DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	1	101

(2) HWY. 34 STRS. & APPRS. (S)

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

HWY. 34 STRS. & APPRS. (S)

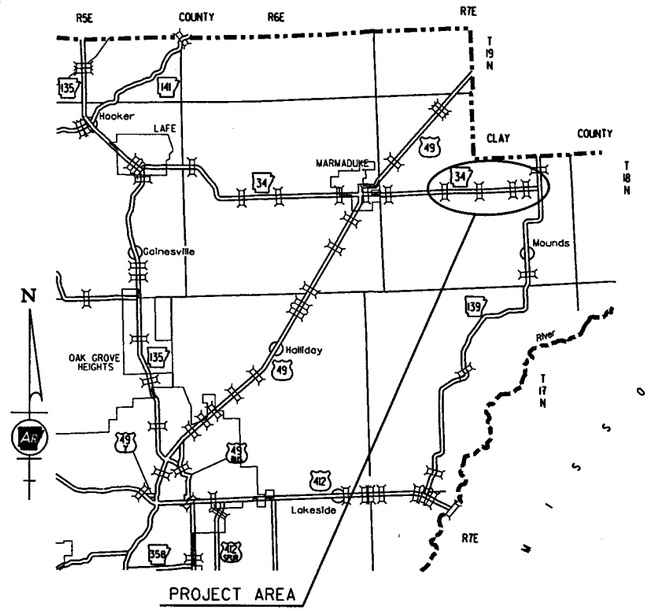
GREENE COUNTY

ROUTE 34 SECTION 4

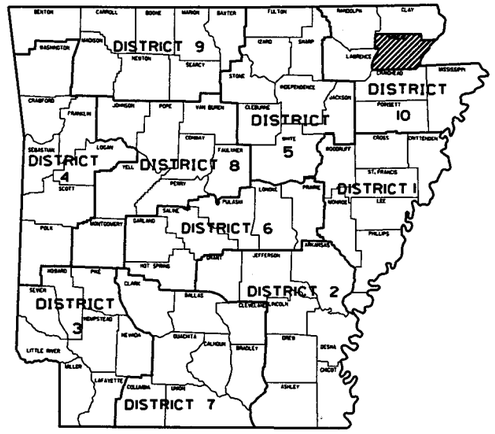
FEDERAL AID PROJ. NHPP-0028(44)

JOB 100870

NOT TO SCALE



VICINITY MAP



ARK. HWY. DIST. NO. 10

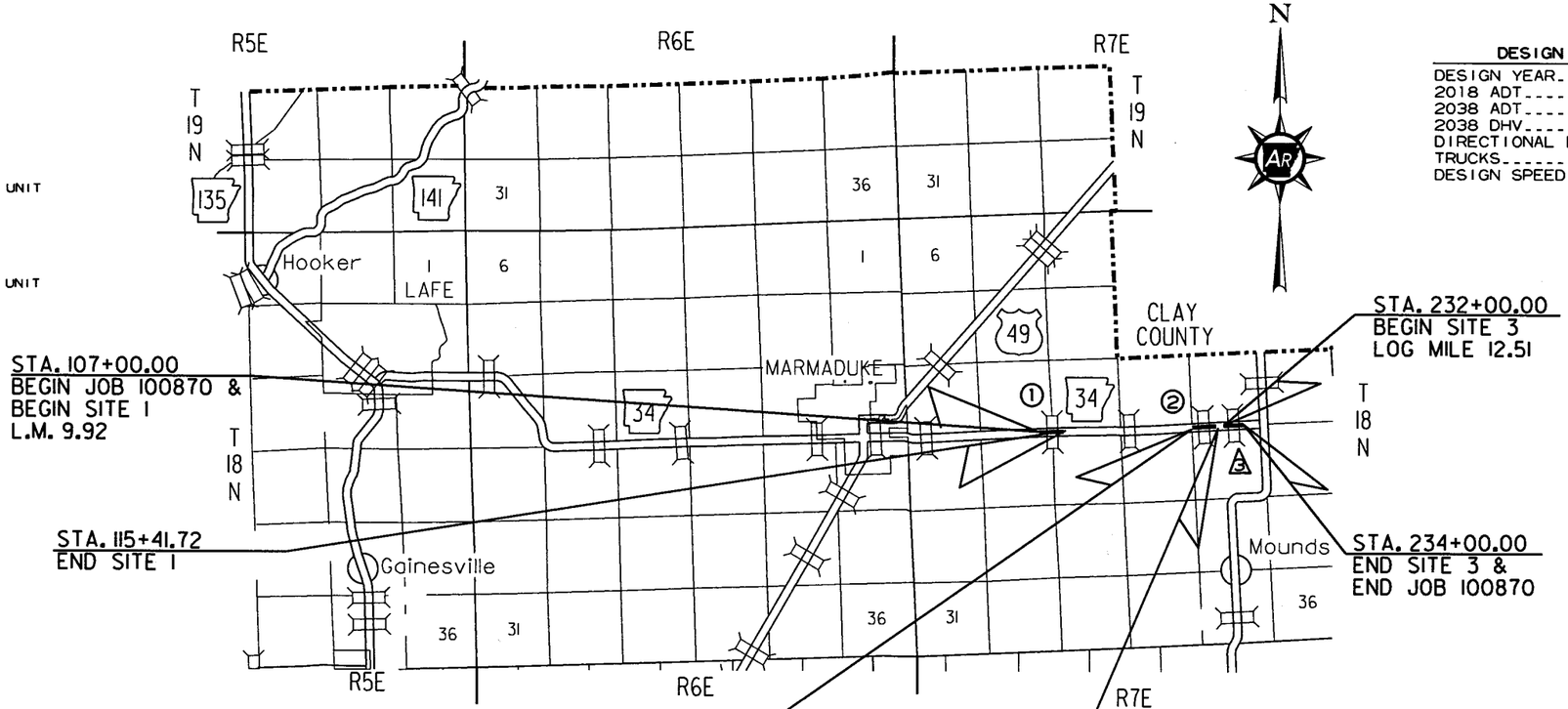
BRIDGE DATA

(1) STA. 109+93.50 BR. END
141'-0" X 30'-0" CLEAR ROADWAY
140'0" CONTINUOUS COMP. INTEGRAL W-BEAM UNIT
(48' - 48' - 44')
BR. NO. 07419
STA. 111+34.50 BR. END

(2) STA. 210+25.45 BR. END
196'-1¼" X 30'-0" CLEAR ROADWAY
195'0" CONTINUOUS COMP. INTEGRAL W-BEAM UNIT
(60' - 75' - 60')
BR. NO. 07420
STA. 212+21.55 BR. END

STRUCTURES OVER 20'-0" SPAN

(3) STA. 233+20.00 CONSTRUCT
TRI. 10' X 5' X 83' R.C. BOX CULVERT
ON A 30° LT. FWD. SKEW
WITH 3:1 WINGS LT. AND RT.
Q25=920 CFS D.A.=3.8 SQ. MI.
SPAN= 32'-4"



DESIGN TRAFFIC DATA

DESIGN YEAR	2018
2018 ADT	860
2038 ADT	1100
2038 DHV	121
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	7%
DESIGN SPEED	55 MPH

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 36°11'11"	N 36°11'10"	N 36°11'10"
LONGITUDE	W 90°20'22"	W 90°18'07"	W 90°17'28"

LENGTH OF PROJECT CALCULATED ALONG C.L.

GROSS LENGTH OF	PROJECT	2341.72	FEET OR	0.444	MILES
NET	ROADWAY	1972.29	:	0.374	MILES
NET	BRIDGES	369.43	:	0.070	MILES
NET	PROJECT	2341.72	:	0.444	MILES

P.E. JOB 100870

APPROVED

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 7856
M.E. BANKS

7-13-18

DEPUTY DIRECTOR
AND CHIEF ENGINEER

12/2/2016

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8-09-18				6	ARK.			
				JOB NO.		100870	2	101

(2) INDEX OF SHEETS AND STANDARD DRAWINGS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
8-10-18

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
15230	DETAILS OF STANDARD PRECAST PARAPET RAILS FOR 19'-0", 25'-0", & 31'-0" PRECAST END SPANS	04-10-03
15240	DETAILS OF STANDARD 31'-0" PRECAST CONCRETE SPANS 28'-0" & 24'-6" CLEAR ROADWAYS	04-10-03
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
55006	STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES	09-02-15
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	01-17-17
55021	STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS	03-24-16
55030A	STANDARD DETAILS FOR TYPE A APPROACH GUTTERS	09-02-15
55040A	STANDARD DETAILS FOR TYPE A APPROACH SLAB	02-27-14
55054	STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE BRIDGE END PROTECTION SYSTEM	04-17-14

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
GR-8	GUARD RAIL DETAILS	11-16-17
GR-8A	GUARD RAIL DETAILS	11-16-17
GR-9	GUARD RAIL DETAILS	04-17-08
GR-9A	GUARD RAIL DETAILS	04-17-08
GR-10	GUARD RAIL DETAILS	11-16-17
GR-11	GUARD RAIL DETAILS	11-16-17
GR-12	GUARD RAIL DETAILS	11-16-17
PBC-1	PRECAST CONCRETE BOX CULVERTS	01-28-15
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	02-27-14
PM-1	PAVEMENT MARKING DETAILS	06-01-17
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
RCB-1	REINFORCED CONCRETE BOX CULVERT DETAILS	07-26-12
RCB-2	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	11-20-03
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	10-18-96
SI-1	DETAILS OF SPECIAL ITEMS	09-12-13
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	04-13-17
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	09-02-15
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	09-02-15
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

R100870.DGN 7/9/2018

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8-28-18				6	ARK.			
				JOB NO.		100870	3	101

(2) GOVERNING SPECIFICATIONS AND GEN. NOTES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
8-28-18

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
108-1_____	LIQUIDATED DAMAGES
108-2_____	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
303-1_____	AGGREGATE BASE COURSE
400-1_____	TACK COATS
400-4_____	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
410-1_____	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1_____	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1_____	PIPE CULVERTS FOR SIDE DRAINS
617-1_____	GUARDRAIL TEMINAL (TYPE 2)
620-1_____	MULCH COVER
JOB 100870__	BIDDING REQUIREMENTS AND CONDITIONS
JOB 100870__	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 100870__	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 100870__	CARGO PREFERENCE ACT REQUIREMENTS
JOB 100870__	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 100870__	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 100870__	CULVERT CLEAN OUT
JOB 100870__	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 100870__	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 100870__	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 100870__	MANDATORY ELECTRONIC CONTRACT
JOB 100870__	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 100870__	NESTING SITES OF MIGRATORY BIRDS
JOB 100870__	PARTNERING REQUIREMENTS
JOB 100870__	PLASTIC PIPE
JOB 100870__	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 100870__	PROTECTION OF WATER QUALITY AND WETLANDS
JOB 100870__	REMOVAL AND DISPOSAL OF GUARDRAIL
JOB 100870__	RUMBLE STRIPS
JOB 100870__	SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS
JOB 100870__	SHORING FOR CULVERTS
JOB 100870__	SOIL STABILIZATION
JOB 100870__	STORM WATER POLLUTION PREVENTION PLAN
JOB 100870__	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 100870__	UTILITY ADJUSTMENTS
JOB 100870__	VALUE ENGINEERING
JOB 100870__	WARM MIX ASPHALT
JOB 100870__	WELLHEAD PROTECTION

GENERAL NOTES

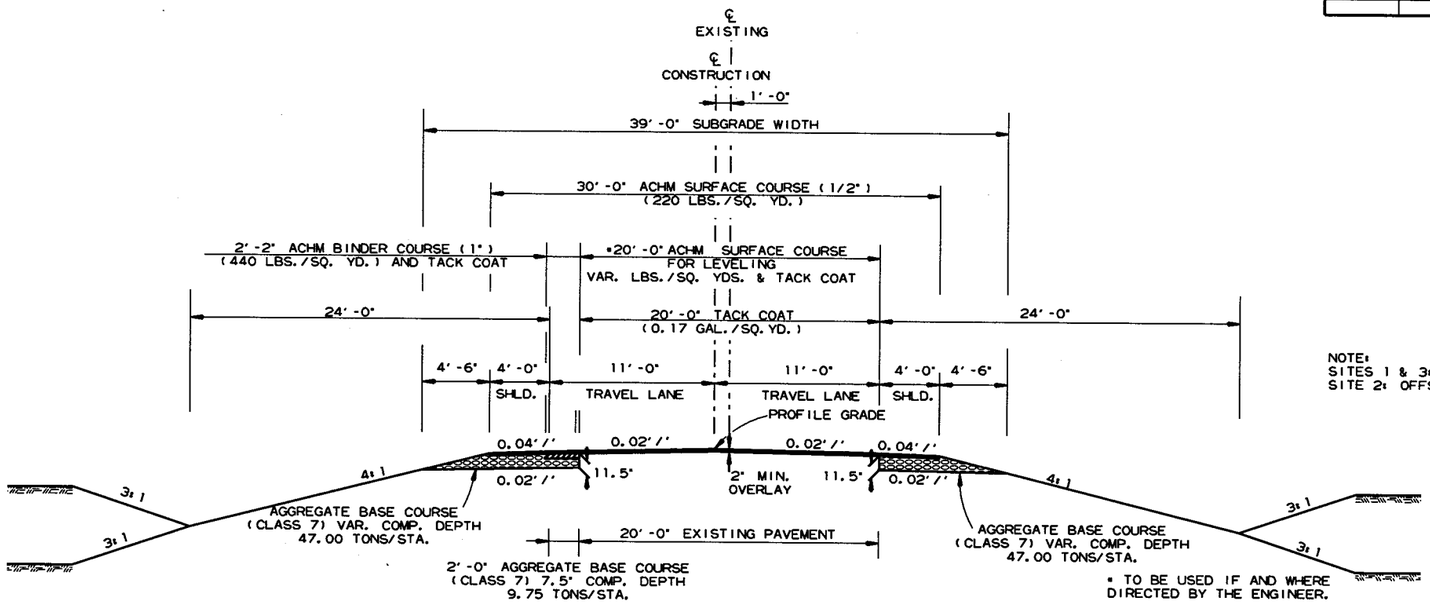
1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY 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 INSURE 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. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
9. 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.

R100870.DGN 7/9/2018

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	4	101

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18



* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

NOTE:
SITES 1 & 3: OFFSET IS 1' LT.
SITE 2: OFFSET IS 1' RT.

TYPICAL SECTION OF IMPROVEMENT (NOTCH & WIDEN)

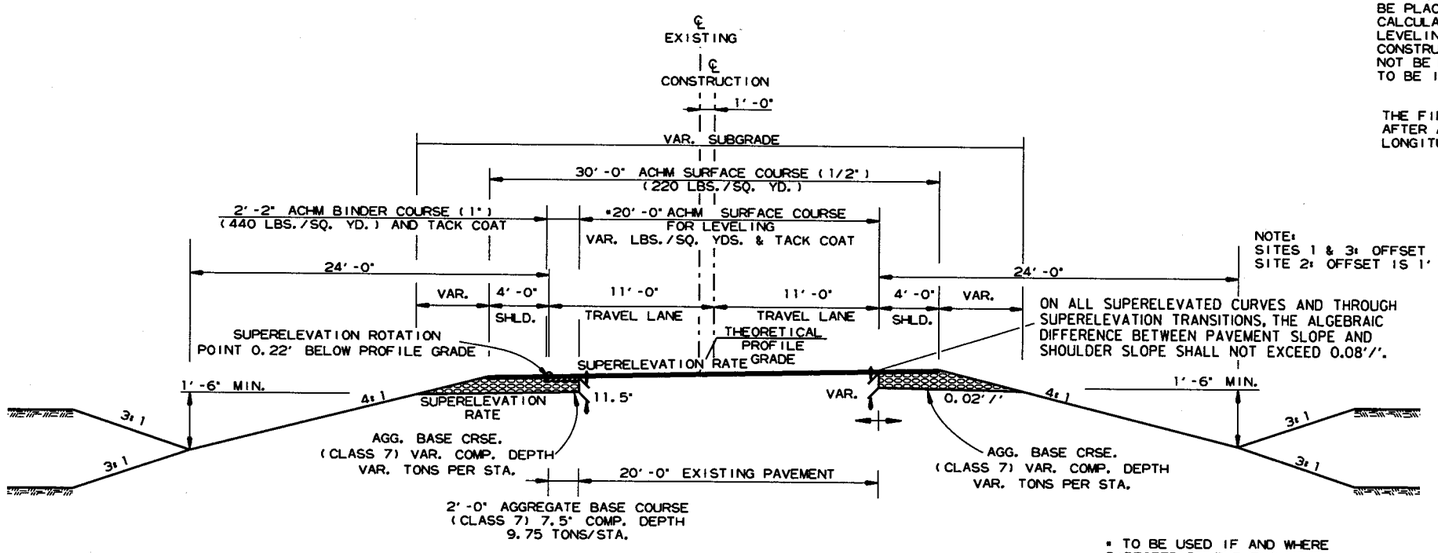
STA. 111+71.00 TO STA. 113+00.00 - SITE 1
STA. 207+00.00 TO STA. 208+00.00 - SITE 2
STA. 212+58.05 TO STA. 213+00.00 - SITE 2
STA. 217+00.00 TO STA. 218+00.00 - SITE 2
STA. 232+00.00 TO STA. 232+85.00 - SITE 3
STA. 233+50.00 TO STA. 234+00.00 - SITE 3

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.

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS PAY ITEMS.

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



NOTE:
SITES 1 & 3: OFFSET IS 1' LT.
SITE 2: OFFSET IS 1' RT.

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

* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

TYPICAL SECTIONS OF IMPROVEMENT - SUPERELEVATION

CURVE ROTATES AROUND INSIDE EDGE

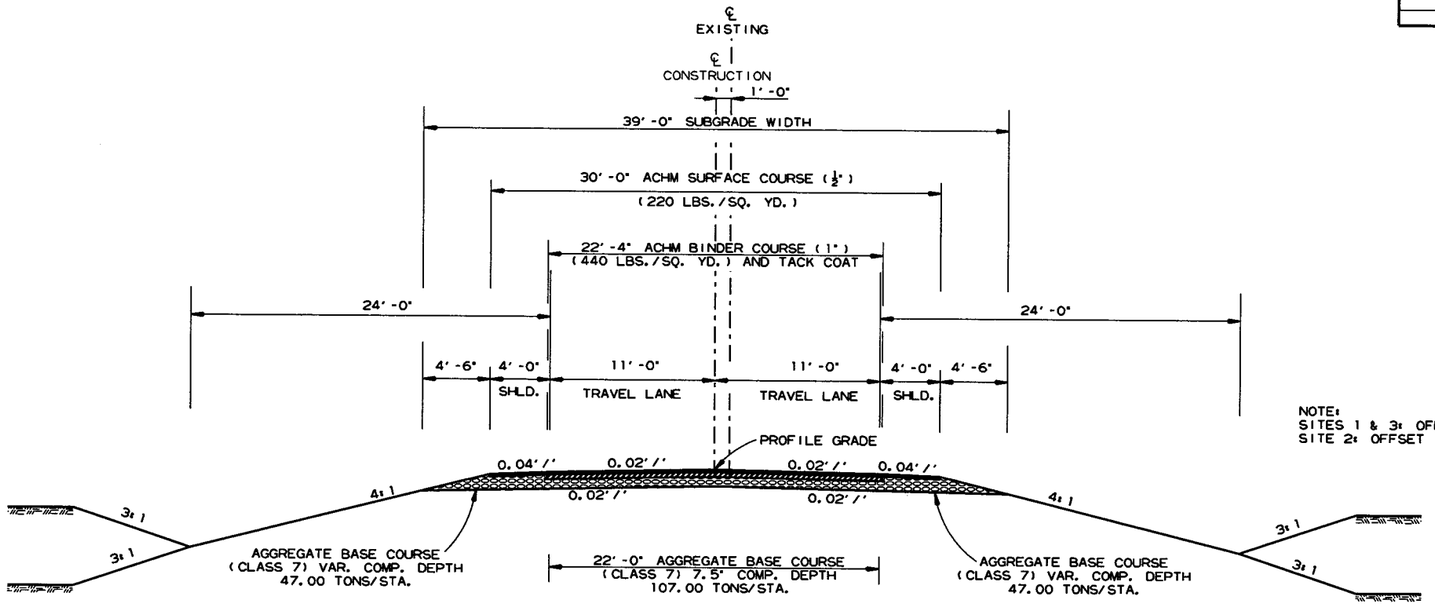
7/9/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	5	101

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18



NOTE:
SITES 1 & 3: OFFSET IS 1' LT.
SITE 2: OFFSET IS 1' RT.

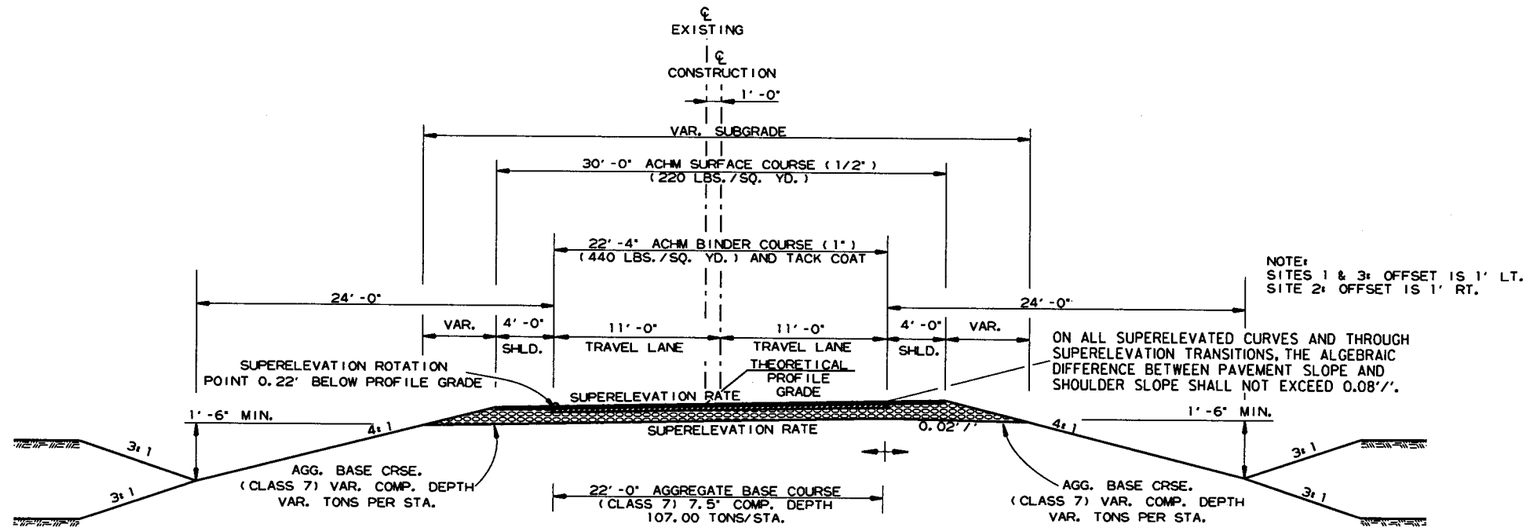
TYPICAL SECTION OF IMPROVEMENT (FULL DEPTH)

STA. 208+00.00 TO STA. 209+88.95 - SITE 2
STA. 213+00.00 TO STA. 217+00.00 - SITE 2
STA. 232+85.00 TO STA. 233+50.00 - SITE 3

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.



NOTE:
SITES 1 & 3: OFFSET IS 1' LT.
SITE 2: OFFSET IS 1' RT.

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

TYPICAL SECTIONS OF IMPROVEMENT - SUPERELEVATION

CURVE ROTATES AROUND INSIDE EDGE

7/9/2018

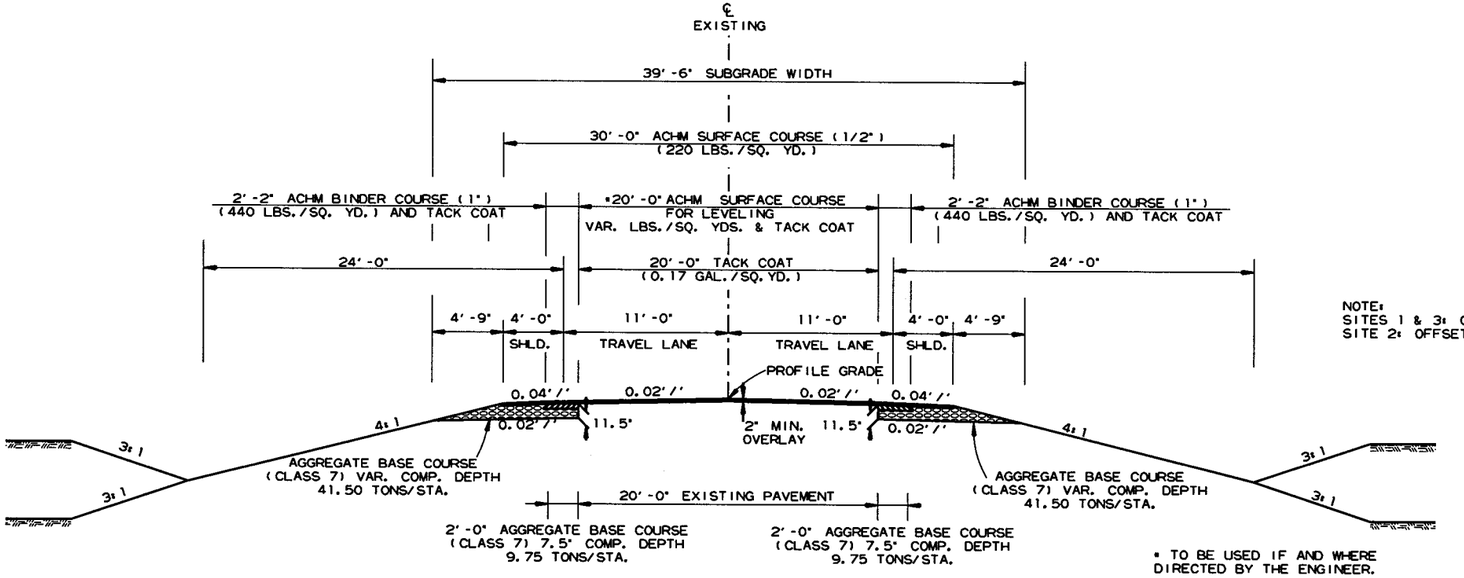
R100870.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	6	101

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2018



NOTE:
SITES 1 & 3: OFFSET IS 1' LT.
SITE 2: OFFSET IS 1' RT.

* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

TYPICAL SECTION OF IMPROVEMENT (NOTCH & WIDEN)

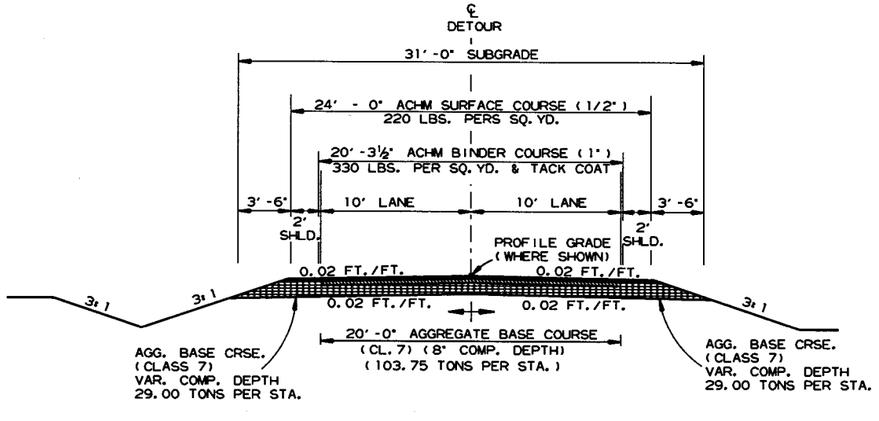
STA. 107+00.00 TO STA. 109+57.00 - SITE 1
STA. 113+00.00 TO STA. 115+41.72 - SITE 1
STA. 206+00.00 TO STA. 207+00.00 - SITE 2
STA. 218+00.00 TO STA. 219+00.00 - SITE 2

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.

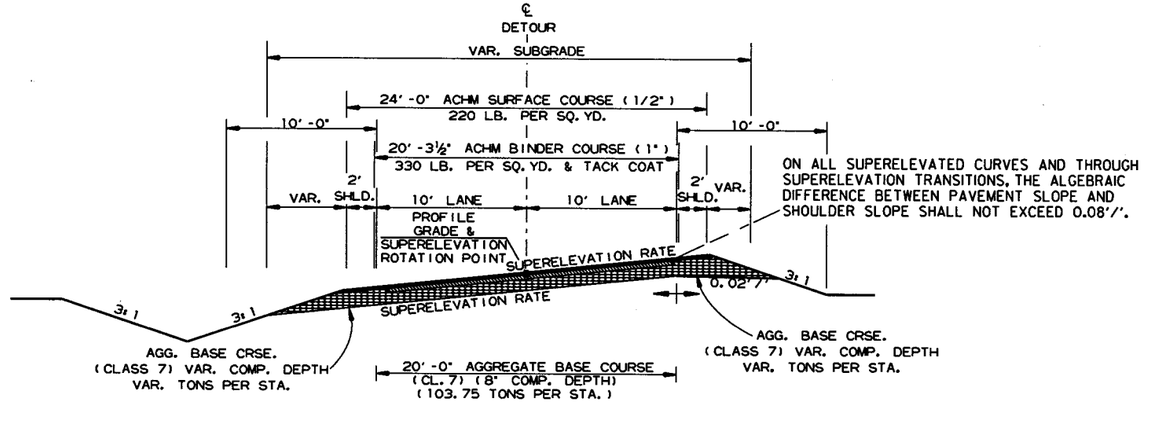
ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS PAY ITEMS.

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



TYPICAL SECTIONS OF IMPROVEMENT
DETOUR ROAD

STA. 304+00.00 TO STA. 308+24.00 - SITE 1 DETOUR
STA. 309+17.00 TO STA. 313+51.87 - SITE 1 DETOUR
STA. 399+99.99 TO STA. 404+76.50 - SITE 2 DETOUR
STA. 406+31.50 TO STA. 413+03.04 - SITE 2 DETOUR
STA. 422+00.00 TO STA. 431+85.25 - SITE 3 DETOUR



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

TYPICAL SECTIONS OF IMPROVEMENT
DETOUR ROAD - SUPERELEVATION

SITE 1 & 2 - CURVES ROTATES AROUND INSIDE EDGE
SITE 3 - CURVES ROTATES AROUND CENTERLINE

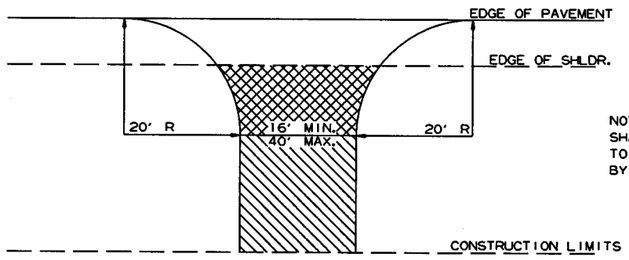
7/9/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	7	101

(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18

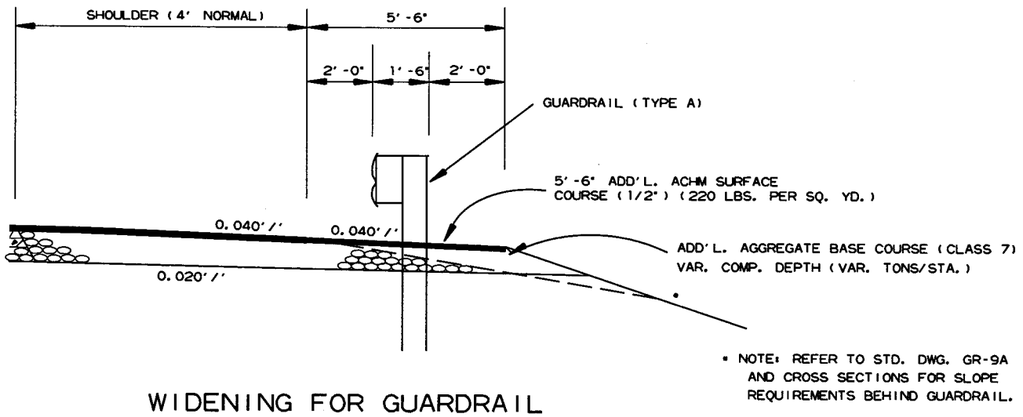


NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

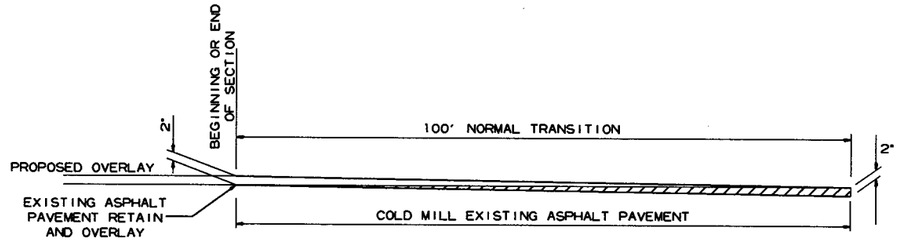
ASPHALT CONCRETE HOT MIX SURFACE COURSE (220 LBS. PER SQ. YD.)
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT DRIVE EXIST OR
6" CONCRETE IF CONCRETE DRIVE EXIST.

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

DETAIL FOR DRIVEWAY TURNOUTS



WIDENING FOR GUARDRAIL



DETAIL FOR TRANSITIONS

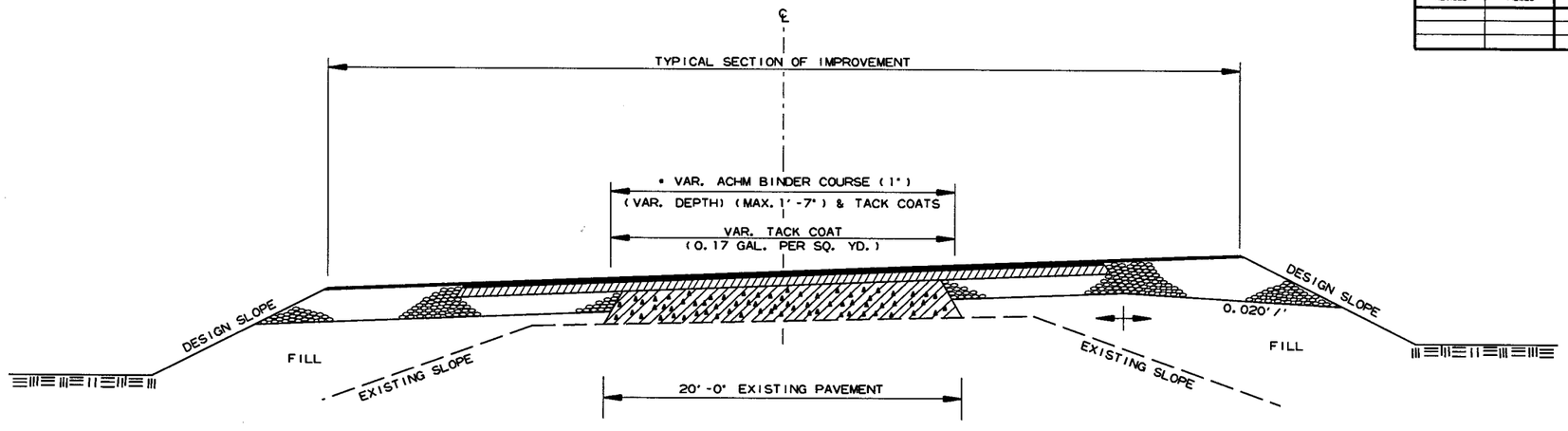
7/9/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	8	101

(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18



* 7 1/2" AGGREGATE BASE COURSE (CLASS 7)
TO BE REPLACED WITH ACHM BINDER COURSE (1")

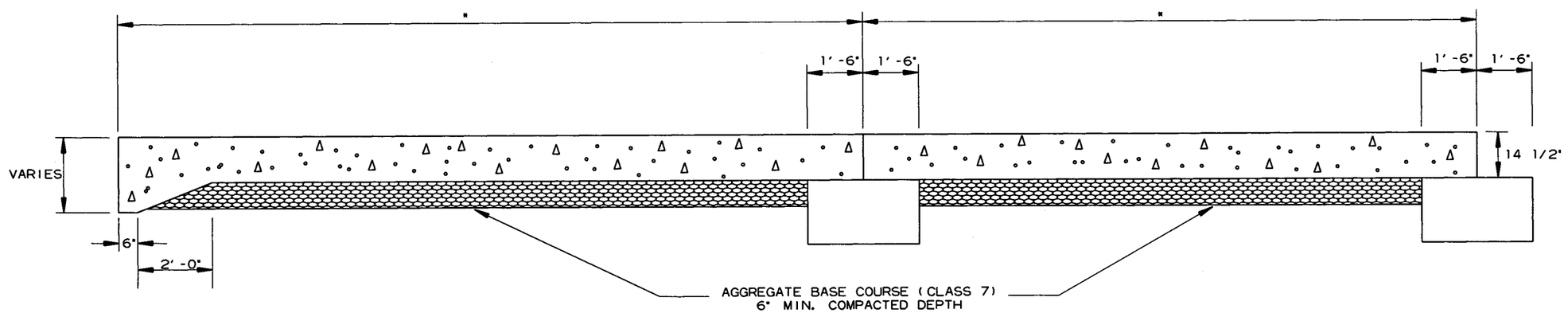
METHOD OF RAISING GRADE

NOTES:

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

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

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



SPECIAL DETAIL OF APPROACH SLAB

* REFER TO BRIDGE DRAWINGS

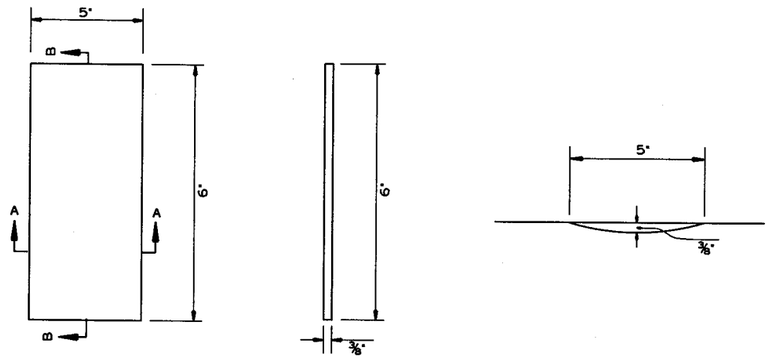
7/9/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	9	101

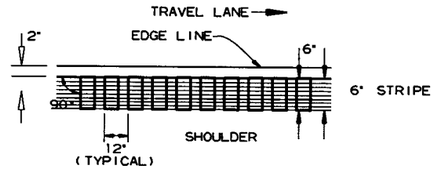
(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18

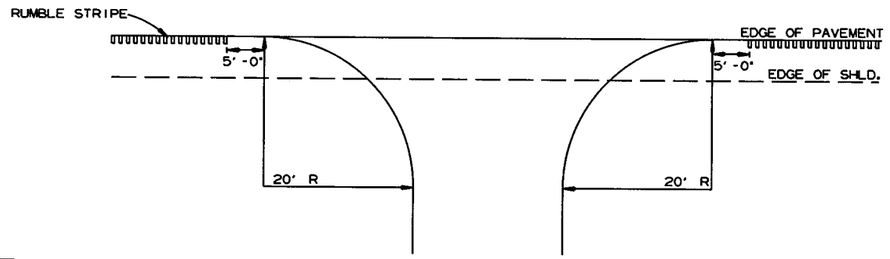


PLAN SECTION B-B SECTION A-A

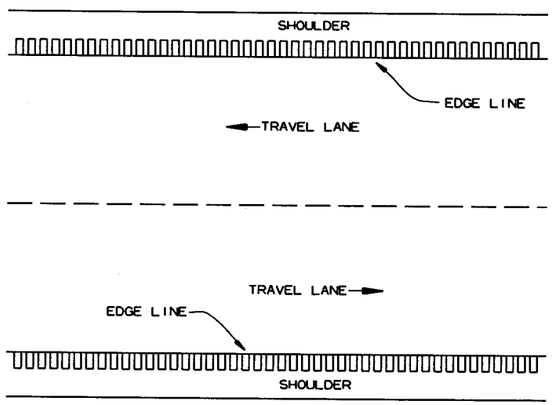
DETAILS OF RUMBLE STRIPE



LOCATION PLAN OF RUMBLE STRIPE
LEFT OR RIGHT SHOULDER



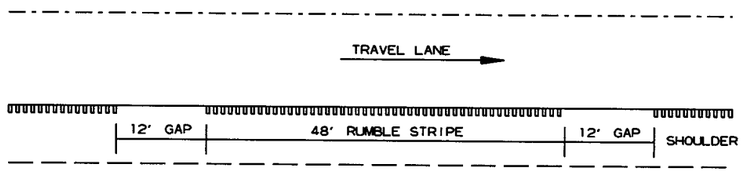
DETAIL FOR RUMBLE STRIPE GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

1. RUMBLE STRIPES SHALL NOT BE INSTALLED ON BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, RESIDENTIAL OR COMMERCIAL DRIVEWAYS OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.
2. RUMBLE STRIPES SHALL NOT BE INSTALLED ON A PAVED SHOULDER THAT IS USED AS A DECELERATION LANE FOR THE LENGTH DEEMED APPROPRIATE BY THE ENGINEER.
3. RUMBLE STRIPES SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE SHOULDER. PAYMENT SHALL ONLY INCLUDE THAT PORTION OF THE SHOULDER ON WHICH RUMBLE STRIPES HAVE BEEN CONSTRUCTED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR GAPS, DRIVEWAYS, TURNOUTS, OR OTHER PUBLIC ROAD INTERSECTIONS WHERE RUMBLE STRIPES HAVE NOT BEEN CONSTRUCTED.
4. THE 3/8" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 6" LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.



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

DETAIL FOR GAP PATTERN RUMBLE STRIPE

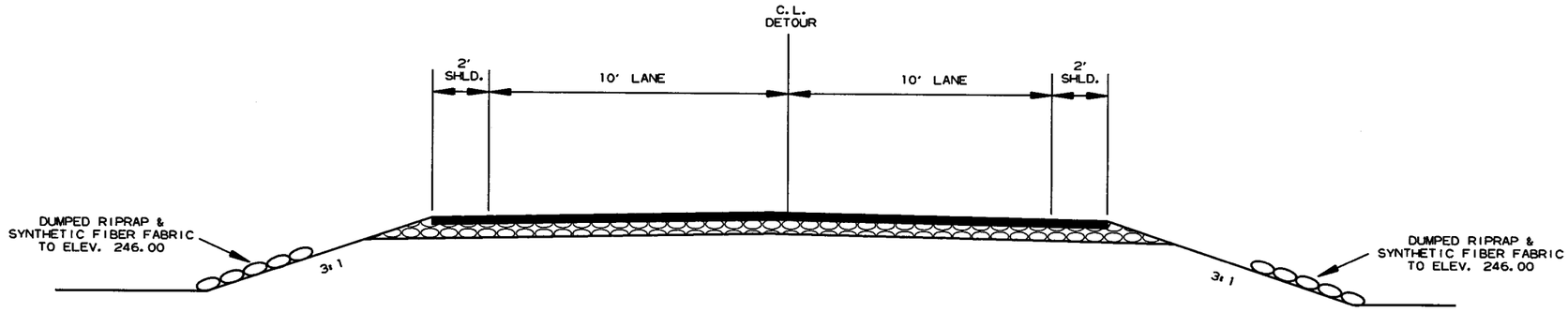
7/9/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	10	101

(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18

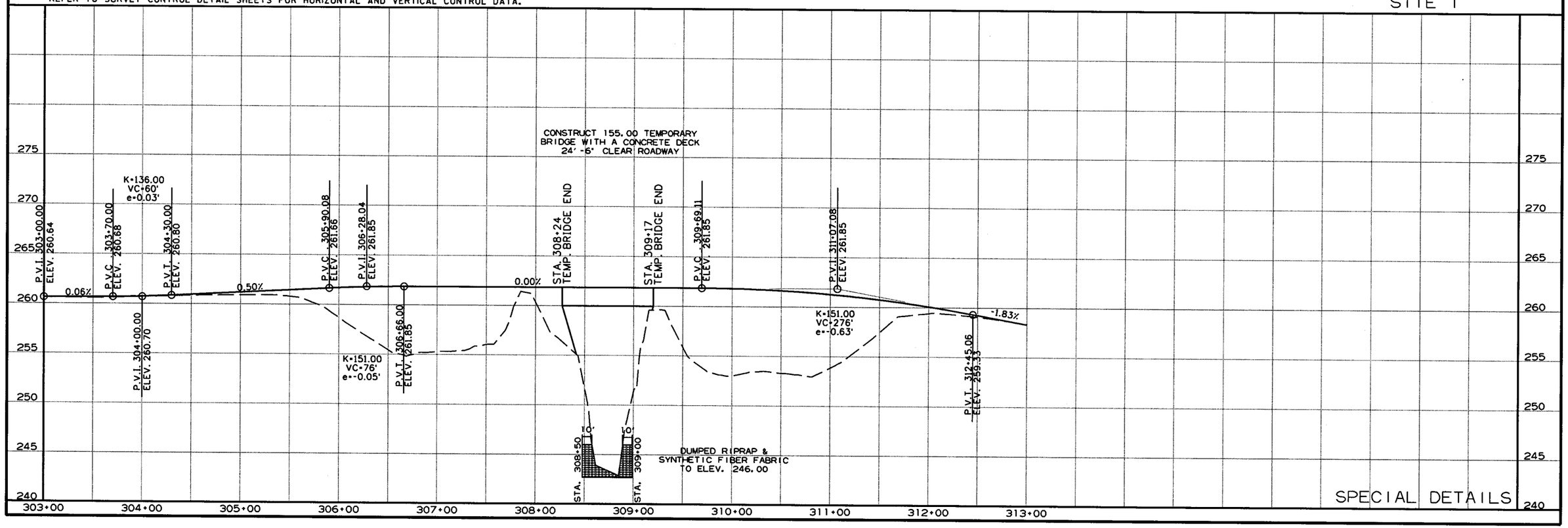


NOTE: FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS. THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATIONS ARE 254 FEET MSL BETWEEN STATIONS 308+50 AND 309+00. REFER TO SECTION 110.06(c) OF THE 2014 STANDARD SPECIFICATIONS.

TYPICAL SECTION OF IMPROVEMENT - DETOUR ROAD
STA. 308+50 - STA. 309+00

SPECIAL DETAILS FOR DUMPED RIPRAP AND SYNTHETIC FIBER FABRIC SITE 1

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



SPECIAL DETAILS

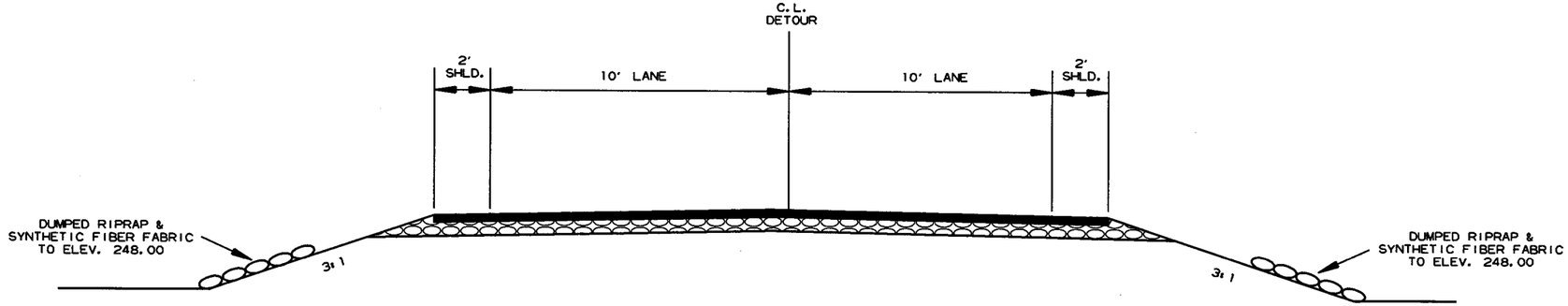
7/9/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	11	101

(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18

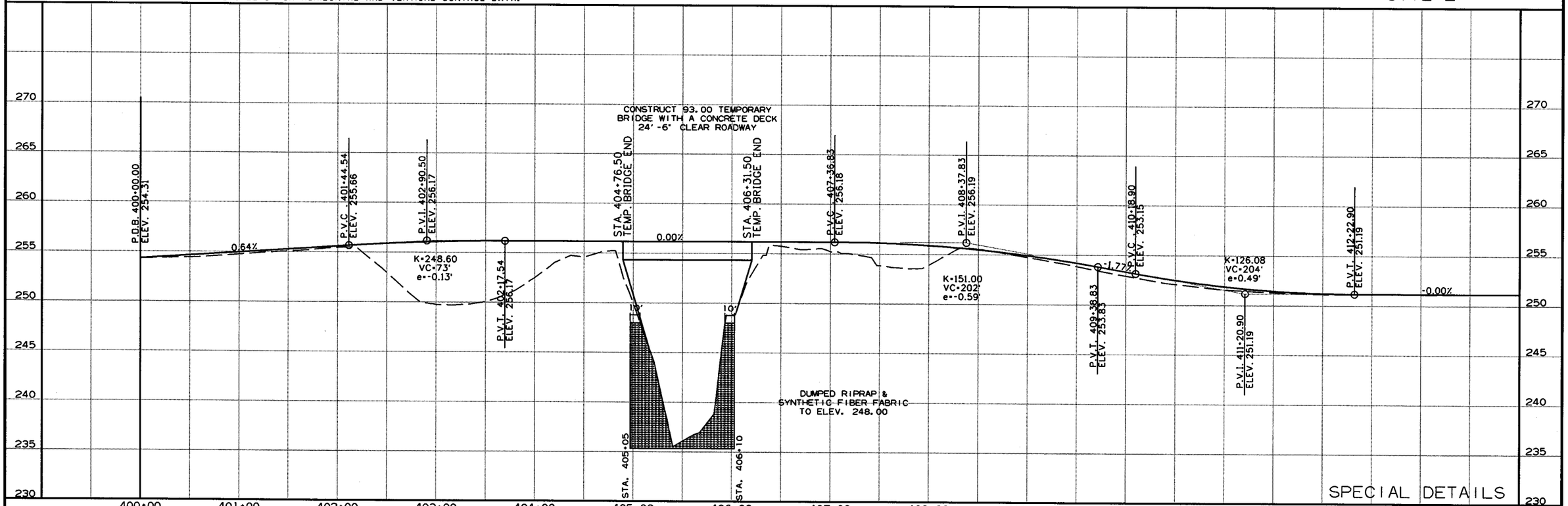


NOTE: FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS. THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATIONS ARE 248 FEET MSL BETWEEN STATIONS 405+05 AND 406+10. REFER TO SECTION 110.06(c) OF THE 2014 STANDARD SPECIFICATIONS.

TYPICAL SECTION OF IMPROVEMENT - DETOUR ROAD
STA. 405+05 - STA. 406+10

SPECIAL DETAILS FOR DUMPED RIPRAP AND SYNTHETIC FIBER FABRIC SITE 2

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



SPECIAL DETAILS

7/9/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	12	101

① SPECIAL DETAILS

STATE OF ARKANSAS
CHARLES R. ELLIS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-5-17

TABULAR DATA BY: KJF DATE: 12/14/17
CHECKED BY: DHP DATE: 12/13/17

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AP1	AP2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
32'-4"	5'-0"	0'-9"	0'-8"	30	3:1	36'-2 1/8"	1'-0"	5'-10"	1'-8"	0	60	2'-2"	2'-8 1/2"	3'-3 3/8"	1'-0 1/2"	1'-6"	12'-6"	25'-0"	14'-4 5/8"	26'-10 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
9.42	810

WING	BAR SIZE	MAX. SPACING	NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS
WING A	4	12	13	L	Min	2'-8"	-	-	-	L -	-	-	-	L -	4	18	4	Min	4	18	2	12'-2"
					Max	7'-3"												6'-4"				
				X	Min	0'-9"				X -				X -				Max				
					Max	1'-4"												10'-10"				
				Y	Min	2'-0"				Y -				Y -								
					Max	6'-0"																
WING B	4	12	25	L	Min	2'-8"	-	-	-	L -	-	-	-	L -	4	18	6	Min	4	18	2	24'-8"
					Max	7'-9"												3'-10"				
				X	Min	0'-9"				X -				X -				Max				
					Max	1'-10"												21'-10"				
				Y	Min	2'-0"				Y -				Y -								
					Max	6'-0"																

WING	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	9	L	Min	3'-3"	4	6	15'-3"	4	18	8	Min	-	-	-	Min	4	2	12'-8"	4	2	13'-4"	6	12	5	L	3'-4"	270
					Max	7'-3"							1'-8"				-												
				X	Min	1'-4"							Max				Max										X	1'-8"	
					Max	1'-4"							2'-2"				-												
				Y	Min	2'-0"																							
					Max	6'-0"																							
WING B	4	18	17	L	Min	3'-3"	4	6	27'-9"	4	18	18	Min	4	18	2	Min	4	2	24'-10"	4	2	28'-10"	6	12	5	L	3'-4"	540
					Max	7'-3"							1'-8"				37'-3"												
				X	Min	1'-4"							Max				Max										X	1'-8"	
					Max	1'-4"							2'-9"				37'-3"												
				Y	Min	2'-0"																							
					Max	6'-0"																							

MID-SECTION BAR LAP TABLE

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

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

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

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

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

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINFORCING STEEL "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH																
30	3:1	2	10	5	11'-4"	12	3	12	6	8	32'-4"	7'-0"	6	9	Max 32'-0" / Min 3'-0"	23	6	4	Max 32'-0" / Min 3'-0"	51	4	6	Max 32'-0" / Min 3'-0"	34	4	7	Max 32'-0" / Min 3'-0"	29
																			32'-0"	3			32'-0"	4			32'-0"	4

SIDE WALL REINFORCING STEEL "f0" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	SPACING	NO. REQ'D	LENGTH
4	7	40	6'-8"	4	12	50	6'-8"	4	9	89	Max 20'-6" / Min 1'-10"	4	9	89	Max 20'-6" / Min 1'-10"	4	12	5	LONG 20'-4" / SHORT 2'-0"	4	12	10	LONG 14'-3" / SHORT 8'-1"

CLASS "S" CONCRETE (Includes HDWL.) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL.) LBS.
32.79	5584

"k1" HDWL BARS SIZE	LENGTH	NO. REQ'D	"k2" HDWL BARS SIZE	LENGTH	NO. REQ'D	"h" HDWL BARS SIZE	LENGTH	Y	NO. REQ'D
4	37'-0"	6	4	37'-0"	6	4	1'-11"	0'-11"	39

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

INLET SLOPE SECTION(S)

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

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

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

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	Y	LENGTH	NO. REQ'D

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

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

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	"f" SPACING	"f" NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH
A	2	10	5	12	12	6	8	32'-4"	7'-0"	60.33	4	32'-0"	8	32'-8"	8	32'-0"	14	51	4	32'-0"	5	32'-8"	4	32'-0"	16	45	4	7	206	6'-8"

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	12	240	6'-8"	4	9	89	4	9	89	4	12	10	4	12	20

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
170.56	24131

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 233+20

SPECIAL DETAILS

Ver. 1.14 Culvert-Triple.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	13	101

SPECIAL DETAILS

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
1-25-18
CHARLES R. ELLIS

TABULAR DATA BY: KJF DATE: 12/14/17
CHECKED BY: DHP DATE: 12/15/17

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
32'-4"	5'-0"	0'-9"	0'-8"	30	3:1	36'-2 1/8"	1'-0"	5'-10"	1'-8"	0	60	2'-2"	2'-8 1/2"	3'-3 3/8"	1'-0 1/2"	1'-6"	12'-6"	25'-0"	14'-4 5/8"	26'-10 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
10.71	810

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY		F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS		F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS		F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY
WING A	4	12	13	L	Min	2'-8"	-	-	-	L	-	-	-	-	L	-	4	18	4	Min
					Max	7'-3"														6'-4"
				X	Min	0'-9"				X	-				X	-				Max
					Max	1'-4"														10'-10"
				Y	Min	2'-0"				Y	-				Y	-				
					Max	6'-0"														
WING B	4	12	25	L	Min	2'-8"	-	-	-	L	-	-	-	-	L	-	4	18	6	Min
					Max	7'-9"														3'-10"
				X	Min	0'-9"				X	-				X	-				Max
					Max	1'-10"														21'-10"
				Y	Min	2'-0"				Y	-				Y	-				
					Max	6'-0"														

WING	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY		F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	2	12'-2"	4	18	9	L	Min 3'-3"	4	6	15'-3"	4	18	8	Min	-	-	-	Min	4	2	12'-8"	4	2	13'-4"	6	12	5	L	3'-4"	270
									Max 7'-3"							1'-8"			-										X	1'-8"	
								X	Min 1'-4"							Max			Max												
									Max 1'-4"							2'-2"			-												
								Y	Min 2'-0"																						
									Max 6'-0"																						
WING B	4	18	2	24'-8"	4	18	17	L	Min 3'-3"	4	6	27'-9"	4	18	18	Min	4	18	2	Min	4	2	24'-10"	4	2	28'-10"	6	12	5	L	3'-4"	540
									Max 7'-3"							1'-8"			37'-3"												
								X	Min 1'-4"							Max			Max												
									Max 1'-4"							2'-9"			37'-3"												
								Y	Min 2'-0"																						
									Max 6'-0"																						

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

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

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

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH
30	3:1	2	10	5	11'-4"	12	3	12	6	8	32'-4"	7'-0"

TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	"c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D
6	9	Max 32'-0"	23	6	4	Max 32'-0"	51
		Min 3'-0"				Min 3'-0"	
		32'-0"	3			32'-0"	6

BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	"f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D
4	6	Max 32'-0"	34	4	7	Max 32'-0"	29
		Min 3'-0"				Min 3'-0"	
		32'-0"	4			32'-0"	4

SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH
4	7	40	6'-8"

INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH
4	12	50	6'-8"

TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY
4	9	89	Max 20'-6"
			Min 1'-10"

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY
4	9	89	Max 20'-6"
			Min 1'-10"

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH
4	12	5	LONG 20'-4"
		5	SHORT 2'-0"

INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
4	12	10	LONG 14'-3"
		10	SHORT 8'-1"

"k1" HDWL BARS SIZE	"k1" HDWL BARS LENGTH	"k1" HDWL BARS NO. REQ'D
4	37'-0"	6

"k2" HDWL BARS SIZE	"k2" HDWL BARS LENGTH	"k2" HDWL BARS NO. REQ'D
4	37'-0"	6

"h" HDWL BARS SIZE	"h" HDWL BARS LENGTH	"h" HDWL BARS Y	"h" HDWL BARS NO. REQ'D
4	1'-11"	0'-11"	39

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
32.79	5584

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)
	D	S	H	T	B	C	W	OW	OH	SL

LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D

BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D

INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	"h" HDWL BARS Y	"h" HDWL BARS LENGTH	"h" HDWL BARS NO. REQ'D

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

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

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT

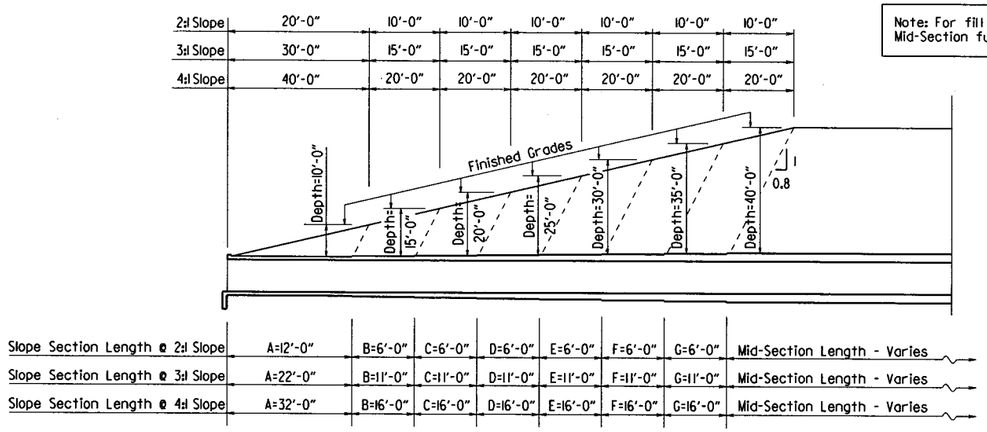
TRIPLE BARREL BOX CULVERT
Sta. 233+20

SPECIAL DETAILS

Ver. LI14 Culvert-Triple.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	14	101

(1) SPECIAL DETAILS

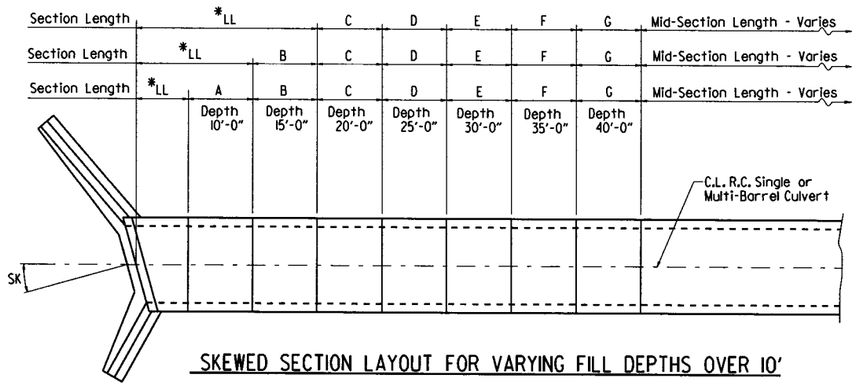


Note: For fill depths 10' and under, use Mid-Section full length of box culvert.

LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

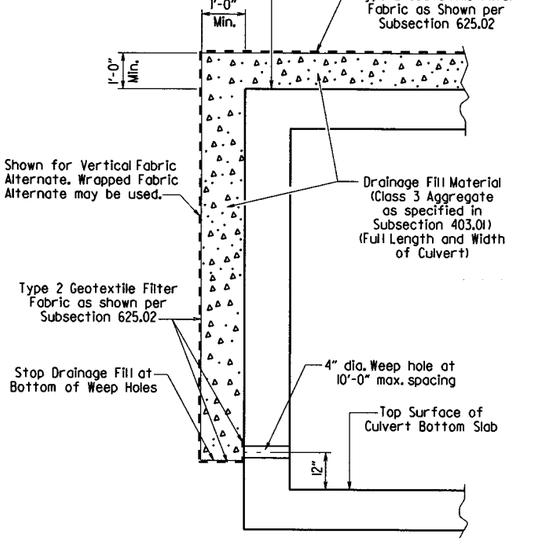
Lengths for Non-Skewed Boxes

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



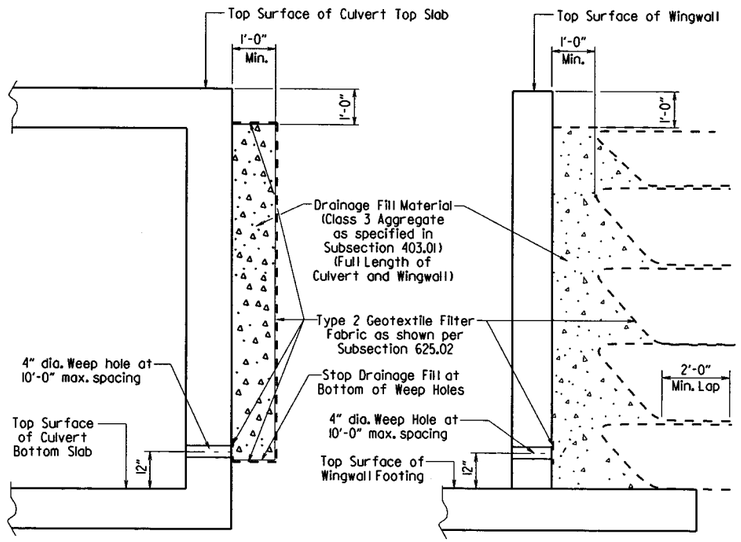
SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
1-25-19



CULVERT DRAINAGE DETAIL FOR ROCK FILL

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



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

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

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

WINGWALL & CULVERT DRAINAGE DETAIL

GENERAL NOTES:

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

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

LIVE LOADING: HL-93

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

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

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

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

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

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

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

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

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

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

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

SHEET 1 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE

SPECIAL DETAILS

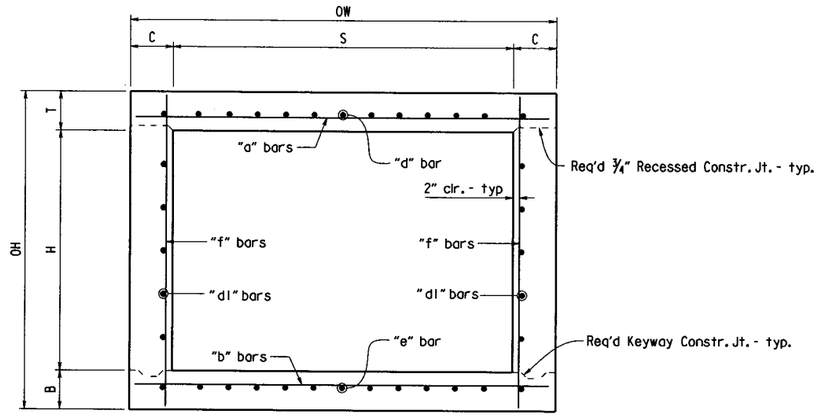
V 1.14 Culvert-General.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	15	101

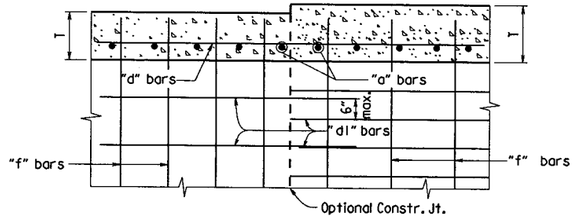
SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
1-25-18
CHARLES R. ELLIS

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



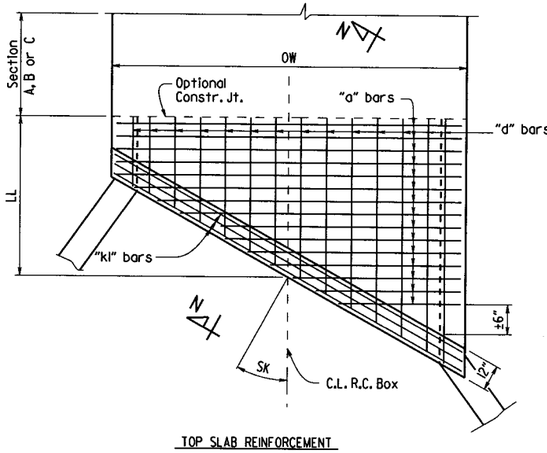
TYPICAL SECTION M-M



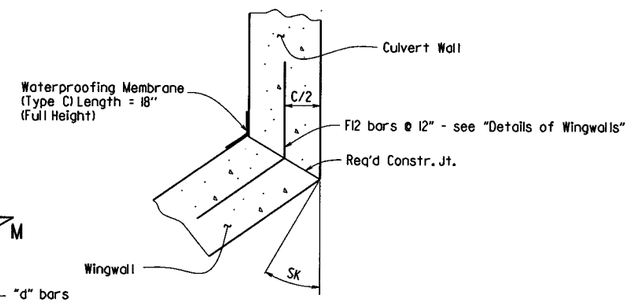
Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

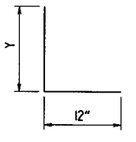


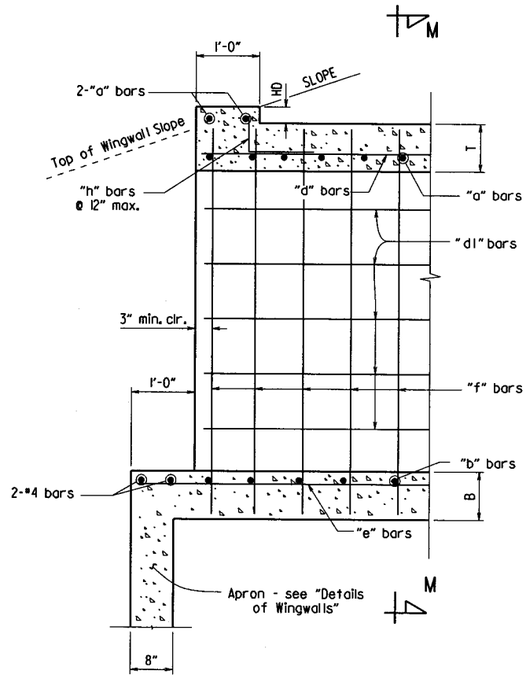
TOP SLAB REINFORCEMENT



WINGWALL ATTACHMENT

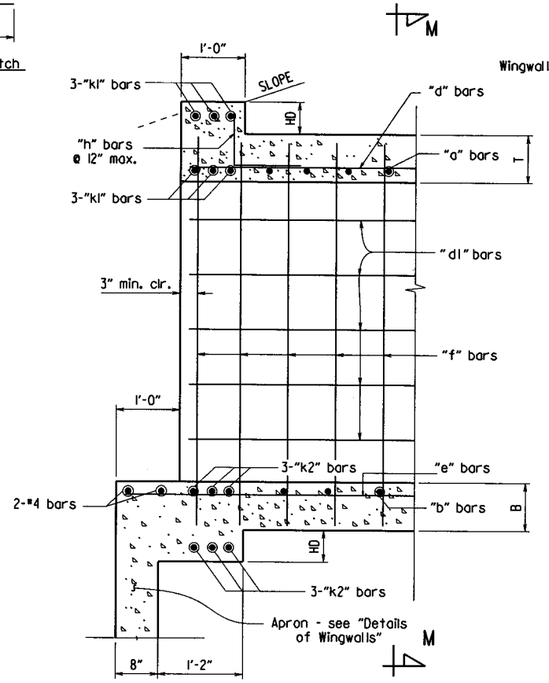
See "Details of Wingwalls" for additional information and wingwall details.





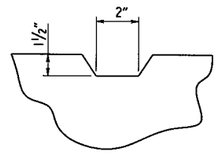
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



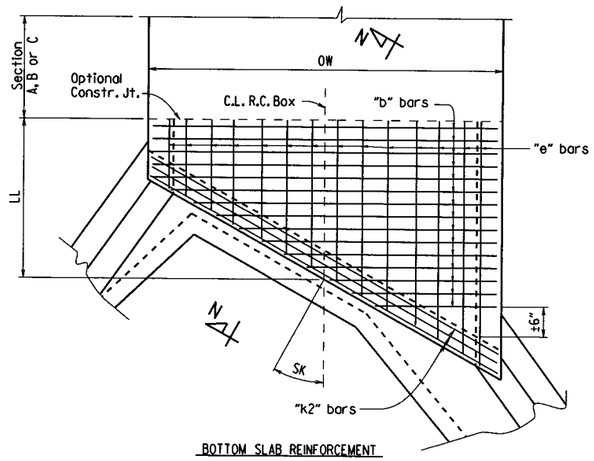
PART LONGITUDINAL SECTION N-N

(Skewed Ends)



TYPICAL KEYWAY DETAIL

(All Construction Joints)



BOTTOM SLAB REINFORCEMENT

SKEWED END SECTION DETAILS

SHEET 2 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF SINGLE BARREL R.C. BOX CULVERT

SPECIAL DETAILS

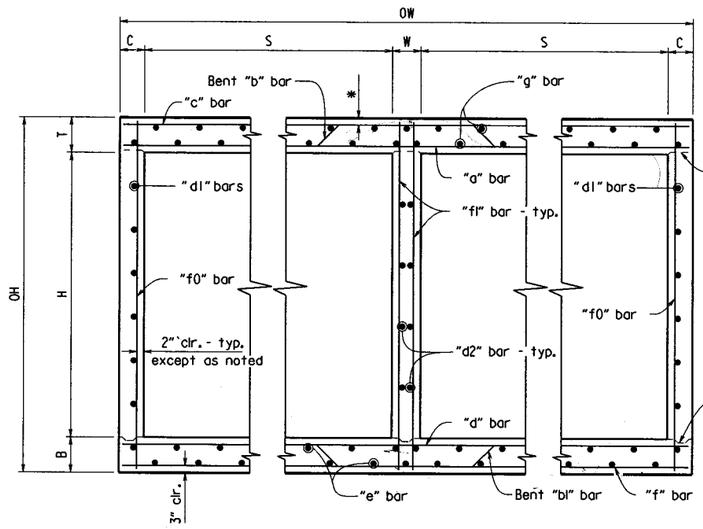
Culvert-General.dgn

DATE REVISED	DATE FILMED	REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	16	101

SPECIAL DETAILS

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

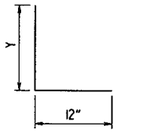
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



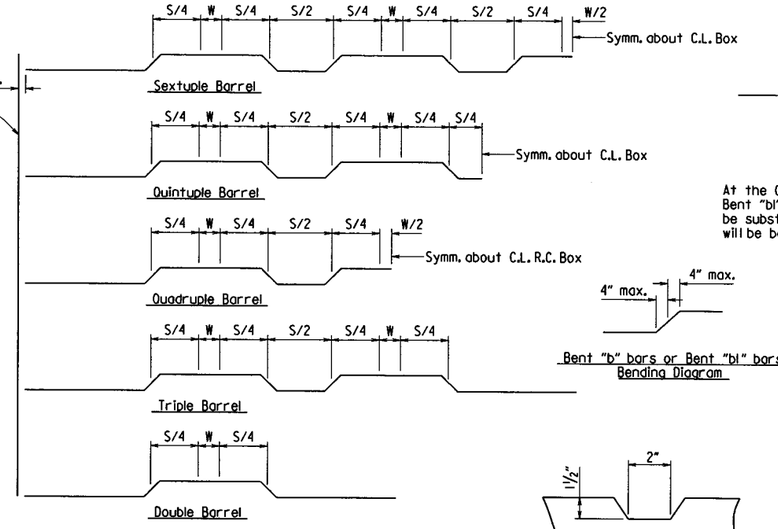
TYPICAL SECTION M-M

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

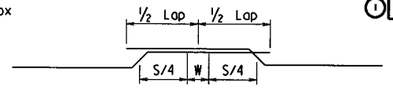
Bottom Slab
Straight "d" bars shall alternate with Bent "b1" bars in top.
Straight "f" bars shall alternate with Bent "b1" bars in bottom.



"h" bars sketch



Bent "b" bars or Bent "b1" bars sketch



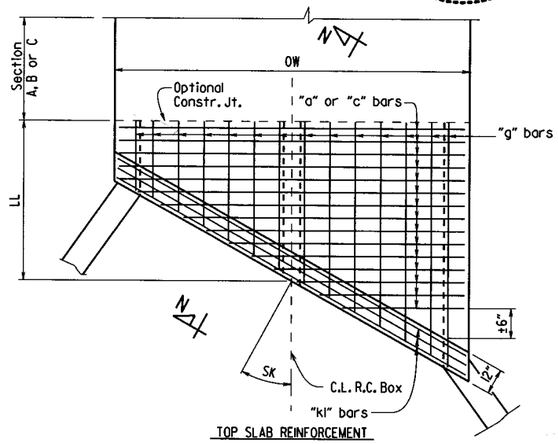
Lap Detail
For Bent "b" bars and Bent "b1" bars

At the Contractor's option in lieu of providing Bent "b" or Bent "b1" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "b1" bar.

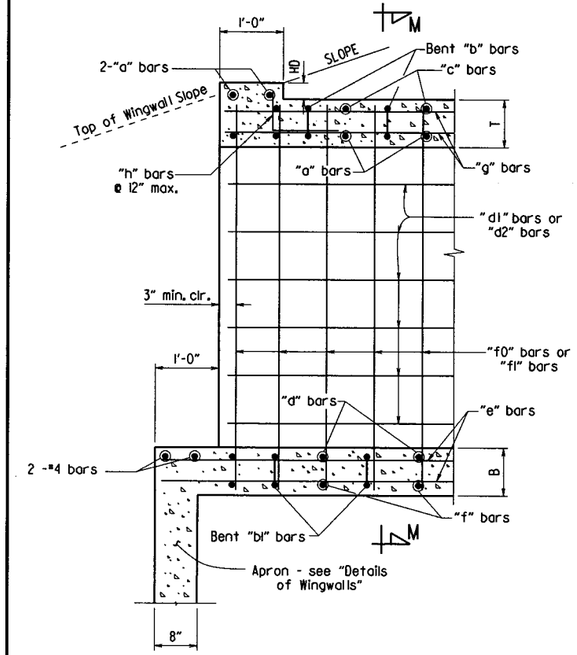
Bent "b" bars or Bent "b1" bars Bending Diagram

TYPICAL KEYWAY DETAIL

(All Construction Joints)

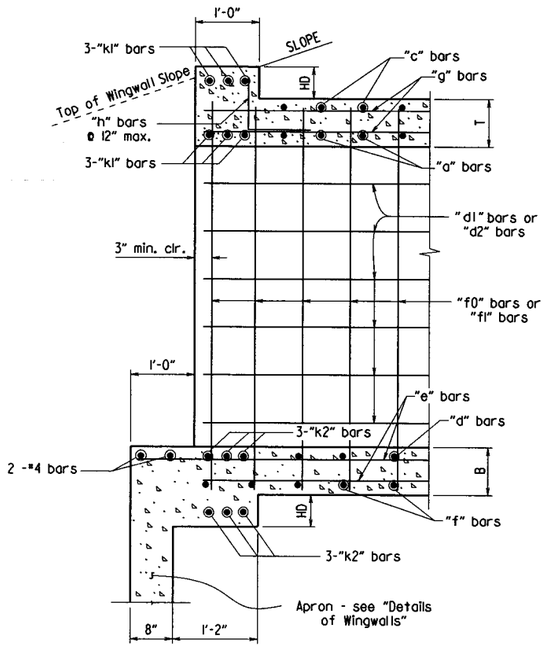


TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



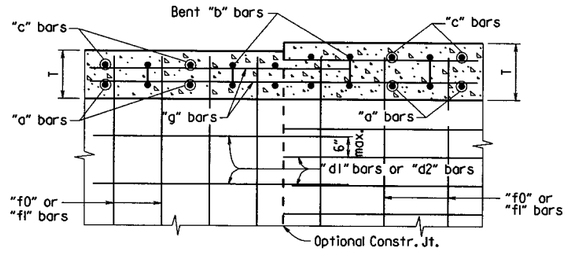
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

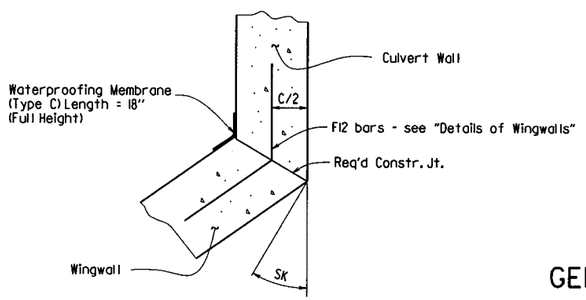
(Skewed Ends)



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

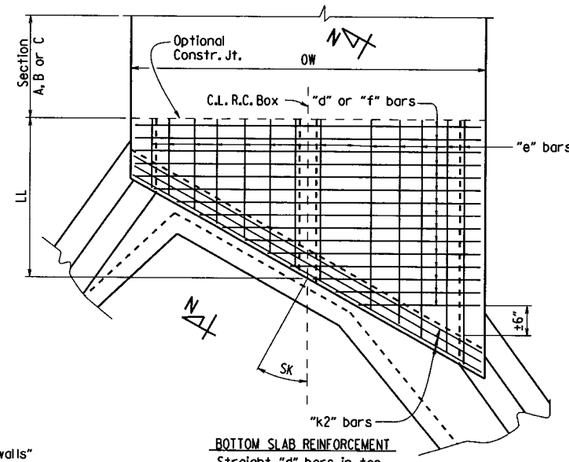
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



WINGWALL ATTACHMENT

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



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

SKEWED END SECTION DETAILS

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

DETAILS OF MULTI-BARREL
R.C. BOX CULVERT

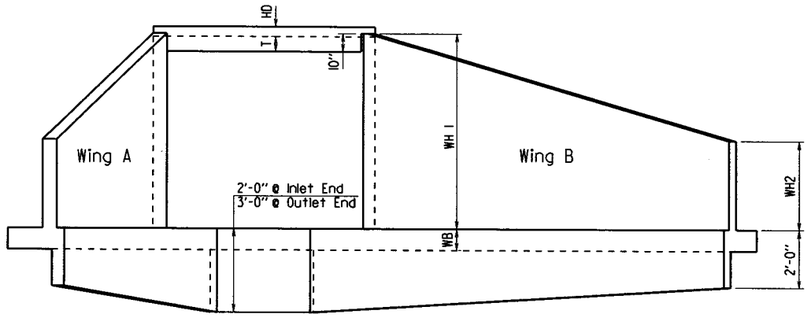
SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
1-25-18
CHARLES R. ELLIS

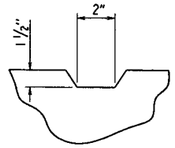
Culvert-General.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	17	101

(1) SPECIAL DETAILS

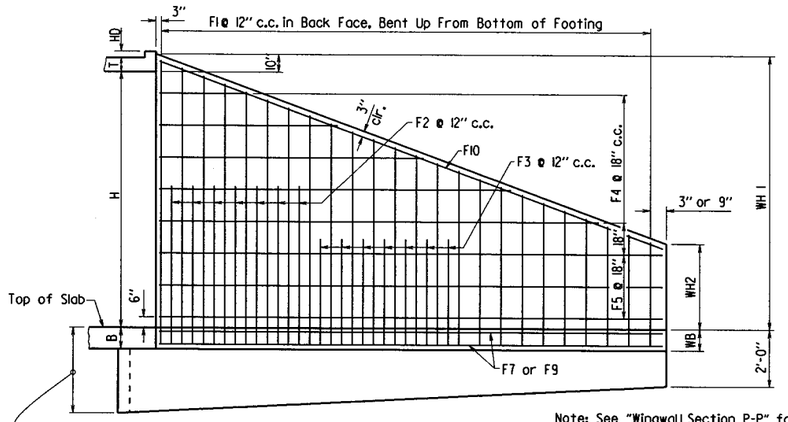


END ELEVATION
Flared Wingwalls Shown



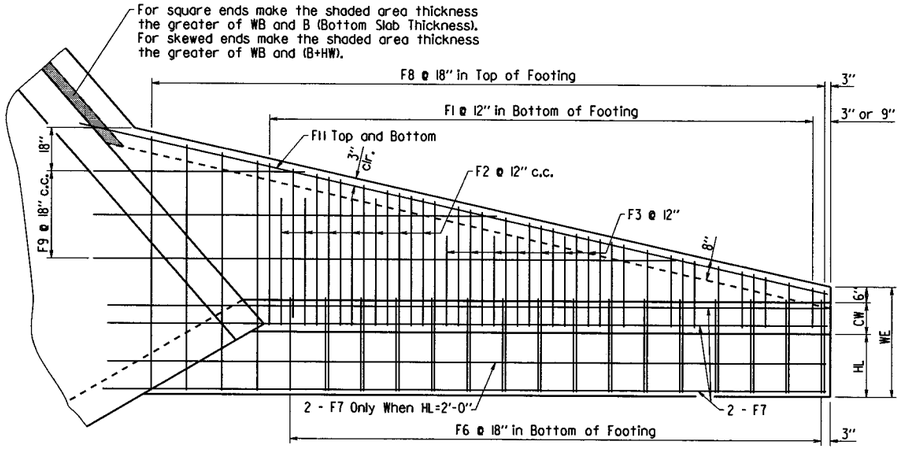
TYPICAL KEYWAY DETAIL
All Construction Joints

PART PLAN - FLARED WINGWALLS

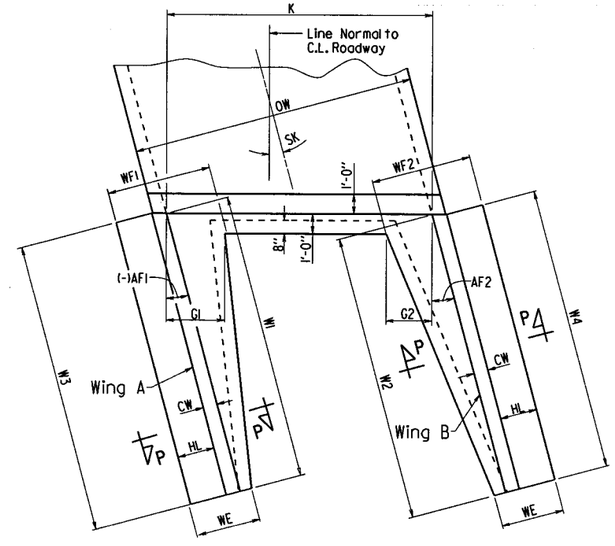


WINGWALL ELEVATION
Showing Back Face Reinforcement

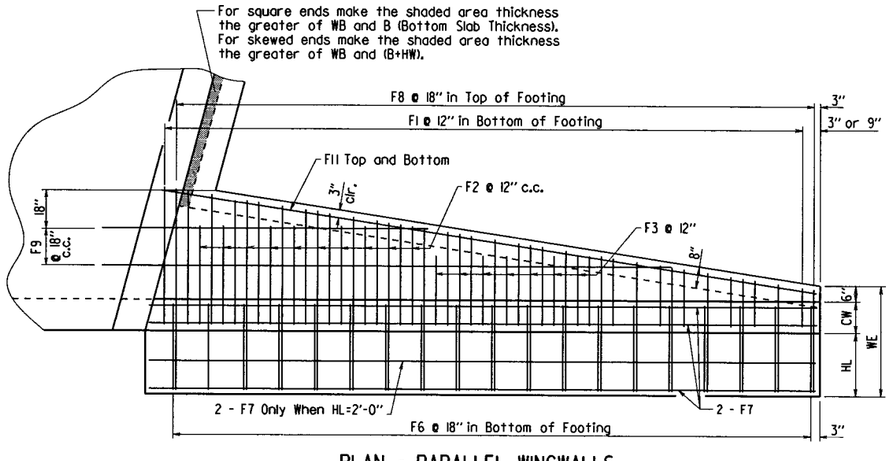
Note: See "Wingwall Section P-P" for additional details and reinforcing.



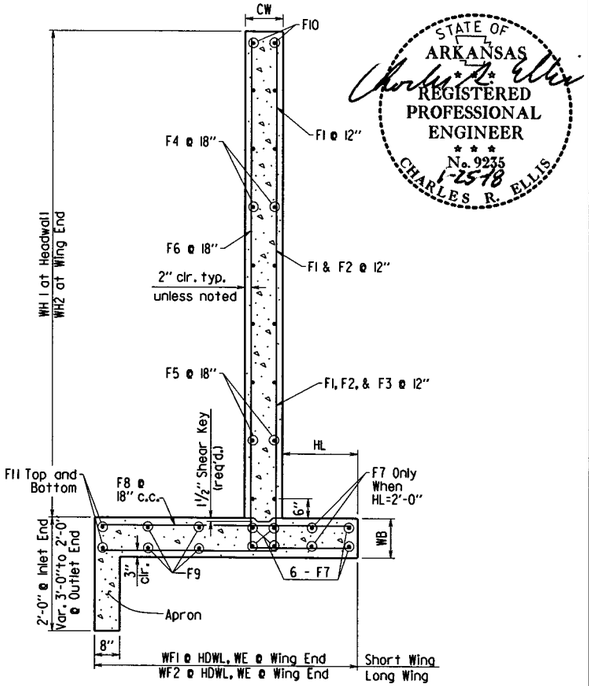
PLAN - FLARED WINGWALLS
Showing Footing Reinforcement



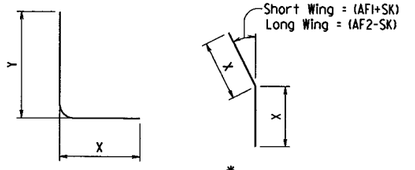
PART PLAN - PARALLEL WINGWALLS



PLAN - PARALLEL WINGWALLS
Showing Footing Reinforcement



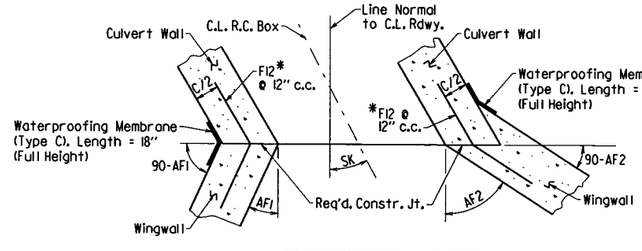
WINGWALL SECTION P-P



F1, F2, F3, & F6 BARS

*F12 BAR

*F12 is a straight bar for parallel wingwalls



CONSTRUCTION JOINTS
Flared Wingwalls Shown

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
1-25-18
CHARLES R. ELLIS

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

LRFD

Culvert-General.dgn

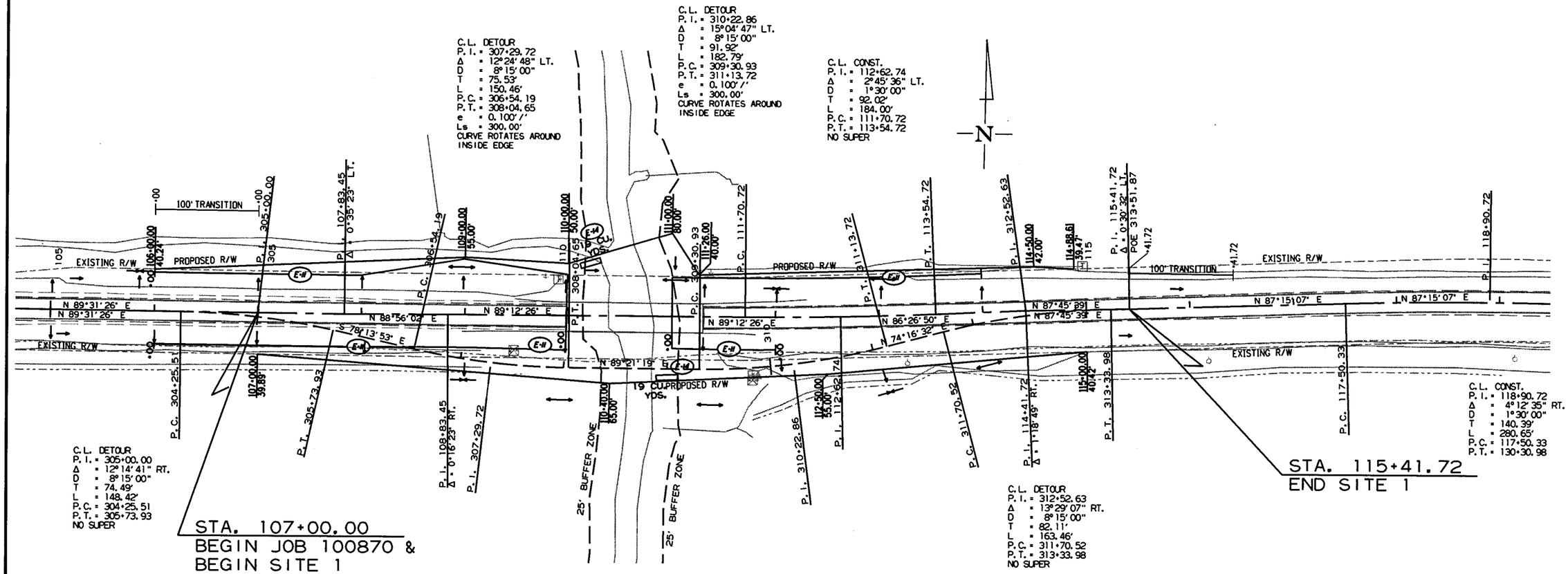
QUANTITIES:

SILT FENCE (E-11) = 1345 LIN. FT.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	18	101

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18



FLOODPLAIN BOUNDARIES EXTEND THE ENTIRE JOB LIMITS

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

SITE 1
MAIN LANES
TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

7/9/2018

R100870.DGN

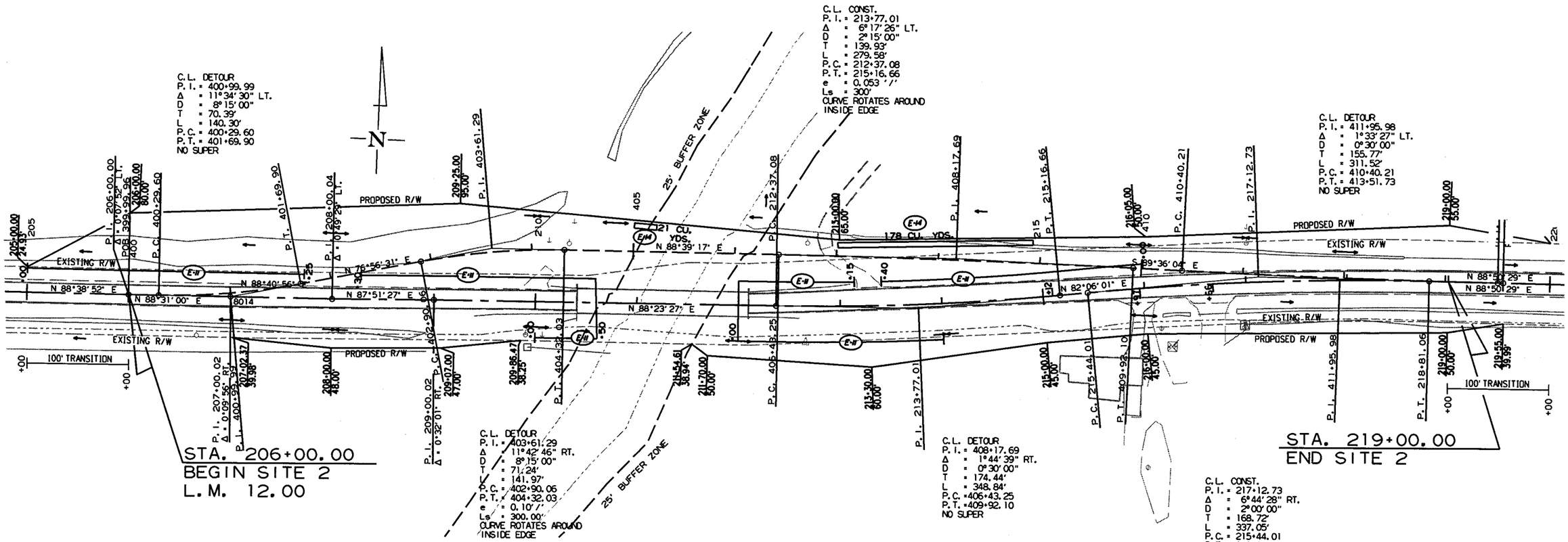
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	19	101

(2) TEMPORARY EROSION CONTROL DETAILS

QUANTITIES:

SILT FENCE (E-11) = 1260 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2018



REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

SITE 2
MAIN LANES
TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

7/9/2018

R100870.DGN

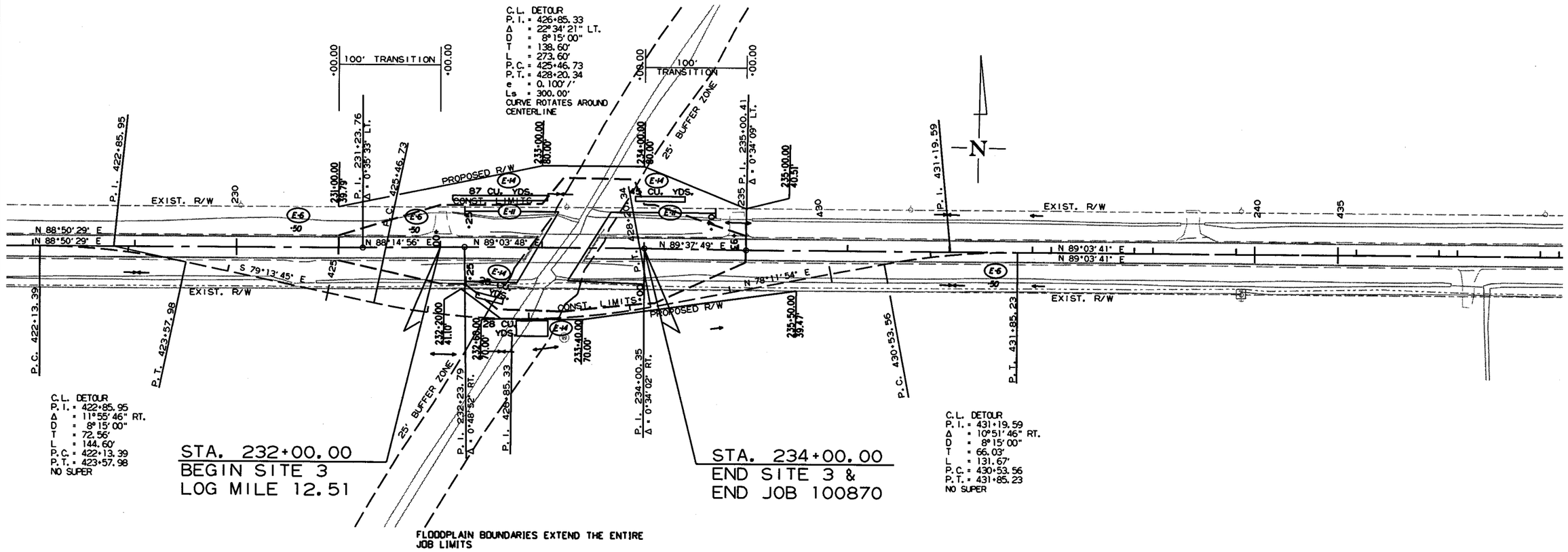
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	20	101

(2) TEMPORARY EROSION CONTROL DETAILS

QUANTITIES:

ROCK DITCH CHECKS (E-6) = 9 CU. YDS.
SILT FENCE (E-11) = 485 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
E-14 = SEDIMENT BASIN

SITE 3
MAIN LANES
TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

7/9/2018
R100870.DGN

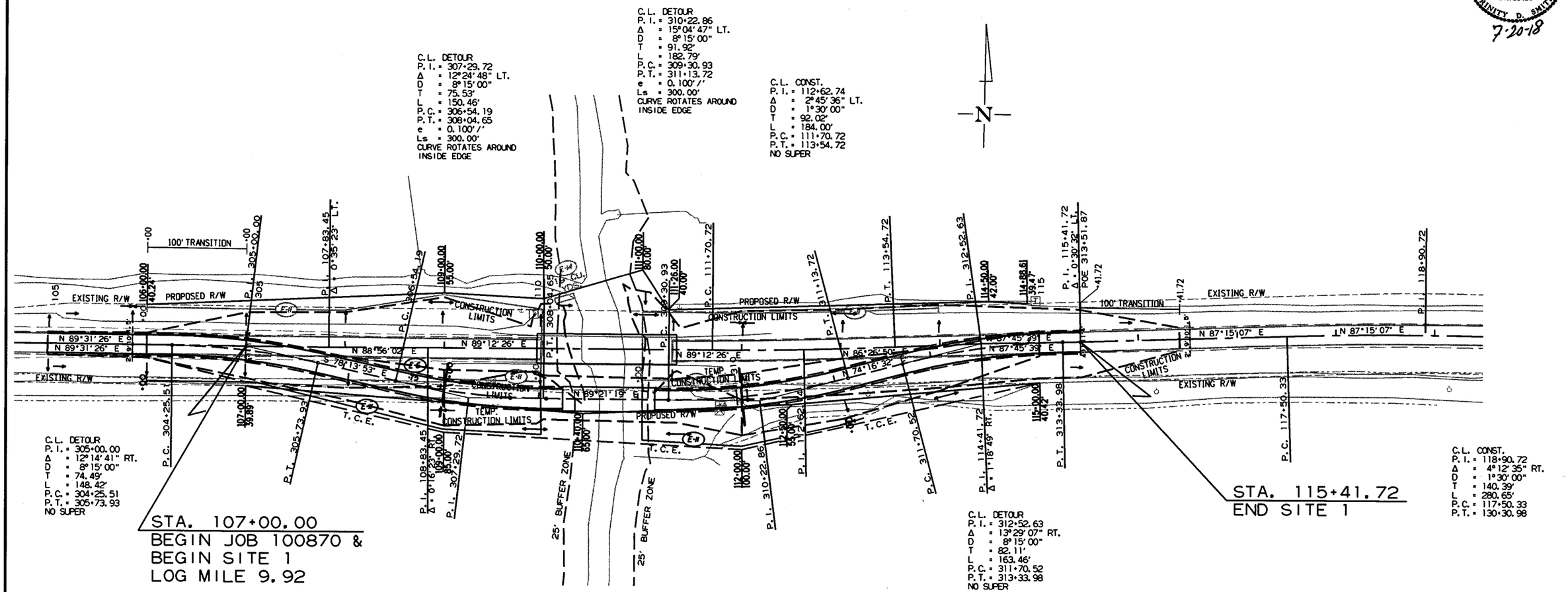
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	21	101

(2) TEMPORARY EROSION CONTROL DETAILS

QUANTITIES:

ROCK DITCH CHECKS (E-6) = 3 CU. YDS.
SILT FENCE (E-11) = 730 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18



FLOODPLAIN BOUNDARIES EXTEND THE ENTIRE JOB LIMITS

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

SITE 1
MAIN LANES
TEMPORARY EROSION CONTROL DETAILS
STAGE 1

7/9/2018

R100870.DGN

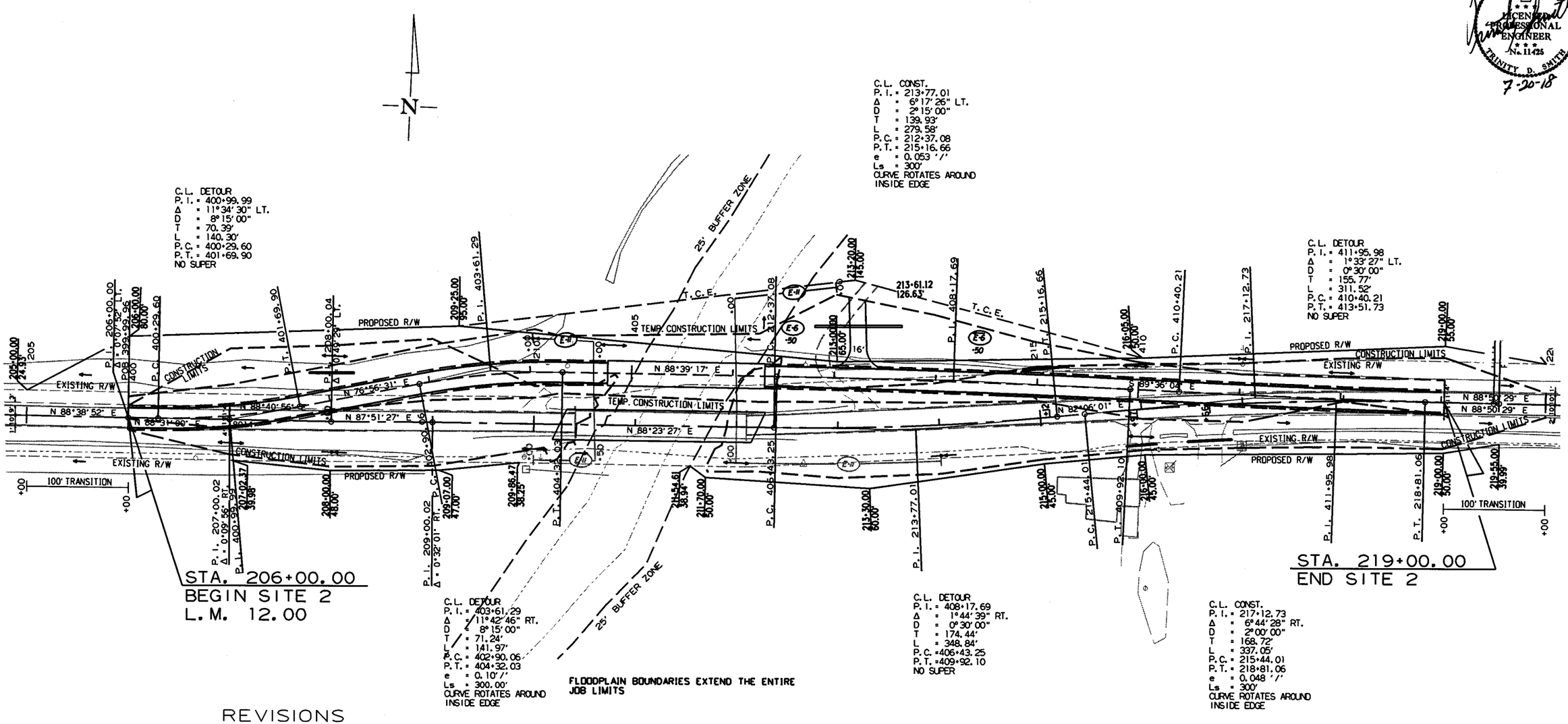
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	22	101

(2) TEMPORARY EROSION CONTROL DETAILS

QUANTITIES:

ROCK DITCH CHECKS (E-6) = 6 CU. YDS.
SILT FENCE (E-11) = 335 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
E-14 = SEDIMENT BASIN

SITE 2
MAIN LANES
TEMPORARY EROSION CONTROL DETAILS
STAGE 1

7/9/2018

R100870.DGN

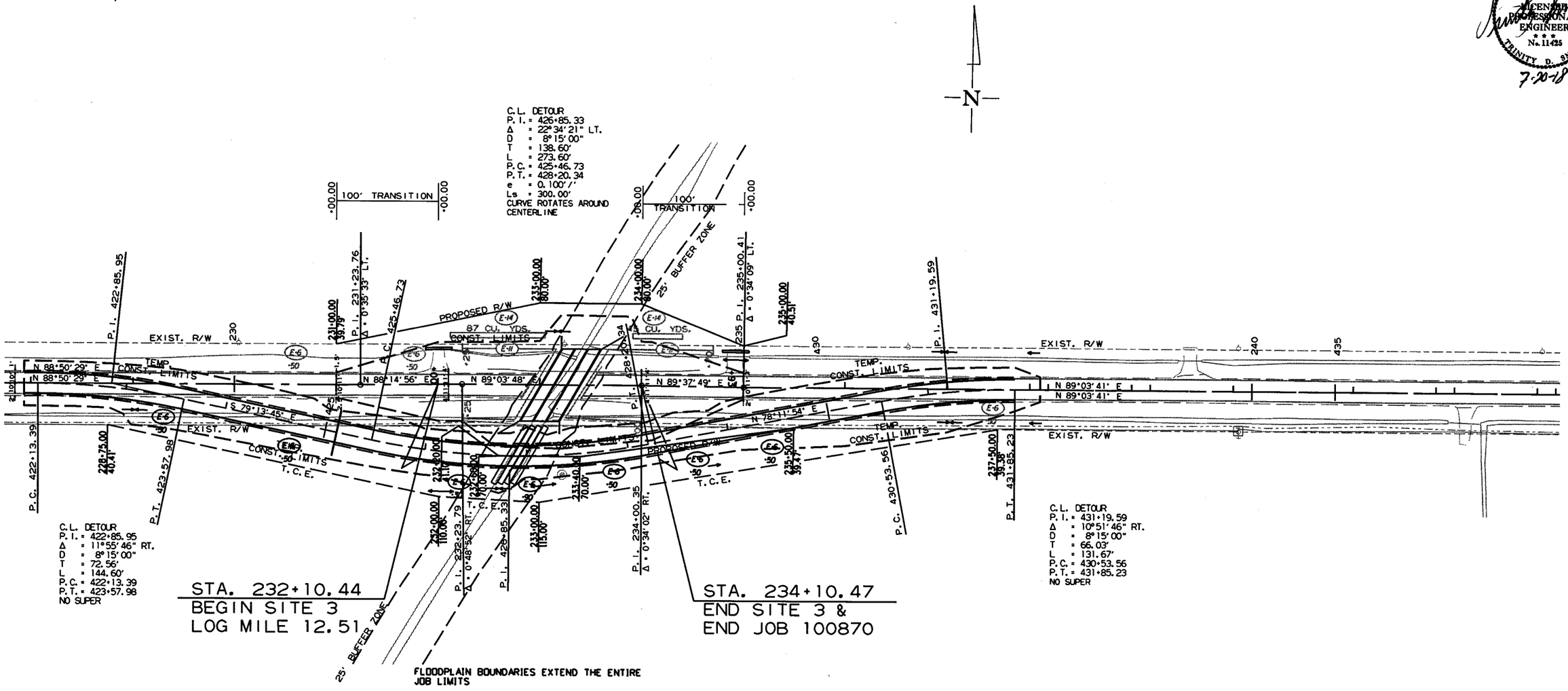
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	23	101

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18

QUANTITIES:

ROCK DITCH CHECKS (E-6) = 21 CU. YDS.



REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

SITE 3
MAIN LANES
TEMPORARY EROSION CONTROL DETAILS
STAGE 1

7/9/2018

R100870.DGN

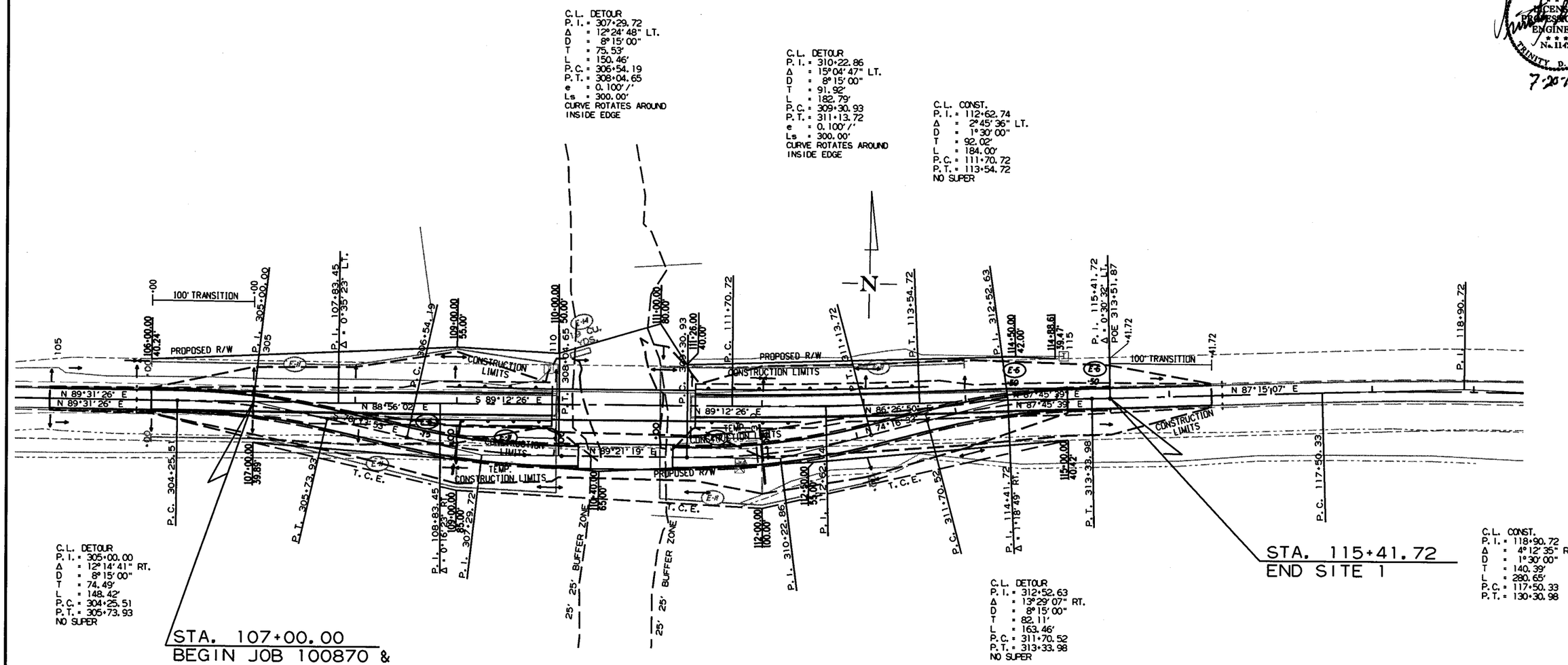
QUANTITIES:

ROCK DITCH CHECKS (E-6) = 9 CU. YDS.
SILT FENCE (E-11) = 200 LIN. FT.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	24	101

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18



FLOODPLAIN BOUNDARIES EXTEND THE ENTIRE JOB LIMITS

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

SITE 1
MAIN LANES
TEMPORARY EROSION CONTROL DETAILS
STAGE 2

7/9/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	25	101

(2) TEMPORARY EROSION CONTROL DETAILS

QUANTITIES:

ROCK DITCH CHECKS (E-6) = CU. YDS.
SILT FENCE (E-11) = 200 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18

C.L. DETOUR
P.I. = 400+99.99
Δ = 11°34'30" LT.
D = 8°15'00"
T = 70.39'
L = 140.30'
P.C. = 400+29.60
P.T. = 401+69.90
NO SUPER

C.L. CONST.
P.I. = 213+77.01
Δ = 6°17'26" LT.
D = 2°15'00"
T = 139.93'
L = 279.58'
P.C. = 212+37.08
P.T. = 215+16.66
e = 0.053 '/'
Ls = 300'
CURVE ROTATES AROUND INSIDE EDGE

C.L. DETOUR
P.I. = 411+95.98
Δ = 1°33'27" LT.
D = 0°30'00"
T = 155.77'
L = 311.52'
P.C. = 410+40.21
P.T. = 413+51.73
NO SUPER

C.L. DETOUR
P.I. = 403+61.29
Δ = 11°42'46" RT.
D = 8°15'00"
T = 71.24'
L = 141.97'
P.C. = 402+90.06
P.T. = 404+32.03
e = 0.10'/'
Ls = 300.00'
CURVE ROTATES AROUND INSIDE EDGE

C.L. DETOUR
P.I. = 408+17.69
Δ = 1°44'39" RT.
D = 0°30'00"
T = 174.44'
L = 348.84'
P.C. = 406+43.25
P.T. = 409+92.10
NO SUPER

C.L. CONST.
P.I. = 217+12.73
Δ = 6°44'28" RT.
D = 2°00'00"
T = 168.72'
L = 337.05'
P.C. = 215+44.01
P.T. = 218+81.06
e = 0.048 '/'
Ls = 300'
CURVE ROTATES AROUND INSIDE EDGE

FLOODPLAIN BOUNDARIES EXTEND THE ENTIRE JOB LIMITS

STA. 206+00.00
BEGIN SITE 2
L.M. 12.00

STA. 219+00.00
END SITE 2

LEGEND

(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE
(E-14) = SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

7/9/2018

R100870.DGN

SITE 2
MAIN LANES
TEMPORARY EROSION CONTROL DETAILS
STAGE 2

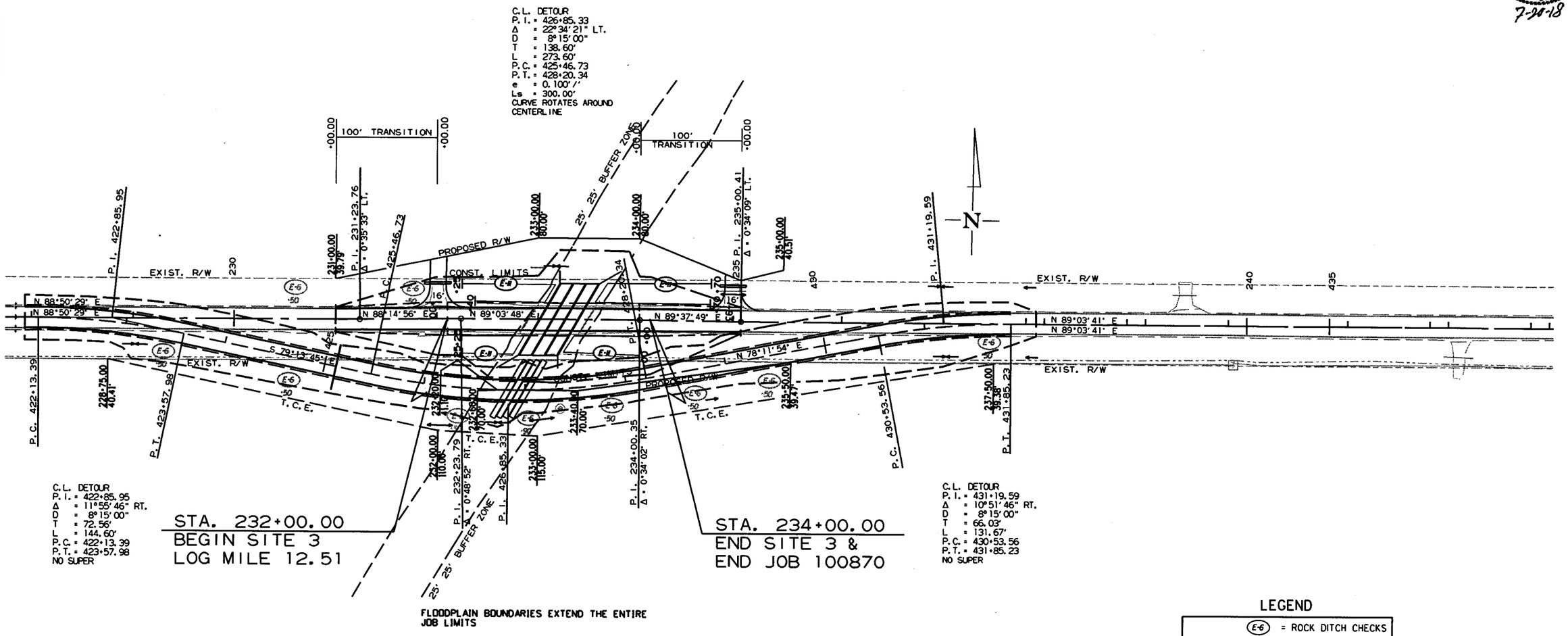
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	26	101

(2) TEMPORARY EROSION CONTROL DETAILS

QUANTITIES:

SILT FENCE (E-11) = 725 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18



LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

7/9/2018

R100870.DGN

SITE 3
MAIN LANES
TEMPORARY EROSION CONTROL DETAILS
STAGE 2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	27	101

(2) TEMPORARY EROSION CONTROL DETAILS

QUANTITIES:

SILT FENCE (E-11) = 1295 LIN. FT.

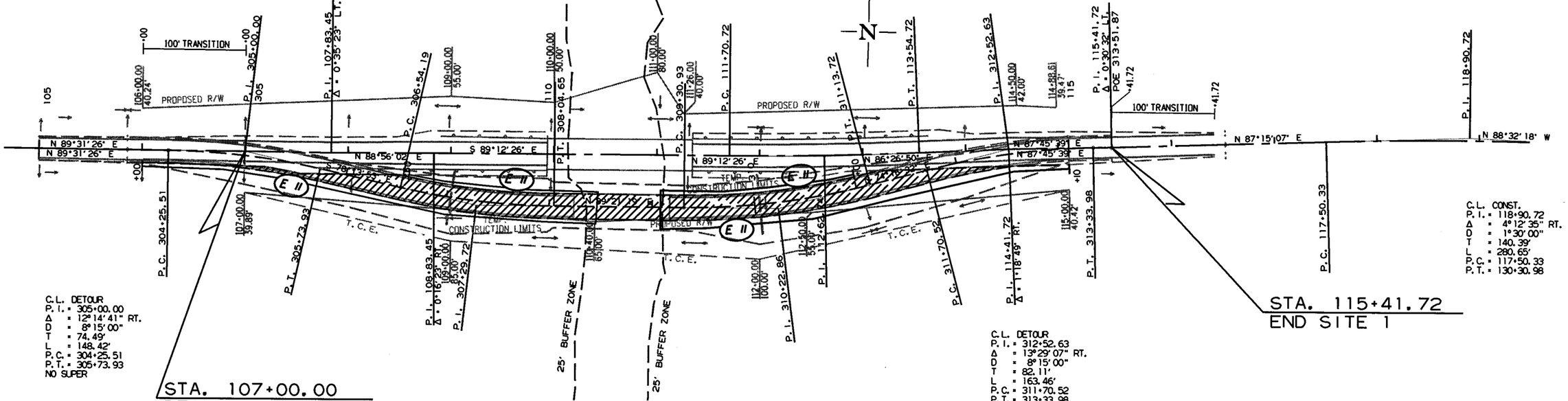
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18

DETOUR OBLITERATION

C.L. DETOUR
P.I. = 310+22.86
Δ = 15°04'47" LT.
D = 8°15'00"
T = 91.92'
L = 182.79'
P.C. = 309+30.93
P.T. = 311+13.72
e = 0.100'/'
Ls = 300.00'
CURVE ROTATES AROUND INSIDE EDGE

C.L. DETOUR
P.I. = 307+29.72
Δ = 12°24'48" LT.
D = 8°15'00"
T = 75.53'
L = 150.46'
P.C. = 306+54.19
P.T. = 308+04.65
e = 0.100'/'
Ls = 300.00'
CURVE ROTATES AROUND INSIDE EDGE

C.L. CONST.
P.I. = 112+62.74
Δ = 2°45'36" LT.
D = 1°30'00"
T = 92.02'
L = 184.00'
P.C. = 111+70.72
P.T. = 113+54.72
NO SUPER



C.L. DETOUR
P.I. = 305+00.00
Δ = 12°14'41" RT.
D = 8°15'00"
T = 74.49'
L = 148.42'
P.C. = 304+25.51
P.T. = 305+73.93
NO SUPER

STA. 107+00.00
BEGIN JOB 100870 &
BEGIN SITE 1
LOG MILE 9.92

C.L. DETOUR
P.I. = 312+52.63
Δ = 13°29'07" RT.
D = 8°15'00"
T = 82.11'
L = 163.46'
P.C. = 311+70.52
P.T. = 313+33.98
NO SUPER

C.L. CONST.
P.I. = 118+90.72
Δ = 4°12'35" RT.
D = 1°30'00"
T = 140.39'
L = 280.65'
P.C. = 117+50.33
P.T. = 130+30.98

STA. 115+41.72
END SITE 1

FLOODPLAIN BOUNDARIES EXTEND THE ENTIRE JOB LIMITS

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

7/9/2018

R100870.DGN

SITE 1
MAIN LANES
TEMPORARY EROSION CONTROL DETAILS
STAGE 3

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	28	101

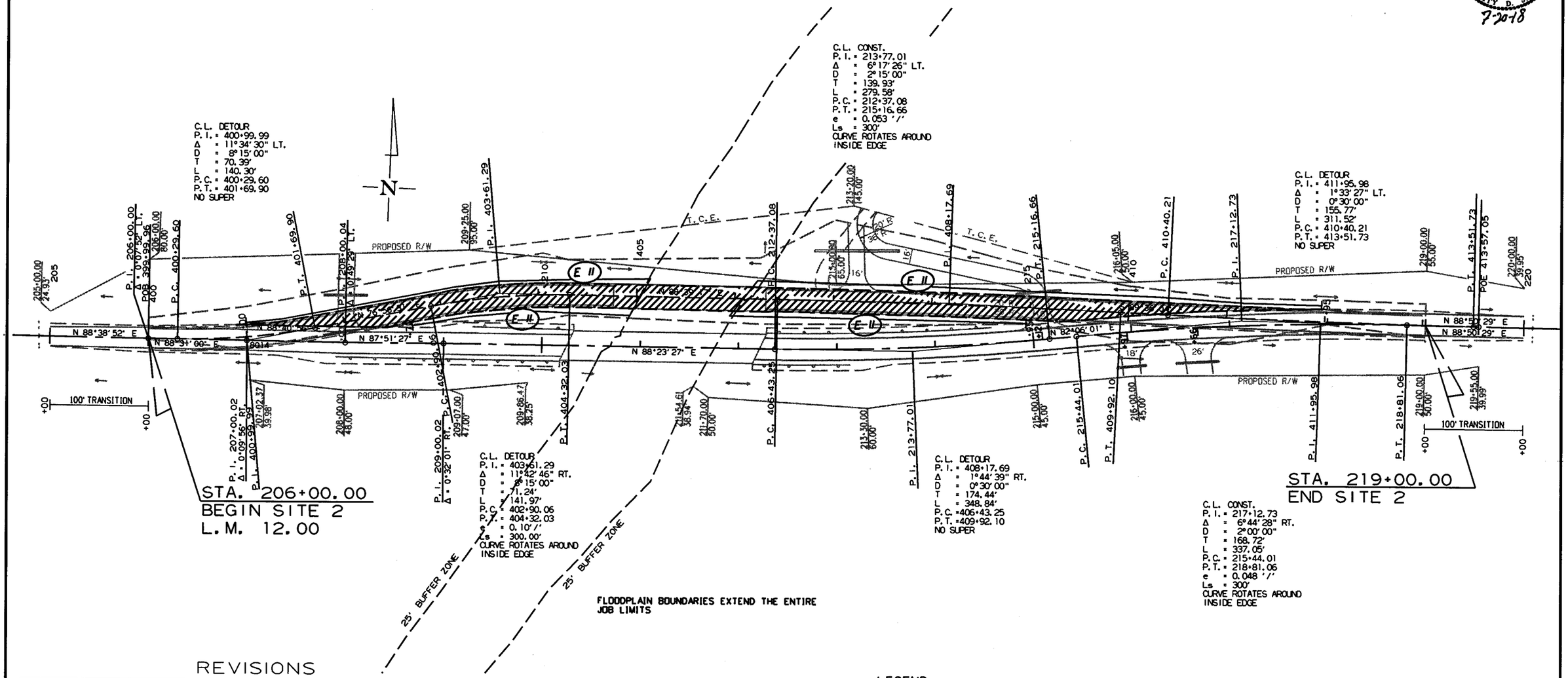
(2) TEMPORARY EROSION CONTROL DETAILS

QUANTITIES:

SILT FENCE (E-11) = 1605 LIN. FT.

DETOUR OBLITERATION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2018



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
E-14 = SEDIMENT BASIN

SITE 2
MAIN LANES
TEMPORARY EROSION CONTROL DETAILS
STAGE 3

7/9/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	29	101

(2) TEMPORARY EROSION CONTROL DETAILS

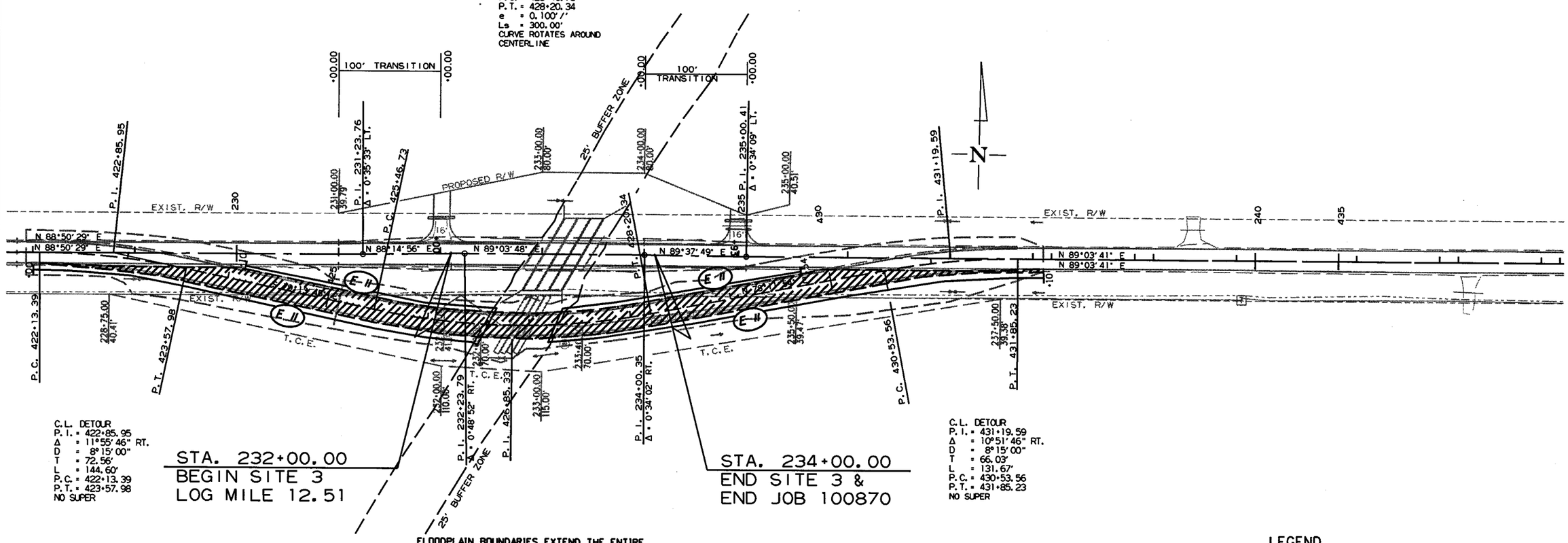
QUANTITIES:

SILT FENCE (E-11) = 1500 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18

DETOUR OBLITERATION

C.L. DETOUR
P.I. = 426+85.33
Δ = 22°34'21" LT.
D = 8°15'00"
T = 138.60'
L = 273.60'
P.C. = 425+46.73
P.T. = 428+20.34
e = 0.100'/'
Ls = 300.00'
CURVE ROTATES AROUND CENTERLINE



C.L. DETOUR
P.I. = 422+85.95
Δ = 11°55'46" RT.
D = 8°15'00"
T = 72.56'
L = 144.60'
P.C. = 422+13.39
P.T. = 423+57.98
NO SUPER

STA. 232+00.00
BEGIN SITE 3
LOG MILE 12.51

STA. 234+00.00
END SITE 3 &
END JOB 100870

C.L. DETOUR
P.I. = 431+19.59
Δ = 10°51'46" RT.
D = 8°15'00"
T = 66.03'
L = 131.67'
P.C. = 430+53.56
P.T. = 431+85.23
NO SUPER

FLOODPLAIN BOUNDARIES EXTEND THE ENTIRE JOB LIMITS

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

7/9/2018

R100870.DGN

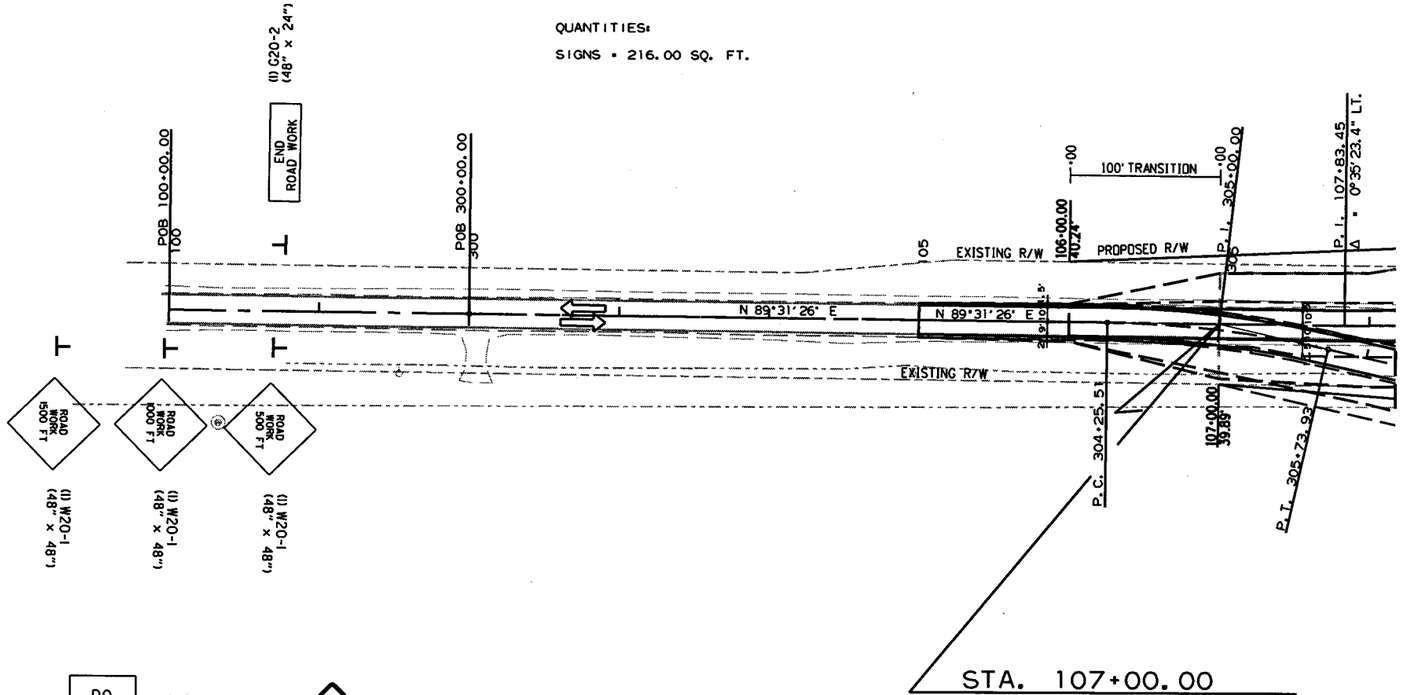
SITE 3
MAIN LANES
TEMPORARY EROSION CONTROL DETAILS
STAGE 3

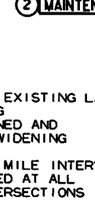
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	30	101

(2) MAINTENANCE OF TRAFFIC DETAILS

QUANTITIES:

SIGNS = 216.00 SQ. FT.





MAINTENANCE OF TRAFFIC NOTES:

TRAFFIC IS TO BE MAINTAINED IN THE EXISTING LANES USING VERTICAL PANELS @ 50' SPACING ON THE SIDE BEING NOTCHED AND WIDENED AND TRAFFIC DRUMS @ 100' SPACING ONCE WIDENING IS BROUGHT TO GRADE.
R4-1 SIGNS ARE TO BE PLACED AT 1/2 MILE INTERVALS.
W20-1 & G20-2 SIGNS ARE TO BE PLACED AT ALL STATE HIGHWAYS AND COUNTY ROAD INTERSECTIONS THROUGH THE WORK ZONE AS SHOWN.

ALL STATE HIGHWAYS, COUNTY ROAD INTERSECTIONS, AND DRIVEWAYS ON THE SIDE BEING WIDENED ARE TO BE DELINEATED USING TRAFFIC DRUMS.

CONSTRUCTION PAVEMENT MARKING QUANTITIES BASED ON ONE APPLICATION OF RT. & LT. EDGE LINES AND DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
7-20-18

(6) R4-1 (24" X 30")

(6) W21-5a (36" X 36")

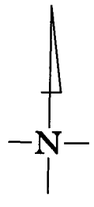
(4) W8-1 (30" X 30")

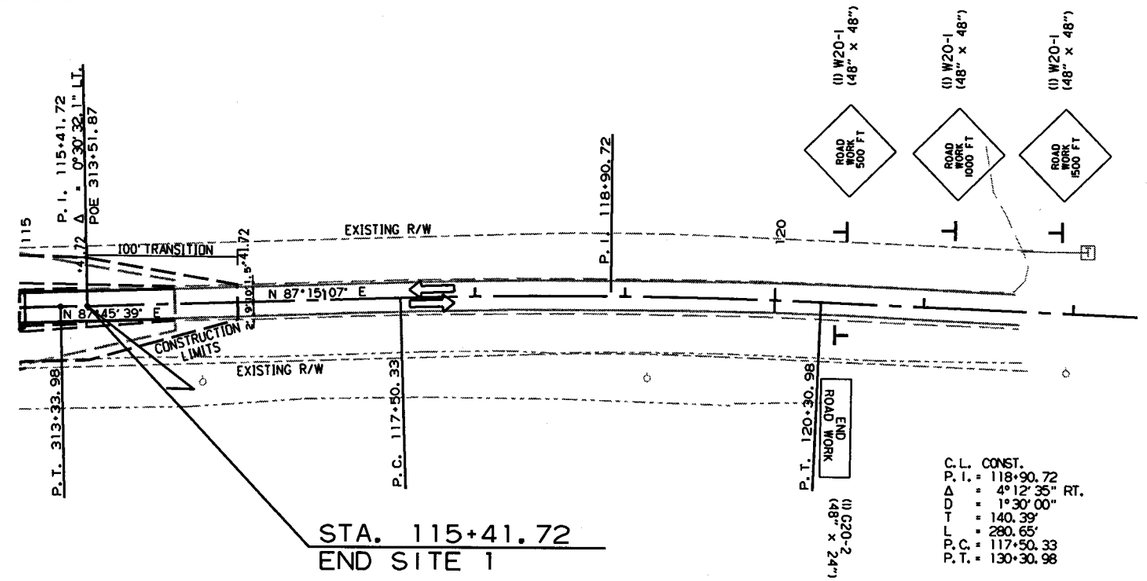
SEQUENCE OF CONSTRUCTION

STAGE 1:
MAINTAIN TRAFFIC ON EXISTING LANES.
CONSTRUCT DETOURS EACH SECTION.

STAGE 2:
SHIFT TRAFFIC TO DETOUR CENTERLINE.
NOTCH AND WIDEN OPPOSITE SIDE FROM DETOUR.
CONSTRUCT DRIVES AND INSTALL SIDE DRAINS ON OPPOSITE SIDE FROM DETOUR.
REMOVE EXISTING BRIDGES.
CONSTRUCT NEW BRIDGES AND R.C. BOX CULVERT.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE.
OBLITERATE DETOUR.
NOTCH AND WIDEN ON DETOUR SIDE.
BUILD DRIVES AND INSTALL SIDE DRAINS ON DETOUR SIDE.
COLD MILL TRANSITION AREAS.
PLACE FINAL LAYER OF ACHM SURFACE COURSE.
INSTALL PERMANENT PAVEMENT MARKINGS.





C.L. CONST.
P.I. = 118+90.72
Δ = 4°12'35" RT.
D = 1°30'00"
T = 140.39'
L = 280.65'
P.C. = 117+50.33
P.T. = 130+30.98

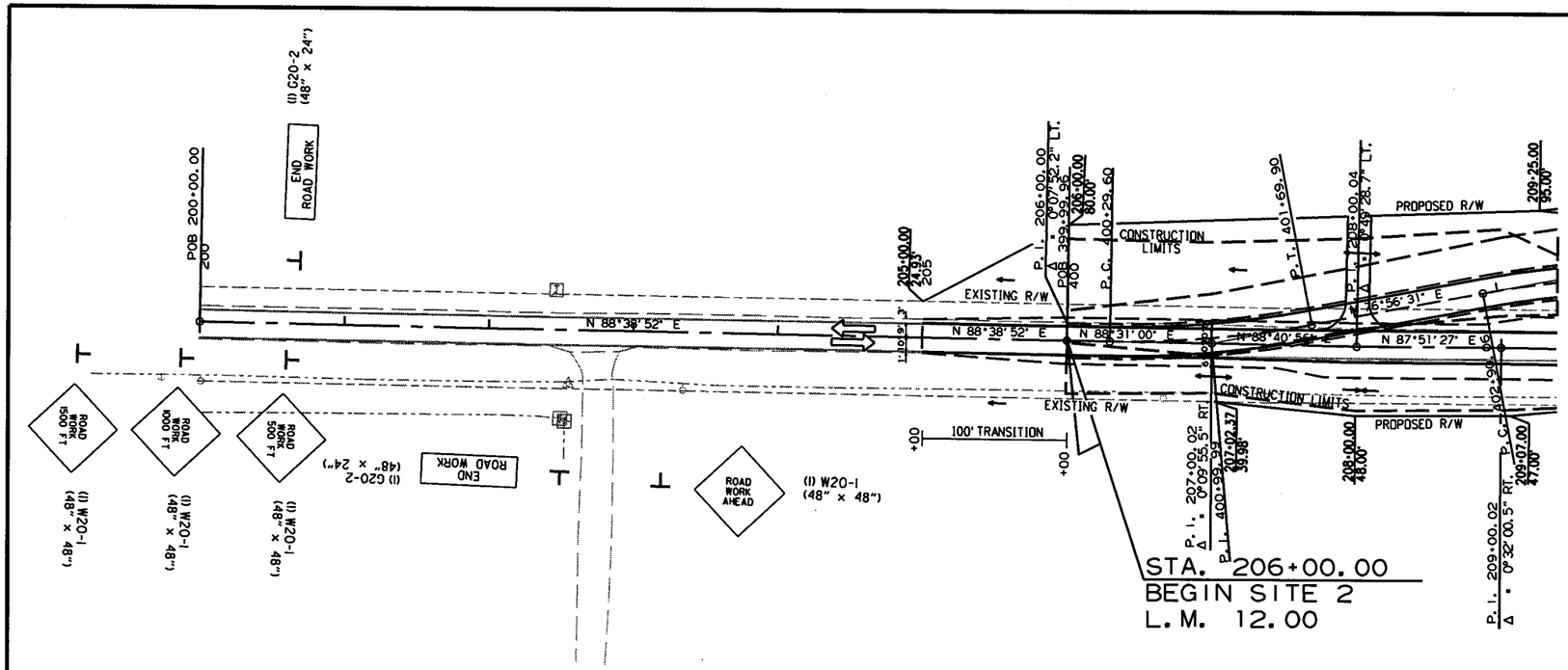
SITE 1
MAIN LANES
MAINTENANCE OF TRAFFIC DETAILS
ALL STAGES

7/9/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	31	101

(2) MAINTENANCE OF TRAFFIC DETAILS



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2018

MAINTENANCE OF TRAFFIC NOTES:

TRAFFIC IS TO BE MAINTAINED IN THE EXISTING LANES USING VERTICAL PANELS @ 50' SPACING ON THE SIDE BEING NOTCHED AND WIDENED AND TRAFFIC DRUMS @ 100' SPACING ONCE WIDENING IS BROUGHT TO GRADE.
R4-1 SIGNS ARE TO BE PLACED AT 1/2 MILE INTERVALS.
W20-1 & G20-2 SIGNS ARE TO BE PLACED AT ALL STATE HIGHWAYS AND COUNTY ROAD INTERSECTIONS THROUGH THE WORK ZONE AS SHOWN.

ALL STATE HIGHWAYS, COUNTY ROAD INTERSECTIONS, AND DRIVEWAYS ON THE SIDE BEING WIDENED ARE TO BE DELINEATED USING TRAFFIC DRUMS.

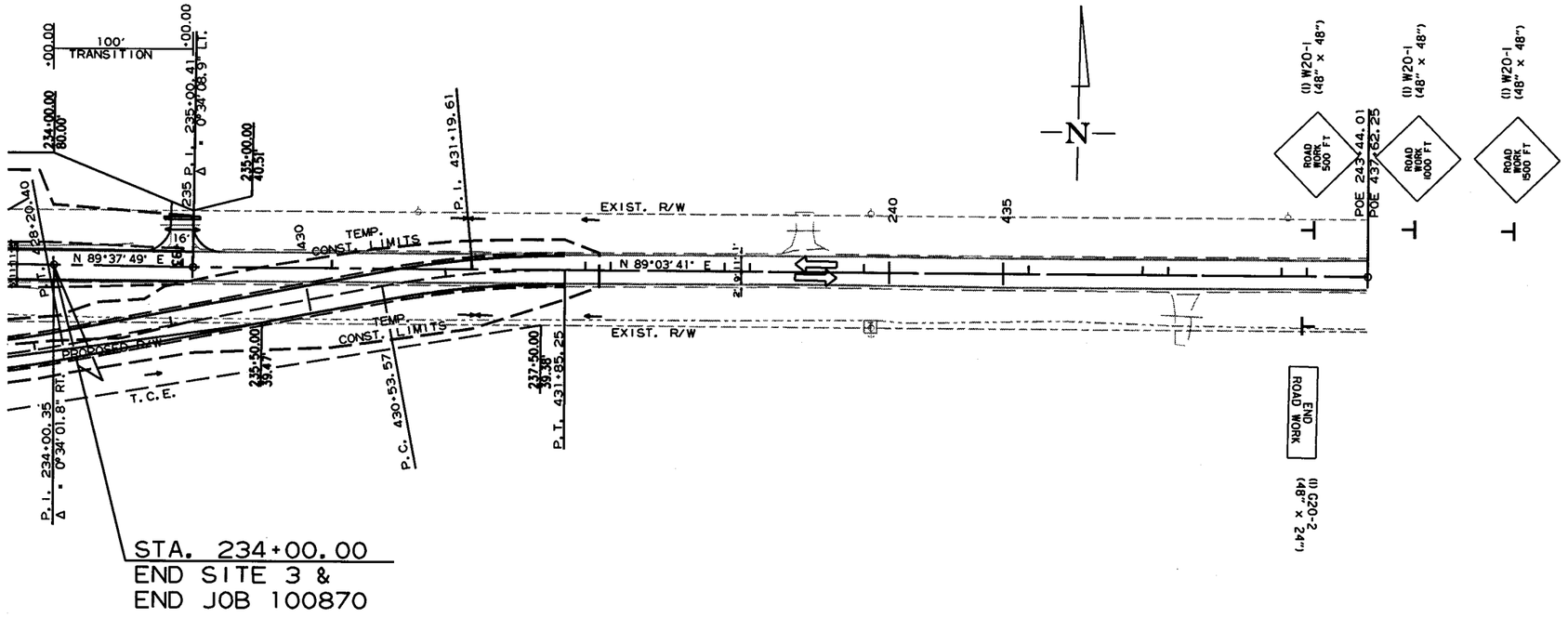
CONSTRUCTION PAVEMENT MARKING QUANTITIES BASED ON ONE APPLICATION OF RT. & LT. EDGE LINES AND DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT.

SEQUENCE OF CONSTRUCTION

STAGE 1:
MAINTAIN TRAFFIC ON EXISTING LANES.
CONSTRUCT DETOURS EACH SECTION.

STAGE 2:
SHIFT TRAFFIC TO DETOUR CENTERLINE.
NOTCH AND WIDEN OPPOSITE SIDE FROM DETOUR.
CONSTRUCT DRIVES AND INSTALL SIDE DRAINS ON OPPOSITE SIDE FROM DETOUR.
REMOVE EXISTING BRIDGES.
CONSTRUCT NEW BRIDGES AND R.C. BOX CULVERT.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE.
OBLITERATE DETOUR.
NOTCH AND WIDEN ON DETOUR SIDE.
BUILD DRIVES AND INSTALL SIDE DRAINS ON DETOUR SIDE.
COLD MILL TRANSITION AREAS.
PLACE FINAL LAYER OF ACHM SURFACE COURSE.
INSTALL PERMANENT PAVEMENT MARKINGS.



7/9/2018

R100870.DGN

SITE 2 & 3
MAIN LANES
MAINTENANCE OF TRAFFIC DETAILS
ALL STAGES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	32	101

(2) MAINTENANCE OF TRAFFIC DETAILS

QUANTITIES:

SIGNS = 20.0 SQ. FT.
VERTICAL PANELS = 17 EACH

TYPE 3 BARRICADES
LT. = 1 EACH
RT. = 1 EACH

CONSTRUCTION PAVEMENT MARKINGS
STA. 106+00.00 TO STA. 116+41.72 = 4166.88 LIN. FT.

SEQUENCE OF CONSTRUCTION

STAGE 1:
MAINTAIN TRAFFIC ON EXISTING LANES.
CONSTRUCT DETOURS EACH SECTION.

STAGE 2:
SHIFT TRAFFIC TO DETOUR CENTERLINE.
NOTCH AND WIDEN OPPOSITE SIDE FROM DETOUR.
CONSTRUCT DRIVES AND INSTALL SIDE DRAINS ON OPPOSITE SIDE FROM DETOUR.
REMOVE EXISTING BRIDGES.
CONSTRUCT NEW BRIDGES AND R.C. BOX CULVERT.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE.
OBLITERATE DETOUR.
NOTCH AND WIDEN ON DETOUR SIDE.
BUILD DRIVES AND INSTALL SIDE DRAINS ON DETOUR SIDE.
COLD MILL TRANSITION AREAS.
PLACE FINAL LAYER OF ACHM SURFACE COURSE.
INSTALL PERMANENT PAVEMENT MARKINGS.

C.L. DETOUR
P.I. = 307+29.72
Δ = 12°24'48" LT.
D = 8°15'00"
T = 75.53'
L = 150.46'
P.C. = 306+54.19
P.T. = 308+04.65
e = 0.100'/'
Ls = 300.00'
CURVE ROTATES AROUND INSIDE EDGE

C.L. DETOUR
P.I. = 310+22.86
Δ = 15°04'47" LT.
D = 8°15'00"
T = 91.92'
L = 182.79'
P.C. = 309+30.93
P.T. = 311+13.72
e = 0.100'/'
Ls = 300.00'
CURVE ROTATES AROUND INSIDE EDGE

C.L. CONST.
P.I. = 112+62.74
Δ = 2°45'36" LT.
D = 1°30'00"
T = 92.02'
L = 184.00'
P.C. = 111+70.72
P.T. = 113+54.72
NO SUPER

MAINTENANCE OF TRAFFIC NOTES:

TRAFFIC IS TO BE MAINTAINED IN THE EXISTING LANES USING VERTICAL PANELS @ 50' SPACING ON THE SIDE BEING NOTCHED AND WIDENED AND TRAFFIC DRUMS @ 100' SPACING ONCE WIDENING IS BROUGHT TO GRADE.
R4-1 SIGNS ARE TO BE PLACED AT 1/2 MILE INTERVALS.
W20-1 & G20-2 SIGNS ARE TO BE PLACED AT ALL STATE HIGHWAYS AND COUNTY ROAD INTERSECTIONS THROUGH THE WORK ZONE AS SHOWN.

ALL STATE HIGHWAYS, COUNTY ROAD INTERSECTIONS, AND DRIVEWAYS ON THE SIDE BEING WIDENED ARE TO BE DELINEATED USING TRAFFIC DRUMS.

CONSTRUCTION PAVEMENT MARKING QUANTITIES BASED ON ONE APPLICATION OF RT. & LT. EDGE LINES AND DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18

N

8 VERTICAL PANELS (50' O.C.)

(1) W20-1 (48" x 48")
ROAD WORK 500 FT

(1) W20-2 (48" x 24")
END ROAD WORK

STA. 107+00.00
BEGIN JOB 100870 &
BEGIN SITE 1
LOG MILE 9.92

STA. 115+41.72
END SITE 1

14 VERTICAL PANELS (50' O.C.)

ROAD CLOSED

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

16' BARR. TYP. III RT.

16' BARR. TYP. III LT.

C.L. DETOUR
P.I. = 305+00.00
Δ = 12°14'41" RT.
D = 8°15'00"
T = 74.49'
L = 148.42'
P.C. = 304+25.51
P.T. = 305+73.93
NO SUPER

C.L. DETOUR
P.I. = 312+52.63
Δ = 13°29'07" RT.
D = 8°15'00"
T = 82.11'
L = 163.46'
P.C. = 311+70.52
P.T. = 313+33.98
NO SUPER

C.L. CONST.
P.I. = 118+90.72
Δ = 4°12'35" RT.
D = 1°30'00"
T = 140.39'
L = 280.65'
P.C. = 117+50.33
P.T. = 130+30.98

SITE 1
MAIN LANES
MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

7/9/2018
R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	33	101

QUANTITIES:

SIGNS = 20.0 SQ. FT.

VERTICAL PANELS = 23 EACH
TRAFFIC DRUMS = 39 EACH (10' O.C.)

TYPE 3 BARRICADES
LT. = 1 EACH
RT. = 1 EACH

CONSTRUCTION PAVEMENT MARKINGS
STA. 205+00.00 TO STA. 220+00.00= 6000.00 LIN. FT.

MAINTENANCE OF TRAFFIC NOTES:

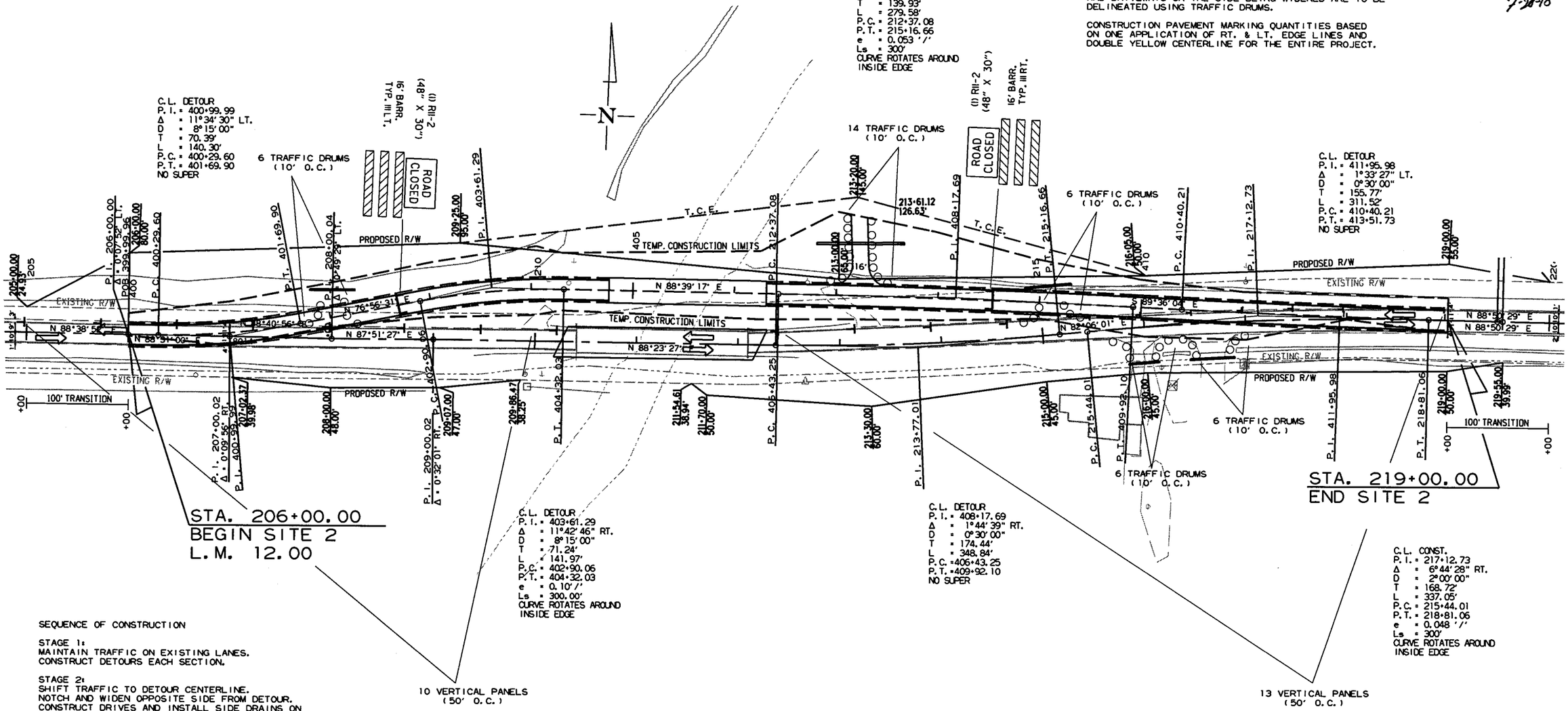
TRAFFIC IS TO BE MAINTAINED IN THE EXISTING LANES USING VERTICAL PANELS @ 50' SPACING ON THE SIDE BEING NOTCHED AND WIDENED AND TRAFFIC DRUMS @ 100' SPACING ONCE WIDENING IS BROUGHT TO GRADE.
R4-1 SIGNS ARE TO BE PLACED AT 1/2 MILE INTERVALS.
W20-1 & G20-2 SIGNS ARE TO BE PLACED AT ALL STATE HIGHWAYS AND COUNTY ROAD INTERSECTIONS THROUGH THE WORK ZONE AS SHOWN.

ALL STATE HIGHWAYS, COUNTY ROAD INTERSECTIONS, AND DRIVEWAYS ON THE SIDE BEING WIDENED ARE TO BE DELINEATED USING TRAFFIC DRUMS.

CONSTRUCTION PAVEMENT MARKING QUANTITIES BASED ON ONE APPLICATION OF RT. & LT. EDGE LINES AND DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT.

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
TRINITY D. SMITH
LICENSED PROFESSIONAL ENGINEER
No. 11425
7-2-18



SEQUENCE OF CONSTRUCTION

STAGE 1:
MAINTAIN TRAFFIC ON EXISTING LANES.
CONSTRUCT DETOURS EACH SECTION.

STAGE 2:
SHIFT TRAFFIC TO DETOUR CENTERLINE.
NOTCH AND WIDEN OPPOSITE SIDE FROM DETOUR.
CONSTRUCT DRIVES AND INSTALL SIDE DRAINS ON OPPOSITE SIDE FROM DETOUR.
REMOVE EXISTING BRIDGES.
CONSTRUCT NEW BRIDGES AND R.C. BOX CULVERT.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE.
OBLITERATE DETOUR.
NOTCH AND WIDEN ON DETOUR SIDE.
BUILD DRIVES AND INSTALL SIDE DRAINS ON DETOUR SIDE.
COLD MILL TRANSITION AREAS.
PLACE FINAL LAYER OF ACHM SURFACE COURSE.
INSTALL PERMANENT PAVEMENT MARKINGS.

7/9/2018

R100870.DGN

SITE 2
MAIN LANES
MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	34	101

(2) MAINTENANCE OF TRAFFIC DETAILS

QUANTITIES:

SIGNS = 20.0 SQ. FT.

VERTICAL PANELS = 20 EACH
TRAFFIC DRUMS = 12 EACH (10' O.C.)

TYPE 3 BARRICADES
LT. = 1 EACH
RT. = 1 EACH

CONSTRUCTION PAVEMENT MARKINGS
STA. 228+00.00 TO STA. 238+00.00 = 4000.00 LIN. FT.

MAINTENANCE OF TRAFFIC NOTES:

TRAFFIC IS TO BE MAINTAINED IN THE EXISTING LANES USING VERTICAL PANELS @ 50' SPACING ON THE SIDE BEING NOTCHED AND WIDENED AND TRAFFIC DRUMS @ 100' SPACING ONCE WIDENING IS BROUGHT TO GRADE.
R4-1 SIGNS ARE TO BE PLACED AT 1/2 MILE INTERVALS.
W20-1 & G20-2 SIGNS ARE TO BE PLACED AT ALL STATE HIGHWAYS AND COUNTY ROAD INTERSECTIONS THROUGH THE WORK ZONE AS SHOWN.

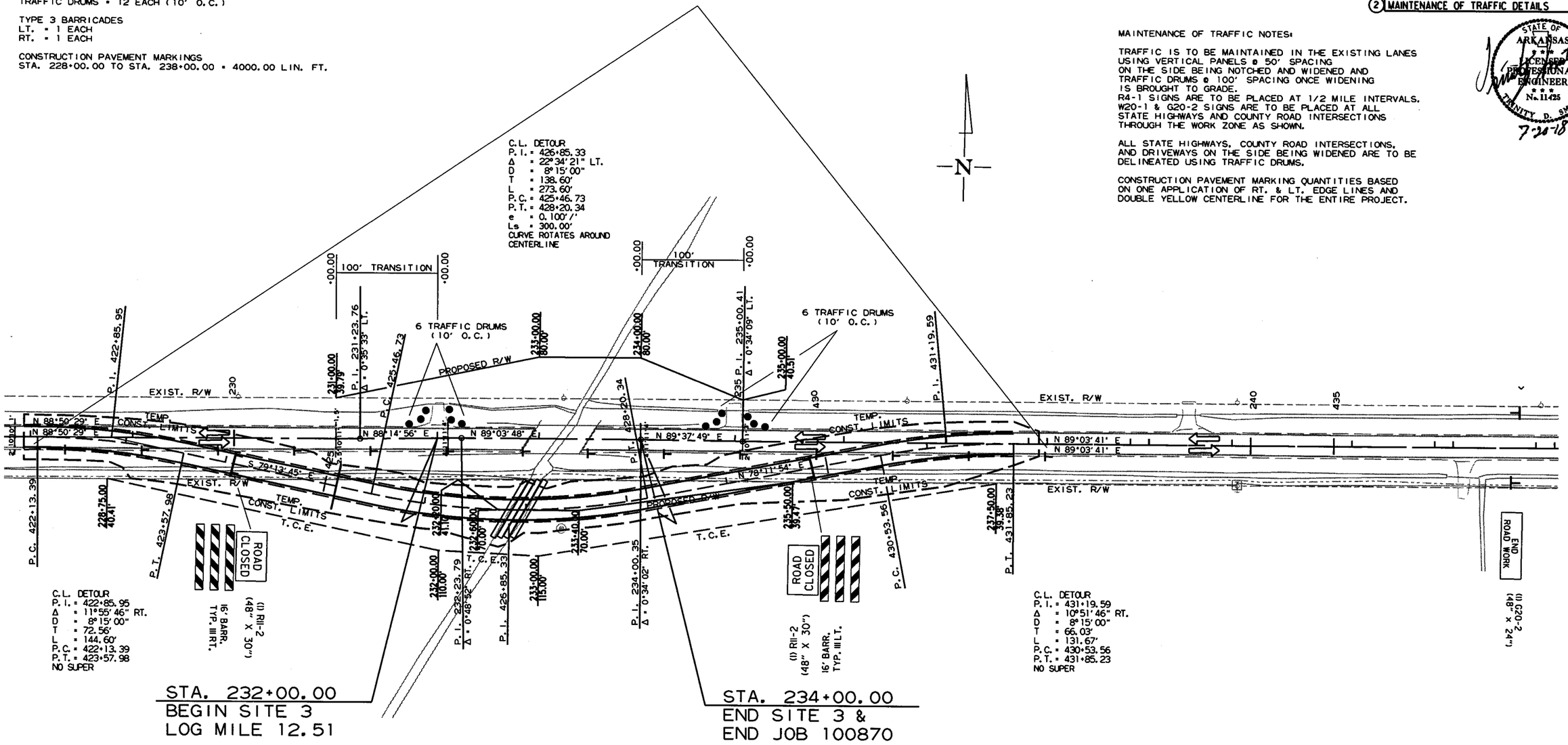
ALL STATE HIGHWAYS, COUNTY ROAD INTERSECTIONS, AND DRIVEWAYS ON THE SIDE BEING WIDENED ARE TO BE DELINEATED USING TRAFFIC DRUMS.

CONSTRUCTION PAVEMENT MARKING QUANTITIES BASED ON ONE APPLICATION OF RT. & LT. EDGE LINES AND DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT.

STATE OF ARKANSAS
TRINITY D. SMITH
No. 11425
REGISTERED PROFESSIONAL ENGINEER
7-20-18

22 VERTICAL PANELS
(50' O.C.)

C.L. DETOUR
P.I. = 426+85.33
Δ = 22°34'21" LT.
D = 8°15'00"
T = 138.60'
L = 273.60'
P.C. = 425+46.73
P.T. = 428+20.34
e = 0.100'/'
Ls = 300.00'
CURVE ROTATES AROUND CENTERLINE



C.L. DETOUR
P.I. = 422+85.95
Δ = 11°55'46" RT.
D = 8°15'00"
T = 72.56'
L = 144.60'
P.C. = 422+13.39
P.T. = 423+57.98
NO SUPER

C.L. DETOUR
P.I. = 431+19.59
Δ = 10°51'46" RT.
D = 8°15'00"
T = 66.03'
L = 131.67'
P.C. = 430+53.56
P.T. = 431+85.23
NO SUPER

STA. 232+00.00
BEGIN SITE 3
LOG MILE 12.51

STA. 234+00.00
END SITE 3 &
END JOB 100870

SEQUENCE OF CONSTRUCTION

STAGE 1:
MAINTAIN TRAFFIC ON EXISTING LANES.
CONSTRUCT DETOURS EACH SECTION.

STAGE 2:
SHIFT TRAFFIC TO DETOUR CENTERLINE.
NOTCH AND WIDEN OPPOSITE SIDE FROM DETOUR.
CONSTRUCT DRIVES AND INSTALL SIDE DRAINS ON OPPOSITE SIDE FROM DETOUR.
REMOVE EXISTING BRIDGES.
CONSTRUCT NEW BRIDGES AND R.C. BOX CULVERT.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE.
OBLITERATE DETOUR.
NOTCH AND WIDEN ON DETOUR SIDE.
BUILD DRIVES AND INSTALL SIDE DRAINS ON DETOUR SIDE.
COLD MILL TRANSITION AREAS.
PLACE FINAL LAYER OF ACHM SURFACE COURSE.
INSTALL PERMANENT PAVEMENT MARKINGS.

7/9/2018

R100870.DGN

SITE 3
MAIN LANES
MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

QUANTITIES:

SIGNS = 76.0 SQ. FT.
VERTICAL PANELS = 14 EACH

TYPE 3 BARRICADES
LT. = 1 EACH
RT. = 1 EACH

REMOVAL OF PERMANENT PAVEMENT MARKINGS
STA. 106+00.00 TO STA. 108+50.00 = 1000.00 LIN. FT.
STA. 113+50.00 TO STA. 116+41.72 = 1166.88 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS
STA. 106+00.00 TO STA. 116+41.72 = 4166.88 LIN. FT.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	35	101

(2) MAINTENANCE OF TRAFFIC DETAILS

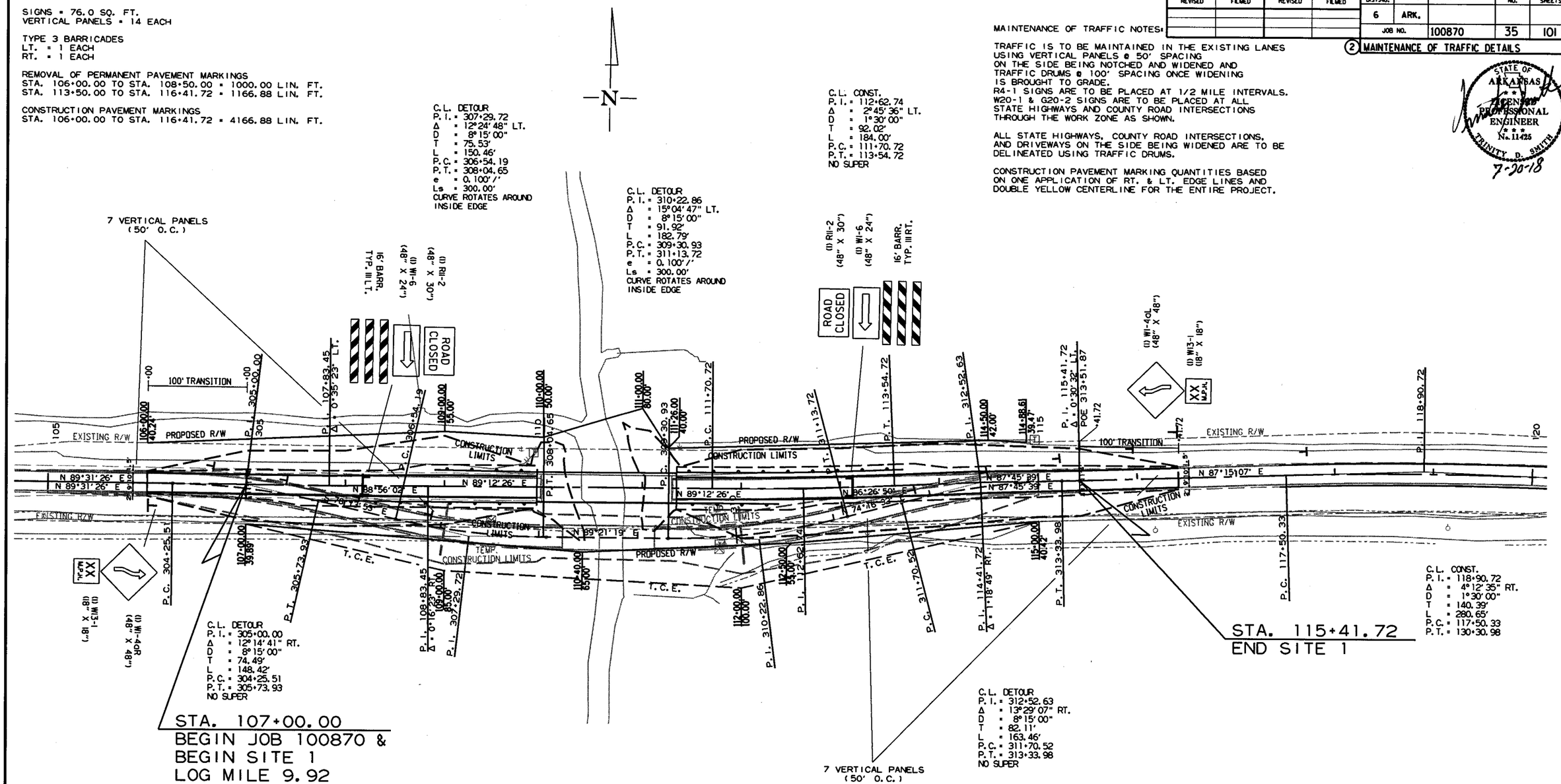
MAINTENANCE OF TRAFFIC NOTES:

TRAFFIC IS TO BE MAINTAINED IN THE EXISTING LANES USING VERTICAL PANELS @ 50' SPACING ON THE SIDE BEING NOTCHED AND WIDENED AND TRAFFIC DRUMS @ 100' SPACING ONCE WIDENING IS BROUGHT TO GRADE.
R4-1 SIGNS ARE TO BE PLACED AT 1/2 MILE INTERVALS.
W20-1 & G20-2 SIGNS ARE TO BE PLACED AT ALL STATE HIGHWAYS AND COUNTY ROAD INTERSECTIONS THROUGH THE WORK ZONE AS SHOWN.

ALL STATE HIGHWAYS, COUNTY ROAD INTERSECTIONS, AND DRIVEWAYS ON THE SIDE BEING WIDENED ARE TO BE DELINEATED USING TRAFFIC DRUMS.

CONSTRUCTION PAVEMENT MARKING QUANTITIES BASED ON ONE APPLICATION OF RT. & LT. EDGE LINES AND DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18



SEQUENCE OF CONSTRUCTION

STAGE 1:
MAINTAIN TRAFFIC ON EXISTING LANES.
CONSTRUCT DETOURS EACH SECTION.

STAGE 2:
SHIFT TRAFFIC TO DETOUR CENTERLINE.
NOTCH AND WIDEN OPPOSITE SIDE FROM DETOUR.
CONSTRUCT DRIVES AND INSTALL SIDE DRAINS ON OPPOSITE SIDE FROM DETOUR.
REMOVE EXISTING BRIDGES.
CONSTRUCT NEW BRIDGES AND R.C. BOX CULVERT.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE.
OBLITERATE DETOUR.
NOTCH AND WIDEN ON DETOUR SIDE.
BUILD DRIVES AND INSTALL SIDE DRAINS ON DETOUR SIDE.
COLD MILL TRANSITION AREAS.
PLACE FINAL LAYER OF ACHM SURFACE COURSE.
INSTALL PERMANENT PAVEMENT MARKINGS.

7/9/2018
R100870.DGN

SITE 1
MAIN LANES
MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	36	101

(2) MAINTENANCE OF TRAFFIC DETAILS

QUANTITIES:

SIGNS = 76.0 SQ. FT.

VERTICAL PANELS = 6 EACH
TRAFFIC DRUMS = 27 EACH (10' O.C.)
TRAFFIC DRUMS = 5 EACH (100' O.C.)

TYPE 3 BARRICADES
LT. = 1 EACH
RT. = 1 EACH

REMOVAL OF PERMANENT PAVEMENT MARKINGS
STA. 205+00.00 TO STA. 209+00.00 = 1600.00 LIN. FT.
STA. 215+00.00 TO STA. 220+00.00 = 2000.00 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS
STA. 205+00.00 TO STA. 220+00.00 = 6000.00 LIN. FT.

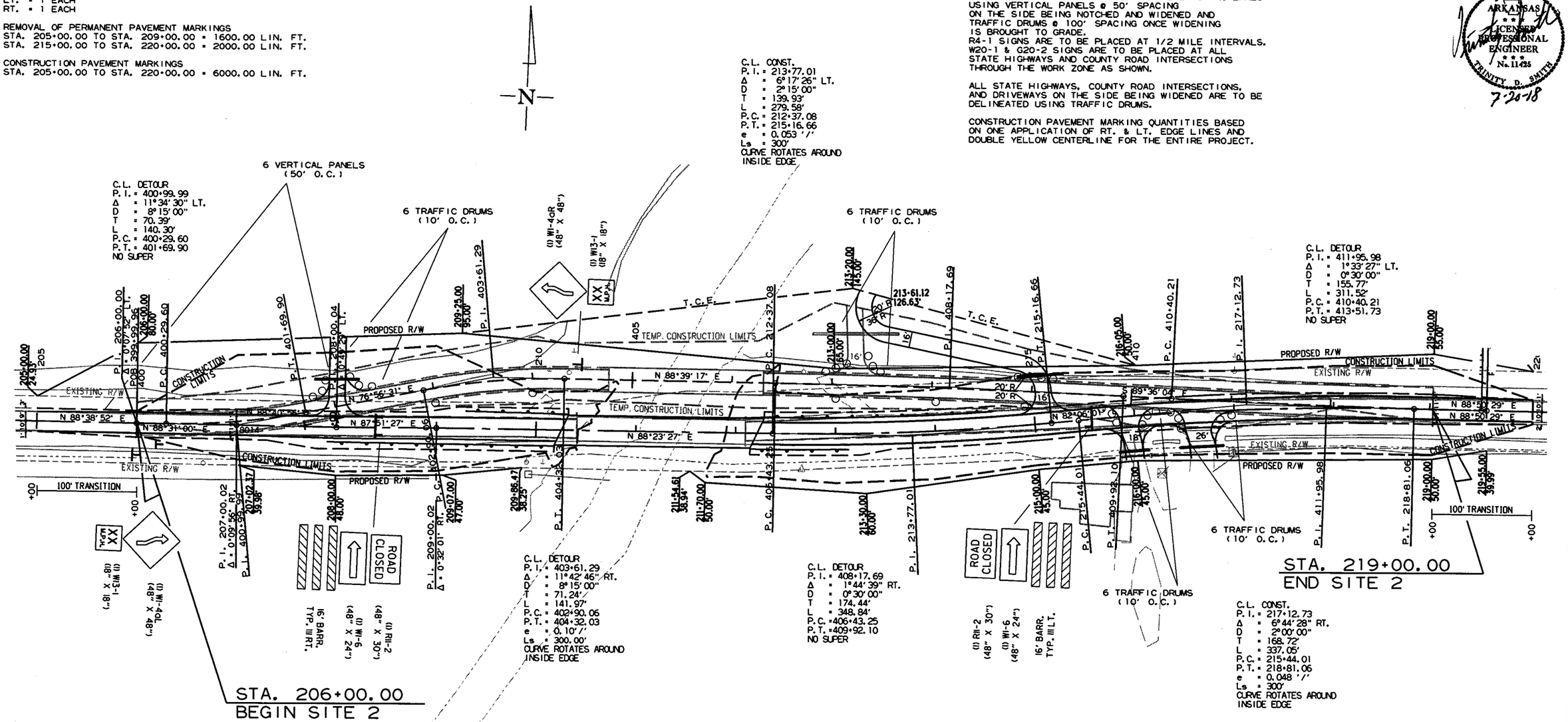
MAINTENANCE OF TRAFFIC NOTES:

TRAFFIC IS TO BE MAINTAINED IN THE EXISTING LANES USING VERTICAL PANELS @ 50' SPACING ON THE SIDE BEING NOTCHED AND WIDENED AND TRAFFIC DRUMS @ 100' SPACING ONCE WIDENING IS BROUGHT TO GRADE.
R4-1 SIGNS ARE TO BE PLACED AT 1/2 MILE INTERVALS.
W20-1 & G20-2 SIGNS ARE TO BE PLACED AT ALL STATE HIGHWAYS AND COUNTY ROAD INTERSECTIONS THROUGH THE WORK ZONE AS SHOWN.

ALL STATE HIGHWAYS, COUNTY ROAD INTERSECTIONS, AND DRIVEWAYS ON THE SIDE BEING WIDENED ARE TO BE DELINEATED USING TRAFFIC DRUMS.

CONSTRUCTION PAVEMENT MARKING QUANTITIES BASED ON ONE APPLICATION OF RT. & LT. EDGE LINES AND DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18



SEQUENCE OF CONSTRUCTION

STAGE 1:
MAINTAIN TRAFFIC ON EXISTING LANES.
CONSTRUCT DETOURS EACH SECTION.

STAGE 2:
SHIFT TRAFFIC TO DETOUR CENTERLINE.
NOTCH AND WIDEN OPPOSITE SIDE FROM DETOUR.
CONSTRUCT DRIVES AND INSTALL SIDE DRAINS ON OPPOSITE SIDE FROM DETOUR.
REMOVE EXISTING BRIDGES.
CONSTRUCT NEW BRIDGES AND R.C. BOX CULVERT.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE.
OBLITERATE DETOUR.
NOTCH AND WIDEN ON DETOUR SIDE.
BUILD DRIVES AND INSTALL SIDE DRAINS ON DETOUR SIDE.
COLD MILL TRANSITION AREAS.
PLACE FINAL LAYER OF ACHM SURFACE COURSE.
INSTALL PERMANENT PAVEMENT MARKINGS.

7/9/2018

R100870.DGN

SITE 2
MAIN LANES
MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

QUANTITIES:

SIGNS = 88.0 SQ. FT.

VERTICAL PANELS = 10 EACH
TRAFFIC DRUMS = 28 EACH (10' O.C.)
TRAFFIC DRUMS = 2 EACH (100' O.C.)

TYPE 3 BARRICADES
LT. = 1 EACH
RT. = 1 EACH

REMOVAL OF PERMANENT PAVEMENT MARKINGS
STA. 228+00.00 TO STA. 231+50.00 = 1400.00 LIN. FT.
STA. 234+50.00 TO STA. 238+00.00 = 1400.00 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS
STA. 228+00.00 TO STA. 238+00.00 = 4000.00 LIN. FT.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	37	101

(2) MAINTENANCE OF TRAFFIC DETAILS

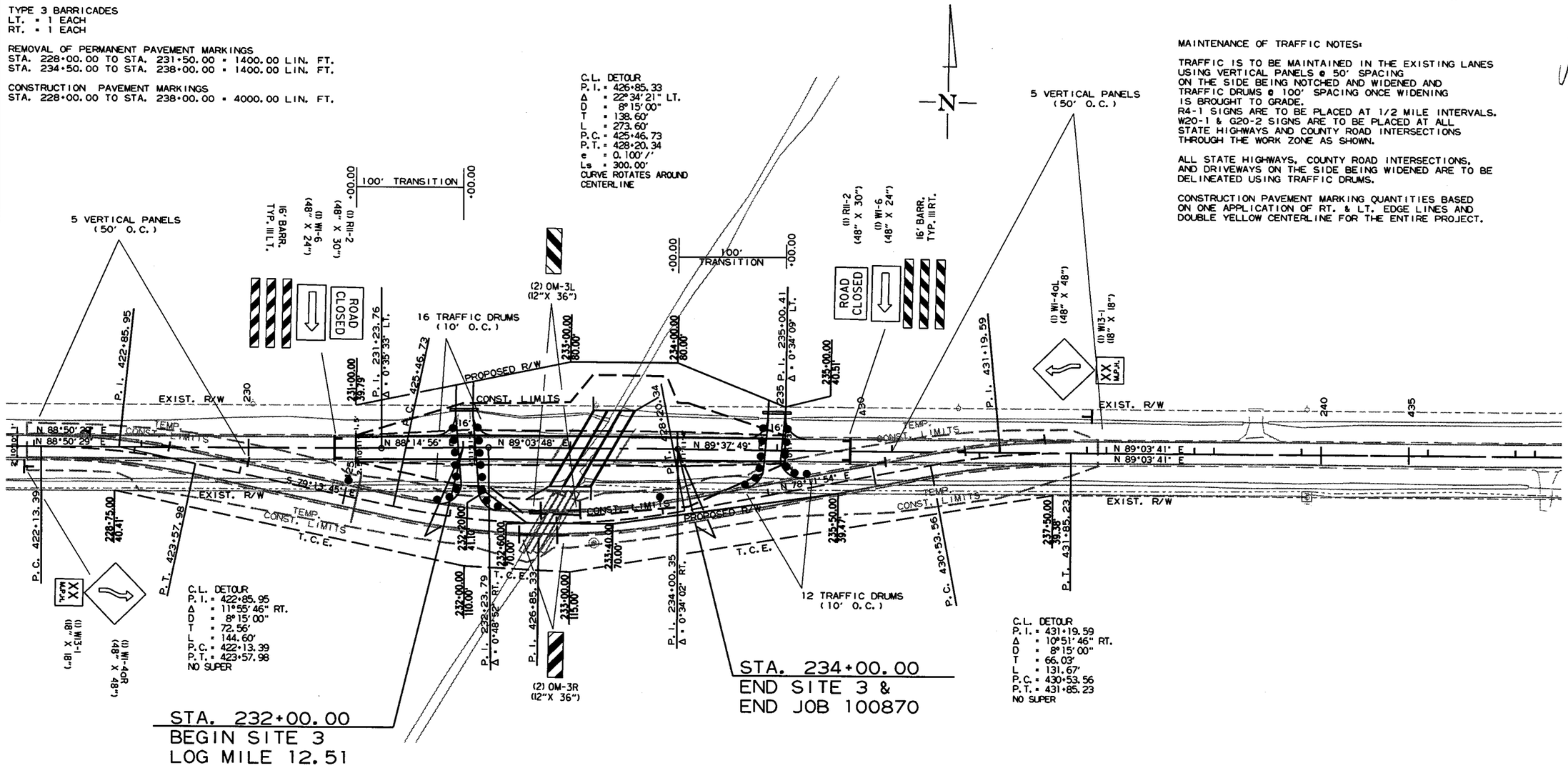
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18

MAINTENANCE OF TRAFFIC NOTES:

TRAFFIC IS TO BE MAINTAINED IN THE EXISTING LANES USING VERTICAL PANELS @ 50' SPACING ON THE SIDE BEING NOTCHED AND WIDENED AND TRAFFIC DRUMS @ 100' SPACING ONCE WIDENING IS BROUGHT TO GRADE.
R4-1 SIGNS ARE TO BE PLACED AT 1/2 MILE INTERVALS.
W20-1 & G20-2 SIGNS ARE TO BE PLACED AT ALL STATE HIGHWAYS AND COUNTY ROAD INTERSECTIONS THROUGH THE WORK ZONE AS SHOWN.

ALL STATE HIGHWAYS, COUNTY ROAD INTERSECTIONS, AND DRIVEWAYS ON THE SIDE BEING WIDENED ARE TO BE DELINEATED USING TRAFFIC DRUMS.

CONSTRUCTION PAVEMENT MARKING QUANTITIES BASED ON ONE APPLICATION OF RT. & LT. EDGE LINES AND DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT.



SEQUENCE OF CONSTRUCTION

STAGE 1:
MAINTAIN TRAFFIC ON EXISTING LANES.
CONSTRUCT DETOURS EACH SECTION.

STAGE 2:
SHIFT TRAFFIC TO DETOUR CENTERLINE.
NOTCH AND WIDEN OPPOSITE SIDE FROM DETOUR.
CONSTRUCT DRIVES AND INSTALL SIDE DRAINS ON OPPOSITE SIDE FROM DETOUR.
REMOVE EXISTING BRIDGES.
CONSTRUCT NEW BRIDGES AND R.C. BOX CULVERT.

STAGE 3:
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE.
OBLITERATE DETOUR.
NOTCH AND WIDEN ON DETOUR SIDE.
BUILD DRIVES AND INSTALL SIDE DRAINS ON DETOUR SIDE.
COLD MILL TRANSITION AREAS.
PLACE FINAL LAYER OF ACHM SURFACE COURSE.
INSTALL PERMANENT PAVEMENT MARKINGS.

7/9/2018

R100870.DGN

SITE 3
MAIN LANES
MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

QUANTITIES:

PERMANENT PAVEMENT MARKINGS
STA. 108+50.00 TO STA. 113+50.00
6" WHITE = 2870 LIN. FT.
6" DBL. YELLOW = 1435 LIN. FT.

RAISED PAVEMENT MARKINGS
TYPE II (YELLOW/YELLOW) = 11 EACH

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	38	101

(2) PERMANENT PAVEMENT MARKING DETAILS

MAINTENANCE OF TRAFFIC NOTES:

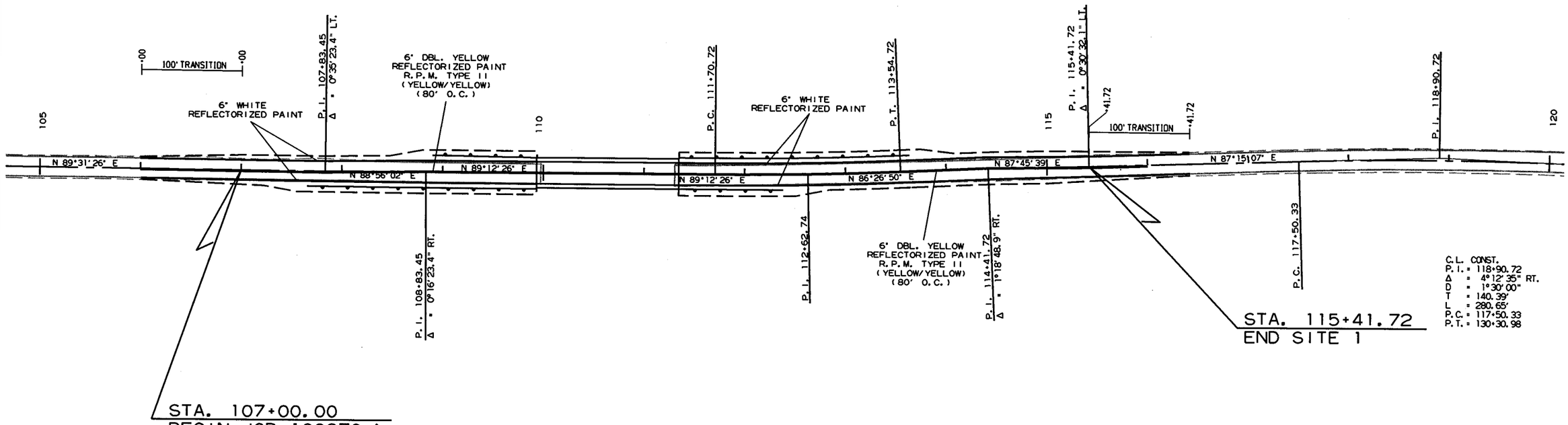
TRAFFIC IS TO BE MAINTAINED IN THE EXISTING LANES USING VERTICAL PANELS @ 50' SPACING ON THE SIDE BEING NOTCHED AND WIDENED AND TRAFFIC DRUMS @ 100' SPACING ONCE WIDENING IS BROUGHT TO GRADE.
R4-1 SIGNS ARE TO BE PLACED AT 1/2 MILE INTERVALS.
W20-1 & G20-2 SIGNS ARE TO BE PLACED AT ALL STATE HIGHWAYS AND COUNTY ROAD INTERSECTIONS THROUGH THE WORK ZONE AS SHOWN.

ALL STATE HIGHWAYS, COUNTY ROAD INTERSECTIONS, AND DRIVEWAYS ON THE SIDE BEING WIDENED ARE TO BE DELINEATED USING TRAFFIC DRUMS.

CONSTRUCTION PAVEMENT MARKING QUANTITIES BASED ON ONE APPLICATION OF RT. & LT. EDGE LINES AND DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-26-18

C.L. CONST.
P.I. = 112+62.74
Δ = 2°45'37" LT.
D = 1°30'00"
T = 92.02'
L = 184.00'
P.C. = 111+70.72
P.T. = 113+54.72
NO SUPER



SITE 1
MAIN LANES
PERMANENT PAVEMENT MARKING DETAILS

7/9/2018
R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	39	101

(2) PERMANENT PAVEMENT MARKING DETAILS

QUANTITIES:

PERMANENT PAVEMENT MARKINGS
STA. 205+00.00 TO STA. 220+00.00
6" WHITE = 3000 LIN. FT.
6" DBL. YELLOW = 1500 LIN. FT.

RAISED PAVEMENT MARKINGS
TYPE II (YELLOW/YELLOW) = 16 EACH

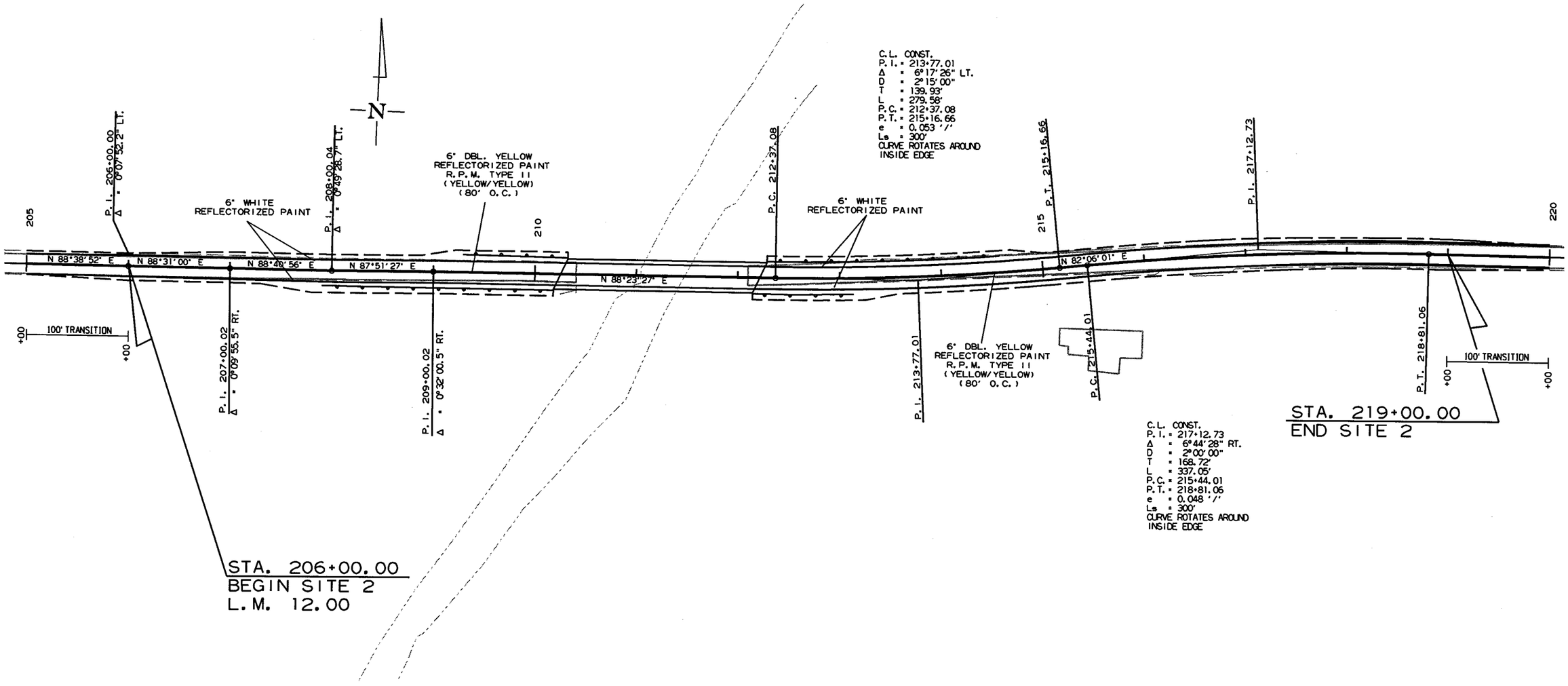
MAINTENANCE OF TRAFFIC NOTES:

TRAFFIC IS TO BE MAINTAINED IN THE EXISTING LANES USING VERTICAL PANELS @ 50' SPACING ON THE SIDE BEING NOTCHED AND WIDENED AND TRAFFIC DRUMS @ 100' SPACING ONCE WIDENING IS BROUGHT TO GRADE.
R4-1 SIGNS ARE TO BE PLACED AT 1/2 MILE INTERVALS.
W20-1 & G20-2 SIGNS ARE TO BE PLACED AT ALL STATE HIGHWAYS AND COUNTY ROAD INTERSECTIONS THROUGH THE WORK ZONE AS SHOWN.

ALL STATE HIGHWAYS, COUNTY ROAD INTERSECTIONS, AND DRIVEWAYS ON THE SIDE BEING WIDENED ARE TO BE DELINEATED USING TRAFFIC DRUMS.

CONSTRUCTION PAVEMENT MARKING QUANTITIES BASED ON ONE APPLICATION OF RT. & LT. EDGE LINES AND DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18



7/9/2018

R100870.DGN

SITE 2
MAIN LANES
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	40	101

(2) PERMANENT PAVEMENT MARKING DETAILS

QUANTITIES:

PERMANENT PAVEMENT MARKINGS
STA. 228+00.00 TO STA. 238+00.00
6" WHITE = 2000 LIN. FT.
6" DBL. YELLOW = 1000 LIN. FT.

RAISED PAVEMENT MARKINGS
TYPE II (YELLOW/YELLOW) = 3 EACH

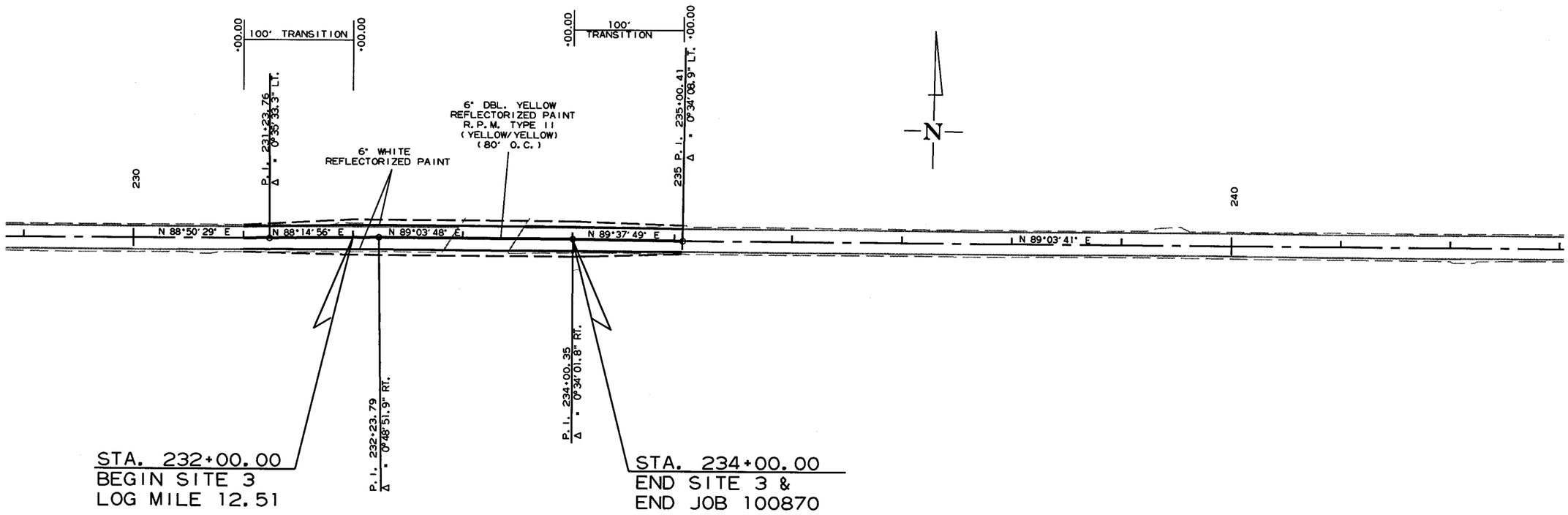
MAINTENANCE OF TRAFFIC NOTES:

TRAFFIC IS TO BE MAINTAINED IN THE EXISTING LANES USING VERTICAL PANELS @ 50' SPACING ON THE SIDE BEING NOTCHED AND WIDENED AND TRAFFIC DRUMS @ 100' SPACING ONCE WIDENING IS BROUGHT TO GRADE.
R4-1 SIGNS ARE TO BE PLACED AT 1/2 MILE INTERVALS.
W20-1 & G20-2 SIGNS ARE TO BE PLACED AT ALL STATE HIGHWAYS AND COUNTY ROAD INTERSECTIONS THROUGH THE WORK ZONE AS SHOWN.

ALL STATE HIGHWAYS, COUNTY ROAD INTERSECTIONS, AND DRIVEWAYS ON THE SIDE BEING WIDENED ARE TO BE DELINEATED USING TRAFFIC DRUMS.

CONSTRUCTION PAVEMENT MARKING QUANTITIES BASED ON ONE APPLICATION OF RT. & LT. EDGE LINES AND DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
7-2018



SITE 3
MAIN LANES
PERMANENT PAVEMENT MARKING DETAILS

7/9/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	41	101

(2) QUANTITIES

STATE OF ARKANSAS
TRINITY D. SMITH
LICENSED PROFESSIONAL ENGINEER
No. 11425
7-26-18

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)	
											RIGHT	LEFT
			LIN. FT. - EACH				NO.	SQ. FT.	EACH		LIN. FT.	
W20-1	ROAD WORK 1500 FT.	48"x48"	4	4	4	4	4	64.0				
W20-1	ROAD WORK 1000 FT.	48"x48"	4	4	4	4	4	64.0				
W20-1	ROAD WORK 500 FT.	48"x48"	4	4	4	4	4	64.0				
W20-1	ROAD WORK AHEAD	48"x48"	1	1	1	1	1	16.0				
G20-2	END ROAD WORK	48"x24"	5	5	5	5	5	40.0				
W1-4AR	REVERSE CURVE RT.	48"x48"		1		1	1	16.0				
W1-4AL	REVERSE CURVE LT.	48"x48"		4		4	4	64.0				
W13-1	SPEED LIMIT (ADVISORY)	24"x24"		5		5	5	20.0				
R11-2	ROAD CLOSED	48"x30"	6	6		6	6	60.0				
W1-6	LARGE ARROW	48"x24"		6		6	6	48.0				
R4-1	DO NOT PASS	24"x30"	6	6	6	6	6	30.0				
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	6	6	6	6	6	54.0				
W8-1	BUMP	30"x30"	4	4	4	4	4	25.0				
	VERTICAL PANELS		60	30		60			60			
	TRAFFIC DRUMS		51	62		62				62		
	TYPE III BARRICADE-RT. (16')		3	3		3					48	
	TYPE III BARRICADE-LT. (16')		3	3		3						48
TOTALS:								565.0	60	62	48	48

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	REFLECTORIZED PAINT PAVEMENT MARKING	
						TYPE II	6"	
						(YEL/YEL)	WHITE	YELLOW
	LIN. FT. - EACH			LIN. FT.		EACH	LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS		8567		8567				
CONSTRUCTION PAVEMENT MARKINGS	14167	14167			28334			
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)			30			30		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")			7870				7870	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")			7870					7870
TOTALS:				8567	28334	30	7870	7870

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.

7/9/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	42	101

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2018

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
106+00	115+42	MAIN LANES - SITE 1	10	10
206+00	212+37	MAIN LANES - SITE 2	7	7
215+00	216+00	MAIN LANES - SITE 2	1	1
231+00	237+50	MAIN LANES - SITE 3	7	7
TOTALS:			25	25

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	GUARDRAIL
			LIN. FT.
108+97	109+98	RT. OF MAIN LANES - SITE 1	101
108+90	109+98	LT. OF MAIN LANES - SITE 1	108
111+30	112+38	RT. OF MAIN LANES - SITE 1	108
111+30	112+31	LT. OF MAIN LANES - SITE 1	101
209+29	210+41	LT. OF MAIN LANES - SITE 2	112
209+40	210+41	RT. OF MAIN LANES - SITE 2	112
212+10	213+10	LT. OF MAIN LANES - SITE 2	100
212+10	213+14	RT. OF MAIN LANES - SITE 2	104
231+82	232+82	RT. OF MAIN LANES - SITE 3	100
232+49	232+99	LT. OF MAIN LANES - SITE 3	50
233+40	233+90	RT. OF MAIN LANES - SITE 3	50
233+57	234+57	LT. OF MAIN LANES - SITE 3	100
TOTALS:			1146

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

REMOVAL AND DISPOSAL OF PIPE CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
215+97	15" X 24' C.M. PIPE CULVERT ON RT. - SITE 2	1
216+66	15" X 30' C.M. PIPE CULVERT ON RT. - SITE 2	1
230+67	15" X 21' C.M. PIPE CULVERT ON RT. - SITE 3	1
232+00	24" X 21' C.M. PIPE CULVERT ON LT. - SITE 3	1
235+93	24" X 20' C.M. PIPE CULVERT ON LT. - SITE 3	1
TOTALS:		5

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

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE A)	APPROACH SLABS	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	POUND	TON
109+57.00	109+93.50	LT. SIDE - SITE 1	8.30	30.75	4210	17.80
109+57.00	109+93.50	RT. SIDE - SITE 1	8.30	30.75	4210	17.80
111+34.50	111+71.00	LT. SIDE - SITE 1	8.30	30.75	4210	17.80
111+34.50	111+71.00	RT. SIDE - SITE 1	8.30	30.75	4210	17.80
209+88.95	210+25.45	LT. SIDE - SITE 2	8.30	30.75	4210	17.80
209+88.95	210+25.45	RT. SIDE - SITE 2	8.30	30.75	4210	17.80
212+21.55	212+58.05	LT. SIDE - SITE 2	8.30	30.75	4210	17.80
212+21.55	212+58.05	RT. SIDE - SITE 2	8.30	30.75	4210	17.80
TOTALS:			66.40	246.00	33680	142.40

NOTE: USE T =11" FOR 4' SHOULDER.

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
			CU. YD.		TON
106+00.00	116+41.72	STAGE 1 - SITE 1 MAIN LANES	45	3465	
205+00.00	220+00.00	STAGE 2 - SITE 1 MAIN LANES	668	1120	
228+00.00	238+00.00	STAGE 3 - SITE 1 MAIN LANES	3338	22	
106+00.00	116+41.72	STAGE 1 - SITE 2 MAIN LANES	1879	4178	
205+00.00	220+00.00	STAGE 2 - SITE 2 MAIN LANES	646	2654	
228+00.00	238+00.00	STAGE 3 - SITE 2 MAIN LANES	4131	1929	
106+00.00	116+41.72	STAGE 1 - SITE 3 MAIN LANES	476	2006	
205+00.00	220+00.00	STAGE 2 - SITE 3 MAIN LANES	494	1043	
228+00.00	238+00.00	STAGE 3 - SITE 3 MAIN LANES	2584	627	
ENTIRE	PROJECT	APPROACHES		520	
109+93.50	111+34.50	SITE 1 CHANNEL EXCAVATION	820		
210+25.45	212+21.55	SITE 2 CHANNEL EXCAVATION	500		
232+98.35	233+41.30	SITE 3 CHANNEL EXCAVATION	110		
* ENTIRE	PROJECT	TO BE USED IF AND WHERE			100
		DIRECTED BY THE ENGINEER			
TOTALS:			15691	17564	100

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

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

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			750	6
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			750	6

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

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.	EACH	
109+00.35	109+94.10	LT. SIDE - SITE 1	75	1	1
107+75.35	109+94.10	RT. SIDE - SITE 1	150	1	1
111+33.90	113+52.65	LT. SIDE - SITE 1	150	1	1
111+33.90	112+27.65	RT. SIDE - SITE 1	75	1	1
209+32.30	210+26.05	LT. SIDE - SITE 2	75	1	1
208+07.30	210+26.05	RT. SIDE - SITE 2	150	1	1
212+20.95	214+39.70	LT. SIDE - SITE 2	150	1	1
212+20.95	213+14.70	RT. SIDE - SITE 2	75	1	1
TOTALS:			900	8	8

CULVERT CLEAN OUT

STATION	LOCATION	EACH
212+65	LT. OF MAIN LANES - SITE 2	1
TOTAL:		1

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	10
DIRECTED BY THE ENGINEER	
TOTAL:	10

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
109+93.50	RT. BRIDGE END - SITE 1	1
210+25.45	RT. BRIDGE END - SITE 2	1
233+20.00	RT. HEADWALL - SITE 3	1
TOTAL:		3

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	11	22
DIRECTED BY THE ENGINEER		
TOTALS:	11	22

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

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
106+00.00	107+00.00	MAIN LANES SITE 1	20.00	222.22
115+41.72	116+41.72	MAIN LANES SITE 1	20.00	222.22
205+00.00	206+00.00	MAIN LANES SITE 2	20.00	222.22
219+00.00	220+00.00	MAIN LANES SITE 2	20.00	222.22
231+00.00	232+00.00	MAIN LANES SITE 3	20.00	222.22
234+00.00	235+00.00	MAIN LANES SITE 3	20.00	222.22
TOTAL:				1333.32

NOTE: AVERAGE MILLING DEPTH 1".

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
		FEET				
106+00	06 RT	0-5	27	11	A-6(7)	GRAY
106+00	18 RT	0-5	28	12	A-6(8)	GRAY
114+90	18 LT	0-5	27	13	A-6(6)	GRAY
115+00	06 LT	0-5	28	13	A-6(7)	GRAY
115+00	18 LT	0-5	26	11	A-6(5)	GRAY
206+00	18 RT	0-5	ND	NP	A-4(0)	BROWN
206+00	06 RT	0-5	19	5	A-4(0)	BROWN
206+10	18 RT	0-5	20	7	A-4(1)	BROWN
216+00	06 LT	0-5	33	21	A-6(6)	GRAY
216+00	18 LT	0-5	33	16	A-6(3)	GRAY
226+00	06 RT	0-5	25	13	A-6(3)	GRAY
226+00	18 RT	0-5	27	16	A-6(5)	GRAY
238+00	18 LT	0-5	ND	NP	A-2-4(0)	BR/GR
238+00	06 LT	0-5	ND	NP	A-2-4(0)	BR/GR

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.
NP - NON-PLASTIC
ND - NOT DETERMINABLE

7/9/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	43	101

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18

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"	
			FEET	SQ. YD.	TON	TON	LIN. FT.		
208+00	LT.	MAIN LANES - SITE 2	16	135.32	14.89	55.26	44		PCC-1, PCM-1, PCP-1, PCP-2
215+12	LT.	MAIN LANES - SITE 2	16	81.99	9.02	33.48	42		PCC-1, PCM-1, PCP-1, PCP-2
215+97	RT.	MAIN LANES - SITE 2	18	59.54	6.55	24.31	28		PCC-1, PCM-1, PCP-1, PCP-2
216+66	RT.	MAIN LANES - SITE 2	26	83.55	9.19	34.12	38		PCC-1, PCM-1, PCP-1, PCP-2
232+00	LT.	MAIN LANES - SITE 3	16	64.21	7.06	26.22		32	PCC-1, PCM-1, PCP-1, PCP-2
235+93	LT.	MAIN LANES - SITE 3	16	62.43	6.87	25.49		38	PCC-1, PCM-1, PCP-1, PCP-2
* ENTIRE PROJECT TEMPORARY DRIVES						50.00			
TOTALS:				487.04	53.58	248.88	152	70	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.8% MIN. AGGR.....5.2% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

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.

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	20
ENGINEER	
TOTAL:	20

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

STRUCTURES

STATION	DESCRIPTION	TEMPORARY CULVERTS			SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		18"	24"	60"									
		LIN. FT.				LIN. FT.		CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
307+04.00	INSTALL TEMPORARY PIPE CULVERT - SITE 1	54											PCC-1, PCM-1
310+05.00	INSTALL TEMPORARY PIPE CULVERT - SITE 1	58											PCC-1, PCM-1
407+24.00	INSTALL TEMPORARY PIPE CULVERT - SITE 2		88										PCC-1, PCM-1
425+10.00	INSTALL TEMPORARY PIPE CULVERT - SITE 3	44											PCC-1, PCM-1
SUBTOTALS:		156	88										
	STRUCTURES OVER 20' - 0" SPAN												
233+20.00	CONSTRUCT TRI. R.C. BOX CULVERT - SITE 3				10	5	83	256.27	36919	104	32	0.4	SPECIAL DETAILS, PBC-1, RCB-1, RCB-2
426+93.00	INSTALL QUAD. TEMPORARY PIPE CULVERT - SITE 3			264									PCC-1, PCM-1
SUBTOTALS:				264				256.27	36919	104	32	0.4	
TOTALS:		156	88	264				256.27	36919	104	32	0.4	

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

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

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

RUMBLE STRIPES IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPES IN ASPHALT SHOULDERS
			LIN.FT.
107+00.00	109+93.50	MAIN LANES LT. & RT. - SITE 1	293.50
111+34.50	115+41.72	MAIN LANES LT. & RT. - SITE 1	407.22
206+00.00	210+25.45	MAIN LANES LT. & RT. - SITE 2	359.45
212+21.55	219+00.00	MAIN LANES LT. & RT. - SITE 2	468.45
232+10.44	234+10.47	MAIN LANES LT. & RT. - SITE 3	68.03
TOTAL:			1596.65

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

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL							
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	CU.YD.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
107+00.00	115+41.72	CLEARING AND GRUBBING - SITE 1						2.15	2.15	43.9		1345	38	38	88
206+00.00	219+00.00	CLEARING AND GRUBBING - SITE 2						3.84	3.84	78.3		1260	199	199	246
232+10.44	234+10.47	CLEARING AND GRUBBING - SITE 3						2.35	2.35	47.9	9	485	186	186	204
107+00.00	115+41.72	STAGE 1 - SITE 1	0.06	0.12	0.06	6.1	0.06	0.06	0.06	1.2	3	730			27
206+00.00	219+00.00	STAGE 1 - SITE 2	0.07	0.14	0.07	7.1	0.07	0.07	0.07	1.4	6	335			12
232+10.44	234+10.47	STAGE 1 - SITE 3	0.06	0.12	0.06	6.1	0.06	0.06	0.06	1.2	21				
107+00.00	115+41.72	STAGE 2 - SITE 1	0.13	0.26	0.13	13.3	0.13	0.13	0.13	2.7	9	200			7
206+00.00	219+00.00	STAGE 2 - SITE 2	0.20	0.40	0.20	20.4	0.20	0.20	0.20	4.1		200			7
232+10.44	234+10.47	STAGE 2 - SITE 3	0.18	0.36	0.18	18.4	0.18	0.18	0.18	3.7		725			27
107+00.00	115+41.72	STAGE 3 - SITE 1 - DETOUR OBLITERATION	0.67	1.34	0.67	68.3	0.67					1295			48
206+00.00	219+00.00	STAGE 3 - SITE 2 - DETOUR OBLITERATION	0.84	1.68	0.84	85.7	0.84					1605			59
232+10.44	234+10.47	STAGE 3 - SITE 3 - DETOUR OBLITERATION	0.94	1.88	0.94	95.9	0.94					1500			56
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			0.70	1.40	0.70	71.4	0.70	8.00	8.00	163.2	8	500	100	100	119
TOTALS:			3.85	7.70	3.85	392.7	3.85	17.04	17.04	347.6	56	10180	523	523	900

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

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

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

7/9/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	44	101

(2) QUANTITIES

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
7-20-18

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")			
				TON / STATION	TON	AVG. WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22
			FEET			FEET				FEET			TON	FEET			TON
MAIN LANES																	
106+00.00	107+00.00	TRANSITION - SITE 1	100.00	47.00	47.00	21.00	233.33	0.17	39.67			440.00		25.00	277.78	220.00	30.56
113+00.00	115+41.72	NOTCH AND WIDEN - SITE 1	241.72	102.50	247.76	4.33	116.29	0.17	19.77	4.33	116.29	440.00	25.58	30.00	805.73	220.00	88.63
107+00.00	109+57.00	NOTCH AND WIDEN - SITE 1	257.00	102.50	263.43	4.33	123.65	0.17	21.02	4.33	123.65	440.00	27.20	30.00	856.67	220.00	94.23
111+71.00	113+00.00	NOTCH AND WIDEN - SITE 1	129.00	103.75	133.84	22.17	317.77	0.17	54.02	2.17	31.10	440.00	6.84	30.00	430.00	220.00	47.30
115+41.72	116+41.72	TRANSITION - SITE 1	100.00	47.00	47.00	21.00	233.33	0.17	39.67					25.00	277.78	220.00	30.56
205+00.00	206+00.00	TRANSITION - SITE 2	100.00	47.00	47.00	21.00	233.33	0.17	39.67					25.00	277.78	220.00	30.56
206+00.00	207+00.00	NOTCH AND WIDEN - SITE 2	100.00	102.50	102.50	4.33	48.11	0.17	8.18	4.33	48.11	440.00	10.58	30.00	333.33	220.00	36.67
207+00.00	208+00.00	NOTCH AND WIDEN - SITE 2	100.00	103.75	103.75	22.17	246.33	0.05	12.32	2.17	24.11	440.00	5.30	30.00	333.33	220.00	36.67
208+00.00	209+88.95	FULL DEPTH - SITE 2	188.95	201.00	379.79	22.33	468.81	0.05	23.44	22.33	468.81	440.00	103.14	30.00	629.83	220.00	69.28
212+58.05	213+00.00	NOTCH AND WIDEN - SITE 2	41.95	103.75	43.52	22.17	103.34	0.05	5.17	2.17	10.11	440.00	2.22	30.00	139.83	220.00	15.38
213+00.00	217+00.00	FULL DEPTH - SITE 2	400.00	201.00	804.00	22.33	992.44	0.05	49.62	22.33	992.44	440.00	218.34	30.00	1333.33	220.00	146.67
217+00.00	218+00.00	NOTCH AND WIDEN - SITE 2	100.00	103.75	103.75	22.17	246.33	0.17	41.88	2.17	24.11	440.00	5.30	30.00	333.33	220.00	36.67
218+00.00	219+00.00	NOTCH AND WIDEN - SITE 2	100.00	102.50	102.50	4.33	48.11	0.17	8.18	4.33	48.11	440.00	10.58	30.00	333.33	220.00	36.67
219+00.00	220+00.00	TRANSITION - SITE 2	100.00	47.00	47.00	21.00	233.33	0.17	39.67					25.00	277.78	220.00	30.56
231+00.00	232+00.00	TRANSITION - SITE 3	100.00	47.00	47.00	21.00	233.33	0.17	39.67					25.00	277.78	220.00	30.56
232+00.00	232+85.00	NOTCH AND WIDEN - SITE 3	85.00	103.75	88.19	22.17	209.38	0.05	10.47	2.17	20.49	440.00	4.51	30.00	283.33	220.00	31.17
232+85.00	233+50.00	FULL DEPTH - SITE 3	65.00	201.00	130.65	22.33	161.27	0.05	8.06	22.33	161.27	440.00	35.48	30.00	216.67	220.00	23.83
233+50.00	234+00.00	NOTCH AND WIDEN - SITE 3	50.00	103.75	51.88	22.17	123.17	0.05	6.16	2.17	12.06	440.00	2.65	30.00	166.67	220.00	18.33
234+00.00	235+00.00	TRANSITION - SITE 3	100.00	47.00	47.00	21.00	233.33	0.17	39.67					25.00	277.78	220.00	30.56
DETOUR																	
304+25.51	306+00.00	DETOUR TRANSITION - SITE 1	174.49	80.88	141.13	20.15	390.66	0.17	66.41	20.15	390.66	330.00	64.46	22.00	426.53	220.00	46.92
306+00.00	308+24.00	DETOUR - SITE 1	224.00	161.75	362.32	20.29	505.00	0.05	25.25	20.29	505.00	330.00	83.33	24.00	597.33	220.00	65.71
309+17.00	311+52.63	DETOUR - SITE 1	235.63	161.75	381.13	20.29	531.21	0.05	26.56	20.29	531.21	330.00	87.65	24.00	628.35	220.00	69.12
311+52.63	313+51.87	DETOUR TRANSITION - SITE 1	199.24	80.88	161.15	20.15	446.08	0.17	75.83	20.15	446.08	330.00	73.60	22.00	487.03	220.00	53.57
399+99.99	402+00.00	DETOUR TRANSITION - SITE 2	200.01	80.88	161.77	20.15	447.80	0.17	76.13	20.15	447.80	330.00	73.89	22.00	488.91	220.00	53.78
402+00.00	404+76.50	DETOUR - SITE 2	276.50	161.75	447.24	20.29	623.35	0.05	31.17	20.29	623.35	330.00	102.85	24.00	737.33	220.00	81.11
406+31.50	409+50.00	DETOUR - SITE 2	318.50	161.75	515.17	20.29	718.04	0.05	35.90	20.29	718.04	330.00	118.48	24.00	849.33	220.00	93.43
409+50.00	413+03.04	DETOUR TRANSITION - SITE 2	353.04	80.88	285.54	20.15	790.42	0.17	134.37	20.15	790.42	330.00	130.42	22.00	862.99	220.00	94.93
422+00.00	424+00.00	DETOUR TRANSITION - SITE 3	200.00	80.88	161.76	20.15	447.78	0.17	76.12	20.15	447.78	330.00	73.88	22.00	488.89	220.00	53.78
424+00.00	430+00.00	DETOUR - SITE 3	600.00	161.75	970.50	20.29	1352.67	0.05	67.63	20.29	1352.67	330.00	223.19	24.00	1600.00	220.00	176.00
430+00.00	431+85.23	DETOUR TRANSITION - SITE 3	185.23	80.88	149.81	20.15	414.71	0.17	70.50	20.15	414.71	330.00	68.43	22.00	452.78	220.00	49.81
METHOD OF GRADE RAISE																	
207+00.00	208+00.00	MAIN LANES - SITE 2	100.00			VAR.	1333.33	0.05	66.67	VAR.	666.67	VAR.	440.00				
212+58.05	213+00.00	MAIN LANES - SITE 2	41.95			VAR.	2568.89	0.05	128.44	VAR.	1284.44	VAR.	847.73				
WIDENING FOR GUARDRAIL																	
107+22.35	110+25.50	RT. OF MAIN LANES - SITE 1	303.15	18.20	55.17									5.50	185.26	220.00	20.38
108+47.35	110+25.50	LT. OF MAIN LANES - SITE 1	178.15	21.84	38.91									5.50	108.87	220.00	11.98
111+71.00	112+40.65	RT. OF MAIN LANES - SITE 1	69.65	18.20	12.68									5.50	42.56	220.00	4.68
111+34.50	113+65.65	LT. OF MAIN LANES - SITE 1	231.15	21.84	50.48									5.50	141.26	220.00	15.54
207+44.97	210+18.38	RT. OF MAIN LANES - SITE 2	273.41	21.84	59.71									5.50	167.08	220.00	18.38
208+88.63	210+32.39	LT. OF MAIN LANES - SITE 2	143.76	18.20	26.16									5.50	87.85	220.00	9.66
212+14.55	213+58.37	RT. OF MAIN LANES - SITE 2	143.82	18.20	26.18									5.50	87.89	220.00	9.67
212+28.55	215+02.03	LT. OF MAIN LANES - SITE 2	273.48	21.84	59.73									5.50	167.13	220.00	18.38
ADDITIONAL FOR LEVELING																	
107+00.00	109+57.00	MAIN LANES - SITE 1	257.00			VAR.	652.22	0.17	110.88					VAR	316.25	VAR.	34.79
111+71.00	115+41.72	MAIN LANES - SITE 1	370.72			VAR.	903.82	0.17	153.65					VAR	719.89	VAR.	79.19
206+00.00	208+00.00	MAIN LANES - SITE 2	200.00			VAR.	222.22	0.17	37.78					VAR	1422.00	VAR.	156.42
212+58.05	213+00.00	MAIN LANES - SITE 2	41.95			VAR.	93.22	0.17	15.85					VAR	476.13	VAR.	52.37
218+00.00	219+00.00	MAIN LANES - SITE 2	100.00			VAR.	222.22	0.17	37.78					VAR	281.50	VAR.	30.97
232+00.00	233+00.00	MAIN LANES - SITE 3	100.00			VAR.	444.44	0.17	75.55					VAR	237.00	VAR.	26.07
ADDITIONAL FOR SUPERELEVATION																	
212+30.00	215+23.00	MAIN LANES - SITE 2	293.00	VAR.	119.40												
215+30.00	218+95.00	MAIN LANES - SITE 2	365.00	VAR.	148.74												
306+54.00	308+05.00	DETOUR - SITE 1	151.00	VAR.	151.00												
309+30.00	311+15.00	DETOUR - SITE 1	185.00	VAR.	183.15												
402+64.00	404+60.00	DETOUR - SITE 2	196.00	VAR.	193.55												
423+83.00	429+84.00	DETOUR - SITE 3	601.00	VAR.	485.31												
TOTALS:					**8185.25**		**17713.06**		**1818.78**		**10699.49**		**2845.63**		**19922.20**		**2191.50**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.8% MIN. AGGR.....5.2% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

7/9/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	45	101
				①	07419 & 07420 - QUANTITIES - 60071			

SCHEDULE OF BRIDGE QUANTITIES-JOB 100870

BRIDGE NO.	NAME PLATE TITLE	ITEM NO.	205	603	801	802	SP & 802	803	804	804	805	805	805	805	805	805	SP & 807	808	812	816	816
		ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	TEMPORARY BRIDGE STRUCTURE (24' ROADWAY WIDTH)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	③CLASS S(AE) CONCRETE-BRIDGE	CLASS I PROTECTIVE SURFACE TREATMENT	EPOXY COATED REINFORCING STEEL (GRADE 60)	REINFORCING STEEL-BRIDGE (GRADE 60)	① STEEL SHELL PILING (16" DIA.)	① STEEL SHELL PILING (18" DIA.)	① STEEL SHELL PILING (20" DIA.)	① STEEL SHELL PILING (24" DIA.)	① PILE ENCASEMENT	PREBORING	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP
		UNIT OF STRUCTURE / UNIT	LUMP SUM	LIN. FT.	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LB.	CU. IN.	EACH	SQ. YD.	CU. YD.
07419	HURRICANE DITCH	BENT 1			26	12.08			430	1,033	300					50				80	46
		BENT 2				13.72				1,502			300		60			1,156.5			
		BENT 3				13.72				1,502			250		45			1,156.5			
		BENT 4			26	12.08			430	1,033	250					50				79	45
		140'-0" INTEGRAL W-BEAM UNIT					180.30	12.0	35,700								72,270		1		
		SITE NO. 1 (BRIDGE NO. M3220)	1																		
TOTALS FOR BRIDGE NO. 07419				93	52	51.60	180.30	12.0	36,560	5,070	550	–	550	–	105	100	72,270	2,313.0	1	159	91
07420	BIG SLOUGH	BENT 1			36	14.18			565	1,178		250				50				89	50
		BENT 2				16.82				1,922				300	65			1,472.0			
		BENT 3				16.82				1,922				300	35			1,472.0			
		BENT 4			36	14.18			565	1,178		250				50				78	45
		195'-0" INTEGRAL W-BEAM UNIT					247.50	16.5	52,110								150,140		1		
		SITE NO. 2 (BRIDGE NO. M3818)	1																		
TOTALS FOR BRIDGE NO. 07420				155	72	62.00	247.50	16.5	53,240	6,200	–	500	–	600	100	100	150,140	2,944.0	1	167	95
		②SITE NO. 3 (BRIDGE NO. M3222)	1																		
TOTALS FOR JOB NO. 100870				248	124	113.60	427.80	28.5	89,800	11,270	550	500	550	600	205	200	222,410	5,257.0	2	326	186

① Piles and Pile Encasement shall conform to details shown on Std. Dwg. No. 55021.

② Existing Bridge No. M3222 (Log Mile 12.53) is 29.5' wide (28.2' Roadway) and 58.0' long and consists of a concrete deck on timber beams supported by timber pile bents. This bridge shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

③ No deviations from the pouring sequences shown on Dwg. Nos. 60083 & 60094 will be allowed.

KYLE YEARY
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
6-18-18
CHARLES R. ELLIS
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
HWY. 34 STRS. & APPRS. (S)
GREENE COUNTY

ROUTE 34 SEC. 4

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/06/17 FILENAME: bl00870_ql.dgn
CHECKED BY: LWY DATE: 6/15/18 SCALE: As Shown
DESIGNED BY: _____ DATE: _____

BRIDGE NO. 07419 & 07420 DRAWING NO. 60071

PRINT DATE: 6/15/2018

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8-09-18				6	ARK.			
8-28-18				JOB NO.		100870	46	101

(2) SUMMARY OF QUANTITIES AND REVISIONS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
8-28-18

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	25	STATION
201	GRUBBING	25	STATION
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	5	EACH
SP & 202	REMOVAL AND DISPOSAL OF GUARDRAIL	1146	LIN. FT.
210	UNCLASSIFIED EXCAVATION	15691	CU. YD.
210	COMPACTED EMBANKMENT	17564	CU. YD.
SP & 210	SOIL STABILIZATION	100	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	8577	TON
SS & 401	TACK COAT	1841	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	2729	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	117	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	2128	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	117	TON
412	COLD MILLING ASPHALT PAVEMENT	1333	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	11	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	10	TON
504	APPROACH SLABS	246.00	CU. YD.
504	APPROACH GUTTERS	66.40	CU. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
603	18" TEMPORARY CULVERT	156	LIN. FT.
603	24" TEMPORARY CULVERT	88	LIN. FT.
603	60" TEMPORARY CULVERT	264	LIN. FT.
SS & 604	SIGNS	565	SQ. FT.
SS & 604	BARRICADES	96	LIN. FT.
SS & 604	TRAFFIC DRUMS	62	EACH
604	CONSTRUCTION PAVEMENT MARKINGS	28334	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	8567	LIN. FT.
SS & 604	VERTICAL PANELS	60	EACH
SP	CULVERT CLEAN OUT	1	EACH
SP, SS, & 606	18" SIDE DRAIN	152	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	70	LIN. FT.
606	SELECTED PIPE BEDDING	20	CU. YD.
611	UNDERDRAIN OUTLET PROTECTORS	6	EACH
611	4" PIPE UNDERDRAINS	750	LIN. FT.
617	GUARDRAIL (TYPE A)	900	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)	8	EACH
617	THRIE BEAM GUARDRAIL TERMINAL	8	EACH
620	LIME	8	TON
620	SEEDING	3.85	ACRE
SS & 620	MULCH COVER	20.89	ACRE
620	WATER	740.7	M. GAL.
621	TEMPORARY SEEDING	17.04	ACRE
621	SILT FENCE	10180	LIN. FT.
621	SEDIMENT BASIN	523	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	523	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	900	CU. YD.
621	ROCK DITCH CHECKS	56	CU. YD.
623	SECOND SEEDING APPLICATION	3.85	ACRE
624	SOLID SODDING	32	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
SP & 642	RUMBLE STRIPES IN ASPHALT SHOULDERS	1597	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	7870	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	7870	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	30	EACH
804	REINFORCING STEEL-ROADWAY (GRADE 60)	33680	POUND
	STRUCTURES OVER 20' SPAN		
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)	1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 3)	1.00	LUMP SUM
603	TEMPORARY BRIDGE STRUCTURE (24' ROADWAY WIDTH)	248	LIN. FT.
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	124	CU. YD.
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	104	CU. YD.
802	CLASS S CONCRETE-ROADWAY	256.27	CU. YD.
802	CLASS S CONCRETE-BRIDGE	113.60	CU. YD.
SP & 802	CLASS S(AE) CONCRETE-BRIDGE	427.80	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	28.5	GAL.
804	REINFORCING STEEL-ROADWAY (GRADE 60)	36919	POUND
804	REINFORCING STEEL-BRIDGE (GRADE 60)	11270	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)	89800	POUND
805	STEEL SHELL PILING (16" DIAMETER)	550	LIN. FT.
805	STEEL SHELL PILING (18" DIAMETER)	500	LIN. FT.
805	STEEL SHELL PILING (20" DIAMETER)	550	LIN. FT.
805	STEEL SHELL PILING (24" DIAMETER)	600	LIN. FT.
805	PREBORING	200	LIN. FT.
805	PILE ENCASEMENT	205	LIN. FT.
SP & 807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)	222410	POUND
808	ELASTOMERIC BEARINGS	5257.0	CU. IN.
812	BRIDGE NAME PLATE (TYPE D)	2	EACH
816	FILTER BLANKET	326	SQ. YD.
816	DUMPED RIPRAP	186	CU. YD.

REVISIONS

DATE	REVISION	SHEET NUMBER
8/9/2018	REVISED DATE ON BRIDGE STD. DRAWING NO'S. 15230 & 15240.	2 & 46
8/28/2018	ADDED SPECIAL PROVISION - WELLHEAD PROTECTION	3 & 46

7/9/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	47	101

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES

Project Name: s100870
Date: 11/28/2016
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	678609.2744	1801159.6300	260.259	CTL	STD. AHTD MON. STAMPED PN: 1
2	678617.0905	1801753.4426	260.114	CTL	STD. AHTD MON. STAMPED PN: 2
3	678621.0932	1802361.6315	260.113	CTL	STD. AHTD MON. STAMPED PN: 3
4	678630.3430	1803050.5201	260.978	CTL	STD. AHTD MON. STAMPED PN: 4
5	678656.7537	1803857.1752	255.110	CTL	STD. AHTD MON. STAMPED PN: 5
6	678644.5441	1804453.7369	255.116	CTL	STD. AHTD MON. STAMPED PN: 6
7	678666.1419	1812803.7879	253.481	CTL	STD. AHTD MON. STAMPED PN: 7
8	678680.1763	1813332.2061	253.642	CTL	STD. AHTD MON. STAMPED PN: 8
9	678707.7696	1814136.8772	257.988	CTL	STD. AHTD MON. STAMPED PN: 9
10	678754.5369	1814893.2792	251.053	CTL	STD. AHTD MON. STAMPED PN: 10
11	678769.7860	1815613.6435	250.807	CTL	STD. AHTD MON. STAMPED PN: 11
12	678812.4178	1816332.8287	251.457	CTL	STD. AHTD MON. STAMPED PN: 12
13	678793.7717	1817076.9845	251.314	CTL	STD. AHTD MON. STAMPED PN: 13
900	678622.7246	1802792.2567	262.105	TBM	SQ CUT MARMADUKE SW COR OF BR RT 34-4 LM 9.99
901	678721.4384	1813899.0621	259.046	TBM	SQ CUT MARMADUKE NW COR BR RT 34-4 LM 12.09
902	678780.4562	1816136.6716	252.370	TBM	SQ CUT MARMADUKE SW COR OF BR RT 34-4 LM 10.37

*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 0.9999788003 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 s100870gi.ctl
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: BASED ON STATIC GPS
CONVERGENCE ANGLE: 0-57-58 Right AT LT: 36°11'10.9252" LG: -090°20'21.9761"
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

STATE OF ARKANSAS
TRINITY D. SMITH
LICENSED PROFESSIONAL ENGINEER
No. 11425
7-20-18

C.L. CONST. 1

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	100+00.00	678628.7567	1801793.9090
8001	PI	107+83.45	678635.2675	1802577.3279
8002	PI	108+83.45	678637.1279	1802677.3102
8003	PC	111+70.72	678641.1031	1802964.5607
8005	PT	113+54.72	678648.0784	1803148.4075
8006	PI	114+41.72	678653.4693	1803235.2356
8007	PI	115+41.72	678657.3765	1803335.1593
8008	PC	117+50.33	678667.3787	1803543.5349
8010	PT	120+30.98	678670.5287	1803824.1060
8011	POE	124+20.35	678660.5969	1804213.3429

C.L. CONST. 2

POINT NO.	TYPE	STATION	NORTHING	EASTING
8012	POB	200+00.00	678681.0533	1812858.4885
8013	PI	206+00.00	678695.2112	1813458.3214
8014	PI	207+00.02	678697.8004	1813558.3111
8015	PI	208+00.04	678700.1007	1813658.3028
8016	PI	209+00.02	678703.8383	1813758.2094
8017	PC	212+37.08	678713.3027	1814095.1366
8019	PT	215+16.66	678736.4635	1814373.6147
8020	PC	215+44.01	678740.2225	1814400.7052
8022	PT	218+81.06	678766.8223	1814736.5069
8023	PI	231+23.76	678791.9503	1815978.9542
8024	PI	232+23.79	678795.0073	1816078.9395
8025	PI	234+00.35	678797.8939	1816255.4781
8026	PI	235+00.41	678798.5394	1816355.5375
8027	POE	243+44.01	678812.3603	1817199.0166

C.L. DETOUR 1

POINT NO.	TYPE	STATION	NORTHING	EASTING
8028	POB	300+00.00	678630.4188	1801993.9021
8029	PC	304+25.51	678633.9550	1802419.3936
8031	PT	305+73.93	678619.3805	1802566.8128
8032	PC	306+54.19	678603.0100	1802645.3897
8034	PT	308+04.65	678588.4555	1802794.8522
8035	PC	309+30.93	678589.8764	1802921.1238
8037	PT	311+13.72	678615.8233	1803101.5255
8038	PC	311+70.52	678631.2169	1803156.1999
8040	PT	313+33.98	678656.6774	1803317.2815
8007	POE	313+51.87	678657.3765	1803335.1593

C.L. DETOUR 2

POINT NO.	TYPE	STATION	NORTHING	EASTING
8041	POB	399+99.96	678695.2110	1813458.3142
8042	PC	400+29.60	678695.9783	1813487.9445
8044	PT	401+69.90	678713.7043	1813626.8811
8045	PC	402+90.06	678740.8534	1813743.9348
8047	PT	404+32.03	678758.6207	1813884.5438
8048	PC	406+43.25	678763.5795	1814095.7066
8050	PT	409+92.10	678766.4601	1814444.5262
8051	PC	410+40.21	678766.1251	1814492.6391
8053	PT	413+51.73	678768.1902	1814804.1429
8054	POE	413+57.05	678768.2978	1814809.4624

C.L. DETOUR 3

POINT NO.	TYPE	STATION	NORTHING	EASTING
8072	PT	423+57.98	678773.4479	1815805.8818
8073	PC	425+46.73	678738.1747	1815991.3032
8075	PT	428+20.34	678740.6199	1816263.1308
8076	PC	430+53.56	678788.3198	1816491.4263
8078	PT	431+85.23	678802.9070	1816622.0879
8027	POE	437+62.24	678812.3603	1817199.0166

7/9/2018
R100870.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	48	101

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2018

POB 100+00.00
POB 300+00.00
PN:1100 PD:ST60DNL TRIG ELEV
PN:1101 PD:ST60DNL TRIG ELEV
PN:1102 PD:ST60DNL TRIG ELEV
8000
C.L. CONST. 1
8028
C.L. DETOUR 1
N 89°31'26" E 783.45'
N 89°31'26" E 425.51'
105
MATCHLINE #1
SURVEY BASELINE N 89°37'23" E 608.20'
PN:2 PD:STD. AHTD MON. STAMPED PN:2 MARMADUKE

C.L. DETOUR
P.I. = 307+29.72
Δ = 12°24'48" LT.
D = 8°15'00"
T = 75.53'
L = 150.46'
P.C. = 306+54.19
P.T. = 308+04.65
e = 0.100'/'
Ls = 300.00'
CURVE ROTATES AROUND INSIDE EDGE

PN:1116 PD:STI/2"REBAR TRIG ELEV

C.L. DETOUR
P.I. = 310+22.86
Δ = 15°04'47" LT.
D = 8°15'00"
T = 91.92'
L = 182.79'
P.C. = 309+30.93
P.T. = 311+13.72
e = 0.100'/'
Ls = 300.00'
CURVE ROTATES AROUND INSIDE EDGE

C.L. CONST.
P.I. = 112+62.74
Δ = 2°45'36" LT.
D = 1°30'00"
T = 92.02'
L = 184.00'
P.C. = 111+70.72
P.T. = 113+54.72
NO SUPER

PN:1108 PD:ST60DNL TRIG ELEV
PN:1107 PD:ST60DNL TRIG ELEV
PN:1117 PD:STI/2"REBAR TRIG ELEV
PN:1103 PD:ST60DNL TRIG ELEV
PN:1104 PD:ST60DNL TRIG ELEV
PN:1105 PD:ST60DNL TRIG ELEV
PN:1118 PD:STI/2"REBAR TRIG ELEV
PN:1106 PD:ST60DNL TRIG ELEV
PN:1119 PD:ST60DNL TRIG ELEV

P.I. 305+00.00
P.I. 107+83.45 Δ = 0°35'23" LT.
306+54.19
P.I. 308+04.65
P.C. 309+30.93
P.C. 111+70.72
P.T. 311+13.72
P.T. 113+54.72
P.I. 312+52.63
P.I. 115+41.72 Δ = 0°30'32" LT.
POE 313+51.87
P.I. 118+90.72

TRIG ELEV 105
MATCHLINE #1
N 89°31'26" E
8029
PN:3 PD:STD. AHTD MON. STAMPED PN:3 MARMADUKE
8001
100.00'
8031
S 78°13'53" E 80.26'
8032
S 78°13'53" E
N 88°56'02" E
8002
C.L. CONST. 1
SURVEY BASELINE N 89°13'51" E 688.95'
8034
N 89°21'19" E
126.28'
8035
N 89°21'19" E
PN:1120 PD:ST60DNL TRIG ELEV
C.L. DETOUR 1
N 89°12'26" E
287.28'
8003
N 89°12'26" E
310
N 86°26'50" E
87.00'
8006
8005
N 74°16'32" E
8037
PN:4 PD:STD. AHTD MON. STAMPED PN:4 MARMADUKE
8038
N 74°16'32" E
56.80'
115
N 87°45'39" E
100.00'
N 87°45'39" E
8007
8040
N 87°15'07" E
208.62'
8008
N 87°15'06.72" E
SURVEY BASELINE N 88°07'29" E 807.09'
S 88°32'18.07" E
MATCHLINE #2
N 87°45'39" E
17.89'

P.C. 304+25.51
P.T. 305+73.93
P.I. 108+83.45 Δ = 0°16'23" RT.
P.I. 307+29.72
P.I. 310+22.86
P.I. 112+62.74
P.C. 311+70.52
P.I. 114+41.72 Δ = 1°18'49" RT.
P.T. 313+33.98
P.C. 117+50.33

C.L. DETOUR
P.I. = 305+00.00
Δ = 12°14'41" RT.
D = 8°15'00"
T = 74.49'
L = 148.42'
P.C. = 304+25.51
P.T. = 305+73.93
NO SUPER

STA. 107+00.00
BEGIN JOB 100870 &
BEGIN SITE 1
LOG MILE 9.90

PN:1121 PD:ST60DNL TRIG ELEV
PN:1122 PD:STI/2"REBAR TRIG ELEV
PN:1127 PD:ST60DNL TRIG ELEV

C.L. DETOUR
P.I. = 312+52.63
Δ = 13°29'07" RT.
D = 8°15'00"
T = 82.11'
L = 163.46'
P.C. = 311+70.52
P.T. = 313+33.98
NO SUPER

STA. 115+41.72
END SITE 1

C.L. CONST.
P.I. = 118+90.72
Δ = 4°12'35" RT.
D = 1°30'00"
T = 140.39'
L = 280.65'
P.C. = 117+50.33
P.T. = 130+30.98

MATCHLINE #2
S 88°32'18.07" E
120
8010
C.L. CONST. 1
S 88°32'18" E
389.36'
8011
PN:5 PD:STD. AHTD MON. STAMPED PN:5 MARMADUKE
SURVEY BASELINE S 88°49'39" E 596.69'
P.T. 120+30.98
POE 124+20.35

7/9/2018
R100870.DGN

SITE 1
MAIN LANES
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	49	101

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2018

POB 200+00.00

8012

N 88°38' 52" E
SURVEY BASELINE N88°28'43"E
528.60'
600.00' C.L. CONST. 2

205

MATCH LINE #1

PN#7
PD:STD. AHTD MON. STAMPED PN#7 MARMADUKE

PN#128
PD:ST60DNL TRIG ELEV

PN#129
PD:ST60DNL TRIG ELEV

PN#8
PD:STD. AHTD MON. STAMPED PN#8 MARMADUKE

PN#130
PD:ST60DNL TRIG ELEV

PN#131
PD:ST60DNL TRIG ELEV

PN#132
PD:ST60DNL TRIG ELEV

PN#133
PD:ST60DNL TRIG ELEV

PN#134
PD:ST60DNL TRIG ELEV

PN#135
PD:ST60DNL TRIG ELEV

PN#136
PD:ST60DNL TRIG ELEV

PN#137
PD:ST60DNL TRIG ELEV

PN#144
PD:ST60DNL TRIG ELEV

PN#146
PD:ST60DNL TRIG ELEV

PN#147
PD:ST60DNL TRIG ELEV

PN#9
PD:STD. AHTD MON. STAMPED PN#9 MARMADUKE

C.L. DETOUR
P.I. = 400+99.99
Δ = 11°34'30" LT.
D = 8°15'00"
T = 70.39'
L = 140.30'
P.C. = 400+29.60
P.T. = 401+69.90
NO SUPER

C.L. CONST.
P.I. = 213+77.01
Δ = 6°17'26" LT.
D = 2°15'00"
T = 139.93'
L = 279.58'
P.C. = 212+37.08
P.T. = 215+16.66
e = 0.053 '/'
Ls = 300'
CURVE ROTATES AROUND INSIDE EDGE

C.L. DETOUR
P.I. = 411+95.98
Δ = 1°33'27" LT.
D = 0°30'00"
T = 155.77'
L = 311.52'
P.C. = 410+40.21
P.T. = 413+51.73
NO SUPER

POB399+99.96
P.I. 206+00.00
Δ = 0°07'52" LT.
PC400+29.60
PT401+69.90
P.I. 208+00.04
Δ = 0°49'29" LT.
P1403+61.29
404
C.L. DETOUR 2
N 88°39' 17" E
P.C. 212+37.08
P1408+17.69
P.T. 215+16.66
409
PC410+40.21
P.I. 217+12.73
PT413+51.73
POE413+57.05
220
MATCH LINE #2

205
N 88°31' 00" E
8041
8042
8013
8044
N 76°56' 31" E
8045
8047
210
N 87°51' 27" E
99.98'
8015
8016
805.14'
N 88°23' 27" E
8048
215
8050
N 89°36' 04" W
8051
N 88°50' 29" E
8053
8054
N 88°31' 00" E
100.02'
8014
N 88°40' 56" E
100.02'
SURVEY BASELINE N88°02'10"E
C.L. CONST. 2 227.06'
8017
N 82°06' 01" E
8019
8020
27.35'
N 82°06' 01" E
SURVEY BASELINE N86°27'43"E
757.85'
8022

P.I. 207+00.02
Δ = 0°09'56" RT.
PT400+99.99
P.I. 209+00.02
Δ = 0°32'01" RT.
PC402+90.06
PT404+32.08
PC406+43.25
P.I. 213+77.01
P.C. 215+44.01
PT409+92.10
P1411+95.98
P.T. 218+81.06

C.L. DETOUR
P.I. = 403+61.29
Δ = 11°42'46" RT.
D = 8°15'00"
T = 71.24'
L = 141.97'
P.C. = 402+90.06
P.T. = 404+32.03
e = 0.10'/'
Ls = 300.00'
CURVE ROTATES AROUND INSIDE EDGE

C.L. DETOUR
P.I. = 408+17.69
Δ = 1°44'39" RT.
D = 0°30'00"
T = 174.44'
L = 348.84'
P.C. = 406+43.25
P.T. = 409+92.10
NO SUPER

C.L. CONST.
P.I. = 217+12.73
Δ = 6°44'28" RT.
D = 2°00'00"
T = 168.72'
L = 337.05'
P.C. = 215+44.01
P.T. = 218+81.06
e = 0.048 '/'
Ls = 300'
CURVE ROTATES AROUND INSIDE EDGE

STA. 206+00.00
BEGIN SITE 2
L.M. 12.00

STA. 219+00.00
END SITE 2

220
MATCH LINE #2
N 88°50' 29" E
C.L. CONST. 2
1242.70'
225
C.L. DETOUR 2
SURVEY BASELINE N88°47'14"E
720.53'

PN#10
PD:STD. AHTD MON. STAMPED PN#10

PN#11
PD:STD. AHTD MON. STAMPED PN#11

7/9/2018

R100870.DGN

SITE 2
MAIN LANES
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	50	101

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18

PNt141
PD:ST60DNL TRIG ELEV

C.L. DETOUR
P.I. = 426+85.33
Δ = 22°34'21" LT.
D = 8°15'00"
T = 138.60'
L = 273.60'
P.C. = 425+46.73
P.T. = 428+20.34
e = 0.100'/'
Ls = 300.00'
CURVE ROTATES AROUND CENTERLINE

P1422+85.95

S 79°13'45" E

230

P.I. 231+23.76
Δ = 0°35'33" LT.

PC425+46.73

N 88°51'12" E

C.L. CONST. 2

SURVEY BASELINE N86°36'27"E

8023

720.45'

425

N 88°14'56" E

100.03'

8024

PT428+20.34

N 89°03'48" E

176.56'

8025

100.06'

N 89°37'49" E

PNt134
PD:STD. AHTD MON. STAMPED PNt12

8026

P.I. 235+00.41
Δ = 0°34'09" LT.

235

1430

N 78°11'54" E

P1431+19.59

240

435

N 89°03'41" E

843.59'

SURVEY BASELINE S88°33'53"E

8027

POE 243+44.01
POE437+62.24

8070

8072

C.L. DETOUR 3
S 79°13'45" E

8073

S 79°13'45" E

N 78°11'54" E

8075

N 78°11'54" E

8076

8078

N 89°03'41" E 744.39'

PNt13
PD:STD. AHTD MON. STAMPED PNt13

C.L. DETOUR
P.I. = 422+85.95
Δ = 11°55'46" RT.
D = 8°15'00"
T = 72.56'
L = 144.60'
P.C. = 422+13.39
P.T. = 423+57.98
NO SUPER

PC422+13.39

PT423+57.98

P.I. 232+23.79
Δ = 0°48'52" RT.

P1426+85.33

P.I. 234+00.35
Δ = 0°34'02" RT.

PC430+53.56

P1431+85.23

C.L. DETOUR
P.I. = 431+19.59
Δ = 10°51'46" RT.
D = 8°15'00"
T = 66.03'
L = 131.67'
P.C. = 430+53.56
P.T. = 431+85.23
NO SUPER

STA. 232+00.00
BEGIN SITE 3
LOG MILE 12.51

STA. 234+00.00
END SITE 3 &
END JOB 100870

7/9/2018

R100870.DGN

SITE 3
MAIN LANES
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	51	101

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
TRINITY D. SMITH
LICENSED PROFESSIONAL ENGINEER
No. 11425
7-20-18

C.L. CONST.
P.I. = 112+62.74
Δ = 2°45'36" LT.
D = 1°30'00"
T = 92.02'
L = 184.00'
P.C. = 111+70.72
P.T. = 113+54.72
NO SUPER

C.L. CONST.
P.I. = 118+90.72
Δ = 4°12'35" RT.
D = 1°30'00"
T = 140.39'
L = 280.65'
P.C. = 117+50.33
P.T. = 130+30.98

STA. 107+00.00
BEGIN JOB 100870 &
BEGIN SITE 1
LOG MILE 9.92

STA. 115+41.72
END SITE 1

SITE 1
MAIN LANES

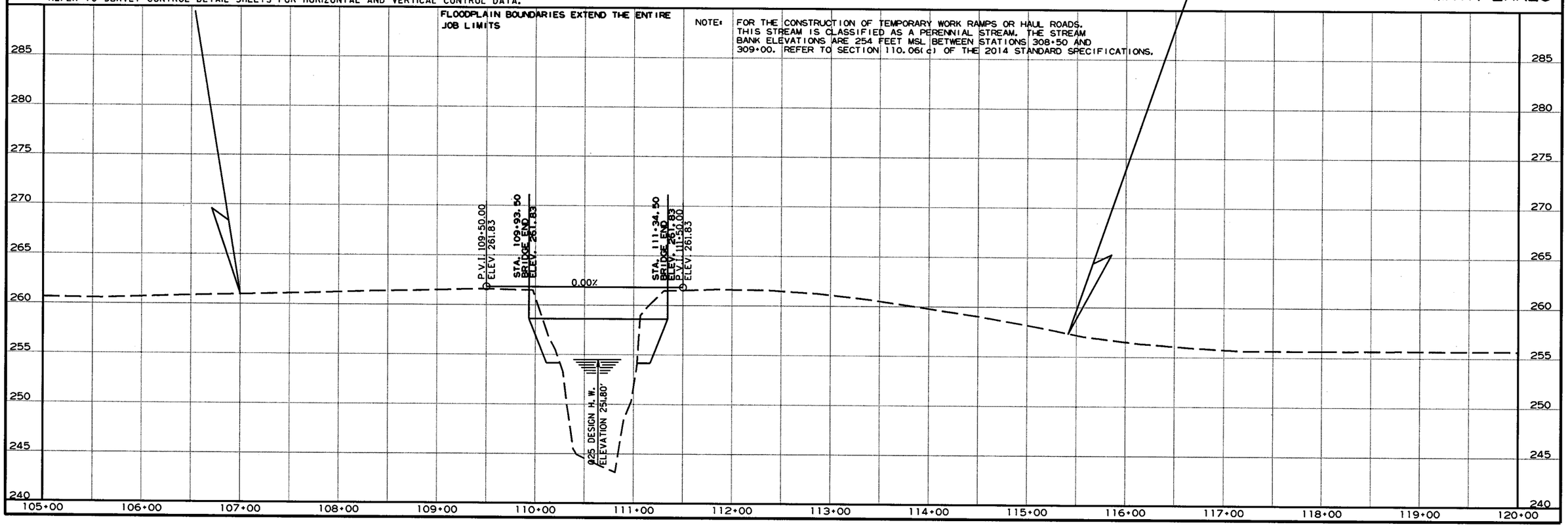
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STA. 109+98.29 - STA. 111+29.69 - IN PLACE
132'x31.2' BRIDGE (L.M. 9.99)
CONSISTING OF TIMBER BEAMS SUPPORTED BY TIMBER PILE BENTS
REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1) = 1.00 LUMP SUM
BR. NO. M3220

STA. 109+93.50 TO STA. 111+34.50 - CONSTRUCT
141'-0" x 30'-0" CLEAR RDWY. BRIDGE
140'-0" CONTINUOUS COMP. INTEGRAL
W-BEAM UNIT (48'-48'-44')
BR. NO. 07419

FLOODPLAIN BOUNDARIES EXTEND THE ENTIRE JOB LIMITS

NOTE: FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATIONS ARE 254 FEET MSL BETWEEN STATIONS 308+50 AND 309+00. REFER TO SECTION 110.06(c) OF THE 2014 STANDARD SPECIFICATIONS.



12/27/2016

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	52	101

(2) PLAN AND PROFILE SHEETS

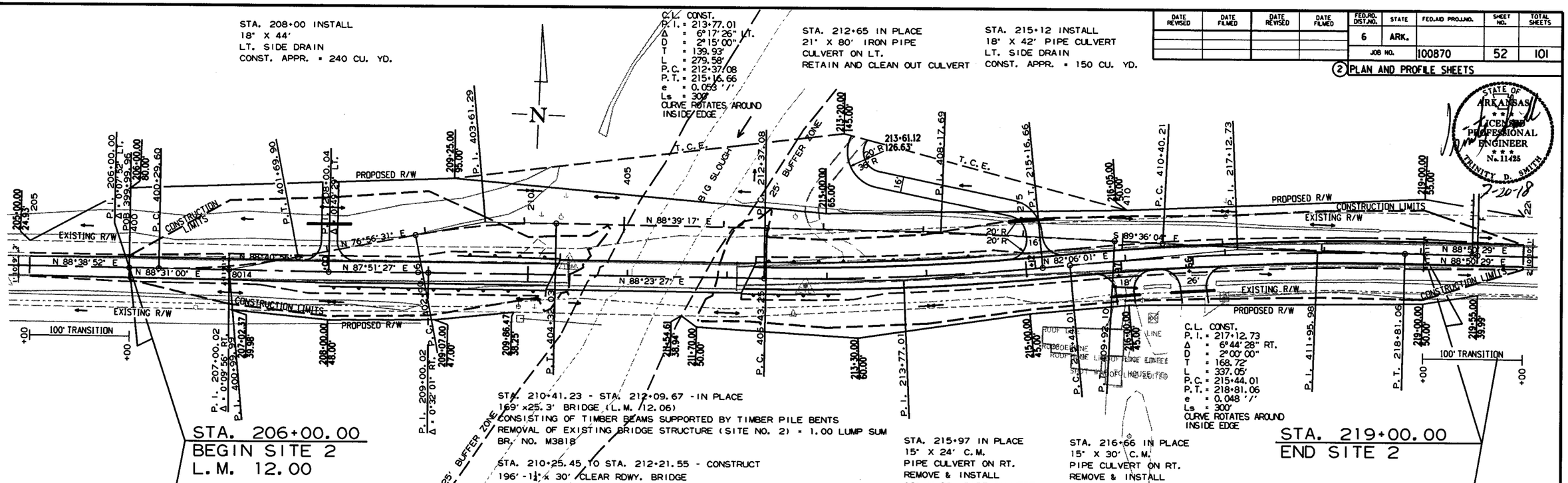
STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No. 11425 — TRINITY D. SMITH — 7-20-18

STA. 208+00 INSTALL
18" X 44'
LT. SIDE DRAIN
CONST. APPR. = 240 CU. YD.

C.L. CONST.
P.I. = 213+77.01
Δ = 6°17'26" LT.
D = 2°15'00"
T = 139.93'
L = 279.58'
P.C. = 212+37.08
P.T. = 215+16.66
e = 0.053 '/'
Ls = 300'
CURVE ROTATES AROUND INSIDE EDGE

STA. 212+65 IN PLACE
21" X 80' IRON PIPE
CULVERT ON LT.
RETAIN AND CLEAN OUT CULVERT

STA. 215+12 INSTALL
18" X 42' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 150 CU. YD.



STA. 210+41.23 - STA. 212+09.67 - IN PLACE
169' x 25.3' BRIDGE (L.M. 12.06)
CONSISTING OF TIMBER BEAMS SUPPORTED BY TIMBER PILE BENTS
REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2) = 1.00 LUMP SUM
BR. NO. M3818

STA. 210+25.45 TO STA. 212+21.55 - CONSTRUCT
196'-11" x 30' CLEAR RDWY. BRIDGE
195'-0" CONTINUOUS COMP. INTEGRAL W-BEAM UNIT (60'-75'-60')
BR. NO. 07420

STA. 215+97 IN PLACE
15" X 24' C.M.
PIPE CULVERT ON RT.
REMOVE & INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 10 CU. YDS.

STA. 216+66 IN PLACE
15" X 30' C.M.
PIPE CULVERT ON RT.
REMOVE & INSTALL
18" X 38' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 50 CU. YDS.

C.L. CONST.
P.I. = 217+12.73
Δ = 6°44'28" RT.
D = 2°00'00"
T = 168.72'
L = 337.05'
P.C. = 215+44.01
P.T. = 218+81.06
e = 0.048 '/'
Ls = 300'
CURVE ROTATES AROUND INSIDE EDGE

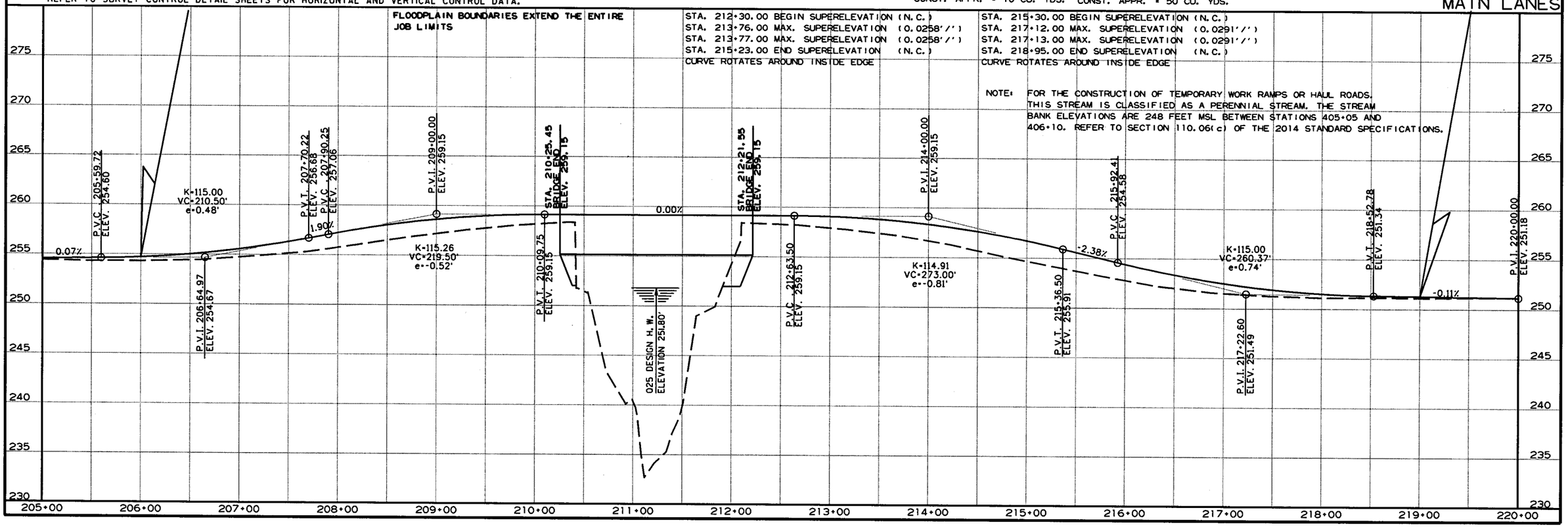
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

FLOODPLAIN BOUNDARIES EXTEND THE ENTIRE JOB LIMITS

STA. 212+30.00 BEGIN SUPERELEVATION (N.C.)
STA. 213+76.00 MAX. SUPERELEVATION (0.0258'/')
STA. 213+77.00 MAX. SUPERELEVATION (0.0258'/')
STA. 215+23.00 END SUPERELEVATION (N.C.)
CURVE ROTATES AROUND INSIDE EDGE

STA. 215+30.00 BEGIN SUPERELEVATION (N.C.)
STA. 217+12.00 MAX. SUPERELEVATION (0.0291'/')
STA. 217+13.00 MAX. SUPERELEVATION (0.0291'/')
STA. 218+95.00 END SUPERELEVATION (N.C.)
CURVE ROTATES AROUND INSIDE EDGE

NOTE: FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATIONS ARE 248 FEET MSL BETWEEN STATIONS 405+05 AND 406+10. REFER TO SECTION 110.06(c) OF THE 2014 STANDARD SPECIFICATIONS.



12/27/2016

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	53	101

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18

STA. 232+00 IN PLACE
24" X 21' C.M. PIPE
CULVERT ON LT.
REMOVE INSTALL
24" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 55 CU. YDS.

STA. 232+90.93 - STA. 233+48.67 - IN PLACE
58' x 29.5' BRIDGE (L.M. 12.52)
CONSISTING OF TIMBER BEAMS SUPPORTED BY TIMBER PILE BENTS
REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 3) = 1.00 LUMP SUM
BR. NO. M3222

STA. 235+93 IN PLACE
24" X 20' C.M. PIPE
CULVERT ON LT.
REMOVE & INSTALL
24" X 38' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 15 CU. YDS.

STA. 230+67 IN PLACE
15" X 21' C.M. PIPE
CULVERT ON RT.
REMOVE

STA. 232+00.00
BEGIN SITE 3
LOG MILE 12.51

STA. 233+20.00 CONSTRUCT
TRI. 10' X 5' X 83' R.C.
BOX CULVERT
ON A 30° LT. FWD. SKEW
WITH 3:1 WINGS LT. AND RT.
Q25=920 CFS D.A.=3.8 SQ. MI.
SPAN= 32'-4"

STA. 234+00.00
END SITE 3 &
END JOB 100870

SITE 3
MAIN LANES

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

FLOODPLAIN BOUNDARIES EXTEND THE ENTIRE JOB LIMITS

NOTE: FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 246 FEET MSL BETWEEN STATIONS 232+60 AND 233+00. REFER TO SECTION 110.06(c) OF THE 2014 STANDARD SPECIFICATIONS.

P.V.I. 231+00.00 ELEV. 251.88
P.V.I. 231+45.93 ELEV. 252.13
P.V.I. 234+44.88 ELEV. 252.39
P.V.I. 235+00.00 ELEV. 252.04
0.55%
0.09%
-0.63%

Q25 DESIGN H.W. ELEVATION 250.58'

STA. 233+20.00
F.L. INLET LT. = 244.40
F.L. OUTLET RT. = 244.20

12/27/2016
R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	54	101

(2) DETOUR PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2-18

C.L. DETOUR
P.I. = 307+29.72
Δ = 12°24'48" LT.
D = 8°15'00"
T = 75.53'
L = 150.46'
P.C. = 306+54.19
P.T. = 308+04.65
e = 0.100'/'
Ls = 300.00'
CURVE ROTATES AROUND INSIDE EDGE

C.L. DETOUR
P.I. = 310+22.86
Δ = 15°04'47" LT.
D = 8°15'00"
T = 91.92'
L = 182.79'
P.C. = 309+30.93
P.T. = 311+13.72
e = 0.100'/'
Ls = 300.00'
CURVE ROTATES AROUND INSIDE EDGE

C.L. CONST.
P.I. = 112+62.74
Δ = 2°45'36" LT.
D = 1°30'00"
T = 92.02'
L = 184.00'
P.C. = 111+70.72
P.T. = 113+54.72
NO SUPER

C.L. CONST.
P.I. = 118+90.72
Δ = 4°12'35" RT.
D = 1°30'00"
T = 140.39'
L = 280.65'
P.C. = 117+50.33
P.T. = 130+30.98

C.L. DETOUR
P.I. = 305+00.00
Δ = 12°14'41" RT.
D = 8°15'00"
T = 74.49'
L = 148.42'
P.C. = 304+25.51
P.T. = 305+73.93
NO SUPER

C.L. DETOUR
P.I. = 312+52.63
Δ = 13°29'07" RT.
D = 8°15'00"
T = 82.11'
L = 163.46'
P.C. = 311+70.52
P.T. = 313+33.98
NO SUPER

STA. 303+00.00
BEGIN SITE 1
DETOUR

STA. 313+51.87
END SITE 1
DETOUR

SITE 1
DETOUR

STA. 308+24 - STA. 309+17 CONSTRUCT
93' X 24'-6" TEMPORARY BRIDGE

STA. 307+04 INSTALL
18" X 54'
TEMPORARY PIPE CULVERT

STA. 310+05 INSTALL
18" X 58'
TEMPORARY PIPE CULVERT

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

STA. 306+54.00 BEGIN SUPERELEVATION (N.C.)
STA. 307+29.00 MAX. SUPERELEVATION (0.025'/')
STA. 307+30.00 MAX. SUPERELEVATION (0.025'/')
STA. 308+05.00 END SUPERELEVATION (N.C.)
CURVE ROTATES AROUND INSIDE EDGE

STA. 309+30.00 BEGIN SUPERELEVATION (N.C.)
STA. 310+22.00 MAX. SUPERELEVATION (0.0307'/')
STA. 310+23.00 MAX. SUPERELEVATION (0.0307'/')
STA. 311+15.00 END SUPERELEVATION (N.C.)
CURVE ROTATES AROUND INSIDE EDGE

NOTE: FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATIONS ARE 254 FEET MSL BETWEEN STATIONS 308+50 AND 309+00. REFER TO SECTION 110.06(c) OF THE 2014 STANDARD SPECIFICATIONS.

P.V.I. 303+00.00 ELEV. 260.64
P.V.C. 303+70.22 ELEV. 260.68
P.V.T. 304+29.78 ELEV. 260.80
K=218.65
VC=59.56'
e=0.02'
0.06%
P.V.I. 304+00.00 ELEV. 260.70
0.34%
P.V.C. 306+89.76 ELEV. 261.68
P.V.I. 307+40.00 ELEV. 261.85
P.V.T. 307+90.24 ELEV. 261.85
K=297.97
VC=100.47'
e=0.04'
STA. 308+24 TEMP. BRIDGE END
0.00%
02 DESIGN H.W. ELEVATION 252.05'
STA. 309+17 TEMP. BRIDGE END
P.V.C. 309+69.11 ELEV. 261.85
P.V.I. 311+07.08 ELEV. 261.85
K=151.00
VC=275.94'
e=0.63'
-1.83%
P.V.T. 312+45.06 ELEV. 259.33
P.O.E. 313+51.87 ELEV. 257.38

285 280 275 270 265 260 255 250 245 240
303+00 304+00 305+00 306+00 307+00 308+00 309+00 310+00 311+00 312+00 313+00 313+52

12/27/2016
R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	55	101

(2) DETOUR PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
TRINITY D. SMITH
LICENSED PROFESSIONAL ENGINEER
No. 11425
7-20-18

C.L. DETOUR
P.I. = 400+99.99
Δ = 11°34'30" LT.
D = 8°15'00"
T = 70.39'
L = 140.30'
P.C. = 400+29.60
P.T. = 401+69.90
NO SUPER

C.L. CONST.
P.I. = 213+77.01
Δ = 6°17'26" LT.
D = 2°15'00"
T = 139.93'
L = 279.58'
P.C. = 212+37.08
P.T. = 215+16.66
e = 0.053 '/'
Ls = 300'
CURVE ROTATES AROUND INSIDE EDGE

STA. 407+24 INSTALL
24' X 86'
TEMPORARY PIPE CULVERT
CONST. APPR. = CU. YD.

C.L. DETOUR
P.I. = 411+95.98
Δ = 1°33'27" LT.
D = 0°30'00"
T = 155.77'
L = 311.52'
P.C. = 410+40.21
P.T. = 413+51.73
NO SUPER

STA. 399+99.99
BEGIN SITE 2
DETOUR

STA. 413+03.04
END SITE 2
DETOUR

SITE 2
DETOUR

C.L. DETOUR
P.I. = 403+61.29
Δ = 11°42'46" RT.
D = 8°15'00"
T = 71.24'
L = 141.97'
P.C. = 402+90.06
P.T. = 404+32.03
e = 0.10 '/'
Ls = 300.00'
CURVE ROTATES AROUND INSIDE EDGE

C.L. DETOUR
P.I. = 408+17.69
Δ = 1°44'39" RT.
D = 0°30'00"
T = 174.44'
L = 348.84'
P.C. = 406+43.25
P.T. = 409+92.10
NO SUPER

C.L. CONST.
P.I. = 217+12.73
Δ = 6°44'28" RT.
D = 2°00'00"
T = 168.72'
L = 337.05'
P.C. = 215+44.01
P.T. = 218+81.06
e = 0.048 '/'
Ls = 300'
CURVE ROTATES AROUND INSIDE EDGE

STA. 404+76.50 - STA. 406+31.50 CONSTRUCT 155' X 24.5' TEMPORARY BRIDGE

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

STA. 402+64.00 BEGIN SUPERELEVATION (N.C.)
STA. 403+61.00 MAX. SUPERELEVATION (0.0323'/')
STA. 403+63.00 MAX. SUPERELEVATION (0.0323'/')
STA. 404+60.00 END SUPERELEVATION (N.C.)
CURVE ROTATES AROUND INSIDE EDGE

NOTE: FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATIONS ARE 248 FEET MSL BETWEEN STATIONS 405+05 AND 406+10. REFER TO SECTION 110.06(c) OF THE 2014 STANDARD SPECIFICATIONS.

P.O.B. 399+99.99
ELEV. 254.31
P.V.C. 401+04.86
ELEV. 254.78
K 113.34
VC=99.74'
e=0.11'
P.V.T. 402+04.60
ELEV. 255.67
P.V.I. 401+54.73
ELEV. 255.01
P.V.I. 404+10.00
ELEV. 258.39
STA. 404+76.50
TEMP. BRIDGE END
STA. 406+31.50
TEMP. BRIDGE END
P.V.C. 403+33.85
ELEV. 257.38
K 114.51
VC=152.30'
e=-0.25'
P.V.T. 404+86.15
ELEV. 258.39
02 DESIGN H.W.
ELEVATION 250.00'
P.V.C. 406+17.07
ELEV. 258.39
P.V.I. 407+60.00
ELEV. 258.39
P.V.C. 409+08.53
ELEV. 254.70
K 115.27
VC=285.86'
e=-0.89'
P.V.T. 409+92.10
ELEV. 254.84
K 114.08
VC=282.94'
e=0.88'
P.V.I. 410+50.00
ELEV. 251.19
P.V.T. 411+91.47
ELEV. 251.18
P.O.E. 413+03.04
ELEV. 251.18
0.45%
1.33%
0.00%
-0.48%
-0.00%

275 270 265 260 255 250 245 240 235 230

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+00 413+00 414+00

R100870.DGN 12/27/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	56	101

(2) DETOUR PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-20-18

C.L. DETOUR
P.I. = 426+85.33
Δ = 22°34'21" LT.
D = 8°15'00"
T = 138.60'
L = 273.60'
P.C. = 425+46.73
P.T. = 428+20.34
e = 0.100'/'
Ls = 300.00'
CURVE ROTATES AROUND CETERLINE

C.L. DETOUR
P.I. = 422+85.95
Δ = 11°55'46" RT.
D = 8°15'00"
T = 72.56'
L = 144.60'
P.C. = 422+13.39
P.T. = 423+57.98
NO SUPER

STA. 422+00.00
BEGIN SITE 3
DETOUR

STA. 425+10 INSTALL
18" X 44'
TEMPORARY PIPE CULVERT

STA. 426+93 INSTALL
QUAD. 60" X 66'
TEMPORARY PIPE CULVERT

C.L. DETOUR
P.I. = 431+19.59
Δ = 10°51'46" RT.
D = 8°15'00"
T = 66.03'
L = 131.67'
P.C. = 430+53.56
P.T. = 431+85.23
NO SUPER

STA. 431+85.25
END SITE 3
DETOUR

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

SITE 3
DETOUR

STA. 423+83.00 BEGIN SUPERELEVATION (N.C.)
STA. 426+83.00 MAX. SUPERELEVATION (0.100'/')
STA. 426+84.00 MAX. SUPERELEVATION (0.100'/')
STA. 429+84.00 END SUPERELEVATION (N.C.)
CURVE ROTATES AROUND CENTERLINE

NOTE: FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 246 FEET MSL BETWEEN STATIONS 232+60 AND 233+00. REFER TO SECTION 110.06(c) OF THE 2014 STANDARD SPECIFICATIONS.

P.O.B. 421+32.37 ELEV. 251.16
P.V.C. 423+14.06 ELEV. 251.18
P.V.T. 423+64.65 ELEV. 251.29
P.V.I. 423+39.36 ELEV. 251.19
K 135.13 VC=50.59' e=0.02'
P.V.C. 425+12.38 ELEV. 251.88
P.V.I. 425+49.73 ELEV. 252.00
P.V.T. 425+87.09 ELEV. 251.99
K 150.48 VC=64.71' e=-0.03'
02 DESIGN H.W. ELEVATION 249.84'
STA. 426+93 F.L. INLET LT. = 244.20 F.L. OUTLET RT. = 244.10
P.V.I. 431+68.14 ELEV. 251.74
P.O.E. 431+85.25 ELEV. 251.75
0.01% 0.39% -0.04% 0.06%

12/27/2016
R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	57	101
				① 07419 - LAYOUT - 60072				

For R/W Data, see Roadway Plans.

HURRICANE DITCH

Side Drain

③ 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. 60084. Pipe Underdrains will not be paid for directly but shall be considered subsidiary to "Unclassified Excavation".

62.0' Left of Sta. 110+81.46

Excavate to Elevation 254.00

Excavate to Elevation 254.00

Existing Br. No. M3220

Overhead Utility

Underground Cable

Underground Cable

PC Sta. 111+70.72

Approx. 2.6 mi. to Jct. U.S 49

Approx. 2.9 mi. to Jct. S.H. 139 N89° 12' 26"E

Tangent Dist. 110.05'

Finished Crown 34'-0"

Pavement 22'-0"

Shoulder 6'-0"

Test Hole (typ.)

Top of Cut

Top of Cut

Out to Out 33'-2"

2.0% Slope

Clear Roadway 30'-0"

1'-5" Conc. Parapet

1'-5" Conc. Parapet

C.L. Bridge & C.L. Construction

Water Utilities

Toe of Fill

Toe of Fill

Toe of Cut

Toe of Cut

Fiber Optic Cable

Sanitary Sewer

Overhead Utility

C.L. Detour, see Roadway Plans.

42.9' Right of Sta. 111+00.50

Water Utilities

The Contractor shall excavate the existing embankment at both ends of the bridge as shown to Elev. 254.0, approx. 820 cu. yards of excavation.

Place Type A Approach Gutters (w=4'-0") and Type A Approach Slabs at both ends of bridge, see Std. Dwg. Nos. 55030A and 55040A, respectively.

Water Line

56.1' Right of Sta. 110+40.62

See Temporary Bridge Layout, Dwg. No. 60074.

Sanitary Sewer

Water Line

Side Drain

④ Place 1'-6" Dumped Riprap on Filter Blanket as shown (typ.). See Std. Dwg. No. 55001. Top of Riprap to be Elev. 256.0 or as shown.

PLAN

② Measured at Working Point, see "Rounding Detail" on Dwg. No. 60080.

② Level Grade C.L. Deck Elevation 261.83

Stations are shown along C.L. Bridge.

Total Length of Bridge = 141'-0"

6" 140'-0" Continuous Composite Integral W-Beam Unit (48'-48'-44') 6"

Beg. of Bridge Sta. 109+93.50

End of Beam

End of Beam

End of Bridge Sta. 111+34.50

3'-5⅜" C.L. Deck to low steel

C.L. Bent 2 Sta. 110+42.00

C.L. Deck to Low Seat of Cap = 3'-9"

Design H.W. to low steel = 3.9'

C.L. Bent 3 Sta. 110+90.00

C.L. Deck to Low Seat of Cap = 3'-9"

Slope Intercept Sta. 109+85.50

Slope Intercept Sta. 111+42.50

Concrete Parapet Rail

Guard Rail, See Rdwy. Plans (typ.)

Proposed Grade Line Along C.L. Construction

Existing Ground Line along C.L. Bridge

Int. Fix Fix Int.

Pile Encasement typical at Bents 2 & 3.

60' Piles 60' Piles 50' Piles 50' Piles

025 Design H.W. Elev. 254.5

Bent No. 1 2 3 4

ELEVATION

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	①NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	25	3,130	254.2	254.5
Base	100	4,190	254.5	255.0
Extreme	500	5,730	254.7	255.8
Overtopping	>500	-	-	-

① Unconstricted water surface without structure or roadway approaches.

0100 Backwater Elev. for existing structure = 254.9
Proposed Low Bridge Chord Elevation = 258.40.

Drainage Area = 26.9 square miles.
Historical H.W. Elevation = N/A.

NOTE: For soil borings and General Notes, see Dwg. No. 60073.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-15-18
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER HURRICANE DITCH
HWY. 34 STRS. & APPRS. (S)
GREENE COUNTY

ROUTE 34 SEC. 4

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

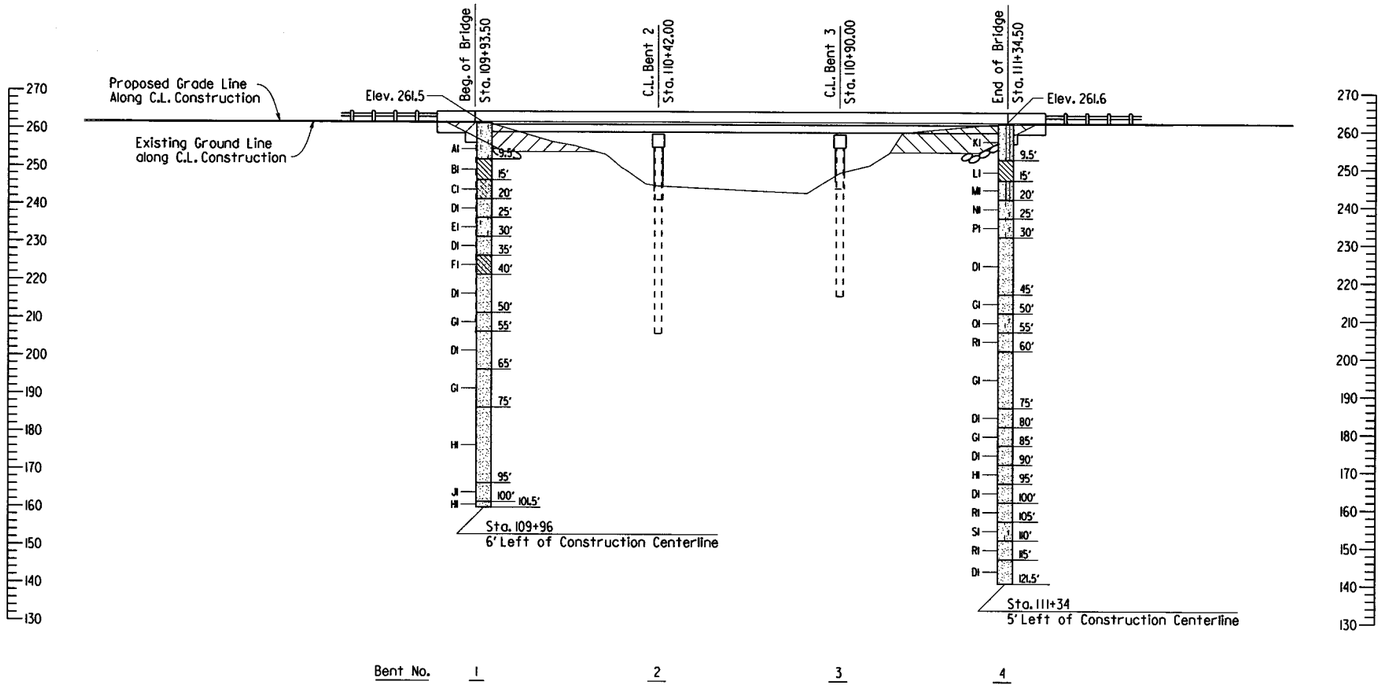
DRAWN BY: CGP DATE: 3/8/17 FILENAME: bl00870xl_ll.dgn
CHECKED BY: CMW DATE: 2/15/18 SCALE: 1" = 20'-0"
DESIGNED BY: ZJS DATE: 6/17

BRIDGE NO. 07419 DRAWING NO. 60072

PRINT DATE: 2/14/2018

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.		100870	38	101

① 07419 - LAYOUT - 60073



ELEVATION OF SOIL BORINGS

BORING LEGEND

Al-Moist, Loose, Gray Sand with Silt
Bl-Moist, Medium Stiff, Gray Clay
Cl-Wet, Medium Dense, Gray Sand with Clay
Dl-Wet, Medium Dense, Gray Sand
El-Wet, Very Loose, Gray Silty Sand
Fl-Wet, Stiff, Gray Sandy Clay
Gl-Wet, Medium Dense, Gray Sand with Trace Gravel
Hl-Wet, Dense, Gray Sand with Trace Gravel
Jl-Wet, Dense, Gray Sand with Some Gravel
Kl-Moist, Loose, Gray Sandy Silt
Ll-Moist, Stiff, Gray Clay
Ml-Wet, Loose, Gray Silt with Sand
Nl-Wet, Medium Dense, Gray Sand with Silt
Pl-Wet, Medium Dense, Gray Silty Sand
Ql-Wet, Medium Dense, Gray Sand with Silt and Trace Gravel
Rl-Wet, Dense, Gray Sand
Sl-Wet, Very Dense, Gray Sand with Silt

"N" VALUES

Sta. 109+96 - 6' Left of Construction Centerline	Sta. 111+34 - 5' Left of Construction Centerline
5.0- 6.0, N=5	5.0- 6.0, N=6
10.0- 11.0, N=6	10.0- 11.0, N=12
15.5- 16.5, N=11	15.5- 16.5, N=5
20.5- 21.5, N=26	20.5- 21.5, N=17
25.5- 26.5, N=4	25.5- 26.5, N=22
30.5- 31.5, N=19	30.5- 31.5, N=13
35.5- 36.5, N=10	35.5- 36.5, N=16
40.5- 41.5, N=15	40.5- 41.5, N=18
45.5- 46.5, N=20	45.5- 46.5, N=26
50.5- 51.5, N=23	50.5- 51.5, N=17
55.5- 56.5, N=20	55.5- 56.5, N=32
60.5- 61.5, N=17	60.5- 61.5, N=20
65.5- 66.5, N=24	65.5- 66.5, N=25
70.5- 71.5, N=30	70.5- 71.5, N=30
75.5- 76.5, N=35	75.5- 76.5, N=25
80.5- 81.5, N=47	80.5- 81.5, N=20
85.5- 86.5, N=33	85.5- 86.5, N=24
90.5- 91.5, N=36	90.5- 91.5, N=31
95.5- 96.5, N=33	95.5- 96.5, N=17
100.5-101.5, N=48	100.5-101.5, N=40
	105.5-106.5, N=84
	110.5-111.5, N=50
	115.5-116.5, N=17
	120.5-121.5, N=20

① The proposed bridge shall be constructed to avoid interferene with the existing piling. Any adjustments necessary to fit the proposed bridge to the existing bridge location shall be submitted for the Engineer's approval.

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, 6th Edition (2012), with 2013 interim revisions.

LIVE LOADING: HL-93

SEISMIC ZONE: 3 S_{DI} =0.47 SITE CLASS = D

MATERIALS AND STRENGTHS:

Class SAE) 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 (AASHTO M 270, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi

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

① STEEL PILING: All piling in Bents 1 and 4 shall be 16" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 140 tons per pile. Piling in Bents 2 and 3 shall be 20" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 250 tons per pile. All piling shall be driven with an approved air, steam or diesel hammer to a minimum tip elevation of 196 or lower at bents 1 & 2 and 206 or lower at bents 3 & 4. Lengths of piling shown are assumed for estimating quantities only. Piling in Bents 1 and 4 shall be driven after embankments to bottom of cap is in place. Actual piling lengths are to be determined in the field. No additional payment will be made for cutoff or build-up. Test piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g).

PILE ENCASEMENT: Pile encasements for Bents 2 & 3 shall extend from bottom of cap to 3' below natural ground. See Std. Dwg. No. 55021 for additional details.

PREBORING: Preboring is required for all piling at Bents 1 and 4. Prebored holes at Bents 1 and 4 shall have a diameter 6" greater than the greatest cross-sectional dimension of the pile for a depth 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 casing 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". Preboring will be paid for in accordance with Section 805.

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)". It is estimated that a minimum rated hammer energy required to obtain the ultimate bearing capacity on all piles at Bents 1 and 4 will be 20,000 foot pounds and for all piles at Bents 2 and 3 will be 40,000 foot pounds.

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

PROTECTIVE SURFACE TREATMENT: Class 1 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rail.

DETAIL DRAWINGS:	DRAWING NO.
End Bents	60077
Intermediate Bents	60078
Elastomeric Bearings	60079
140'-0" Cont. Comp. Integral W-Beam Unit	60080-60085
Standard General Notes	55006
Concrete Filled Steel Shell Piling	55021
Type A Approach Gutters	55030A
Type A Approach Slabs	55040A

EXISTING BRIDGE: Existing Bridge, No. M3220 (Log Mile 9.99), is 29.8' wide (28.0' Roadway) and 132.0' long and consists of a five span superstructure with a concrete deck supported by timber beams in approach spans and steel beams in center span. All spans are supported by timber bents on timber piles.

REMOVAL AND SALVAGE: After the temporary bridge is constructed and open to traffic, existing Bridge No. M3220 shall be removed 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 Department:

Heavy Bridge Section of the Maintenance Division is to receive the six W33 steel beams. This material shall be delivered to 11300 West Baseline Road, Little Rock, AR, 72209.

The Contractor shall coordinate with the Engineer for removal and delivery of salvaged material. Payment for this work shall be considered incidental to "Removal of Existing Bridge Structure (Site No. 1)".

TEMPORARY BRIDGE: Construct a temporary bridge in accordance with Section 603 approximately 50' downstream from C.L. Construction. See Roadway Plans for actual detour grade and alignment. The temporary bridge shall have a minimum length of 93' with a minimum roadway width of 24', a minimum live load capacity of HI5, and meet the requirements for Seismic Category B in accordance with AASHTO Standard Specifications for Highway Bridges, 2002 Edition. See Standard Drawing Nos. 15230 & 15240 and Drawing Nos. 60074-60076 for temporary bridge details. Neither a timber deck nor timber piles will be allowed for construction of the temporary bridge.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-15-18
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER HURRICANE DITCH
HWY. 34 STRS. & APPRS. (S)
GREENE COUNTY

ROUTE 34 SEC. 4

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

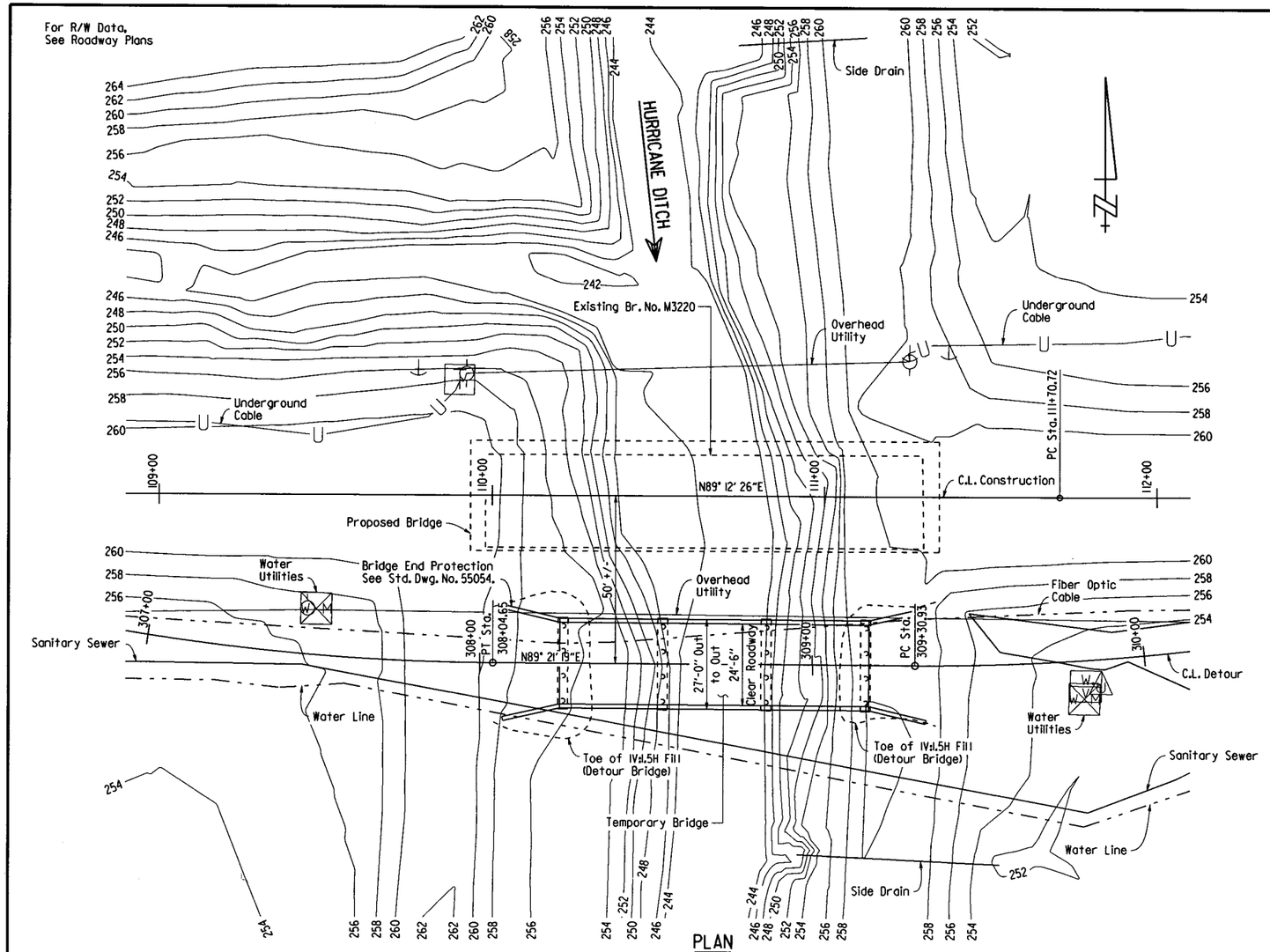
DRAWN BY: CGP DATE: 3/8/17 FILENAME: bl00870xl_ll.dgn
CHECKED BY: CMW DATE: 2/15/18 SCALE: 1" = 20'-0"
DESIGNED BY: SAS DATE: 6/17

BRIDGE NO. 07419 DRAWING NO. 60073

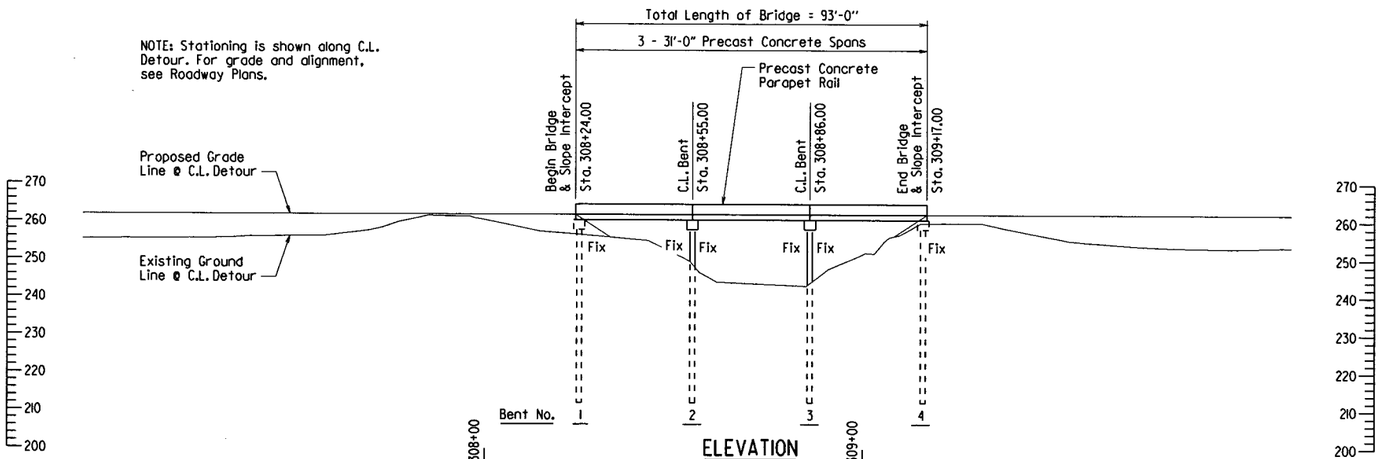
PRINT DATE: 2/14/2018

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.		100870	59	101

① 07419 - TEMP. BRIDGE LAYOUT - 60074



PLAN



ELEVATION

GENERAL NOTES FOR TEMPORARY BRIDGE

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

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

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges, 17th Edition (2002).

LIVE LOADING: H-15

METHOD OF DESIGN: Load Factor

SEISMIC PERFORMANCE CATEGORY: B

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (Superstructure)	f'c = 4,000 psi
Class S Concrete (Substructure)	f'c = 3,500 psi
Reinforcing Steel (Grade 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi

PILING FOR TEMPORARY BRIDGE: All piling in the temporary bridge shall be driven according to the requirements of Subsections 805.07 through 805.09 using Method A, Empirical Pile Formulas. Painting of steel piling will not be required. All piling shall be 16" diameter unfilled steel shell piling and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 40 tons per pile. Drive piles in Bents 1 thru 4 to a tip elevation of 212 or lower.

Preboring or other methods as approved by the Engineer may be used to achieve the minimum penetration. Any cost for these methods shall be included in the item "Temporary Bridge Structure (24' Roadway Width)".

PRECAST CONCRETE UNITS: Precast concrete units shall comply with the requirements of ArDOT Standard Drawings. Precast concrete units within the drawings series 5291 thru 5307, 14800 thru 14899 and 15190 thru 15400 may be used in lieu of units shown on Std. Dwg. Nos. 15230 & 15240. All precast units shall be doweled to bent caps as shown on Dwg. No. 60075.

Shear key joints between precast concrete units shall be filled with asphalt or the grout mix shown on Standard Drawings after sections are bolted.

DETAIL DRAWINGS:	DRAWING NO.
Bent Details	60075
Unfilled Steel Shell Piling	60076
31" Precast Concrete Spans	15230 & 15240
Bridge End Protection System	55054

PAYMENT: The Temporary Bridge Structure shall comply with and be paid for per linear foot as Temporary Bridge Structure (24' Roadway Width) in accordance with Section 603.

OPTIONAL TEMPORARY BRIDGE: If the Contractor elects to use an optional design for the detour bridge, as per Subsection 603.02, the bridge length shall provide a waterway opening that equals or exceeds the opening of the 93' bridge shown. Payment will be based on a 93' temporary bridge length.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
2-15-18

BRIDGE ENGINEER

LAYOUT OF TEMPORARY BRIDGE OVER HURRICANE DITCH HWY. 34 STRS. & APPRS. (S) GREENE COUNTY

ROUTE 34 SEC. 4

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

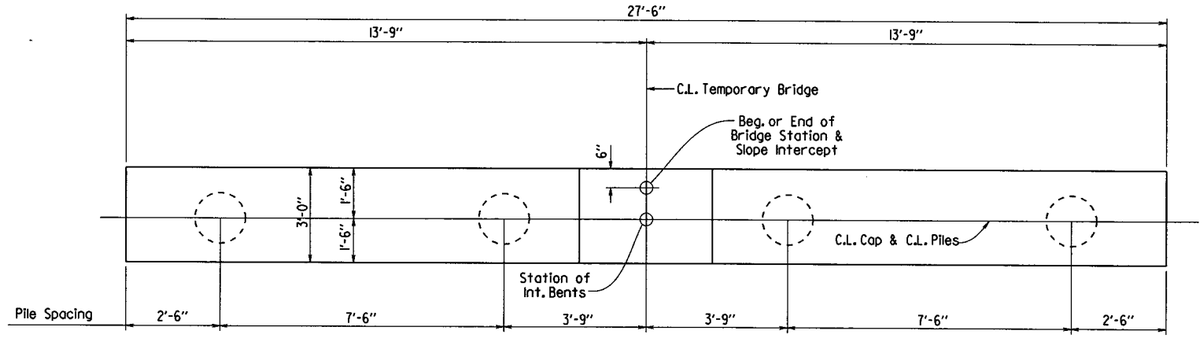
DRAWN BY: CGP DATE: 7/14/17 FILENAME: bl00870x1_12.dgn
CHECKED BY: DATE: 2/15/18 SCALE: 1" = 20'-0"
DESIGNED BY: DATE: 7/17

BRIDGE NO. 07419 DRAWING NO. 60074

PRINT DATE: 2/14/2018

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.		100870	60	101

① 07419 & 07420 - TEMP. BENTS - 60075

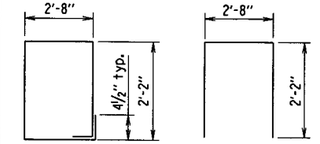


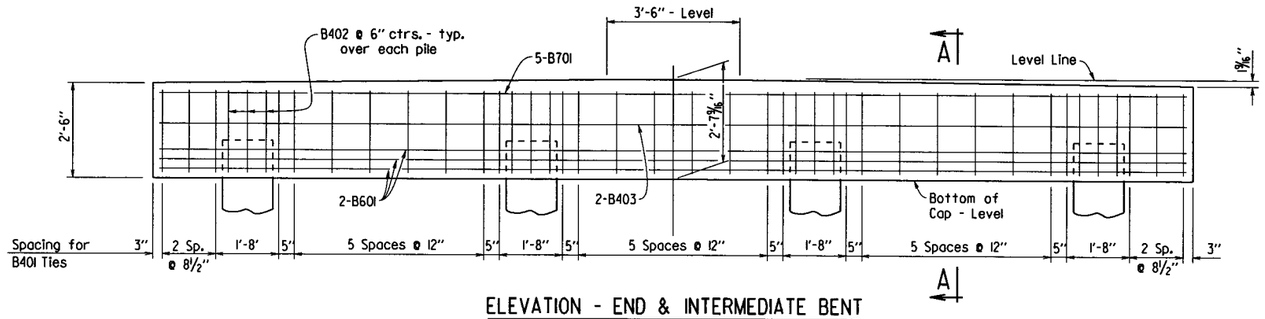
PLAN - END & INTERMEDIATE BENT

Scale: ½" = 1'-0"

BAR LIST - PER BENT

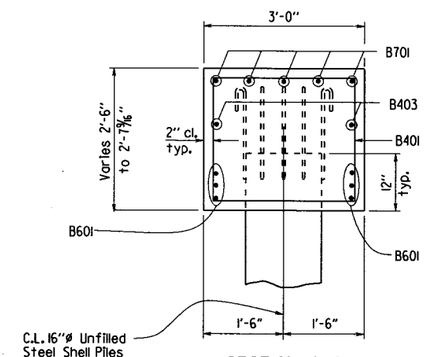
MARK	NO. REQ'D. END BT.	NO. REQ'D. INT. BT.	LENGTH	P.D.	BENDING DIAGRAMS
B401	30	30	10'-0"	2"	Dimensions are out to out of bars.
B402	12	12	6'-10"	2"	
B403	2	2	27'-2"	Str.	
B601	6	6	27'-2"	Str.	
B701	5	5	27'-2"	Str.	
S701	14	28	2'-0"	Str.	





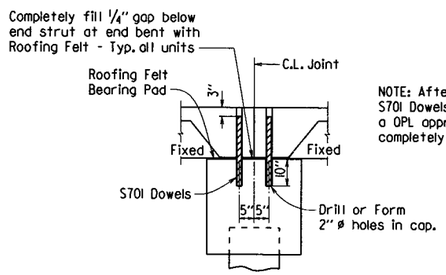
ELEVATION - END & INTERMEDIATE BENT

Scale: ½" = 1'-0"



SECTION A-A

No Scale



NOTE: After each unit is in its final position, S701 Dowels shall be grouted in place using a OPL approved non-shrink grout that completely fills the holes.

SECTION AT FIXED BENT

No Scale

General Notes

All concrete shall be Class "S" and have a minimum 28 day compressive strength f'c = 3500 psi. All exposed corners shall be chamfered ¾" unless otherwise noted.

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

For Details of Unfilled Steel Shell Piles, see Dwg. No. 60076.

For Details of 31'-0" Precast Spans, See Std. Dwg. Nos. 15230 & 15240.

APPROXIMATE QUANTITIES

(Per Bent)

Bent Type	Class "S" Concrete -Bridge	Reinforcing Steel (Gr. 60) -Bridge
Int.	7.9 Cu. Yds.	928 Lbs.
End	7.9 Cu. Yds.	871 Lbs.

(For Information Only)

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9233
2-15-18
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF PILE BENTS FOR TEMPORARY BRIDGE (16" DIA. UNFILLED STEEL SHELL PILES) PRECAST CONCRETE SPANS - 24'-6" RDWY.

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/03/17 FILENAME: bl00870_tb.dgn

CHECKED BY: DHP DATE: 2/14/18 SCALE: As Shown

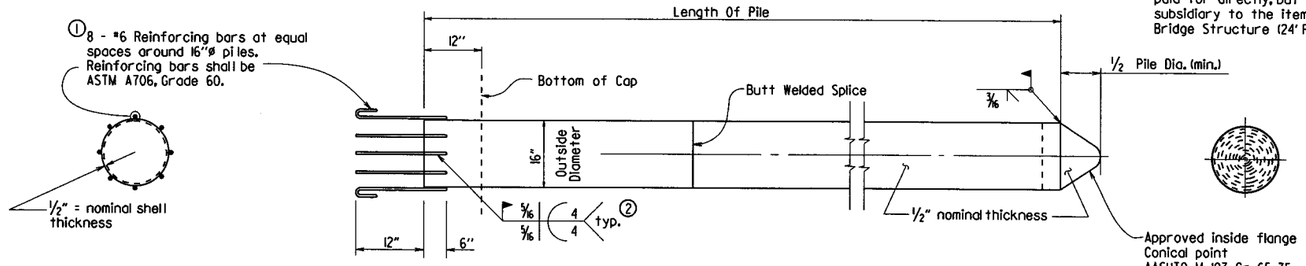
DESIGNED BY: DHP DATE: 4/2011

BRIDGE NO. 07419 & 07420 DRAWING NO. 60075

PRINT DATE: 2/14/2018

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.		100870	60	101

① 07419 & 07420 - PILE DETAILS - 60076

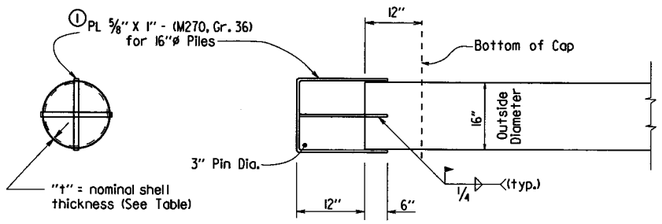


NOTE: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Temporary Bridge Structure (24' Roadway Width)".

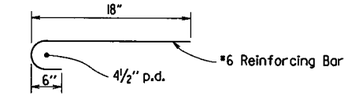
② Welding shall comply with ANSI/AWS D1.4 Structural Welding Code-Reinforcing Steel and applicable portions of ANSI/AWS D1.5 Bridge Welding Code.

UNFILLED STEEL SHELL PILES

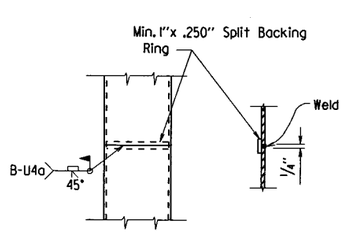
① Straps or reinforcing bars shall be placed to minimize interfence with dowel bars and cap reinforcing



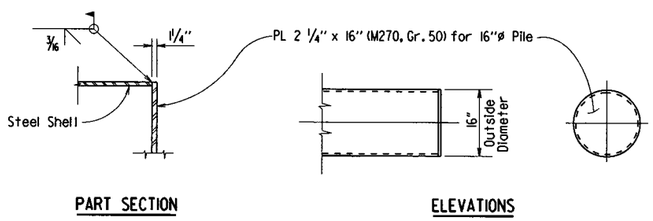
ALTERNATE CONNECTION DETAIL



TYP. HOOKED BAR DETAIL

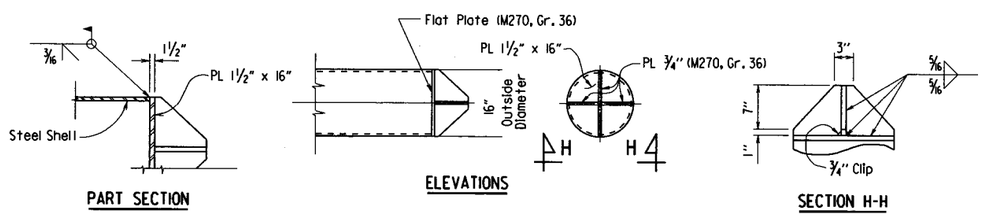


SPLICE DETAILS



PART SECTION ELEVATIONS

ALTERNATE FLAT TIP DETAIL



PART SECTION ELEVATIONS SECTION H-H

ALTERNATE VANED TIP DETAIL

GENERAL NOTES FOR UNFILLED STEEL SHELL PILES

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

Steel shell piling shall comply with Section 805, except piling shall not be filled with concrete after driving.

See temporary bridge layout for additional driving information.

Steel shell piling will not be paid for directly but shall be included in the item "Temporary Bridge Structure (24' Roadway Width)".

Painting of steel piles will not be required.

Steel shell piling may be driven open or closed ended.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-15-18
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF UNFILLED STEEL SHELL PILES FOR TEMPORARY BRIDGE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

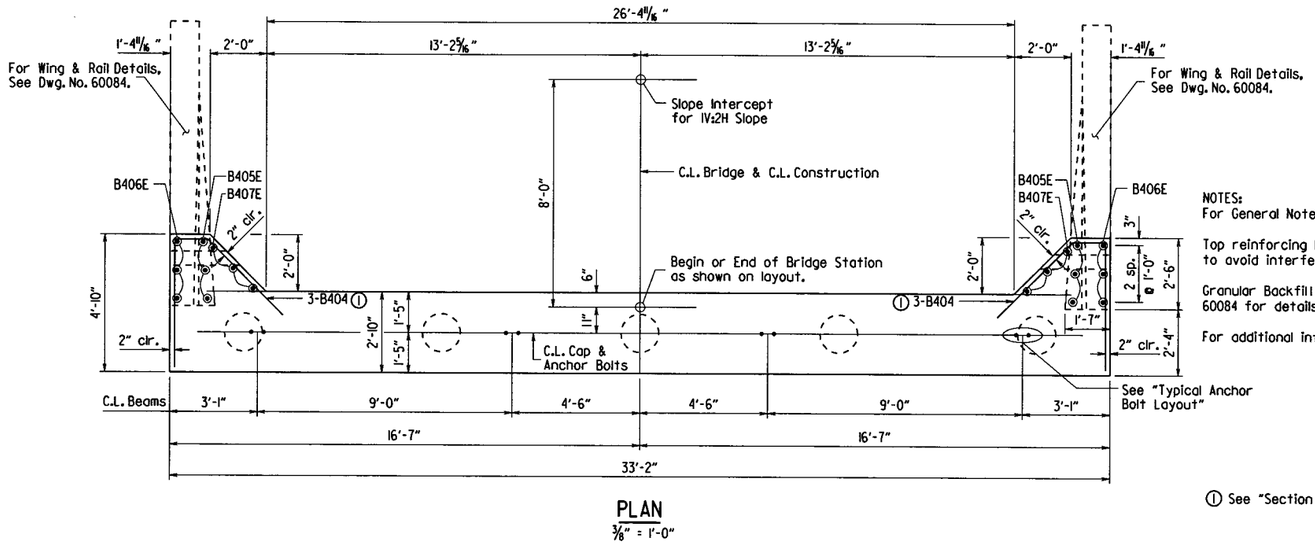
DRAWN BY: CGP DATE: 11/03/17
CHECKED BY: DHP DATE: 2/14/18
DESIGNED BY: DHP DATE: 4/26/17

FILENAME: bl00870_tssp.dgn
SCALE: None

BRIDGE NO. 07419 & 07420 DRAWING NO. 60076

PRINT DATE: 2/14/2018

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.		100870	62	101
				① 07419 - END BENTS - 60077				



PLAN
3/8" = 1'-0"

NOTES:
For General Notes, see Std. Dwg. No. 55006.

Top reinforcing bars and pile anchorage in cap shall be properly placed to avoid interference with anchor bolts.

Granular Backfill and Pipe Underdrain required behind cap, see Dwg. No. 60084 for details.

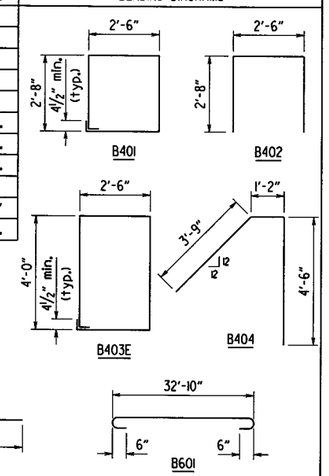
For additional information, see Layout.

① See "Section A-A" on Dwg. No. 60084.

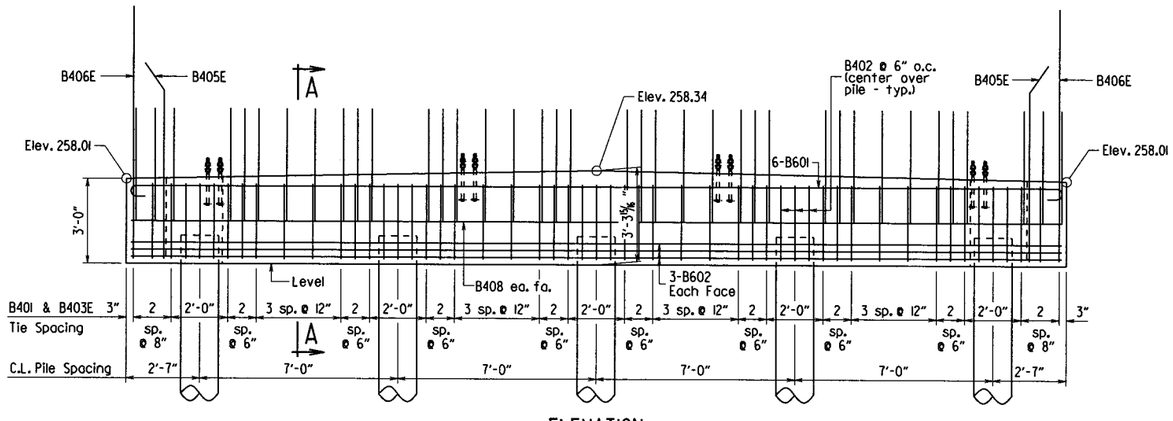
BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	38	10'-8"	2"
B402	15	7'-8"	2"
B403E	38	13'-4"	2"
B404	6	9'-4"	2"
B405E	6	7'-9"	2"
B406E	6	8'-11"	Str.
B407E	6	5'-5"	Str.
B408	2	32'-10"	Str.
B601	6	34'-2"	4 1/2"
B602	6	32'-10"	Str.

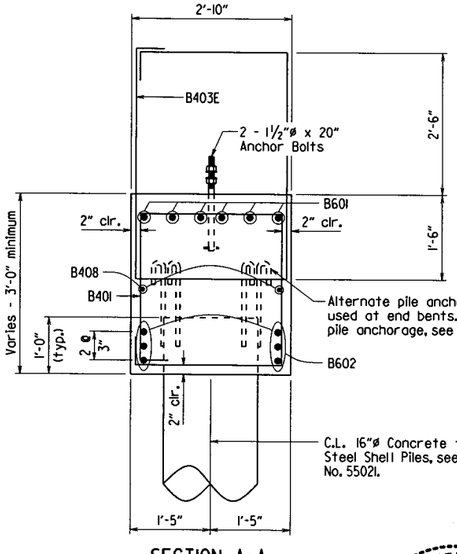
BENDING DIAGRAMS



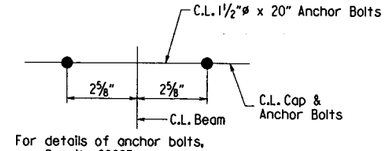
Dimensions are out to out of bars.
Bars with an "E" suffix are to be epoxy coated.



ELEVATION
Looking Back Bent 1
Looking Ahead Bent 4
3/8" = 1'-0"



SECTION A-A
3/4" = 1'-0"



For details of anchor bolts, see Dwg. No. 60083.

TYPICAL ANCHOR BOLT LAYOUT
No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-15-18
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF END BENTS
HURRICANE DITCH

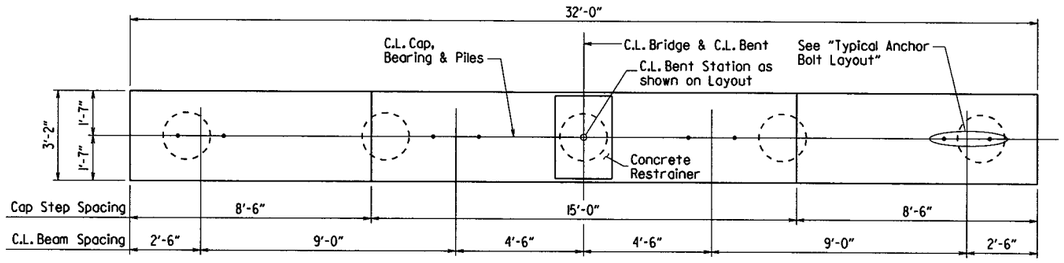
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 9/07/17
CHECKED BY: DHP DATE: 2/14/18
DESIGNED BY: DHP DATE: 4/2017
FILENAME: bl00870xl_bl.dgn
SCALE: As Shown

BRIDGE NO. 07419 DRAWING NO. 60077

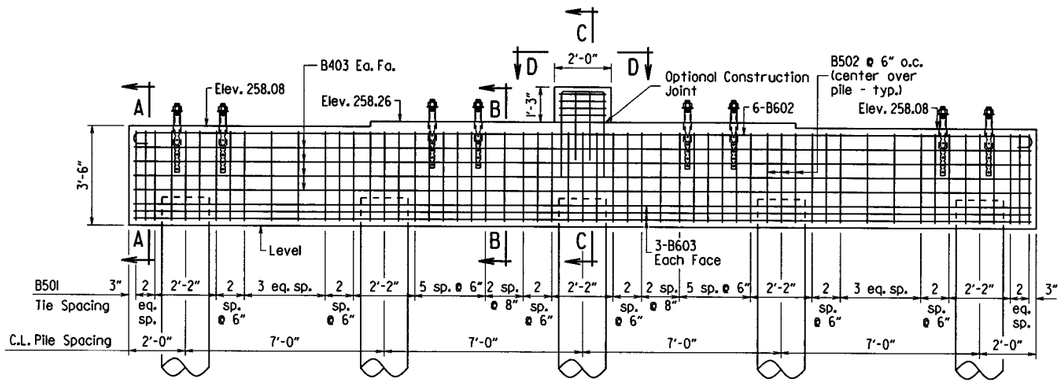
PRINT DATE: 2/14/2018

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.		100870	63	101
				①		07419 - INT. BENTS 2 & 3 - 60078		



PLAN

3/8" = 1'-0"



ELEVATION

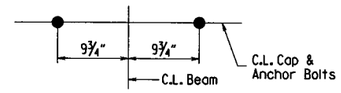
Looking Ahead

3/8" = 1'-0"

NOTES:
For General Notes, see Std. Dwg. No. 55006.

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

For additional information, see Layout.



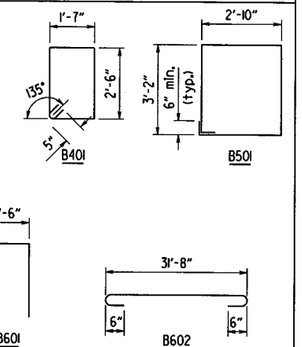
For details of anchor bolts, see Dwg. No. 60079.

TYPICAL ANCHOR BOLT LAYOUT

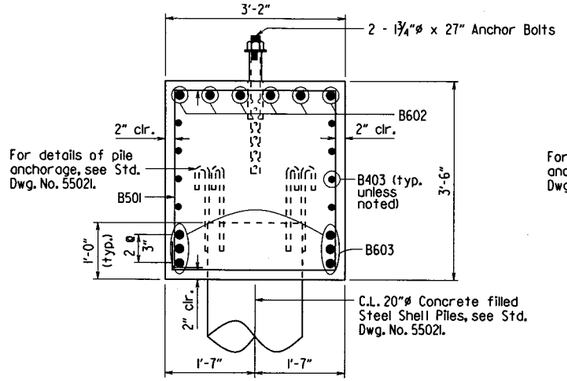
No Scale

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B401	4	8'-8"	3"	
B402	4	2'-4"	Str.	
B403	8	31'-8"	Str.	
B501	42	12'-6"	2½"	
B502	15	9'-0"	2½"	
B601	3	7'-2"	4½"	
B602	6	33'-0"	4½"	
B603	6	31'-8"	Str.	

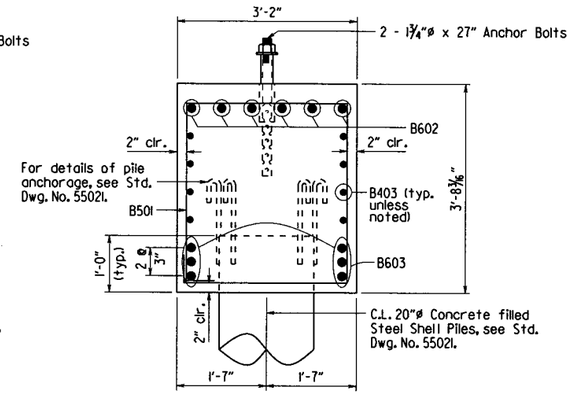


Dimensions are out to out of bars.



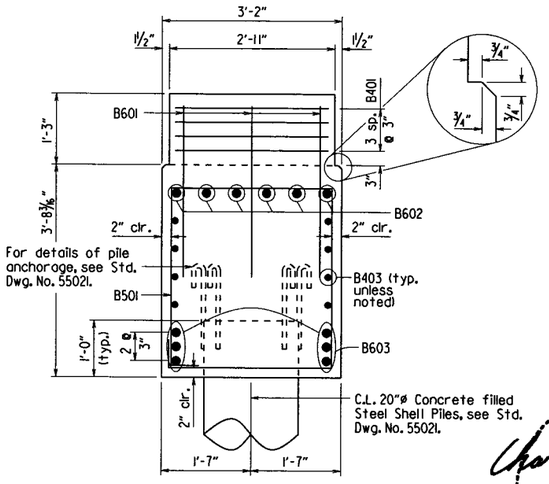
SECTION A-A

3/4" = 1'-0"



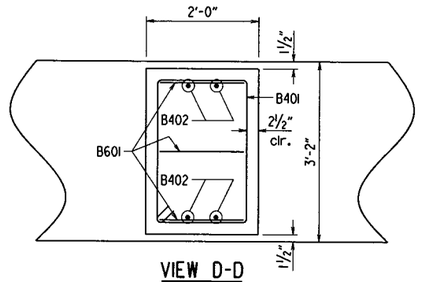
SECTION B-B

3/4" = 1'-0"



SECTION C-C

3/4" = 1'-0"



VIEW D-D

3/4" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-5-18
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF INTERMEDIATE BENTS HURRICANE DITCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 9/07/17 FILENAME: bl00870xl_b2.dgn

CHECKED BY: Diff DATE: 2/14/18 SCALE: As Shown

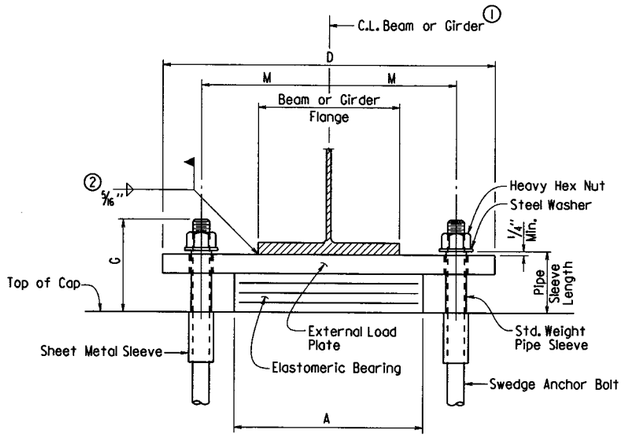
DESIGNED BY: Diff DATE: 4/2017

BRIDGE NO. 07419 DRAWING NO. 60078

PRINT DATE: 2/14/2018

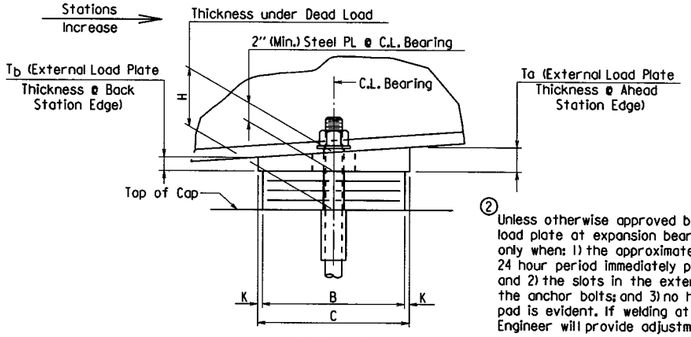
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	64	101

① 07419 & 07420-ELASTO. BEARINGS-60079



FRONT VIEW

① C.L Elastomeric Pad shall be aligned with C.L. Beam or Girder.



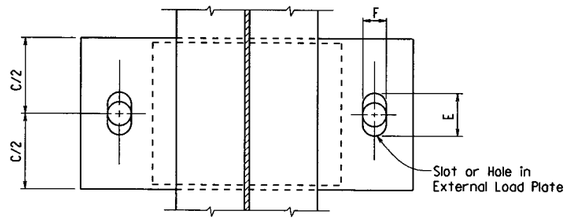
SIDE VIEW

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

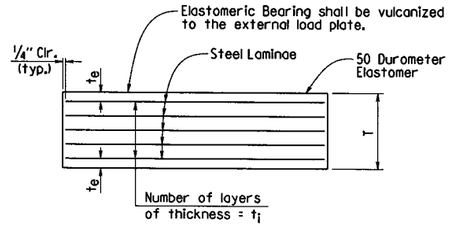
The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in the "Table of Fabricator Variables".

② Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam or girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

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



PLAN VIEW

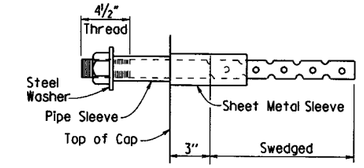


t_e = Thickness of elastomer cover on top and bottom of pad

t_i = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_i

ELASTOMERIC BEARING



ANCHOR BOLT DETAIL

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

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50W)"

TABLE OF FABRICATOR VARIABLES

③ Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION: BENT NO(S).	LOCATION: BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	③ MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD: A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	EXTERNAL LOAD PLATE: C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT: ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
07419	2	All	Fix	4	172	7"	3 3/16"	14 1/2"	11"	2	1/2"	1/4"	3 @ 12 ga.	1 3/16"	12"	25 1/2"	2 5/8"	2 5/8"	1/2"	9 3/4"	2.00"	2.00"	1 3/4" x 27"	55	2" x 4 1/8"	4" x 6"	3 3/8"
	3	All	Fix	4	172	7"	3 3/16"	14 1/2"	11"	2	1/2"	1/4"	3 @ 12 ga.	1 3/16"	12"	25 1/2"	2 5/8"	2 5/8"	1/2"	9 3/4"	2.00"	2.00"	1 3/4" x 27"	55	2" x 4 1/8"	4" x 6"	3 3/8"
07420	2	All	Fix	4	237	7 1/4"	3 3/16"	14 1/2"	14"	2	1/2"	1/4"	3 @ 12 ga.	1 3/16"	15"	26 1/2"	3 1/8"	3 1/8"	1/2"	10"	2.00"	2.00"	2" x 29"	55	2 1/2" x 4 1/8"	4" x 6"	3 3/4"
	3	All	Fix	4	237	7 1/4"	3 3/16"	14 1/2"	14"	2	1/2"	1/4"	3 @ 12 ga.	1 3/16"	15"	26 1/2"	3 1/8"	3 1/8"	1/2"	10"	2.00"	2.00"	2" x 29"	55	2 1/2" x 4 1/8"	4" x 6"	3 3/4"

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings".

External load plates shall conform to AASHTO M 270, 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 (M270, Gr. 50W)". External load plates will not be measured and paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

Bearings shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-15-18
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS HURRICANE DITCH & BIG SLOUGH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 5/23/17 FILENAME: bl00870_el.dgn

CHECKED BY: DHP DATE: 2/14/18 SCALE: No Scale

DESIGNED BY: DHP DATE: 4/2017

BRIDGE NO. 07419 & 07420 DRAWING NO. 60079

PRINT DATE: 2/14/2018

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.		100870	65	101
				① 07419 - 140'-0" UNIT - 60080				

Slab Reinforcing:

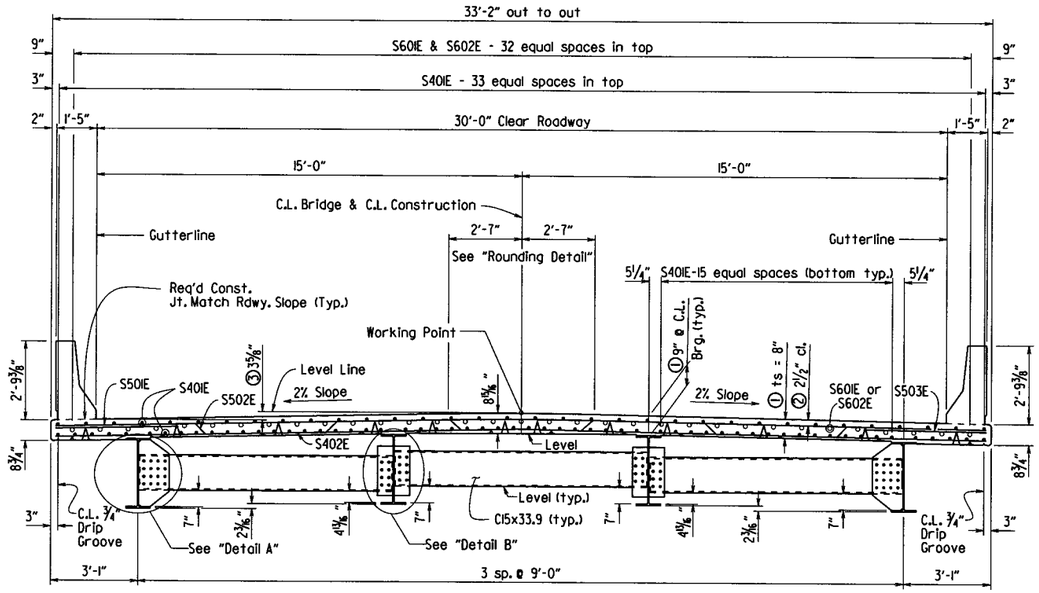
Longitudinal: S401E in top and bottom (place as shown)
S601E over intermediate supports and
S602E at end supports, see "Reinforcing Plan & Pouring Sequence" Dwg. No. 60083

Transverse: S501E @ 12" o.c. in top, S402E @ 12" o.c. in bottom — Alternate
S502E @ 12" o.c. bent up over beams
S503E @ 6" in top of overhangs (bundled with #5 bars) both sides

① See "Adjustment for Slab Thickness Tolerance".

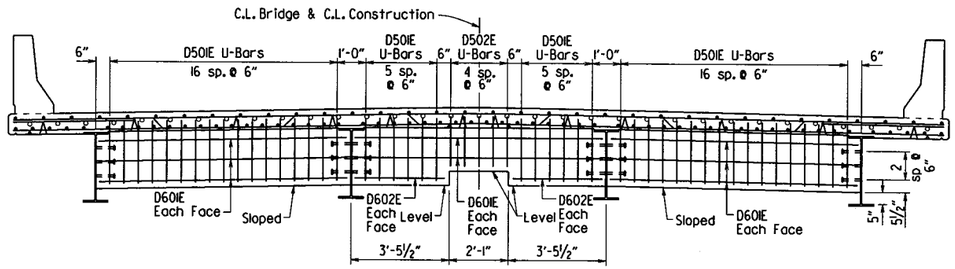
② Tolerance: Minus = 1/4";
Plus = to the amount of slab thickening used to meet slab thickness tolerance.
See "Adjustments for slab thickness tolerance"

③ Working Point to gutterline.



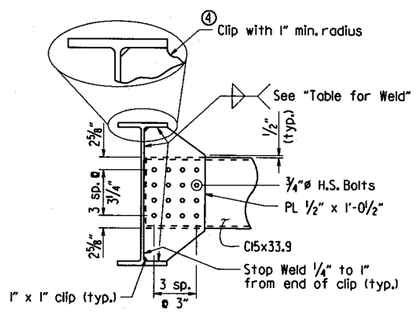
TYPICAL ROADWAY SECTION

LOOKING AHEAD
⅜" = 1'-0"



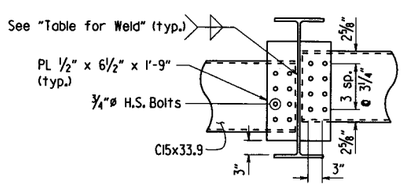
TYPICAL ROADWAY SECTION AT INTERMEDIATE BENTS

LOOKING AHEAD
⅜" = 1'-0"



DETAIL A

1" = 1'-0"



DETAIL B

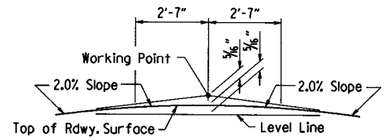
1" = 1'-0"

④ If permanent steel bridge deck forms are used, the Fabricator shall clip plates as necessary to accommodate the deck form supports.

NOTES:
At the Contractor's option, in lieu of providing bars S502E, one epoxy coated #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S502E. Bars in top and bottom shall be epoxy coated.

Class I Protective Surface Treatment shall be applied to the Roadway Surface and to the Face & Top of the Concrete Parapet Rail.

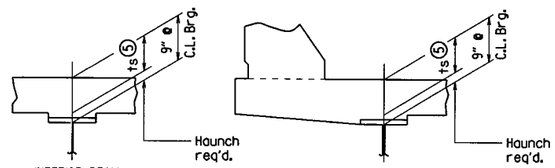
Bar positions or clearances from the forms shall be maintained by means of stays, ties, hangers or other approved devices per Subsection 804.06.



Note: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

NO SCALE



⑤ Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

ts = slab thickness as shown in "Typical Roadway Section"

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

NO SCALE

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

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

TABLE FOR WELD

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	5/16"	

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

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-27-18
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 6
DETAILS OF 140'-0" CONTINUOUS COMPOSITE INTEGRAL W-BEAM UNIT HURRICANE DITCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

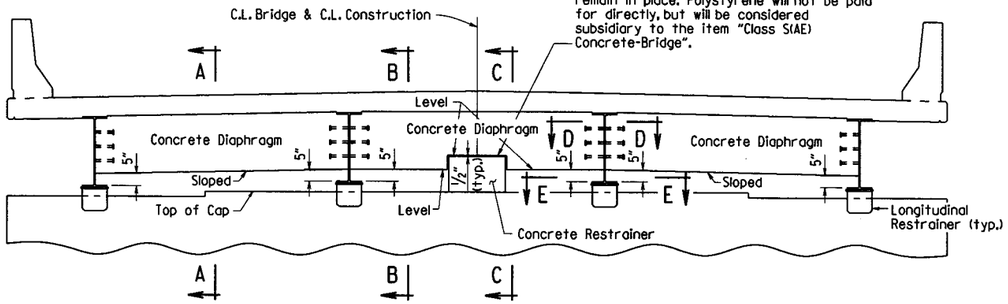
DRAWN BY: CGP DATE: 5/23/17 FILENAME: bl00870x1_sl.dgn
CHECKED BY: DHP DATE: 2/16/18 SCALE: As Shown
DESIGNED BY: DHP DATE: 4/22/17
BRIDGE NO. 07419 DRAWING NO. 60080

PRINT DATE: 3/12/2018

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.		100870	606	101
				07419 - 140'-0" UNIT - 60081				

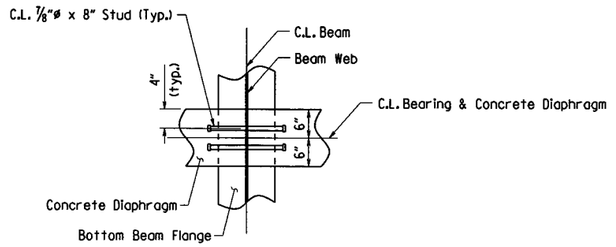
1

½" polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place. Polystyrene will not be paid for directly, but will be considered subsidiary to the item "Class S(AE) Concrete-Bridge".



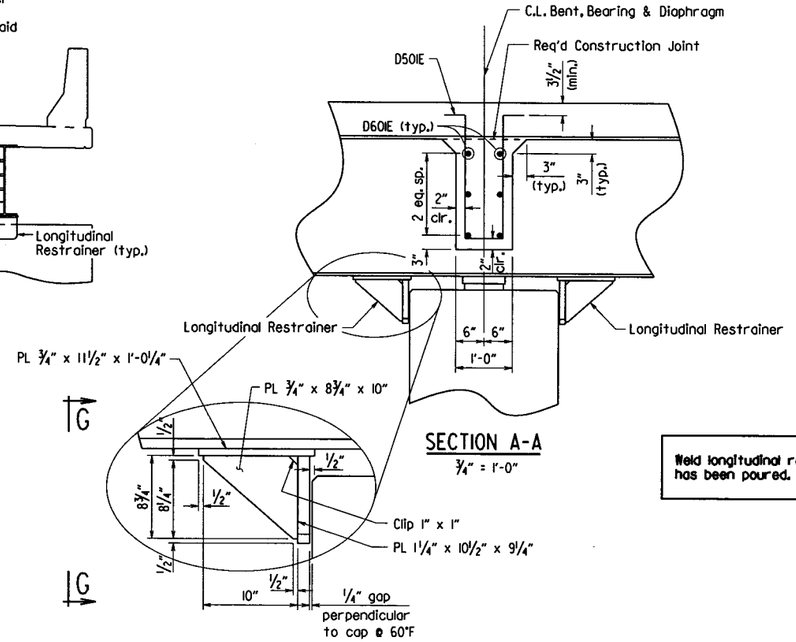
TYPICAL ROADWAY SECTION AT INTERMEDIATE BENTS SHOWING SEISMIC RESTRAINERS

LOOKING AHEAD
⅜" = 1'-0"



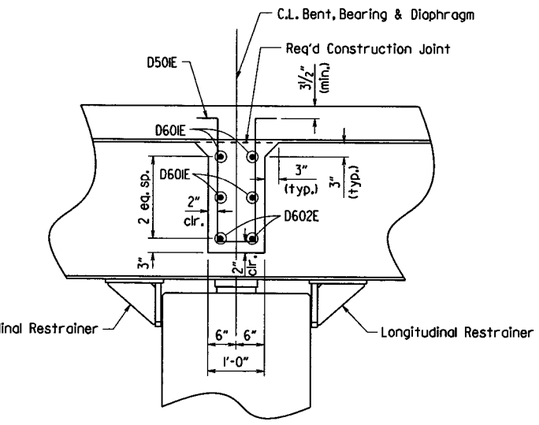
SECTION D-D

¾" = 1'-0"



SECTION A-A

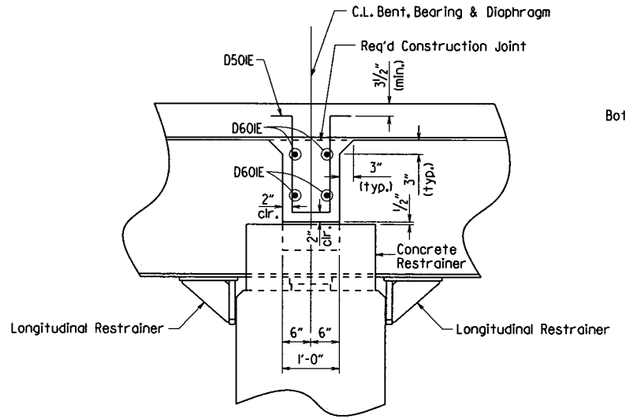
¾" = 1'-0"



SECTION B-B

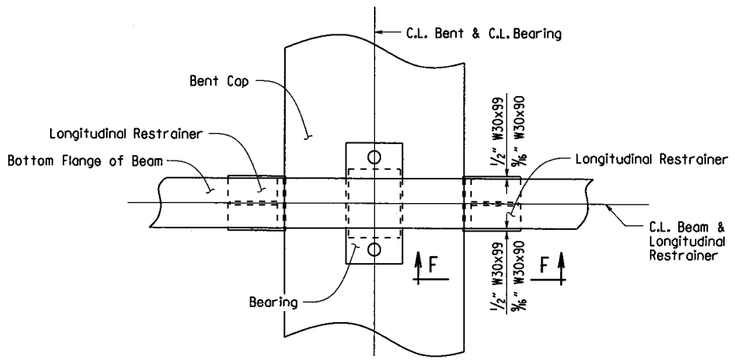
¾" = 1'-0"

Weld longitudinal restrainers after deck has been poured.



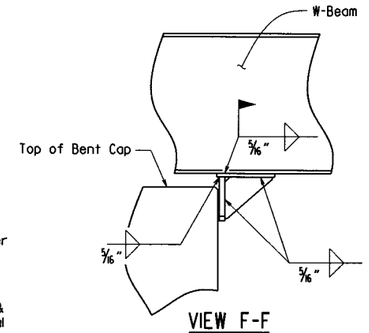
SECTION C-C

¾" = 1'-0"



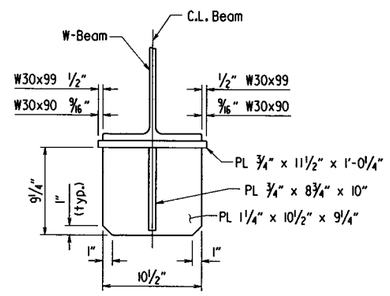
VIEW E-E

NO SCALE



VIEW F-F

(Showing Welds)
NO SCALE



VIEW G-G

1½" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-15-18
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 6
DETAILS OF 140'-0" CONTINUOUS COMPOSITE INTEGRAL W-BEAM UNIT HURRICANE DITCH

ROUTE SEC.

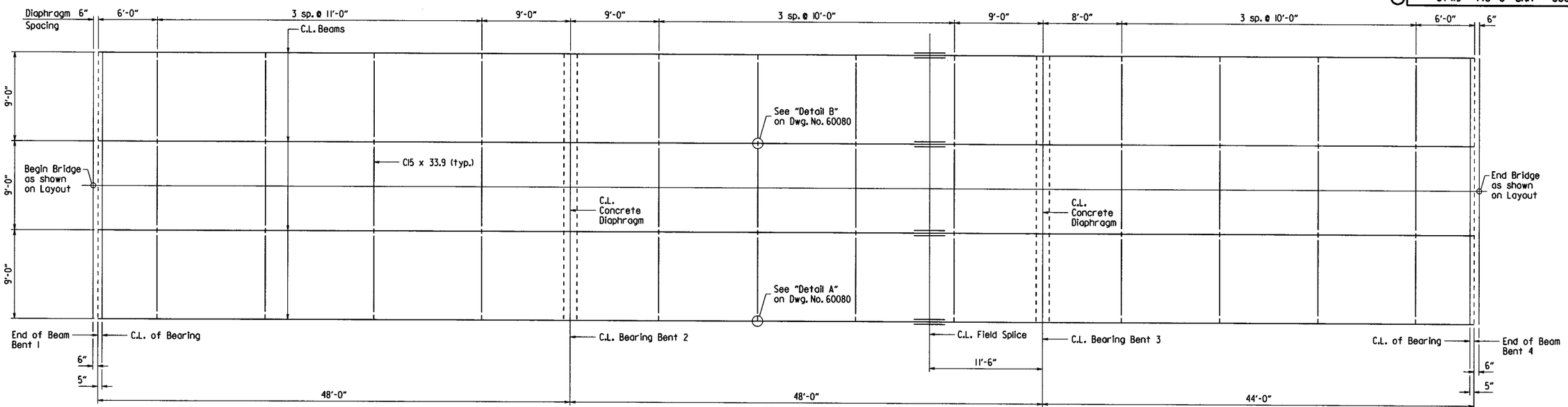
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 5/23/17 FILENAME: bl00870xl_sl.dgn
CHECKED BY: DHP DATE: 2/14/18 SCALE: As Shown
DESIGNED BY: DHP DATE: 4/2017
BRIDGE NO. 07419 DRAWING NO. 60081

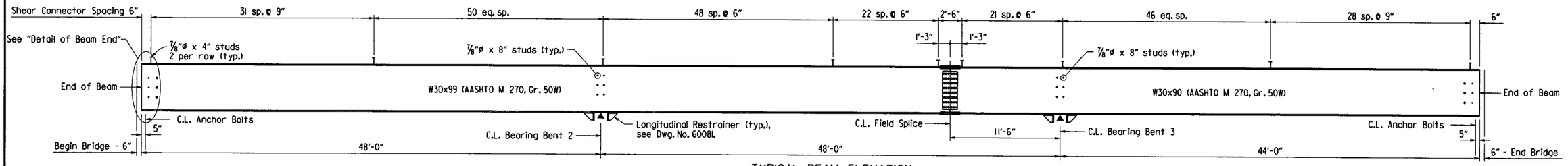
PRINT DATE: 2/14/2018

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.		100870	6	101
				1		07419 - 140'-0" UNIT - 60082		



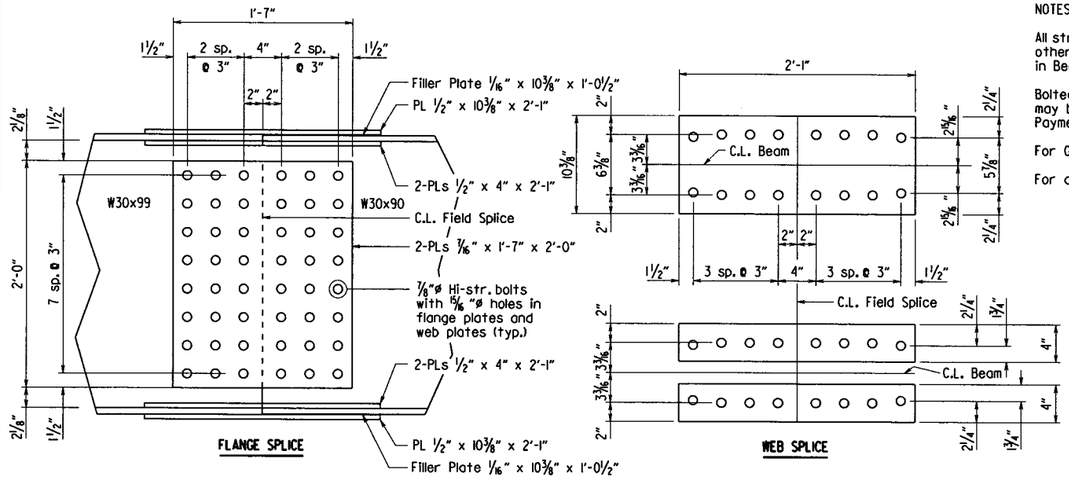
FRAMING PLAN

3/16" = 1'-0"



TYPICAL BEAM ELEVATION

NO SCALE



DETAILS OF FIELD SPLICE

NO SCALE

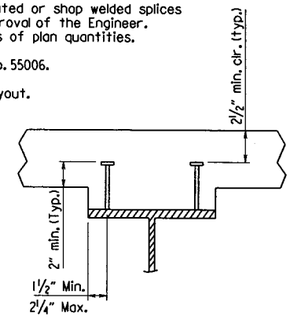
NOTES:

All structural steel shall be AASHTO M 270, Gr. 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W).

Bolted field splices may be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.

For General Notes, see Std. Dwg. No. 55006.

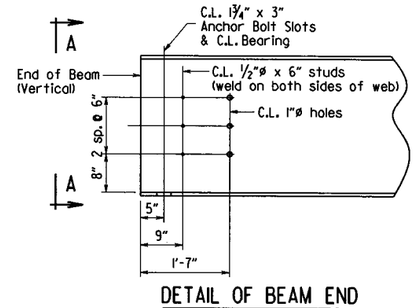
For additional information, see Layout.



Stud Shear Connectors shown shall be ⅞"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

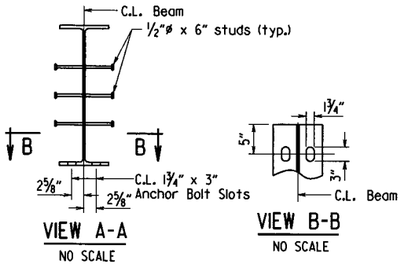
SHEAR CONNECTOR DETAIL

NO SCALE



DETAIL OF BEAM END

NO SCALE



VIEW A-A

NO SCALE

VIEW B-B

NO SCALE

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-15-18
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 6
DETAILS OF 140'-0" CONTINUOUS COMPOSITE INTEGRAL W-BEAM UNIT HURRICANE DITCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 5/23/17 FILENAME: bl00870xl_sl.dgn

CHECKED BY: DHF DATE: 2/14/18 SCALE: As Shown

DESIGNED BY: DHF DATE: 4/2017

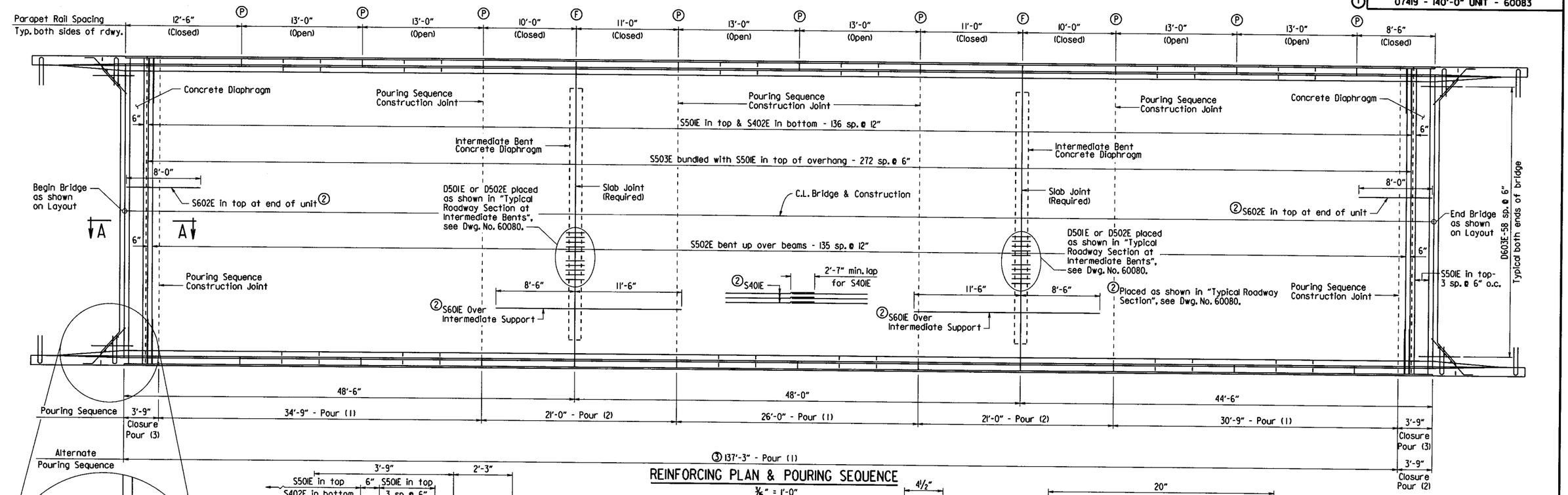
BRIDGE NO. 07419 DRAWING NO. 60082

PRINT DATE: 2/14/2018

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.		100870	68	101
				①		07419 - 140'-0" UNIT - 60083		

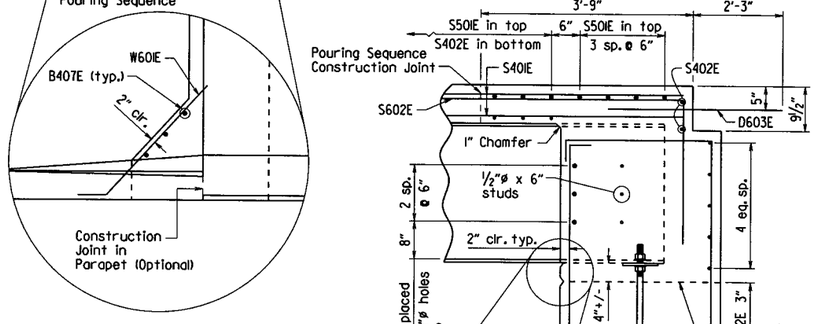
③ Direction of pour shall be from near Bent 4 progressing to Bent 1. If stay-in-place are used and installed in a manner that requires pouring of the slab in the opposite direction, this Alternate Pouring Sequence shall be modified accordingly to where Closure Pour (2) is at Bent 1 and Pour (1) progresses from near Bent 1 to Bent 4.

(F) C.L. Full Depth Parapet Joint (¼"-1" max.) Stop 4" from top of slab.
(P) C.L. Partial Depth Parapet Joint (¼"-1" max.) Stop 1'-2" from top of slab.



REINFORCING PLAN & POURING SEQUENCE

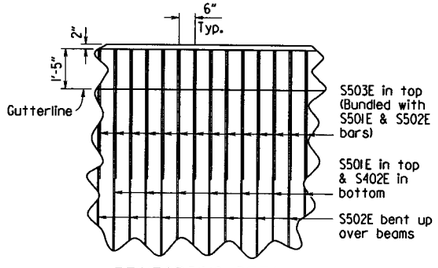
3/16" = 1'-0"



SECTION A-A

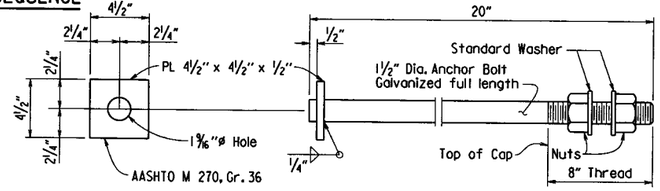
NO SCALE

① See End Bent Details on Dwg. No. 60077 for reinforcing and additional details.



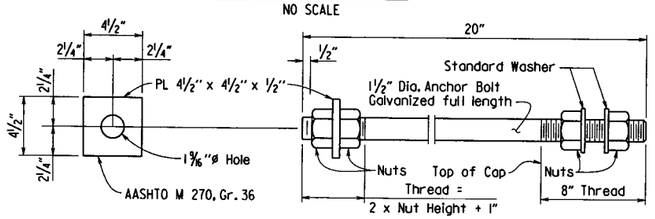
REINFORCING DETAIL

NO SCALE



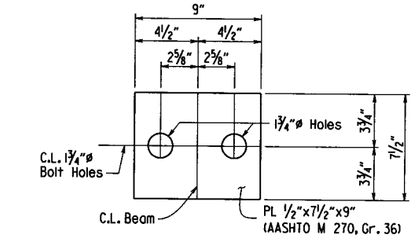
ANCHOR BOLT DETAIL

NO SCALE



ALTERNATE ANCHOR BOLT DETAIL

NO SCALE



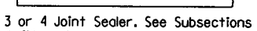
BEARING PLATE DETAIL

NO SCALE

Anchor bolts shall comply with AASHTO M 314, Grade 55, with Supplementary Requirement S1, and galvanized according to Subsection 807.07. Nuts and Washers for bolts shall be as specified in Subsection 807.07.

Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.

Plates, bolts, nuts, and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M 270, Gr. 50W)".



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

TRANSVERSE SLAB JOINT DETAIL

NO SCALE

NOTES:
Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) & all Pours (2) must be placed before Pours (3) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between adjacent pours. **No deviations from the pouring sequences shown will be allowed.**

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.

Any railing pours made before the entire slab unit has been placed must be approved by the Engineer.

Unless otherwise noted, required slab joints and pouring sequence construction joints shall align with parapet joints at the gutterline.

Concrete diaphragms at end bents shall be poured monolithically with the deck. A minimum of 48 hours shall elapse between the intermediate bent diaphragm pour and the deck slab pour.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-27-18
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 4 OF 6
DETAILS OF 140'-0" CONTINUOUS COMPOSITE INTEGRAL W-BEAM UNIT HURRICANE DITCH

ROUTE SEC.

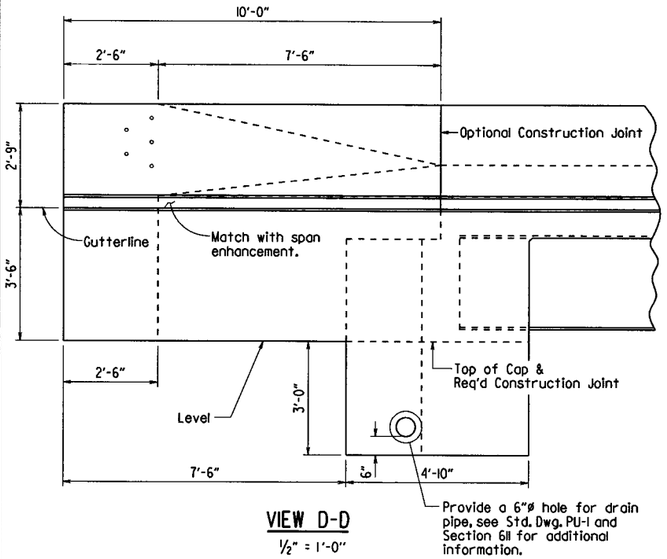
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 5/23/17 FILENAME: bl00870x1_sl.dgn
CHECKED BY: DHT DATE: 2/16/18 SCALE: As Shown
DESIGNED BY: DHT DATE: 4/26/17
BRIDGE NO. 07419 DRAWING NO. 60083

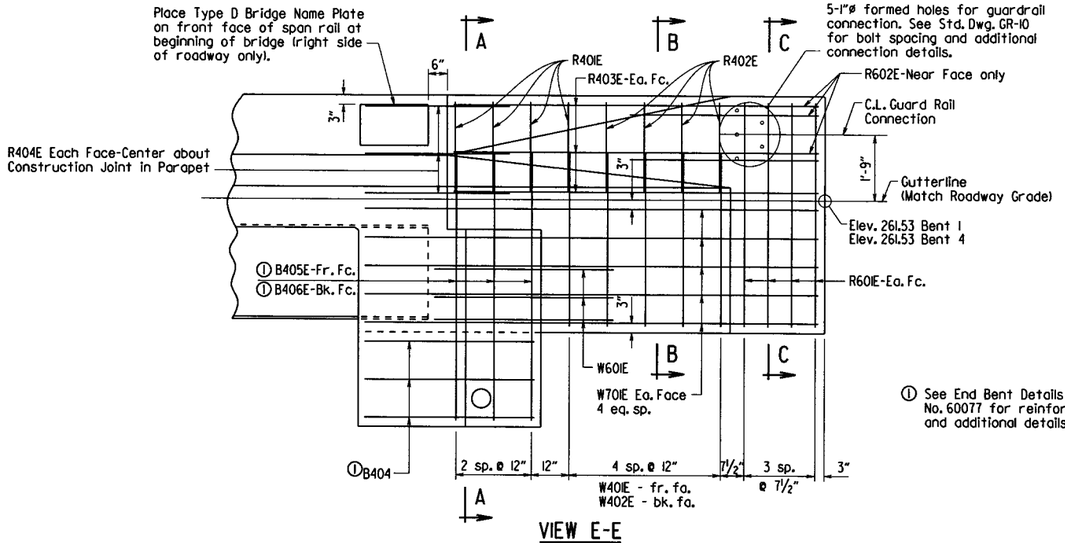
PRINT DATE: 3/12/2018

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.		100870	69	101
				① 07419 - 140'-0" UNIT - 60084				



VIEW D-D

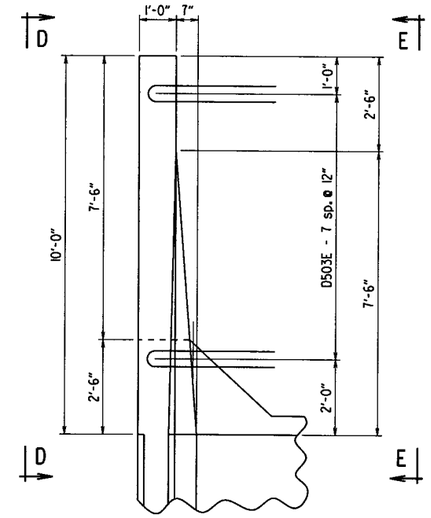
½" = 1'-0"



VIEW E-E

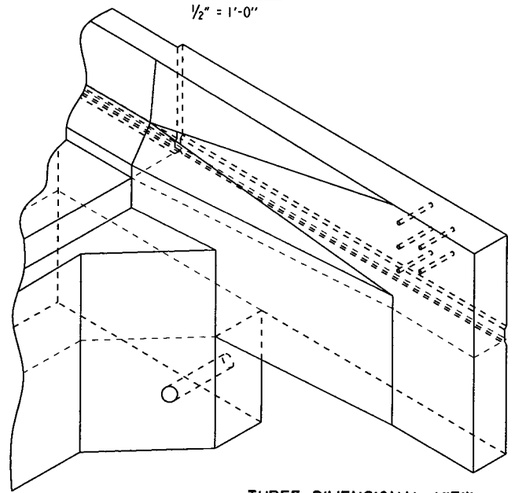
½" = 1'-0"

① See End Bent Details on Dwg. No. 60077 for reinforcing and additional details.



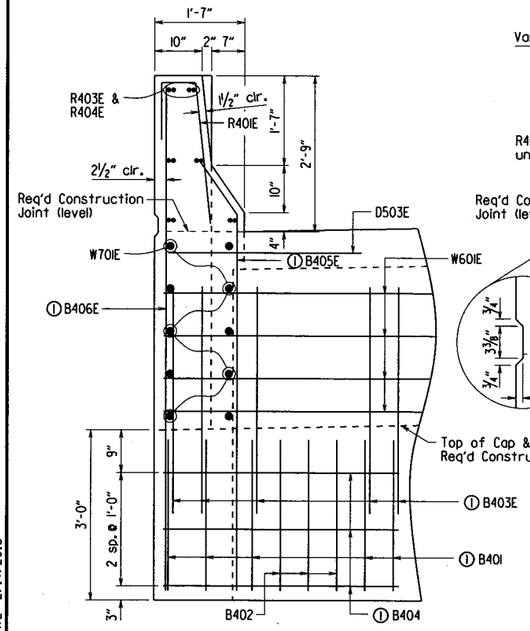
PLAN OF RAIL

½" = 1'-0"



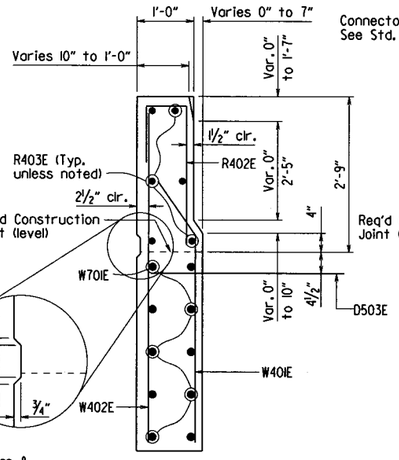
THREE DIMENSIONAL VIEW OF INTEGRAL BENT

NO SCALE



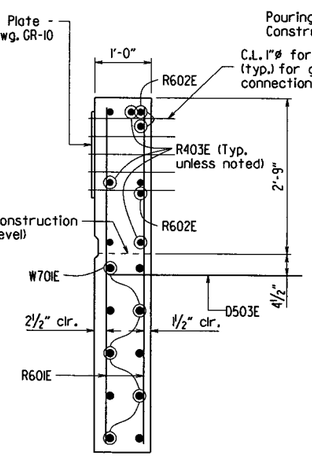
SECTION A-A

¾" = 1'-0"



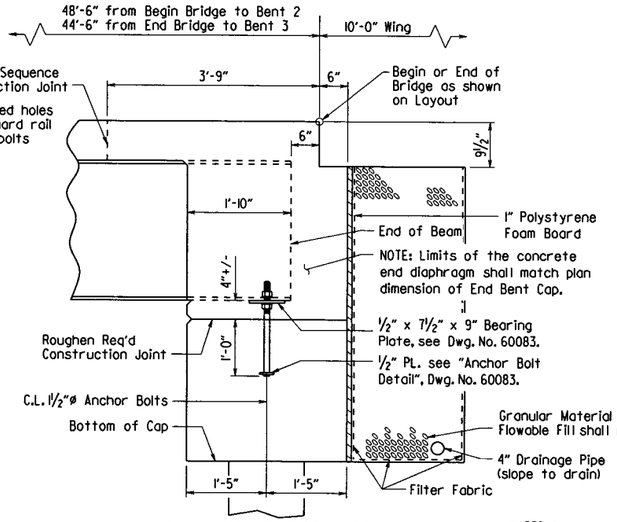
SECTION B-B

¾" = 1'-0"



SECTION C-C

¾" = 1'-0"



SECTION AT END BENT

NO SCALE

NOTES:

For additional details of pipe underdrain see Std. Dwg. PU-1 and Section 611. Pipe underdrains will not be measured or paid for separately, but will be considered subsidiary to the unit price bid for "Unclassified Excavation".

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.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-15-18
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 6
DETAILS OF 140'-0" CONTINUOUS COMPOSITE INTEGRAL W-BEAM UNIT HURRICANE DITCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 5/23/17 FILENAME: bl00870xl_sl.dgn
CHECKED BY: DHP DATE: 2/14/18 SCALE: As Shown
DESIGNED BY: DHP DATE: 4/2017
BRIDGE NO. 07419 DRAWING NO. 60084

PRINT DATE: 2/14/2018

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.		100870	70	101

07419 - 140'-0" UNIT - 60085

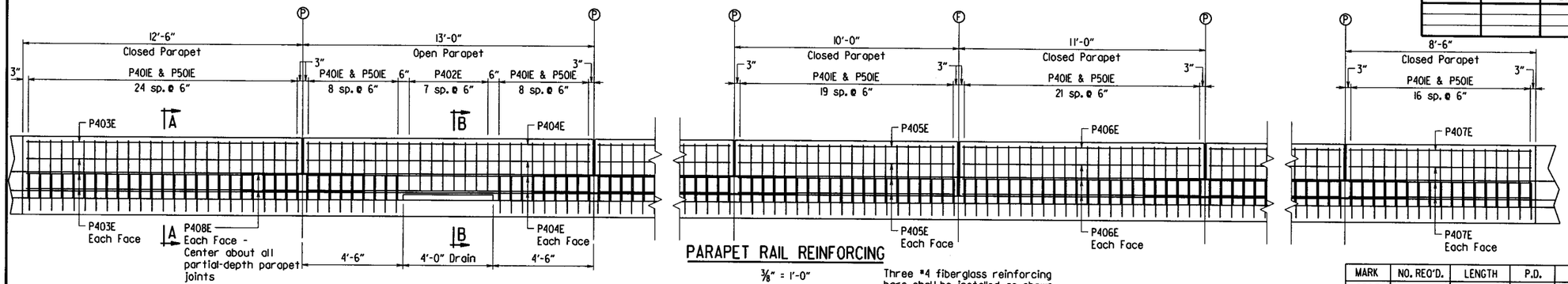
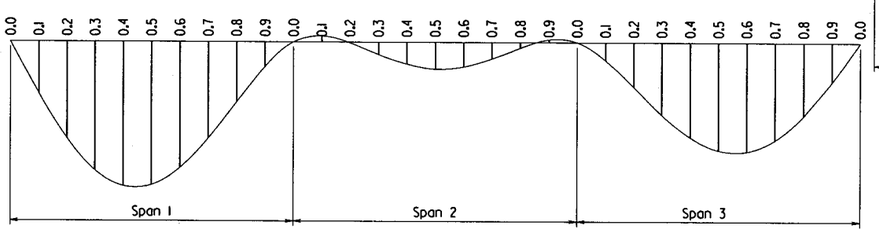


TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
1	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.023	0.021	0.212	0.175	0.226	0.190
	0.2	0.043	0.039	0.395	0.326	0.422	0.354
	0.3	0.057	0.052	0.525	0.433	0.560	0.470
	0.4	0.064	0.058	0.589	0.486	0.629	0.528
	0.5	0.064	0.057	0.584	0.482	0.623	0.523
	0.6	0.056	0.050	0.515	0.425	0.550	0.461
	0.7	0.043	0.039	0.395	0.326	0.422	0.354
	0.8	0.027	0.024	0.246	0.203	0.263	0.220
	0.9	0.011	0.010	0.101	0.083	0.108	0.090
2	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	-0.002	-0.002	-0.024	-0.020	-0.026	-0.022
	0.2	0.001	0.001	0.004	0.003	0.004	0.003
	0.3	0.006	0.006	0.050	0.041	0.053	0.044
	0.4	0.011	0.0100	0.090	0.074	0.096	0.080
	0.5	0.013	0.012	0.109	0.090	0.116	0.098
	0.6	0.012	0.011	0.100	0.082	0.107	0.089
	0.7	0.008	0.008	0.067	0.055	0.071	0.060
	0.8	0.003	0.003	0.022	0.018	0.023	0.020
	0.9	-0.001	0.000	-0.012	-0.010	-0.013	-0.011
3	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.007	0.006	0.074	0.061	0.079	0.066
	0.2	0.018	0.016	0.183	0.150	0.195	0.163
	0.3	0.030	0.026	0.296	0.243	0.316	0.263
	0.4	0.039	0.035	0.388	0.319	0.414	0.346
	0.5	0.045	0.040	0.442	0.364	0.471	0.395
	0.6	0.045	0.040	0.446	0.368	0.475	0.399
	0.7	0.040	0.036	0.398	0.328	0.424	0.356
	0.8	0.030	0.027	0.300	0.247	0.320	0.268
	0.9	0.016	0.015	0.162	0.133	0.173	0.144
	0	0.000	0.000	0.000	0.000	0.000	0.000

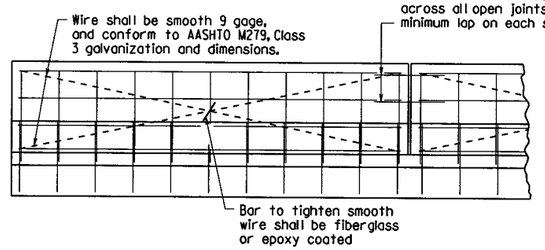


Camber for Dead Load Deflection plus Vertical curve +/-1/4" tolerance. Deflections shown are along C.L. Beam from a chord from C.L. Bearing to C.L. Bearing. Negative sign (-) indicates point above chord. Vertical curve corrections not included.

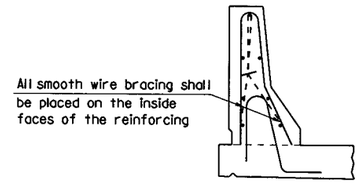
DEAD LOAD DEFLECTION DIAGRAM
NO SCALE

PARAPET RAIL REINFORCING

3/8" = 1'-0"



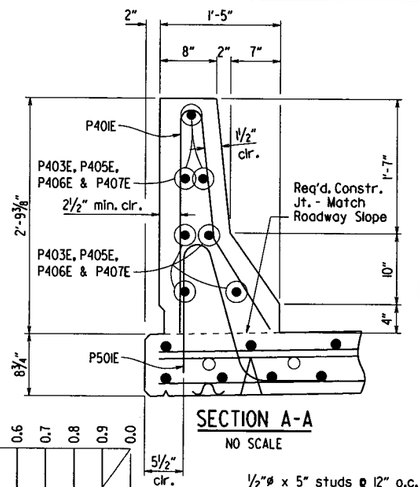
All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.



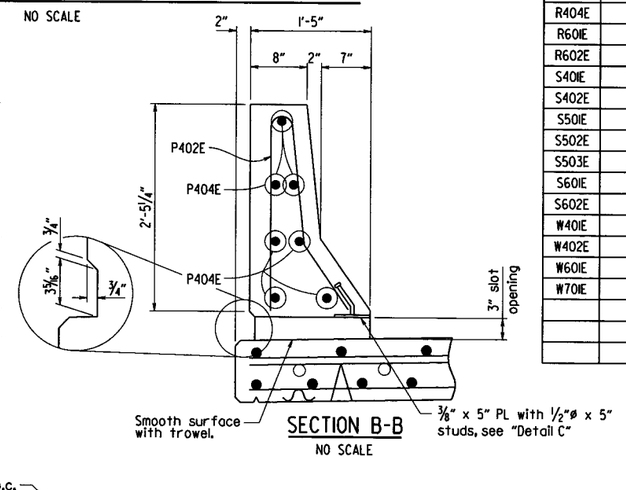
The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture.

DETAILS OF OPTIONAL SLIP FORMING OF CONCRETE PARAPET RAIL

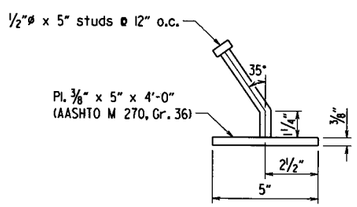
NO SCALE



SECTION A-A
NO SCALE



SECTION B-B
NO SCALE

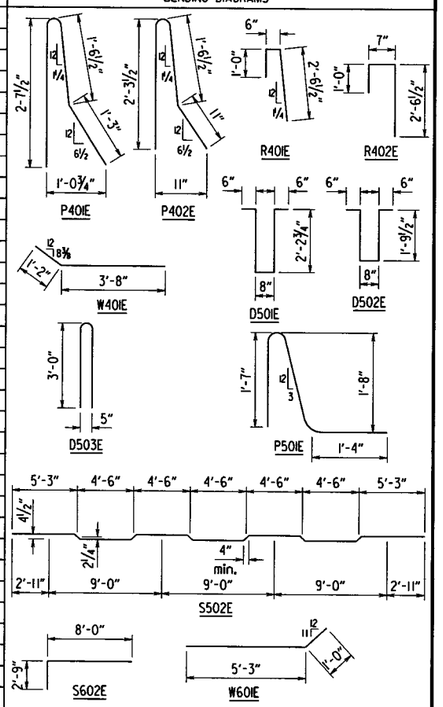


DETAIL C
NO SCALE

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
D501E	92	5'-9"	2 1/2"
D502E	10	4'-10"	2 1/2"
D503E	32	6'-2"	3 3/4"
D601E	32	8'-9"	Str.
D602E	8	3'-2"	Str.
D603E	118	4'-6"	Str.
P401E	468	5'-6"	3"
P402E	96	4'-10"	3"
P403E	14	12'-2"	Str.
P404E	84	12'-8"	Str.
P405E	28	9'-8"	Str.
P406E	28	10'-8"	Str.
P407E	14	8'-2"	Str.
P408E	72	5'-2"	Str.
P501E	468	4'-8"	3 3/4"
R401E	16	3'-11"	2"
R402E	16	4'-0"	2"
R403E	24	9'-8"	Str.
R404E	24	3'-10"	Str.
R601E	32	5'-11"	Str.
R602E	12	5'-0"	Str.
S401E	368	36'-11"	Str.
S402E	137	32'-10"	Str.
S501E	137	32'-10"	Str.
S502E	136	33'-6"	3"
S503E	274	4'-10"	Str.
S601E	66	20'-0"	Str.
S602E	66	10'-7"	4 1/2"
W401E	20	4'-10"	2"
W402E	20	5'-11"	Str.
W601E	6	6'-3"	4 1/2"
W701E	40	12'-0"	Str.

BENDING DIAGRAMS



Dimensions are out to out of bars.
Bars with an "E" suffix are to be epoxy coated.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-27-18
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 6 OF 6
DETAILS OF 140'-0" CONTINUOUS COMPOSITE INTEGRAL W-BEAM UNIT HURRICANE DITCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

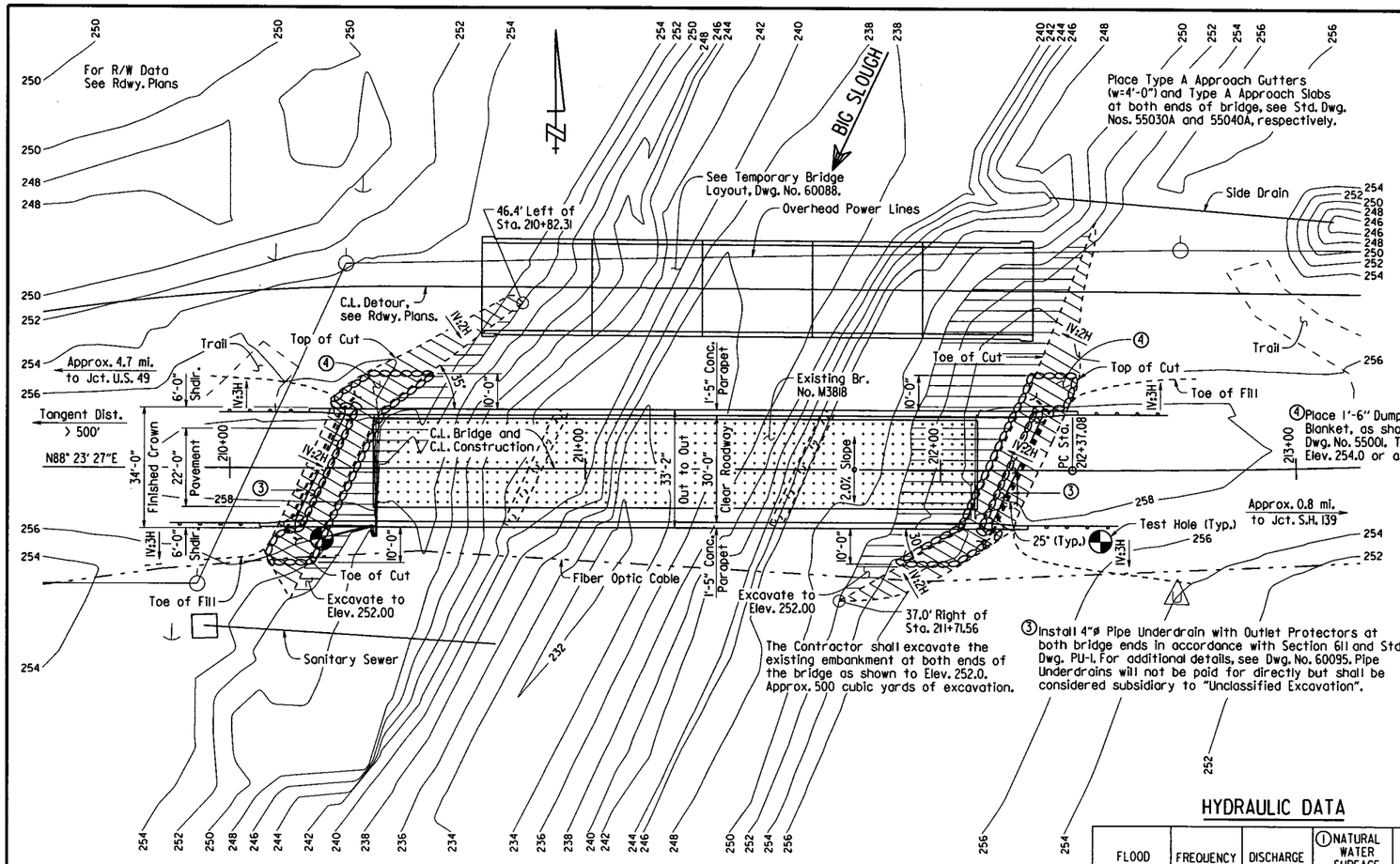
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 5/23/17 FILENAME: bl00870xl_sl.dgn
CHECKED BY: DHP DATE: 3/16/18 SCALE: As Shown
DESIGNED BY: DHP DATE: 4/2017
BRIDGE NO. 07419 DRAWING NO. 60085

PRINT DATE: 3/12/2018

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.		100870	71	101

① 07420 - LAYOUT - 60086



PLAN

② Measured at Working Point, see "Rounding Detail" on Dwg. No. 60091.

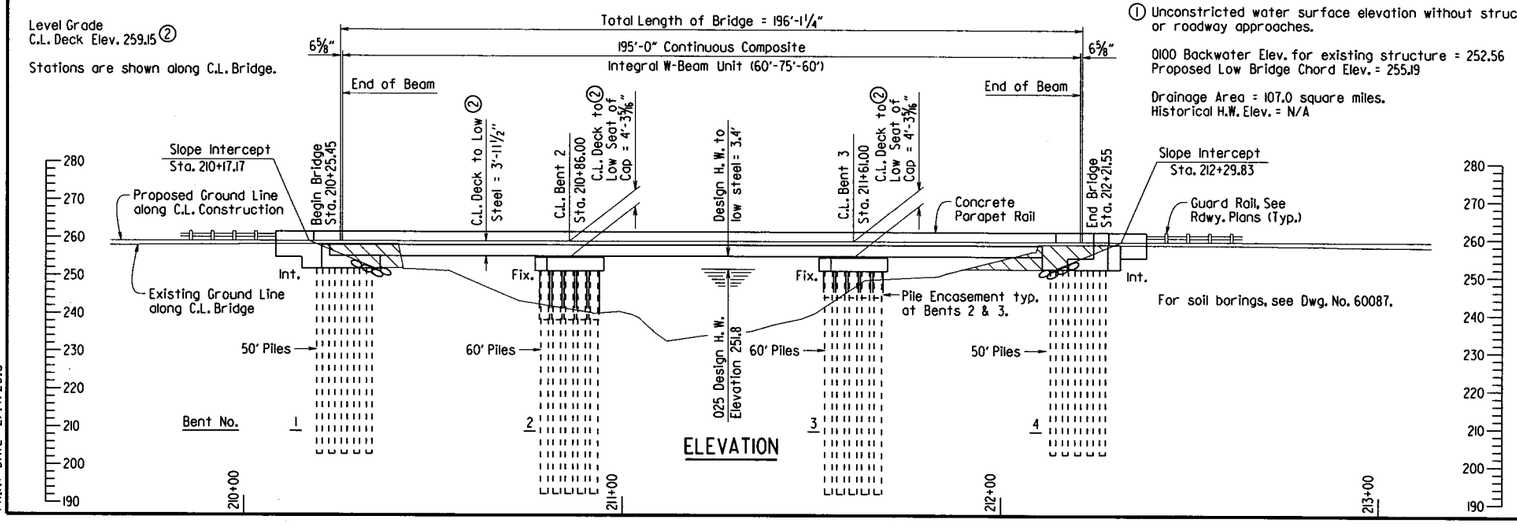
HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	① NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	25	5,630	251.7	251.8
Base	100	7,540	252.3	252.6
Extreme	500	10,320	253.2	253.6
Overtopping	050	5,630	251.7	251.8

① Unconstricted water surface elevation without structure or roadway approaches.

0100 Backwater Elev. for existing structure = 252.56
Proposed Low Bridge Chord Elev. = 255.19

Drainage Area = 107.0 square miles.
Historical H.W. Elev. = N/A



ELEVATION

PRINT DATE: 2/14/2018

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, 6th Edition (2012), with 2013 interim revisions.

LIVE LOADING: HL-93

SEISMIC ZONE: 3 S_{DI} =0.47 SITE CLASS = D

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 (AASHTO M 270, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi

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

STEEL PILING: All piling in Bents 1 and 4 shall be 18" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 160 tons per pile. Piling in Bents 2 and 3 shall be 24" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 310 tons per pile. All piling shall be driven with an approved air, steam or diesel hammer to a minimum tip elevation of 203 or lower at bents 1 & 4 and 196 or lower at bents 2 & 3. Lengths of piling shown are assumed for estimating quantities only. Piling in Bents 1 and 4 shall be driven after embankments to bottom of cap is in place. Actual piling lengths are to be determined in the field. No additional payment will be made for cutoff or build-up. Test piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g).

PILE ENCASEMENT: Pile encasements for Bents 2 & 3 shall extend from bottom of cap to 3' below natural ground. See Std. Dwg. No. 55021 for additional details.

PREBORING: Preboring is required for all piling at Bents 1 and 4. Prebored holes at Bents 1 and 4 shall have a diameter 6" greater than the greatest cross-sectional dimension of the pile for a depth 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 casing 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". Preboring will be paid for in accordance with Section 805.

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)". It is estimated that a minimum rated hammer energy required to obtain the ultimate bearing capacity on all piles at Bents 1 and 4 will be 27,000 foot pounds and for all piles at Bents 2 and 3 will be 65,000 foot pounds.

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

PROTECTIVE SURFACE TREATMENT: Class 1 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rail.

DETAIL DRAWINGS:	DRAWING NO.
End Bents	60089
Intermediate Bents	60090
Elastomeric Bearings	60079
195'-0" Cont. Comp. Integral W-Beam Unit	60091-60096
Standard General Notes	55006
Concrete Filled Steel Shell Piling	55021
Type A Approach Gutters	55030A
Type A Approach Slabs	55040A

EXISTING BRIDGE: Existing bridge, No. M3818 (Log Mile 12.06), is 25.3' wide (24.0' Roadway), 169.0' long and consists of four spans. The three approach spans have a concrete deck with steel beams on a timber cap supported by timber piles. The main span is a steel truss on a concrete cap supported by timber piles.

REMOVAL AND SALVAGE: After the temporary bridge is constructed and open to traffic, existing Bridge No. M3818 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

TEMPORARY BRIDGE: Construct a temporary bridge in accordance with Section 603 approximately 50' upstream from C.L. Construction. See Roadway Plans for actual detour grade and alignment. The temporary bridge shall have a minimum length of 124' with a minimum roadway width of 24', a minimum live load capacity of HI5, and meet the requirements for Seismic Category B in accordance with AASHTO Standard Specifications for Highway Bridges, 2002 Edition. See Standard Drawing Nos. 15230 & 15240 and Drawing Nos. 60075, 60076 & 60088 for temporary bridge details. Neither a timber deck nor timber piles will be allowed for construction of the temporary bridge.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-15-18
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER BIG SLOUGH
HWY. 34 STRS. & APPRS. (S)
GREENE COUNTY

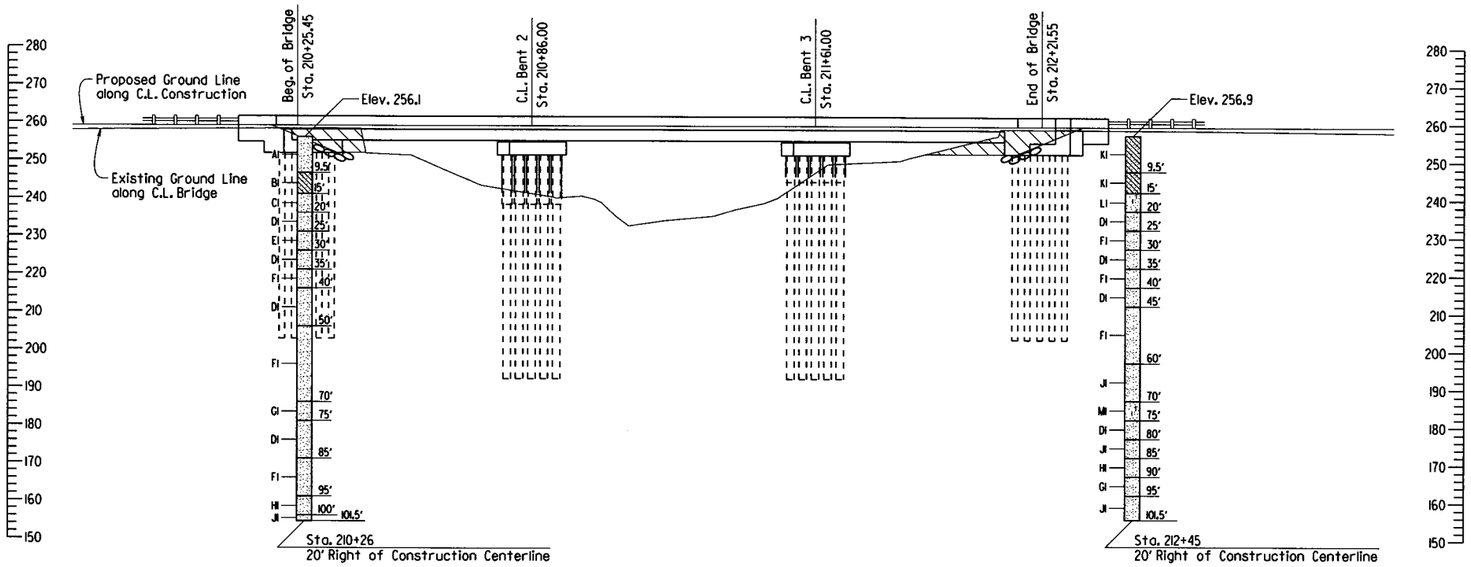
ROUTE 34 SEC. 4

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 2/19/17
CHECKED BY: RKS DATE: 2/15/18
DESIGNED BY: CMW DATE: 2/17
FILENAME: bl00870x2_ll.dgn
SCALE: 1" = 20'-0"

BRIDGE NO. 07420 DRAWING NO. 60086

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.		100870	72	101
				07420 - LAYOUT - 60087				



ELEVATION OF SOIL BORINGS

BORING LEGEND

A1-Moist, Loose, Brown Sand
B1-Moist, Stiff, Brown and Gray Sandy Clay
C1-Wet, Medium Dense, Brown Sand
D1-Wet, Medium Dense, Gray Sand
E1-Wet, Loose, Gray Sand
F1-Wet, Medium Dense, Gray Sand with Trace Gravel
G1-Wet, Very Dense, Gray Sand with Trace Gravel
H1-Wet, Dense, Gray Sand
J1-Wet, Dense, Gray Sand with Trace Gravel
K1-Moist, Medium Stiff, Brown Sandy Clay
L1-Wet, Medium Dense, Gray Sand with Silt
M1-Wet, Dense, Gray Sand with Silt and Trace Gravel

"N" VALUES

Sta. 210+26 - 20' Right of Construction Centerline

5.0-	6.0, N=5
10.0-	11.0, N=10
15.5-	16.5, N=18
20.5-	21.5, N=21
25.5-	26.5, N=10
30.5-	31.5, N=20
35.5-	36.5, N=17
40.5-	41.5, N=30
45.5-	46.5, N=18
50.5-	51.5, N=25
55.5-	56.5, N=21
60.5-	61.5, N=20
65.5-	66.5, N=25
70.5-	71.5, N=74
75.5-	76.5, N=27
80.5-	81.5, N=25
85.5-	86.5, N=26
90.5-	91.5, N=26
95.5-	96.5, N=49
100.5-	101.5, N=36

Sta. 212+45 - 20' Right of Construction Centerline

5.0-	6.0, N=8
10.0-	11.0, N=7
15.5-	16.5, N=11
20.5-	21.5, N=15
25.5-	26.5, N=16
30.5-	31.5, N=15
35.5-	36.5, N=29
40.5-	41.5, N=22
45.5-	46.5, N=16
50.5-	51.5, N=19
55.5-	56.5, N=13
60.5-	61.5, N=36
65.5-	66.5, N=50
70.5-	71.5, N=50
75.5-	76.5, N=26
80.5-	81.5, N=32
85.5-	86.5, N=41
90.5-	91.5, N=53
95.5-	96.5, N=36
100.5-	101.5, N=36

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-15-18
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER BIG SLOUGH
HWY. 34 STRS. & APPRS. (S)
GREENE COUNTY

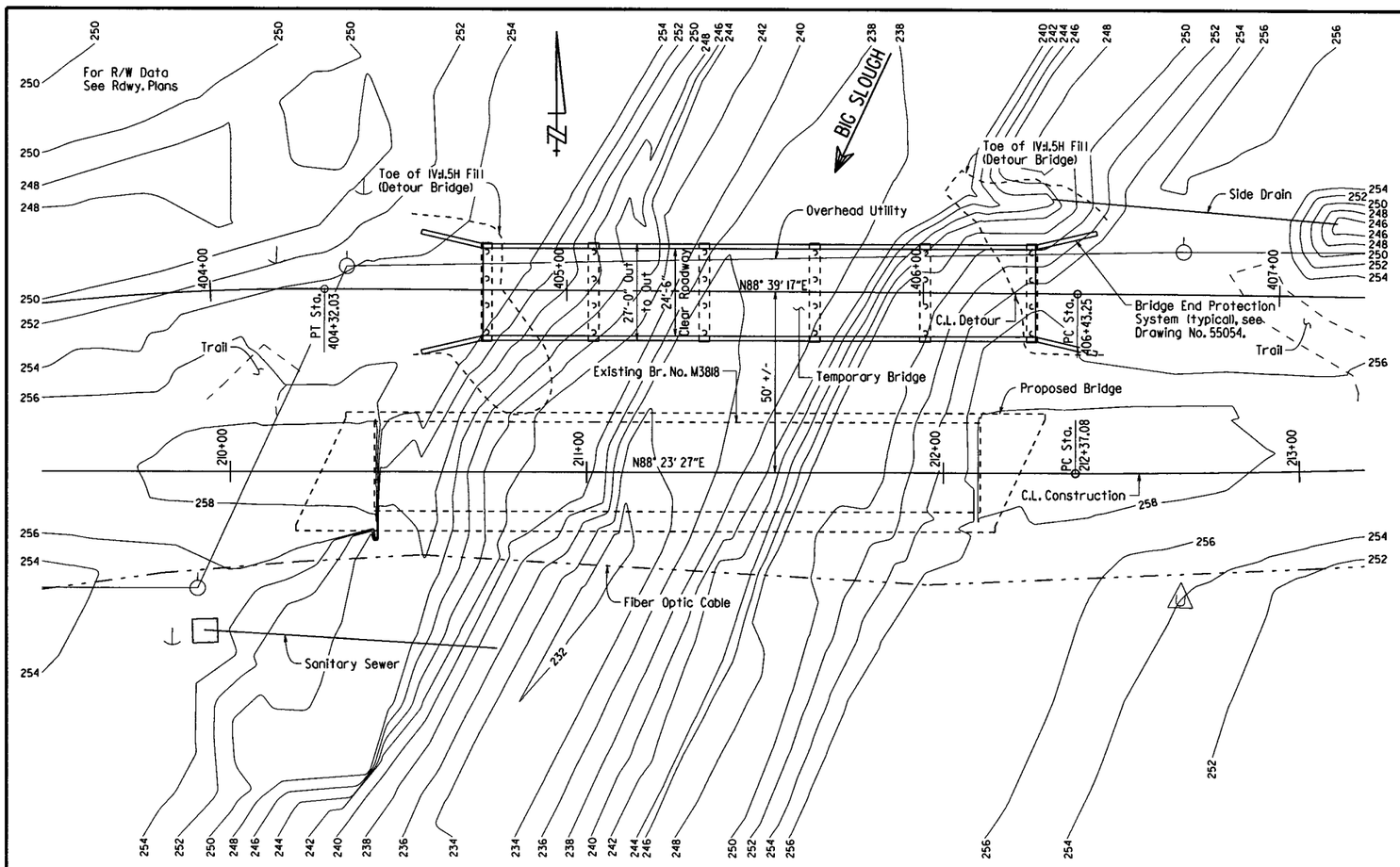
ROUTE 34 SEC. 4
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 2/19/17 FILENAME: bl00870x2_ll.dgn
CHECKED BY: CRS DATE: 2/15/18 SCALE: 1" = 20'-0"
DESIGNED BY: CMW DATE: 2/17
BRIDGE NO. 07420 DRAWING NO. 60087

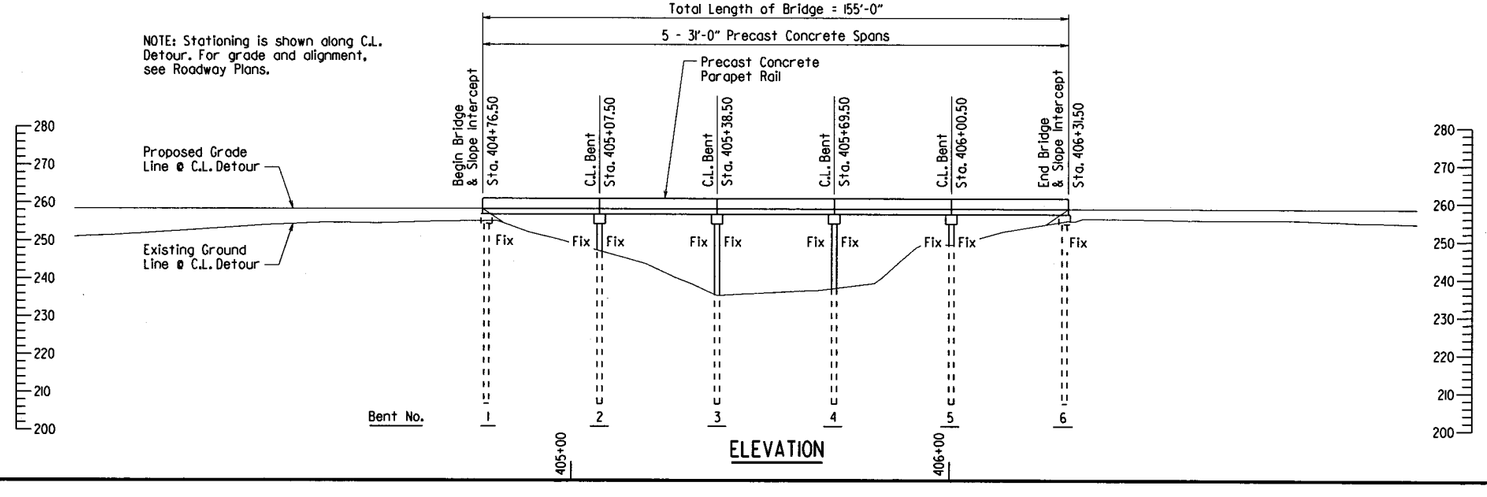
PRINT DATE: 2/15/2018

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.		100870	73	101

① 07420 - TEMP. BRIDGE LAYOUT - 60088



PLAN



ELEVATION

PRINT DATE: 2/14/2018

GENERAL NOTES FOR TEMPORARY BRIDGE

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

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

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges, 17th Edition (2002).

LIVE LOADING: H-15

METHOD OF DESIGN: Load Factor

SEISMIC PERFORMANCE CATEGORY: B

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (Superstructure)	f'c = 4,000 psi
Class S Concrete (Substructure)	f'c = 3,500 psi
Reinforcing Steel (Grade 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi

PILING FOR TEMPORARY BRIDGE: All piling in the temporary bridge shall be driven according to the requirements of Subsections 805.07 through 805.09 using Method A, Empirical Pile Formulas. Painting of steel piling will not be required. All piling shall be 16" diameter unfilled steel shell piling and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 40 tons per pile. Drive piles in Bents 1 thru 6 to a tip elevation of 207 or lower.

Preboring or other methods as approved by the Engineer may be used to achieve the minimum penetration. Any cost for these methods shall be included in the item "Temporary Bridge Structure (24' Roadway Width)".

PRECAST CONCRETE UNITS: Precast concrete units shall comply with the requirements of ArDOT Standard Drawings. Precast concrete units within the drawings series 5291 thru 5307, 14800 thru 14899 and 15190 thru 15400 may be used in lieu of units shown on Std. Dwg. Nos. 15230 & 15240. All precast units shall be doweled to bent caps as shown on Dwg. No. 60075.

Shear key joints between precast concrete units shall be filled with asphalt or the grout mix shown on Standard Drawings after sections are bolted.

DETAIL DRAWINGS:	DRAWING NO.
Bent Details	60075
Unfilled Steel Shell Piling	60076
31" Precast Concrete Spans	15230 & 15240
Bridge End Protection System	55054

PAYMENT: The Temporary Bridge Structure shall comply with and be paid for per linear foot as Temporary Bridge Structure (24' Roadway Width) in accordance with Section 603.

OPTIONAL TEMPORARY BRIDGE: If the Contractor elects to use an optional design for the detour bridge, as per Subsection 603.02, the bridge length shall provide a waterway opening that equals or exceeds the opening of the 155' bridge shown. Payment will be based on a 155' temporary bridge length.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-15-18
CHARLES R. ELLIS
BRIDGE ENGINEER

LAYOUT OF TEMPORARY BRIDGE OVER BIG SLOUGH HWY. 34 STRS. & APPRS. (S) GREENE COUNTY

ROUTE 34 SEC. 4

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	CGP	DATE:	7/14/17	FILENAME:	bl00870x2_12.dgn
CHECKED BY:	EW4	DATE:	2/15/18	SCALE:	1" = 20'
DESIGNED BY:	EW4	DATE:	7/17		

BRIDGE NO. 07420 DRAWING NO. 60088

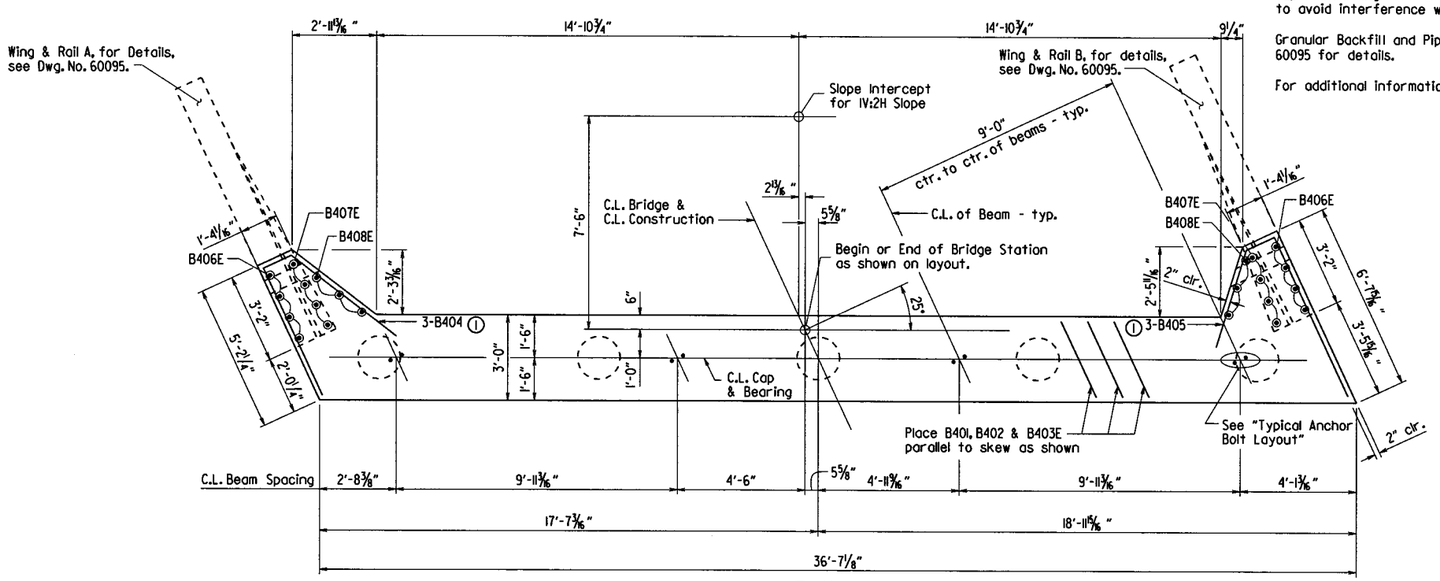
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	74	101
				①	07420 - END BENTS - 60089			

NOTES:
For General Notes, see Std. Dwg. No. 55006.

Top reinforcing bars and pile anchorage in cap shall be properly placed to avoid interference with anchor bolts.

Granular Backfill and Pipe Underdrain required behind cap, See Dwg. No. 60095 for details.

For additional information, see Layout.



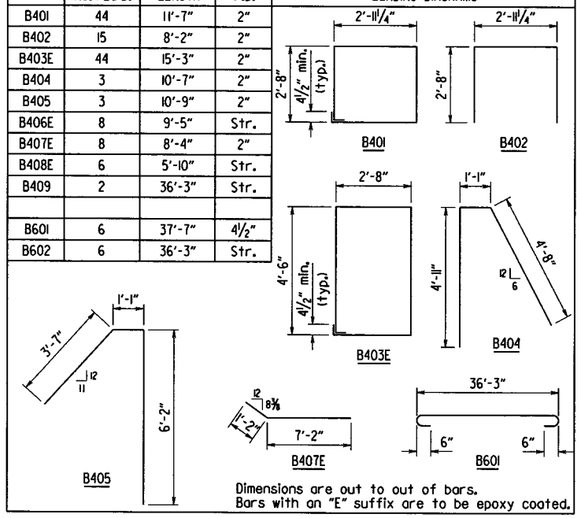
PLAN
⅜" = 1'-0"

① See "Section A-A" on Drawing 60095.

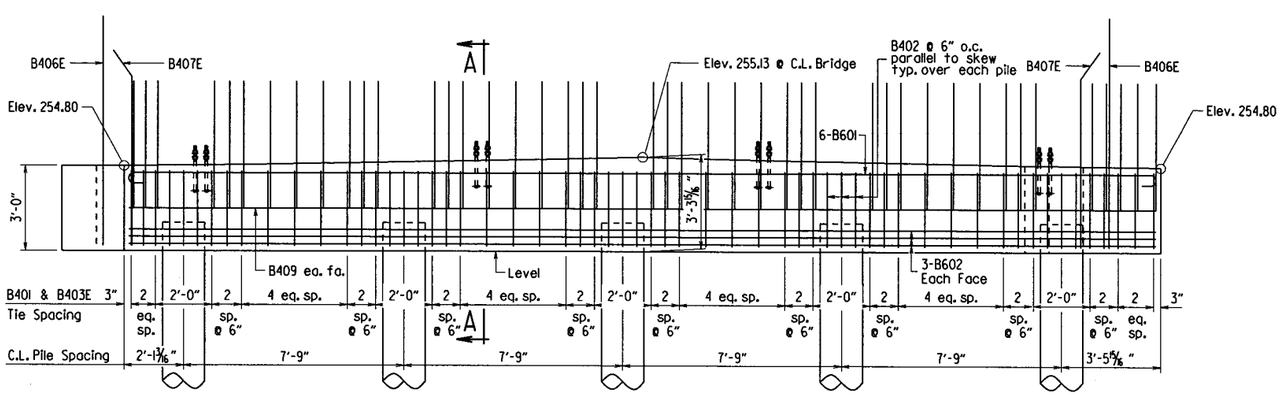
BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	44	11'-7"	2"
B402	15	8'-2"	2"
B403E	44	15'-3"	2"
B404	3	10'-7"	2"
B405	3	10'-9"	2"
B406E	8	9'-5"	Str.
B407E	8	8'-4"	2"
B408E	6	5'-10"	Str.
B409	2	36'-3"	Str.
B601	6	37'-7"	4½"
B602	6	36'-3"	Str.

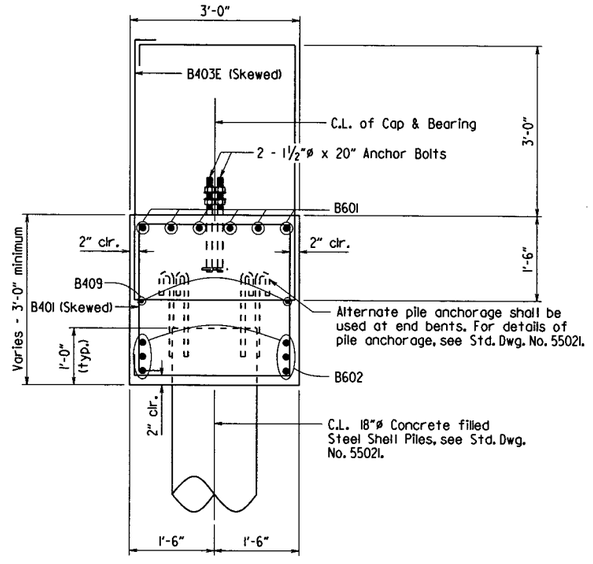
BENDING DIAGRAMS



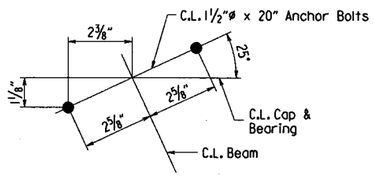
Dimensions are out to out of bars.
Bars with an "E" suffix are to be epoxy coated.



ELEVATION
Looking Back Bent 1
Looking Ahead Bent 4
⅜" = 1'-0"



SECTION A-A
¾" = 1'-0"



For details of anchor bolts, see Dwg. No. 60094.

TYPICAL ANCHOR BOLT LAYOUT
No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-15-18
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF END BENTS
BIG SLOUGH

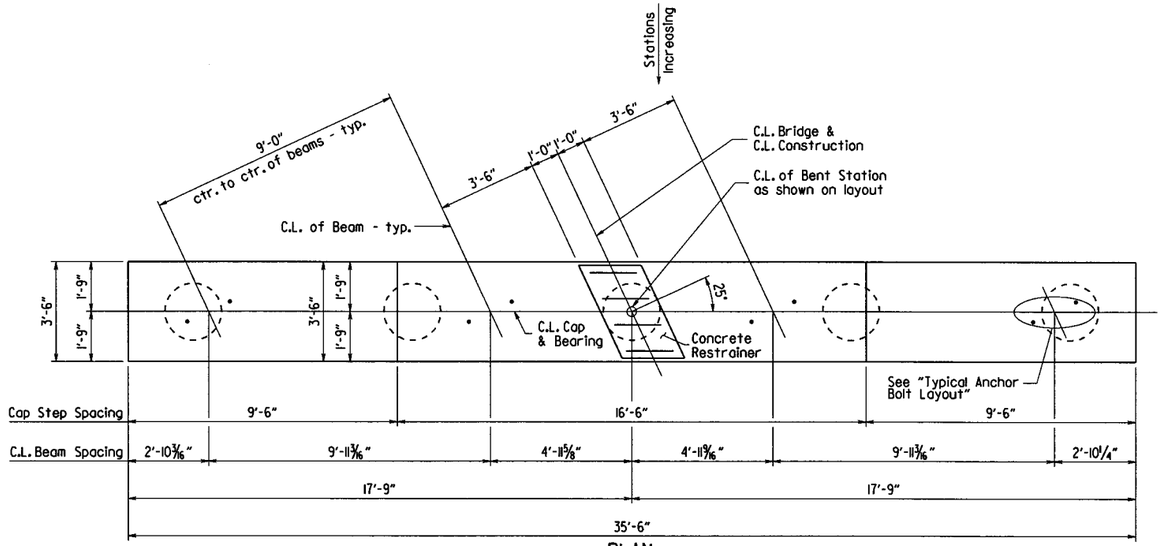
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 9/07/17 FILENAME: bl00870x2_bt.dgn
CHECKED BY: DHP DATE: 2/14/18 SCALE: As Shown
DESIGNED BY: DHP DATE: 4/2017
BRIDGE NO. 07420 DRAWING NO. 60089

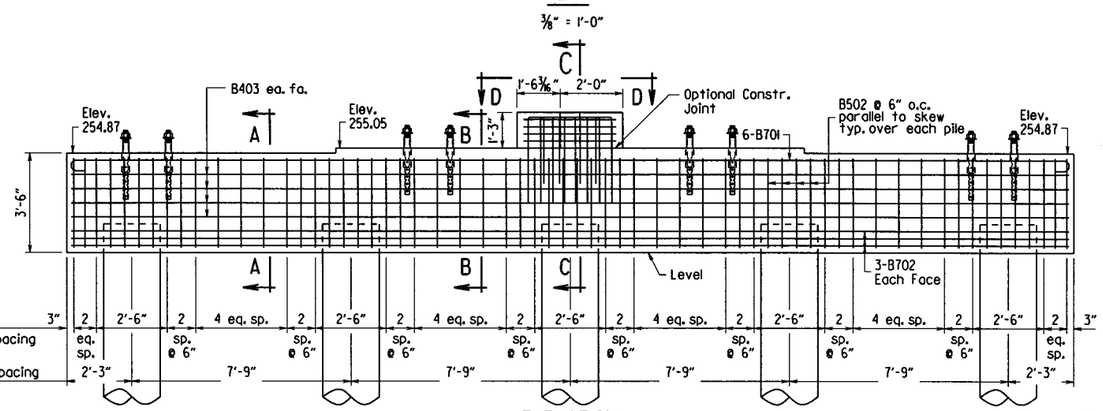
PRINT DATE: 2/14/2018

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.		100870	75	101
				(1)	07420 - INTER. BENTS 2 & 3 - 60090			



PLAN

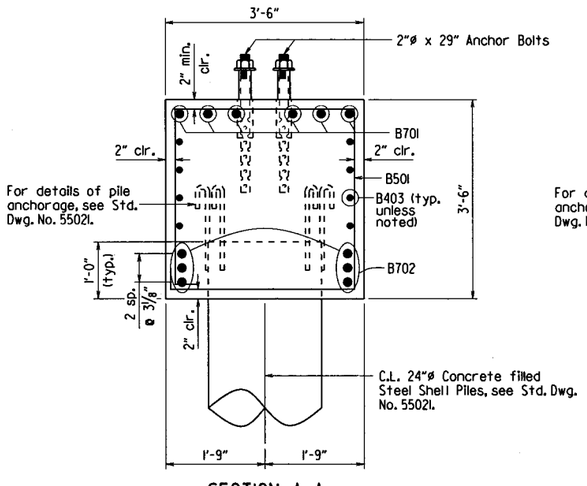
3/8" = 1'-0"



ELEVATION

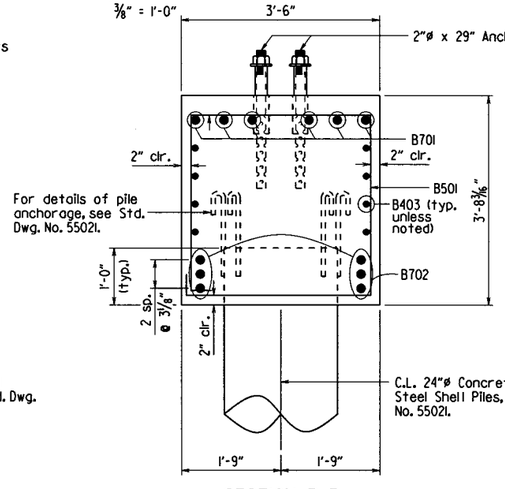
Looking Back Bents 2&3

3/8" = 1'-0"



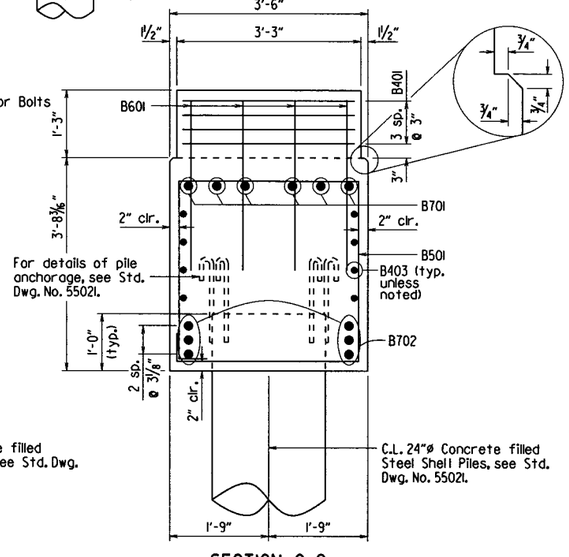
SECTION A-A

3/4" = 1'-0"



SECTION B-B

3/4" = 1'-0"



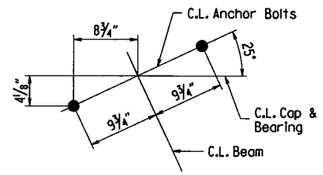
SECTION C-C

3/4" = 1'-0"

NOTES:
For General Notes, see Std. Dwg. No. 55006.

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

For additional information, see Layout.



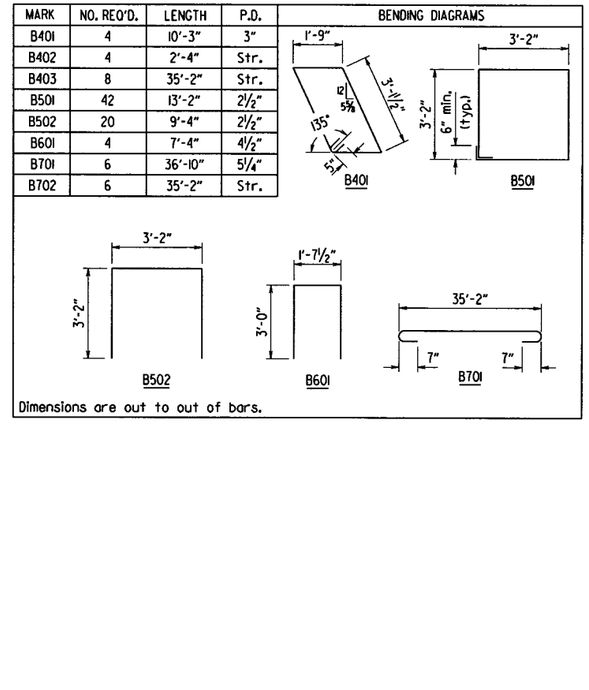
For details of anchor bolts, see Dwg. No. 60079.

TYPICAL ANCHOR BOLT LAYOUT

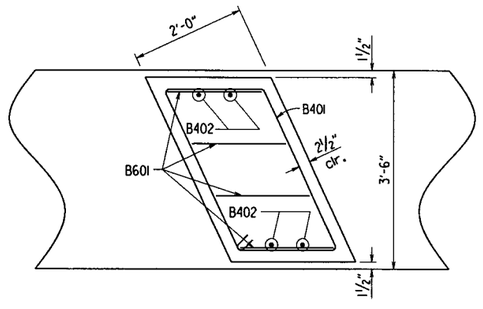
No Scale

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B401	4	10'-3"	3"	
B402	4	2'-4"	Str.	
B403	8	35'-2"	Str.	
B501	42	13'-2"	2 1/2"	
B502	20	9'-4"	2 1/2"	
B601	4	7'-4"	4 1/2"	
B701	6	36'-10"	5 1/4"	
B702	6	35'-2"	Str.	



Dimensions are out to out of bars.



SECTION D-D

3/4" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-15-18
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF INTERMEDIATE BENTS BIG SLOUGH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 9/07/17
CHECKED BY: DHP DATE: 2/14/18
DESIGNED BY: DHP DATE: 4/2017
FILENAME: bl00870x2_b2.dgn
SCALE: As Shown

BRIDGE NO. 07420 DRAWING NO. 60090

PRINT DATE: 2/14/2018

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.		100870	76	101
				①	07420 - 195'-0" UNIT - 60091			

Slab Reinforcing:

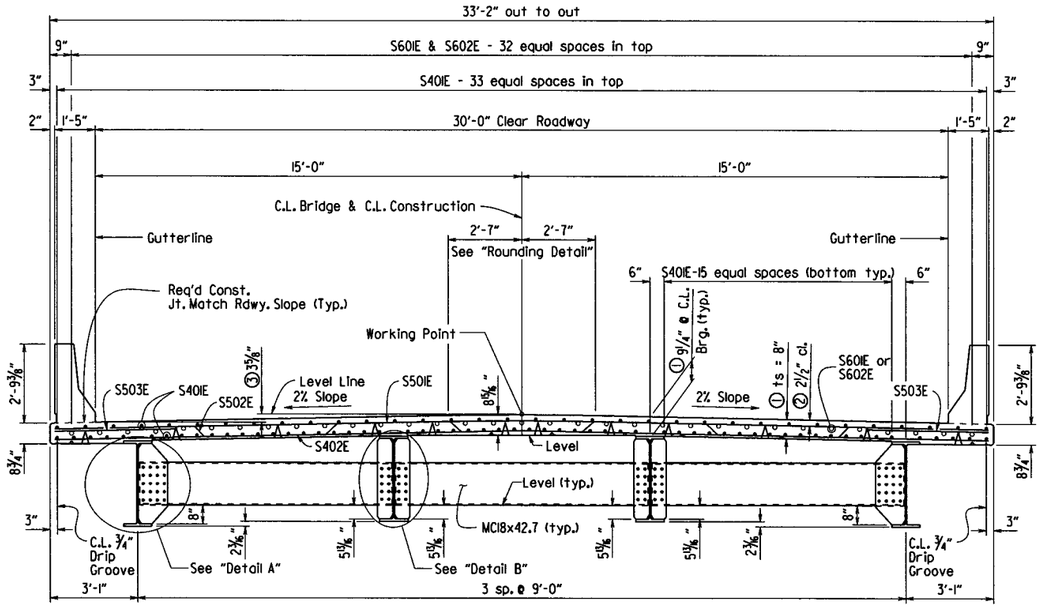
Longitudinal: S401E in top
S401E in bottom (place as shown)
S601E over intermediate supports and
S602E at end supports, see "Reinforcing Plan & Pouring Sequence" Dwg. No. 60094

Transverse: S501E @ 12" o.c. in top, S402E @ 12" o.c. in bottom — Alternate
S502E @ 12" o.c. bent up over beams —
S503E @ 6" in top of overhangs (bundled with #5 bars) both sides

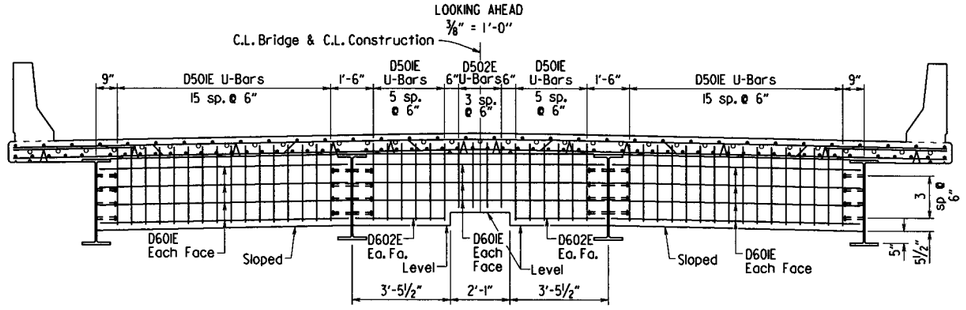
① See "Adjustment for Slab Thickness Tolerance".

② Tolerance: Minus = 1/4";
Plus = to the amount of slab thickening used to meet slab thickness tolerance.
See "Adjustments for slab thickness tolerance"

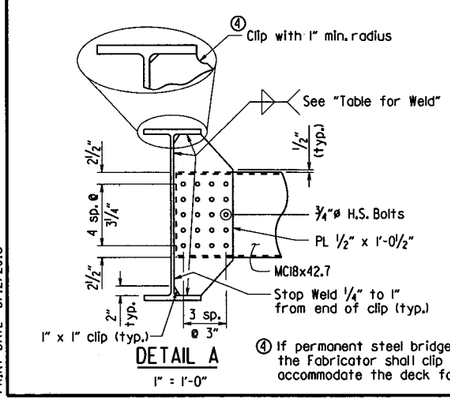
③ Working Point to gutterline.



TYPICAL ROADWAY SECTION

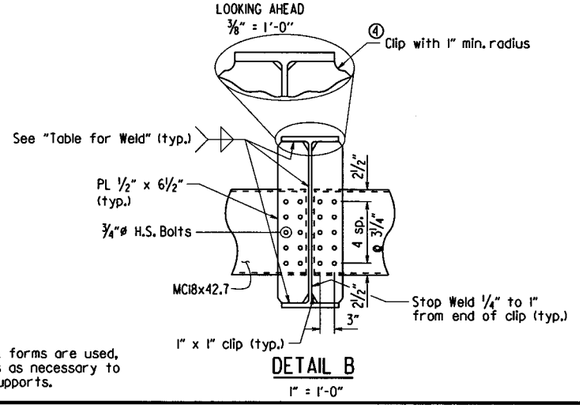


TYPICAL ROADWAY SECTION AT INTERMEDIATE BENTS



DETAIL A
1" = 1'-0"

④ If permanent steel bridge deck forms are used, the Fabricator shall clip plates as necessary to accommodate the deck form supports.

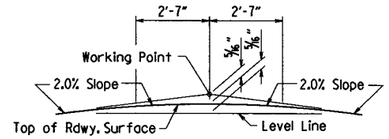


DETAIL B
1" = 1'-0"

NOTES:
At the Contractor's option, in lieu of providing bars S502E, one epoxy coated #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S502E. Bars in top and bottom shall be epoxy coated.

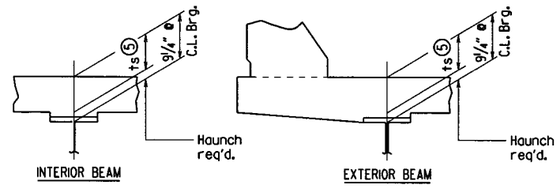
Class I Protective Surface Treatment shall be applied to the Roadway Surface and to the Face & Top of the Concrete Parapet Rail.

Bar positions or clearances from the forms shall be maintained by means of stays, ties, hangers or other approved devices per Subsection 804.06.



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL
NO SCALE



⑤ Tolerance when removable deck forming is used is + 1/2", - 1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

ts = slab thickness as shown in "Typical Roadway Section"

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE
NO SCALE

Notes:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance : Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1 3/4". No increase in concrete and structural steel quantities will be made to maintain tolerances.

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

TABLE FOR WELD

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To 3/4" inclusive	1/4"	
Over 3/4"	5/16"	

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-27-18
CHARLES R. ELLIS
BRIDGE ENGINEER

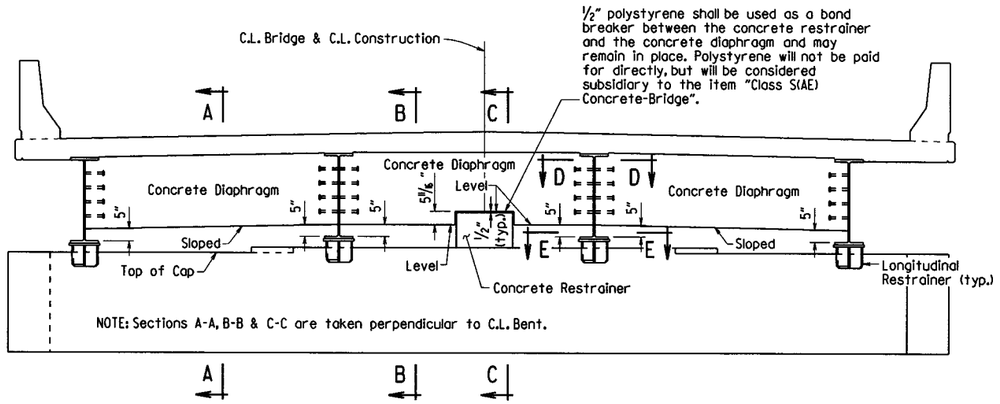
SHEET 1 OF 6
DETAILS OF 195'-0" CONTINUOUS COMPOSITE INTEGRAL W-BEAM UNIT
BIG SLOUGH

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

DRAWN BY: CGP DATE: 7/17/17 FILENAME: bl00870x2_sl.dgn
CHECKED BY: DHP DATE: 3/16/18 SCALE: As Shown
DESIGNED BY: DHP DATE: 4/2017
BRIDGE NO. 07420 DRAWING NO. 60091

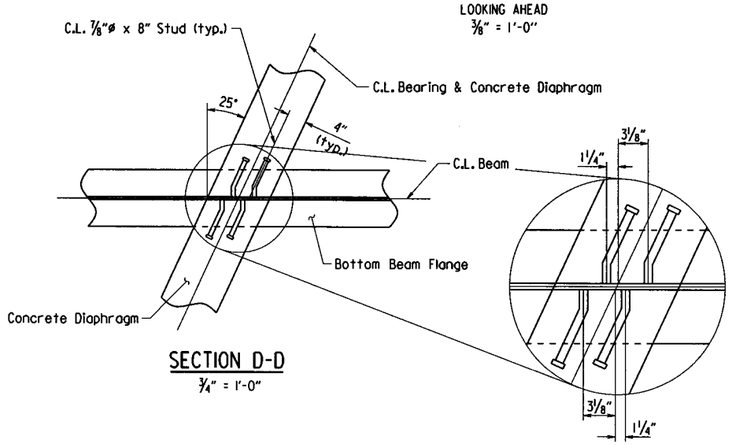
PRINT DATE: 3/12/2018

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.		100870	77	101
				①		07420 - 195'-0" UNIT - 60092		

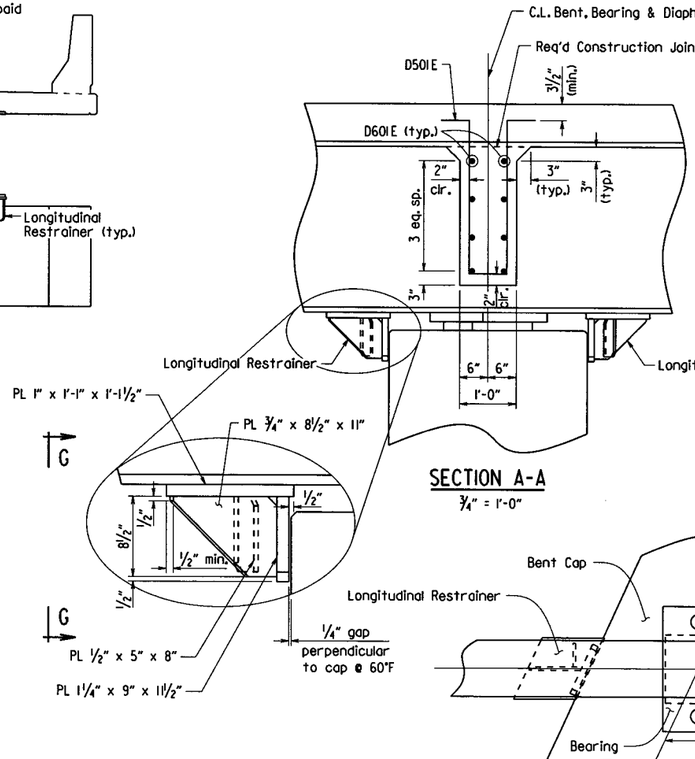


TYPICAL ROADWAY SECTION AT INTERMEDIATE BENTS SHOWING SEISMIC RESTRAINERS

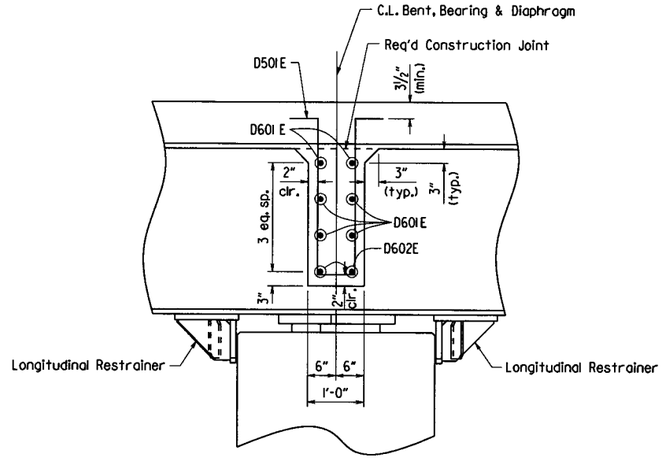
LOOKING AHEAD
⅜" = 1'-0"



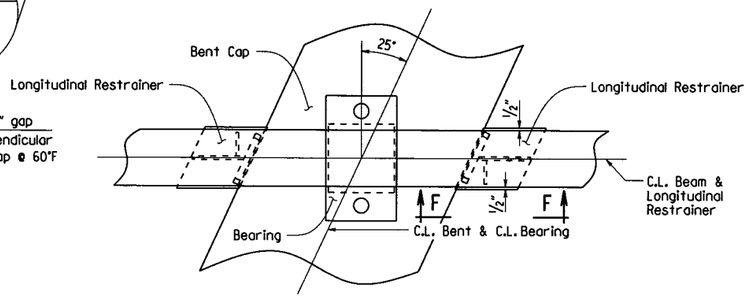
SECTION D-D
¾" = 1'-0"



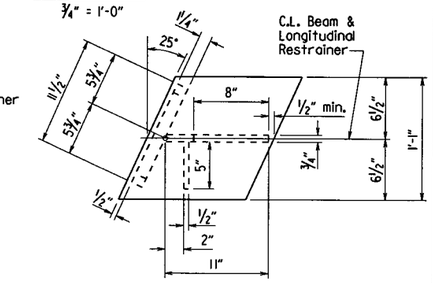
SECTION A-A
¾" = 1'-0"



SECTION B-B
¾" = 1'-0"

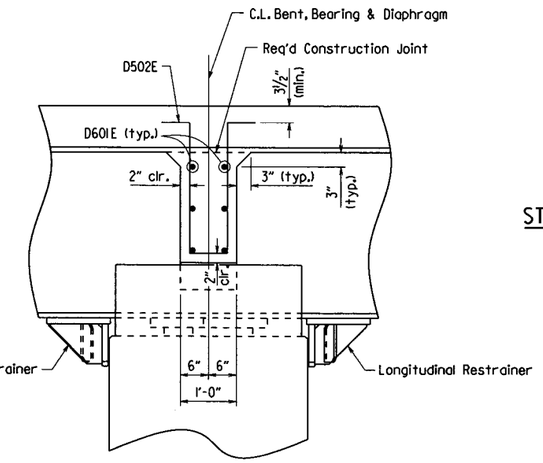


VIEW E-E
NO SCALE

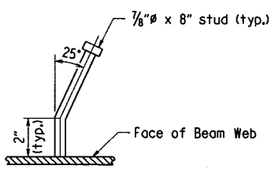


PLAN OF LONGITUDINAL RESTRAINER
1½" = 1'-0"

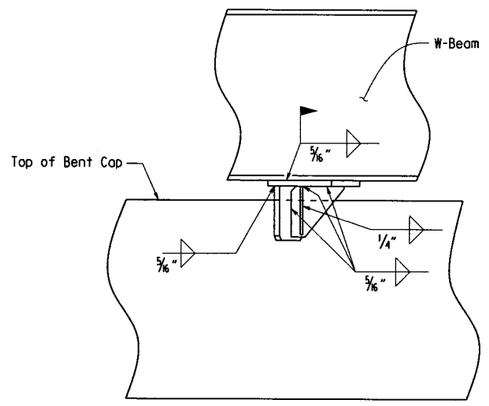
Weld longitudinal restrainers after deck has been poured.



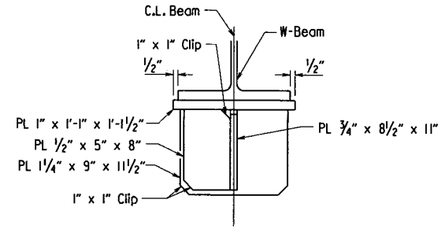
SECTION C-C
¾" = 1'-0"



STUD DETAIL AT DIAPHRAGM
NO SCALE



VIEW F-F
(Showing Welds)
NO SCALE



VIEW G-G
1½" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-15-18
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 6
DETAILS OF 195'-0" CONTINUOUS COMPOSITE INTEGRAL W-BEAM UNIT BIG SLOUGH

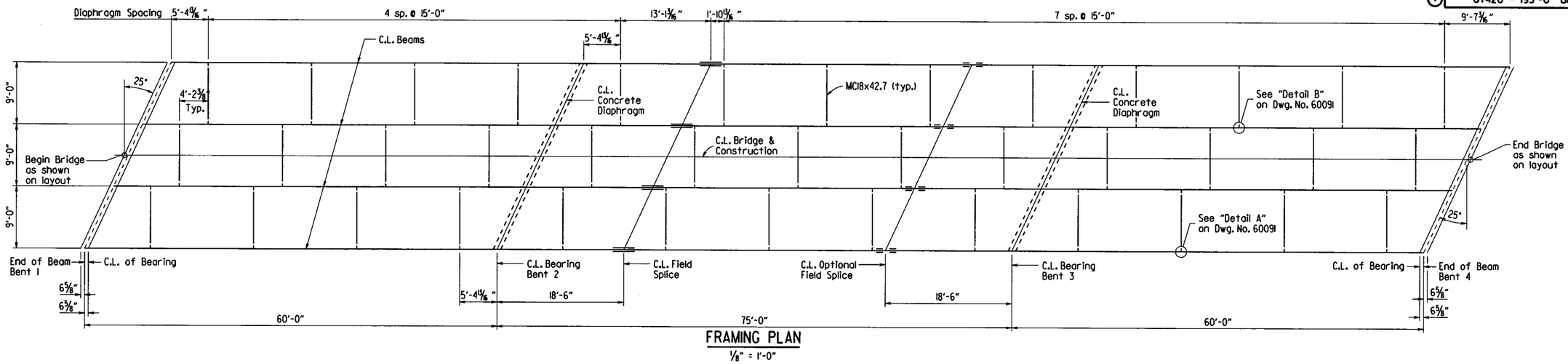
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 7/17/17 FILENAME: bl00870x2_sl.dgn
CHECKED BY: DHP DATE: 2/14/18 SCALE: As Shown
DESIGNED BY: DHP DATE: 4/2017
BRIDGE NO. 07420 DRAWING NO. 60092

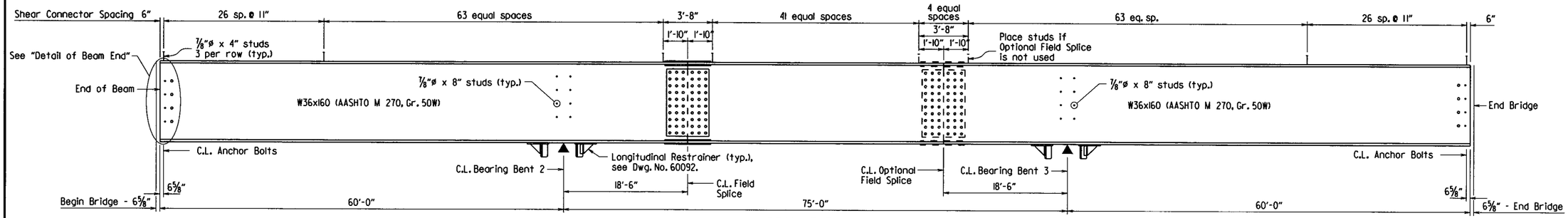
PRINT DATE: 2/14/2018

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.		100870	78	101
				①		07420 - 195'-0" UNIT - 60093		



FRAMING PLAN

1/8" = 1'-0"



BEAM ELEVATION

NO SCALE

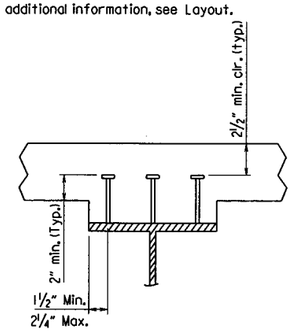
NOTES:

All structural steel shall be AASHTO M 270, Gr. 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W).

Bolted field splices may be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.

For General Notes, see Std. Dwg. No. 55006.

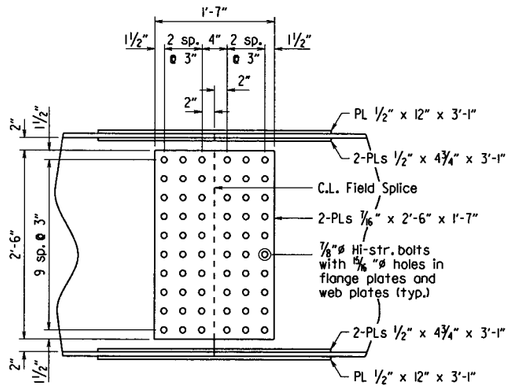
For additional information, see Layout.



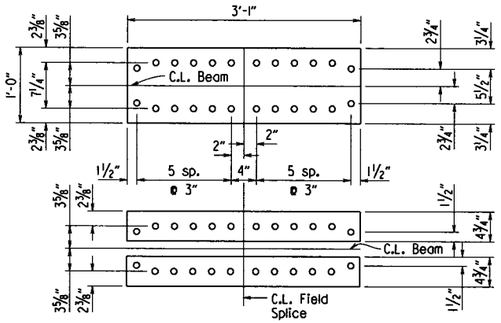
Stud Shear Connectors shown shall be 7/8"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

SHEAR CONNECTOR DETAIL

NO SCALE



FLANGE SPLICE

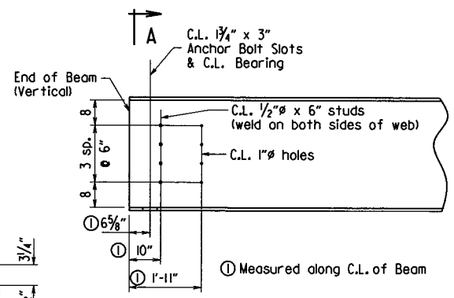


WEB SPLICE

NOTE: Details similar for optional field splice.

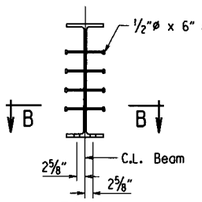
DETAILS OF FIELD SPLICE

NO SCALE



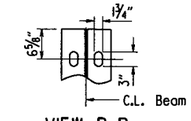
DETAIL OF BEAM END

NO SCALE



VIEW A-A

NO SCALE



VIEW B-B

NO SCALE

STATE OF ARKANSAS
Charlotte Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-15-18
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 6
DETAILS OF 195'-0" CONTINUOUS COMPOSITE INTEGRAL W-BEAM UNIT BIG SLOUGH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 7/17/17 FILENAME: bl00870x2_sl.dgn
CHECKED BY: DHP DATE: 2/14/18 SCALE: As Shown
DESIGNED BY: DHP DATE: 4/2017

BRIDGE NO. 07420 DRAWING NO. 60093

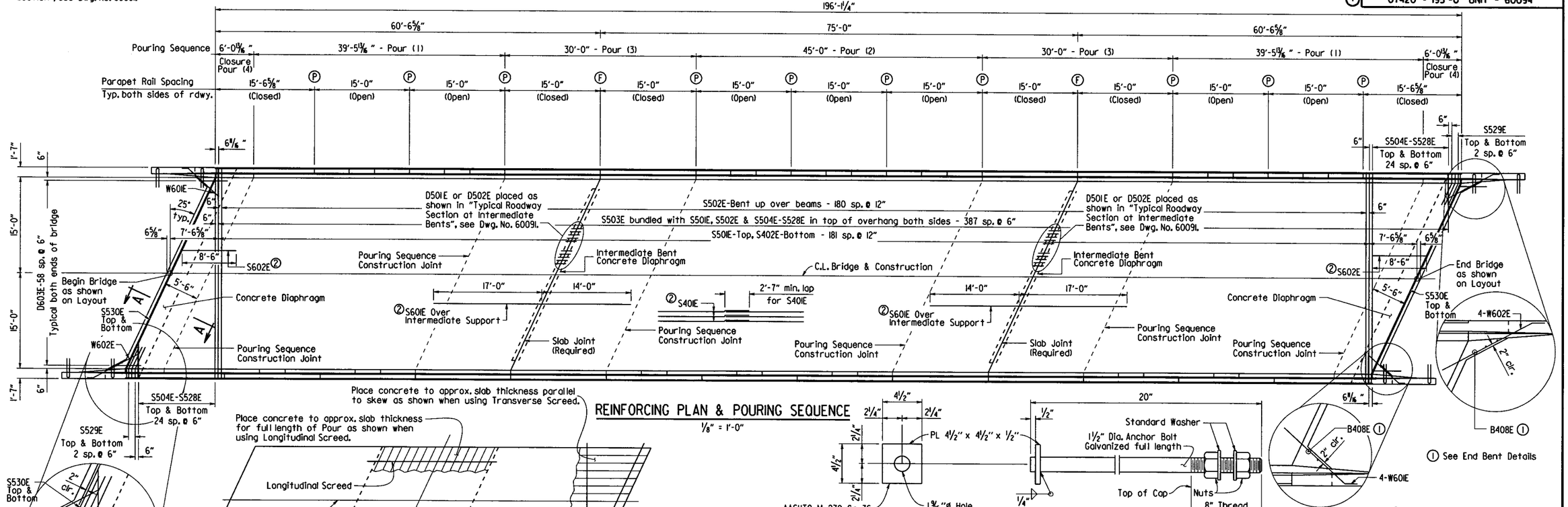
PRINT DATE: 2/14/2018

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.		100870	79	101

① 07420 - 195'-0" UNIT - 60094

② Placed as shown in "Typical Roadway Section", see Dwg. No. 60091.

Ⓟ C.L. Partial Depth Parapet Joint (1/4"-1" max.) Stop 1'-2" from top of slab.



REINFORCING PLAN & POURING SEQUENCE

⅛" = 1'-0"

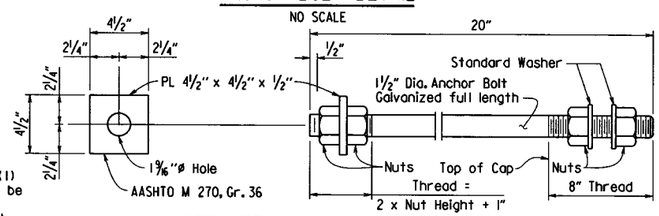
NOTE: At the Contractor's Option, the Transverse Screed may be placed parallel to the skew or perpendicular to C.L. Bridge.

CONCRETE PLACEMENT PROCEDURE

NO SCALE

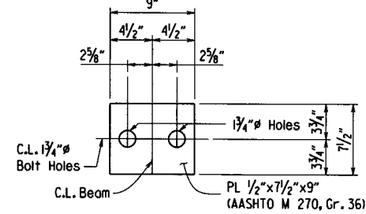
ANCHOR BOLT DETAIL

NO SCALE



ALTERNATE ANCHOR BOLT DETAIL

NO SCALE



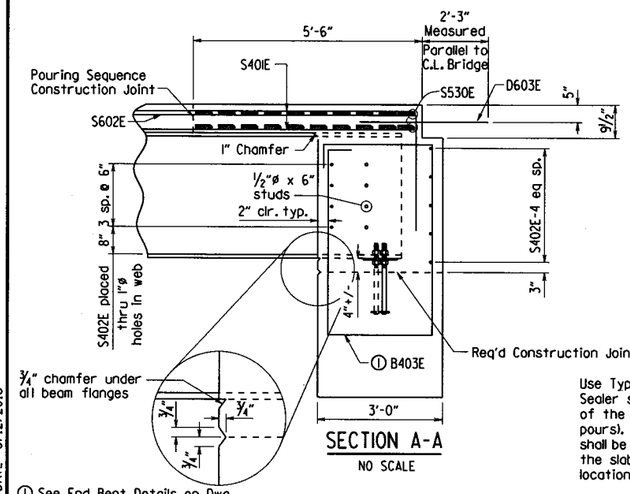
BEARING PLATE DETAIL

NO SCALE

Anchor bolts shall comply with AASHTO M 314, Grade 55, with Supplementary Requirement S1, and galvanized according to Subsection 807.07. Nuts and Washers for bolts shall be as specified in Subsection 807.07.

Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.

Plates, bolts, nuts, and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M 270, Gr. 50W)".



SECTION A-A

NO SCALE

① See End Bent Details on Dwg. No. 60089 for reinforcing and additional details.

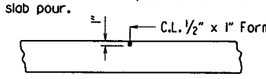
NOTES:
Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) & all Pours (2) must be placed before Pours (3) can be placed & all Pours (3) must be placed before Pours (4) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between adjacent pours. **No deviations from the pouring sequence shown will be allowed.**

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.

Any railing pours made before the entire slab unit has been placed must be approved by the Engineer.

Unless otherwise noted, required slab joints and pouring sequence construction joints shall align with parapet joints at the gutterline.

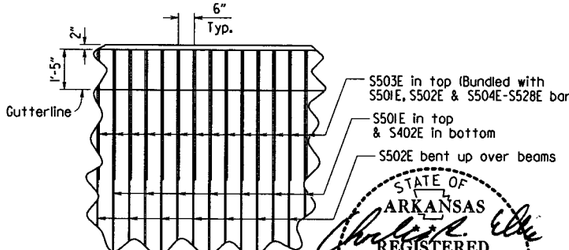
Concrete diaphragms at end bents shall be poured monolithically with the deck. A minimum of 48 hours shall elapse between the intermediate bent diaphragm pour and the deck slab pour.



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

TRANSVERSE SLAB JOINT DETAIL

NO SCALE



REINFORCING DETAIL

NO SCALE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-27-18
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 4 OF 6
DETAILS OF 195'-0" CONTINUOUS COMPOSITE INTEGRAL W-BEAM UNIT
BIG SLOUGH

ROUTE SEC.

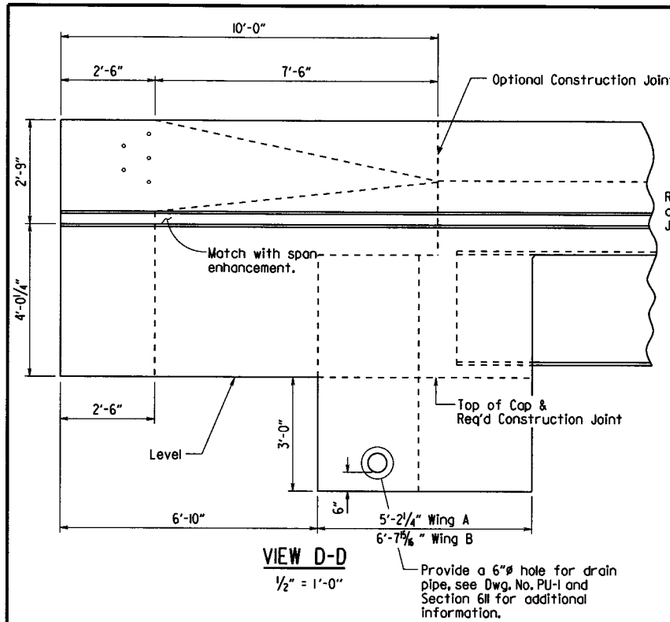
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 7/17/17 FILENAME: bl00870x2_sl.dgn
CHECKED BY: DHP DATE: 3/16/18 SCALE: As Shown
DESIGNED BY: DHP DATE: 4/2017
BRIDGE NO. 07420 DRAWING NO. 60094

PRINT DATE: 3/12/2018

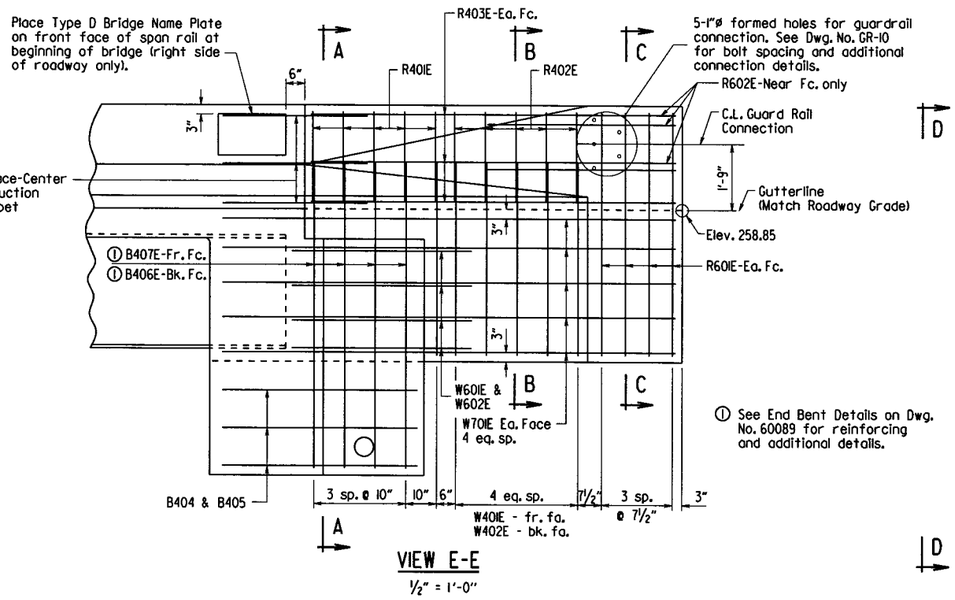
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	50	101

① 07420 - 195'-0" UNIT - 60095



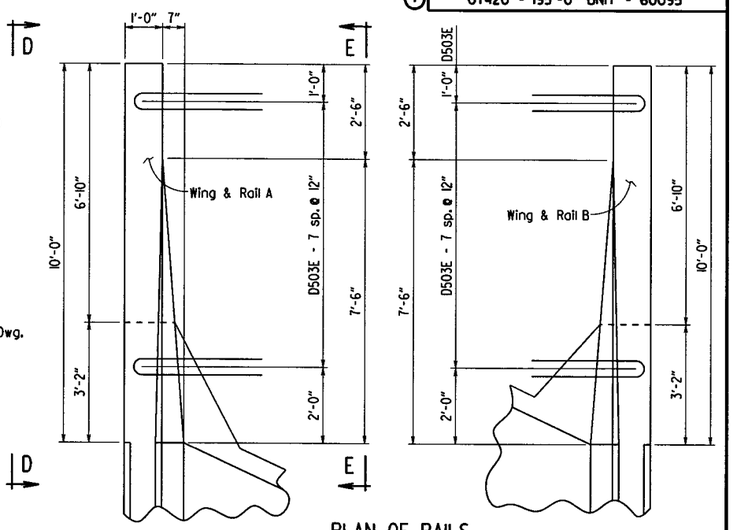
VIEW D-D

½" = 1'-0"



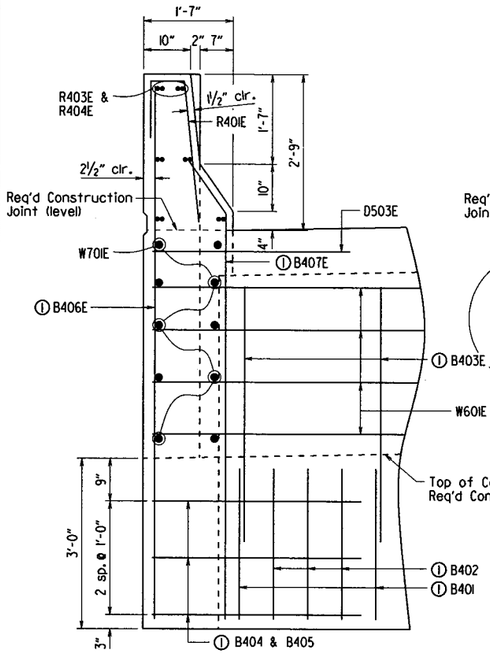
VIEW E-E

½" = 1'-0"



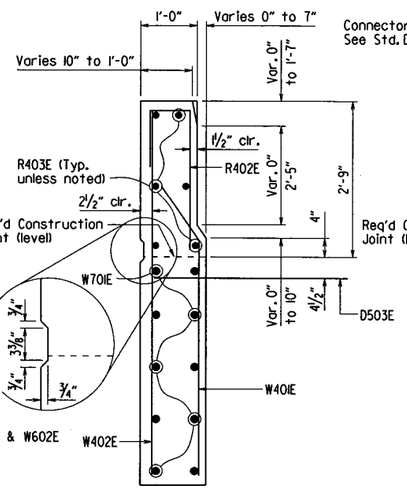
PLAN OF RAILS

½" = 1'-0"



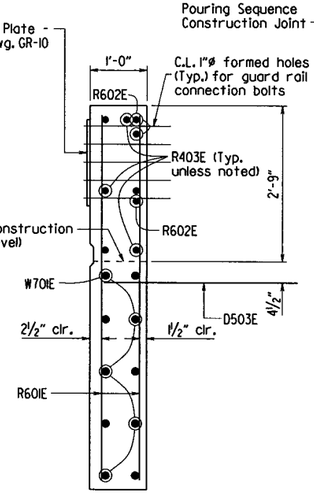
SECTION A-A

¾" = 1'-0"



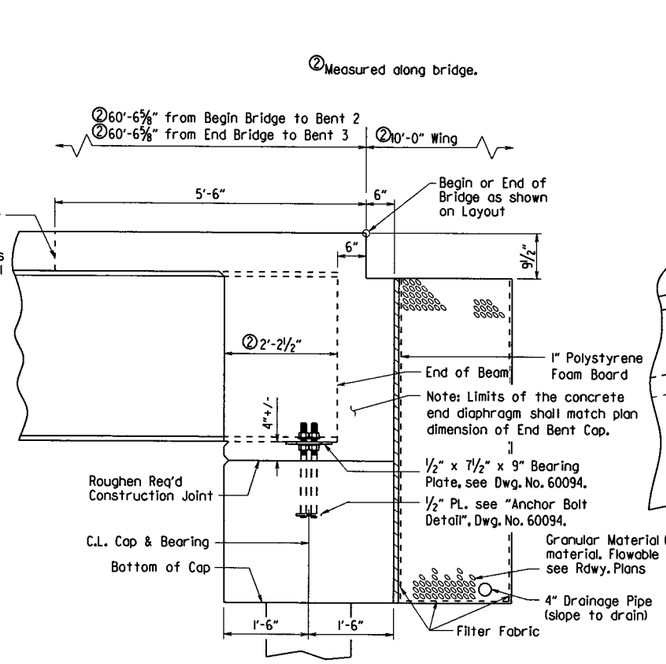
SECTION B-B

¾" = 1'-0"



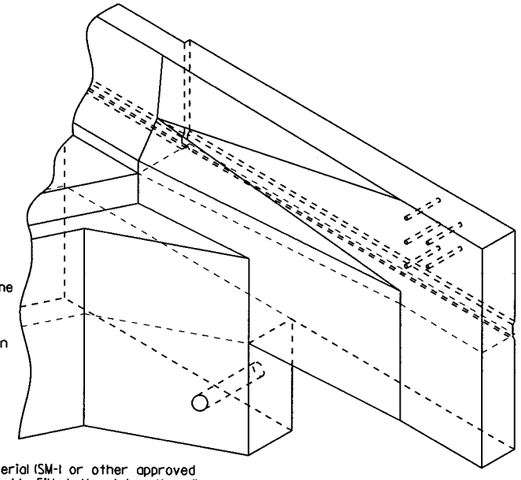
SECTION C-C

¾" = 1'-0"



SECTION AT END BENT

NO SCALE



THREE DIMENSIONAL VIEW OF INTEGRAL BENT

NO SCALE

NOTES:
For additional details of pipe underdrain see Std. Dwg. PU-1 and Section 611. Pipe underdrains will not be measured or paid for separately, but will be considered subsidiary to the unit price bid for "Unclassified Excavation".

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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-15-18
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 6
DETAILS OF 195'-0" CONTINUOUS COMPOSITE INTEGRAL W-BEAM UNIT
BIG SLOUGH

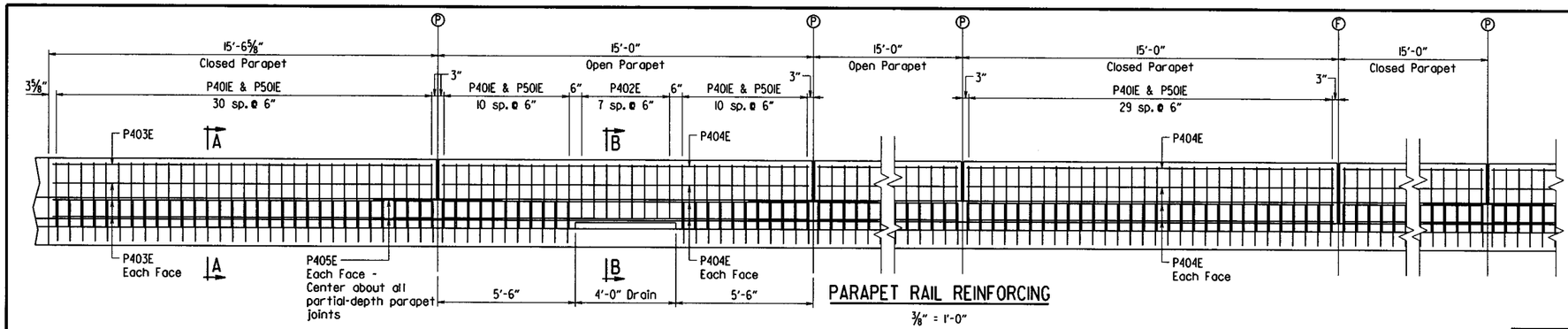
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 7/17/17 FILENAME: bl00870x2_sl.dgn
CHECKED BY: Ditt DATE: 2/14/18 SCALE: As Shown
DESIGNED BY: Ditt DATE: 4/2017
BRIDGE NO. 07420 DRAWING NO. 60095

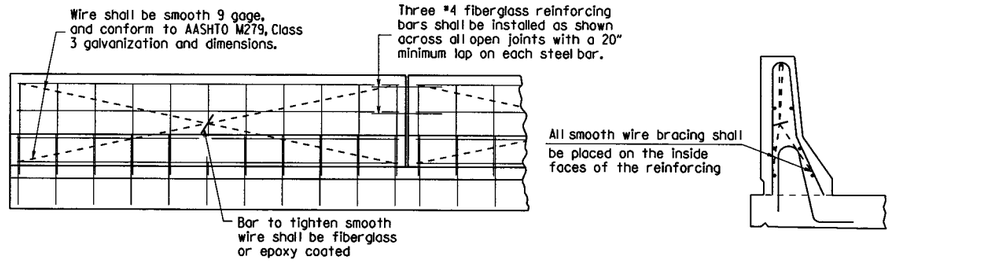
PRINT DATE: 2/14/2018

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.		100870	8	10
				①		07420 - 195'-0" UNIT - 60096		



PARAPET RAIL REINFORCING

⅜" = 1'-0"

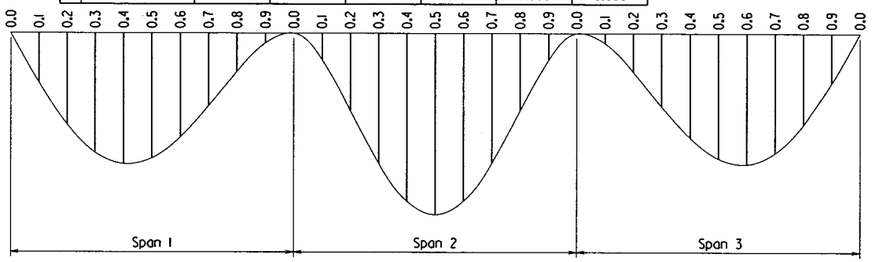


All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet 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.

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
1	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.028	0.026	0.182	0.152	0.197	0.167
	0.2	0.052	0.048	0.335	0.280	0.362	0.308
	0.3	0.068	0.063	0.438	0.366	0.473	0.402
	0.4	0.074	0.069	0.480	0.401	0.518	0.441
	0.5	0.071	0.066	0.459	0.383	0.496	0.421
	0.6	0.059	0.055	0.383	0.319	0.414	0.351
	0.7	0.041	0.039	0.268	0.223	0.289	0.245
	0.8	0.022	0.020	0.140	0.117	0.151	0.129
	0.9	0.006	0.005	0.036	0.030	0.039	0.033
2	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.015	0.014	0.098	0.081	0.106	0.089
	0.2	0.044	0.041	0.284	0.237	0.307	0.260
	0.3	0.074	0.069	0.477	0.398	0.515	0.437
	0.4	0.095	0.089	0.616	0.514	0.665	0.565
	0.5	0.103	0.096	0.666	0.556	0.719	0.611
	0.6	0.095	0.089	0.616	0.514	0.665	0.565
	0.7	0.074	0.069	0.477	0.398	0.515	0.437
	0.8	0.044	0.041	0.284	0.237	0.307	0.260
	0.9	0.015	0.014	0.098	0.081	0.106	0.089
3	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.006	0.005	0.036	0.030	0.039	0.033
	0.2	0.022	0.020	0.140	0.117	0.151	0.129
	0.3	0.041	0.039	0.268	0.223	0.289	0.245
	0.4	0.059	0.055	0.383	0.319	0.414	0.351
	0.5	0.071	0.066	0.459	0.383	0.496	0.421
	0.6	0.074	0.069	0.480	0.401	0.518	0.441
	0.7	0.068	0.063	0.438	0.366	0.473	0.402
	0.8	0.052	0.048	0.335	0.280	0.362	0.308
	0.9	0.028	0.026	0.182	0.152	0.197	0.167
	0	0.000	0.000	0.000	0.000	0.000	0.000



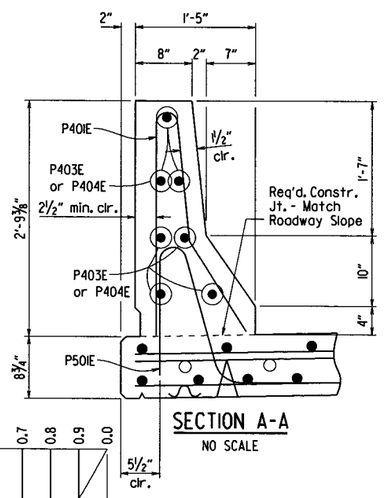
Camber for Dead Load Deflection plus Vertical curve +/-¼" tolerance. Deflections shown are along C.L. Beam from a chord from C.L. Bearing to C.L. Bearing. Negative sign (-) indicates point above chord. Vertical curve corrections not included.

DEAD LOAD DEFLECTION DIAGRAM

NO SCALE

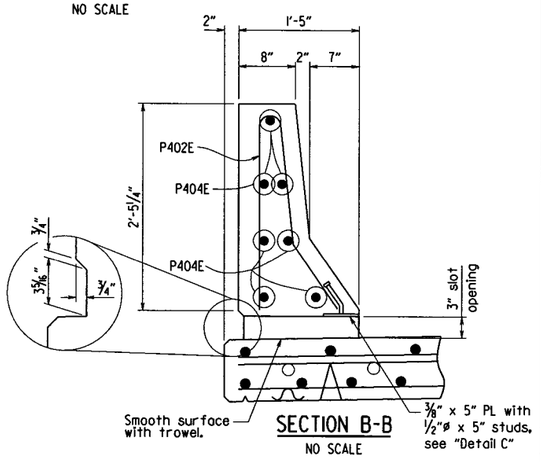
DETAILS OF OPTIONAL SLIP FORMING OF CONCRETE PARAPET RAIL

NO SCALE



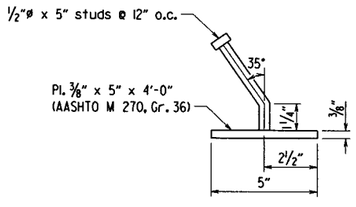
SECTION A-A

NO SCALE



SECTION B-B

NO SCALE



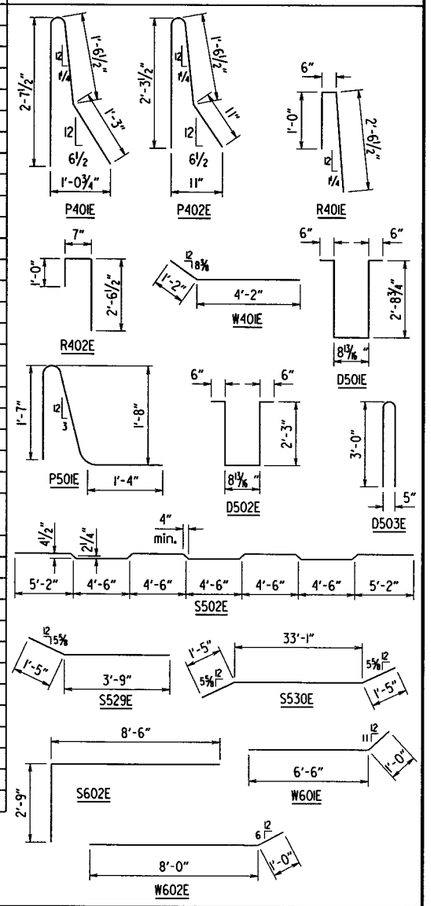
DETAIL C

NO SCALE

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
D501E	88	6'-10"	2½"
D502E	8	6'-0"	2½"
D503E	32	6'-2"	3¾"
D601E	44	8'-9"	Str.
D602E	8	3'-2"	Str.
D603E	118	4'-6"	Str.
P401E	672	5'-6"	3"
P402E	112	4'-10"	3"
P403E	28	15'-2"	Str.
P404E	154	14'-8"	Str.
P405E	80	5'-2"	Str.
P501E	672	4'-8"	3¾"
R401E	20	3'-11"	2"
R402E	20	4'-0"	2"
R403E	24	9'-8"	Str.
R404E	24	3'-10"	Str.
R601E	32	6'-5"	Str.
R602E	12	5'-0"	Str.
S401E	552	34'-10"	Str.
S402E	182	32'-10"	Str.
S501E	182	32'-10"	Str.
S502E	181	33'-6"	3"
S503E	776	4'-10"	Str.
S504E-S528E	4 Each	Var. 5'-4" to 31'-1"	Str.
S529E	12	5'-2"	3¾"
S530E	4	35'-11"	3¾"
S601E	66	31'-0"	Str.
S602E	66	11'-1"	4½"
W401E	20	5'-4"	2"
W402E	20	6'-5"	Str.
W601E	8	7'-6"	4½"
W602E	8	9'-0"	4½"
W701E	40	12'-0"	Str.

BENDING DIAGRAMS



Dimensions are out to out of bars.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
2-15-18
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 6 OF 6
DETAILS OF 195'-0" CONTINUOUS COMPOSITE INTEGRAL W-BEAM UNIT BIG SLOUGH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 7/17/17 FILENAME: bl00870x2_sl.dgn
CHECKED BY: DHP DATE: 2/14/18 SCALE: As Shown
DESIGNED BY: DHP DATE: 4/2017
BRIDGE NO. 07420 DRAWING NO. 60096

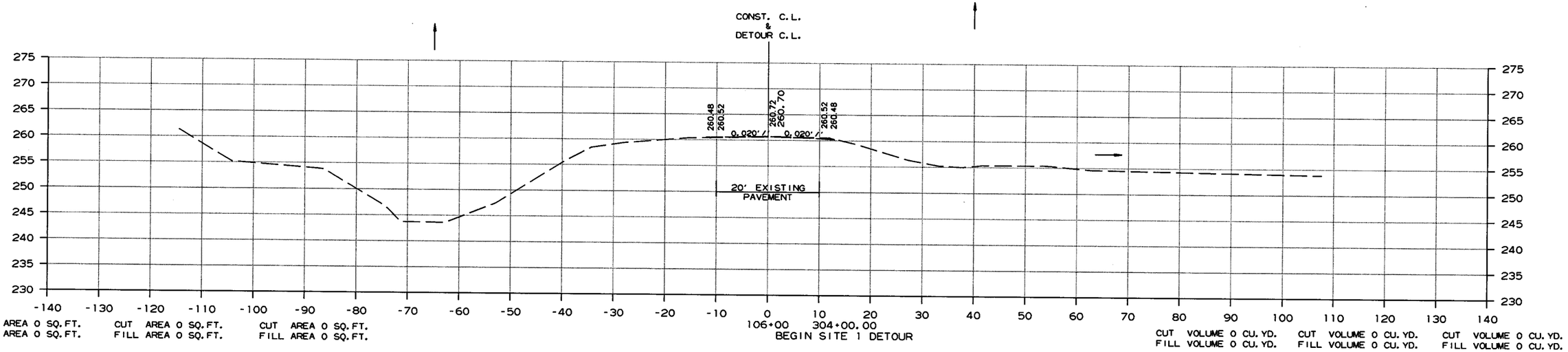
PRINT DATE: 2/14/2018

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	82	101

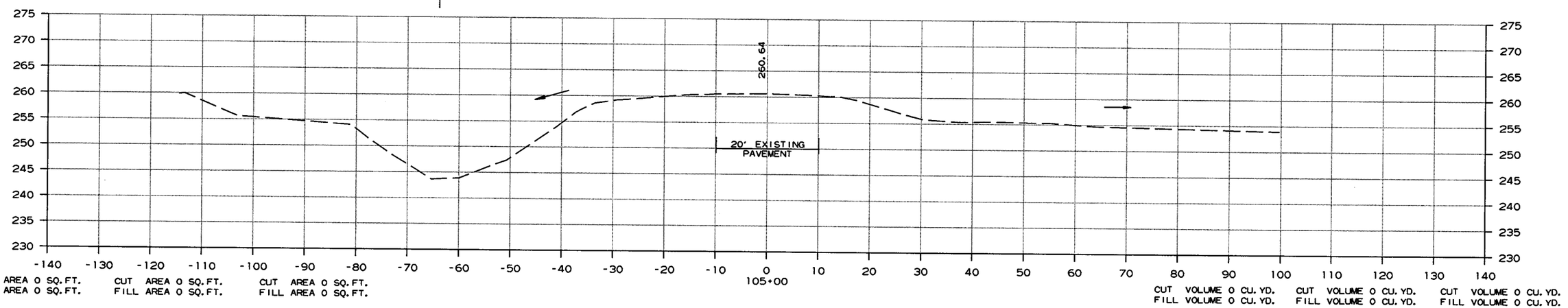
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3



STA. 106+00
BEGIN 100' TRANSITION



CROSS SECTION STA. 105+00 TO STA. 106+00

1/30/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	83	101

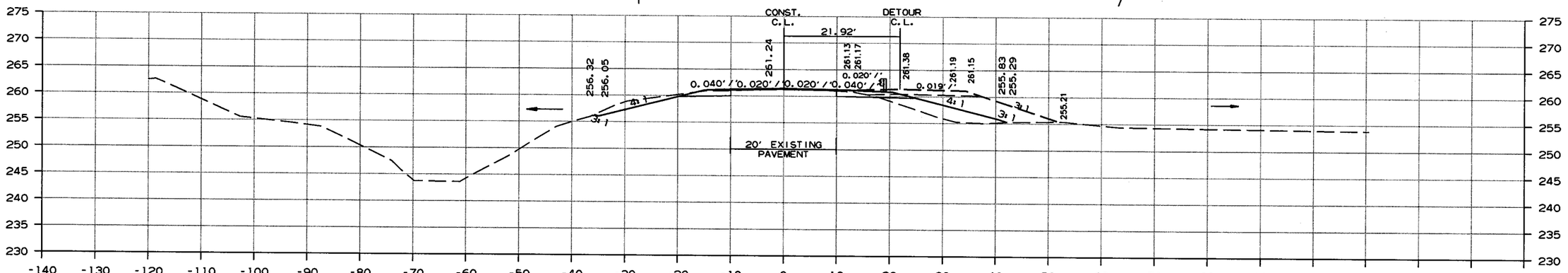
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3

STA. 108+90.35 BEGIN
GUARDRAIL ON LT.

STA. 108+47.35 BEGIN
GUARDRAIL WIDENING ON LT.

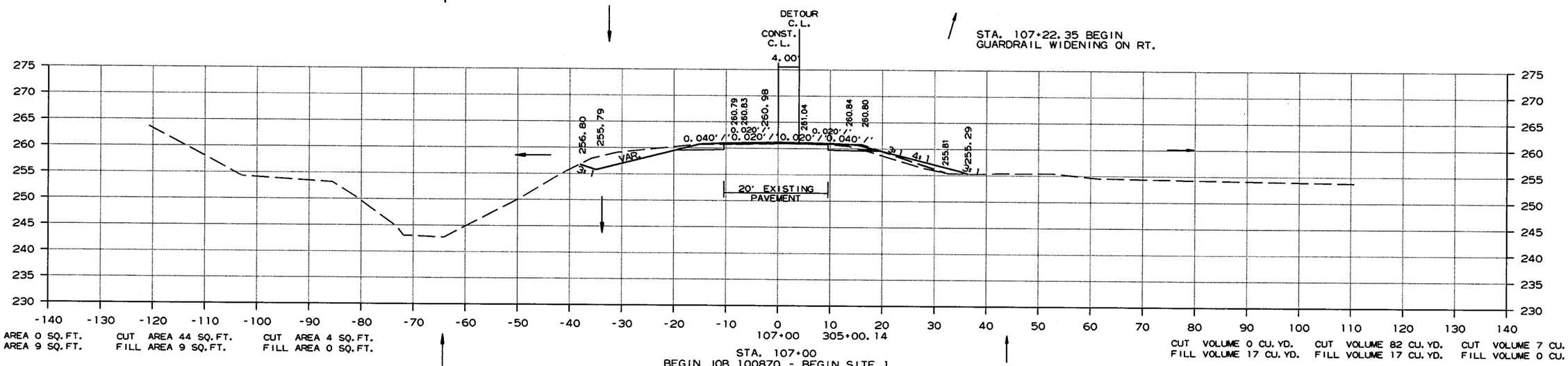


CUT AREA 0 SQ.FT. FILL AREA 104 SQ.FT.
CUT AREA 28 SQ.FT. FILL AREA 40 SQ.FT.
CUT AREA 81 SQ.FT. FILL AREA 0 SQ.FT.

STA. 107+65.35 BEGIN
GUARDRAIL ON RT.

CUT VOLUME 0 CU.YD. FILL VOLUME 209 CU.YD.
CUT VOLUME 133 CU.YD. FILL VOLUME 91 CU.YD.
CUT VOLUME 158 CU.YD. FILL VOLUME 0 CU.YD.

STA. 107+22.35 BEGIN
GUARDRAIL WIDENING ON RT.



CUT AREA 0 SQ.FT. FILL AREA 9 SQ.FT.
CUT AREA 44 SQ.FT. FILL AREA 9 SQ.FT.
CUT AREA 4 SQ.FT. FILL AREA 0 SQ.FT.

STA. 107+00
BEGIN JOB 100870 - BEGIN SITE 1
END 100' TRANSITION

CUT VOLUME 0 CU.YD. FILL VOLUME 17 CU.YD.
CUT VOLUME 82 CU.YD. FILL VOLUME 17 CU.YD.
CUT VOLUME 7 CU.YD. FILL VOLUME 0 CU.YD.

CROSS SECTION STA. 107+00 TO STA. 108+00

1/30/2018

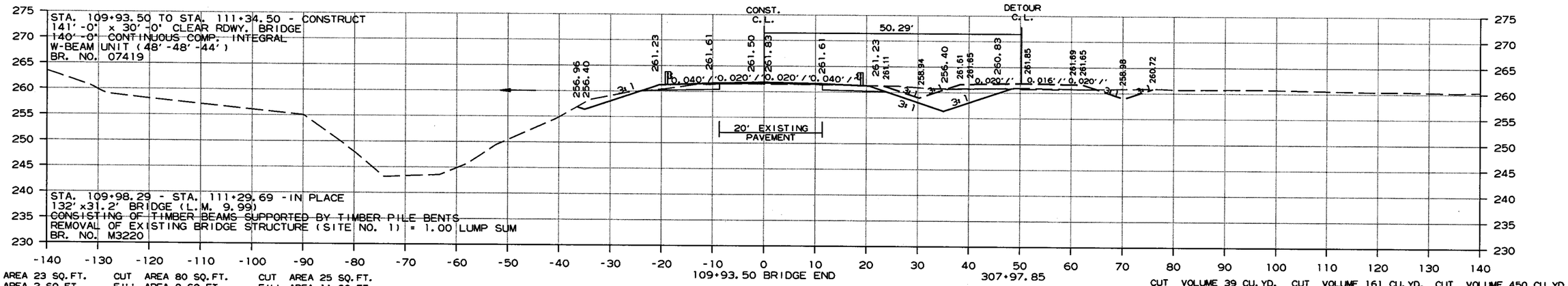
R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	84	101

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3

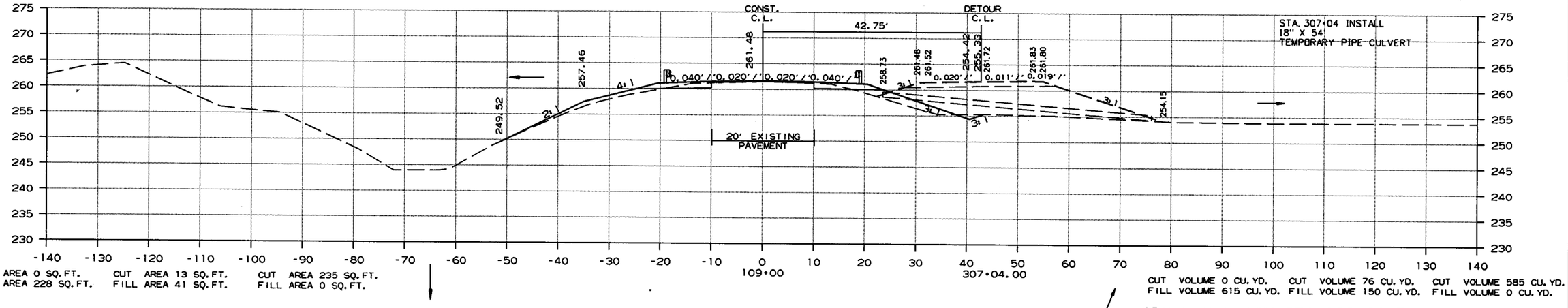


CUT AREA 23 SQ.FT. CUT AREA 80 SQ.FT. CUT AREA 25 SQ.FT.
FILL AREA 2 SQ.FT. FILL AREA 0 SQ.FT. FILL AREA 11 SQ.FT.

CUT VOLUME 39 CU.YD. CUT VOLUME 161 CU.YD. CUT VOLUME 450 CU.YD.
FILL VOLUME 398 CU.YD. FILL VOLUME 71 CU.YD. FILL VOLUME 19 CU.YD.

STA. 109+83.50 END
GUARDRAIL WIDENING ON LT.

STA. 109+83.50 END
GUARDRAIL WIDENING ON RT.



CUT AREA 0 SQ.FT. CUT AREA 13 SQ.FT. CUT AREA 235 SQ.FT.
FILL AREA 228 SQ.FT. FILL AREA 41 SQ.FT. FILL AREA 0 SQ.FT.

CUT VOLUME 0 CU.YD. CUT VOLUME 76 CU.YD. CUT VOLUME 585 CU.YD.
FILL VOLUME 615 CU.YD. FILL VOLUME 150 CU.YD. FILL VOLUME 0 CU.YD.

CROSS SECTION STA. 109+00 TO STA. 109+94

1/30/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	85	101

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

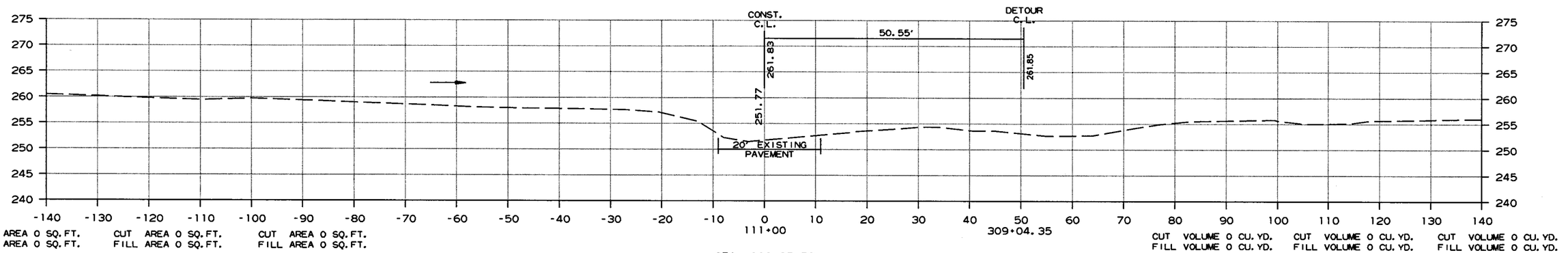
STAGE 1 STAGE 2 STAGE 3

STA. 111+03.49
TOE OF SLOPE

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

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

STA. 309+17
END TEMPORARY
BRIDGE END



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

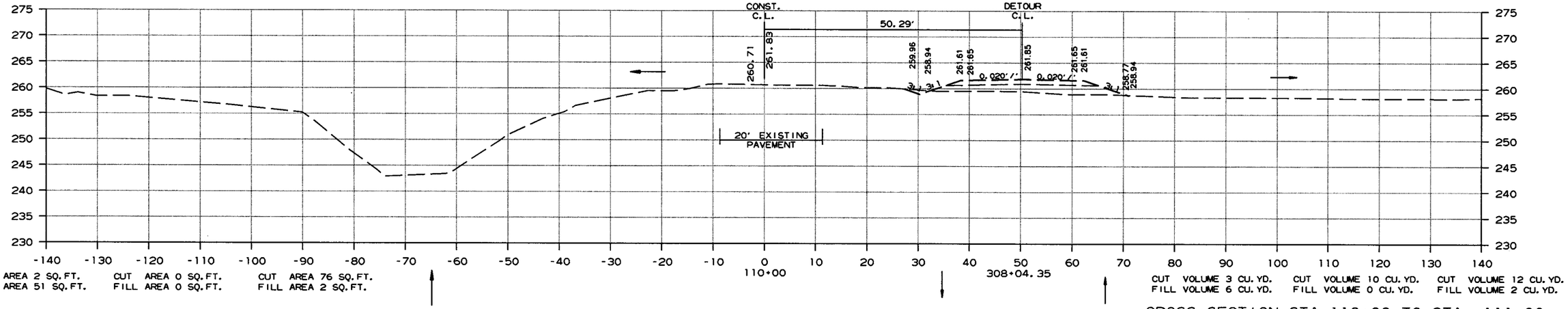
CUT VOLUME 0 CU.YD. CUT VOLUME 0 CU.YD. CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD. FILL VOLUME 0 CU.YD. FILL VOLUME 0 CU.YD.

STA. 110+25.59
TOE OF SLOPE

STA. 308+24
BEGIN TEMPORARY
BRIDGE END

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

CUT VOLUME 1 CU.YD. CUT VOLUME 0 CU.YD. CUT VOLUME 36 CU.YD.
FILL VOLUME 24 CU.YD. FILL VOLUME 0 CU.YD. FILL VOLUME 1 CU.YD.



CUT AREA 2 SQ.FT. CUT AREA 0 SQ.FT. CUT AREA 76 SQ.FT.
FILL AREA 51 SQ.FT. FILL AREA 0 SQ.FT. FILL AREA 2 SQ.FT.

CUT VOLUME 3 CU.YD. CUT VOLUME 10 CU.YD. CUT VOLUME 12 CU.YD.
FILL VOLUME 6 CU.YD. FILL VOLUME 0 CU.YD. FILL VOLUME 2 CU.YD.

CROSS SECTION STA. 110+00 TO STA. 111+00

1/30/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	86	101

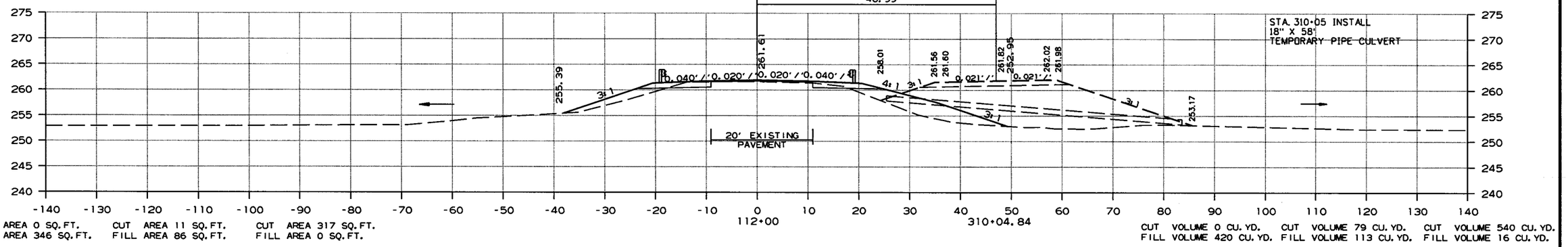
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3

STA. 112+83.65 END
GUARDRAIL WIDENING ON RT.

STA. 112+40.65 END
GUARDRAIL ON RT.

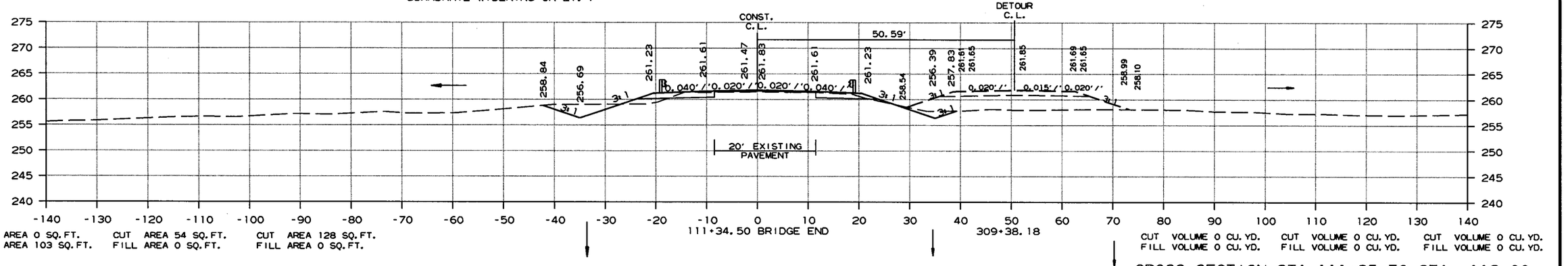


CUT AREA 0 SQ.FT. CUT AREA 11 SQ.FT. CUT AREA 317 SQ.FT.
FILL AREA 346 SQ.FT. FILL AREA 86 SQ.FT. FILL AREA 0 SQ.FT.

CUT VOLUME 0 CU.YD. CUT VOLUME 79 CU.YD. CUT VOLUME 540 CU.YD.
FILL VOLUME 420 CU.YD. FILL VOLUME 113 CU.YD. FILL VOLUME 16 CU.YD.

STA. 111+43.90 BEGIN
GUARDRAIL WIDENING ON LT.

STA. 111+43.90 BEGIN
GUARDRAIL WIDENING ON RT.



CUT AREA 0 SQ.FT. CUT AREA 54 SQ.FT. CUT AREA 128 SQ.FT.
FILL AREA 103 SQ.FT. FILL AREA 0 SQ.FT. FILL AREA 0 SQ.FT.

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

CROSS SECTION STA. 111+35 TO STA. 112+00

1/30/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	87	101

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

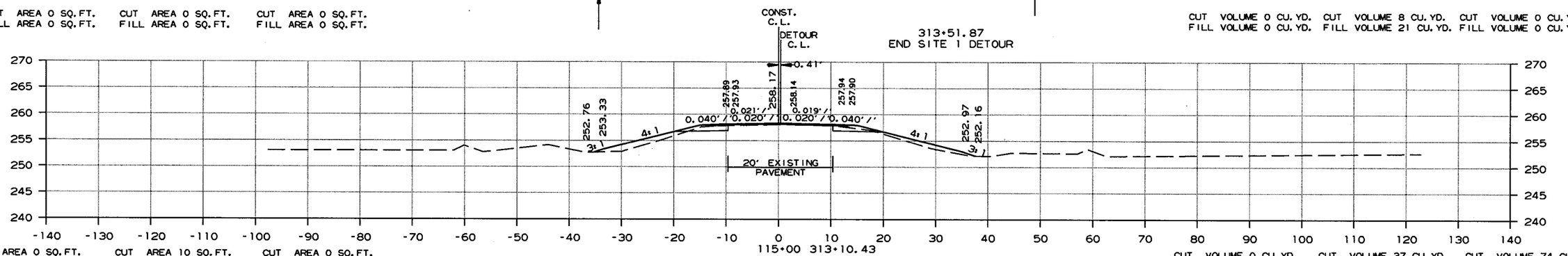
CUT AREA 0 SQ.FT. CUT AREA 0 SQ.FT. CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT. FILL AREA 0 SQ.FT. FILL AREA 0 SQ.FT.

STA. 115+41.72
END SITE 1
BEGIN 100' TRANSITION

313+51.87
END SITE 1 DETOUR

STAGE 1 STAGE 2 STAGE 3

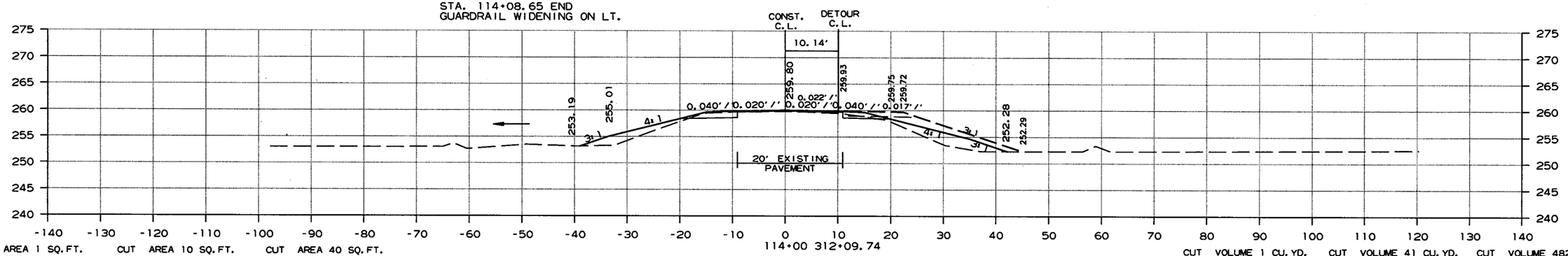
CUT VOLUME 0 CU. YD. CUT VOLUME 8 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 21 CU. YD. FILL VOLUME 0 CU. YD.



CUT AREA 0 SQ.FT. CUT AREA 10 SQ.FT. CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT. FILL AREA 27 SQ.FT. FILL AREA 0 SQ.FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 37 CU. YD. CUT VOLUME 74 CU. YD.
FILL VOLUME 116 CU. YD. FILL VOLUME 154 CU. YD. FILL VOLUME 0 CU. YD.

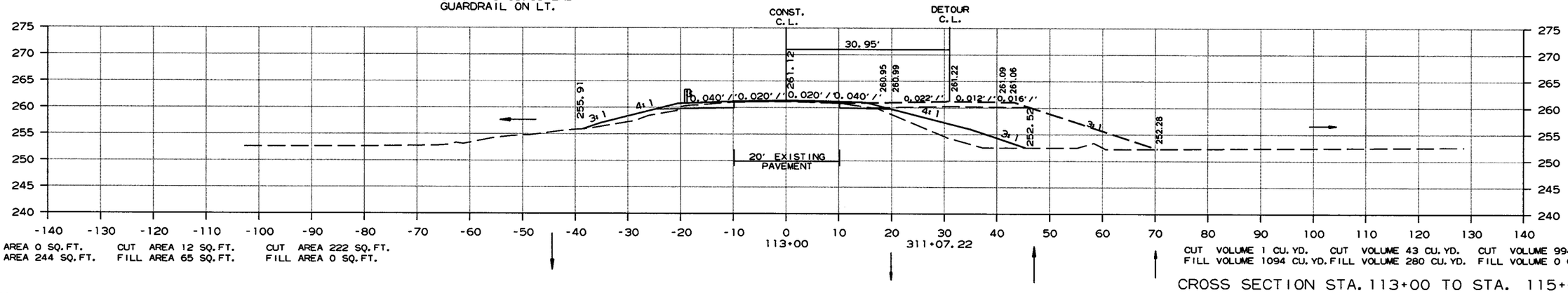
STA. 114+08.65 END
GUARDRAIL WIDENING ON LT.



CUT AREA 1 SQ.FT. CUT AREA 10 SQ.FT. CUT AREA 40 SQ.FT.
FILL AREA 62 SQ.FT. FILL AREA 56 SQ.FT. FILL AREA 0 SQ.FT.

CUT VOLUME 1 CU. YD. CUT VOLUME 41 CU. YD. CUT VOLUME 482 CU. YD.
FILL VOLUME 568 CU. YD. FILL VOLUME 224 CU. YD. FILL VOLUME 0 CU. YD.

STA. 113+65.65 END
GUARDRAIL ON LT.



CUT AREA 0 SQ.FT. CUT AREA 12 SQ.FT. CUT AREA 222 SQ.FT.
FILL AREA 244 SQ.FT. FILL AREA 65 SQ.FT. FILL AREA 0 SQ.FT.

CUT VOLUME 1 CU. YD. CUT VOLUME 43 CU. YD. CUT VOLUME 994 CU. YD.
FILL VOLUME 1094 CU. YD. FILL VOLUME 280 CU. YD. FILL VOLUME 0 CU. YD.

CROSS SECTION STA. 113+00 TO STA. 115+00

1/30/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	88	101

(2) CROSS SECTIONS

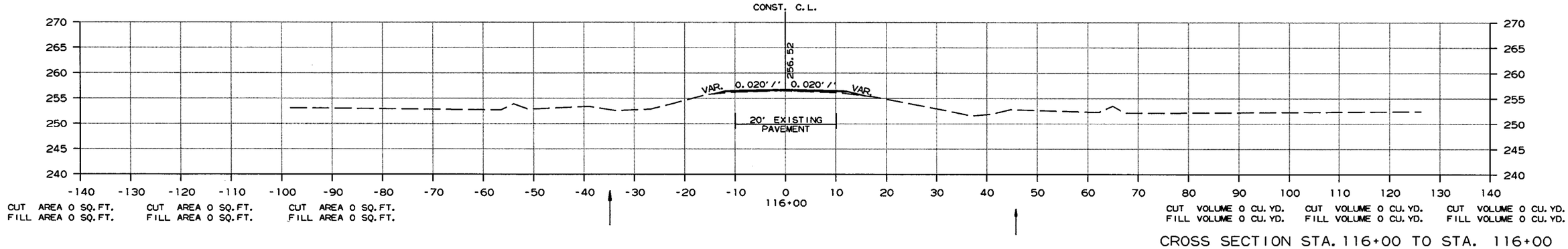
STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3

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

STA. 116+41.72
END JOB 100' TRANSITION

CUT VOLUME 0 CU.YD. CUT VOLUME 0 CU.YD. CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD. FILL VOLUME 0 CU.YD. FILL VOLUME 20 CU.YD.



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

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

CROSS SECTION STA. 116+00 TO STA. 116+00

1/30/2018

R100870.DGN

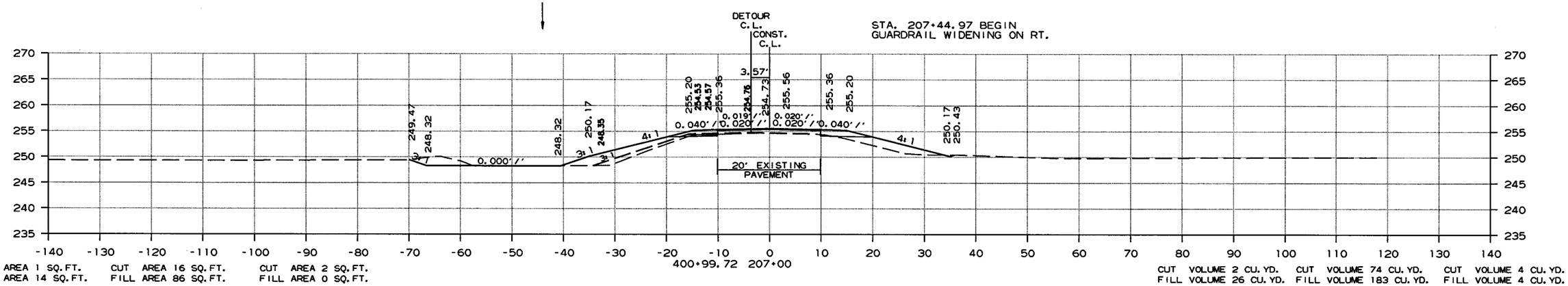
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	89	101

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

STA. 207+87.97 BEGIN
GUARDRAIL ON RT.

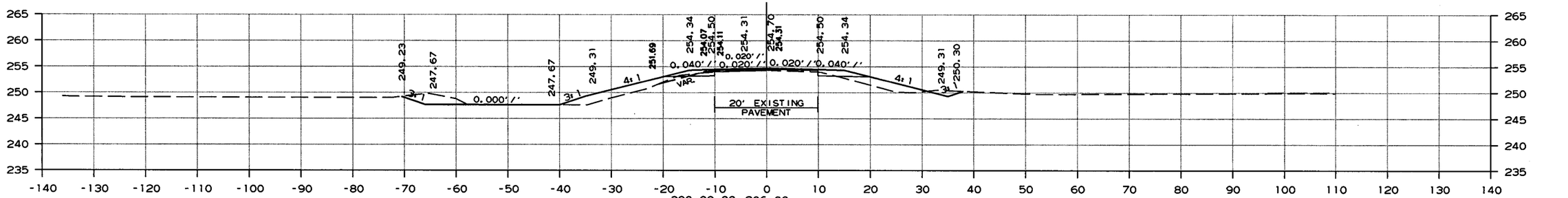
STA. 207+44.97 BEGIN
GUARDRAIL WIDENING ON RT.



CUT AREA 1 SQ.FT. FILL AREA 14 SQ.FT. | CUT AREA 16 SQ.FT. FILL AREA 86 SQ.FT. | CUT AREA 2 SQ.FT. FILL AREA 0 SQ.FT.

CUT VOLUME 2 CU.YD. FILL VOLUME 26 CU.YD. | CUT VOLUME 74 CU.YD. FILL VOLUME 183 CU.YD. | CUT VOLUME 4 CU.YD. FILL VOLUME 4 CU.YD.

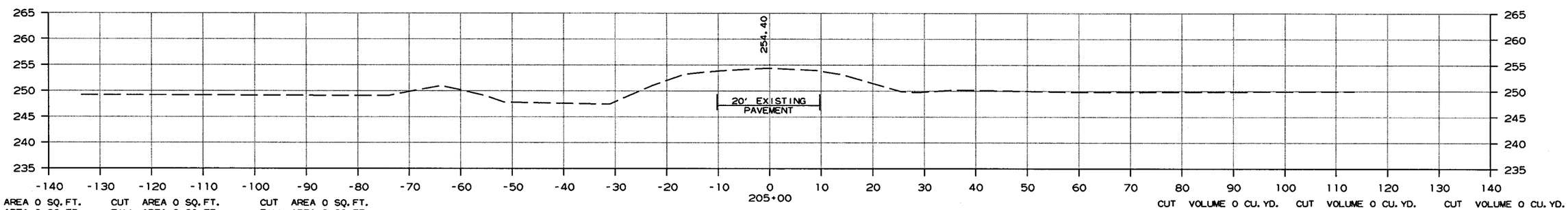
CONST. C.L.
&
DETOUR C.L.



CUT AREA 2 SQ.FT. FILL AREA 0 SQ.FT. | CUT AREA 24 SQ.FT. FILL AREA 48 SQ.FT. | CUT AREA 0 SQ.FT. FILL AREA 2 SQ.FT.

CUT VOLUME 0 CU.YD. FILL VOLUME 0 CU.YD. | CUT VOLUME 44 CU.YD. FILL VOLUME 89 CU.YD. | CUT VOLUME 0 CU.YD. FILL VOLUME 4 CU.YD.

STA. 206+00.00
BEGIN SITE 2
END 100' TRANSITION
L.M. 12.00



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

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

STA. 205+00.00
BEGIN 100' TRANSITION

CROSS SECTION STA. 205+00 TO STA. 207+00

1/30/2018

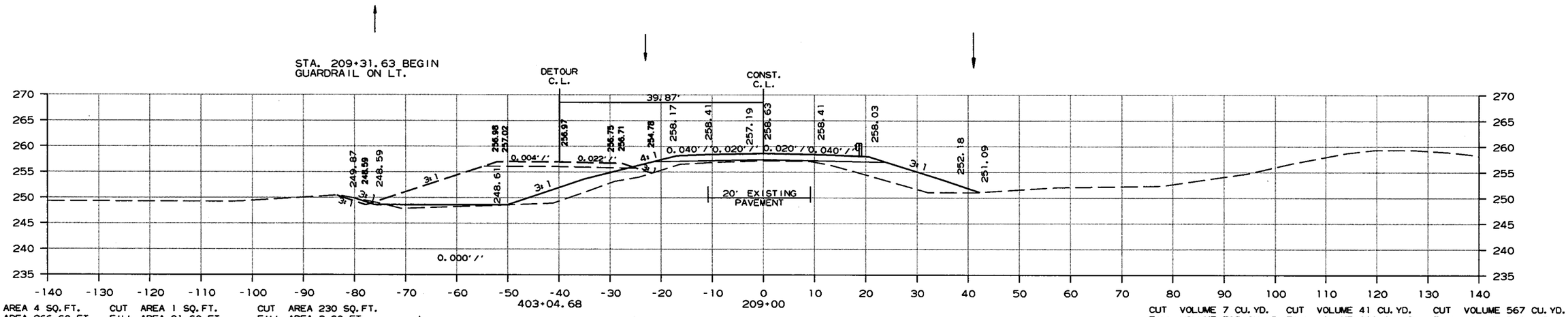
R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	90	101

(2) CROSS SECTIONS

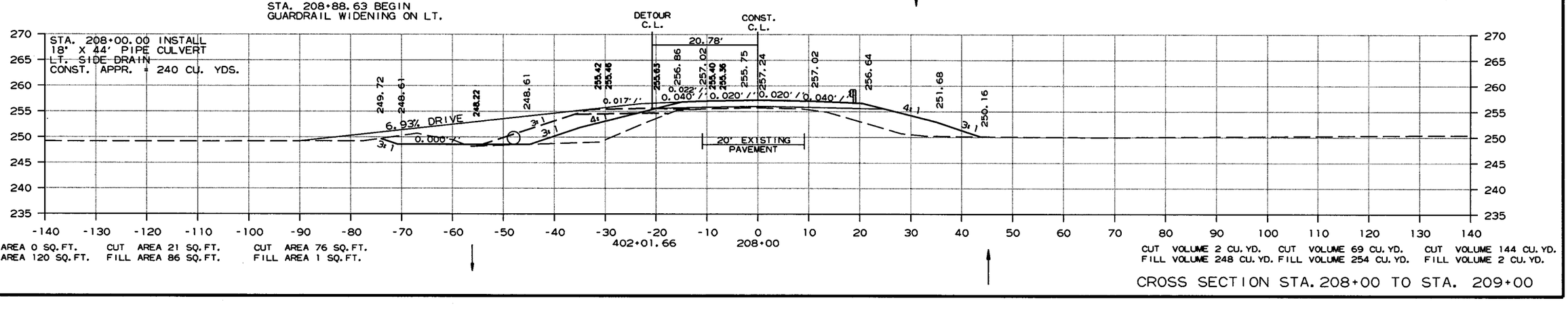
STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3



CUT AREA 4 SQ.FT. CUT AREA 1 SQ.FT. CUT AREA 230 SQ.FT.
FILL AREA 266 SQ.FT. FILL AREA 91 SQ.FT. FILL AREA 3 SQ.FT.

CUT VOLUME 7 CU. YD. CUT VOLUME 41 CU. YD. CUT VOLUME 567 CU. YD.
FILL VOLUME 715 CU. YD. FILL VOLUME 328 CU. YD. FILL VOLUME 7 CU. YD.



CUT AREA 0 SQ.FT. CUT AREA 21 SQ.FT. CUT AREA 76 SQ.FT.
FILL AREA 120 SQ.FT. FILL AREA 86 SQ.FT. FILL AREA 1 SQ.FT.

CUT VOLUME 2 CU. YD. CUT VOLUME 69 CU. YD. CUT VOLUME 144 CU. YD.
FILL VOLUME 248 CU. YD. FILL VOLUME 254 CU. YD. FILL VOLUME 2 CU. YD.

CROSS SECTION STA. 208+00 TO STA. 209+00

1/30/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	91	101

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

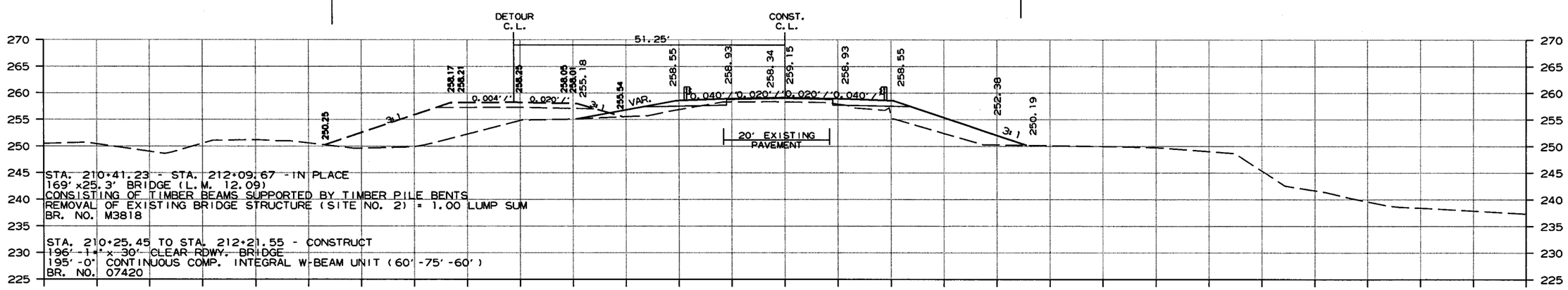
STAGE 1 STAGE 2 STAGE 3

STA. 404+76.50
BEGIN TEMPORARY
BRIDGE END

STA. 210+33.75
TOE OF SLOPE

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

CUT VOLUME 0 CU.YD. CUT VOLUME 0 CU.YD. CUT VOLUME 32 CU.YD.
FILL VOLUME 29 CU.YD. FILL VOLUME 13 CU.YD. FILL VOLUME 0 CU.YD.



STA. 210+41.23 - STA. 212+09.67 - IN PLACE
169'x25.3' BRIDGE (L.M. 12.09)
CONSISTING OF TIMBER BEAMS SUPPORTED BY TIMBER PILE BENTS
REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2) = 1.00 LUMP SUM
BR. NO. M3818

STA. 210+25.45 TO STA. 212+21.55 - CONSTRUCT
196'-1"x 30' CLEAR RDWY. BRIDGE
195'-0" CONTINUOUS COMP. INTEGRAL W-BEAM UNIT (60'-75'-60')
BR. NO. 07420

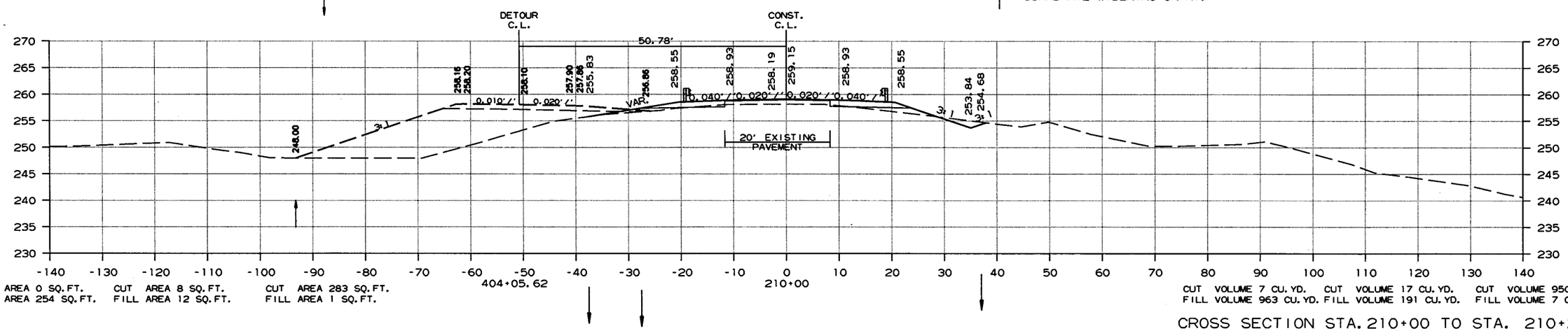
CUT AREA 0 SQ.FT. CUT AREA 2 SQ.FT. CUT AREA 209 SQ.FT.
FILL AREA 188 SQ.FT. FILL AREA 83 SQ.FT. FILL AREA 0 SQ.FT.

CUT VOLUME 0 CU.YD. CUT VOLUME 5 CU.YD. CUT VOLUME 232 CU.YD.
FILL VOLUME 209 CU.YD. FILL VOLUME 45 CU.YD. FILL VOLUME 1 CU.YD.

210+25.45 BRIDGE END

STA. 210+16.05 END
GUARDRAIL WIDENING ON LT.

STA. 210+16.05 END
GUARDRAIL WIDENING ON RT.



CUT AREA 0 SQ.FT. CUT AREA 8 SQ.FT. CUT AREA 283 SQ.FT.
FILL AREA 254 SQ.FT. FILL AREA 12 SQ.FT. FILL AREA 1 SQ.FT.

CUT VOLUME 7 CU.YD. CUT VOLUME 17 CU.YD. CUT VOLUME 950 CU.YD.
FILL VOLUME 963 CU.YD. FILL VOLUME 191 CU.YD. FILL VOLUME 7 CU.YD.

CROSS SECTION STA. 210+00 TO STA. 210+25

1/30/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	92	101

(2) CROSS SECTIONS

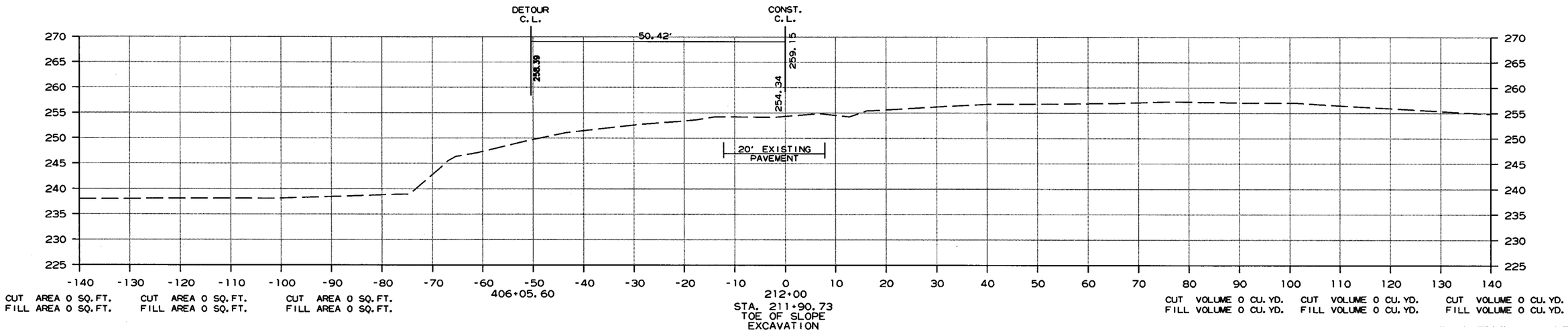
STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3

STA. 212+14.43
TOE OF SLOPE

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

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



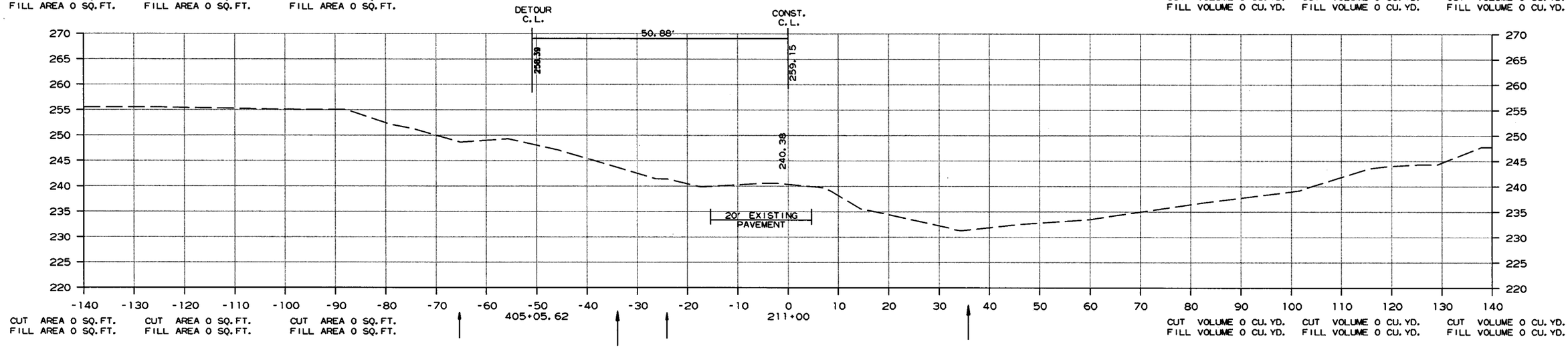
CUT AREA 0 SQ.FT. CUT AREA 0 SQ.FT. CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT. FILL AREA 0 SQ.FT. FILL AREA 0 SQ.FT.

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

STA. 211+90.73
TOE OF SLOPE
EXCAVATION

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

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



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

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

CROSS SECTION STA. 211+00 TO STA. 212+00

1/30/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	93	101

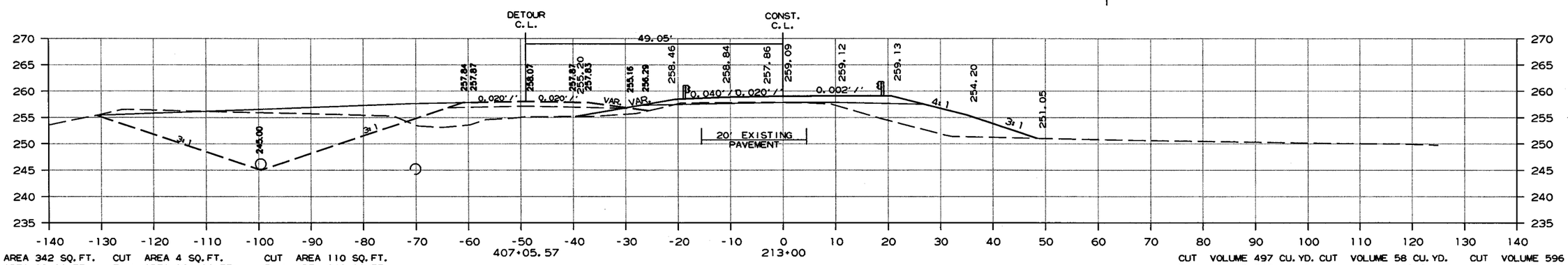
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3

STA. 213+58.37 END
GUARDRAIL WIDENING ON RT.

STA. 213+15.37 END
GUARDRAIL ON RT.



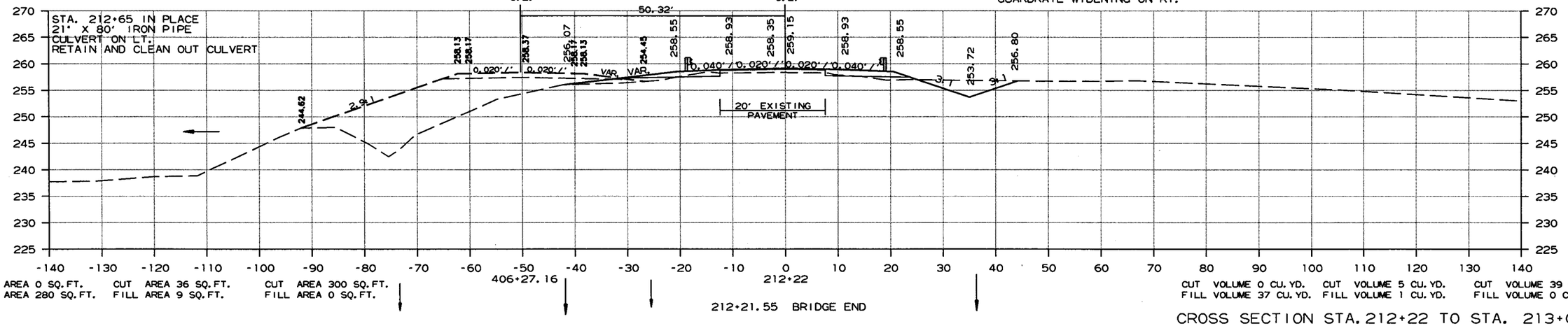
CUT AREA 342 SQ.FT. CUT AREA 4 SQ.FT. CUT AREA 110 SQ.FT.
FILL AREA 93 SQ.FT. FILL AREA 120 SQ.FT. FILL AREA 343 SQ.FT.

CUT VOLUME 497 CU.YD. CUT VOLUME 58 CU.YD. CUT VOLUME 596 CU.YD.
FILL VOLUME 542 CU.YD. FILL VOLUME 188 CU.YD. FILL VOLUME 499 CU.YD.

STA. 406+31.50
END TEMPORARY
BRIDGE END

STA. 212+30.95 BEGIN
GUARDRAIL WIDENING ON LT.

STA. 212+30.95 BEGIN
GUARDRAIL WIDENING ON RT.



212+21.55 BRIDGE END

CUT AREA 0 SQ.FT. CUT AREA 36 SQ.FT. CUT AREA 300 SQ.FT.
FILL AREA 280 SQ.FT. FILL AREA 9 SQ.FT. FILL AREA 0 SQ.FT.

CUT VOLUME 0 CU.YD. CUT VOLUME 5 CU.YD. CUT VOLUME 39 CU.YD.
FILL VOLUME 37 CU.YD. FILL VOLUME 1 CU.YD. FILL VOLUME 0 CU.YD.

CROSS SECTION STA. 212+22 TO STA. 213+00

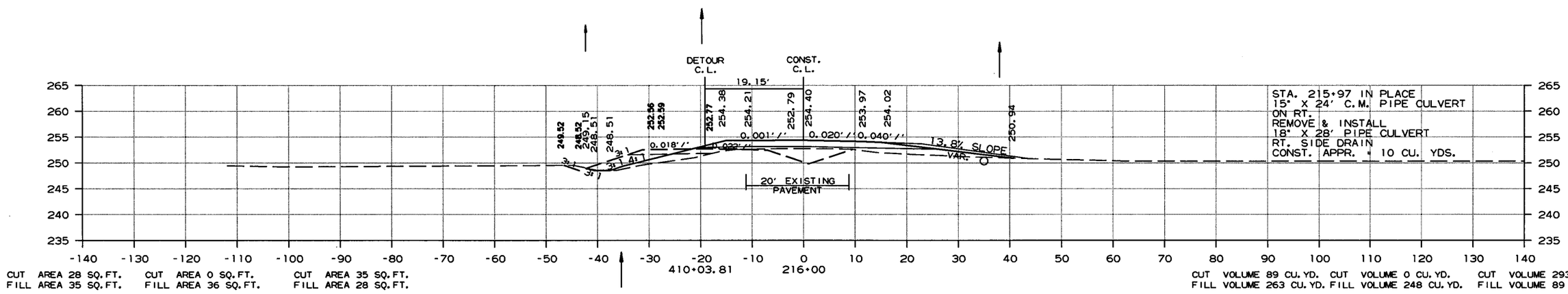
1/30/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	94	101

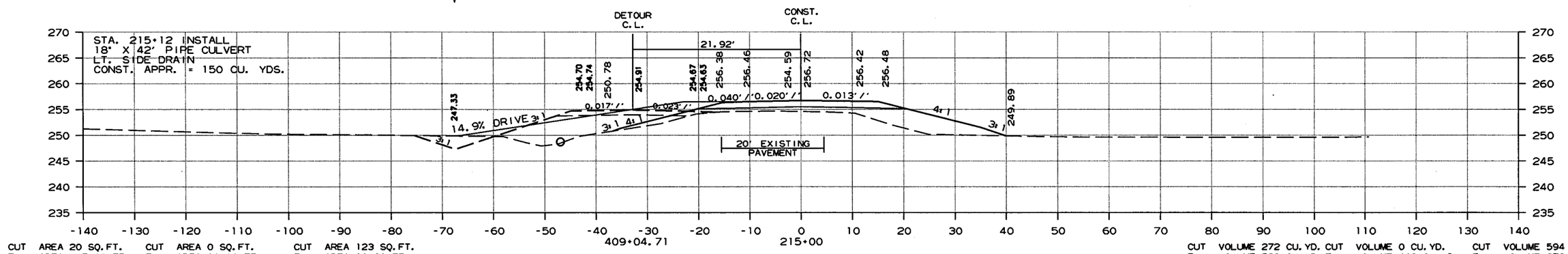
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3



CUT AREA 28 SQ.FT. FILL AREA 35 SQ.FT. | CUT AREA 0 SQ.FT. FILL AREA 36 SQ.FT. | CUT AREA 35 SQ.FT. FILL AREA 28 SQ.FT.

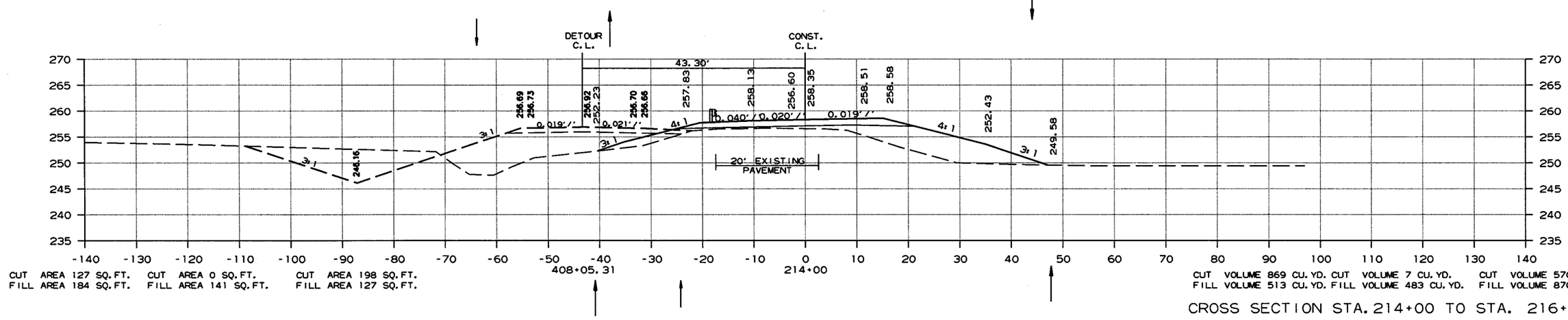
CUT VOLUME 89 CU.YD. FILL VOLUME 263 CU.YD. | CUT VOLUME 0 CU.YD. FILL VOLUME 248 CU.YD. | CUT VOLUME 293 CU.YD. FILL VOLUME 89 CU.YD.



CUT AREA 20 SQ.FT. FILL AREA 107 SQ.FT. | CUT AREA 0 SQ.FT. FILL AREA 98 SQ.FT. | CUT AREA 123 SQ.FT. FILL AREA 20 SQ.FT.

CUT VOLUME 272 CU.YD. FILL VOLUME 539 CU.YD. | CUT VOLUME 0 CU.YD. FILL VOLUME 443 CU.YD. | CUT VOLUME 594 CU.YD. FILL VOLUME 272 CU.YD.

STA. 214+59.03 END
GUARDRAIL ON LT.



CUT AREA 127 SQ.FT. FILL AREA 184 SQ.FT. | CUT AREA 0 SQ.FT. FILL AREA 141 SQ.FT. | CUT AREA 198 SQ.FT. FILL AREA 127 SQ.FT.

CUT VOLUME 869 CU.YD. FILL VOLUME 513 CU.YD. | CUT VOLUME 7 CU.YD. FILL VOLUME 483 CU.YD. | CUT VOLUME 570 CU.YD. FILL VOLUME 870 CU.YD.

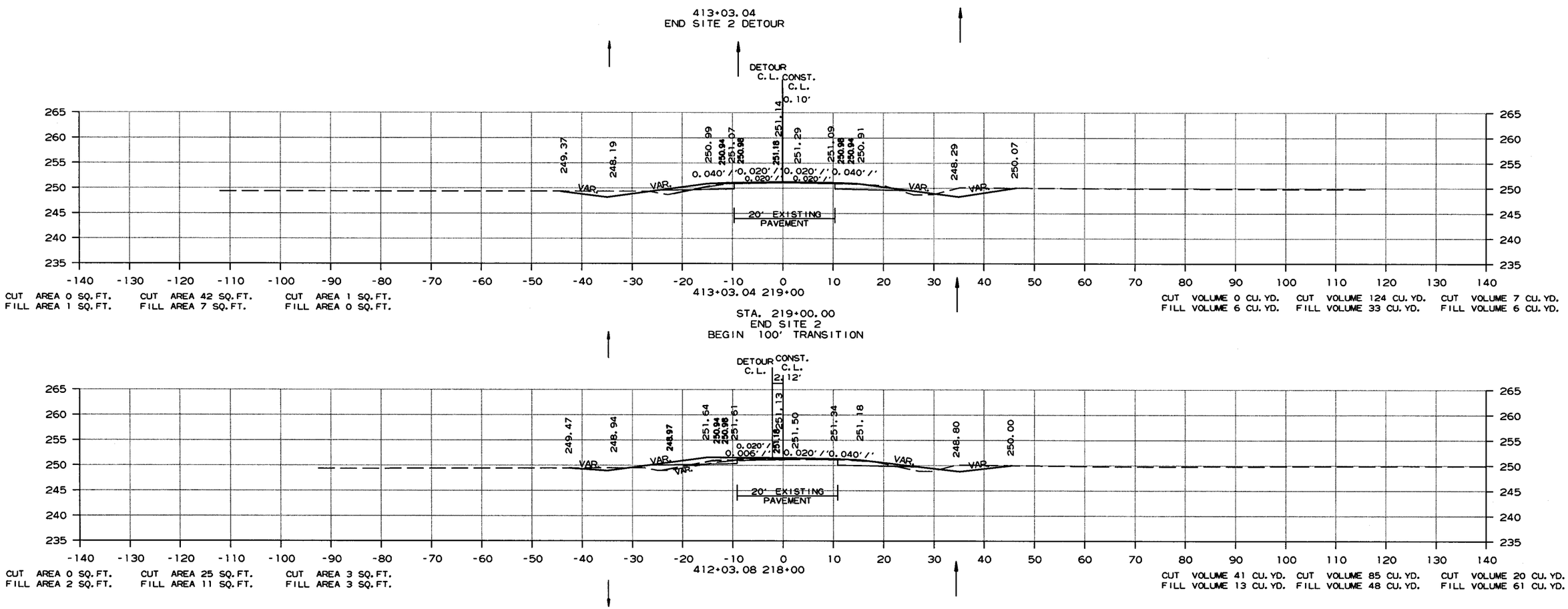
CROSS SECTION STA. 214+00 TO STA. 216+00

1/30/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	95	101

(2) CROSS SECTIONS



CROSS SECTION STA. 217+00 TO STA. 219+00

1/30/2018

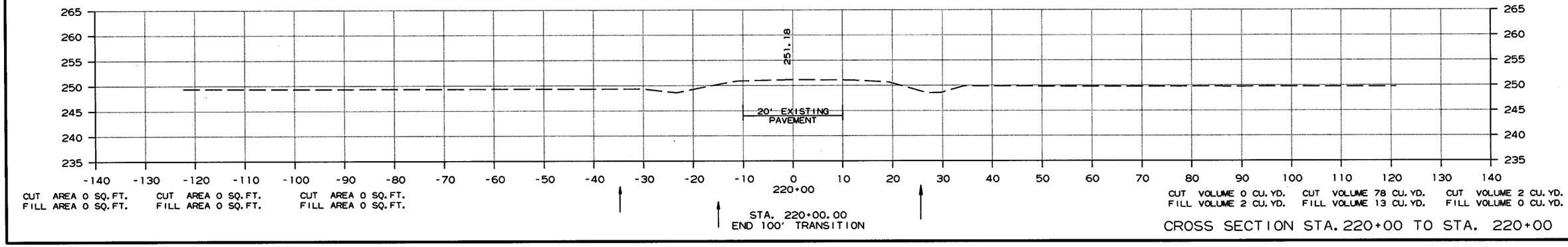
R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	96	101

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3



CROSS SECTION STA. 220+00 TO STA. 220+00

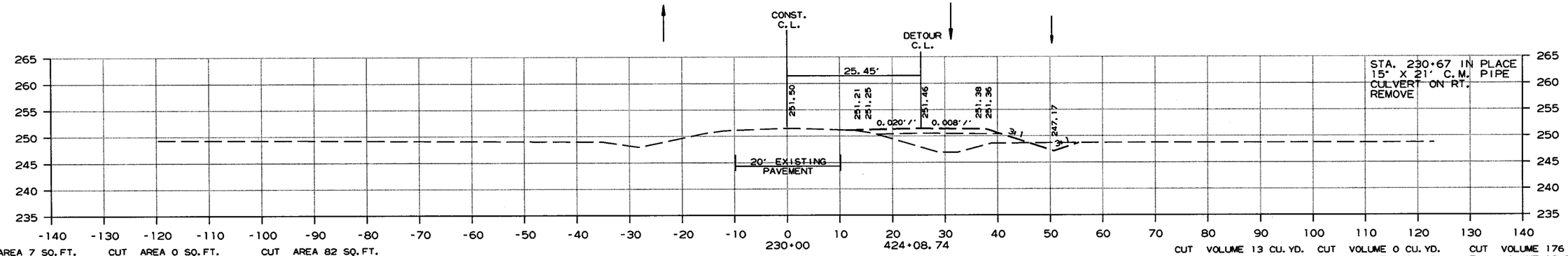
1/30/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	97	101

(2) CROSS SECTIONS

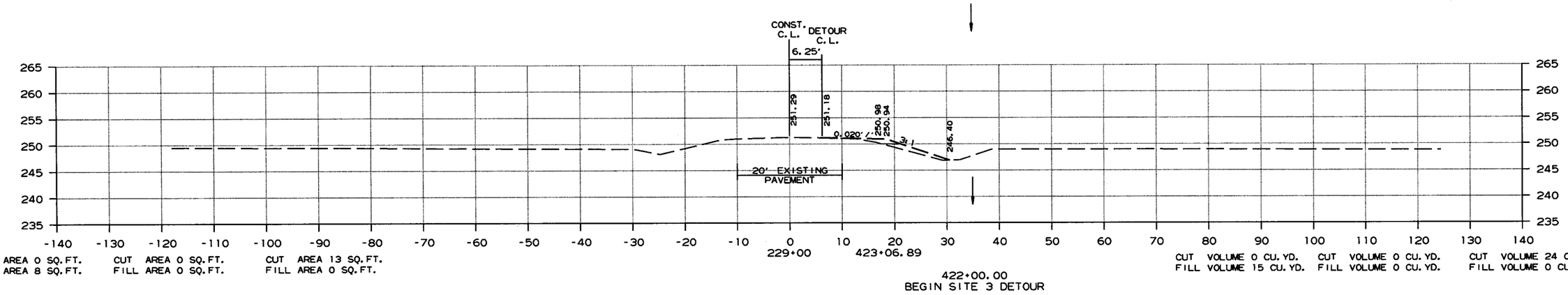
STAGE 1 STAGE 2 STAGE 3



CUT AREA 7 SQ.FT. FILL AREA 59 SQ.FT.
CUT AREA 0 SQ.FT. FILL AREA 0 SQ.FT.
CUT AREA 82 SQ.FT. FILL AREA 7 SQ.FT.

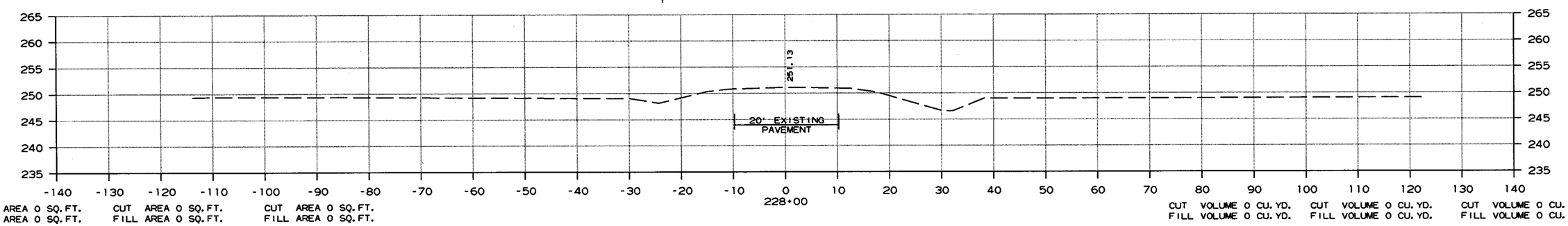
CUT VOLUME 13 CU.YD. FILL VOLUME 124 CU.YD.
CUT VOLUME 0 CU.YD. FILL VOLUME 0 CU.YD.
CUT VOLUME 176 CU.YD. FILL VOLUME 13 CU.YD.

STAGE 1 STAGE 2 STAGE 3



CUT AREA 0 SQ.FT. FILL AREA 8 SQ.FT.
CUT AREA 0 SQ.FT. FILL AREA 0 SQ.FT.
CUT AREA 13 SQ.FT. FILL AREA 0 SQ.FT.

CUT VOLUME 0 CU.YD. FILL VOLUME 15 CU.YD.
CUT VOLUME 0 CU.YD. FILL VOLUME 0 CU.YD.
CUT VOLUME 24 CU.YD. FILL VOLUME 0 CU.YD.



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

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

CROSS SECTION STA. 228+00 TO STA. 230+00

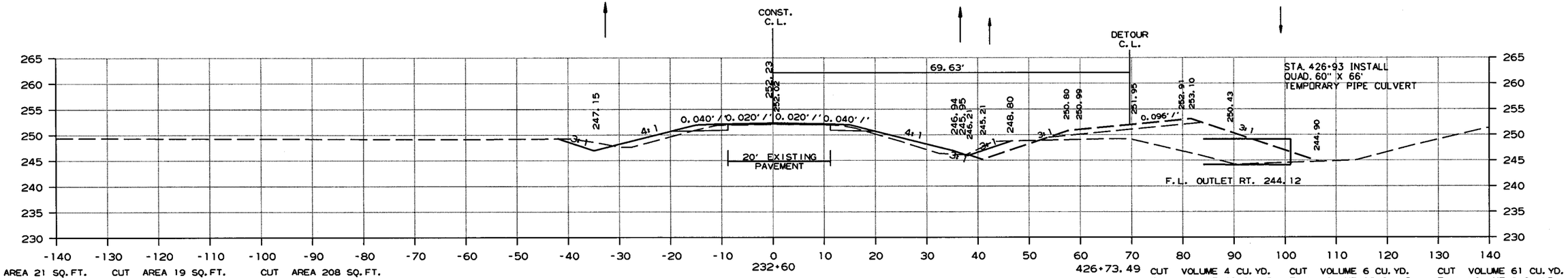
1/30/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	98	101

(2) CROSS SECTIONS

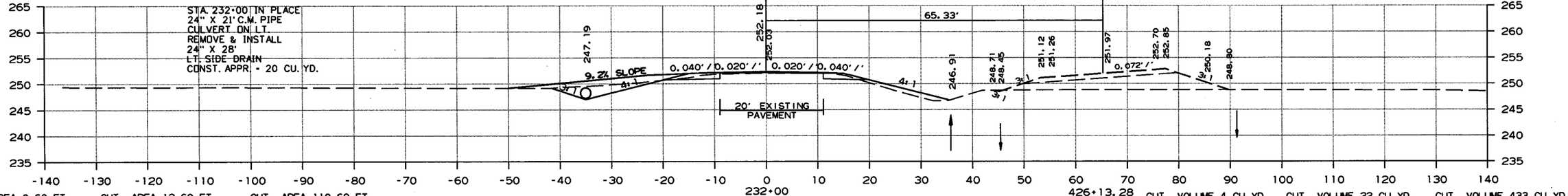
STAGE 1 STAGE 2 STAGE 3



CUT AREA 21 SQ.FT. CUT AREA 19 SQ.FT. CUT AREA 208 SQ.FT.
FILL AREA 167 SQ.FT. FILL AREA 28 SQ.FT. FILL AREA 0 SQ.FT.

CUT VOLUME 4 CU.YD. CUT VOLUME 6 CU.YD. CUT VOLUME 61 CU.YD.
FILL VOLUME 49 CU.YD. FILL VOLUME 12 CU.YD. FILL VOLUME 0 CU.YD.

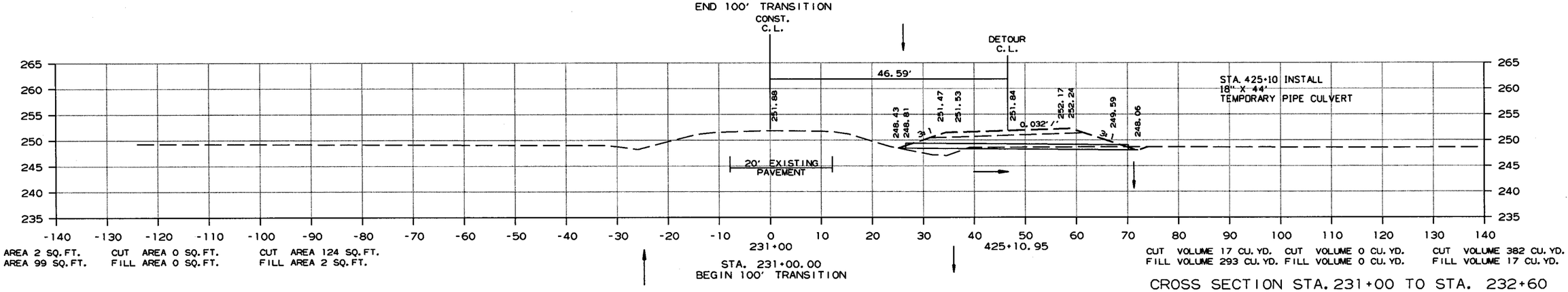
STAGE 1 STAGE 2 STAGE 3



CUT AREA 0 SQ.FT. CUT AREA 12 SQ.FT. CUT AREA 110 SQ.FT.
FILL AREA 85 SQ.FT. FILL AREA 36 SQ.FT. FILL AREA 0 SQ.FT.

CUT VOLUME 4 CU.YD. CUT VOLUME 22 CU.YD. CUT VOLUME 433 CU.YD.
FILL VOLUME 341 CU.YD. FILL VOLUME 67 CU.YD. FILL VOLUME 4 CU.YD.

STA. 232+00.00
BEGIN SITE 3
END 100' TRANSITION



CUT AREA 2 SQ.FT. CUT AREA 0 SQ.FT. CUT AREA 124 SQ.FT.
FILL AREA 99 SQ.FT. FILL AREA 0 SQ.FT. FILL AREA 2 SQ.FT.

CUT VOLUME 17 CU.YD. CUT VOLUME 0 CU.YD. CUT VOLUME 382 CU.YD.
FILL VOLUME 293 CU.YD. FILL VOLUME 0 CU.YD. FILL VOLUME 17 CU.YD.

STA. 231+00.00
BEGIN 100' TRANSITION

CROSS SECTION STA. 231+00 TO STA. 232+60

1/30/2018

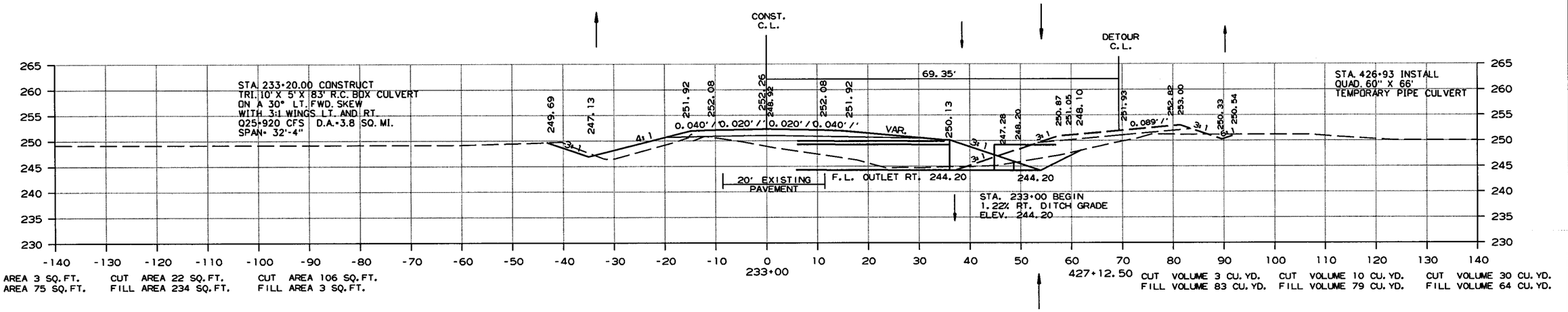
R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	99	101

(2) CROSS SECTIONS

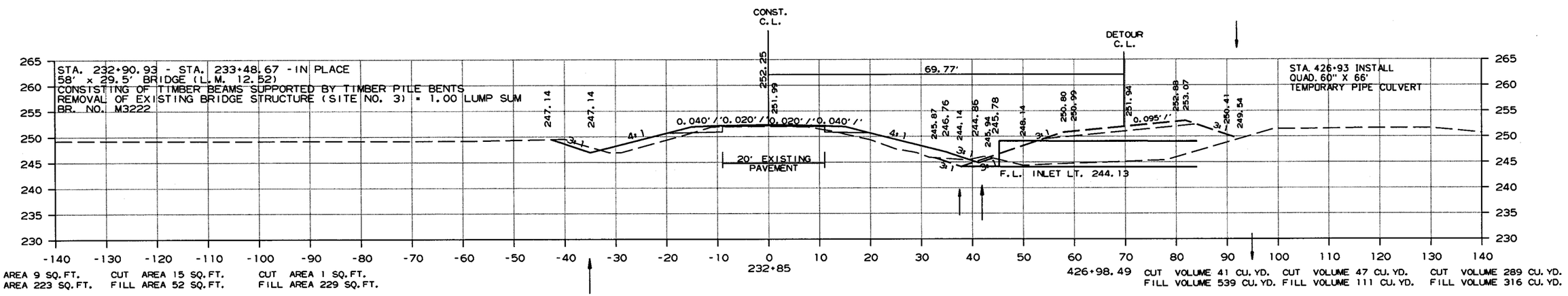
STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3



CUT AREA 3 SQ. FT. CUT AREA 22 SQ. FT. CUT AREA 106 SQ. FT.
FILL AREA 75 SQ. FT. FILL AREA 234 SQ. FT. FILL AREA 3 SQ. FT.

CUT VOLUME 3 CU. YD. CUT VOLUME 10 CU. YD. CUT VOLUME 30 CU. YD.
FILL VOLUME 83 CU. YD. FILL VOLUME 79 CU. YD. FILL VOLUME 64 CU. YD.



CUT AREA 9 SQ. FT. CUT AREA 15 SQ. FT. CUT AREA 1 SQ. FT.
FILL AREA 223 SQ. FT. FILL AREA 52 SQ. FT. FILL AREA 229 SQ. FT.

CUT VOLUME 41 CU. YD. CUT VOLUME 47 CU. YD. CUT VOLUME 289 CU. YD.
FILL VOLUME 539 CU. YD. FILL VOLUME 111 CU. YD. FILL VOLUME 316 CU. YD.

CROSS SECTION STA. 232+85 TO STA. 233+00

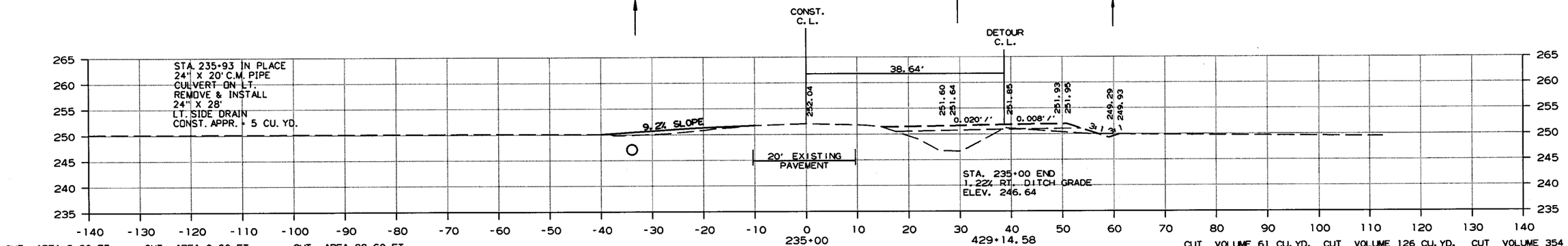
1/30/2018

R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	100	101

(2) CROSS SECTIONS

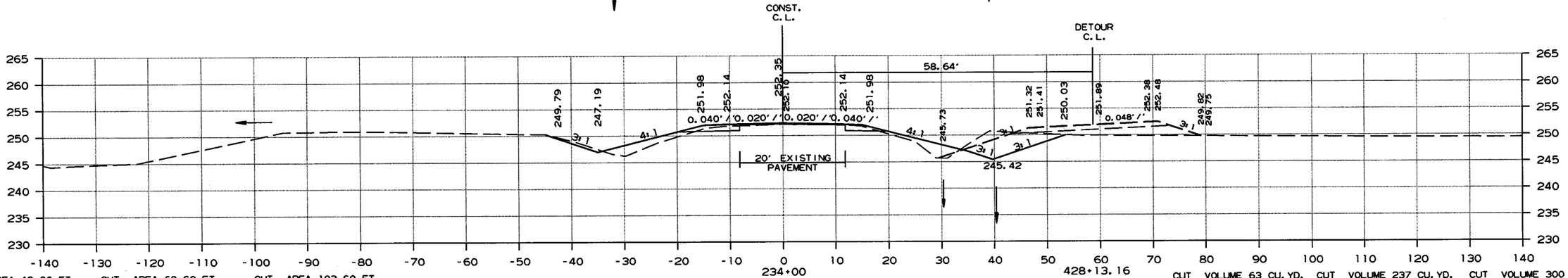
STAGE 1 STAGE 2 STAGE 3



CUT AREA 2 SQ. FT. FILL AREA 55 SQ. FT.
CUT AREA 0 SQ. FT. FILL AREA 0 SQ. FT.
CUT AREA 88 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 61 CU. YD. FILL VOLUME 137 CU. YD.
CUT VOLUME 126 CU. YD. FILL VOLUME 70 CU. YD.
CUT VOLUME 354 CU. YD. FILL VOLUME 2 CU. YD.

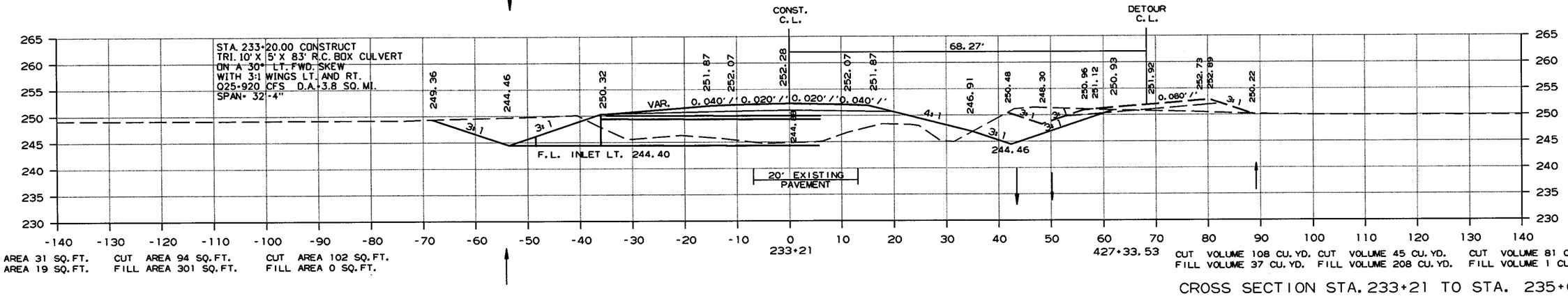
STA. 235+00.00
END 100' TRANSITION



CUT AREA 43 SQ. FT. FILL AREA 36 SQ. FT.
CUT AREA 68 SQ. FT. FILL AREA 38 SQ. FT.
CUT AREA 103 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 63 CU. YD. FILL VOLUME 81 CU. YD.
CUT VOLUME 237 CU. YD. FILL VOLUME 496 CU. YD.
CUT VOLUME 300 CU. YD. FILL VOLUME 0 CU. YD.

STA. 234+00.00
END SITE 3 &
END JOB 100870
BEGIN 100' TRANSITION



CUT AREA 31 SQ. FT. FILL AREA 19 SQ. FT.
CUT AREA 94 SQ. FT. FILL AREA 301 SQ. FT.
CUT AREA 102 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 108 CU. YD. FILL VOLUME 37 CU. YD.
CUT VOLUME 45 CU. YD. FILL VOLUME 208 CU. YD.
CUT VOLUME 81 CU. YD. FILL VOLUME 1 CU. YD.

CROSS SECTION STA. 233+21 TO STA. 235+00

1/30/2018

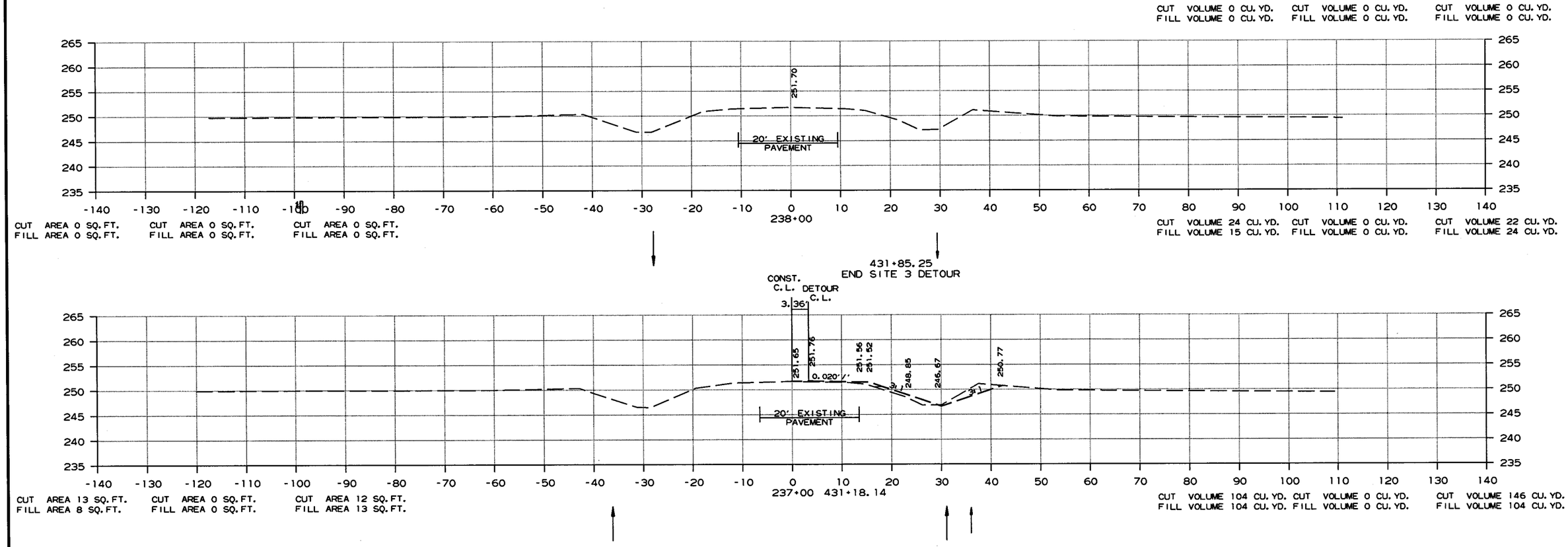
R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100870	101	101

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3

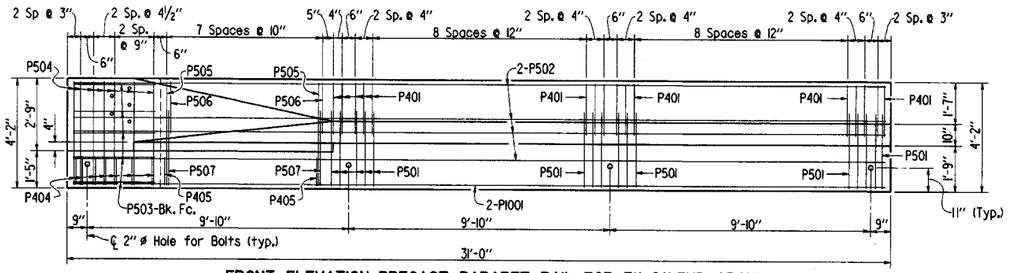


CROSS SECTION STA. 236+00 TO STA. 238+00

1/30/2018

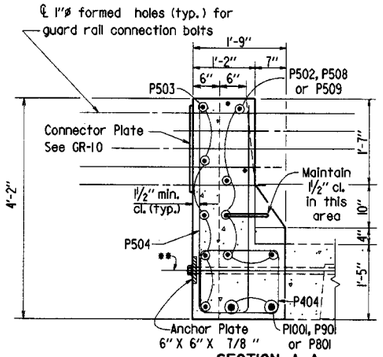
R100870.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4-10-2003				6	ARK.			
				JOB NO.				
				①	PRECAST RAIL DETAILS		15230	



FRONT ELEVATION-PRECAST PARAPET RAIL FOR 31'-0" END SPAN

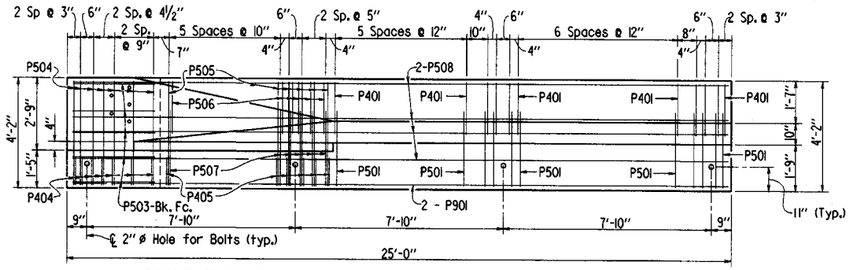
Scale ⅜" = 1'-0"



SECTION A-A

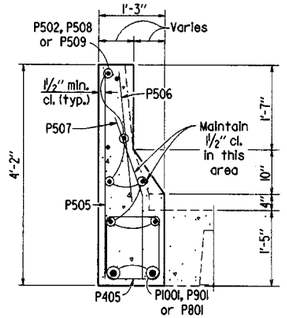
Scale ¾" = 1'-0"

** 1½" ø X 3'-0" Richmond S.C.A.B. or equal required at End Post Connections only.



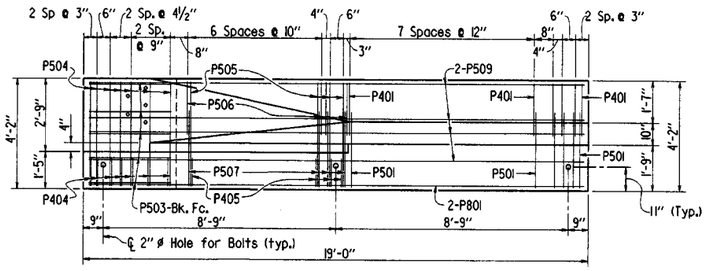
FRONT ELEVATION-PRECAST PARAPET RAIL FOR 25'-0" END SPAN

Scale ⅜" = 1'-0"



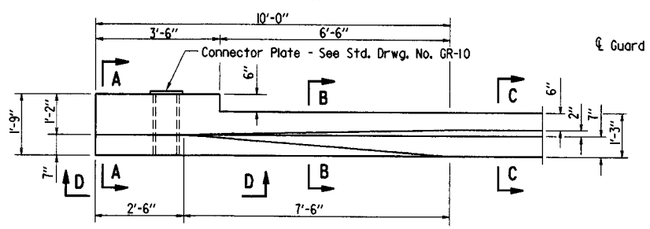
SECTION B-B

Scale ¾" = 1'-0"



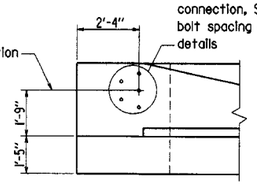
FRONT ELEVATION-PRECAST PARAPET RAIL FOR 19-0" END SPAN

Scale ⅜" = 1'-0"



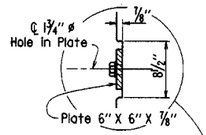
TYPICAL PLAN OF PRECAST PARAPET RAIL FOR END SPAN

Scale ½" = 1'-0"



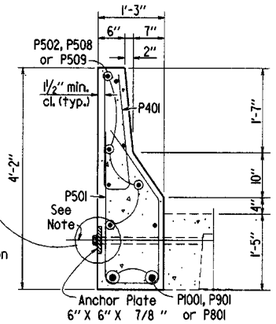
VIEW D-D

Scale ⅜" = 1'-0"



Note :
2" ø Hole for Bolt.
1½" ø X 2'-6" Richmond Screw Anchor & Bolt Assembly or equal is typical for all connections except as shown in SECTION A-A.

5 - 1"ø formed holes for guard rail connection, See Drwg. No. GR-10 for bolt spacing and additional connection details



SECTION C-C

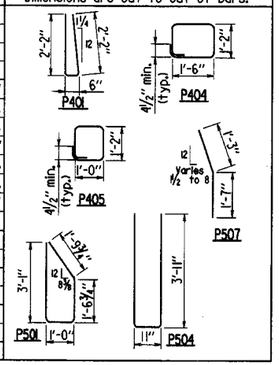
Scale ¾" = 1'-0"

BAR LIST FOR PARAPET RAIL UNITS

MARK	NUMBER REQUIRED PER RAIL 19'-0" RAIL	25'-0" RAIL	31'-0" RAIL	LENGTH	PIN DIA.
P401	12	20	30	4'-8"	2"
P404	7	7	7	5'-8"	2"
P405	9	10	8	4'-8"	2"
P501	12	20	30	7'-3"	2½"
P502			8	30'-8"	Str.
P503	5	5	5	3'-3"	Str.
P504	7	7	7	8'-6"	2½"
P505	9	10	8	3'-11"	Str.
P506	9	10	8	2'-2"	Str.
P507	9	10	8	2'-10"	2½"
P508		8		24'-8"	Str.
P509	8			18'-8"	Str.
P801	2			18'-8"	Str.
P901		2		24'-8"	Str.
P1001			2	30'-8"	Str.

BENDING DIAGRAMS

Dimensions are out to out of bars.



NOTES

This drawing is to be used with drawing no. 15240, 15241 and/or 15242 of which all three contain details and general notes pertaining to this drawing.

⚠ Revised and redrawn: KDH 4-10-2003
Chkd. By: MAH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND

BRIDGE ENGINEER

DETAILS OF STANDARD PRECAST PARAPET RAILS FOR 19'-0", 25'-0", & 31'-0" PRECAST END SPANS

ROUTE SEC.

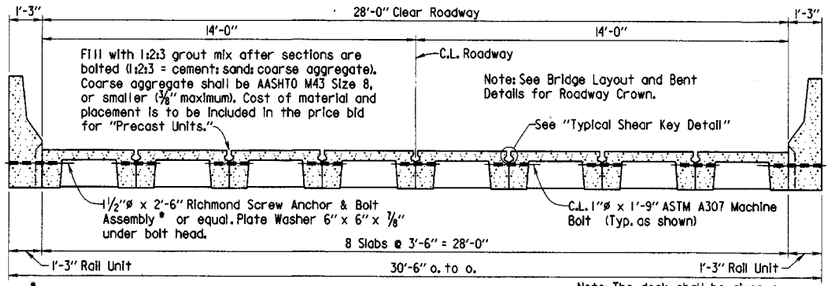
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-10-2003 FILENAME: BI5230.STD
CHECKED BY: MAH DATE: 4-10-2003 SCALE: AS SHOWN
DESIGNED BY: STD. DATE: -

BRIDGE NO. DRAWING NO. 15230

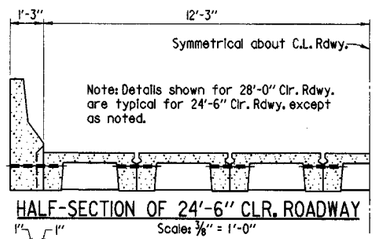
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4-10-2003				6	ARK.			
				JOB NO.				
				①	31' PRECAST SPAN		15240	



*Designated "Richmond SCAB" on the Plans.

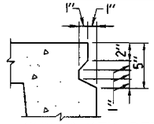
CROSS-SECTION OF 28'-0" CLR. RDWY. (SHOWING ASSEMBLY)

Scale: ⅜" = 1'-0"



HALF-SECTION OF 24'-6" CLR. ROADWAY

Scale: ⅜" = 1'-0"

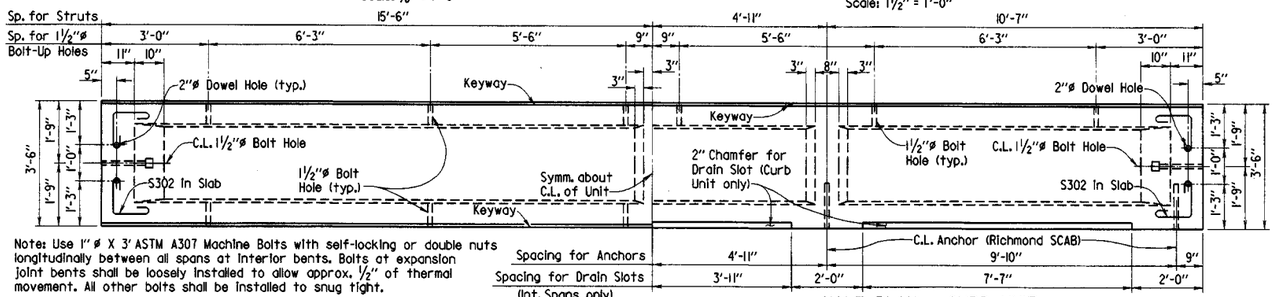


Note: The deck shall be given a tine finish as specified for Class 5 Roadway Surface Finish in subsection 802.19 of the Standard Specifications.

TYPICAL SHEAR KEY DETAIL

Scale: 1½" = 1'-0"

Note: All corners exposed after erection shall have a ½" minimum chamfer. All other corners shall have sufficient chamfer or rounding to prevent breakage during form removal, handling and erection.



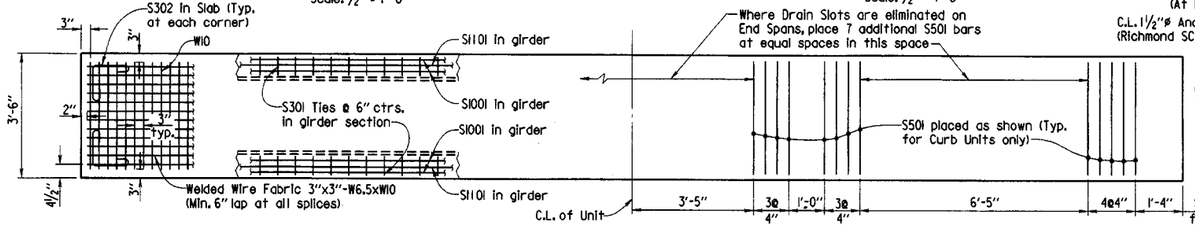
Note: Use 1"ø X 3' ASTM A307 Machine Bolts with self-locking or double nuts longitudinally between all spans at interior bents. Bolts at expansion joint bents shall be loosely installed to allow approx. ½" of thermal movement. All other bolts shall be installed to snug tight.

HALF PLAN - INTERIOR UNIT

Scale: ½" = 1'-0"

HALF PLAN - CURB UNIT

Scale: ½" = 1'-0"

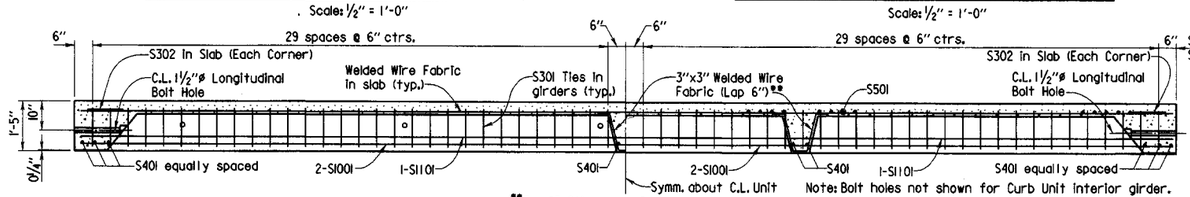


HALF REINFORCING PLAN - CURB & INT. UNITS

Scale: ½" = 1'-0"

HALF REINFORCING PLAN - CURB UNIT ONLY

Scale: ½" = 1'-0"



HALF LONGIT. SECTION - INTERIOR UNIT

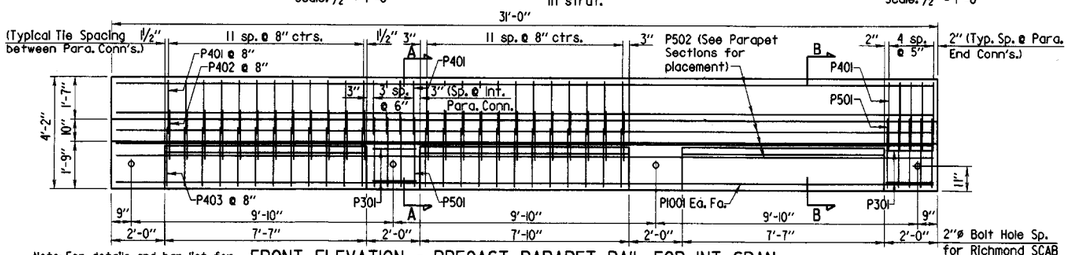
Scale: ½" = 1'-0"

**5 - #3 Stirrups @ 6" ctrs. may be used in place of wire fabric in strut.

HALF LONGIT. SECTION - CURB UNIT

Scale: ½" = 1'-0"

Note: Bolt holes not shown for Curb Unit interior girder.



Note: For details and bar list for Precast Parapet Rail at End Span, see std. drwg. no. 15230.

FRONT ELEVATION - PRECAST PARAPET RAIL FOR INT. SPAN

Scale: ⅜" = 1'-0"

BAR LIST FOR PRECAST BRIDGE COMPONENTS

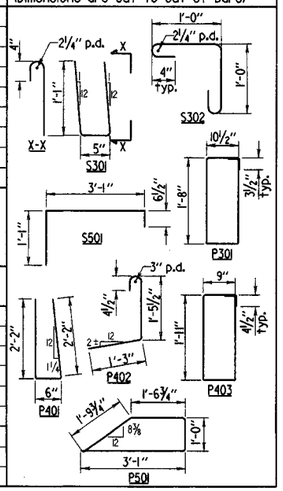
PRECAST SLAB UNIT

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

MARK	NUMBER REQUIRED CURB UNIT	NUMBER REQUIRED INT. UNIT	LENGTH	P.D.
S301	122	122	3'-3½"	1½"
S302	4	4	2'-9"	1½"
S401	10	8	3'-2"	Str.
S501	26 Ⓐ	-	4'-6"	2½"
S701E	Ⓑ	Ⓑ	1'-11"	Str.
S1001	4	4	30'-8"	Str.
S1101	2	2	30'-8"	Str.

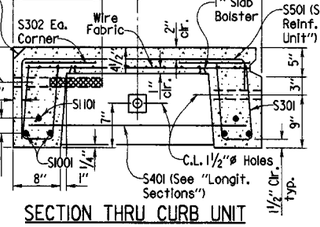
Ⓐ Plus 7 additional for each Drain Slot eliminated
Ⓑ 2 Per Fixed end of each Unit

BENDING DIAGRAMS (Dimensions are out to out of bars)



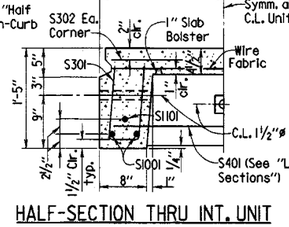
PRECAST PARAPET RAIL UNIT

MARK	NUMBER REQUIRED END SPAN	NUMBER REQUIRED INT. SPAN	LENGTH	P.D.
P301	See Std. Drwg. No. 15230	8	5'-4"	1½"
P401		54	4'-8"	2"
P402		36	3'-1½"	2"
P403		36	5'-8"	2"
P501		18	7'-2"	2½"
P502		9	30'-8"	Str.
P1001		2	30'-8"	Str.



SECTION THRU CURB UNIT

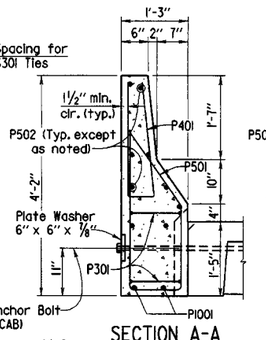
Scale: 1" = 1'-0"



HALF-SECTION THRU INT. UNIT

Scale: 1" = 1'-0"

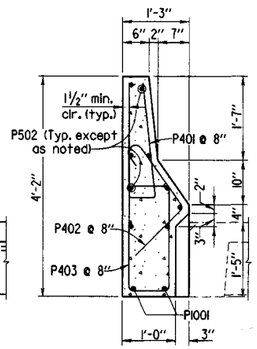
Note: For details and bar list for Precast Parapet Rail at End Span, see std. drwg. no. 15230.



Note: 1½" x 2'-6" Richmond SCAB typical for all connections except as shown in View A-A, Drwg. No. 15230.

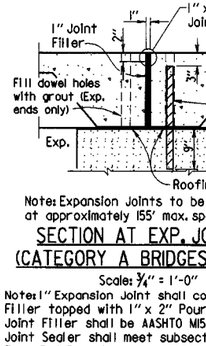
SECTION A-A

Scale: ¾" = 1'-0"



SECTION B-B

Scale: ¾" = 1'-0"



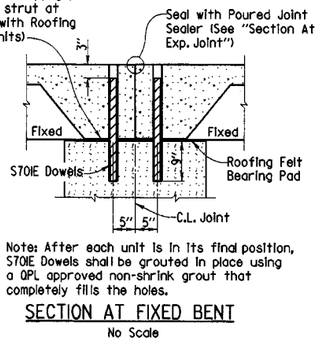
Note: Expansion Joints to be placed at approximately 155' max. spacings.

SECTION AT EXP. JOINT (CATEGORY A BRIDGES ONLY)

Scale: ¾" = 1'-0"

Note: 1" Expansion Joint shall consist of 1" Joint Filler topped with 1" x 2" Poured Joint Sealer. Joint Filler shall be AASHTO M153, Type I. Poured Joint Sealer shall meet subsection 501.02(h) (2), Type 3, 4, 5 or 6.

Completely fill ¼" gap below end strut at End Bent with Roofing Felt (All Units)



Note: After each unit is in its final position, S701E Dowels shall be grouted in place using a DPL approved non-shrink grout that completely fills the holes.

SECTION AT FIXED BENT

No Scale

GENERAL NOTES

All Reinforcing steel shall be AASHTO M31 or M53, Grade 60. Wire fabric shall be AASHTO M55 or M221. Reinforcing steel and wire fabric shall be accurately located in the forms and securely held in place by steel wire supports.

Concrete for precast units shall be Class S(AE) except that the coarse aggregate size shall meet AASHTO M43, Size 67 (¾" Max.).

Standard washers shall be provided under head and nut of all bolts in connection with concrete. Bolts shall be A307. All bolts, washers and nuts shall be galvanized to meet AASHTO M232, Class C or M298, Class 50.

Screw Anchor and Bolt Assembly (SCAB) shall be 1½"ø Richmond Screw Anchor or equal, and have a minimum ultimate strength of 65,000 psi in tension. Assembly shall be galvanized to meet AASHTO M232, Class C or M298, Class 50. Plate Washers for SCAB shall be AASHTO M270, Grade 36 and shall be galvanized to meet AASHTO M111.

Camber required for dead load deflection is ⅜". Deviation of more than ¼" in dimension of grade or line will be cause for rejection.

Concrete, reinforcing, wire mesh, bar supports, bolts, nuts, washers, threaded anchors, grout, roofing felt bearing pad and expansion joint fillers are considered subsidiary to the pay items for Precast Concrete Units. Roofing felt shall meet or exceed the requirements of ASTM D224 Type I. See Section 802.18(d). The roofing felt shall be in one piece for the full length of the cap and three layers shall be used.

Ends of adjacent units shall be coated (⅛"±) with asphaltic paint. The coating shall adhere and set firm and its softening point shall not be less than 140°F.

Bid Items shall be as follows:
"31' Precast Concrete Curb Units"
"31' Precast Concrete Interior Units"
"31' Precast Parapet Rail Units"

Design Specifications: AASHTO 2002
Method of Design: Load Factor
Live Loading: HS 20, 0.9 Wheels per Unit
Materials: 28 Day compressive strength of Concrete = 4,000 psi
Yield strength of Grade 60 Steel = 60,000 psi
Yield strength of Wire Fabric = 65,000 psi

Seismic Performance Category: A, B or C

Seismic Performance Category A:
1. Maximum spacing between 1 inch Expansion Joints is 155 feet.
2. 2"ø Dowel holes at expansion ends are not required. Grout holes if they exist.

Seismic Performance Category B or C:
1. All bents shall be fixed.
2. Do not use this drawing with bridge lengths that exceed 155 feet in Category B or 93 feet in Category C.

⚠1 Revised and redrawn: KDH 4-10-2003
Chkd. By: MAH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND
BRIDGE ENGINEER

DETAILS OF STANDARD 31'-0" PRECAST CONCRETE SPANS 28'-0" & 24'-6" CLEAR ROADWAYS

ROUTE SEC.

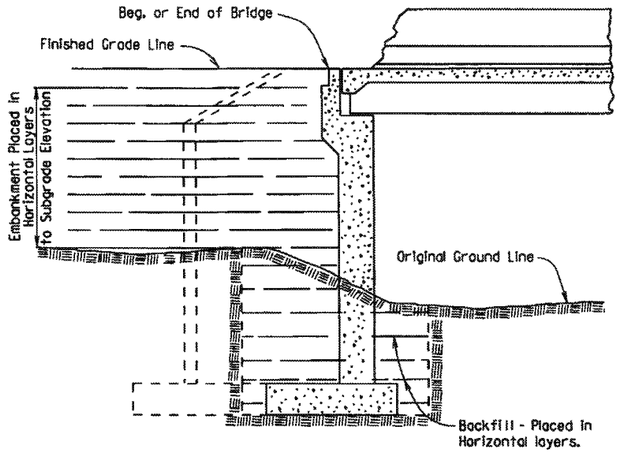
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

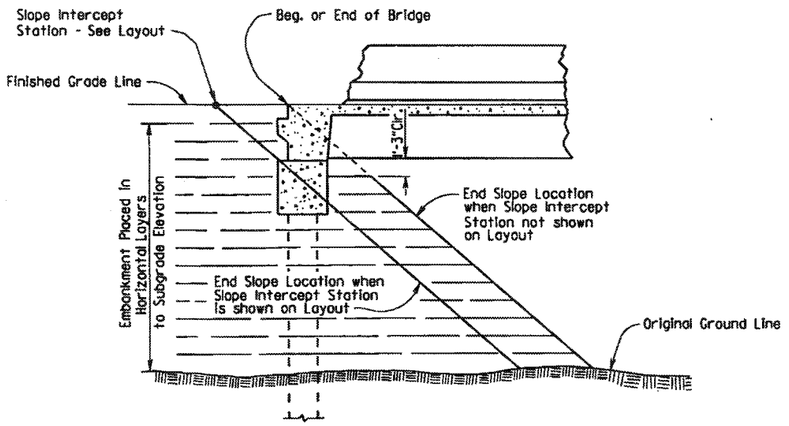
DRAWN BY: KDH DATE: 4-10-2003 FILENAME: BI5240.STD
CHECKED BY: MAH DATE: 4-10-2003 SCALE: As Shown
DESIGNED BY: STD. DATE:

BRIDGE NO. DRAWING NO. 15240

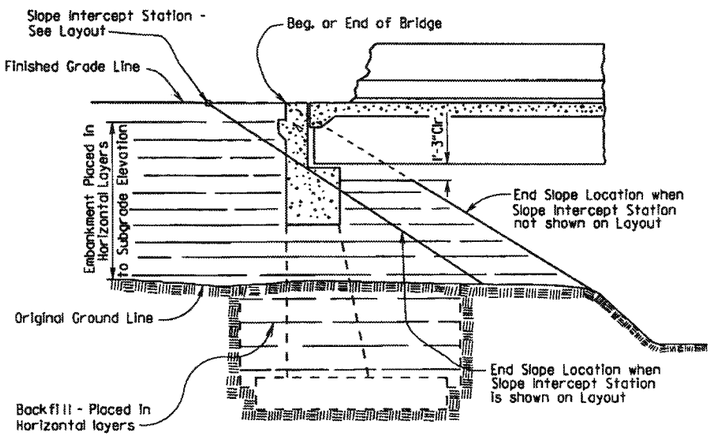
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	EMBANKMENT & BACKFILL		55000	



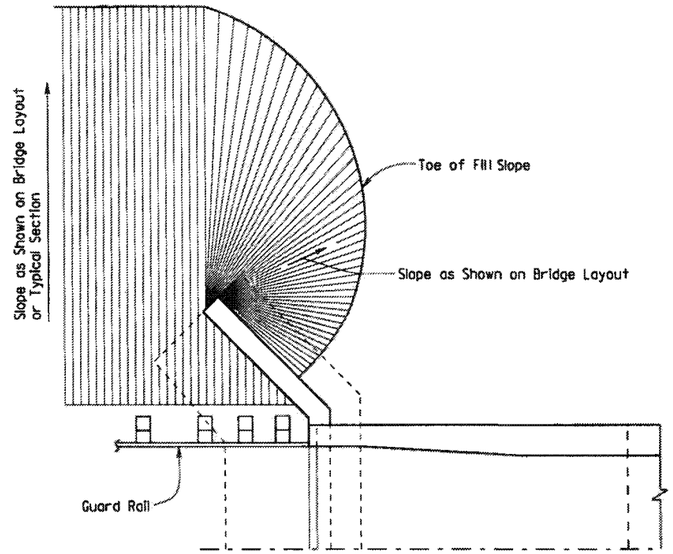
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



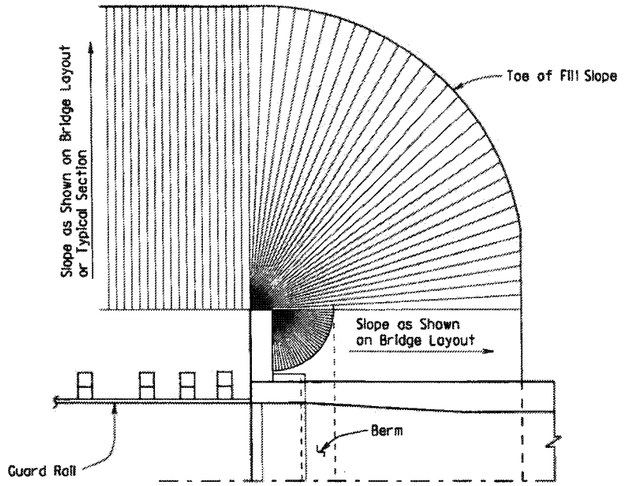
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



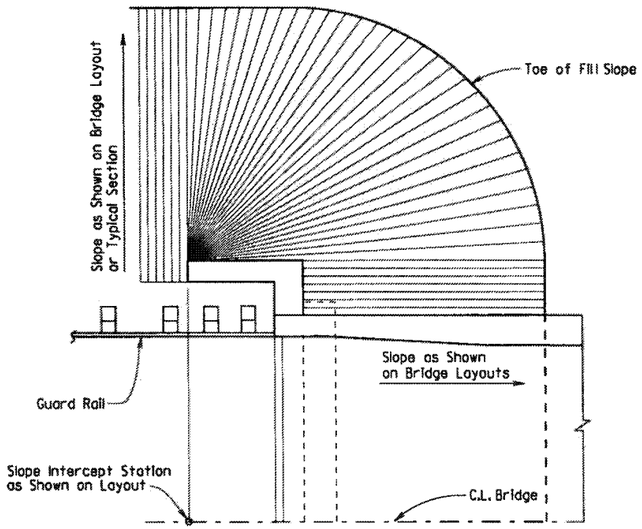
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



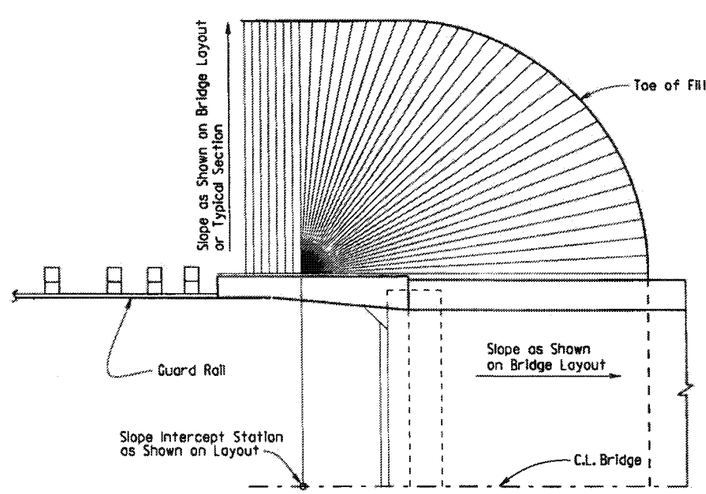
VERTICAL WALL ABUTMENTS



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

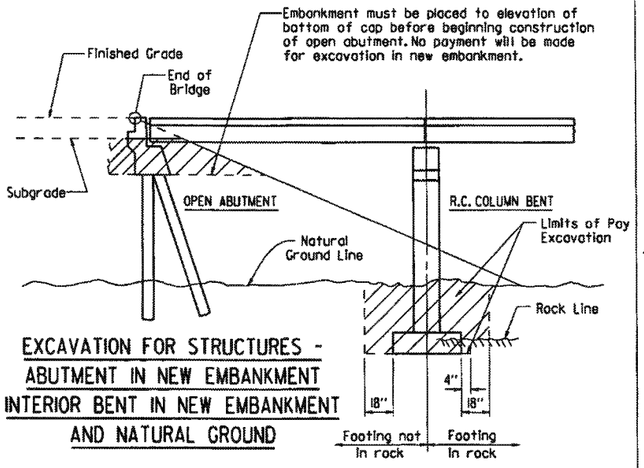
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn

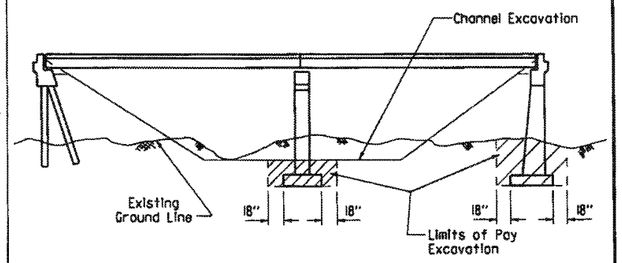
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: -

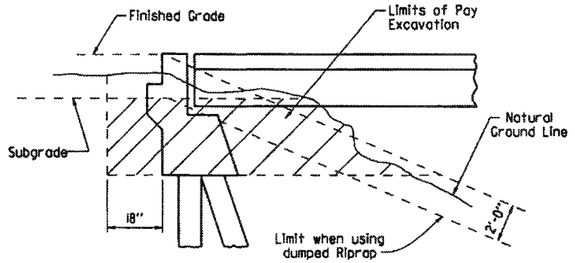
DRAWING NO. 55000



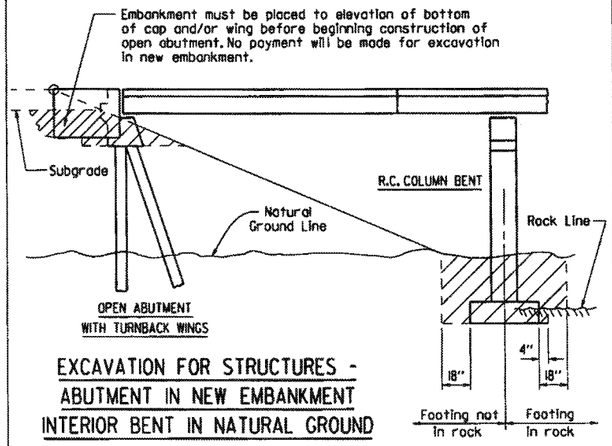
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



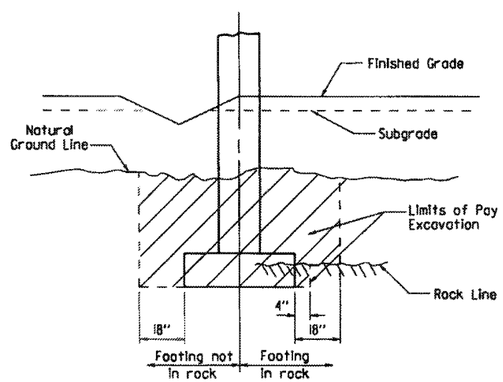
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



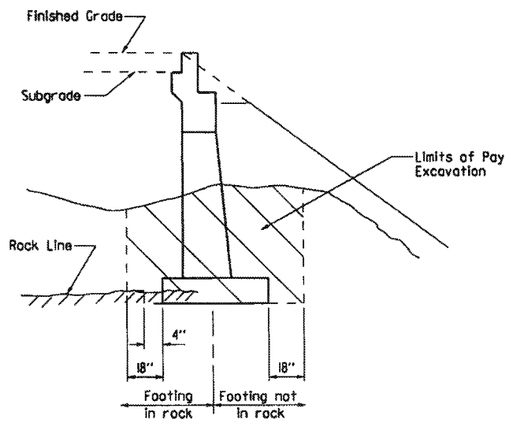
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



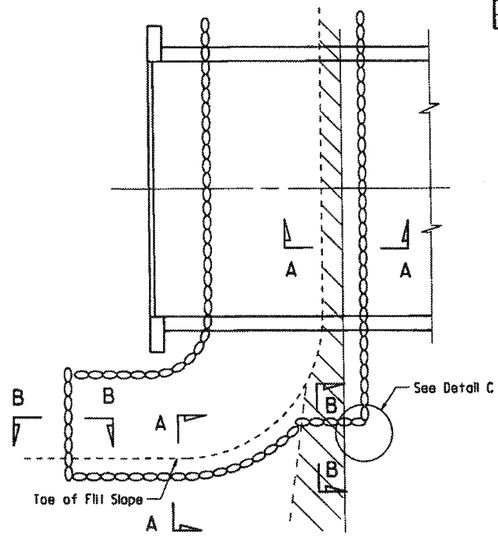
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



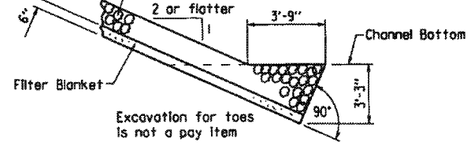
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

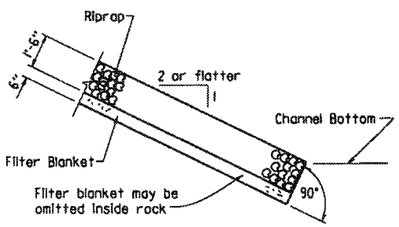


PLAN OF DUMPED RIPRAP



SECTION A-A

(Toe Excavation in Soil)



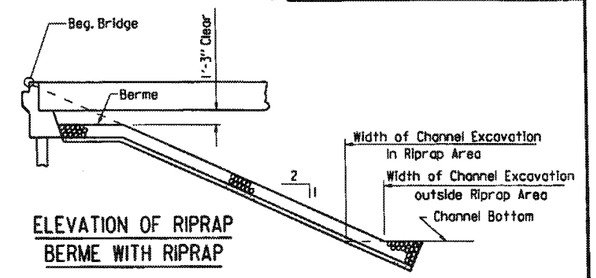
SECTION A-A

(Toe Excavation in Rock)

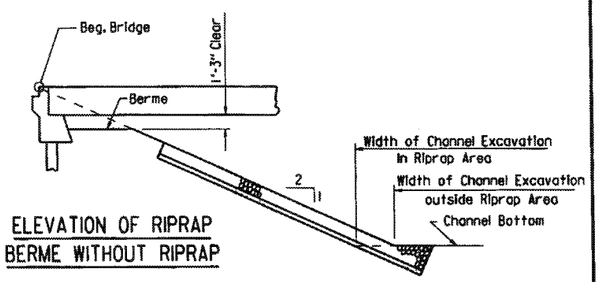
Note : Use this type of toe when rock is encountered which is in a stable condition.

Note : In lieu of an aggregate filter blanket, a synthetic fiber geotextile fabric complying with the requirements of Subsection 816.02(e) may be used.

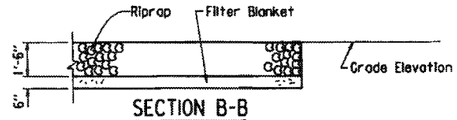
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



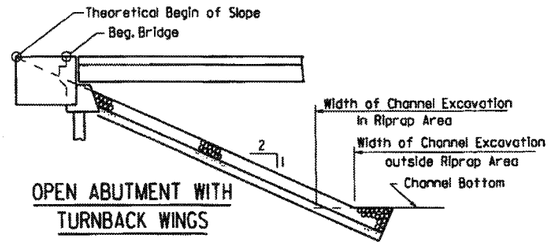
ELEVATION OF RIPRAP BERME WITH RIPRAP



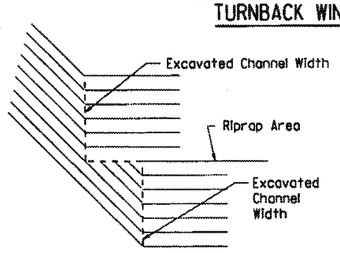
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

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

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn

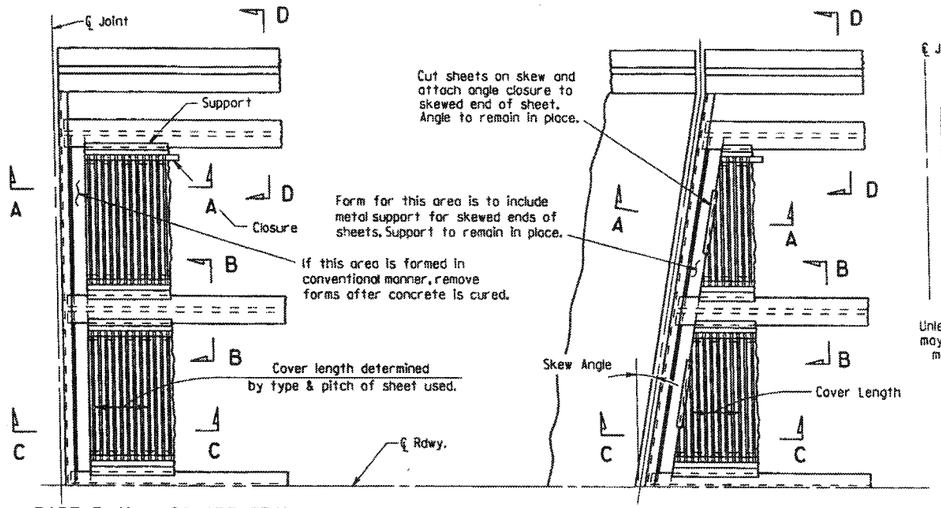
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE:

DRAWING NO. 55001

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

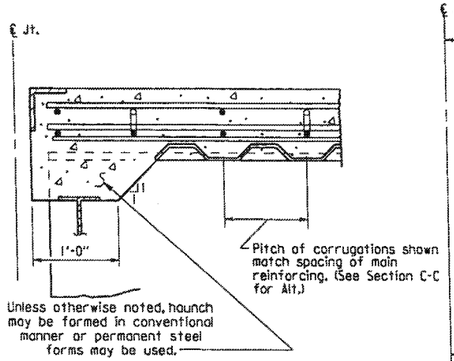


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

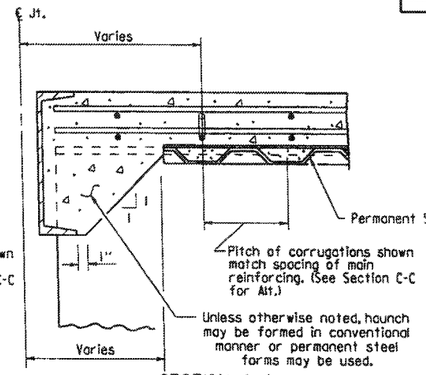
3/8" = 1'-0"



SECTION A-A

N.T.S.

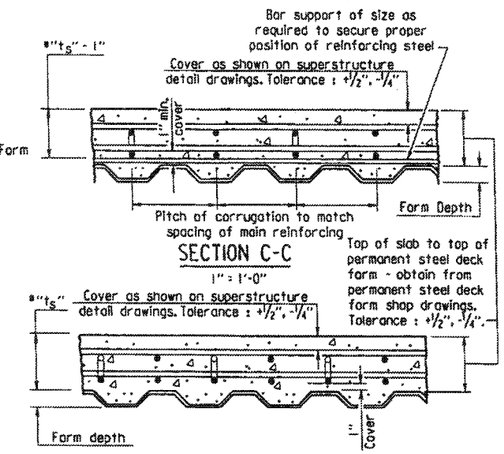
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



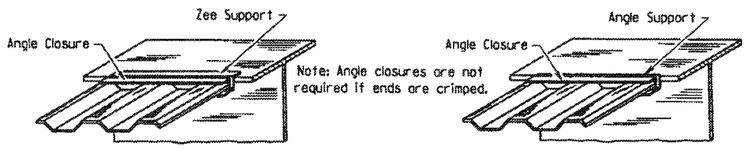
SECTION C-C

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.

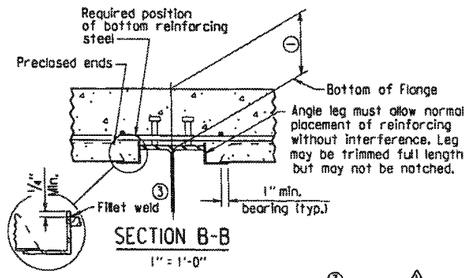
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

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.

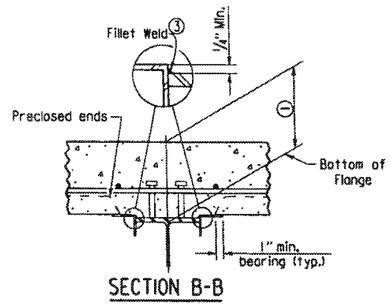


SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

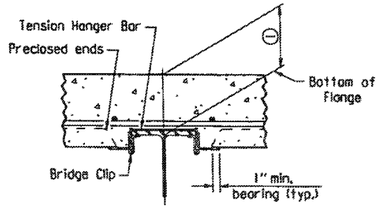
③ ⚠ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

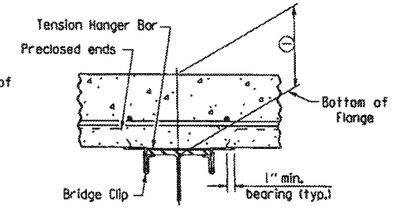
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

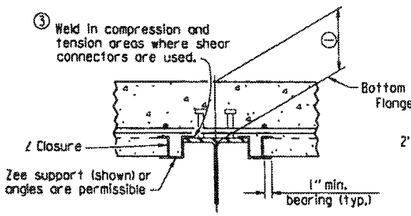
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

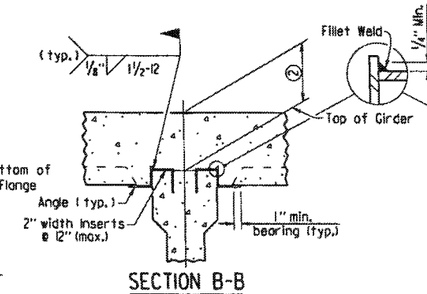
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

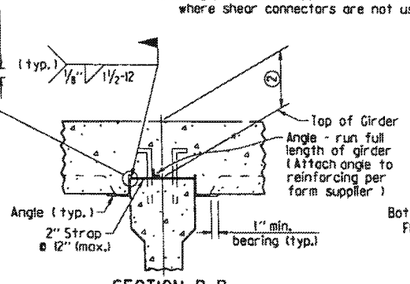


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Insert cast in girder)



SECTION B-B

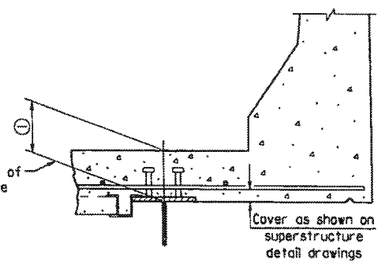
(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)

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.



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

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

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55005.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NONE

DESIGNED BY: STD. DATE: —

DRAWING NO. 55005

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

1 GENERAL NOTES 55006

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: See Bridge Layout(s).

SUPERSTRUCTURE NOTES:

MATERIALS AND STRENGTHS:

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

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

CONCRETE:

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

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

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

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

REINFORCING STEEL:

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

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

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

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

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

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

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

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

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

STRUCTURAL STEEL (W-BEAMS):

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

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

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

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

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

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

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

STRUCTURAL STEEL (PLATE GIRDERS):

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

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

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

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

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

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

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

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

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

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

SUBSTRUCTURE NOTES:

CONCRETE:

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

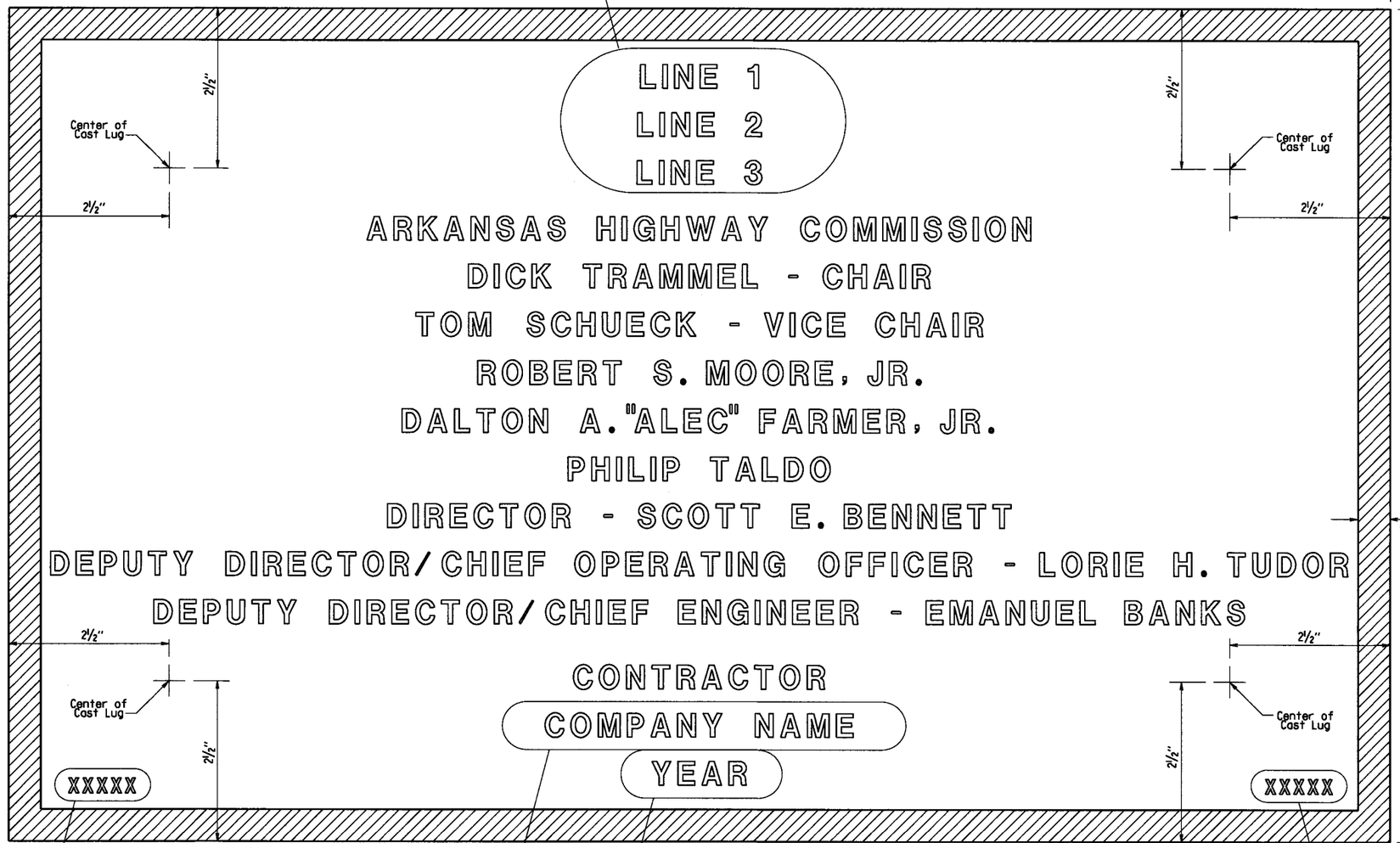
DRAWING NO. 55006

PRINT DATE: 9/21/2015

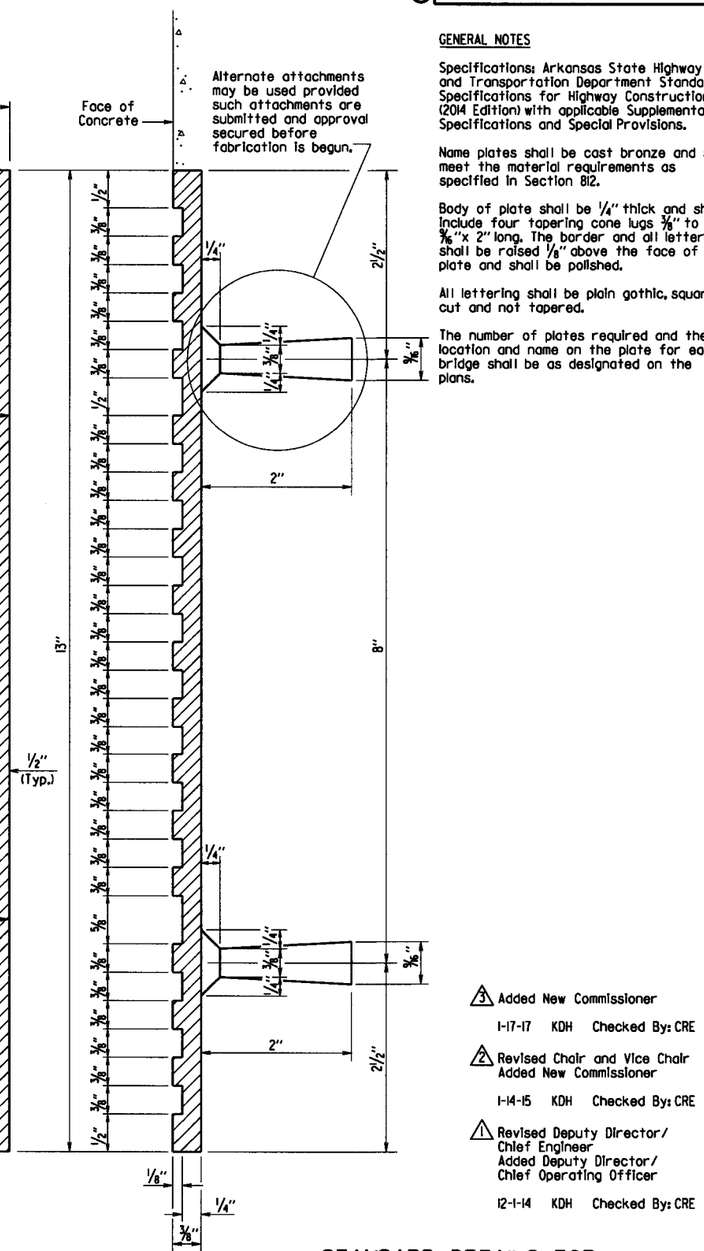
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-1-14				6	ARK.			
1-14-15				JOB NO.				
1-17-17				TYPE D NAME PLATE		55010		

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	
Line 2	Relief	Railroad	River	Highway 5
Line 3		Overpass	Relief	



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 1/4" thick and shall include four tapering cone lugs 7/8" to 9/16"x 2" long. The border and all lettering shall be raised 1/8" 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.

3 Added New Commissioner
1-17-17 KDH Checked By: CRE

2 Revised Chair and Vice Chair
Added New Commissioner
1-14-15 KDH Checked By: CRE

1 Revised Deputy Director/
Chief Engineer
Added Deputy Director/
Chief Operating Officer
12-1-14 KDH Checked By: CRE

STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE

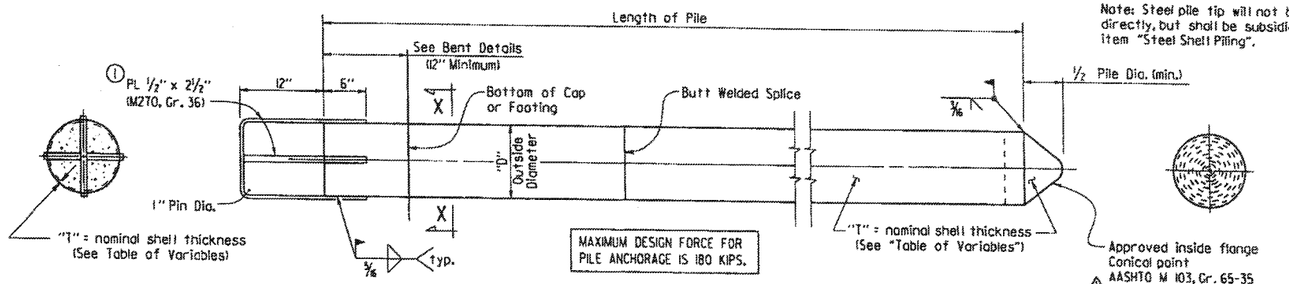
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

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.				

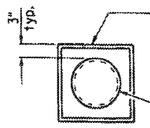
STEEL SHELL PILES 55021



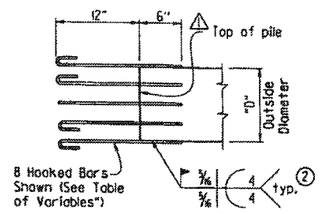
CONCRETE FILLED STEEL SHELL PILE

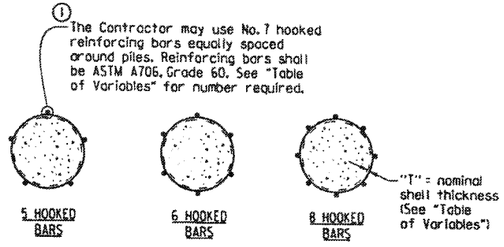
① Pile anchorage shall be placed to minimize interference with anchor bolts and reinforcing in cap or footing.

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.



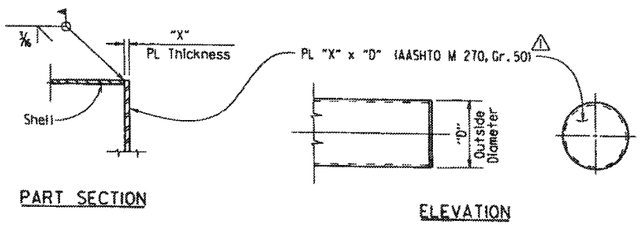
VIEW X-X





ALTERNATE PILE ANCHORAGE DETAIL

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

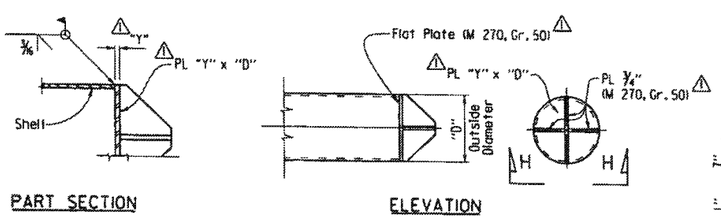


PART SECTION

ELEVATION

ALTERNATE FLAT TIP DETAIL

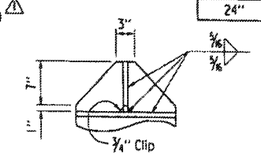
Note: The alternate flat tip detail shall not be used on steel shell piling to be driven through embankments constructed with internal geosynthetic reinforcement.



PART SECTION

ELEVATION

ALTERNATE VANED TIP DETAIL



VIEW H-H

GENERAL NOTES FOR CONCRETE FILLED STEEL SHEEL PILES:

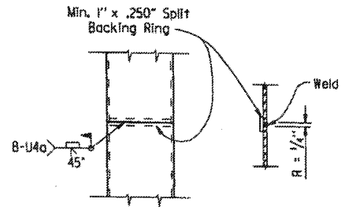
Steel shells shall conform ASTM A252, Grade 3 (Fy = 45,000 psi.)

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.

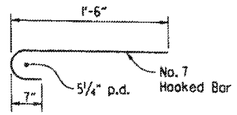
Concrete, structural steel, reinforcing steel (including welding), and pointing shall not be paid for directly, but shall be considered subsidiary to the item "Steel Shell Piling".



TYPICAL SPLICE DETAILS

TABLE OF VARIABLES

OUTSIDE DIAMETER "D"	NOMINAL SHELL THICKNESS "T"	⚠ PLATE THICKNESS "X"	⚠ PLATE THICKNESS "Y"	NO. OF HOOKED BARS FOR ALTERNATE PILE ANCHORAGE	⚠ MINIMUM CONICAL TIP DESIGN LOAD (KIPS)
14"	0.50"	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



HOOKED BAR DETAIL

⚠ Revised and added various details by KWY, Ck'd. by BEF, 3/24/16.

GENERAL NOTES FOR PILE ENCASEMENTS:

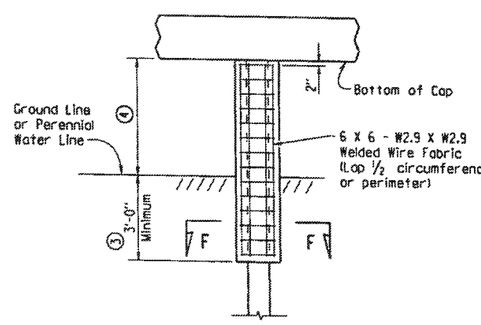
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

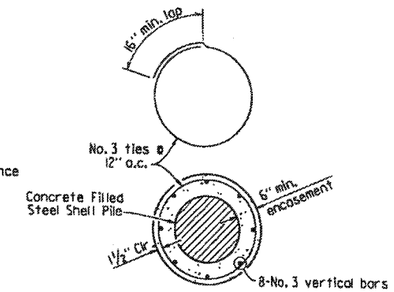
Concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

Welded wire fabric shall conform to AASHTO M 55 or M 221.

Concrete, welded wire fabric or reinforcing steel, and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".





SECTION F-F (REINF. ALTERNATE)

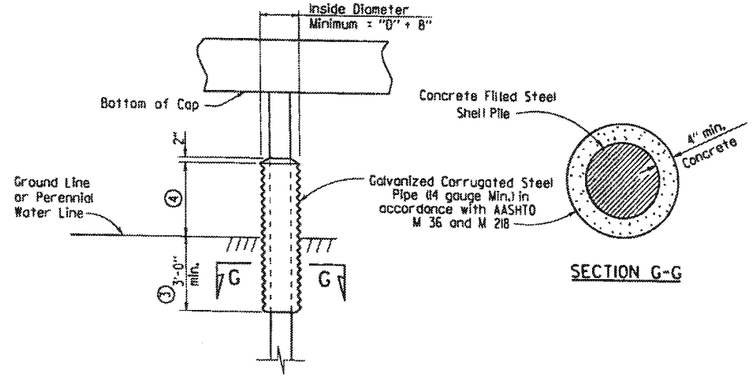
PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

⑤ (Shown with Encasement to Bottom of Cap)

③ Unless otherwise noted on Bridge Layout.

④ See Bridge Layout for height of pile encasement (3'-0" Minimum).

⑤ Pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the detail for partial height encasement.



SECTION G-G

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

(Shown with Partial Height Encasement)

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on March 24, 2016. This copy is not a signed and sealed document.

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

BRIDGE ENGINEER

STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b5502i.dgn

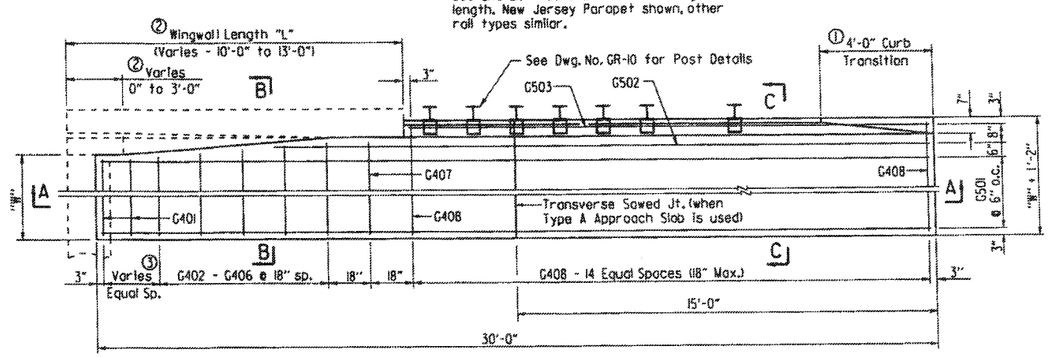
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: ---

DRAWING NO. 55021

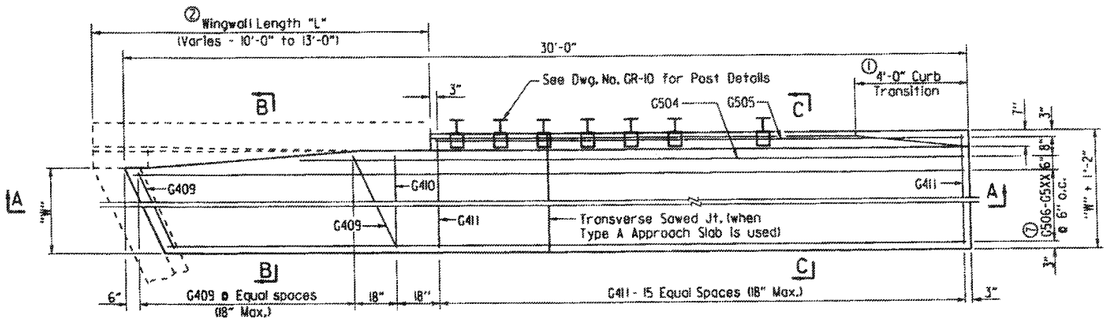
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9/2/15				6	ARK.			
				JOB NO.				

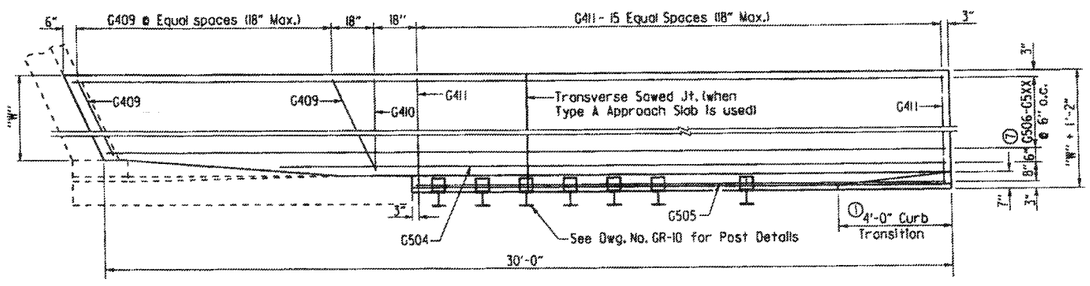
① TYPE A GUTTERS 55030A



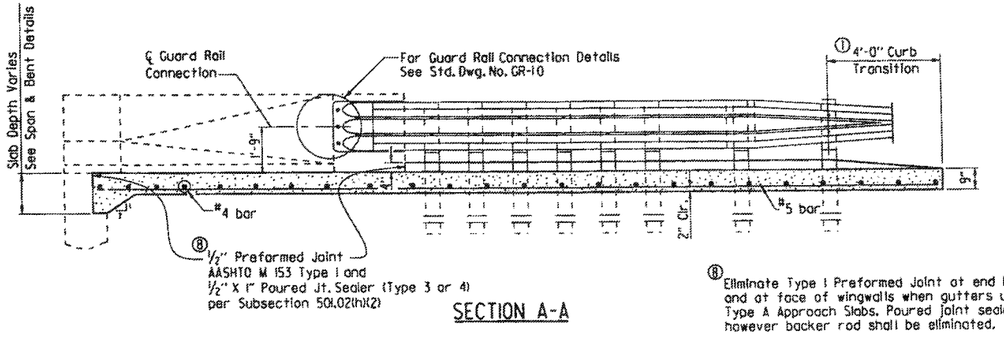
③ Number of G401 bars vary with wingwall length - See Bar List

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE

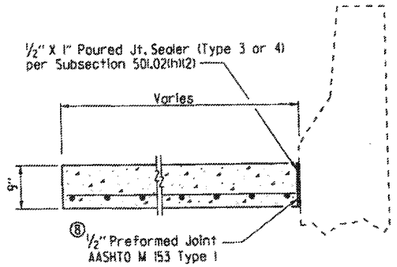


SECTION A-A

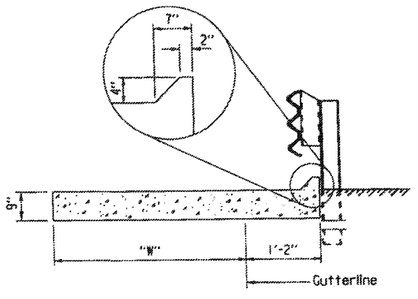
⑧ Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type A Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

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. See drop inlet details.



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

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

BAR LIST FOR ONE TYPE A GUTTER

	Mark	No. Req'd. for Width "W" ⚠ 2'-0"	3'-0"	4'-0"	6'-0"	8'-0"	Length
Square Bridge	G401	④	④	④	④	④	"W" - 4"
	G402-G406	1 each	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	1	"W"+3"
	G408	15	15	15	15	15	"W"+ 10"
	G501	4	6	8	12	16	29'-8"
	G502	1	1	1	1	1	(35'-5") - "L"
	G503	1	1	1	1	1	30'-8"-"L"
Skewed Bridge	G409	⑥	⑥	⑥	⑥	⑥	⑤
	G410	1	1	1	1	1	"W"+3"
	G411	15	15	15	15	15	"W"+ 10"
	G504	1	1	1	1	1	⑤
	G505	1	1	1	1	1	⑤
	G506 - G5XX ⑦	1 each	1 each	1 each	1 each	1 each	⑤

④ 0 for "L" = 10'
1 for "L" = 11'
2 for "L" = 12'
2 for "L" = 13'

⑦ G509 for "W" = 2' ⚠
G511 for "W" = 3'
G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'

⑤ Bar Lengths vary with Skew and Wingwall Length.

⑥ No. Req'd. varies with Skew and Wingwall length.

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

⚠ "W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
2	210	2.55
3	285	3.40
4	360	4.25
6	515	5.90
8	665	7.55

Quantities are based on "L" = 10'-0".

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

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

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

⚠ Revised to add "W" = 2'-0"; By LJB
Checked By: KWY 9/2/15

STANDARD DETAILS FOR TYPE A APPROACH GUTTERS

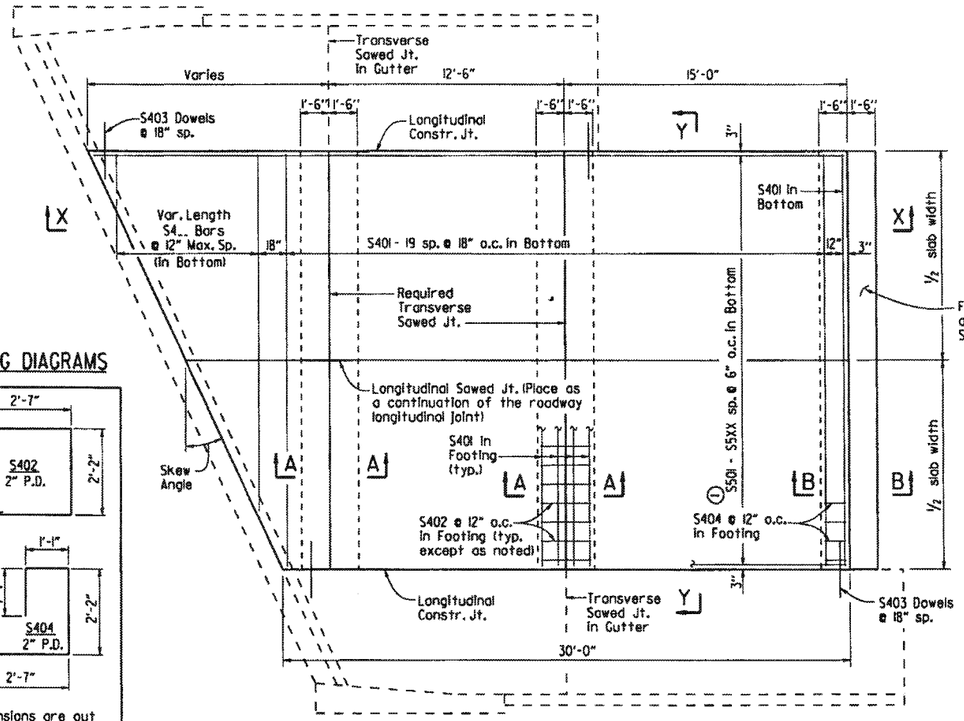
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030a.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: 3/8" = 1'-0" or As Shown
DESIGNED BY: STD. DATE:

DRAWING NO. 55030A

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

TYPE A APPROACH SLAB 55040A



PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

¼" = 1'-0"

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

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

① S5XX = S540 for 20'-0" Width
= S544 for 22'-0" Width
= S548 for 24'-0" Width
= S572 for 36'-0" Width

BENDING DIAGRAMS

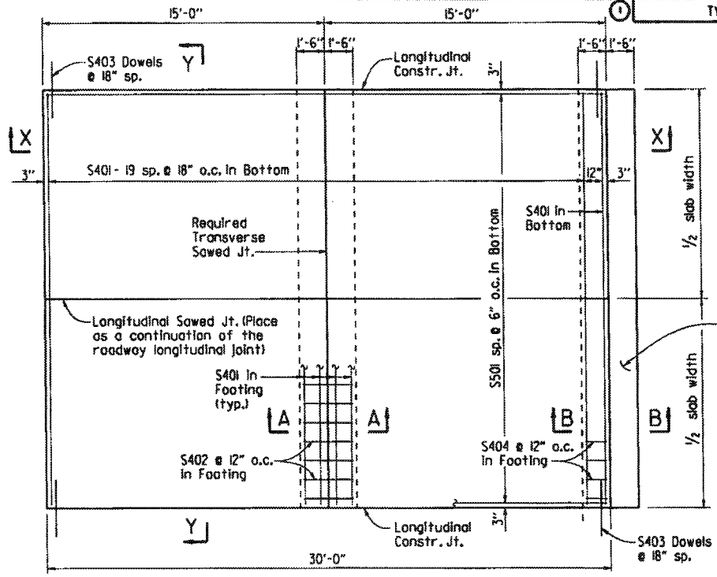
Dimensions are out to out of bar.

BAR LIST

(Square & Skewed Approach Slabs)

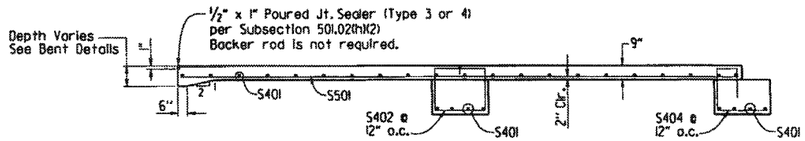
		Square		Skewed	
	Mark	No. Req'd.	Length	No. Req'd.	Length
20'-0" Slab Width	S401	29	19'-8"	33	19'-8"
	S402	20	9'-10"	40	9'-10"
	S403	40	3'-0"	*	3'-0"
	S404	20	7'-2"	20	7'-2"
	S4__	—	—	1 Ea.	19.7' + 1.25'/(tan skew angle) to 2'-0" Min.
	S501	40	29'-8"	—	—
	S501 - S540	—	—	1 Ea.	29.6' + 0.25' (tan skew angle) to 29.6' + 19.75' (tan skew angle)
22'-0" Slab Width	S401	29	21'-8"	33	21'-8"
	S402	22	9'-10"	44	9'-10"
	S403	40	3'-0"	*	3'-0"
	S404	22	7'-2"	22	7'-2"
	S4__	—	—	1 Ea.	21.7' + 1.25'/(tan skew angle) to 2'-0" Min.
	S501	44	29'-8"	—	—
	S501 - S544	—	—	1 Ea.	29.6' + 0.25' (tan skew angle) to 29.6' + 21.75' (tan skew angle)
24'-0" Slab Width	S401	29	23'-8"	33	23'-8"
	S402	24	9'-10"	48	9'-10"
	S403	40	3'-0"	*	3'-0"
	S404	24	7'-2"	24	7'-2"
	S4__	—	—	1 Ea.	23.7' + 1.25'/(tan skew angle) to 2'-0" Min.
	S501	48	29'-8"	—	—
	S501 - S548	—	—	1 Ea.	29.6' + 0.25' (tan skew angle) to 29.6' + 23.75' (tan skew angle)
36'-0" Slab Width	S401	29	35'-8"	33	35'-8"
	S402	36	9'-10"	72	9'-10"
	S403	40	3'-0"	*	3'-0"
	S404	36	7'-2"	36	7'-2"
	S4__	—	—	1 Ea.	35.7' + 1.25'/(tan skew angle) to 2'-0" Min.
	S501	72	29'-8"	—	—
	S501 - S572	—	—	1 Ea.	29.6' + 0.25' (tan skew angle) to 29.6' + 35.75' (tan skew angle)

*Varies with skew angle



PLAN - SQUARE APPROACH SLAB

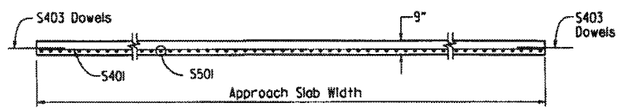
¼" = 1'-0"



SECTION X-X

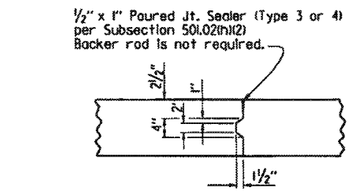
SQUARE APPROACH SLAB SHOWN

¼" = 1'-0"



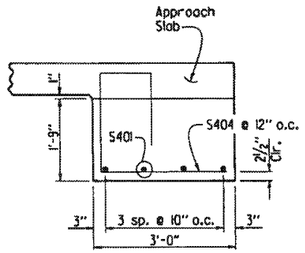
SECTION Y-Y

N.T.S.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

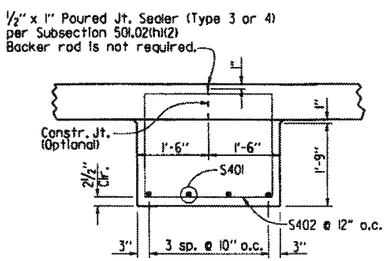
1" = 1'-0"



SECTION B-B

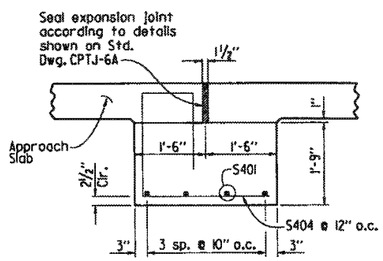
AT ASPHALT APPROACH PAVEMENT

N.T.S.



SECTION A-A

N.T.S.



SECTION B-B

AT CONCRETE APPROACH PAVEMENT

N.T.S.

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
20'-0"	1925	24.85
22'-0"	2110	27.30
24'-0"	2300	29.90
36'-0"	3410	44.85

GENERAL NOTES

This drawing shall be used for Approach Slabs in Seismic Performance Zones 2, 3 & 4 and for the maximum skew angles shown below:

20'-0" Slab Width: Maximum Skew Angle = 45°
22'-0" Slab Width: Maximum Skew Angle = 45°
24'-0" Slab Width: Maximum Skew Angle = 40°
36'-0" Slab Width: Maximum Skew Angle = 30°

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

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

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

STANDARD DETAILS FOR TYPE A APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

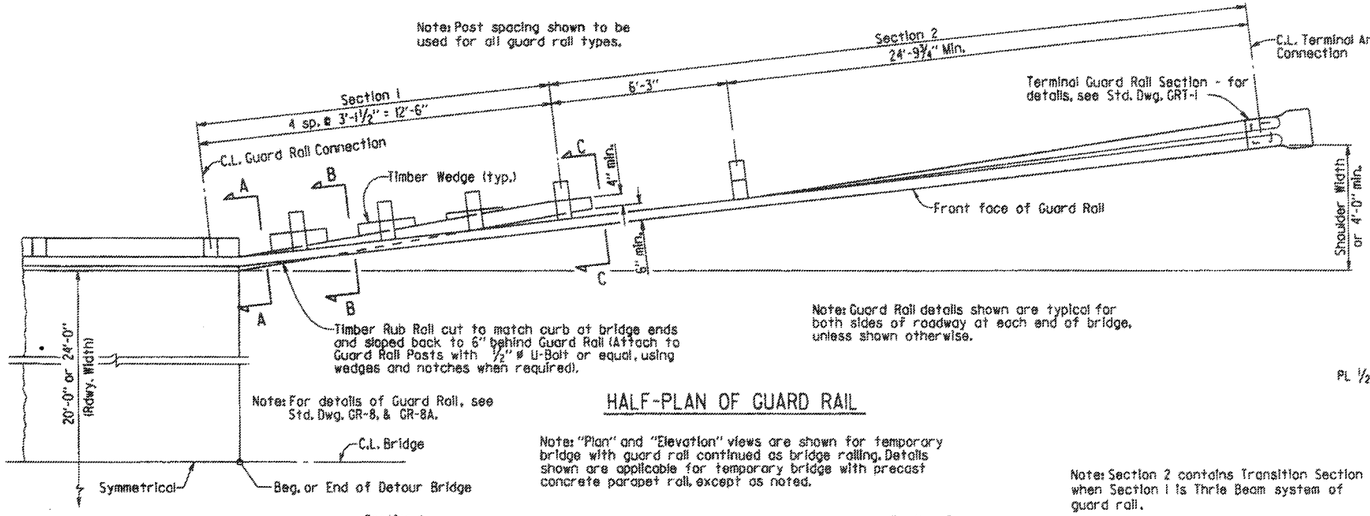
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040a.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

DRAWING NO. 55040A

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.				
				TEMP. BRIDGE		55054		

Note: Post spacing shown to be used for all guard rail types.



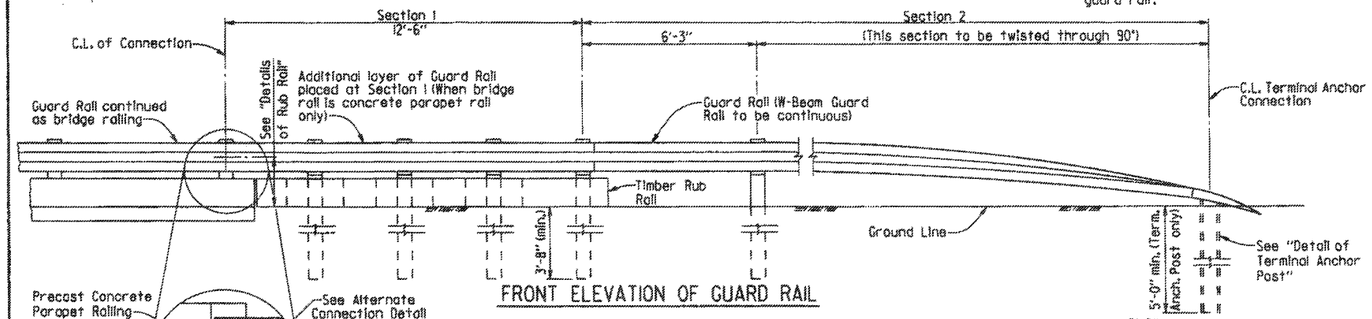
Note: For details of Guard Rail, see Std. Dwg. GR-8, & GR-8A.

Note: Guard Rail details shown are typical for both sides of roadway at each end of bridge, unless shown otherwise.

HALF-PLAN OF GUARD RAIL

Note: "Plan" and "Elevation" views are shown for temporary bridge with guard rail continued as bridge railing. Details shown are applicable for temporary bridge with precast concrete parapet rail, except as noted.

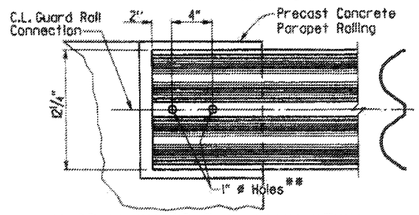
Note: Section 2 contains Transition Section when Section 1 is Thrie Beam system of guard rail.



FRONT ELEVATION OF GUARD RAIL

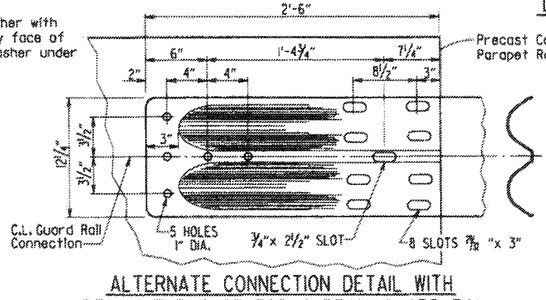
Note: For details of Thrie Beam system of guard rail, see Std. Dwg. GR-10 & GR-10A. Thrie Beam rail and five bolt connection as shown on GR-10 are required when precast rail has five cast holes for guard rail connection.

** Two ¾" ø H.S. Bolts are required. Use 7" x 2½" x ⅜" washer with two ⅞" ø holes against back of parapet and on roadway face of guard rail (Bend to fit guard rail) with 1½" o.d. steel washer under heads and nuts (Clipped to 1⅜" x 1½" at nuts).



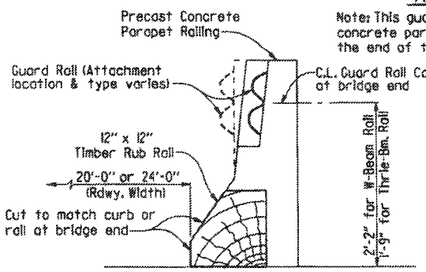
W-BEAM GUARD RAIL CONNECTION AT CONCRETE PARAPET RAIL

Note: This guard rail connection will only be allowed on precast concrete parapet rail units with a 12½" x 14" x 3⅜" notch at the end of the unit for connection of guard rails.

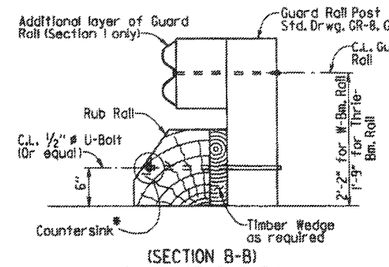


ALTERNATE CONNECTION DETAIL WITH SPECIAL END SHOE FOR W-BEAM GUARD RAIL CONNECTION AT CONCRETE PARAPET RAIL

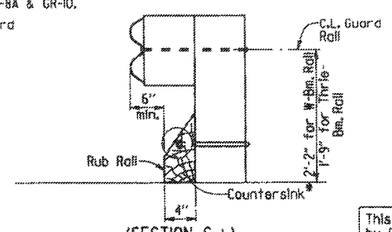
Note: Special End Shoe and four ⅞" ø x 2½" H.S. Bolts are required when concrete insert anchor assembly is present in precast rail unit.



(SECTION A-A)

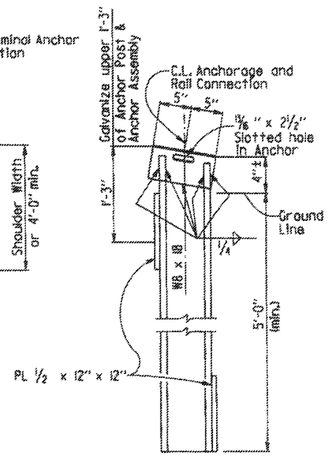


(SECTION B-B)

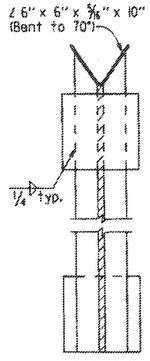


(SECTION C-C)

DETAILS OF RUB RAIL (CONC. PARAPET BRIDGE RAIL)



(ELEVATION)

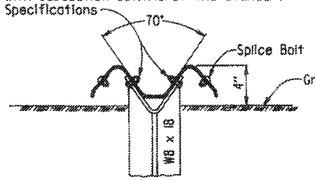


(SECTION)

Note: Post shall be driven or set in dug hole and compacted.

DETAILS OF TERMINAL ANCHOR POST

4- ¾" ø x 2" A325 High Strength Bolts and Nuts with two cut hardened steel Washers for each bolt, installed in accordance with Subsection 807.7(d) of the Standard Specifications



DETAILS OF TERMINAL ANCHOR CONNECTION

GENERAL NOTES

Bridge End Protection is required on both sides of roadway at both ends of temporary bridge. The end protection system shall consist of a minimum of two end sections (Section 1 and Section 2). If additional guard rail is used, it shall be placed in Section 2 and shall have a maximum post spacing of 6'-3".

If W-Beam Guard Rail is also used as Bridge Rail, it shall be continuous from terminal anchor post to terminal anchor post with splices as shown on Std. Drwg. GR-8.

A doubled guard rail beam section (One W-Beam Rail section or one Thrie Beam Rail section nested inside the other) shall be required for Section 1 if the guard rail is not continued as bridge rail, but connects directly to a precast concrete parapet bridge rail end.

Rub rails shown in Section 1 are representative of members required to transition the curb or wheel guard section to a minimum distance behind the face of guard rail.

Timber rub rail, regardless of species, must be of equal or better strength than no. 2 southern pine or douglas fir, graded by the standard grading rules. All timber widths and thicknesses are shown as nominal.

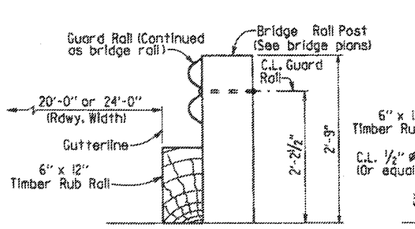
Except as noted, bolts shall conform to the requirements of ASTM A 307 and minimum dimensions as shown. Malleable or cast iron washers to be used under all bolt heads and nuts bearing on timber. High strength bolts shall conform to Section 807.

Guard rail as described in Subsection 617.01 of the Standard Specifications and these plans shall be constructed in accordance with Subsection 617.03. Subsection 617.02 is modified to allow the use of materials consistent with the requirements of Section 603.

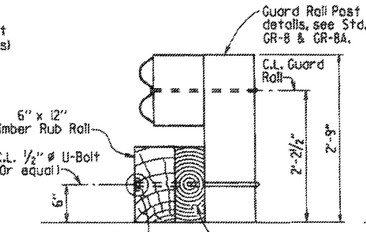
Payment: The bridge end protection system completed and accepted will not be paid for directly, but shall be included in the contract unit price bid per linear foot for temporary bridge structure, which price shall be full compensation for furnishing materials and erecting guard rail, line posts, blackouts, rub rails, terminal anchor posts, etc.; and for all labor, tools, equipment and incidentals necessary to complete the work.

GUARD RAIL CONNECTION COMBINATIONS

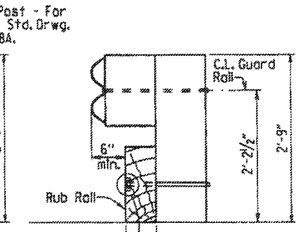
BRIDGE RAIL TYPE	GUARD RAIL AND CONNECTION TYPE
Guard Rail continued as bridge railing	W-Beam Guard Rail. See Std. Drwg. GR-8 for splice details.
Concrete Parapet with 12½" x 14" x 3⅜" notch and two cast in holes	W-Beam Guard Rail fastened with two high-strength bolts as shown; blunt end on guard rail. Guard Rail doubled at Section 1.
Concrete Parapet with Concrete Insert Anchor assembly (4-Bolt embedded Anchor) flush with rail face	W-Beam Guard Rail fastened with four high-strength bolts; Special End Shoe. Guard Rail doubled at Section 1.
Concrete Parapet with 5 cast in holes	Thrie Beam Guard Rail; five high-strength through bolts with back-up plate; special end shoe as shown on Std. Dwg. GR-10. Guard Rail doubled at Section 1. Section 2 contains transitional rail and W-Beam Guard Rail.



(SECTION A-A)



(SECTION B-B)



(SECTION C-C)

DETAILS OF RUB RAIL (CONTINUOUS W-BEAM RAIL)

* U-Bolt Assembly, or equal, shall not project beyond rdwy. face of Rub Rail at any location.

This document was originally issued and sealed by Carl J. Fuselier, PE No. 7510, on April 17, 2014. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE BRIDGE END PROTECTION SYSTEM

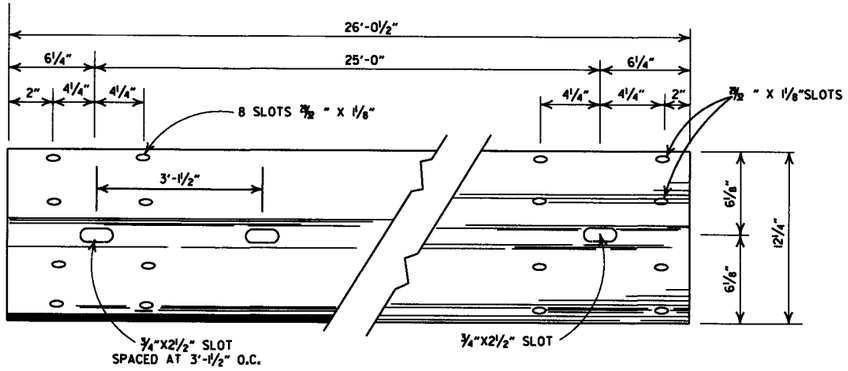
ROUTE SEC.

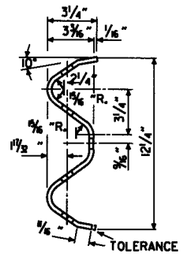
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JYP	DATE: 4-17-14	FILENAME: b55054.dgn	
CHECKED BY: AMS	DATE: 4-17-14	SCALE: No Scale	
DESIGNED BY: STD.	DATE:		

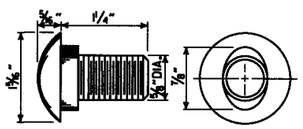
DRAWING NO. 55054



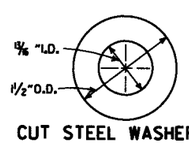


DETAILS OF W-BEAM GUARD RAIL

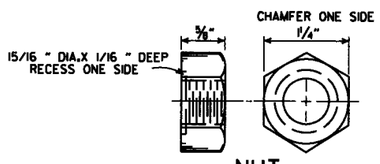
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



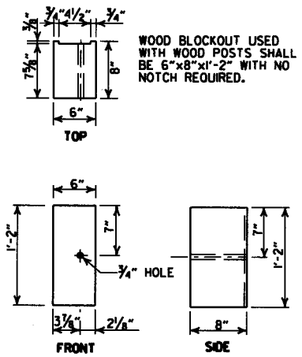
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

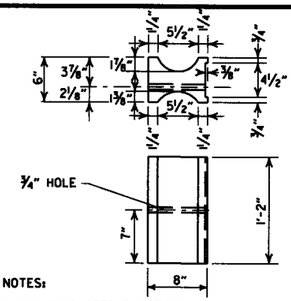


NUT



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

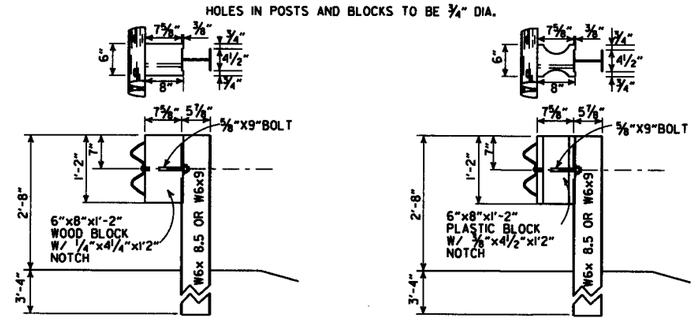
WOOD BLOCKOUT (W-BEAM)



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.

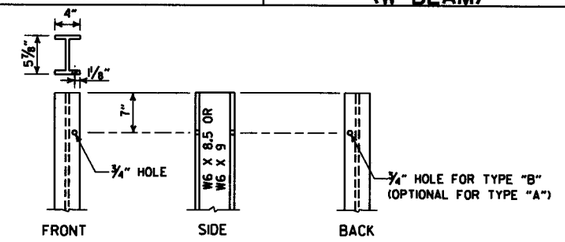
PLASTIC BLOCKOUT (W-BEAM)



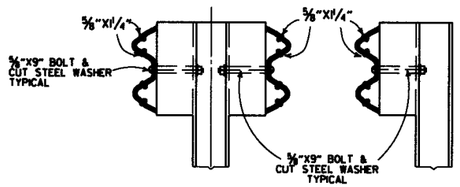
WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



STEEL POST



TYPE "B" TYPE "A"

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 GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

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

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

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

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

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

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

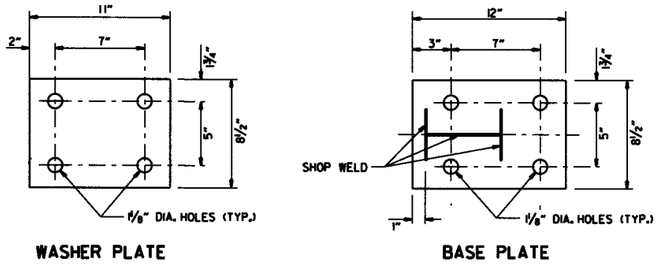
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

DATE	REVISION	FILMED
11-16-17	REVISED GENERAL NOTES AND RAISED GUARD RAIL HEIGHT 3"	
07-14-10	RAISED HEIGHT OF GUARD RAIL 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 GUARD RAIL 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 GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
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

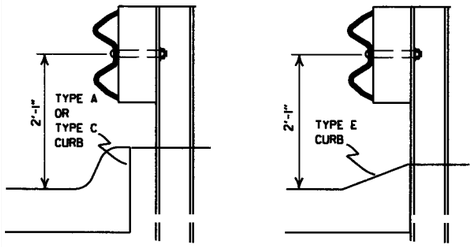
GUARD RAIL DETAILS

STANDARD DRAWING GR-8



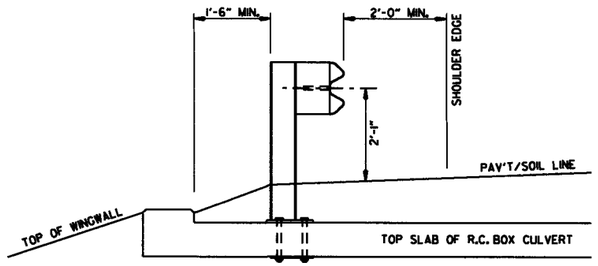
WASHER PLATE **BASE PLATE**

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

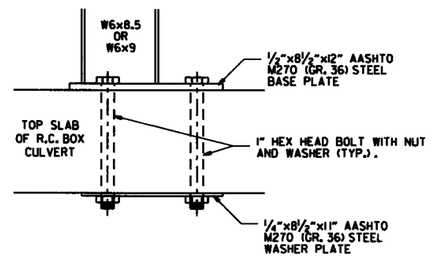


DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

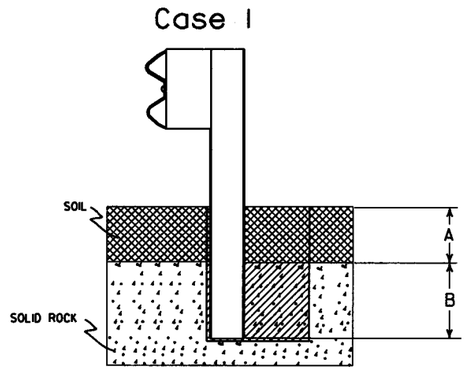
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.

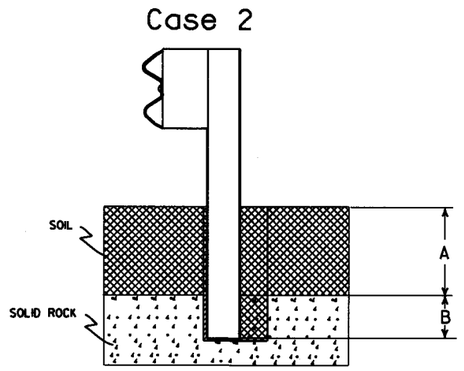


SECTION A-A

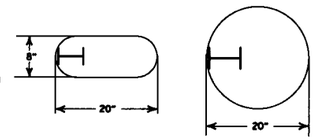


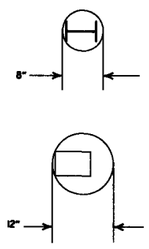
DETAIL OF CONNECTION



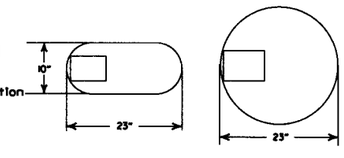


Plan View Steel Posts
Either hole configuration acceptable





Plan View Wood Posts
Either hole configuration acceptable



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

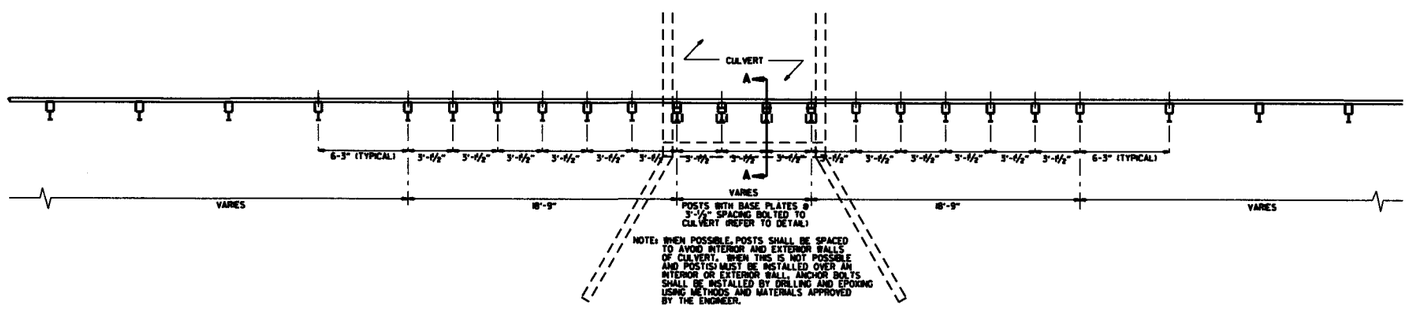
Zone A:
Backfill according to Section 617.03(a).

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

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

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

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



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

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

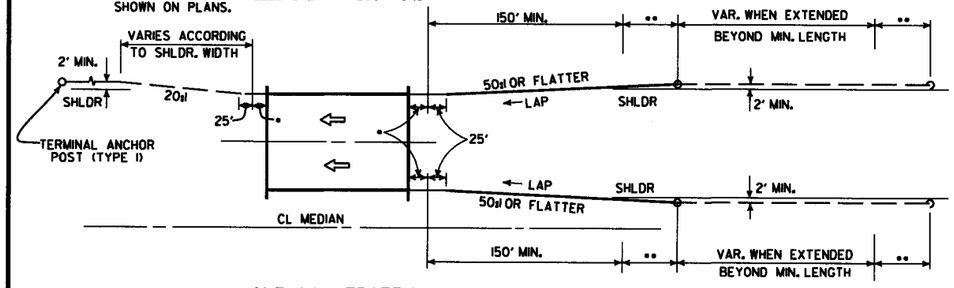
DATE	REVISION	FILMED
11-16-17	REVISED GUARD RAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
04-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS	
03-30-00	REMOVED CONCRETE INSERT ANCHOR	
08-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT. ADDED DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULV'T., DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POSTPLACE. IN SOLID ROCK	
04-03-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
06-02-94	REVISED ALTERNATE POST SIZE	
08-05-93	REVISED STEEL POST SIZE	
10-01-92	REDRAWN & REVISED	10-1-92
08-02-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
07-15-88	CONFORMED TO 1988 SPECS	
03-04-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-09-87	REDRAWN & REVISED	803-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

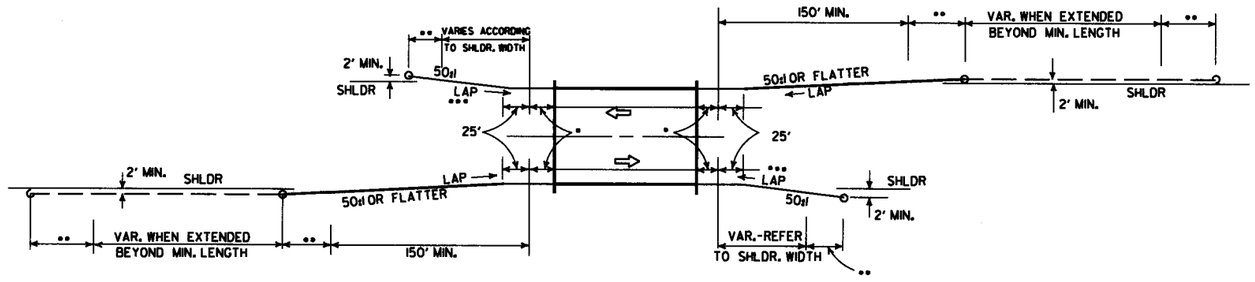
STANDARD DRAWING GR-8A

NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

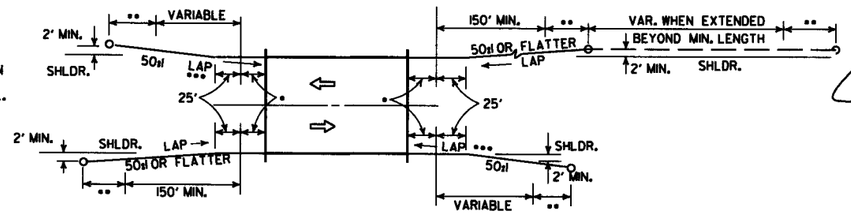
••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

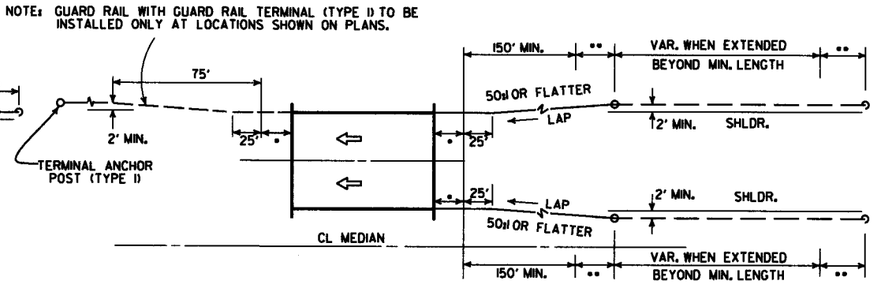
METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

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



TWO-WAY TRAFFIC

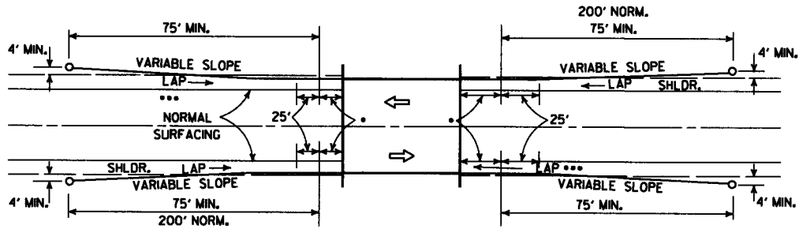
NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

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

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



LEGEND

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

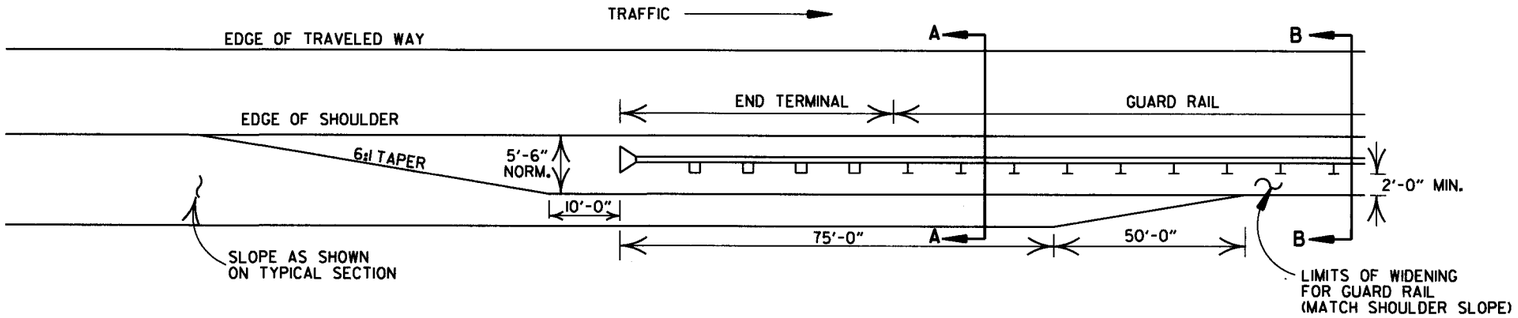
METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

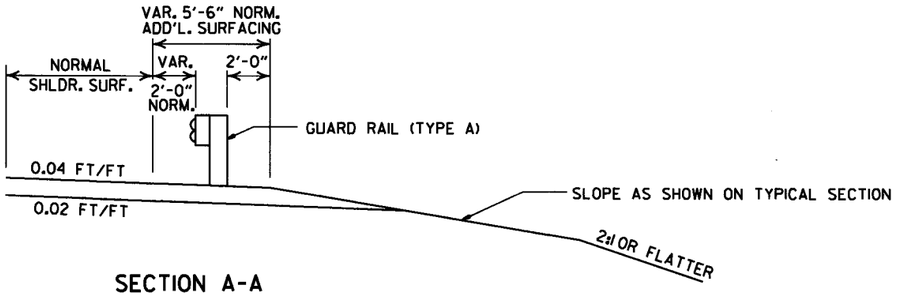
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87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

ARKANSAS STATE HIGHWAY COMMISSION

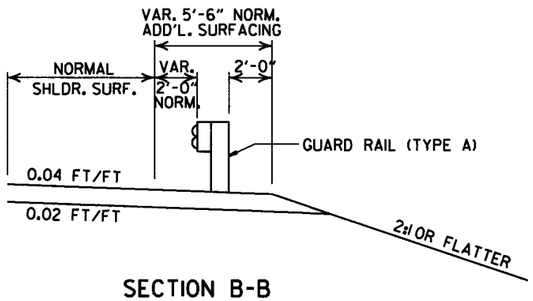
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





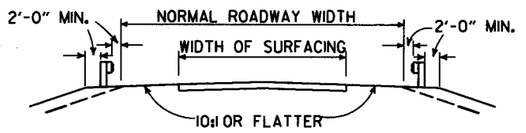
SECTION A-A



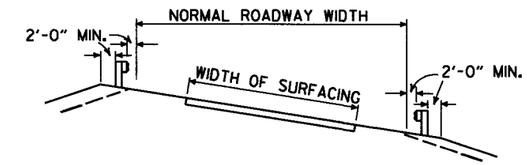
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

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

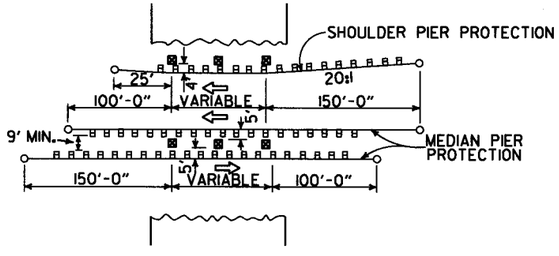


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



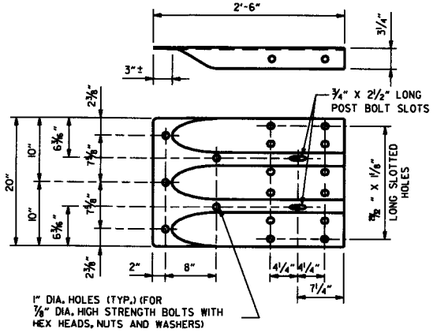
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

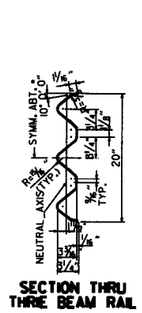
ARKANSAS STATE HIGHWAY COMMISSION

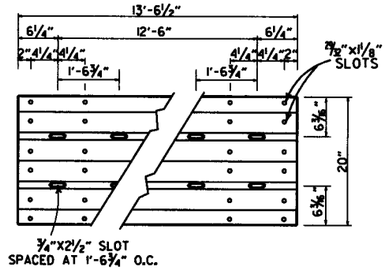
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A

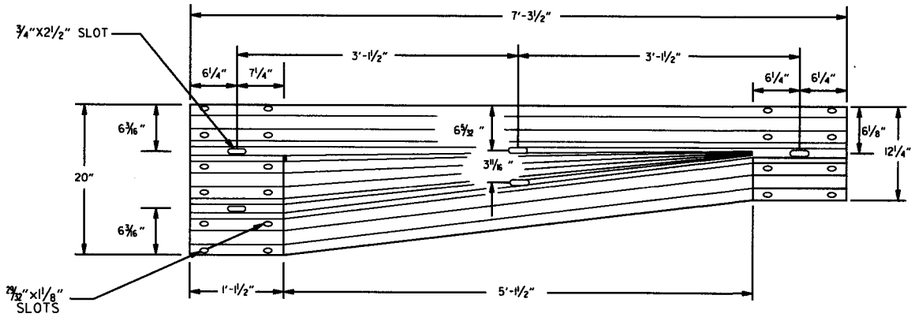


SPECIAL END SHOE

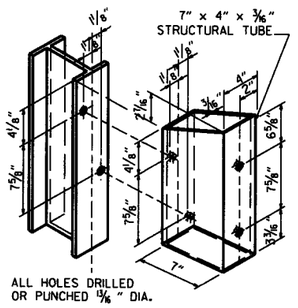




THRIE BEAM RAIL

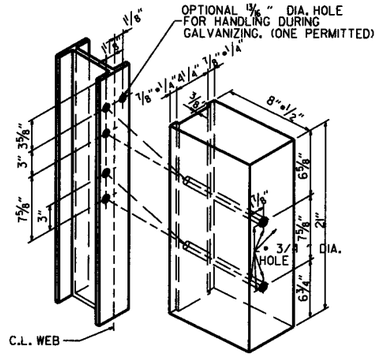


TRANSITION SECTION



ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.

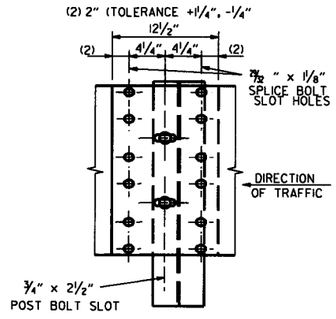
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



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.



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 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.

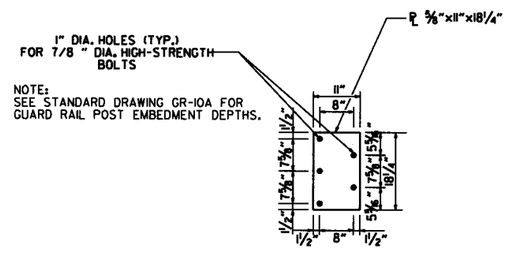
ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-13.

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

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

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

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



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

CONNECTOR PLATE

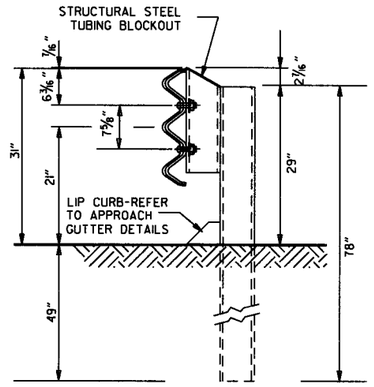
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.

DATE	REVISION	FILMED
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	

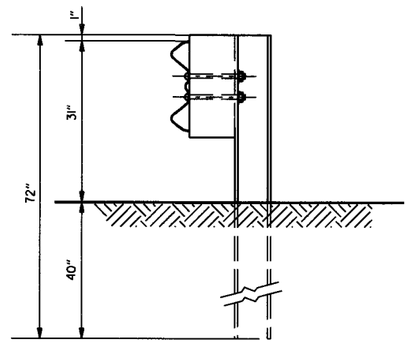
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

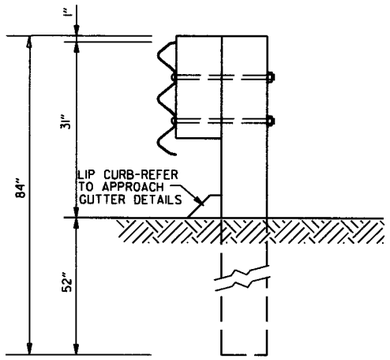
STANDARD DRAWING GR-10



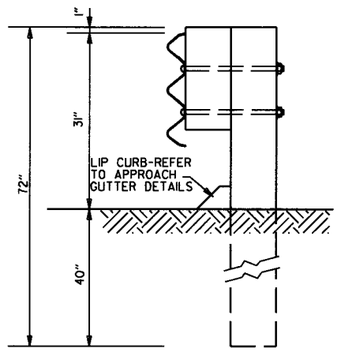
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



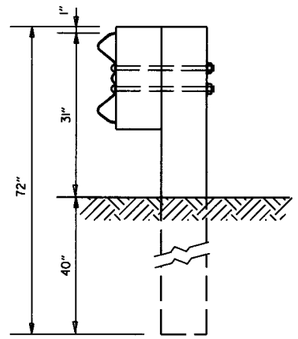
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



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.

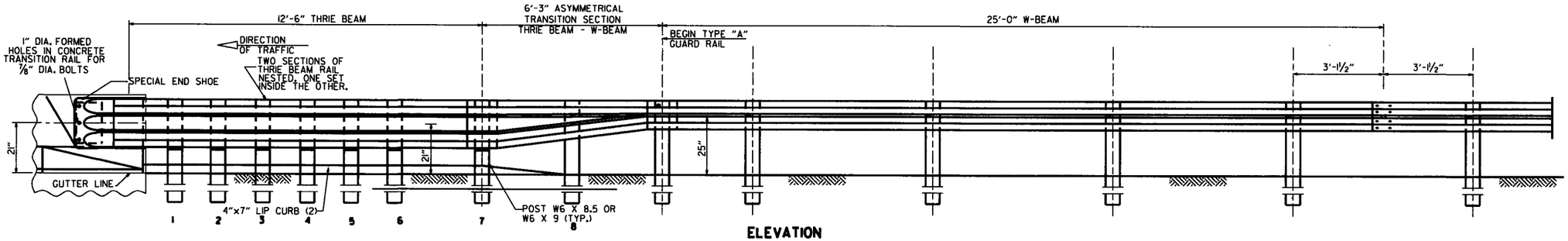
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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

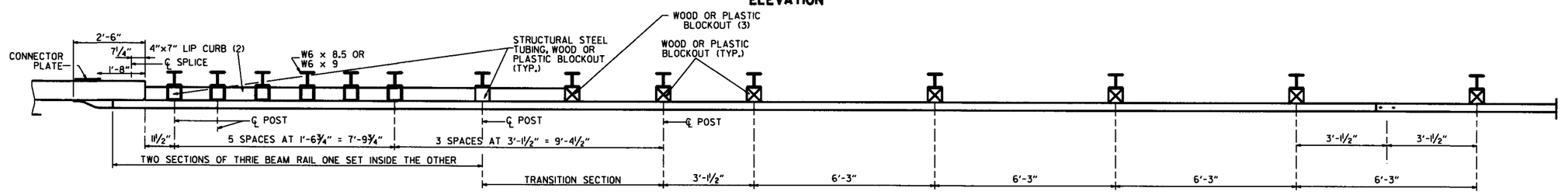
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

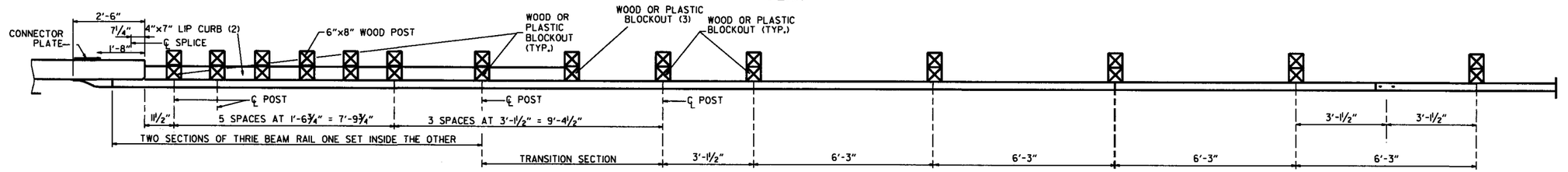
STANDARD DRAWING GR-11



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 GUARD RAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE 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-9 & GR-13.

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

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

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

POSTS SHALL BE PLACED AT THE MID-SPAN OF THE W-BEAM.

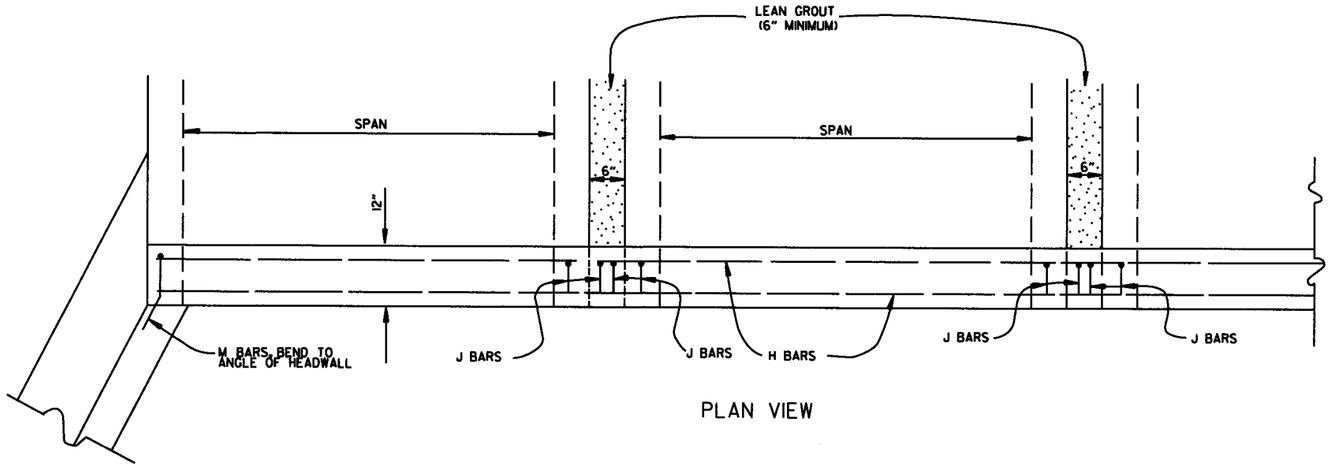
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO. 1 (1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-16-17	RE-DRAWN FROM STD. DWG. GR-10 & ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

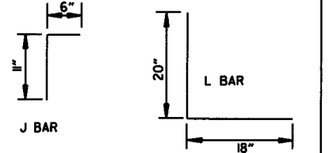
STANDARD DRAWING GR-12



PLAN VIEW

BAR LIST

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



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

GENERAL NOTES

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

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

ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFERS.

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

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

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

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

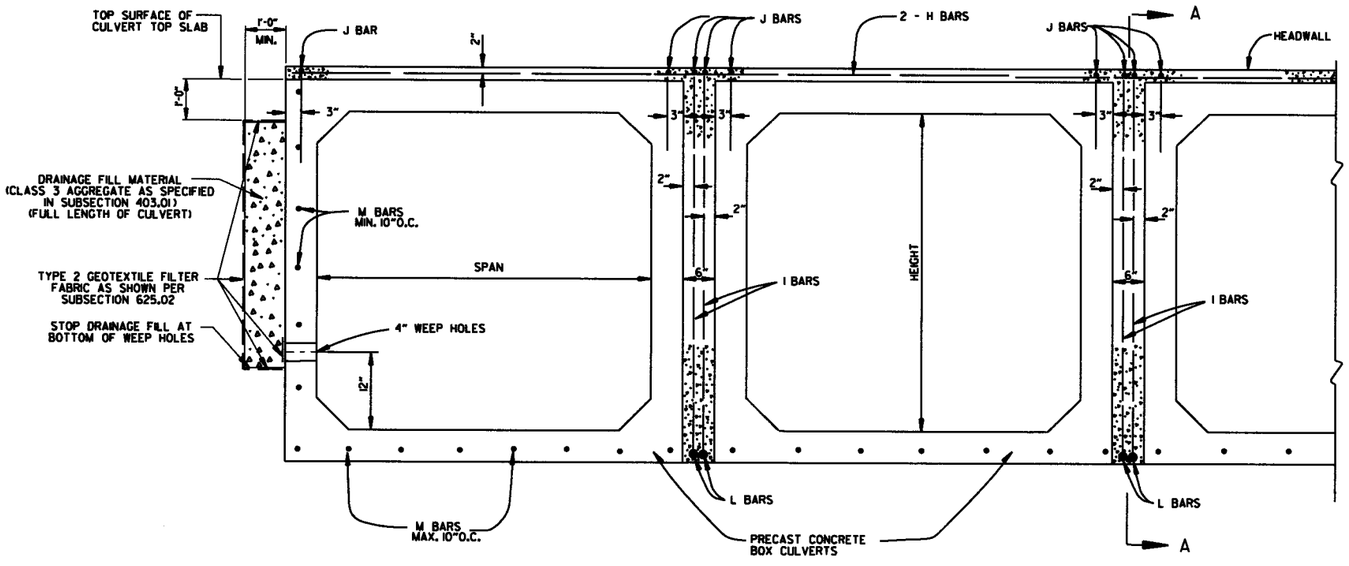
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

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

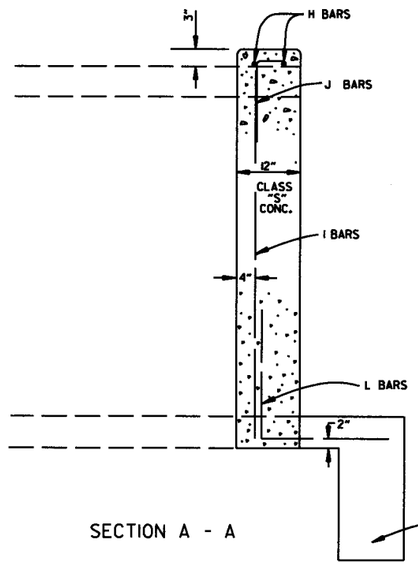
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

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

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



END VIEW



SECTION A - A

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

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTO NOMINAL	AASHTO M 206	AHTO 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.

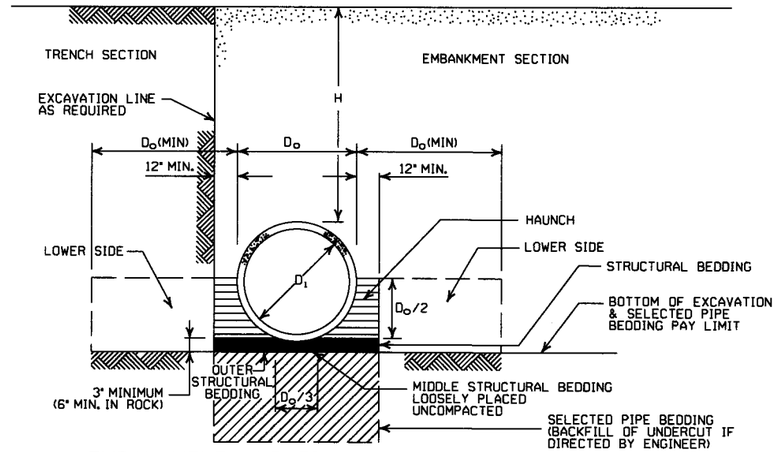
- LEGEND -

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.

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.

GENERAL NOTES

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

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
		2⅔ 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

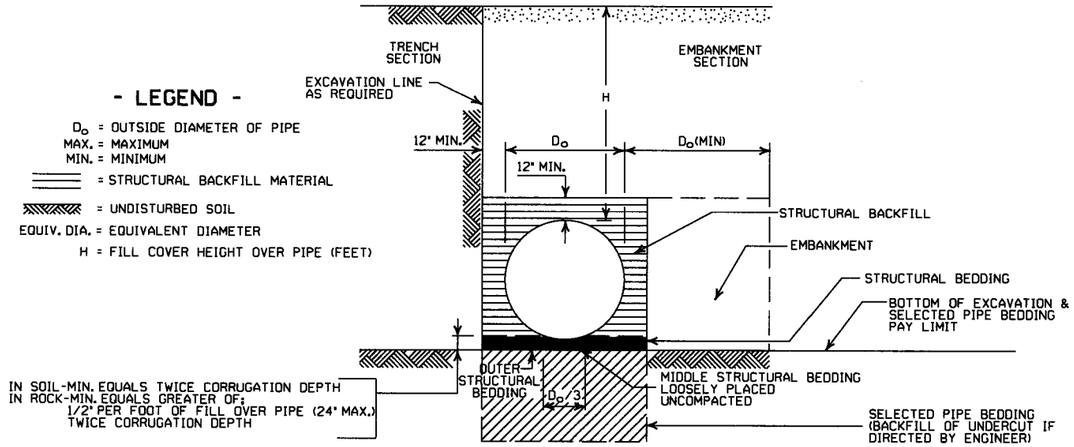
METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8

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.



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

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"

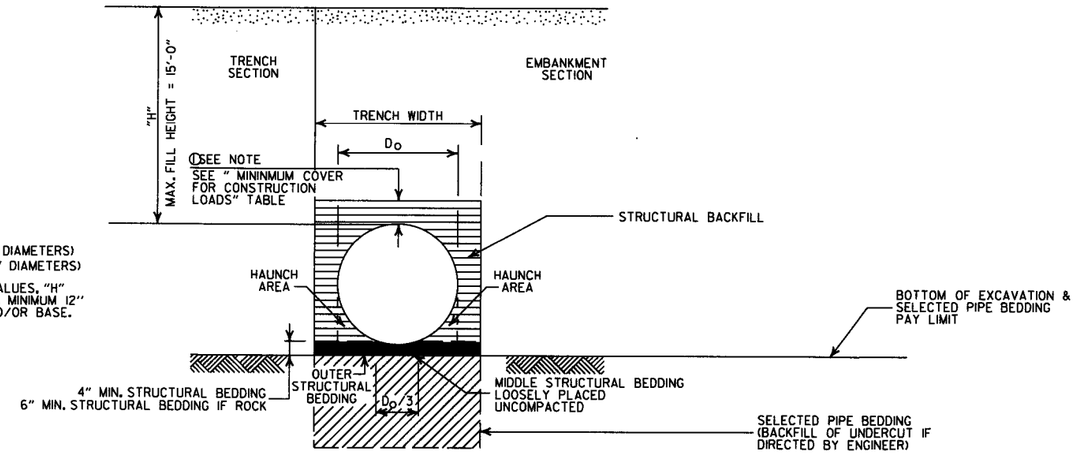
MINIMUM COVER FOR CONSTRUCTION LOADS

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.

①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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 CONFROM 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.)
Ø = 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 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

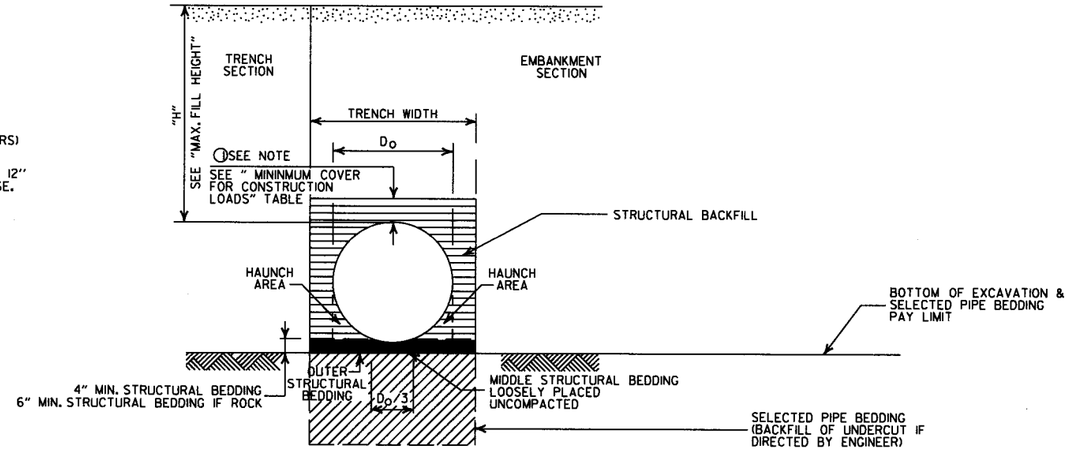
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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 CONFROM 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. 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

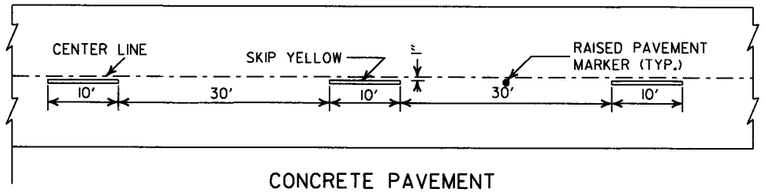
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

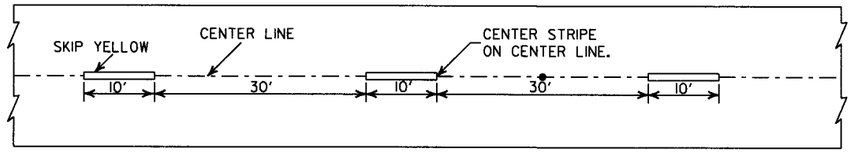
PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

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

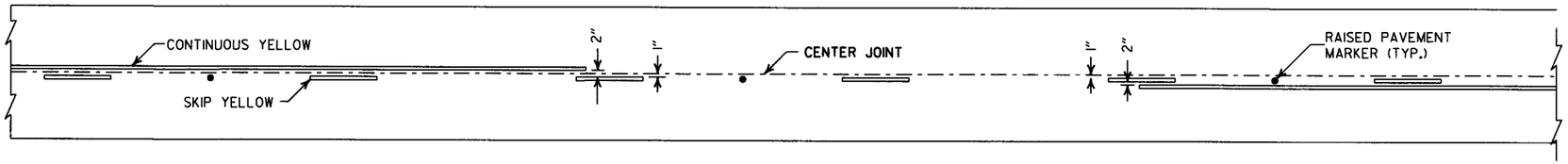


CONCRETE PAVEMENT



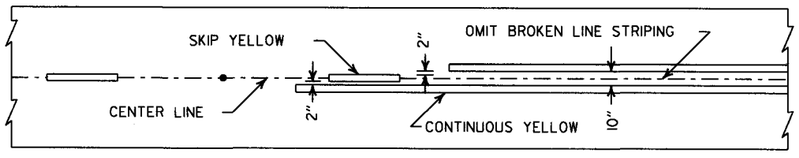
ASPHALT PAVEMENT

BROKEN LINE STRIPING

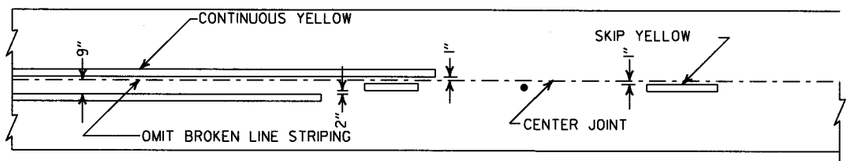


SOLID LINE STRIPING ON CONCRETE PAVEMENT

SOLID LINE STRIPING ON ASPHALT PAVEMENT

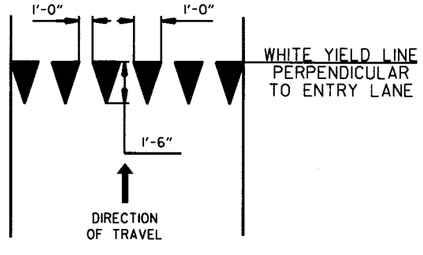


ASPHALT PAVEMENT

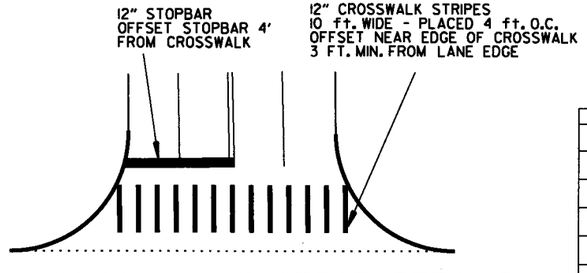


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

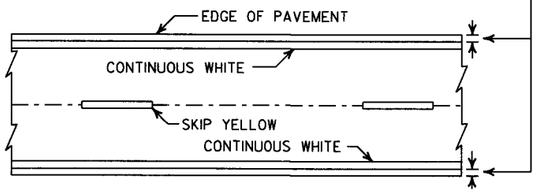


YIELD LINE DETAIL



CROSSWALK AND STOPBAR DETAILS

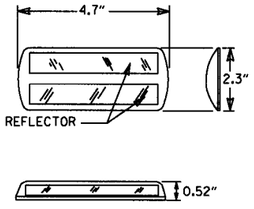
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING

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

TYPE II
RED/CLEAR OR
YELLOW/YELLOW



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

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

DATE	REVISION	FILMED
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

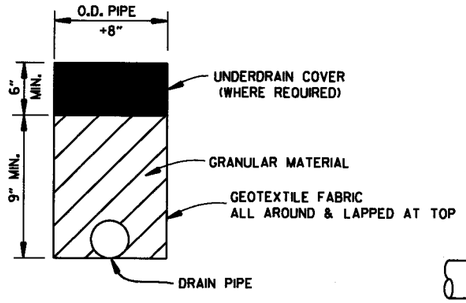
PAVEMENT MARKING DETAILS

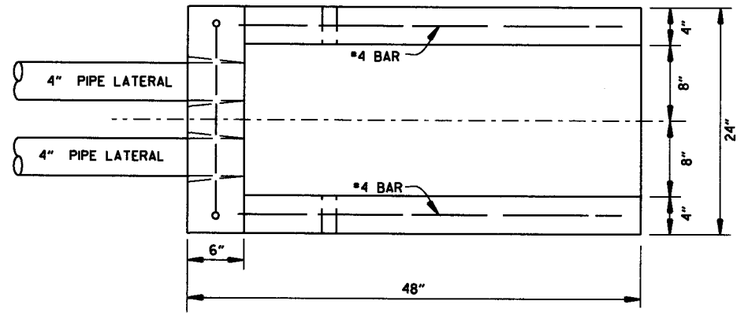
STANDARD DRAWING PM-1

NOTE:

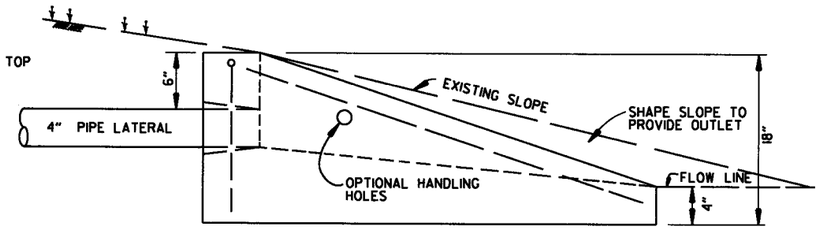
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.

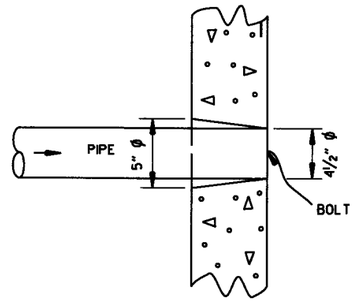




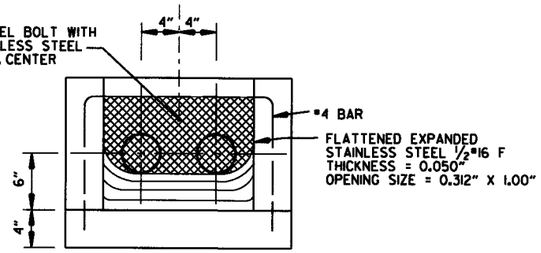
PLAN VIEW



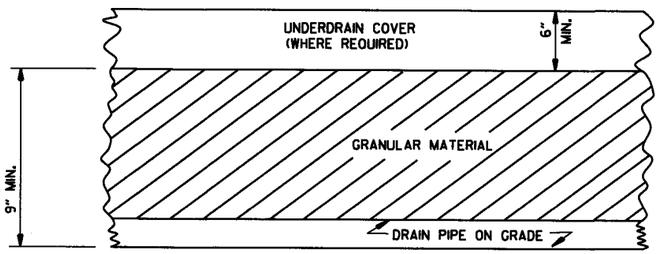
SIDE VIEW



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 I. 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."

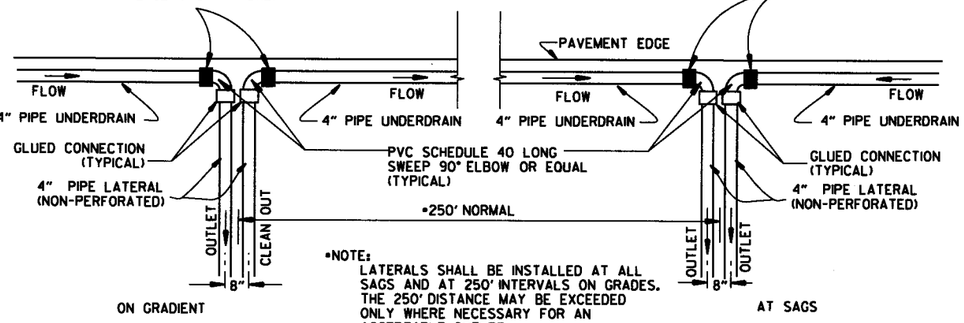
6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE 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.

FERNCO 1056-44 (4" CI/PLASTIC) OR
FERNCO 1051-44 (4" AC/DI OR 4" CI/PLASTIC)
COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)

UNDERDRAIN OUTLET PROTECTORS

FERNCO 1056-44 (4" CI/PLASTIC) OR
FERNCO 1051-44 (4" AC/DI OR 4" CI/PLASTIC)
COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)



*NOTE:
LATERALS SHALL BE INSTALLED AT ALL SAGS AND AT 250' INTERVALS ON GRADES. THE 250' DISTANCE MAY BE EXCEEDED ONLY WHERE NECESSARY FOR AN ACCEPTABLE OUTLET.

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

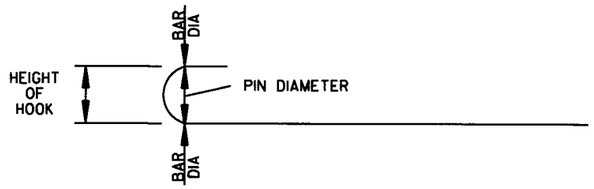
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

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

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

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



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

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

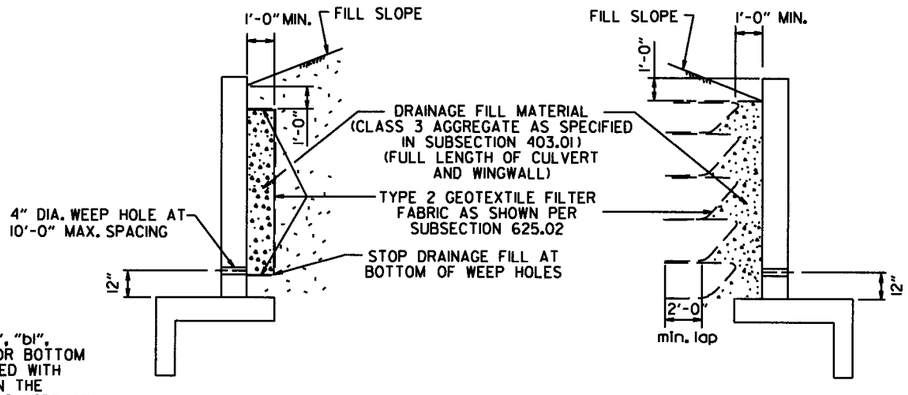
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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

REPLACEMENT BAR LENGTHS TABLE

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

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

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

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

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

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

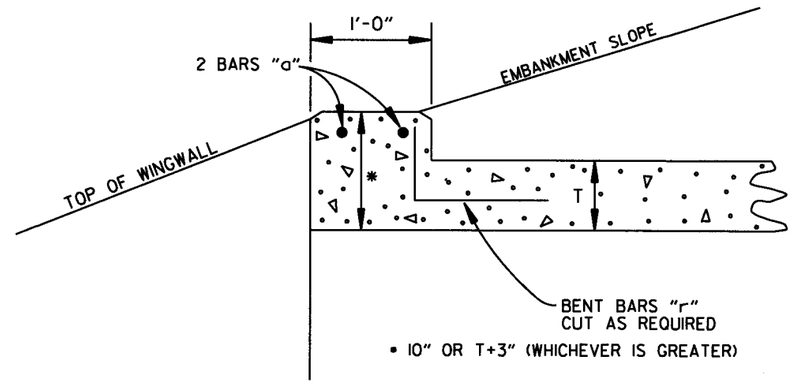
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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

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

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

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



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

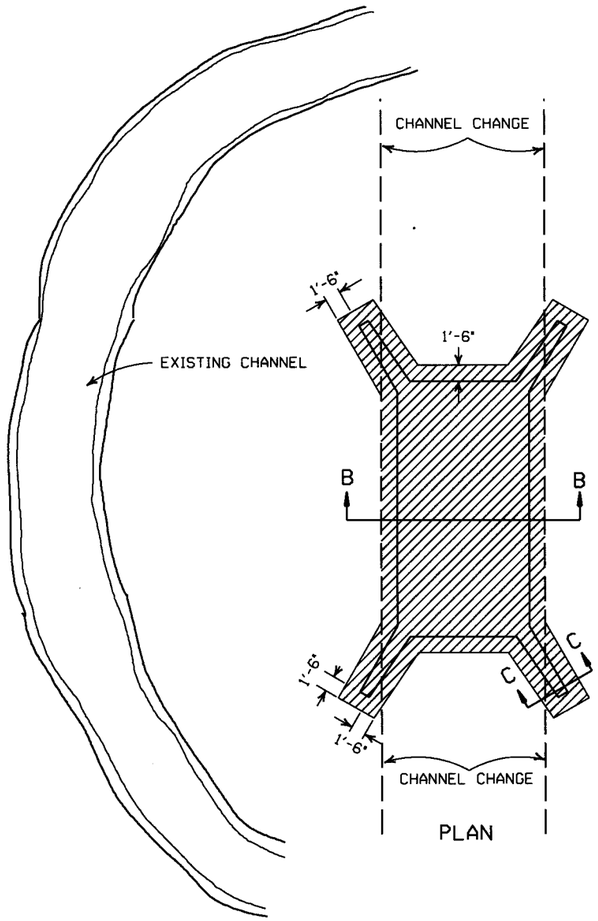
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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

ARKANSAS STATE HIGHWAY COMMISSION

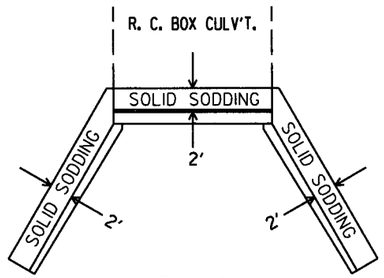
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

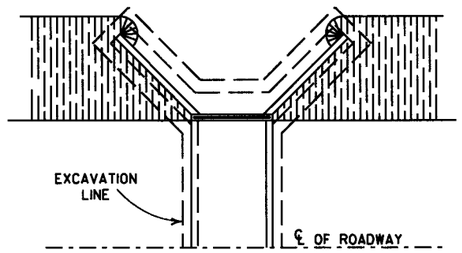
SOLID SODDING



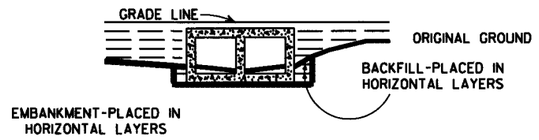
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

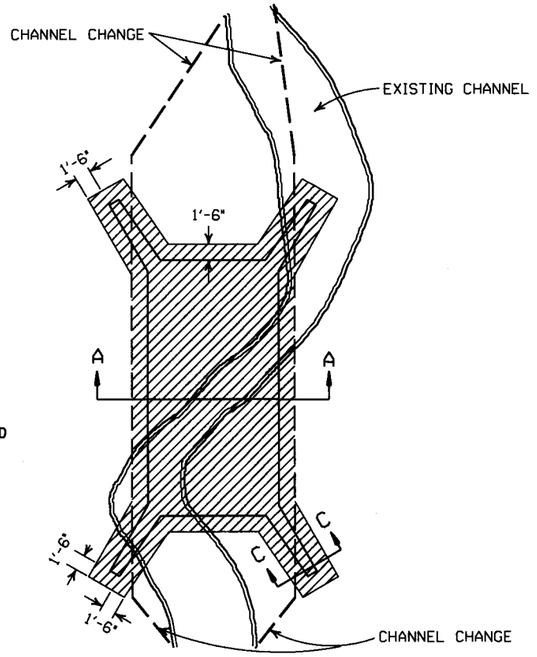


PLAN

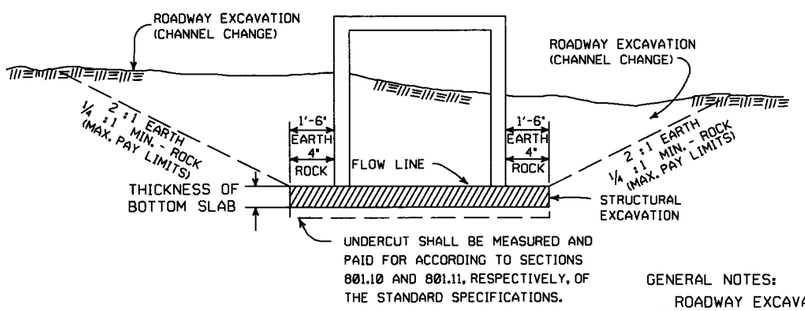


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

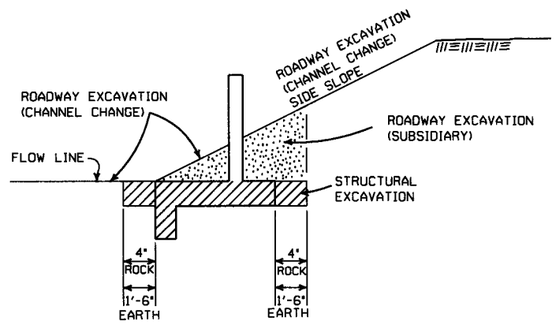


PLAN

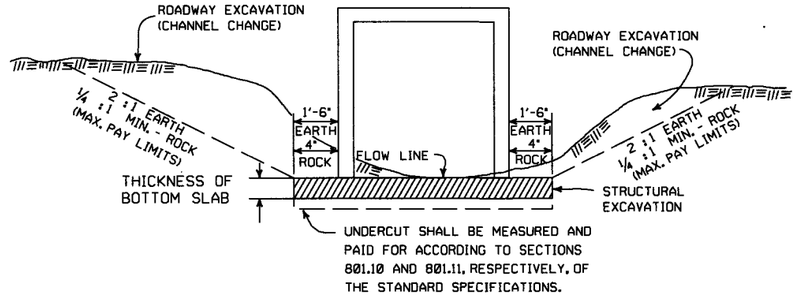


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

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

STANDARD DRAWING RCB-2

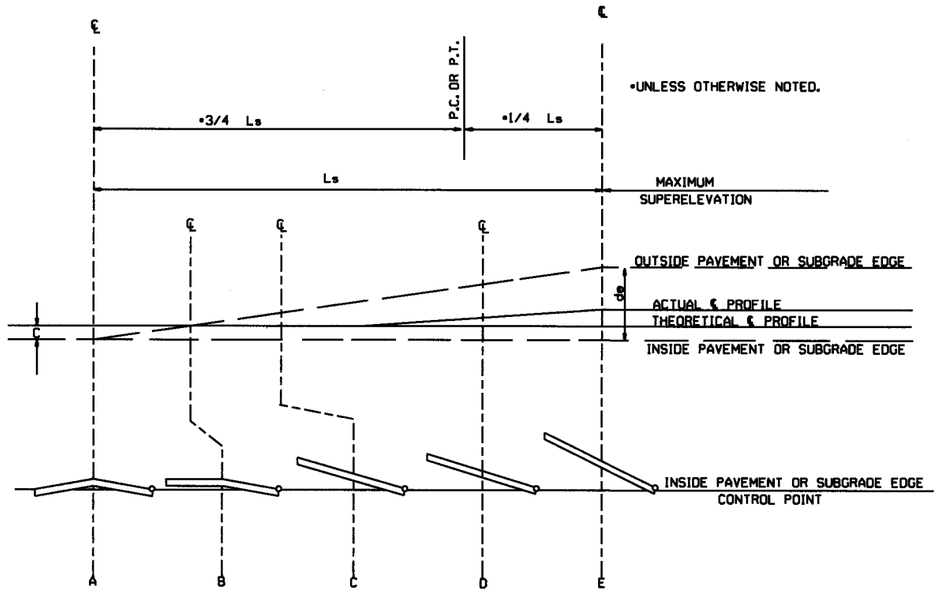
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15'	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30'	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45'	N.C.			N.C.			N.C.			0.022			0.023			0.028		
1° 00'	N.C.			N.C.			0.021			0.026			0.030			0.037		
1° 15'	N.C.			R.C.			0.026			0.032			0.037			0.046		
1° 30'	N.C.			0.021			0.031	200		0.037	225		0.043	250		0.054	275	300
1° 45'	N.C.			0.025			0.036			0.043			0.049			0.062		
2° 00'	R.C.			0.028	175		0.040			0.048			0.055			0.070		
2° 15'	R.C.			0.031			0.045		250	0.053			0.061			0.078	300	
2° 30'	0.021			0.034			0.049			0.058			0.067			0.085	315	350
2° 45'	0.023			0.037			0.053			0.063			0.072			0.091	335	
3° 00'	0.025			0.040			0.057			0.067	230		0.077	260		0.096	350	
3° 15'	0.027	150		0.043			0.061			0.072	245		0.082	275		0.098	360	400
3° 30'	0.029			0.046			0.065	205		0.076	255		0.086	285		0.100	380	
3° 45'	0.031		200	0.049			0.069	215		0.080	265		0.090	295	350			
4° 00'	0.033			0.051			0.072	225		0.083	270		0.093	305				
4° 30'	0.037			0.056			0.078	240		0.087	280		0.096	315				
5° 00'	0.040			0.061			0.083	250		0.091	295		0.098	320				
5° 30'	0.043			0.066	185		0.088	260		0.094	300	350						
6° 00'	0.046			0.070	190		0.092	270		0.096	305							
6° 30'	0.050			0.074	200		0.095	280	300	0.100	315							
7° 00'	0.053			0.078	210		0.098	285										
7° 30'	0.055			0.081	215		0.099	290										
8° 00'	0.058			0.084	220		0.100	290										
8° 30'	0.061			0.087	225	250												
9° 00'	0.063			0.089	230													
10° 00'	0.068	160		0.094	235													
11° 00'	0.072	170		0.097	250													
12° 00'	0.076	175		0.099	250													
13° 00'	0.080	180		0.100	250													
14° 00'	0.083	190																
15° 00'	0.086	195																
16° 00'	0.089	200																
17° 00'	0.091	200																
18° 00'	0.093	205																
19° 00'	0.095	210																
20° 00'	0.097	215	250															
21° 00'	0.098	215																
22° 00'	0.099	215																
23° 00'	0.099	215																
24° 00'	0.100	220																

D MAX = 24° 45' | D MAX = 13° 15' | D MAX = 8° 15' | D MAX = 6° 30' | D MAX = 5° 15' | D MAX = 3° 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.)



•UNLESS OTHERWISE NOTED.

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

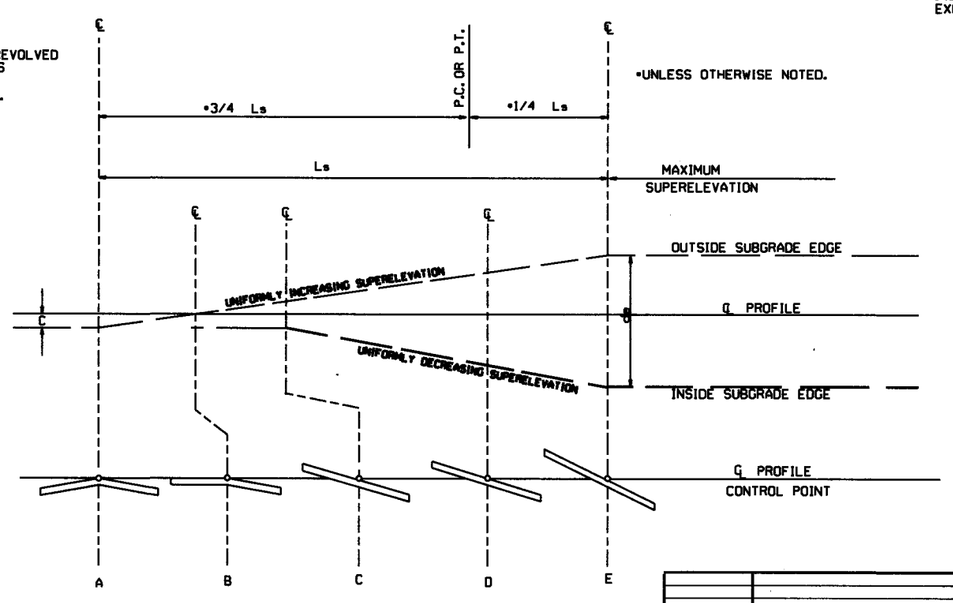
GENERAL NOTES

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.



•UNLESS OTHERWISE NOTED.

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

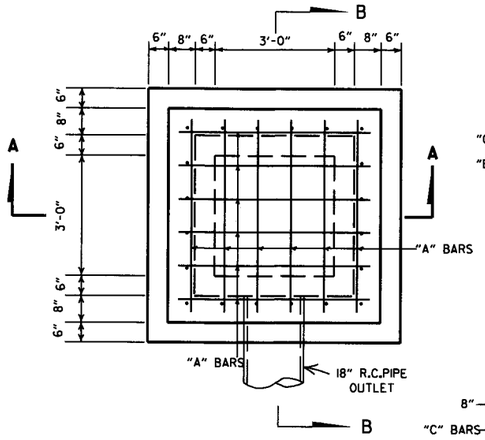
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

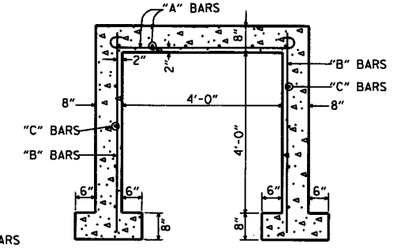
DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

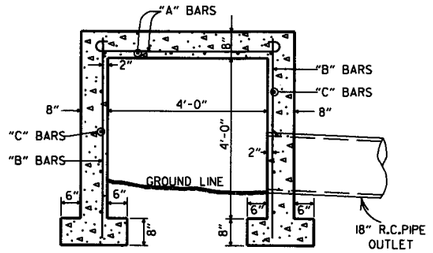
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2





SEC A-A



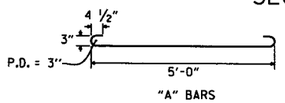
SEC B-B

NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 ½"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



"A" BARS

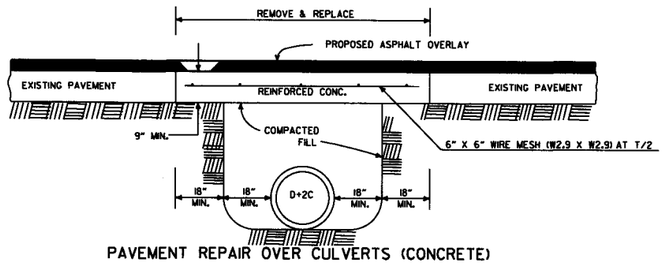
QUANTITIES

CONCRETE 3.3 CU. YDS.
REINFORCING STEEL 168 LB.

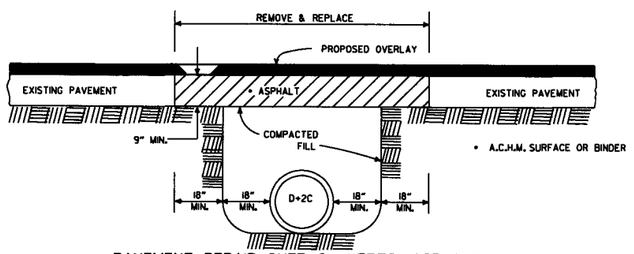
GENERAL NOTE:

THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



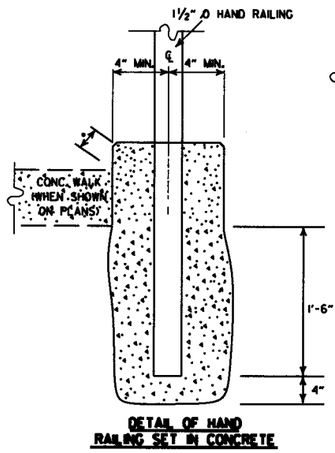
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



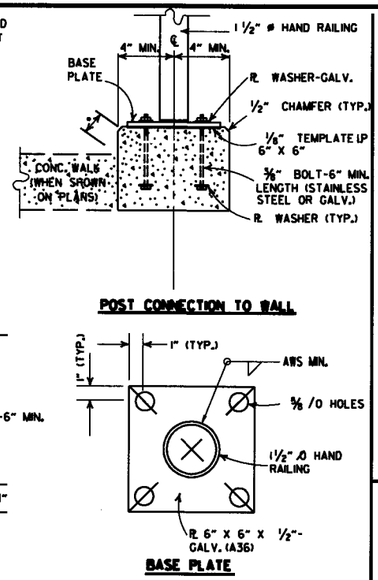
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

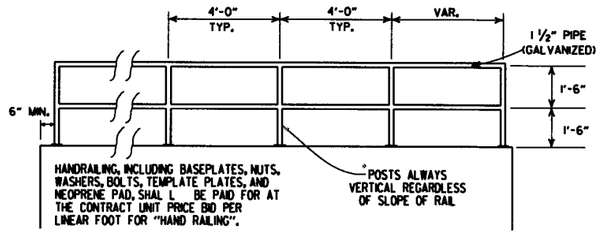
• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



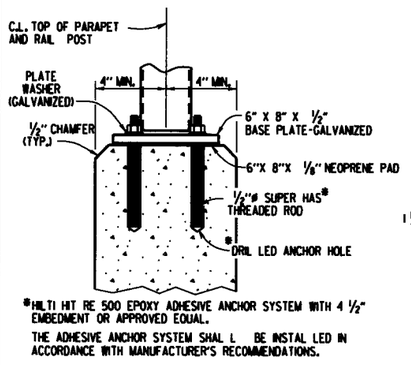
DETAIL OF HAND RAILING SET IN CONCRETE



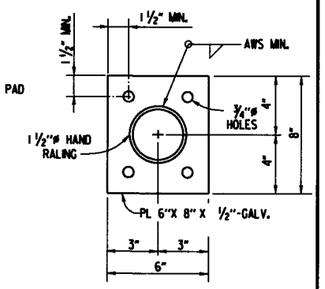
POST CONNECTION DETAILS



HAND RAILING SHALL CONFORM TO SECTION 633.



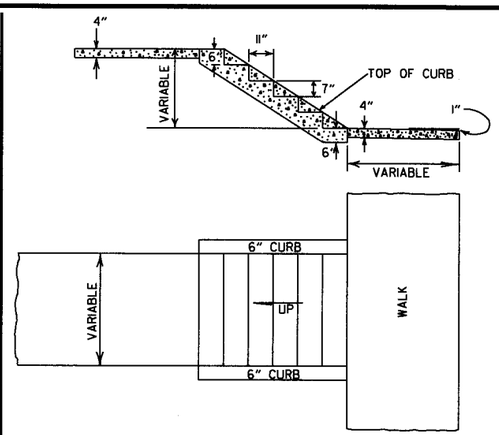
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

DETAILS OF CONCRETE STEPS & WALKS

DATE	REVISION	DATE FILMED
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE; REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET. & PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI-1

R1-1

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

R1-2

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

R2-1

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

W3-5

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

W3-5a

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

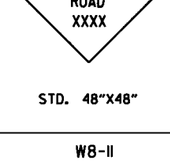
R4-1

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

R4-2

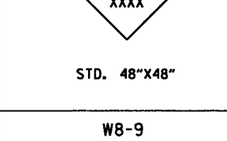
STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R5-1



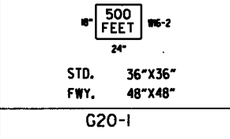
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2



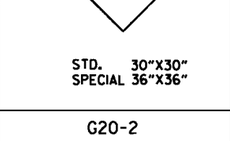
48"X30"

R11-3A



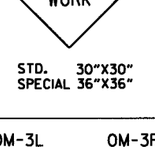
60"X30"

R11-4



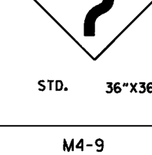
60"X30"

W21-5a



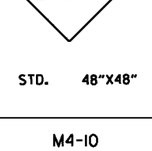
STD. 36"X36"
FWY. 48"X48"

W1-1



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

W1-2

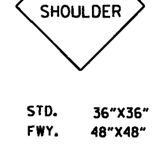


STD. 36"X36"
FWY. 48"X48"

W1-3

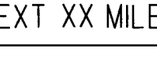
STD. 48"X48"

W1-4



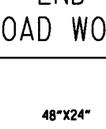
STD. 48"X48"

W1-6



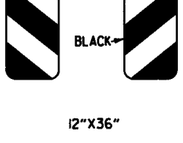
STD. 48"X24"
SPECIAL 60"X30"

W1-8



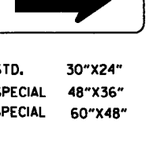
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2

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

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

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

W9-2

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

W13-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

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

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

W1-4b

STD. 48"X48"

R56-1

STD. 18"X18"

W8-11

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

W8-9

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

G20-1

60"X24"

G20-2

48"X24"

OM-3L OM-3R

12"X36"

M4-9

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

M4-10

48"X18"

R55-1

36"X60"

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

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

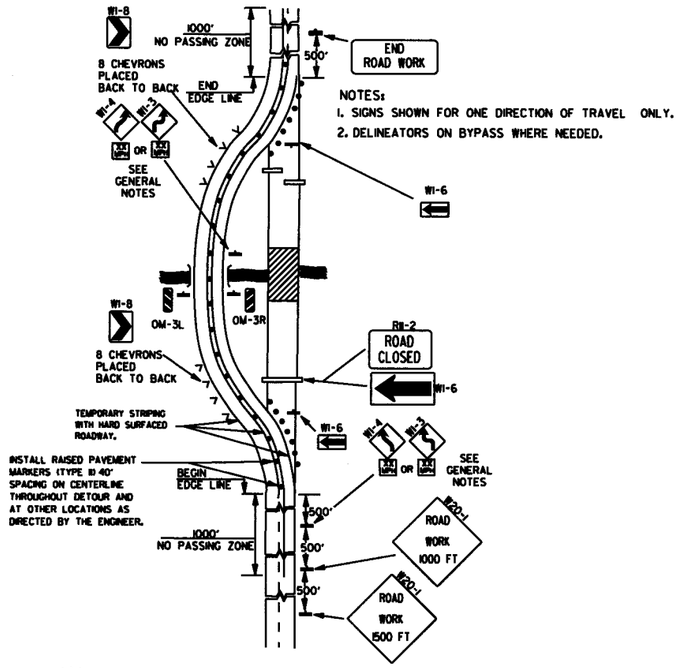
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
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	
8-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
8-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
8-18-98	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	

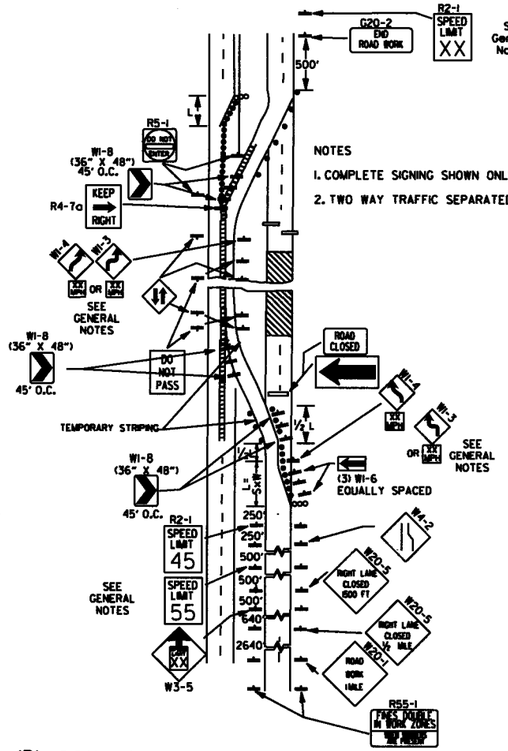
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

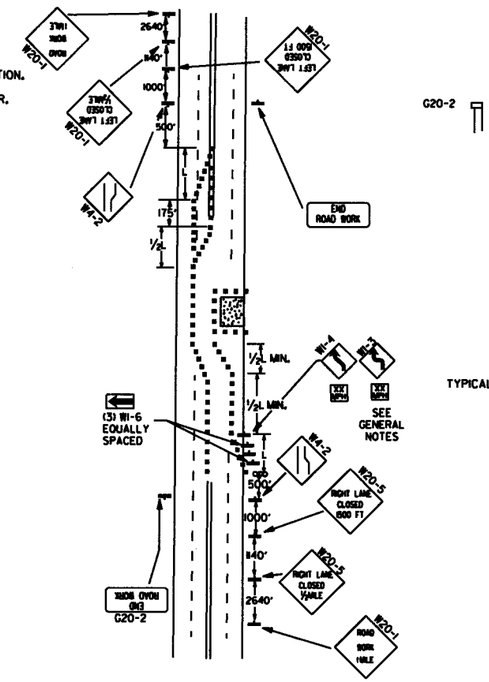
STANDARD DRAWING TC-1



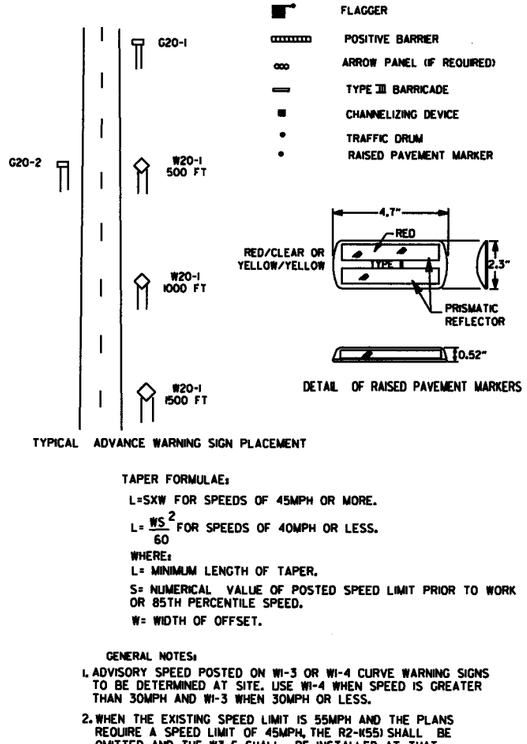
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



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



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



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:

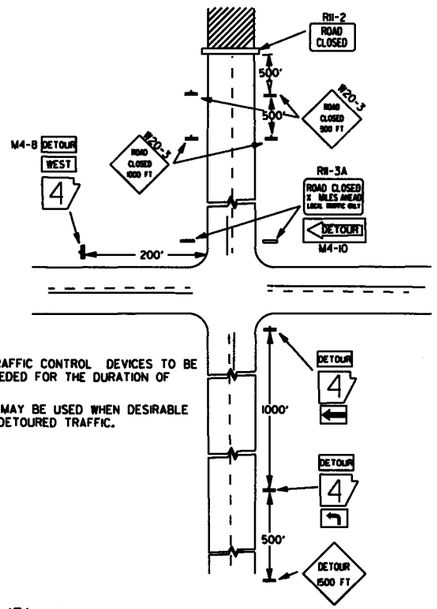
L= MINIMUM LENGTH OF TAPER.

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

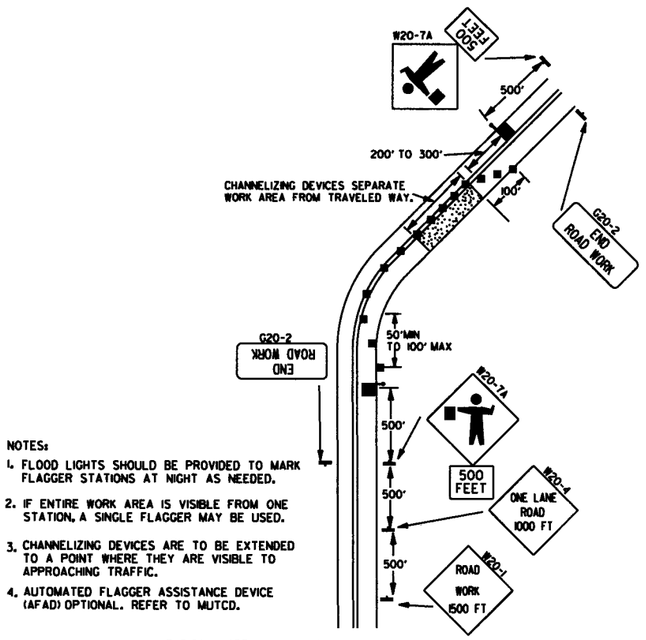
W= WIDTH OF OFFSET.

GENERAL NOTES:

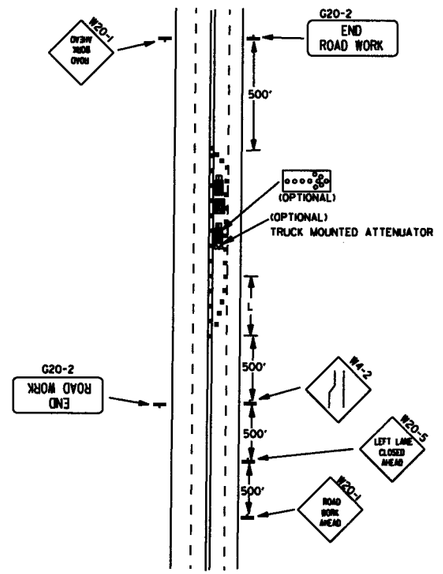
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED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



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



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



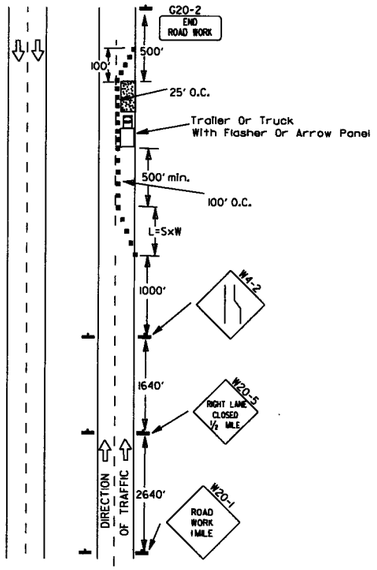
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
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	
3-8-10	ADDED (AFAD)	
8-20-08	REVISED SIGN DESIGNATIONS	
8-18-04	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	

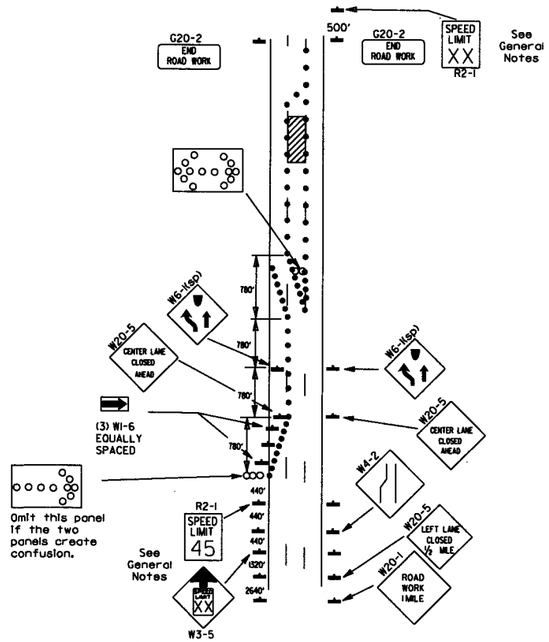
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

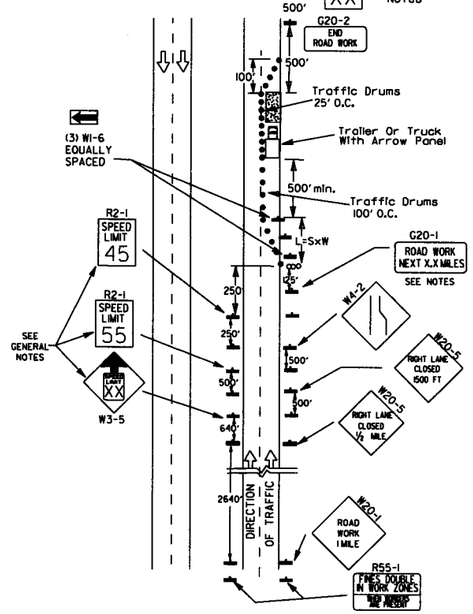
STANDARD DRAWING TC-2



(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.



(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

KEY:

ooo Arrow Panel (If Required)

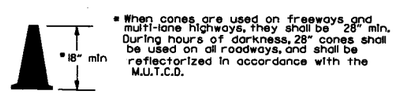
■ Channelizing Device

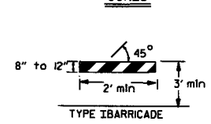
● Traffic drum

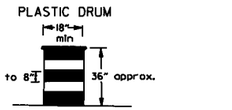
GENERAL NOTES:

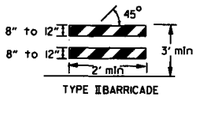
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional 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 NCHRP-350 or 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.

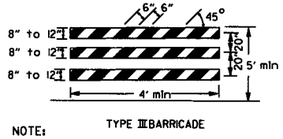
Channelizing devices



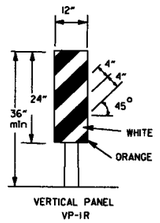




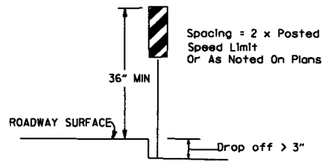




NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



VERTICAL PANEL PLACEMENT



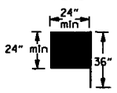
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

* When shown on the plans concrete barrier will be used.

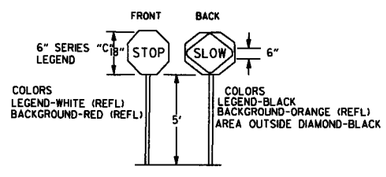
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

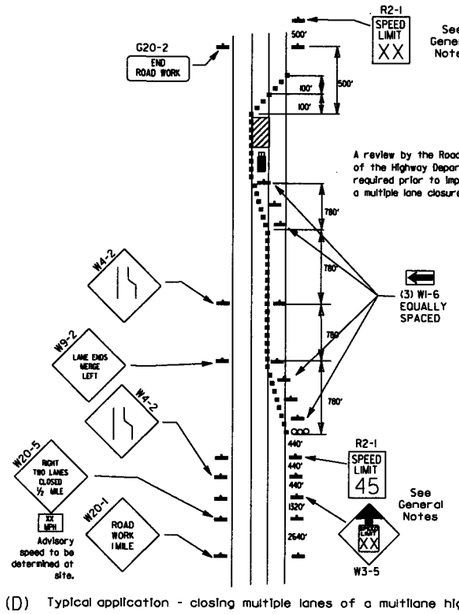
FLAG



Flag shall be of good grade red material

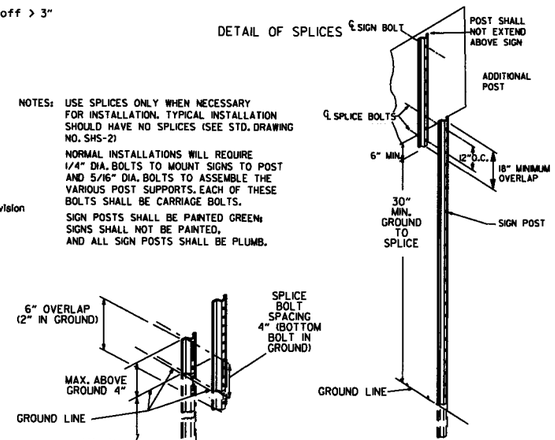
STOP SLOW PADDLE





(D) Typical application - closing multiple lanes of a multilane highway.

DETAIL OF SPLICES



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

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

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

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

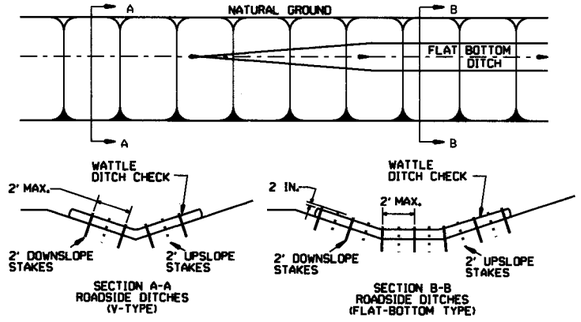
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

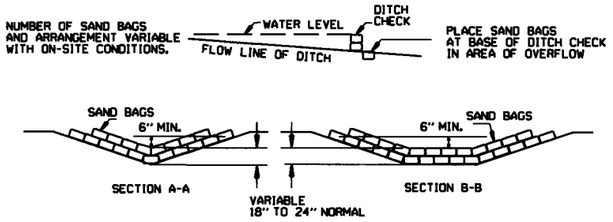
STANDARD DRAWING TC-3

GENERAL NOTES

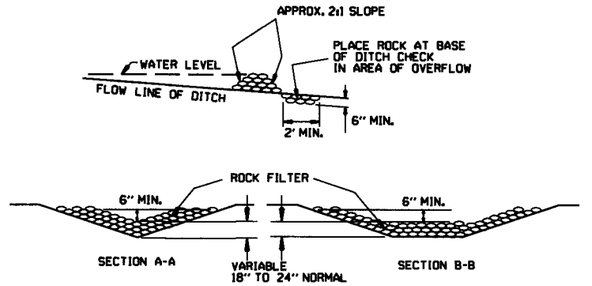
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

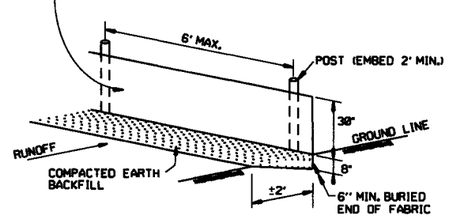


ROCK DITCH CHECK (E-6)

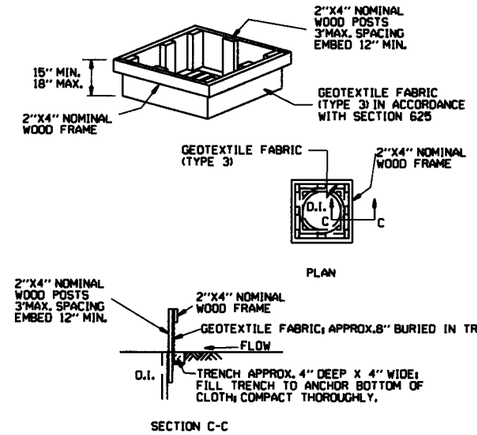
GENERAL NOTES

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

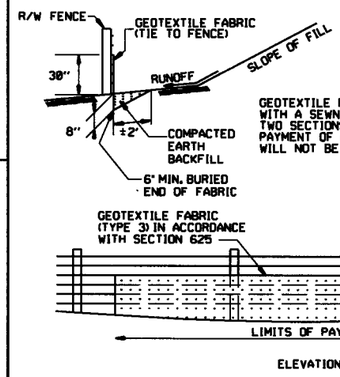
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)



DROP INLET SILT FENCE (E-7)



GENERAL NOTES

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

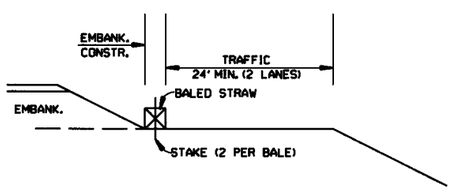
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

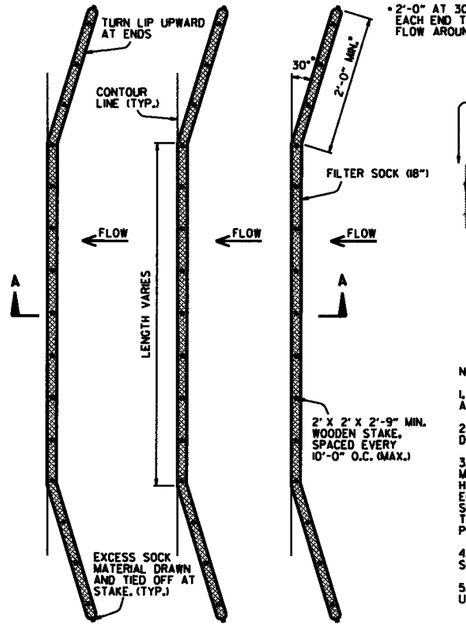
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

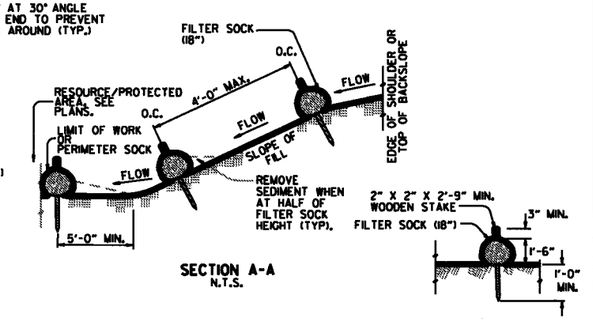
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



BALED STRAW FILTER BARRIER (E-2)



PLAN VIEW
N.T.S.



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.

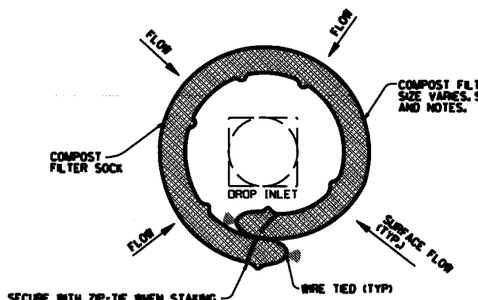
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

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")."

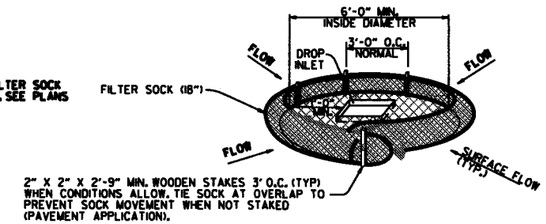
4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

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.

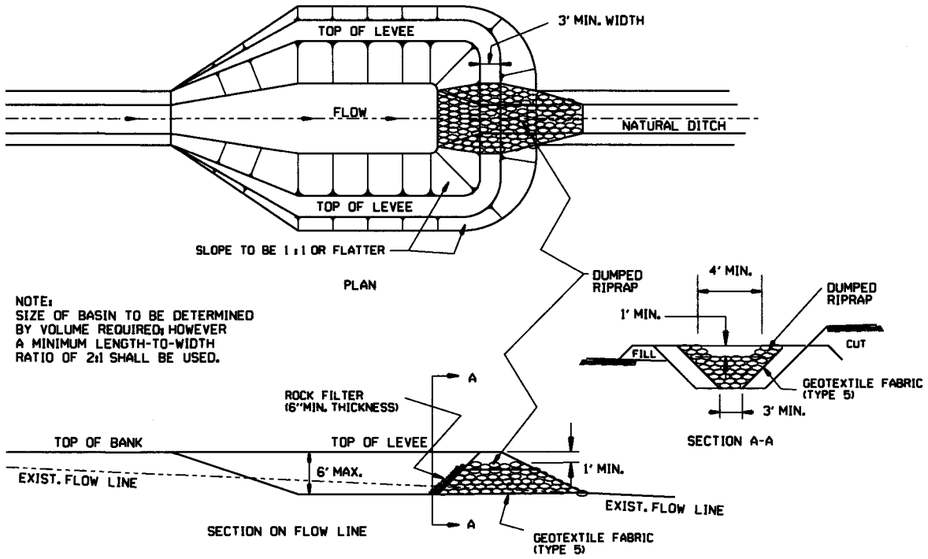
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

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. 15" BURIED END OF FABRIC	
06-02-94	REVISED E-1,4,7 & 8; 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

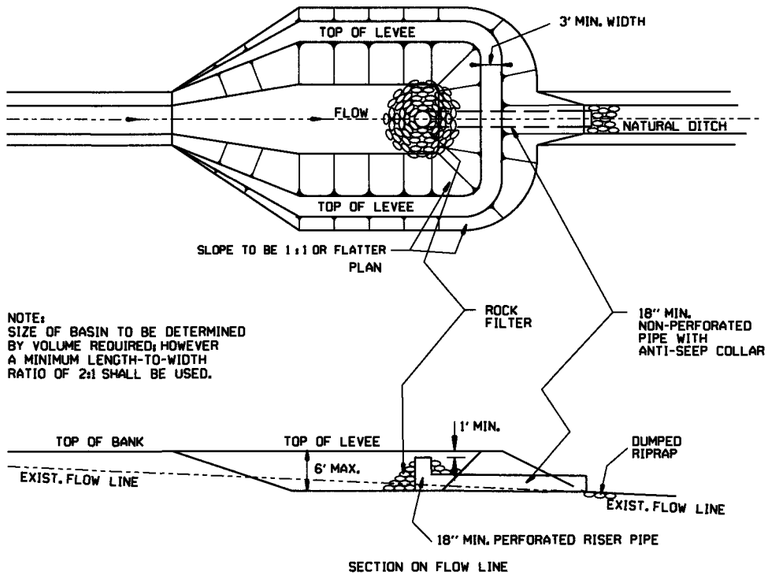
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

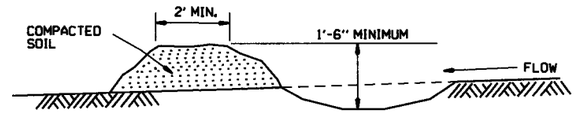
STANDARD DRAWING TEC-1



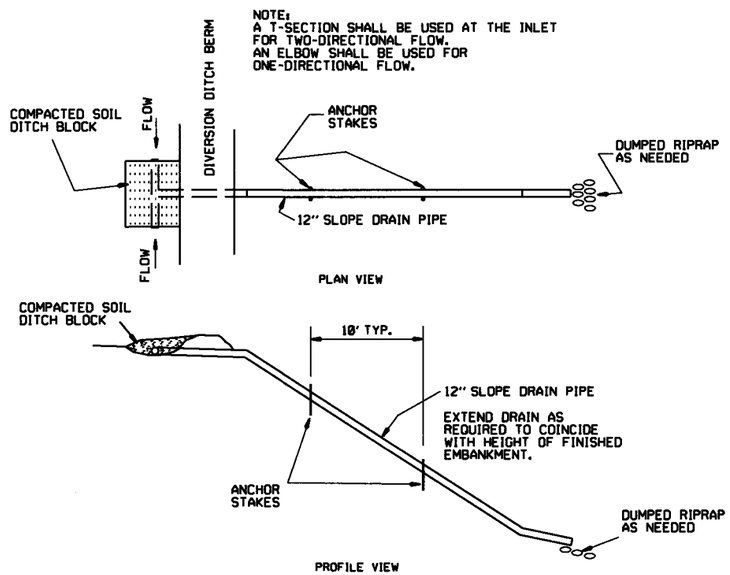
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



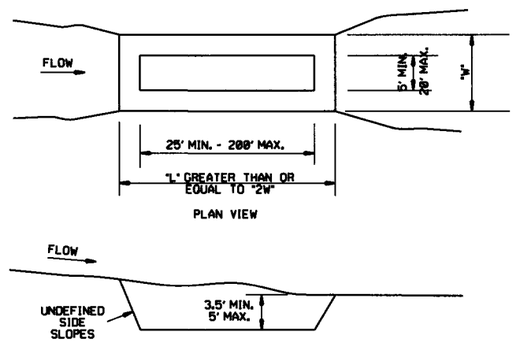
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

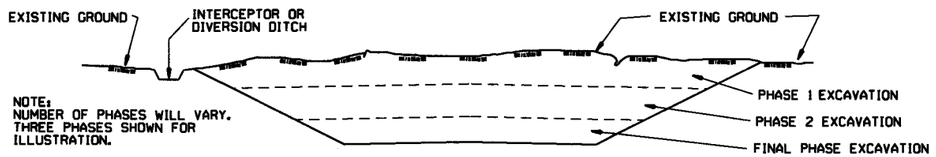
STANDARD DRAWING TEC-2

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



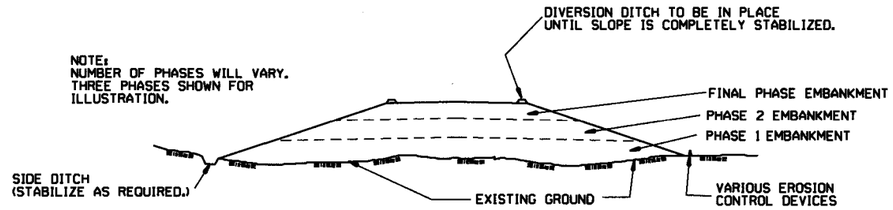
GENERAL NOTE

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.

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3