DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	1	41
		CARUSE CREEK AND TRIBUTARY OF MARLBROOK CREEK STRS. & APPRS. (S)				

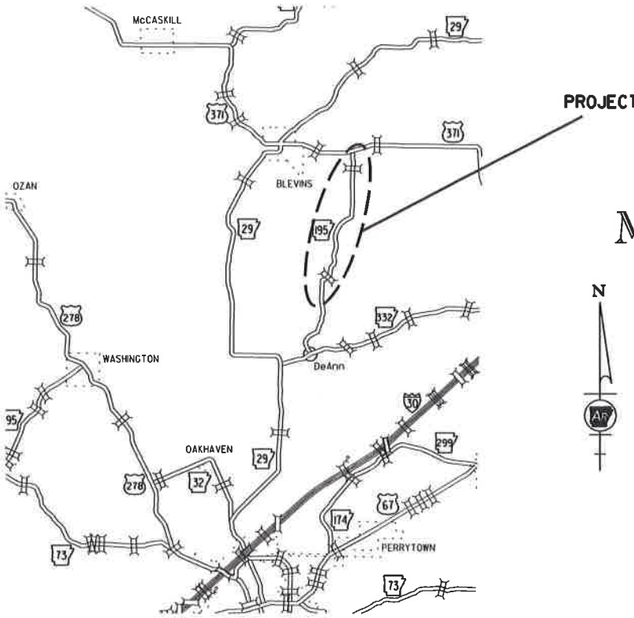
ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

CARUSE CREEK & TRIBUTARY OF MARLBROOK CREEK STRS. & APPRS. (S)

HEMPSTEAD COUNTY
ROUTE 195 SECTION 3

JOB 030529

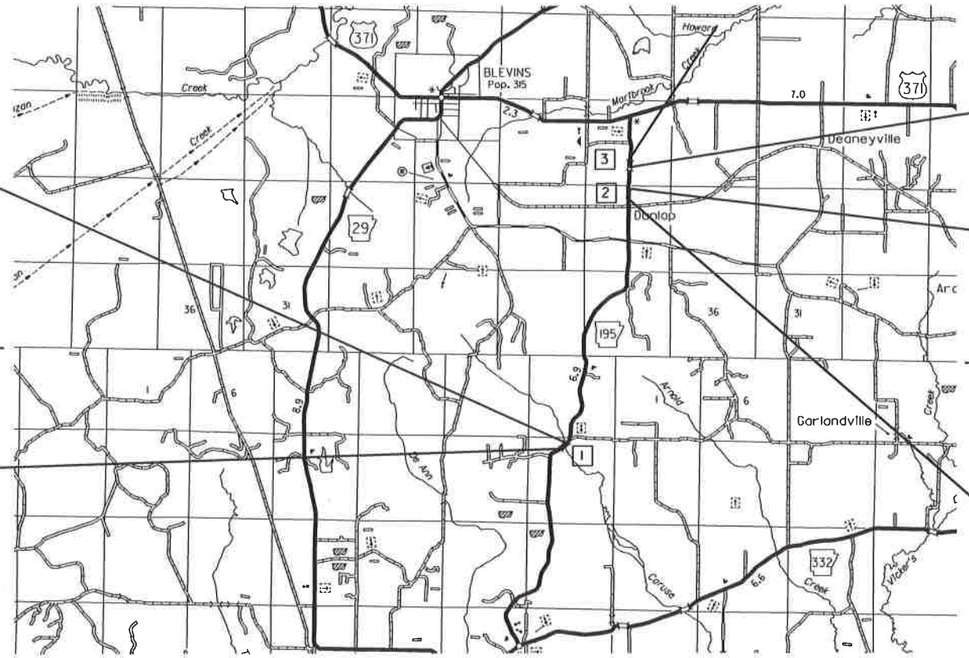
FED. AID PROJ. NHPP-BFP-0029(32)



VICINITY MAP

ARK. HWY. DIST. NO. 3

NOT TO SCALE



N

STRUCTURES OVER 20'-0" SPAN

1. STA. 115+03 - CONSTRUCT
   QUAD. 12' x 12' x 58' R.C. BOX CULV'T.
   WITH 3:1 WINGS LT. & RT.
   Q25 = 2190 C.F.S.; D.A. = 3.58 SQ. MI.
   SPAN = 51' - 10"
2. STA. 210+00 - CONSTRUCT
   DBL. 10' x 5' x 52' R.C. BOX CULV'T.
   WITH 3:1 WINGS LT. & RT.
   Q25 = 340 C.F.S.; D.A. = 0.36 SQ. MI.
   SPAN = 21' - 8"
3. STA. 310+00 - CONSTRUCT
   QUAD. 12' x 7' x 56' R.C. BOX CULV'T.
   WITH 3:1 WINGS LT. & RT.
   Q25 = 1400 C.F.S.; D.A. = 1.89 SQ. MI.
   SPAN = 51' - 2"

DESIGN TRAFFIC DATA

DESIGN YEAR	2024
2024 ADT	250
2044 ADT	300
2024 DHV	33
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	7%
DESIGN SPEED	55 MPH

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
SITE 1			
LATITUDE	N 33°48'43"	N 33°48'44"	N 33°48'44"
LONGITUDE	W 93°33'10"	W 93°33'09"	W 93°33'09"
SITE 2			
LATITUDE	N 33°51'23"	N 33°51'24"	N 33°51'24"
LONGITUDE	W 93°32'19"	W 93°32'19"	W 93°32'19"
SITE 3			
LATITUDE	N 33°51'37"	N 33°51'37"	N 33°51'38"
LONGITUDE	W 93°32'18"	W 93°32'18"	W 93°32'18"

LENGTH OF PROJECT CALCULATED ALONG C.L.

GROSS LENGTH OF PROJECT	300.00	FEET	OR	0.057	MILES
NET : : ROADWAY	175.33	:		0.033	MILES
NET : : BRIDGES	124.67	:		0.024	MILES
NET : : PROJECT	300.00	:		0.057	MILES

APPROVED

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14276
JARED D. WILEY

CHIEF ENGINEER - PRECONSTRUCTION

JAN 12 2024

RD38049 12/20/2023
RD30529.DGN

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	2	41
INDEX OF SHEETS AND STANDARD DRAWINGS						

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

INDEX OF SHEETS

SHEET NO.		TITLE
1		TITLE SHEET
2		INDEX OF SHEETS AND STANDARD DRAWINGS
3		GOVERNING SPECIFICATIONS AND GENERAL NOTES
4		TYPICAL SECTIONS OF IMPROVEMENT
5 - 15		SPECIAL DETAILS
16 - 18		TEMPORARY EROSION CONTROL DETAILS
19 - 22		MAINTENANCE OF TRAFFIC DETAILS
23		PERMANENT PAVEMENT MARKING DETAILS
24 - 26		QUANTITIES
27		SUMMARY OF QUANTITIES AND REVISIONS
28 - 29		SURVEY CONTROL DETAILS
30 - 32		PLAN AND PROFILE SHEETS
33 - 41		CROSS SECTIONS

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
DR-2	DETAILS OF DRIVEWAYS & STREET TURNOUTS	05-19-22
PBC-1	PRECAST CONCRETE BOX CULVERTS	01-28-15
PM-1	PAVEMENT MARKING DETAILS	02-27-20
RCB-1	REINFORCED CONCRETE BOX CULVERT DETAILS	07-26-12
RCB-2	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	11-20-03
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
WF-4	WIRE FENCE TYPE C AND D	08-22-02

12/19/2022

R030529.DGN

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	3	41
		GOVERNING SPECIFICATIONS AND GENERAL NOTES				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

01-11-2024

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
103-2_____	CONTACT INFORMATION FOR MOTORIST DAMAGE CLAIMS
105-4_____	MAINTENANCE DURING CONSTRUCTION
107-2_____	RESTRAINING CONDITIONS
108-1_____	LIQUIDATED DAMAGES
108-2_____	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1_____	PROTECTION OF WATER QUALITY AND WETLANDS
210-1_____	UNCLASSIFIED EXCAVATION
303-1_____	AGGREGATE BASE COURSE
306-1_____	QUALITY CONTROL AND ACCEPTANCE
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
409-2_____	ASPHALT LABORATORY FACILITY
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
416-1_____	RECYCLED ASPHALT PAVEMENT
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)
605-1_____	CONCRETE DITCH PAVING
620-1_____	MULCH COVER
800-1_____	STRUCTURES
802-4_____	CEMENT
804-2_____	REINFORCING STEEL FOR STRUCTURES
JOB 030529__	ASSESSMENT OF WORKING DAYS – MAINTENANCE OF TRAFFIC
JOB 030529__	BIDDING REQUIREMENTS AND CONDITIONS
JOB 030529__	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 030529__	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 030529__	BUY AMERICA - CONSTRUCTION MATERIALS
JOB 030529__	CARGO PREFERENCE ACT REQUIREMENTS
JOB 030529__	COLD MILLING - COUNTY PROPERTY
JOB 030529__	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 030529__	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
JOB 030529__	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 030529__	ESTABLISHING CONTRACT TIME – WORKING DAY CONTRACT
JOB 030529__	FLEXIBLE BEGINNING OF WORK
JOB 030529__	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 030529__	LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
JOB 030529__	MAINTENANCE OF TRAFFIC
JOB 030529__	MANDATORY ELECTRONIC CONTRACT
JOB 030529__	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 030529__	NESTING SITES OF MIGRATORY BIRDS
JOB 030529__	OFF-SITE RESTRAINING CONDITIONS FOR NORTHERN LONG-EARED BATS
JOB 030529__	PARTNERING REQUIREMENTS
JOB 030529__	PERCENT AIR VOIDS AND NDESIGN FOR ACHM SURFACE MIX DESIGNS
JOB 030529__	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 030529__	PRICE ADJUSTMENT FOR FUEL
JOB 030529__	PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 030529__	SEQUENCE OF CONSTRUCTION
JOB 030529__	SHORING FOR CULVERTS
JOB 030529__	SOIL STABILIZATION
JOB 030529__	STORM WATER POLLUTION PREVENTION PLAN
JOB 030529__	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 030529__	TOTAL SOLAR ECLIPSE
JOB 030529__	UTILITY ADJUSTMENTS
JOB 030529__	VALUE ENGINEERING
JOB 030529__	WARM MIX ASPHALT

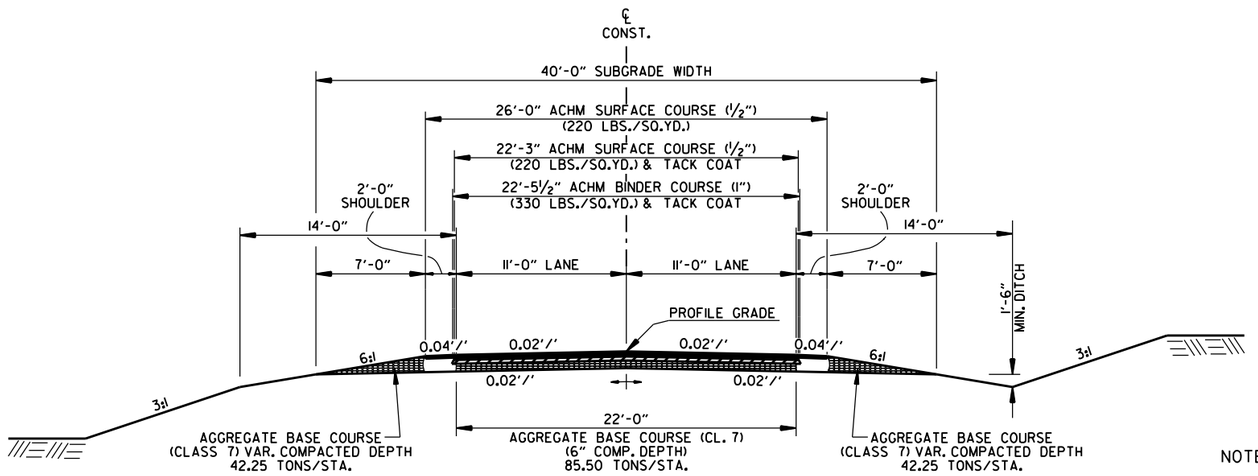
GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. 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.
9. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
10. 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.
11. THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 23 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.

12/20/2023

R030529.DGN

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	4	41
		TYPICAL SECTIONS OF IMPROVEMENT				



HWY. 195 - FULL DEPTH SECTION

SITE 1 - STA. 114+50.00 TO STA. 115+50.00
SITE 2 - STA. 209+50.00 TO STA. 210+50.00
SITE 3 - STA. 309+50.00 TO STA. 310+50.00

NOTES:

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

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

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
01-11-2024

TYPICAL SECTIONS OF IMPROVEMENT

oh40219 12/19/2022
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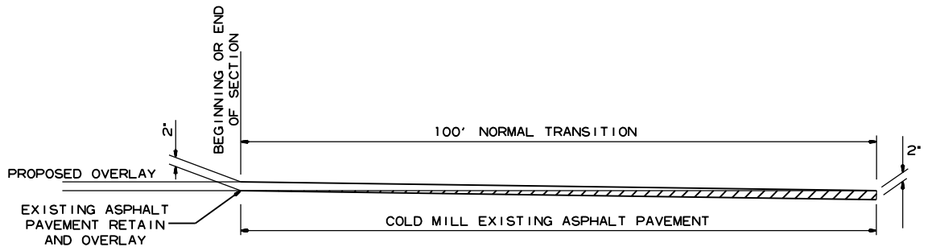
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	5	41
		SPECIAL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

01-11-2024



DETAIL FOR TRANSITIONS

12/19/2022

R030529.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030529	6	41
				(I)		SPECIAL DETAILS		

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT		WINGWALL ANGLE (DEGREE)		FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL		FOOTING DIMENSION PARALLEL WITH HDWL		LENGTH OF WINGWALLS		LENGTH OF FOOTING HEEL	
								AT HDWL	AT WING END	WING A	WING B		WING A	WING B	WING A	WING B	WING A	WING B	WING A	WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
51'-10"	12'-0"	1'-1"	1'-0"	0	3:1	50'-0"	2'-0"	12'-10"	4'-0"	30	30	3'-6"	6'-6"	6'-6"	3'-5 1/2"	3'-5 1/2"	30'-6"	30'-6"	33'-10 3/8"	33'-10 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
35.78	2806

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY
WING A	4	12	31	L	Min	5'-8"	6	12	11	L 10'-3"	4	12	7	L 6'-1"	4	18	10	Min
					Max	17'-3"												5'-7"
				X	Min	1'-1"				X 3'-0"				X 2'-4"				Max
					Max	4'-0"												26'-4"
				Y	Min	4'-8"				Y 7'-4"				Y 3'-10"				
					Max	13'-4"												
WING B	4	12	31	L	Min	5'-8"	6	12	11	L 10'-3"	4	12	7	L 6'-1"	4	18	10	Min
					Max	17'-3"												5'-7"
				X	Min	1'-1"				X 3'-0"				X 2'-4"				Max
					Max	4'-0"												26'-4"
				Y	Min	4'-8"				Y 7'-4"				Y 3'-10"				
					Max	13'-4"												

WING	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS VARY	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	6	Min 3'-0"	4	18	21	L Min 7'-3"	4	8 34'-8"	6	18	21	Min 3'-0"	4	18	4	Min 17'-8"	4	2	31'-3"	4	2	33'-7"	6	12	12	L 3'-4"	1403
				Max 30'-2"				Max 15'-11"						Max 5'-11"				Max 33'-4"										X 1'-8"	
								X Min 2'-8"																					
								Max 2'-8"																					
								Y Min 4'-8"																					
								Max 13'-4"																					
WING B	4	18	6	Min 3'-0"	4	18	21	L Min 7'-3"	4	8 34'-8"	6	18	21	Min 3'-0"	4	18	4	Min 17'-8"	4	2	31'-3"	4	2	33'-7"	6	12	12	L 3'-4"	1403
				Max 30'-2"				Max 15'-11"						Max 5'-11"				Max 33'-4"										X 1'-8"	
								X Min 2'-8"																					
								Max 2'-8"																					
								Y Min 4'-8"																					
								Max 13'-4"																					

MID-SECTION

BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft -344.0 ft

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

STATE OF ARKANSAS
Charles R. Ellis
May 31 2022 12:16 PM
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

TABULAR DATA BY: JCG DATE: 1/4/2022
CHECKED BY: JSQ DATE: 1/11/2022

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.
For additional information and outlet sections, see Sheet 2 of 2.

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL								BOTTOM SLAB REINFORCING STEEL							
													"a"				"c"				"d"				"f"			
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D
															Max				Max				Max				Max	
															Min				Min				Min				Min	

SIDE WALL REINFORCING STEEL "f0"				INTERIOR WALL REINFORCING STEEL "f1"				TOP SLAB DISTRIBUTION REINFORCING STEEL "g"				BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e"				SIDE WALL DISTRIBUTION REINFORCING STEEL "d1"				INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2"			
SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH
											Max				Max				LONG				LONG
											Min				Min				SHORT				MID
																							SHORT

CLASS "S" CONCRETE (Includes HDWL)	REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.

(I) Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Grade 60)."

"k1" HDWL BARS			"k2" HDWL BARS			"h" HDWL BARS			
SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	Y	NO. REQ'D

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK	SIDE WALL THK	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4"			
											"a"		Bent "b"		"c"		SPACING	NO. REQ'D	"d"		Bent "b1"		"f"		SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH
	D	S	H	T	B	C	W	OW	OH	SL	SIZE	L	SIZE	L	SIZE	L			SIZE	L	SIZE	L	SIZE	L						

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4"				TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL			BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL			SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL			INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL			CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	CU. YDS.	LBS.
																TOTAL	
																0.48	142

HDWL DEPTH.	ADDITIONAL REINF. FOR HDWL	"h" HDWL BARS			
HD	LBS.	SIZE	Y	LENGTH	NO. REQ'D
3"	69	4	1'-1"	2'-1"	53

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4"			
											"a"		Bent "b"		"c"		SPACING	NO. REQ'D	"d"		Bent "b1"		"f"		SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH
	D	S	H	T	B	C	W	OW	OH	SL	SIZE	L	SIZE	L	SIZE	L			SIZE	L	SIZE	L	SIZE	L						
A	5	12	12	14	14	11	8	51'-10"	14'-4"	58	5	51'-6"	8	52'-10"	4	51'-6"	18	38	4	51'-6"	5	52'-9"	5	51'-6"	13	53	8	8.5	162	14'-0"

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4"				TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL			BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL			SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL			INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL			CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	CU. YDS.	LBS.
6	12	348	14'-0"	5	12	103	5	12	103	4	10	30	4	12	72	358.62	47873

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SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
QUADRUPLE BARREL BOX CULVERT
Sta. 115+03
SPECIAL DETAILS

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.		030529	7	41
				(1)		SPECIAL DETAILS		

STATE OF ARKANSAS
Mar 31 2022 12:16 PM
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

TABULAR DATA BY: JCG DATE: 1/4/2022
CHECKED BY: JSQ DATE: 1/11/2022

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
51'-10"	12'-0"	1'-1"	1'-0"	0	3:1	50'-0"	2'-0"	12'-10"	4'-0"	30	30	3'-6"	6'-6"	6'-6"	3'-5 1/2"	3'-5 1/2"	30'-6"	30'-6"	33'-10 3/8"	33'-10 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
37.62	2806

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6 LENGTHS	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	31	L Min 5'-8" / Max 17'-3"		6	12	11	L 10'-3"	4	12	7	L 6'-1"	4	18	10	Min 5'-7" / Max 26'-4"	4	18	6	30'-2"	4	18	21	L Min 7'-3" / Max 15'-11"		4	8	34'-8"	6	18	21	Min 3'-0" / Max 5'-11"	4	18	4	Min 17'-8" / Max 33'-4"	4	2	31'-3"	4	2	33'-7"	6	12	12	L 3'-4"	1403
				X Min 1'-1" / Max 4'-0"					X 3'-0"				X 2'-4"												X Min 2'-8" / Max 2'-8"																				X 1'-8"	
				Y Min 4'-8" / Max 13'-4"					Y 7'-4"				Y 3'-10"												Y Min 4'-8" / Max 13'-4"																					
WING B	4	12	31	L Min 5'-8" / Max 17'-3"		6	12	11	L 10'-3"	4	12	7	L 6'-1"	4	18	10	Min 5'-7" / Max 26'-4"	4	18	6	30'-2"	4	18	21	L Min 7'-3" / Max 15'-11"		4	8	34'-8"	6	18	21	Min 3'-0" / Max 5'-11"	4	18	4	Min 17'-8" / Max 33'-4"	4	2	31'-3"	4	2	33'-7"	6	12	12	L 3'-4"	1403
				X Min 1'-1" / Max 4'-0"					X 3'-0"				X 2'-4"												X Min 2'-8" / Max 2'-8"																				X 1'-8"	
				Y Min 4'-8" / Max 13'-4"					Y 7'-4"				Y 3'-10"												Y Min 4'-8" / Max 13'-4"																					

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

(1) Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Grade 60)."

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINF. "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINF. "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINF. "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINF. "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINF. "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DIST. REINF. "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DIST. REINF. "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DIST. REINF. "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DIST. REINF. "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH	SIZE	SPACING	Max / Min	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LONG / SHORT	SIZE	SPACING	NO. REQ'D	LONG / MID / SHORT
															Max / Min				Max / Min				Max / Min				Max / Min											Max / Min			Max / Min				LONG / SHORT				LONG / MID / SHORT

"k1" HDWL BARS			"k2" HDWL BARS			"h" HDWL BARS			
SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	Y	NO. REQ'D

CLASS "S" CONCRETE (Includes HDWL)	REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK	SIDE WALL THK	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINF. LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	TOP SLAB SPACING	TOP SLAB NO. REQ'D	BOTTOM SLAB REINF. LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	BOTTOM SLAB SPACING	BOTTOM SLAB NO. REQ'D	SIDE WALL REINF. "f0" LENGTH = OH - 4" SIZE	SIDE WALL SPACING	SIDE WALL NO. REQ'D	SIDE WALL LENGTH	INTERIOR WALL REINF. "f1" LENGTH = OH - 4" SIZE	INTERIOR WALL SPACING	INTERIOR WALL NO. REQ'D	INTERIOR WALL LENGTH	TOP SLAB DIST. REINF. "g" LENGTH = SL SIZE	TOP SLAB DIST. SPACING	TOP SLAB DIST. NO. REQ'D	BOTTOM SLAB DIST. REINF. "e" LENGTH = SL SIZE	BOTTOM SLAB DIST. SPACING	BOTTOM SLAB DIST. NO. REQ'D	SIDE WALL DIST. REINF. "d1" LENGTH = SL SIZE	SIDE WALL DIST. SPACING	SIDE WALL DIST. NO. REQ'D	INTERIOR WALL DIST. REINF. "d2" LENGTH = SL SIZE	INTERIOR WALL DIST. SPACING	INTERIOR WALL DIST. NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL							SPACING	NO. REQ'D							SPACING	NO. REQ'D		SPACING	NO. REQ'D	LENGTH		SPACING	NO. REQ'D	LENGTH		SPACING	NO. REQ'D		SPACING	NO. REQ'D		SPACING	NO. REQ'D		SPACING	NO. REQ'D		SPACING	NO. REQ'D		SPACING	NO. REQ'D

HDWL DEPTH	ADDITIONAL REINF. FOR HDWL	"h" HDWL BARS			
HD	LBS.	SIZE	Y	LENGTH	NO. REQ'D
3"	69	4	1'-1"	2'-1"	53

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
TOTAL	
0.48	142

The required number of bars and lengths shown are for estimating purpose only.
The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT
QUADRUPLE BARREL BOX CULVERT
Sta. 115+03

SPECIAL DETAILS

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INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
21'-8"	5'-0"	0'-9"	0'-8"	0	3:1	20'-8"	1'-0"	5'-10"	1'-8"	30	30	2'-2"	2'-11 3/4"	2'-11 3/4"	0'-11 1/4"	0'-11 1/4"	14'-0"	14'-0"	15'-10 5/8"	15'-10 5/8"

CLASS "S" CONCRETE (Includes apron) INLET	REINFORCING STEEL (Includes apron and laps if required) INLET
CU.YD	LBS.
6.61	616

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY
WING A	4	12	14	L: Min 2'-10", Max 7'-6"; X: Min 0'-9", Max 1'-7"; Y: Min 2'-2", Max 6'-0"	-	-	-	L -; X -; Y -	-	-	-	L -; X -; Y -	4	18	6	Min 2'-1"; Max 12'-2"	4	18	2	13'-8"	4	18	10	L: Min 3'-3", Max 7'-3"; X: Min 1'-4", Max 1'-4"; Y: Min 2'-0", Max 6'-0"
WING B	4	12	14	L: Min 2'-10", Max 7'-6"; X: Min 0'-9", Max 1'-7"; Y: Min 2'-2", Max 6'-0"	-	-	-	L -; X -; Y -	-	-	-	L -; X -; Y -	4	18	6	Min 2'-1"; Max 12'-2"	4	18	2	13'-8"	4	18	10	L: Min 3'-3", Max 7'-3"; X: Min 1'-4", Max 1'-4"; Y: Min 2'-0", Max 6'-0"

WING	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	6	16'-9"	6	18	10	Min 1'-8"; Max 2'-6"	-	-	-	Min -; Max -	4	2	14'-2"	4	2	15'-8"	6	12	5	L 3'-4"; X 1'-8"	308
WING B	4	6	16'-9"	6	18	10	Min 1'-8"; Max 2'-6"	-	-	-	Min -; Max -	4	2	14'-2"	4	2	15'-8"	6	12	5	L 3'-4"; X 1'-8"	308

MID-SECTION BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft -344.0 ft

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

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

Charles R. Ellis Mar 31 2022 12:16 PM

TABULAR DATA BY: JCG DATE: 1/4/2022
CHECKED BY: JSQ DATE: 1/11/2022

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.

For additional information and outlet sections, see Sheet 2 of 2.

(1) Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Grade 60)."

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH

TOP SLAB "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D
		Max				Max				Max				Max	
		Min				Min				Min				Min	

SIDE WALL REINFORCING STEEL "f0" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	SPACING	NO. REQ'D	LENGTH
											Max				Max				LONG				
											Min				Min				SHORT				

CLASS "S" CONCRETE (Includes HDWL)	(1) REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.

"k1" HDWL BARS SIZE	LENGTH	NO. REQ'D	"k2" HDWL BARS SIZE	LENGTH	NO. REQ'D	"h" HDWL BARS SIZE	LENGTH	Y	NO. REQ'D

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL (LENGTH = OW - 4" + BENDS) "a" SIZE	"a" L	Bent "b" SIZE	"b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL (LENGTH = OW - 4" + BENDS) "d" SIZE	"d" L	Bent "b1" SIZE	"b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" (LENGTH = OH - 4") SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" (LENGTH = OH - 4") SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" (LENGTH = SL) SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" (LENGTH = SL) SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" (LENGTH = SL) SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" (LENGTH = SL) SIZE	SPACING	NO. REQ'D

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	Y	LENGTH	NO. REQ'D
3"	29	4	0'-11"	1'-11"	23

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
TOTAL	
0.20	58

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL (LENGTH = OW - 4" + BENDS) "a" SIZE	"a" L	Bent "b" SIZE	"b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL (LENGTH = OW - 4" + BENDS) "d" SIZE	"d" L	Bent "b1" SIZE	"b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" (LENGTH = OH - 4") SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" (LENGTH = OH - 4") SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" (LENGTH = SL) SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" (LENGTH = SL) SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION STEEL "d1" (LENGTH = SL) SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION STEEL "d2" (LENGTH = SL) SIZE	SPACING	NO. REQ'D
A	2	10	5	12.5	12.5	6.0	8	21'-8"	7'-1"	52	4	21'-4"	8	21'-9"	8	21'-4"	18	34	4	21'-4"	5	21'-8"	4	21'-4"	9	69	4	6	208	6'-9"	4	12	104	6'-9"	4	8.5	63	4	8.5	63	4	12	10	4	12	10

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
102.98	14674

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
DOUBLE BARREL BOX CULVERT
Sta. 210+00

SPECIAL DETAILS

LRFD

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.		030529	9	41
				(1)		SPECIAL DETAILS		

STATE OF ARKANSAS
May 31 2022 12:16PM
LICENSED PROFESSIONAL ENGINEER
* * *
No. 9235
CHARLES R. ELLIS

TABULAR DATA BY: JCG DATE: 1/4/2022
CHECKED BY: JSQ DATE: 1/11/2022

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
21'-8"	5'-0"	0'-9"	0'-8"	0	3:1	20'-8"	1'-0"	5'-10"	1'-8"	30	30	2'-2"	2'-11 3/4"	2'-11 3/4"	0'-11 1/4"	0'-11 1/4"	14'-0"	14'-0"	15'-10 5/8"	15'-10 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
7.41	616

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	14	L	Min 2'-10"	-	-	-	-	-	-	-	-	4	18	6	Min	4	18	2	13'-8"	4	18	10	L Min 3'-3"	4	6	16'-9"	6	18	10	Min	-	-	-	Min	4	2	14'-2"	4	2	15'-8"	6	12	5	L 3'-4"	308
					Max 7'-6"												2'-1"								Max 7'-3"							1'-8"				-										
				X	Min 0'-9"												Max								X Min 1'-4"							Max				Max										
					Max 1'-7"												12'-2"								Max 1'-4"							2'-6"				-										
				Y	Min 2'-2"																				Y Min 2'-0"																					
					Max 6'-0"																				Max 6'-0"																					
WING B	4	12	14	L	Min 2'-10"	-	-	-	-	-	-	-	-	4	18	6	Min	4	18	2	13'-8"	4	18	10	L Min 3'-3"	4	6	16'-9"	6	18	10	Min	-	-	-	Min	4	2	14'-2"	4	2	15'-8"	6	12	5	L 3'-4"	308
					Max 7'-6"												2'-1"								Max 7'-3"							1'-8"				-										
				X	Min 0'-9"												Max								X Min 1'-4"							Max				Max										
					Max 1'-7"												12'-2"								Max 1'-4"							2'-6"				-										
				Y	Min 2'-2"																				Y Min 2'-0"																					
					Max 6'-0"																				Max 6'-0"																					

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

(1) Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Grade 60)."

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINF. "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINF. "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINF. "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINF. "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINF. "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DIST. REINF. "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DIST. REINF. "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DIST. REINF. "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DIST. REINF. "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH			Max / Min				Max / Min				Max / Min						Max / Min											Max / Min			Max / Min			LONG / SHORT				

CLASS "S" CONCRETE (Includes HDWL)	(1) REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.

"k1" HDWL BARS SIZE	"k1" HDWL BARS LENGTH	"k1" HDWL BARS NO. REQ'D	"k2" HDWL BARS SIZE	"k2" HDWL BARS LENGTH	"k2" HDWL BARS NO. REQ'D	"h" HDWL BARS SIZE	"h" HDWL BARS LENGTH	"h" HDWL BARS Y	"h" HDWL BARS NO. REQ'D

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINF. LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D	BOTTOM SLAB REINF. LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	"f" SPACING	"f" NO. REQ'D	SIDE WALL REINF. "f0" LENGTH = OH - 4" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. "f1" LENGTH = OH - 4" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DIST. REINF. "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DIST. REINF. "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DIST. REINF. "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DIST. REINF. "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D
D	S	H	T	B	C	W	OW	OH	SL								SPACING	NO. REQ'D								SPACING	NO. REQ'D																													

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	"h" HDWL BARS Y	"h" HDWL BARS LENGTH	"h" HDWL BARS NO. REQ'D
3"	29	4	0'-11"	1'-11"	23

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
TOTAL	
0.20	58

The required number of bars and lengths shown are for estimating purpose only. The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT
DOUBLE BARREL BOX CULVERT
Sta. 210+00
SPECIAL DETAILS

Ver. LW7 b030529_c2.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030529	10	41
				(I)		SPECIAL DETAILS		

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT		WINGWALL ANGLE (DEGREE)		FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL		FOOTING DIMENSION PARALLEL WITH HDWL		LENGTH OF WINGWALLS		LENGTH OF FOOTING HEEL	
								AT HDWL	AT WING END	WING A	WING B		WING A	WING B	WING A	WING B	WING A	WING B	WING A	WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
51'-2"	7'-0"	0'-9"	0'-8"	0	3:1	50'-0"	2'-0"	7'-10"	2'-4"	30	30	3'-2"	3'-9 3/4"	3'-9 3/4"	0'-9"	0'-9"	19'-0"	19'-0"	22'-5 3/8"	22'-5 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
12.64	1104

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS		F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS		F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	
WING A	4	12	19	L	Min	3'-6"	4	12	4	L	3'-9"	-	-	-	L	-	4	18	6	Min	
					Max	9'-4"														3'-10"	
				X	Min	0'-9"				X	1'-4"				X	-				Max	
					Max	1'-5"														14'-3"	
				Y	Min	2'-10"				Y	2'-6"				Y	-					
					Max	8'-0"															
WING B	4	12	19	L	Min	3'-6"	4	12	4	L	3'-9"	-	-	-	L	-	4	18	6	Min	
					Max	9'-4"														3'-10"	
				X	Min	0'-9"				X	1'-4"				X	-				Max	
					Max	1'-5"														14'-3"	
				Y	Min	2'-10"				Y	2'-6"				Y	-					
					Max	8'-0"															

WING	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY			F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS		F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	6	Min	4	18	13	L	Min	5'-1"	4	8	23'-3"	6	18	13	Min			-	-	-	Min		4	2	19'-4"	4	2	20'-6"	6	12	7	L	3'-4"	552
				3'-10"					Max	10'-3"							2'-8"						-												
				Max				X	Min	2'-4"							Max						Max										X	1'-8"	
				14'-3"					Max	2'-4"							3'-4"						-												
								Y	Min	2'-10"																										
									Max	8'-0"																									
WING B	4	18	6	Min	4	18	13	L	Min	5'-1"	4	8	23'-3"	6	18	13	Min			-	-	-	Min		4	2	19'-4"	4	2	20'-6"	6	12	7	L	3'-4"	552
				3'-10"					Max	10'-3"							2'-8"						-												
				Max				X	Min	2'-4"							Max						Max										X	1'-8"	
				14'-3"					Max	2'-4"							3'-4"						-												
								Y	Min	2'-10"																										
									Max	8'-0"																									

MID-SECTION

BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft -344.0 ft

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

STATE OF ARKANSAS
Mar 31 2022 12:16 PM
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

TABULAR DATA BY: JCG DATE: 1/4/2022
CHECKED BY: JSQ DATE: 1/11/2022

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.

For additional information and outlet sections, see Sheet 2 of 2.

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL								BOTTOM SLAB REINFORCING STEEL							
													"a"				"c"				"d"				"f"			
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D
															Max				Max				Max				Max	
															Min				Min				Min				Min	

SIDE WALL REINFORCING STEEL "f0"				INTERIOR WALL REINFORCING STEEL "f1"				TOP SLAB DISTRIBUTION REINFORCING STEEL "g"				BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e"				SIDE WALL DISTRIBUTION REINFORCING STEEL "d1"				INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2"			
SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH
											Max				Max				LONG				LONG
											Min				Min				SHORT				MID
																							SHORT

CLASS "S" CONCRETE (Includes HDWL)	REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.

(1) Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Grade 60)."

"k1" HDWL BARS			"k2" HDWL BARS			"h" HDWL BARS			
SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	Y	NO. REQ'D

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK	SIDE WALL THK	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS							
											"a"		Bent "b"		"c"		SPACING	NO. REQ'D	"d"		Bent "b1"		"f"		SPACING	NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL	SIZE	L	SIZE	L	SIZE	L			SIZE	L	SIZE	L	SIZE	L		

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4"				INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4"				TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL			BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL			SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL			INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL		
SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
TOTAL	
0.47	142

HDWL DEPTH.	ADDITIONAL REINF. FOR HDWL	"h" HDWL BARS			
HD	LBS.	SIZE	Y	LENGTH	NO. REQ'D
3"	68	4	1'-1"	2'-1"	53

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS							
											"a"		Bent "b"		"c"		SPACING	NO. REQ'D	"d"		Bent "b1"		"f"		SPACING	NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL	SIZE	L	SIZE	L	SIZE	L			SIZE	L	SIZE	L	SIZE	L		
A	5	12	7	14	14	7	8	51'-2"	9'-4"	56	5	50'-10"	8	52'-2"	4	50'-10"	18	37	4	50'-10"	4	52'-1"	4	50'-10"	10	67

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4"				INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4"				TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL			BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL			SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL			INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL		
SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D
6	7.5	178	9'-0"	4	12	336	9'-0"	5	12	103	5	12	103	4	12	14	4	12	42

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
293.60	35270

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
QUADRUPLE BARREL BOX CULVERT
Sta. 310+00
SPECIAL DETAILS

Ver. Ll17 b030529_c3.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030529	11	41
				(1)		SPECIAL DETAILS		

STATE OF ARKANSAS
Mar 31 2022 12:16 PM
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

TABULAR DATA BY: JCG DATE: 1/4/2022
CHECKED BY: JSQ DATE: 1/11/2022

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
51'-2"	7'-0"	0'-9"	0'-8"	0	3:1	50'-0"	2'-0"	7'-10"	2'-4"	30	30	3'-2"	3'-9 3/4"	3'-9 3/4"	0'-9"	0'-9"	19'-0"	19'-0"	22'-5 3/8"	22'-5 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
14.30	1104

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS			F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS			F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	19	L	Min	3'-6"	4	12	4	L	3'-9"		-	-	-	L	-		4	18	6	Min	4	18	13	18'-8"	4	18	13	L	Min	5'-1"	4	8	23'-3"	6	18	13	Min	-	-	-	Min	-	4	2	19'-4"	4	2	20'-6"	6	12	7	L	3'-4"	552
					Max	9'-4"																3'-10"								Max	10'-3"							2'-8"			Max	-									X	1'-8"	
				X	Min	0'-9"				X	1'-4"					X	-				Max							X	Min	2'-4"							Max														
					Max	1'-5"																14'-3"								Max	2'-4"							3'-4"												
				Y	Min	2'-10"				Y	2'-6"					Y	-											Y	Min	2'-10"																					
					Max	8'-0"																								Max	8'-0"																					
WING B	4	12	19	L	Min	3'-6"	4	12	4	L	3'-9"		-	-	-	L	-		4	18	6	Min	4	18	13	18'-8"	4	18	13	L	Min	5'-1"	4	8	23'-3"	6	18	13	Min	-	-	-	Min	-	4	2	19'-4"	4	2	20'-6"	6	12	7	L	3'-4"	552
					Max	9'-4"																3'-10"								Max	10'-3"							2'-8"			Max	-									X	1'-8"	
				X	Min	0'-9"				X	1'-4"					X	-				Max							X	Min	2'-4"							Max														
					Max	1'-5"																14'-3"								Max	2'-4"							3'-4"												
				Y	Min	2'-10"				Y	2'-6"					Y	-											Y	Min	2'-10"																					
					Max	8'-0"																								Max	8'-0"																					

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

(1) Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Grade 60)."

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINF. "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINF. "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINF. "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINF. "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINF. "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIB. REINF. "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIB. REINF. "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIB. REINF. "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIB. REINF. "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH			Max				Max				Max				Max												Max				Max											
															Min				Min				Min				Min												Min				Min											

"k1" HDWL BARS			"k2" HDWL BARS			"h" HDWL BARS				
SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	Y	NO. REQ'D	

CLASS "S" CONCRETE (Includes HDWL)	REINFORCING STEEL (GR 60) (Includes HDWL) (1)
CU. YDS.	LBS.

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK	SIDE WALL THK	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINF. LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	"b" SIZE	"b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D	BOTTOM SLAB REINF. LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	"b1" SIZE	"b1" L	"f" SIZE	"f" L	"f" SPACING	"f" NO. REQ'D	SIDE WALL REINF. "f0" LENGTH = OH - 4" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. "f1" LENGTH = OH - 4" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIB. REINF. STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIB. REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIB. REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIB. REINF. STEEL "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL																																											

HDWL DEPTH	ADDITIONAL REINF. FOR HDWL	"h" HDWL BARS			
HD	LBS.	SIZE	Y	LENGTH	NO. REQ'D
3"	68	4	1'-1"	2'-1"	53

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
TOTAL	
0.47	142

The required number of bars and lengths shown are for estimating purpose only.
The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT
QUADRUPLE BARREL BOX CULVERT
Sta. 310+00

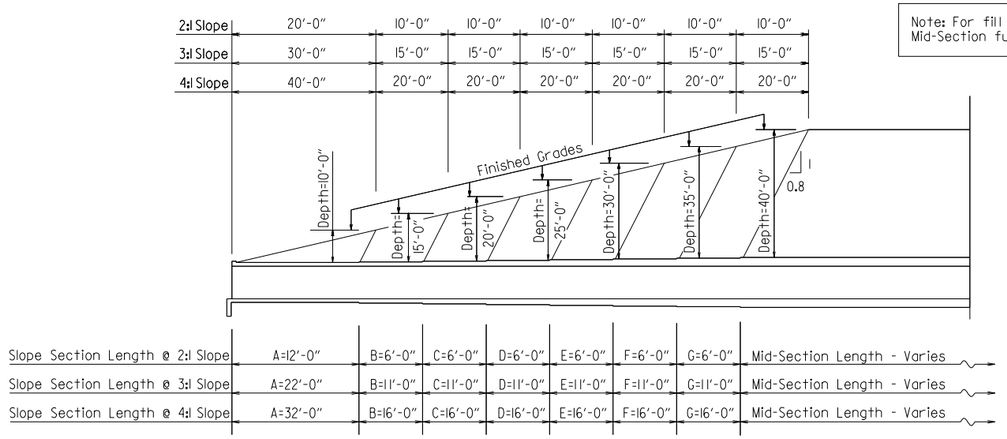
SPECIAL DETAILS

Ver. 1.1.7 b030529_c3.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		030529	12	41

(1) SPECIAL DETAILS



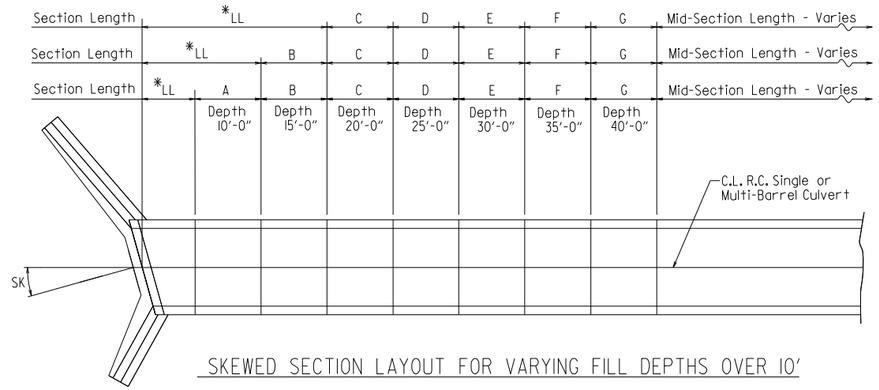
Note: For fill depths 10' and under, use Mid-Section full length of box culvert.

Slope Section Length @ 2:1 Slope	A=12'-0"	B=6'-0"	C=6'-0"	D=6'-0"	E=6'-0"	F=6'-0"	G=6'-0"	Mid-Section Length - Varies
Slope Section Length @ 3:1 Slope	A=22'-0"	B=11'-0"	C=11'-0"	D=11'-0"	E=11'-0"	F=11'-0"	G=11'-0"	Mid-Section Length - Varies
Slope Section Length @ 4:1 Slope	A=32'-0"	B=16'-0"	C=16'-0"	D=16'-0"	E=16'-0"	F=16'-0"	G=16'-0"	Mid-Section Length - Varies

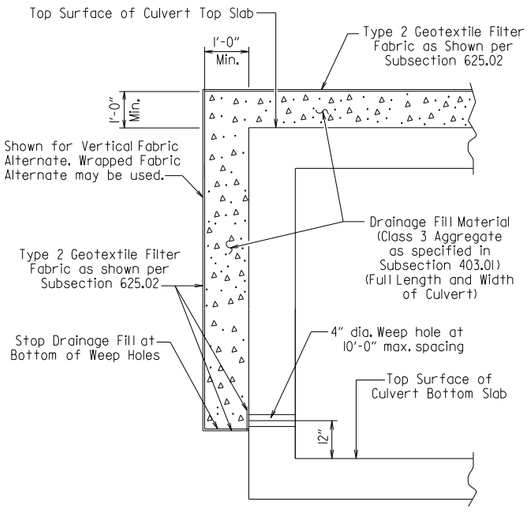
LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

Lengths for Non-Skewed Boxes

*LL = Skewed End Section Length - See "Skewed End Section Details" Length LL varies with skew angle, overall box width and fill depth and may eliminate the need for some slope section lengths as shown.

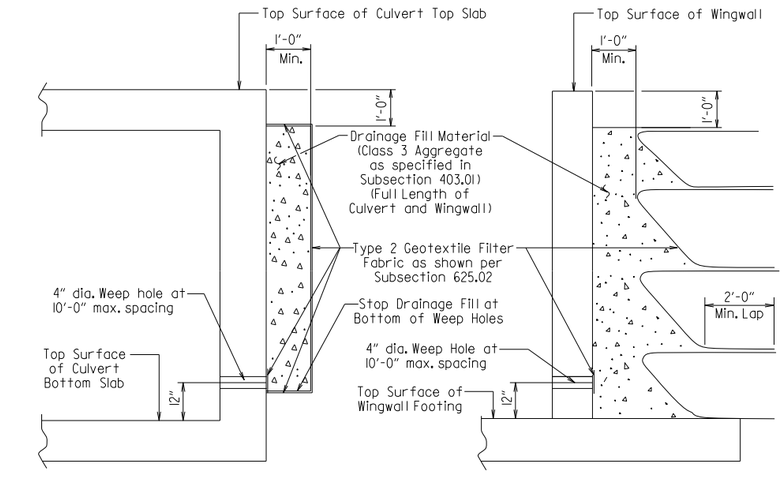


SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'



CULVERT DRAINAGE DETAIL FOR ROCK FILL

This detail shall be used when rock fill is specified for embankment construction.

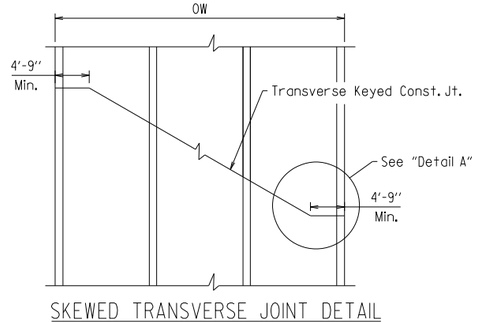


For Details of Excavation and Pay Limits, see Standard Drawing RCB-2.

VERTICAL FABRIC ALTERNATE
(Shown for Culvert, Similar for Wingwall)

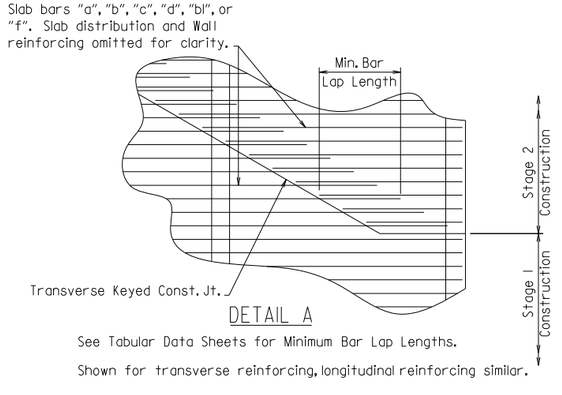
WRAPPED FABRIC ALTERNATE
(Shown for Wingwall, Similar for Culvert)

WINGWALL & CULVERT DRAINAGE DETAIL



SKEWED TRANSVERSE JOINT DETAIL

This detail shall be used to construct a skewed transverse joint only for Multi-Barrel Culverts and only when required by the Maintenance of Traffic Plans. Otherwise, transverse joints should be made normal to the centerline of the barrel.



DETAIL A

See Tabular Data Sheets for Minimum Bar Lap Lengths.

Shown for transverse reinforcing, longitudinal reinforcing similar.

GENERAL NOTES:

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 Construction Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Fifth Edition (2010) with 2010 interim revisions.

LIVE LOADING: HL-93

All concrete shall be Class S with a minimum 28-day compressive strength of 3,500 psi and shall be poured in the dry. All exposed corners to have ¾" chamfers.

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

Reinforcing Steel Tolerances: The tolerances for reinforcing steel shall meet those listed in 'Manual of Standard Practice' published by Concrete Reinforcing Steel Institute (CRSI) except that the tolerance for truss bars such as Figure 3 on page 7-4 of the CRSI Manual shall be minus zero to plus 1/2 inch.

Excavation and backfilling shall be in accordance with the requirements of Section 801.

Membrane Waterproofing shall conform to the requirements of Section 815. Membrane Waterproofing shall be Type C and as directed by the Engineer applied to all construction joints in the top slab and the sidewalls of R.C. Box culverts and to the construction joint between wingwalls and R.C. Box culvert walls.

Weep Holes in box culvert walls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. The drain opening shall be 4" diameter and shall be placed 12" above the top of the bottom slab.

Weep Holes in wingwalls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. There shall be a minimum of two (2) weep holes in each wingwall. The drain opening shall be 4" diameter and shall be placed 12" above the top of the wingwall footing.

The barrel components of the culvert may be constructed using continuous pours. For longer culvert construction, the Contractor may use multiple pours with transverse construction joints spaced a minimum of 50 feet apart unless superseded by stage construction or site constraints as approved by the Engineer. Construction joints between footings and walls shall be made only where shown in the Plans. Joints shall be keyed and shall be normal to the centerline of barrel except as noted. Reinforcing shall be continuous through joints unless noted otherwise. Reinforcing through stage construction joints shall provide the minimum bar lap length shown on the Tabular Data Sheets. All longitudinal construction joints shall be submitted to the Engineer for approval.

Membrane Waterproofing, Weep Holes, Geotextile Filter Fabric, and Drainage Fill Material will not be paid for directly but shall be considered subsidiary to Class S Concrete.

When the top slab of the box culvert serves as finished roadway surface, curing and finishing shall be in accordance with subsections 802.17 and 802.20 for bridge roadway surface and a tine finish shall be applied in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Curing and finishing shall not be paid for directly, but shall be considered incidental to the item "Class S Concrete-Roadway". Class 1 Protective Surface Treatment shall be applied to the roadway surface and this work shall be paid for under the unit price bid for "Class 1 Protective Surface Treatment".

When precast reinforced concrete box culverts are substituted for cast in place box culverts, they shall be manufactured according to ASTM C 1577 and meet the requirements of Section 607. When the top slab of the box culvert serves as the finished roadway surface, a precast reinforced concrete box culvert substitution is not allowed.

SHEET 1 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

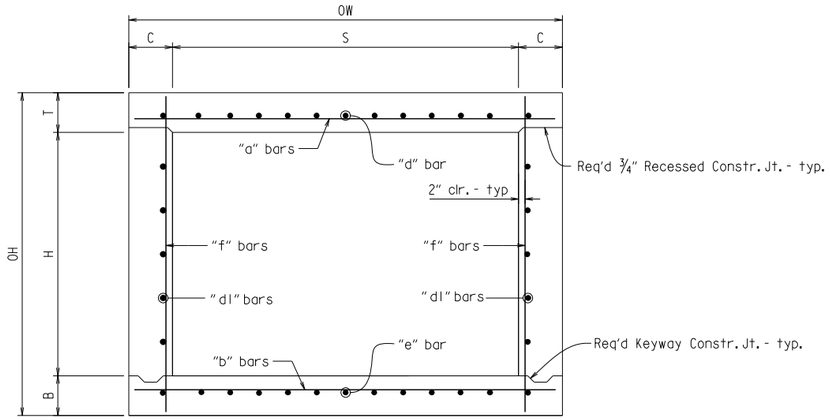
GENERAL NOTES &
LONGITUDINAL SECTION LENGTH SCHEDULE

SPECIAL DETAILS

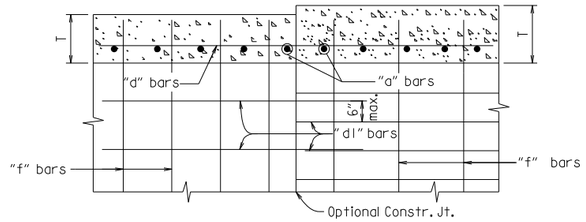
V 4.17 b030529_culvert.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030529	13	41
				(1)		SPECIAL DETAILS		

Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



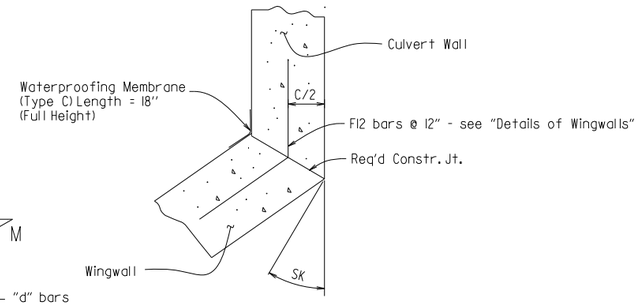
TYPICAL SECTION M-M



Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

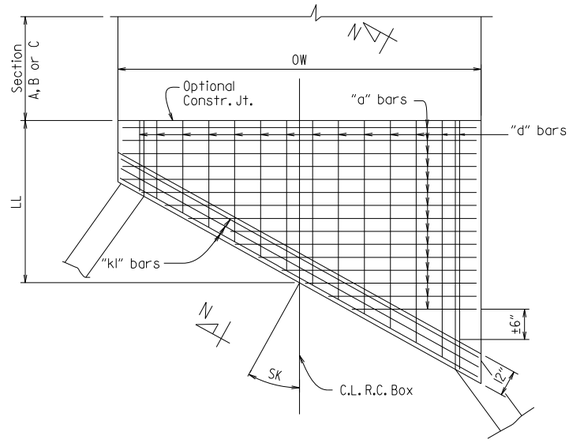
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

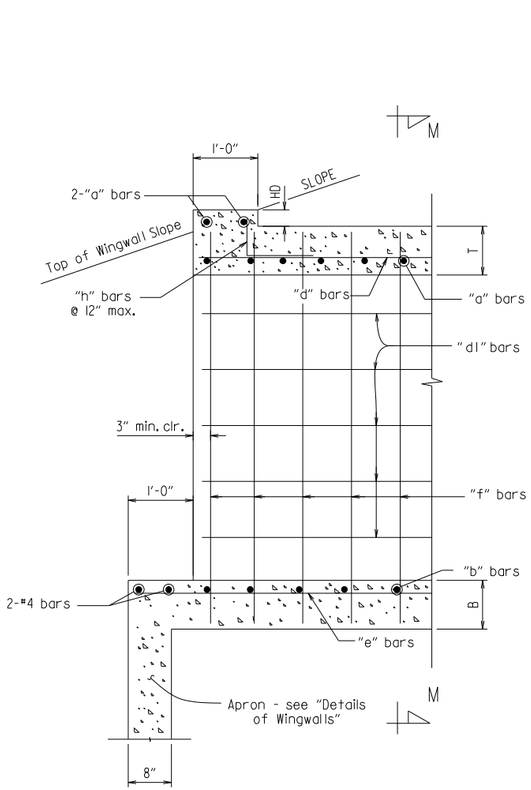


WINGWALL ATTACHMENT

See "Details of Wingwalls" for additional information and wingwall details.

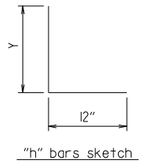


TOP SLAB REINFORCEMENT

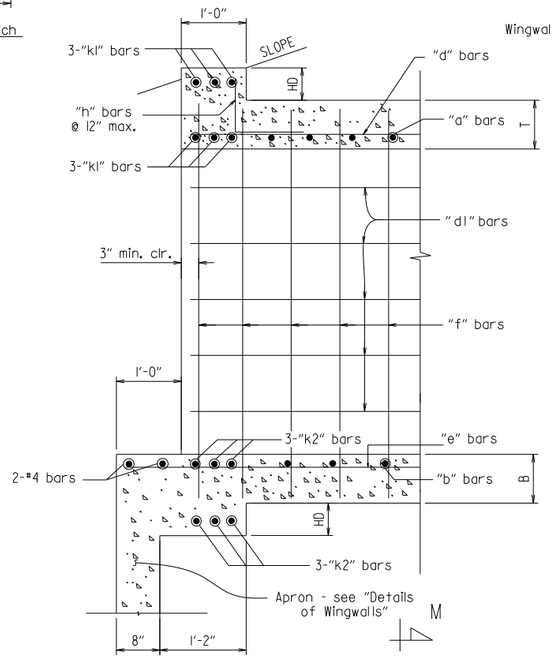


PART LONGITUDINAL SECTION

(Non-Skewed Ends)

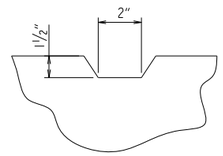


"h" bars sketch



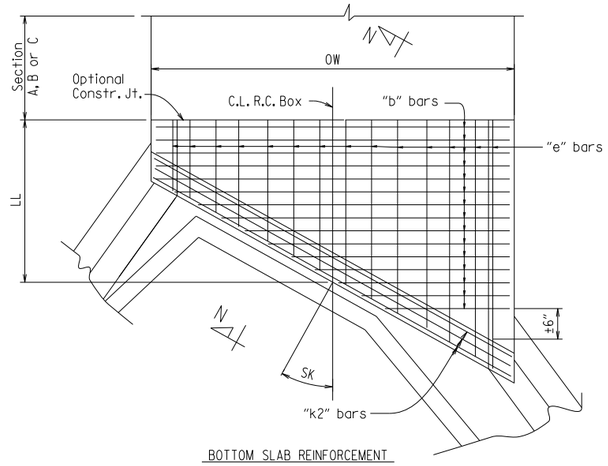
PART LONGITUDINAL SECTION N-N

(Skewed Ends)



TYPICAL KEYWAY DETAIL

(All Construction Joints)



BOTTOM SLAB REINFORCEMENT

SKEWED END SECTION DETAILS

SHEET 2 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF SINGLE BARREL
R.C. BOX CULVERT

SPECIAL DETAILS

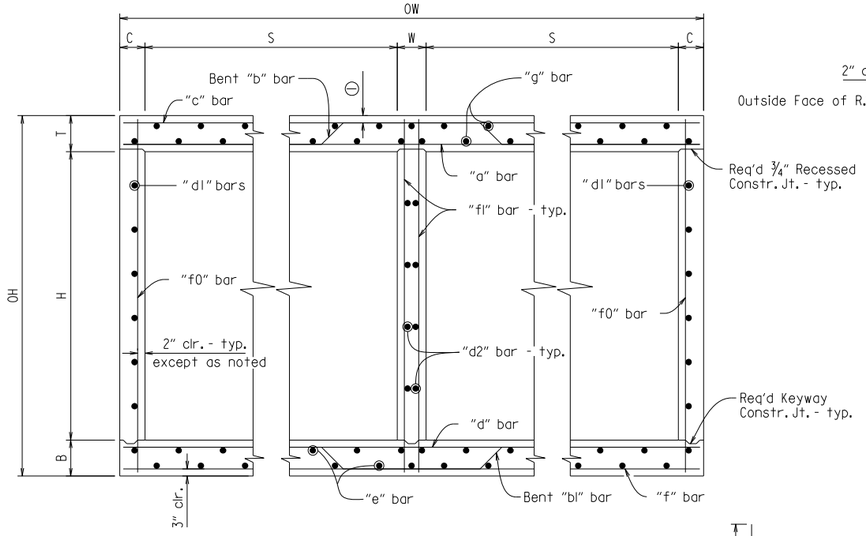
STATE OF ARKANSAS
Charles R. Ellis
May 31 2022 12:17 PM
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

V 4.17 b030529_culvert.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030529	14	41
				①		SPECIAL DETAILS		

① 2" clr. for fill depth (D) greater than 2 ft.
2½" clr. for fill depth (D) equal to or less than 2 ft.

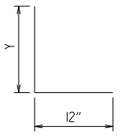
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



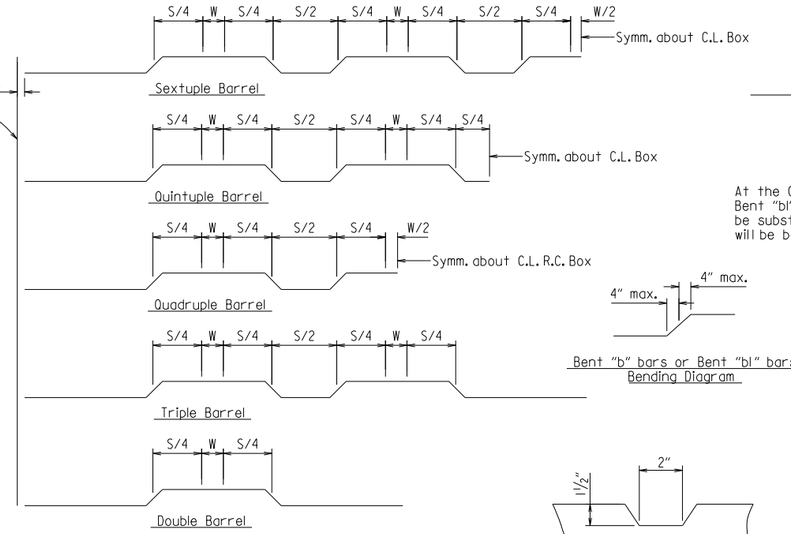
TYPICAL SECTION M-M

Top Slab
Straight "c" bars shall alternate with Bent "b" bars in top.
Straight "a" bars shall alternate with Bent "b" bars in bottom.

Bottom Slab
Straight "d" bars shall alternate with Bent "bl" bars in top.
Straight "f" bars shall alternate with Bent "bl" bars in bottom.

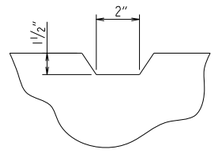


"h" bars sketch

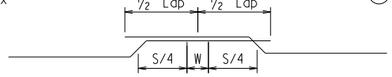


Bent "b" bars or Bent "bl" bars sketch

Bent "b" bars or Bent "bl" bars Bending Diagram



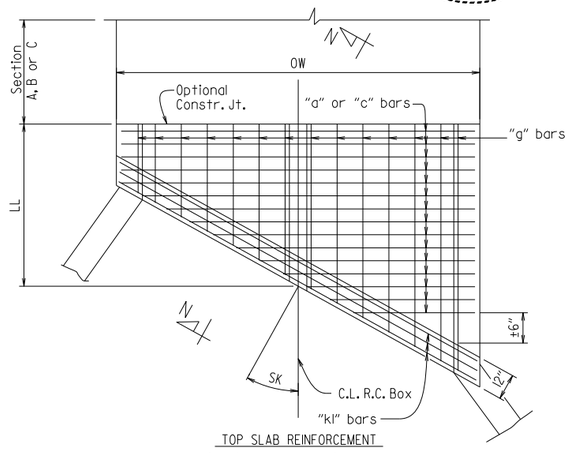
TYPICAL KEYWAY DETAIL
(All Construction Joints)



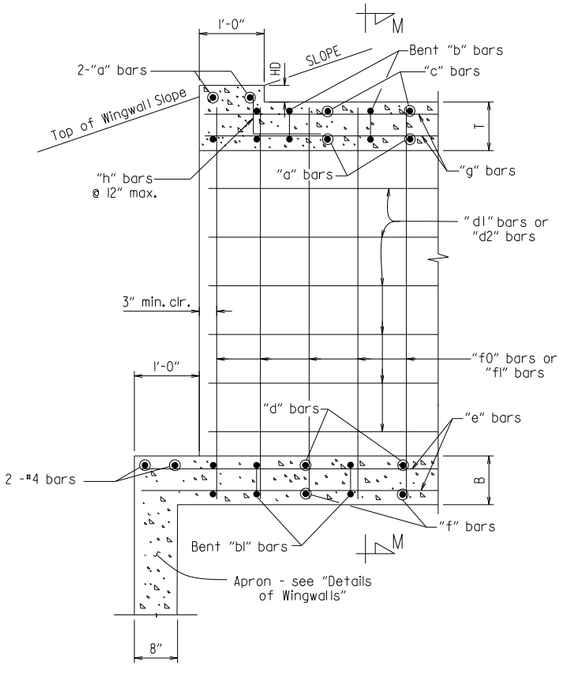
Lap Detail
For Bent "b" bars and Bent "bl" bars

At the Contractor's option in lieu of providing Bent "b" or Bent "bl" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "bl" bar.

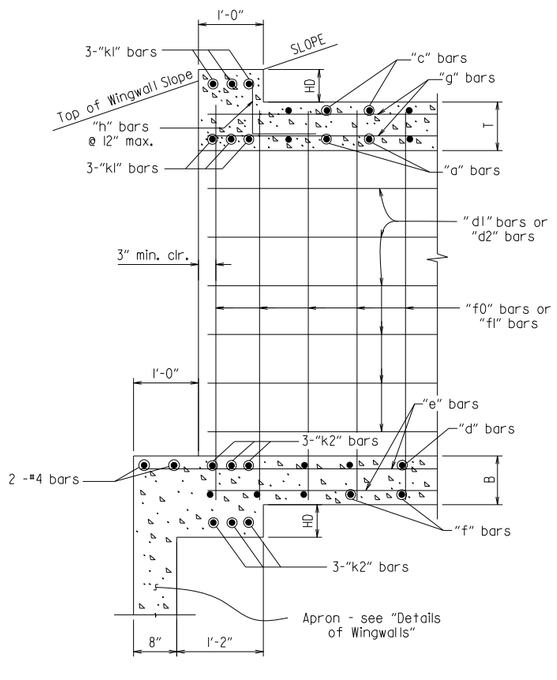
STATE OF ARKANSAS
May 31 2022 12:17 PM
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS



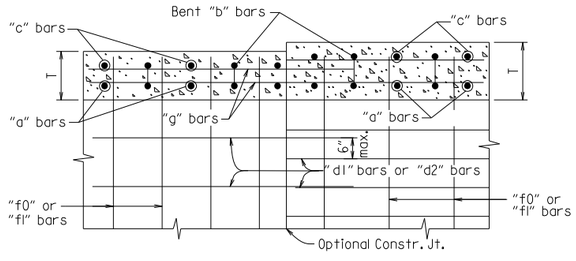
TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



PART LONGITUDINAL SECTION
(Non-Skewed Ends)

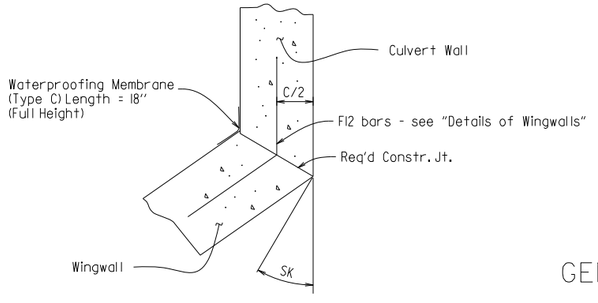


PART LONGITUDINAL SECTION N-N
(Skewed Ends)

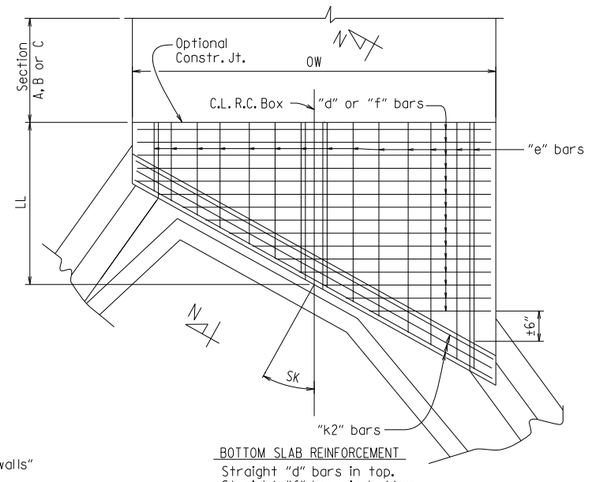


Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS
TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



WINGWALL ATTACHMENT
See "Details of Wingwalls" for additional information and wingwall details.



BOTTOM SLAB REINFORCEMENT
Straight "d" bars in top.
Straight "f" bars in bottom.

SKEWED END SECTION DETAILS

SHEET 3 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF MULTI-BARREL
R.C. BOX CULVERT

SPECIAL DETAILS

LRFD

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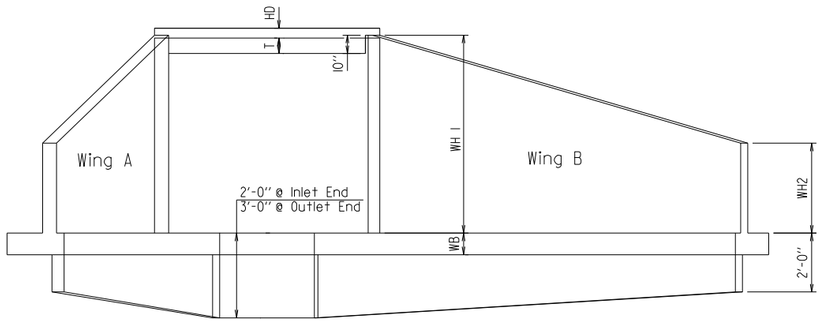
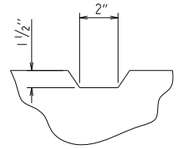
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		030529	15	41

(1) SPECIAL DETAILS



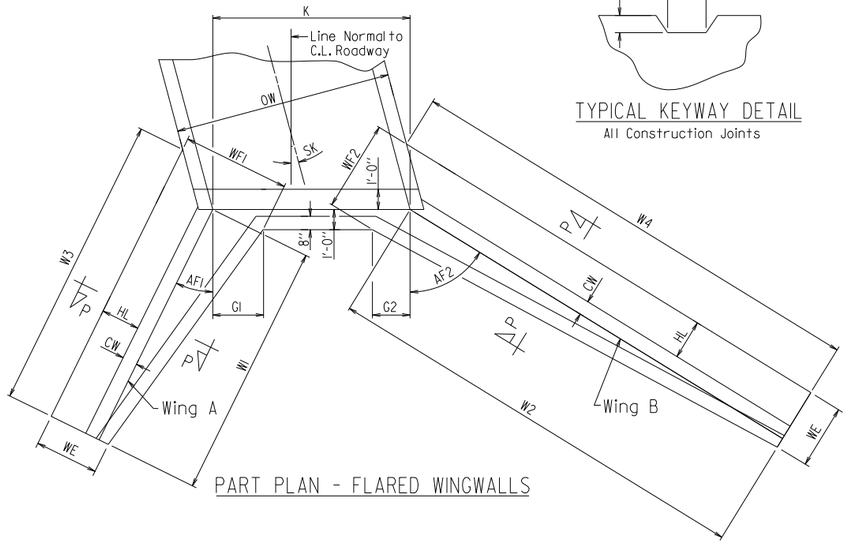
END ELEVATION

Flared Wingwalls Shown

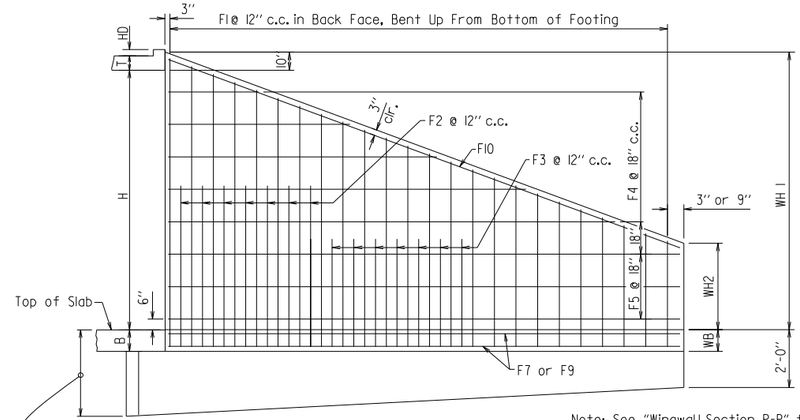


TYPICAL KEYWAY DETAIL

All Construction Joints



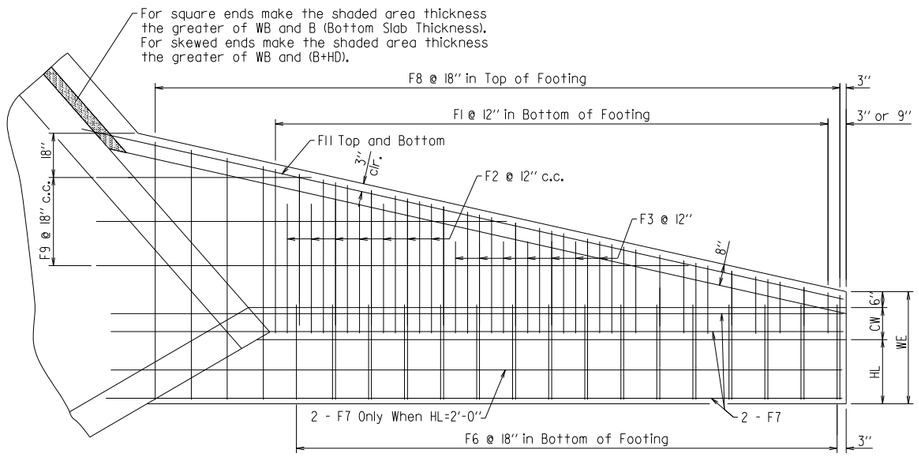
PART PLAN - FLARED WINGWALLS



WINGWALL ELEVATION

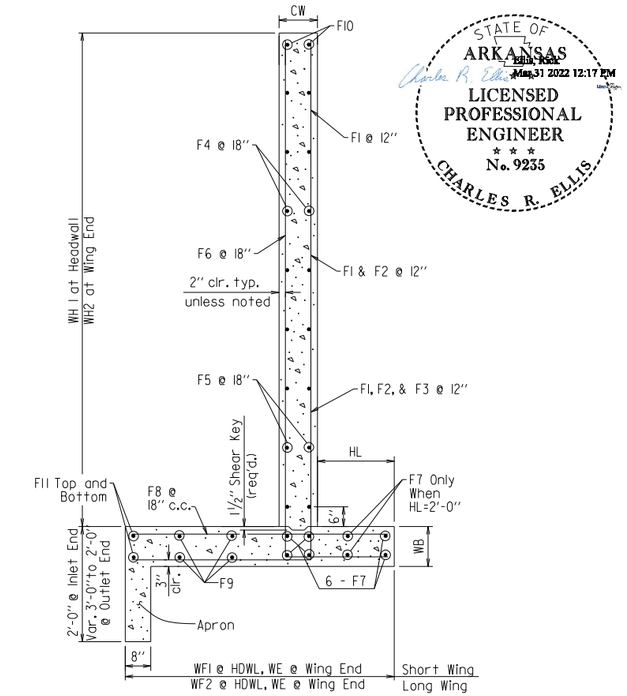
Showing Back Face Reinforcement

Note: See "Wingwall Section P-P" for additional details and reinforcing.

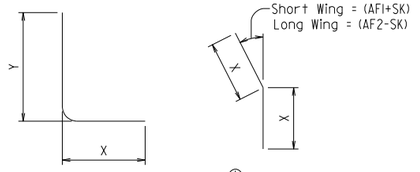


PLAN - FLARED WINGWALLS

Showing Footing Reinforcement



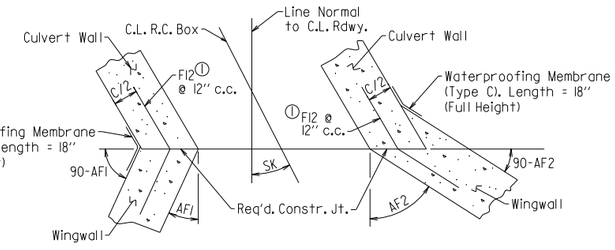
WINGWALL SECTION P-P



F1, F2, F3, & F6 BARS

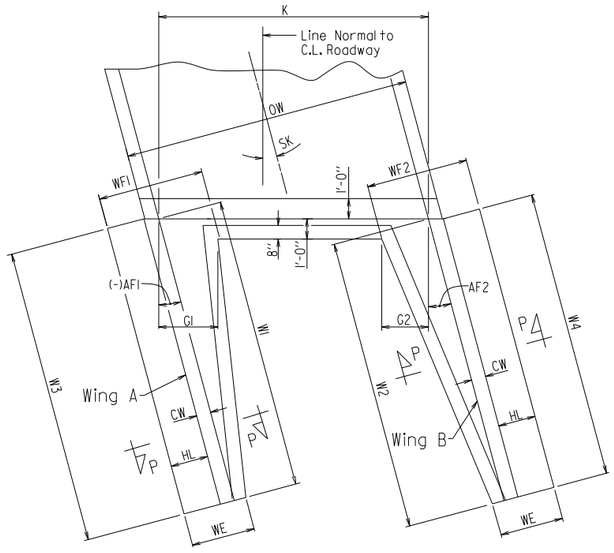
(1) F12 BAR

(1) F12 is a straight bar for parallel wingwalls

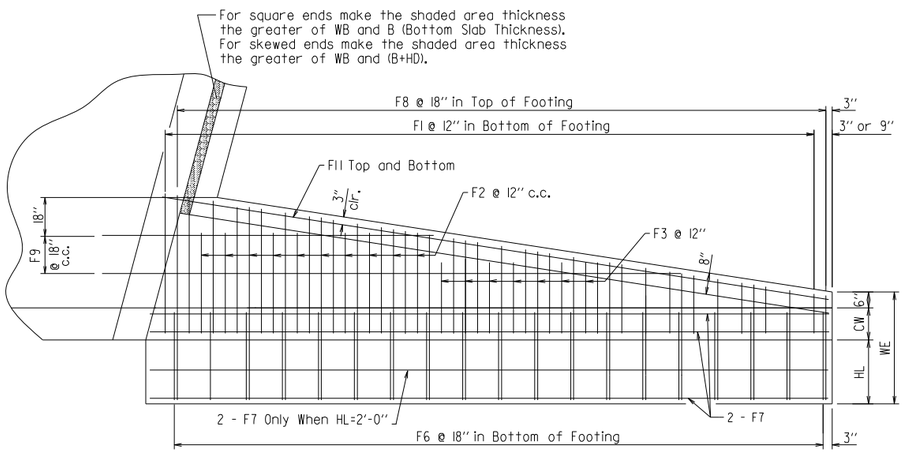


CONSTRUCTION JOINTS

Flared Wingwalls Shown



PART PLAN - PARALLEL WINGWALLS



PLAN - PARALLEL WINGWALLS

Showing Footing Reinforcement

SHEET 4 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF WINGWALLS
SPECIAL DETAILS

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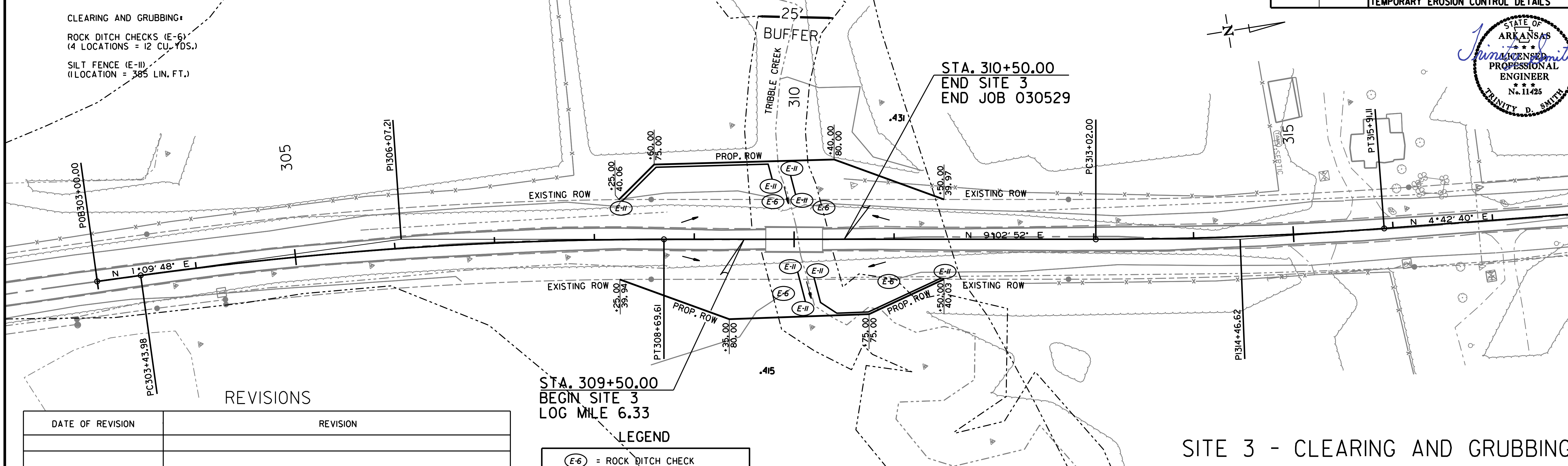
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
02/05/24		6	ARK.	030529	16	41

TEMPORARY EROSION CONTROL DETAILS

CLEARING AND GRUBBING:

ROCK DITCH CHECKS (E-6)
(4 LOCATIONS = 12 CU. YDS.)

SILT FENCE (E-11)
(1 LOCATION = 385 LIN. FT.)



STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH

SITE 3 - CLEARING AND GRUBBING

REVISIONS

DATE OF REVISION	REVISION

LEGEND

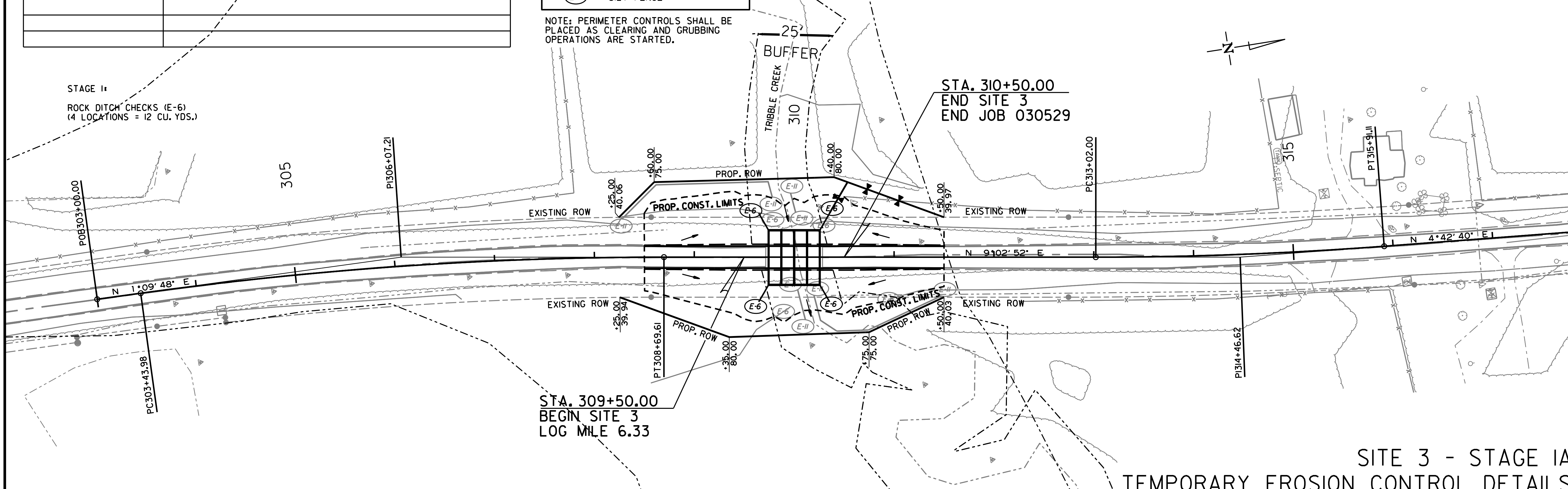
E-6 = ROCK DITCH CHECK

E-11 = SILT FENCE

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

STAGE 1:

ROCK DITCH CHECKS (E-6)
(4 LOCATIONS = 12 CU. YDS.)



SITE 3 - STAGE 1A
TEMPORARY EROSION CONTROL DETAILS

12/19/2022

R030529.DGN

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	17	41

TEMPORARY EROSION CONTROL DETAILS

CLEARING AND GRUBBING:

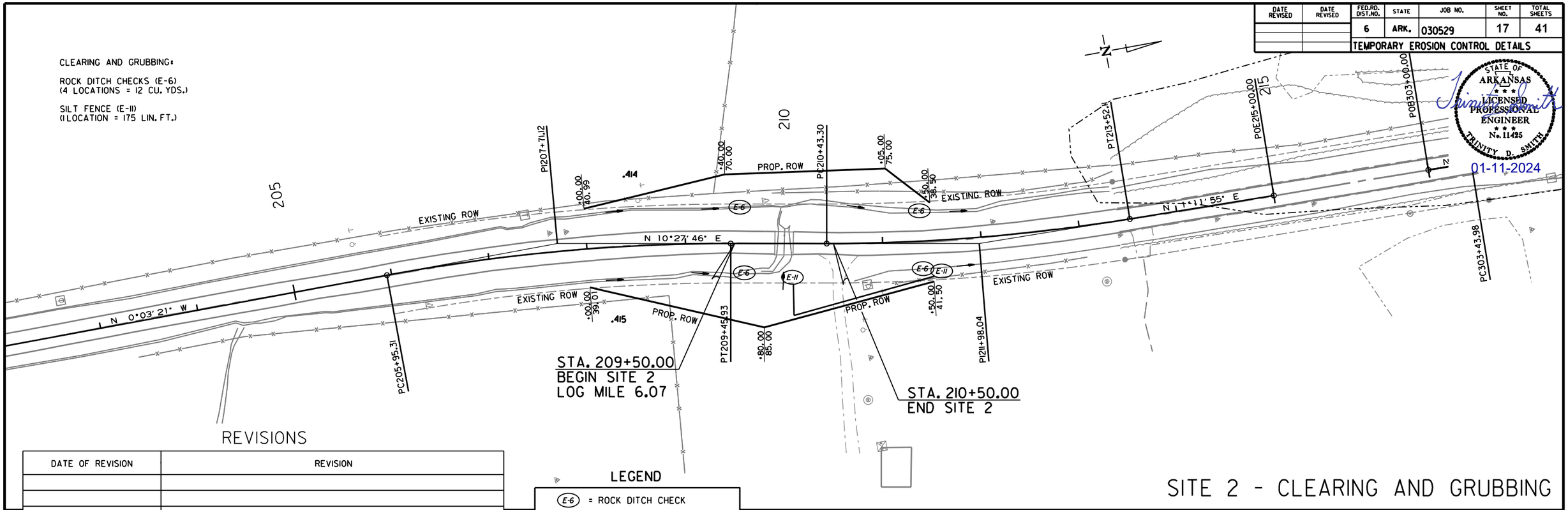
ROCK DITCH CHECKS (E-6)
(4 LOCATIONS = 12 CU. YDS.)

SILT FENCE (E-11)
(1 LOCATION = 175 LIN. FT.)

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

Trinity D. Smith

01-11-2024



SITE 2 - CLEARING AND GRUBBING

REVISIONS

DATE OF REVISION	REVISION

LEGEND

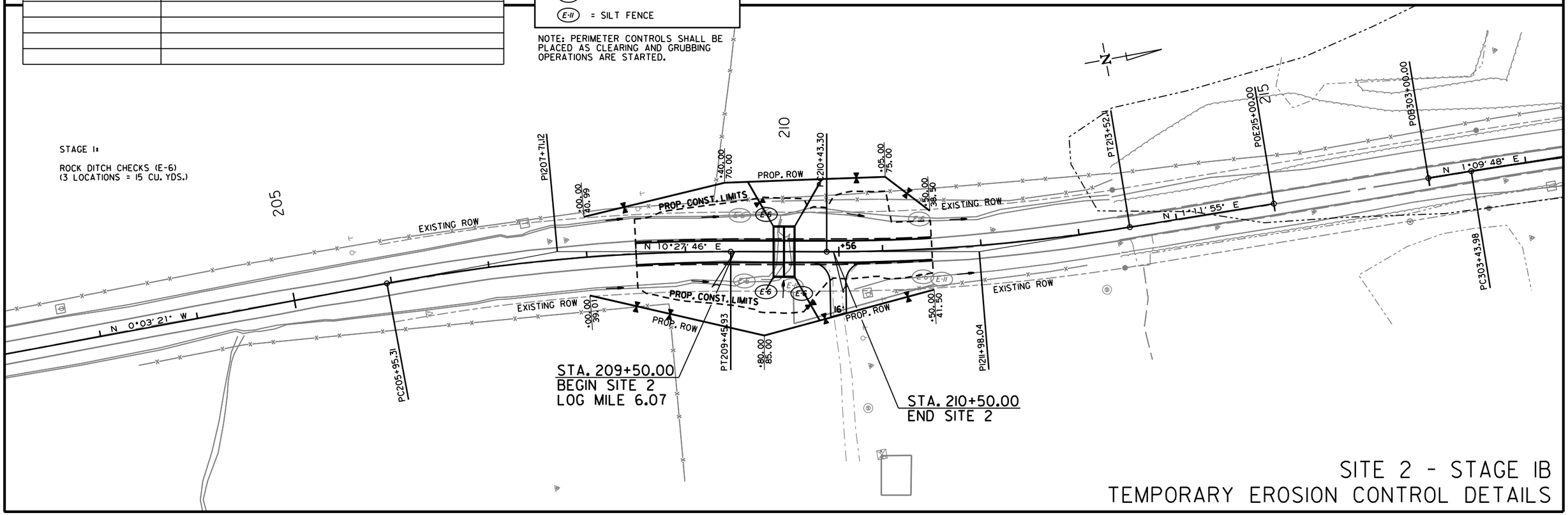
(E-6) = ROCK DITCH CHECK

(E-11) = SILT FENCE

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

STAGE 1:

ROCK DITCH CHECKS (E-6)
(3 LOCATIONS = 15 CU. YDS.)



SITE 2 - STAGE 1B
TEMPORARY EROSION CONTROL DETAILS

12/19/2022

R030529.DGN

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
02/05/24		6	ARK.	030529	18	41
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
02-07-2024

CLEARING AND GRUBBING:

ROCK DITCH CHECKS (E-6)
(4 LOCATIONS = 12 CU. YDS.)

SILT FENCE (E-11)
(4 LOCATIONS = 495 LIN. FT.)

STA. 114+50.00
BEGIN JOB 030529
BEGIN SITE 1
LOG MILE 2.69

STA. 115+50.00
END SITE 1

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6) = ROCK DITCH CHECK
(E-11) = SILT FENCE

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

SITE 1- CLEARING AND GRUBBING

STAGE 1:

ROCK DITCH CHECKS (E-6)
(4 LOCATIONS = 12 CU. YDS.)

STA. 114+50.00
BEGIN JOB 030529
BEGIN SITE 1
LOG MILE 2.69

STA. 115+50.00
END SITE 1

12/19/2022

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SITE 1- STAGE 1C
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
02/05/24		6	ARK.	030529	19	41
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
TRINITY D. SMITH
LICENSED PROFESSIONAL ENGINEER
No. 11425
02-07-2024

ALL STAGES

1
- ROAD CLOSED X.X MILES AHEAD LOCAL TRAFFIC ONLY — (I) RII-3A (60" X 30")

STAGE IA: 0.5 MILES
STAGE IB: 0.8 MILES
STAGE IC: 4.2 MILES

2
- 195 — (I) MI-5 (MODIFIED) (24" X 24")
- SOUTH — (I) M3-3 (24" X 12")
- DETOUR — (I) M4-8 (24" X 12")
- ⇧ — (I) M6-3 (21" X 15")

3
- 195 — (I) MI-5 (MODIFIED) (24" X 24")
- SOUTH — (I) M3-3 (24" X 12")
- DETOUR ⇦ — (I) M4-10L (48" X 18")

4
- 195 — (I) MI-5 (MODIFIED) (24" X 24")
- NORTH — (I) M3-1 (24" X 12")
- DETOUR ⇨ — (I) M4-10R (48" X 18")

5
- 195 — (I) MI-5 (MODIFIED) (24" X 24")
- NORTH — (I) M3-1 (24" X 12")
- DETOUR — (I) M4-8 (24" X 12")
- ⇧ — (I) M6-3 (21" X 15")

6
- ROAD CLOSED X.X MILES AHEAD LOCAL TRAFFIC ONLY — (I) RII-3A (60" X 30")

STAGE IA: 2.7 MILES
STAGE IB: 6.1 MILES
STAGE IC: 6.4 MILES

7
- 195 — (I) MI-5 (MODIFIED) (24" X 24")
- NORTH — (I) M3-1 (24" X 12")
- ROAD CLOSED TO THRU TRAFFIC — (I) RII-4 (60" X 30")
- DETOUR — (I) M4-8 (24" X 12")
- ⇧ — (I) M6-3 (21" X 15")

8
- 195 — (I) MI-5 (MODIFIED) (24" X 24")
- SOUTH — (I) M3-3 (24" X 12")
- ROAD CLOSED TO THRU TRAFFIC — (I) RII-4 (60" X 30")
- DETOUR — (I) M4-8 (24" X 12")
- ⇧ — (I) M6-3 (21" X 15")

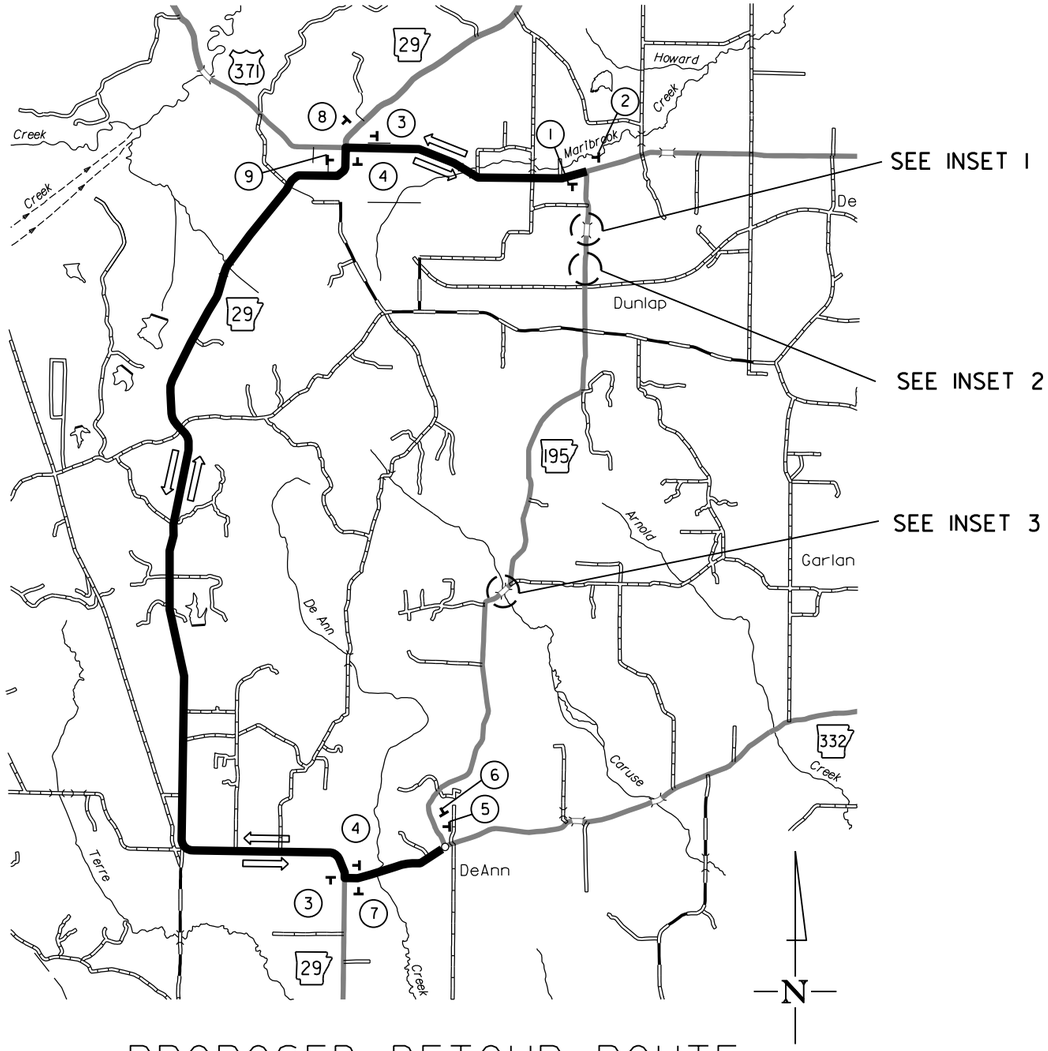
9
- 195 — (I) MI-5 (MODIFIED) (24" X 24")
- SOUTH — (I) M3-3 (24" X 12")
- ROAD CLOSED TO THRU TRAFFIC — (I) RII-4 (60" X 30")
- DETOUR ⇨ — (I) M4-10R (48" X 18")

SEQUENCE OF CONSTRUCTION

STAGE IA - SITE 3
INSTALL STAGE IA SIGNS AND BARRICADES AS SHOWN ON THE MAINTENANCE OF TRAFFIC DETAILS.
SHIFT TRAFFIC ONTO APPROVED DETOUR ROUTE.
REMOVE EXISTING BRIDGE STRUCTURE.
CONSTRUCT BOX CULVERT AND EMBANKMENT LT. & RT. FROM STA. 308+50 TO STA. 310+50.
PLACE FINAL LIFT OF ACHM SURFACE COURSE, CONSTRUCT TRANSITIONS, AND INSTALL FINAL STRIPING.
WORK ON SITES 1 AND 2 SHALL NOT BEGIN UNTIL LANES FOR SITE 3 ARE OPEN TO TRAFFIC.
SEE MAINTENANCE OF TRAFFIC SPECIAL PROVISION.

STAGE IB - SITE 2
REMOVE SIGNS AND BARRICADES SPECIFIC TO STAGE IA AND INSTALL STAGE IB SIGNS AND BARRICADES.
MAINTAIN TRAFFIC ON APPROVED DETOUR ROUTE.
REMOVE EXISTING BRIDGE STRUCTURE.
CONSTRUCT BOX CULVERT AND EMBANKMENT LT. & RT. FROM STA. 208+50 TO STA. 211+50.
PLACE FINAL LIFT OF ACHM SURFACE COURSE, CONSTRUCT TRANSITIONS, AND INSTALL FINAL STRIPING.
WORK ON SITE 1 SHALL NOT BEGIN UNTIL LANES FOR SITE 2 ARE OPEN TO TRAFFIC.
SEE MAINTENANCE OF TRAFFIC SPECIAL PROVISION.

STAGE IC - SITE 1
REMOVE SIGNS AND BARRICADES SPECIFIC TO STAGE IB AND INSTALL STAGE IC SIGNS AND BARRICADES.
MAINTAIN TRAFFIC ON APPROVED DETOUR ROUTE.
REMOVE EXISTING BRIDGE STRUCTURE.
CONSTRUCT BOX CULVERT AND EMBANKMENT LT. & RT. FROM STA. 113+50 TO STA. 116+50.
PLACE FINAL LIFT OF ACHM SURFACE COURSE, CONSTRUCT TRANSITIONS, AND INSTALL FINAL STRIPING.
REMOVE ALL SIGNS AND BARRICADES TO REOPEN HWY. 195 TO TRAFFIC.



PROPOSED DETOUR ROUTE

12/19/2022

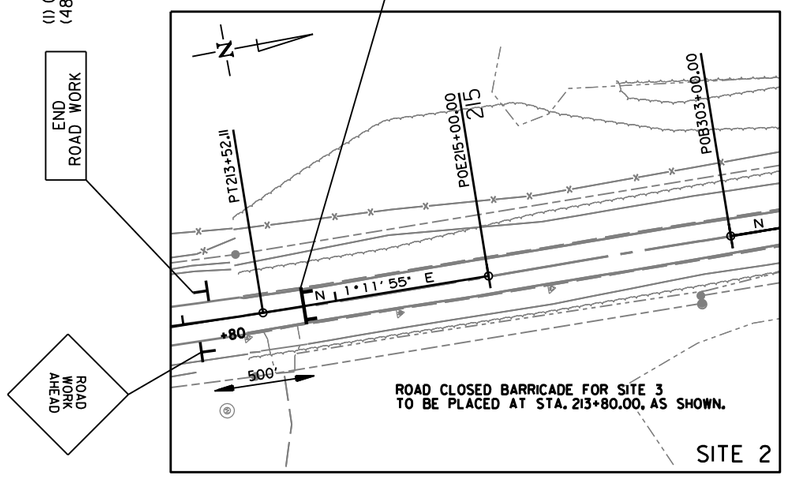
R030529.DGN

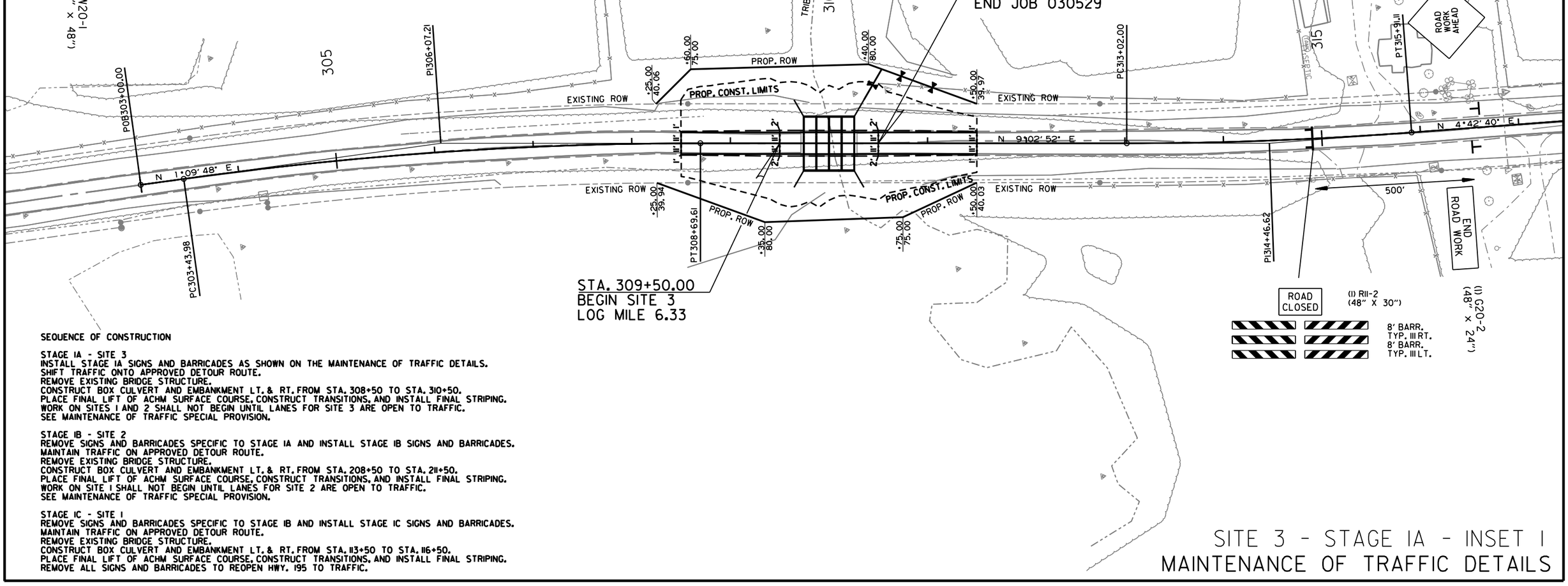
ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
02/05/24		6	ARK.	030529	20	41
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
02-07-2024

(1) C20-2 (48" X 24")
ROAD CLOSED
(1) RII-2 (48" X 30")
8' BARR. TYP. III RT.
8' BARR. TYP. III LT.
END ROAD WORK
ROAD WORK AHEAD
(1) W20-1 (48" X 48")





SEQUENCE OF CONSTRUCTION

STAGE IA - SITE 3
INSTALL STAGE IA SIGNS AND BARRICADES AS SHOWN ON THE MAINTENANCE OF TRAFFIC DETAILS.
SHIFT TRAFFIC ONTO APPROVED DETOUR ROUTE.
REMOVE EXISTING BRIDGE STRUCTURE.
CONSTRUCT BOX CULVERT AND EMBANKMENT LT. & RT. FROM STA. 308+50 TO STA. 310+50.
PLACE FINAL LIFT OF ACHM SURFACE COURSE, CONSTRUCT TRANSITIONS, AND INSTALL FINAL STRIPING.
WORK ON SITES 1 AND 2 SHALL NOT BEGIN UNTIL LANES FOR SITE 3 ARE OPEN TO TRAFFIC.
SEE MAINTENANCE OF TRAFFIC SPECIAL PROVISION.

STAGE IB - SITE 2
REMOVE SIGNS AND BARRICADES SPECIFIC TO STAGE IA AND INSTALL STAGE IB SIGNS AND BARRICADES.
MAINTAIN TRAFFIC ON APPROVED DETOUR ROUTE.
REMOVE EXISTING BRIDGE STRUCTURE.
CONSTRUCT BOX CULVERT AND EMBANKMENT LT. & RT. FROM STA. 208+50 TO STA. 211+50.
PLACE FINAL LIFT OF ACHM SURFACE COURSE, CONSTRUCT TRANSITIONS, AND INSTALL FINAL STRIPING.
WORK ON SITE 1 SHALL NOT BEGIN UNTIL LANES FOR SITE 2 ARE OPEN TO TRAFFIC.
SEE MAINTENANCE OF TRAFFIC SPECIAL PROVISION.

STAGE IC - SITE 1
REMOVE SIGNS AND BARRICADES SPECIFIC TO STAGE IB AND INSTALL STAGE IC SIGNS AND BARRICADES.
MAINTAIN TRAFFIC ON APPROVED DETOUR ROUTE.
REMOVE EXISTING BRIDGE STRUCTURE.
CONSTRUCT BOX CULVERT AND EMBANKMENT LT. & RT. FROM STA. 113+50 TO STA. 116+50.
PLACE FINAL LIFT OF ACHM SURFACE COURSE, CONSTRUCT TRANSITIONS, AND INSTALL FINAL STRIPING.
REMOVE ALL SIGNS AND BARRICADES TO REOPEN HWY. 195 TO TRAFFIC.

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SITE 3 - STAGE IA - INSET 1
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
02/05/24		6	ARK.	030529	21	41
		MAINTENANCE OF TRAFFIC DETAILS				

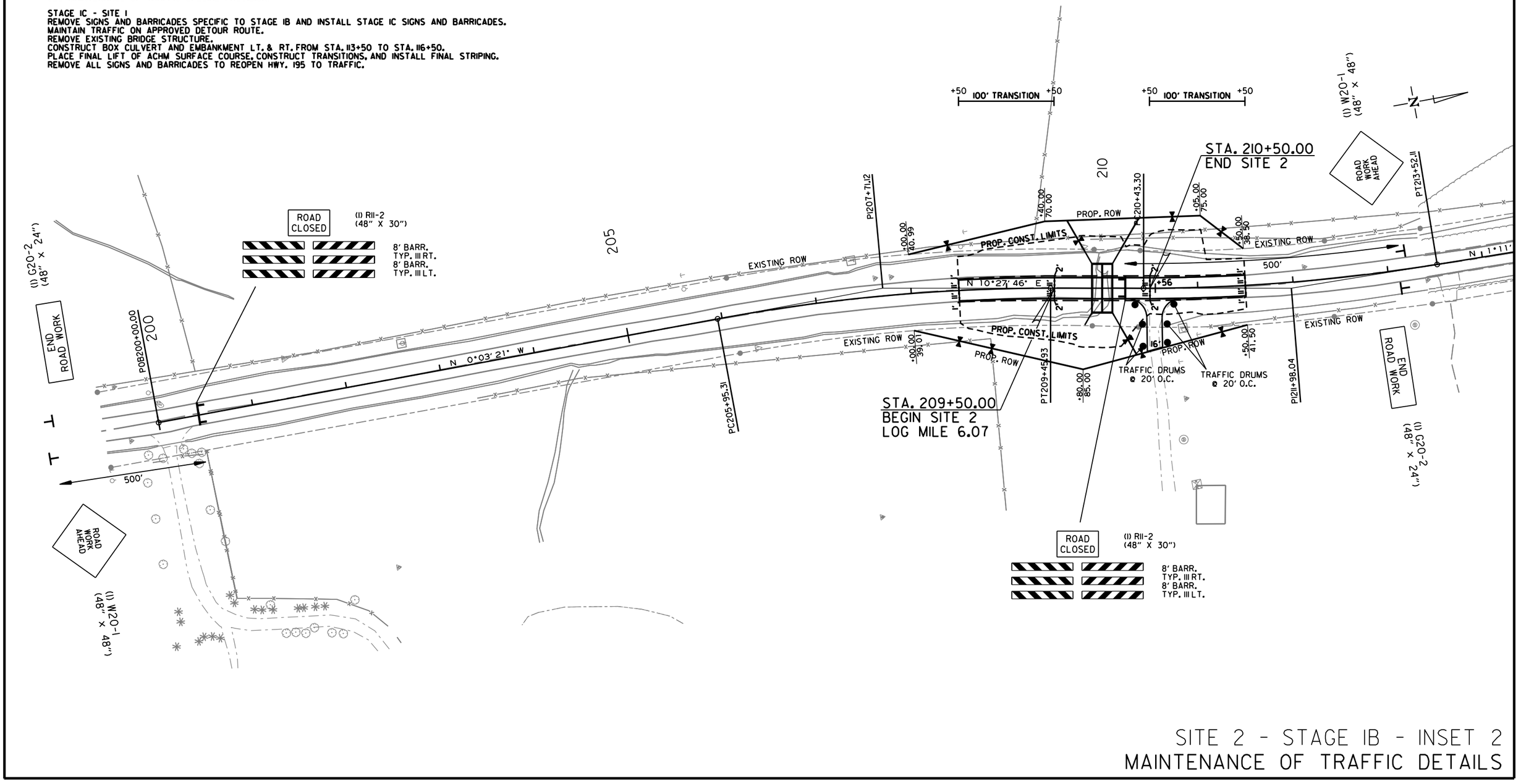
SEQUENCE OF CONSTRUCTION

STAGE IA - SITE 3
INSTALL STAGE IA SIGNS AND BARRICADES AS SHOWN ON THE MAINTENANCE OF TRAFFIC DETAILS.
SHIFT TRAFFIC ONTO APPROVED DETOUR ROUTE.
REMOVE EXISTING BRIDGE STRUCTURE.
CONSTRUCT BOX CULVERT AND EMBANKMENT LT. & RT. FROM STA. 308+50 TO STA. 310+50.
PLACE FINAL LIFT OF ACHM SURFACE COURSE, CONSTRUCT TRANSITIONS, AND INSTALL FINAL STRIPING.
WORK ON SITES 1 AND 2 SHALL NOT BEGIN UNTIL LANES FOR SITE 3 ARE OPEN TO TRAFFIC.
SEE MAINTENANCE OF TRAFFIC SPECIAL PROVISION.

STAGE IB - SITE 2
REMOVE SIGNS AND BARRICADES SPECIFIC TO STAGE IA AND INSTALL STAGE IB SIGNS AND BARRICADES.
MAINTAIN TRAFFIC ON APPROVED DETOUR ROUTE.
REMOVE EXISTING BRIDGE STRUCTURE.
CONSTRUCT BOX CULVERT AND EMBANKMENT LT. & RT. FROM STA. 208+50 TO STA. 211+50.
PLACE FINAL LIFT OF ACHM SURFACE COURSE, CONSTRUCT TRANSITIONS, AND INSTALL FINAL STRIPING.
WORK ON SITE 1 SHALL NOT BEGIN UNTIL LANES FOR SITE 2 ARE OPEN TO TRAFFIC.
SEE MAINTENANCE OF TRAFFIC SPECIAL PROVISION.

STAGE IC - SITE 1
REMOVE SIGNS AND BARRICADES SPECIFIC TO STAGE IB AND INSTALL STAGE IC SIGNS AND BARRICADES.
MAINTAIN TRAFFIC ON APPROVED DETOUR ROUTE.
REMOVE EXISTING BRIDGE STRUCTURE.
CONSTRUCT BOX CULVERT AND EMBANKMENT LT. & RT. FROM STA. 113+50 TO STA. 116+50.
PLACE FINAL LIFT OF ACHM SURFACE COURSE, CONSTRUCT TRANSITIONS, AND INSTALL FINAL STRIPING.
REMOVE ALL SIGNS AND BARRICADES TO REOPEN HWY. 195 TO TRAFFIC.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
02-07-2024



SITE 2 - STAGE IB - INSET 2
MAINTENANCE OF TRAFFIC DETAILS

12/19/2022

R030529.DGN

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
02/05/24		6	ARK.	030529	22	41
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
02-07-2024

(1) G20-2 (48" x 24")
END ROAD WORK
ROAD CLOSED
(1) R11-2 (48" X 30")
8' BARR. TYP. III RT.
8' BARR. TYP. III LT.
PC109+54.35
110
N 72°52'56" E
500'
PT112+26.09
+50 100' TRANSITION +50
+50 100' TRANSITION +50
+50.00 110.00
+80.00 110.00
115
PROP. ROW
PROP. CONST. LIMITS
PROP. ROW
+100.00 41.28
+75.00 40.78
PC117+51.64
EXISTING ROW
EXISTING ROW
N 48°25'30" E
1'-11" 11'-1" 2' 2'-11" 11'-1" 2' 2'-11" 11'-1" 1'
(1) W20-1 (48" x 48")
ROAD WORK AHEAD
PT121+40.18
120
500'
N 7°37'42" E
END ROAD WORK
(1) G20-2 (48" x 24")
COUNTY ROAD 30
(1) W20-1 (48" x 48")
PI110+92.32
EXISTING ROW
+25.00 38.75
PROP. CONST. LIMITS
PROP. ROW
PROP. ROW
+75.00 39.22
PI119+54.56
STA. 114+50.00
BEGIN JOB 030529
BEGIN SITE 1
LOG MILE 2.69
CARUSE CREEK
+65.00 135.00
+75.00 140.00
STA. 115+50.00
END SITE 1
ROAD CLOSED
(1) R11-2 (48" X 30")
8' BARR. TYP. III RT.
8' BARR. TYP. III LT.

SEQUENCE OF CONSTRUCTION

STAGE IA - SITE 3
INSTALL STAGE IA SIGNS AND BARRICADES AS SHOWN ON THE MAINTENANCE OF TRAFFIC DETAILS.
SHIFT TRAFFIC ONTO APPROVED DETOUR ROUTE.
REMOVE EXISTING BRIDGE STRUCTURE.
CONSTRUCT BOX CULVERT AND EMBANKMENT LT. & RT. FROM STA. 308+50 TO STA. 310+50.
PLACE FINAL LIFT OF ACHM SURFACE COURSE, CONSTRUCT TRANSITIONS, AND INSTALL FINAL STRIPING.
WORK ON SITES 1 AND 2 SHALL NOT BEGIN UNTIL LANES FOR SITE 3 ARE OPEN TO TRAFFIC.
SEE MAINTENANCE OF TRAFFIC SPECIAL PROVISION.

STAGE IB - SITE 2
REMOVE SIGNS AND BARRICADES SPECIFIC TO STAGE IA AND INSTALL STAGE IB SIGNS AND BARRICADES.
MAINTAIN TRAFFIC ON APPROVED DETOUR ROUTE.
REMOVE EXISTING BRIDGE STRUCTURE.
CONSTRUCT BOX CULVERT AND EMBANKMENT LT. & RT. FROM STA. 208+50 TO STA. 211+50.
PLACE FINAL LIFT OF ACHM SURFACE COURSE, CONSTRUCT TRANSITIONS, AND INSTALL FINAL STRIPING.
WORK ON SITE 1 SHALL NOT BEGIN UNTIL LANES FOR SITE 2 ARE OPEN TO TRAFFIC.
SEE MAINTENANCE OF TRAFFIC SPECIAL PROVISION.

STAGE IC - SITE 1
REMOVE SIGNS AND BARRICADES SPECIFIC TO STAGE IB AND INSTALL STAGE IC SIGNS AND BARRICADES.
MAINTAIN TRAFFIC ON APPROVED DETOUR ROUTE.
REMOVE EXISTING BRIDGE STRUCTURE.
CONSTRUCT BOX CULVERT AND EMBANKMENT LT. & RT. FROM STA. 113+50 TO STA. 116+50.
PLACE FINAL LIFT OF ACHM SURFACE COURSE, CONSTRUCT TRANSITIONS, AND INSTALL FINAL STRIPING.
REMOVE ALL SIGNS AND BARRICADES TO REOPEN HWY. 195 TO TRAFFIC.

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SITE 1 - STAGE IC - INSET 3
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	23	41
		PERMANENT PAVEMENT MARKING DETAILS				

PERMANENT PAVEMENT MARKINGS

SITE 1:
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") = 600 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6") = 600 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL) = 4 EACH

SITE 2:
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") = 600 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6") = 600 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL) = 4 EACH

SITE 3:
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") = 600 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6") = 600 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL) = 4 EACH

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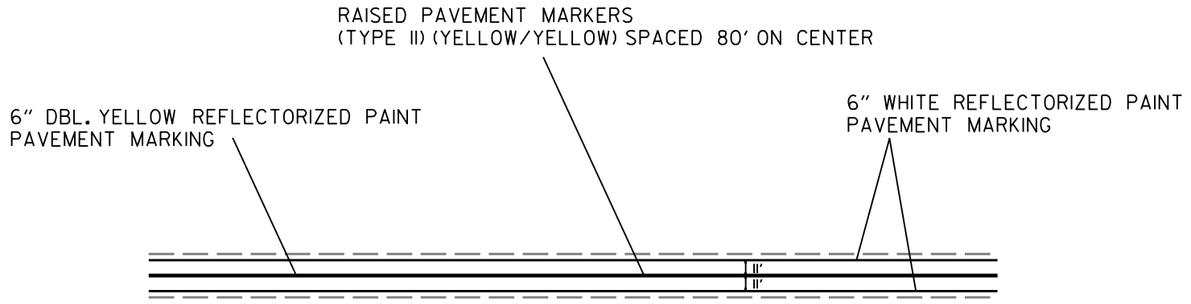
01-11-2024



TYPICAL STRIPING DETAIL

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	24	41
		QUANTITIES				

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ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1A	STAGE 1B	STAGE 1C	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	BARRICADES (TYPE III)	
										RIGHT	LEFT
			LIN. FT. - EACH				NO.	SQ. FT.	EACH	LIN. FT.	
G20-2	END ROAD WORK	48"x24"	2	2	2	2	2	16.0			
R11-2	ROAD CLOSED	48"x30"	2	2	2	2	2	20.0			
R11-3A	ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY	60"x30"	2	2	2	2	2	25.0			
R11-4	ROAD CLOSED TO THRU TRAFFIC	60"x30"	3	3	3	3	3	37.5			
W20-1	ROAD WORK AHEAD	48"x48"	2	2	2	2	2	32.0			
M1-5 (MODIFIED)	HWY. 195	24"x24"	9	9	9	9	9	36.0			
M3-1	NORTH	24"x12"	4	4	4	4	4	8.0			
M3-3	SOUTH	24"x12"	5	5	5	5	5	10.0			
M6-3	ARROW	21"x15"	4	4	4	4	4	8.8			
M4-8	DETOUR	24"x12"	4	4	4	4	4	8.0			
M4-10L	DETOUR ARROW	48"x18"	2	2	2	2	2	12.0			
M4-10R	DETOUR ARROW	48"x18"	3	3	3	3	3	18.0			
	TRAFFIC DRUMS			6		6			6		
	TYPE III BARRICADE-RT. (8')		2	2	2	2				16	
	TYPE III BARRICADE-LT. (8')		2	2	2	2					16
TOTALS:								**231.3**	**6**	**16**	**16**

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

PERMANENT PAVEMENT MARKINGS

DESCRIPTION	SITE 1	SITE 2	SITE 3	RAISED PAVEMENT MARKERS	REFLECTORIZED PAINT PAVEMENT MARKING	
				TYPE II	6"	
				(YELLOW/YELLOW)	WHITE	YELLOW
	LIN. FT. - EACH			EACH	LIN. FT.	
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)	4	4	4	12		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	600	600	600		1800	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	600	600	600			1800
TOTALS:				**12**	**1800**	**1800**

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

NOTE: THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT.
THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING.
CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
113+50	116+50	SITE 1-MAIN LANES	4258	2566
208+50	211+50	SITE 2-MAIN LANES	517	1114
308+50	311+50	SITE 3-MAIN LANES	634	1364
ENTIRE	PROJECT	APPROACHES		25
115+03	115+03	CHANNEL CHANGE - SITE 1	3306	
210+00	210+00	CHANNEL CHANGE - SITE 2	353	
310+00	310+00	CHANNEL CHANGE - SITE 3	988	
TOTALS:			**10056**	**5069**

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
113+50	116+50	SITE 1 - RT.	3	3
208+50	211+50	SITE 2 - LT. & RT.	3	3
308+50	311+50	SITE 3 - LT. & RT.	3	3
TOTALS:			**9**	**9**

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
115+03	SITE 1 - HDWL. OF R.C. BOX CULVERT ON RT.	1
210+00	SITE 2 - HDWL. OF R.C. BOX CULVERT ON RT.	1
310+00	SITE 3 - HDWL. OF R.C. BOX CULVERT ON RT.	1
TOTAL:		**3**

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

SOIL STABILIZATION

STATION	STATION	LOCATION / DESCRIPTION	SOIL STABILIZATION
			TON
ENTIRE	PROJECT	TO BE USED IF AND WHERE	50
		DIRECTED BY THE ENGINEER	
TOTAL:			**50**

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

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		6	ARK.	030529	25	41
		QUANTITIES				

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CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
113+50.00	114+60.00	SITE 1 LT.	110.00	6.32	77.24	48.89	0.62
113+50.00	114+60.00	SITE 1 RT.	110.00	6.32	77.24	48.89	0.62
115+45.00	116+50.00	SITE 1 LT.	105.00	6.32	73.73	46.67	0.59
115+45.00	116+50.00	SITE 1 RT.	105.00	6.32	73.73	46.67	0.59
210+20.00	210+50.00	SITE 2 RT.	30.00	6.32	21.07	13.33	0.17
308+50.00	309+65.00	SITE 3 LT.	115.00	6.32	80.76	51.11	0.64
308+50.00	309+65.00	SITE 3 RT.	115.00	6.32	80.76	51.11	0.64
310+35.00	311+50.00	SITE 3 LT.	115.00	6.32	80.76	51.11	0.64
310+35.00	311+50.00	SITE 3 RT.	115.00	6.32	80.76	51.11	0.64
TOTALS:					**646.05**	**408.89**	**5.15**

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
113+50.00	114+50.00	SITE 1 - MAIN LANES	22.00	244.44
115+50.00	116+50.00	SITE 1 - MAIN LANES	22.00	244.44
208+50.00	209+50.00	SITE 2 - MAIN LANES	22.00	244.44
210+50.00	211+50.00	SITE 2 - MAIN LANES	22.00	244.44
308+50.00	309+50.00	SITE 3 - MAIN LANES	22.00	244.44
310+50.00	311+50.00	SITE 3 - MAIN LANES	22.00	244.44
TOTAL:				**1466.64**

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

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE D-1)	* 16'-0" GATES
			LIN. FT.	EACH
115+45	116+51	SITE 1 RT.	176	
208+40	209+82	SITE 2 LT.	166	
208+48	208+82	SITE 2 RT.	35	
210+18	211+37	SITE 2 LT.	144	1
210+18	211+50	SITE 2 RT.	156	1
310+35	311+05	SITE 3 LT.	91	
TOTALS:			**768**	**2**

* DENOTES ALTERNATE BID ITEM.

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
115+49	116+52	SITE 1 - RT.	103	
208+42	211+24	SITE 2 - LT.	302	
208+48	208+83	SITE 2 - RT.	44	
209+88	211+37	SITE 2 - LT.	147	
210+35	211+50	SITE 2 - RT.	121	1
310+50	311+05	SITE 3 - LT.	56	
TOTALS:			**773**	**1**

REMOVAL OF EXISTING BRIDGE STRUCTURE

STATION	STATION	LOCATION	LUMP SUM
114+72	115+28	SITE 1 - BR. NO. M3171 (SITE NO. 1)	1.00
209+91	210+10	SITE 2 - NON BRIDGE LENGTH STRUCTURE (SITE NO. 2)	1.00
309+72	310+29	SITE 3 - BR. NO. M3172 (SITE NO. 3)	1.00

DRIVEWAYS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)
			FEET	SQ. YD.	TON	TON
210+56	RT.	SITE 2	16	44.80	4.93	49.27
* ENTIRE PROJECT TEMPORARY DRIVES						10.00
TOTALS:				**44.80**	**4.93**	**59.27**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.2% MIN. AGGR.....5.8% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			500	6
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			**500**	**6**

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
208+50.00	209+80.00	SITE 2 LT.	130.00	115.56
208+50.00	209+80.00	SITE 2 RT.	130.00	115.56
210+20.00	211+50.00	SITE 2 LT.	130.00	115.56
TOTAL:				**346.68**

NOTE: AVERAGE WIDTH = 8'-0"

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
02/05/24		6	ARK.	030529	26	41
		QUANTITIES				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
02-07-2024

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL					
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	CU.YD.	LIN. FT.	CU. YD.
309+50	310+50	SITE 3 - CLEARING AND GRUBBING						0.85	0.85	17.3	12	385	14
309+50	310+50	SITE 3 - STAGE 1A	0.53	1.06	0.53	54.1	0.53	0.79	0.79	16.1	12		4
209+50	210+50	SITE 2 - CLEARING AND GRUBBING						0.83	0.83	16.9	12	175	11
209+50	210+50	SITE 2 - STAGE 1B	0.45	0.90	0.45	45.9	0.45	0.73	0.73	14.9	9		5
114+50	115+50	SITE 1 - CLEARING AND GRUBBING						1.42	1.42	29.0	12	495	22
114+50	115+50	SITE 1 - STAGE 1C	0.89	1.78	0.89	90.8	0.89	1.27	1.27	25.9	12		4
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			0.47	0.94	0.47	47.9	0.47	1.12	1.12	22.8	24	264	18
TOTALS:			**2.34**	**4.68**	**2.34**	**238.7**	**2.34**	**7.01**	**7.01**	**142.9**	**93**	**1319**	**78**

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
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

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

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

STRUCTURES

STATION	DESCRIPTION	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
STRUCTURES OVER 20' - 0" SPAN										
115+03	QUAD. 12' X 12' X 58' R.C. BOX CULVERT	12	12	58	432.98	53769	178	53	0.67	PBC-1, RCB-1, RCB-2, SPECIAL DETAILS
210+00	DBL. 10' X 5' X 52' R.C. BOX CULVERT	10	5	52	117.40	16022	55	24	0.30	PBC-1, RCB-1, RCB-2, SPECIAL DETAILS
310+00	QUAD. 12' X 7' X 58' R.C. BOX CULVERT	12	7	58	321.48	37762	142	42	0.53	PBC-1, RCB-1, RCB-2, SPECIAL DETAILS
TOTALS:					**871.86**	**107553**	**375**	**119**	**1.50**	

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

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT							ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
						(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)																
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLON	TOTAL WID.	SQ.YD.	GALLON	TOTAL GALLONS	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	TOTAL PG 64-22
			FEET			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																									
113+50.00	114+50.00	SITE 1-TRANSITION	100.00	80.50	80.50				22.00	244.44	41.55	41.55									24.00	266.67	220.00	29.33	29.33
114+50.00	115+50.00	SITE 1-FULL DEPTH SECTION	100.00	170.00	170.00	44.71	496.78	24.84				24.84	22.46	249.56	330.00	41.18	22.25	247.22	220.00	27.19	26.00	288.89	220.00	31.78	58.97
115+50.00	116+50.00	SITE 1-TRANSITION	100.00	80.50	80.50				22.00	244.44	41.55	41.55									24.00	266.67	220.00	29.33	29.33
208+50.00	209+50.00	SITE 2-TRANSITION	100.00	80.50	80.50				22.00	244.44	41.55	41.55									24.00	266.67	220.00	29.33	29.33
209+50.00	210+50.00	SITE 2-FULL DEPTH SECTION	100.00	170.00	170.00	44.71	496.78	24.84				24.84	22.46	249.56	330.00	41.18	22.25	247.22	220.00	27.19	26.00	288.89	220.00	31.78	58.97
210+50.00	211+50.00	SITE 2-TRANSITION	100.00	80.50	80.50				22.00	244.44	41.55	41.55									24.00	266.67	220.00	29.33	29.33
308+50.00	309+50.00	SITE 3-TRANSITION	100.00	80.50	80.50				22.00	244.44	41.55	41.55									24.00	266.67	220.00	29.33	29.33
309+50.00	310+50.00	SITE 3-FULL DEPTH SECTION	100.00	170.00	170.00	44.71	496.78	24.84				24.84	22.46	249.56	330.00	41.18	22.25	247.22	220.00	27.19	26.00	288.89	220.00	31.78	58.97
310+50.00	311+50.00	SITE 3-TRANSITION	100.00	80.50	80.50				22.00	244.44	41.55	41.55									24.00	266.67	220.00	29.33	29.33
TOTALS:					**993.00**		**1490.34**	**74.52**		**1466.64**	**249.30**	**323.82**		**748.68**		**123.54**		**741.66**		**81.57**		**2466.69**		**271.32**	**352.89**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.2% MIN. AGGR.....5.8% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% 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.

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
02/05/24		6	ARK.	030529	27	41
		SUMMARY OF QUANTITIES AND REVISIONS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
02-07-2024

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	9	STATION
201	GRUBBING	9	STATION
202	REMOVAL AND DISPOSAL OF FENCE	773	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES	1	EACH
SP, SS, & 210	UNCLASSIFIED EXCAVATION	10056	CU. YD.
SP & 210	COMPACTED EMBANKMENT	5069	CU. YD.
SP & 210	SOIL STABILIZATION	50	TON
SP, SS, & 303	AGGREGATE BASE COURSE (CLASS 7)	1052	TON
SS & 401	TACK COAT	324	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	119	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	5	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	337	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	21	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT	1467	SQ. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SP, SS, & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SS & 604	SIGNS	231	SQ. FT.
SS & 604	BARRICADES	32	LIN. FT.
SS & 604	TRAFFIC DRUMS	6	EACH
SP, SS, & 605	CONCRETE DITCH PAVING (TYPE B)	646	SQ. YD.
SS & 611	4" PIPE UNDERDRAINS	500	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	6	EACH
SS & 619	WIRE FENCE (TYPE D-1)	768	LIN. FT.
* SS & 619	16' STEEL GATES (ALTERNATE NO. 1)	2	EACH
* SS & 619	16' ALUMINUM GATES (ALTERNATE NO. 2)	2	EACH
620	LIME	5	TON
620	SEEDING	2.34	ACRE
SS & 620	MULCH COVER	9.35	ACRE
620	WATER	388.3	M. GAL.
621	TEMPORARY SEEDING	7.01	ACRE
621	SILT FENCE	1319	LIN. FT.
621	SEDIMENT REMOVAL AND DISPOSAL	78	CU. YD.
621	ROCK DITCH CHECKS	93	CU. YD.
623	SECOND SEEDING APPLICATION	2.34	ACRE
624	SOLID SODDING	528	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	347	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	1800	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	1800	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	12	EACH
	STRUCTURES OVER 20' SPAN		
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)	1.00	LUMP SUM
205	REMOVAL OF EXISITNG BRIDGE STRUCTURE (SITE NO. 3)	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	375	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-ROADWAY	871.86	CU. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	107553	POUND

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
2/5/2024	REVISED SEQUENCE OF CONTRUCTION IN PLANS AND "MAINTENANCE OF TRAFFIC" SPECIAL PROVISION.	16,18-22, 26, 27

12/19/2022

R030529.DGN

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	28	41
		SURVEY CONTROL DETAILS				

Project Name: s030529
Date: 5/3/2019
Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
2	1732012.6865	839884.3726	362.795	CTL	•STD ARDOT CAP STAMPED PN: 2
3	1732395.8117	839987.6063	372.495	CTL	•STD ARDOT CAP STAMPED PN: 3
4	1732626.0332	840510.2026	340.533	CTL	•STD ARDOT CAP STAMPED PN: 4
5	1732931.5525	840872.7929	344.090	CTL	•STD ARDOT CAP STAMPED PN: 5
6	1733265.5974	841205.3277	357.461	CTL	•STD ARDOT CAP STAMPED PN: 6
7	1733838.2695	841290.1835	370.418	CTL	•STD ARDOT CAP STAMPED PN: 7
8	1748561.7381	845263.0534	402.401	CTL	•STD ARDOT CAP STAMPED PN: 8
9	1749072.7667	845351.3762	399.785	CTL	•STD ARDOT CAP STAMPED PN: 9
10	1749613.5630	845350.1496	392.272	CTL	•STD ARDOT CAP STAMPED PN: 10
11	1750301.2564	845410.6429	390.517	CTL	•STD ARDOT CAP STAMPED PN: 11
12	1750898.5837	845532.3765	393.235	CTL	•STD ARDOT CAP STAMPED PN: 12
13	1751471.5279	845545.7839	408.357	CTL	•STD ARDOT CAP STAMPED PN: 13
14	1752055.8781	845456.5330	401.739	CTL	•STD ARDOT CAP STAMPED PN: 14
901	1731489.3338	839845.4272	346.504	TBM	•SQ CUT S END HDWL OF RC BOX
902	1732907.1233	840857.1814	344.516	TBM	•STD ARDOT CAP STAMPED PN: 1 SQ C
903	1749015.2936	845310.8705	401.863	TBM	•SQ CUT NW CORNER OF BR
904	1750385.7419	845427.7377	391.633	TBM	•SQ CUT NW CORNER OF BR LOG 6.32
999	1719576.3761	800696.7560	448.470	BM	•NGS BM P 62

•Note - Rebar and Cap - Standard -•" 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 0.999910714 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 s030529gi.ctl
HORIZONTAL DATUM: NAD 83 (2011)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

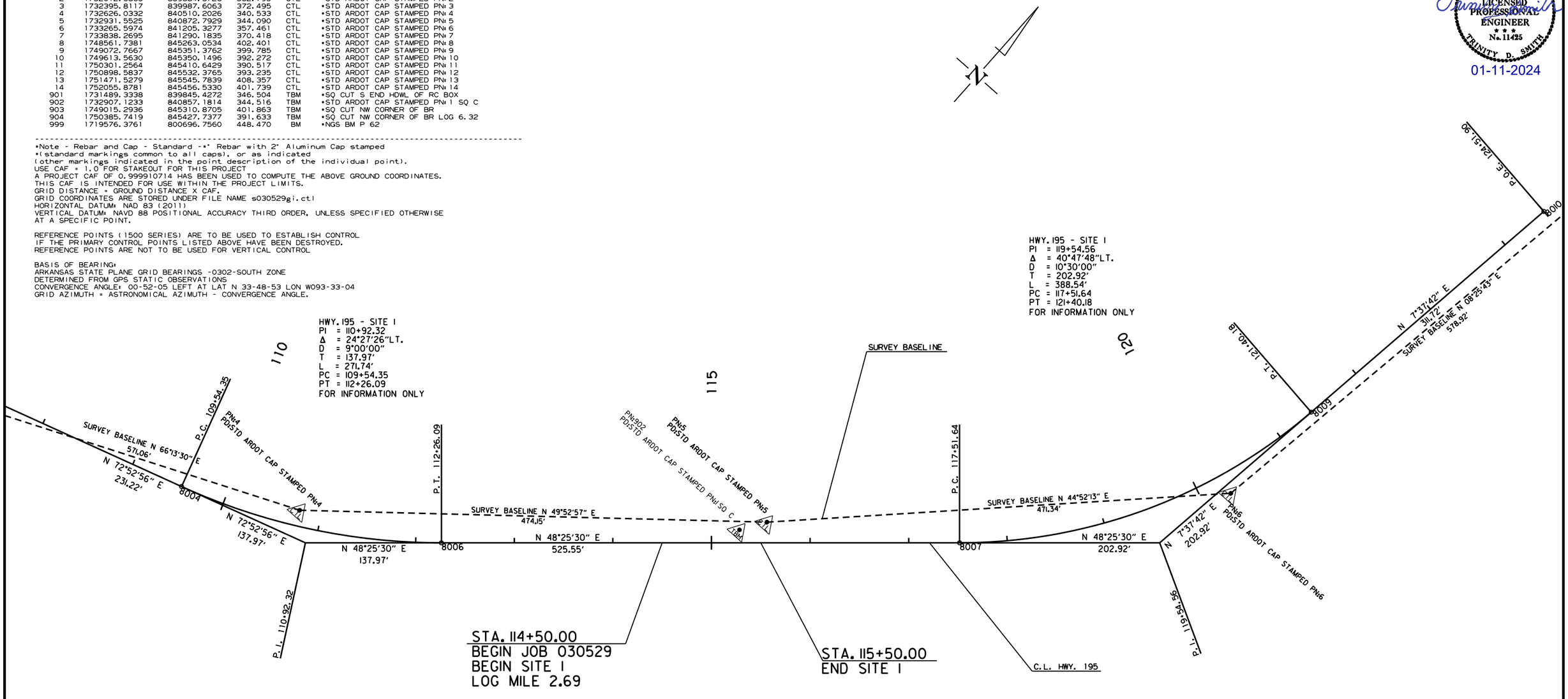
REFERENCE POINTS (1500 SERIES) ARE TO BE USED TO ESTABLISH CONTROL IF THE PRIMARY CONTROL POINTS LISTED ABOVE HAVE BEEN DESTROYED.
REFERENCE POINTS ARE NOT TO BE USED FOR VERTICAL CONTROL

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS -0302-SOUTH ZONE
DETERMINED FROM GPS STATIC OBSERVATIONS
CONVERGENCE ANGLE: 00-52-05 LEFT AT LAT N 33-48-53 LON W093-33-04
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
01-11-2024

HWY. 195 - SITE 1
PI = 110+92.32
Δ = 24°27'26"LT.
D = 9°00'00"
T = 137.97'
L = 271.74'
PC = 109+54.35
PT = 112+26.09
FOR INFORMATION ONLY

HWY. 195 - SITE 1
PI = 119+54.56
Δ = 40°47'48"LT.
D = 10°30'00"
T = 202.92'
L = 388.54'
PC = 117+51.64
PT = 121+40.18
FOR INFORMATION ONLY



SITE 1

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	102+01.90	1732094.7248	839909.8375
8001	PC	102+93.73	1732185.7877	839921.6612
8003	PT	107+23.13	1732496.4779	840183.6578
8004	PC	109+54.35	1732564.5337	840404.6310
8006	PT	112+26.09	1732696.7040	840639.7095
8007	PC	117+51.64	1733045.4596	841032.8687
8009	PT	121+40.18	1733381.2348	841211.6047
8010	POE	124+51.90	1733690.1922	841252.9846

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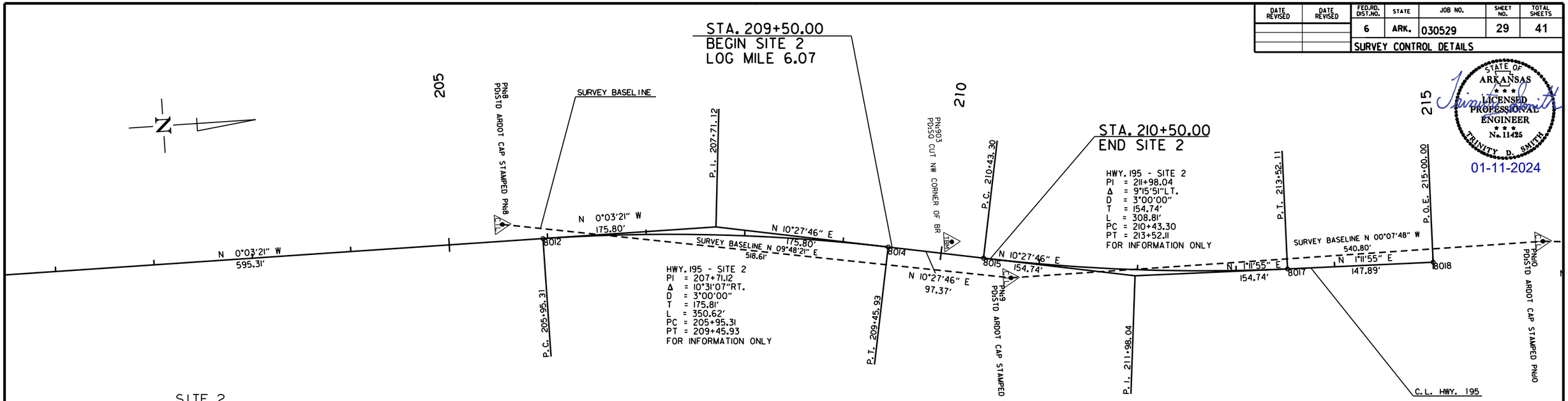
SURVEY CONTROL DETAILS

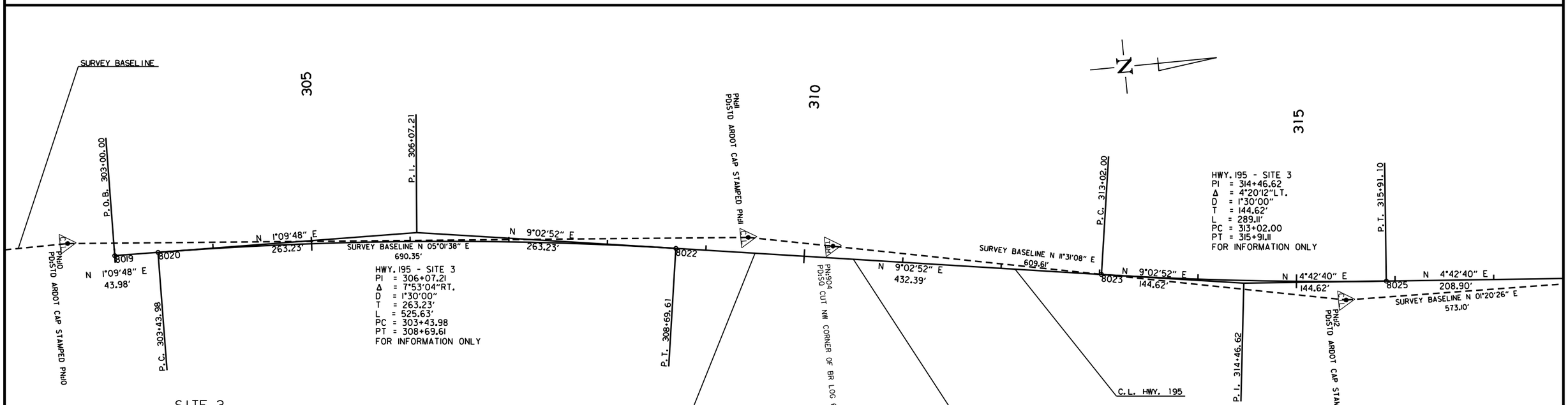
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	29	41
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
01-11-2024



SITE 2

POINT NO.	TYPE	STATION	NORTHING	EASTING
8011	POB	200+00.00	1748006.4962	845280.6952
8012	PC	205+95.31	1748601.8073	845280.1148
8014	PT	209+45.93	1748950.4925	845311.8688
8015	PC	210+43.30	1749046.2450	845329.5511
8017	PT	213+52.11	1749353.1147	845360.8881
8018	POE	215+00.00	1749500.9773	845363.9820



SITE 3

POINT NO.	TYPE	STATION	NORTHING	EASTING
8019	POB	303+00.00	1749659.8565	845367.0209
8020	PC	303+43.98	1749703.8243	845367.9136
8022	PT	308+69.61	1750226.9590	845414.6528
8023	PC	313+02.00	1750653.9696	845482.6495
8025	PT	315+91.10	1750940.9207	845517.2702
8026	POE	318+00.00	1751149.1133	845534.4278

STA. 309+50.00
BEGIN SITE 3
LOG MILE 6.29

STA. 310+50.00
END SITE 3
END JOB 030529

SURVEY CONTROL DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	30	41
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
01-11-2024

FLOOD PLAIN BOUNDARY

STA. 113+50.00 TO STA. 114+60.00 ON LT.
CONC. DITCH PAVING (TYPE B) = 77.24 SQ. YD.

HWY. 195 - SITE 1
PI = 110+92.32
Δ = 24°27'26"LT.
D = 9°00'00"
T = 137.97'
L = 271.74'
PC = 109+54.35
PT = 112+26.09
FOR INFORMATION ONLY

STA. 115+03 CONSTRUCT
QUAD. 12' X 12' X 58' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
Q25 = 2190 CFS D.A. = 3.58 SQ. MI.
SPAN = 51'-10"

STA. 114+71.56 TO STA. 115+28.44 IN PLACE
57'x25' BRIDGE NO. M3171 CONSISTING OF
CONCRETE CHANNEL BEAM
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 1) = 1.00 LUMP SUM

+50 100' TRANSITION +50

+50 100' TRANSITION +50

STA. 115+45.00 TO STA. 116+45.00 ON LT.
CONC. DITCH PAVING (TYPE B) = 73.73 SQ. YD.

N 72°52'56" E

PC109+54.35

110

PT112+26.09

115

120

PC117+51.64

PT121+40.18

N 7°37'42" E

PROP. ROW

EXISTING ROW

PROP. CONST. LIMITS

+00.00 41.28

+50.00 110.00

+80.00 110.00

+75.00 40.78

N 48°25'30" E

2-11' 11'

1-11' 11'

PI110+92.32

+25.00 38.75

+65.00 135.00

+75.00 140.00

+75.00 39.22

PI119+54.56

COUNTY ROAD 30

CARUSE CREEK

STA. 115+45.00 TO STA. 116+50.00 ON RT.
CONC. DITCH PAVING (TYPE B) = 73.73 SQ. YD.

STA. 113+50.00 TO STA. 114+60.00 ON RT.
CONC. DITCH PAVING (TYPE B) = 77.24 SQ. YD.

HWY. 195 - SITE 1
PI = 119+54.56
Δ = 40°47'48"LT.
D = 10°30'00"
T = 202.92'
L = 388.54'
PC = 117+51.64
PT = 121+40.18
FOR INFORMATION ONLY

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
115+45	116+51	RT.	D-1	176

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

SITE 1

CARUSE CREEK AT STA. 115+01.90
IS CLASSIFIED AS PERENNIAL. THE TOP OF
CHANNEL ELEVATION IS 337.00 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY
FILL OF THE 2014 STANDARD SPECIFICATIONS.

STA. 114+50.00
BEGIN JOB 030529
BEGIN SITE 1
LOG MILE 2.69

STA. 115+50.00
END SITE 1

P.V.I. 114+50.00
ELEV. 343.90

P.V.I. 115+50.00
ELEV. 344.57

0.67%

+03

RT. DITCH GRADE -8.64%

LT. DITCH GRADE -6.28%

LT. DITCH GRADE 16.45%

RT. DITCH GRADE 13.27%

113+50.00
337.00 RT.

113+50.00
334.91 LT.

114+60.00
328.00 LT.

114+60.00
327.50 RT.

115+45.00
327.50 RT.

115+45.00
328.00 LT.

116+50.00
341.43 RT.

116+50.00
345.27 LT.

Q25 DESIGN
HIGH WATER
339.19

F.L. INLET (LT.) = 328.00
F.L. OUTLET (RT.) = 327.50

390 380 370 360 350 340 330 320 310 300

108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	31	41
		PLAN AND PROFILE SHEETS				

HWY. 195 - SITE 2
PI = 207+71.12
Δ = 10°31'07"RT.
D = 3°00'00"
T = 175.81'
L = 350.62'
PC = 205+95.31
PT = 209+45.93
FOR INFORMATION ONLY

STA. 210+00 CONSTRUCT
DBL. 10' X 5' X 52' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
Q25 = 340 CFS D.A. = 0.36 SQ. MI.
SPAN = 21'-8"

STA. 209+90.67 TO STA. 210+09.33 IN PLACE
19' X 24' NON BRIDGE LENGTH STRUCTURE
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 2) = 1.00 LUMP SUM

205 | 210 | 215

+50 100' TRANSITION +50 | +50 100' TRANSITION +50

PI207+71.12 | 16' GATE | PI210+43.30 | PT213+52.11 | POE215+00.00

+00.00 40.99 | +40.00 70.00 | +05.00 75.00 | +50.00 38.50

EXISTING ROW | PROP. CONST. LIMITS | PROP. ROW | EXISTING ROW | FLOOD PLAIN BOUNDARY

N 0°03'21" W | N 10°27'46" E | +56 | N 1°11'55" E

+00.00 39.01 | -80.00 85.00 | +50.00 41.50

EXISTING ROW | PROP. CONST. LIMITS | PROP. ROW | 16' GATE | PROP. ROW | EXISTING ROW

PC205+95.31 | PT209+45.93 | PI211+98.04

16' GATE

HWY. 195 - SITE 2
PI = 211+98.04
Δ = 9°15'51"LT.
D = 3°00'00"
T = 154.74'
L = 308.81'
PC = 210+43.30
PT = 213+52.11
FOR INFORMATION ONLY

STA. 210+20.00 TO STA. 210+50.00 ON RT.
CONC. DITCH PAVING (TYPE B) = 21.07 SQ. YD.

STA. 210+56
CONSTRUCT APPROACH ON RT. = 25 CU. YD.

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	GATES
208+40	209+82	LT.	D-1	166	
208+48	208+82	RT.	D-1	35	
210+18	211+37	LT.	D-1	144	1
210+18	211+50	RT.	D-1	156	1

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

SITE 2

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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TRINITY D. SMITH
01-11-2024

STA. 209+50.00
BEGIN SITE 2
LOG MILE 6.07

STA. 210+50.00
END SITE 2

K=116.28
VC=100'
e=-0.11'

P.V.C. 209+50.00 ELEV. 401.52 | P.V.I. 210+00.00 ELEV. 401.50 | P.V.T. 210+50.00 ELEV. 401.05

-0.04% | -0.90%

LT. DITCH GRADE -2.83% | RT. DITCH GRADE -2.12% | RT. DITCH GRADE 17.17% | LT. DITCH GRADE -2.78%

208+50.00 396.36 RT. | 208+50.00 396.98 LT. | 209+80.00 393.60 RT. | 209+80.00 393.30 LT. | 210+20.00 393.30 LT. | 210+20.00 393.60 RT. | 210+50.00 398.75 RT. | 211+50.00 389.69 LT.

Q25 DESIGN HIGH WATER 397.49

F.L. INLET (RT.) = 393.6
F.L. OUTLET (LT.) = 393.3

440 430 420 410 400 390 380 370 360 350

201+00 202+00 203+00 204+00 205+00 206+00 207+00 208+00 209+00 210+00 211+00 212+00 213+00 214+00 215+00 216+00

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R030529.DGN

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	32	41
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
01-11-2024

STA. 310+00 CONSTRUCT
QUAD 12' X 7' X 56' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
Q25 = 1400 CFS D.A. = 1.89 SQ. MI.
SPAN = 51'-2"

STA. 308+50.00 TO STA. 309+65.00 ON LT.
CONC. DITCH PAVING (TYPE B) = 80.76 SQ. YD.

HWY. 195 - SITE 3
PI = 306+07.21
Δ = 7°53'04"RT.
D = 1°30'00"
T = 263.23'
L = 525.63'
PC = 303+43.98
PT = 308+69.61
FOR INFORMATION ONLY

STA. 310+35.00 TO STA. 311+50.00 ON LT.
CONC. DITCH PAVING (TYPE B) = 80.76 SQ. YD.

STA. 309+71.88 TO STA. 310+28.42
56' X 25' BRIDGE NO. M3172 CONSISTING OF
CONCRETE CHANNEL BEAM
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 3) = 1.00 LUMP SUM

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
310+35	311+05	LT.	D-1	91

TRIBBLE CREEK

FLOOD PLAIN BOUNDARY

+50 100' TRANSITION +50

PROP. ROW

PROP. CONST. LIMITS

EXISTING ROW

POB 303+00.00

PI 306+07.21

PC 303+43.98

PT 308+69.61

PC 313+02.00

PT 315+91.11

PI 314+46.62

N 1°09'48" E

N 9°02'52" E

N 4°42'40" E

HWY. 195 - SITE 3
PI = 314+46.62
Δ = 4°20'12"LT.
D = 1°30'00"
T = 144.62'
L = 289.11'
PC = 313+02.00
PT = 315+91.11
FOR INFORMATION ONLY

STA. 308+50.00 TO STA. 309+65.00 ON RT.
CONC. DITCH PAVING (TYPE B) = 80.76 SQ. YD.

STA. 310+35.00 TO STA. 311+50.00 ON RT.
CONC. DITCH PAVING (TYPE B) = 80.76 SQ. YD.

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

SITE 3

TRIBBLE CREEK AT STA. 310+03.98
IS CLASSIFIED AS PERENNIAL. THE TOP OF
CHANNEL ELEVATION IS 384.00 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY
FILL OF THE 2014 STANDARD SPECIFICATIONS.

STA. 309+50.00
BEGIN SITE 3
LOG MILE 6.33

STA. 310+50.00
END SITE 3
END JOB 030529

P.V.I. 309+50.00
ELEV. 391.19

P.V.I. 310+50.00
ELEV. 390.98

-0.21%

+00

RT. DITCH GRADE -4.30%
LT. DITCH GRADE -3.14%

LT. DITCH GRADE 4.12%
RT. DITCH GRADE 3.90%

308+50.00 RT.	308+50.00 LT.	309+65.00 LT.	309+65.00 RT.	310+35.00 RT.	310+35.00 LT.	311+50.00 LT.	311+50.00 RT.
384.75	383.91	380.30	379.80	379.80	380.30	385.04	384.29

Q25 DESIGN
HIGH WATER
387.10

F.L. INLET (LT.) = 380.3
F.L. OUTLET (RT.) = 379.8

440 430 420 410 400 390 380 370 360 350

302+00 303+00 304+00 305+00 306+00 307+00 308+00 309+00 310+00 311+00 312+00 313+00 314+00 315+00 316+00 317+00

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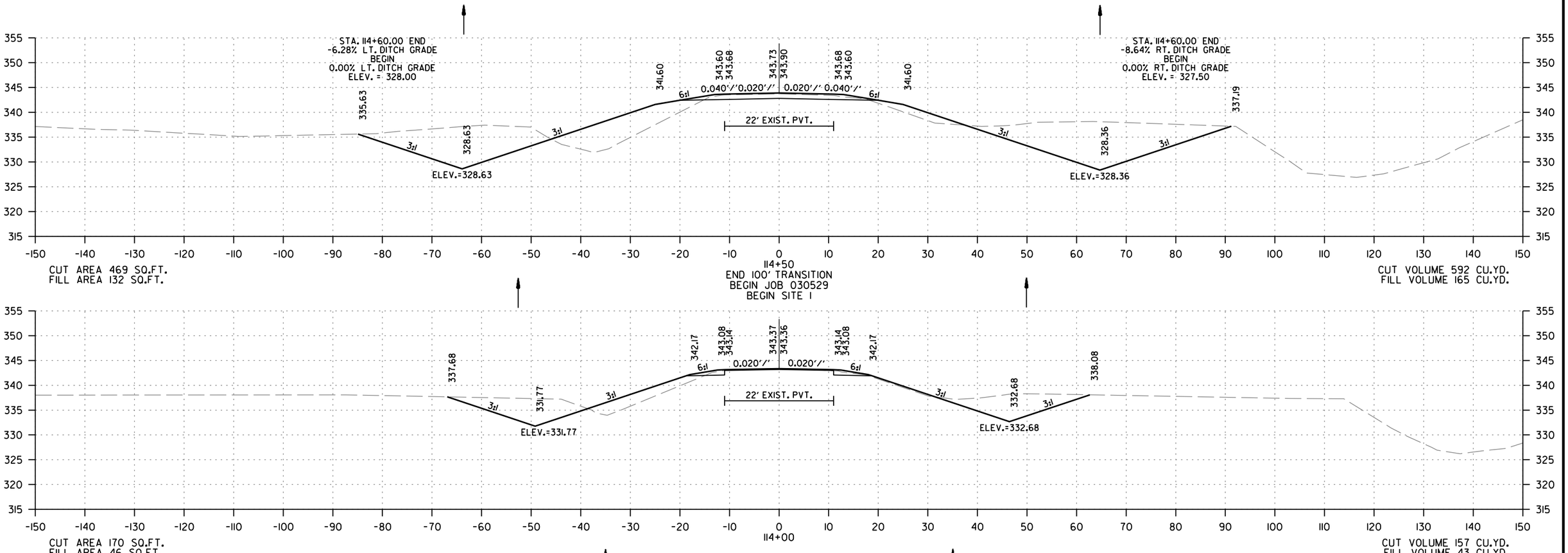
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	33	41
		CROSS SECTIONS				



SITE 1

STA. 113+50 TO STA. 114+50

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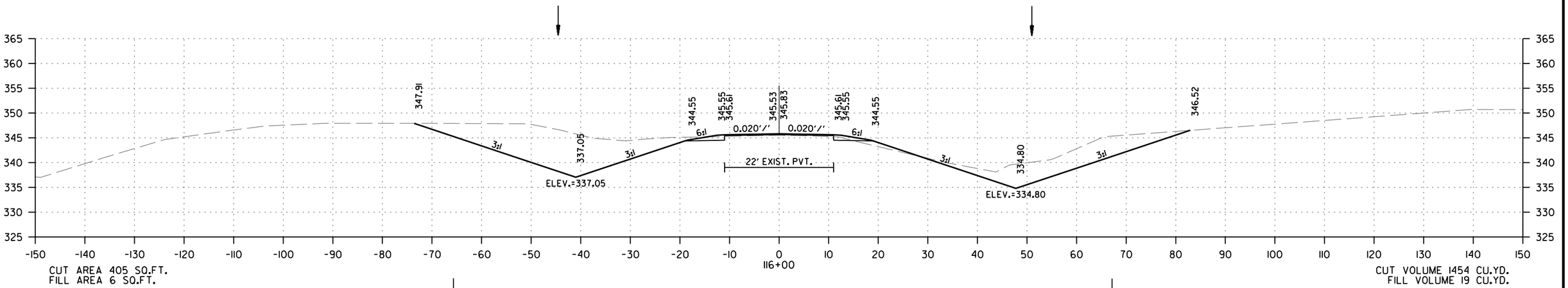
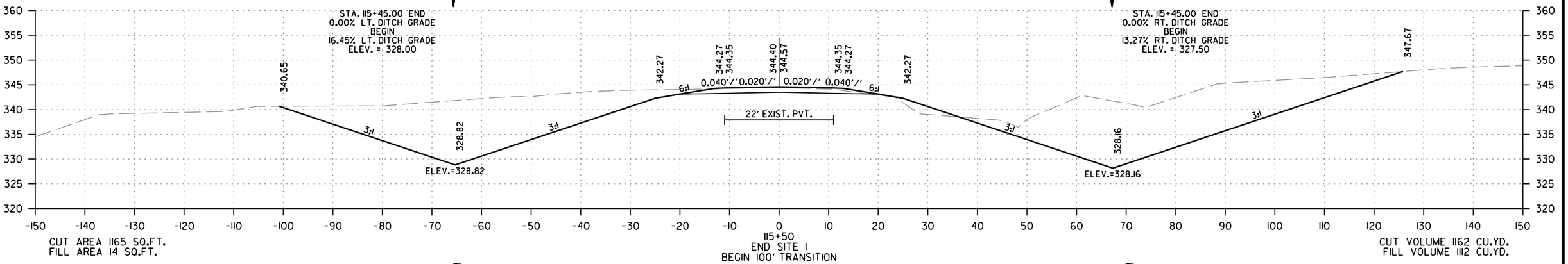
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	34	41
		CROSS SECTIONS				



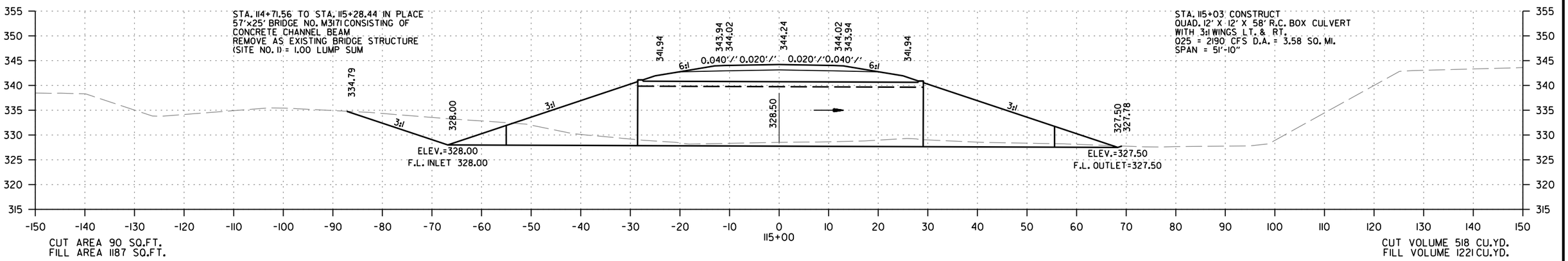
CUT AREA 405 SQ.FT.
FILL AREA 6 SQ.FT.

CUT VOLUME 1454 CU.YD.
FILL VOLUME 19 CU.YD.



CUT AREA 1165 SQ.FT.
FILL AREA 14 SQ.FT.

CUT VOLUME 1162 CU.YD.
FILL VOLUME 1112 CU.YD.



CUT AREA 90 SQ.FT.
FILL AREA 1187 SQ.FT.

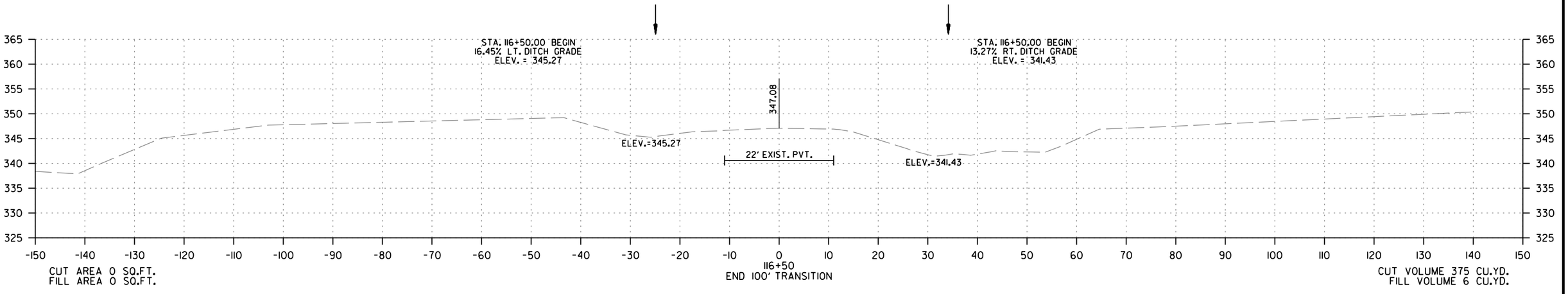
CUT VOLUME 518 CU.YD.
FILL VOLUME 1221 CU.YD.

SITE I

STA. 115+00 TO STA. 116+00

oh40219 12/19/2022
R030529.DGN

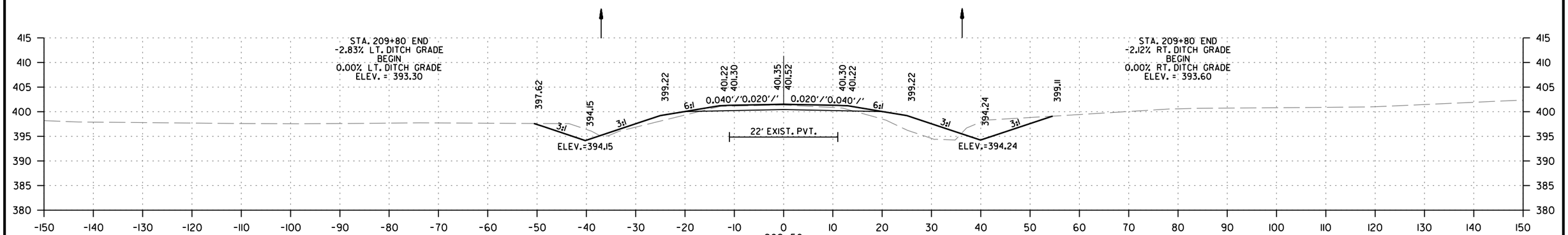
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	35	41
		CROSS SECTIONS				



SITE 1

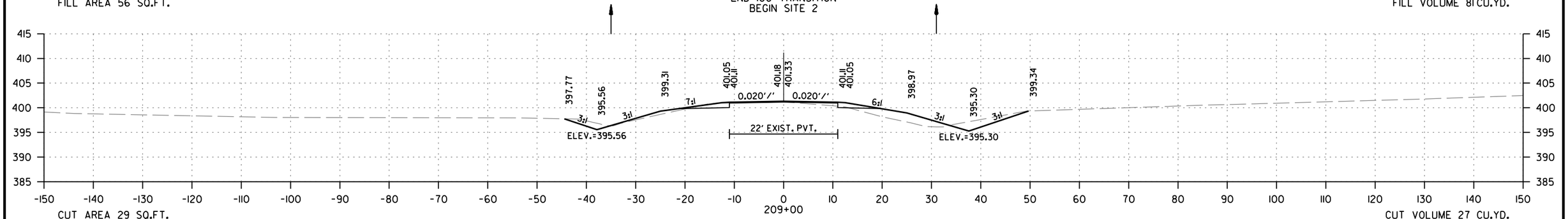
STA. 116+50 TO STA. 116+50

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	36	41
		CROSS SECTIONS				



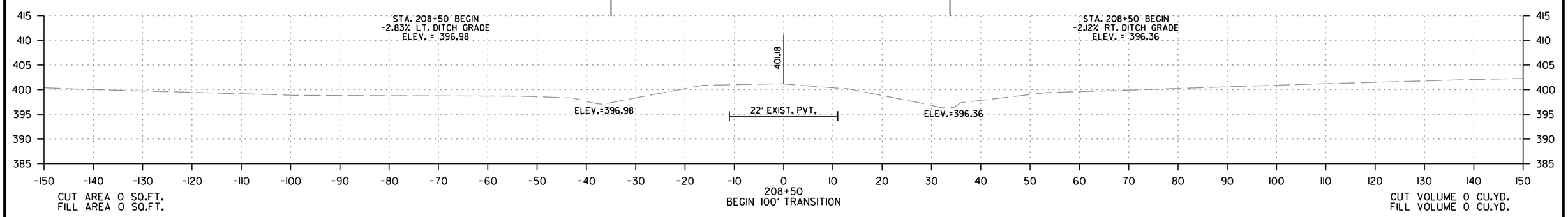
CUT AREA 80 SQ.FT.
FILL AREA 56 SQ.FT.

CUT VOLUME 101 CU.YD.
FILL VOLUME 81 CU.YD.



CUT AREA 29 SQ.FT.
FILL AREA 32 SQ.FT.

CUT VOLUME 27 CU.YD.
FILL VOLUME 30 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.

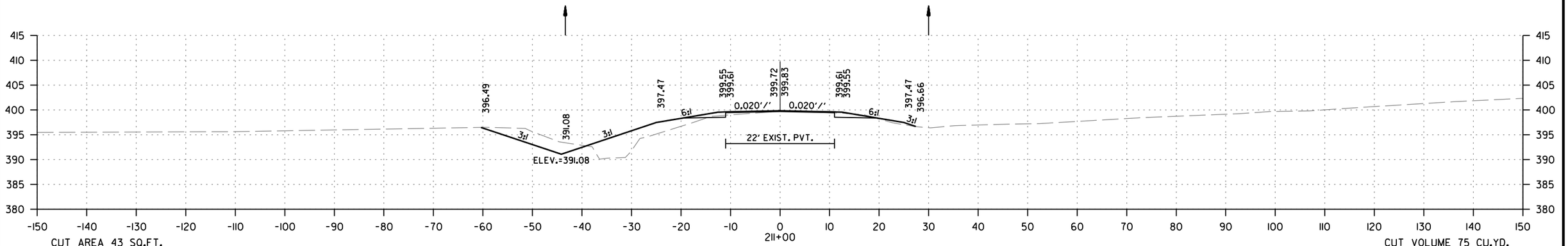
CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.

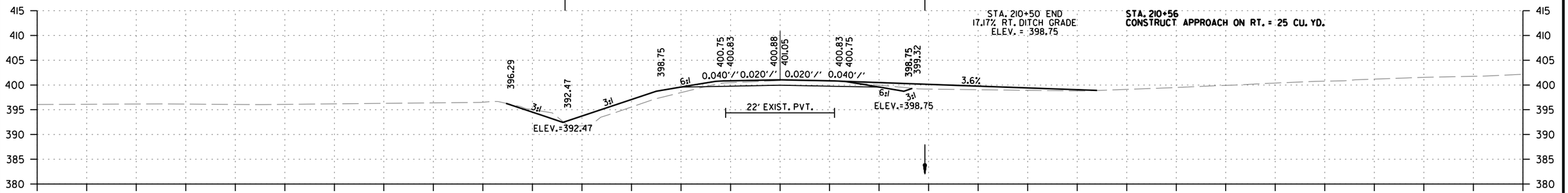
SITE 2

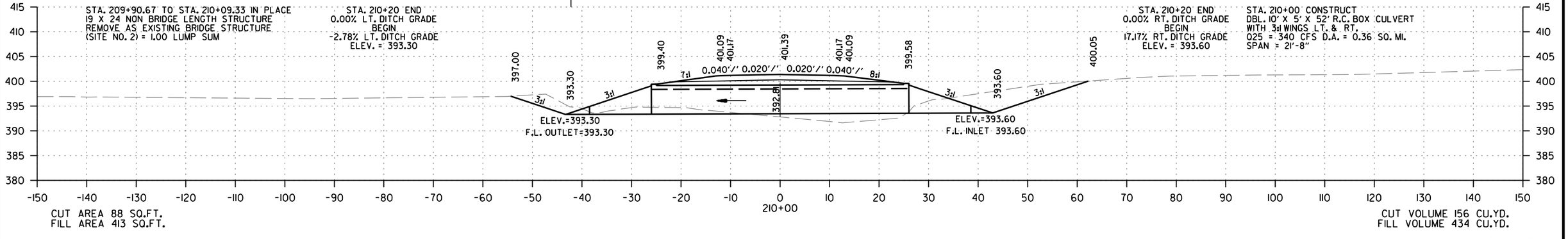
STA. 208+50 TO STA. 209+50

dh40219 12/19/2022
R030529.DGN

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	37	41
		CROSS SECTIONS				





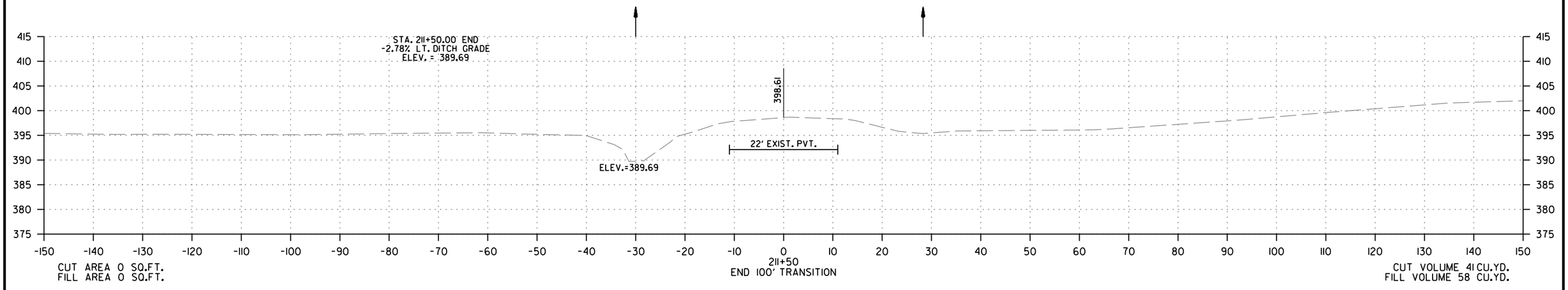


SITE 2

STA. 210+00 TO STA. 211+00

dh40219 12/19/2022
R030529.DGN

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	38	41
		CROSS SECTIONS				

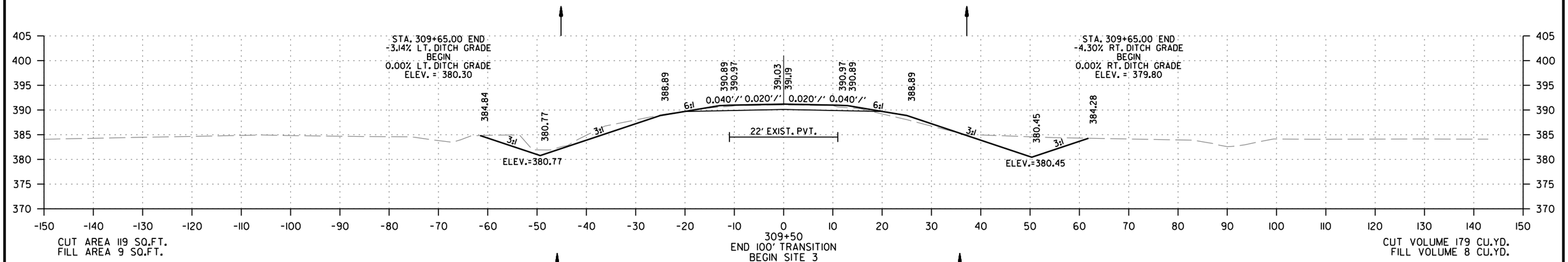


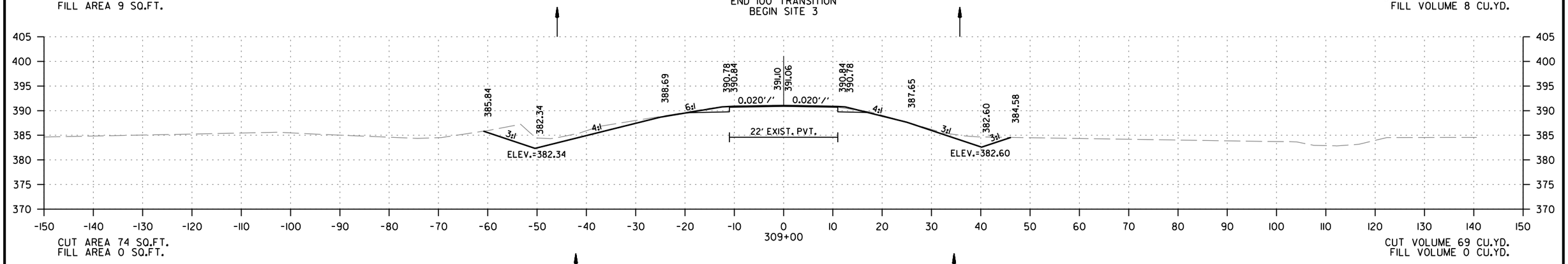
SITE 2

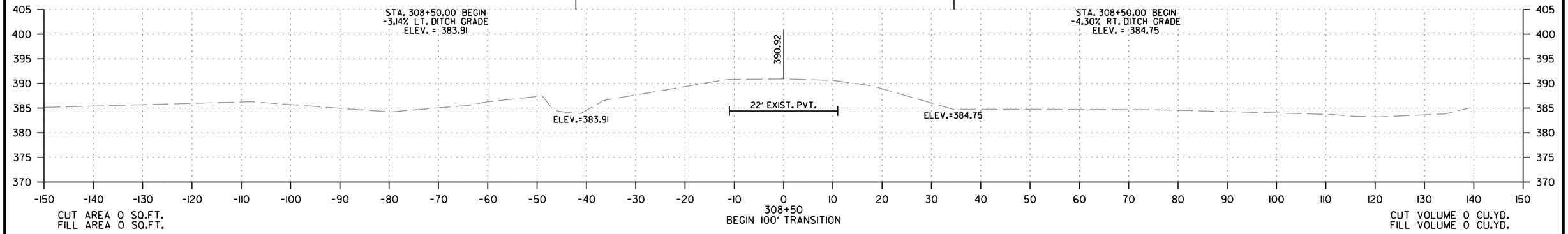
STA. 211+50 TO STA. 211+50

oh40219 12/19/2022
R030529.DGN

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	39	41
		CROSS SECTIONS				





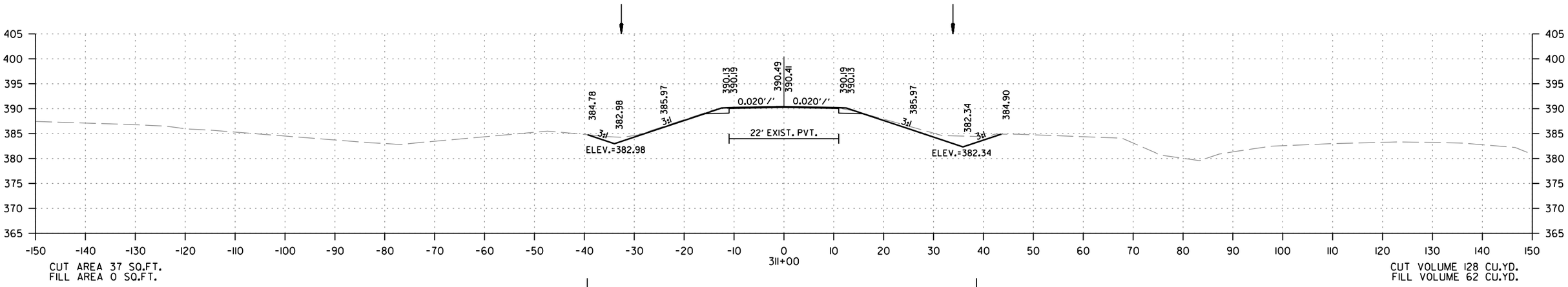


SITE 3

STA. 308+50 TO STA. 309+50

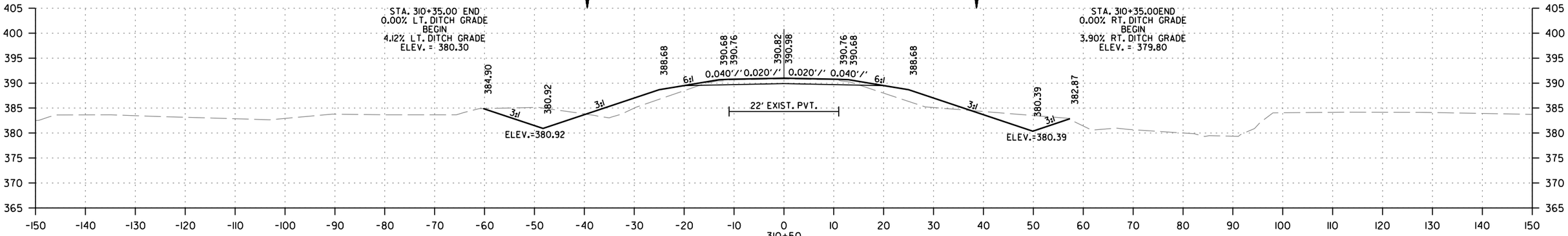
dh40219 12/19/2022
R030529.DGN

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	40	41
		CROSS SECTIONS				



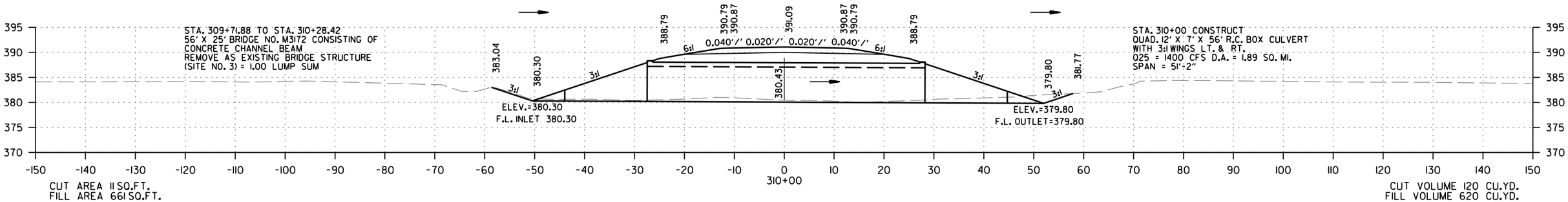
CUT AREA 37 SQ.FT.
FILL AREA 0 SQ.FT.

CUT VOLUME 128 CU.YD.
FILL VOLUME 62 CU.YD.



CUT AREA 101 SQ.FT.
FILL AREA 67 SQ.FT.

CUT VOLUME 104 CU.YD.
FILL VOLUME 674 CU.YD.



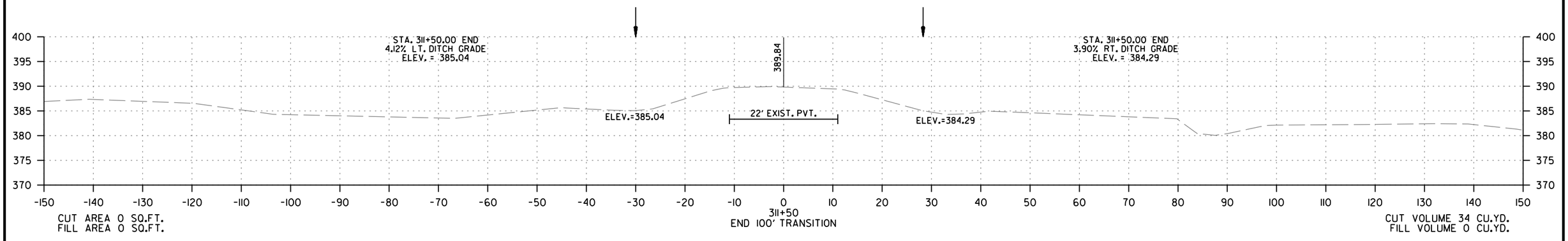
CUT AREA 11 SQ.FT.
FILL AREA 661 SQ.FT.

CUT VOLUME 120 CU.YD.
FILL VOLUME 620 CU.YD.

SITE 3
STA. 310+00 TO STA. 311+00

dh40219 12/19/2022
R030529.DGN

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	030529	41	41
		CROSS SECTIONS				

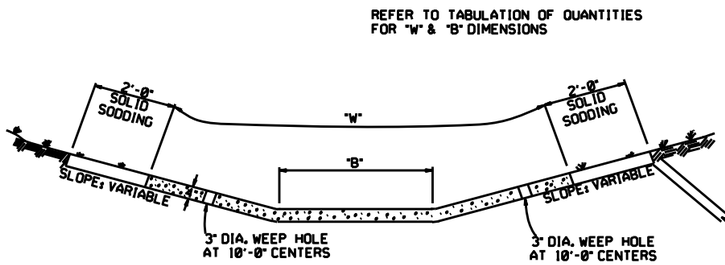


SITE 3

STA. 311+50 TO STA. 311+50

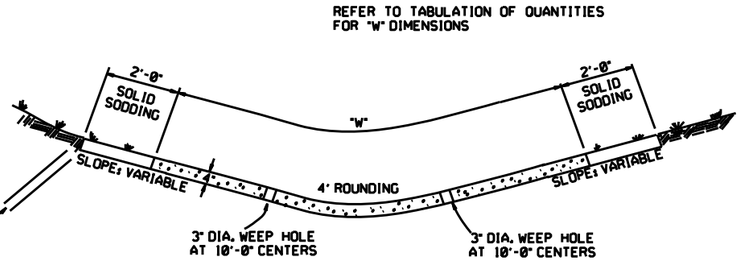
12/19/2022

oh40219 R030529.DGN



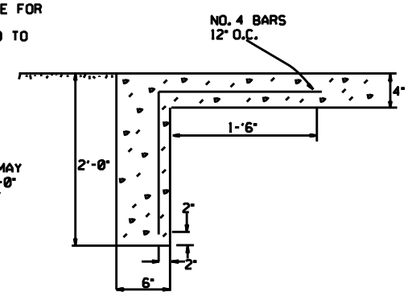
TYPE A

EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.



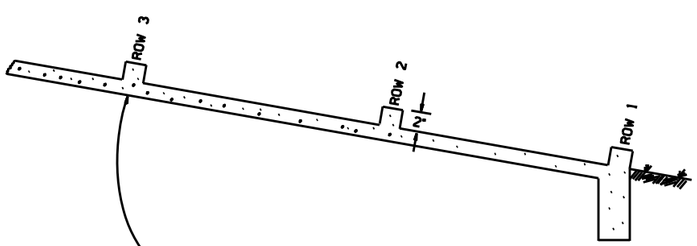
TYPE B

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



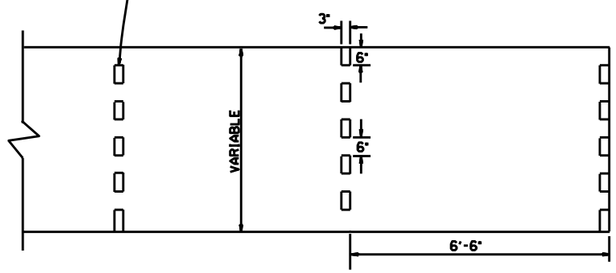
TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

TOE WALL DETAIL FOR CONCRETE DITCH PAVING



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

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



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

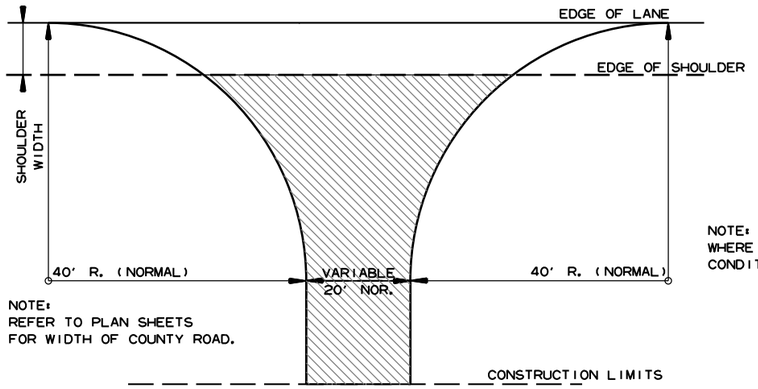
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45° INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

STANDARD DRAWING CDP-1

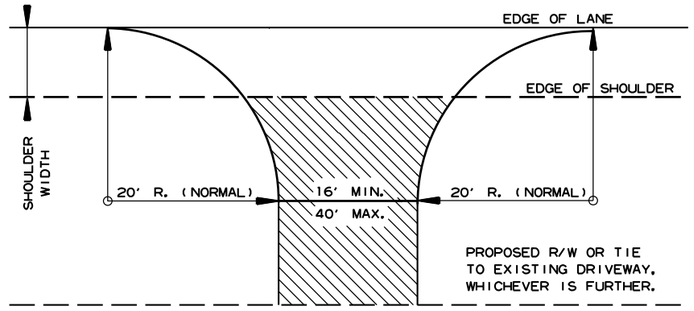


NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.

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

ACHM SURFACE COURSE (1/2")
(220 LBS. PER SQ. YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH, UNLESS OTHERWISE
SPECIFIED IN PLANS.

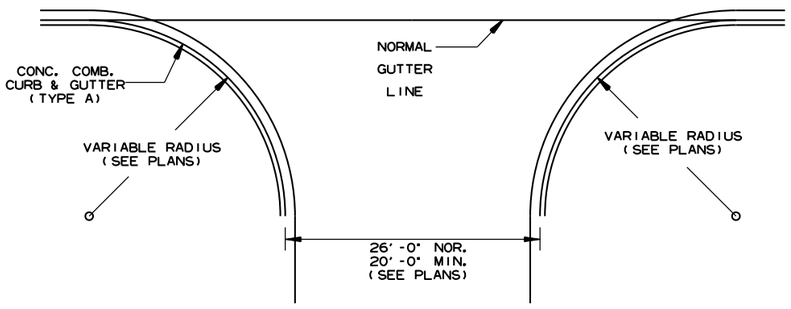
DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION



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

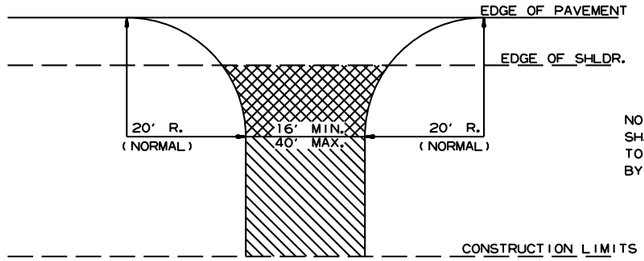
ACHM SURFACE COURSE (1/2")
(220 LBS. PER SQ. YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT OR
GRAVEL DRIVE EXISTING; OR 6"
CONCRETE IF CONCRETE DRIVE
EXISTING.

DETAIL FOR DRIVEWAY TURNOUTS OPEN SHOULDER SECTION (ARTERIALS)



NOTE:
PAVEMENT STRUCTURE FOR STATE HIGHWAYS, CITY STREETS,
& COUNTY ROADS TO BE SAME AS MAIN LANES.

DETAIL OF TURNOUTS, ASPHALT STREETS, COUNTY ROADS & STATE HIGHWAYS CURB & GUTTER SECTION



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

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

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

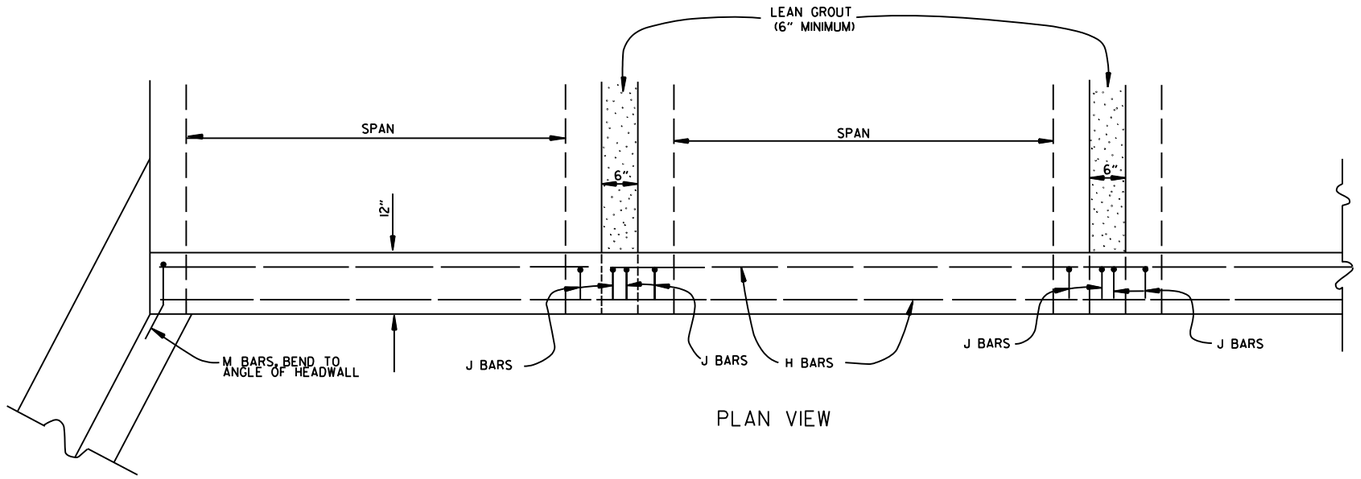
DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)

DATE REV	DATE FILMED	DESCRIPTION
5-19-22		ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DRIVEWAYS & STREET TURNOUTS

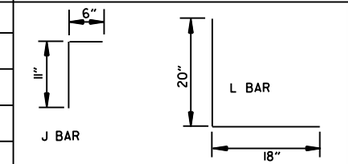
STANDARD DRAWING DR-2



PLAN VIEW

BAR LIST

BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	



• NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT

GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE WING DRAWING. STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

ALL EXPOSED CORNERS TO HAVE ¾" CHAMFERS.

WINGWALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, MEMBRANE WATERPROOFING, DRAINAGE FILL MATERIAL, GEOTEXTILE FILTER FABRIC, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.

LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS:
PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85.
SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS.
THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE.
THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

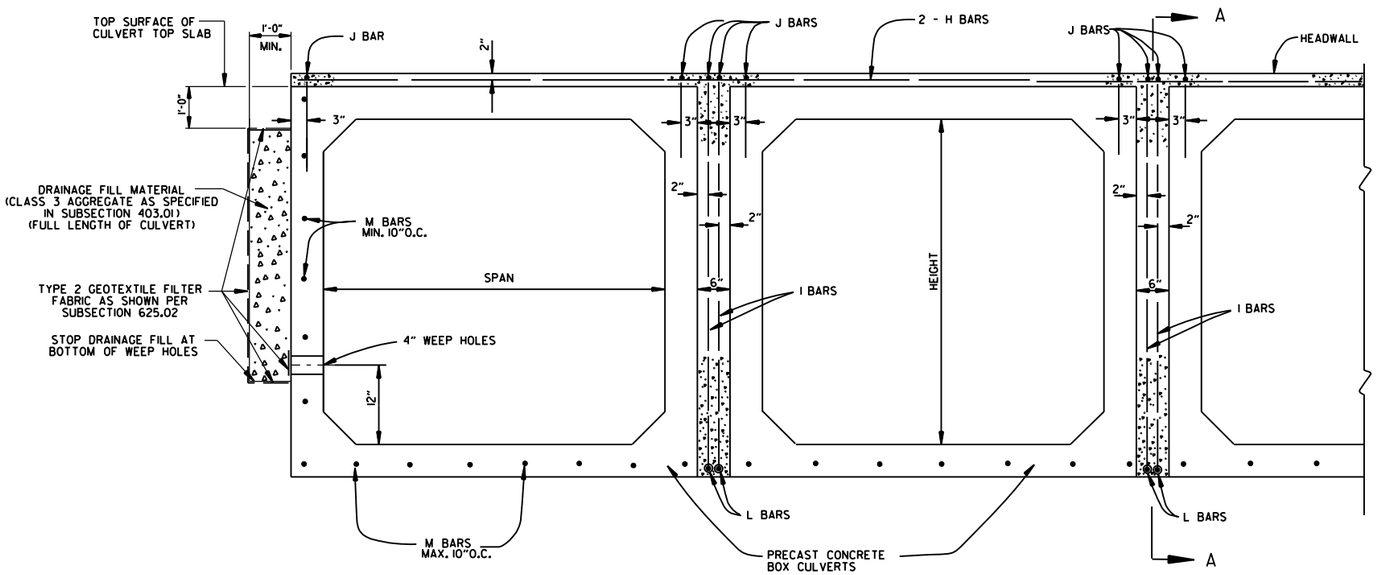
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

IN OUTER BARRELS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" IN THE ASSEMBLED CULVERT AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

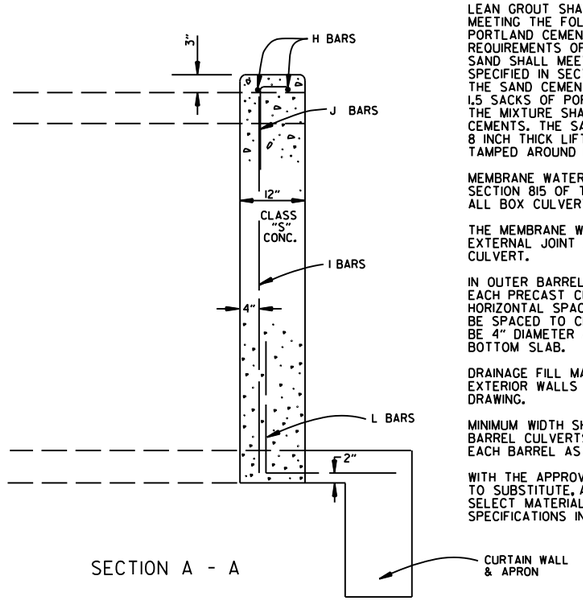
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT). ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.



END VIEW



SECTION A - A

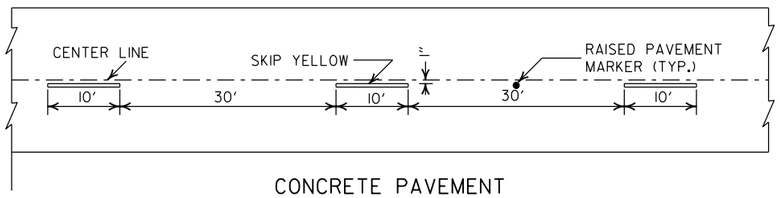
DATE	REVISION	DATE FILMED
1-28-15	REVISED GEOTEXTILE FABRIC PLACEMENT	
12-15-11	ADDED NOTE & DTLS FOR WEEP HOLE AND DRAINAGE FILL	
10-15-09	ADDED GENERAL NOTE	
11-10-05	REVISED SPACING OF "M" BARS	
4-10-03	REVISED GENERAL NOTES	
10-18-96	CORRECTED AASHTO REF.	
10-1-92	ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91	ADDED NOTE FOR LEAN GROUT	
11- 8-90	REVISED FOR 1991 SPECS	
11-30-89	ISSUED; JABE	

ARKANSAS STATE HIGHWAY COMMISSION

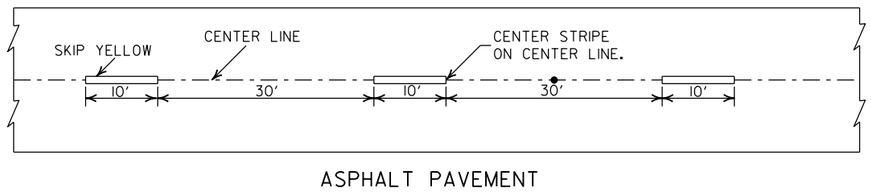
PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

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

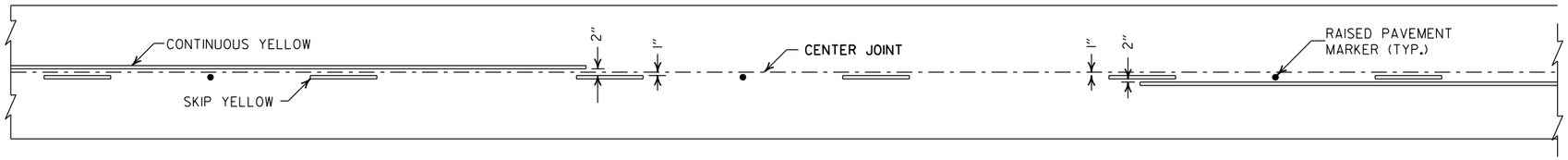


CONCRETE PAVEMENT

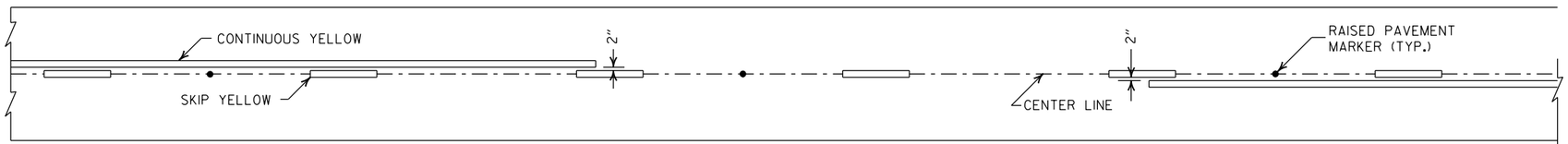


ASPHALT PAVEMENT

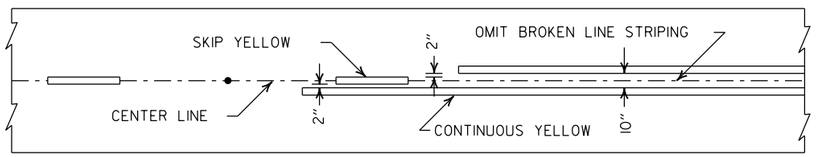
BROKEN LINE STRIPING



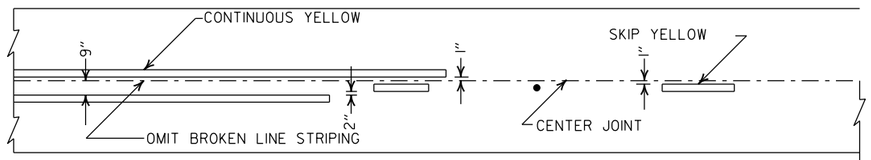
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

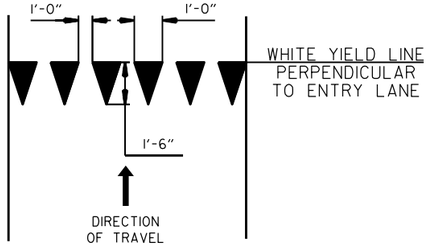


ASPHALT PAVEMENT

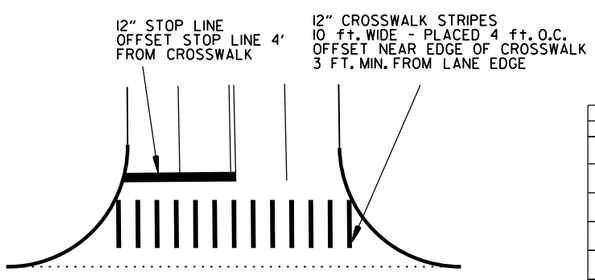


CONCRETE PAVEMENT

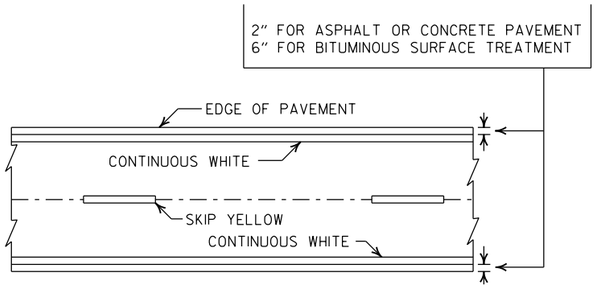
STRIPING AT ADJACENT NO PASSING LANES



YIELD LINE DETAIL



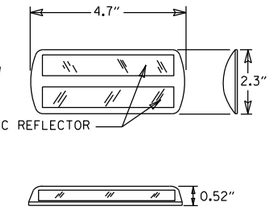
CROSSWALK AND STOP LINE DETAILS



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

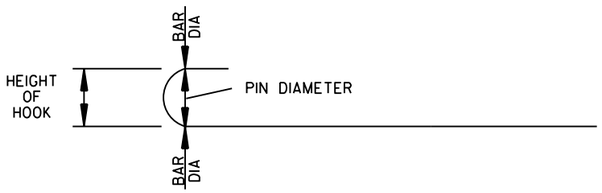
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

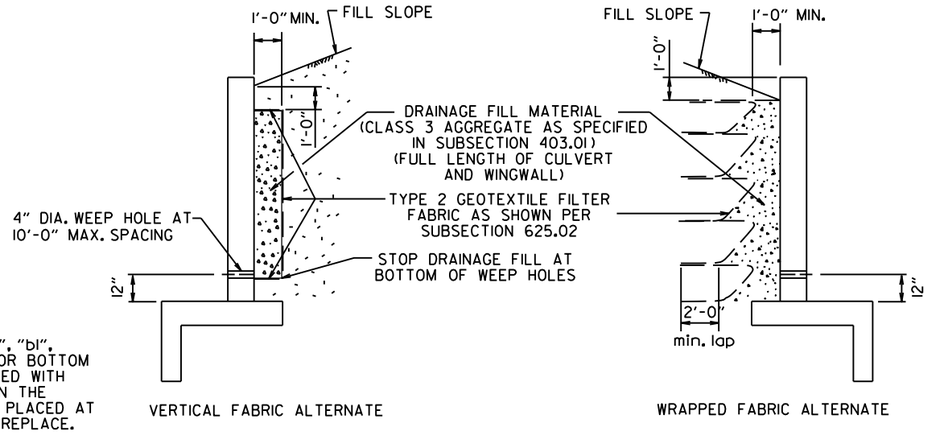
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

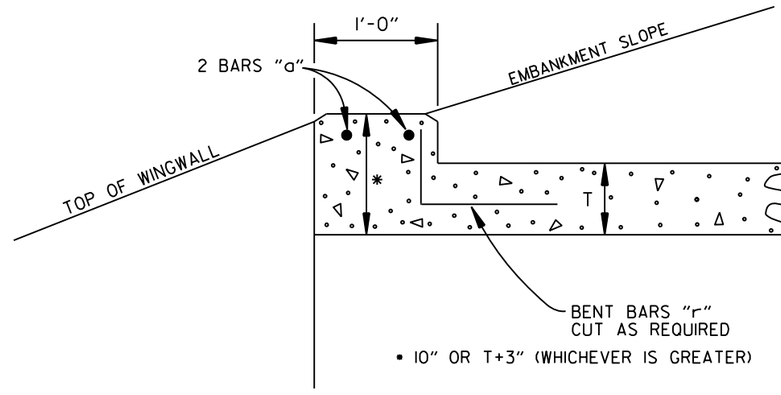
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

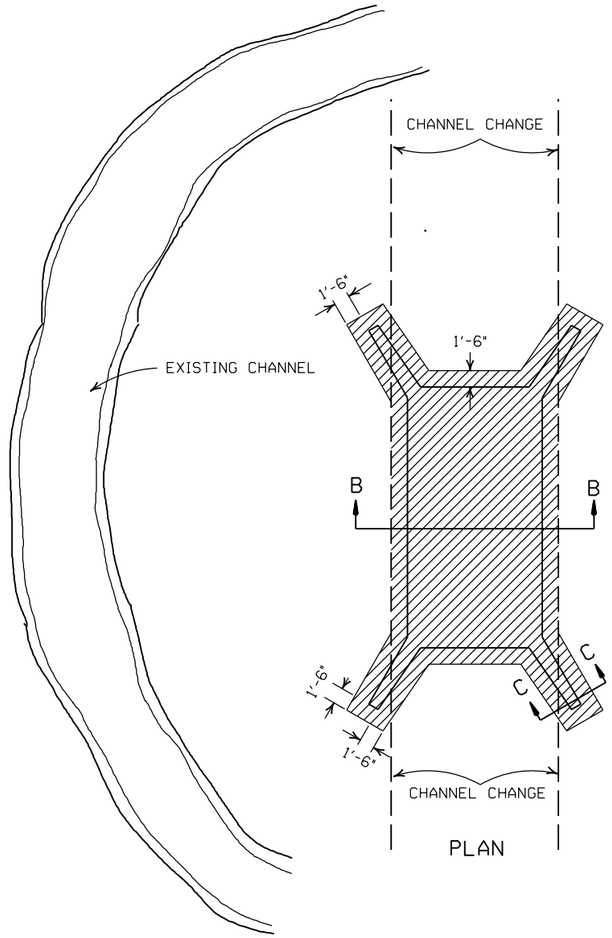
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
7/26/12	REV. DRAINAGE FILL MATERIAL & DETAIL	
12/15/11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

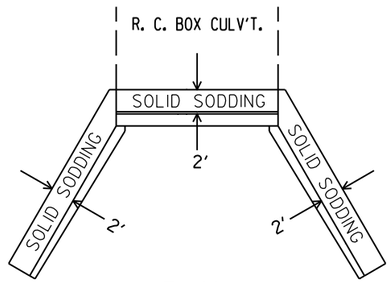
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

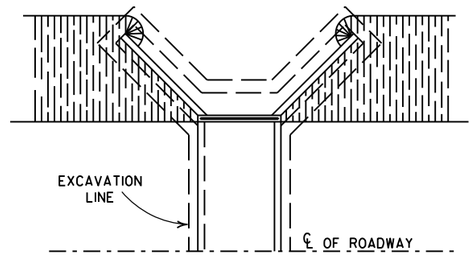
SOLID SODDING



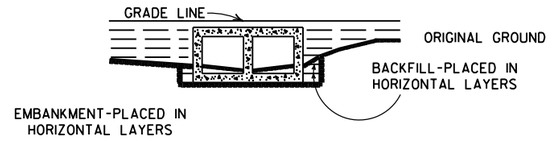
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

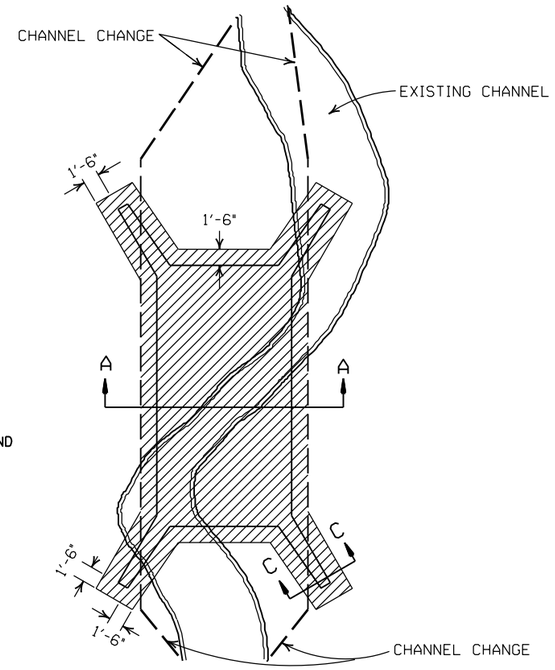


PLAN

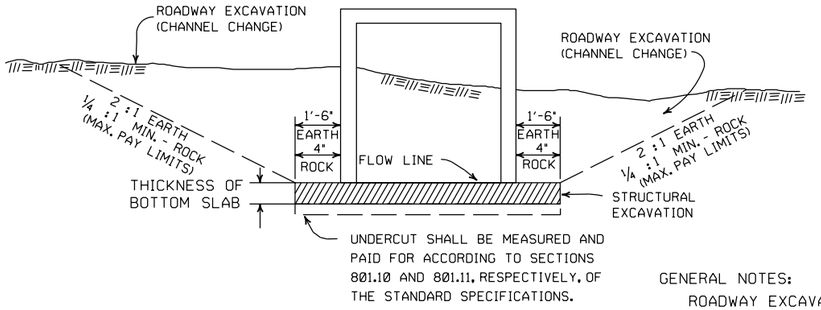


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

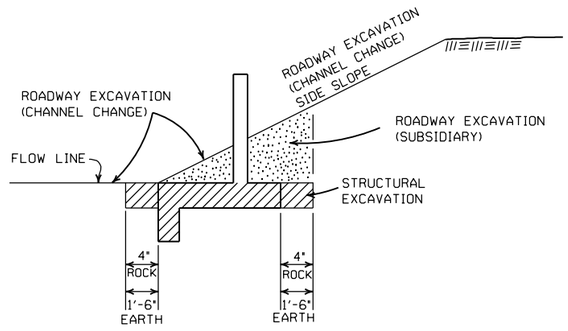


PLAN

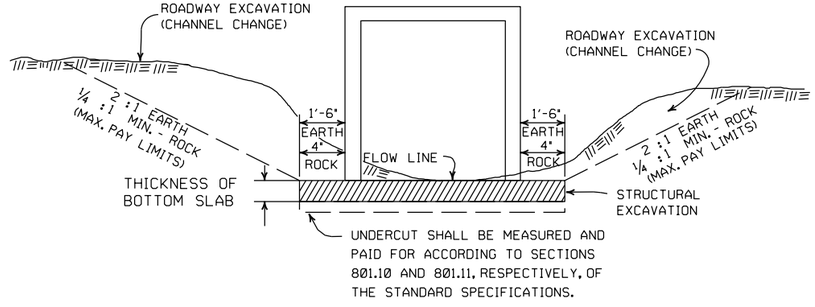


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

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

DATE	REVISION	FILMED
11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES	674-1-4-83
	AND ADDED MAXIMUM PAY	
	LIMIT NOTES.	
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

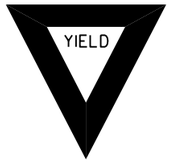
EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

STANDARD DRAWING RCB-2

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"

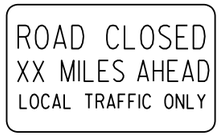
R5-1

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

RII-2

48"X30"

RII-3A



60"X30"

RII-4

60"X30"

W21-5a

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

WI-1

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

WI-2

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

WI-3

STD. 48"X48"

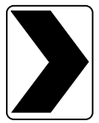
WI-4

STD. 48"X48"

WI-6

STD. 48"X24"
SPECIAL 60"X30"

WI-8



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

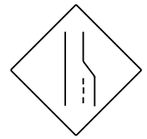
W3-1

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"

WI3-1

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"

WI-4b

STD. 48"X48"

R56-1

STD. 18"X18"

W8-11

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

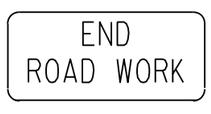
W8-9

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

G20-1

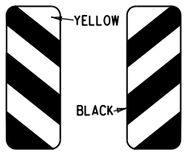
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

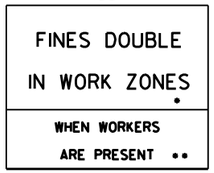
M4-9

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.

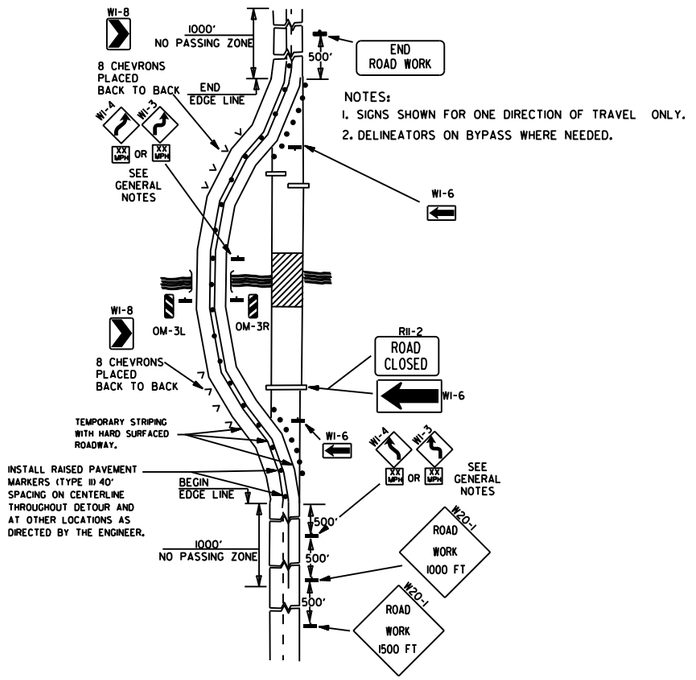
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

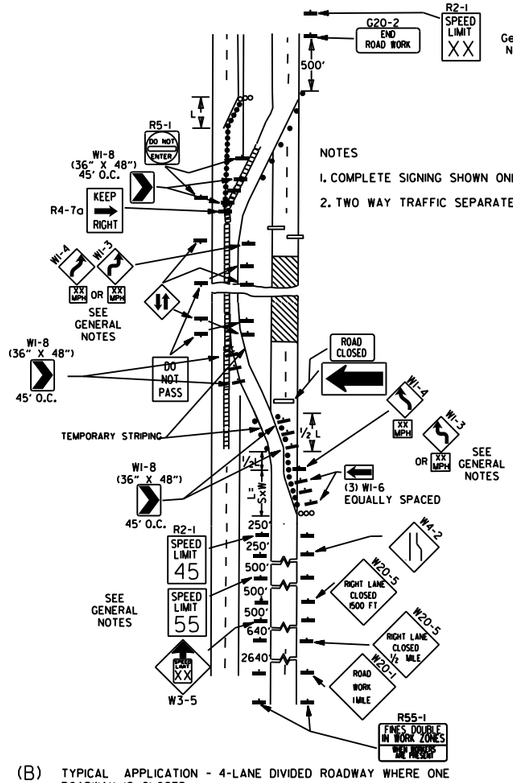
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



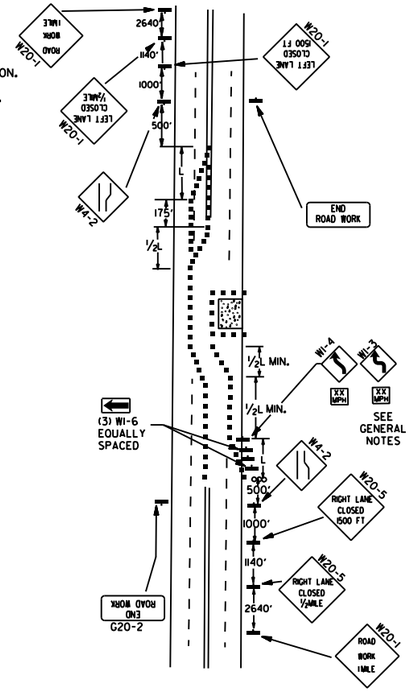
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

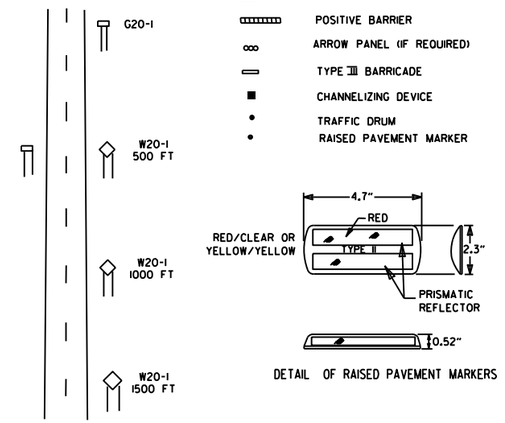


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(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:

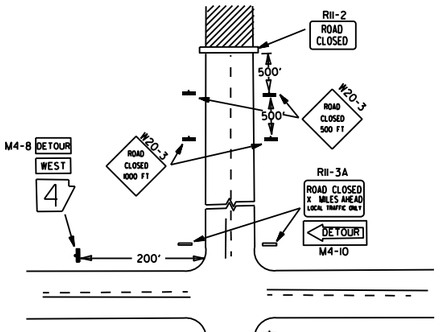
L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

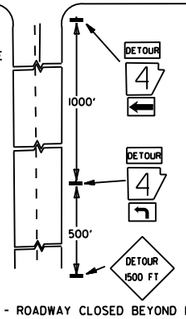
WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

GENERAL NOTES:

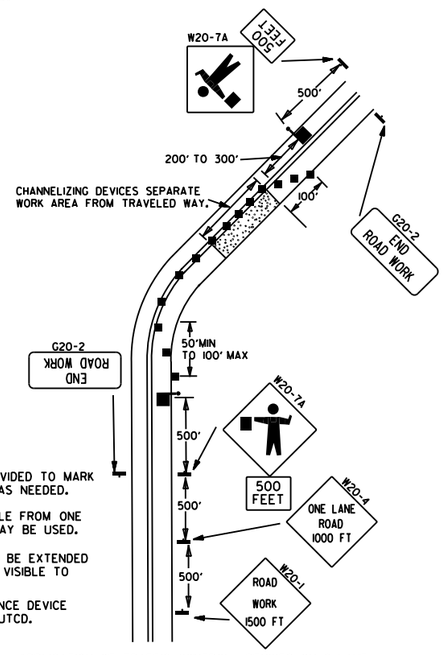
1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE 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. 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.

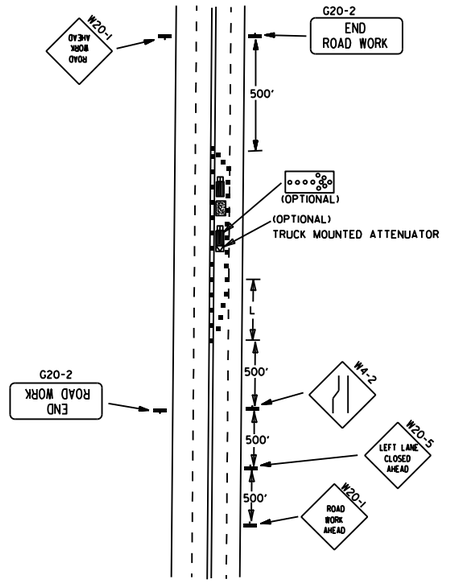


(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



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.



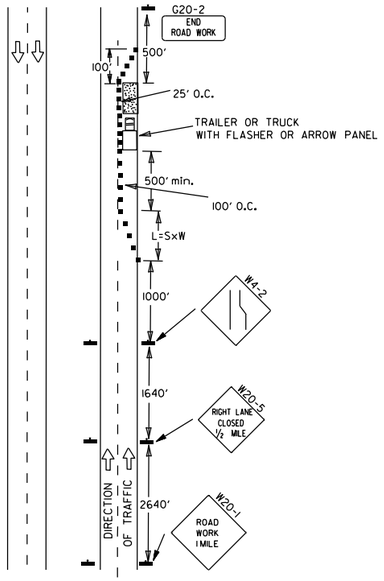
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

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	

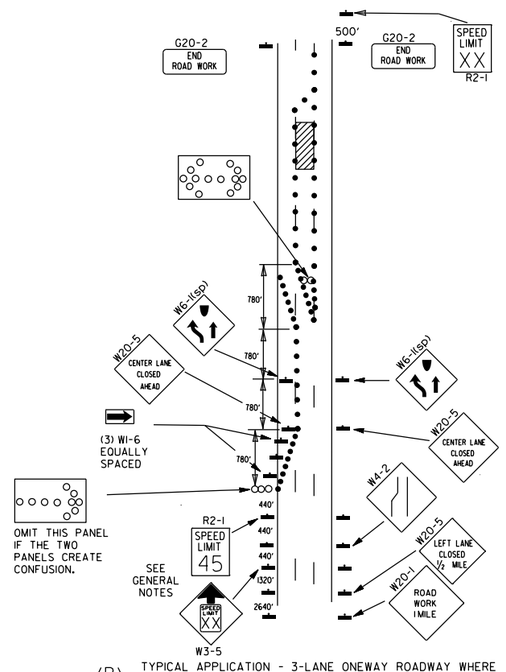
ARKANSAS STATE HIGHWAY COMMISSION

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.



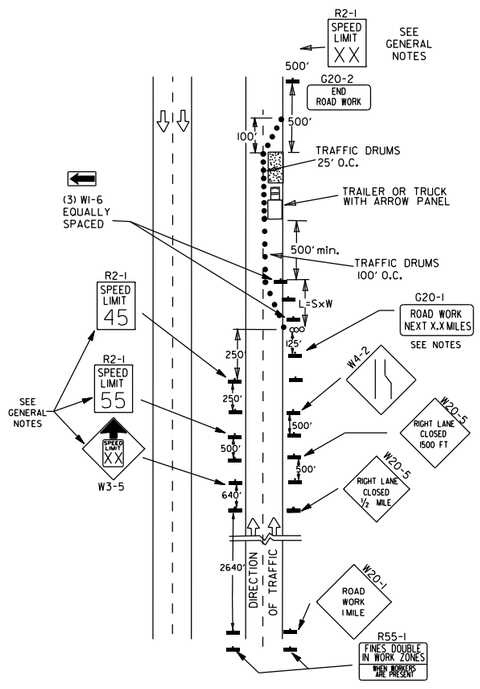
(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.

KEY:

- ARROW PANEL (IF REQUIRED)
- ■ CHANNELIZING DEVICE
- ● TRAFFIC DRUM

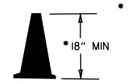
GENERAL NOTES:

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).



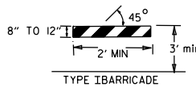
(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

CHANNELIZING DEVICES



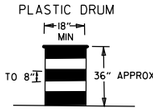
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

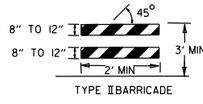
CONES



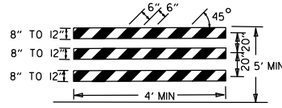
TYPE I BARRICADE

PLASTIC DRUM



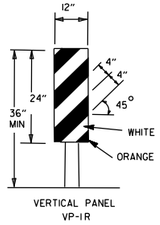


TYPE II BARRICADE



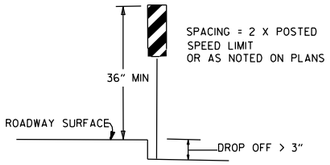
TYPE III BARRICADE

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

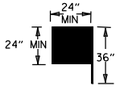


VERTICAL PANEL VP-1R

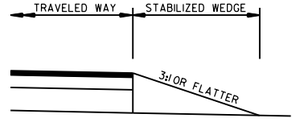
VERTICAL PANEL PLACEMENT



FLAG



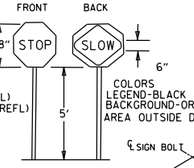
FLAG SHALL BE OF GOOD GRADE RED MATERIAL

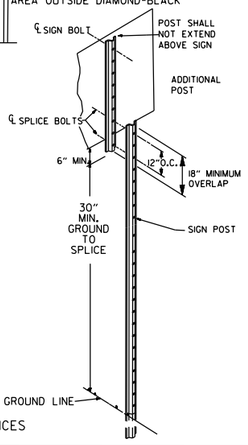


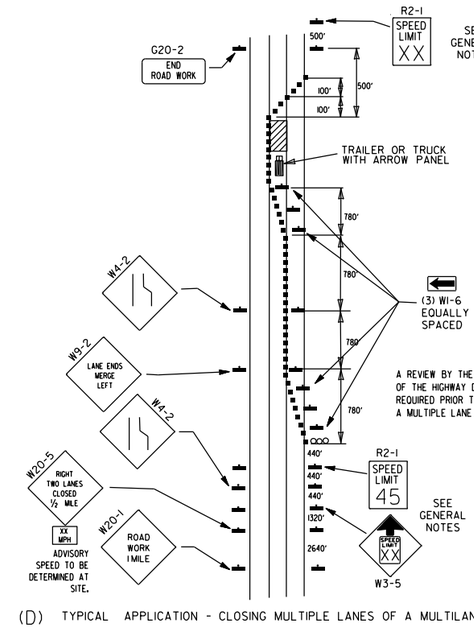
STABILIZED WEDGE

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

STOP SLOW PADDLE







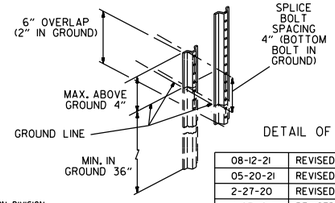
A REVIEW BY THE ROADWAY DESIGN DIVISION OF THE HIGHWAY DEPARTMENT WILL BE REQUIRED PRIOR TO IMPLEMENTING A MULTIPLE LANE CLOSURE.

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

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

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).

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	

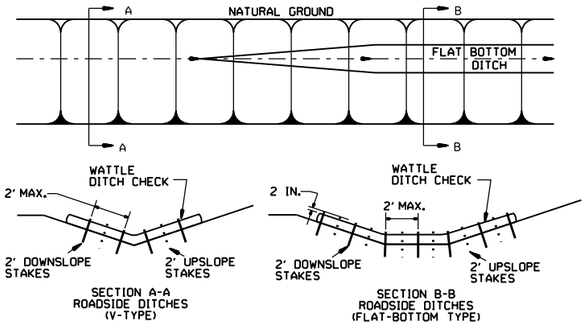
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

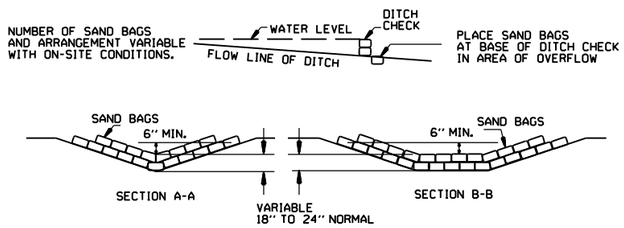
STANDARD DRAWING TC-3

GENERAL NOTES

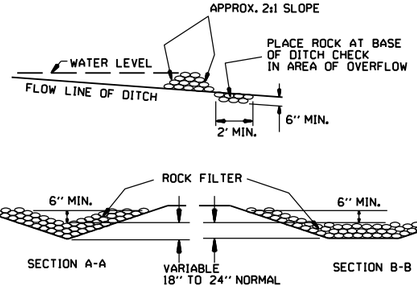
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

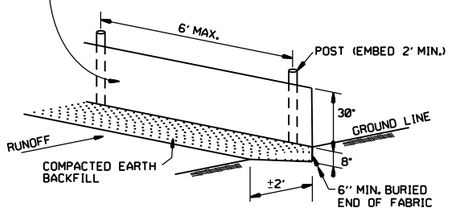


ROCK DITCH CHECK (E-6)

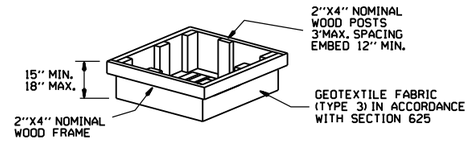
GENERAL NOTES

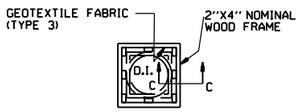
GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

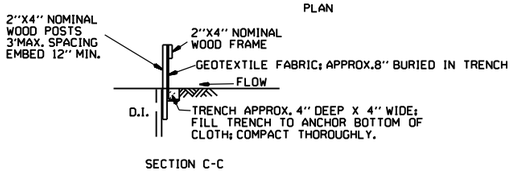
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



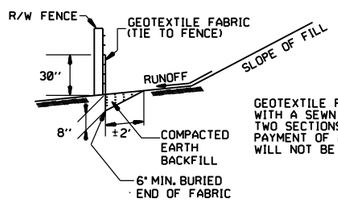
SILT FENCE (E-11)





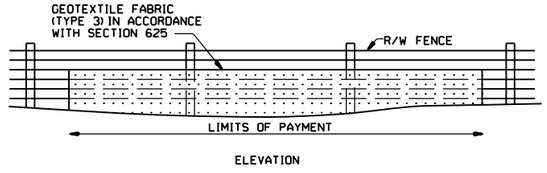


DROP INLET SILT FENCE (E-7)



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.



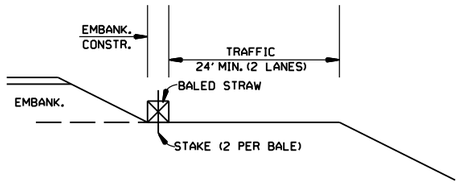
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

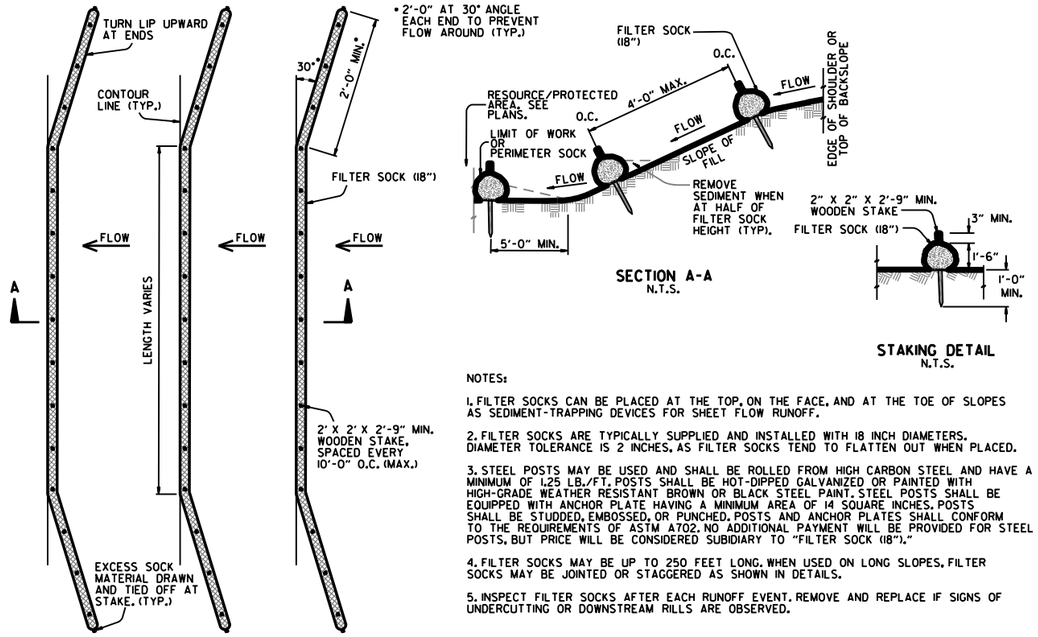
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

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.

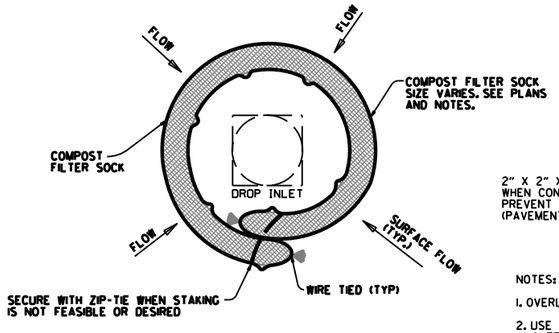
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

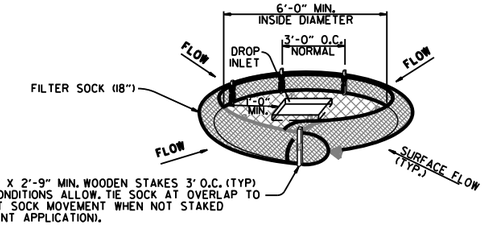
3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. 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

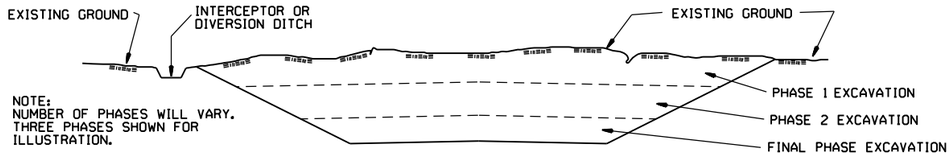
STANDARD DRAWING TEC-1

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



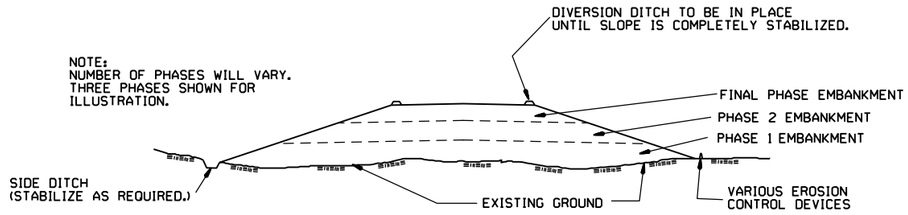
GENERAL NOTE

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

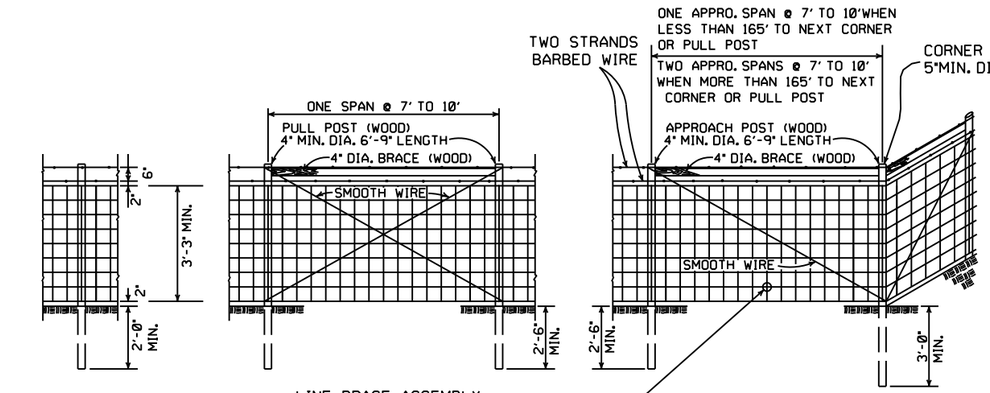
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD 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.

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

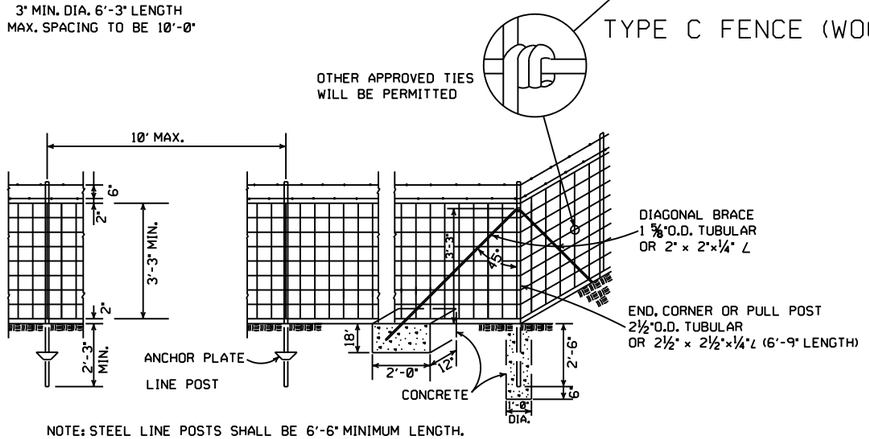
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

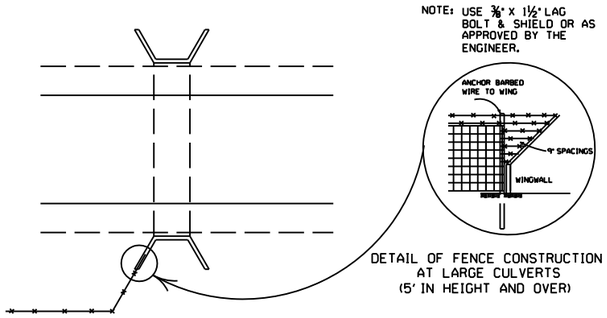


TYPE C FENCE (WOOD POSTS)



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

TYPE C FENCE (STEEL POSTS)



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

GENERAL NOTES:

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

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

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

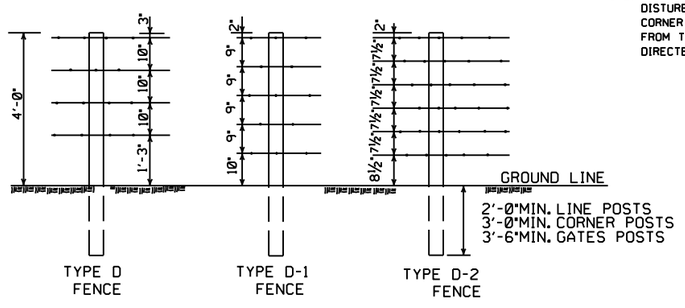
AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED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

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

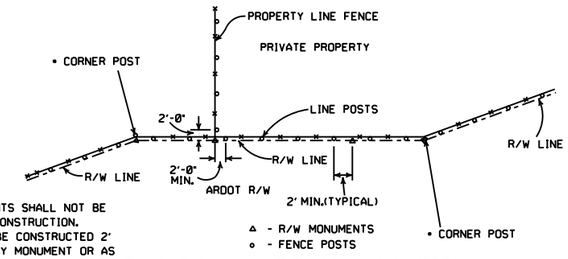
SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

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

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

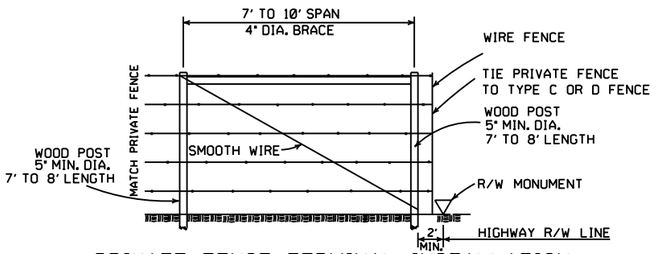


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



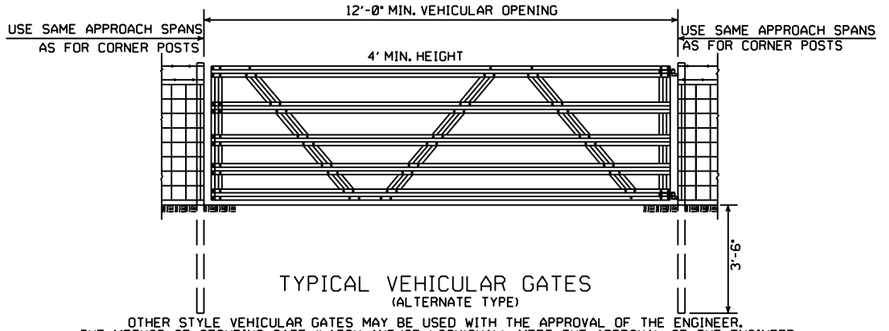
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION

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



TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)

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

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

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE C AND D

STANDARD DRAWING WF-4