DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	1	89
		LITTLE BAYOU METO STRS. & APPRS. (S)				

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

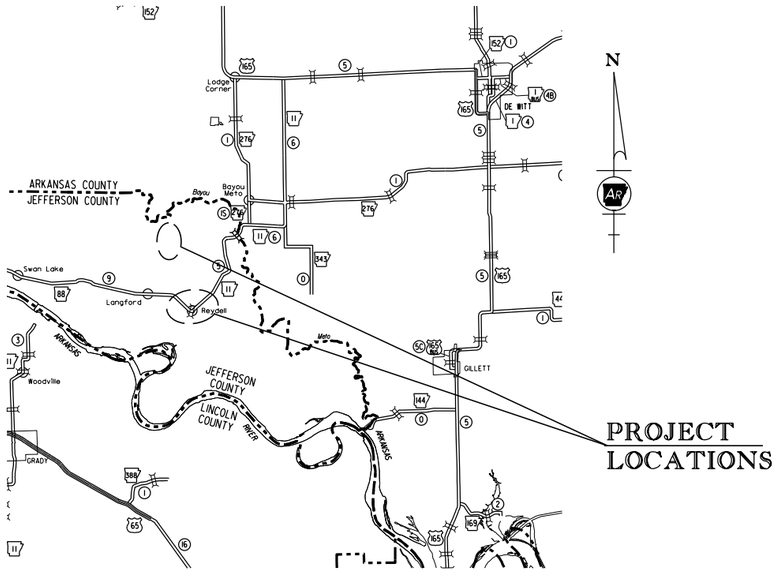
LITTLE BAYOU METO STRS. & APPRS. (S)

JEFFERSON COUNTY
ROUTE 88 SECTION 9
WRAPE RD.

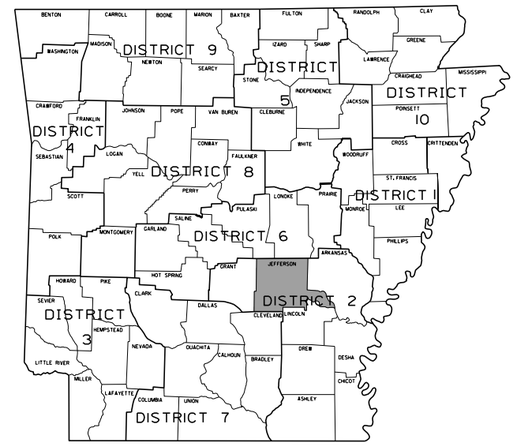
JOB 020784

FED. AID PROJ. STPR-STPB-0035(68)

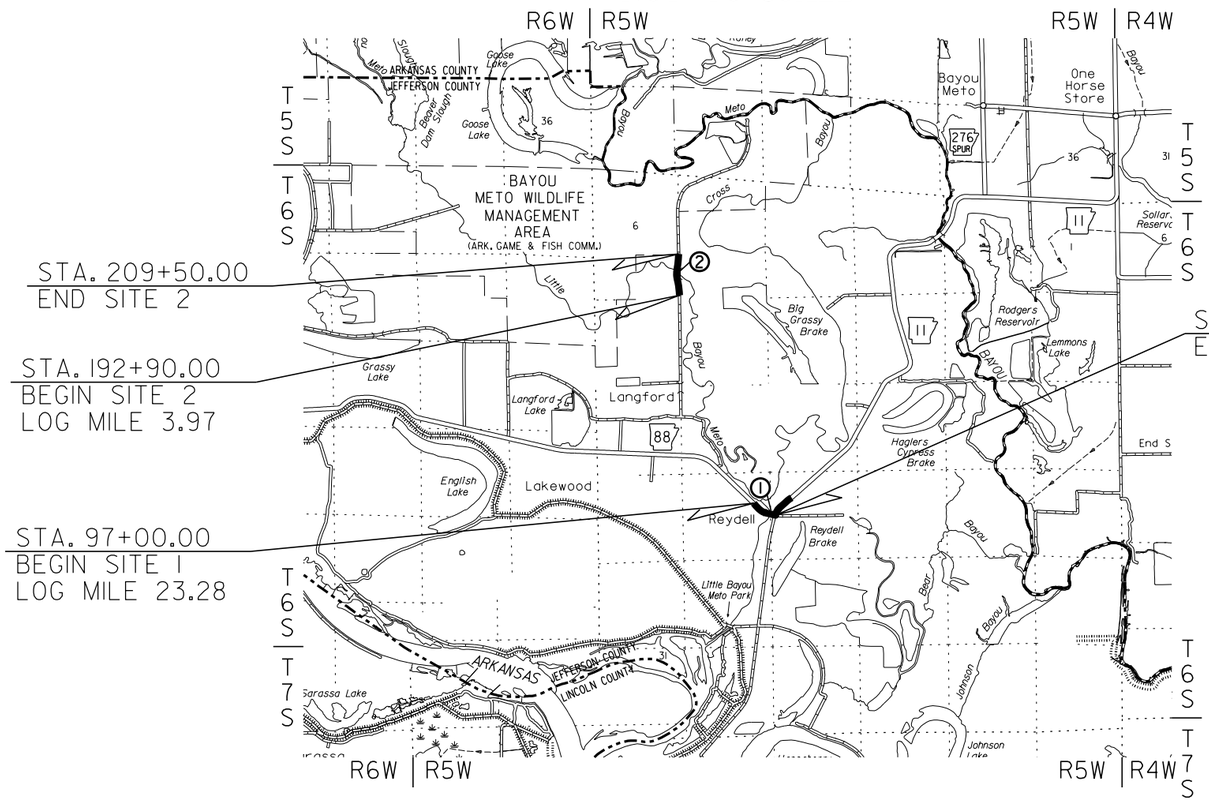
NOT TO SCALE



VICINITY MAP



ARKANSAS HIGHWAY DISTRICT 2



BRIDGE CONSTRUCTION DATA

① STA. 99+83.83 - BRIDGE END
BRIDGE NO. 07682
161'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT TYPE II
(53'-6"-54'-0"-53'-6")
34'-0" CLEAR ROADWAY
15°00'00" RT. FWD. SKEW
162'-4" BRIDGE LENGTH
STA. 101+46.17 - BRIDGE END

② STA. 200+02.00 - BRIDGE END
BRIDGE NO. 07683
120'-0" CONTINUOUS R.C. SLAB UNIT (40', 40', 40')
28'-0" CLEAR ROADWAY
30°00'00" LT. FWD. SKEW
120'-0" BRIDGE LENGTH
STA. 201+22.00 - BRIDGE END

. DESIGN TRAFFIC DATA. SITE 1

DESIGN YEAR		2044
2024	ADT	500
2044	ADT	550
2044	DHV	61
DIRECTIONAL DISTRIBUTION		60%
TRUCKS		6%
DESIGN SPEED		35 MPH

. DESIGN TRAFFIC DATA. SITE 2

DESIGN YEAR		2044
2024	ADT	150
2044	ADT	170
2044	DHV	19
DIRECTIONAL DISTRIBUTION		60%
TRUCKS		12%
DESIGN SPEED		35 MPH

PROJECT COORDINATES:

SITE 1	BEGIN	MID-POINT	END
LATITUDE	N34° 09' 26"	N34° 09' 25"	N34° 09' 24"
LONGITUDE	W91° 34' 01"	W91° 33' 58"	W91° 33' 55"
SITE 2	BEGIN	MID-POINT	END
LATITUDE	N34° 11' 43"	N34° 11' 53"	N34° 12' 01"
LONGITUDE	W91° 34' 58"	W91° 34' 58"	W91° 34' 58"

LENGTH OF PROJECT CALCULATED ALONG C.L.
GROSS LENGTH OF PROJECT 2242.24 FEET OR 0.425 MILES
NET LENGTH OF ROADWAY 1959.91 FEET OR 0.371 MILES
NET LENGTH OF BRIDGES 282.33 FEET OR 0.054 MILES
NET LENGTH OF PROJECT 2242.24 FEET OR 0.425 MILES

CERTIFICATE OF AUTHORIZATION
HDR ENGINEERING INC. No. 446
ARKANSAS - ENGINEER

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 18018
JUSTIN P. CARNEY
DIGITALLY SIGNED 03-28-2024

3/22/2024
JJCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	2	89
		INDEX OF SHEETS AND STANDARD DRAWINGS				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 03-22-2024

INDEX OF SHEETS

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

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
55030F	STANDARD DETAILS FOR TYPE F APPROACH GUTTERS	04-08-21
55040F1	STANDARD DETAILS FOR TYPE F APPROACH SLAB	09-07-23
55070	STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR36	09-27-22

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
DR-2	DETAILS OF DRIVEWAYS & STREET TURNOUTS	05-19-22
GR-6	GUARDRAIL DETAILS	05-19-22
GR-8	GUARDRAIL DETAILS	11-07-19
GR-9	GUARDRAIL DETAILS	11-07-19
GR-10	GUARDRAIL DETAILS	11-07-19
GR-11	GUARDRAIL DETAILS	11-07-19
GR-12	GUARDRAIL DETAILS	05-14-20
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
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	11-07-19
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

JUCARNEY 3/22/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	3	89
		GOVERNING SPECIFICATIONS AND GENERAL NOTES				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 04-03-2024

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA_____	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273__	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273__	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273__	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__	SUPPLEMENT - WAGE RATE DETERMINATION
100-3_____	CONTRACTOR'S LICENSE
100-4_____	DEPARTMENT NAME CHANGE
102-2_____	ISSUANCE OF PROPOSALS
103-2_____	CONTACT INFORMATION FOR MOTORIST DAMAGE CLAIMS
105-4_____	MAINTENANCE DURING CONSTRUCTION
107-2_____	RESTRAINING CONDITIONS
108-1_____	LIQUIDATED DAMAGES
108-2_____	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1_____	PROTECTION OF WATER QUALITY AND WETLANDS
210-1_____	UNCLASSIFIED EXCAVATION
303-1_____	AGGREGATE BASE COURSE
306-1_____	QUALITY CONTROL AND ACCEPTANCE
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 020784__	BIDDING REQUIREMENTS AND CONDITIONS
JOB 020784__	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 020784__	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 020784__	BUY AMERICA - CONSTRUCTION MATERIALS
JOB 020784__	CARGO PREFERENCE ACT REQUIREMENTS
JOB 020784__	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 020784__	COLD MILLING – COUNTY PROPERTY
JOB 020784__	CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENT RESTRICTIONS
JOB 020784__	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 020784__	DELAY IN RIGHT OF WAY OCCUPANCY
JOB 020784__	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
JOB 020784__	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 020784__	ESTABLISHING CONTRACT TIME – WORKING DAY CONTRACT
JOB 020784__	FLEXIBLE BEGINNING OF WORK
JOB 020784__	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 020784__	LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
JOB 020784__	LONGITUDINAL JOINT DENSITIES FOR ACHM SURFACE COURSES
JOB 020784__	MANDATORY ELECTRONIC CONTRACT
JOB 020784__	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 020784__	NESTING SITES OF MIGRATORY BIRDS
JOB 020784__	PARTNERING REQUIREMENTS
JOB 020784__	PERCENT AIR VOIDS AND NDESIGN FOR ACHM SURFACE MIX DESIGNS
JOB 020784__	PILE DRIVING SYSTEM
JOB 020784__	PLASTIC PIPE
JOB 020784__	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 020784__	PRICE ADJUSTMENT FOR FUEL
JOB 020784__	PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 020784__	RESTRICTIONS ON THE USE OF RECYCLED ASPHALT PAVEMENT MATERIAL
JOB 020784__	SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS
JOB 020784__	SHORING
JOB 020784__	SHORING FOR CULVERTS
JOB 020784__	SOIL STABILIZATION
JOB 020784__	STORM WATER POLLUTION PREVENTION PLAN
JOB 020784__	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 020784__	UTILITY ADJUSTMENTS
JOB 020784__	VALUE ENGINEERING
JOB 020784__	WARM MIX ASPHALT

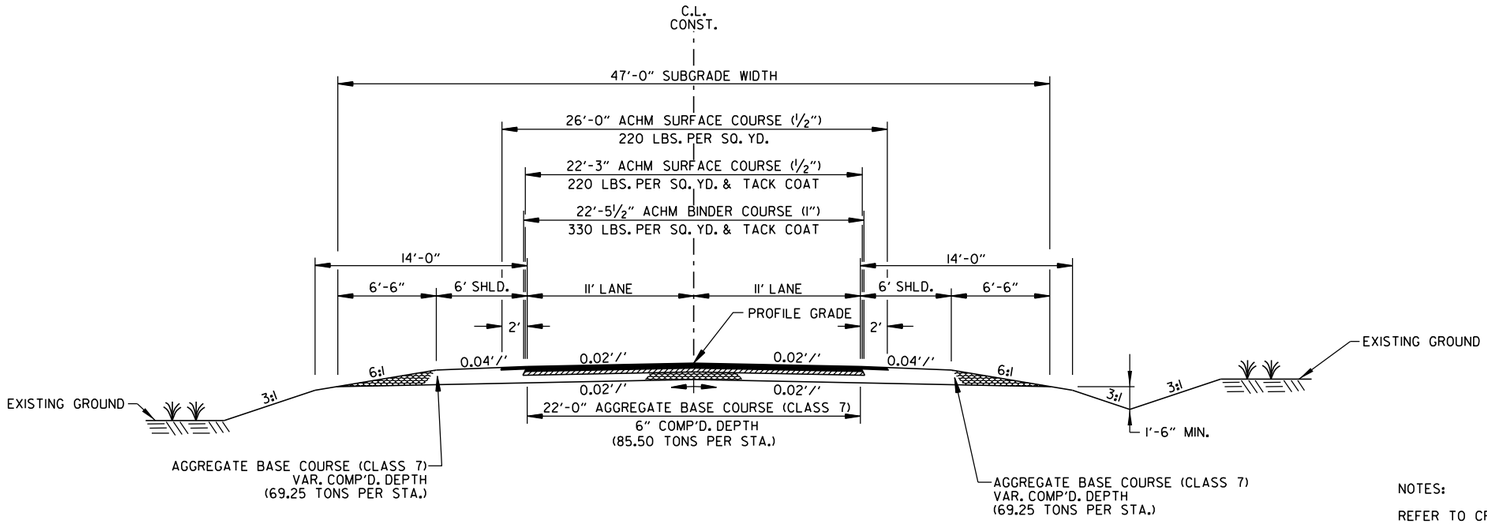
GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
9. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
10. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
11. THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.

JUCARNEY 4/3/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	4	89
		TYPICAL SECTIONS OF IMPROVEMENT				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 03-22-2024



SITE I - HWY. 88
STA. 99+00.00 TO STA. 99+48.83

NOTES:

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

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

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

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.

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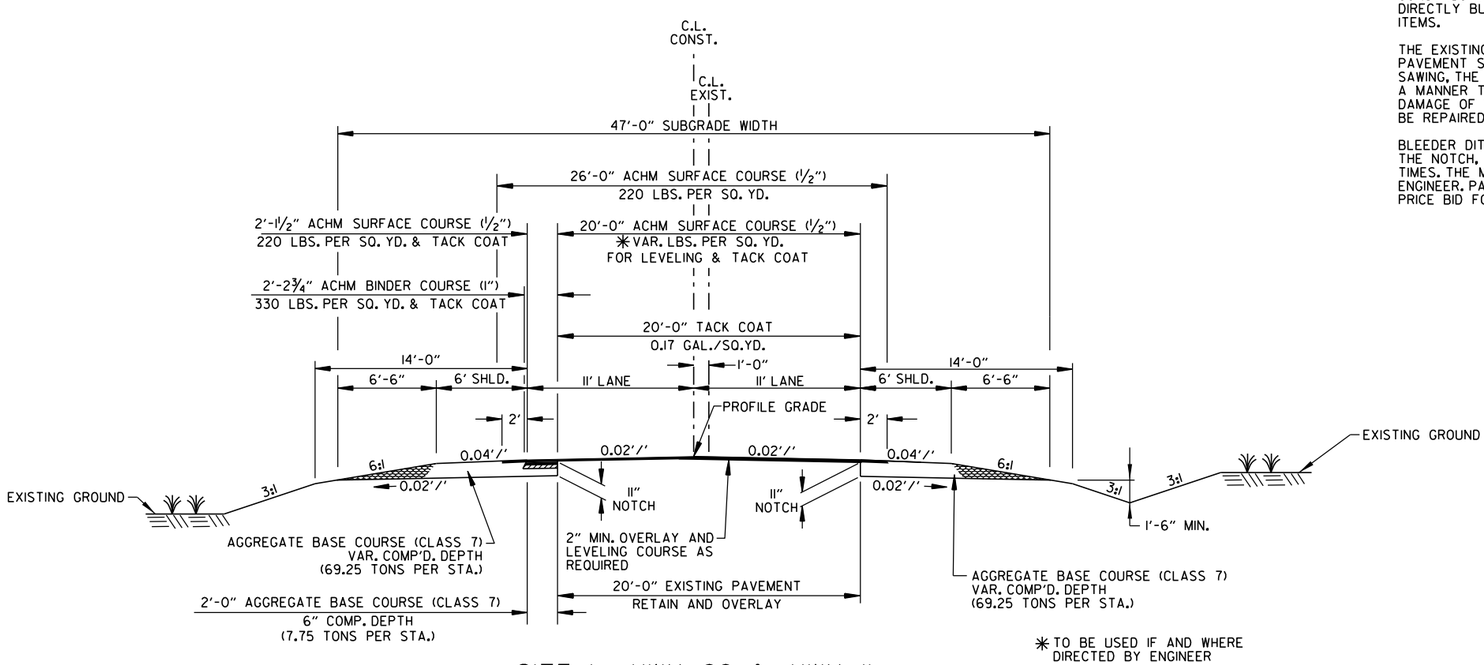
BLEEDER DITCHES - PRIOR TO AND DURING PLACEMENT OF PAVEMENT AT THE NOTCH, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) AND SPACING USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.



* TO BE USED IF AND WHERE DIRECTED BY ENGINEER

NOTE:
DIMENSIONS SHOWN REPRESENT AVERAGE WIDTHS. ACTUAL DIMENSIONS VARY WITHIN THE NOTCH AND WIDEN STATION RANGE.

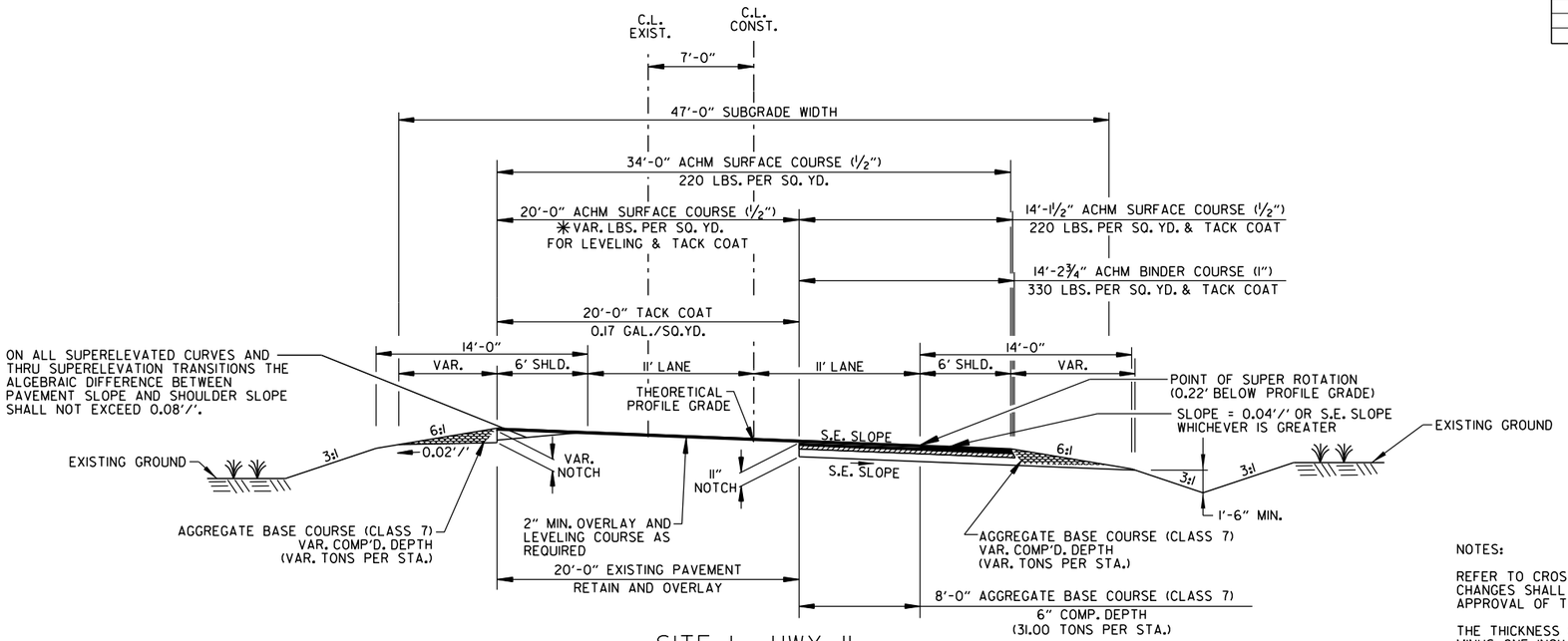
SITE I - HWY. 88 & HWY. 11
NOTCH AND WIDENING
HWY. 88 - STA. 97+00.00 TO STA. 99+00.00
HWY. 11 - STA. 502+72.85 TO STA. 504+64.17

TYPICAL SECTIONS OF IMPROVEMENT

JUCARNEY 3/22/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	5	89
		TYPICAL SECTIONS OF IMPROVEMENT				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 03-22-2024



NOTE:
DIMENSIONS SHOWN REPRESENT AVERAGE WIDTHS. ACTUAL DIMENSIONS VARY WITHIN THE NOTCH AND WIDEN STATION RANGE.

SITE 1 - HWY. 11
NOTCH AND WIDENING - SUPERELEVATED SECTION W/ FULL DEPTH RT. SHOULDER

STA. 500+11.00 TO STA. 500+50.20

*TO BE USED IF AND WHERE DIRECTED BY ENGINEER

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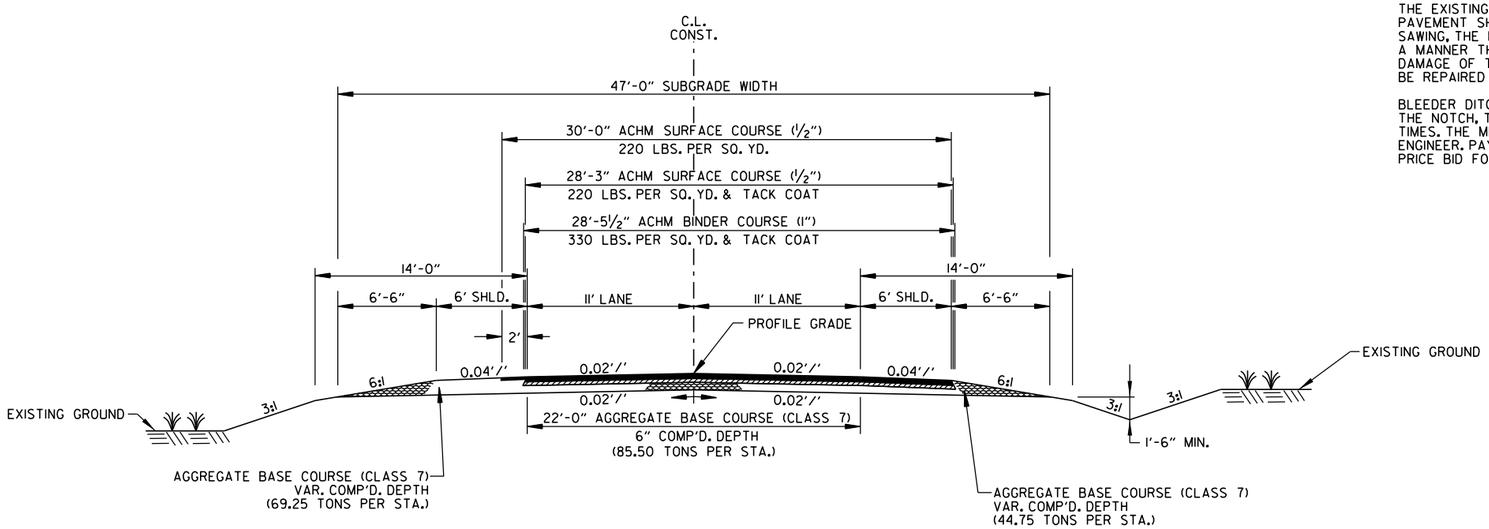


SITE 1 - HWY. 88
W/ FULL DEPTH RT. SHOULDER

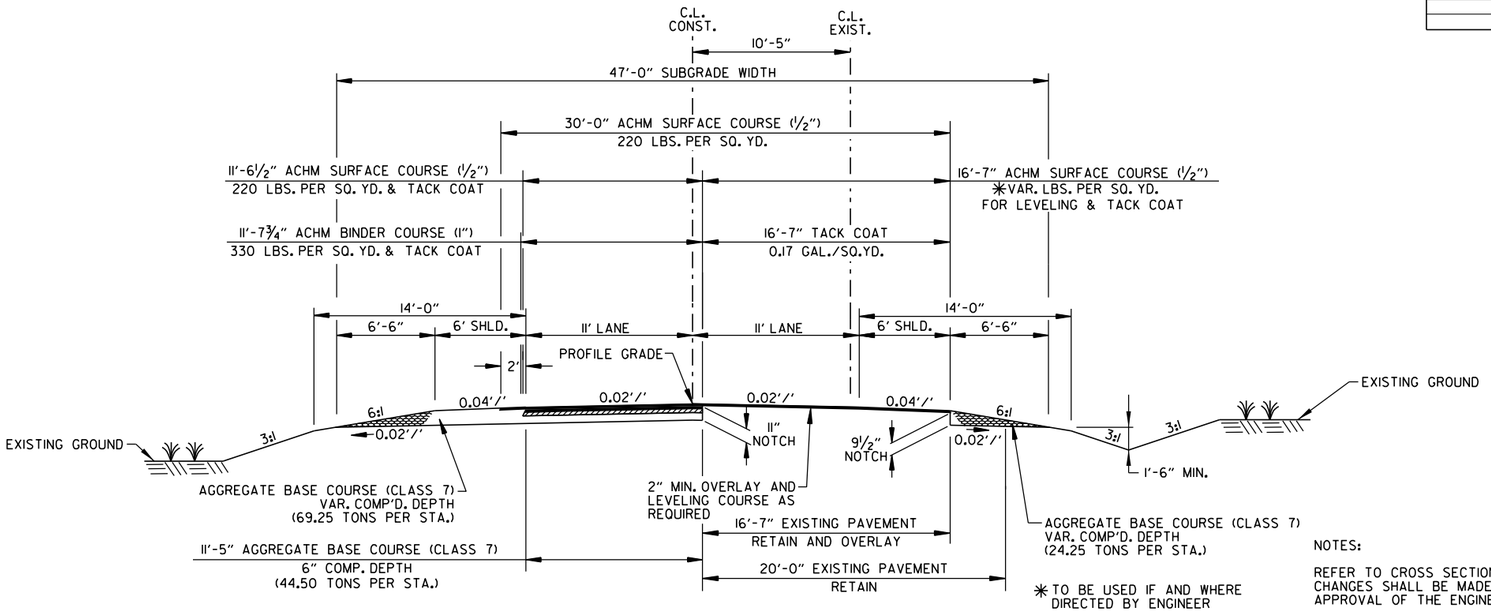
STA. 101+81.17 TO STA. 102+82.24

JUCARNEY 3/22/2024

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	6	89
		TYPICAL SECTIONS OF IMPROVEMENT				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 03-22-2024



NOTE:
DIMENSIONS SHOWN REPRESENT AVERAGE WIDTHS. ACTUAL DIMENSIONS VARY WITHIN THE NOTCH AND WIDEN STATION RANGE.

SITE 1 - HWY. 11
NOTCH AND WIDENING

STA. 501+30.00 TO STA. 502+72.85

NOTES:

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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.

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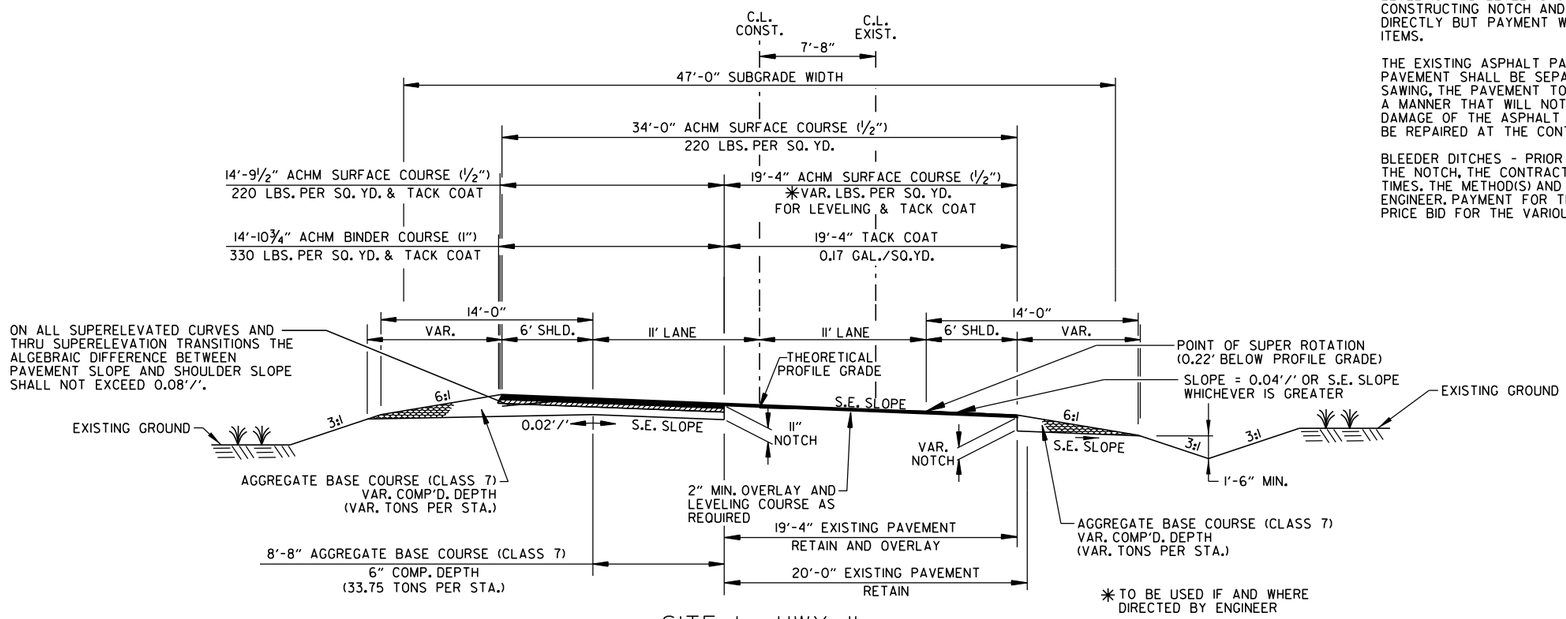
BLEEDER DITCHES - PRIOR TO AND DURING PLACEMENT OF PAVEMENT AT THE NOTCH, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) AND SPACING USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.



NOTE:
DIMENSIONS SHOWN REPRESENT AVERAGE WIDTHS. ACTUAL DIMENSIONS VARY WITHIN THE NOTCH AND WIDEN STATION RANGE.

SITE 1 - HWY. 11
NOTCH AND WIDENING - SUPERELEVATED SECTION W/ FULL DEPTH LT. SHOULDER

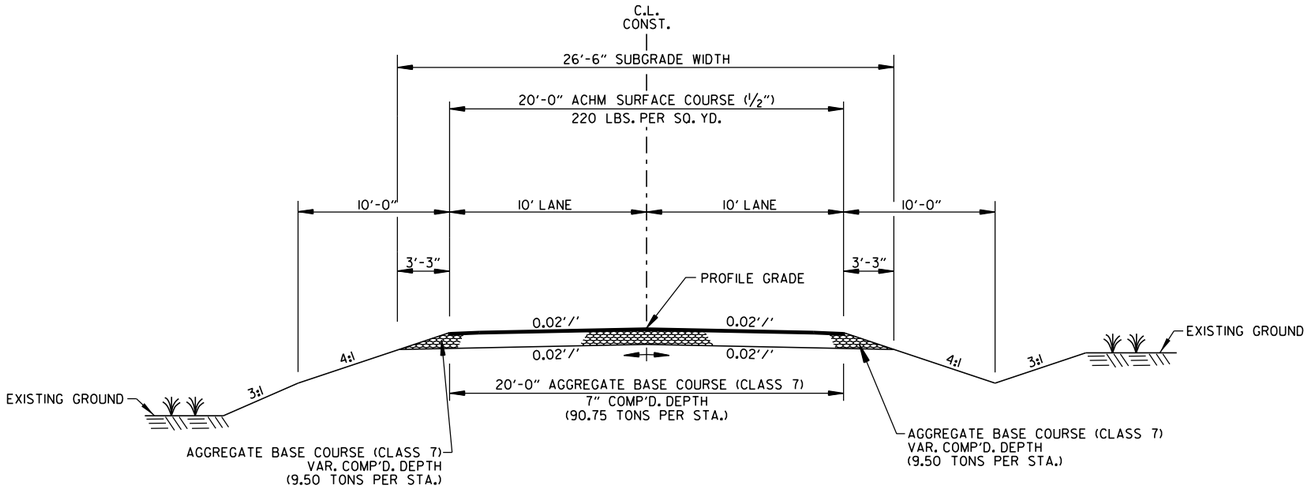
STA. 500+50.20 TO STA. 501+30.00

JUCARNEY 3/22/2024

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	7	89
		TYPICAL SECTIONS OF IMPROVEMENT				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 03-22-2024



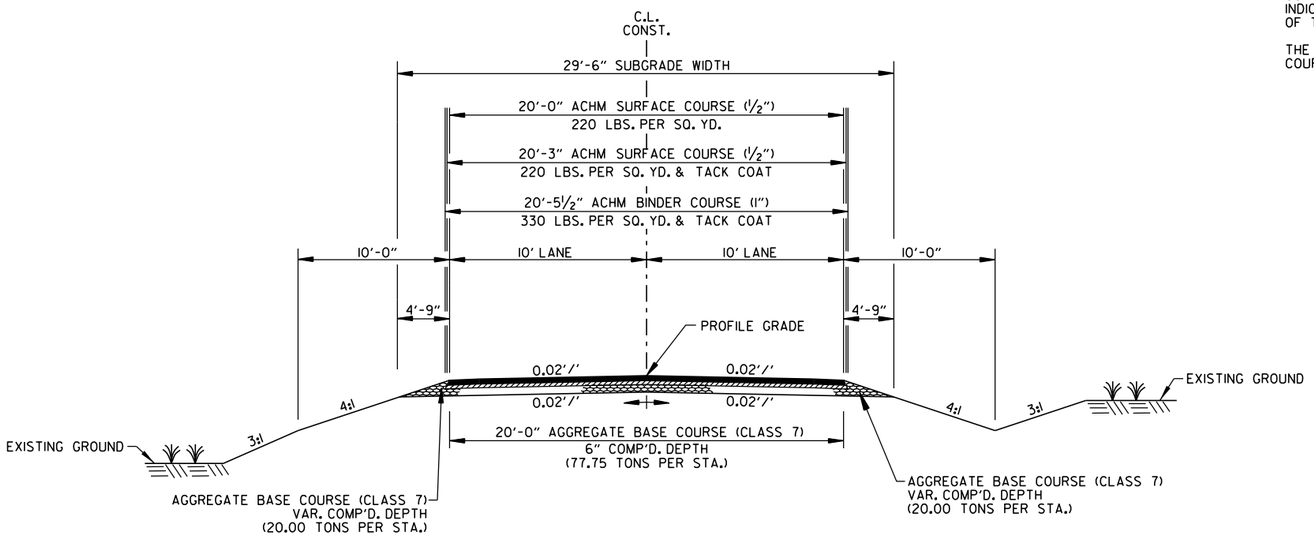
SITE 1- GIBSON RD.
STA. 61+11.14 TO STA. 62+90.00

NOTES:

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

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

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



SITE 1- GIBSON RD.
FULL DEPTH
STA. 60+00.00 TO STA. 61+11.14

JUCARNEY 3/22/2024

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	8	89
		TYPICAL SECTIONS OF IMPROVEMENT				

STATE OF ARKANSAS
James Patrick Jones
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No.18036
JAMES PATRICK JONES
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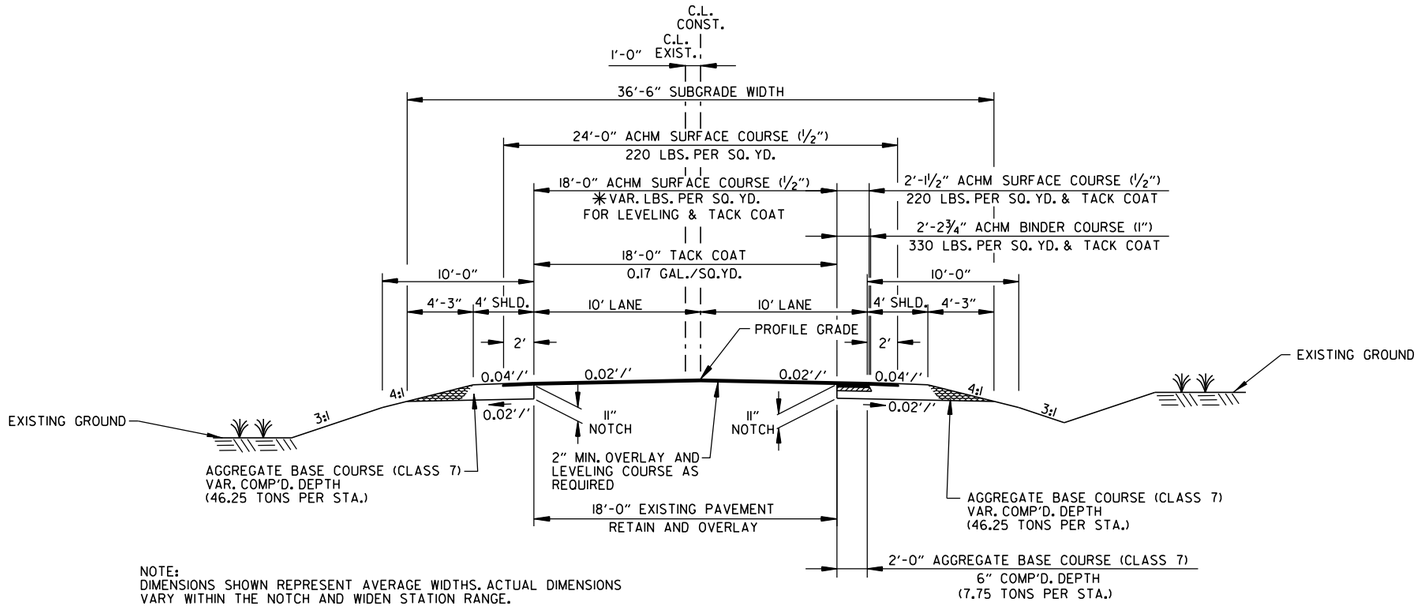
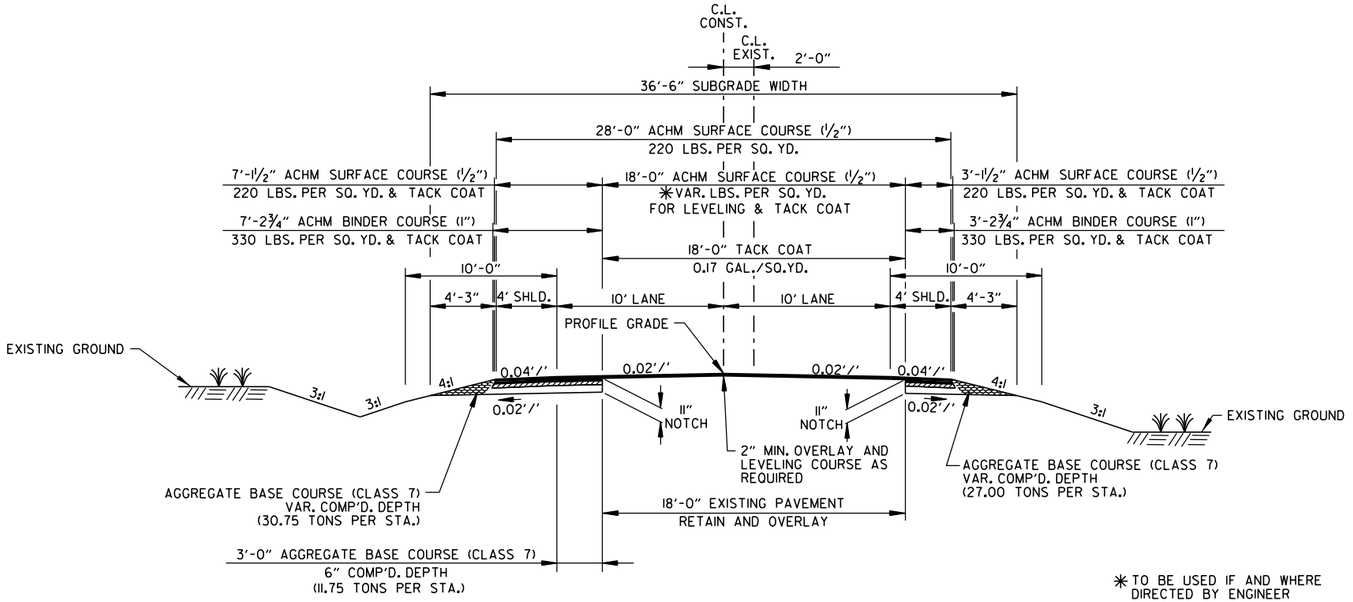


NOTE:
DIMENSIONS SHOWN REPRESENT AVERAGE WIDTHS. ACTUAL DIMENSIONS VARY WITHIN THE NOTCH AND WIDEN STATION RANGE.

SITE I - LUCKIE RD.
NOTCH AND WIDENING

STA. 31+05.00 TO STA. 31+50.00

✳ TO BE USED IF AND WHERE DIRECTED BY ENGINEER



NOTE:
DIMENSIONS SHOWN REPRESENT AVERAGE WIDTHS. ACTUAL DIMENSIONS VARY WITHIN THE NOTCH AND WIDEN STATION RANGE.

SITE I - LUCKIE RD.
NOTCH AND WIDENING
W/ FULL DEPTH LT. & RT. SHOULDERS

STA. 30+11.00 TO STA. 31+05.00

✳ TO BE USED IF AND WHERE DIRECTED BY ENGINEER

NOTES:

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

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JUCARNEY 3/22/2024

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	9	89
		TYPICAL SECTIONS OF IMPROVEMENT				

STATE OF ARKANSAS
James Patrick Jones
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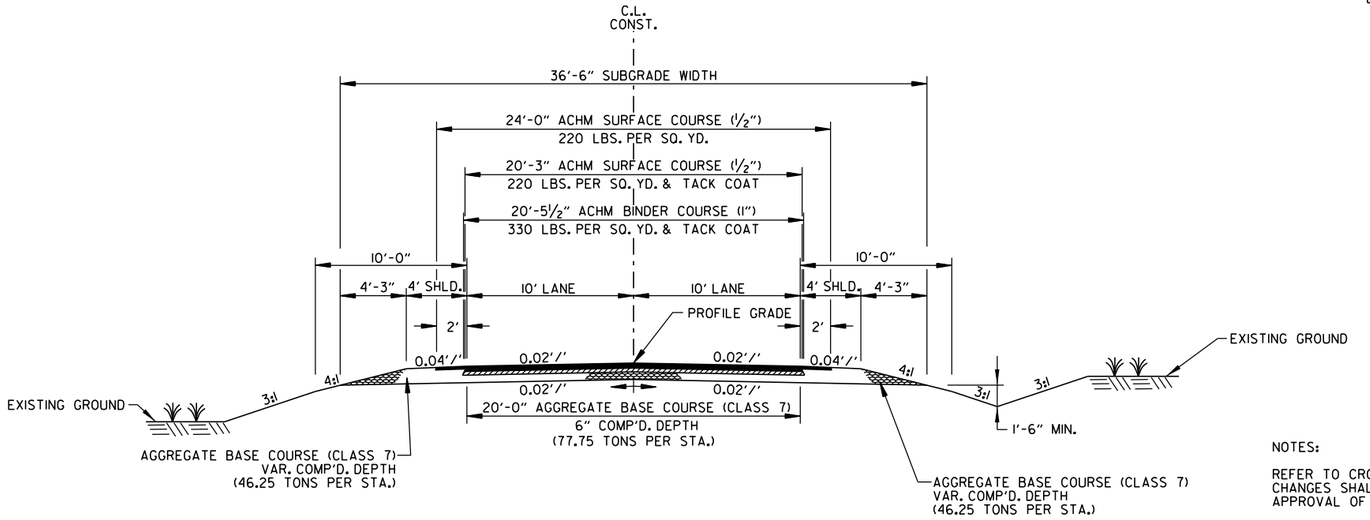


SITE 2 - WRAPE RD.

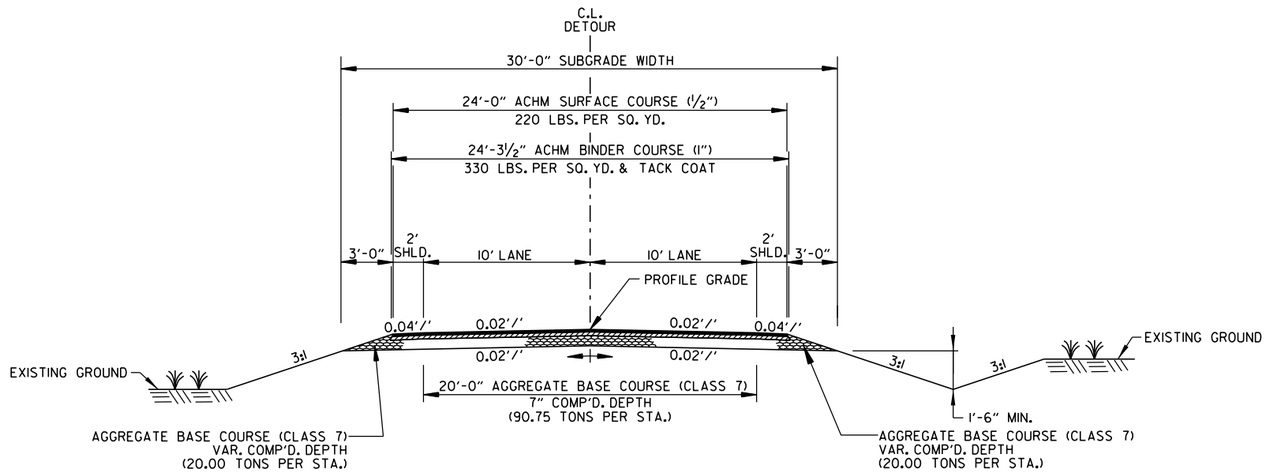
STA. 192+90.00 TO STA. 199+67.00
STA. 201+57.00 TO STA. 209+50.00

NOTES:

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

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

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



SITE 1 - TEMPORARY DETOUR

STA. 398+09.27 TO STA. 405+60.57

JUCARNEY 3/22/2024

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	10	89
		SPECIAL DETAILS				

STATE OF ARKANSAS
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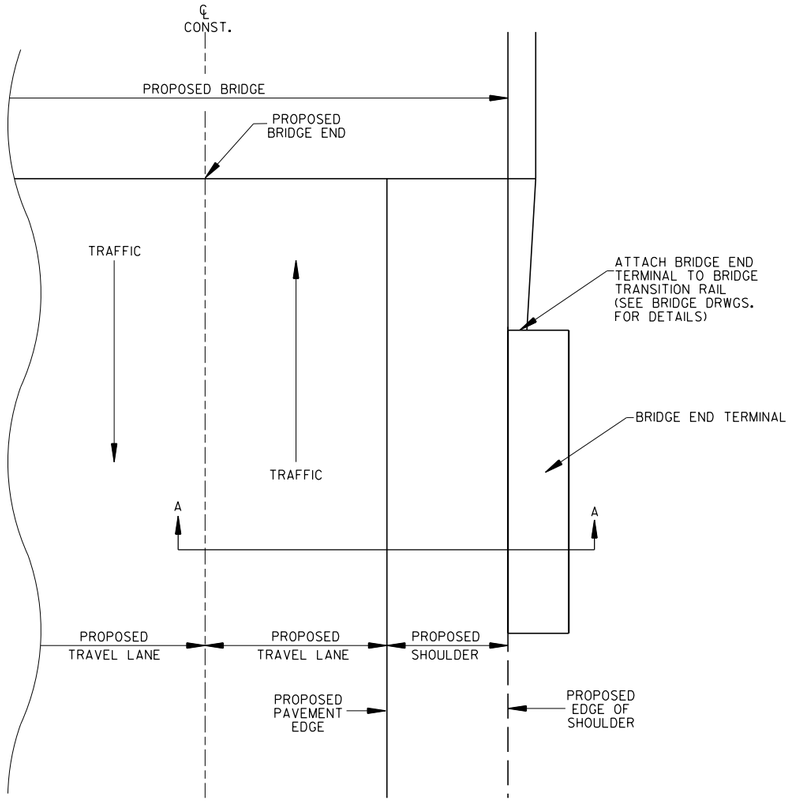
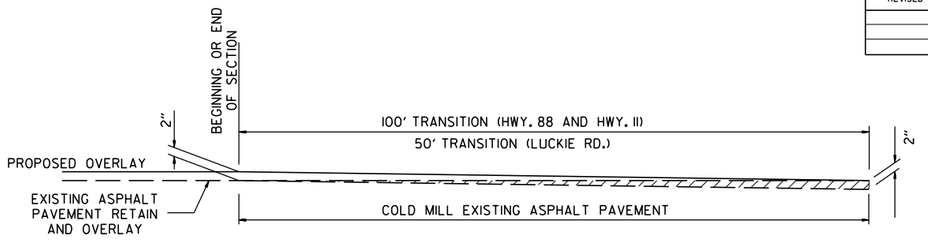
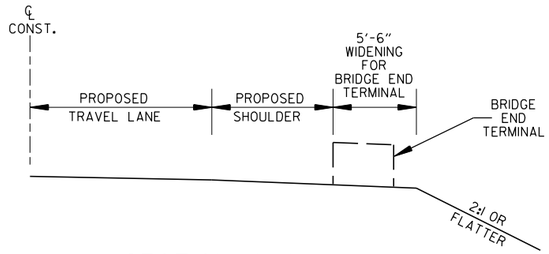


PLAN VIEW



DETAIL FOR TRANSITIONS
SITE 1

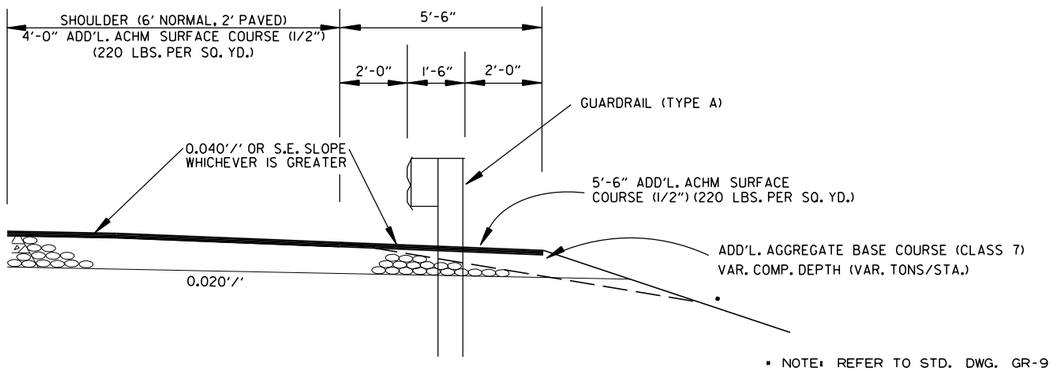


SECTION A-A

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.

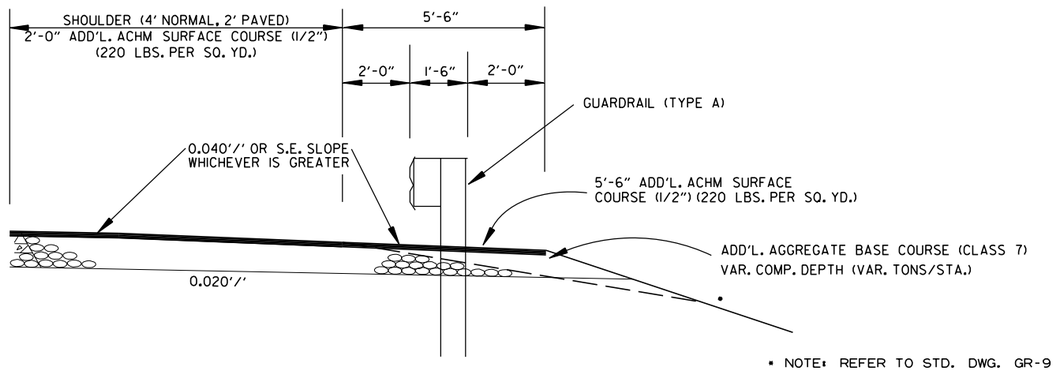
NOTE:
BRIDGE END TERMINAL SHALL CONFORM TO THE FOLLOWING:
-MAXIMUM LENGTH: 20'
-MAXIMUM HEIGHT: 2.75'
-DESIGN SPEED: 60 MPH

BRIDGE END TERMINAL DETAILS



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

WIDENING FOR GUARDRAIL
SITE 1



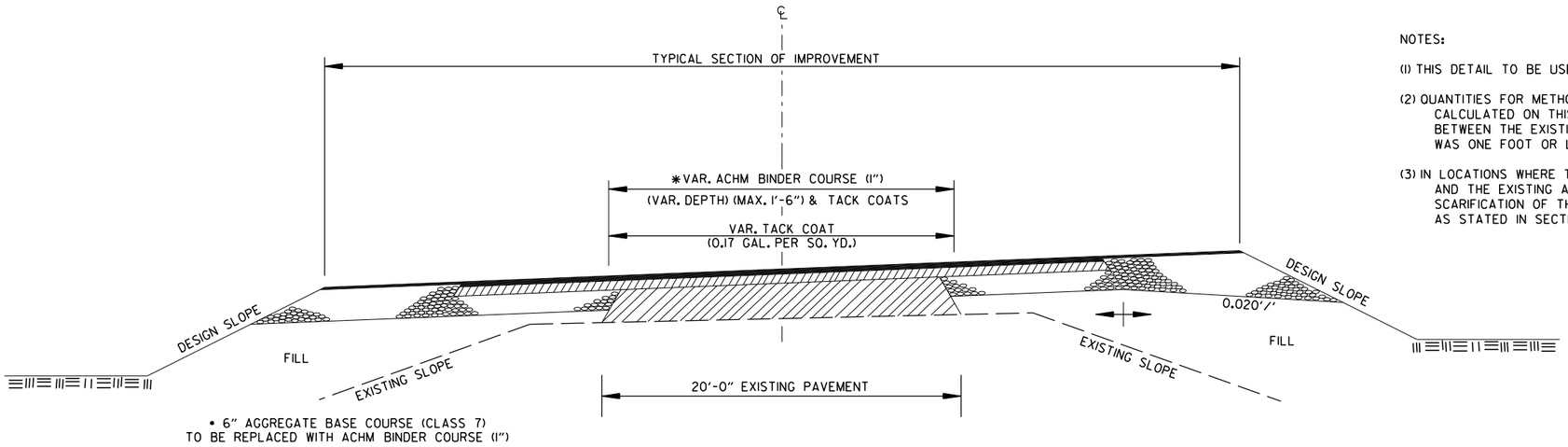
▪ NOTE: REFER TO STD. DWG. GR-9 AND CROSS SECTIONS FOR SLOPE REQUIREMENTS BEHIND GUARDRAIL.

WIDENING FOR GUARDRAIL
SITE 2

JUCARNEY 3/22/2024

SPECIAL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	11	89
		SPECIAL DETAILS				



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.

STATE OF ARKANSAS
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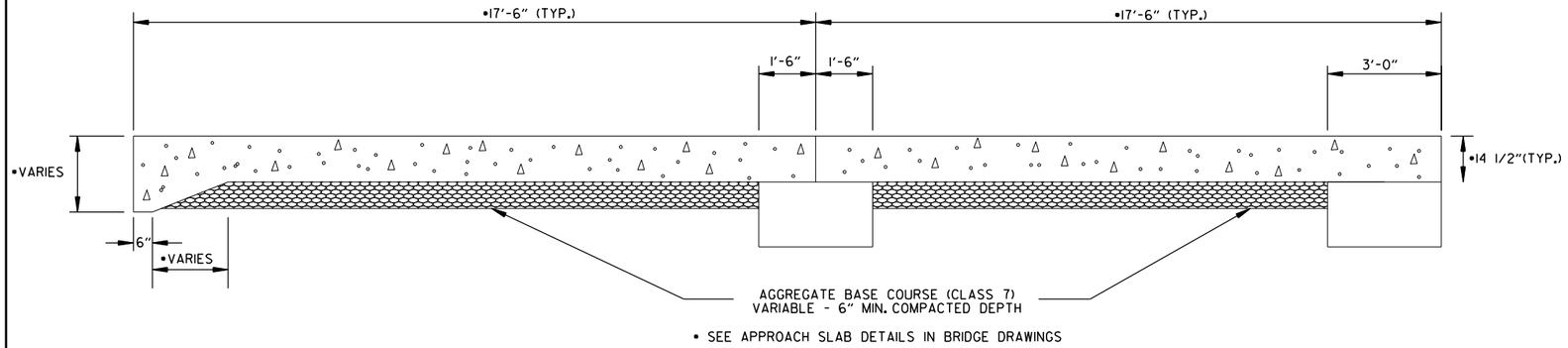

SECTION OF APPROACH SLAB
(FOR ASPHALT PAVEMENT)
SITE 1 AND SITE 2

JUCARNEY 3/22/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	12	89
		SPECIAL DETAILS				

STATE OF ARKANSAS
James Patrick Jones
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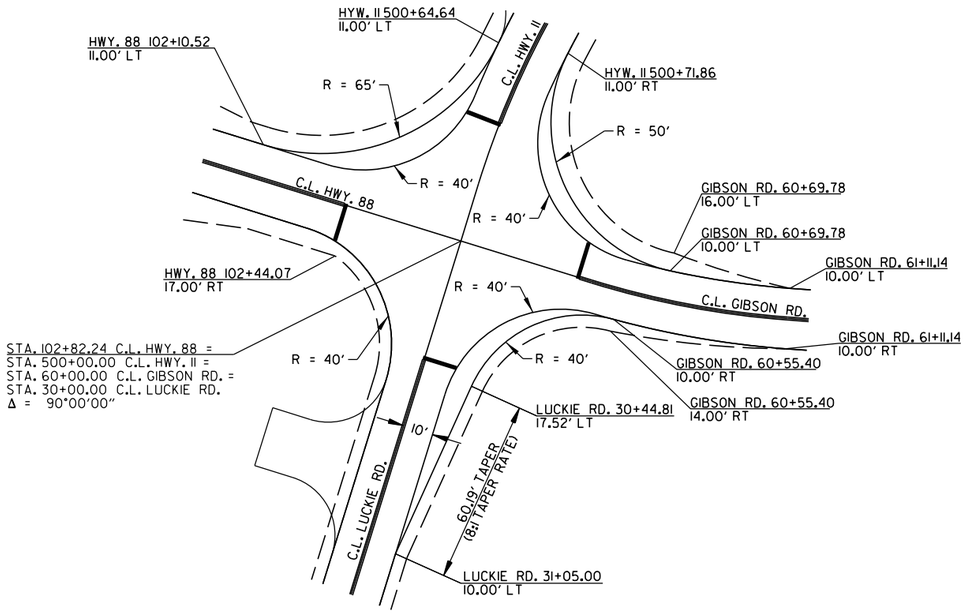
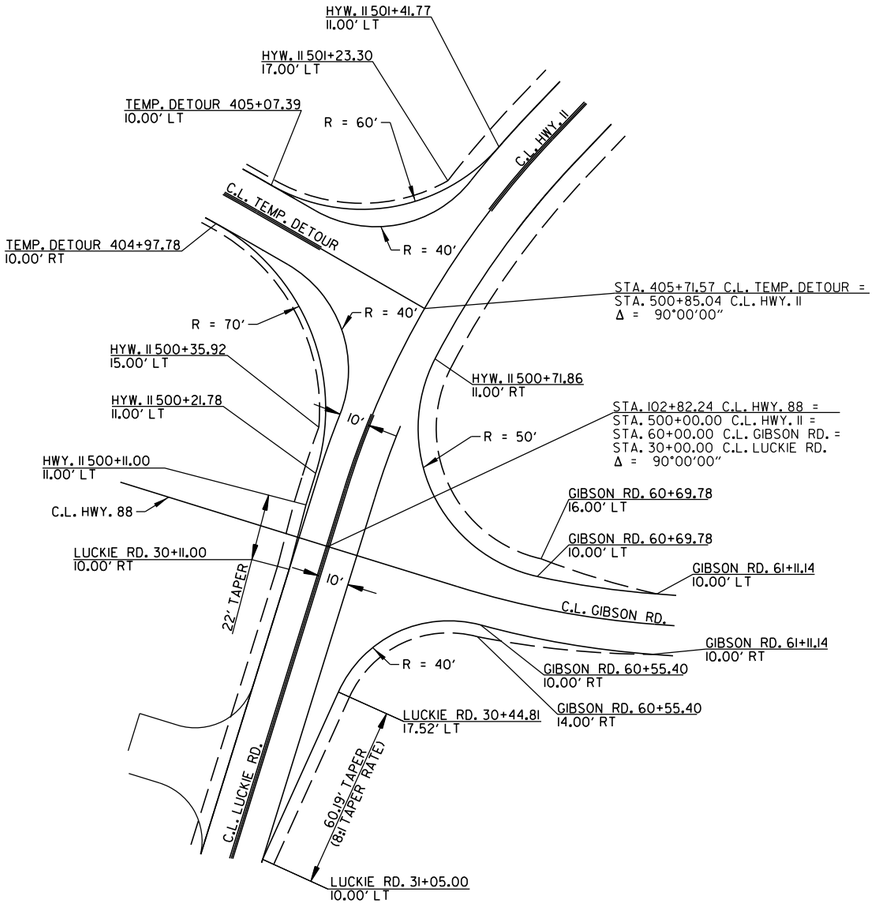


INTERSECTION DETAIL
SITE 1



INTERSECTION DETAIL
TEMP. DETOUR
SITE 1

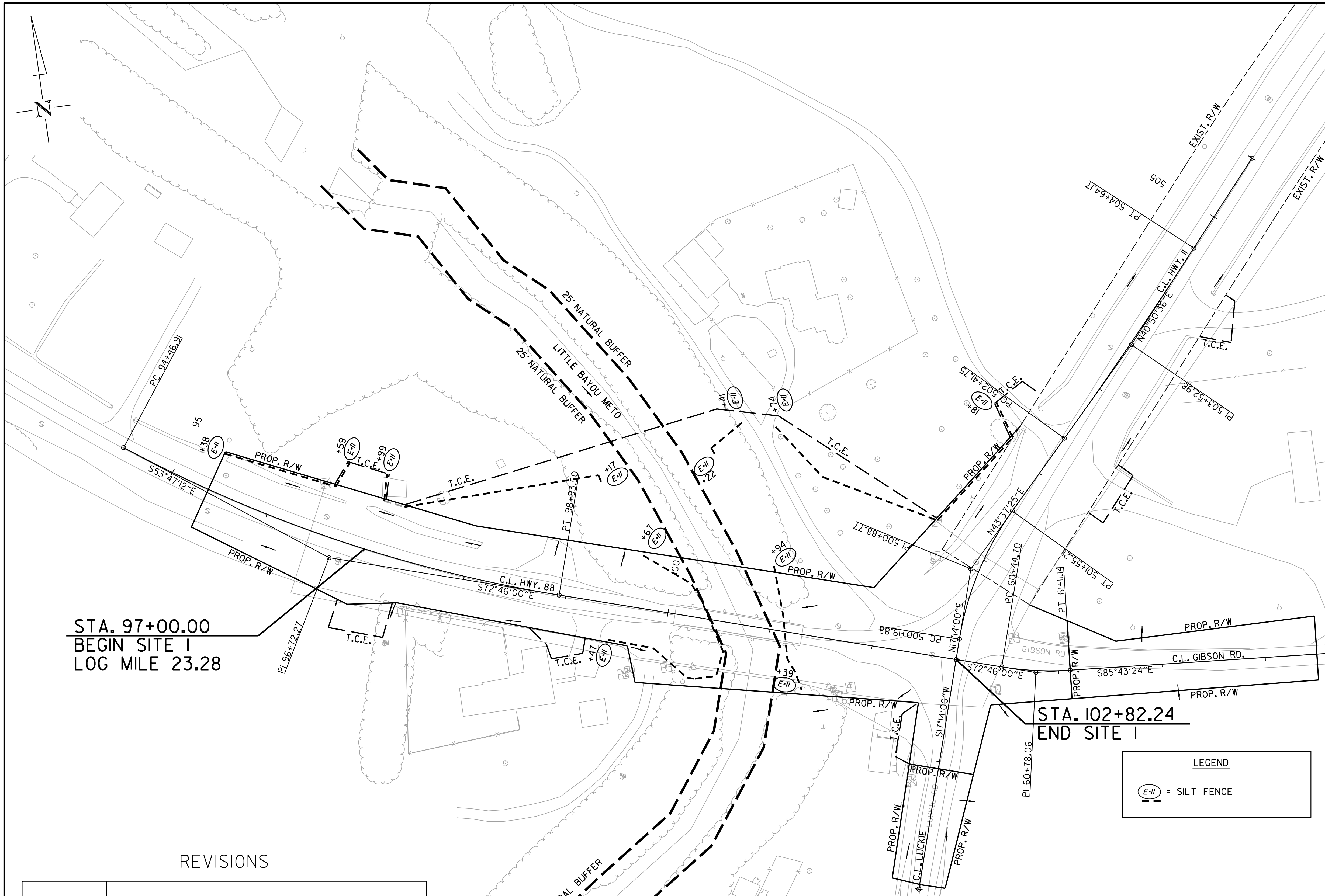
JUCARNEY 3/22/2024

SPECIAL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	13	89

TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
★ ★ ★
No.18036
JAMES PATRICK JONES
James Patrick Jones
DIGITALLY SIGNED 03-22-2024



SILT FENCE	E-11	LIN. FT.
C.L. HWY. 88 STA. 95+38 TO 96+59	LT.	139
C.L. HWY. 88 STA. 96+99 TO 99+17	LT.	245
C.L. HWY. 88 STA. 99+47 TO 99+67	RT. & LT.	268
C.L. HWY. 88 STA. 100+22 TO 100+41	LT.	48
C.L. HWY. 88 STA. 100+74 TO 102+81	LT.	331
C.L. HWY. 88 STA. 100+94 TO 101+39	LT. & RT.	124

REVISIONS

DATE	REVISION

TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EROSION CONTROL DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

SITE 1- CLEARING AND GRUBBING TEMPORARY EROSION CONTROL DETAILS

JUCARNEY 3/22/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	14	89
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
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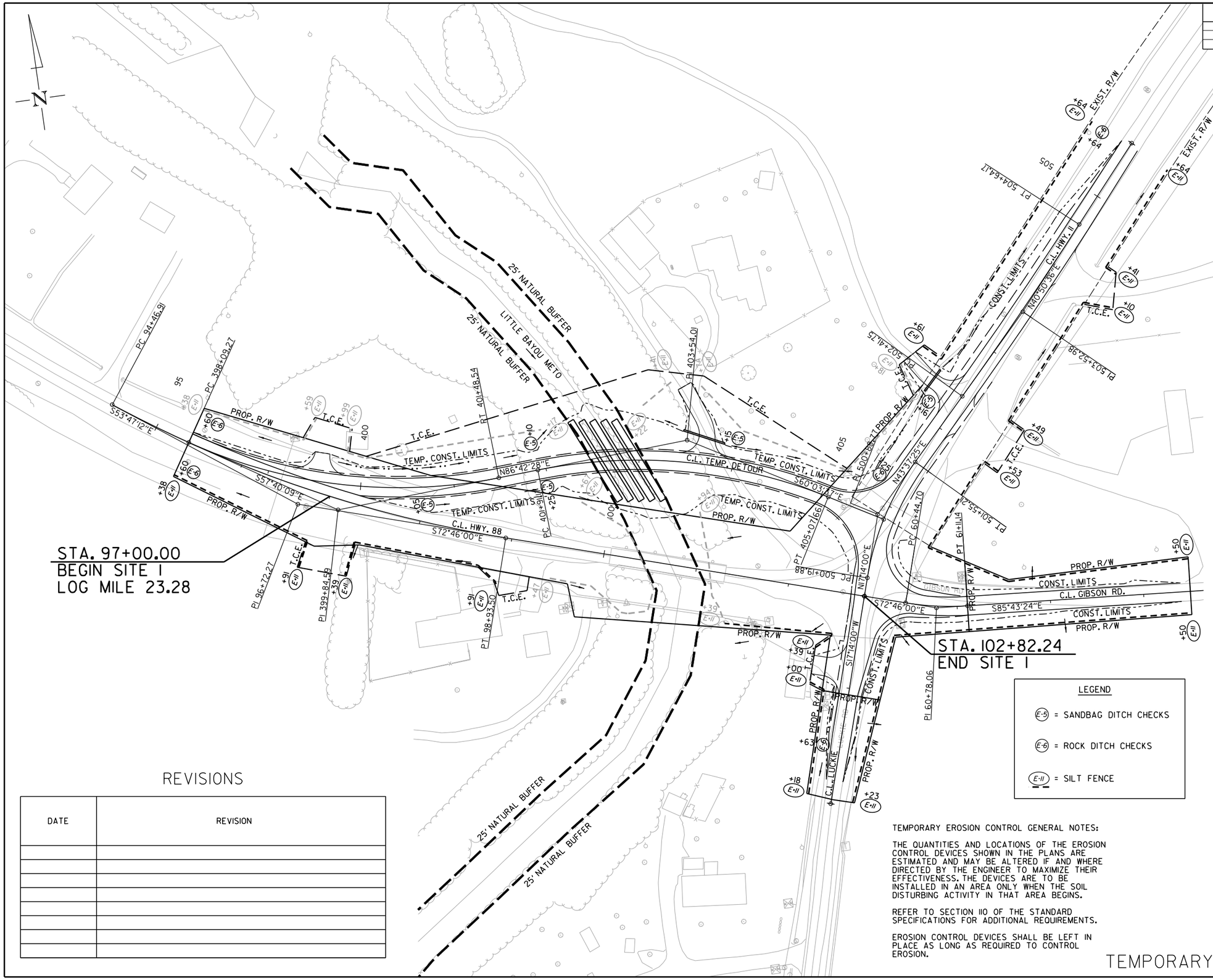

SANDBAG DITCH CHECKS	(E-5)	INSTALLATION
C.L. HWY. 88 STA. 98+05	LT.	1
C.L. HWY. 88 STA. 99+10	LT.	1
C.L. HWY. 88 STA. 99+25	LT.	1
C.L. HWY. 88 STA. 101+15	LT.	1
C.L. HWY. II STA. 502+16	LT.	1

ROCK DITCH CHECKS	(E-6)	INSTALLATION
C.L. HWY. 88 STA. 95+60	LT.	1
C.L. HWY. 88 STA. 95+60	RT.	1
C.L. HWY. II STA. 501+25	LT.	1
C.L. HWY. II STA. 505+64	LT.	1
C.L. LUCKIE RD. STA. 31+63	RT.	1

SILT FENCE	(E-11)	LIN. FT.
C.L. HWY. 88 STA. 95+38 TO 96+59	LT.	RETAIN
C.L. HWY. 88 STA. 95+38 TO 96+91	RT.	188
C.L. HWY. 88 STA. 96+99 TO 99+17	LT.	RETAIN
C.L. HWY. 88 STA. 97+39 TO 98+91	RT.	200
C.L. HWY. 88 STA. 99+47 TO 99+67	RT. & LT.	RETAIN
C.L. HWY. 88 STA. 100+22 TO 100+41	LT.	RETAIN
C.L. HWY. 88 STA. 100+74 TO 102+81	LT.	RETAIN
C.L. HWY. 88 STA. 100+94 TO 101+39	LT. & RT.	RETAIN
C.L. HWY. 88 STA. 101+39 TO 102+39	RT.	140
C.L. HWY. II STA. 502+49 TO 504+10	RT.	202
C.L. HWY. II STA. 502+61 TO 505+64	LT.	326
C.L. HWY. II STA. 504+41 TO 505+64	RT.	137
C.L. LUCKIE RD. STA. 31+00 TO 32+18	RT.	130
C.L. GIBSON RD. STA. 60+23 TO 63+50	RT.	504
C.L. GIBSON RD. STA. 61+53 TO 63+50	LT.	417

LEGEND

(E-5) = SANDBAG DITCH CHECKS

(E-6) = ROCK DITCH CHECKS

(E-11) = SILT FENCE

TEMPORARY EROSION CONTROL GENERAL NOTES:

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REVISIONS

DATE	REVISION

JUCARNEY 3/22/2024

SITE I - STAGE I
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	15	89

TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
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JAMES PATRICK JONES
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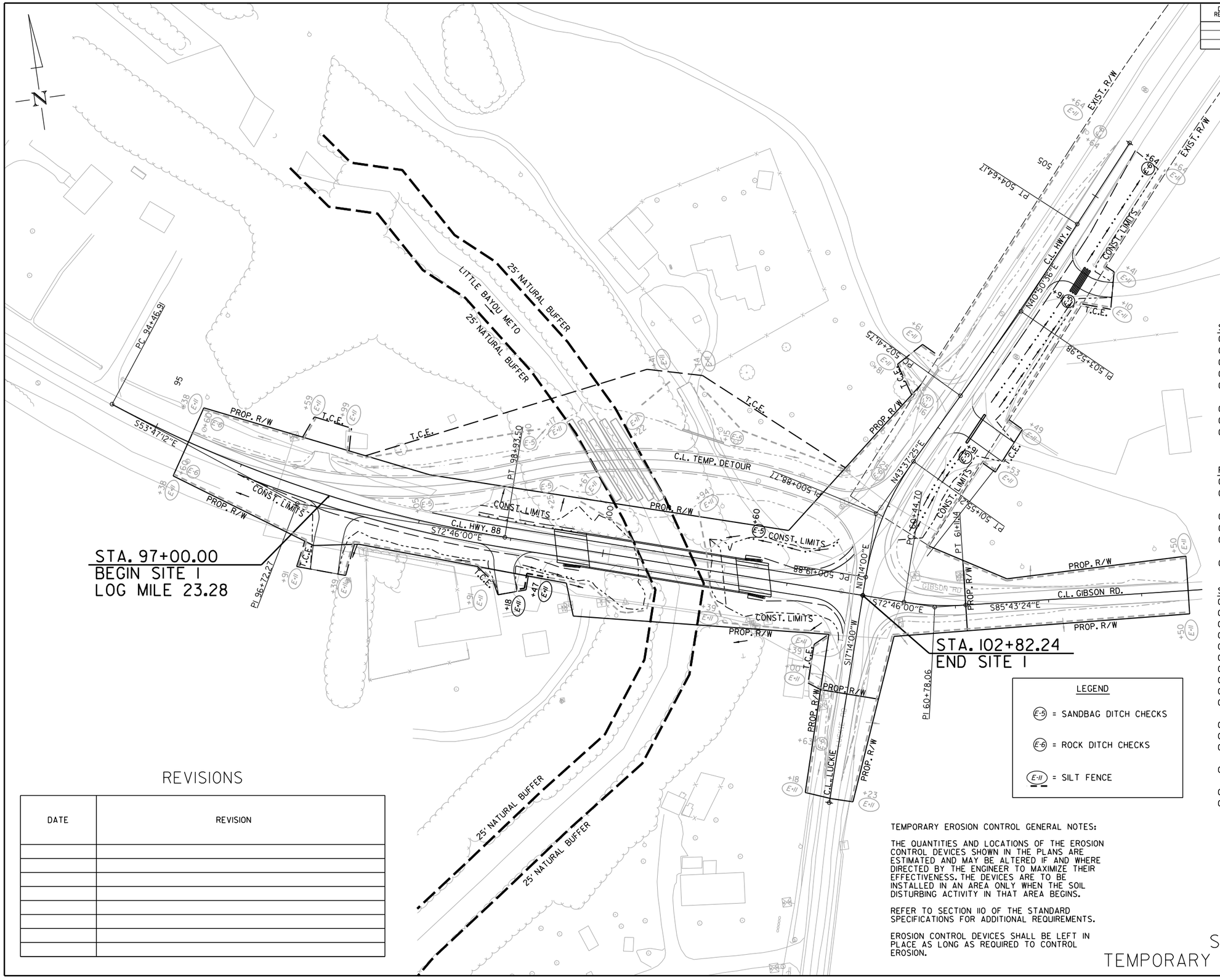

SANDBAG DITCH CHECKS	(E-5)	INSTALLATION
C.L. HWY. 88 STA. 98+05	LT.	RETAIN
C.L. HWY. 88 STA. 99+10	LT.	RETAIN
C.L. HWY. 88 STA. 99+25	LT.	RETAIN
C.L. HWY. 88 STA. 101+15	LT.	RETAIN
C.L. HWY. 88 STA. 101+60	LT.	I
C.L. HWY. II STA. 501+91	RT.	I
C.L. HWY. II STA. 502+16	LT.	RETAIN
C.L. HWY. II STA. 503+91	RT.	I

ROCK DITCH CHECKS	(E-6)	INSTALLATION
C.L. HWY. 88 STA. 95+60	LT.	RETAIN
C.L. HWY. 88 STA. 95+60	RT.	RETAIN
C.L. HWY. II STA. 501+25	LT.	RETAIN
C.L. HWY. II STA. 505+64	LT.	RETAIN
C.L. HWY. II STA. 505+64	RT.	I
C.L. LUCKIE RD. STA. 31+63	RT.	RETAIN

SILT FENCE	(E-11)	LIN. FT.
C.L. HWY. 88 STA. 95+38 TO 96+59	LT.	RETAIN
C.L. HWY. 88 STA. 95+38 TO 96+91	RT.	RETAIN
C.L. HWY. 88 STA. 96+99 TO 99+17	LT.	RETAIN
C.L. HWY. 88 STA. 97+39 TO 98+91	RT.	RETAIN
C.L. HWY. 88 STA. 99+18 TO 99+47	RT.	45
C.L. HWY. 88 STA. 99+47 TO 99+67	RT. & LT.	RETAIN
C.L. HWY. 88 STA. 100+22 TO 100+41	LT.	RETAIN
C.L. HWY. 88 STA. 100+74 TO 102+81	LT.	RETAIN
C.L. HWY. 88 STA. 100+94 TO 101+39	LT. & RT.	RETAIN
C.L. HWY. 88 STA. 101+39 TO 102+39	RT.	RETAIN
C.L. HWY. II STA. 502+49 TO 504+10	RT.	RETAIN
C.L. HWY. II STA. 502+61 TO 505+64	LT.	RETAIN
C.L. HWY. II STA. 504+41 TO 505+64	RT.	RETAIN
C.L. LUCKIE RD. STA. 31+00 TO 32+18	RT.	RETAIN
C.L. GIBSON RD. STA. 60+23 TO 63+50	RT.	RETAIN
C.L. GIBSON RD. STA. 61+53 TO 63+50	LT.	RETAIN

LEGEND

(E-5) = SANDBAG DITCH CHECKS

(E-6) = ROCK DITCH CHECKS

(E-11) = SILT FENCE

TEMPORARY EROSION CONTROL GENERAL NOTES:

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REVISIONS

DATE	REVISION

JUCARNEY 3/22/2024

SITE 1 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	16	89

TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 03-22-2024

STA. 97+00.00
BEGIN SITE I
LOG MILE 23.28

STA. 102+82.24
END SITE I

SANDBAG DITCH CHECKS (E-5)		INSTALLATION
C.L. HWY. 88 STA. 97+05	LT.	I
C.L. HWY. 88 STA. 98+05	LT.	RETAIN
C.L. HWY. 88 STA. 99+10	LT.	RETAIN
C.L. HWY. 88 STA. 99+25	LT.	RETAIN
C.L. HWY. 88 STA. 101+15	LT.	RETAIN
C.L. HWY. 88 STA. 101+60	LT.	RETAIN
C.L. HWY. II STA. 501+91	RT.	RETAIN
C.L. HWY. II STA. 502+16	LT.	RETAIN
C.L. HWY. II STA. 503+91	RT.	RETAIN

ROCK DITCH CHECKS (E-6)		INSTALLATION
C.L. HWY. 88 STA. 95+60	LT.	RETAIN
C.L. HWY. 88 STA. 95+60	RT.	RETAIN
C.L. HWY. II STA. 501+25	LT.	RETAIN
C.L. HWY. II STA. 505+64	LT.	RETAIN
C.L. HWY. II STA. 505+64	RT.	RETAIN
C.L. LUCKIE RD. STA. 31+63	RT.	RETAIN

SILT FENCE (E-11)		LIN. FT.
C.L. HWY. 88 STA. 95+38 TO 96+59	LT.	RETAIN
C.L. HWY. 88 STA. 95+38 TO 96+91	RT.	RETAIN
C.L. HWY. 88 STA. 96+99 TO 99+17	LT.	RETAIN
C.L. HWY. 88 STA. 97+39 TO 98+91	RT.	RETAIN
C.L. HWY. 88 STA. 99+18 TO 99+47	RT.	RETAIN
C.L. HWY. 88 STA. 99+47 TO 99+67	RT. & LT.	RETAIN
C.L. HWY. 88 STA. 100+22 TO 100+41	LT.	RETAIN
C.L. HWY. 88 STA. 100+74 TO 102+81	LT.	RETAIN
C.L. HWY. 88 STA. 100+94 TO 101+39	LT. & RT.	RETAIN
C.L. HWY. 88 STA. 101+39 TO 102+39	RT.	RETAIN
C.L. HWY. II STA. 502+49 TO 504+10	RT.	RETAIN
C.L. HWY. II STA. 502+61 TO 505+64	LT.	RETAIN
C.L. HWY. II STA. 504+41 TO 505+64	RT.	RETAIN
C.L. LUCKIE RD. STA. 31+00 TO 32+18	RT.	RETAIN
C.L. GIBSON RD. STA. 60+23 TO 63+50	RT.	RETAIN
C.L. GIBSON RD. STA. 61+53 TO 63+50	LT.	RETAIN

LEGEND

(E-5) = SANDBAG DITCH CHECKS

(E-6) = ROCK DITCH CHECKS

(E-11) = SILT FENCE

TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EROSION CONTROL DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION

JUCARNEY 3/22/2024

SITE I - STAGE 3
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	17	89
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
James Patrick Jones
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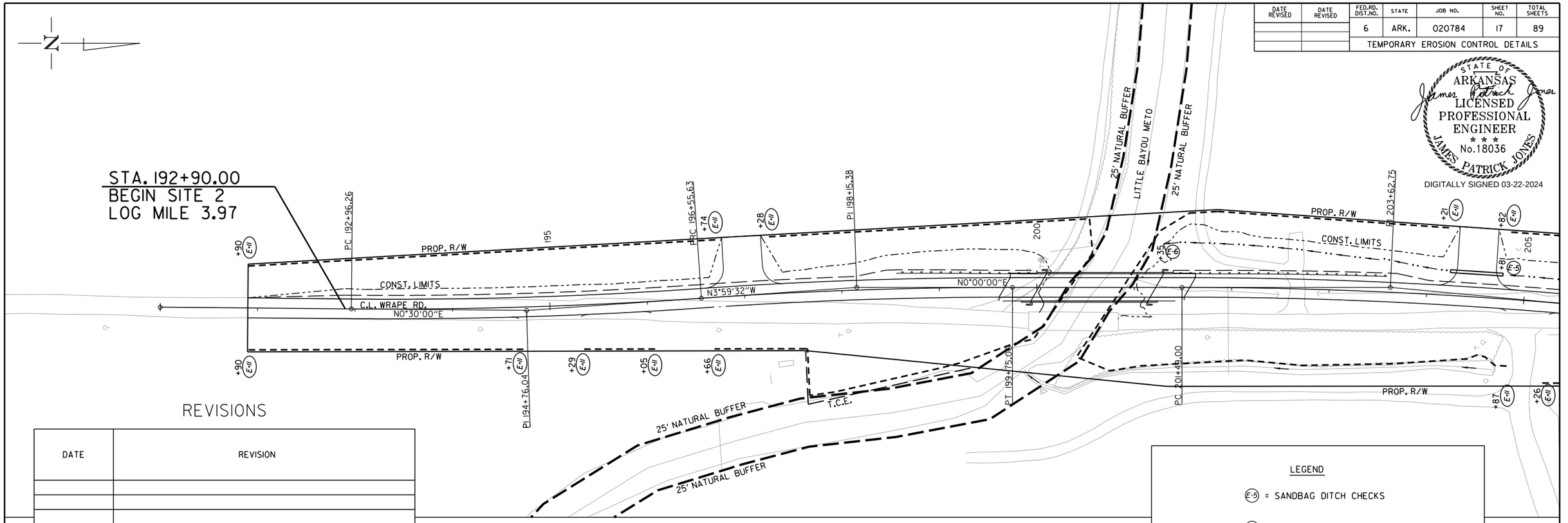

REVISIONS

DATE	REVISION

LEGEND

(E-5) = SANDBAG DITCH CHECKS

(E-6) = ROCK DITCH CHECKS

(E-II) = SILT FENCE

SANDBAG DITCH CHECKS (E-5)		INSTALLATION
STA. 204+81	LT.	1

ROCK DITCH CHECKS (E-6)		INSTALLATION
STA. 201+35	LT.	1

SILT FENCE (E-II)		LIN. FT.
STA. 191+90 TO 196+74	LT.	481
STA. 191+90 TO 194+71	RT.	283
STA. 195+29 TO 196+05	RT.	77
STA. 196+66 TO 197+28	RT. & LT.	852
STA. 204+21 TO 204+87	LT. & RT.	909
STA. 204+82 TO 209+00	LT.	414
STA. 205+26 TO 210+50	RT.	530
STA. 209+22 TO 210+50	LT.	154

TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

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

JUCARNEY 3/22/2024

WRAPE RD. - SITE 2
STAGE 1
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	18	89
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
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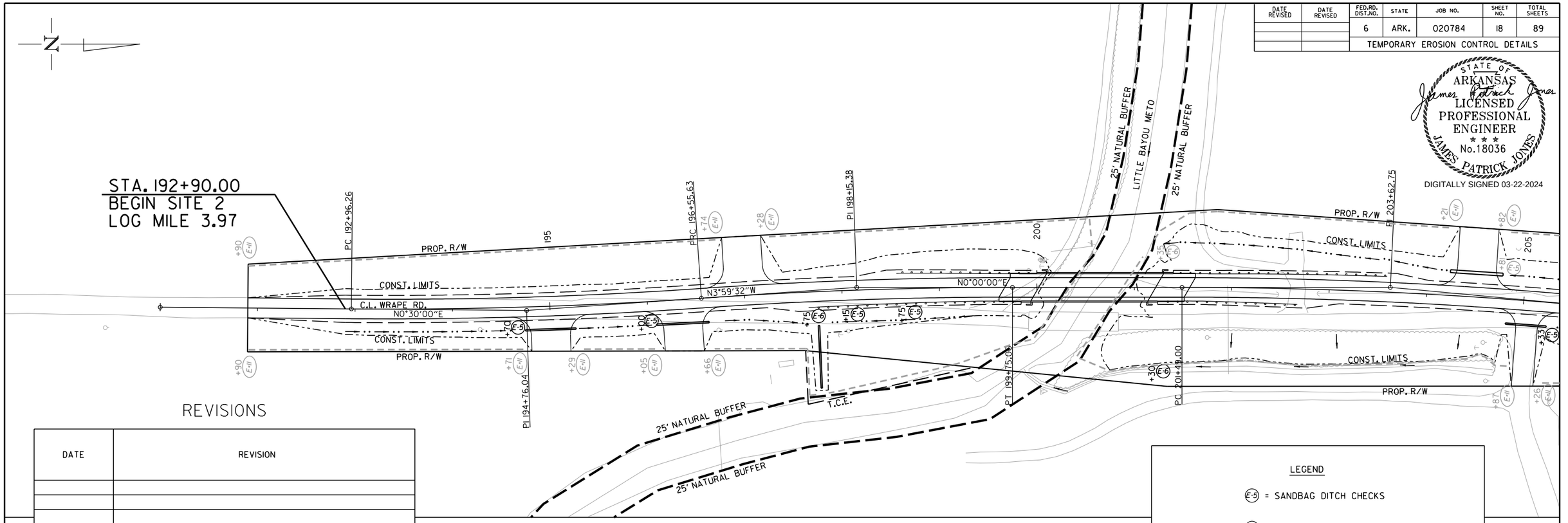
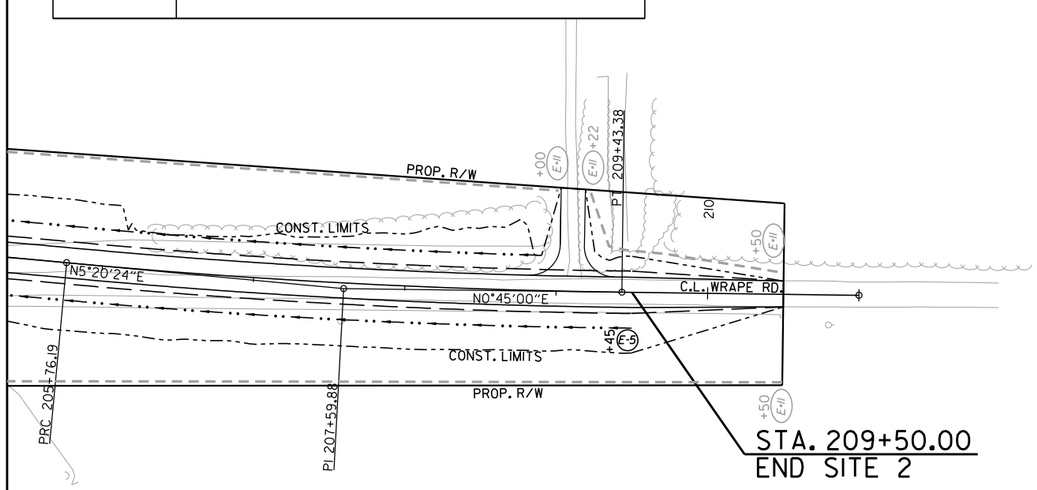


REVISIONS

DATE	REVISION



LEGEND

E-5 = SANDBAG DITCH CHECKS

E-6 = ROCK DITCH CHECKS

E-11 = SILT FENCE

SANDBAG DITCH CHECKS	E-5	INSTALLATION
STA. 194+70	RT.	I
STA. 196+00	RT.	I
STA. 198+15	RT.	I
STA. 198+75	RT.	I
STA. 204+81	LT.	RETAIN
STA. 205+33	RT.	I
STA. 209+45	RT.	I

ROCK DITCH CHECKS	E-6	INSTALLATION
STA. 197+75	RT.	I
STA. 201+30	RT.	I
STA. 201+35	LT.	RETAIN

SILT FENCE	E-11	LIN. FT.
STA. 191+90 TO 196+74	LT.	RETAIN
STA. 191+90 TO 194+71	RT.	RETAIN
STA. 195+29 TO 196+05	RT.	RETAIN
STA. 196+66 TO 197+28	RT. & LT.	RETAIN
STA. 204+21 TO 204+87	LT. & RT.	RETAIN
STA. 204+82 TO 209+00	LT.	RETAIN
STA. 205+26 TO 210+50	RT.	RETAIN
STA. 209+22 TO 210+50	LT.	RETAIN

TEMPORARY EROSION CONTROL GENERAL NOTES:

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

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

3/22/2024
JUCARNEY

WRAPE RD. - SITE 2
STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	19	89
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
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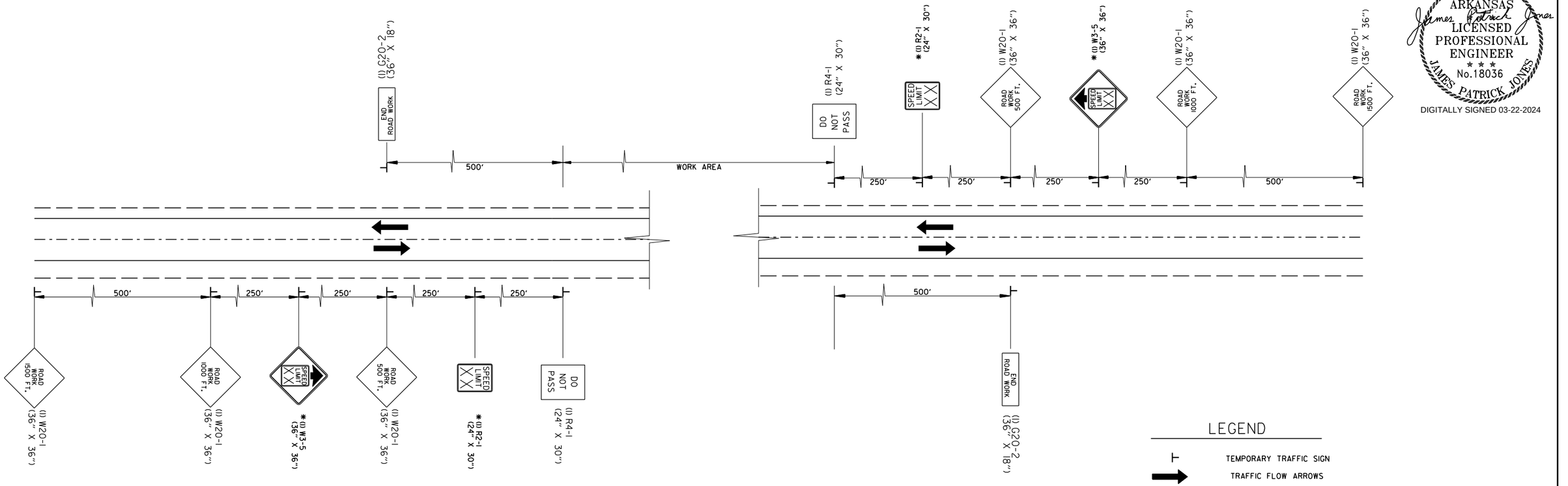
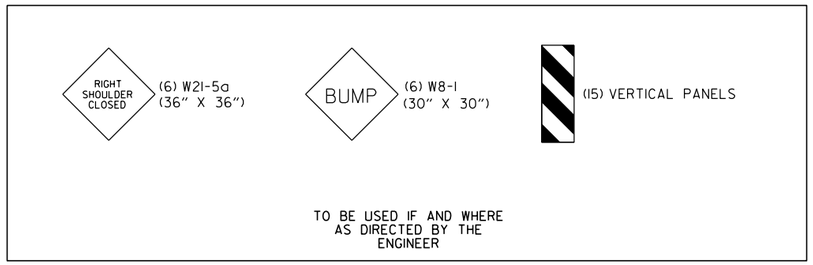


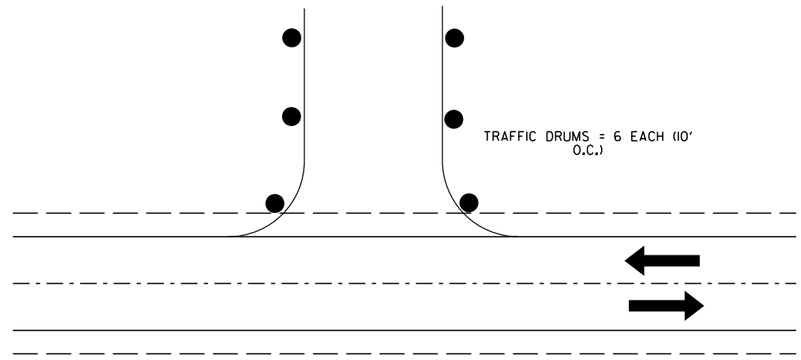
LEGEND

- ⊢ TEMPORARY TRAFFIC SIGN
- ➡ TRAFFIC FLOW ARROWS

* IF AND WHERE DIRECTED BY THE ENGINEER

ADVANCE WARNING DETAILS
ALL SITES - ALL STAGES





DRIVEWAY/TRAFFIC DRUM DETAIL

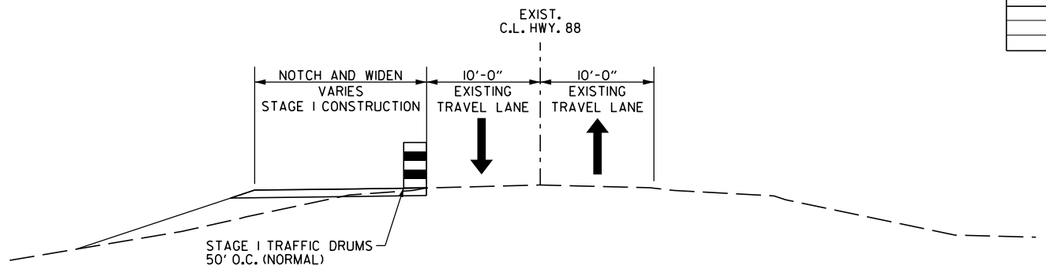
JUCARNEY 3/22/2024

SITE 1 & SITE 2
MAINTENANCE OF TRAFFIC DETAILS

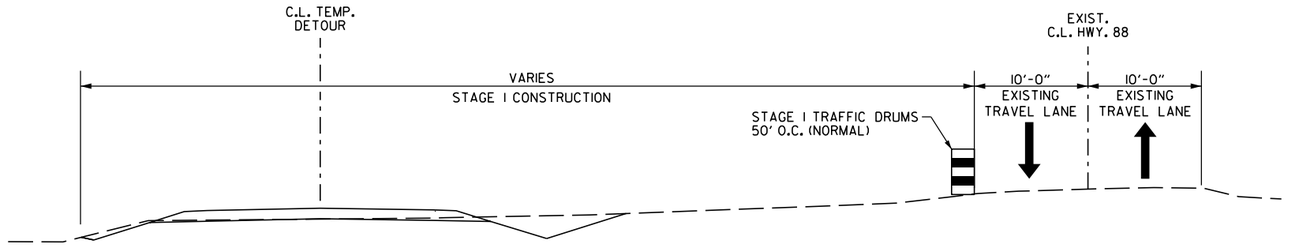
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	20	89
		MAINTENANCE OF TRAFFIC DETAILS				

SITE I - STAGE I
CONSTRUCTION SEQUENCE NOTES

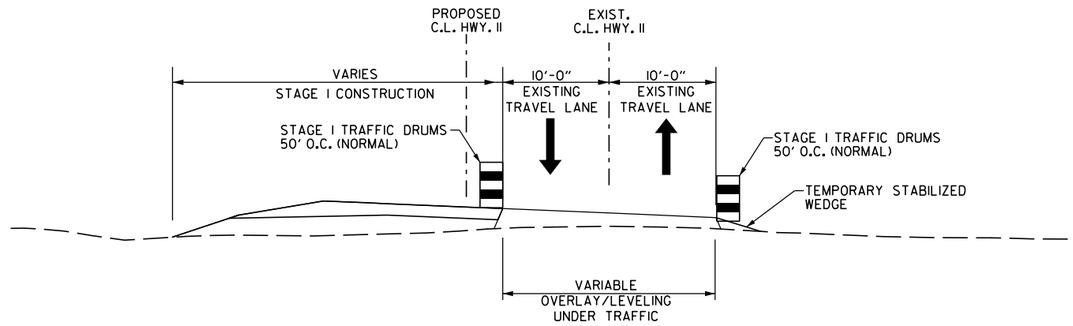
1. INSTALL ADVANCE WARNING SIGNS AS SHOWN.
2. INSTALL MAINTENANCE OF TRAFFIC DEVICES AND CONSTRUCT TEMPORARY DETOUR, LUCKIE RD., GIBSON RD., AND PORTIONS OF HWY. II AS SHOWN IN THE STAGE I, SITE I, MAINTENANCE OF TRAFFIC DETAILS.
3. PLACE CONSTRUCTION PAVEMENT MARKINGS SHOWN FOR STAGE 2, SITE I, TRAFFIC CONFIGURATION PRIOR TO SWITCHING TRAFFIC.



STAGE I
TEMP. DETOUR - NOTCH & WIDEN
MAINTENANCE OF TRAFFIC
TYPICAL SECTION
STA. 398+09.27 TO STA. 400+00.00



STAGE I - TEMP. DETOUR
MAINTENANCE OF TRAFFIC
TYPICAL SECTION
STA. 400+00.00 TO STA. 405+60.57



STAGE I - HWY. II
MAINTENANCE OF TRAFFIC
TYPICAL SECTION
STA. 500+11.00 TO STA. 504+64.17

STATE OF ARKANSAS
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JUCARNEY 3/22/2024

SITE I - STAGE I
MAINTENANCE OF TRAFFIC DETAILS

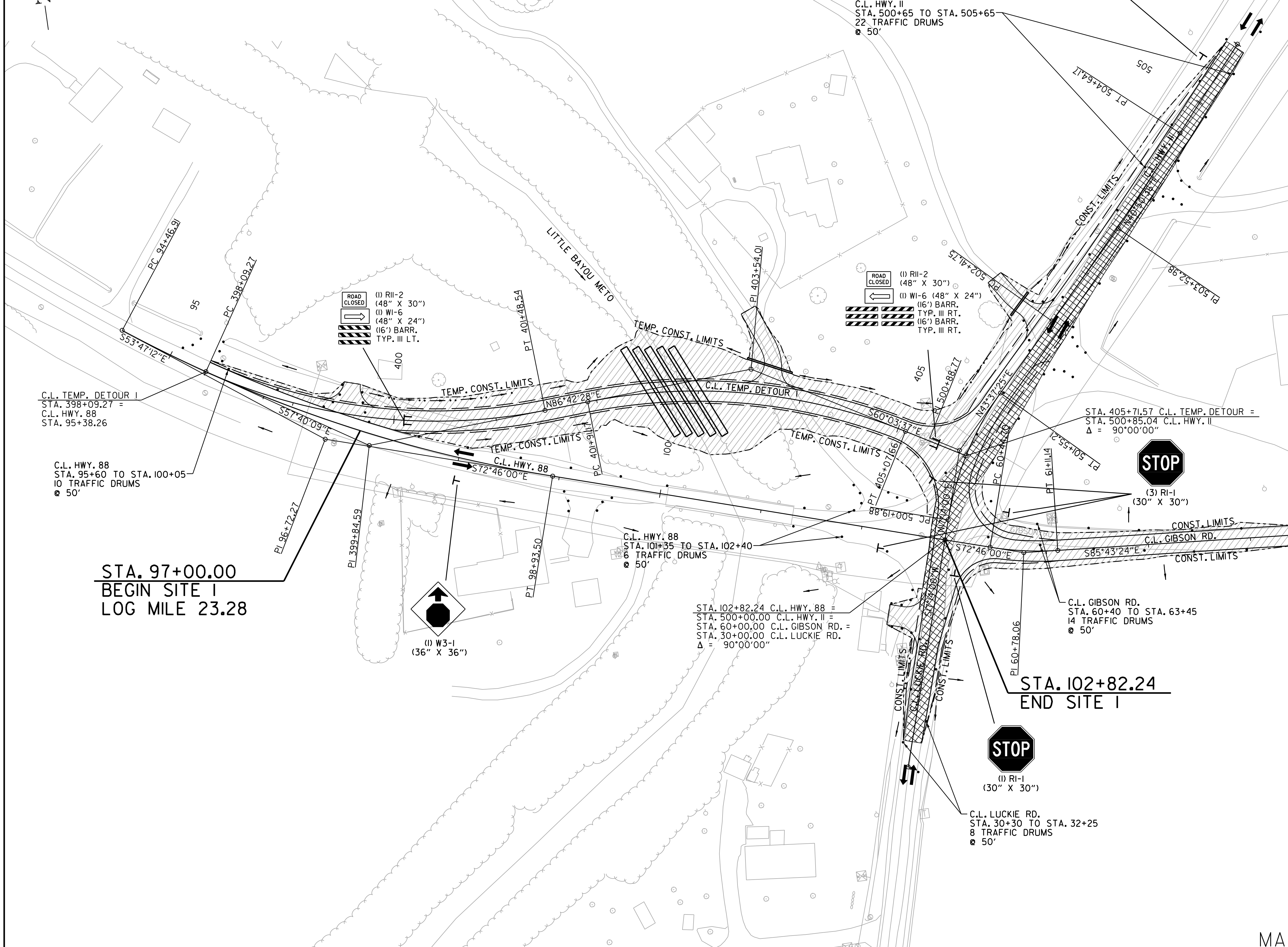
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	21	89
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER ★ ★ ★ No.18036 JAMES PATRICK JONES

DIGITALLY SIGNED 03-22-2024

SITE I - STAGE I CONSTRUCTION SEQUENCE NOTES

1. INSTALL ADVANCE WARNING SIGNS AS SHOWN.
2. INSTALL MAINTENANCE OF TRAFFIC DEVICES AND CONSTRUCT TEMPORARY DETOUR, LUCKIE RD., GIBSON RD., AND PORTIONS OF HWY. II AS SHOWN IN THE STAGE I, SITE I, MAINTENANCE OF TRAFFIC DETAILS.
3. PLACE CONSTRUCTION PAVEMENT MARKINGS SHOWN FOR STAGE 2, SITE I, TRAFFIC CONFIGURATION PRIOR TO SWITCHING TRAFFIC.


N
(I) W3-I (36" X 36")
C.L. HWY. II STA. 500+65 TO STA. 505+65 22 TRAFFIC DRUMS @ 50'
PT 504+64.17
505
CONST. LIMITS
PI 503+52.98
PC 502+41.75
(I) RII-2 (48" X 30")
(I) WI-6 (48" X 24")
(16') BARR. TYP. III RT.
(16') BARR. TYP. III RT.
ROAD CLOSED
PI 403+54.01
TEMP. CONST. LIMITS
LITTLE BAYOU METO
PT 401+48.54
(I) RII-2 (48" X 30")
(I) WI-6 (48" X 24")
(16') BARR. TYP. III LT.
PC 94+46.91
PC 398+09.27
95
400
S53°47'12"E
C.L. TEMP. DETOUR I STA. 398+09.27 = C.L. HWY. 88 STA. 95+38.26
N86°42'28"E
C.L. TEMP. DETOUR I
S57°40'09"E
C.L. HWY. 88
S72°46'00"E
PC 401+91.11
100
S60°03'37"E
405
PT 500+88.77
N43°37'25"E
PT 405+07.66
PC 60+44.10
STA. 405+71.57 C.L. TEMP. DETOUR = STA. 500+85.04 C.L. HWY. II Δ = 90°00'00"
PT 501+55.21
STOP
(3) RI-I (30" X 30")
PI 61+11.14
C.L. HWY. 88 STA. 95+60 TO STA. 100+05 10 TRAFFIC DRUMS @ 50'
PI 96+72.27
PI 399+84.59
PT 98+93.50
STA. 97+00.00 BEGIN SITE I LOG MILE 23.28
(I) W3-I (36" X 36")
C.L. HWY. 88 STA. 101+35 TO STA. 102+40 6 TRAFFIC DRUMS @ 50'
PC 500+19.88
CONST. LIMITS
C.L. GIBSON RD.
S85°43'24"E
S72°46'00"E
STA. 102+82.24 C.L. HWY. 88 = STA. 500+00.00 C.L. HWY. II = STA. 60+00.00 C.L. GIBSON RD. = STA. 30+00.00 C.L. LUCKIE RD. Δ = 90°00'00"
C.L. GIBSON RD. STA. 60+40 TO STA. 63+45 14 TRAFFIC DRUMS @ 50'
PI 60+78.06
C.L. LUCKIE RD.
STA. 102+82.24 END SITE I
STOP
(I) RI-I (30" X 30")
C.L. LUCKIE RD. STA. 30+30 TO STA. 32+25 8 TRAFFIC DRUMS @ 50'

(hatched)	STAGE I CONSTRUCTION
(cross-hatched)	STAGE I OVERLAY OR METHOD OF RAISING GRADE UNDER TRAFFIC
⇄	STAGE I TRAFFIC
●	TRAFFIC DRUMS
⊏	TYPE III BARICADE
⊢	TEMP. TRAFFIC SIGNS

SITE I - STAGE I MAINTENANCE OF TRAFFIC DETAILS

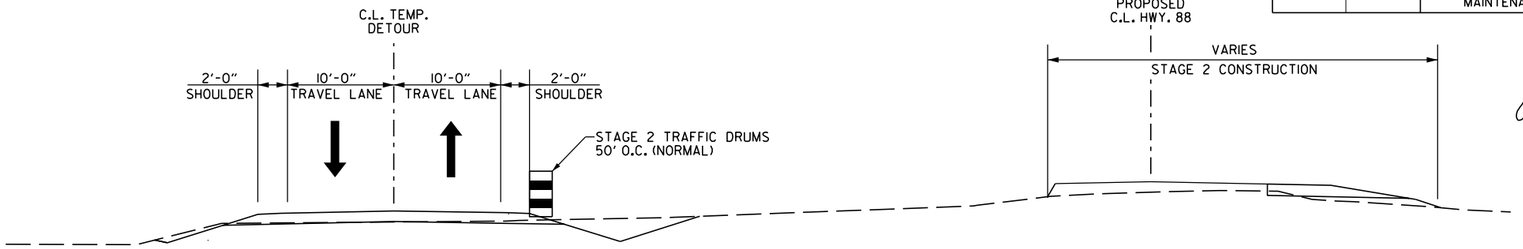
3/22/2024

JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	22	89
		MAINTENANCE OF TRAFFIC DETAILS				

SITE 1 - STAGE 2
CONSTRUCTION SEQUENCE NOTES

1. INSTALL STAGE 2, SITE 1, MAINTENANCE OF TRAFFIC DEVICES.
2. SHIFT TRAFFIC TO TEMPORARY DETOUR.
3. REMOVE EXISTING BRIDGE AND ROADWAY AS SHOWN.
4. CONSTRUCT NEW BRIDGE NO. 07682, PORTIONS OF HWY. 88, AND PORTIONS OF HWY. 11 AS SHOWN IN THE STAGE 2, SITE 1, MAINTENANCE OF TRAFFIC DETAILS.
5. PLACE CONSTRUCTION PAVEMENT MARKINGS SHOWN FOR STAGE 3, SITE 1, TRAFFIC CONFIGURATION PRIOR TO SWITCHING TRAFFIC.



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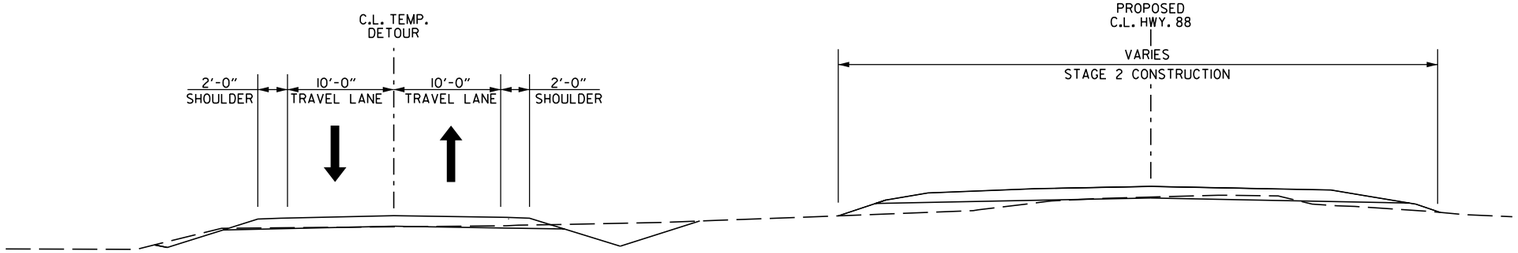
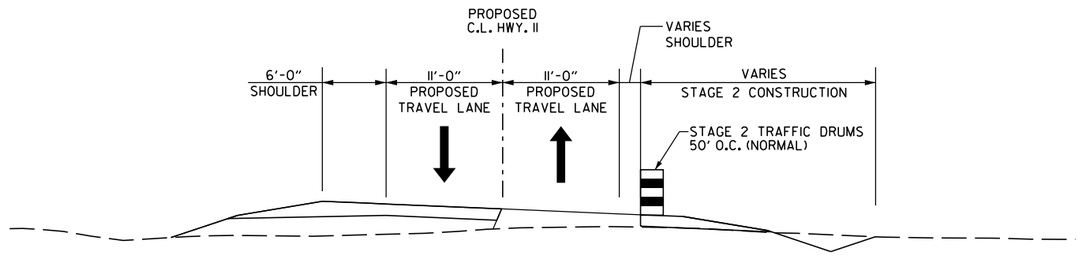
STAGE 2 - TEMP. DETOUR MAINTENANCE OF TRAFFIC TYPICAL SECTION
STA. 398+09.27 TO STA. 401+25.00



STAGE 2 - TEMP. DETOUR MAINTENANCE OF TRAFFIC TYPICAL SECTION
STA. 401+25.00 TO STA. 405+60.57



STAGE 2 - HWY. 11 MAINTENANCE OF TRAFFIC TYPICAL SECTION
STA. 500+11.00 TO STA. 504+64.17

JUCARNEY 3/22/2024

SITE 1 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	23	89
		MAINTENANCE OF TRAFFIC DETAILS				

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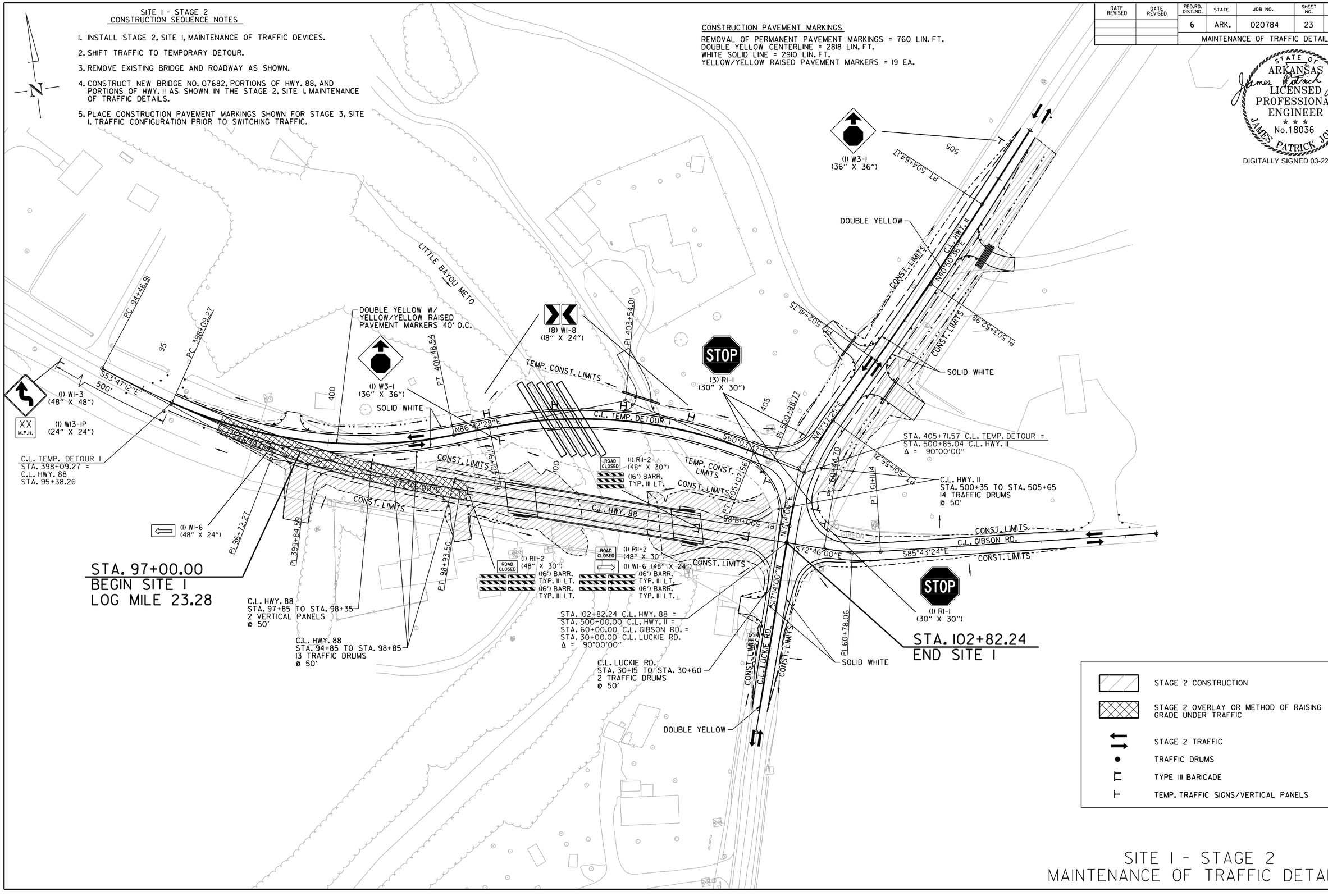
SITE I - STAGE 2
CONSTRUCTION SEQUENCE NOTES

1. INSTALL STAGE 2, SITE 1, MAINTENANCE OF TRAFFIC DEVICES.
2. SHIFT TRAFFIC TO TEMPORARY DETOUR.
3. REMOVE EXISTING BRIDGE AND ROADWAY AS SHOWN.
4. CONSTRUCT NEW BRIDGE NO. 07682, PORTIONS OF HWY. 88, AND PORTIONS OF HWY. 11 AS SHOWN IN THE STAGE 2, SITE 1, MAINTENANCE OF TRAFFIC DETAILS.
5. PLACE CONSTRUCTION PAVEMENT MARKINGS SHOWN FOR STAGE 3, SITE 1, TRAFFIC CONFIGURATION PRIOR TO SWITCHING TRAFFIC.

CONSTRUCTION PAVEMENT MARKINGS

REMOVAL OF PERMANENT PAVEMENT MARKINGS = 760 LIN. FT.
DOUBLE YELLOW CENTERLINE = 2818 LIN. FT.
WHITE SOLID LINE = 2910 LIN. FT.
YELLOW/YELLOW RAISED PAVEMENT MARKERS = 19 EA.



JUCARNEY 3/22/2024

SITE I - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	24	89
		MAINTENANCE OF TRAFFIC DETAILS				

SITE I - STAGE 3
CONSTRUCTION SEQUENCE NOTES

1. INSTALL STAGE 3, SITE I, MAINTENANCE OF TRAFFIC DEVICES.
2. SHIFT TRAFFIC TO NEWLY CONSTRUCTED BRIDGE AND ROADWAY AND REMOVE TEMPORARY DETOUR.
3. CONSTRUCT REMAINING PORTIONS OF ROADWAY AS SHOWN IN THE STAGE 3, SITE I, MAINTENANCE OF TRAFFIC DETAILS.
4. PLACE FINAL PERMANENT PAVEMENT MARKINGS.

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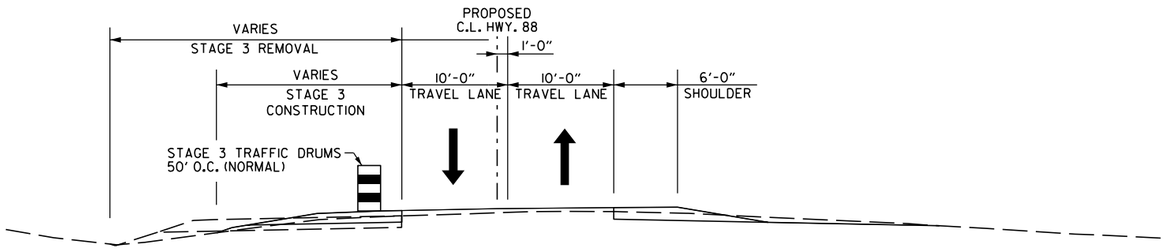
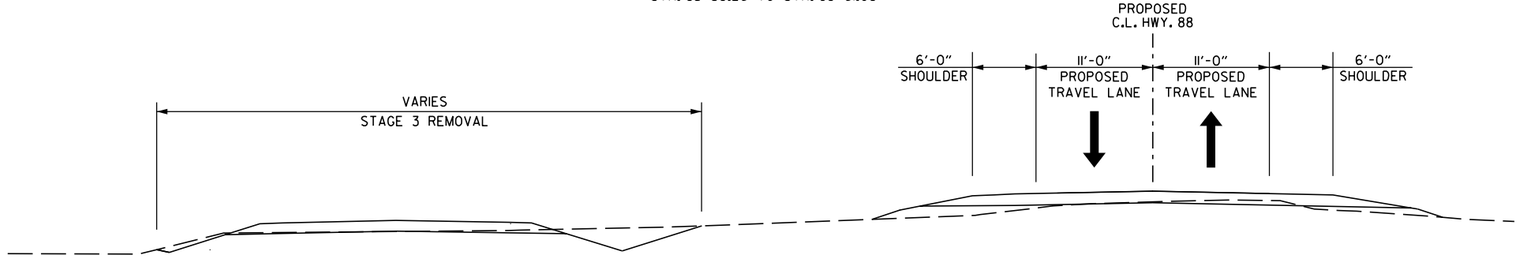
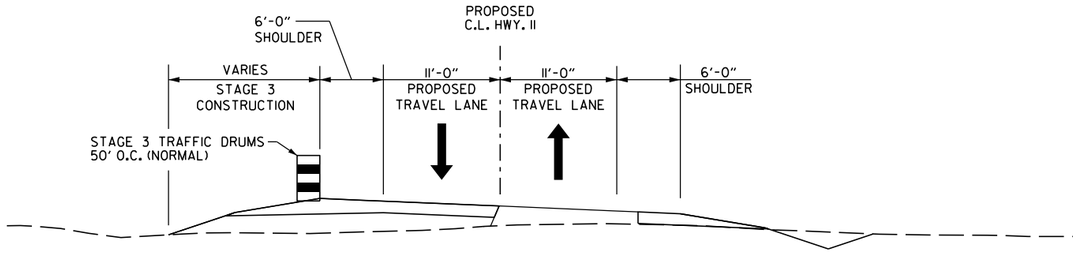


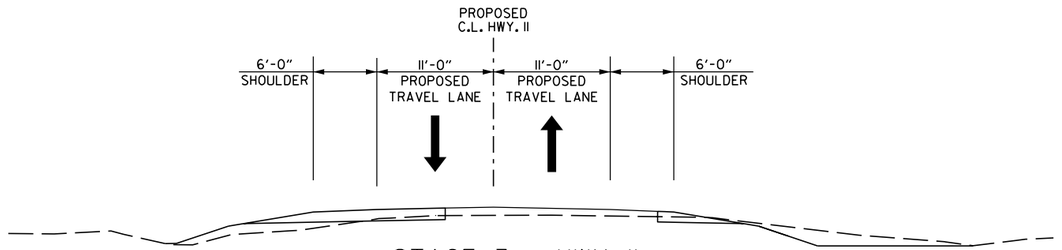
STAGE 3 - HWY. 88
MAINTENANCE OF TRAFFIC
TYPICAL SECTION
STA. 95+38.26 TO STA. 98+61.08



STAGE 3 - HWY. 88
MAINTENANCE OF TRAFFIC
TYPICAL SECTION
98+61.08 TO STA. 102+82.24



STAGE 3 - HWY. 11
MAINTENANCE OF TRAFFIC
TYPICAL SECTION
STA. 500+11.00 TO STA. 501+41.77



STAGE 3 - HWY. 11
MAINTENANCE OF TRAFFIC
TYPICAL SECTION
STA. 501+41.77 TO STA. 504+64.17

JUCARNEY 3/22/2024

SITE I - STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	25	89
		MAINTENANCE OF TRAFFIC DETAILS				

SITE I - STAGE 3
CONSTRUCTION SEQUENCE NOTES

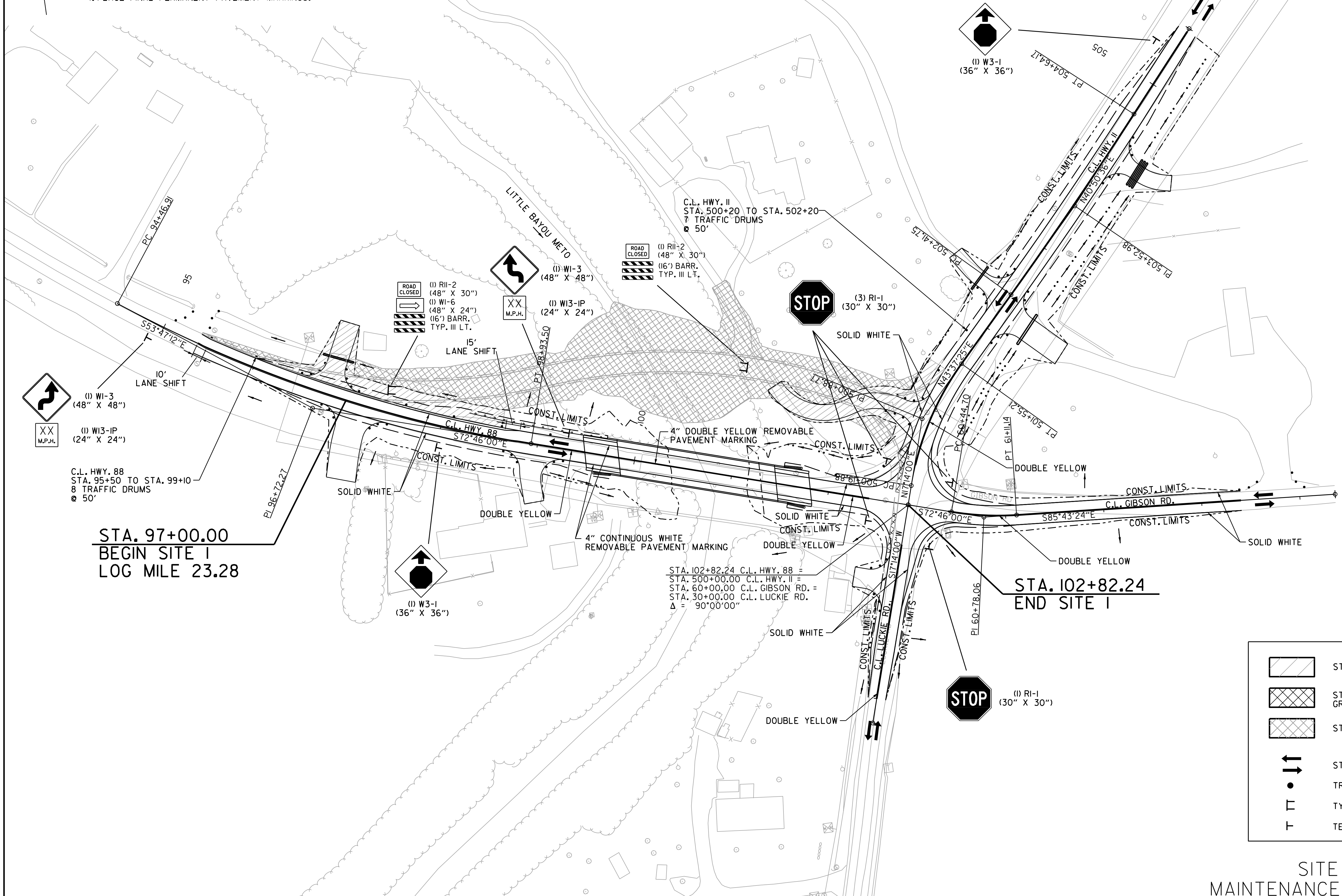
1. INSTALL STAGE 3, SITE I, MAINTENANCE OF TRAFFIC DEVICES.
2. SHIFT TRAFFIC TO NEWLY CONSTRUCTED BRIDGE AND ROADWAY AND REMOVE TEMPORARY DETOUR.
3. CONSTRUCT REMAINING PORTIONS OF ROADWAY AS SHOWN IN THE STAGE 3, SITE I, MAINTENANCE OF TRAFFIC DETAILS.
4. PLACE FINAL PERMANENT PAVEMENT MARKINGS.

NOTE:
REMOVE CONSTRUCTION PAVEMENT MARKINGS FROM STAGE 2, SITE I, LOCATED IN THE INTERSECTION OF STAGE 3, SITE I.

CONSTRUCTION PAVEMENT MARKINGS

REMOVABLE CONSTRUCTION PAVEMENT MARKINGS = 930 LIN. FT.
DOUBLE YELLOW CENTERLINE = 1698 LIN. FT.
WHITE SOLID LINE = 1904 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 362 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 03-22-2024



Symbol	Description
(hatched)	STAGE 3 CONSTRUCTION
(crosshatched)	STAGE 3 OVERLAY OR METHOD OF RAISING GRADE UNDER TRAFFIC
(crosshatched, light)	STAGE 3 REMOVAL
⇄	STAGE 3 TRAFFIC
•	TRAFFIC DRUMS
⊏	TYPE III BARICADE
⊢	TEMP. TRAFFIC SIGNS

SITE I - STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

3/22/2024
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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	26	89
		MAINTENANCE OF TRAFFIC DETAILS				

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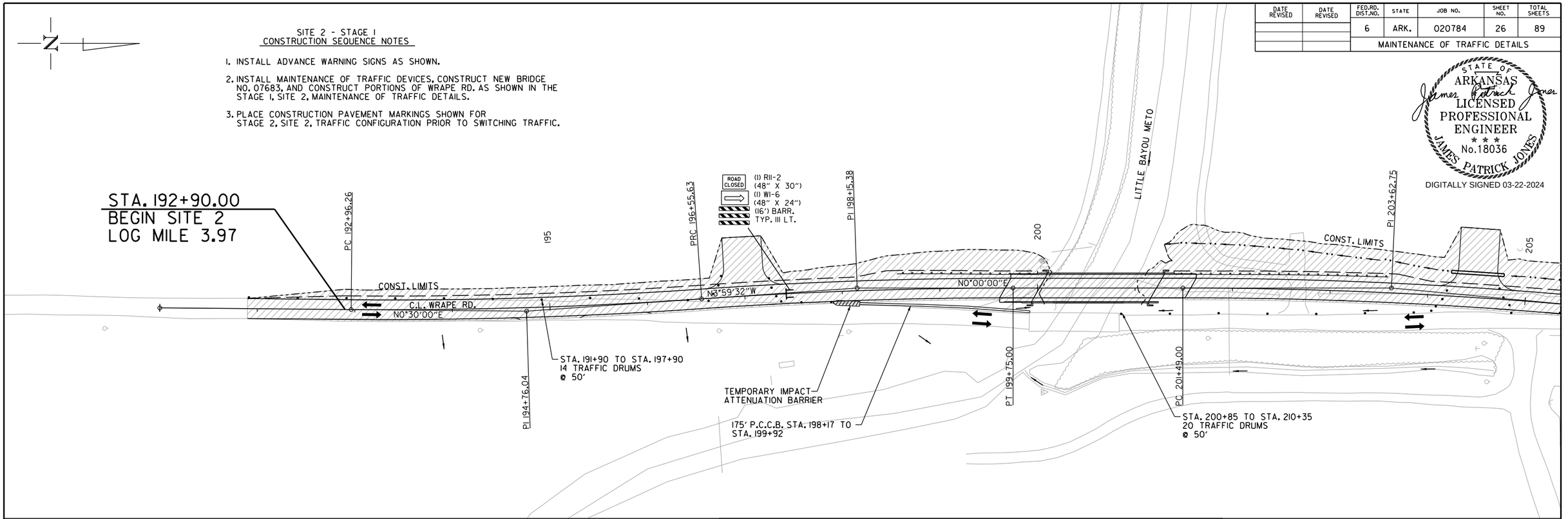
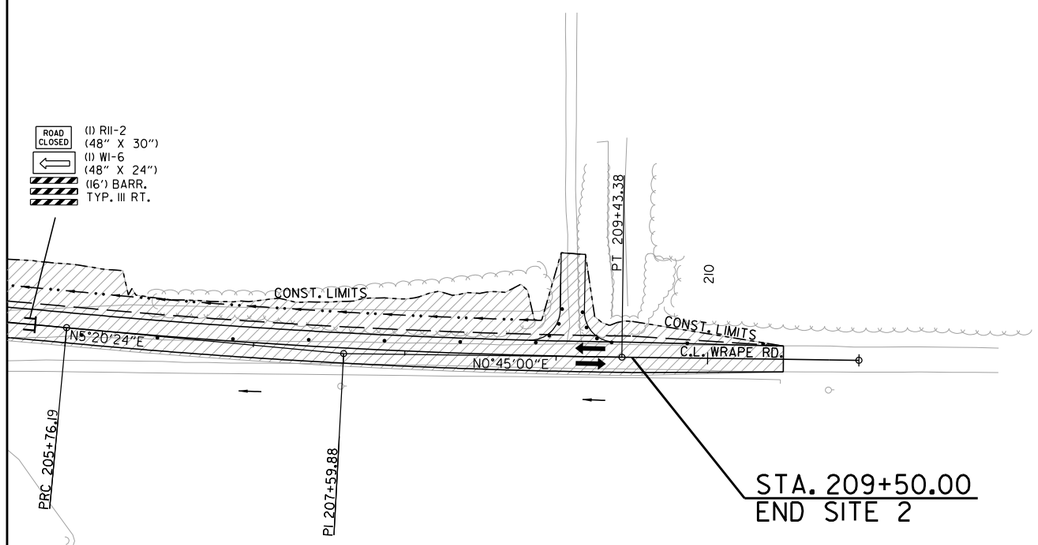
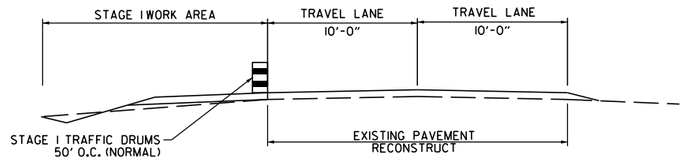
SITE 2 - STAGE I
CONSTRUCTION SEQUENCE NOTES

1. INSTALL ADVANCE WARNING SIGNS AS SHOWN.
2. INSTALL MAINTENANCE OF TRAFFIC DEVICES, CONSTRUCT NEW BRIDGE NO. 07683, AND CONSTRUCT PORTIONS OF WRAPE RD. AS SHOWN IN THE STAGE I, SITE 2, MAINTENANCE OF TRAFFIC DETAILS.
3. PLACE CONSTRUCTION PAVEMENT MARKINGS SHOWN FOR STAGE 2, SITE 2, TRAFFIC CONFIGURATION PRIOR TO SWITCHING TRAFFIC.







STAGE I
TYPICAL SECTION

STAGE I CONSTRUCTION
STAGE I TRAFFIC
TRAFFIC DRUMS
TYPE III BARICADE
PRECAST CONCRETE BARRIER (P.C.C.B.)
TEMPORARY IMPACT ATTENUATION BARRIER

WRAPE RD. - SITE 2
STAGE I
MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	27	89
		MAINTENANCE OF TRAFFIC DETAILS				

SITE 2 - STAGE 2
CONSTRUCTION SEQUENCE NOTES

1. INSTALL STAGE 2, SITE 2, MAINTENANCE OF TRAFFIC DEVICES.
2. SHIFT TRAFFIC TO THE PROPOSED ALIGNMENT.
3. REMOVE EXISTING BRIDGE AND ROADWAY AS SHOWN.
4. CONSTRUCT REMAINING PORTIONS OF ROADWAY AS SHOWN IN THE STAGE 2, SITE 2, MAINTENANCE OF TRAFFIC DETAILS.
5. PLACE FINAL PERMANENT PAVEMENT MARKINGS.

CONSTRUCTION PAVEMENT MARKINGS

REMOVABLE CONSTRUCTION PAVEMENT MARKINGS = 760 LIN. FT.
DOUBLE YELLOW CENTERLINE = 3341 LIN. FT.
WHITE SOLID LINE = 3341 LIN. FT.

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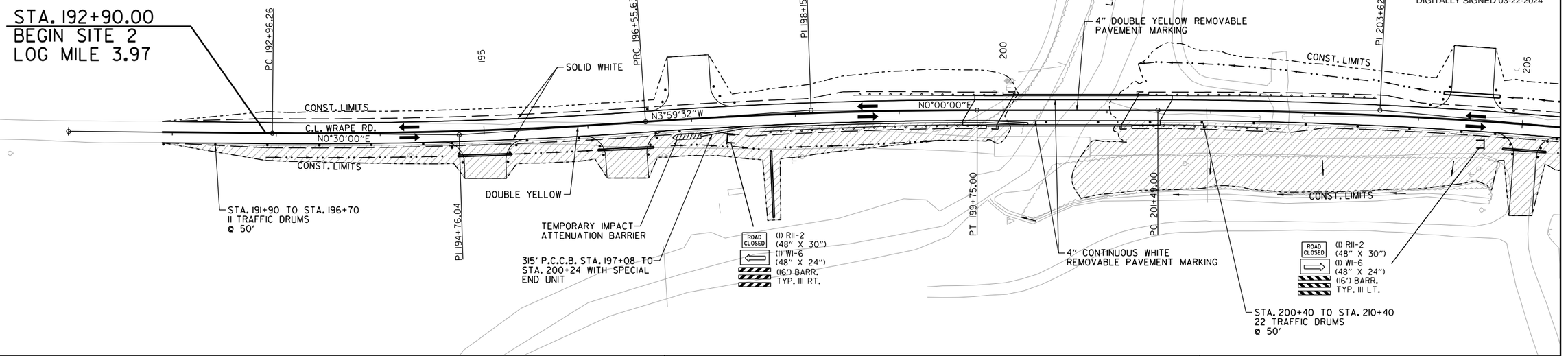

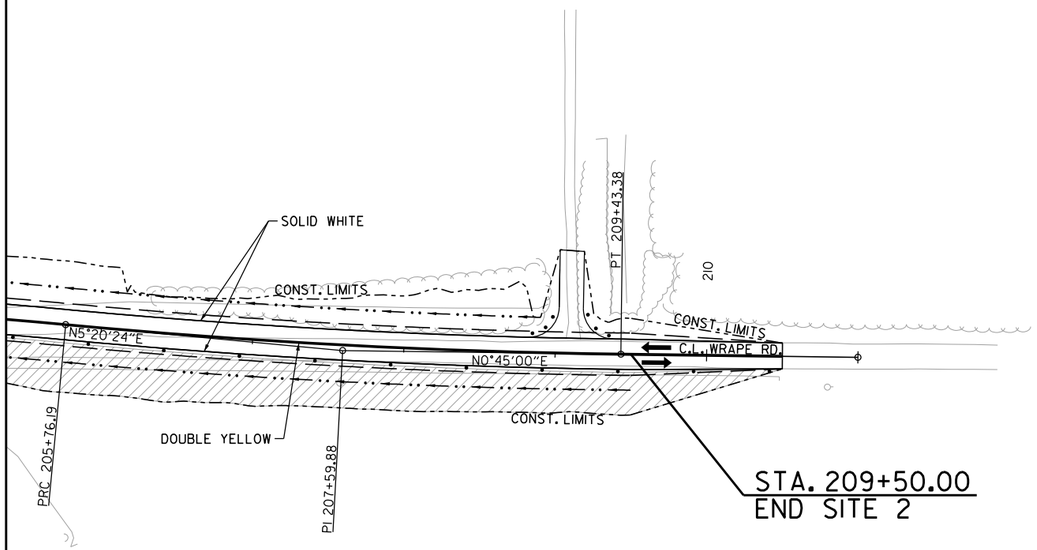

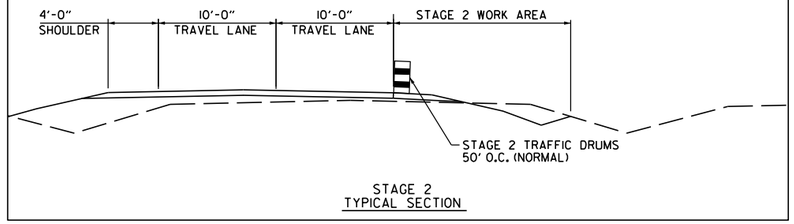

STAGE 2
TYPICAL SECTION

STAGE 2 CONSTRUCTION
STAGE 2 TRAFFIC
TRAFFIC DRUMS
TYPE III BARICADE
PRECAST CONCRETE BARRIER (P.C.C.B.)
TEMPORARY IMPACT ATTENUATION BARRIER

WRAPE RD. - SITE 2
STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	28	89
		PERMANENT PAVEMENT MARKING DETAILS				

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REFLECTORIZED PAINT PAVEMENT MARKING
6" CONTINUOUS DOUBLE YELLOW

STA.	LOCATION	LIN. FT.
HWY. 88 STA. 95+38.26 TO STA. 102+42.00	C.L.	1408
HWY. 11 STA. 500+41.00 TO STA. 505+64.17	C.L.	1047
GIBSON RD. STA. 60+41.00 TO STA. 63+40.00	C.L.	598
LUCKIE RD. STA. 30+41.00 TO STA. 32+00.00	C.L.	318

REFLECTORIZED PAINT PAVEMENT MARKING
6" CONTINUOUS WHITE SOLID EDGE LINE

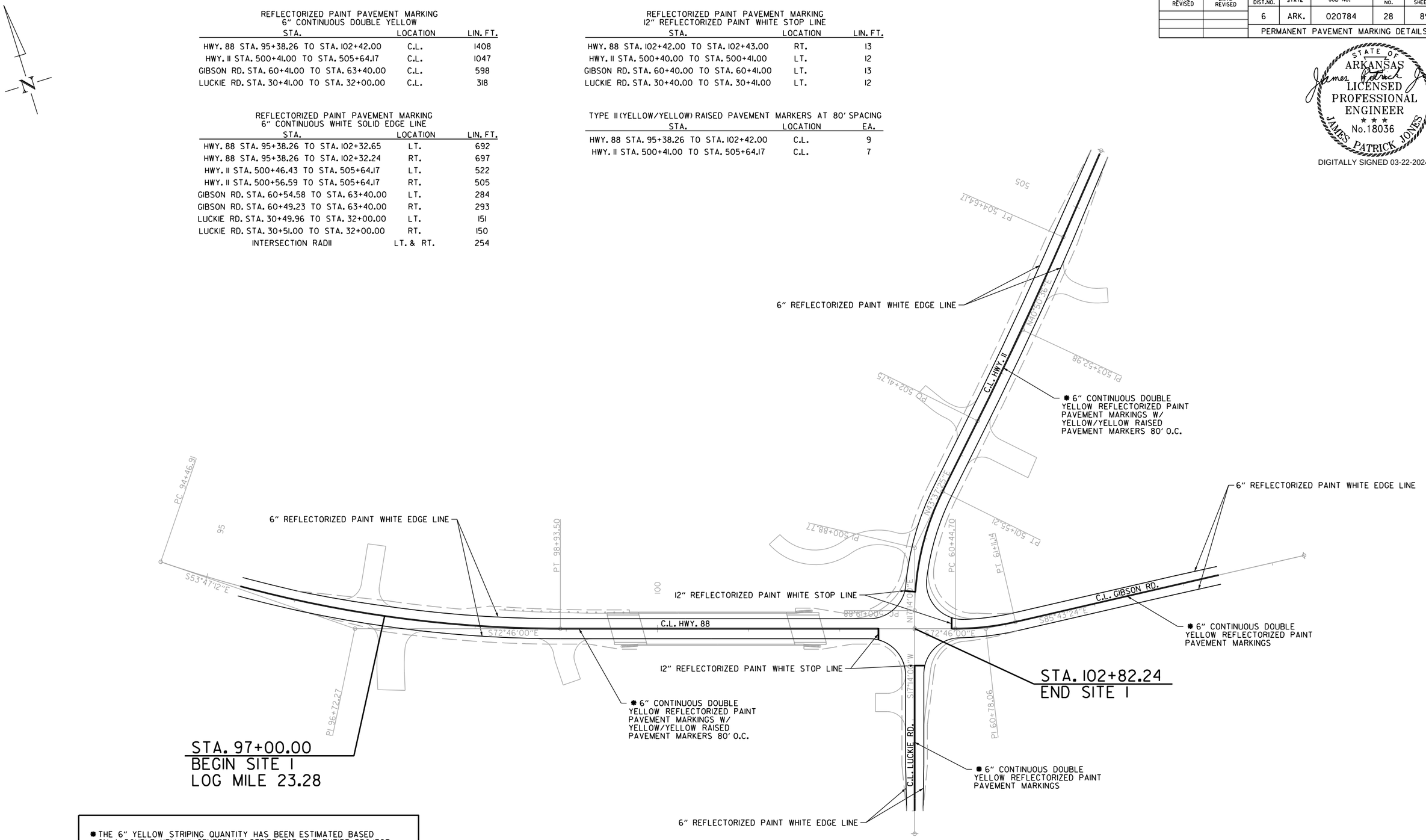
STA.	LOCATION	LIN. FT.
HWY. 88 STA. 95+38.26 TO STA. 102+32.65	LT.	692
HWY. 88 STA. 95+38.26 TO STA. 102+32.24	RT.	697
HWY. 11 STA. 500+46.43 TO STA. 505+64.17	LT.	522
HWY. 11 STA. 500+56.59 TO STA. 505+64.17	RT.	505
GIBSON RD. STA. 60+54.58 TO STA. 63+40.00	LT.	284
GIBSON RD. STA. 60+49.23 TO STA. 63+40.00	RT.	293
LUCKIE RD. STA. 30+49.96 TO STA. 32+00.00	LT.	151
LUCKIE RD. STA. 30+51.00 TO STA. 32+00.00	RT.	150
INTERSECTION RADII	LT. & RT.	254

REFLECTORIZED PAINT PAVEMENT MARKING
12" REFLECTORIZED PAINT WHITE STOP LINE

STA.	LOCATION	LIN. FT.
HWY. 88 STA. 102+42.00 TO STA. 102+43.00	RT.	13
HWY. 11 STA. 500+40.00 TO STA. 500+41.00	LT.	12
GIBSON RD. STA. 60+40.00 TO STA. 60+41.00	LT.	13
LUCKIE RD. STA. 30+40.00 TO STA. 30+41.00	LT.	12

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

STA.	LOCATION	EA.
HWY. 88 STA. 95+38.26 TO STA. 102+42.00	C.L.	9
HWY. 11 STA. 500+41.00 TO STA. 505+64.17	C.L.	7



* 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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SITE I
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	29	89
		PERMANENT PAVEMENT MARKING DETAILS				

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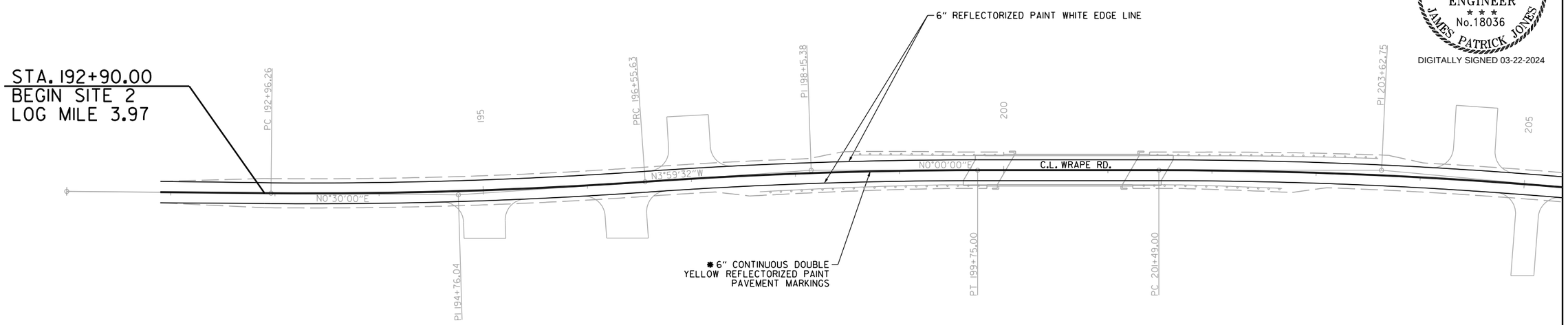
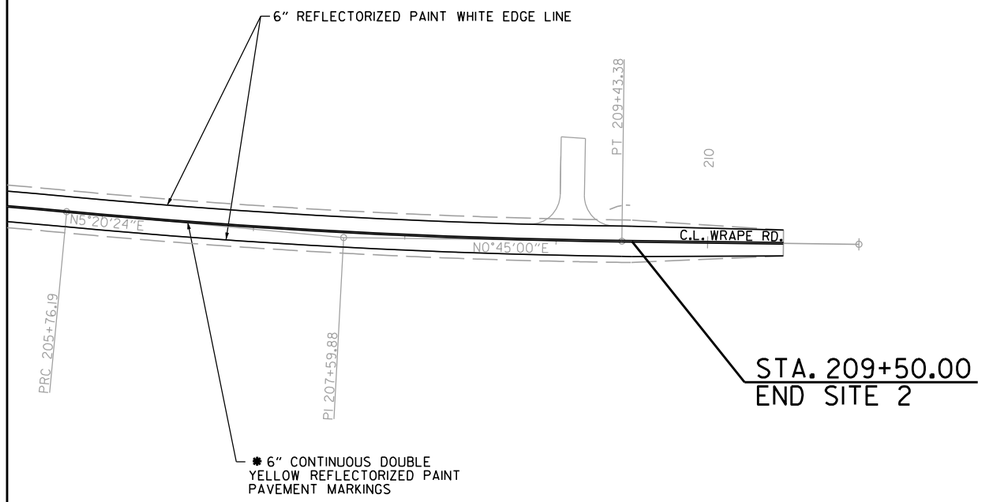


* THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN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



REFLECTORIZED PAINT PAVEMENT MARKING
6" CONTINUOUS DOUBLE YELLOW

STA.	LOCATION	LIN. FT.
WRAPE RD. STA. 191+90.00 TO STA. 210+50.00	C.L.	3720

REFLECTORIZED PAINT PAVEMENT MARKING
6" CONTINUOUS WHITE SOLID EDGE LINE

STA.	LOCATION	LIN. FT.
WRAPE RD. STA. 191+90.00 TO STA. 210+50.00	LT.	1861
WRAPE RD. STA. 191+90.00 TO STA. 210+50.00	RT.	1860

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SITE 2
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	30	89
		SOIL BORING LOG				

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SOIL LOG

BORING	SITE	STATION	LOCATION	DEPTH FEET	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	% FINES	USCS CLASSIFICATION
1	1	99+84	HWY. 88 - 21' RT.	2.5 - 4.0	37	20	17	93	CL
1	1	99+84	HWY. 88 - 21' RT.	5.0 - 6.5	38	20	18	93	CL
1	1	99+84	HWY. 88 - 21' RT.	7.5 - 9.0	42	18	24	94	CL
1	1	99+84	HWY. 88 - 21' RT.	10.0 - 12.0	32	22	10	98	CL
1	1	99+84	HWY. 88 - 21' RT.	12.0 - 13.5	28	22	6	96	CL-ML
1	1	99+84	HWY. 88 - 21' RT.	30.0 - 31.5	30	21	9	99	CL
1	1	99+84	HWY. 88 - 21' RT.	35.0 - 36.5	31	21	10	99	CL
1	1	99+84	HWY. 88 - 21' RT.	45.0 - 46.5	28	14	14	86	CL
1	1	99+84	HWY. 88 - 21' RT.	50.0 - 51.5	20	14	6	81	CL-ML
1	1	99+84	HWY. 88 - 21' RT.	100.0 - 101.5		NP		5	SW-SM
1	1	99+84	HWY. 88 - 21' RT.	110.0 - 111.5	57	25	32	92	CH
1	1	99+84	HWY. 88 - 21' RT.	115.0 - 116.5		NP		58	ML
1	1	99+84	HWY. 88 - 21' RT.	120.0 - 121.5	26	22	4	41	SC-SM
2	1	101+63	HWY. 88 - 33' LT.	2.5 - 4.0	23	22	1	95	ML
2	1	101+63	HWY. 88 - 33' LT.	5.0 - 7.0	22	20	2	99	ML
2	1	101+63	HWY. 88 - 33' LT.	7.0 - 8.5	27	21	6	96	CL-ML
2	1	101+63	HWY. 88 - 33' LT.	9.0 - 10.5	26	22	4	96	ML
2	1	101+63	HWY. 88 - 33' LT.	15.0 - 16.5	26	23	3	97	ML
2	1	101+63	HWY. 88 - 33' LT.	25.0 - 26.5	28	13	15	99	CL
2	1	101+63	HWY. 88 - 33' LT.	30.0 - 31.5	42	19	23	99	CL
2	1	101+63	HWY. 88 - 33' LT.	35.0 - 36.5	21	16	5	78	CL-ML
2	1	101+63	HWY. 88 - 33' LT.	40.0 - 41.5		NP		52	ML
2	1	101+63	HWY. 88 - 33' LT.	45.0 - 46.5		NP		74	ML
2	1	101+63	HWY. 88 - 33' LT.	50.0 - 51.5		NP		57	ML
2	1	101+63	HWY. 88 - 33' LT.	55.0 - 56.5		NP		1	SP
2	1	101+63	HWY. 88 - 33' LT.	70.0 - 71.5		NP		29	SM
2	1	101+63	HWY. 88 - 33' LT.	80.0 - 81.5		NP		2	SP
2	1	101+63	HWY. 88 - 33' LT.	95.0 - 96.5		NP		7	SP-SM
2	1	101+63	HWY. 88 - 33' LT.	100.0 - 101.5		NP		2	GP
2	1	101+63	HWY. 88 - 33' LT.	115.0 - 116.5		NP		60	ML
2	1	101+63	HWY. 88 - 33' LT.	130.0 - 131.5	49	16	33	85	CL
2	1	101+63	HWY. 88 - 33' LT.	140.0 - 141.5	46	18	28	70	CL
2	1	101+63	HWY. 88 - 33' LT.	150.0 - 151.5		NP		85	ML
1	2	199+79	WRAPE RD. - 16' RT.	2.5 - 4.0		NP		95	CL
1	2	199+79	WRAPE RD. - 16' RT.	5.0 - 6.5	35	13	22	89	CL
1	2	199+79	WRAPE RD. - 16' RT.	7.5 - 9.0	29	23	6	97	ML
1	2	199+79	WRAPE RD. - 16' RT.	10.0 - 11.5	26	23	3	97	ML
1	2	199+79	WRAPE RD. - 16' RT.	15.0 - 16.5	35	20	15	97	CL
1	2	199+79	WRAPE RD. - 16' RT.	20.0 - 21.5	76	24	52	97	CH
1	2	199+79	WRAPE RD. - 16' RT.	40.0 - 41.5		NP		47	SM
1	2	199+79	WRAPE RD. - 16' RT.	45.0 - 46.5	82	25	57	96	CH
1	2	199+79	WRAPE RD. - 16' RT.	50.0 - 51.5	27	18	9	98	CL
1	2	199+79	WRAPE RD. - 16' RT.	55.0 - 56.5		NP		15	SM
1	2	199+79	WRAPE RD. - 16' RT.	60.0 - 61.5		NP		8	SP-SM
1	2	199+79	WRAPE RD. - 16' RT.	65.0 - 66.5		NP		7	SP-SM
1	2	199+79	WRAPE RD. - 16' RT.	80.0 - 81.5		NP		4	SW
2	2	201+28	WRAPE RD. - 7' RT.	2.5 - 4.0	31	20	11	99	CL
2	2	201+28	WRAPE RD. - 7' RT.	5.0 - 6.5	36	20	16	98	CL
2	2	201+28	WRAPE RD. - 7' RT.	7.5 - 9.0	44	15	29	99	CL
2	2	201+28	WRAPE RD. - 7' RT.	10.0 - 11.5	61	20	41	99	CH
2	2	201+28	WRAPE RD. - 7' RT.	15.0 - 16.5	58	18	40	99	CH
2	2	201+28	WRAPE RD. - 7' RT.	20.0 - 21.5	64	44	20	99	MH
2	2	201+28	WRAPE RD. - 7' RT.	25.0 - 26.5	74	23	51	99	CH
2	2	201+28	WRAPE RD. - 7' RT.	30.0 - 31.5	46	16	30	98	CL
2	2	201+28	WRAPE RD. - 7' RT.	35.0 - 36.5	44	16	28	98	CL
2	2	201+28	WRAPE RD. - 7' RT.	45.0 - 46.5		NP		8	SP-SM
2	2	201+28	WRAPE RD. - 7' RT.	60.0 - 61.5		NP		3	SP
2	2	201+28	WRAPE RD. - 7' RT.	80.0 - 81.5		NP		4	SP
2	2	201+28	WRAPE RD. - 7' RT.	100.0 - 101.5		NP		13	SM

SOIL CHARACTERISTICS TABULATED ABOVE ARE REPRESENTATIVE AT THE LOCATION OF THE SAMPLE, AND FROM SURFACE INDICATIONS ARE TYPICAL FOR THE LIMITS SHOWN. THESE DATA ARE SHOWN FOR INFORMATION ONLY. THE STATE WILL NOT BE RESPONSIBLE FOR VARIATIONS IN THE SOIL CHARACTERISTICS AND/OR EXTENT OF SAME DIFFERING FROM THE ABOVE TABULATIONS.

JUCARNEY 3/22/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	31	89
		QUANTITIES				

STATE OF ARKANSAS
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ADVANCE WARNING SIGNS AND DEVICES

	SIGN NUMBER	DESCRIPTION	SIGN SIZE	SITE 1 STAGE 1	SITE 1 STAGE 2	SITE 1 STAGE 3	SITE 2 STAGE 1	SITE 2 STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED NO.	TOTAL SIGNS REQUIRED SQ. FT.	VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III) RIGHT	BARRICADES (TYPE III) LEFT	FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)
				LIN. FT. - EACH								EACH				LIN. FT.			EACH
	W20-1	ROAD WORK 1500 FT.	36"x36"	4	4	4	2	2	6	6	54.0								
	W20-1	ROAD WORK 1000 FT.	36"x36"	4	4	4	2	2	6	6	54.0								
	W20-1	ROAD WORK 500 FT.	36"x36"	4	4	4	2	2	6	6	54.0								
	G20-2	END ROAD WORK	36"x18"	4	4	4	2	2	6	6	27.0								
	R11-2	ROAD CLOSED	48"x30"	2	3	2	2	2	5	5	50.0								
	W1-3	REVERSE TURN	48"x48"		1	2			2	2	32.0								
	W13-1P	ADVISORY SPEED (PLAQUE)	24"x24"		1	2			2	2	8.0								
	W1-6	LARGE ARROW	48"x24"	2	2	1	2	2	4	4	32.0								
	W1-8	CHEVRON	18"x24"		8				8	8	24.0								
	W3-1	STOP AHEAD	36"x36"	2	2	2			2	2	18.0								
	R1-1	STOP	30"x30"	4	4	4			4	4	25.0								
*	W3-5	REDUCED SPEED LIMIT AHEAD	36"x36"	4	4	4	2	2	6	6	54.0								
*	R2-1	SPEED LIMIT	24"x30"	4	4	4	2	2	6	6	30.0								
	R4-1	DO NOT PASS	24"x30"	4	4	4	2	2	6	6	30.0								
*	W21-5a	RIGHT SHOULDER CLOSED	36"x36"	6	6	6	6	6	12	12	108.0								
*	W8-1	BUMP	30"x30"	6	6	6	6	6	12	12	75.0								
*		VERTICAL PANELS		15	17	15	15	15	32			32							
		TRAFFIC DRUMS		115	89	75	52	69	184				184						
		TYPE III BARRICADE-RT. (16')		2			1	1	3					48					
		TYPE III BARRICADE-LT. (16')		1	5	2	1	1	6						96				
		FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER					175	140	315							315			
		RELOCATING PRECAST CONCRETE BARRIER						175	175								175		
		TEMPORARY IMPACT ATTENUATION BARRIER					1	1	2									2	
		TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)					1	1	2										2
	TOTALS:									**675.0**		**32**	**184**	**48**	**96**	**315**	**175**	**2**	**2**

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

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	SITE 1 STAGE 2	SITE 1 STAGE 3	SITE 1 END OF JOB	SITE 2 STAGE 2	SITE 2 END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)	REFLECTORIZED PAINT PAVEMENT MARKING 6" WHITE	REFLECTORIZED PAINT PAVEMENT MARKING 6" YELLOW	REFLECTORIZED PAINT PAVEMENT MARKING 12" WHITE
	LIN. FT. - EACH					LIN. FT.				EACH	LIN. FT.		
REMOVAL OF PERMANENT PAVEMENT MARKINGS	760					760							
CONSTRUCTION PAVEMENT MARKINGS	5728	3602		6682			16012						
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		362						362					
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		930		760					1690				
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)	19		16							35			
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")			3548		3721						7269		
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")			3371		3720							7091	
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (12")			50										50
TOTALS:						**760**	**16012**	**362**	**1690**	**35**	**7269**	**7091**	**50**

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

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

JUCARNEY 3/22/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	32	89
		QUANTITIES				

STRUCTURES

STATION	DESCRIPTION	SIDE DRAIN	AUTOMATIC FLOODGATES	TEMPORARY CULVERTS	STD. DWG. NOS.
		18"	18"	96"	
		LIN. FT.	EACH	LIN. FT.	
402+77	SITE 1 - C.L. TEMP. DETOUR - TEMP. PIPE CULVERT - LITTLE BAYOU METO			500	PCC-1, PCM-1
197+75	SITE 2 - WRAPE RD. - SIDE DRAIN - RT.	66	1		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
TOTALS:		66	1	500	

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.

4" PIPE UNDERDRAIN

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

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

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 03-22-2024

SELECTED PIPE BEDDING

	LOCATION	SELECTED PIPE BEDDING
		CU.YD.
*	ENTIRE PROJECT TO BE USED IF	
	AND WHERE DIRECTED BY THE	130
	ENGINEER	
	TOTAL:	130

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
401+75	403+75	SITE 1 - TEMP. DETOUR	2	2
99+70	101+70	SITE 1 - HWY. 88	2	2
199+75	209+75	SITE 2 - WRAPE RD.	10	10
TOTALS:			14	14

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
502+37	SITE 1 - HWY. 11 LT. - 18" SIDE DRAIN	1
504+16	SITE 1 - HWY. 11 RT. - 24" SIDE DRAIN	1
TOTAL:		2

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

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 BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE			M.GAL.	BAG	CU.YD.	LIN. FT.	CU.YD.		
SITE 1																
ENTIRE	PROJECT	SITE 1 - CLEARING AND GRUBBING											1155			43
ENTIRE	PROJECT	SITE 1 - STAGE 1									110	15	2244			93
ENTIRE	PROJECT	SITE 1 - STAGE 2									66	3	45			6
ENTIRE	PROJECT	SITE 1 - STAGE 3									22					1
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			1.48	2.96	1.48	151.0	1.48	1.48	1.48	30.2	110	15	250	100	100	119
SUBTOTALS SITE 1:			1.48	2.96	1.48	151.0	1.48	1.48	1.48	30.2	308	33	3694	100	100	262
SITE 2 - WRAPE RD.																
ENTIRE	PROJECT	SITE 2 - STAGE 1									22	3	3700			139
ENTIRE	PROJECT	SITE 2 - STAGE 2									132	6				8
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			1.83	3.66	1.83	186.7	1.83	1.83	1.83	37.3	110	15	250	100	100	119
SUBTOTALS SITE 2:			1.83	3.66	1.83	186.7	1.83	1.83	1.83	37.3	264	24	3950	100	100	266
TOTALS:			3.31	6.62	3.31	337.7	3.31	3.31	3.31	67.5	572	57	7644	200	200	528

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.

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
101+50	SITE 1 - HWY. 88 - SE CORNER OF BRIDGE NO. 07682	1
201+14	SITE 2 - WRAPE RD. - NE CORNER OF BRIDGE NO. 07683	1
TOTAL:		2

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

SOIL STABILIZATION

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

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

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE F)	APPROACH GUTTER (TYPE SPECIAL)	APPROACH SLABS (TYPE F)	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.			POUND	TON
99+44.81	99+79.81	SITE 1 - HWY. 88 LT.	3.84			206	
99+48.83	99+83.83	SITE 1 - HWY. 88			60.00	7059	32.08
99+52.85	99+87.85	SITE 1 - HWY. 88 RT.	4.16			211	
101+42.15	101+77.15	SITE 1 - HWY. 88 LT.	4.16			211	
101+46.17	101+81.17	SITE 1 - HWY. 88			60.00	7059	32.08
101+50.19	101+85.19	SITE 1 - HWY. 88 RT.	3.84			206	
199+61.23	199+96.23	SITE 2 - WRAPE RD. RT.		8.62		857	
199+67.00	200+02.00	SITE 2 - WRAPE RD.			41.72	4873	21.39
199+72.77	200+07.77	SITE 2 - WRAPE RD. LT.		9.21		855	
201+16.23	201+51.23	SITE 2 - WRAPE RD. RT.		9.21		855	
201+22.00	201+57.00	SITE 2 - WRAPE RD.			41.72	4873	21.39
201+27.77	201+62.77	SITE 2 - WRAPE RD. LT.		8.62		857	
TOTALS:			16.00	35.66	203.44	28122	106.94

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
ENTIRE	PROJECT	SITE 1 - HWY. 88 - STAGE 1 (INCLUDES TEMP. DETOUR CONSTRUCTION)	193	5256
ENTIRE	PROJECT	SITE 1 - HWY. 88 - STAGE 2	997	385
ENTIRE	PROJECT	SITE 1 - HWY. 88 - STAGE 3 (INCLUDES TEMP. DETOUR REMOVAL)	5872	133
ENTIRE	PROJECT	SITE 1 - HWY. 11 - STAGE 1	88	129
ENTIRE	PROJECT	SITE 1 - HWY. 11 - STAGE 2	466	7
ENTIRE	PROJECT	SITE 1 - HWY. 11 - STAGE 3		49
ENTIRE	PROJECT	SITE 1 - LUCKIE RD. - STAGE 1	88	5
ENTIRE	PROJECT	SITE 1 - LUCKIE RD. - STAGE 2	22	
ENTIRE	PROJECT	SITE 1 - GIBSON RD.	61	17
ENTIRE	PROJECT	SITE 2 - WRAPE RD. - STAGE 1	2126	3339
ENTIRE	PROJECT	SITE 2 - WRAPE RD. - STAGE 2	4697	395
ENTIRE	PROJECT	APPROACHES	225	600
* ENTIRE	PROJECT	UNDERCUT AND BACKFILL	1500	1500
TOTALS:			16335	11815

NOTE: EARTHWORK QUANTITIES SHALL BE PAID AS PLAN QUANTITY.

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

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	BRIDGE END TERMINAL
			LIN. FT.	EACH		
98+25.53	99+69.28	SITE 1 - HWY. 88 LT.	75	1	1	
	99+78.39	SITE 1 - HWY. 88 RT.				1
	101+51.61	SITE 1 - HWY. 88 LT.				1
	101+60.72	SITE 1 - HWY. 88 RT.				1
197+65.17	199+83.92	SITE 2 - WRAPE RD. RT.	150	1	1	
198+56.33	200+00.08	SITE 2 - WRAPE RD. LT.	75	1	1	
201+23.92	202+67.67	SITE 2 - WRAPE RD. RT.	75	1	1	
201+40.08	203+58.83	SITE 2 - WRAPE RD. LT.	150	1	1	
TOTALS:			525	5	5	3

3/22/2024
JUCARNEY

QUANTITIES

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	33	89
		QUANTITIES				

DIGITALLY SIGNED 03-22-2024

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	LENGTH	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET		SQ. YD.
96+00.00	97+00.00	SITE 1 - HWY. 88	100.00	21.00	233.33
504+64.17	505+64.17	SITE 1 - HWY. 11	100.00	21.00	233.33
31+50.00	32+00.00	SITE 1 - LUCKIE RD.	50.00	19.00	105.56
TOTAL:					**572.22**

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

ACHM PATCHING OF EXISTING ROADWAY

	DESCRIPTION	TON
*	ENTIRE PROJECT - TO BE USED IF AND WHERE	50
	DIRECTED BY THE ENGINEER	
	TOTAL:	**50**

* 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	40	80
DIRECTED BY THE ENGINEER		
TOTALS:	**40**	**80**

BASIS OF ESTIMATE:
ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC...50 TON/MILE
TACK COAT FOR MAINTENANCE OF TRAFFIC.....100 GAL./MILE

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			STANDARD DRAWINGS
							18"	24"	35"X24"	
			FEET	SQ. YD.	TON		LIN. FT.			
96+79	LT.	SITE 1 - HWY. 88	20	135.69	14.93	55.41	32			DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
96+85	LT.	SITE 1 - HWY. 88 - TEMP. DRIVE	16	44.80	4.93	18.29				DR-2
97+12	RT.	SITE 1 - HWY. 88	30	217.04	23.87	88.62				DR-2
98+96	RT.	SITE 1 - HWY. 88	20	115.69	12.73	47.24				DR-2
30+81	RT.	SITE 1 - LUCKIE RD.	20	73.01	8.03	29.81				DR-2
500+90	LT.	SITE 1 - HWY. 11	16	289.24	31.82	118.11				DR-2
502+22	RT.	SITE 1 - HWY. 11	24	162.72	17.90	66.44		36		DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
502+37	LT.	SITE 1 - HWY. 11	16	105.90	11.65	43.24	28			DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
504+16	RT.	SITE 1 - HWY. 11	16	102.91	11.32	42.02	90			DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
403+71	LT.	SITE 1 - TEMP. DETOUR	16	147.31	16.20	60.15	46			DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
195+00	RT.	SITE 2 - WRAPE RD.	40	152.12	16.73	62.12	52			DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
196+35	RT.	SITE 2 - WRAPE RD.	40	181.77	19.99	74.22	54			DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
197+00	LT.	SITE 2 - WRAPE RD.	40	216.79	23.85	88.52				DR-2
204+50	LT.	SITE 2 - WRAPE RD.	40	262.75	28.90	107.29			54	DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
205+05	RT.	SITE 2 - WRAPE RD.	22	188.60	20.75	77.01	42			DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
209+10	LT.	SITE 2 - WRAPE RD.	16	104.16	11.46	42.53				DR-2
* ENTIRE PROJECT TEMPORARY DRIVES						200.00				
TOTALS:				**2500.50**	**275.06**	**1221.02**	**344**	**36**	**54**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.3% MIN. AGGR.....5.7% ASPHALT BINDER

THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

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

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.

JUCARNEY 3/22/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	34	89
		QUANTITIES				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 03-22-2024

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT							ACHM BINDER COURSE (1")					ACHM SURFACE COURSE (1/2")									
						(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)																		
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLON	TOTAL WID.	SQ.YD.	GALLON	TOTAL GALLONS	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	PG 76-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	PG 76-22	TOTAL PG 64-22	TOTAL PG 76-22
			FEET			FEET			FEET				FEET			TON	FEET			TON	TON	FEET			TON	TON		
MAIN LANES																											
SITE 1 - HWY. 88																											
96+00.00	97+00.00	HWY. 88 - TRANSITION	100.00	VAR.	73.13				20.00	222.22	37.78	37.78										23.00	255.56	220.00		28.11		28.11
97+00.00	99+00.00	HWY. 88 - NOTCH AND WIDEN - SUPERELEVATION TRANSITION	200.00	146.25	292.50	4.36	96.89	4.84				4.84	2.23	49.56	330.00	8.18	2.13	47.33	220.00		5.21	26.00	577.78	220.00		63.56		68.77
99+00.00	99+48.83	HWY. 88	48.83	224.00	109.38	44.71	242.58	12.13				12.13	22.46	121.86	330.00	20.11	22.25	120.72	220.00		13.28	26.00	141.06	220.00		15.52		28.90
101+81.17	102+10.52	HWY. 88 - FULL DEPTH RT. SHOULDER	29.35	199.50	58.55	56.71	184.94	9.25				9.25	28.46	92.81	330.00	15.31	28.25	92.13	220.00		10.13	30.00	97.83	220.00		10.76		20.89
102+10.52	102+32.24	HWY. 88 - FULL DEPTH RT. SHOULDER - INTERSECTION LT.	21.72	130.25	28.29	56.36	136.02	6.80				6.80	28.23	68.13	330.00	11.24	28.13	67.89	220.00		7.47	28.00	67.57	220.00		7.43		14.90
102+32.24	102+82.24	HWY. 88 - FULL DEPTH - INTERSECTION LT. & RT.	50.00	85.50	42.75	44.00	244.44	12.22				12.22	22.00	122.22	330.00	20.17	22.00	122.22	220.00		13.44	22.00	122.22	220.00		13.44		26.88
SITE 1 - TEMP. DETOUR																											
398+09.27	400+09.12	TEMPORARY DETOUR - TRANSITION	199.85	VAR.	105.42	9.34	207.40	10.37				10.37	9.34	207.40	330.00	34.22						9.19	204.07	220.00	22.45		22.45	
400+09.12	405+60.57	TEMPORARY DETOUR	551.45	130.75	721.02	24.29	1488.30	74.42				74.42	24.29	1488.30	330.00	245.57						24.00	1470.53	220.00	161.76		161.76	
SITE 1 - HWY. 11																											
500+11.00	500+50.20	HWY. 11 - NOTCH AND WIDEN - FULL DEPTH RT. SHOULDER - SUPERELEVATED	39.20	100.00	39.20	28.36	123.52	6.18				6.18	14.23	61.98	330.00	10.23	14.13	61.54	220.00		6.77	34.00	148.09	220.00		16.29		23.06
500+50.20	501+30.00	HWY. 11 - NOTCH AND WIDEN - FULL DEPTH LT. SHOULDER - SUPERELEVATED	79.80	102.75	81.99	29.69	263.25	13.16				13.16	14.90	132.11	330.00	21.80	14.79	131.14	220.00		14.43	34.00	301.47	220.00		33.16		47.59
501+30.00	502+72.85	HWY. 11 - NOTCH AND WIDEN	142.85	138.00	197.13	23.19	368.08	18.40				18.40	11.65	184.91	330.00	30.51	11.54	183.17	220.00		20.15	30.00	476.17	220.00		52.38		72.53
502+72.85	504+64.17	HWY. 11 - NOTCH AND WIDEN	191.32	146.25	279.81	4.36	92.68	4.63				4.63	2.23	47.40	330.00	7.82	2.13	45.28	220.00		4.98	26.00	552.70	220.00		60.80		65.78
504+64.17	505+64.17	HWY. 11 - TRANSITION	100.00	VAR.	73.13				20.00	222.22	37.78	37.78										23.00	255.56	220.00		28.11		28.11
SITE 1 - LUCKIE RD.																											
30+11.00	31+05.00	LUCKIE RD. - NOTCH AND WIDEN - FULL DEPTH LT. & RT. SHOULDERS	94.00	69.50	65.33	20.71	216.30	10.82				10.82	10.46	109.25	330.00	18.03	10.25	107.06	220.00		11.78	28.00	292.44	220.00		32.17		43.95
31+05.00	31+50.00	LUCKIE RD. - NOTCH AND WIDEN	45.00	100.25	45.11	4.36	21.80	1.09				1.09	2.23	11.15	330.00	1.84	2.13	10.65	220.00		1.17	24.00	120.00	220.00		13.20		14.37
31+50.00	32+00.00	LUCKIE RD. - TRANSITION	50.00	VAR.	50.13				18.00	100.00	17.00	17.00										21.00	116.67	220.00		12.83		12.83
SITE 1 - GIBSON RD.																											
60+00.00	61+11.14	GIBSON RD. - FULL DEPTH	111.14	117.75	130.87	40.71	502.72	25.14				25.14	20.46	252.66	330.00	41.69	20.25	250.07	220.00		27.51	20.00	246.98	220.00		27.17		54.68
61+11.14	62+90.00	GIBSON RD.	178.86	109.75	196.30																	20.00	397.47	220.00		43.72		43.72
62+90.00	63+40.00	GIBSON RD. - TRANSITION	50.00	VAR.	54.88																	20.00	111.11	220.00		12.22		12.22
SITE 2 - WRAPE RD.																											
191+90.00	192+90.00	WRAPE RD. - TRANSITION	100.00	VAR.	124.00	40.71	452.33	22.62				22.62	20.46	227.33	330.00	37.51	20.25	225.00	220.00	24.75		22.00	244.44	220.00	26.89		51.64	
192+90.00	199+67.00	WRAPE RD.	677.00	170.25	1152.59	40.71	3062.30	153.12				153.12	20.46	1539.05	330.00	253.94	20.25	1523.25	220.00	167.56		24.00	1805.33	220.00	198.59		366.15	
201+57.00	209+50.00	WRAPE RD.	793.00	170.25	1350.08	40.71	3587.00	179.35				179.35	20.46	1802.75	330.00	297.45	20.25	1784.25	220.00	196.27		24.00	2114.67	220.00	232.61		428.88	
209+50.00	210+50.00	WRAPE RD. - TRANSITION	100.00	VAR.	124.00	40.71	452.33	22.62				22.62	20.46	227.33	330.00	37.51	20.25	225.00	220.00	24.75		22.00	244.44	220.00	26.89		51.64	
ADDITIONAL FOR SUPERELEVATION																											
SITE 1 - HWY. 88																											
97+00.00	99+00.00	HWY. 88 - SUPERELEVATION TRANSITION	200.00	VAR.	24.50																						
SITE 1 - HWY. 11																											
500+11.00	502+25.09	HWY. 11 - SUPERELEVATED	214.09	VAR.	86.68																						
ADDITIONAL FOR LEVELING & RAISING GRADE																											
SITE 1 - HWY. 88																											
96+00.00	99+00.00	HWY. 88 - NOTCH AND WIDEN - SUPERELEVATION TRANSITION	300.00			40.00	1333.33	66.67	20.00	666.67	113.33	180.00					20.00	666.67	VAR.		114.49						114.49
SITE 1 - HWY. 11																											
500+11.00	500+50.20	HWY. 11 - NOTCH AND WIDEN - FULL DEPTH RT. SHOULDER - SUPERELEVATED	39.20			40.00	174.22	8.71	20.00	87.11	14.81	23.52					20.00	87.11	VAR.		15.59						15.59
500+50.20	501+30.00	HWY. 11 - NOTCH AND WIDEN - FULL DEPTH LT. SHOULDER - SUPERELEVATED	79.80			57.99	514.18	25.71	19.33	171.39	29.14	54.85	19.33	171.39	VAR.	0.35	19.33	171.39	VAR.		34.33						34.33
501+30.00	502+72.85	HWY. 11 - NOTCH AND WIDEN	142.85			33.16	526.32	26.32	16.58	263.16	44.74	71.06					16.58	263.16	VAR.		57.58						57.58
502+72.85	504+64.17	HWY. 11 - NOTCH AND WIDEN	191.32			40.00	850.31	42.52	20.00	425.16	72.28	114.80					20.00	425.16	VAR.		64.43						64.43
SITE 1 - LUCKIE RD.																											
30+11.00	31+50.00	LUCKIE RD. - NOTCH AND WIDEN	139.00			36.00	556.00	27.80	18.00	278.00	47.26	75.06					18.00	278.00	VAR.		43.26						43.26
ADDITIONAL FOR GUARDRAIL AND BRIDGE END TERMINAL WIDENING																											
SITE 1 - HWY. 88																											
97+82.53	98+15.53	HWY. 88 - LT. SIDE	33.00	VAR.	2.64																	6.75	24.75	220.00		2.72		2.72
98+15.53	98+25.53	HWY. 88 - LT. SIDE	10.00	VAR.	2.13																	9.50	10.56	220.00		1.16		1.16
98+25.53	99+25.53	HWY. 88 - LT. SIDE	100.00	VAR.	16.63																	8.50	94.44	220.00		10.39		10.39
99+25.53	99+69.28	HWY. 88 - LT. SIDE	43.75	VAR.	5.25																	7.50	36.46	220.00		4.01		4.01
99+25.39	99+58.39	HWY. 88 - RT. SIDE	33.00	VAR.	2.64																	6.75	24.75	220.00		2.72		2.72
99+58.39	99+78.39	HWY. 88 - RT. SIDE	20.00	VAR.	4.25																	9.50	21.11	220.00		2.32		2.32
101+51.61	101+71.61	HWY. 88 - LT. SIDE	20.00	VAR.	4.25																	9.50	21.11	220.00		2.32		2.32
101+71.61	102+94.01	HWY. 88 - LT. SIDE	33.00	VAR.	2.64																	6.75	24.75	220.00		2.72		2.72
101+60.72	101+80.72	HWY. 88 - RT. SIDE	20.00	VAR.	9.15																	9.50	21.11	220.00		2.32		2.32
101+80.72	102+13.72	HWY. 88 - RT. SIDE	33.00	VAR.	10.73																	6.75	24.75	220.00		2.72		2.72
SITE 2 - WRAPE RD.																											
197+22.17	197+55.17	WRAPE RD. - RT. SIDE	33.00	VAR.	4.08																	4.75	17.42	220.00	1.92		1.92	
197+55.17	197+65.17	WRAPE RD. - RT. SIDE	10.00	VAR.	2.73																	7.50	8.33	220.00	0.92		0.92	
197+65.17	199+40.17	WRAPE RD. - RT. SIDE	175.00	VAR.	38.94																	6.50	126.39	220.00	13.90		13.90	
199+40.17	199+83.92	WRAPE RD. - RT. SIDE	43.75	VAR.	7.55																	5.50	26.74	220.00	2.94		2.94	
198+13.33	198+46.33	WRAPE RD. - LT. SIDE	33.00	VAR.	4.08																	4.75	17.42	220.00	1.92		1.92	
198+46.33	198+56.33	WRAPE RD. - LT. SIDE	10.00	VAR.	2.73																	7.50	8.33	220.00	0.92		0.92	
198+56.33	199+56.33	WRAPE RD. - LT. SIDE	100.00	VAR.	22.25																	6.50	72.22	220.00	7.94		7.94	
199+56.33	200+00.08	WRAPE RD. - LT. SIDE	43.75	VAR.	7.55																	5.50	26.74	220.00	2.94		2.94	
201+23.92	201+67.67	WRAPE RD. - RT. SIDE	43.75	VAR.	7.55																	5.50	26.74	220.00	2.94		2.94	
201+67.67	202+67.67	WRAPE RD. - RT. SIDE	100.00	VAR.	22.25																	6.50	72.22	220.00	7.94		7.94	
202+67.67	202+77.67	WRAPE RD. - RT. SIDE	10.00	VAR.	2.73																	7.50	8.33	220.00	0.92		0.92	
202+77.67	203+10.67	WRAPE RD. - RT. SIDE	33.00	VAR.	4.08																	4.75	17.42	220.00	1.92		1.92	
201+40.08	201+83.83	WRAPE RD. - LT. SIDE	43.75	VAR.	7.55																	5.50	26.74	220.00	2.94		2.94	
201+83.83	203+58.83	WRAPE RD. - LT. SIDE	175.00	VAR.	38.94																	6.50	126.39	220.00	13.90		13.90	
203+58.83	203+68.83	WRAPE RD. - LT. SIDE	10.00	VAR.	2.73																	7.50	8.33	220.00	0.92		0.92	
203+68.83	204+01.83	WRAPE RD. - LT. SIDE	33.00	VAR.	4.08																	4.75	17.42	220.00	1.92		1.92	
ADDITIONAL FOR MOT TRANSITIONS																											
SITE 1 - HWY. 11																											
500+50.20	502+72.85	HWY. 11 - OVERLAY EXISTING PAVEMENT	222.65						10.42	257.80	43.83	43.83					10.42	257.80	220.00	28.36						28.36		
ADDITIONAL FOR INTERSECTION WIDENING																											
SITE 1 - HWY. 11																											
500+11.00	500+71.86	HWY. 11 - INTERSECTION FULL DEPTH	60.86	VAR.	69.88	VAR.	399.34	19.97				19.97	VAR.	199.67	330.00	32.95	VAR.	199.67	220.00		21.96	VAR.	199.67	220.00		21.96		43.92
SITE 1 - LUCKIE RD.																											
30+11.00	31+05.00	LUCKIE RD. - INTERSECTION FULL DEPTH	94.00	VAR.	51.61	VAR.	294.88	14.74				14.74	VAR.	147.44	330.00	24.33	VAR.	147.44	220.00		16.22	VAR.	147.44	220.00		16.22		32.44
SITE 1 - GIBSON RD.																											
60+00.00	61+11.14	GIBSON RD. - INTERSECTION FULL DEPTH	111.14	VAR.	9.14	VAR.	52.22	2.61				2.61	VAR.	26.11	330.00	4.31	VAR.	26.11	220.00		2.87	VAR.	26.11	220.00		2.87		5.74
SITE 1 - TEMP. DETOUR																											
404+97.78	405+60.57	TEMPORARY DETOUR - INTERSECTION FULL DEPTH	62.79	VAR.	60.51	VAR.	345.78	17.29				17.29	VAR.	172.89	330.00	28.53	VAR.	172.89	220.00	19.02		VAR.	172.89	220.00	19.02		38.04	
TOTALS:					**5938.04**		**16789.46**	**839.50**		**2693.73**	**457.95**	**1297.45**		**7463.70**		**1203.60**		**7692.10**		**460.71**	**507.05**		**11821.24**		**755.01**	**545.32**	**1215.72**	**1052.37**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.3% MIN. AGGR.....5.7% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.8% MIN. AGGR.....4.2% ASPHALT BINDER
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

3/22/2024
JUCARNEY

QUANTITIES

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	35	89
		07682, 07683 - QUANTITIES -				67344

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 020784

BRIDGE NUMBER	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	SP, SS, & 802	SP, SS, & 802	SS & 802	SP & 803	SS & 804	SS & 804	SP, SS, & 805	SP, SS, & 805	SS & 805	SS & 805	SP, SS, & 807	SS & 808	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 II)	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STEEL SHELL PILING (16" DIA.) ①	STEEL SHELL PILING (24" DIA.) ①	PREBORING	PILE ENCASEMENT	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)	ELASTOMERIC BEARINGS	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP
			UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	LIN. FT.	SQ. YD.	POUND	POUND	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	POUND	CU. IN.	EACH	SQ. YD.	CU. YD.
07682	HIGHWAY 88 OVER LITTLE BAYOU METO																			
		END BENT NO. 1			209	17.44				1,677	600	540		50					236	159
		INTERMEDIATE BENT NO. 2				26.53				2,668			410		47	675	4,860.0			
		INTERMEDIATE BENT NO. 3				26.59				2,668			570		70	675	4,860.0			
		END BENT NO. 4			128	17.44				1,677	600	570		50					124	85
		161'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT					242.80	795.0	679.7		62,480					1,650		1		
		SITE NO. 1 (EXISTING BR. NO. 01933)		1																
TOTALS FOR BRIDGE NO. 07682					337	88.00	242.80	795.0	679.7	8,690	63,680	1,110	980	100	117	3,000	9,720.0	1	360	244
07683	HIGHWAY 88 OVER WRAPE ROAD																			
		END BENT NO. 1			45	17.89				2,109	207	480							72	66
		INTERMEDIATE BENT NO. 2				16.66				2,251	414		455		50					
		INTERMEDIATE BENT NO. 3				16.66				2,251	414		365		50					
		END BENT NO. 4				17.89				2,109	207	365							81	63
		120'-0" CONTINUOUS R.C. SLAB UNIT					301.90		422.4		69,858							1		
		SITE NO. 2 (EXISTING BR. NO. 04447)		1																
TOTALS FOR BRIDGE NO. 07683					45	69.10	301.90		422.4	8,720	71,100	845	820		100			1	153	129
TOTALS FOR JOB NO. 020784					382	157.10	544.70	795.0	1,102.1	17,410	134,780	1,955	1,800	100	217	3,000	9,720.0	2	513	373

① Steel shell piles shall conform to ASTM A252, Grade 3, Fy = 45 ksi.

TABLE OF APPROACH SLAB QUANTITIES

(FOR INFORMATION ONLY)

BRIDGE NO.	ITEM	REINFORCING STEEL	CONCRETE
	UNIT	LB.	CU. YDS.
07682	BEGIN BRIDGE	7,059	60.00
	END BRIDGE	7,059	60.00
07683	BEGIN BRIDGE	4,873	41.72
	END BRIDGE	4,873	41.72

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 04-01-2024

BRIDGE ENGINEER
PRINT DATE: 4/1/2024

SCHEDULE OF BRIDGE QUANTITIES
LITTLE BAYOU METO STRS. & APPRS. (S)
JEFFERSON COUNTY
ROUTE 88 SECTION 9
WRAPE ROAD

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LMD DATE: NOV. 2023 FILENAME: b020784_q1.dgn
CHECKED BY: JPC DATE: DEC. 2023
DESIGNED BY: - DATE: - SCALE: No Scale
BRIDGE NO. 07682, 07683 DRAWING NO. 67344

4/1/2024
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	36	89
		SUMMARY OF QUANTITIES AND REVISIONS				

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	STPR-0035(68) QUANTITY	STPB-0035(68) QUANTITY	TOTAL QUANTITY	UNIT
201	CLEARING	4	10	14	STATION
201	GRUBBING	4	10	14	STATION
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	2		2	EACH
SP, SS, & 210	UNCLASSIFIED EXCAVATION	8162	8173	16335	CU. YD.
SP & 210	COMPACTED EMBANKMENT	6911	4904	11815	CU. YD.
SP & 210	SOIL STABILIZATION	50	150	200	TON
SP, SS, & 303	AGGREGATE BASE COURSE (CLASS 7)	3691	3575	7266	TON
SS & 401	TACK COAT	964	413	1377	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	553	600	1153	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	25	26	51	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	1373	1025	2398	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	23	62	85	TON
SP, SS, & 407	ASPHALT BINDER (PG 76-22) IN ACHM SURFACE COURSE (1/2")	60		60	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT	572		572	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	22	18	40	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	13	37	50	TON
SP, SS, & 504	APPROACH SLABS	120.00	83.44	203.44	CU. YD.
SP, SS, & 504	APPROACH GUTTERS	16.00	35.66	51.66	CU. YD.
601	MOBILIZATION	0.25	0.75	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	0.25	0.75	1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	0.25	0.75	1.00	LUMP SUM
603	96" TEMPORARY CULVERT	500		500	LIN. FT.
SS & 604	SIGNS	447	228	675	SQ. FT.
SS & 604	BARRICADES	112	32	144	LIN. FT.
SS & 604	TRAFFIC DRUMS	115	69	184	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		315	315	LIN. FT.
SS & 604	RELOCATING PRECAST CONCRETE BARRIER		175	175	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	9330	6682	16012	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	930	760	1690	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	362		362	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	760		760	LIN. FT.
SS & 604	VERTICAL PANELS	17	15	32	EACH
SP, SS, & 606	18" SIDE DRAIN	196	214	410	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	36		36	LIN. FT.
SS & 606	35" X 24" SIDE DRAIN		54	54	LIN. FT.
SS & 606	SELECTED PIPE BEDDING	110	20	130	CU. YD.
SS & 611	4" PIPE UNDERDRAINS	125	375	500	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	1	3	4	EACH
616	18" AUTOMATIC FLOODGATES		1	1	EACH
SS & 617	GUARDRAIL (TYPE A)	75	450	525	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)	1	4	5	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL	1	4	5	EACH
620	LIME	3	4	7	TON
620	SEEDING	1.48	1.83	3.31	ACRE
SS & 620	MULCH COVER	2.96	3.66	6.62	ACRE
620	WATER	181.2	224.0	405.2	M. GAL.
621	TEMPORARY SEEDING	1.48	1.83	3.31	ACRE
621	SILT FENCE	3694	3950	7644	LIN. FT.
621	SAND BAG DITCH CHECKS	308	264	572	BAG
621	SEDIMENT BASIN	100	100	200	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	100	100	200	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	262	266	528	CU. YD.
621	ROCK DITCH CHECKS	33	24	57	CU. YD.
623	SECOND SEEDING APPLICATION	1.48	1.83	3.31	ACRE
635	ROADWAY CONSTRUCTION CONTROL	0.25	0.75	1.00	LUMP SUM
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	3548	3721	7269	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (12")	50		50	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	3371	3720	7091	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	35		35	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER		2	2	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		2	2	EACH
SS & 734	BRIDGE END TERMINAL	3		3	EACH
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	14952	13170	28122	POUND
	STRUCTURES OVER 20' SPAN				
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00		1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)		1.00	1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	0.55	0.45	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	337	45	382	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-BRIDGE	88.00	69.10	157.10	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	242.80	301.90	544.70	CU. YD.
SS & 802	PRESTRESSED CONCRETE GIRDERS (TYPE II)	795.0		795.0	LIN. FT.
SP & 803	CLASS 2 PROTECTIVE SURFACE TREATMENT	679.7	422.4	1102.1	SQ. YD.
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	8690	8720	17410	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	63680	71100	134780	POUND
SP, SS, & 805	STEEL SHELL PILING (16" DIAMETER)	1110	845	1955	LIN. FT.
SP, SS, & 805	STEEL SHELL PILING (24" DIAMETER)	980	820	1800	LIN. FT.
SS & 805	PREBORING	100		100	LIN. FT.
SS & 805	PILE ENCASEMENT	117	100	217	LIN. FT.
SP, SS, & 807	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)	3000		3000	POUND
SS & 808	ELASTOMERIC BEARINGS	9720.0		9720.0	CU. IN.
812	BRIDGE NAME PLATE (TYPE D)	1	1	2	EACH
SS & 816	FILTER BLANKET	360	153	513	SQ. YD.
SS & 816	DUMPED RIPRAP	244	129	373	CU. YD.

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 04-01-2024

REVISIONS

DATE	REVISION	SHEET NUMBER

4/1/2024
JUCARNEY

SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	37	89
		SURVEY CONTROL DETAILS				

DIGITALLY SIGNED 03-22-2024

SURVEY CONTROL COORDINATES

Project Name: s020784
Date: 5/31/2022
Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
2	1854918.6859	1444016.1535	182.327	CTL	*ARDOT STD MON STAMPED PN:2 11 REYDELL
3	1854091.2928	1443789.4540	181.262	CTL	*ARDOT STD MON STAMPED PN:3 REYDELL
4	1855212.6731	1443268.1472	182.635	CTL	*ARDOT STD MON STAMPED PN:4 11 REYDELL
5	1855768.6479	1442670.2729	181.884	CTL	*ARDOT STD MON STAMPED PN:5 11 REYDELL
6	1868178.7757	1438603.9006	178.742	CTL	*ARDOT STD MON STAMPED PN:6 WRAPE RD
7	1868980.8716	1438644.2971	179.070	CTL	*ARDOT STD MON STAMPED PN:7 WRAPE RD
8	1869913.5377	1438630.5329	181.479	CTL	*ARDOT STD MON STAMPED PN:8 WRAPE RD
9	1870557.7270	1438673.9677	182.362	CTL	*ARDOT STD MON STAMPED PN:9 WRAPE RD
10	1871135.3927	1438678.7291	182.386	CTL	*ARDOT STD MON STAMPED PN:10 WRAPE RD
100	1870566.1018	1451567.4930	180.110	GPS	*ARDOT GPS MON 010014
101	1868051.0448	1451616.7913	179.412	GPS	*ARDOT GPS MON 010014A
900	1856946.7301	1446211.1990	179.608	TBM	*19' S OF C/L HWY 11 11 RAYDELL
901	1855544.0016	1444664.8462	180.985	TBM	*CHISELED SQUARE IN HW 11 RAYDELL
902	1854913.2964	1443894.4850	182.195	TBM	*CUT X IN FH 59' W OF C/L HWY 11 11
903	1855648.2205	1442865.7827	180.887	TBM	*RBR CAP 11 REYDELL
904	1856555.4044	1441945.7587	181.489	TBM	*CHISELED SQUARE IN HW 11 REYDELL
905	1857992.9659	1440583.9437	180.806	TBM	*RBR CAP JMA1800200 11 REYDELL
906	1860983.5928	1439195.1184	179.485	TBM	*RBR CAP JMA1800204 WRAPE RD REYDELL
907	1862944.4752	1438517.3862	181.113	TBM	*BRASS DISK IN CONC WRAPE RD REYDELL
908	1865081.2567	1438540.3982	181.011	TBM	*CHISELED SQUARE IN CONC WRAPE RD
909	1868687.2664	1438649.2705	178.043	TBM	*RBR CAP WRAPE RD REYDELL
910	1870019.6458	1438660.7725	181.882	TBM	*CHISELED SQUARE IN BR WRAPE RD
911	1871021.7369	1438665.7750	177.962	TBM	*CUT SQUARE IN STEEL CU WRAPE RD
912	1854905.4147	1444011.1020	181.218	TBM	*RBR A CAP JMA1800208 WRAPE RD REYDELL
999	1858845.1101	1448530.6972	180.003	BM	*DISK STAMPED J 112 11 REYDELL

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 0.9999141149 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 s020784gi.ctl
HORIZONTAL DATUM: NAD 83 (2011)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0302-SOUTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 010014 & 010014A
CONVERGENCE ANGLE: 00 14 00.6 RIGHT AT LAT N34-11-34.9738" LON W91-34-58.1871"
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

ALIGNMENT NAME: HWY. 88

POINT	STATION	TYPE	NORTHING	EASTING
8003	94+46.91	PC	1855253.8674	1443238.9112
8005	98+93.50	PT	1855053.9605	1443635.9788
8024	102+82.24	POE	1854938.7914	1444007.2651

ALIGNMENT NAME: HWY. 11

POINT	STATION	TYPE	NORTHING	EASTING
8024	500+00.00	POB	1854938.7914	1444007.2651
8025	500+19.88	PC	1854957.7780	1444013.1545
8042	501+55.21	PT	1855073.4432	1444081.0922
8043	502+41.75	PC	1855136.0856	1444140.7949
8045	504+64.17	PT	1855300.7535	1444290.2821
8046	505+67.71	POE	1855379.0824	1444357.9972

ALIGNMENT NAME: LUCKIE RD.

POINT	STATION	TYPE	NORTHING	EASTING
8024	30+00.00	POB	1854938.7914	1444007.2651
8047	32+25.00	POE	1854723.8925	1443940.6057

ALIGNMENT NAME: GIBSON RD.

POINT	STATION	TYPE	NORTHING	EASTING
8024	60+00.00	POB	1854938.7914	1444007.2651
8020	60+44.70	PC	1854925.5492	1444049.9559
8022	61+11.14	PT	1854913.1764	1444115.0942
8023	64+36.05	POE	1854888.9471	1444439.0978

ALIGNMENT NAME: TEMP. DETOUR

POINT	STATION	TYPE	NORTHING	EASTING
8049	398+09.27	PC	1855202.4342	1443314.3884
8051	401+48.54	PT	1855118.7408	1443637.5565
8052	401+91.17	PC	1855121.1890	1443680.1156
8054	405+07.66	PT	1855049.2699	1443983.7925
8055	405+71.57	POE	1855017.3729	1444039.1742

ALIGNMENT NAME: WRAPE RD.

POINT	STATION	TYPE	NORTHING	EASTING
8029	191+00.13	POB	1869037.0121	1438631.5510
8030	192+96.26	PC	1869233.1299	1438633.2625
8032	196+55.63	PRC	1869592.2410	1438622.3154
8034	199+75.00	PT	1869911.3527	1438611.1937
8035	201+49.00	PC	1870085.3527	1438611.1937
8037	205+76.19	PRC	1870511.9240	1438631.0860
8039	209+43.38	PT	1870878.4970	1438650.5856
8040	210+99.87	POE	1871034.9700	1438652.6339

JUCARNEY 3/22/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	38	89
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 03-22-2024

STA. 97+00.00
BEGIN SITE I
LOG MILE 23.28

C.L. HWY. 88
P.I. = 96+72.27
Δ = 18°58'48" LT.
D = 4°15'00"
T = 225.36'
L = 446.59'
P.C. = 94+46.91
P.T. = 98+93.50
e = MATCH EXISTING
Ls = MATCH EXISTING

PC 94+46.91
PC 8003
95
SURVEY BASELINE S 47°04'47" E 86.43'
SURVEY BASELINE
PT 98+93.50
PT 8005
100
SURVEY BASELINE S 68°32'38" E 808.71'
S72°46'00"E 225.36'
C.L. HWY. 88
S72°46'00"E 388.74'
S53°47'12"E 225.36'
PN:4 PD:ARDOT STD MON STAMPED PN:4 II REYDELL
PI 96+72.27

C.L. HWY. II
P.I. = 503+52.98
Δ = 2°46'49" LT.
D = 1°15'00"
T = 111.23'
L = 222.42'
P.C. = 502+41.75
P.T. = 504+64.17
NO SUPER

POE 505+61.71
POE 8046
505
N40°50'36"E 103.54'
PI 504+64.17
PT 8045
N40°50'36"E 111.23'
C.L. HWY. II
SURVEY BASELINE N 40°56'52" E 898.60'
PI 503+52.98
PC 502+41.75
N43°37'25"E 111.23'
PC 8043
SURVEY BASELINE
N43°37'25"E 86.54'

C.L. HWY. II
P.I. = 500+88.77
Δ = 26°23'25" RT.
D = 19°30'00"
T = 68.89'
L = 135.33'
P.C. = 500+19.88
P.T. = 501+55.21
e = 0.100'/'
Ls = 250'

PT 8042
N43°37'25"E 68.89'
PI 500+88.77
PT 501+55.21
PC 60+44.70
PT 61+11.14
POE 64+36.05
POE 8023
N17°14'00"E 68.89'
STA. 102+82.24 C.L. HWY. 88 =
STA. 500+00.00 C.L. HWY. II =
STA. 60+00.00 C.L. GIBSON RD. =
STA. 30+00.00 C.L. LUCKIE RD.
Δ = 90°00'00"
N17°14'00"E 19.88'
PC 500+19.88
PC 8025
PC 8020
S72°46'00"E 44.70'
PT 8022
C.L. GIBSON RD.
S85°43'24"E 324.91'
POE/POB 8024
PN:2 PD:ARDOT STD MON STAMPED PN:2 II REYDELL
PN:902 PD:CUT X IN FH 59' W OF C/L HWY II
PN:3 PD:RBR A CAP
JMAI800208 WRAPE RD REYDELL
S85°43'24"E 33.36'
S72°46'00"E 33.36'
PI 60+78.06
C.L. GIBSON RD.
P.I. = 60+78.06
Δ = 12°57'24" LT.
D = 19°30'00"
T = 33.36'
L = 66.44'
P.C. = 60+44.70
P.T. = 61+11.14
NO SUPER

STA. 102+82.24
END SITE I

S17°14'00"W 225.00'
C.L. LUCKIE RD.
POE 32+25.00
POE 8047

JUCARNEY 3/22/2024

SITE I
SURVEY CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	39	89
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
James Patrick Jones
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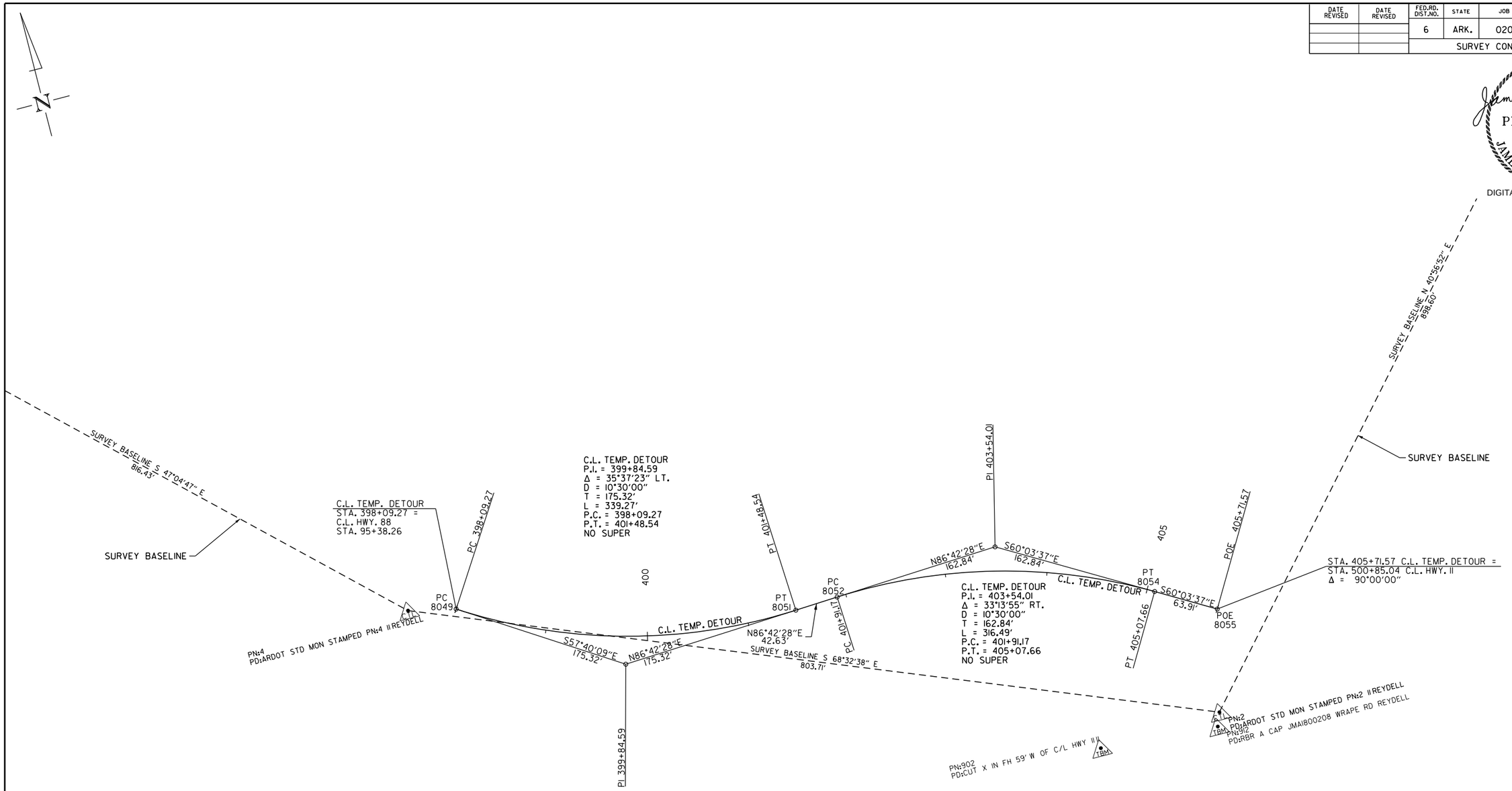

JUCARNEY 3/22/2024

TEMP. DETOUR - SITE I
SURVEY CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	40	89
		SURVEY CONTROL DETAILS				

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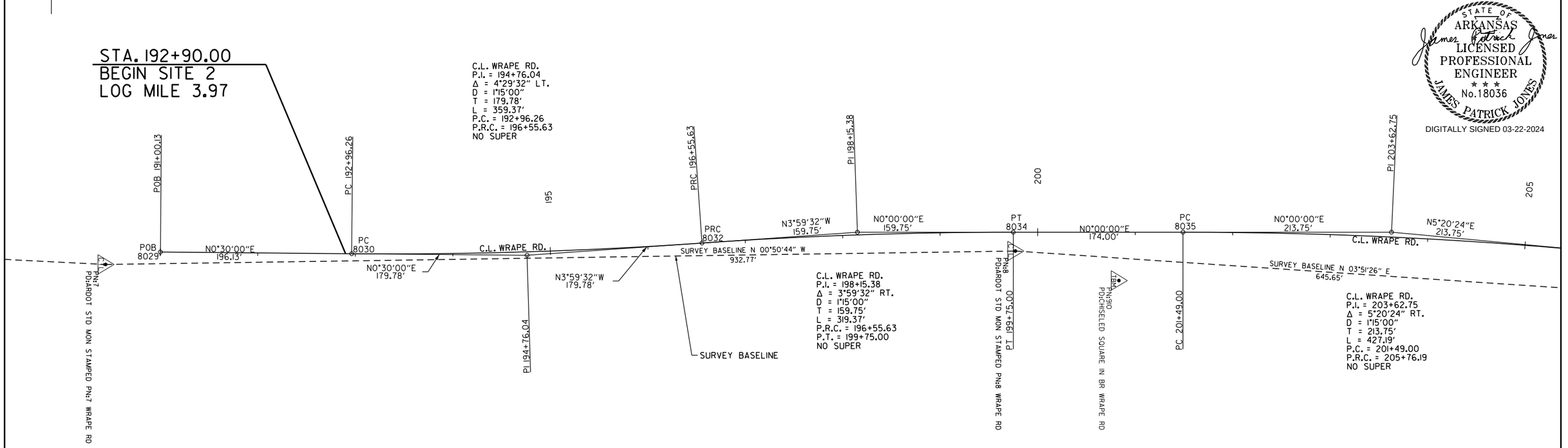

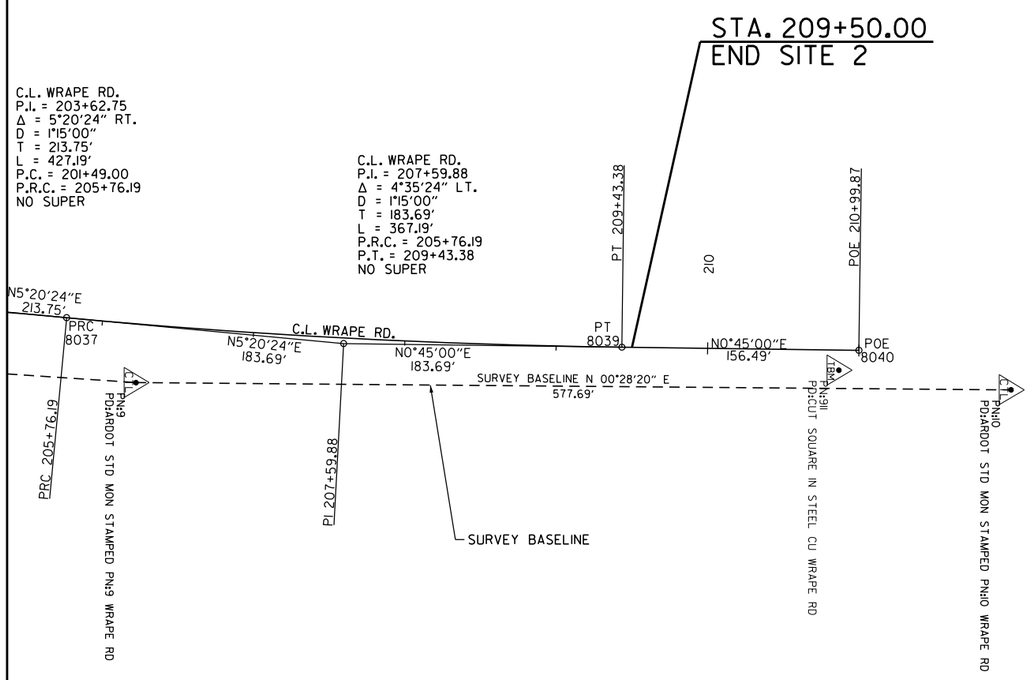

JUCARNEY 3/22/2024

SITE 2
SURVEY CONTROL DETAILS

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	41	89
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
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STA.	STA.	LOCATION	GUARDRAIL (TYPE A) LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	GUARDRAIL TERMINAL (TYPE 2) EACH	BRIDGE END TERMINAL
98+25.53	99+69.28	LT. OF C.L. HWY. 88	75	1	1	
	99+78.39	RT. OF C.L. HWY. 88				
	101+51.61	LT. OF C.L. HWY. 88				
	101+60.72	RT. OF C.L. HWY. 88				

APPROXIMATE 100-YEAR FLOODPLAIN LIMITS

STA. 96+79 INSTALL
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 40 CU. YDS. FILL

STA. 99+83.83 - BRIDGE END
BRIDGE NO. 07682
161'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT TYPE II
(53'-6"-54'-0"-53'-6")
34'-0" CLEAR ROADWAY
15°00'00" RT. FWD. SKEW
162'-4" BRIDGE LENGTH
STA. 101+46.17 - BRIDGE END

C.L. HWY. 88
P.I. = 96+72.27
Δ = 18°58'48" LT.
D = 4°15'00"
T = 225.36'
L = 446.59'
P.C. = 94+46.91
P.T. = 98+93.50
e = MATCH EXISTING
Ls = MATCH EXISTING

STA. 97+00.00
BEGIN SITE I
LOG MILE 23.28

STA. 97+12 CONSTRUCT
APPROACH ON RT. = 60 CU. YDS. FILL

STA. 98+96 CONSTRUCT
APPROACH ON RT. = 25 CU. YDS. FILL

STA. 102+82.24 C.L. HWY. 88 =
STA. 500+00.00 C.L. HWY. 11 =
STA. 60+00.00 C.L. GIBSON RD. =
STA. 30+00.00 C.L. LUCKIE RD.
Δ = 90°00'00"

STA. 102+82.24
END SITE I

STA. 100+07.00 TO STA. 101+32.00
EXISTING BRIDGE NO. 01933
125.0' X 19.5' BRIDGE CONSISTING OF A STEEL SUPERSTRUCTURE SUPPORTED BY A TIMBER SUBSTRUCTURE
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 1) = 1.00 LUMP SUM

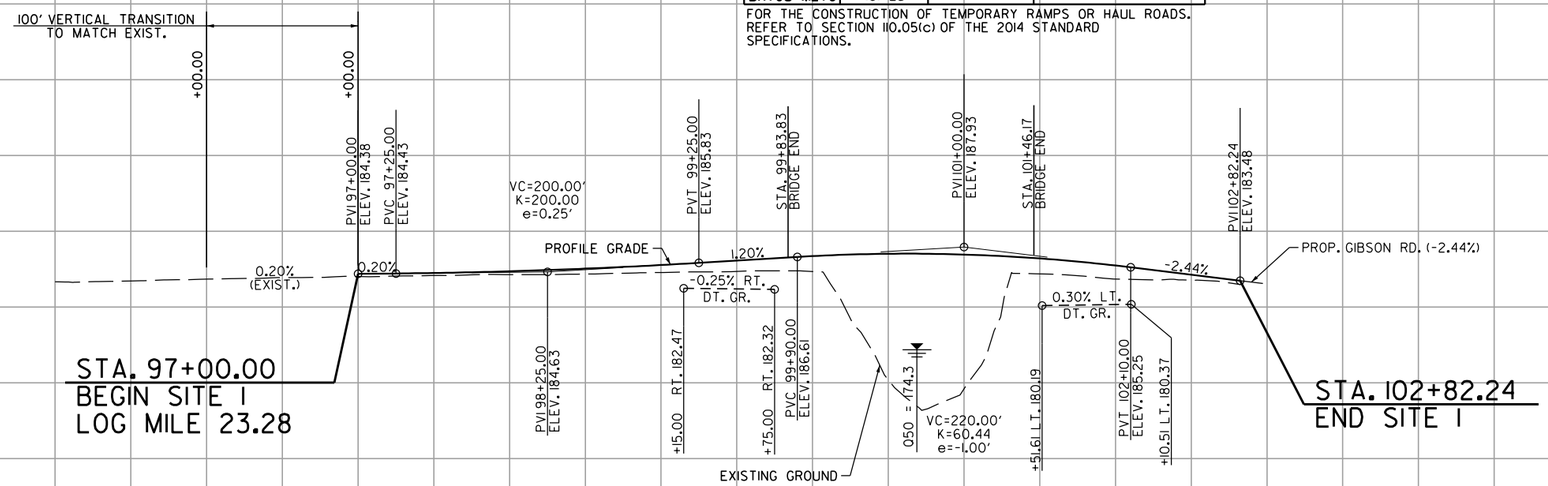
HWY. 88
SITE 1

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

STA. 97+00.00 BEGIN SUPERELEVATION (0.010'/') (MATCH EXIST.)
STA. 99+00.00 END SUPERELEVATION

STREAM	STATION	STREAM TYPE	TOP OF CHANNEL ELEV.
LITTLE BAYOU METO	100+25 - 101+25	PERENNIAL	174.5 FT. MSL

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS. REFER TO SECTION 110.05(c) OF THE 2014 STANDARD SPECIFICATIONS.



3/22/2024
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	42	89
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
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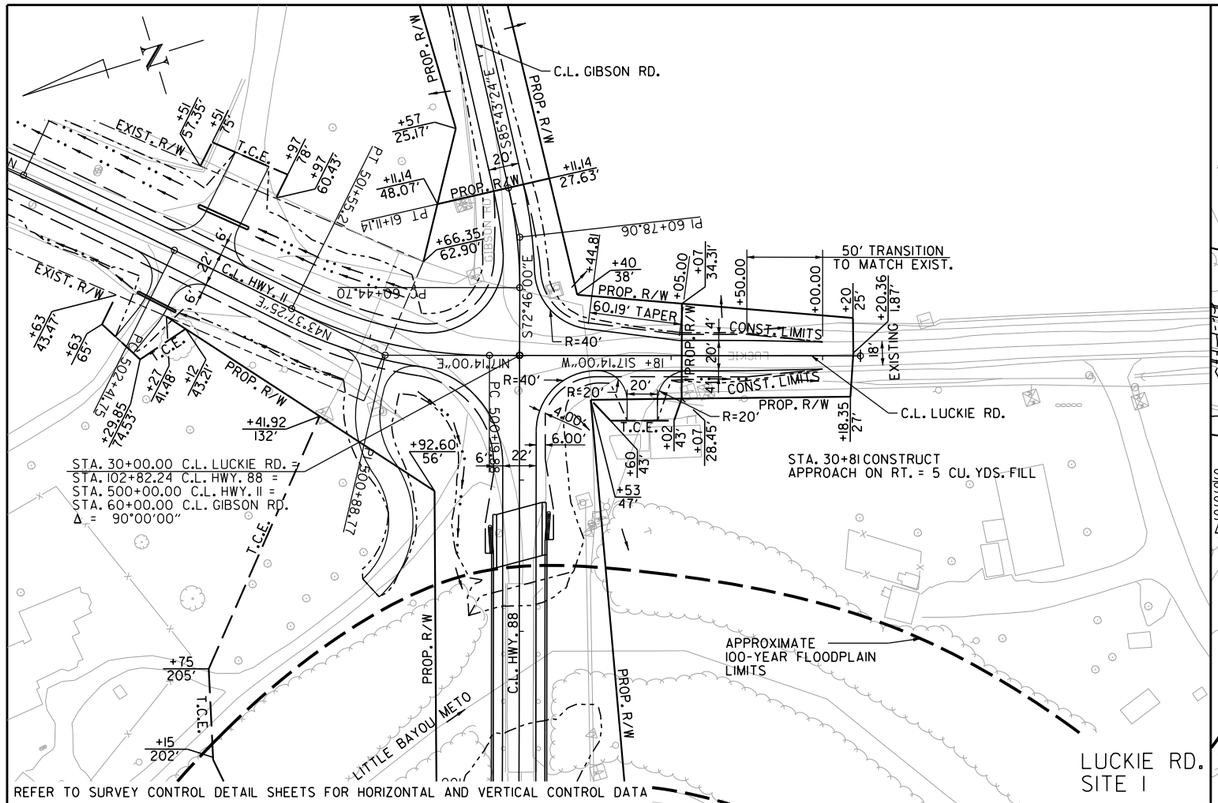

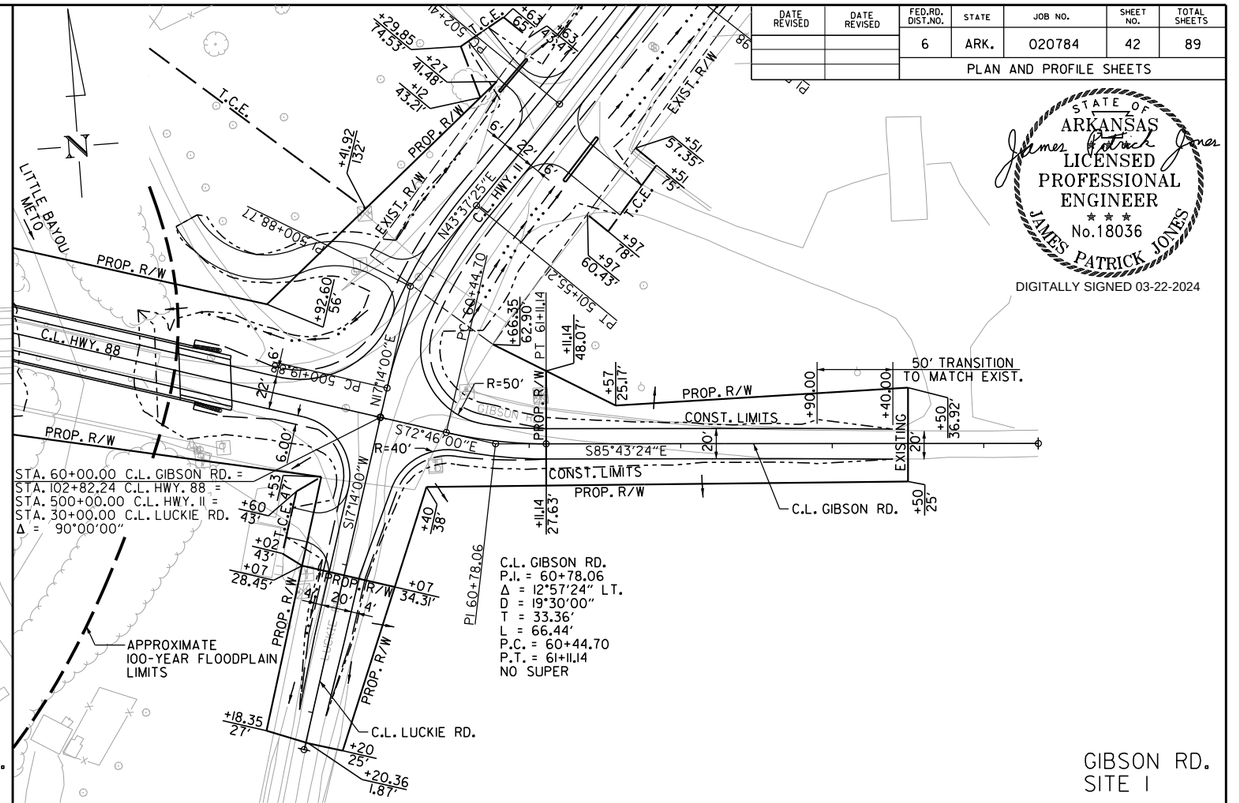

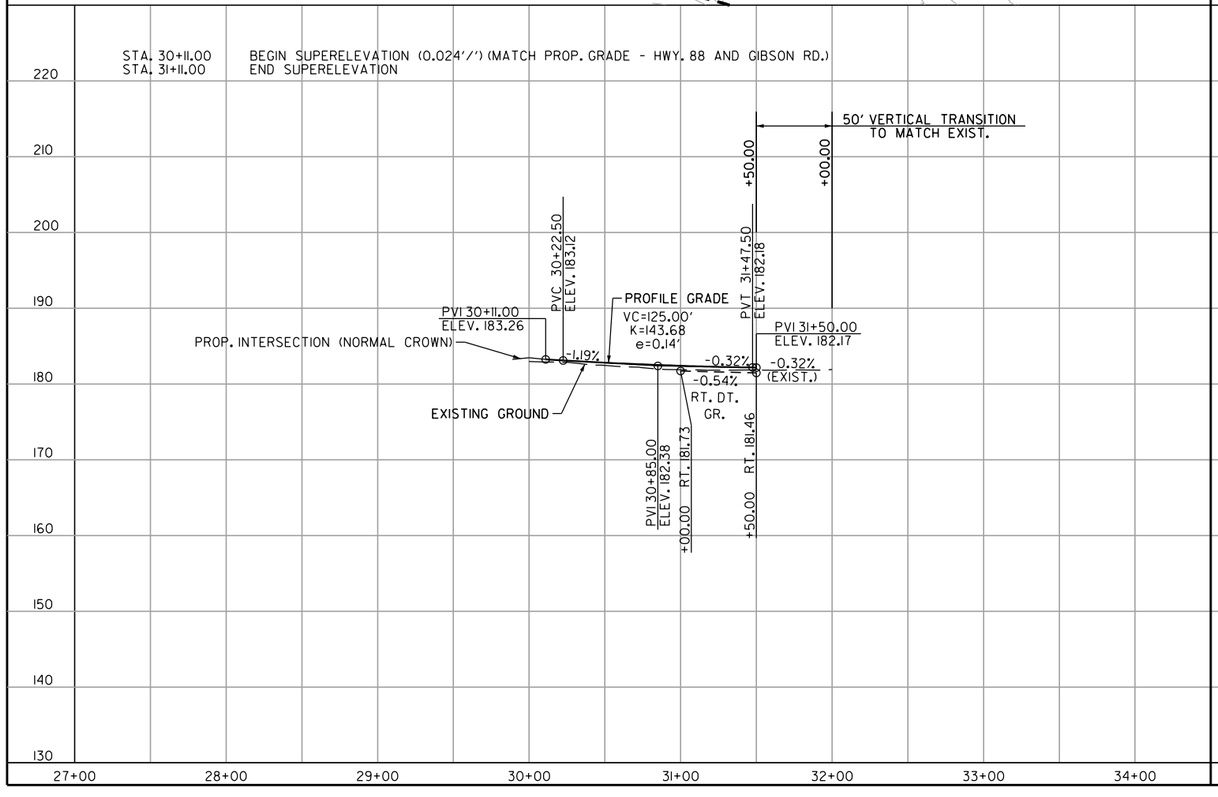

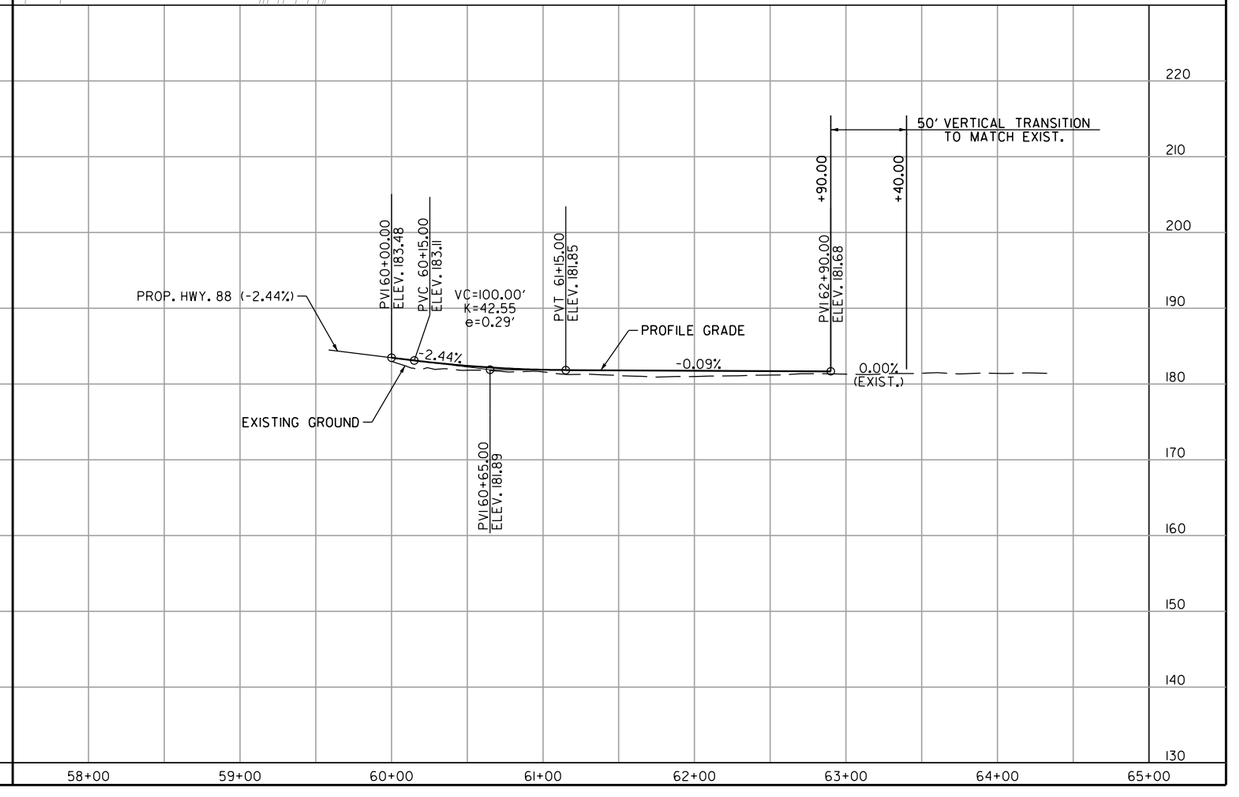

3/22/2024
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	43	89
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
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C.L. HWY. 88 STA. 96+85 CONSTRUCT TEMP APPROACH ON LT. = 5 CU. YDS. FILL

C.L. TEMP DETOUR STA. 402+77
INSTALL QUINT. 96" X 100' TEMP. PIPE CULVERT
30° RT. FWD. SKEW

C.L. TEMP DETOUR STA. 403+71 INSTALL
18" X 46' PIPE CULVERT
LT. SIDE DRAIN
CONST. TEMP APPROACH = 115 CU. YDS. FILL

APPROXIMATE 100-YEAR FLOODPLAIN LIMITS

LITTLE BAYOU METO

C.L. TEMP. DETOUR
P.I. = 403+54.01
Δ = 33°13'55" RT.
D = 10°30'00"
T = 162.84'
L = 316.49'
P.C. = 401+91.17
P.T. = 405+07.66
NO SUPER

C.L. TEMP. DETOUR
STA. 398+09.27 =
C.L. HWY. 88
STA. 95+38.26

STA. 405+71.57 C.L. TEMP. DETOUR =
STA. 500+85.04 C.L. HWY. 11
Δ = 90°00'00"

C.L. TEMP. DETOUR
P.I. = 399+84.59
Δ = 35°37'23" LT.
D = 10°30'00"
T = 175.32'
L = 339.27'
P.C. = 398+09.27
P.T. = 401+48.54
NO SUPER

STA. 102+82.24 C.L. HWY. 88 =
STA. 500+00.00 C.L. HWY. 11 =
STA. 60+00.00 C.L. GIBSON RD. =
STA. 30+00.00 C.L. LUCKIE RD.
Δ = 90°00'00"

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

TEMP. DETOUR
SITE 1

STA. 404+60.57 BEGIN SUPERELEVATION
STA. 405+60.57 END SUPERELEVATION (MATCH PROP. GRADE - HWY. 11)

PROFILE GRADE
EXISTING GROUND

PVI 400+75.00 ELEV. 184.11
PVRC 401+50.00 ELEV. 183.06
PVT 403+50.00 ELEV. 184.56
PVI 404+75.00 ELEV. 188.19
PVI 405+60.57 ELEV. 183.94
PVI 402+50.00 ELEV. 181.66
PVC 400+00.00 ELEV. 183.96
PVC 404+00.00 ELEV. 186.02
PVT 405+50.00 ELEV. 184.46
+71.28 LT. 180.94
+30.00 LT. 180.38

VC=200.00'
K=46.51
e=1.08'

VC=150.00'
K=93.75
e=-0.30'

VC=150.00'
K=19.06
e=-1.48'

0.20% (EXIST.)
0.20%
-1.40%
-0.35% LT. DT. GR.
2.90%
-4.97%
PROP. HWY. 11 (-5.40%)

F.L. INLET LT. = 167.60
F.L. OUTLET RT. = 167.26

220 210 200 190 180 170 160 150 140 130

397+00 398+00 399+00 400+00 401+00 402+00 403+00 404+00 405+00 406+00 407+00 408+00 409+00 410+00 411+00 412+00

3/22/2024
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	44	89
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
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STA. 500+90 CONSTRUCT APPROACH ON LT. = 210 CU. YDS. FILL

C.L. HWY. 11
P.I. = 500+88.77
Δ = 26°23'25" RT.
D = 19°30'00"
T = 68.89'
L = 135.33'
P.C. = 500+19.88
P.T. = 501+55.21
e = 0.100'/'
Ls = 250'

STA. 502+37 IN PLACE
18" X 20' CM PIPE CULVERT
LT. SIDE DRAIN
REMOVE & INSTALL
18" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YDS FILL

C.L. HWY. 11
P.I. = 503+52.98
Δ = 2°46'49" LT.
D = 1°15'00"
T = 111.23'
L = 222.42'
P.C. = 502+41.75
P.T. = 504+64.17
NO SUPER

APPROXIMATE 100-YEAR FLOODPLAIN LIMITS

C.L. LUCKIE RD.

C.L. HWY. 188

PROP. R/W

EXIST. R/W

CONST. LIMITS

EXISTING 20'

100' TRANSITION TO MATCH EXIST.

STA. 500+00.00 C.L. HWY. 11 =
STA. 102+82.24 C.L. HWY. 88 =
STA. 60+00.00 C.L. GIBSON RD. =
STA. 30+00.00 C.L. LUCKIE RD.
Δ = 90°00'00"

STA. 502+22 INSTALL
24" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 35 CU. YDS. FILL

STA. 504+16 IN PLACE
24" X 46' CM PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
TRIP. 18" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 40 CU. YDS FILL

C.L. GIBSON RD.

HWY. 11
SITE 1

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

STA. 500+11.00 BEGIN SUPERELEVATION (0.024'/') (MATCH PROP. GRADE - HWY. 88 AND GIBSON RD.)
STA. 500+87.55 MAX. SUPERELEVATION (0.055'/')
STA. 500+87.55 MAX. SUPERELEVATION (0.055'/')
STA. 502+25.09 END SUPERELEVATION

VC=75.00'
K=65.22
e=0.11'

VC=75.00'
K=150.00
e=-0.05'

100' VERTICAL TRANSITION TO MATCH EXIST.

PVI 500+11.00
ELEV. 183.21

PVC 500+17.50
ELEV. 183.16

PVI 500+55.00
ELEV. 182.86

PVT 500+92.50
ELEV. 182.99

PVC 501+22.50
ELEV. 183.09

PVI 501+60.00
ELEV. 183.22

PVT 501+97.50
ELEV. 183.16

PVI 504+64.17
ELEV. 182.77

PROP. INTERSECTION (NORMAL CROWN)

PROFILE GRADE

EXISTING GROUND

-0.80%
0.35%
-0.15%
-0.15% (EXIST.)
1.86% LT. DT. GR.
1.65% LT. DT. GR.
-0.25% RT. DT. GR.
4.47% LT. DT. GR.

+31.38 LT. 180.37
+38.90 LT. 180.51
+64.64 LT. 181.66
+75.00 RT. 180.07
+07.50 LT. 181.13
+75.00 LT. 180.35
+80.00 LT. 179.99
+20.00 LT. 179.33
+64.17 RT. 178.85

496+00 497+00 498+00 499+00 500+00 501+00 502+00 503+00 504+00 505+00 506+00 507+00 508+00 509+00 510+00 511+00

220 210 200 190 180 170 160 150 140 130

3/22/2024
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	45	89
		PLAN AND PROFILE SHEETS				

STA.	STA.	LOCATION	GUARDRAIL (TYPE A) LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	GUARDRAIL TERMINAL (TYPE 2) EACH
197+65.17	199+83.92	RT. OF C.L. WRAPE RD.	150	1	1
198+56.33	200+00.08	LT. OF C.L. WRAPE RD.	75	1	1
201+23.92	202+67.67	RT. OF C.L. WRAPE RD.	75	1	1
201+40.08	203+58.83	LT. OF C.L. WRAPE RD.	150	1	1

STA. 200+02.00 - BRIDGE END
BRIDGE NO. 07683
120'-0" CONTINUOUS R.C. SLAB UNIT (40', 40', 40')
28'-0" CLEAR ROADWAY
30°00'00" LT. FWD. SKEW
120'-0" BRIDGE LENGTH
STA. 201+22.00 - BRIDGE END

C.L. WRAPE RD.
P.I. = 203+62.75
Δ = 5°20'24" RT.
D = 1°15'00"
T = 213.75'
L = 427.19'
P.C. = 201+49.00
P.R.C. = 205+76.19
NO SUPER

STA. 204+50 INSTALL
35" X 24" X 54' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 105 CU. YDS. CUT

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 03-22-2024

STA. 192+90.00
BEGIN SITE 2
LOG MILE 3.97

STA. 197+00 CONSTRUCT APPROACH ON LT. = 45 CU. YDS. FILL

C.L. WRAPE RD.
P.I. = 198+15.38
Δ = 3°59'32" RT.
D = 1°15'00"
T = 159.75'
L = 319.37'
P.R.C. = 196+55.63
P.T. = 199+75.00
NO SUPER

LITTLE BAYOU METO

PC 192+96.26 | PRC 196+55.63 | PI 198+15.38 | PT 199+75.00 | PC 201+49.00 | PI 203+62.75 | PRC 205+76.19

STA. 200+02.00 BRIDGE END | STA. 201+22.00 BRIDGE END

PROP. R/W | CONST. LIMITS | EXISTING | C.L. WRAPE RD. | N0°30'00"E | N3°59'32"W | N0°00'00"E | N5°20'24"E

R=20' | 40' | 4.00' | 9.50' | 7.50' | 22'

100' TRANSITION TO MATCH EXIST.

PI 194+76.04

C.L. WRAPE RD.
P.I. = 194+76.04
Δ = 4°29'32" LT.
D = 1°15'00"
T = 179.78'
L = 359.37'
P.C. = 192+96.26
P.R.C. = 196+55.63
NO SUPER

T.C.E. | AUTOMATIC FLOODGATE

C.L. WRAPE RD.
P.I. = 207+59.88
Δ = 4°35'24" LT.
D = 1°15'00"
T = 183.69'
L = 367.19'
P.R.C. = 205+76.19
P.T. = 209+43.38
NO SUPER

STA. 195+00 INSTALL
18" X 52' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 15 CU. YDS. CUT

STA. 196+35 INSTALL
18" X 54' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 10 CU. YDS. CUT

STA. 197+75 INSTALL
18" X 66' PIPE CULVERT
RT. SIDE DRAIN WITH AUTOMATIC FLOODGATE

STA. 199+92.00 TO STA. 200+85.00
EXISTING BRIDGE NO. 04447
93.0' X 21.0' BRIDGE CONSISTING OF A CONCRETE SUPERSTRUCTURE SUPPORTED BY A CONCRETE SUBSTRUCTURE
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 2) = 1.00 LUMP SUM

STA. 205+05 INSTALL
18" X 42' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 45 CU. YDS. CUT

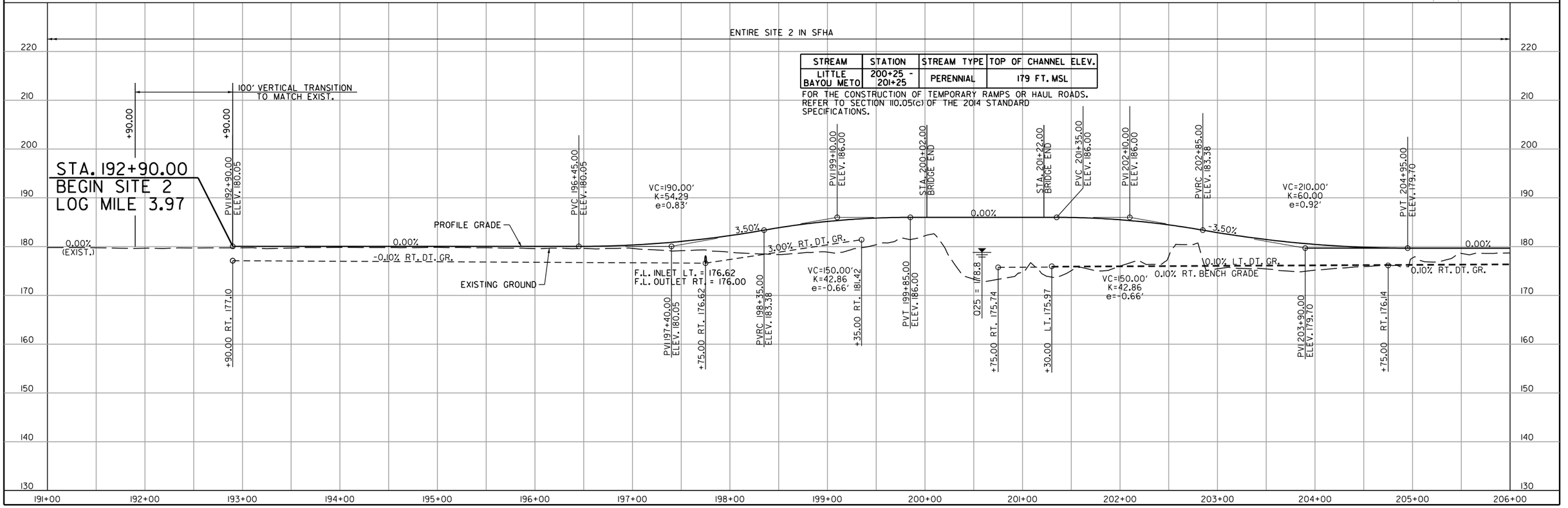
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA

WRAPE RD. SITE 2

ENTIRE SITE 2 IN SFHA

STREAM	STATION	STREAM TYPE	TOP OF CHANNEL ELEV.
LITTLE BAYOU METO	200+25 - 201+25	PERENNIAL	179 FT. MSL

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS. REFER TO SECTION 110.05(c) OF THE 2014 STANDARD SPECIFICATIONS.



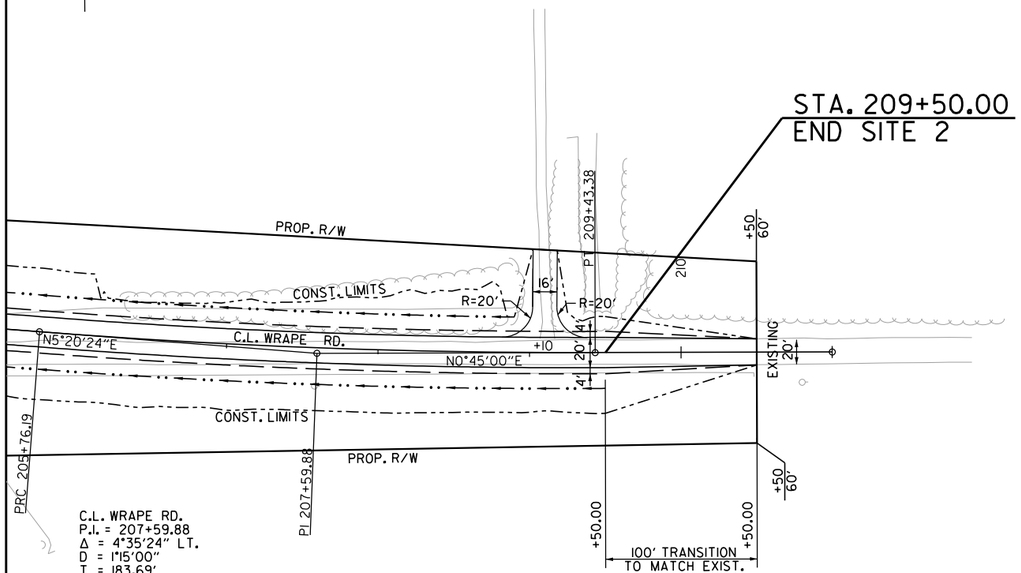
3/22/2024

JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	46	89
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
James Patrick Jones
LICENSED PROFESSIONAL ENGINEER
No.18036
JAMES PATRICK JONES
DIGITALLY SIGNED 03-28-2024

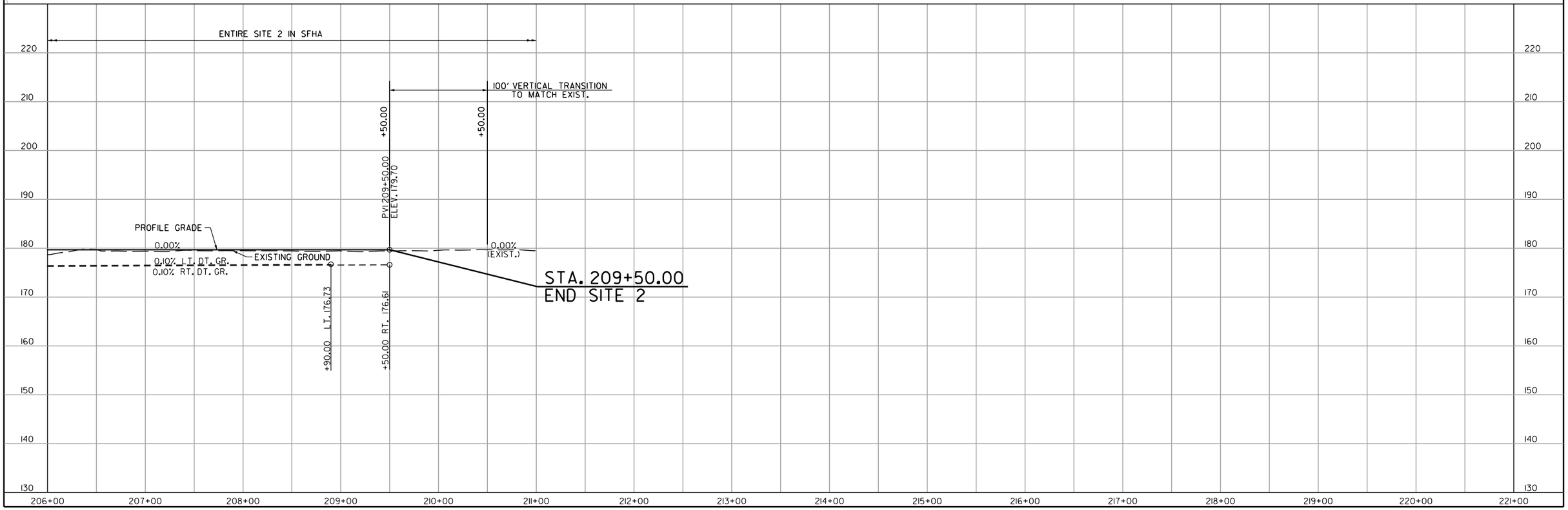
STA. 209+10 CONSTRUCT
APPROACH ON LT. = 50 CU. YDS. CUT



C.L. WRAPE RD.
P.I. = 207+59.88
Δ = 4°35'24" LT.
D = 115'00"
T = 183.69'
L = 367.19'
P.R.C. = 205+76.19
P.T. = 209+43.38
NO SUPER

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

WRAPE RD.
SITE 2

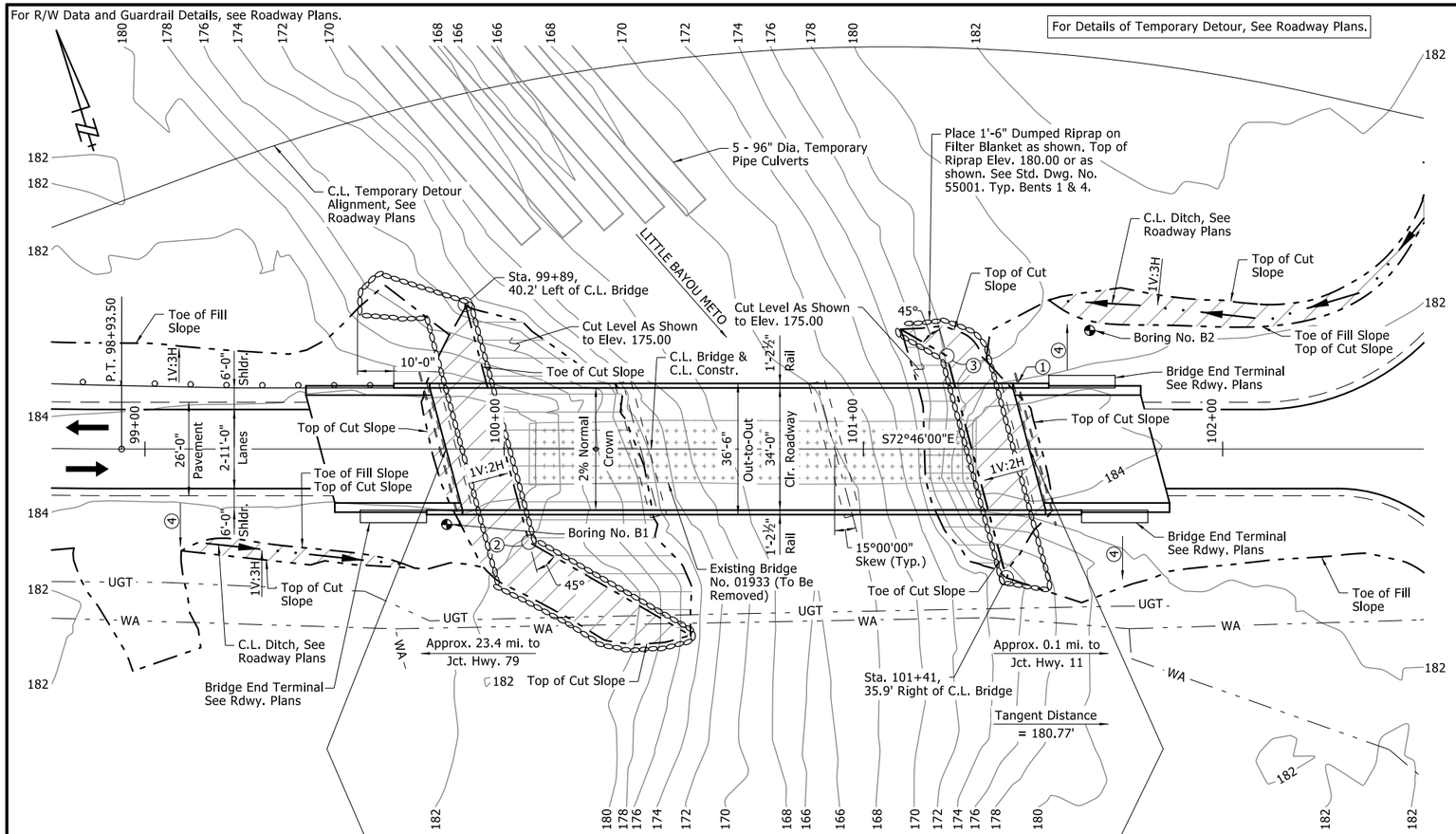


3/28/2024
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	47	89
		07682		- LAYOUT -		67345

For R/W Data and Guardrail Details, see Roadway Plans.

For Details of Temporary Detour, See Roadway Plans.



PLAN

NOTES:
For "GENERAL NOTES" and "ELEVATION OF SOIL BORINGS" see Dwg. No. 67346.

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. 67350 for additional information.

Place Type F Approach Gutters and Type F Approach Slab (width = 30'-0") at both ends of bridge. For details, see Std. Dwg. No. 55030F and Std. Dwg. No. 55040F1 respectively. Eliminate or modify Type F Approach Gutter curb section at SW, SE, and NE corners of bridge to fit bridge end terminals. No additional payment will be made for this modification.

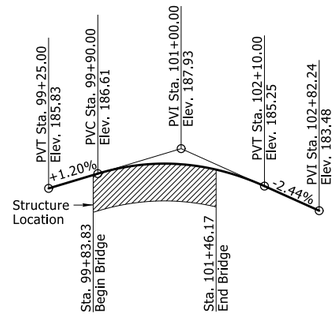
The Contractor shall excavate the existing embankment as shown at both ends of the bridge. Approx. 580 cubic yards of excavation (excluding ditch excavation).

① Install 4"Ø 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. 67352. Pipe Underdrains will not be paid for directly but shall be considered subsidiary to "CLASS S CONCRETE - BRIDGE".

② Sta. 100+07, 25.9' Right of C.L. Bridge

③ Sta. 101+24, 25.9' Left of C.L. Bridge

④ 1V:6H inside clear zone. 1V:3H beyond clear zone. See roadway plans for additional information.



Length = 220'

VERTICAL ALIGNMENT DATA

(Theoretical Grade Along C.L. Construction)
No Scale

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	⑤ NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	1,255	174.1	174.3
Base	100	1,310	174.3	174.4
Extreme	500	1,427	174.5	174.7
Overtopping	>500	-	-	-

⑤ Unconstricted water surface elevation without structure or roadway approaches.

Q100 backwater elevation for existing structure = 174.7 feet

Proposed Low Bridge Chord Elevation = 182.29 (Sta. 101+47.61)
Existing Low Bridge Chord Elevation = 182.11 (survey shot)

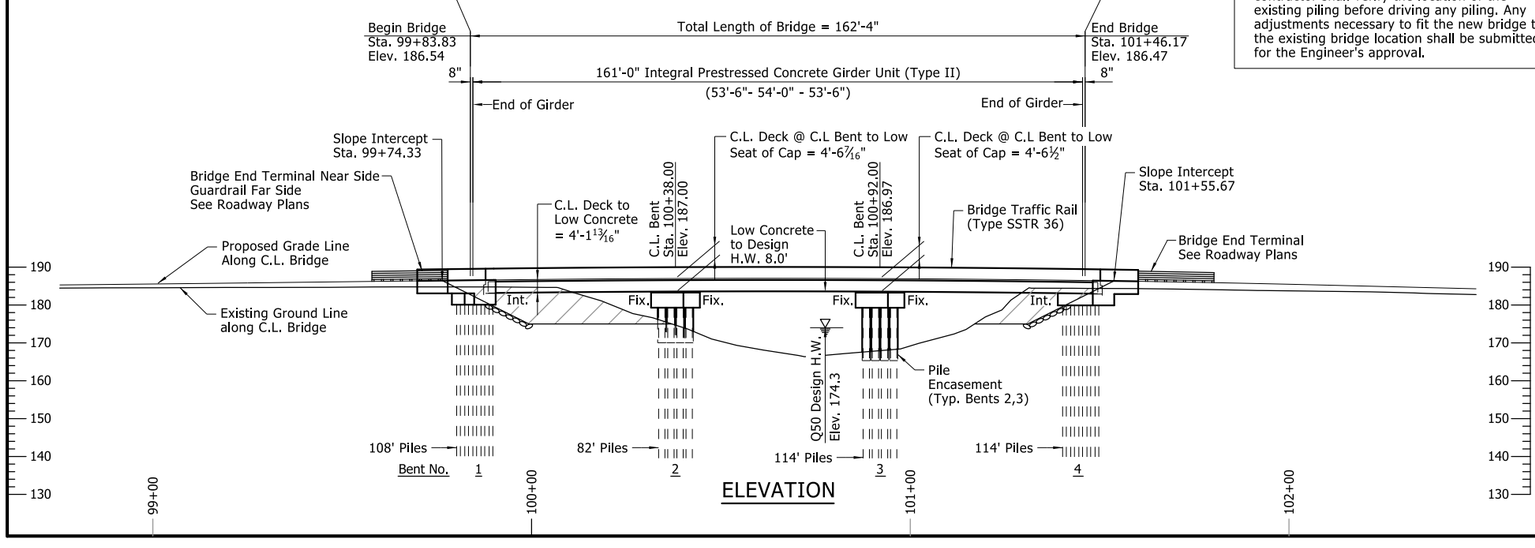
Drainage area indeterminate.

Historical H.W Elevation = 180.9 (from 1935 construction plans)

EXISTING UTILITIES LEGEND

UGT = Underground Cable
WA = Water Line

NOTE:
Utilities shown are based on locations at time of survey and do not reflect any potential utility relocations prior to construction.



ELEVATION

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

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	223	72.00	359	85,000
2	340	98.00	538	110,000
3	340	66.00	505	110,000
4	223	66.00	345	85,000

NOTE:
Required minimum ultimate bearing capacity corresponds to the minimum post driving capacity 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
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 03-28-2024

BRIDGE ENGINEER
PRINT DATE: 3/27/2024

SHEET 1 OF 2
LAYOUT OF BRIDGE
HIGHWAY 88 OVER LITTLE BAYOU METO
LITTLE BAYOU METO STRS. & APPRS. (S)
JEFFERSON COUNTY
ROUTE 88 SECTION 9

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	JPC	DATE:	SEP. 2022	FILENAME:	b020784x1_l1.dgn
CHECKED BY:	CDB	DATE:	JUNE 2023		
DESIGNED BY:	JPC	DATE:	SEP. 2022	SCALE:	1" = 20'
BRIDGE NO.	07682			DRAWING NO.	67345

3/27/2024
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	48	89
		07682		- LAYOUT -		67346

GENERAL NOTES

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

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Construction Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS:AASHTO LRFD Bridge Design Specifications (2020, 9th Edition)
AASHTO Guide Specifications for LRFD Seismic Bridge Design (2023, 3rd Edition)

LIVE LOADING: HL-93

SEISMIC DESIGN CATEGORY (SDC): B S_{D1}= 0.203g SITE CLASS = E

SEISMIC OPERATIONAL CLASSIFICATION: Other

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (Superstructure)	f'c = 4,000 psi
Class S Concrete (Substructure)	f'c = 3,500 psi
Class S Concrete (Prestressed Concrete Girders)	f'c = 8,000 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Prestressing Strands (AASHTO M203. Gr. 270)	fpu = 270,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi
Structural Steel (ASTM A709, Gr. 50 or Gr. 50W)	Fy = 50,000 psi
Pipe Pile (ASTM A252, Grade 3)	Fy = 45,000 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. 67345. 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. 67345. All piling shall be driven with an approved air, steam or diesel hammer to the minimum tip elevations shown in the "PILE BEARING TABLE". 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 piles will be paid for as 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 (16" DIA.)" and "STEEL SHELL PILING (24" DIA.)".

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.

PREBORING: Preboring is required for all piling at Bents 1 and 4. Prebored holes shall have a diameter 6" greater than the diagonal 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".

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.

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for the 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 concrete bridge rails in accordance with Section 803.

DETAIL DRAWINGS:	DRAWING NO(S).
End Bents	67347
Intermediate Bents	67348
Elastomeric Bearings	67349
161'-0" Integral Prestressed Concrete Girder Unit	67350 - 67356
Concrete Filled Steel Shell Piling	55021
Type F Approach Gutters	55030F
Type F Approach Slab	55040F1
Bridge Traffic Rail	55070

EXISTING BRIDGE: Existing Bridge No. 01933 (Log Mile 23.34) is 19.5' wide (18.0' clear roadway) and 125.0' long and consists of 5 - 25-0" concrete slab on I-beam spans supported by a timber substructure. The existing bridge is located approximately in the same location as 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.

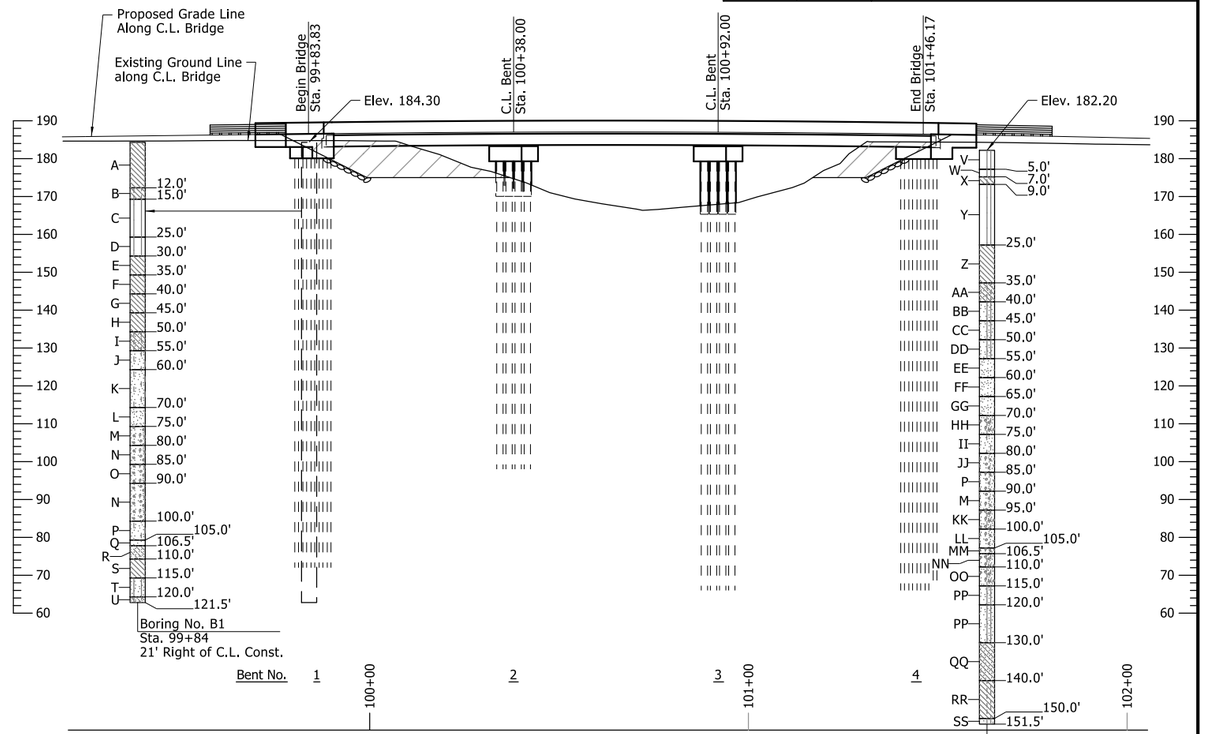
REMOVAL AND SALVAGE: After traffic is shifted to the temporary detour the Contractor shall remove existing Bridge No. 01933 in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor except the following which shall remain the property of the State:

- 13 21" I-Beams

The Contractor shall notify the Department prior to removal to determine the specific pieces deemed salvageable. The Contractor shall provide temporary storage and on site loading onto ARDOT equipment for removal of salvage items from the site. This work shall be considered incidental to the item "REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)".

MAINTENANCE OF TRAFFIC: See Roadway Plans.

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



ELEVATION OF SOIL BORINGS

BORING LEGEND

A- Moist, Medium Stiff, Reddish Brown Lean Clay
B- Very Moist, Very Soft, Reddish Brown Silty Clay*
C- Wet, Very Loose, Reddish Brown Silt**
D- Wet, Very Loose, Dark Brown Silt
E- Wet, Very Soft, Dark Brown Lean Clay
F- Wet, Soft, Brown Lean Clay
G- Moist, Very Soft, Brown Clay
H- Wet, Very Soft, Brown Lean Clay with Some Sand
I- Wet, Medium Stiff, Brown Silty Clay with Sand
J- Wet, Loose, Brown Silty Sand
K- Wet, Medium Dense, Brown Sand with Silt
L- Wet, Dense, Light Brown Sand with Some Gravel
M- Wet, Medium Dense, Brown Sand with Gravel
N- Wet, Dense, Brown Sand with Gravel
O- Wet, Very Dense, Brown Sand with Gravel
P- Wet, Medium Dense, Brown Well Graded Sand with Silt and Some Gravel
Q- Wet, Loose, Light Brown Sand
R- Clayey Sand (Paleogene)
S- Moist, Very Stiff, Gray Fat Clay
T- Moist, Medium Dense, Gray Sandy Silt
U- Moist, Dense, Gray Silty Clayey Sand
V- Moist, Very Loose, Brown Silt
W- Wet, Brown Silt
X- Wet, Soft, Brown Silty Clay
Y- Moist, Very Loose, Brown Silt*
Z- Moist, Very Soft, Brown Lean Clay
AA- Moist, Soft, Brown Silty Clay with Sand
BB- Wet, Very Loose, Brown Sandy Silt with Some Organic Matter
CC- Wet, Loose, Brown Silt with Sand
DD- Wet, Loose, Brown Sandy Silt
EE- Wet, Medium Dense, Light Gray Poorly Graded Sand
FF- Wet, Dense, Brown Sand
GG- Wet, Medium Dense, Light Gray Sand
HH- Wet, Medium Dense, Brown Silty Sand with Gravel
II- Wet, Medium Dense, Light Gray Sand with Silt
JJ- Wet, Medium Dense, Brown Poorly Graded Sand with Gravel
KK- Wet, Dense, Brown Poorly Graded Sand with Silt and Gravel
LL- Wet, Medium Dense, Brown Poorly Graded Gravel with Sand
MM- Wet, Loose, Brown Gravel with Sand
NN- Dark Brown Silty Sand with Gravel (Gravel Likely Fall in) (Paleogene)
OO- Moist, Loose, Dark Brown Silty Sand with Gravel (Gravel Likely Fall in)
PP- Moist, Medium Dense, Dark Brown Sandy Silt
QQ- Moist, Very Stiff, Gray Lean Clay with Sand
RR- Moist, Very Stiff, Gray Sandy Lean Clay
SS- Moist, Very Dense, Gray Silt with Sand

"N" VALUES

Boring No. B1
Sta. 99+84 - 21' Right of C.L. Const.

3.0 - 4.0	N=7
5.5 - 6.5	N=6
8.0 - 9.0	N=5
12.5 - 13.5	N=0
15.5 - 16.5	N=0
20.5 - 21.5	N=0
25.5 - 26.5	N=2
30.5 - 31.5	N=0
35.5 - 36.5	N=3
40.5 - 41.5	N=0
45.5 - 46.5	N=0
50.5 - 51.5	N=7
55.5 - 56.5	N=9
60.5 - 61.5	N=19
65.5 - 66.5	N=20
70.5 - 71.5	N=32
75.5 - 76.5	N=23
80.5 - 81.5	N=34
85.5 - 86.5	N=103
90.5 - 91.5	N=41
95.5 - 96.5	N=56
100.5 -101.5	N=21
105.5 -106.5	N=5
110.5 -111.5	N=27
115.5 -116.5	N=25
120.5 -121.5	N=42

Boring No. B2
Sta. 101+63 - 33' Left of C.L. Const.

3.0 - 4.0	N=3
7.5 - 8.5	N=2
9.5 - 10.5	N=0
15.5 - 16.5	N=0
20.5 - 21.5	N=0
25.5 - 26.5	N=0
30.5 - 31.5	N=0
35.5 - 36.5	N=4
40.5 - 41.5	N=3
45.5 - 46.5	N=6
50.5 - 51.5	N=9
55.5 - 56.5	N=15
60.5 - 61.5	N=32
65.5 - 66.5	N=25
70.5 - 71.5	N=22
75.5 - 76.5	N=30
80.5 - 81.5	N=26
85.5 - 86.5	N=33
90.5 - 91.5	N=12
95.5 - 96.5	N=38
100.5 - 101.5	N=20
105.5 - 106.5	N=8
110.5 - 111.5	N=10
115.5 - 116.5	N=20
120.5 - 121.5	N=14
130.5 - 131.5	N=18
140.5 - 141.5	N=24
150.5 - 151.5	N=80

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 03-28-2024
BRIDGE ENGINEER
PRINT DATE: 3/27/2024

SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 88 OVER LITTLE BAYOU METO
LITTLE BAYOU METO STRS. & APPRS. (S)
JEFFERSON COUNTY
ROUTE 88 SECTION 9

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

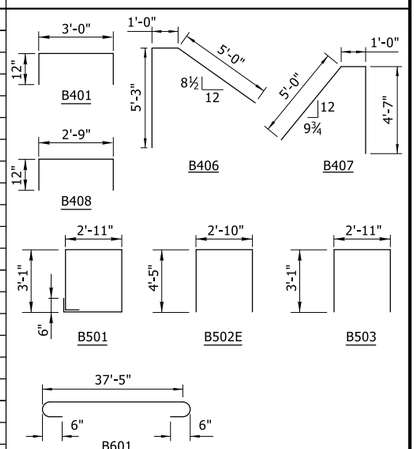
DRAWN BY: JPC DATE: SEP. 2022 FILENAME: b020784x1_l1.dgn
CHECKED BY: CDB DATE: JUNE 2023
DESIGNED BY: JPC DATE: SEP. 2022 SCALE: 1" = 20'
BRIDGE NO. 07682 DRAWING NO. 67346

3/27/2024
JUCARNEY

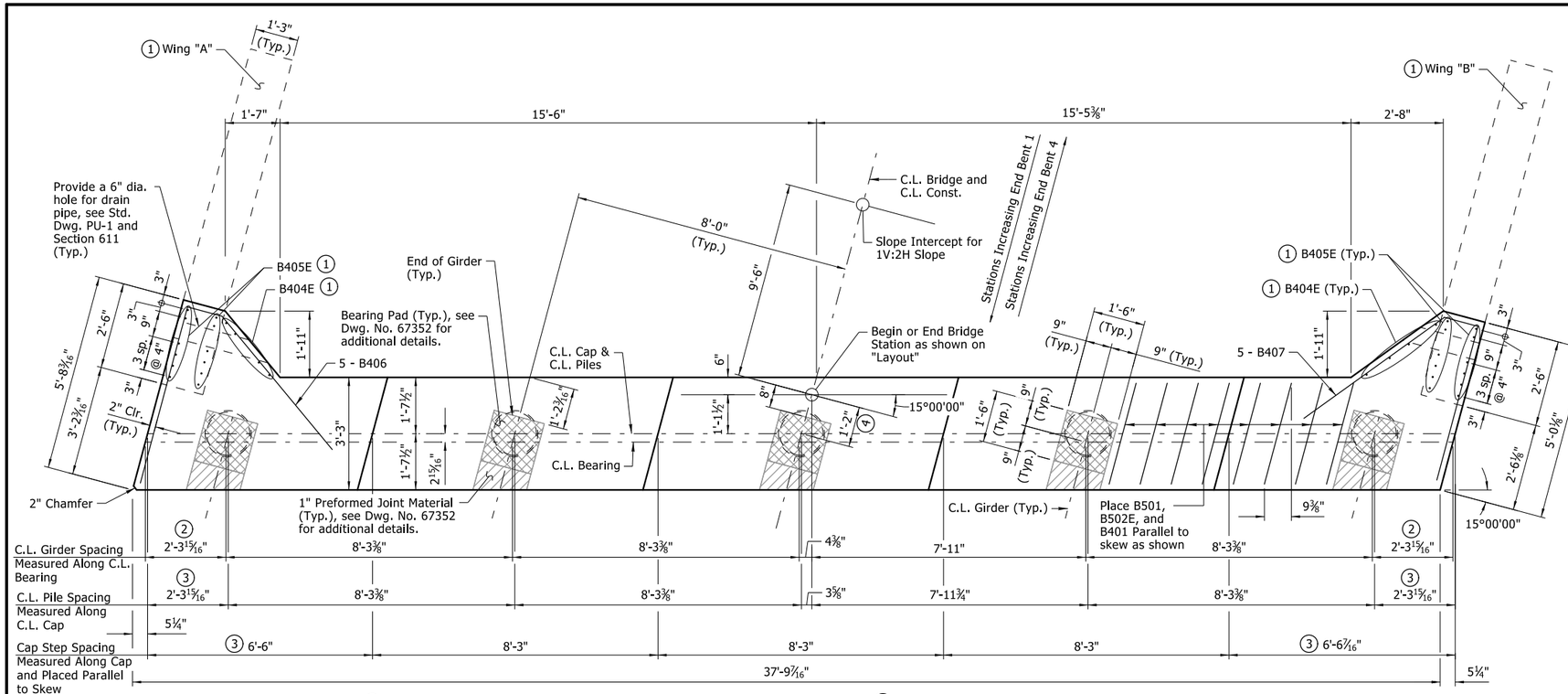
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	49	89
		07682		- END BENTS -		67347

BAR LIST - PER BENT

MARK	NO. REQ'D	LENGTH	PIN. DIA.	BENDING DIAGRAMS
B401	9	4'-10"	2"	
B402	4	8'-3"	Str.	
B403	10	37'-5"	Str.	
B404E	8	5'-9"	Str.	
B405E	24	7'-0"	Str.	
B406	5	11'-2"	2"	
B407	5	10'-5"	2"	
B408	6	4'-7"	2"	
B501	38	12'-6"	2½"	
B502E	38	11'-6"	2½"	
B503	10	8'-11"	2½"	
B601	12	38'-7"	4½"	

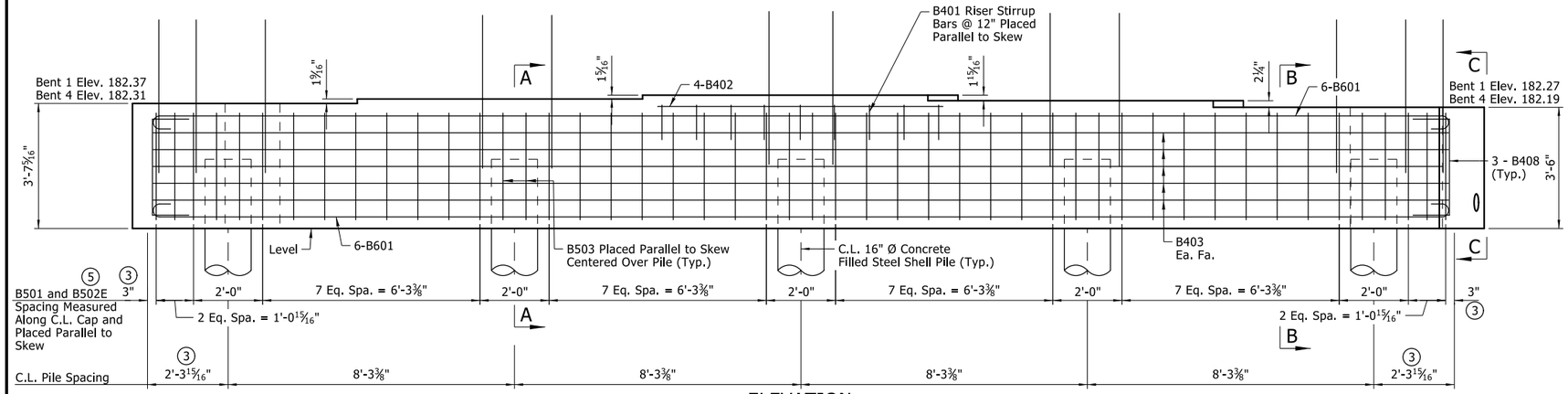


Note:
Dimensions of bars are out-to-out.
All bars designated with an "E" suffix are to be epoxy coated.

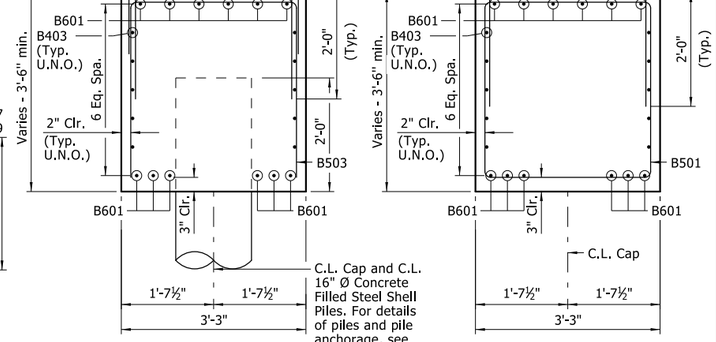


1 See Dwg. No. 67356 for additional details.
2 Measured to Intersection of C.L. Bearing and Edge of Cap
3 Measured to Intersection of C.L. Cap and Edge of Cap
4 Measured to C.L. Cap
5 Top of B502E bars shall maintain 2" minimum clear of bottom of paving bracket in the end bent diaphragms

PLAN
½" = 1'-0"

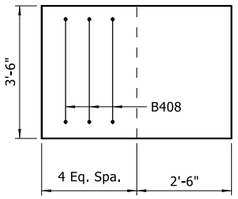


ELEVATION
Looking Back, Bent 1
Looking Ahead, Bent 4
½" = 1'-0"



SECTION A-A
¾" = 1'-0"

SECTION B-B
¾" = 1'-0"



VIEW C-C
½" = 1'-0"

Note:
Longitudinal and Transverse Reinforcement in cap omitted for clarity. Obtuse end of Cap shown, Acute end similar.

GENERAL NOTES

All concrete in end bent cap shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. All exposed corners shall be chamfered ¾" unless noted otherwise.

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

Granular Backfill and Pipe Underdrain required behind cap. See Dwg. No. 67356 for details.

No heavy construction equipment shall be allowed within 10' of the end bent until the deck concrete placement for the adjacent span has been completed.

For additional information, see Layout.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DETAILS OF END BENTS
HWY. 88 OVER LITTLE BAYOU METO
ROUTE SECTION

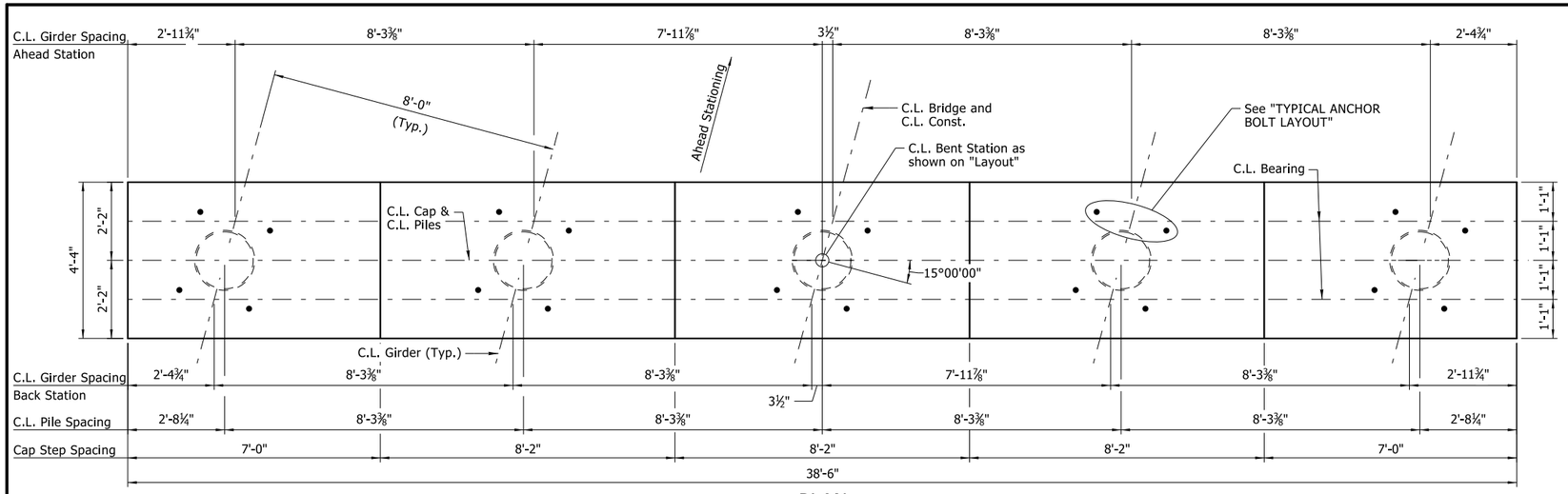
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DIGITALLY SIGNED 03-22-2024
BRIDGE ENGINEER
PRINT DATE: 3/22/2024

DRAWN BY: LMD DATE: NOV. 2023
CHECKED BY: JPC DATE: DEC. 2023
DESIGNED BY: LMD DATE: NOV. 2023
BRIDGE NO. 07682
FILENAME: b020784x1_b1.dgn
SCALE: As Shown
DRAWING NO. 67347

3/22/2024 JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	50	89
		07682		- INT. BENTS -		67348

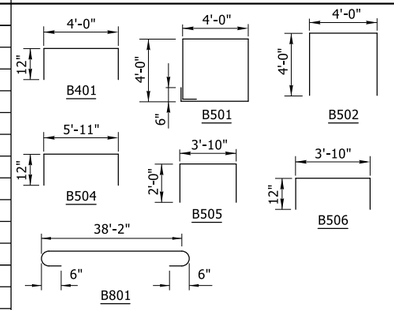


PLAN
½" = 1'-0"

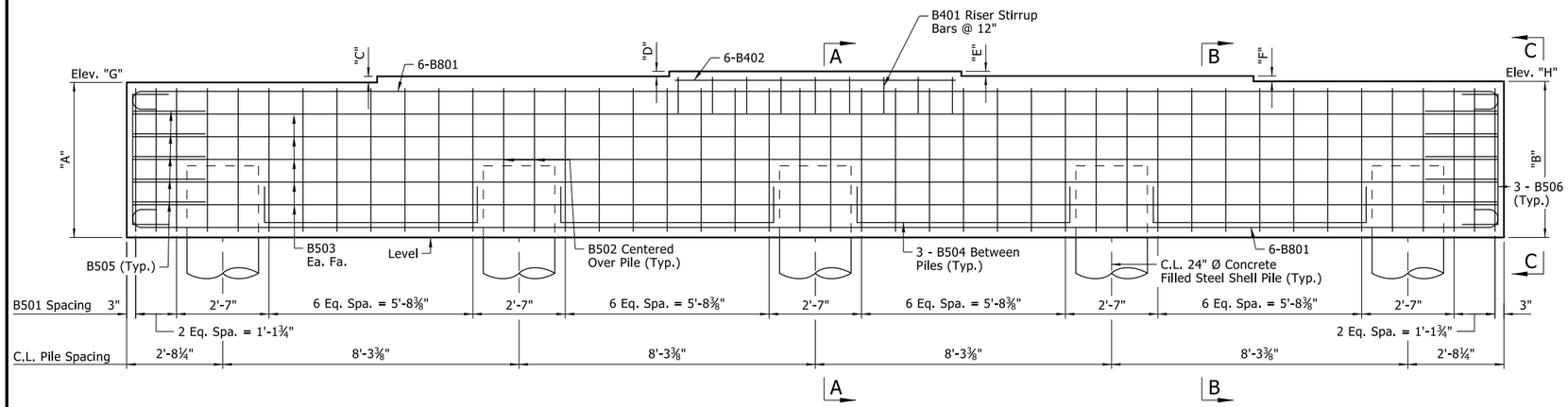
BAR LIST - PER BENT

MARK	NO. REQ'D	LENGTH	PIN. DIA.
B401	9	5'-10"	2"
B402	6	7'-10"	Str.
B501	34	16'-6"	2½"
B502	10	11'-10"	2½"
B503	10	38'-2"	Str.
B504	12	7'-8"	3¾"
B505	10	7'-8"	2½"
B506	6	5'-8"	2½"
B801	12	40'-0"	6"

BENDING DIAGRAMS

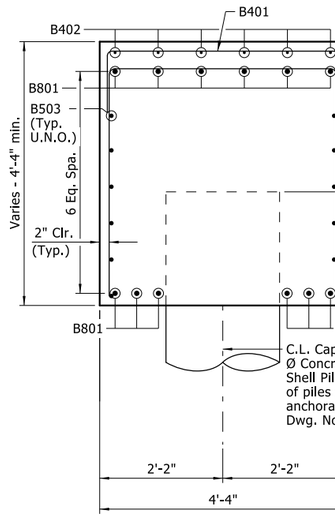


Note:
Dimensions of bars are out-to-out.

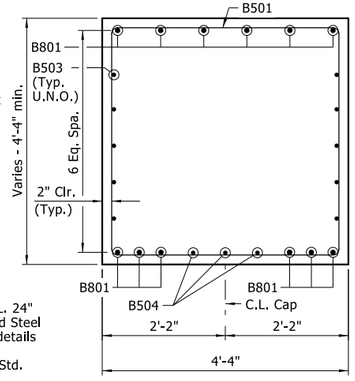


ELEVATION
Looking Ahead
½" = 1'-0"

Note:
Pile encasement not shown for clarity.



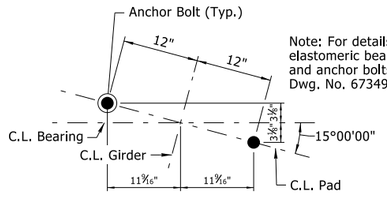
SECTION A-A
¾" = 1'-0"



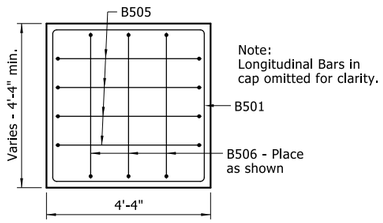
SECTION B-B
¾" = 1'-0"

TABLE OF VARIABLES

Bent	"A"	"B"	"C"	"D"	"E"	"F"	Elev. "G"	Elev. "H"
2	4'-4"	4'-4⅜"	2 1/16"	1 11/16"	1 3/16"	1 13/16"	182.41	182.44
3	4'-4½"	4'-4"	1 15/16"	1 7/16"	1 11/16"	2 3/16"	182.43	182.39



TYPICAL ANCHOR BOLT LAYOUT
1" = 1'-0"



VIEW C-C
½" = 1'-0"

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. All exposed corners shall be chamfered ¾" unless noted otherwise.

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

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

For additional information, see Layout.

3/22/2024
JUCARNEY

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

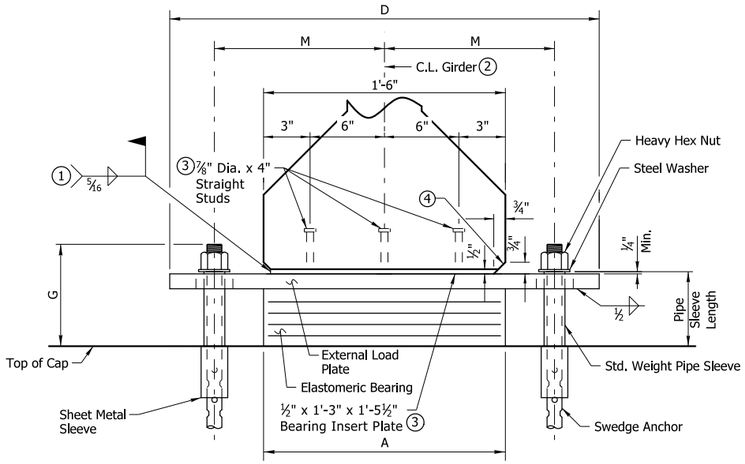
DIGITALLY SIGNED 03-22-2024
BRIDGE ENGINEER
PRINT DATE: 3/22/2024

DETAILS OF INTERMEDIATE BENTS
HWY. 88 OVER LITTLE BAYOU METO
ROUTE SECTION

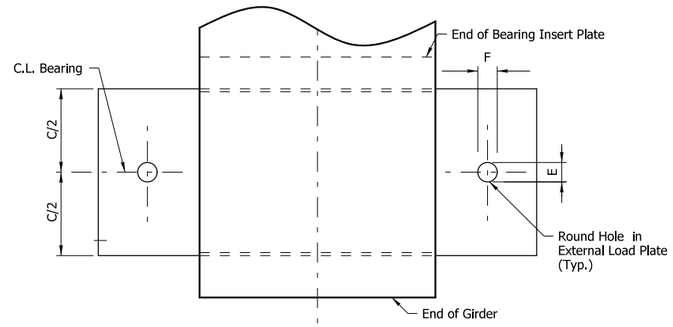
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	LMD	DATE:	NOV. 2023	FILENAME:	b020784x1_b1.dgn
CHECKED BY:	JPC	DATE:	DEC. 2023		
DESIGNED BY:	LMD	DATE:	NOV. 2023	SCALE:	As Shown
BRIDGE NO.	07682			DRAWING NO.	67348

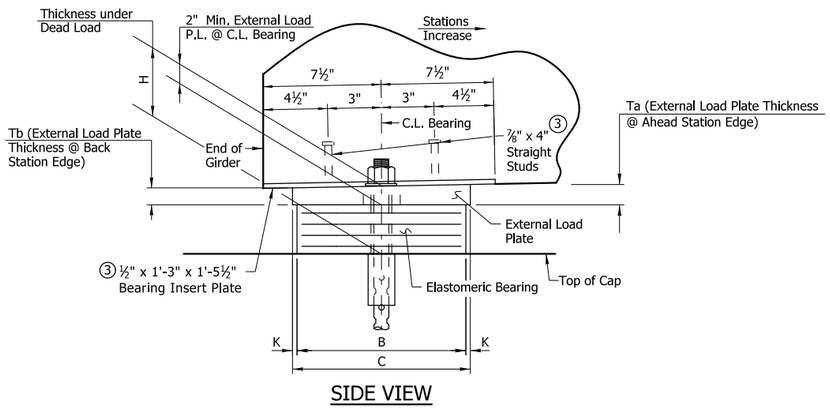
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	5I	89
		07682	- ELASTOMERIC BEARINGS -			67349



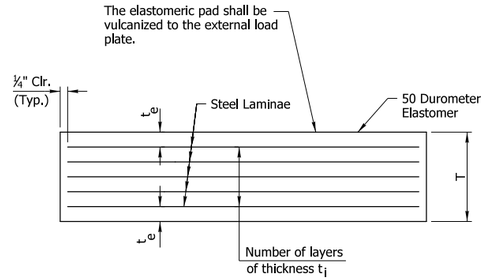
FRONT VIEW



PLAN VIEW



SIDE 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

ELASTOMERIC BEARING

(1) Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.

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; 2) the slots in the external load plates 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.

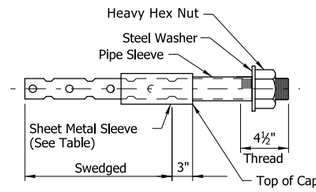
(2) C.L. Elastomeric pad shall be aligned with C.L. Girder.

(3) Bearing insert plate (A709, Gr. 50W) & studs shall be considered subsidiary to the item "PRESTRESSED CONCRETE GIRDERS (TYPE II)". Studs shall conform to Subsection 807.08.

(4) Bevel Bearing Insert Plate to conform to girder chamfer.

Note:
The grade and direction of bevel of the external load plate may not be accurately depicted with respect to "Ta" & "Tb" values shown in the "TABLE OF FABRICATOR VARIABLES".

Prior to erection of the girders, the Contractor shall verify the orientation of the bearings with respect to Ta and Tb.



ANCHOR BOLT DETAIL

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

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the 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 a minimum of 16 gage 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)".

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 and shear blocks shall conform to ASTM A709, Grade 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 and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with Subsection 808.03. Other surfaces shall be blast cleaned in accordance with Subsection 807.84(b) for painted steel and 807.84(e) for unpainted Grade 50W steel.

Anchor Bolts, Washers and Nuts shall conform to Subsection 807.07. 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 or 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

BRIDGE NO.	LOCATION		BEARING TYPE	NO. OF BEARINGS EACH BENT	MAXIMUM DESIGN LOAD (5) (kips)	ELASTOMERIC PAD							EXTERNAL LOAD PLATE								ANCHOR BOLT				
	BENT NO(S).	GIRDER NO.				G	H	A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT (Dia. x L)	ANCHOR BOLT GRADE	PIPE SLEEVE SIZE (Dia. x L)	SHEET METAL SLEEVE SIZE (Dia. x L)	STEEL WASHER SIZE (O.D.)
07682	2 Back	All	Fix.	5	124.5	8¼"	4 15/16"	18"	9"	4	½"	¼"	5 @ 12ga.	3"	10"	30½"	3⅛"	3⅛"	½"	12"	2.02"	1.98"	2" x 31"	55	2½" x 5¼"	4" x 9"	3⅜"
	2 Ahead	All	Fix.	5	124.5	8¼"	4 15/16"	18"	9"	4	½"	¼"	5 @ 12ga.	3"	10"	30½"	3⅛"	3⅛"	½"	12"	2.02"	1.98"	2" x 31"	55	2½" x 5¼"	4" x 9"	3⅜"
	3 Back	All	Fix.	5	124.5	8¼"	4 15/16"	18"	9"	4	½"	¼"	5 @ 12ga.	3"	10"	30½"	3⅛"	3⅛"	½"	12"	1.98"	2.02"	2" x 31"	55	2½" x 5¼"	4" x 9"	3⅜"
	3 Ahead	All	Fix.	5	124.5	8¼"	4 15/16"	18"	9"	4	½"	¼"	5 @ 12ga.	3"	10"	30½"	3⅛"	3⅛"	½"	12"	1.98"	2.02"	2" x 31"	55	2½" x 5¼"	4" x 9"	3⅜"

(5) Maximum Load = Service I Limit State.

STATE OF ARKANSAS ★★★ LICENSED PROFESSIONAL ENGINEER ★★★ No.18018 JUSTIN P. CARNEY

DIGITALLY SIGNED 03-22-2024

BRIDGE ENGINEER

PRINT DATE: 3/22/2024

DETAILS OF ELASTOMERIC BEARINGS
HWY. 88 OVER LITTLE BAYOU METO
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	LMD	DATE:	NOV. 2023
CHECKED BY:	JPC	DATE:	DEC. 2023
DESIGNED BY:	LMD	DATE:	NOV. 2023
BRIDGE NO.	07682	DRAWING NO.	67349

FILENAME: b020784x1_e1.dgn
SCALE: No Scale

3/22/2024
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	52	89
		07682		- 161'-0" UNIT -		67350

Slab Reinforcing:

Longitudinal: S401E placed as shown in top and bottom
S601E and S602E placed as shown, see "REINFORCING PLAN & SLAB POURING SEQUENCE" on Dwg. No. 67353.

Transverse: S501E @ 6" o.c. in Top & Bottom
S502E @ 6" in Top of Overhang (bundled with No. 5 bars)

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 hi-chairs with full length lower runners directly on removable deck forms will not be allowed.

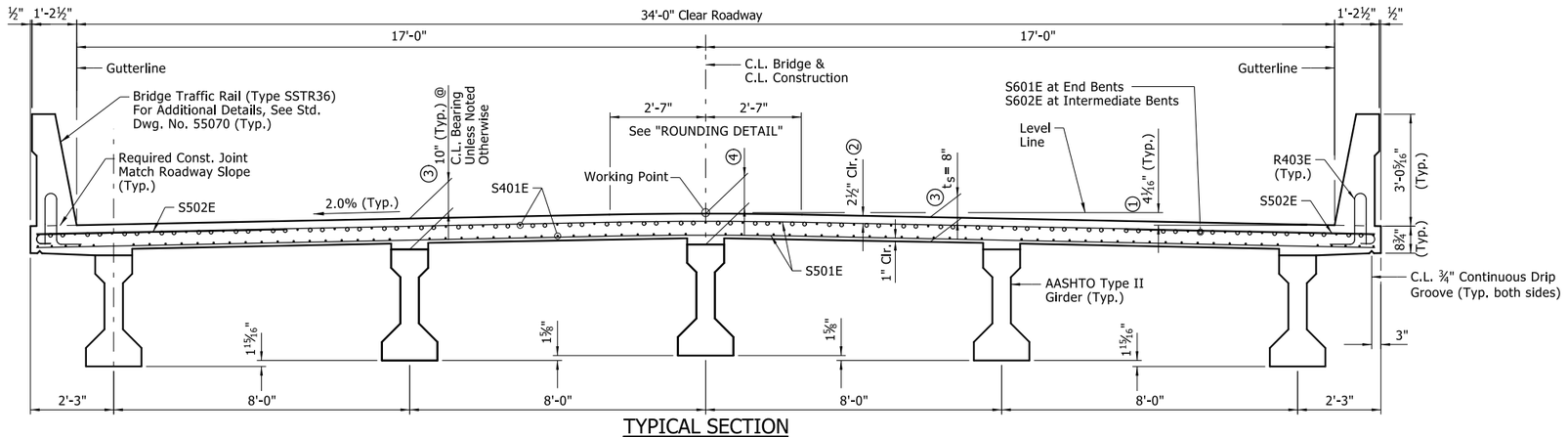
Class 2 Protective Surface Treatment shall be applied to the Roadway Surface and the Face and Top of Concrete Bridge Rail.

① Working Point to Gutterline

② Tolerance: Minus = ¼"; Plus equal the amount of slab thickening used to meet slab thickness tolerance. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE".

③ See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE"

④ 10⁵⁄₁₆" @ C.L. Bearing to Working Point

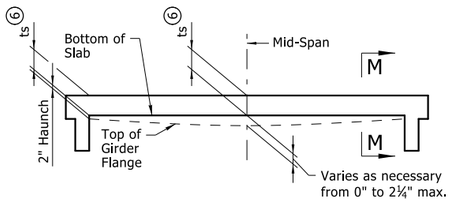


TYPICAL SECTION

Looking Ahead
½" = 1'-0"

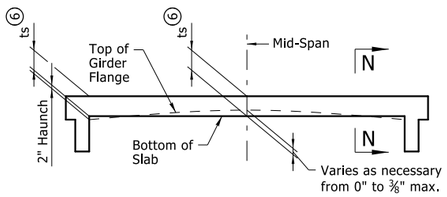
⑤ Galvanized Threaded Inserts shall be Dayton-Richmond F-42 Loop Ferule Inserts or approved equal. ¾" Dia. Galvanized Threaded Rods shall be ASTM A709, Grade 36 or AASHTO M 31 or M 322 Type A, Grade 60. Galvanizing shall be in accordance with AASHTO M 232 Class C. These items will not be paid for directly, but shall be considered subsidiary to the Item "PRESTRESSED CONCRETE GIRDERS (TYPE II)." See Dwg. No. 67352 for number and location of diaphragms.

See Dwg. No. 67352 for "SECTION A-A" and "SECTION B-B".



GIRDER ELEVATION

No Scale



GIRDER ELEVATION

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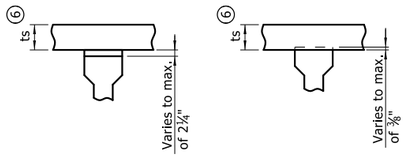


SECTION M-M

No Scale

SECTION N-N

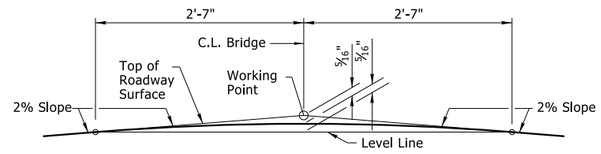
No Scale

t_s = slab thickness as shown on superstructure details - See "TYPICAL ROADWAY SECTION".

⑥ Tolerance when removable deck forming is used +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 over suitable increments so the revised grade line will produce a smooth riding surface. Variation of haunch height will be at the Contractor's expense.

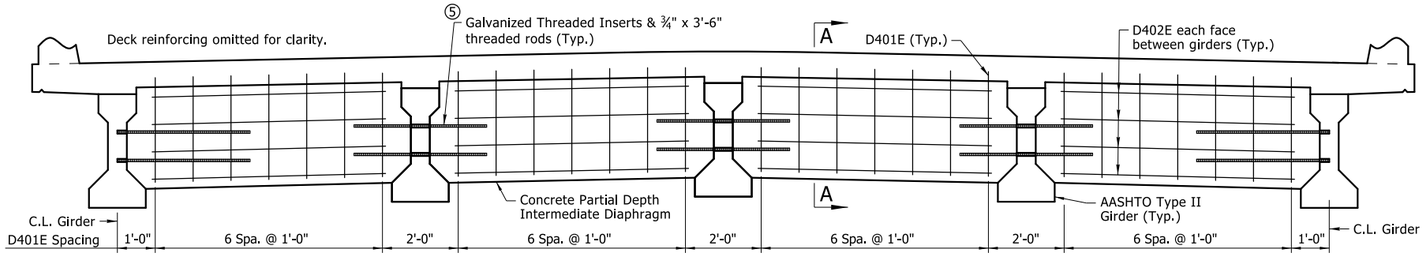
ADJUSTMENT FOR SLAB THICKNESS TOLERANCE



ROUNDING DETAIL

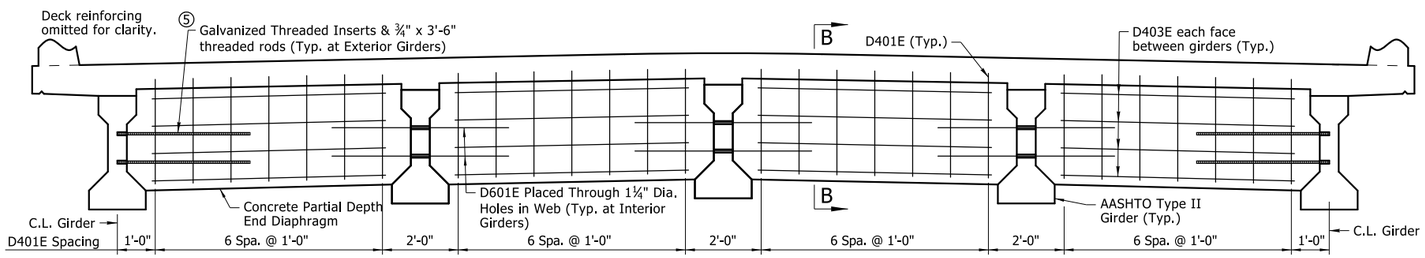
No Scale

Note: Working Point matches Theoretical Grade



TYPICAL SECTION AT PARTIAL DEPTH INTERMEDIATE DIAPHRAGMS

Looking Ahead
½" = 1'-0"



TYPICAL SECTION AT PARTIAL DEPTH END DIAPHRAGMS

Looking Ahead
½" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 03-22-2024
BRIDGE ENGINEER
PRINT DATE: 3/22/2024

SHEET 1 OF 7
DETAILS OF 161'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
HWY. 88 OVER LITTLE BAYOU METO

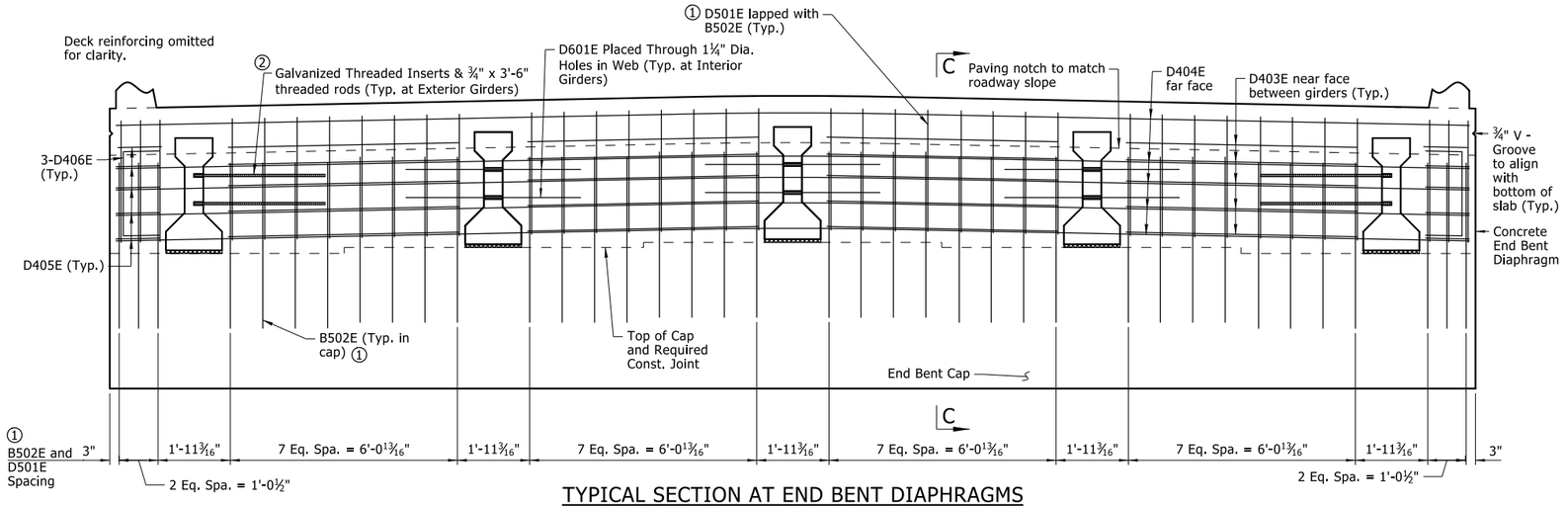
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	LMD	DATE:	NOV. 2023	FILENAME: b020784x1_s1.dgn
CHECKED BY:	JPC	DATE:	DEC. 2023	
DESIGNED BY:	LMD	DATE:	NOV. 2023	SCALE: As Shown
BRIDGE NO.	07682			DRAWING NO. 67350

3/22/2024
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	53	89
		07682		- 161'-0" UNIT -		67351



TYPICAL SECTION AT END BENT DIAPHRAGMS

Looking Back at Bent 1 Parallel to C.L. Girders, Looking Ahead at Bent 4 similar

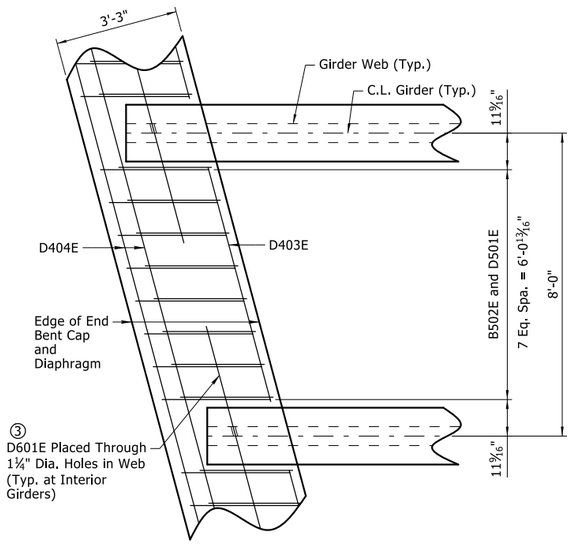
½" = 1'-0"

① B502E and D501E bars oriented parallel to C.L. Girders. See End Bent details on Dwg. No. 67347 for additional details.

② Galvanized Threaded Inserts shall be Dayton-Richmond F-42 Loop Ferule Inserts or approved equal. ¾" Dia. Galvanized Threaded Rods shall be ASTM A709, Grade 36 or AASHTO M 31 or M 322 Type A, Grade 60. Galvanizing shall be in accordance with AASHTO M 232 Class C. These items will not be paid for directly, but shall be considered subsidiary to the Item "PRESTRESSED CONCRETE GIRDERS (TYPE II)." See Dwg. No. 67352 for number and location of diaphragms.

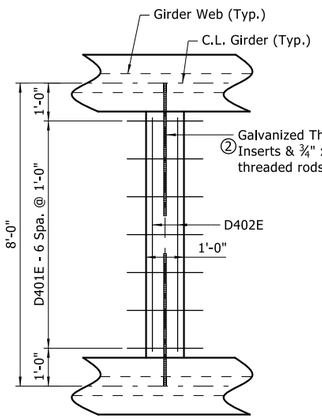
③ D601E thru 1¼" Dia. holes in web. Bars shall be centered about the girders (Typ. at interior girders) or Galvanized Threaded Inserts & ¾" Dia. x 3'-6" threaded rods (Typ. at exterior girders).

See Dwg. No. 67352 for "SECTION C-C".



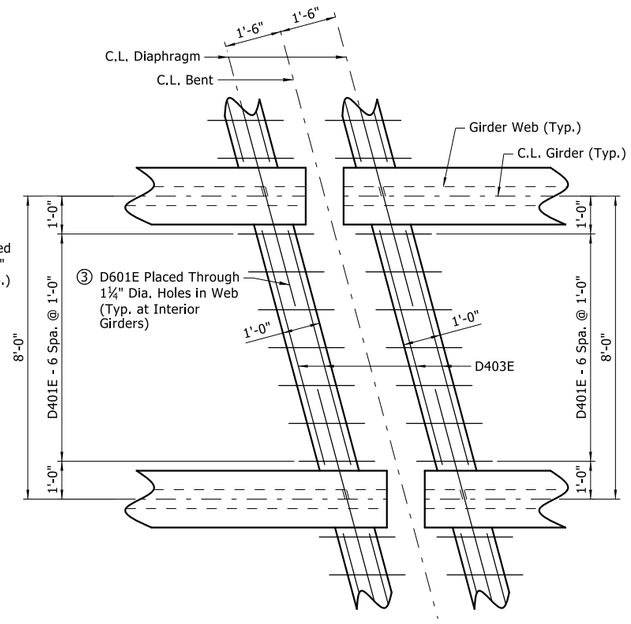
PLAN - END BENT DIAPHRAGM

½" = 1'-0"



PLAN - PARTIAL DEPTH INTERMEDIATE DIAPHRAGM

½" = 1'-0"



PLAN - PARTIAL DEPTH END DIAPHRAGM

½" = 1'-0"

GENERAL NOTES

PRESTRESSED CONCRETE GIRDERS:

Prestressing steel shall be ½" 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 II 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 = 8,000 psi. The initial tensile force applied to each ½" ϕ strand shall be 31,000 lbs. except as noted. Transfer of this tensioning load to the girder shall not be done until the compressive strength of the concrete is 6,000 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.

The tops of the girder shall be roughened to an amplitude of ¼" and shall be scrubbed transversely with a coarse wire brush to remove all latiance to produce an adequate surface for bonding to the slab.

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.

The Contractor may submit alternate strand patterns with design calculations for review and approval in accordance with Subsection 802.22.

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.

Holes and Inserts shall be cast into the girder. Field drilling of holes shall not be permitted.

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. The ends of the girders at intermediate bents shall be coated with 1/16" min. thick coating of QPL approved epoxy resin.

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

Girder lengths shown on the design plans are net lengths measured horizontally along the girder centerlines. The girder manufacturer shall make the necessary allowances for grade and shortening due to elastic shortening, creep, and shrinkage.

CONCRETE:

All concrete, except for prestressed girders, 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 - BRIDGE". 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 on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the 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 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 number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "EPOXY COATED REINFORCING STEEL (GRADE 60)".

STRUCTURAL STEEL:

Structural steel shall be ASTM A709 as specified in the plans. Unless otherwise noted, 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. See Dwg. No. 67349 for cleaning requirements of external load plates on elastomeric bearings.

Drawings show general features for 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.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 03-22-2024

BRIDGE ENGINEER
PRINT DATE: 3/22/2024

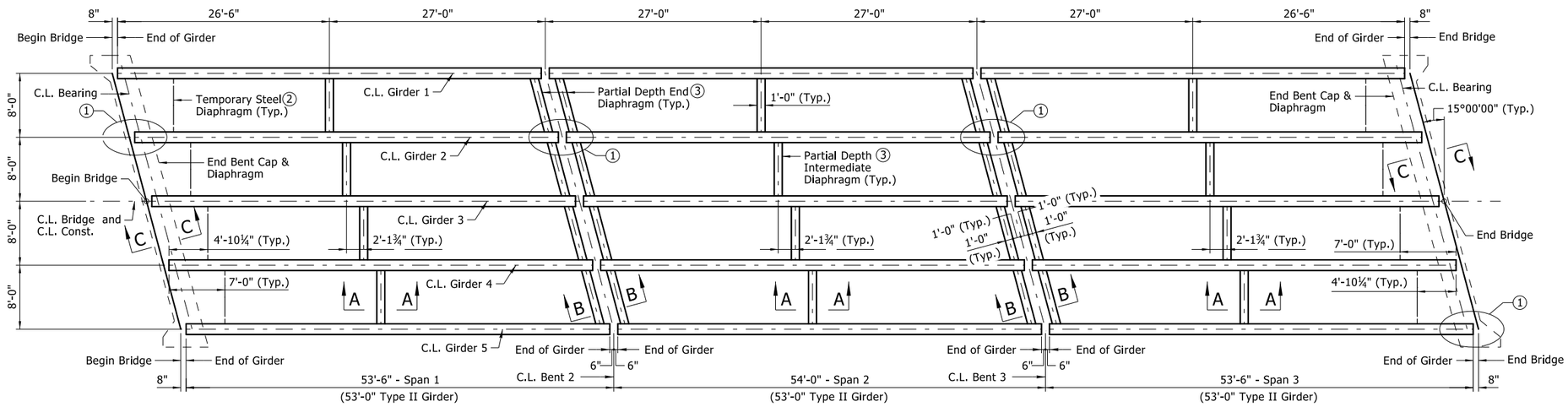
SHEET 2 OF 7
DETAILS OF 161'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
HWY. 88 OVER LITTLE BAYOU METO
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LMD DATE: NOV. 2023
CHECKED BY: JPC DATE: DEC. 2023
DESIGNED BY: LMD DATE: NOV. 2023
BRIDGE NO. 07682
DRAWING NO. 67351
FILENAME: b020784x1_s1.dgn
SCALE: ½" = 1'-0"

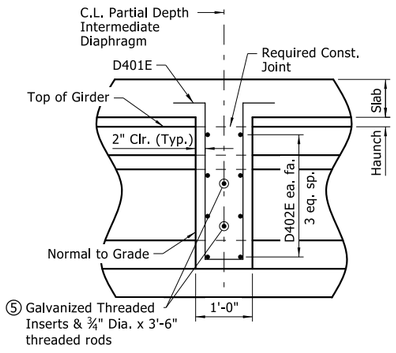
3/22/2024
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	54	89
		07682		- 161'-0" UNIT -		67352



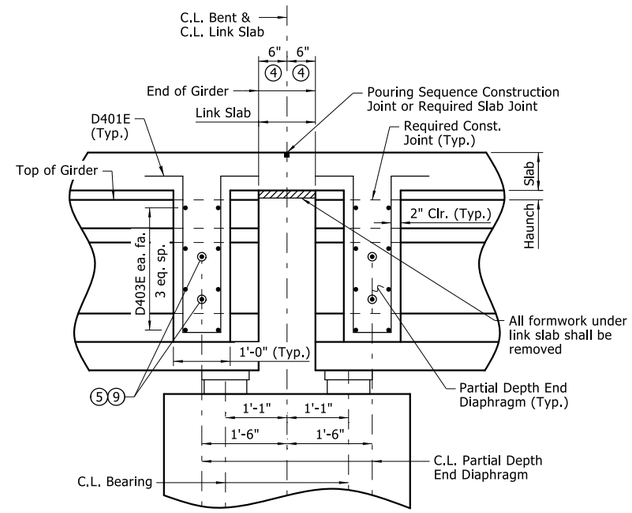
FRAMING PLAN

⅛" = 1'-0"



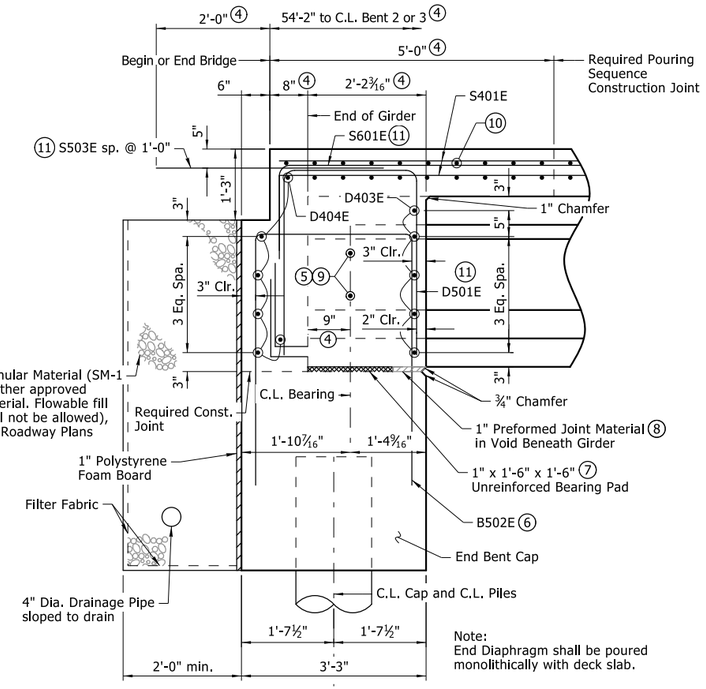
SECTION A-A

Partial Depth Intermediate Diaphragms
¾" = 1'-0"



SECTION B-B

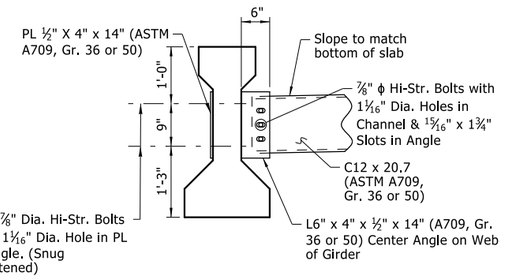
Partial Depth End Diaphragms
Looking Normal to C.L. Bent
¾" = 1'-0"



Note:
End Diaphragm shall be poured monolithically with deck slab.

SECTION C-C

Looking Normal to C.L. Bent
¾" = 1'-0"



DETAILS OF STEEL DIAPHRAGM

¾" = 1'-0"

Steel diaphragms shall be used at locations noted as "Temporary Steel Diaphragm". The Temporary Steel Diaphragm and components will be paid for at the unit price bid for "STRUCTURAL STEEL IN BEAM SPANS (A709, Gr. 50W)".

A standard washer shall be supplied under both the nut and the head of the ⅞" ϕ Hi-Str. Bolts. An additional plate washer shall cover the angle slots.

Permanent Steel Diaphragms may be used in lieu of a Concrete Diaphragm at midspan. Payment for permanent steel diaphragm and components will be based on concrete diaphragms.

All components of Steel Diaphragms (Permanent and Temporary) shall be galvanized in accordance with Section 807.

(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 at intermediate bents shall remain blocked until 72 hours after all partial depth concrete diaphragms are poured. The ends of girders at end bents shall remain blocked until after the temporary steel diaphragms are in place.

(2) After the concrete deck construction and curing is complete, the temporary steel diaphragm and connecting elements may remain in place or be removed and become the property of the Contractor and the holes in the girder webs filled with a QPL-approved non-shrink epoxy grout. For additional diaphragm details, see "DETAILS OF STEEL DIAPHRAGM".

(3) For details of alternate steel diaphragm, see "DETAILS OF STEEL DIAPHRAGM".

For additional details of Diaphragms see Dwg. Nos. 67350 and 67351.

(4) Measured along C.L. Girder

(5) Galvanized Threaded Inserts shall be Dayton-Richmond F-42 Loop Ferule Inserts or approved equal. ¾" Dia. Galvanized Threaded Rods shall be ASTM A709, Grade 36 or AASHTO M 31 or M 322 Type A, Grade 60. Galvanizing shall be in accordance with AASHTO M 232 Class C. These items will not be paid for directly, but shall be considered subsidiary to the Item "Prestressed Concrete Girders (Type II)."

(6) Place parallel to C.L. Bridge. See Bent details on Dwg. No. 67347 for additional details.

(7) 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 Concrete-Bridge".

(8) 1" Preformed joint material shall be AASHTO M 153, Type 1 per Subsection 501.02(h)(1)(b).

(9) D601E thru 1¼" Dia. holes in web. Bars shall be centered about the girders (Typ. at interior girders) or Galvanized Threaded Inserts & ¾" Dia. x 3'-6" threaded rods (Typ. at exterior girders).

1" Polystyrene Foam Board, Filter Fabric and Granular Material shall not be paid for directly, but shall be considered subsidiary to the various bid items.

Limits of the concrete End Bent Diaphragms shall match plan dimensions of End Bent Cap.

For additional details of pipe underdrain see Std. Dwg. PU-1 and Section 611. Pipe underdrains, outlet protectors, granular materials, drain pipe, filter fabric and polystyrene foam board will not be measured or paid for separately, but will be considered subsidiary to the unit price bid for "Unclassified Excavation".

(10) #5 bars, See "REINFORCING PLAN & SLAB POURING SEQUENCE" on Dwg. No. 67353 for bar designations. (Typ. U.N.O.)

(11) Place parallel to C.L. Bridge. See Dwg. No. 67353 for additional details.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
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DIGITALLY SIGNED 03-22-2024
BRIDGE ENGINEER
PRINT DATE: 3/22/2024

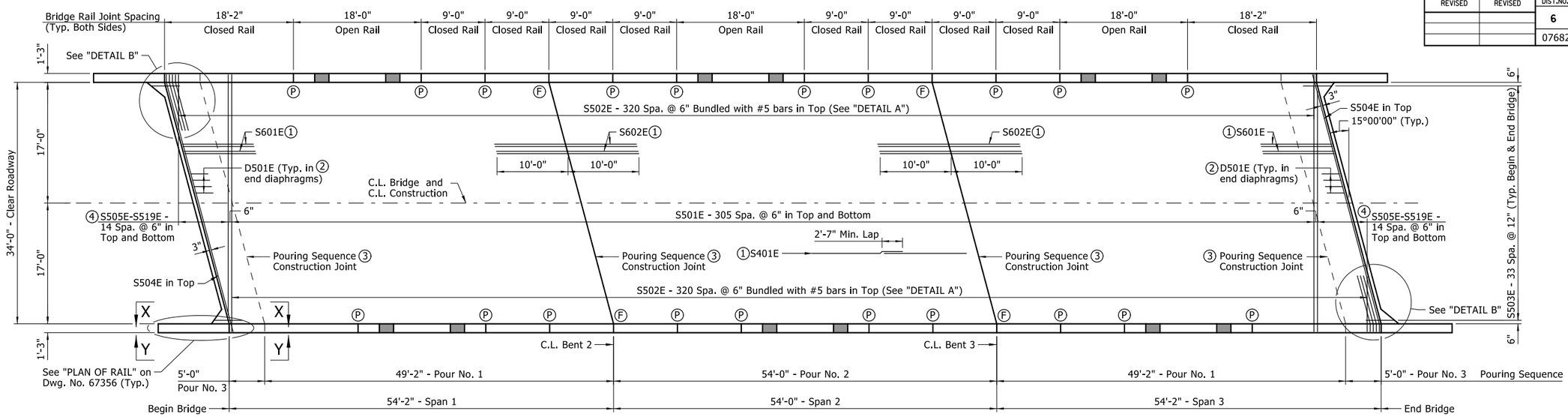
DRAWN BY: LMD DATE: NOV. 2023
CHECKED BY: JPC DATE: DEC. 2023
DESIGNED BY: LMD DATE: NOV. 2023
BRIDGE NO. 07682
FILENAME: b020784x1_s1.dgn
SCALE: As Shown
DRAWING NO. 67352

SHEET 3 OF 7
DETAILS OF 161'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
HWY. 88 OVER LITTLE BAYOU METO
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

JUCARNEY 3/22/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	55	89
		07682		- 161'-0" UNIT -		67353



REINFORCING PLAN & SLAB POURING SEQUENCE

⅛" = 1'-0"

Ⓕ Full depth parapet joint at this location. (Stop 6" above top of slab)

Ⓟ Partial depth parapet joint at this location. (Stop 1'-4" above top of slab)

Slab Pouring Sequence Notes:
Pours with the same number may be be placed simultaneously or separately. All Pour(s) 1 must be placed before Pour(s) 2 can be placed. All Pour(s) 2 must be placed before Pour(s) 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 the end of a pour and the start of an adjacent pour. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence(s) 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.

The slab and concrete diaphragms shall not be poured prior to 90 days after release of the prestressed girder strands.

Concrete diaphragms at end bents shall be poured monolithically with the slab.

All partial depth diaphragms shall be cast in place and poured a minimum of 48 hours before the slab is poured.

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(s) shown.

Removable forms shall be used when pouring diaphragms.

TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels					
Panel Length	A	R4XXE	Panel Length	B	C	D	E	R4XXE
18'-2"	36	R404E	18'-0"	8	3'-0"	15	8'-0"	R405E
9'-0"	17	R407E						

Note: For bridge traffic rail reinforcing details and details of partial-depth and full-depth rail joints, see Std. Dwg. No. 55070.

① Placed as shown in "TYPICAL SECTION" on Dwg. No. 67350.

② See. Dwg. Nos. 67351 and 67352 for additional details of reinforcing in concrete end bent diaphragm.

Rail panel spacing and joint depth shown are typical for both sides of roadway. For additional reinforcing details, see Std. Dwg. No. 55070.

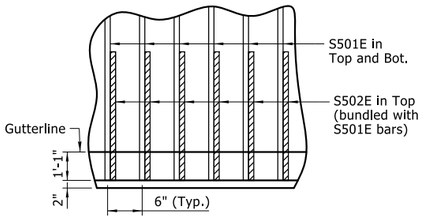
Rails and wings are included in span construction and are included in span quantities.

③ Pouring sequence construction joints shall align with rail open joints at the gutterline, unless noted otherwise.

④ Bundled with #5 bars in Top (See "DETAIL A")

For "SECTION X-X" and "VIEW Y-Y", see Dwg. No. 67356.

For "GENERAL NOTES", see Dwg. No. 67351.



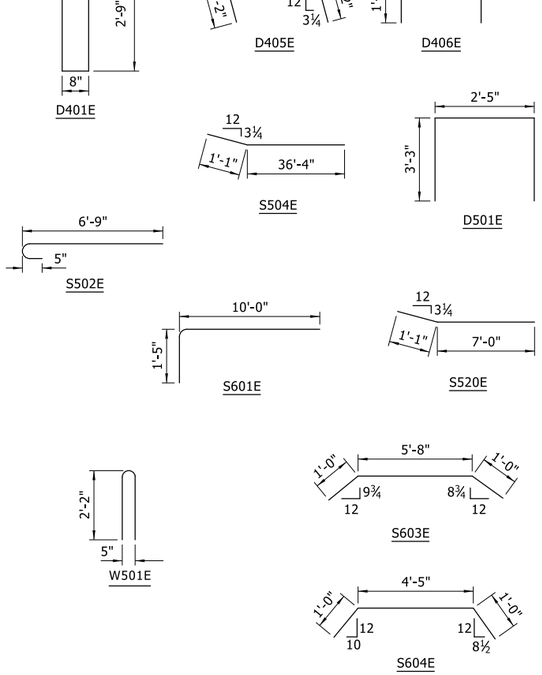
DETAIL A
No Scale

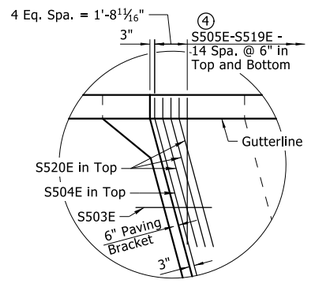
BAR LIST

MARK	NO. REQ'D	LENGTH	PIN. DIA.
D401E	196	6'-10"	2"
D402E	96	6'-2"	Str.
D403E	168	6'-5"	Str.
D404E	12	37'-5"	Str.
D405E	20	4'-7"	2"
D406E	12	4'-1"	2"
D501E	76	8'-9"	2½"
D601E	36	6'-0"	Str.
S401E	575	34'-7"	Str.
S501E	612	36'-2"	Str.
S502E	644	7'-4"	3¾"
S503E	68	4'-0"	Str.
S504E	2	37'-5"	3¾"
S505E to S519E	4 each	7'-9" to 33'-10"	Str.
S520E	6	8'-1"	3¾"
S601E	144	11'-3"	4½"
S602E	144	20'-0"	Str.
S603E	8	7'-8"	4½"
S604E	8	6'-5"	4½"
R400E	48	5'-3"	2½"
R401E	724	6'-4"	2½"
R402E	112	5'-6"	Str.
R403E	640	3'-6"	3¾"
R404E	32	17'-10"	Str.
R405E	48	17'-8"	Str.
R406E	32	9'-8"	Str.
R407E	128	8'-8"	Str.
W401E	84	3'-11"	3¾"
W402E	120	3'-4"	Str.
W501E	36	4'-6"	3¾"
W701E	48	12'-2"	Str.

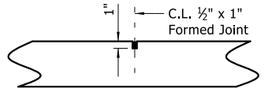
BENDING DIAGRAMS

Note:
Dimensions of bars are out-to-out.
All bars designated with an "E" suffix are to be epoxy coated.
For bars R400E, R401E, R403E, and W401E see Std. Dwg. No. 55070.





DETAIL B
Begin Bridge LT. shown, End Bridge RT. similar
¼" = 1'-0"



Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02 (h) and 501.05 (j). Backer rod shall not be installed. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab and shall align with open joints at the front face of bridge rail, unless noted otherwise. Slab joints shall be installed before the bridge railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations.

TRANSVERSE SLAB JOINT DETAIL
No Scale

STATE OF ARKANSAS ★★★ LICENSED PROFESSIONAL ENGINEER ★★★ No.18018 JUSTIN P. CARNEY

DIGITALLY SIGNED 03-28-2024

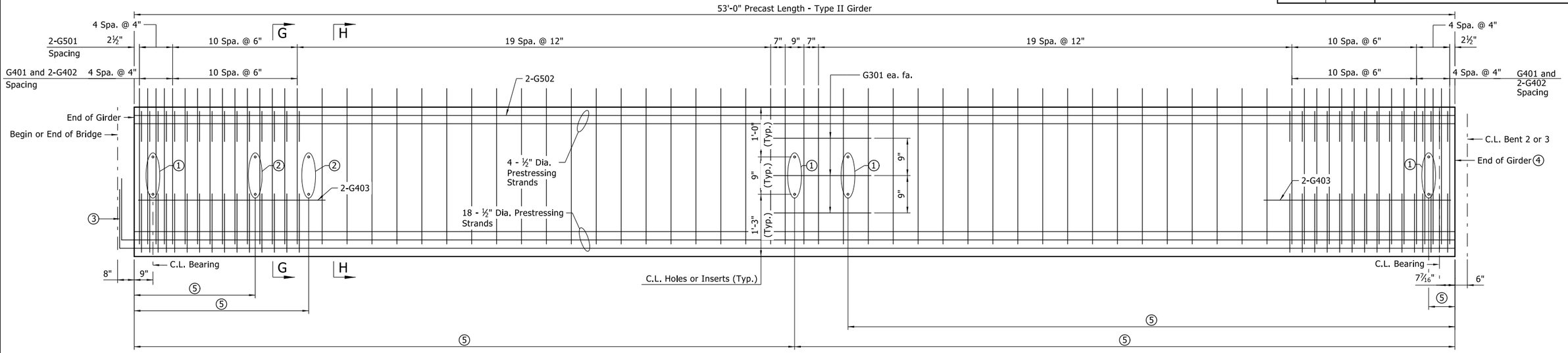
BRIDGE ENGINEER
PRINT DATE: 3/28/2024

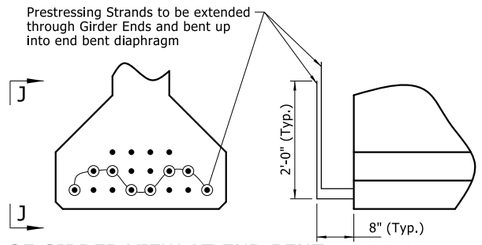
SHEET 4 OF 7
DETAILS OF 161'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
HWY. 88 OVER LITTLE BAYOU METO
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	LMD	DATE:	NOV. 2023	FILENAME: b020784x1_s1.dgn
CHECKED BY:	JPC	DATE:	DEC. 2023	
DESIGNED BY:	LMD	DATE:	NOV. 2023	SCALE: As Shown
BRIDGE NO.	07682			DRAWING NO. 67353

3/28/2024
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	56	89
		07682		- 161'-0" UNIT -		67354





END OF GIRDER VIEW AT END BENT

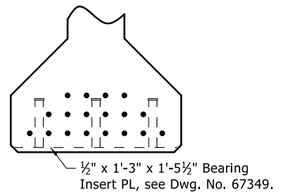
1½" = 1'-0"

VIEW J-J

⅜" = 1'-0"

Saw and shop bend 8 bottom prestressing strands from the end of each girder into diaphragms as shown.

At the Contractor's option, the location for bent up strands may be varied. The total number of bent up strands shall not be changed. Saw cut or grind remaining strands to within 1" of the end of the girder.



END OF GIRDER VIEW AT INT. BENT

1½" = 1'-0"

At intermediate bents only, saw cut or grind all strands flush with the end of the girder. The ends of the girders and the cut-off strand ends shall be coated with a 1/16" min. thick coating of a QPL-approved epoxy resin.

TYPICAL GIRDER ELEVATION (TYPE II) - 53'-0"

Span 1 or 3 Interior Girder shown, Other Girders Similar
No Scale

Notes:
Dimensions are measured along girders.

Prestressing strands will not be paid for directly, but will be considered subsidiary to the item "Prestressed Concrete Girders (Type II)".

Prestressing strands shall be bonded along the entire length of the girder.

① Connection for Partial Depth Diaphragm: ¾" Dia. Threaded Inserts at interior face of exterior girders or 1¼" Dia. holes at interior girders. See Dwg. Nos. 67350 and 67351 for additional details.

② Connection for Temporary Steel Diaphragm: 1¼" Dia. holes in web. See Dwg. No. 67352 for additional details.

③ Prestressing Strands bent up into diaphragm. See "END OF GIRDER VIEW AT END BENT".

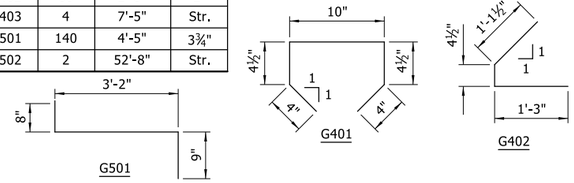
④ End of Girder at Intermediate Bent to receive an epoxy coating. See "END OF GIRDER VIEW AT INTERMEDIATE BENT".

⑤ See Dwg. No. 67355 for spacing of connections for temporary steel diaphragms and partial depth diaphragms.

BAR LIST - PER GIRDER

MARK	NO. REQ'D	LENGTH	PIN. DIA.	BENDING DIAGRAMS
G301	6	4'-0"	Str.	
G401	30	2'-1"	2"	
G402	60	2'-8"	2"	
G403	4	7'-5"	Str.	
G501	140	4'-5"	3¾"	
G502	2	52'-8"	Str.	

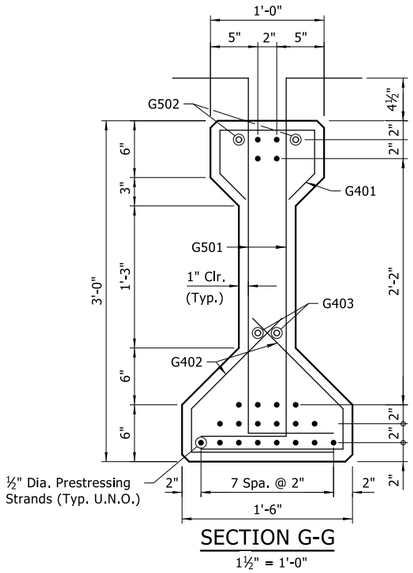
Note:
Dimensions of bars are out-to-out.



Note:
All bars in BAR LIST-PER GIRDER will not be paid for directly, but shall be subsidiary to the item "Prestressed Concrete Girders (Type II)".

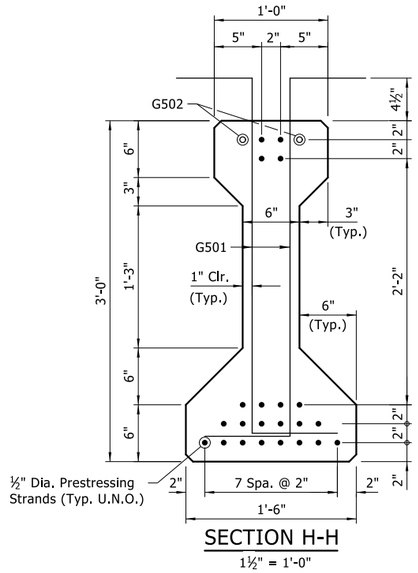
At the Contractor's option, the two G402 bars may be furnished as one bar at no additional cost to the Department.

At the Contractor's option, ⅜" Dia. strands pulled to 2,000 lbs. may be substituted for bars G502 at no additional cost to the Department.



SECTION G-G

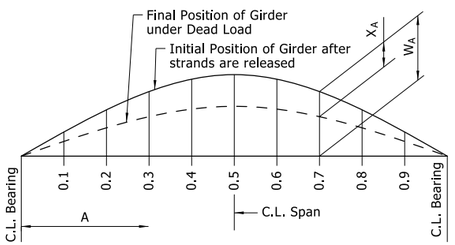
1½" = 1'-0"



SECTION H-H

1½" = 1'-0"

Span Pt.	Inches	
	W_A	X_A
0.00	0.000	0.000
0.10	0.420	0.157
0.20	0.732	0.317
0.30	0.945	0.444
0.40	1.069	0.525
0.50	1.110	0.553
0.60	1.069	0.525
0.70	0.945	0.444
0.80	0.732	0.317
0.90	0.420	0.157
1.00	0.000	0.000



'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

Notes:
'W_A' & 'X_A' are based on the required minimum concrete strength and may vary from the dimension shown. 'W_A' & 'X_A' shall be measured along bottom of girders unless otherwise approved by the Engineer. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Dwg. No. 67350 for limitations of the girder final position under dead load. The Contrac 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.

The camber and dead load deflection values shown 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. Estimated age of prestressed concrete girders at time of erection.
C. Profile of each girder under self weight.
D. Number of days since release of strands of each girder.

Following receipt of the above data, the Engineer will provide an updated camber and deflection diagram to the Contractor, if required.

CAMBER & DEFLECTIONS (INCHES)

No Scale

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LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 03-22-2024
BRIDGE ENGINEER
PRINT DATE: 3/22/2024

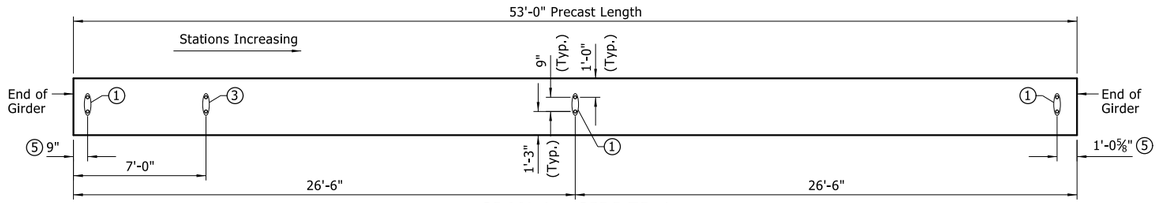
SHEET 5 OF 7
DETAILS OF 161'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
HWY. 88 OVER LITTLE BAYOU METO
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	LMD	DATE:	NOV. 2023	FILENAME: b020784x1_s1.dgn
CHECKED BY:	JPC	DATE:	DEC. 2023	
DESIGNED BY:	LMD	DATE:	NOV. 2023	SCALE: As Shown
BRIDGE NO.	07682			DRAWING NO. 67354

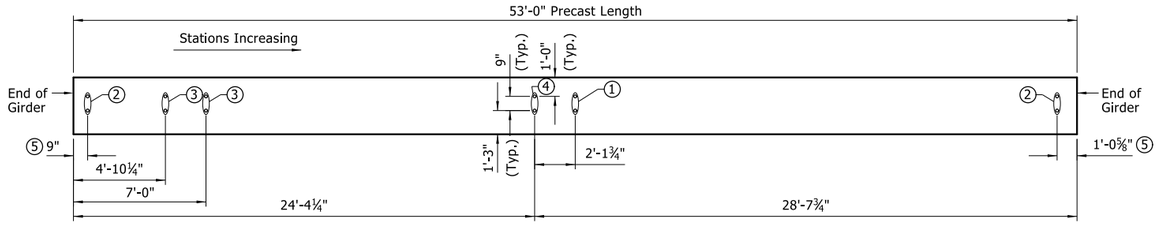
JUCARNEY 3/22/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	57	89
		07682		- 161'-0" UNIT -		67355



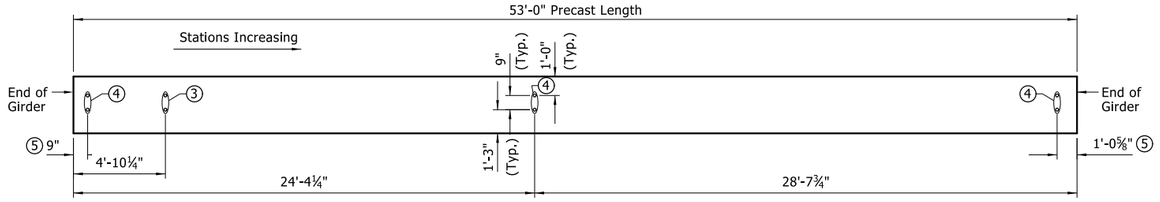
SPAN 1 - GIRDER 1

¼" = 1'-0"



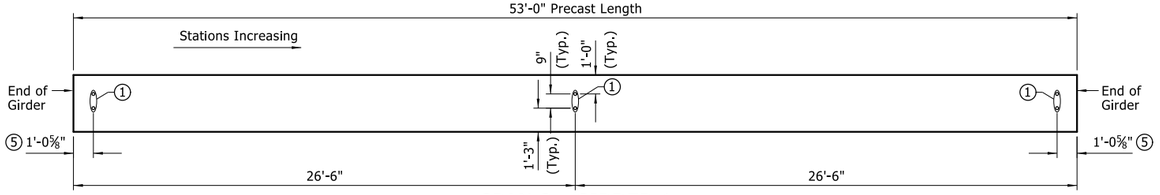
SPAN 1 - GIRDERS 2, 3, & 4

¼" = 1'-0"



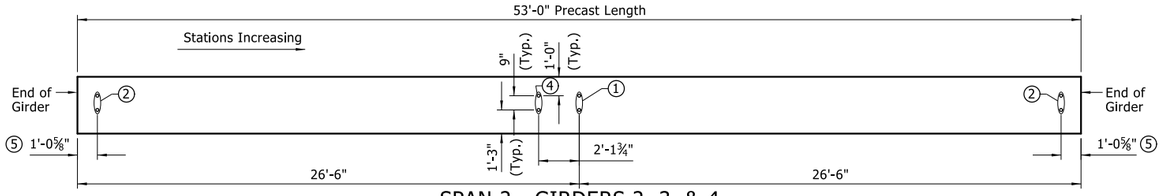
SPAN 1 - GIRDER 5

¼" = 1'-0"



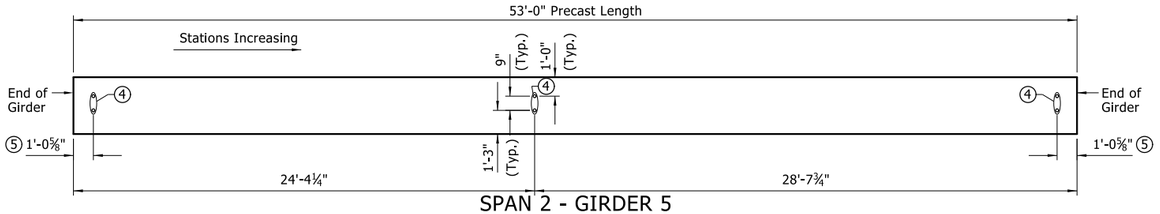
SPAN 2 - GIRDER 1

¼" = 1'-0"



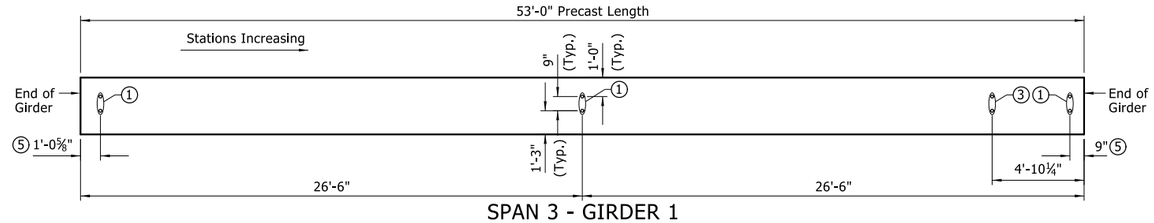
SPAN 2 - GIRDERS 2, 3, & 4

¼" = 1'-0"



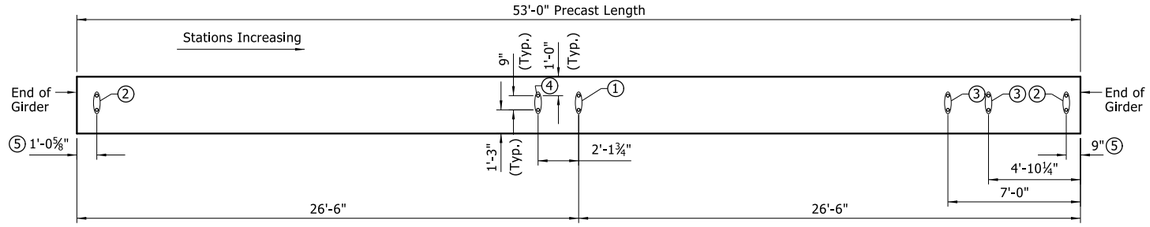
SPAN 2 - GIRDER 5

¼" = 1'-0"



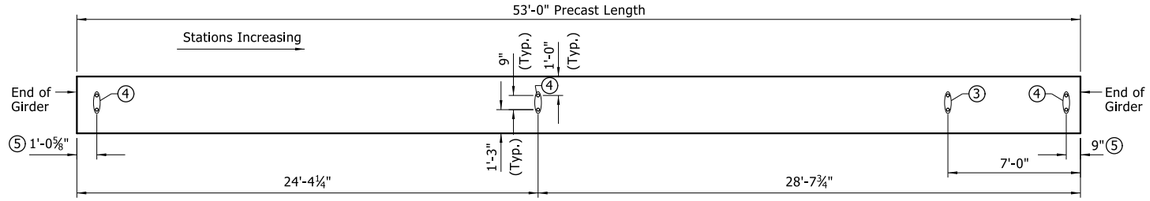
SPAN 3 - GIRDER 1

¼" = 1'-0"



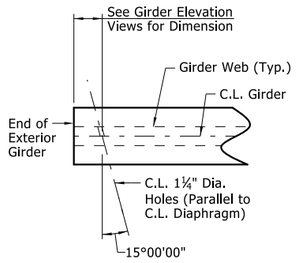
SPAN 3 - GIRDERS 2, 3, & 4

¼" = 1'-0"



SPAN 3 - GIRDER 5

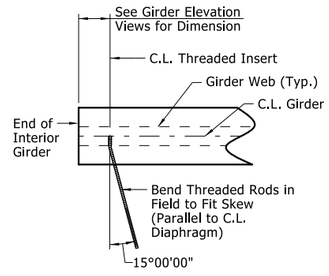
¼" = 1'-0"



DETAIL C

Plan View of Interior Girder End

½" = 1'-0"



DETAIL D

Plan View of Interior Girder End

½" = 1'-0"

① ¾" Galvanized Threaded Inserts placed in near side of web.

② 1¼ Dia. Hole through web (Orientated parallel to skew).

③ 1¼ Dia. Hole through web for Connection of Temporary Steel Diaphragm.

④ ¾" Galvanized Threaded Inserts placed in far side of web.

⑤ Dimension measured from end of girder to intersection of C.L. Diaphragm & C.L. Girder. See "DETAIL C" and "DETAIL D".

All dimensions are measured along C.L. Girder

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SHEET 6 OF 7
DETAILS OF 161'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
HWY. 88 OVER LITTLE BAYOU METO

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

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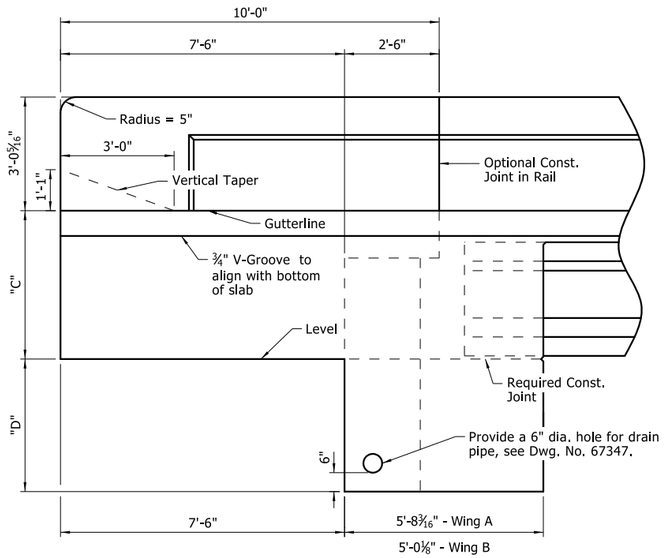
CHECKED BY:	JPC	DATE:	DEC. 2023		
DESIGNED BY:	LMD	DATE:	NOV. 2023	SCALE:	As Shown
BRIDGE NO.	07682			DRAWING NO.	67355

3/22/2024

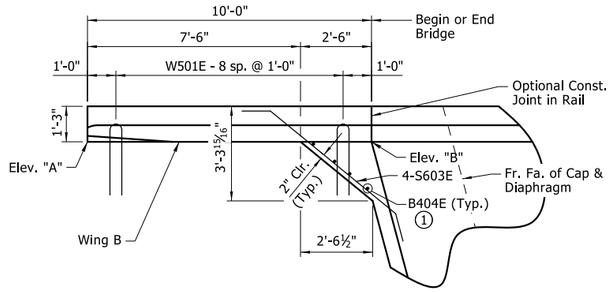
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	58	89
		07682		- 161'-0" UNIT -		67356



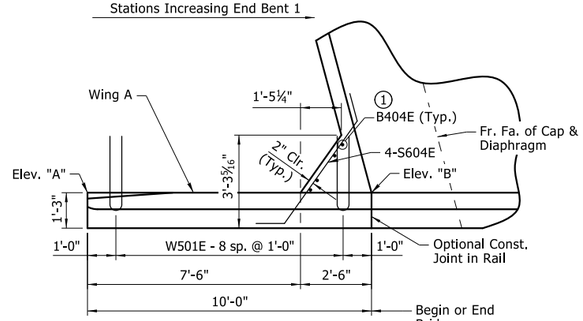
VIEW Y-Y

½" = 1'-0"



Stations Increasing End Bent 4

Stations Increasing End Bent 1



PLAN OF RAIL

⅜" = 1'-0"

TABLE OF VARIABLES

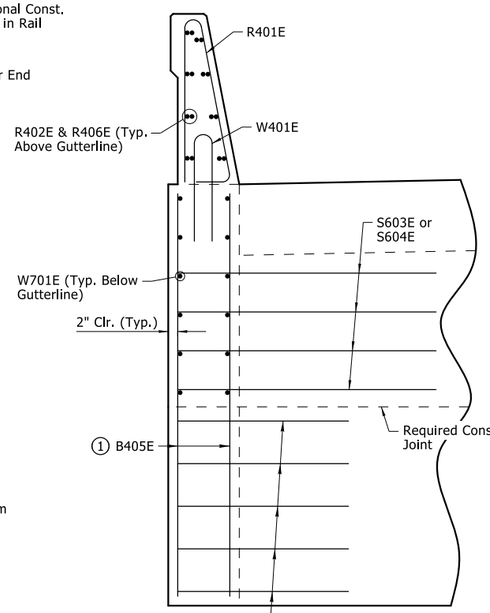
Bent	Wing	Elev. "A"	Elev. "B"	Dim. "C"	Dim. "D"
1	A	186.13	186.25	3'-8⅞"	3'-7⅝16"
	B	186.02	186.14	3'-8¾"	3'-6"
4	A	186.05	186.19	3'-8⅝"	3'-7⅞16"
	B	185.91	186.06	3'-8⅝16"	3'-6"

Notes:
For location of "SECTION X-X" & "VIEW Y-Y", see "REINFORCING PLAN & SLAB POURING SEQUENCE" on Dwg. No. 67353.

For reinforcement details, rail terminus details and other information for Bridge Traffic Rail, see Std. Dwg. No. 55070. R4XXE bars shall be spaced vertically as shown for Closed Panel Rails.

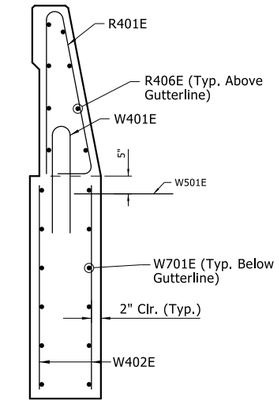
See Roadway Plans for guardrail locations.

1 See End Bent Details on Dwg. No. 67347 for additional details.



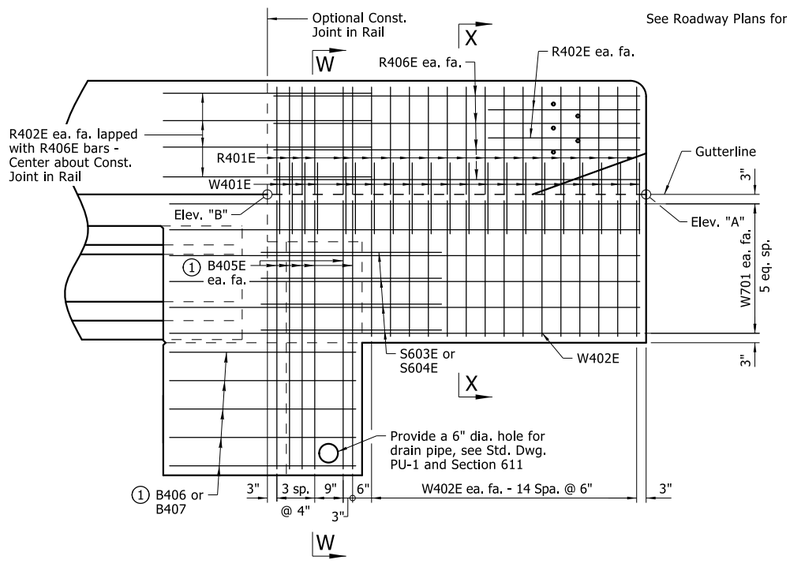
SECTION W-W

¾" = 1'-0"



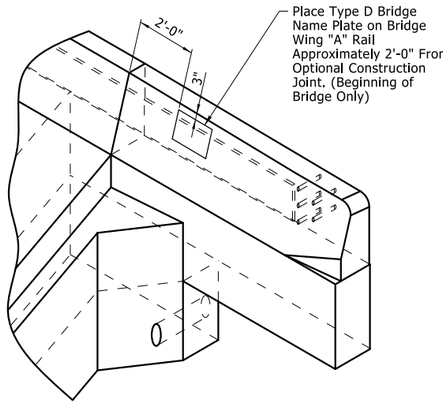
SECTION X-X

¾" = 1'-0"



SECTION X-X

½" = 1'-0"



THREE DIMENSIONAL VIEW OF WING AND CLOSED RAIL AT INTEGRAL END BENT

No Scale

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LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 03-28-2024

BRIDGE ENGINEER
PRINT DATE: 3/28/2024

SHEET 7 OF 7
DETAILS OF 161'-0" INTEGRAL PRESTRESSED CONCRETE GIRDER UNIT
HWY. 88 OVER LITTLE BAYOU METO
ROUTE SECTION

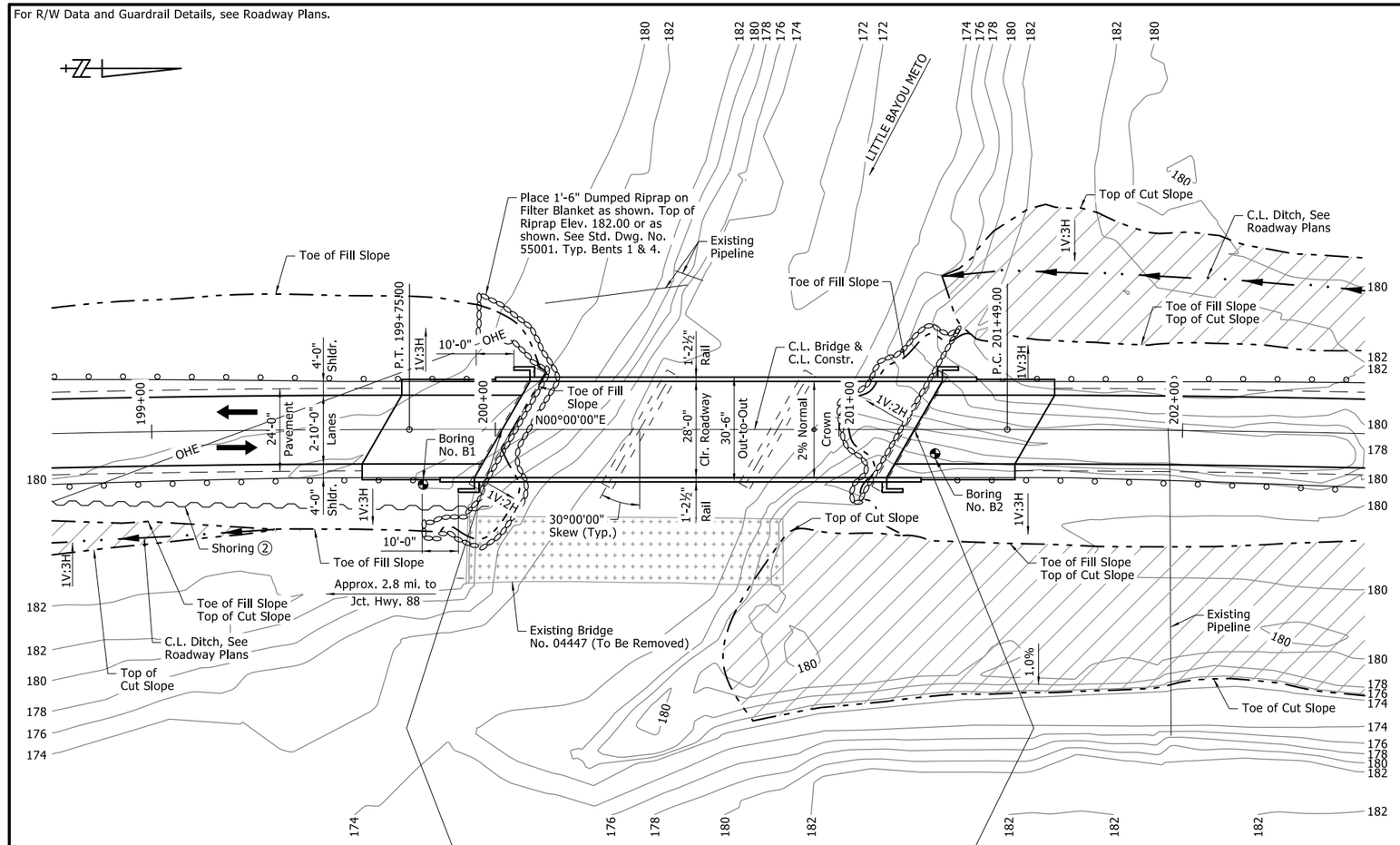
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	LMD	DATE:	NOV. 2023	FILENAME: b020784x1_s1.dgn
CHECKED BY:	JPC	DATE:	DEC. 2023	
DESIGNED BY:	LMD	DATE:	NOV. 2023	SCALE: As Shown
BRIDGE NO.	07682			DRAWING NO. 67356

JUCARNEY 3/28/2024

For R/W Data and Guardrail Details, see Roadway Plans.

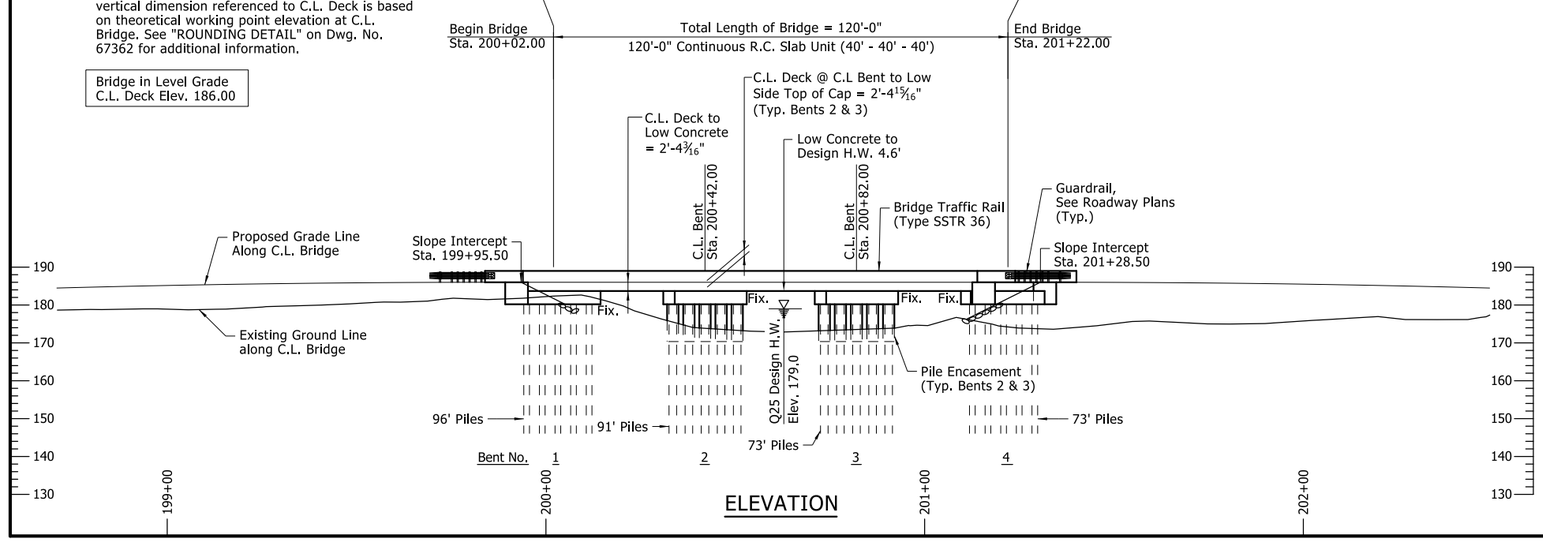
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	59	89
		07683		- LAYOUT -		67357



PLAN

Note: Stations shown are along C.L. Bridge & 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. 67362 for additional information.

Bridge in Level Grade
C.L. Deck Elev. 186.00



ELEVATION

3/27/2024
JUCARNEY

NOTES:
For "GENERAL NOTES" and "ELEVATION OF SOIL BORINGS" see Dwg. No. 67358.

Place Type Special 1 & 2 Approach Gutters and Type F Approach Slab (width = 24'-0") at both ends of bridge. For details, see Dwg. Nos. 67364-67365 and Std. Dwg. No. 55040F1 respectively.

② Shoring may be required for Construction. No direct payment will be made for shoring. See Special Provision Job No. 020784 "SHORING".

EXISTING UTILITIES LEGEND

OHE = Overhead Electric

NOTE:
Utilities shown are based on locations at time of survey and do not reflect any potential utility relocations prior to construction.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	①NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	25	808	178.6	178.8
Base	100	908	178.8	179.0
Extreme	500	961	178.8	179.1
Overtopping	>500	-	-	-

① Unconstricted water surface elevation without structure or roadway approaches.

Q100 backwater elevation for existing structure = 179.3 feet

Proposed Low Bridge Chord Elevation = 183.65
Existing Low Bridge Chord Elevation = 179.57 (survey shot)

Drainage area indeterminate.

Historical H.W Elevation = N/A

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	208	86.00	333	70,000
2	352	91.00	526	110,000
3	352	109.00	428	110,000
4	208	109.00	267	70,000

NOTE:
Required minimum ultimate bearing capacity corresponds to the minimum post driving capacity 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.

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SHEET 1 OF 2
LAYOUT OF BRIDGE
WRAPE ROAD OVER LITTLE BAYOU METO
LITTLE BAYOU METO STRS. & APPRS. (S)
JEFFERSON COUNTY
WRAPE ROAD
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	JPC	DATE:	SEP. 2022	FILENAME:	b020784x2_l1.dgn
CHECKED BY:	CDB	DATE:	JUNE 2023		
DESIGNED BY:	JPC	DATE:	SEP. 2022	SCALE:	1" = 20'
BRIDGE NO.	07683			DRAWING NO.	67357

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	60	89
		07683		- LAYOUT -		67358

GENERAL NOTES

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

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Construction Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (2020, 9th Edition)
AASHTO Guide Specifications for LRFD Seismic Bridge Design (2023, 3rd Edition)

LIVE LOADING: HL-93

SEISMIC DESIGN CATEGORY (SDC): B S_{D1}= 0.203g SITE CLASS = E

SEISMIC OPERATIONAL CLASSIFICATION: Other

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (Superstructure)	f'c = 4,000 psi
Class S Concrete (Substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 50W)	Fy = 50,000 psi
Pipe Pile (ASTM A252, Grade 3)	Fy = 45,000 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. 67357. 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. 67357. All piling shall be driven with an approved air, steam or diesel hammer to the minimum tip elevations shown in the "PILE BEARING TABLE". 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 piles will be paid for as 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 (16" DIA.)" and "STEEL SHELL PILING (24" DIA.)".

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.

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.

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

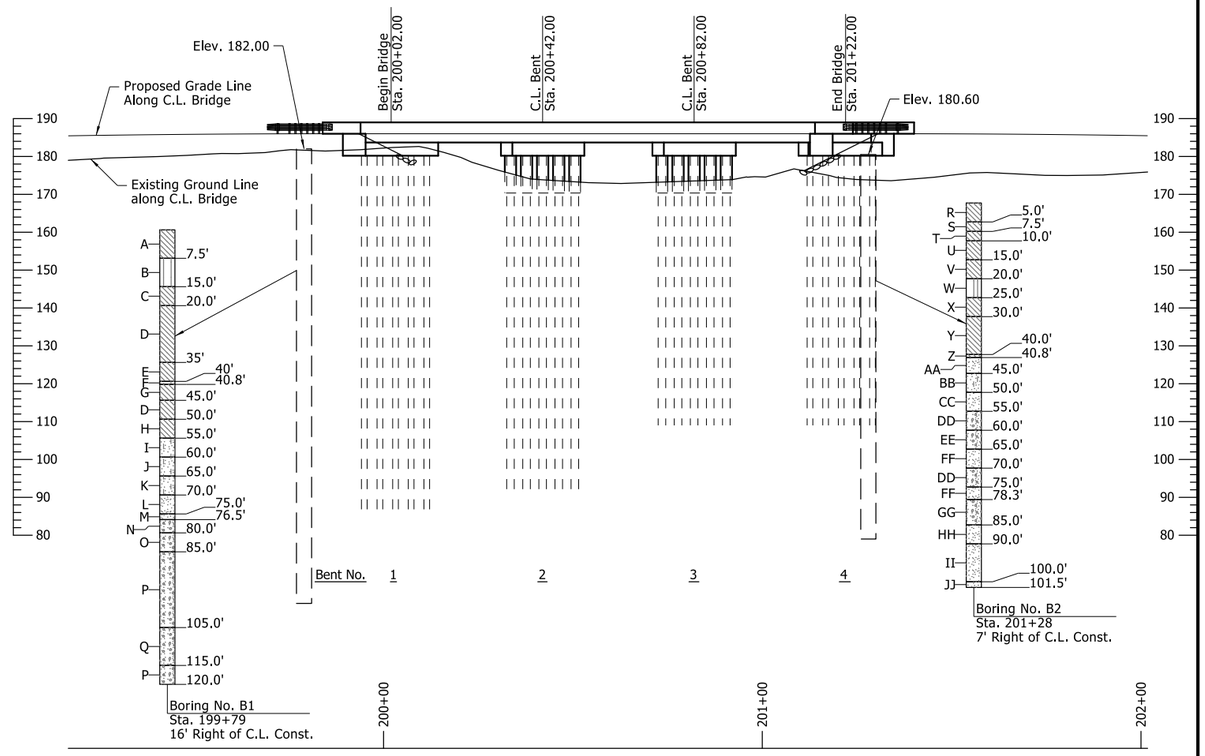
PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete bridge rails in accordance with Section 803.

DETAIL DRAWINGS:	DRAWING NO(S).
End Bents	67359 - 67360
Intermediate Bents	67361
120' Continuous R.C. Slab Unit	67362 - 67363
Type Special Approach Gutters	67364 - 67365
Concrete Filled Steel Shell Piling	55021
Type F Approach Slab	55040F1
Bridge Traffic Rail	55070

EXISTING BRIDGE: Existing Bridge No. 04447 (Log Mile 4.10) is 21.0' wide (19.0' clear roadway) and 93.0' long and consists of 3 - 31-0" precast concrete channel beam spans supported by a concrete substructure. The existing bridge is located approximately 30' downstream of 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. 04447 in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.



ELEVATION OF SOIL BORINGS

BORING LEGEND

A-	Dry, Stiff, Reddish Brown Lean Clay
B-	Wet, Very Loose, Brown Silt
C-	Moist, Very Soft, Brown Lean Clay with Some Organic Matter (Wood)
D-	Moist, Very Soft, Brown Fat Clay
E-	Moist, Very Soft, Brown Clay with Trace Organic Matter (Wood)
F-	Wet, Loose, Gray Silty Sand
G-	Moist, Medium Stiff, Gray Clay
H-	Moist, Soft, Brown Lean Clay
I-	Wet, Dense, Gray Silty Sand
J-	Wet, Dense, Gray Poorly Graded Sand with Silt
K-	Wet, Medium Dense, Light Brown Poorly Graded Sand with Silt and Some Gravel
L-	Wet, Medium Dense, Light Brown Sand
M-	Wet, Dense, Light Brown Sand
N-	Sand with Gravel
O-	Wet, Medium Dense, Light Brown Well Graded Sand with Gravel
P-	Wet, Medium Dense, Gray and Brown Sand with Gravel (Lots of Gravel Fall-In)
Q-	Wet, Dense, Gray and Brown Sand with Gravel (Lots of Gravel Fall-In)
R-	Moist, Soft, Reddish Brown Lean Clay*
S-	Moist, Very Soft, Reddish Brown Lean Clay
T-	Moist, Medium Stiff, Reddish Brown Lean Clay
U-	Moist, Medium Stiff, Reddish Brown Fat Clay
V-	Moist, Soft, Reddish Brown Fat Clay with Organic Matter
W-	Moist, Very Loose, Brown Elastic Silt
X-	Moist, Soft, Dark Brown Fat Clay
Y-	Moist, Medium Stiff, Gray Lean Clay
Z-	Moist, Very Stiff, Brown Clay
AA-	Wet, Medium Dense, Gray Sand
BB-	Wet, Dense, Light Gray Poorly Gradded Sand with Silt
CC-	Wet, Dense, Light Gray Sand with Some Gravel
DD-	Wet, Dense, Light Gray Sand with Gravel
EE-	Wet, Medium Dense, Light Gray Poorly Graded Sand with Gravel
FF-	Wet, Dense, Light Gray Sand
GG-	Wet, Dense, Light Brown Poorly Graded Sand with Gravel
HH-	Wet, Dense Light Gray Sand
II-	Wet, Medium Dense, Light Gray Sand with Some Gravel
JJ-	Wet, Medium Dense, Dark Gray Silty Sand

"N" VALUES

Boring No. B1 Sta. 199+79 - 16' Right of C.L. Const.		Boring No. B2 Sta. 201+28 - 7' Right of C.L. Const.	
3.0 - 4.0	N=12	3.0 - 4.0	N=3
5.5 - 6.5	N=10	5.5 - 6.5	N=0
8.0 - 9.0	N=0	8.0 - 9.0	N=5
10.5 - 11.5	N=0	10.5 - 11.5	N=5
15.5 - 16.5	N=0	15.5 - 16.5	N=2
20.5 - 21.5	N=0	20.5 - 21.5	N=2
25.5 - 26.5	N=0	25.5 - 26.5	N=3
30.5 - 31.5	N=0	30.5 - 31.5	N=6
35.5 - 36.5	N=0	35.5 - 36.5	N=7
40.5 - 41.5	N=6	40.5 - 41.5	N=16
45.5 - 46.5	N=0	45.5 - 46.5	N=34
50.5 - 51.5	N=4	50.5 - 51.5	N=32
55.5 - 56.5	N=39	55.5 - 56.5	N=46
60.5 - 61.5	N=42	60.5 - 61.5	N=29
65.5 - 66.5	N=30	65.5 - 66.5	N=41
70.5 - 71.5	N=23	70.5 - 71.5	N=40
75.5 - 76.5	N=50	75.5 - 76.5	N=31
80.5 - 81.5	N=28	80.5 - 81.5	N=35
85.5 - 86.5	N=26	85.5 - 86.5	N=35
90.5 - 91.5	N=27	90.5 - 91.5	N=25
95.5 - 96.5	N=25	95.5 - 96.5	N=25
100.5 - 101.5	N=14	100.5 - 101.5	N=29
105.5 - 106.2	N=32		
110.5 - 111.5	N=34		
115.5 - 116.5	N=27		

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 03-28-2024

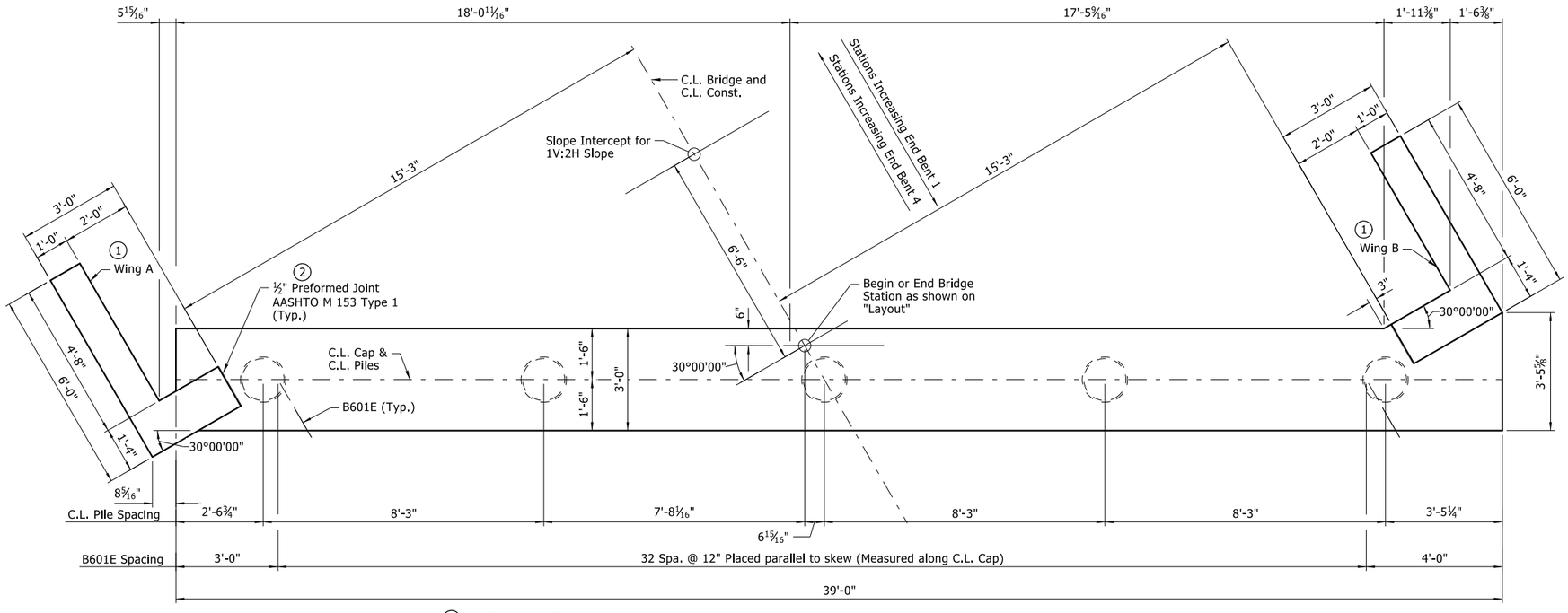
BRIDGE ENGINEER
PRINT DATE: 3/27/2024

SHEET 2 OF 2
LAYOUT OF BRIDGE
WRAPE ROAD OVER LITTLE BAYOU METO
LITTLE BAYOU METO STRS. & APPRS. (S)
JEFFERSON COUNTY
WRAPE ROAD
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	JPC	DATE:	SEP. 2022	FILENAME:	b020784x2_l1.dgn
CHECKED BY:	CDB	DATE:	JUNE 2023		
DESIGNED BY:	JPC	DATE:	SEP. 2022	SCALE:	1" = 20'
BRIDGE NO.	07683			DRAWING NO.	67358

JUCARNEY 3/27/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	61	89
		07683		- END BENTS -		67359



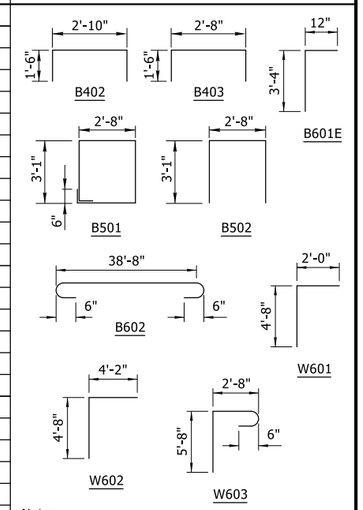
1 See Dwg. No. 67360 for additional details.

2 Preformed joint filler shall be subsidiary to the item "CLASS S CONCRETE - BRIDGE".

PLAN
Bents 1 and 4
½" = 1'-0"

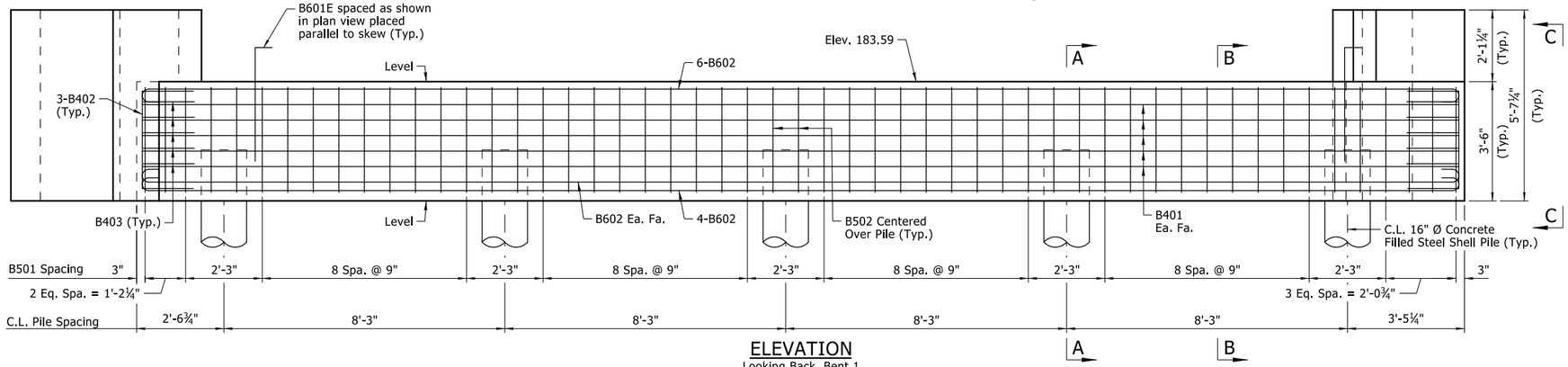
BAR LIST - PER BENT

MARK	NO. REQ'D	LENGTH	PIN. DIA.	BENDING DIAGRAMS
B401	10	38'-8"	Str.	
B402	6	5'-8"	2"	
B403	10	5'-6"	2"	
B501	43	12'-0"	2½"	
B502	10	8'-8"	2½"	
B601E	33	4'-2"	4½"	
B602	12	40'-0"	4½"	
W401	40	5'-2"	Str.	
W601	4	6'-6"	4½"	
W602	8	8'-8"	4½"	
W603	12	8'-10"	4½"	

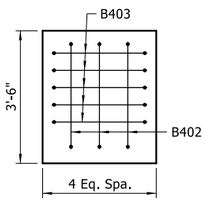


Note:
Dimensions of bars are out-to-out.
All bars designated with an "E" suffix are to be epoxy coated.

Note:
For "SECTION A-A" and "SECTION B-B", See Dwg. No. 67360.



ELEVATION
Looking Back, Bent 1
Looking Ahead, Bent 4
½" = 1'-0"



VIEW C-C
½" = 1'-0"

Note:
Wing and Longitudinal and Transverse Reinforcement in cap omitted for clarity. 3'-5⅝" width end of cap shown, 3'-0" width end similar.

GENERAL NOTES

All concrete in end bent cap shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. All exposed corners shall be chamfered ¾" unless noted otherwise.

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

All piling shall be Grade 3, Fy = 45 ksi, and shall conform to Std. Dwg. No. 55021.

For additional information, see Layout.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 03-22-2024
BRIDGE ENGINEER
PRINT DATE: 3/22/2024

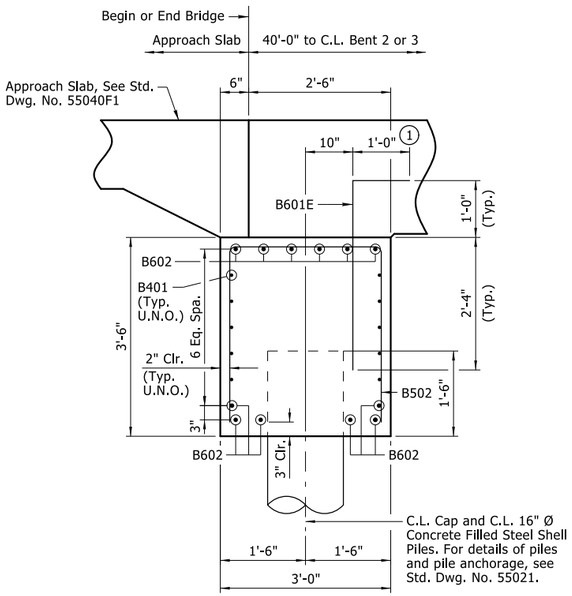
SHEET 1 OF 2
DETAILS OF END BENTS
WRAPE RD. OVER LITTLE BAYOU METO
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

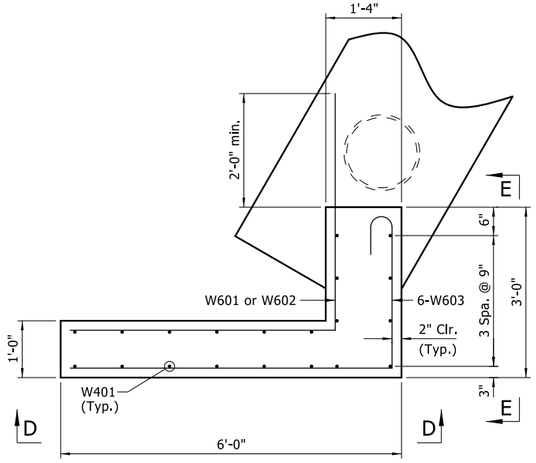
DRAWN BY:	JPC	DATE:	NOV. 2023	FILENAME:	b020784x2_b1.dgn
CHECKED BY:	LWM	DATE:	DEC. 2023		
DESIGNED BY:	JPC	DATE:	NOV. 2023	SCALE:	As Shown
BRIDGE NO.	07683			DRAWING NO.	67359

3/22/2024
JUCARNEY

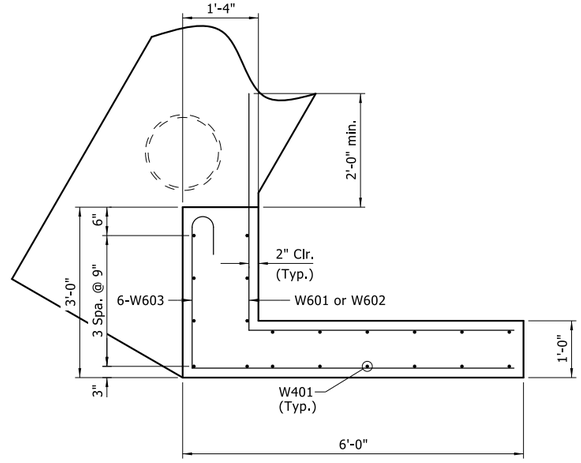
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	62	89
		07683		- END BENTS -		67360



SECTION A-A

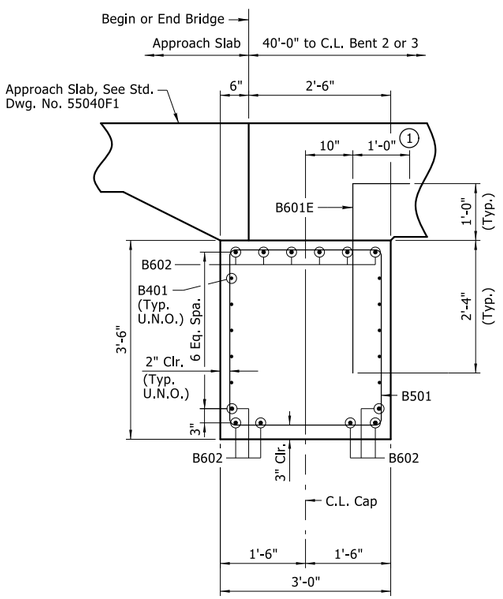


PLAN OF WING A

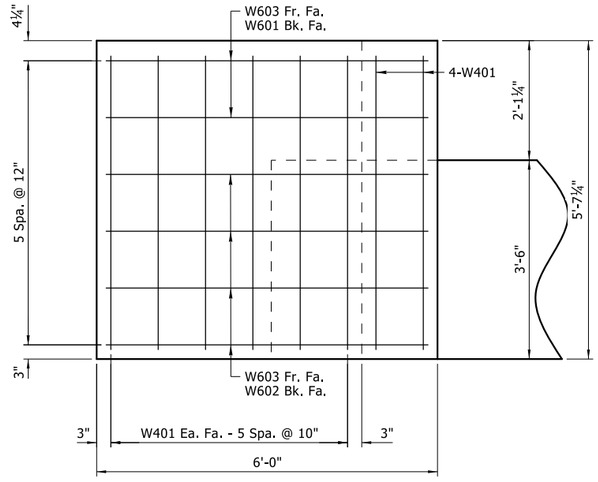


PLAN OF WING B

1 Measured along bar placed parallel to skew.

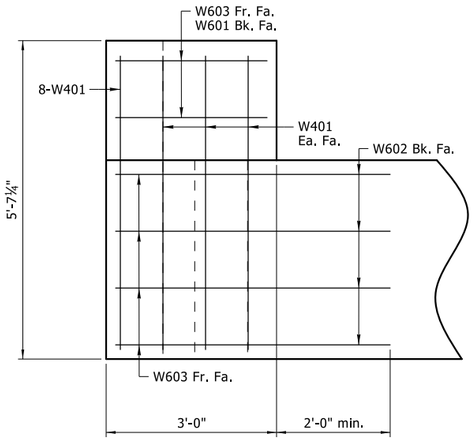


SECTION B-B



VIEW D-D

Shown for Wing A, Wing B similar



VIEW E-E

Shown for Wing A, Wing B similar

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 03-22-2024

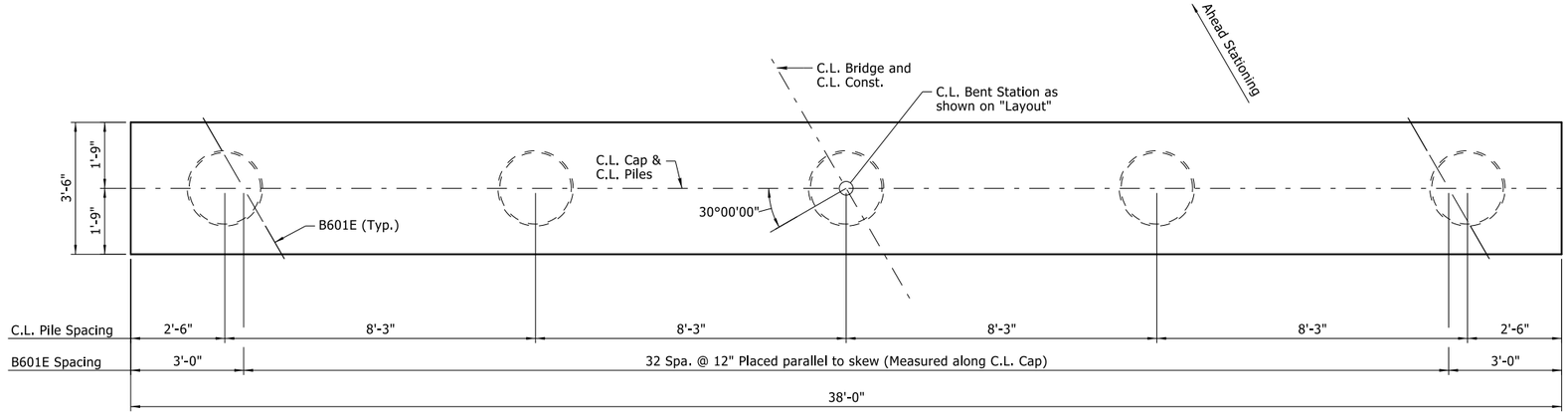
BRIDGE ENGINEER
PRINT DATE: 3/22/2024

SHEET 2 OF 2
DETAILS OF END BENTS
WRAPE RD. OVER LITTLE BAYOU METO
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

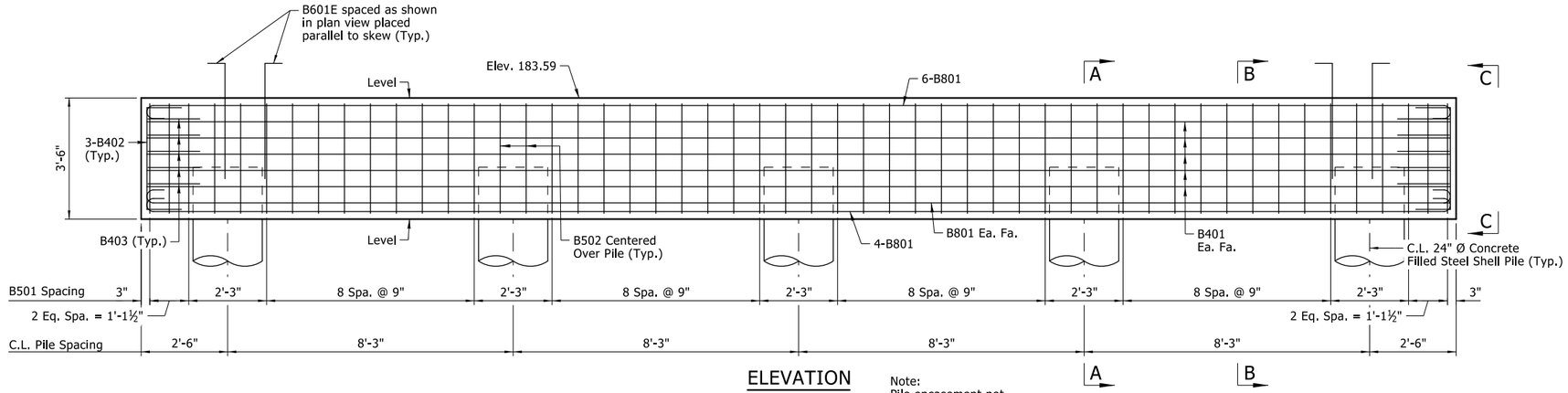
DRAWN BY:	JPC	DATE:	NOV. 2023	FILENAME: b020784x2_b1.dgn
CHECKED BY:	LWM	DATE:	DEC. 2023	
DESIGNED BY:	JPC	DATE:	NOV. 2023	SCALE: ¾" = 1'-0"
BRIDGE NO.	07683		DRAWING NO.	67360

JUCARNEY 3/22/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	63	89
		07683		- INT. BENTS -		67361



PLAN
½" = 1'-0"

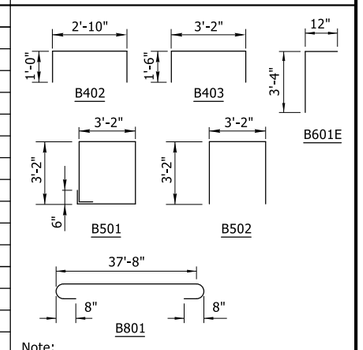


ELEVATION
Looking Ahead
½" = 1'-0"

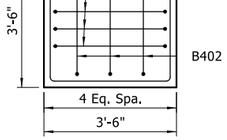
Note:
Pile encasement not shown for clarity.

BAR LIST - PER BENT

MARK	NO. REQ'D	LENGTH	PIN. DIA.	BENDING DIAGRAMS
B401	10	37'-8"	Str.	
B402	6	4'-8"	2"	
B403	10	6'-0"	2"	
B501	42	13'-2"	2½"	
B502	10	9'-4"	2½"	
B601E	66	4'-2"	4½"	
B801	12	39'-6"	6"	

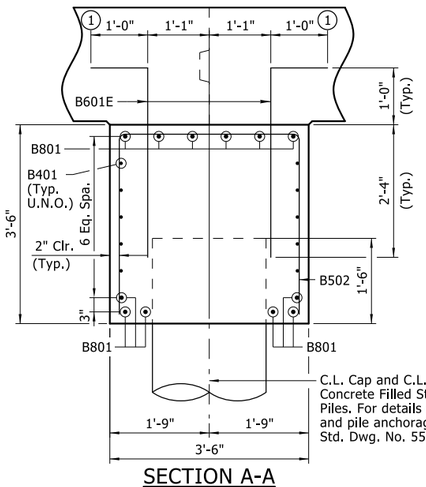


Note:
Dimensions of bars are out-to-out.
All bars designated with an "E" suffix are to be epoxy coated.

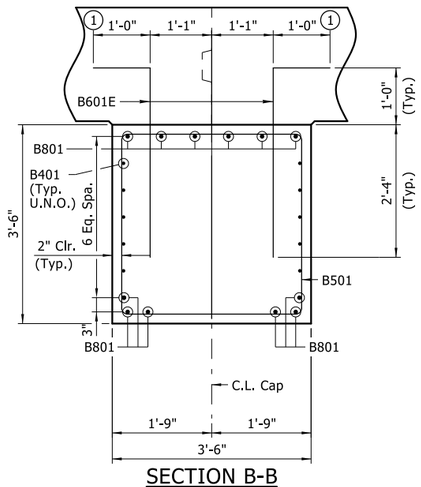


Note:
Longitudinal Bars in cap omitted for clarity.

VIEW C-C
½" = 1'-0"



SECTION A-A
¾" = 1'-0"



SECTION B-B
¾" = 1'-0"

(1) Measured along bar placed parallel to skew.

GENERAL NOTES

All concrete in end bent cap shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. All exposed corners shall be chamfered ¾" unless noted otherwise.

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

All piling shall be Grade 3, Fy = 45 ksi, and shall conform to Std. Dwg. No. 55021.

For additional information, see Layout.

JUCARNEY 3/22/2024

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 03-22-2024
BRIDGE ENGINEER
PRINT DATE: 3/22/2024

DETAILS OF INTERMEDIATE BENTS
WRAPE RD. OVER LITTLE BAYOU METO
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	JPC	DATE:	NOV. 2023	FILENAME:	b020784x2_b1.dgn
CHECKED BY:	LWM	DATE:	DEC. 2023		
DESIGNED BY:	JPC	DATE:	NOV. 2023	SCALE:	As Shown
BRIDGE NO.	07683			DRAWING NO.	67361

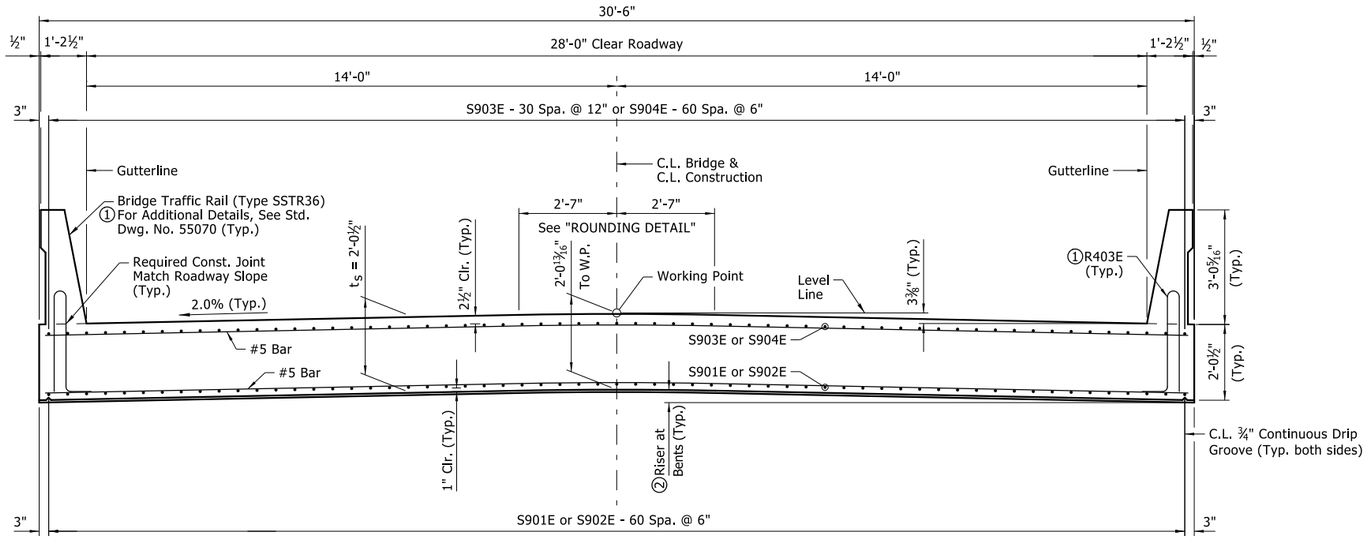
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	64	89
		07683		- 120'-0" UNIT -		67362

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 hi-chairs with full length lower runners directly on removable deck forms will not be allowed.

Class 2 Protective Surface Treatment shall be applied to the Roadway Surface and the Roadway Face and Top of Concrete Bridge Rail.

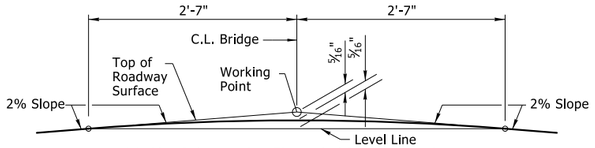
① Bar R403E dimensions and R403E bending diagram on Std. Dwg. No. 55070 shall not be used. See "BAR LIST" for R403E dimensions and bending diagram to be used. Minimum embedment of R403E bars into the slab shall be 22 inches.

② Riser varies from ¾" min. at edge of deck to 4⅛" at C.L. Bridge.



TYPICAL SECTION

Looking Ahead
½" = 1'-0"

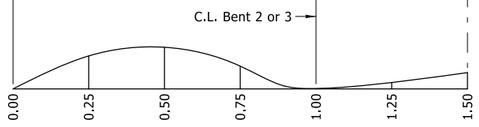


Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

No Scale

Note: Working Point matches Theoretical Grade



DEAD LOAD CAMBER DIAGRAM

No Scale

DEAD LOAD DEFLECTIONS

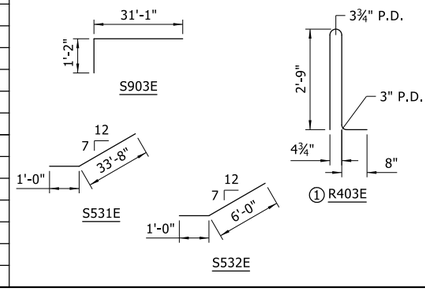
POINT	TOTAL DEFLECTION
0.00	0.000"
0.25	0.234"
0.50	0.300"
0.75	0.164"
1.00	0.000"
1.25	0.012"
1.50	0.040"

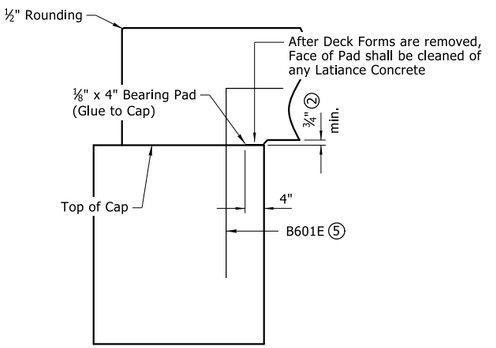
Symmetrical About This Point

Deflections shown are from a chord from C.L. Bent to C.L. Bent. Tolerance +¼" for camber and vertical alignment.

BAR LIST

MARK	NO. REQ'D	LENGTH	PIN. DIA.	BENDING DIAGRAMS
S501E	416	30'-2"	Str.	Note: Dimensions of bars are out-to-out. All bars designated with an "E" suffix are to be epoxy coated. For bars R400E and R401E see Std. Dwg. No. 55070.
S502E to S530E	4 each	3'-10" to 28'-1"	Str.	
S531E	4	34'-8"	3¾"	
S532E	8	7'-0"	3¾"	
S901E	122	50'-0"	Str.	
S902E	61	29'-8"	Str.	
S903E	62	32'-0"	9"	
S904E	122	37'-9"	Str.	
R400E	48	5'-3"	2½"	
R401E	456	6'-4"	2½"	
R402E	64	5'-6"	Str.	
R403E	456	5'-9"	3¾"	
R404E	96	11'-8"	Str.	
R405E	48	15'-8"	Str.	





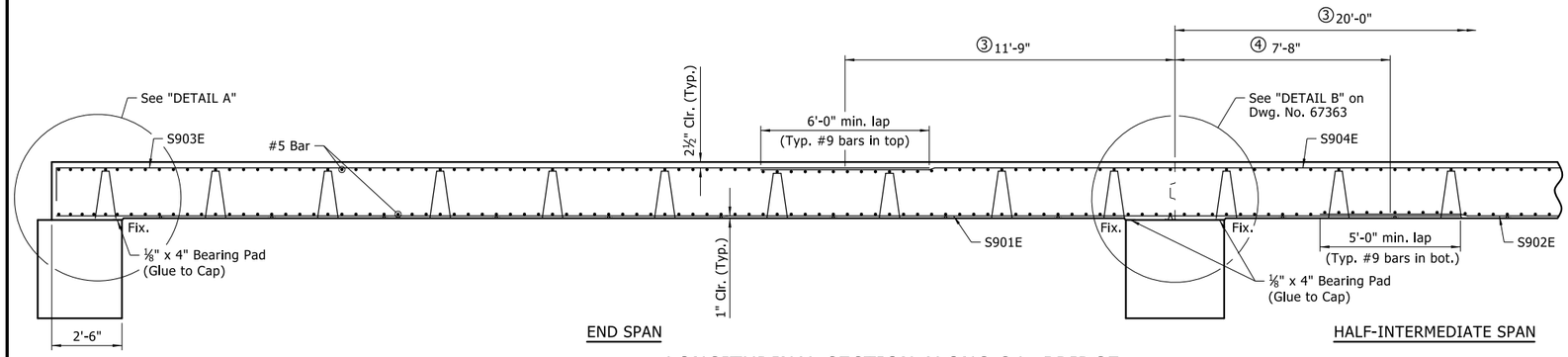
⑤ See Bent Details on Dwg. Nos. 67359 and 67360 for additional details.

DETAIL A

¾" = 1'-0"

③ Distance to C.L. Splices in Top of Slab.

④ Distance to C.L. Splices in Bottom of Slab.



END SPAN — HALF-INTERMEDIATE SPAN

LONGITUDINAL SECTION ALONG C.L. BRIDGE

⅜" = 1'-0"

See "TOP OF SLAB REINFORCING PLAN, RAIL PLAN, & SLAB POURING SEQUENCE" and "BOTTOM OF SLAB REINFORCING PLAN" on Dwg. No. 67363 for additional information.

GENERAL NOTES

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

The 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 on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. The use of a longitudinal screed is not permitted.

BEARING PAD:
The ⅛" bearing pad shall be an unreinforced pad meeting the requirements of Section 808, or shall be nylon reinforced neoprene meeting the requirements of Subsection 807.20. The pad shall be furnished in one piece for the required width and full length of the bearing and glued to the bent cap with an adhesive approved by the Engineer. Pads and adhesive will not be paid for directly, but will be considered subsidiary to the item "CLASS S(AE) CONCRETE-BRIDGE".

REINFORCING STEEL:
All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports and shall be epoxy coated. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient 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)".

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

SHEET 1 OF 2
DETAILS OF 120'-0" CONTINUOUS R.C. SLAB UNIT
WRAPE RD. OVER LITTLE BAYOU METO

ROUTE SECTION

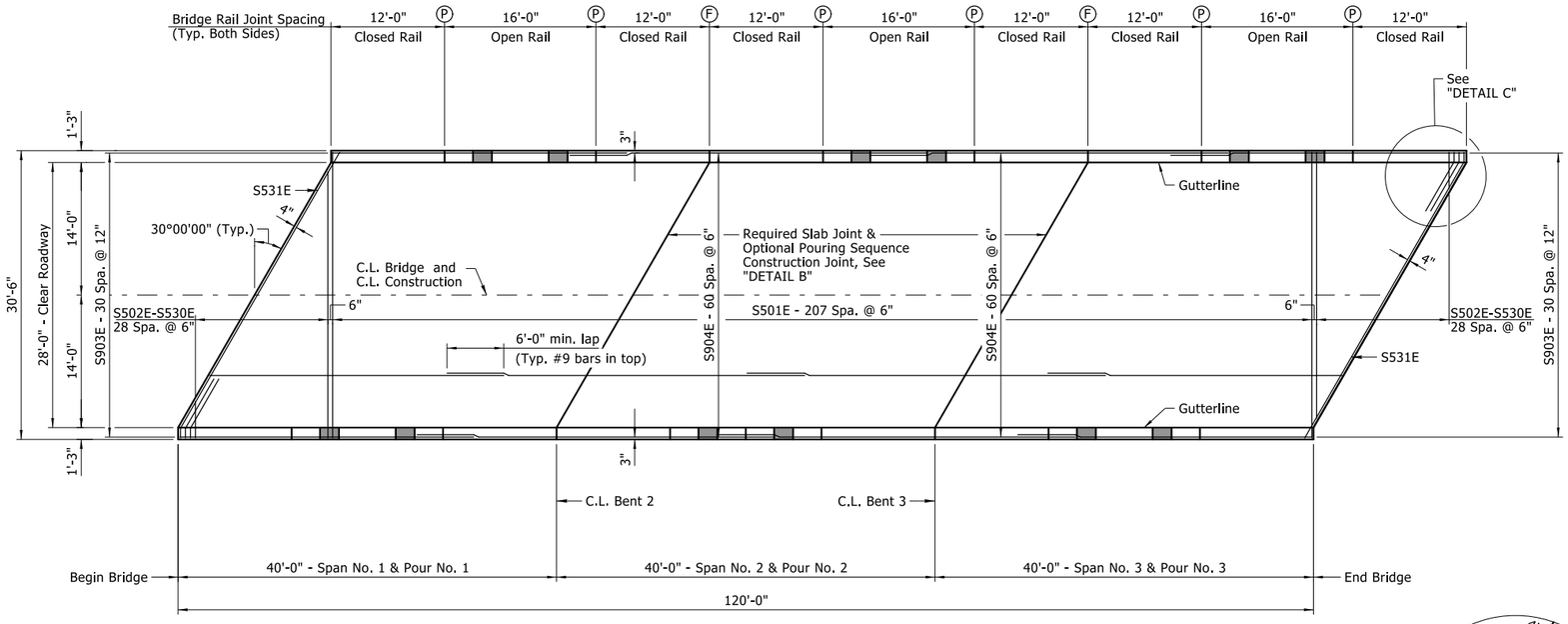
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DIGITALLY SIGNED 03-22-2024
BRIDGE ENGINEER
PRINT DATE: 3/22/2024

DRAWN BY: JPC DATE: NOV. 2023 FILENAME: b020784x2_s1.dgn
CHECKED BY: LWM DATE: DEC. 2023
DESIGNED BY: JPC DATE: NOV. 2023 SCALE: As Shown
BRIDGE NO. 07683 DRAWING NO. 67362

3/22/2024
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	65	89
		07683		- 120'-0" UNIT -		67363



TOP OF SLAB REINFORCING PLAN, RAIL PLAN, & SLAB POURING SEQUENCE

⅛" = 1'-0"

Note:
The Contractor may pour the entire bridge slab unit at once or may elect to form and pour the slab unit in sections according to the pouring sequence shown. No part of the falsework for the entire section shall be removed until all of the concrete in that section of the bridge slab has been placed and cured. Before removal of falsework begins, both the time and strength requirements of Subsection 802.15 must be met. All pours shall begin at one end of the bridge and proceed in sequence to the other end of the bridge. 72 hours shall elapse between the end of a pour and the start of the next pour. Concrete in the 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. 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(s) shown.

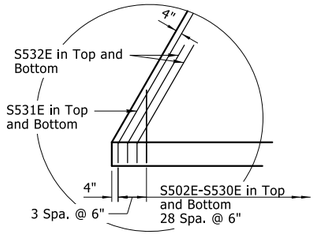
(F) Full depth parapet joint at this location. (Stop 6" above top of slab)

(P) Partial depth parapet joint at this location. (Stop 1'-4" above top of slab)

Reinforcing steel placed as shown in "TYPICAL SECTION" on Dwg. No. 67362.

Rail panel spacing and joint depth shown are typical for both sides of roadway. For additional reinforcing details, see Std. Dwg. No. 55070.

For "BAR LIST" and "GENERAL NOTES", see Dwg. No. 67362.



DETAIL C

Begin Bridge RT. shown, End Bridge LT. similar

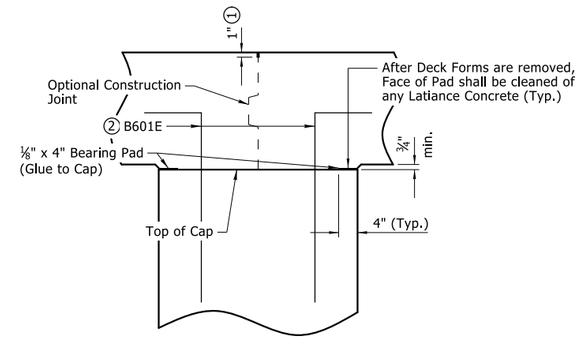
¼" = 1'-0"

TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels				
Panel Length	A	R4XXE	Panel Length	B	C	D	E	R4XXE
12'-0"	22	R404E	16'-0"	8	3'-0"	11	6'-0"	R405E

Note: For bridge traffic rail reinforcing details and details of partial-depth and full-depth rail joints, see Std. Dwg. No. 55070.

Bar R403E dimensions and R403E bending diagram on Std. Dwg. No. 55070 shall not be used. See "BAR LIST" on Dwg. No. 67362 for R403E dimensions and bending diagram to be used. Minimum embedment of R403E bars into the slab shall be 22 inches.

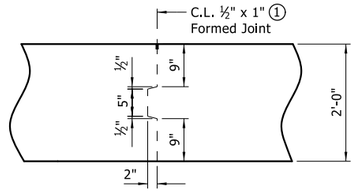


DETAIL B

¾" = 1'-0"

(1) ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02 (h) and 501.05 (j). Backer rod shall not be installed. Joint Sealer shall be measured and paid for as "CLASS S(AE) CONCRETE - BRIDGE". Slab joints shall extend to the outside edge of the deck slab and shall align with open joints at the front face of bridge rail, unless noted otherwise. Slab joints shall be installed before the bridge railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck from gutterline to gutterline. Seal color shall be gray or other color similar to concrete.

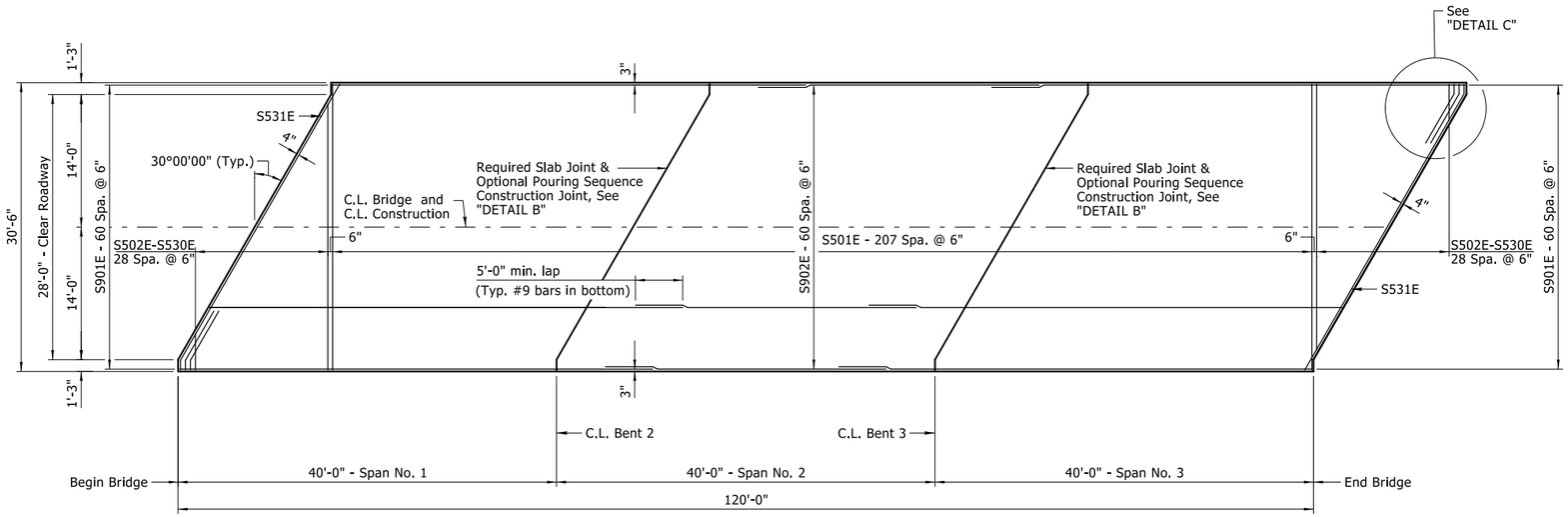
(2) See Bent Details on Dwg. No. 67361 for additional details.



Joint to be cleaned by sandblasting or other approved method before pouring joint sealer.

OPTIONAL DECK SLAB CONST. JOINT DETAIL

¾" = 1'-0"



BOTTOM OF SLAB REINFORCING PLAN

⅛" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 03-22-2024
BRIDGE ENGINEER
PRINT DATE: 3/22/2024

SHEET 2 OF 2
DETAILS OF 120'-0" CONTINUOUS R.C. SLAB UNIT
WRAPE RD. OVER LITTLE BAYOU METO

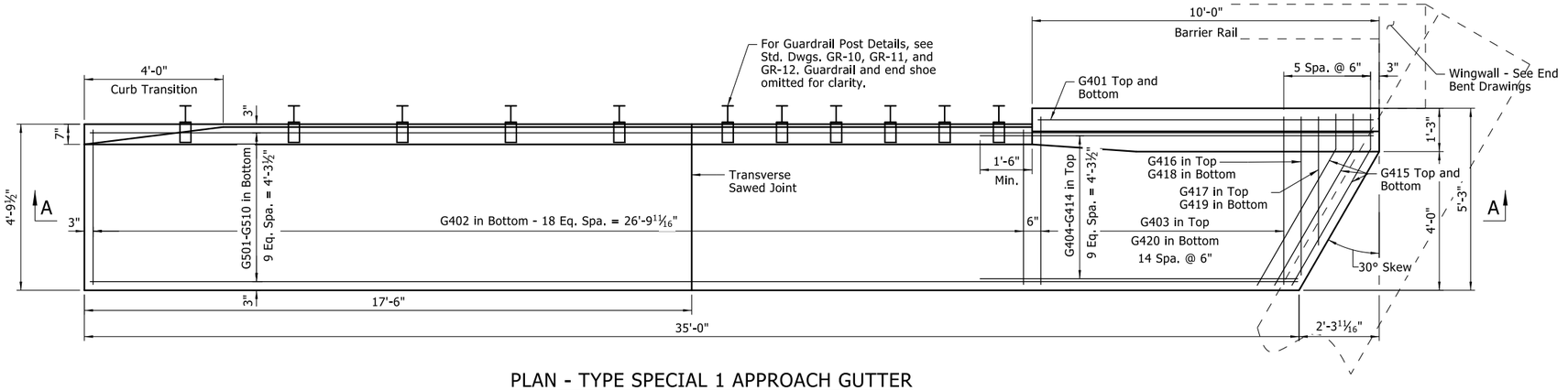
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	JPC	DATE:	NOV. 2023	FILENAME: b020784x2_s1.dgn
CHECKED BY:	LWM	DATE:	DEC. 2023	
DESIGNED BY:	JPC	DATE:	NOV. 2023	SCALE: As Shown
BRIDGE NO.	07683			DRAWING NO. 67363

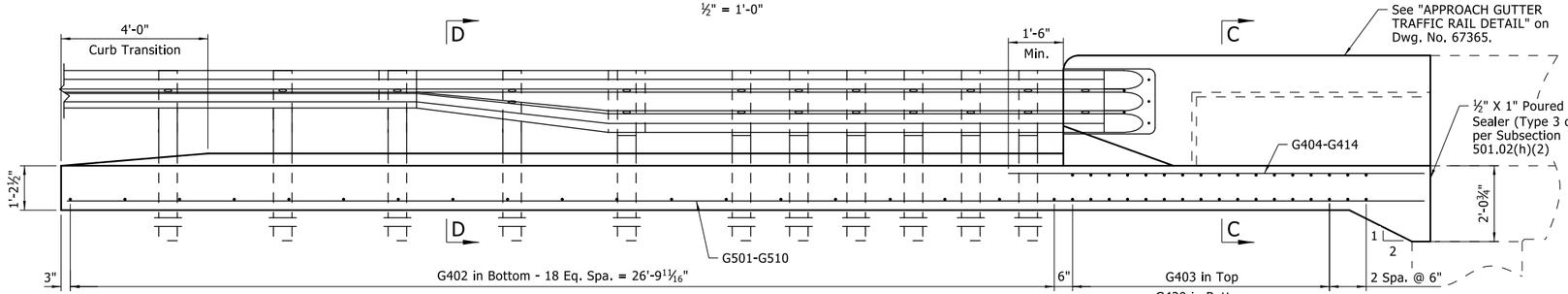
3/22/2024
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	66	89
		07683	- APPROACH GUTTERS -			67364



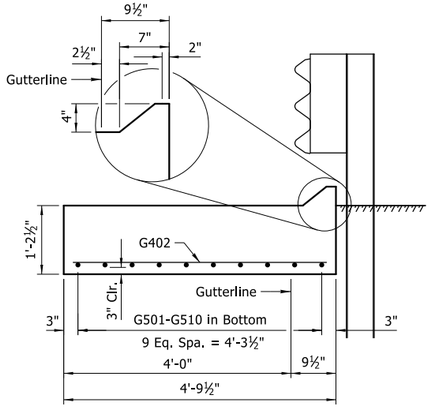
PLAN - TYPE SPECIAL 1 APPROACH GUTTER

½" = 1'-0"



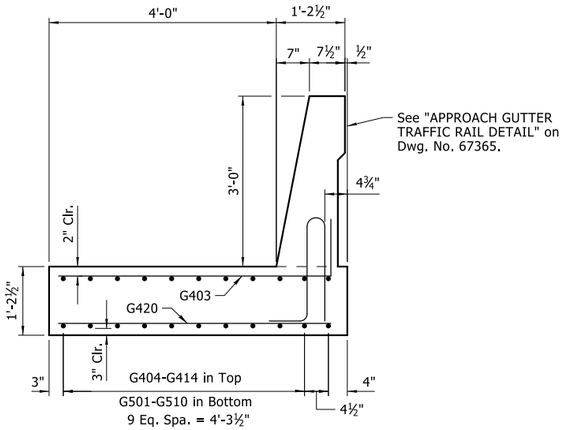
SECTION A-A

½" = 1'-0"



SECTION D-D

¾" = 1'-0"



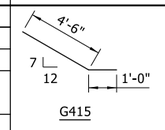
SECTION C-C

¾" = 1'-0"

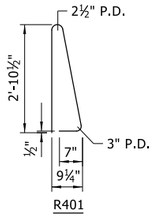
BAR LIST - PER TYPE SPECIAL 1 APPROACH GUTTER

MARK	NO. REQ'D	LENGTH	PIN. DIA.
G401	2	9'-8"	Str.
G402	19	4'-5"	Str.
G403	15	5'-9"	3"
G404 to G414	1 each	9'-2" to 11'-4"	Str.
G415	6	5'-6"	3"
G416	1	5'-5"	3"
G417	1	4'-7"	3"
G418	1	4'-6"	Str.
G419	1	3'-8"	Str.
G420	15	4'-10"	Str.
G501 to G510	1 each	34'-9" to 37'-0"	Str.
R401	20	6'-4"	2½"
R402	20	4'-4"	3"
R403	8	9'-8"	Str.
R404	4	3'-6"	Str.

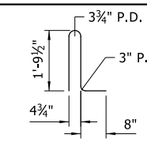
BENDING DIAGRAMS



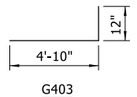
G415



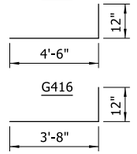
R401



R402



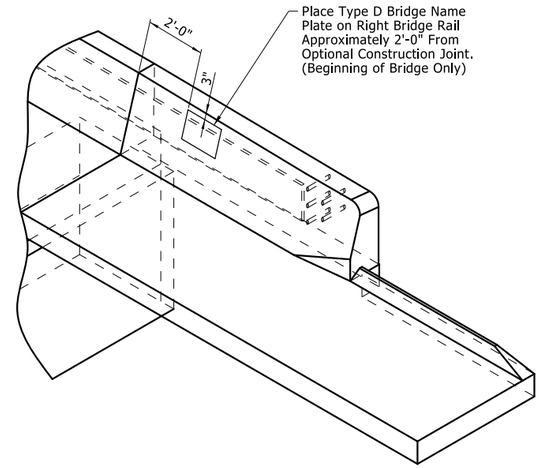
G403



G416

G417

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



THREE DIMENSIONAL VIEW OF APPROACH GUTTER AND RAIL AT END BENT

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.

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.

QUANTITIES FOR ONE TYPE SPECIAL 1 APPROACH GUTTER

Reinforcing Steel	Concrete
Lbs.	Cu. Yds.
855	9.21

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18018
JUSTIN P. CARNEY

DIGITALLY SIGNED 03-22-2024

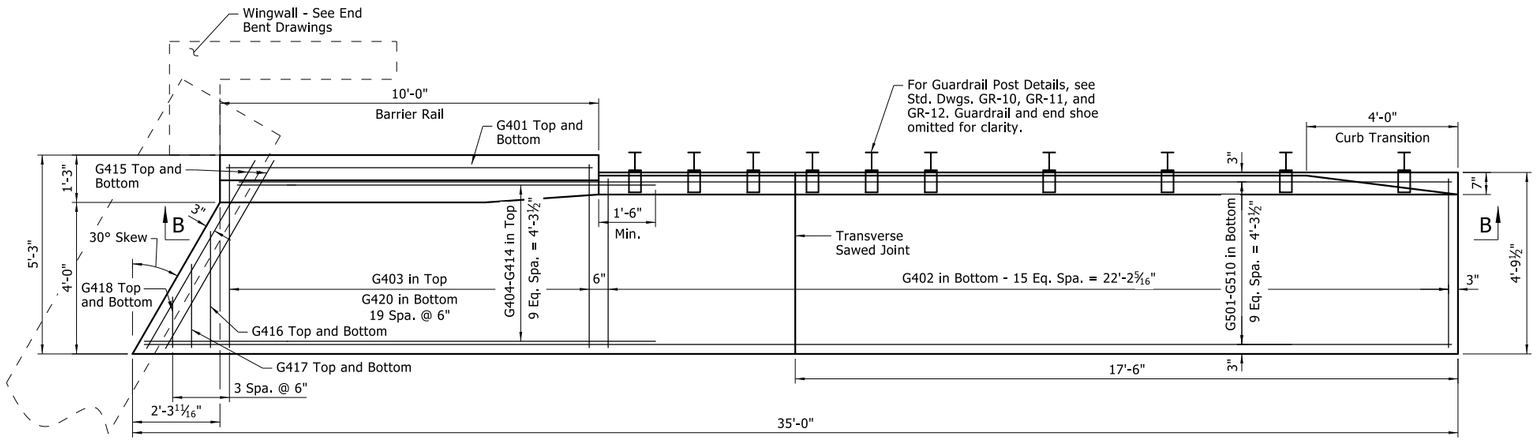
BRIDGE ENGINEER
PRINT DATE: 3/22/2024

DRAWN BY: SE DATE: NOV. 2023
CHECKED BY: LWM DATE: DEC. 2023
DESIGNED BY: JPC DATE: NOV. 2023
BRIDGE NO. 07683
DRAWING NO. 67364
FILENAME: b020784x2_as1.dgn
SCALE: As Shown

SHEET 1 OF 2
DETAILS OF TYPE SPECIAL APPROACH GUTTERS
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

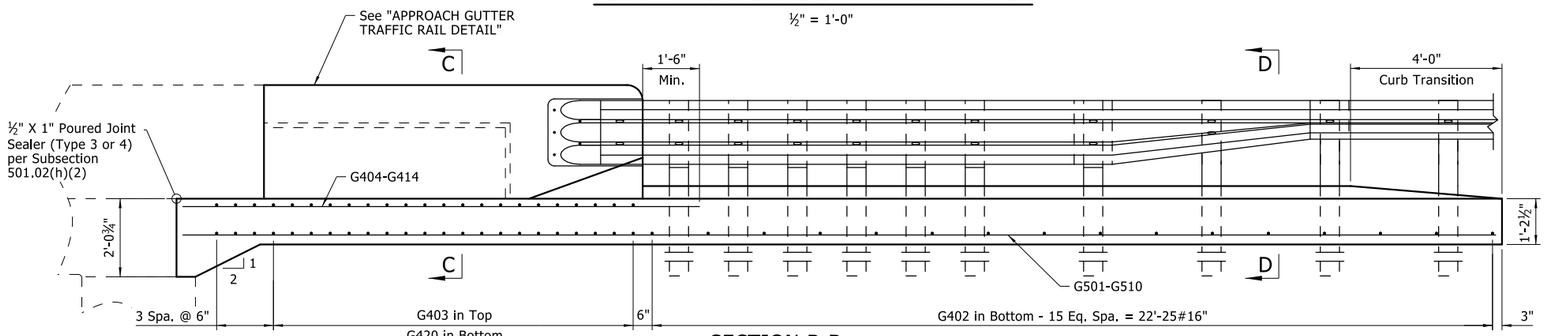
3/22/2024 JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	67	89
		07683	- APPROACH GUTTERS -			67365



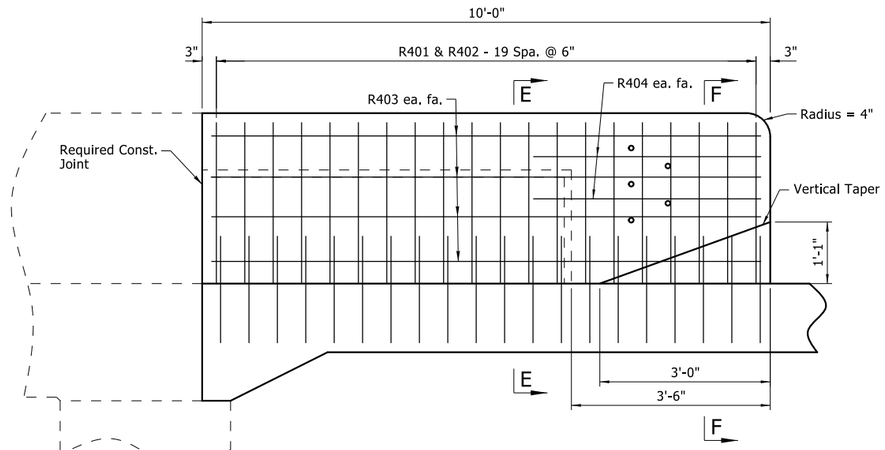
PLAN - TYPE SPECIAL 2 APPROACH GUTTER

½" = 1'-0"



SECTION B-B

½" = 1'-0"



APPROACH GUTTER TRAFFIC RAIL DETAIL

¾" = 1'-0"

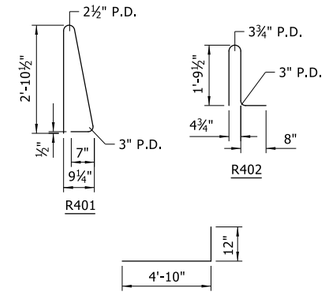
Notes:
For "SECTION C-C" and "SECTION D-D", see Dwg. No. 67364.

For reinforcement details, rail terminus details and other information for the Approach Gutter Traffic Rail, see Std. Dwg. No. 55070.

See Roadway Plans for guardrail locations.

BAR LIST - PER TYPE SPECIAL 2 APPROACH GUTTER

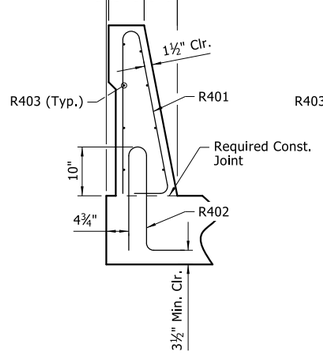
MARK	NO. REQ'D	LENGTH	PIN. DIA.	BENDING DIAGRAMS
G401	2	9'-8"	Str.	
G402	16	4'-5"	Str.	
G403	20	5'-9"	3"	
G404 to G414	1 each	11'-0" to 13'-6"	Str.	
G415	4	5'-8"	Str.	
G416	2	3'-0"	Str.	
G417	2	2'-2"	Str.	
G418	2	1'-4"	Str.	
G420	20	4'-10"	Str.	
G501 to G510	1 each	32'-0" to 34'-6"	Str.	
R401	20	6'-4"	2½"	
R402	20	4'-4"	3"	
R403	8	9'-8"	Str.	
R404	4	3'-6"	Str.	



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

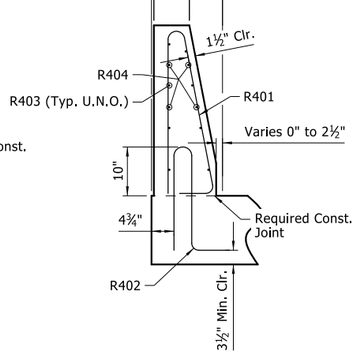
QUANTITIES FOR ONE TYPE SPECIAL 2 APPROACH GUTTER

Reinforcing Steel	Concrete
Lbs.	Cu. Yds.
857	8.62



SECTION E-E

¾" = 1'-0"



SECTION F-F

¾" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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BRIDGE ENGINEER
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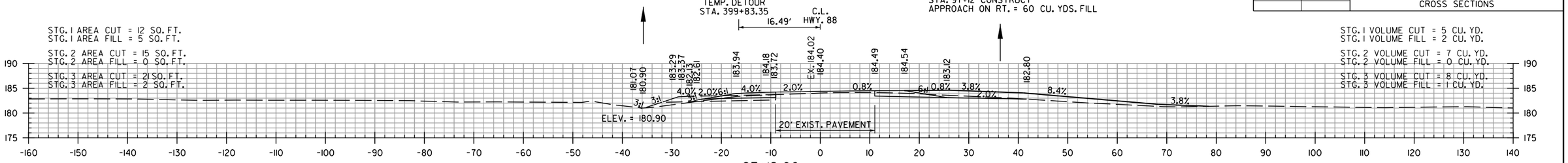
DRAWN BY: SE DATE: NOV. 2023
CHECKED BY: LWM DATE: DEC. 2023
DESIGNED BY: JPC DATE: NOV. 2023
BRIDGE NO. 07683
DRAWING NO. 67365
FILENAME: b020784x2_as1.dgn
SCALE: As Shown

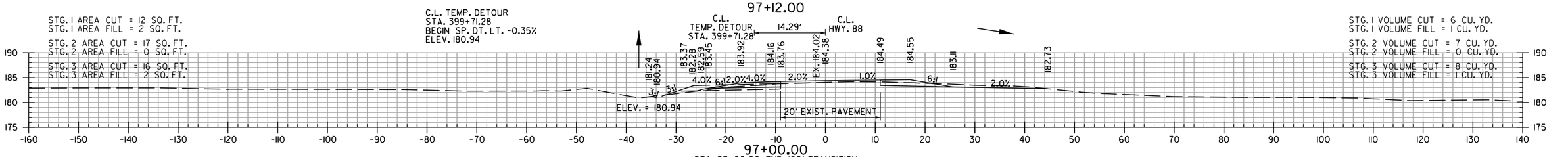
SHEET 2 OF 2
DETAILS OF TYPE SPECIAL APPROACH GUTTERS
ROUTE SECTION

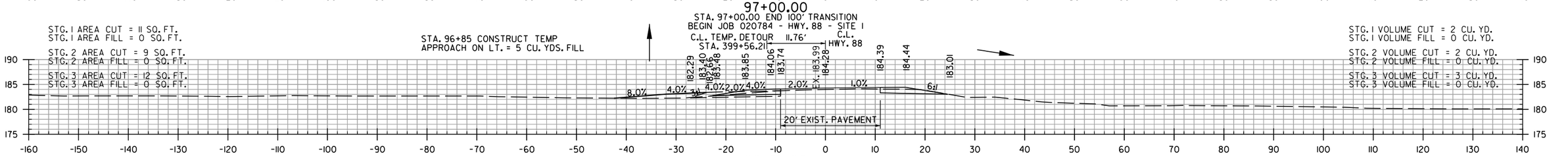
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

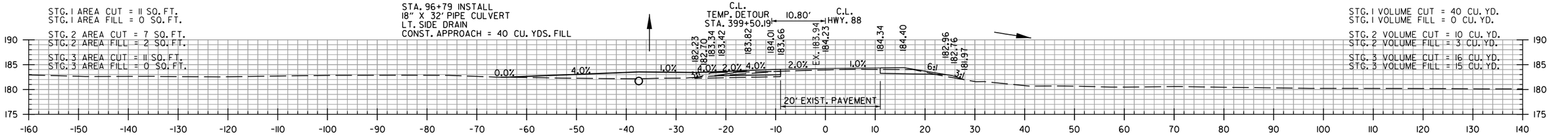
JUCARNEY 3/22/2024

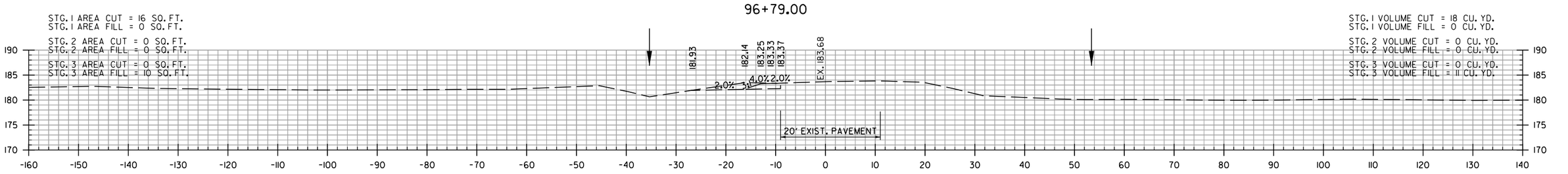
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	68	89
		CROSS SECTIONS				

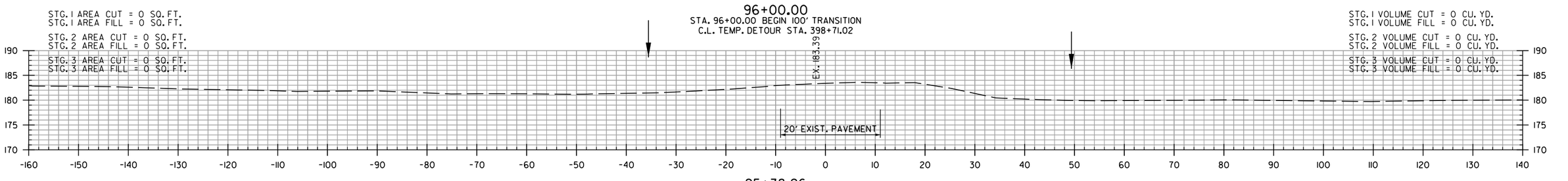








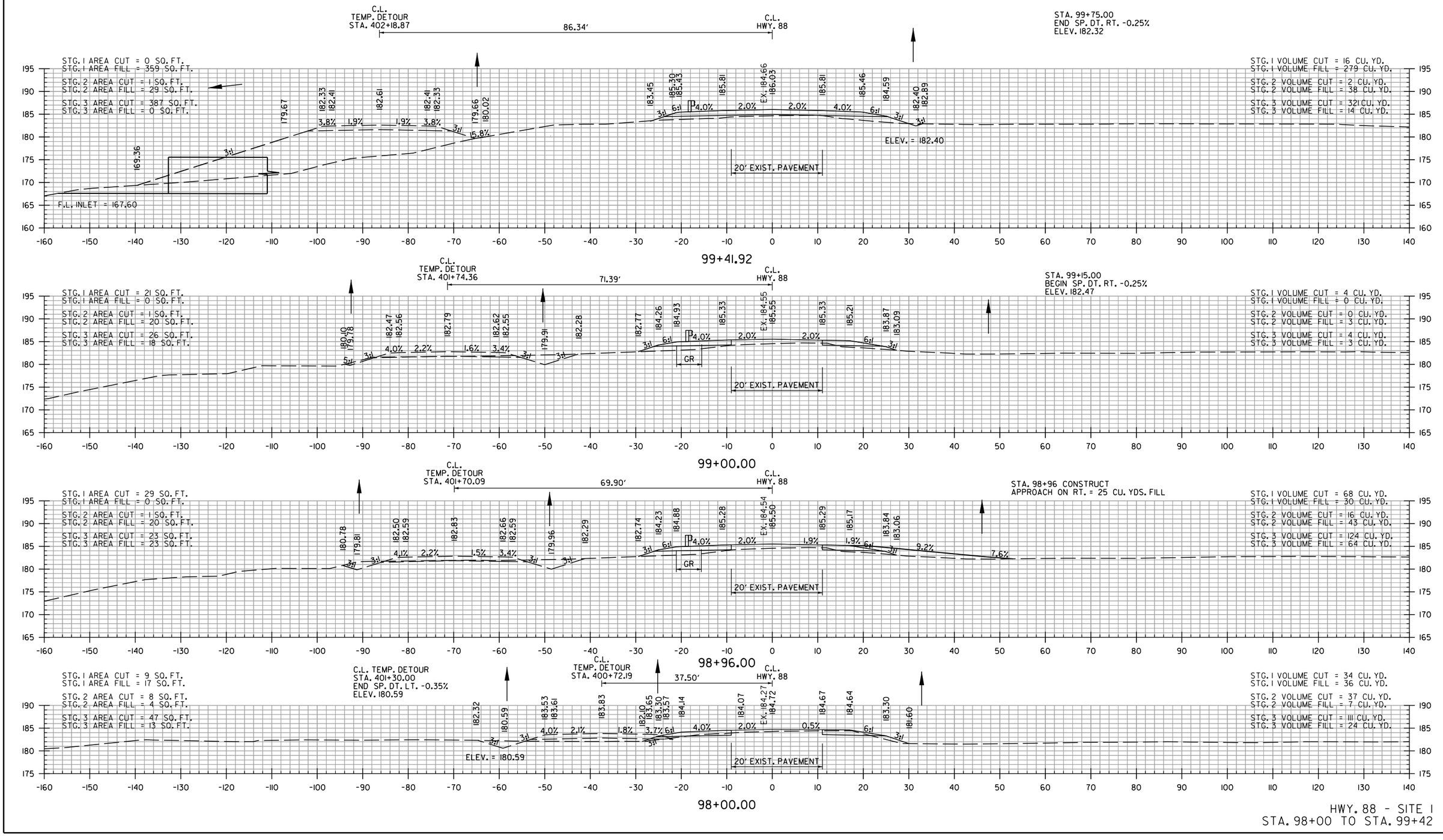




JUCARNEY 3/22/2024

HWY. 88 - SITE 1
STA. 95+38 TO STA. 97+12

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	69	89
		CROSS SECTIONS				

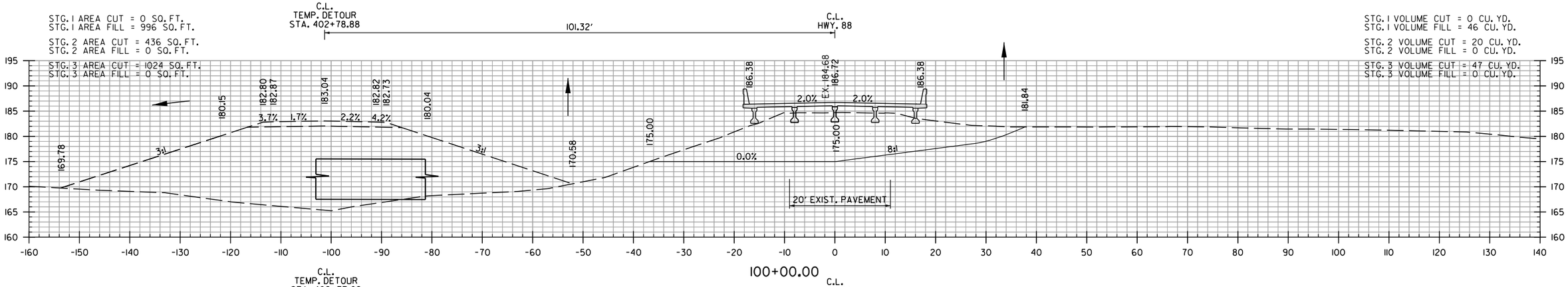


3/22/2024

JUCARNEY

HWY. 88 - SITE 1
STA. 98+00 TO STA. 99+42

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	70	89
		CROSS SECTIONS				



JUCARNEY 3/22/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	71	89
		CROSS SECTIONS				

C.L. TEMP DETOUR STA. 403+71 INSTALL
18" X 46' PIPE CULVERT
LT. SIDE DRAIN
CONST. TEMP APPROACH = 115 CU. YDS. FILL

STG. 1 AREA CUT = 0 SQ. FT.
STG. 1 AREA FILL = 274 SQ. FT.

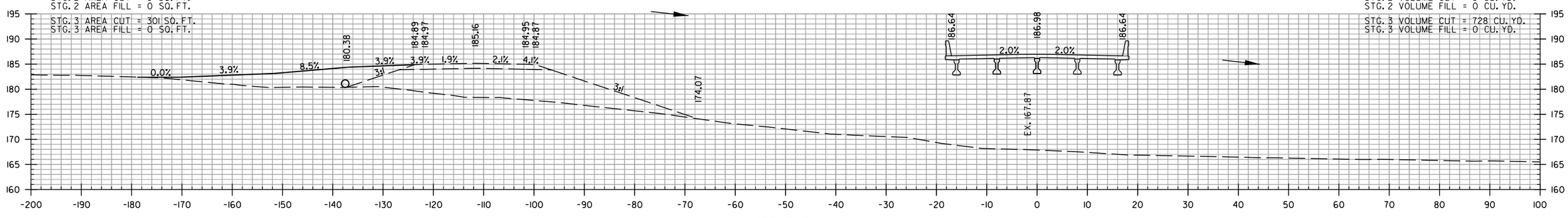
STG. 2 AREA CUT = 0 SQ. FT.
STG. 2 AREA FILL = 0 SQ. FT.

STG. 3 AREA CUT = 301 SQ. FT.
STG. 3 AREA FILL = 0 SQ. FT.

STG. 1 VOLUME CUT = 0 CU. YD.
STG. 1 VOLUME FILL = 691 CU. YD.

STG. 2 VOLUME CUT = 0 CU. YD.
STG. 2 VOLUME FILL = 0 CU. YD.

STG. 3 VOLUME CUT = 728 CU. YD.
STG. 3 VOLUME FILL = 0 CU. YD.



100+91.01

STG. 1 AREA CUT = 0 SQ. FT.
STG. 1 AREA FILL = 718 SQ. FT.

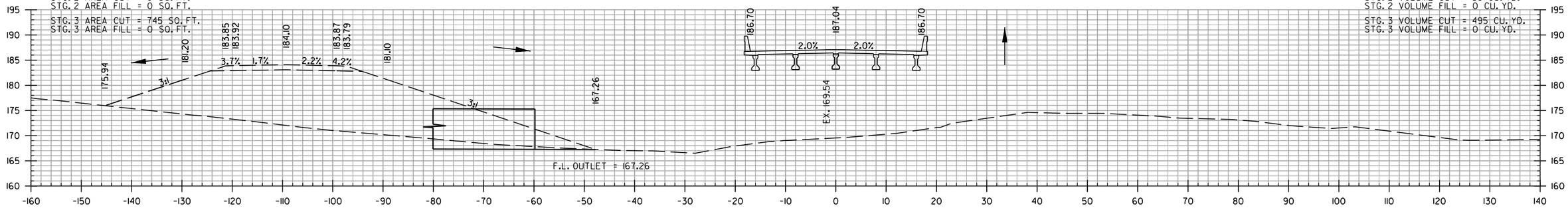
STG. 2 AREA CUT = 0 SQ. FT.
STG. 2 AREA FILL = 0 SQ. FT.

STG. 3 AREA CUT = 745 SQ. FT.
STG. 3 AREA FILL = 0 SQ. FT.

STG. 1 VOLUME CUT = 0 CU. YD.
STG. 1 VOLUME FILL = 479 CU. YD.

STG. 2 VOLUME CUT = 39 CU. YD.
STG. 2 VOLUME FILL = 0 CU. YD.

STG. 3 VOLUME CUT = 495 CU. YD.
STG. 3 VOLUME FILL = 0 CU. YD.



100+53.41

STG. 1 AREA CUT = 0 SQ. FT.
STG. 1 AREA FILL = 862 SQ. FT.

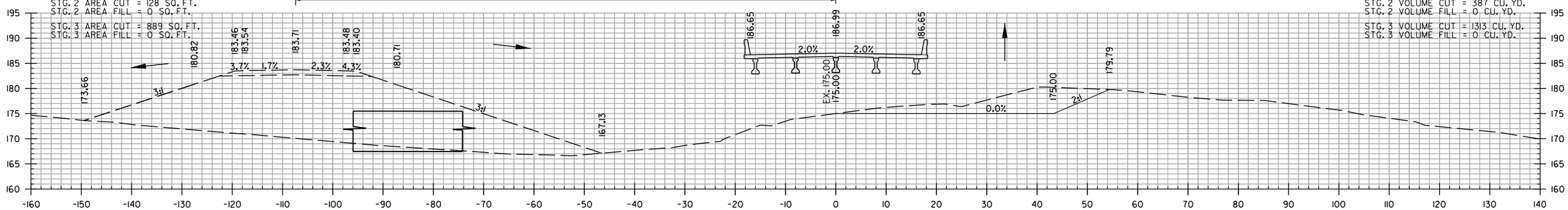
STG. 2 AREA CUT = 128 SQ. FT.
STG. 2 AREA FILL = 0 SQ. FT.

STG. 3 AREA CUT = 889 SQ. FT.
STG. 3 AREA FILL = 0 SQ. FT.

STG. 1 VOLUME CUT = 0 CU. YD.
STG. 1 VOLUME FILL = 1275 CU. YD.

STG. 2 VOLUME CUT = 387 CU. YD.
STG. 2 VOLUME FILL = 0 CU. YD.

STG. 3 VOLUME CUT = 1313 CU. YD.
STG. 3 VOLUME FILL = 0 CU. YD.

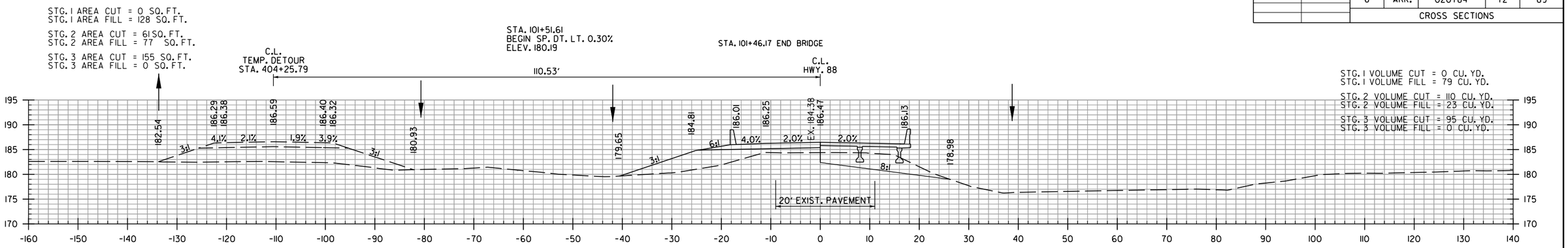


100+37.05
STA. 100+37.05 END BRIDGE EXCAVATION AT ELEVATION 175.00

HWY. 88 - SITE 1
STA. 100+37 TO STA. 100+91

JUCARNEY 3/22/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	72	89
		CROSS SECTIONS				



HWY. 88 - SITE 1
STA. 101+00 TO STA. 101+46

3/22/2024
JUGARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	73	89
		CROSS SECTIONS				

STA. 102+82.24 END HWY. 88 - SITE 1

STG. 1 AREA CUT = 0 SQ. FT.
STG. 1 AREA FILL = 0 SQ. FT.

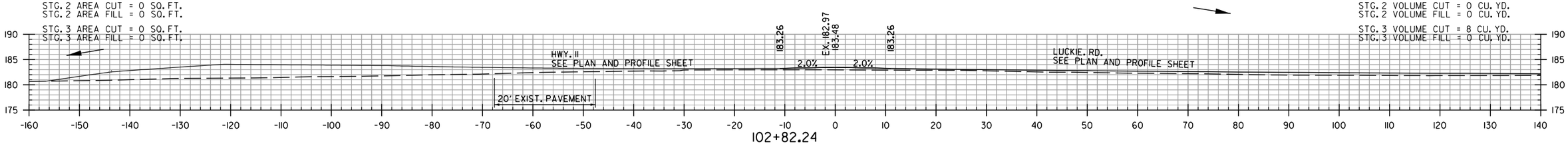
STG. 2 AREA CUT = 0 SQ. FT.
STG. 2 AREA FILL = 0 SQ. FT.

STG. 3 AREA CUT = 0 SQ. FT.
STG. 3 AREA FILL = 0 SQ. FT.

STG. 1 VOLUME CUT = 0 CU. YD.
STG. 1 VOLUME FILL = 5 CU. YD.

STG. 2 VOLUME CUT = 0 CU. YD.
STG. 2 VOLUME FILL = 0 CU. YD.

STG. 3 VOLUME CUT = 8 CU. YD.
STG. 3 VOLUME FILL = 0 CU. YD.



102+82.24

STG. 1 AREA CUT = 0 SQ. FT.
STG. 1 AREA FILL = 83 SQ. FT.

STG. 2 AREA CUT = 0 SQ. FT.
STG. 2 AREA FILL = 0 SQ. FT.

STG. 3 AREA CUT = 128 SQ. FT.
STG. 3 AREA FILL = 0 SQ. FT.

C.L.
TEMP. DETOUR
STA. 405+60.57

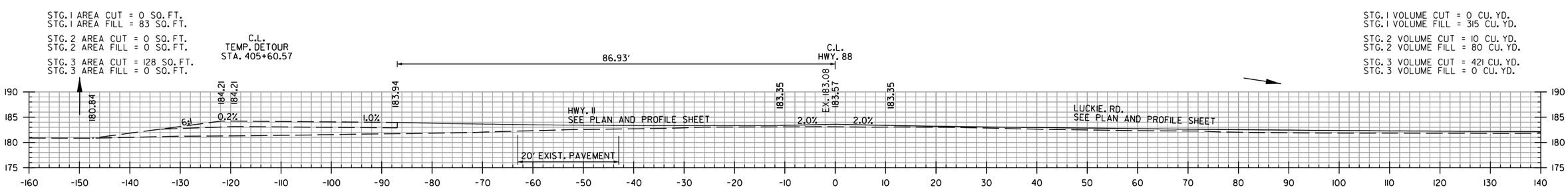
86.93'

C.L.
HWY. 88

STG. 1 VOLUME CUT = 0 CU. YD.
STG. 1 VOLUME FILL = 315 CU. YD.

STG. 2 VOLUME CUT = 10 CU. YD.
STG. 2 VOLUME FILL = 80 CU. YD.

STG. 3 VOLUME CUT = 421 CU. YD.
STG. 3 VOLUME FILL = 0 CU. YD.



102+78.70

STG. 1 AREA CUT = 0 SQ. FT.
STG. 1 AREA FILL = 133 SQ. FT.

STG. 2 AREA CUT = 7 SQ. FT.
STG. 2 AREA FILL = 55 SQ. FT.

STG. 3 AREA CUT = 161 SQ. FT.
STG. 3 AREA FILL = 0 SQ. FT.

C.L.
TEMP. DETOUR
STA. 404+80.04

103.96'

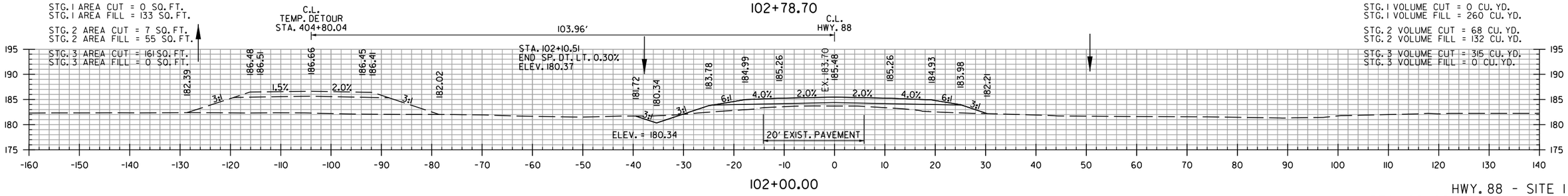
C.L.
HWY. 88

STA. 102+10.51
END SP. DT. LT. 0.30%
ELEV. 180.37

STG. 1 VOLUME CUT = 0 CU. YD.
STG. 1 VOLUME FILL = 260 CU. YD.

STG. 2 VOLUME CUT = 68 CU. YD.
STG. 2 VOLUME FILL = 132 CU. YD.

STG. 3 VOLUME CUT = 315 CU. YD.
STG. 3 VOLUME FILL = 0 CU. YD.



102+00.00

HWY. 88 - SITE 1
STA. 102+00 TO STA. 102+82

3/22/2024

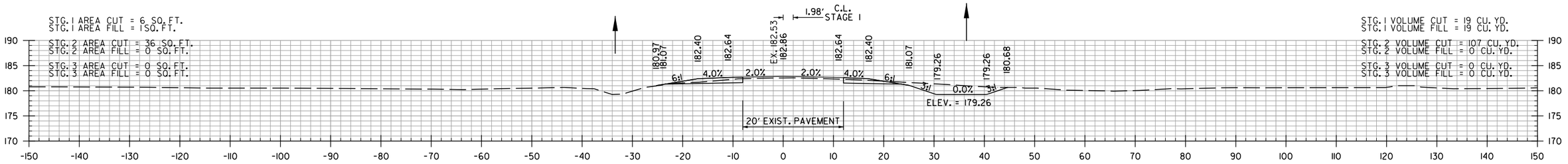
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	74	89
		CROSS SECTIONS				

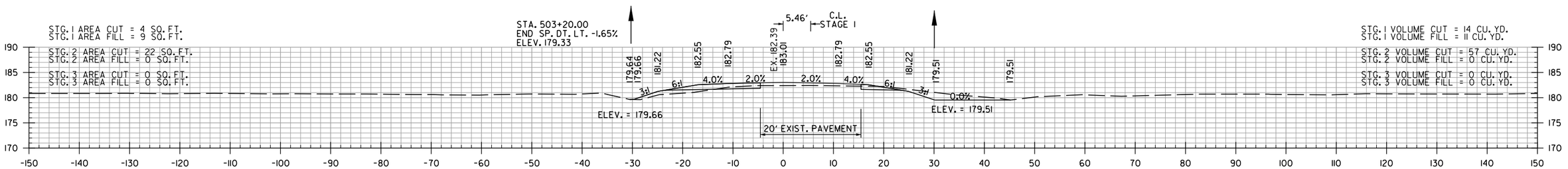
3/22/2024

JUCARNEY

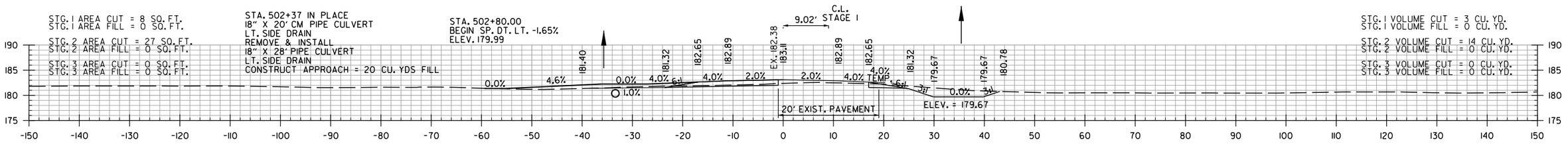
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	75	89
		CROSS SECTIONS				



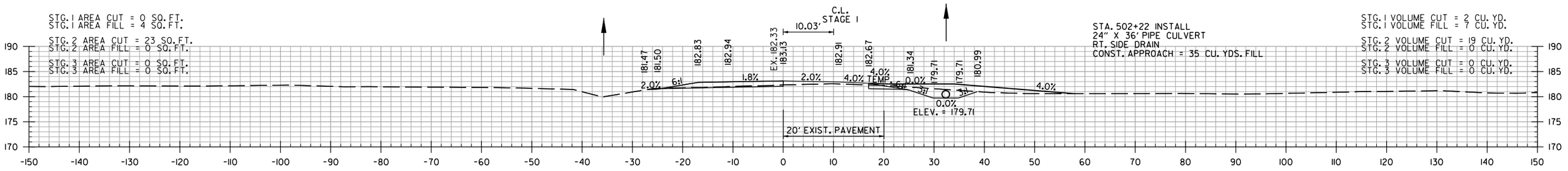
504+00.00



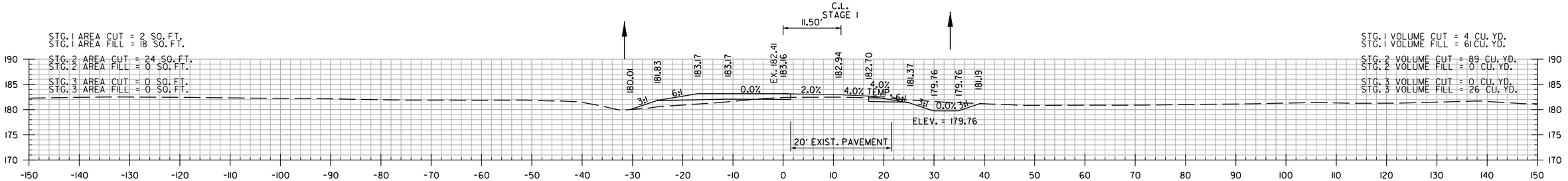
503+00.00



502+37.00



502+22.00



502+00.00

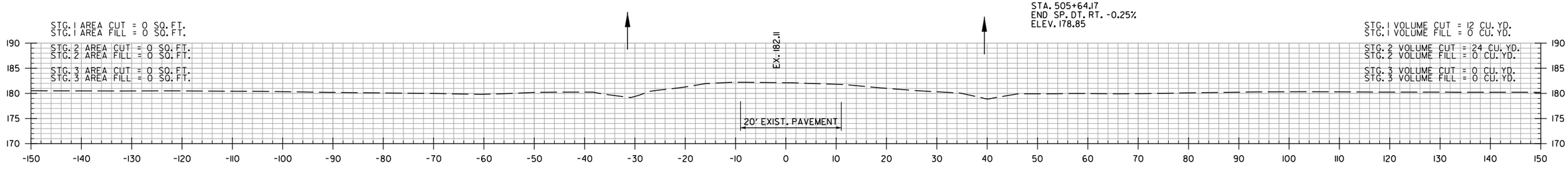
3/22/2024

JUCARNEY

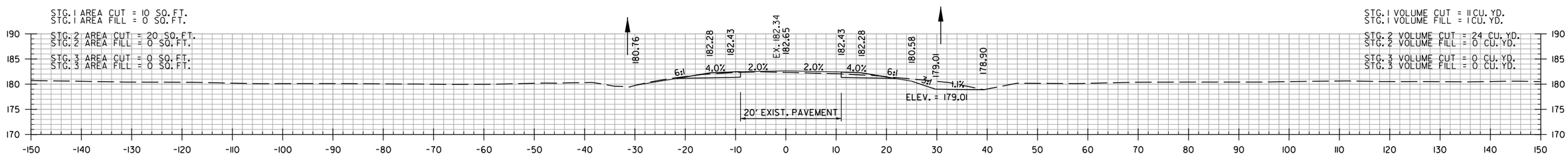
HWY. II - SITE I
STA. 502+00 TO STA. 504+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	76	89
		CROSS SECTIONS				

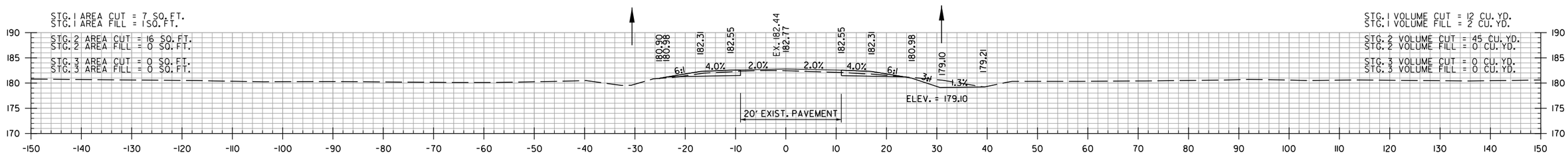
STA. 505+64.17 END 100' TRANSITION



505+64.17

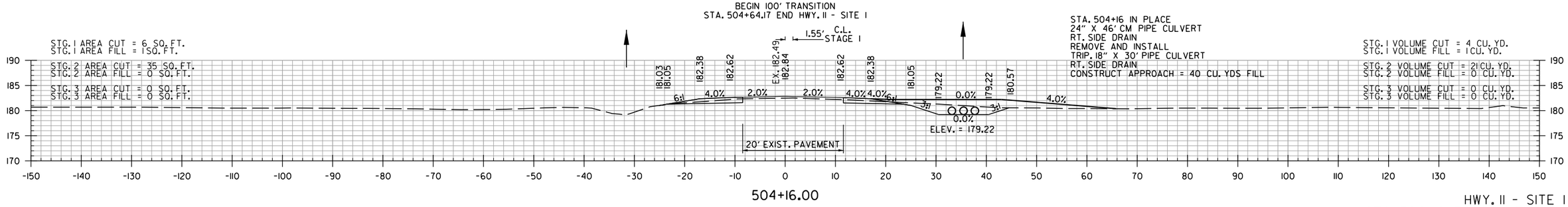


505+00.00



504+64.17

BEGIN 100' TRANSITION
STA. 504+64.17 END HWY. II - SITE 1

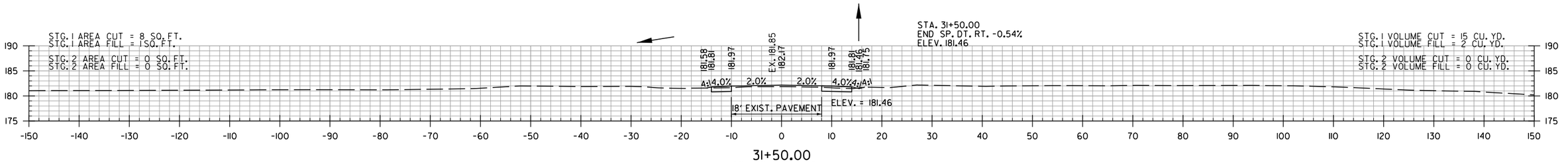


504+16.00

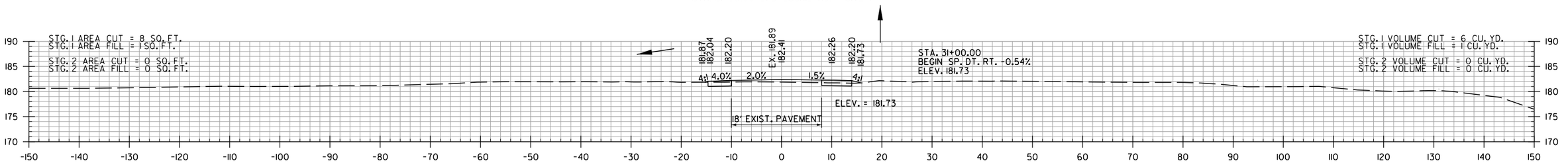
HWY. II - SITE 1
STA. 504+16 TO STA. 505+64

JUCARNEY 3/22/2024

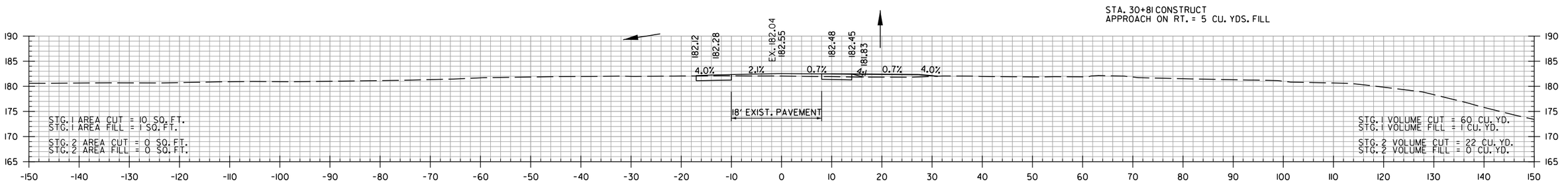
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	77	89
		CROSS SECTIONS				



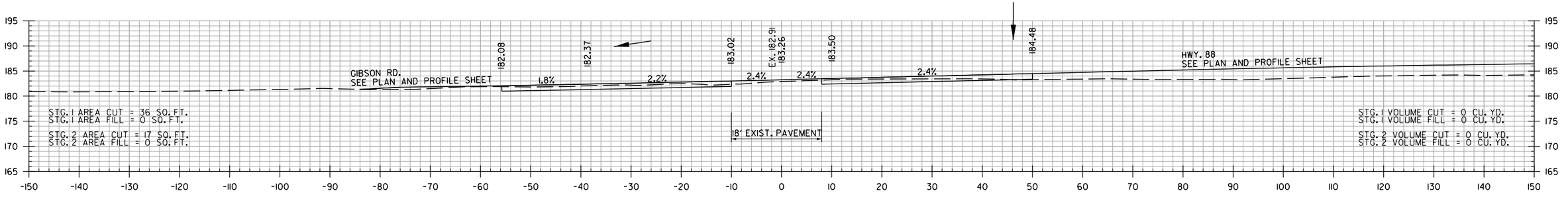
31+50.00
BEGIN 50' TRANSITION
STA. 31+50.00 END LUCKIE RD. - SITE 1



31+00.00



30+81.00

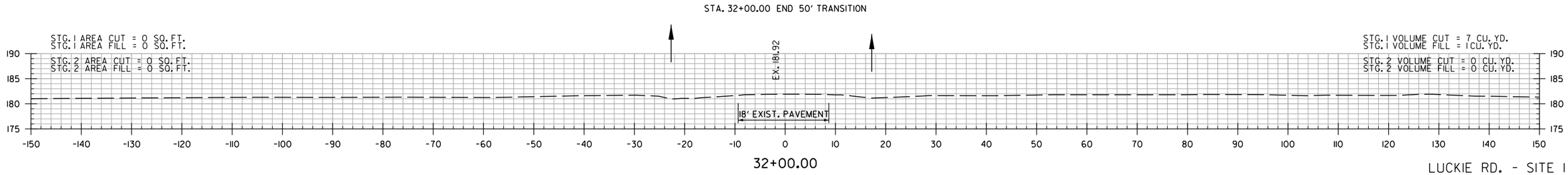


30+11.00
STA. 30+11.00 BEGIN LUCKIE RD. - SITE 1

LUCKIE RD. - SITE 1
STA. 30+11 TO STA. 31+50

JUCARNEY 3/22/2024

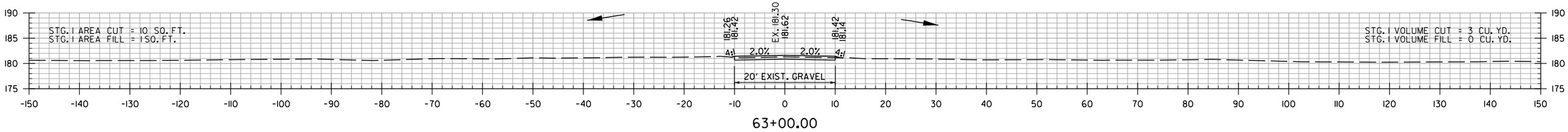
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	78	89
		CROSS SECTIONS				



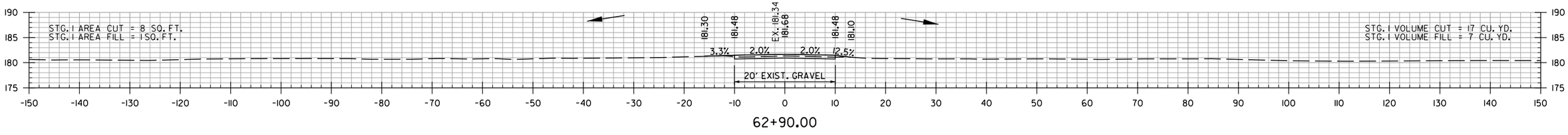
LUCKIE RD. - SITE 1
STA. 32+00 TO STA. 32+00

JUCARNEY 3/22/2024

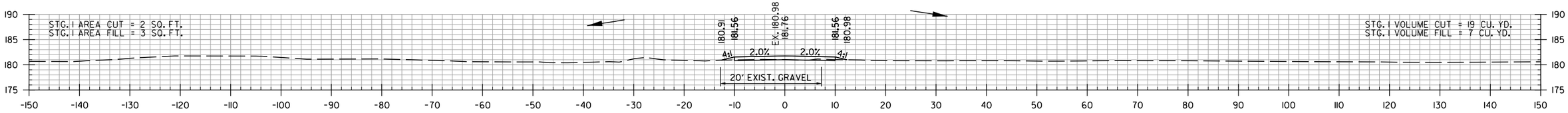
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	79	89
		CROSS SECTIONS				



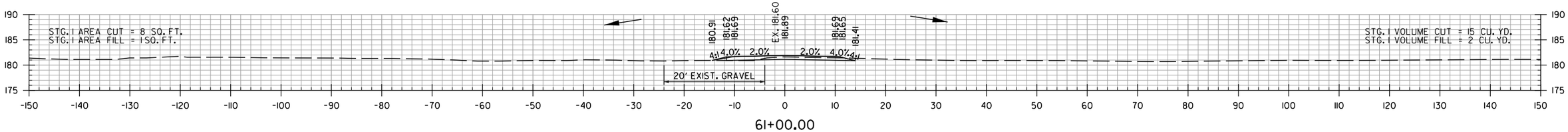
63+00.00



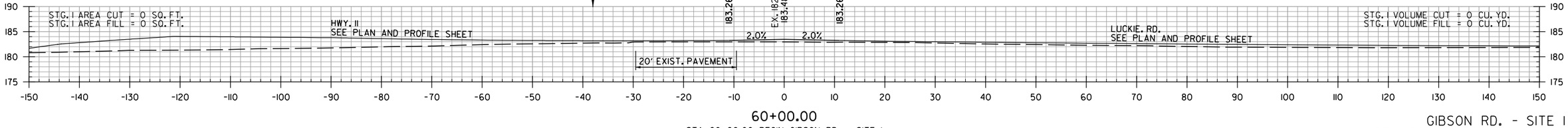
62+90.00



62+00.00
BEGIN 50' TRANSITION
STA. 62+90.00 END GIBSON RD. - SITE I



61+00.00



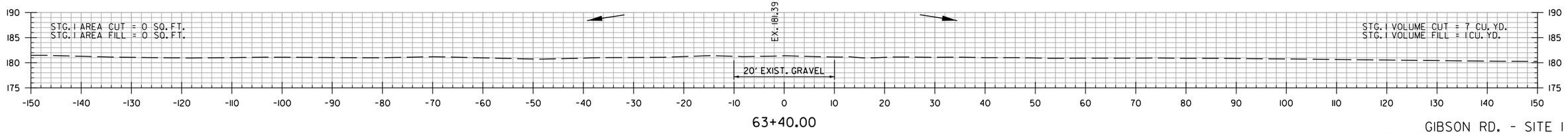
60+00.00
STA. 60+00.00 BEGIN GIBSON RD. - SITE I

GIBSON RD. - SITE I
STA. 60+00 TO STA. 63+00

JUCARNEY 3/22/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	80	89
		CROSS SECTIONS				

STA. 63+40.00 END 50' TRANSITION

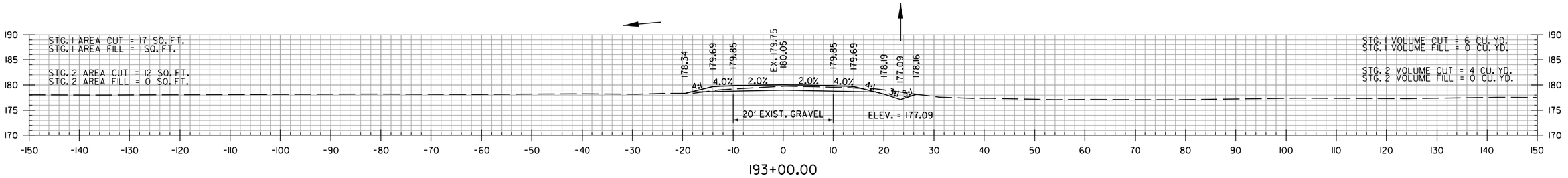


63+40.00

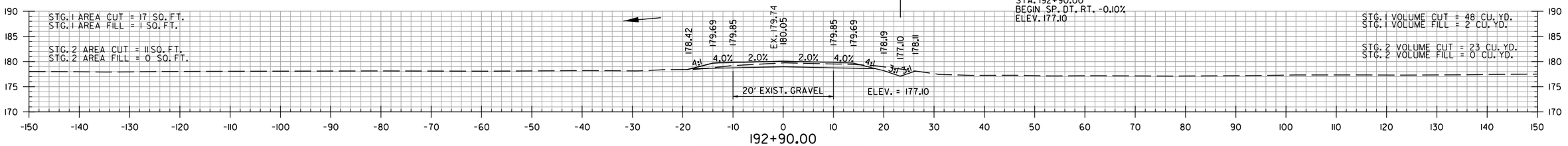
GIBSON RD. - SITE 1
STA. 63+40 TO STA. 63+40

JUCARNEY 3/22/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	81	89
		CROSS SECTIONS				

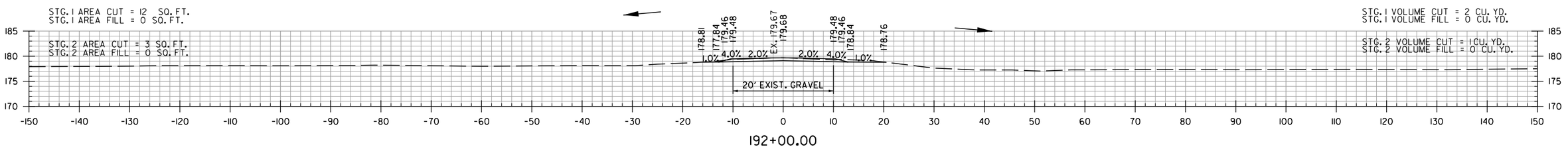


193+00.00

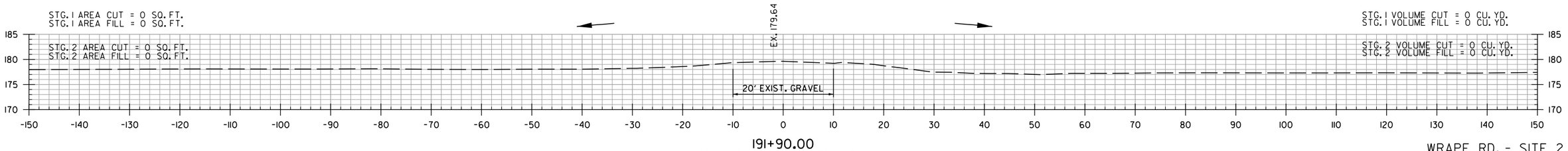


192+90.00

STA. 192+90.00 END 100' TRANSITION
BEGIN WRAPE RD. - SITE 2



192+00.00



191+90.00

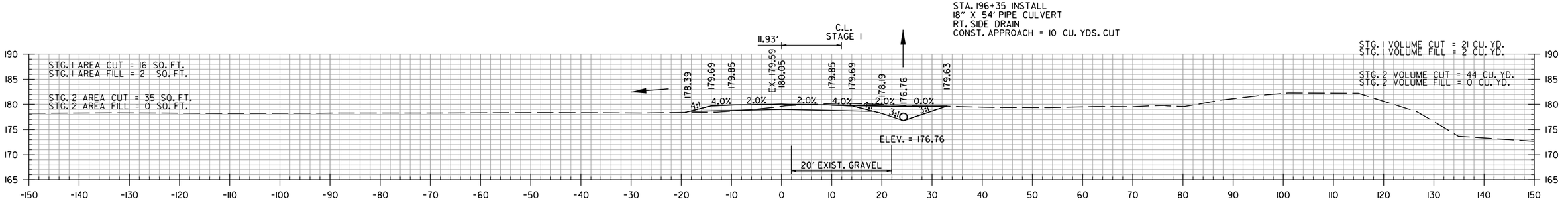
STA. 191+90.00 BEGIN 100' TRANSITION

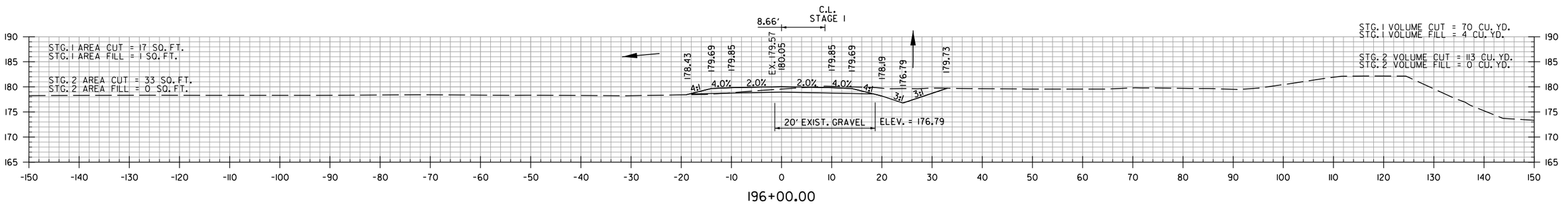
WRAPE RD. - SITE 2
STA. 191+90 TO STA. 193+00

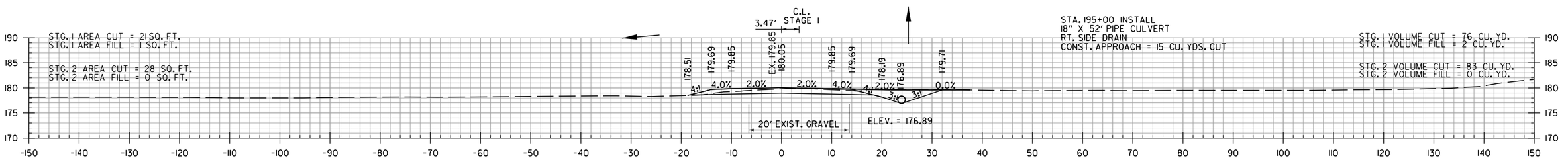
3/22/2024

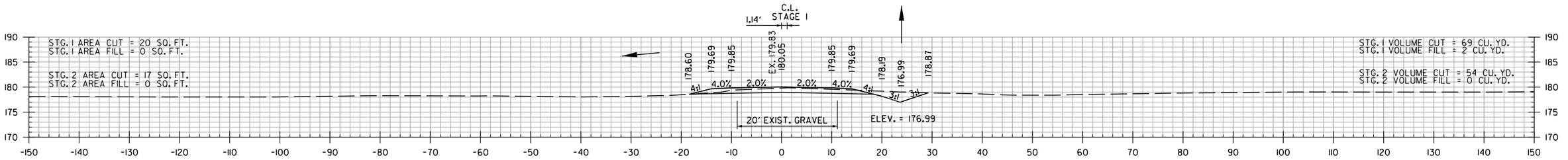
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	82	89
		CROSS SECTIONS				





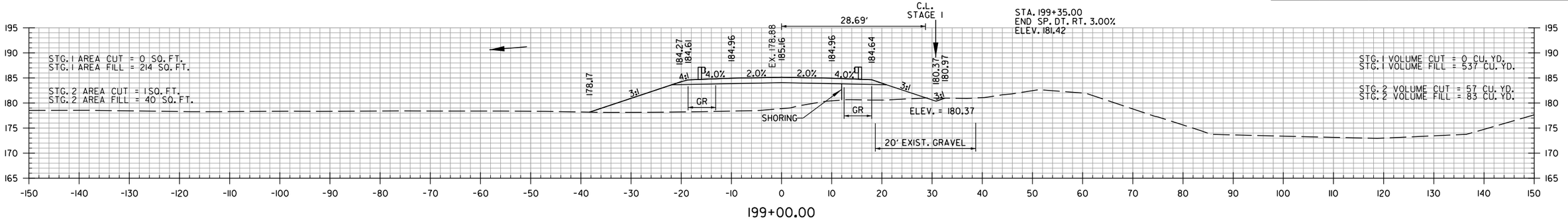




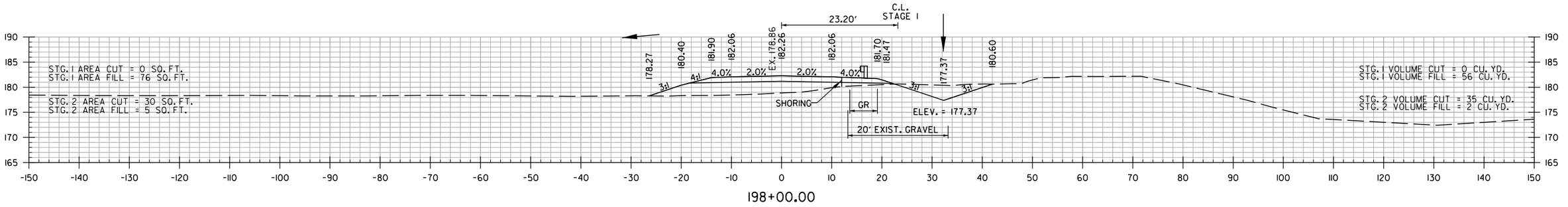
JUCARNEY 3/22/2024

WRAPE RD. - SITE 2
STA. 194+00 TO STA. 196+35

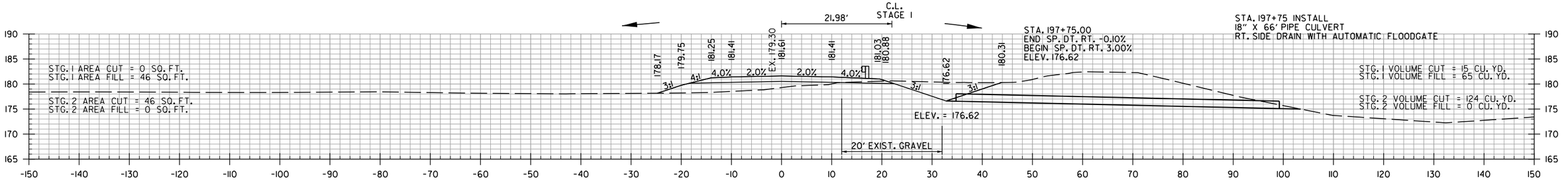
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	83	89
		CROSS SECTIONS				



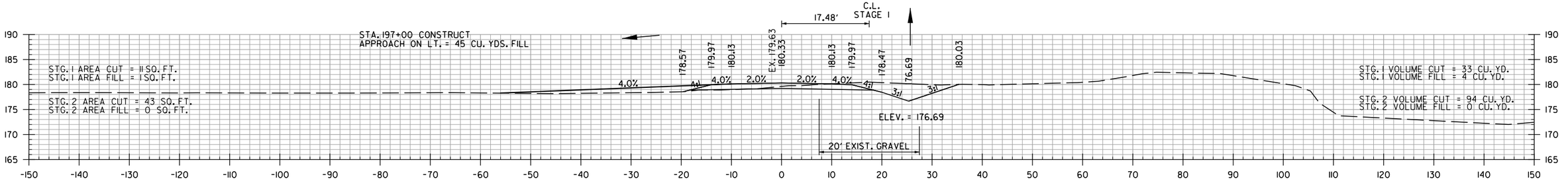
199+00.00



198+00.00



197+75.00



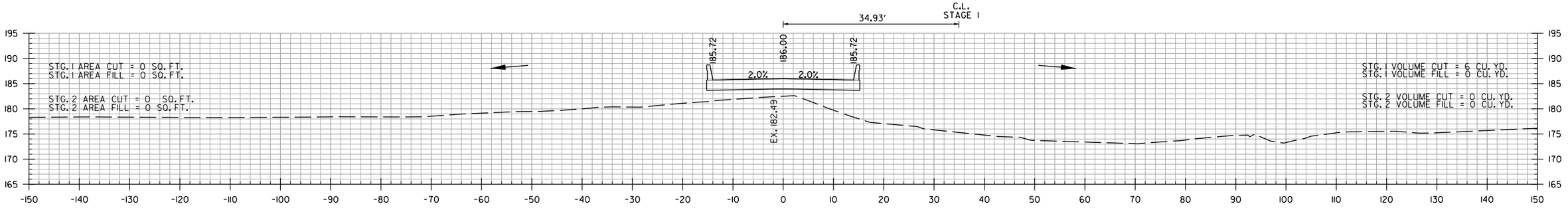
197+00.00

JUCARNEY 3/22/2024

WRAPE RD. - SITE 2
STA. 197+00 TO STA. 199+00

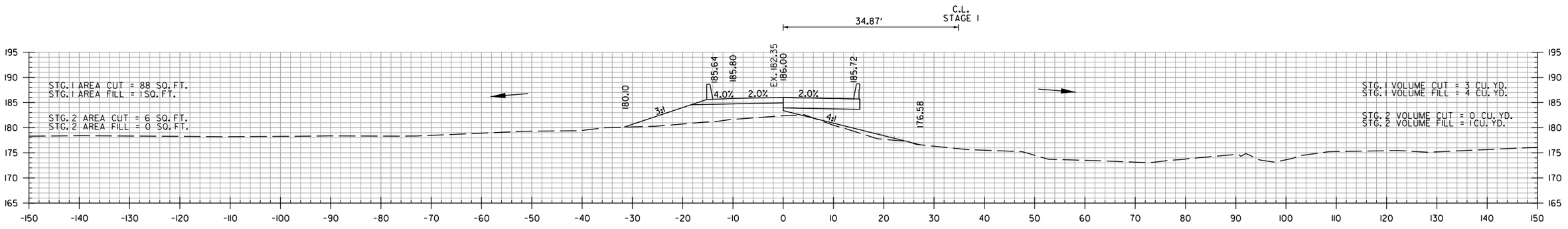
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	84	89
		CROSS SECTIONS				

STA. 200+75.00
BEGIN BENCH GRADE RT. 0.10%
ELEV. 175.74



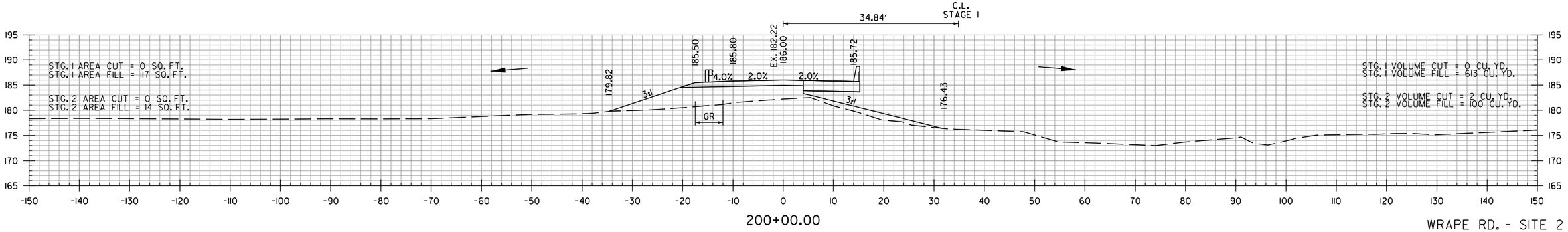
200+05.41

STA. 200+05.41 END TOE OF SLOPE AT ELEVATION 176.00



200+02.00

STA. 200+02.00 BEGIN BRIDGE



200+00.00

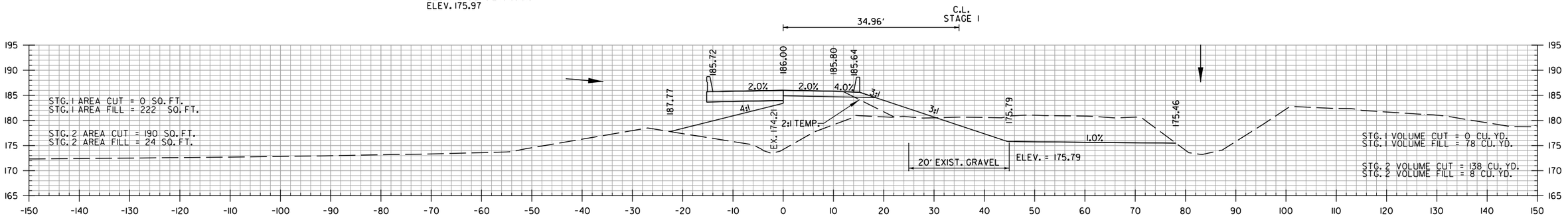
WRAPE RD. - SITE 2
STA. 200+00 TO STA. 200+05

JUCARNEY 3/22/2024

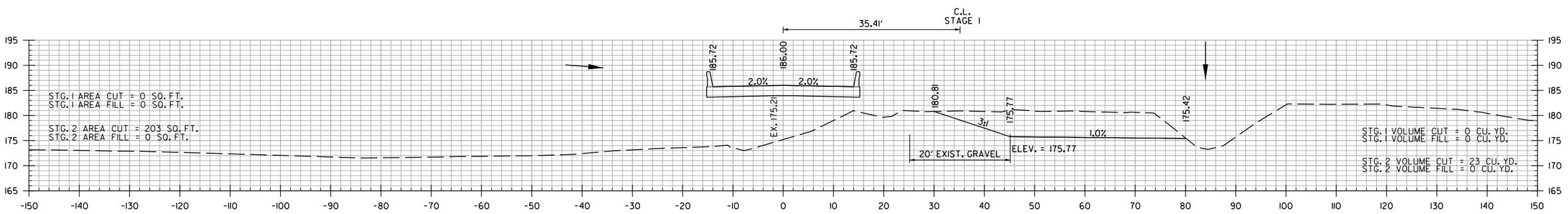
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	85	89
		CROSS SECTIONS				

STA. 201+30.00
BEGIN SP. DT. LT. 0.10%
ELEV. 175.97

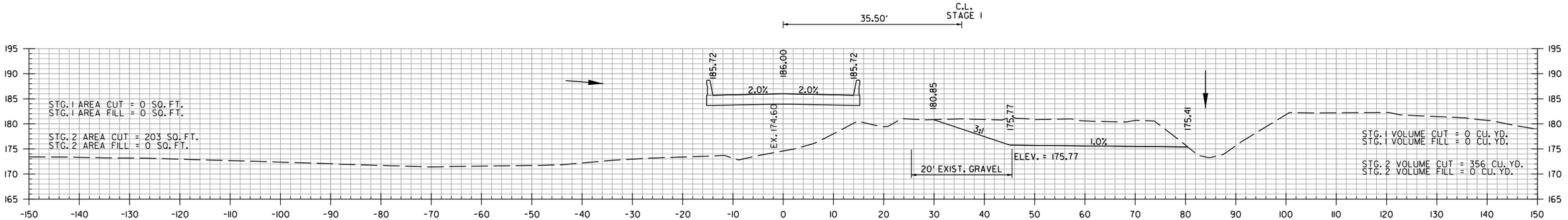
STA. 201+22.00 END BRIDGE



201+22.00



201+03.09
STA. 201+03.09 BEGIN TOE OF SLOPE

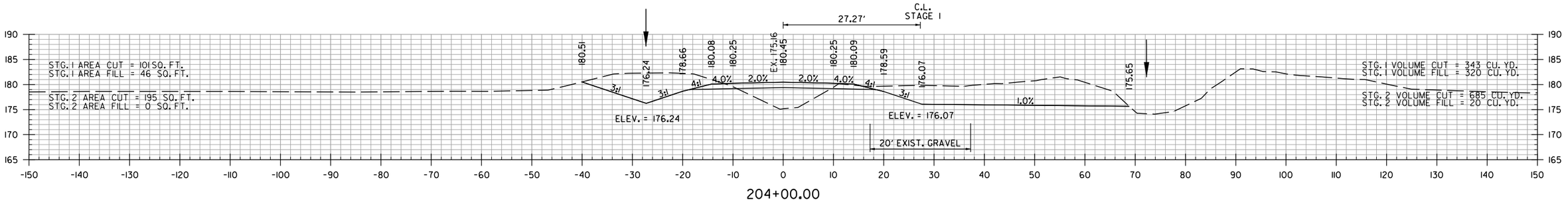


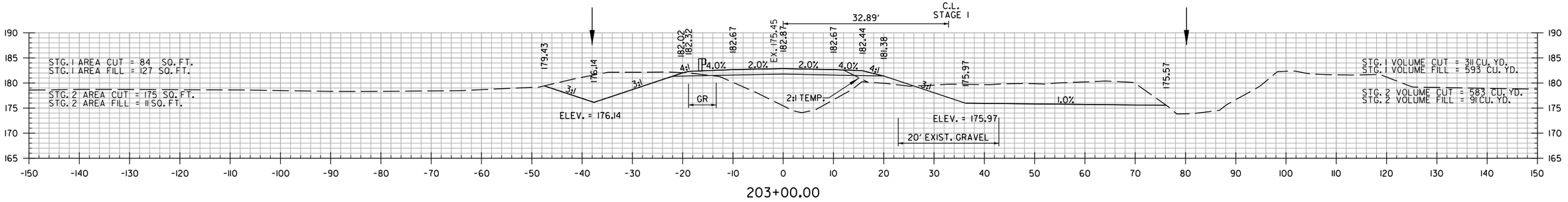
201+00.00

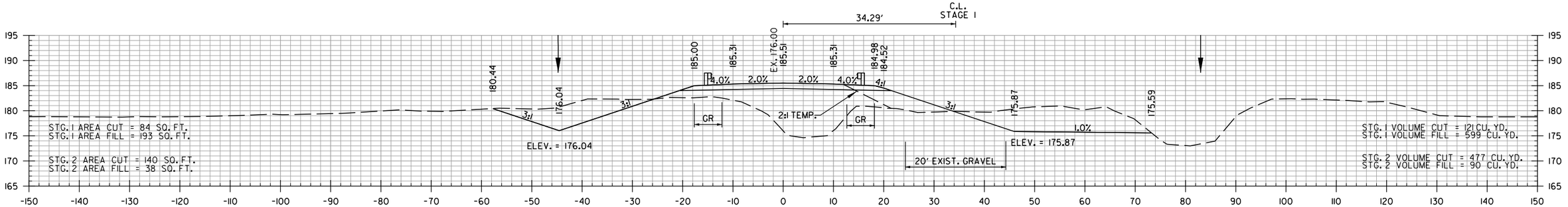
WRAPE RD. - SITE 2
STA. 201+00 TO STA. 201+22

3/22/2024
JUCARNEY

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	86	89
		CROSS SECTIONS				



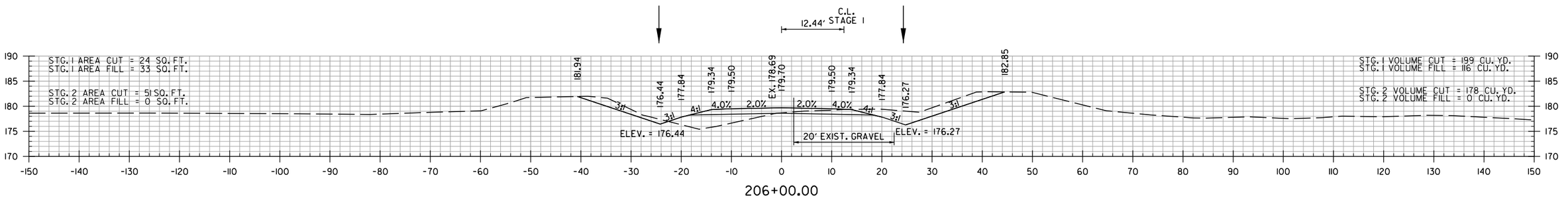




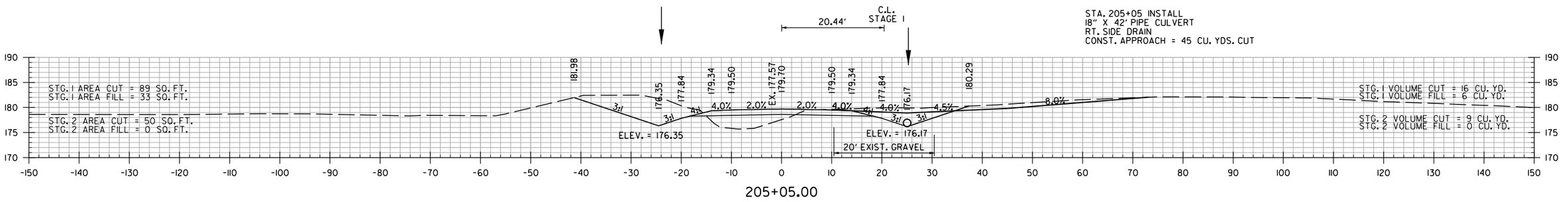
WRAPE RD. - SITE 2
STA. 202+00 TO STA. 204+00

JUCARNEY 3/22/2024

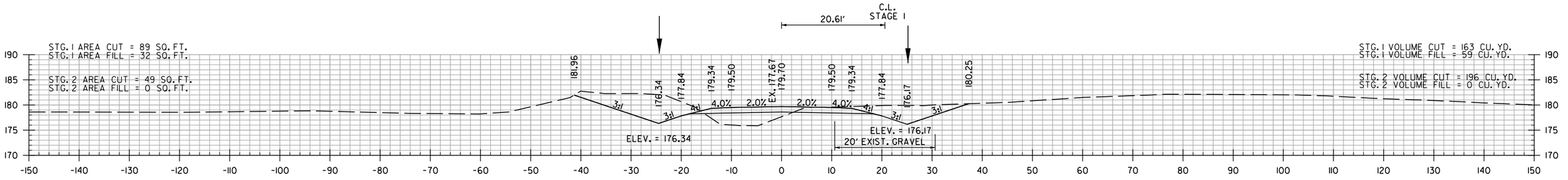
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	87	89
		CROSS SECTIONS				



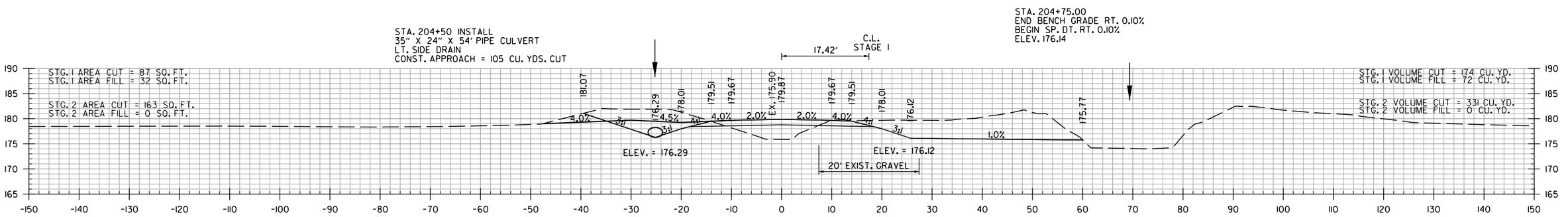
206+00.00



205+05.00



205+00.00

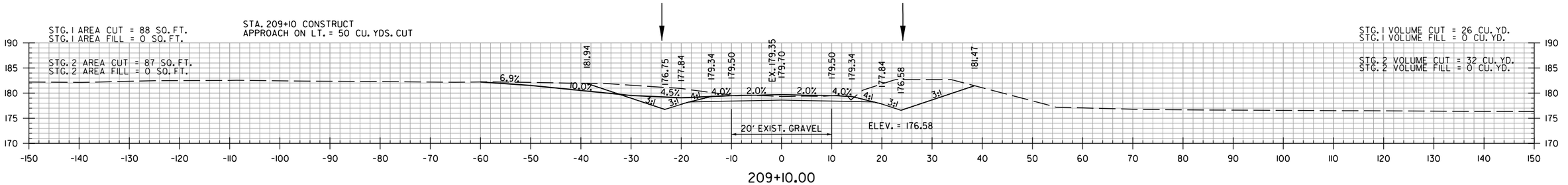


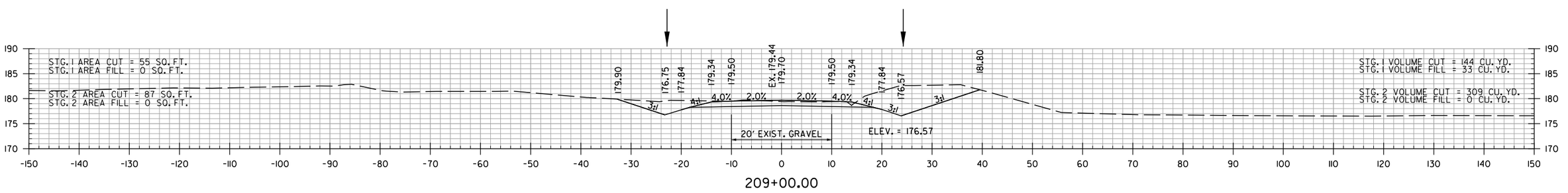
204+50.00

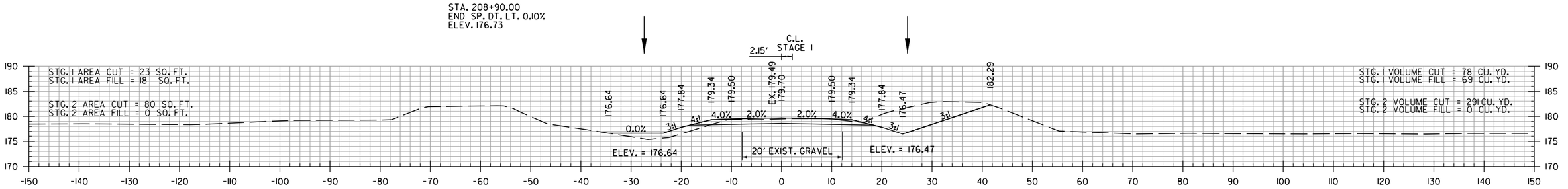
JUCARNEY 3/22/2024

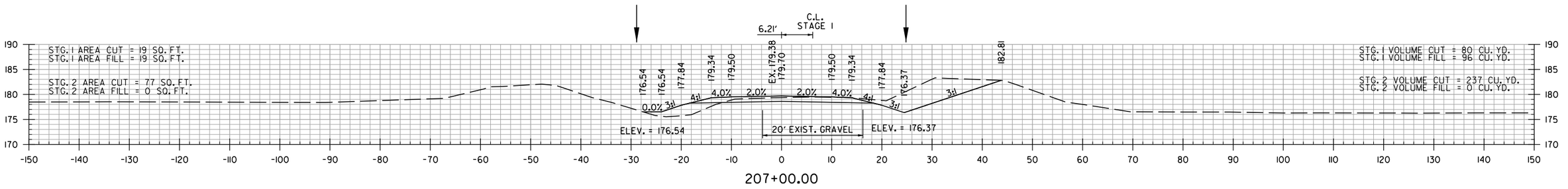
WRAPE RD. - SITE 2
STA. 204+50 TO STA. 206+00

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	88	89
		CROSS SECTIONS				









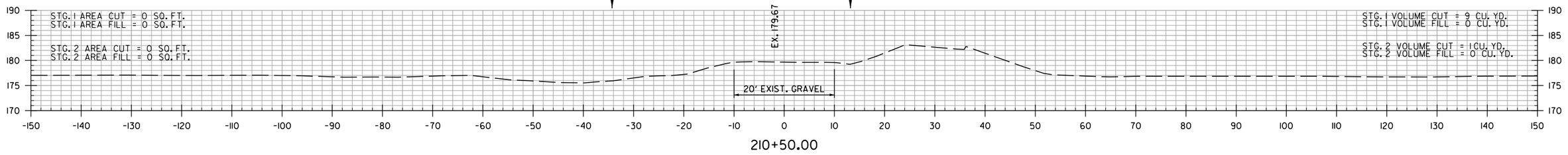
3/22/2024

JUCARNEY

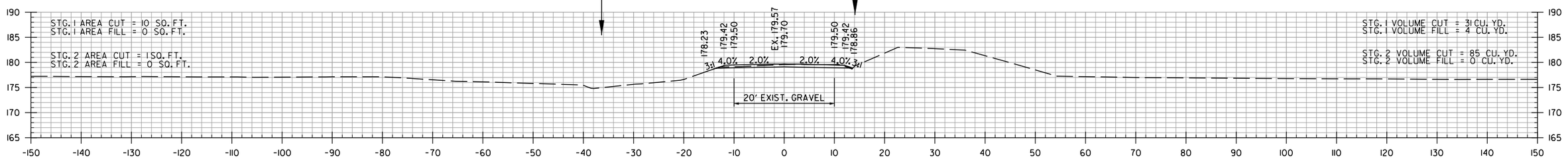
WRAPE RD. - SITE 2
STA. 207+00 TO STA. 209+10

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	020784	89	89
		CROSS SECTIONS				

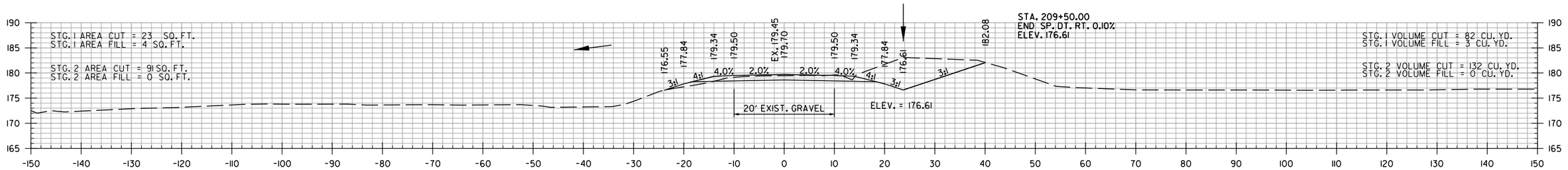
STA. 210+50.00 END 100' TRANSITION



210+50.00



210+00.00



209+50.00

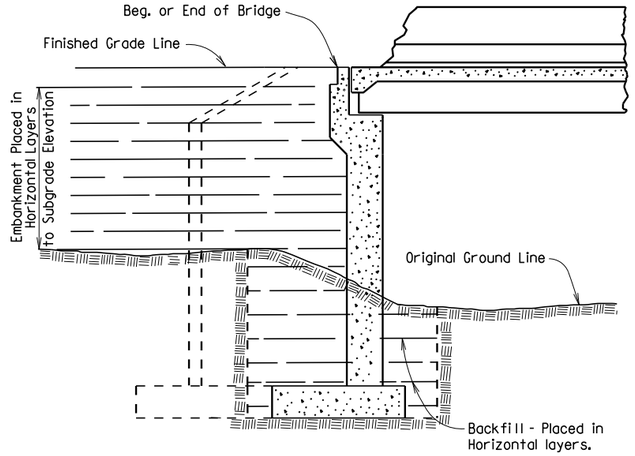
STA. 209+50.00 BEGIN 100' TRANSITION
END WRAPE RD. - SITE 2 AND END JOB 020784

WRAPE RD. - SITE 2
STA. 209+50 TO STA. 210+50

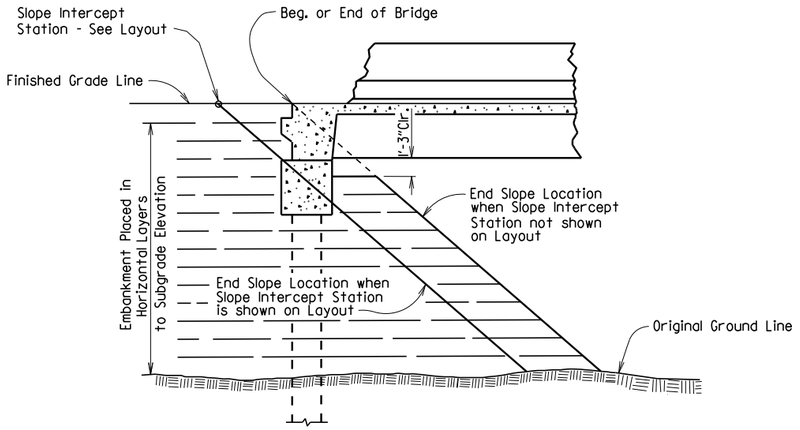
JUCARNEY 3/22/2024

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

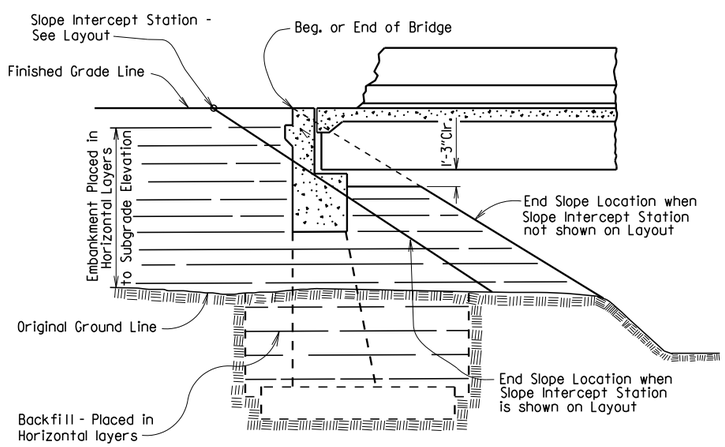
1 EMBANKMENT & BACKFILL 55000



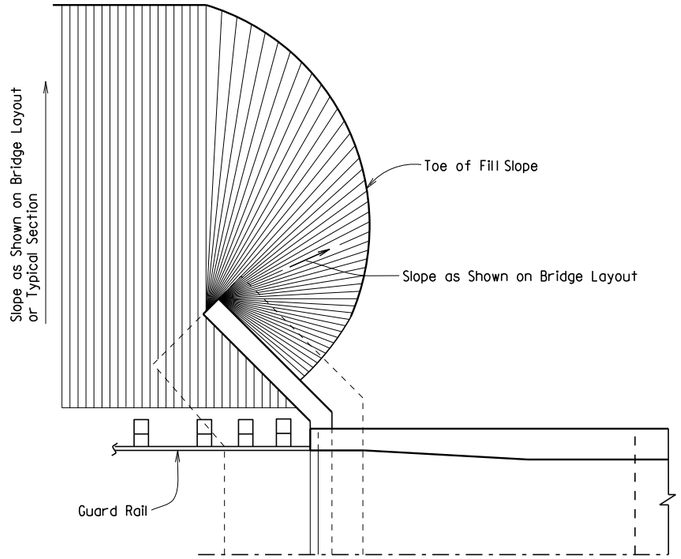
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



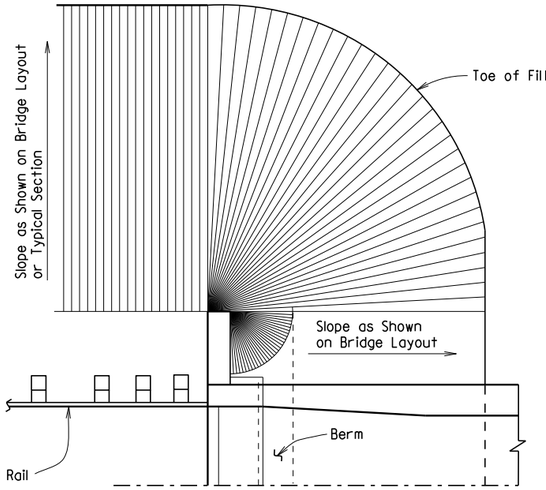
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



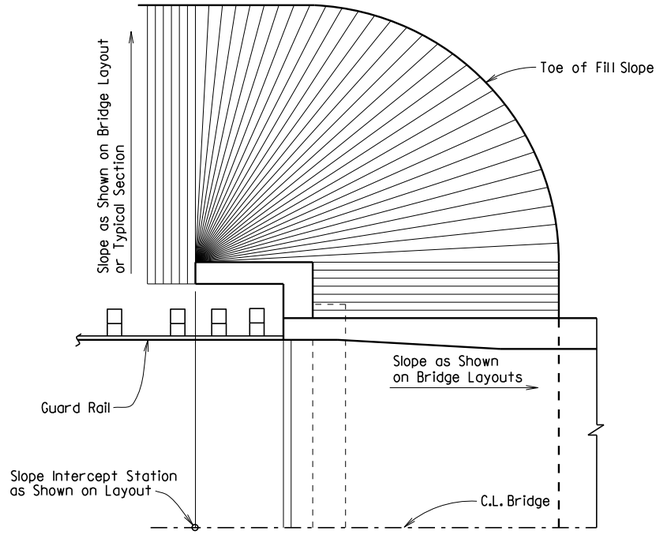
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



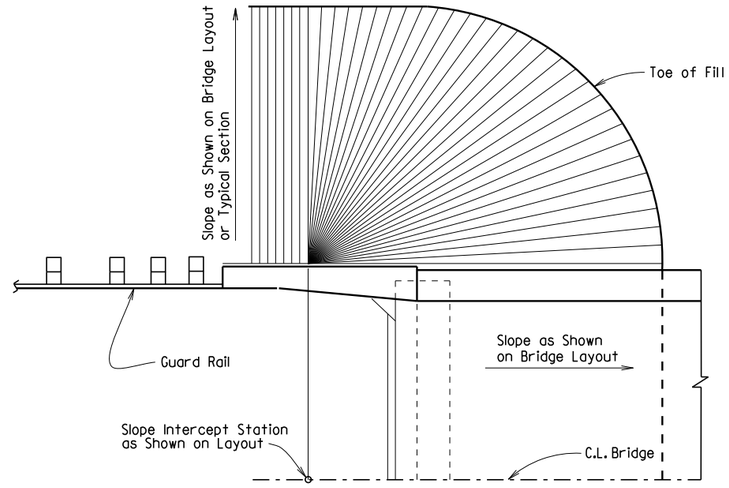
VERTICAL WALL ABUTMENTS



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

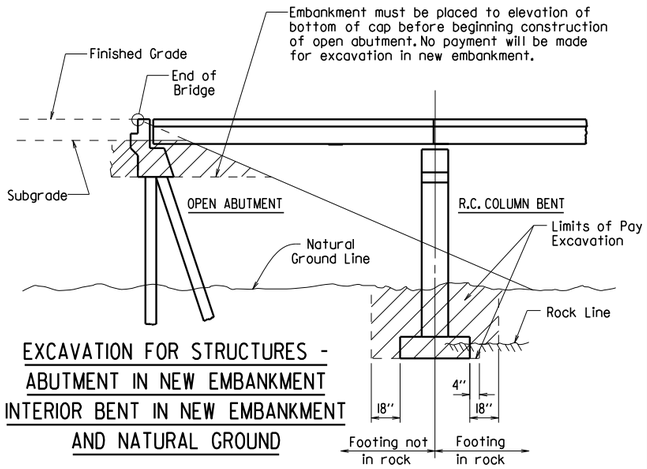
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: -

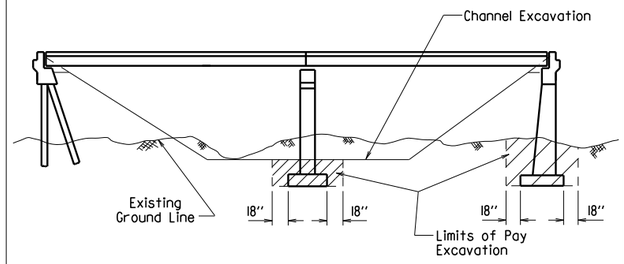
DRAWING NO. 55000

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

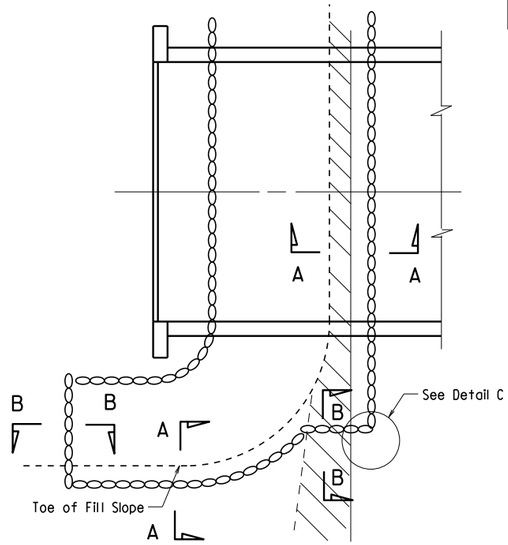
1 RIPRAP & EXCAV. 55001



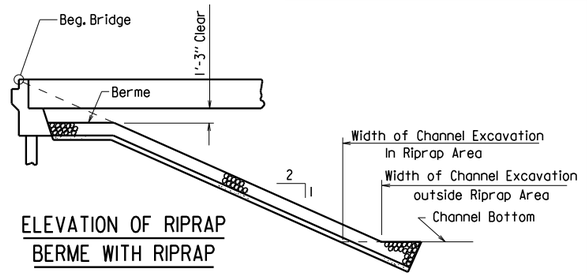
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



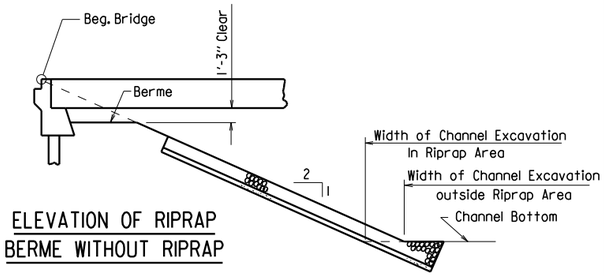
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



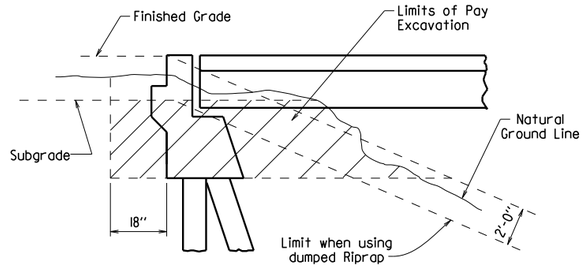
PLAN OF DUMPED RIPRAP



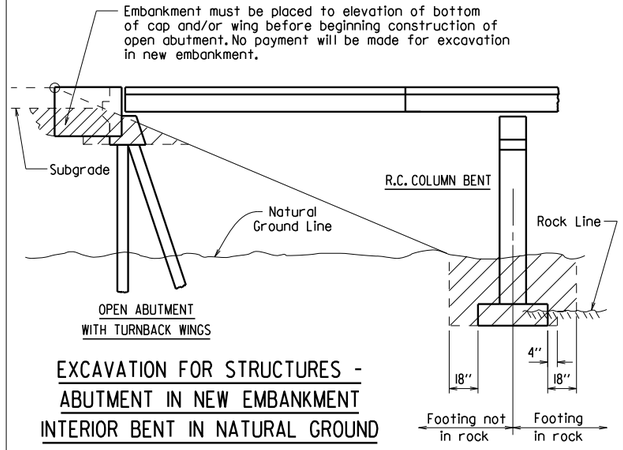
ELEVATION OF RIPRAP BERME WITH RIPRAP



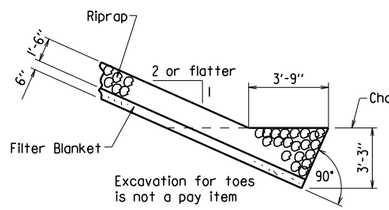
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND

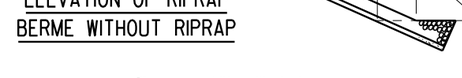


EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND

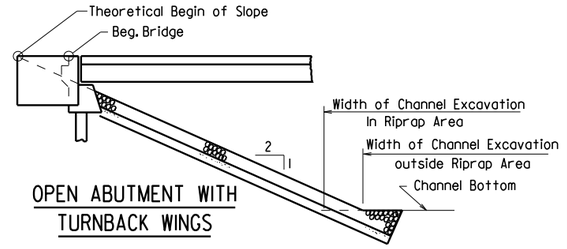


SECTION A-A

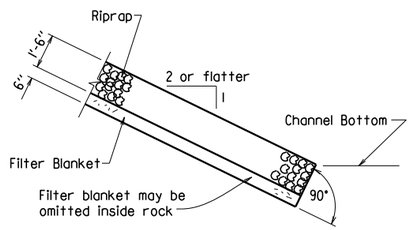
(Toe Excavation in Soil)



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



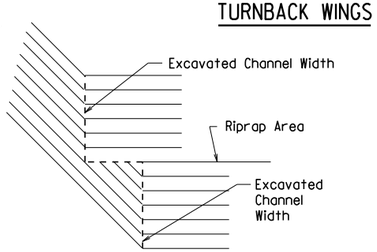
SECTION A-A

(Toe Excavation in Rock)

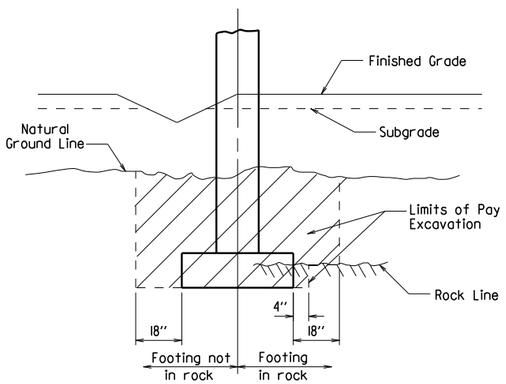
Note : Use this type of toe when rock is encountered which is in a stable condition.

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.

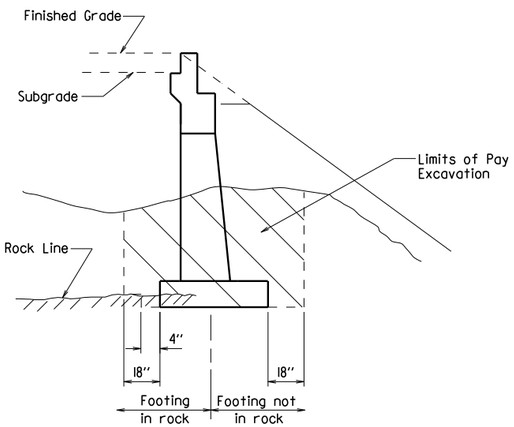
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



DETAIL C



EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

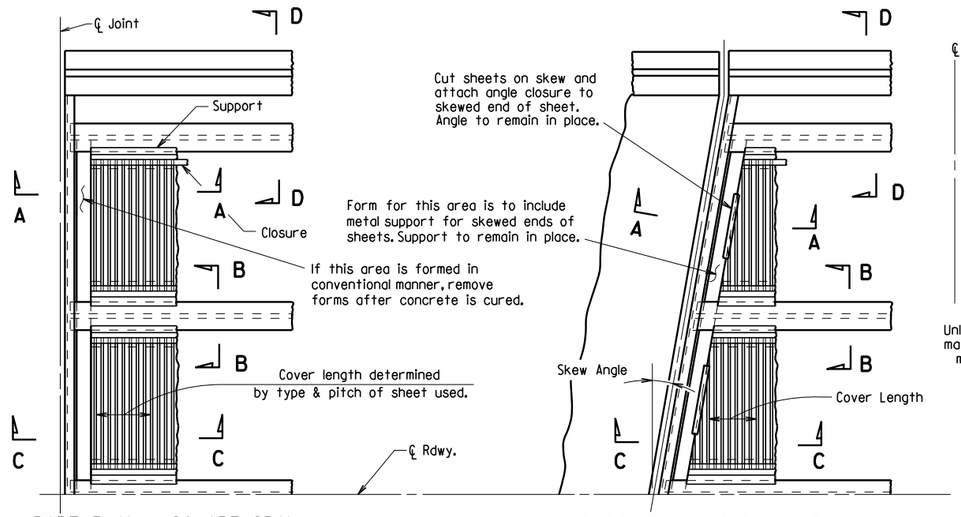
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b5500l.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE:

DRAWING NO. 55001

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

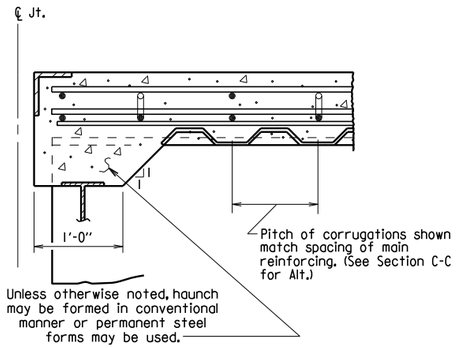


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

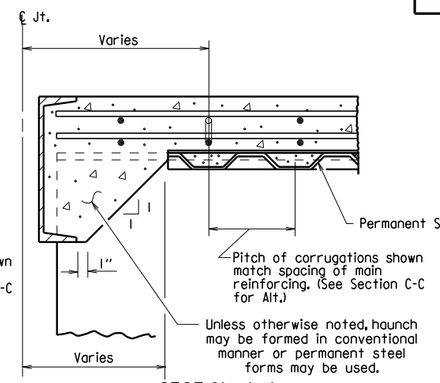
PART PLAN - SKEWED SPAN

3/8" = 1'-0"



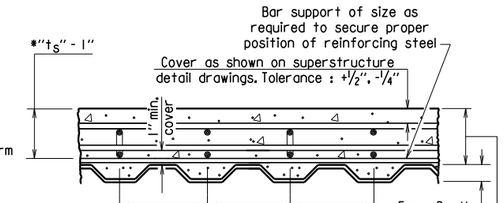
SECTION A-A

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



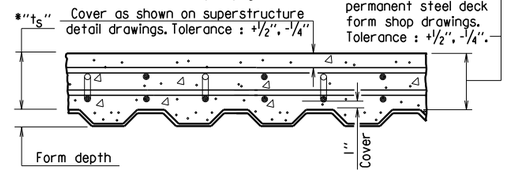
SECTION A-A

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



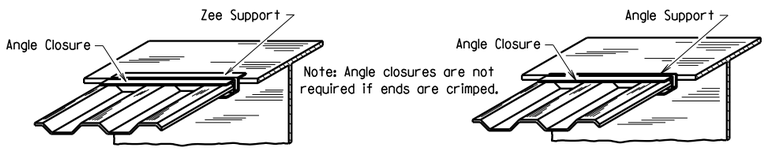
SECTION C-C

1" = 1'-0"



SECTION C-C - ALTERNATE

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



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

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

GENERAL NOTES

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

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

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

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

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

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

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

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

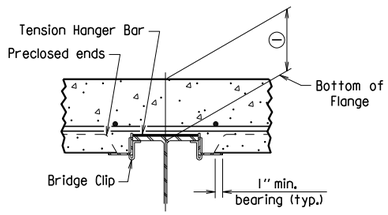
SECTION B-B

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

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

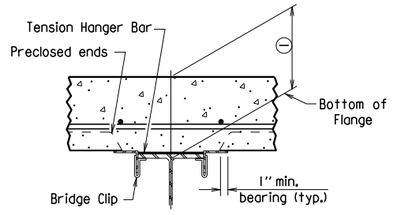
SECTION B-B

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



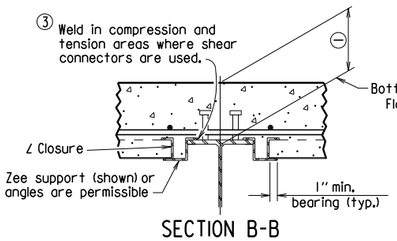
SECTION B-B

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



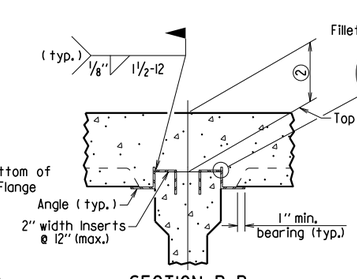
SECTION B-B

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



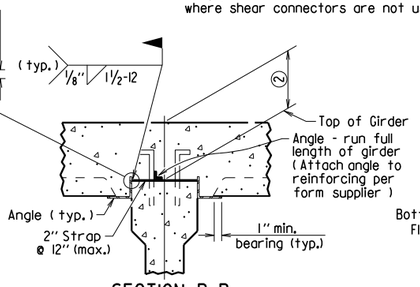
SECTION B-B

1" = 1'-0"
(Showing ∠ Closure)



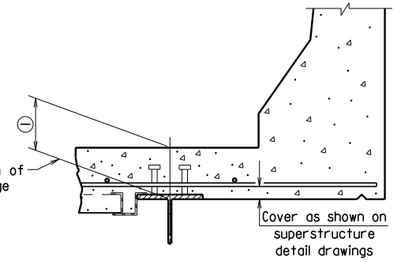
SECTION B-B (FOR CONCRETE GIRDERS)

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



SECTION B-B (FOR CONCRETE GIRDERS)

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



SECTION D-D

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

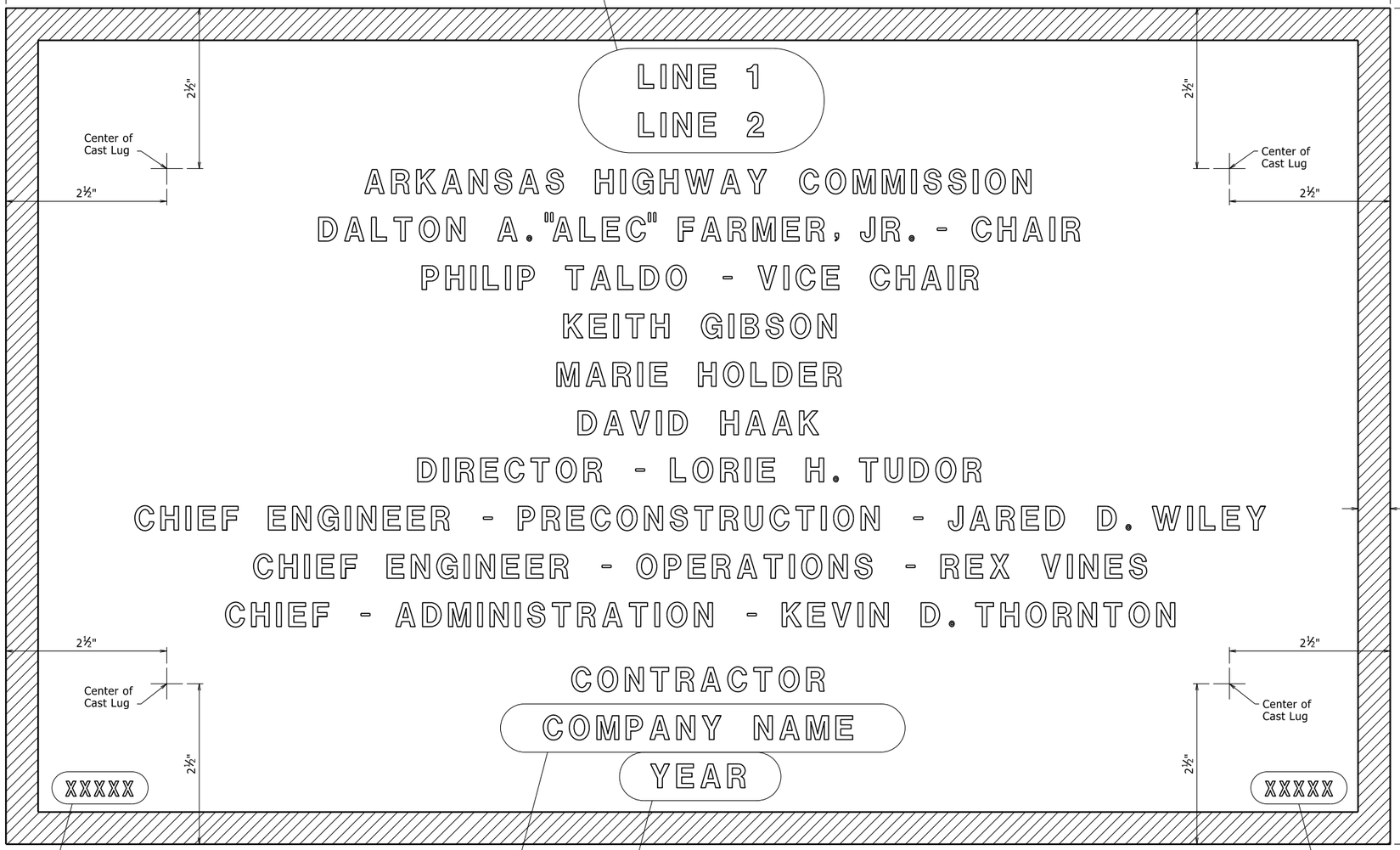
DRAWN BY:	KDH	DATE:	2-27-2014	FILENAME:	b55005.dgn
CHECKED BY:	BEF	DATE:	2-27-2014	SCALE:	NONE
DESIGNED BY:	STD.	DATE:	—		

DRAWING NO. 55005

DATE REVISED	DATE 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	



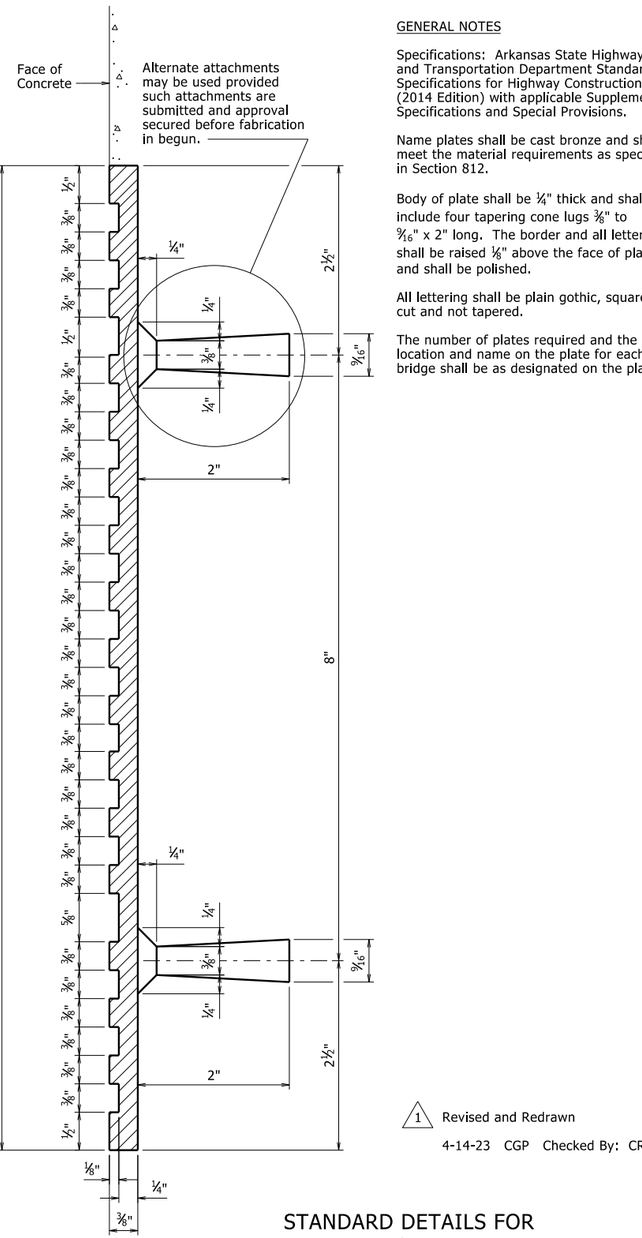
Place the design live loading here using ⅛" raised letters and numerals ¼" high. Examples: HS20, HL-93

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.

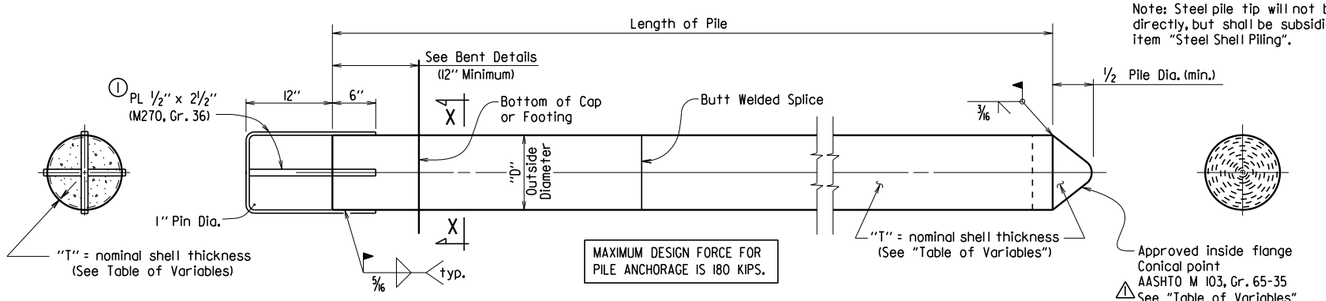
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

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

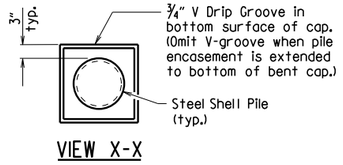


Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".

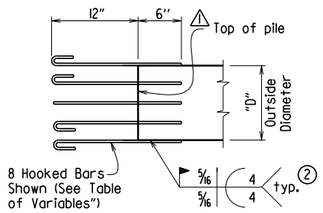
CONCRETE FILLED STEEL SHELL PILE

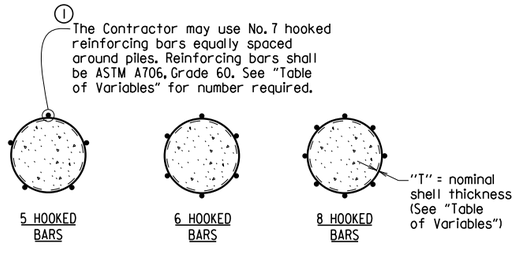
(1) Pile anchorage shall be placed to minimize interference with anchor bolts and reinforcing in cap or footing.

(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.



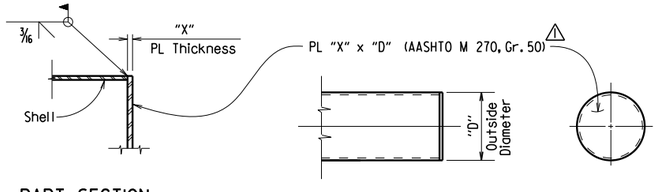
VIEW X-X





ALTERNATE PILE ANCHORAGE DETAIL

Note: Hooked bars shall be oriented to provide the required concrete clearances shown in the plans.

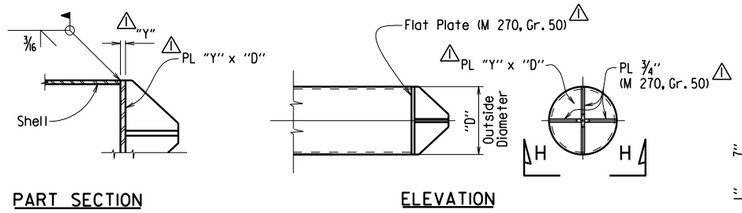


PART SECTION

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.

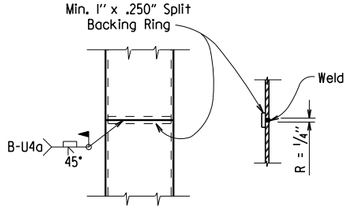


PART SECTION

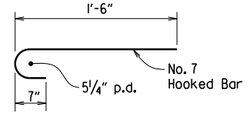
ELEVATION

VIEW H-H

ALTERNATE VANED TIP DETAIL



TYPICAL SPLICE DETAILS



HOOKED BAR DETAIL

TABLE OF VARIABLES

OUTSIDE DIAMETER "D"	NOMINAL SHELL THICKNESS "T"	(1) PLATE THICKNESS "X"	(1) PLATE THICKNESS "Y"	NO. OF HOOKED BARS FOR ALTERNATE PILE ANCHORAGE	(1) MINIMUM CONICAL TIP DESIGN LOAD (KIPS)
14"	0.50"	2¼"	1½"	5	859
16"	0.50"	2¼"	1½"	5	986
18"	0.50"	2½"	1½"	6	1,114
20"	0.50"	2½"	1¾"	6	1,241
24"	0.50"	2¾"	1¾"	8	1,495

(1) 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:

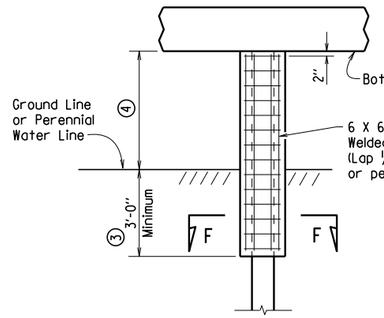
(1) See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

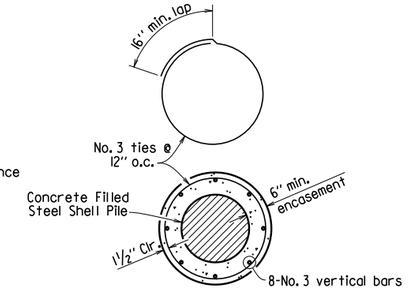
Concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

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)

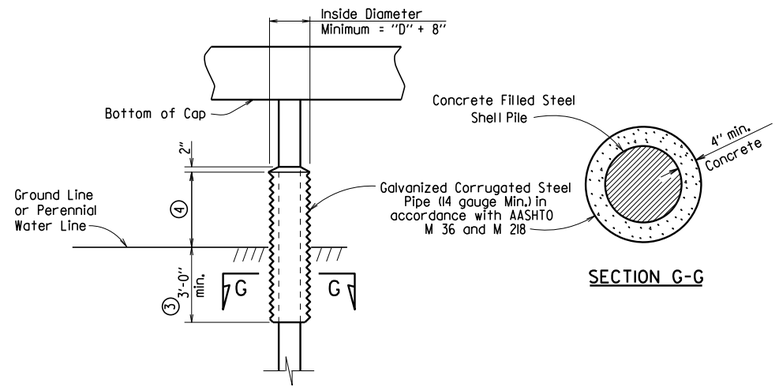
PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

(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

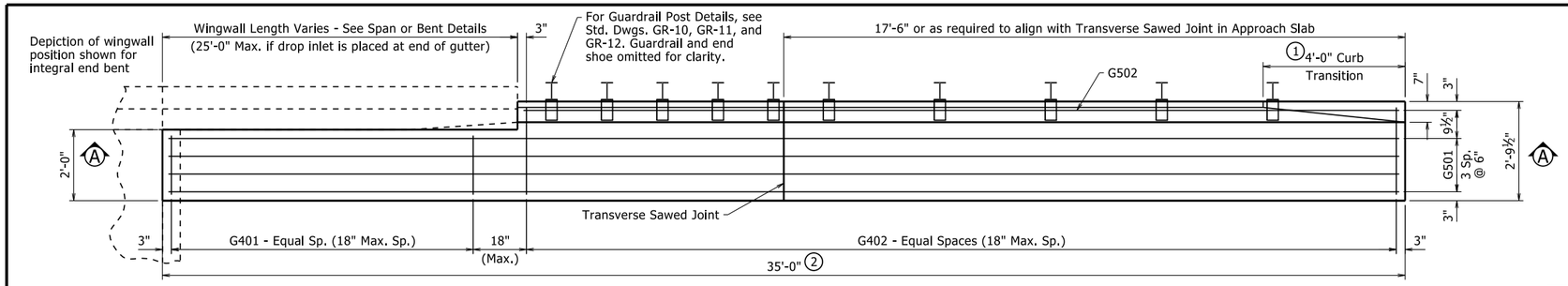
LITTLE ROCK, ARK.

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

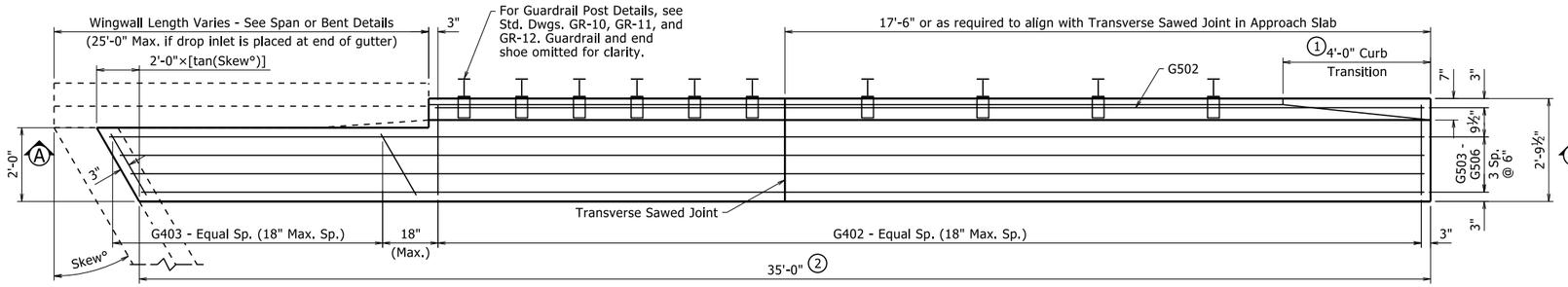
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

① Type F Approach Gutters - 55030F

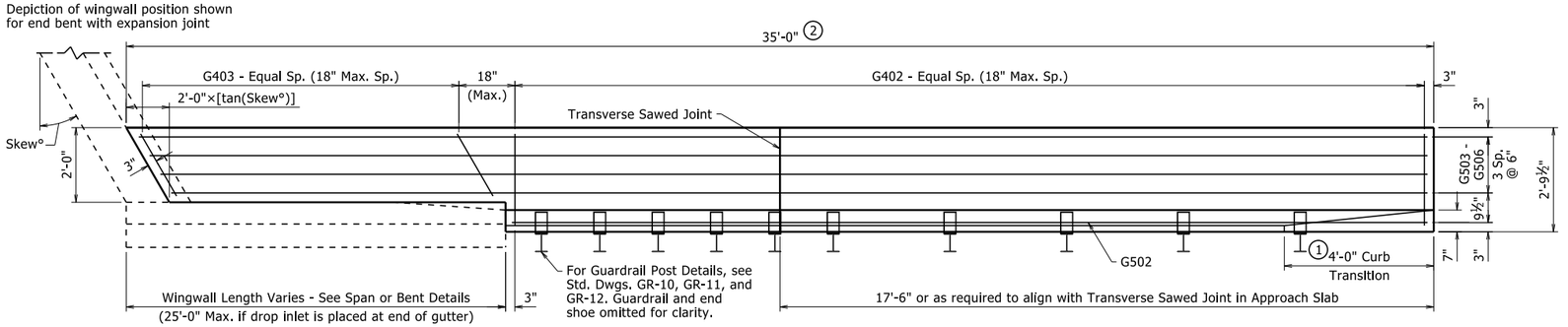


HALF PLAN OF APPROACH GUTTERS FOR SQUARE END BENT

½" = 1'-0"

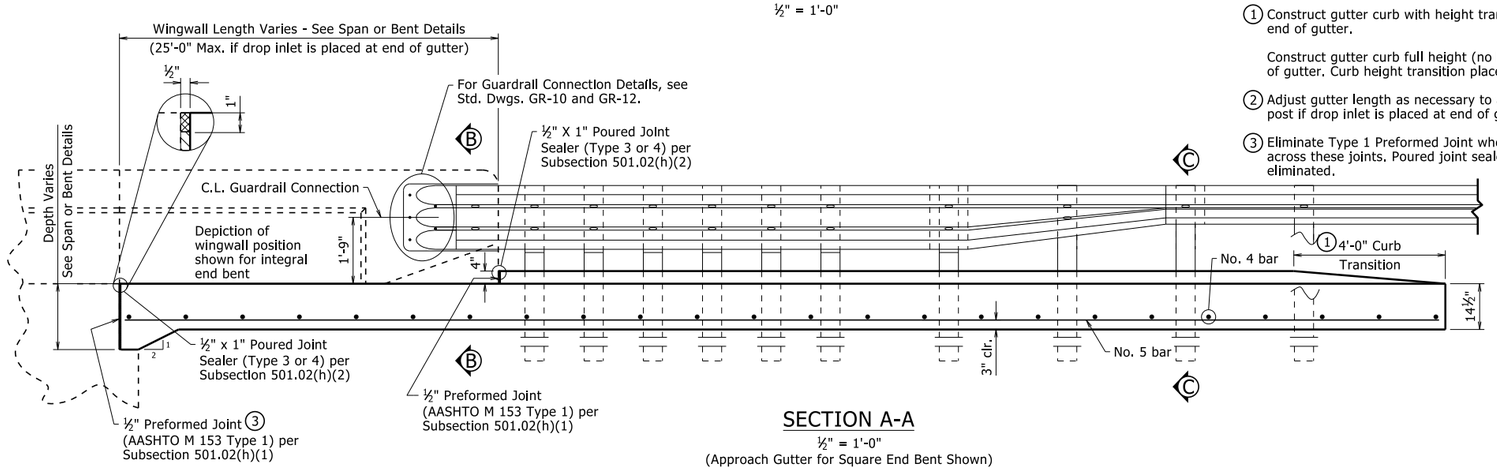


Depiction of wingwall position shown for end bent with expansion joint



PLAN OF SKEWED APPROACH GUTTERS FOR SKEWED END BENT

½" = 1'-0"



SECTION A-A

½" = 1'-0"

(Approach Gutter for Square End Bent Shown)

QUANTITIES FOR ONE APPROACH GUTTER

(For Information Only)

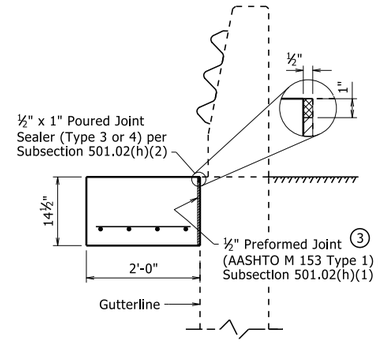
Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
210	4.20

Quantities are based on one gutter for a square, integral end bent and a wingwall length of 10'-0"

BAR LIST FOR ONE APPROACH GUTTER

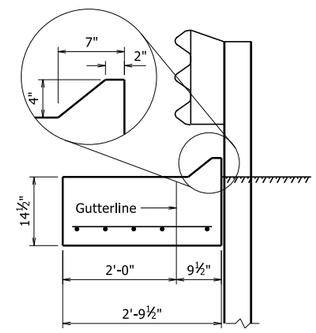
	Mark	No. Req'd.	Length
Square End Bent	G401	④	1'-8"
	G402	④	2'-5½"
	G501	4	34'-8"
	G502	1	④
Skewed End Bent	G402	④	2'-5½"
	G403	④	④
	G502	1	④
	G503 - G506	1 ea.	④

④ Varies with Skew and/or Wingwall Length



SECTION B-B

¾" = 1'-0"



SECTION C-C

¾" = 1'-0"

① Construct gutter curb with height transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet.

② Adjust gutter length as necessary to avoid outlet pipe interference with guardrail post if drop inlet is placed at end of gutter.

③ 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.

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.

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.

Scales shown are for 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

STANDARD DETAILS FOR TYPE F APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 4-8-2021 FILENAME: b55030f.dgn

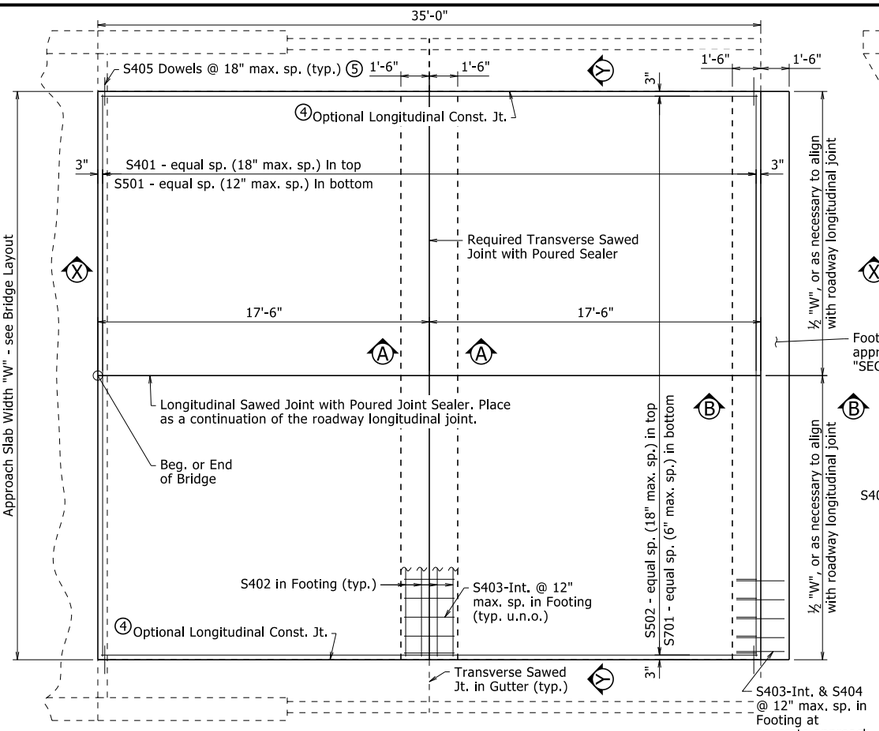
CHECKED BY: LJB DATE: 4-8-2021 SCALE: AS NOTED

DESIGNED BY: STD DATE: -

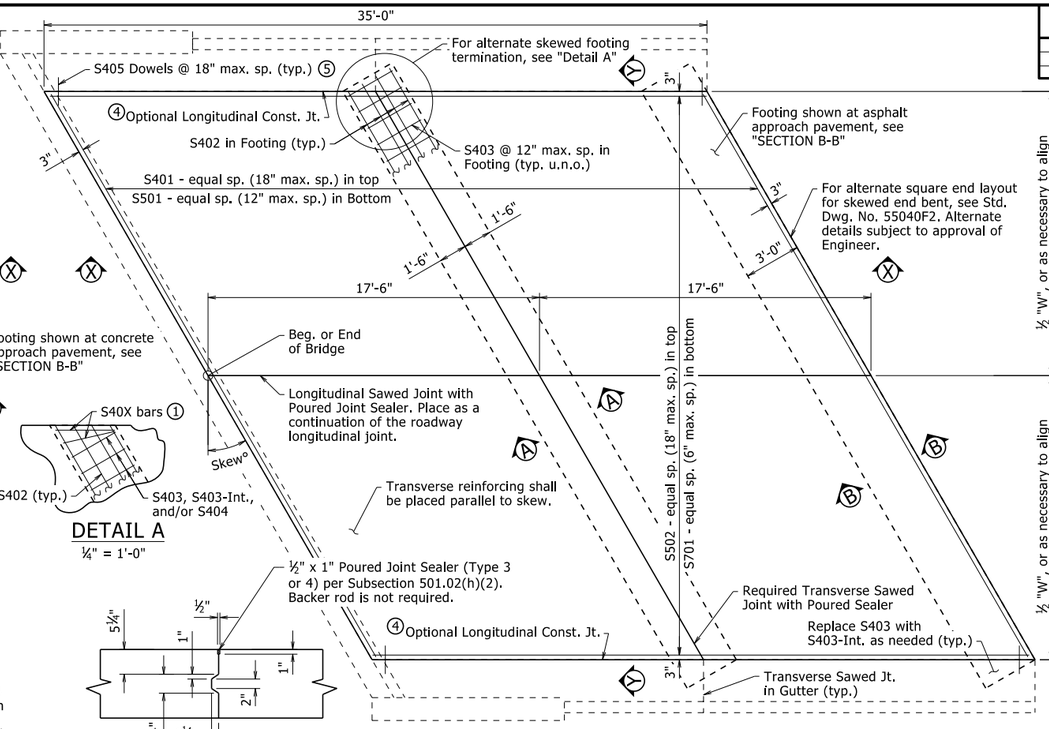
DRAWING NO. 55030F

PRINT DATE: 9/8/2023

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		Type F Approach Slab - 55040F1				

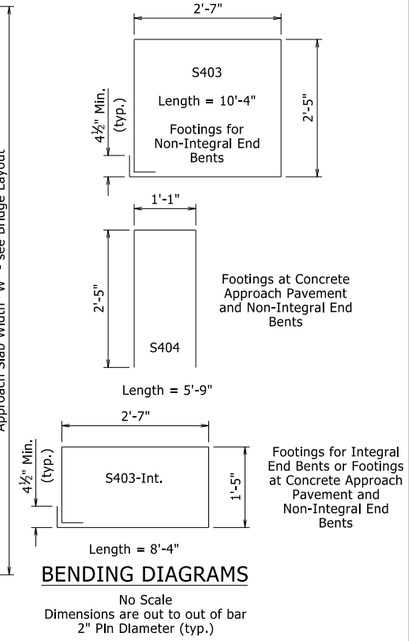


PLAN - APPROACH SLAB AT SQUARE END BENT



LONGITUDINAL CONSTRUCTION JOINT

½" = 1'-0"

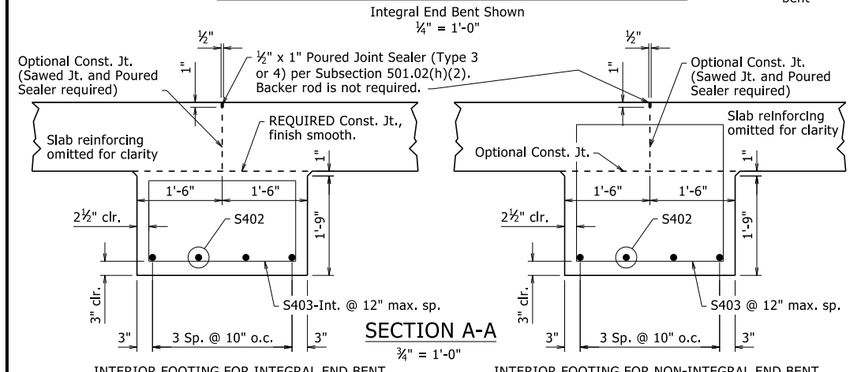


BENDING DIAGRAMS

No Scale
Dimensions are out to out of bar
2" PIn Diameter (typ.)

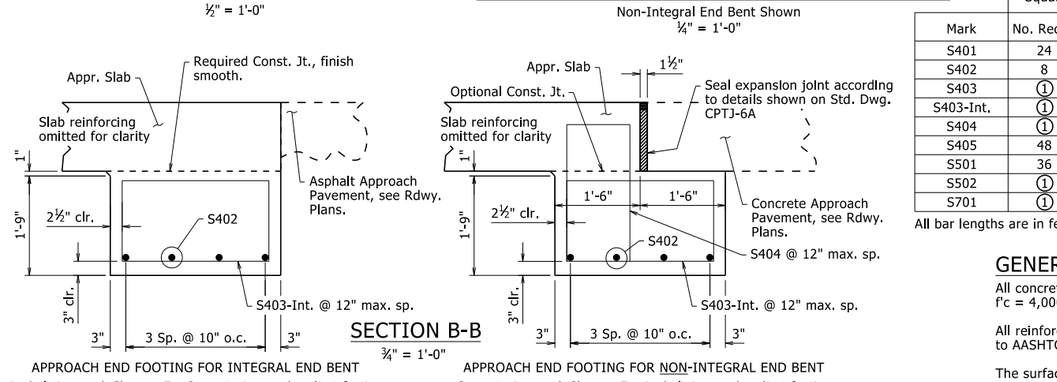
PLAN - APPROACH SLAB AT SKEWED END BENT

Non-Integral End Bent Shown
¼" = 1'-0"



INTERIOR FOOTING FOR INTEGRAL END BENT

INTERIOR FOOTING FOR NON-INTEGRAL END BENT



APPROACH END FOOTING FOR INTEGRAL END BENT

Asphalt Approach Shown. For Concrete Approach, adjust footing location by 1'-6" to add paving notch and include expansion joint.

APPROACH END FOOTING FOR NON-INTEGRAL END BENT

Concrete Approach Shown. For Asphalt Approach, adjust footing location by 1'-6", omit expansion joint, and replace bars S403-Int. & S404 with S403.

BAR LIST - PER APPROACH SLAB

	Square End Bent		Skewed End Bent	
Mark	No. Req'd.	Length	No. Req'd.	Length
S401	24	"W" - 0.33'	24	("W" - 0.33') / cos (Skew°)
S402	8	"W" - 0.33'	8	"W"/cos(Skew°) + 3.0'×tan(Skew°) - 0.33'
S403	①	②	①	②
S403-Int.	①	②	①	②
S404	①	②	①	②
S405	48	1'-6"	48	1'-6"
S501	36	"W" - 0.33'	36	("W" - 0.33') / cos (Skew°)
S502	①	34'-8"	①	34'-8"
S701	①	34'-8"	①	34'-8"

All bar lengths are in feet.

① Varies with Approach Slab Type, Width and/or Skew.
② See "BENDING DIAGRAMS"

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.

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

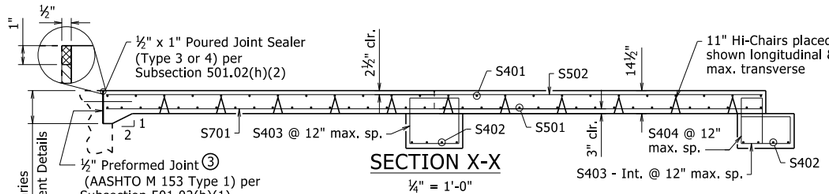
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

See Plans for actual Approach Slab Width, "W", end bent or span details, and approach pavement. Units of "W" are in Feet.

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

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

For Table of Quantities, see "SCHEDULE OF BRIDGE QUANTITIES".



Approach Slab for Square Non-Integral End Bent at Concrete Approach Shown

MINIMUM BAR LAP LENGTH

#4	1'-8"
#5	2'-0"
#7	2'-10"

③ 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.

④ When construction joint is eliminated, place 1" Sawed Joint with ½" x 1" Poured Joint Sealer (Type 3 or 4) per Subsection 501.02(h)(2). Backer rod is not required.

⑤ Eliminate dowels when approach slab is adjacent to curb and gutter, or as directed by the Engineer.

The document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on September 7, 2023. This copy is not a signed and sealed document.

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

BRIDGE ENGINEER

STANDARD DETAILS FOR TYPE F APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

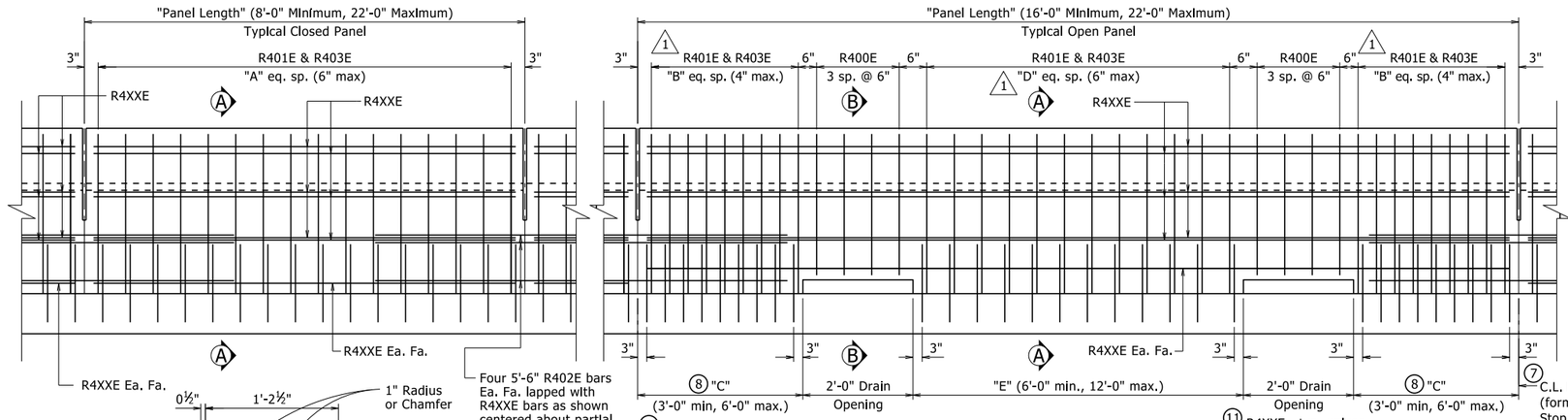
LITTLE ROCK, ARK.

DRAWN BY:	CGP	DATE:	05/12/2023	FILENAME:	b55040f.dgn
CHECKED BY:	JYP	DATE:	05/15/2023	SCALE:	AS NOTED
DESIGNED BY:	STD.	DATE:	-		

DRAWING NO. 55040F1

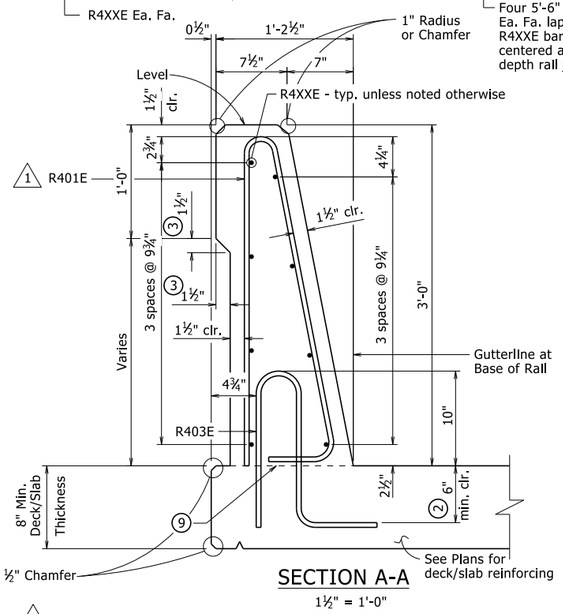
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
09/27/2022				6	ARK.			
				JOB NO.				

TYPE SSTR36 - 55070



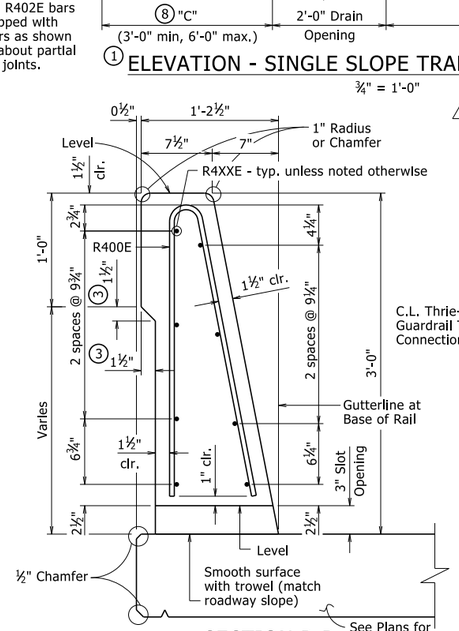
① ELEVATION - SINGLE SLOPE TRAFFIC RAIL

¾" = 1'-0"



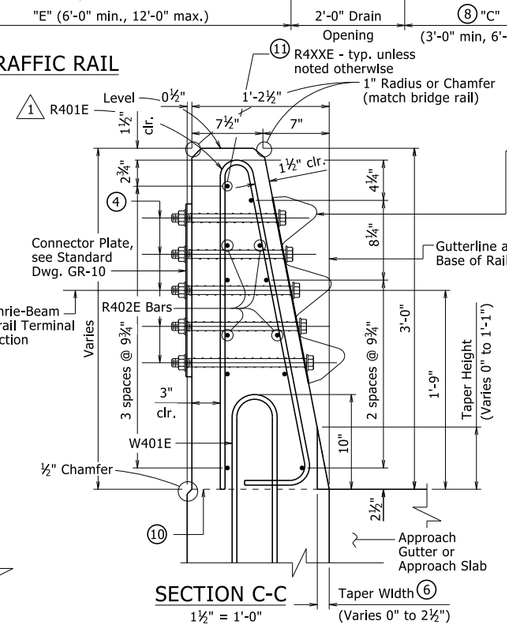
SECTION A-A

1½" = 1'-0"



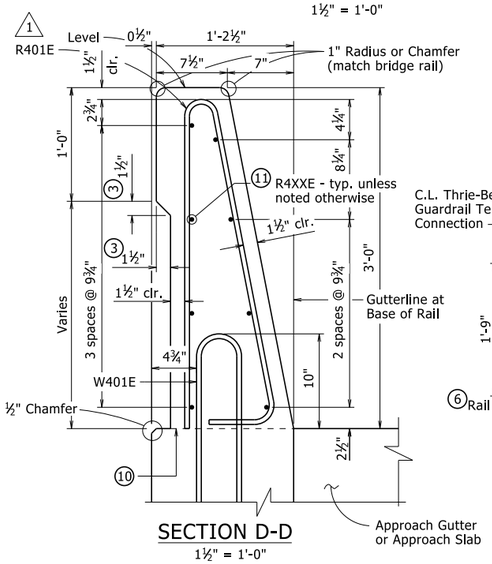
SECTION B-B

1½" = 1'-0"



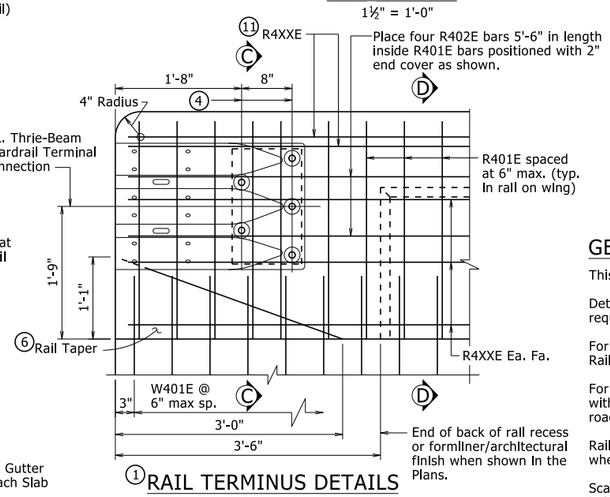
SECTION C-C

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.

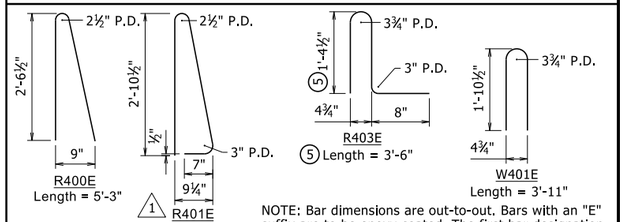
⑥ Field bend front leg of R401E bar as required to maintain minimum 1½" front face clearance within limits of taper.

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.

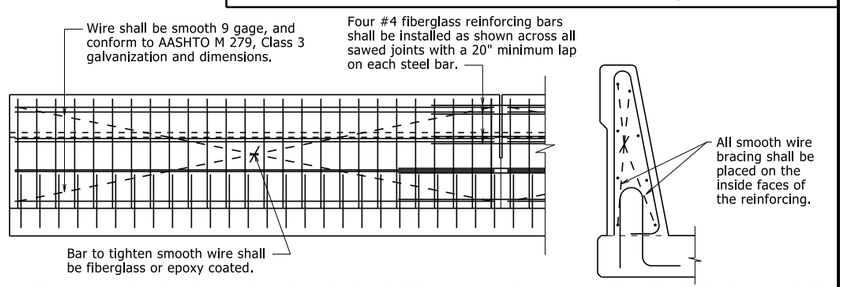
Details shown are general for bridges without sidewalks. See Plans for additional details and requirements specific to bridges with sidewalks.

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

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

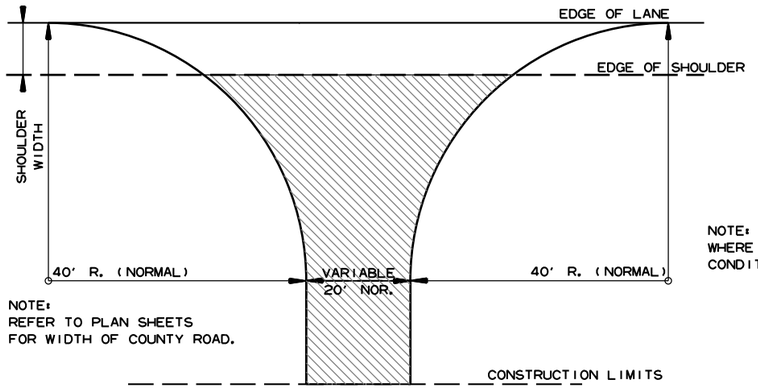
ARKANSAS STATE HIGHWAY COMMISSION

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

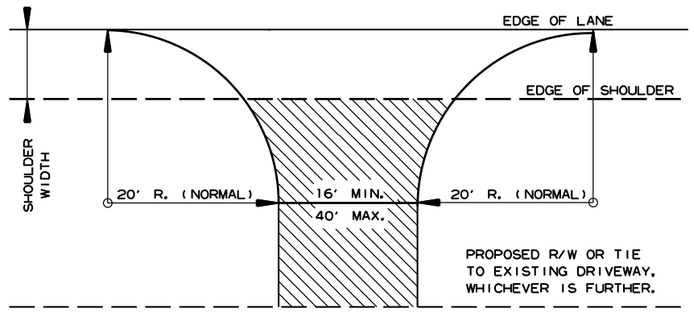


NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.

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.

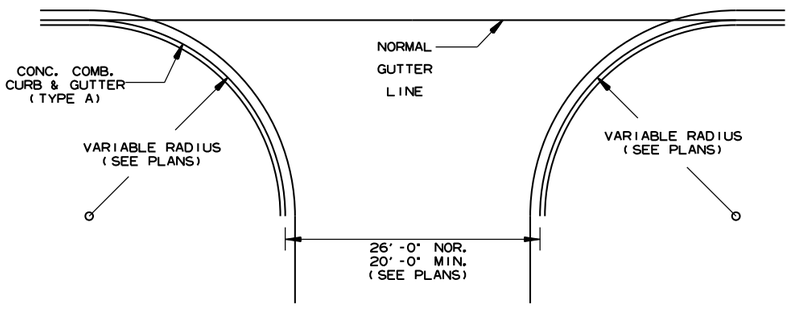
DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION



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

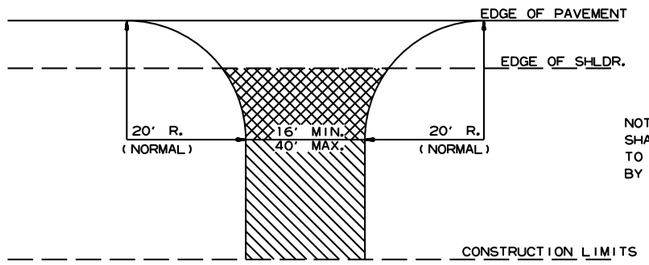
ACHM SURFACE COURSE (1/2")
(220 LBS. PER SQ. YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT OR
GRAVEL DRIVE EXISTING; OR 6"
CONCRETE IF CONCRETE DRIVE
EXISTING.

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

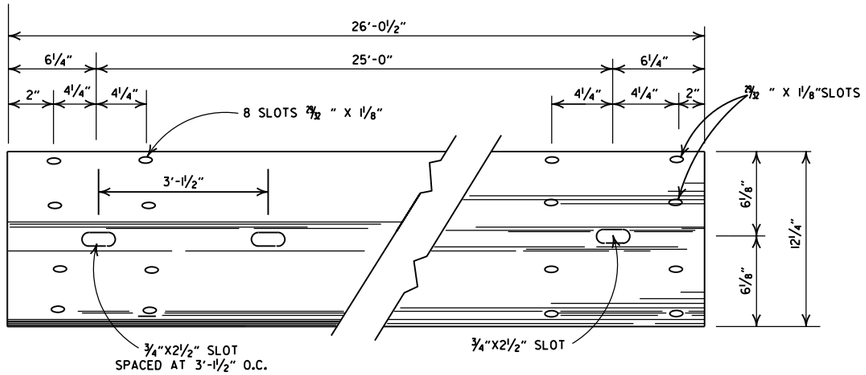
DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)

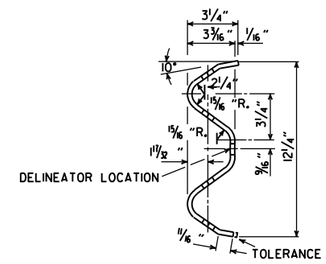
DATE REV	DATE FILMED	DESCRIPTION
5-19-22		ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DRIVEWAYS & STREET TURNOUTS

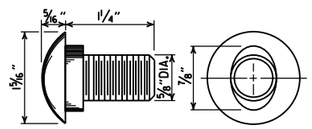
STANDARD DRAWING DR-2



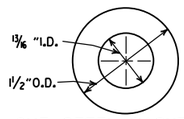


DETAILS OF W-BEAM GUARDRAIL

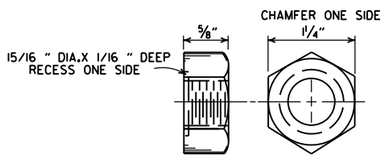
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



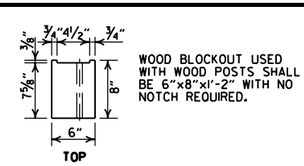
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

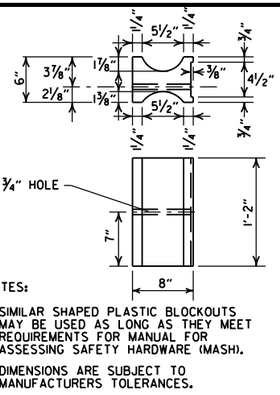


NUT



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

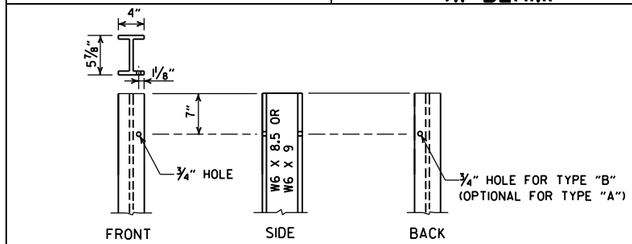
WOOD BLOCKOUT (W-BEAM)



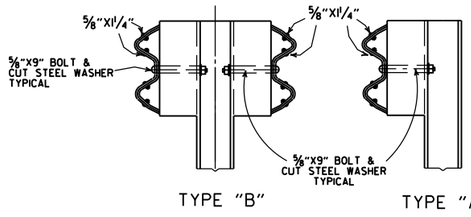
NOTES:

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

PLASTIC BLOCKOUT (W-BEAM)



STEEL POST



DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

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

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

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

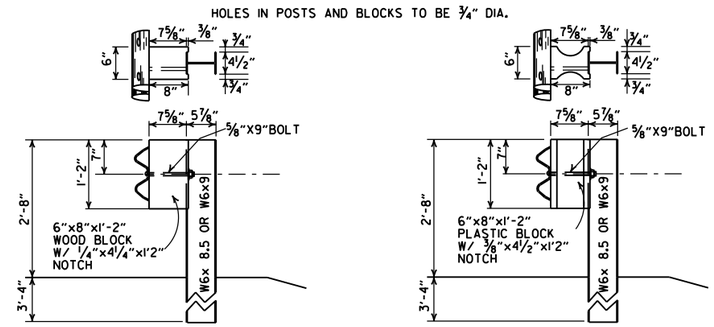
USE W-BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARDRAIL, W-BEAM GUARDRAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

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

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

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

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



WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

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

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

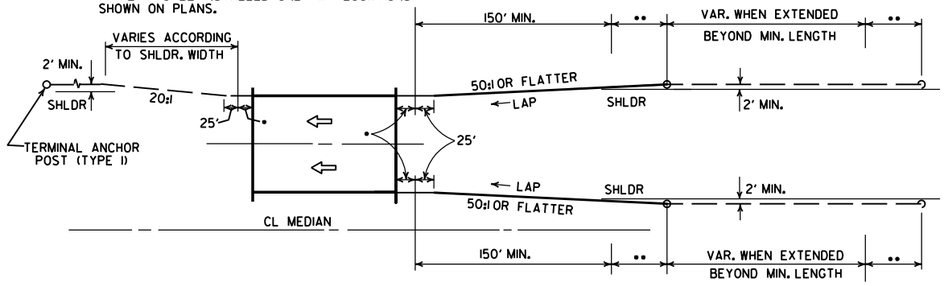
DATE	REVISION	FILMED
05-19-22	REVISED GENERAL NOTES, ADDED DELINEATOR LOCATION.	
11-07-19	RENUMBERED AND RENAMED	
11-16-17	REVISED GENERAL NOTES AND RAISED GUARDRAIL HEIGHT 3"	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED DIMENSION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

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

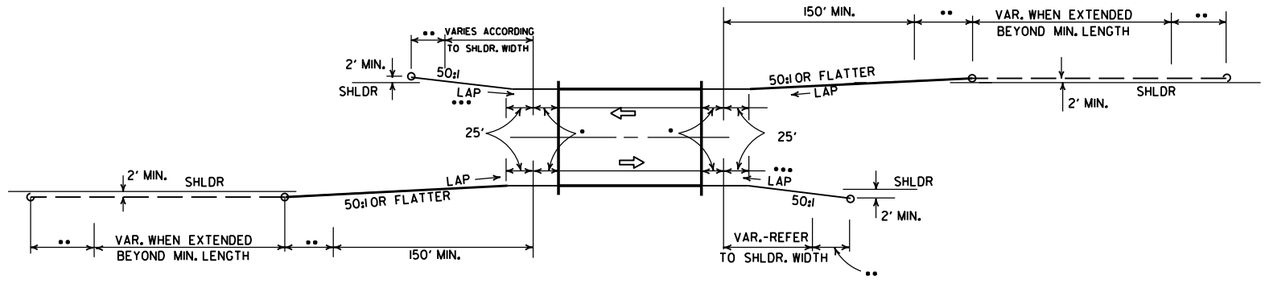
STANDARD DRAWING GR-6

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



ONE-WAY TRAFFIC

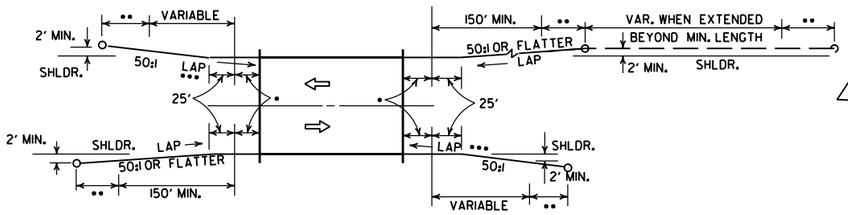
••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

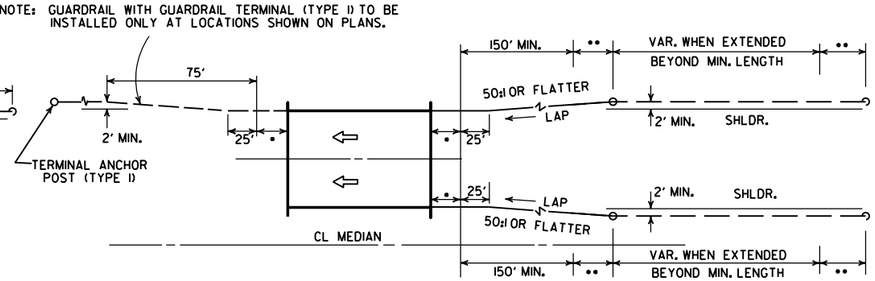
METHODS OF INSTALLATION OF GUARDRAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

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



TWO-WAY TRAFFIC

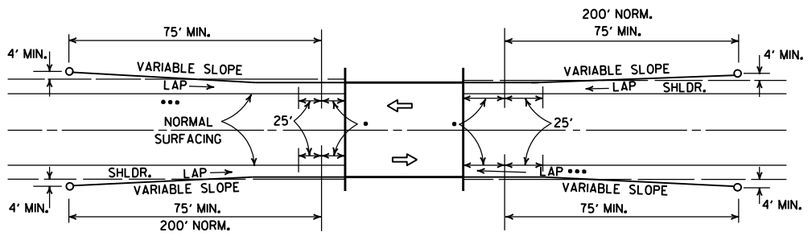
NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

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

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



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

LEGEND

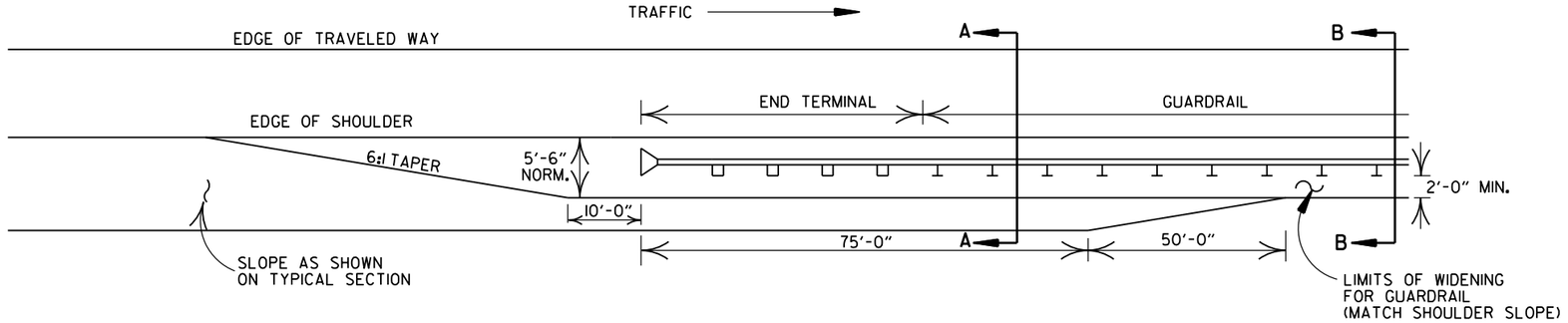
- • THRIE BEAM GUARDRAIL TERMINAL
- •• GUARDRAIL TERMINAL (TYPE 2)

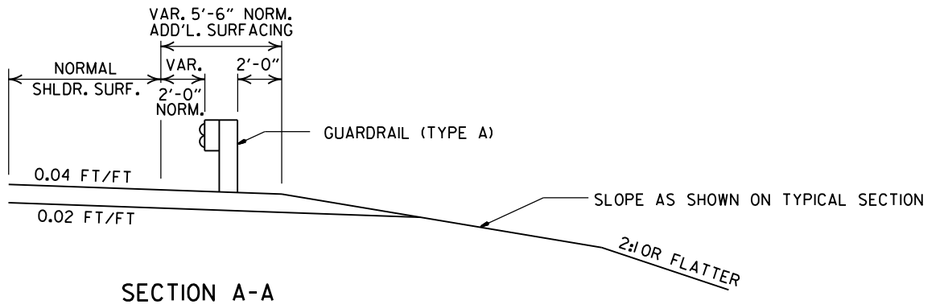
DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARDRAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERM. (TY. 1)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED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

ARKANSAS STATE HIGHWAY COMMISSION

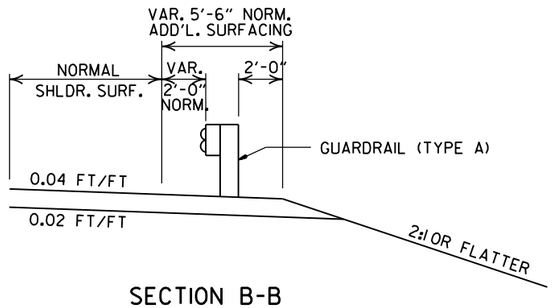
GUARDRAIL DETAILS

STANDARD DRAWING GR-8



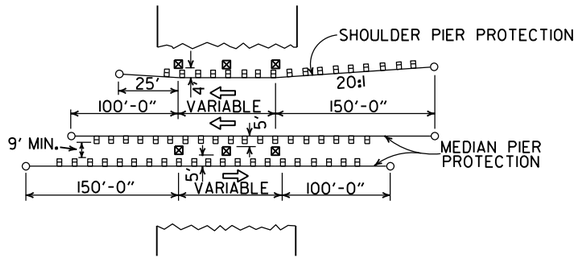


SECTION A-A



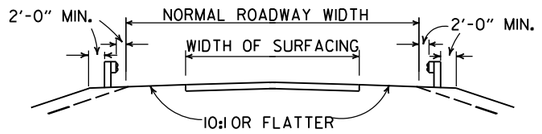
SECTION B-B

DETAILS OF WIDENING FOR GUARDRAIL

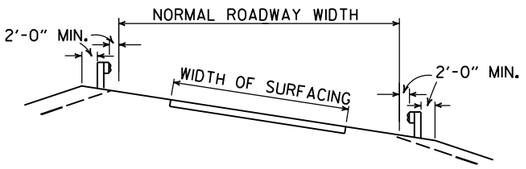


METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

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



SECTION ON TANGENT



SECTION ON CURVE

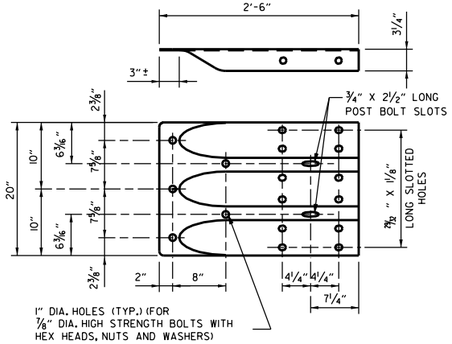
DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY

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

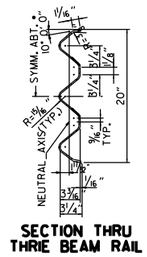
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

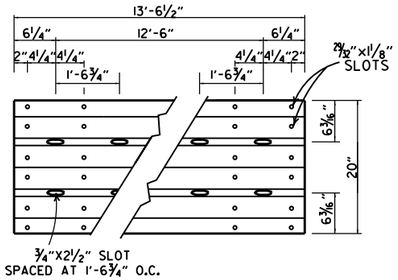
STANDARD DRAWING GR-9



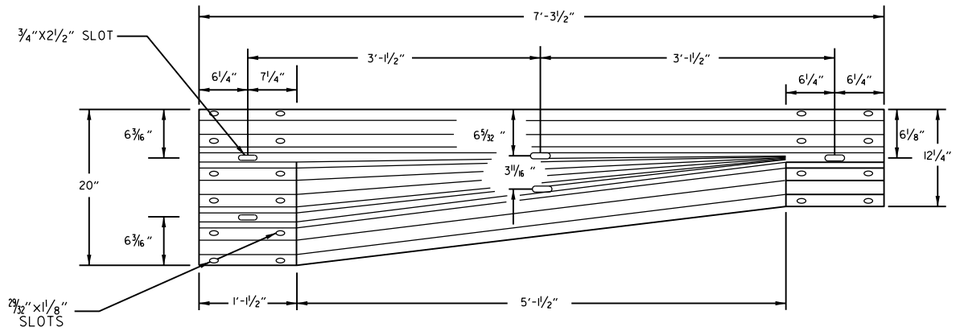
SPECIAL END SHOE



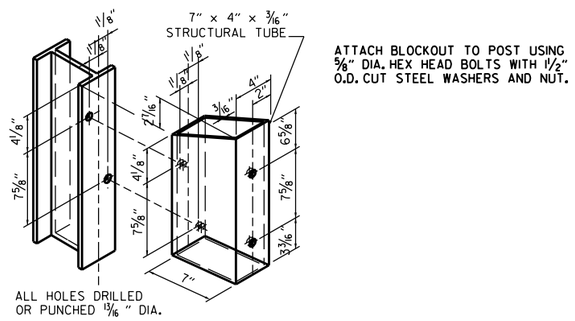
SECTION THRU THRIE BEAM RAIL



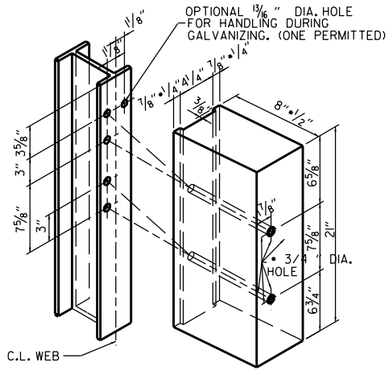
THRIE BEAM RAIL



TRANSITION SECTION



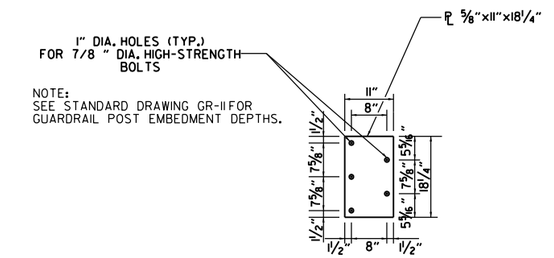
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

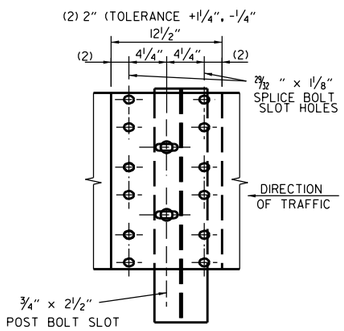
HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

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



CONNECTOR PLATE

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



THRIE BEAM RAIL SPLICE AT POST

GENERAL NOTES:

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

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

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

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

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

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

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

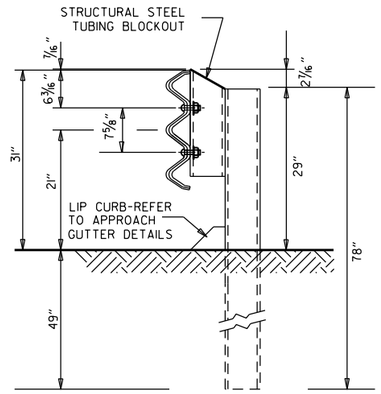
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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

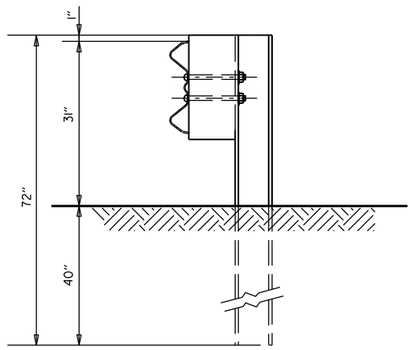
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

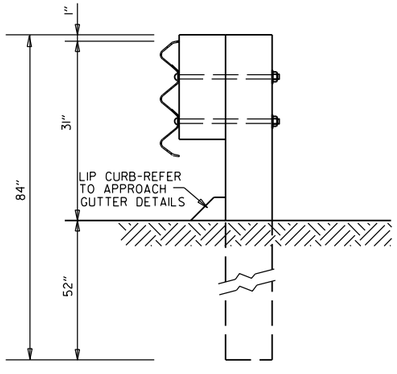
STANDARD DRAWING GR-10



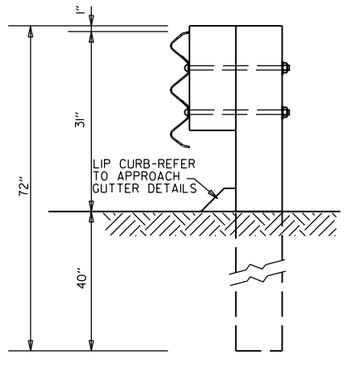
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



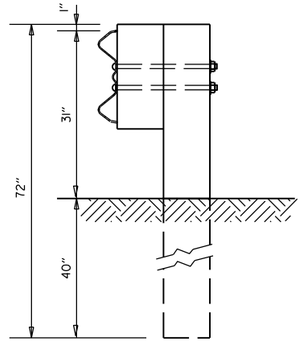
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



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



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



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

GENERAL NOTES:

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

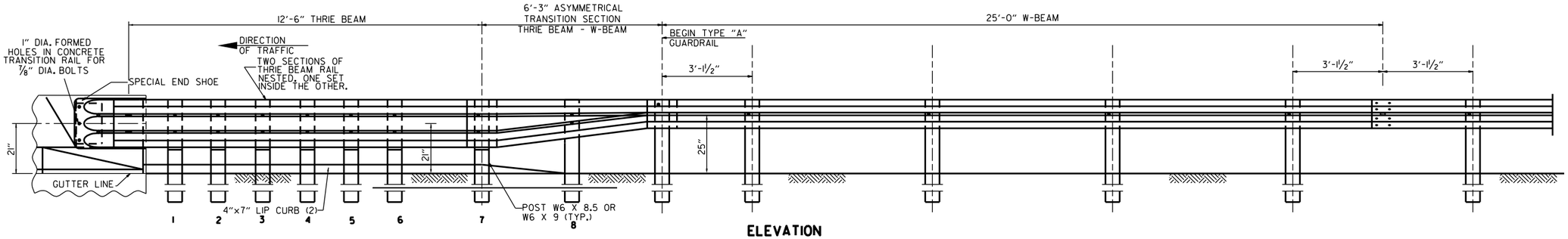
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO.1 1350 f SOUTHERN PINE.

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

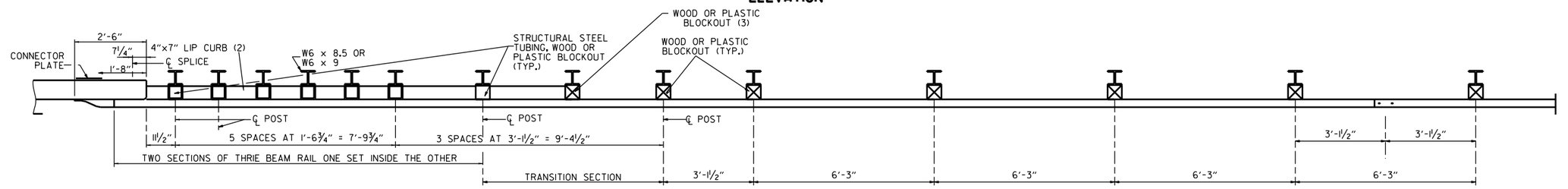
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

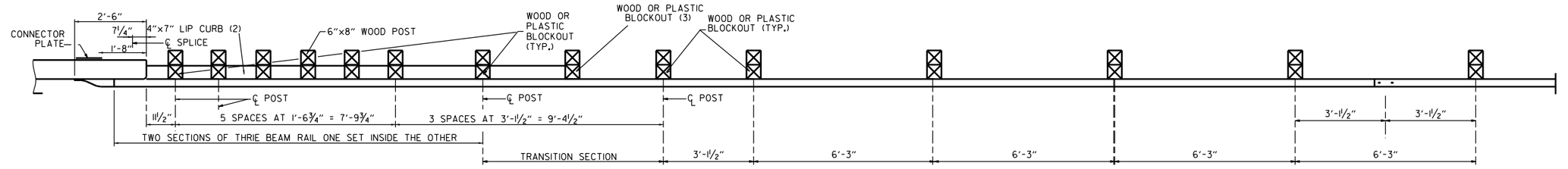
STANDARD DRAWING GR-11



ELEVATION



PLAN



PLAN

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

THRIE BEAM GUARDRAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

STANDARD DRAWING GR-12

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.

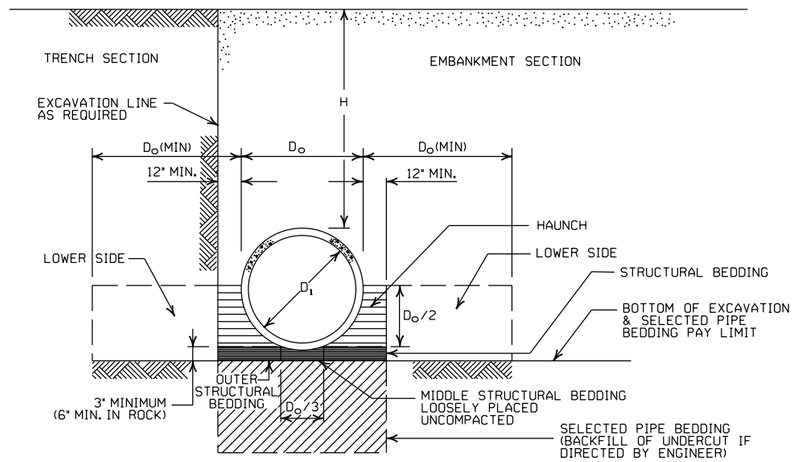
- LEGEND -

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

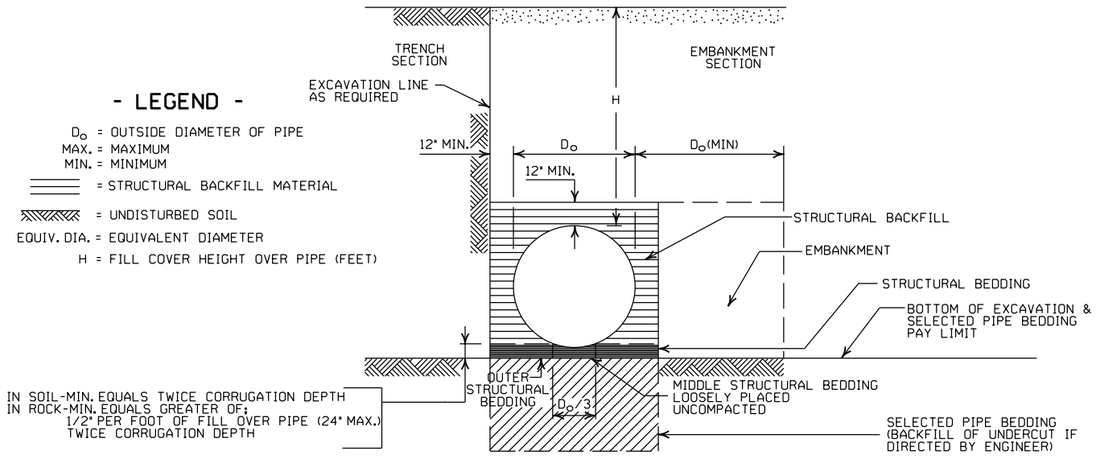
EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)	
				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"

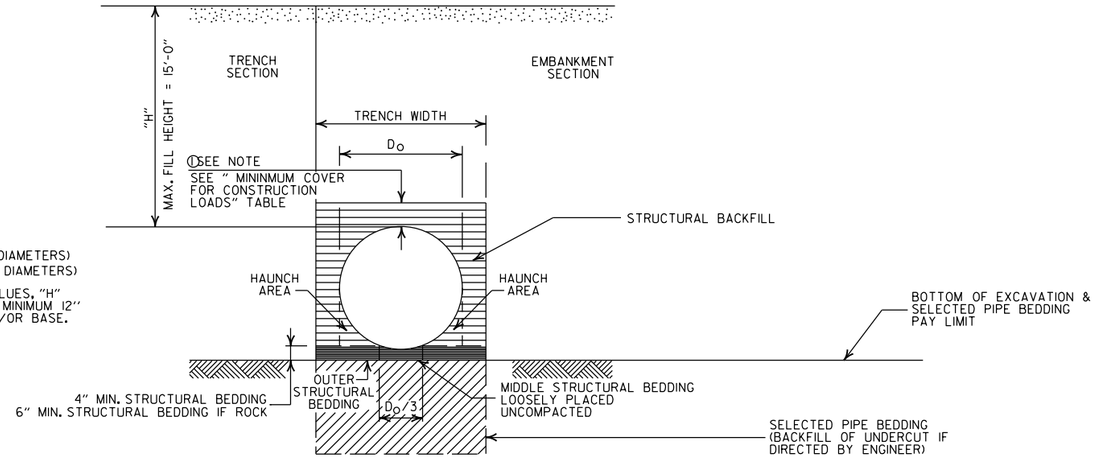
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

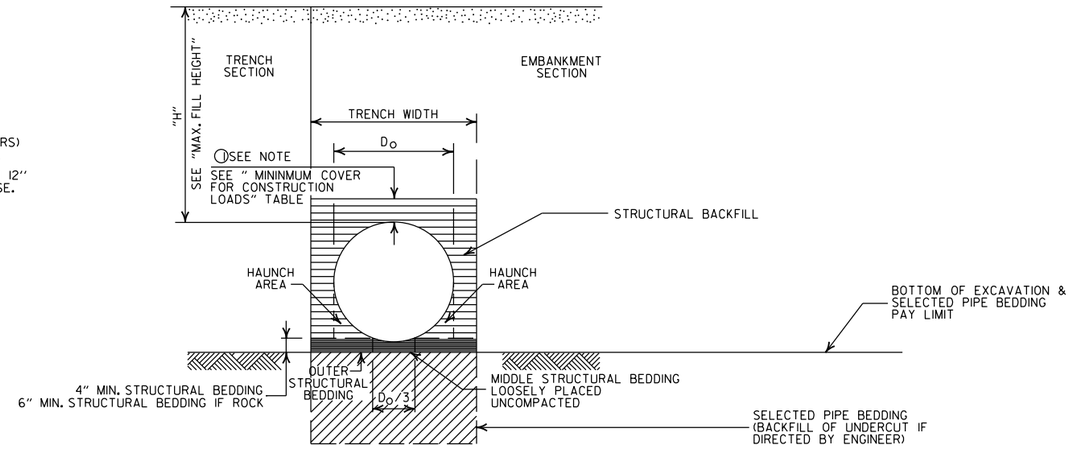
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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"

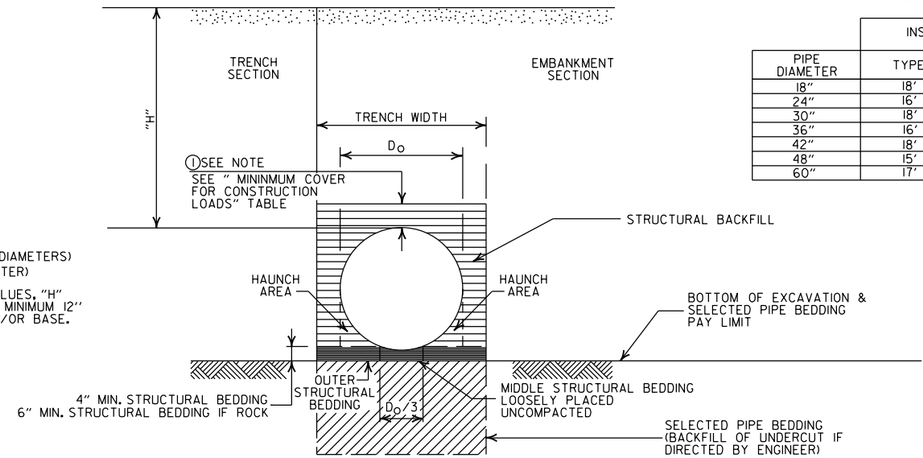
PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"
60"	10'-0"	15'-0"

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

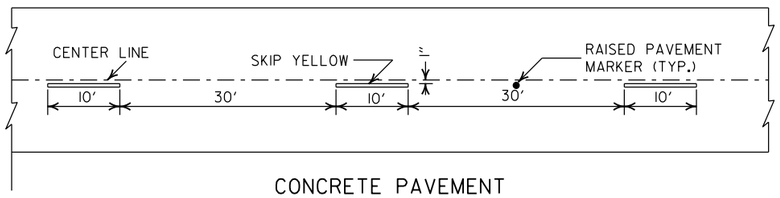
= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
02-27-20	REVISED	
11-07-19	ISSUED	

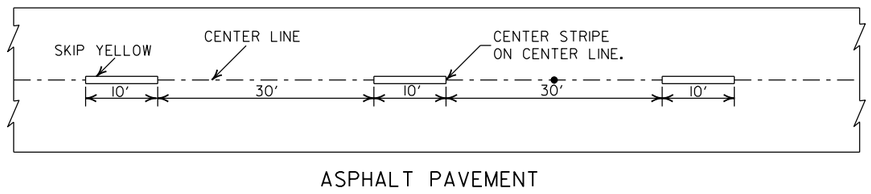
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (POLYPROPYLENE)

STANDARD DRAWING PCP-3

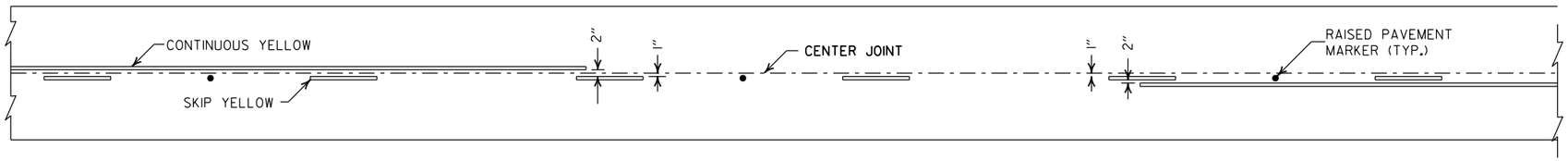


CONCRETE PAVEMENT

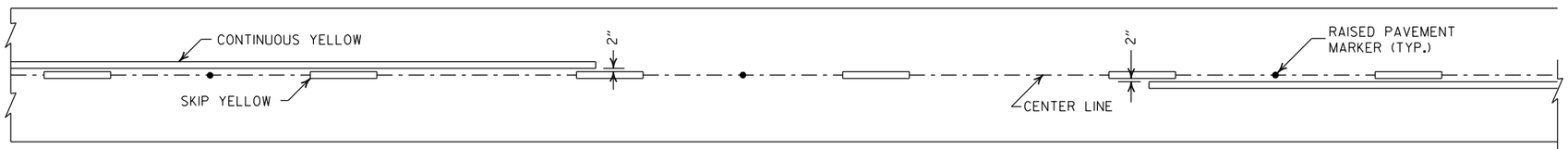


ASPHALT PAVEMENT

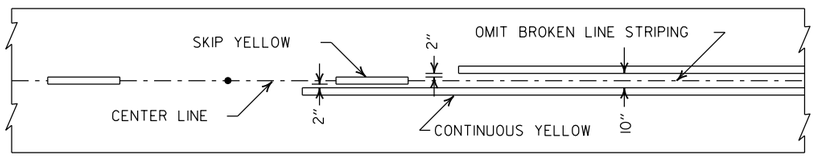
BROKEN LINE STRIPING



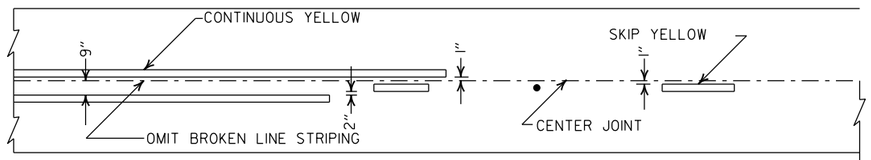
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

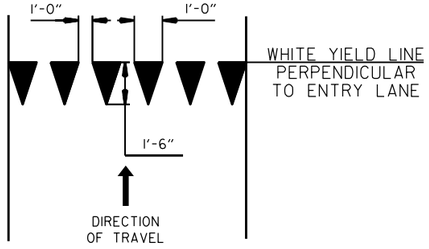


ASPHALT PAVEMENT

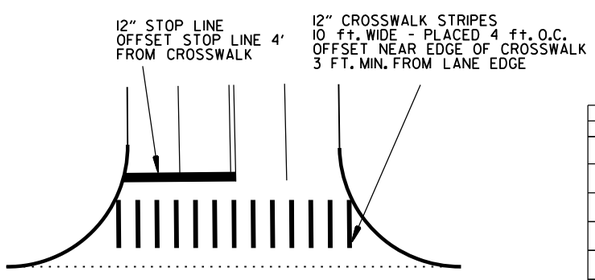


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

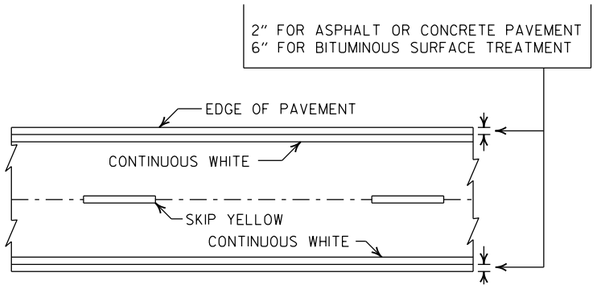


YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

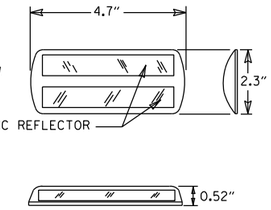
NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.



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

ARKANSAS STATE HIGHWAY COMMISSION

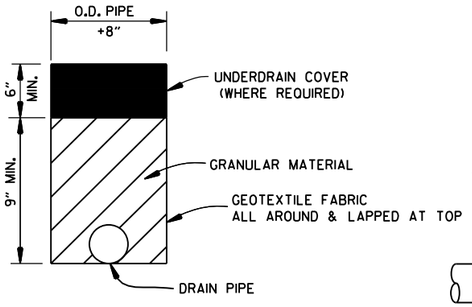
PAVEMENT MARKING DETAILS

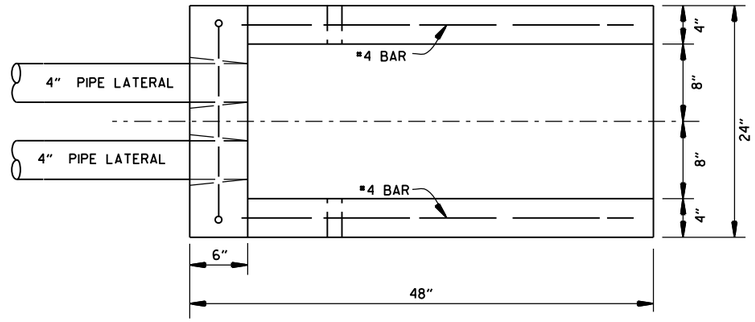
STANDARD DRAWING PM-1

NOTE:

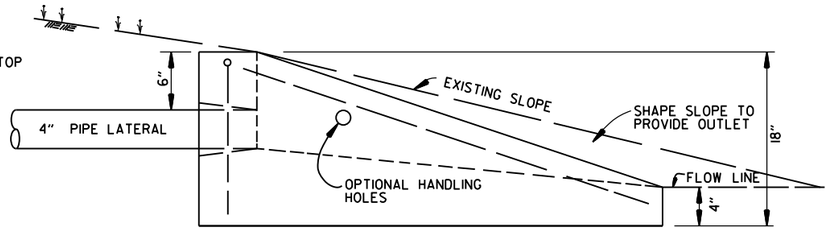
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.

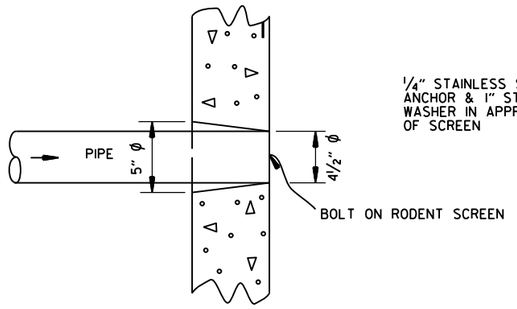




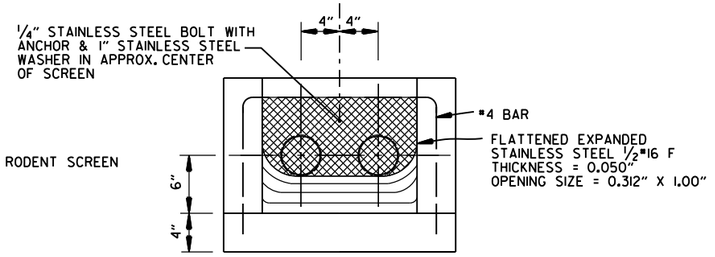
PLAN VIEW



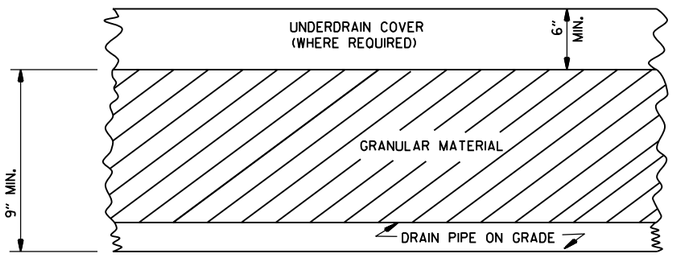
SIDE VIEW



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."

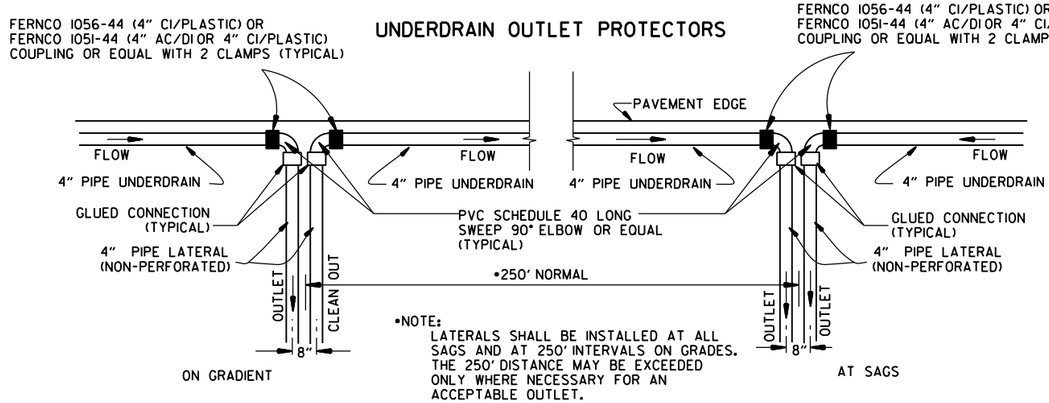
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

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

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

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

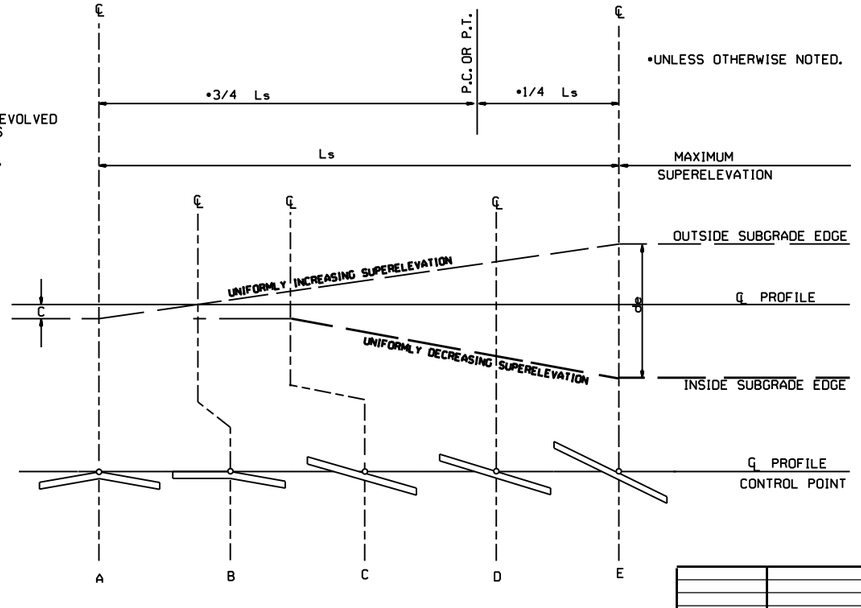
1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED 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%

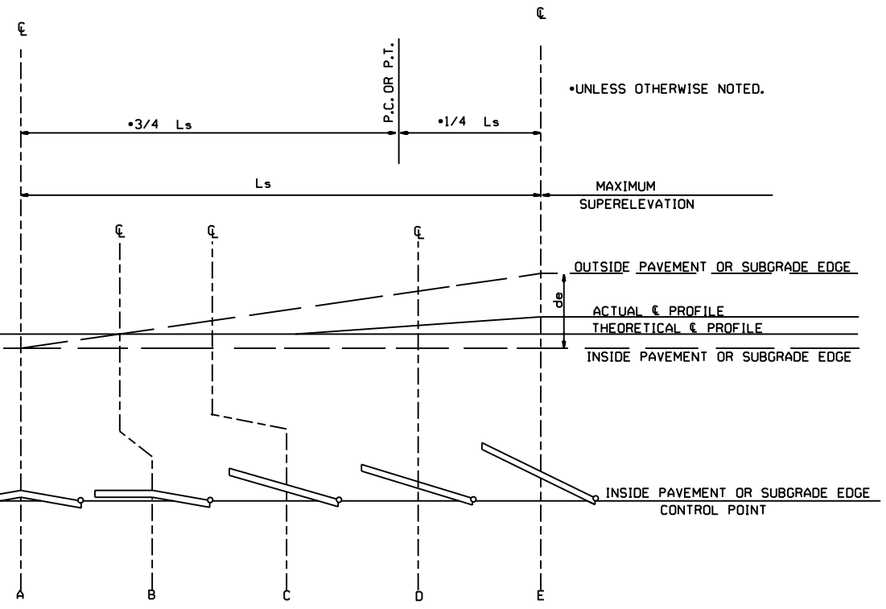
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

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

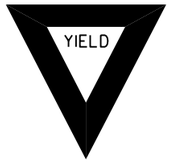
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

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"

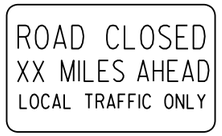
R5-1

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"

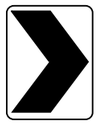
W1-4

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"

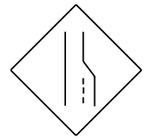
W3-1

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"

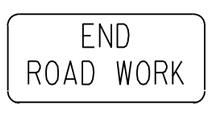
W8-9

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

G20-1

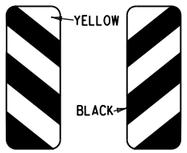
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

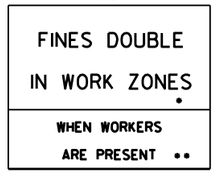
M4-9

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.

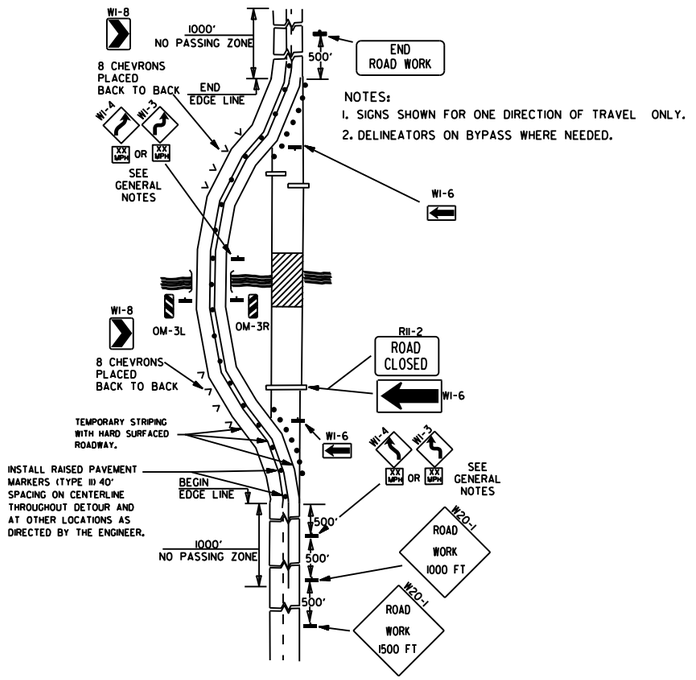
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

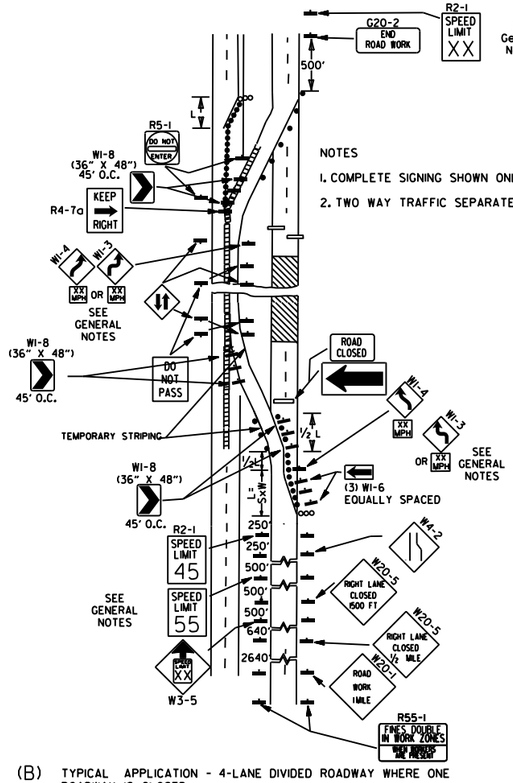
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



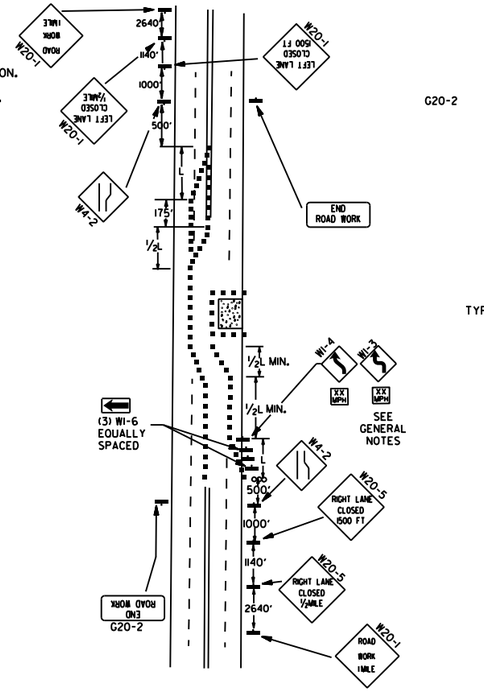
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

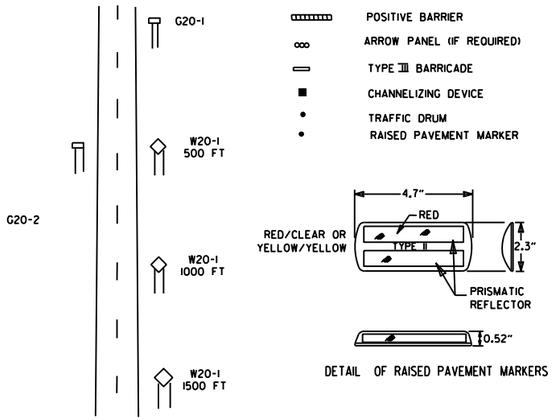


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(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:

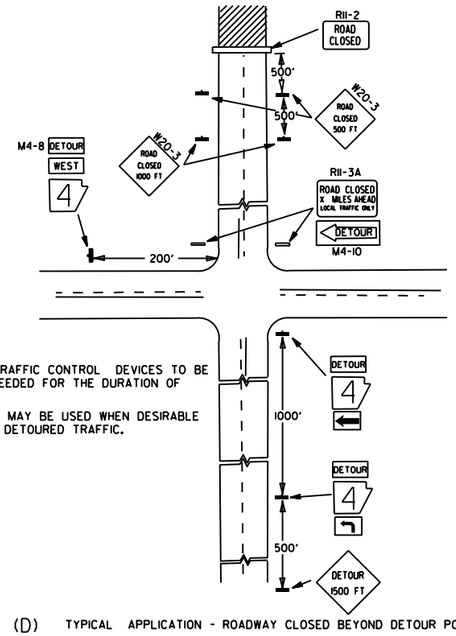
L= MINIMUM LENGTH OF TAPER.

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

W= WIDTH OF OFFSET.

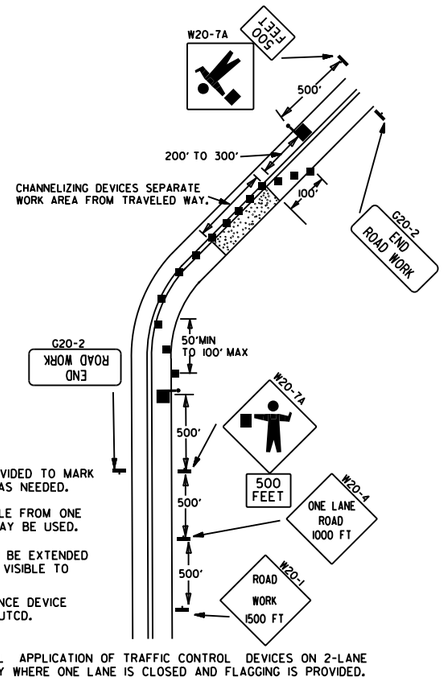
GENERAL NOTES:

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).



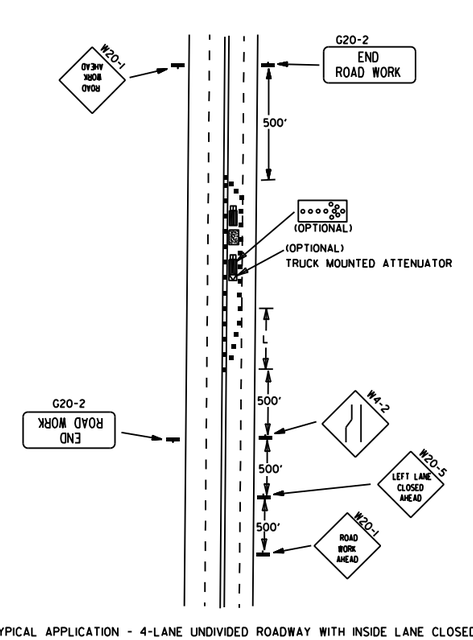
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(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.



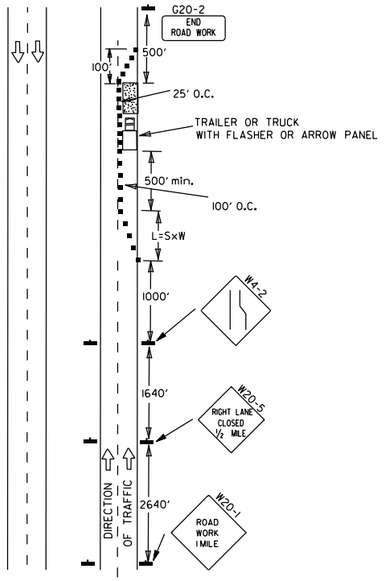
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

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	

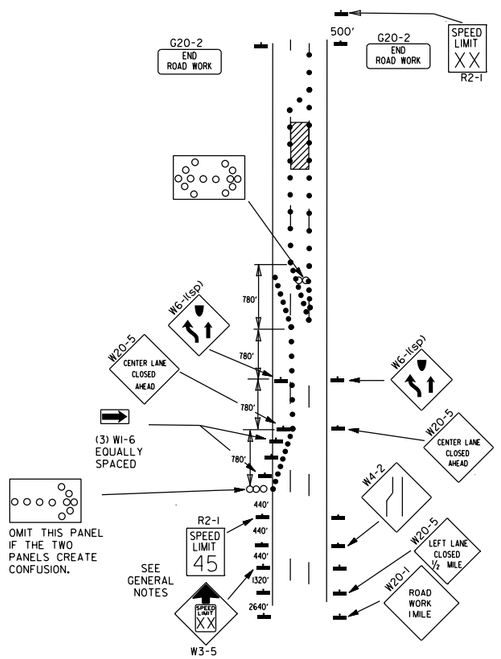
ARKANSAS STATE HIGHWAY COMMISSION

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:

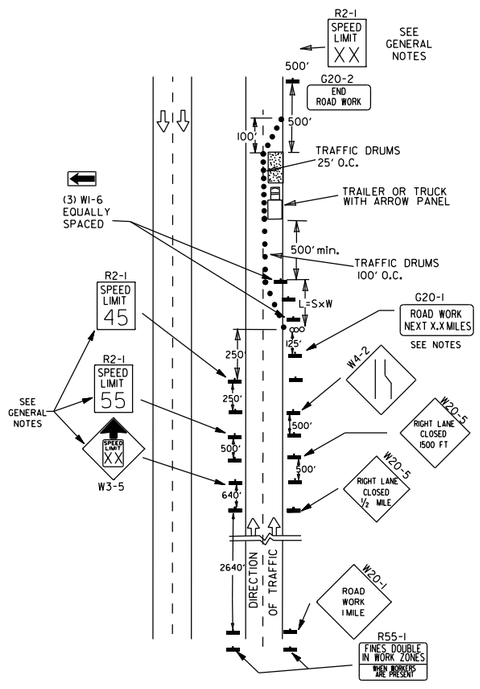
ARROW PANEL (IF REQUIRED)

■ CHANNELIZING DEVICE

● TRAFFIC DRUM

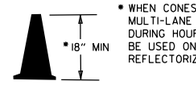
GENERAL NOTES:

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.

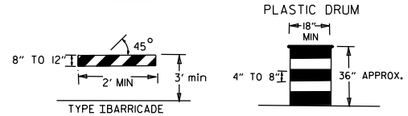
CHANNELIZING DEVICES



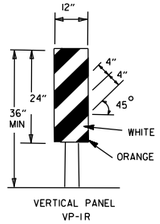
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

CONES

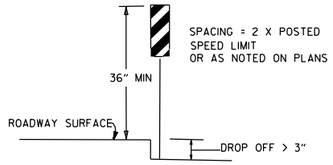
PLASTIC DRUM



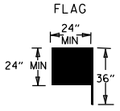
NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.



VERTICAL PANEL PLACEMENT



FLAG



FLAG SHALL BE OF GOOD GRADE RED MATERIAL

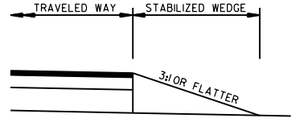
TRAFFIC CONTROL DEVICES			
NON-INTERSTATE			
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 1"	CENTERLINE	W8-11	W8-11
> 1" ≤ 3"	CENTERLINE	W8-11 AND CENTERLINE LANE STRIPING	W8-11 AND CENTERLINE LANE STRIPING
> 3"	CENTERLINE	STANDARD LANE CLOSURE[6]	STANDARD LANE CLOSURE[6]
≤ 3"	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:

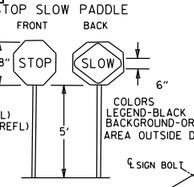
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL 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).

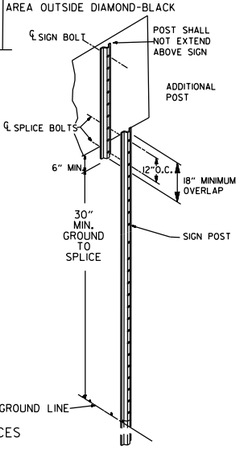


STABILIZED WEDGE

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

STOP SLOW PADDLE

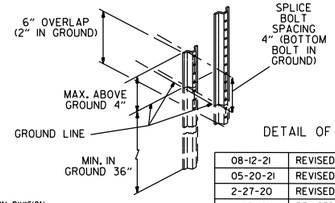




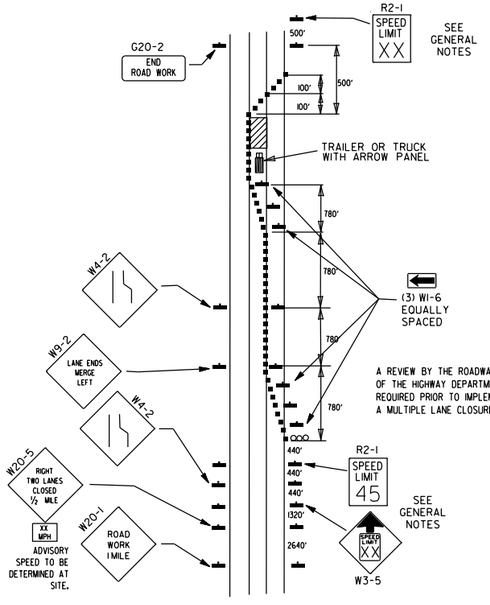
NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

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	

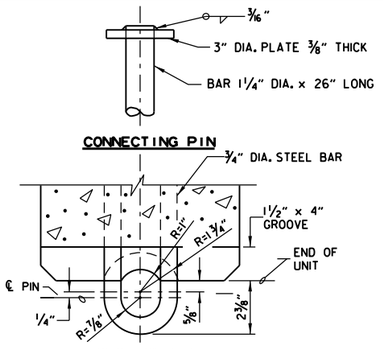
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3

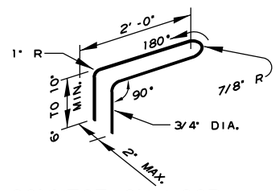
REINFORCING BAR TABLE PER BARRIER UNIT

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"

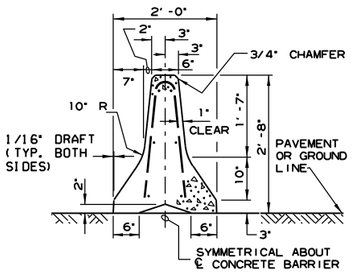


SECTION E-E

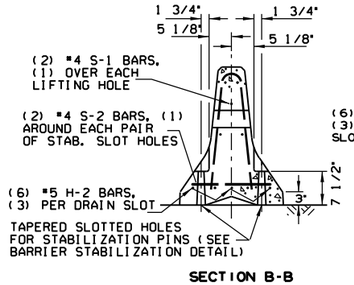
CONNECTION DETAILS



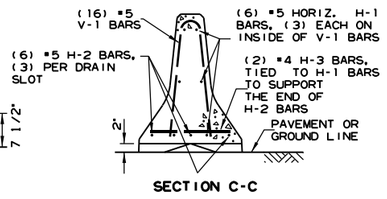
CONNECTION LOOP



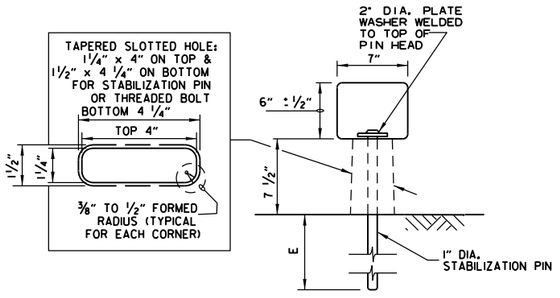
SECTION A-A



SECTION B-B



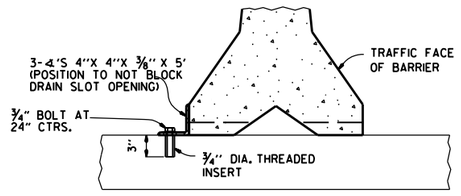
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

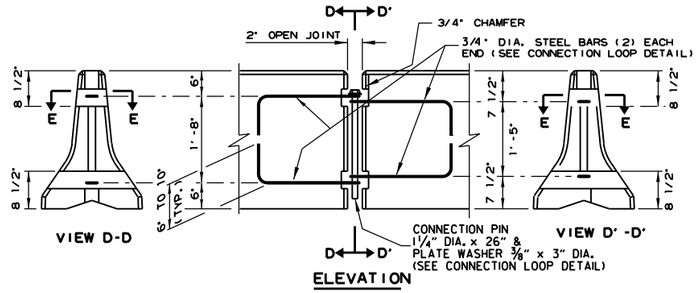
(E) 4" - CONCRETE PAVEMENT
8" - ASPHALT PAVEMENT
12" - SHOULDER AREAS



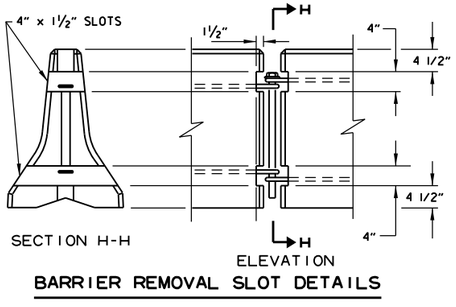
NOTE: " THREADED INSERTS SHALL BE CAST IN PLACE FOR ALL NEW BRIDGE DECKS AND DRILLED AND GROUTED FOR EXISTING BRIDGE DECKS. INSERTS SHALL HAVE A MINIMUM ULTIMATE LOAD CAPACITY OF 8000 LBS. IN TENSION. AFTER REMOVAL OF BARRIER, BOLTS, AND ANGLES, THE INSERTS SHALL BE FILLED WITH APPROVED NON-SHRINK EPOXY.

BARRIER STABILIZATION DETAIL

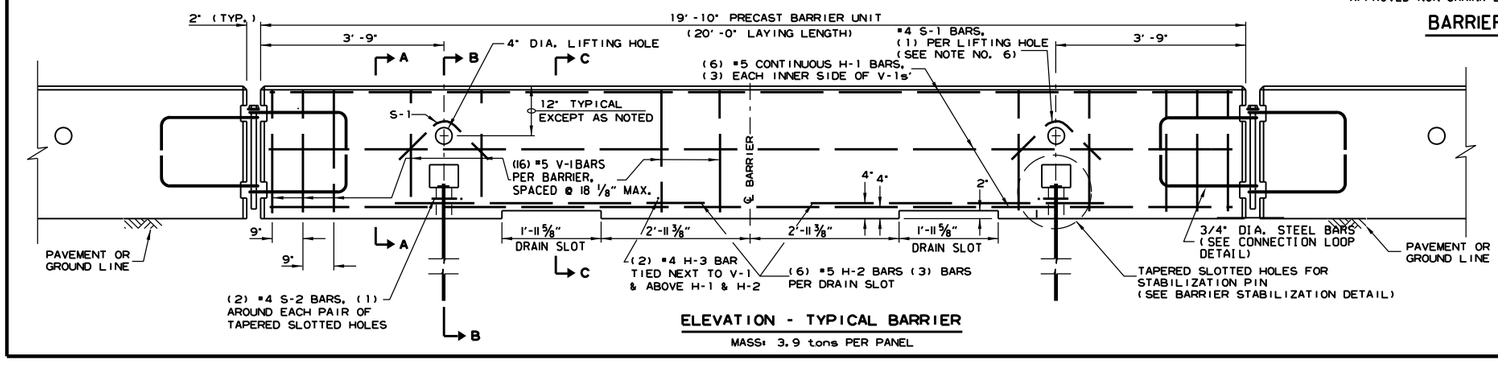
BRIDGE DECKS



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.

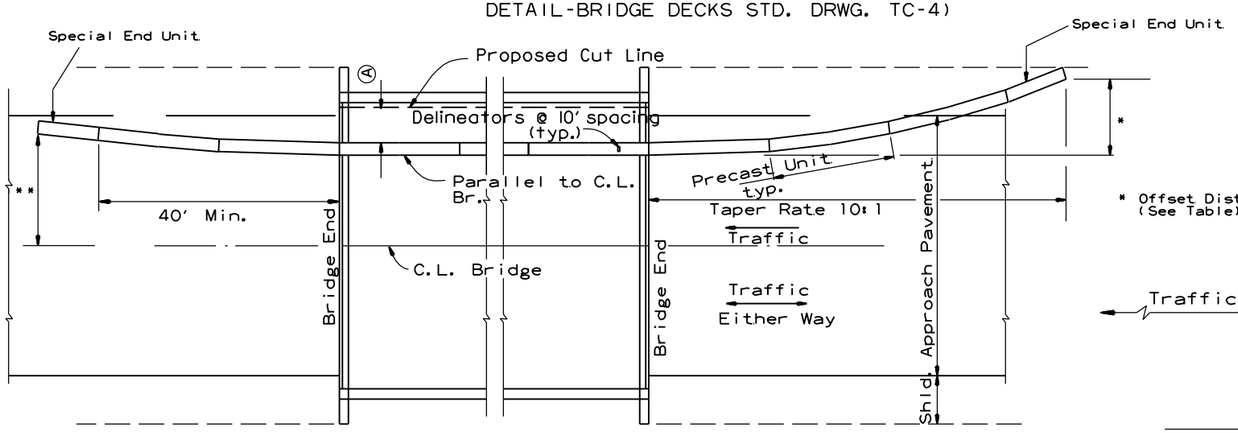
DATE	REVISION	FILMED
11-07-19	REVISED NOTE 3	
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO WASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED 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

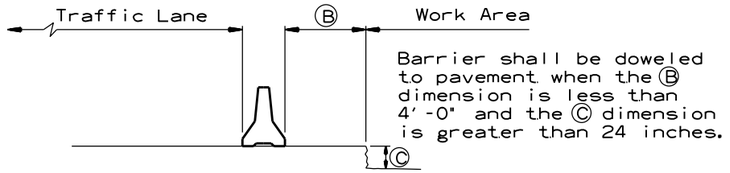
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



* Offset Distance (See Table)

BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

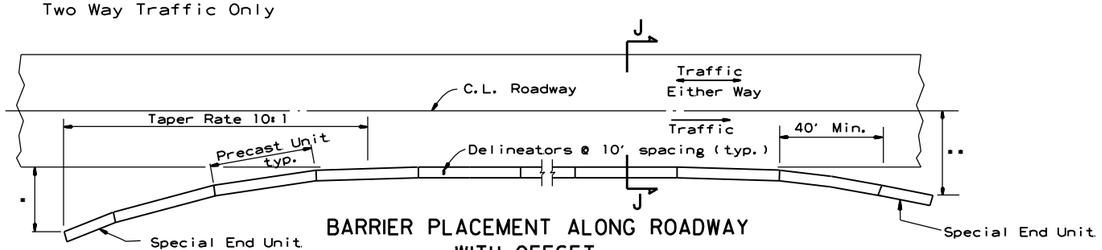


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

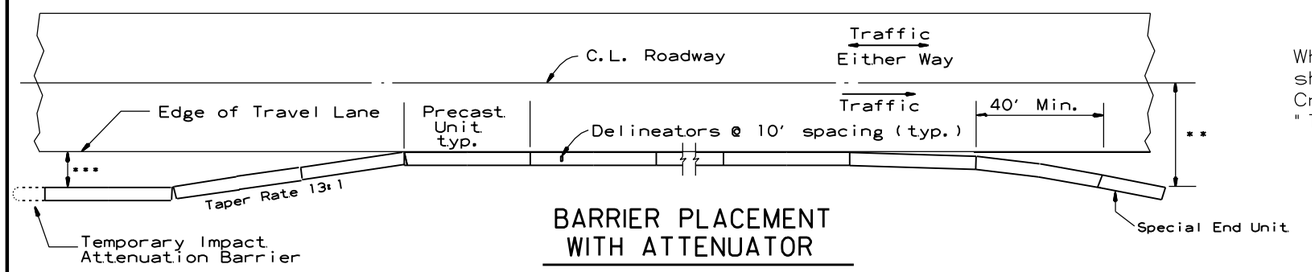
* Offset Distance (See Table)

** 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.

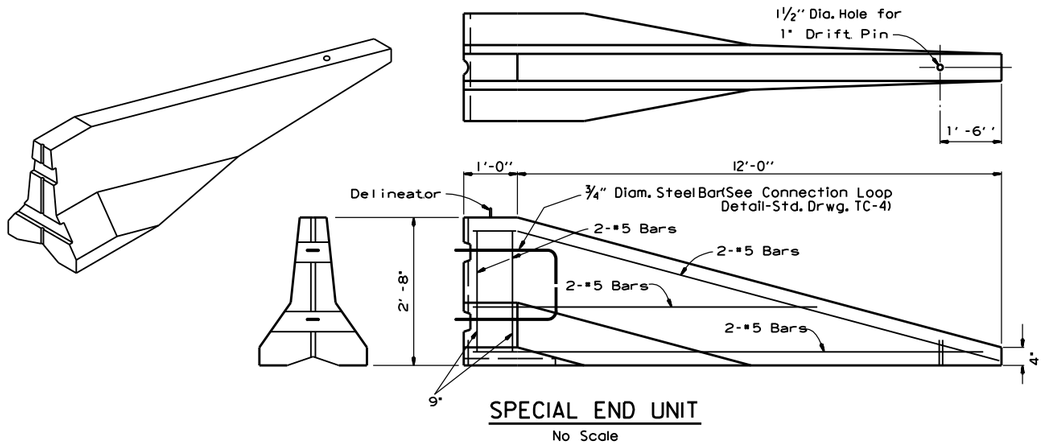


BARRIER PLACEMENT WITH ATTENUATOR

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	

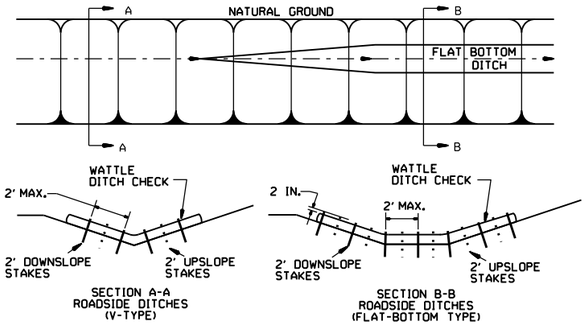
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

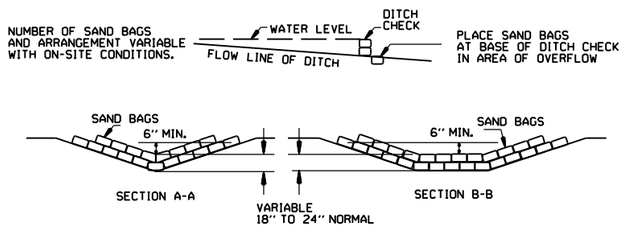
STANDARD DRAWING TC-5

GENERAL NOTES

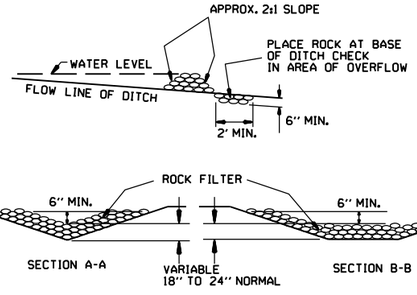
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

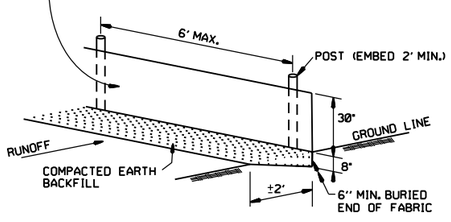


ROCK DITCH CHECK (E-6)

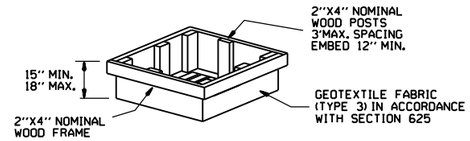
GENERAL NOTES

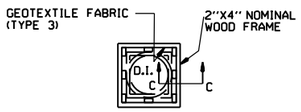
GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

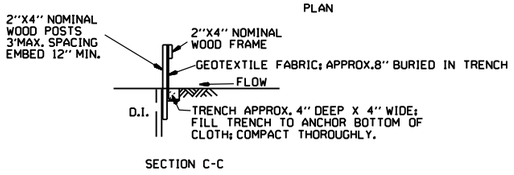
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



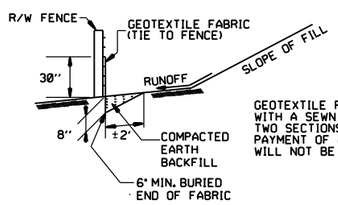
SILT FENCE (E-11)





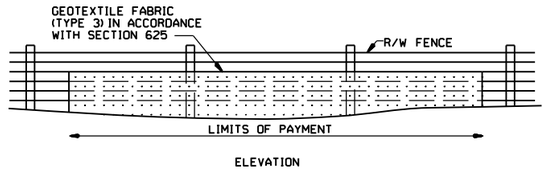


DROP INLET SILT FENCE (E-7)



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.



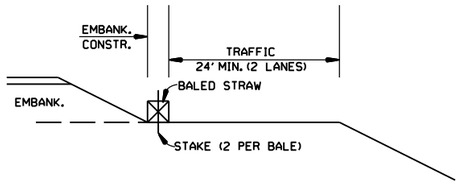
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

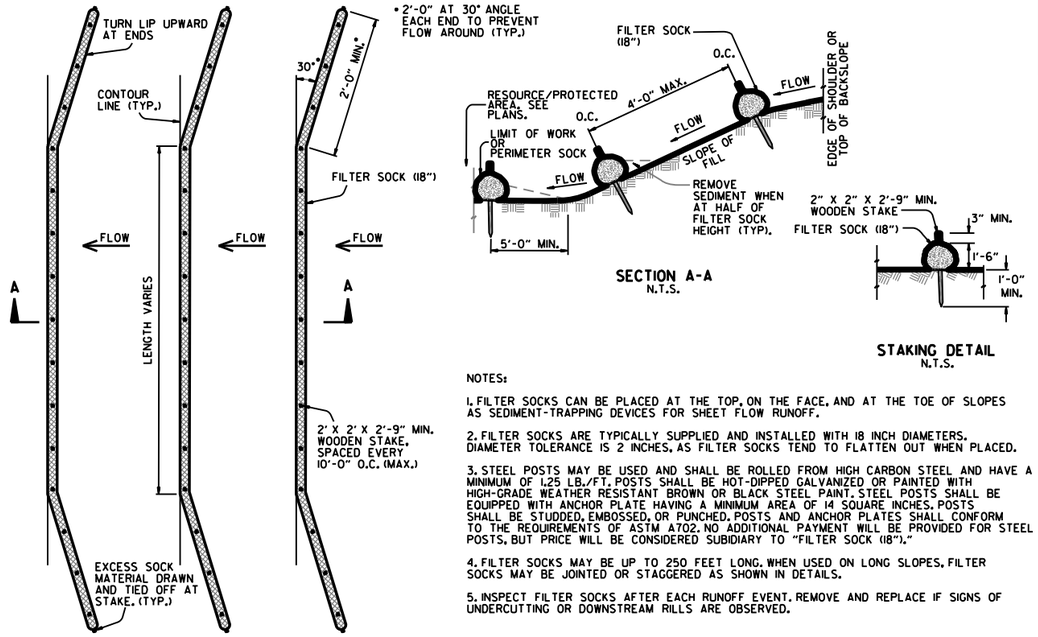
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

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.

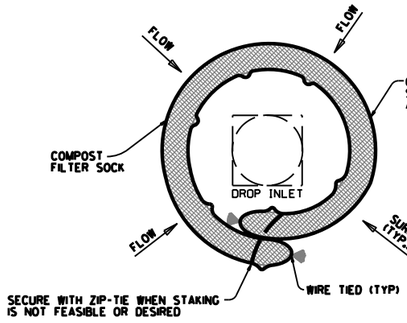
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

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")."

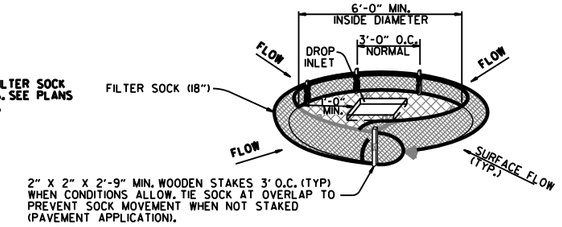
4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

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.

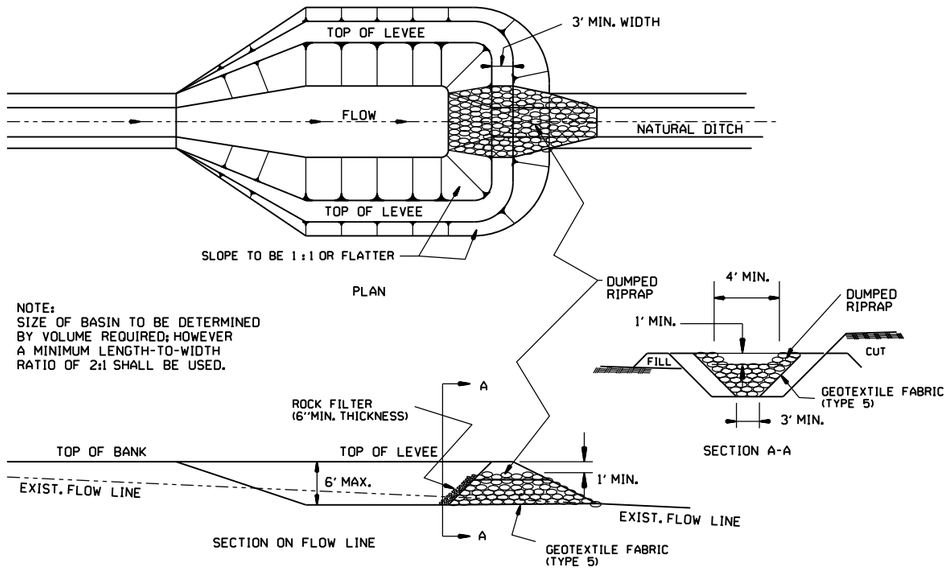
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

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

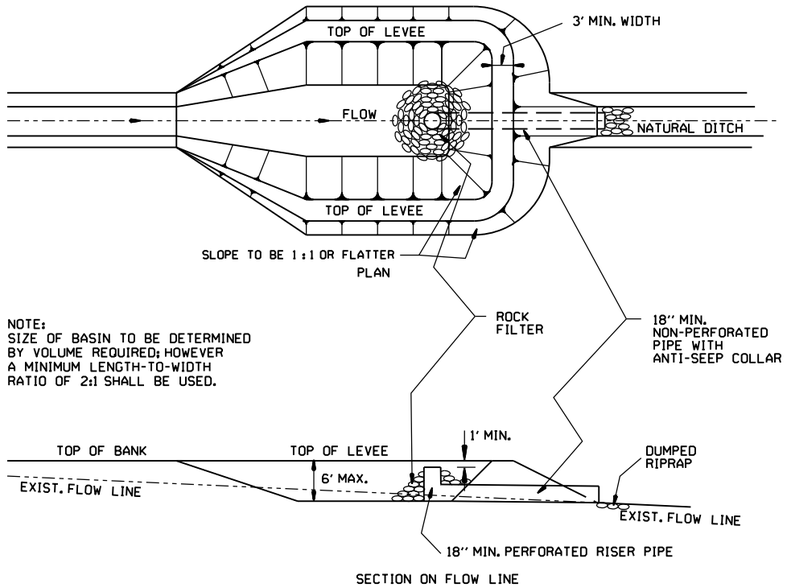
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

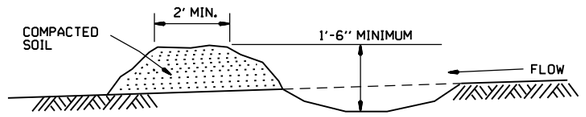
STANDARD DRAWING TEC-1



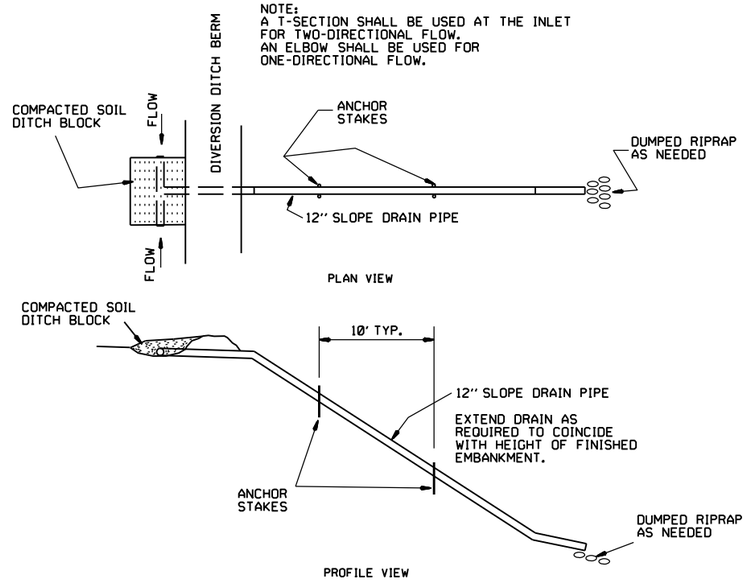
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



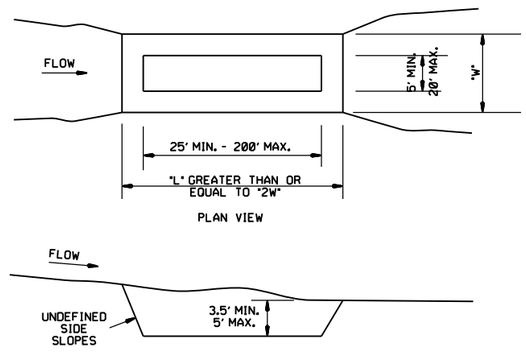
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

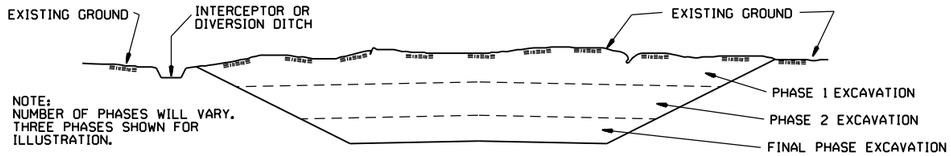
STANDARD DRAWING TEC-2

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



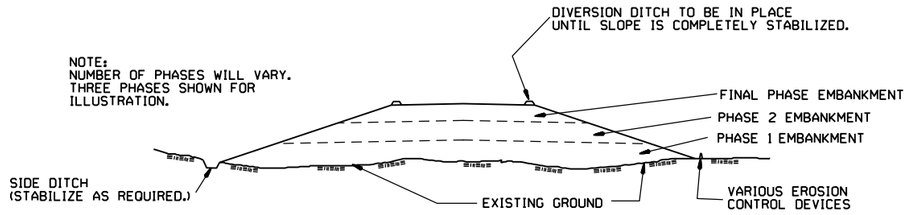
GENERAL NOTE

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