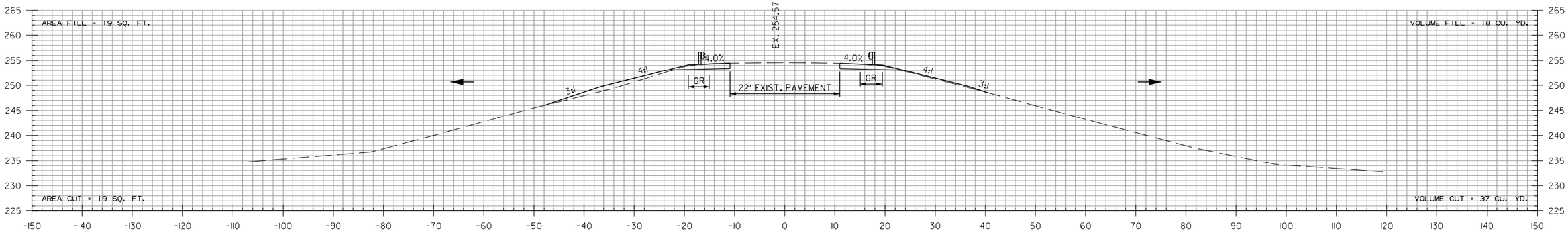
13+59.00



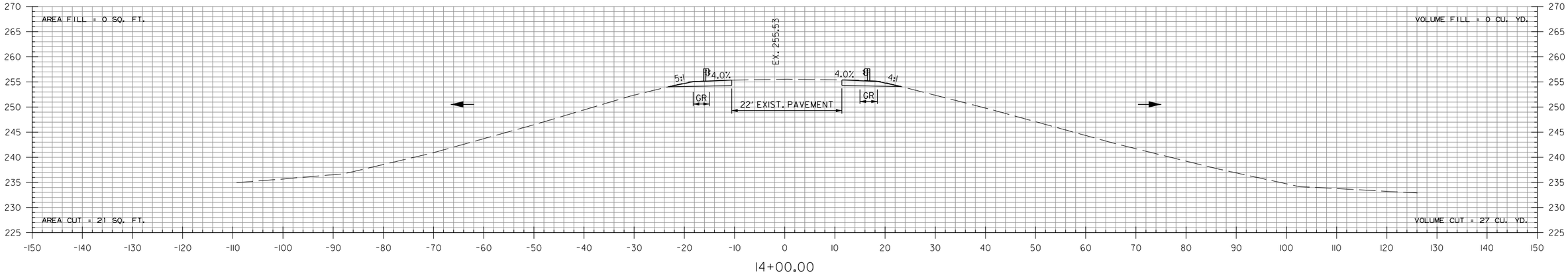
13+50.00

HWY. 181
STA. 13+50 TO STA. 13+59

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	39	41
		CROSS SECTIONS				



14+50.00

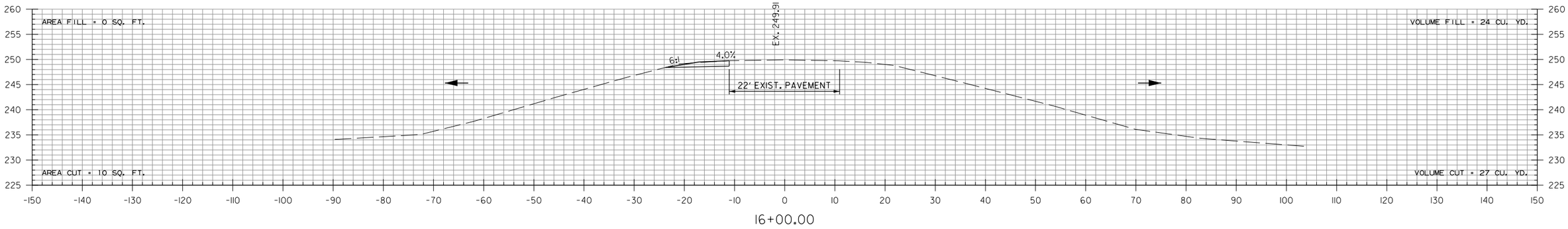


14+00.00

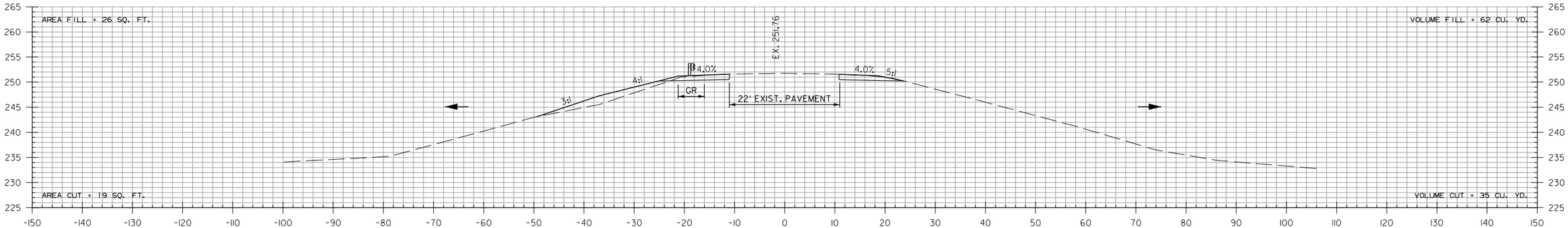
HWY. 181
STA. 14+00 TO STA. 14+50

AEWierciak 11/8/2022 10:10:44 PM
WORKSPACE: AHTD
L:\2021\210140 - ARDOT A00031 Hwy 181 - Deck Replacement\Drawings\rA00031_CX_01.dgn
REVISED DATE:

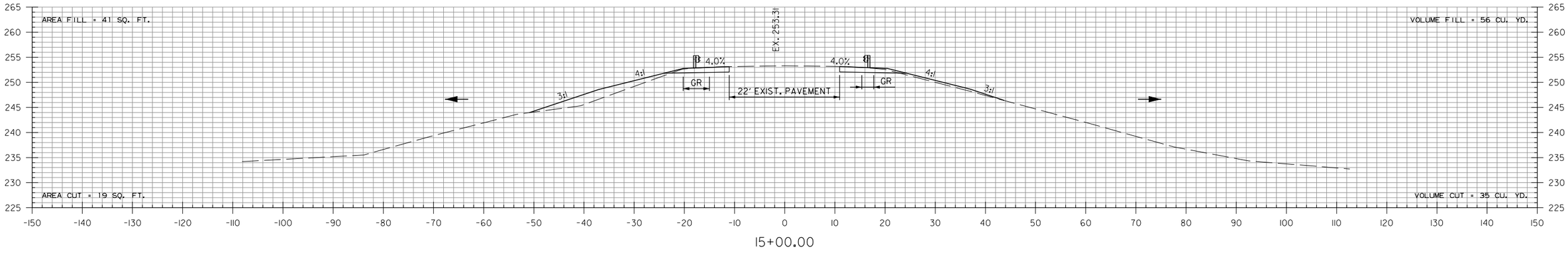
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	40	41
		CROSS SECTIONS				



16+00.00



15+50.00



15+00.00

HWY. 181
STA. 15+00 TO STA. 16+00

AEWerclok 11/8/2022 10:04:44 PM
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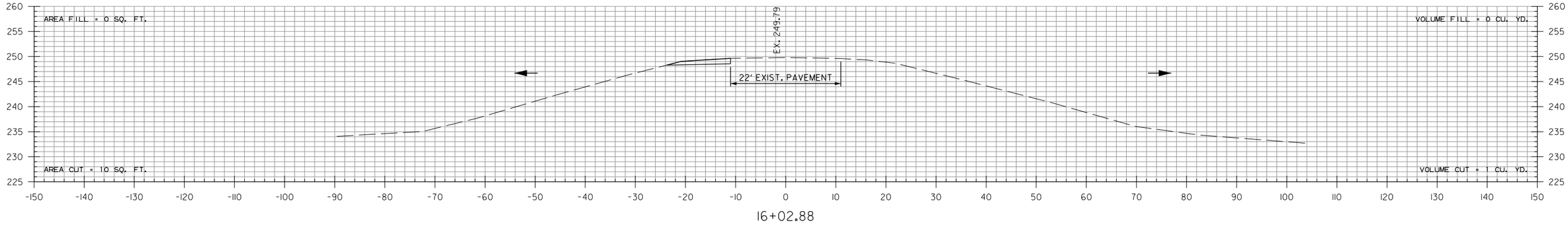
REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	A00031	41	41
		CROSS SECTIONS				

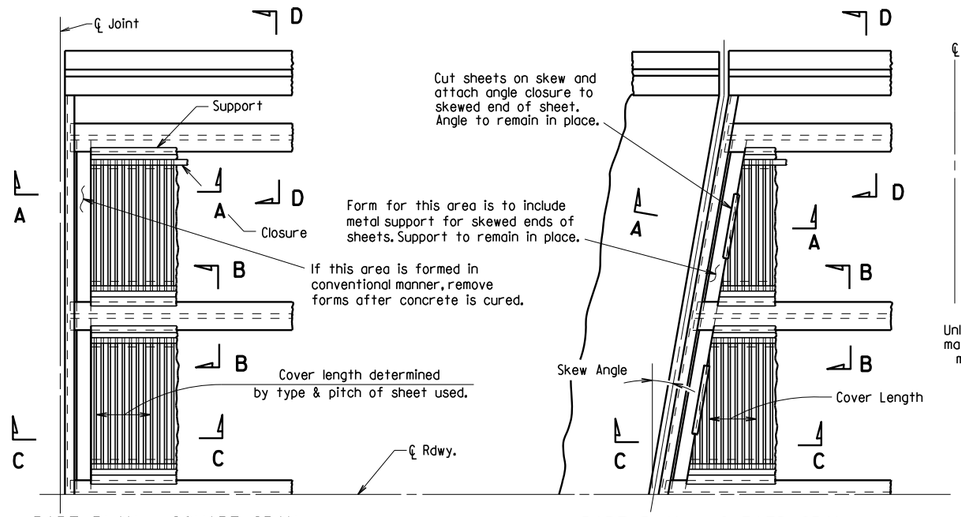


16+02.88

STA. 16+02.88 END JOB A00031

HWY. 181
STA. 16+02

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

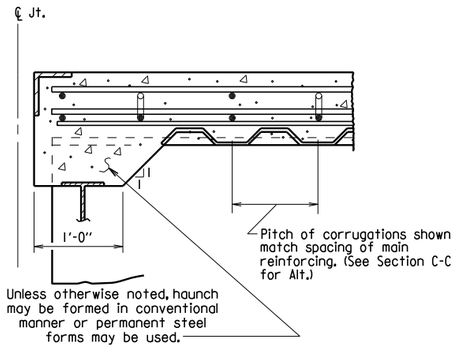


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

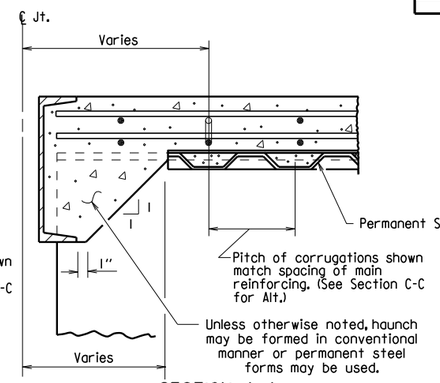
PART PLAN - SKEWED SPAN

3/8" = 1'-0"



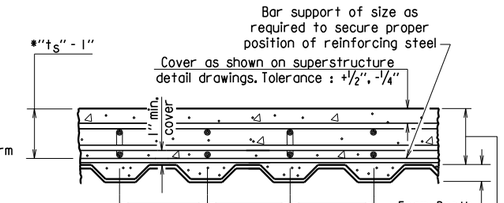
SECTION A-A

N.T.S.
(Angle at end of span)



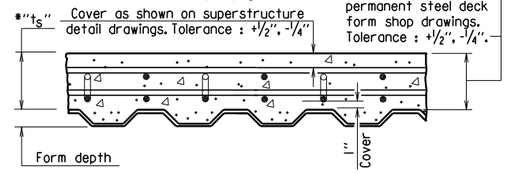
SECTION A-A

N.T.S.
(Channel at end of span)



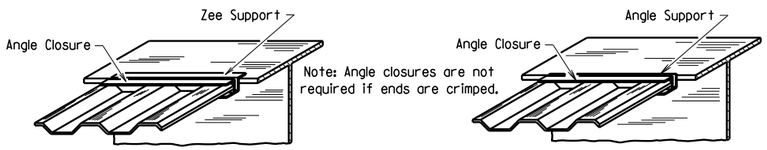
SECTION C-C

1" = 1'-0"



SECTION C-C - ALTERNATE

1" = 1'-0"
(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

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

GENERAL NOTES

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

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

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

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

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

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

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

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

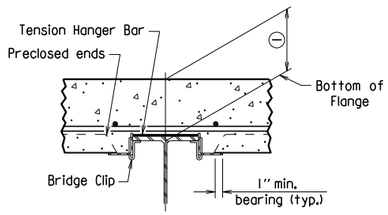
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

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

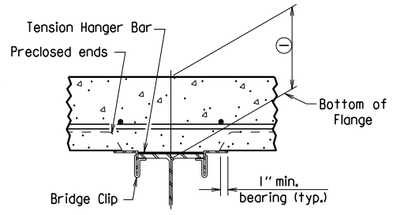
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



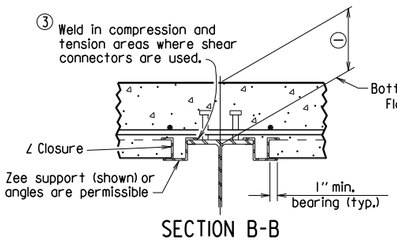
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



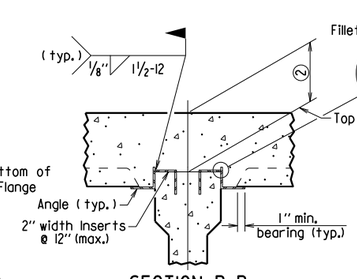
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



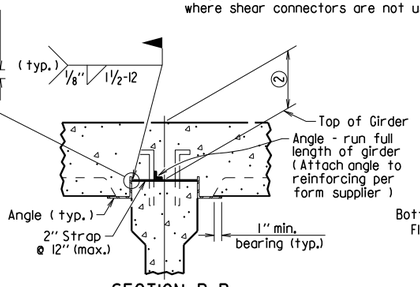
SECTION B-B

1" = 1'-0"
(Showing ∠ Closure)



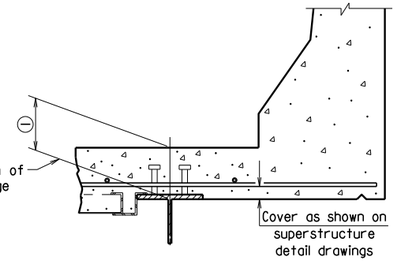
SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"
(Showing support by Insert cast in girder)



SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"
(Showing support by Strap)



SECTION D-D

1" = 1'-0"
Note: Only Bottom Reinforcing is shown.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_S + 1 3/4" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	KDH	DATE:	2-27-2014	FILENAME:	b55005.dgn
CHECKED BY:	BEF	DATE:	2-27-2014	SCALE:	NONE
DESIGNED BY:	STD.	DATE:	—		

DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①		GENERAL NOTES		55006

GENERAL NOTES

These GENERAL NOTES are applicable unless otherwise shown in the Plan Details, Special Provisions, or Supplemental Specifications.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Specifications.

DESIGN SPECIFICATIONS: See Bridge Layout(s).

SUPERSTRUCTURE NOTES:

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c =	4,000 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy =	60,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy =	36,000 psi
Structural Steel (AASHTO M 270, Gr. 50)	Fy =	50,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy =	50,000 psi
Structural Steel (AASHTO M 270, Gr. HPS70W)	Fy =	70,000 psi

See Plan Details for Grade(s) of Structural Steel required.

CONCRETE:

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

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

Use of a longitudinal screed is not permitted on any span of a bridge deck with horizontal curvature.

The concrete deck (roadway surface) shall be given a tine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Sidewalks shall receive a broomed finish as specified for final finishing in Subsection 802.19 for Class 6 Broomed Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam or girder. When permitted, the use of a longitudinal strike-off will require that a vertical camber adjustment be made in the strike-off to account for the future dead load deflection due to any railings, median barrier, and sidewalks.

REINFORCING STEEL:

All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports and shall be epoxy coated. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL (COMMON TO W-BEAMS AND PLATE GIRDERS):

Structural steel shall be AASHTO M 270 with grade and payment as specified in the plans. Grade 50W steel shall not be painted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Grade 36 and Grade 50 steel shall be painted unless otherwise noted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84. Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36, Gr. 50 or Gr. 50W unless otherwise noted.

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

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

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

Unless otherwise noted, field connections shall be bolted with ¾" ø high-strength bolts using 13/16 " ø open holes. Holes for ¾" ø high-strength bolts may be 15/16 " ø if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

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

When painting is required, all structural steel except galvanized steel and steel completely encased in concrete shall be painted in accordance with Subsection 807.75. The color of paint shall be as specified in the plans.

STRUCTURAL STEEL (W-BEAMS):

All beams and field splice plates, and all diaphragms and connection plates attached to horizontally curved beams are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. ___)".

All beams in continuous units and simple spans with field splices shall be blocked in their true position in the shop in groups as specified in Subsection 807.54(b)(2) with the webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram.

All beams in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

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

All beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Bent plate diaphragms for horizontally curved beams shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses. Bent plate diaphragms for straight beams may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved beams.

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

STRUCTURAL STEEL (PLATE GIRDERS):

All references to cross-frames shall include "X" or "K" types.

All girder web and flange plates, all field splice plates, and all diaphragms, cross-frames and connection plates attached to horizontally curved girders are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. ___)".

All girders in continuous units and simple spans with field splices shall be assembled in the shop as specified in Subsection 807.54(b)(2) and blocked in their true position with webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram.

All girders in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

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

Girder webs may be made by shop splicing with minimum lengths of 25 feet for sections. Flange plates longer than 50 feet may be made by shop splicing with minimum lengths of 25 feet for sections. No additional payment will be made for shop welded splices.

All girder dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Groove welds in web and flange plates shall be Quality Control (Q.C.) tested by nondestructive testing, as required in Subsection 807.23(b). Fillet welds at flange to web plate connections shall be Q.C. tested by the magnetic particle method. All Q.C. testing shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. ___)".

Bent plate diaphragms for horizontally curved girders shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses. Bent plate diaphragms for straight girders may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved girders.

Unless otherwise noted, cross-frames and diaphragms shall be installed as girders are erected. All bolts in cross-frames, diaphragms, and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

SUBSTRUCTURE NOTES:

CONCRETE:

Unless otherwise noted, concrete in caps, columns and footings (except seal footings) shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. Seal Concrete for footings shall have a minimum 28 day compressive strength f'c = 2,100 psi.

Concrete in drilled shafts shall be Class "S" as modified by Job SP "Drilled Shaft Foundations".

All exposed corners shall be chamfered ¾" unless otherwise noted.

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

Structural steel in end bents shall be AASHTO M 270 with grade and payment as specified in the plans.

FOR ADDITIONAL INFORMATION AND NOTES, SEE LAYOUT(S) AND PLAN DETAILS.

FOR ADDITIONAL INFORMATION AND NOTES, SEE LAYOUT(S) AND PLAN DETAILS.

STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

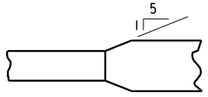
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 9-2-2015 FILENAME: b55006.dgn
CHECKED BY: B.E.F. DATE: 9-2-2015 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

DRAWING NO. 55006

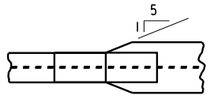
PRINT DATE: 11/7/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	STEEL BRIDGE STRUCTURES 55007			

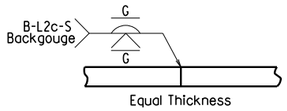


Plan-Unequal Width (Flg.)

FLANGE SPLICE

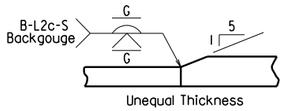


FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS



Equal Thickness

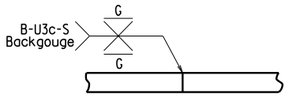
WEB & FLANGE SPLICE



Unequal Thickness

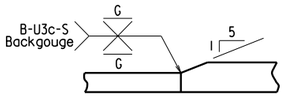
FLANGE SPLICE

(Use when Base Metal Thickness is Equal to or Less than 2")



Equal Thickness

WEB & FLANGE SPLICE

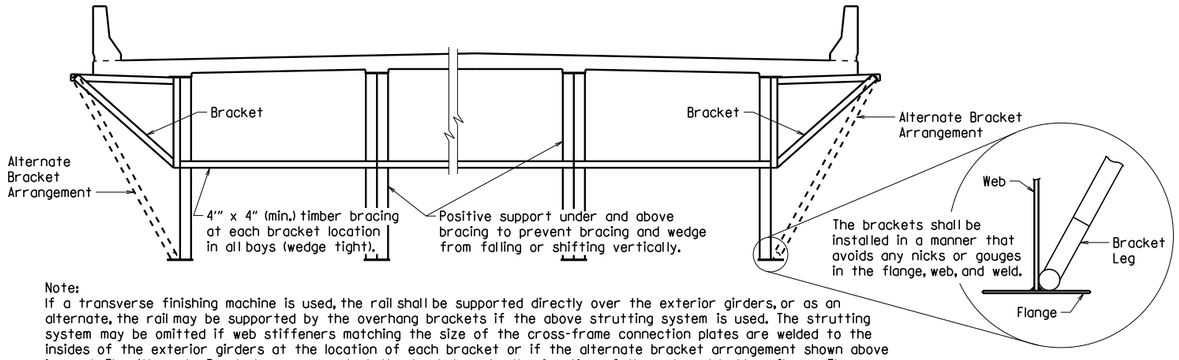


Unequal Thickness

FLANGE SPLICE

(Use when Base Metal Thickness is Greater than 2")

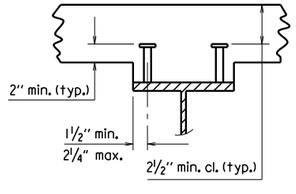
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



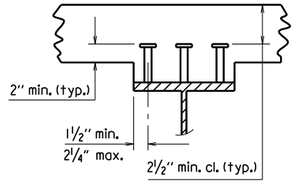
Note:
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the cross-frame connection plates are welded to the insides of the exterior girders at the location of each bracket or if the alternate bracket arrangement shown above is used. The Alternate Bracket arrangement shall extend down to the junction of the web and bottom flange. The stiffener shall conform to the details for cross frame connection plates shown on the plans. No direct payment will be made for brackets, timber bracing, supports, or welded stiffeners. Payment shall be subsidiary to "Structural Steel in Plate Girder Spans (___)".

SCREED RAIL SUPPORT FOR PLATE GIRDERS

(USE WHEN WEB DEPTHS ARE 48" OR GREATER)



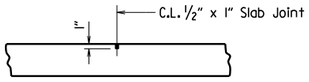
2 STUDS PER ROW



3 STUDS PER ROW

Stud Shear Connectors shall be automatically end welded to the beam or girder flange in accordance with the recommendations of the Manufacturer. See plan details for number and size.

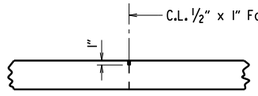
SHEAR CONNECTOR DETAIL



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

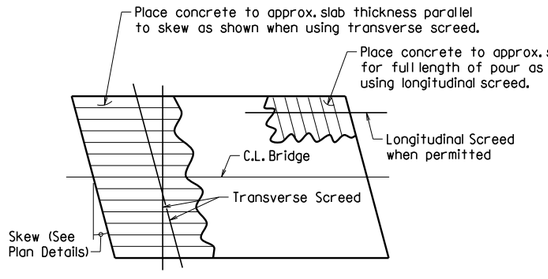
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck slab from gutterline to gutterline and acrosss the top of the sidwalk or raised median to the edge of the slab. No joint sealer shall be placed on the deck slab under the sidewalk or raised median.

TRANSVERSE SLAB JOINT DETAIL



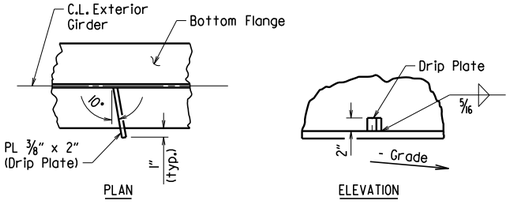
Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL CONSTRUCTION JOINT



Note: At the Contractor's option, the transverse screed may be placed parallel to the skew or perpendicular to C. L. Bridge.

CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW



PLAN

ELEVATION

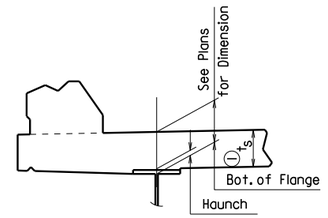
Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

Locate drip plate 5'-0" from C.L. Bearing on high side of each Bent, unless otherwise noted in the plans.

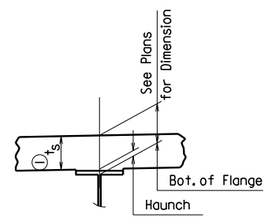
BOTTOM FLANGE DRIP PLATE

(USE WHEN WEB DEPTHS ARE 54" OR GREATER AND UNIT OR SPAN IS NOT IN LEVEL GRADE)

t_s = slab thickness. See "Typical Roadway Section" in the plans.



EXTERIOR BEAM OR GIRDER



INTERIOR BEAM OR GIRDER

① Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

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

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

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

BRIDGES IN NORMAL CROWN

WELD TABLE

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	⅝"	

NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

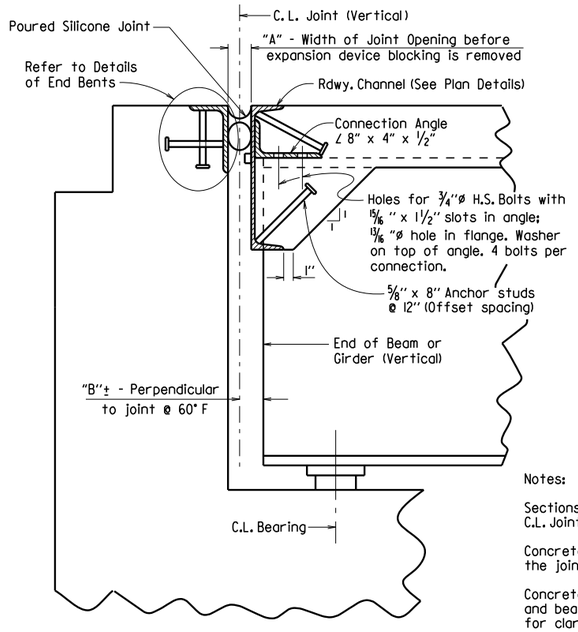
DRAWN BY: JYP DATE: 2/11/2016 FILENAME: b55007.dgn

CHECKED BY: AMS DATE: 2/11/2016 SCALE: No Scale

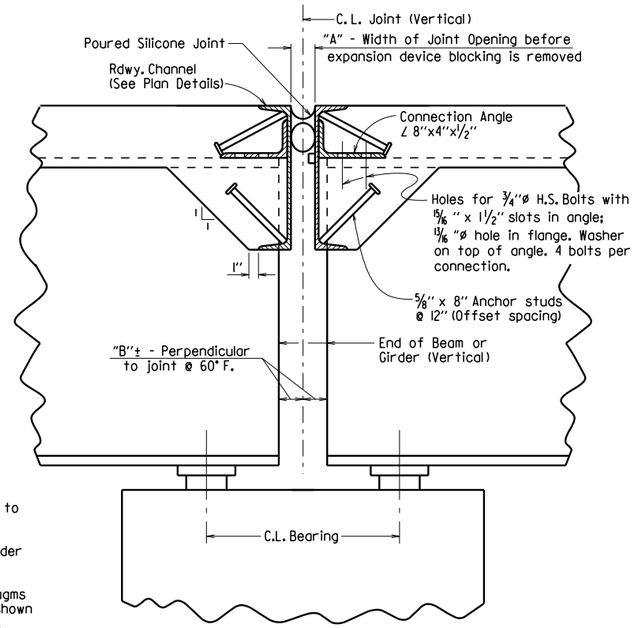
DESIGNED BY: STD. DATE: —

DRAWING NO. 55007

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	POURED SILICONE JOINT			55008



SECTION THRU JOINT AT END BENT



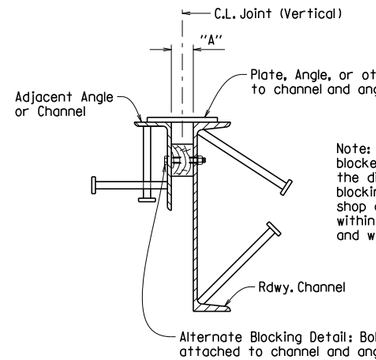
SECTION THRU JOINT AT INTERMEDIATE BENT

Notes:

Sections are taken perpendicular to C.L. Joint.

Concrete shall be hand packed under the joint armor.

Concrete diaphragms, steel diaphragms and bearing stiffeners are not shown for clarity. See plans for details.



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

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

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

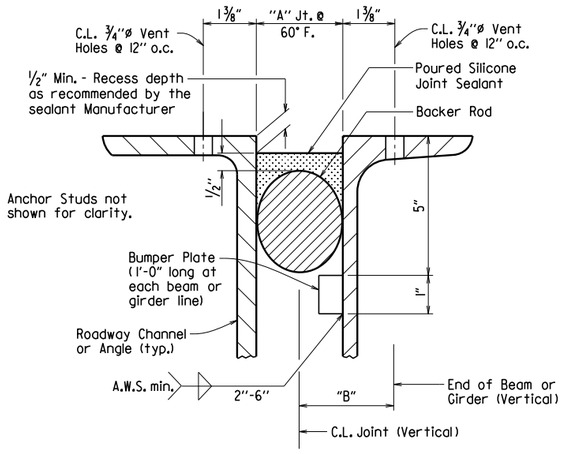
1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams or girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior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

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

EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENTS:

After all beams or girders on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first side to have deck concrete placed shall be completely bolted. Bolts on the other side shall be loosely installed so that thermal and rotational movements will not be restricted during concrete placement on the first side.

Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed. Immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.



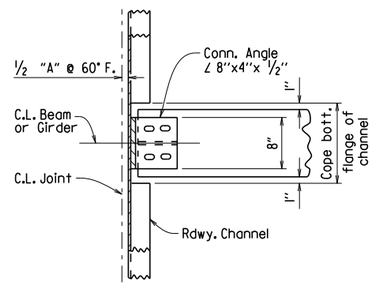
DETAIL OF POURED SILICONE JOINT

Silicone joint material and installation shall conform to Section 809. The temperature limitations recommended by the sealant Manufacturer shall be observed. The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80° F.

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

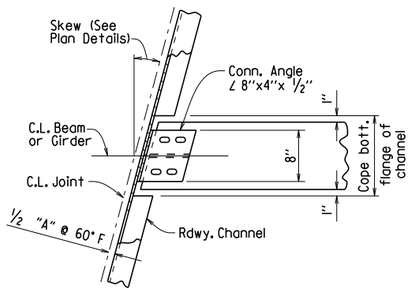
The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.

When bridge deck is constructed in stages, backer rods shall be extended beyond length of poured joint in initial construction stage so that the two pieces can be properly spliced together prior to installing sealant in subsequent stages. Manufacturer's recommendations shall be followed to prevent sealant from "running out of joint" during stage construction.



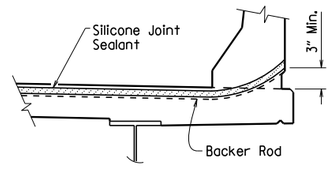
CHANNEL CONNECTION DETAIL

BENTS WITHOUT SKEW

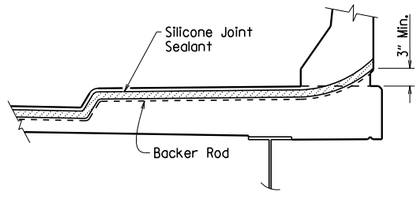


CHANNEL CONNECTION DETAIL

BENTS WITH SKEW



JOINT SEAL PLACEMENT AT RAIL



JOINT SEAL PLACEMENT AT SIDEWALK

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS. SEE "TABLE OF SILICONE JOINT DATA" IN PLAN DETAILS FOR VARIABLES "A" AND "B", AND BUMPER PLATE SIZE.

STANDARD DETAILS FOR POURED SILICONE JOINTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.C.P. DATE: 2/11/2016 FILENAME: b55008.dgn

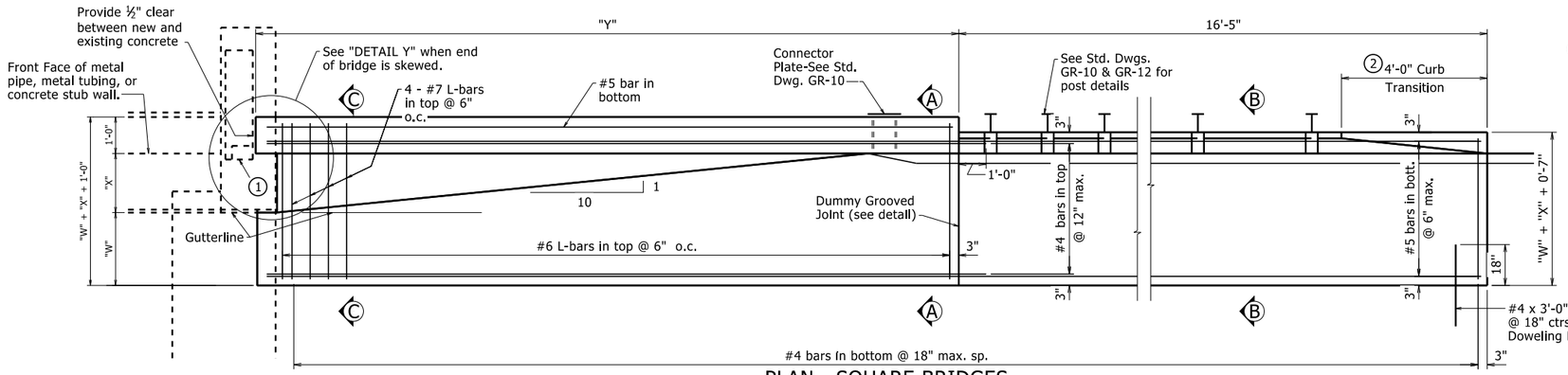
CHECKED BY: A.M.S. DATE: 2/11/2016 SCALE: No Scale

DESIGNED BY: STD. DATE: —

DRAWING NO. 55008

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

(1) - TYPE AT2 GUTTERS - 55038



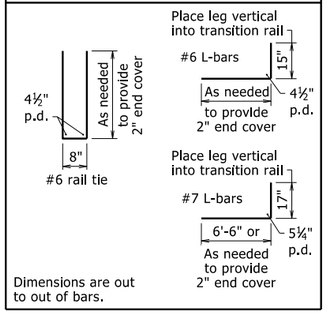
PLAN - SQUARE BRIDGES

½" = 1'-0"

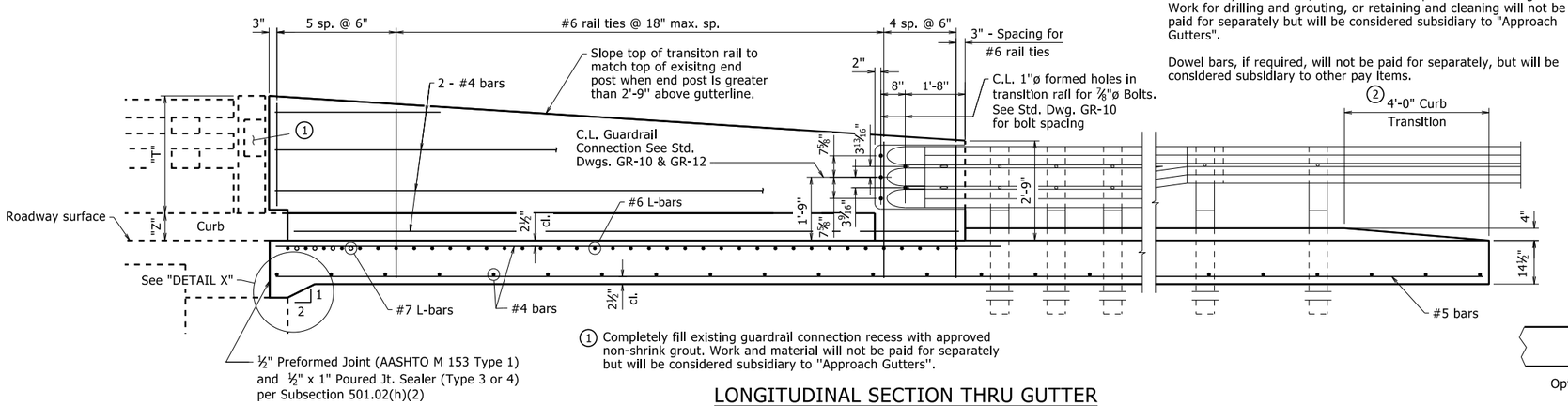
(2) Construct curb with height-transition as shown if drop inlet is not used at end of gutter.

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.

BENDING DIAGRAMS



Dimensions are out to out of bars.



(1) Completely fill existing guardrail connection recess with approved non-shrink grout. Work and material will not be paid for separately but will be considered subsidiary to "Approach Gutters".

LONGITUDINAL SECTION THRU GUTTER

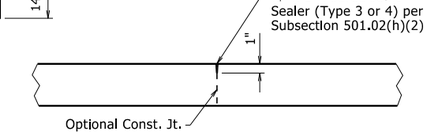
⅜" = 1'-0"

DOWELING NOTES

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".

Dowel bars, if required, will not be paid for separately, but will be considered subsidiary to other pay items.



DUMMY GROOVED JOINT

No Scale

APPROX. QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(For Information Only)

Concrete (cu. yd.)	("W" x 0.87) + ("X" x 1.83) + ("W" x "X" x 0.45) + ("Z" x "X" x 0.185) + ("T" x "X" x 0.185) + ("X"^2 x 0.45) + ("Z" x "X"^2 x 0.185) + ("T" x 0.06) + ("Z" x 0.06) + 0.79
Reinforcing Steel (lb.)	("W" x 68.63) + ("X" x 254.82) + ("T" x 14.54) + ("Z" x 14.54) + ("W" x "X" x 62) + ("T" x "X" x 10.06) + ("Z" x "X" x 10.06) + ("X"^2 x 62) + 135.72

VARIABLES: "T" = Height of the end post above the top of curb.
"W" = Distance from gutterline to edge of shoulder or edge of approach slab, if present.
"X" = Distance from gutterline to face of existing end post.
"Y" = "X" x 10 + 3.0
"Z" = Height of bridge curb.

Units for variables are in feet.

"W" + "X" shall not be less than 3'-0" unless approach gutter is doweled into an approach slab or concrete pavement.

GENERAL NOTES

This drawing shall only be used for thrie-beam retrofit of existing bridge rails.

Concrete shall be Class S or S(AE) or mixture used for Portland Cement Concrete Pavement.

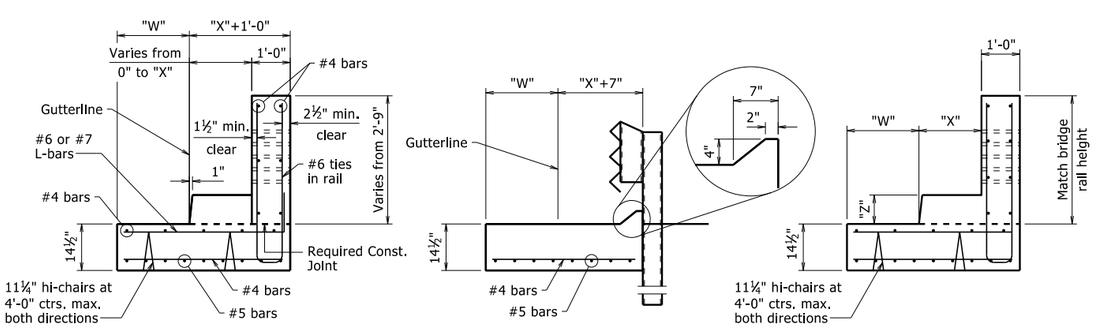
Reinforcing steel shall be Grade 60 (fy = 60,000 psi.) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. Fabricate bar lengths to provide 2" minimum cover at each end.

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

Preformed Joint and Poured Joint Sealer included in the item "Approach Gutters."

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.

If an existing drop inlet is located within the Plan of the approach gutter, adjust the reinforcing as needed to facilitate construction of the approach gutter, unless otherwise noted.



SECTION A-A

½" = 1'-0"

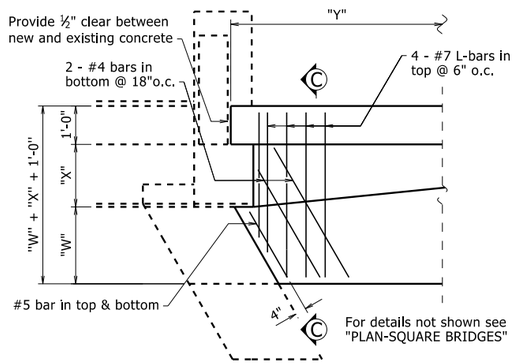
SECTION B-B

½" = 1'-0"

SECTION C-C

At end of Transition Rail
½" = 1'-0"

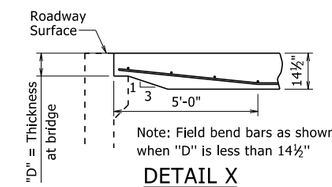
NOTE: Bridge end may vary from that shown. Adjust gutter details as required to provide similar rail transition.



NOTE: Reinforcing Steel is similar as shown for opposite side.

DETAIL Y

½" = 1'-0"



DETAIL X

⅜" = 1'-0"

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on November 7, 2019. This copy is not a signed and sealed document.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR TYPE 'AT2' APPROACH GUTTERS (BRIDGES WITH CURBS & TYPE A, B, C, D, OR E RAILING)

ROUTE SEC.

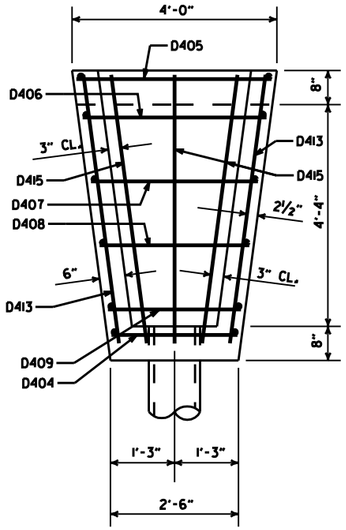
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

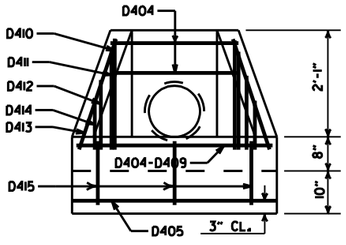
DRAWN BY:	TMG	DATE:	11/7/2019	FILENAME:	b55038.dgn
CHECKED BY:	CRE	DATE:	11/7/2019	SCALE:	AS NOTED
DESIGNED BY:	STD.	DATE:	-		

DRAWING NO. 55038

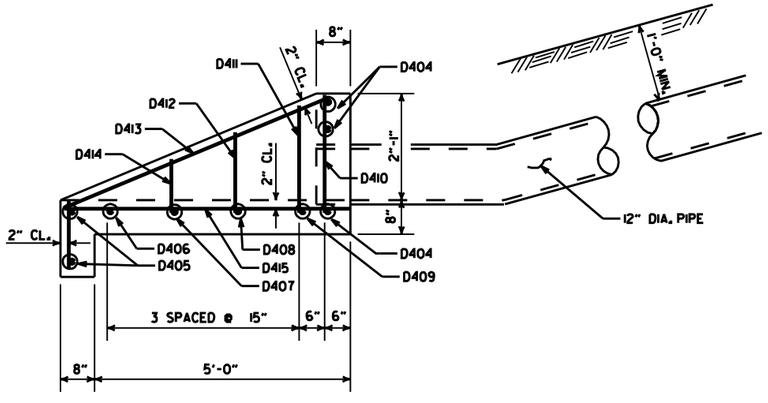
PRINT DATE: 3/22/2021



PLAN



FRONT ELEVATION

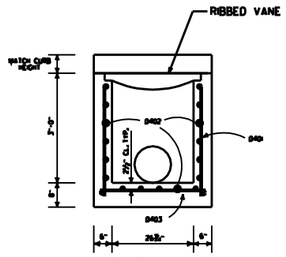


SIDE ELEVATION
CONCRETE SPILLWAY

BAR LIST (CONCRETE SPILLWAY)

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

DETAILS OF CONCRETE SPILLWAY (TYPE A)

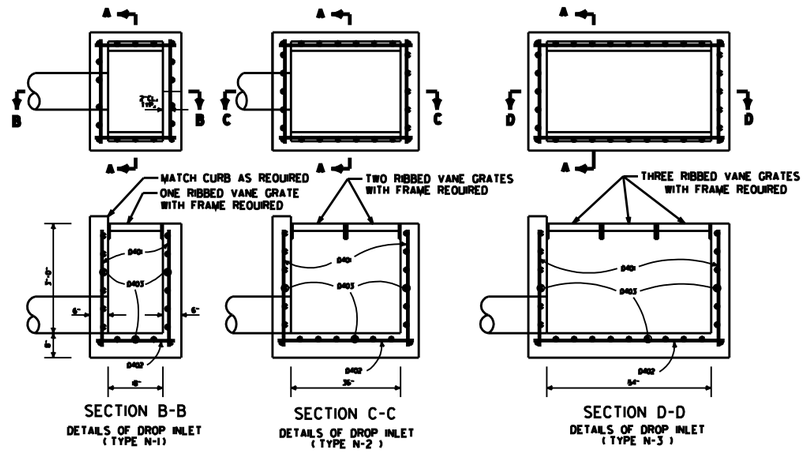


SECTION A-A

BAR LIST (DROP INLET)

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

ALL BARS #4 @ 6" SPACING



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

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

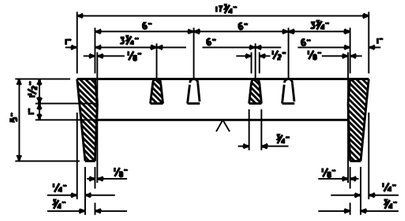
SECTION D-D
DETAILS OF DROP INLET
(TYPE N-3)

DETAILS OF DROP INLET

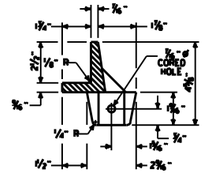
GENERAL NOTES (GRATE & FRAME)

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

SECTION A-A



SECTION B-B



SECTION THRU FRAME

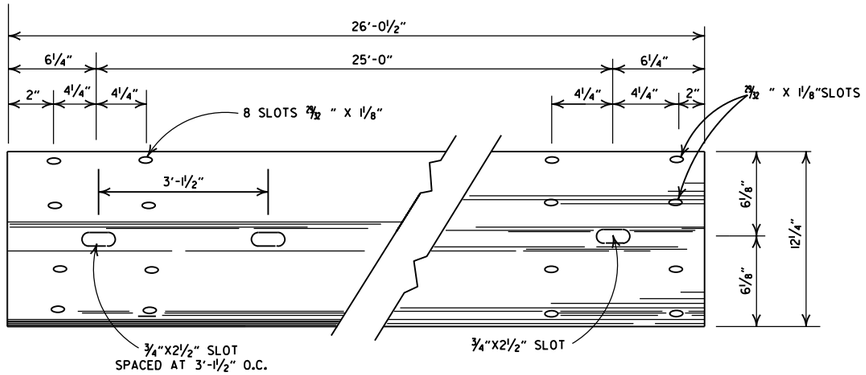
DETAILS OF RIBBED VANE GRATE AND FRAME

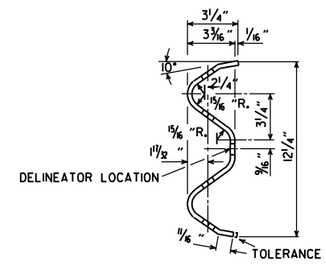
DATE REVISED	DATE FILMED	DESCRIPTION
7-02-98		REVISED SECT. A-A DETAIL OF DROP INLET & ADDED AASHTO REF. TO NOTE 1, REVISED GRATE
10-18-96		REVISED ASTM REF. TO AASHTO
8-15-91		ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS AND SPILLWAY OUTLET

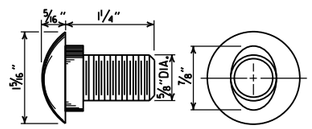
STANDARD DRAWING FPC-9N



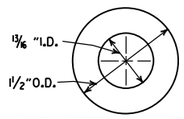


DETAILS OF W-BEAM GUARDRAIL

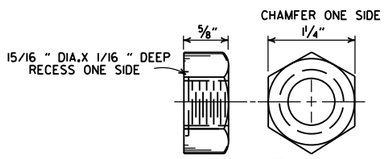
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



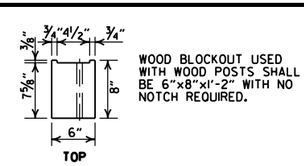
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

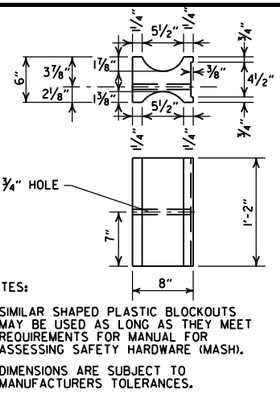


NUT



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

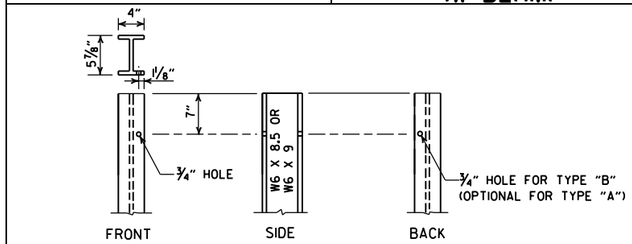
WOOD BLOCKOUT (W-BEAM)



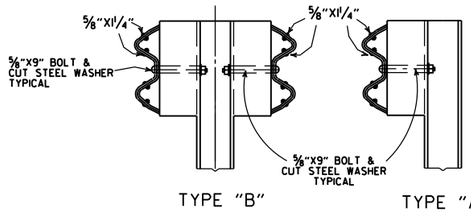
NOTES:

1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT (W-BEAM)



STEEL POST



DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

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

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

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

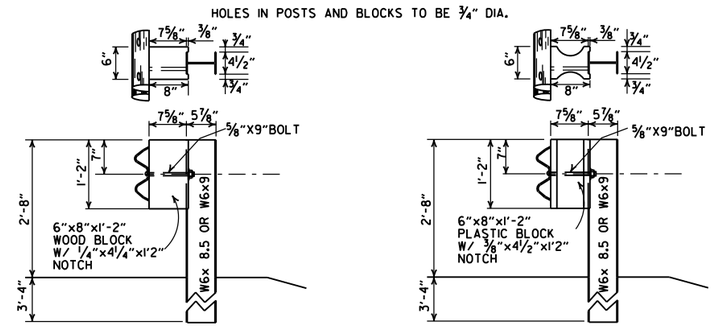
USE W-BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARDRAIL, W-BEAM GUARDRAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

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

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

CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARDRAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARDRAIL.

DELINEATORS SHALL BE MOUNTED AT 37.5' SPACING ON THE FRONT FACE OF THE GUARDRAIL. SPACING MAY BE REDUCED IN CURVES, AS DIRECTED BY THE ENGINEER. COLOR SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR DELINEATORS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID PER LIN. FT. FOR GUARDRAIL.



WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

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

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

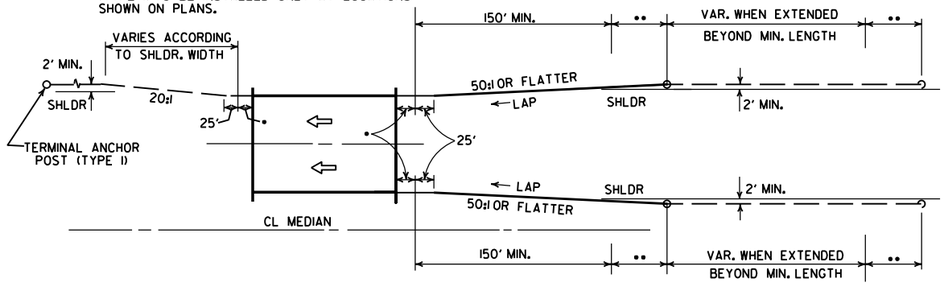
DATE	REVISION	FILMED
05-19-22	REVISED GENERAL NOTES, ADDED DELINEATOR LOCATION.	
11-07-19	RENUMBERED AND RENAMED	
11-16-17	REVISED GENERAL NOTES AND RAISED GUARDRAIL HEIGHT 3"	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
03-30-00	REMOVED GUARDRAIL AT BRIDGE ENDS	
01-12-00	ADDED PLASTIC BLOCKOUT	
08-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARDRAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
04-03-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
06-02-94	ADDED ALT. STEEL POST SIZE	
08-05-93	REVISED STEEL POST SIZE	8-5-93
10-01-92	REDRAWN & REVISED	10-1-92
08-15-91	REVISED WASHER NOTE	8-15-91
08-02-90	REV. GEN. NOTE & DEPTH OF ANC. POST IN ROCK	8-2-90
07-15-88	REVISED SECTION 3 & GENERAL NOTES	
03-04-88	REV. ANCHOR POST, ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-09-87	REDRAWN & REVISED	802-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

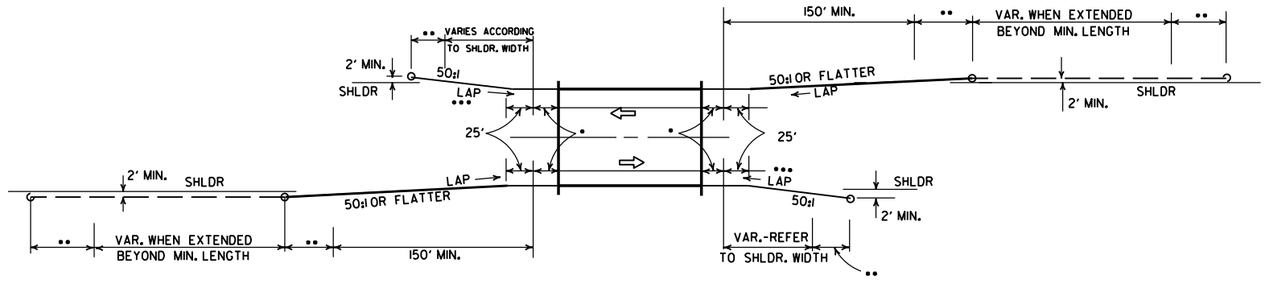
STANDARD DRAWING GR-6

NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

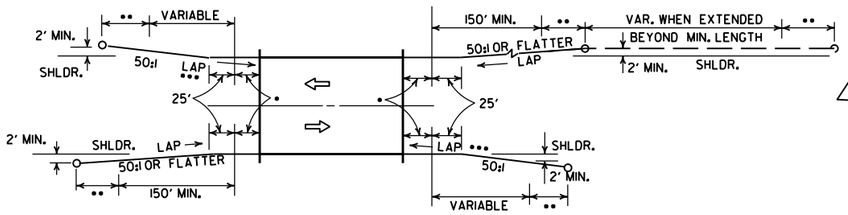
••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

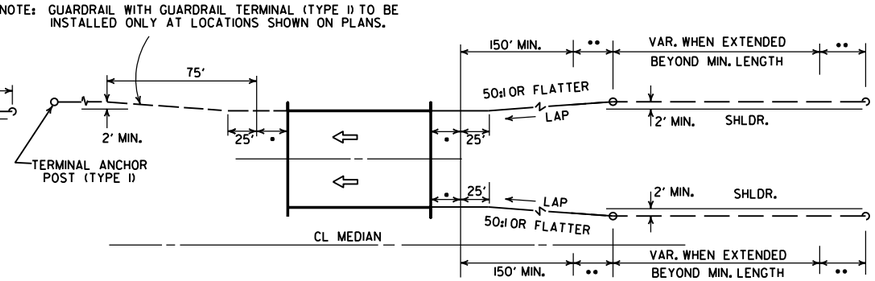
METHODS OF INSTALLATION OF GUARDRAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

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



TWO-WAY TRAFFIC

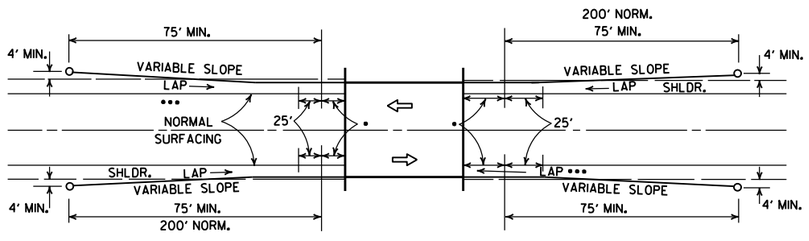
NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

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

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



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

LEGEND

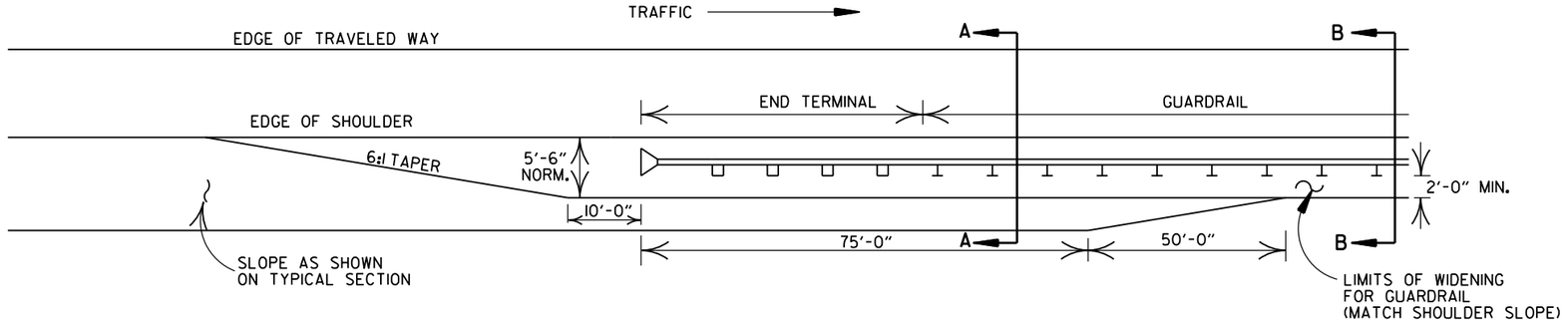
- • THRIE BEAM GUARDRAIL TERMINAL
- •• GUARDRAIL TERMINAL (TYPE 2)

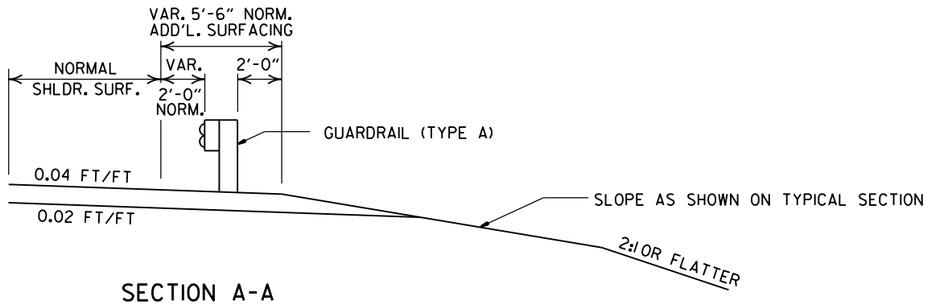
DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARDRAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERM. (TY. 1)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION

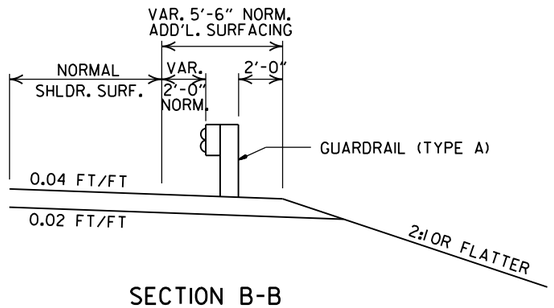
GUARDRAIL DETAILS

STANDARD DRAWING GR-8



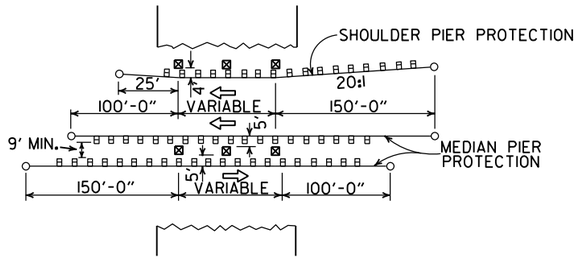


SECTION A-A



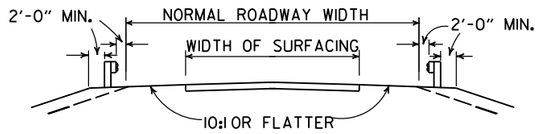
SECTION B-B

DETAILS OF WIDENING FOR GUARDRAIL

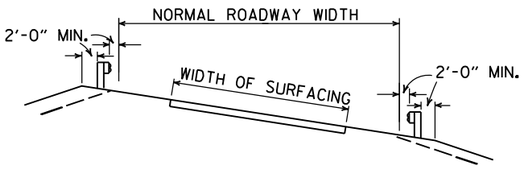


METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

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



SECTION ON TANGENT



SECTION ON CURVE

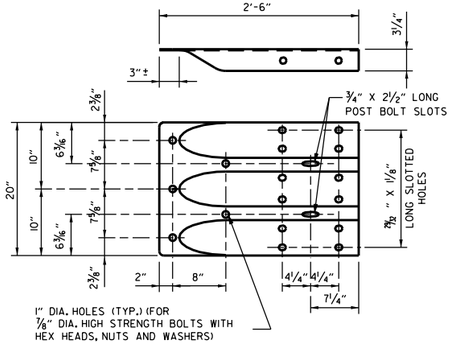
DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY

DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

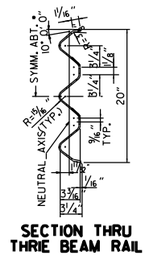
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

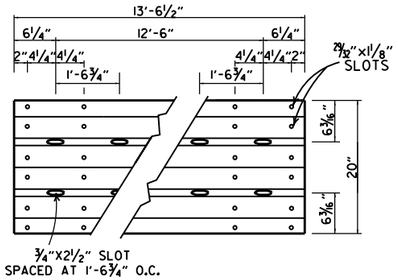
STANDARD DRAWING GR-9



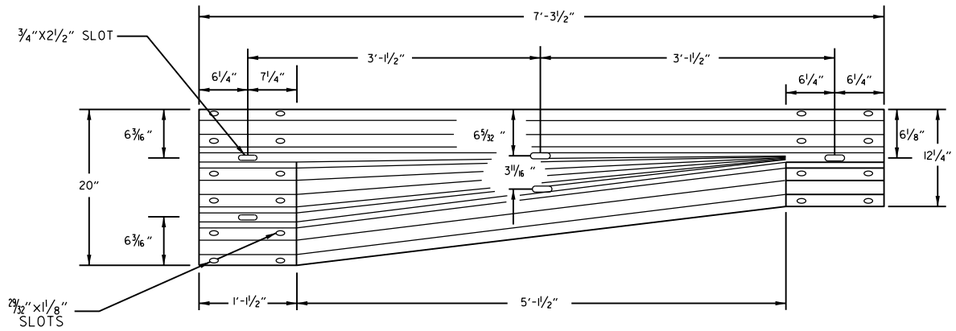
SPECIAL END SHOE



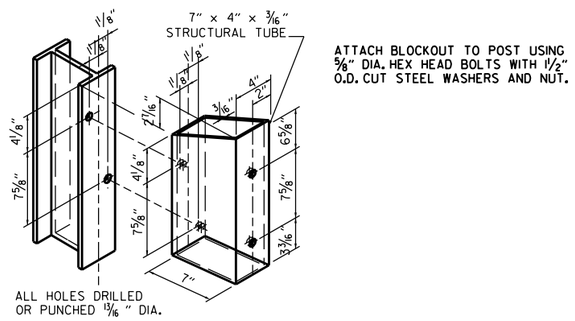
SECTION THRU THRIE BEAM RAIL



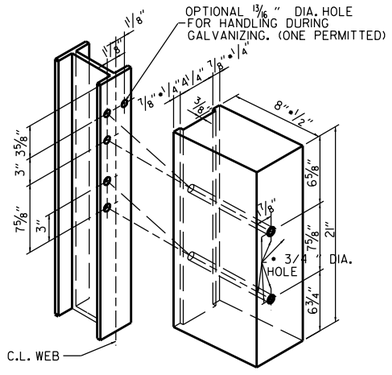
THRIE BEAM RAIL



TRANSITION SECTION



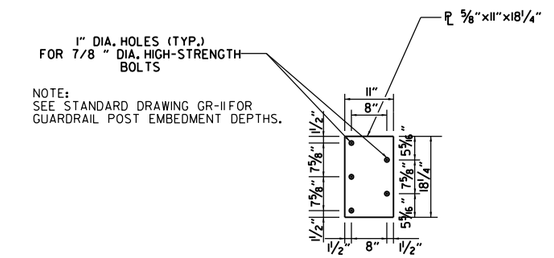
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

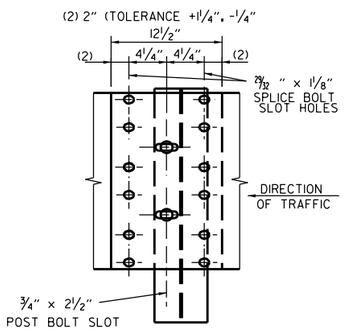
HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

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



CONNECTOR PLATE

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



THRIE BEAM RAIL SPLICE AT POST

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE 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-8 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

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

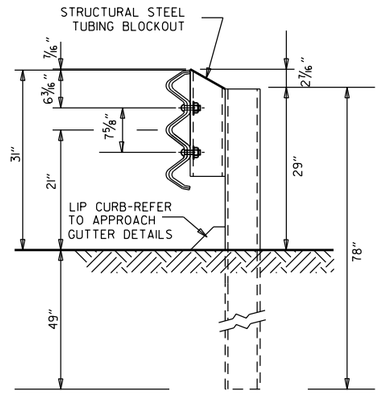
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-07-19	RENAMED AND REVISED REFERENCES	
11-16-17	REVISED TRANSITION SECTION, GUARD RAIL HEIGHT, AND GENERAL NOTES; MOVED THRIE BEAM GUARD RAIL CONNECTIONS AT BRIDGES ENDS TO STD. DRWG. GR-12	
07-14-10	RAISED HEIGHT OF W-BEAM 1"	
11-29-07	ADDED PLASTIC BLOCKOUTS	
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
11-18-04	REVISED GENERAL NOTES	
10-9-03	REVISED GENERAL NOTES	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED NOTE (2)	
06-29-00	MOVED DIMENSION LINES	
05-18-00	ADDED NOTE	
03-30-00	DRAWN & ISSUED	

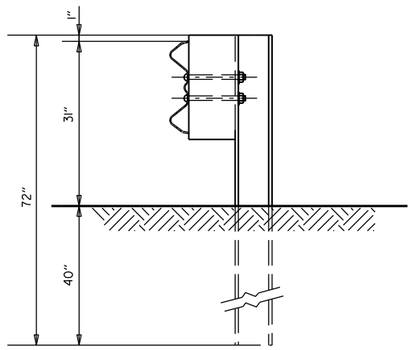
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

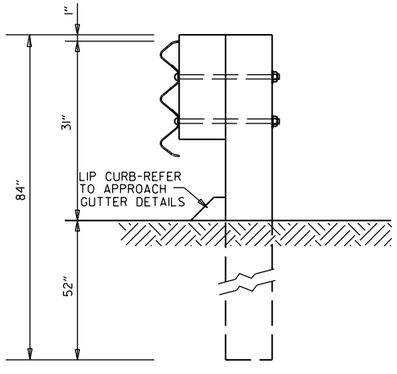
STANDARD DRAWING GR-10



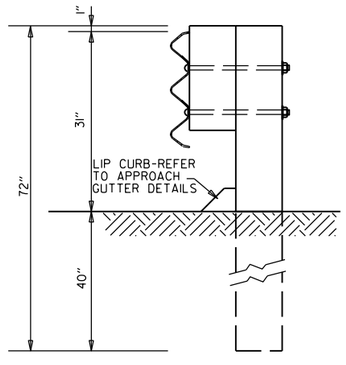
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



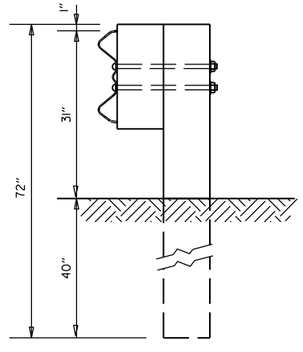
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUTS & WOOD POSTS
POSTS 1-6



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUT & WOOD POST
POST 7



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

GENERAL NOTES:

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

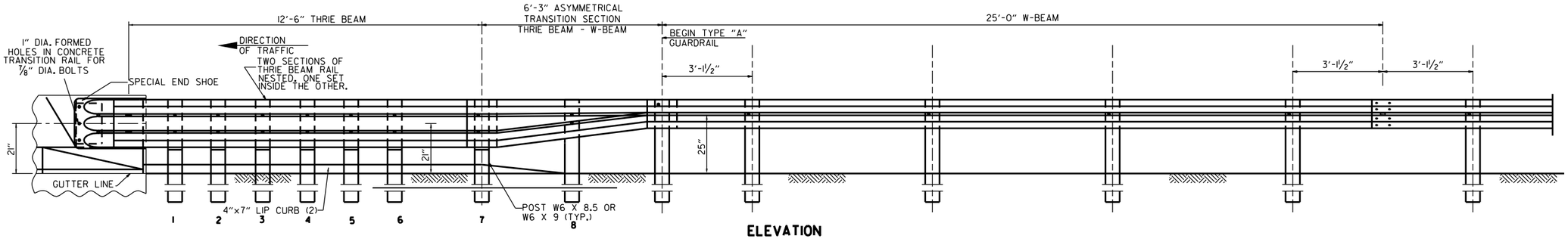
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO.1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-07-19	RENAMED	
11-16-17	REVISED GUARDRAIL HEIGHT, CHANGED STD. DWG. NUMBER FROM GR-10A TO GR-11	
07-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
08-22-02	REVISED LIP CURB NOTE	
03-30-00	DRAWN & ISSUED	

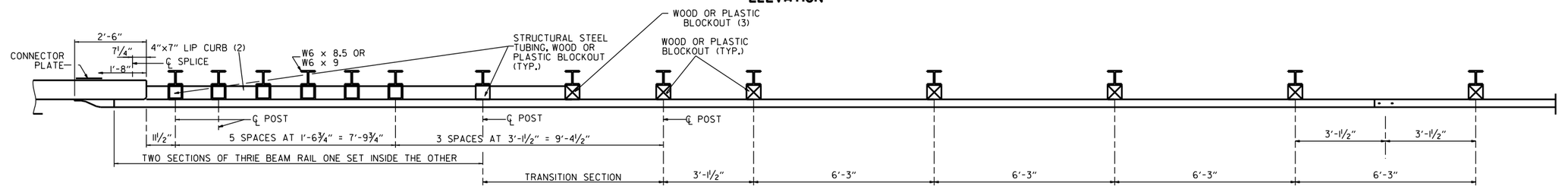
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

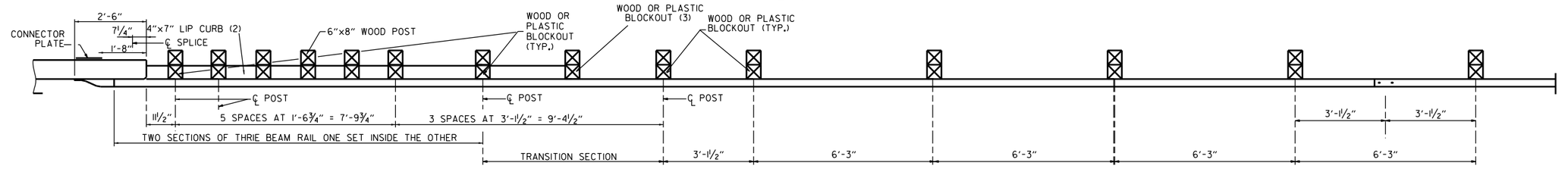
STANDARD DRAWING GR-11



ELEVATION



PLAN



PLAN

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

THRIE BEAM GUARDRAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

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

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

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

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-8 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

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

POSTS SHALL NOT BE PLACED AT SPLICE LOCATIONS ALONG W-BEAM RAILS.

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

DATE	REVISION	FILMED
05-14-20	REVISED NOTES	
11-07-19	RENAMED & REVISED REFERENCES	
11-16-17	RE-DRAWN FROM STD. DWG. GR-10 & ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

STANDARD DRAWING GR-12

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

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

CORRUGATED METAL PIPE ARCHES

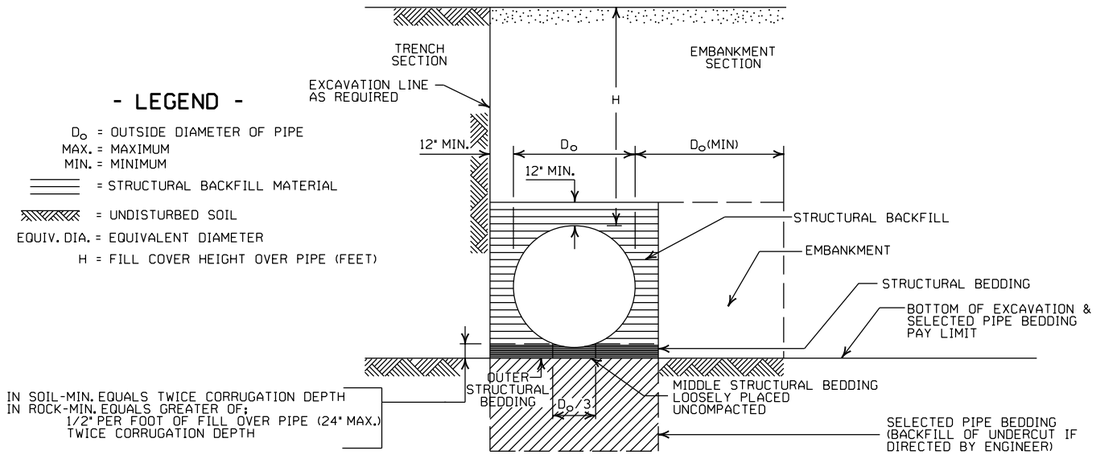
EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)	
				INSTALLATION	INSTALLATION			INSTALLATION	INSTALLATION	
				TYPE 1	TYPE 1			TYPE 1	TYPE 1	
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM				2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM			
15	17x13	3	0.064	2	15		0.060	2	15	
18	21x15	3	0.064	2	15		0.060	2	15	
21	24x18	3	0.064	2.25	15		0.060	2.25	15	
24	28x20	3	0.064	2.5	15		0.075	2.5	15	
30	35x24	3	0.079	3	12		0.075	3	12	
36	42x29	3½	0.079	3	12		0.105	3	12	
42	49x33	4	0.079	3	12		0.105	3	12	
48	57x38	5	0.109	3	13		0.135	3	13	
54	64x43	6	0.109	3	14		0.135	3	14	
60	71x47	7	0.138	3	15		0.164	3	15	
66	77x52	8	0.168	3	15					
72	83x57	9	0.168	3	15					
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM							
				INSTALLATION		INSTALLATION				
				TYPE 2	TYPE 1	TYPE 2	TYPE 1			
36	40x31	5	0.079	3	2	12	15			
42	46x36	6	0.079	3	2	13	15			
48	53x41	7	0.079	3	2	13	15			
54	60x46	8	0.079	3	2	13	15			
60	66x51	9	0.079	3	2	13	15			
66	73x55	12	0.079	3	2	15	15			
72	81x59	14	0.079	3	2	15	15			
78	87x63	14	0.079	3	2	15	15			
84	95x67	16	0.109	3	2	15	15			
90	103x71	16	0.109	3	2	15	15			
96	112x75	18	0.109	3	2	15	15			
102	117x79	18	0.109	3	2	15	15			
108	128x83	18	0.138	3	2	15	15			

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

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

- LEGEND -

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



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

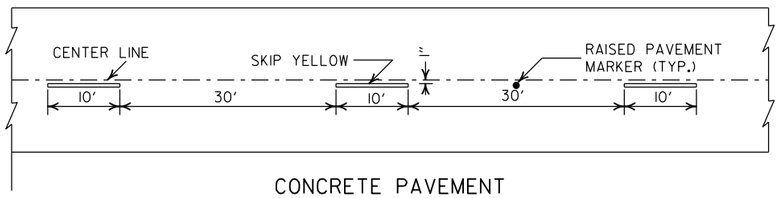
1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD 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."

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	

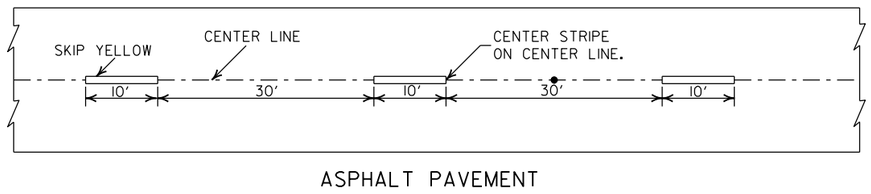
ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

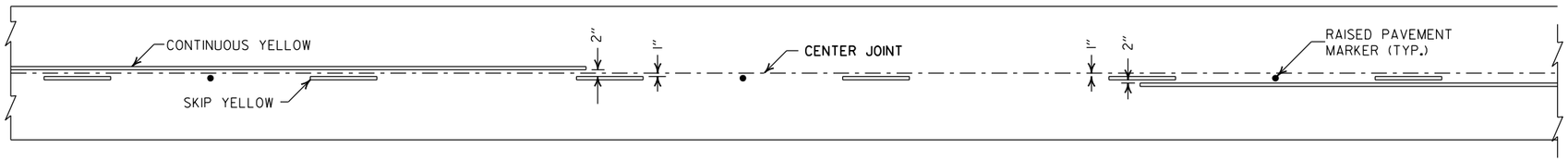


CONCRETE PAVEMENT

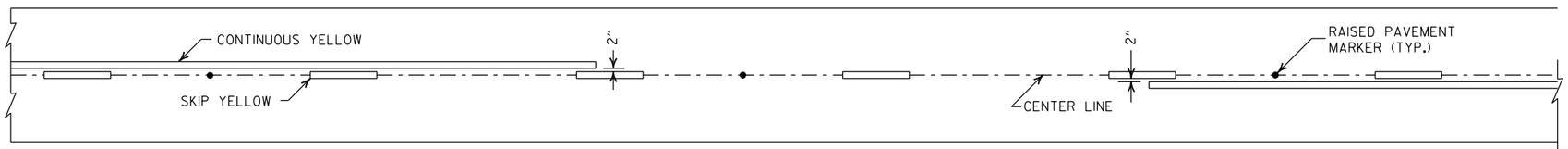


ASPHALT PAVEMENT

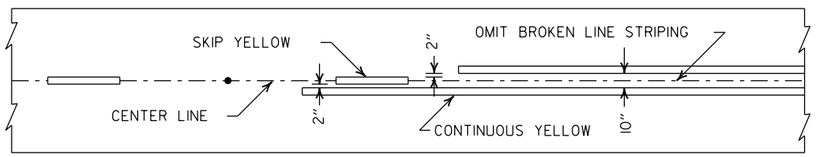
BROKEN LINE STRIPING



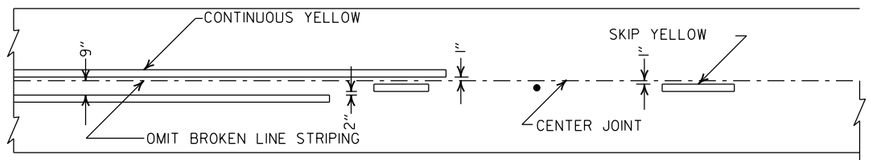
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

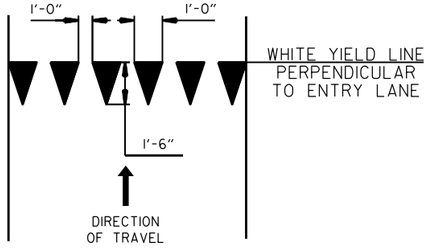


ASPHALT PAVEMENT

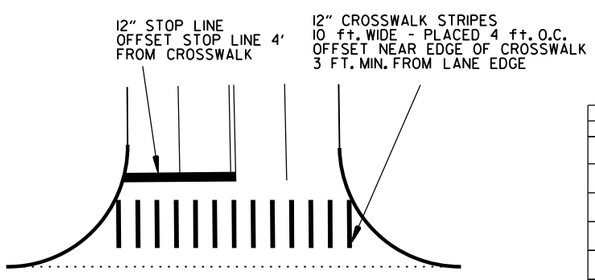


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

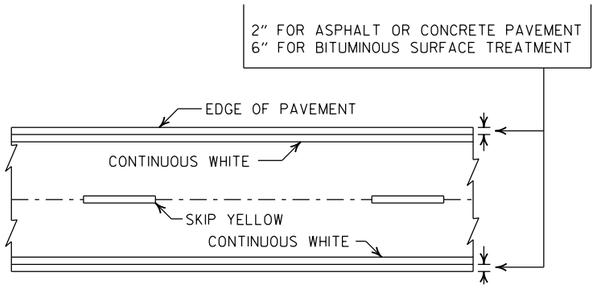


YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

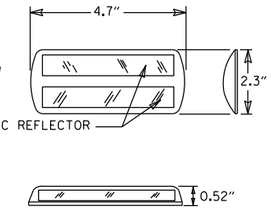
NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.



PAVEMENT EDGE LINE MARKING

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

TYPE II
RED/CLEAR OR
YELLOW/YELLOW



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

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

DATE	REVISION	FILMED
2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

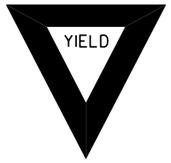
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

R1-1

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

R1-2



STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1

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

W3-5

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

W3-5a

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

R4-1

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

R4-2

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

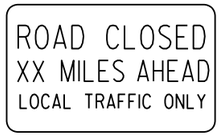
R5-1

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

R11-2

48"X30"

R11-3A



60"X30"

R11-4

60"X30"

W21-5a

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

W1-1

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

W1-2

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

W1-3

STD. 48"X48"

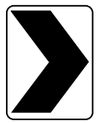
W1-4

STD. 48"X48"

W1-6

STD. 48"X24"
SPECIAL 60"X30"

W1-8



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

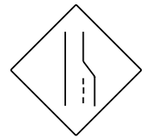
W3-1

STD. 36"X36"
SPECIAL 48"X48"

W3-2

STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

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

W9-2

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

W13-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

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

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

W1-4b

STD. 48"X48"

R56-1

STD. 18"X18"

W8-11

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

W8-9

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

G20-1

60"X24"

G20-2

48"X24"

OM-3L OM-3R

12"X36"

M4-9

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

M4-10

48"X18"

R55-1

36"X60"

• USE 6" C LETTERS
•• USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	½ MILE
1000 FT	¾ MILE
1500 FT	1 MILE AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
- 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
- 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.
8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

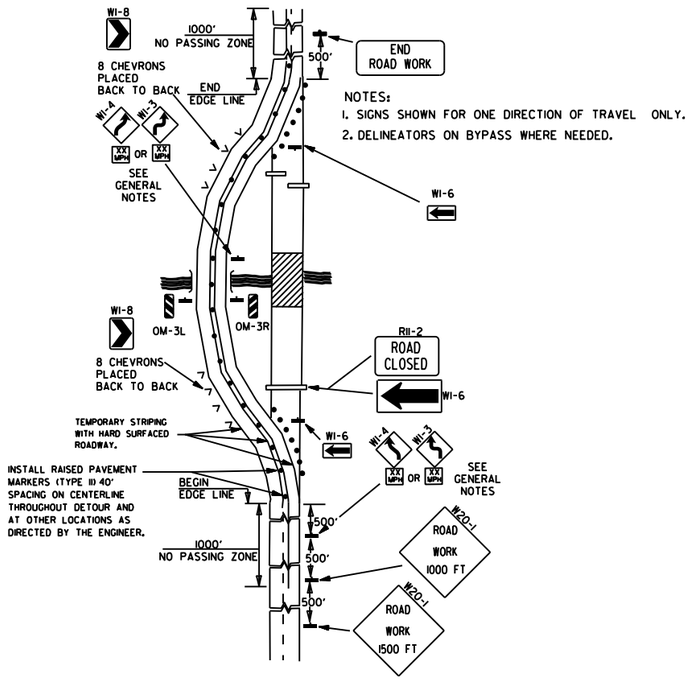
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

DATE	REVISION	FILMED
11-07-19	REVISED FOR MASH	
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	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

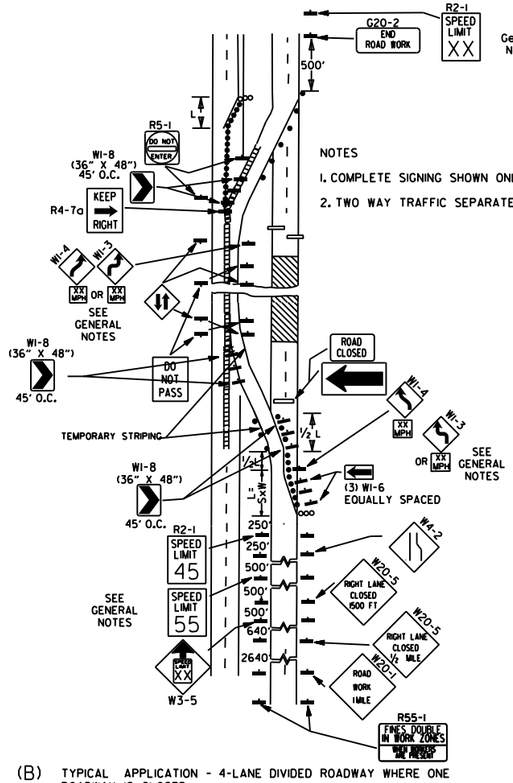
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



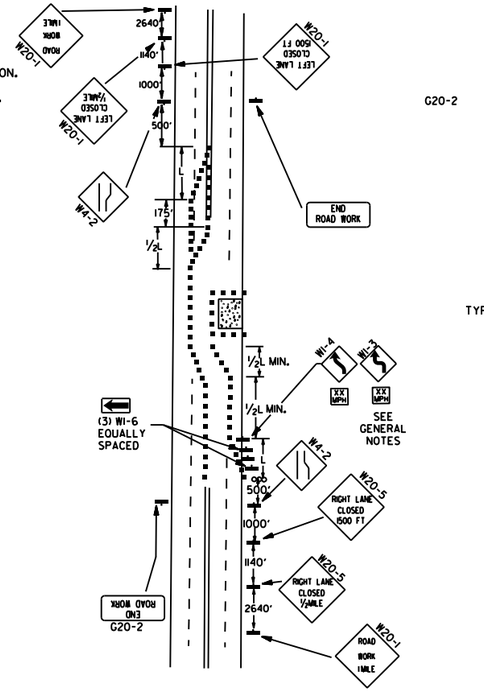
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

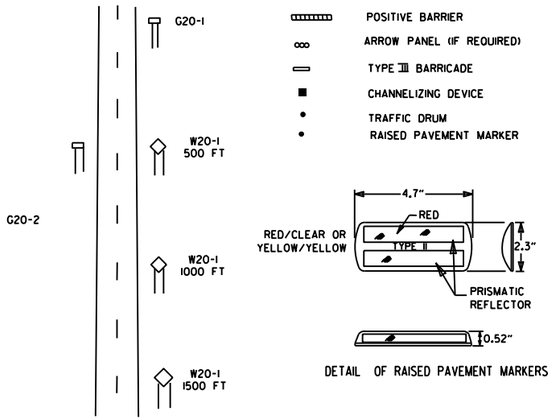


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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



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



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

WHERE:

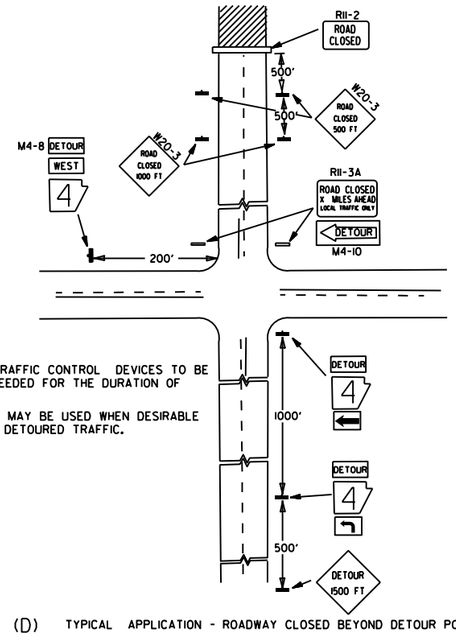
L= MINIMUM LENGTH OF TAPER.

S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.

W= WIDTH OF OFFSET.

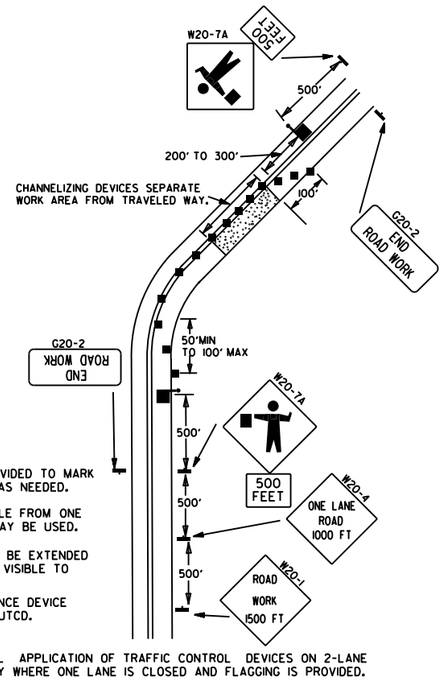
GENERAL NOTES:

1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON WI-3 OR WI-4 CURVE WARNING SIGNS. USE WI-4 WHEN SPEED IS GREATER THAN 30MPH AND WI-3 WHEN 30MPH OR LESS
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS TRAILER MOUNTED DEVICES.
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 ARDOT QUALIFIED PRODUCTS LIST.
9. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).



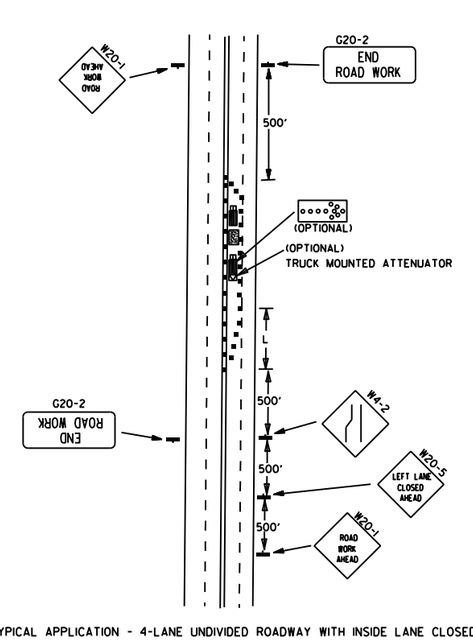
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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



NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



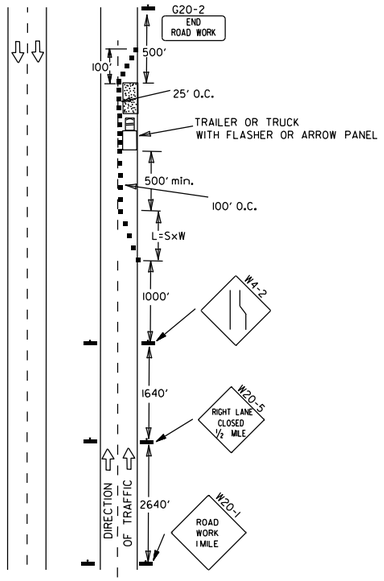
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
05-20-21	REVISED NOTE 7	
11-07-19	REVISED NOTE 1, ADDED NOTE 9	
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

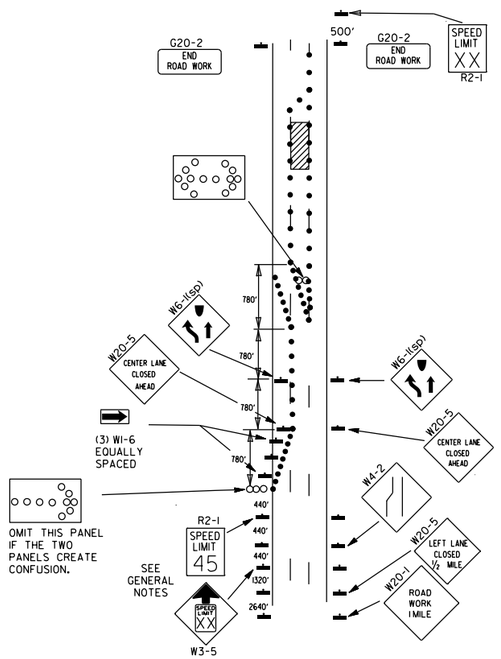
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-2



(A) TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.

KEY:

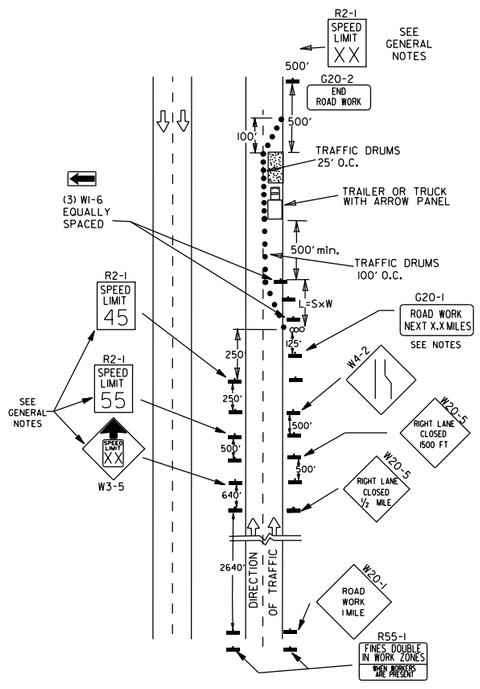
ARROW PANEL (IF REQUIRED)

■ CHANNELIZING DEVICE

● TRAFFIC DRUM

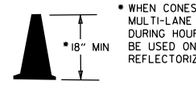
GENERAL NOTES:

1. A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS, AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. THE G20-1 SIGN WILL BE REQUIRED ON JOBS OF OVER TWO MILES IN LENGTH. WHEN THE LANE CLOSURE IS NOT AT THE BEGINNING OF THE PROJECT, THE G20-1 SIGN SHALL BE ERECTED 125' IN ADVANCE OF THE JOB LIMIT. ADDITIONAL W20-1 (1 MILE) SIGNS ARE NOT REQUIRED IN ADVANCE OF LANE CLOSURES THAT BEGIN INSIDE THE PROJECT LIMITS.
8. FLAGGERS SHALL USE STOP/SLOW PADDLES FOR CONTROLLING TRAFFIC THROUGH WORK ZONES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. ALL PLASTIC DRUMS AND CONES SHALL MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
10. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS TRAILER MOUNTED DEVICES.
11. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).



(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

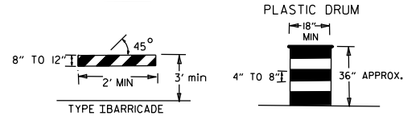
CHANNELIZING DEVICES



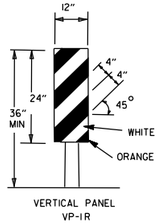
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

CONES

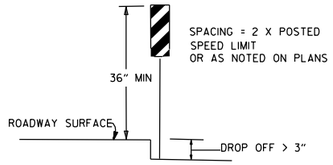
PLASTIC DRUM



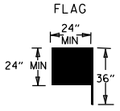
NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.



VERTICAL PANEL PLACEMENT



FLAG



FLAG SHALL BE OF GOOD GRADE RED MATERIAL

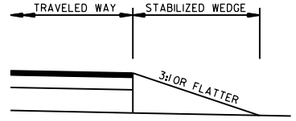
TRAFFIC CONTROL DEVICES			
NON-INTERSTATE			
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 1"	CENTERLINE	W8-11	W8-11
> 1" ≤ 3"	CENTERLINE	W8-11 AND CENTERLINE LANE STRIPING	W8-11 AND CENTERLINE LANE STRIPING
> 3"	CENTERLINE	STANDARD LANE CLOSURE[6]	STANDARD LANE CLOSURE[6]
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9 AND TRAFFIC DRUMS[1]	W8-9 AND TRAFFIC DRUMS[1]
> 3" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS[1]	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS[1]
> 6" ≤ 18"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS[1]	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS[2]
> 18" ≤ 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS[1]	A STABILIZED WEDGE, W8-17, EDGE LINE STRIPING AND TRAFFIC DRUMS[3]
> 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER[4] & EDGE LINES	PRECAST CONCRETE BARRIER[4] & EDGE LINES

INTERSTATE		
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL
≤ 3"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS[2]
> 3" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS[2]
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER & EDGE LINES

INTERSTATE AND NON-INTERSTATE		
FORESLOPE	HEIGHT	TRAFFIC CONTROL
1:1	> 2 FT	PRECAST CONCRETE BARRIER
2:1	≤ 5 FT	TRAFFIC DRUMS
2:1	> 5 FT	PRECAST CONCRETE BARRIER
Flatter than 2:1	N/A	TRAFFIC DRUMS

GENERAL NOTES:

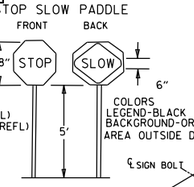
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED.
3. PRECAST CONCRETE BARRIER WALL CAN BE USED IN LIEU OF A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS, IF AND WHERE DIRECTED BY THE ENGINEER.
4. A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS CAN BE USED IN LIEU OF PRECAST CONCRETE BARRIER WALL, IF AND WHERE DIRECTED BY THE ENGINEER.
5. W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.
6. TIME LIMITATIONS MUST CONFORM TO SECTION 603 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).

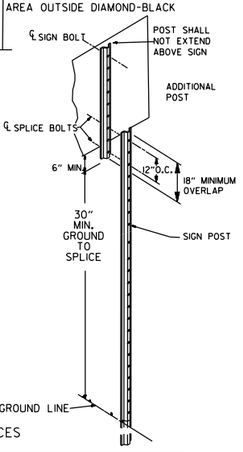


STABILIZED WEDGE

NOTE:
MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.

STOP SLOW PADDLE

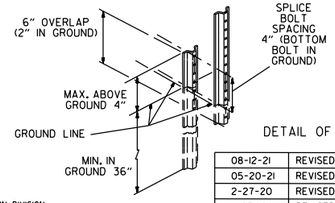




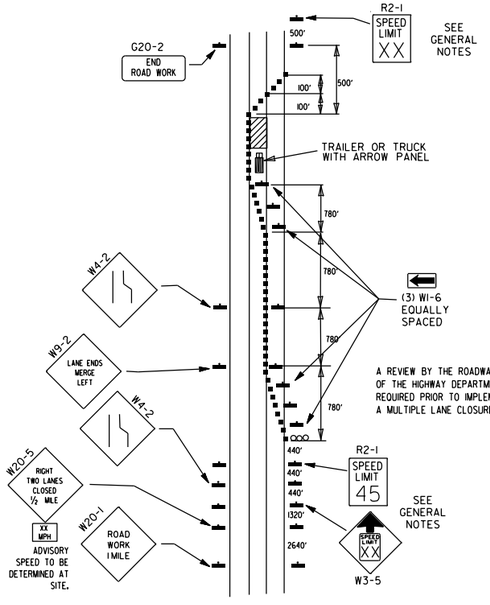
NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



DETAIL OF SPLICES



A REVIEW BY THE ROADWAY DESIGN DIVISION OF THE HIGHWAY DEPARTMENT WILL BE REQUIRED PRIOR TO IMPLEMENTING A MULTIPLE LANE CLOSURE.

(D) TYPICAL APPLICATION - CLOSING MULTIPLE LANES OF A MULTILANE HIGHWAY.

DATE	REVISION	FILMED
08-12-21	REVISED TRAFFIC CONTROL DEVICES AND NOTES	
05-20-21	REVISED NOTE 10	
2-27-20	REVISED TRAFFIC CONTROL DEVICES DETAILS	
11-07-19	REVISED NOTE 9, ADDED NOTE 11	
7-25-19	REVISED TRAFFIC CONTROL DEVICES DETAILS	
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1& REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

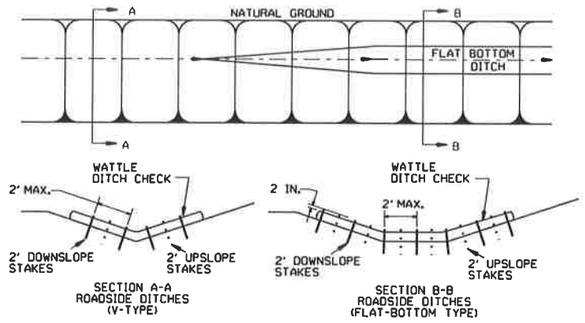
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

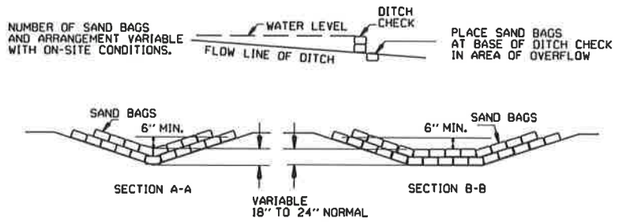
STANDARD DRAWING TC-3

GENERAL NOTES

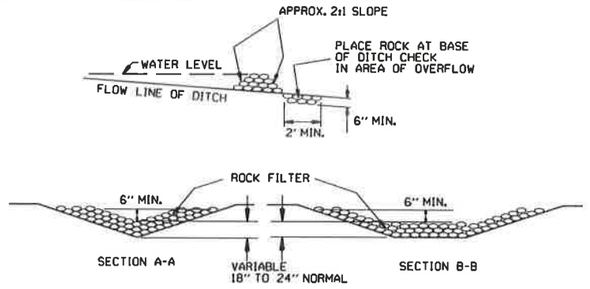
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

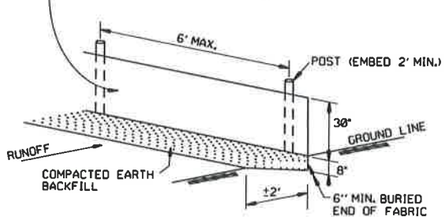


ROCK DITCH CHECK (E-6)

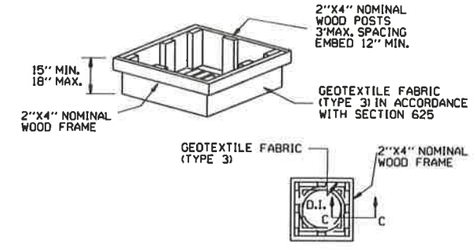
GENERAL NOTES

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

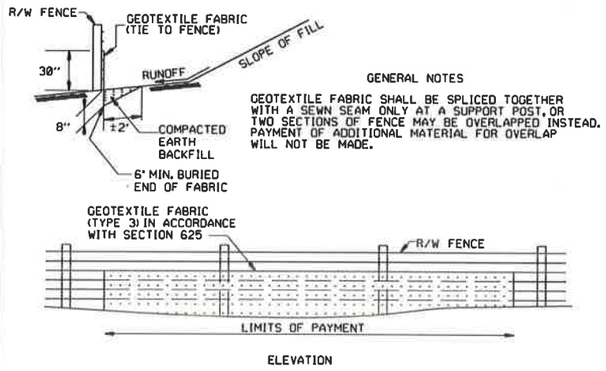
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)



DROP INLET SILT FENCE (E-7)



GENERAL NOTES

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

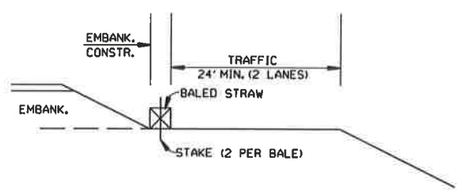
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

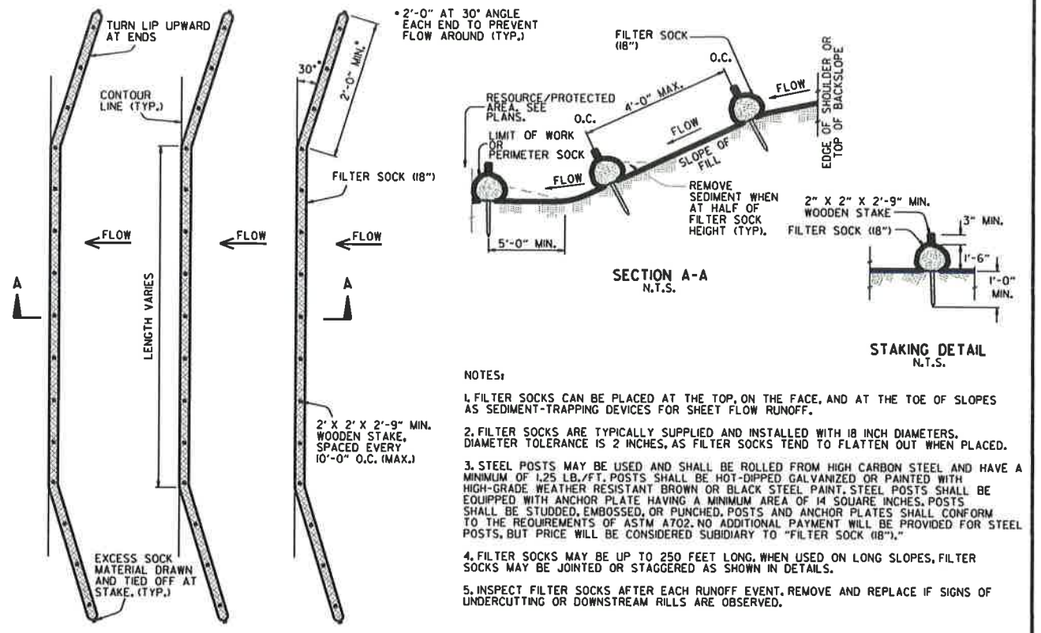
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



BALED STRAW FILTER BARRIER (E-2)



NOTES:

1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.

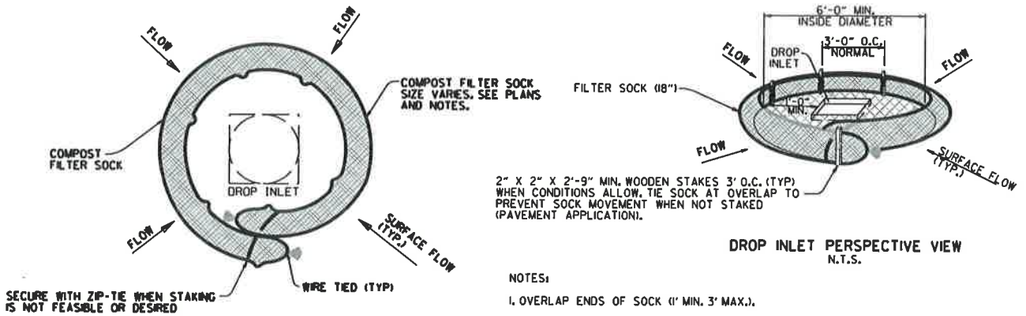
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBIDIARY TO "FILTER SOCK (18")."

4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.

FILTER SOCK ALONG SLOPE (E-3)



NOTES:

1. OVERLAP ENDS OF SOCK (1' MIN. 3' MAX.).

2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

DATE	REVISION	FILMED
11-16-17	ADDED FILTER SOCK E-3 AND E-13	
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
07-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
07-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
06-02-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
04-01-93	REDRAWN	
10-01-92	REDRAWN	
08-02-76	ISSUED R.D.M.	298-7-28-76

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

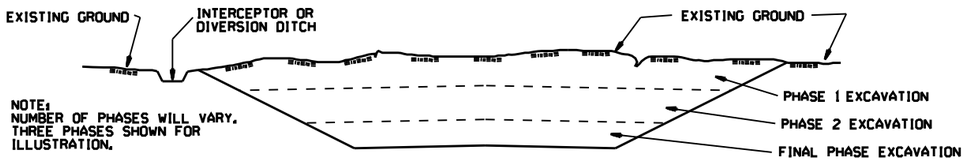
STANDARD DRAWING TEC-1

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



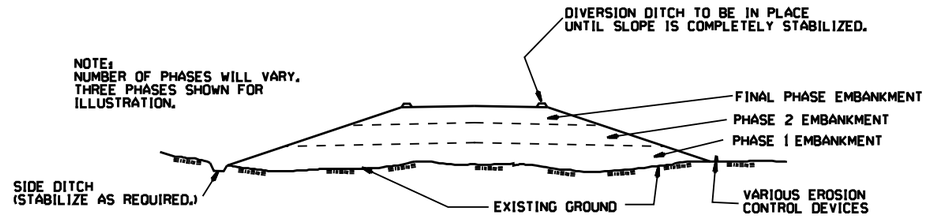
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3