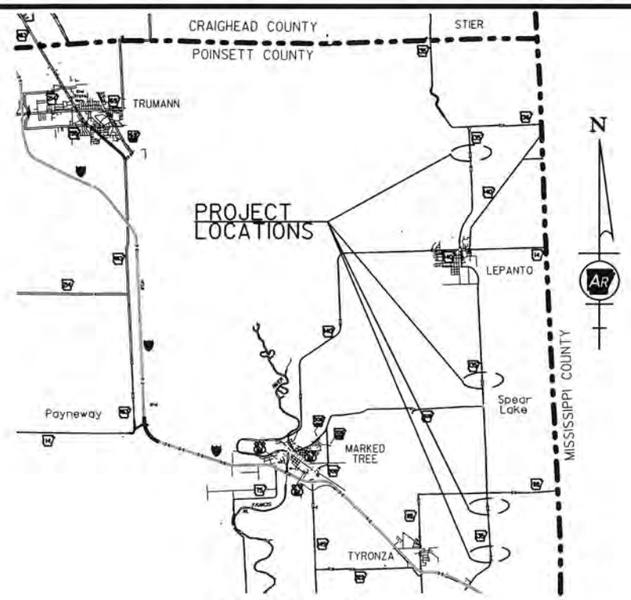
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	1	191
		HWY. 135 STRS. & APPRS. (S)				

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

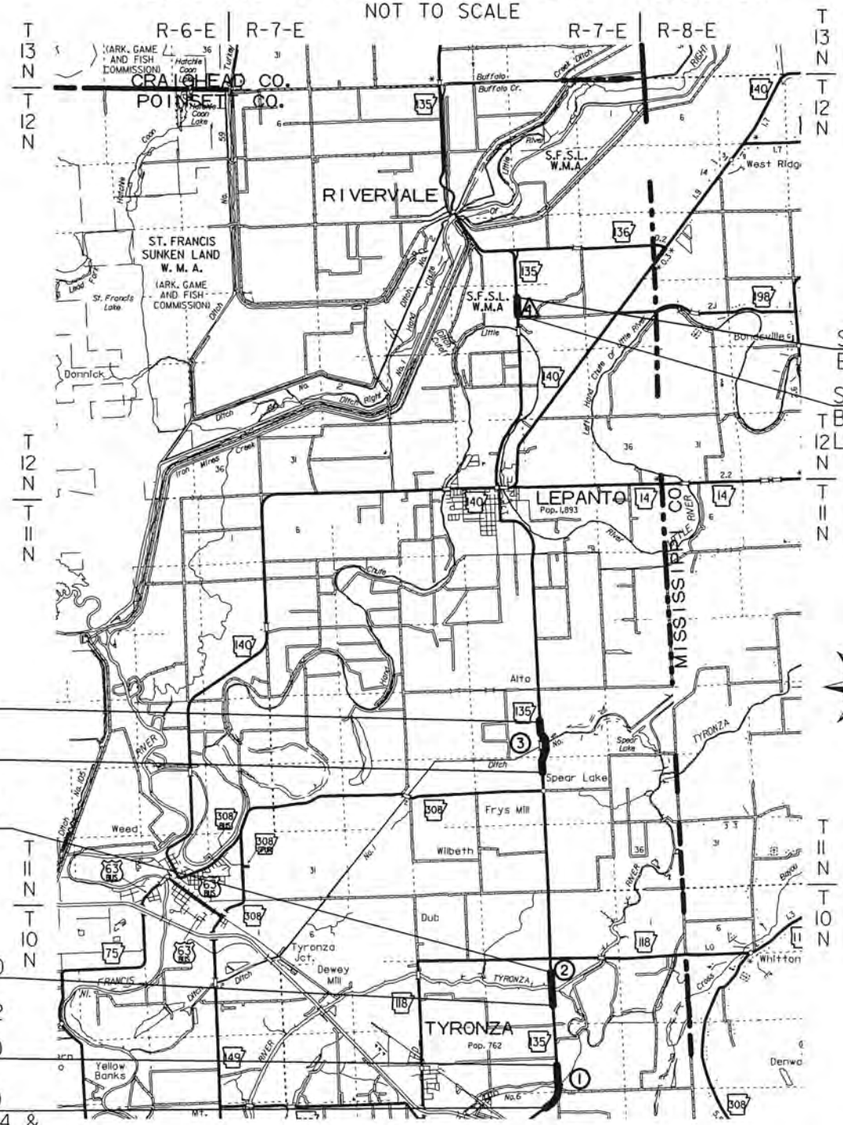
HWY. 135 STRS. & APPRS. (S)

POINSETT COUNTY
ROUTE 135 SECTION 1
JOB 101124
FED. AID PROJ. NHPP-BFP-1656(5)

NOT TO SCALE



VICINITY MAP





ARK. HWY. DIST. NO. 10

BRIDGE DATA

① STA. 519+60.83 BRIDGE END
CONSTRUCT BRIDGE NO. 07648
179'-0" INTEGRAL PRESTRESSED
CONCRETE GIRDER UNIT (59.5'-60'-59.5')
36'-0" CLEAR ROADWAY
180'-4" BRIDGE LENGTH
STA. 521+41.16 BRIDGE END

② STA. 615+02.77 BRIDGE END
CONSTRUCT BRIDGE NO. 07649
280'-0" CONTINUOUS PRESTRESSED
CONCRETE GIRDER UNIT (70'-70'-70'-70')
36'-0" CLEAR ROADWAY
30° LT. FWD. SKEW
282'-5 7/16" BRIDGE LENGTH
STA. 617+85.22 BRIDGE END

③ STA. 122+22.83 BRIDGE END
CONSTRUCT BRIDGE NO. 07650
149'-0" INTEGRAL PRESTRESSED
CONCRETE GIRDER UNIT (49.5'-50'-49.5')
36'-0" CLEAR ROADWAY
20° RT. FWD. SKEW
150'-4" BRIDGE LENGTH
STA. 123+73.17 BRIDGE END

STRUCTURES OVER 20'-0" SPAN

⚠ STA. 211+50 - CONSTRUCT
QUAD. 12' X 10' X 98' R.C. BOX CULVERT
ON A 30° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q50 = 1170 C.F.S. D.A. = 19.2 SQ. MILES
SPAN = 59.56'

•DESIGN TRAFFIC DATA•

SITES	1&2	3&4
DESIGN YEAR	2044	2044
2024 ADT	1,100	1,500
2044 ADT	1,300	1,800
2044 DHV	143	198
DIRECTIONAL DISTRIBUTION	60%	60%
TRUCKS	6%	13%
DESIGN SPEED	55 MPH	55 MPH

SITE 1			
	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°28'49"	N 35°29'03"	N 35°29'21"
LONGITUDE	W 90°19'32"	W 90°19'21"	W 90°19'22"
SITE 2			
	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°30'06"	N 35°30'20"	N 35°30'35"
LONGITUDE	W 90°19'23"	W 90°19'23"	W 90°19'23"
SITE 3			
	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°33'13"	N 35°33'25"	N 35°33'38"
LONGITUDE	W 90°19'22"	W 90°19'22"	W 90°19'22"
SITE 4			
	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°39'07"	N 35°39'09"	N 35°39'11"
LONGITUDE	W 90°19'24"	W 90°19'24"	W 90°19'24"

LENGTH OF PROJECT CALCULATED ALONG C.L.

GROSS LENGTH OF PROJECT			9,418.45	FEET	OR	1.784	MILES
NET	•	• ROADWAY	8,745.77	•		1.657	MILES
NET	•	• BRIDGES	672.68	•		0.127	MILES
NET	•	• PROJECT	9,418.45	•		1.784	MILES

CERTIFICATE OF AUTHORIZATION
CRAFTON, TULL & ASSOCIATES, INC.
No. 109
ARKANSAS ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
2-7-24
HUBERT BURNS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	2	191
		INDEX OF SHEETS & STANDARD DRAWINGS				

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.
1	TITLE SHEET		
2	INDEX OF SHEETS AND STANDARD DRAWINGS		
3	GOVERNING SPECIFICATIONS		
4	GENERAL NOTES		
5 - 7	TYPICAL SECTIONS OF IMPROVEMENT		
8 - 16	SPECIAL DETAILS		
17 - 38	TEMPORARY EROSION CONTROL DETAILS		
39 - 57	MAINTENANCE OF TRAFFIC DETAILS		
58	PERMANENT PAVEMENT MARKING DETAILS		
59 - 64	QUANTITIES		
65	SCHEDULE OF BRIDGE QUANTITIES	07648-07650	66599
66	SUMMARY OF QUANTITIES AND REVISIONS		
67 - 77	SURVEY CONTROL DETAILS		
78 - 90	PLAN AND PROFILE SHEETS		
91	LAYOUT OF BRIDGE HWY. 135 OVER DEAD TIMBER LAKE (SHEET 1 OF 2)	07648	66600
92	LAYOUT OF BRIDGE HWY. 135 OVER DEAD TIMBER LAKE (SHEET 2 OF 2)	07648	66601
93	DETAILS OF END BENTS (SHEET 1 OF 2)	07648	66602
94	DETAILS OF END BENTS (SHEET 2 OF 2)	07648	66603
95	DETAILS OF INTERMEDIATE BENTS (SHEET 1 OF 3)	07648	66604
96	DETAILS OF INTERMEDIATE BENTS (SHEET 2 OF 3)	07648	66605
97	DETAILS OF INTERMEDIATE BENTS (SHEET 3 OF 3)	07648	66606
98	DETAILS OF 179'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 1 OF 8)	07648	66607
99	DETAILS OF 179'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 2 OF 8)	07648	66608
100	DETAILS OF 179'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 3 OF 8)	07648	66609
101	DETAILS OF 179'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 4 OF 8)	07648	66610
102	DETAILS OF 179'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 5 OF 8)	07648	66611
103	DETAILS OF 179'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 6 OF 8)	07648	66612
104	DETAILS OF 179'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 7 OF 8)	07648	66613
105	DETAILS OF 179'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 8 OF 8)	07648	66614
106	DETAILS FOR TYPE 1 SPECIAL APPROACH GUTTERS	07648	66615
107	LAYOUT OF BRIDGE HWY. 135 OVER TYRONZA RIVER (SHEET 1 OF 2)	07649	66616
108	LAYOUT OF BRIDGE HWY. 135 OVER TYRONZA RIVER (SHEET 2 OF 2)	07649	66617
109	DETAILS OF END BENTS (SHEET 1 OF 3)	07649	66618
110	DETAILS OF END BENTS (SHEET 2 OF 3)	07649	66619
111	DETAILS OF END BENTS (SHEET 3 OF 3)	07649	66620
112	DETAILS OF INTERMEDIATE BENTS (SHEET 1 OF 2)	07649	66621
113	DETAILS OF INTERMEDIATE BENTS (SHEET 2 OF 2)	07649	66622
114	DETAILS OF 28" DIA. CONCRETE FILLED STEEL SHELL PILES	07649	66623
115	ELASTOMERIC BEARINGS	07649	66624
116	DETAILS OF 280'-0" PRESTRESSED CONCRETE GIRDER UNIT (SHEET 1 OF 8)	07649	66625
117	DETAILS OF 280'-0" PRESTRESSED CONCRETE GIRDER UNIT (SHEET 2 OF 8)	07649	66626
118	DETAILS OF 280'-0" PRESTRESSED CONCRETE GIRDER UNIT (SHEET 3 OF 8)	07649	66627
119	DETAILS OF 280'-0" PRESTRESSED CONCRETE GIRDER UNIT (SHEET 4 OF 8)	07649	66628
120	DETAILS OF 280'-0" PRESTRESSED CONCRETE GIRDER UNIT (SHEET 5 OF 8)	07649	66629
121	DETAILS OF 280'-0" PRESTRESSED CONCRETE GIRDER UNIT (SHEET 6 OF 8)	07649	66630
122	DETAILS OF 280'-0" PRESTRESSED CONCRETE GIRDER UNIT (SHEET 7 OF 8)	07649	66631
123	DETAILS OF 280'-0" PRESTRESSED CONCRETE GIRDER UNIT (SHEET 8 OF 8)	07649	66632
124	DETAILS FOR TYPE 2 SPECIAL APPROACH GUTTERS (SHEET 1 OF 2)	07649	66633
125	DETAILS FOR TYPE 2 SPECIAL APPROACH GUTTERS (SHEET 2 OF 2)	07649	66634
126	LAYOUT OF BRIDGE HWY. 135 OVER DITCH NO. 1 (SHEET 1 OF 3)	07650	66635
127	LAYOUT OF BRIDGE HWY. 135 OVER DITCH NO. 1 (SHEET 2 OF 3)	07650	66636
128	LAYOUT OF BRIDGE HWY. 135 OVER DITCH NO. 1 (SHEET 3 OF 3)	07650	66637
129	DETAILS OF END BENTS (SHEET 1 OF 2)	07650	66638
130	DETAILS OF END BENTS (SHEET 2 OF 2)	07650	66639
131	DETAILS OF INTERMEDIATE BENTS (SHEET 1 OF 3)	07650	66640
132	DETAILS OF INTERMEDIATE BENTS (SHEET 2 OF 3)	07650	66641
133	DETAILS OF INTERMEDIATE BENTS (SHEET 3 OF 3)	07650	66642
134	DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 1 OF 9)	07650	66643
135	DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 2 OF 9)	07650	66644
136	DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 3 OF 9)	07650	66645
137	DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 4 OF 9)	07650	66646
138	DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 5 OF 9)	07650	66647
139	DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 6 OF 9)	07650	66648
140	DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 7 OF 9)	07650	66649
141	DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 8 OF 9)	07650	66650
142	DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT (SHEET 9 OF 9)	07650	66651
143	DETAILS FOR TYPE 3 SPECIAL APPROACH GUTTERS (SHEET 1 OF 2)	07650	66652
144	DETAILS FOR TYPE 3 SPECIAL APPROACH GUTTERS (SHEET 2 OF 2)	07650	66653
145 - 191	CROSS SECTIONS		

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

BRIDGE STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	02-27-14
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	02-27-14
55005	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	03-24-16
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	04-14-23
55021	STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS	03-24-16
55040C1	STANDARD DETAILS FOR TYPE C1 APPROACH SLAB	02-27-14
55040C2	STANDARD DETAILS FOR TYPE C2 APPROACH SLAB	02-27-14
55070	STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR36	09-24-22

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
DR-2	DETAILS OF DRIVEWAYS & STREET TURNOUTS	05-19-22
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
GR-6	GUARDRAIL DETAILS	05-19-22
GR-7	GUARDRAIL DETAILS	11-07-19
GR-8	GUARDRAIL DETAILS	11-07-19
GR-9	GUARDRAIL DETAILS	11-07-19
GR-10	GUARDRAIL DETAILS	11-07-19
GR-11	GUARDRAIL DETAILS	11-07-19
GR-12	GUARDRAIL DETAILS	05-14-20
MB-1	MAILBOX DETAILS	11-18-04
PBC-1	PRECAST CONCRETE BOX CULVERTS	01-28-15
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	02-27-14
PCP-3	PLASTIC PIPE CULVERT (POLYPROPYLENE)	02-27-20
PM-1	PAVEMENT MARKING DETAILS	02-27-20
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
RCB-1	REINFORCED CONCRETE BOX CULVERT DETAILS	07-26-12
RCB-2	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	11-20-03
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	11-07-19
SI-1	DETAILS OF SPECIAL ITEMS	10-25-18
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
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94

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INDEX OF SHEETS & STANDARD DRAWINGS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	3	191
02/23/23		GOVERNING SPECIFICATIONS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
2-23-2024

GOVERNING SPECIFICATIONS (1 OF 2)

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
FHWA-1273__	SUPPLEMENT - TRAINING PROGRAM - JOB NUMBER 101124
100-3_____	CONTRACTOR'S LICENSE
100-4_____	DEPARTMENT NAME CHANGE
102-2_____	ISSUANCE OF PROPOSALS
103-2_____	CONTACT INFO 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
307-1_____	CEMENT
308-1_____	CEMENT
400-1_____	TACK COATS
400-4_____	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5_____	PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6_____	LIQUID ANTI-STRIP ADDITIVE
400-7_____	TRACKLESS TACK
404-3_____	DESIGN OF ASPHALT MIXTURES
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)
606-1_____	PIPE CULVERTS FOR SIDE DRAINS
617-1_____	GUARDRAIL TERMINAL (TYPE 2)
617-2_____	GUARDRAIL DELINEATORS
620-1_____	MULCH COVER
734-1_____	BRIDGE END TERMINAL
800-1_____	STRUCTURES
802-3_____	CONCRETE FOR STRUCTURES
802-4_____	CEMENT
804-2_____	REINFORCING STEEL FOR STRUCTURES
807-2_____	STEEL STRUCTURES
808-1_____	INSTALLATION OF ELASTOMERIC BEARINGS
808-2_____	ELASTOMERIC BEARINGS
JOB 101124__	BIDDING REQUIREMENTS AND CONDITIONS
JOB 101124__	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 101124__	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 101124__	BUY AMERICA - CONSTRUCTION MATERIALS

GOVERNING SPECIFICATIONS (2 OF 2)

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

NUMBER	TITLE
JOB 101124__	CARGO PREFERENCE ACT REQUIREMENTS
JOB 101124__	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 101124__	COLD MILLING – COUNTY PROPERTY
JOB 101124__	COMPACTED COHESIVE EMBANKMENT
JOB 101124__	CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENT RESTRICTIONS
JOB 101124__	CONCRETE FILL FOR LARGE DIA. STEEL SHELL PILES
JOB 101124__	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 101124__	CONSTRUCTION PROJECT INFORMATION SIGN
JOB 101124__	CULVERT CLEAN OUT
JOB 101124__	DELAY IN RIGHT OF WAY OCCUPANCY
JOB 101124__	DESIGN AND QUALITY CONTROL ASPHALT MIXTURES
JOB 101124__	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 101124__	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 101124__	LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
JOB 101124__	LONGITUDINAL JOINT DENSITIES FOR ACHM SURFACE COURSES
JOB 101124__	MANDATORY ELECTRONIC CONTRACT
JOB 101124__	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 101124__	NESTING SITES OF MIGRATORY BIRDS
JOB 101124__	PARTNERING REQUIREMENTS
JOB 101124__	PERCENT AIR VOIDS AND NDESIGN FOR ACHM SURFACE MIX DESIGNS
JOB 101124__	PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)
JOB 101124__	PLASTIC PIPE
JOB 101124__	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 101124__	PRICE ADJUSTMENT FOR FUEL
JOB 101124__	PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 101124__	SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS
JOB 101124__	SEQUENCE OF WORK
JOB 101124__	SHORING FOR CULVERTS
JOB 101124__	SOIL STABILIZATION
JOB 101124__	STORM WATER POLLUTION PREVENTION PLAN
JOB 101124__	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 101124__	TOTAL SOLAR ECLIPSE
JOB 101124__	UTILITY ADJUSTMENTS
JOB 101124__	VALUE ENGINEERING
JOB 101124__	WARM MIX ASPHALT

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	4	191
		GENERAL NOTES				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

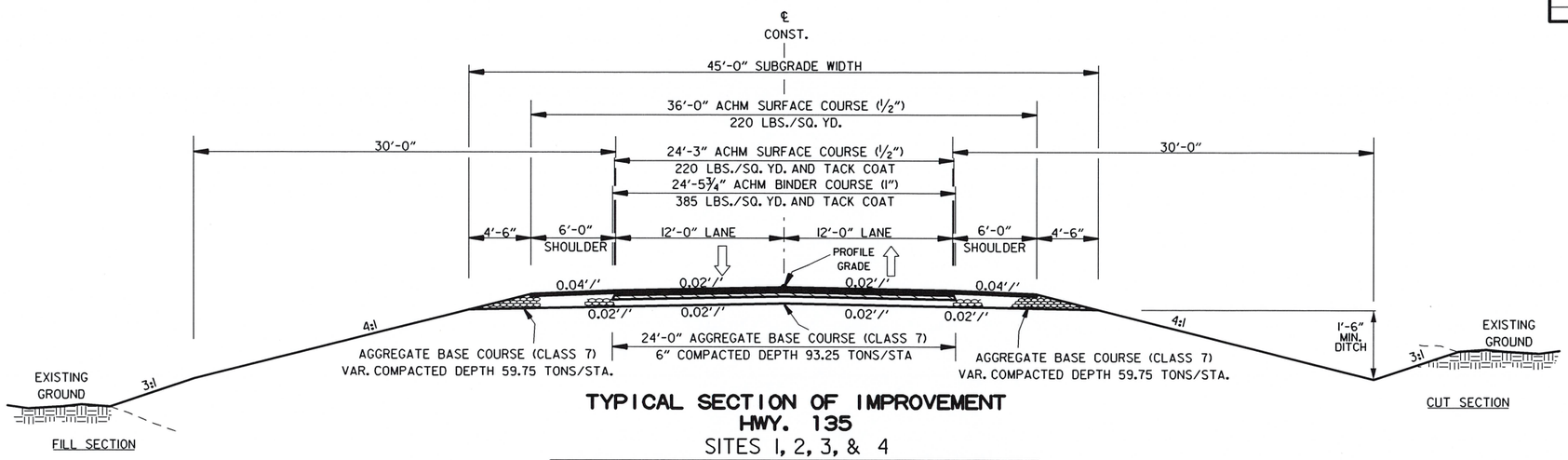
GENERAL NOTES

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.

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	5	191
		TYPICAL SECTIONS OF IMPROVEMENT				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

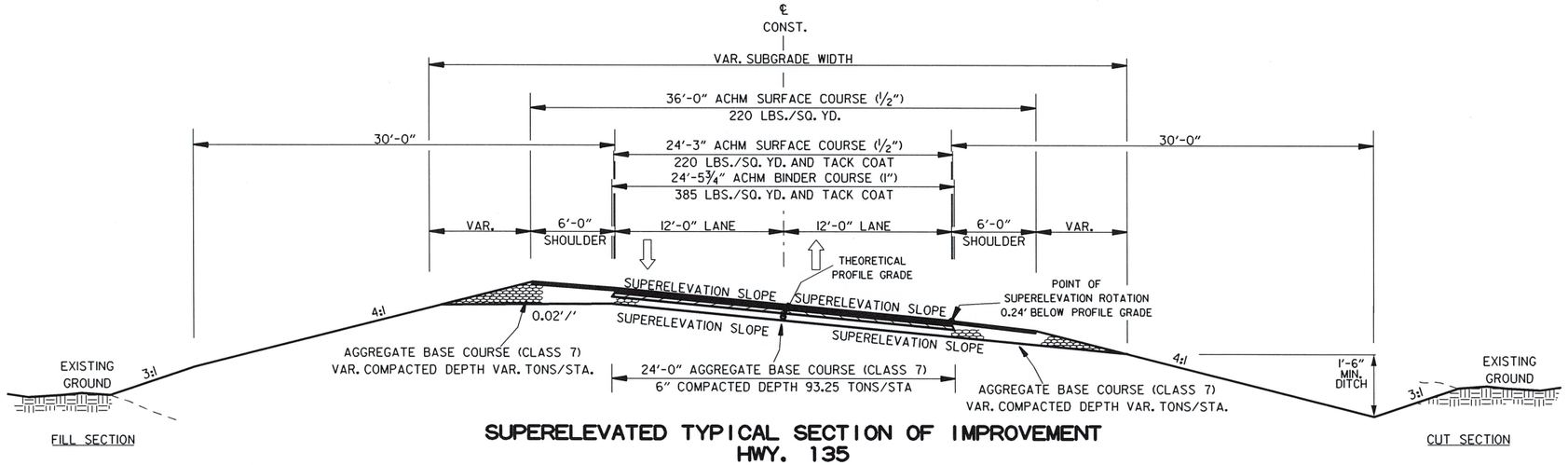


TYPICAL SECTION OF IMPROVEMENT
HWY. 135
SITES 1, 2, 3, & 4

STA. 117+13.28 TO STA. 121+81.82
STA. 124+13.89 TO STA. 128+80.88
STA. 510+17.03 TO STA. 519+24.33
STA. 521+77.66 TO STA. 529+94.61
STA. 607+31.75 TO STA. 614+59.33
STA. 618+28.66 TO STA. 625+25.17

TYPICAL SECTION NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
3. 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.

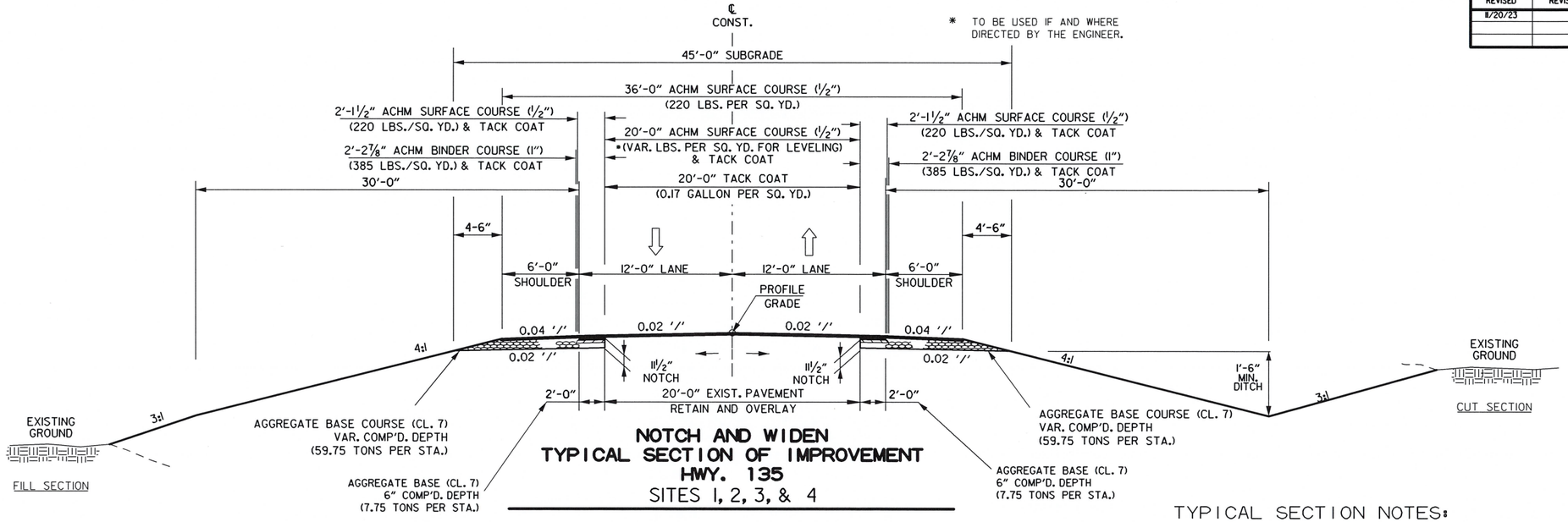


SUPERELEVATED TYPICAL SECTION OF IMPROVEMENT
HWY. 135
SITES 1, 2, & 3

TYPICAL SECTIONS OF IMPROVEMENT

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	6	191
		TYPICAL SECTIONS OF IMPROVEMENT				

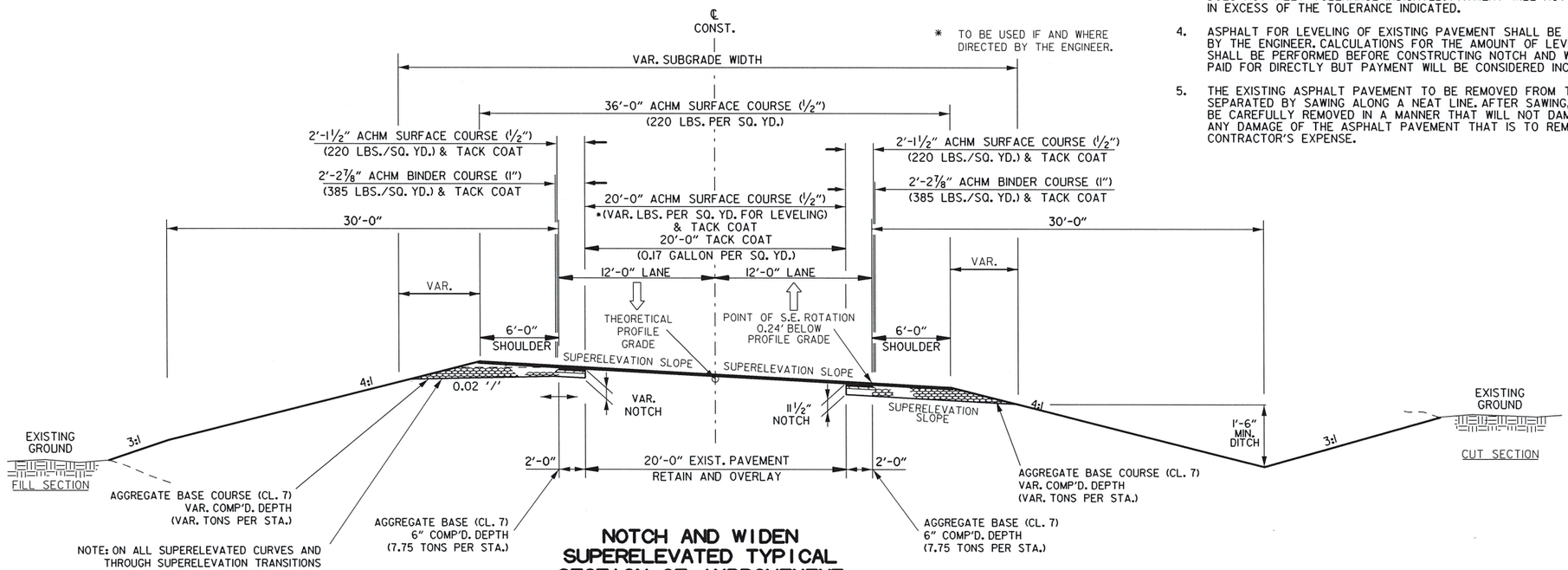


NOTCH AND WIDEN TYPICAL SECTION OF IMPROVEMENT HWY. 135 SITES 1, 2, 3, & 4

STA. 110+00.00 TO STA. 117+13.28
STA. 128+28.88 TO STA. 135+93.45
STA. 210+00.00 TO STA. 210+86.00
STA. 212+15.00 TO STA. 213+00.00
STA. 501+25.00 TO STA. 510+17.03
STA. 529+94.61 TO STA. 538+00.00
STA. 602+00.00 TO STA. 607+31.75
STA. 625+25.17 TO STA. 631+50.00

TYPICAL SECTION NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
3. 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.
4. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING, CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
5. 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.



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

NOTCH AND WIDEN SUPERELEVATED TYPICAL SECTION OF IMPROVEMENT HWY. 135 SITES 1, 2, & 3

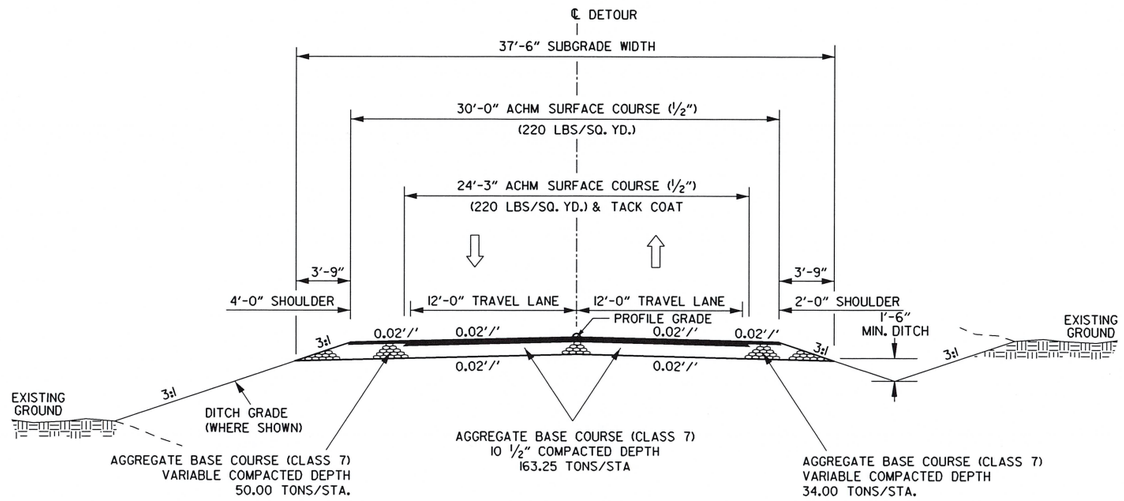
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

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SCALE: NO

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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		TYPICAL SECTIONS OF IMPROVEMENT				

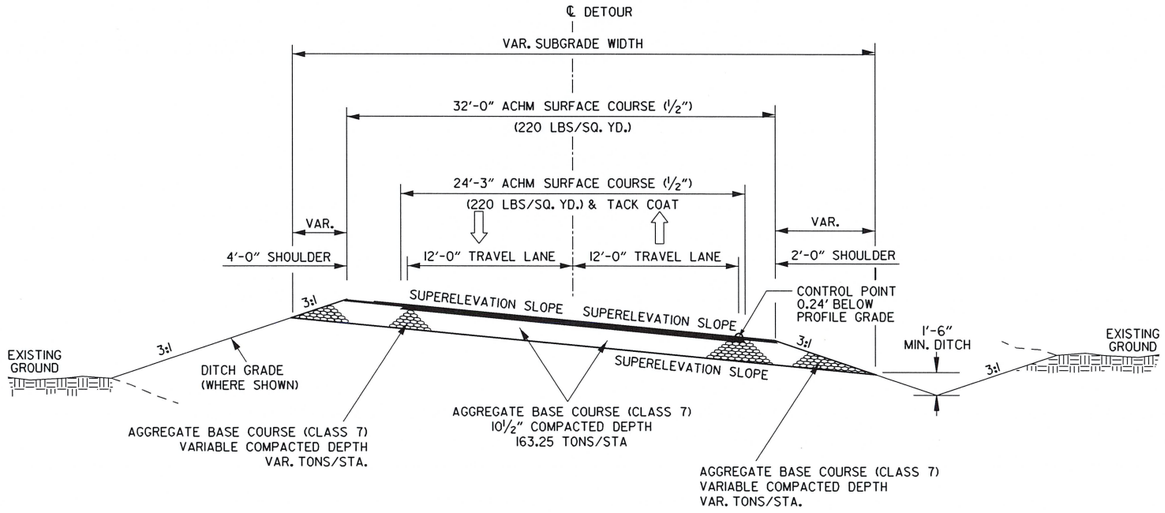
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023



DETOUR
SITE 4

TYPICAL SECTION NOTES:

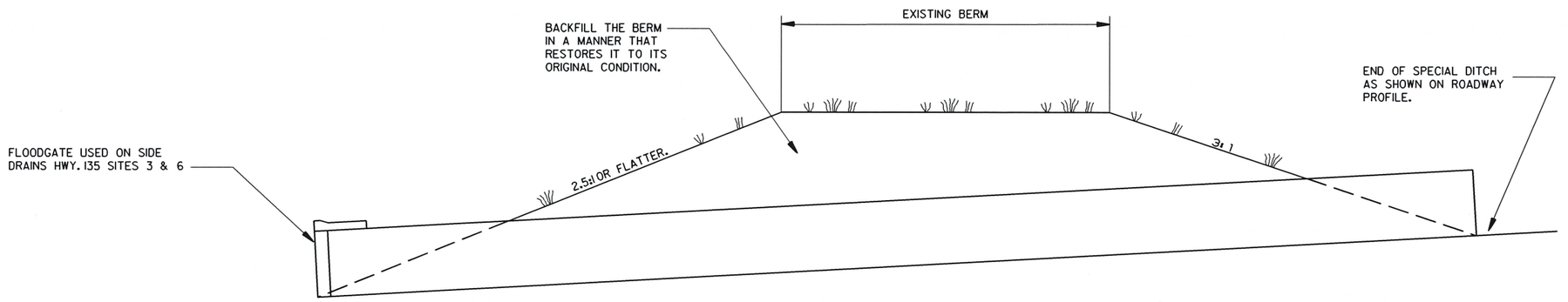
1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.



DETOUR
SUPERELEVATION
SITE 4

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11/20/23		6	ARK.	101124	8	191
		SPECIAL DETAILS				

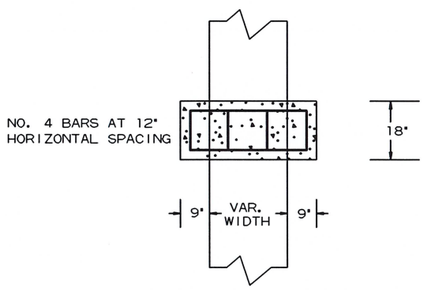


SIDE DRAIN IN EXISTING BERM

STA. 122+10.00 RT. - SITE 3

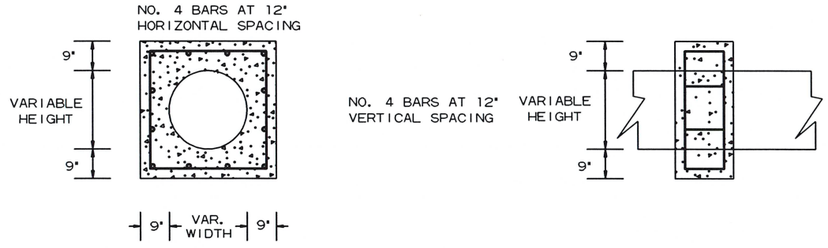
STA. 125+20.00 LT. - SITE 3

STATE OF ARKANSAS
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JEROME PAUL DAVIS
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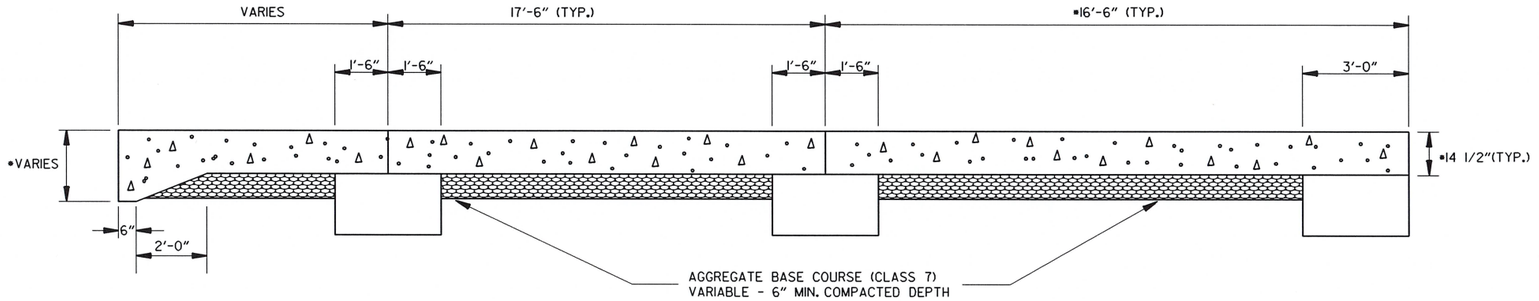
TOP VIEW

MIN 3" COVER



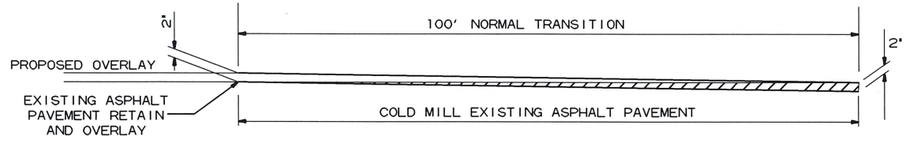
FRONT VIEW SIDE VIEW

PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL



* SEE APPROACH SLAB DETAILS IN BRIDGE DRAWINGS

SECTION OF APPROACH SLAB



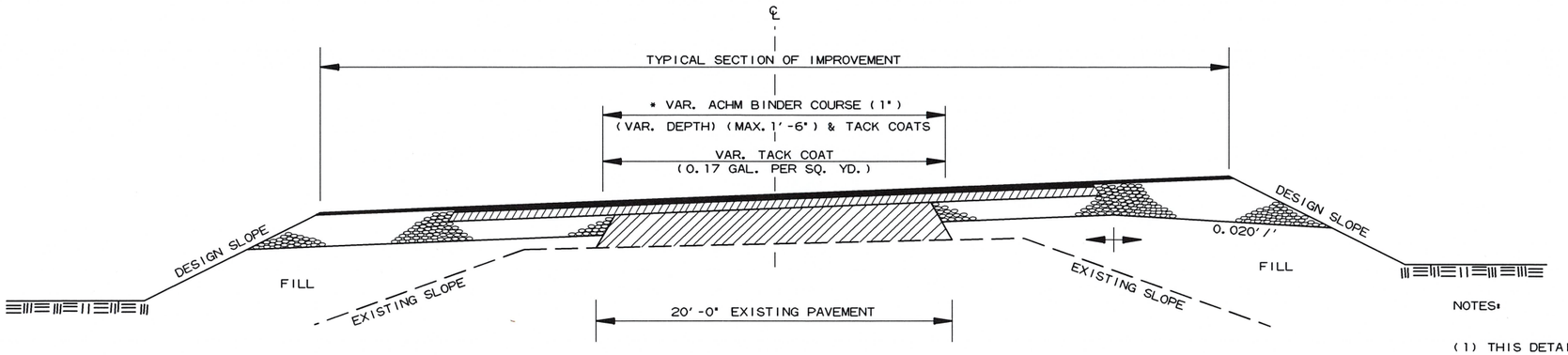
DETAIL FOR DEPTH TRANSITIONS

SPECIAL DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	9	191
		SPECIAL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023



* 6" AGGREGATE BASE COURSE (CLASS 7) TO BE REPLACED WITH ACHM BINDER COURSE (1")

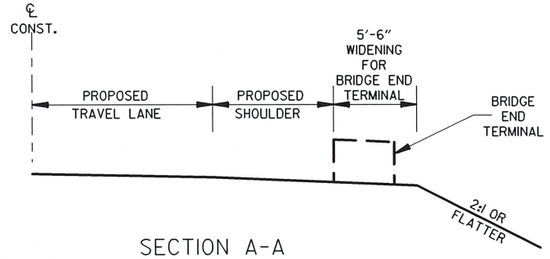
METHOD OF RAISING GRADE

NOTES:

(1) THIS DETAIL TO BE USED ONLY WHERE DIRECTED BY THE ENGINEER.

(2) QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.

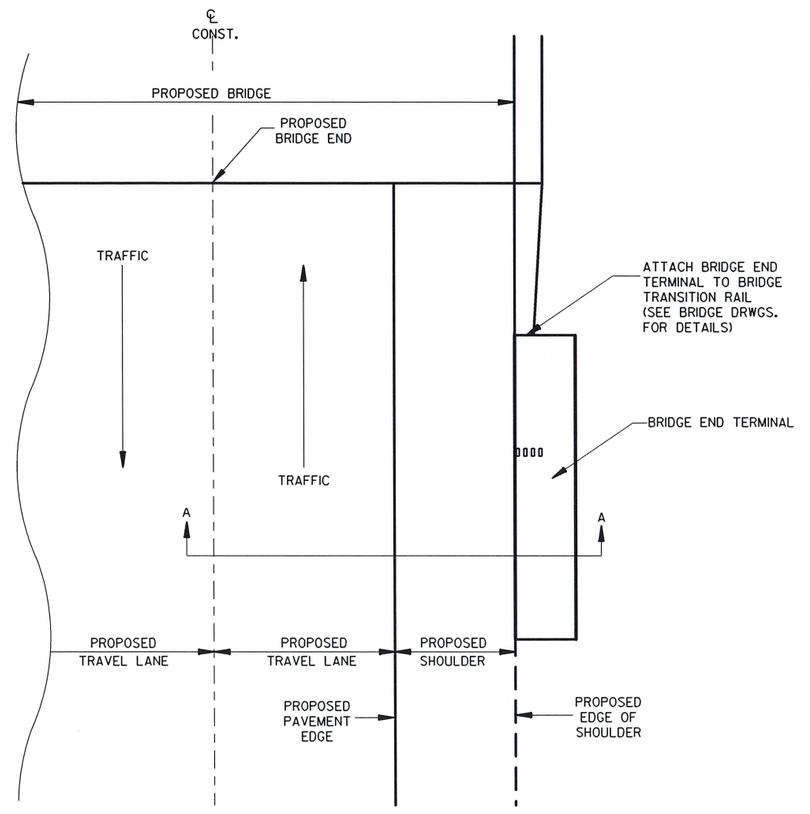
(3) IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09, OF THE STANDARD SPECIFICATIONS.



SECTION A-A

NOTE:
ELIMINATE OR MODIFY APPROACH CURB SECTION TO FIT BRIDGE END TERMINAL. NO PAYMENT SHALL BE MADE FOR ELIMINATING OR MODIFYING THIS CURB, BUT SHALL BE CONSIDERED IN PAYMENT MADE FOR APPROACH GUTTERS OF THE TYPE SPECIFIED.

NOTE:
BRIDGE END TERMINAL SHALL CONFORM TO THE FOLLOWING:
-MAXIMUM LENGTH: 20'
-MAXIMUM HEIGHT: 2.75'
-DESIGN SPEED: 60 MPH



PLAN VIEW

BRIDGE END TERMINAL DETAILS



6.0" Radius, 1.3" Border, Black on Orange;
'Job XXXXXX' C 2K; 'Start Date Mo Year' C 2K;
'Est Completion Mo Year' C 2K; 'IDRIVE ' Arial;
' ARKANSAS.COM ' Arial;

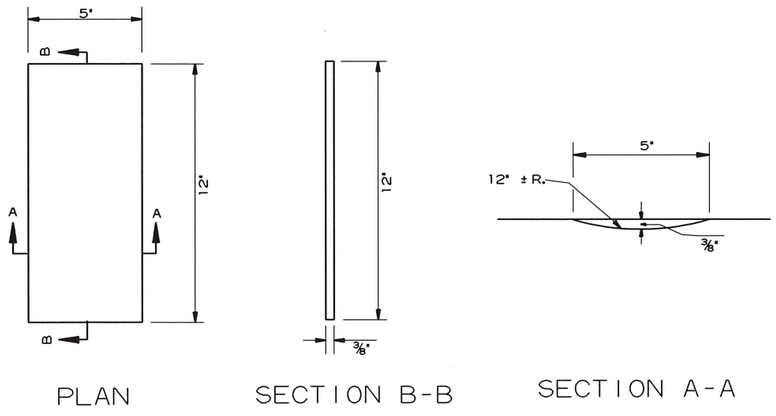
CONSTRUCTION PROJECT INFORMATION SIGN

SPECIAL DETAILS

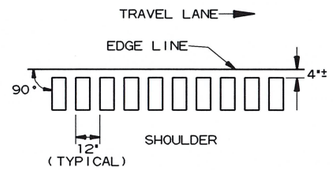
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	10	191
		SPECIAL DETAILS				

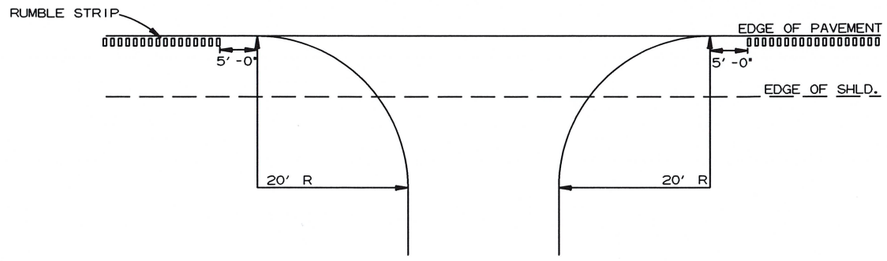
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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JEROME PAUL DAVIS
11-20-2023



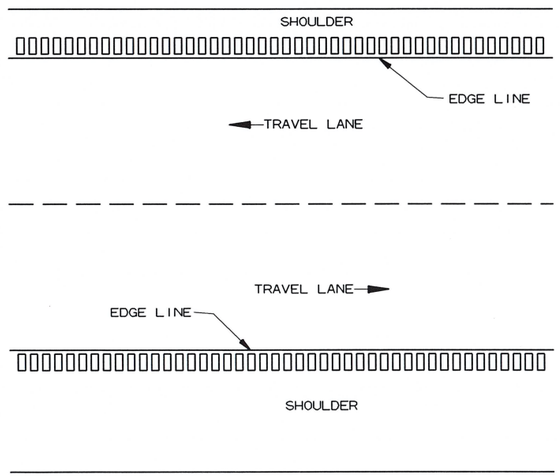
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



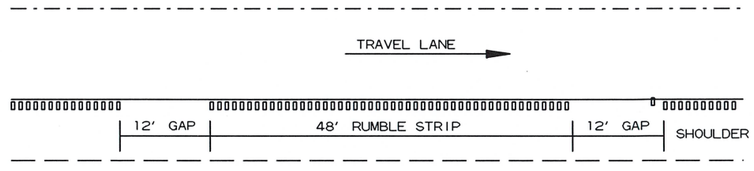
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

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



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

DETAIL FOR GAP PATTERN RUMBLE STRIP

SPECIAL DETAILS

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DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	11	191
		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'-7"	10'-0"	0'-11"	0'-10"	30	3:1	57'-8 7/8"	2'-0"	10'-10"	3'-4"	0	60	3'-4"	4'-9 1/4"	6'-0 3/8"	1'-11 1/4"	4'-7 7/8"	22'-6"	45'-0"	25'-9 7/8"	48'-3 7/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
30.32	2591

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
WING A	4	12	23	L	Min	4'-8"	5	12	3	L 7'-1"	4	12	6	L 5'-5"	4	18	10	Min 3'-4"	4	18	4	22'-2"
					Max	13'-6"																
				X	Min	0'-11"				X 2'-3"				X 1'-10"				Max 21'-4"				
					Max	2'-5"																
				Y	Min	3'-10"				Y 4'-11"				Y 3'-8"								
					Max	11'-2"																
WING B	4	12	45	L	Min	4'-8"	5	12	12	L 8'-7"	4	12	12	L 5'-8"	4	18	10	Min 6'-10"	4	18	4	44'-8"
					Max	14'-6"																
				X	Min	0'-11"				X 2'-9"				X 2'-1"				Max 42'-10"				
					Max	3'-5"																
				Y	Min	3'-10"				Y 5'-11"				Y 3'-8"								
					Max	11'-2"																

WING	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	15	L	Min	6'-7"	4	8	26'-8"	6	18	15	Min 2'-10"	4	18	2	Min 24'-4"	4	2	23'-3"	4	2	23'-5"	6	12	10	L	3'-4"	835
					Max	13'-7"																							
				X	Min	2'-6"							Max 4'-3"				Max 24'-4"										X	1'-8"	
					Max	2'-6"																							
				Y	Min	4'-2"																							
					Max	11'-2"																							
WING B	4	18	30	L	Min	6'-5"	4	8	49'-2"	6	18	33	Min 2'-10"	4	18	4	Min 29'-8"	4	2	45'-2"	4	2	51'-9"	6	12	10	L	3'-4"	1756
					Max	13'-7"																							
				X	Min	2'-6"							Max 5'-6"				Max 56'-8"										X	1'-8"	
					Max	2'-6"																							
				Y	Min	4'-0"																							
					Max	11'-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 "a" SIZE | "a" SPACING | "a" LENGTHS VARY | "a" NO. REQ'D | TOP SLAB REINFORCING STEEL "c" SIZE | "c" SPACING | "c" LENGTHS VARY | "c" NO. REQ'D | BOTTOM SLAB REINFORCING STEEL "d" SIZE | "d" SPACING | "d" LENGTHS VARY | "d" NO. REQ'D | BOTTOM SLAB REINFORCING STEEL "f" SIZE | "f" SPACING | "f" LENGTHS VARY | "f" NO. REQ'D | SIDE WALL REINFORCING STEEL "f0" SIZE | "f0" SPACING | "f0" NO. REQ'D | "f0" LENGTH | INTERIOR WALL REINFORCING STEEL "f1" SIZE | "f1" SPACING | "f1" NO. REQ'D | "f1" LENGTH | TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE | "g" SPACING | "g" NO. REQ'D | "g" LENGTHS VARY | BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE | "e" SPACING | "e" NO. REQ'D | "e" LENGTHS VARY | SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE | "d1" SPACING | "d1" NO. REQ'D | "d1" LENGTH | INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE | "d2" SPACING | "d2" NO. REQ'D | "d2" LENGTH | CLASS "S" CONCRETE (Includes HDWL) CU. YDS. | 1 REINFORCING STEEL (GR 60) (Includes HDWL) LBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
8/20/23		6	ARK.	101124	12	191
		SPECIAL DETAILS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

TABULAR DATA BY: DGL DATE: 12/02/22
CHECKED BY: JRF DATE: 12/07/22

OUTLET 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'-7"	10'-0"	0'-11"	0'-10"	30	3:1	57'-8 7/8"	2'-0"	10'-10"	3'-4"	0	60	3'-4"	4'-9 1/4"	6'-0 3/8"	1'-11 1/4"	4'-7 7/8"	22'-6"	45'-0"	25'-9 7/8"	48'-3 7/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
32.45	2591

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
WING A	4	12	23	L	Min	4'-8"	5	12	3	L 7'-1"	4	12	6	L 5'-5"	4	18	10	Min 3'-4" Max 21'-4"	4	18	4	22'-2"
					Max	13'-6"																
				X	Min	0'-11"				X 2'-3"				X 1'-10"								
					Max	2'-5"																
				Y	Min	3'-10"				Y 4'-11"				Y 3'-8"								
					Max	11'-2"																
WING B	4	12	45	L	Min	4'-8"	5	12	12	L 8'-7"	4	12	12	L 5'-8"	4	18	10	Min 6'-10" Max 42'-10"	4	18	4	44'-8"
					Max	14'-6"																
				X	Min	0'-11"				X 2'-9"				X 2'-1"								
					Max	3'-5"																
				Y	Min	3'-10"				Y 5'-11"				Y 3'-8"								
					Max	11'-2"																

WING	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	15	L	Min	6'-7"	4	8	26'-8"	6	18	15	Min 2'-10" Max 4'-3"	4	18	2	Min 24'-4" Max 24'-4"	4	2	23'-3"	4	2	23'-5"	6	12	10	L	3'-4"	835
					Max	13'-7"																							
				X	Min	2'-6"																						X	1'-8"	
					Max	2'-6"																							
				Y	Min	4'-2"																							
					Max	11'-2"																							
WING B	4	18	30	L	Min	6'-5"	4	8	49'-2"	6	18	33	Min 2'-10" Max 5'-6"	4	18	4	Min 29'-8" Max 56'-8"	4	2	45'-2"	4	2	51'-9"	6	12	10	L	3'-4"	1756
					Max	13'-7"																							
				X	Min	2'-6"																						X	1'-8"	
					Max	2'-6"																							
				Y	Min	4'-0"																							
					Max	11'-2"																							

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
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH
30	3:1	5	12	10	16'-11"	14	3	14	9.5	8	51'-7"	12'-4"

TOP SLAB REINFORCING STEEL	"a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	"c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D
	7	10	Max 51'-3" Min 3'-4"	34	5	6	Max 51'-3" Min 3'-4"	56
			51'-3"	3			51'-3"	4

BOTTOM SLAB REINFORCING STEEL	"d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	"f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D
	4	4.5	Max 51'-3" Min 3'-4"	74	4	6	Max 51'-3" Min 3'-4"	56
			51'-3"	6			51'-3"	4

SIDE WALL REINFORCING STEEL "f0"	SIZE	SPACING	NO. REQ'D	LENGTH
	6	5.5	75	12'-0"

INTERIOR WALL REINFORCING STEEL "f1"	SIZE	SPACING	NO. REQ'D	LENGTH
	6	6	210	12'-0"

TOP SLAB DISTRIBUTION REINFORCING STEEL "g"	SIZE	SPACING	NO. REQ'D	LENGTHS VARY
	5	12	103	Max 31'-7" Min 1'-10"

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e"	SIZE	SPACING	NO. REQ'D	LENGTHS VARY
	5	12	103	Max 31'-7" Min 1'-10"

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1"	SIZE	SPACING	NO. REQ'D	LENGTH
	4	11	11	LONG 31'-3"
				SHORT 2'-2"

INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2"	SIZE	SPACING	NO. REQ'D	LENGTH
	4	12	20	LONG 24'-2"
			20	MID 16'-9"
			20	SHORT 9'-3"

CLASS "S" CONCRETE (Includes HDWL)	1 REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
98.91	17226

"k1" HDWL BARS SIZE	"k1" HDWL BARS LENGTH	"k1" HDWL BARS NO. REQ'D
5	30'-8"	12

"k2" HDWL BARS SIZE	"k2" HDWL BARS LENGTH	"k2" HDWL BARS NO. REQ'D
5	30'-8"	12

"h" HDWL BARS SIZE	"h" HDWL BARS LENGTH	"h" HDWL BARS Y	"h" HDWL BARS NO. REQ'D
4	2'-1"	1'-1"	61

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.)
	D	S	H	T	B	C	W	OW	OH	SL

TOP SLAB REINFORCING STEEL 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 REINFORCING STEEL 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 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	ADDITIONAL REINF. FOR HDWL
HD	LBS.

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

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

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. 211+50
SPECIAL DETAILS

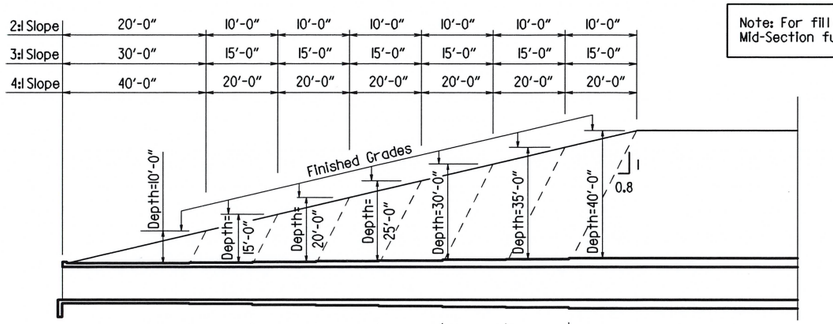
LRFD

Ver. 1.1.7 G:\221000\101124\TRANSP\dgn\special_details\b101124_ci.dgn

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	13	191
		SPECIAL DETAILS				

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

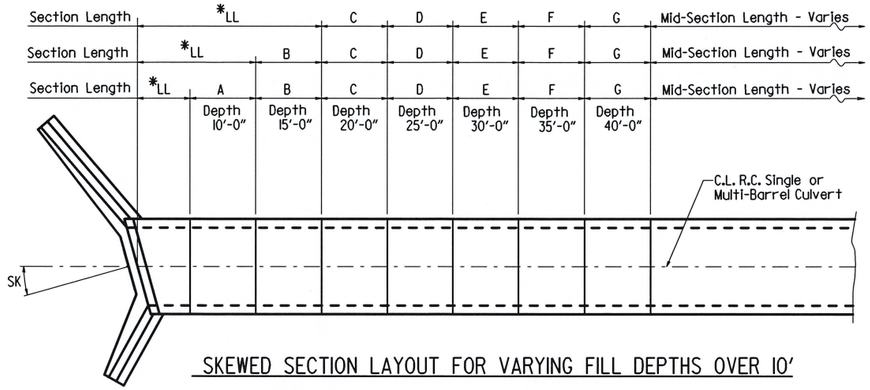
*LL = Skewed End Section Length - See "Skewed End Section Details" Length LL varies with skew angle, overall box width and fill depth and may eliminate the need for some slope section lengths as shown.



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

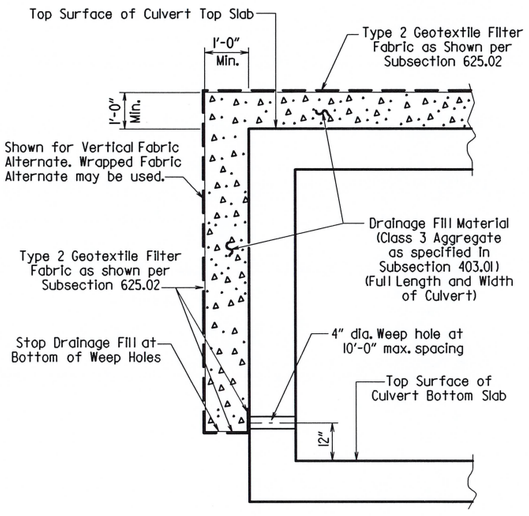
LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

Lengths for Non-Skewed Boxes



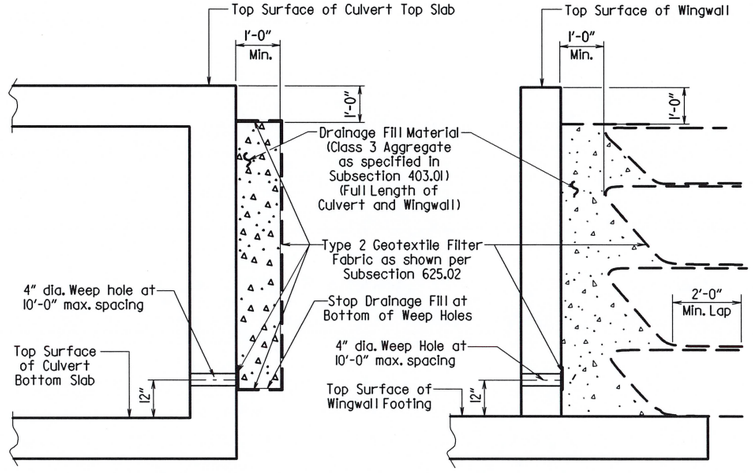
SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023



CULVERT DRAINAGE DETAIL FOR ROCK FILL

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

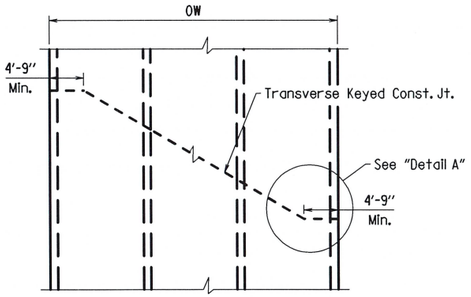


For Details of Excavation and Pay Limits, see Standard Drawing RCB-2.

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

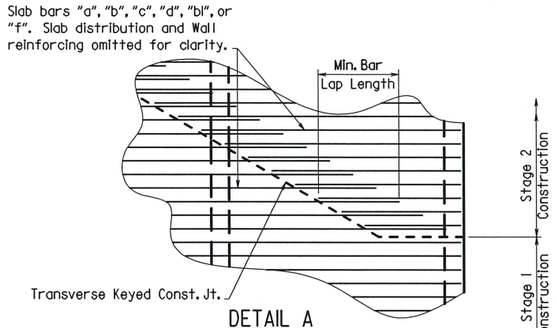
WRAPPED FABRIC ALTERNATE
(Shown for Wingwall, Similar for Culvert)

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.

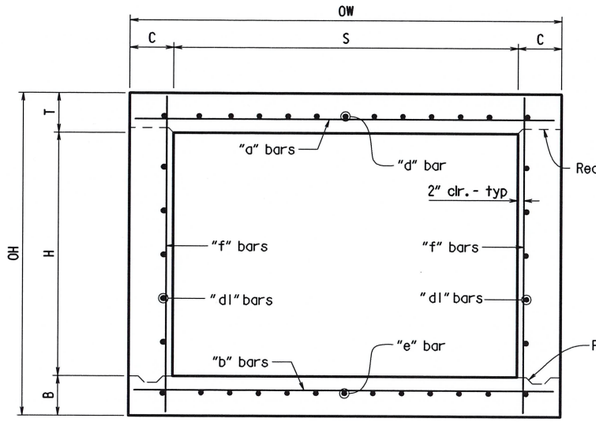
SHEET 1 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE

SPECIAL DETAILS

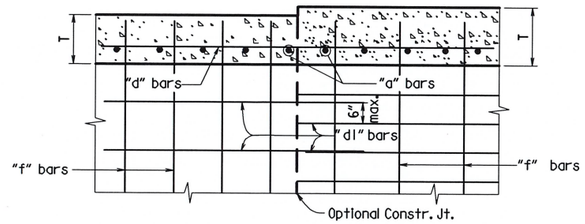
V. 1.1.7 G:\22\1000\101124\TRANSP\dgn\special_details\b101124_culvert.dgn

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	14	191
		SPECIAL DETAILS				

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



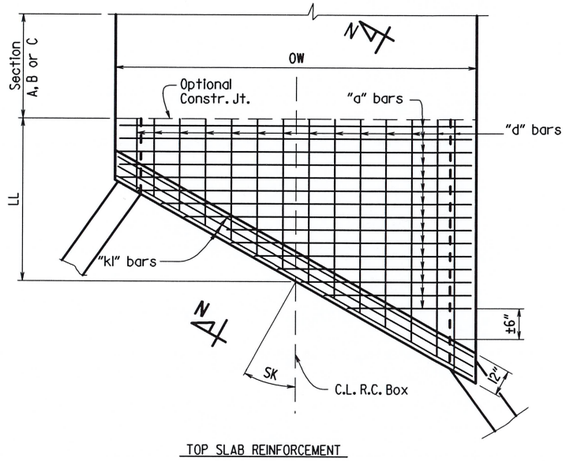
TYPICAL SECTION M-M



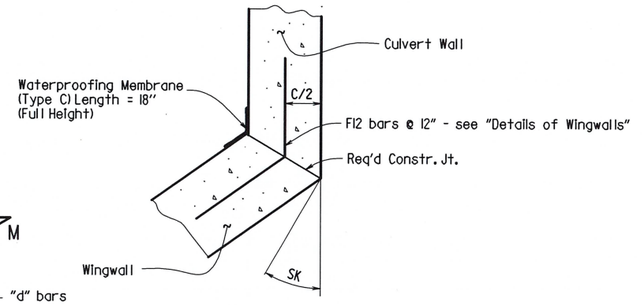
Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

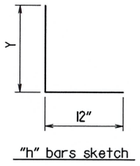


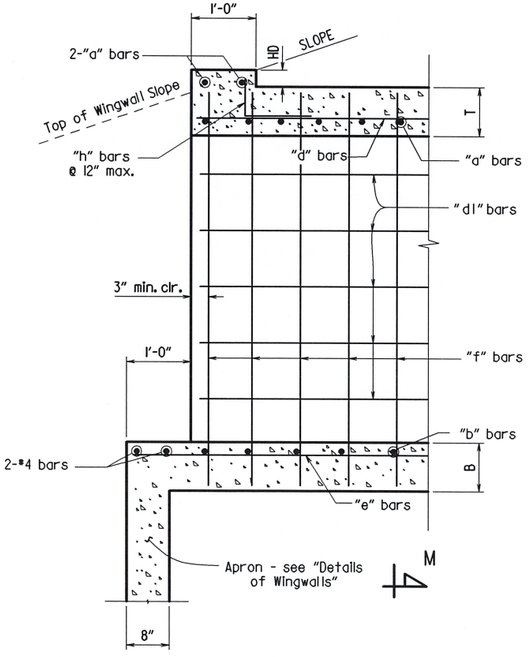
TOP SLAB REINFORCEMENT



WINGWALL ATTACHMENT

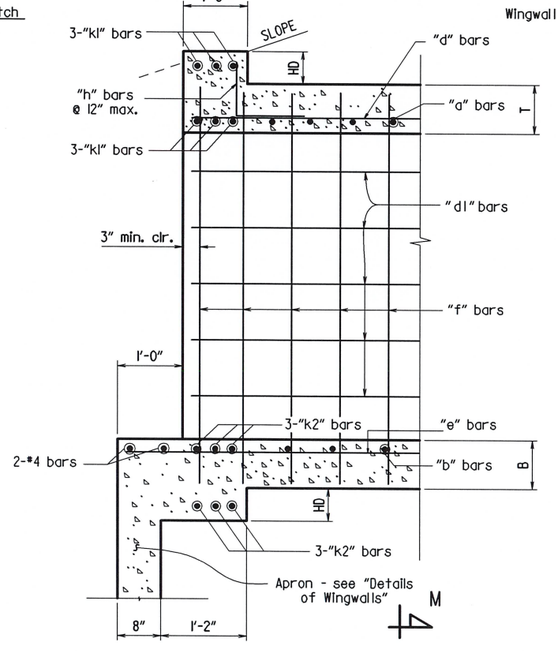
See "Details of Wingwalls" for additional information and wingwall details.





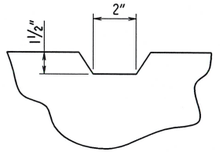
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



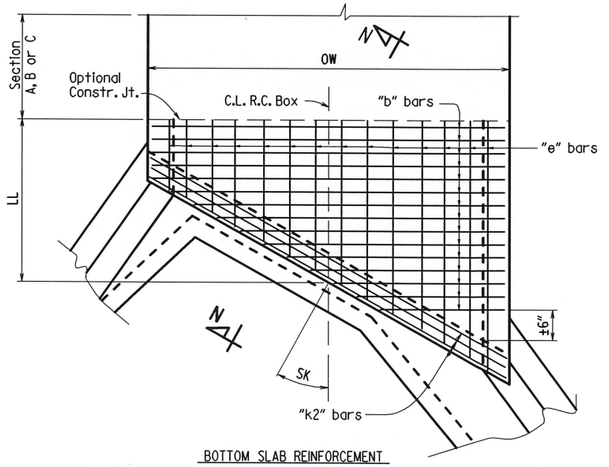
PART LONGITUDINAL SECTION N-N

(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

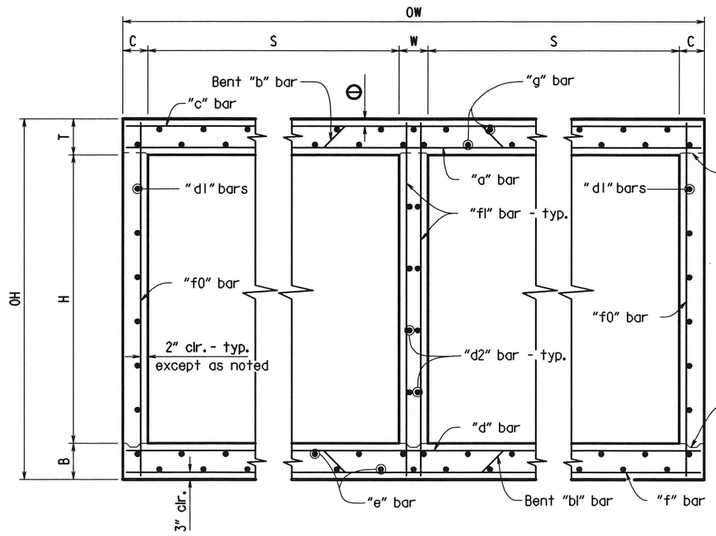
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

V 1.17 G:\22II000\101124\TRANSP\dgn\special_details\b101124_culvert.dgn

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	15	191
		SPECIAL DETAILS				

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

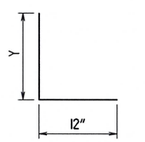
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



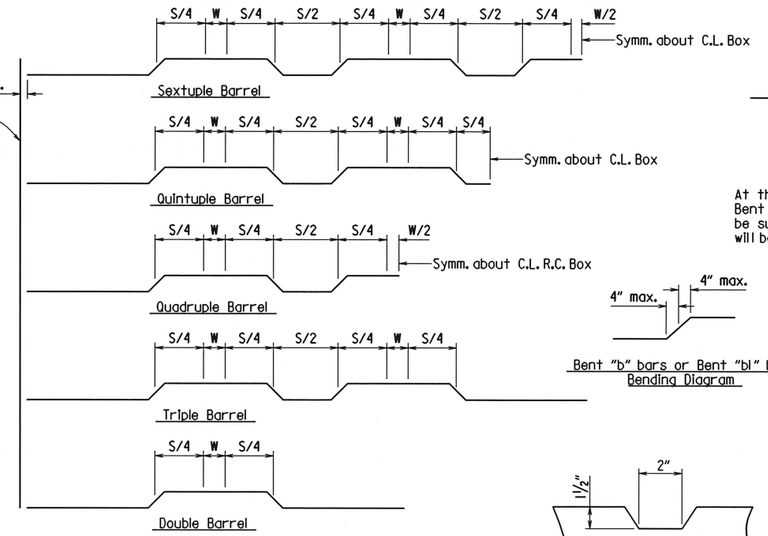
TYPICAL SECTION M-M

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

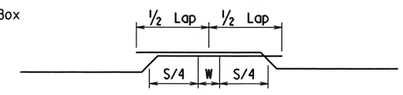
Bottom Slab
Straight "d" bars shall alternate with Bent "bl" bars in top.
Straight "f" bars shall alternate with Bent "bl" bars in bottom.



"h" bars sketch



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



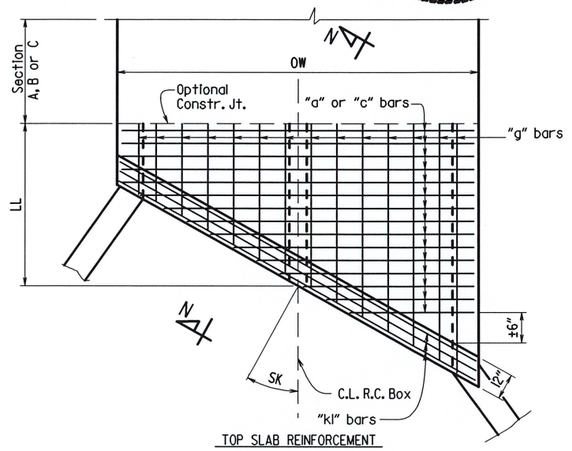
Lap Detail
For Bent "b" bars and Bent "bl" bars

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.

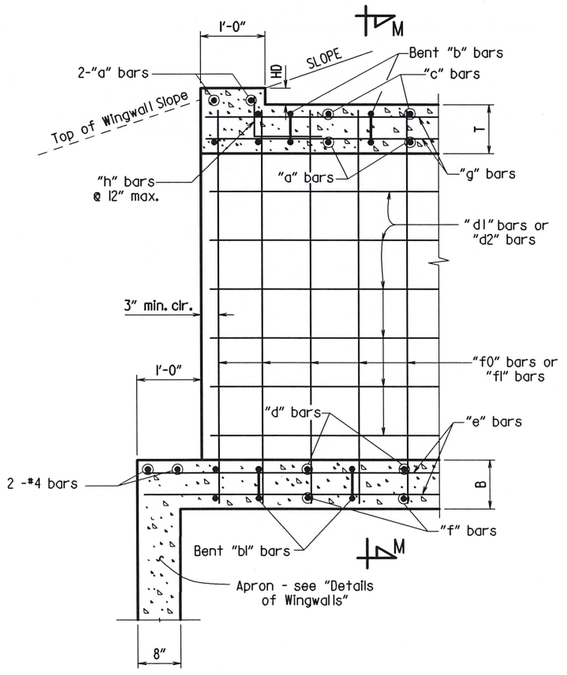
Bent "b" bars or Bent "bl" bars Bending Diagram

TYPICAL KEYWAY DETAIL

(All Construction Joints)

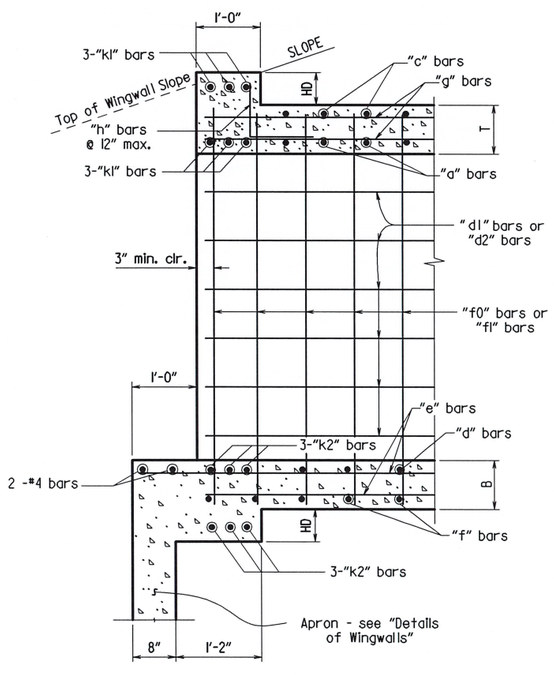


TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



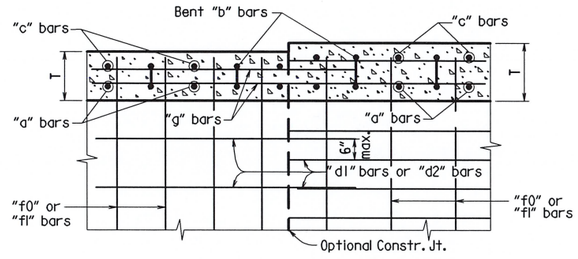
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

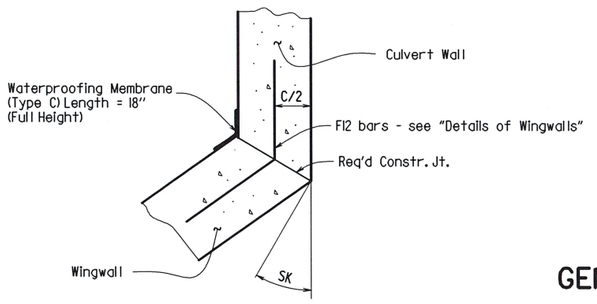
(Skewed Ends)



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

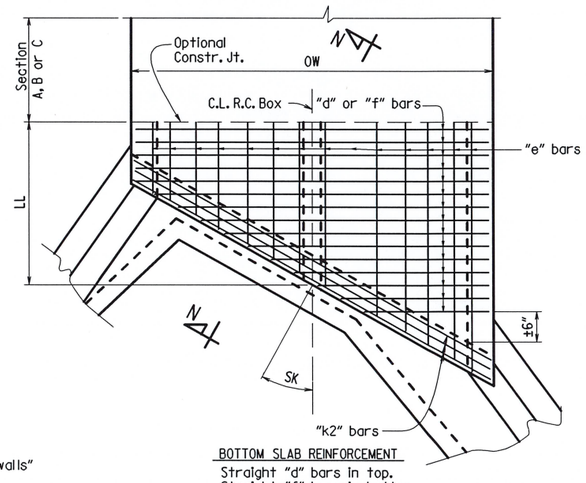
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

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

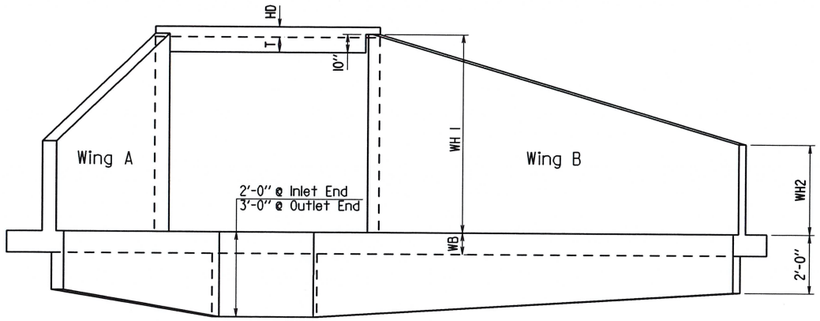
DETAILS OF MULTI-BARREL R.C. BOX CULVERT

SPECIAL DETAILS

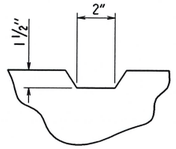
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

V 1.1.17 G:\22\10001_101124\TRANSP\dgn\special_details\b101124_culvert.dgn

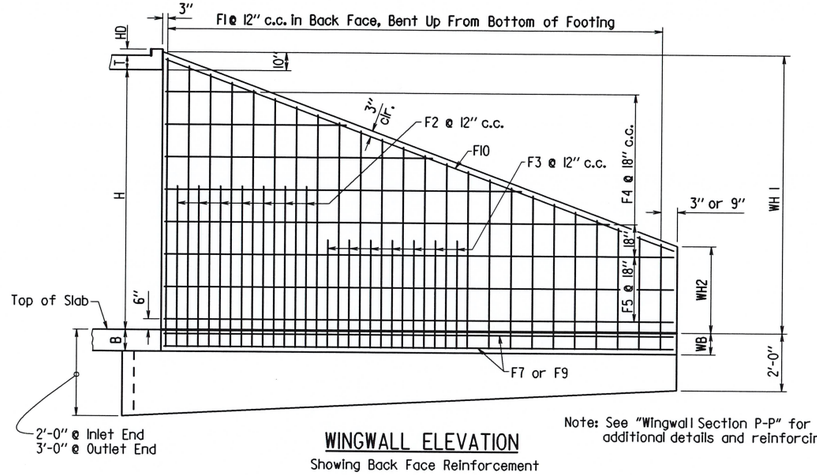
DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	16	191
		SPECIAL DETAILS				



END ELEVATION
Flared Wingwalls Shown



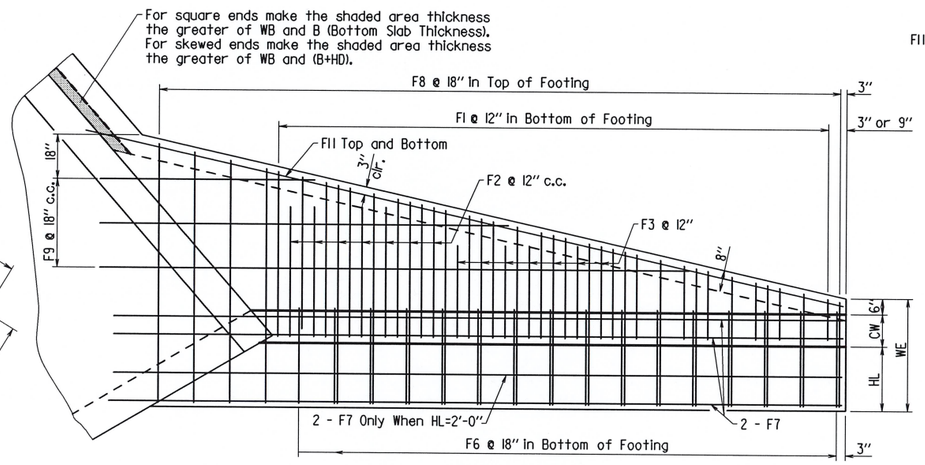
TYPICAL KEYWAY DETAIL
All Construction Joints



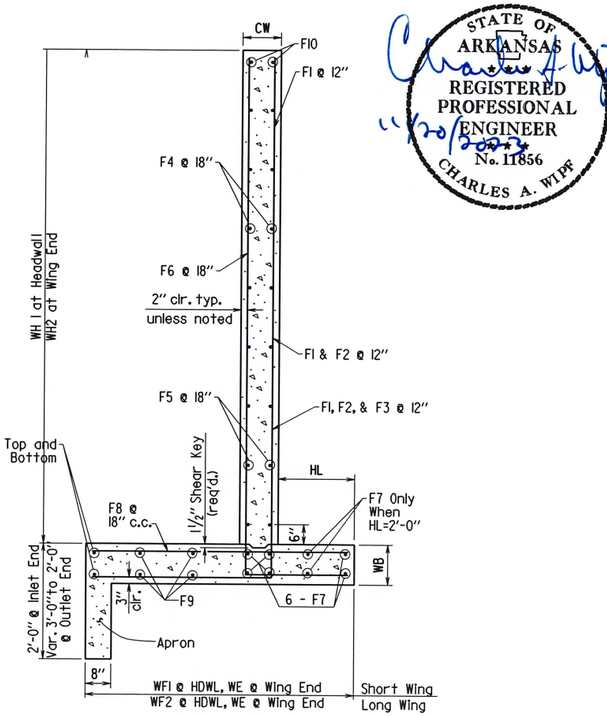
WINGWALL ELEVATION
Showing Back Face Reinforcement

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

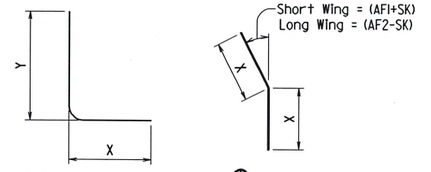
PART PLAN - FLARED WINGWALLS



PLAN - FLARED WINGWALLS
Showing Footing Reinforcement



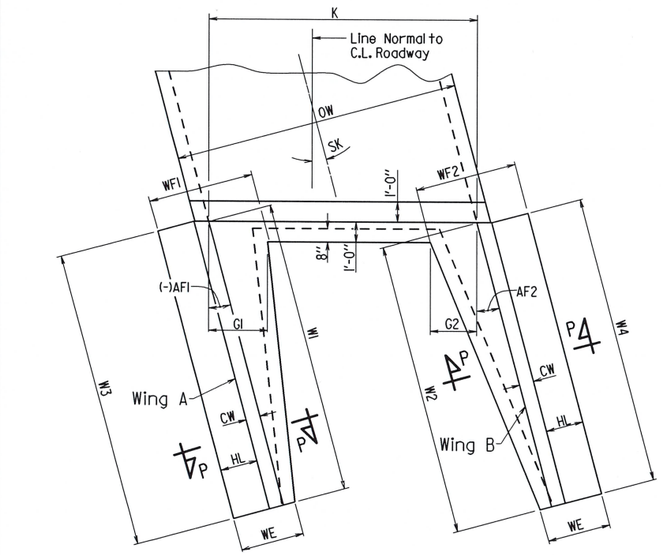
WINGWALL SECTION P-P



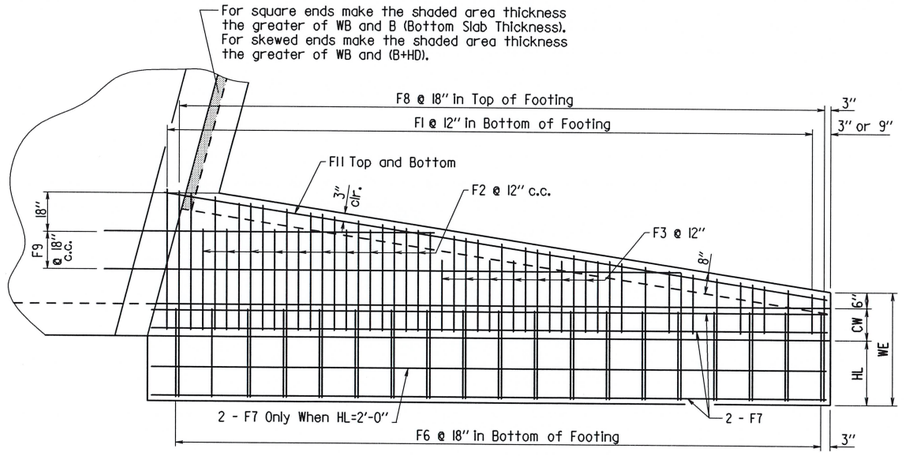
F1, F2, F3, & F6 BARS

ΦF12 BAR

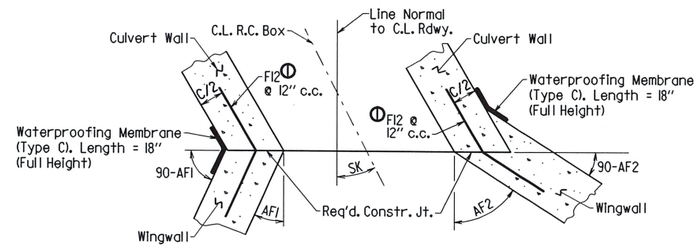
ΦF12 is a straight bar for parallel wingwalls



PART PLAN - PARALLEL WINGWALLS



PLAN - PARALLEL WINGWALLS
Showing Footing Reinforcement



CONSTRUCTION JOINTS
Flared Wingwalls Shown

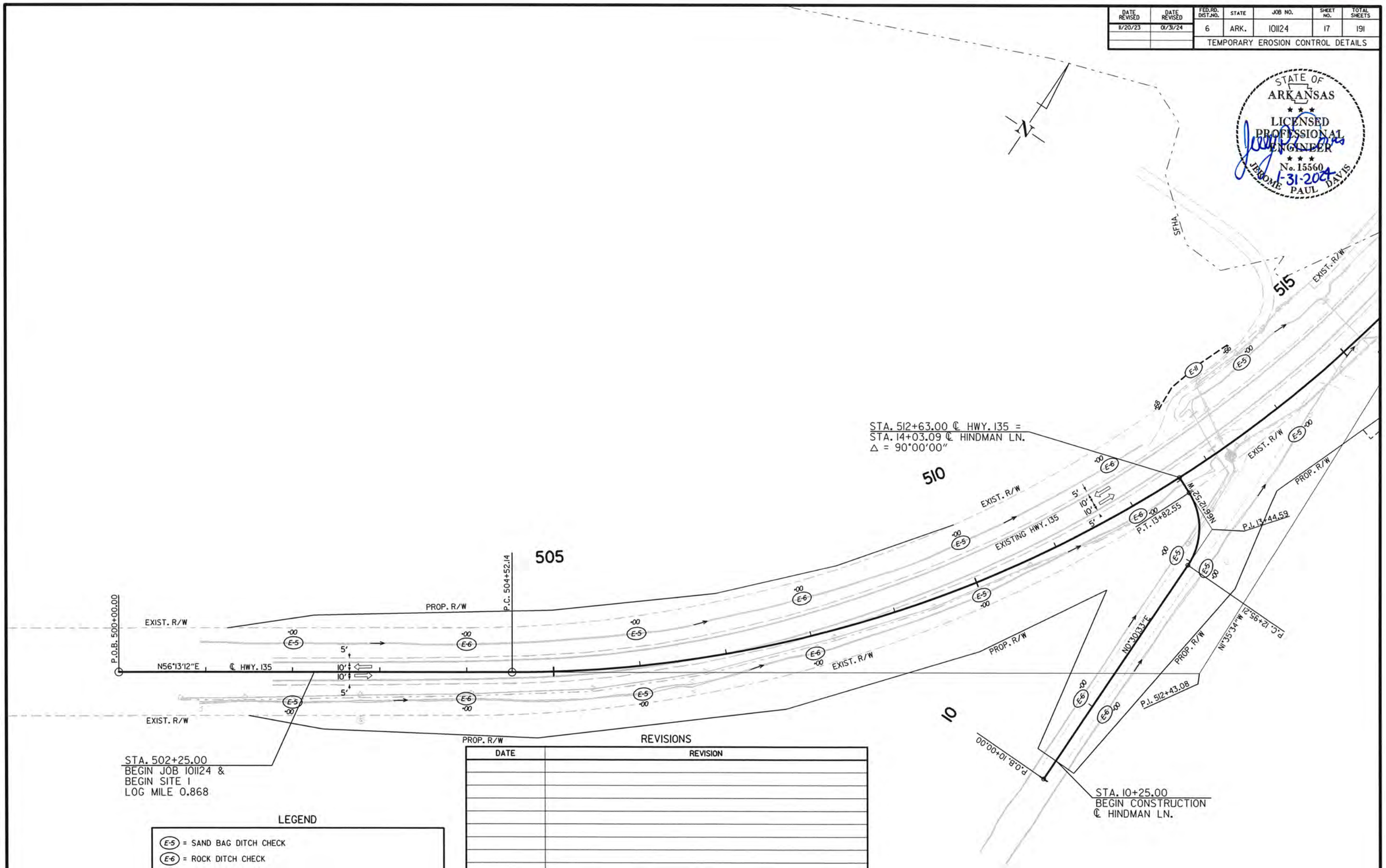
SHEET 4 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF WINGWALLS
SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

v 1.17 G:\22II000_I0II24\TRANSP\dgn\special_details\bI0II24_culvert.dgn

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	17	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-31-2024



LEGEND

- E-5 = SAND BAG DITCH CHECK
- E-6 = ROCK DITCH CHECK
- E-11 = SILT FENCE

REVISIONS

DATE	REVISION

SITE 1 CLEARING AND GRUBBING TEMPORARY EROSION CONTROL DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	18	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
2-2-2024

STA. 518+16 TO STA. 539+06
SPECIAL FLOOD HAZARD AREA

STA. 42+90.00
END CONSTRUCTION
℄ STEEL BRIDGE RD.

P.O.E. 43+27.12

PROP. R/W

SILT FENCE = 173 LIN. FT.

M.B.# 47295

IP 3

P.T. 41+70.22

P.I. 41+08.51

525

520

515

EXIST. R/W

P.T. 518+97.46

STA. 519+60.83
BR. END

STA. 521+41.16
BR. END

P.C. 522+00.59

EXISTING HWY. 135

P.C. 40+44.76

S87°30'19"W

N1°35'34"W

P.I. 32+87.17

P.I. 32+49.92

N79°50'43"W

P.C. 32+12.53

T.C.E.

INBB# 48109"W

SFHA

DEAD TIMBER LAKE

50' BUFFER

STA. 516+03.00 ℄ HWY. 135 =
STA. 33+12.34 ℄ HOWARD RD.
△ = 90°00'00"

SILT FENCE = 202 LIN. FT.

STA. 30+50.00
BEGIN CONSTRUCTION
℄ HOWARD RD.

P.O.B. 30+00.00

30

N5°30'40"W

P.I. 525+92.59

STA. 523+81.00 ℄ HWY. 135 =
STA. 40+00.00 ℄ STEEL BRIDGE RD.
△ = 90°00'00"

REVISIONS

DATE	REVISION

LEGEND

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

SITE 1 CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

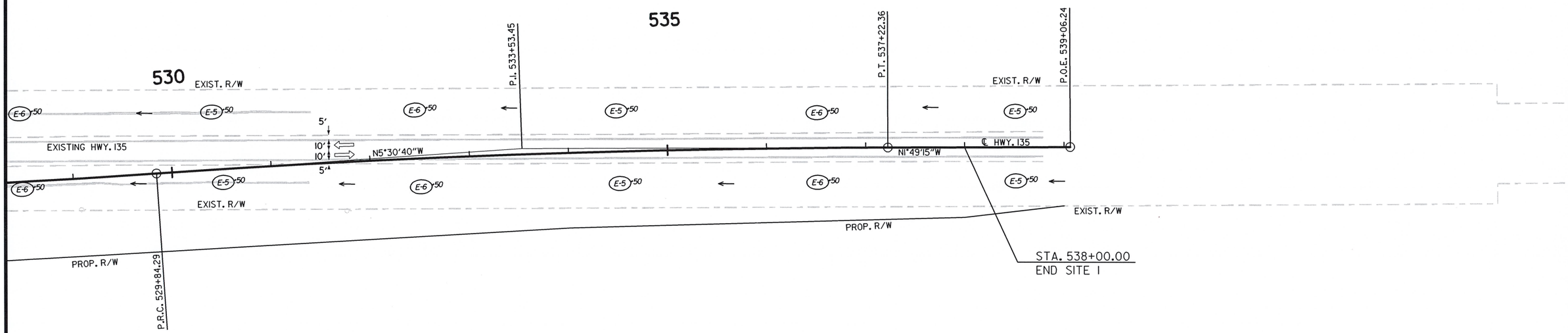
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STA. 518+16 TO STA. 539+06
SPECIAL FLOOD HAZARD AREA

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	19	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023



LEGEND

(E-5) = SAND BAG DITCH CHECK
(E-6) = ROCK DITCH CHECK

REVISIONS

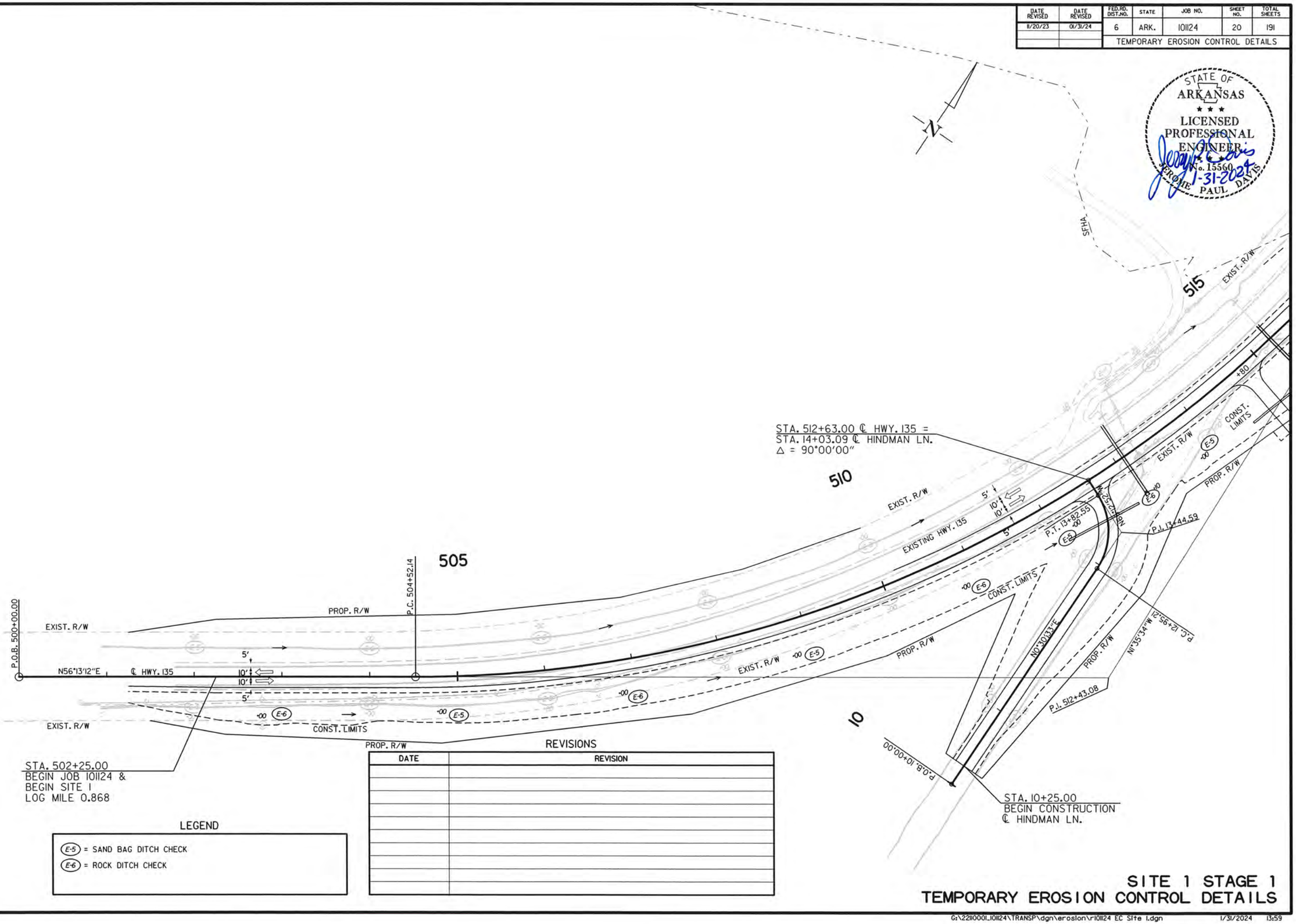
DATE	REVISION

SITE 1 CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	20	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-31-2024



LEGEND

(E-5) = SAND BAG DITCH CHECK
(E-6) = ROCK DITCH CHECK

REVISIONS

DATE	REVISION

SITE 1 STAGE 1
TEMPORARY EROSION CONTROL DETAILS

USER: JJ5206
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	21	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
12-2-2024

STA. 518+16 TO STA. 539+06
SPECIAL FLOOD HAZARD AREA

STA. 42+90.00
END CONSTRUCTION
℄ STEEL BRIDGE RD.

P.O.E. 43+27.12

PROP. R/W

N46°47'29"E

P.T. 41+70.22

P.I. 41+08.51

S87°30'19"W

P.C. 40+44.76

℄ HWY. 135

N5°30'40"W

P.I. 525+92.59

STA. 523+81.00 ℄ HWY. 135 =
STA. 40+00.00 ℄ STEEL BRIDGE RD.
Δ = 90°00'00"

515

520

525

EXIST. R/W

EXISTING HWY. 135

50' BUFFER

DEAD TIMBER LAKE

SFHA

P.T. 518+97.46

STA. 519+60.83
BR. END

STA. 521+41.16
BR. END

P.C. 522+00.59

5'
10'
10'
5'

+80

+72

CONST. LIMITS

P.T. 32+67.17

N11°35'34"W

P.I. 32+49.92

N79°50'45"W

P.C. 32+12.53

16' T.C.E.

40' T.C.E.

PROP. R/W

CONST. LIMITS

E-6 ·00

E-5 ·00

E-11 ·00

N88°48'09"W

STA. 516+03.00 ℄ HWY. 135 =
STA. 33+12.34 ℄ HOWARD RD.
Δ = 90°00'00"

STA. 30+50.00
BEGIN CONSTRUCTION
℄ HOWARD RD.

P.O.B. 30+00.00

30

LEGEND

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

REVISIONS

DATE	REVISION

SITE 1 STAGE 1
TEMPORARY EROSION CONTROL DETAILS

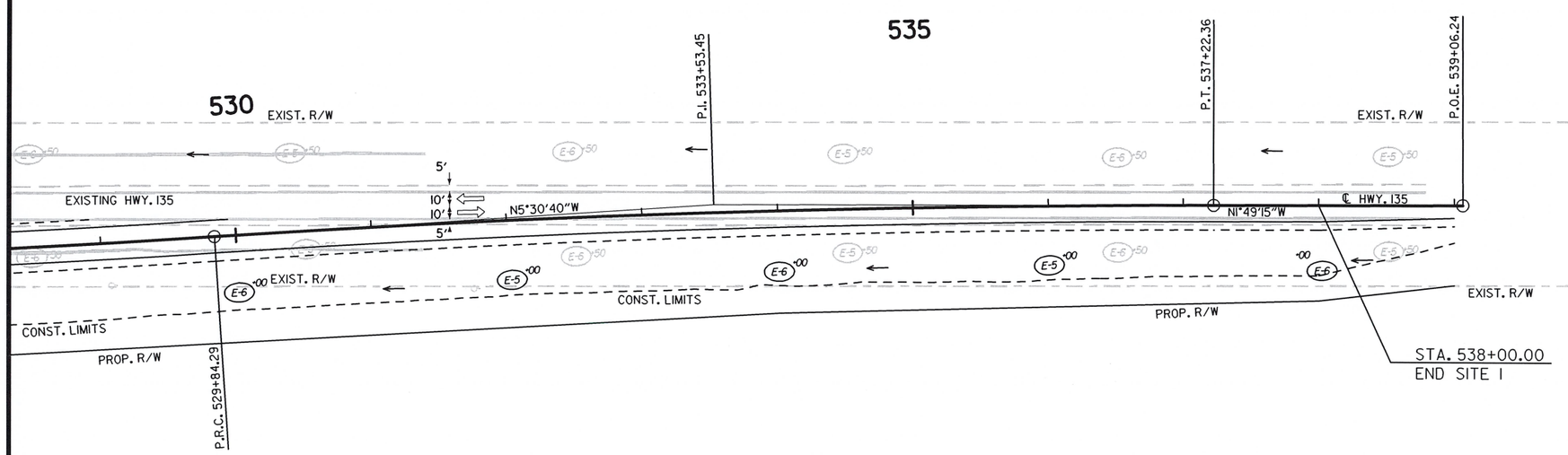
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STA. 518+16 TO STA. 539+06
SPECIAL FLOOD HAZARD AREA

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	22	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023



LEGEND

(E-5) = SAND BAG DITCH CHECK
(E-6) = ROCK DITCH CHECK

REVISIONS

DATE	REVISION

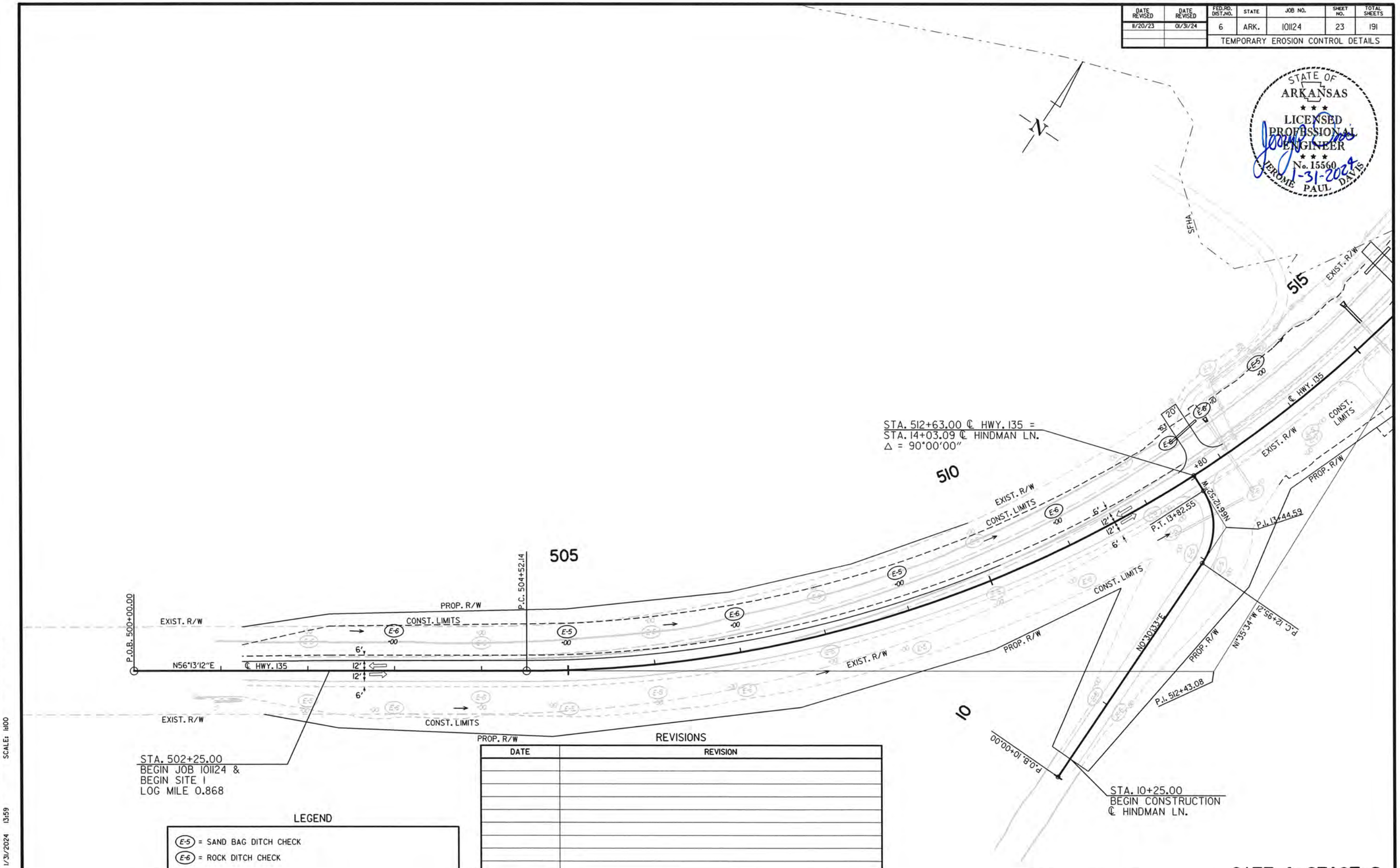
SITE 1 STAGE 1
TEMPORARY EROSION CONTROL DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	23	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-31-2024



LEGEND

(E-5) = SAND BAG DITCH CHECK
(E-6) = ROCK DITCH CHECK

REVISIONS

DATE	REVISION

SITE 1 STAGE 2
TEMPORARY EROSION CONTROL DETAILS

USER: JJ5206
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	24	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
2-2-2024

STA. 518+16 TO STA. 539+06
SPECIAL FLOOD HAZARD AREA

STA. 42+90.00
END CONSTRUCTION
℄ STEEL BRIDGE RD.

P.O.E. 43+27.12

PROP. R/W

N 68°47'29"E

P.T. 41+70.22

P.I. 41+08.51

S87°30'32"W

P.C. 40+44.76

515

520

525

30

50' BUFFER

SFHA

DEAD TIMBER LAKE

EXIST. R/W

CONST. LIMITS

P.T. 518+97.46

STA. 519+60.83
BR. END

STA. 521+41.16
BR. END

P.C. 522+00.59

℄ HWY. 135

N1°35'34"W

N5°30'40"W

16'

6'

12'

+92

P.I. 32+67.17

P.I. 32+49.92

N79°50'43"W

P.C. 32+12.53

T.C.E.

N88°48'09"W

P.I. 525+92.59

STA. 516+03.00 ℄ HWY. 135 =
STA. 33+12.34 ℄ HOWARD RD.
△ = 90°00'00"

STA. 523+81.00 ℄ HWY. 135 =
STA. 40+00.00 ℄ STEEL BRIDGE RD.
△ = 90°00'00"

STA. 30+50.00
BEGIN CONSTRUCTION
℄ HOWARD RD.

P.O.B. 30+00.00

LEGEND

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

REVISIONS

DATE	REVISION

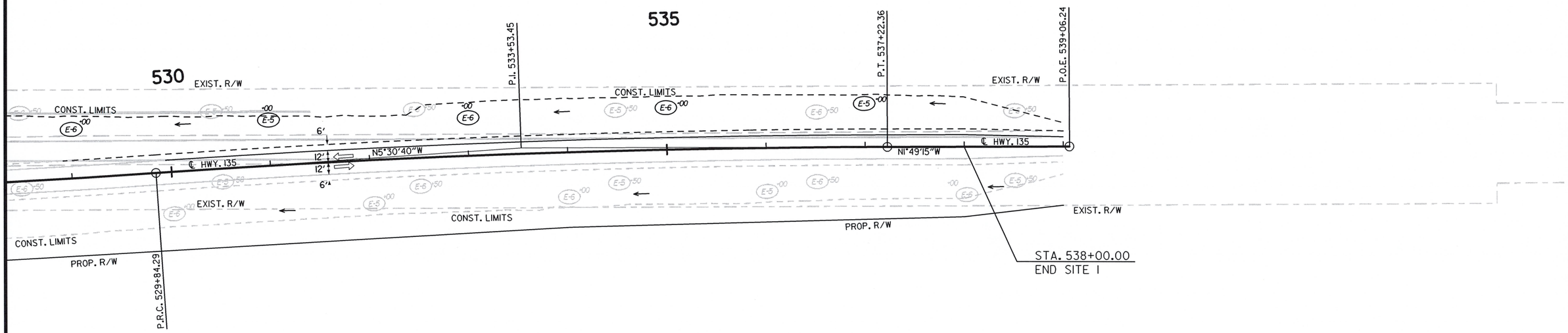
SITE 1 STAGE 2
TEMPORARY EROSION CONTROL DETAILS

USER: JJ5206
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SCALE: 1:100

STA. 518+16 TO STA. 539+06
SPECIAL FLOOD HAZARD AREA

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	25	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023



LEGEND

(E-5) = SAND BAG DITCH CHECK
(E-6) = ROCK DITCH CHECK

REVISIONS

DATE	REVISION

SITE 1 STAGE 2
TEMPORARY EROSION CONTROL DETAILS

USER: JJ5206
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	26	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

600

605

610

STA. 602+00.00
BEGIN SITE 2
LOG MILE 2.402

PROP. R/W

P.I. 605+00.73

℄ HWY. 135

N01°56'28"W

4'
10'
10'
6'

P.C. 603+25.70

P.C. 609+31.29

P.T. 612+80.04

EXISITING HWY. 135

N03°18'23"E

N01°55'30"W

P.T. 606+75.52

PROP. R/W

P.I. 611+05.78

REVISIONS

DATE	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECK

E-6 = ROCK DITCH CHECK

STA. 600+00 TO STA. 638+70
SPECIAL FLOOD HAZARD AREA

620

625

615

25' BUFFER

TYRONZA RIVER

25' BUFFER

P.T. 612+80.04

STA. 615+02.77
BR. END

STA. 617+85.22
BR. END

P.C. 620+42.33

P.T. 623+69.38

PROP. R/W

EXISITING HWY. 135

N06°49'51"W

N01°55'30"W

P.C. 626+50.14

P.I. 622+05.96

TYRONZA RIVER

25' BUFFER

25' BUFFER

PROP. R/W

SITE 2 CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

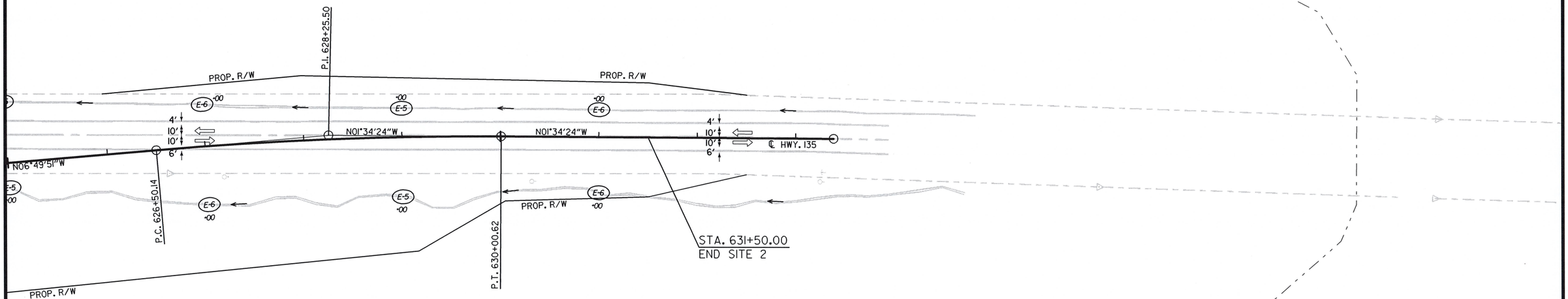
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	27	191
		TEMPORARY EROSION CONTROL DETAILS				

STA. 600+00 TO STA. 638+70
SPECIAL FLOOD HAZARD AREA

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023



REVISIONS

DATE	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECK
(E-6) = ROCK DITCH CHECK

SITE 2 CLEARING AND GRUBBING TEMPORARY EROSION CONTROL DETAILS

USER: JJ5206
DESIGN FILE: G:\22II0001_I0II24\TRANSP\dgn\erosion\rI0II24 EC Site 2.dgn
PLOTTED: II/20/2023 12:27
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	28	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

600

605

610

STA. 602+00.00
BEGIN SITE 2
LOG MILE 2.402

PROP. R/W

P.I. 605+00.73

P.C. 609+31.29

P.T. 612+80.04

℄ HWY. 135

N01°56'28"W

4'
10'
10'
6'

CONST. LIMITS

E-5 = SAND BAG DITCH CHECK

E-6 = ROCK DITCH CHECK

P.C. 603+25.70

P.T. 606+75.52

N03°18'23"E

EXISITING HWY. 135

N01°55'30"W

PROP. R/W

P.I. 611+05.78

CONST. LIMITS

REVISIONS

DATE	REVISION

LEGEND

STA. 600+00 TO STA. 638+70
SPECIAL FLOOD HAZARD AREA

615

620

625

P.T. 612+80.04

STA. 615+02.77
BR. END

25' BUFFER

TYRONZA RIVER

25' BUFFER

STA. 617+85.22
BR. END

P.C. 620+42.33

P.T. 623+69.38

PROP. R/W

EXISITING HWY. 135

N06°49'51"W

N01°55'30"W

P.C. 626+50.14

P.I. 622+05.96

CONST. LIMITS

TYRONZA RIVER

CONST. LIMITS

PROP. R/W

25' BUFFER

25' BUFFER

SITE 2 STAGE 1
TEMPORARY EROSION CONTROL DETAILS

USER: JJ5206
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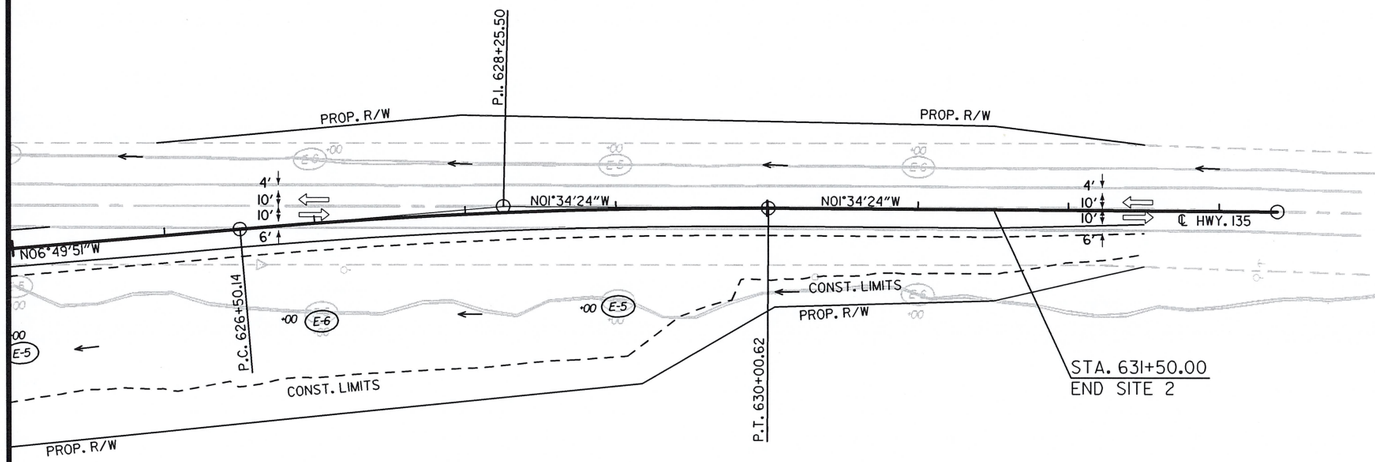
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	29	191
		TEMPORARY EROSION CONTROL DETAILS				

STA. 600+00 TO STA. 638+70
SPECIAL FLOOD HAZARD AREA

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

SFHA

630



REVISIONS

DATE	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECK
E-6 = ROCK DITCH CHECK

SITE 2 STAGE 1
TEMPORARY EROSION CONTROL DETAILS

USER: JJ5206
DESIGN FILE: G:\22II000I_I0II24\TRANSP\dgn\erosion\rI0II24 EC Site 2.dgn
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	30	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

600

605

610

STA. 602+00.00
BEGIN SITE 2
LOG MILE 2.402

PROP. R/W
CONST. LIMITS
℄ HWY. 135
N01°56'28"W
6'
12'
12'
6'
P.I. 605+00.73
P.C. 603+25.70
P.T. 606+75.52
N03°18'23"E
P.C. 609+31.29
P.I. 611+05.78
N01°55'30"W
P.T. 612+80.04
CONST. LIMITS
PROP. R/W

REVISIONS

DATE	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECK
E-6 = ROCK DITCH CHECK

STA. 600+00 TO STA. 638+70
SPECIAL FLOOD HAZARD AREA

615

620

625

P.T. 612+80.04
STA. 615+02.77 BR. END
25' BUFFER
TYRONZA RIVER
25' BUFFER
STA. 617+85.22 BR. END
P.C. 620+42.33
P.T. 623+69.38
PROP. R/W
CONST. LIMITS
℄ HWY. 135
N01°55'30"W
N06°49'51"W
P.I. 622+05.96
P.C. 626+50.14
CONST. LIMITS
PROP. R/W
CONST. LIMITS
TYRONZA RIVER
25' BUFFER
CONST. LIMITS
PROP. R/W

SITE 2 STAGE 2
TEMPORARY EROSION CONTROL DETAILS

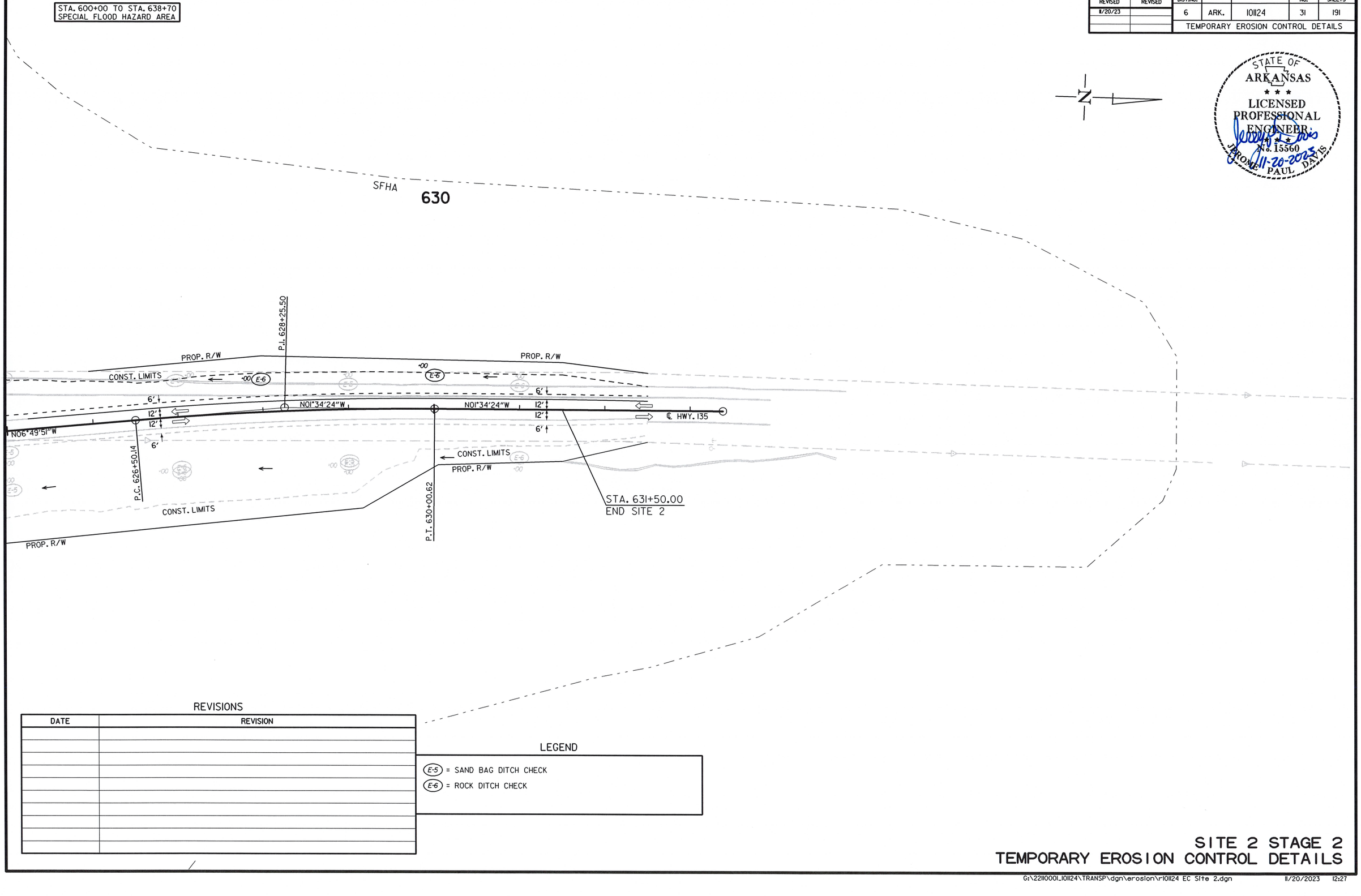
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	31	191
		TEMPORARY EROSION CONTROL DETAILS				

STA. 600+00 TO STA. 638+70
SPECIAL FLOOD HAZARD AREA

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15360
JEROME PAUL DAVIS
11-20-2023



REVISIONS

DATE	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECK
(E-6) = ROCK DITCH CHECK

SITE 2 STAGE 2
TEMPORARY EROSION CONTROL DETAILS

USER: JJ5206
DESIGN FILE: G:\22110001_101124\TRANSP\dgn\erosion\r101124 EC Site 2.dgn
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	32	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
* * *
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

110 115 120 125 130 135

STA. 110+00.00
BEGIN SITE 3
LOG MILE 5.99

POB 108+00.09

EXIST. R/W

PROP. R/W

N0°55'20"W

℄ HWY. 135

5' | 10' | 10' | 5'

E-5 ·00 E-6 ·00

P.C. 110+00.00

P.I. 113+88.35

P.C. 117+80.17

N2°57'35"E

P.T. 117+76.39

STA. 120+43.11 ℄ HWY. 135 =
STA. 610+00.00 ℄ DR. 120+43
△ = 90°00'00"

N88°59'55"W

P.C. 610+32.00

P.T. 610+74.54

N40°14'55"W

P.I. 610+54.66

P.C. 611+57.32

P.I. 611+95.47

S65°05'25"W

POE 613+65.80

STA. 614+50.00
END CONST.
℄ DR. 120+43

P.T. 612+22.50

T.C.E.

SILT FENCE = 157 LIN. FT.

DITCH NO. 1

E-11 ·50 ·12

STA. 122+22.83
BR. END

STA. 122+43.83
BR. END

SFHA

REVISIONS

DATE	REVISION

LEGEND

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

STA. 712+46.18
BEGIN CONST.
℄ DR. 125+20

S53°20'33"W

P.T. 712+06.75

P.C. 711+60.20

P.T. 710+98.94

P.I. 711+85.31

T.C.E.

P.I. 710+70.45

P.C. 710+22.66

S00°00'00"W

S87°24'56"W

N4°47'40"W

P.T. 128+14.66

P.I. 132+20.39

STA. 135+93.45
END SITE 3

POE 136+97.01

N1°03'45"W

P.T. 135+93.45

P.C. 128+47.06

P.I. 122+98.51

STA. 123+73.17
BR. END

·45 ·70 ·20

T.C.E.

SILT FENCE = 134 LIN. FT.

SILT FENCE = 131 LIN. FT.

STA. 125+20.00 ℄ HWY. 135 =
STA. 710+00.00 ℄ DR. 125+20
△ = 90°00'00"

SITE 3 CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

USER: JJ5206
DESIGN FILE: G:\22110001.101124\TRANSP\dgn\erosion\r101124 EC Site 3 & 4.dgn
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	33	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
No. 15560
11-20-2023

STA. 110+00.00
BEGIN SITE 3
LOG MILE 5.99

110 115 120 125 130 135

POB 108+00.09
P.C. 110+00.00
P.I. 113+88.35
P.C. 117+80.77
P.T. 117+76.39
P.I. 122+98.51
P.C. 128+47.06
P.I. 132+20.39
P.T. 135+93.45
POE 136+97.01

EXIST. R/W
PROP. R/W
℄ HWY. 135
CONST. LIMITS
N0°55'20"W
N2°57'35"E
N88°59'55"W
N4°47'40"W
N1°03'45"W
S00°00'00"W
S87°24'56"W
S53°20'33"W
5'
10'
40'
24'
16'
+16
+35
+43
+59
+20

STA. 610+00.00 ℄ DR. 120+43
△ = 90°00'00"
STA. 120+43.11℄ HWY. 135 =

STA. 614+50.00
END CONST.
℄ DR. 120+43
POE 613+65.80
P.I. 612+22.50
S65°03'25"W
T.C.E.
DITCH NO. 1
P.C. 611+51.32
P.I. 611+95.47
P.I. 610+54.66
P.T. 610+74.54
P.C. 610+32.00
STA. 122+22.83
BR. END

STA. 712+46.18
BEGIN CONST.
℄ DR. 125+20
P.T. 712+06.75
P.C. 711+60.20
P.T. 710+98.94
P.I. 711+85.31
P.I. 710+70.45
P.C. 710+22.66
STA. 123+73.17
BR. END

STA. 125+20.00 ℄ HWY. 135 =
STA. 710+00.00 ℄ DR. 125+20
△ = 90°00'00"

STA. 135+93.45
END SITE 3

SFHA

REVISIONS

DATE	REVISION

LEGEND

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

SITE 3 STAGE 1
TEMPORARY EROSION CONTROL DETAILS

USER: JJ5206
DESIGN FILE: G:\22110001_101124\TRANSP\dgn\erosion\r101124 EC Site 3 & 4.dgn
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	34	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

110 115 120 125 130 135

STA. 110+00.00
BEGIN SITE 3
LOG MILE 5.99

POB 108+00.09
EXIST. R/W
N0°55'20"W
+45
16'
PROP. R/W
CONST. LIMITS
E-6 E-5 E-6
6%
11' 11' ℄ HWY. 135 11' 11'
6%
P.C. 110+00.00
CONST. LIMITS
PROP. R/W
EXIST. R/W
P.I. 113+88.35
P.C. 117+80.77
P.T. 117+76.39
N2°57'35"E
6%
11' 11'
6%
EXIST. R/W
CONST. LIMITS
PROP. R/W
+43
STA. 120+43.11℄ HWY. 135 =
STA. 610+00.00 ℄ DR. 120+43
Δ = 90°00'00"

POE 613+65.80
N65°03'25"W
STA. 614+50.00
END CONST.
℄ DR. 120+43
P.I. 612+22.50
T.C.E.
DITCH NO.1
P.C. 611+71.32
P.I. 611+95.47
P.I. 610+54.66
N40°14'55"W
16'
CONST. LIMITS
P.T. 610+74.54
N88°59'55"W
P.C. 610+32.00
+43
EXIST. R/W
STA. 122+22.83
BR. END

REVISIONS

DATE	REVISION

LEGEND

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

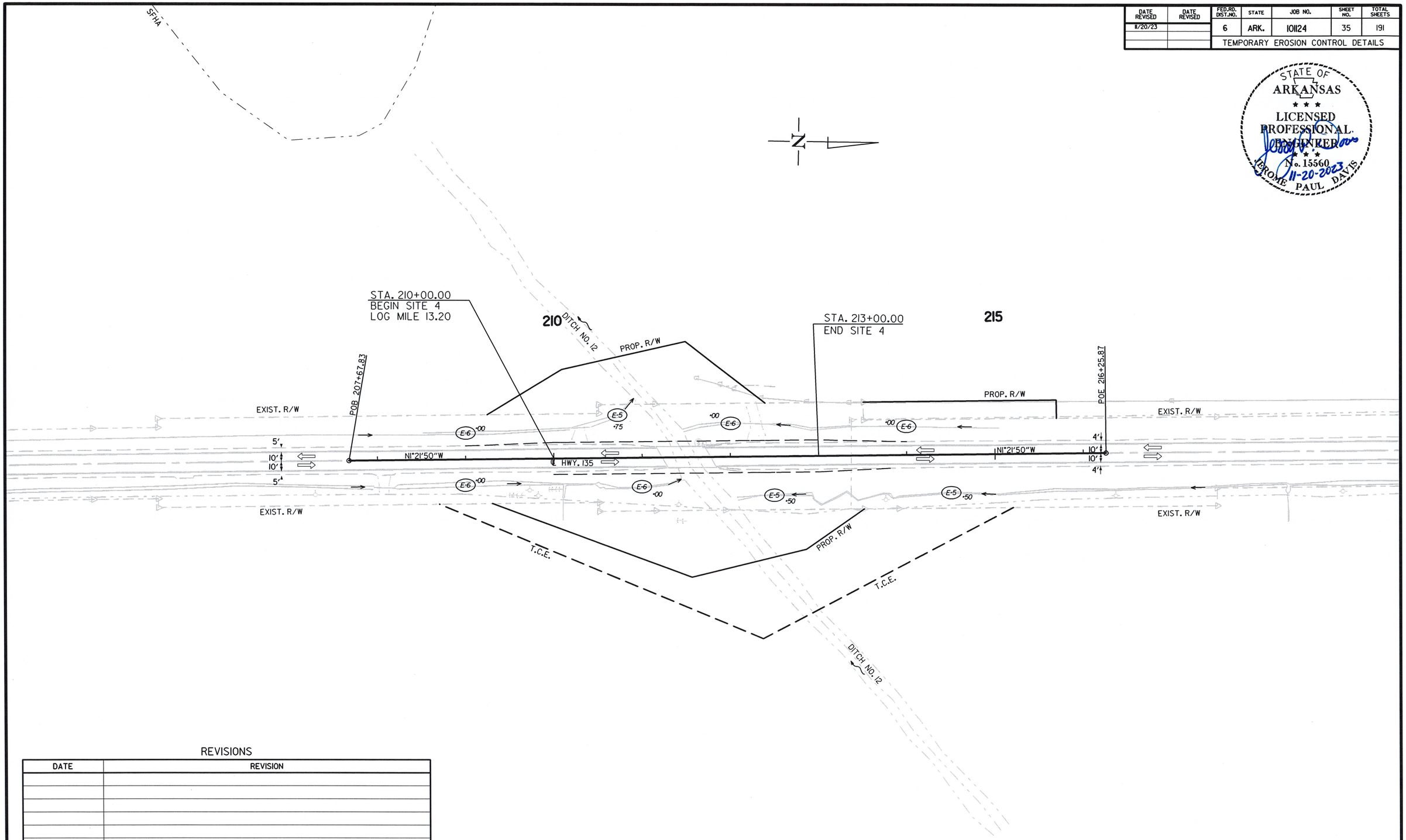
SFHA
DITCH NO.1
STA. 712+46.18
BEGIN CONST.
℄ DR. 125+20
S53°20'33"W
P.T. 712+06.75
P.C. 711+60.20
P.T. 710+98.94
T.C.E.
CONST. LIMITS
P.I. 710+70.45
P.C. 710+22.66
P.I. 711+85.31
S00°00'00"W
S87°24'56"W
STA. 122+22.83
BR. END
EXIST. R/W
+20
N4°47'40"W
P.I. 128+14.66
EXIST. R/W
16'
8%
11' 11' ℄ HWY. 135 11' 11'
6%
EXIST. R/W
CONST. LIMITS
PROP. R/W
P.I. 132+20.39
PROP. R/W
CONST. LIMITS
EXIST. R/W
24'
8%
+88
N1°03'45"W
STA. 135+93.45
END SITE 3
POE 136+97.01
P.I. 122+98.51
DITCH NO.1
STA. 123+73.17
BR. END
CONST. LIMITS
PROP. R/W
T.C.E.
T.C.E.
P.C. 128+47.06
P.T. 135+93.45
STA. 125+20.00 ℄ HWY. 135 =
STA. 710+00.00 ℄ DR. 125+20
Δ = 90°00'00"

SITE 3 STAGE 2
TEMPORARY EROSION CONTROL DETAILS

USER: JJ5206
DESIGN FILE: G:\22110001_101124\TRANSP\dgn\erosion\r101124 EC Site 3 & 4.dgn
PLOTTED: 11/20/2023 12:27
SCALE: 1:100

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	35	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023



REVISIONS

DATE	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS
E-6 = ROCK DITCH CHECKS

SITE 4 CLEARING AND GRUBBING TEMPORARY EROSION CONTROL DETAILS

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USER: JJ5206
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	36	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

SFHA

STA. 210+00.00
BEGIN SITE 4
LOG MILE 13.20

210

DITCH NO. 12

PROP. R/W

STA. 213+00.00
END SITE 4

215

STA. 510+00.00
BEGIN DETOUR
HWY. 135

EXIST. R/W

POB 510+00.00

POB 207+67.83

P.I. 511+26.37

515

P.I. 516+98.11

P.I. 517+26.06

PROP. R/W

POE 518+22.63

POE 216+25.87

EXIST. R/W

5'
10'
10'
5'

N1°21'50"W

℄ HWY. 135

16'

4'
10'
10'
4'

N1°21'50"W

E-5 -50

+20

E-6 +00

E-6 -50

16'

E-6 -50

N18°13'30"E ℄ HWY. 135 DETOUR

+00

N20°57'10"W

EXIST. R/W

EXIST. R/W

P.C. 510+32.17

P.T. 512+18.73

P.C. 512+38.73

E-5 -50

PROP. R/W

+00

E-5

TEMP. CONST. LIMITS

TEMP. CONST. LIMITS

T.C.E.

P.C. 516+91.86

P.T. 518+18.42

STA. 518+22.63
END DETOUR

P.I. 514+32.92

DITCH NO. 12

REVISIONS

DATE	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS

(E-6) = ROCK DITCH CHECKS

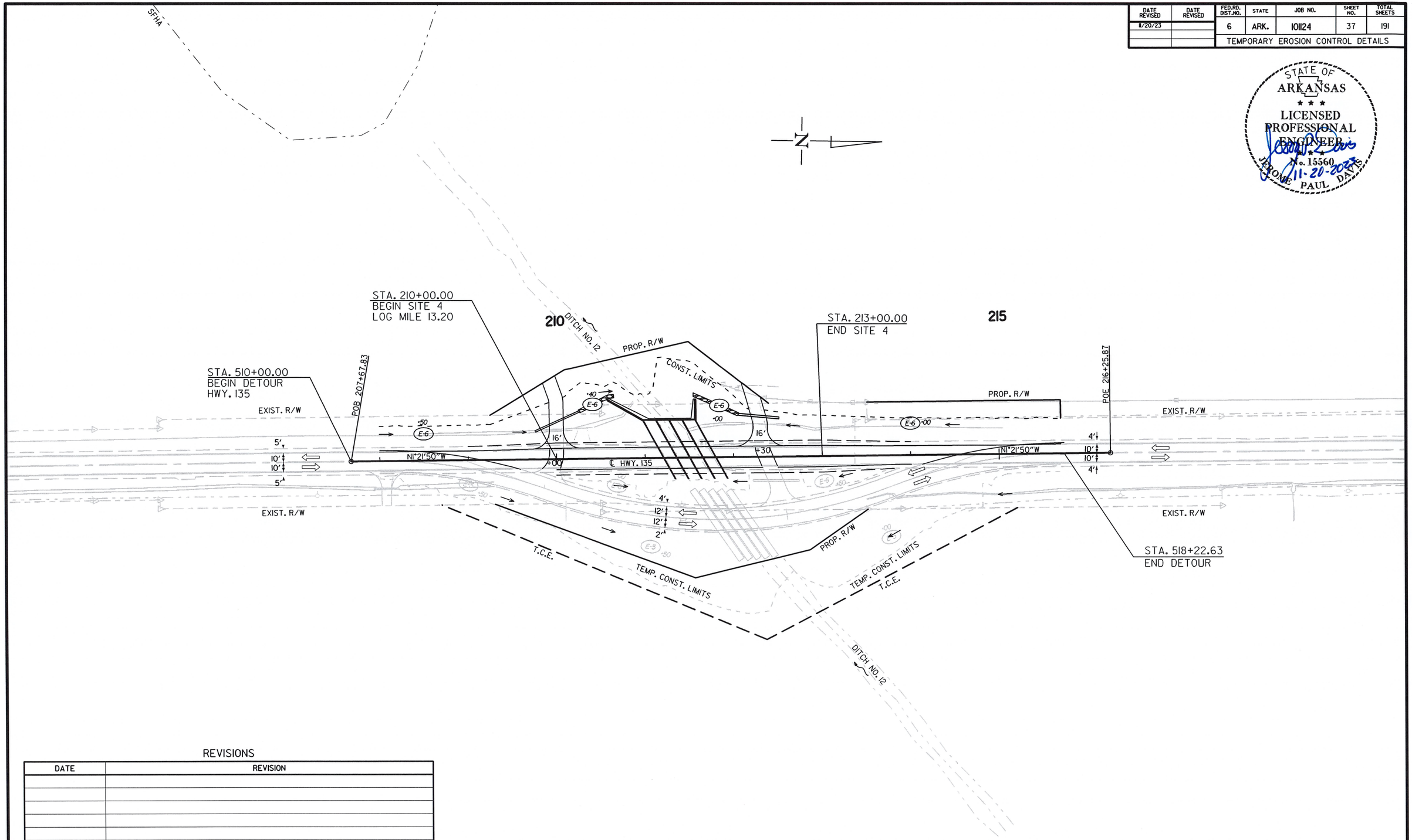
SITE 4 STAGE 1
TEMPORARY EROSION CONTROL DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	37	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023



REVISIONS

DATE	REVISION

LEGEND

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

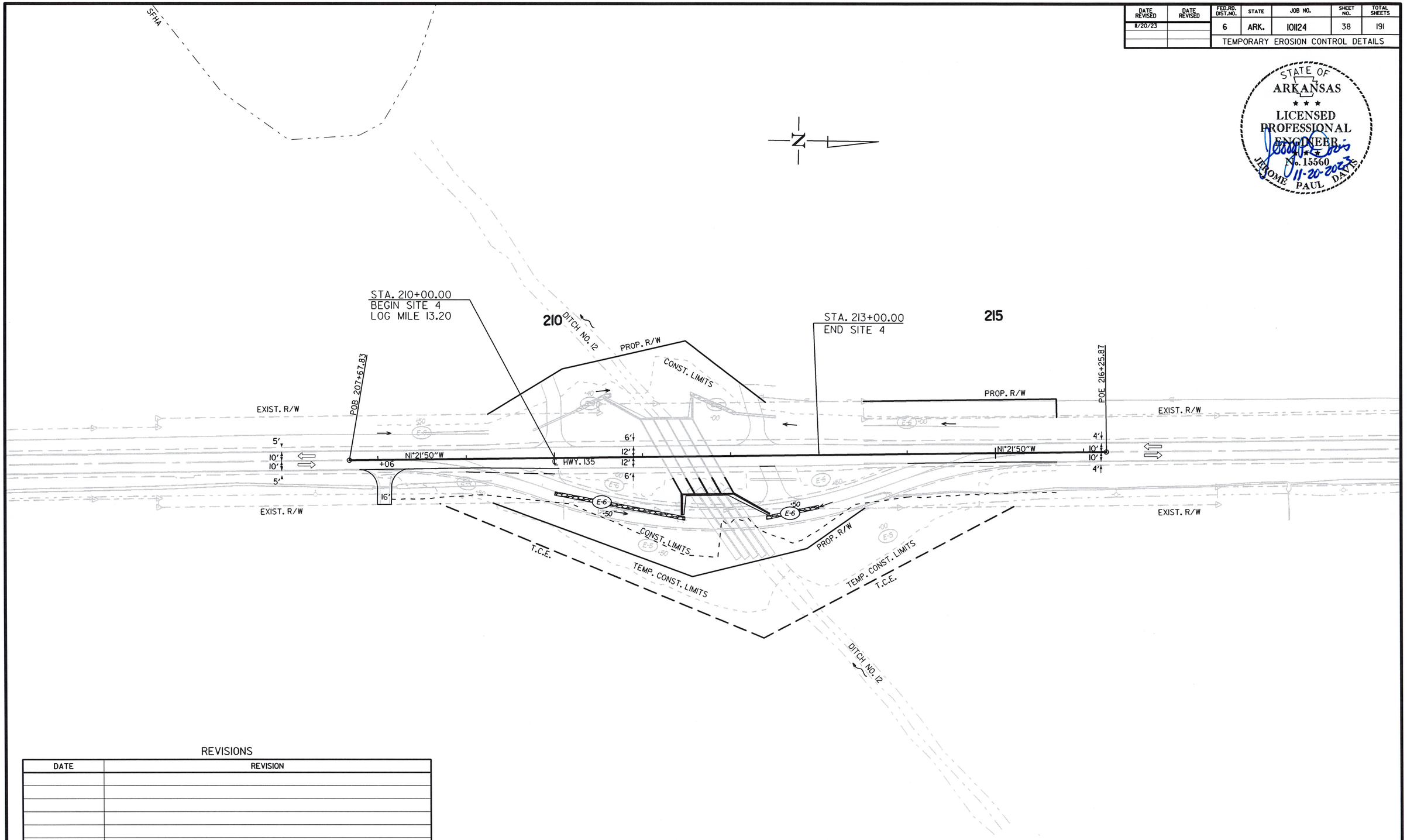
SITE 4 STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	38	191
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023



REVISIONS

DATE	REVISION

LEGEND

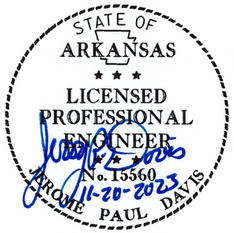
E-5 = SAND BAG DITCH CHECKS
E-6 = ROCK DITCH CHECKS

SITE 4 STAGE 3
TEMPORARY EROSION CONTROL DETAILS

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SCALE: 1:100

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	39	191
		MAINTENANCE OF TRAFFIC DEAILS				



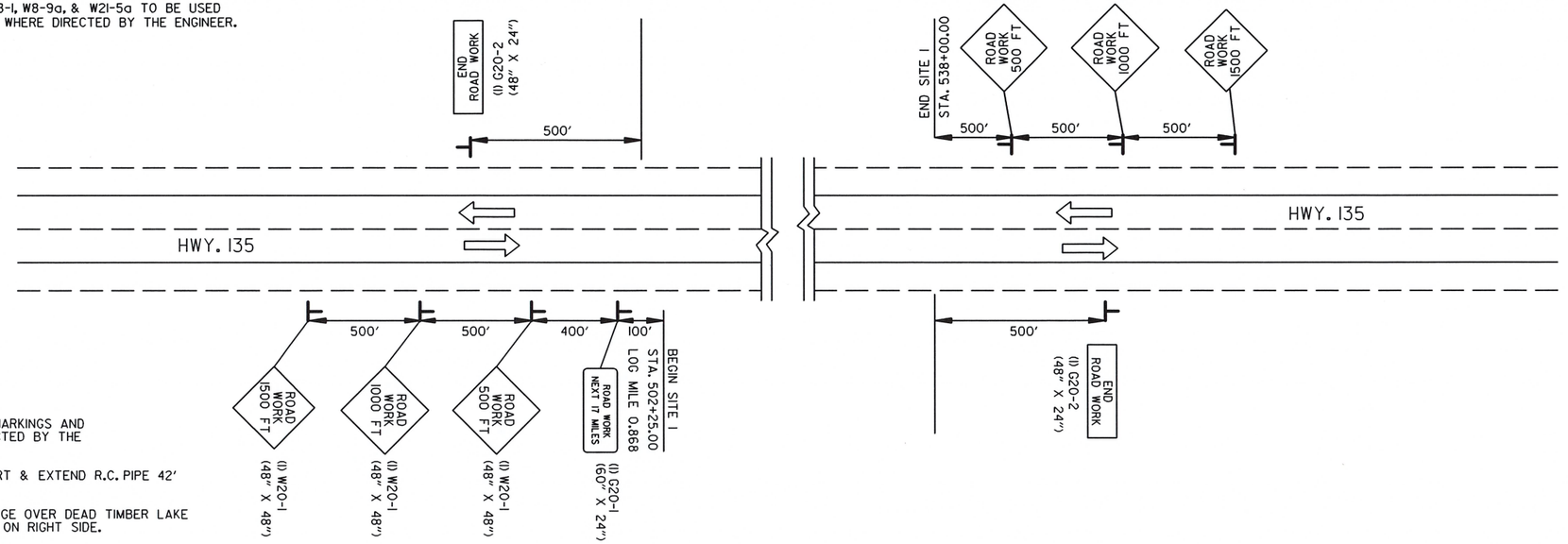
DO NOT PASS — (4) R4-1 (24" X 30") ALL STAGES

SHOULDER DROP-OFF — (4) W8-9a (36" X 36") ALL STAGES

RIGHT SHOULDER CLOSED — (5) W21-5a (36" X 36") ALL STAGES

BUMP — (2) W8-1 (30" X 30") ALL STAGES

R4-1, W8-1, W8-9a, & W21-5a TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.



STAGE 1:

1) INSTALL ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

3) EXTEND R.C. PIPE 50' AT STA. 513+11 RT & EXTEND R.C. PIPE 42' AT STA. 515+13 RT

4) CONSTRUCT NEW ROADWAY AND BRIDGE OVER DEAD TIMBER LAKE EAST OF EXIST. BRIDGE & ROADWAY ON RIGHT SIDE.

5) INSTALL GUARDRAIL AS SHOWN ON PLANS.

ADVANCE SIGNS AT BEGINNING AND END OF SITE 1

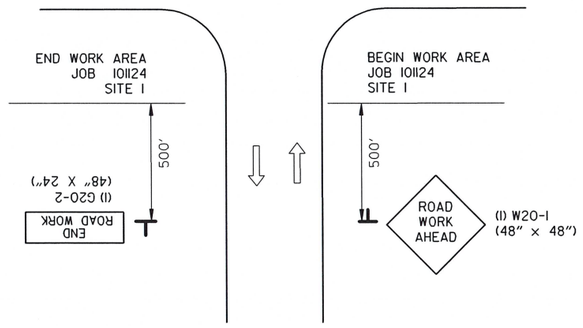
STAGE 2:

1) MAINTAIN ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

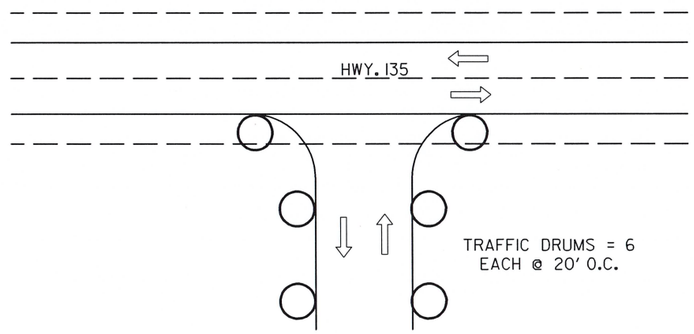
3) PLACE FINAL LIFT OF ASPHALT AND PERMANENT PAVEMENT MARKING AS SHOWN ON PLANS.

4) SHIFT TRAFFIC TO NEW ROADWAY AND BRIDGE, REMOVE EXIST. BRIDGE & COMPLETE FINAL GRADING AND SHOULDER WORK LEFT SIDE OF IMPROVEMENTS.



SIDE ROADS ALL STAGES

STA. 13+90 HINDMAN LN. - RT.
STA. 33+00 HOWARD RD. - RT.
STA. 40+12 STEEL BRIDGE RD. - LT.



TYPICAL PLACEMENT OF TRAFFIC DRUMS AT DRIVEWAY DETAIL

SITE 1
ADVANCE SIGNS AT JOB ENDS
MAINTENANCE OF TRAFFIC DETAILS

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PLOTTED: 11/20/2023 12:28
SCALE: 1:100

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	40	191
		MAINTENANCE OF TRAFFIC DEAILS				

⊢ VERTICAL PANEL
⊥⊥ BARRICADE
o TRAFFIC DRUM

MAINTENANCE OF TRAFFIC - STAGE I QUANTITIES
TYPE III BARRICADES RT. = 64 LIN. FT.
TYPE III BARRICADES LT. = 32 LIN. FT.
TRAFFIC DRUMS = 59 EACH
VERTICAL PANELS = 28
CONSTRUCTION PAVEMENT MARKINGS = 16526 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II = 52

STAGE I:

1) INSTALL ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

3) INSTALL TEMPORARY PIPE CULVERT AT STA. 513+10 AND GRADE EXISTING DITCH TO DRAIN.

4) CONSTRUCT NEW ROADWAY AND BRIDGE OVER DEAD TIMBER LAKE EAST OF EXIST. BRIDGE & ROADWAY ON RIGHT SIDE.

5) INSTALL GUARDRAIL AS SHOWN ON PLANS.

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STA. 513+10 INSTALL
30" X 18' TEMPORARY PIPE CULVERT

ROAD CLOSED (1) R11-2 (48" X 30")

(2) 16' BARR. TYP. III RT.

STA. 512+63.00 ℄ HWY. 135 =
STA. 14+03.09 ℄ HINDMAN LN.
△ = 90°00'00"

510

TRAFFIC DRUMS 50' SPACING O.C.

DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKINGS WITH RAISED PAVEMENT MARKERS (TYPE II) (80' O.C.)

505

WHITE CONSTRUCTION PAVEMENT MARKINGS

VERTICAL PANELS 50' SPACING O.C.

P.C. 504+52.14

P.O.B. 500+00.00

EXIST. R/W

PROP. R/W

N56°13'12"E

℄ HWY. 135

10'
10'

EXIST. R/W

CONST. LIMITS

PROP. R/W

STA. 502+25.00
BEGIN JOB 101124 & SITE 1
LOG MILE 0.868

SFHA

515

EXIST. R/W

GRADE TO DRAIN

+80

CONST. LIMITS

PROP. R/W

P.T. 13+82.55

N25°47'19"E

P.I. 13+44.59

P.C. 12+95.29

N11°35'34"W

PROP. R/W

N10°30'33"E

PROP. R/W

P.I. 5+12+43.08

10

P.O.B. 10+00.00

TRAFFIC DRUMS 20' SPACING O.C.

STA. 10+25.00
BEGIN CONSTRUCTION
℄ HINDMAN LN.

SITE 1 STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	41	191
		MAINTENANCE OF TRAFFIC DEAILS				

VERTICAL PANEL
BARRICADE
TRAFFIC DRUM

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STA. 42+90.00
END CONSTRUCTION
℄ STEEL BRIDGE RD.

P.O.E. 43+27.12

PROP. R/W

S62°27'29"W

P.T. 41+70.22

P.I. 41+08.51

S87°30'19"W

P.C. 40+44.76

DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKINGS WITH RAISED PAVEMENT MARKERS (TYPE 11) (80' O.C.)

TRAFFIC DRUMS 50' SPACING O.C.

WHITE CONSTRUCTION PAVEMENT MARKINGS

EXIST. R/W

N5°30'40"W

EXIST. R/W

CONST. LIMITS

PROP. R/W

P.I. 525+92.59

STA. 523+81.00 ℄ HWY. 135 =
STA. 40+00.00 ℄ STEEL BRIDGE RD.
△ = 90°00'00"

525

520

515

SFHA

T.C.E.

ROAD CLOSED

(1) RII-2 (48" X 30")

(2) 16' BARR. TYP. III RT.

DEAD TIMBER LAKE

P.T. 518+97.46

STA. 519+60.83 BR. END

STA. 521+41.16 BR. END

P.C. 522+00.59

EXIST. R/W

+80

+72

P.I. 32+67.17

P.I. 32+49.92

N79°50'45"W

16'

T.C.E.

PROP. R/W

P.C. 32+12.53

40'

T.C.E.

TRAFFIC DRUMS 20' SPACING O.C.

PROP. R/W

N88°48'09"W

PROP. R/W

STA. 516+03.00 ℄ HWY. 135 =
STA. 33+12.34 ℄ HOWARD RD.
△ = 90°00'00"

SFHA

DEAD TIMBER LAKE

STA. 30+50.00
BEGIN CONSTRUCTION
℄ HOWARD RD.

P.O.B. 30+00.00

30

N1°35'34"W

℄ HWY. 135

SITE 1 STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

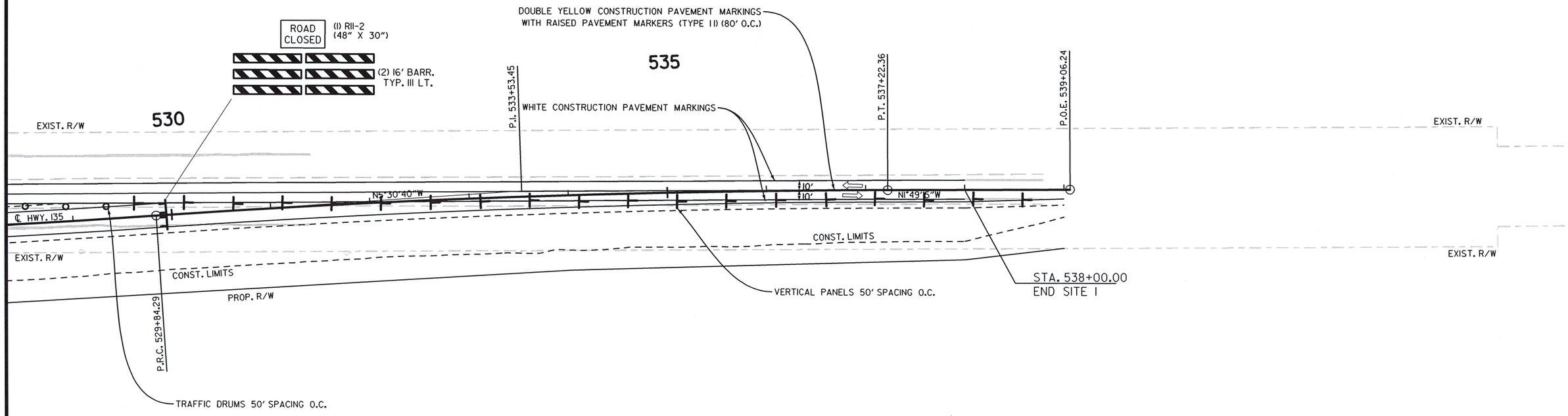
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	42	191
		MAINTENANCE OF TRAFFIC DEAILS				

- VERTICAL PANEL
- BARRICADE
- TRAFFIC DRUM

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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JEROME PAUL DAVIS
11-20-2023



SITE 1 STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	43	191
		MAINTENANCE OF TRAFFIC DEAILS				

⊢ VERTICAL PANEL
⊥⊥ BARRICADE
o TRAFFIC DRUM

STAGE 2:

1) MAINTAIN ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

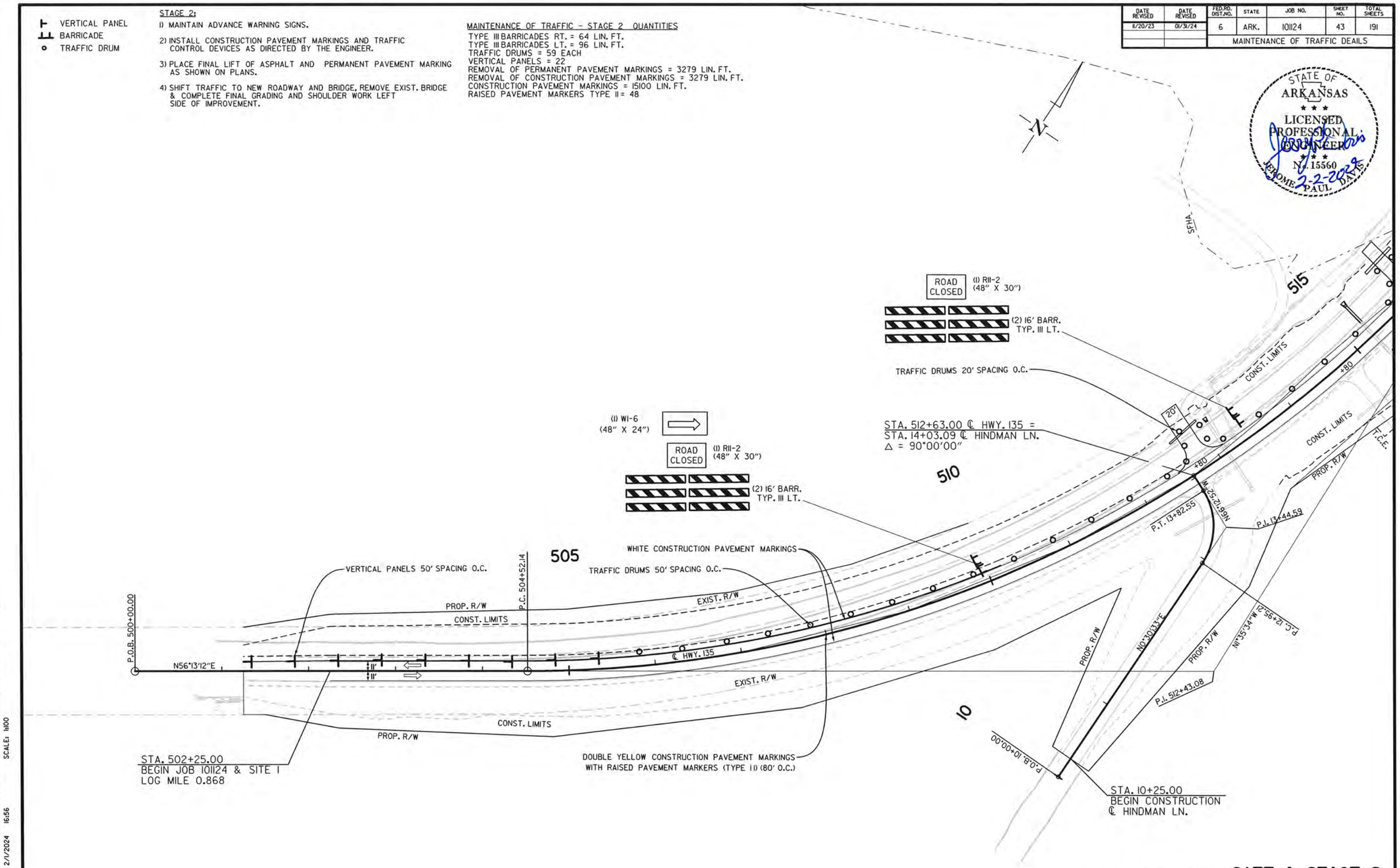
3) PLACE FINAL LIFT OF ASPHALT AND PERMANENT PAVEMENT MARKING AS SHOWN ON PLANS.

4) SHIFT TRAFFIC TO NEW ROADWAY AND BRIDGE, REMOVE EXIST. BRIDGE & COMPLETE FINAL GRADING AND SHOULDER WORK LEFT SIDE OF IMPROVEMENT.

MAINTENANCE OF TRAFFIC - STAGE 2 QUANTITIES

TYPE III BARRICADES RT. = 64 LIN. FT.
TYPE III BARRICADES LT. = 96 LIN. FT.
TRAFFIC DRUMS = 59 EACH
VERTICAL PANELS = 22
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 3279 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 3279 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 15100 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II = 48

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SITE 1 STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	44	191
		MAINTENANCE OF TRAFFIC DEAILS				

VERTICAL PANEL
BARRICADE
TRAFFIC DRUM

STATE OF ARKANSAS
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1-31-2024
JEROME PAUL DAVIS

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

STA. 42+90.00
END CONSTRUCTION
℄ STEEL BRIDGE RD.

P.O.E. 43+27.12
N 68°27'29"E
PROP. R/W
P.T. 41+70.22
P.I. 41+08.51
S87°30'26"W
P.C. 40+44.76
WHITE CONSTRUCTION PAVEMENT MARKINGS
TRAFFIC DRUMS 50' SPACING O.C.
TRAFFIC DRUMS 20' SPACING O.C.
EXIST. R/W
CONST. LIMITS
℄ HWY. 135
N5°30'40"W
P.I. 525+92.59
STA. 523+81.00 ℄ HWY. 135 =
STA. 40+00.00 ℄ STEEL BRIDGE RD.
△ = 90°00'00"
DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKINGS WITH RAISED PAVEMENT MARKERS (TYPE II) (80' O.C.)

515
520
525
DEAD TIMBER LAKE
SFHA
P.T. 518+97.46
STA. 519+60.83 BR. END
STA. 521+41.16 BR. END
P.C. 522+00.59
N1°35'34"W
℄ HWY. 135 +92.
+80
+72
16'
11'
EXIST. R/W
CONST. LIMITS
PROP. R/W

P.I. 32+49.92
N79°50'43"W
16' T.C.E.
P.C. 32+12.53
40' T.C.E.
N88°48'09"W
PROP. R/W
STA. 516+03.00 ℄ HWY. 135 =
STA. 33+12.34 ℄ HOWARD RD.
△ = 90°00'00"
STA. 30+50.00
BEGIN CONSTRUCTION
℄ HOWARD RD.
P.O.B. 30+00.00
30

SITE 1 STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

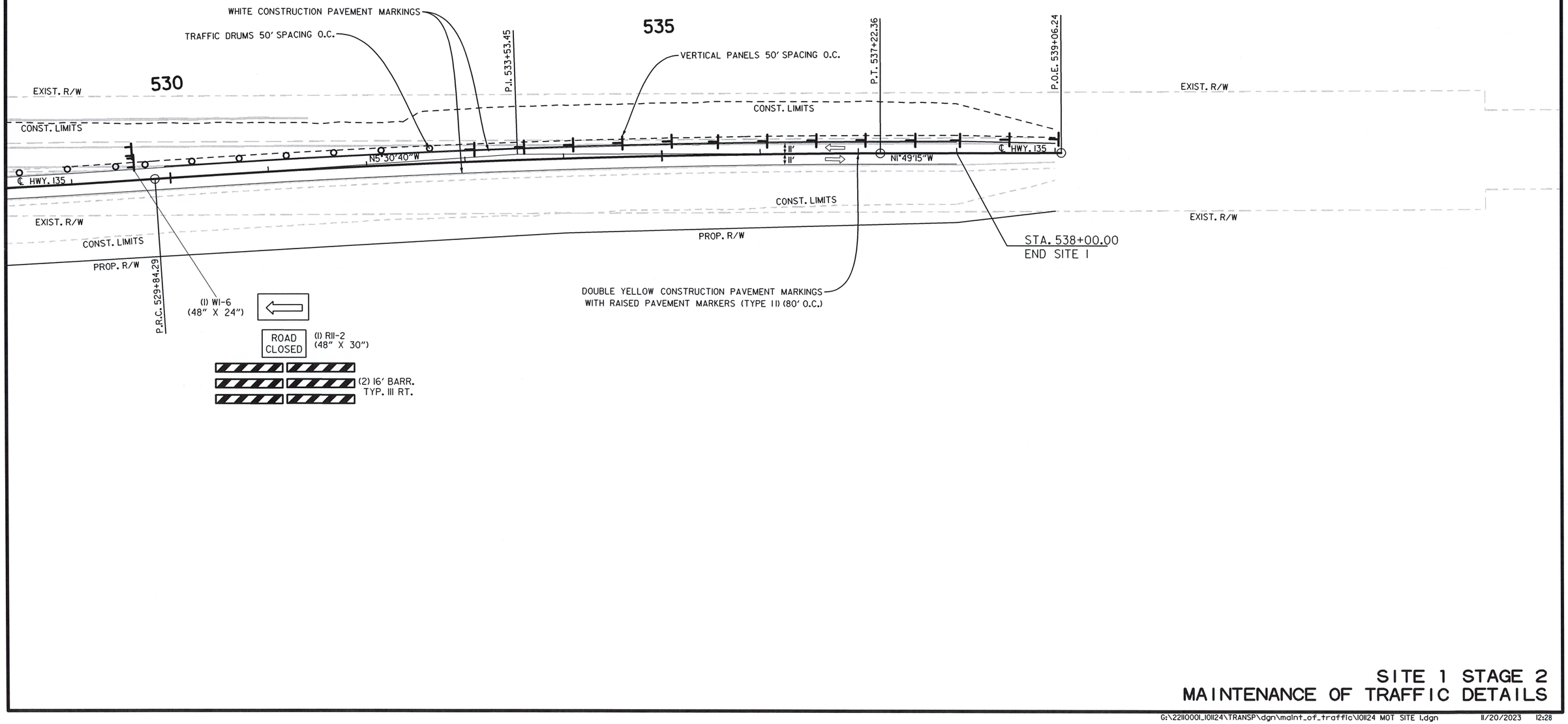
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	45	191
		MAINTENANCE OF TRAFFIC DEAILS				

- VERTICAL PANEL
- BARRICADE
- TRAFFIC DRUM

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SITE 1 STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	46	191
		MAINTENANCE OF TRAFFIC DEAILS				

STATE OF ARKANSAS
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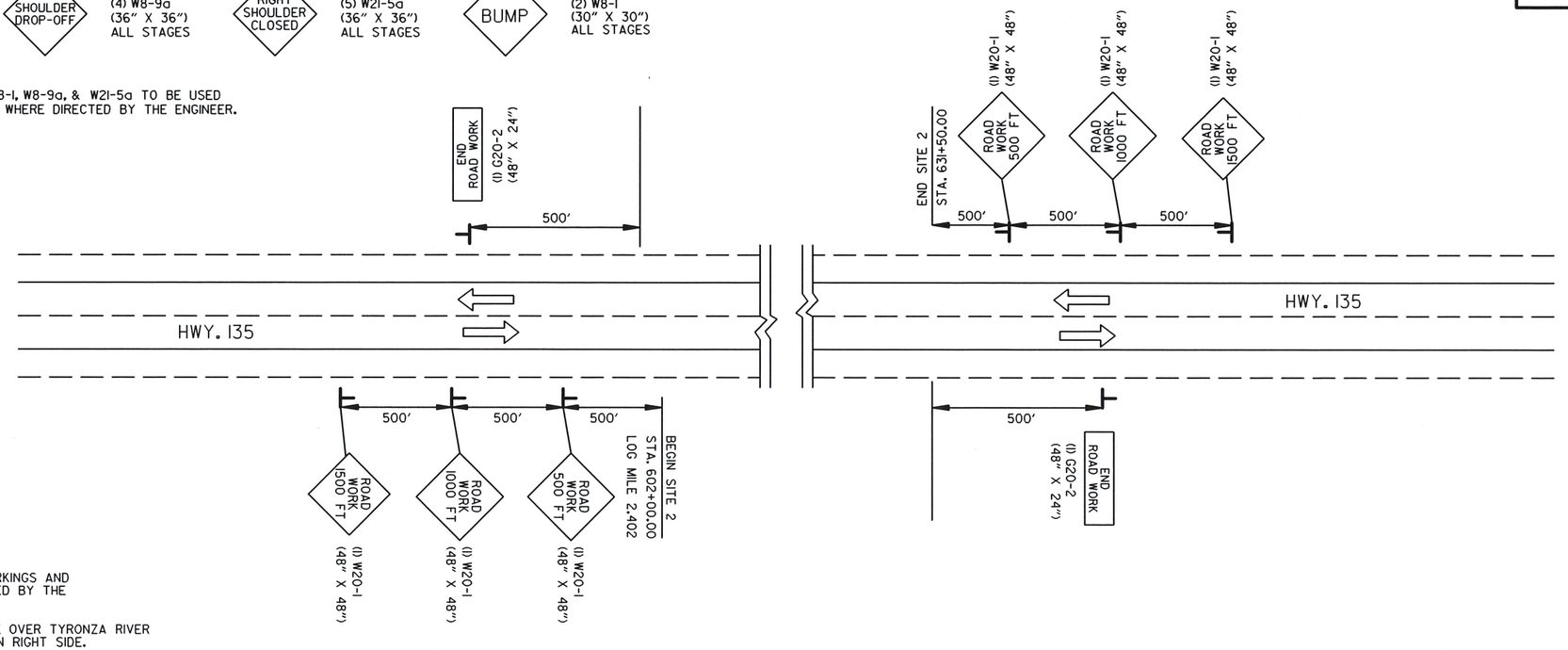
DO NOT PASS — (4) R4-1 (24" X 30") ALL STAGES

SHOULDER DROP-OFF — (4) W8-9a (36" X 36") ALL STAGES

RIGHT SHOULDER CLOSED — (5) W21-5a (36" X 36") ALL STAGES

BUMP — (2) W8-1 (30" X 30") ALL STAGES

R4-1, W8-1, W8-9a, & W21-5a TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.



STAGE 1:

1) INSTALL ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

3) CONSTRUCT NEW ROADWAY AND BRIDGE OVER TYRONZA RIVER EAST OF EXIST. BRIDGE & ROADWAY ON RIGHT SIDE.

4) INSTALL GUARDRAIL AS SHOWN ON PLANS.

STAGE 2:

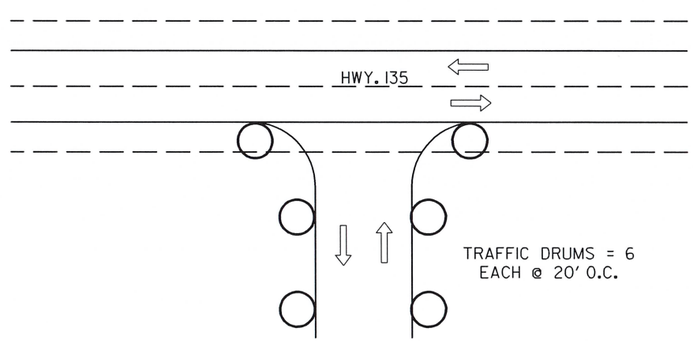
1) MAINTAIN ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

3) CONSTRUCT PAVEMENT WIDENING AT CONNECTIONS TO EXIST. ROADWAY. PLACE FINAL LIFT OF ASPHALT AND PERMANENT PAVEMENT MARKING AS SHOWN ON PLANS.

4) SHIFT TRAFFIC TO NEW ROADWAY AND BRIDGE, REMOVE EXIST. BRIDGE & COMPLETE FINAL GRADING AND SHOULDER WORK LEFT SIDE OF IMPROVEMENT.

ADVANCE SIGNS AT BEGINNING AND END OF SITE 2



TYPICAL PLACEMENT OF TRAFFIC DRUMS AT DRIVEWAY DETAIL

SITE 2
ADVANCE SIGNS AT JOB ENDS
MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	47	191
		MAINTENANCE OF TRAFFIC DEAILS				

- VERTICAL PANEL
- TRAFFIC DRUM
- BARRICADE

STAGE 1:

1) INSTALL ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

3) CONSTRUCT NEW ROADWAY AND BRIDGE OVER TYRONZA RIVER EAST OF EXIST. BRIDGE & ROADWAY ON RIGHT SIDE.

4) INSTALL GUARDRAIL AS SHOWN ON PLANS.

MAINTENANCE OF TRAFFIC - STAGE 1 QUANTITIES

TYPE III BARRICADES RT. = 32 LIN. FT.
TYPE III BARRICADES LT. = 32 LIN. FT.
TRAFFIC DRUMS = 37 EACH
VERTICAL PANELS = 20
CONSTRUCTION PAVEMENT MARKINGS = 12580 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II = 40

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605

600

STA. 602+00.00
BEGIN SITE 2
LOG MILE 2.402

EXIST. R/W

PROP. R/W

℄ HWY. 135

N01°56'28"W

19'
10'
10'

DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKINGS WITH RAISED PAVEMENT MARKERS (TYPE II) (80' O.C.)

P.I. 605+00.73

VERTICAL PANELS 50' SPACING O.C.

CONST. LIMITS

EXIST. R/W

P.C. 603+25.70

TRAFFIC DRUMS 50' SPACING O.C.

P.I. 606+75.52

610

ROAD CLOSED

(1) R11-2 (48" X 30")

(2) 16' BARR. TYP. III RT.

N03°18'23"E

P.C. 609+31.29

WHITE CONSTRUCTION PAVEMENT MARKINGS

P.T. 612+80.04

N01°55'30"W

℄ HWY. 135

PROP. R/W

CONST. LIMITS

P.I. 611+05.78

620

615

TYRONZA RIVER

EXIST. R/W

P.T. 612+80.04

STA. 615+02.77 BR. END

STA. 617+85.22 BR. END

P.C. 620+42.33

DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKINGS WITH RAISED PAVEMENT MARKERS (TYPE II) (80' O.C.)

19'
10'
10'

℄ HWY. 135

EXIST. R/W

N01°55'30"W

TRAFFIC DRUMS 50' SPACING O.C.

P.I. 622+05.96

TYRONZA RIVER

CONST. LIMITS

PROP. R/W

625

P.T. 623+69.38

WHITE CONSTRUCTION PAVEMENT MARKINGS

EXIST. R/W

PROP. R/W

N06°49'51"W ℄ HWY. 135

EXIST. R/W

P.C. 626+50.14

CONST. LIMITS

PROP. R/W

(1) R11-2 (48" X 30")

ROAD CLOSED

(2) 16' BARR. TYP. III LT.

SITE 2 STAGE 1 MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	48	191
		MAINTENANCE OF TRAFFIC DEAILS				

VERTICAL PANEL
TRAFFIC DRUM
BARRICADE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

SFHA

630

DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKINGS WITH RAISED PAVEMENT MARKERS (TYPE II) (80' O.C.)

TRAFFIC DRUMS 50' SPACING O.C.

P.I. 628+25.50

WHITE CONSTRUCTION PAVEMENT MARKINGS

VERTICAL PANELS 50' SPACING O.C.

EXIST. R/W

PROP. R/W

EXIST. R/W

9'

N01°34'24"W

10'

10'

N01°34'24"W

℄ HWY. 135

N06°49'51"W ℄ HWY. 135

EXIST. R/W

P.C. 626+50.14

CONST. LIMITS

CONST. LIMITS

P.T. 630+00.62

STA. 631+50.00
END SITE 2

EXIST. R/W

PROP. R/W

SFHA

SITE 2 STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	49	191
		MAINTENANCE OF TRAFFIC DEAILS				

⊢ VERTICAL PANEL
o TRAFFIC DRUM
⊥ BARRICADE

STAGE 2:

1) MAINTAIN ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

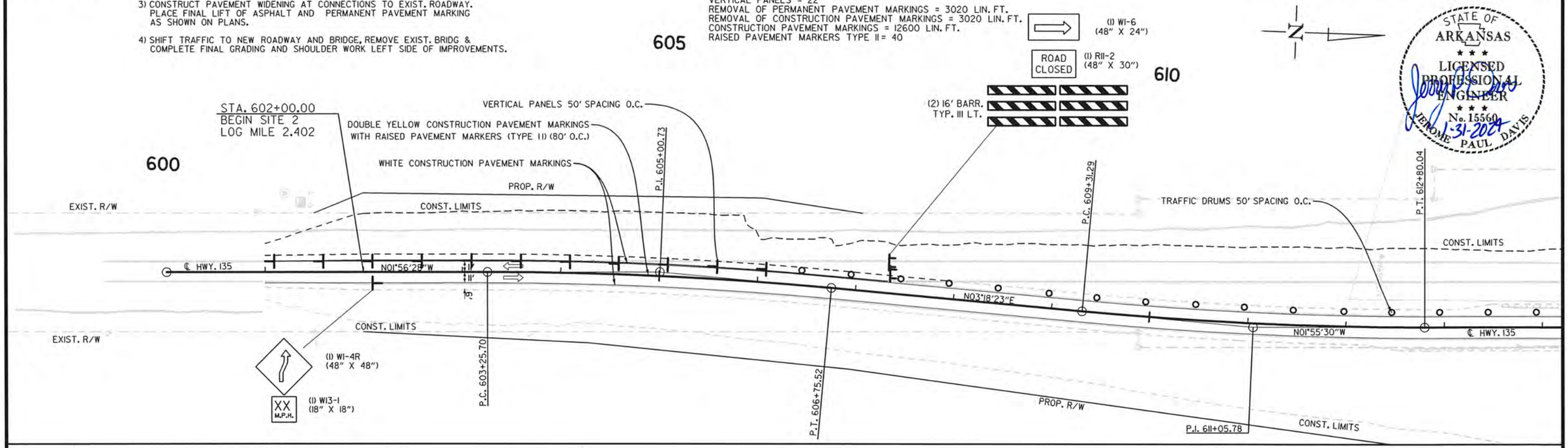
3) CONSTRUCT PAVEMENT WIDENING AT CONNECTIONS TO EXIST. ROADWAY. PLACE FINAL LIFT OF ASPHALT AND PERMANENT PAVEMENT MARKING AS SHOWN ON PLANS.

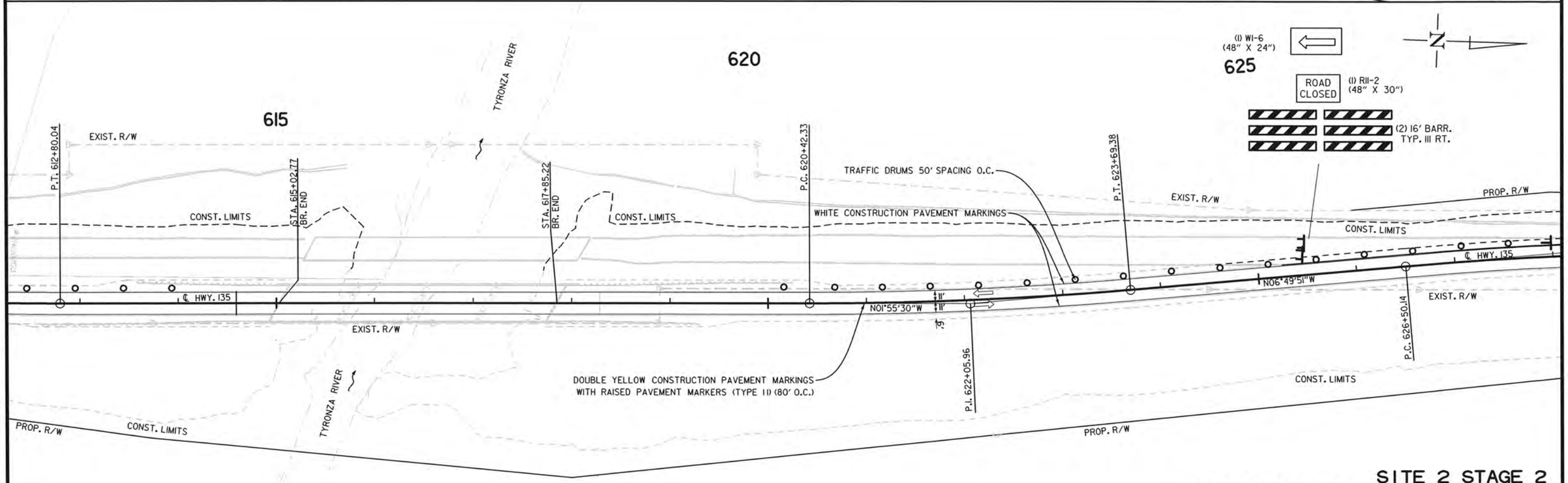
4) SHIFT TRAFFIC TO NEW ROADWAY AND BRIDGE, REMOVE EXIST. BRIDG & COMPLETE FINAL GRADING AND SHOULDER WORK LEFT SIDE OF IMPROVEMENTS.

MAINTENANCE OF TRAFFIC - STAGE 2 QUANTITIES

TYPE III BARRICADES RT. = 32 LIN. FT.
TYPE III BARRICADES LT. = 32 LIN. FT.
TRAFFIC DRUMS = 32 EACH
VERTICAL PANELS = 22
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 3020 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 3020 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 12600 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II = 40

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-31-2024





SITE 2 STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	50	191
		MAINTENANCE OF TRAFFIC DEAILS				

- VERTICAL PANEL
- TRAFFIC DRUM
- BARRICADE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-31-2024

SFHA

630

WHITE CONSTRUCTION PAVEMENT MARKINGS

(1) W1-4aL (48" X 48")

XX M.P.H. (1) W13-1 (18" X 18")

DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKINGS WITH RAISED PAVEMENT MARKERS (TYPE 11) (80' O.C.)

TRAFFIC DRUMS 50' SPACING O.C.

VERTICAL PANELS 50' SPACING O.C.

P.I. 628+25.50

PROP. R/W

CONST. LIMITS

EXIST. R/W

CONST. LIMITS

N01°34'24"W

N01°34'24"W

℄ HWY. 135

N06°49'51"W ℄ HWY. 135

EXIST. R/W

EXIST. R/W

P.C. 626+50.14

CONST. LIMITS

CONST. LIMITS

P.T. 630+00.62

PROP. R/W

STA. 631+50.00
END SITE 2

SITE 2 STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	51	191
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

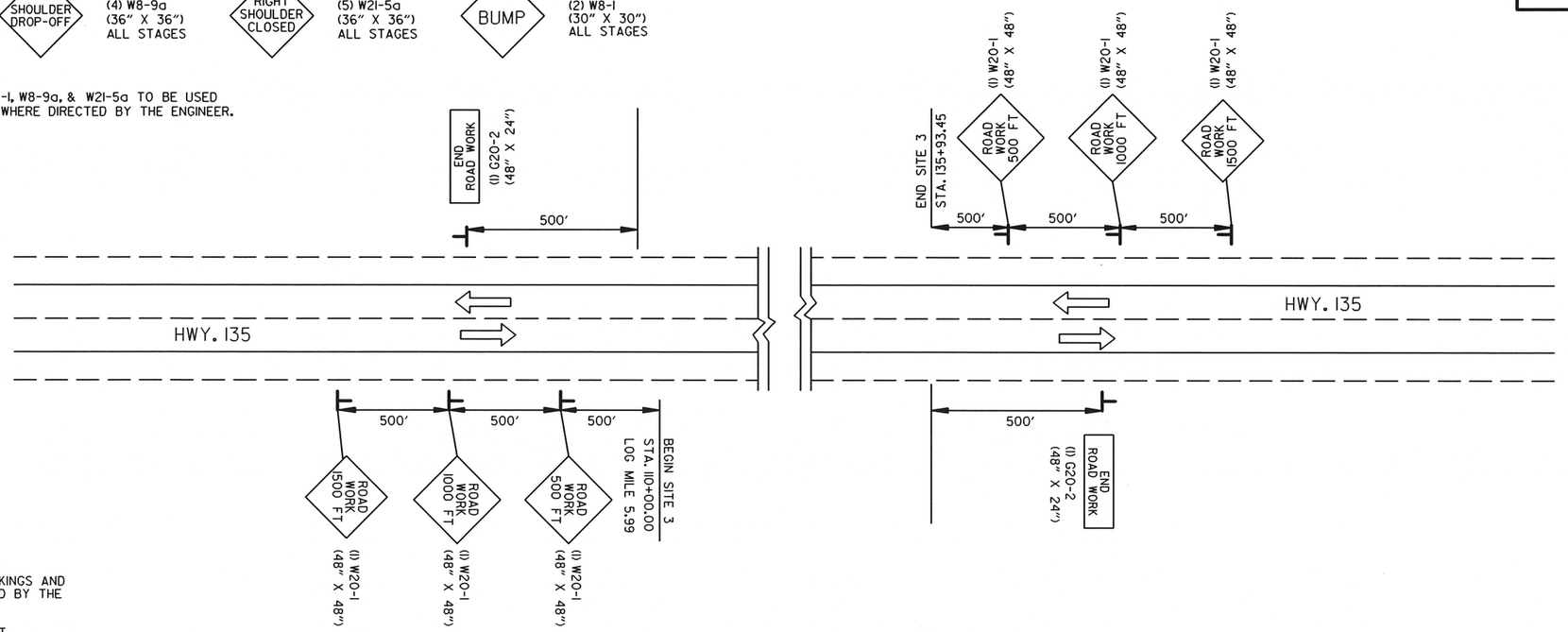
DO NOT PASS — (4) R4-1 (24" X 30") ALL STAGES

SHOULDER DROP-OFF — (4) W8-9a (36" X 36") ALL STAGES

RIGHT SHOULDER CLOSED — (5) W21-5a (36" X 36") ALL STAGES

BUMP — (2) W8-1 (30" X 30") ALL STAGES

R4-1, W8-1, W8-9a, & W21-5a TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.



STAGE 1:

1) INSTALL ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

3) EXTEND R.C. PIPE 52' AT STA. 126+49 RT

4) CONSTRUCT NEW ROADWAY AND BRIDGE OVER DITCH NO. 1 EAST OF EXIST. BRIDGE & ROADWAY ON RIGHT SIDE.

5) INSTALL GUARDRAIL AND BRIDGE TERMINAL SECTIONS AS SHOWN ON PLANS.

STAGE 2:

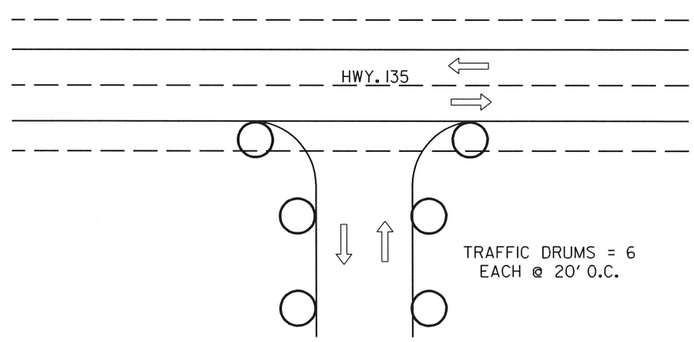
1) MAINTAIN ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

3) CONSTRUCT PAVEMENT WIDENING AT CONNECTIONS TO EXIST. ROADWAY. PLACE FINAL LIFT OF ASPHALT AND PERMANENT PAVEMENT MARKING AS SHOWN ON PLANS.

4) SHIFT TRAFFIC TO NEW ROADWAY AND BRIDGE, REMOVE EXIST. BRIDGE & ROADWAY.

ADVANCE SIGNS AT BEGINNING AND END OF SITE 3



TYPICAL PLACEMENT OF TRAFFIC DRUMS AT DRIVEWAY DETAIL

SITE 3
ADVANCE SIGNS AT JOB ENDS
MAINTENANCE OF TRAFFIC DETAILS

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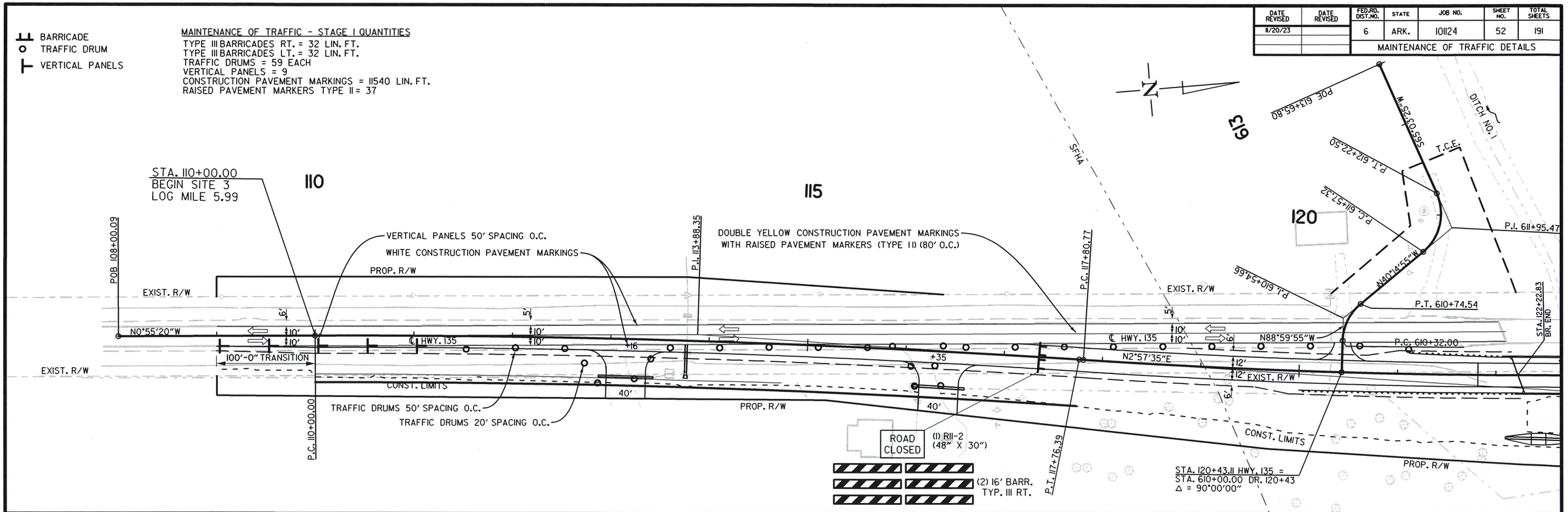
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	52	191

MAINTENANCE OF TRAFFIC DETAILS

BARRICADE
TRAFFIC DRUM
VERTICAL PANELS

MAINTENANCE OF TRAFFIC - STAGE I QUANTITIES
TYPE III BARRICADES RT. = 32 LIN. FT.
TYPE III BARRICADES LT. = 32 LIN. FT.
TRAFFIC DRUMS = 59 EACH
VERTICAL PANELS = 9
CONSTRUCTION PAVEMENT MARKINGS = 11540 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II = 37



STAGE I:

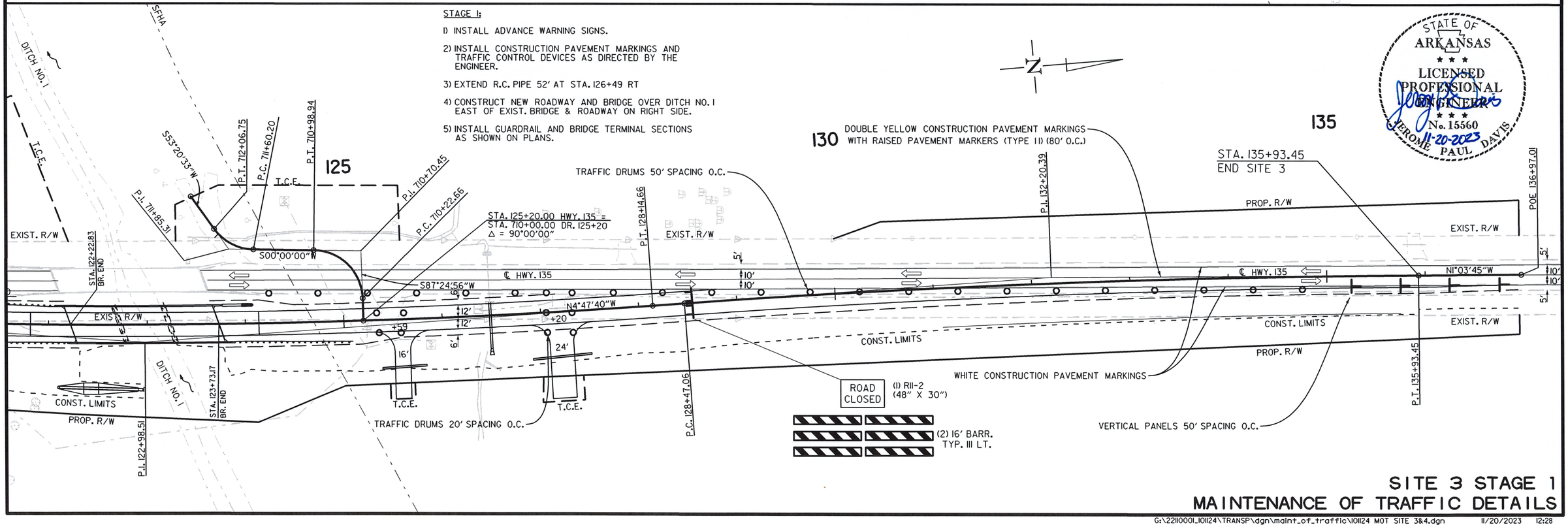
1) INSTALL ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

3) EXTEND R.C. PIPE 52' AT STA. 126+49 RT

4) CONSTRUCT NEW ROADWAY AND BRIDGE OVER DITCH NO. 1 EAST OF EXIST. BRIDGE & ROADWAY ON RIGHT SIDE.

5) INSTALL GUARDRAIL AND BRIDGE TERMINAL SECTIONS AS SHOWN ON PLANS.



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

SITE 3 STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	53	191
		MAINTENANCE OF TRAFFIC DETAILS				

BARRICADE
TRAFFIC DRUM
VERTICAL PANEL

STAGE 2:

1) MAINTAIN ADVANCE WARNING SIGNS.

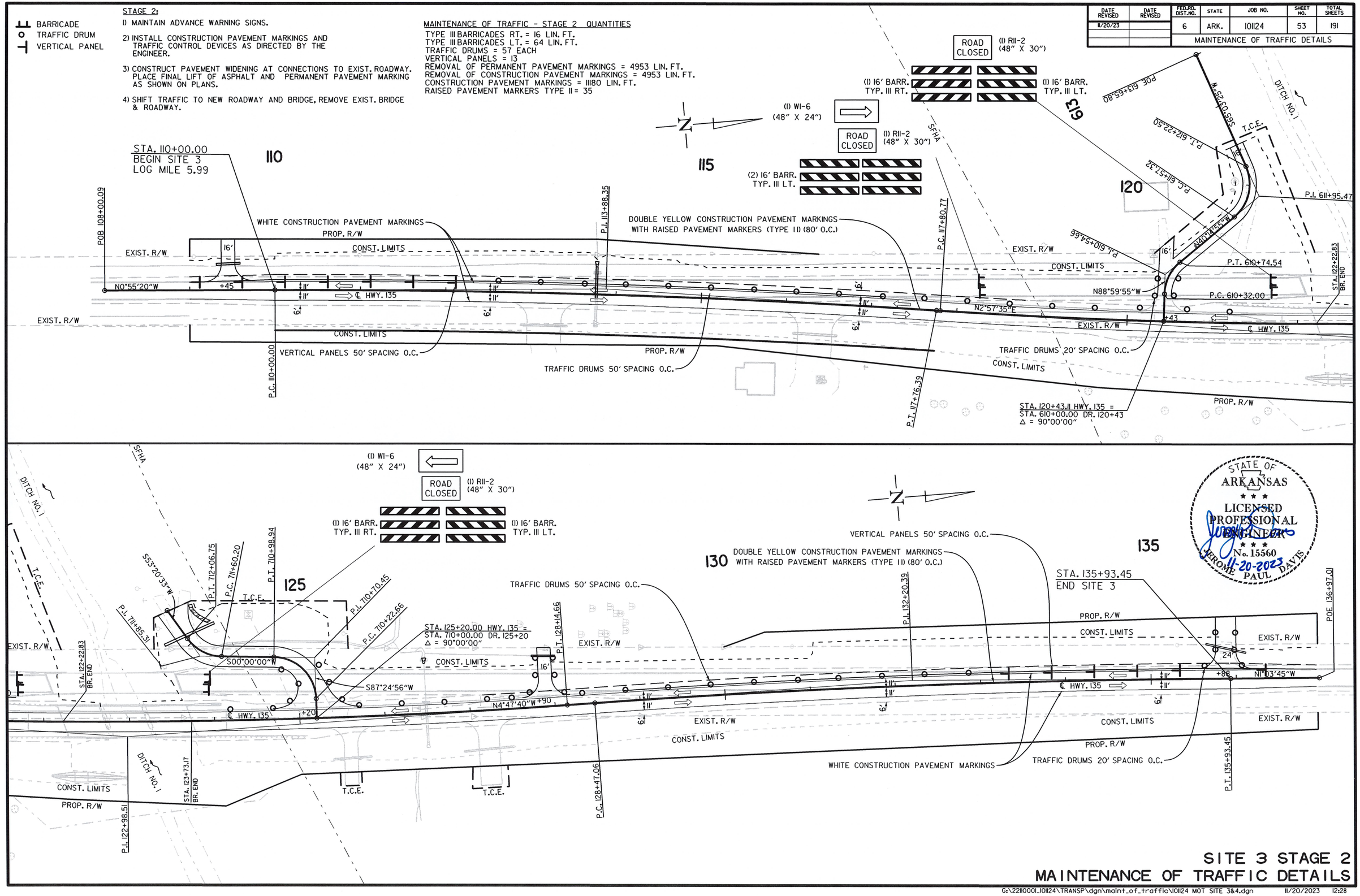
2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

3) CONSTRUCT PAVEMENT WIDENING AT CONNECTIONS TO EXIST. ROADWAY. PLACE FINAL LIFT OF ASPHALT AND PERMANENT PAVEMENT MARKING AS SHOWN ON PLANS.

4) SHIFT TRAFFIC TO NEW ROADWAY AND BRIDGE, REMOVE EXIST. BRIDGE & ROADWAY.

MAINTENANCE OF TRAFFIC - STAGE 2 QUANTITIES

TYPE III BARRICADES RT. = 16 LIN. FT.
TYPE III BARRICADES LT. = 64 LIN. FT.
TRAFFIC DRUMS = 57 EACH
VERTICAL PANELS = 13
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 4953 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 4953 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 11180 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II = 35



STATE OF ARKANSAS
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SITE 3 STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	54	191
		MAINTENANCE OF TRAFFIC DETAILS				



(4) R4-1
(24" X 30")
ALL STAGES



(4) W8-9a
(36" X 36")
ALL STAGES

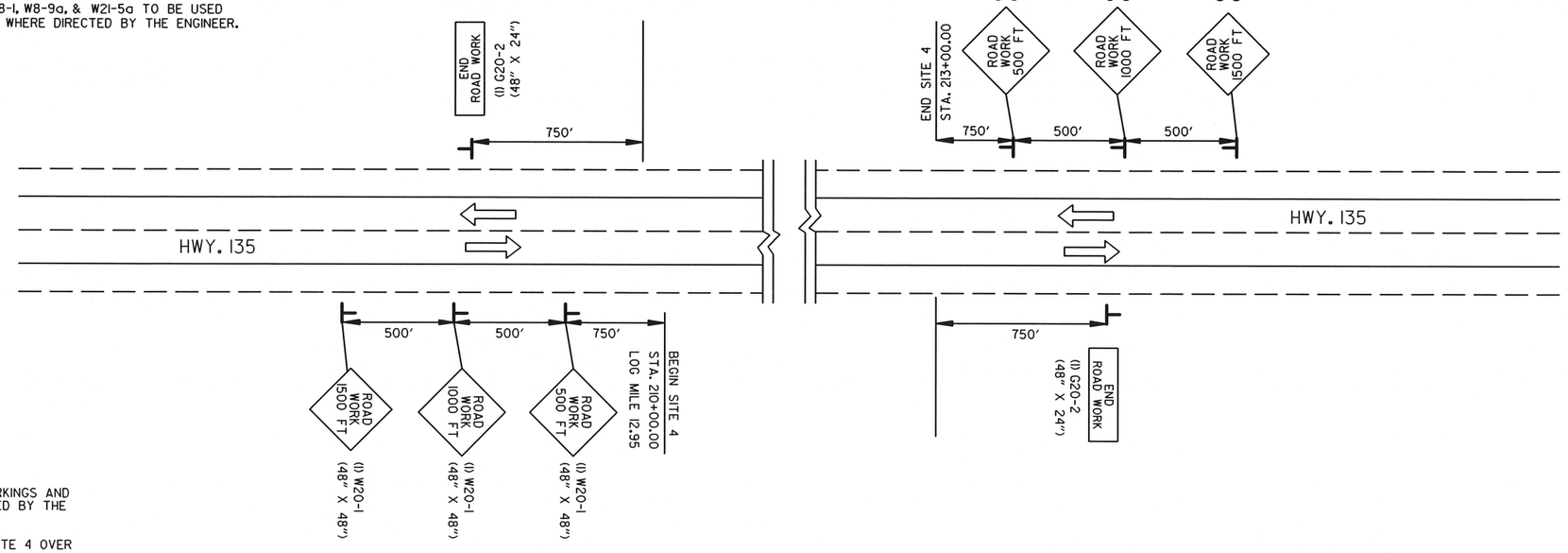


(5) W21-5a
(36" X 36")
ALL STAGES



(2) W8-1
(30" X 30")
ALL STAGES

R4-1, W8-1, W8-9a, & W21-5a TO BE USED
IF AND WHERE DIRECTED BY THE ENGINEER.



STAGE 1:

1) INSTALL ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

3) CONSTRUCT TEMPORARY DETOUR AT SITE 4 OVER DITCH 12.

STAGE 2:

1) MAINTAIN ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

3) FURNISH AND INSTALL P.C.C.B. AND T.I.A.B. AS SHOWN ON PLANS.

4) SHIFT TRAFFIC TO TEMPORARY DETOUR AT SITE 4.

5) CONSTRUCT NEW ROADWAY AND LEFT SIDE OF NEW R.C. BOX CULVERT AT SITE 4.

STAGE 3:

1) MAINTAIN ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

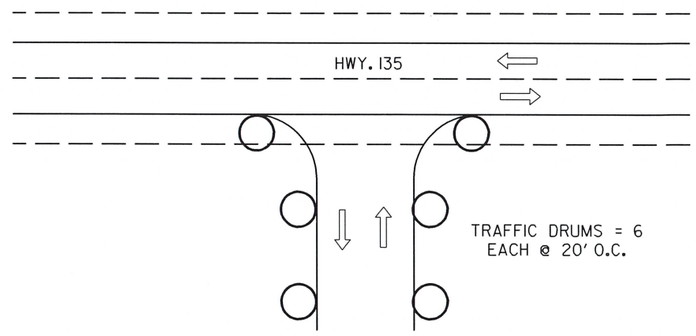
3) RELOCATE P.C.C.B. AS SHOWN IN STAGE 3.

4) CONSTRUCT PAVEMENT WIDENING AT CONNECTIONS TO EXISTING ROADWAY, PLACE FINAL LIFT OF ASPHALT & PERMANENT PAVEMENT MARKINGS AT SITE 4.

5) SHIFT TRAFFIC TO NEW ROADWAY AND NEW R.C. BOX CULVERT AT SITE 4.

6) CONSTRUCT RIGHT SIDE OF NEW R.C. BOX CULVERT AT SITE 4.

ADVANCE SIGNS AT BEGINNING AND END OF SITE 4



TYPICAL PLACEMENT OF TRAFFIC DRUMS AT DRIVEWAY DETAIL

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

SITE 4
ADVANCE SIGNS AT JOB ENDS
MAINTENANCE OF TRAFFIC DETAILS

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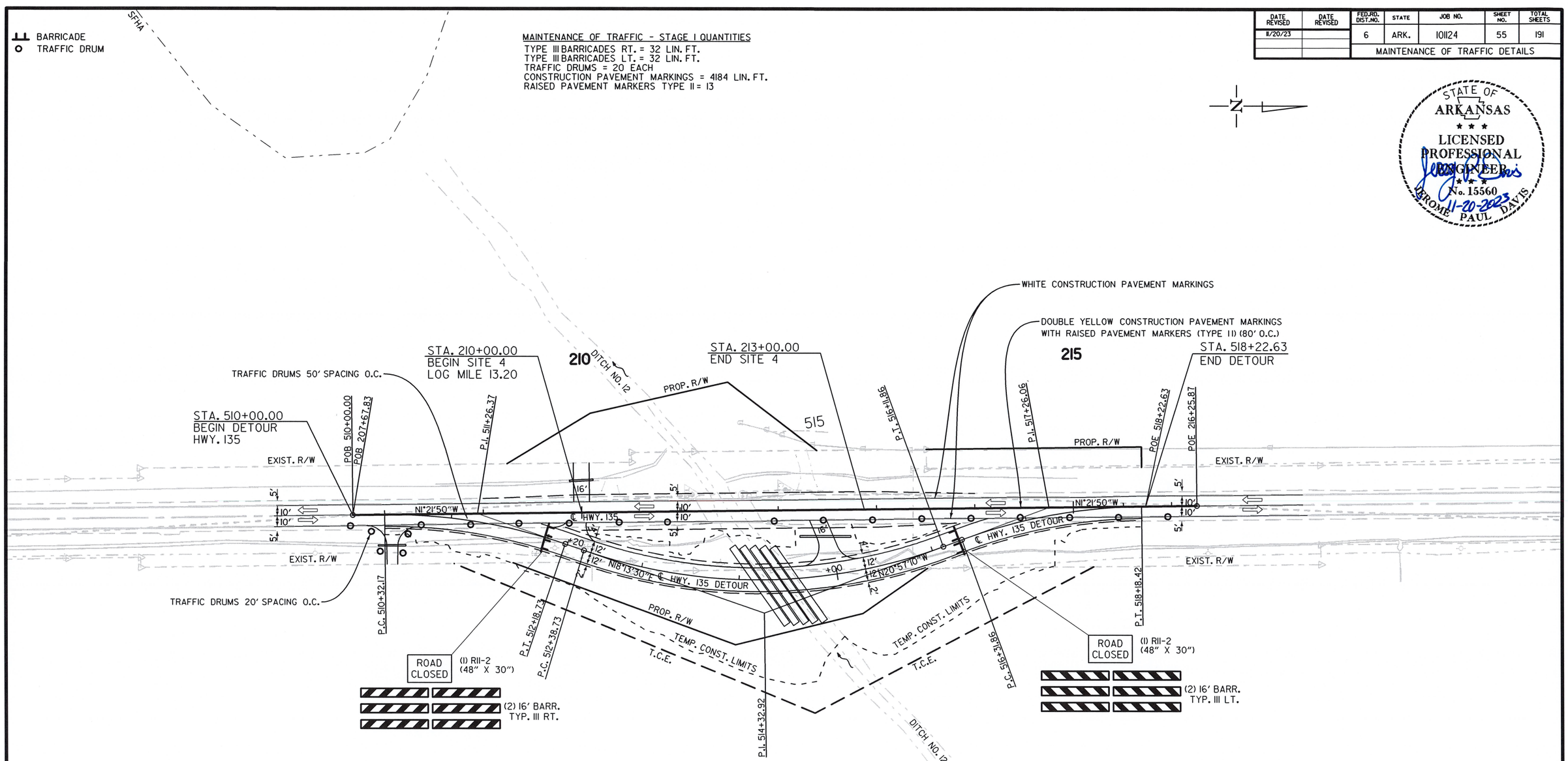
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	55	191
		MAINTENANCE OF TRAFFIC DETAILS				

BARRICADE
TRAFFIC DRUM

MAINTENANCE OF TRAFFIC - STAGE I QUANTITIES
TYPE III BARRICADES RT. = 32 LIN. FT.
TYPE III BARRICADES LT. = 32 LIN. FT.
TRAFFIC DRUMS = 20 EACH
CONSTRUCTION PAVEMENT MARKINGS = 4184 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II = 13

STATE OF ARKANSAS
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JEROME PAUL DAVIS
11-20-2023



STAGE I:

1) INSTALL ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

3) CONSTRUCT TEMPORARY DETOUR AT SITE 4 OVER DITCH 12.

SITE 4 STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

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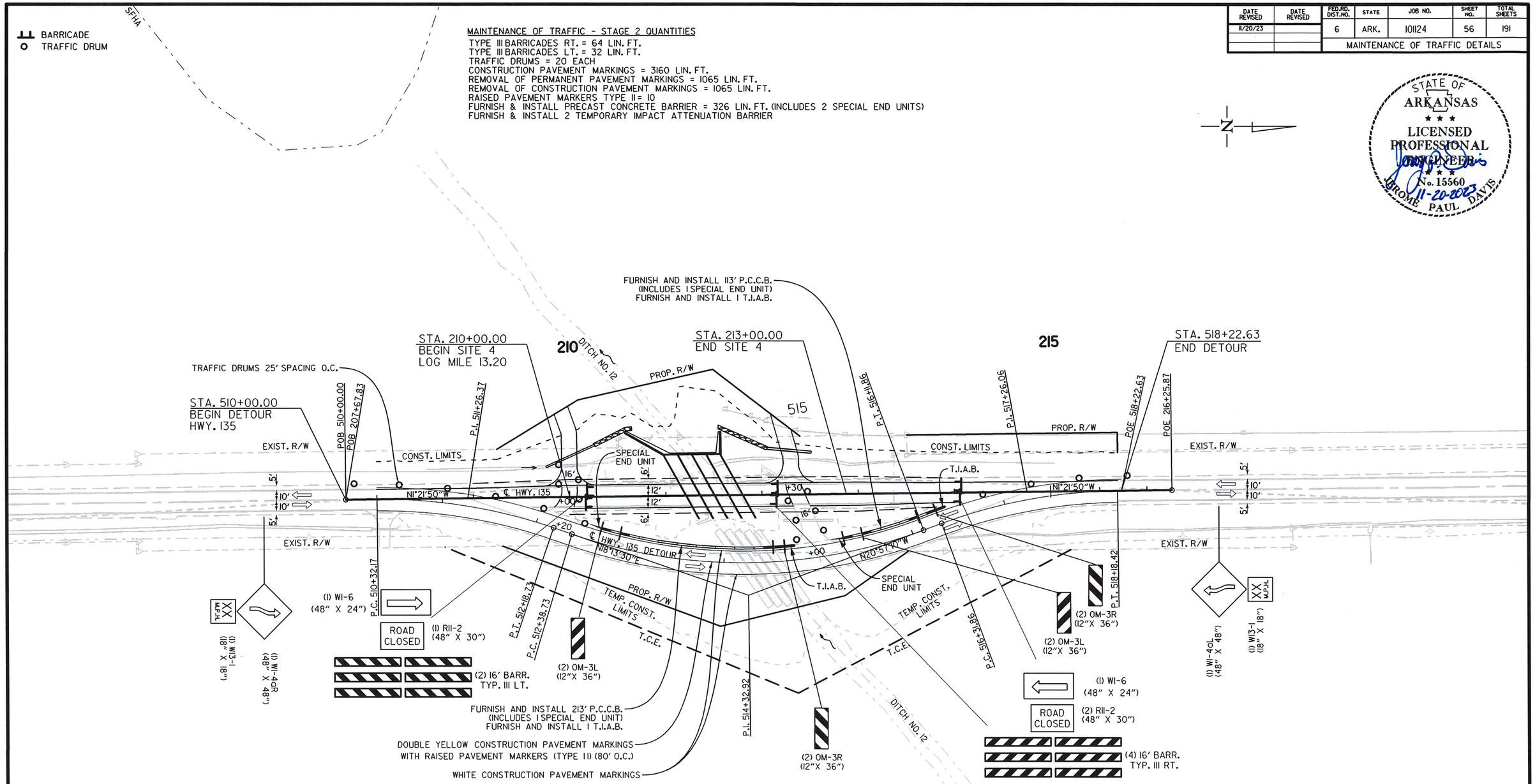
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	56	191
		MAINTENANCE OF TRAFFIC DETAILS				

BARRICADE
TRAFFIC DRUM

MAINTENANCE OF TRAFFIC - STAGE 2 QUANTITIES
TYPE III BARRICADES RT. = 64 LIN. FT.
TYPE III BARRICADES LT. = 32 LIN. FT.
TRAFFIC DRUMS = 20 EACH
CONSTRUCTION PAVEMENT MARKINGS = 3160 LIN. FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 1065 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 1065 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II = 10
FURNISH & INSTALL PRECAST CONCRETE BARRIER = 326 LIN. FT. (INCLUDES 2 SPECIAL END UNITS)
FURNISH & INSTALL 2 TEMPORARY IMPACT ATTENUATION BARRIER

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
11-20-2023
JEROME PAUL DAVIS



STAGE 2:

1) MAINTAIN ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

3) FURNISH AND INSTALL P.C.C.B. AND T.I.A.B. AS SHOWN ON PLANS.

4) SHIFT TRAFFIC TO TEMPORARY DETOUR AT SITE 4.

5) CONSTRUCT NEW ROADWAY AND LEFT SIDE OF NEW R.C. BOX CULVERT AT SITE 4.

SITE 4 STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

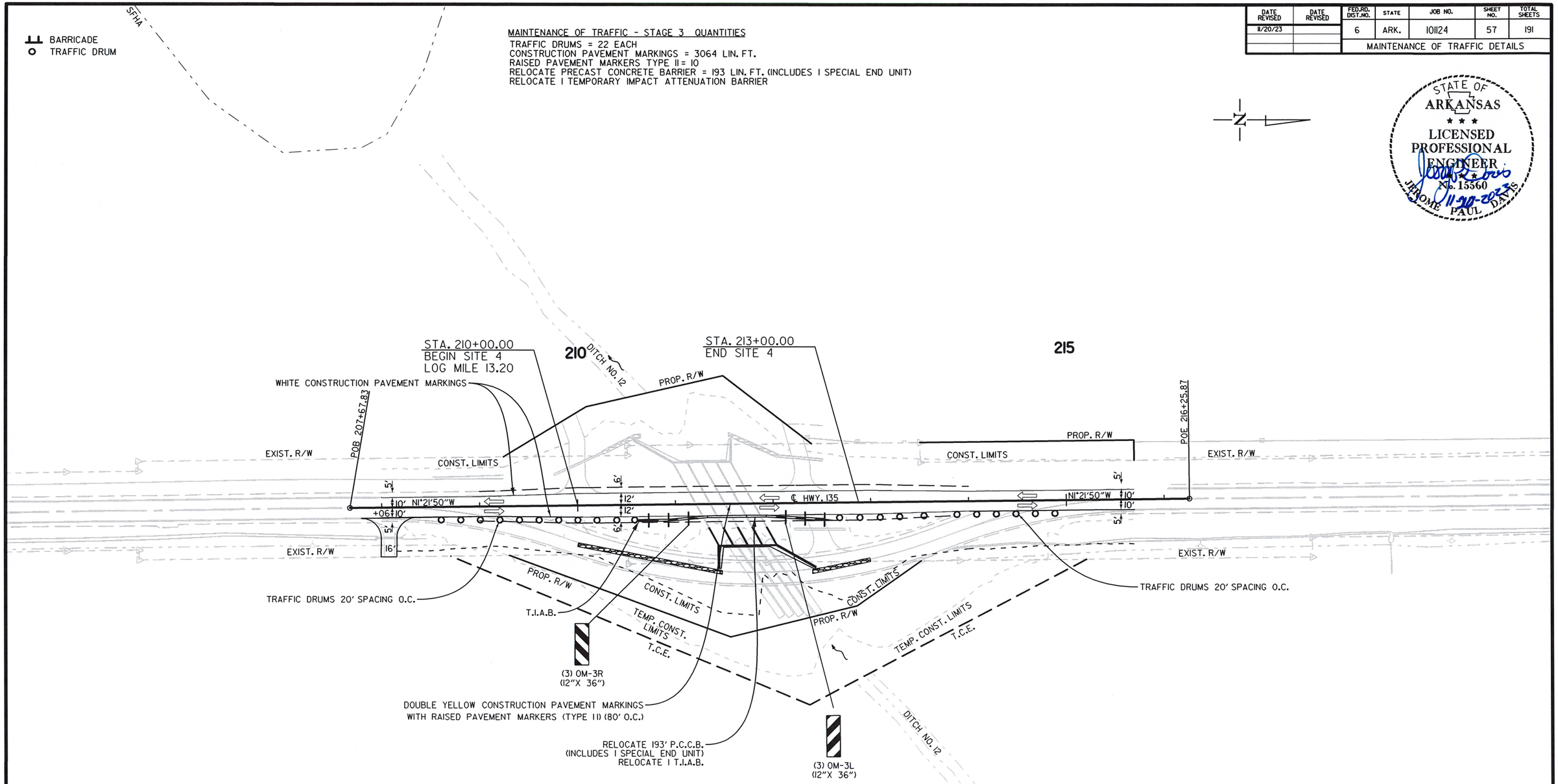
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	57	191
		MAINTENANCE OF TRAFFIC DETAILS				

BARRICADE
TRAFFIC DRUM

MAINTENANCE OF TRAFFIC - STAGE 3 QUANTITIES
TRAFFIC DRUMS = 22 EACH
CONSTRUCTION PAVEMENT MARKINGS = 3064 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II = 10
RELOCATE PRECAST CONCRETE BARRIER = 193 LIN. FT. (INCLUDES 1 SPECIAL END UNIT)
RELOCATE 1 TEMPORARY IMPACT ATTENUATION BARRIER

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023



STAGE 3:

1) MAINTAIN ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

3) RELOCATE P.C.C.B. AND T.I.A.B. AS SHOWN IN STAGE 3.

4) CONSTRUCT PAVEMENT WIDENING AT CONNECTIONS TO EXISTING ROADWAY, PLACE FINAL LIFT OF ASPHALT & PERMANENT PAVEMENT MARKINGS AT SITE 4.

5) SHIFT TRAFFIC TO NEW ROADWAY AND NEW R.C. BOX CULVERT AT SITE 4.

6) CONSTRUCT RIGHT SIDE OF NEW R.C. BOX CULVERT AT SITE 4.

SITE 4 STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

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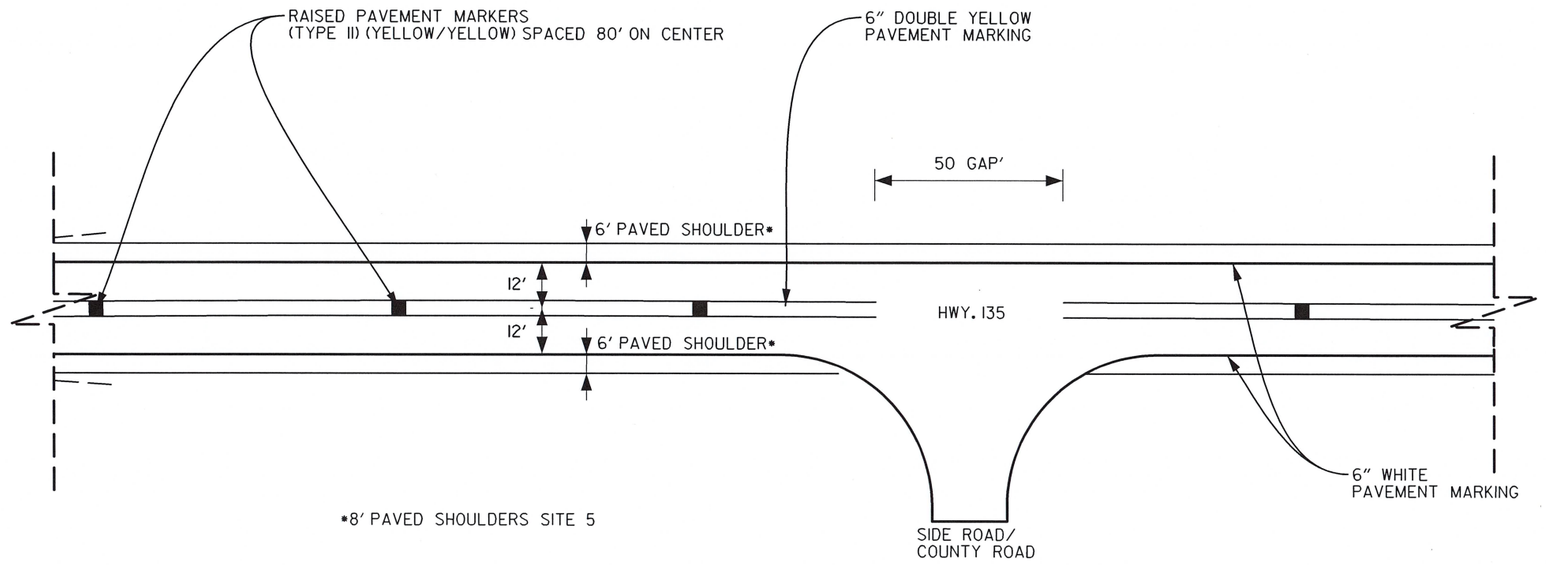
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	58	191
		PERMANENT PAVEMENT MARKING DETAILS				

PERMANENT PAVEMENT MARKING

SITES 1, 2, 3, & 4
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") = 20777 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6") = 20777 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW) (80' O.C.) = 418 EACH

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023



TYPICAL 2-LANE PERMANENT PAVEMENT MARKING LAYOUT

* 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.

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	59	191
		QUANTITIES				

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE
											RIGHT	LEFT					
			LIN. FT. - EACH				NO.	SQ. FT.	EACH				LIN. FT.			EACH	EACH
W20-1	ROAD WORK 1500 FT.	48"x48"	8	8	2	8	8	128									
W20-1	ROAD WORK 1000 FT.	48"x48"	8	8	2	8	8	128									
W20-1	ROAD WORK 500 FT.	48"x48"	8	8	2	8	8	128									
W20-1	ROAD WORK AHEAD	48"x48"	7	7	2	7	7	112									
G20-2	END ROAD WORK	48"x24"	11	11	2	11	11	88									
G20-1	ROAD WORK NEXT xx MILES	60"x24"	2	2	2	2	2	20									
W1-4AR	REVERSE CURVE RT.	48"x48"		2		2	2	32									
W1-4AL	REVERSE CURVE LT.	48"x48"		2		2	2	32									
W13-1	SPEED LIMIT (ADVISORY)	24"x24"		4		4	4	16									
R11-2	ROAD CLOSED	48"x30"	9	12		12	12	120									
OM-3L	OBJECT MARKER	12"x36"		4	3	4	4	12									
OM-3R	OBJECT MARKER	12"x36"		4	3	4	4	12									
W1-6	LARGE ARROW	48"x24"		4		4	4	32									
R4-1	DO NOT PASS	24"x30"	16	16	4	16	16	80									
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	20	20	5	20	20	180									
W8-1	BUMP	30"x30"	8	8	2	8	8	50									
W8-9a	SHOULDER DROP-OFF	36"X36"	16	16	4	16	16	144									
SPECIAL	CONSTRUCTION PROJECT INFORMATION SIGN	96"x48"	2	2	2	2	2	64									
SPECIAL	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE		10	10	10	10											10
	VERTICAL PANELS		57	57		57			57								
	TRAFFIC DRUMS		175	168	22	175				175							
	TYPE III BARRICADE-RT. (16')		10	12		12					192						
	TYPE III BARRICADE-LT. (16')		8	14		14						224					
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			326		326							326				
	RELOCATING PRECAST CONCRETE BARRIER				193	193								193			
	TEMPORARY IMPACT ATTENUATION BARRIER			2	1	3									3		
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)			2	1	3										3	
TOTALS:							1378	57	175	192	224	326	193	3	3	10	

NOTE: SITE 1, 2, 3, AND 4 ARE LOW TRAFFIC VOLUME ROADS AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

THE QUANTITY OF VERTICAL PANELS PROVIDED IN THE CONTRACT IS FOR ONE SIDE OF THE ROADWAY FOR THE FULL LENGTH OF THE JOB. THIS IS THE MAXIMUM QUANTITY REQUIRED TO ALLOW THE CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 4" OR LESS, AND THEN NOTCH ANOTHER ONE-MILE SECTION. THIS IS THE MAXIMUM NUMBER OF VERTICAL PANELS THAT WILL BE PAID FOR. REFER TO SECTION 603.02 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	REFLECTORIZED PAINT PAVEMENT MARKING	
							TYPE II	6"	
							(YELLOW/YELLOW)	WHITE	YELLOW
	LIN. FT. - EACH				LIN. FT.		EACH	LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS		12317			12317				
CONSTRUCTION PAVEMENT MARKINGS	44830	42040	3064			89934			
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)	142	133	10	133			418		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")				20777				20777	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")				20777					20777
TOTALS:					**12317**	**89934**	**418**	**20777**	**20777**

NOTE: SITE 1,2,3, AND 4 ARE LOW TRAFFIC VOLUME ROADS 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.

REMOVAL OF EXISTING BRIDGE STRUCTURE

STATION	STATION	LOCATION	LUMP SUM
211+22	211+79	HWY. 135 - SITE 4	1.00

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
518+00	525+20	HWY. 135 - SITE 1	8	8
607+50	633+10	HWY. 135 - SITE 2	26	26
115+00	127+00	HWY. 135 - SITE 3	12	12
208+40	213+00	HWY. 135 - SITE 4	5	5
TOTALS:			**51**	**51**

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

USER: JJ5206
DESIGN FILE: G:\22111000_101124\TRANSP\dgn\quantities\101124 Quantities Section 1.dgn
PLOTTED: 11/20/2023 14:45
SCALE: 1:100

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	60	191
		QUANTITIES				

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
512+77	20" X 25' CMP SIDE DRAIN - RT. - SITE 1	1
513+11	30" X 44' RCP CROSS DRAIN - SITE 1	1
514+80	20" X 41' CMP SIDE DRAIN - RT. - SITE 1	1
515+25	30" X 58' RCP CROSS DRAIN - SITE 1	1
515+92	34" X 30' CMP SIDE DRAIN - LT. - SITE 1	1
523+79	18" X 30' RCP SIDE DRAIN - LT. - SITE 1	1
109+34	24" X 19' CMP SIDE DRAIN - LT. - SITE 3	1
113+06	18" X 24' CMP SIDE DRAIN - RT. - SITE 3	1
113+78	24" X 37' RCP CROSS DRAIN - SITE 3	1
116+17	24" X 24' CMP SIDE DRAIN - RT. - SITE 3	1
123+73	30" X 60" CMP SIDE DRAIN - LT. - SITE 3	1
127+18	18" X 19' CMP SIDE DRAIN - RT. - SITE 3	1
127+90	24" X 24' CMP SIDE DRAIN - LT. - SITE 3	1
135+90	18" X 24' CMP SIDE DRAIN - LT. - SITE 3	1
208+06	16" X 24' CMP SIDE DRAIN - RT. - SITE 4	1
210+09	18" X 25' CMP SIDE DRAIN - RT. - SITE 4	1
210+30	18" X 21' CMP SIDE DRAIN - LT. -SITE 4	1
212+31	24" X 34' CMP SIDE DRAIN - LT. - SITE 4	1
	HOWARD DRIVE	
30+97	20" X 18' STEEL PIPE SIDE DRAIN - LT. - SITE 1	1
TOTAL:		19

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

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
	EACH	
ENTIRE PROJECT	1	1
TOTALS:	1	1

DUMPED RIPRAP AND FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YD.	SQ. YD.
30+97	HOWARD RD. - SITE 1	13	25
712+25	DRIVE 125+20 DITCH RT. - SITE 3	9	18
210+45	HWY. 135 DITCH LT. - SITE 4	10	20
210+74	HWY. 135 DITCH RT. - SITE 4	35	70
211+79	HWY. 135 DITCH LT. - SITE 4	15	30
212+69	HWY. 135 DITCH RT. - SITE 4	15	30
	TO BE USED IF AND WHERE	10	20
	DIRECTED BY THE ENGINEER		
TOTALS:		94	188

*NOTE: QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS

NOTE: FILTER BLANKET SHALL BE GEOTEXTILE FABRIC (TYPE 5).

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	GUARDRAIL
			LIN. FT.
519+24	519+70	HWY. 135 LT. - SITE 1	46
519+24	519+70	HWY. 135 LT. - SITE 1	45
521+22	521+65	HWY. 135 LT. - SITE 1	43
521+22	521+72	HWY. 135 LT. - SITE 1	50
614+72	615+28	HWY. 135 LT. - SITE 2	57
614+88	615+38	HWY. 135 LT. - SITE 2	52
618+08	618+59	HWY. 135 LT. - SITE 2	50
618+21	618+74	HWY. 135 LT. - SITE 2	50
121+48	122+27	HWY. 135 LT. - SITE 3	78
121+58	122+36	HWY. 135 LT. - SITE 3	78
123+28	123+81	HWY. 135 LT. - SITE 3	53
123+37	124+15	HWY. 135 LT. - SITE 3	78
210+83	211+15	HWY. 135 LT. - SITE 4	32
211+00	211+26	HWY. 135 RT. - SITE 4	26
211+72	212+00	HWY. 135 LT. - SITE 4	28
211+87	212+15	HWY. 135 RT. - SITE 4	28
TOTALS:			794

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
		SITE 1		
ENTIRE	SITE	STAGE 1-MAIN LANES	3536	18014
ENTIRE	SITE	STAGE 2-MAIN LANES	11141	207
ENTIRE	SITE	APPROACHES	325	3845
ENTIRE	SITE	BRIDGE EXCAVATION	249	
		SITE 2		
ENTIRE	SITE	STAGE 1-MAIN LANES	20096	36443
ENTIRE	SITE	STAGE 2-MAIN LANES	5265	1242
ENTIRE	SITE	BRIDGE EXCAVATION	1894	
		SITE 3		
ENTIRE	SITE	STAGE 1-MAIN LANES	1173	10824
ENTIRE	SITE	STAGE 2-MAIN LANES	2463	699
ENTIRE	SITE	APPROACHES		2460
ENTIRE	SITE	BRIDGE EXCAVATION	20	
		SITE 4		
ENTIRE	SITE	STAGE 1-MAIN LANES	3388	3614
ENTIRE	SITE	STAGE 2-MAIN LANES	2086	2563
ENTIRE	SITE	STAGE 3-MAIN LANES	6046	3850
ENTIRE	SITE	APPROACHES		85
ENTIRE	SITE	TEMPORARY APPROACHES		145
TOTALS:			57682	83991

NOTE: EARTHWORK QUANTITIES SHALL BE PAID AS PLAN QUANTITY.

SOIL STABILIZATION

STATION	STATION	LOCATION / DESCRIPTION	SOIL STABILIZATION
			TON
ENTIRE	PROJECT	TO BE USED IF AND WHERE	200
		DIRECTED BY THE ENGINEER	
TOTAL:			200

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

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL						
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN. FT.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING									1144	150	4979	286
ENTIRE	PROJECT	STAGE 1	11.17	22.34	11.17	1139.3	11.17	4.84	4.84	98.7	594	75		52
ENTIRE	PROJECT	STAGE 2	9.02	18.04	9.02	920.0	9.02	2.00	2.00	40.8	286	54	890	64
ENTIRE	PROJECT	STAGE 3	0.79	1.58	0.79	80.6	0.79	0.79	0.79	16.1		6		2
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			3.53	7.06	3.53	360.1	3.53	1.94	1.94	39.6	330	39	587	22
TOTALS:			24.51	49.02	24.51	2500.0	24.51	9.57	9.57	195.2	2354	324	6456	426

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
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.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
2-2-2024

USER: JJ5206
DESIGN FILE: G:\221l000l_l0ll24\TRANSP\dgn\quantities\l0ll24 Quantities Section 1.dgn
PLOTTED: 2/2/2024 08:46
SCALE: 1:100

QUANTITIES

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	61	191
		QUANTITIES				

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE SPECIAL)	APPROACH SLABS	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	POUND	TON
519+24.33	519+60.83	HWY. 135 - SITE 1	21.74	49.15	7007	34.07
521+41.16	521+77.66	HWY. 135 - SITE 1	21.74	49.15	7007	34.07
614+59.33	615+02.77	HWY. 135 - SITE 2	21.61	56.45	7972	40.51
617+85.22	618+28.65	HWY. 135 - SITE 2	21.61	56.45	7972	40.51
121+81.82	122+22.83	HWY. 135 - SITE 3	21.72	58.59	7367	38.27
123+73.17	124+13.89	HWY. 135 - SITE 3	21.72	58.59	7367	37.99
TOTALS:			130.14	328.38	44692	225.42

NOTE: USE T =11" FOR 6' SHOULDER.

PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

STATION	LOCATION	WIDTH	LENGTH	TON
		FEET		
513+10	HWY. 135 - SITE 1	9.08	20	10
513+25	HWY. 135 - SITE 1	9.08	20	10
133+77	HWY. 135 - SITE 3	8.50	20	9
TOTAL:				29

AVG. DEPTH = 9"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-31-2024

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			4700	19
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			4700	19

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

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	BRIDGE END TERMINAL
			LIN. FT.	EACH		
517+32.08	519+50.83	RT. SIDE - SITE 1	150	1	1	
518+07.08	519+50.83	LT. SIDE - SITE 1	75	1	1	
521+51.17	522+94.92	RT. SIDE - SITE 1	75	1	1	
521+51.17	523+44.92	LT. SIDE - SITE 1	125	1	1	
612+62.29	614+81.04	RT. SIDE - SITE 2	150	1	1	
613+58.07	615+01.82	LT. SIDE - SITE 2	75	1	1	
617+86.18	619+29.93	RT. SIDE - SITE 2	75	1	1	
618+06.96	620+25.71	LT. SIDE - SITE 2	150	1	1	
120+00.34	122+19.09	RT. SIDE - SITE 3	150	1	1	
121+11.79	122+05.54	LT. SIDE - SITE 3	25	1	1	
123+77.33		LT. SIDE - SITE 3				1
123+89.98	125+08.73	RT. SIDE - SITE 3	75	1	1	
TOTALS:			1125	11	11	1

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	100
ENGINEER	
TOTAL:	100

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

CULVERT CLEAN OUT

STATION	LOCATION	EACH
126+49	24" X 48' RCP CROSS DRAIN - SITE 3	1
TOTAL:		1

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 24"	(CLASS III) 30"	(CLASS IV) 24"	FLARED END SECTIONS FOR R.C. PIPE 24"	FLARED END SECTIONS FOR R.C. PIPE 30"	TEMPORARY PIPE CULVERT 18"	TEMPORARY PIPE CULVERT 24"	TEMPORARY PIPE CULVERT 30"	TEMPORARY PIPE CULVERT 84"	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.			EACH		LIN. FT.				LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
513+10	30" X 86' R.C. PIPE CULVERT W/ F.E.S. LT. & RT. - SITE 1		86			2											36	0.45	FES-1, FES-2, PCC-1
513+10	TEMP. 30" X 18' PIPE CULVERT LT. - SITE 1								18										
515+25	30" X 86' R.C. PIPE CULVERT W/ F.E.S. LT. & RT. - SITE 1		98			2											36	0.45	FES-1, FES-2, PCC-1
113+77	24" X 64' R.C. PIPE CULVERT W/ F.E.S. LT. & RT. - SITE 3			64	2												24	0.30	FES-1, FES-2, PCC-1
126+49	EXTEND 24" R.C. PIPE CULVERT 52' RT. W/ F.E.S. LT. & RT. - SITE 3	60			2												24	0.30	FES-1, FES-2, PCC-1
512+20	TEMP. 18" X 24' PIPE CULVERT LT. - SITE 4						24												PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
514+40	TEMP. QUINT. 84" X 102' PIPE CULVERT - SITE 4									510									PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
515+00	TEMP. 24" X 52' PIPE CULVERT LT. - SITE 4							52											PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
SUBTOTALS:		60	184	64	4	4	24	52	18	510							120	1.50	
STRUCTURES OVER 20' - 0" SPAN																			
211+50	QUAD. 12' X 10' X 98' R.C. BOX CULVERT W/ 3:1 WINGS - SITE 4										12	10	98	631.79	95051	291	56	0.71	SPECIAL DETAILS, RCB-1, RCB-2, RCB-3
SUBTOTALS:														631.79	95051	291	56	0.71	
TOTALS:		60	184	64	4	4	24	52	18	510				631.79	95051	291	176	2.21	

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

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

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

USER: JJ5206
DESIGN FILE: G:\22110001_101124\TRANSP\dgn\quantities\101124 Quantities Section 1.dgn
PLOTTED: 1/31/2024 16:31
SCALE: 1:100

QUANTITIES

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	62	191
02/21/24						
		QUANTITIES				

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
501+25	539+00	HWY. 135 - SITE 1	6795
601+00	632+50	HWY. 135 - SITE 2	5944
109+00	136+93	HWY. 135 - SITE 3	4705
208+00	215+70	HWY. 135 - SITE 4	1342
TOTAL:			18786

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
501+25.00	502+25.00	HWY. 135 - SITE 1	20.00	222.22
538+00.00	539+00.00	HWY. 135 - SITE 1	20.00	222.22
601+00.00	602+00.00	HWY. 135 - SITE 2	20.00	222.22
631+50.00	632+50.00	HWY. 135 - SITE 2	20.00	222.22
109+00.00	110+00.00	HWY. 135 - SITE 3	20.00	222.22
135+93.45	136+93.45	HWY. 135 - SITE 3	20.00	222.22
208+00.00	209+00.00	HWY. 135 - SITE 4	20.00	222.22
214+70.00	215+70.00	HWY. 135 - SITE 4	20.00	222.22
TOTAL:				1777.76

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
2-21-2024

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
519+71	HWY. 135 - SITE 1 BR. END	1
615+03	HWY. 135 - SITE 2 BR. END	1
122+22	HWY. 135 - SITE 3 BR. END	1
211+50	HWY. 135 - SITE 4 R.C. BOX CULVERT	1
TOTAL:		4

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

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS				AUTOMATIC FLOODGATES		STANDARD DRAWINGS
							18"	24"	30"	36"	24"	30"	
			FEET	SQ. YD.	TON	TON	LIN. FT.				EACH		
512+63	RT.	HWY. 135 - SITE 1	22	934.65	102.81	381.65	90						PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
512+80	LT.	HWY. 135 - SITE 1	16	278.86	30.67	113.87	40						PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
514+80	RT.	HWY. 135 - SITE 1	16	142.79	15.71	58.31	62						PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
515+92	LT.	HWY. 135 - SITE 1	16	110.79	12.19	45.24				40			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
516+03	RT.	STA. 30+97 HOWARD RD. - SITE 1	20	592.92	65.22	242.11		30					PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
516+72	RT.	HWY. 135 - SITE 1	40	344.83	37.93	140.81	72						PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
523+81	LT.	HWY. 135 - SITE 1	20	654.43	71.99	267.23		62					PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
109+45	LT.	HWY. 135 - SITE 3	16	90.87	10.00	37.11		28					PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
113+16	RT.	HWY. 135 - SITE 3	40	193.80	21.32	79.14	56						PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
116+35	RT.	HWY. 135 - SITE 3	40	200.87	22.10	82.02		52					PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
120+43	LT.	HWY. 135 - SITE 3	16	421.54	46.37	172.13							
122+10	LT.	HWY. 135 - SITE 3 (BERM)						86			1		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
125+20	LT.	HWY. 135 - SITE 3	24	614.67	67.61	250.99			64			1	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
125+59	RT.	HWY. 135 - SITE 3	16	114.89	12.64	46.91	46						PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
127+20	RT.	HWY. 135 - SITE 3	24	189.55	20.85	77.40	60						PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
127+90	LT.	HWY. 135 - SITE 3	16	96.67	10.63	39.47		28					PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
135+88	LT.	HWY. 135 - SITE 3	24	148.91	16.38	60.80	48						PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
208+06	RT.	HWY. 135 - SITE 4	16	66.06	7.27	26.97	28						PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
210+00	LT.	HWY. 135 - SITE 4	16	135.28	14.88	55.24	54						PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
212+30	LT.	HWY. 135 - SITE 4	16	109.72	12.07	44.80		46					PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
* ENTIRE PROJECT TEMPORARY DRIVES				200.00	22.00	81.67							
TOTALS:				5642.10	620.64	2303.87	556	332	64	40	1	1	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.4% MIN. AGGR.....5.6% ASPHALT BINDER

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

** FOR INFORMATION ONLY

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

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	350
DIRECTED BY THE ENGINEER	
TOTAL:	350

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	45	90
DIRECTED BY THE ENGINEER		
TOTALS:	45	90

BASIS OF ESTIMATE:
ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC...25 TON/MILE
TACK COAT FOR MAINTENANCE OF TRAFFIC.....50 GAL./MILE

STONE BACKFILL

STATION	STATION	LOCATION / DESCRIPTION	STONE BACKFILL	GEOTEXTILE FABRIC (TYPE 2)
			TON	SQ. YDS.
211+50		UNDER QUAD. 12' X10' X 98' RCB	746	1170
TOTALS:			746	1170

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

USER: JDS103
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SCALE: 1=100

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	63	191
		QUANTITIES				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
11-20-2023
JEROME PAUL DAVIS

BASE AND SURFACING (BOX 1 OF 2)

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																									
501+25.00	502+25.00	HWY. 135 TRANSITION - SITE 1	100.00						20.00	222.22	37.78	37.78									33.00	366.67	220.00	40.33	40.33
502+25.00	510+17.03	HWY. 135 NOTCH & WIDEN - SITE 1	792.03	160.00	1267.25	21.04	1851.59	92.58				92.58	10.58	931.08	385.00	179.23	10.46	920.51	220.00	101.26	36.00	3168.12	220.00	348.49	449.75
510+17.03	519+24.33	HWY. 135 FULL DEPTH - SITE 1	907.30	212.75	1930.28	48.73	4912.53	245.63				245.63	24.48	2467.86	385.00	475.06	24.25	2444.67	220.00	268.91	36.00	3629.20	220.00	399.21	668.12
521+77.66	529+94.61	HWY. 135 FULL DEPTH - SITE 1	816.95	212.75	1738.06	48.73	4423.33	221.17				221.17	24.48	2222.10	385.00	427.75	24.25	2201.23	220.00	242.14	36.00	3267.80	220.00	359.46	601.60
529+94.61	538+00.00	HWY. 135 NOTCH & WIDEN - SITE 1	805.39	160.00	1288.62	19.97	1787.07	89.35				89.35	10.07	901.14	385.00	173.47	9.90	885.93	220.00	97.45	36.00	3221.56	220.00	354.37	451.82
538+00.00	539+00.00	HWY. 135 TRANSITION - SITE 1	100.00						20.00	222.22	37.78	37.78									33.00	366.67	220.00	40.33	40.33
601+00.00	602+00.00	HWY. 135 TRANSITION - SITE 2	100.00						20.00	222.22	37.78	37.78									33.00	366.67	220.00	40.33	40.33
602+00.00	607+31.75	HWY. 135 NOTCH & WIDEN - SITE 2	531.75	160.00	850.80	17.89	1057.00	52.85				52.85	9.06	535.30	385.00	103.05	8.83	521.71	220.00	57.39	36.00	2127.00	220.00	233.97	291.36
607+31.75	614+59.34	HWY. 135 FULL DEPTH - SITE 2	727.59	212.75	1547.95	48.73	3939.50	196.98				196.98	24.48	1979.04	385.00	380.97	24.25	1960.45	220.00	215.65	36.00	2910.36	220.00	320.14	535.79
618+28.66	625+68.90	HWY. 135 FULL DEPTH - SITE 2	740.24	212.75	1574.86	48.73	4007.99	200.40				200.40	24.48	2013.45	385.00	387.59	24.25	1994.54	220.00	219.40	36.00	2960.96	220.00	325.71	545.11
625+68.90	631+50.00	HWY. 135 NOTCH & WIDEN - SITE 2	581.10	160.00	929.76	16.57	1069.87	53.49				53.49	8.40	542.36	385.00	104.40	8.17	527.51	220.00	58.03	36.00	2324.40	220.00	255.68	313.71
631+50.00	632+50.00	HWY. 135 TRANSITION - SITE 2	100.00						20.00	222.22	37.78	37.78									33.00	366.67	220.00	40.33	40.33
108+00.00	109+00.00	HWY. 135 TRANSITION - SITE 3	100.00						20.00	222.22	37.78	37.78									33.00	366.67	220.00	40.33	40.33
109+00.00	117+13.28	HWY. 135 NOTCH & WIDEN - SITE 3	813.28	160.00	1301.25	20.15	1820.84	91.04				91.04	10.19	920.81	385.00	177.26	9.96	900.03	220.00	99.00	36.00	3253.12	220.00	357.84	456.84
117+13.28	121+81.82	HWY. 135 FULL DEPTH - SITE 3	468.54	212.75	996.82	48.73	2536.88	126.84				126.84	24.48	1274.43	385.00	245.33	24.25	1262.46	220.00	138.87	36.00	1874.16	220.00	206.16	345.03
124+13.89	128+80.88	HWY. 135 FULL DEPTH - SITE 3	466.99	212.75	993.52	48.73	2528.49	126.42				126.42	24.48	1270.21	385.00	244.52	24.25	1258.28	220.00	138.41	36.00	1867.96	220.00	205.48	343.89
128+80.88	135+93.45	HWY. 135 NOTCH & WIDEN - SITE 3	712.57	160.00	1140.11	19.85	1571.61	78.58				78.58	10.04	794.91	385.00	153.02	9.81	776.70	220.00	85.44	36.00	2850.28	220.00	313.53	398.97
135+93.45	136+93.45	HWY. 135 TRANSITION - SITE 3	100.00						20.00	222.22	37.78	37.78									33.00	366.67	220.00	40.33	40.33
208+00.00	209+00.00	HWY. 135 TRANSITION - SITE 4	100.00						20.72	230.22	39.14	39.14									20.72	230.22	220.00	25.32	25.32
209+00.00	210+00.00	HWY. 135 TAPER - SITE 4	100.00	130.00	130.00	4.38	48.67	2.43				2.43	2.25	25.00	385.00	4.81	2.13	23.67	220.00	2.60	32.85	365.00	220.00	40.15	42.75
210+00.00	210+86.00	HWY. 135 NOTCH & WIDEN - SITE 4	86.00	140.00	120.40	6.65	63.54	3.18				3.18	3.44	32.87	385.00	6.33	3.21	30.67	220.00	3.37	36.00	344.00	220.00	37.84	41.21
210+86.00	212+15.00	HWY. 135 FULL DEPTH - SITE 4	129.00	212.75	274.45	48.73	698.46	34.92				34.92	24.48	350.88	385.00	67.54	24.25	347.58	220.00	38.23	36.00	516.00	220.00	56.76	94.99
212+15.00	213+00.00	HWY. 135 NOTCH & WIDEN - SITE 4	85.00	140.00	119.00	7.21	68.09	3.40				3.40	3.72	35.13	385.00	6.76	3.49	32.96	220.00	3.63	36.00	340.00	220.00	37.40	41.03
213+00.00	214+00.00	HWY. 135 TAPER - SITE 4	100.00	130.00	130.00	4.38	48.67	2.43				2.43	2.25	25.00	385.00	4.81	2.13	23.67	220.00	2.60	32.53	361.44	220.00	39.76	42.36
214+00.00	214+70.00	HWY. 135 OVERLAY - SITE 4	70.00																		20.74	161.31	220.00	17.74	17.74
214+70.00	215+70.00	HWY. 135 TRANSITION - SITE 4	100.00						20.39	226.56	38.52	38.52									20.39	226.56	220.00	24.92	24.92
ADDITIONAL FOR LEVELING & RAISING THE GRADE																									
501+25.00	510+17.03	HWY. 135 NOTCH & WIDEN - SITE 1	892.03			20.00	1982.29	99.11	20.00	1982.29	336.99	436.10					20.00	1982.29	330.00	327.08					327.08
529+94.61	538+00.00	HWY. 135 NOTCH & WIDEN - SITE 1	805.39			40.00	3579.51	178.98	20.00	1789.76	304.26	483.24	20.00	1789.76	330.00	295.31	20.00	1789.76	220.00	196.87					196.87
602+00.00	607+31.75	HWY. 135 NOTCH & WIDEN - SITE 2	531.75			20.00	1181.67	59.08	20.00	1181.67	200.88	259.96					20.00	1181.67	330.00	194.98					194.98
625+25.17	631+50.00	HWY. 135 NOTCH & WIDEN - SITE 2	624.83			40.00	2777.02	138.85	20.00	1388.51	236.05	374.90	20.00	1388.51	330.00	229.10	20.00	1388.51	220.00	152.74					152.74
110+00.00	117+13.28	HWY. 135 NOTCH & WIDEN - SITE 3	713.28			20.00	1585.07	79.25	20.00	1585.07	269.46	348.71					20.00	1585.07	220.00	174.36					174.36
128+80.88	135+93.45	HWY. 135 NOTCH & WIDEN - SITE 3	712.57			20.00	1583.49	79.17	20.00	1583.49	269.19	348.36					20.00	1583.49	220.00	174.18					174.18
209+00.00	210+00.00	HWY. 135 TAPER - SITE 4	100.00			20.00	222.22	11.11	20.00	222.22	37.78	48.89					20.00	222.22	220.00	24.44					24.44
210+00.00	210+86.00	HWY. 135 NOTCH & WIDEN - SITE 4	86.00			20.00	191.11	9.56	20.00	191.11	32.49	42.05					20.00	191.11	330.00	31.53					31.53
212+15.00	213+00.00	HWY. 135 NOTCH & WIDEN - SITE 4	85.00			40.00	377.78	18.89	20.00	188.89	32.11	51.00	20.00	188.89	220.00	20.78	20.00	188.89	220.00	20.78					20.78
213+00.00	214+00.00	HWY. 135 TAPER - SITE 4	100.00			20.00	222.22	11.11	20.00	222.22	37.78	48.89					20.00	222.22	330.00	36.67					36.67
214+00.00	214+70.00	HWY. 135 OVERLAY - SITE 4	70.00			20.00	155.56	7.78	20.00	155.56	26.45	34.23					20.00	155.56	220.00	17.11					17.11
SUBTOTALS (BOX 1 OF 2):					16333.13		46292.07	2314.58		12280.89	2087.78	4402.36		19688.73		3687.09		26603.36		3123.12		38199.47		4201.91	7325.03

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SCALE: 1:100

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	64	191
02/21/24		QUANTITIES				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
JEROME PAUL LOVIS
NO. 15560
2-21-2024

BASE AND SURFACING (BOX 2 OF 2)

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
ADDITIONAL FOR GUARDRAIL WIDENING																									
516+89.08	519+24.33	HWY. 135 RT. - SITE 1	235.25	21.50	50.58																5.50	143.76	220.00	15.81	15.81
517+64.08	519+24.33	HWY. 135 LT. - SITE 1	160.25	21.50	34.45																5.50	97.93	220.00	10.77	10.77
521+77.66	522+37.92	HWY. 135 RT. - SITE 1	60.26	21.50	12.96																5.50	36.83	220.00	4.05	4.05
521+77.66	522+87.70	HWY. 135 LT. - SITE 1	110.04	21.50	23.66																5.50	67.25	220.00	7.40	7.40
612+19.29	614+59.34	HWY. 135 RT. - SITE 2	240.05	21.50	51.61																5.50	146.70	220.00	16.14	16.14
613+15.07	614+59.34	HWY. 135 LT. - SITE 2	144.27	21.50	31.02																5.50	88.17	220.00	9.70	9.70
618+28.66	619+72.93	HWY. 135 RT. - SITE 2	144.27	21.50	31.02																5.50	88.17	220.00	9.70	9.70
618+28.66	620+68.71	HWY. 135 LT. - SITE 2	240.05	21.50	51.61																5.50	146.70	220.00	16.14	16.14
119+56.23	121+81.82	HWY. 135 RT. - SITE 3	225.59	21.50	48.50																5.50	137.86	220.00	15.16	15.16
120+69.53	121+81.82	HWY. 135 LT. - SITE 3	112.29	21.50	24.14																5.50	68.62	220.00	7.55	7.55
124+13.89	124+49.44	HWY. 135 LT. - SITE 3	35.55	21.50	7.64																5.50	21.73	220.00	2.39	2.39
124+13.89	125+60.73	HWY. 135 RT. - SITE 3	146.84	21.50	31.57																5.50	89.74	220.00	9.87	9.87
ADDITIONAL FOR SUPERELEVATION																									
502+27.14	505+27.14	HWY. 135 BEGIN SUPER - SITE 1	300.00	24.75	74.25																				
505+27.14	516+00.00	HWY. 135 MAX SUPER - SITE 1	1072.86	29.75	319.18																				
516+00.00	519+00.00	HWY. 135 END SUPER - SITE 1	300.00	24.75	74.25																				
601+25.70	604+25.70	HWY. 135 BEGIN SUPER - SITE 2	300.00	24.75	74.25																				
604+25.70	605+03.40	HWY. 135 MAX SUPER - SITE 2	77.70	29.75	23.12																				
605+03.40	608+03.40	HWY. 135 END SUPER - SITE 2	300.00	24.75	74.25																				
608+03.41	611+03.41	HWY. 135 BEGIN SUPER - SITE 2	300.00	24.75	74.25																				
611+03.41	611+65.00	HWY. 135 MAX SUPER - SITE 2	61.59	29.75	18.32																				
611+65.00	614+65.00	HWY. 135 END SUPER - SITE 2	300.00	24.75	74.25																				
618+45.00	621+45.00	HWY. 135 BEGIN SUPER - SITE 2	300.00	24.75	74.25																				
621+45.00	622+09.76	HWY. 135 MAX SUPER - SITE 2	64.76	29.75	19.27																				
622+09.76	625+09.76	HWY. 135 END SUPER - SITE 2	300.00	24.75	74.25																				
625+09.76	628+09.76	HWY. 135 BEGIN SUPER - SITE 2	300.00	24.75	74.25																				
628+09.76	629+25.62	HWY. 135 MAX SUPER - SITE 2	115.86	29.75	34.47																				
629+25.62	632+25.62	HWY. 135 END SUPER - SITE 2	300.00	24.75	74.25																				
117+76.39	120+76.39	HWY. 135 BEGIN SUPER - SITE 3	300.00	24.75	74.25																				
120+76.39	125+47.06	HWY. 135 MAX SUPER - SITE 3	470.67	29.75	140.02																				
125+47.06	128+47.06	HWY. 135 END SUPER - SITE 3	300.00	24.75	74.25																				
ADDITIONAL FOR DETOUR																									
510+00.00	518+22.63	HWY. 135 - DETOUR - SITE 4	822.63	247.25	2033.95	15.74	1438.69	71.93				71.93					15.74	1438.69	220.00	158.26	19.29	1763.17	220.00	193.95	352.21
SUBTOTALS (BOX 1 OF 2):					**16333.13**		**46292.07**	**2314.58**		**12280.89**	**2087.78**	**4402.36**		**19688.73**		**3687.09**		**26603.36**		**3123.12**		**38199.47**		**4201.91**	**7325.03**
SUBTOTALS (BOX 2 OF 2):					**3878.09**		**1438.69**	**71.93**				**71.93**						**1438.69**		**158.26**		**2896.63**		**318.63**	**476.89**
TOTALS:					**20211.22**		**47730.76**	**2386.51**		**12280.89**	**2087.78**	**4474.29**		**19688.73**		**3687.09**		**28042.05**		**3281.38**		**41096.10**		**4520.54**	**7801.92**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.4% MIN. AGGR.....5.6% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.7% MIN. AGGR.....4.3% ASPHALT BINDER
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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QUANTITIES

1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	65	191
		07648, 07649, 07650		QUANTITIES		66599

1 SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 101124

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	SP, SS, & 802	SP, SS, & 802	SS & 802	SP & 803	SS & 804	SS & 804	SS & 805	SS & 805	SS & 805	SS & 805	SS & 805	SS & 805	SP, SS, & 807	SS & 808	SS & 809	812	SS & 816	SS & 816
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. _)	UNCLASSIFIED EXCAVATION FOR STRUCTURES - BRIDGE	CLASS S CONCRETE - BRIDGE	CLASS S(AE) CONCRETE - BRIDGE	PRESTRESSED CONCRETE GIRDERS (TYPE III)	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL - BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	1 STEEL SHELL PILING (16" DIA.)	1 STEEL SHELL PILING (18" DIA.)	1 STEEL SHELL PILING (24" DIA.)	1 STEEL SHELL PILING (28" DIA.)	PILE ENCASEMENT	PREBORING	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP
			UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	LIN. FT.	SQ. YD.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LB.	CU. IN.	LIN. FT.	EACH	SQ. YD.	CU. YD.
07648	HIGHWAY 135 OVER DEAD TIMBER LAKE	BENT NO. 1			11	19.56				6,235	633	215					50					27	20
		BENT NO. 2				29.79				10,445	2,582			225		20							
		BENT NO. 3				29.79				10,445	2,582			305		20							
		BENT NO. 4			5	19.56				6,235	633	210					50					53	35
		179'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT					301.20	885.0	868.9		73,230										1		
		SITE NO. 1 (EXIST. BR. NO. 02884)		1																			
		TOTALS FOR BRIDGE NO. 07648			16	98.70	301.20	885.0	868.9	33,360	79,660	425		530		40	100				1	80	55
07649	HIGHWAY 135 OVER TYRONZA RIVER	BENT NO. 1				48.87				11,611	735		300						2,681.5	44		249	127
		BENT NO. 2				40.22				16,546	2,643				375	115							
		BENT NO. 3				40.22				16,546	2,643				380	120							
		BENT NO. 4				40.22				16,546	2,643				230	75							
		BENT NO. 5			9	48.87				11,611	735		300						2,681.5	44		351	181
		280'-0" CONTINUOUS PRESTRESSED CONCRETE GIRDER UNIT					436.90	1,380.0	1,378.7		99,911							6,120			1		
		SITE NO. 2 (EXIST. BR. NO. A2885)		1																			
		TOTALS FOR BRIDGE NO. 07649			9	218.40	436.90	1,380.0	1,378.7	72,860	109,310		600		985	310		6,120	5,363.0	88	1	600	308
07650	HIGHWAY 135 OVER DITCH NO. 1	BENT NO. 1			58	23.68				7,516	1,563	285					50					226	116
		BENT NO. 2				38.71				11,924	2,108			360		75							
		BENT NO. 3				38.71				11,924	2,108			380		85							
		BENT NO. 4			55	23.60				7,516	1,563	310					50					218	111
		149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT					293.30	735.0	724.3		63,128										1		
		SITE NO. 3 (EXIST. BR. NO. 02886)		1																			
		TOTALS FOR BRIDGE NO. 07650			113	124.70	293.30	735.0	724.3	38,880	70,470	595		740		160	100				1	444	227
		SITE 4 (EXIST. BR. NO. 02905)		1 2																			
		TOTALS FOR JOB NO. 101124			138	441.80	1,031.40	3,000.0	2,971.9	145,100	259,440	1,020	600	1,270	985	510	200	6,120	5,363.0	88	3	1,124	590

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

2 Existing Bridge No. 02905 (Log Mile 13.24) is 28.6' wide (24.0' clear roadway) and 57.0' long and consists of steel I-beam spans (1 span total) supported by concrete piles. The proposed new reinforced concrete box culvert is on existing alignment. Plans of the existing structure, if available, may be obtained upon request to the Construction Contract Development Section of the Program Management Division.

After the detour alignment is open to traffic, the Contract shall remove existing Bridge No. 02905 in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor, except for the guardrail, which shall remain the property of the State.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/28/2023

SCHEDULE OF BRIDGE QUANTITIES
HWY. 135 STRS. & APPRS. (S)
POINSETT COUNTY
ROUTE 135 SECTION 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JRF DATE: 11-16-2023 FILENAME: b101124_q1.dgn
CHECKED BY: CAW DATE: 11-16-2023 SCALE: NO SCALE
DESIGNED BY: KRM DATE: 06-07-2023
BRIDGE NOS. 07648, 07649, 07650 DRAWING NO. 66599

USER: CTAUSER
DESIGN FILE: G:\22II0001_I0II24\TRANSP\dgn\bridge\bI0II24_qI.dgn
PLOTTED: 11/28/2023 10:17:48 AM SCALE: 2.0000 ' / In.

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	66	191
02/21/24						
02/23/24		SUMMARY OF QUANTITIES				

SUMMARY OF QUANTITIES (BOX 1 OF 2)

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	51	STATION
201	GRUBBING	51	STATION
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	19	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	794	LIN. FT.
SP & 207	STONE BACKFILL	746	TON
SP, SS, & 210	UNCLASSIFIED EXCAVATION	57682	CU. YD.
SP & 210	COMPACTED EMBANKMENT	83991	CU. YD.
SP & 210	SOIL STABILIZATION	200	TON
SP, SS, & 303	AGGREGATE BASE COURSE (CLASS 7)	22741	TON
SS & 401	TACK COAT	4564	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	3528	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	159	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	7951	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	472	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT	1778	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	45	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	350	TON
SP, SS, & 504	APPROACH SLABS	328.38	CU. YD.
SP, SS, & 504	APPROACH GUTTERS	130.14	CU. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
603	18" TEMPORARY CULVERT	24	LIN. FT.
603	24" TEMPORARY CULVERT	52	LIN. FT.
603	30" TEMPORARY CULVERT	18	LIN. FT.
603	84" TEMPORARY CULVERT	510	LIN. FT.
SS & 604	SIGNS	1378	SQ. FT.
SP, SS, & 604	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE	10	EACH
SS & 604	BARRICADES	416	LIN. FT.
SS & 604	TRAFFIC DRUMS	175	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	326	LIN. FT.
SS & 604	RELOCATING PRECAST CONCRETE BARRIER	193	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	89934	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	12317	LIN. FT.
SS & 604	VERTICAL PANELS	57	EACH
SS & 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	60	LIN. FT.
SS & 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	64	LIN. FT.
SS & 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	184	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN	556	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	332	LIN. FT.
SP, SS, & 606	30" SIDE DRAIN	64	LIN. FT.
SP, SS, & 606	36" SIDE DRAIN	40	LIN. FT.
SS & 606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	4	EACH
SS & 606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	4	EACH
SP	CULVERT CLEAN OUT	1	EACH
SS & 606	SELECTED PIPE BEDDING	100	CU. YD.
SS & 611	4" PIPE UNDERDRAINS	4700	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	19	EACH
SS & 615	PAVEMENT REPAIR OVER CULVERTS (ASPHALT)	29	TON
616	24" AUTOMATIC FLOODGATES	1	EACH
616	30" AUTOMATIC FLOODGATES	1	EACH
SS & 617	GUARDRAIL (TYPE A)	1125	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)	11	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL	11	EACH
620	LIME	49	TON
620	SEEDING	24.51	ACRE
SS & 620	MULCH COVER	34.08	ACRE
620	WATER	2697.4	M. GAL.
621	TEMPORARY SEEDING	9.57	ACRE
621	SILT FENCE	5550	LIN. FT.
621	SAND BAG DITCH CHECKS	2354	BAG
621	SEDIMENT REMOVAL AND DISPOSAL	393	CU. YD.
621	ROCK DITCH CHECKS	324	CU. YD.
623	SECOND SEEDING APPLICATION	24.51	ACRE
624	SOLID SODDING	176	SQ. YD.
625	GEOTEXTILE FABRIC (TYPE 2)	1170	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	1	EACH
637	MAILBOX SUPPORTS (SINGLE)	1	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	18786	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	20777	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	20777	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	418	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER	3	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	3	EACH
SS & 734	BRIDGE END TERMINAL	1	EACH
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	44692	POUND

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
2-23-2024

SUMMARY OF QUANTITIES (BOX 2 OF 2)

ITEM NUMBER	ITEM	QUANTITY	UNIT
SS & 816	FILTER BLANKET	213	SQ. YD.
SS & 816	DUMPED RIPRAP	107	CU. YD.
	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 EXISTING BRIDGE STRUCTURE (SITE NO. 3)	1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 4)	1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	138	CU. YD.
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	291	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-ROADWAY	631.79	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-BRIDGE	441.80	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	1031.40	CU. YD.
SS & 802	PRESTRESSED CONCRETE GIRDERS (TYPE III)	3000.0	LIN. FT.
SP & 803	CLASS 2 PROTECTIVE SURFACE TREATMENT	2971.9	SQ. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	95051	POUND
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	145100	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	259440	POUND
SS & 805	STEEL SHELL PILING (16" DIAMETER)	1020	LIN. FT.
SS & 805	STEEL SHELL PILING (18" DIAMETER)	600	LIN. FT.
SS & 805	STEEL SHELL PILING (24" DIAMETER)	1270	LIN. FT.
SS & 805	STEEL SHELL PILING (28" DIAMETER)	985	LIN. FT.
SS & 805	PREBORING	200	LIN. FT.
SS & 805	PILE ENCASEMENT	510	LIN. FT.
SP, SS, & 807	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)	6120	POUND
SS & 808	ELASTOMERIC BEARINGS	5363.0	CU. IN.
SS & 809	SILICONE JOINT SEALANT	88	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	3	EACH
SS & 816	FILTER BLANKET	1124	SQ. YD.
SS & 816	DUMPED RIPRAP	590	CU. YD.

REVISIONS

DATE	REVISION	SHEET NUMBER
11/20/2023	CHANGED SHEET NUMBER AND TOTAL NUMBER OF SHEETS, REMOVED SITES 5 & 6 ITEMS FROM JOB, CHANGED SHEET NUMBER AND TOTAL NUMBER OF SHEETS, ADDED SP "PERCENT AIR VOIDS AND NDESIGN FOR ACHM SURFACE COURSES", REVISED QUANTITIES	7, 9-57, 67-191, 1-6, 8, 58-66,
1/31/2024	CHANGED FAP NUMBER. REMOVED SP "DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES". MODIFIED SP TO"PERCENT AIR VOIDS AND NDESIGN FOR ACHM SURFACE MIX DESIGNS". ADDED SIDE DRAIN ON HOWARD RD. CHANGED SPECIAL DITCHES AND ROW ON HWY. 135 AND HOWARD RD. ADDED SIDE DRAIN AND LENGTHENED APPROACH STA. 516+72 RT. REMOVED SPEED LIMIT FROM MOT SIGN SITE 2. MODIFIED CROSSROAD PIPE STA. 515+25. ADJUSTED QUANTITES EXCAVATION, APPROACH,EROSION STRUCTURES, AND DUMPED RIPRAP. REVISED SPECIAL PROVISIONS "UTITLITY ADJUSTMENT ","DELAY OF ROW OCCUPANCY" , "SEQUENCE OF WORK" , "SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS"	1,3,17, 18, 20, 21, 23, 24, 40, 41, 43, 44, 49, 50, 60-62, 64, 66, 78, 79, 81, 82, 149, 150, 185
2/21/2024	REVISED PERCENTAGE ACHM SURFACE AGGREGATE AND ACHM SURFACE BINDER, REVISED QUANTITY OF ACHM SURFACE AGGREGATE AND ACHM SURFACE BINDER.	62, 64, 66
2/23/2024	REMOVED SPECIAL PROVISION "ESTABLISHING CONTRACT TIME - WORKING DAY CONTRACT".	3, 66

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SUMMARY OF QUANTITIES

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	67	191
		SURVEY CONTROL DETAILS				

APPROXIMATE MIDPOINT:
LAT: N 35°29'03"
LON: W 90°19'21"

SURVEY CONTROL COORDINATES

Project Name: s10X363
Date: 3/22/2021
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, 560014 & 560014A
PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	448198.2558	1811359.5179	222.769	CTL	ARDOT STD MON STAMPED PN: 1
2	449121.3580	1811344.8638	221.856	CTL	ARDOT STD MON STAMPED PN: 2
3	449972.3037	1811327.8615	224.484	CTL	ARDOT STD MON STAMPED PN: 3
4	450744.7967	1811317.1637	222.221	CTL	ARDOT STD MON STAMPED PN: 4
5	451586.8950	1811301.9376	222.344	CTL	ARDOT STD MON STAMPED PN: 5
18	421675.9545	1810970.2667	219.725	CTL	ARDOT STD MON STAMPED PN: 18
19	422291.3672	1811634.8123	218.966	CTL	ARDOT STD MON STAMPED PN: 19
20	423115.9626	1811830.9460	221.159	CTL	ARDOT STD MON STAMPED PN: 20
21	423995.2138	1811765.9351	216.771	CTL	ARDOT STD MON STAMPED PN: 21
22	424814.9002	1811737.0780	217.312	CTL	ARDOT STD MON STAMPED PN: 22
23	429368.8518	1811589.6369	219.179	CTL	ARDOT STD MON STAMPED PN: 23
24	430115.9968	1811563.9640	219.266	CTL	ARDOT STD MON STAMPED PN: 24
25	431072.0968	1811569.6805	221.052	CTL	ARDOT STD MON STAMPED PN: 25
26	432007.9251	1811502.2294	218.957	CTL	ARDOT STD MON STAMPED PN: 26
27	432868.6915	1811484.1161	221.064	CTL	ARDOT STD MON STAMPED PN: 27
100	454321.3652	1811208.2526	219.915	GPS	ARDOT GPS MON 560014
101	454262.6733	1812444.3948	219.917	GPS	ARDOT GPS MON 560014A
900	448986.6588	1811347.1699	221.702	TBM	SQUARE CUT CNTR OF W HW 135 LEPANTO
901	449960.7949	1811332.8049	225.665	TBM	SQUARE CUT NW CRNR BR 135 LEPANTO
902	452231.2201	1811327.2405	221.595	TBM	SQUARE CUT CNTR E HW 135 LEPANTO
914	422554.9446	1811712.0831	218.883	TBM	CHIESELED SQUARE CUT N HW 21'
915	423324.9353	1811792.5751	221.443	TBM	CUT ON N/W CRNR BR 135 TYONZA
916	425294.0842	1811800.4387	216.276	TBM	RBR W ALUM CAP 135 TYONZA
917	428108.6624	1811719.7397	215.689	TBM	3530W04 135 TYONZA
918	429392.6972	1811537.9761	216.817	TBM	RBR W ALUM CAP TOPO REFERENCES 135
919	431053.6853	1811565.9282	223.096	TBM	SQUARE CUT ON N/E CRNR BR 135 TYONZA
920	432276.8543	1811553.3632	214.931	TBM	RBR & 2" ALUM CAP 135 TYONZA

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999253860 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 s10X363gi.CTL
HORIZONTAL DATUM: NAD 83 (2011)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE
AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 560014 & 560014A
CONVERGENCE ANGLE: 00 58 33.6 RIGHT AT PN: 3 LT: N35°33'28.1587 LG: W90°19'21.7815
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

Alignment Name: CL Const Hwy 135 (Site 1)				
8113	P.O.B.	500+00.00	421621.3482	1810848.6196
8114	P.C.	504+52.14	421872.7428	1811224.4313
8116	P.T.	518+97.46	423103.1321	1811859.8519
8117	P.C.	522+00.59	423406.1483	1811851.4261
8119	P.R.C.	529+84.29	424188.1817	1811802.8823
8121	P.T.	537+22.36	424924.6133	1811755.6974
8122	P.O.E.	539+06.24	425108.4060	1811749.8544

Alignment Name: CL Const Hindman Dr.				
8123	P.O.B.	10+00.00	422112.8332	1811799.6554
8124	P.C.	12+95.21	422408.0319	1811802.2789
8126	P.T.	13+82.55	422477.3280	1811757.5305
8127	P.O.E.	14+03.09	422485.6104	1811738.7390

Alignment Name: CL Const Howard Rd.				
8136	P.O.B.	30+00.00	422793.7607	1812149.2922
8137	P.C.	32+12.53	422798.2027	1811936.8115
8139	P.T.	32+87.17	422805.5776	1811862.6114
8140	P.O.E.	33+12.34	422805.5776	1811862.6114

Alignment Name: CL Const Steel Bridge Rd.				
8141	P.O.B.	40+00.00	423586.4367	1811844.9923
8142	P.C.	40+44.76	423584.4883	1811800.2731
8144	P.T.	41+70.22	423552.1911	1811680.0790
8145	P.O.E.	43+27.12	423479.5343	1811541.0188

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

USER: JJ5206
DESIGN FILE: G:\22II0001_I0II24\TRANSP\dgn\survey_ctl\r10II24_sc_I35.dgn
PLOTTED: II/20/2023 12:30
SCALE: 1:100

SITE 1
SURVEY CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	68	191
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

500

505

510

515

P.O.B. 500+00.00

8113

N56°13'12"E
452.14'

PN:18
PD:ARDOT STD MON STAMPED PN:18 135

STA. 502+25.00
BEGIN JOB 101124 &
BEGIN SITE 1
LOG MILE 0.868

P.C. 504+52.14

8114

SURVEY BASELINE N 47°11'54" E
905.73'

HWY. 135 (SITE 1)
PI = 512+43.08
Δ = 57°48'46" LT.
D = 4°00'00"
T = 790.94'
L = 1445.32'
PC = 504+52.14
PT = 518+97.46
e = 0.084'/'
Ls = 300'

BEARINGS ARE GRID BASED ON GPS

STA. 512+63.00 ℄ HWY. 135 =
STA. 14+03.09 ℄ HINDMAN LN.
Δ = 90°00'00"

℄ HWY. 135

N56°13'12"E
790.94'

SURVEY BASELINE
N 13°22'46" E
847.60'

PN:19
PD:ARDOT STD MON STAMPED PN:19 135

PN:914
PD:CHISELED SQUARE CUT N HW 21' 135

8127

HINDMAN LN. (SITE 1)
PI = 13+44.59
Δ = 66°43'25" LT.
D = 76°24'00"
T = 49.38'
L = 87.34'
PC = 12+95.21
PT = 13+82.55
NO SUPER

8126

P.T. 13+82.55

20.54'
N66°12'52"W

49.38'

10

HINDMAN LN.
N00°30'33"E
295.21'

8124

49.38'
N00°30'33"E

P.I. 13+44.59

P.C. 12+95.21

N01°35'34"W
790.94'

P.O.B. 10+00.00

8123

STA. 10+25.00
BEGIN CONSTRUCTION
℄ HINDMAN LN.

P.I. 512+43.08

SITE 1
SURVEY CONTROL DETAILS

USER: JJ5206
DESIGN FILE: G:\22110001_101124\TRANSP\dgn\survey_ctl\r101124_sc_135.dgn
PLOTTED: 11/20/2023 12:30
SCALE: 1:100

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	69	191
		SURVEY CONTROL DETAILS				

515

520

525

530

535

HWY. 135 (SITE 1)
PI = 512+43.08
Δ = 57°48'46" LT.
D = 4°00'00"
T = 790.94'
L = 1445.32'
PC = 504+52.14
PT = 518+97.46
e = 0.084'/'
Ls = 300'

STA. 516+03.00 ℄ HWY. 135 =
STA. 33+12.34 ℄ HOWARD RD.
Δ = 90°00'00"

SURVEY BASELINE
N 13°22'46" E
847.60'

8140

N01°35'34"W
790.93'

P.T. 32+87.17

8139

P.I. 32+49.92

8137 P.C. 32+12.53

℄ HOWARD RD.
N88°48'09"W
212.53'

HOWARD RD. (SITE 1)
PI = 32+49.92
Δ = 08°57'25" RT.
D = 12°00'00"
T = 37.39'
L = 74.64'
PC = 32+12.53
PT = 32+87.17
NO SUPER

STA. 30+50.00
BEGIN CONSTRUCTION
℄ HOWARD RD.

P.O.B. 30+00.00

8136

P.T. 518+97.46

PN:20
PD:ARDOT STD MON STAMPED PN:20 135

8116

PN:915
PD:CUT ON N/W CRNR BR 135 TYONZA

P.C. 522+00.59

N01°35'34"W
303.13'

℄ HWY. 135

8117

8145

P.O.E. 43+27.12

℄ STEEL BRIDGE RD.
S62°24'49"W
156.90'

STA. 42+90.00
END CONSTRUCTION
℄ STEEL BRIDGE RD.

STEEL BRIDGE RD. (SITE 1)
PI = 41+08.51
Δ = 25°05'30" LT.
D = 20°00'00"
T = 63.75'
L = 125.46'
PC = 40+44.76
PT = 41+70.22
NO SUPER

8144

P.T. 41+70.22

S62°24'49"W
63.75'

P.I. 41+08.51

S27°30'19"E
63.75'

N01°30'19"W
63.75'

8142 P.C. 40+44.76

8141

SURVEY BASELINE N 04°13'43" W
881.65'

PN:21
PD:ARDOT STD MON STAMPED PN:21135

8119

P.R.C. 529+84.29

HWY. 135 (SITE 1)
PI = 525+92.59
Δ = 3°55'06" LT.
D = 0°30'00"
T = 392.00'
L = 783.70'
PC = 522+00.59
PRC = 529+84.29
NO SUPER

N01°35'34"W
392.00'

N5°30'40"W
392.00'

P.I. 525+92.59

STA. 523+81.00 ℄ HWY. 135 =
STA. 40+00.00 ℄ STEEL BRIDGE RD.
Δ = 90°00'00"

BEARINGS ARE GRID BASED ON GPS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

HWY. 135 (SITE 1)
PI = 525+92.59
Δ = 3°55'06" LT.
D = 0°30'00"
T = 392.00'
L = 783.70'
PC = 522+00.59
PRC = 529+84.29
NO SUPER

530

P.R.C. 529+84.29

8119

SURVEY BASELINE
N 02°00'59" W
820.19'

N5°30'40"W
369.16'

P.I. 533+53.45

N01°49'15"W
369.16'

PN:22
PD:ARDOT STD MON STAMPED PN:22 135

℄ HWY. 135

P.T. 537+22.36

8121

N01°49'15"W
183.88'

P.O.E. 539+06.24

8122

HWY. 135 (SITE 1)
PI = 533+53.45
Δ = 3°41'25" RT.
D = 0°30'00"
T = 369.16'
L = 738.07'
PRC = 529+84.29
PT = 537+22.36
NO SUPER

STA. 538+00.00
END SITE 1

PN:916
PD:RBR W ALUM CAP 135 TYONZA

SITE 1
SURVEY CONTROL DETAILS

USER: JJ5206
DESIGN FILE: G:\2211000I_101124\TRANSP\dgn\survey_ctl\r101124_sc_135.dgn
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SCALE: 1:100

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	70	191
		SURVEY CONTROL DETAILS				

APPROXIMATE MIDPOINT:
LAT: N 35°30'20"
LON: W 90°19'22"

SURVEY CONTROL COORDINATES

Project Name: s10X363
Date: 3/22/2021
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, 560014 & 560014A
PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	448198.2558	1811359.5179	222.769	CTL	*ARDOT STD MON STAMPED PN: 1
2	449121.3580	1811344.8638	221.856	CTL	*ARDOT STD MON STAMPED PN: 2
3	449972.3037	1811327.8615	224.484	CTL	*ARDOT STD MON STAMPED PN: 3
4	450744.7967	1811317.1637	222.221	CTL	*ARDOT STD MON STAMPED PN: 4
5	451586.8950	1811301.9376	222.344	CTL	*ARDOT STD MON STAMPED PN: 5
18	421675.9545	1810970.2667	219.725	CTL	*ARDOT STD MON STAMPED PN: 18
19	422291.3672	1811634.8123	218.966	CTL	*ARDOT STD MON STAMPED PN: 19
20	423115.9626	1811830.9460	221.159	CTL	*ARDOT STD MON STAMPED PN: 20
21	423995.2138	1811765.9351	216.771	CTL	*ARDOT STD MON STAMPED PN: 21
22	424814.9002	1811737.0780	217.312	CTL	*ARDOT STD MON STAMPED PN: 22
23	429368.8518	1811589.6369	219.179	CTL	*ARDOT STD MON STAMPED PN: 23
24	430115.9968	1811563.9640	219.266	CTL	*ARDOT STD MON STAMPED PN: 24
25	431072.0968	1811569.6805	221.052	CTL	*ARDOT STD MON STAMPED PN: 25
26	432007.9251	1811502.2294	218.957	CTL	*ARDOT STD MON STAMPED PN: 26
27	432868.6915	1811484.1161	221.064	CTL	*ARDOT STD MON STAMPED PN: 27
100	454321.3652	1811208.2526	219.915	GPS	*ARDOT GPS MON 560014
101	454262.6733	1812444.3948	219.917	GPS	*ARDOT GPS MON 560014A
900	448986.6588	1811347.1699	221.702	TBM	*SQUARE CUT CNTR OF W HW 135 LEPANTO
901	449960.7949	1811332.8049	225.665	TBM	*SQUARE CUT NW CRNR BR 135 LEPANTO
902	452231.2201	1811327.2405	221.595	TBM	*SQUARE CUT CNTR E HW 135 LEPANTO
914	422554.9446	1811712.0831	218.883	TBM	*CHISELED SQUARE CUT N HW 21'
915	423324.9353	1811792.5751	221.443	TBM	*CUT ON N/W CRNR BR 135 TYONZA
916	425294.0842	1811800.4387	216.276	TBM	*RBR W ALUM CAP 135 TYONZA
917	428108.6624	1811719.7397	215.689	TBM	*3530W04 135 TYONZA
918	429392.6972	1811537.9761	216.817	TBM	*RBR W ALUM CAP TOPO REFERENCES 135
919	431053.6853	1811565.9282	223.096	TBM	*SQUARE CUT ON N/E CRNR BR 135 TYONZA
920	432276.8543	1811553.3632	214.931	TBM	*RBR & 2" ALUM CAP 135 TYONZA

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999253860 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 s10X363gi.CTL
HORIZONTAL DATUM: NAD 83 (2011)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE
AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 560014 & 560014A
CONVERGENCE ANGLE: 00 58 33.6 RIGHT AT PN: 3 LT: N35°33'28.1587 LG: W90°19'21.7815
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

Alignment Name: CL Const Hwy 135 (Site 2)

8146	P.O.B.	600+00.00	429249.4983	1811609.6741
8147	P.C.	603+25.70	429575.0079	1811598.6424
8149	P.T.	606+75.52	429924.6891	1811602.8089
8150	P.C.	609+31.29	430180.0246	1811617.5599
8152	P.T.	612+80.04	430528.8330	1811621.7627
8153	P.C.	620+42.33	431290.4960	1811596.1569
8155	P.T.	623+69.38	431616.4920	1811571.1998
8156	P.C.	626+50.14	431895.2512	1811537.8083
8158	P.T.	630+00.62	432244.6691	1811512.1359
8159	P.O.E.	633+38.37	432582.2928	1811502.8618

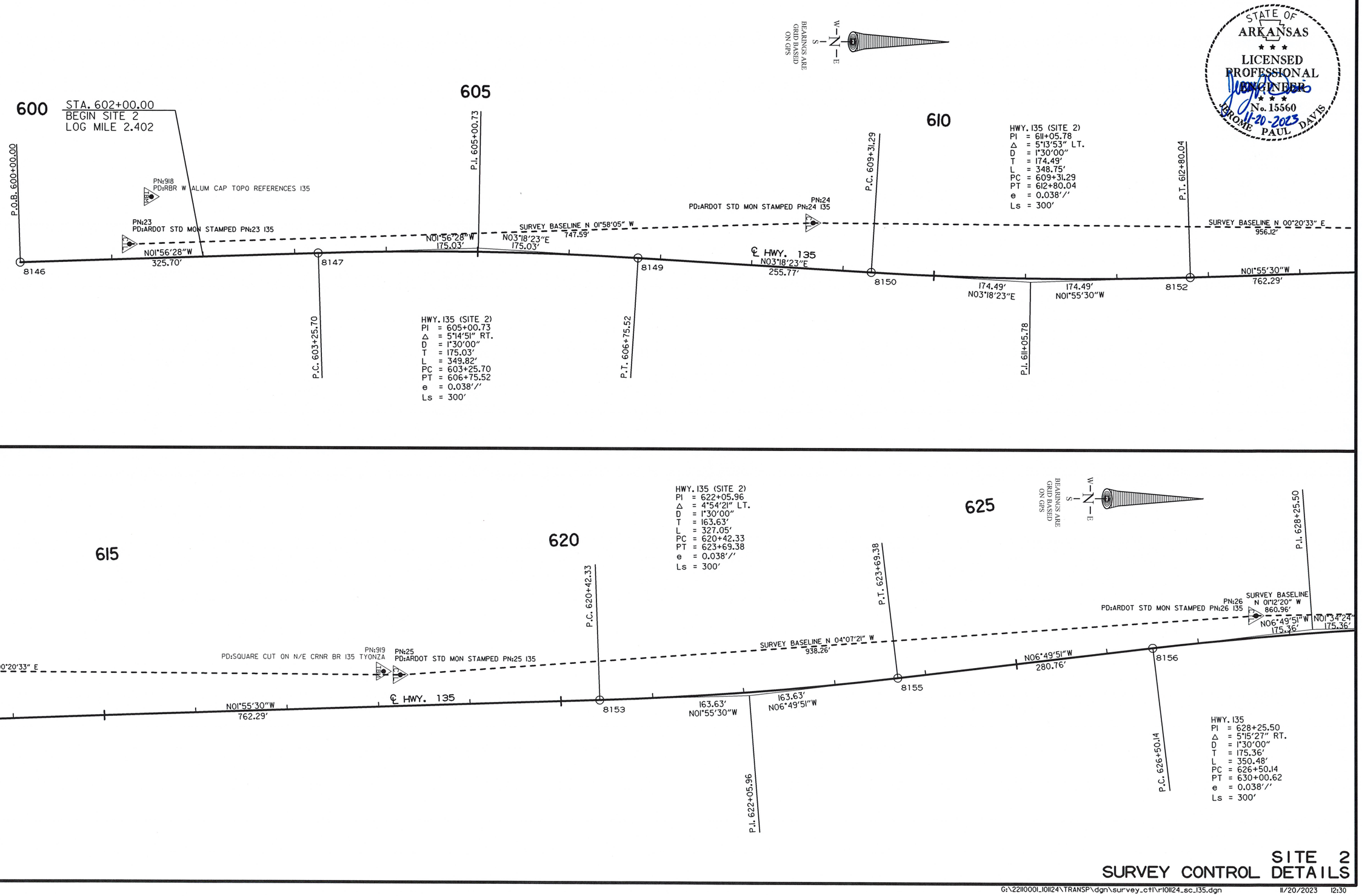
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
11-20-2023
JEROME PAUL DAVIS

USER: JJ5206
DESIGN FILE: G:\22II0001_I0II24\TRANSP\dgn\survey_ctl\rI0II24_sc_I35.dgn
PLOTTED: II/20/2023 12:30 SCALE: 1:100

SITE 2
SURVEY CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	71	191
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

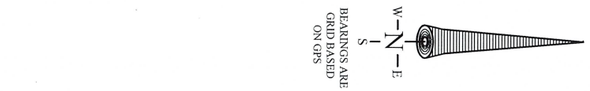


SITE 2
SURVEY CONTROL DETAILS

USER: JJ5206
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SCALE: 1:00

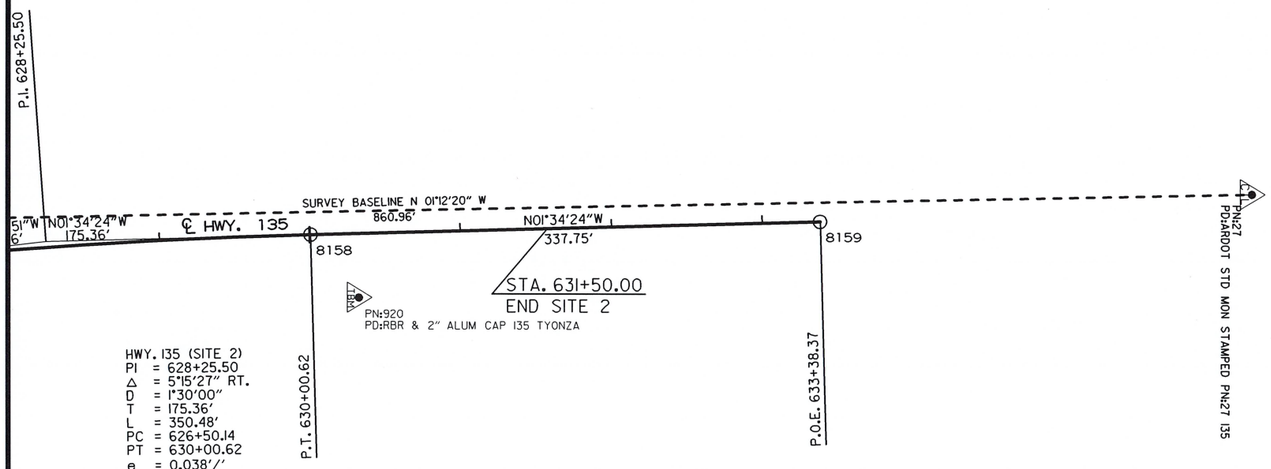
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	72	191
		SURVEY CONTROL DETAILS				





630



HWY. I35 (SITE 2)
PI = 628+25.50
Δ = 5°15'27" RT.
D = 1°30'00"
T = 175.36'
L = 350.48'
PC = 626+50.14
PT = 630+00.62
e = 0.038'/'
Ls = 300'

SITE 2
SURVEY CONTROL DETAILS

USER: JJ5206
DESIGN FILE: G:\22II0001_I0II24\TRANSP\dgn\survey_ctl\r10II24_sc_I35.dgn
PLOTTED: II/20/2023 I2:30 SCALE: 1:100

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	73	191
		SURVEY CONTROL DETAILS				

APPROXIMATE MIDPOINT:
LAT: N 35°33'25"
LON: W 90°19'22"

SURVEY CONTROL COORDINATES

Project Name: s10X363
Date: 3/22/2021
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, 560014 & 560014A PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	448198.2558	1811359.5179	222.769	CTL	ARDOT STD MON STAMPED PN: 1
2	449121.3580	1811344.8638	221.856	CTL	ARDOT STD MON STAMPED PN: 2
3	449972.3037	1811327.8615	224.484	CTL	ARDOT STD MON STAMPED PN: 3
4	450744.7967	1811317.1637	222.221	CTL	ARDOT STD MON STAMPED PN: 4
5	451586.8950	1811301.9376	222.344	CTL	ARDOT STD MON STAMPED PN: 5
100	454321.3652	1811208.2526	219.915	GPS	ARDOT GPS MON 560014
101	454262.6733	1812444.3948	219.917	GPS	ARDOT GPS MON 560014A
900	448986.6588	1811347.1699	221.702	TBM	SQUARE CUT CNTR OF W HW
901	449960.7949	1811332.8049	225.665	TBM	SQUARE CUT NW CRNR BR
902	452231.2201	1811327.2405	221.595	TBM	SQUARE CUT CNTR E HW

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999253860 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 s10X363gi.CTL
HORIZONTAL DATUM: NAD 83 (2011)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 560014 & 560014A
CONVERGENCE ANGLE: 00 58 33.6 RIGHT AT PN: 3 LT: N35°33'28.1587 LG: W90°19'21.7815
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

Alignment Name: CL Const Hwy 135 (Site 3)				
8001	P.O.B.	108+00.09	448408.6393	1811374.7701
8002	P.C.	110+00.00	448608.5279	1811371.5524
8004	P.T.	117+76.39	449384.6456	1811385.3537
8005	P.C.	117+80.77	449389.0168	1811385.5797
8007	P.T.	128+14.66	450421.9845	1811369.0394
8008	P.C.	128+47.06	450454.2758	1811366.3310
8010	P.T.	135+93.45	451199.5582	1811328.2053
8011	P.O.E.	136+97.01	451303.1014	1811326.2850

Alignment Name: CL Const DRIVE 120+43				
8012	P.O.B.	610+00.00	449651.1909	1811394.6247
8013	P.C.	610+32.00	449651.7500	1811362.6294
8015	P.T.	610+74.54	449669.4371	1811325.3406
8016	P.C.	611+57.32	449732.6141	1811271.8600
8018	P.T.	612+22.50	449745.6452	1811212.6117
8019	P.O.E.	613+65.80	449685.2116	1811082.6744

Alignment Name: CL Const DRIVE 125+30				
8020	P.O.B.	710+00.00	450127.9541	1811387.9993
8021	P.C.	710+22.66	450126.9324	1811365.3649
8023	P.T.	710+98.94	450076.9832	1811317.6196
8024	P.C.	711+60.20	450015.7279	1811317.6196
8026	P.T.	712+06.75	449975.6170	1811297.4711
8027	P.O.E.	712+47.25	449951.4347	1811264.9778

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

USER: JJ5206
DESIGN FILE: G:\22II0001_I0II24\TRANSP\dgn\survey_ctl\r10II24_sc_I35.dgn
PLOTTED: II/20/2023 12:30 SCALE: 1:100

SITE 3
SURVEY CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	74	191
		SURVEY CONTROL DETAILS				

BEARINGS ARE GRID BASED ON GPS

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W E
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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
No. 15560
11-20-2023

HWY. 135
PI = 113+88.35
Δ = 3°52'55" RT.
D = 0°30'00"
T = 388.35'
L = 776.39'
PC = 110+00.00
PT = 117+76.39
NO SUPER

DRIVE 120+43
PI = 611+95.47
Δ = 74°41'40" LT.
D = 114°35'59"
T = 38.15'
L = 65.18'
PC = 611+57.32
PT = 611+22.50
NO SUPER

DRIVE 120+43
PI = 610+54.66
Δ = 48°45'01" RT.
D = 114°35'59"
T = 22.66'
L = 42.54'
PC = 610+32.00
PT = 610+74.54
NO SUPER

110 115 120 610 611

P.O.B. 108+00.09

PN#135 PD#ARDOT STD MON STAMPED PN#135

8001 N0°55'20"W 199.91' 8002

SURVEY BASELINE N 00°54'34" W 923.22'

N0°55'20"W 388.35'

P.I. 113+88.35

PN#900 PD#SQUARE CUT CNTR OF W HW 135 LEPANTO

PN#2 PD#ARDOT STD MON STAMPED PN#2 135

N2°57'35"E 388.35'

℄ HWY. 135

P.C. 117+80.77

8004 N2°57'35"E 4.38' 8005

P.T. 117+76.39

P.C. 110+00.00

STA. 110+00.00
BEGIN SITE 3
LOG MILE 5.99

8019

P.O.E. 613+65.80

S65°03'25"W 143.30'

STA. 612+50.00
END CONSTRUCTION
DRIVE 120+43

P.I. 612+22.50

S65°03'25"W 38.15'

8018

P.C. 611+57.32

P.I. 611+95.47

P.I. 610+74.54

DRIVE 120+43

8016

N40°14'55"W 38.15'

N40°14'55"W 82.77'

P.I. 610+54.66

N40°14'55"W 22.66'

8015

SURVEY BASELINE N 01°08'41" W 851.12'

P.C. 610+32.00

8013

N88°59'56"W 22.66'

N88°59'56"W 32.00'

8012

N2°57'35"E 517.74'

STA. 120+43.11 HWY. 135 =
STA. 610+00.00 DR. 120+43
Δ = 90° 00' 00"

HWY. 135
PI = 122+98.51
Δ = 7°45'15" LT.
D = 0°45'00"
T = 517.74'
L = 1033.89'
PC = 117+80.77
PT = 128+14.66
e = 0.020'/'
Ls = 300'

SITE 3
SURVEY CONTROL DETAILS

USER: JJ5206
DESIGN FILE: G:\22110001_101124\TRANSP\dgn\survey_ctl\r101124_sc_135.dgn
PLOTTED: 11/20/2023 12:30 SCALE: 1:100

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	75	191
		SURVEY CONTROL DETAILS				

BEARINGS ARE GRID BASED ON GPS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
11-20-2023
JEROME PAUL DAVIS

DRIVE 125+20
PI = 711+85.31
Δ = 53°20'33" RT.
D = 114°35'24"
T = 25.11'
L = 46.55'
PC = 711+60.20
PT = 712+06.75
NO SUPER

STA. 712+38.18
END CONSTRUCTION
DRIVE 125+20

125

130

135

DRIVE 125+20
PI = 710+70.45
Δ = 87°24'56" LT.
D = 114°35'59"
T = 47.79'
L = 76.28'
PC = 710+22.66
PT = 710+98.94
NO SUPER

HWY. 135
PI = 132+20.39
Δ = 3°43'55" RT.
D = 0°30'00"
T = 373.33'
L = 746.39'
PC = 128+47.06
PT = 135+93.45
NO SUPER

8027
P.O.E. 712+47.25
40.50'
S53°20'33"W
25.11'
8026
P.T. 712+06.75
P.C. 711+60.20
P.T. 710+98.94
P.I. 710+70.45
S0°00'00"W 61.26'
8024
S0°00'00"W 47.79'
8023
25.11'
P.I. 711+85.31
S0°00'00"W
DRIVE 125+20
PN:901
PD:SQUARE CUT NW CRNR BR 135 LEPANTO
PN:3
PD:ARDOT STD MON STAMPED PN:3 135
S87°24'56"W 22.66'
S87°24'56"W 47.79'
8021
8020
P.C. 710+22.66
SURVEY BASELINE N 00°47'36" W 772.57'
PN:4
PD:ARDOT STD MON STAMPED PN:4 135
P.I. 132+20.39
P.T. 128+14.66
8007
8008
℄ HWY. 135
N4°47'40"W 373.33'
32.40'
N4°47'40"W
N2°57'35"E 517.74'
517.74'
N4°47'40"W
P.I. 122+98.51
P.C. 128+47.06
SURVEY BASELINE N 01°02'09" W 842.24'
N1°03'45"W 373.33'
8010
N1°03'45"W 103.56'
8011
P.O.E. 136+97.01
PN:5
PD:ARDOT STD MON STAMPED PN:5 135
P.T. 135+93.45
STA. 135+93.45
END SITE 3

STA. 125+20.00 HWY. 135 =
STA. 710+00.00 DR. 125+20
Δ = 90° 00' 00"

HWY. 135
PI = 122+98.51
Δ = 7°45'15" LT.
D = 0°45'00"
T = 517.74'
L = 1033.89'
PC = 117+80.77
PT = 128+14.66
e = 0.020'/'
Ls = 300'

USER: JJ5206
DESIGN FILE: G:\22110001_101124\TRANSP\dgn\survey_ctl\r101124_sc_135.dgn
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SITE 3
SURVEY CONTROL DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	76	191
		SURVEY CONTROL DETAILS				

APPROXIMATE MIDPOINT:
LAT: N 35°39'09"
LON: W 90°19'24"

SURVEY CONTROL COORDINATES

Project Name: s101124 02905
Date: 6/18/2021
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON STATIC GPS AT PTS 1 AND 5
PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	482740.1151	1810598.8817	222.52	CTL	ARDOT STD MON STAMPED PN: 1
2	483656.6581	1810570.5286	221.41	CTL	ARDOT STD MON STAMPED PN: 2
3	484482.3515	1810511.3223	223.16	CTL	ARDOT STD MON STAMPED PN: 3
4	485335.2379	1810533.2659	221.12	CTL	ARDOT STD MON STAMPED PN: 4
5	486236.1978	1810512.2753	221.90	CTL	ARDOT STD MON STAMPED PN: 5
900	482346.1252	1810605.2481	225.45	TBM	SQUARE CUT ON NE CRNR BR
901	484387.4566	1810517.1537	224.19	TBM	SQUARE CUT SW CRNR BR
902	486185.9821	1810539.6213	221.07	TBM	RBR AND CAP STAMPED PN: 902

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999268487 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 s101124 02905gi.CTL
HORIZONTAL DATUM: NAD 83 (2011)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: STATIC GPS AT PTS 1 AND 5
CONVERGENCE ANGLE: 00 58 32 RIGHT AT PN 3 LT: N35°39'09.54472 LG: W90°19'24.51901
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

Alignment Name: CL Const Hwy 135 (Site 4)				
8028	P.O.B.	207+67.83	484043.1724	1810542.3346
8029	P.O.E.	216+25.87	484900.9713	1810521.9114

Alignment Name: CL Const Hwy 135 Detour				
8028	P.O.B.	510+00.00	484043.1724	1810542.3346
8030	P.C.	510+32.17	484075.3369	1810541.5688
8032	P.T.	512+18.73	484258.9843	1810568.7876
8033	P.C.	512+38.73	484277.9809	1810575.0425
8035	P.T.	516+11.86	484643.7723	1810566.3334
8036	P.C.	516+31.86	484662.4497	1810559.1815
8038	P.T.	518+18.42	484844.5956	1810523.2536
8039	P.O.E.	518+22.63	484848.8020	1810523.1535

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

USER: JJ5206
DESIGN FILE: G:\22II0001_I0II24\TRANSP\dgn\survey_ctl\rI0II24_sc_I35.dgn
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SITE 4
SURVEY CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	77	191
		SURVEY CONTROL DETAILS				

BEARINGS ARE GRID BASED ON GPS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
11-20-2023
JEROME PAUL DAVIS

210

215

515

STA. 510+00.00
BEGIN SITE 4 DETOUR

DETOUR POB 510+00.00
POB 207+67.83

DETOUR P.I. 511+26.37

STA. 210+00.00
BEGIN SITE 4
LOG MILE 13.20

PN:901
PD:SQUARE CUT SW CRNR BR

PN:3
PD:ARDOT STD MON STAMPED PN:3

STA. 213+00.00
END SITE 4

DETOUR P.T. 516+11.86

DETOUR P.I. 517+26.06

P.O.E. 518+22.63

P.O.E. 216+25.87

SURVEY BASELINE
N 01°46'19" W
916.98'

PN:1
PD:ARDOT STD MON STAMPED PN:1

SURVEY BASELINE N 04°06'05" W
827.81'

PN:2
PD:ARDOT STD MON STAMPED PN:2

8028

32.17'
N1°21'50"W

8030

N1°21'50"W
94.20'

N1°21'50"W
858.04'

SURVEY BASELINE
N 01°28'26" E
853.17'

N1°21'49"W
94.20'

8039

8038

4.21'
N1°21'49"W

8029

SURVEY BASELINE N 01°20'05" W
901.20'

PN:4
PD:ARDOT STD MON STAMPED PN:4

PN:902
PD:RBR AND CAP STAMPED PN:902

PN:5
PD:ARDOT STD MON STAMPED PN:5

℄ HWY. 135

N18°13'30"E
94.20'

20.00'

8032

8033

8035

8036

N20°57'10"W
94.20'

STA. 518+18.42
END SITE 4 DETOUR

℄ HWY. 135 DETOUR

N18°13'30"E
194.19'

N20°57'10"W
194.19'

DETOUR P.T. 512+18.73

DETOUR P.C. 512+38.73

DETOUR P.C. 510+32.17

DETOUR P.I. 514+32.92

DETOUR P.C. 516+31.86

DETOUR P.T. 518+18.42

HWY. 135-DETOUR
PI = 511+26.37
Δ = 19°35'20" RT.
D = 10°30'00"
T = 94.20'
L = 186.56'
PC = 510+32.17
PT = 512+18.73
NO SUPER

HWY. 135-DETOUR
PI = 514+32.92
Δ = 39°10'40" LT.
D = 10°30'00"
T = 194.19'
L = 373.13'
PC = 512+38.73
PT = 516+11.86
e = 0.100'/'
Ls = 300'

HWY. 135-DETOUR
PI = 517+26.06
Δ = 19°35'21" RT.
D = 10°30'00"
T = 94.20'
L = 186.56'
PC = 516+31.86
PT = 518+18.42
NO SUPER

SITE 4
SURVEY CONTROL DETAILS

USER: JJ5206
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PLOTTED: 11/20/2023 12:30
SCALE: 1:100

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	78	191
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-31-2024

HWY. 135
PI = 512+43.08
Δ = 57°48'46" RT.
D = 4°00'00"
T = 790.94'
L = 1445.32
PC = 504+52.14
PT = 518+97.46
e = 0.084'/'
Ls = 300'

STA. 502+25.00
BEGIN JOB 101124 &
BEGIN SITE I
LOG MILE 0.868

STA. 512+80 INSTALL
18" X 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 15 CU. YD.

STA. 512+63.00 HWY. 135 =
STA. 14+03.09 HINDMAN LN.
Δ = 90° 00' 00"

STA. 512+63 INSTALL
18" X 90' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 2654 CU. YDS.

STA. 513+10 - IN PLACE
30" X 44' R.C. PIPE CULVERT
W/ HDWLS. LT. & RT. - REMOVE
INSTALL 30" X 86' R.C. PIPE CULVERT
(CLASS III)(TYPE 3 BEDDING)
W/ FES LT. & RT.
Q50 = 8 CFS, D.A. = 4.4 AC.

STA. 516+03.00 HWY. 135 =
STA. 33+12.64 HOWARD RD.
Δ = 90° 00' 00"

STA. 514+80 - IN PLACE
18" X 41' PIPE CULVERT
RT. SIDE DRAIN - REMOVE AND
INSTALL 18" X 62' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 165 CU. YDS.

STA. 10+25.00
BEGIN CONSTRUCTION
℄ HINDMAN LN.

SITE I
HWY. 135

STA. 502+27.14 BEGIN SUPERELEVATION
STA. 505+27.14 MAX SUPERELEVATION (0.084'/')
STA. 516+00.00 MAX SUPERELEVATION (0.084'/')
STA. 519+00.00 END SUPERELEVATION

PVI 502+25.00 ELEV. 221.34
PVC 504+00.00 ELEV. 221.61
PVI 505+50.00 ELEV. 221.83
PVT 507+00.00 ELEV. 221.63
PVC 512+00.00 ELEV. 220.96
PVI 513+50.00 ELEV. 220.76
PVT 515+00.00 ELEV. 221.79

0.15%
300' V.C.
K = 1071.43
e=-0.11'
-0.13%
300' V.C.
K = 365.85
e=0.31'
0.69%
PROFILE GRADE
EXISTING GROUND

-0.14% RT. DT. GR.
-0.17% LT. DT. GR.
0.88% RT. DT. GR.
0.37% RT. DT. GR.

+25 RT. DT. 216.86
+25 LT. DT. 214.86
+10 RT. DT. 215.30
+10 EXIST F.L. IN RT. = 215.52 F.L. OUT LT. = 215.02
+25 EXIST F.L. IN RT. = 215.46 F.L. OUT LT. = 215.10
+10 F.L. IN RT. = 215.30 F.L. OUT LT. = 213.00
+25 F.L. IN RT. = 213.38 F.L. OUT LT. = 212.63
+25 RT. DT. 213.38

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

240 230 225 220 215 210 205

501+00 502+00 503+00 504+00 505+00 506+00 507+00 508+00 509+00 510+00 511+00 512+00 513+00 514+00 515+00

USER: JJ5206
DESIGN FILE: G:\2211000L\101124\TRANSP\dgn\p&p\SITE 1PL01.dgn
PLOTTED: 1/31/2024 14:02
SCALE: 1in00
MODEL: PROPOSED DESIGN

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
8/20/23	01/31/24	6	ARK.	101124	79	191
		PLAN AND PROFILE SHEETS				

STA. 518+16 STA. 539+06
SPECIAL FLOOD HAZARD AREA

STA. 515+25 - IN PLACE
30" X 58' R.C. PIPE CULVERT
W/ HDWLS. LT. & RT. - REMOVE
INSTALL 30" X 98' R.C. PIPE CULVERT
(CLASS III)(TYPE 3 BEDDING)
W/ FES LT. & RT.
Q50 = 2 CFS, D.A. = .89 AC.

HWY. 135
PI = 512+43.08
Δ = 57°48'46" LT.
D = 4°00'00"
T = 790.94'
L = 1445.32'
PC = 504+52.14
PT = 518+97.46
e = 0.084'/'
Ls = 300'

STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	GUARDRAIL TERMINAL (TYPE 2) EACH	THRIE BEAM GUARDRAIL TERMINAL EACH
517+32.08	519+50.83	RT.	150		
518+07.08	519+50.83	LT.	75		
521+51.17	522+94.92	RT.	75		
521+51.17	523+44.92	LT.	125		

STA. 515+92 - IN PLACE
34" X 30' PIPE CULVERT
LT. SIDE DRAIN - REMOVE
INSTALL 36" X 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 15 CU. YDS.

STA. 519+60.83 BRIDGE END
CONSTRUCT BR. NO. 07648
179'-0" INTEGRAL PRESTRESSED
CONCRETE GIRDER UNIT (59.5'-60'-59.5')
36'-0" CLEAR ROADWAY
180'-4" BRIDGE LENGTH
STA. 521+41.16 BRIDGE END

STA. 519+70.69 - 521+21.06 IN PLACE
152.0' x 28.5' BRIDGE 02884
STEEL STRINGER - MULTI-BEAM
REMOVAL OF EXISTING BRIDGE STRUCTURE
(SITE NO. 1) = 1.00 LUMP SUM

HWY. 135
PI = 525+92.59
Δ = 3°55'06" LT.
D = 0°30'00"
T = 392.00'
L = 783.70'
PC = 522+00.59
PRC= 529+84.29
NO SUPER

STA. 523+81 - IN PLACE
18" X 30' PIPE CULVERT
LT. SIDE DRAIN - REMOVE
INSTALL 24" X 62' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 717 CU. YDS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
2-2-2024

515 520 525 530

STA. 516+03.00 HWY. 135 =
STA. 33+12.64 HOWARD RD.
Δ = 90° 00' 00"

STA. 516+03 CONSTRUCT
APPROACH ON RT. = 1717 CU. YDS.

STA. 516+72 - INSTALL
18" X 76' PIPE CULVERT
RT. SIDE DRAIN CONSTRUCT
APPROACH RT. = 470 CU. YDS.

STA. 523+81.00 HWY. 135 =
STA. 40+00.00 STEEL BRIDGE RD.
Δ = 90° 00' 00"

SITE 1
HWY. 135

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

STA. 502+27.14 BEGIN SUPERELEVATION
STA. 505+27.14 MAX SUPERELEVATION (0.084'/')
STA. 516+00.00 MAX SUPERELEVATION (0.084'/')
STA. 519+00.00 END SUPERELEVATION

PVC 516+00.00 ELEV. 222.47
PVI 517+50.00 ELEV. 223.50
PVT 519+00.00 ELEV. 223.50
STA. 519+60.83 BR. END
STA. 521+41.16 BR. END
PVC 522+00.00 ELEV. 223.50
PVI 523+50.00 ELEV. 223.50
PVT 525+00.00 ELEV. 221.77
PVC 525+50.00 ELEV. 221.11
PVI 527+00.00 ELEV. 219.31
PVT 528+50.00 ELEV. 219.45

PROFILE GRADE
0.69%
0.00%
-1.20%
0.09%
0.07%

300' V.C.
K = 434.78
e=-0.26'

300' V.C.
K = 250.00
e=-0.45'

300' V.C.
K = 232.56
e=0.48'

Q50 DESIGN H.W. ELEV. 215.4'

EXIST. GROUND
0.42% RT. DT. GR.
0.37% RT. DT. GR.
0.17% LT. DT. GR.
0.07% RT. DT. GR.

+57 RT. DT. @ 213.90
+37 RT. DT. @ 217.97
+75 LT. DT. @ 211.86
+70 RT. DT. @ 216.58
+15 RT. DT. @ 211.40

DEAD TIMBER LAKE
AT STA. 520+00 - STA. 521+50 IS CLASSIFIED AS AN INTERMITTENT STREAM. THE TOP OF CHANNEL ELEVATION IS 213 FT. MSL. REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS

516+00 517+00 518+00 519+00 520+00 521+00 522+00 523+00 524+00 525+00 526+00 527+00 528+00 529+00 530+00

245 240 235 230 225 220 215 210 205 200

USER: JJ5206
DESIGN FILE: G:\22I1000I_I0II24\TRANSP\dgn\p&p\SITE 1PL02.dgn
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SCALE: 1I00
MODEL: PROPOSED DESIGN

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STA. 518+16 STA. 539+06
SPECIAL FLOOD HAZARD AREA

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	80	191
		PLAN AND PROFILE SHEETS				

HWY. 135
PI = 525+92.59
Δ = 3°55'06" LT.
D = 0°30'00"
T = 392.00'
L = 783.70'
PC = 522+00.59
PRC= 529+84.29
NO SUPER

535

+00 100' TRANSITION +00

P.I. 533+53.45

P.T. 537+22.36

P.O.E. 539+06.24

EXIST. R/W

CONST. LIMITS

CONST. LIMITS

6'

5'

12'

10'

N5°30'40"W

℄ HWY. 135

N1°49'15"W

EXISTING HWY. 135

CONST. LIMITS

EXIST. R/W

CONST. LIMITS

PROP. R/W

+00 15'

+00 70'

+00.00 58.80'

HWY. 135
PI = 533+53.45
Δ = 3°41'25" RT.
D = 0°30'00"
T = 369.16'
L = 738.07'
PRC= 529+84.29
PT = 537+22.36
NO SUPER

STA. 538+00.00
END SITE I

SITE I
HWY. 135

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

PROFILE GRADE

PVC 534+50.00 ELEV. 220.01

PVI 536+00.00 ELEV. 220.15

PVT 537+50.00 ELEV. 219.36

PVI 538+00.00 ELEV. 219.09

0.09%

-0.53%

300' V.C.
K = 483.87
e = -0.23'

EXIST. GROUND

0.09% LT. DT. GR.

0.07% RT. DT. GR.

+40 LT. DT. ℄ 214.04

+00 RT. DT. ℄ 212.61

+00 LT. DT. 214.33

245 240 235 230 225 220 215 210 205 200

531+00 532+00 533+00 534+00 535+00 536+00 537+00 538+00 539+00

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

USER: JJ5206
DESIGN FILE: G:\221I0001_I01I24\TRANSP\dgn\p&p\SITE 1PL03.dgn
PLOTTED: 11/20/2023 12:30
SCALE: 1:100
MODEL: PROPOSED DESIGN

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	81	191
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-31-2024

SITE 1
HINDMAN LN.

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

STA. 10+25.00
BEGIN CONSTRUCTION
HINDMAN LN.

HINDMAN LN.
PI = 13+44.59
Δ = 66°43'25" LT.
D = 76°24'00"
T = 49.38'
L = 87.34'
PC = 12+95.21
PT = 13+82.55
NO SUPER

STA. 512+63.00 HWY. 135 =
STA. 14+03.09 HINDMAN LN.
Δ = 90° 00' 00"

P.O.B. 10+00.00
+95.44
201.67
N56°13'12"E
PROP. R/W
CONST. LIMITS
EXIST. R/W
℄ HWY. 135
℄ HINDMAN LN.
N0°30'33"E
+19.33
243.56
P.I. 512+43.08
N1°35'34"W
P.C. 12+95.21
+50.39
140.85
P.I. 13+44.59
+45
+25
P.T. 13+82.55
+80
N89°29'27"W
P.T. 32+87.17
+92
T.C.L.
SFHA
DEAD TIMBER LAKE
510
515
10
20'
16'
24'
12'
6'

120' V.C.
K = 20.17
e=0.89'

160' V.C.
K = 11.60
e=-2.76'

PVI 10+25.00
ELEV. 218.62
PVC 10+40.00
ELEV. 218.54
PVI 11+00.00
ELEV. 218.20
PVT 11+60.00
ELEV. 221.43
PVC 12+30.00
ELEV. 225.21
PVI 13+10.00
ELEV. 229.52
PVT 13+90.00
ELEV. 222.80
PVI 13+91.09
ELEV. 222.71

5.39%
-0.56%
-0.21% RT. DT. GR.
-0.64% LT. DT. GR.
8.40%

PROFILE GRADE
EXIST. GROUND

STA. 512+63.00 C.L. HWY. 135 12.00' RT. =
STA. 13+91.09 C.L. HINDMAN LN.
ELEV. 222.71

+74 LT. DT.
217.19
+10 RT. DT.
217.07
+16 LT. DT.
215.65
+24 RT. DT.
216.62
+61 RT. DT.
215.36

F.L. IN LT. = 215.65
F.L. OUT RT. = 215.36

240 235 230 225 220 215 210 205 200 195

10+00 11+00 12+00 13+00 14+00

USER: JJ5206
DESIGN FILE: G:\22110001_101124\TRANSP\dgn\p&p\PL 1SIDE RD SITE 1.dgn
PLOTTED: 1/31/2024 14:02
SCALE: 1:100
MODEL: PROPOSED DESIGN

G:\22110001_101124\TRANSP\dgn\p&p\PL 1SIDE RD SITE 1.dgn 1/31/2024 14:02

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
8/20/23	01/31/24	6	ARK.	101124	82	191
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
2-2-2024

STA. 30+97 - INSTALL 24" X 30' PIPE CULVERT RT. SIDE DRAIN

30

HOWARD RD.
PI = 32+49.92
Δ = 08°57'25" RT.
D = 12°00'00"
T = 37.39'
L = 74.64'
PC = 32+12.53
PT = 32+87.17
NO SUPER

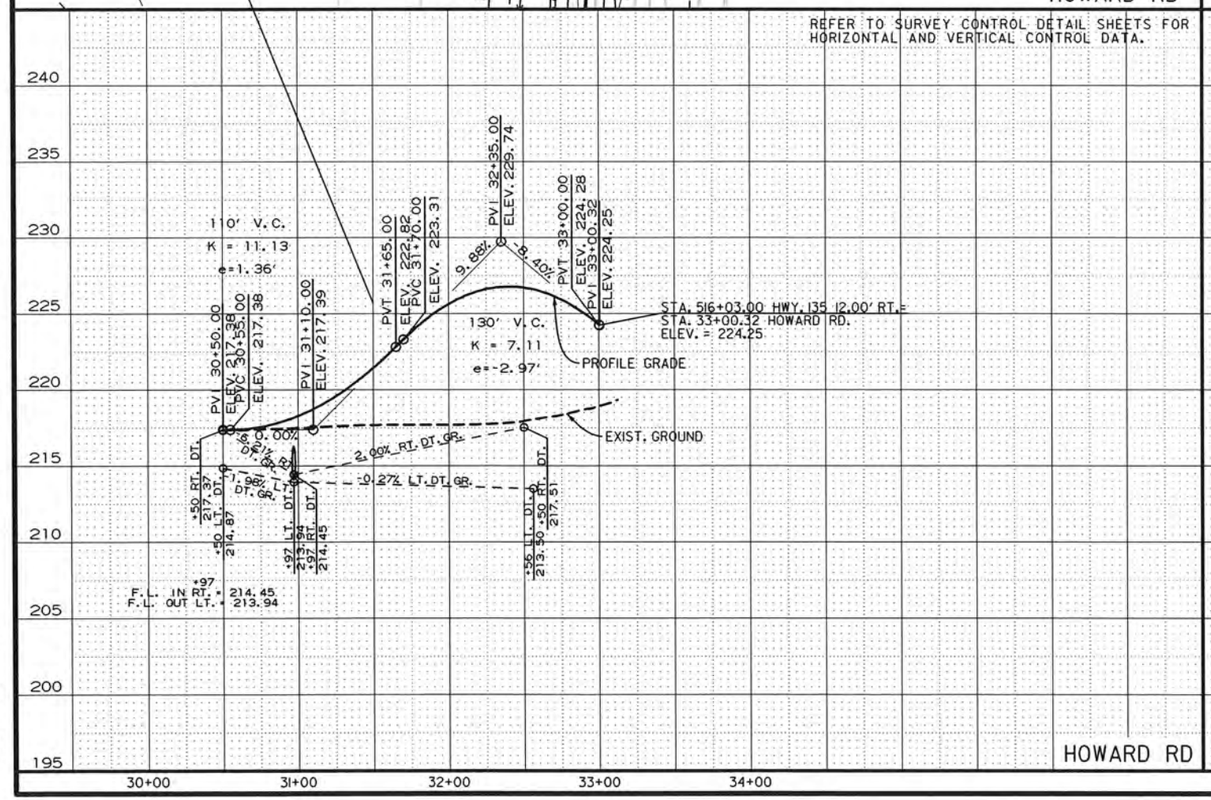
P.O.B. 30+00.00
+04.38 264.73'
+80.50 218.67'
PROP. R/W
CONST. LIMITS
℄ HOWARD RD.
N88°48'09"W
N79°50'43"W
+54.66 256.45'
+58.17 209.02'
STA. 30+50.00 BEGIN CONSTRUCTION HOWARD RD.
+50 65'
+51.77 94'
40'
+00 94',64.21' T.C.E.
+43.15 65'
PROP. R/W
+60 95',81.31'
+00 95',85.82'
+30 90°
T.C.E.
P.C. 32+12.53
P.I. 32+49.92
P.T. 32+87.17
+80
+72
+26
+16
EXIST. R/W
CONST. LIMITS
SIS
SSHA
STA. 516+03.00 HWY. 135 = STA. 33+12.34 HOWARD RD. Δ = 90° 00' 00"

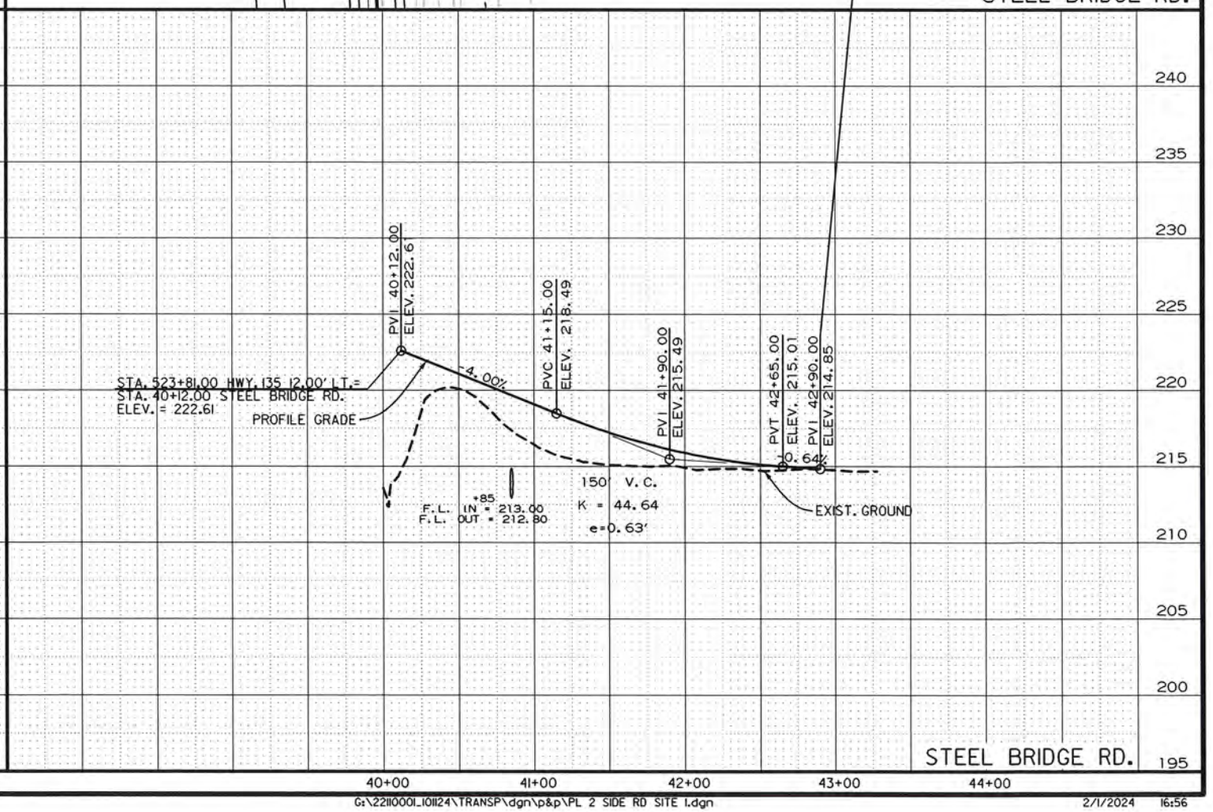
SITE I
HOWARD RD

STA. 523+81.00 HWY. 135 = STA. 40+00.00 STEEL BRIDGE RD. Δ = 90° 00' 00"
P.C. 522+00.59
+00 90'
DEAD TIMBER LAKE
50' BUFFER
PROP. R/W
CONST. LIMITS
EXIST. R/W
+73.55 260.51'
P.O.E. 43+27.12
+31.64 140.93'
+36.87 105.69'
PROP. R/W
CONST. LIMITS
℄ STEEL BRIDGE RD.
S62°24'49"W
CONST. LIMITS
PROP. R/W
+28.04 267.33'
STA. 42+90.00 END CONSTRUCTION STEEL BRIDGE RD.
S87°30'19"W
+10 105.00'
P.I. 41+08.51
P.T. 41+70.22
P.C. 40+44.76
525
STEEL BRIDGE RD.
PI = 41+08.51
Δ = 25°05'30" LT.
D = 20°00'00"
T = 63.75'
L = 125.46'
PC = 40+44.76
PT = 41+70.22
NO SUPER
6' 12' 12' 16'

SITE I
STEEL BRIDGE RD.

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





USER: JJ5206
DESIGN FILE: G:\22110001_101124\TRANSP\dgn\p&p\PL 2 SIDE RD SITE 1.dgn
PLOTTED: 2/1/2024 16:56
SCALE: 1:100
MODEL: PROPOSED DESIGN

G:\22110001_101124\TRANSP\dgn\p&p\PL 2 SIDE RD SITE 1.dgn 2/1/2024 16:56

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	83	191
		PLAN AND PROFILE SHEETS				

STA. 600+00 STA. 638+70
SPECIAL FLOOD HAZARD AREA

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

600 605 610

+00 100' TRANSITION +00
+00 80'
+50.00 55.75'
PROP. R/W
CONST. LIMITS
EXIST. R/W
P.I. 605+00.73
+00 85'
+00.00 78.11'
P.C. 609+31.29
P.T. 612+80.04
EXIST. R/W
CONST. LIMITS
℄ EXIST. HWY. 135
5' 10' 12' 12' 6' 5'
℄ HWY. 135
N01°56'28"W
N03°18'23"E
N01°55'30"W
℄ HWY. 135
EXIST. R/W
P.O.B. 600+00.00
+00.00 60.27'
P.C. 603+25.70
+30 70'
CONST. LIMITS
PROP. R/W
P.T. 606+75.52
+00 80'
EXIST. R/W
CONST. LIMITS
PROP. R/W
P.I. 611+05.78
+70.84 135'

HWY. 135
PI = 605+00.73
Δ = 5°14'51" RT.
D = 1°30'00"
T = 175.03'
L = 349.82'
PC = 603+25.70
PT = 606+75.52
e = 0.038'/'
Ls = 300'

HWY. 135
PI = 611+05.78
Δ = 5°13'53" LT.
D = 1°30'00"
T = 174.49'
L = 348.75'
PC = 609+31.29
PT = 612+80.04
e = 0.038'/'
Ls = 300'

STA. 602+00.00
BEGIN SITE 2
LOG MILE 2.402

SITE 2
HWY. 135

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

STA. 601+25.70 BEGIN SUPERELEVATION
STA. 604+25.70 MAX SUPERELEVATION (0.038'/')
STA. 605+03.40 MAX SUPERELEVATION (0.038'/')
STA. 608+03.40 END SUPERELEVATION

STA. 608+03.41 BEGIN SUPERELEVATION
STA. 611+03.41 MAX SUPERELEVATION (0.038'/')
STA. 611+65.00 MAX SUPERELEVATION (0.038'/')
STA. 614+65.00 END SUPERELEVATION

PVI 602+00.00 ELEV. 220.38
PVC 602+50.00 ELEV. 220.34
300' V.C. K = 1428.57 e=0.08'
PVI 604+00.00 ELEV. 220.21
PVT 605+50.00 ELEV. 220.41
PVC 607+50.00 ELEV. 220.68
300' V.C. K = 348.84 e=0.32'
PVI 609+00.00 ELEV. 220.88
PVT 610+50.00 ELEV. 222.37
PVC 611+50.00 ELEV. 223.36
PVI 613+00.00 ELEV. 224.85
PROFILE GRADE
EXIST. GROUND
-0.08%
0.13%
0.99%
300' V.C. K = 303.03 e=-0.37'
-0.15% LT. DT. GR.
-0.27% RT. DT. GR.
-0.96% RT. DT. GR.
+95 RT. DT. 212.72
+95 LT. DT. 212.38
+95 LT. DT. 211.79
+95 RT. DT. 210.65

235 230 225 220 215 210 205 200 195 190

600+00 601+00 602+00 603+00 604+00 605+00 606+00 607+00 608+00 609+00 610+00 611+00 612+00 613+00

USER: JJ5206
DESIGN FILE: G:\22II0001_10II24\TRANSP\dgn\p&p\SITE 2 PL04.dgn
PLOTTED: II/20/2023 12:30
SCALE: 1:100
MODEL: PROPOSED DESIGN

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	84	191
		PLAN AND PROFILE SHEETS				

GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	GUARDRAIL TERMINAL (TYPE 2) EACH	THRIE BEAM GUARDRAIL TERMINAL EACH
612+62.29	614+81.04	RT.	150	1	1
613+58.07	615+01.82	LT.	75	1	1
617+86.18	619+29.93	RT.	75	1	1
618+06.96	620+25.71	LT.	150	1	1

615 620 625

STA. 600+00 STA. 638+70
SPECIAL FLOOD HAZARD AREA

STA. 615+33.85 - 618+12.91 IN PLACE
283.0' x 28.6' BRIDGE A2885
STEEL STRINGER - MULTI-BEAM
REMOVAL OF EXISTING BRIDGE STRUCTURE
(SITE NO. 2) = 1.00 LUMP SUM

HWY. 135
PI = 622+05.96
Δ = 4°54'21" LT.
D = 1°30'00"
T = 163.63'
L = 327.05'
PC = 620+42.33
PT = 623+69.38
e = 0.038'/'
Ls = 300'

25' BUFFER
TYRONZA RIVER
EXIST. R/W
STA. 615+02.77 BR. END
STA. 617+85.22 BR. END
CONST. LIMITS
℄ EXIST. HWY. 135
P.C. 620+42.33
P.T. 623+69.38
+00.00 61.10'
PROP. R/W
+00 65'
P.I. 628+25.50
NO1°34'24"W
℄ HWY. 135
NO6°49'51"W
EXIST. R/W
P.C. 626+50.14
℄ HWY. 135
NO1°55'30"W
EXIST. R/W
P.I. 622+05.96
CONST. LIMITS
PROP. R/W
+70.84 135'
+00 175'
+00 137.81'

STA. 615+02.77 BRIDGE END
CONSTRUCT BR. NO. 07649
280'-0" CONTINUOUS PRESTRESSED
CONCRETE GIRDER UNIT (70'-70'-70'-70')
36'-0" CLEAR ROADWAY
30° LT. FWD. SKEW
282'-5 7/16" BRIDGE LENGTH
STA. 617+85.22 BRIDGE END

HWY. 135
PI = 628+25.50
Δ = 5°15'27" RT.
D = 1°30'00"
T = 175.36'
L = 350.48'
PC = 626+50.14
PT = 630+00.62
e = 0.038'/'
Ls = 300'

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

SITE 2
HWY. 135

STA. 618+45.00 BEGIN SUPERELEVATION
STA. 621+45.00 MAX SUPERELEVATION (0.038'/')
STA. 622+09.76 MAX SUPERELEVATION (0.038'/')
STA. 625+09.76 END SUPERELEVATION

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

STA. 625+09.76 BEGIN SUPERELEVATION
STA. 628+09.76 MAX SUPERELEVATION (0.038'/')
STA. 629+25.62 MAX SUPERELEVATION (0.038'/')
STA. 632+25.62 END SUPERELEVATION

PVT 614+50.00 ELEV. 224.85
STA. 615+02.77 BR. END
PROFILE GRADE
0.00%
STA. 617+85.22 BR. END
PVC 619+00.00 ELEV. 224.85
PVI 620+50.00 ELEV. 224.85
PVT 622+00.00 ELEV. 223.11
PVC 623+00.00 ELEV. 221.95
PVI 624+50.00 ELEV. 220.21
PVT 626+00.00 ELEV. 220.18
PVC 628+00.00 ELEV. 220.15

300' V.C.
K = 303.03
e=-0.37'

300' V.C.
K = 258.62
e=-0.43'

300' V.C.
K = 263.16
e=0.43'

-1.16%
-0.02%
0.25% LT. DT. GR.
+20 LT. DT. @ 216.36
Q50 DESIGN H.W. ELEV. 214.30'
EXIST. GROUND
-0.96% RT. DT. GR.
+00 RT. DT. @ 205.44
+90 RT. DT. @ 199.04
1.60% RT. DT. GR.
+35 RT. DT. @ 201.36
0.53% RT. DT. GR.
+35 RT. DT. @ 204.51
0.33% RT. DT. GR.
0.94% RT. DT. GR.
+05 RT. DT. @ 206.04

TYRONZA RIVER
AT STA. 615+00 - STA. 617+50 IS
CLASSIFIED AS A PERENNIAL STREAM. THE TOP
OF CHANNEL ELEVATION IS 210 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS

230 225 220 215 210 205 200 195 190 185

614+00 615+00 616+00 617+00 618+00 619+00 620+00 621+00 622+00 623+00 624+00 625+00 626+00 627+00 628+00

USER: JJS206
DESIGN FILE: G:\22II000I_I0II24\TRANSP\dgn\p&p\SITE 2 PL05.dgn
PLOTTED: II/20/2023 12:30
SCALE: 1I00
MODEL: PROPOSED DESIGN

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	85	191
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
11-20-2023
JEROME PAUL DAVIS

HWY. 135
PI = 628+25.50
Δ = 5°15'27" RT.
D = 1°30'00"
T = 175.36'
L = 350.48'
PC = 626+50.14
PT = 630+00.62
e = 0.038'/'
Ls = 300'

STA. 600+00 STA. 638+70
SPECIAL FLOOD HAZARD AREA

SITE 2
HWY. 135

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

STA. 625+09.76 BEGIN SUPERELEVATION
STA. 628+09.76 MAX SUPERELEVATION (0.038'/')
STA. 629+25.62 MAX SUPERELEVATION (0.038'/')
STA. 632+25.62 END SUPERELEVATION

STA. 631+50.00
END SITE 2

P.I. 628+25.50
+50 100' TRANSITION +50
+50 55' +50.00 43.20'
PROP. R/W
EXIST. R/W
CONST. LIMITS
N01°34'24"W
℄ HWY. 135
16' 12' 10' 10' 12' 15'
+50.00 36.83'
+50 60'
P.O.E. 633+38.37
+05 65'
P.T. 630+00.62
+15 115'
SFHA

300' V.C.
K = 833.33
e=0.13'
PVI 629+50.00
ELEV. 220.12
PROFILE GRADE
PVT 631+00.00
ELEV. 220.63
PVI 631+50.00
ELEV. 220.80
-0.02%
0.34%
EXIST. GROUND
0.25% LT. DI. GR.
+50 LT. DT. 0
217.45
0.94% RT. DI. GR.
+80 RT. DT. 0
207.68

230 225 220 215 210 205 200 195 190 185

629+00 630+00 631+00 632+00 633+00 634+00 635+00 636+00 637+00 638+00 639+00 640+00 641+00 642+00

USER: JJ5206
DESIGN FILE: G:\221l0001_l0ll24\TRANSP\dgn\p&p\SITE 2 PL06.dgn MODEL: PROPOSED DESIGN
PLOTTED: 11/20/2023 12:30 SCALE: 1i00

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11/20/2023 12:30

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	86	191
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
No. 15560
11-20-2023

STA. 109+45 IN PLACE
24" X 19' PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 15 CU. YDS.

STA. 113+77 IN PLACE
24" X 38' R.C. PIPE CULVERT
W/ HDWLS. LT. & RT. - REMOVE
INSTALL 24" X 64' R.C. PIPE CULVERT
(CLASS IV) (TYPE 3 BEDDING)
W/ FES LT. & RT.
Q50 = 5.37 CFS D.A. = 6.8 ACRES
24" FES = 2 EA.

GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	GUARDRAIL TERMINAL (TYPE 2) EACH	THRIE BEAM GUARDRAIL TERMINAL EACH	BRIDGE END TERMINAL EACH
120+00.34	122+19.09	RT.	150	1	1	
121+11.79	122+05.54	LT.	25	1	1	
123+77.33		LT.				1
123+89.98	125+08.73	RT.	75	1	1	

HWY. 135
PI = 122+98.51
Δ = 7°45'15" LT.
D = 0°45'00"
T = 517.74'
L = 1033.89'
PC = 117+80.77
PT = 128+14.66
e = 0.020'/'
Ls = 300'

STA. 120+43 CONSTRUCT APPROACH ON LT. = 250 CU. YDS.

STA. 122+22.83 BRIDGE END
CONSTRUCT BRIDGE NO. 07650
149'-0" INTEGRAL PRESTRESSED
CONCRETE GIRDER UNIT (49.5'-50'-49.5')
36'-0" CLEAR ROADWAY
20°RT. FWD. SKEW
150'-4" BRIDGE LENGTH
STA. 123+73.17 BRIDGE END

110
115
120
613

+00 100' TRANSITION +00

POB 108+00.09
+00 39.58 60'
EXIST. R/W
PROP. R/W
CONST. LIMITS
16'
℄ HWY. 135
N0°55'20"W
+45
5'
10'
12'
6'
+00 60' 40.42
EXIST. R/W
CONST. LIMITS
PROP. R/W
P.C. 110+00.00

STA. 110+00.00
BEGIN SITE 3
LOG MILE 5.99

76.78 64.15
P.I. 113+88.35
+35 57.47'
+16
40'
+29 55
+77 35 59.01'

STA. 113+16 IN PLACE
18" X 24' PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 56' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 55 CU. YDS.

HWY. 135
PI = 113+88.35
Δ = 3°52'55" RT.
D = 0°30'00"
T = 388.35'
L = 776.39'
PC = 110+00.00
PT = 117+76.39
NO SUPER

STA. 116+35 IN PLACE
24" X 24' PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 52' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 30 CU. YDS.

P.C. 117+80.77
P.T. 117+76.39
EXIST. R/W
CONST. LIMITS
+35
N2°57'35"E

STA. 122+05 - STA. 123+57 IN PLACE
152.0' x 28.6' BRIDGE 02886
STEEL STRINGER - MULTI-BEAM
REMOVAL OF EXISTING BRIDGE STRUCTURE
(SITE NO. 3) = 1.00 LUMP SUM

POB 612+65.80
N4°03'58"E 425.00'
SFHA
DITCH NO. 1
+60 230'
T.C.E.
P.T. 612+22.50
+00 50'
P.C. 611+57.32
P.I. 611+95.47
+30 79.35'
16'
N40°14'55"W
P.T. 610+74.54
P.C. 610+32.00
+20 83.67'
STA. 122+22.83 BR. END
N88°59'55"W
P.T. 610+54.66
+43
N4°47'40"W
STA. 120+43.11 HWY. 135 = STA. 610+00.00 DR. 120+43
Δ = 90° 00' 00"
CONST. LIMITS
PROP. R/W
+70 80
+25 90'
SEE SPECIAL DETAILS FOR SIDE DRAIN IN BERM

STA. 122+10 INSTALL
24" X 86' PIPE CULVERT
RT. SIDE DRAIN WITH FLOODGATE

SITE 3
HWY. 135
P.I. 122+98.51

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

STA. 117+76.39 BEGIN SUPERELEVATION
STA. 120+76.39 MAX SUPERELEVATION (0.020'/')
STA. 125+47.06 MAX SUPERELEVATION (0.020'/')
STA. 128+47.06 END SUPERELEVATION

DITCH NO. 1
AT STA. 122+50 - STA. 123+50 IS CLASSIFIED AS AN INTERMITTENT STREAM. THE TOP OF CHANNEL ELEVATION IS 212 FT. MSL. REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

PROFILE GRADE
EXIST. GROUND
PVI 110+00.00 ELEV. 222.97
-0.01%
PVC 116+00.00 ELEV. 222.91
PVI 117+25.00 ELEV. 222.90
PVT 118+50.00 ELEV. 224.53
1.30%
PVC 120+50.00 ELEV. 227.13
STA. 122+22.83 BR. END
PVI 123+00.00 ELEV. 230.37
500' V.C.
K = 211.86
e=1.47'
-0.14% RT. DT. GR.
0.20% LT. DT. GR.
0.33% RT. DT. GR.
0.47% LT. DT. GR.
-0.29% RT. DT. GR.
+00 RT. DT. 218.91
+00 LT. DT. 218.65
+77 RT. DT. 218.37
+77 LT. DT. 217.90
+00 LT. DT. 218.48
+00 RT. DT. 219.10
250' V.C.
K = 190.84
e=0.41'
+10 RT. DT. 217.33
+77
F.L. IN RT. = 218.37
F.L. OUT LT. = 217.89
Q50 DES. H.W. ELEV. 218.0'

245 240 235 230 225 220 215 210 205 200
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
11/20/23	

FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	101124	87	191

PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

HWY. 135
PI = 122+98.51
Δ = 7°45'15" LT.
D = 0°45'00"
T = 517.74'
L = 1033.89'
PC = 117+80.77
PT = 128+14.66
e = 0.020'/'
Ls = 300'

STA. 125+20 IN PLACE
30" X 60' PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
30" X 64' PIPE CULVERT
10° LT. FWD. SKEW
LT. SIDE DRAIN WITH FLOODGATE
CONSTRUCT APPROACH = 1800 CU. YDS.

STA. 126+49 IN PLACE
24" X 48' R.C. PIPE CULVERT
W/ HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. AND
EXTEND R.C. PIPE 52' RT
TO A COMPLETED LENGTH OF 100'
(CLASS III) (TYPE 3 BEDDING)
FES LT. & RT.
Q50 = 15.9 CFS D.A. = 17.2 ACRES
24" R.C. PIPE = 60 LIN. FT.
24" FES = 2 EA.

STA. 127+90 IN PLACE
24" X 24' PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 10 CU. YDS.

STA. 135+88 IN PLACE
18" X 24' PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 48' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YDS.

STA. 127+20 IN PLACE
18" X 19' PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 60' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 140 CU. YDS.

STA. 125+59 INSTALL
18" X 46' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 75 CU. YDS.

HWY. 135
PI = 132+20.39
Δ = 3°43'55" RT.
D = 0°30'00"
T = 373.33'
L = 746.39'
PC = 128+47.06
PT = 135+93.45
NO SUPER

STA. 135+93.45
END SITE 3

SITE 3
HWY. 135

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

STA. 117+76.39 BEGIN SUPERELEVATION
STA. 120+76.39 MAX SUPERELEVATION (0.020'/')
STA. 125+47.06 MAX SUPERELEVATION (0.020'/')
STA. 128+47.06 END SUPERELEVATION

PVI 123+00.00
ELEV. 230.37
STA. 123+73.17 BR. END
PVT 125+50.00
ELEV. 227.73
PVC 128+25.00
ELEV. 224.82
PVI 129+50.00
ELEV. 223.50
PVT 130+75.00
ELEV. 223.50
PVI 135+93.45
ELEV. 223.50
PROFILE GRADE
500' V.C.
K = 211.86
e=-1.47'
-1.06%
0.00%
-1.85% RT. DT. GR.
0.09% RT. DT. GR.
0.23% LT. DT. GR.
250' V.C.
K = 235.85
e=0.33'
Q50 DES. H.W.
ELEV. 218.0'
EXIST. GROUND
+95 RT. DT. 221.37
+49 RT. DT. 218.72
+00 LT. DT. 217.50
+93 LT. DT. 218.63
+93 RT. DT. 219.56
+49
F.L. INLET RT. = 218.72
EXIST. F.L. OUTLET LT. = 218.62

245 240 235 230 225 220 215 210 205 200
123+00 124+00 125+00 126+00 127+00 128+00 129+00 130+00 131+00 132+00 133+00 134+00 135+00 136+00 137+00 138+00

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	88	191
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

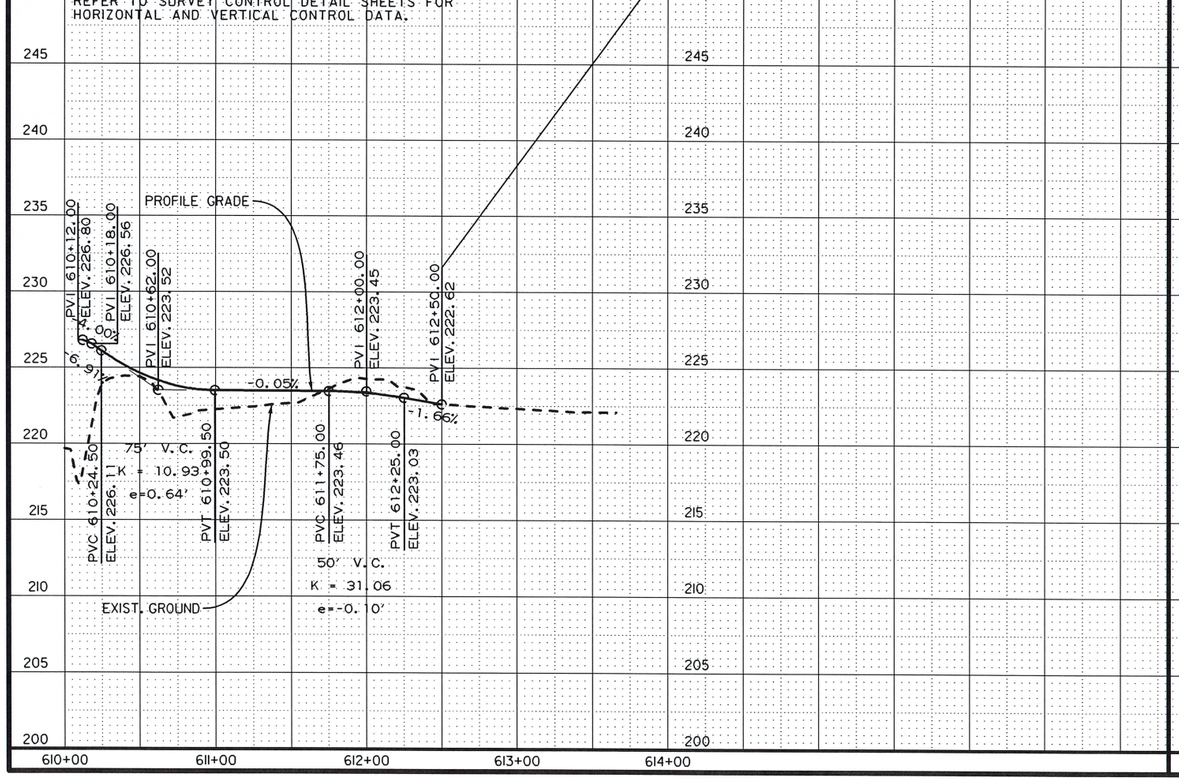
P.C. 117+80.77
EXIST. R/W
CONST. LIMITS
SFHA
PROP. R/W
N2°57'35"E
STA. 120+43.11 HWY. 135 =
STA. 610+00.00 DR. 120+43
Δ = 90° 00' 00"
P.I. 610+54.66
N88°59'55"W
+70
80'
+30
79.35'
T.C.E.
16'
+43
P.C. 610+32.00
P.T. 610+74.54
EXIST. R/W
CONST. LIMITS
T.C.E.
+25
90'
STA. 122+22.83
BR. END
613
DRIVE 120+43
PI = 610+54.66
Δ = 48°45'01" RT.
D = 114°35'59"
T = 22.66'
L = 42.54'
PC = 610+32.00
PT = 610+74.54
NO SUPER
120
DRIVE 120+43
PI = 611+95.47
Δ = 74°41'40" LT.
D = 114°35'59"
T = 38.15'
L = 65.18'
PC = 611+57.32
PT = 611+22.50
NO SUPER
P.C. 611+57.32
P.T. 612+22.50
POE 613+65.80
+10
80'
+00
205
S65°03'25"W
+20
83.67'
P.I. 611+95.47
DITCH NO.1
+80
230
STA. 612+50.00
END CONSTRUCTION
DRIVE 120+43
SITE 3
DRIVE 120+43

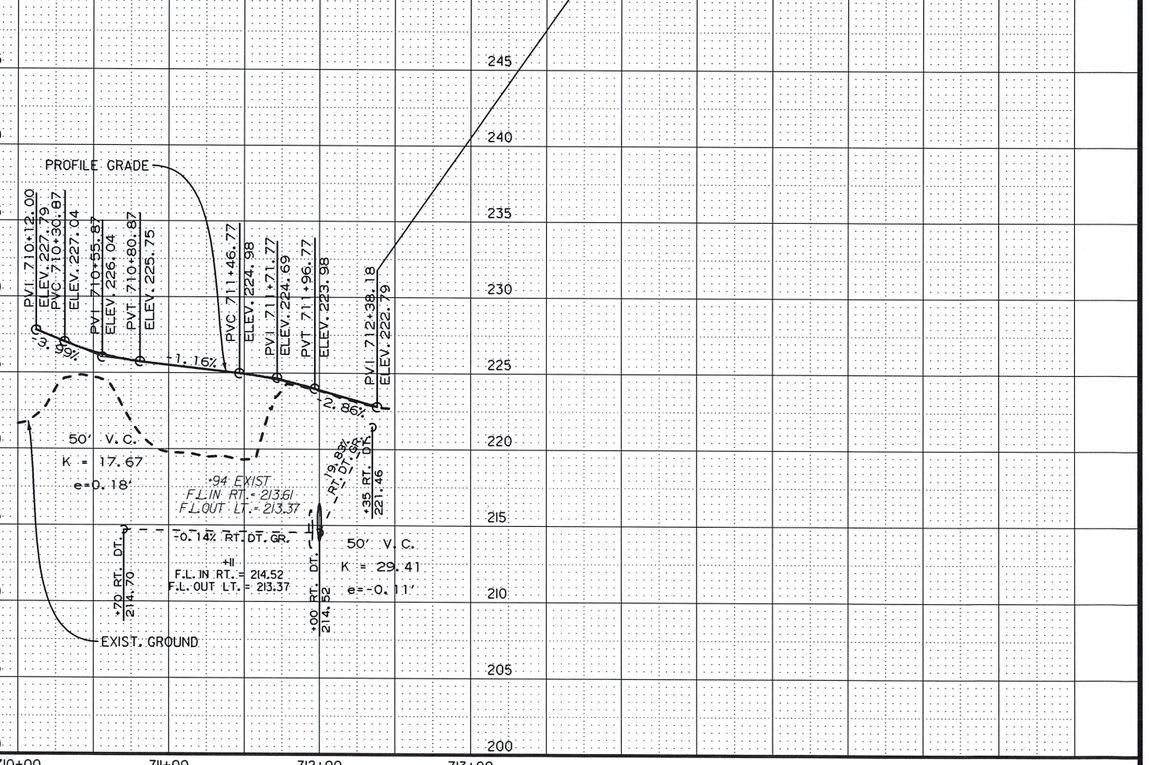
+25
90'
STA. 122+22.83
BR. END
P.I. 122+98.51
DITCH NO.1
712
P.I. 711+85.31
+30
84.04-120.79'
S53°20'33"W
STA. 123+73.17
BR. END
+11.49
99.46'
CONST. LIMITS
N00°00'00"E
+75
140'
P.T. 712+06.75
P.C. 711+60.20
T.C.E.
P.T. 710+98.94
+00
65'
+45
80-64.49'
T.C.E.
+70
80-64.33'
16'
+20
+59
125
DRIVE 125+20
PI = 711+85.31
Δ = 53°20'33" RT.
D = 114°35'24"
T = 25.11'
L = 46.55'
PC = 711+60.20
PT = 712+06.75
NO SUPER
DRIVE 125+20
PI = 710+70.45
Δ = 87°24'56" LT.
D = 114°35'59"
T = 47.79'
L = 76.28'
PC = 710+22.66
PT = 710+98.94
NO SUPER
+60
79.74-135'
T.C.E.
P.I. 710+70.45
P.C. 710+22.66
S87°24'56"W
STA. 125+20.00 HWY. 135 =
STA. 710+00.00 DR. 125+20
Δ = 90° 00' 00"
STA. 712+38.18
END CONSTRUCTION
DRIVE 125+20
+99.45
64.79'
+97.67
90'
T.C.E.
24'
+20
SITE 3
DRIVE 125+20

DUMPED RIPRAP

STA.	STA.	SIDE	CU. YDS.
712+00.00	712+35.00	RT.	15

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





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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	89	191
		PLAN AND PROFILE SHEETS				

STA. 210+00 IN PLACE
18" X 21' PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 54' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YDS.

STA. 208+06 IN PLACE
15 X 24' PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 5 CU. YDS.

DUMPED RIPRAP

STA.	STA.	SIDE	CU. YDS.
210+00.00	211+47.00	RT.	35
210+24.00	210+65.00	LT.	10
212+40.00	213+00.00	RT.	15
211+55.00	212+05.00	LT.	15

+00.00 100' TRANSITION +00.00 100' TAPER +00.00

STA. 211+50 - CONSTRUCT
QUAD. 12' X 10' X 98' R.C. BOX CULVERT
ON A 30° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q50 = 1170 C.F.S. D.A. = 19.2 SQ. MILES
SPAN = 59.56'

+00.00 100' TAPER +00.00 70' OVERLAY +70.00 100' TRANSITION +70.00

STA. 212+30 IN PLACE
24" X 34' PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 46' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YDS.

210

215

DITCH NO. 12

POB 207+67.83

EXIST. R/W

CONST. LIMITS

PROP. R/W

+25 49.96

+50 130

+40 60

+51.36 59.89

+70 39.66'-60'

POE 216+25.87

16'

N1°21'50"W

℄ HWY. 135

+06

+00

+30

5'@10.5' 6'@12' 12'

STA. 210+00.00
BEGIN SITE 4
LOG MILE 13.20

STA. 213+00.00
END SITE 4

+70 50.10

+30 50.04

+55 135

+35 205

+51.24 60.11

+29 60.29

+55 105

T.C.E.

STA. 211+22 - 211+79 IN PLACE
57.0' x 28.6' BRIDGE 02905
STEEL STRINGER - MULTI-BEAM
REMOVAL OF EXISTING BRIDGE STRUCTURE
(SITE NO. 4) = 1.00 LUMP SUM

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

SITE 4
HWY. 135

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

DITCH NO. 12
AT STA. 211+25 - STA. 211+75 IS
CLASSIFIED AS AN INTERMITTENT STREAM. THE
TOP OF CHANNEL ELEVATION IS 218 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

PROFILE GRADE

PVI 209+00.00 BEGIN OVERLAY ELEV. 223.10'
PVC 210+00.00 END OVERLAY ELEV. 223.81 BEGIN PROFILE GRADE
PVI 211+50.00 ELEV. 224.90
PVT 213+00.00 END PROFILE GRADE ELEV. 224.20 BEGIN OVERLAY
PVI 214+70.00 END OVERLAY ELEV. 223.52

0.73% -0.47%

Q50 DES. H.W. ELEV. 219.9'

EXIST. GROUND

300' V.C.
K = 250.00
e = 0.45

+00 RT. DT. 218.70
+00 LT. DT. 217.33
+65 LT. DT. 208.50
+47 RT. DT. 208.70
+35 LT. DT. 208.50
+50 FL IN = 208.70 FL OUT = 208.50
+40 RT. DT. 208.70
+00 RT. DT. 212.36
+15 LT. DT. 217.38
+00 LT. DT. 217.65

0.00% LT. DT. GR.
0.00% RT. DT. GR.
0.32% LT. DT. GR.
19.80% RT. DT. GR.
13.58% LT. DT. GR.
14.80% LT. DT. GR.
6.10% RT. DT. GR.

235 230 225 220 215 210 205 200

205+00 206+00 207+00 208+00 209+00 210+00 211+00 212+00 213+00 214+00 215+00 216+00 217+00 218+00 219+00 220+00

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	90	191
		PLAN AND PROFILE SHEETS				

STA. 512+20 INSTALL
18" X 24' TEMP. PIPE CULVERT LT.
TEMP. APPROACH LT. = 5 CU. YD.

HWY. 135-DETOUR
PI = 514+32.92
Δ = 39°10'40" LT.
D = 10°30'00"
T = 194.19'
L = 373.13'
PC = 512+38.73
PT = 516+11.86
e = 0.100'/'
Ls = 300'

STA. 514+40 CONSTRUCT
TEMP. QUINT. 84" X 102' PIPE CULVERT
ON A 30° RT. FWD. SKEW
Q2 = 570 C.F.S. D.A. = 19.2 SQ. MILES

STA. 515+00 INSTALL
24" X 52' TEMP. PIPE CULVERT LT.
TEMP. APPROACH LT. = 140 CU. YD.

STA. 208+00.00 HWY. 135 =
STA. 510+32.17 DETOUR
0.00' OFFSET

210 215

DITCH NO. 12

POB 510+00.00
POB 207+67.83
P.I. 511+26.37
+25 48.36
PROP. R/W
+50 150
+00 100
515 +00 60
P.I. 516+11.86
+51.36 59.89
P.I. 517+26.06
+70 33.66'-60'
POE 518+22.63
POE 216+25.87
EXIST. R/W
CONST. LIMITS
16'
N1°21'50"W
℄ HWY. 135
℄ HWY. 135 DETOUR
TEMP. CONST. LIMITS
+20
N18°13'30"E
+30 50.04
+70 50.10
+00
N20°57'10"W
+51.24 60.11
+20 60.29
P.C. 510+32.17
P.T. 512+18.73
P.C. 512+38.73
P.T. 518+18.42
+85 105
+55 135
P.C. 516+31.86
T.C.E.
TEMP. CONST. LIMITS
+35 205
P.I. 514+32.92
DITCH NO. 12

HWY. 135-DETOUR
PI = 511+26.37
Δ = 19°35'20" RT.
D = 10°30'00"
T = 94.20'
L = 186.56'
PC = 510+32.17
PT = 512+18.73
NO SUPER

HWY. 135-DETOUR
PI = 517+26.06
Δ = 19°35'21" RT.
D = 10°30'00"
T = 94.20'
L = 186.56'
PC = 516+31.86
PT = 518+18.42
NO SUPER

STA. 510+32.17
BEGIN SITE 4 DETOUR

STA. 518+18.42
END SITE 4 DETOUR

STA. 215+69.48 HWY. 135 =
STA. 518+18.42 DETOUR
0.00' OFFSET

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
11-20-2023

SITE 4 DETOUR

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

STA. 512+28.73 BEGIN SUPERELEVATION
STA. 514+25.30 MAX SUPERELEVATION (0.066'/')
STA. 516+21.86 END SUPERELEVATION

DITCH NO. 12
AT STA. 211+25 - STA. 211+75 IS CLASSIFIED AS AN INTERMITTENT STREAM. THE TOP OF CHANNEL ELEVATION IS 218 FT. MSL. REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

PROFILE GRADE
PVI 510+00.00 ELEV. 222.57
PVC 514+50.00 ELEV. 223.68
PVI 515+00.00 ELEV. 223.80
PVT 515+50.00 ELEV. 223.67
PVI 518+25.00 ELEV. 222.93
0.25%
-0.27%
EXIST. GROUND
02 DES. H.W. ELEV. 216.97'
100' V.C.
K = 192.31
e=-0.07'
0.81% RT. DT. GR.
4.27% RT. DT. GR.
3.48% RT. DT. GR.
1.92% RT. DT. GR.
0.00% RT. DT. GR.
+00.00 RT. DT. 218.71
+50.00 RT. DT. 217.50
+32.17 LT. DT. 222.25
+81.17 LT. DT. 208.70
+50.00 RT. DT. 208.96
+90.00 RT. DT. 208.96
+35.00 RT. DT. 214.00
+20.00 RT. DT. 216.63
+36
F.L. INLET RT. = 208.96
F.L. OUTLET LT. = 208.70

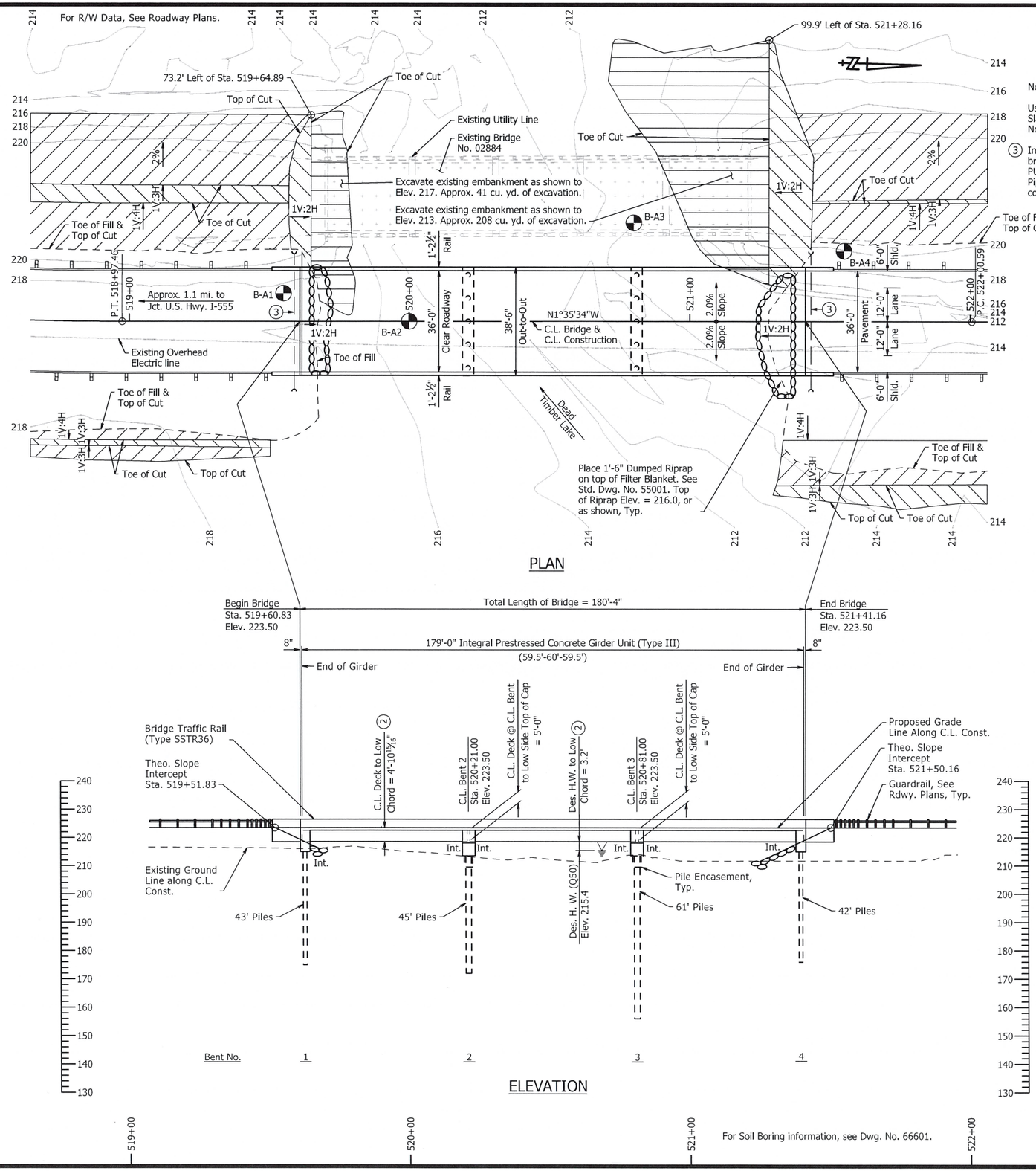
245 240 235 230 225 220 215 210 205 200

507+00 508+00 509+00 510+00 511+00 512+00 513+00 514+00 515+00 516+00 517+00 518+00 519+00 521+00 522+00

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	91	191
		07648		LAYOUT		66600



For Soil Boring information, see Dwg. No. 66601.

1 Sites 5 & 6 removed from job. CAW, 11/20/23

Notes:

Use Type 1 Special Approach Gutters and Type C1 Approach Slabs (width = 24'-0") at both ends of bridge. See Dwg. No. 66615 & Std. Dwg. No. 55040C1, respectively.

3 Install 4" Pipe Underdrain with Outlet Protectors at both bridge ends in accordance with Section 611 and Std. Dwg. PU-1. For additional details, see Dwg. Nos. 66608 & 66613. Pipe Underdrains will not be paid for directly, but shall be considered subsidiary to "Unclassified Excavation".

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on Survey Control Sheets.

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, 9th Edition (2020).

LIVE LOADING: HL-93

SEISMIC ZONE: 4 S_{D1}:0.690 SITE CLASS: D

SEISMIC OPERATIONAL CLASS: OTHER

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (prestressed concrete girders)	f'c = 6,000 psi
Prestressing Strands (AASHTO M 203, Gr. 270)	fpu = 270,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 50W)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi

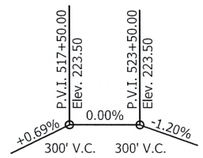
BORING LOGS: Boring logs may be obtained from the Construction Contract Development Section of the Program Management Division.

STEEL SHELL PILING: Piling in Bents 1 and 4 shall be 16" diameter concrete filled steel shell piles and shall be driven to meet the requirements of the "PILE BEARING TABLE" on Dwg. No. 66601. The 16" diameter piles shall have a nominal wall thickness of ½". Piling in Bents 2 & 3 shall be 24" diameter concrete filled steel shell piles and shall be driven to meet the requirements of the "PILE BEARING TABLE" on Dwg. No. 66601. The 24" diameter piles shall have a nominal wall thickness of ½". All piling shall be driven with an approved air, steam, or diesel hammer to the minimum tip elevation as specified in the "PILE BEARING TABLE" on Dwg. No. 66601. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are assumed for estimating quantities only. Actual lengths are to be determined in the field. No additional payment will be made for cut-off or build-up. Test piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g). No payment shall be made for test piles.

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

PREBORING: Preboring is required for all piling at Bents 1 and 4. Prebored holes shall have a diameter 6" greater than the diameter of the pile for a depth of 10' below the bottom of the cap. The void space around the pile after completion of driving shall be backfilled with sand or pea gravel. The Contractor shall be responsible for keeping prebored holes free of debris prior to backfilling which may require the use of temporary casings or other approved methods. Any related cost for backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring".

For Additional General Notes, see Dwg. No. 66614.



VERTICAL ALIGNMENT DATA

Theoretical Elev. Along C.L. Construction

NOTE: Stations shown are along C.L. Construction. Elevations shown are theoretical working point elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on theoretical working point elevation at C.L. Bridge. See "ROUNDING DETAIL" on Dwg. No. 66607 for additional information.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	(1) NATURAL W.S. ELEVATION	W.S. ELEVATION WITH BACKWATER
	YEARS	CFS	FEET	FEET
DESIGN	50	710	215.0	215.4
BASE	100	780	215.1	215.5
EXTREME	500	920	215.2	215.7
OVERTOPPING	>500	--	--	--

(1) Unconstricted water surface elevation without structure or roadway approaches.

(2) Proposed Low Bridge Chord Elev. = 218.59 feet.

100 yr. backwater elevation for existing structure = 215.7 feet
Drainage Area = 5.2 sq. miles
Historical H.W. Elev. = N/A

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIFF
11/20/2023

SHEET 1 OF 2
LAYOUT OF BRIDGE
HWY. 135 OVER DEAD TIMBER LAKE
HWY. 135 STRS. & APPRS. (S)
POINSETT COUNTY
ROUTE 135 SECTION 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

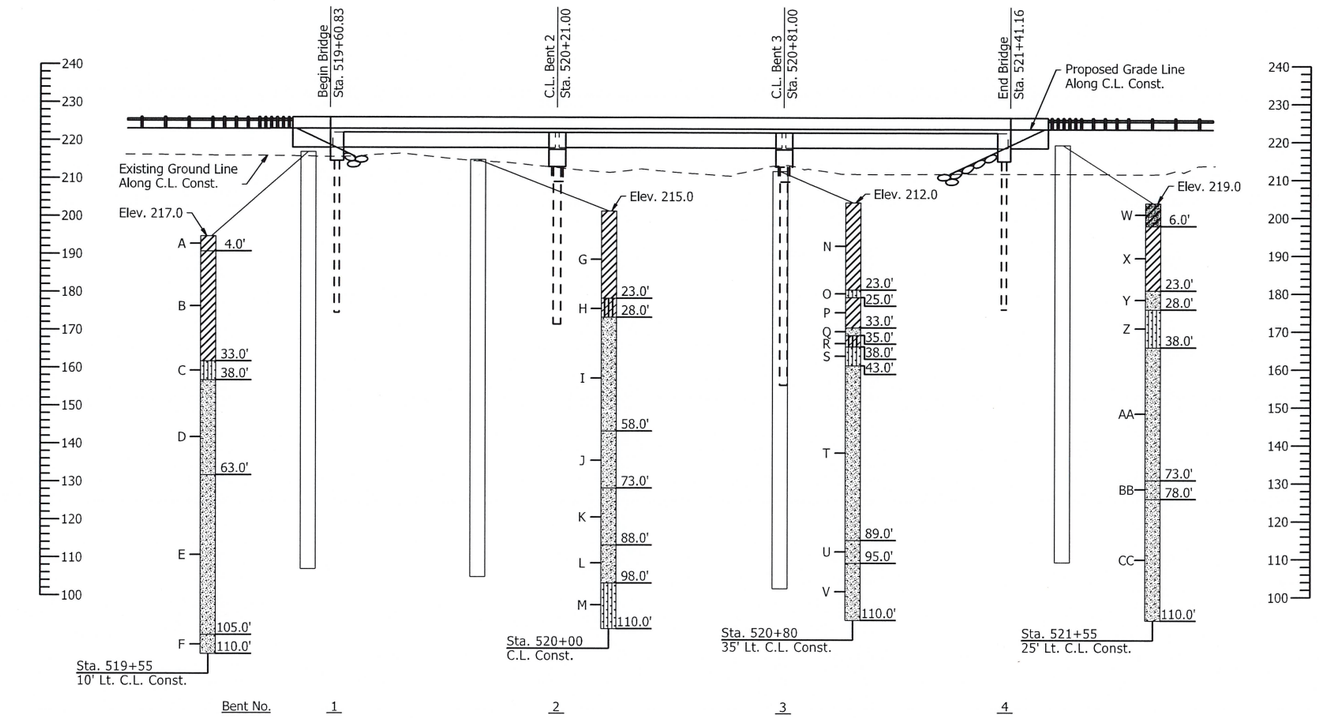
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DESIGNED BY:	KRM	DATE: 02-14-2023	

BRIDGE NO. 07648 DRAWING NO. 66600

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1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	92	191
		07648		LAYOUT		66601



ELEVATION OF SOIL BORINGS

"N" VALUES

Sta. 519+55 - 10' Left C.L. Const.
0.5 - 1.5, N=6
2.5 - 3.5, N=5
4.5 - 5.5, N=5
6.5 - 7.5, N=6
9.0 - 10.0, N=9
14.0 - 15.0, N=7
19.0 - 20.0, N=9
24.0 - 25.0, N=13
29.0 - 30.0, N=17
34.0 - 35.0, N=34
39.0 - 40.0, N=49
44.0 - 45.0, N=50/11"
49.0 - 50.0, N=44
54.0 - 55.0, N=45
59.0 - 60.0, N=34
64.0 - 65.0, N=40
69.0 - 70.0, N=37
74.0 - 75.0, N=43
79.0 - 80.0, N=38
84.0 - 85.0, N=36
89.0 - 90.0, N=37
94.0 - 95.0, N=39
99.0 - 100.0, N=47
109.0 - 110.0, N=50/8"

Sta. 520+00 - C.L. Const.
0.5 - 1.5, N=6
2.5 - 3.5, N=5
4.5 - 5.5, N=5
6.5 - 7.5, N=6
9.0 - 10.0, N=8
14.0 - 15.0, N=8
19.0 - 20.0, N=10
24.0 - 25.0, N=13
29.0 - 30.0, N=17
34.0 - 35.0, N=38
39.0 - 40.0, N=42
44.0 - 45.0, N=38
49.0 - 50.0, N=34
54.0 - 55.0, N=35
59.0 - 60.0, N=32
64.0 - 65.0, N=42
69.0 - 70.0, N=37
74.0 - 75.0, N=33
79.0 - 80.0, N=34
84.0 - 85.0, N=38
89.0 - 90.0, N=35
94.0 - 95.0, N=35
99.0 - 100.0, N=40
109.0 - 110.0, N=47

Sta. 520+80 - 35' Left C.L. Const.
2.5 - 3.5, N=8
9.0 - 10.0, N=4
14.0 - 15.0, N=3
19.0 - 20.0, N=5
24.0 - 25.0, N=32
29.0 - 30.0, N=10
34.0 - 35.0, N=55
39.0 - 40.0, N=13
44.0 - 45.0, N=35
49.0 - 50.0, N=37
54.0 - 55.0, N=43
59.0 - 60.0, N=26
64.0 - 65.0, N=37
69.0 - 70.0, N=28
74.0 - 75.0, N=76
79.0 - 80.0, N=48
84.0 - 85.0, N=49
89.0 - 90.0, N=42
94.0 - 95.0, N=50/8"
99.0 - 100.0, N=45
109.0 - 110.0, N=50/9"

Sta. 521+55 - 25' Left C.L. Const.
0.5 - 1.5, N=8
2.5 - 3.5, N=7
4.5 - 5.5, N=6
6.5 - 7.5, N=6
14.0 - 15.0, N=23
24.0 - 25.0, N=47
29.0 - 30.0, N=33
34.0 - 35.0, N=31
39.0 - 40.0, N=32
44.0 - 45.0, N=41
49.0 - 50.0, N=34
54.0 - 55.0, N=26
59.0 - 60.0, N=36
64.0 - 65.0, N=44
69.0 - 70.0, N=40
74.0 - 75.0, N=38
79.0 - 80.0, N=47
84.0 - 85.0, N=50/8"
89.0 - 90.0, N=50/8"
94.0 - 95.0, N=50/10"
99.0 - 100.0, N=50/10"
109.0 - 110.0, N=50/8"

BORING LEGEND

A. Soft brown clay, slightly sandy (CH) w/silty clay seams, trace fine gravel and occasional organics (fill)
B. Soft gray, tan and reddish tan clay (CH) w/ferrous stains and occasional decayed organics
C. Dense brownish gray silty fine sand (SM)
D. Dense grayish brown fine to medium sand, slightly silty (SP)
E. Dense brownish gray fine to medium sand, slightly silty (SP)
F. Dense to very dense tan fine to medium sand, slightly silty (SM-SP) w/trace coarse sand and fine to coarse gravel
G. Soft brown and gray clay w/occasional decayed organics
H. Stiff gray clayey silt, wet
I. Medium dense gray fine sand, slightly silty
J. Dense grayish tan fine to medium sand, slightly silty
K. Dense grayish tan fine sand, slightly silty w/organic inclusions
L. Dense grayish tan fine to coarse sand, slightly silty
M. Dense grayish tan silty fine sand
N. Firm gray clay (CH) w/organics and ferrous stains
O. Medium dense gray silty fine sand, slightly clayey (SM)
P. Firm to stiff gray clay (CH) w/silty fine sand seams
Q. Very dense brownish gray fine to coarse sand (SW) w/organics
R. Stiff gray clayey silt (CL-ML)
S. Medium dense gray silty fine sand (SM) w/organics
T. Dense grayish brown fine to medium sand (SP)
U. Dense brown and dark gray fine to coarse sand (SW) w/organics and fine to coarse gravel
V. Dense gray fine sand (SP)
W. Firm brown clay, sandy (CL) w/occasional crushed stone and asphalt fragments (fill)
X. Soft gray and reddish tan clay (CH) w/ferrous stains and decayed organics
Y. Dense grayish tan fine to medium sand, slightly silty (SP-SM)
Z. Dense dark gray silty fine sand (SM) w/occasional clayey sand pockets
AA. Dense grayish tan fine to medium sand (SP) w/organic inclusions
BB. Dense grayish tan fine to medium sand, slightly silty (SW-SM) w/trace coarse sand
CC. Dense tan fine to medium sand, slightly silty (SP-SM)

GENERAL NOTES (Cont'd)

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of Subsection 805.09(b), "Method B - Wave Equation Analysis (WEAP)" and SP "PILE DRIVING SYSTEM". See the "PILE BEARING TABLE" for the estimated minimum rated hammer energy required to overcome the anticipated driving resistance for all piles at each bent. If the Contractor elects to use water jetting or other approved methods to obtain the minimum tip elevations shown while driving only to the required minimum ultimate bearing capacity, the minimum rated hammer energy required will be lower and shall be accounted for in the driving system chosen by the Contractor.

PILE ENCASEMENT: Pile encasement for Bents 2 & 3 shall extend from bottom of cap to 3' below natural or finished ground. See Standard Drawing Number 55021 for additional information.

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

PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the Bridge Traffic Rail in accordance with Section 803.

DETAIL DRAWINGS:	DRAWING NO(S).
End Bents	66602 - 66603
Intermediate Bents	66604 - 66603
179'-0" Integral Prestressed Concrete Girder Unit	66607 - 66614
Concrete Filled Steel Shell Piling	55021
Type 1 Special Approach Gutters	66615
Type C1 Approach Slabs	55040C1
Bridge Traffic Rail	55070

EXISTING BRIDGE: Existing Bridge No. 02884 (Log Mile 0.99) is 28.5' wide (24.0' clear roadway) and 152.0' long and consists of steel I-beam spans (5 spans total) supported by concrete piles. The existing bridge is located approximately 46' downstream from the proposed new bridge. Plans of the existing structure, if available, may be obtained upon request to the Construction Contract Development Section of the Program Management Division.

REMOVAL AND SALVAGE: After the new bridge is open to traffic, the Contractor shall remove Existing Bridge No. 02884, in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor except the following:

The existing utilities attached to the bridge shall remain the property of the Ritter Communications. The Contractor shall remove and store the utility items on site in a manner approved by the Engineer. The Contractor shall notify Ritter Communications 7 business days in advance of removing the existing utility items. Contact information is as follows:

Rich Busby
2400 Ritter Dr.
Jonesboro, AR 72401
870-336-3434

This work shall be considered incidental to the item "Removal of Existing Bridge Structure (Site No._)".

MAINTENANCE OF TRAFFIC: See Roadway Plans.

PILE BEARING TABLE

BENTS	REQUIRED MINIMUM ULTIMATE BEARING CAPACITY (TONS)	MIN. TIP ELEVATION	ANTICIPATED DRIVING RESISTANCE AT MIN. TIP (TONS)	ESTIMATED MIN. RATED HAMMER ENERGY (FT. LBS. PER BLOW)
1	270	175	270	91,000
2	198	172	408	125,000
3	289	156	490	125,000
4	270	176	270	91,000

Note:

Required minimum ultimate bearing capacity corresponds to the minimum post driving capacity to be obtained after an allowance for water jetting or any other methods employed to facilitate pile installation.

Anticipated Driving Resistance corresponds to the resistance to be overcome to achieve minimum tip elevation without any water jetting or other methods employed to facilitate pile installation.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

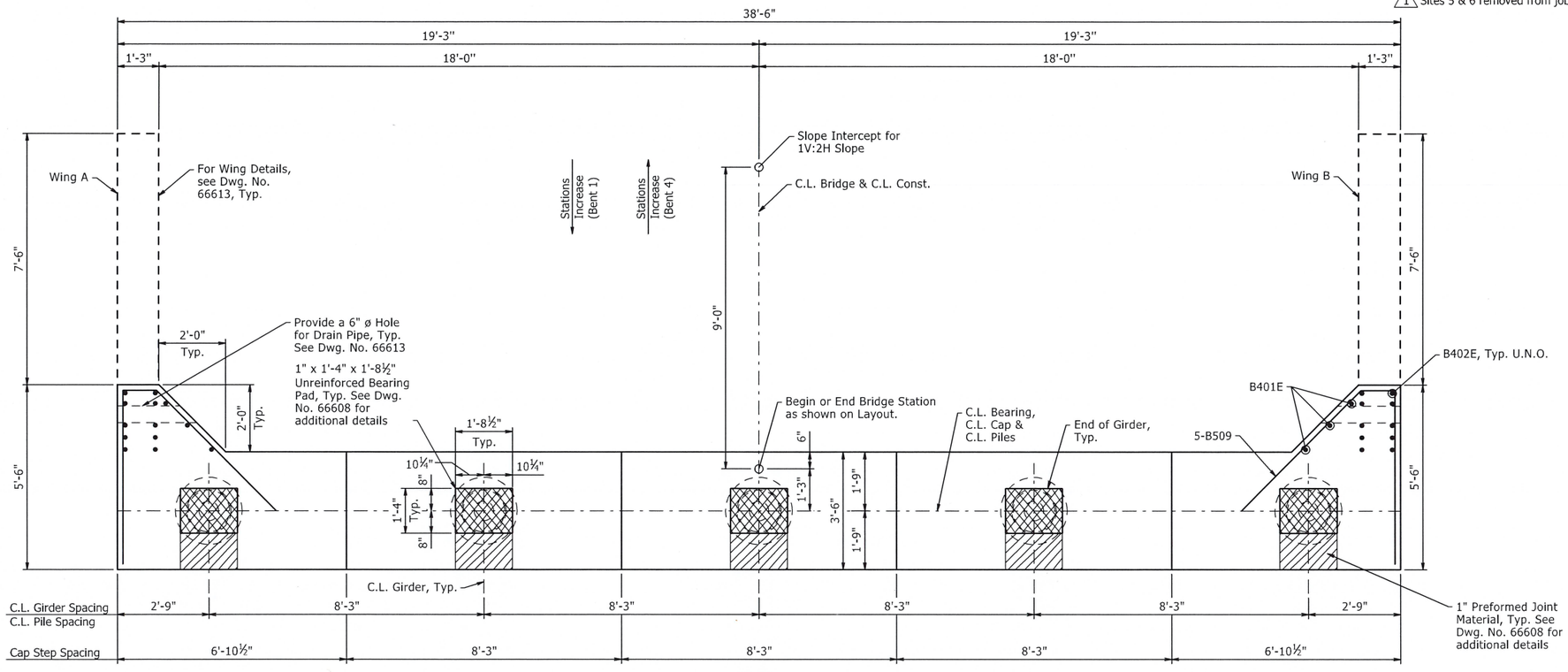
SHEET 2 OF 2
LAYOUT OF BRIDGE
HWY. 135 OVER DEAD TIMBER LAKE
HWY. 135 STRS. & APPRS. (S)
POINSETT COUNTY
ROUTE 135 SECTION 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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DESIGNED BY: KRM DATE: 02-14-2023
BRIDGE NO. 07648 DRAWING NO. 66601

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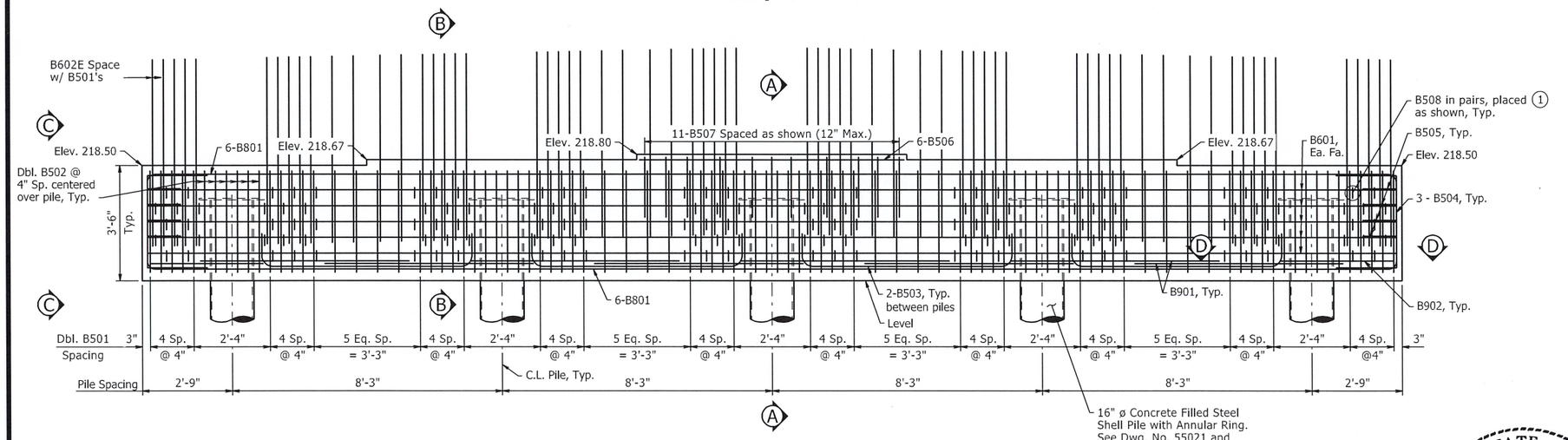
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11/20/23		6	ARK.	101124	93	191
		07648	END BENT DETAILS			66602

1 Sites 5 & 6 removed from job. CAW, 11/20/23



PLAN

Scale: ½" = 1'-0"



ELEVATION

(Looking Ahead at Bent 4, Looking Back at Bent 1)

Scale: ½" = 1'-0"

Notes:

Concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. Coarse aggregate for Class "S" concrete shall comply with the requirements of Subsection 802.02(c), except that the maximum aggregate size shall be 1". All exposed corners shall be chamfered ¾" unless noted otherwise.

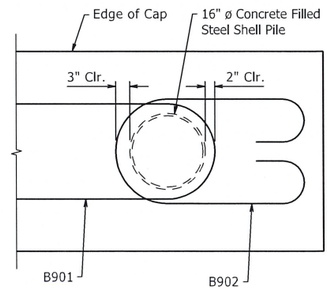
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Granular backfill and pipe underdrain required behind end bent caps. See Dwg. No. 66608 for details.

For "SECTION A-A", "SECTION B-B", "VIEW C-C", Bar List, and Bending Diagram, see Dwg. No. 66603.

See Bridge Layout for additional Information.

1 Orient each pair of B508 bars to be parallel to horizontal legs of adjacent B501 bars.



Note: Additional cap reinforcing not shown for clarity.

SECTION D-D

Scale: ¾" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 16720
KENNETH RANDALL MILLER
11/20/23

SHEET 1 OF 2
DETAILS OF END BENTS
DEAD TIMBER LAKE
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

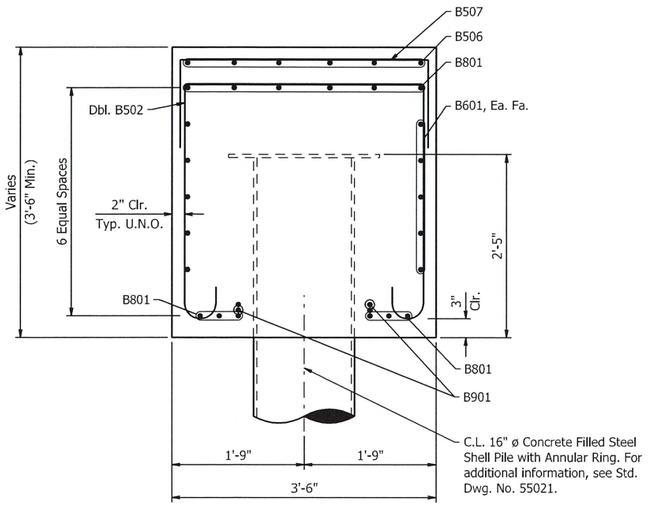
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DESIGNED BY: KRM DATE: 07-10-2023

BRIDGE NO. 07648 DRAWING NO. 66602

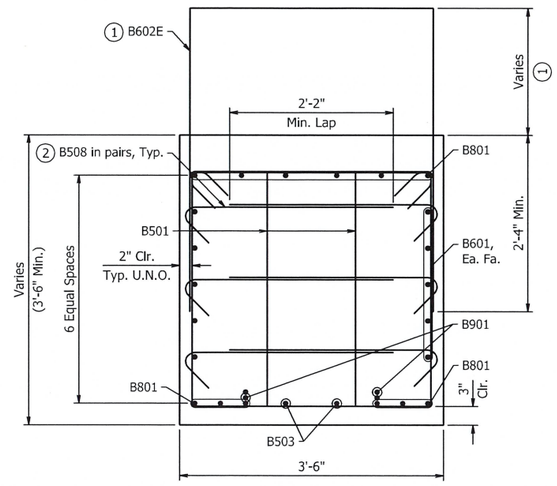
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1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	94	191
		07648	END BENT DETAILS			66603



SECTION A-A
Scale: 1" = 1'-0"

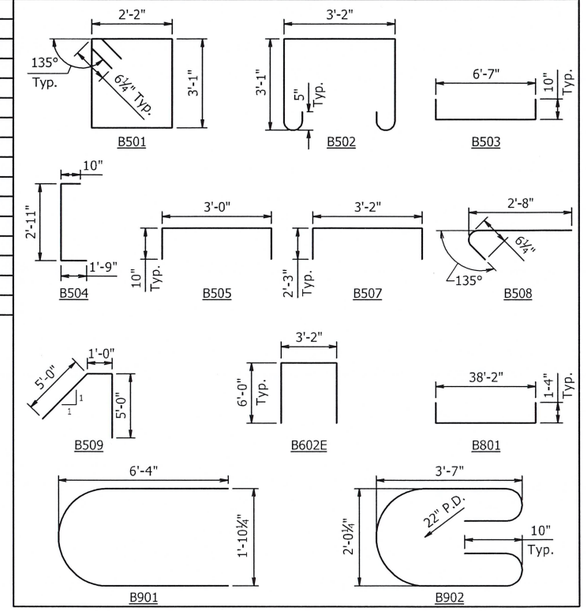


SECTION B-B
Scale: 1" = 1'-0"

BAR LIST - PER END BENT

Mark	No. Req'd.	Length	Pin Dia.
B401E	6	6'-7"	Str.
B402E	20	7'-9"	Str.
B501	132	11'-2"	3¾"
B502	60	10'-3"	3¾"
B503	8	8'-0"	3¾"
B504	6	5'-3"	3¾"
B505	8	4'-5"	3¾"
B506	6	7'-11"	Str.
B507	11	7'-6"	2½"
B508	288	3'-4"	3¾"
B509	10	10'-11"	3¾"
B601	10	38'-2"	Str.
B602E	66	14'-11"	4½"
B801	12	40'-5"	6"
B901	8	13'-9"	20"
B902	2	11'-0"	9"

BENDING DIAGRAMS

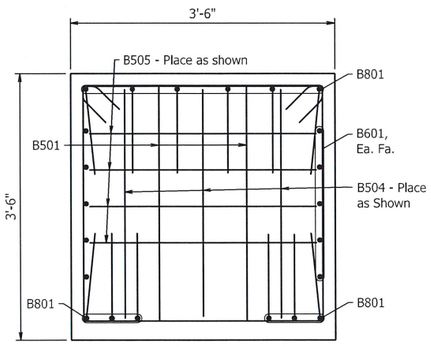


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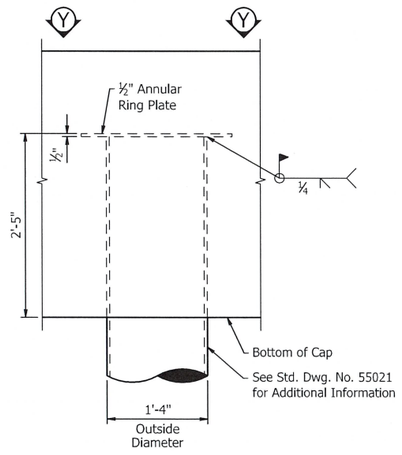
Dimensions are out to out of bars.
Bars with an "E" suffix are to be epoxy coated.

(1) Adjust B602E to maintain 2" clear to top of paving bracket in the End Bent Diaphragm.

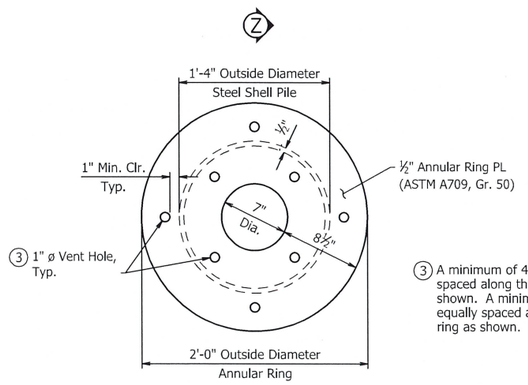
(2) See "ELEVATION" on Dwg. No. 66602 for placement.



VIEW C-C
Scale: 1" = 1'-0"

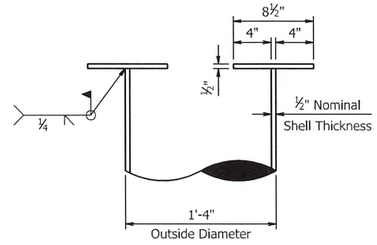


ANNULAR RING DETAIL
Scale: 1" = 1'-0"



SECTION Y-Y
Scale: 1½" = 1'-0"

(3) A minimum of 4 holes shall be equally spaced along the outside of the ring as shown. A minimum of 4 holes shall be equally spaced along the inside of the ring as shown.



SECTION Z-Z
Scale: 1½" = 1'-0"

Notes:

The cost of all labor and materials required to fabricate and install the Annular Ring will not be paid for directly but shall be considered subsidiary to the item "Steel Shell Piling (16" Dia.)".

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 16720
KENNETH RANDALL MILLER
11/20/23

SHEET 2 OF 2
DETAILS OF END BENTS
DEAD TIMBER LAKE
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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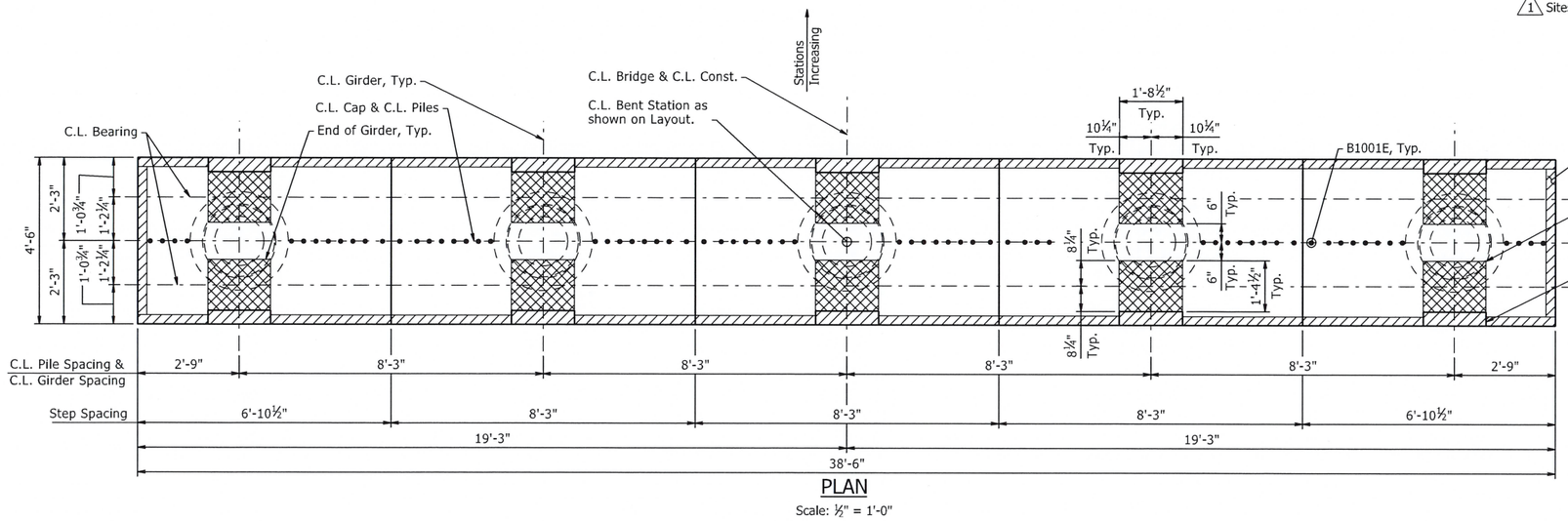
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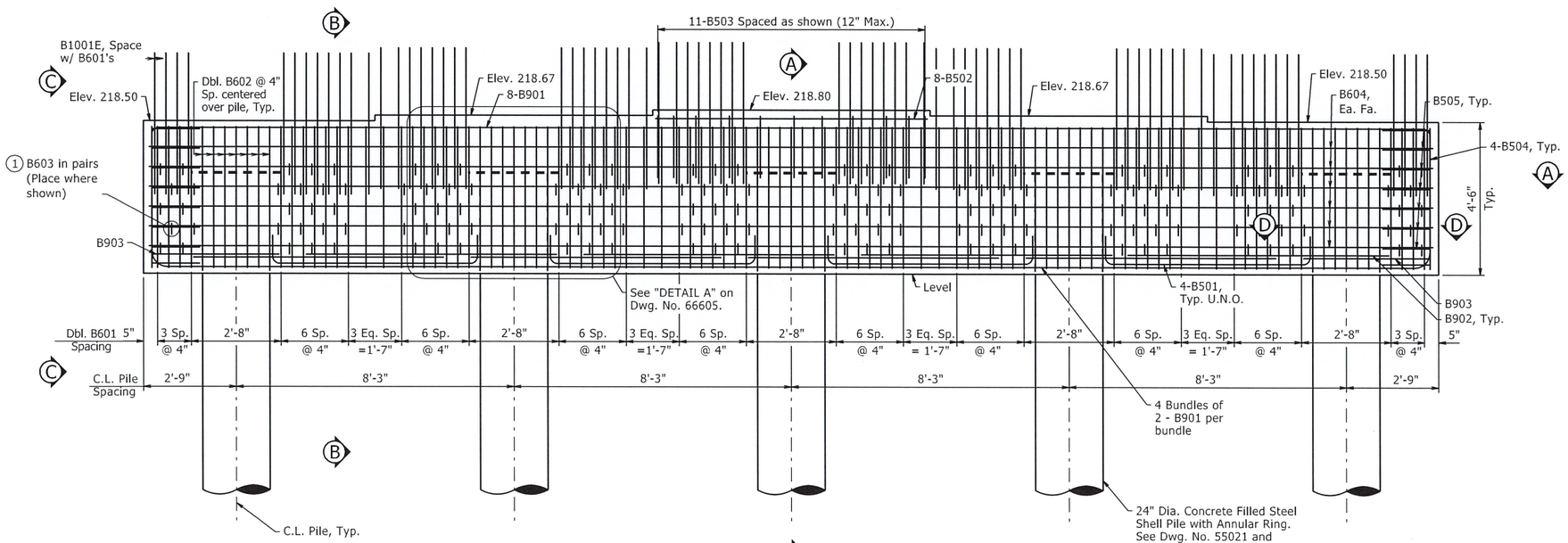
1 Sites 5 & 6 removed from job. CAW, 11/20/23

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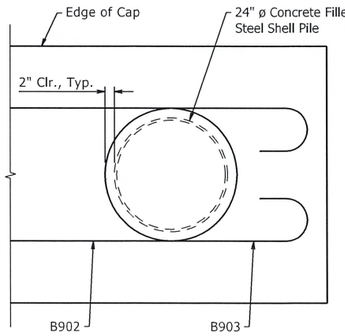
PLAN

Scale: ½" = 1'-0"



ELEVATION

Scale: ½" = 1'-0"



Note: Additional cap reinforcing not shown for clarity.

SECTION D-D

Scale: ¾" = 1'-0"

Notes:

Concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. Coarse aggregate for Class "S" concrete shall comply with the requirements of Subsection 802.02(c), except that the maximum aggregate size shall be 1". All exposed corners shall be chamfered ¾" unless noted otherwise.

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

For Details of Concrete Filled Steel Shell Piles, see Std. Dwg. No. 55021 and Dwg. No. 66606.

For "SECTION A-A", "SECTION B-B", SECTION C-C", "DETAIL A", Bar List, and Bending Diagram, see Dwg. No. 66605.

(1) Orient each pair of B603 bars to be parallel to Horizontal legs of adjacent Double B601 Stirrup Bars.

(2) Rotate hooks of B901 bars as required to avoid Interference with each other and with B601 horizontal bars.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 16720
KENNETH RANDALL MILLER
11/20/23

SHEET 1 OF 3
DETAILS OF INTERMEDIATE BENTS
DEAD TIMBER LAKE
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

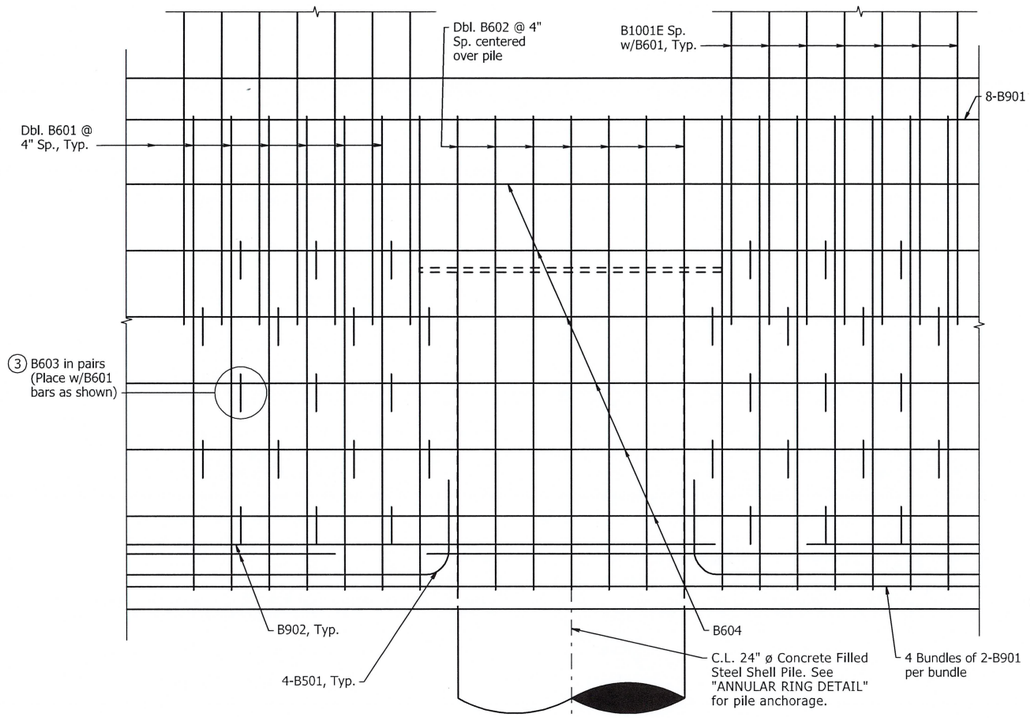
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BRIDGE NO. 07648 DRAWING NO. 66604

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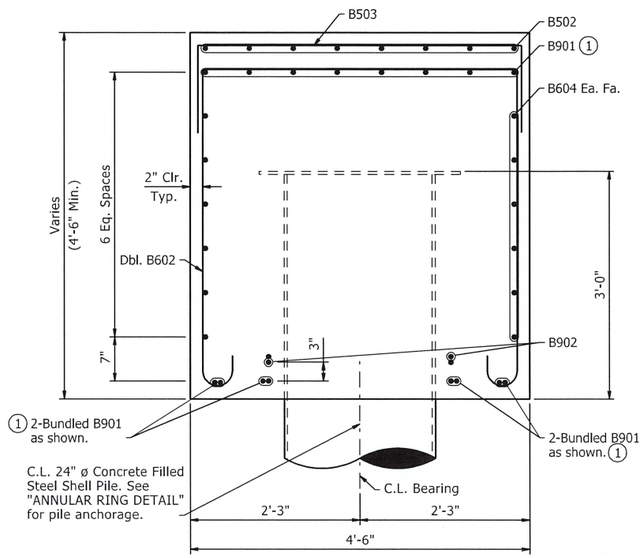
1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	96	191
		07648	INT. BENT DETAILS			66605



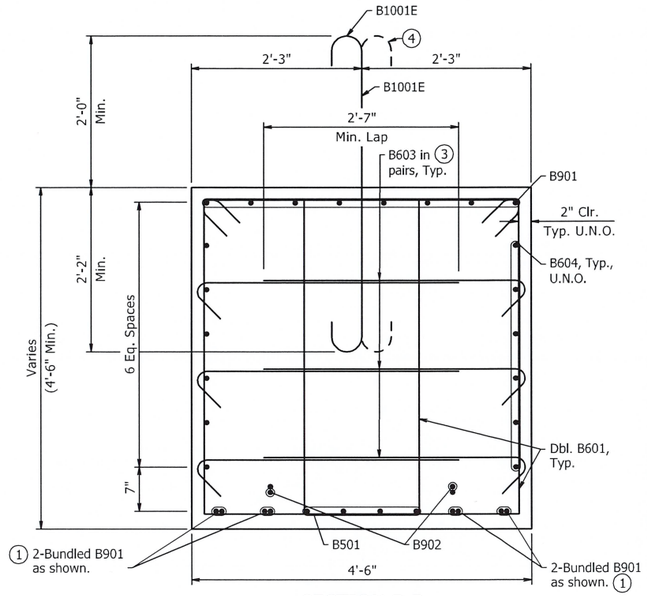
DETAIL A

Scale: 1½" = 1'-0"



SECTION A-A

Scale: 1" = 1'-0"



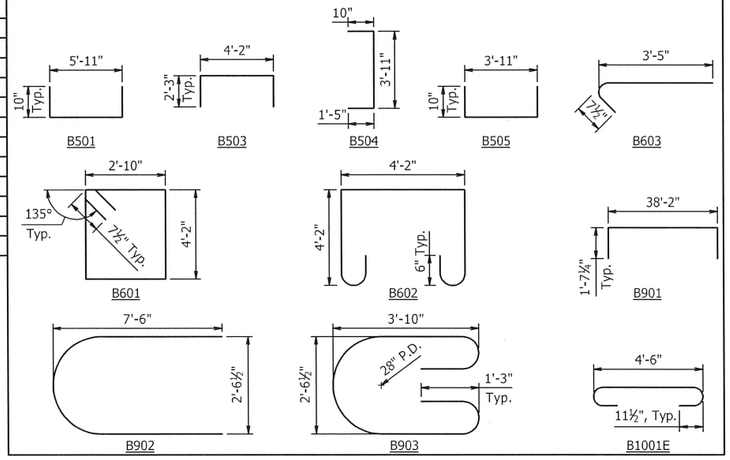
SECTION B-B

Scale: 1" = 1'-0"

BAR LIST - PER INTERMEDIATE BENT

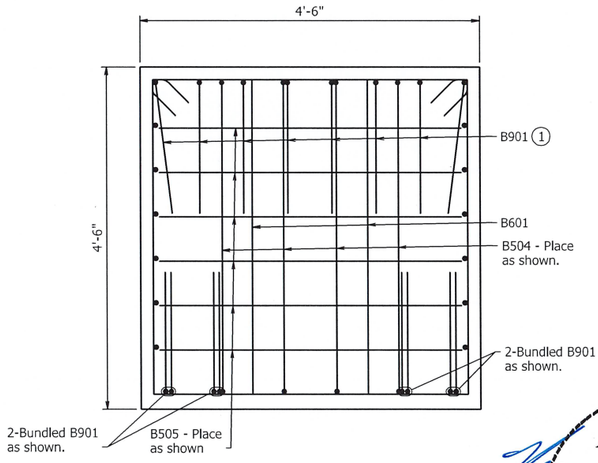
Mark	No. Req'd.	Length	Pin Dia.
B501	16	7'-4"	3¾"
B502	8	7'-11"	Str.
B503	11	8'-5"	3¾"
B504	8	5'-11"	3¾"
B505	12	5'-4"	3¾"
B601	144	14'-10"	4½"
B602	70	13'-7"	4½"
B603	312	4'-2"	4½"
B604	12	38'-2"	Str.
B901	16	40'-10"	9"
B902	8	16'-5"	28"
B903	2	11'-8"	9"
B1001E	72	7'-4"	10"

BENDING DIAGRAMS



Notes:

Dimensions are out to out of bars.
Bars with an "E" suffix are to be epoxy coated.



VIEW C-C

Scale: 1" = 1'-0"

Notes:

(1) Rotate hooks of B901 bars as required to avoid interference with other bars.

(2) See "ELEVATION" on Dwg. No. 66604 for placement.

(3) Orient each pair of B603 bars to be parallel to Horizontal legs of adjacent Double B601 Stirrup Bars.

(4) Orient each B1001E bar parallel to Horizontal legs of adjacent Double B601 Stirrup Bars, alternating hooks of adjacent B1001E bars.

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LICENSED PROFESSIONAL ENGINEER
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11/20/23

SHEET 2 OF 3
DETAILS OF INTERMEDIATE BENTS
DEAD TIMBER LAKE
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

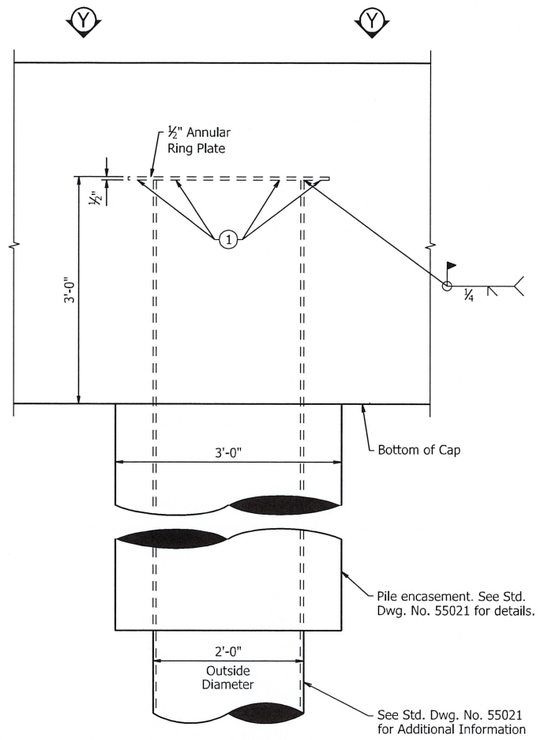
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CHECKED BY: CAW DATE: 07-25-2023 SCALE: AS NOTED
DESIGNED BY: KRM DATE: 07-10-2023

BRIDGE NO. 07648 DRAWING NO. 66605

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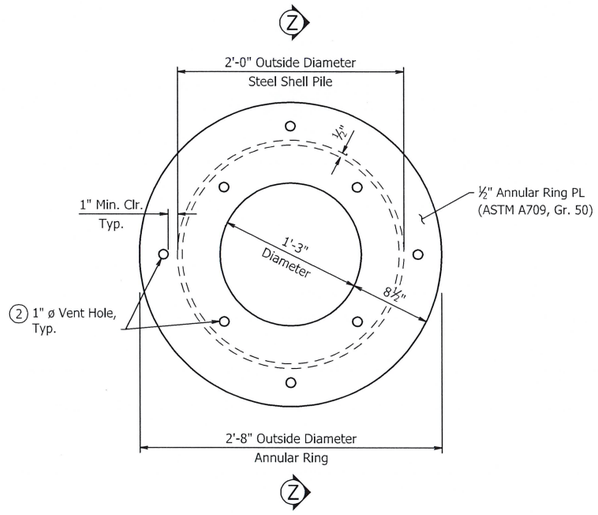
1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	97	191
		07648	INT. BENT DETAILS			66606



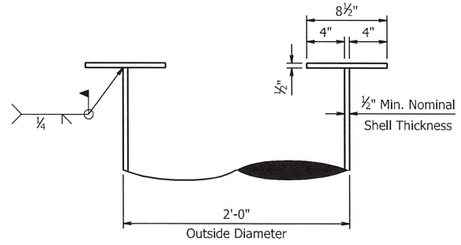
ANNULAR RING DETAIL

Scale: 1" = 1'-0"



SECTION Y-Y

Scale: 1½" = 1'-0"



SECTION Z-Z

Scale: 1½" = 1'-0"

Note:

The cost of all labor and materials required to fabricate and install the Annular Ring will not be paid for directly but shall be considered subsidiary to the item "Steel Shell Piling (24" Dia.)".

1. Contractor shall ensure that concrete in this area is in full and complete contact with annular ring.
2. A minimum of 4 holes shall be equally spaced along the outside of the ring as shown. A minimum of 4 holes shall be equally spaced along the inside of the ring as shown.

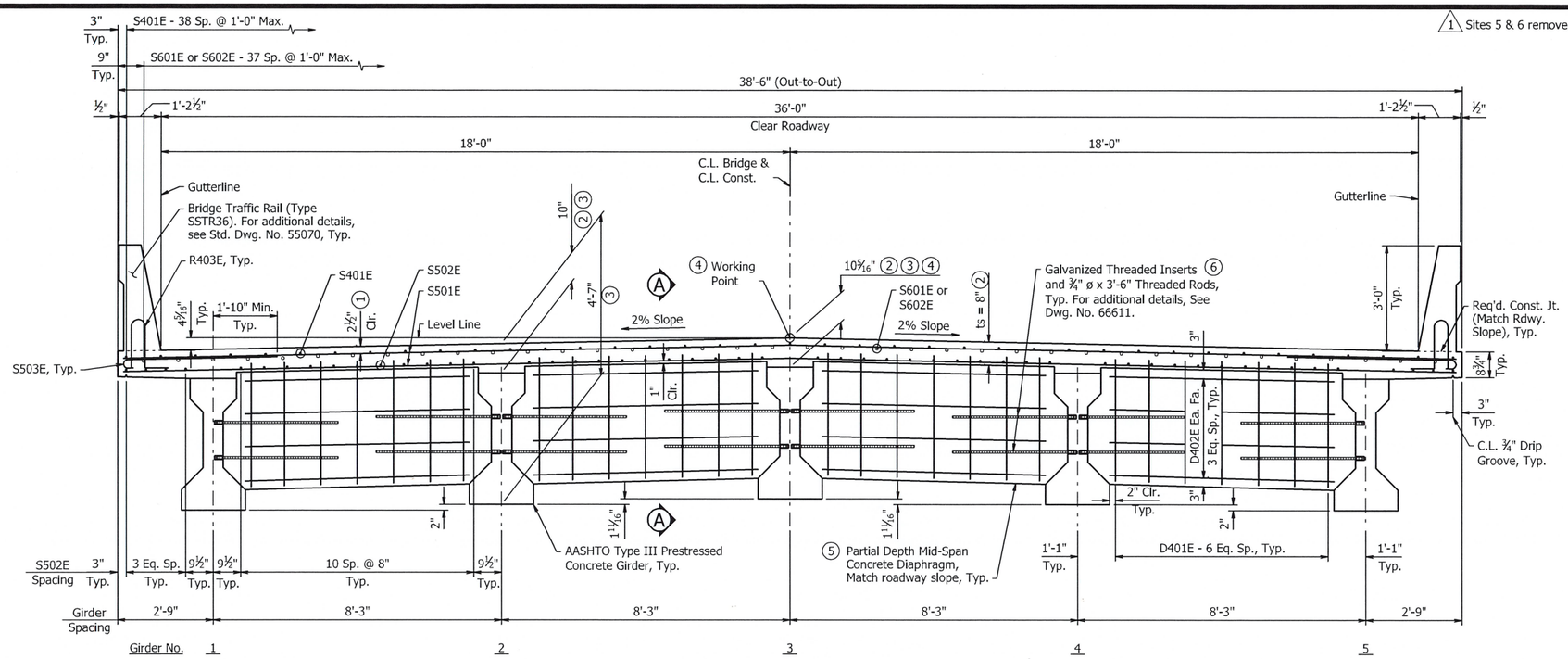
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 16720
KENNETH RANDALL MILLER
11/20/23

SHEET 3 OF 3
DETAILS OF INTERMEDIATE BENTS
DEAD TIMBER LAKE
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 07-17-2023 FILENAME: b101124x1_b23.dgn
CHECKED BY: CAW DATE: 07-25-2023 SCALE: AS NOTED
DESIGNED BY: KRM DATE: 07-10-2023

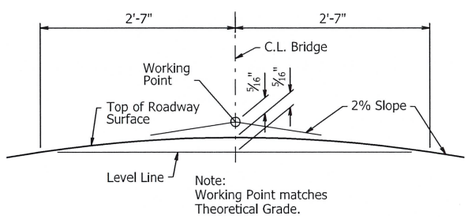
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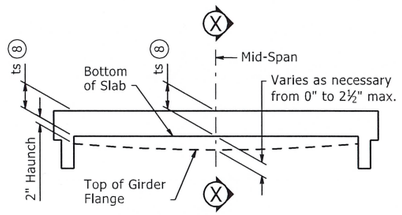
TYPICAL ROADWAY SECTION

(Showing Partial Depth Mid-Span Diaphragms)
(Looking Ahead)
Scale: ½" = 1'-0"



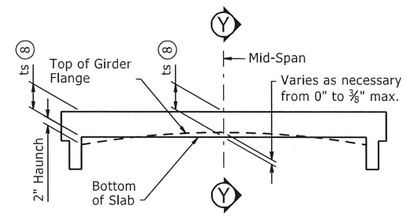
ROUNDING DETAIL

No Scale



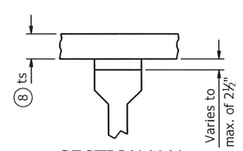
GIRDER ELEVATION

No Scale



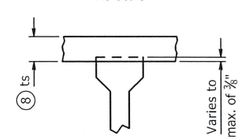
GIRDER ELEVATION

No Scale



SECTION X-X

No Scale



SECTION Y-Y

No Scale

Note: ts = slab thickness as shown on Superstructure Details. See "Typical Sections".

(8) Tolerance when removable deck forming is used is +½", -¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used.

"GIRDER ELEVATION" sketches show the range of acceptability of the top of the girder relative to bottom of slab after the placement of the slab. When the top of the girder projects more than ⅜" into the slab, a raise in grade will be necessary. Girders shall be set in a sufficient number of spans so when adjustment is necessary the profile grade can be adjusted over suitable increments so the revised grade line will produce a smooth riding surface. Variation of the haunch height will be at the Contractor's expense.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	98	191
		07648		SPAN DETAILS		66607

Notes:

Class 2 Protective Surface Treatment shall be applied to the roadway surface and roadway face and top of Bridge Rail.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Std. Dwg. No. 55005 for allowable modifications and for tolerances when permanent steel bridge deck forms are used.

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

For "SECTION A-A", see Dwg, No. 66610.

(1) Tolerances: Minus = ¼"
Plus = Amount of slab thickening used to meet slab thickness tolerance
See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE"

(2) See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE".

(3) Measured at C.L. Bearing and C.L. Girder, Typ.

(4) To Working point - See "ROUNDING DETAIL".

(5) Galvanized steel diaphragms may be used in place of concrete diaphragms at Mid-Span diaphragm locations. All components of the alternate steel diaphragms shall be galvanized. Galvanizing shall be in accordance with AASHTO M 111. Payment will be based on concrete diaphragms. See Dwg. No. 66610 for details.

(6) Galvanized threaded inserts ahall be Dayton-Richmond F-42 Loop Ferrule Insert or an approved equal. ¾" ø threaded rods to be ASTM A709, Grade 36 or AASHTO M 31 or M 322, Gr. 60. Galvanizing shall be in accordance with AASHTO M 232 Class C or ASTM B 595, Class 50. These items will not be paid for directly but shall be considered subsidiary to the item "Prestressed Concrete Girders (Type III)".

Slab Reinforcing:
Longitudinal: S401E in top placed as shown
S502E in bottom placed as shown
S601E in top placed as shown over interior supports,
S602E in top placed at bridge ends. See "REINFORCING PLAN AND POURING SEQUENCE" on Dwg. No. 66612.
Transverse: S501E @ 6" O.C. in Top and Bottom
S503E @ 6" O.C. in Top, in overhang (Bundled with S501E)

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11/21/23

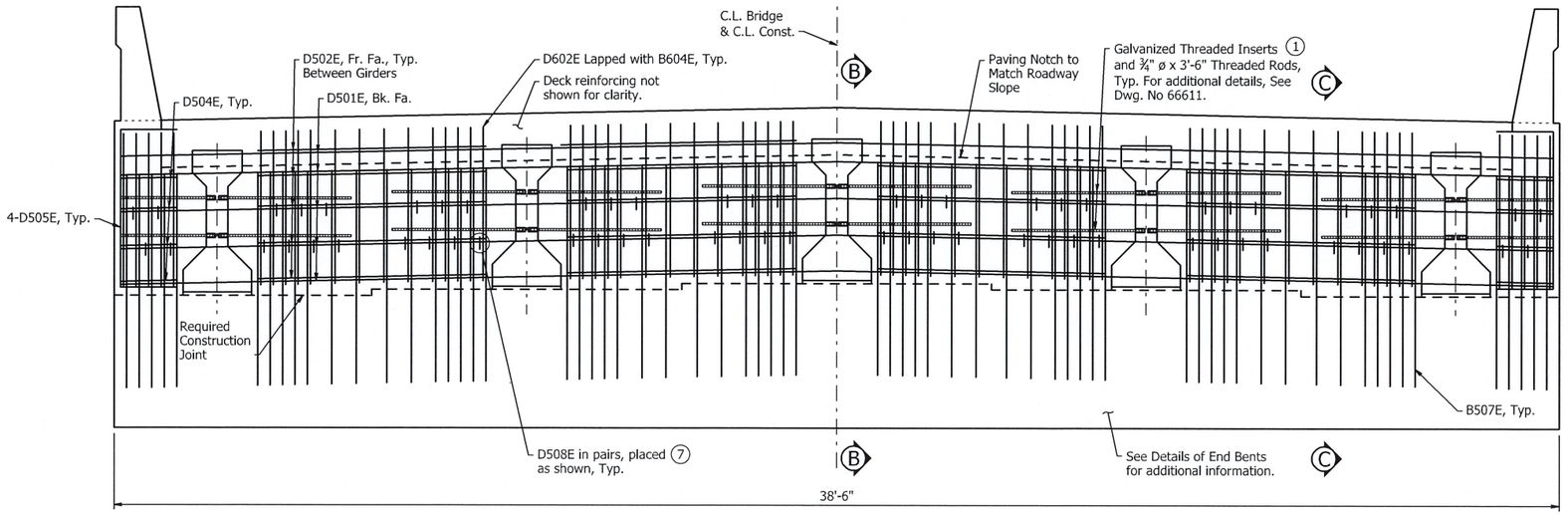
SHEET 1 OF 8
DETAILS OF 179'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
DEAD TIMBER LAKE
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 02-21-2023 FILENAME: b101124x1_s1.dgn
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DESIGNED BY: KRM DATE: 02-14-2023
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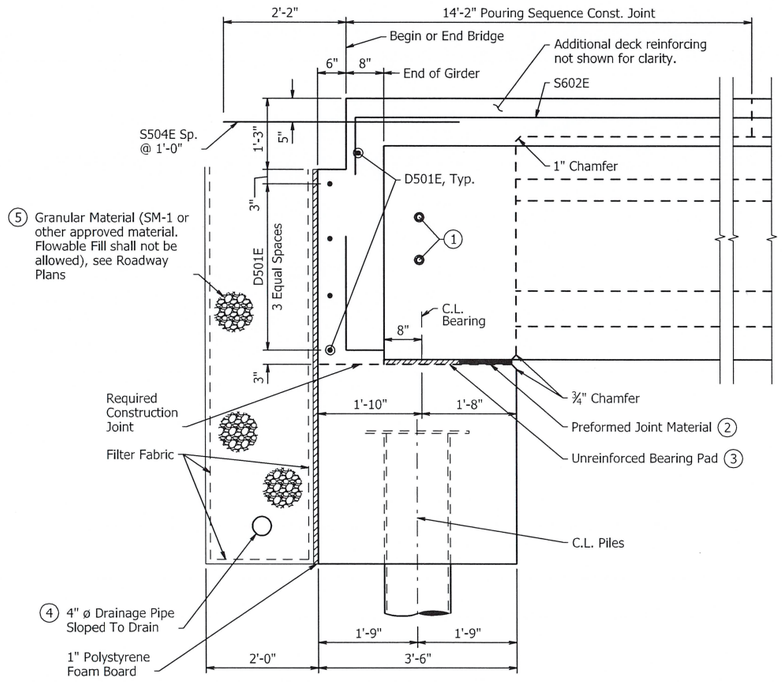
1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	99	191
		07648		SPAN DETAILS		66608



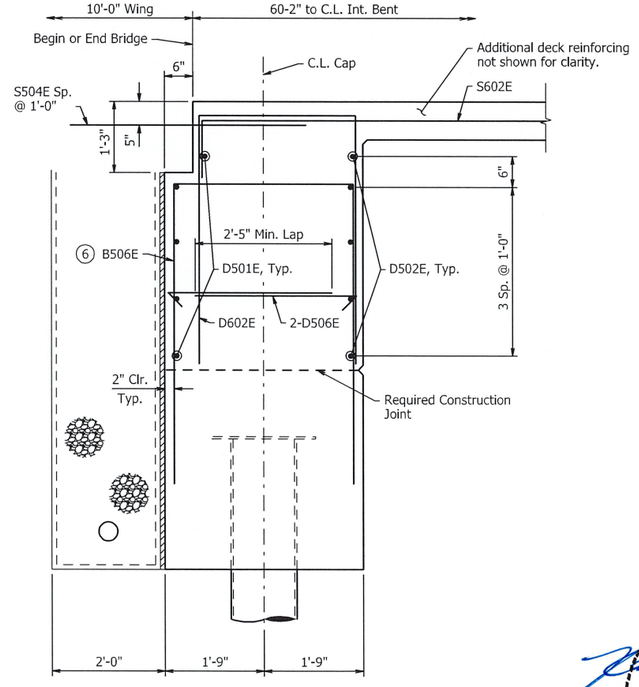
TYPICAL SECTION AT END BENT DIAPHRAGMS

(Looking Ahead at Bent 4, Bent 1 Similar)
Scale: ½" = 1'-0"



SECTION B-B

(Looking Normal To Bent)
Scale: ¾" = 1'-0"



SECTION C-C

(Looking Normal To Bent)
Scale: ¾" = 1'-0"

(1) Galvanized threaded Inserts shall be Dayton-Richmond F-42 Loop Ferrule Insert or an approved equal. ¾" ø threaded rods to be ASTM A709, Grade 36 or AASHTO M 31 or M 322, Gr. 60. Galvanizing shall be in accordance with AASHTO M 232 Class C or ASTM B 595 Class 50. These items will not be paid for directly but shall be considered subsidiary to the item "Prestressed Concrete Girders (Type III)".

(2) Preformed Joint Material shall conform to AASHTO M 153 Type 1. Preformed Joint Material will not be paid for directly, but shall be considered subsidiary to the item "Class S(AE) Concrete - Bridge". See Dwg. No. 66602 for details.

(3) Unreinforced bearing pads shall meet the requirements of Section 808 with the exception that hardness shall be 50 durometer. Unreinforced bearing pads shall not be paid for directly, but shall be considered subsidiary item "Class S(AE) Concrete - Bridge". See Dwg. No. 66602 for details.

(4) For additional details of pipe underdrain, see Std. Dwg. PU-1 and Section 611. Pipe underdrains will not be measured or paid for separately, but will be considered subsidiary to various bid items.

(5) Polystyrene Foam Board, Filter Fabric and Granular Material shall not be paid for directly, but shall be considered subsidiary to various bid items.

(6) For additional details, see End Bent Details on Dwg. Nos. 66602-66603.

(7) Orient each pair of D508E bars to be parallel to horizontal legs of adjacent D602E stirrup bars.

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SHEET 2 OF 8
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DEAD TIMBER LAKE
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

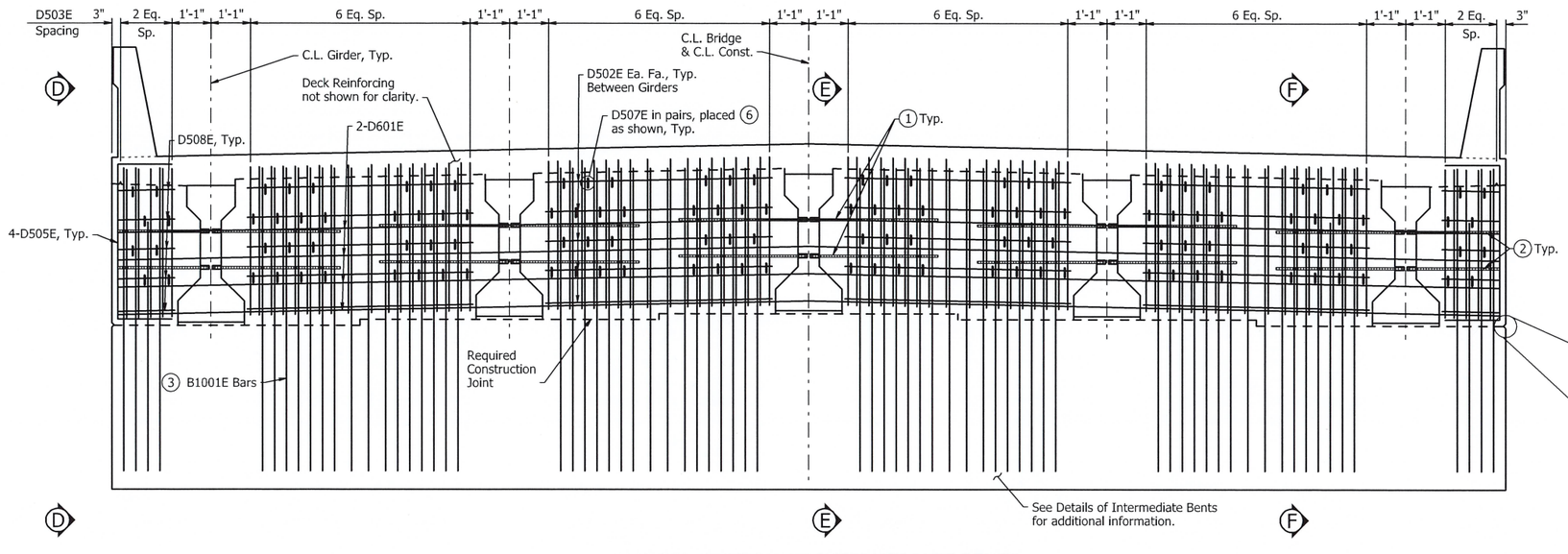
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DESIGNED BY: KRM DATE: 05-31-2023

BRIDGE NO. 07648 DRAWING NO. 66608

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1 Sites 5 & 6 removed from job. CAW, 11/20/23

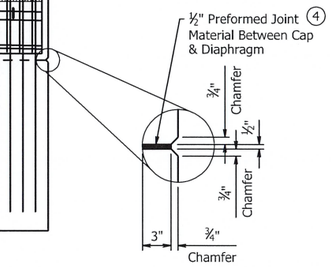
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	100	191
		07648		SPAN DETAILS		66609



TYPICAL SECTION AT INTERMEDIATE BENTS

(Looking Ahead)

Scale: ½" = 1'-0"



(1) ¾" ø x 3'-6" Galvanized Threaded Rods with inserts. For additional details, see Dwg. No. 66611.

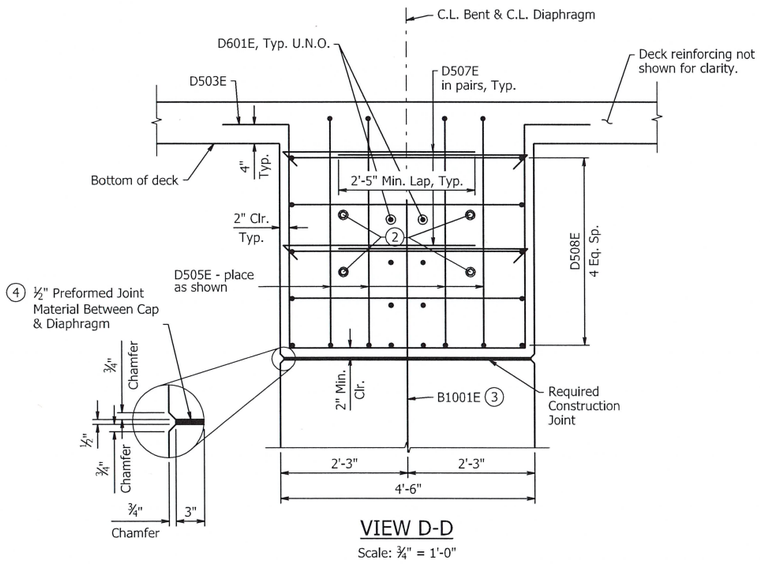
(2) ¾" ø x 2'-3" Galvanized Threaded Rods with inserts. For additional details, see Dwg. No. 66611.

(3) For additional details of B1001E bars, see Dwg. Nos. 66604, 66605 & 66606.

(4) Preformed Joint Material shall conform to AASHTO M 153 Type 1. Preformed Joint Material will not be paid for directly, but shall be considered subsidiary to the item "Class S(AE) Concrete - Bridge". See Dwg. No. 66604 for additional details.

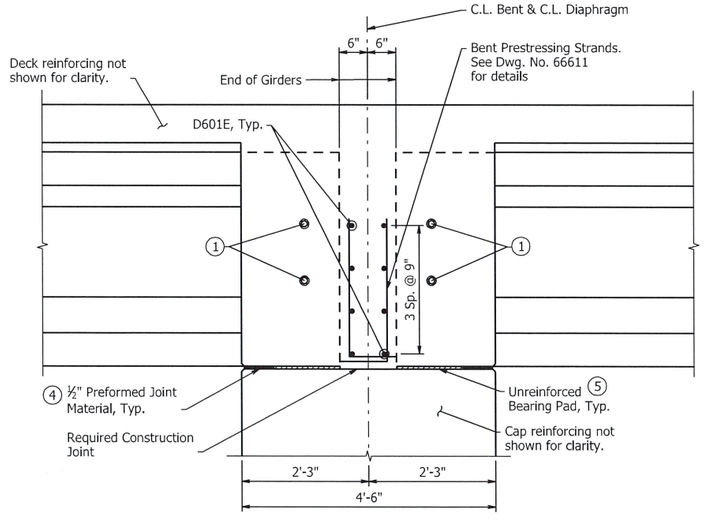
(5) Unreinforced bearing pads shall meet the requirements of Section 808 with the exception that hardness shall be 50 durometer. Unreinforced bearing pads shall not be paid for directly, but shall be considered subsidiary to the item "Class S(AE) Concrete - Bridge" see Dwg. No. 66604 for additional details.

(6) Orient each pair of D507E bars to be parallel to horizontal legs of adjacent D503E stirrup bars.



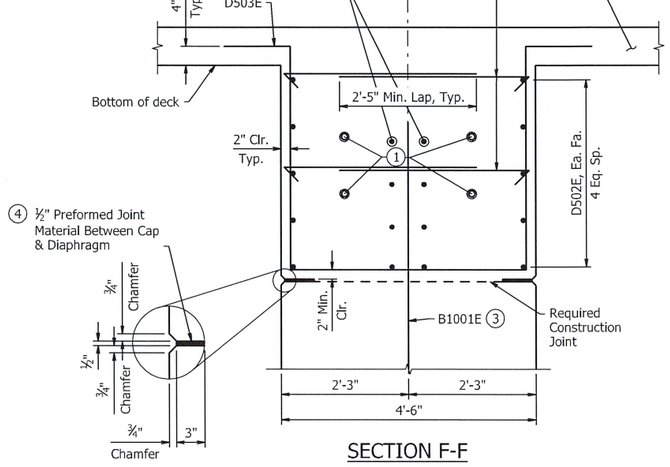
VIEW D-D

Scale: ¾" = 1'-0"



SECTION E-E

Scale: ¾" = 1'-0"



SECTION F-F

Scale: ¾" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
KENNETH RANDALL MILLER
No. 16720
11/20/23

SHEET 3 OF 8

DETAILS OF 179'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT DEAD TIMBER LAKE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-07-2023 FILENAME: b101124x1_s3.dgn

CHECKED BY: CAW DATE: 06-08-2023 SCALE: AS NOTED

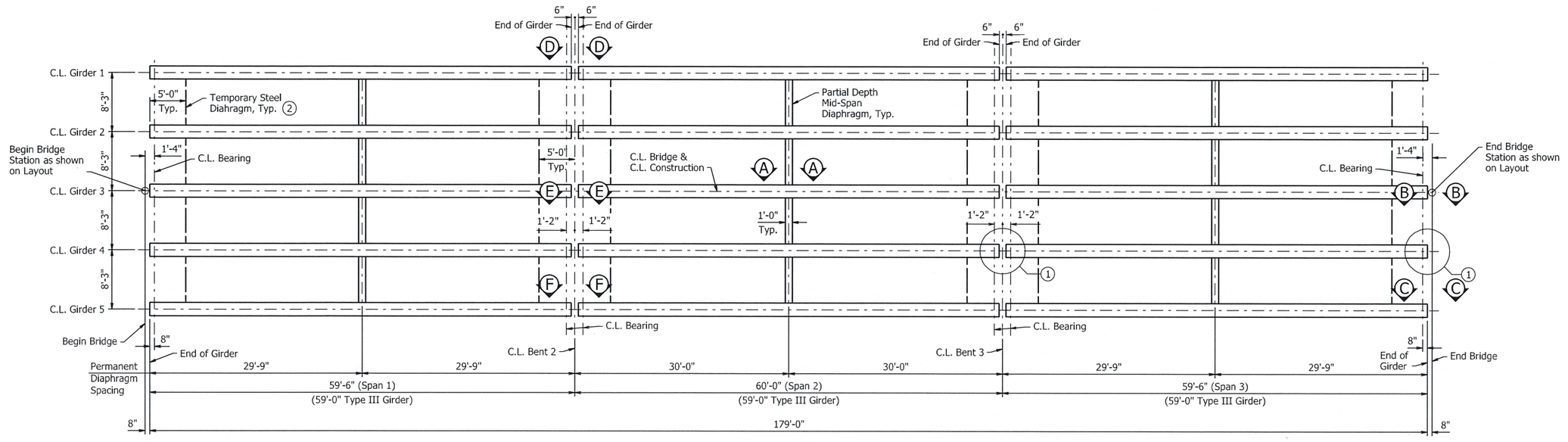
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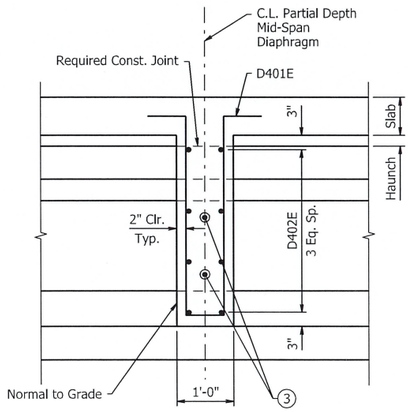
1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	101	191
		07648		SPAN DETAILS		66610



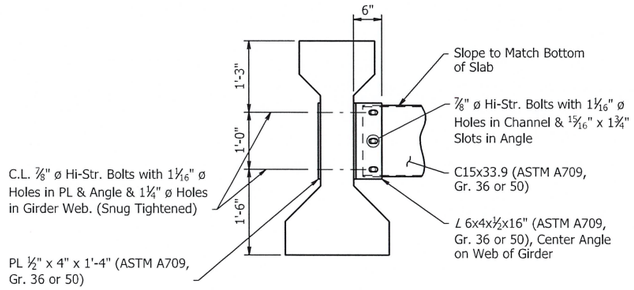
FRAMING PLAN

Scale: ⅛" = 1'-0"



SECTION A-A

Scale: ¾" = 1'-0"



DETAILS OF STEEL DIAPHRAGM

No Scale

Notes:

Steel Diaphragms shall be used at locations noted as "Temporary Steel Diaphragm". The Temporary Steel Diaphragm and components will not be paid for directly, but shall be considered subsidiary to the item "Prestressed Concrete Girders (Type III)".

Permanent Steel Diaphragms may be used in lieu of concrete diaphragms at locations noted as "Partial Depth Mid-Span Diaphragm" and payment for permanent steel diaphragms and components will be based on concrete diaphragms.

All components of Steel Diaphragms (Permanent and Temporary) shall be galvanized in accordance with Section 807.19.

A standard washer shall be supplied under both the nut and the head of the ⅞" ø Hi-Str. Bolts. An additional plate washer shall cover the angle slots.

Notes:

For "SECTION B-B" and "SECTION C-C", see Dwg. No. 66608.

For "VIEW D-D", "SECTION E-E", and "SECTION F-F", see Dwg. No. 66609.

For additional details of Intermediate and End Bent diaphragms, see Dwg. Nos. 66608 & 66609.

(1) After erection, the ends of girders at all bents shall be blocked using temporary blocking to maintain proper location on bent caps. The ends of girders shall remain blocked until after the temporary steel diaphragms are in place.

(2) After the concrete deck construction and curing are complete, the temporary steel diaphragm and connecting elements shall be removed and become the property of the Contractor. The holes in the girder webs shall be filled with a QPL-approved non-shrink epoxy grout. For additional diaphragm details, see "DETAILS OF STEEL DIAPHRAGM".

(3) ¾" ø x 3'-6" Galvanized Threaded Rods. For additional details, see Dwg. Nos. 66607 & 66611.

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SHEET 4 OF 8
DETAILS OF 179'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
DEAD TIMBER LAKE
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

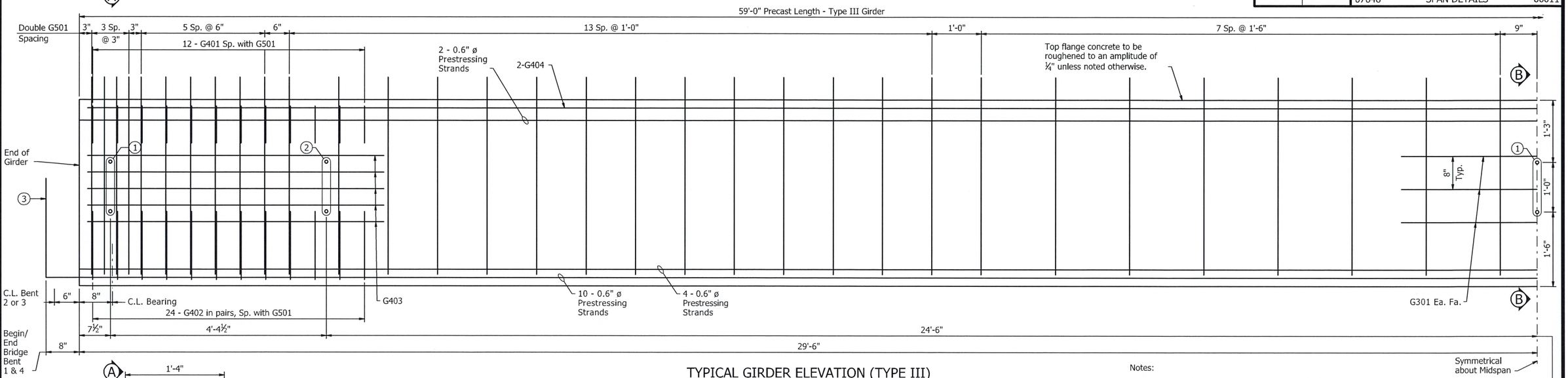
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DESIGNED BY: KRM DATE: 05-31-2023
BRIDGE NO. 07648 DRAWING NO. 66610

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1 Sites 5 & 6 removed from job. CAW, 11/20/23

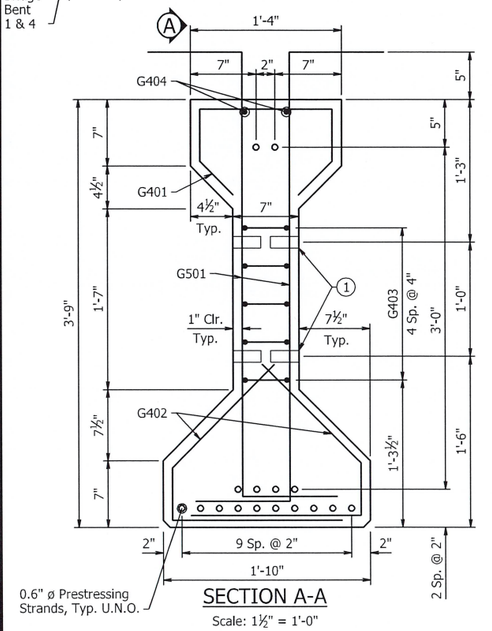
DATE REVISED	DATE REVISED
11/20/23	

FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	101124	102	191
07648		SPAN DETAILS		66611



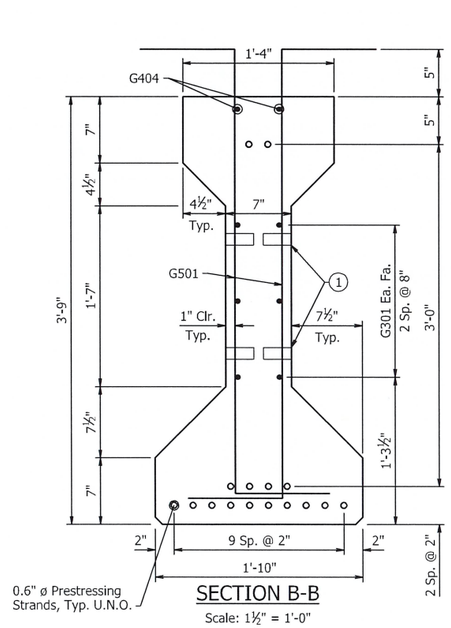
TYPICAL GIRDER ELEVATION (TYPE III)

Scale: 1" = 1'-0"



SECTION A-A

Scale: 1½" = 1'-0"

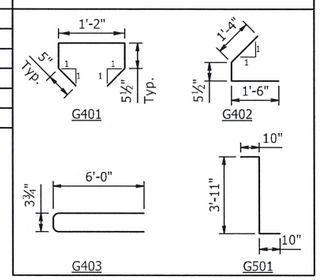


SECTION B-B

Scale: 1½" = 1'-0"

BAR LIST - PER GIRDER

Mark	No. Req'd.	Length	Pin Dia.	BENDING DIAGRAMS
G301	6	5'-0"	Str.	
G401	24	2'-8"	2"	
G402	48	3'-3"	2"	
G403	10	12'-2"	2"	
G404	2	58'-8"	Str.	
G501	128	5'-4"	2½"	



Notes:

Dimensions are out to out of bars.

All bars in "BAR LIST - PER GIRDER" will not be paid for directly, but will be considered subsidiary to the item "Prestressed Concrete Girders (Type III)". At the Contractor's option, the two G401 bars may be furnished as one bar.

At the Contractor's option, ½" diameter strands pulled to 2,000 lbs. may be substituted for G404 bars.

Notes:

Dimensions are measured along C.L. of Girder, U.N.O.

Prestressing strands will not be paid for directly, but will be considered subsidiary to the item "Prestressed Concrete Girders (Type III)".

Prestressing strands shall be bonded along the entire length of the girder.

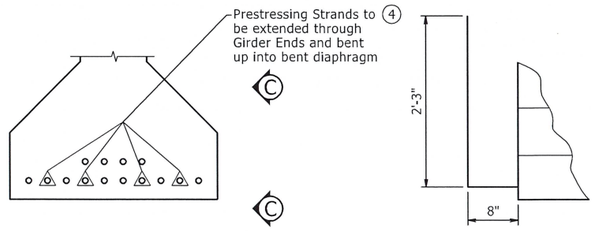
(1) Connection for Concrete Diapragms: ¾" ø threaded inserts. See Dwg. No. 66608-66609 for additional details.

(2) Connection for Temporary Steel Diaphragm: 1¼" ø holes in web. See Dwg. No. 66610 for additional details.

(3) Prestressing Strands bent up into end and intermediate bent diaphragms. See "END OF GIRDER VIEW".

(4) Shop bend 4 bottom prestressed strands from the end of the girder into bent diaphragms as shown. Saw cut or grind remaining strands at both ends flush with the end of the girder.

At the Contractor's option, the location for bent up strands may be varied. The total number of bent up strands per row shall not be changed. Saw cut or grind remaining strand flush with the end.

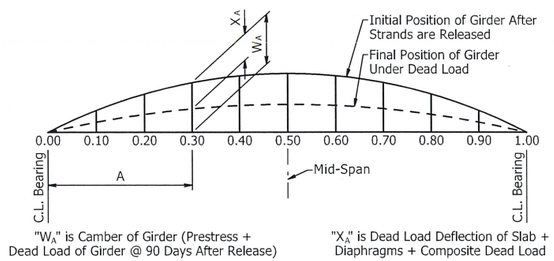


END OF GIRDER VIEW

Scale: 1½" = 1'-0"

VIEW C-C

Scale: 1" = 1'-0"



"W_A" is Camber of Girder (Prestress + Dead Load of Girder @ 90 Days After Release)

"X_A" is Dead Load Deflection of Slab + Diaphragms + Composite Dead Load

CAMBER & DEFECTIONS (INCHES)

No Scale

SPAN PT.	INCHES	
	W_A	X_A
0.00	0.000	0.000
0.10	0.369	0.138
0.20	0.642	0.274
0.30	0.826	0.381
0.40	0.933	0.451
0.50	0.968	0.474

Notes:

Table is symmetrical about Mid-Span.

"W " and "X " are based on the required minimum concrete strength and may vary from the dimension shown. "W" and "X" shall be measured along bottom of girders unless otherwise approved by the Engineer. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Dwg. No. 66607 for limitations of the girder final position under dead load. The Contractor is responsible for any adjustment necessary to meet slab thickness tolerance and to achieve an acceptable finished grade. No payment shall be made for any additional concrete in the haunches when camber is less than shown.

STATE OF ARKANSAS
KENNETH RANDALL MILLER
LICENSED PROFESSIONAL ENGINEER
No. 16720
11/20/23

SHEET 5 OF 8
DETAILS OF 179'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
DEAD TIMBER LAKE
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

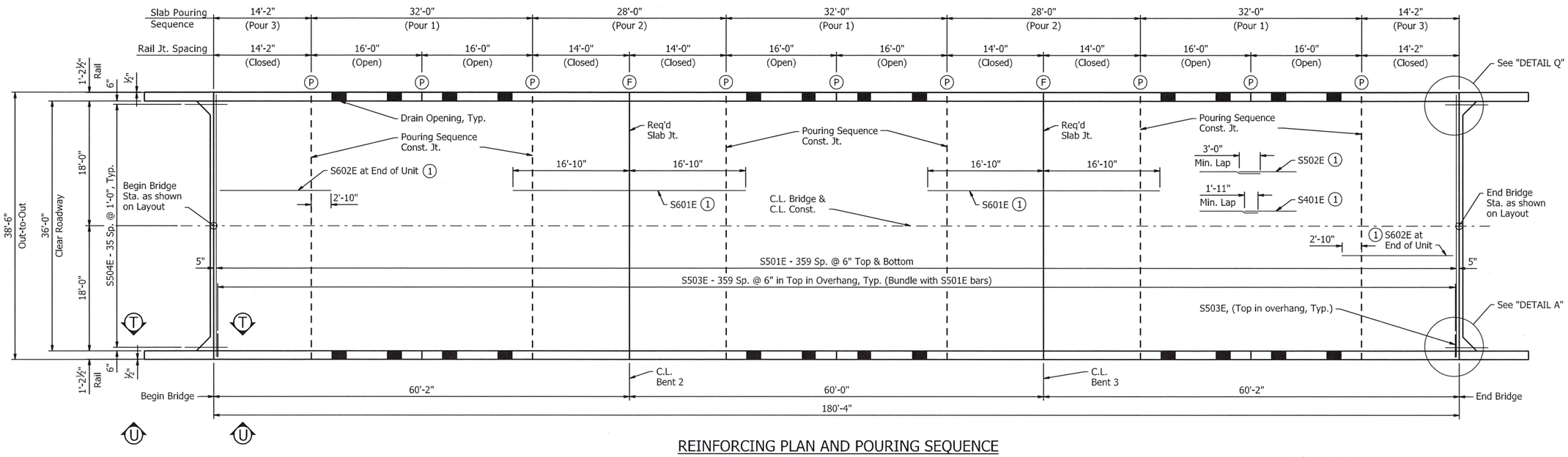
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BRIDGE NO. 07648 DRAWING NO. 66611

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1 Sites 5 & 6 removed from job. CAW, 11/20/23

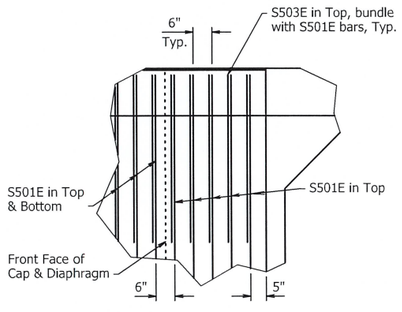
DATE REVISED	DATE REVISED
11/20/23	

FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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07648	SPAN DETAILS			66612



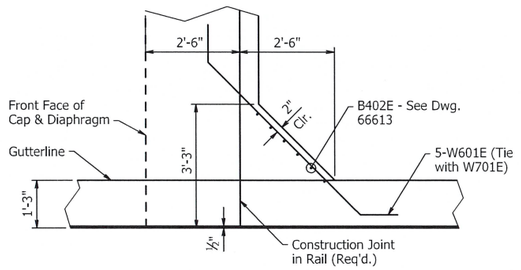
REINFORCING PLAN AND POURING SEQUENCE

Scale: ⅛" = 1'-0"



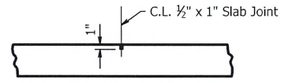
DETAIL Q

Scale: ½" = 1'-0"



DETAIL A

Scale: ½" = 1'-0"



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

TRANSVERSE SLAB JOINT DETAIL

No Scale

Deck Pouring Sequence Notes:

Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. All Pours (2) must be placed before Pours (3) can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between adjacent pours.

A minimum of 72 hours shall elapse between completion of the slab and the pouring of the bridge railing. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

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

Notes:

Rails and wings are included in span construction and are included in span quantities.

For rail reinforcing details, see Std. Dwg. No. 55070 and Dwg. Nos. 66607 & 66613.

Required slab joints and pouring sequence joints shall align with rail joints at the gutterline.

For Bar List, "SECTION T-T", and "SECTION U-U" see Dwg. Nos. 66613 & 66614.

(F) C.L. Full depth rail joint.

(P) C.L. Partial depth rail joint.

(1) Place as shown in "TYPICAL ROADWAY SECTION", see Dwg. No. 66607.

STATE OF ARKANSAS
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11/20/23

SHEET 6 OF 8
DETAILS OF 179'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
DEAD TIMBER LAKE
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

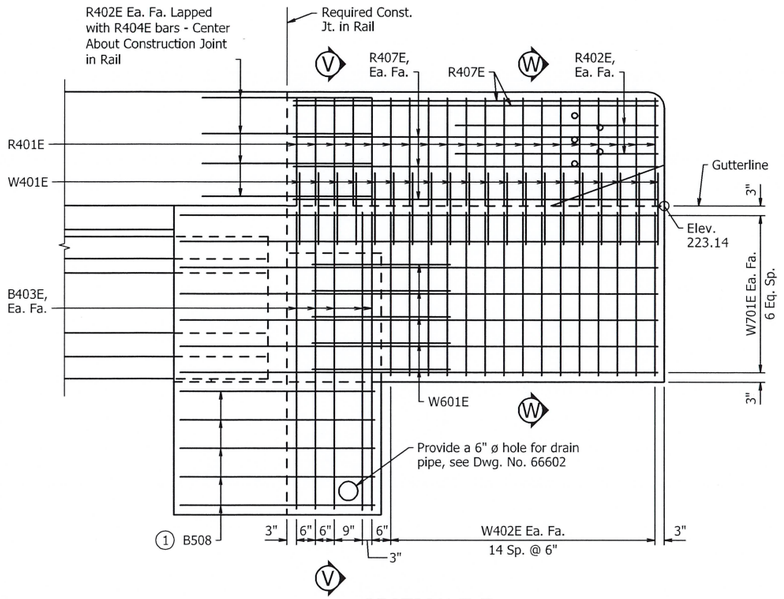
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DESIGNED BY: KRM DATE: 05-31-2023

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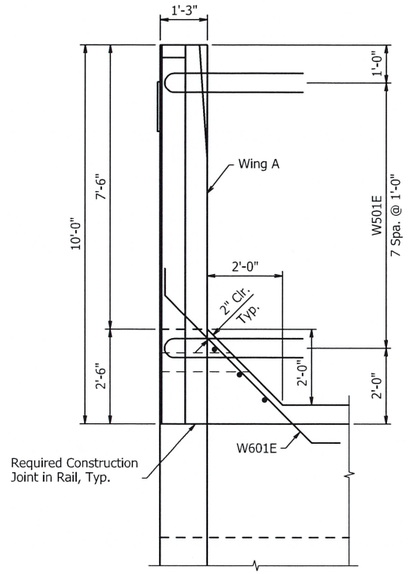
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	104	191
		07648		SPAN DETAILS		66613

1 Sites 5 & 6 removed from job. CAW, 11/20/23



SECTION T-T

Scale: ½" = 1'-0"

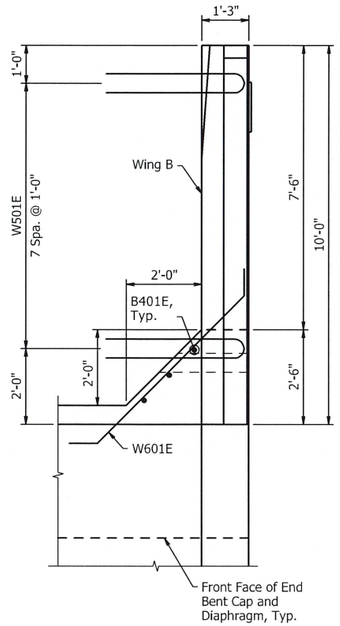


PLAN OF RAIL

Scale: ½" = 1'-0"

Stations Increasing End Bent 1

Stations Increasing End Bent 4

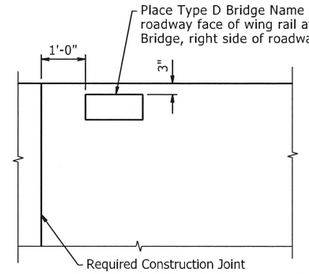


Notes:

For Location of "SECTION T-T" & "VIEW U-U", see "REINFORCING PLAN & SLAB POURING SEQUENCE" on Dwg. No. 66612.

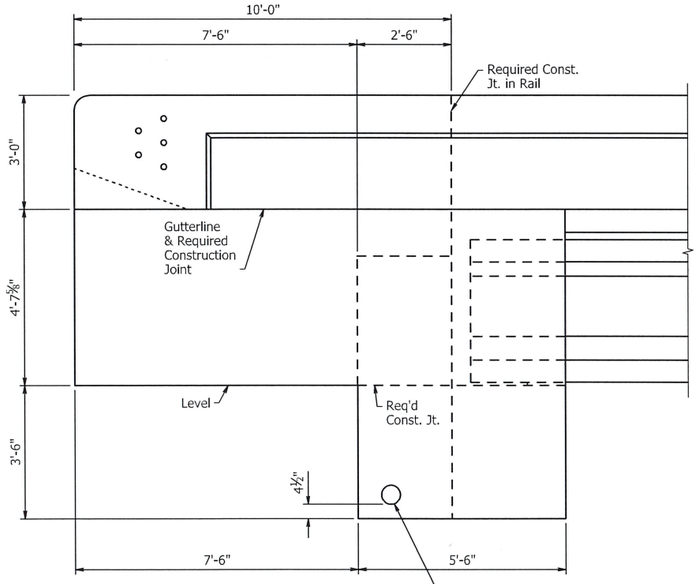
For reinforcing details, dimensions, rail terminus details and other information for the Bridge Traffic Rail, see Std. Dwg. No. 55070.

1 See End Bent details on Dwg. Nos. 66602-66603 for reinforcing steel and additional details.



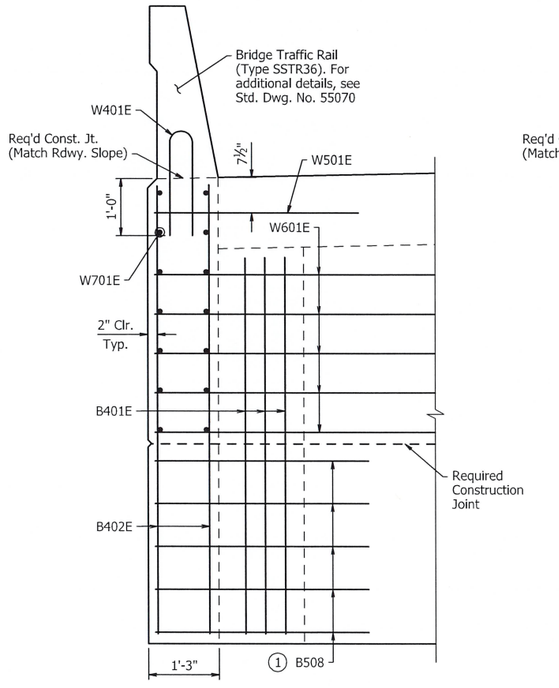
NAME PLATE DETAIL

No Scale



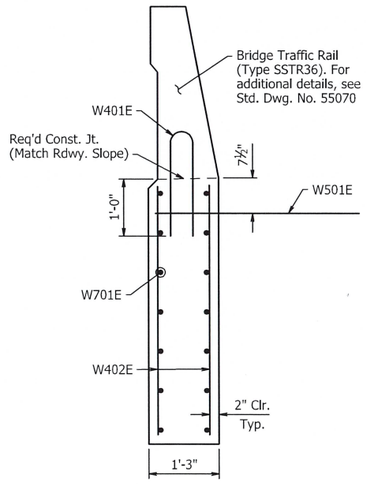
VIEW U-U

Scale: ½" = 1'-0"



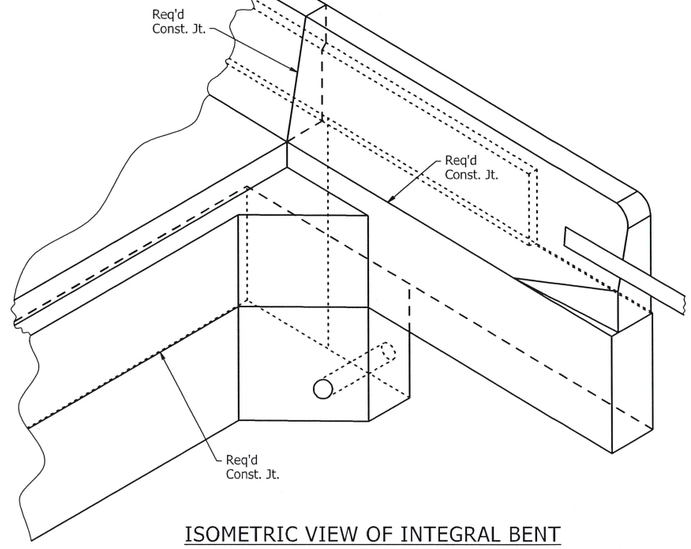
SECTION V-V

Scale: ¾" = 1'-0"



SECTION W-W

Scale: ¾" = 1'-0"



ISOMETRIC VIEW OF INTEGRAL BENT

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 16720
KENNETH RANDALL MILLER
11/20/23

SHEET 7 OF 8
DETAILS OF 179'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
DEAD TIMBER LAKE
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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CHECKED BY: CAW DATE: 06-08-2023 SCALE: AS NOTED
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GENERAL NOTES

PRESTRESSED CONCRETE GIRDERS:

Pretensioning steel shall be 0.6" dia. Low Relaxation strands with a minimum ultimate strength of 270 ksi, and shall conform to AASHTO M 203.

Distances from the forms and spacing of the Prestressing Steel shall be maintained by stays, ties, hangers, spacers, or other approved supports which shall be shown on the Shop Drawings.

All girders shall be Type III as noted on the details and shall be the standard prestressed sections adopted by the Joint Committee of AASHTO and the Prestressed Concrete Institute. All girders shall be cast in concrete floored pallets and in metal forms. All work and materials shall be as specified in Subsection 802.22.

Concrete shall be Class S and shall have a minimum 28 day compressive strength, f'c = 6,000 psi. The initial tensile force applied to each 0.6" dia. strand shall be 43,950 lbs. Transfer of this tensioning load to the girder shall not be done until the compressive strength of the concrete is 4,500 psi.

Dimensions shown are to the center of the strands.

The Contractor shall submit the method and sequence for release of strands to the Engineer for approval prior to casting of the girders.

Holes and Inserts shall be cast into the girder. Field drilling of holes shall not be permitted.

Except where noted otherwise on the plans, the tops of the girders shall be roughened to an amplitude of ¼" and shall be scrubbed transversely with a coarse wire brush to remove all laitance to produce an adequate surface for bonding the slab.

After detensioning, saw cut and grind flush all strands. Heat-cutting shall not be used within 6" of the girder.

Extreme care shall be exercised in handling and moving precast prestressed concrete girders. Girders must be maintained in an upright position at all times and must be picked up from points near the girder ends. Disregard of this requirement may lead to collapse of the girder. The Contractor's proposed lifting details shall be submitted on shop drawings to the Engineer for approval. The use of holes for lifting purposes will not be permitted.

The points of support and directions of the reactions with respect to the member shall be approximately the same during transportation and storage as when the member is in its final position.

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

The Contractor may submit alternate strand patterns with design calculations for review and approval.

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

CONCRETE:

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

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

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

REINFORCING STEEL:

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

CAMBER NOTES

The camber and dead load deflection values shown in the plans are estimated based on the required minimum concrete strength for the prestressed concrete girders. The contractor shall provide the Engineer with the following information:

A. Actual 28-day concrete strength of prestressed concrete girders
B. Actual concrete strength of prestressed concrete girders at time of release
C. Estimated age of prestressed concrete girders at time of erection
D. Profile of each girder under self weight in final position

Following receipt of the above data, the Engineer will provide an updated deflection diagram to the Contractor, if required.

STRUCTURAL STEEL:

Structural steel shall be ASTM A709 with grade and payment as specified in the plans. Grade 50W steel shall not be painted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Grade 36 and Grade 50 steel shall be painted unless otherwise noted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84. Structural steel completely embedded in concrete may be ASTM A709, Gr. 36, Gr. 50, or Gr. 50W unless otherwise noted.

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

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

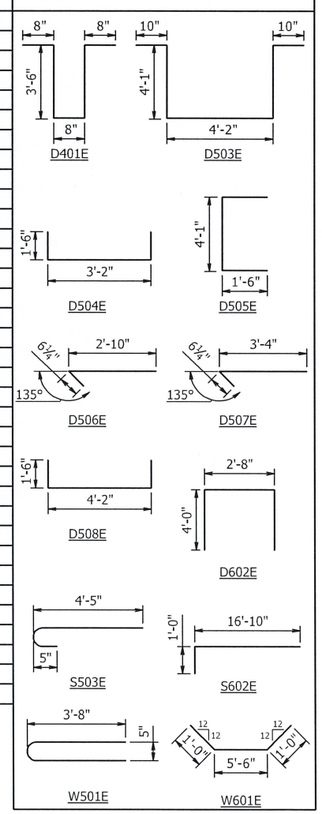
All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval. All welding shall conform to Subsection 807.26.

For Additional Information and Notes, see Layout and Plan details.

BAR LIST

Mark	No. Req'd.	Length	Pin Dia.
D401E	84	8'-8"	2"
D402E	96	6'-1"	Str.
D501E	10	38'-2"	Str.
D502E	120	6'-1"	Str.
D503E	68	13'-7"	2½"
D504E	16	5'-11"	3¾"
D505E	32	6'-10"	3¾"
D506E	256	3'-7"	3¾"
D507E	512	4'-1"	3¾"
D508E	20	6'-11"	3¾"
D601E	16	38'-2"	Str.
D602E	148	10'-5"	4½"
R400E	96	5'-3"	2½"
R401E	700	6'-4"	2½"
R402E	120	5'-6"	Str.
R403E	700	3'-6"	3¾"
R404E	32	13'-10"	Str.
R405E	64	13'-8"	Str.
R406E	96	15'-8"	Str.
R407E	32	9'-8"	Str.
S401E	195	37'-8"	Str.
S501E	720	38'-2"	Str.
S502E	208	47'-4"	Str.
S503E	720	5'-0"	3¾"
S504E	72	4'-4"	Str.
S601E	76	33'-8"	Str.
S602E	76	17'-9"	4½"
W401E	80	3'-11"	3¾"
W402E	120	4'-3"	Str.
W501E	32	7'-6"	3¾"
W601E	20	7'-5"	4½"
W701E	56	9'-8"	Str.

BENDING DIAGRAMS



Notes:

Dimensions are out to out of bars.
Bars with an "E" suffix are to be epoxy coated.

See Std. Dwg. No. 55070 for additional details.

TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels					
Panel Length	A	R4XXE	Panel Length	B	C	D	E	R4XXE
14'-2"	28	R404E	16'-0"	8	3'-0"	11	6'-0"	R406E
14'-0"	27	R405E						

Note:

For additional details, see Std. Dwg. No. 55070.

1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	105	191
		07648		SPAN DETAILS		66614

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 16720
KENNETH RANDALL MILLER
11/20/23

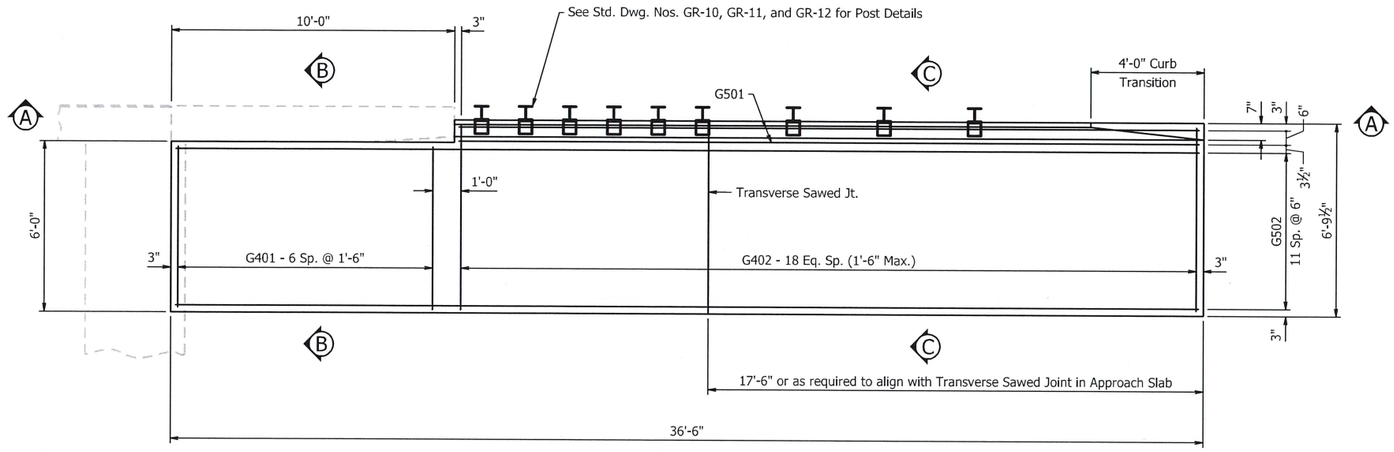
SHEET 8 OF 8
DETAILS OF 179'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
DEAD TIMBER LAKE
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-07-2023 FILENAME: b101124x1_s8.dgn
CHECKED BY: CAW DATE: 06-08-2023 SCALE: AS NOTED
DESIGNED BY: KRM DATE: 05-31-2023
BRIDGE NO. 07648 DRAWING NO. 66614

USER: CTAUSER
DESIGN FILE: G:\2211000L\01l24\TRANSP\dgn\bridge\b101l24xl_s8.dgn
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1 Sites 5 & 6 removed from job. CAW, 11/20/23

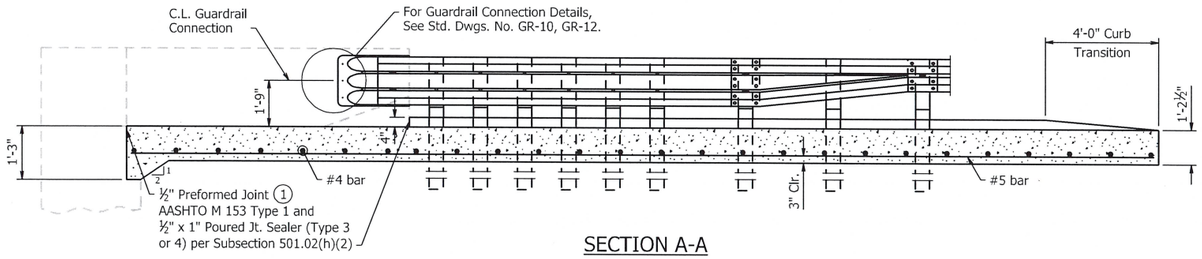
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	106	191
		07648	APPROACH GUTTER			66615



PLAN OF APPROACH GUTTER

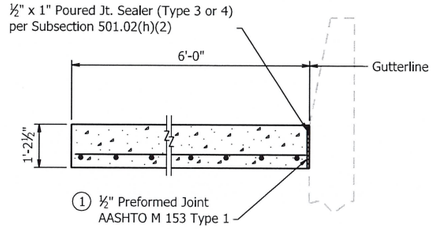
(Bent 4 Left Side Shown, others similar)

Scale: ⅜" = 1'-0"



SECTION A-A

No Scale



SECTION B-B

No Scale

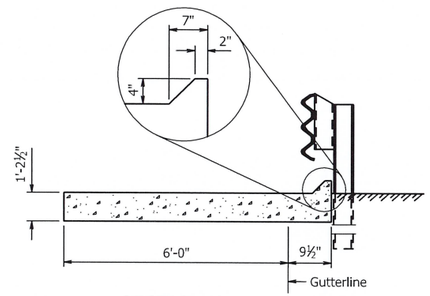
BAR LIST FOR ONE TYPE 1 SPECIAL GUTTER

Mark	No. Req'd.	Length
G401	7	5'-8"
G402	19	6'-5"
G501	2	26'-2"
G502	12	36'-2"

QUANTITIES FOR ONE TYPE 1 SPECIAL GUTTER

(For Information Only)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
616	10.87



SECTION C-C

No Scale

GENERAL NOTES:

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

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

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

(1) Eliminate Type I Preformed Joint when bridge details show reinforcing dowels across these joints. Poured joint sealer is required, however, backer rod shall be eliminated.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 16720
KENNETH RANDALL MILLER
11/20/23

DETAILS FOR
TYPE 1 SPECIAL APPROACH GUTTERS
DEAD TIMBER LAKE
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 06-07-2023 FILENAME: b101124x1_g1.dgn
CHECKED BY: CAW DATE: 06-08-2023 SCALE: AS NOTED
DESIGNED BY: KRM DATE: 05-31-2023

BRIDGE NO. 07648 DRAWING NO. 66615

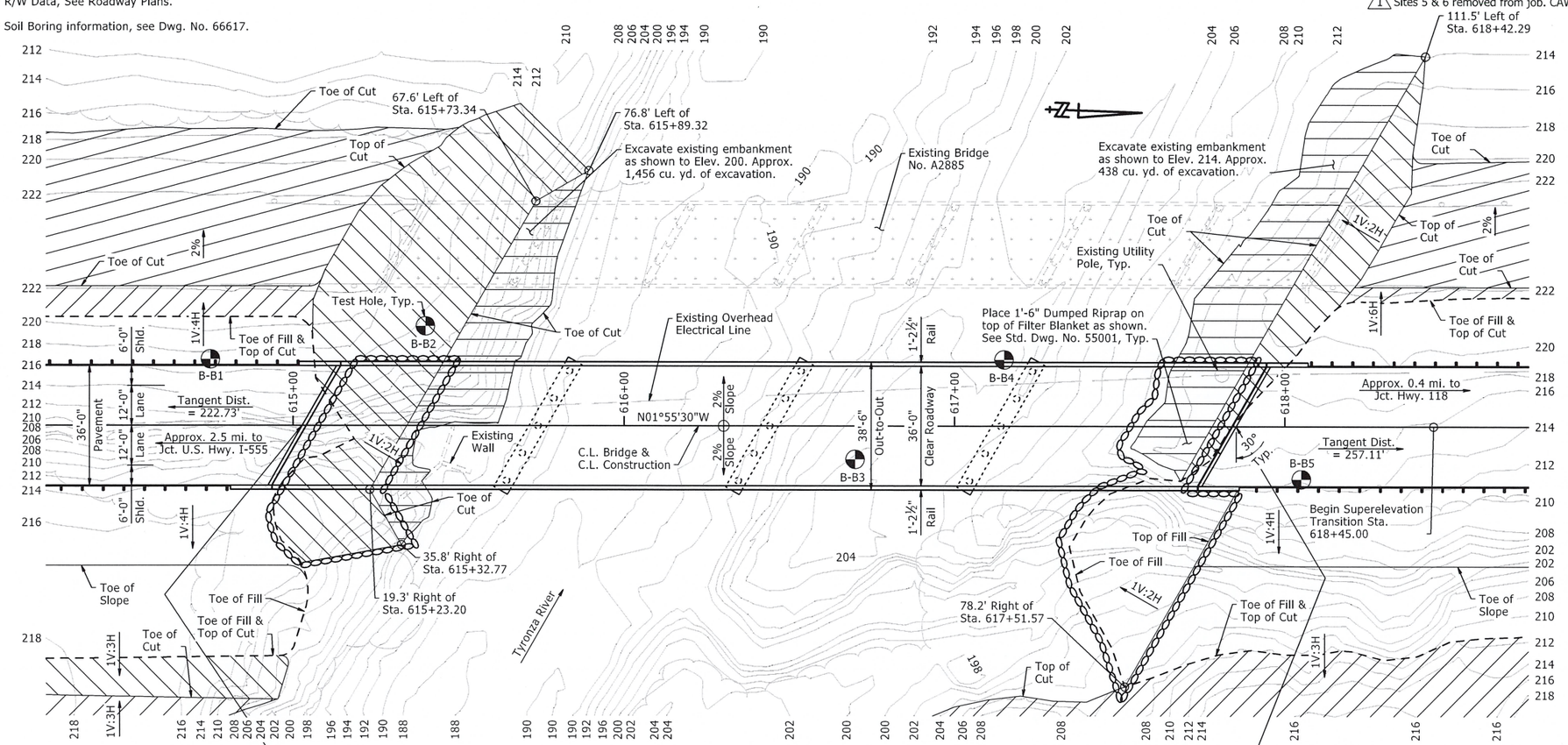
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	107	191
		07649		LAYOUT		66616

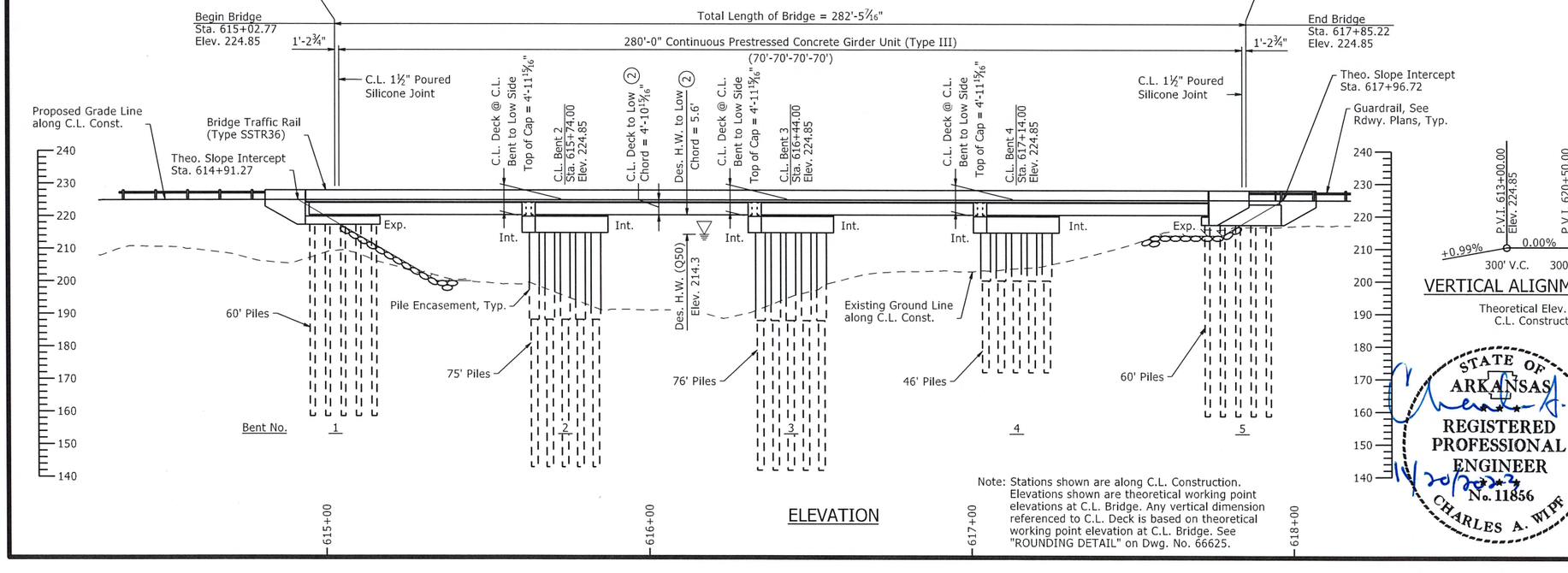
For R/W Data, See Roadway Plans.

For Soil Boring information, see Dwg. No. 66617.

1 Sites 5 & 6 removed from job. CAW, 11/20/23



PLAN



ELEVATION

Note: Stations shown are along C.L. Construction. Elevations shown are theoretical working point elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on theoretical working point elevation at C.L. Bridge. See "ROUNDING DETAIL" on Dwg. No. 66625.

VERTICAL ALIGNMENT DATA

Theoretical Elev. Along C.L. Construction

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on Survey Control Sheets.

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, 9th Edition (2020).

LIVE LOADING: HL-93

SEISMIC ZONE: 4 S_{D1}= 1.197 SITE CLASS: D

SEISMIC OPERATIONAL CLASS: OTHER

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (prestressed concrete girders)	f'c = 6,000 psi
Prestressing Strands (AASHTO M 203, Gr. 270)	fpu = 270,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 50W)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Development Section of the Program Management Division.

STEEL SHELL PILING: Piling in Bents 1 and 5 shall be 18" diameter concrete filled steel shell piles and shall be driven to meet the requirements of the "PILE BEARING TABLE" on Dwg. No. 66617. The 18" diameter piles shall have a nominal wall thickness of ½". Piling in Bents 2 thru 4 shall be 28" diameter concrete filled steel shell piles and shall be driven to meet the requirements of the "PILE BEARING TABLE" on Dwg. No. 66617. The 28" diameter piles shall have a nominal wall thickness of ¾". All piling shall be driven with an approved air, steam, or diesel hammer to the minimum tip elevation as specified in the "PILE BEARING TABLE" on Dwg. No. 66617. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are assumed for estimating quantities only. Actual lengths are to be determined in the field. No additional payment will be made for cut-off or build-up. Test piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g). No payment shall be made for test piles.

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

For additional General Notes, see Dwg. No. 66617.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	(1) NATURAL W.S. ELEVATION	W.S. ELEVATION WITH BACKWATER
	YEARS	CFS	FEET	FEET
DESIGN	50	9,260	214.3	214.3
BASE	100	10,050	215.3	215.3
EXTREME	500	11,800	216.9	217.0
OVERTOPPING	>500	---	---	---

(1) Unconstricted water surface elevation without structure or roadway approaches.

(2) Proposed Low Bridge Chord Elev. = 219.94 feet

100 yr. backwater elevation for existing structure = 215.3 feet
Drainage Area = 290.0 sq. miles
Historical H.W. Elev. = N/A

Note: Use Type 2 Special Approach Gutters and Type C2 Approach Slabs (width = 24'-0") at both ends of bridge. See Dwg. Nos. 66633, 66634, & 55040C2, respectively.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

SHEET 1 OF 2
LAYOUT OF BRIDGE
HWY. 135 OVER TYRONZA RIVER
HWY. 135 STRS. & APPRS. (S)
POINSETT COUNTY
ROUTE 135 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

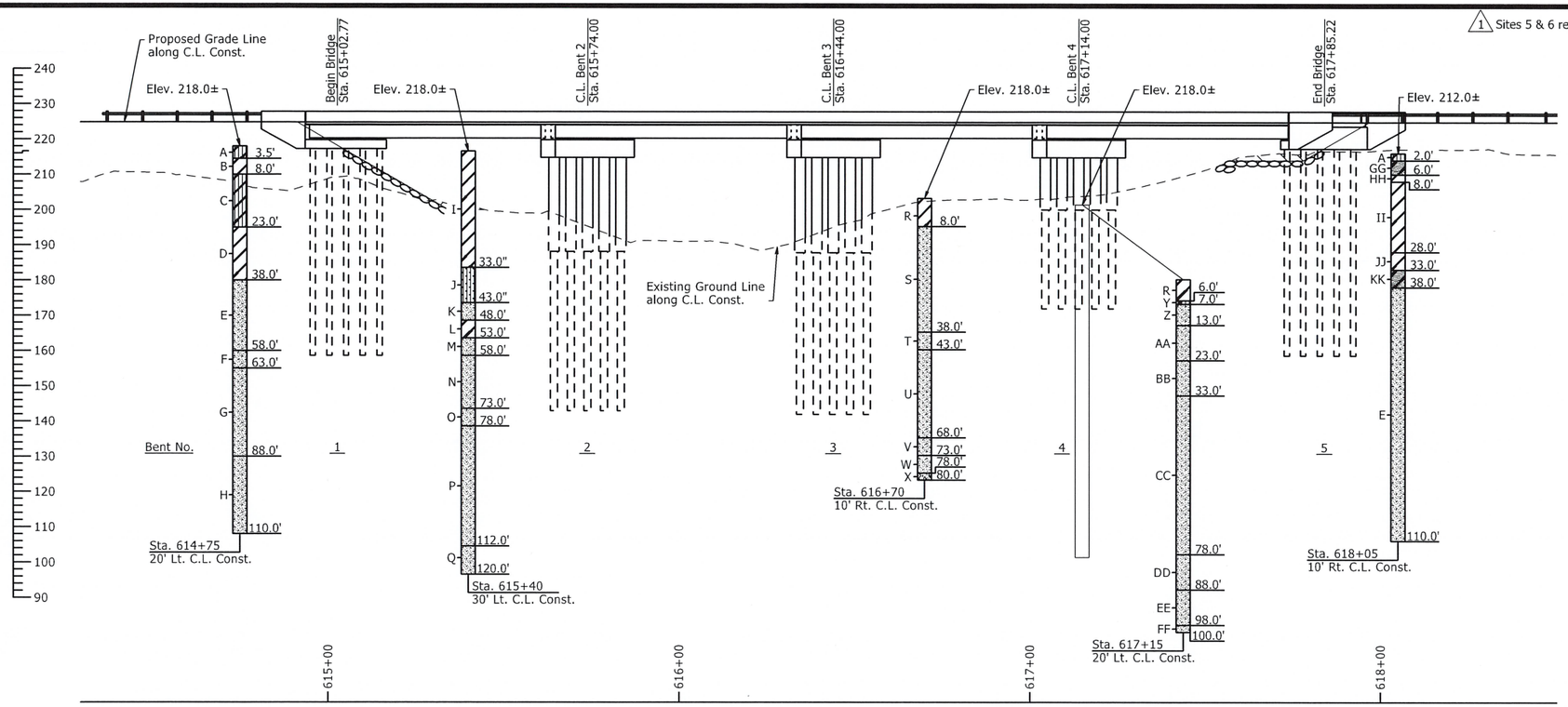
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CHECKED BY: CAW DATE: 02-28-2023 SCALE: 1" = 20'
DESIGNED BY: LDG DATE: 02-10-2023

BRIDGE NO. 07649 DRAWING NO. 66616

USER: CTAUSER
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	108	191
		07649		LAYOUT		66617

1 Sites 5 & 6 removed from job. CAW, 11/20/23



ELEVATION OF SOIL BORINGS

BORING LEGEND

A. Soft brown silty clay, slightly sandy (CL)
B. Firm dark brown clay (CH)
C. Soft brown and gray silty clay (CL), slightly sandy
D. Soft brown and gray clay (CH)
E. Medium dense brownish gray fine to medium sand (SP)
F. Dense gray and brown fine sand, slightly silty (SP)
G. Medium dense brownish gray fine to medium sand (SP) w/trace fine gavel
H. Dense brown and dark gray fine to coarse sand (SW) w/fine gravel
I. Firm gray, brown, and reddish tan clay (CH) w/ferrous stains and occasional decayed organics
J. Dense brown and gray silty fine sand (SM)
K. Medium dense brown and gray fine to medium sand (SP) w/clay pockets and seams
L. Firm gray clay (CH) w/trace fine to coarse gravel
M. Dense brownish gray fine to medium sand, slightly silty (SM-SP)
N. Dense grayish brown fine sand, slightly silty (SM-SP) w/occasional organic inclusions
O. Medium dense grayish brown fine to coarse sand, slightly silty (SM-SW)
P. Dense grayish brown fine to medium sand, slightly silty (SM-SP)
Q. Dense gray fine to medium sand (SW) w/fine to coarse gravel and clay pockets
R. Soft gray and brown clay (CH)
S. Medium dense tan and brown fine sand, slightly silty (SP-SM)
T. Dense brownish gray fine to medium sand, slightly silty (SP-SM) w/trace course sand
U. Dense brownish gray fine sand, slightly silty (SP-SM)
V. Dense grayish tan fine to medium sand, slightly silty (SP-SM)
W. Dense grayish brown fine sand, slightly silty (SP-SM)
X. Dense grayish tan fine to medium sand, slightly silty (SP-SM) w/trace coarse sand and fine to coarse gravel
Y. Firm gray clayey silt, slightly sandy (CL-ML) w/ferrous stains
Z. Loose grayish tan fine sand, slightly silty (SP-SM)
AA. Medium dense grayish tan fine to medium sand, slightly silty (SP-SM)
BB. Dense brownish gray fine sand, slightly silty (SP-SM) w/occasional dark gray nodules and organic stains
CC. Medium dense grayish tan fine to medium sand, slightly silty (SP-SM) w/occasional dark gray nodules and organic stains
DD. Dense g1rayish tan fine sand, slightly silty (SP-SM) w/occasional dark gray nodules and organic stains
EE. Dense grayish tan fine to medium sand, slightly silty (SP-SM) w/trace coarse sand and occasional dark gray nodules and organic stains
FF. Dense grayish tan fine to coarse sand, slightly silty (SP-SM) w/trace fine gravel
GG. Firm brown fine sandy clay (CL)
HH. Soft brown clay (CH) w/silty fine sand seams
II. Very soft to soft brown and gray clay (CH)
JJ. Stiff gray clay (CH), slightly sandy w/occasional organic inclusions
KK. Stiff gray fine sandy clay (CL)

"N" VALUES

Sta. 614+75 - 20' left of C.L. Const.	Sta. 615+40 - 30' left of C.L. Const.	Sta. 616+70 - 10' right of C.L. Const.	Sta. 617+15 - 20' left of C.L. Const.	Sta. 618+05 - 10' right of C.L. Const.
0.5 - 1.5, N=5	0.5 - 1.5, N=11	0.5 - 1.5, N=6	0.5 - 1.5, N=7	0.5 - 1.5, N=5
2.5 - 3.5, N=8	2.5 - 3.5, N=14	2.5 - 3.5, N=6	2.5 - 3.5, N=7	2.5 - 3.5, N=7
4.5 - 5.5, N=8	4.5 - 5.5, N=7	4.5 - 5.5, N=7	4.5 - 5.5, N=6	4.5 - 5.5, N=7
6.5 - 7.5, N=9	6.5 - 7.5, N=11	6.5 - 7.5, N=7	6.5 - 7.5, N=13	6.5 - 7.5, N=5
9.0 - 10.0, N=5	9.0 - 10.0, N=10	9.0 - 10.0, N=38	9.0 - 10.0, N=37	9.0 - 10.0, N=4
14.0 - 15.0, N=6	14.0 - 15.0, N=9	14.0 - 15.0, N=17	14.0 - 15.0, N=40	14.0 - 15.0, N=11
19.0 - 20.0, N=4	19.0 - 20.0, N=9	19.0 - 20.0, N=10	19.0 - 20.0, N=43	19.0 - 20.0, N=12
24.0 - 25.0, N=6	29.0 - 30.0, N=10	24.0 - 25.0, N=37	24.0 - 25.0, N=50	24.0 - 25.0, N=12
29.0 - 30.0, N=5	34.0 - 35.0, N=44	29.0 - 30.0, N=62	29.0 - 30.0, N=34	29.0 - 30.0, N=13
34.0 - 35.0, N=7	39.0 - 40.0, N=40	34.0 - 35.0, N=31	34.0 - 35.0, N=38	34.0 - 35.0, N=12
39.0 - 40.0, N=15	44.0 - 45.0, N=20	39.0 - 40.0, N=48	39.0 - 40.0, N=58	39.0 - 40.0, N=26
44.0 - 45.0, N=20	49.0 - 50.0, N=10	44.0 - 45.0, N=44	44.0 - 45.0, N=51	44.0 - 45.0, N=30
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59.0 - 60.0, N=33	64.0 - 65.0, N=51	59.0 - 60.0, N=54	59.0 - 60.0, N=61	59.0 - 60.0, N=39
64.0 - 65.0, N=25	69.0 - 70.0, N=43	64.0 - 65.0, N=85	64.0 - 65.0, N=53	64.0 - 65.0, N=45
69.0 - 70.0, N=31	74.0 - 75.0, N=36	69.0 - 70.0, N=95	69.0 - 70.0, N=48	69.0 - 70.0, N=42
74.0 - 75.0, N=32	79.0 - 80.0, N=43	74.0 - 75.0, N=71	74.0 - 75.0, N=47	74.0 - 75.0, N=49
79.0 - 80.0, N=37	84.0 - 85.0, N=67	79.0 - 80.0, N=70	79.0 - 80.0, N=85	79.0 - 80.0, N=48
84.0 - 85.0, N=42	89.0 - 90.0, N=86		84.0 - 85.0, N=84	84.0 - 85.0, N=46
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99.0 - 100.0, N=40	109.0 - 110.0, N=53		99.0 - 100.0, N=78	99.0 - 100.0, N=48
109.0 - 110.0, N=42	110.0 - 120.0, N=172			109.0 - 110.0, N=59

GENERAL NOTES (CONT'D.)

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of Subsection 805.09(b), "Method B - Wave Equation Analysis (WEAP)" and SP "PILE DRIVING SYSTEM". See the"PILE BEARING TABLE" for the estimated minimum rated hammer energy required to overcome the anticipated driving resistance for all piles at each bent. If the Contractor elects to use water jetting or other approved methods to obtain the minimum tip elevations shown while driving only to the required minimum ultimate bearing capacity, the minimum rated hammer energy required will be lower and shall be accounted for in the driving system chosen by the Contractor.

PILE ENCASEMENT: Pile encasement for Bents 2 thru 4 shall extend from bottom of cap to 3' below natural or finished ground. See Dwg. No. 66623 for additional information.

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

PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the Bridge Traffic Rail in accordance with Section 803.

DETAIL DRAWINGS:	DRAWING NO(S).
End Bents	66618-66620
Intermediate Bents	66621-66622
Elastomeric Bearings	66624
280' Prestressed Concrete Girder Unit	66625-66632
Concrete Filled Steel Shell Piling	55021 & 66623
Type 2 Special Approach Gutters	66633-66634
Type C2 Approach Slabs	55040C2
Bridge Traffic Rail	55070

EXISTING BRIDGE: Existing Bridge No. A2885 (Log Mile 2.67) is 28.6' wide (24.0' clear roadway) and 283.0' long and consists of steel I-beam spans (7 spans total) supported by precast concrete piles. The existing bridge is located approximately 55' downstream from the proposed new bridge. Plans of the existing structure, if available, may be obtained upon request to the Construction Contract Development Section of the Program Management Division.

REMOVAL AND SALVAGE: After the new bridge is open to traffic, the Contractor shall remove existing Bridge No. A2885 in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

PILE BEARING TABLE

BENTS	REQUIRED MINIMUM ULTIMATE BEARING CAPACITY (TONS)	MIN. TIP ELEVATION	ANTICIPATED DRIVING RESISTANCE AT MIN. TIP (TONS)	ESTIMATED MIN. RATED HAMMER ENERGY (FT. LBS. PER BLOW)
1	320	158	330	107,000
2	568	143	585	186,000
3	568	142	860	186,000
4	568	172	590	186,000
5	320	158	400	107,000

Note: Required minimum ultimate bearing capacity corresponds to the minimum post driving capacity to be obtained after an allowance for water jetting or any other methods employed to facilitate pile installation.

Anticipated Driving Resistance corresponds to the resistance to be overcome to achieve minimum tip elevation without any water jetting or other methods employed to facilitate pile installation.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

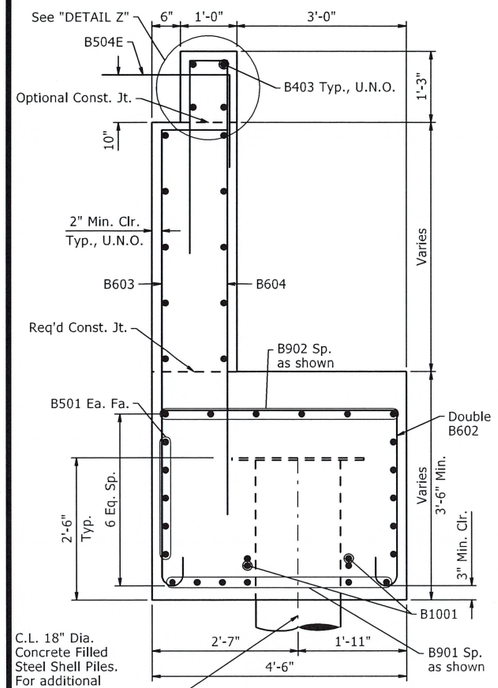
SHEET 2 OF 2
LAYOUT OF BRIDGE
HWY. 135 OVER TYRONZA RIVER
HWY. 135 STRS. & APPRS. (S)
POINSETT COUNTY
ROUTE 135 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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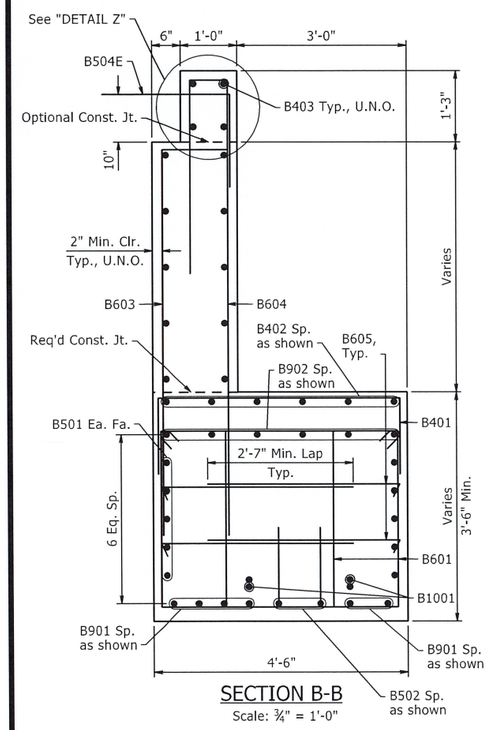
1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	109	191
		07649	END BENT DETAILS			66618



SECTION A-A

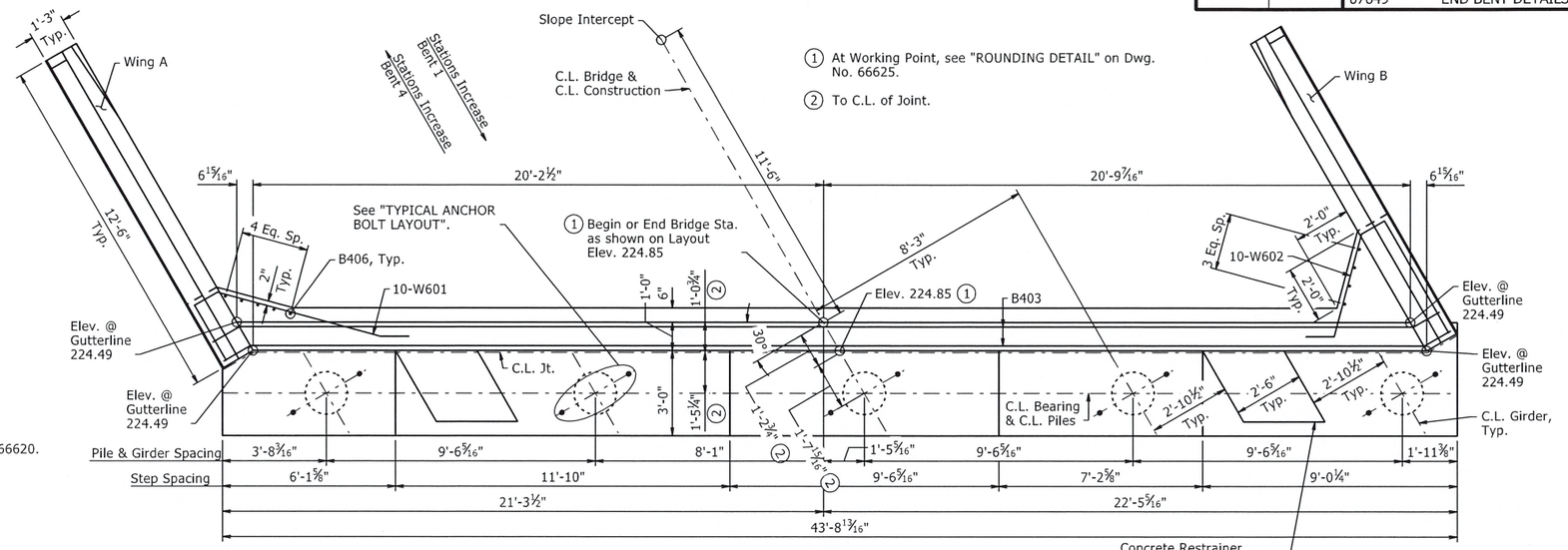
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SECTION B-B

Scale: ¾" = 1'-0"

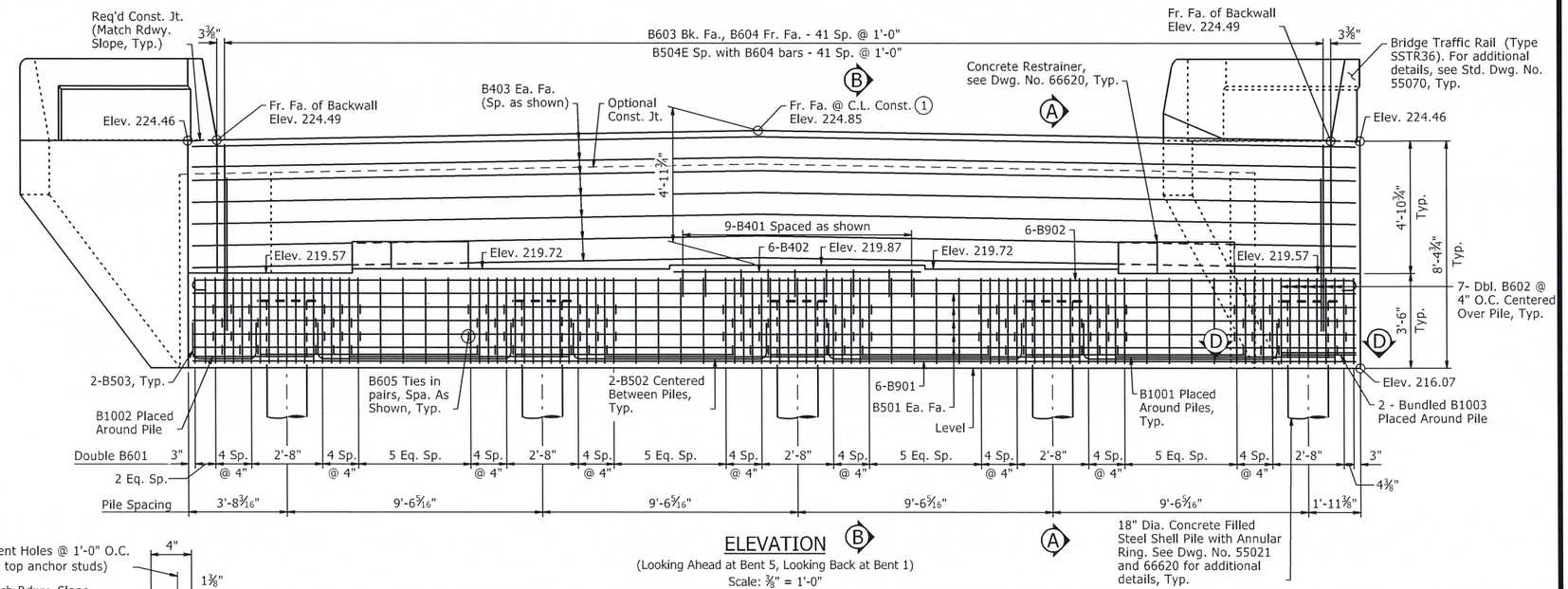
For "SECTION D-D", see Dwg. No. 66620.



PLAN

(Bent 1 shown, Bent 5 opposite hand)

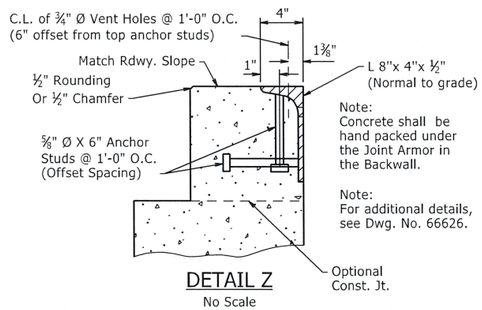
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ELEVATION

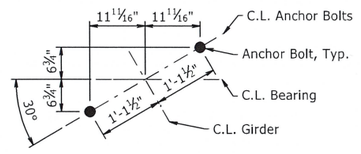
(Looking Ahead at Bent 5, Looking Back at Bent 1)

Scale: ⅜" = 1'-0"



DETAIL Z

No Scale



TYPICAL ANCHOR BOLT LAYOUT

Scale: ¾" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 20677
LEVI D. GOTTSPONER
11/20/2023

SHEET 1 OF 3

DETAILS OF END BENTS

TYRONZA RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DGL DATE: 05-08-2023 FILENAME: b101124x2_b11.dgn

CHECKED BY: CAW DATE: 08-11-2023 SCALE: AS NOTED

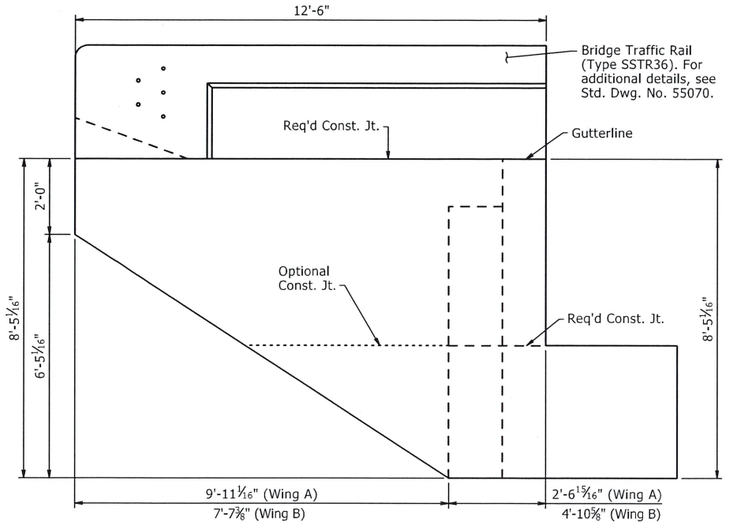
DESIGNED BY: LDG DATE: 05-08-2023

BRIDGE NO. 07649 DRAWING NO. 66618

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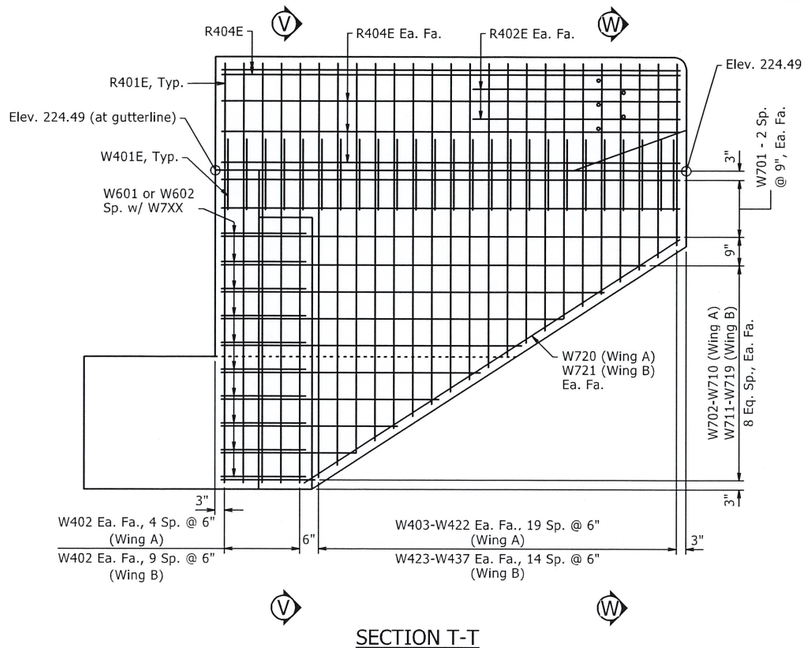
1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	110	191
		07649	END BENT DETAILS			66619



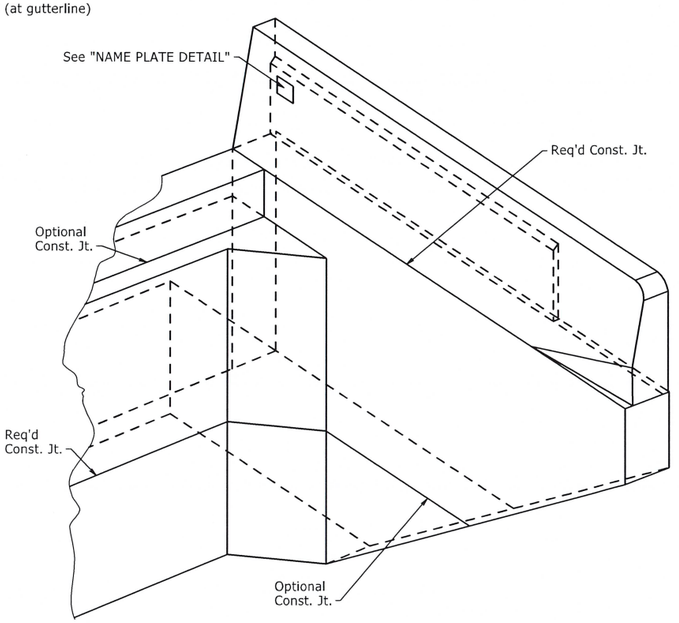
VIEW U-U

Scale: ½" = 1'-0"



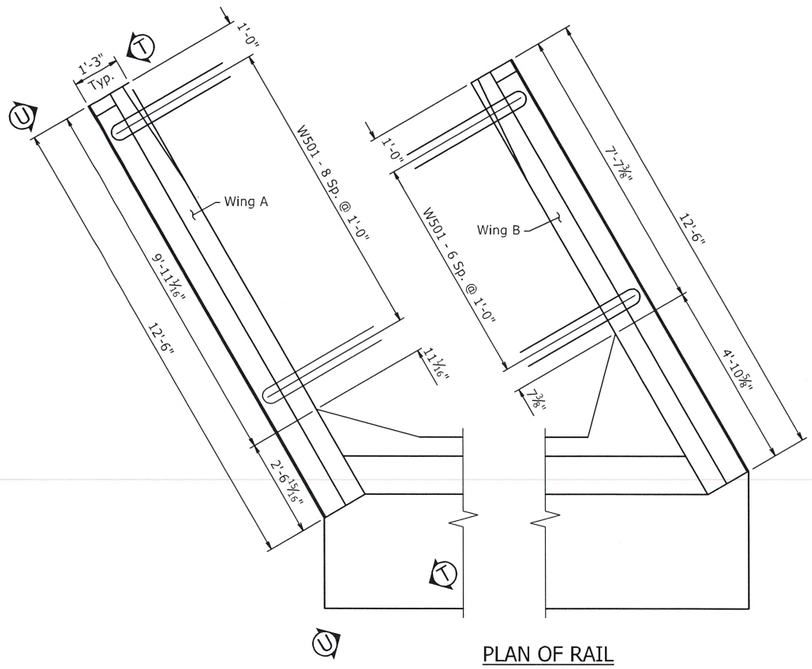
SECTION T-T

Scale: ½" = 1'-0"



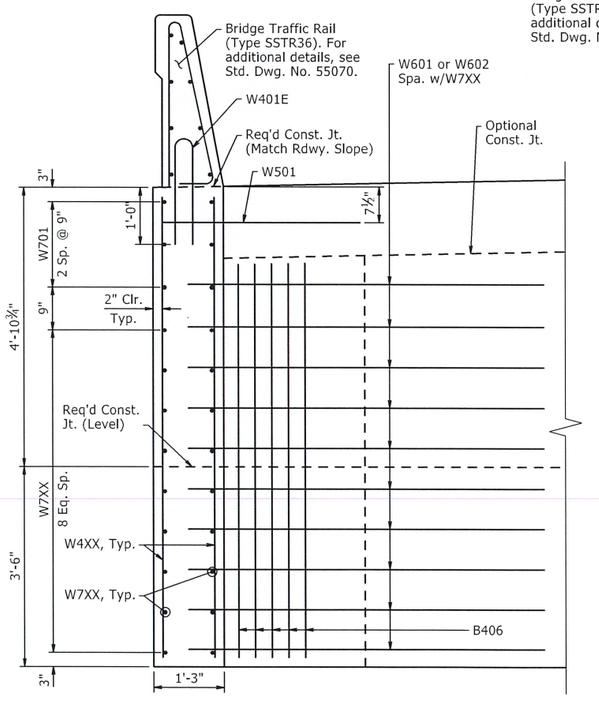
ISOMETRIC VIEW OF BENT

No Scale



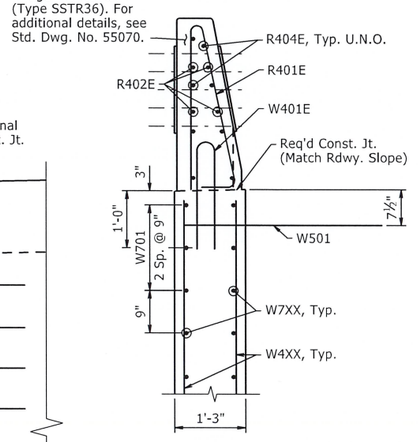
PLAN OF RAIL

Scale: ½" = 1'-0"



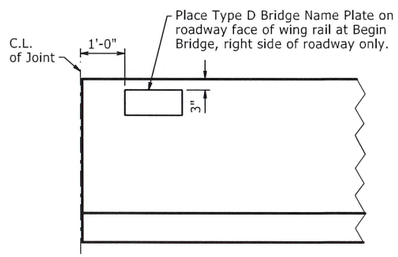
SECTION V-V

Scale: ¾" = 1'-0"



SECTION W-W

Scale: ¾" = 1'-0"



NAME PLATE DETAIL

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 20677
LEVI D. GOTTSPONER
11/20/2023

SHEET 2 OF 3
DETAILS OF END BENTS
TYRONZA RIVER
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DGL DATE: 05-10-2023 FILENAME: b101124x2_b12.dgn
CHECKED BY: CAW DATE: 08-11-2023 SCALE: AS NOTED
DESIGNED BY: LDG DATE: 05-08-2023

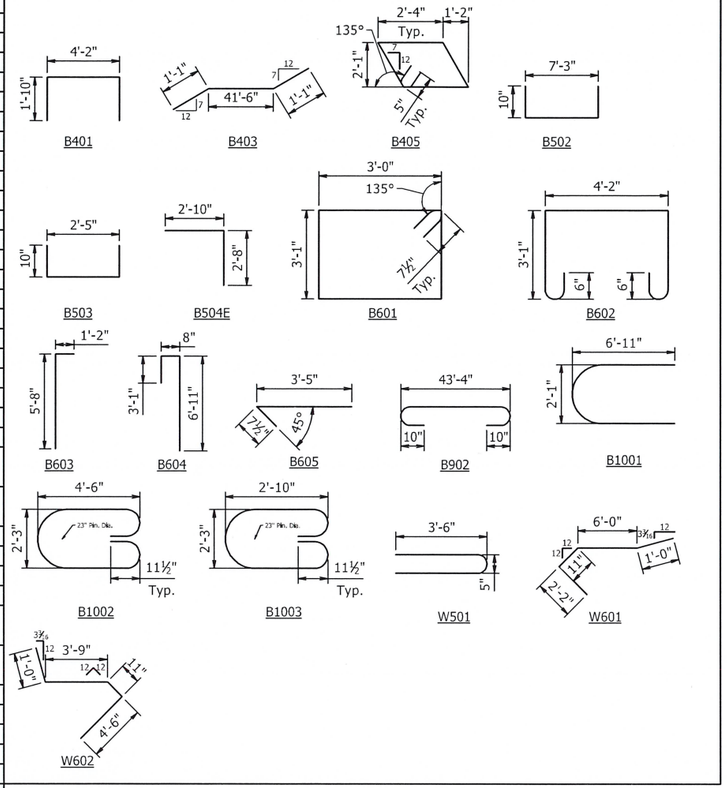
BRIDGE NO. 07649 DRAWING NO. 66619

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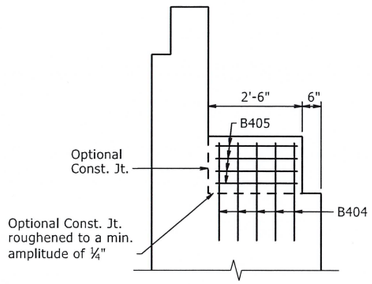
BAR LIST - PER BENT

Mark	No. Req'd.	Length	Pin Dia.
B401	9	7'-8"	2"
B402	6	9'-2"	Str.
B403	14	43'-9"	3"
B404	32	2'-9"	Str.
B405	8	10'-0"	3"
B406	9	6'-10"	Str.
B501	10	43'-4"	Str.
B502	8	8'-9"	3⅜"
B503	2	3'-10"	3¾"
B504E	42	5'-4"	3¾"
B601	130	13'-0"	4½"
B602	70	11'-5"	4½"
B603	42	6'-9"	4½"
B604	42	10'-5"	4½"
B605	224	4'-2"	4½"
B901	6	43'-4"	Str.
B902	6	45'-10"	9"
B1001	8	14'-9"	22"
B1002	1	12'-11"	10"
B1003	2	9'-6"	10"
W401E	50	3'-11"	3¾"
W402	30	8'-0"	Str.
W403 to W422	2 Ea.	Var. 7'-10" to 1'-10"	Str.
W423 to W437	2 Ea.	Var. 7'-9" to 1'-11"	Str.
W501	16	7'-2"	3¾"
W601	10	9'-10"	4½"
W602	10	9'-11"	4½"
W701	12	12'-2"	Str.
W702 to W710	2 Ea.	Var. 11'-4" to 2'-7"	Str.
W711 to W719	2 Ea.	Var. 11'-6" to 4'-10"	Str.
W720	2	11'-5"	Str.
W721	2	9'-7"	Str.
R401E	50	6'-4"	2½"
R402E	8	5'-6"	Str.
R404E	16	12'-2"	Str.

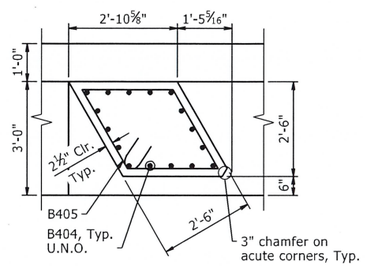
BENDING DIAGRAMS



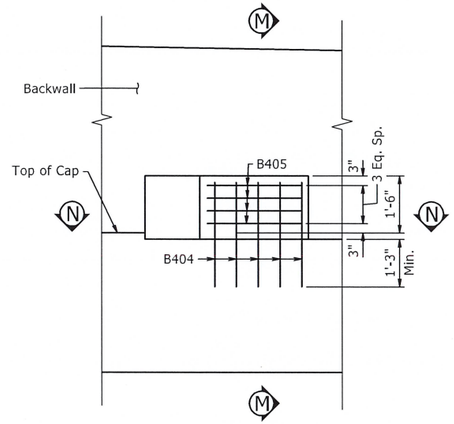
Note:
Dimensions are out to out of bars.
Bars with an "E" suffix are to be epoxy coated.



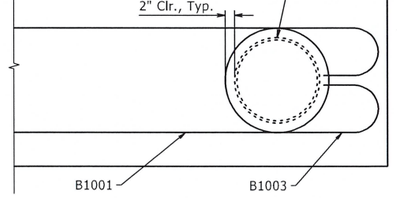
SECTION M-M
Scale 1" = 1'-0"



SECTION N-N
Scale 1" = 1'-0"

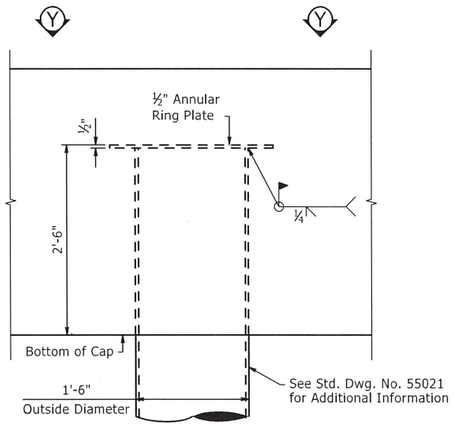


ELEVATION - CONCRETE RESTRAINER
Scale 1" = 1'-0"

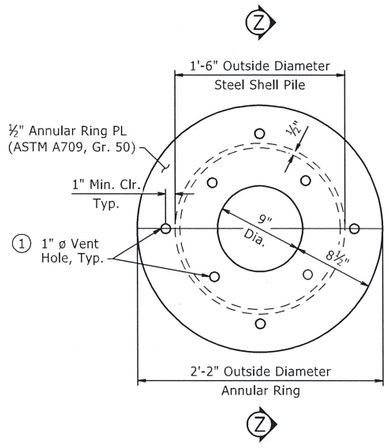


Note: Additional cap reinforcing not shown for clarity.

SECTION D-D
Scale: ¾" = 1'-0"

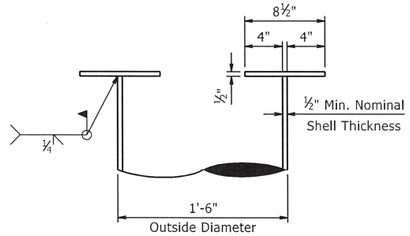


ANNULAR RING DETAIL
Scale 1" = 1'-0"



SECTION Y-Y
Scale 1½" = 1'-0"

1 A minimum of 4 holes shall be equally spaced along the outside of the ring as shown. A minimum of 4 holes shall be equally spaced along the inside of the ring as shown.



SECTION Z-Z
Scale 1½" = 1'-0"

1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	111	191
		07649	END BENT DETAILS			66620

GENERAL NOTES

Concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. Coarse aggregate for Class "S" concrete shall comply with the requirements of Subsection 802.02(c), except that the maximum aggregate size shall be 1". All exposed corners shall be chamfered ¾" unless noted otherwise.

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

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

Structural steel in end bent shall be ASTM A709, Grade 50W and shall be paid for as "Structural Steel in Beam Spans (A709, Gr. 50W)".

All pilling shall be ASTM A252, Grade 3 (Fy= 45 ksi). For details of concrete filled steel piles, see Std. Dwg. No. 55021.

Class 2 Protective Surface Treatment shall be applied to the top of backwall and roadway face and top of concrete parapet.

For details of wings and rails, see Dwg. Nos. 66618 & 66619.

No portion of the backwall shall be poured before Girders are in place. The portion of the backwall above the optional construction joint at the paving notch shall not be placed until the deck pour has been made. Refer to the "Expansion Device Installation at End Bents" note on Dwg. No. 66626. No heavy construction equipment or backfill shall be allowed within 10' of the backwall until the concrete for the span has been completed.

For additional information, see Layout.

The cost of all labor and materials required to fabricate and install the Annular ring will not be paid for directly but shall be considered subsidiary to the item "Steel Shell Piling (18" Dia.)".

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 20677
LEVI D. GOTTSPONER
11/20/2023

SHEET 3 OF 3
DETAILS OF END BENTS
TYRONZA RIVER
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	DGL	DATE: 05-10-2023	FILENAME: b101124x2_b13.dgn
CHECKED BY:	CAW	DATE: 08-11-2023	SCALE: AS NOTED
DESIGNED BY:	LDG	DATE: 05-08-2023	

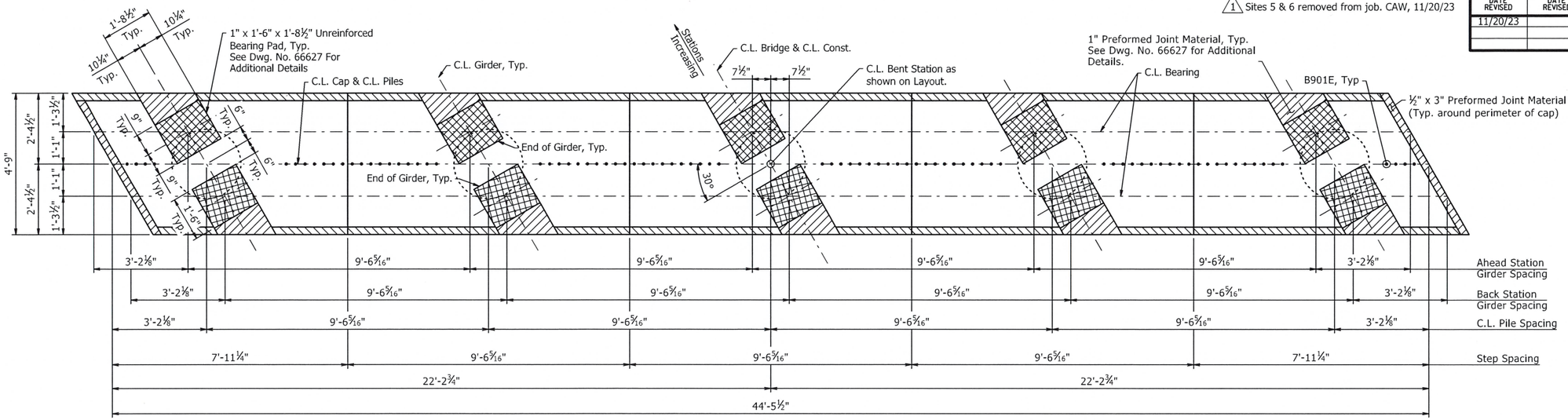
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1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED
11/20/23	

FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	101124	112	191
07649		INT. BENTS		66621



PLAN

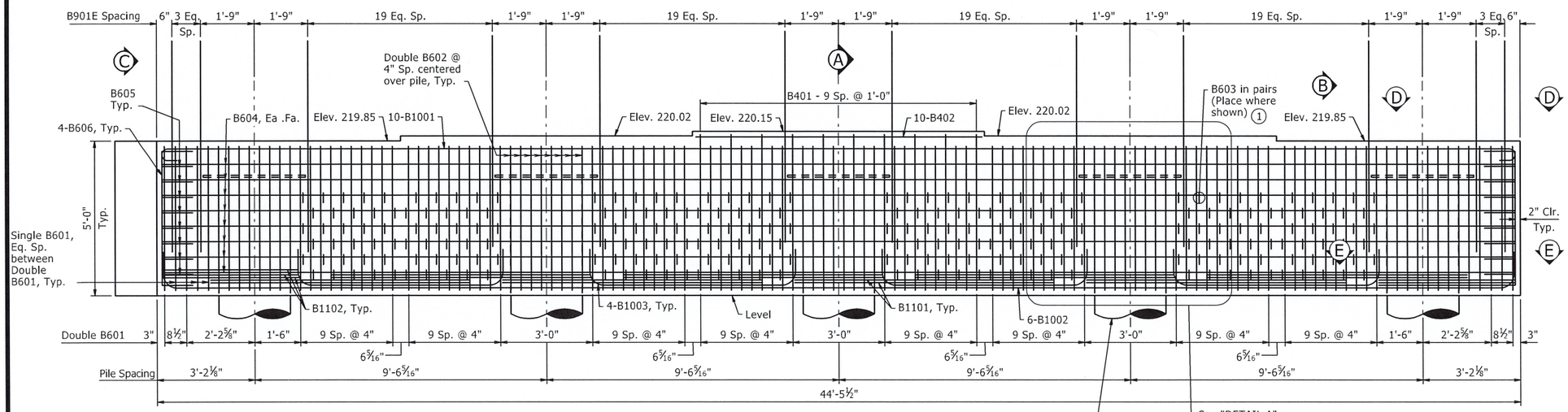
Scale: ½" = 1'-0"

For "SECTION A-A", "SECTION B-B", "VIEW C-C", "DETAIL A", General Notes, and Bar List, see Dwg. No. 66622.

For Details of Concrete Filled Steel Shell Piles and Pile Encasements, see Dwg. No. 66623.

For additional information, see Layout.

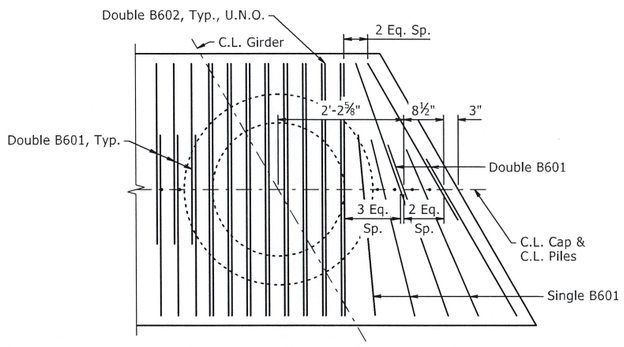
1 Orient each pair of B603 bars to be parallel to horizontal legs of adjacent Double B601 Tie.



ELEVATION

(Looking Ahead)

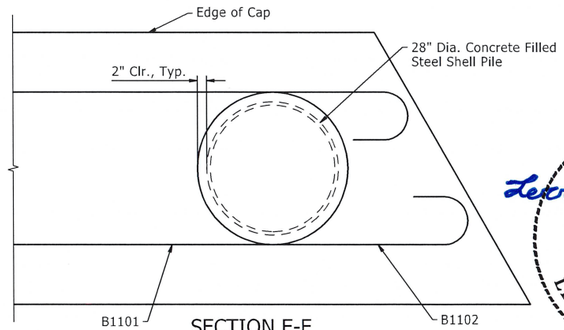
Scale: ½" = 1'-0"



VIEW D-D

(Right side shown, left side opposite hand)

Scale: ¾" = 1'-0"



SECTION E-E

Scale: ¾" = 1'-0"

Note: Additional cap reinforcing not shown for clarity.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 20677
LEVI D. GOTTSPONER
11/20/2023

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS
TYRONZA RIVER
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

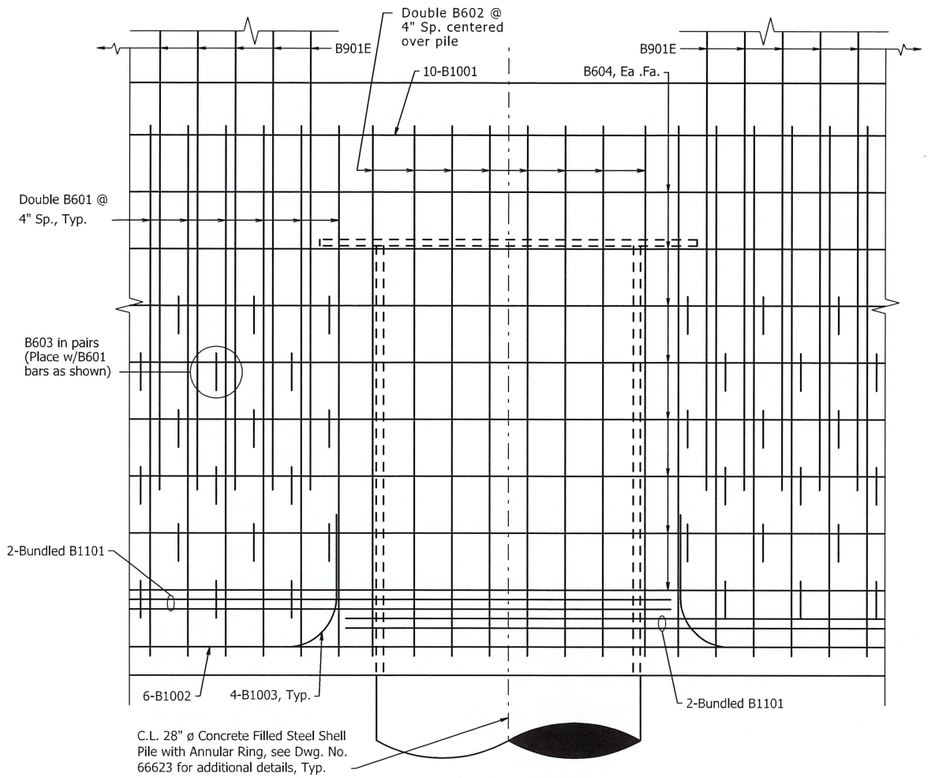
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DESIGNED BY: LDG DATE: 02-10-2023

BRIDGE NO. 07649 DRAWING NO. 66621

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1 Sites 5 & 6 removed from job. CAW, 11/20/23

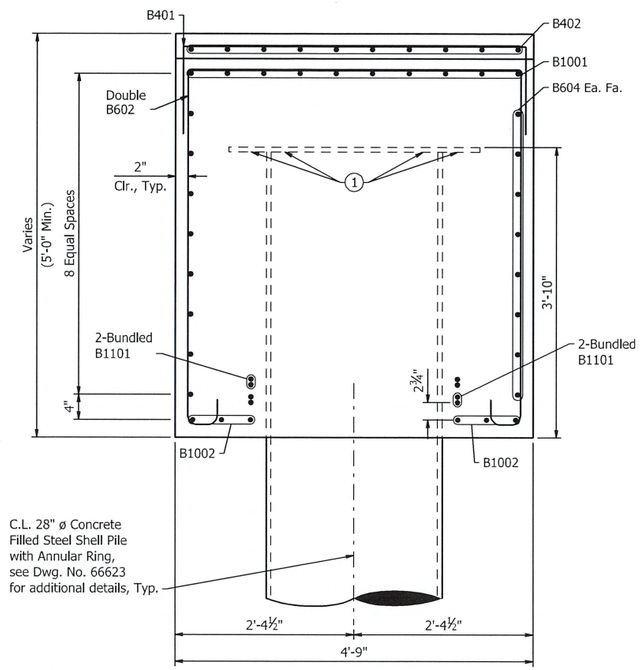
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	113	191
		07649		INT. BENT		66622



DETAIL A

Scale: 1½" = 1'-0"

1 Contractor shall ensure that concrete in this area is in full and complete contract with annular ring.



SECTION A-A

Scale: 1" = 1'-0"

GENERAL NOTES

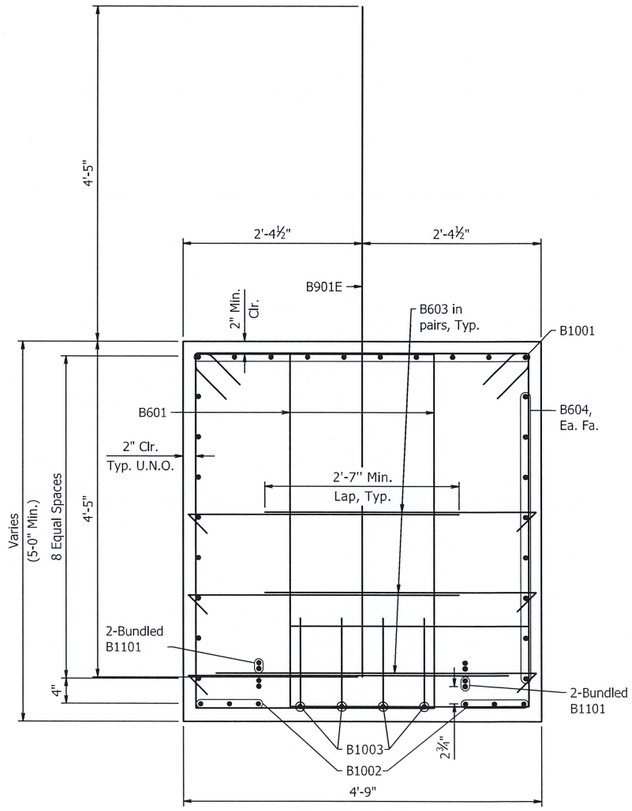
Concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. Coarse aggregate for Class "S" concrete shall comply with the requirements of Subsection 802.02(c), except that the maximum aggregate size shall be 1". All exposed corners shall be chamfered ¾" unless noted otherwise.

All reinforcement steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 332, Type A with mill test reports.

All pilings shall be ASTM A252, Grade 3 (F = 45 ksi). For details of concrete filled steel piles, see Dwg. No. 66623.

For additional information, see layout.

2 Rotate hooks of B1001 & B1002 bars as required to avoid interference with other bars.



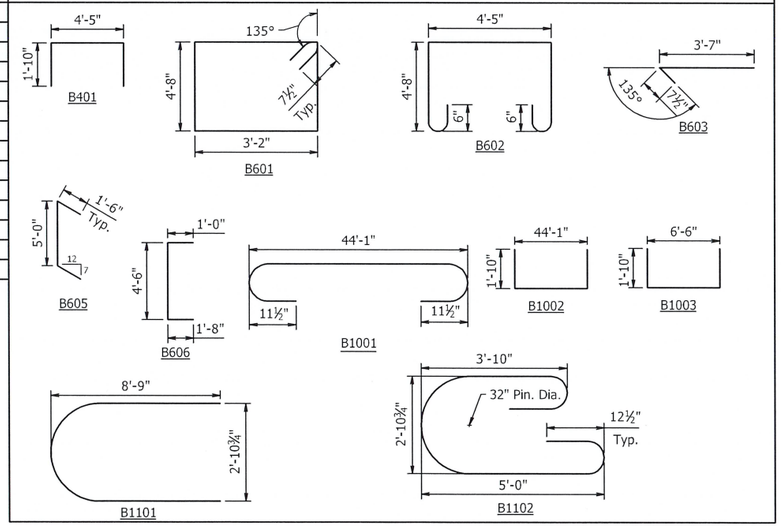
SECTION B-B

Scale: 1" = 1'-0"

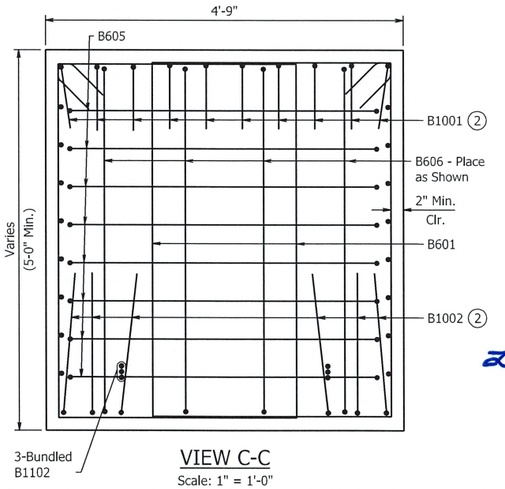
BAR LIST - PER BENT

Mark	No. Req'd.	Length	Pin Dia.
B401	10	7'-11"	3"
B402	10	9'-2"	Str.
B601	174	16'-6"	4½"
B602	80	14'-10"	4½"
B603	480	4'-3"	4½"
B604	16	44'-1"	Str.
B605	16	7'-9"	4½"
B606	8	6'-11"	4½"
B901E	88	8'-10"	Str.
B1001	10	46'-11"	10"
B1002	6	47'-1"	10"
B1003	16	9'-7"	10"
B1101	16	19'-1"	32"
B1102	6	13'-5"	11¼"

BENDING DIAGRAMS



Note:
Dimensions are out to out of bars. Bars with an "E" suffix are to be epoxy coated.



VIEW C-C

Scale: 1" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 20677
LEVI D. GOTTSPONER
11/20/2023

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS
TYRONZA RIVER
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

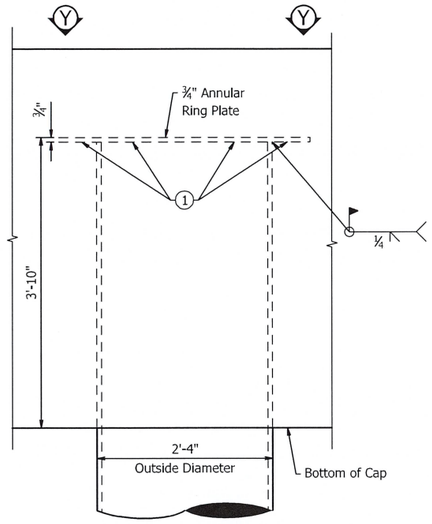
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DESIGNED BY: LDG DATE: 05-08-2023

BRIDGE NO. 07649 DRAWING NO. 66622

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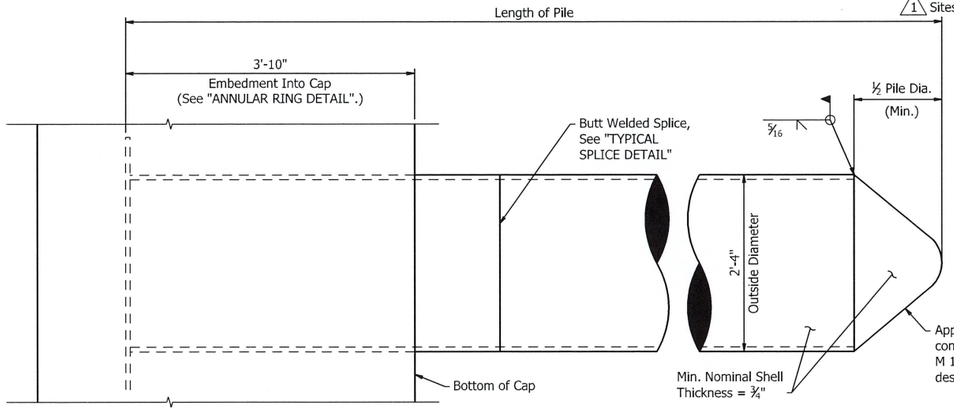
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	114	191
		07649		INT. BENTS		66623

1 Sites 5 & 6 removed from job. CAW, 11/20/23



ANNULAR RING DETAIL

Scale: 1" = 1'-0"



28" DIAMETER CONCRETE FILLED STEEL SHELL PILE

Scale: 1" = 1'-0"

Note:
Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling (28" Dia.)".

GENERAL NOTES - 28" CONCRETE FILLED STEEL SHELL PILES

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

Concrete used for filling of steel shell shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi and shall be poured in the dry. Shrinkage at 28 days shall be less than 0.032 percent in accordance with AASHTO T160. Approved admixtures may be used to obtain desired workability, shrinkage and early strength gain. See SP "CONCRETE FILL FOR LARGE DIA. STEEL SHELL PILES" for additional information.

Steel shell piling shall be encased with concrete in accordance with "PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES" on Std. Dwg. No. 55021.

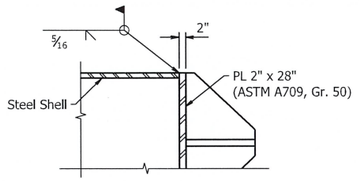
See Bridge Layout for size and estimated length of steel shell piles and for driving information.

Concrete and structural steel shall not be paid for directly, but shall be considered subsidiary to the item "Steel Shell Piling (28" Dia.)".

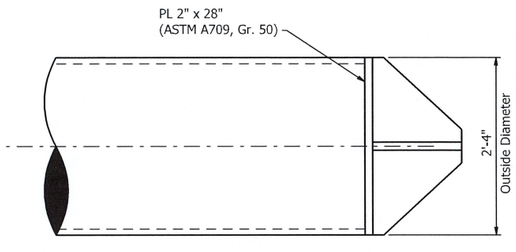
The cost of all labor and materials required to fabricate and install the Annular Ring will not be paid for directly but shall be considered subsidiary to the item "Steel Shell Piling (28" Dia.)".

(1) Contractor shall ensure that concrete in this area is in full and complete contact with annular ring.

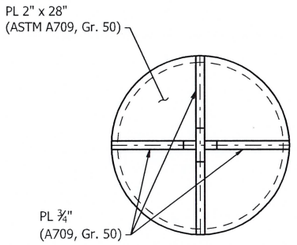
(2) A minimum of 4 holes shall be equally spaced along the outside of the ring as shown. A minimum of 4 holes shall be equally spaced along the inside of the ring as shown.



PART SECTION

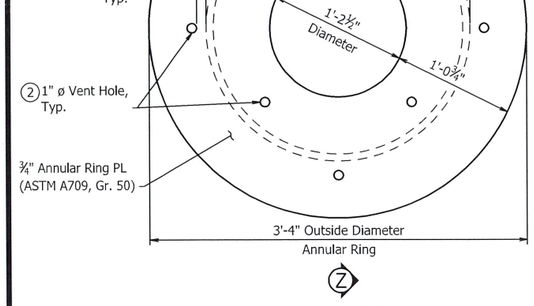


ELEVATION



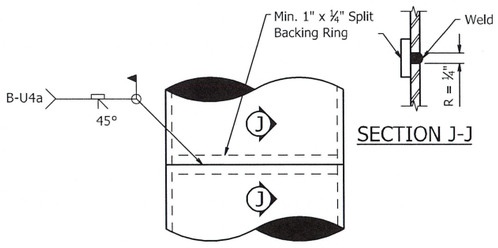
ALTERNATE VANED TIP DETAIL FOR 28" PILE

No Scale



SECTION Y-Y

Scale: 1½" = 1'-0"

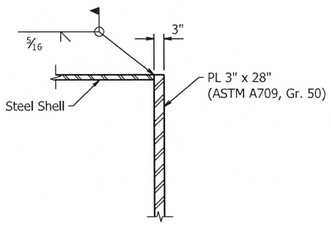


SECTION J-J

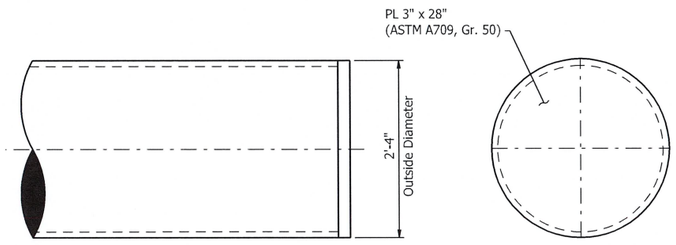
ELEVATION

TYPICAL SPLICE DETAIL

No Scale



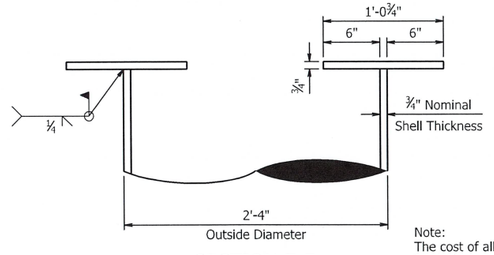
PART SECTION



ELEVATION

ALTERNATE FLAT TIP DETAIL FOR 28" PILE

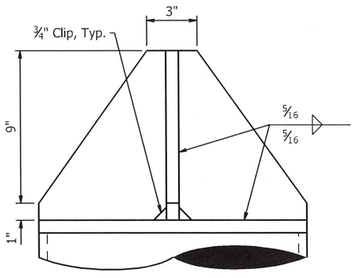
No Scale



SECTION Z-Z

Scale: 1½" = 1'-0"

Note:
The cost of all labor and materials required to fabricate and install the Annular Ring will not be paid for directly but shall be considered subsidiary to the item "Steel Shell Piling (28" DIA.)".



VIEW H-H

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 20677
LEVI D. GOTTSPONER
11/20/2023

DETAILS OF
28" DIA. CONCRETE FILLED
STEEL SHELL PILES
TYRONZA RIVER
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	DGL	DATE: 06-29-2023	FILENAME: b101124x2_b23.dgn
CHECKED BY:	CAW	DATE: 08-12-2023	SCALE: AS NOTED
DESIGNED BY:	LDG	DATE: 03-20-2023	

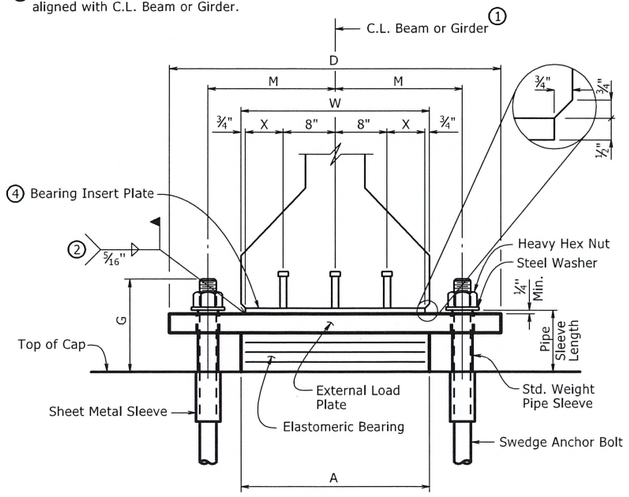
BRIDGE NO. 07649 DRAWING NO. 66623

USER: CTAUSER
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PLOTTED: 11/20/2023 12:31:08 PM SCALE: 2.0000 ' / In.

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	115	191
		07649	BEARING DETAILS			66624

(1) Sites 5 & 6 removed from job. CAW, 11/20/23

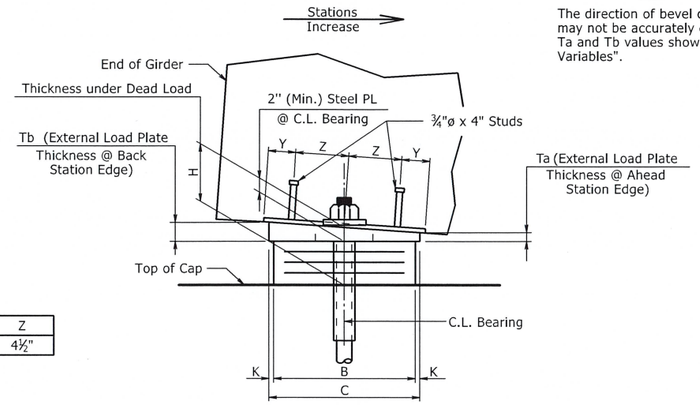
(1) C.L Elastomeric Pad shall be aligned with C.L. Beam or Girder.



FRONT VIEW

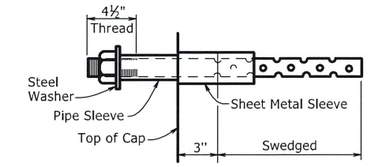
TABLE OF VARIABLES

Br. No.	W	X	Y	Z
07649	1'-10"	2¼"	2"	4½"



SIDE VIEW

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

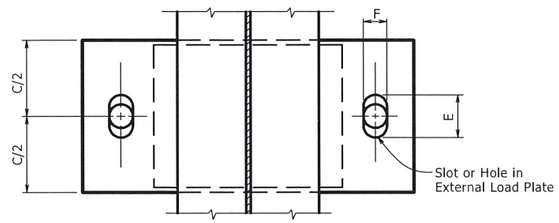


ANCHOR BOLT DETAIL

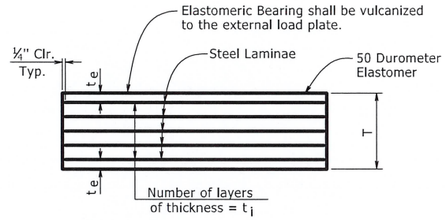
Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using a QPL-approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves shall meet the requirements of ASTM A653, CS Type B or approved equivalent, be of minimum 16 gauge thickness, and be galvanized according to ASTM B695, Class 50. Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (A709, Gr. 50W)".

(4) Bearing insert plate (ASTM A709, Gr. 50W) and studs shall be considered subsidiary to the item "Prestressed Concrete Girders (Type III)".



PLAN VIEW



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

t_i = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

Prior to erection of the beams or girders, the Contractor shall verify the orientation of the bearing with respect to Ta and Tb.

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

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

GENERAL NOTES

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

External load plates shall conform to ASTM A709, Gr. 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

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

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

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (A709, Gr. 50W)". External load plates will not be measured and paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

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

TABLE OF FABRICATOR VARIABLES

(3) Maximum Design Load = Service 1 Limit State

BRIDGE NO.	LOCATION		BEARING TYPE	NO. OF BEARINGS EACH BENT	(3) MAXIMUM DESIGN LOAD (KIPS)	ELASTOMERIC PAD							EXTERNAL LOAD PLATE								ANCHOR BOLT				
	BENT NO(S).	BEAM OR GIRDER NO.				G	H	A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	Ta	T_b	ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
07649	1	1-5	Exp.	5	147	7 3/16"	4 7/16"	22"	10"	3	½"	¼"	4 @ 12 GA	2 7/16"	11"	32½"	3 1/16"	2¼"	½"	13½"	2.00"	2.00"	1½" x 30"	55	1½" x 4 1/16"	3" x 10"	3"
	5	1-5	Exp.	5	147	7 3/16"	4 7/16"	22"	10"	3	½"	¼"	4 @ 12 GA	2 7/16"	11"	32½"	3 1/16"	2¼"	½"	13½"	2.00"	2.00"	1½" x 30"	55	1½" x 4 1/16"	3" x 10"	3"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 20677
LEVI D. GOTTSPONER
11/20/2023

DETAILS OF ELASTOMERIC BEARINGS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

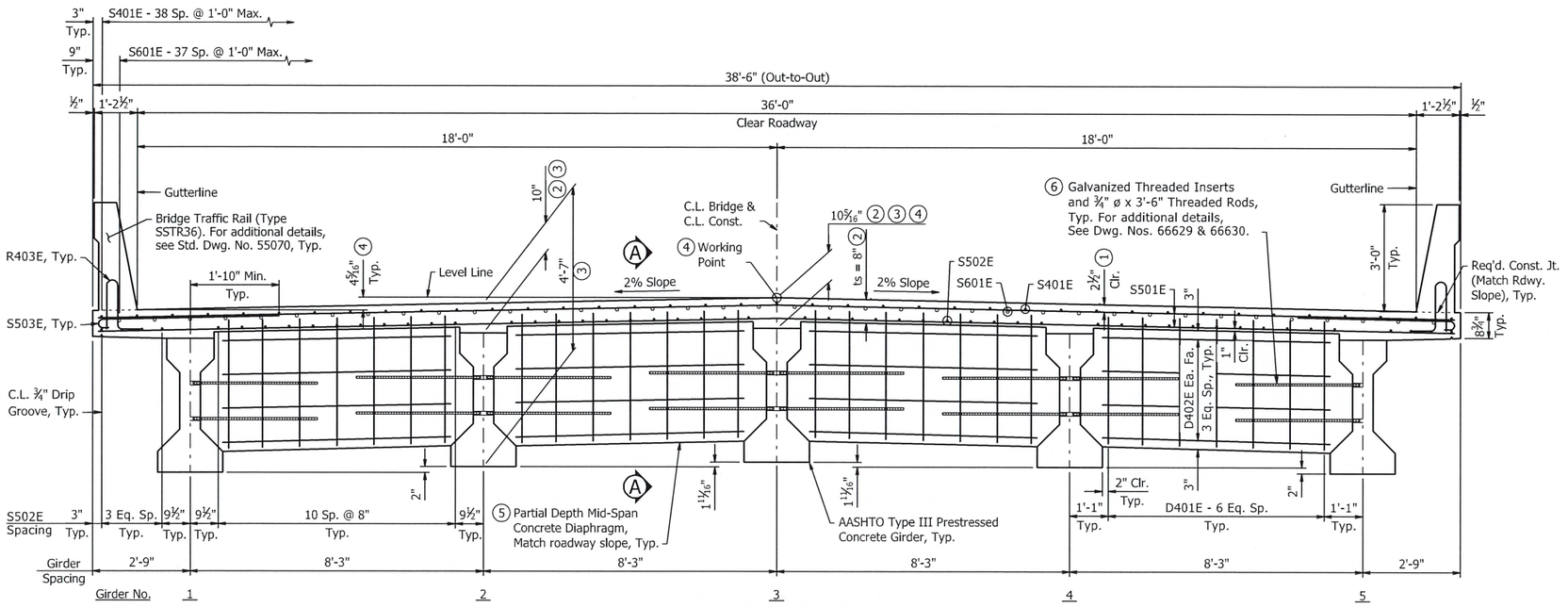
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DESIGNED BY: LDG DATE: 02-16-2023

BRIDGE NO. 07649 DRAWING NO. 66624

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1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	116	191
		07649		SPAN DETAILS		66625



TYPICAL ROADWAY SECTION

(Showing Partial Depth Mid-Span Diaphragms)
(Looking Ahead)
Scale:½" = 1'-0"

Notes:

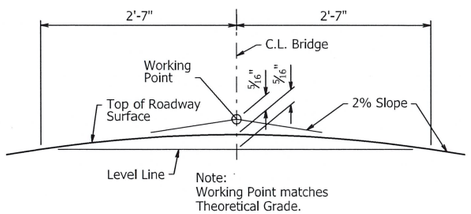
Class 2 Protective Surface Treatment shall be applied to the roadway surface and roadway face and top of Bridge Rail.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Std. Dwg. No. 55005 for allowable modifications and for tolerances when permanent steel bridge deck forms are used.

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

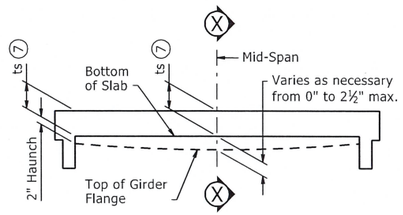
For "SECTION A-A", see Dwg. No. 66628.

Slab Reinforcing:
Longitudinal: S401E in top placed as shown
S502E in bottom placed as shown
S601E in top placed as shown over interior supports. See "REINFORCING PLAN AND POURING SEQUENCE" on Dwg. 66631.
Transverse: S501E @ 6" O.C. in top and bottom
S503E @ 6" O.C. in top, in overhang (Bundled with S501E)



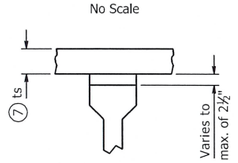
ROUNDING DETAIL

No Scale



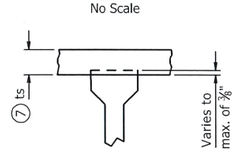
GIRDER ELEVATION

No Scale



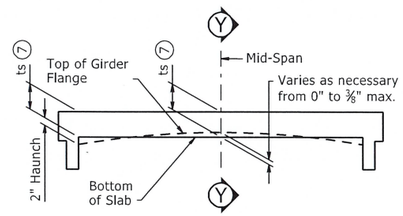
SECTION X-X

No Scale



SECTION Y-Y

No Scale



GIRDER ELEVATION

No Scale

Note: ts = slab thickness as shown on Superstructure Details. See "Typical Sections".

(1) Tolerances: Minus = ¼"
Plus = Amount of slab thickening used to meet slab thickness tolerance See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE"

(2) See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE".

(3) Measured at C.L. Bearing and C.L. Girder, Typ.

(4) To Working point - See "ROUNDING DETAIL".

(5) Galvanized steel diaphragms may be used in place of concrete diaphragms at Mid-Span diaphragm locations. All components of the alternate steel diaphragms shall be galvanized. Galvanizing shall be in accordance with AASHTO M 111. Payment will be based on concrete diaphragms. See Dwg. No. 66628 for details.

(6) Galvanized threaded inserts shall be: Dayton-Richmond F-42 Loop Ferrule Insert or an approved equal. ¾" ø threaded rods to be ASTM A709, Grade 36 or AASHTO M 31 or M 322, Gr. 60. Galvanizing shall be in accordance with AASHTO M 232, Class C or ASTM B 595, Class 50. These items will not be paid for directly but shall be considered subsidiary to the item "Prestressed Concrete Girders (Type III)".

(7) Tolerance when removable deck forming is used is +½", -¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used.

"GIRDER ELEVATION" sketches show the range of acceptability of the top of the girder relative to bottom of slab after the placement of the slab. When the top of the girder projects more than ⅜" into the slab, a raise in grade will be necessary. Girders shall be set in a sufficient number of spans so when adjustment is necessary the profile grade can be adjusted over suitable increments so the revisedgrade line will produce a smooth riding surface. Variation of the haunch heightwill be at the Contractor's expense.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 20677
LEVI D. GOTTSPONER
Levi D. Gottsponer 11/20/2023

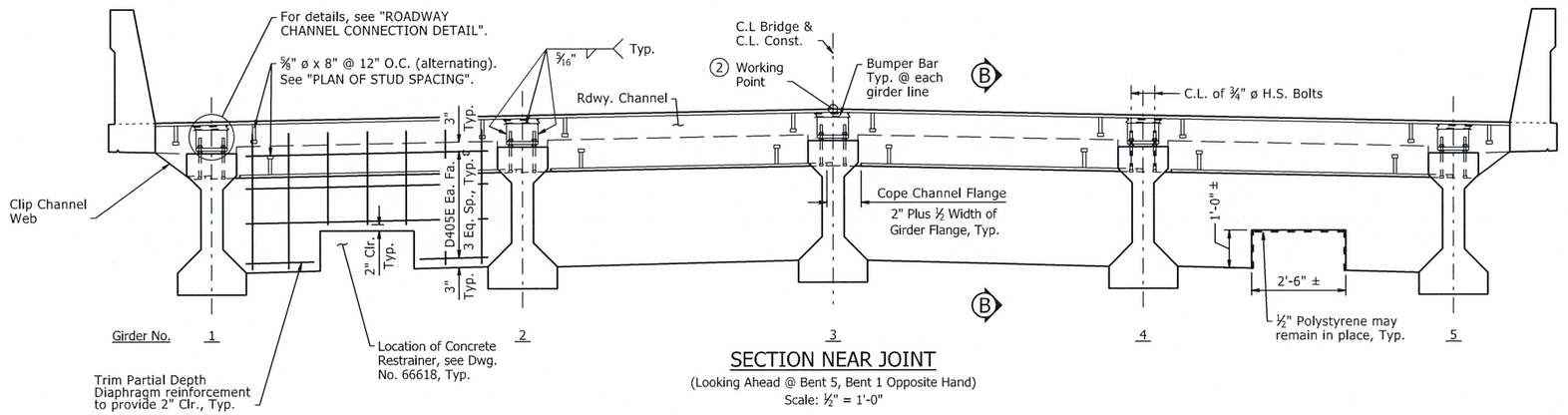
SHEET 1 OF 8
DETAILS OF 280'-0" CONTINUOUS PRESTRESSED CONCRETE GIRDER UNIT
TYRONZA RIVER
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LDG DATE: 02-14-2023 FILENAME: b101124x2_s1.dgn
CHECKED BY: CAW DATE: 02-28-2023 SCALE: AS NOTED
DESIGNED BY: LDG DATE: 02-10-2023
BRIDGE NO. 07649 DRAWING NO. 66625

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	117	191
		07649		SPAN DETAILS		66626

1 Sites 5 & 6 removed from job. CAW, 11/20/23



SECTION NEAR JOINT

(Looking Ahead @ Bent 5, Bent 1 Opposite Hand)
Scale: ½" = 1'-0"

Notes:

Concrete shall be hand packed under the Joint Armor.

For "SECTION B-B", see Dwg. No. 66628.

Bolts, washers, and hex nuts shall be considered subsidiary to the item "Prestressed Concrete Girders (Type III)".

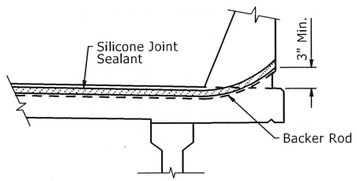
½" polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place. Polystyrene will not be paid for directly, but will be considered subsidiary to "Class S(AE) Concrete-Bridge".

1 The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Installation is limited to 40°F, min. and 80°F, max. Interpolation of the table may be necessary.

2 See "ROUNDING DETAIL" on Dwg. No. 66625.

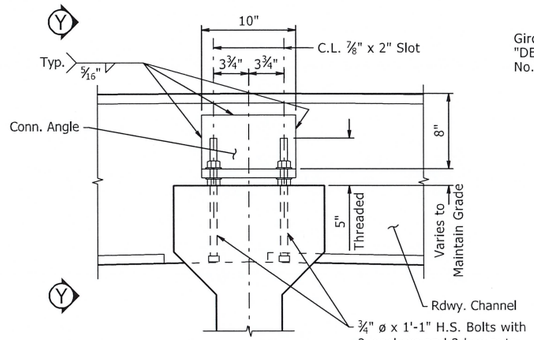
Expansion Device:

Rdwy. Channel: MC18x42.7
Conn. Angle: MC18x42.7 (Cope One Flange)



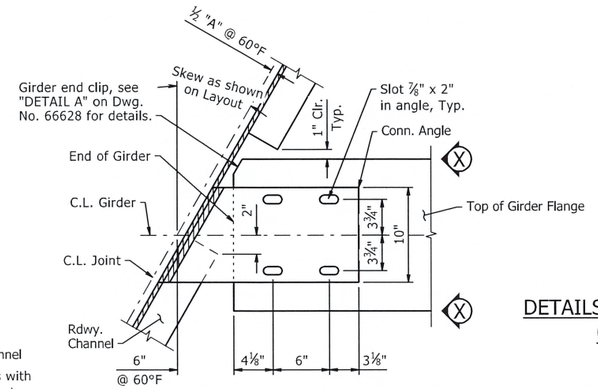
JOINT SEAL PLACEMENT AT RAIL

No Scale



SECTION X-X

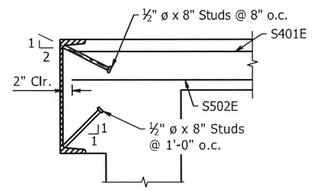
No Scale



ROADWAY CHANNEL CONNECTION DETAIL

(Top flange of Rdwy. channel omitted for clarity)
No Scale

As an alternate to ⅝" ø studs, ½" ø x 8" studs spaced as shown may be used. Use weight of ⅝" stud as basis of measurement of structural steel in anchors.

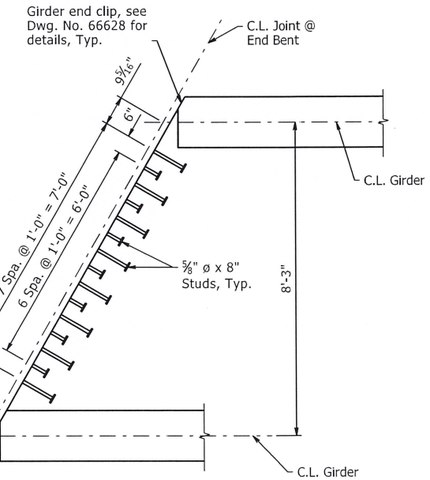


DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

No Scale

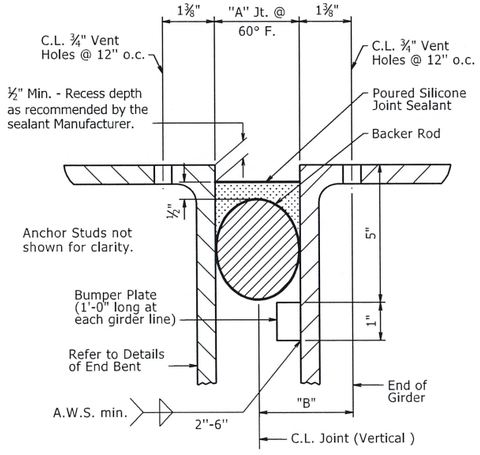
TABLE OF SILICONE JOINT DATA

"A" Width Perpendicular to Joint at 24 Hour Average Temperature (1)			"B" Perpendicular to Joint @ 60°F	Bumper Plate Size
40°F	60°F	80°F		
1 1/16"	1½"	1 5/16"	2"	¾" X 1" X 1'-0"



PLAN OF STUD SPACING

No Scale



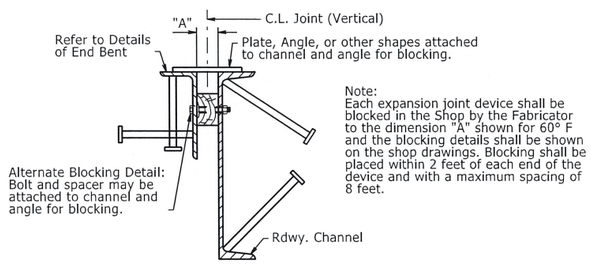
DETAIL OF POURED SILICONE JOINT

No Scale

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

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

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



DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

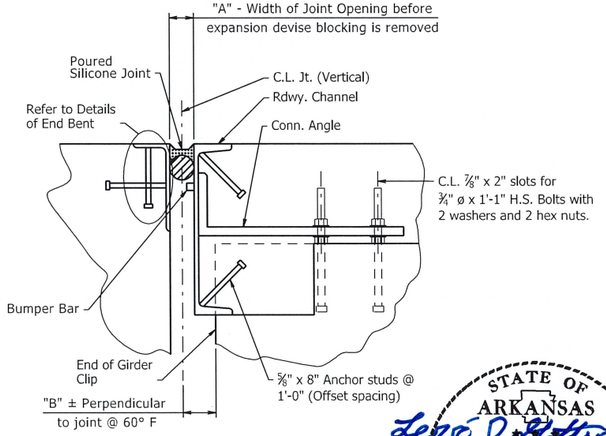
No Scale

EXPANSION DEVICE INSTALLATION AT END BENTS:

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

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

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



SECTION Y-Y

(Perpendicular to Joint)
No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 20677
LEVI D. GOTTSPONER
Levi D. Gottsponer
11/20/2023

SHEET 2 OF 8
DETAILS OF 280'-0" CONTINUOUS PRESTRESSED CONCRETE GIRDER UNIT
TYRONZA RIVER
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DGL DATE: 05-30-2023 FILENAME: b101124x2_s2.dgn
CHECKED BY: CAW DATE: 06-15-2023 SCALE: AS NOTED
DESIGNED BY: LDG DATE: 05-26-2023

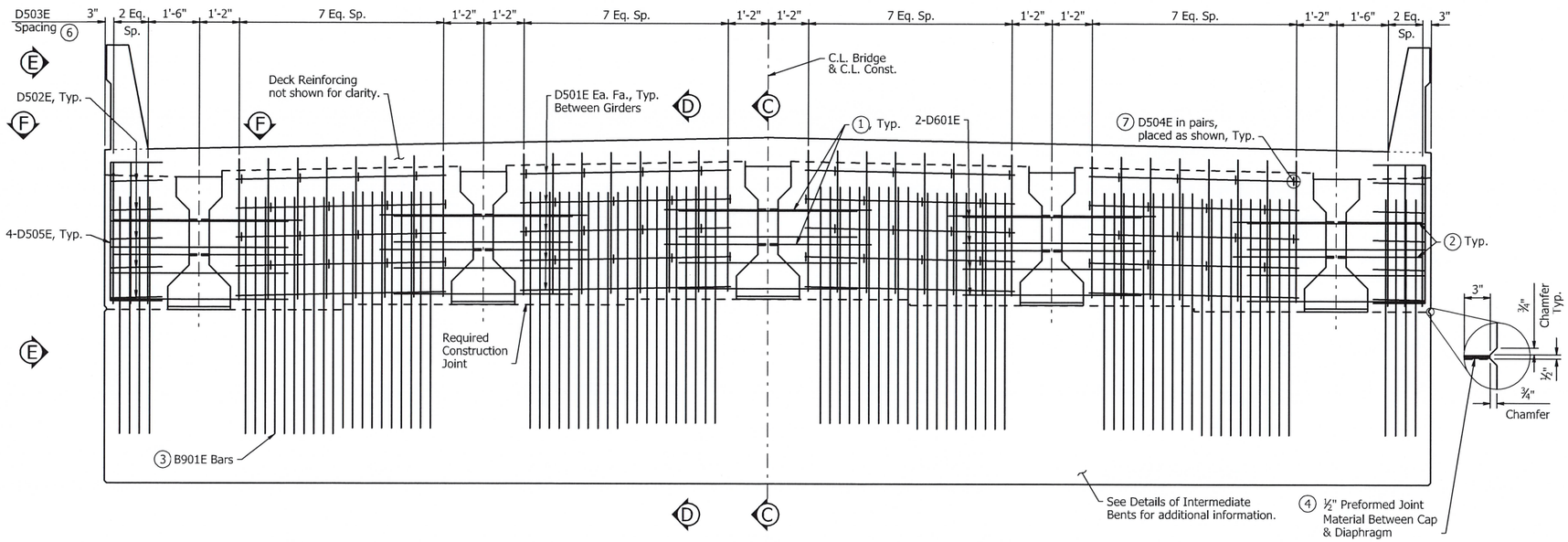
BRIDGE NO. 07649 DRAWING NO. 66626

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G:\22II0001.I0II24\TRANSP\dgn\bridge\b10II24x2_s2.dgn II/20/2023 12:3III PM

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	118	191
		07649	SPAN DETAILS			66627

1 Sites 5 & 6 removed from job. CAW, 11/20/23



(1) ¾" ø x 3'-6" Galvanized Threaded Rods with inserts. For additional details, see Dwg. Nos. 66625, 66629, & 66630.

(2) ¾" ø x 2'-3" Galvanized Threaded Rods with inserts. For additional details, see Dwg. Nos. 66625, 66629, & 66630.

(3) For additional details of B901E bars, see Dwg. Nos. 66621 & 66622.

(4) Preformed Joint Material shall conform to AASHTO M 153 Type 1. Preformed Joint Material will not be paid for directly, but shall be considered subsidiary to the item "Class S(AE) Concrete - Bridge". See Dwg. No. 66621 for additional details.

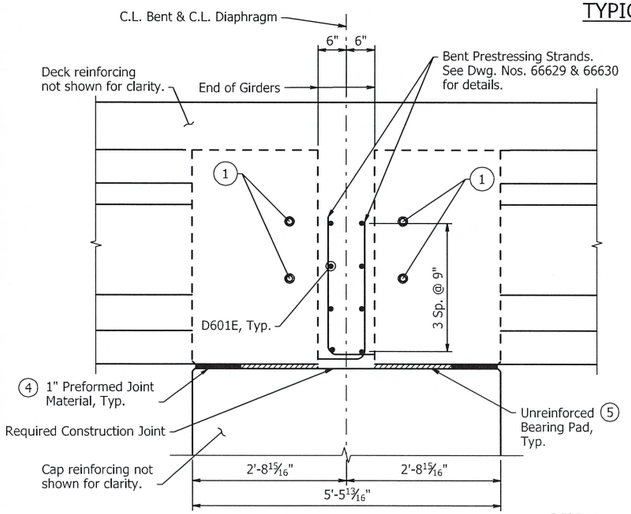
(5) Unreinforced bearing pads shall meet the requirements of Section 808 with the exception that hardness shall be 50 durometer. Unreinforced bearing pads shall not be paid for directly, but shall be considered subsidiary to the item "Class S(AE) Concrete - Bridge" see Dwg. No. 66621 for additional details.

(6) Measured perpendicular to C.L. Bridge.

(7) Orient each pair of the D504E bars to be parallel to horizontal legs of adjacent D503E bars.

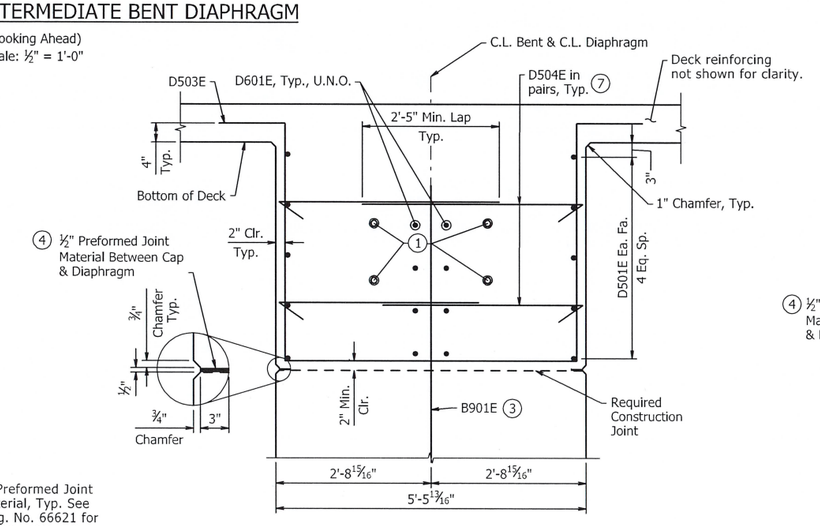
TYPICAL SECTION AT INTERMEDIATE BENT DIAPHRAGM

(Looking Ahead)
Scale: ½" = 1'-0"



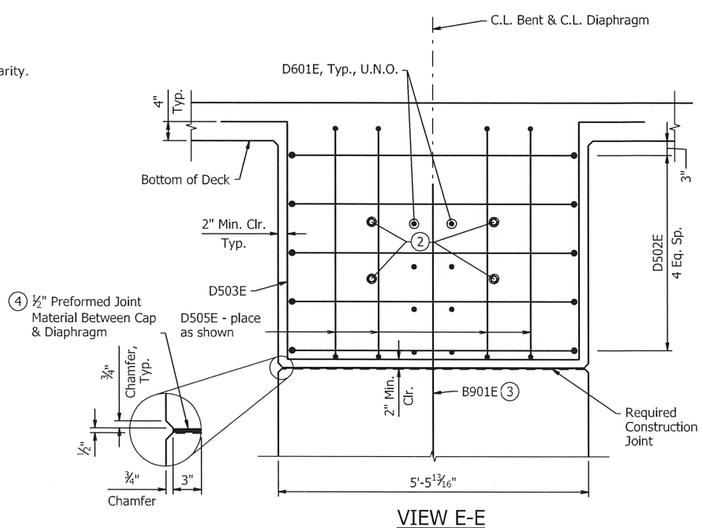
SECTION C-C

(Looking perpendicular to C.L. Const.)
Scale: ¾" = 1'-0"



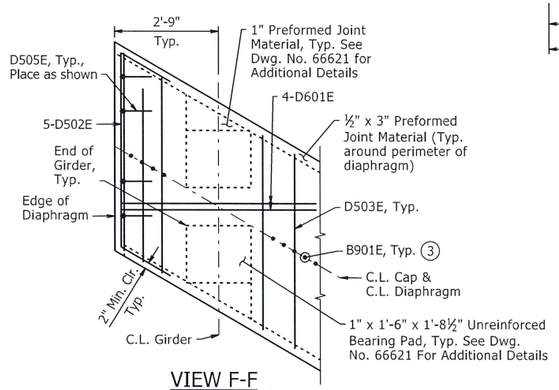
SECTION D-D

(Looking perpendicular to C.L. Const.)
Scale: ¾" = 1'-0"



VIEW E-E

(Looking perpendicular to C.L. Const.)
Scale: ¾" = 1'-0"



VIEW F-F

(Left side of diaphragm shown, right side opposite hand)
Scale: ½" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 20677
LEVI D. GOTTSPONER
11/20/2023

SHEET 3 OF 8
DETAILS OF 280'-0" CONTINUOUS PRESTRESSED CONCRETE GIRDER UNIT
TYRONZA RIVER
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

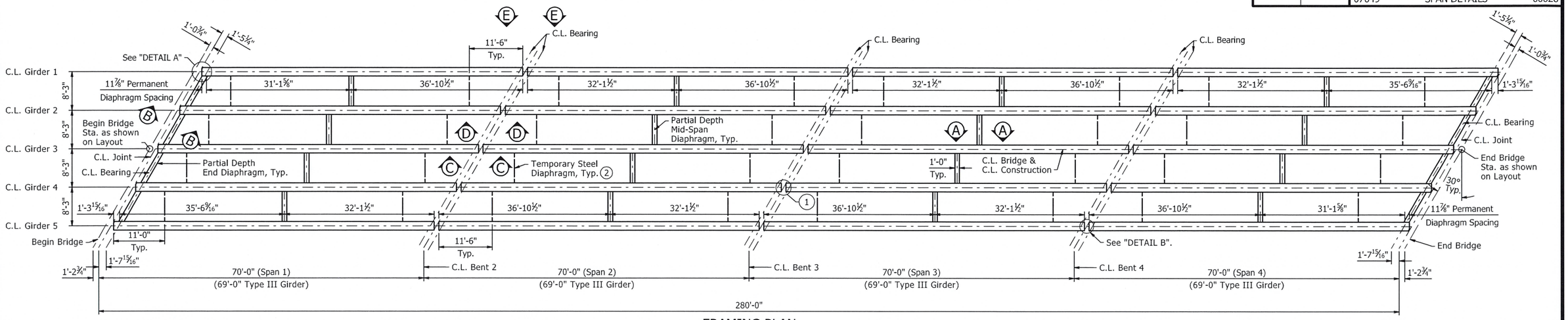
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BRIDGE NO. 07649 DRAWING NO. 66627

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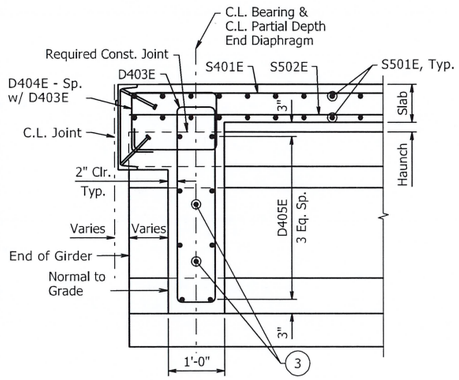
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	119	191
		07649		SPAN DETAILS		66628

1 Sites 5 & 6 removed from job. CAW, 11/20/23



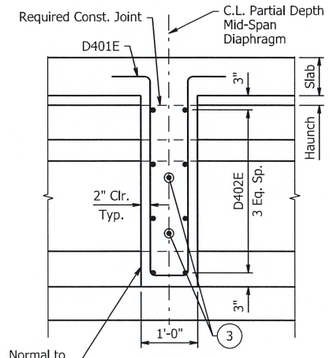
FRAMING PLAN

Scale: 3/32" = 1'-0"



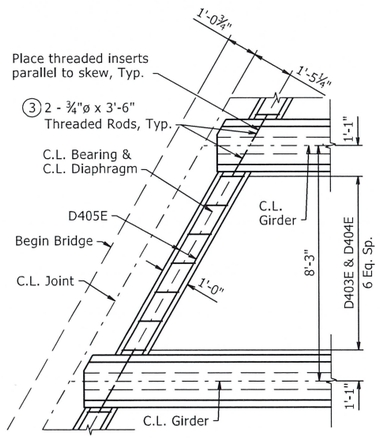
SECTION B-B

(Bent 1 shown, Bent 5 opposite hand)
Scale: ¾" = 1'-0"



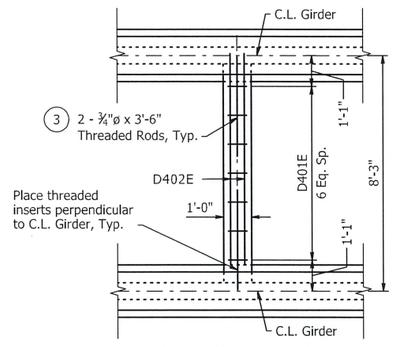
SECTION A-A

Scale: ¾" = 1'-0"



END DIAPHRAGM PLAN

(Bent 1 shown, Bent 5 opposite hand)
Scale: ⅜" = 1'-0"



MID-SPAN DIAPHRAGM PLAN

Scale: ⅜" = 1'-0"

Notes:

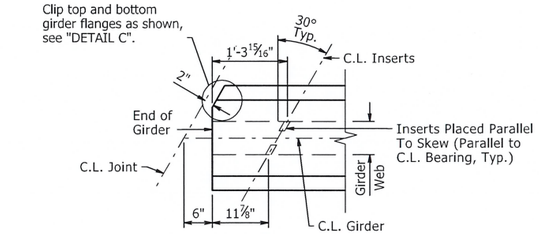
For "SECTION C-C", "SECTION D-D" and "VIEW E-E" see Dwg. No. 66627.

For additional details of Partial Depth Mid-Span and End Bent diaphragms, see Dwg. No. 66625.

(1) After erection, the ends of girders at all bents shall be blocked using temporary blocking to maintain proper location on bent caps. The ends of girders shall remain blocked until after the temporary steel diaphragms are in place.

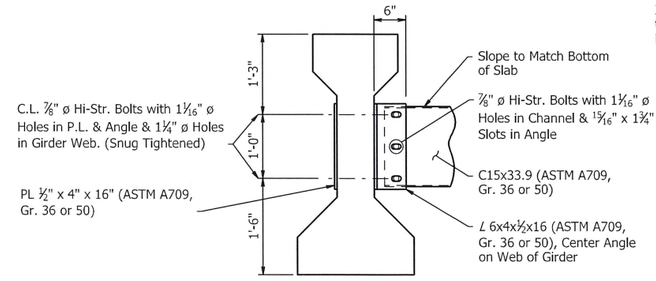
(2) After the concrete deck construction and curing are complete, the temporary steel diaphragm and connecting elements shall be removed and become the property of the Contractor. The holes in the girder webs shall be filled with a QPL-approved non-shrink epoxy grout. For additional diaphragm details, see "DETAILS OF STEEL DIAPHRAGM".

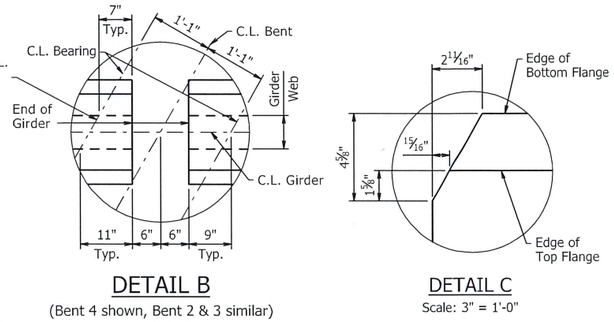
(3) ¾" ø x 3'-6" Galvanized Threaded Rods. For additional details, see Dwg. Nos. 66625, 66629, & 66630.



DETAIL A

(Span 1 shown, Span 4 opposite hand)
Scale: ¾" = 1'-0"





DETAIL B

(Bent 4 shown, Bent 2 & 3 similar)
Scale: ¾" = 1'-0"

DETAIL C

Scale: 3" = 1'-0"

Notes:

Steel Diaphragms shall be used at locations noted as "Temporary Steel Diaphragm". The Temporary Steel Mid-Span and components will not be paid for directly, but shall be considered subsidiary to the item "Prestressed Concrete Girders (Type III)".

Permanent Steel Diaphragm may be used in leu of concrete diaphragms at locations noted as "Partial Depth Mid-Span Diaphragm" and payment for permanent steel diaphragms and components will be based on concrete diaphragms.

All components of Steel Diaphragms (Permanent and Temporary) shall be galvanized in accordance with Section 807.19.

A standard washer shall be supplied under both the nut and the head of the ⅞" ø Hi-Str. Bolts. An additional plate washer shall cover the angle slots.

STATE OF ARKANSAS
Levi D. Gottsponer
LICENSED PROFESSIONAL ENGINEER
No. 20677
LEVI D. GOTTSPONER
11/20/2023

SHEET 4 OF 8
DETAILS OF 280'-0" CONTINUOUS PRESTRESSED CONCRETE GIRDER UNIT
TYRONZA RIVER
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

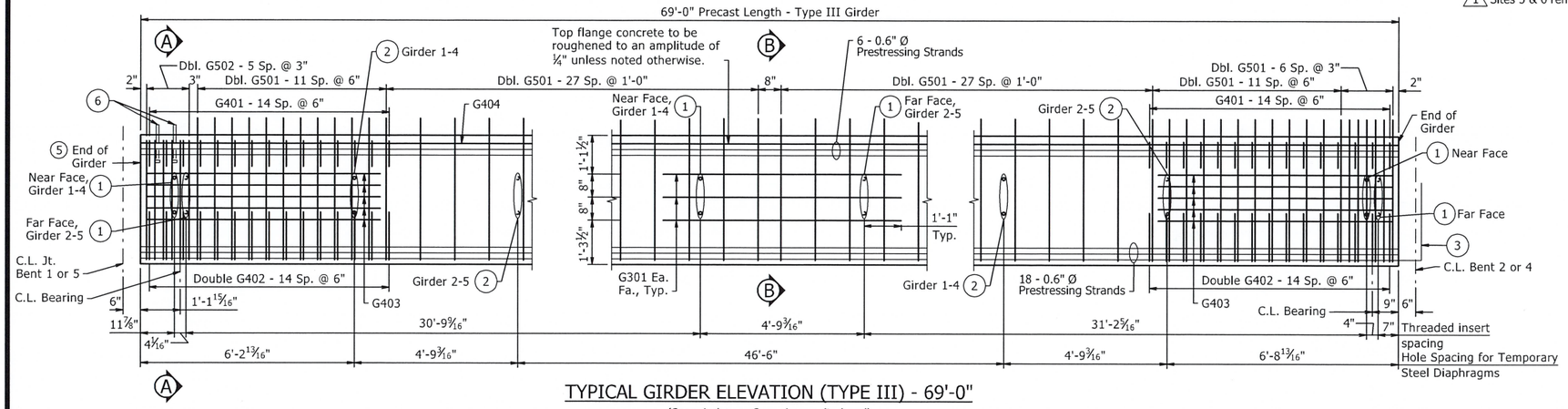
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DESIGNED BY:	LDG	DATE: 04-18-2023	

BRIDGE NO. 07649 DRAWING NO. 66628

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PLOTTED: 11/20/2023 12:3\3 PM

1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	120	191
		07649	SPAN DETAILS			66629



TYPICAL GIRDER ELEVATION (TYPE III) - 69'-0"

(Span 1 shown, Span 4 opposite hand)
Scale: ½" = 1'-0"

Notes:

Dimensions are measured along C.L. of Girder, U.N.O.

Prestressing strands will not be paid for directly, but will be considered subsidiary to the item "Prestressed Concrete Girder (Type III)".

Prestressing strands shall be bonded along the entire length of the girder.

See Dwg. No. 66632 for Bar list and Bending Diagram.

(1) Connection for Concrete Diaphragms: ¾" ø threaded inserts. See Dwg. Nos. 66625, 66627, and 66628 for additional details.

(2) Connection for Temporary Steel Diaphragm: 1¼" ø holes in web. See Dwg. No. 66628 for additional details.

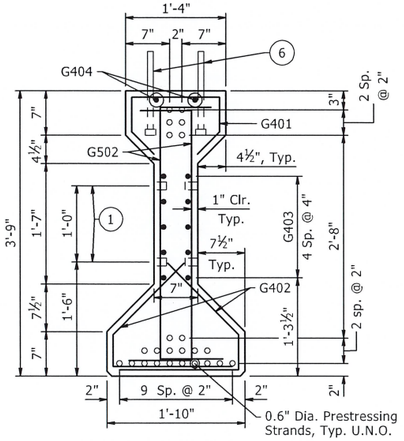
(3) Prestressing Strands bent up into intermediate bent diaphragm. See "END OF GIRDER VIEW - INT. BENT".

(4) At Bents 2-4, shop bend 4 bottom prestressing strands from the end of the girder into the intermediate bent diaphragms as shown. Saw cut or grind remaining strands at both ends flush with the end of the girder.

At the Contractor's option, the location for bent up strands may be varied. The total number of bent up strands per row shall not be changed. Saw cut or grind remaining strands flush with the end.

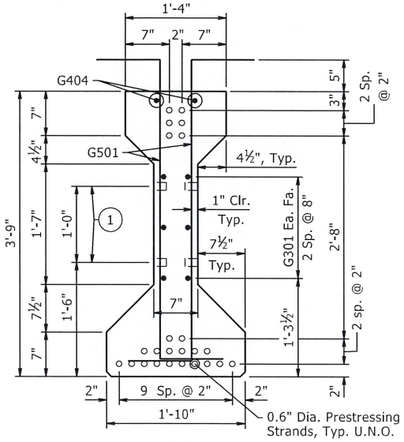
(5) End of Girder to receive an epoxy coating. See "END OF GIRDER VIEW - END BENT".

(6) ¾" Dia. x 1'-1" H.S. Bolts with 2 washers and 2 heavy hex nuts at Bents 1 & 5 only. See Dwg. No. 66626 for details.



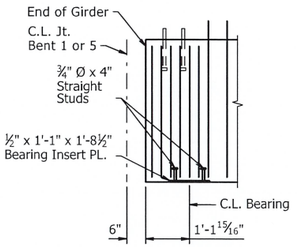
SECTION A-A

Scale: 1" = 1'-0"



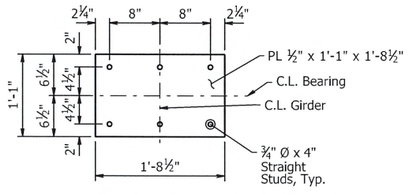
SECTION B-B

Scale: 1" = 1'-0"



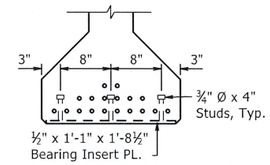
BEARING INSERT PLATE & STUD DETAIL

(Bent 1 shown, Bent 5 opposite hand)
(Prestressing Strands not shown for clarity)
No Scale



DETAILS OF BEARING INSERT PLATE

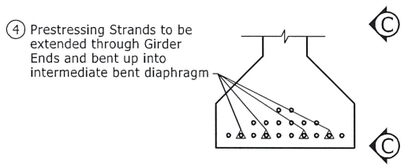
(Bents 1 & 5)
Scale: 1" = 1'-0"



END OF GIRDER VIEW - END BENT

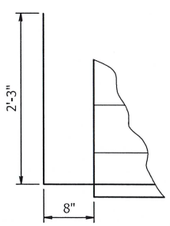
(Bents 1 & 5)
Scale: 1" = 1'-0"

Note: Saw cut or grind all strands flush with the end of the girder. The ends of the girders and the cut-off strands shall be coated with a 1/16" min. thick coating of a QPL-approved epoxy resin.



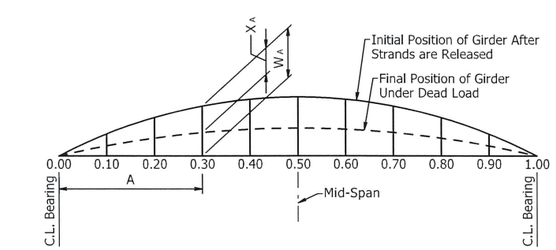
END OF GIRDER VIEW - INT. BENT

(Bents 2-4)
Scale: 1" = 1'-0"



VIEW C-C

Scale: 1" = 1'-0"



"W_A" is Camber of Girder (Prestress + Dead Load of Girder @ 90 Days After Release)

"X_A" is Dead Load Deflection of Slab + Diaphragms + Composite Dead Load

CAMBER & DEFECTIONS AT SPAN 1 & 4 (INCHES)

No Scale

SPAN 1 & 4 GIRDERS 1-5		
SPAN PT.	INCHES	
	W_A	X_A
0.00	0.000	0.000
0.10	0.467	0.259
0.20	0.798	0.505
0.30	1.016	0.698
0.40	1.140	0.822
0.50	1.180	0.865

Notes:

Table is symmetrical about Mid-Span.

"W " and "X " are based on the required minimum concrete strength and may vary from the dimension shown. "W " and "X " shall be measured along bottom of girders unless otherwise approved by the Engineer. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Dwg. No. 66625 for limitations of the girder final position under dead load. The Contractor is responsible for any adjustment necessary to meet slab thickness tolerance and to achieve an acceptable finished grade. No payment shall be made for any additional concrete in the haunches when camber is less than shown.

STATE OF ARKANSAS
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11/20/23

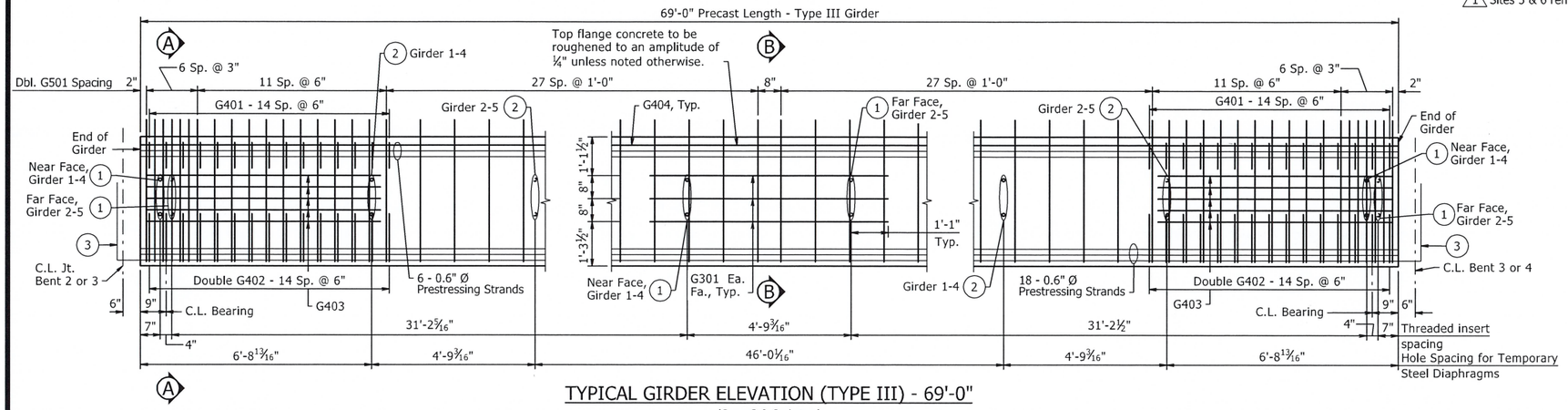
SHEET 5 OF 8
DETAILS OF 280'-0" CONTINUOUS PRESTRESSED CONCRETE GIRDER UNIT
TYRONZA RIVER
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DGL DATE: 04-20-2023 FILENAME: b101124x2_s5.dgn
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DESIGNED BY: LDG DATE: 04-18-2023
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	121	191
		07649		SPAN DETAILS		66630

1 Sites 5 & 6 removed from job. CAW, 11/20/23



TYPICAL GIRDER ELEVATION (TYPE III) - 69'-0"

(Span 2 & 3 shown)
Scale: ½" = 1'-0"

Notes:

Dimensions are measured along C.L. of Girder, U.N.O.

Prestressing strands will not be paid for directly, but will be considered subsidiary to the item "Prestressed Concrete Girders (TYPE III)".

Prestressing strands shall be bonded along the entire length of the girder.

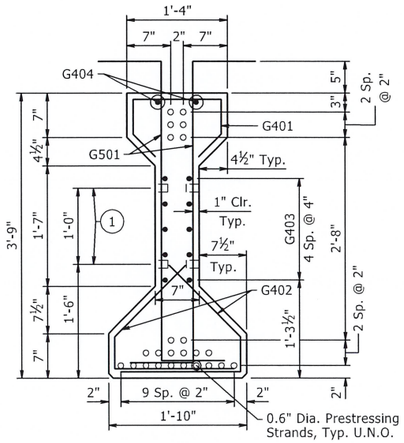
(1) Connection for Concrete Diaphragms: ¾" ø threaded inserts. See Dwg. Nos. 66625, 66627, and 66628 for additional details.

(2) Connection for Temporary Steel Diaphragm: 1¼" ø holes in web. See Dwg. No. 66628 for additional details.

(3) Prestressing Strands bent up into intermediate bent diaphragm. See "END OF GIRDER VIEW - INT. BENT".

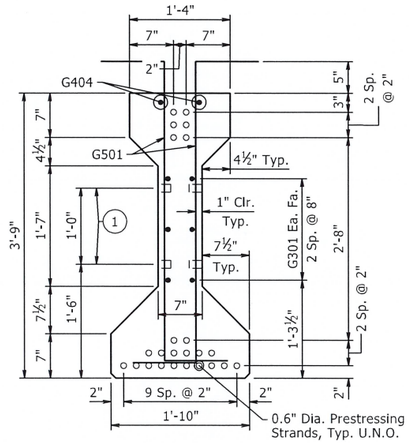
(4) At Bents 2 - 4, shop bend 4 bottom prestressing strands from the end of the girder into the intermediate bent diaphragms as shown. Saw cut or grind remaining strands at both ends flush with the end of the girder.

At the Contractor's option, the location for bent up strands may be varied. The total number of bent up strands per row shall not be changed. Saw cut or grind remaining strand flush with the end.



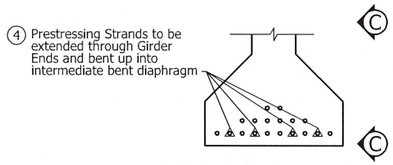
SECTION A-A

Scale: 1" = 1'-0"



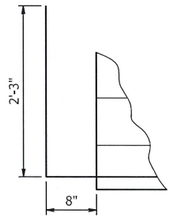
SECTION B-B

Scale: 1" = 1'-0"



END OF GIRDER VIEW - INT. BENT

(Bents 2 - 4)
Scale: 1" = 1'-0"



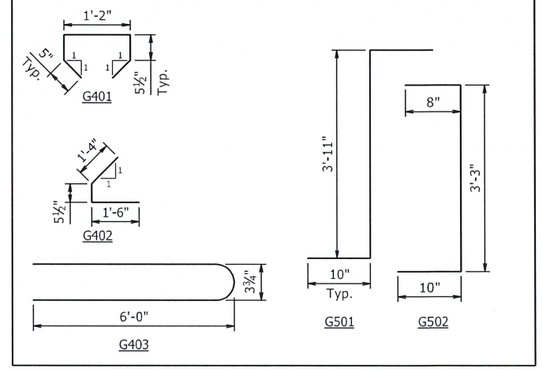
VIEW C-C

Scale: 1" = 1'-0"

BAR LIST - PER GIRDER

Span 1 & 4				Span 2 & 3			
Mark	No. Req'd.	Length	Pin Dia.	Mark	No. Req'd.	Length	Pin Dia.
G301	6	7'-0"	Str.	G301	6	7'-0"	Str.
G401	30	2'-8"	2"	G401	30	2'-8"	2"
G402	60	3'-3"	2"	G402	60	3'-3"	2"
G403	10	12'-2"	2"	G403	10	12'-2"	2"
G404	2	68'-8"	Str.	G404	2	68'-8"	Str.
G501	168	5'-5"	2½"	G501	180	5'-5"	2½"
G502	12	4'-8"	2½"				

BENDING DIAGRAMS

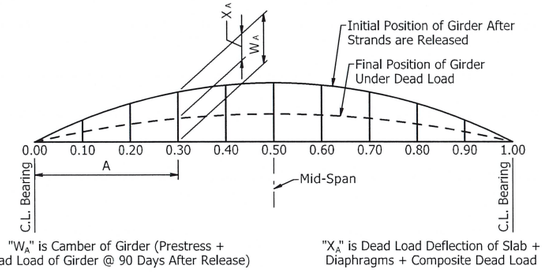


Notes:

Dimensions are out to out of bars.

All bars in "BAR LIST - PER GIRDER" will not be paid for directly, but will be considered subsidiary to the item "Prestressed Concrete Girders (Type III)".

At the Contractor's option, ½" diameter strands pulled to 2,000 lbs. may be substituted for G404 bars.



"W_A" is Camber of Girder (Prestress + Dead Load of Girder @ 90 Days After Release)

"X_A" is Dead Load Deflection of Slab + Diaphragms + Composite Dead Load

CAMBER & DEFECTIONS AT SPAN 2 (INCHES)

No Scale

SPAN 2 & 3 GIRDERS 1-5		
SPAN PT.	INCHES	
	W_A	X_A
0.00	0.000	0.000
0.10	0.466	0.231
0.20	0.798	0.468
0.30	1.015	0.653
0.40	1.139	0.774
0.50	1.178	0.815

Notes:

Table is symmetrical about Mid-Span.

"W " and "X " are based on the required minimum concrete strength and may vary from the dimension shown. "W " and "X " shall be measured along bottom of girders unless otherwise approved by the Engineer. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Dwg. No. 66625 for limitations of the girder final position under dead load. The Contractor is responsible for any adjustment necessary to meet slab thickness tolerance and to achieve an acceptable finished grade. No payment shall be made for any additional concrete in the haunches when camber is less than shown.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 20677
LEVI D. GOTTSPONER
Levi D. Gottsponer 11/20/2023

SHEET 6 OF 8
DETAILS OF 280'-0" CONTINUOUS PRESTRESSED CONCRETE GIRDER UNIT
TYRONZA RIVER
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

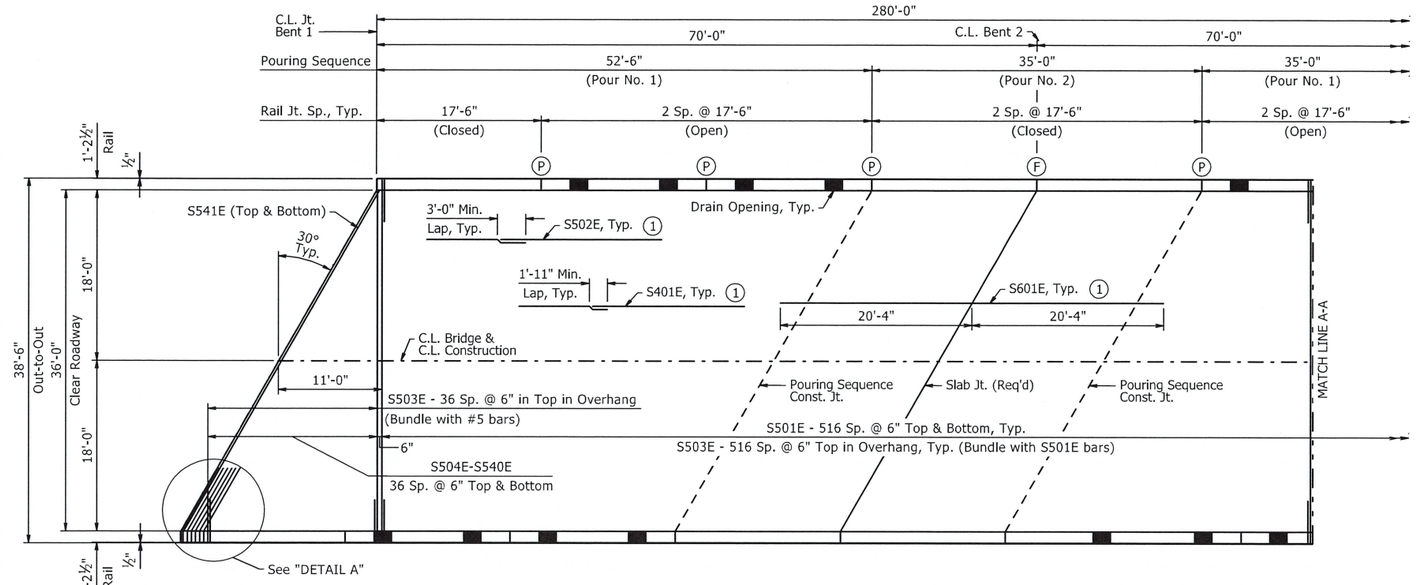
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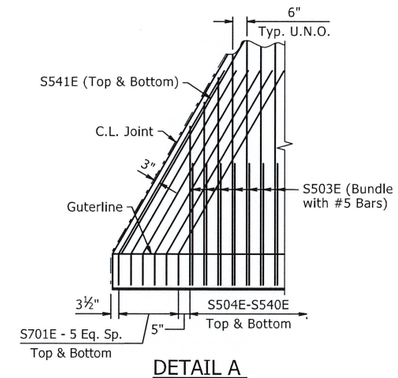
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	122	191
		07649	SPAN DETAILS			66631

1 Sites 5 & 6 removed from job. CAW, 11/20/23





DETAIL A
Scale: ⅜" = 1'-0"

Deck Pouring Sequence Notes:
Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between adjacent pours.

A minimum of 72 hours shall elapse between completion of the bridge deck pour and the start of the railing pour. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

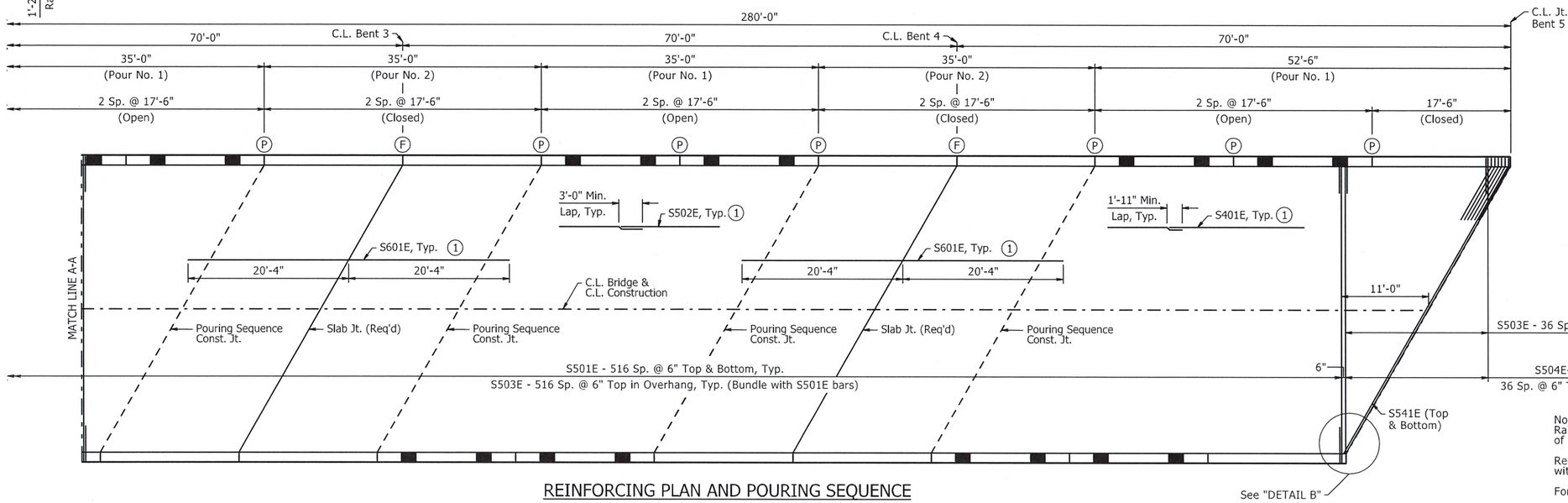
Concrete in bridge superstructure shall be placed, consolidated, and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

Concrete diaphragms at intermediate bents shall be poured monolithically with the deck.

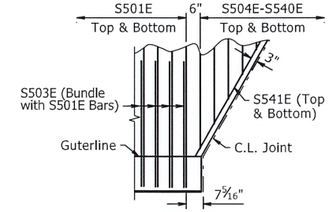
All partial-depth diaphragms shall be cast in place and poured in a minimum of 48 hours before the deck is poured.

Removable forms shall be used when pouring diaphragms.

The deck and diaphragms shall not be poured prior to 90 days following release of the prestressed girder strands.



REINFORCING PLAN AND POURING SEQUENCE
Scale: ⅛" = 1'-0"



DETAIL B
Scale: ⅜" = 1'-0"

Notes:
Rail spacing and joint depth shown are typical for both sides of roadway.

Required slab joints and pouring sequence joints shall align with rail open joints at the face of rail.

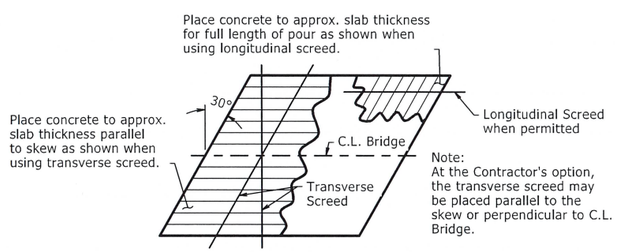
For additional information, see Std. Dwg. No. 55007.

For Bar List see Dwg. No. 66632.

(P) C.L. Partial Depth Rail Joint.

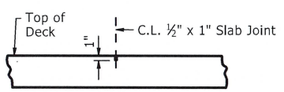
(F) C.L. Full Depth Rail Joint.

(1) Place as shown in "TYPICAL ROADWAY SECTION", see Dwg. No. 66625.



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

CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW



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

TRANSVERSE SLAB JOINT DETAIL

STATE OF ARKANSAS
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Levi D. Gottsponer
11/20/2023

SHEET 7 OF 8
DETAILS OF 280'-0" CONTINUOUS PRESTRESSED CONCRETE GIRDER UNIT
TYRONZA RIVER
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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DESIGNED BY: LDG DATE: 04-18-2023

BRIDGE NO. 07649 DRAWING NO. 66631

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1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	123	191
		07649		SPAN DETAILS		66632

GENERAL NOTES

PRESTRESSED CONCRETE GIRDERS:

Pretensioning steel shall be 0.6" dia. Low Relaxation strands with a minimum ultimate strength of 270 ksi, and shall conform to AASHTO M 203.

Distances from the forms and spacing of the Prestressing Steel shall be maintained by stays, ties, hangers, spacers, or other approved supports which shall be shown on the Shop Drawings.

All girders shall be Type III as noted on the details and shall be the standard prestressed sections adopted by the Joint Committee of AASHTO and the Prestressed Concrete Institute. All girders shall be cast in concrete floored pallets and in metal forms. All work and materials shall be as specified in Subsection 802.22.

Concrete shall be Class S and shall have a minimum 28 day compressive strength, f'c = 6,000 psi. The initial tensile force applied to each 0.6" dia. strand shall be 43,950 lbs. Transfer of this tensioning load to the girder shall not be done until the compressive strength of the concrete is 4,500 psi.

Dimensions shown are to the center of the strands.

The Contractor shall submit the method and sequence for release of strands to the Engineer for approval prior to casting of the girders.

Holes and Inserts shall be cast into the girder. Field drilling of holes shall not be permitted.

The first 1'-5" along the tops of the Girders at beginning and end of unit shall have a smooth surface. The tops of the remaining length of the girders shall be roughened to an amplitude of ¼" and shall be scrubbed transversely with a coarse wire brush to remove all laitance to produce an adequate surface for bonding the slab.

After detensioning, saw cut, grind, or bend up strands as designated by the plans. Heat-cutting or bending methods shall not be used within 6" of the girder.

Extreme care shall be exercised in handling and moving precast prestressed concrete girders. Girders must be maintained in an upright position at all times and must be picked up from points near the girder ends. Disregard of this requirement may lead to collapse of the girder. The Contractor's proposed lifting details shall be submitted on shop drawings to the Engineer for approval. The use of holes for lifting purposes will not be permitted.

The points of support and directions of the reactions with respect to the member shall be approximately the same during transportation and storage as when the member is in its final position.

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

The Contractor may submit alternate strand patterns with design calculations for review and approval.

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

CONCRETE:

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

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

The concrete deck (roadway surface) shall be given a tine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the girder. When permitted, the use of a longitudinal strike-off will require that a vertical camber adJustment be made in the strike-off to account for the future dead load deflection due to any railings.

REINFORCING STEEL:

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

CAMBER NOTES:

The camber and dead load deflection values shown in the plans are estimated based on the required minimum concrete strength for the prestressed concrete girders. The Contractor shall provide the Engineer with the following information:

A. Actual 28-day concrete strength of prestressed concrete girders
B. Actual concrete strength of prestressed concrete girders at time of release
C. Estimated age of prestressed concrete girders at the time of erection
D. Profile of each girder under self weight in final position

Following receipt of the above data, the Engineer will provide an updated deflection diagram to the Contractor, if required.

STRUCTURAL STEEL:

Structural steel shall be ASTM A709 with grade and payment as specified in the plans. Grade 50W steel shall not be painted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Grade 36 and Grade 50 steel shall be painted unless otherwise noted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84. Structural steel completely embedded in concrete may be ASTM A709, Gr. 36, Gr. 50 or Gr. 50W unless otherwise noted.

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

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

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval. All welding shall conform to Subsection 807.26.

FOR ADDITIONAL INFORMATION AND NOTES, SEE LAYOUT AND PLAN DETAILS.

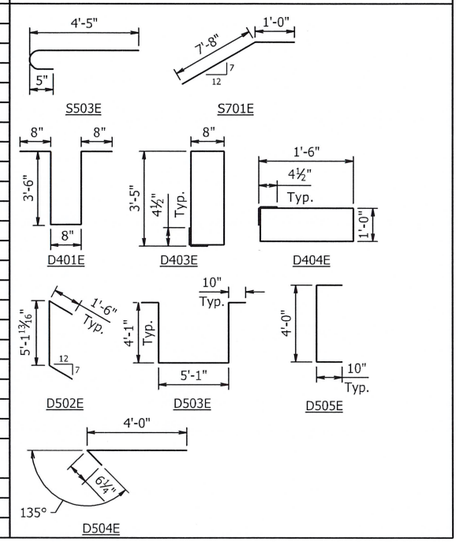
TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels					
Panel Length	A	R4XXE	Panel Length	B	C	D	E	R4XXE
17'-6"	34	R404E	17'-6"	8	3'-0"	14	7'-6"	R404E

BAR LIST

Mark	No. Req'd.	Length	Pin Dia.
D401E	112	8'-8"	2"
D402E	128	6'-5"	Str.
D403E	56	8'-6"	2"
D404E	56	5'-4"	2"
D405E	64	7'-3"	Str.
D501E	120	7'-0"	Str.
D502E	30	7'-10"	2½"
D503E	114	14'-6"	2½"
D504E	384	4'-9"	3¾"
D505E	24	5'-5"	3¾"
D601E	120	5'-2"	Str.
R400E	128	5'-3"	2½"
R401E	1088	6'-4"	2½"
R402E	88	5'-6"	Str.
R403E	1088	3'-6"	3¾"
R404E	256	17'-2"	Str.
S401E	273	41'-8"	Str.
S501E	1034	38'-2"	Str.
S502E	260	58'-4"	Str.
S503E	1108	5'-0"	3¾"
S504E to S540E	4 Ea.	Var. 5'-9" to 36'-11"	Str.
S541E	4	41'-7"	Str.
S601E	114	40'-8"	Str.
S701E	24	8'-8"	5¼"

BENDING DIAGRAM



Notes:
Dimensions are out to out of bars.
Bars with an "E" suffix are to be epoxy coated.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 20677
LEVI D. GOTTSPONER
11/20/2023

Levi D. Gottsponer

SHEET 8 OF 8
DETAILS OF 280'-0" CONTINUOUS PRESTRESSED CONCRETE GIRDER UNIT
TYRONZA RIVER
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DGL DATE: 04-18-2023 FILENAME: b101124x2_s8.dgn
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DESIGNED BY: LDG DATE: 04-18-2023
BRIDGE NO. 07649 DRAWING NO. 66632

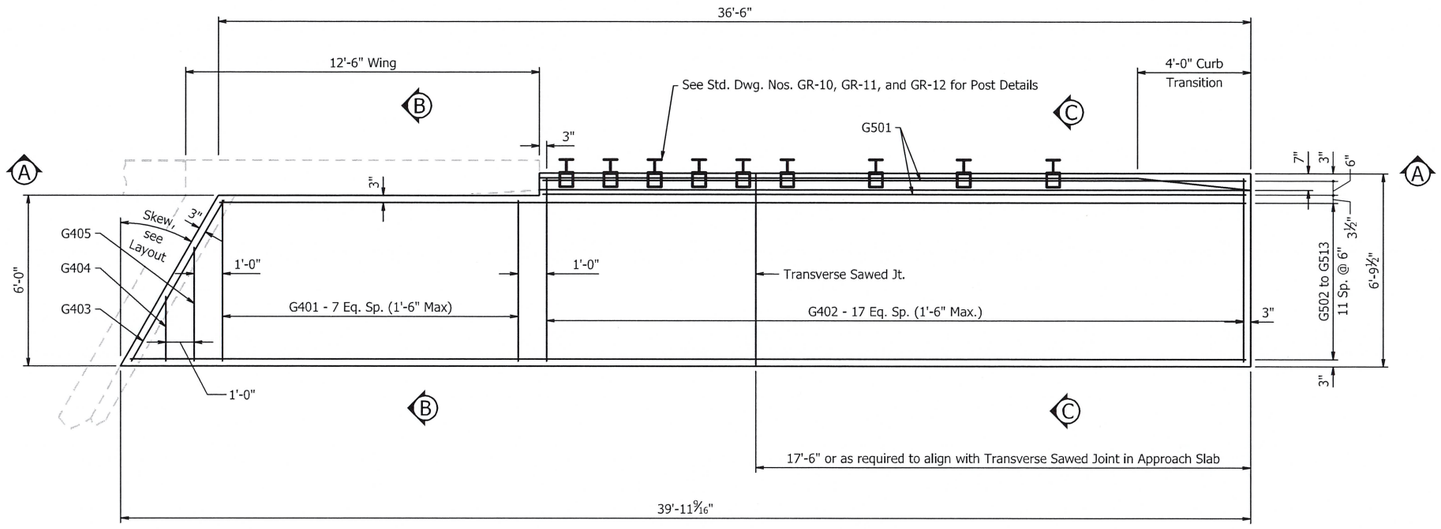
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1 Sites 5 & 6 removed from job. CAW, 11/20/23

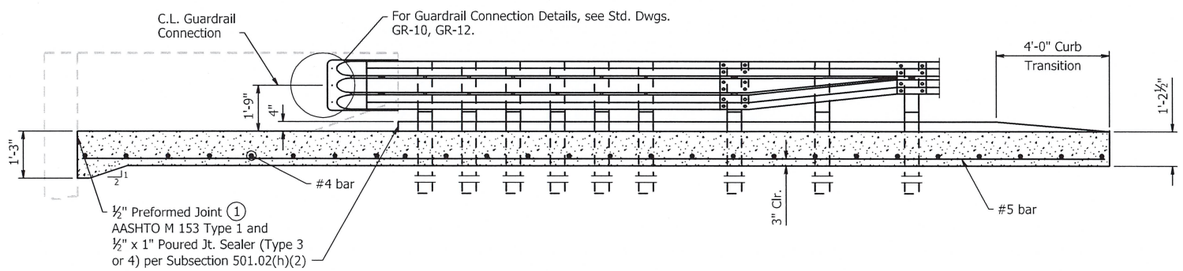
DATE REVISED	DATE REVISED
11/20/23	

FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	101124	124	191
07649	APPROACH GUTTER			66633



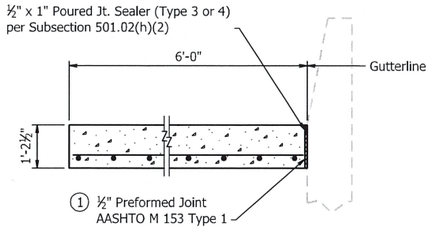
PLAN OF APPROACH GUTTER

(Bent 5 Left Side Shown, Bent 1 Right Side Opposite Hand)
Scale: ⅜" = 1'-0"



SECTION A-A

No Scale

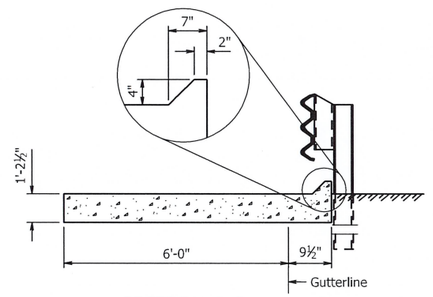


SECTION B-B

No Scale

BAR LIST FOR ONE TYPE 2 SPECIAL GUTTER

Mark	No. Req'd.	Length
G401	8	5'-8"
G402	18	6'-5"
G403	1	6'-6"
G404	1	2'-3"
G405	1	4'-0"
G501	2	24'-10"
G502 to G513	1 Ea.	Var. 36'-3" to 39'-5"



SECTION C-C

No Scale

QUANTITIES FOR ONE TYPE 2 SPECIAL GUTTER

(For Information Only)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
641	11.3

GENERAL NOTES:

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

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

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

(1) Eliminate Type I Preformed Joint when bridge details show reinforcing dowels across these joints. Poured joint sealer is required, however, backer rod shall be eliminated.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 20677
LEVI D. GOTTSPONER
Levi D. Gottsponer 11/20/2023

SHEET 1 OF 2
DETAILS FOR
TYPE 2 SPECIAL APPROACH GUTTERS
TYRONZA RIVER
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BHZ DATE: 06-23-23 FILENAME: b101124x2_g1.dgn
CHECKED BY: CAW DATE: 07-05-23 SCALE: AS NOTED
DESIGNED BY: MLC DATE: 06-09-23

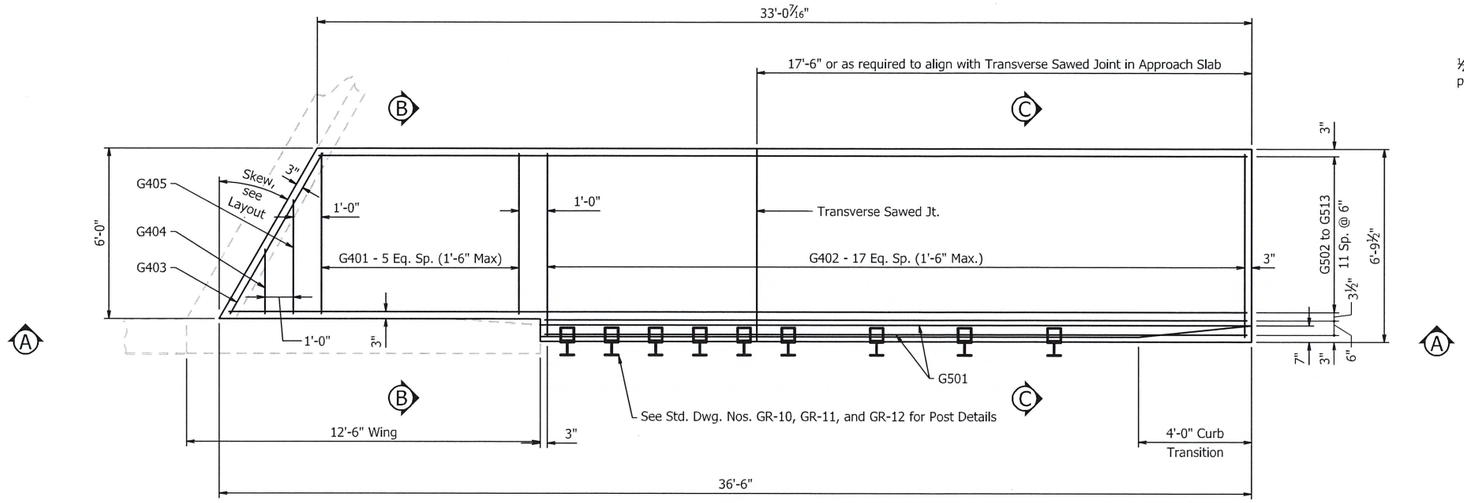
BRIDGE NO. 07649 DRAWING NO. 66633

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1 Sites 5 & 6 removed from job. CAW, 11/20/23

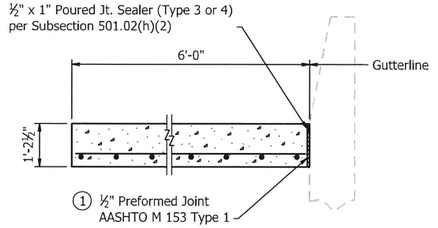
DATE REVISED	DATE REVISED
11/20/23	

FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	101124	125	191
07649	APPROACH GUTTER			66634



PLAN OF APPROACH GUTTER

(Bent 5 Right Side Shown, Bent 1 Left Side Opposite Hand)
Scale: 3/8" = 1'-0"

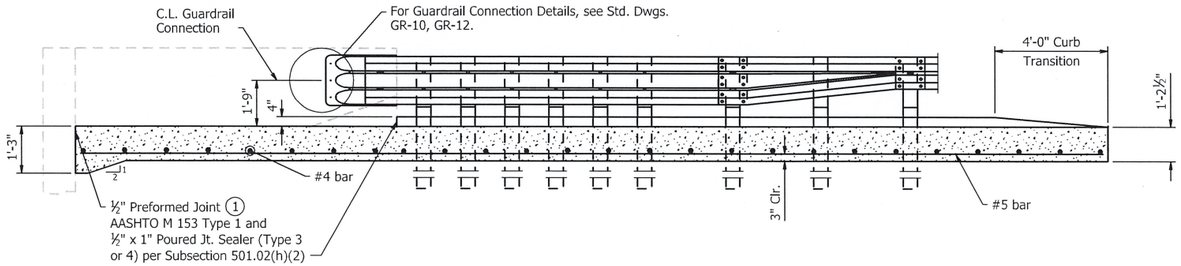


SECTION B-B

No Scale

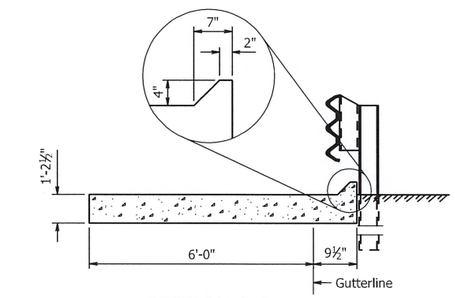
BAR LIST FOR ONE TYPE 2 SPECIAL GUTTER

Mark	No. Req'd.	Length
G401	6	5'-8"
G402	18	6'-5"
G403	1	6'-6"
G404	1	2'-3"
G405	1	4'-0"
G501	2	24'-10"
G502 to G513	1 Ea.	Var. 32'-9" to 35'-11"



SECTION A-A

No Scale



SECTION C-C

No Scale

QUANTITIES FOR ONE TYPE 2 SPECIAL GUTTER

(For Information Only)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
590	10.3

GENERAL NOTES:

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

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

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

(1) Eliminate Type I Preformed Joint when bridge details show reinforcing dowels across these joints. Poured joint sealer is required, however, backer rod shall be eliminated.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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Levi D. Gottsponer 11/20/2023

SHEET 2 OF 2
DETAILS FOR
TYPE 2 SPECIAL APPROACH GUTTERS
TYRONZA RIVER
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BHZ DATE: 06-23-23 FILENAME: b101124x2_g2.dgn
CHECKED BY: CAW DATE: 07-05-23 SCALE: AS NOTED
DESIGNED BY: MLC DATE: 06-09-23

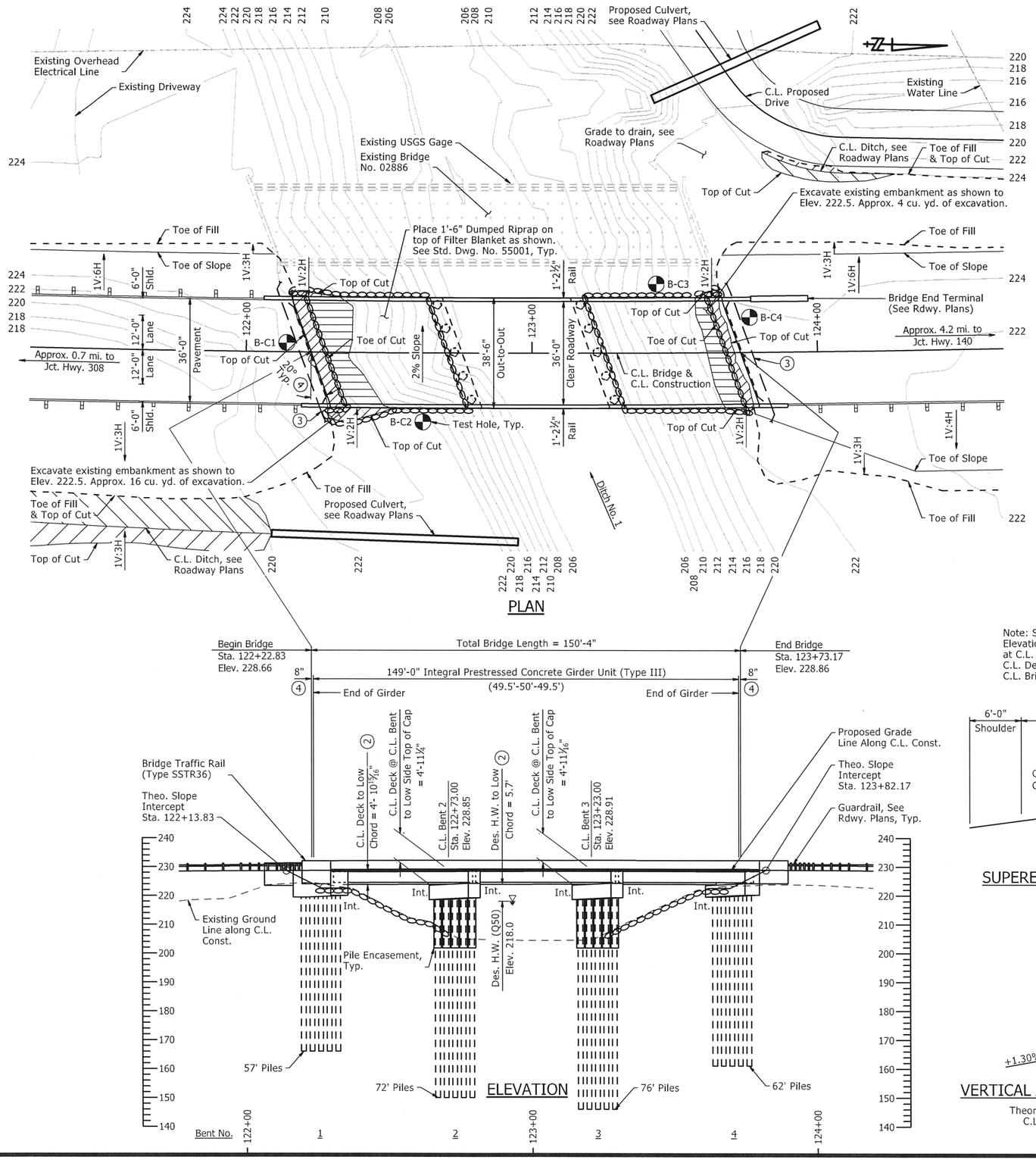
BRIDGE NO. 07649 DRAWING NO. 66634

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PLOTTED: II/20/2023 I2:3I:25 PM SCALE: 5.3333 ' / In.

For R/W Data, See Roadway Plans.

1 Sites 5 & 6 removed from job. CAW, 11/20/23
Revised shell thickness to ⅝". CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	126	191
		07650		LAYOUT		66635



Notes:

Use Type 3 Special Approach Gutters and Type C1 Approach Slabs (width = 24'-0") at both ends of bridge. See Dwg. Nos. 66652-66653 & 55040C1, respectively.

3 Install 4" Pipe Underdrain with Outlet Protectors at both bridge ends in accordance with Section 611 and Std. Dwg. PU-1. For additional details, see Dwg. No. 66644. Pipe Underdrains will not be paid for directly, but shall be considered subsidiary to "UNCLASSIFIED EXCAVATION".

4 Nominal dimension along C.L. Bridge & C.L. Construction. See "STAKING DIAGRAM" on Dwg. No. 66637.

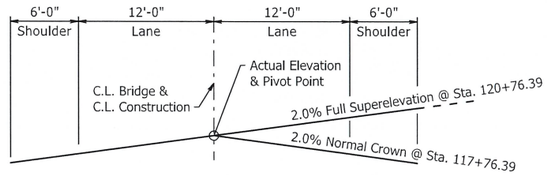
Note: C.L. Construction is on a 00°45'00" curve left. The longitudinal lines of the deck shall be constructed on curves concentric with C.L. Construction. C.L. Girders are parallel to Bridge Chord between the Begin Bridge Station and the End Bridge Station. Bents shall be constructed along lines skewed from perpendicular lines to the C.L. of Bridge Chord. Skew is measured at C.L. Bent for Intermediate Bents and at bridge ends for End Bents.

HORIZONTAL CURVE DATA

Along C.L. Const.

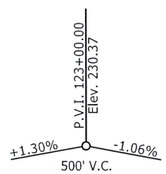
P.I. = 122+98.51
△ = 7°45'15" LT.
D = 0°45'00"
T = 517.74'
L = 1033.89'
P.C. = 117+80.77
P.T. = 128+14.66

Note: Stations shown are along C.L. Construction. Elevations shown are actual top of deck elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on actual top of deck elevation at C.L. Bridge.



SUPERELEVATION TRANSITION SKETCH

(Looking Ahead)



VERTICAL ALIGNMENT DATA

Theoretical Elev. Along C.L. Construction

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on Survey Control Sheets.

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, 9th Edition (2020).

LIVE LOADING: HL-93

SEISMIC ZONE: 4 S_{D1}= 0.77 SITE CLASS: D

SEISMIC OPERATIONAL CLASS: OTHER

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (prestressed concrete girders)	f'c = 6,000 psi
Prestressing Strands (AASHTO M 203, Gr. 270)	fpu = 270,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 50W)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Development Section of the Program Management Division.

1 STEEL SHELL PILING: Piling in Bents 1 and 4 shall be 16" diameter concrete filled steel shell piles and shall be driven to meet the requirements of the "PILE BEARING TABLE" on Dwg. No. 66636. The 16" diameter piles shall have a nominal wall thickness of ⅝". Piling in Bents 2 and 3 shall be 24" diameter concrete filled steel shell piles and shall be driven to meet the requirements of the "PILE BEARING TABLE" on Dwg. No. 66636. The 24" diameter piles shall have a nominal wall thickness of ½". All piling shall be driven with an approved air, steam, or diesel hammer to the minimum tip elevation as specified in the "PILE BEARING TABLE" on Dwg. No. 66636. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are assumed for estimating quantities only. Actual lengths are to be determined in the field. No additional payment will be made for cut-off or build-up. Test piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g). No payment shall be made for test piles.

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

PREBORING: Preboring is required for all piling at Bents 1 and 4. Prebored holes shall have a diameter 6" greater than the diameter of the pile for a depth of 10' below the bottom of the cap. The void space around the pile after completion of driving shall be backfilled with sand or pea gravel. The Contractor shall be responsible for keeping prebored holes free of debris prior to backfilling which may require the use of temporary casings or other approved methods. Any related cost for backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring".

For Additional General Notes, see Dwg. No. 66636.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	1 NATURAL W.S. ELEVATION	W.S. ELEVATION WITH BACKWATER
	YEARS	CFS	FEET	FEET
DESIGN	50	1600	218.0	218.0
BASE	100	1730	218.5	218.5
EXTREME	500	2040	219.6	219.6
OVERTOPPING	>500	---	---	---

1 Unconstricted water surface elevation without structure or roadway approaches.

2 Proposed Low Bridge Chord Elev. = 223.74 feet at Station 122+21.66

100 yr. backwater elevation for existing structure = 218.5 feet
Drainage Area = 18.6 sq. miles
Historical H.W. Elev. = N/A

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

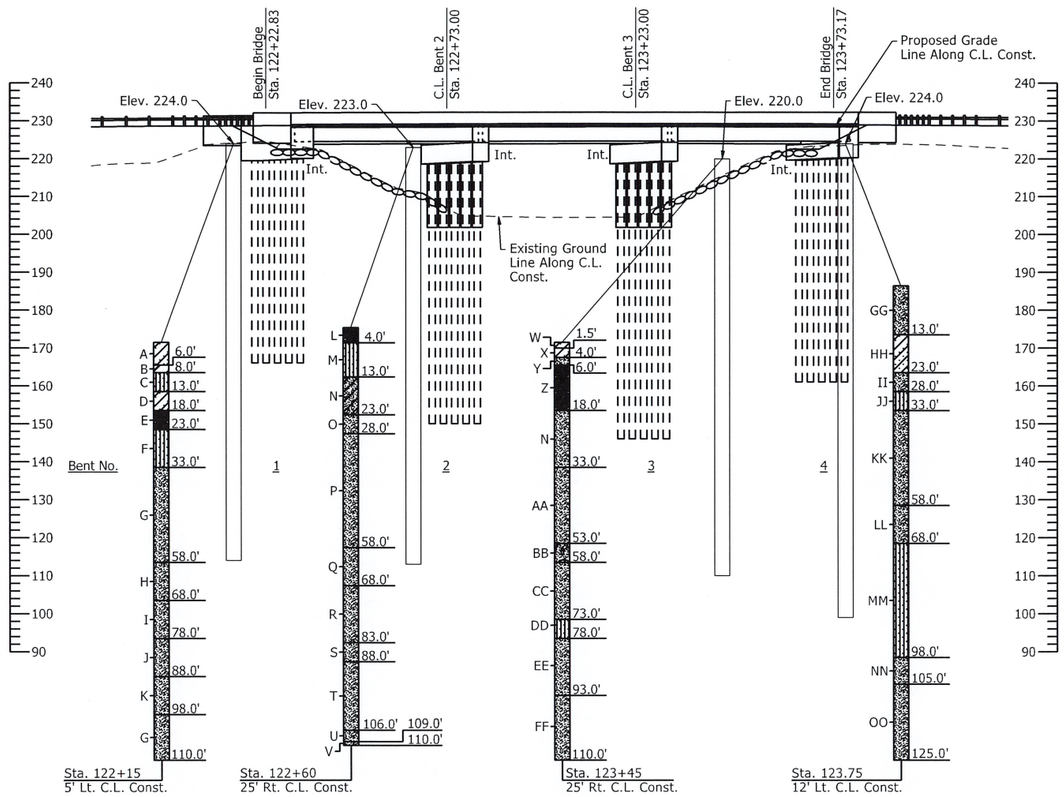
SHEET 1 OF 3
LAYOUT OF BRIDGE
HWY. 135 OVER DITCH NO. 1
HWY. 135 STRS. & APPRS. (S)
POINSETT COUNTY
ROUTE 135 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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DESIGNED BY: MLC DATE: 11-02-22
BRIDGE NO. 07650 DRAWING NO. 66635

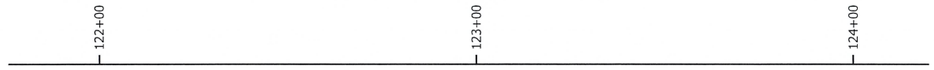
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1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	127	191
		07650		LAYOUT		66636



ELEVATION OF SOIL BORINGS



"N" VALUES

Sta. 122+15 - 5' left of C.L. Const.	Sta. 122+60- 25' right of C.L. Const.	Sta. 123+45 - 25' left of C.L. Const.	Sta. 123+75 - 12' left of C.L. Const.
0.5 - 1.5, N=6	0.5 - 1.5, N=4	0.5 - 1.5, N=5	0.5 - 1.5, N=5
2.5 - 3.5, N=5	3.5 - 4.5, N=7	2.5 - 3.5, N=5	2.5 - 3.5, N=4
4.5 - 5.5, N=5	4.5 - 5.5, N=4	4.5 - 5.5, N=5	4.5 - 5.5, N=7
6.5 - 7.5, N=18	6.5 - 7.5, N=5	6.5 - 7.5, N=7	6.5 - 7.5, N=7
9.0 - 10.0, N=16	9.0 - 10.0, N=11	9.0 - 10.0, N=8	9.0 - 10.0, N=13
14.0 - 15.0, N=16	14.0 - 15.0, N=11	14.0 - 15.0, N=16	14.0 - 15.0, N=14
19.0 - 20.0, N=17	19.0 - 20.0, N=18	19.0 - 20.0, N=16	19.0 - 20.0, N=27
24.0 - 25.0, N=26	24.0 - 25.0, N=20	24.0 - 25.0, N=26	24.0 - 25.0, N=22
29.0 - 30.0, N=15	29.0 - 30.0, N=28	29.0 - 30.0, N=34	29.0 - 30.0, N=46
34.0 - 35.0, N=45	34.0 - 35.0, N=29	34.0 - 35.0, N=29	34.0 - 35.0, N=38
39.0 - 40.0, N=36	39.0 - 40.0, N=30	39.0 - 40.0, N=40	39.0 - 40.0, N=60
44.0 - 45.0, N=31	44.0 - 45.0, N=29	44.0 - 45.0, N=29	44.0 - 45.0, N=48
49.0 - 50.0, N=35	49.0 - 50.0, N=42	49.0 - 50.0, N=24	49.0 - 50.0, N=40
54.0 - 55.0, N=39	54.0 - 55.0, N=22	54.0 - 55.0, N=25	54.0 - 55.0, N=31
59.0 - 60.0, N=34	59.0 - 60.0, N=18	59.0 - 60.0, N=30	59.0 - 60.0, N=51
64.0 - 65.0, N=51	64.0 - 65.0, N=43	64.0 - 65.0, N=46	64.0 - 65.0, N=31
69.0 - 70.0, N=59	69.0 - 70.0, N=47	69.0 - 70.0, N=40	69.0 - 70.0, N=35
74.0 - 75.0, N=70	74.0 - 75.0, N=45	74.0 - 75.0, N=74	74.0 - 75.0, N=31
79.0 - 80.0, N=39	79.0 - 80.0, N=44	79.0 - 80.0, N=32	79.0 - 80.0, N=57
84.0 - 85.0, N=35	84.0 - 85.0, N=30	84.0 - 85.0, N=40	84.0 - 85.0, N=49
89.0 - 90.0, N=61	89.0 - 90.0, N=51	89.0 - 90.0, N=50	89.0 - 90.0, N=62
94.0 - 95.0, N=59	94.0 - 95.0, N=34	94.0 - 95.0, N=52	94.0 - 95.0, N=47
99.0 - 100.0, N=41	99.0 - 100.0, N=23	99.0 - 100.0, N=65	99.0 - 100.0, N=36
109.0 - 110.0, N=43	109.0 - 110.0, N=23	109.0 - 110.0, N=75	109.0 - 110.0, N=44
			119.0 - 120.0, N=60
			124.0 - 125.0, N=56

BORING LEGEND

A. Loose brown clayey fine sand (CL)
B. Stiff gray, grayish brown and reddish tan clay, slightly sandy (CL) w/ferrous stains
C. Medium dense gray, tan and reddish brown silty fine sand (SM)
D. Medium dense gray and tan clayey fine sand (SC)
E. Stiff brownish gray and reddish tan fine sandy clay (CL) w/ferrous stains and organic inclusions
F. Medium dense brown and tan silty fine sand (SM)
G. Dense grayish tan fine to medium sand, slightly silty (SP-SM)
H. Dense grayish tan fine to medium sand (SP) w/trace coarse fine sand and gravel
I. Dense to very dense brownish gray fine sand (SP) w/organic inclusions
J. Dense grayish tan fine to coarse sand, slightly silty (SP-SM) w/occasional clay pockets
K. Dense to very dense brownish gray fine sand, slightly silty (SP-SM)
L. Very soft to soft brown fine sandy clay (CL)
M. Very loose to loose tan and brown silty fine sand (SM)
N. Medium dense gray and reddish brown clayey fine sand (SC) w/ferrous stains
O. Medium dense brown fine sand, slightly silty (SP-SM)
P. Medium dense grayish tan fine sand, slightly silty (SP-SM)
Q. Medium dense grayish tan fine to medium sand, slightly silty (SP-SM) w/occasional organic inclusions and trace fine grave
R. Dense brownish gray fine sand, slightly silty (SP-SM) w/occasional clay pockets and organic inclusions
S. Medium dense to dense grayish tan fine to medium sand (SP) w/trace fine to coarse gravel
T. Dense brownish gray fine sand (SP) w/occasional organic inclusions
U. Medium dense brownish gray fine to coarse sand (SP) w/trace fine gravel and occasional organic inclusions
V. Medium dense grayish brown fine to medium sand (SP) w/numerous organic inclusions
W. Loose brown clayey fine sand (SC) (fill)
X. Very loose to loose tan and gray clayey fine sand, silty (SC-SM) w/occasional decayed organics
Y. Loose tan, reddish tan and brownish gray fine sand, slightly silty (SP-SM)
Z. Firm gray, brown and reddish tan fine sandy clay (CL) w/occasional ferrous nodules and stains
AA. Medium dense grayish tan fine to medium sand, slightly silty (SP-SM)
BB. Medium dense grayish tan fine to coarse sand, slightly silty (SP-SM) w/a little fine to coarse gravel
CC. Medium dense to dense grayish tan fine to medium sand, slightly silty (SP-SM)
DD. Dense to very dense gray silty fine sand (SM) w/occasional organic inclusions
EE. Dense gray fine sand, slightly silty (SP-SM) w/occasional organic inclusions
FF. Dense to very dense grayish tan fine to medium sand, slightly silty (SP-SM) w/occasional organic inclusions and trace fine gravel
GG. Loose tan and brown fine sand, slightly silty (SP-SM) w/fine sandy clay seams
HH. Medium dense gray and reddish tan clayey fine sand (SC) w/ferrous stains
II. Medium dense tan fine sand (SP)
JJ. Dense brown silty fine sand (SM)
KK. Dense brownish gray fine to medium sand (SP)
LL. Dense brownish gray fine to coarse sand (SP)
MM. Dense brownish gray silty fine sand (SM) w/occasional organic inclusions
NN. Dense tan fine to medium sand, slightly silty w/trace coarse sand and fine gravel and occasional organic inclusions
OO. Dense grayish tan fine to medium sand (SP) w/occasional organic inclusions

GENERAL NOTES (Cont'd.)

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of Subsection 805.09(b), "Method B - Wave Equation Analysis (WEAP)" and SP "PILE DRIVING SYSTEM".
See the "PILE BEARING TABLE" for the estimated minimum rated hammer energy required to overcome the anticipated driving resistance for all piles at each bent. If the Contractor elects to use water jetting or other approved methods to obtain the minimum tip elevations shown while driving only to the required minimum ultimate bearing capacity, the minimum rated hammer energy required will be lower and shall be accounted for in the driving system chosen by the Contractor.

PILE ENCASEMENT: Pile encasement for Bents 2 and 3 shall extend from bottom of cap to 3' below natural or finished ground. See Standard Drawing Number 55021 for additional information.

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

PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the Bridge Traffic Rail in accordance with Section 803.

DETAIL DRAWINGS:	DRAWING NO(S).
End Bents	66638-66639
Intermediate Bents	66640-66642
149'-0" Integral Prestressed Concrete Girder Unit	66641-66643
Concrete Filled Steel Shell Piling	55021
Type 3 Special Approach Gutters	66652-66653
Type C1 Approach Slabs	55040C1
Bridge Traffic Rail	55070

EXISTING BRIDGE: Existing Bridge No. 02886 (Log Mile 6.03) is 28.6' wide (24.0' clear roadway) and 152.0' long and consists of steel I-beam spans (5 spans total) supported by precast concrete piles. The existing bridge is located approximately 45' downstream from the proposed new bridge. Plans of the existing structure, if available, may be obtained upon request to the Construction Contract Development Section of the Program Management Division.

REMOVAL AND SALVAGE: After the new bridge is open to traffic, the Contractor shall remove Existing Bridge No. 02886, including existing riprap, in accordance with Section 205. Removal of existing riprap will not be paid for directly but shall be considered subsidiary to the item "Removal of Existing Bridge Structure (Site No._)". All material from the existing bridge shall become the property of the Contractor except the following: The existing USGS stream gage shall remain the the property of the USGS. The Contractor shall remove and store the stream gage on site in a manner approved by the Engineer. The Contractor shall notify the USGS 7 business days in advance of removing the existing stream gage. Contact information is as follows:

USGS
3918 Central Avenue
Memphis, TN 38111
901-678-7287

This work shall be considered incidental to the item "Removal of Existing Bridge Structure (Site No._)".

MAINTENANCE OF TRAFFIC: See Roadway Plans.

PILE BEARING TABLE

BENTS	REQUIRED MINIMUM ULTIMATE BEARING CAPACITY (TONS)	MIN. TIP ELEVATION	ANTICIPATED DRIVING RESISTANCE AT MIN. TIP (TONS)	ESTIMATED MIN. RATED HAMMER ENERGY (FT. LBS. PER BLOW)
1	270	166	315	66,000
2	455	150	495	122,000
3	450	146	480	122,000
4	230	161	365	66,000

Note: Required minimum ultimate bearing capacity corresponds to the minimum post driving capacity to be obtained after an allowance for water jetting or any other methods employed to facilitate pile installation.

Anticipated Driving Resistance corresponds to the resistance to be overcome to achieve minimum tip elevation without any water jetting or other methods employed to facilitate pile installation.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

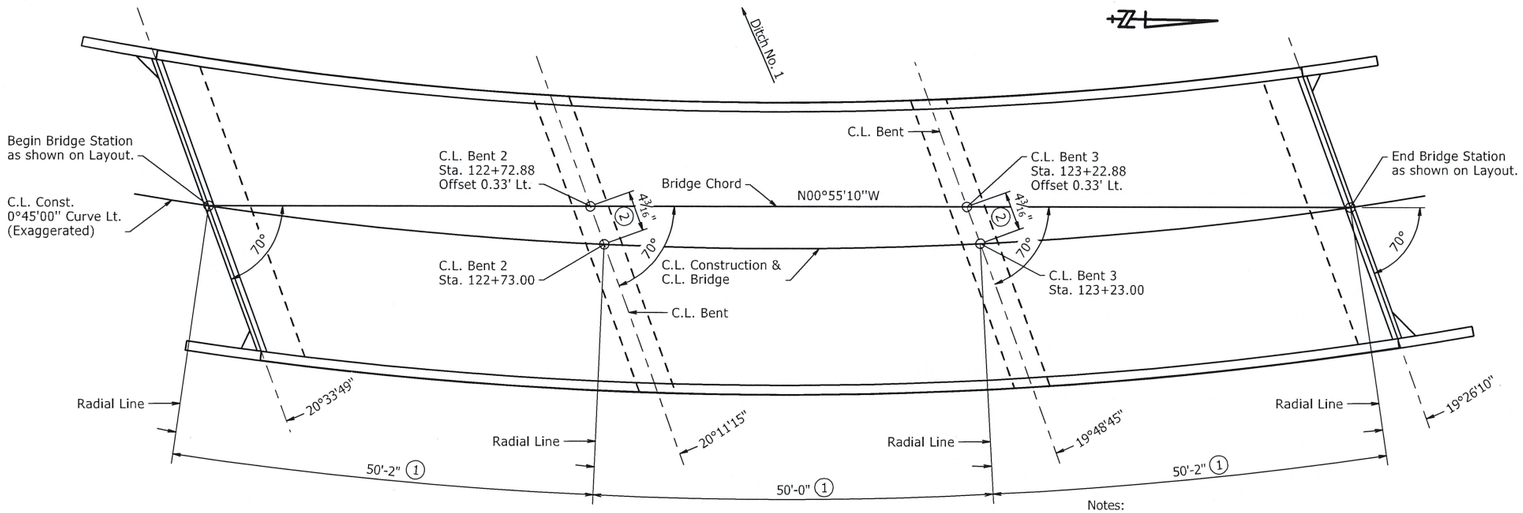
SHEET 2 OF 3
LAYOUT OF BRIDGE
HWY. 135 OVER DITCH NO. 1
HWY. 135 STRS. & APPRS. (S)
POINSETT COUNTY
ROUTE 135 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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CHECKED BY: CAW DATE: 12-06-22 SCALE: 1" = 20'
DESIGNED BY: MLC DATE: 11-02-22
BRIDGE NO. 07650 DRAWING NO. 66636

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1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	128	191
		07650		LAYOUT		66637



STAKING DIAGRAM

No Scale

Notes:

C.L. Construction and C.L. Bridge are on a 0°45'00" Curve left. See Dwg. No. 66635 for "HORIZONTAL CURVE DATA". The Bridge Chord is a straight line between Begin Bridge and End Bridge stations. C.L. Bents are 20° right forward skew from a line perpendicular to the Bridge Chord.

(1) Measured along C.L. Construction.

(2) Measured along C.L. Bent.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF

11/22/2023

SHEET 3 OF 3
LAYOUT OF BRIDGE
HWY. 135 OVER DITCH NO. 1
HWY. 135 STRS. & APPRS. (S)
POINSETT COUNTY
ROUTE 135 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MLC DATE: 11-16-22 FILENAME: b101124x3_I3.dgn
CHECKED BY: CAW DATE: 12-06-22 SCALE: AS NOTED
DESIGNED BY: MLC DATE: 11-02-22

BRIDGE NO. 07650 DRAWING NO. 66637

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	129	191
		07650	END BENT DETAILS			66638

1 Sites 5 & 6 removed from job. CAW, 11/20/23

Notes:

Concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. Coarse aggregate for Class "S" concrete shall comply with the requirements of Subsection 802.02(c), except that the maximum aggregate size shall be 1". All exposed corners shall be chamfered ¾" unless noted otherwise.

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

Granular backfill and pipe underdrain required behind end bent caps. See Dwg. No. 66644 for details.

For "SECTION B-B", "VIEW C-C", and "SECTION E-E", Bar List, and Bending diagram, see Dwg. No. 66639.

See Brigde Layout for additional information.

(1) Measured along gutterline. Construct Wings on curves concentric with C.L. Bridge & C.L. Construction.

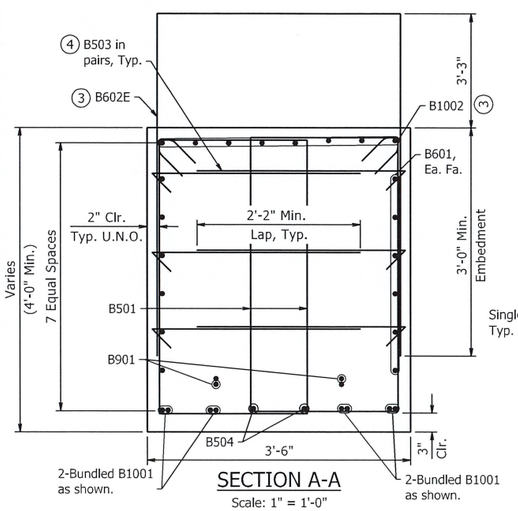
(2) Contractor shall ensure that concrete in this area is in full and complete contact with Annular Ring.

(3) Adjust projection of B602E to maintain 2" clear to top of paving bracket in the End Bent Diaphragm.

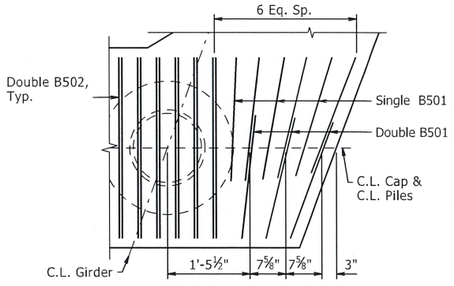
(4) See "ELEVATION" for placement. Orient each pair of B503 bars to be parallel to horizontal legs of adjacent B501 bars.

(5) Measured along C.L. Cap and C.L. Piles.

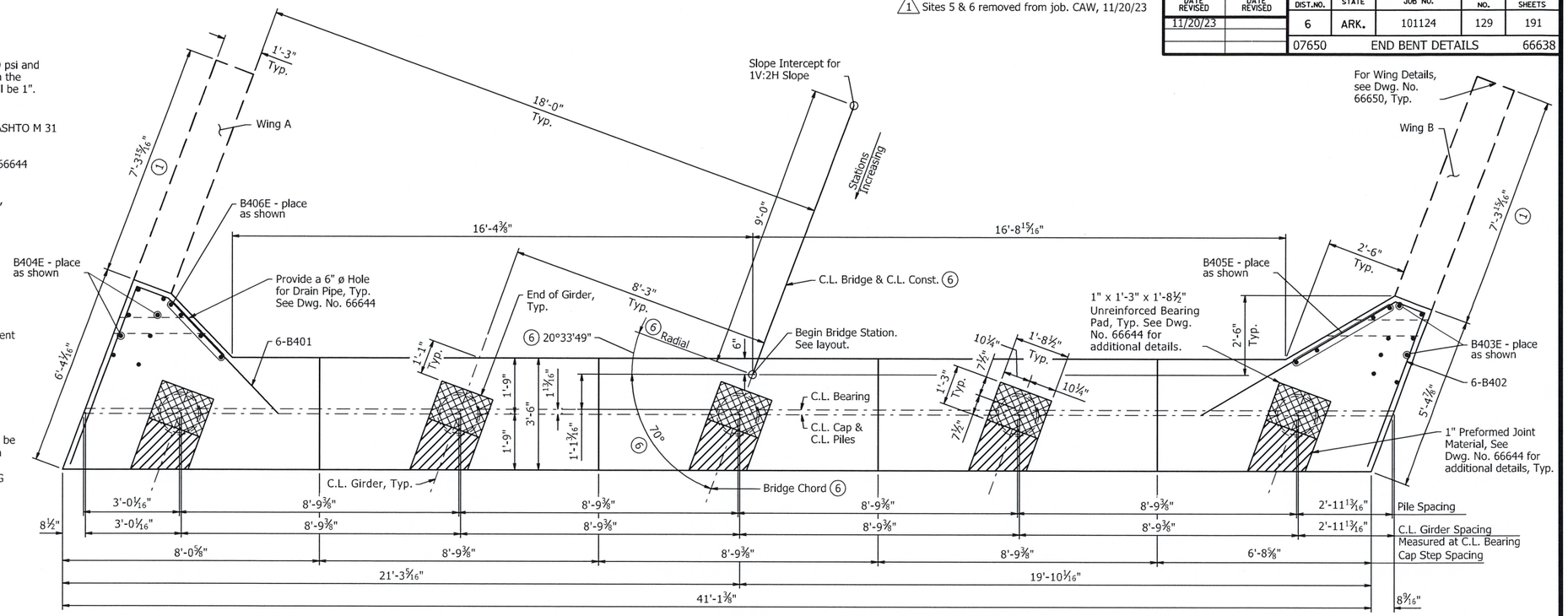
(6) C.L. Construction is on a 00°45'00" curve left. The longitudinal lines of the Bent shall be constructed on curves concentric with C.L. Construction. C.L. Girders are parallel to a Bridge Chord between the Begin Bridge Station and the End Bridge Station. Bents shall be constructed along lines skewed from the C.L. of Bridge Chord. See "STAKING DIAGRAM" on Dwg. No. 66637 for additional information.



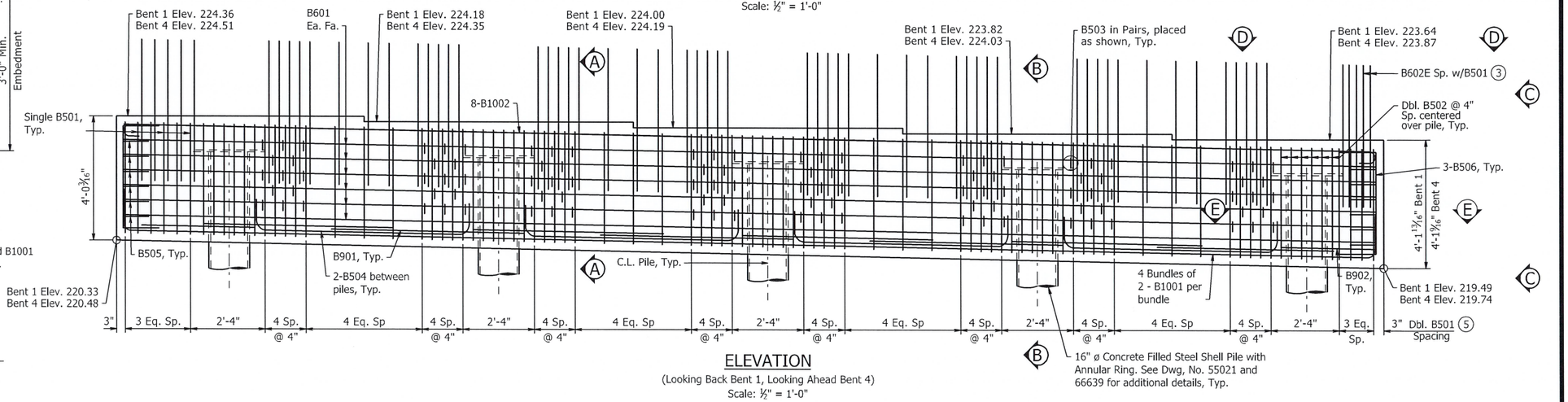
SECTION A-A
Scale: 1" = 1'-0"



VIEW D-D
(Left side of Bridge shown, right side of Bridge opposite hand)
Scale: ¾" = 1'-0"



PLAN
(Bent 1)
Scale: ½" = 1'-0"



ELEVATION
(Looking Back Bent 1, Looking Ahead Bent 4)
Scale: ½" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/22/2023

SHEET 1 OF 2
DETAILS OF END BENTS
DITCH NO. 1
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DGL DATE: 07-18-23 FILENAME: b101124x3_b11.dgn
CHECKED BY: CAW DATE: 08-23-23 SCALE: AS NOTED
DESIGNED BY: MLC DATE: 05-09-23

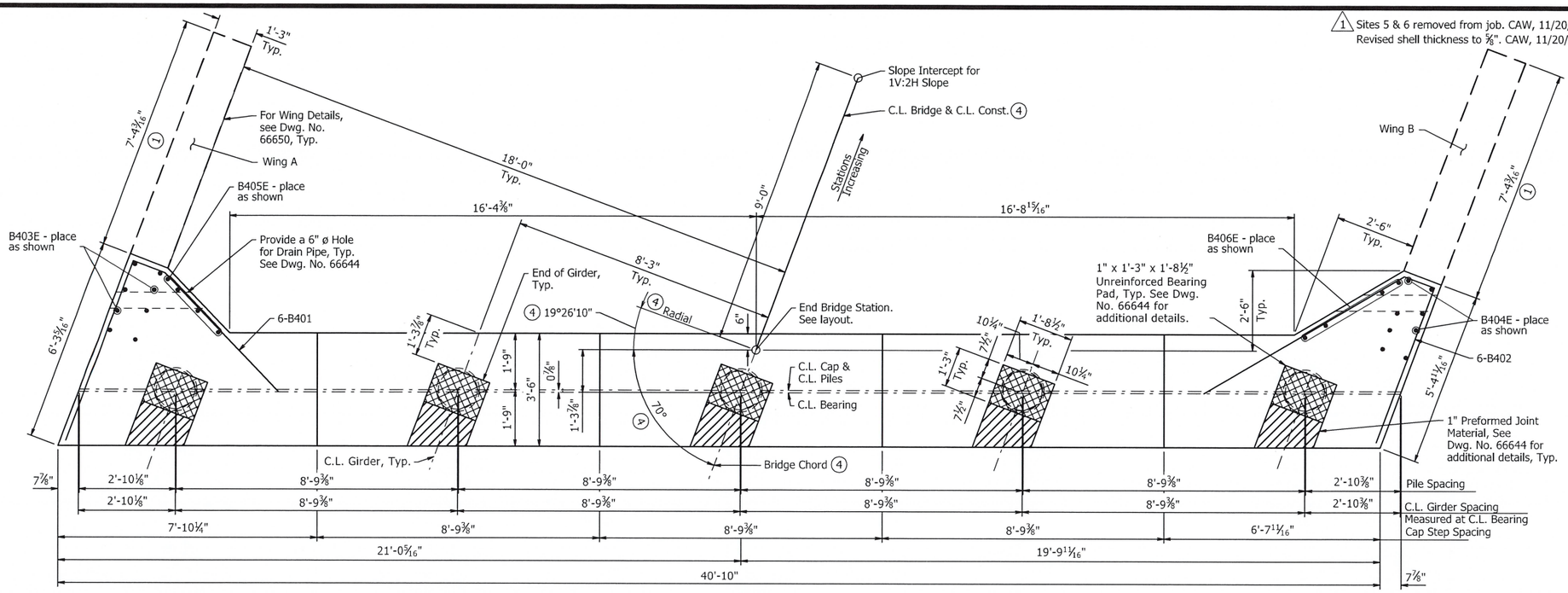
BRIDGE NO. 07650 DRAWING NO. 66638

USER: CTAUSER
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SCALE: 4.0000 ' / In.

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	130	191
		07650		END BENT DETAILS		66639

1 Sites 5 & 6 removed from job. CAW, 11/20/23
Revised shell thickness to ⅝". CAW, 11/20/23



(1) Measured along gutterline. Construct Wings on curves concentric with C.L. Bridge & C.L. Construction.

(2) A minimum of 4 holes shall be equally spaced along the outside of the ring as shown. A minimum of 4 holes shall be equally spaced along the inside of the ring as shown.

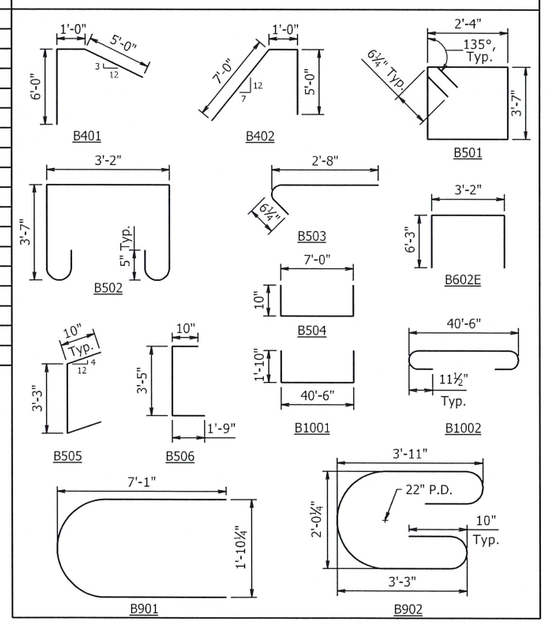
(3) Contractor shall ensure that concrete in this area is in full and complete contact with Annular Ring.

(4) C.L. Construction is on a 00°45'00" curve left. The longitudinal lines of the Bent shall be constructed on curves concentric with C.L. Construction. C.L. Girders are parallel to a Bridge Chord between the Begin Bridge Station and the End Bridge Station. Bents shall be constructed along lines skewed from the C.L. of Bridge Chord. See "STAKING DIAGRAM" on Dwg. No. 66637 for additional information.

BAR LIST - PER END BENT

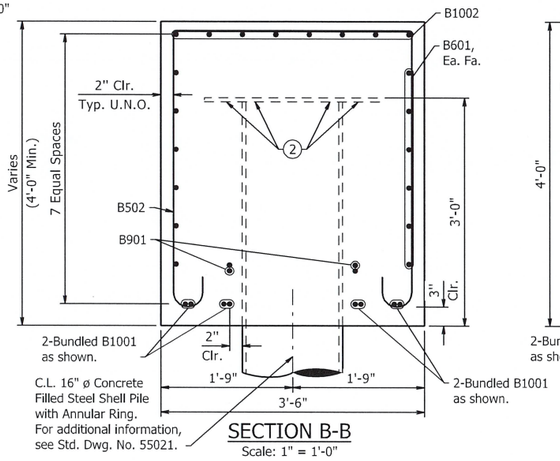
Mark	No. Req'd.	Length	Pin Dia.
B401	6	11'-10"	3"
B402	6	12'-10"	3"
B403E	8	8'-5"	Str.
B404E	8	8'-4"	Str.
B405E	4	7'-2"	Str.
B406E	4	7'-1"	Str.
B501	125	12'-6"	3¾"
B502	60	11'-3"	3¾"
B503	208	3'-4"	3¾"
B504	8	8'-5"	3¾"
B505	10	4'-8"	3¾"
B506	6	5'-3"	3¾"
B601	12	40'-6"	Str.
B602E	62	15'-5"	4½"
B901	8	15'-1"	20"
B902	2	10'-9"	9"
B1001	8	43'-7"	10"
B1002	8	43'-4"	10"

BENDING DIAGRAMS



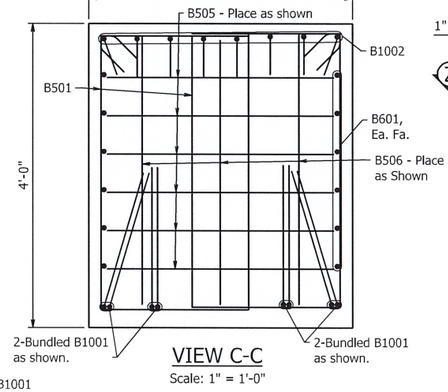
PLAN

(Bent 4)
Scale: ½" = 1'-0"



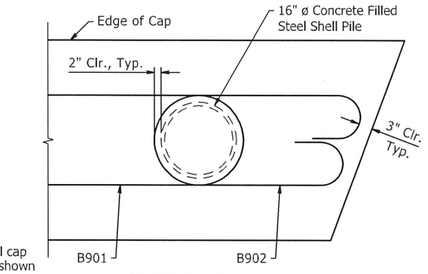
SECTION B-B

Scale: 1" = 1'-0"



VIEW C-C

Scale: 1" = 1'-0"



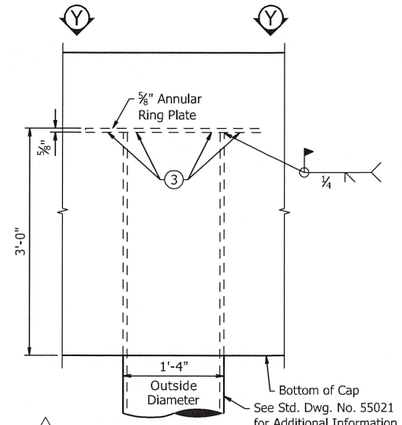
Note: Additional cap reinforcing not shown for clarity.

SECTION E-E

Scale: ¾" = 1'-0"

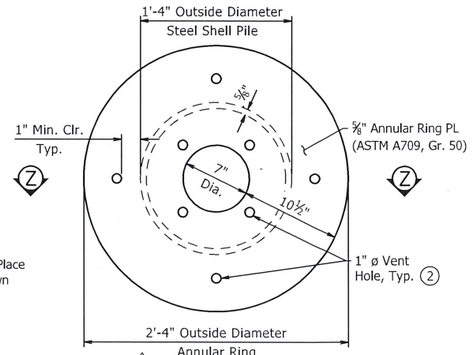
Note:

The cost of all labor and materials required to fabricate and install the Annular Ring will not be paid for directly but shall be considered subsidiary to the item "Steel Shell Piling (16" Dia.)".



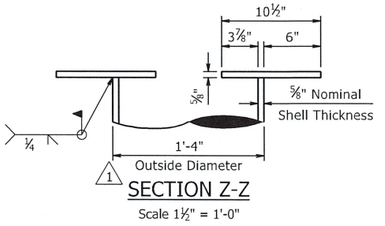
1 ANNULAR RING DETAIL

Scale: 1" = 1'-0"



1 SECTION Y-Y

Scale: 1½" = 1'-0"



1 SECTION Z-Z

Scale 1½" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

SHEET 2 OF 2
DETAILS OF END BENTS
DITCH NO. 1
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DGL DATE: 07-18-23 FILENAME: b101124x3_b12.dgn
CHECKED BY: CAW DATE: 08-23-23 SCALE: AS NOTED
DESIGNED BY: MLC DATE: 05-09-23

BRIDGE NO. 07650 DRAWING NO. 66639

USER: CTAUSER
DESIGN FILE: G:\22I10001_I01I24\TRANSP\dgn\bridge\b101124x3_b12.dgn SCALE: 4.0000 ' / In.
PLOTTED: 11/20/2023 12:31:37 PM

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DATE REVISED	DATE REVISED
11/20/23	

FED.RO. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	101124	131	191
07650	INT. BENT DETAILS			66640

1 Sites 5 & 6 removed from job. CAW, 11/20/23

Notes:

Concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. Coarse aggregate for Class "S" concrete shall comply with the requirements of Subsection 802.02(c), except that the maximum aggregate size shall be 1". All exposed corners shall be chamfered ¾" unless noted otherwise.

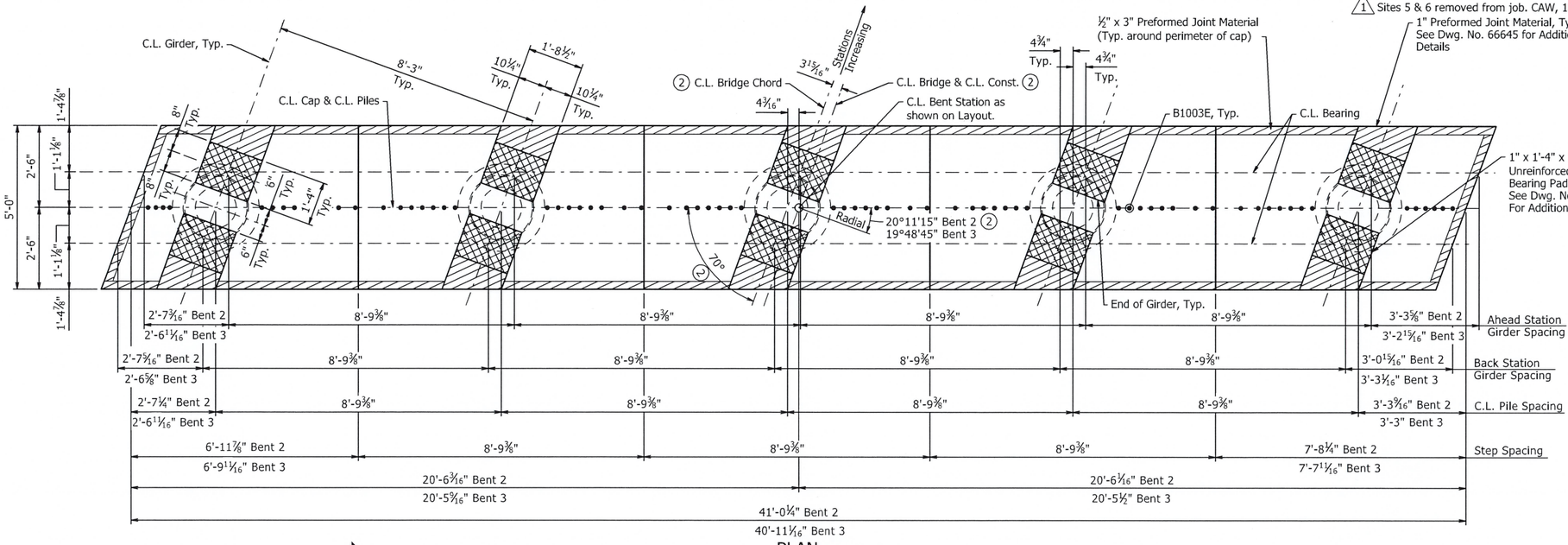
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 322, Type A, with mill test reports.

For Details of Concrete Filled Steel Shell Piles and Pile Encasements, see Std. Dwg. No. 55021 and Dwg. No. 66642.

For "SECTION A-A", "SECTION B-B", "VIEW C-C", "DETAIL A", and Bar List, see Dwg. No. 66641.

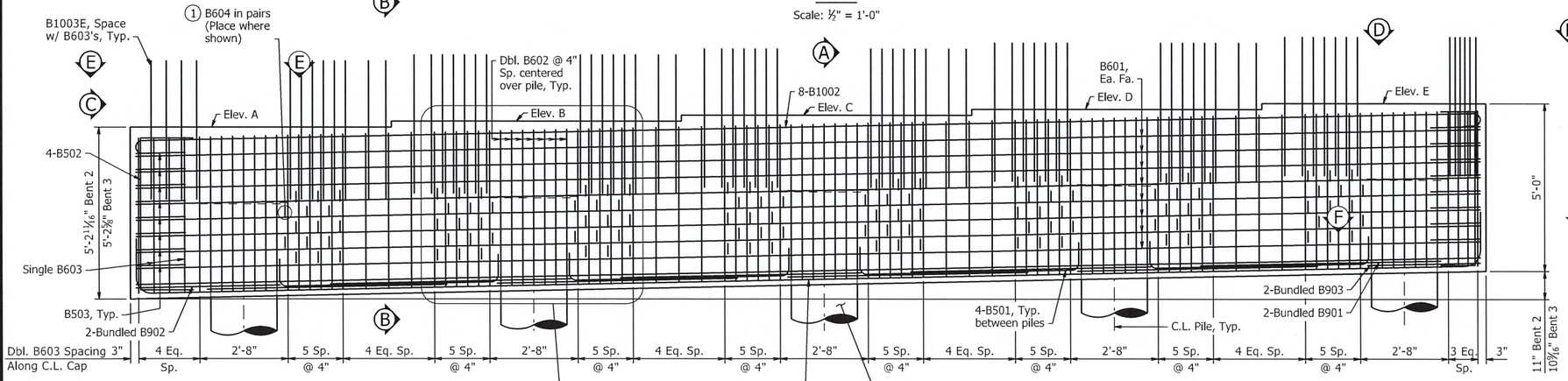
(1) Orient each pair of B604 bars to be parallel to Horizontal legs of adjacent Double B603 Stirrup Bars.

(2) C.L. Construction is on a 00°45'00" curve left. The longitudinal lines of the deck shall be constructed on curves concentric with C.L. Construction. C.L. Girders are parallel to a C.L. Bridge Chord between the Begin Bridge station and the End Bridge Station. Bents shall be constructed along lines skewed from perpendicular lines to the C.L. Bridge Chord. Skew is measured at C.L. Bent for Intermediate bents. See "STAKING DIAGRAM" on Dwg. No. 66637 for additional information.



PLAN

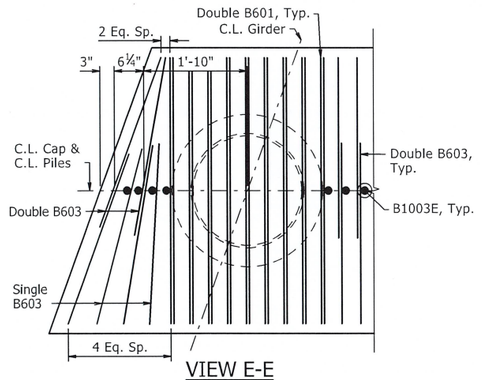
Scale: ½" = 1'-0"



ELEVATION

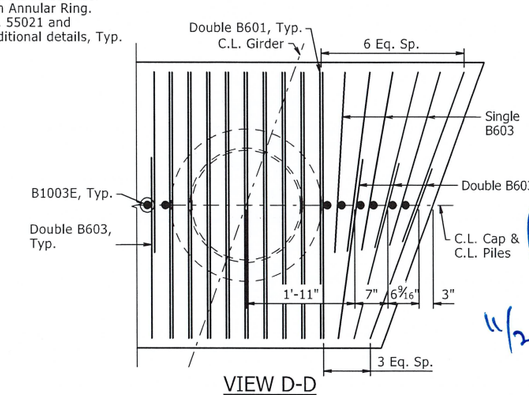
(Looking Ahead)

Scale: ½" = 1'-0"



VIEW E-E

Scale: ¾" = 1'-0"

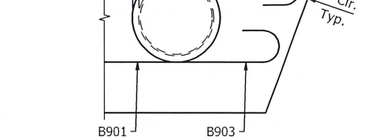


VIEW D-D

Scale: ¾" = 1'-0"

TABLE OF VARIABLES

Location	A	B	C	D	E
Bent 2	223.83	224.00	224.17	224.34	224.52
Bent 3	223.91	224.07	224.24	224.40	224.57



SECTION F-F

Scale: ½" = 1'-0"

Note: Additinal cap reinforcing not shown for clarity.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

SHEET 1 OF 3
DETAILS OF INTERMEDIATE BENTS
DITCH NO. 1
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DGL DATE: 07-28-23 FILENAME: b101124x3_b21.dgn
CHECKED BY: CAW DATE: 08-23-23 SCALE: AS NOTED
DESIGNED BY: MLC DATE: 05-09-23

BRIDGE NO. 07650 DRAWING NO. 66640

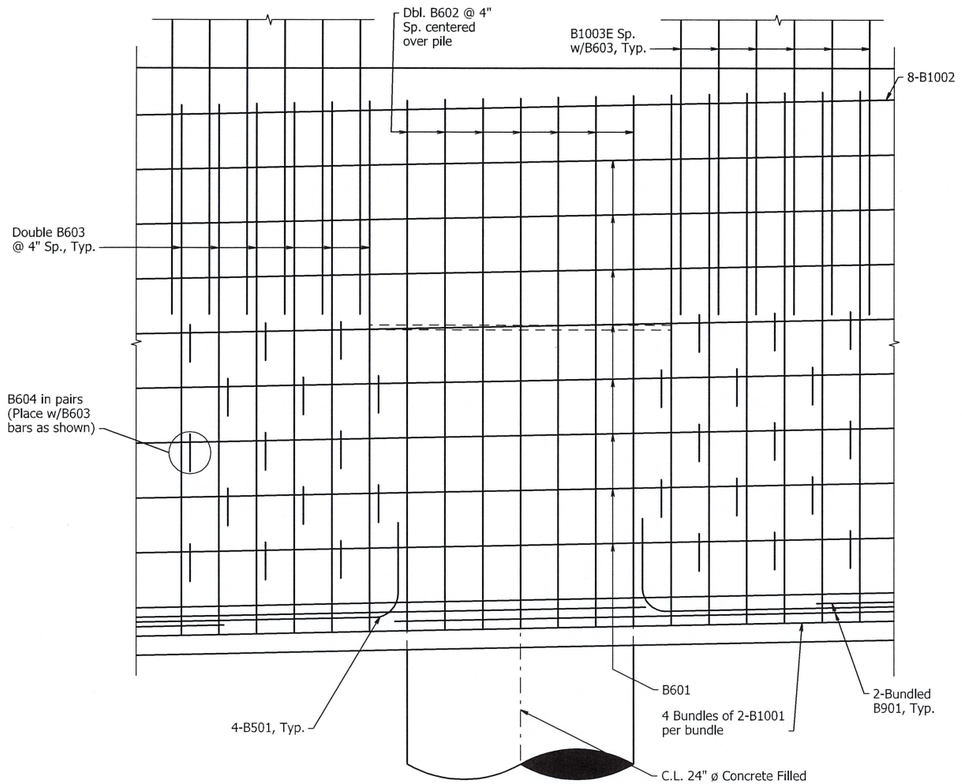
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1 Sites 5 & 6 removed from job. CAW, 11/20/23

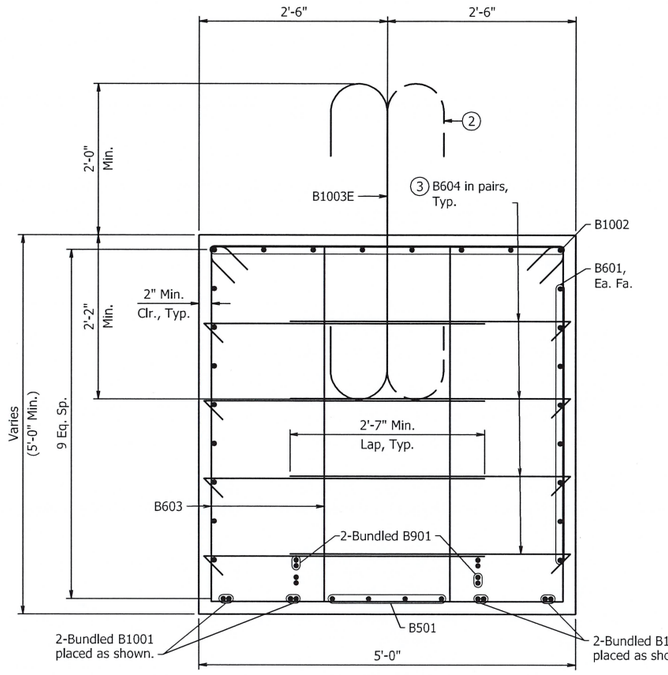
DATE REVISED	DATE REVISED
11/20/23	

FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	101124	132	191
07650	INT. BENT DETAILS			66641



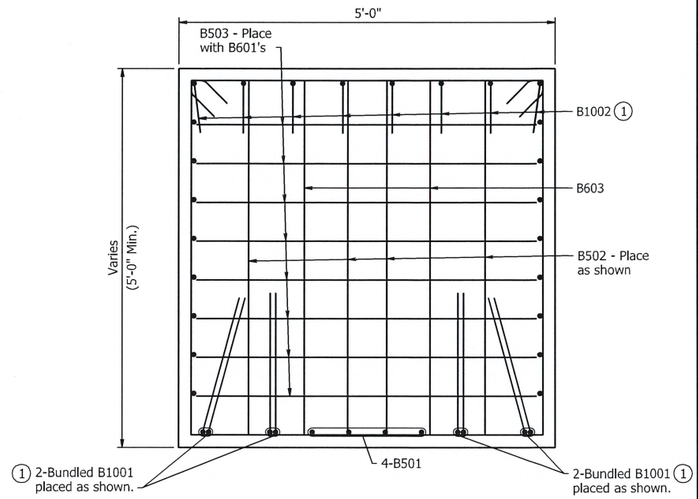
DETAIL A

Scale: 1½" = 1'-0"



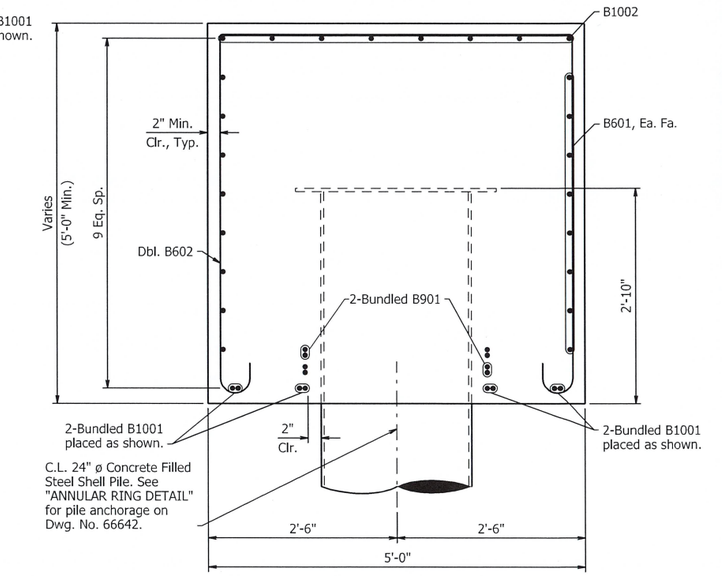
SECTION B-B

Scale: 1" = 1'-0"



VIEW C-C

Scale: 1" = 1'-0"



SECTION A-A

Scale: 1" = 1'-0"

1 Rotate hooks of B1001 and B1002 bars as required to avoid interference with other bars.

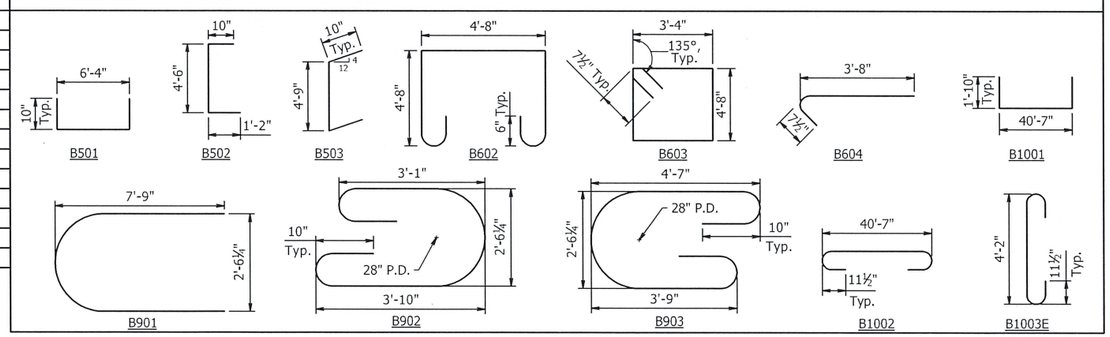
2 Alternate hook orientation every other bar.

3 Orient each pair of B604 bars to the parallel to Horizontal legs of adjacent Double B603 Stirrup Bars.

BAR LIST - PER INTERMEDIATE BENT

Mark	No. Req'd.	Length	Pin Dia.
B501	16	7'-9"	3¾"
B502	8	6'-3"	3¾"
B503	16	6'-2"	3¾"
B601	16	40'-7"	Str.
B602	70	15'-1"	4½"
B603	135	16'-10"	4½"
B604	240	4'-5"	4½"
B901	16	16'-10"	28"
B902	2	10'-9"	9"
B903	2	12'-3"	9"
B1001	8	43'-7"	10"
B1002	8	43'-5"	10"
B1003E	70	7'-2"	10"

BENDING DIAGRAMS



Note:

Dimensions are out to out of bars. Bars with an "E" suffix are to be epoxy coated.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

SHEET 2 OF 3
DETAILS OF INTERMEDIATE BENTS
DITCH NO. 1
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	BWC	DATE:	07-18-23	FILENAME:	b101124x3_b22.dgn
CHECKED BY:	CAW	DATE:	08-23-23	SCALE:	AS NOTED
DESIGNED BY:	MLC	DATE:	05-09-23		

BRIDGE NO. 07650 DRAWING NO. 66641

USER: CTAUSER
DESIGN FILE: G:\22I10001_I01I24\TRANSP\dgn\bridge\b10II24x3_b22.dgn SCALE: 2.0000 ' / in.
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1 Sites 5 & 6 removed from job. CAW, 11/20/23

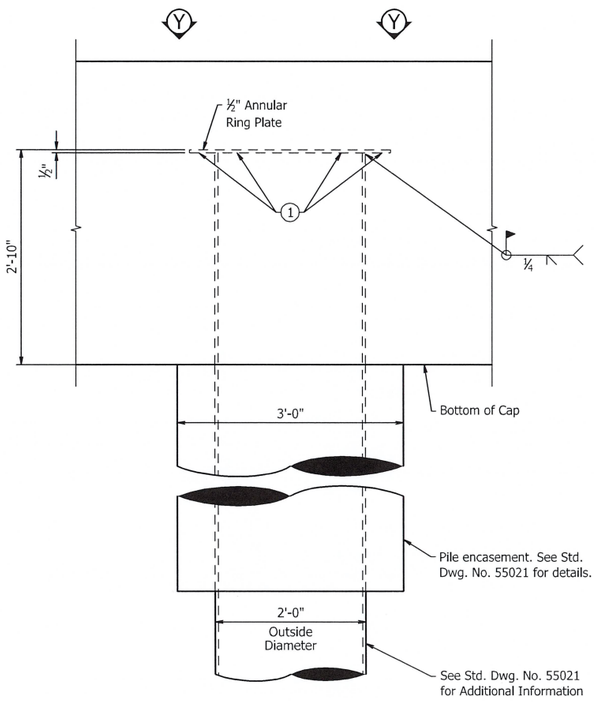
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	133	191
		07650		INT. BENT DETAILS		66642

Note:

The cost of all labor and materials required to fabricate and install the Annular Ring will not be paid for directly but shall be considered subsidiary to the item "Steel Shell Piling (24" Dia.)".

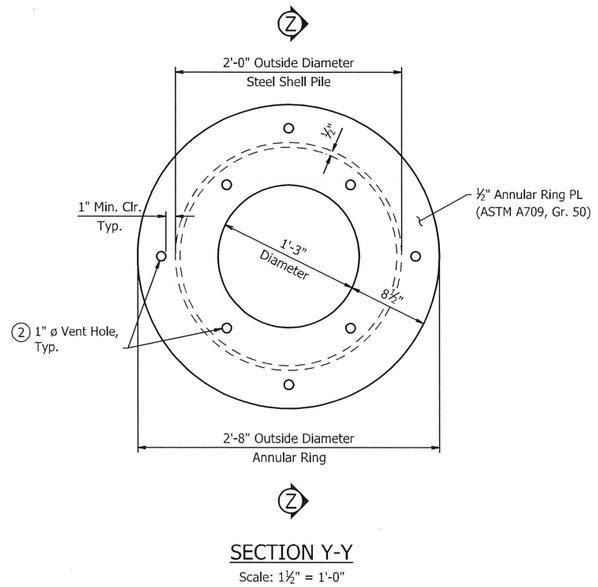
(1) Contractor shall ensure that concrete in this area is in full and complete contact with Annular Ring.

(2) A minimum of 4 holes shall be equally spaced along the outside of the ring as shown. A minimum of 4 holes shall be equally spaced along the inside of the ring as shown.



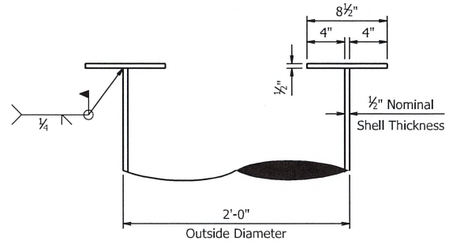
ANNULAR RING DETAIL

Scale: 1" = 1'-0"



SECTION Y-Y

Scale: 1½" = 1'-0"



SECTION Z-Z

Scale: 1½" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIFF
11/20/2023

SHEET 3 OF 3
DETAILS OF INTERMEDIATE BENTS
DITCH NO. 1
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

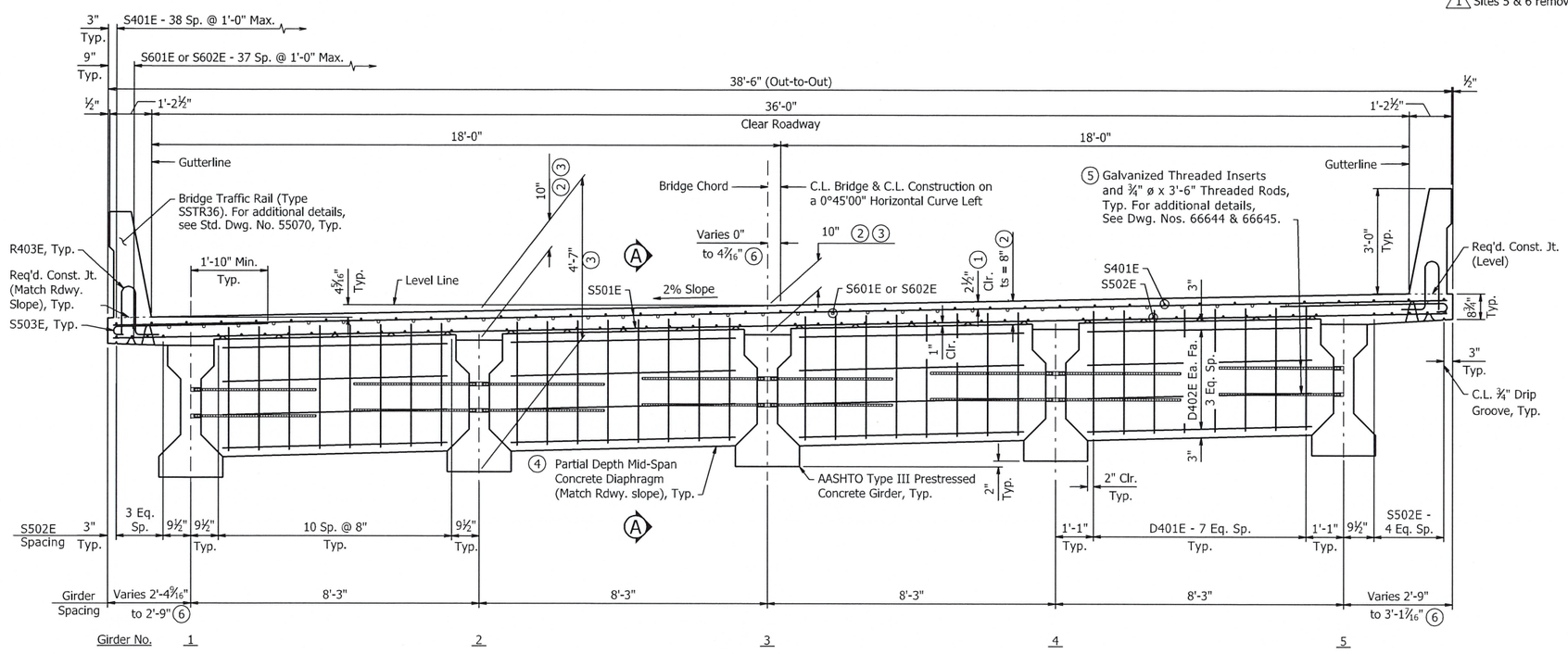
DRAWN BY: BWC DATE: 07-18-23 FILENAME: b101124x3_b23.dgn
CHECKED BY: CAW DATE: 08-23-23 SCALE: AS NOTED
DESIGNED BY: MLC DATE: 05-09-23

BRIDGE NO. 07650 DRAWING NO. 66642

USER: CTAUSER
DESIGN FILE: G:\22II000I_I0II24\TRANSP\dgn\bridge\bI0II24x3_b23.dgn
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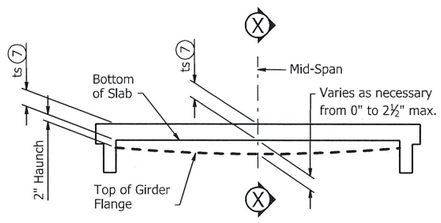
1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	134	191
		07650		SPAN DETAILS		66643



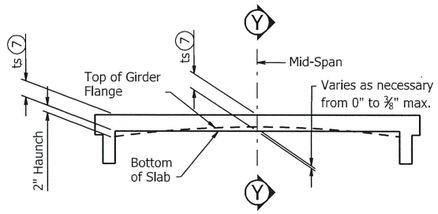
TYPICAL ROADWAY SECTION

(Showing Partial Depth Mid-Span Diaphragms)
(Looking Ahead)
Scale: ½" = 1'-0"



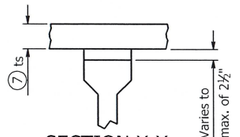
GIRDER ELEVATION

No Scale



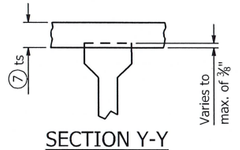
GIRDER ELEVATION

No Scale



SECTION X-X

No Scale



SECTION Y-Y

No Scale

Note: ts = slab thickness as shown on Superstructure Details.
See "Typical Sections".

7 Tolerance when removable deck forming is used is +½", -¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance. See Std. Dwg. No. 55005 for tolerances when permanent steel deckforms are used.

"GIRDER ELEVATION" sketches show the range of acceptability of the top of the girder relative to bottom of slab after the placement of the slab. When the top of the girder projects more than ⅜" into the slab, a raise in grade will be necessary. Girders shall be set in a sufficient number of spans so when adjustment is necessary the profile grade can be adjusted over suitable increments so the revised grade line will produce a smooth riding surface. Variation of the haunch height will be at the Contractor's expense.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

Notes:

Class 2 Protective Surface Treatment shall be applied to the roadway surface and roadway face and top of Bridge Rail.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Std. Dwg. No. 55005 for allowable modifications and for tolerances when permanent steel bridge deck forms are used.

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

For "SECTION A-A", see Dwg. No. 66646.

Slab Reinforcing:
Longitudinal: S401E in top placed as shown
S502E in bottom placed as shown
S601E in top placed as shown over interior supports,
S602E in top placed at bridge ends. See "REINFORCING PLAN AND POURING SEQUENCE" on Dwg. 66649.
Transverse: S501E @ 6" O.C. in top and bottom
S503E @ 6" O.C. in top, in overhang (Bundled with S501E)

1 Tolerances: Minus = ¼"
Plus = Amount of slab thickening used to meet slab thickness tolerance
See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE"

2 See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE".

3 Measured at C.L. Bearing and C.L. Girder, Typ.

4 Galvanized steel diaphragms may be used in place of concrete diaphragms at mid-span diaphragm locations. All components of the alternate steel diaphragms shall be galvanized. Galvanizing shall be in accordance with AASHTO M 111. Payment will be based on concrete diaphragms. See Dwg. No. 66646 for details.

5 Galvanized threaded inserts shall be Dayton-Richmond F-42 Loop Ferrule Insert or an approved equal. ¾" ø threaded rods to be ASTM A709, Grade 36 or AASHTO M 31 or M 322, Gr. 60. Galvanizing shall be in accordance with AASHTO M 232, Class C or ASTM B 595, Class 50. These items will not be paid for directly but shall be considered subsidiary to the item "Prestressed Concrete Girders (Type III)".

6 See Staking Diagram on Dwg. No. 66637.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

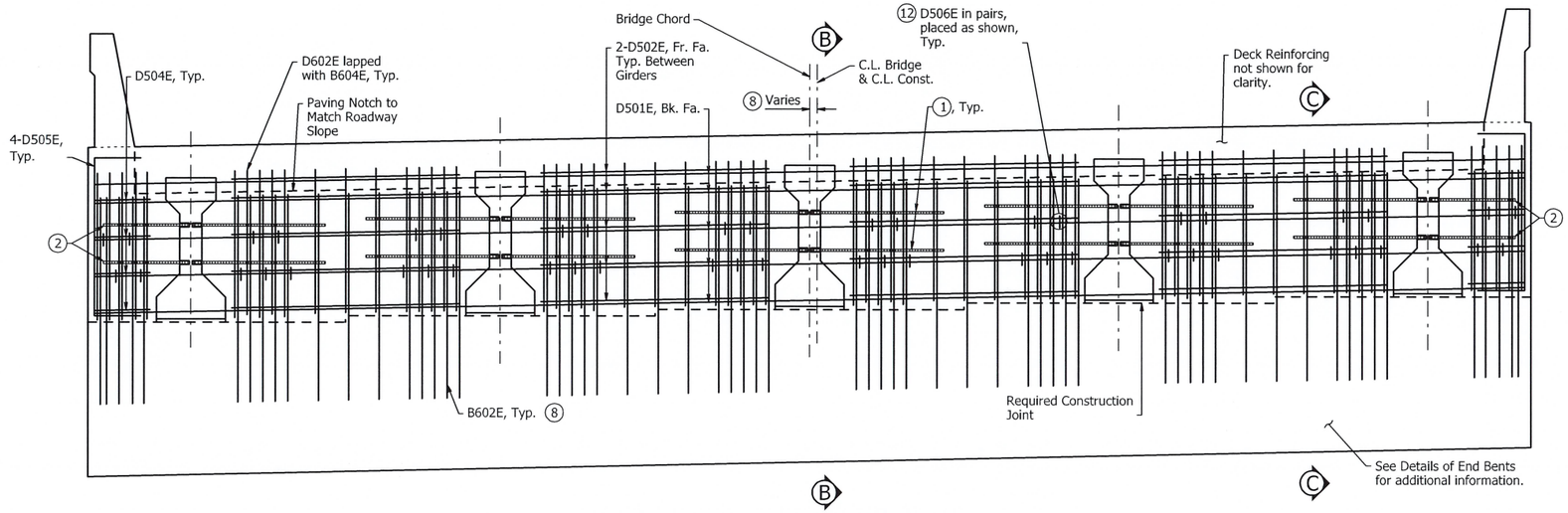
SHEET 1 OF 9
DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
DITCH NO. 1
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MLC DATE: 11-16-22 FILENAME: b101124x3_s1.dgn
CHECKED BY: CAW DATE: 12-06-22 SCALE: AS NOTED
DESIGNED BY: MLC DATE: 11-02-22
BRIDGE NO. 07650 DRAWING NO. 66643

USER: CTAUSER
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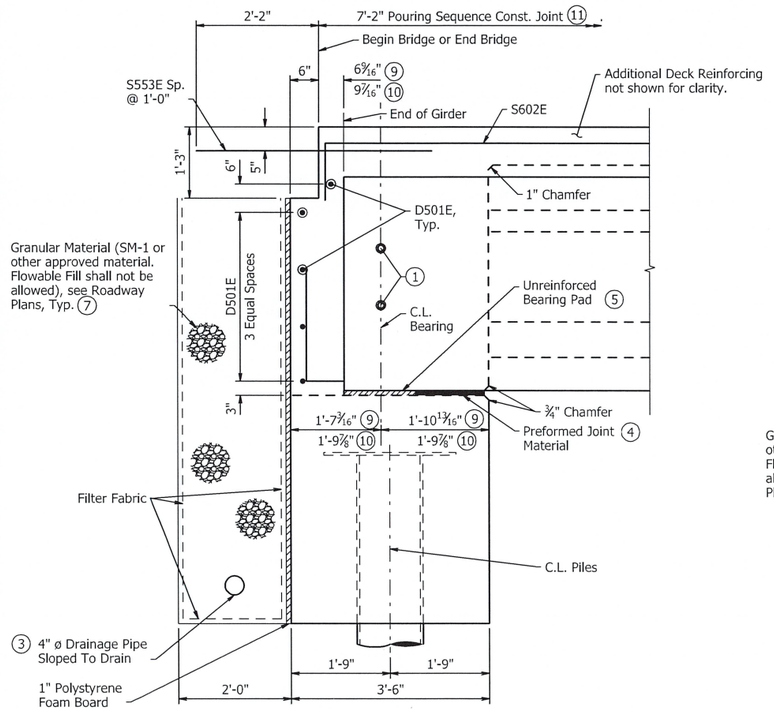
1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	135	191
		07650	SPAN DETAILS			66644



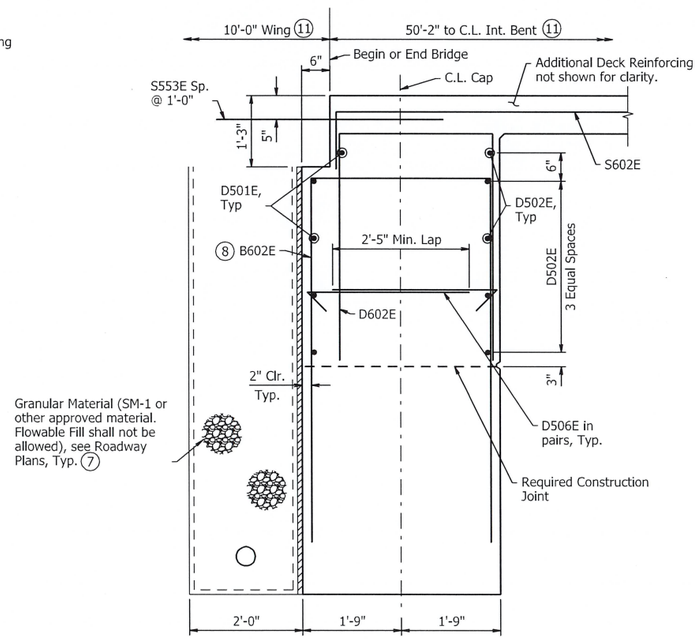
TYPICAL SECTION AT END BENTS DIAPHRAGMS

(Looking Ahead at Bent 4, Bent 1 Similar)
Scale: ½" = 1'-0"



SECTION B-B

(Looking Normal To Bent)
Scale: ¾" = 1'-0"



SECTION C-C

(Looking Normal To Bent)
Scale: ¾" = 1'-0"

1. ¾" ø x 3'-6" Galvanized Threaded Rods with inserts. For additional details, see Dwg. Nos. 66643 & 66647.
2. ¾" ø x 2'-5" Galvanized Threaded Rods with inserts. For additional details, see Dwg. Nos. 66643 & 66647.
3. For additional details of pipe underdrain, see Std. Dwg. PU-1 and Section 611. Pipe underdrains will not be measured or paid for separately, but will be considered subsidiary to various bid items.
4. Preformed Joint Material shall conform to AASHTO M 153 Type 1. Preformed Joint Material will not be paid for directly, but shall be considered subsidiary to the item "Class S(AE) Concrete - Bridge". See Dwg. No. 66639 for additional details.
5. Unreinforced bearing pads shall meet the requirements of Section 808 with the exception that hardness shall be 50 durometer. Unreinforced bearing pads shall not be paid for directly, but shall be considered subsidiary to the item "Class S(AE) Concrete - Bridge" see Dwg. No. 66639 for additional details.
6. See "STAKING DIAGRAM" on Dwg. No. 66637.
7. Polystyrene Foam Board, Filter Fabric and Granular Material shall not be paid for directly, but shall be considered subsidiary to various bid items.
8. For additional details, see End Bent Details on Dwg. Nos. 66638-66639.
9. At Bent 1.
10. At Bent 4.
11. Parallel to C.L. Bridge.
12. Orient each pair of D506E bars to be parallel to horizontal legs of adjacent D602E bars.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

SHEET 2 OF 9
DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
DITCH NO. 1
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

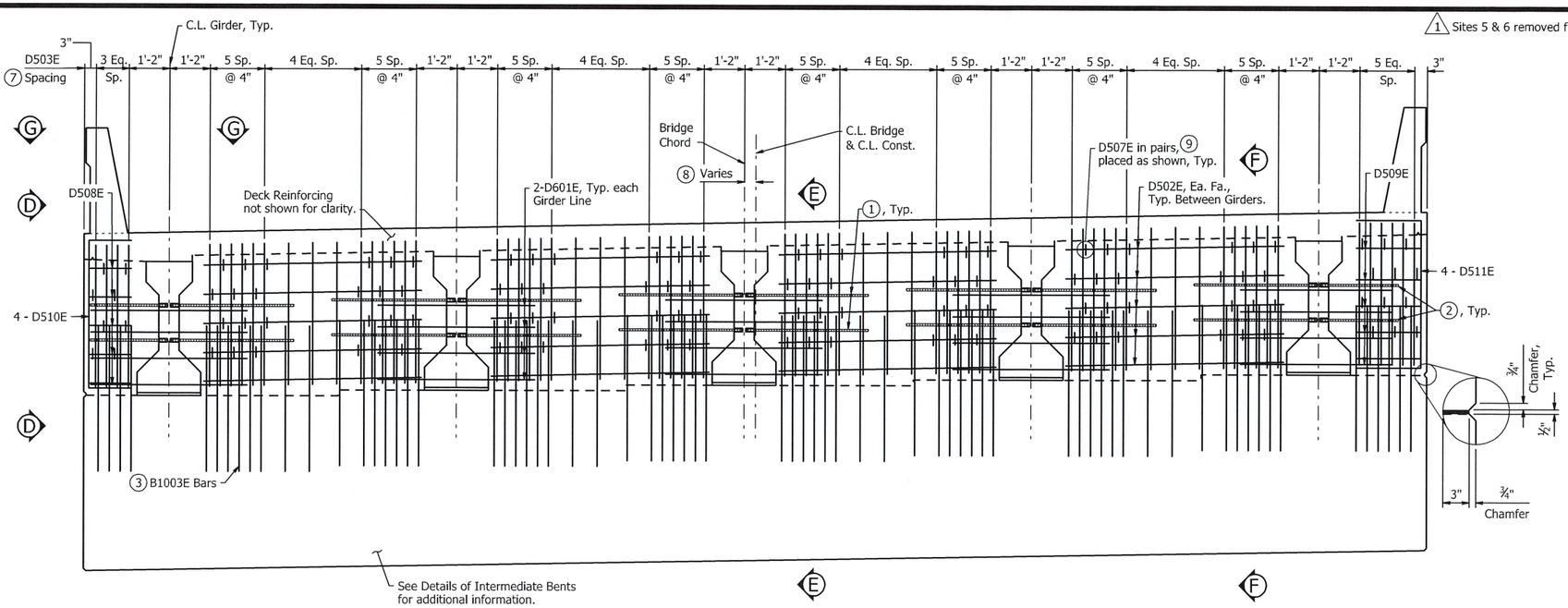
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CHECKED BY:	CAW	DATE:	06-15-23	SCALE:	AS NOTED
DESIGNED BY:	MLC	DATE:	05-18-23		

BRIDGE NO. 07650 DRAWING NO. 66644

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SCALE: 4.0000 ' / In.

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	136	191
		07650		SPAN DETAILS		66645

1 Sites 5 & 6 removed from job. CAW, 11/20/23



(1) ¾" ø x 3'-6" Galvanized Threaded Rods with inserts. For additional details, see Dwg. Nos. 66643 & 66648.

(2) ¾" ø x 2'-2" Galvanized Threaded Rods with inserts. For additional details, see Dwg. Nos. 66643 & 66648.

(3) For additional details of B1003E bars, see Dwg. No. 66641.

(4) Preformed Joint Material shall conform to AASHTO M 153 Type 1. Preformed Joint Material will not be paid for directly, but shall be considered subsidiary to the item "Class S(AE) Concrete - Bridge". See Dwg. No. 66640 for additional details.

(5) Unreinforced bearing pads shall meet the requirements of Section 808 with the exception that hardness shall be 50 durometer. Unreinforced bearing pads shall not be paid for directly, but shall be considered subsidiary to the item "Class S(AE) Concrete - Bridge" see Dwg. No. 66640 for additional details.

(6) Measured along C.L. Girder.

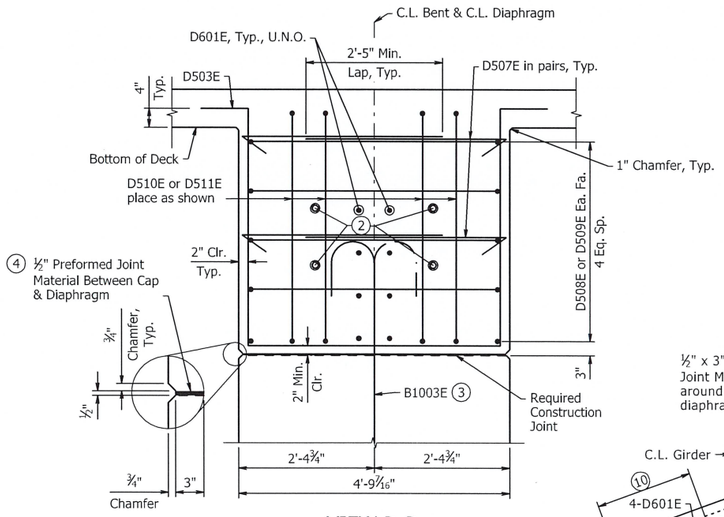
(7) Measured perpendicular to C.L. Bridge.

(8) See "STAKING DIAGRAM" on Dwg. No. 66637.

(9) Orient each pair of D507E bars to be parallel to horizontal legs of adjustable D503E bars.

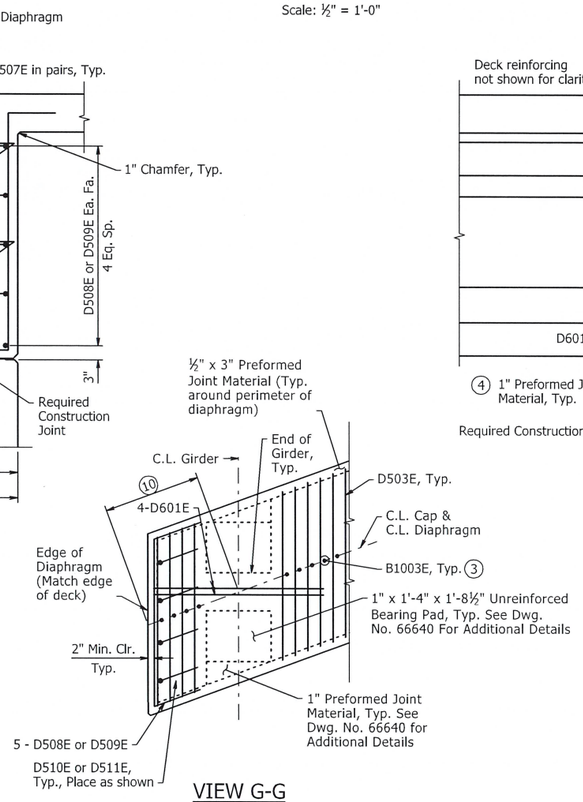
TYPICAL SECTION AT INTERMEDIATE BENTS

(Looking Ahead)
Scale: ½" = 1'-0"



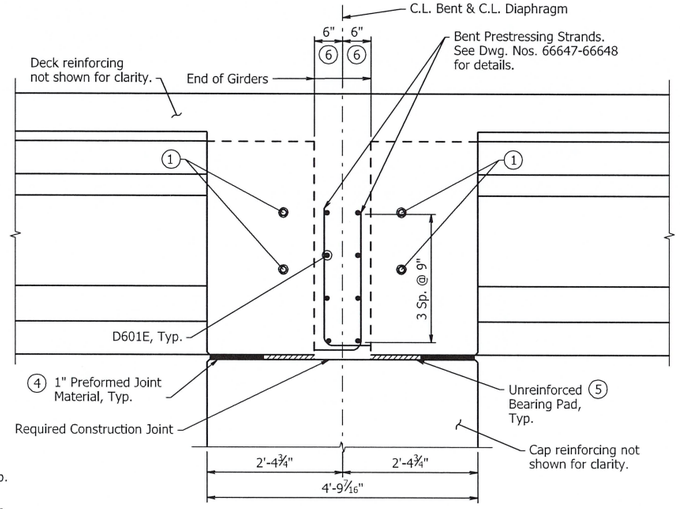
VIEW D-D

(Looking perpendicular to Bridge Chord)
Scale: ¾" = 1'-0"



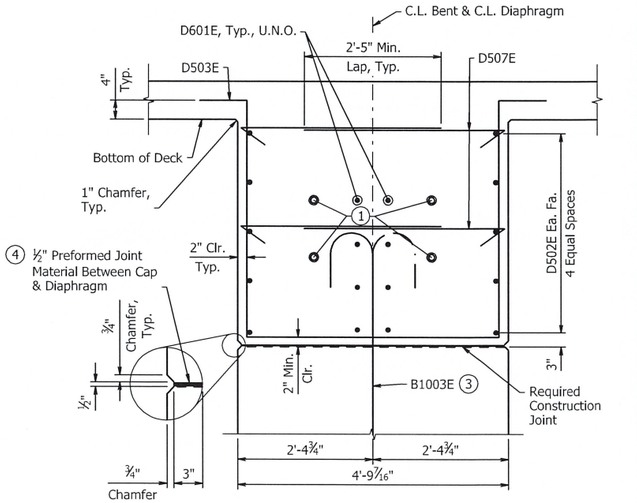
VIEW G-G

(Left side of diaphragm shown, right side opposite hand)
Scale: ½" = 1'-0"



SECTION E-E

(Looking perpendicular to Bridge Chord)
Scale: ¾" = 1'-0"



SECTION F-F

(Looking perpendicular to Bridge Chord)
Scale: ¾" = 1'-0"

TABLE OF VARIABLES (10)

Bent 2, Lt.	2'-7¼"
Bent 2, Rt.	3'-3 3/16"
Bent 3, Lt.	2'-6 13/16"
Bent 3, Rt.	3'-3"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIFF
11/20/2023

SHEET 3 OF 9
DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
DITCH NO. 1
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

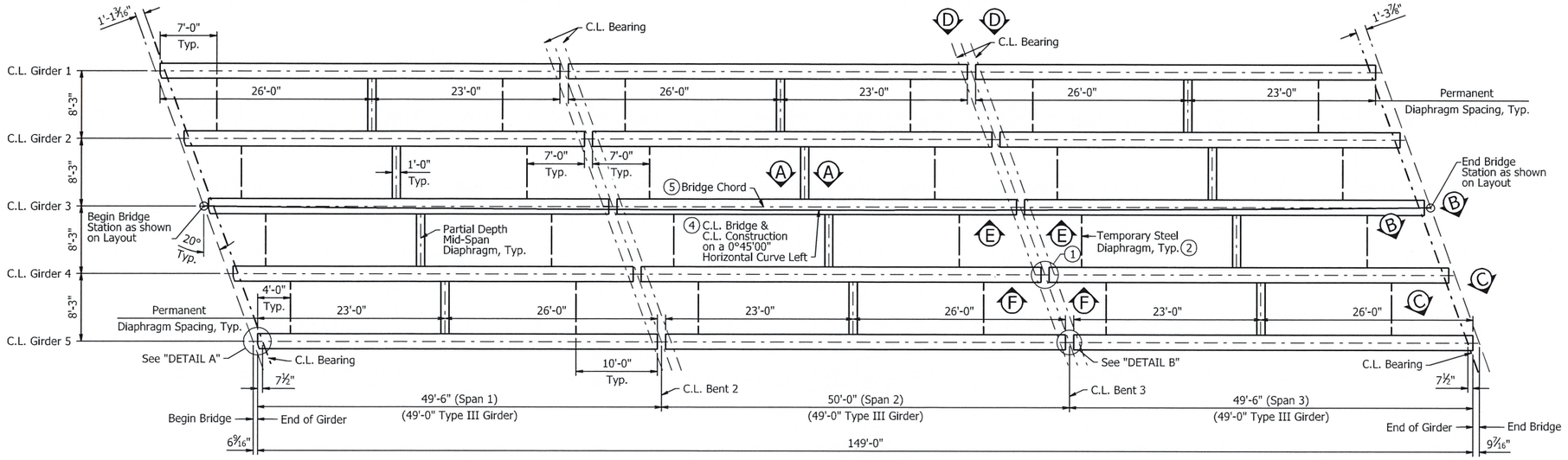
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CHECKED BY: CAW DATE: 06-15-23 SCALE: AS NOTED
DESIGNED BY: MLC DATE: 05-18-23

BRIDGE NO. 07650 DRAWING NO. 66645

USER: CTAUSER
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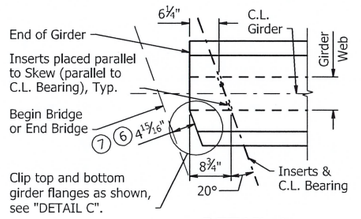
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	137	191
		07650	SPAN DETAILS			66646

1 Sites 5 & 6 removed from job. CAW, 11/20/23



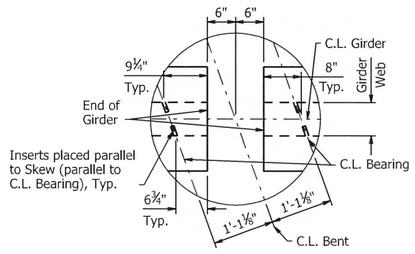
FRAMING PLAN

Scale: ⅛" = 1'-0"



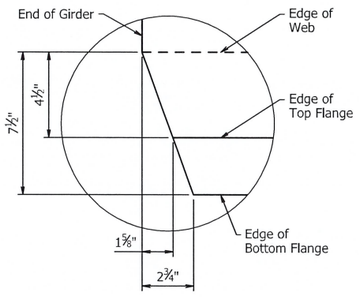
DETAIL A

(Span 1 shown, Span 3 opposite hand)
Scale: ¾" = 1'-0"



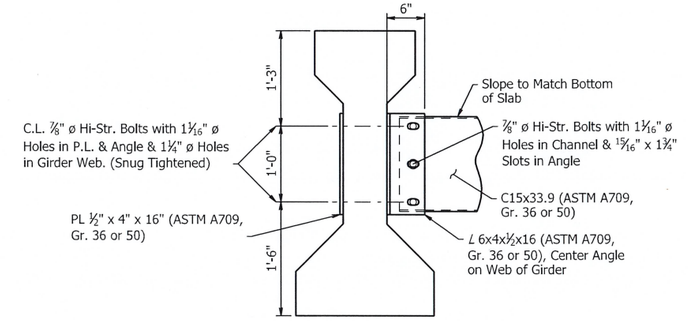
DETAIL B

(Bent 3 shown, Bent 2 similar)
Scale: ¾" = 1'-0"



DETAIL C

(Bent 1 only)
Scale: 3" = 1'-0"



DETAILS OF STEEL DIAPHRAGM

No Scale

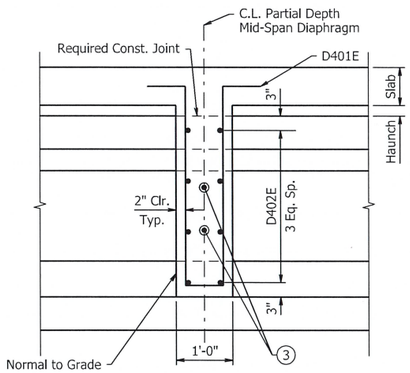
Notes:

Steel Diaphragms shall be used at locations noted as "Temporary Steel Diaphragm". The Temporary Steel Diaphragms and components will not be paid for directly, but shall be considered subsidiary to the item "Prestressed Concrete Girders (Type III)".

Permanent Steel Diaphragm may be used in leu of concrete diaphragms at locations noted as "Partial Depth Mid-Span Diaphragm" and payment for permanent steel diaphragms and components will be based on concrete diaphragms.

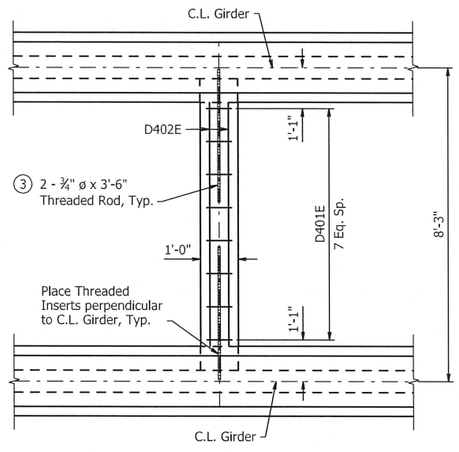
All components of Temporary Steel Diaphragms (Permanent and Temporary) shall be galvanized in accordance with Section 807.19.

A standard washer shall be supplied under both the nut and the head of the ⅞" ø Hi-Str. Bolts. An additional plate washer shall cover the angle slots.



SECTION A-A

Scale: ¾" = 1'-0"



MID-SPAN DIAPHRAGM PLAN

Scale: ½" = 1'-0"

Notes:

1 At Bent 1.

2 No clip at Bent 4.

STATE OF ARKANSAS
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No. 11856
CHARLES A. WIPF
11/20/2023

SHEET 4 OF 9
DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
DITCH NO. 1
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

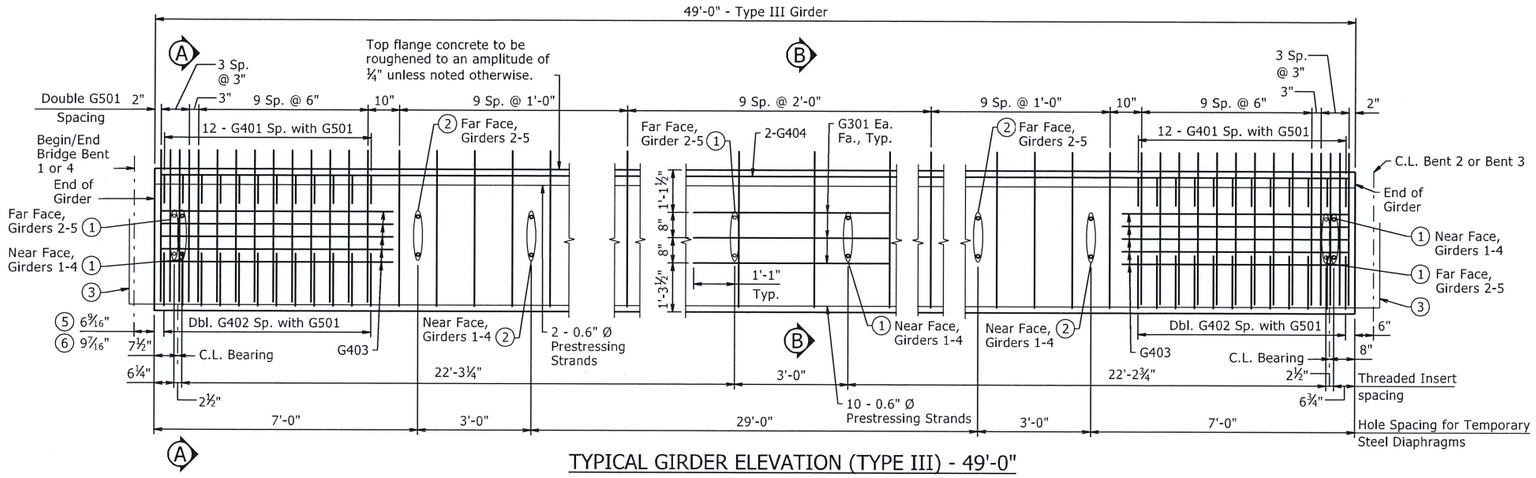
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DESIGNED BY: MLC	DATE: 05-18-23		

BRIDGE NO. 07650 DRAWING NO. 66646

USER: CTAUSER
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1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	138	191
		07650	SPAN DETAILS			66647



TYPICAL GIRDER ELEVATION (TYPE III) - 49'-0"

(Span 1 shown, Span 3 opposite hand)
Scale: ½" = 1'-0"

Notes:

Dimensions are measured along C.L. of Girder, U.N.O.

Prestressing strands will not be paid for directly, but will be considered subsidiary to the item "Prestressed Concrete Girders (Type III)".

Prestressing strands shall be bonded along the entire length of the girder.

(1) Connection for Concrete Diaphragms: ¾" ø Threaded Inserts. See Dwg. No. 66643 for additional details.

(2) Connection for Temporary Steel Diaphragm: 1¼" ø holes in web. See Dwg. No. 66646 for additional details.

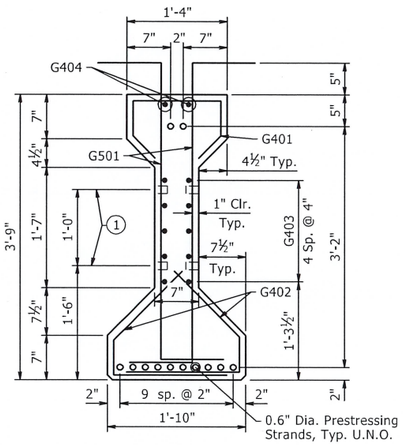
(3) Prestressing Strands bent up into end and intermediate bent diaphragm. See "END OF GIRDER VIEW".

(4) Shop bend 4 bottom prestressing strands from the end of the girder into the bent diaphragms as shown. Saw cut or grind remaining strands at both ends flush with the end of the girder.

At the Contractor's option, the location for bent up strands may be varied. The total number of bent up strands per row shall not be changed. Saw cut or grind remaining strand flush with the end.

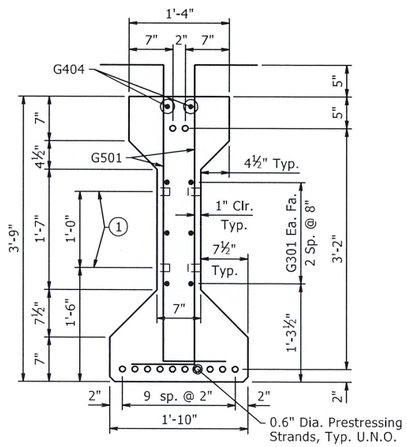
(5) Measured along C.L. of Girder from End of Girder to Begin Bridge.

(6) Measured along C.L. of Girder from End of Girder to End Bridge.



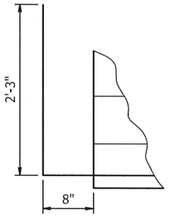
SECTION A-A

Scale: 1" = 1'-0"



SECTION B-B

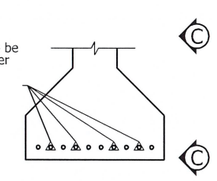
Scale: 1" = 1'-0"



VIEW C-C

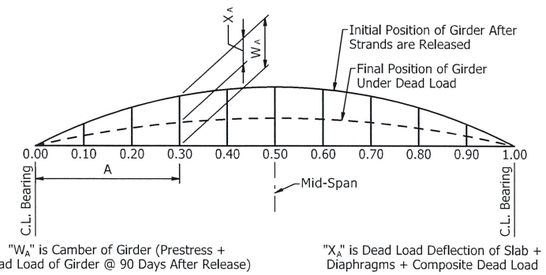
Scale: 1" = 1'-0"

(4) Prestressing Strands to be extended through Girder Ends and bent up into bent diaphragm



END OF GIRDER VIEW

Scale: 1" = 1'-0"



"W_A" is Camber of Girder (Prestress + Dead Load of Girder @ 90 Days After Release)

"X_A" is Dead Load Deflection of Slab + Diaphragms + Composite Dead Load

CAMBER & DEFECTIONS (INCHES)

No Scale

SPAN PT.	INCHES	
	W_A	X_A
0.00	0.000	0.000
0.10	0.222	0.061
0.20	0.390	0.124
0.30	0.504	0.176
0.40	0.571	0.209
0.50	0.593	0.219

Notes:

Table is symmetrical about Mid-Span.

"W " and "X " are based on the required minimum concrete strength and may vary from the dimension shown. "W " and "X " shall be measured along bottom of girders unless otherwise approved by the Engineer. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE " on Dwg. No. 66643 for limitations of the girder final position under dead load. The Contractor is responsible for any adjustment necessary to meet slab thickness tolerance and to achieve an acceptable finished grade. No payment shall be made for any additional concrete in the haunches when camber is less than shown.

STATE OF ARKANSAS
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11/20/2023

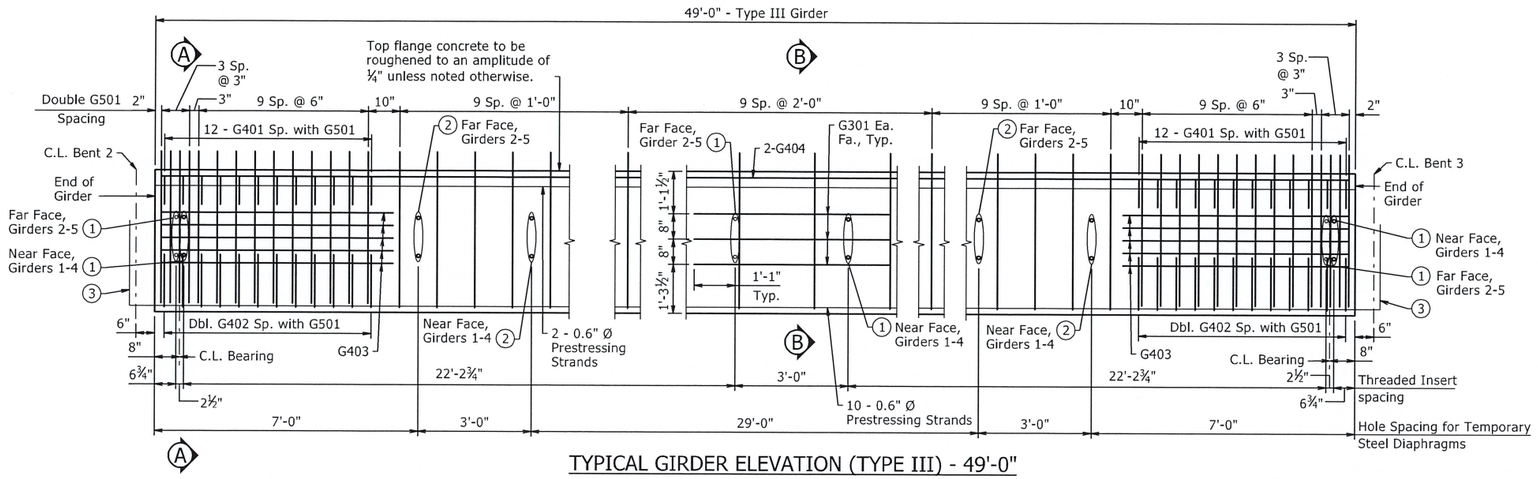
SHEET 5 OF 9
DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
DITCH NO. 1
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DGL DATE: 06-05-23 FILENAME: b101124x3_s5.dgn
CHECKED BY: CAW DATE: 06-15-23 SCALE: AS NOTED
DESIGNED BY: MLC DATE: 05-18-23
BRIDGE NO. 07650 DRAWING NO. 66647

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PLOTTED: II/20/2023 I2:3I:44 PM

1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	139	191
		07650	SPAN DETAILS			66648



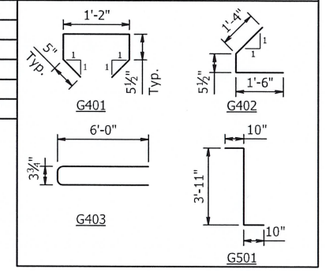
TYPICAL GIRDER ELEVATION (TYPE III) - 49'-0"

(Span 2 shown)
Scale: ½" = 1'-0"

BAR LIST - PER GIRDER

Mark	No. Req'd.	Length	Pin Dia.
G301	6	5'-0"	Str.
G401	24	2'-8"	2"
G402	48	3'-3"	2"
G403	10	12'-2"	2"
G404	2	48'-8"	Str.
G501	112	5'-5"	2½"

BENDING DIAGRAMS



Notes:

Dimensions are out to out of bars.

All bars in "BAR LIST - PER GIRDER" will not be paid for directly, but will be considered subsidiary to the item "Prestressed Concrete Girders (Type III)".

At the Contractor's option, ½" diameter strands pulled to 2,000 lbs. may be substituted for G404 bars.

Notes:

Dimensions are measured along C.L. of Girder, U.N.O.

Prestressing strands will not be paid for directly, but will be considered subsidiary to the item "Prestressed Concrete Girders (Type III)".

Prestressing strands shall be bonded along the entire length of the girder.

For "CAMBER & DEFLECTIONS", see Dwg. No. 66647.

(1) Connection for Concrete Diaphragms: ¾" ø Threaded Inserts. See Dwg. No. 66643 for additional details.

(2) Connection for Temporary Steel Diaphragm: 1¼" ø holes in web. See Dwg. No. 66646 for additional details.

(3) Prestressing Strands bent up into end and intermediate bent diaphragm. See "END OF GIRDER VIEW".

(4) Shop bend 4 bottom prestressing strands from the end of the girder into the bent diaphragms as shown. Saw cut or grind remaining strands at both ends flush with the end of the girder.

At the Contractor's option, the location for bent up strands may be varied. The total number of bent up strands per row shall not be changed. Saw cut or grind remaining strand flush with the end.

SECTION A-A

Scale: 1" = 1'-0"

SECTION B-B

Scale: 1" = 1'-0"

VIEW C-C

Scale: 1" = 1'-0"

END OF GIRDER VIEW

Scale: 1" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

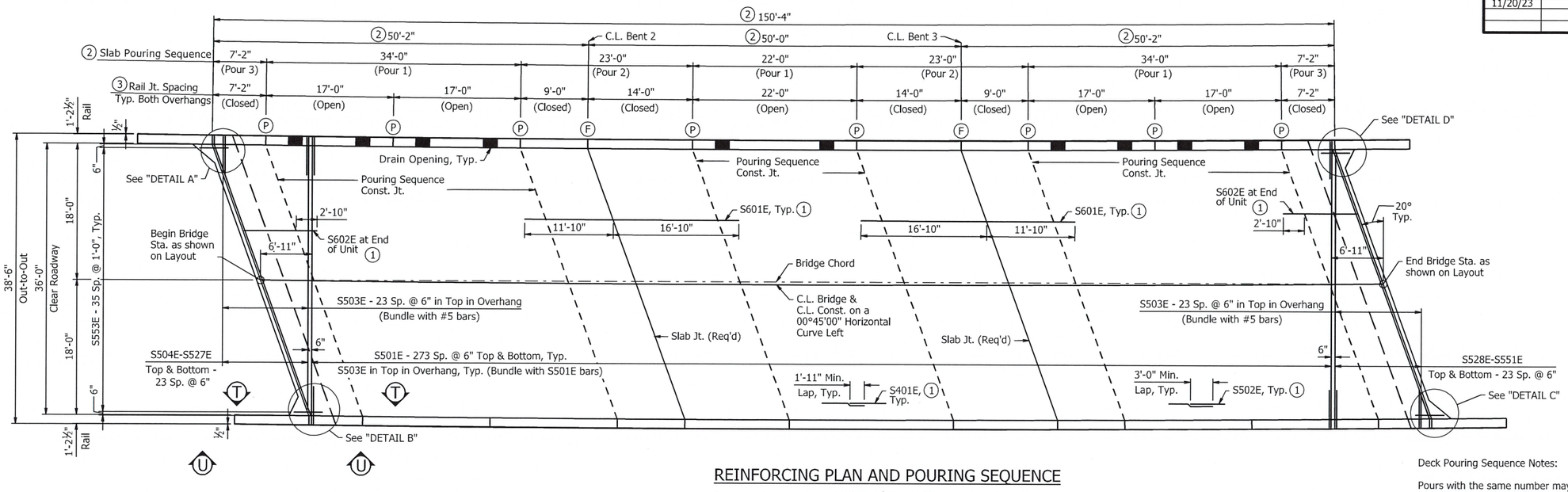
SHEET 6 OF 9
DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
DITCH NO. 1
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DGL DATE: 06-06-23 FILENAME: b101124x3_s6.dgn
CHECKED BY: CAW DATE: 06-15-23 SCALE: AS NOTED
DESIGNED BY: MLC DATE: 05-18-23
BRIDGE NO. 07650 DRAWING NO. 66648

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1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	140	191
		07650	SPAN DETAILS			66649



REINFORCING PLAN AND POURING SEQUENCE

Scale: ⅛" = 1'-0"

(1) Place as shown in "TYPICAL ROADWAY SECTION", see Dwg. No. 66643.

(2) Measured along C.L. Bridge.

(3) Measured along Gutterline.

Deck Pouring Sequence Notes:

Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. All Pours (2) must be placed before Pours (3) can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between adjacent pours.

A minimum of 72 hours shall elapse between completion of the slab and the pouring of the bridge railing. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

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

Concrete diaphragms at end and intermediate bents shall be poured monolithically with the deck.

All partial depth diaphragms shall be cast in place and poured a minimum of 48 hours before the deck is poured.

Removable forms shall be used when pouring diaphragms.

The deck and diaphragms shall not be poured prior to 90 days following release of the prestressed girder strands.

Notes:

C.L. Construction and C.L. Bridge are on a 0°45'00" Curve left. See Dwg. No. 66635 for "HORIZONTAL CURVE DATA". All longitudinal lines and longitudinal reinforcing steel shall be placed on curves concentric with C.L. Bridge. Adjustment to longitudinal bar lengths may be required. All transverse reinforcing steel shall be placed perpendicular to Bridge Chord. The Bridge Chord is a straight line between Begin Bridge and End Bridge stations.

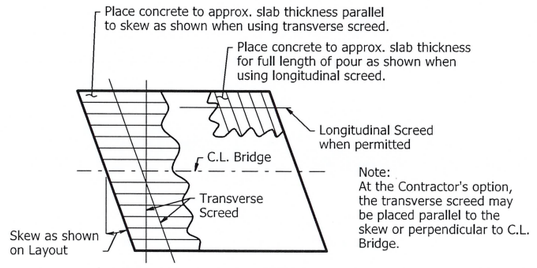
Rails and wings are included in span construction and are included in span quantities. For rail reinforcing details, see Std. Dwg. No. 55070 and Dwg. No. 66650.

Required slab joints and pouring sequence joints shall align with rail joints at the gutterline.

For "VIEW T-T," and "VIEW U-U", see Dwg. No. 66650.
For Bar List, see Dwg. No. 66651.

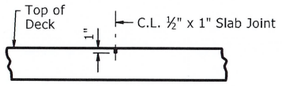
(F) C.L. Full Depth Rail Joint.

(P) C.L. Partial Depth Rail Joint.



CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW

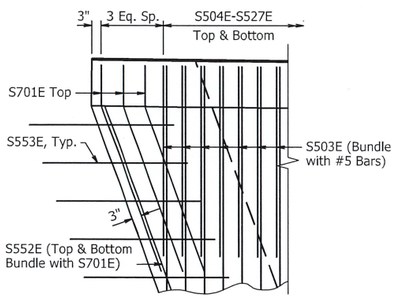
No Scale



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

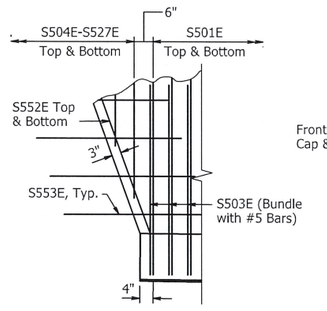
TRANSVERSE SLAB JOINT DETAIL

No Scale



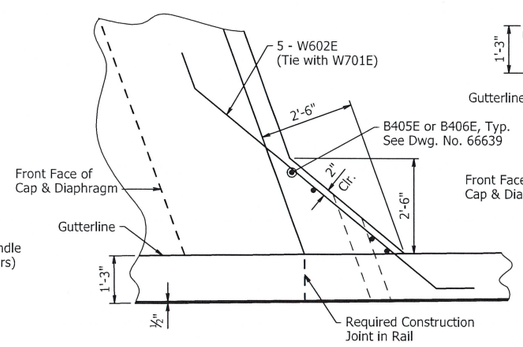
DETAIL A

Scale: ½" = 1'-0"



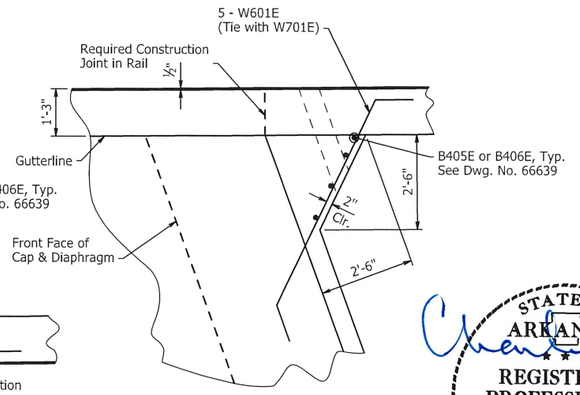
DETAIL B

Scale: ½" = 1'-0"



DETAIL C

Scale: ½" = 1'-0"



DETAIL D

Scale: ½" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

SHEET 7 OF 9
DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
DITCH NO. 1
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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DESIGNED BY: MLC	DATE: 05-18-23		

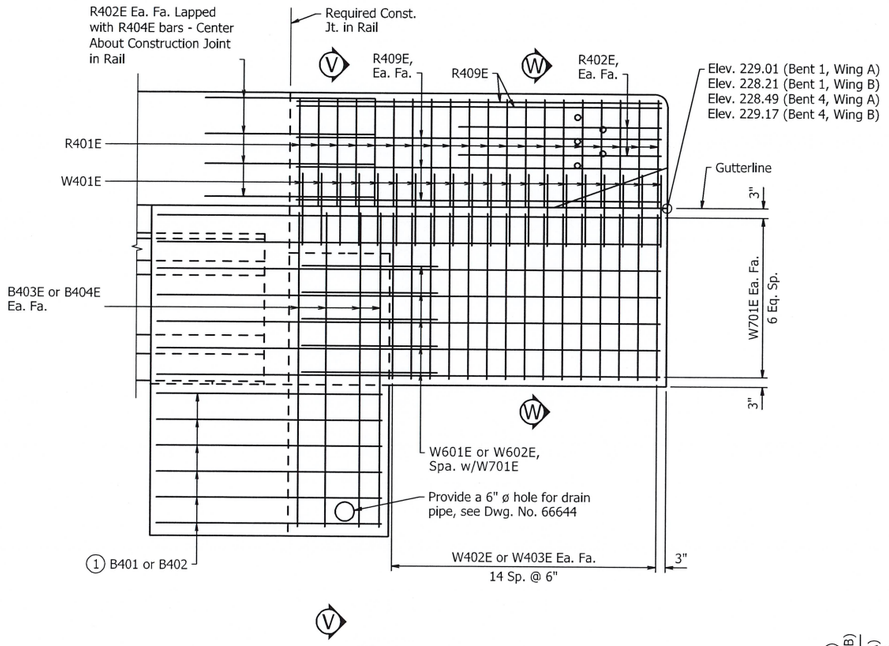
BRIDGE NO. 07650 DRAWING NO. 66649

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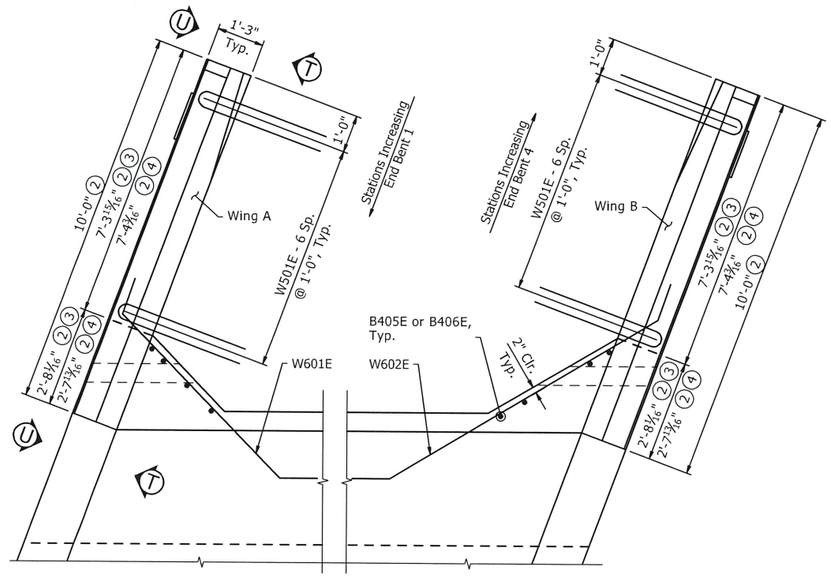
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1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	141	191
		07650	SPAN DETAILS			66650



VIEW T-T
Scale: ½" = 1'-0"

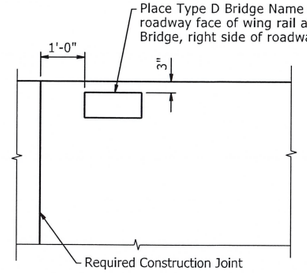


PLAN OF RAIL
Scale: ½" = 1'-0"

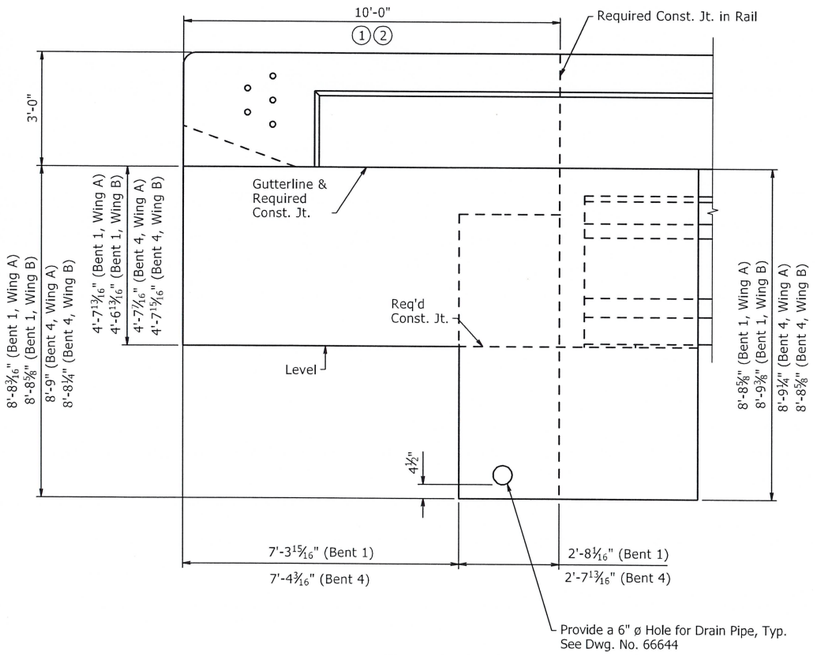
Notes:

For reinforcing details, dimensions, rail terminus details and other information for the Bridge Traffic Rail, see Std. Dwg. No. 55070.

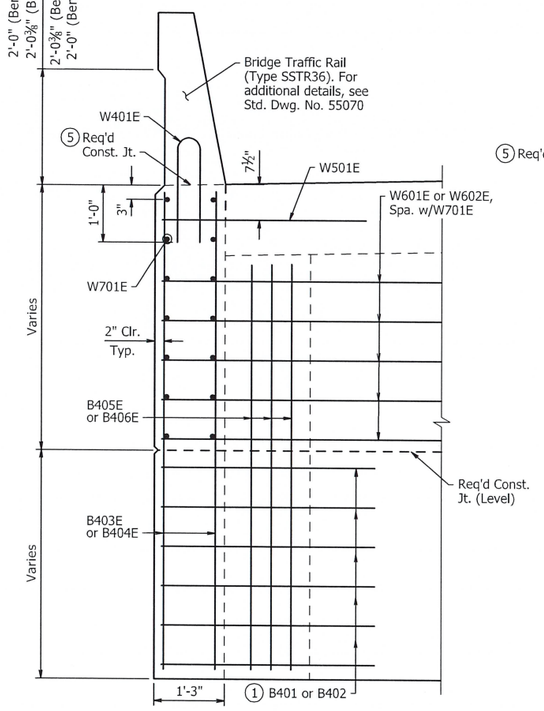
1. See End Bent details on Dwg. Nos. 66638-66639 for reinforcing steel and additional details.
2. Measured along gutterline. Construct Wings on curves concentric with C.L. Bridge & C.L. Construction.
3. At Bent 1.
4. At Bent 4.
5. Level (high side of bridge). Match rdwy. slope (low side of bridge).



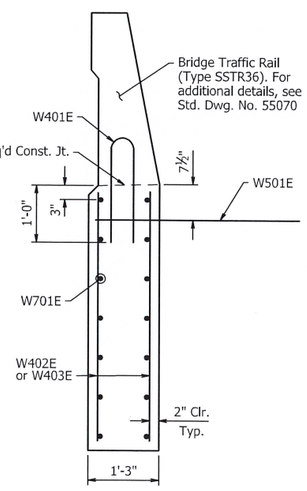
NAME PLATE DETAIL
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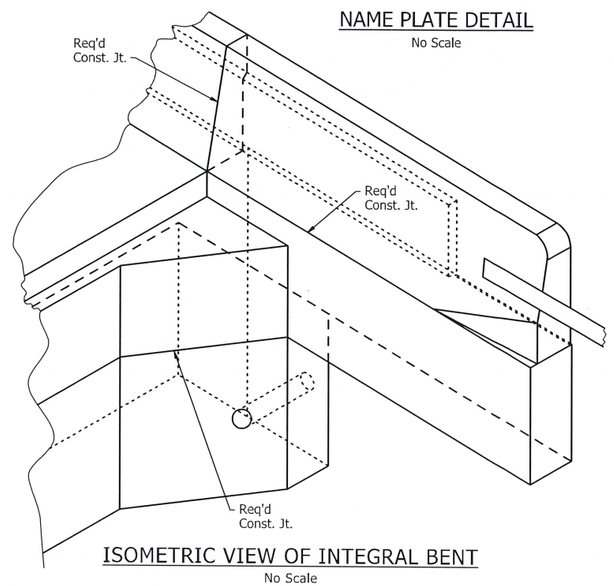
VIEW U-U
Scale: ½" = 1'-0"



SECTION V-V
Scale: ¾" = 1'-0"



SECTION W-W
Scale: ¾" = 1'-0"



ISOMETRIC VIEW OF INTEGRAL BENT
No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

SHEET 8 OF 9
DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
DITCH NO. 1
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	142	191
		07650		SPAN DETAILS		66651

GENERAL NOTES

PRESTRESSED CONCRETE GIRDERS:

Pretensioning steel shall be 0.6" dia. Low Relaxation strands with a minimum ultimate strength of 270 ksi, and shall conform to AASHTO M 203.

Distances from the forms and spacing of the Prestressing Steel shall be maintained by stays, ties, hangers, spacers, or other approved supports which shall be shown on the Shop Drawings.

All girders shall be Type III as noted on the details and shall be the standard prestressed sections adopted by the Joint Committee of AASHTO and the Prestressed Concrete Institute. All girders shall be cast in concrete floored pallets and in metal forms. All work and materials shall be as specified in Subsection 802.22.

Concrete shall be Class S and shall have a minimum 28 day compressive strength, f'c = 6,000 psi. The initial tensile force applied to each 0.6" dia. strand shall be 43,950 lbs. Transfer of this tensioning load to the girder shall not be done until the compressive strength of the concrete is 4,500 psi.

Dimensions shown are to the center of the strands.

The Contractor shall submit the method and sequence for release of strands to the Engineer for approval prior to casting of the girders.

Holes and Inserts shall be cast into the girder. Field drilling of holes shall not be permitted.

Except where noted otherwise on the plans, the tops of the girders shall be roughened to an amplitude of ¼" and shall be scrubbed transversely with a coarse wire brush to remove all laitance to produce an adequate surface for bonding the slab.

After detensioning, saw cut and grind flush all strands. Heat-cutting shall not be used within 6" of the girder.

Extreme care shall be exercised in handling and moving precast prestressed concrete girders. Girders must be maintained in an upright position at all times and must be picked up from points near the girder ends. Disregard of this requirement may lead to collapse of the girder. The Contractor's proposed lifting details shall be submitted on shop drawings to the Engineer for approval. The use of holes for lifting purposes will not be permitted.

The points of support and directions of the reactions with respect to the member shall be approximately the same during transportation and storage as when the member is in its final position.

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

The Contractor may submit alternate strand patterns with design calculations for review and approval.

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

CONCRETE:

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

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

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

REINFORCING STEEL:

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

CAMBER NOTES:

The camber and dead load deflection values shown in the plans are estimated based on the required minimum concrete strength for the prestressed concrete girders. The Contractor shall provide the Engineer with the following information:

A. Actual 28-day concrete strength of prestressed concrete girders
B. Actual concrete strength of prestressed concrete girders at time of release
C. Estimated age of prestressed concrete girders at time of erection
D. Profile of each girder under self weight in final position

Following receipt of the above data, the Engineer will provide an updated deflection diagram to the Contractor, if required.

STRUCTURAL STEEL:

Structural steel shall be ASTM A709 with grade and payment as specified in the plans. Grade 50W steel shall not be painted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Grade 36 and Grade 50 steel shall be painted unless otherwise noted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84. Structural steel completely embedded in concrete may be ASTM A709, Gr. 36, Gr. 50, or Gr. 50W unless otherwise noted.

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

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

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval. All welding shall conform to Subsection 807.26.

For Additional Information and Notes, see Layout and Plan details.

TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels					
Panel Length	A	R4XXE	Panel Length	B	C	D	E	R4XXE
7'-2"	14	R404E	17'-0"	8	3'-0"	13	7'-0"	R407E
9'-0"	17	R405E	22'-0"	8	3'-0"	23	12'-0"	R408E
14'-0"	27	R406E						

Note:
For additional details, see Std. Dwg. No. 55070.

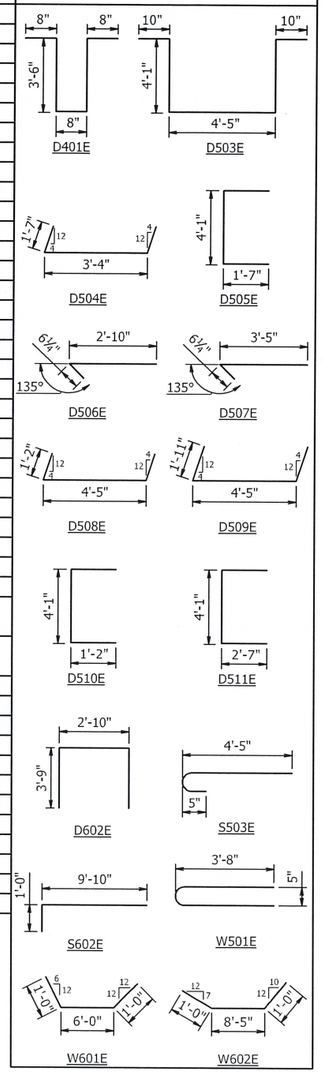
BAR LIST

Mark	No. Req'd.	Length	Pin Dia.
D401E	96	8'-8"	2"
D402E	96	6'-1"	Str.
D501E	10	40'-7"	Str.
D502E	120	6'-5"	Str.
D503E	140	13'-10"	2½"
D504E	16	6'-3"	3¾"
D505E	16	7'-0"	3¾"
D506E	192	3'-3"	3¾"
D507E	464	3'-11"	3¾"
D508E	10	6'-6"	3¾"
D509E	10	8'-0"	3¾"
D510E	8	6'-2"	3¾"
D511E	8	9'-0"	3¾"
D601E	80	4'-6"	Str.
D602E	140	10'-1"	4½"
R400E	80	5'-3"	2½"
R401E	664	6'-4"	2½"
R402E	112	5'-6"	Str.
R403E	584	3'-6"	3¾"
R404E	32	6'-10"	Str.
R405E	32	8'-8"	Str.
R406E	32	13'-8"	Str.
R407E	64	16'-8"	Str.
R408E	16	21'-8"	Str.
S401E	156	39'-1"	Str.
S501E	548	38'-2"	Str.
S502E	159	52'-2"	Str.
S503E	596	5'-0"	3¾"
S504E to S527E	2 Ea.	Var. 36'-1" to 4'-8"	Str.
S528E to S551E	2 Ea.	Var. 36'-3" to 4'-6"	Str.
S552E	4	38'-5"	Str.
S553E	72	4'-4"	Str.
S601E	76	28'-8"	Str.
S602E	76	10'-9"	4½"
W401E	80	3'-11"	3¾"
W402E	56	7'-6"	Str.
W403E	56	4'-2"	Str.
W501E	28	4'-3"	3¾"
W601E	10	7'-11"	4½"
W602E	10	10'-3"	4½"
W701E	56	9'-8"	Str.

Notes:
Dimensions are out to out of bars.
Bars with an "E" suffix are to be epoxy coated.

For additional details, see Std. Dwg. No. 55070.

BENDING DIAGRAMS



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
11/20/2023

SHEET 9 OF 9
DETAILS OF 149'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
DITCH NO. 1
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

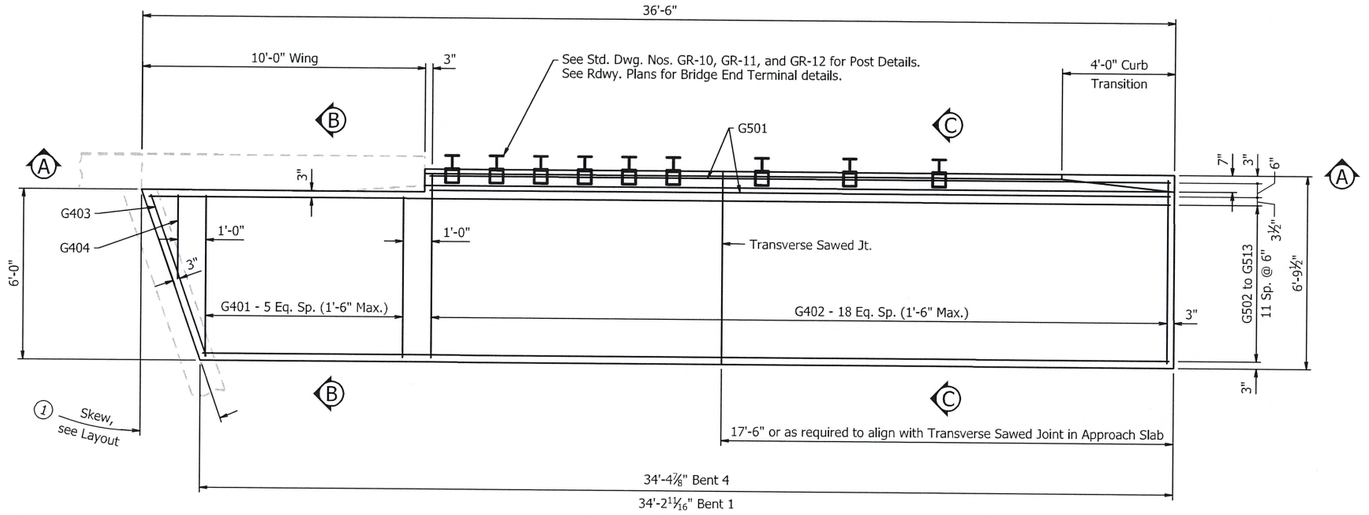
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BRIDGE NO. 07650 DRAWING NO. 66651

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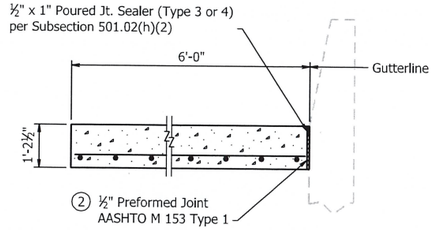
1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	143	191
		07650	APPROACH GUTTER			66652



PLAN OF APPROACH GUTTER

(Bent 4 Left Side Shown, Bent 1 Right Side Opposite Hand)
Scale: ⅜" = 1'-0"

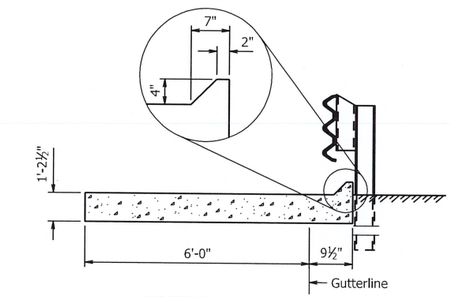


SECTION B-B

No Scale

BAR LIST FOR ONE TYPE 3 SPECIAL GUTTER

Mark	No. Req'd.	Length
G401	6	5'-8"
G402	19	6'-5"
G403	1	6'-0"
G404	1	2'-11"
G501	2	26'-2"
G502 to G513	1 Ea.	Var. 34'-1" to 36'-1"



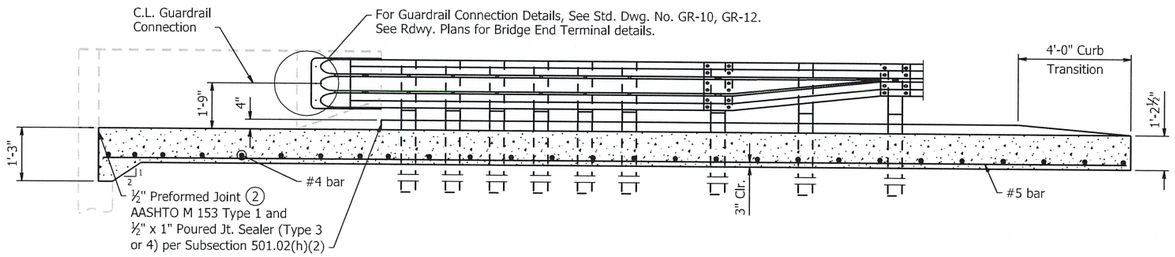
SECTION C-C

No Scale

QUANTITIES FOR ONE TYPE 3 SPECIAL GUTTER

(For Information Only)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
604	10.6



SECTION A-A

No Scale

GENERAL NOTES:

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

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

C.L. Bridge is on a 0°45'00" curve to the left. All longitudinal lines and longitudinal reinforcing steel shall be placed on curves concentric with C.L. Bridge. All transverse lines and transverse reinforcing steel shall be placed on radial lines, U.N.O.

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

(1) See "STAKING DIAGRAM" on Dwg. No. 66637.

(2) Eliminate Type 1 Preformed Joint when bridge details show reinforcing dowels across these joints. Poured joint sealer is required; however, backer rod shall be eliminated.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF

11/20/2023

SHEET 1 OF 2
DETAILS FOR
TYPE 3 SPECIAL APPROACH GUTTERS
DITCH NO.1
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

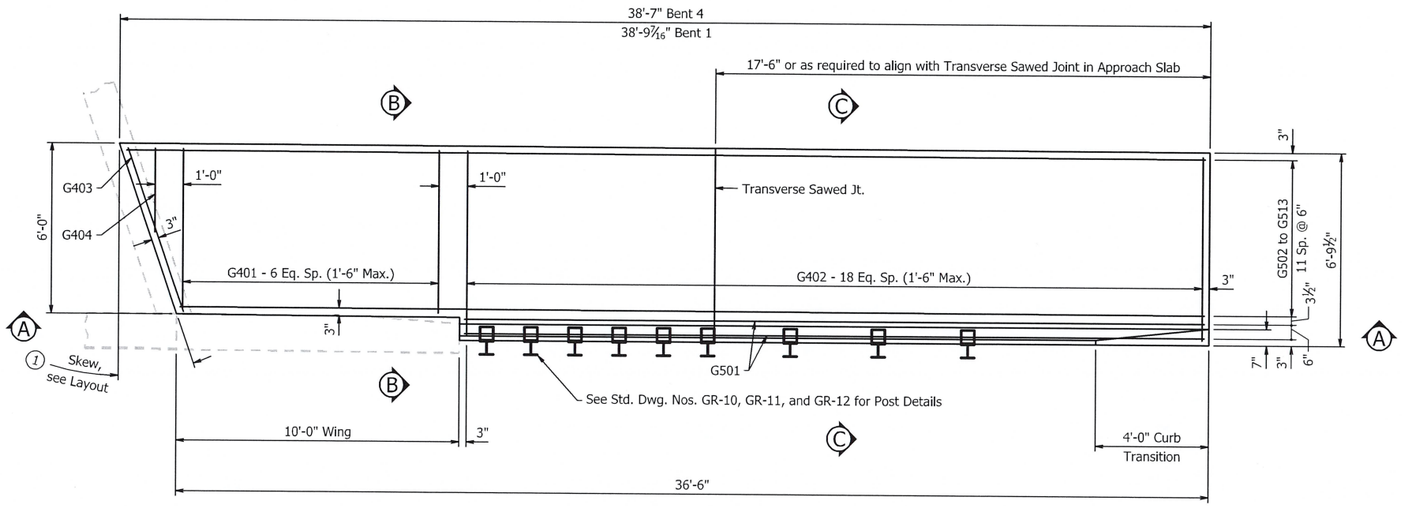
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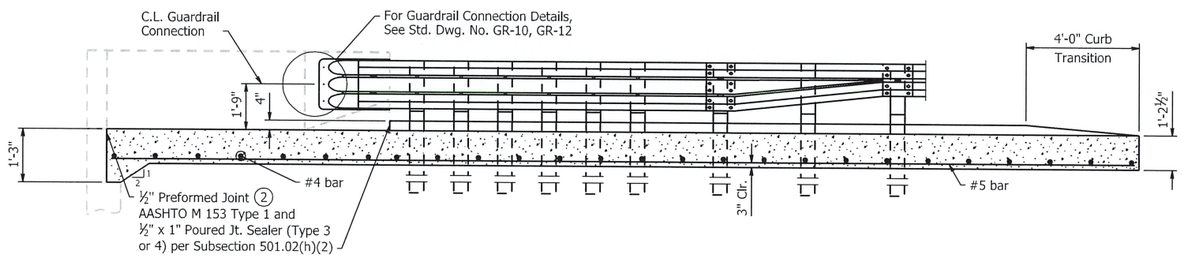
1 Sites 5 & 6 removed from job. CAW, 11/20/23

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	144	191
		07650	APPROACH GUTTER			66653



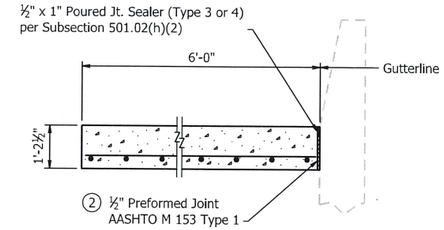
PLAN OF APPROACH GUTTER

(Bent 4 Right Side Shown, Bent 1 Left Side Opposite Hand)
Scale: ⅜" = 1'-0"



SECTION A-A

No Scale

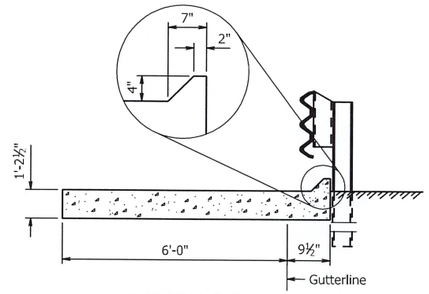


SECTION B-B

No Scale

BAR LIST FOR ONE TYPE 3 SPECIAL GUTTER

Mark	No. Req'd.	Length
G401	7	5'-8"
G402	19	6'-5"
G403	1	6'-0"
G404	1	3'-0"
G501	2	26'-2"
G502 to G513	1 Ea.	Var. 36'-2" to 38'-1"



SECTION C-C

No Scale

QUANTITIES FOR ONE TYPE 3 SPECIAL GUTTER

(For Information Only)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
633	11.2

GENERAL NOTES:

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

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

C.L. Bridge is on a 0°45'00" curve to the left. All longitudinal lines and longitudinal reinforcing steel shall be placed on curves concentric with C.L. Bridge. All transverse lines and transverse reinforcing steel shall be placed on radial lines, U.N.O.

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

(1) See "STAKING DIAGRAM" on Dwg. No. 66637.

(2) Eliminate Type 1 Preformed Joint when bridge details show reinforcing dowels across these joints. Poured joint sealer is required; however, backer rod shall be eliminated.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF

11/20/2023

SHEET 2 OF 2
DETAILS FOR
TYPE 3 SPECIAL APPROACH GUTTERS
DITCH NO.1
ROUTE SEC.

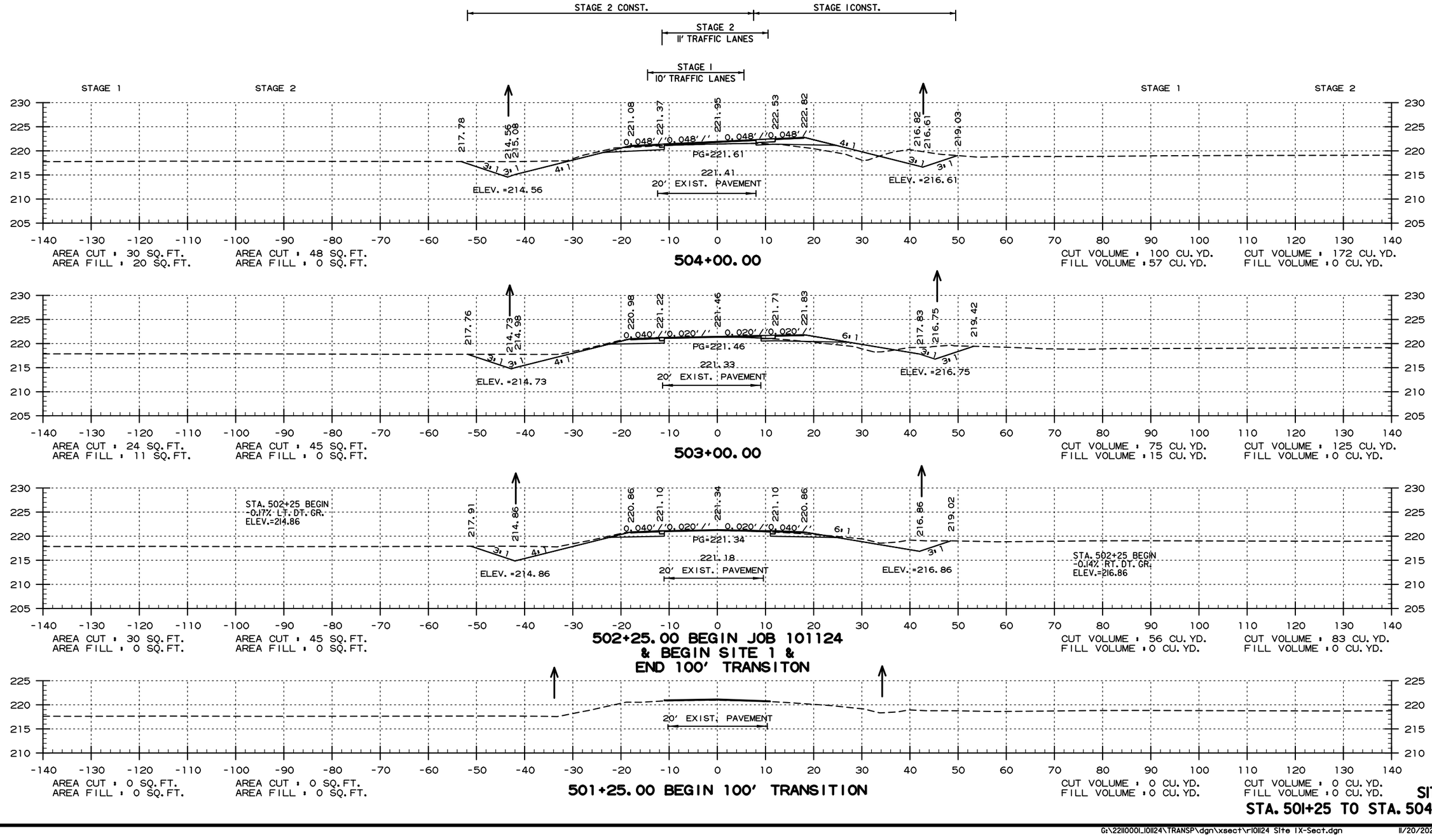
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BHZ DATE: 06-23-23 FILENAME: b101124x3_g2.dgn
CHECKED BY: CAW DATE: 08-31-23 SCALE: AS NOTED
DESIGNED BY: MLC DATE: 06-09-23

BRIDGE NO. 07650 DRAWING NO. 66653

USER: CTAUSER
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	145	191
		CROSS SECTIONS				



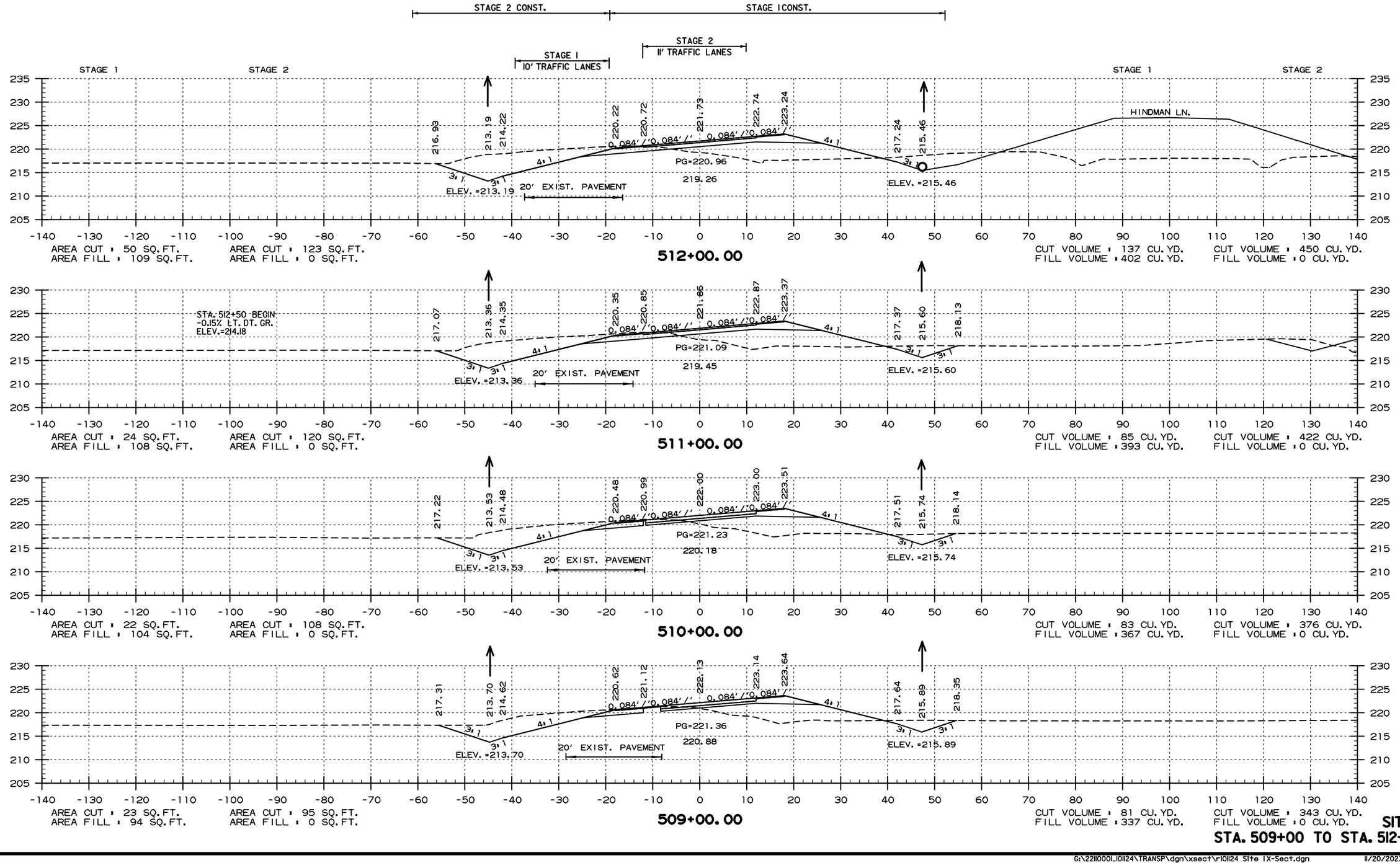
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	146	191
		CROSS SECTIONS				

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	147	191
		CROSS SECTIONS				



SITE 1
STA. 509+00 TO STA. 512+00

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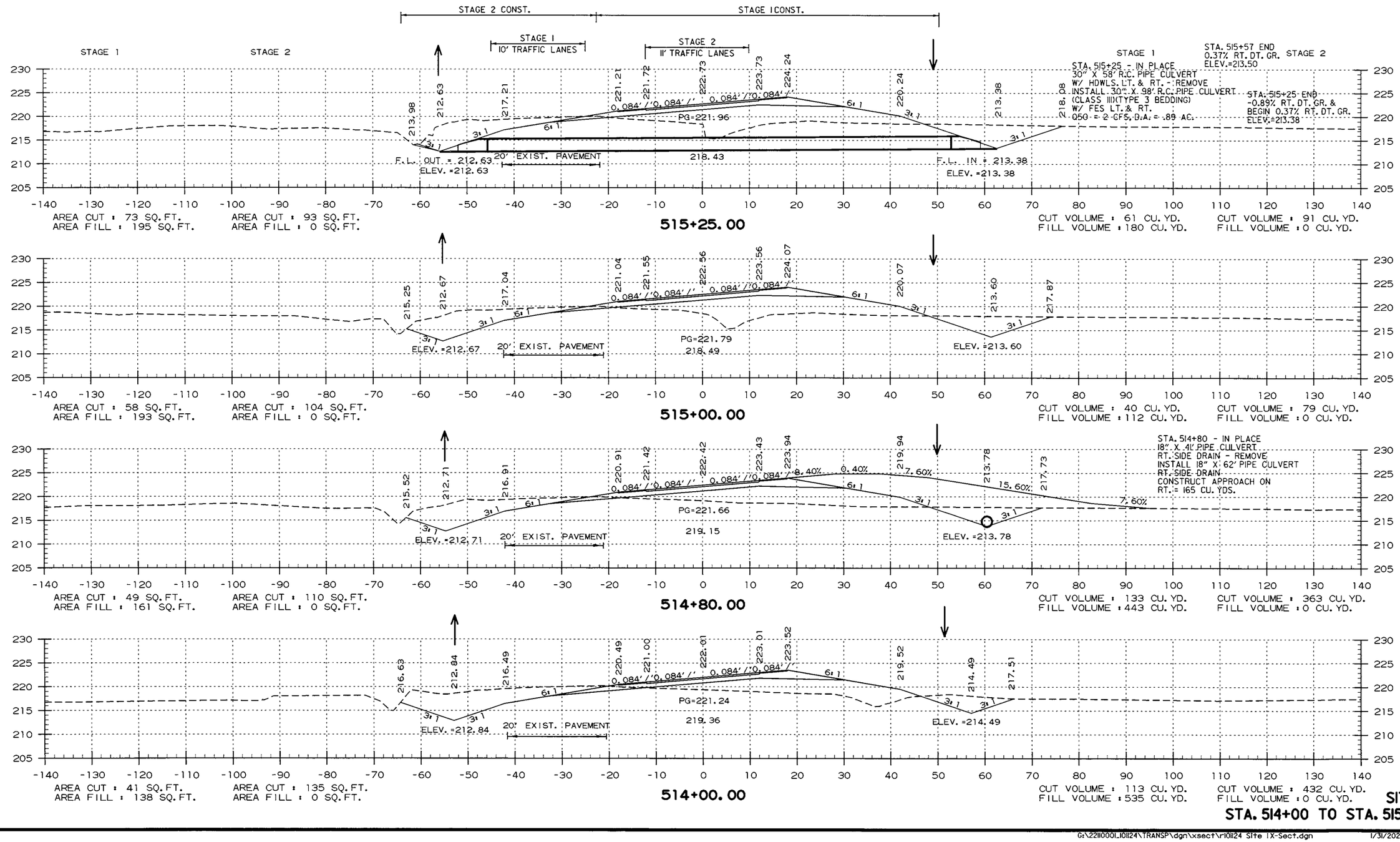
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	148	191
		CROSS SECTIONS				

SITE 1
STA. 512+63 TO STA. 513+10

USER: JJ5206
DESIGN FILE: G:\22II000I_I0II24\TRANSP\dgn\xsect\r10II24 Site 1X-Sect.dgn
PLOTTED: II/20/2023 12:32
SCALE: 1:20

G:\22II000I_I0II24\TRANSP\dgn\xsect\r10II24 Site 1X-Sect.dgn II/20/2023 12:32

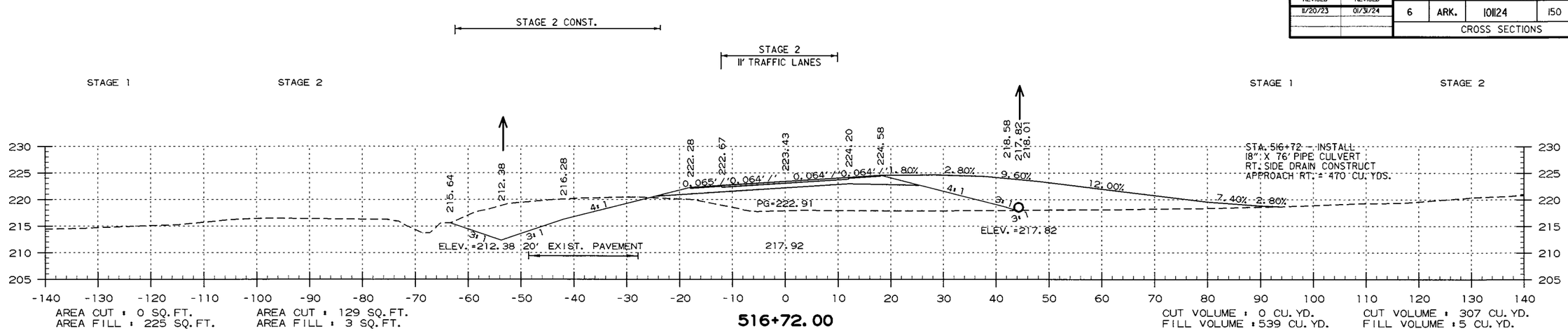
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	149	191
		CROSS SECTIONS				



SITE I
STA. 514+00 TO STA. 515+25

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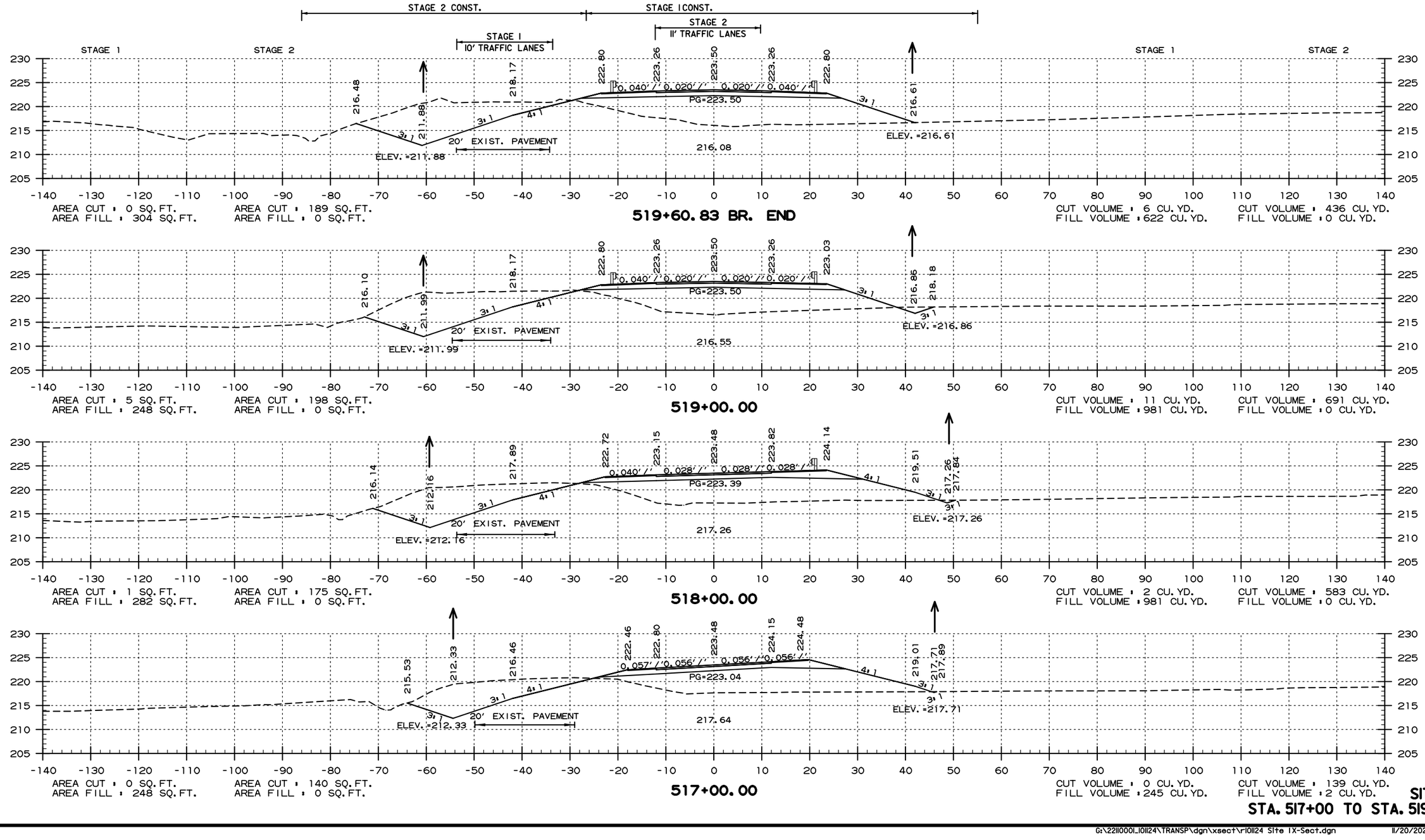
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	150	191
		CROSS SECTIONS				



SITE 1
STA. 515+92 TO STA. 516+72

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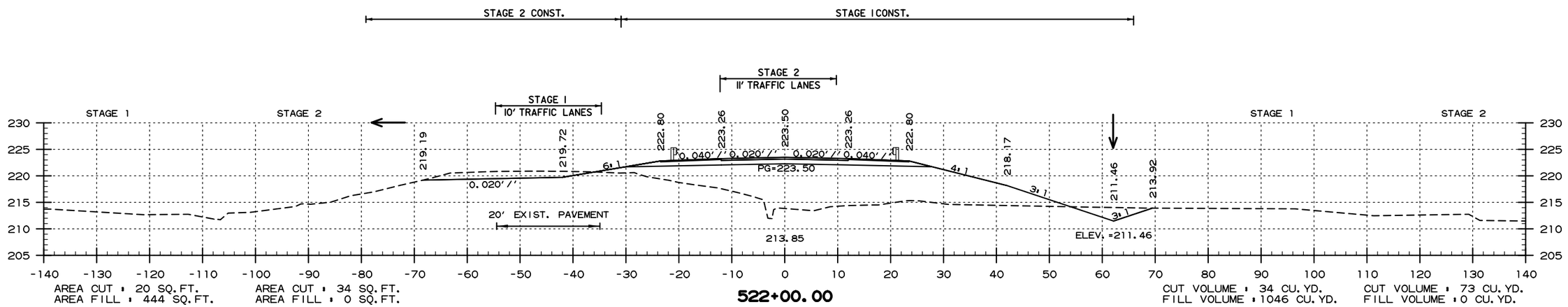
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11/20/23		6	ARK.	101124	151	191
		CROSS SECTIONS				

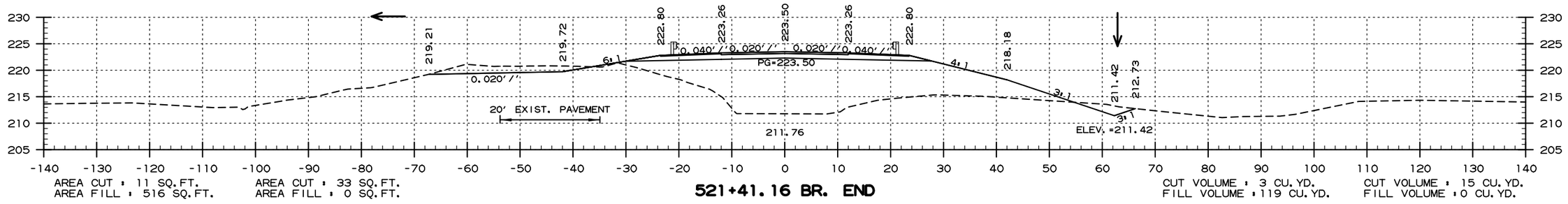


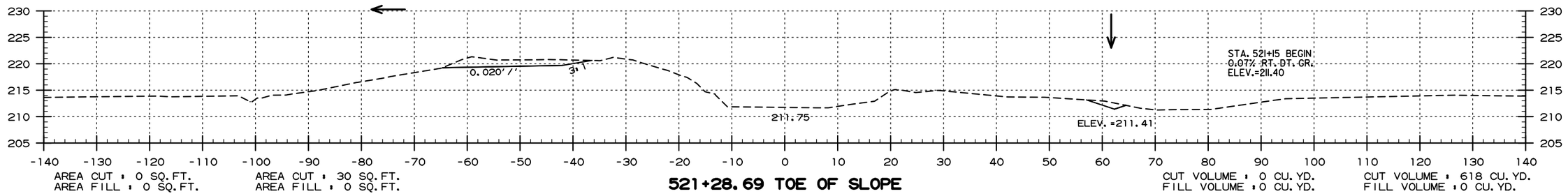
SITE 1
STA. 517+00 TO STA. 519+61

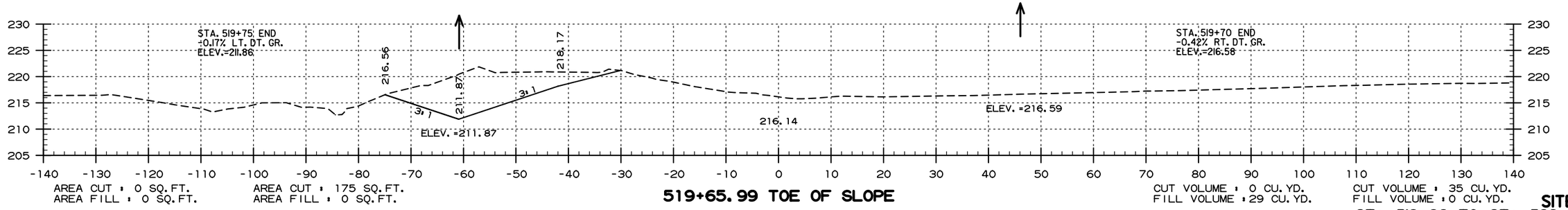
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	152	191
		CROSS SECTIONS				





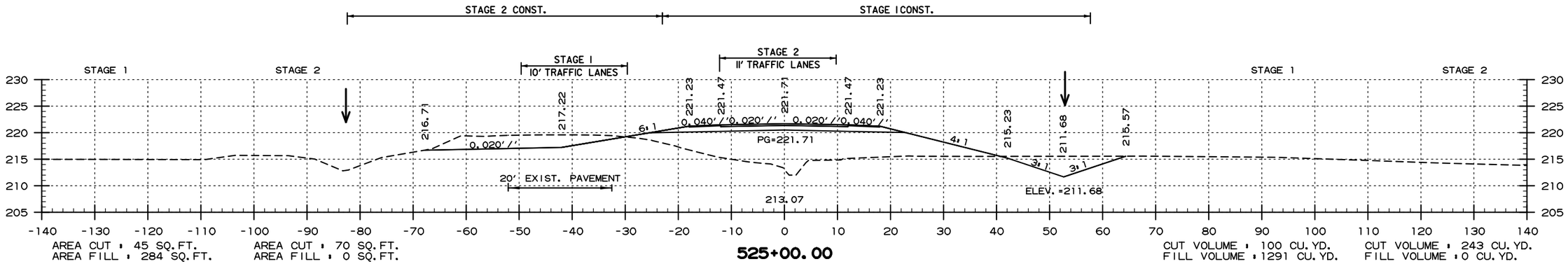


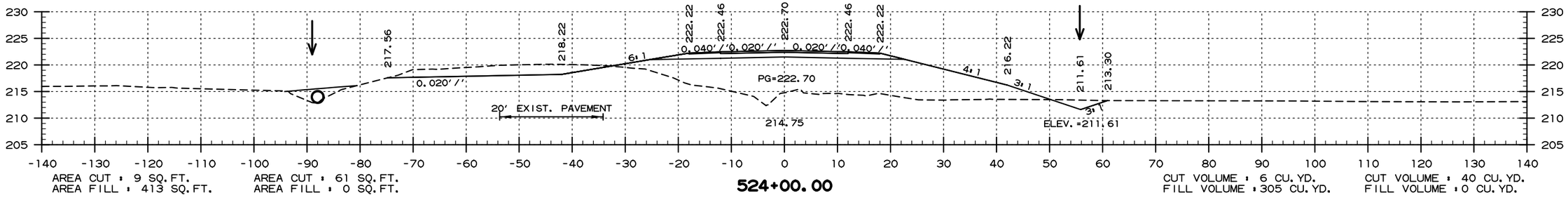


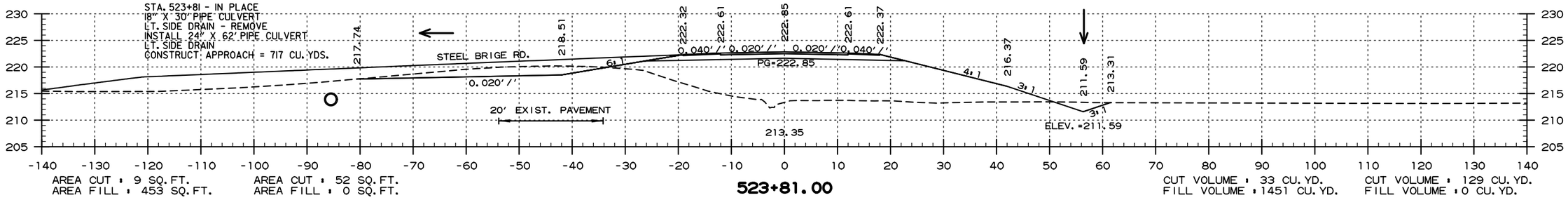
SITE 1
STA. 519+66 TO STA. 522+00

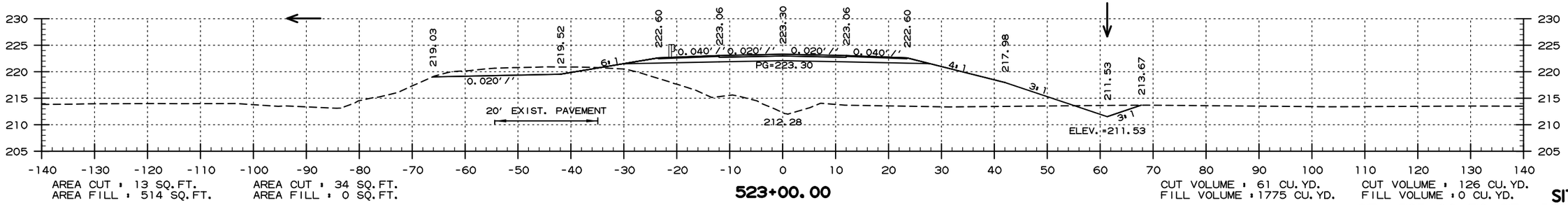
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	153	191
		CROSS SECTIONS				





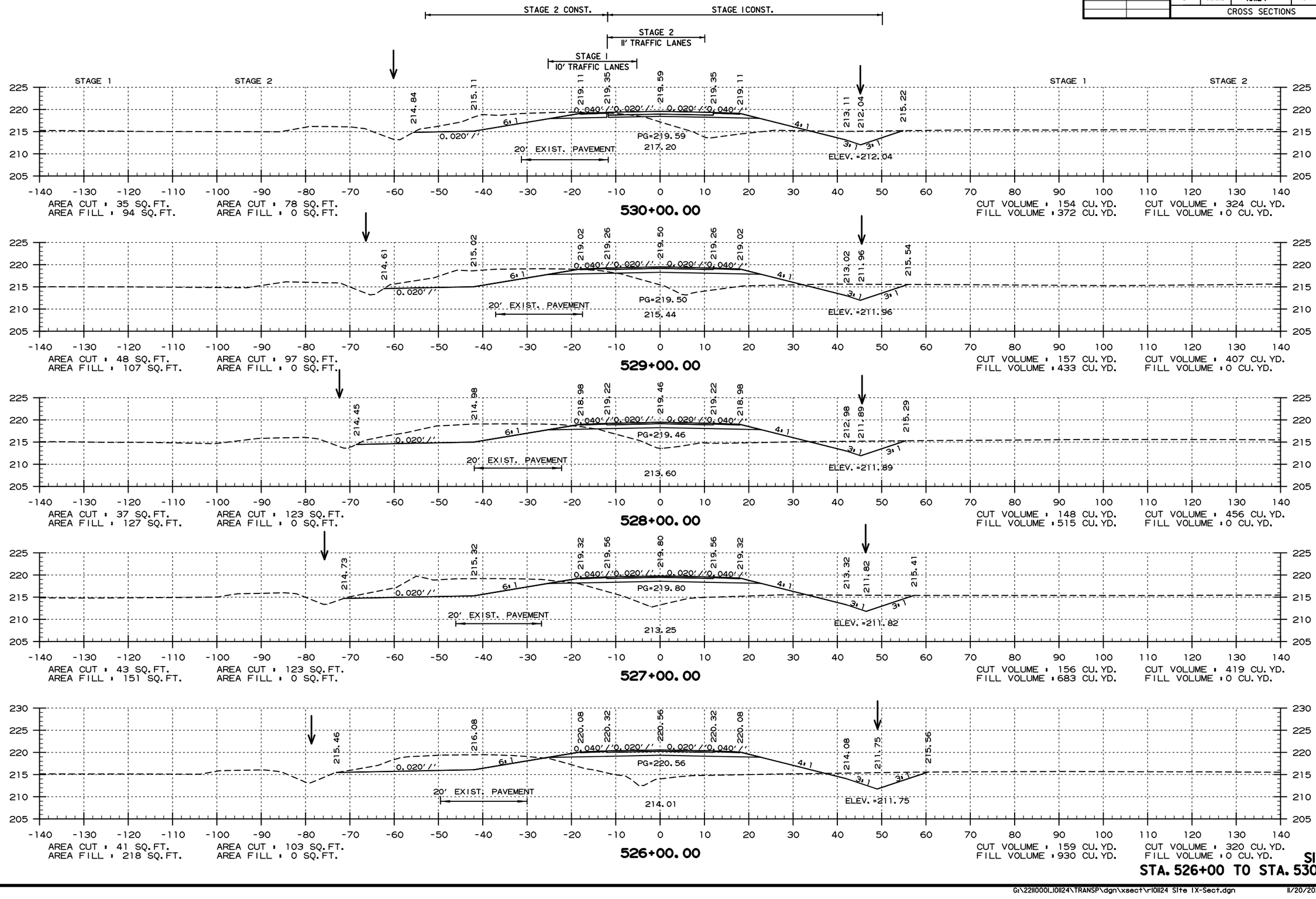




SITE 1
STA. 523+00 TO STA. 525+00

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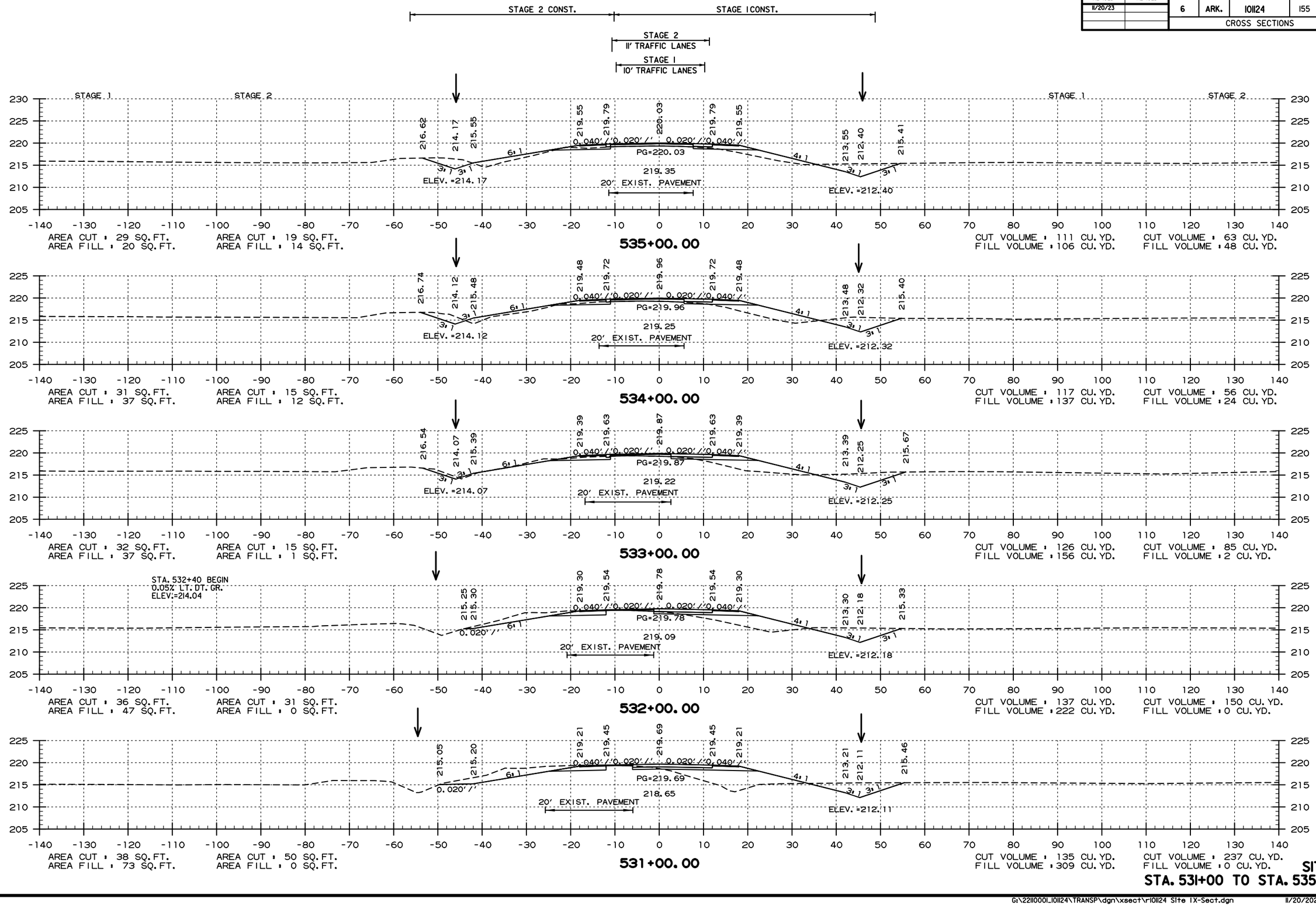
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	154	191
		CROSS SECTIONS				



SITE I
STA. 526+00 TO STA. 530+00

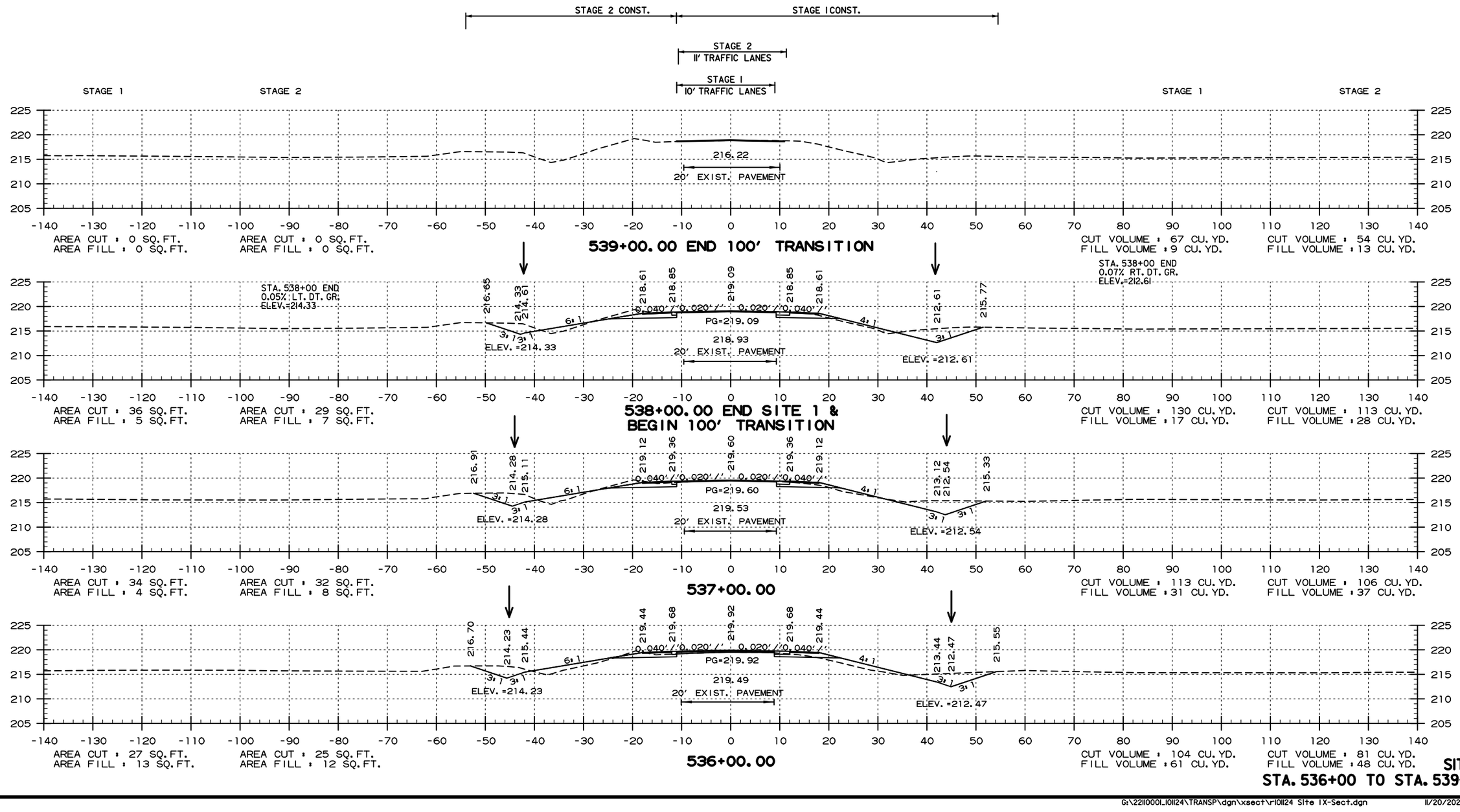
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11/20/23		6	ARK.	101124	155	191
		CROSS SECTIONS				



USER: JJ5206
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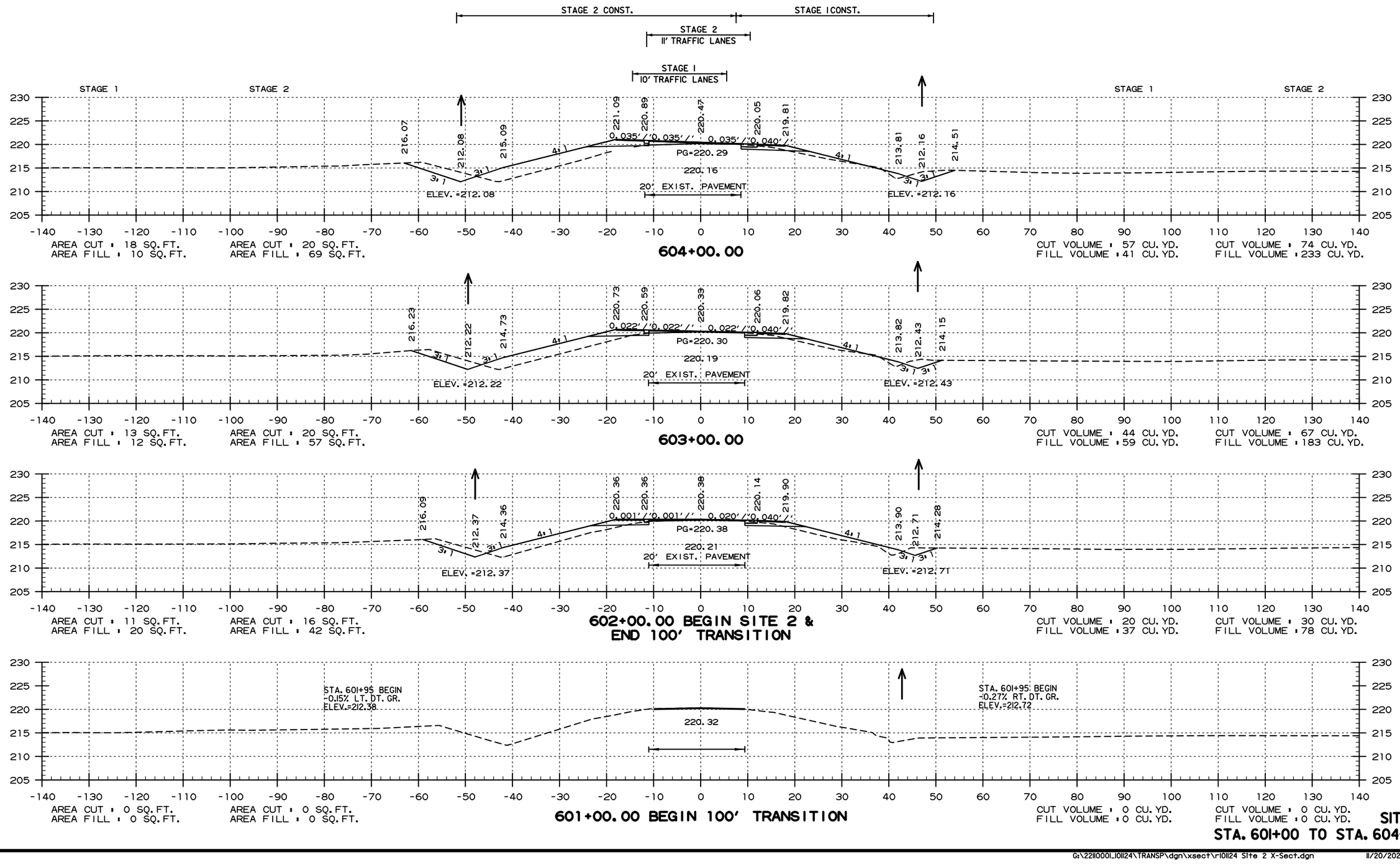
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	156	191
		CROSS SECTIONS				



SITE 1
STA. 536+00 TO STA. 539+00

USER: JJ5206
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SCALE: I:20

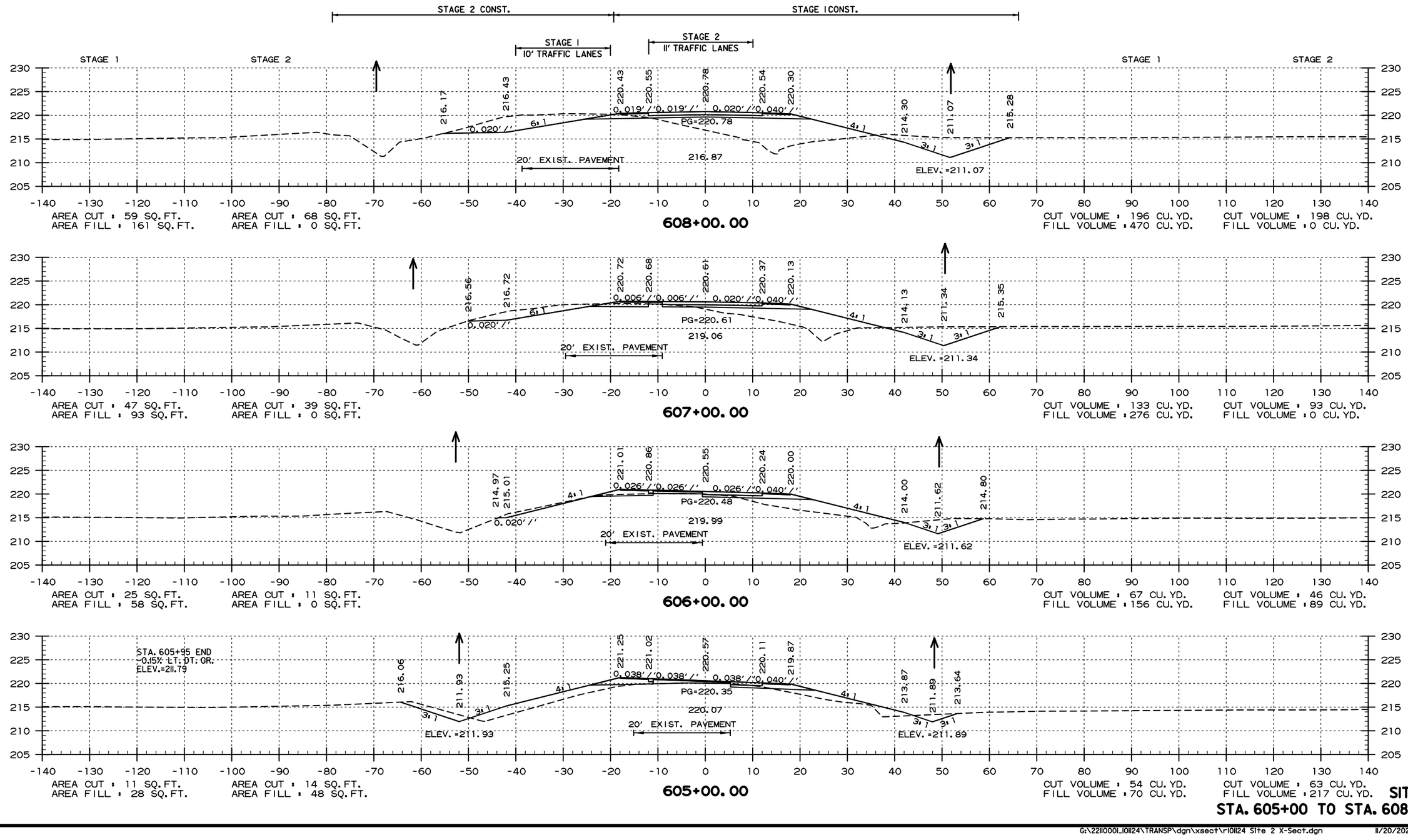
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11/20/23		6	ARK.	101124	157	191
		CROSS SECTIONS				



USER: JJ5206
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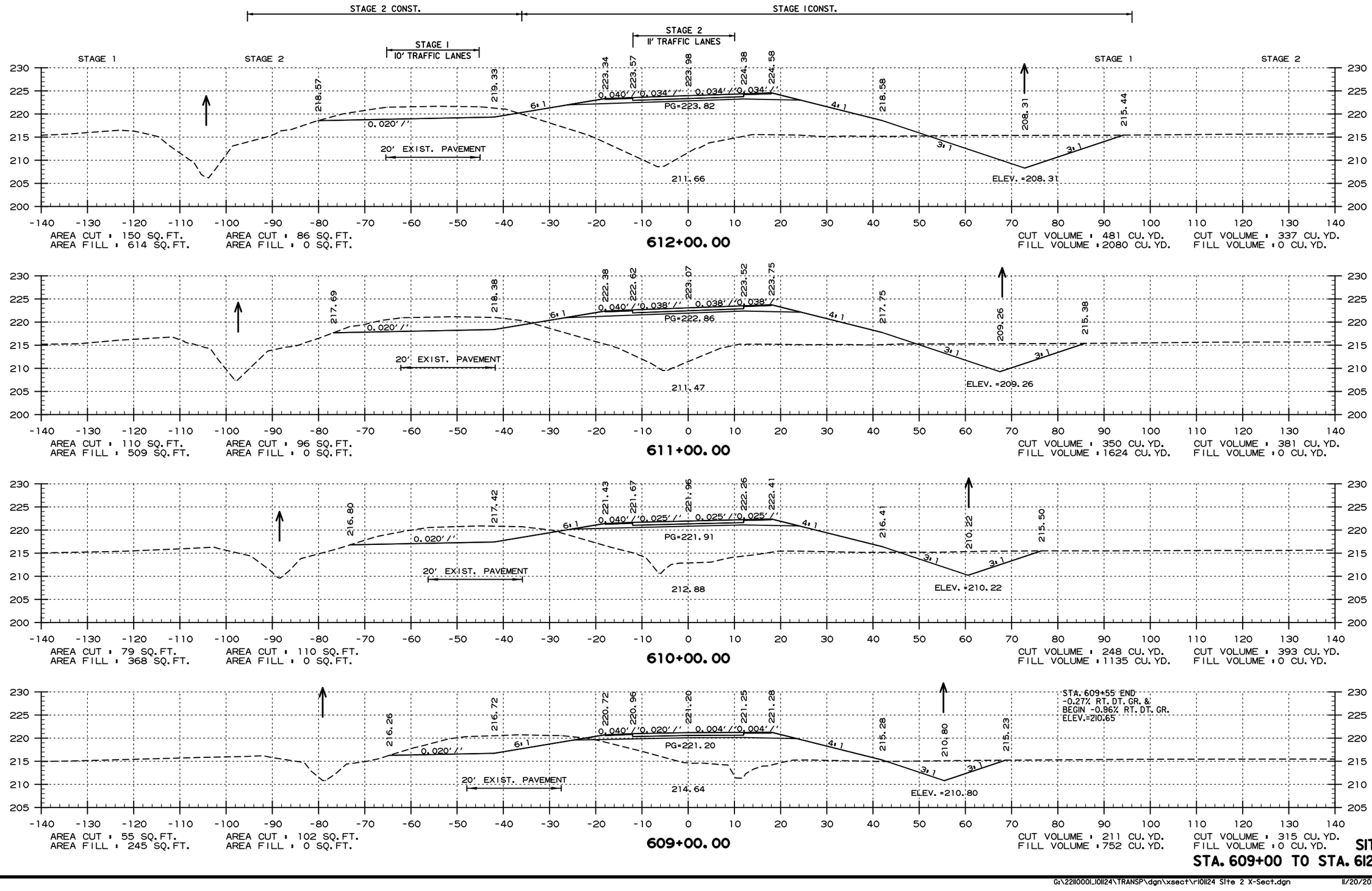
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11/20/23		6	ARK.	101124	158	191
		CROSS SECTIONS				



SITE 2
STA. 605+00 TO STA. 608+00

USER: JJ5206
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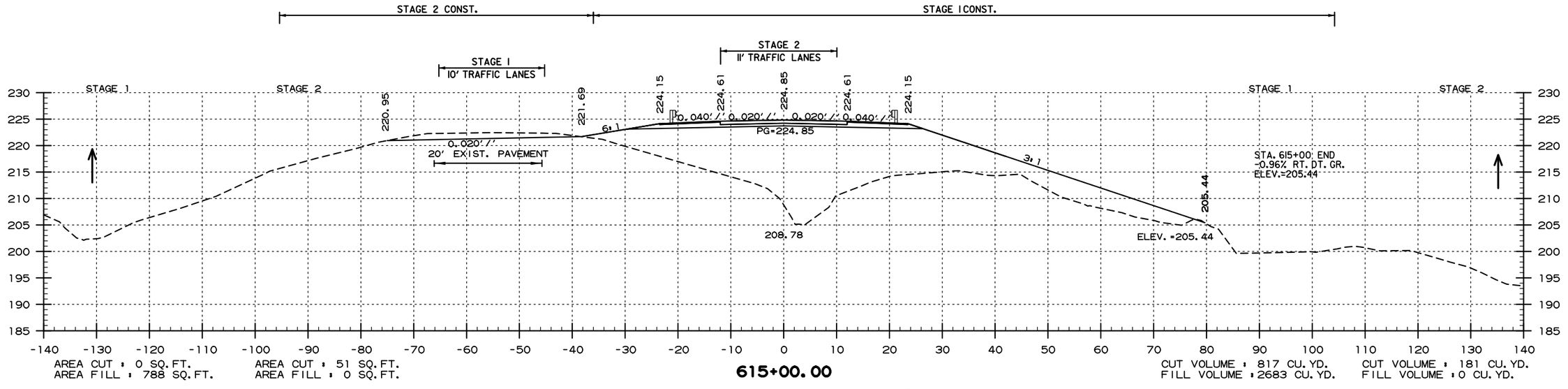
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	159	191
		CROSS SECTIONS				



USER: JJ5206
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	160	191
		CROSS SECTIONS				

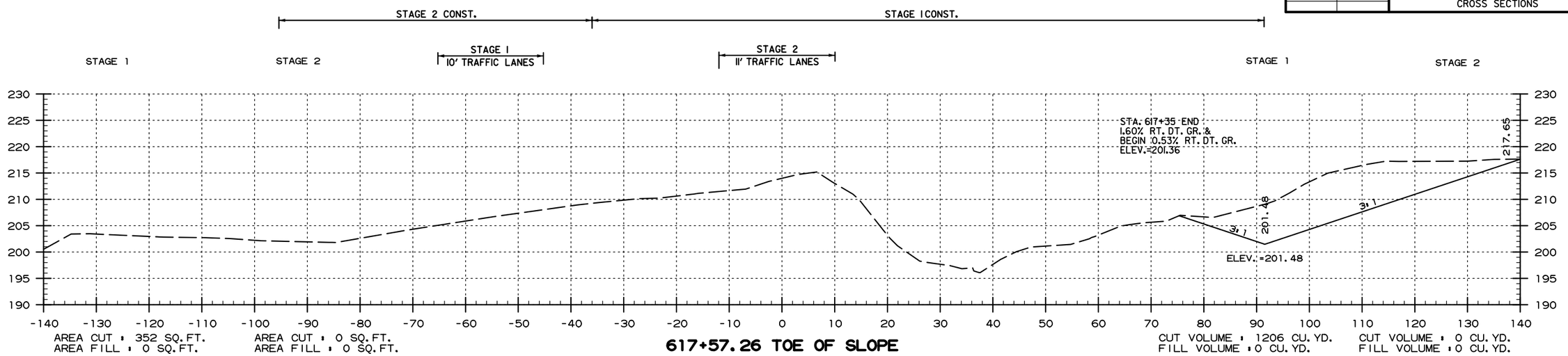


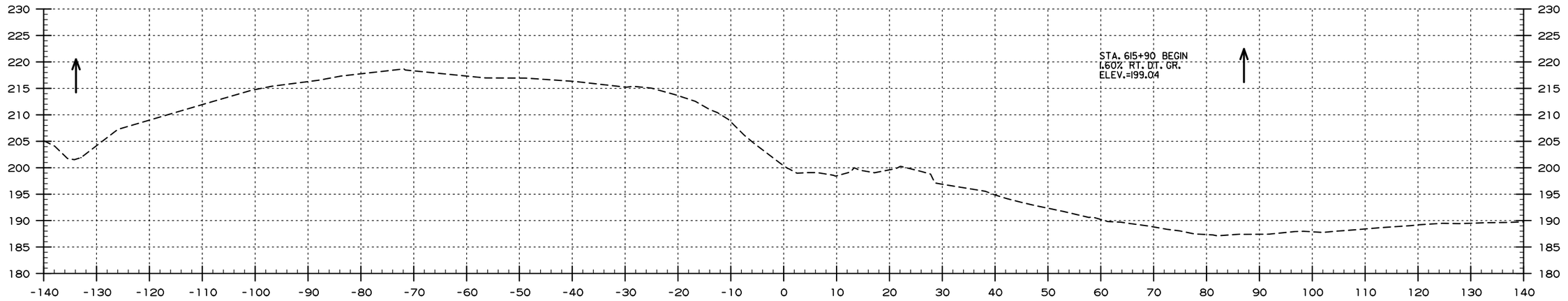
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STA. 613+00 TO STA. 615+00

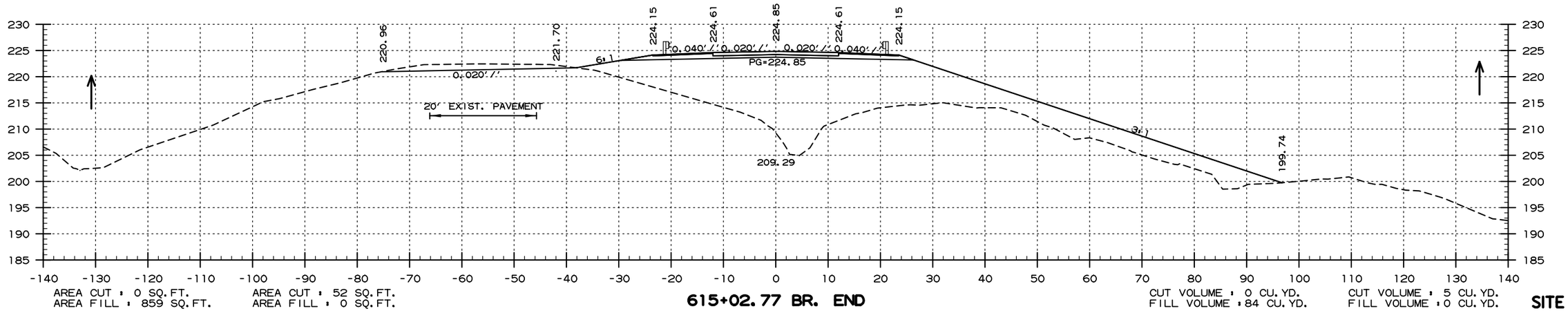
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	161	191
		CROSS SECTIONS				





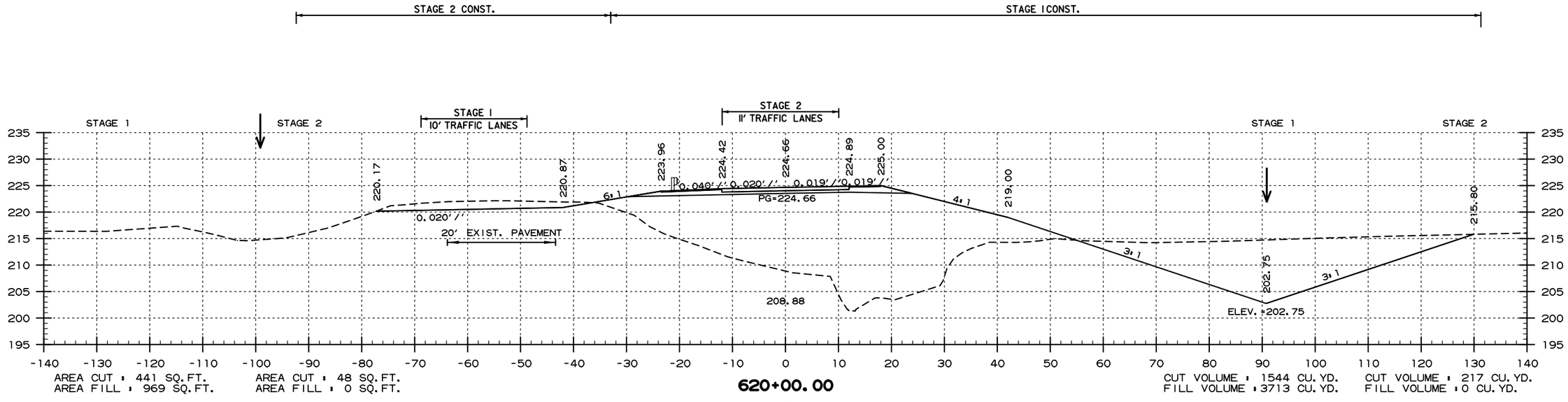


SITE 2
STA. 615+03 TO STA. 617+57

USER: JJ5206
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	162	191
		CROSS SECTIONS				

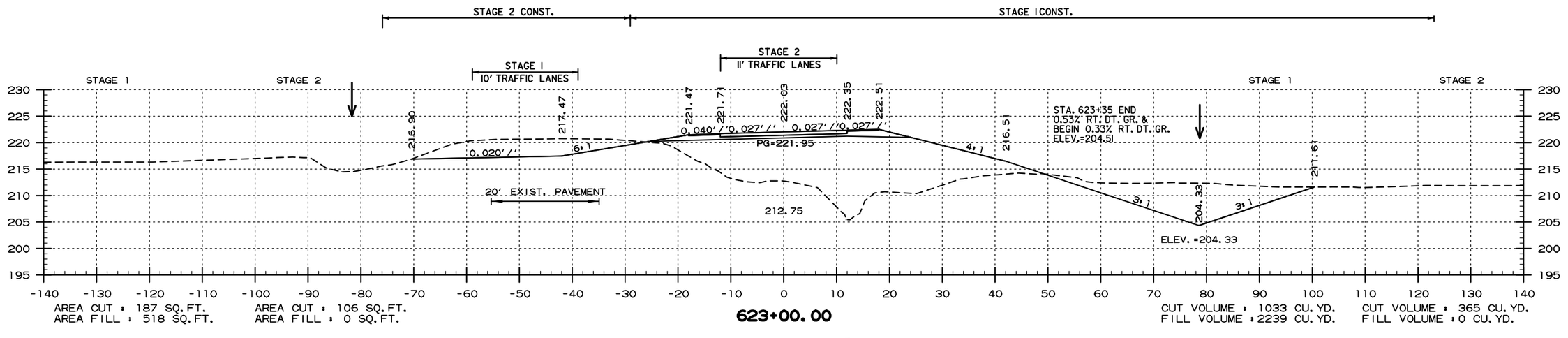


SITE 2
STA. 617+85 TO STA. 620+00

USER: JJ5206
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PLOTTED: 11/20/2023 12:32
SCALE: 1:20

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	163	191
		CROSS SECTIONS				

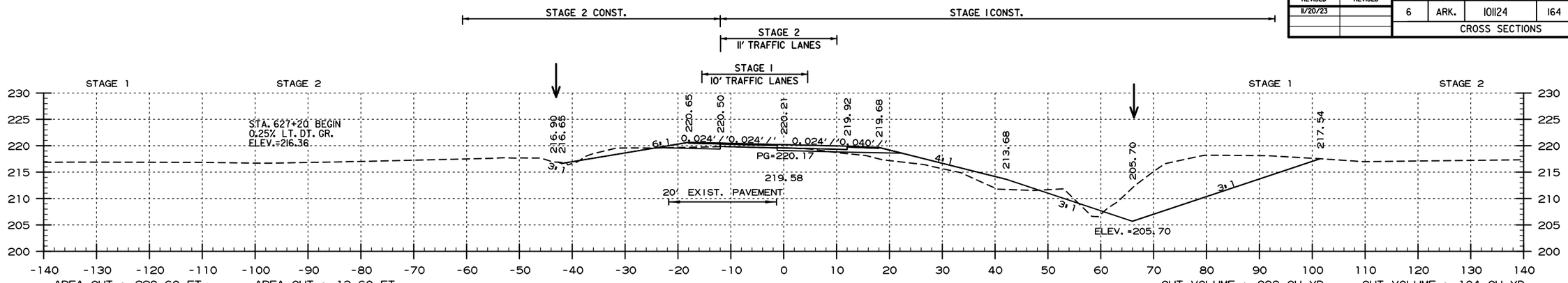


SITE 2
STA. 621+00 TO STA. 623+00

USER: JJ5206
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SCALE: 1:20

G:\22110001_101124\TRANSP\dgn\xsect\r101124 Site 2 X-Sect.dgn 11/20/2023 12:32

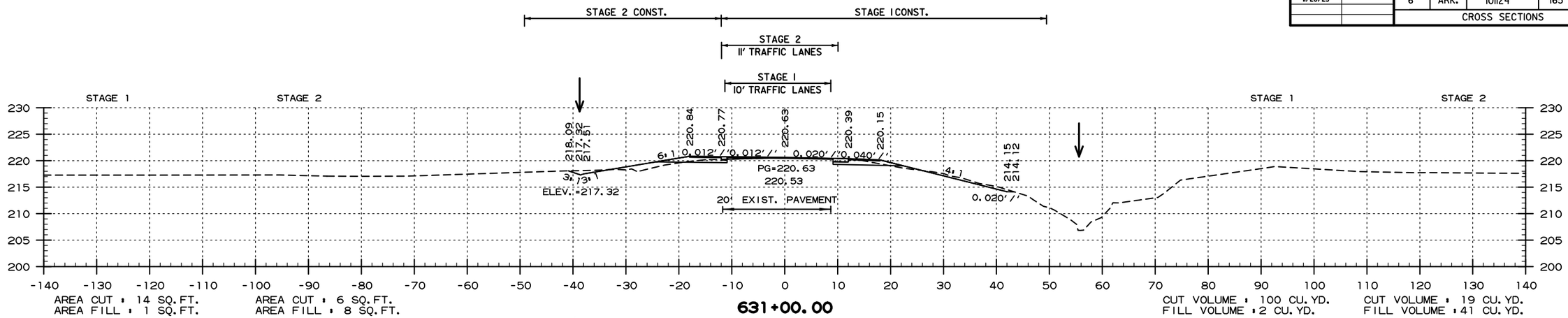
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	164	191
		CROSS SECTIONS				



SITE 2
STA. 624+00 TO STA. 627+00

USER: JJ5206
DESIGN FILE: G:\22II0001_I0II24\TRANSP\dgn\xsect\rI0II24 Site 2 X-Sect.dgn SCALE: 1:20
PLOTTED: 11/20/2023 12:32

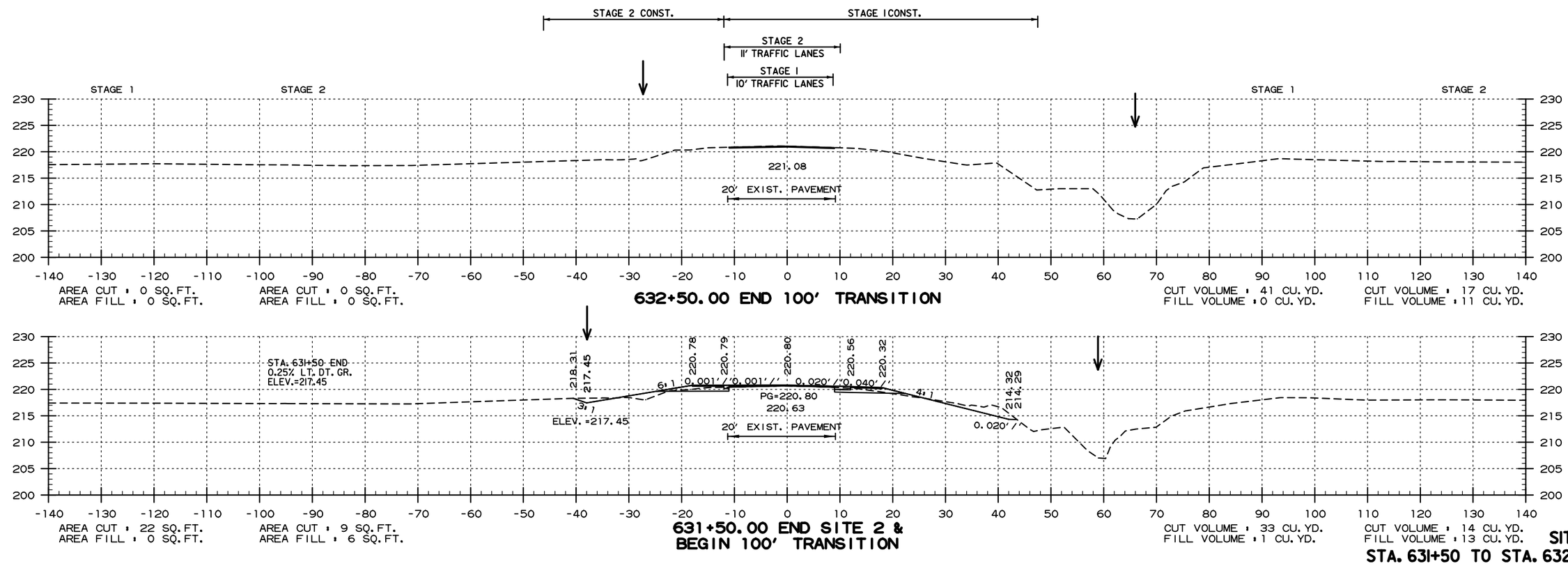
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	165	191
		CROSS SECTIONS				



SITE 2
STA. 628+00 TO STA. 631+00

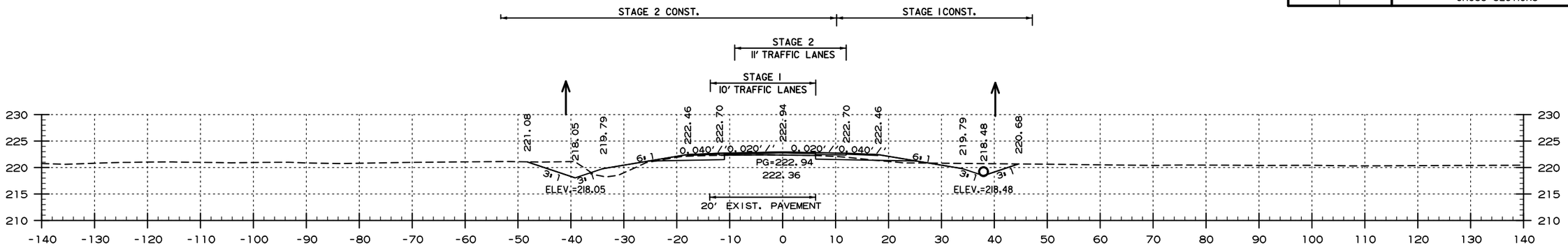
USER: JJ5206
DESIGN FILE: G:\22II0001_10II24\TRANSP\dgn\xsect\r10II24 Site 2 X-Sect.dgn
PLOTTED: 11/20/2023 12:32
SCALE: 1:20

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	166	191
		CROSS SECTIONS				



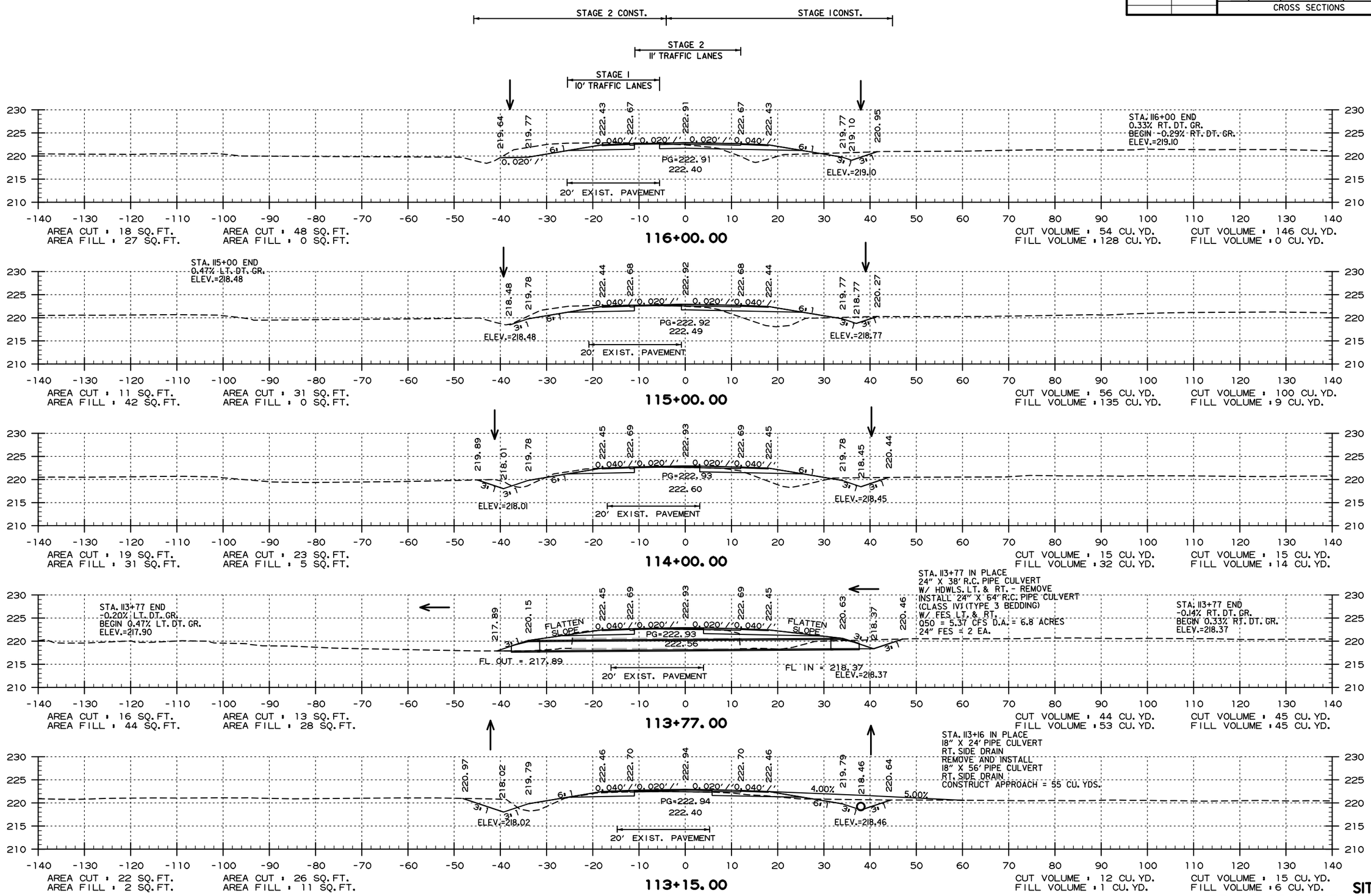
USER: JJ5206
DESIGN FILE: G:\22II0001_10II24\TRANSP\dgn\xsect\r10II24 Site 2 X-Sect.dgn SCALE: 1:20
PLOTTED: 11/20/2023 12:32

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	167	191
		CROSS SECTIONS				



USER: JJ5206
DESIGN FILE: G:\221100001_101124\TRANSP\dgn\xsect\r101124 Site 3 X-Sect.dgn
PLOTTED: 11/20/2023 12:32
SCALE: 1:20

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	168	191
		CROSS SECTIONS				

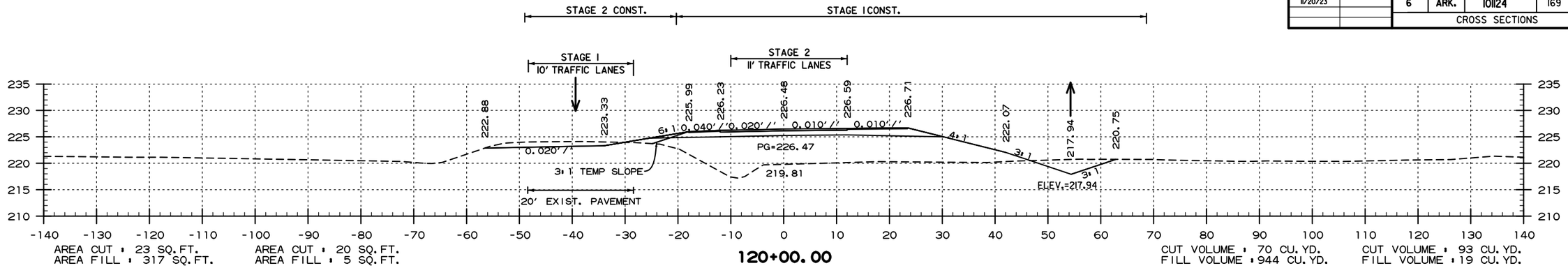


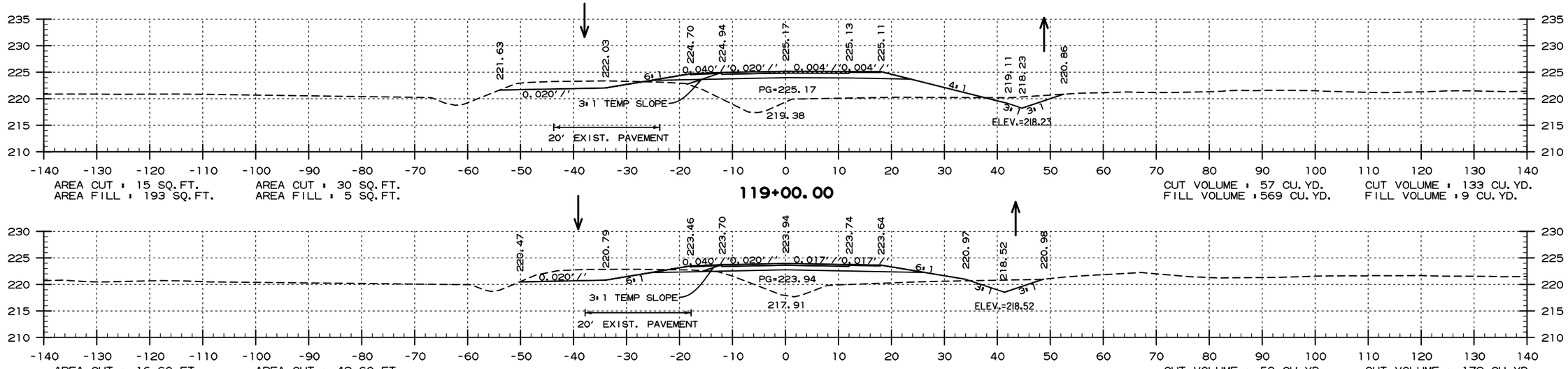
SITE 3
STA. 113+05 TO STA. 116+00

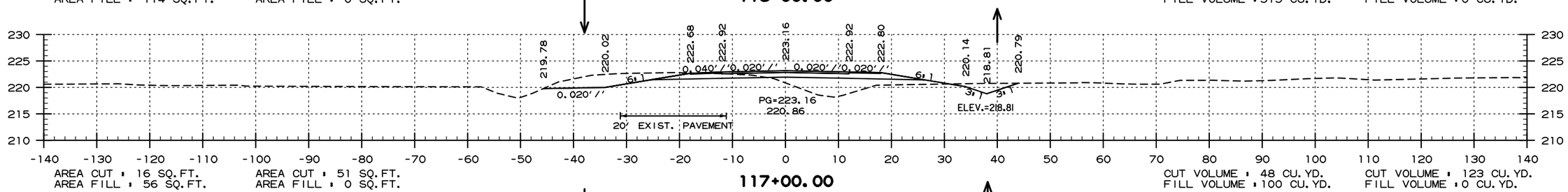
USER: JJ5206
DESIGN FILE: G:\22110001_101124\TRANSP\dgn\xsect\r101124 Site 3 X-Sect.dgn
PLOTTED: 11/20/2023 12:32
SCALE: 1:20

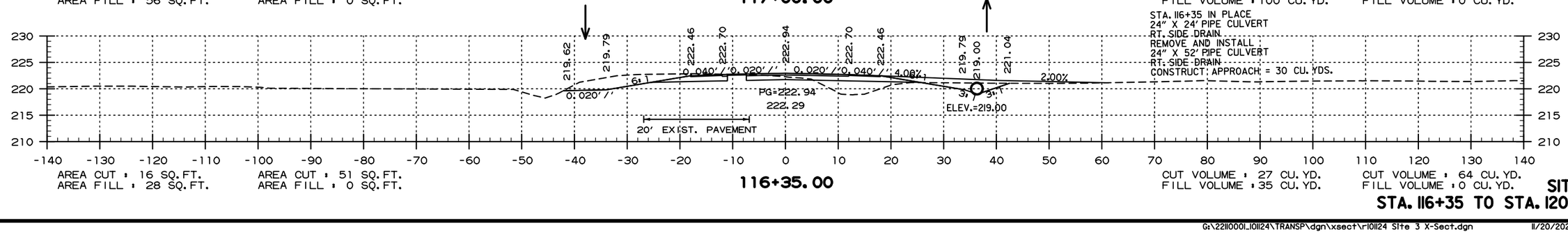
G:\22110001_101124\TRANSP\dgn\xsect\r101124 Site 3 X-Sect.dgn 11/20/2023 12:32

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	169	191
		CROSS SECTIONS				







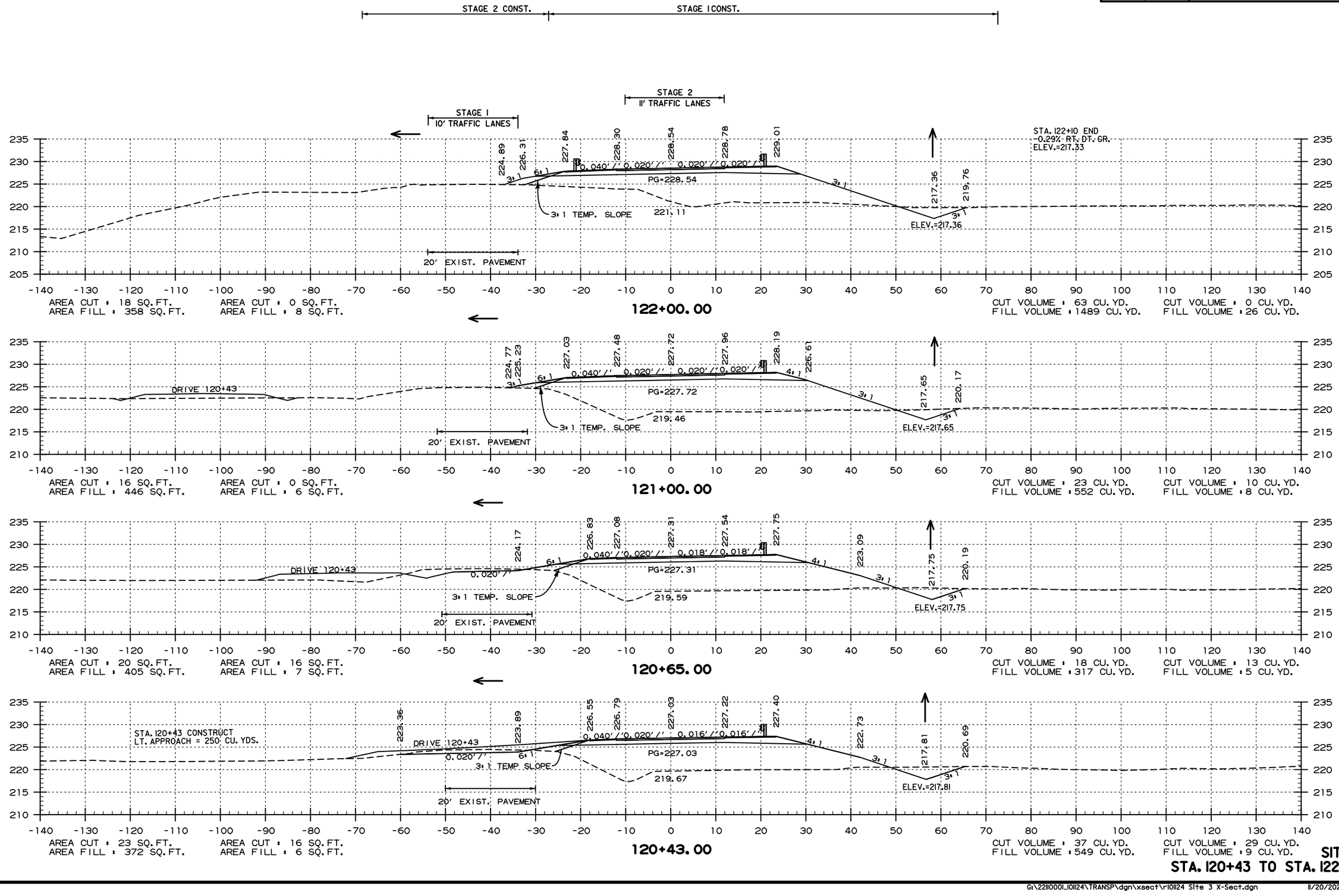


SITE 3
STA. 116+35 TO STA. 120+00

USER: JJ5206
DESIGN FILE: G:\22110001_101124\TRANSP\dgn\xsect\r101124 Site 3 X-Sect.dgn
PLOTTED: 11/20/2023 12:32
SCALE: 1:20

G:\22110001_101124\TRANSP\dgn\xsect\r101124 Site 3 X-Sect.dgn 11/20/2023 12:32

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	170	191
		CROSS SECTIONS				

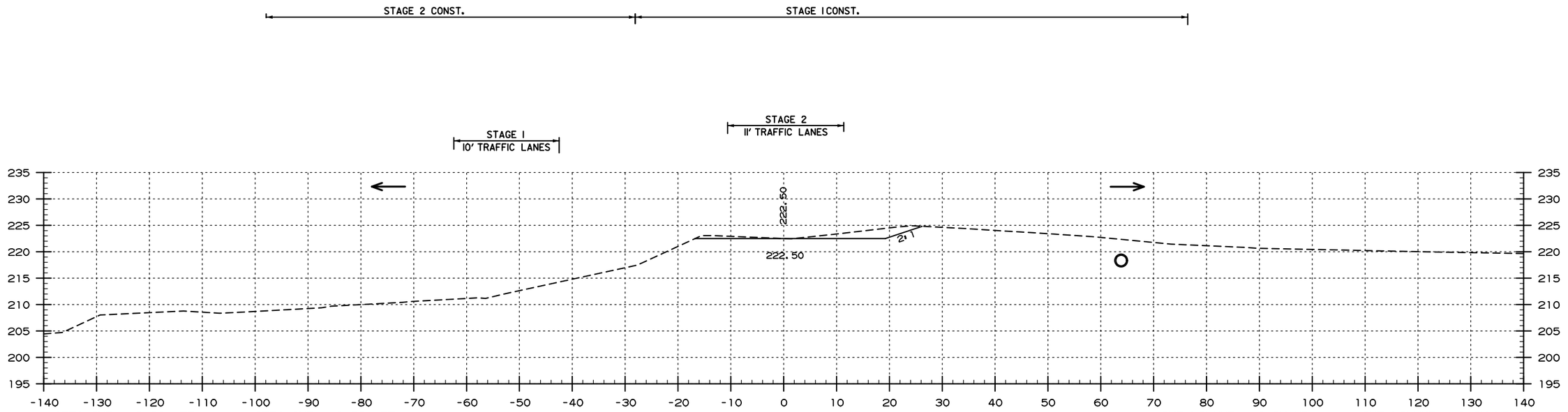


SITE 3
STA. 120+43 TO STA. 122+00

USER: JJS206
DESIGN FILE: G:\22I1000I_I0II24\TRANSP\dgn\xsect\rI0II24 Site 3 X-Sect.dgn
PLOTTED: II/20/2023 I2:32
SCALE: I:20

G:\22I1000I_I0II24\TRANSP\dgn\xsect\rI0II24 Site 3 X-Sect.dgn II/20/2023 I2:32

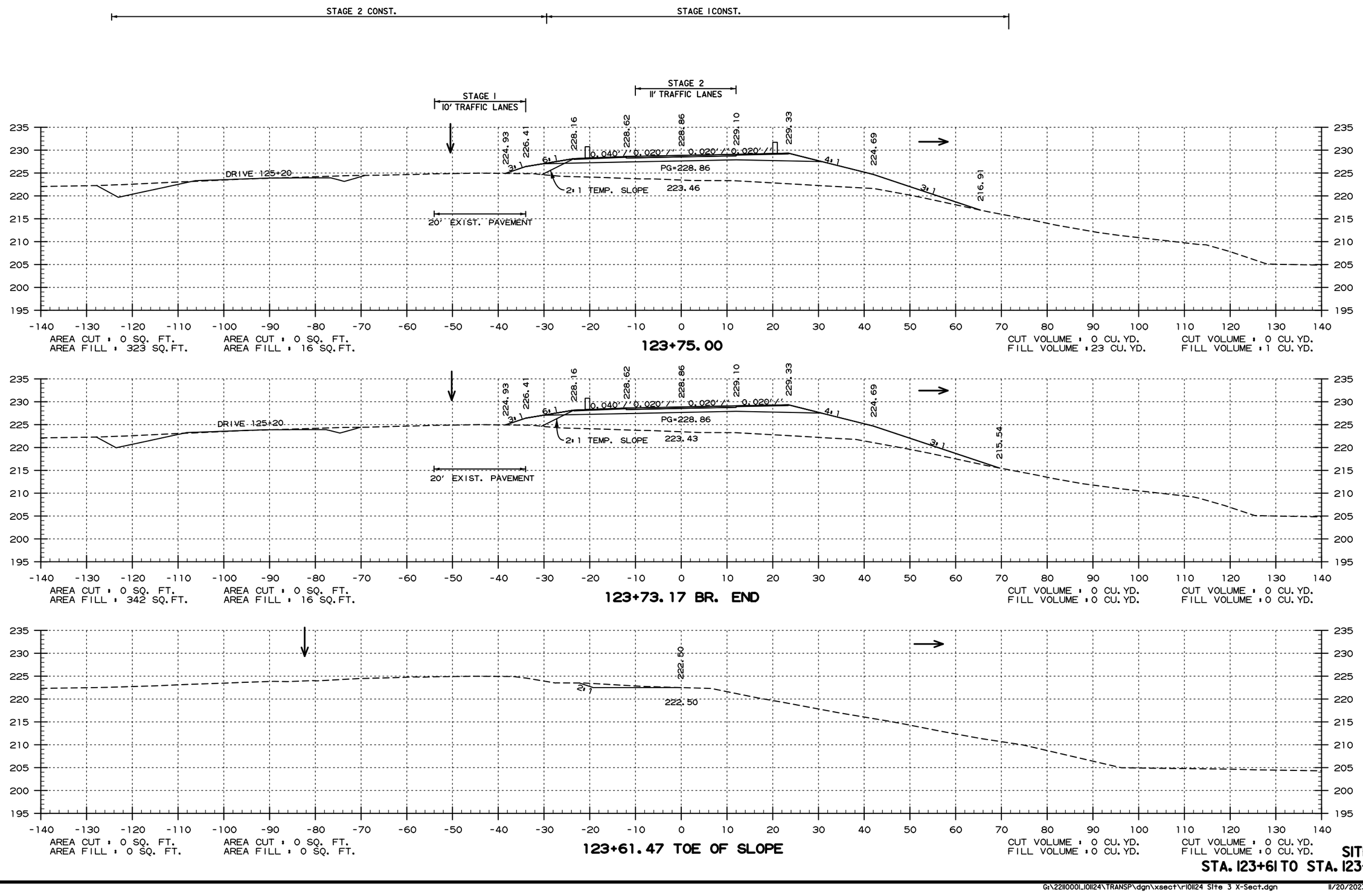
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	171	191
		CROSS SECTIONS				



SITE 3
STA. 122+15 TO STA. 122+36

USER: JJ5206
DESIGN FILE: G:\22110001_101124\TRANSP\dgn\xsect\r101124 Site 3 X-Sect.dgn
PLOTTED: 11/20/2023 12:32
SCALE: 1:20

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	172	191
		CROSS SECTIONS				

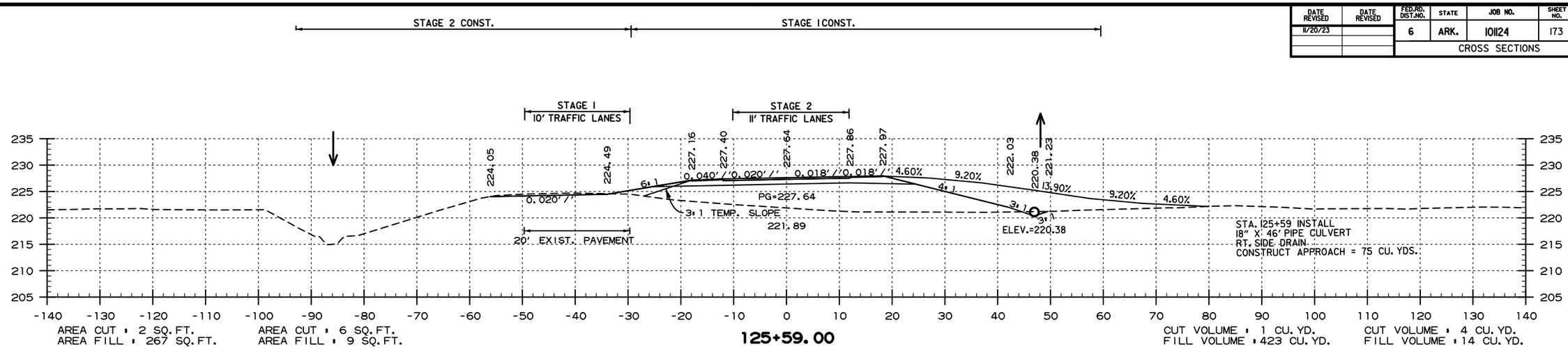


SITE 3
STA. 123+61 TO STA. 123+75

USER: JJ5206
DESIGN FILE: G:\22110001_10l124\TRANSP\dgn\xsect\r10l24 Site 3 X-Sect.dgn
PLOTTED: 11/20/2023 12:32
SCALE: h:20

G:\22110001_10l124\TRANSP\dgn\xsect\r10l24 Site 3 X-Sect.dgn 11/20/2023 12:32

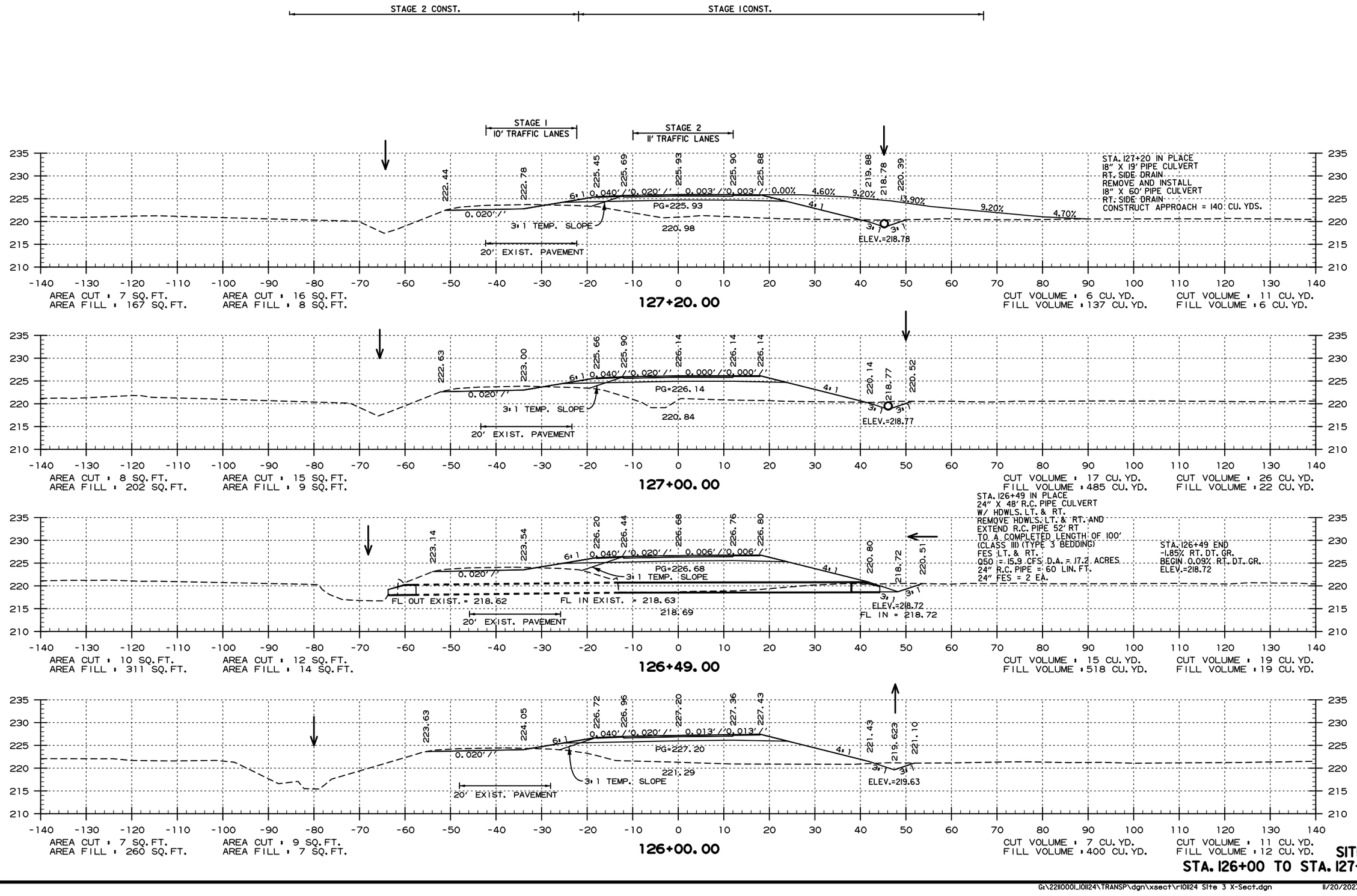
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	173	191
		CROSS SECTIONS				



USER: JJ5206
DESIGN FILE: G:\22II0001_10II24\TRANSP\dgn\xsect\r10II24 Site 3 X-Sect.dgn SCALE: 1:20
PLOTTED: 11/20/2023 12:32

G:\22II0001_10II24\TRANSP\dgn\xsect\r10II24 Site 3 X-Sect.dgn 11/20/2023 12:32

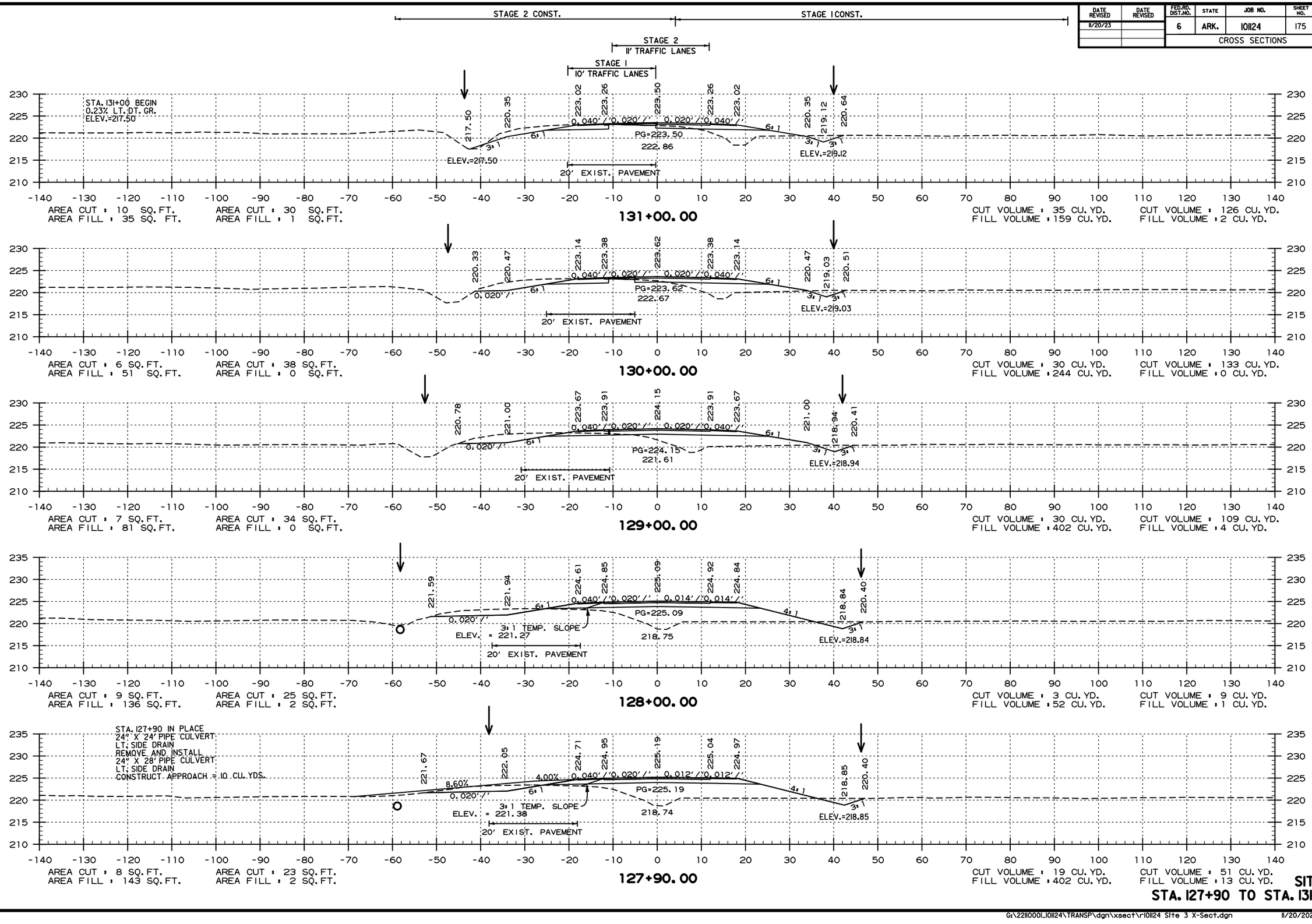
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	174	191
		CROSS SECTIONS				



USER: JJ5206
DESIGN FILE: G:\22I1000I_I0II24\TRANSP\dgn\xsect\rI0II24 Site 3 X-Sect.dgn SCALE: I:20
PLOTTED: II/20/2023 I2:32

G:\22I1000I_I0II24\TRANSP\dgn\xsect\rI0II24 Site 3 X-Sect.dgn II/20/2023 I2:32

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	175	191
		CROSS SECTIONS				



SITE 3
STA. 127+90 TO STA. 131+00

USER: JJ5206
DESIGN FILE: G:\22110001_101124\TRANSP\dgn\xsect\r101124 Site 3 X-Sect.dgn SCALE: 1:20
PLOTTED: 11/20/2023 12:32

G:\22110001_101124\TRANSP\dgn\xsect\r101124 Site 3 X-Sect.dgn 11/20/2023 12:32

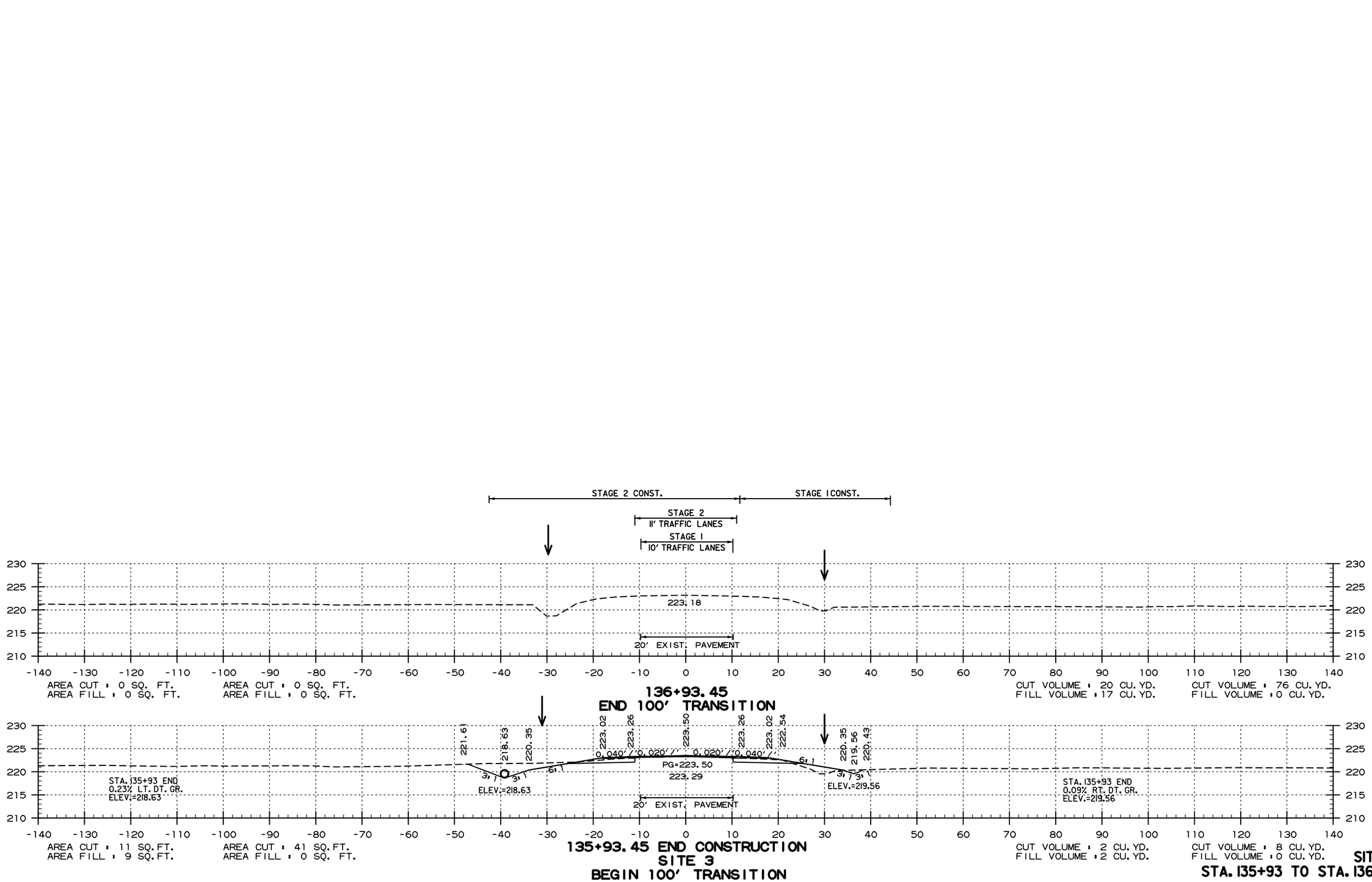
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	176	191
		CROSS SECTIONS				

SITE 3
STA. 132+00 TO STA. 135+88

USER: JJ5206
DESIGN FILE: G:\2211000I_10II24\TRANSP\dgn\xsect\r10II24 Site 3 X-Sect.dgn
PLOTTED: 11/20/2023 12:32
SCALE: 1:20

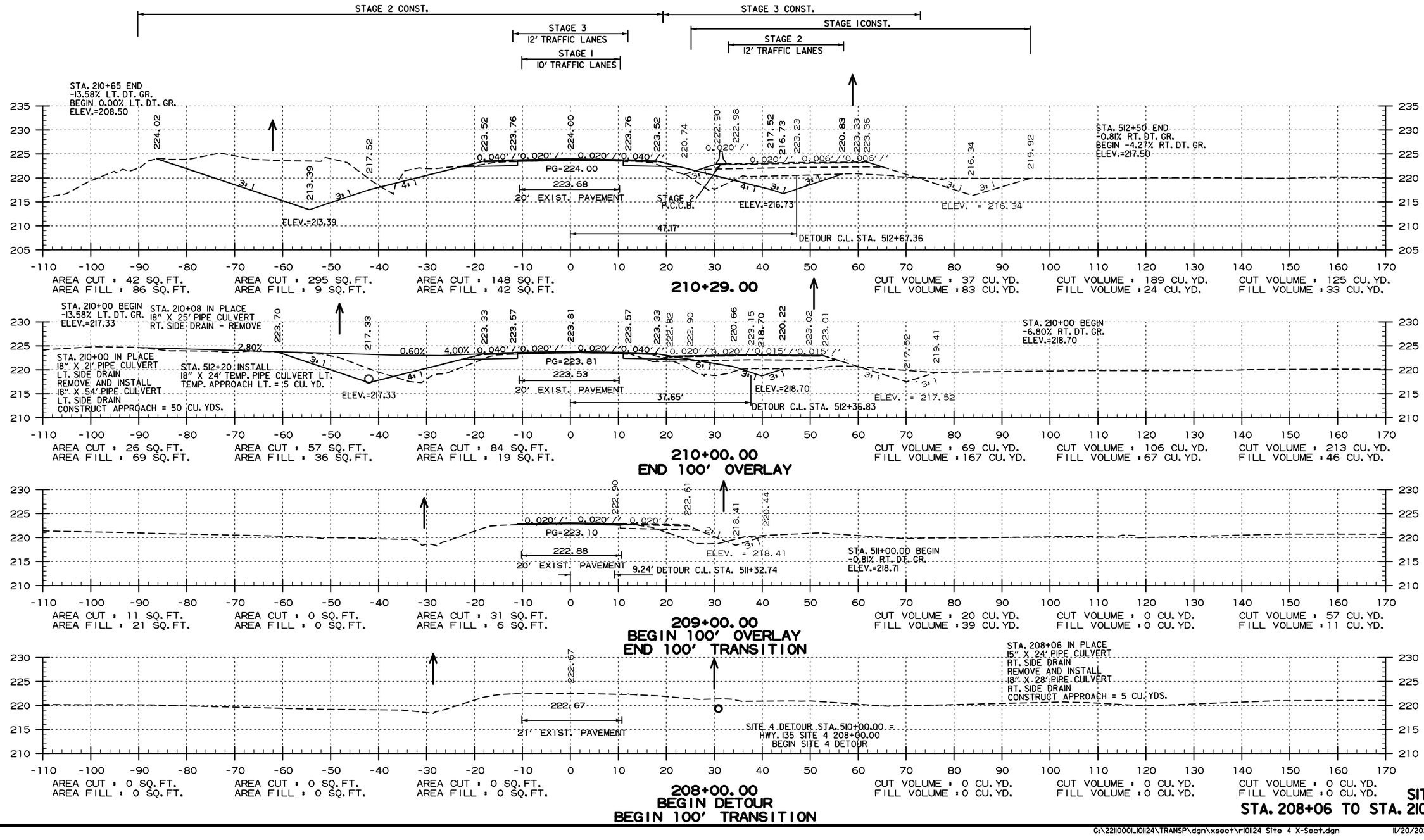
G:\2211000I_10II24\TRANSP\dgn\xsect\r10II24 Site 3 X-Sect.dgn 11/20/2023 12:32

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	177	191
		CROSS SECTIONS				



USER: JJ5206
DESIGN FILE: G:\22II0001_10II24\TRANSP\dgn\xsect\r10II24 Site 3 X-Sect.dgn
PLOTTED: II/20/2023 12:32
SCALE: 1:20

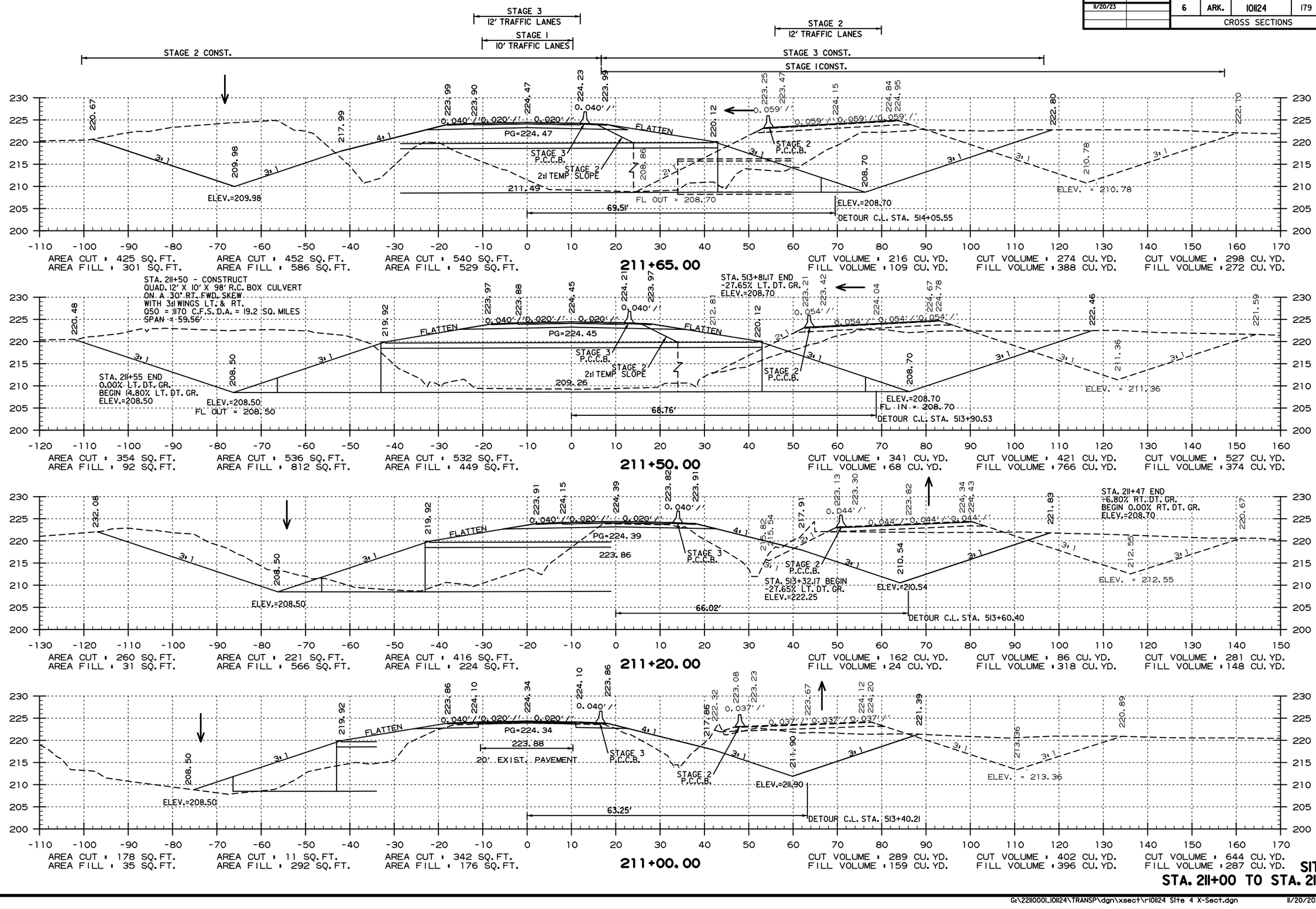
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	178	191
		CROSS SECTIONS				



USER: JJ5206
DESIGN FILE: G:\221100001_101124\TRANSP\dgn\xsect\r101124 Site 4 X-Sect.dgn
PLOTTED: 11/20/2023 12:32
SCALE: 1:20

G:\221100001_101124\TRANSP\dgn\xsect\r101124 Site 4 X-Sect.dgn 11/20/2023 12:32

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	179	191
		CROSS SECTIONS				



SITE 4
STA. 211+00 TO STA. 211+65

USER: JJ5206
DESIGN FILE: G:\22110001_10\124\TRANSP\dgn\xsect\r10\124 Site 4 X-Sect.dgn SCALE: 1:20
PLOTTED: 11/20/2023 12:32

G:\22110001_10\124\TRANSP\dgn\xsect\r10\124 Site 4 X-Sect.dgn 11/20/2023 12:32

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	180	191
		CROSS SECTIONS				

SITE 4
STA. 211+95 TO STA. 212+30

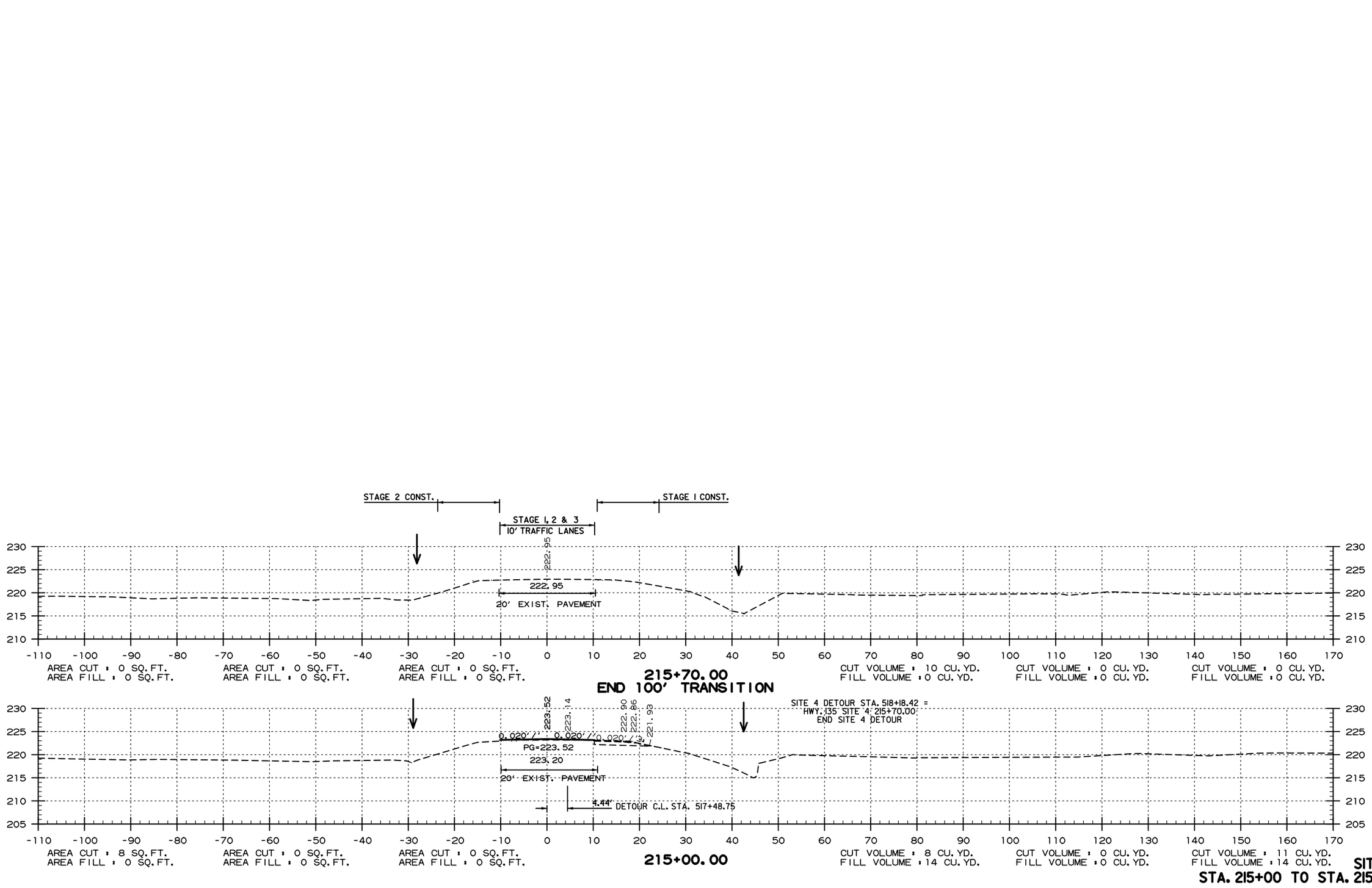
USER: JJ5206
DESIGN FILE: G:\22II0001_I0II24\TRANSP\dgn\xsect\rI0II24 Site 4 X-Sect.dgn SCALE: 1:20
PLOTTED: II/20/2023 12:32

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	181	191
		CROSS SECTIONS				

USER: JJ5206
DESIGN FILE: G:\22I0001_I0II24\TRANSP\dgn\xsect\rI0II24 Site 4 X-Sect.dgn
PLOTTED: II/20/2023 I2:32
SCALE: I:20

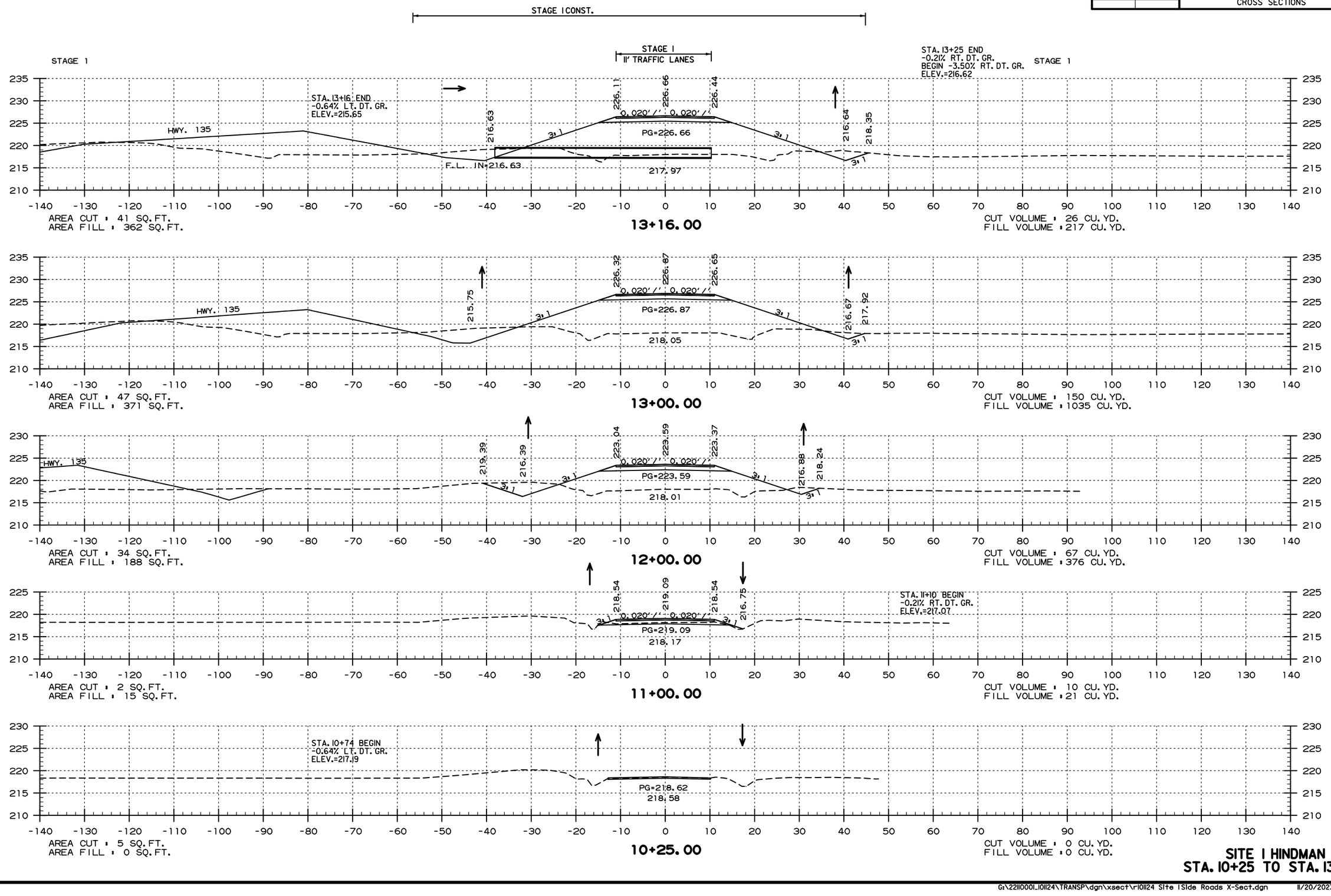
G:\22I0001_I0II24\TRANSP\dgn\xsect\rI0II24 Site 4 X-Sect.dgn II/20/2023 I2:32

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	182	191
		CROSS SECTIONS				



USER: JJ5206
DESIGN FILE: G:\22110001_101124\TRANSP\dgn\xsect\r101124 Site 4 X-Sect.dgn SCALE: 1:20
PLOTTED: 11/20/2023 12:32

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	183	191
		CROSS SECTIONS				



SITE 1 HINDMAN LN.
STA. 10+25 TO STA. 13+16

USER: JJ5206
DESIGN FILE: G:\22II000I_I0II24\TRANSP\dgn\xsect\rI0II24 Site 1Side Roads X-Sect.dgn SCALE: 1:20
PLOTTED: 11/20/2023 12:32

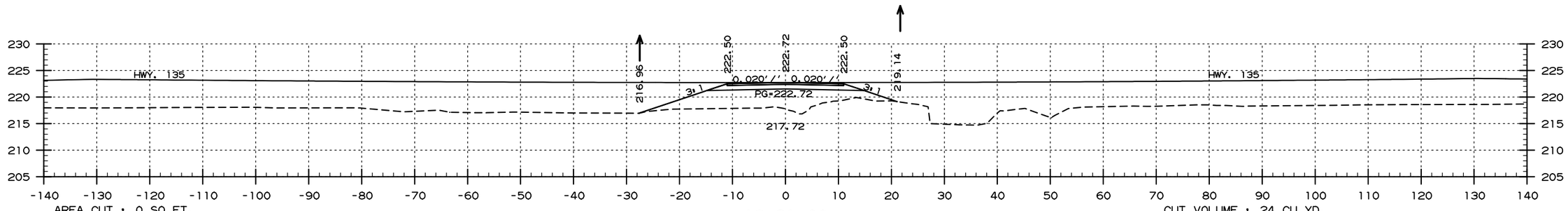
G:\22II000I_I0II24\TRANSP\dgn\xsect\rI0II24 Site 1Side Roads X-Sect.dgn 11/20/2023 12:32

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23		6	ARK.	101124	184	191
		CROSS SECTIONS				

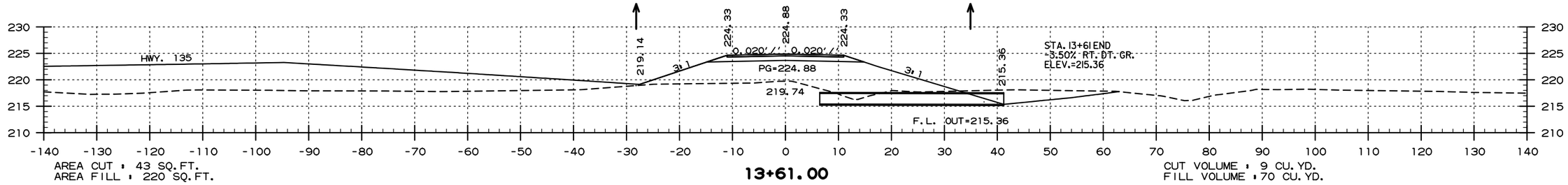
STAGE 1 CONST.

STAGE 1
10' TRAFFIC LANES

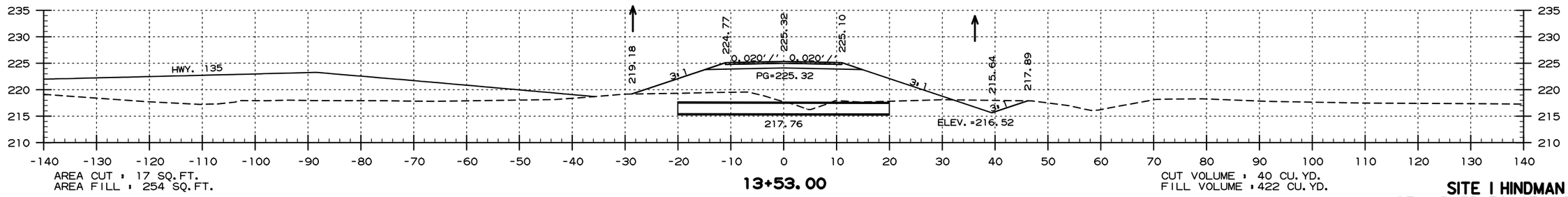
STAGE 1



13+91.00



13+61.00



13+53.00

SITE 1 HINDMAN LN.
STA. 13+53 TO STA. 13+91

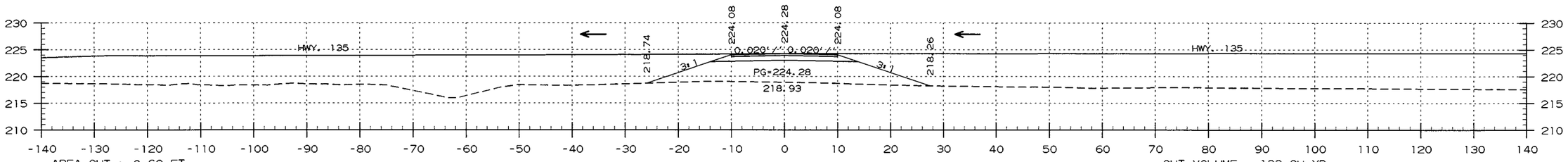
USER: JJ5206
DESIGN FILE: G:\22II000I_I0II24\TRANSP\dgn\xsect\rI0II24 Site 1Side Roads X-Sect.dgn
PLOTTED: II/20/2023 I2:32
SCALE: I:20

G:\22II000I_I0II24\TRANSP\dgn\xsect\rI0II24 Site 1Side Roads X-Sect.dgn II/20/2023 I2:32

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
11/20/23	01/31/24	6	ARK.	101124	185	191
		CROSS SECTIONS				

STAGE I CONST.

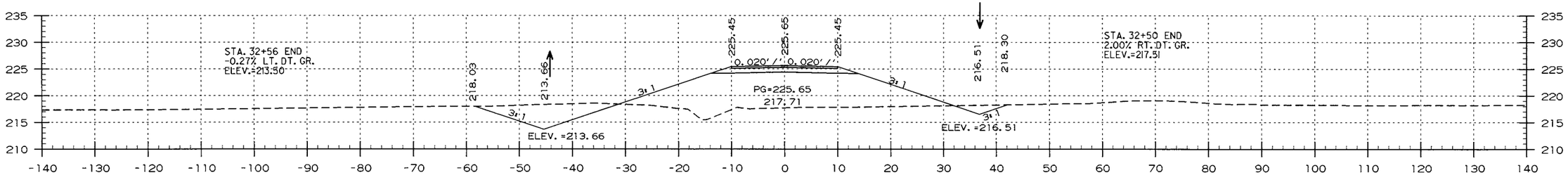
STAGE 1 | STAGE I 10' TRAFFIC LANES | STAGE 1



AREA CUT : 0 SQ.FT.
AREA FILL : 163 SQ.FT.

33+00.00

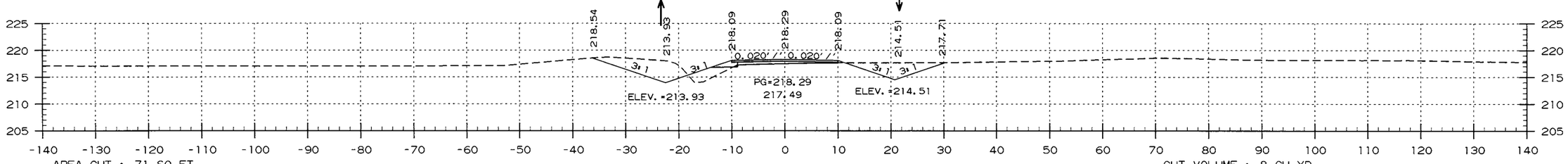
CUT VOLUME : 133 CU.YD.
FILL VOLUME : 872 CU.YD.



AREA CUT : 72 SQ.FT.
AREA FILL : 308 SQ.FT.

32+00.00

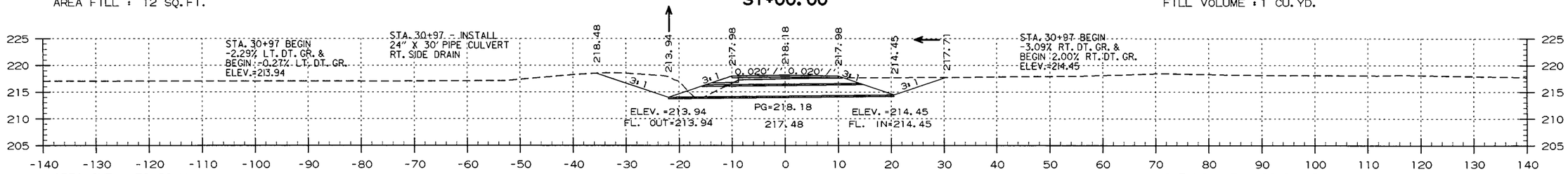
CUT VOLUME : 265 CU.YD.
FILL VOLUME : 593 CU.YD.



AREA CUT : 71 SQ.FT.
AREA FILL : 12 SQ.FT.

31+00.00

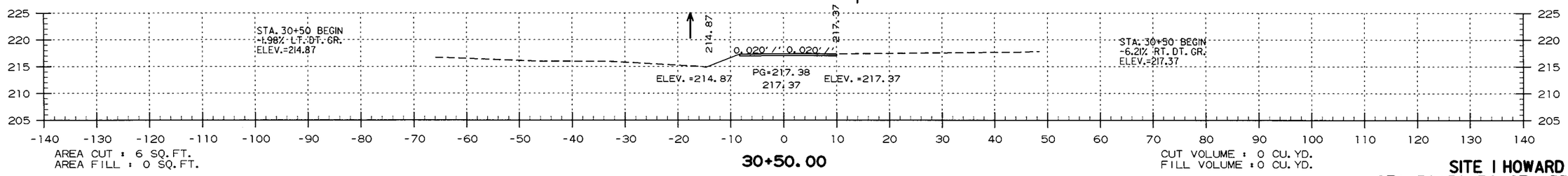
CUT VOLUME : 8 CU.YD.
FILL VOLUME : 1 CU.YD.



AREA CUT : 70 SQ.FT.
AREA FILL : 11 SQ.FT.

30+97.00

CUT VOLUME : 66 CU.YD.
FILL VOLUME : 10 CU.YD.



AREA CUT : 6 SQ.FT.
AREA FILL : 0 SQ.FT.

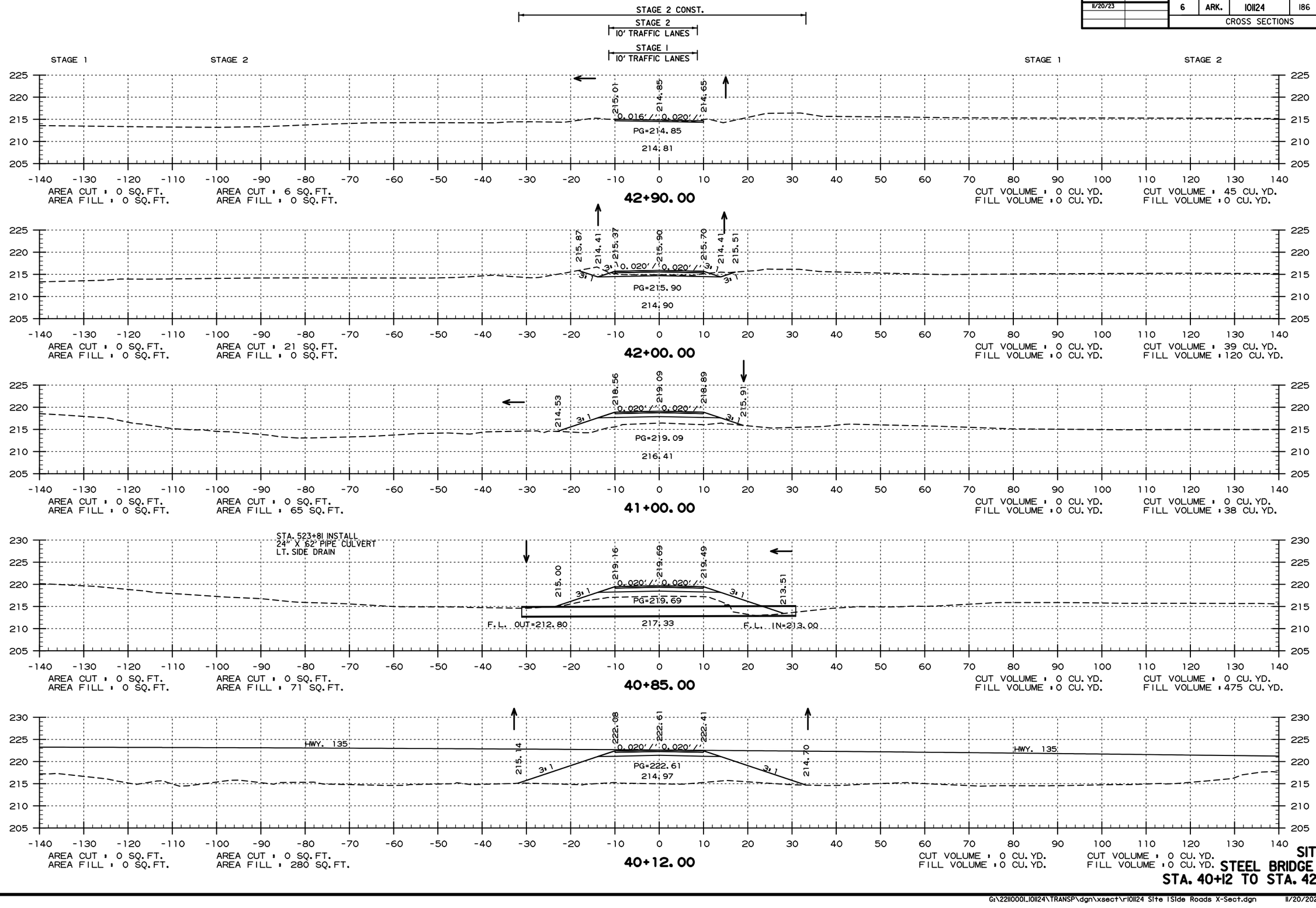
30+50.00

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

SITE I HOWARD RD.
STA. 30+50 TO STA. 33+00

USER: JJ5206
DESIGN FILE: G:\22II0001.I0II24\TRANSP\dgn\xsect\rI0II24 Site ISide Roads X-Sect.dgn
PLOTTED: 1/31/2024 14:04
SCALE: 1:20

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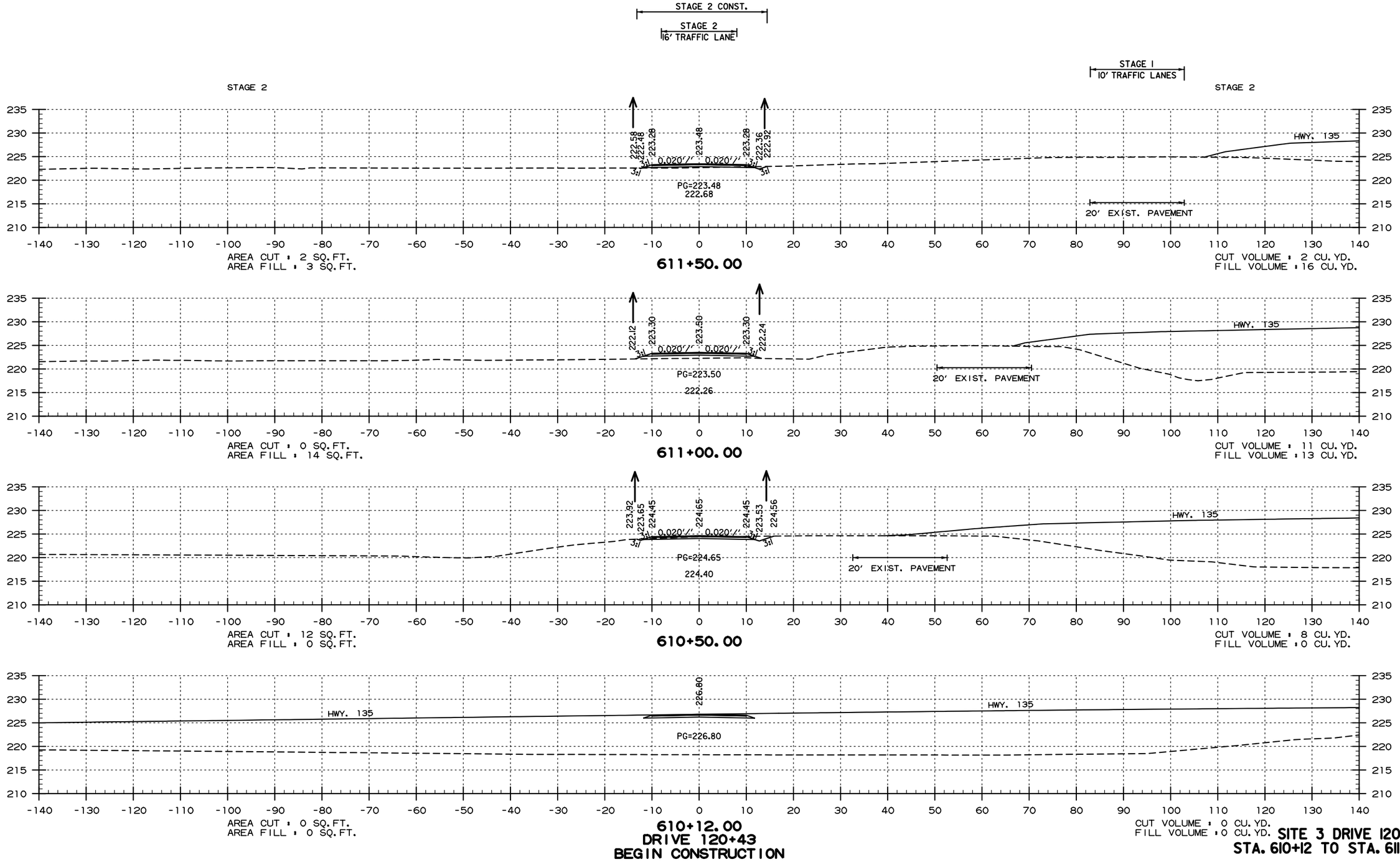


SITE 1
STEEL BRIDGE RD.
STA. 40+12 TO STA. 42+90

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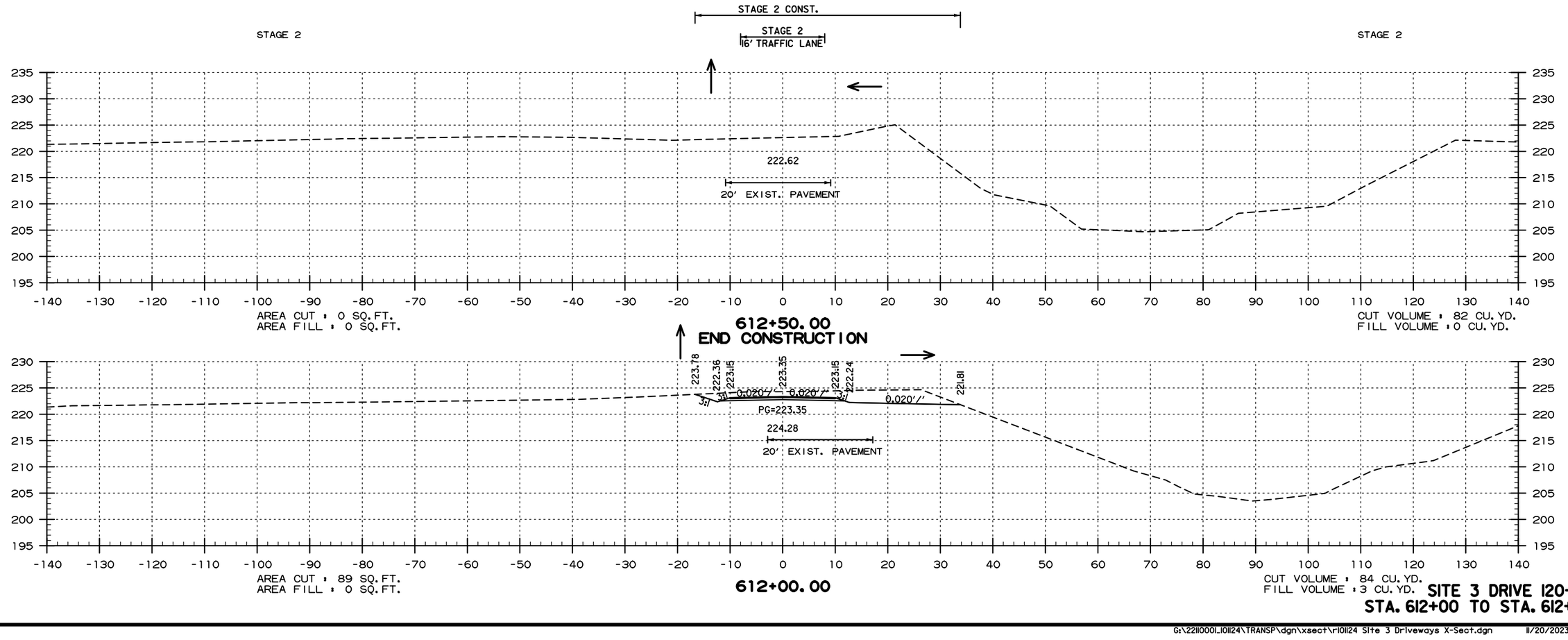
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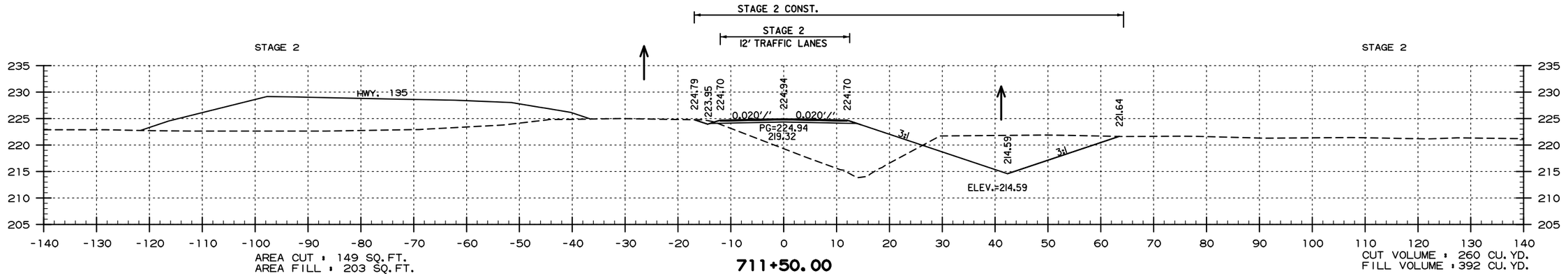


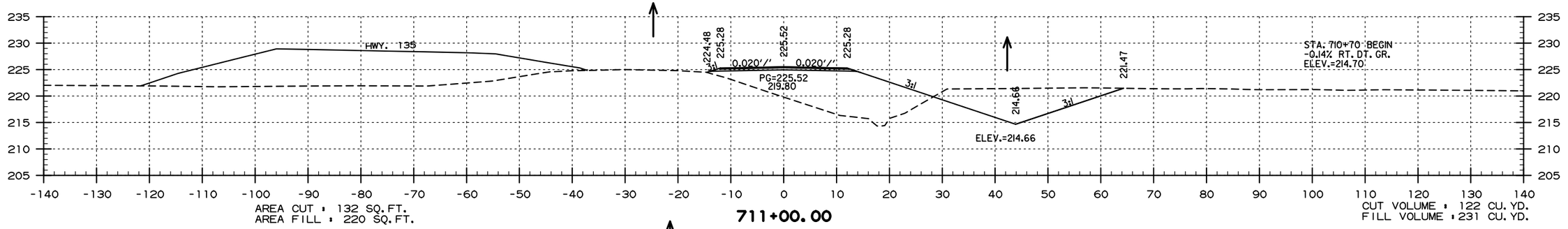
SITE 3 DRIVE 120+43
STA. 612+00 TO STA. 612+50

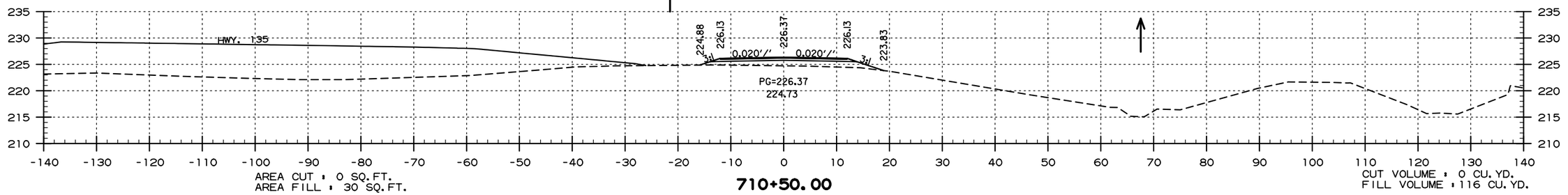
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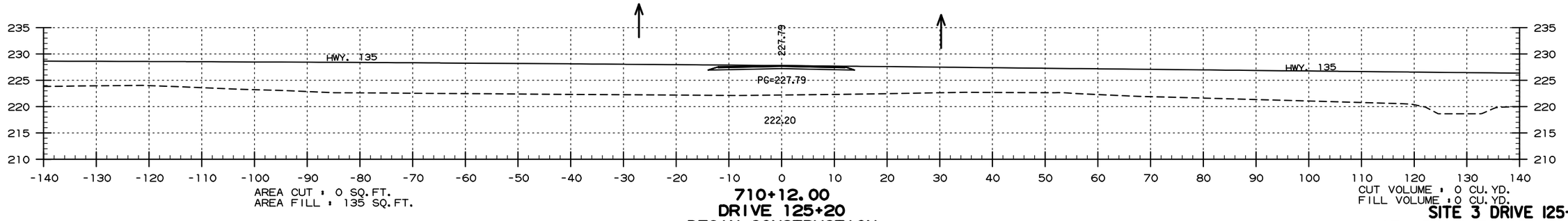
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		CROSS SECTIONS				





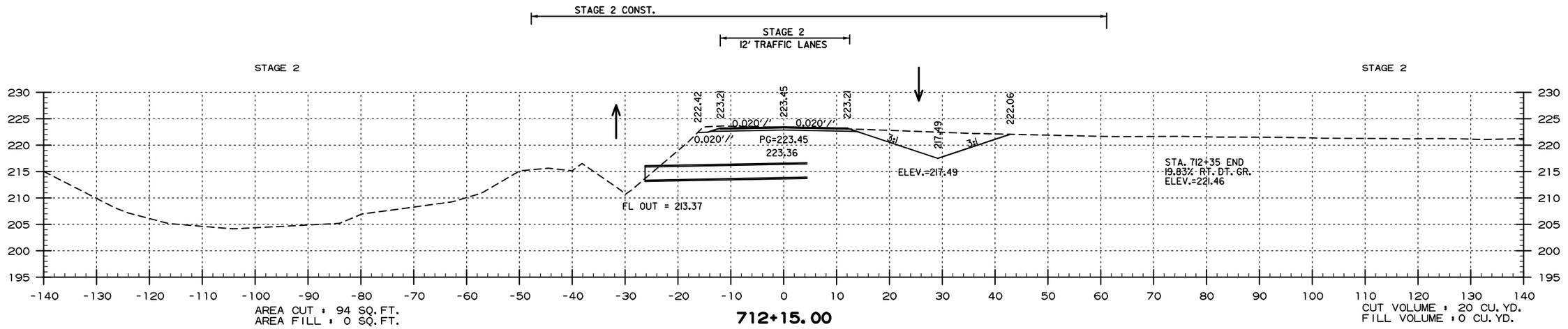




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11/20/23		6	ARK.	101124	190	191
		CROSS SECTIONS				



SITE 3 DRIVE 125+20
STA. 712+00 TO STA. 712+15

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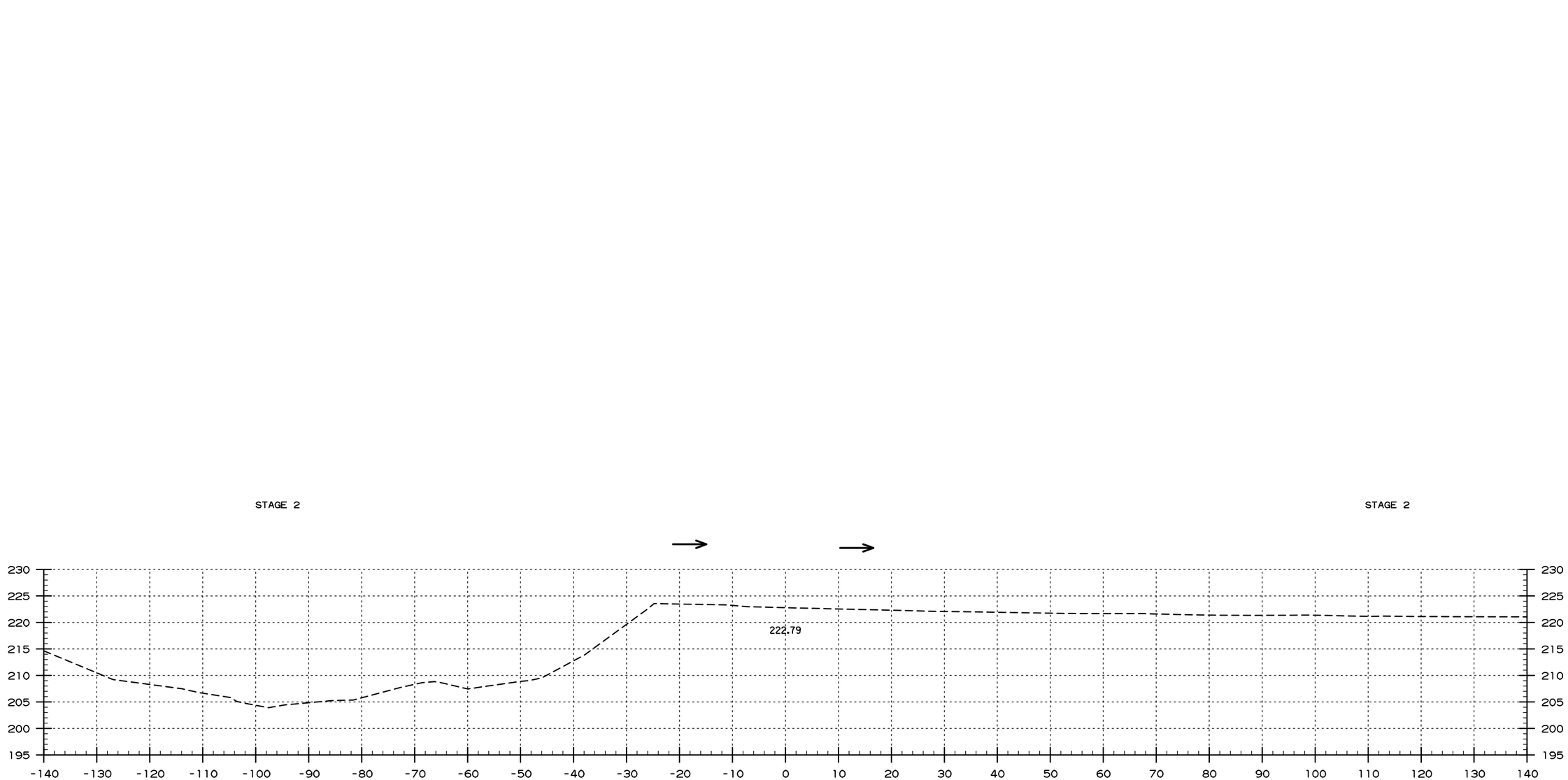
DATE REVISED	DATE REVISED
11/20/23	

FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	101124	191	191

CROSS SECTIONS

STAGE 2

STAGE 2



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

712+38.18
END CONSTRUCTION

CUT VOLUME = 40 CU.YD.
FILL VOLUME = 0 CU.YD.

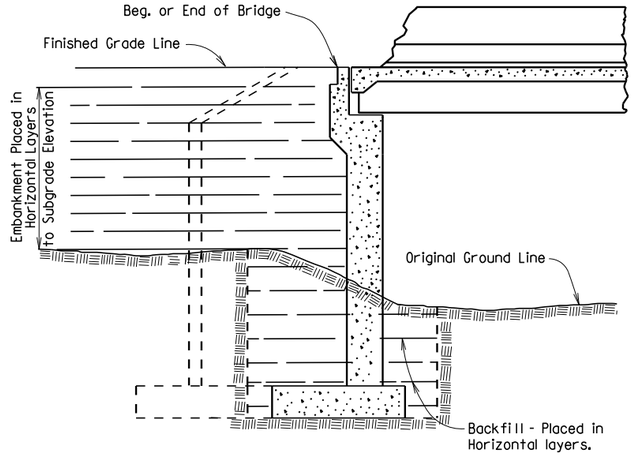
SITE 3 DRIVE 125+20
STA. 712+38 TO STA. 712+38

USER: JJ5206
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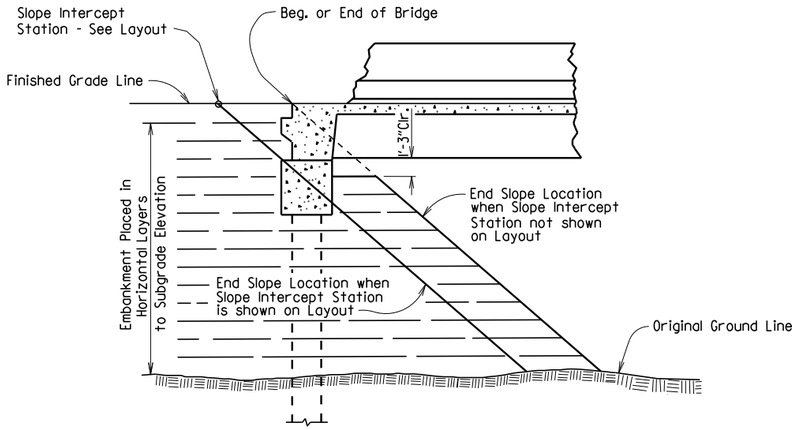
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				JOB NO.				

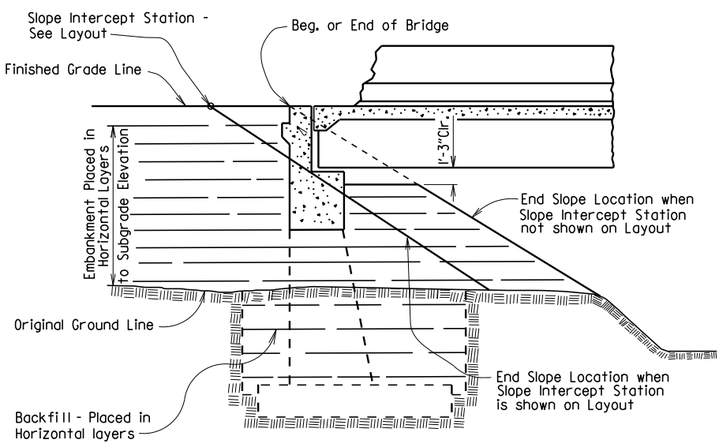
(1) EMBANKMENT & BACKFILL 55000



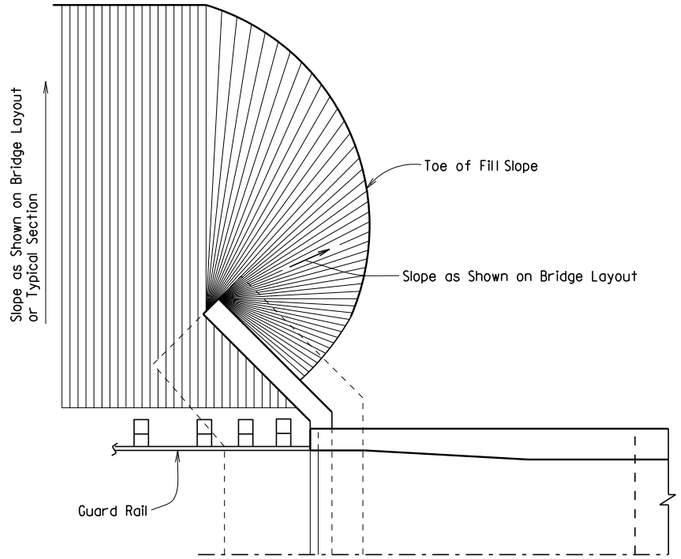
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



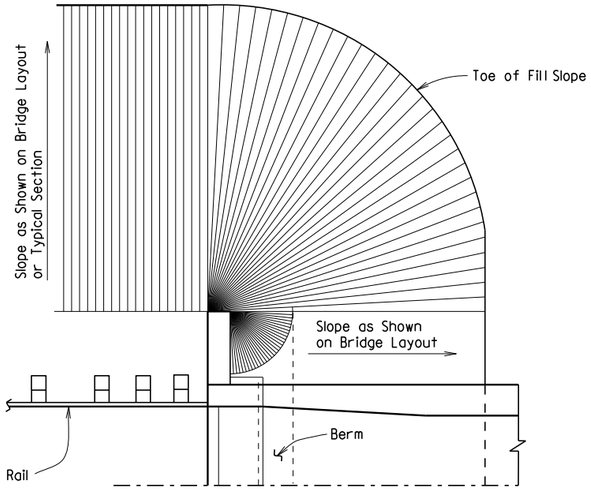
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



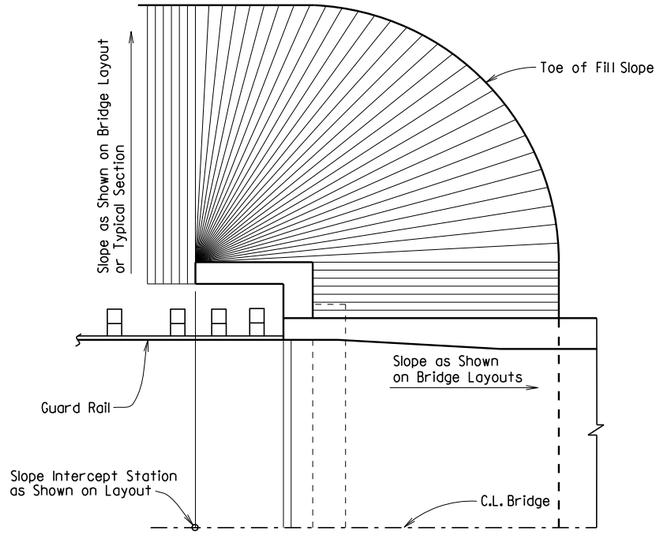
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



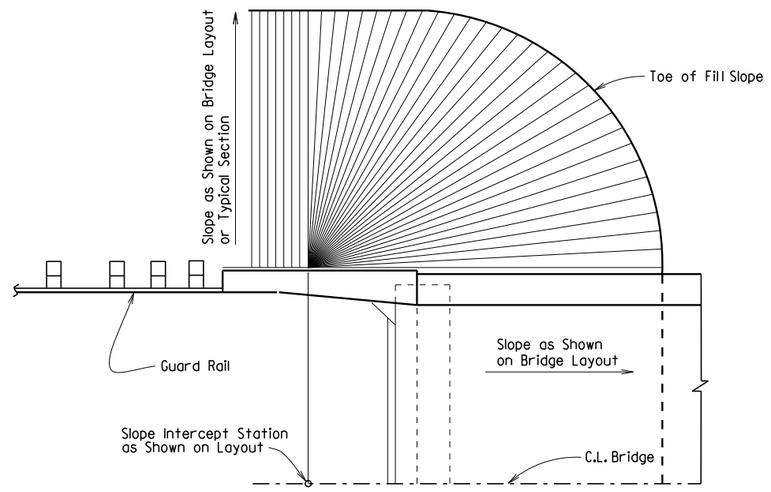
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

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

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn

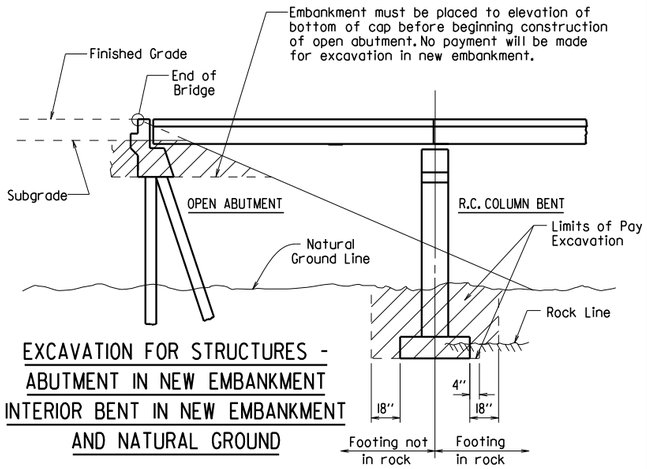
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DESIGNED BY: STD. DATE: -

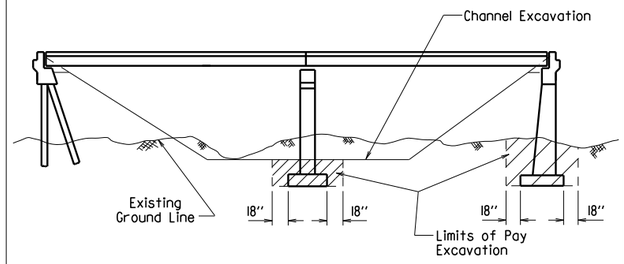
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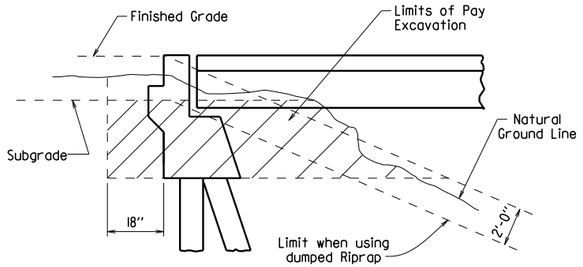
(1) RIPRAP & EXCAV. 55001



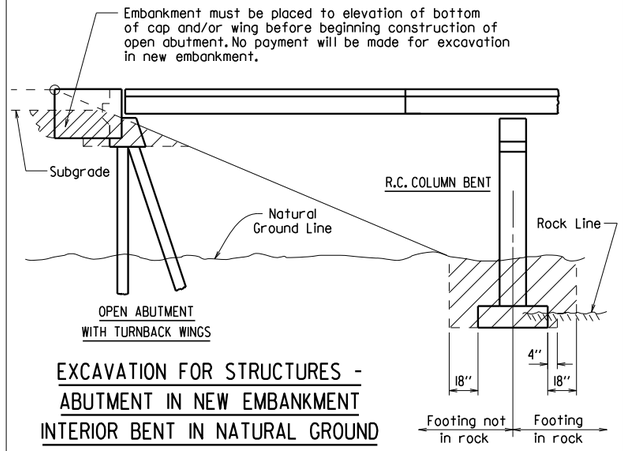
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



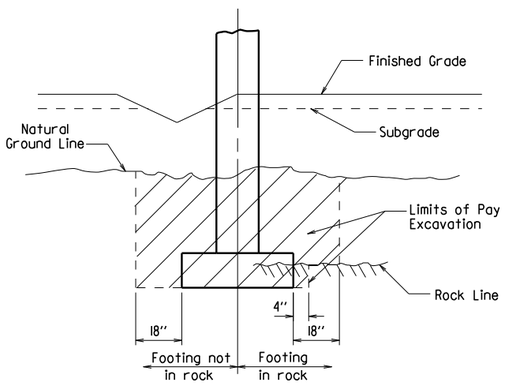
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



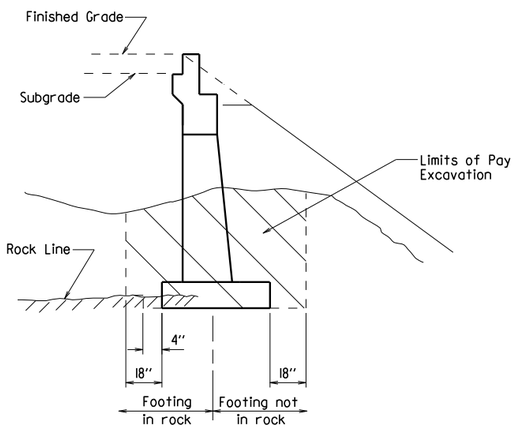
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



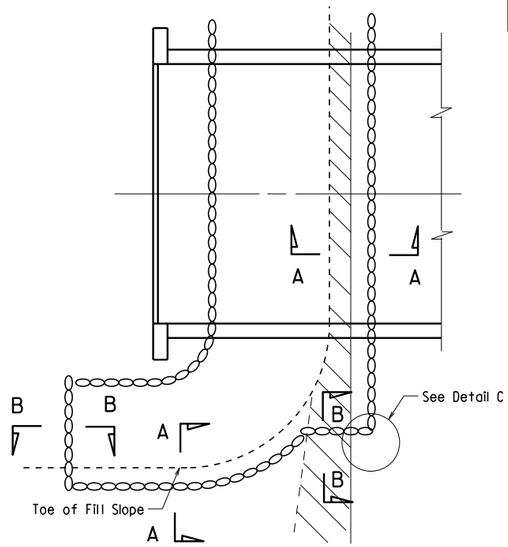
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



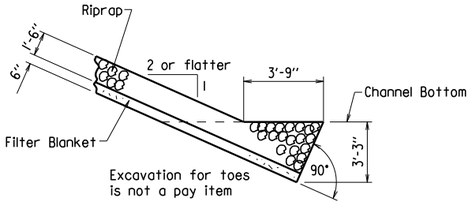
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

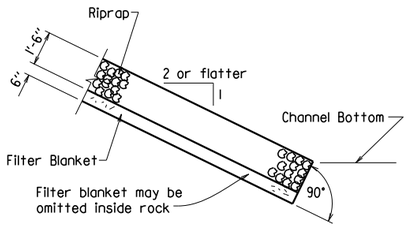


PLAN OF DUMPED RIPRAP



SECTION A-A

(Toe Excavation in Soil)



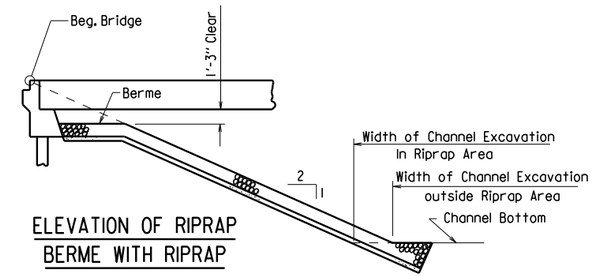
SECTION A-A

(Toe Excavation in Rock)

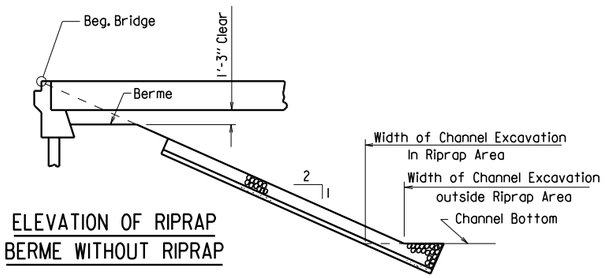
Note : Use this type of toe when rock is encountered which is in a stable condition.

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

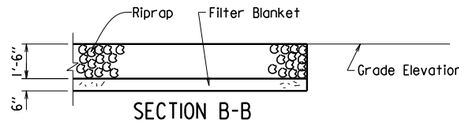
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



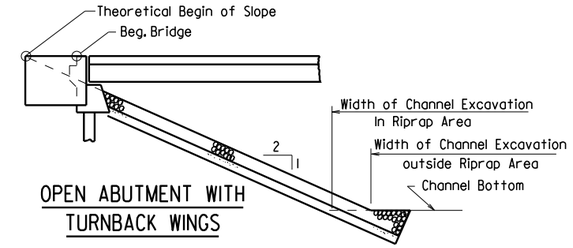
ELEVATION OF RIPRAP BERME WITH RIPRAP



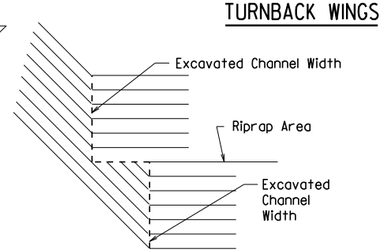
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

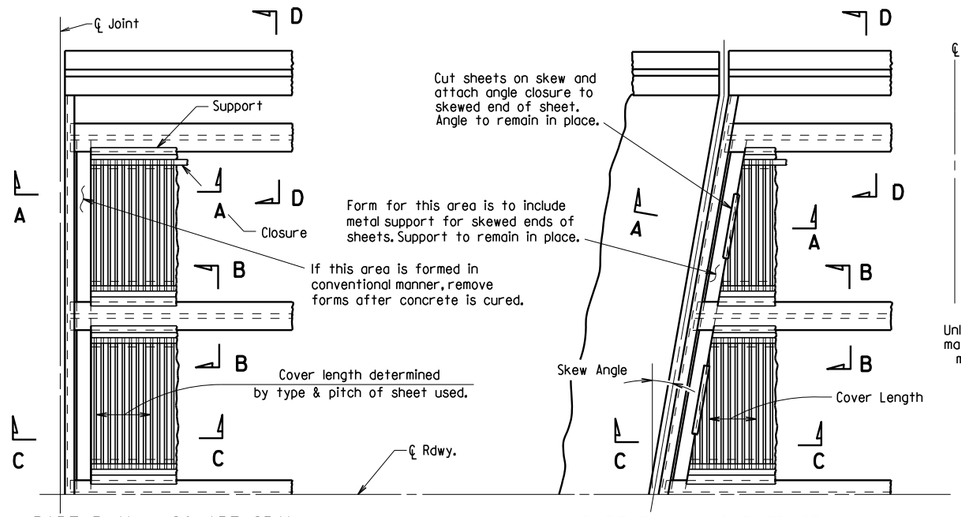
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn

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

DESIGNED BY: STD. DATE:

DRAWING NO. 55001

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3/24/16				6	ARK.			
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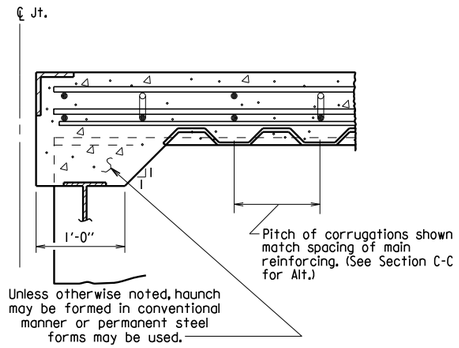


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

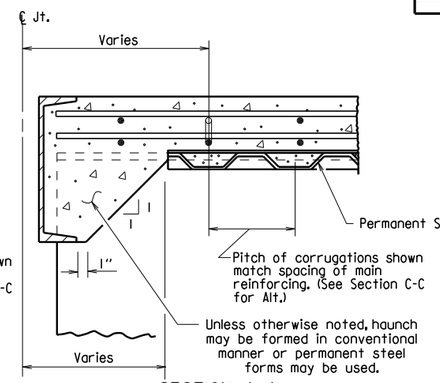
3/8" = 1'-0"



SECTION A-A

N.T.S.

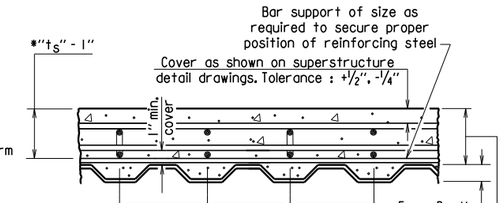
(Angle at end of span)



SECTION A-A

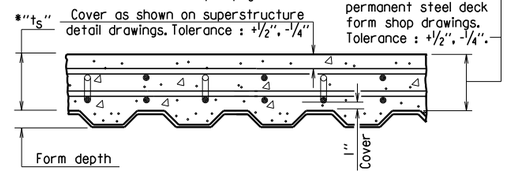
N.T.S.

(Channel at end of span)



SECTION C-C

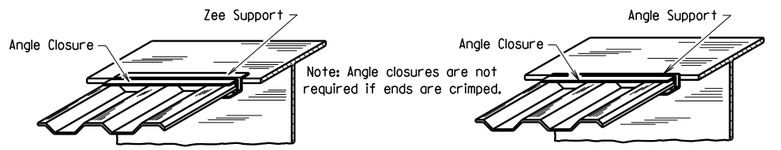
1" = 1'-0"



SECTION C-C - ALTERNATE

1" = 1'-0"

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



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

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

GENERAL NOTES

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

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

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

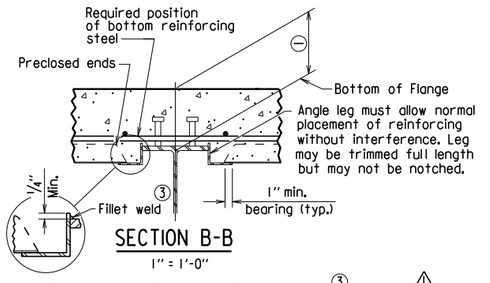
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

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

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

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

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

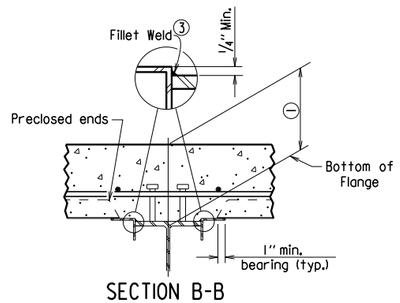


SECTION B-B

1" = 1'-0"

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

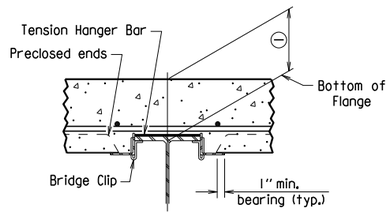
③ ⚠ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

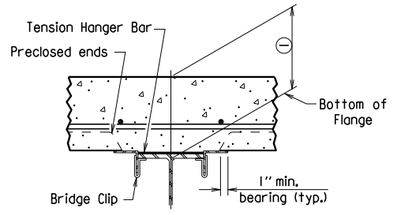
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

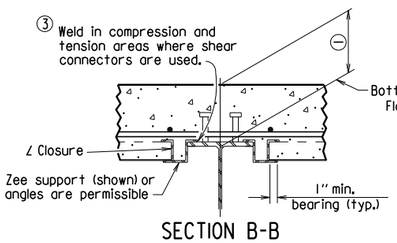
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

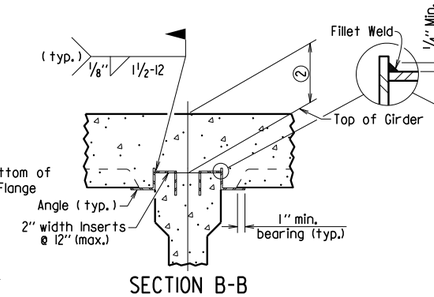
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

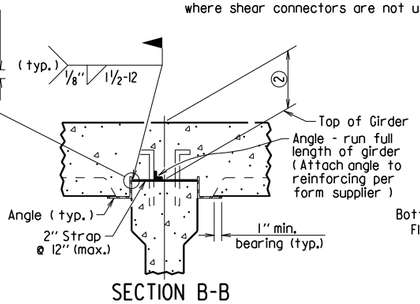


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Insert cast in girder)

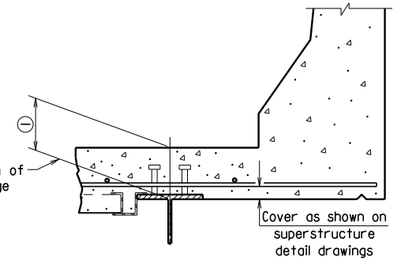


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

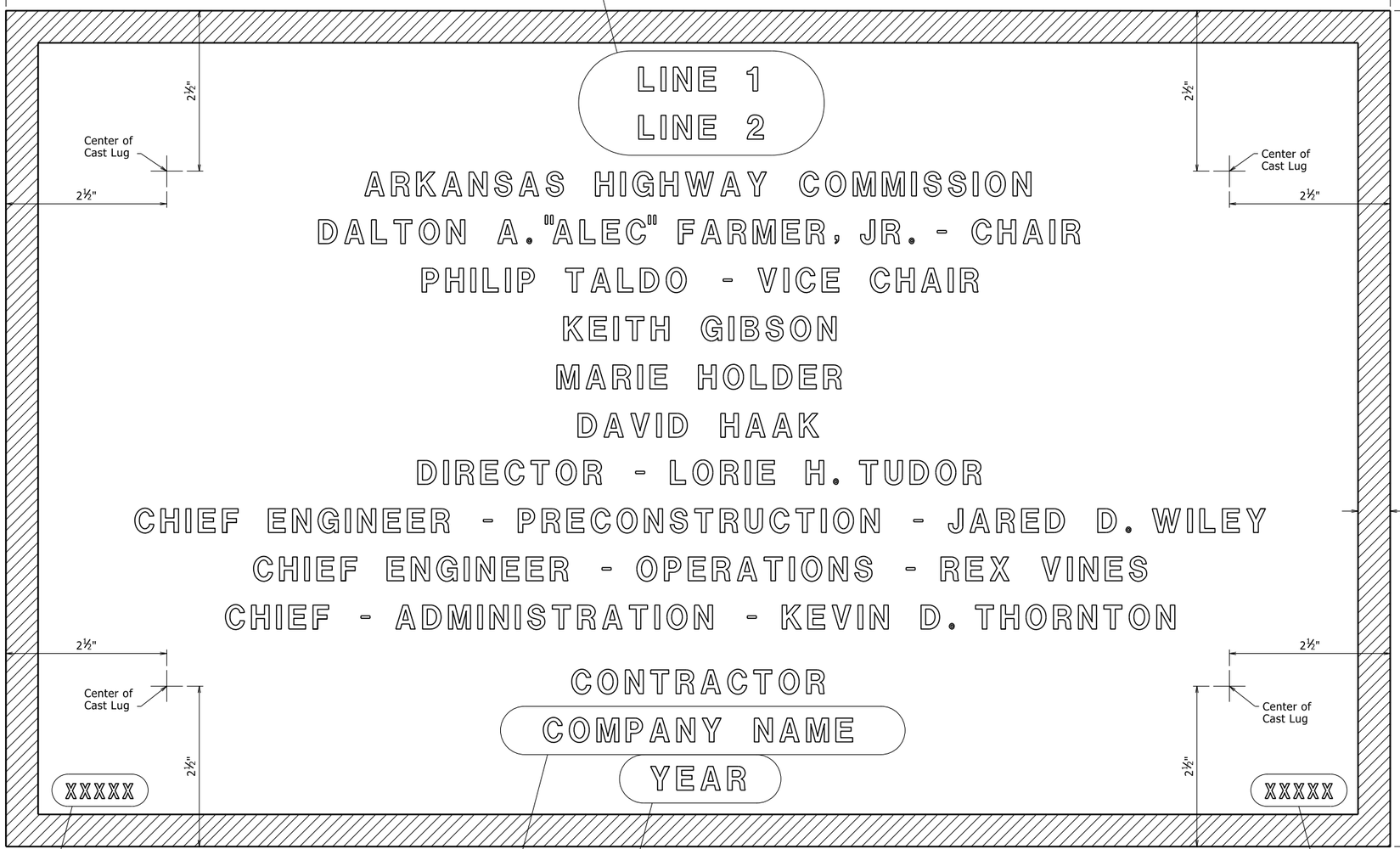
DRAWN BY:	KDH	DATE:	2-27-2014	FILENAME:	b55005.dgn
CHECKED BY:	BEF	DATE:	2-27-2014	SCALE:	NONE
DESIGNED BY:	STD.	DATE:	—		

DRAWING NO. 55005

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
4-14-23		6	ARK.			
		TYPE D NAME PLATE - 55010				

The name of the bridge as shown on the plans shall be placed on Lines 1 & 2 using ⅛" raised letters and numerals ⅜" high.

	Example 1	Example 2	Example 3	Example 4
Line 1	RED RIVER	SOUTHERN RAILROAD	SALINE RIVER	HIGHWAY 5
Line 2	RELIEF	OVERPASS	RELIEF	



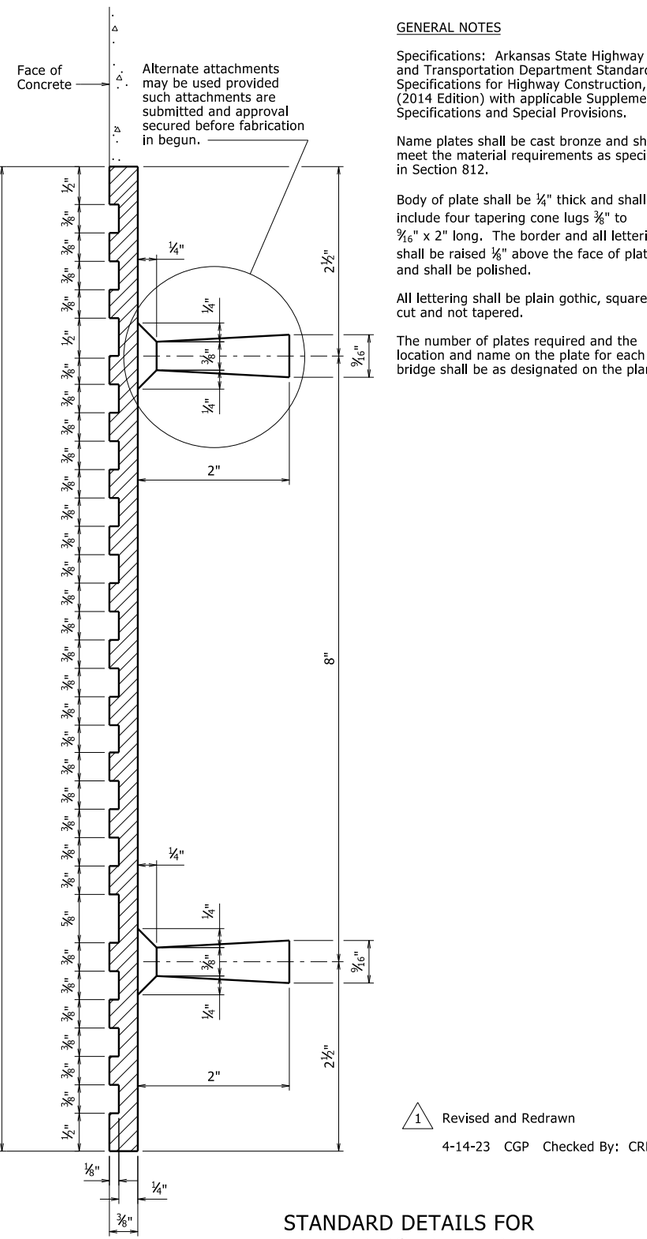
Place the design live loading here using ⅛" raised letters and numerals ¼" high. Examples: HS20, HL-93

Place the Year in which Contract was awarded here using ⅛" raised numerals ⅜" high. Example: 2001

Place the name of the company awarded the construction contract here using ⅛" raised letters and numerals ⅜" high. Example: ABCD CONSTRUCTION, INC.

Place the Bridge number here using ⅛" raised letters and numerals ¼" high. Examples: A1234, 05432

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

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

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

Body of plate shall be ¼" thick and shall include four tapering cone lugs ⅜" to 9/16" x 2" long. The border and all lettering shall be raised ⅛" above the face of plate and shall be polished.

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

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

1 Revised and Redrawn
4-14-23 CGP Checked By: CRE

STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

ROUTE SEC.

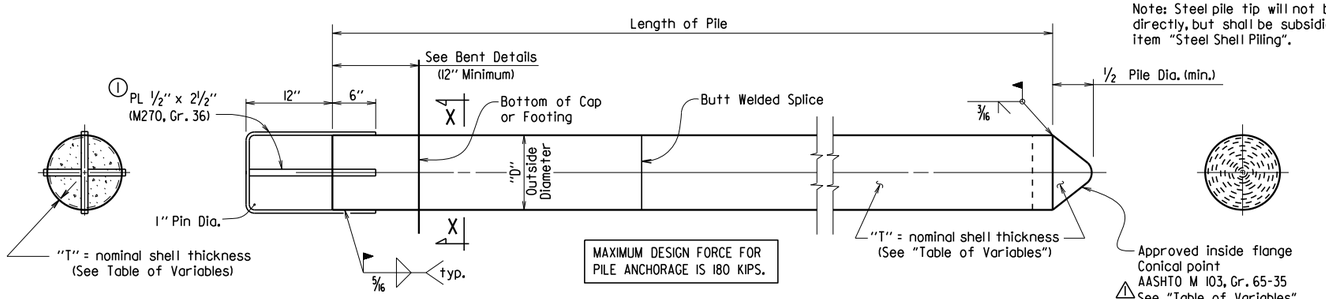
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

DRAWING NO. 55010

PRINT DATE: 4/20/2023

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				
				①		STEEL SHELL PILES		55021

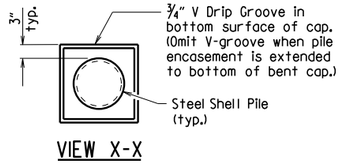


Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".

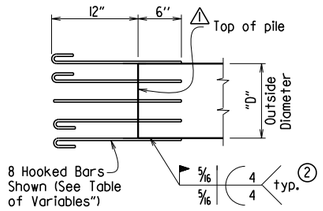
CONCRETE FILLED STEEL SHELL PILE

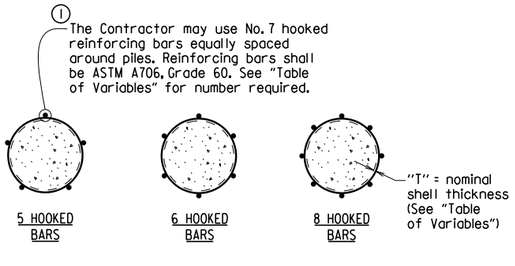
① Pile anchorage shall be placed to minimize interference with anchor bolts and reinforcing in cap or footing.

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



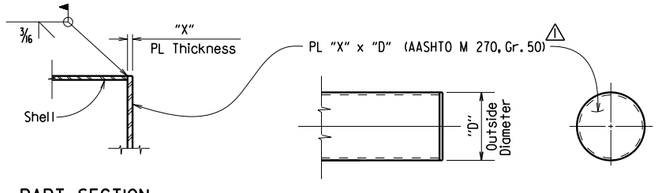
VIEW X-X





ALTERNATE PILE ANCHORAGE DETAIL

Note: Hooked bars shall be oriented to provide the required concrete clearances shown in the plans.

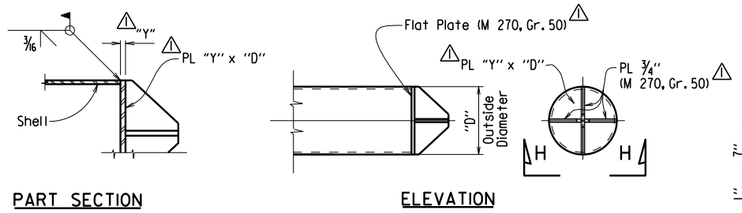


PART SECTION

ELEVATION

ALTERNATE FLAT TIP DETAIL

Note: The alternate flat tip detail shall not be used on steel shell piling to be driven through embankments constructed with internal geosynthetic reinforcement.

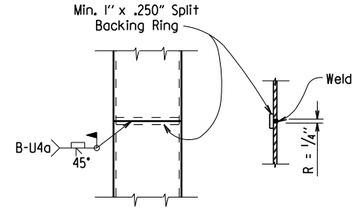


PART SECTION

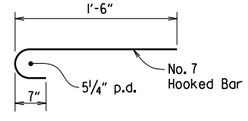
ELEVATION

VIEW H-H

ALTERNATE VANED TIP DETAIL



TYPICAL SPLICE DETAILS



HOOKED BAR DETAIL

TABLE OF VARIABLES

OUTSIDE DIAMETER "D"	NOMINAL SHELL THICKNESS "T"	⚠ PLATE THICKNESS "X"	⚠ PLATE THICKNESS "Y"	NO. OF HOOKED BARS FOR ALTERNATE PILE ANCHORAGE	⚠ MINIMUM CONICAL TIP DESIGN LOAD (KIPS)
14"	0.50"	2 1/4"	1 1/2"	5	859
16"	0.50"	2 1/4"	1 1/2"	5	986
18"	0.50"	2 1/2"	1 1/2"	6	1,114
20"	0.50"	2 1/2"	1 3/4"	6	1,241
24"	0.50"	2 3/4"	1 3/4"	8	1,495

⚠ Revised and added various details by KWY, Ck'd. by BEF, 3/24/16.

GENERAL NOTES FOR CONCRETE FILLED STEEL SHEEL PILES:

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

Concrete used for filling of steel shell shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. and shall be poured in the dry.

Steel shell piling that extends above the ground and is not protected by pile encasement shall be painted in accordance with Subsection 805.02.

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

Concrete, structural steel, reinforcing steel (including welding), and painting shall not be paid for directly, but shall be considered subsidiary to the item "Steel Shell Piling".

GENERAL NOTES FOR PILE ENCASEMENTS:

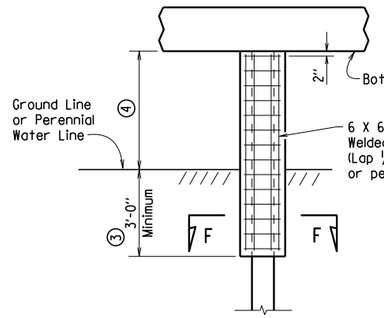
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

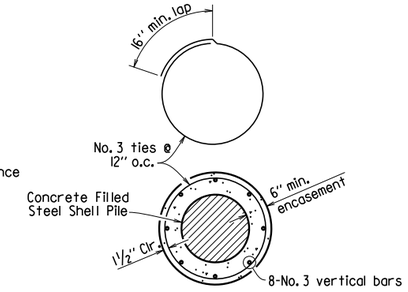
Concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

Welded wire fabric shall conform to AASHTO M 55 or M 221.

Concrete, welded wire fabric or reinforcing steel, and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".





SECTION F-F (REINF. ALTERNATE)

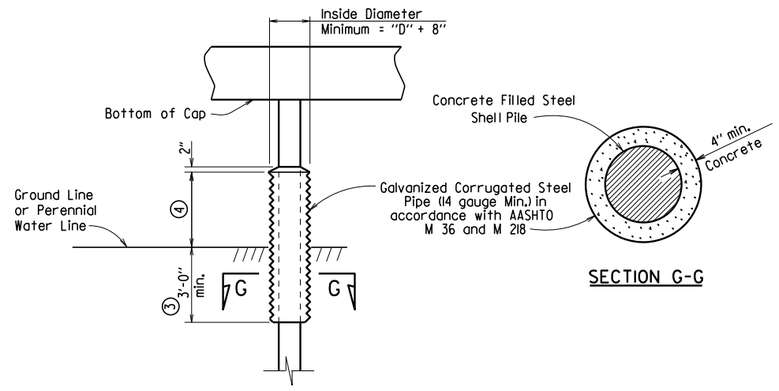
PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

⑤ (Shown with Encasement to Bottom of Cap)

③ Unless otherwise noted on Bridge Layout.

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

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



SECTION G-G

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

(Shown with Partial Height Encasement)

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on March 24, 2016. This copy is not a signed and sealed document.

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

BRIDGE ENGINEER

STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55021.dgn
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55021

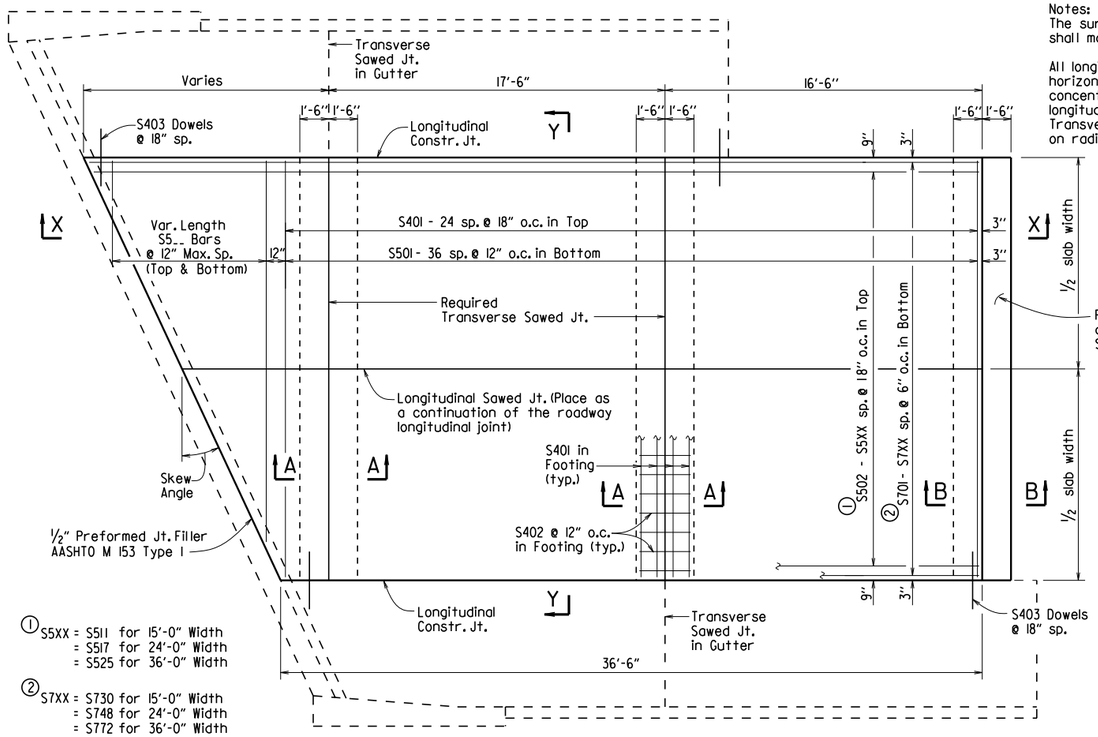
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

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

TYPE CI APPROACH SLAB 55040CI

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

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

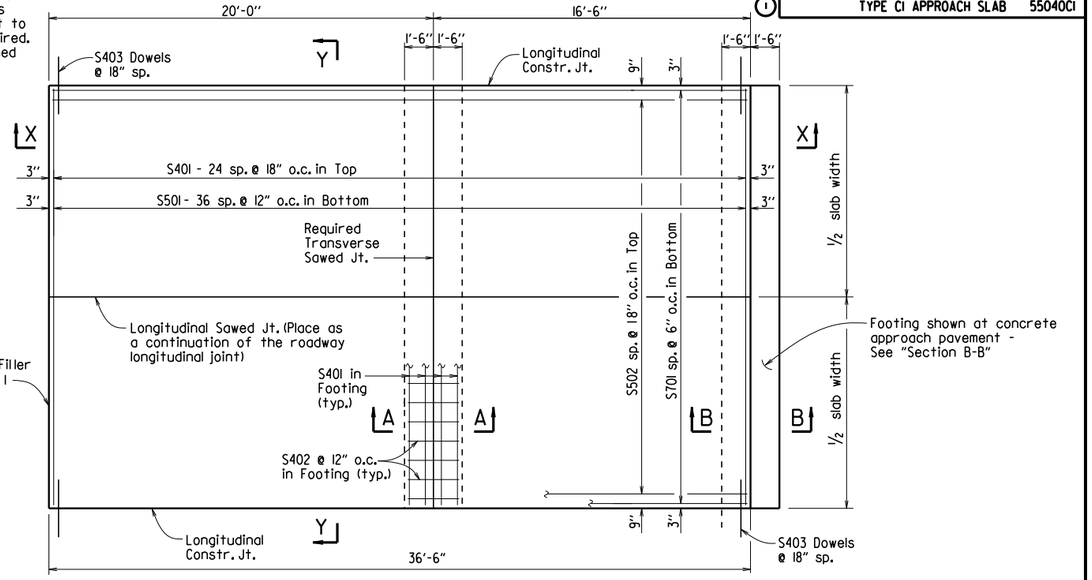


① S5XX = S511 for 15'-0" Width
= S517 for 24'-0" Width
= S525 for 36'-0" Width

② S7XX = S730 for 15'-0" Width
= S748 for 24'-0" Width
= S772 for 36'-0" Width

PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

1/4" = 1'-0"



PLAN - SQUARE APPROACH SLAB

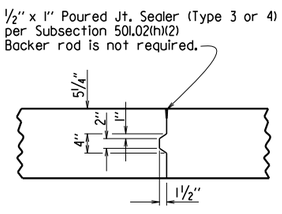
1/4" = 1'-0"

BAR LIST

(Square & Skewed Approach Slabs)

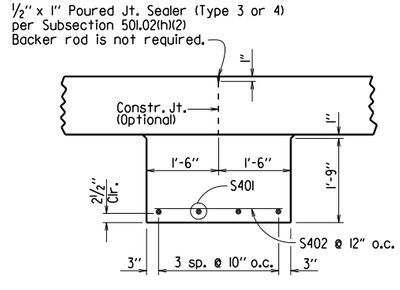
	Mark	Square No. Req'd.	Square Length	Skewed No. Req'd.	Skewed Length
15'-0" Slab Width	S401	33	14'-8"	37	14'-8"
	S402	30	2'-8"	45	2'-8"
	S403	50	3'-0"	*	3'-0"
	S501	37	14'-8"	37	14'-8"
	S502	10	36'-2"	—	—
	S502 - S511	—	—	1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 14.25' (tan skew angle)
	S5..	—	—	2 Ea.	14.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	30	36'-2"	—	—
	S701 - S730	—	—	1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 14.75' (tan skew angle)
24'-0" Slab Width	S401	33	23'-8"	37	23'-8"
	S402	48	2'-8"	72	2'-8"
	S403	50	3'-0"	*	3'-0"
	S501	37	23'-8"	37	23'-8"
	S502	16	36'-2"	—	—
	S502 - S517	—	—	1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 23.25' (tan skew angle)
	S5..	—	—	2 Ea.	23.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	48	36'-2"	—	—
	S701 - S748	—	—	1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 23.75' (tan skew angle)
36'-0" Slab Width	S401	33	35'-8"	37	35'-8"
	S402	72	2'-8"	108	2'-8"
	S403	50	3'-0"	*	3'-0"
	S501	37	35'-8"	37	35'-8"
	S502	24	36'-2"	—	—
	S502 - S525	—	—	1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 35.25' (tan skew angle)
	S5..	—	—	2 Ea.	35.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	72	36'-2"	—	—
	S701 - S772	—	—	1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 35.75' (tan skew angle)

* Varies with skew angle



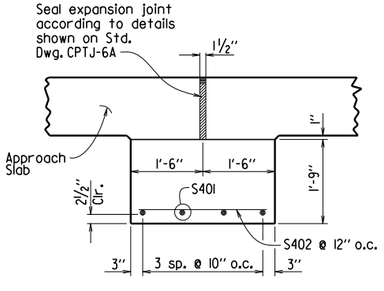
DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

¾" = 1'-0"



SECTION A-A

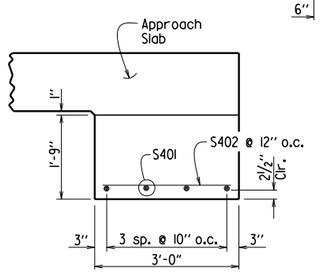
N.T.S.



SECTION B-B

AT CONCRETE APPROACH PAVEMENT

N.T.S.



SECTION B-B

AT ASPHALT APPROACH PAVEMENT

N.T.S.

SECTION X-X

SQUARE APPROACH SLAB SHOWN

1/4" = 1'-0"

SECTION Y-Y

N.T.S.

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
15'-0"	3640	30.75
24'-0"	5775	49.15
36'-0"	8620	73.75

GENERAL NOTES

This drawing shall be used for Approach Slabs in Seismic Performance Zone 1 and for the maximum skew angles shown below:

15'-0" Slab Width: Maximum Skew Angle = 50°
24'-0" Slab Width: Maximum Skew Angle = 40°
36'-0" Slab Width: Maximum Skew Angle = 30°

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

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

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

STANDARD DETAILS FOR TYPE CI APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040ci.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

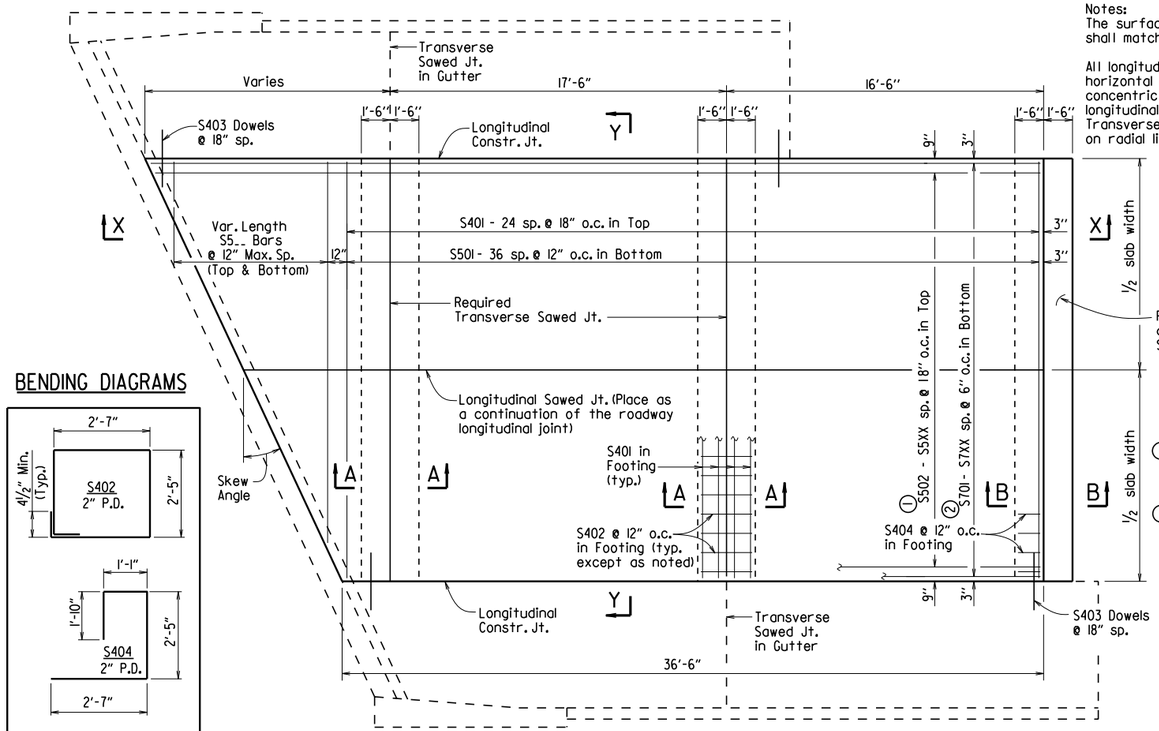
DRAWING NO. 55040CI

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.				

TYPE C2 APPROACH SLAB 55040C2

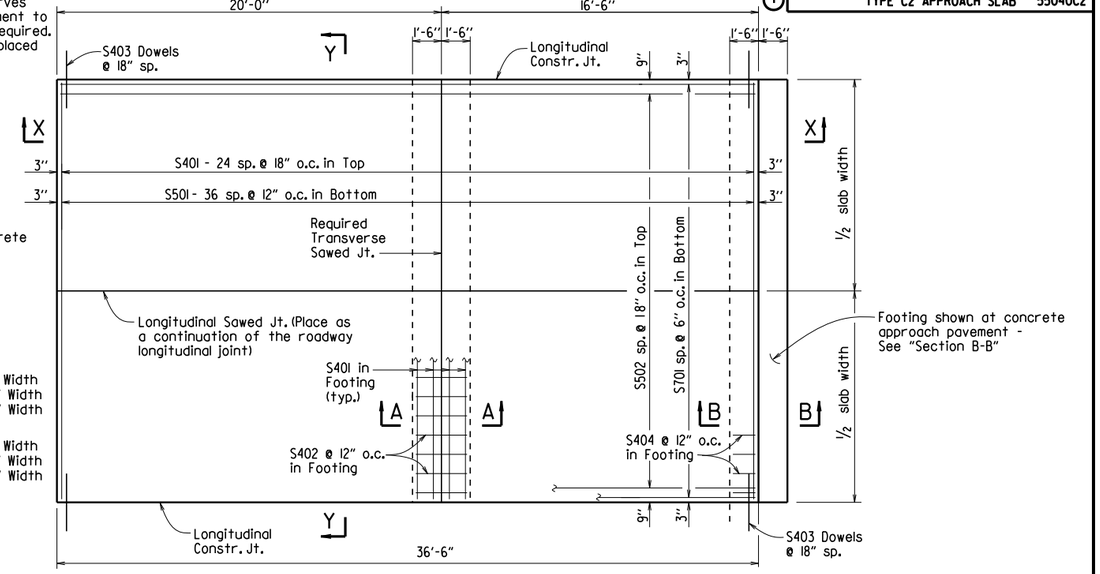
Notes:
The surface finish for Approach Slabs shall match that used on the bridge deck.

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



PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

¼" = 1'-0"



PLAN - SQUARE APPROACH SLAB

¼" = 1'-0"

① S5XX = S511 for 15'-0" Width
= S517 for 24'-0" Width
= S525 for 36'-0" Width

② S7XX = S730 for 15'-0" Width
= S748 for 24'-0" Width
= S772 for 36'-0" Width

BENDING DIAGRAMS

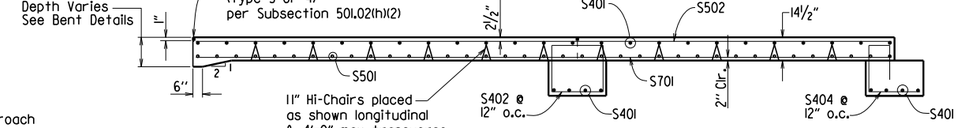
Dimensions are out to out of bar.

BAR LIST

(Square & Skewed Approach Slabs)

	Mark	Square No. Req'd.	Square Length	Skewed No. Req'd.	Skewed Length
15'-0" Slab Width	S401	33	14'-8"	37	14'-8"
	S402	15	10'-4"	30	10'-4"
	S403	50	3'-0"	*	3'-0"
	S404	15	7'-8"	15	7'-8"
	S501	37	14'-8"	37	14'-8"
	S502	10	36'-2"	—	—
	S502 - S511	—	—	1 Ea.	36.1' + 0.75'(tan skew angle) to 36.1' + 14.25'(tan skew angle)
	S5__	—	—	2 Ea.	14.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	30	36'-2"	—	—
	S701 - S730	—	—	1 Ea.	36.1' + 0.25'(tan skew angle) to 36.1' + 14.75'(tan skew angle)
24'-0" Slab Width	S401	33	23'-8"	37	23'-8"
	S402	24	10'-4"	48	10'-4"
	S403	50	3'-0"	*	3'-0"
	S404	24	7'-8"	24	7'-8"
	S501	37	23'-8"	37	23'-8"
	S502	16	36'-2"	—	—
	S502 - S517	—	—	1 Ea.	36.1' + 0.75'(tan skew angle) to 36.1' + 23.25'(tan skew angle)
	S5__	—	—	2 Ea.	23.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	48	36'-2"	—	—
	S701 - S748	—	—	1 Ea.	36.1' + 0.25'(tan skew angle) to 36.1' + 23.75'(tan skew angle)
36'-0" Slab Width	S401	33	35'-8"	37	35'-8"
	S402	36	10'-4"	72	10'-4"
	S403	50	3'-0"	*	3'-0"
	S404	36	7'-8"	36	7'-8"
	S501	37	35'-8"	37	35'-8"
	S502	24	36'-2"	—	—
	S502 - S525	—	—	1 Ea.	36.1' + 0.75'(tan skew angle) to 36.1' + 35.25'(tan skew angle)
	S5__	—	—	2 Ea.	35.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	72	36'-2"	—	—
	S701 - S772	—	—	1 Ea.	36.1' + 0.25'(tan skew angle) to 36.1' + 35.75'(tan skew angle)

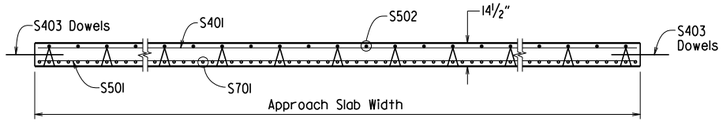
*Varies with skew angle



SECTION X-X

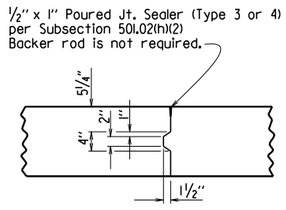
SQUARE APPROACH SLAB SHOWN

¼" = 1'-0"



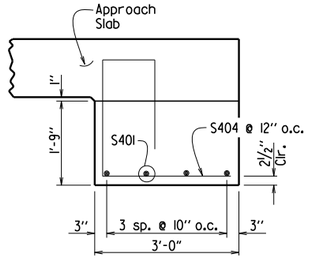
SECTION Y-Y

N.T.S.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

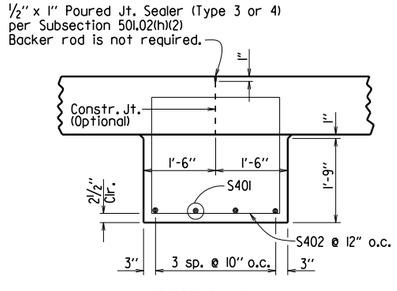
¾" = 1'-0"



SECTION B-B

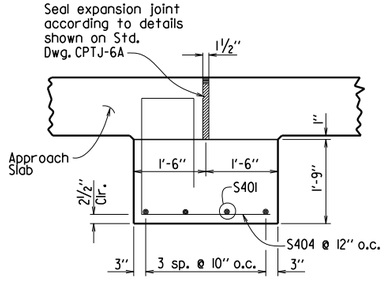
AT ASPHALT APPROACH PAVEMENT

N.T.S.



SECTION A-A

N.T.S.



SECTION B-B

AT CONCRETE APPROACH PAVEMENT

N.T.S.

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
15'-0"	3765	30.75
24'-0"	5980	49.15
36'-0"	8925	73.75

GENERAL NOTES

This drawing shall be used for Approach Slabs in Seismic Performance Zones 2, 3 & 4 and for the maximum skew angles shown below:

15'-0" Slab Width: Maximum Skew Angle = 50°
24'-0" Slab Width: Maximum Skew Angle = 40°
36'-0" Slab Width: Maximum Skew Angle = 30°

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

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

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

STANDARD DETAILS FOR TYPE C2 APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

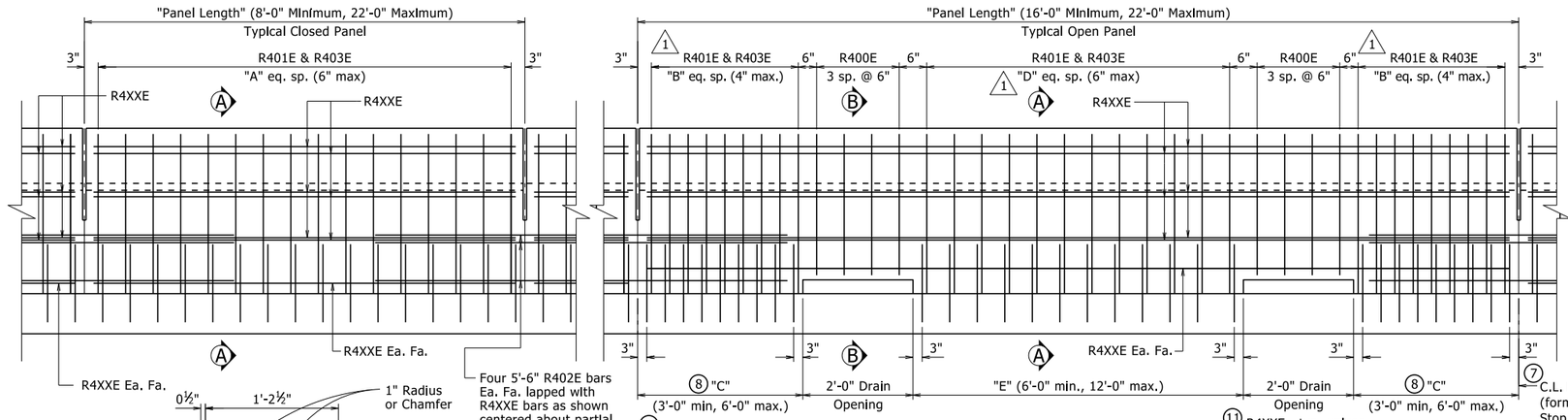
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040c2.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

DRAWING NO. 55040C2

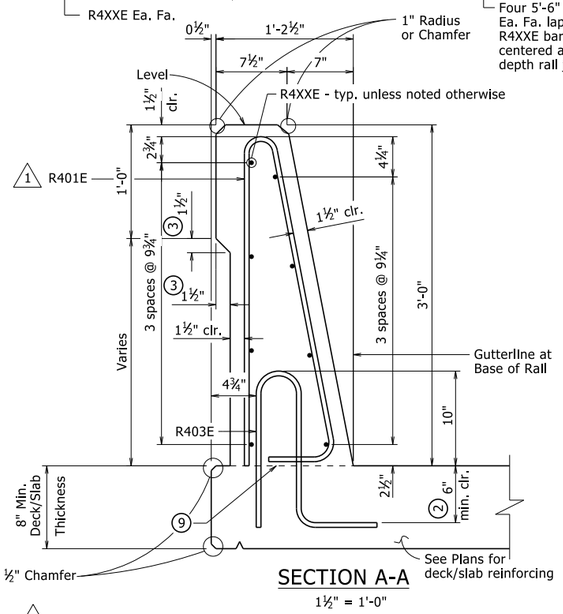
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
09/27/2022				6	ARK.			
				JOB NO.				

TYPE SSTR36 - 55070



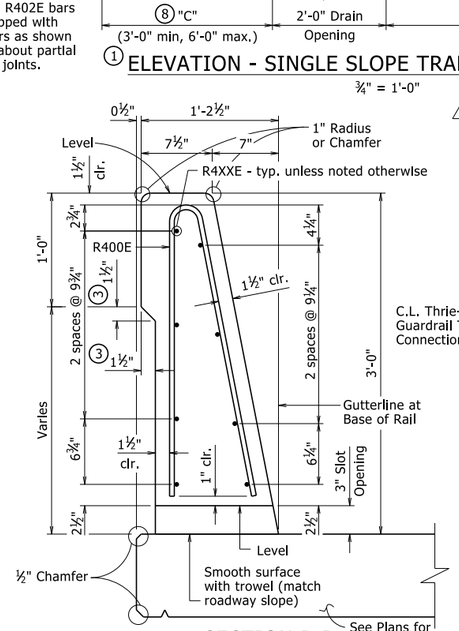
① ELEVATION - SINGLE SLOPE TRAFFIC RAIL

¾" = 1'-0"



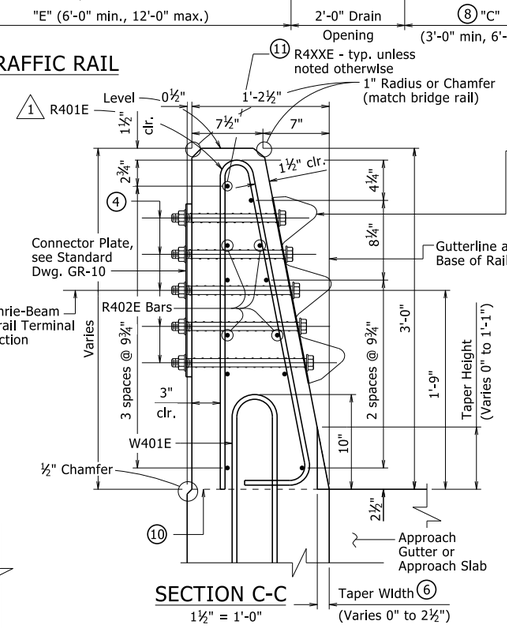
SECTION A-A

1½" = 1'-0"



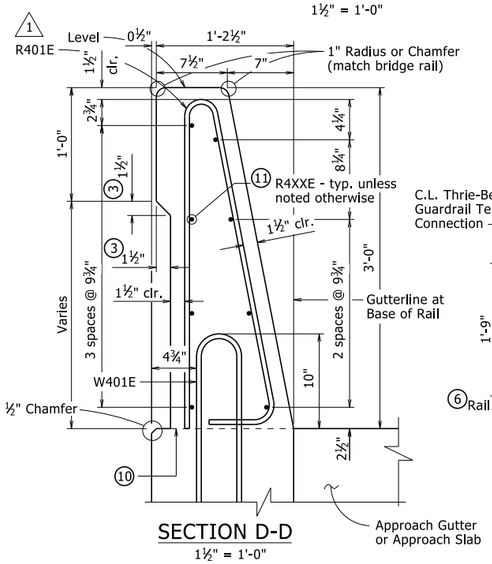
SECTION B-B

1½" = 1'-0"



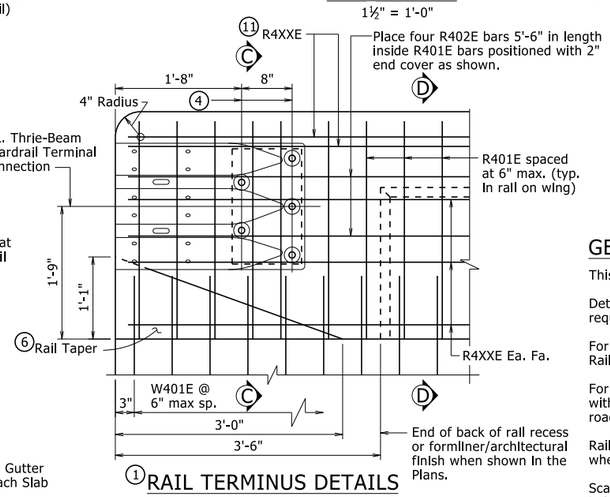
SECTION C-C

1½" = 1'-0"



SECTION D-D

1½" = 1'-0"



① RAIL TERMINUS DETAILS

1" = 1'-0"

⑦ C.L. Full-Depth Rail Joint (formed width ¼" to 1" max). Stop 6" from top of deck/slab or sidewalk. Place at all intermediate bents locations where rail is continuous.

⑦ C.L. Partial-Depth Rail Joint (formed width ¼" to 1" max). Stop 16" from top of deck/slab or sidewalk. Place at all remaining locations other than at intermediate bents.

① All measurements shown are along gutterline at base of rail.

② Minimum embedment into deck/slab.

③ Eliminate recess when formliner with architectural finish is used. See Plans for additional information.

④ C.L. 1" ø formed holes for ⅞" ø bolts. See Standard Drawings GR-10 and GR-12 for additional information.

⑤ Only applicable for bridges with rail cast directly on bridge deck/slab surface. Increase height as necessary for sidewalks, see Plans for additional information.

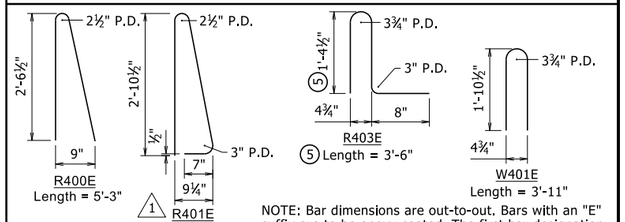
⑥ Field bend front leg of R401E bar as required to maintain minimum 1½" front face clearance within limits of taper.

⑦ When optional slip forming is used: to control cracking, all rail joints must be V-grooved around the perimeter of the rail prior to concrete set and sawing. Depth of V-groove shall be ½". Sawing of the joints shall be done as soon as practical to a width of ¼", and must be controlled so it will follow the V-Groove.

⑧ End posts shall be the same length within a panel.

Bolt Special End Shoe to face of rail as shown. Tapered washers are not required between the head of the bolts and the sloped face of the rail. Tighten the five terminal connection bolts in a well distributed pattern to prevent damage or distortion of the thrie-beam connection. Cut bolts off after installation so as to extend no more than ¾" beyond nut. Paint ends of cut-off bolts with zinc-rich paint. This work and material will not be paid for directly but shall be considered subsidiary to associated contract items.

BENDING DIAGRAM



NOTE: Bar dimensions are out-to-out. Bars with an "E" suffix are to be epoxy coated. The first bar designation number indicates the reinforcing bar size.

⑨ Required Construction Joint. Level where water flows away from rail, match roadway slope where water flows toward rail.

⑩ Top of Abutment Wing & Required Construction Joint (match bridge deck/slab construction joint slope). See Plans for Wing reinforcing.

⑪ These bars will not be included in the "Table of Variables". See Plans for details.

TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels					
Panel Length	A	R4XXE	Panel Length	B	C	D	E	R4XXE

See Plans for table with values.

GENERAL NOTES

This rail has been successfully evaluated by full-scale crash test to meet MASH TL-4 criteria.

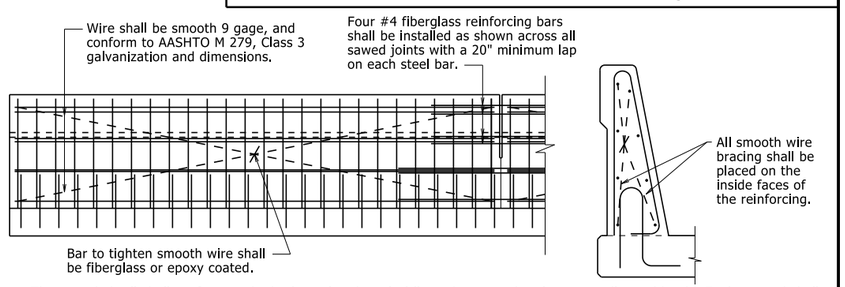
Details shown are general for bridges without sidewalks. See Plans for additional details and requirements specific to bridges with sidewalks.

For Table of Variables, Rail Bar List, locations of Full and Partial Depth Rail Joints, and Wing & Rail Bar Lists, see Plans.

For location of drain openings, see Plans. Drain openings shown are not applicable for bridges with sidewalks. Drain openings will not be allowed over Railroad Right of Way, travelled roadways, and protected waterways.

Rail Terminus details, including Rail Taper, are not applicable for bridges with sidewalks or when bridge railing is continuous with roadway railing.

Scales shown are for 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.



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

All panels shall be braced as required to prevent racking.

Slip forming will not be allowed on bridges where formliner with architectural treatment is used unless approval from the Engineer is obtained.

DETAILS OF OPTIONAL SLIP FORMING OF BRIDGE TRAFFIC RAIL

No Scale

△1 Modified bending diagram and spacing for R401E bar.

By: CGP, Checked by: CMW 09/27/2022

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on November 5, 2020. This copy is not a signed and sealed document.

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

BRIDGE ENGINEER

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

STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR36

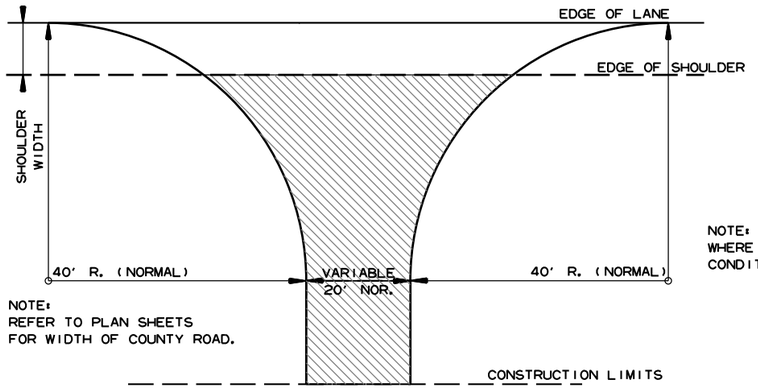
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 11/5/2020
CHECKED BY: LJB DATE: 11/5/2020
DESIGNED BY: STD. DATE: -----
FILENAME: b55070.dgn
SCALE: As Noted

DRAWING NO. 55070

PRINT DATE: 10/6/2022

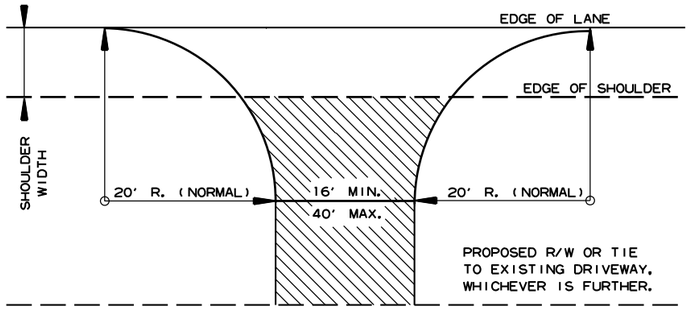


NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.

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.

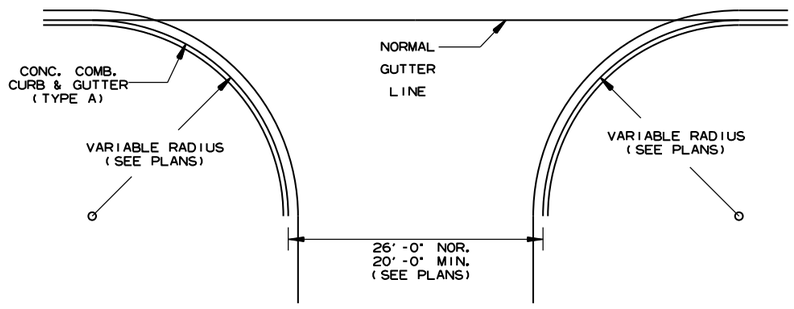
DETAIL FOR COUNTY ROAD TURNOUTS
OPEN SHOULDER SECTION



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

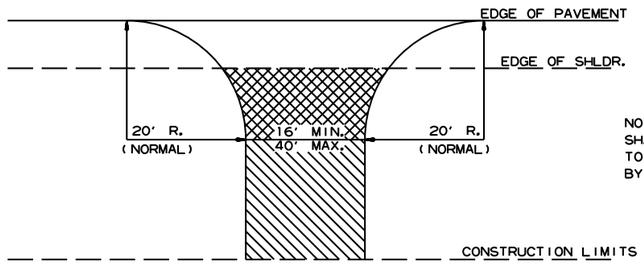
ACHM SURFACE COURSE (1/2")
(220 LBS. PER SQ. YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT OR
GRAVEL DRIVE EXISTING; OR 6"
CONCRETE IF CONCRETE DRIVE
EXISTING.

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

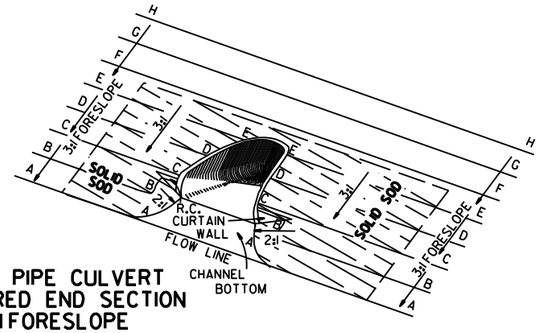
DETAIL FOR DRIVEWAY TURNOUTS
(COLLECTORS)

DATE REV	DATE FILMED	DESCRIPTION
5-19-22		ISSUED

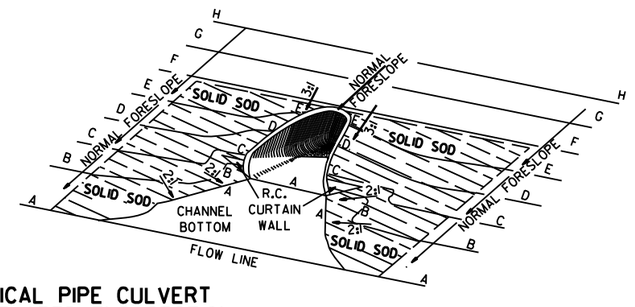
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DRIVEWAYS & STREET TURNOUTS

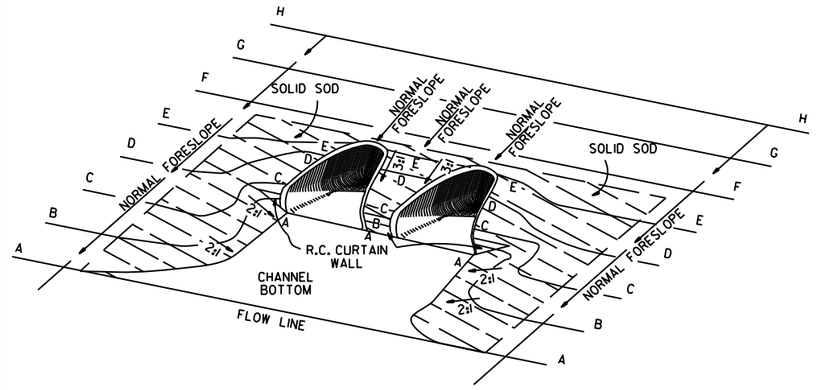
STANDARD DRAWING DR-2



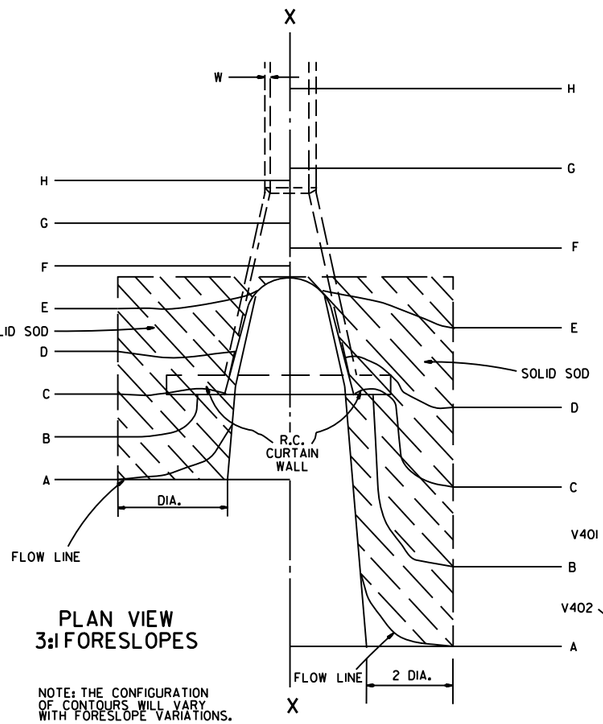
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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



PLAN VIEW
3:1 FORESLOPES

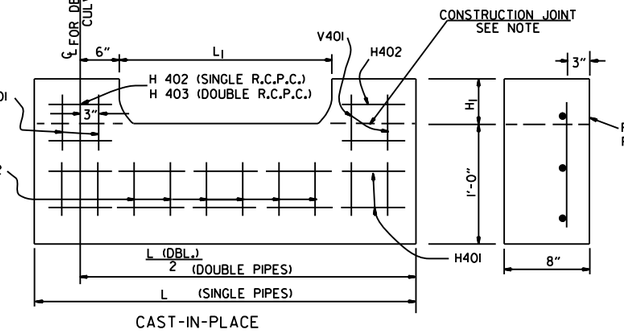
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

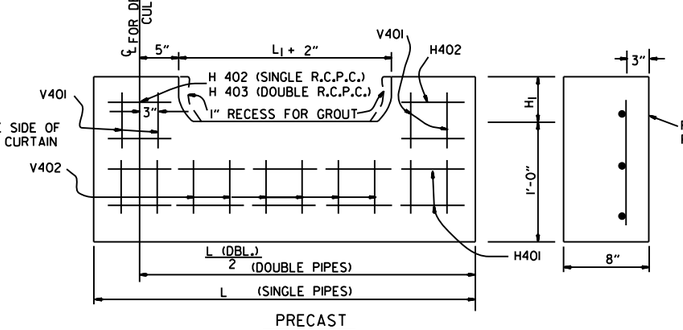
PIPE DIA.	H_1	L_1	L	L (DBL.) / 2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	1'-11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45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

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



CAST-IN-PLACE

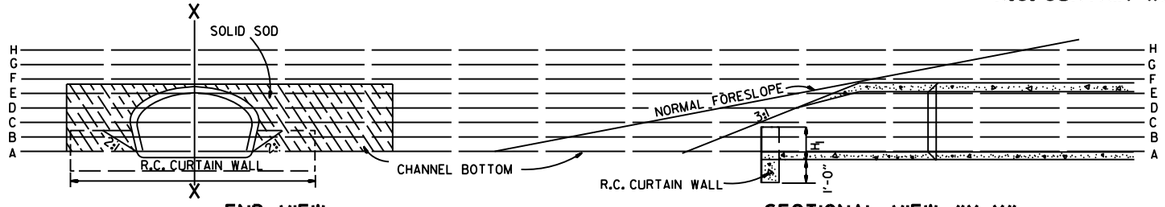
NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



PRECAST

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

R.C. CURTAIN WALL DETAILS



END VIEW

SECTIONAL VIEW "X-X"

REINFORCING STEEL SCHEDULE

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

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

SOLID SODDING

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

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

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	
10-12-95	CORRECTED SPELLING	
11- 3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1

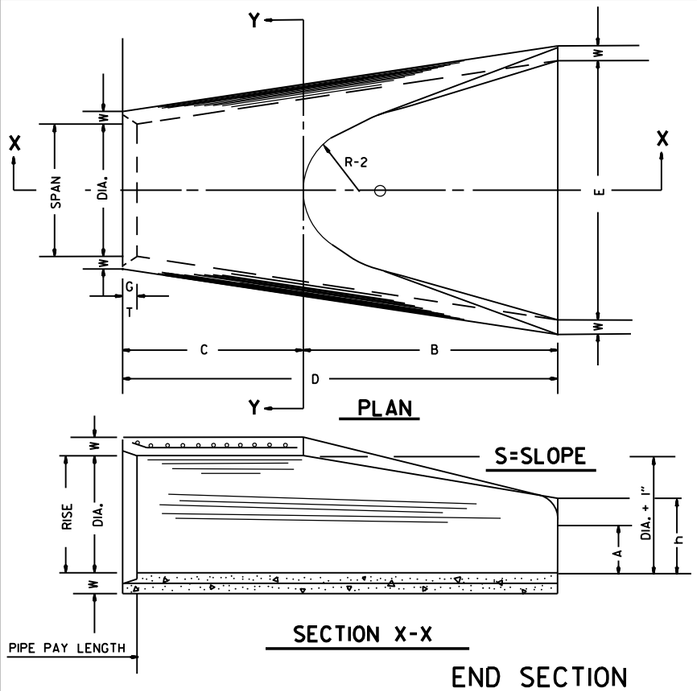
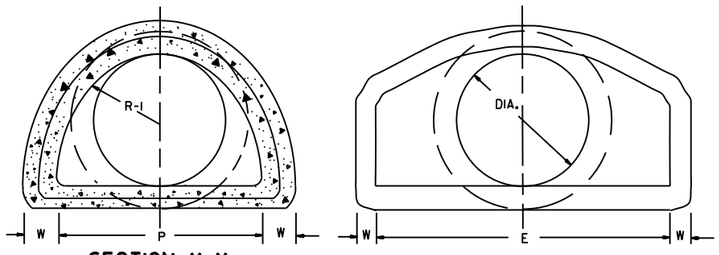


TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33 3/16"	16 15/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4 5/8"
36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	6'-0"	3:1	37"	47 13/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅞"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 15/16"	24"	5"	13250	4'-6"

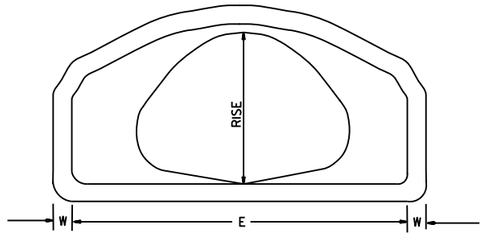


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

ARCH PIPE

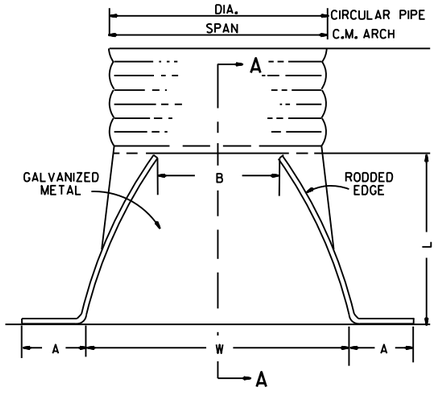
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 11/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 11/16"	20"	3"	2½:1
36	43¾	44	26⅜	27	4"	10½"	4'-0"	2'-11½"	6'-1½"	6'-6"	54 5/16"	22"	3½"	2½:1
42	51⅛	51	31 5/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 1/16"	24"	5"	2¼:1

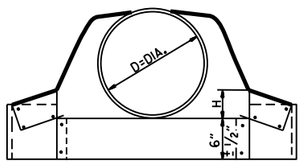
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



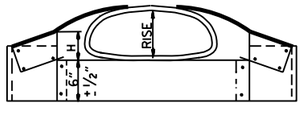
END VIEW
CONCRETE ARCH PIPE

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS





CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

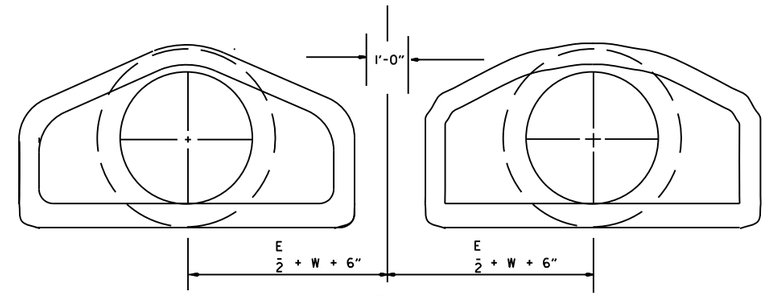
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

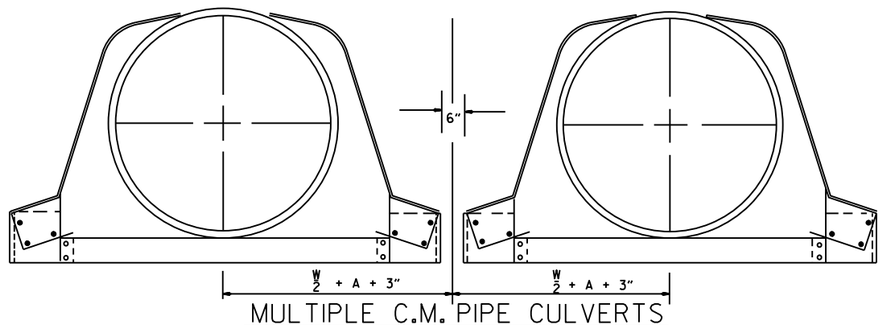
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2¼:1	12
60"	71	47	18	33	12	77	114	2¼:1	12

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



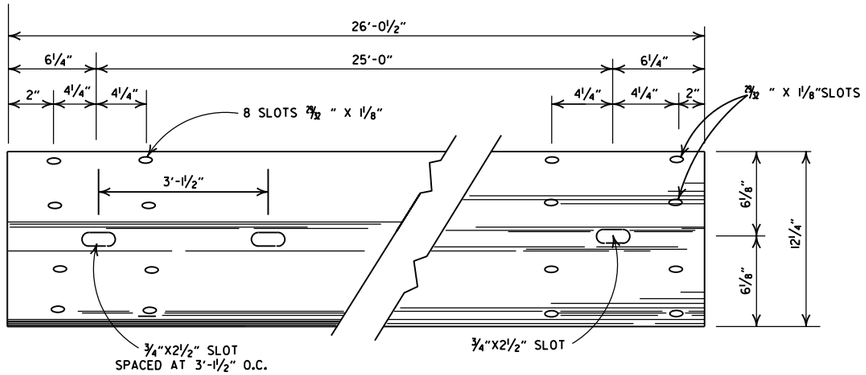
MULTIPLE C.M. PIPE CULVERTS

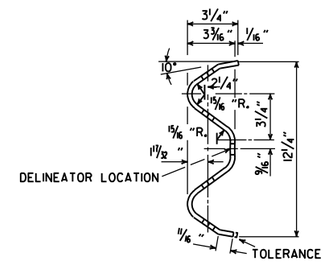
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

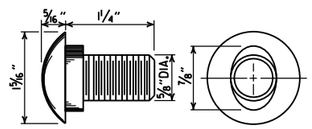
STANDARD DRAWING FES-2



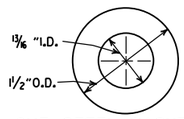


DETAILS OF W-BEAM GUARDRAIL

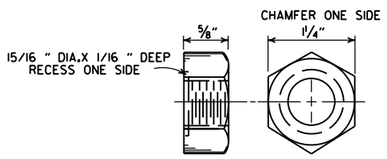
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



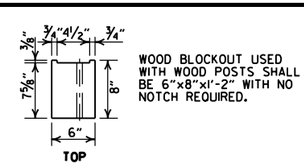
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

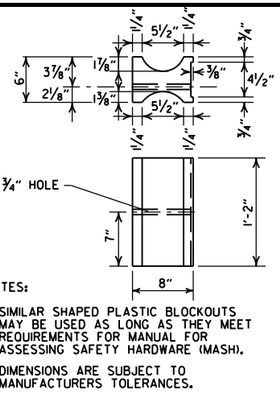


NUT



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

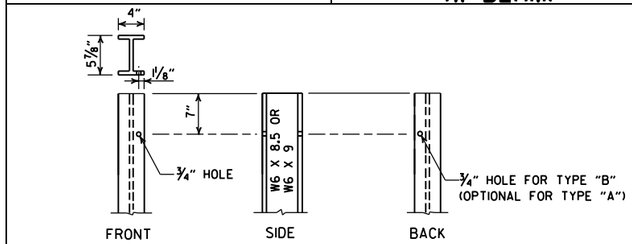
WOOD BLOCKOUT (W-BEAM)



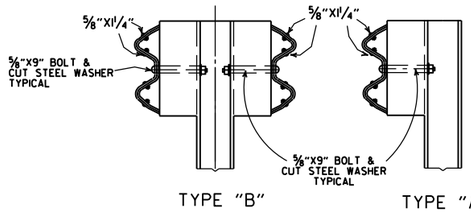
NOTES:

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

PLASTIC BLOCKOUT (W-BEAM)



STEEL POST



DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

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

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

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

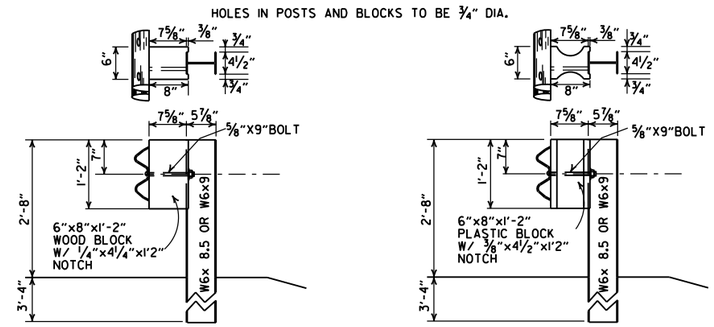
USE W-BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARDRAIL, W-BEAM GUARDRAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

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

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

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

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



WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

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

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

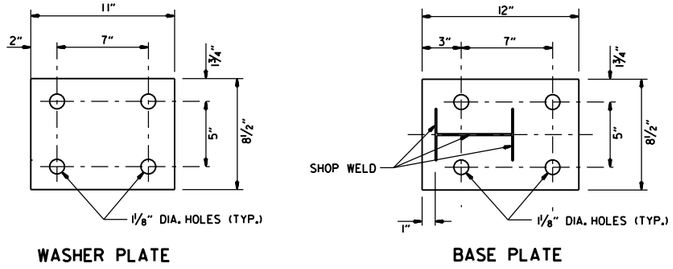
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

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

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

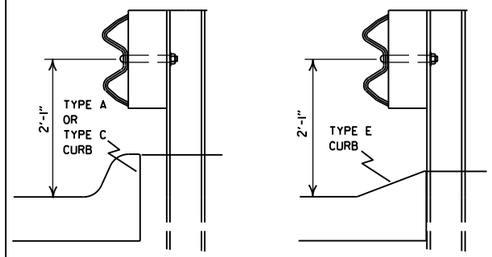
STANDARD DRAWING GR-6



WASHER PLATE

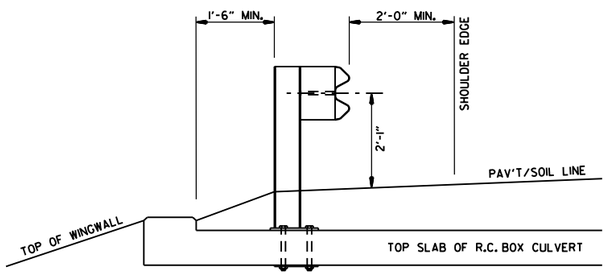
BASE PLATE

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

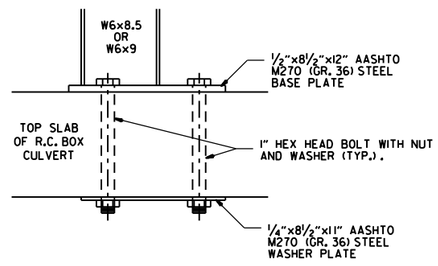


DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB (W-BEAM)

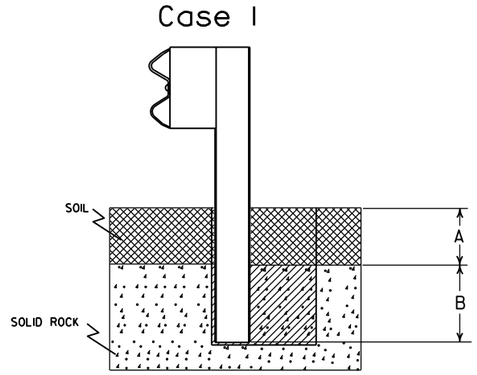
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



SECTION A-A

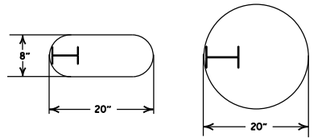


DETAIL OF CONNECTION



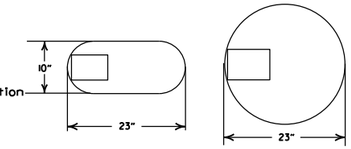
Plan View Steel Posts

Either hole configuration acceptable



Plan View Wood Posts

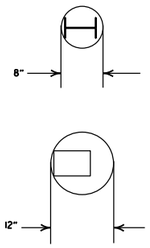
Either hole configuration acceptable



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

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

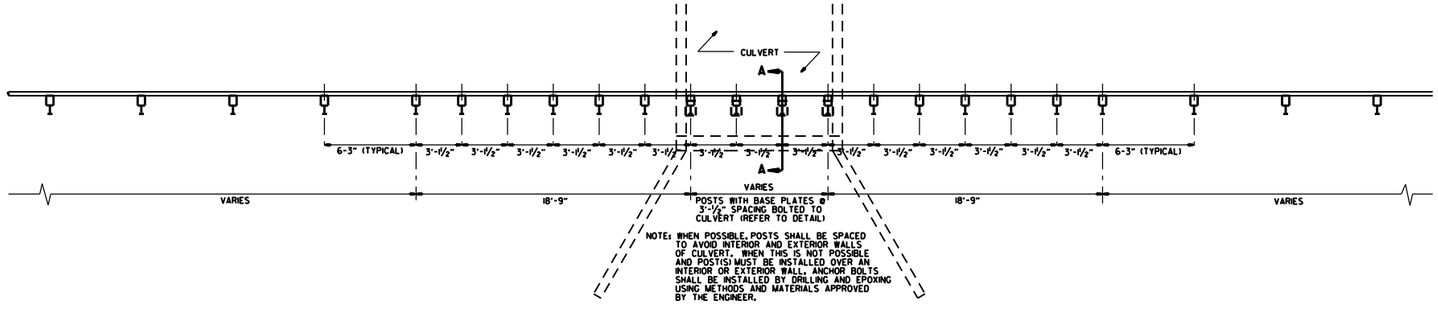
Zone B:
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.



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

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

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



PLAN LAYOUT OF TYPE A GUARDRAIL AT LOW-FILL CULVERTS

NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARDRAIL POSTS AS SHOWN ON STD. DWG. GR-6.

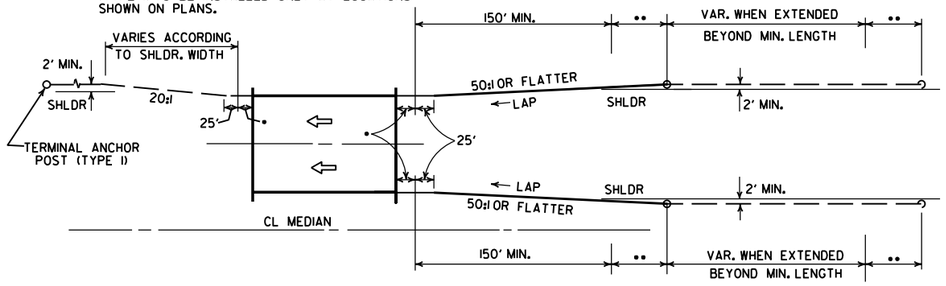
DATE	REVISION	FILMED
11-07-19	RENUMBERED, RENAMED, REVISED REFERENCE	
11-16-17	REVISED GUARDRAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
04-12-07	REVISED DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARDRAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARDRAIL PLACEMENT AT LOW-FILL CULVERTS	
03-30-00	REMOVED CONCRETE INSERT ANCHOR	
08-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADDED DET. OF GUARDRAIL CONNECTION TO R.C. BOX CULV'T., DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARDRAIL PLACE. BEHIND CURB & DET. OF POSTPLACE. IN SOLID ROCK	
04-03-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
06-02-94	REVISED ALTERNATE POST SIZE	
08-05-93	REVISED STEEL POST SIZE	
10-01-92	REDRAWN & REVISED	10-1-92
08-02-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
07-15-88	CONFORMED TO 1988 SPECS	
03-04-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-09-87	REDRAWN & REVISED	803-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

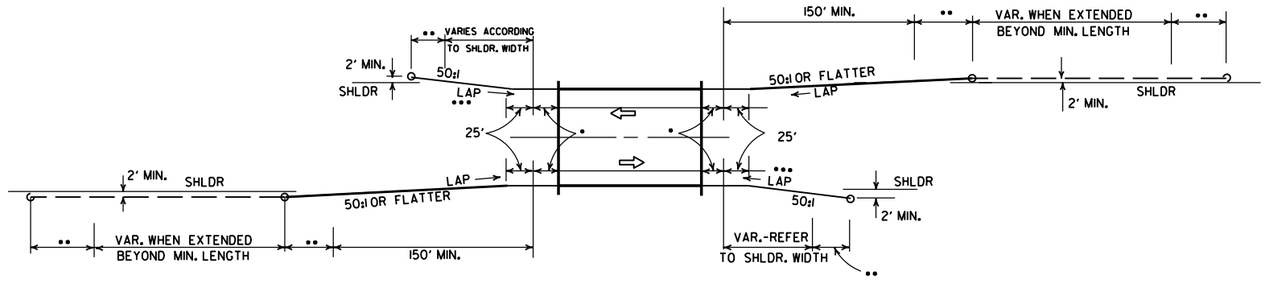
STANDARD DRAWING GR-7

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



ONE-WAY TRAFFIC

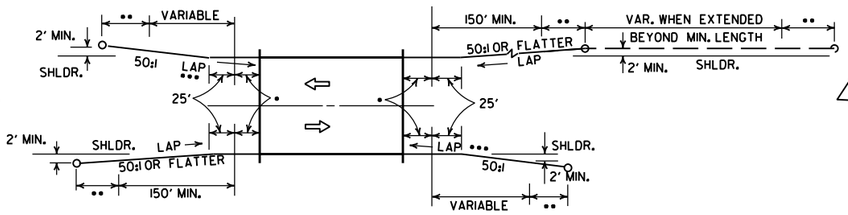
••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

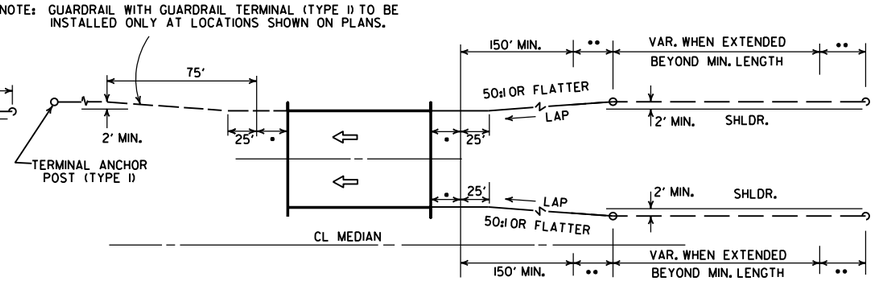
METHODS OF INSTALLATION OF GUARDRAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

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



TWO-WAY TRAFFIC

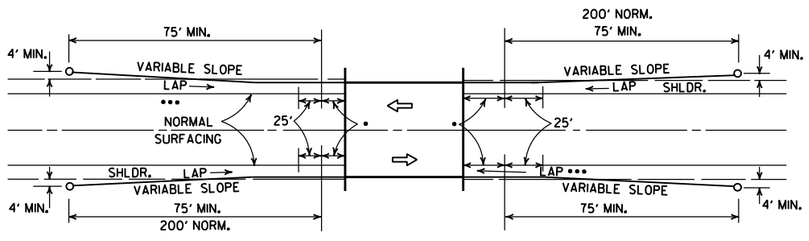
NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

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

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



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

LEGEND

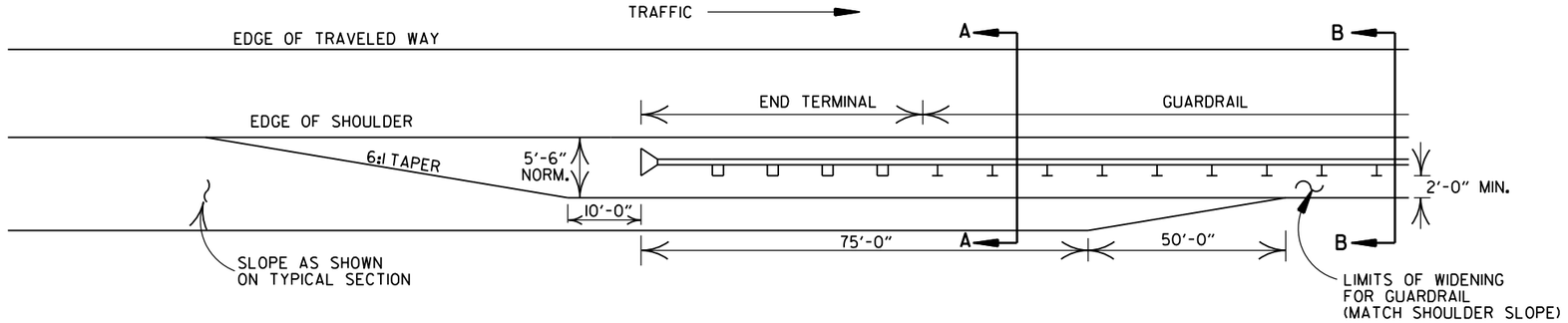
- • THRIE BEAM GUARDRAIL TERMINAL
- •• GUARDRAIL TERMINAL (TYPE 2)

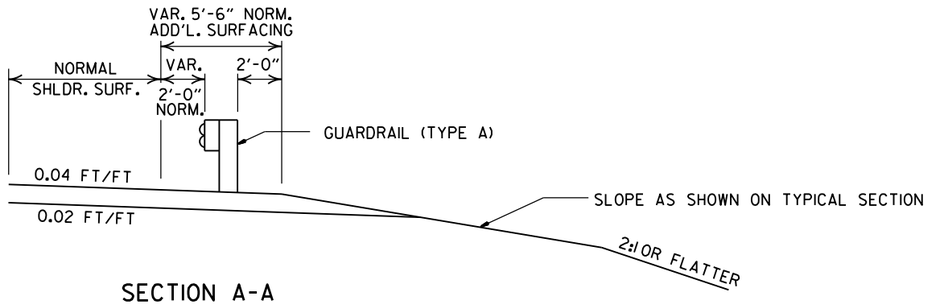
DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARDRAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERM. (TY. 1)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED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

ARKANSAS STATE HIGHWAY COMMISSION

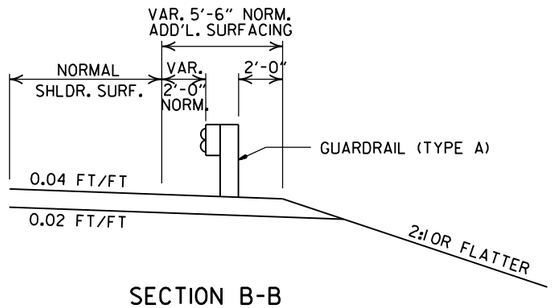
GUARDRAIL DETAILS

STANDARD DRAWING GR-8



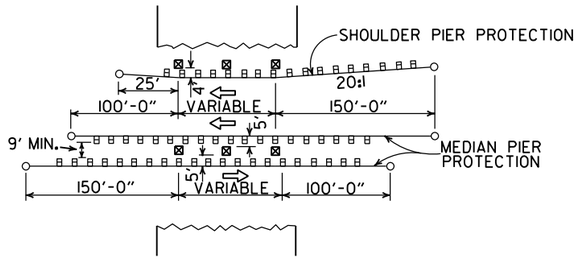


SECTION A-A



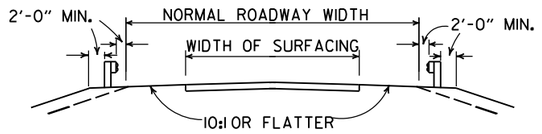
SECTION B-B

DETAILS OF WIDENING FOR GUARDRAIL

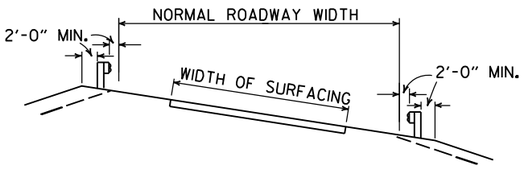


METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

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



SECTION ON TANGENT



SECTION ON CURVE

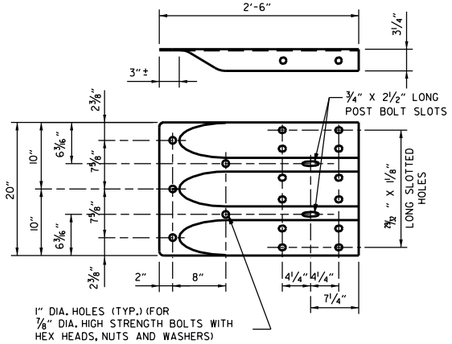
DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY

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

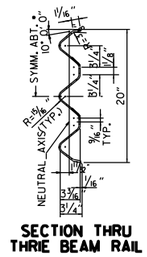
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

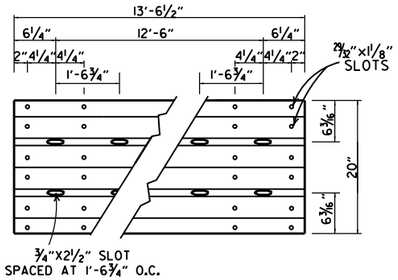
STANDARD DRAWING GR-9



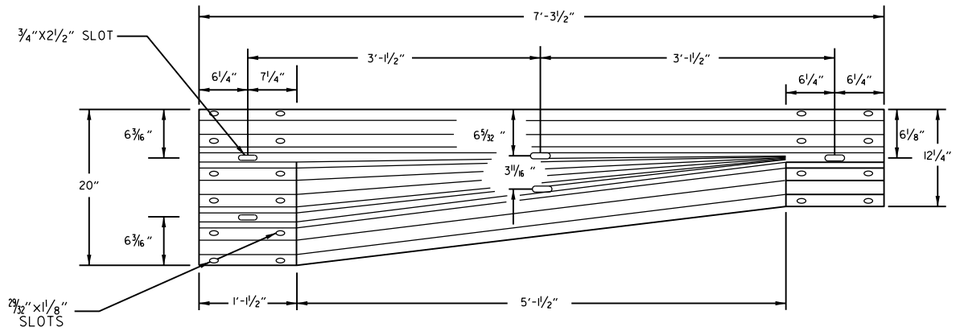
SPECIAL END SHOE



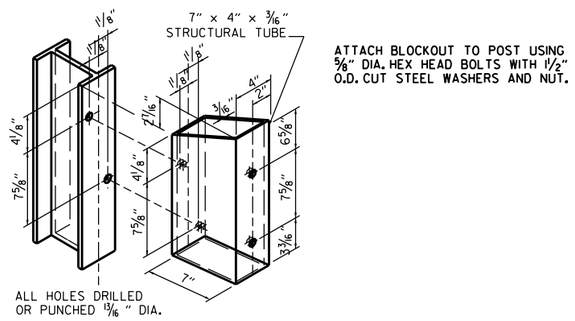
SECTION THRU THRIE BEAM RAIL



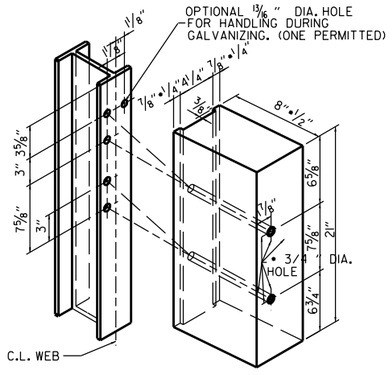
THRIE BEAM RAIL



TRANSITION SECTION



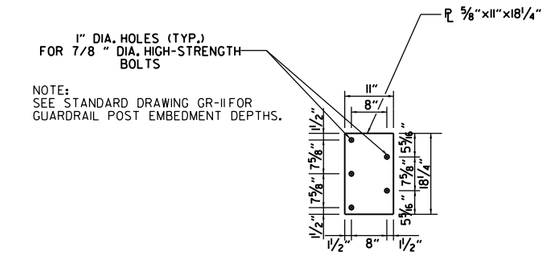
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

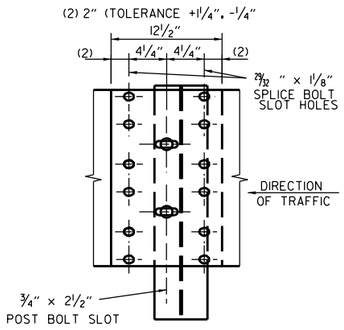
HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

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



CONNECTOR PLATE

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



THRIE BEAM RAIL SPLICE AT POST

GENERAL NOTES:

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

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

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

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

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

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

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

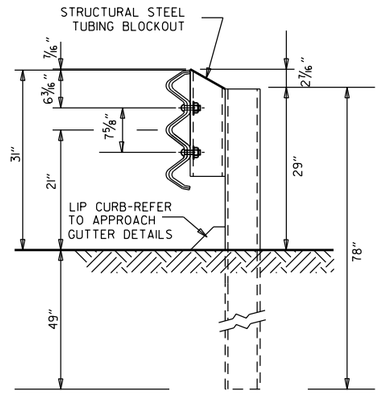
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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

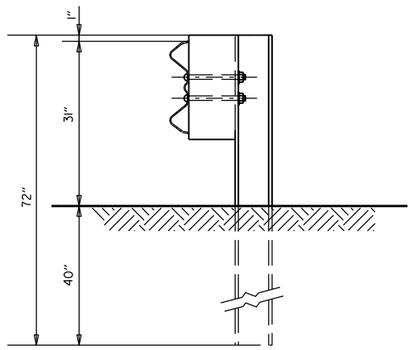
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

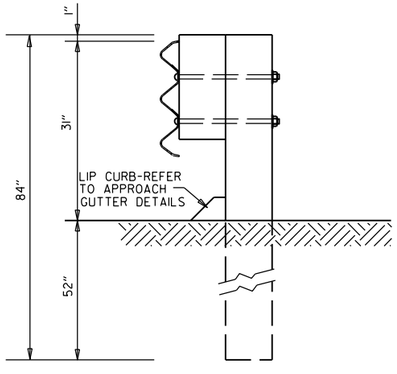
STANDARD DRAWING GR-10



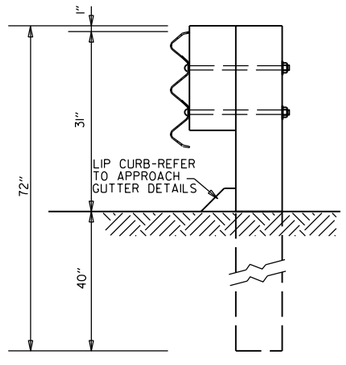
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



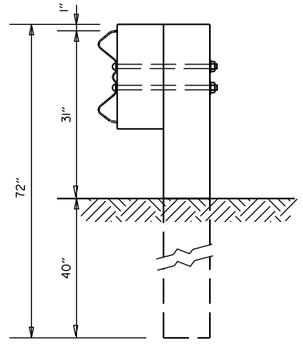
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



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



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



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

GENERAL NOTES:

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

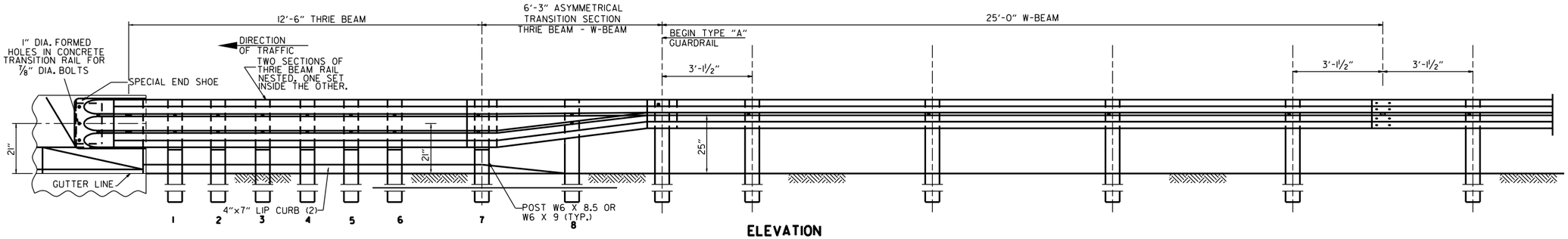
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO.1 1350 f SOUTHERN PINE.

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

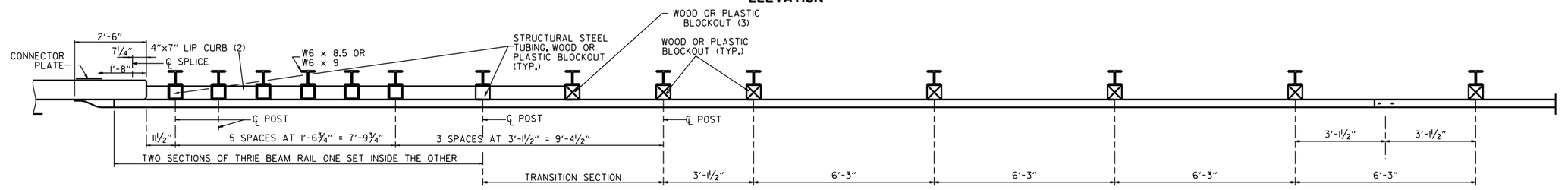
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

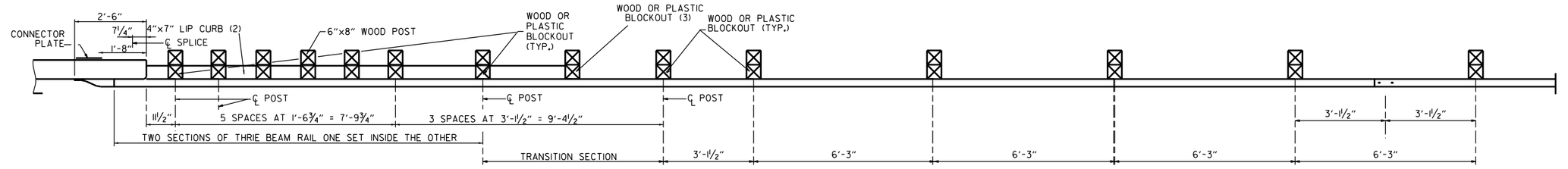
STANDARD DRAWING GR-11



ELEVATION



PLAN



PLAN

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

THRIE BEAM GUARDRAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

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

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

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

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

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

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

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

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

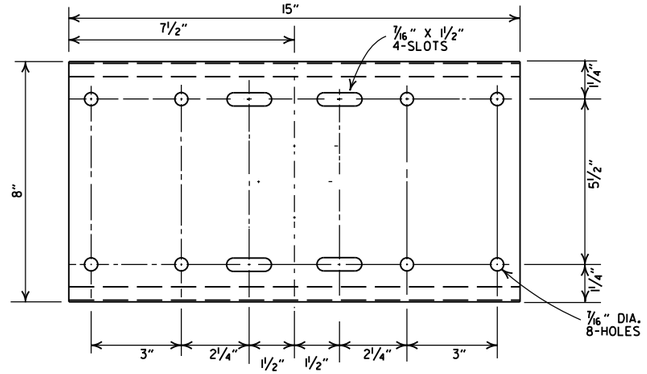
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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

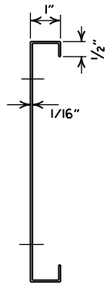
ARKANSAS STATE HIGHWAY COMMISSION

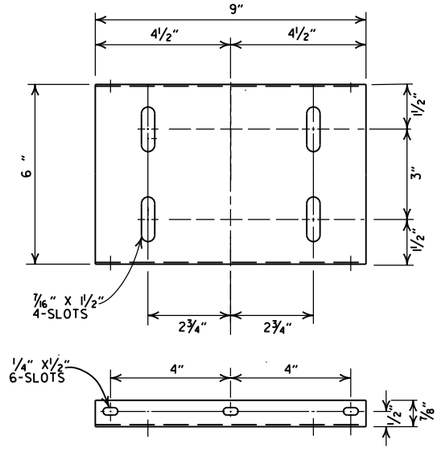
GUARDRAIL DETAILS

STANDARD DRAWING GR-12

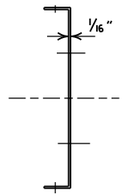


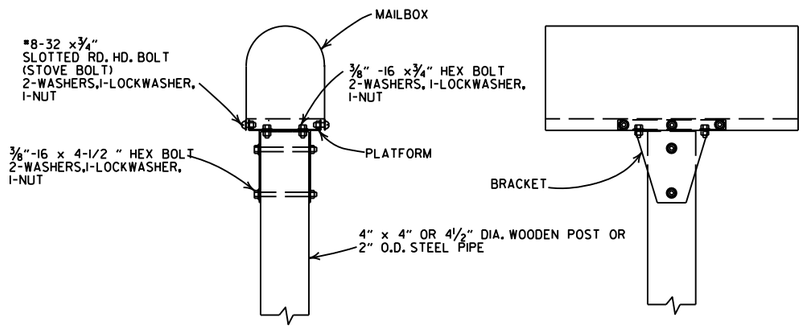
SHELF



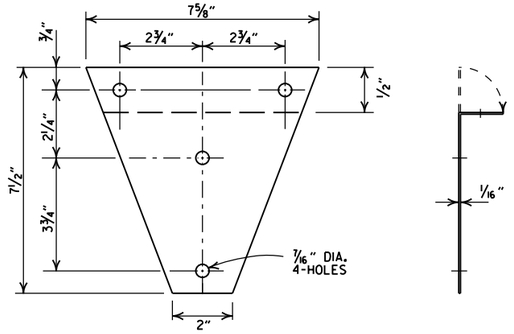


PLATFORM





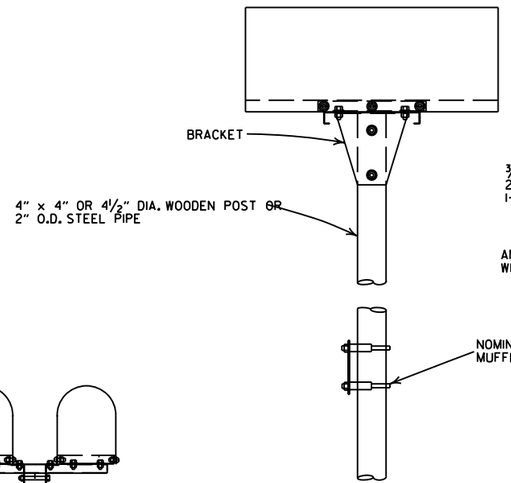
SINGLE INSTALLATION



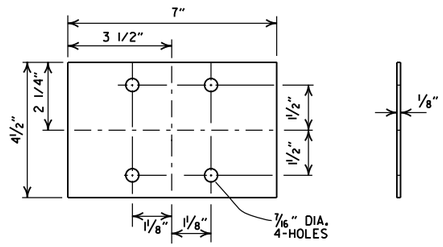
BRACKET

GENERAL NOTES

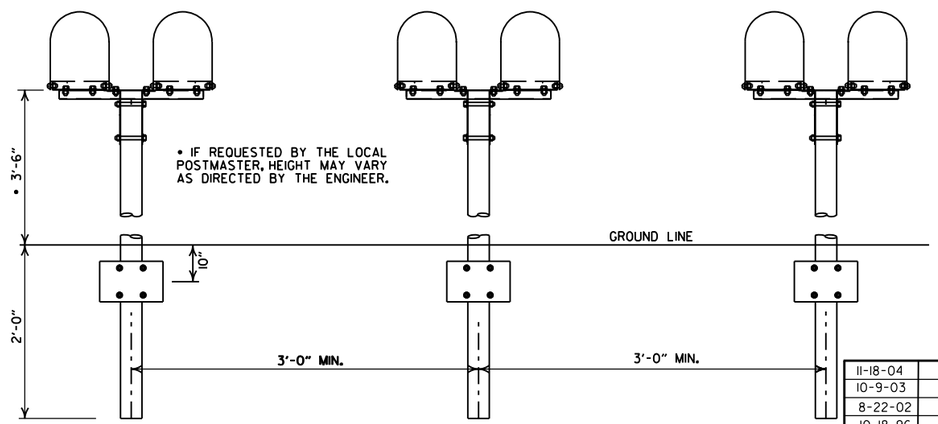
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



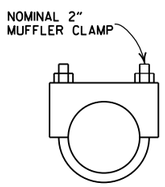
DOUBLE INSTALLATION



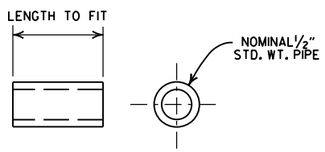
ANTI-TWIST PLATE



SPACING FOR MULTIPLE POST INSTALLATION



CLAMP



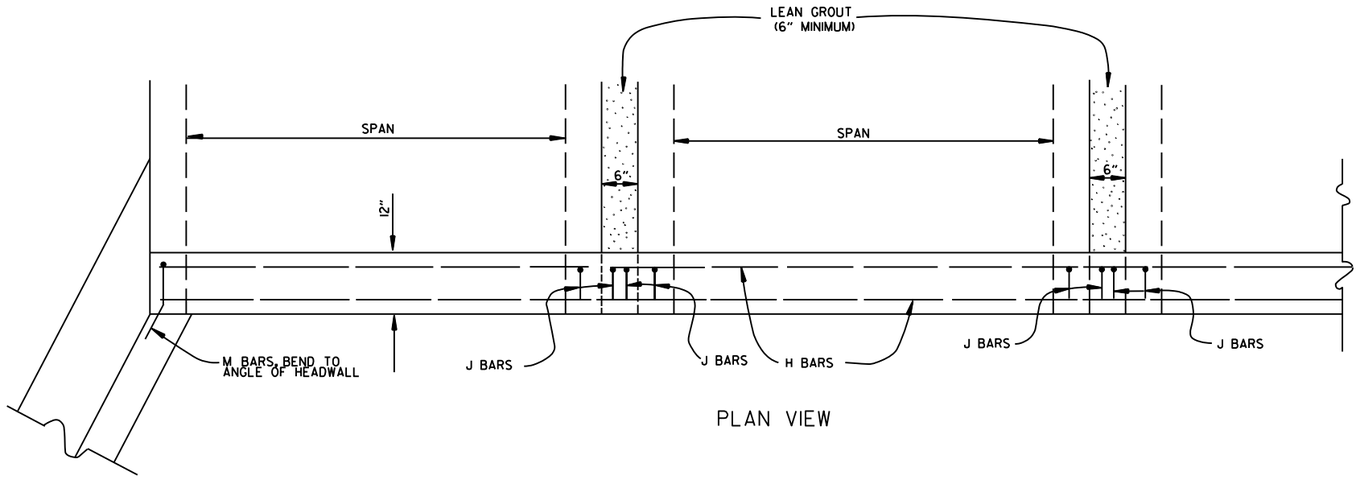
SPACER

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

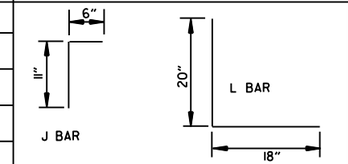
STANDARD DRAWING MB-1



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.

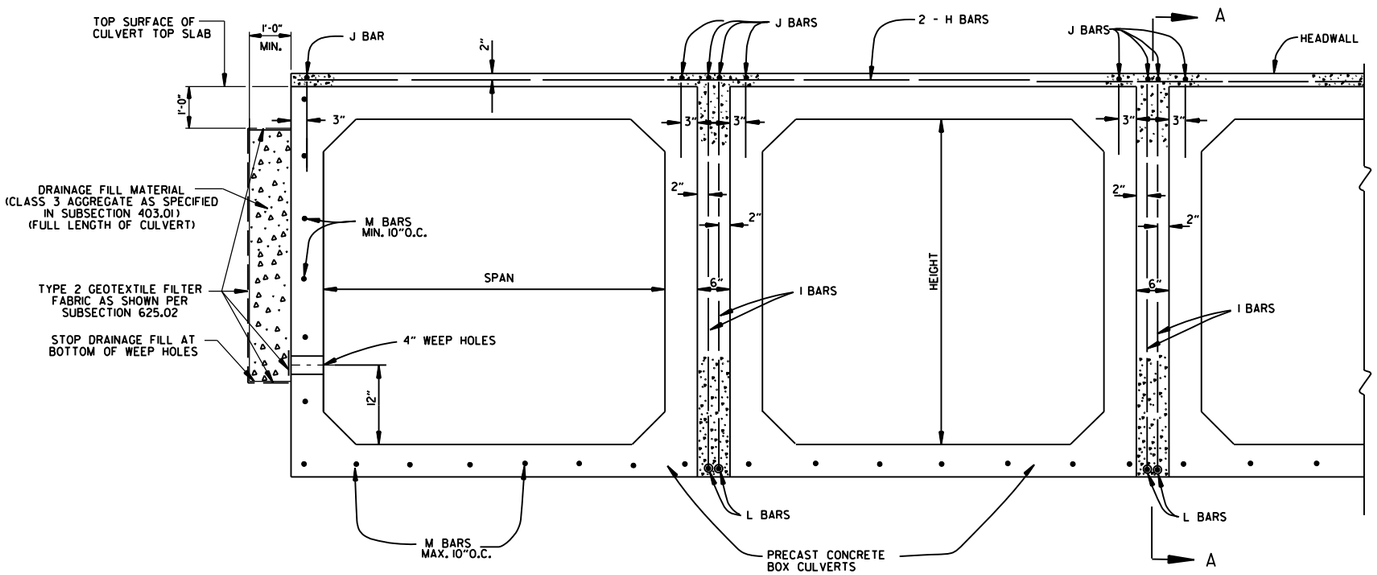
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

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.

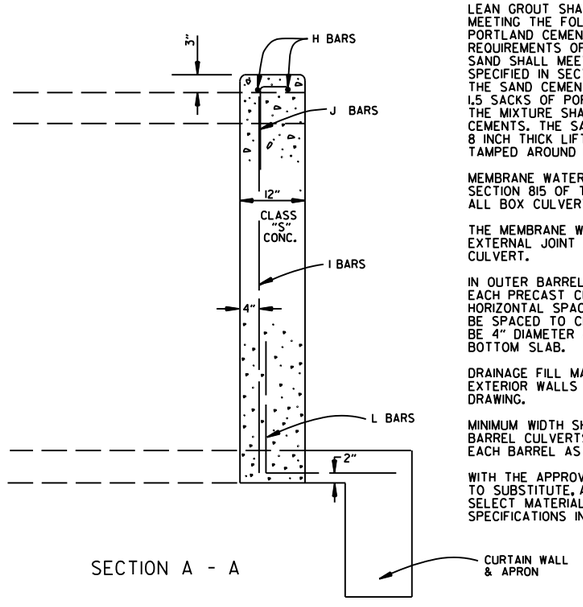
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

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

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	ARDOT NOMINAL	AASHTO M 206	ARDOT NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31⅜	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

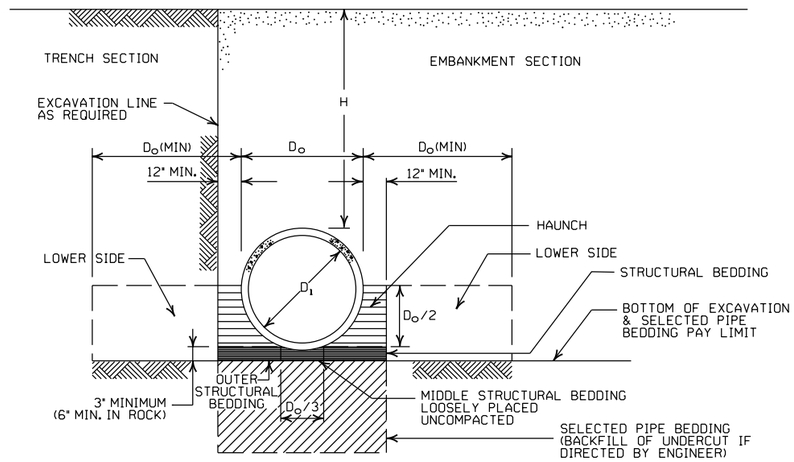
- LEGEND -

D_1 = NORMAL INSIDE DIAMETER OF PIPE
D_O = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
= UNDISTURBED SOIL

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

* SM-3 WILL NOT BE ALLOWED.

** MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
INSTALLATION TYPE	TYPE 1 OR 2	TYPE 3	ALL	ALL
PIPE ID (IN.)	FEET			
12-15	2	2.5	2	1
18-24	2.5	3	2	1
27-33	3	4	2	1
36-42	3.5	5	2	1
48	4.5	5.5	2	1
54-60	5	7	2	1
66-78	6	8	2	1
84-108	7.5	8	2	1

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

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

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2 OR TYPE 3	2.5	1.5

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

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

MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

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

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

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. COMPLETE STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT EXCEED 24 INCHES OR 1/3 THE SIZE OF THE PIPE, WHICHEVER IS LESS.

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

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL ③

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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

CORRUGATED METAL PIPE ARCHES

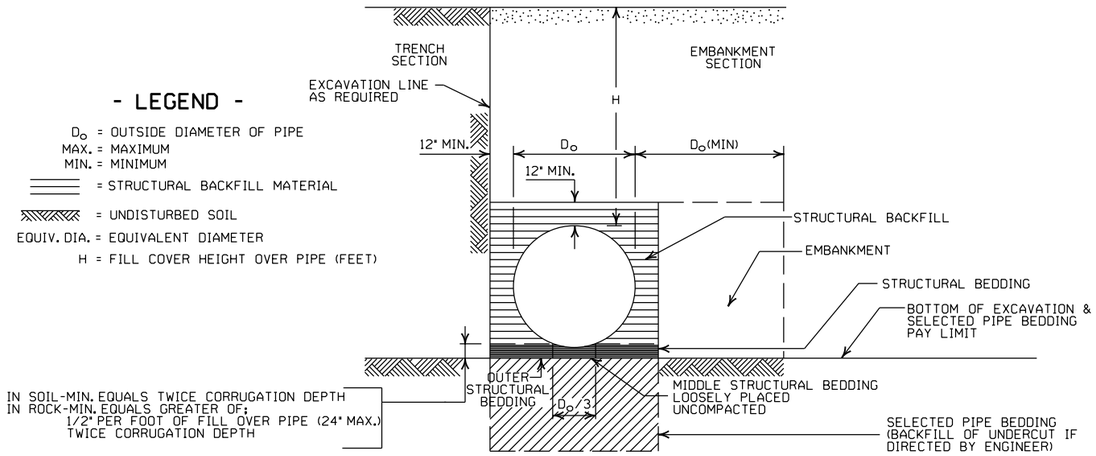
EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)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

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

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

- LEGEND -

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

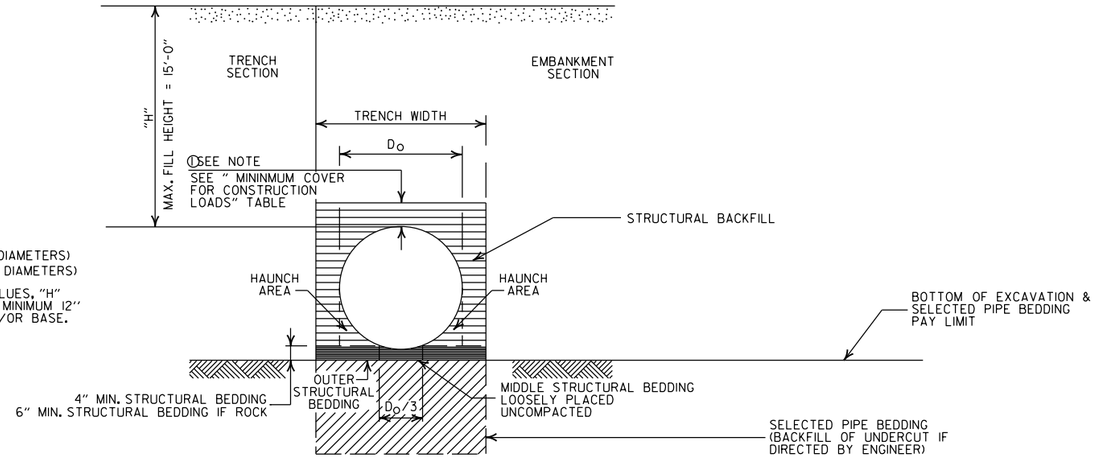
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
D = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

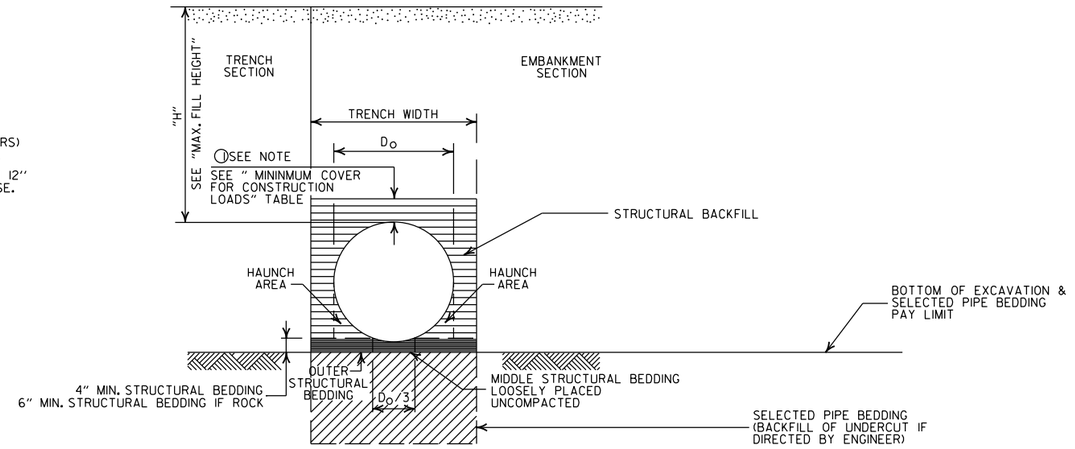
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
18" THRU 36"	2'-0"	2'-6"	3'-0"	3'-0"

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

H = FILL HEIGHT (FT.)
D_O = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

INSTALLATION TYPE	**MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	*SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4) OR TYPE 1 INSTALLATION MATERIAL

*SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF POLYPROPYLENE PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"
60"	5'-0"

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

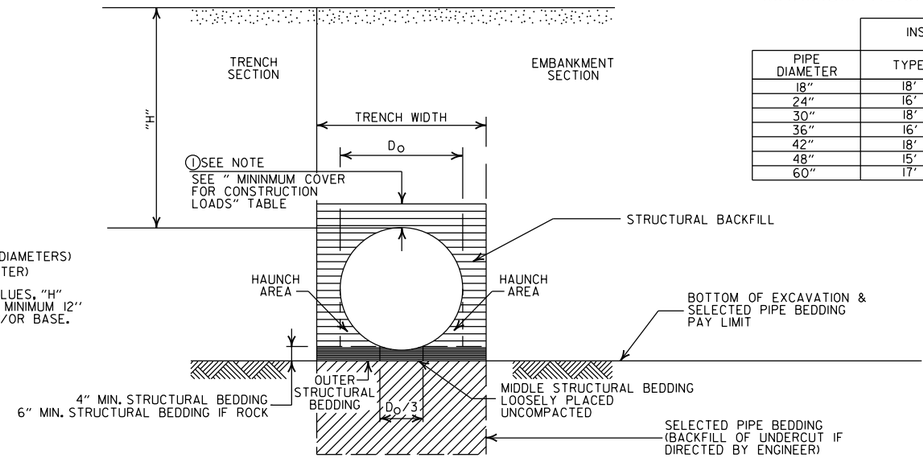
PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"
60"	10'-0"	15'-0"

①NOTE:
12" MIN. (18" - 42" DIAMETERS)
24" MIN. (60" DIAMETER)

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

MAXIMUM HEIGHT OF FILL "H"

PIPE DIAMETER	INSTALLATION TYPE	
	TYPE 1	TYPE 2
18"	18'	14'
24"	16'	12'
30"	18'	14'
36"	16'	12'
42"	18'	13'
48"	15'	11'
60"	17'	12'



MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-150.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

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

EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M330, TYPE S, INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SIXTH EDITION (2012) WITH 2013 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. POLYPROPYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR POLYPROPYLENE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN SECTION 26.4.2.4 AND 30.4.2 OF THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS 3RD EDITION (2010) WITH 2012 INTERIMS. JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
D_O = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

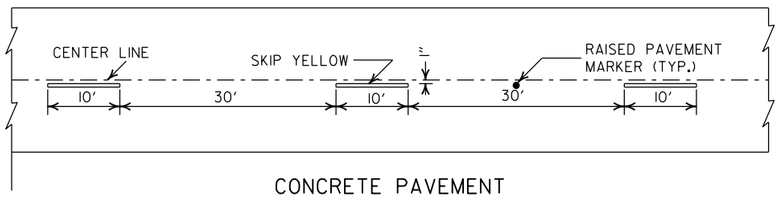
= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
02-27-20	REVISED	
11-07-19	ISSUED	

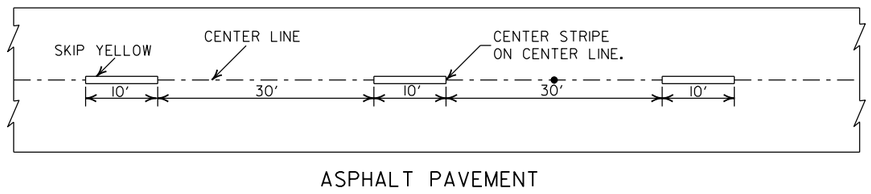
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (POLYPROPYLENE)

STANDARD DRAWING PCP-3

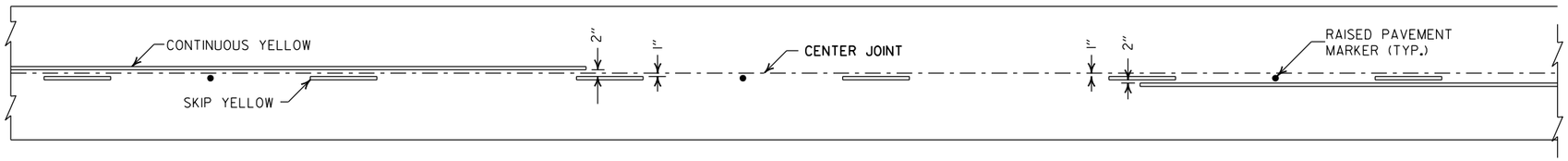


CONCRETE PAVEMENT

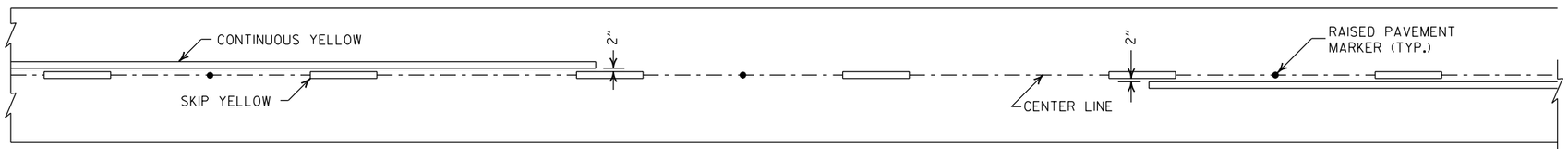


ASPHALT PAVEMENT

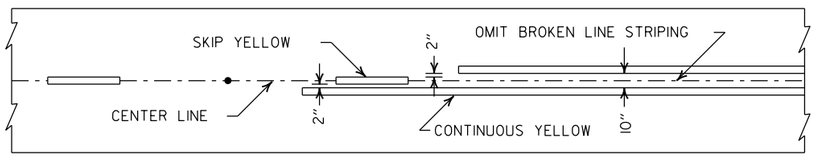
BROKEN LINE STRIPING



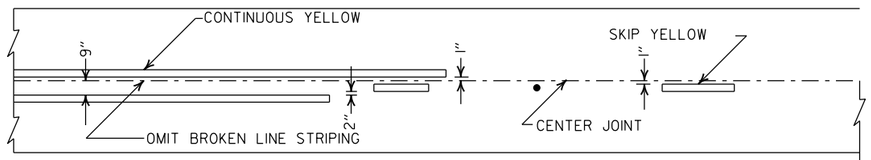
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

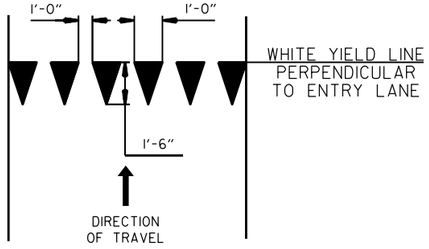


ASPHALT PAVEMENT

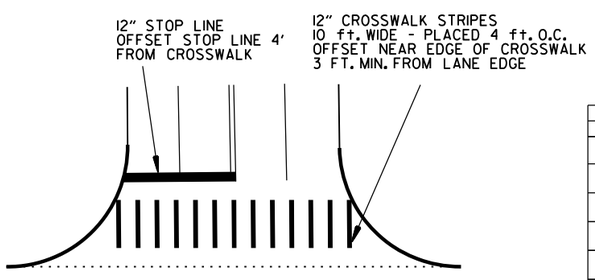


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

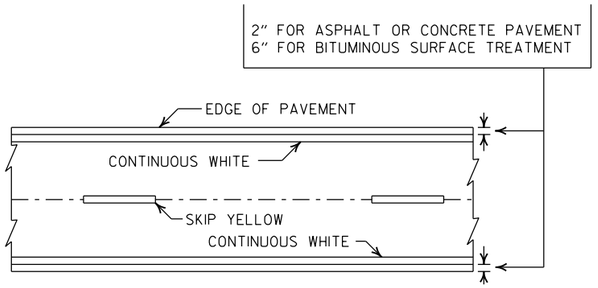


YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

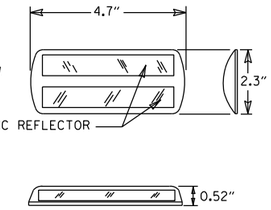
NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.



PAVEMENT EDGE LINE MARKING

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

TYPE II
RED/CLEAR OR
YELLOW/YELLOW



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

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

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

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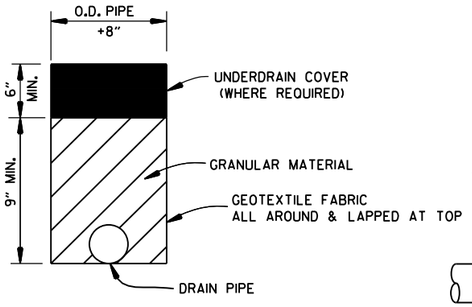
PAVEMENT MARKING DETAILS

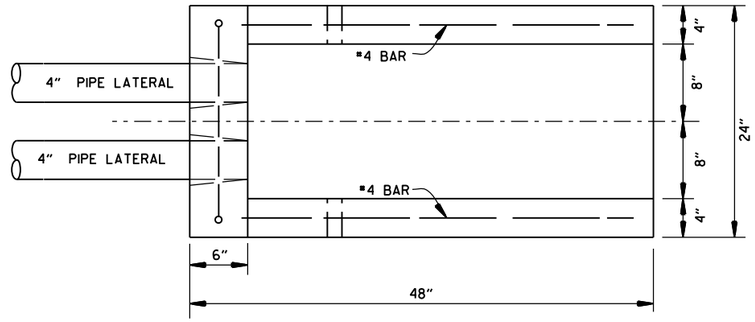
STANDARD DRAWING PM-1

NOTE:

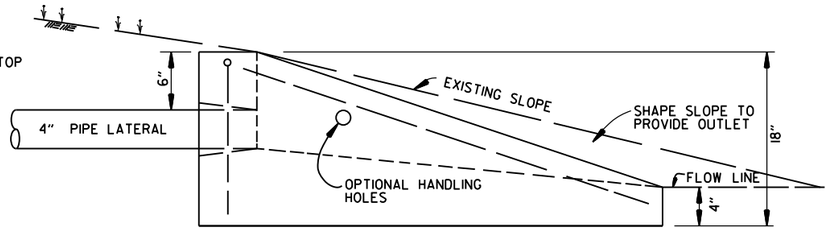
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.

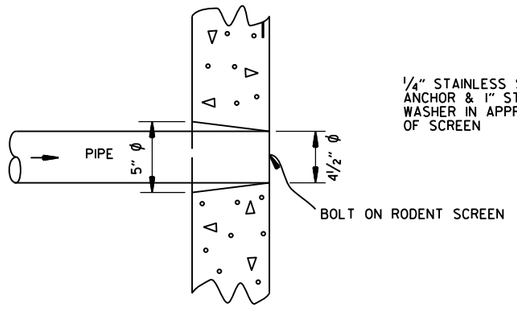




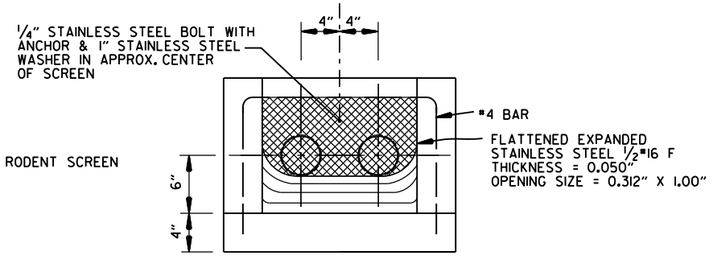
PLAN VIEW



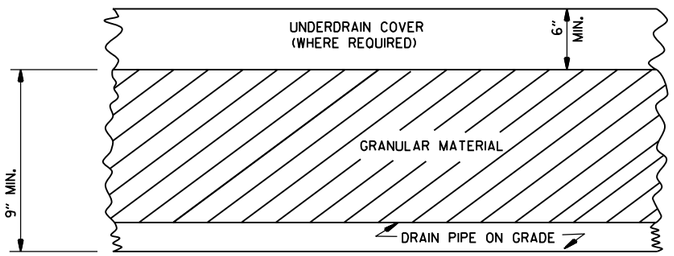
SIDE VIEW



DETAIL OF HOLE
FOR 4" PIPE



FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE 1. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."

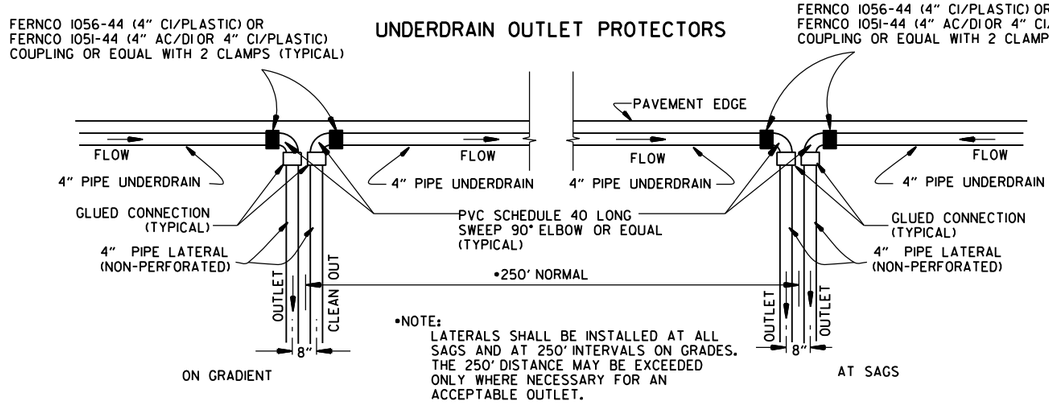
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."

6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."

7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS
WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

DATE	REVISION	DATE FILMED
12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

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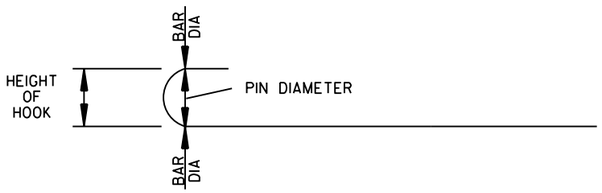
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-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

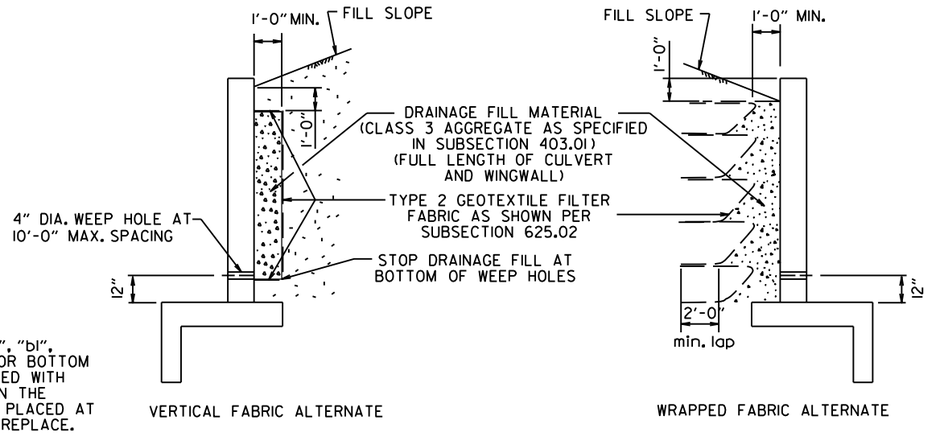
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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.

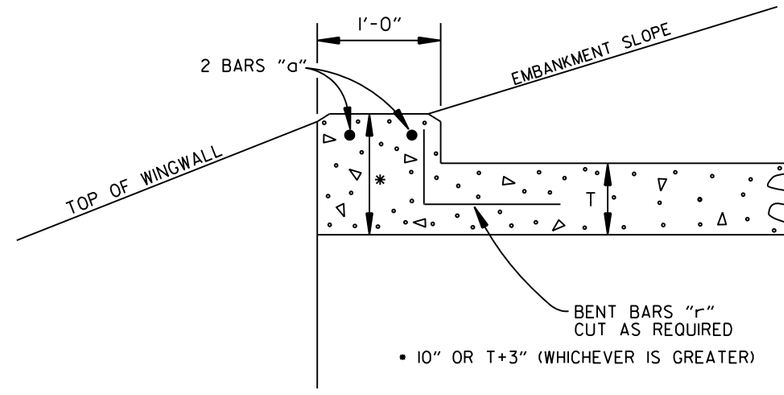
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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.

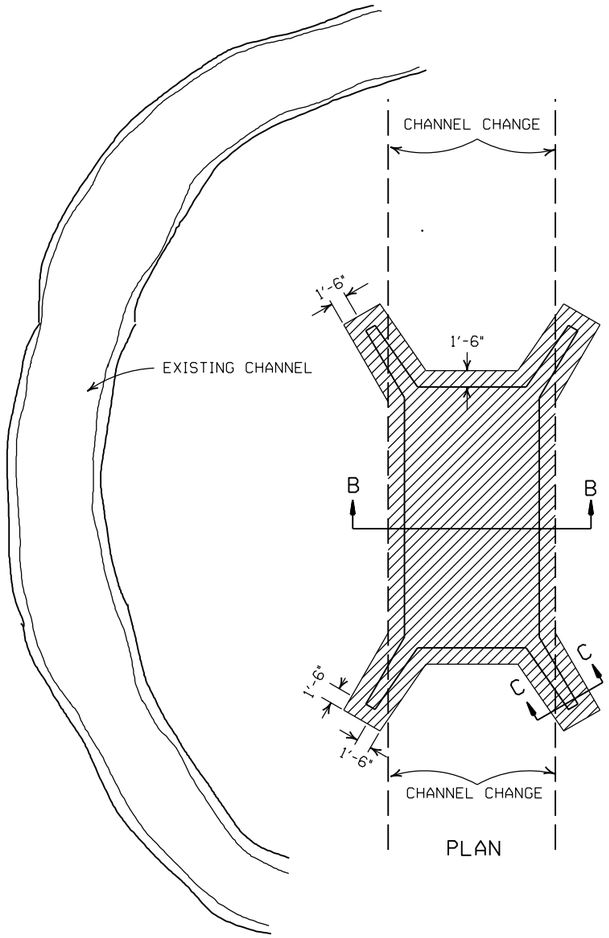
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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	

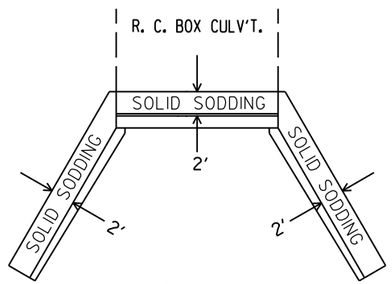
ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



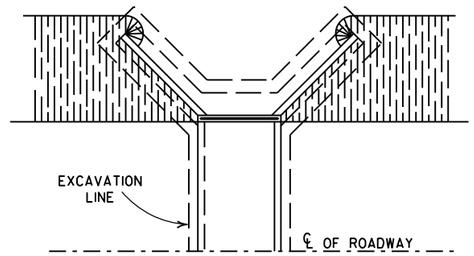
PLAN



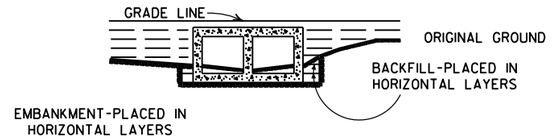
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

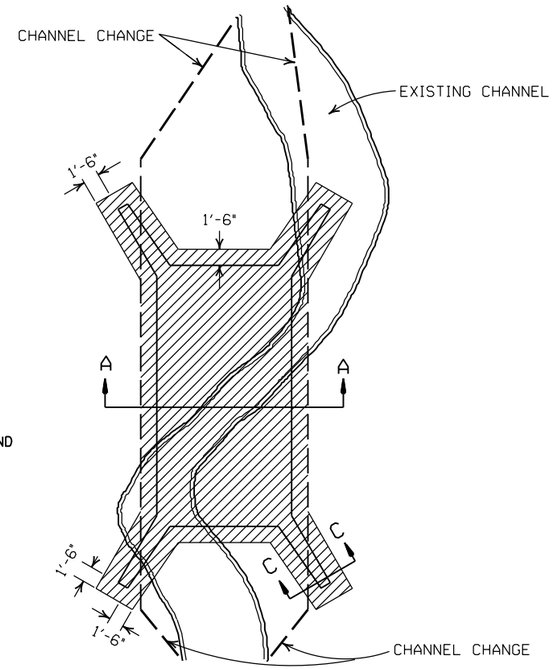


PLAN

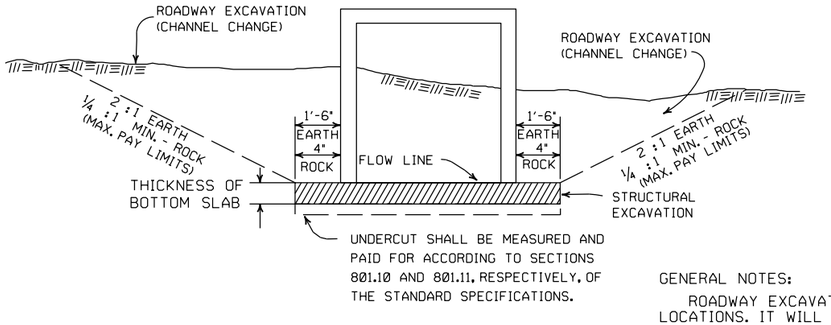


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

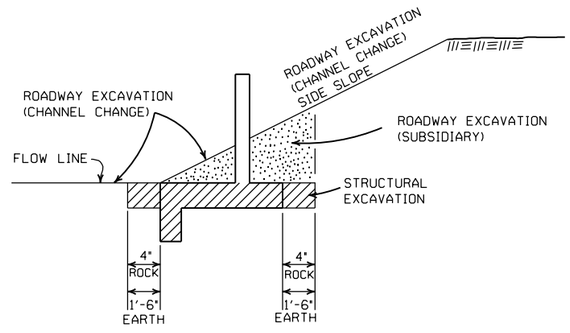


PLAN

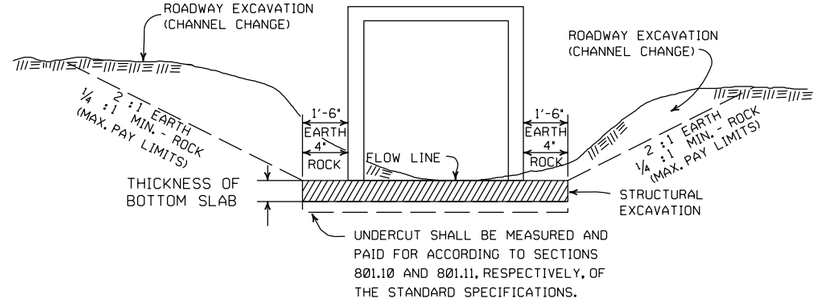


SECTION B-B

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

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			35 MPH			40 MPH			45 MPH			50 MPH			55 MPH			60 MPH			65 MPH			70 MPH			75 MPH		
	e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)	
		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE
0° 15'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC		
0° 30'	NC			NC			NC			NC			NC			NC			RC	96		RC	96		RC	96		0.022	101	
0° 45'	NC			NC			NC			NC			RC	96		RC	96		0.024	106		0.026	110		0.030	120		0.032	125	
1° 00'	NC			NC			NC			RC	90		0.022	101		0.026	110		0.030	120		0.034	130		0.038	139	300	0.042	149	300
1° 15'	NC			NC			RC	84		0.022	95		0.028	115		0.032	125		0.038	139		0.042	149		0.046	158		0.052	173	
1° 30'	NC			RC	78		0.022	88		0.028	108		0.032	125		0.038	139		0.044	154		0.050	168	300	0.056	182		0.062	197	
1° 45'	RC	72		RC	78		0.026	97		0.030	113		0.036	134		0.044	154		0.050	168	300	0.056	182		0.064	202		0.070	216	
2° 00'	RC	72		0.024	86		0.028	101		0.034	122		0.042	149		0.048	163		0.056	182		0.064	202		0.070	216		0.080	240	
2° 15'	RC	72		0.026	90		0.032	109		0.038	131		0.046	158		0.054	178	300	0.062	197		0.070	216		0.078	235	350	0.088	259	350
2° 30'	0.022	75		0.028	94		0.034	113		0.042	140		0.050	168		0.058	187		0.068	211		0.076	230		0.086	254		0.096	278	
2° 45'	0.024	79		0.030	98		0.038	122		0.046	149	200	0.054	178		0.064	202		0.072	221		0.082	245		0.092	269		0.100	288	400
3° 00'	0.026	83		0.034	105		0.040	126		0.050	158		0.058	187	250	0.068	211		0.078	235		0.088	259		0.098	283	400	D MAX = 2° 45'		
3° 15'	0.028	86		0.036	109		0.044	134		0.052	162		0.062	197		0.072	221		0.082	245		0.092	269		0.100	288				
3° 30'	0.030	90		0.038	113		0.046	139	200	0.056	171		0.066	206		0.076	230		0.086	254		0.096	278	350	D MAX = 3° 30'					
3° 45'	0.032	93		0.040	117		0.050	147		0.058	176		0.070	216		0.080	240		0.090	264		0.098	283							
4° 00'	0.034	97		0.042	121	200	0.052	151		0.062	185		0.072	221		0.084	250		0.094	274	350	0.100	288							
4° 15'	0.036	100		0.044	125		0.054	155		0.064	189		0.076	230		0.086	254	350	0.096	278		D MAX = 4° 15'								
4° 30'	0.036	100		0.046	129		0.056	160		0.068	198		0.078	235		0.090	264		0.098	283										
4° 45'	0.038	104	200	0.048	133		0.060	168		0.070	203		0.082	245		0.092	269		0.100	288										
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	274		D MAX = 5° 15'										
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221	250	0.088	259		0.098	283												
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	288												
6° 30'	0.050	126		0.062	160		0.074	198		0.086	239		0.096	278	300	D MAX = 6° 30'													
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283															
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252		0.100	288															
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257	300	D MAX = 8° 25'																
8° 30'	0.060	144		0.072	179		0.086	223	250	0.096	261																		
9° 00'	0.062	148		0.076	187		0.088	227		0.098	266																		
9° 30'	0.064	151		0.078	191		0.092	235		0.100	270																		
10° 00'	0.066	155		0.080	195		0.094	240		D MAX = 10° 30'																			
11° 00'	0.070	162		0.084	203		0.096	244																					
12° 00'	0.074	169		0.088	211	250	0.098	248																					
13° 00'	0.076	173		0.090	215		0.100	252	300	D MAX = 13° 45'																			
14° 00'	0.080	180		0.094	222																								
15° 00'	0.082	184		0.096	226																								
16° 00'	0.086	191		0.098	230																								
17° 00'	0.088	194		0.100	234																								
18° 00'	0.090	198	250	D MAX = 19° 30'																									
19° 00'	0.092	202																											
20° 00'	0.094	205																											
21° 00'	0.096	209																											
22° 00'	0.096	209																											
23° 00'	0.098	212																											
24° 00'	0.098	212																											
25° 00'	0.100	216																											
D MAX = 28° 30'																													

ABBREVIATIONS

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

GENERAL NOTES

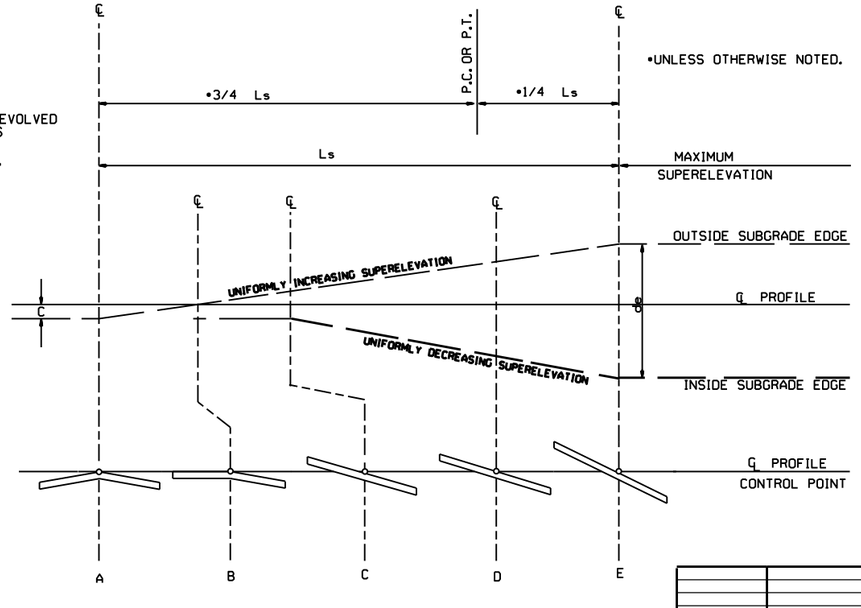
1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED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

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

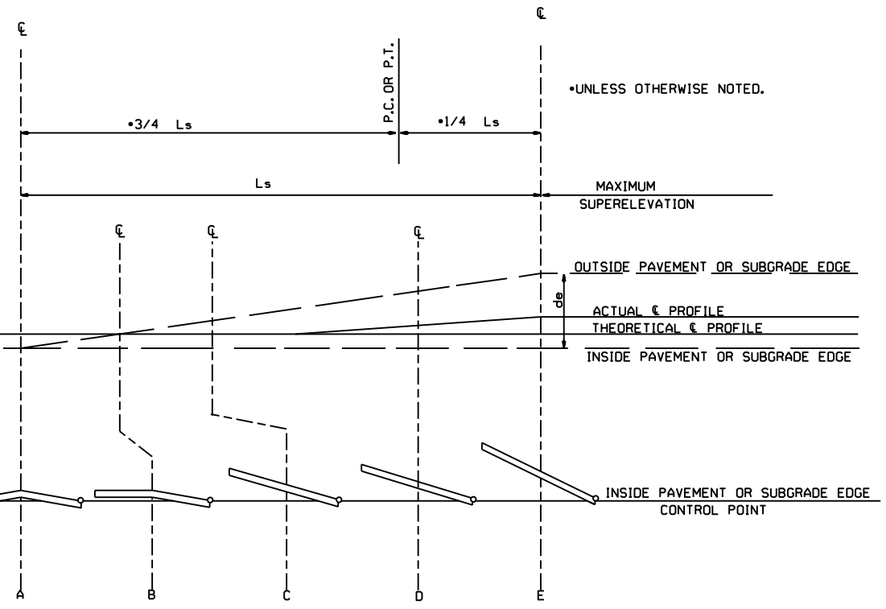
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



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

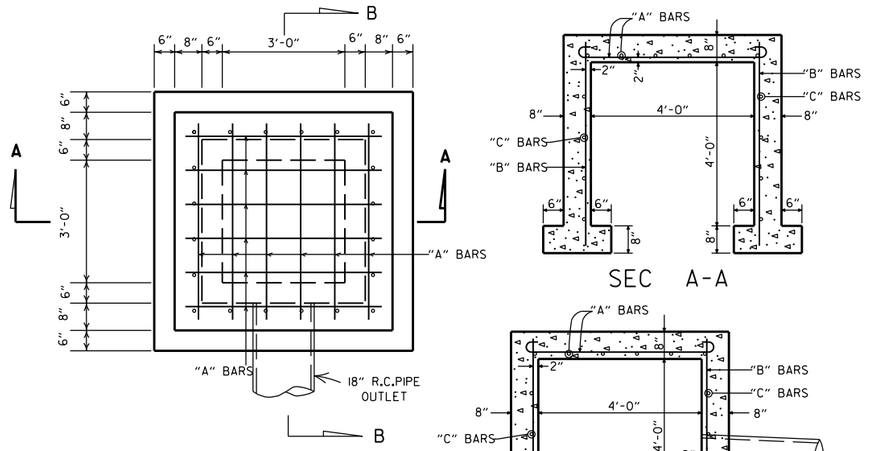
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

DATE	REVISION	DATE FILLMED
11-07-19	REVISED SUPERELEVATION TABLE	
10-18-96	ADDED FORMULA	
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2



SEC A-A

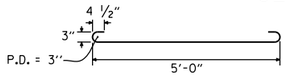
SEC B-B

NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 ½"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



"A" BARS

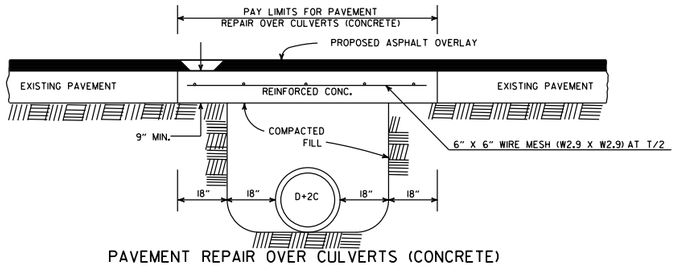
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

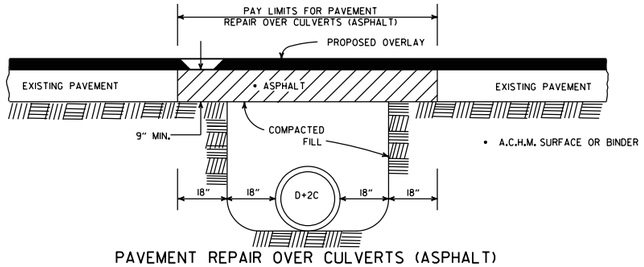
GENERAL NOTE:

THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



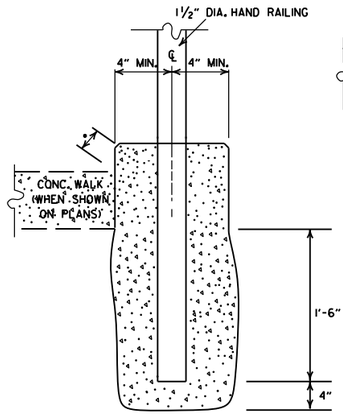
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



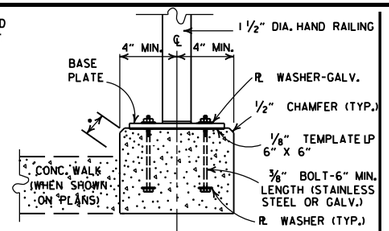
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

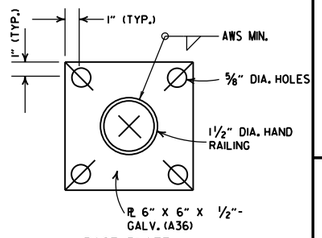
• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

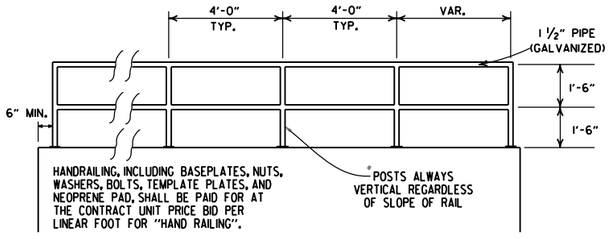


POST CONNECTION TO WALL

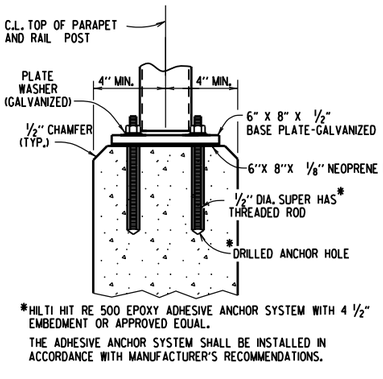


BASE PLATE

POST CONNECTION DETAILS



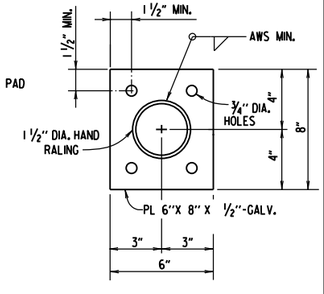
HAND RAILING SHALL CONFORM TO SECTION 633.



*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 ½" EMBEDMENT OR APPROVED EQUAL.

THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

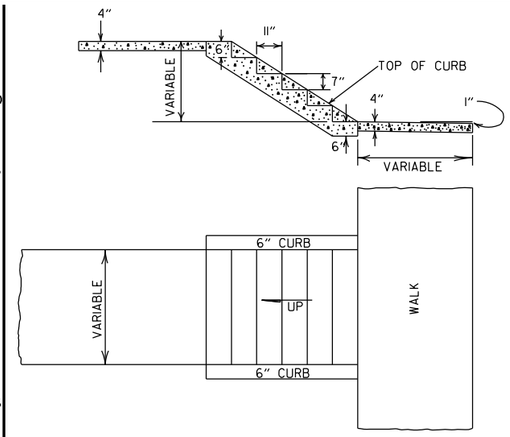
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

DETAILS OF CONCRETE STEPS & WALKS

DATE	REVISION	DATE FILMED
10-25-18	REVISED DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS	
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-94	ADD WEEP HOLE;REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET& PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF SPECIAL ITEMS

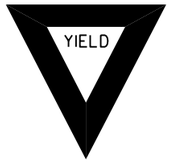
STANDARD DRAWING SI - 1

R1-1



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

R1-2



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

R2-1



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

W3-5



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

W3-5a



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

R4-1



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

R4-2



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

R5-1



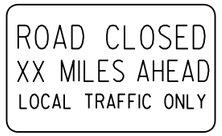
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2



48"X30"

R11-3A



60"X30"

R11-4



60"X30"

W21-5a



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

W1-1



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

W1-2



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

W1-3



STD. 48"X48"

W1-4



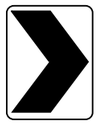
STD. 48"X48"

W1-6



STD. 48"X24"
SPECIAL 60"X30"

W1-8



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

W3-1



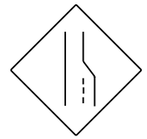
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1



STD. 36"X36"
SPECIAL 48"X48"

W6-3



EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7



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

W9-2



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

W13-1



STD. 24"X24"

W20-1



STD. 48"X48"

W20-2



STD. 48"X48"

W20-3



STD. 48"X48"

W20-4



STD. 48"X48"

W20-5



STD. 48"X48"

W20-7a



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

W21-2



STD. 30"X30"
SPECIAL 36"X36"

W21-5



STD. 30"X30"
SPECIAL 36"X36"

W24-1



STD. 36"X36"

W1-4b



STD. 48"X48"

R56-1



STD. 18"X18"

W8-11



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

W8-9



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

G20-1



60"X24"

G20-2

48"X24"

OM-3L OM-3R

12"X36"

M4-9

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

M4-10

48"X18"

R55-1

36"X60"

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

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

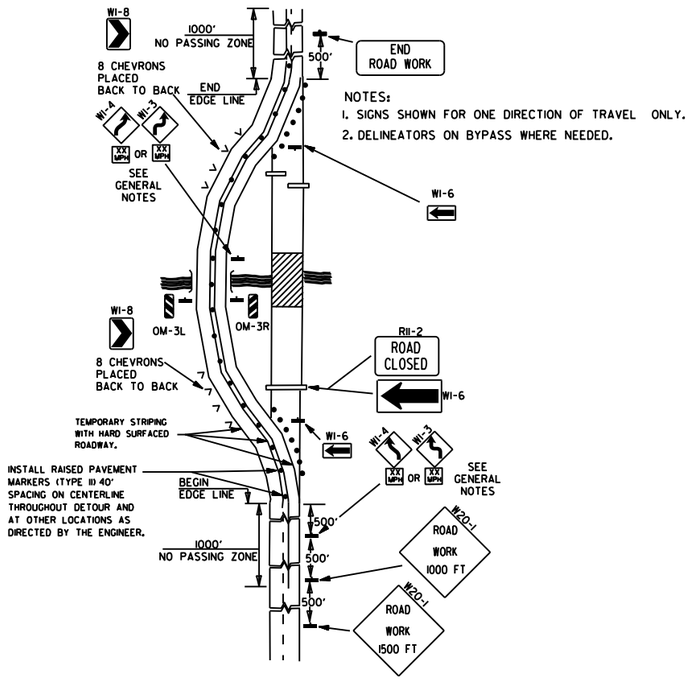
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

DATE	REVISION	FILMED
11-07-19	REVISED FOR MASH	
4-13-17	DELETED RSP-1 & ADDED W21-5a	
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

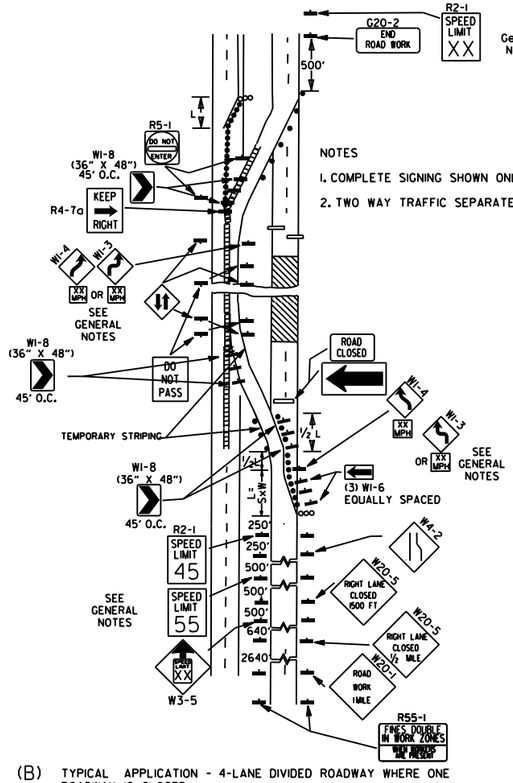
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



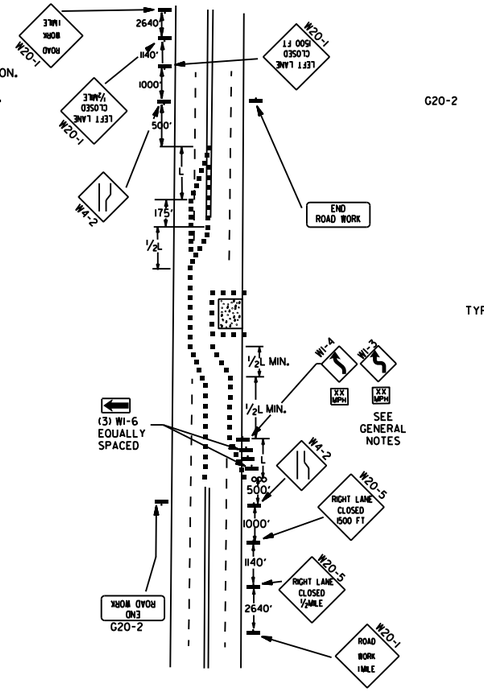
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

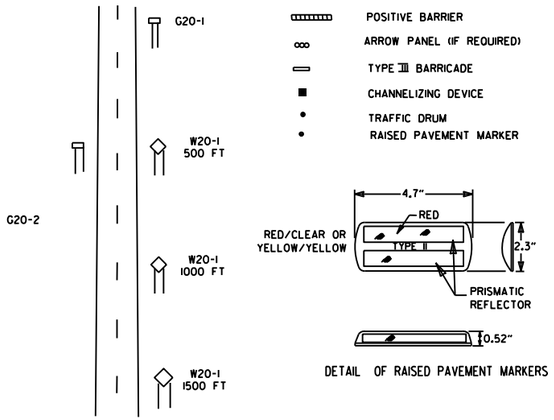


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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



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



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

WHERE:

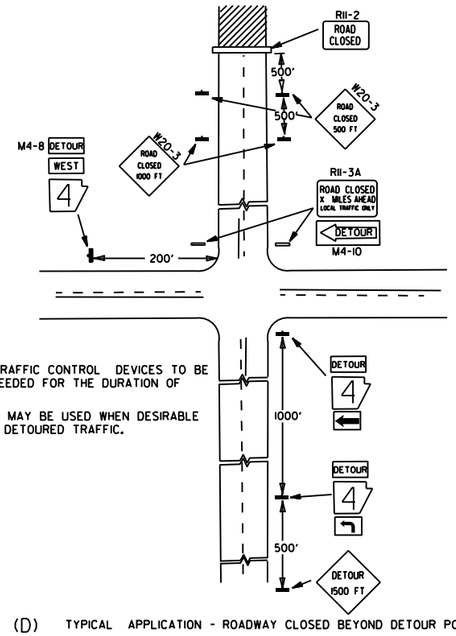
L= MINIMUM LENGTH OF TAPER.

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

W= WIDTH OF OFFSET.

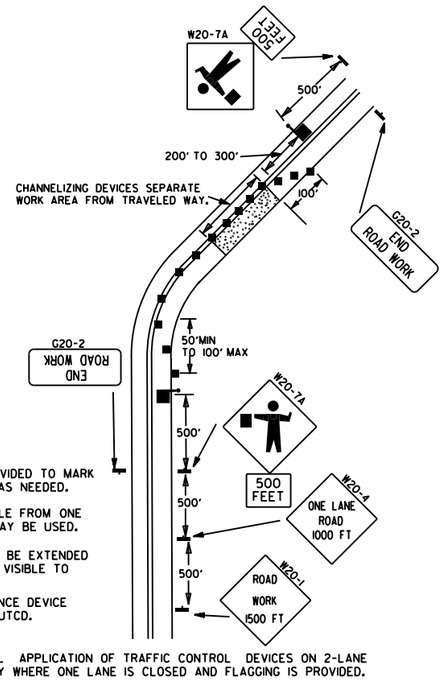
GENERAL NOTES:

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



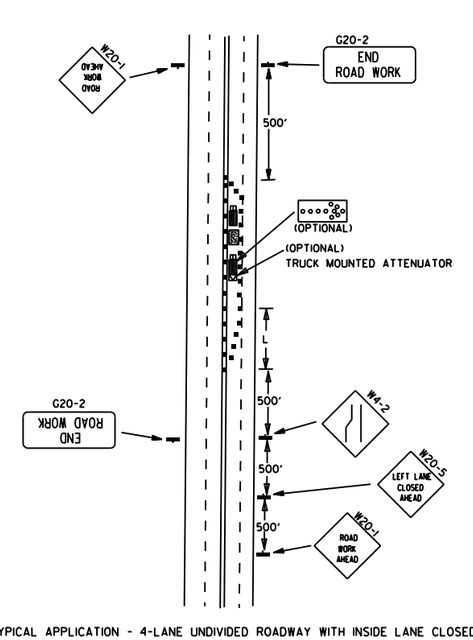
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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



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

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



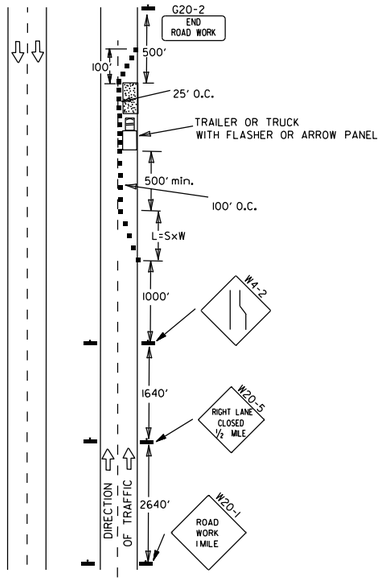
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

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

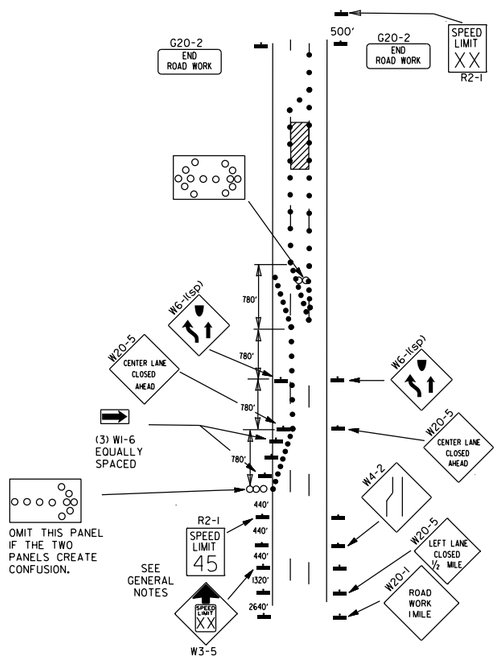
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-2



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



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

KEY:

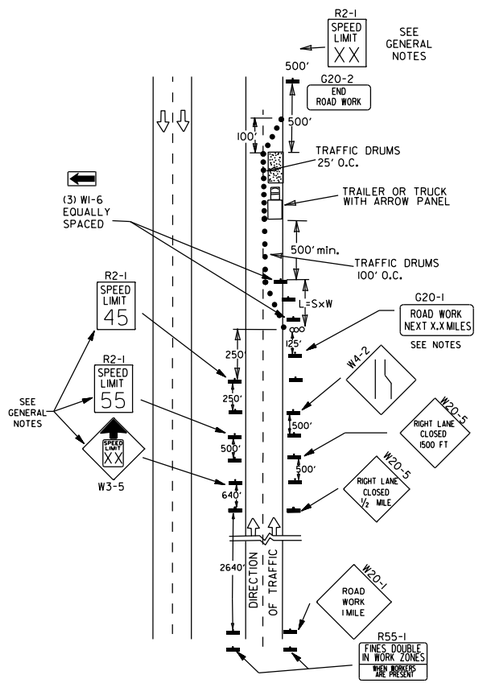
ARROW PANEL (IF REQUIRED)

■ CHANNELIZING DEVICE

● TRAFFIC DRUM

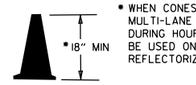
GENERAL NOTES:

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



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

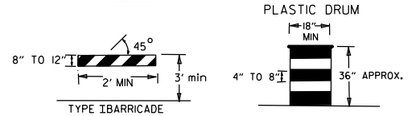
CHANNELIZING DEVICES



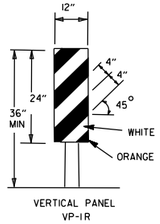
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

CONES

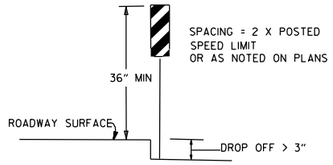
PLASTIC DRUM



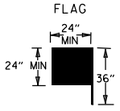
NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.



VERTICAL PANEL PLACEMENT



FLAG



FLAG SHALL BE OF GOOD GRADE RED MATERIAL

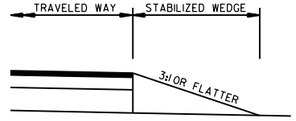
TRAFFIC CONTROL DEVICES			
NON-INTERSTATE			
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 1"	CENTERLINE	W8-11	W8-11
> 1" ≤ 3"	CENTERLINE	W8-11 AND CENTERLINE LANE STRIPING	W8-11 AND CENTERLINE LANE STRIPING
> 3"	CENTERLINE	STANDARD LANE CLOSURE[6]	STANDARD LANE CLOSURE[6]
≤ 3"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

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

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

GENERAL NOTES:

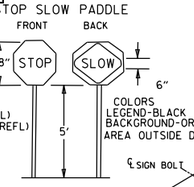
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL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

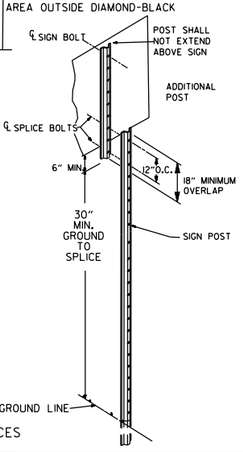


STABILIZED WEDGE

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

STOP SLOW PADDLE

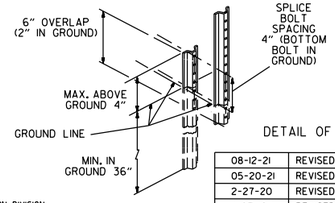




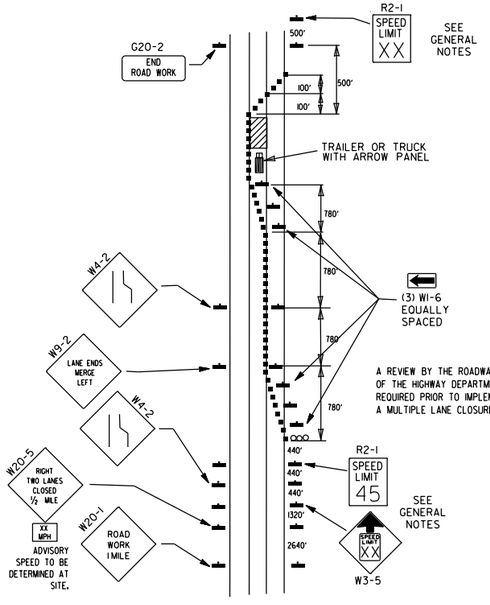
NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

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

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



DETAIL OF SPLICES



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

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

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

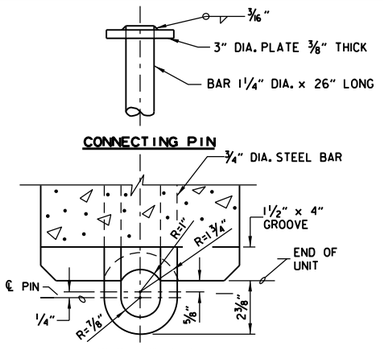
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3

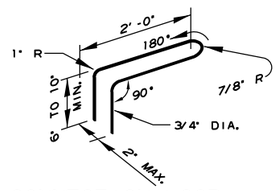
REINFORCING BAR TABLE PER BARRIER UNIT

MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1'-6", 1" MIN. CLEAR TO BAR; 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9"; 2 3/16" R; 12°; 1 1/2"; 9"; 2'-1 3/8"; 4 3/8"

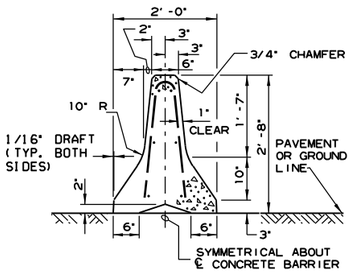


SECTION E-E

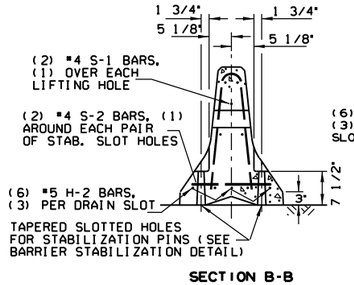
CONNECTION DETAILS



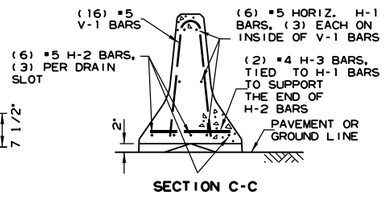
CONNECTION LOOP



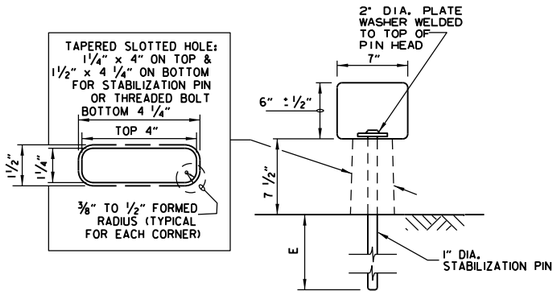
SECTION A-A



SECTION B-B



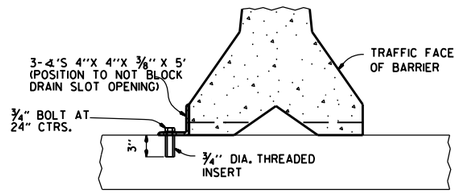
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

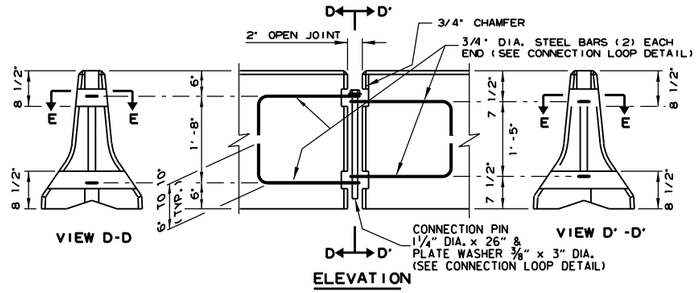
(E) 4" - CONCRETE PAVEMENT
8" - ASPHALT PAVEMENT
12" - SHOULDER AREAS



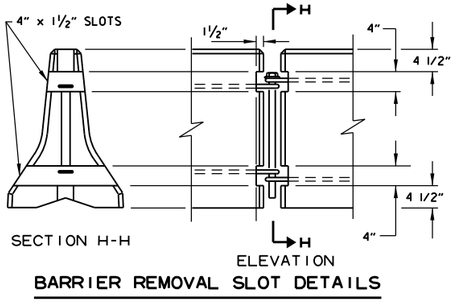
NOTE: " THREADED INSERTS SHALL BE CAST IN PLACE FOR ALL NEW BRIDGE DECKS AND DRILLED AND GROUTED FOR EXISTING BRIDGE DECKS. INSERTS SHALL HAVE A MINIMUM ULTIMATE LOAD CAPACITY OF 8000 LBS. IN TENSION. AFTER REMOVAL OF BARRIER, BOLTS, AND ANGLES, THE INSERTS SHALL BE FILLED WITH APPROVED NON-SHRINK EPOXY.

BARRIER STABILIZATION DETAIL

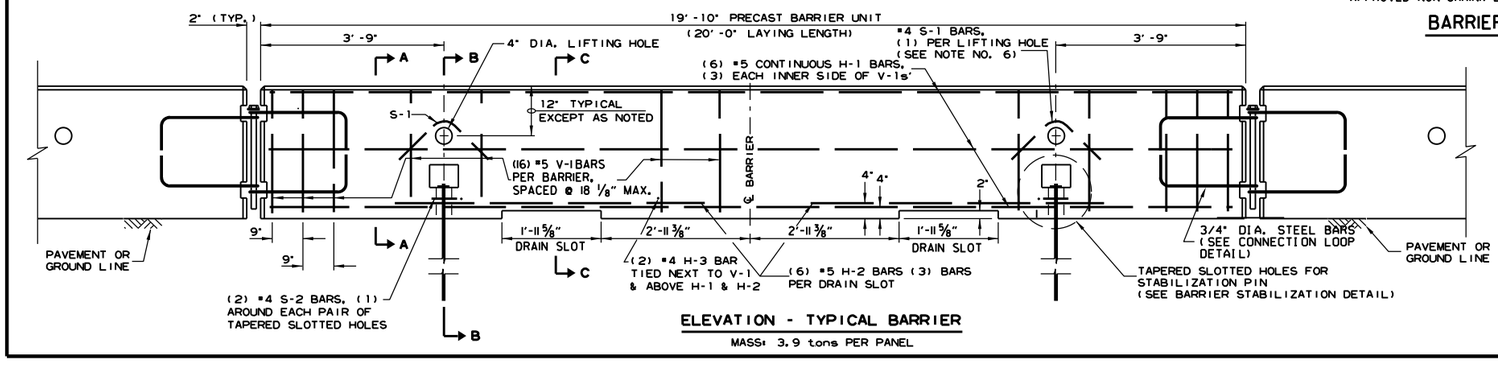
BRIDGE DECKS



ELEVATION



BARRIER REMOVAL SLOT DETAILS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

GENERAL NOTES

(1) THE CONTRACTOR SHALL FURNISH THE PRECAST CONCRETE BARRIER UNITS AND SHALL BE RESPONSIBLE FOR THE MANUFACTURE, SHIPMENT, STORAGE, PLACEMENT AND REMOVAL. AT THE COMPLETION OF THE PROJECT, THE PRECAST UNITS WILL REMAIN THE PROPERTY OF THE CONTRACTOR.

(2) MATERIALS SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS:
CONCRETE: 2500 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
REINFORCING STEEL: AASHTO M 31 OR M 53, GRADE 60
STRUCTURAL STEEL: AASHTO-M270 GRADE 36 SHALL BE USED FOR THE CONNECTION PIN, CONNECTION LOOPS, AND STABILIZATION PINS. A ONE PIECE PIN WITH A 3" ROUNDED TOP MAY BE USED IN PLACE OF THE DETAILED CONNECTION PIN.
DELINEATORS: DELINEATORS SHALL BE MOUNTED AT 10' SPACING ON TOP OF PRECAST BARRIER.

IN APPLICATIONS WHERE BARRIER WALL IS WITHIN 6 FEET OF A TRAFFIC LANE, ADDITIONAL DELINEATORS SHALL BE PLACED ON THE BARRIER AT 10' SPACING APPROXIMATELY ONE (1) FOOT FROM THE TOP OF THE BARRIER. DELINEATORS SHALL BE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR CONSTRUCTION CONCRETE BARRIER MARKERS.
DELINEATOR COLOR SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
PAYMENT FOR DELINEATORS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID PER LIN. FT. FOR "FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER". THE CONTRACTOR SHALL CERTIFY TO THE ENGINEER THAT THE MATERIAL AND THE DESIGN USED IN THE PRECAST BARRIER UNITS MEETS THE REQUIREMENTS AS SHOWN ON THIS STANDARD DRAWING.

(3) OTHER PRECAST CONCRETE BARRIERS THAT HAVE BEEN CRASH TESTED AND APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION TO MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) WILL BE ACCEPTED IN LIEU OF THE BARRIER SHOWN. DRAIN SLOTS SHALL BE PROVIDED AS NEEDED OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL FURNISH A CERTIFICATION OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) COMPLIANCE FOR ANY OTHER TYPES OF PRECAST BARRIER TO BE USED. THE CERTIFICATION SHALL STATE THAT THE PRECAST CONCRETE BARRIER MEETS THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH). MIXING OF SHAPES WILL NOT BE ALLOWED IN A CONTINUOUS LINE OF UNITS.

(4) DOWEL HOLES IN PAVEMENT OR BRIDGE SLABS THAT ARE TO REMAIN IN PLACE SHALL BE FILLED. HOLES IN CONCRETE PAVEMENT AND BRIDGE SLABS SHALL BE FILLED WITH AN APPROVED NON-SHRINK EPOXY GROUT. HOLES IN ASPHALT PAVEMENT SHALL BE FILLED WITH AN APPROVED ASPHALT JOINT FILLER. PAYMENT FOR DRILLING AND FILLING HOLES TO BE INCLUDED IN THE PRICE FOR VARIOUS BARRIER ITEMS.

(5) ATTACH UNITS TO ROADWAY SURFACE WITH STABILIZATION PINS AND TO DECK SLABS USING BOLTS WHEN REQUIRED.

(6) A 4" WHITE PVC SLEEVE MAY BE USED TO FORM THE LIFTING HOLE AND IF USED THE SLEEVE IS TO BE LEFT IN PLACE.

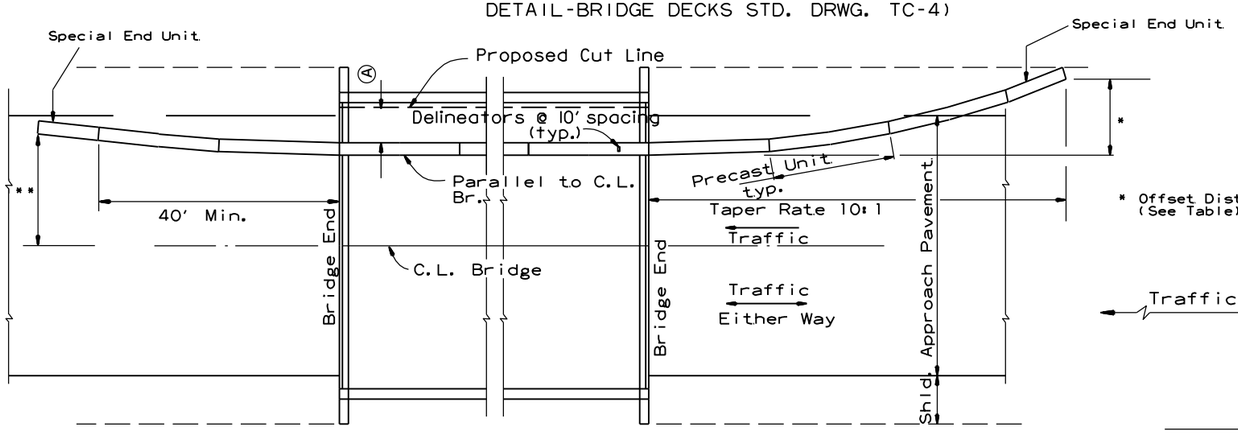
DATE	REVISION	FILMED
11-07-19	REVISED NOTE 3	
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO WASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

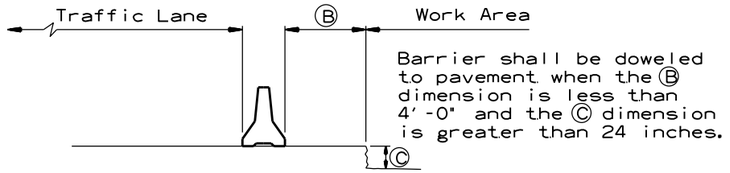
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



* Offset Distance (See Table)

BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

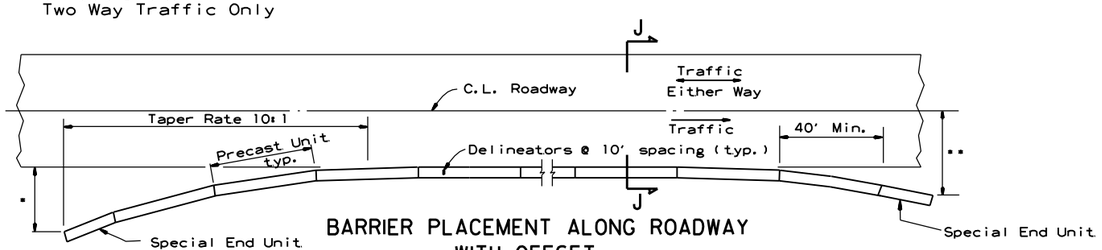


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

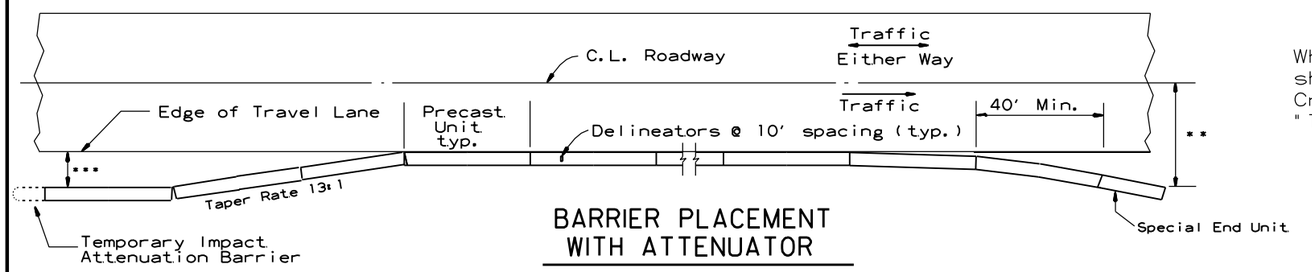
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

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

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

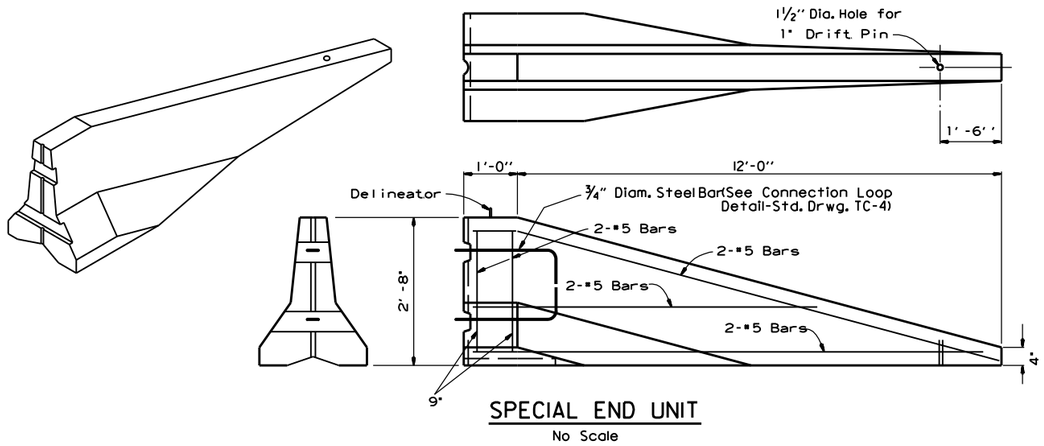


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator



SPECIAL END UNIT

No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with a Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."

DATE	REVISION	FILMED
11-07-19	REVISED NOTE	
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

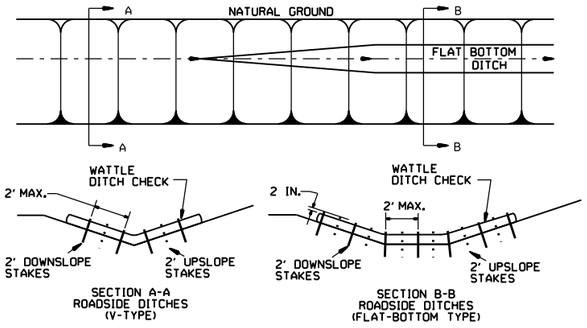
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

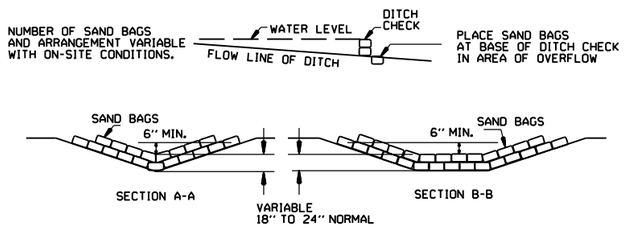
STANDARD DRAWING TC-5

GENERAL NOTES

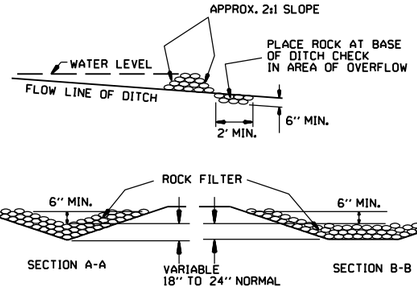
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

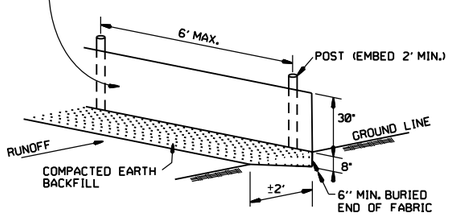


ROCK DITCH CHECK (E-6)

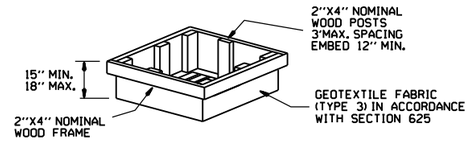
GENERAL NOTES

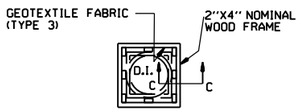
GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

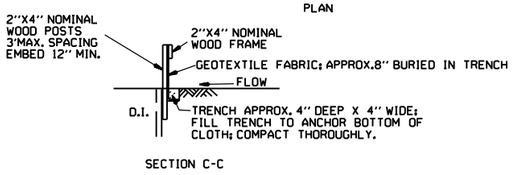
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



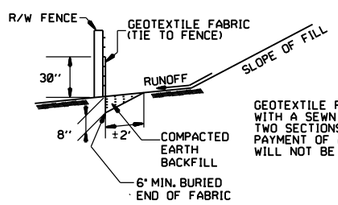
SILT FENCE (E-11)





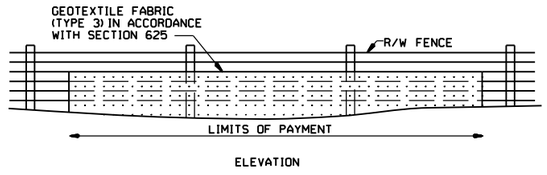


DROP INLET SILT FENCE (E-7)



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.



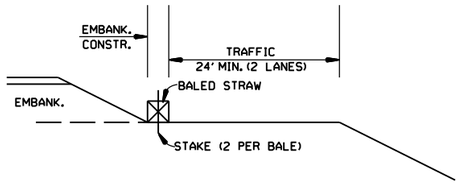
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

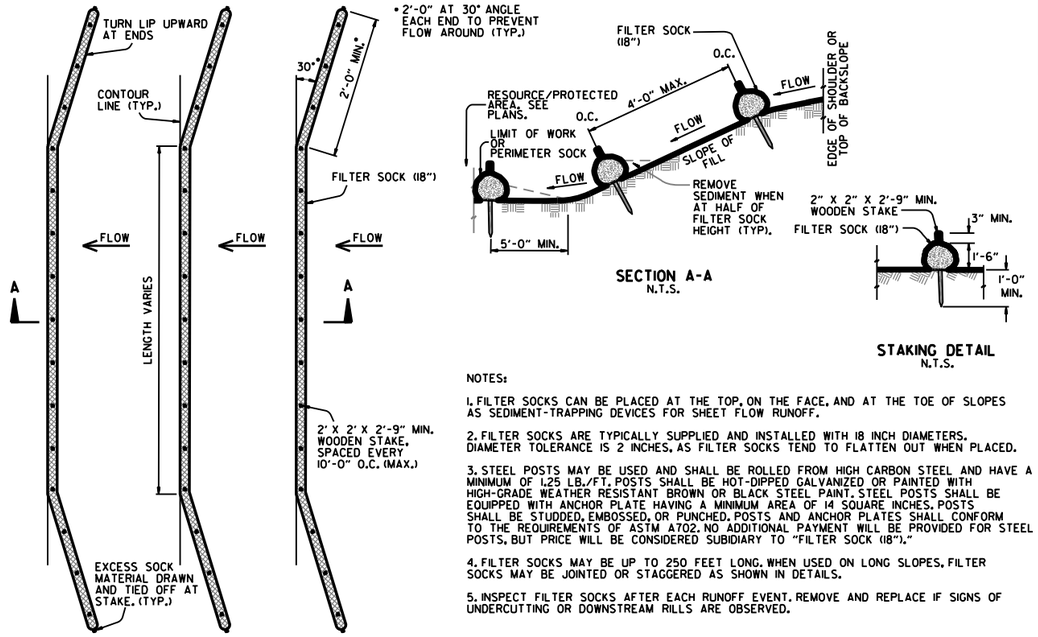
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

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.

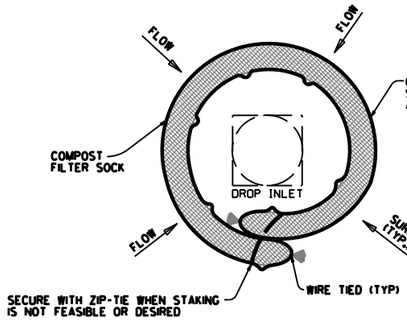
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

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")."

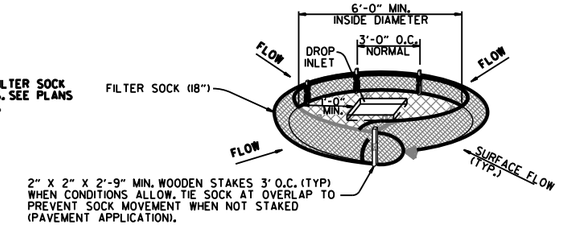
4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

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)



DROP INLET PLAN VIEW
N.T.S.



DROP INLET PERSPECTIVE VIEW
N.T.S.

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.

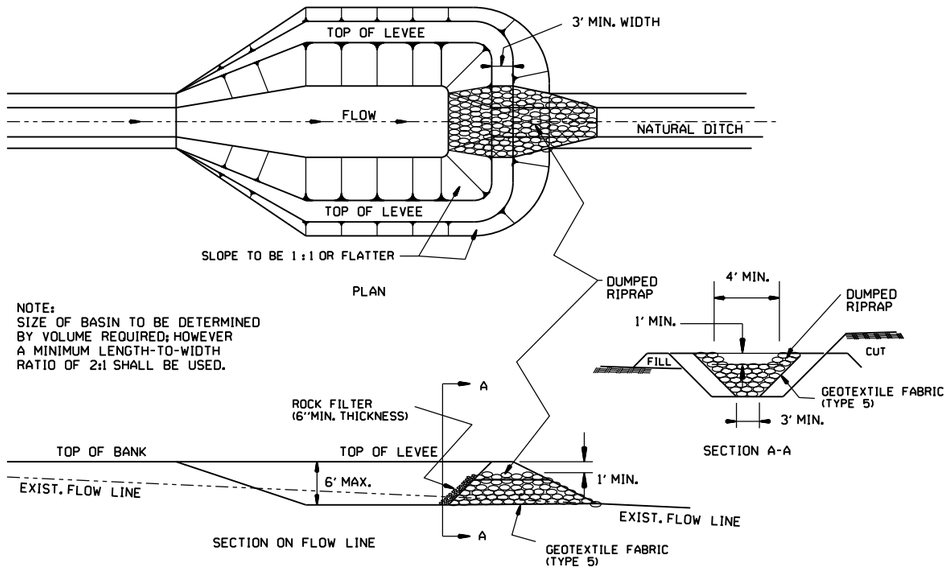
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

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

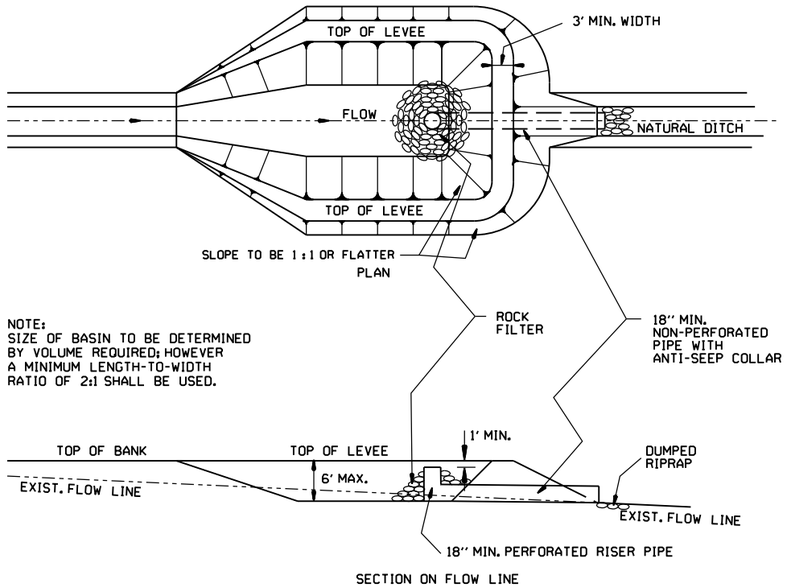
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

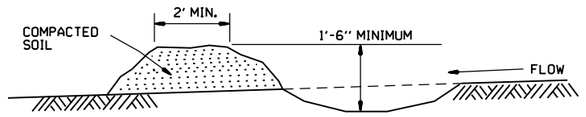
STANDARD DRAWING TEC-1



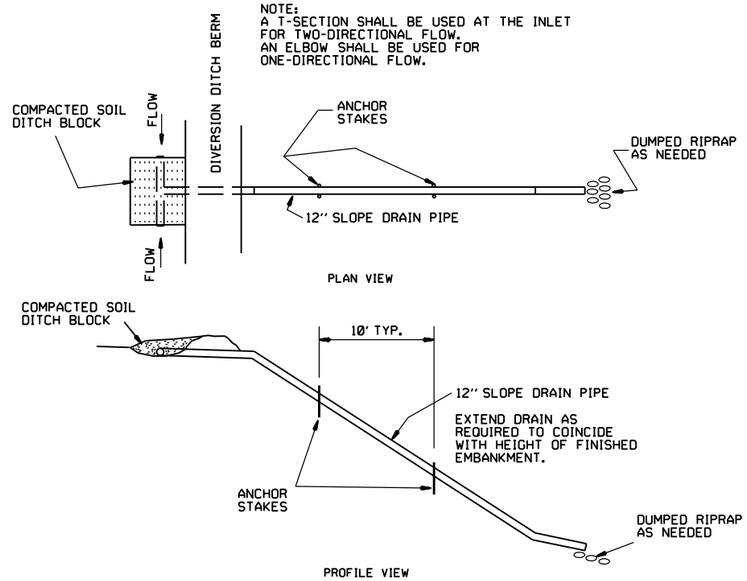
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



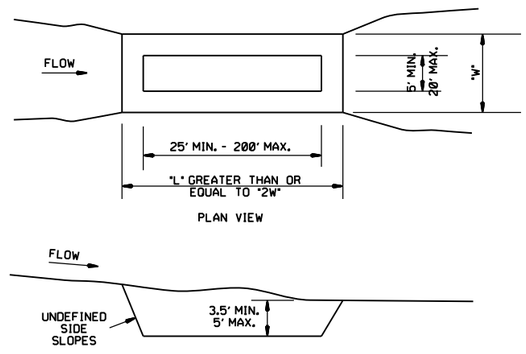
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

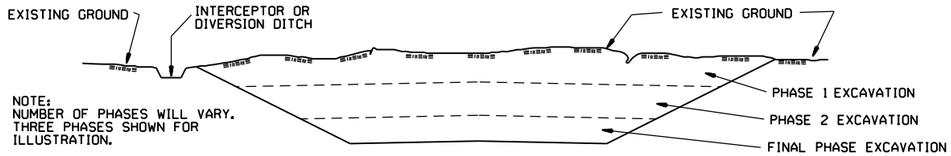
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



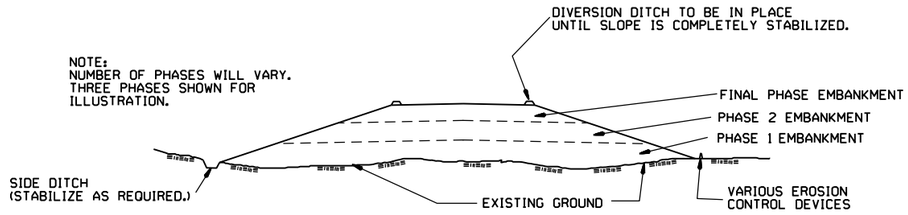
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

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