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.		100759	1	100
				(2) BLACK RIVER STR. & APPRS. (POCAHONTAS) (S)				

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

CONSTRUCTION PLANS FOR STATE HIGHWAY

BLACK RIVER STR. & APPRS. (POCAHONTAS) (S)

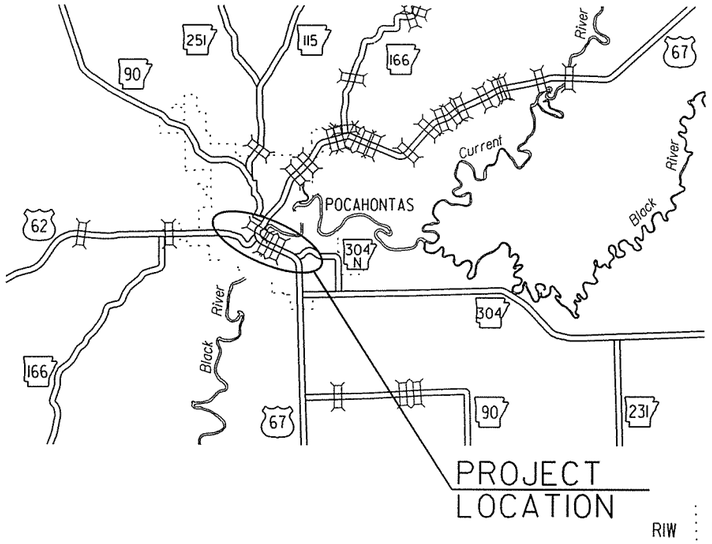
RANDOLPH COUNTY

ROUTE 67 SECTION 18

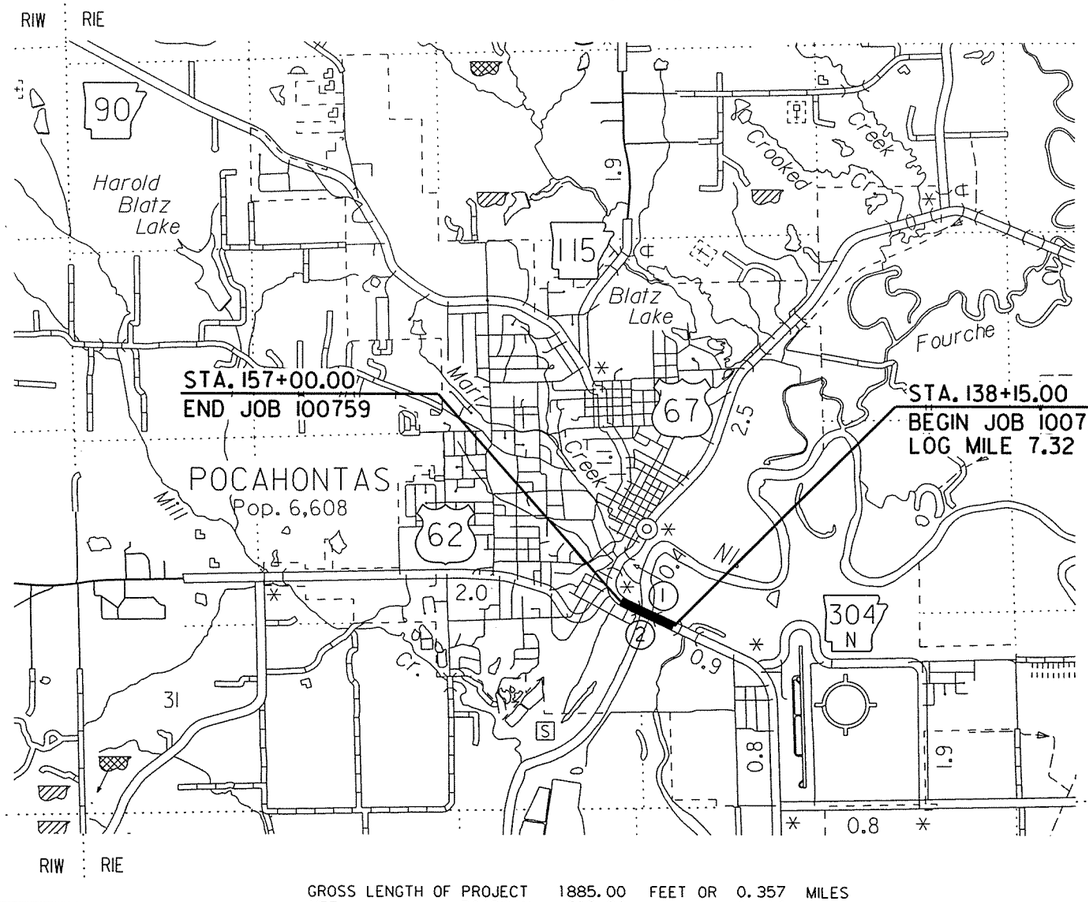
F.A.P. NHPP-0061(14)

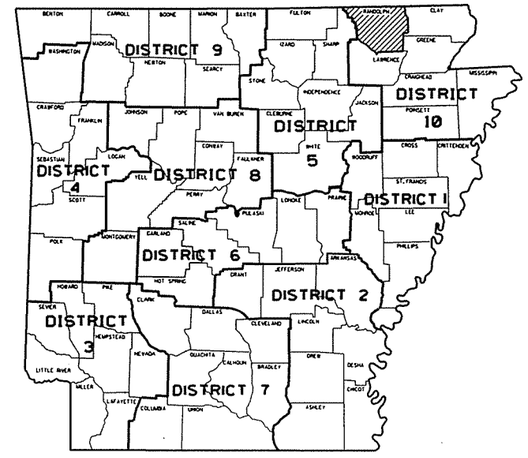
JOB 100759

NOT TO SCALE



VICINITY MAP





ARKANSAS HWY. DIST. 10

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2036
2016 ADT	22,000
2036 ADT	28,000
2036 DHV	3080
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	5%
DESIGN SPEED	45 MPH

BRIDGE CONSTRUCTION DATA

(1) STA. 141+04.92 BRIDGE END - CONSTRUCT
BRIDGE NO. A6021
180'-0" CONT. COMP. W-BEAM UNIT (36'-36'-36'-36'-36')
216'-0" CONT. COMP. W-BEAM UNIT (36'-36'-36'-36'-36'-36')
224'-0" CONT. COMP. W-BEAM UNIT (36'-36'-36'-36'-36'-44')
425'-0" CONT. COMP. PLATE GIRDER UNIT (96.5'-116'-116'-96.5')
224'-0" CONT. COMP. W-BEAM UNIT (44'-36'-36'-36'-36'-36')
31' CLEAR ROADWAY
1271'-2" BRIDGE LENGTH
STA. 153+76.08 BRIDGE END

(2) STA. 141+13.98 BRIDGE END - RETAIN
BRIDGE NO. 06021
612'-0" R.C. SLAB SPANS (17 @ 36'-0")
425'-0" CONTINUOUS PLATE GIRDER UNIT (96'-6"-116'-116'-96'-6")
216'-0" R.C. SLAB SPANS (6 @ 36'-0")
30' CLEAR ROADWAY
1253'-0" BRIDGE LENGTH
STA. 153+66.57 BRIDGE END

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 36°15'09"	N 36°15'14"	N 36°15'18"
LONGITUDE	W 90°57'59"	W 90°58'09"	W 90°58'19"

GROSS LENGTH OF PROJECT	1885.00	FEET OR	0.357	MILES		
NET • • ROADWAY	613.84	• •	0.116	•		
NET • • BRIDGES	1271.16	• •	0.241	•		
NET • • PROJECT	1885.00	• •	0.357	•		

APPROVED

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7836 M.E. BANKS

1-5-16

DEPUTY DIRECTOR AND CHIEF ENGINEER

P.E. JOB 100759

12/17/2015

R100759.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.		100759	2	100

(2) INDEX OF SHEETS, GOV. SPEC., & GEN. NOTES

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.	DATE
1	TITLE SHEET			
2	INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES			
3	TYPICAL SECTIONS OF IMPROVEMENT			
4 - 5	SPECIAL DETAILS			
6	TEMPORARY EROSION CONTROL DETAILS			
7 - 10	MAINTENANCE OF TRAFFIC DETAILS			
11 - 12	PERMANENT PAVEMENT MARKING DETAILS			
13 - 16	QUANTITIES			
17	SCHEDULE OF BRIDGE QUANTITIES	A6021	57638	
18	SUMMARY OF QUANTITIES AND REVISIONS			
19 - 21	SURVEY CONTROL DETAILS			
22 - 23	PLAN AND PROFILE SHEETS			
24	LAYOUT OF BRIDGE OVER BLACK RIVER (SHEET 1 OF 3)	A6021	57639	
25	LAYOUT OF BRIDGE OVER BLACK RIVER (SHEET 2 OF 3)	A6021	57640	
26	LAYOUT OF BRIDGE OVER BLACK RIVER (SHEET 3 OF 3)	A6021	57641	
27	DETAILS OF BENTS 1 & 28 (SHEET 1 OF 3)	A6021	57642	
28	DETAILS OF BENTS 1 & 28 (SHEET 2 OF 3)	A6021	57643	
29	DETAILS OF BENTS 1 & 28 (SHEET 3 OF 3)	A6021	57644	
30	DETAILS OF CONCRETE RIPRAP (SHEET 1 OF 2)	A6021	57645	
31	DETAILS OF CONCRETE RIPRAP (SHEET 2 OF 2)	A6021	57646	
32	DETAILS OF BENTS 2-5, 7-11, 13-17 & 23-27	A6021	57647	
33	DETAILS OF BENTS 6 & 12	A6021	57648	
34	DETAILS OF BENTS 18 & 22 (SHEET 1 OF 2)	A6021	57649	
35	DETAILS OF BENTS 18 & 22 (SHEET 2 OF 2)	A6021	57650	
36	DETAILS OF BENTS 19, 20, & 21 (SHEET 1 OF 2)	A6021	57651	
37	DETAILS OF BENTS 19, 20, & 21 (SHEET 2 OF 2)	A6021	57652	
38	COMMON DETAILS FOR CONTINUOUS COMPOSITE W-BEAM UNITS (SHEET 1 OF 2)	A6021	57653	
39	COMMON DETAILS FOR CONTINUOUS COMPOSITE W-BEAM UNITS (SHEET 2 OF 2)	A6021	57654	
40	DETAILS OF 180' CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 1 OF 3)	A6021	57655	
41	DETAILS OF 180' CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 2 OF 3)	A6021	57656	
42	DETAILS OF 180' CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 3 OF 3)	A6021	57657	
43	DETAILS OF 216' CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 1 OF 3)	A6021	57658	
44	DETAILS OF 216' CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 2 OF 3)	A6021	57659	
45	DETAILS OF 216' CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 3 OF 3)	A6021	57660	
46	DETAILS OF 224' CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 1 OF 3)	A6021	57661	
47	DETAILS OF 224' CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 2 OF 3)	A6021	57662	
48	DETAILS OF 224' CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 3 OF 3)	A6021	57663	
49	DETAILS OF 425' CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 1 OF 5)	A6021	57664	
50	DETAILS OF 425' CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 2 OF 5)	A6021	57665	
51	DETAILS OF 425' CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 3 OF 5)	A6021	57666	
52	DETAILS OF 425' CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 4 OF 5)	A6021	57667	
53	DETAILS OF 425' CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 5 OF 5)	A6021	57668	
54	DETAILS OF JOINTS (SHEET 1 OF 2)	A6021	57669	
55	DETAILS OF JOINTS (SHEET 2 OF 2)	A6021	57670	
56	DETAILS OF ELASTOMERIC BEARINGS	A6021	57671	
57	DETAILS OF DECK DRAINS	A6021	57672	
58	DETAILS OF METAL BRIDGE RAILING	A6021	57673	
59	DETAILS OF TYPE SPECIAL APPROACH SLAB (SHEET 1 OF 2)	A6021	57674	
60	DETAILS OF TYPE SPECIAL APPROACH SLAB (SHEET 2 OF 2)	A6021	57675	
61	DETAILS OF TRANSITIONAL APPROACH RAILING	A6021	57676	
62	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS		55000	2-27-14
63	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET FOR COMPUTING EXCAVATION FOR STRUCTURES		55001	2-27-14
64	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS		55005	2-27-14
65	STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES		55006	9-02-15
66	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE		55010	1-14-15
67	CONCRETE DITCH PAVING		CDP-1	11-17-10
68	CURBING DETAILS		CG-1	11-29-07
69	DETAILS OF DRIVEWAYS & ISLANDS		DR-1	2-27-14
70	FLARED END SECTION		FES-1	10-18-96
71	FLARED END SECTION		FES-2	10-18-96
72	DETAILS OF DROP INLETS (TYPE C)		FPC-9E	8-22-02
73	DETAILS OF DROP INLET (TYPE MO)		FPC-9M	8-22-02
74	IMPACT ATTENUATION BARRIER		IB-1	10-15-09
75	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING		PCC-1	2-27-14
76	PAVEMENT MARKING DETAILS		PM-1	9-12-13
77	DETAILS OF PIPE UNDERDRAIN		PU-1	4-10-03
78	DETAILS OF SPECIAL ITEMS		SI-1	9-12-13
79	REINFORCED CONCRETE RETAINING WALL (WITHOUT LIVE LOAD SURCHARGE)		SI-2	2-27-14
80	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-1	9-02-15
81	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-2	9-02-15
82	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-3	9-02-15
83	TEMPORARY EROSION CONTROL DEVICES		TEC-1	12-15-11
84	TEMPORARY EROSION CONTROL DEVICES		TEC-2	6-02-94
85	TEMPORARY EROSION CONTROL DEVICES		TEC-3	11-03-94
86	TEMPORARY EROSION CONTROL DEVICES		TEC-4	7-26-12
87 - 100	CROSS SECTIONS			

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-13-16

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 - TRAINING PROGRAM - JOB 100759
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-3	CONTRACTOR'S LICENSE
108-1	LIQUIDATED DAMAGES
400-1	TACK COATS
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
620-1	MULCH COVER
JOB 100759	AIRPORT CLEARANCE REQUIREMENTS
JOB 100759	BIDDING REQUIREMENTS AND CONDITIONS
JOB 100759	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 100759	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 100759	CARGO PREFERENCE ACT REQUIREMENTS
JOB 100759	CONCRETE WALKS (TYPE SPECIAL)
JOB 100759	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 100759	CONTRACTOR PROVIDED CULTURAL RESOURCES CLEARANCE FOR OFF-SITE LOCATIONS
JOB 100759	DETAILS FOR BOATER SAFETY
JOB 100759	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 100759	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 100759	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 100759	HIGH PERFORMANCE PAVEMENT MARKING
JOB 100759	MAINTENANCE OF TRAFFIC
JOB 100759	MANDATORY ELECTRONIC CONTRACT
JOB 100759	NESTING SITES OF MIGRATORY BIRDS
JOB 100759	OFF-SITE RESTRAINING CONDITIONS FOR BATS
JOB 100759	PARTNERING REQUIREMENTS
JOB 100759	PROSECUTION AND PROGRESS
JOB 100759	RESTRAINING CONDITIONS
JOB 100759	SHORING
JOB 100759	SHORING FOR CULVERTS
JOB 100759	SITE USE (A+C METHOD)
JOB 100759	SOIL STABILIZATION
JOB 100759	STORM WATER POLLUTION PREVENTION PLAN
JOB 100759	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 100759	UTILITY ADJUSTMENTS
JOB 100759	VALUE ENGINEERING
JOB 100759	WARM MIX ASPHALT

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO 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. THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.
9. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
10. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

12/17/2015

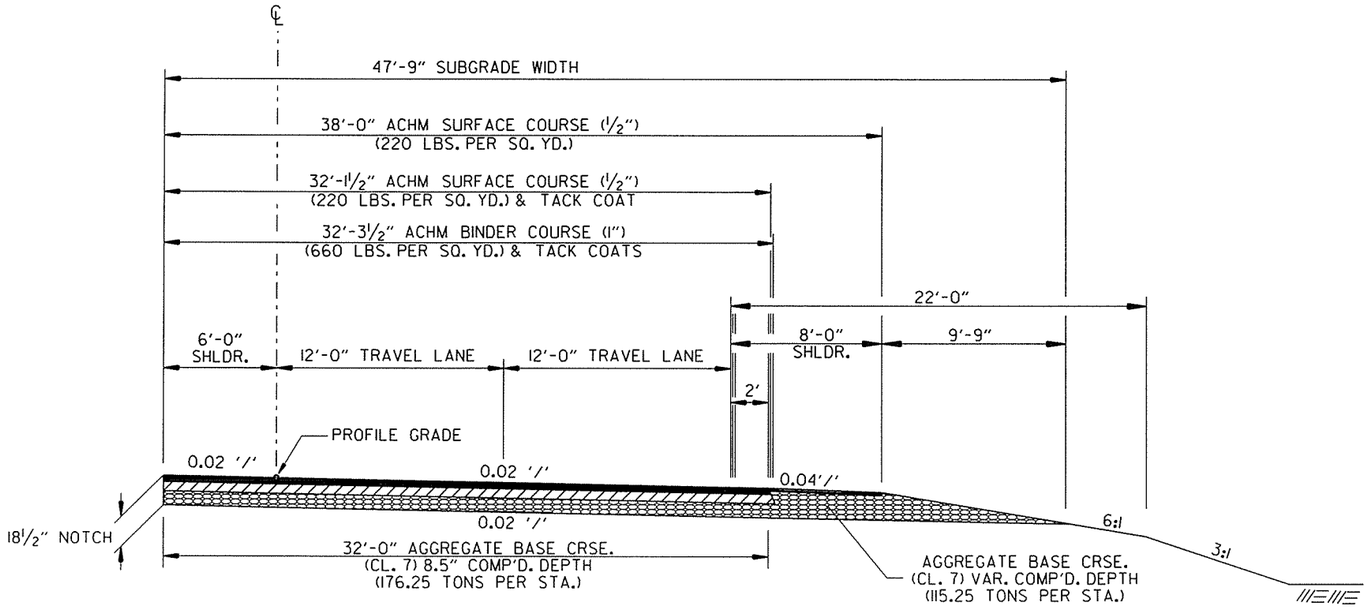
R100759.DGN

INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES

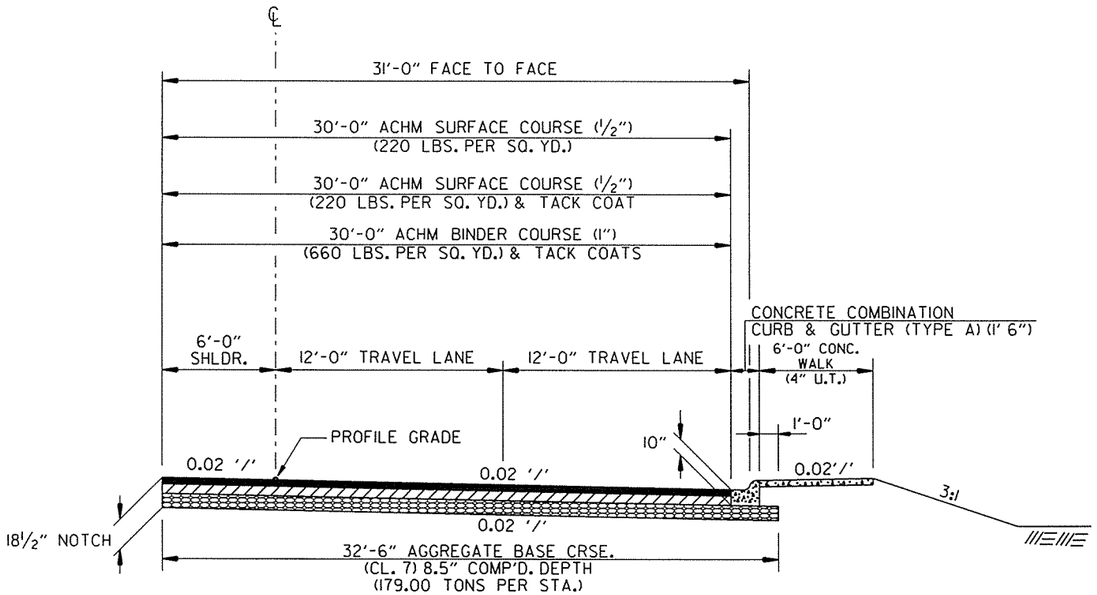
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100759	3	100

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-21-15



HWY. 67 OPEN SHOULDER
STA. 138+15.00 - STA. 138+75.00



HWY. 67 CURB & GUTTER
STA. 138+75.00 - STA. 141+04.92
STA. 153+76.08 - STA. 157+00.00

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

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 THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

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

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1/2) IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

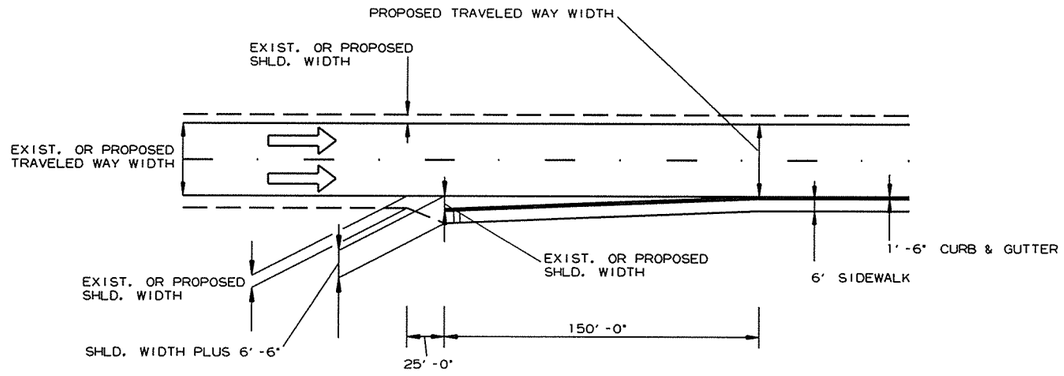
TYPICAL SECTIONS OF IMPROVEMENT

12/17/2015

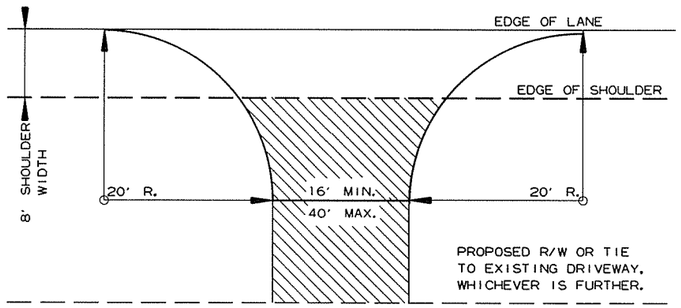
R100759.DGN

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.		100759	4	100

(2) SPECIAL DETAILS



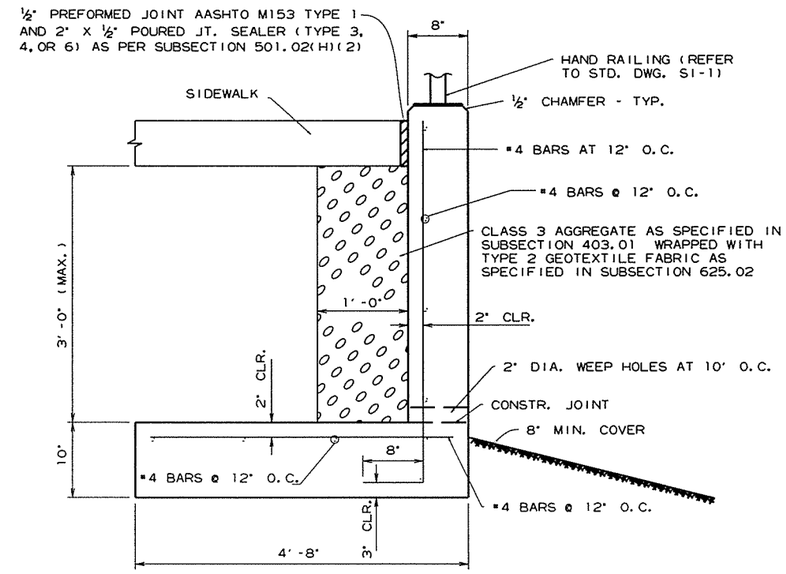
TRANSITION FROM OPEN SHOULDER TO CURB & GUTTER SECTION



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

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

DETAIL FOR DRIVEWAY TURNOUTS OPEN SHOULDER SECTION (ARTERIALS)



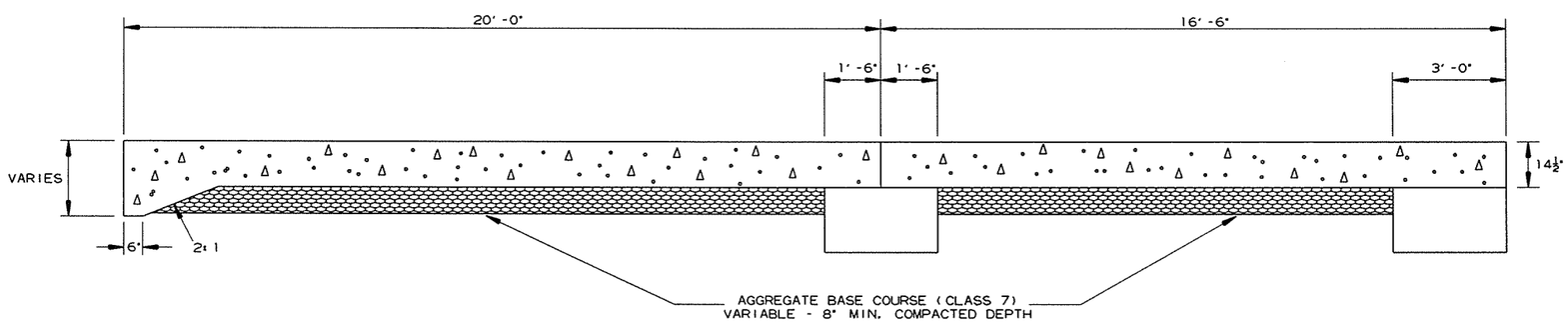
NOTES:
JOINTS IN THE WALL SHALL MATCH THE TYPE AND SPACING OF THE JOINTS IN THE WALK.

ALL CONCRETE SHALL BE CLASS S (F'C=3,500 PSI) AND SHALL BE POURED IN THE DRY.

REINFORCING STEEL SHALL BE AASHTO M31 OR M53, GRADE 60 (FY=60,000 PSI).

PAYMENT FOR THE WEEP HOLES, CLASS 3 AGGREGATE, TYPE 2 GEOTEXTILE FABRIC, PREFORMED JOINT FILLER, POURED JOINT SEALER, REINF. STEEL, AND CONCRETE SHALL BE INCLUDED IN THE UNIT BID PRICE PER SQ. YD. FOR CONCRETE WALKS (TYPE SPECIAL).

CONCRETE WALK (TYPE SPECIAL) DETAIL MAX HEIGHT 3'-0"



SECTION OF APPROACH SLAB

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-21-15

12/17/2015

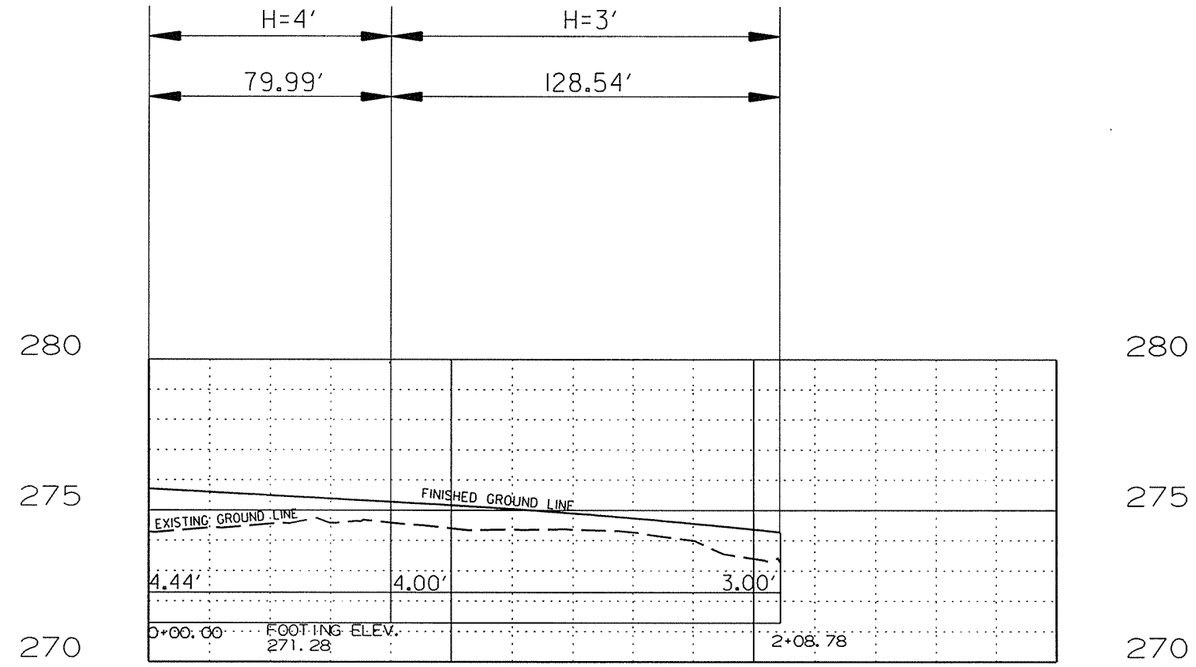
R100759.DGN

SPECIAL 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.		100759	5	100

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-21-15



ELEVATION OF RETAINING WALL HWY. 67 ON RT.
(STA. 153+76 to STA. 155+85)

CLASS S CONCRETE - ROADWAY	REINFORCING STEEL-ROADWAY (GRADE 60)	UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY
CU. YD.	POUND	CU. YD.
FOR INFORMATION ONLY		
43.71	3478	85

NOTE: REFER TO STANDARD DRAWING NO. SI-2 FOR ADDITIONAL RETAINING WALL DETAILS.

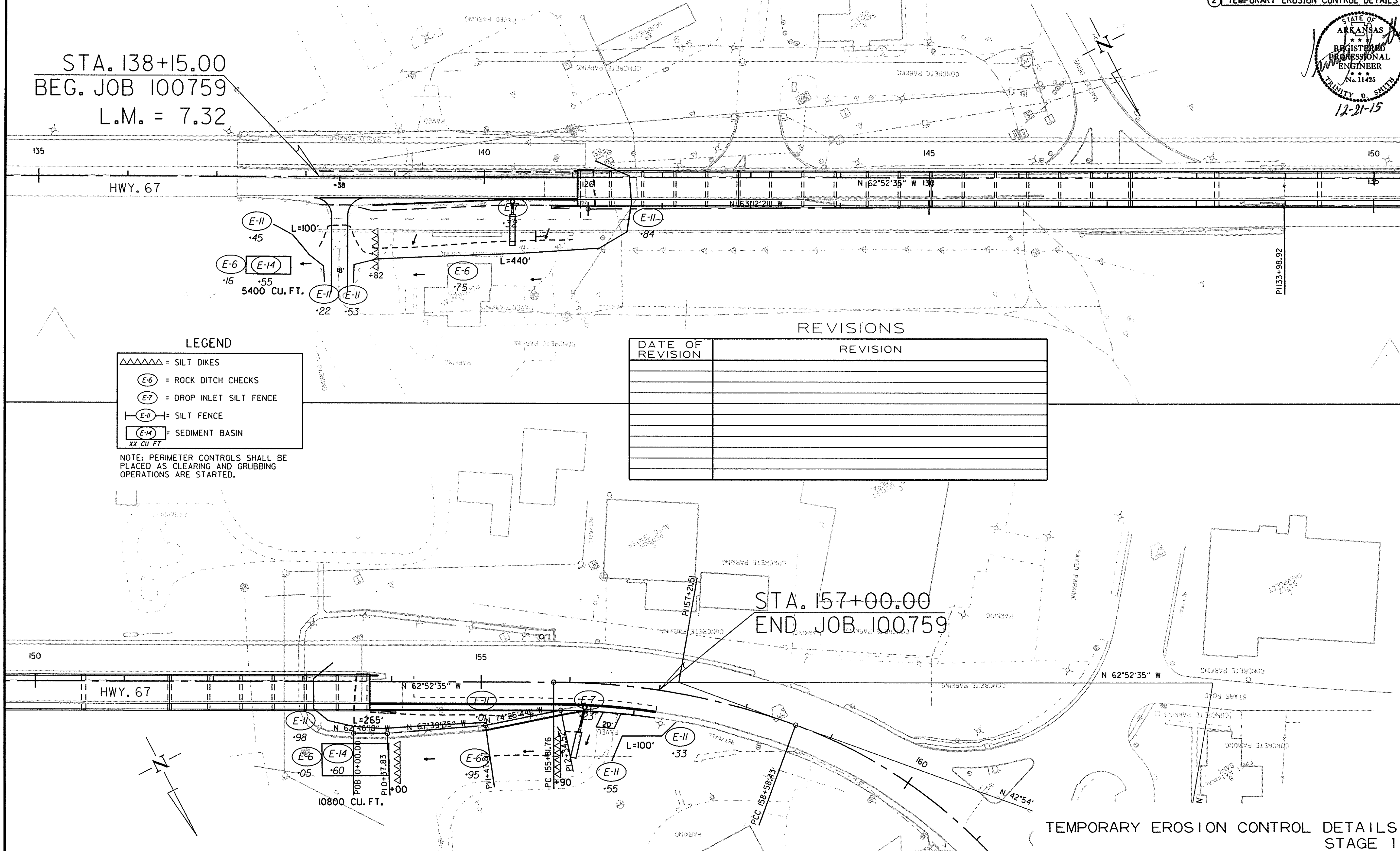
12/17/2015

R100759.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.		100759	6	100

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
12-21-15



LEGEND

^^^^^^	SILT DIKES
(E-6)	ROCK DITCH CHECKS
(E-7)	DROP INLET SILT FENCE
⊢(E-11)⊣	SILT FENCE
(E-14) XX CU FT	SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

TEMPORARY EROSION CONTROL DETAILS
STAGE 1

12/17/2015
R100759.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.		100759	7	100

(2) MAINTENANCE OF TRAFFIC DETAILS

(1) G20-2 (48" X 24")

END ROAD WORK

(1) W4-2 RT. (48" X 48")

RIGHT LANE CLOSED 1500 FT — (1) W20-5R (48" X 48")

RIGHT LANE CLOSED 1/2 MILE — (1) W20-5R (48" X 48")

ROAD WORK 1 MILE — (1) W20-1 (48" X 48")

DO NOT PASS — (4) R4-1 (24" X 30")

SHOULDER CLOSED — (4) RSP-1 (48" X 30")

TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER ALL STAGES

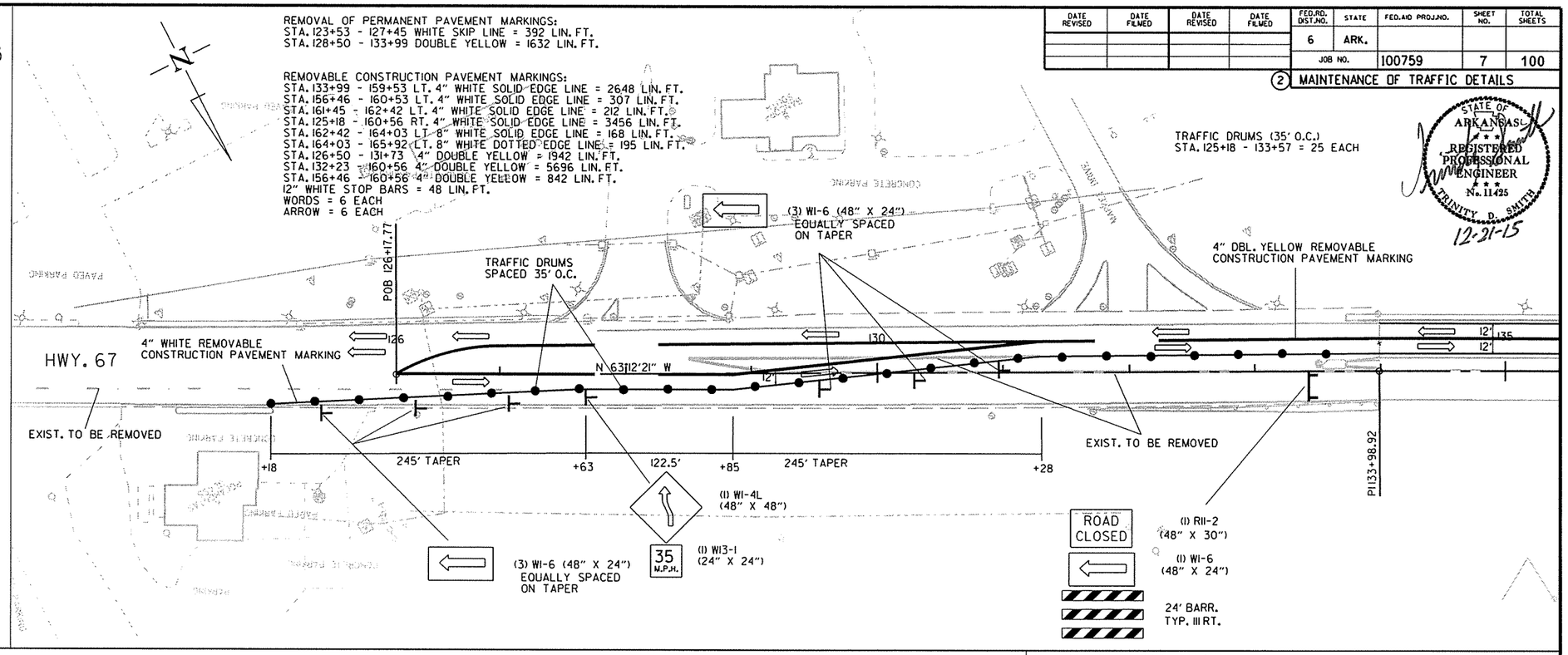
ALL STAGES:
ADVANCE WARNING SIGN PLACEMENT FOR HWY. 67.
LOCATE (W4-2 RT.) 500' AHEAD OF BEGINNING OF TAPER.

REMOVAL OF PERMANENT PAVEMENT MARKINGS:
STA. 123+53 - 127+45 WHITE SKIP LINE = 392 LIN. FT.
STA. 128+50 - 133+99 DOUBLE YELLOW = 1632 LIN. FT.

REMOVABLE CONSTRUCTION PAVEMENT MARKINGS:
STA. 133+99 - 159+53 LT. 4" WHITE SOLID EDGE LINE = 2648 LIN. FT.
STA. 156+46 - 160+53 LT. 4" WHITE SOLID EDGE LINE = 307 LIN. FT.
STA. 161+45 - 162+42 LT. 4" WHITE SOLID EDGE LINE = 212 LIN. FT.
STA. 125+18 - 160+56 RT. 4" WHITE SOLID EDGE LINE = 3456 LIN. FT.
STA. 162+42 - 164+03 LT. 8" WHITE SOLID EDGE LINE = 168 LIN. FT.
STA. 164+03 - 165+92 LT. 8" WHITE DOTTED EDGE LINE = 195 LIN. FT.
STA. 126+50 - 131+73 4" DOUBLE YELLOW = 1942 LIN. FT.
STA. 132+23 160+56 4" DOUBLE YELLOW = 5696 LIN. FT.
STA. 156+46 160+56 4" DOUBLE YELLOW = 842 LIN. FT.
12" WHITE STOP BARS = 48 LIN. FT.
WORDS = 6 EACH
ARROW = 6 EACH

TRAFFIC DRUMS (35' O.C.)
STA. 125+18 - 133+57 = 25 EACH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-21-15



SEQUENCE OF CONSTRUCTION

STAGE 1:
INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED.

APPLY CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC PLANS

SHIFT TRAFFIC ONTO EXISTING SOUTHBOUND HWY. 67.

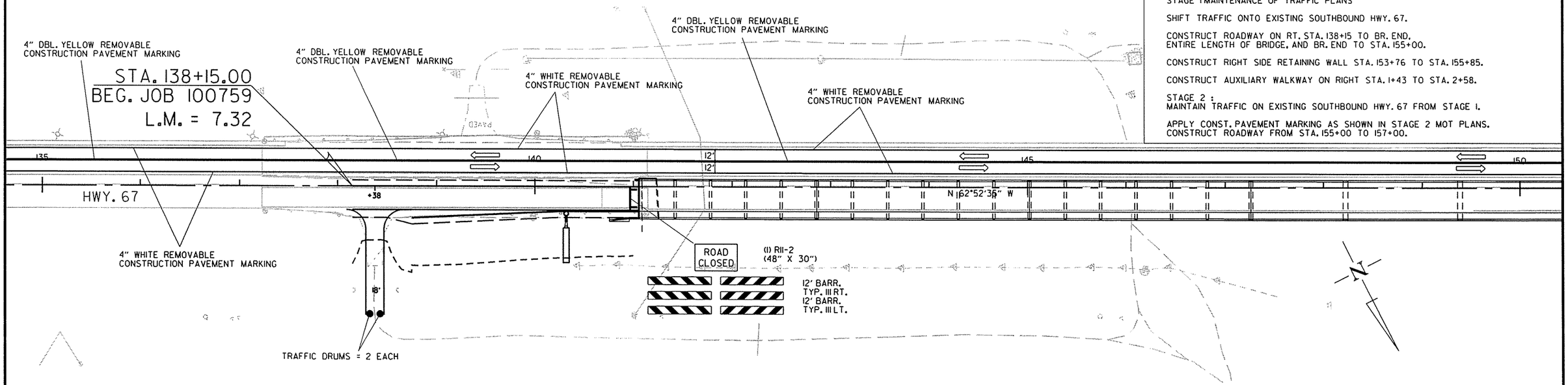
CONSTRUCT ROADWAY ON RT. STA. 138+15 TO BR. END, ENTIRE LENGTH OF BRIDGE, AND BR. END TO STA. 155+00.

CONSTRUCT RIGHT SIDE RETAINING WALL STA. 153+76 TO STA. 155+85.

CONSTRUCT AUXILIARY WALKWAY ON RIGHT STA. 1+43 TO STA. 2+58.

STAGE 2:
MAINTAIN TRAFFIC ON EXISTING SOUTHBOUND HWY. 67 FROM STAGE 1.

APPLY CONST. PAVEMENT MARKING AS SHOWN IN STAGE 2 MOT PLANS.
CONSTRUCT ROADWAY FROM STA. 155+00 TO 157+00.



MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

12/17/2015

R100759.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.		100759	8	100

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-21-15

4" DBL. YELLOW REMOVABLE CONSTRUCTION PAVEMENT MARKING

4" WHITE REMOVABLE CONSTRUCTION PAVEMENT MARKING

TRAFFIC DRUMS SPACED 35' O.C.

STA. 157+00.00
END JOB 100759

WHITE REMOVABLE CONSTRUCTION PAVEMENT MARKING WORDS AND ARROWS

4" DBL. YELLOW REMOVABLE CONSTRUCTION PAVEMENT MARKING

HWY. 67

HWY. 62

N 62°52'35" W

N 74°25'44" W

N 67°39'35" W

N 62°46'18" W

N 42°54'59" W

N 3°12'24" W

N 36°40'20" E

POB 0+00.00

PI0+37.83

PI1+47.87

PC 155+81.76

PI2+35.57

PI157+21.51

POB 20+00.00

PI21+91.75

PCC 158+58.43

R=646'

PI163+19.06

PT 23+68.03

POE 24+01.26

PT 166+26.57

+00

+45

+45

245' TAPER

100' TAPER

TRAFFIC DRUMS SPACED 10' O.C. = 8 EACH

20'

24'

150

155

160

165

ROAD CLOSED

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

12' BARR. TYP. III RT.
12' BARR. TYP. III LT.

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

24' BARR. TYP. III LT.

ROAD CLOSED

4" WHITE REMOVABLE CONSTRUCTION PAVEMENT MARKING

12" WHITE REMOVABLE CONSTRUCTION PAVEMENT MARKING

8" WHITE REMOVABLE CONSTRUCTION PAVEMENT MARKING

WHITE REMOVABLE CONSTRUCTION PAVEMENT MARKING WORDS AND ARROWS

8" WHITE REMOVABLE CONSTRUCTION PAVEMENT MARKING

8" WHITE DOTTED REMOVABLE CONSTRUCTION PAVEMENT MARKING (3' STRIPE & 9' GAP)

RIGHT LANE MUST TURN RIGHT

(3) R3-7 RT. (30" X 30")

RIGHT LANE MUST TURN RIGHT

(1) R3-7 RT. (30" X 30")

PLACE AT APPROX. STA. 170+00

PAVED PARKING

CONCRETE PARKING

STAIR MUD

STAGE 1 MOT - HWY. 67 SB
P.I. 21+91.75
Δ = 39° 42'45"RT.
D = 10° 47'26"
T = 191.75'
L = 368.03'
P.C. 20+00.00
P.T. 23+68.03

ROAD WORK AHEAD — (1) W20-1 (48" x 48")

END ROAD WORK — (1) G20-2 (48" x 24")

ALL STAGES:
ADVANCE WARNING SIGN PLACEMENT FOR SIDE STREETS. (4 SETS)
LOCATE 500' AHEAD OF INTERSECTION.

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

ROAD WORK 1000 FT — (1) W20-1 (48" x 48")

ROAD WORK 1500 FT — (1) W20-1 (48" x 48")

END ROAD WORK — (1) G20-2 (48" x 24")

ALL STAGES:
ADVANCE WARNING SIGN PLACEMENT FOR HWY. 67 AND HWY. 62.
LOCATE (W20-1) 500' AHEAD OF CONSTRUCTION PAVEMENT MARKINGS ON HWY. 67 AND 500' FROM INTERSECTION ON HWY. 62.

MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

12/17/2015

R100759.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.		100759	9	100

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-21-15

(1) W4-2 RT. (48" X 48")

(1) W20-5R (48" X 48") — RIGHT LANE CLOSED 1500 FT

(1) W20-5R (48" X 48") — RIGHT LANE CLOSED 1/2 MILE

(1) W20-1 (48" X 48") — ROAD WORK 1 MILE

(1) G20-2 (48" X 24") — END ROAD WORK

DO NOT PASS — (2) R4-1 (24" X 30")

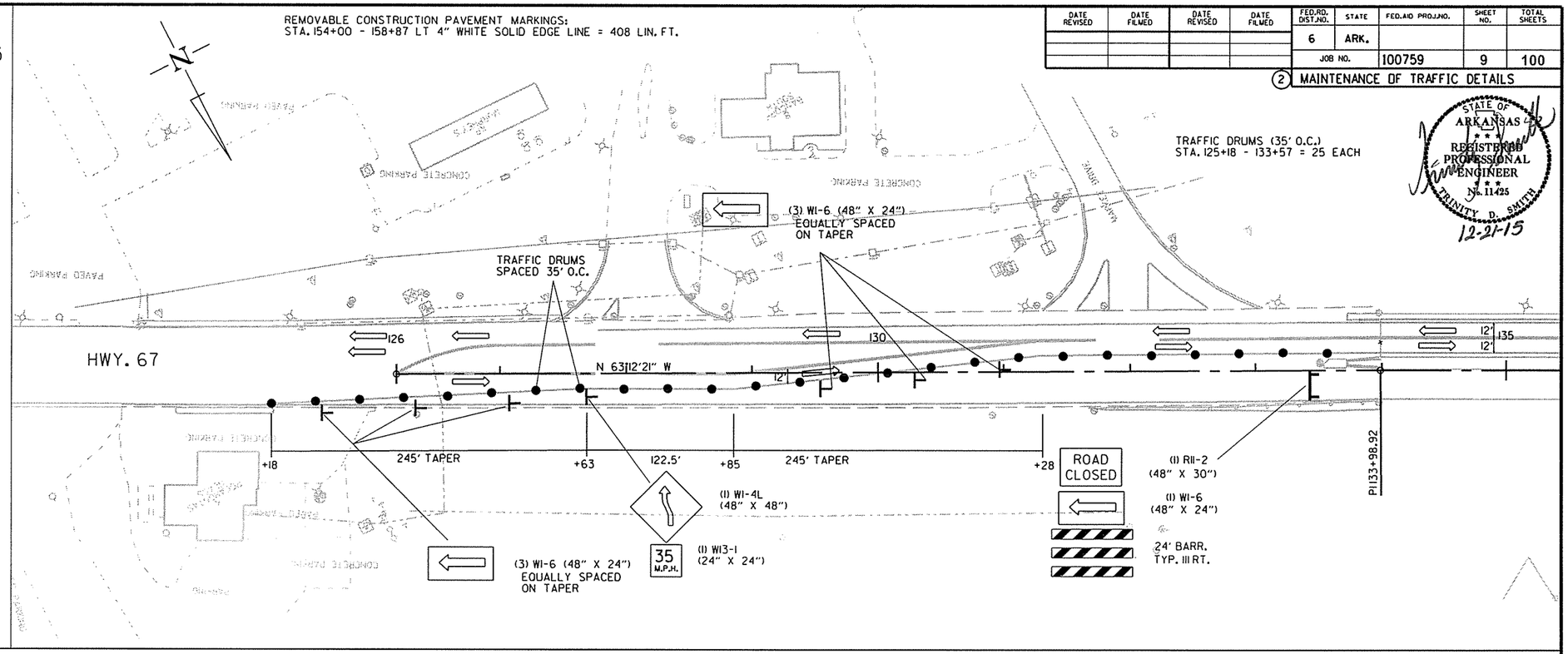
SHOULDER CLOSED — (4) RSP-1 (48" X 30")

TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
ALL STAGES

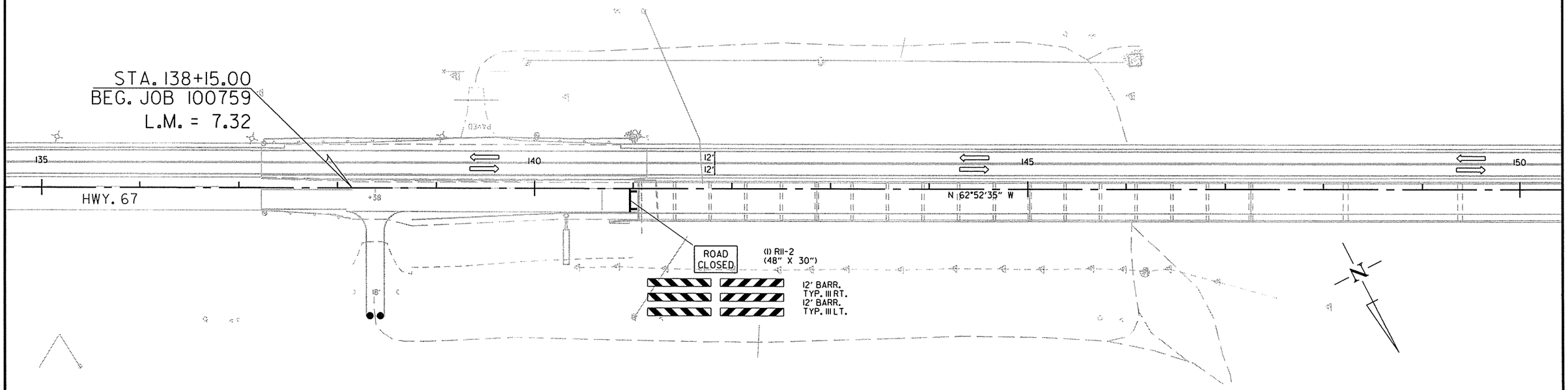
ALL STAGES:
ADVANCE WARNING SIGN PLACEMENT FOR HWY. 67.
LOCATE (W4-2 RT.) 500' AHEAD OF BEGINNING OF TAPER.

REMOVABLE CONSTRUCTION PAVEMENT MARKINGS:
STA. 154+00 - 158+87 LT 4" WHITE SOLID EDGE LINE = 408 LIN. FT.

TRAFFIC DRUMS (35' O.C.)
STA. 125+18 - 133+57 = 25 EACH



STA. 138+15.00
BEG. JOB 100759
L.M. = 7.32



MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

12/17/2015

R100759.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.		100759	10	100

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-21-15

STA. 157+00.00
END JOB 100759

HWY. 67

HWY. 62

POB 0+00.00
PI0+37.83
Δ = 4°53'17" LT.
PII+47.87
Δ = 6°46'09" LT.
PC 155+81.76
PI2+34.52
PCC 158+58.43
PI2+91.75
PI63+19.06
PT 23+68.03
PT 166+26.57

N 62°46'18" W
N 67°39'35" W
N 74°25'44" W
N 62°52'35" W
N 42°54'59" W
N 3°12'14" W
N 36°40'20" E

TRAFFIC DRUMS SPACED 35' O.C.
TRAFFIC DRUMS SPACED 35' O.C. = 8 EACH
4" WHITE REMOVABLE CONSTRUCTION PAVEMENT MARKING

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

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

+65 171' TAPER +34
+87 53' TAPER

RIGHT LANE MUST TURN RIGHT
(3) R3-7 RT. (30" X 30")

ALL STAGES:
ADVANCE WARNING SIGN PLACEMENT FOR SIDE STREETS. (4 SETS)
LOCATE 500' AHEAD OF INTERSECTION.

ROAD WORK AHEAD — (1) W20-1 (48" x 48")
END ROAD WORK — (1) G20-2 (48" x 24")

ALL STAGES:
ADVANCE WARNING SIGN PLACEMENT FOR HWY. 67 AND HWY. 62.
LOCATE (W20-1) 500' AHEAD OF CONSTRUCTION PAVEMENT MARKINGS ON HWY. 67 AND 500' FROM INTERSECTION ON HWY. 62.

ROAD WORK 500 FT — (1) W20-1 (48" x 48")
ROAD WORK 1000 FT — (1) W20-1 (48" x 48")
ROAD WORK 1500 FT — (1) W20-1 (48" x 48")
END ROAD WORK — (1) G20-2 (48" x 24")

MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

12/17/2015
R100759.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.		100759	11	100

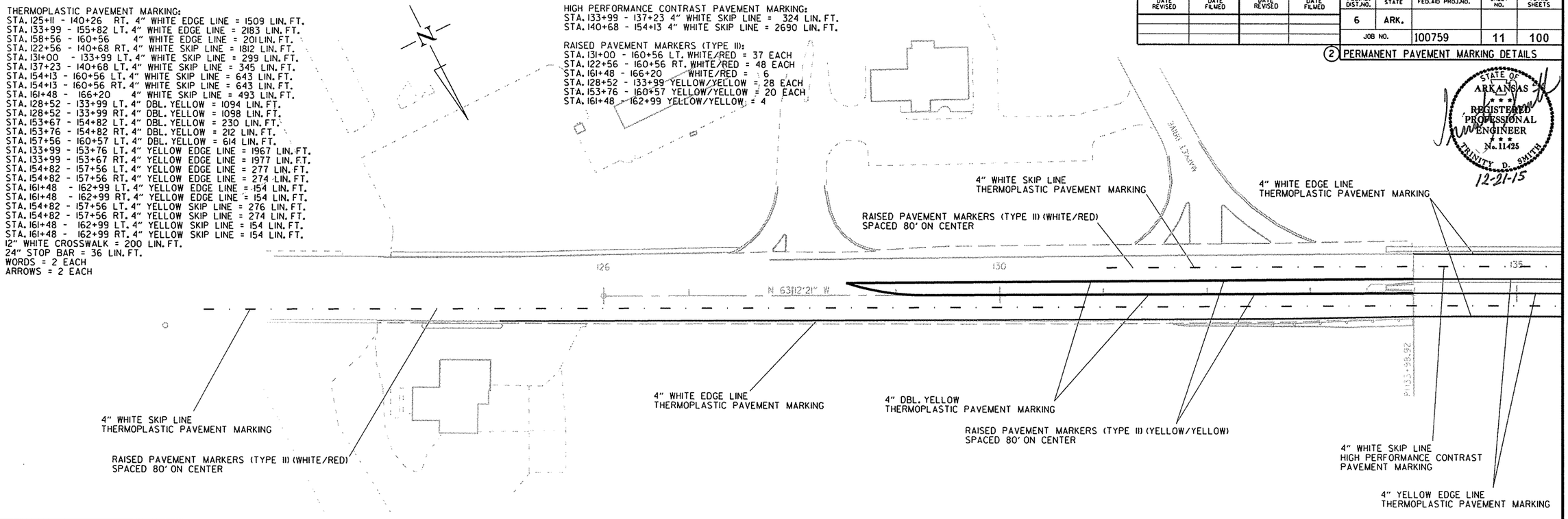
(2) PERMANENT PAVEMENT MARKING DETAILS

THERMOPLASTIC PAVEMENT MARKING:
STA. 125+11 - 140+26 RT. 4" WHITE EDGE LINE = 1509 LIN. FT.
STA. 133+99 - 155+82 LT. 4" WHITE EDGE LINE = 2183 LIN. FT.
STA. 158+56 - 160+56 4" WHITE EDGE LINE = 201 LIN. FT.
STA. 122+56 - 140+68 RT. 4" WHITE SKIP LINE = 1812 LIN. FT.
STA. 131+00 - 133+99 LT. 4" WHITE SKIP LINE = 299 LIN. FT.
STA. 137+23 - 140+68 LT. 4" WHITE SKIP LINE = 345 LIN. FT.
STA. 154+13 - 160+56 LT. 4" WHITE SKIP LINE = 643 LIN. FT.
STA. 154+13 - 160+56 RT. 4" WHITE SKIP LINE = 643 LIN. FT.
STA. 161+48 - 166+20 4" WHITE SKIP LINE = 493 LIN. FT.
STA. 128+52 - 133+99 LT. 4" DBL. YELLOW = 1094 LIN. FT.
STA. 128+52 - 133+99 RT. 4" DBL. YELLOW = 1098 LIN. FT.
STA. 153+67 - 154+82 LT. 4" DBL. YELLOW = 230 LIN. FT.
STA. 153+76 - 154+82 RT. 4" DBL. YELLOW = 212 LIN. FT.
STA. 157+56 - 160+57 LT. 4" DBL. YELLOW = 614 LIN. FT.
STA. 133+99 - 153+76 LT. 4" YELLOW EDGE LINE = 1967 LIN. FT.
STA. 133+99 - 153+67 RT. 4" YELLOW EDGE LINE = 1977 LIN. FT.
STA. 154+82 - 157+56 LT. 4" YELLOW EDGE LINE = 277 LIN. FT.
STA. 154+82 - 157+56 RT. 4" YELLOW EDGE LINE = 274 LIN. FT.
STA. 161+48 - 162+99 LT. 4" YELLOW EDGE LINE = 154 LIN. FT.
STA. 161+48 - 162+99 RT. 4" YELLOW EDGE LINE = 154 LIN. FT.
STA. 154+82 - 157+56 LT. 4" YELLOW SKIP LINE = 276 LIN. FT.
STA. 154+82 - 157+56 RT. 4" YELLOW SKIP LINE = 274 LIN. FT.
STA. 161+48 - 162+99 LT. 4" YELLOW SKIP LINE = 154 LIN. FT.
STA. 161+48 - 162+99 RT. 4" YELLOW SKIP LINE = 154 LIN. FT.
12" WHITE CROSSWALK = 200 LIN. FT.
24" STOP BAR = 36 LIN. FT.
WORDS = 2 EACH
ARROWS = 2 EACH

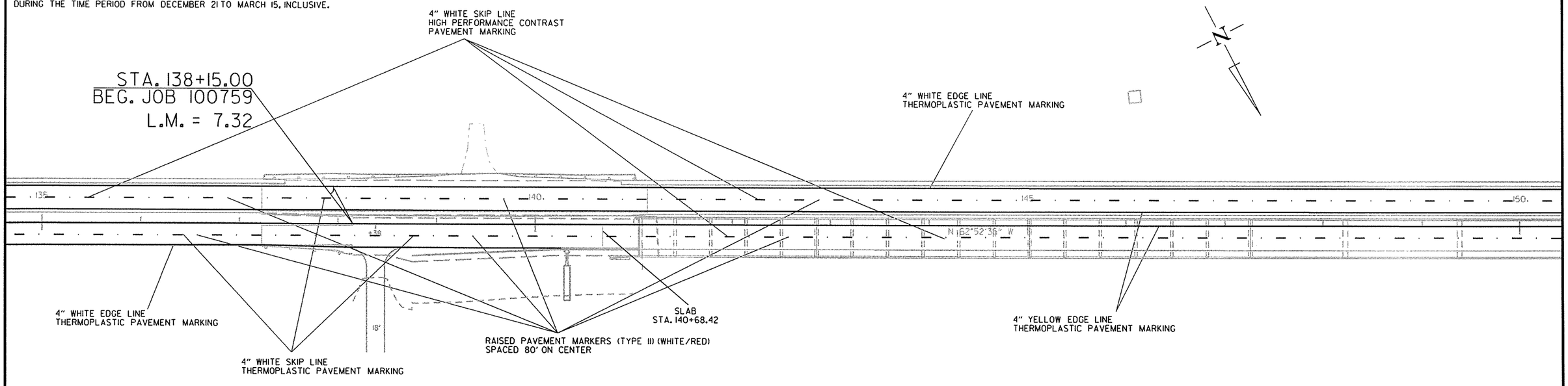
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING:
STA. 133+99 - 137+23 4" WHITE SKIP LINE = 324 LIN. FT.
STA. 140+68 - 154+13 4" WHITE SKIP LINE = 2690 LIN. FT.

RAISED PAVEMENT MARKERS (TYPE II):
STA. 131+00 - 160+56 LT. WHITE/RED = 37 EACH
STA. 122+56 - 160+56 RT. WHITE/RED = 48 EACH
STA. 161+48 - 166+20 WHITE/RED = 6
STA. 128+52 - 133+99 YELLOW/YELLOW = 28 EACH
STA. 153+76 - 160+57 YELLOW/YELLOW = 20 EACH
STA. 161+48 - 162+99 YELLOW/YELLOW = 4

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-21-15



NO PERMANENT PAVEMENT MARKINGS SHALL BE PLACED UNTIL A MINIMUM OF 3 DAYS AFTER ALL MAIN LANE PAVING HAS BEEN COMPLETED. IN ADDITION, NO PERMANENT PAVEMENT MARKINGS SHALL BE PLACED DURING THE TIME PERIOD FROM DECEMBER 21 TO MARCH 15, INCLUSIVE.



12/17/2015

R100759.DGN

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.		100759	12	100

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-21-15

STA. 157+00.00
END JOB 100759

RAISED PAVEMENT MARKERS (TYPE II) (WHITE/RED) SPACED 80' ON CENTER

4" WHITE EDGE LINE THERMOPLASTIC PAVEMENT MARKING

4" DBL. YELLOW THERMOPLASTIC PAVEMENT MARKING

4" YELLOW EDGE LINE THERMOPLASTIC PAVEMENT MARKING

4" WHITE SKIP LINE HIGH PERFORMANCE CONTRAST PAVEMENT MARKING

SLAB STA. 154+12.58

4" WHITE SKIP LINE THERMOPLASTIC PAVEMENT MARKING

4" YELLOW EDGE LINE THERMOPLASTIC PAVEMENT MARKING

4" YELLOW SKIP LINE THERMOPLASTIC PAVEMENT MARKING

RAISED PAVEMENT MARKERS (TYPE II) (YELLOW/YELLOW) SPACED 80' ON CENTER

RAISED PAVEMENT MARKERS (TYPE II) (WHITE/RED) SPACED 80' ON CENTER

4" DBL. YELLOW THERMOPLASTIC PAVEMENT MARKING

12" WHITE CROSSWALK THERMOPLASTIC PAVEMENT MARKING

WHITE THERMOPLASTIC PAVEMENT MARKING WORDS AND ARROWS

4" WHITE LINE THERMOPLASTIC PAVEMENT MARKING RAISED PAVEMENT MARKERS (TYPE II)(WHITE/RED) SPACED 80' ON CENTER

24" WHITE STOP BAR THERMOPLASTIC PAVEMENT MARKING

4" WHITE SKIP LINE THERMOPLASTIC PAVEMENT MARKING

RAISED PAVEMENT MARKERS (TYPE II) (WHITE/RED) SPACED 80' ON CENTER

4" YELLOW EDGE LINE THERMOPLASTIC PAVEMENT MARKING

4" YELLOW SKIP LINE THERMOPLASTIC PAVEMENT MARKING

RAISED PAVEMENT MARKERS (TYPE II) (YELLOW/YELLOW) SPACED 80' ON CENTER

PT 166+26.37

PERMANENT PAVEMENT MARKING DETAILS

12/17/2015

R100759.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.		100759	13	100

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-21-15

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	BARRICADES (TYPE III)	
									RIGHT	LEFT
			LIN. FT. - EACH			NO.	SQ. FT.	EACH	LIN. FT.	
W20-1	ROAD WORK 1 MILE	48"x48"	1	1	1	1	16.0			
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	32.0			
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	32.0			
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	32.0			
W20-1	ROAD WORK AHEAD	48"x48"	4	4	4	4	64.0			
W20-5	RIGHT LANE CLOSED 1/2 MILE	48"x48"	1	1	1	1	16.0			
W20-5	RIGHT LANE CLOSED 1500 FT.	48"x48"	1	1	1	1	16.0			
W4-2	RIGHT LANE ENDS	36"X36"	1	1	1	1	9.0			
G20-2	END ROAD WORK	48"x24"	7	7	7	7	56.0			
W1-4AL	REVERSE CURVE LT.	48"x48"	1	1	1	1	16.0			
W13-1	SPEED LIMIT (ADVISORY)	24"x24"	1	1	1	1	4.0			
R11-2	ROAD CLOSED	48"x30"	4	4	4	4	40.0			
W1-6	LARGE ARROW	48"x24"	4	4	4	4	32.0			
R3-7	RIGHT LANE MUST TURN RIGHT	36"X36"	4	4	4	4	36.0			
R4-1	DO NOT PASS	24"x30"	4	4	4	4	20.0			
RSP-1	SHOULDER CLOSED	48"x30"	4	4	4	4	40.0			
	TRAFFIC DRUMS		62	63	63			63		
	TYPE III BARRICADE-RT. (12')		2	2	2				24	
	TYPE III BARRICADE-LT. (12')		2	2	2					24
	TYPE III BARRICADE-RT. (24')		1	1	1				24	
	TYPE III BARRICADE-LT. (24')		1	1	1					24
TOTALS:							461.0	63	48	48

NOTE: THIS IS A HIGH 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	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	REMOVAL OF PERMANENT PAVEMENT MARKINGS (WORDS)	REMOVAL OF PERMANENT PAVEMENT MARKINGS (ARROWS)	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS (WORDS)	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS (ARROWS)	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKING						HIGH PERFORMANCE CONTRAST PAVEMENT MARKING
										TYPE II	TYPE II	4"		12"	24"	WORDS	ARROWS	4"
										(WHITE/RED)	(YEL/YEL)	WHITE	YELLOW	WHITE	WHITE			WHITE
	LIN. FT. - EACH			LIN. FT.	EACH		LIN. FT.	EACH		EACH		LIN. FT.				EACH		LIN. FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS	2024			2024														
REMOVAL OF PERMANENT PAVEMENT MARKINGS (WORDS)	2				2													
REMOVAL OF PERMANENT PAVEMENT MARKINGS (ARROWS)	2					2												
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	15466	408					15874											
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS (WORDS)	6							6										
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS (ARROWS)	6								6									
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)			91							91								
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)			52								52							
THERMOPLASTIC PAVEMENT MARKING WHITE (4")			8128									8128						
THERMOPLASTIC PAVEMENT MARKING YELLOW (4")			8909										8909					
THERMOPLASTIC PAVEMENT MARKING WHITE (12")			200											200				
THERMOPLASTIC PAVEMENT MARKING WHITE (24")			36												36			
THERMOPLASTIC PAVEMENT MARKING WORDS			2													2		
THERMOPLASTIC PAVEMENT MARKING ARROWS			2														2	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING WHITE (4")			3014															3014
TOTALS:				2024	2	2	15874	6	6	91	52	8128	8909	200	36	2	2	3014

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

NOTE: NO PERMANENT PAVEMENT MARKINGS SHALL BE PLACED UNTIL A MINIMUM OF 3 DAYS AFTER ALL MAIN LANE PAVING HAS BEEN COMPLETED. IN ADDITION, NO PERMANENT PAVEMENT MARKINGS SHALL BE PLACED DURING THE TIME PERIOD FROM DECEMBER 21 TO MARCH 15, INCLUSIVE.

12/17/2015

R100759.DGN

QUANTITIES

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.		100759	14	100

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-21-15

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CURB AND GUTTER	RETAINING WALLS	CONCRETE PAVEMENT	CONCRETE DRIVEWAYS	WALKS	GUARDRAIL	IMPACT ATTENUATION BARRIER	HANDRAIL
			LIN. FT.	LIN. FT.	SQ. YD.	SQ. YD.	SQ. YD.	LIN. FT.	EACH	LIN. FT.
138+15	141+14	HWY. 67 - NB LANES			598					
138+63	141+14	HWY. 67 - NB LANES						250		
153+70	155+70	HWY. 67 - NB LANES						200		
153+70	157+00	HWY. 67 - NB LANES	330		660					
154+00		HWY. 67 - NB LANES							1	
155+00	157+00	HWY. 67 - NB LANES		113			140			113
156+30	156+55	HWY. 67 - NB LANES				13				
TOTALS:			330	113	1258	13	140	450	1	113

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.

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
141+05	HWY. 67 - BRIDGE END	1
156+18	HWY. 67 - TOP OF D.I.	1
TOTAL:		2

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
147+00	148+00	HWY. 67	1	1
151+00	152+00	HWY. 67	1	1
TOTALS:			2	2

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
			CU. YD.		TON
ENTIRE	PROJECT	HWY. 67 - NB LANES	1058	682	
ENTIRE	PROJECT	APPROACHES	1	57	
ENTIRE	PROJECT	BRIDGE ENDS	198		
* ENTIRE	PROJECT	TO BE USED IF AND WHERE			20
		DIRECTED BY THE ENGINEER			
TOTALS:			1257	739	20

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

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

REMOVAL AND DISPOSAL OF CULVERTS AND DROP INLETS

STATION	DESCRIPTION	PIPE CULVERTS	DROP INLETS
		EACH	EACH
156+18	HWY. 67	1	1
TOTALS:		1	1

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

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
137+76	36	15	9.50	90	57	58.60	16' RT.	0-5	35	16	A-6(15)	GRAY
137+76	36	15	9.60	90	57	58.50	33' RT.	0-5	32	13	A-6(11)	GRAY
155+76	36	15	17.60	90	58	17.80	16' RT.	0-5	28	13	A-6(10)	GRAY

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.

RETAINING WALLS

STATION	STATION	LOCATION	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY
			CU.YDS.	POUNDS	CU.YDS.
153+76	155+85	HWY. 67 - RT. OF C.L.	43.71	3478	85
TOTALS:			43.71	3478	85

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			500	2
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			500	2

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

UNDERDRAINS SHALL BE STUBBED INTO THE PROPOSED DROP INLET IF AND WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR THIS TO BE INCLUDED IN THE UNIT PRICE BID FOR 4" PIPE UNDERDRAIN.

12/17/2015

R100759.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.		100759	15	100

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-21-15

CONCRETE BARRIER WALL

STATION	STATION	LOCATION	CONCRETE BARRIER WALL (MEDIAN TYPE A)
			LIN. FT.
140+48	141+05	HWY. 67	57
TOTAL:			57

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL						TEMPORARY EROSION CONTROL									
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	SOLID SODDING	TEMPORARY SEEDING	MULCH COVER	WATER	TRIANGULAR SILT DIKE	ROCK DITCH CHECKS (E-6)	DROP INLET SILT FENCE (E-7)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	SQ.YD.	ACRE	ACRE	M.GAL.	LIN. FT.	CU.YD.	LIN. FT.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	HWY. 67 - NB LANES	0.70	1.40	0.70	71.4	0.70		2.50	2.50	51.0	103	12	40	905	600	600	639
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			0.18	0.36	0.18	18.5	0.18	10	0.63	0.63	12.9	26	3	10	226	150	150	159
TOTALS:			0.88	1.76	0.88	89.9	0.88	10	3.13	3.13	63.9	129	15	50	1131	750	750	798

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
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING
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.

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

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
140+29	140+35	HWY. 67 - RT. OF C.L.	35.00	6	23.33	15.56	0.20
156+09	156+15	HWY. 67 - RT. OF C.L.	30.00	6	20.00	13.33	0.17
TOTALS:					43.33	28.89	0.37

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

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE A (1' 6")
			LIN. FT.
138+75	140+26	HWY. 67 - RT. OF C.L.	151
140+38	141+05	HWY. 67 - RT. OF C.L.	67
153+76	156+12	HWY. 67 - RT. OF C.L.	236
156+24	157+00	HWY. 67 - RT. OF C.L.	76
TOTAL:			530

CONCRETE WALKS

STATION	STATION	LOCATION	LENGTH	CONCRETE WALKS	CONCRETE WALKS (TYPE SPECIAL)	HAND RAILING
			LIN. FT.	SQ.YD.	SQ.YD.	LIN. FT.
155+85	156+16	HWY. 67 - RT. OF C.L.	31	21		
156+20	156+26	HWY. 67 - RT. OF C.L.	6	4		
156+74	157+00	HWY. 67 - RT. OF C.L.	26	17		
1+43	2+58	AUX. WALK - RT. OF C.L.	115		64	115
TOTALS:				42	64	115

APPROACH SLABS

STATION	STATION	LOCATION	APPROACH SLABS	REINFORCING STEEL - ROADWAY (GRADE 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	POUND	TON
140+68.42	141+04.92	HWY. 67 - NB LANES	70.30	8409	52.3
153+76.08	154+12.58	HWY. 67 - NB LANES	68.10	8144	52.3
TOTALS:			138.40	16553	104.6

NOTE: USE T =18.5" FOR 6' SHOULDER.

12/17/2015

R100759.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.		100759	16	100

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-21-15

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18" LIN. FT.	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 18" EACH	DROP INLETS TYPE MO EACH	DROP INLETS EXT. 4' EACH	DROP INLETS EXT. 8' EACH	SOLID SODDING SQ.YD.	WATER M.GAL.	STD. DWG. NOS.
140+32	D.I. ON RT. W/EXT. & F.E.S.	7	1	1	2		5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
156+18	D.I. ON RT. W/EXT. & F.E.S.	20	1	1		1	5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
TOTALS:		27	2	2	2	1	10	0.12	

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.

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.

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH FEET	AGGREGATE BASE COURSE (CLASS 7) TON / STATION	AGGREGATE BASE COURSE (CLASS 7) TON	TACK COAT AVG. WID. FEET	TACK COAT SQ.YD.	TACK COAT GALLONS / SQ.YD.	TACK COAT GALLON	ACHM BINDER COURSE (1") AVG. WID. FEET	ACHM BINDER COURSE (1") SQ.YD.	ACHM BINDER COURSE (1") POUND / SQ.YD.	ACHM BINDER COURSE (1") PG 70-22 TON	ACHM SURFACE COURSE (1/2") AVG. WID. FEET	ACHM SURFACE COURSE (1/2") SQ.YD.	ACHM SURFACE COURSE (1/2") POUND / SQ.YD.	ACHM SURFACE COURSE (1/2") PG 70-22 TON	ACHM SURFACE COURSE (1/2") AVG. WID. FEET	ACHM SURFACE COURSE (1/2") SQ.YD.	ACHM SURFACE COURSE (1/2") POUND / SQ.YD.	ACHM SURFACE COURSE (1/2") PG 70-22 TON	TOTAL PG 70-22 TON
MAIN LANES																						
138+15.00	138+50.00	HWY. 67 - NB LANES	35.00	291.50	102.03	96.71	376.09	0.03	11.28	32.29	125.57	660.00	41.44	32.13	124.95	220.00	13.74	38.00	147.78	220.00	16.26	30.00
138+50.00	138+75.00	HWY. 67 - NB LANES	25.00	266.63	66.66	96.71	268.64	0.03	8.06	32.29	89.69	660.00	29.60	32.13	89.25	220.00	9.82	41.25	114.58	220.00	12.60	22.42
138+75.00	140+25.00	HWY. 67 - NB LANES	150.00	198.25	297.38	100.50	1675.00	0.03	50.25	33.50	558.33	660.00	184.25	33.50	558.33	220.00	61.42	33.50	558.33	220.00	61.42	122.84
140+25.00	140+68.42	HWY. 67 - NB LANES	43.42	179.00	77.72	90.00	434.20	0.03	13.03	30.00	144.73	660.00	47.76	30.00	144.73	220.00	15.92	30.00	144.73	220.00	15.92	31.84
154+12.58	157+00.00	HWY. 67 - NB LANES	287.42	179.00	514.48	90.00	2874.20	0.03	86.23	30.00	958.07	660.00	316.16	30.00	958.07	220.00	105.39	30.00	958.07	220.00	105.39	210.78
TOTALS:					1058.27		5628.13		168.85		1876.39		619.21		1875.33		206.29		1923.49		211.59	417.88

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 = 160 FOR PG 70-22

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH FEET	**MODIFIED CURB STATION	**MODIFIED CURB STATION	PORTLAND CEMENT CONCRETE DRIVEWAY SQ. YD.	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22) SQ. YD.	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22) TON	AGGREGATE BASE COURSE (CLASS 7) TON
138+38	RT.	HWY. 67 - NB LANES	18				159.40	17.53	65.09
156+50	RT.	HWY. 67 - NB LANES	20	156+26	156+74	42.67	38.89	4.28	15.88
* ENTIRE PROJECT TEMPORARY DRIVES									20.00
TOTALS:						42.67	198.29	21.81	100.97

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.

** FOR INFORMATION ONLY

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	9	18
DIRECTED BY THE ENGINEER		
TOTALS:	9	18

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

IMPACT ATTENUATION BARRIER

STATION	LOCATION	TYPE C EACH
154+00	HWY. 67 - BRIDGE END	1
TOTAL:		1

12/17/2015

R100759.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.		100759	17	100

① A6021 - QUANTITIES - 57638

SCHEDULE OF BRIDGE QUANTITIES-JOB 100759

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	802	802	803	804	804	805	805	805	806	806	SP & 807	SP & 807	808	809	809	812	816	822
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS I PROTECTIVE SURFACE TREATMENT	EPOXY COATED REINFORCING STEEL (GRADE 60)	REINFORCING STEEL-BRIDGE (GRADE 60)	① STEEL SHELL PILING (18" DIA.)	① PILE ENCASEMENT	PREBORING	METAL BRIDGE RAILING (TYPE H)	TRANSITIONAL APPROACH RAILING	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	STRUCTURAL STEEL IN PLATE GIRDER SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	ARMORED JOINT WITH NEOPRENE STRIP SEAL	BRIDGE NAME PLATE (TYPE D)	CONCRETE RIPRAP	③ BRIDGE DECK REPAIR
			UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EA.	LB.	LB.	CU. IN.	LIN. FT.	LIN. FT.	EACH	CU. YD.	SQ. YD.
A6021	BLACK RIVER	BENT 1			17	31.15		0.3	295	3,112	285				1	845		1,560				17.0	
		BENT 2				15.31				1,382	290	45						1,745					
		BENT 3				15.31				1,382	290	50						1,300					
		BENT 4				15.31				1,382	290	50						1,300					
		BENT 5				15.31				1,382	290	50						1,745					
		BENT 6				20.42				1,689	290	55						3,120					
		BENT 7				15.31				1,382	290	55						1,745					
		BENT 8				15.31				1,382	300	55						1,300					
		BENT 9				15.31				1,382	300	55						1,300					
		BENT 10				15.31				1,382	300	55						1,300					
		BENT 11				15.31				1,382	300	55						1,745					
		BENT 12				20.42				1,689	300	55						3,120					
		BENT 13				15.31				1,382	300	55						1,745					
		BENT 14				15.31				1,382	300	50						1,300					
		BENT 15				15.31				1,382	300	50						1,300					
		BENT 16				15.31				1,382	300	45						1,300					
		BENT 17				15.31				1,382	300	45						1,745					
		BENT 18			207	104.26				13,415	702							4,620					
		BENT 19			686	303.84				38,803								2,395					
		BENT 20			444	300.70				38,468								2,395					
		BENT 21			407	294.43				37,796								2,395					
		BENT 22			171	107.04				14,008	540							4,620					
		BENT 23				15.31				1,382	255	75						1,745					
		BENT 24				15.31				1,382	255	75	180					1,300					
		BENT 25				15.31				1,382	255	70	180					1,300					
		BENT 26				15.31				1,382	255	70	180					1,300					
		BENT 27				15.31				1,382	255	60						1,745					
		BENT 28			17	31.15		0.3	295	3,112	250				1	845		1,560				14.0	
		180'-0" W-BEAM UNIT					255.99	18.0	56,560					177		96,882			41		1		
		216'-0" W-BEAM UNIT					306.60	21.6	67,955					216		110,610			41				
		2-224'-0" W-BEAM UNITS					635.93	44.8	139,135					448		251,538			82				
		425'-0" PLATE GIRDER UNIT					605.18	42.5	133,190					422			524,740			82			
		SITE NO. 1 (Bridge No. 00483)		1																			
		SITE NO. 1 (Bridge No. 06021)																					40.0
TOTALS FOR JOB NO. 100759					② 1,949	1,504.30	1,803.70	127.5	397.430	178,350	7,792	1,175	540	1,263	2	460.720	524,740	54,045	164	82	1	31.0	40.0

① Piles and Pile Encasement shall conform to details shown on Dwg. Nos. 57647 and 57648.

② Includes approx. 145 cu. yds. of rock excavation.

③ Prior to closing Bridge No. 00483 and switching all traffic to Bridge No. 06021, the Contractor shall repair portions of the existing bridge deck in need of repair as directed by the Engineer. Quantity shown is for estimating and bidding purposes only. Actual quantity to be determined in the field.

KYLE YEARY
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
1-19-16
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
BLACK RIVER STR. &
APPRS. (POCAHONTAS) (S)
RANDOLPH COUNTY

ROUTE 67 SEC. 18

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 8/18/2015 FILENAME: bl00759_ql.dgn
CHECKED BY: CRE DATE: 1/19/16 SCALE: ---
DESIGNED BY: --- DATE: ---

BRIDGE NO. A6021 DRAWING NO. 57638

PRINT DATE: 1/19/2016

R100759.DGN 12/17/2015

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.	100759	18	100

(2) SUMMARY OF QUANTITIES & REVISIONS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 1-21-16

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	2	STATION
201	GRUBBING	2	STATION
202	REMOVAL AND DISPOSAL OF CURB AND GUTTER	330	LIN. FT.
202	REMOVAL AND DISPOSAL OF RETAINING WALLS	113	LIN. FT.
202	REMOVAL AND DISPOSAL OF CONCRETE PAVEMENT	1258	SQ. YD.
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS	13	SQ. YD.
202	REMOVAL AND DISPOSAL OF WALKS	140	SQ. YD.
202	REMOVAL AND DISPOSAL OF DROP INLETS	1	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	1	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	450	LIN. FT.
202	REMOVAL AND DISPOSAL OF IMPACT ATTENUATION BARRIER	1	EACH
202	REMOVAL AND DISPOSAL OF HANDRAIL	113	LIN. FT.
210	UNCLASSIFIED EXCAVATION	1257	CU. YD.
210	COMPACTED EMBANKMENT	739	CU. YD.
SP & 210	SOIL STABILIZATION	20	TON
303	AGGREGATE BASE COURSE (CLASS 7)	1264	TON
SS & 401	TACK COAT	187	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	594	TON
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")	25	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	417	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	1	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")	22	TON
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	9	TON
504	APPROACH SLABS	138.40	CU. YD.
505	PORTLAND CEMENT CONCRETE DRIVEWAY	42.67	SQ. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SP & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SS & 604	SIGNS	461	SQ. FT.
SS & 604	BARRICADES	96	LIN. FT.
SS & 604	TRAFFIC DRUMS	63	EACH
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	15874	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	2024	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS (WORDS)	2	EACH
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS (ARROWS)	2	EACH
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS (WORDS)	6	EACH
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS (ARROWS)	6	EACH
605	CONCRETE DITCH PAVING (TYPE B)	43	SQ. YD.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	27	LIN. FT.
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	2	EACH
606	SELECTED PIPE BEDDING	20	CU. YD.
609	DROP INLETS (TYPE MO)	2	EACH
609	DROP INLET EXTENSIONS (4')	2	EACH
609	DROP INLET EXTENSIONS (8')	1	EACH
611	UNDERDRAIN OUTLET PROTECTORS	2	EACH
611	4" PIPE UNDERDRAINS	500	LIN. FT.
620	LIME	2	TON
620	SEEDING	0.88	ACRE
SS & 620	MULCH COVER	4.01	ACRE
620	WATER	154.3	M.GAL.
621	TEMPORARY SEEDING	3.13	ACRE
621	SILT FENCE	1131	LIN. FT.
621	DROP INLET SILT FENCE	50	LIN. FT.
621	SEDIMENT BASIN	750	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	750	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	798	CU. YD.
621	ROCK DITCH CHECKS	15	CU. YD.
621	TRIANGULAR SILT DIKE	129	LIN. FT.
623	SECOND SEEDING APPLICATION	0.88	ACRE
624	SOLID SODDING	49	SQ. YD.
631	CONCRETE BARRIER WALL (MEDIAN TYPE A)	57	LIN. FT.
633	CONCRETE WALKS	42	SQ. YD.
SP & 633	CONCRETE WALKS (TYPE SPECIAL)	64	SQ. YD.
633	HAND RAILING	115	LIN. FT.
634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")	530	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	8128	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")	200	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (24")	36	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	8909	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	2	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	2	EACH
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING WHITE (4") (ALTERNATE NO. 1)	3014	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE WHITE (4") (ALTERNATE NO. 2)	3014	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	143	EACH
731	IMPACT ATTENUATION BARRIER (TYPE C)	1	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	85	CU. YD.
802	CLASS S CONCRETE-ROADWAY	43.71	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)	20031	POUND
	STRUCTURES OVER 20' SPAN		
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	1949	CU. YD.
802	CLASS S CONCRETE-BRIDGE	1504.30	CU. YD.
802	CLASS S(AE) CONCRETE-BRIDGE	1803.70	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	127.5	GAL.
804	REINFORCING STEEL-BRIDGE (GRADE 60)	178350	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)	397430	POUND
805	STEEL SHELL PILING (18" DIAMETER)	7792	LIN. FT.
805	PREBORING	540	LIN. FT.
805	PILE ENCASEMENT	1175	LIN. FT.
806	METAL BRIDGE RAILING (TYPE H)	1263	LIN. FT.
806	TRANSITIONAL APPROACH RAILING	2	EACH
SP & 807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)	460720	POUND
SP & 807	STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270-GR50W)	524740	POUND
808	ELASTOMERIC BEARINGS	54045	CU. IN.
809	ARMORED JOINT WITH NEOPRENE STRIP SEAL	82	LIN. FT.
809	SILICONE JOINT SEALANT	164	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	1	EACH
816	CONCRETE RIPRAP	31.0	CU. YD.
822	BRIDGE DECK REPAIR	40.0	SQ. YD.

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER

SUMMARY OF QUANTITIES & REVISIONS

COORDINATES LISTED BELOW ARE GROUND (Localized) COORDINATES !!!!

Point No.	Northing	SY	Easting	SX	Elevation	SZ	Feature Code	Point Description
8	701447.9468	0.0157	1615132.3310	0.0156	273.75	0.007	CTL	PD:AHTD STD.MON.STAMPED PN:8
9	702146.9076	0.0155	1615381.8075	0.0154	281.08	0.006	CTL	PD:AHTD STD.MON.STAMPED PN:9
11	703648.3339	0.0149	1616676.7933	0.0148	296.21	0.004	CTL	PD:AHTD STD.MON.STAMPED PN:11
12	700957.2329	0.0155	1615553.7462	0.0154	273.52	0.007	CTL	PD:AHTD STD.MON.STAMPED PN:12
13	700717.9520	0.0128	1615938.3970	0.0128	257.87	0.008	CTL	PD:AHTD STD.MON.STAMPED PN:13
14	700558.2007	0.0125	1616297.6515	0.0124	260.84	0.009	CTL	PD:AHTD STD.MON.STAMPED PN:14
15	700159.8321	0.0150	1617104.1385	0.0150	270.97	0.009	CTL	PD:AHTD STD.MON.STAMPED PN:15
16	699961.3932	0.0150	1617491.5863	0.0149	271.48	0.009	CTL	PD:AHTD STD.MON.STAMPED PN:16
17	699737.2946	0.0148	1618119.5925	0.0148	270.11	0.009	CTL	PD:AHTD STD.MON.STAMPED PN:17
18	699495.2995	0.0148	1618595.3532	0.0147	270.90	0.010	CTL	PD:AHTD STD.MON.STAMPED PN:18
19	699055.7364	0.0147	1619297.0351	0.0146	273.62	0.011	CTL	PD:AHTD STD.MON.STAMPED PN:19
20	698526.7738	0.0147	1619587.7710	0.0146	274.22	0.011	CTL	PD:AHTD STD.MON.STAMPED PN:20
21	697562.5999	0.0148	1619663.6737	0.0147	272.54	0.012	CTL	PD:AHTD STD.MON.STAMPED PN:21
22	696922.2116	0.0151	1619661.1337	0.0150	274.62	0.012	CTL	PD:AHTD STD.MON.STAMPED PN:22
100	697641.3408	0.0001	1620303.3176	0.0001	271.90	0.012	GPS	PD:AHTD GPS MON.POCAPORT
101	695761.4280	0.0001	1620238.8904	0.0001	270.62	0.013	GPS	PD:AHTD GPS MON.POCAPORT AZ MK
102	702900.7440	0.0001	1616083.7300	0.0001	288.66	0.000	GPS	PD:AHTD GPS MON.610004
103	704302.7908	0.0001	1617417.5962	0.0001	278.98	0.000	GPS	PD:AHTD GPS MON.610003
908	703881.9136	0.0188	1616953.3460	0.0187	282.51	0.000	TBM	PD:SQ. IN HW R/OF C/L
910	700867.8256	0.0212	1615734.9820	0.0211	275.30	0.007	TBM	PD:AHTD CAP LOG MILE 7.37
911	699501.3188	0.0221	1618423.1525	0.0220	271.28	0.010	TBM	PD:CHISELED SQ. NORTHWEST CORNER OF SIGN BASE
912	697058.7602	0.0190	1619665.3137	0.0189	274.12	0.012	TBM	PD:CHISELED SQ. NORTHEAST CORNER OF CATCH BASIN

*Standard Primary Control Monument - Rebar and Cap - Standard - 5/8"x 24" Rebar with 2"Aluminum Cap stamped: *"(include all common information here)"* plus other markings indicated in the point description of the individual point. AHTD monuments will be stamped "Arkansas Hwy & Trans Dept" with "PN: ###" & "Job ######". Monuments that are set by Consultants will be stamped "Arkansas Hwy & Trans Dept" with "PN:###", "Job######", & "PS####". The consultant Professional Surveyor in charge will stamp his/her PS license number on the cap.

**Standard GPS Control Point Monument - 5/8" x 48" Rebar with 2.5"Aluminum Cap stamped: *"(include all common information here)"* plus other markings indicated in the point description of the individual point. These monuments will be stamped "Ark. State Hwy Trans. Dept.", "GPS Survey", & "Point No. ######".

SX, SY, SZ – Represents the standard error estimate of the coordinate values of each point at the 67% confidence level (one sigma) based on the least squares analysis of the control network. See the AASHTO SDMS Technical Data Guide data tag definition for SX:, SY:, and SZ: for additional information. These values shall be used when control points are added and the entire network is reprocessed using least square analysis. A value of 0.001 is defined as fixed (no adjustment) in the least square analysis process. A value of 30 is defined as location by handheld GPS device or scaled from USGS Quadmap.

Reference Control points (1500 series) shall be used to re-establish horizontal datum if the primary control has been destroyed. These reference control points shall not be used for vertical control unless the elevation has been established from the project datum with 3-wire level techiniques.

All additional project control shall be occupied, measured, and adjusted with direct survey ties to at least two of the control points listed in the table above. New survey control shall not be independent of the survey control listed above. This includes horizontal coordinates and elevations.

Positional Accuracy:
- Horizontal - GPS (1.0 cm± 1PPM) *PN: 100-103*
- Horizontal - Primary (2.0cm± 20PPM): *PN:8-22*
- Horizontal - Secondary (3 cm ± 50PPM): *PN:N/A*
- Vertical - NGS 1st Order (±4mm x √dist in km) *PN:N/A*
- Vertical - NGS 2nd Order (±6mm x √dist in km) *PN:N/A*
- Vertical - NGS 3rd Order (±8mm x √dist in km) *PN:908,910,911,&912*

Horizontal Datum: NAD 1983 (1997) State Plane Zone: 0301 - North Zone

The adjustment year is based on metadata in the SDMS Control file

A project CAF of: 0.999990143 (CAF BASED ON JOB 100608) has been used to compute the above coordinates.

The project CAF shall have a minimum precision of 9 digits right of the decimal.

This CAF is intended for use within the project limits only.

Grid Distance = Ground Distance X CAF

If Coordinates are listed as Ground:

To compute Grid Coordinates, multiply the Ground Coordinates by CAF about the origin of X=0 & Y=0

If Coordinates are listed as Grid:

To compute Ground Coordinates, divide the Grid Coordinates by CAF about the origin of X=0 & Y=0

Vertical Datum: NAVD 1988 based NGS BM: *TBM 908 FROM JOB 100608

A project Elevation Factor of: 0.9999868784 has been computed and incorporated in the above CAF.

This is based on the average elevation of the project: 274.32 Feet

3-Wire Leveling techniques have been used to establish elevations on

Points: 8-22, 100-103, 908-912 From NGS BM: N/A

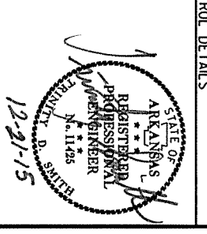
Basis of Bearing: Grid Bearings based on AHTD GPS points: *POCAPORT, 610004, & 610003*

Convergence Angle is: 0°35'59" Right at PN: 14

LT: 36-15-13 N LG: 090-58-09 W

Grid Azimuth = Astronomical Azimuth - Convergence Angle

SURVEY CONTROL DETAILS



DATE REVISED	DATE PLOTTED	DATE REVISED	DATE PLOTTED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	100759	19	100

(2) 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.		100759	20	100

(2) SURVEY CONTROL DETAILS

HWY. 67 NB - CONST.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	126+17.7749	699661.4683	1618205.2486
8001	PI	133+98.9237	700013.6009	1617507.9710
8002	PC	155+81.7606	701008.7851	1615565.1933
8004	PCC	158+58.4263	701174.8435	1615345.6539
8006	PT	166+26.5660	701881.6483	16153O7.1017
8007	POE	170+55.3476	702225.5590	1615563.1858

AUXILIARY SIDEWALK

POINT NO.	TYPE	STATION	NORTHING	EASTING
8019	POB	0+00.0000	700958.1052	1615791.3535
8020	PI	0+37.8291	700975.4134	1615757.7162
8021	PI	1+47.8705	701017.2408	1615655.9342
8022	PI	2+34.5229	701040.5011	1615572.4621

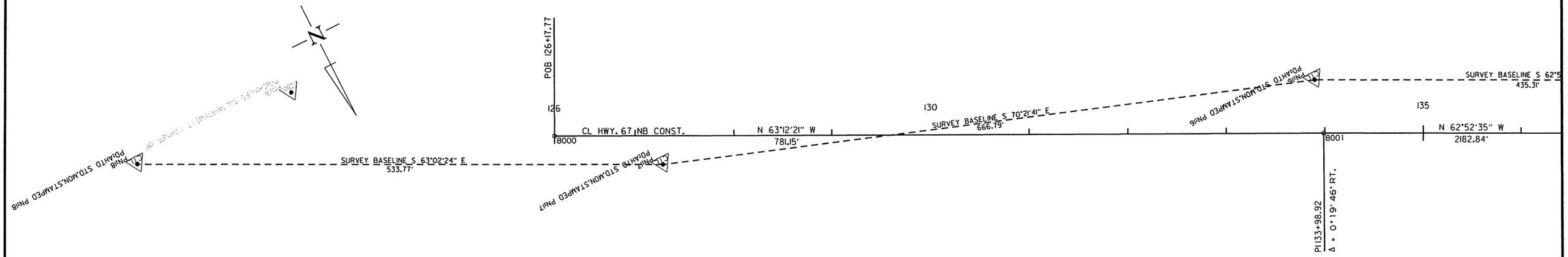
STAGE 1 MAINTENANCE OF TRAFFIC - HWY. 67 SB

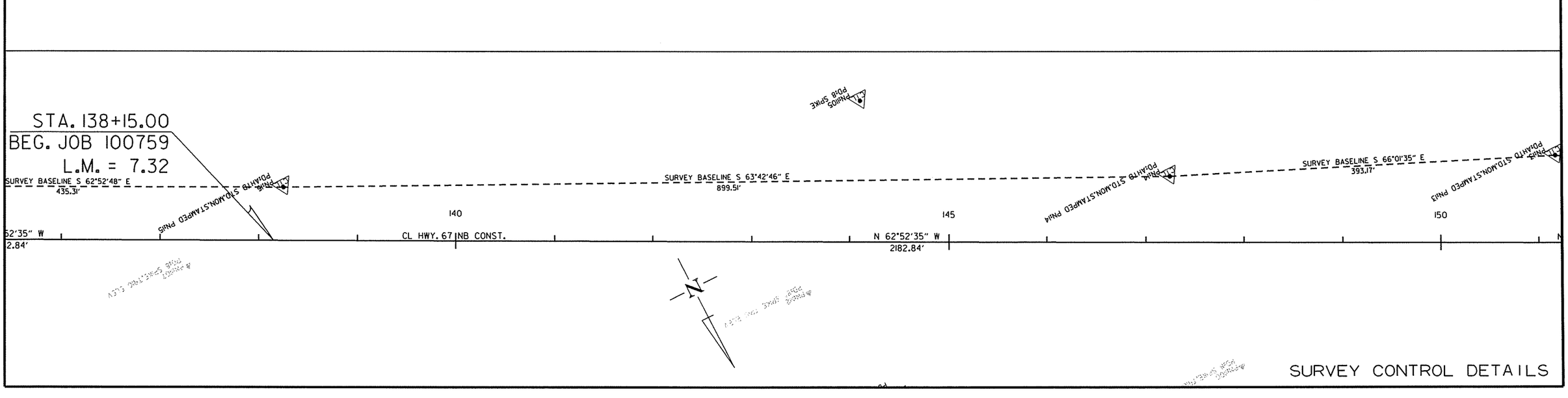
POINT NO.	TYPE	STATION	NORTHING	EASTING
8015	PC	20+00.0000	701154.4156	1615323.6834
8017	PT	23+68.0273	701486.2979	1615182.3966
8018	POE	24+01.2564	701519.4750	1615180.5395

RETAINING WALL

POINT NO.	TYPE	STATION	NORTHING	EASTING
8023	POB	0+00.0000	700943.8621	1615763.0423
8024	POE	2+08.7757	701039.0513	1615577.2298

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-21-15





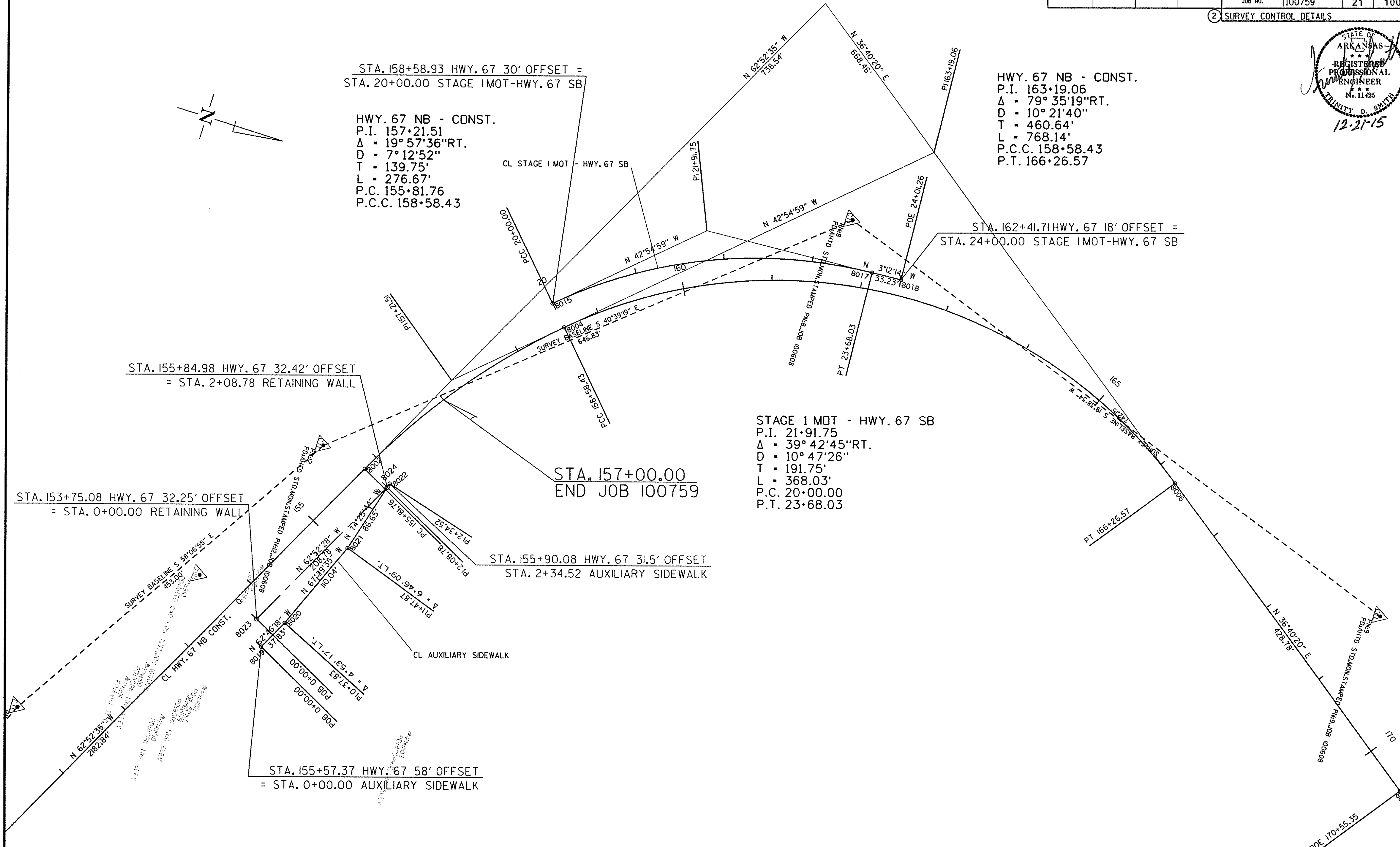
12/17/2015

R100759.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.		100759	21	100

(2) SURVEY CONTROL DETAILS



STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
12-21-15
STA. 158+58.93 HWY. 67 30' OFFSET =
STA. 20+00.00 STAGE 1MOT-HWY. 67 SB
HWY. 67 NB - CONST.
P.I. 157+21.51
Δ = 19° 57'36"RT.
D = 7° 12'52"
T = 139.75'
L = 276.67'
P.C. 155+81.76
P.C.C. 158+58.43
HWY. 67 NB - CONST.
P.I. 163+19.06
Δ = 79° 35'19"RT.
D = 10° 21'40"
T = 460.64'
L = 768.14'
P.C.C. 158+58.43
P.T. 166+26.57
CL STAGE 1 MOT - HWY. 67 SB
N 62°52'35" W 738.54'
N 36°40'20" E 668.46'
PI 163+19.06
PI 21+91.75
POE 24+01.26
N 42°54'59" W
PCC 20+00.00
STA. 162+41.71 HWY. 67 18' OFFSET =
STA. 24+00.00 STAGE 1MOT-HWY. 67 SB
N 3°12'14" W 33.23'
8015
8017
8018
PI 157+21.51
SURVEY BASELINE S 40°39'19" E 646.83'
8004
PT 23+68.03
PCC 158+58.43
STA. 155+84.98 HWY. 67 32.42' OFFSET
= STA. 2+08.78 RETAINING WALL
STA. 157+00.00
END JOB 100759
STAGE 1 MOT - HWY. 67 SB
P.I. 21+91.75
Δ = 39° 42'45"RT.
D = 10° 47'26"
T = 191.75'
L = 368.03'
P.C. 20+00.00
P.T. 23+68.03
STA. 153+75.08 HWY. 67 32.25' OFFSET
= STA. 0+00.00 RETAINING WALL
SURVEY BASELINE S 58°06'55" E 453.00'
PN12 PDIAHTD STD.MON.STAMPED PN12,JOB 100608
PN8 PDIAHTD STD.MON.STAMPED PN8,JOB 100608
8002
8024
8022
8021
8020
8023
8019
8006
8007
155
160
165
170
N 62°52'28" W 208.79'
N 74°25'44" W 86.65'
N 67°39'35" W 110.04'
N 62°46'18" W 37.83'
PC 155+81.76
PI 2+34.52
PI 2+08.78
PI 1+47.87
Δ = 6°46'09" LT.
PI 0+37.83
Δ = 4°53'17" LT.
POB 0+00.00
POB 0+00.00
STA. 155+90.08 HWY. 67 31.5' OFFSET
STA. 2+34.52 AUXILIARY SIDEWALK
CL AUXILIARY SIDEWALK
CL HWY. 67 NB CONST.
N 62°52'35" W 2182.84'
STA. 155+57.37 HWY. 67 58' OFFSET
= STA. 0+00.00 AUXILIARY SIDEWALK
SURVEY BASELINE S 19°38'34" W
PT 166+26.57
N 36°40'20" E 428.78'
PN9 PDIAHTD STD.MON.STAMPED PN9,JOB 100608
POE 170+55.35

SURVEY CONTROL DETAILS

12/17/2015

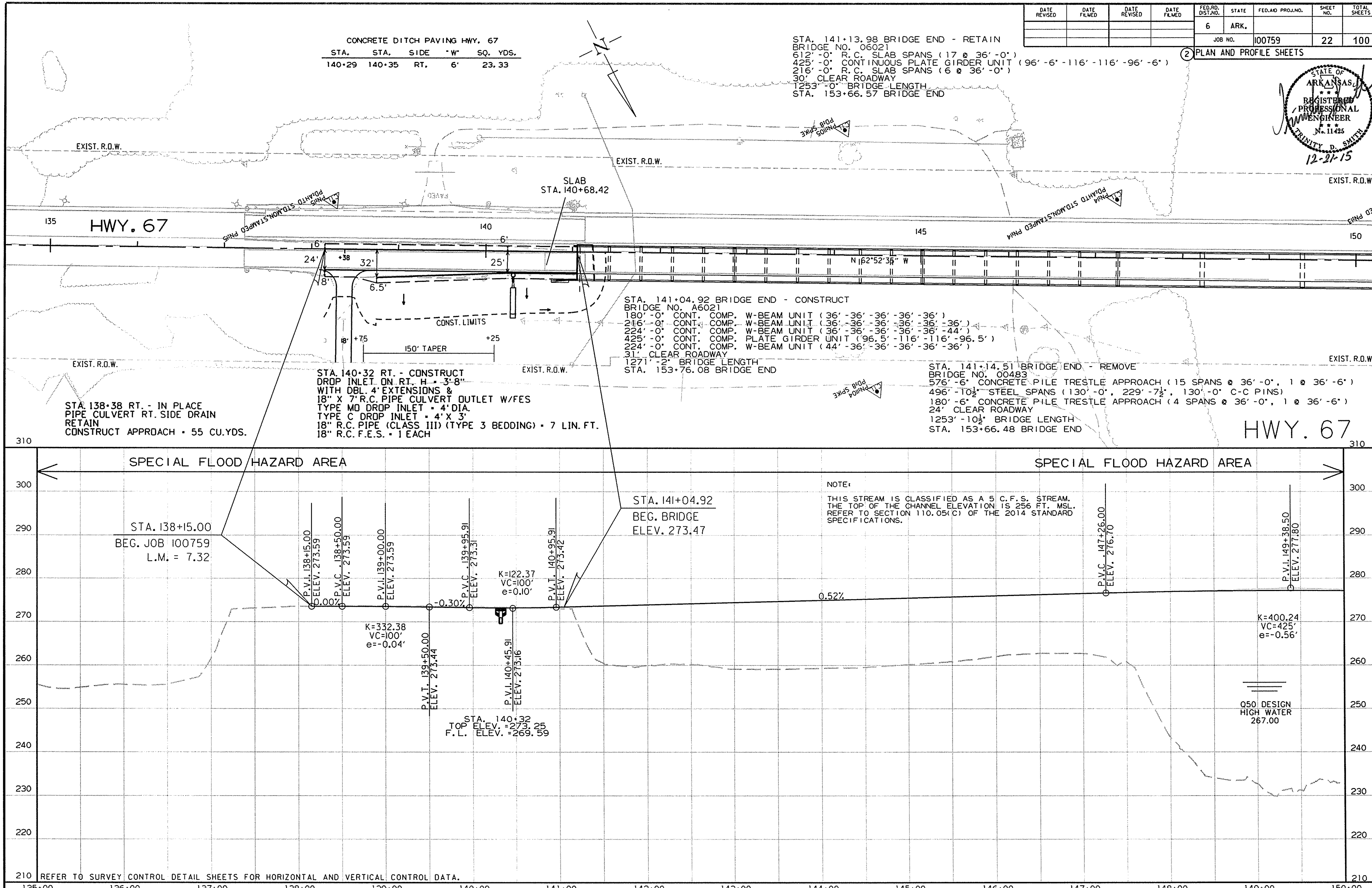
R100759.DGN

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.		100759	22	100

② PLAN AND PROFILE SHEETS

CONCRETE DITCH PAVING HWY. 67

STA.	STA.	SIDE	"W"	SQ. YDS.
140+29	140+35	RT.	6'	23.33



STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
12-21-15
STA. 141+13.98 BRIDGE END - RETAIN
BRIDGE NO. 06021
612'-0" R.C. SLAB SPANS (17 @ 36'-0")
425'-0" CONTINUOUS PLATE GIRDER UNIT (96'-6"-116'-116'-96'-6")
216'-0" R.C. SLAB SPANS (6 @ 36'-0")
30' CLEAR ROADWAY
1253'-0" BRIDGE LENGTH
STA. 153+66.57 BRIDGE END
EXIST. R.O.W.
SLAB
STA. 140+68.42
HWY. 67
135
140
145
150
N 62°52'35" W
CONST. LIMITS
150' TAPER
STA. 141+04.92 BRIDGE END - CONSTRUCT
BRIDGE NO. A6021
180'-0" CONT. COMP. W-BEAM UNIT (36'-36'-36'-36'-36')
216'-0" CONT. COMP. W-BEAM UNIT (36'-36'-36'-36'-36'-36')
224'-0" CONT. COMP. W-BEAM UNIT (36'-36'-36'-36'-44')
425'-0" CONT. COMP. PLATE GIRDER UNIT (96.5'-116'-116'-96.5')
224'-0" CONT. COMP. W-BEAM UNIT (44'-36'-36'-36'-36')
31' CLEAR ROADWAY
1271'-2" BRIDGE LENGTH
STA. 153+76.08 BRIDGE END
STA. 141+14.51 BRIDGE END - REMOVE
BRIDGE NO. 00483
576'-6" CONCRETE PILE TRESTLE APPROACH (15 SPANS @ 36'-0", 1 @ 36'-6")
496'-10½" STEEL SPANS (130'-0", 229'-7½", 130'-0" C-C PINS)
180'-6" CONCRETE PILE TRESTLE APPROACH (4 SPANS @ 36'-0", 1 @ 36'-6")
24' CLEAR ROADWAY
1253'-10½" BRIDGE LENGTH
STA. 153+66.48 BRIDGE END
STA. 140+32 RT. - CONSTRUCT
DROP INLET ON RT. H = 3'-8"
WITH DBL. 4' EXTENSIONS &
18" X 7' R.C. PIPE CULVERT OUTLET W/FES
TYPE MD DROP INLET - 4' DIA.
TYPE C DROP INLET - 4' X 3'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) - 7 LIN. FT.
18" R.C. F.E.S. - 1 EACH
STA. 138+38 RT. - IN PLACE
PIPE CULVERT RT. SIDE DRAIN
RETAIN
CONSTRUCT APPROACH - 55 CU.YDS.
SPECIAL FLOOD HAZARD AREA
SPECIAL FLOOD HAZARD AREA
STA. 138+15.00
BEG. JOB 100759
L.M. = 7.32
STA. 141+04.92
BEG. BRIDGE
ELEV. 273.47
NOTE:
THIS STREAM IS CLASSIFIED AS A 5 C.F.S. STREAM. THE TOP OF THE CHANNEL ELEVATION IS 256 FT. MSL. REFER TO SECTION 110.05(C) OF THE 2014 STANDARD SPECIFICATIONS.
P.V.I. 138+15.00 ELEV. 273.59
P.V.C. 138+50.00 ELEV. 273.59
P.V.I. 139+00.00 ELEV. 273.59
P.V.C. 139+95.91 ELEV. 273.31
K=122.37 VC=100' e=0.10'
P.V.T. 140+95.91 ELEV. 273.42
0.00%
-0.30%
0.52%
K=332.38 VC=100' e=-0.04'
P.V.T. 139+50.00 ELEV. 273.44
P.V.I. 140+45.91 ELEV. 273.16
STA. 140+32 TOP ELEV. = 273.25 F.L. ELEV. = 269.59
P.V.C. 147+26.00 ELEV. 276.70
P.V.I. 149+38.50 ELEV. 277.80
K=400.24 VC=425' e=-0.56'
Q50 DESIGN HIGH WATER 267.00
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.
135+00 136+00 137+00 138+00 139+00 140+00 141+00 142+00 143+00 144+00 145+00 146+00 147+00 148+00 149+00 150+00

12/17/2015
R100759.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.		100759	23	100

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-21-15

STA. 154+00 - IN PLACE
IMPACT ATTENUATION BARRIER
REMOVE AND CONSTRUCT
IMPACT ATTENUATION BARRIER (TYPE C) - 1 EACH

HWY. 67 NB - CONST.
P.I. 157+21.51
Δ = 19° 57'36" RT.
D = 7° 12'52"
T = 139.75'
L = 276.67'
P.C. 155+81.76
P.C.C. 158+58.43
e = NO SUPER

HWY. 67 NB - CONST.
P.I. 163+19.06
Δ = 79° 35'19" RT.
D = 10° 21'40"
T = 460.64'
L = 768.14'
P.C.C. 158+58.43
P.T. 166+26.57
e = NO SUPER

HWY. 29

EXIST. R.O.W.

SLAB
STA. 154+12.58

HWY. 67

150

155

N 62°52'35" W

25'

+50

CONST. LIMITS

N 62°46'18" W

N 67°39'35" W

N 74°25'44" W

5'

20'

HANDRAIL 176

CONST. LIMITS

POB 0+00.00

PI 0+37.83
Δ = 4°53'17" LT.

PI 1+47.87
Δ = 6°46'09" LT.

PC 155+81.76

PI 2+34.52

EXIST. R.O.W.

STA. 153+76 TO STA. 155+85 RT.
CONSTRUCT RETAINING WALL

STA. 155+90.08 HWY. 67
31.5' OFFSET =
STA. 2+34.52 AUX. SIDEWALK

ORNAMENTAL LUMINAIRES

STA.	SIDE		
153+03	LT.	-	RETAIN
153+19	RT.	-	RETAIN
153+78	RT.	-	RETAIN
154+38	RT.	-	RETAIN
154+98	RT.	-	RETAIN
155+57	RT.	-	RETAIN

CONCRETE DITCH PAVING HWY. 67

STA.	STA.	SIDE	"W"	SQ. YDS.
156+09	156+15	RT.	6'	20.00

STA. 156+18 RT. - CONSTRUCT
DROP INLET ON RT. H = 3'8"
WITH 8' EXTENSION
18" X 20' R.C. PIPE CULVERT OUTLET W/FES
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 20 LIN. FT.
18" R.C.F.E.S. = 1 EACH

STA. 156+50 RT. - IN PLACE
PIPE CULVERT RT. SIDE DRAIN
RETAIN
CONSTRUCT APPROACH = 5 CU.YDS. COMP. EMB.
5 CU. YD. UNCLASS. EXC.

PCC 158+58.43

EXIST. R.O.W.

160

N 42°54'59" W

N. 36°40'20" E

PI 163+19.06

HWY. 67

310

SPECIAL FLOOD HAZARD AREA

STA. 153+76.08
END BRIDGE
ELEV. 275.43

P.V.C. 154+65.56
ELEV. 274.94

P.V.I. 155+78.06
ELEV. 274.33

P.V.I. 157+00.00
ELEV. 272.51

STA. 157+00.00
END JOB 100759

-0.54%

-1.50%

K=400.24
VC=425'
e=-0.56'

P.V.T. 151+50.00
ELEV. 276.65

K=234.83
VC=225'
e=-0.27'

SIDEWALK

STA. 156+18
TOP ELEV. =273.62
F.L. ELEV. =269.96

P.V.T. 156+90.56
ELEV. 272.65

SPECIAL FLOOD HAZARD AREA

P.V.I. 1+43.37
ELEV. 268.45
P.V.I. 1+52.82
ELEV. 269.02
P.V.I. 1+57.82
ELEV. 269.03
P.V.I. 1+91.16
ELEV. 271.53
P.V.I. 1+96.16
ELEV. 271.54
P.V.I. 2+29.50
ELEV. 274.04
P.V.I. 2+34.52
ELEV. 274.06

6.00% 0.30%
1.50% 0.30%
1.50% 0.30%

STA. 155+90.08 HWY. 67 31.5' OFFSET =
STA. 2+34.52 AUX. SIDEWALK

AUXILIARY
SIDEWALK PROFILE

300 290 280 270 260 250 240 230 220 210

150+00 151+00 152+00 153+00 154+00 155+00 156+00 157+00 158+00 159+00 160+00 161+00 0+00 1+00 2+00 3+00

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

12/17/2015

R100759.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.		100759	24	100
				(1)	A6021 - LAYOUT - 57639			

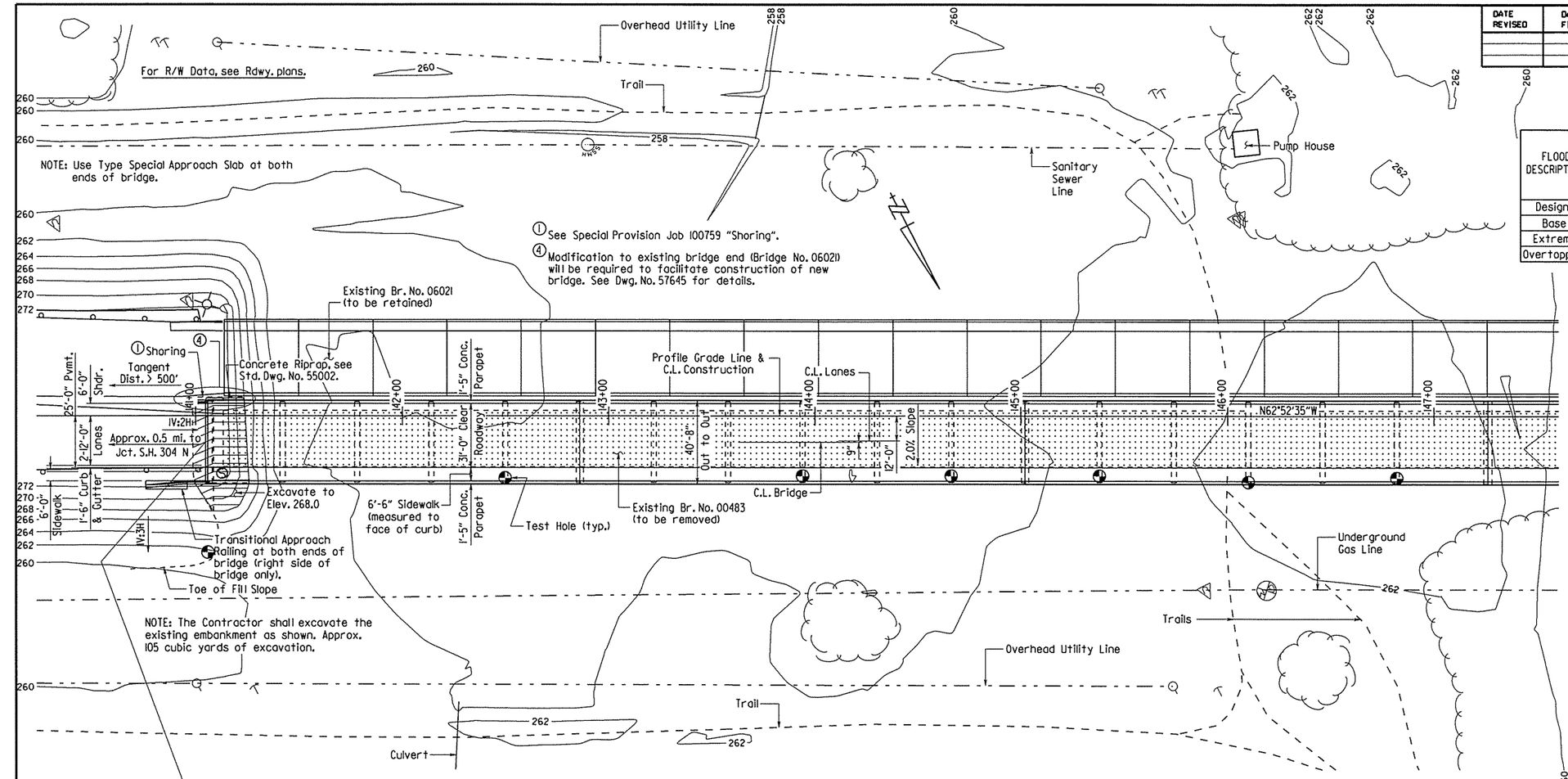
HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	TOTAL DISCHARGE	DISCHARGE THRU BRIDGE	DISCHARGE THRU RELIEF BRIDGE	(2) NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	CFS	CFS	FEET	FEET
Design	50	76,500	67,010	9,490	267.0	267.0
Base	100	92,500	77,450	15,050	268.6	268.6
Extreme	500	121,500	107,780	13,720	270.4	270.4
Overtopping	>500	-	-	-	-	-

(2) Unconstricted water surface without structure or roadway approaches.
Drainage area = 4,840 square miles.
Historical H.W. Elev. = 268.3 ft.
0100 Backwater Elev. for existing structure = 268.6 ft.

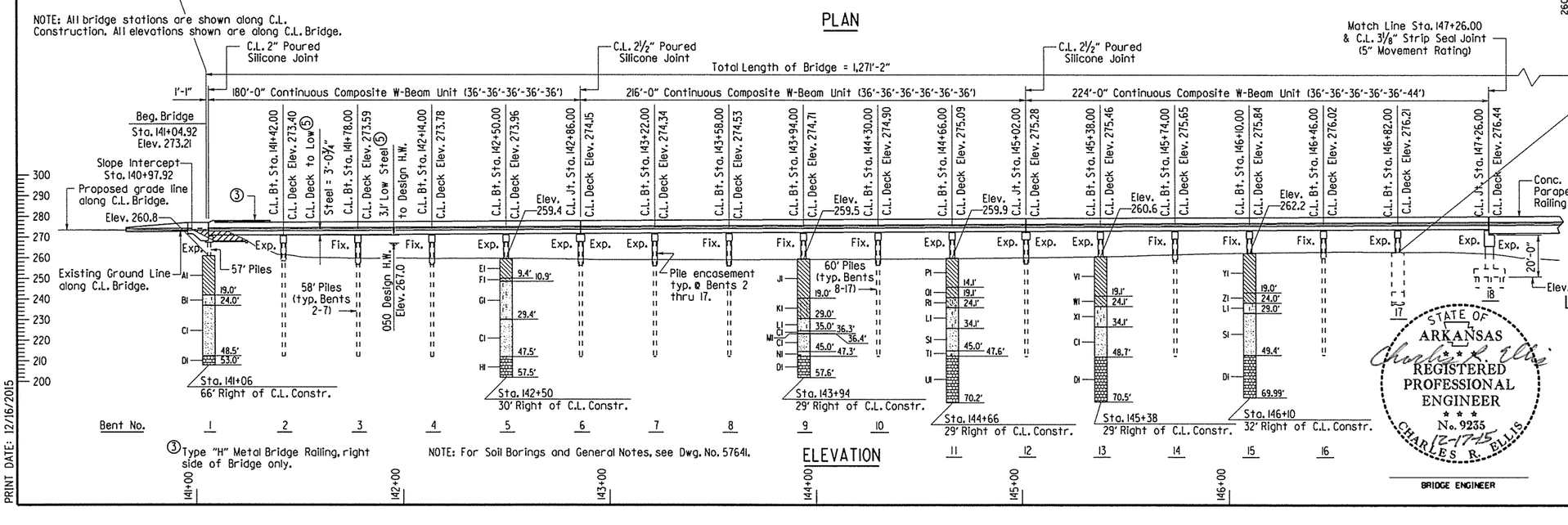
(5) Proposed Low Bridge Chord Elev. = 270.16 ft. @ Sta. 141+07.00.

Bent No.	C.L. Deck @ C.L. Bent to Low Seat of Cap
2	3'-5 1/8"
3	3'-4 9/16"
4	3'-4 9/16"
5	3'-5 1/8"
6 back	3'-5 3/4"
6 ahead	3'-5 3/4"
7	3'-5 1/8"
8	3'-4 9/16"
9	3'-4 9/16"
10	3'-4 9/16"
11	3'-5 1/8"
12 back	3'-5 3/4"
12 ahead	3'-5 3/4"
13	3'-5 1/8"
14	3'-4 9/16"
15	3'-4 9/16"
16	3'-4 3/4"
17	3'-5 5/16"
18 back	3'-6"

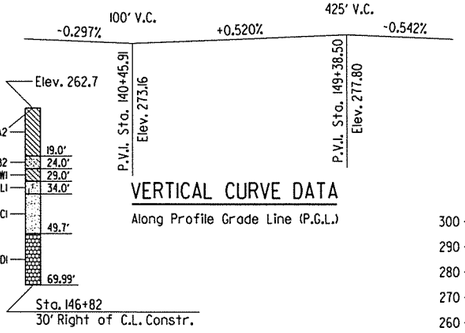


PLAN

NOTE: All bridge stations are shown along C.L. Construction. All elevations shown are along C.L. Bridge.



ELEVATION



VERTICAL CURVE DATA

Along Profile Grade Line (P.G.L.)

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 3

LAYOUT OF BRIDGE OVER BLACK RIVER
BLACK RIVER STR. & APPRS. (POCAHONTAS) (S)
RANDOLPH COUNTY

ROUTE 67 SEC. 18

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 10/10/14 FILENAME: b100759_11.dgn
CHECKED BY: DHP DATE: 12/16/15 SCALE: 1" = 30'-0"
DESIGNED BY: KWY DATE: 9/11/15

BRIDGE NO. A6021 DRAWING NO. 57639

PRINT DATE: 12/16/2015

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.		100759	25	100
				(1)		A6021 - LAYOUT - 57640		

For R/W Data, see Rdwy. plans.

NOTE: Use Type Special Approach Slab at both ends of bridge.

Existing Br. No. 06021 (to be retained)

Parking Lot

Sanitary Sewer Line

(2) Sidewalk

(1) Shoring

(4) Tan. Dist = 205.68'
Approx. 0.1mi. to Jct. U.S. 62

Concrete Riprap, See Std. Dwg. No. 55002.

Profile Grade Line & C.L. Construction

C.L. Lanes

1'-5" Conc. Parapet

31'-0" Clear Roadway

40'-8" Out to Out

12'-0" 2.0% Slope

9'

1V:2H

Test Hole (typ.)

6'-6" Sidewalk (measured to face of curb)

C.L. Bridge

Existing Br. No. 00483 (to be removed)

Underground Gas Lines

Excavate to Elev. 270.0 Toe of Fill Slope

Transitional Approach Railing at both ends of bridge (right side of bridge only).

Underground Gas Line

BLACK RIVER

NOTE: The Contractor shall excavate the existing embankment as shown. Approx. 93 cubic yards of excavation.

PLAN

Bent No.	C.L. Deck @ C.L. Bent to Low Seat of Cap
18 ahead	5'-6 3/8"
19	5'-4 5/8"
20	5'-4 5/8"
21	5'-4 5/8"
22 back	5'-6 3/8"
22 ahead	3'-6"
23	3'-5 5/16"
24	3'-4 3/4"
25	3'-4 9/16"
26	3'-4 9/16"
27	3'-5 1/8"

(1) See Special Provision Job 100759 "Shoring".

(2) Portions of the existing sidewalk interfering with or damaged by construction shall be modified or repaired to the satisfaction of the Engineer. This item shall be incidental to the item "Removal of Existing Bridge Structure".

(3) Type "H" Metal Bridge Railing, right side of Bridge only.

(4) Modification to existing bridge end (Bridge No. 06021) will be required to facilitate construction of new bridge. See Dwg. No. 57646 for details.

Match Line Sta. 147+26.00 & C.L. 3 1/8" Strip Seal Joint (5" Movement Rating)

NOTE: All bridge stations are shown along C.L. Construction. All elevations shown are along C.L. Bridge.

Total Length of Bridge = 1,271'-2"

C.L. 3 1/8" Strip Seal Joint (5" Movement Rating)

C.L. 2" Poured Silicone Joint

425'-0" Continuous Composite Plate Girder Unit (96.5'-116'-116'-96.5')

224'-0" Continuous Composite W-Beam Unit (44'-36'-36'-36'-36')

1'-1"

End Bridge Sta. 153+76.08 Elev. 275.17

Slope Intercept Sta. 153+83.08

Proposed grade line along C.L. Bridge.

Existing Ground Line along C.L. Bridge.

C.L. Jt. Sta. 147+26.00 C.L. Deck Elev. 276.44

C.L. Bt. Sta. 148+22.50 C.L. Deck Elev. 276.83

C.L. Bt. Sta. 149+38.50 C.L. Deck Elev. 276.98

C.L. Deck to Low Steel = 5'-0 1/4" Sta. 150+54.50

4.7' Low Steel over Channel to Design H.W. Sta. 150+54.50

C.L. Bt. Sta. 150+54.50 C.L. Deck Elev. 276.80

C.L. Jt. Sta. 151+51.00 C.L. Deck Elev. 276.39

C.L. Bt. Sta. 151+95.00 C.L. Deck Elev. 276.15

C.L. Bt. Sta. 152+31.00 C.L. Deck Elev. 275.96

C.L. Bt. Sta. 152+67.00 C.L. Deck Elev. 275.76

C.L. Bt. Sta. 153+03.00 C.L. Deck Elev. 275.57

C.L. Bt. Sta. 153+39.00 C.L. Deck Elev. 275.37

Elev. 261.1

Elev. 256.7

Elev. 258.8

Elev. 250.91

Elev. 213.94

Elev. 234.3

Elev. 215.09

Elev. 225.8

Elev. 216.91

Elev. 247.86

Elev. 257.2

Elev. 275.1

Exp. Fix. Exp. Fix. Fix. Fix. Exp. Exp. Exp. Fix. Fix. Fix. Exp. Exp.

20'-0" 57'-6" 56'-6" 050 Design H.W. Elev. 267.0 54'-6" 23'-0"

C2 8.8' D2 13.8' E2 16.8' F2 28.8' B1 38.8' G2 44.8' H2 47.3' J2 64.8'

39' Piles

N2 79.0' P2 14.0' O2 24.0' C1 35.0' H2 37.5' D1 60.2'

51' Piles (typ. Bents 23-27)

R2 8.8' S2 13.8' T2 23.8' C1 33.8' U2 35.9' V2 54.4'

50' Piles

W2 14.0' X2 24.0' Y2 29.0' Z2 35.0' A3 55.0'

B3 9.5' C3 24.5' D3 54.0' E3 73.2'

Sta. 154+00 19' Feet Right of C.L. Constr.

Sta. 153+31 29' Right of C.L. Constr.

Sta. 153+01 29' Right of C.L. Constr.

Sta. 151+51 29' Right of C.L. Constr.

Sta. 149+97 12' Right of C.L. Constr.

Sta. 148+78 17' Right of C.L. Constr.

Sta. 147+29 32' Right of C.L. Constr.

Gas Line

Sanitary Sewer Line

Pile encasement typ. @ Bents 23 thru 27.

Bent No. 18 19 20 21 22 23 24 25 26 27 28

NOTE: For Soil Borings and General Notes, see Dwg. No. 57641.

ELEVATION

147+00 148+00 149+00 150+00 151+00 152+00 153+00

300 290 280 270 260 250 240 230 220 210 200

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 3
LAYOUT OF BRIDGE OVER BLACK RIVER
BLACK RIVER STR. & APPRS. (POCAHONTAS) (S)
RANDOLPH COUNTY

ROUTE 67 SEC. 18

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 10/10/14 FILENAME: b100759_ll.dgn
CHECKED BY: DHP DATE: 12/16/15 SCALE: 1" = 30'-0"
DESIGNED BY: KWY DATE: 9/14/1

BRIDGE NO. A6021 DRAWING NO. 57640

PRINT DATE: 12/16/2015

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.		100759	26	100
				(1)		A6021 - LAYOUT - 57641		

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, Section and Subsection refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition (2012) with 2013 Interims.

LIVE LOADING: HL-93

SEISMIC PERFORMANCE ZONE: 2 S_{D1}=0.240 SITE CLASS = C

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

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

STEEL SHELL PILING: All piling shall be 18" diameter concrete filled steel shell piles and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 150 tons per pile and into the material designated as dolostone on the boring legend. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual pile lengths are to be determined in the field. The Contractor shall use vaned tip driving points on all piles.

PILE ENCASEMENT: Pile encasement for Bents 2 thru 17 and 23 thru 27 shall extend from bottom of cap to 3' below natural ground. See Std. Dwg. No. 55021 for additional information. Corrugated alternate pile encasment will not be allowed.

PREBORING: Preboring, jetting or other methods as approved by the Engineer will be required for all piles in Bents 24 thru 26 to minimize the impacts of driving vibrations on the underground utility lines in the immediate vicinity. Preboring, jetting or other methods as approved by the Engineer shall be to the top of the material designated as dolostone on the boring legend. If preboring is chosen, prebored holes shall be of a slightly smaller diameter than the outside diameter of the piles. Oversized pile casing will not be allowed. If prebored holes will not stay open and free of excessive debris, jetting or other methods as approved by the Engineer will be required to facilitate driving the piles to dolostone. Any related cost associated with jetting or other methods as approved by the Engineer will not be paid for directly, but shall be considered subsidiary to the item "Preboring".

PILE FOOTINGS: The top of the footings at Bents 18 and 22 shall be set a minimum of 5' below natural ground or at the elevations shown on the plans, whichever is lower. Foundations for footings shall be prepared in accordance with Subsection 801.04. Excavations shall be backfilled and compacted to the level of the existing ground in accordance with Subsection 801.08.

SPREAD FOOTINGS: Footings at Bents 19 thru 21 shall be set a minimum of 2' into material designated as dolostone on the boring legend. The top of the footings shall be set a minimum 5' below the channel bottom as determined by the lowest channel elevation within the footprint of the footing. Foundations for footings shall be prepared in accordance with Subsection 801.04. Rock excavations shall be made to neat lines of the concrete footings. Blasting will not be allowed. Concrete in footings shall be poured directly against excavated surfaces of rock.

BRIDGE DECK: The concrete bridge deck, except sidewalk, shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. The sidewalk shall be given a Class 6 Broomed Finish.

DETAIL DRAWINGS	DRAWING NOS.
End Bents	57642-57644
Concrete Riprap	57645-57646
Intermediate Bents	57647-57652
180'-0" Cont. Comp. W-Beam Unit	57653-57654, 57655-57657
216'-0" Cont. Comp. W-Beam Unit	57653-57654, 57658-57660
224'-0" Cont. Comp. W-Beam Unit	57653-57654, 57661-57663
425'-0" Cont. Comp. Plate Girder Unit	57664-57668
Poured Silicone Joint	57669
Strip Seal Joint	57670
Elastomeric Bearings	57671
Deck Drains	57672
Bridge Railing	57673
Type Special Approach Slab	57674-57675
Transitional Approach Railing	57676
Standard General Notes	55006

EXISTING BRIDGE: Existing Bridge No. 00483 (Log Mile 7.37) is 27.0' wide and 1,253.9' long. The reinforced concrete deck girder approach spans are supported by trestle pile abutments and intermediate bents. The thru truss main spans are supported by wall-type piers with concrete pile footings or spread footings. The center pier is an octagonal pivot pier on a spread footing. Existing Bridge No. 06021 shall be retained.

REMOVAL AND SALVAGE: Existing Bridge No. 00483 shall be removed in accordance with Section 205. During removal of the truss spans, the Mayor of Pocahontas shall be notified to determine which small piece(s) of the truss will become the property of the City for historical and display purposes. The Contractor shall carefully remove these small pieces of the truss spans when structurally safe to do so. The bridge name plates shall also be carefully removed and will become the property of the City. Each small piece selected by the City for salvage shall be set aside and stored by the Contractor who will then notify the City when they are available for pick-up by City personnel. The existing piers at Bents 19 thru 21 shall be removed in their entirety. All material, except for said truss pieces and bridge name plates, from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

BORING LEGEND

A1-Moist, Very Stiff, Brown Clay with Manganese Nodules
B1-Wet, Loose, Gray Sand with Silt
C1-Wet, Very Loose, Gray Sand
D1-DOLOSTONE
E1-Moist, Medium Stiff, Brown Clay
F1-Moist, Medium Stiff, Brown Sandy Clay
G1-Moist, Loose, Gray Sand with Silt
H1-DOLOSTONE - Hard, Occasional Fracture, Slight Dip, Gray
J1-Moist, Stiff, Brown Clay with Manganese Nodules
K1-Wet, Very Soft, Gray Silty, Sandy Clay
L1-Wet, Very Loose, Gray Sand with Silt
M1-Wet, Soft, Gray Clay
N1-Wet, Medium Dense, Gray Sand with Organic Matter (Carbonized Wood) and Trace Gravel
P1-Moist, Stiff, Brown Clay
Q1-Wet, Medium Stiff, Brown Clay with Sand
R1-Wet, Very Loose, Gray, Clayey, Silty Sand
S1-Wet, Loose, Gray Sand
T1-Wet, Medium Dense, Sand with Gravel and Some Organic Matter
U1-DOLOSTONE WITH OCCASSIONAL CHERT LAYERS - Slightly Weathered, Hard, Occassional Fractures, Occasional Dolomite Veins, Slight Dip, Gray
V1-Moist, Medium Stiff, Brown Clay with Trace Gravel
W1-Wet, Very Soft, Gray Sandy Clay
X1-Wet, Loose, Gray Sand with Silt and Trace Gravel
Y1-Moist, Medium Stiff, Gray Clay with Some Organic Matter
Z1-Wet, Very Soft, Gray Clay with Sand
A2-Moist, Stiff, Brown and Gray Clay
B2-Wet, Very Loose, Gray Clayey Sand
C2-Moist, Soft, Brown and Gray Clay with Organic Matter
D2-Moist, Loose, Brown Clayey Sand
E2-Moist, Medium Stiff, Brown Clay with Sand
F2-Wet, Very Soft, Brown and Gray Clay
G2-Wet, Medium Dense, Gray Sand with Trace of Gravel
H2-Wet, Medium Dense, Gray Sand with Gravel
J2-DOLOSTONE - Slightly Weathered, Hard, Occasional Dolomite Veins, Occasional Fractures, Gray
K2-Wet, Very Loose, Brown Sand with Organic matter
L2-DOLOSTONE - Hard, Slightly Weathered, Light Gray, Frequent Fractures, Occasional Calcite Veins
M2-Sand with Organic Matter
N2-Wet, Very Loose, Brown and Gray Clayey Sand
P2-Moist, Soft, Gray Sandy Clay
Q2-Moist, Soft, Gray, Sandy, Silty Clay
R2-Moist, Very Loose, Brown and Gray Clayey Sand with Organic Matter
S2-Moist, Soft, Brown Sandy Clay
T2-Moist, Very Loose, Brown Clayey Sand with Organic Matter
U2-Wet, Very Dense, Gray Sand with Gravel and Rock Fragments (Dolostone)
V2-DOLOSTONE - Slightly Weathered, Hard, Occasional Fractures, Gray
W2-Moist, Very Soft, Gray Clay with Sand
X2-Wet, Very Loose, Gray Sandy Silt
Y2-Wet, Very Loose, Gray Sand with Organic Matter
Z2-Wet, Very Loose, Gray Silty Sand
A3-DOLOSTONE - Hard, Slightly Weathered, Gray
B3-Moist, Loose, Gray Clayey Sand
C3-Moist, Stiff, Gray Sandy Clay
D3-Moist, Loose, Brown Sand
E3-DOLOSTONE - Slightly Weathered, Hard, Frequent Fractures, Slight Dip, Gray

"N" VALUES

Sta. 141+06 - 66' Right of C.L. Constr.
4.5- 5.5, N=18
9.5- 10.5, N=6
14.5- 15.5, N=10
19.5- 20.5, N=8
24.5- 25.5, N=2
29.5- 30.5, N=16
40.5- 41.5, N=19

Sta. 142+50 - 30' Right of C.L. Constr.
9.9- 10.9, N=7
19.9- 20.9, N=6
29.9- 30.9, N=3
39.9- 40.9, N=0

Sta. 143+94 - 29' Right of C.L. Constr.
4.5- 5.5, N=13
9.5- 10.5, N=4
14.5- 15.5, N=5
19.5- 20.5, N=1
24.5- 25.5, N=2
29.5- 30.5, N=3
35.5- 36.5, N=3
40.5- 41.5, N=8
45.5- 46.5, N=16

Sta. 144+66 - 29' Right of C.L. Constr.
4.6- 5.6, N=11
9.6- 10.6, N=11
14.6- 15.6, N=5
19.6- 20.6, N=0
24.6- 25.6, N=3
29.6- 30.6, N=3
34.6- 35.6, N=7
45.5- 46.5, N=12

Sta. 145+38 - 29' Right of C.L. Constr.
4.6- 5.6, N=7
9.6- 10.6, N=12
14.6- 15.6, N=6
19.6- 20.6, N=0
24.6- 25.6, N=7
29.6- 30.6, N=7
34.6- 35.6, N=3
39.6- 40.6, N=2
44.6- 45.6, N=3

Sta. 146+10 - 32' Right of C.L. Constr.
4.5- 5.5, N=8
9.5- 10.5, N=12
14.5- 15.5, N=6
19.5- 20.5, N=0
24.5- 25.5, N=1
29.5- 30.5, N=6
34.5- 35.5, N=1
39.5- 40.5, N=1
45.5- 46.5, N=35

Sta. 146+82 - 30' Right of C.L. Constr.
4.5- 5.5, N=11
9.5- 10.5, N=10
14.5- 15.5, N=2
19.5- 20.5, N=0
24.5- 25.5, N=1
29.5- 30.5, N=3
34.5- 35.5, N=2
39.5- 40.5, N=0
45.5- 46.5, N=36

Sta. 147+29 - 32' Right of C.L. Constr.
4.3- 5.3, N=2
9.3- 10.3, N=7
14.3- 15.3, N=5
19.3- 20.3, N=0
24.3- 25.3, N=4
29.3- 30.3, N=6
39.3- 40.3, N=15
45.3- 46.3, N=13

Sta. 148+78 - 17' Right of C.L. Constr.
4.0- 5.0, N=0

Sta. 149+97 - 12' Right of C.L. Constr.

Sta. 151+51 - 29' Right of C.L. Constr.
4.5- 5.5, N=1
9.5- 10.5, N=4
14.5- 15.5, N=3
19.5- 20.5, N=5
24.5- 25.5, N=2
35.5- 36.5, N=24

Sta. 153+01 - 29' Right of C.L. Constr.
4.3- 5.3, N=3
9.3- 10.3, N=3
14.3- 15.3, N=3
19.3- 20.3, N=2
24.3- 25.3, N=2
34.3- 34.7, N=60(5)

Sta. 153+31 - 29' Right of C.L. Constr.
4.5- 5.5, N=0
9.5- 10.5, N=1
14.5- 15.5, N=0
19.5- 20.5, N=0
24.5- 25.5, N=4
29.5- 30.5, N=0

Sta. 154+00 - 19' Right C.L. Constr.
5.0- 6.0, N=7
10.0- 11.0, N=14
15.0- 16.0, N=5
20.0- 21.0, N=3
25.0- 26.0, N=9
30.0- 31.0, N=11
35.0- 36.0, N=8
40.0- 41.0, N=4
45.0- 46.0, N=23

NOTICE TO AHTD FIELD PERSONNEL: The United States Coast Guard requires a set of as-built drawings for permanent records. The Resident Engineer's office shall document changes to contract drawings and return to Bridge Division upon project completion.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-18-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 3
LAYOUT OF BRIDGE OVER BLACK RIVER
BLACK RIVER STR. &
APPRS. (POCAHONTAS) (S)
RANDOLPH COUNTY

ROUTE 67 SEC. 18

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

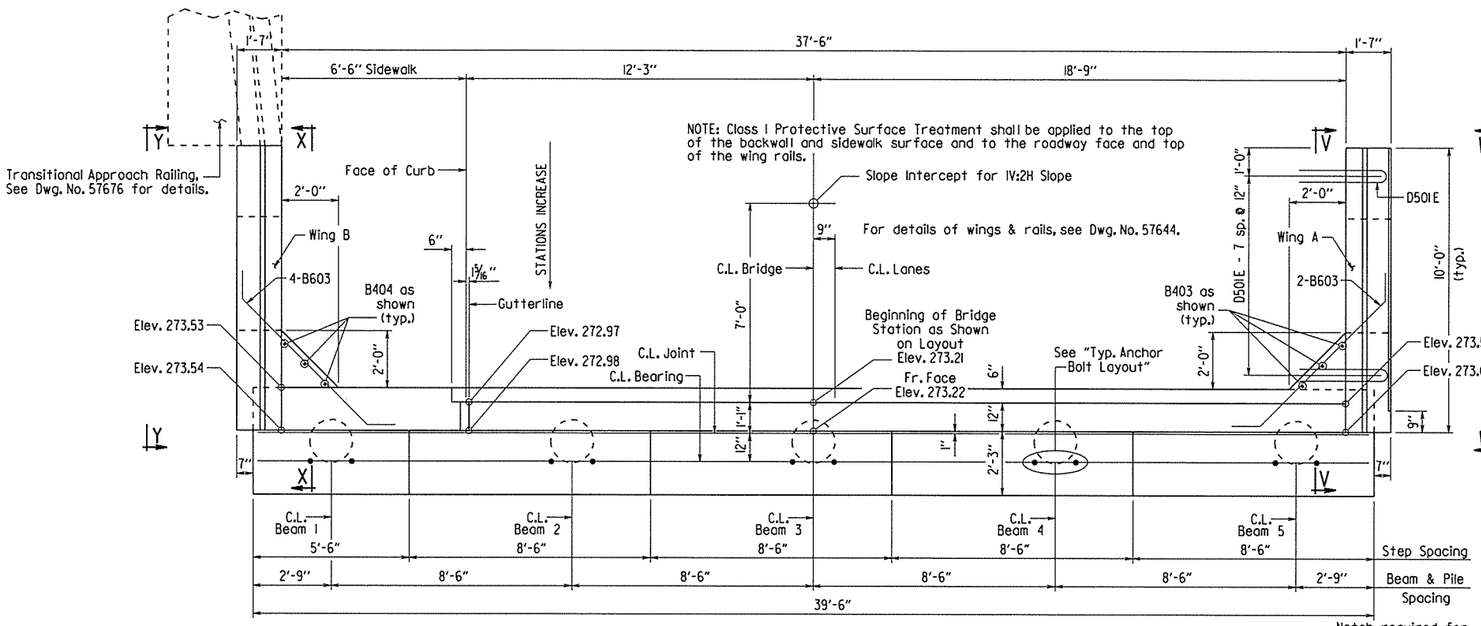
DRAWN BY: KWY DATE: 10/10/14 FILENAME: b100759_11.dgn
CHECKED BY: DHP DATE: 12/18/15 SCALE: no scale
DESIGNED BY: KWY DATE: 9/14

BRIDGE NO. A6021 DRAWING NO. 57641

PRINT DATE: 12/18/2015

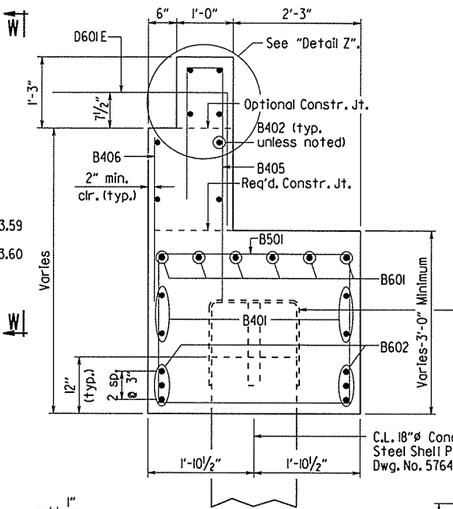
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100759	27	100

(1) A6021 - END BENTS - 57642



PLAN OF BENT I

3/8" = 1'-0"

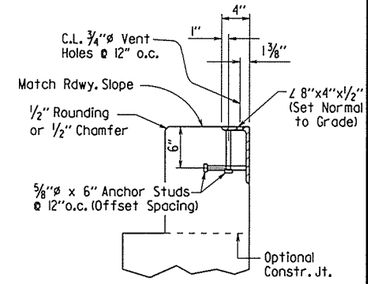


For details of pile anchorage, see Dwg. No. 57647.

C.L. 18"ø Concrete filled Steel Shell Piles, see Dwg. No. 57647.

SECTION U-U

3/4" = 1'-0"

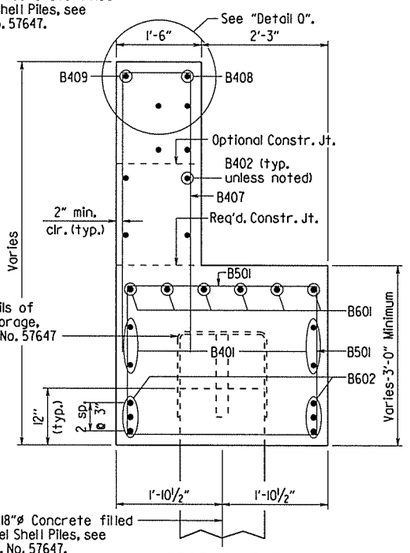


For additional joint details, see Dwg. No. 57669.

DETAIL Z

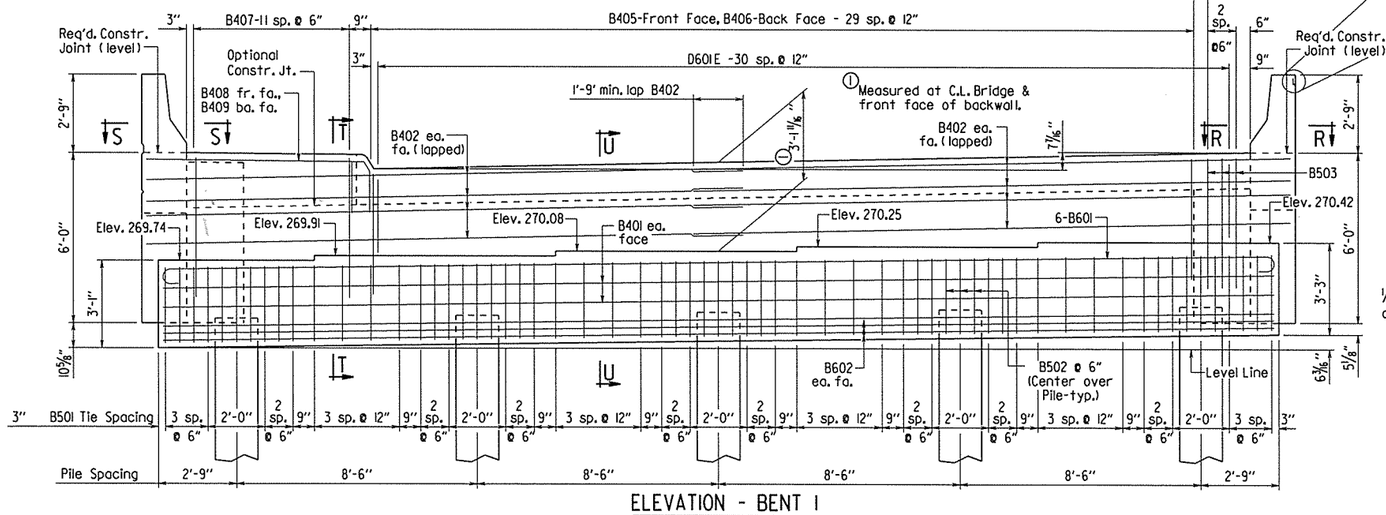
No Scale

NOTE: Concrete shall be hand packed under the joint armor in the backwall.



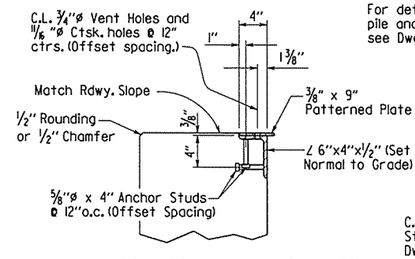
SECTION T-T

3/4" = 1'-0"



ELEVATION - BENT I

Looking Back
3/8" = 1'-0"

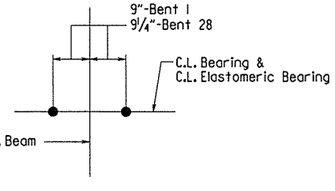


For additional joint details, see Dwg. No. 57669.

DETAIL O

No Scale

NOTE: Concrete shall be hand packed under the joint armor in the sidewalk. Angle and patterned plate shall be M 270, Grade 36. Patterned plate and surfaces of angle not in contact with concrete shall be painted in accordance with Section 638. Payment for angle and patterned plate will be made under "Structural Steel in Beam Spans (M 270, Grade 50W)".



For details of elastomeric bearings, see Dwg. No. 57671.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

NOTE: For "View R-R", "View S-S", "View V-V", "View W-W", "View X-X" and "View Y-Y", see Dwg. No. 57644. For General Notes and Bar List, see Dwg. No. 57643.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF BENTS 1 & 28
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

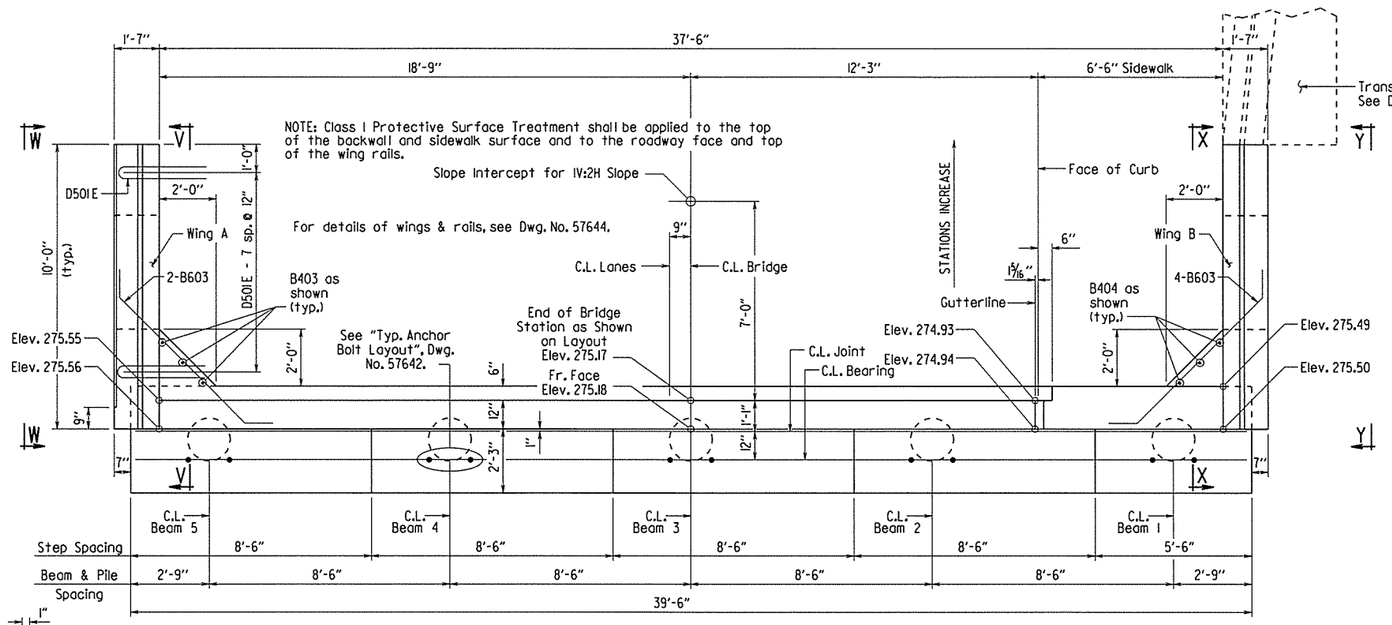
DRAWN BY: KWY DATE: 7/27/15 FILENAME: bl00759_bl.dgn
CHECKED BY: BHS DATE: 12/11/15 SCALE: As Shown
DESIGNED BY: DHP DATE: 6/15

BRIDGE NO. A6021 DRAWING NO. 57642

PRINT DATE: 12/11/2015

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.		100759	28	100

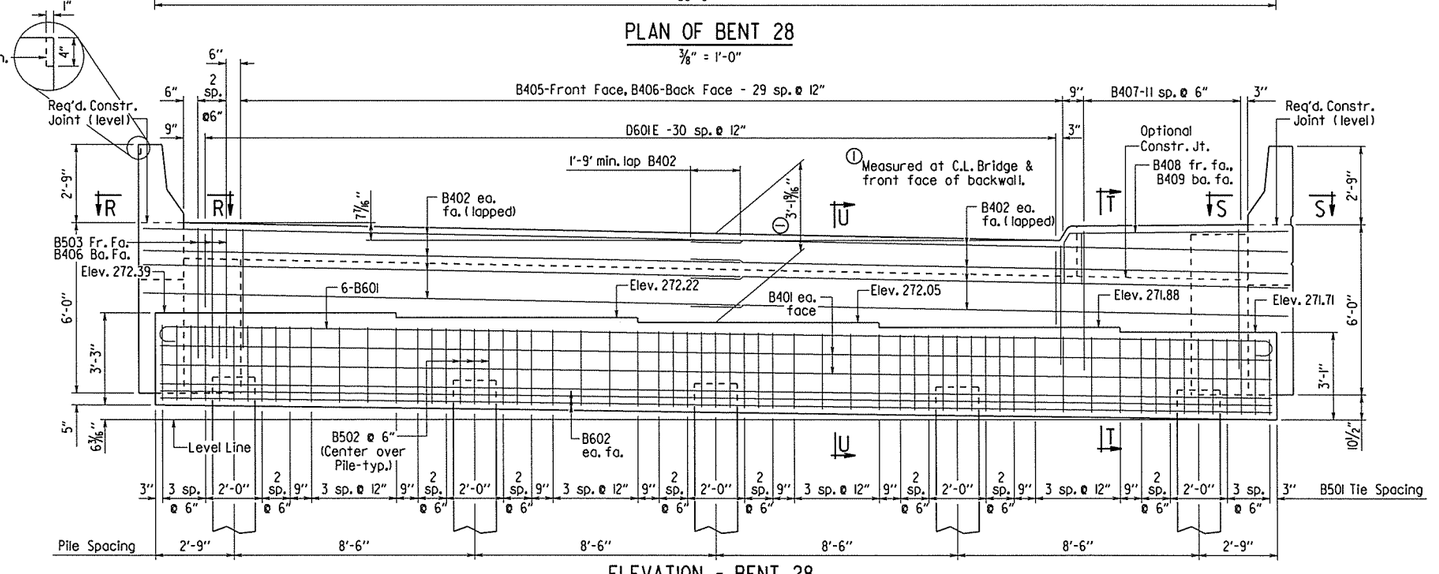
(1) A6021 - END BENTS - 57643



PLAN OF BENT 28

3/8" = 1'-0"

Notch required for concrete cap, see Dwg. No. 57675 for additional information.



ELEVATION - BENT 28

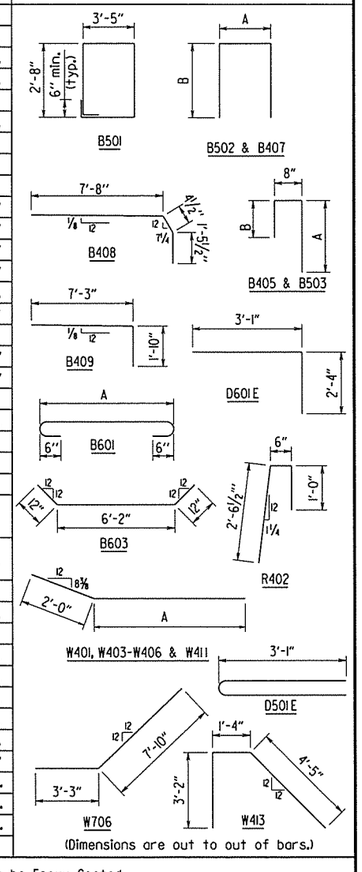
Looking Ahead

3/8" = 1'-0"

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	A	B	P.D.
B401	4	39'-2"			Str.
B402	16	21'-1"			Str.
B403	3	4'-4"			Str.
B404	3	5'-4"			Str.
B405	30	7'-1"	4'-3"	2'-4"	2"
B406	36	2'-11"			Str.
B407	12	10'-10"	1'-2"	4'-11"	2"
B408	1	9'-5"			2"
B409	1	9'-0"			2"
B501	48	12'-8"			2½"
B502	15	8'-7"	3'-5"	2'-8"	2½"
B503	3	7'-7"	4'-6"	2'-7"	2½"
B601	6	40'-6"	39'-2"		4½"
B602	6	39'-2"			Str.
B603	6	8'-2"			4½"
D501E	8	6'-4"			3¾"
D601E	31	5'-3"			4½"
R401	12	9'-8"			Str.
R402	22	3'-11"			2"
W401	8	8'-1"	6'-1"		2"
W402	8	8'-5"			Str.
W403-W406	2 each	Var. 4'-3" to 7'-3"	Var. 2'-3" to 5'-3"		2"
W407-W410	2 each	Var. 4'-7" to 7'-7"			Str.
W411	6	4'-1"	2'-1"		2"
W412	6	4'-5"			Str.
W413	7	8'-10"			2"
W701	12	9'-8"			Str.
W702	4	6'-7"			Str.
W703	2	5'-7"			Str.
W704	2	4'-10"			Str.
W705	2	4'-1"			Str.
W706	4	11'-1"			5¼"
W707	2	5'-10"			Str.
W708	2	5'-1"			Str.
W709	2	4'-4"			Str.

BENDING DIAGRAMS



NOTE: Bars designated with an "E" suffix to be Epoxy Coated.

GENERAL NOTES

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

If anchor bolts are drilled into cap, top reinforcing bars and pile anchorage shall be placed to avoid damage.

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

All piling shall be Grade 3, Fy = 45,000 psi.

No portion of the backwall shall be poured before beams are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the deck pour has been made. Refer to the "Expansion Device Installation" note on Dwg. No. 57669.

For additional information, see Layout.

NOTE: For "View R-R", "View S-S", "View V-V", "View W-W", "View X-X" and "View Y-Y", see Dwg. No. 57644.
For "Section T-T" and "Section U-U", see Dwg. No. 57642.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF BENTS 1 & 28
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

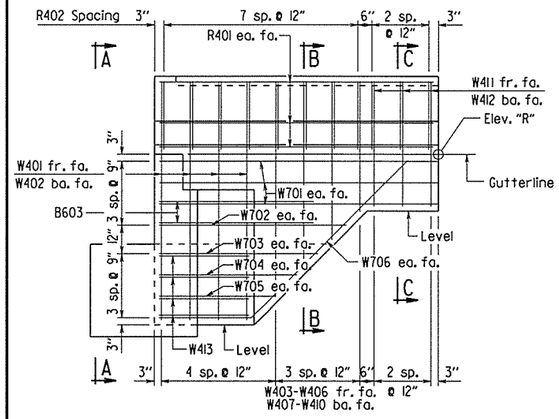
LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 7/22/15 FILENAME: bl00759_bl.dgn
CHECKED BY: BHS DATE: 12/16/15 SCALE: As Shown
DESIGNED BY: DHP DATE: 6/15

BRIDGE NO. A6021 DRAWING NO. 57643

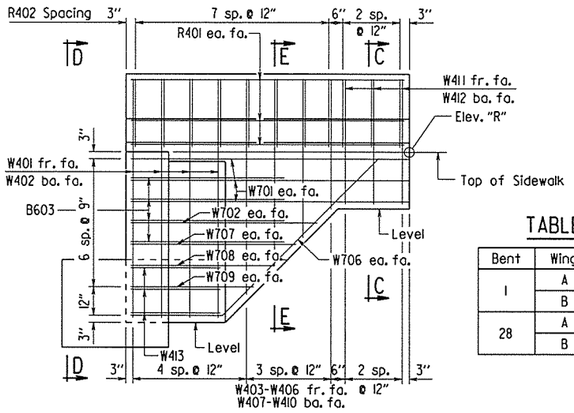
PRINT DATE: 12/16/2015

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.		100759	29	100
				①	A6021 - END BENTS - 57644			



VIEW V-V

3/8" = 1'-0"

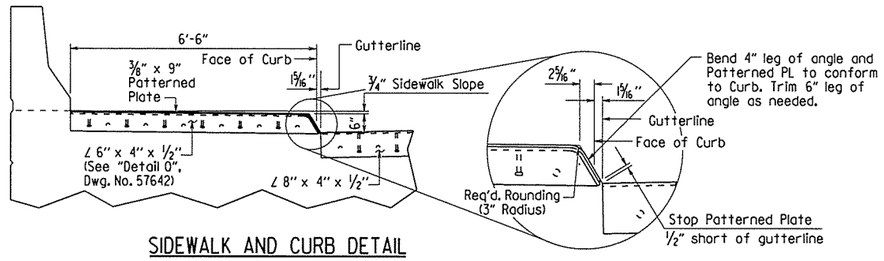


VIEW X-X

3/8" = 1'-0"

TABLE OF VARIABLES

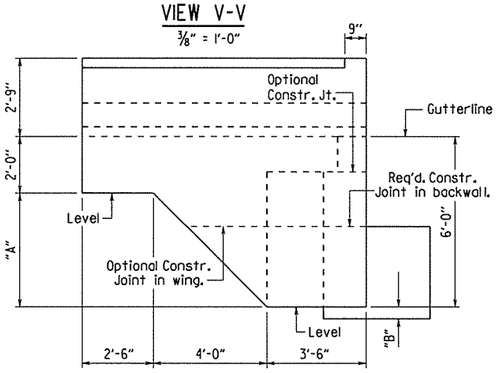
Bent	Wing	"A"	"B"	Elev. 'R'
1	A	3'-11 1/4"	5 1/8"	273.54
	B	3'-11 3/8"	10 5/8"	273.49
28	A	3'-11 1/4"	5"	275.50
	B	3'-11 3/8"	10 1/2"	275.45



SIDEWALK AND CURB DETAIL

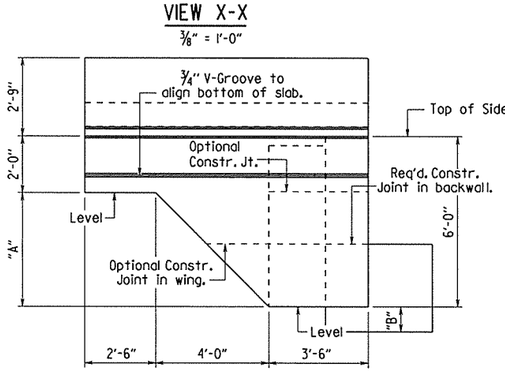
Looking Back (Bent 1)

1/2" = 1'-0"



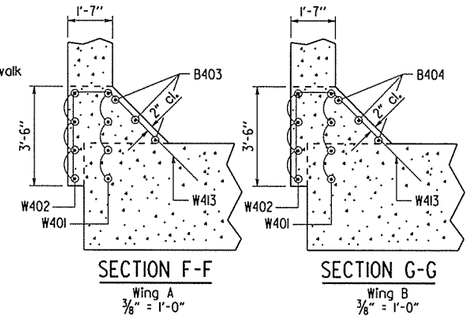
VIEW W-W

3/8" = 1'-0"



VIEW Y-Y

3/8" = 1'-0"



SECTION F-F

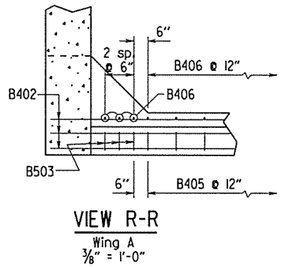
Wing A

3/8" = 1'-0"

SECTION G-G

Wing B

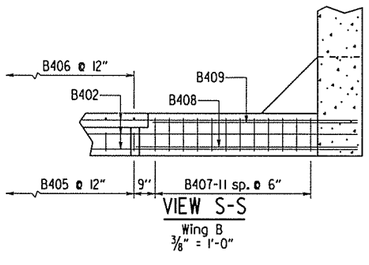
3/8" = 1'-0"



VIEW R-R

Wing A

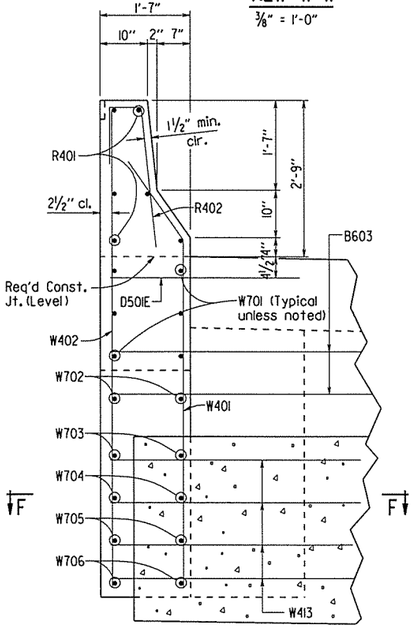
3/8" = 1'-0"



VIEW S-S

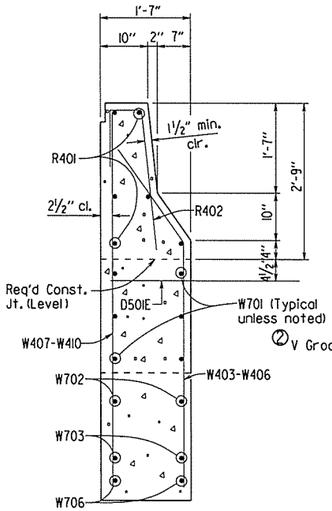
Wing B

3/8" = 1'-0"



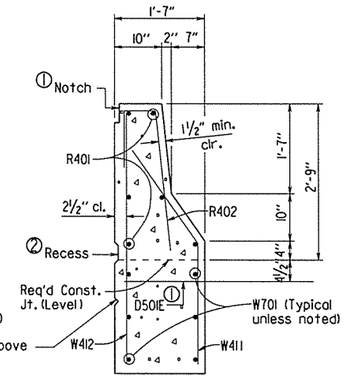
VIEW A-A

3/4" = 1'-0"



SECTION B-B

3/4" = 1'-0"

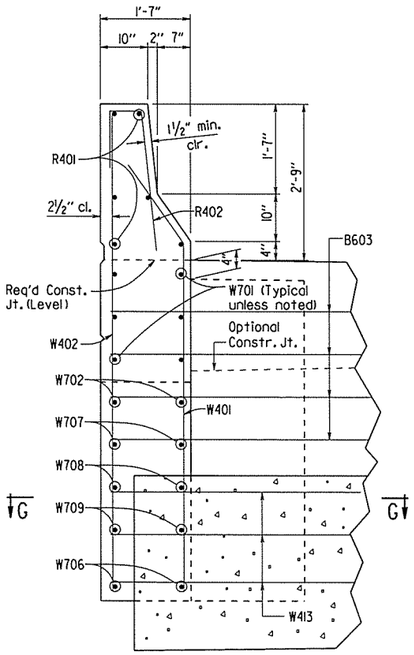


SECTION C-C

3/4" = 1'-0"

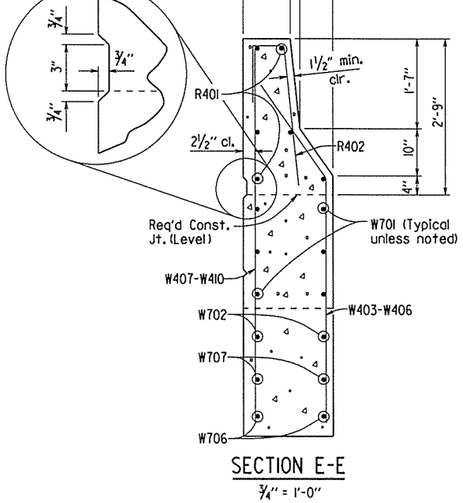
① Wing A only.

② Wing B only.



VIEW D-D

3/4" = 1'-0"



SECTION E-E

3/4" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 3

DETAILS OF BENTS 1 & 28

BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 7/27/15 FILENAME: bl00759_bl.dgn

CHECKED BY: BHS DATE: 12/11/15 SCALE: As Shown

DESIGNED BY: DHP DATE: 6/15

BRIDGE NO. A6021 DRAWING NO. 57644

PRINT DATE: 12/11/2015

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.		100759	38	100
				① A6021 - CONCRETE RIPRAP - 57645				

GENERAL NOTES

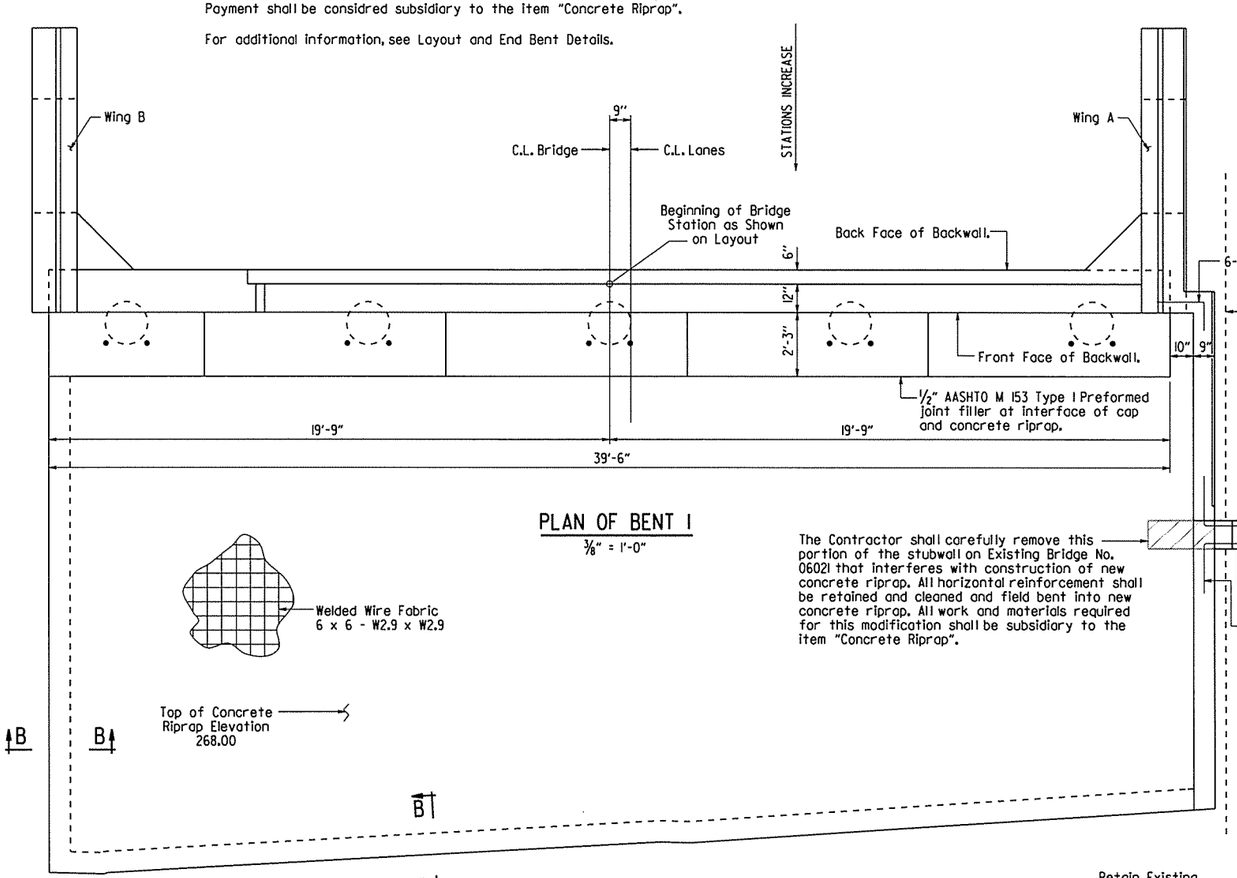
All concrete shall be Class S with a minimum 28 day compressive strength of f'c = 3,500 psi and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (fy = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. Payment shall be considered subsidiary to the item "Concrete Riprap".

All welded wire fabric shall conform to AASHTO M 55 or M 221. Payment shall be considered subsidiary to the item "Concrete Riprap".

For additional information, see Layout and End Bent Details.

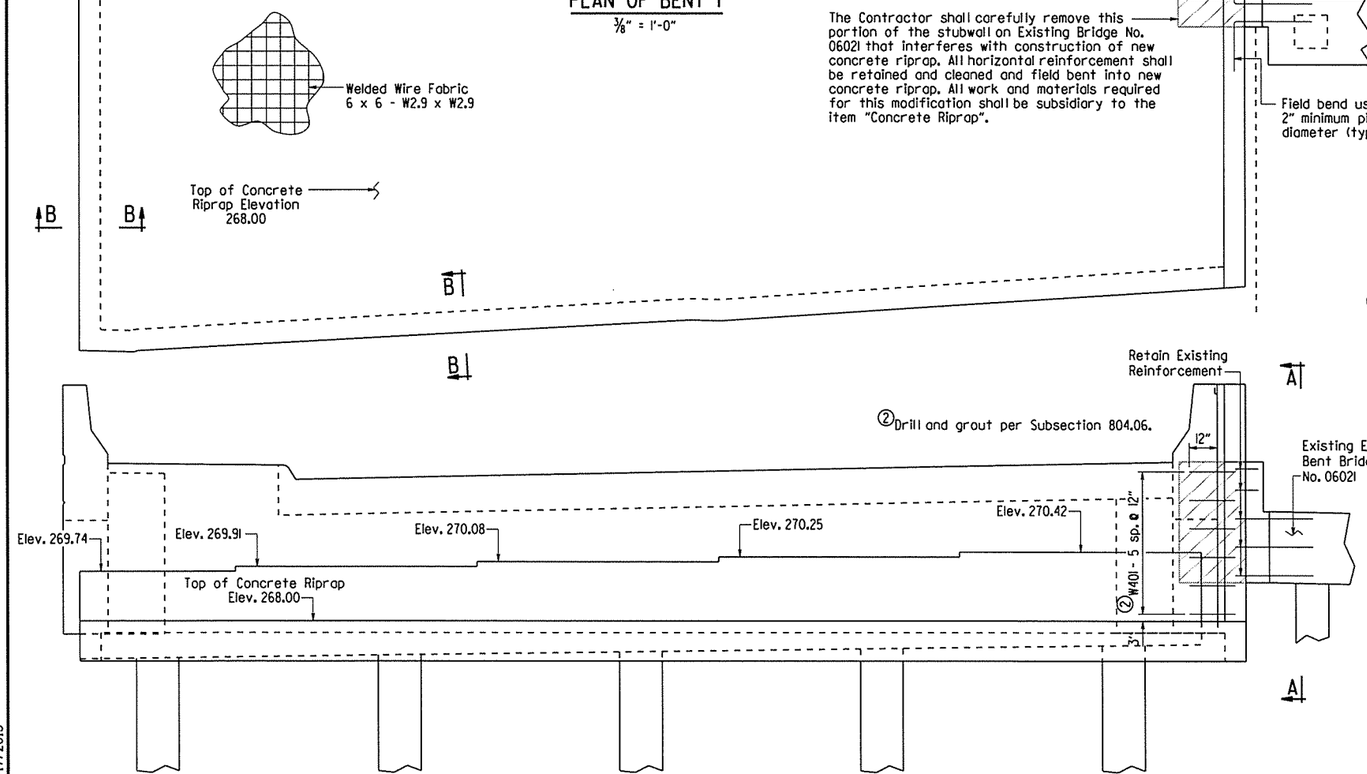
① Dimensions are based on best available information. Details show the general intent of the apron wall and how it ties to the existing and new structure. Actual dimensions may vary in the field. The Contractor shall make adjustments to the apron wall and reinforcing steel as required. Quantities are based on dimensions shown.



PLAN OF BENT I

3/8" = 1'-0"

The Contractor shall carefully remove this portion of the stubwall on Existing Bridge No. 06021 that interferes with construction of new concrete riprap. All horizontal reinforcement shall be retained and cleaned and field bent into new concrete riprap. All work and materials required for this modification shall be subsidiary to the item "Concrete Riprap".



ELEVATION - BENT I

Looking Back
3/8" = 1'-0"

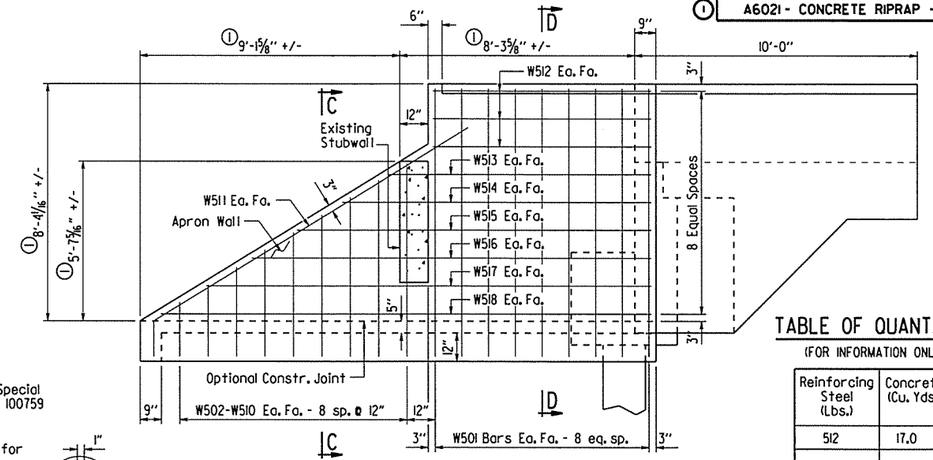
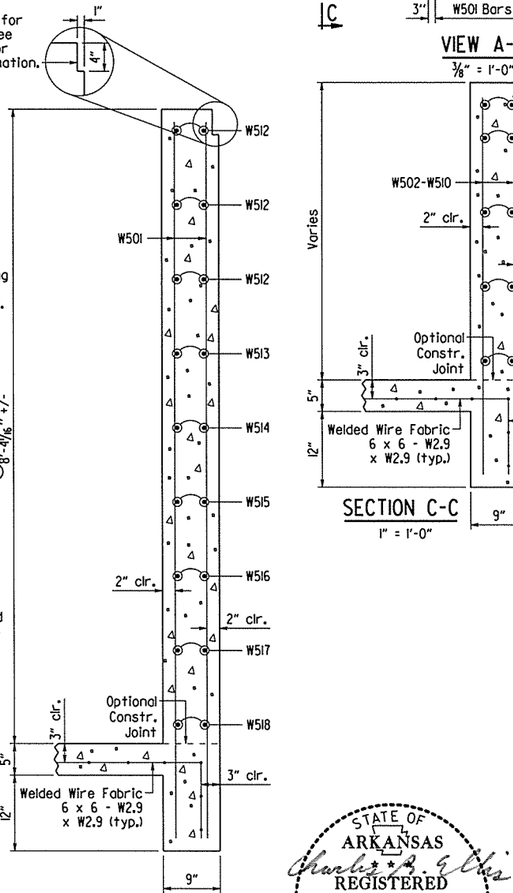


TABLE OF QUANTITIES

(FOR INFORMATION ONLY)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
512	17.0

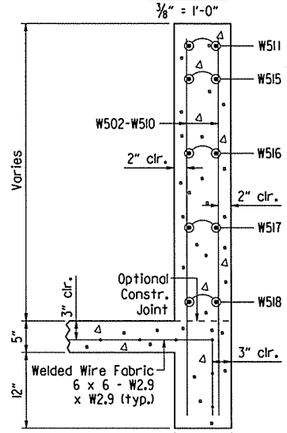


SECTION D-D

1" = 1'-0"

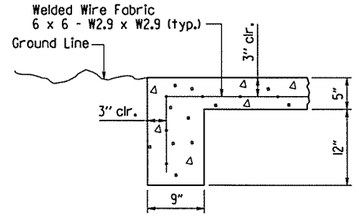
VIEW A-A

3/8" = 1'-0"



SECTION C-C

1" = 1'-0"



SECTION B-B

1" = 1'-0"

BAR LIST (FOR INFORMATION ONLY)

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
W401	6	2'-7"	2"	1'-8", W401, 1'-0", 7⅛, 12, 1'-3"
W501	18	9'-5"	Str.	
W502-W510	2 ea.	1'-11"-6'-9"	Str.	
W511	2	14'-3"	2½"	
W512	6	7'-8"	Str.	
W513-W518	2 ea.	9'-3"-17'-3"	Str.	13'-0", W511

(Dimensions are out to out of bars.)

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF CONCRETE RIPRAP
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 8/7/15 FILENAME: bl00759_crl.dgn
CHECKED BY: CMW DATE: 12/14/15 SCALE: as noted
DESIGNED BY: Std. DATE:

BRIDGE NO. A6021 DRAWING NO. 57645

PRINT DATE: 12/17/2015

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.		100759	31	100

A6021 - CONC. RIPRAP - 57646

GENERAL NOTES

All concrete shall be Class S with a minimum 28 day compressive strength of f'c = 3,500 psi and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (fy = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. Payment shall be considered subsidiary to the item "Concrete Riprap".

All welded wire fabric shall conform to AASHTO M 55 or M 221. Payment shall be considered subsidiary to the item "Concrete Riprap".

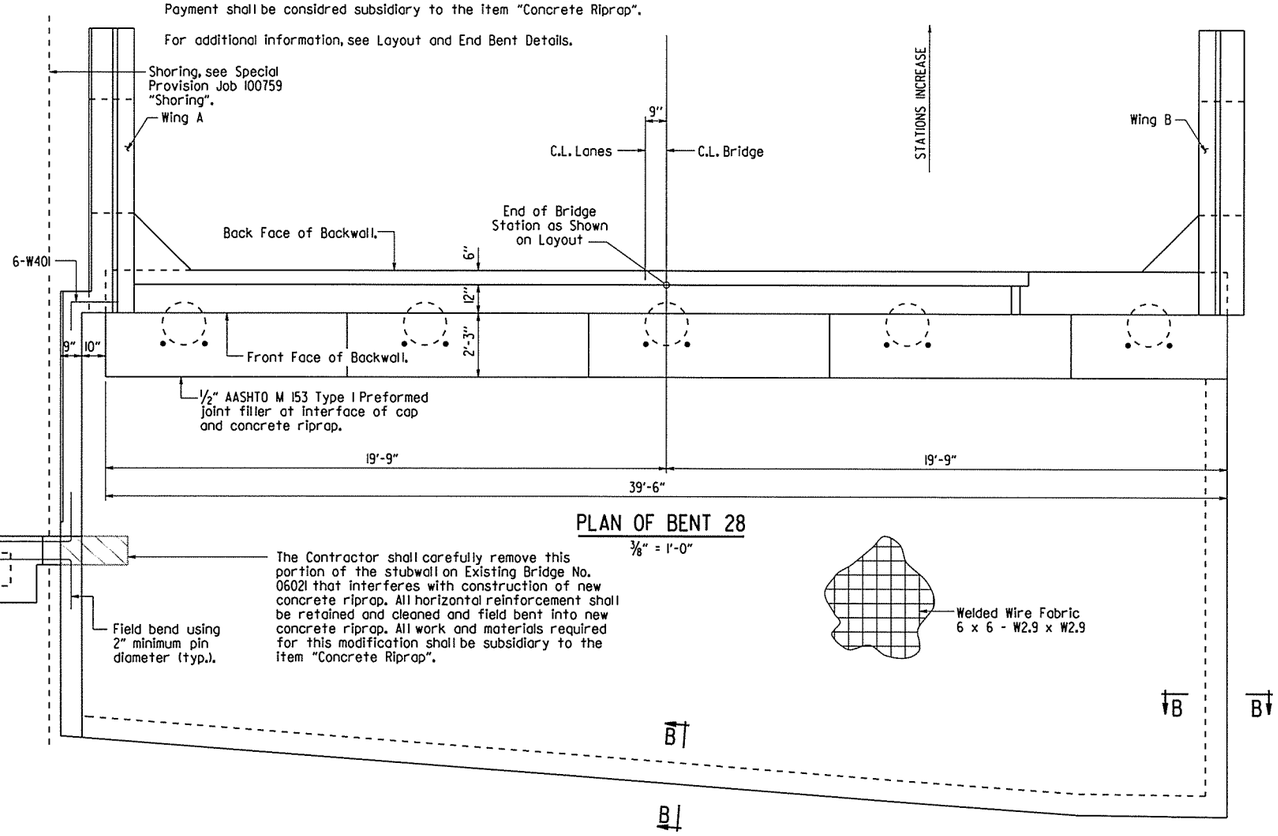
For additional information, see Layout and End Bent Details.

① Dimensions are based on best available information. Details show the general intent of the apron wall and how it ties to the existing and new structure. Actual dimensions may vary in the field. The Contractor shall make adjustments to the apron wall and reinforcing steel as required. Quantities are based on dimensions shown.

TABLE OF QUANTITIES

(FOR INFORMATION ONLY)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
495	14.0

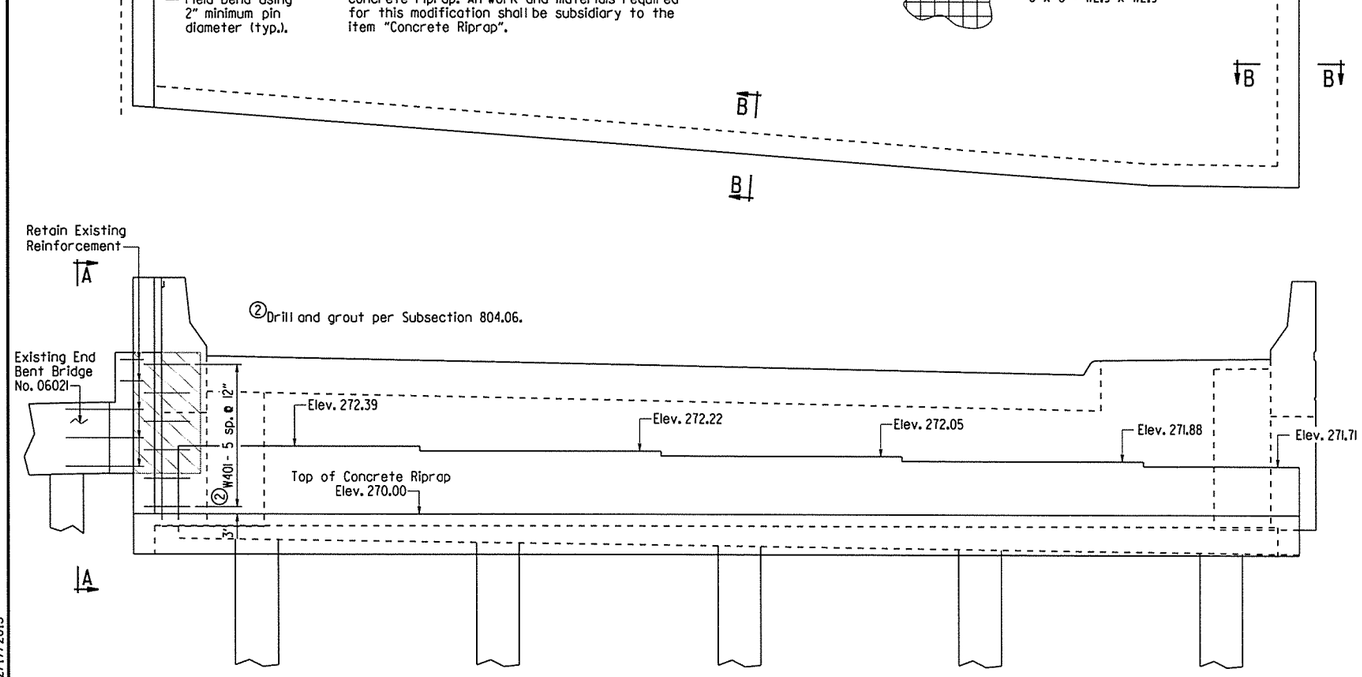


PLAN OF BENT 28

3/8" = 1'-0"

The Contractor shall carefully remove this portion of the stubwall on Existing Bridge No. 06021 that interferes with construction of new concrete riprap. All horizontal reinforcement shall be retained and cleaned and field bent into new concrete riprap. All work and materials required for this modification shall be subsidiary to the item "Concrete Riprap".

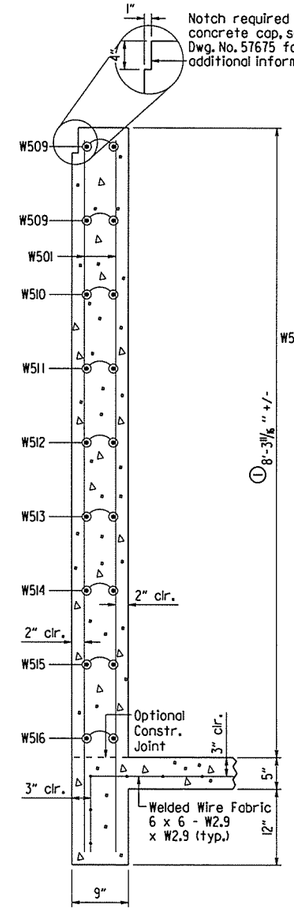
Field bend using 2" minimum pin diameter (typ.).



ELEVATION - BENT 28

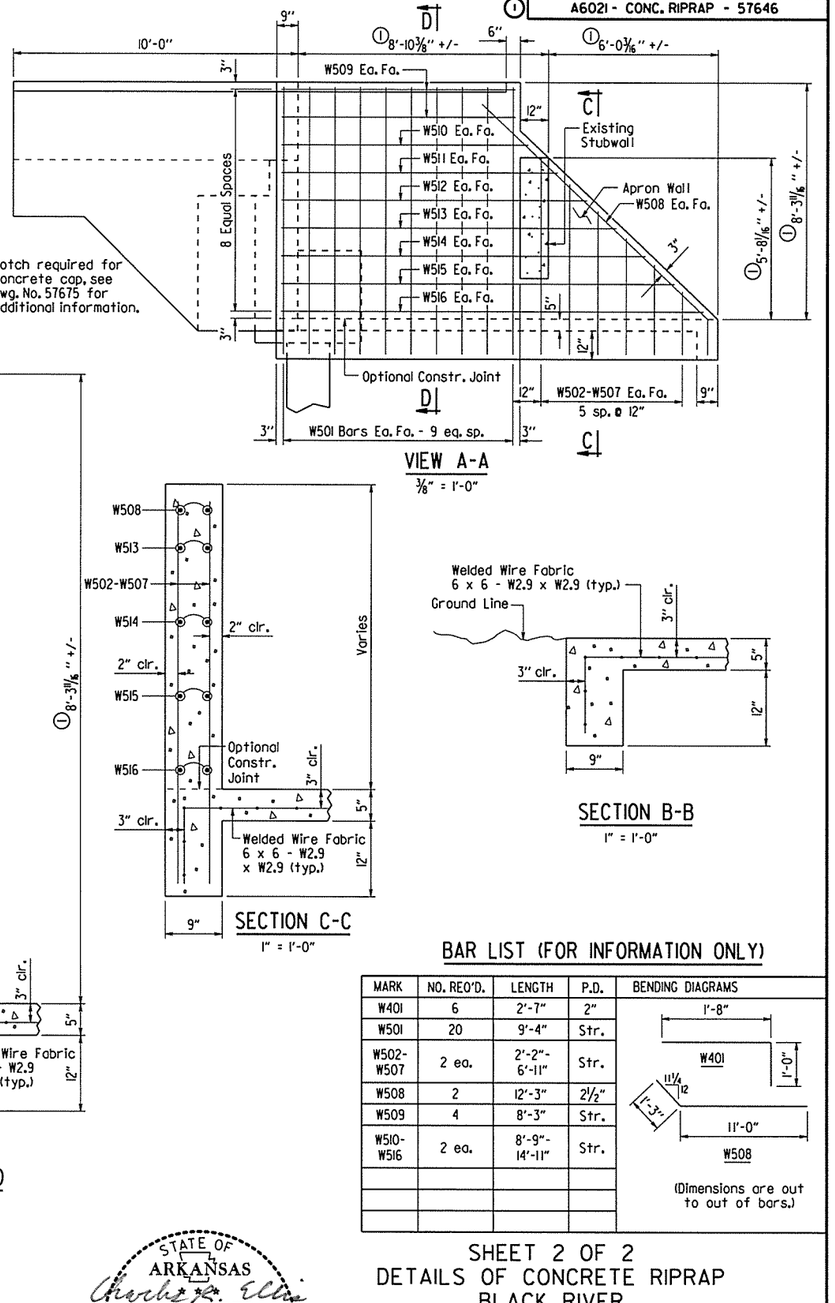
Looking Ahead

3/8" = 1'-0"



SECTION D-D

1" = 1'-0"



VIEW A-A

3/8" = 1'-0"

SECTION C-C

1" = 1'-0"

SECTION B-B

1" = 1'-0"

BAR LIST (FOR INFORMATION ONLY)

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
W401	6	2'-7"	2"	1'-8", W401, 1'-0", 11¼, 12, 1'-3"
W501	20	9'-4"	Str.	
W502-W507	2 ea.	2'-2"-6'-11"	Str.	
W508	2	12'-3"	2½"	11'-0", W508
W509	4	8'-3"	Str.	
W510-W516	2 ea.	8'-9"-14'-11"	Str.	

(Dimensions are out to out of bars.)

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF CONCRETE RIPRAP
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

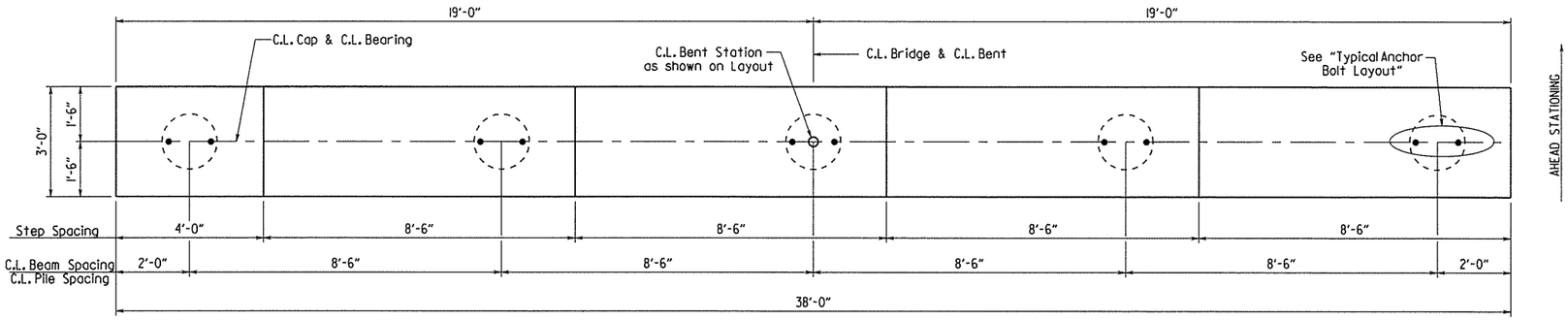
DRAWN BY: KWY DATE: 8/10/15 FILENAME: bl00759_crl.dgn
CHECKED BY: CRW DATE: 12/17/15 SCALE: as noted
DESIGNED BY: CRE DATE:

BRIDGE NO. A6021 DRAWING NO. 57646

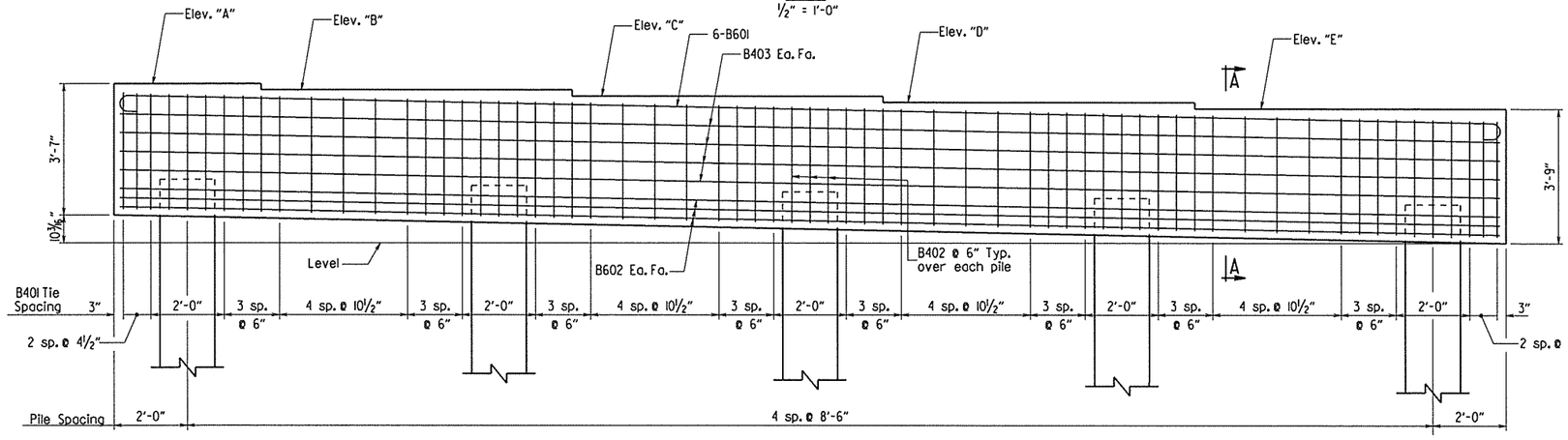
PRINT DATE: 12/17/2015

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.		100759	32	100

① A6021 - INT. BENT DETAILS - 57647



PLAN
½" = 1'-0"



ELEVATION
½" = 1'-0"
Looking Ahead

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

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.

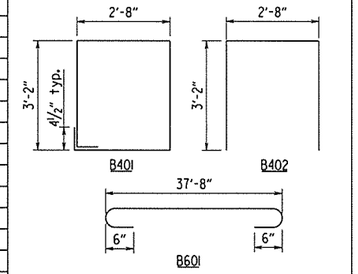
TABLE OF VARIABLES

Bent No.	Elev. "A"	ELEV. "B"	ELEV. "C"	ELEV. "D"	ELEV. "E"	"M"
2	270.65	270.48	270.31	270.14	269.97	9"
3	270.89	270.72	270.55	270.38	270.21	9¼"
4	271.08	270.91	270.74	270.57	270.40	9¼"
5	271.21	271.04	270.87	270.70	270.53	9"
7	271.59	271.42	271.25	271.08	270.91	9"
8	271.83	271.66	271.49	271.32	271.15	9"
9	272.01	271.84	271.67	271.50	271.33	9"
10	272.20	272.03	271.86	271.69	271.52	9"
11	272.34	272.17	272.00	271.83	271.66	9"
13	272.71	272.54	272.37	272.20	272.03	9"
14	272.95	272.78	272.61	272.44	272.27	9¼"
15	273.14	272.97	272.80	272.63	272.46	9¼"
16	273.30	273.13	272.96	272.79	272.62	9¼"
17	273.45	273.28	273.11	272.94	272.77	9"
23	273.40	273.23	273.06	272.89	272.72	9"
24	273.24	273.07	272.90	272.73	272.56	9¼"
25	273.06	272.89	272.72	272.55	272.38	9¼"
26	272.87	272.70	272.53	272.36	272.19	9¼"
27	272.62	272.45	272.28	272.11	271.94	9"

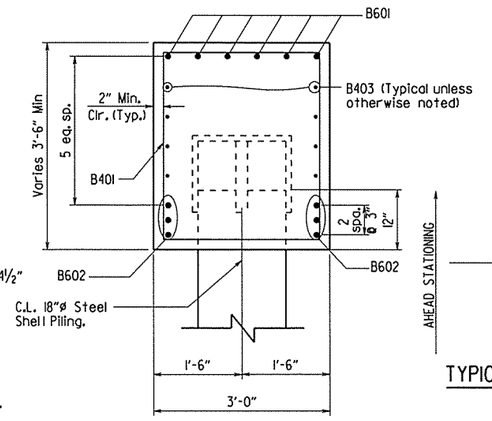
BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	50	12'-0"	2"
B402	15	8'-10"	2"
B403	8	37'-8"	Str.
B601	6	39'-0"	4½"
B602	6	37'-8"	Str.

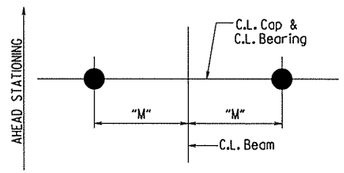
BENDING DIAGRAMS



Dimensions are out to out of bars.

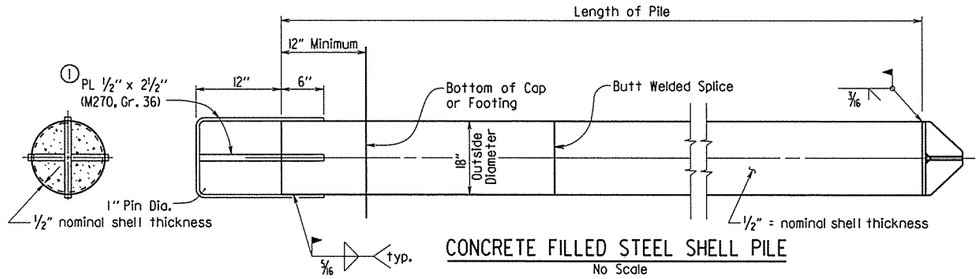


SECTION A-A
No Scale



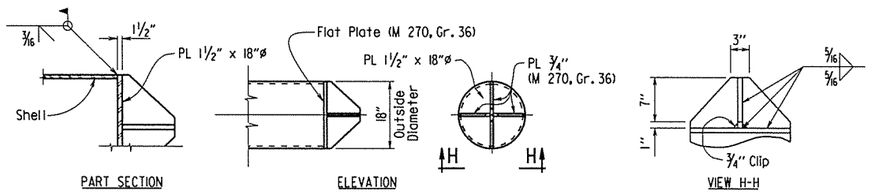
TYPICAL ANCHOR BOLT LAYOUT
No Scale

NOTE: For General Notes and details of pile encasement, see Dwg. No. 57648.

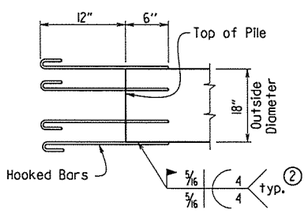


CONCRETE FILLED STEEL SHELL PILE
No Scale

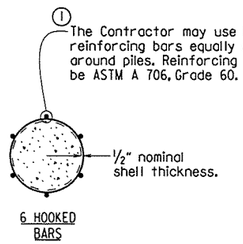
NOTE: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".



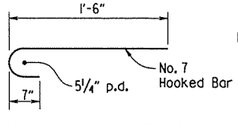
VANED TIP DETAIL
No Scale



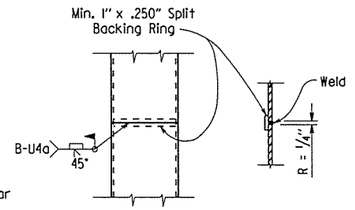
ALTERNATE PILE ANCHORAGE DETAIL
NOTE: Hooked bars shall be oriented to provide the required concrete clearances shown in the plans.



6 HOOKED BARS



HOOKED BAR DETAIL
No Scale



TYPICAL PILE SPLICE DETAIL
No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF BENTS 2-5, 7-11, 13-17 & 23-27 BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

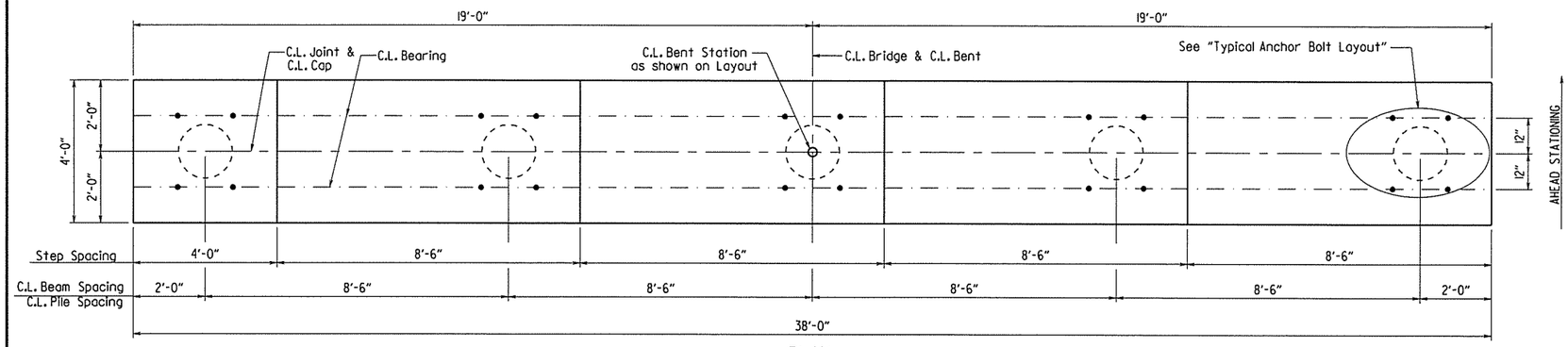
DRAWN BY: COR DATE: 8/14/2015 FILENAME: bl00759_b2.dgn
CHECKED BY: DHP DATE: 12/15/15 SCALE: As Shown
DESIGNED BY: DHP DATE: 6/15

BRIDGE NO. A6021 DRAWING NO. 57647

PRINT DATE: 12/11/2015

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.		100759	33	100

(1) A6021 - INT. BENT DETAILS - 57648



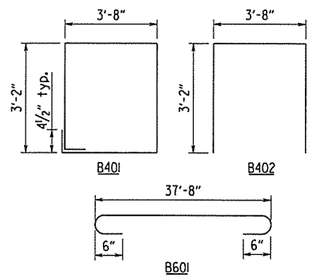
PLAN

½" = 1'-0"

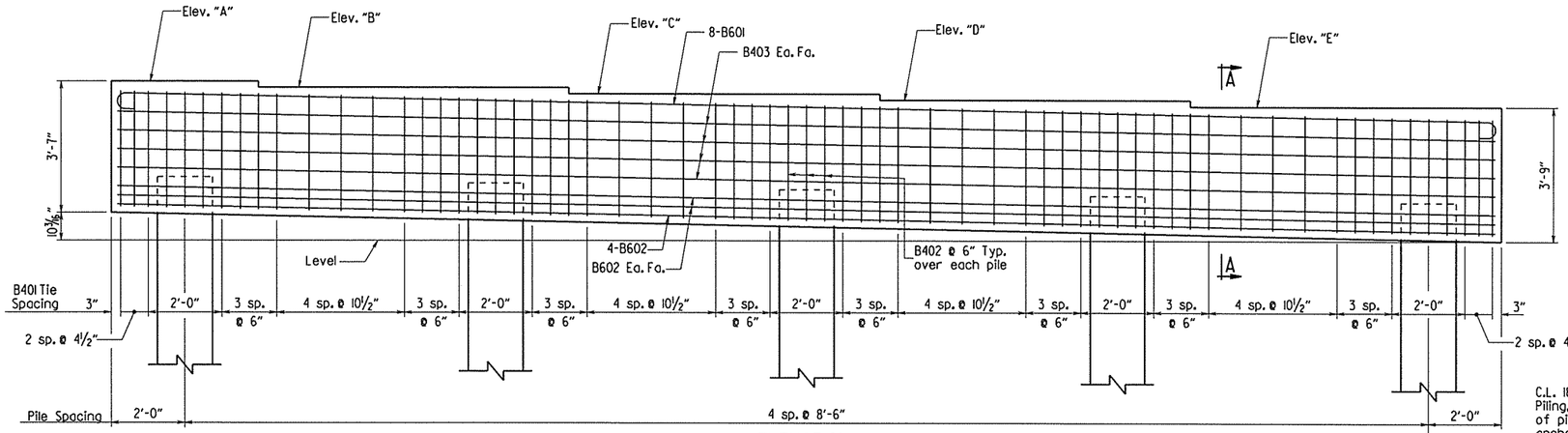
BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	50	14'-0"	2"
B402	15	9'-10"	2"
B403	8	37'-8"	Str.
B601	8	39'-0"	4½"
B602	8	37'-8"	Str.

BENDING DIAGRAMS



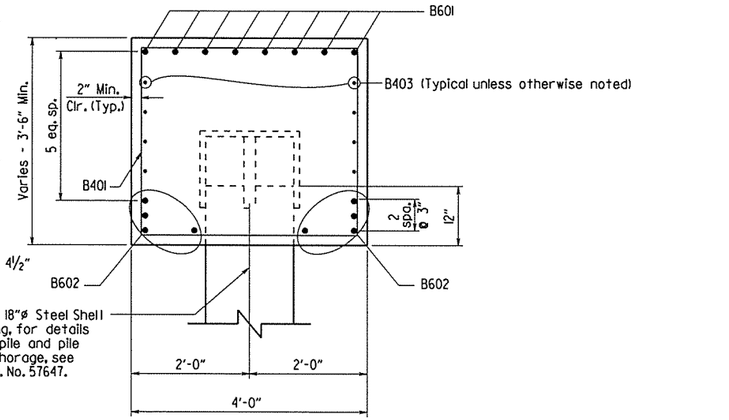
Dimensions are out to out of bars.



ELEVATION

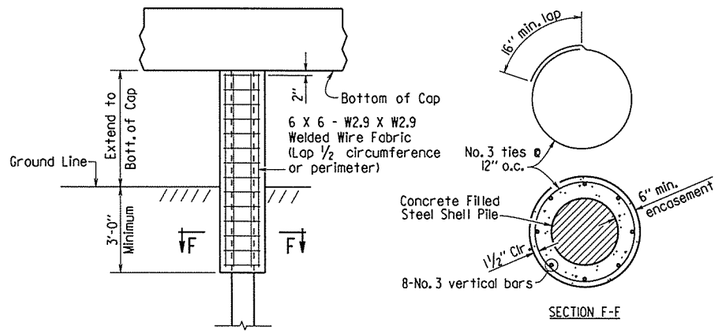
½" = 1'-0"

Looking Ahead



SECTION A-A

No Scale



PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

No Scale

TABLE OF VARIABLES

Bent No.	Elev. "A"	ELEV. "B"	ELEV. "C"	ELEV. "D"	ELEV. "E"
6	271.35	271.18	271.01	270.84	270.67
12	272.48	272.31	272.14	271.97	271.80

GENERAL NOTES

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

All piling shall be ASTM A 252, Grade 3 (Fy = 45,000 psi).

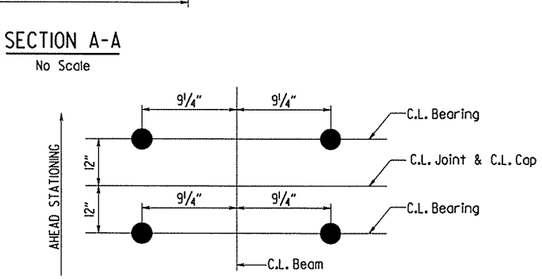
Concrete used for filling of piling shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi and shall be poured in the dry. Concrete, structural steel and reinforcing steel (including welding) will not be paid for directly, but shall be considered subsidiary to the item "Steel Shell Piling".

Concrete used for pile encasment 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. Concrete and welded wire fabric or reinforcing steel will not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".

Reinforcing steel for pile encasment shall conform to AASHTO M 31 or M 322, Type A.

Welded wire fabric for pile encasement shall conform to AASHTO M 55 or M 221.

For additional information, see Layout.



TYPICAL ANCHOR BOLT LAYOUT

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF BENTS 6 & 12 BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: COR DATE: 8/14/2015 FILENAME: bl00759_b2.dgn

CHECKED BY: DHP DATE: 12/15/15 SCALE: As Shown

DESIGNED BY: DHP DATE: 6/15

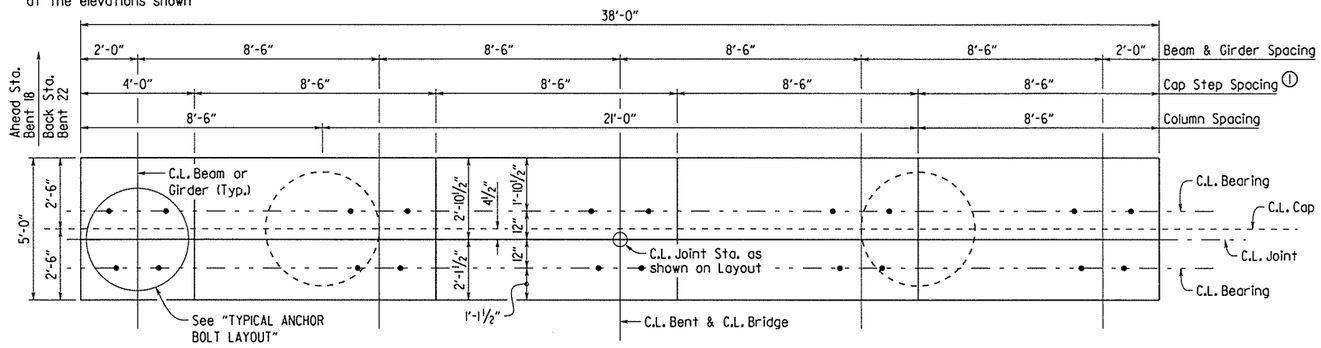
BRIDGE NO. A6021 DRAWING NO. 57648

PRINT DATE: 12/11/2015

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.		100759	34	100

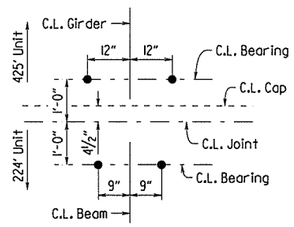
(1) A6021 - INT. BENT DETAILS - 57649

(1) Steps shall be cast level at the elevations shown



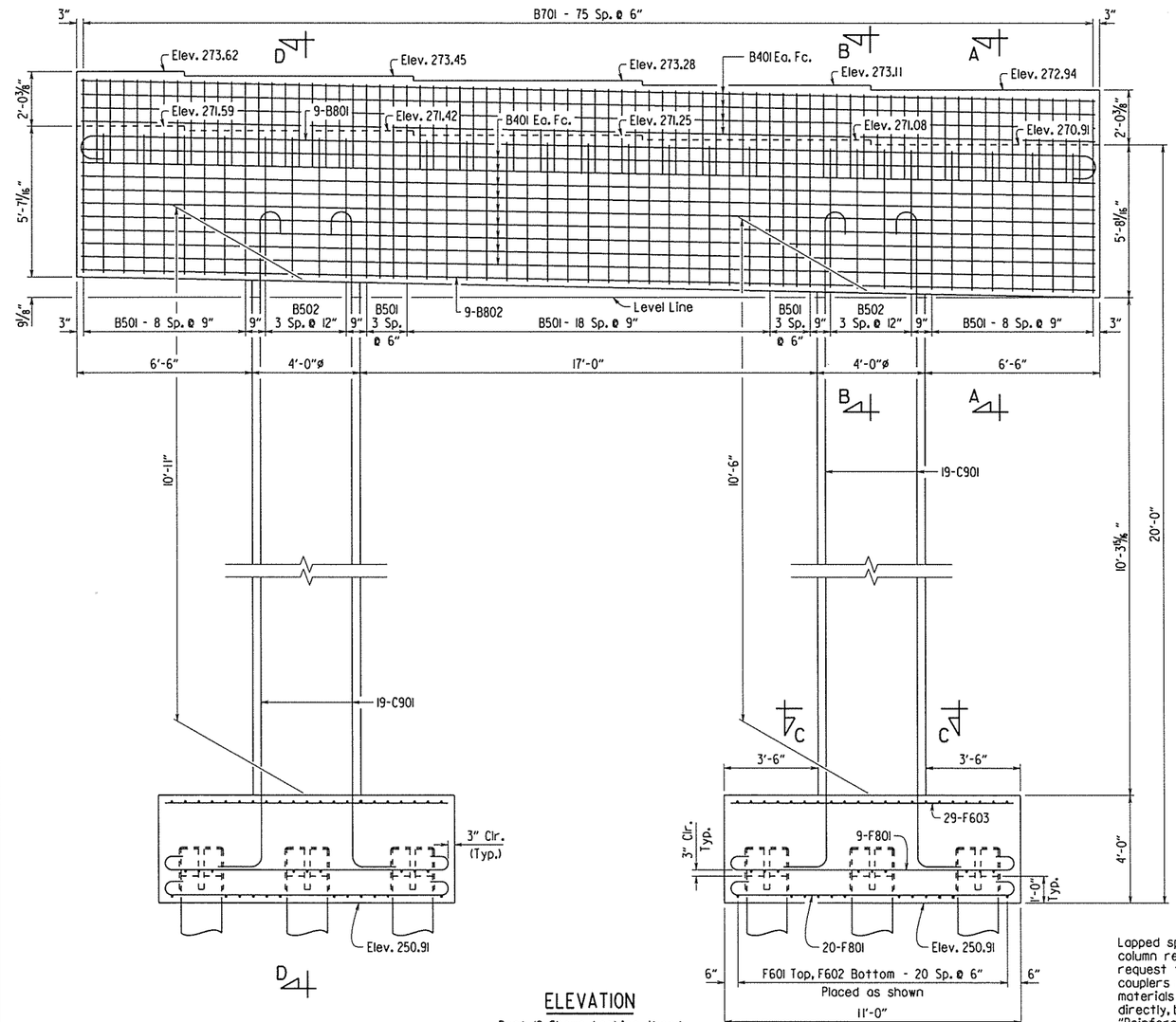
PLAN

For details of Elastomeric Bearings, See Dwg. No. 57671.



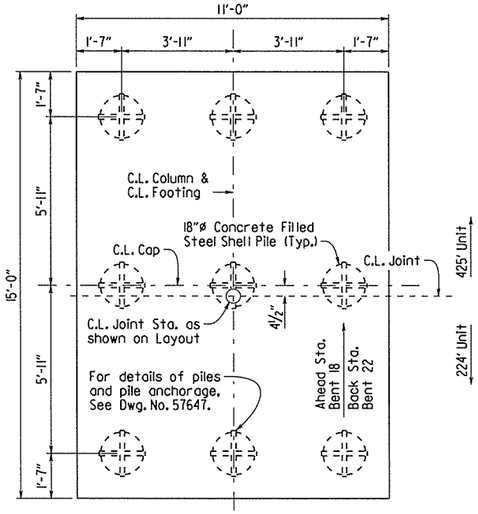
TYPICAL ANCHOR BOLT LAYOUT

No Scale

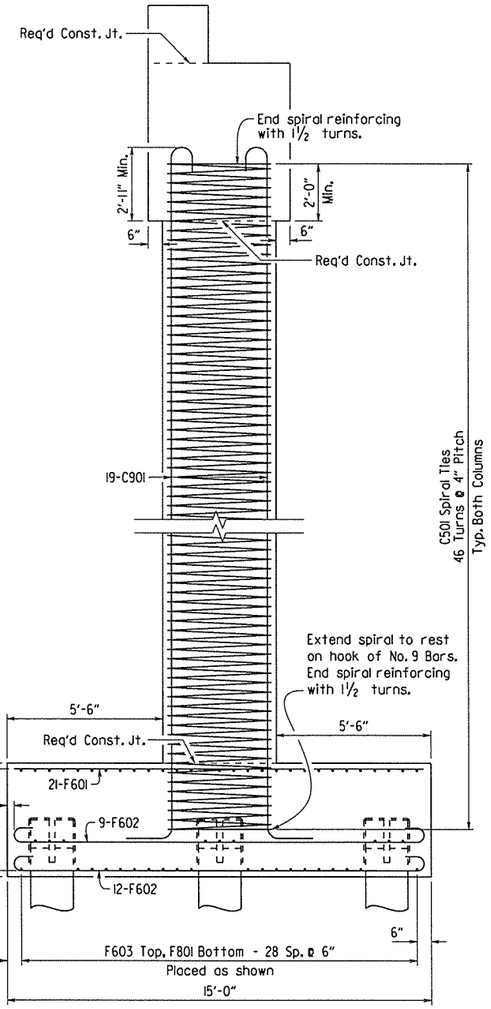


ELEVATION

Bent 18 Shown Looking Ahead (Bent 22 Similar)



PLAN OF FOOTING



SECTION D-D

For Sections A-A, B-B, & C-C, "SKETCH OF BENT 22", and General Notes, See Dwg. No. 57650.

Lapped splices will not be permitted for the longitudinal column reinforcing (C901). The Contractor may submit a request to the Engineer for approval to use mechanical couplers near the mid-height of the column. All work and materials to use mechanical couplers will not be paid for directly, but will be considered subsidiary to the item "Reinforcing Steel - Bridge (Grade 60)".

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-7-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENTS 18 & 22
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

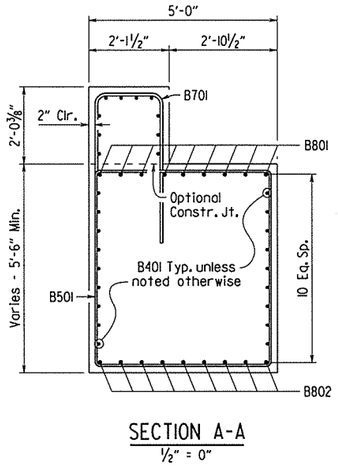
DRAWN BY: BHS DATE: 8/5/2015 FILENAME: bl00759_b3.dgn
CHECKED BY: DHP DATE: 12/15/15 SCALE: 3/8" = 1'-0"
DESIGNED BY: DHP DATE: 12/15

BRIDGE NO. A6021 DRAWING NO. 57649

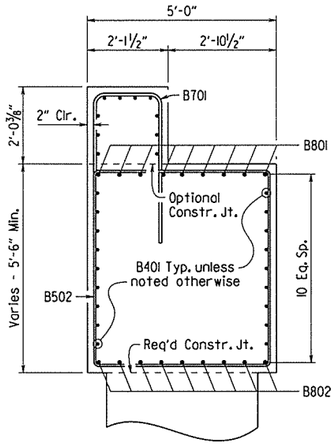
PRINT DATE: 1/13/2016

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.		100759	35	100

(1) A6021 - INT. BENT DETAILS - 57650



SECTION A-A
½" = 0"



SECTION B-B
½" = 0"

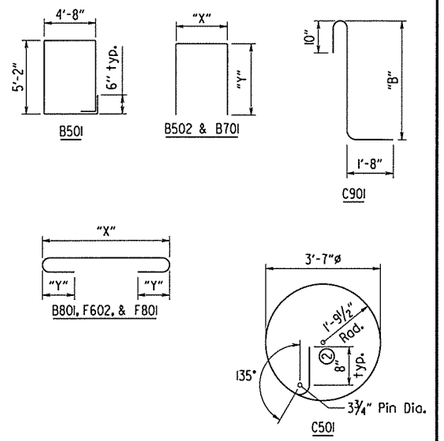
TABLE OF VARIABLES

Bent	"A"	"B"	"C"
18	546'-0"	16'-8"	19'-4"
22	645'-10"	19'-8"	22'-4"

BAR LIST - PER BENT

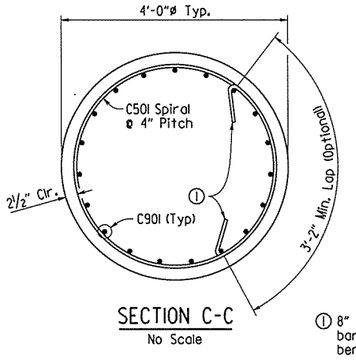
MARK	NO. REQ'D.	LENGTH	"X"	"Y"	P.D.
B401	28	37'-8"			Str.
B501	43	20'-2"			2½"
B502	8	14'-10"	4'-8"	5'-2"	2½"
B701	76	9'-4"	1'-9½"	3'-11"	5¼"
B801	9	39'-6"	37'-8"	8"	6"
B802	9	37'-8"			Str.
C501	2	"A"			Spiral
C901	38	"C"			9"
F601	42	14'-6"			Str.
F602	42	15'-10"	14'-6"	6"	4½"
F603	58	10'-6"			Str.
F801	58	12'-4"	10'-6"	8"	6"

BENDING DIAGRAMS



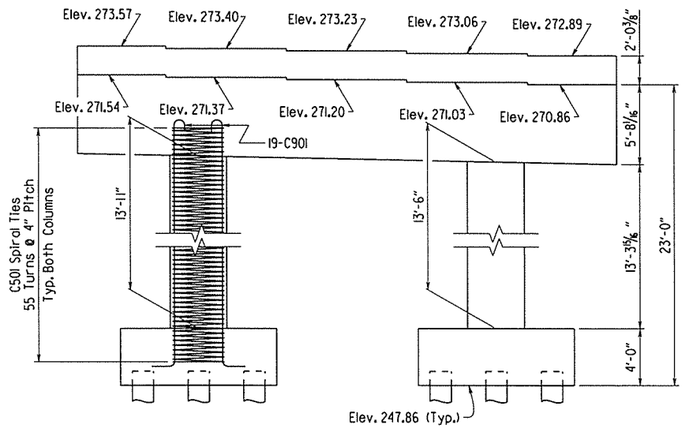
(2) At the lapped splice end of the spiral, the hook may be field bent around a vertical bar.

Dimensions are out to out of bars.



SECTION C-C
No Scale

(1) 8" 135° hook around vertical bar at spiral splice (field bend). 3¾" Pin Dia.



SKETCH OF BENT 22
Looking Ahead
No Scale

GENERAL NOTES

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

All piling shall be grade 3, Fy = 45,000 psi.

For additional information, see Layout.

NOTES FOR SPIRAL REINFORCING:

Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M 31 or M 322, Type A, with mill test reports (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M 32 or M 225 (Grade 70) with a minimum diameter of 0.625".

Spiral reinforcement shall be paid for at the contract uint price bid per pound for "Reinforcing Steel - Bridge (Grade 60)". No additional payment shall be made for spacers, additional splices or bracing needed for assembly, shipping, handling, or erecting.

The Contractor may elect to use a different number of spiral lapped splices per column. In no case shall a spiral be lapped within 4'-0" of the top or bottom of the column.

Splices in spiral reinforcement shall be lapped a mininum of 60 bar diameters.

Spiral reinforcement at lapped splices shall be terminated by a 135° hook with an 8" tail around a vertical bar. Hook may be field bent. Ends of spirals not lapped shall be terminated with 1½ turns and a 135° hook with an 8" tail around a vertical bar.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENTS 18 & 22
BLACK RIVER

ROUTE SEC.

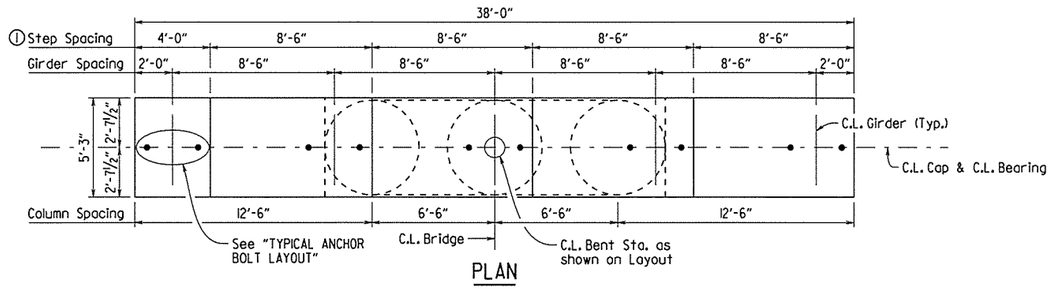
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 8/5/2015 FILENAME: bl00759_b3.dgn
CHECKED BY: DHP DATE: 12/15/15 SCALE: as noted
DESIGNED BY: DHP DATE: 6-15

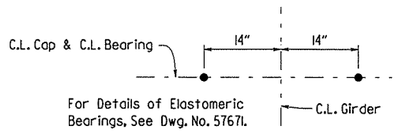
BRIDGE NO. A6021 DRAWING NO. 57650

PRINT DATE: 12/10/2015

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.		100759	36	100
				(1)	A6021 - INT. BENT DETAILS - 57651			



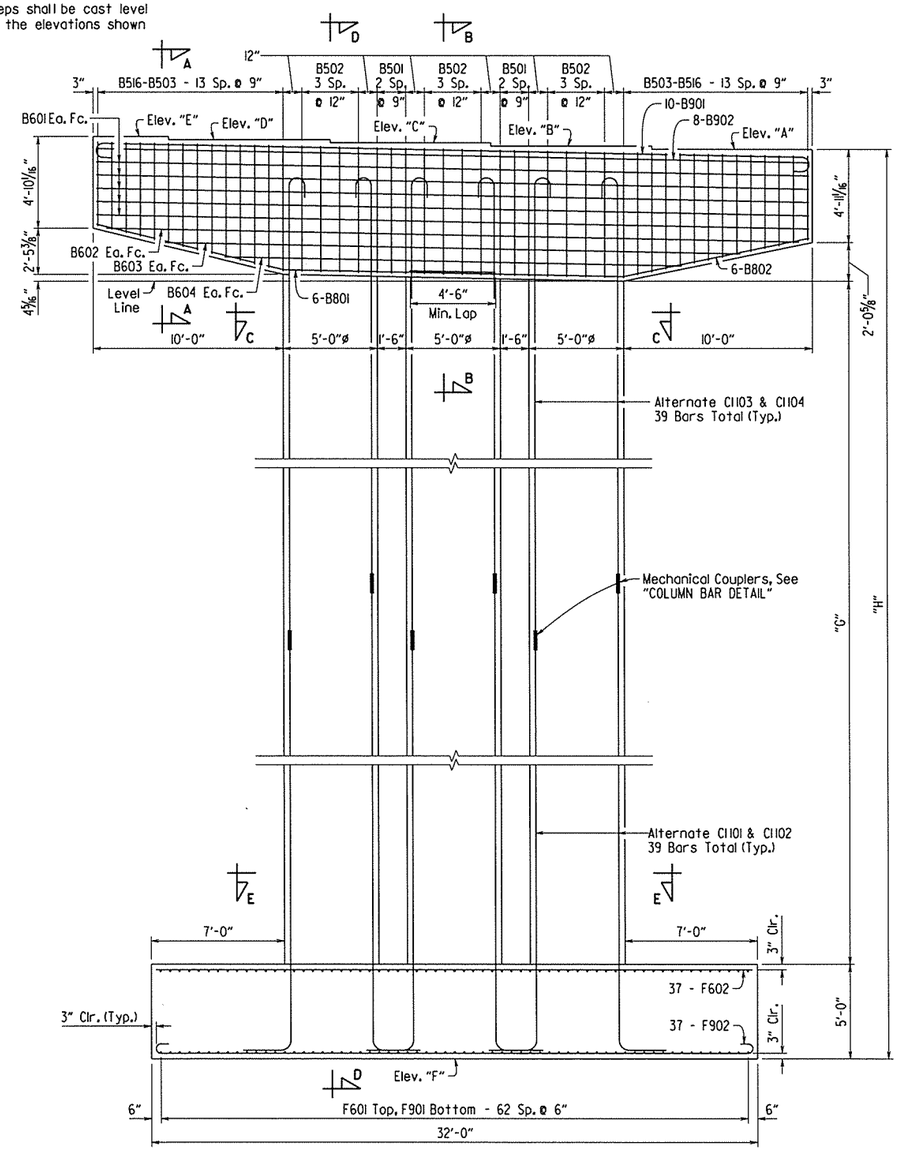
PLAN



TYPICAL ANCHOR BOLT LAYOUT

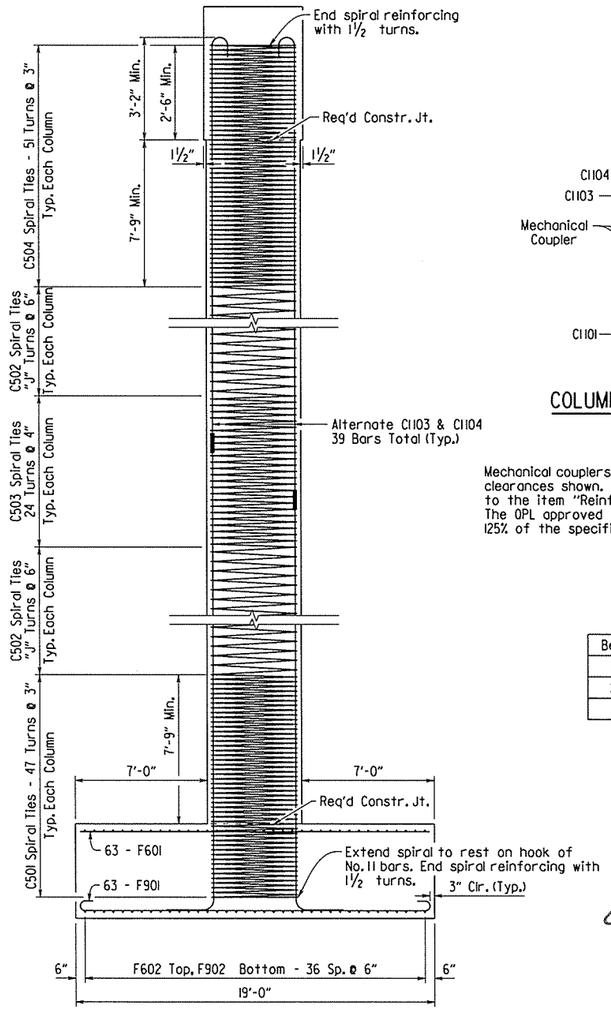
No Scale

(1) Steps shall be cast level at the elevations shown

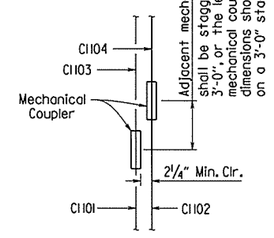


ELEVATION

Looking Ahead
Stage 1



SECTION D-D

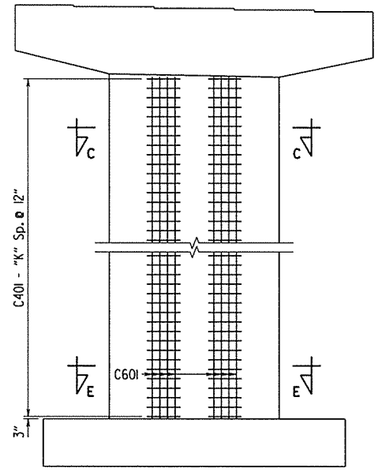


COLUMN BAR DETAIL

No Scale

Mechanical couplers in the column shall maintain the clearances shown. Their payment shall be subsidiary to the item "Reinforcing Steel-Bridge (Grade 60)". The QPL approved couplers shall develop at least 125% of the specified yield strength of the bar.

Column reinforcing not shown for clarity.



ELEVATION

Looking Ahead
Stage 2
No Scale

TABLE OF VARIABLES

Bent	Elev. "A"	Elev. "B"	Elev. "C"	Elev "D"	Elev. "E"	Elev. "F"	"G"	"H"	"J"	"K"
19	271.44	271.61	271.78	271.95	272.12	213.94	45'-6⅝"	57'-6"	22	45
20	271.59	271.76	271.93	271.10	272.27	215.09	44'-6⅝"	56'-6"	21	44
21	271.41	271.58	271.75	271.92	272.09	216.91	42'-6⅝"	54'-6"	19	42

For Sections A-A, B-B, C-C, E-E, and General Notes, See Dwg. No. 57652.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENTS 19, 20 & 21
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 7/30/15 FILENAME: bl00759_b4.dgn
CHECKED BY: DHP DATE: 12/15/15 SCALE: 1/4" = 1'-0"
DESIGNED BY: DHP DATE: 6/15
BRIDGE NO. A6021 DRAWING NO. 57651

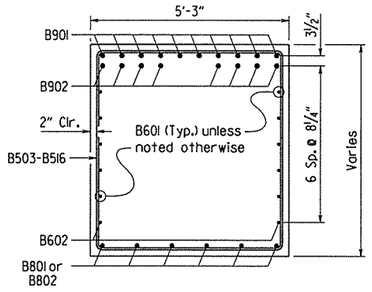
PRINT DATE: 12/10/2015

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.		100759	37	100

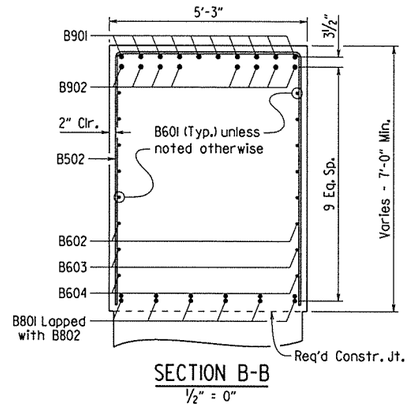
① A6021 - INT. BENT DETAILS - 57652

TABLE OF VARIABLES

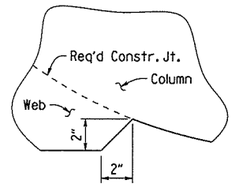
Bent	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"
19	92	318'-8"	45'-6"	25'-11"	27'-7"	28'-11"	30'-7"	29'-10"	31'-4"	26'-10"	28'-4"
20	90	304'-5"	44'-6"	25'-5"	27'-1"	28'-5"	30'-1"	29'-4"	30'-10"	26'-4"	27'-10"
21	86	275'-11"	42'-6"	24'-5"	26'-1"	27'-5"	29'-1"	28'-4"	29'-10"	25'-4"	26'-10"



SECTION A-A
½" = 0"



SECTION B-B
½" = 0"

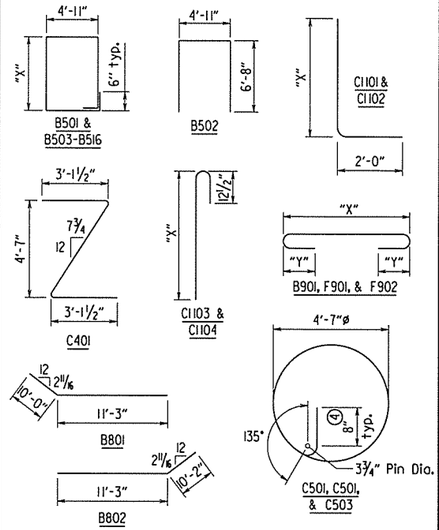


CHAMFER DETAIL
No Scale

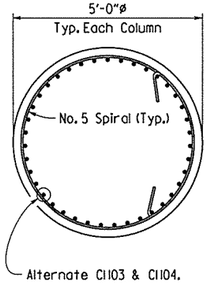
BAR LIST - PER BENT

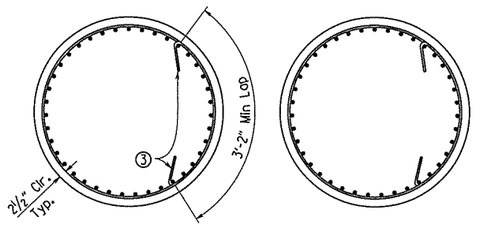
MARK	NO. REQ'D.	LENGTH	"X"	"Y"	P.D.
B501	6	23'-8"	6'-8"		2½"
B502	12	18'-1"			2½"
B503 - B516	2 Ea.	Var. 19'-3" to 23'-8"	Var. 4'-5½" to 6'-8"		2½"
B601	10	37'-8"			Str.
B602	2	37'-2"			Str.
B603	2	31'-1"			Str.
B604	2	25'-0"			Str.
B801	6	21'-3"			6"
B802	6	21'-5"			6"
B901	10	40'-2"	37'-8"	10"	9"
B902	8	37'-8"			Str.
C401	"A"	11'-5"			3"
C501	3	694'-3"			Spiral
C502	6	"B"			Spiral
C503	3	347'-1"			Spiral
C504	3	751'-2"			Spiral
C601	16	"C"			Str.
C1101	20	"E"	"D"		11¼"
C1102	19	"G"	"F"		11¼"
C1103	20	"J"	"H"		11¼"
C1104	19	"L"	"K"		11¼"
F601	63	18'-6"			Str.
F602	37	31'-6"			Str.
F901	63	21'-0"	18'-6"	10"	9"
F902	37	34'-0"	31'-6"	10"	9"

BENDING DIAGRAMS

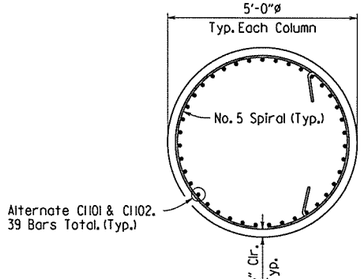


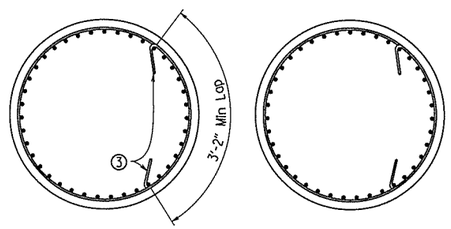
Dimensions are out to out of bars.



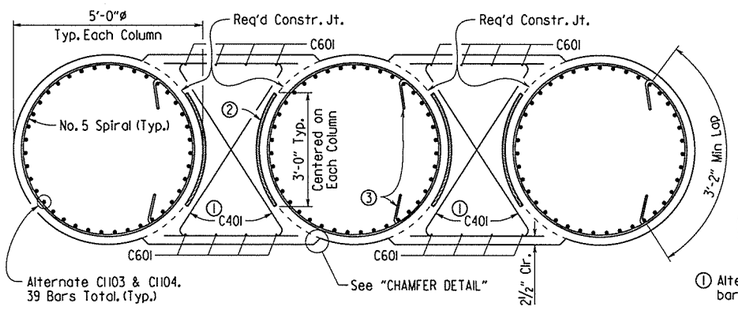


SECTION C-C
½" = 1'-0"
Stage 1

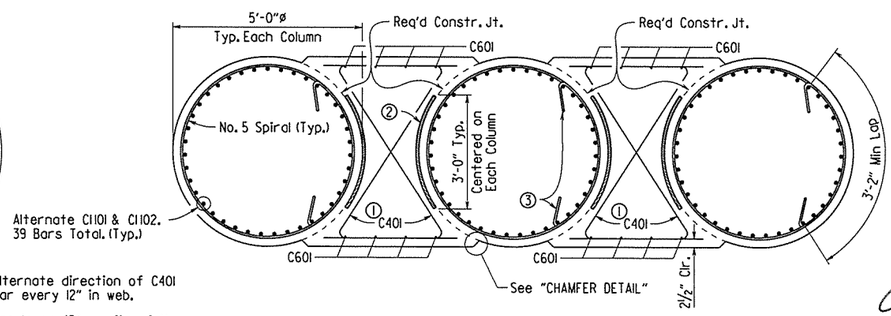




SECTION E-E
½" = 1'-0"
Stage 1



SECTION C-C
½" = 1'-0"
Stage 2



SECTION E-E
½" = 1'-0"
Stage 2

① Alternate direction of C401 bar every 12" in web.

② One layer 45# roofing felt between column and web. See Subsection 802.18(d).

③ 8" 135° hook around vertical bar at spiral splice (field bend). 3¾" Pin Dia.

④ At the lapped splice end of the spiral, the hook may be field bent around a vertical bar.

GENERAL NOTES

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

All piling shall be grade 3, Fy = 45,000 psi.

For additional information, see Layout.

NOTES FOR SPIRAL REINFORCING:

Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M 31 or M 322, Type A, with mill test reports (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M 32 or M 225 (Grade 70) with a minimum diameter of 0.625".

Spiral reinforcement shall be paid for at the contract uint price bid per pound for "Reinforcing Steel - Bridge (Grade 60)". No additional payment shall be made for spacers, additional splices or bracing needed for assembly, shipping, handling, or erecting.

The Contractor may elect to use a different number of spiral lapped splices per column. In no case shall a spiral be lapped within 7'-9" of the top or bottom of the column.

Splices in spiral reinforcement shall be lapped a mininum of 60 bar diameters.

Spiral reinforcement at lapped splices shall be terminated by a 135° hook with an 8" tail around a vertical bar. Hook may be field bent. Ends of spirals not lapped shall be terminated with 1½ turns and a 135° hook with an 8" tail around a vertical bar.

STATE OF ARKANSAS
CHARLES R. ELLIS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENTS 19, 20 & 21
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 7/30/15 FILENAME: bl00759_b4.dgn
CHECKED BY: DATE: 12/18/15 SCALE: as noted
DESIGNED BY: BHS DATE: 8/7/15
BRIDGE NO. A6021 DRAWING NO. 57652

PRINT DATE: 12/18/2015

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.		100759	38	100

(1) A6021 - SPAN DETAILS - 57653

At the Contractor's option, two straight epoxy coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

Class I Protective Surface Treatment shall be applied to the Roadway Surface, Face of Curb, Sidewalk Surface, the roadway face and top of concrete parapet rail.

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

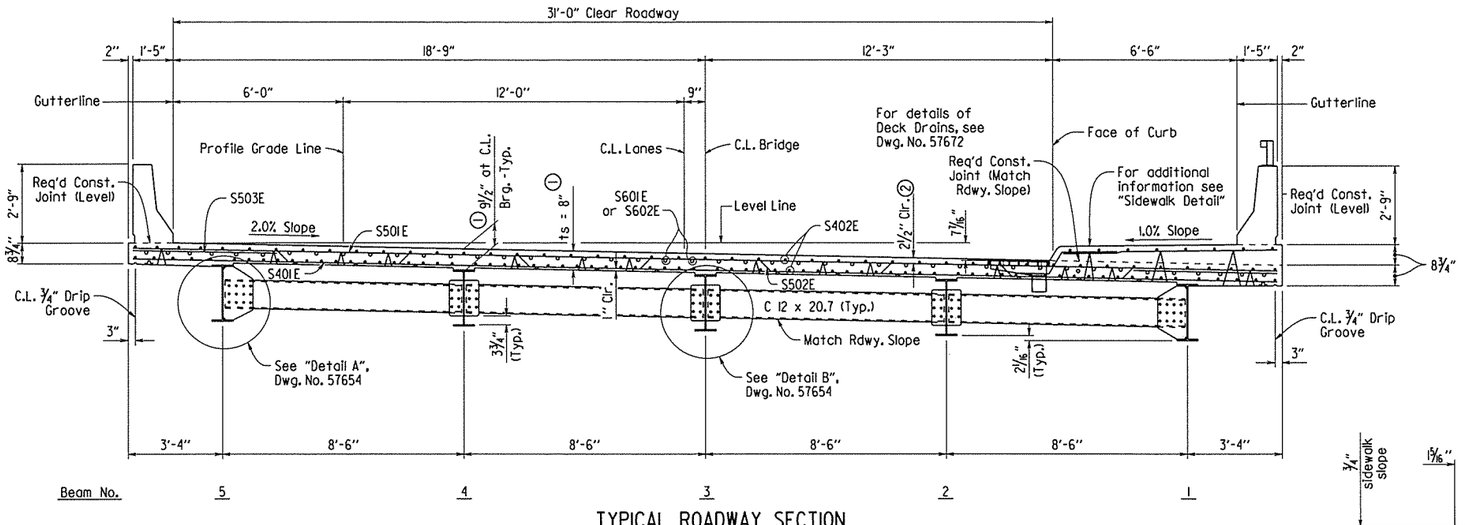
Slab Reinforcing:

Longitudinal: S402E in top and bottom
S601E or S602E placed as shown over interior supports, See "Reinforcing Plan & Deck Pouring Sequence" of Span Details.

Transverse: S502E @ 12" o.c. bent up over beams — Alternate
S501E @ 12" o.c. in top, S401E @ 12" o.c. in bottom —
S503E @ 6" o.c. in top of overhang

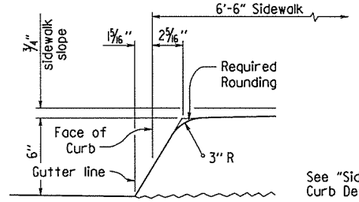
(1) See "Adjustment For Slab Thickness Tolerance".

(2) Tolerance: Minus = 1/4"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance- See "Adjustment For Slab Thickness Tolerance".



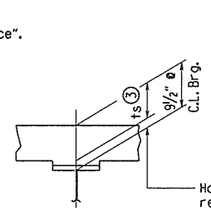
TYPICAL ROADWAY SECTION

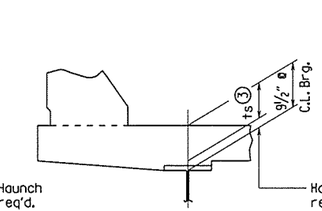
Looking Ahead
Scale: 3/8" = 1'-0"

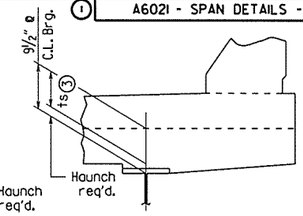


SIDEWALK CURB DETAIL

No Scale







(3) 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 on superstructure detail drawings.

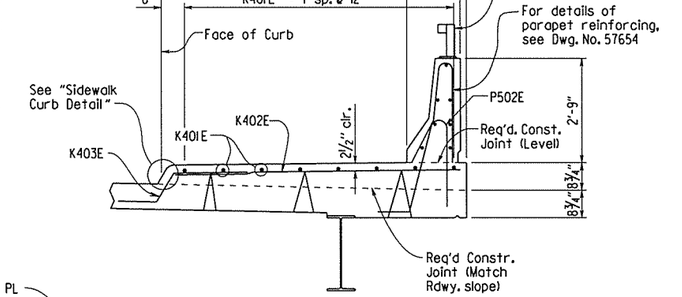
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance : Minimum - occurs when top flange contacts bottom reinforcing steel; Maximum - top flange thickness plus 1¾". No increase in concrete and structural steel quantities will be made to maintain tolerances.

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.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

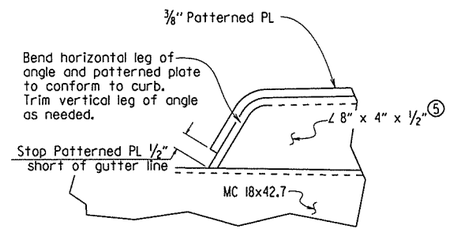
No Scale

SIDEWALK REINFORCING:
Longitudinal: K401E in top (placed as shown)
Transverse: K402E & K403E @ 12" o.c.



SIDEWALK DETAIL

No Scale



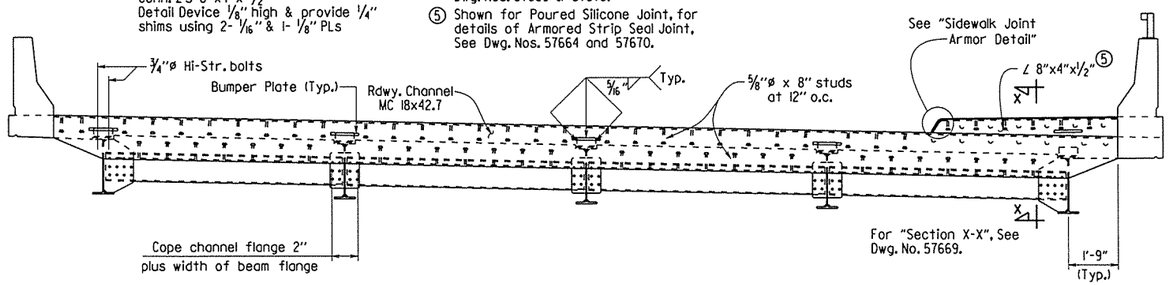
SIDEWALK JOINT ARMOR DETAIL

No Scale

Expansion Device:
Rdwy. Channel - MC 18x42.7
Conn. ∠'s 8"x4"x ½"
Detail Device ⅛" high & provide ¼" shims using 2- 1/16" & 1- ⅛" PLs

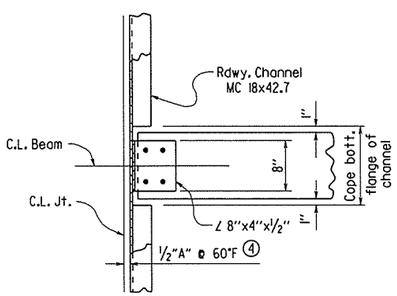
(4) For details of joints, see Dwg. Nos. 57669 & 57670.

(5) Shown for Poured Silicone Joint, for details of Armored Strip Seal Joint, See Dwg. Nos. 57664 and 57670.



SECTION THRU JOINT (5)

Looking Ahead
Scale: 3/8" = 1'-0"



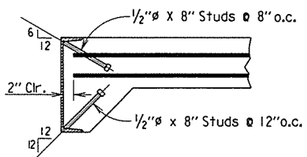
CHANNEL CONNECTION DETAIL

No Scale

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.



As an alternate to 5/8"ø studs, ½" ø x 8" studs spaced as shown may be used. Use weight of ⅝" ø stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
COMMON DETAILS FOR CONTINUOUS COMPOSITE W-BEAM UNITS
BLACK RIVER

ROUTE SEC.

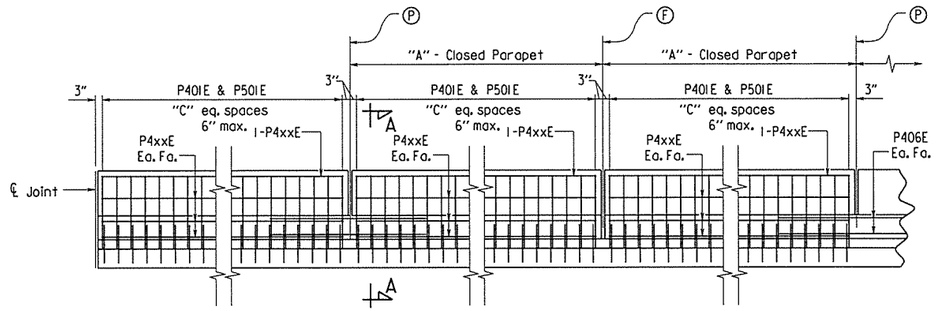
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 8/11/15 FILENAME: bl00759_sl.dgn
CHECKED BY: BHS DATE: 12/11/15 SCALE: As Noted
DESIGNED BY: DHP DATE: 3/16

BRIDGE NO. A6021 DRAWING NO. 57653

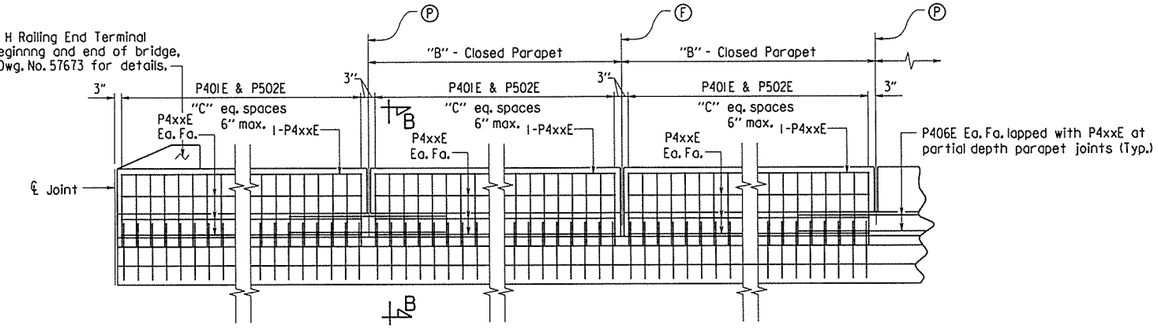
PRINT DATE: 12/10/2015

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.		100759	39	100
				(1)		A6021 - SPAN DETAILS - 57654		



DETAILS OF PARAPET RAIL - HIGH SIDE

Ⓕ ℄ Full-Depth Parapet Joint (¼" to 1" max.) as shown in "Reinforcing Plan & Deck Pouring Sequence", See "TABLE A", Stop 4" from top of slab.



Ⓟ ℄ Partial-Depth Parapet Joint (¼" to 1" max.) as shown in "Reinforcing Plan & Deck Pouring Sequence", See "TABLE A" Stop 1'-2" from top of slab.

DETAILS OF PARAPET RAIL - LOW SIDE

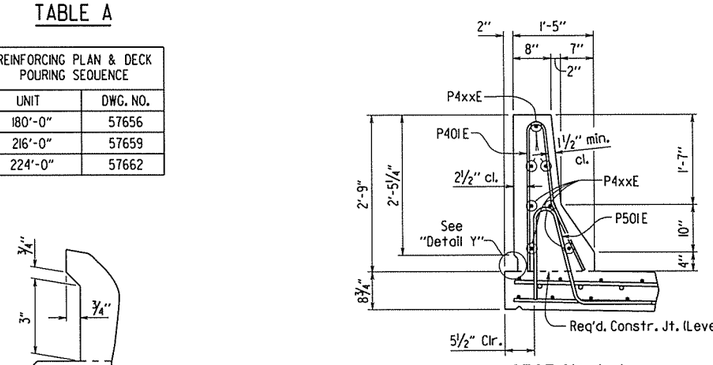
TABLE OF PARAPET RAIL VARIABLES

"A" and "B" Closed Parapet	"C"	P4xxE Bar
8'-0"	15	P402E
14'-0"	27	P403E
18'-0"	35	P404E
11'-0"	21	P405E

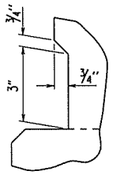
For location of Parapet Panels, see "Table A".

TABLE A

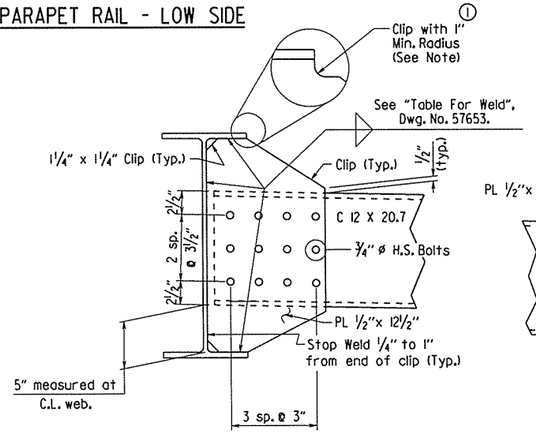
REINFORCING PLAN & DECK POURING SEQUENCE	
UNIT	DWG. NO.
180'-0"	57656
216'-0"	57659
224'-0"	57662



SECTION A-A

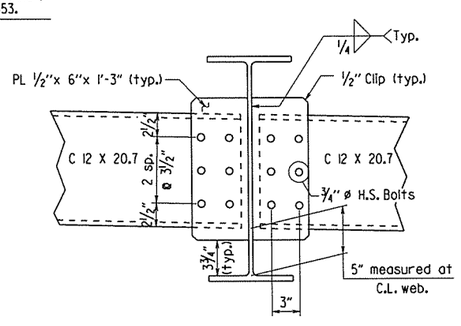


DETAIL Y

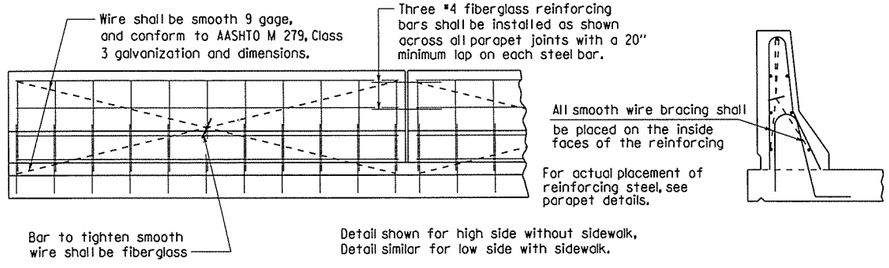


DETAIL A

Ⓘ If permanent steel deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form support.



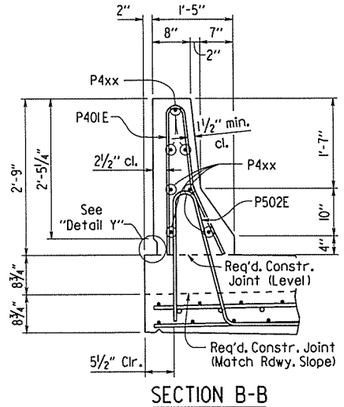
DETAIL B



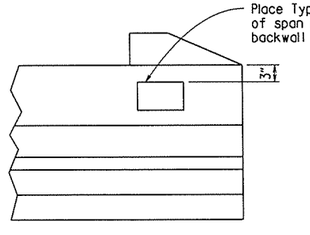
All panels shall be braced as required to prevent racking. All parapet joints shall be sawed as soon as practicalto a minimum width of ¼". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

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. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL



SECTION B-B



NAME PLATE DETAIL

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
COMMON DETAILS FOR CONTINUOUS COMPOSITE W-BEAM UNITS
BLACK RIVER

ROUTE SEC.

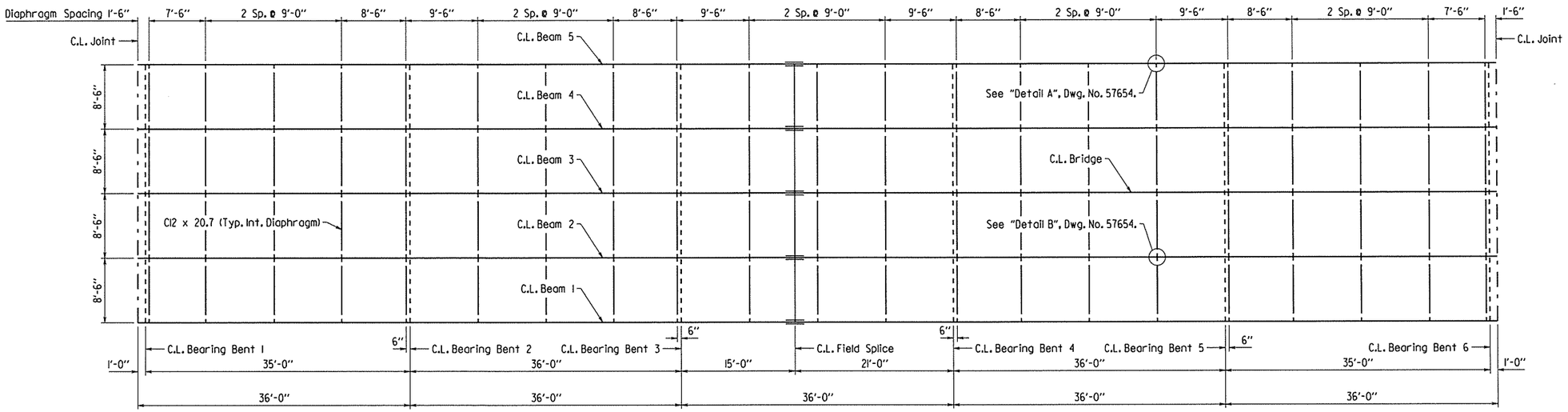
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 8/11/15
CHECKED BY: BHS DATE: 12/11/15
DESIGNED BY: DHT DATE: 3/15
FILENAME: bl00759_sl.dgn
SCALE: No Scale

BRIDGE NO. A6021 DRAWING NO. 57654

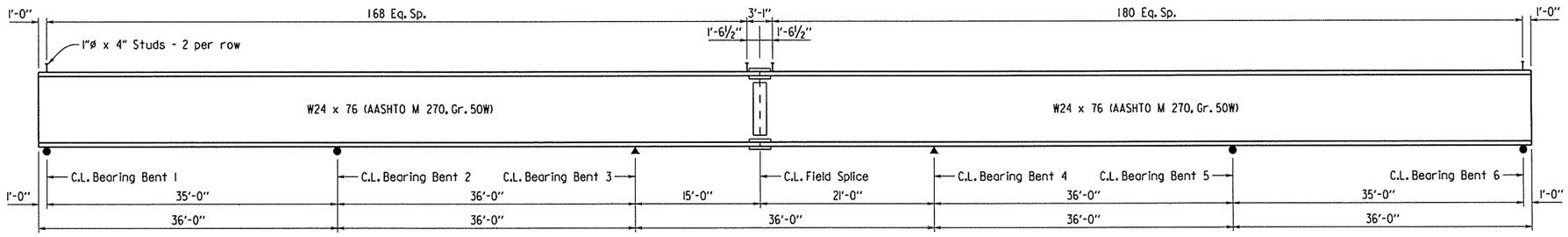
PRINT DATE: 12/10/2015

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.		100759	40	180
				(1)		A6021 - SPAN DETAILS - 57655		



FRAMING PLAN

1/8" = 1'-0"

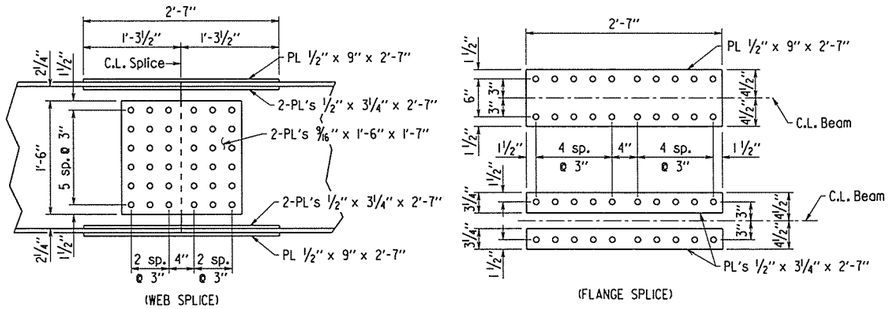


BEAM ELEVATION

1/8" = 1'-0"

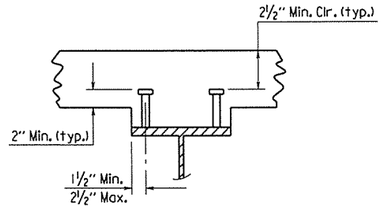
Bolted field splices shown may be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of the plan quantities.

All field splice bolts shall be 7/8"ø Hi-str. bolts.
All holes for splice bolts shall be 15/16 "ø.



DETAILS OF FIELD SPLICE

No Scale



Stud Shear Connectors shown shall be 1"ø x 4" automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

SHEAR CONNECTOR DETAIL

No Scale

For Standard General Notes, See Std. Dwg. No. 55006.

All structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF 180' CONTINUOUS COMPOSITE W-BEAM UNIT
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 5/13/15
CHECKED BY: CMW DATE: 12/18/15
DESIGNED BY: DHP DATE: 3/15
FILENAME: bl00759_sl.dgn
SCALE: As Noted

BRIDGE NO. A6021 DRAWING NO. 57655

PRINT DATE: 12/10/2015

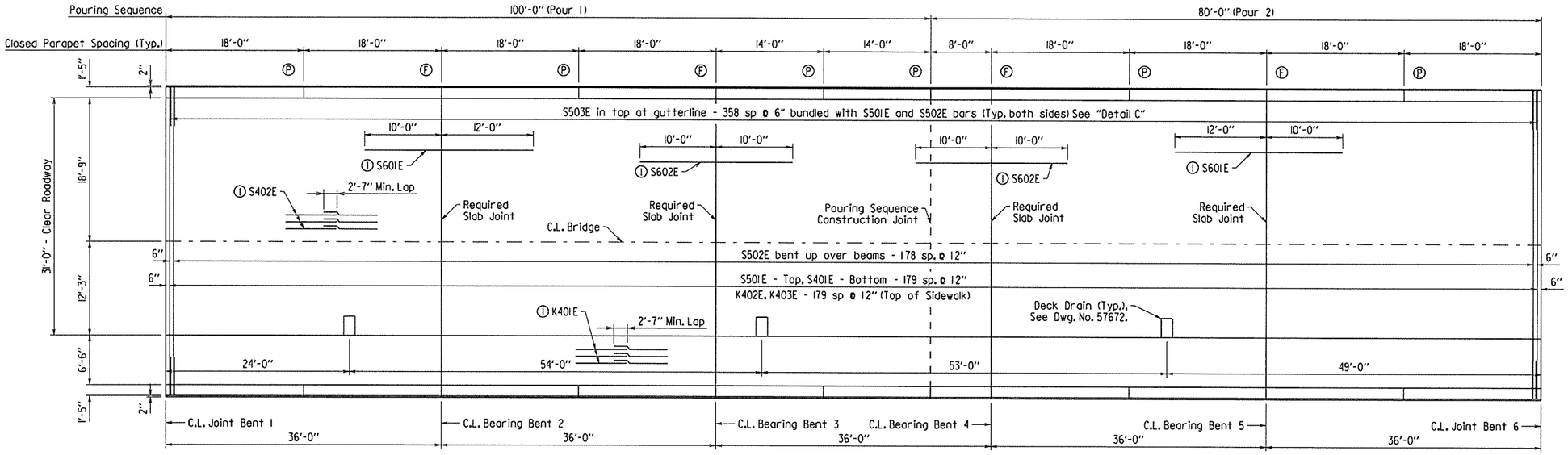
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100759	41	100
				(1)	A6021 - SPAN DETAILS - 57656			

Pour (1) must be placed before Pour (2) can be placed. 72 hours shall elapse between the end of Pour (1) and the start of Pour (2). Any railing or sidewalk pours made before the entire slab unit has been placed must be approved by the Engineer. A minimum of 72 hours shall elapse between completion of the bridge deck slab and the pouring of the sidewalk and a minimum of 72 hours shall elapse between the completion of the sidewalk and the pouring of the parapet railing. Concrete in bridge superstructure shall be placed, consolidated, and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

Ⓕ C.L. Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab

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

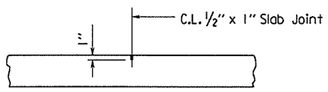
(1) Place as Shown in "Typical Roadway Section", Dwg. No. 57653.



REINFORCING PLAN & DECK POURING SEQUENCE

1/8" = 1'-0"

Use Type 3 or 4 Joint Sealer. See Subsections 501.02 (h) and 501.05 (j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the sidewalk is poured. The slab joints in the sidewalk shall extend to the outside of the sidewalk and shall be installed before parapet railing is to be 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 slab and across the top of the sidewalk. No joint sealer shall be placed on the deck slab under the sidewalk or parapet rail. Slab joints and pouring sequence joints shall align with parapet open joints.



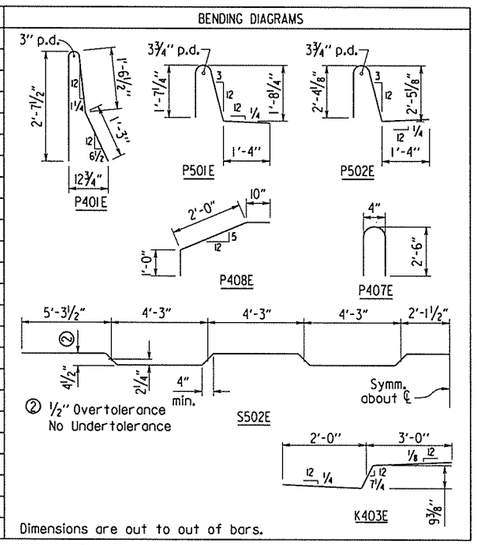
SLAB JOINT DETAIL

No Scale

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401E	180	40'-4"	Str.
S402E	595	38'-0"	Str.
P401E	720	5'-6"	3"
P402E	14	7'-8"	Str.
P403E	28	13'-8"	Str.
P404E	112	17'-8"	Str.
P406E	48	5'-6"	Str.
P407E	3	5'-4"	3"
P408E	1	3'-9"	3"
K401E	40	38'-0"	Str.
K402E	180	7'-7"	Str.
K403E	180	5'-5"	2"
S501E	180	40'-4"	Str.
S502E	179	41'-2"	3"
S503E	718	5'-6"	Str.
P501E	360	4'-9"	3 3/4"
P502E	360	6'-3"	3 3/4"
S601E	88	22'-0"	Str.
S602E	88	20'-0"	Str.

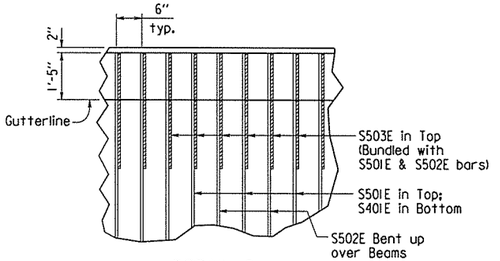
BENDING DIAGRAMS



② 1/2" Overtolerance
No Undertolerance

Dimensions are out to out of bars.

Bars designated with an "E" suffix to be Epoxy Coated.



DETAIL C

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF 180' CONTINUOUS COMPOSITE W-BEAM UNIT
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 5/13/15 FILENAME: bl00759_sl.dgn
CHECKED BY: CMW DATE: 12/14/15 SCALE: As Noted
DESIGNED BY: DHP DATE: 12-15

BRIDGE NO. A6021 DRAWING NO. 57656

PRINT DATE: 12/16/2015

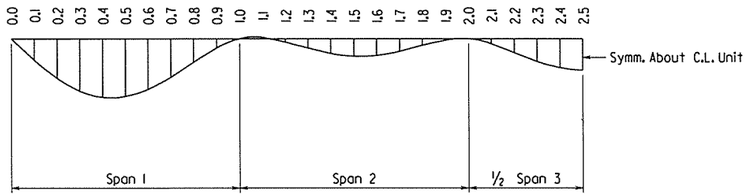
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100759	42	100
				(1)	A6021 - SPAN DETAILS - 57657			

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	POINT OF DEFLECTION	STRUCTURAL STEEL	STRUCTURAL STEEL + SLAB	STRUCTURAL STEEL + SLAB + RAIL + SIDEWALK
		EXT. BEAM & INT. BEAM	EXT. BEAM & INT. BEAM	EXT. BEAM & INT. BEAM
1	0	0.000	0.000	0.000
	0.1	0.010	0.107	0.112
	0.2	0.019	0.200	0.208
	0.3	0.025	0.265	0.276
	0.4	0.028	0.296	0.309
	0.5	0.027	0.292	0.304
	0.6	0.024	0.256	0.267
	0.7	0.018	0.195	0.203
	0.8	0.011	0.119	0.124
	0.9	0.004	0.047	0.049
2	1.0	0.000	0.000	0.000
	1.1	-0.001	-0.007	-0.007
	1.2	0.002	0.017	0.018
	1.3	0.004	0.047	0.049
	1.4	0.007	0.075	0.078
	1.5	0.008	0.088	0.092
	1.6	0.008	0.084	0.088
	1.7	0.006	0.064	0.067
	1.8	0.003	0.034	0.035
	1.9	0.001	0.008	0.008
3	2.0	0.000	0.000	0.000
	2.1	0.002	0.026	0.027
	2.2	0.007	0.071	0.074
	2.3	0.011	0.115	0.120
	2.4	0.014	0.147	0.153
	2.5	0.015	0.159	0.166

Symm. About C.L. Unit

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

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF 180' CONTINUOUS COMPOSITE W-BEAM UNIT
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 5/13/15
CHECKED BY: CMW DATE: 12/14/15
DESIGNED BY: DHP DATE: 5/15

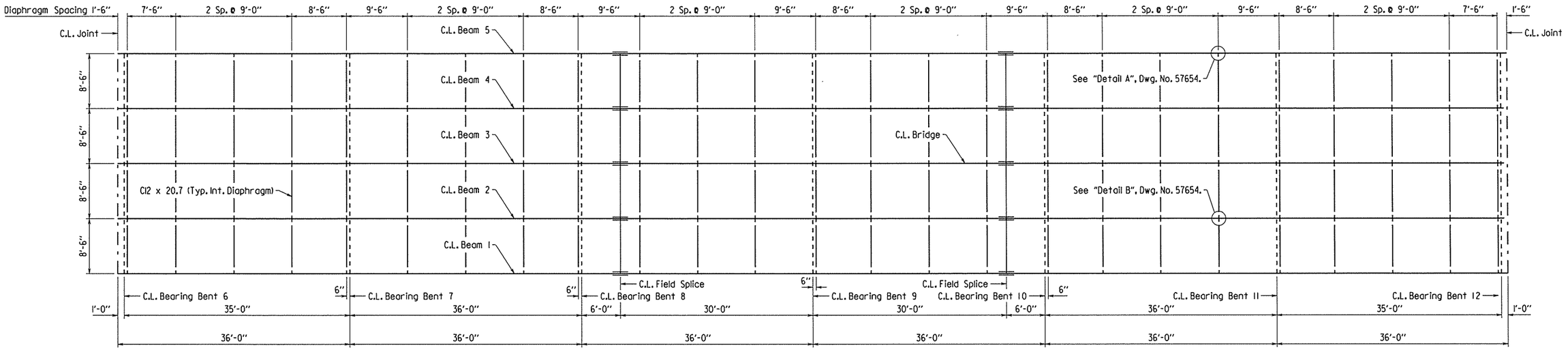
FILENAME: bl00759_sl.dgn
SCALE: As Noted

BRIDGE NO. A6021 DRAWING NO. 57657

PRINT DATE: 12/10/2015

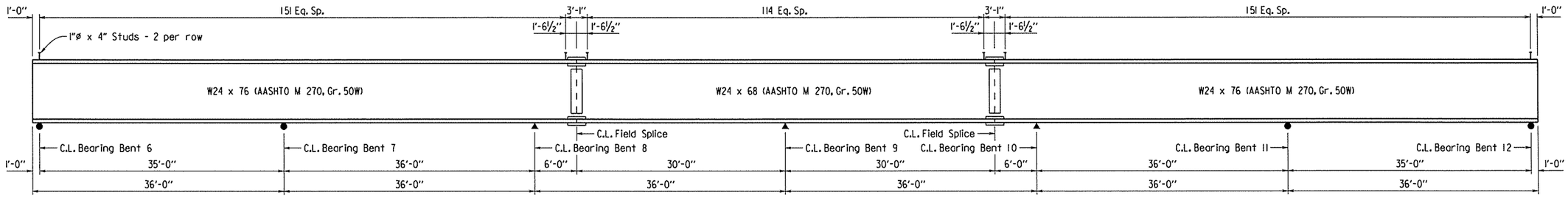
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100759	43	1DD

(1) A6021 - SPAN DETAILS - 57658



FRAMING PLAN

1/8" = 1'-0"

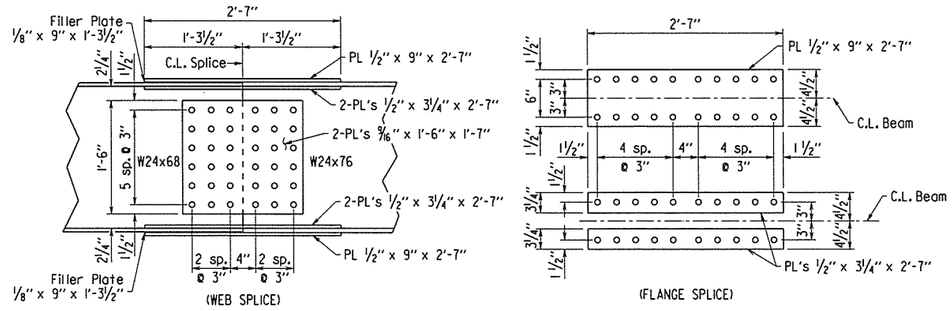


BEAM ELEVATION

1/8" = 1'-0"

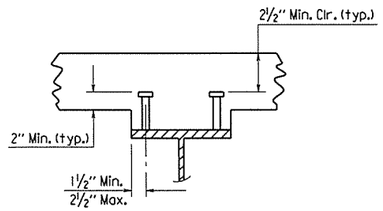
Bolted field splices shown may be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of the plan quantities.

All field splice bolts shall be 7/8"ø Hi-str. bolts. All holes for splice bolts shall be 15/16 "ø.



DETAILS OF FIELD SPLICE

No Scale



Stud Shear Connectors shown shall be 1"ø x 4" automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

SHEAR CONNECTOR DETAIL

No Scale

For Standard General Notes, See Std. Dwg. No. 55006.

All structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF 216' CONTINUOUS COMPOSITE W-BEAM UNIT BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 5/13/15
CHECKED BY: CMW DATE: 12/14/15
DESIGNED BY: DWH DATE: 5/15

FILENAME: bl00759_sl.dgn
SCALE: As Noted

BRIDGE NO. A6021 DRAWING NO. 57658

PRINT DATE: 12/10/2015

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.		100759	44	100

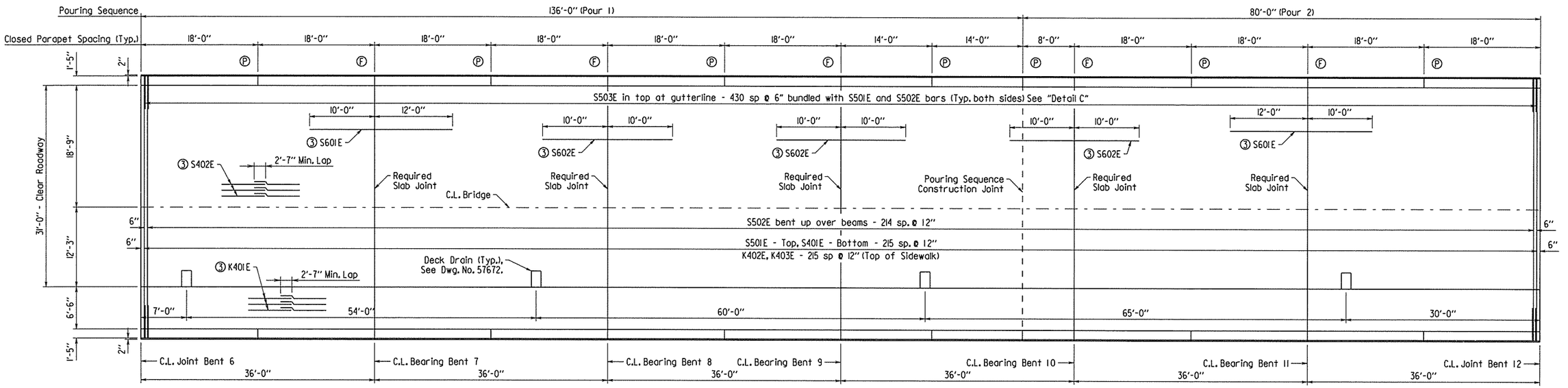
(1) A6021 - SPAN DETAILS - 57659

Pour (1) must be placed before Pour (2) can be placed. 72 hours shall elapse between the end of Pour (1) and the start of Pour (2). Any railing or sidewalk pours made before the entire slab unit has been placed must be approved by the Engineer. A minimum of 72 hours shall elapse between completion of the bridge deck slab and the pouring of the sidewalk and a minimum of 72 hours shall elapse between the completion of the sidewalk and the pouring of the parapet railing. Concrete in bridge superstructure shall be placed, consolidated, and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

(F) C.L. Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab

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

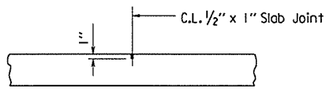
(1) Place as Shown in "Typical Roadway Section", Dwg. No. 57653.



REINFORCING PLAN & DECK POURING SEQUENCE

1/8" = 1'-0"

Use Type 3 or 4 Joint Sealer. See Subsections 501.02 (h) and 501.05 (j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the sidewalk is poured. The slab joints in the sidewalk shall extend to the outside of the sidewalk and shall be installed before parapet railing is to be 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 slab and across the top of the sidewalk. No joint sealer shall be placed on the deck slab under the sidewalk or parapet rail. Slab joints and pouring sequence joints shall align with parapet open joints.



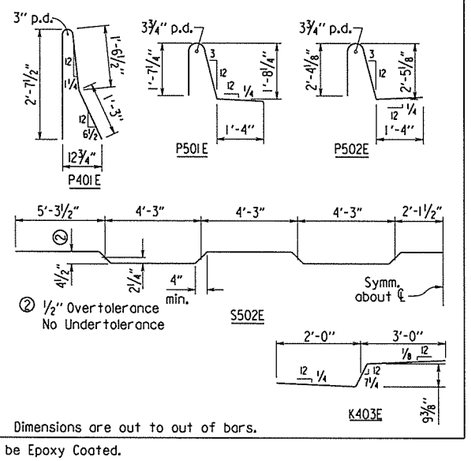
SLAB JOINT DETAIL

No Scale

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401E	216	40'-4"	Str.
S402E	714	38'-1"	Str.
P401E	864	5'-6"	3"
P402E	14	7'-8"	Str.
P403E	28	13'-8"	Str.
P404E	140	17'-8"	Str.
P406E	56	5'-6"	Str.
K401E	48	38'-1"	Str.
K402E	216	7'-7"	Str.
K403E	216	5'-5"	2"
S501E	216	40'-4"	Str.
S502E	215	41'-2"	3"
S503E	862	5'-6"	Str.
P501E	432	4'-9"	3 3/4"
P502E	432	6'-3"	3 3/4"
S601E	88	22'-0"	Str.
S602E	132	20'-0"	Str.

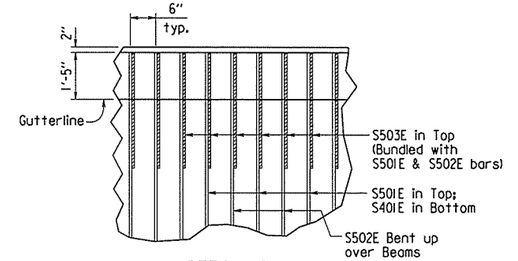
BENDING DIAGRAMS



② 1/2" Overtolerance
No Undertolerance

Dimensions are out to out of bars.

Bars designated with an "E" suffix to be Epoxy Coated.



DETAIL C

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF 216' CONTINUOUS COMPOSITE W-BEAM UNIT
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 5/13/15 FILENAME: bl00759_sl.dgn
CHECKED BY: CMW DATE: 12/14/15 SCALE: As Noted
DESIGNED BY: CMP DATE: 3-15
BRIDGE NO. A6021 DRAWING NO. 57659

PRINT DATE: 12/16/2015

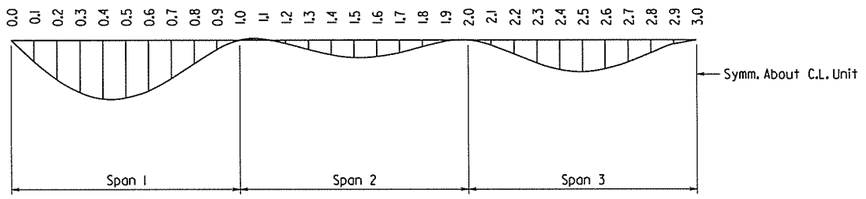
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100759	45	100
				(1)		A6201 - SPAN DETAILS - 57660		

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	POINT OF DEFLECTION	STRUCTURAL STEEL	STRUCTURAL STEEL + SLAB	STRUCTURAL STEEL + SLAB + RAIL + SIDEWALK
		EXT. & INT. BEAM	EXT. & INT. BEAM	EXT. & INT. BEAM
1	0	0.000	0.000	0.000
	0.1	0.010	0.107	0.112
	0.2	0.019	0.200	0.208
	0.3	0.025	0.265	0.276
	0.4	0.028	0.297	0.310
	0.5	0.027	0.292	0.304
	0.6	0.024	0.257	0.268
	0.7	0.018	0.195	0.203
	0.8	0.011	0.120	0.125
	0.9	0.004	0.047	0.049
	1.0	0.000	0.000	0.000
2	1.1	0.000	-0.006	-0.006
	1.2	0.002	0.016	0.017
	1.3	0.005	0.048	0.050
	1.4	0.008	0.075	0.078
	1.5	0.009	0.088	0.092
	1.6	0.008	0.083	0.087
	1.7	0.007	0.064	0.067
	1.8	0.004	0.034	0.035
	1.9	0.001	0.007	0.007
3	2.0	0.000	0.000	0.000
	2.1	0.002	0.026	0.027
	2.2	0.006	0.071	0.074
	2.3	0.010	0.117	0.122
	2.4	0.013	0.150	0.156
	2.5	0.014	0.161	0.168
	2.6	0.012	0.146	0.152
	2.7	0.010	0.112	0.117
	2.8	0.006	0.065	0.068
	2.9	0.002	0.021	0.022
	3.0	0.000	0.000	0.000

Symm. About C.L. Unit

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

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF 216' CONTINUOUS COMPOSITE W-BEAM UNIT
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

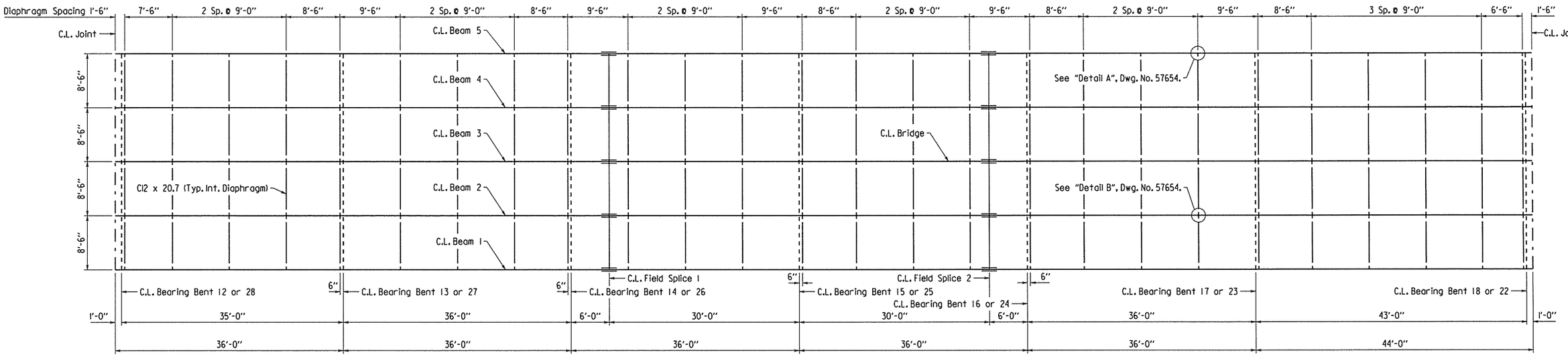
DRAWN BY: EOR DATE: 5/13/15
CHECKED BY: CMW DATE: 12/14/15
DESIGNED BY: DHP DATE: 5/15

FILENAME: bl00759_sl.dgn
SCALE: As Noted

BRIDGE NO. A6021 DRAWING NO. 57660

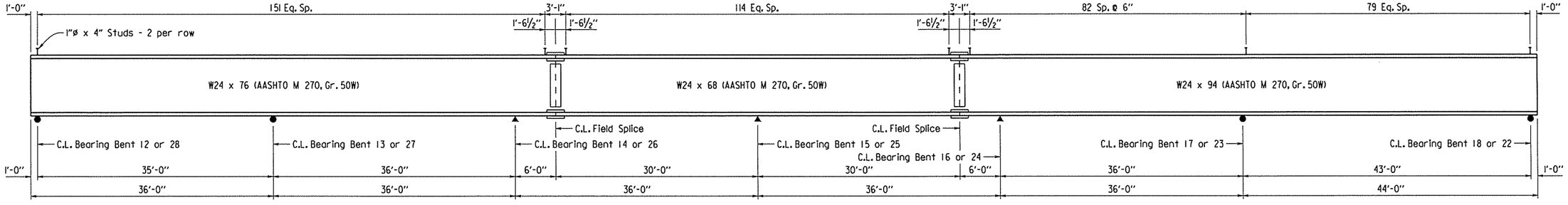
PRINT DATE: 12/10/2015

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.		100759	46	100
				(1)		A6021 - SPAN DETAILS - 57661		



FRAMING PLAN

1/8" = 1'-0"



BEAM ELEVATION

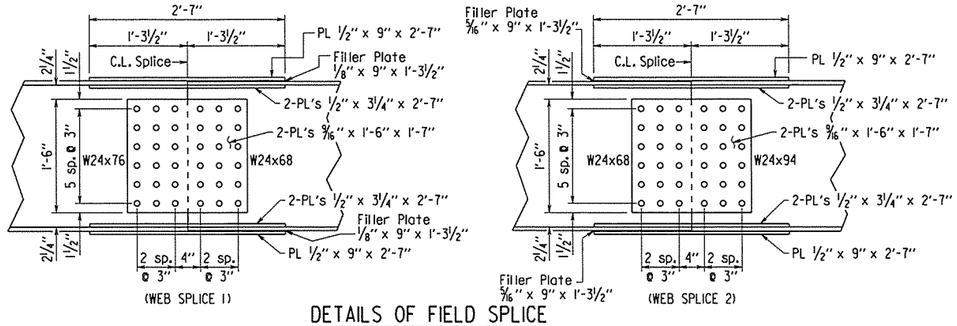
1/8" = 1'-0"

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

All field splice bolts shall be 7/8"ø Hi-str. bolts.
All holes for splice bolts shall be 15/16"ø.

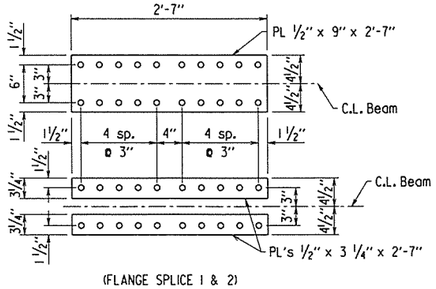
For Standard General Notes, See Std. Dwg. No. 55006.

All structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted.

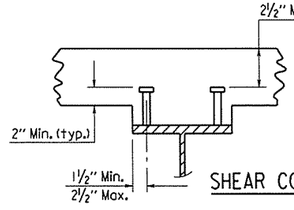


DETAILS OF FIELD SPLICE

No Scale



(FLANGE SPLICE 1 & 2)



Stud Shear Connectors shown shall be 1"ø x 4" automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

SHEAR CONNECTOR DETAIL

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF 224' CONTINUOUS COMPOSITE W-BEAM UNIT BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 5/13/15 FILENAME: bl00759_sl.dgn
CHECKED BY: CMH DATE: 12/14/15 SCALE: As Noted
DESIGNED BY: DHP DATE: 5/15

BRIDGE NO. A6021 DRAWING NO. 57661

PRINT DATE: 12/10/2015

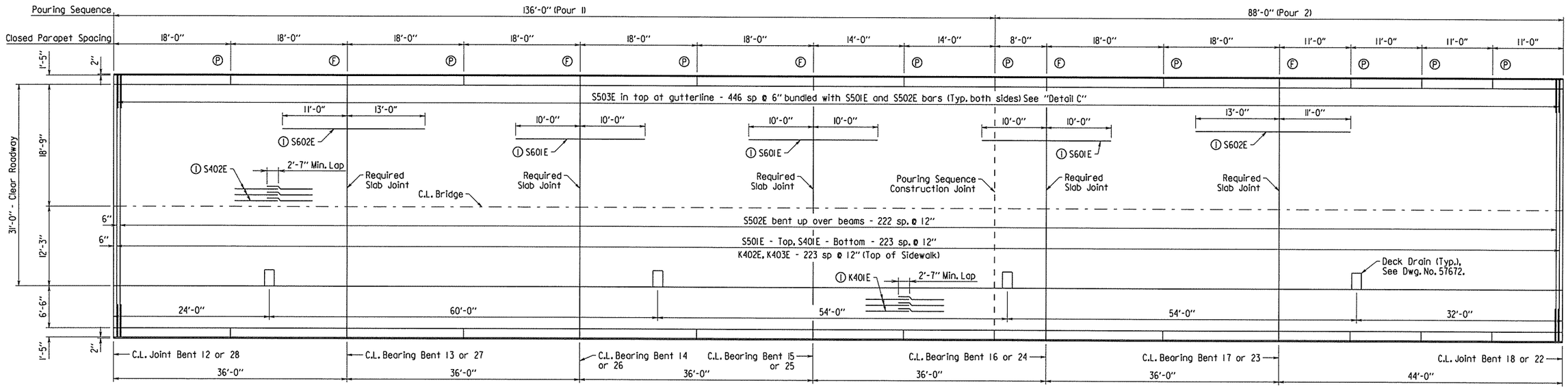
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100759	47	100
				①	A6021 - SPAN DETAILS - 57662			

Pour (1) must be placed before Pour (2) can be placed. 72 hours shall elapse between the end of Pour (1) and the start of Pour (2). Any railing or sidewalk pours made before the entire slab unit has been placed must be approved by the Engineer. A minimum of 72 hours shall elapse between completion of the bridge deck slab and the pouring of the sidewalk and a minimum of 72 hours shall elapse between the completion of the sidewalk and the pouring of the parapet railing. Concrete in bridge superstructure shall be placed, consolidated, and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

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

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

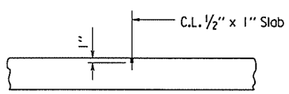
① Place as Shown in "Typical Roadway Section", Dwg. No. 57653.



REINFORCING PLAN & DECK POURING SEQUENCE

1/8" = 1'-0"

Use Type 3 or 4 Joint Sealer. See Subsections 501.02 (h) and 501.05 (j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the sidewalk is poured. The slab joints in the sidewalk shall extend to the outside of the sidewalk and shall be installed before parapet railing is to be 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 slab and across the top of the sidewalk. No joint sealer shall be placed on the deck slab under the sidewalk or parapet rail. Slab joints and pouring sequence joints shall align with parapet open joints.



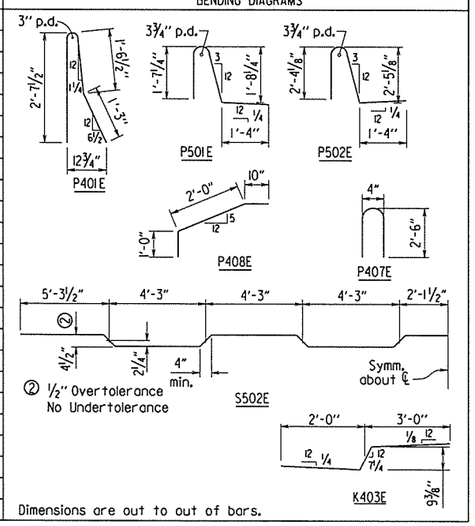
SLAB JOINT DETAIL

No Scale

BAR LIST - PER UNIT

MARK	NO. REQ'D.	LENGTH	P.D.
S401E	224	40'-4"	Str.
S402E	714	39'-6"	Str.
P401E	896	5'-6"	3"
P402E	14	7'-8"	Str.
P403E	28	13'-8"	Str.
P404E	112	17'-8"	Str.
P405E	56	10'-8"	Str.
P406E	72	5'-6"	Str.
③ P407E	3	5'-4"	3"
③ P408E	1	3'-9"	3"
K401E	56	34'-3"	Str.
K402E	224	7'-7"	Str.
K403E	224	5'-5"	2"
S501E	224	40'-4"	Str.
S502E	223	41'-2"	3"
S503E	894	5'-6"	Str.
P501E	448	4'-9"	3¾"
P502E	448	6'-3"	3¾"
S601E	132	20'-0"	Str.
S602E	88	24'-0"	Str.

BENDING DIAGRAMS

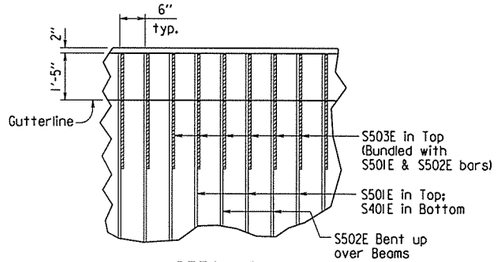


② ½" Overtolerance
No Undertolerance

Dimensions are out to out of bars.

Bars designated with an "E" suffix to be Epoxy Coated.

③ These bars included at end of bridge unit only.



DETAIL C

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF 224' CONTINUOUS COMPOSITE W-BEAM UNIT
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 5/13/15
CHECKED BY: CRW DATE: 12/14/15
DESIGNED BY: DHP DATE: 12/15

FILENAME: bl00759_sl.dgn
SCALE: As Noted

BRIDGE NO. A6021

DRAWING NO. 57662

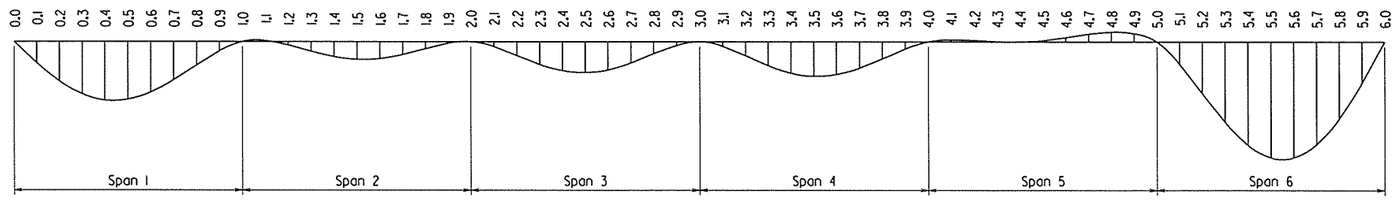
PRINT DATE: 12/16/2015

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.		100759	48	100
				①	A6021 - SPAN DETAILS - 57663			

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	POINT OF DEFLECTION	STRUCTURAL STEEL	STRUCTURAL STEEL + SLAB	STRUCTURAL STEEL + SLAB + RAIL + SIDEWALK
		EXT. BEAM & INT. BEAM	EXT. BEAM & INT. BEAM	EXT. BEAM & INT. BEAM
1	0	0.000	0.000	0.000
	0.1	0.010	0.107	0.112
	0.2	0.019	0.200	0.208
	0.3	0.025	0.265	0.276
	0.4	0.028	0.296	0.309
	0.5	0.027	0.292	0.304
	0.6	0.024	0.256	0.267
	0.7	0.018	0.194	0.202
	0.8	0.011	0.119	0.124
	0.9	0.004	0.047	0.049
	1.0	0.000	0.000	0.000
2	1.1	0.000	-0.006	-0.006
	1.2	0.002	0.017	0.018
	1.3	0.005	0.049	0.051
	1.4	0.008	0.076	0.079
	1.5	0.009	0.089	0.093
	1.6	0.009	0.085	0.089
	1.7	0.007	0.065	0.068
	1.8	0.004	0.035	0.037
	1.9	0.001	0.008	0.008
	2.0	0.000	0.000	0.000
3	2.1	0.002	0.025	0.026
	2.2	0.006	0.070	0.073
	2.3	0.010	0.115	0.120
	2.4	0.012	0.146	0.152
	2.5	0.013	0.156	0.162
	2.6	0.012	0.143	0.149
	2.7	0.009	0.108	0.112
	2.8	0.005	0.061	0.063
	2.9	0.002	0.019	0.020
	3.0	0.000	0.000	0.000
4	3.1	0.002	0.023	0.024
	3.2	0.006	0.071	0.074
	3.3	0.010	0.121	0.126
	3.4	0.013	0.159	0.166
	3.5	0.014	0.175	0.182
	3.6	0.013	0.165	0.172
	3.7	0.011	0.133	0.139
	3.8	0.007	0.086	0.090
	3.9	0.003	0.036	0.038
	4.0	0.000	0.000	0.000
5	4.1	0.000	-0.011	-0.011
	4.2	0.001	-0.008	-0.008
	4.3	0.002	-0.002	-0.002
	4.4	0.002	-0.001	-0.001
	4.5	0.001	-0.007	-0.007
	4.6	-0.001	-0.022	-0.023
	4.7	-0.003	-0.039	-0.041
	4.8	-0.005	-0.050	-0.052
	4.9	-0.004	-0.042	-0.044
	5.0	0.000	0.000	0.000
6	5.1	0.012	0.112	0.117
	5.2	0.028	0.260	0.272
	5.3	0.043	0.405	0.423
	5.4	0.056	0.521	0.545
	5.5	0.063	0.585	0.611
	5.6	0.063	0.585	0.611
	5.7	0.056	0.518	0.541
	5.8	0.042	0.388	0.406
	5.9	0.022	0.208	0.217
	6.0	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

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
* * *
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF 224' CONTINUOUS COMPOSITE W-BEAM UNIT
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 5/13/15 FILENAME: bl00759_sl.dgn
CHECKED BY: CMH DATE: 12/14/15 SCALE: As Noted
DESIGNED BY: DHP DATE: 5/15

BRIDGE NO. A6021 DRAWING NO. 57663

PRINT DATE: 12/10/2015

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.		100759	49	100
				①		A6021 - SPAN DETAILS - 57664		

At the Contractor's option, two straight epoxy coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

Class I Protective Surface Treatment shall be applied to the Roadway Surface, Face of Curb, Sidewalk Surface, the roadway face and top of concrete parapet rail.

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

For details of K-Frames, see Dwg. No. 57666.

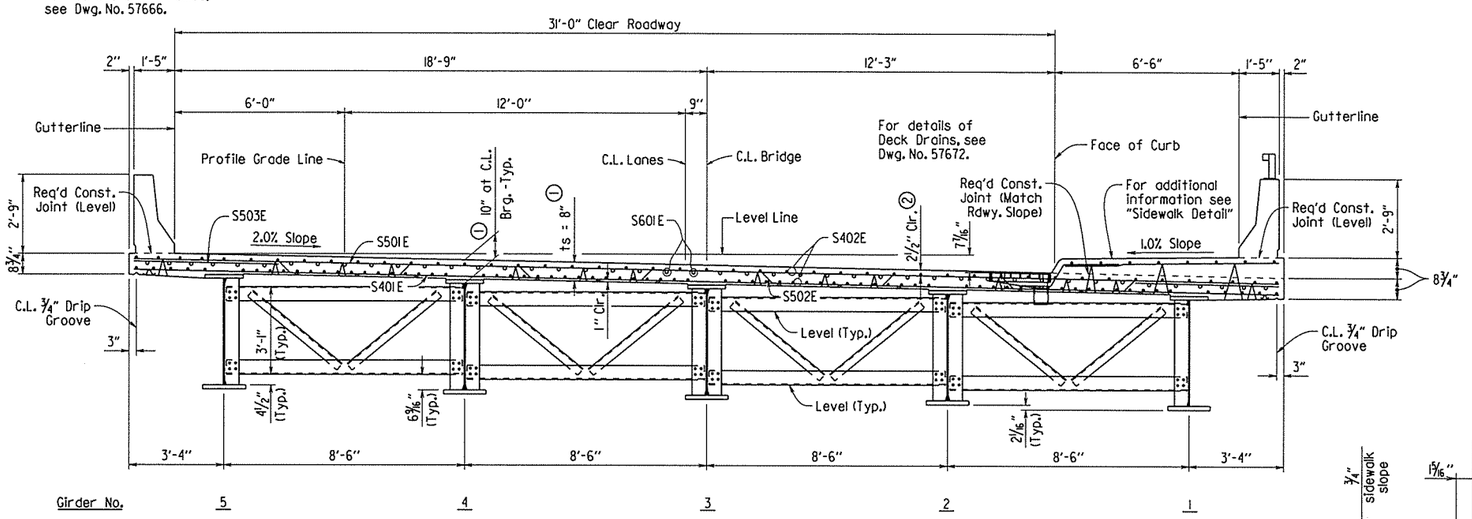
Slab Reinforcing:

Longitudinal: S402E in top and bottom
S601E placed as shown over interior supports, See "Reinforcing Plan & Deck Pouring Sequence", Dwg. No. 57667.

Transverse: S502E @ 12" o.c. bent up over beams — Alternate
S501E @ 12" o.c. in top, S401E @ 12" o.c. in bottom
S503E @ 6" o.c. in top of overhang

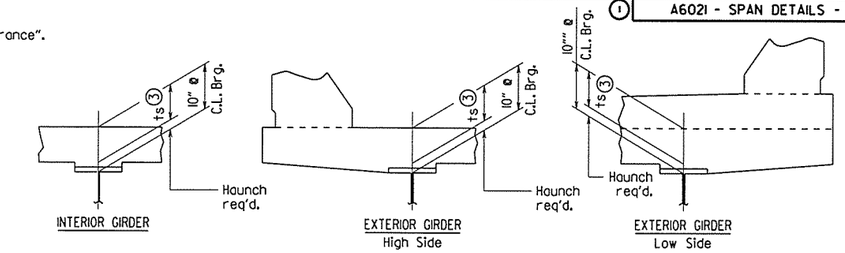
① See "Adjustment For Slab Thickness Tolerance".

② Tolerance: Minus = 1/4"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance- See "Adjustment For Slab Thickness Tolerance".



TYPICAL ROADWAY SECTION

Looking Ahead
Scale: 3/8" = 1'-0"



③ Tolerance when removable deck forming is used is +½", -1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

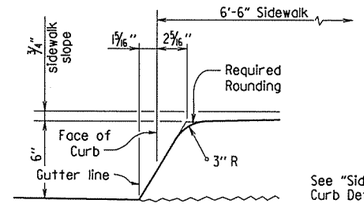
ts = slab thickness as shown on superstructure detail drawings.

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.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

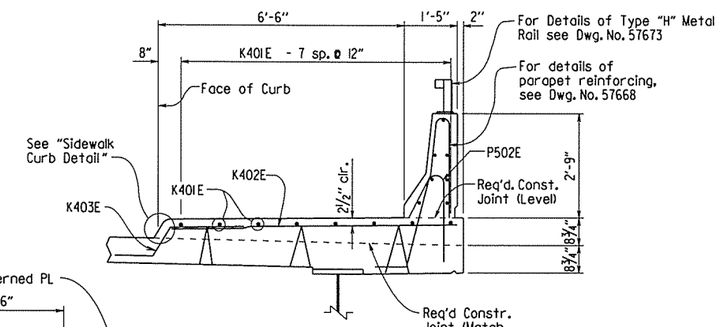
No Scale



SIDEWALK CURB DETAIL

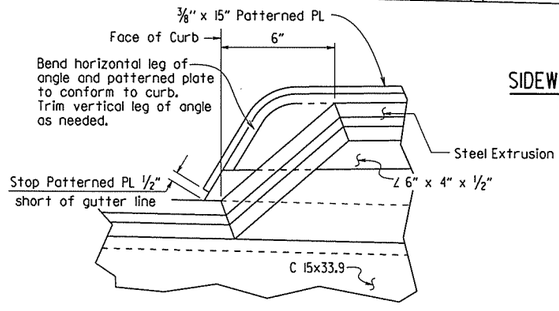
No Scale

SIDEWALK REINFORCING:
Longitudinal: K401E in top (placed as shown)
Transverse: K402E & K403E @ 12" o.c.



SIDEWALK DETAIL

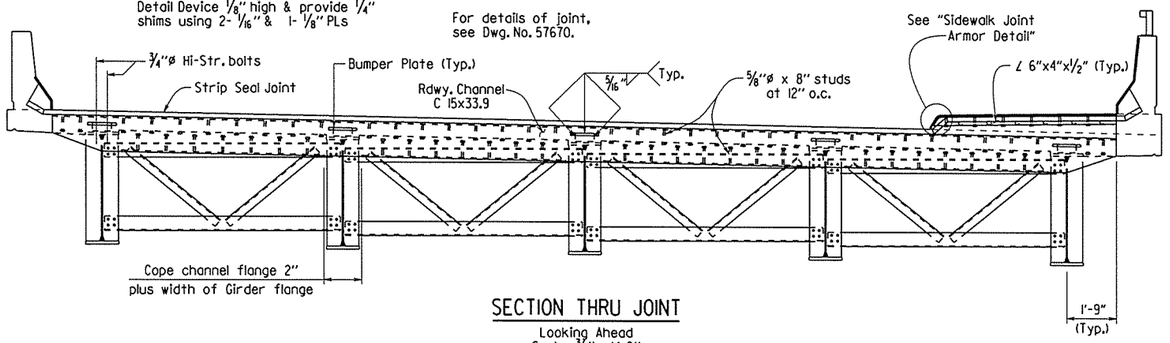
No Scale



SIDEWALK JOINT ARMOR DETAIL

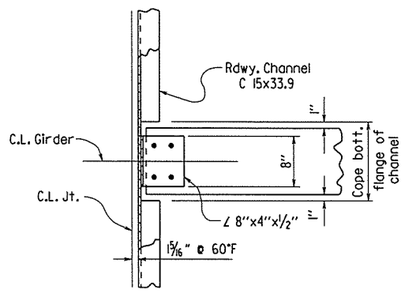
No Scale

Expansion Device:
Rdwy. Channel - C 15x33.9
Conn. ∠'s 8"x4"x ½"
Detail Device 1/8" high & provide ¼" shims using 2- 1/16" & 1- 1/8" PLs



SECTION THRU JOINT

Looking Ahead
Scale: 3/8" = 1'-0"



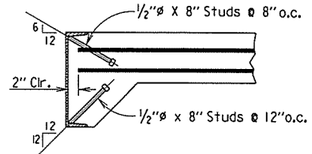
CHANNEL CONNECTION DETAIL

No Scale

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.



As an alternate to ⅝"ø studs, ½" ø x 8" studs spaced as shown may be used. Use weight of ⅝" ø stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF 425' CONTINUOUS COMPOSITE PLATE GIRDER UNIT BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

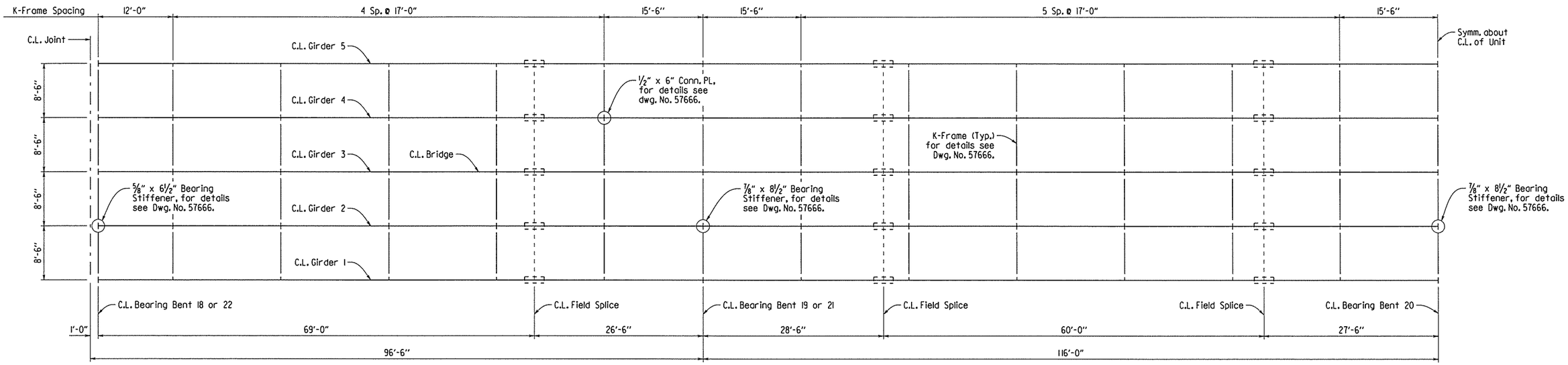
DRAWN BY: CMW DATE: 3/23/15 FILENAME: bl00759_s2.dgn
CHECKED BY: DATE: SCALE: As Shown
DESIGNED BY: DATE:

BRIDGE NO. A6021 DRAWING NO. 57664

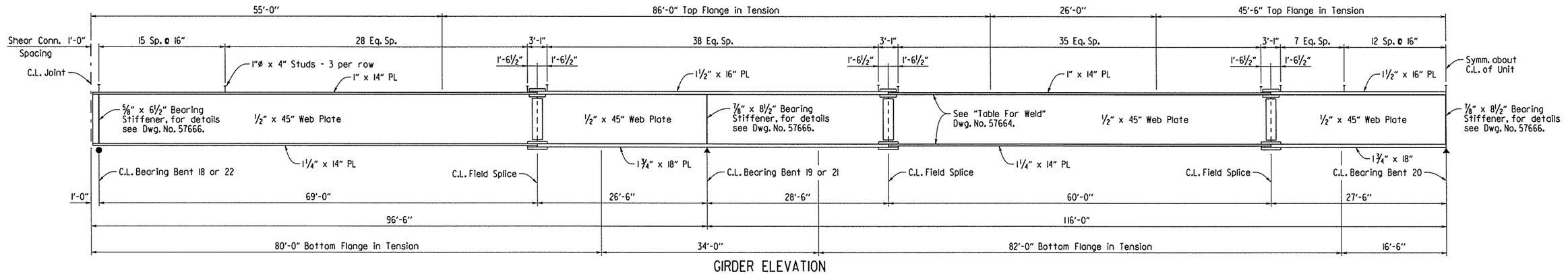
PRINT DATE: 12/17/2015

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.		100759	50	100

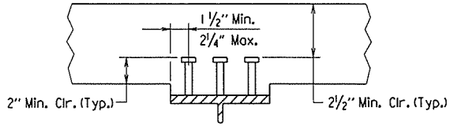
(1) A6021 - SPAN DETAILS - 57665



FRAMING PLAN



GIRDER ELEVATION



Stud Shear Connectors shown shall be 1"ø x 4" long, granular flux filled, solid fluxed or equal and automatically end welded to the girder flange in accordance with the recommendations of the Manufacturer.

SHEAR CONNECTOR DETAIL
No Scale

For Standard General Notes, See Std. Dwg. No. 55006.

All structural Steel shall be AASHTO M 270, Gr. 50W unless otherwise noted, and shall be paid for as "Structural Steel in Plate Girder Spans (M 270, Gr. 50W)" Grade 50W steel shall not be painted.

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 details of K-Frames, Bearing Stiffeners, Connection Plates and bolted field splices, see Dwg. No. 57666.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF 425' CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 3/24/15
CHECKED BY: BHS DATE: 12/11/15
DESIGNED BY: CMW DATE: 3/15

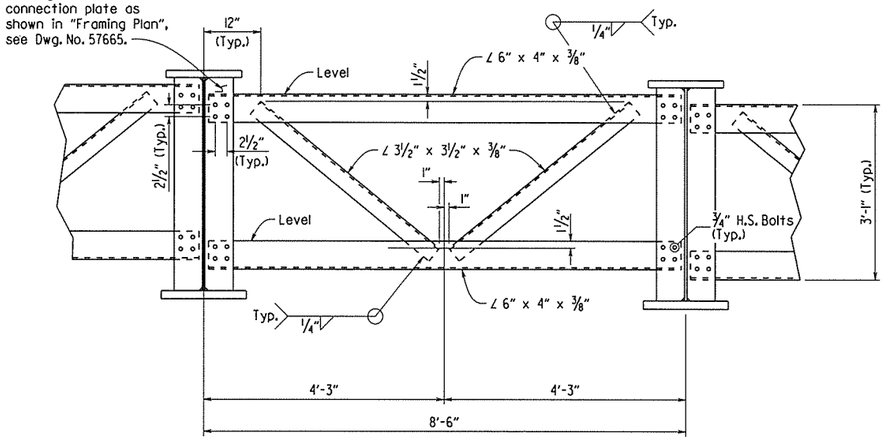
FILENAME: bl00759_s2.dgn
SCALE: No Scale

BRIDGE NO. A6021 DRAWING NO. 57665

PRINT DATE: 12/10/2015

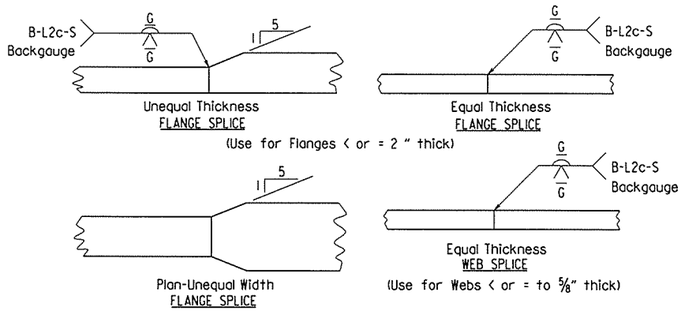
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100759	51	100

(1) A6021 - SPAN DETAILS - 57666



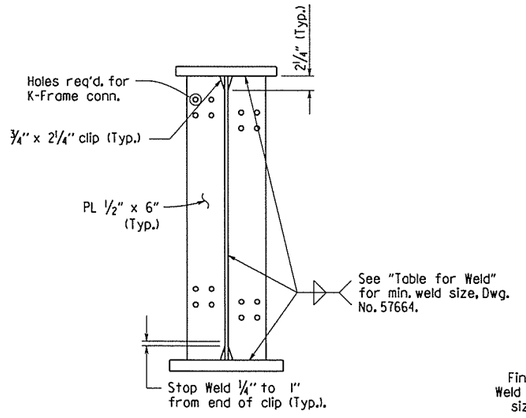
K-FRAME DETAIL

¾" = 1'-0"



DETAILS OF WELDED SPLICES

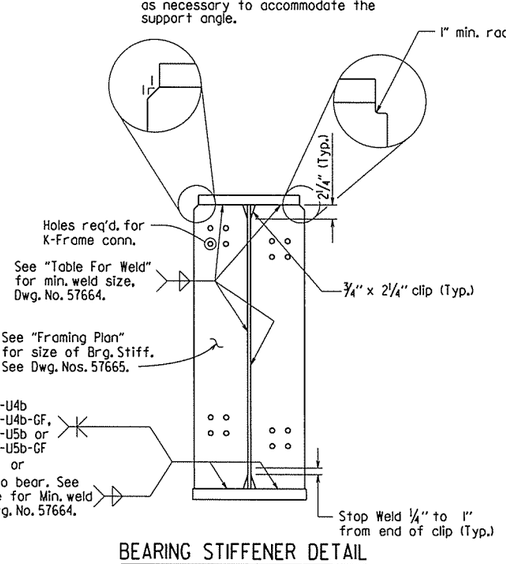
No Scale



CONNECTION PLATE DETAIL

1" = 1'-0"

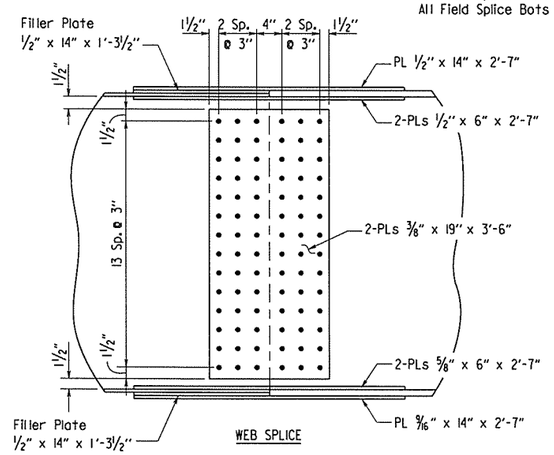
(1) If permanent deck forms are used, the fabricator shall clip the plate as necessary to accommodate the support angle.

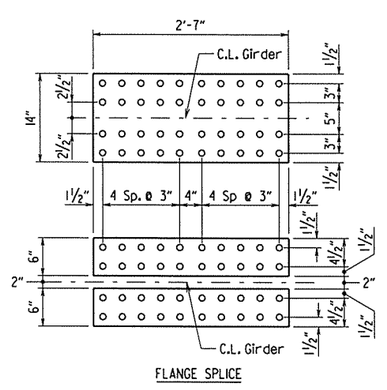


BEARING STIFFENER DETAIL

1" = 1'-0"

All Field Splice Bolts shall be ⅞"ø H.S. Bolts
All Field Splice Bots Holes shall be 15/16 "ø





FLANGE SPLICE

DETAILS OF FIELD SPLICE

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF 425' CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 3/23/15 FILENAME: bl00759_s2.dgn
CHECKED BY: BHS DATE: 12/11/15 SCALE: As Shown
DESIGNED BY: CMW DATE: 3/15

BRIDGE NO. A6021 DRAWING NO. 57666

PRINT DATE: 12/10/2015

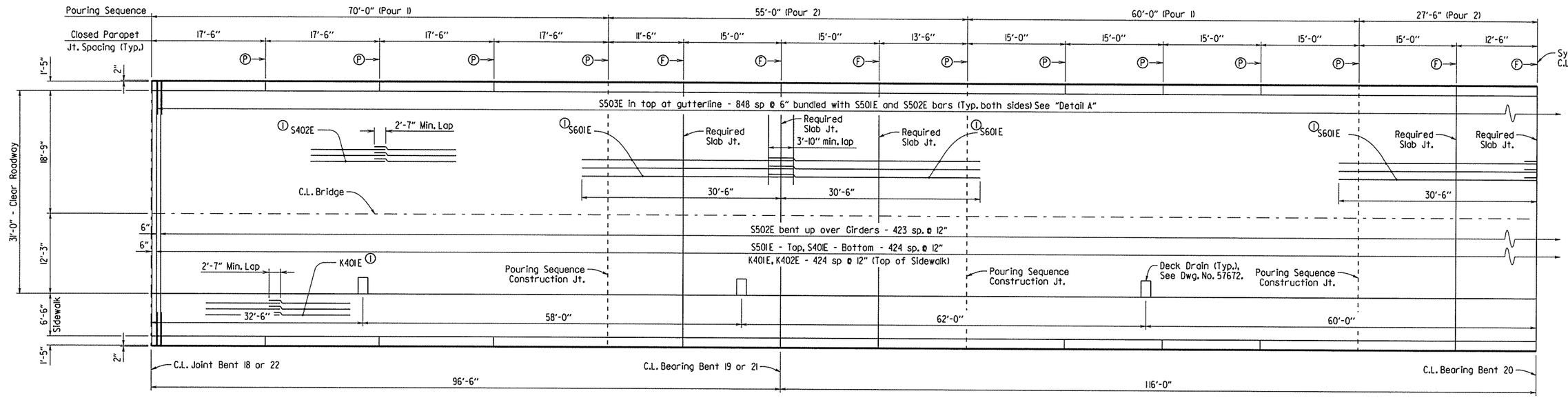
Pours with the same number may be placed simultaneously or separately. All pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a Pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. Any railing or sidewalk pours made before the entire slab unit has been placed must be approved by the Engineer. A minimum of 72 hours shall elapse between completion of the bridge deck slab and the pouring of the sidewalk and a minimum of 72 hours shall elapse between the completion of the sidewalk and the pouring of the parapet railing. Concrete in bridge superstructure shall be consolidated for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

Ⓕ C.L. Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab.

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

Ⓘ Place as Shown in "Typical Roadway Section", Dwg. No. 57664.

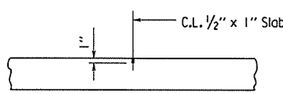
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100759	52	100
				Ⓘ	A6021 - SPAN DETAILS - 57667			



REINFORCING PLAN & DECK POURING SEQUENCE

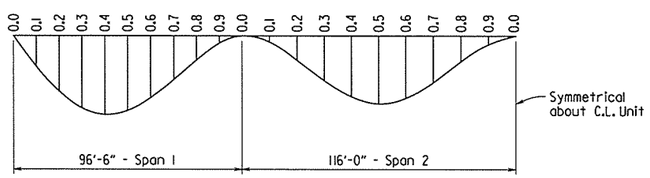
1/8" = 1'-0"

Use Type 3 or 4 Joint Sealer. See Subsections 501.02 (h) and 501.05 (j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the sidewalk is poured. The slab joints in the sidewalk shall extend to the outside of the sidewalk and shall be installed before parapet railing is to be 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 slab and across the top of the sidewalk. No joint sealer shall be placed on the deck slab under the sidewalk or parapet rail. Slab joints and pouring sequence joints shall align with parapet open joints.



SLAB JOINT DETAIL

No Scale



DEAD LOAD DEFLECTION DIAGRAM

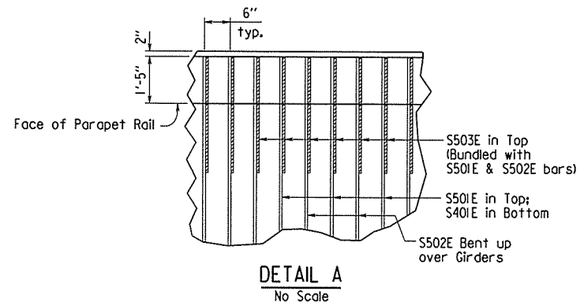
No Scale

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel				Structural Steel+Slab				Str. Steel+Slab+Parapet+Sidewalk			
		Girder 1	Girder 2	Girder 3 and 4	Girder 5	Girder 1	Girder 2	Girder 3 and 4	Girder 5	Girder 1	Girder 2	Girder 3 and 4	Girder 5
1	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.089	0.091	0.092	0.089	0.494	0.520	0.526	0.494	0.639	0.621	0.575	0.530
	0.2	0.162	0.166	0.167	0.162	0.902	0.949	0.959	0.902	1.166	1.133	1.048	0.968
	0.3	0.211	0.216	0.217	0.211	1.176	1.237	1.249	1.175	1.521	1.477	1.366	1.261
	0.4	0.230	0.235	0.236	0.230	1.283	1.349	1.363	1.282	1.661	1.612	1.490	1.376
	0.5	0.219	0.224	0.225	0.219	1.221	1.284	1.297	1.220	1.582	1.535	1.419	1.310
	0.6	0.181	0.185	0.186	0.181	1.011	1.063	1.074	1.010	1.312	1.273	1.175	1.085
	0.7	0.127	0.130	0.131	0.127	0.714	0.751	0.759	0.714	0.928	0.901	0.831	0.768
	0.8	0.071	0.072	0.073	0.070	0.400	0.421	0.425	0.400	0.520	0.505	0.466	0.430
	0.9	0.021	0.022	0.022	0.021	0.126	0.132	0.133	0.126	0.163	0.158	0.146	0.135
2	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.022	0.022	0.022	0.022	0.094	0.101	0.103	0.094	0.127	0.123	0.113	0.103
	0.2	0.080	0.082	0.083	0.080	0.385	0.411	0.416	0.386	0.512	0.498	0.456	0.419
	0.3	0.144	0.147	0.148	0.144	0.711	0.755	0.764	0.712	0.940	0.913	0.837	0.770
	0.4	0.193	0.197	0.198	0.193	0.970	1.028	1.040	0.970	1.278	1.240	1.139	1.048
	0.5	0.214	0.218	0.219	0.214	1.087	1.151	1.164	1.087	1.430	1.386	1.275	1.174
	0.6	0.197	0.201	0.202	0.197	1.004	1.063	1.074	1.004	1.320	1.281	1.177	1.084
	0.7	0.148	0.152	0.152	0.148	0.755	0.799	0.808	0.755	0.994	0.964	0.885	0.816
	0.8	0.083	0.085	0.086	0.083	0.421	0.445	0.450	0.420	0.555	0.537	0.493	0.454
	0.9	0.028	0.028	0.028	0.027	0.138	0.146	0.148	0.137	0.181	0.176	0.161	0.148
C.L. Unit →	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table is symmetrical about C.L. Unit

Camber for Dead Load Deflection plus Vertical curve +/-1/4" tolerance. Deflections shown are along C.L. Girder from a chord from C.L. Bearing to C.L. Bearing. Vertical curve corrections not included.



DETAIL A

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF 425' CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BLACK RIVER

ROUTE SEC.

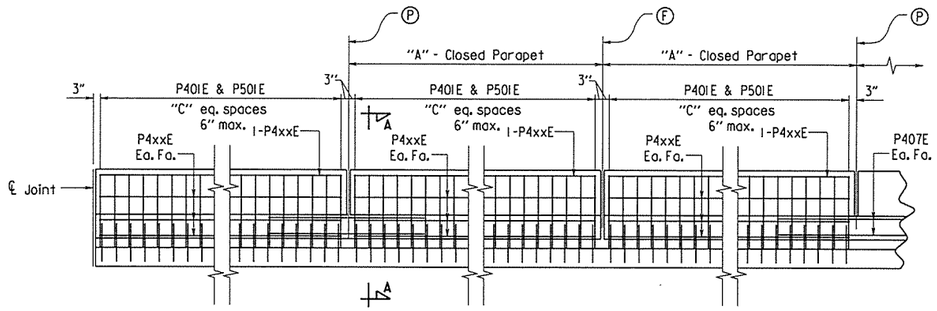
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 3/24/15
CHECKED BY: BHS DATE: 12/17/15
DESIGNED BY: DMW DATE: 3/15
FILENAME: bI00759_s2.dgn
SCALE: As Shown

BRIDGE NO. A6021 DRAWING NO. 57667

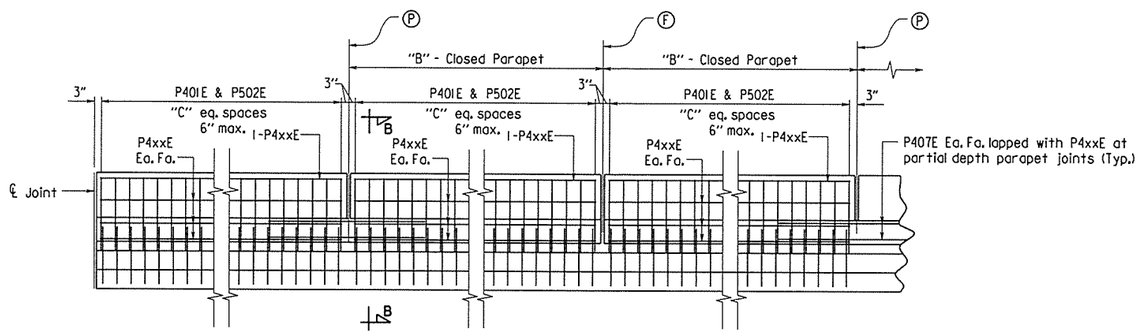
PRINT DATE: 12/18/2015

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.		100759	53	100
				①	A6021 - SPAN DETAILS - 57668			



DETAILS OF PARAPET RAIL - HIGH SIDE

Ⓕ ℄ Full-Depth Parapet Joint (1/4" to 1" max.) as shown in "Reinforcing Plan & Deck Pouring Sequence", Dwg. No. 57667. Stop 4" from top of slab.



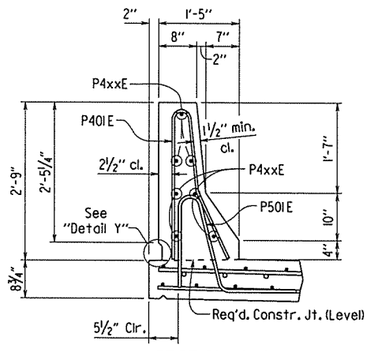
DETAILS OF PARAPET RAIL - LOW SIDE

Ⓟ ℄ Partial-Depth Parapet Joint (1/4" to 1" max.) as shown in "Reinforcing Plan & Deck Pouring Sequence", Dwg. No. 57667. Stop 1'-2" from top of slab.

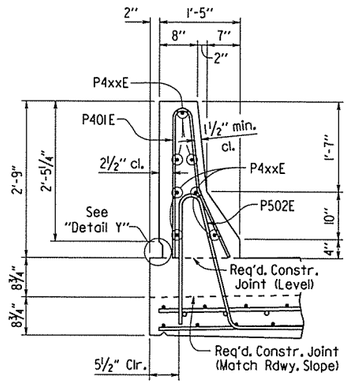
TABLE OF PARAPET RAIL VARIABLES

"A" and "B" Closed Parapet	"C"	P4xxE Bar
17'-6"	34	P402E
15'-0"	29	P403E
13'-6"	26	P404E
12'-6"	24	P405E
11'-6"	22	P406E

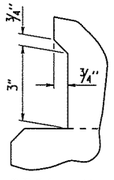
For location of Open and Closed Parapet Panels, see "Reinforcing Plan & Deck Pouring Sequence", Dwg. No. 57667.



SECTION A-A



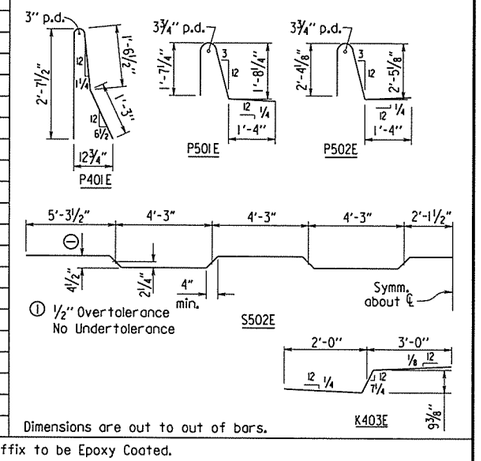
SECTION B-B



DETAIL Y

BAR LIST

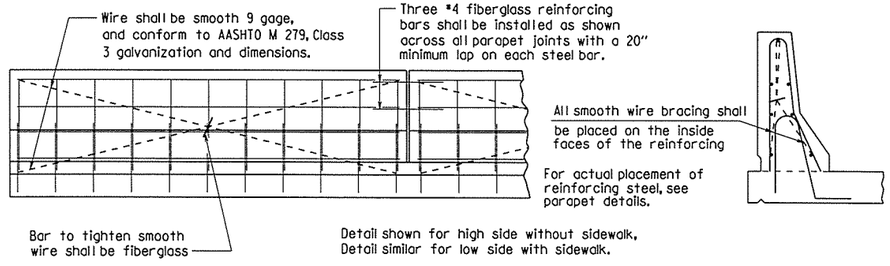
MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
S401E	425	40'-4"	Str.	
S402E	1428	37'-9"	Str.	
P401E	1700	5'-6"	3"	
P402E	112	17'-2"	Str.	
P403E	196	14'-8"	Str.	
P404E	28	13'-2"	Str.	
P405E	28	12'-2"	Str.	
P406E	28	11'-2"	Str.	
P407E	144	5'-6"	Str.	
S501E	425	40'-4"	Str.	
S502E	424	41'-2"	3"	
S503E	1698	5'-3"	Str.	
P501E	850	4'-9"	3¾"	
P502E	850	6'-3"	3¾"	
S601E	264	32'-5"	Str.	
K401E	96	37'-9"	Str.	
K402E	425	7'-6"	Str.	
K403E	425	5'-5"	2"	



① ½" Overtolerance
No Undertolerance

Dimensions are out to out of bars.

Note: Bars designated with an "E" suffix to be Epoxy Coated.



All panels shall be braced as required to prevent racking. All parapet 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. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF 425' CONTINUOUS COMPOSITE PLATE GIRDER UNIT BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

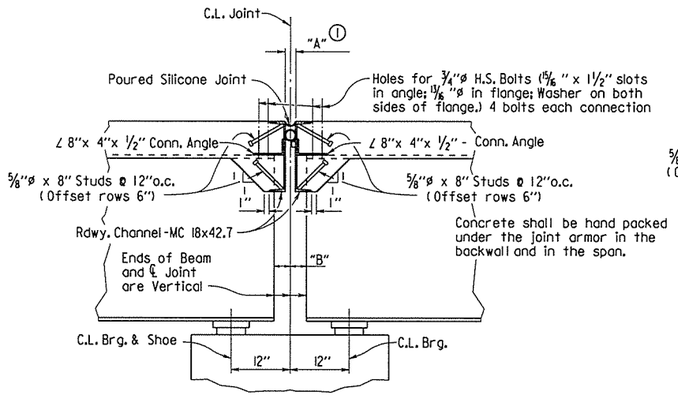
DRAWN BY: CMW DATE: 3/23/15
CHECKED BY: JHS DATE: 12/17/15
DESIGNED BY: CMW DATE: 3/15

FILENAME: b100759_s2.dgn
SCALE: No Scale

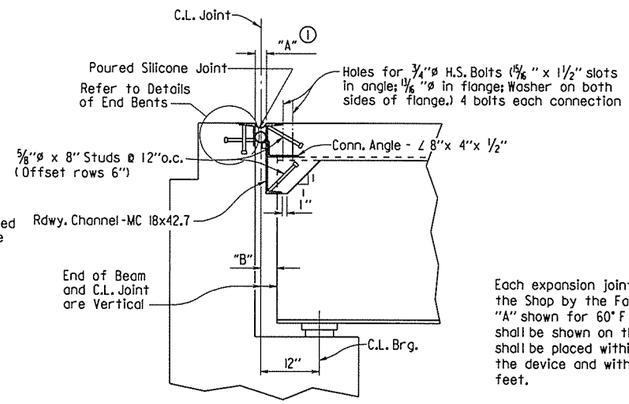
BRIDGE NO. A6021 DRAWING NO. 57668

PRINT DATE: 12/17/2015

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.		100759	54	100
				①		A6021 JOINT DETAILS	57669	

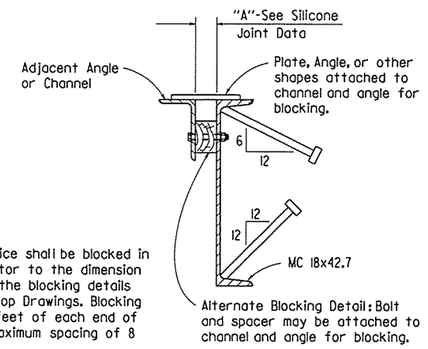


SECTION THRU JOINT AT BENTS 6 & 12



SECTION THRU JOINT AT BENTS 1 & 28

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



DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION:

EXPANSION DEVICE INSTALLATION AT END BENTS:

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

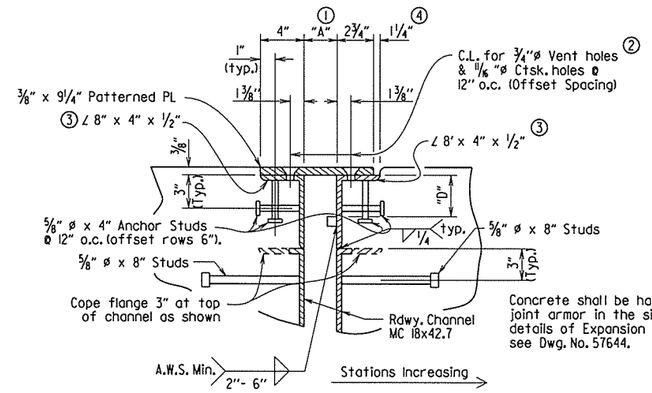
1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing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

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

EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENTS:

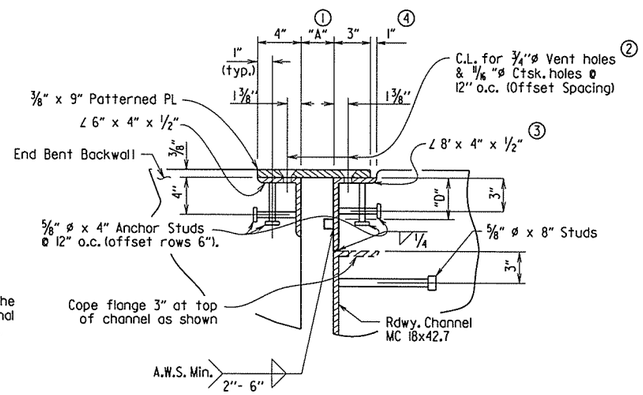
After all beams on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first side to have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

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



Concrete shall be hand packed under the joint armor in the sidewalk. For additional details of Expansion Device at Sidewalk, see Dwg. No. 57644.

SECTION X-X (BENTS 6 & 12)



SECTION X-X (BENTS 1 & 28)

SILICONE JOINT DATA

Bent Number	"A" Width Perpendicular to Joint at 24 Hour Average Temperature ① Of:			"B" Perpendicular to Joint at 60°F	Bumper Plate Size	"D"
	40°F	60°F	80°F			
1	2⅛"	2"	1⅞"	± 2 ¼"	1" x 1"	5"
6 & 12	2⅛"	2½"	2⅜"	± 2 ½"	1" x 1¼"	5"
28	2⅜"	2"	1⅝"	± 2 ¼"	1" x 1"	5"

① The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

The temperature limitations recommended by the sealant manufacturer shall be observed.

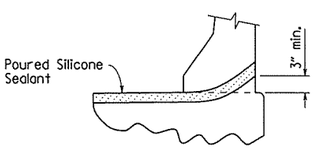
The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80°F.

BACKER ROD NOTE:

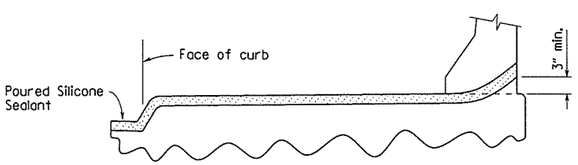
Use an appropriately sized backer rod at the depth shown in the manufacturer's literature based on the joint width at the time of sealing.

Except as noted, do not install more backer rod that can be sealed in the same day.

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



JOINT SEAL PLACEMENT AT PARAPET

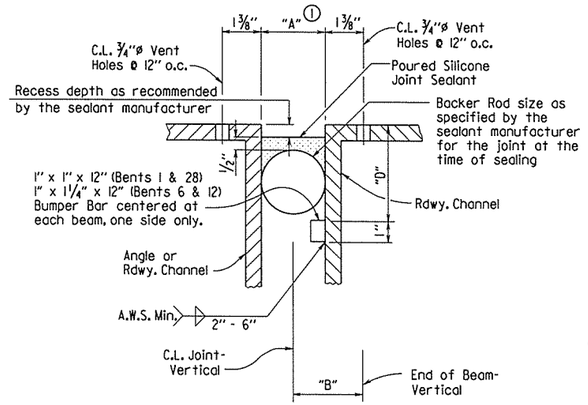


JOINT SEAL PLACEMENT AT SIDEWALK

② Ctsk. 11/16 "ø holes in ⅜" Patterned Plate. Tap 4" leg of angles for ASTM A449 ⅝" ø screws @ 12" o.c. Install screws in the shop and ship as a unit. Screws on the ahead span to be removed. Screws on the Back span and Backwall to remain in place after erection. See "Expansion Device Installation".

③ Trim vertical leg of ∠ 8" x 4" x ½" as needed.

④ Dimensions shown @ 60° F



DETAIL OF POURED SILICONE JOINT SEAL

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF JOINTS
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

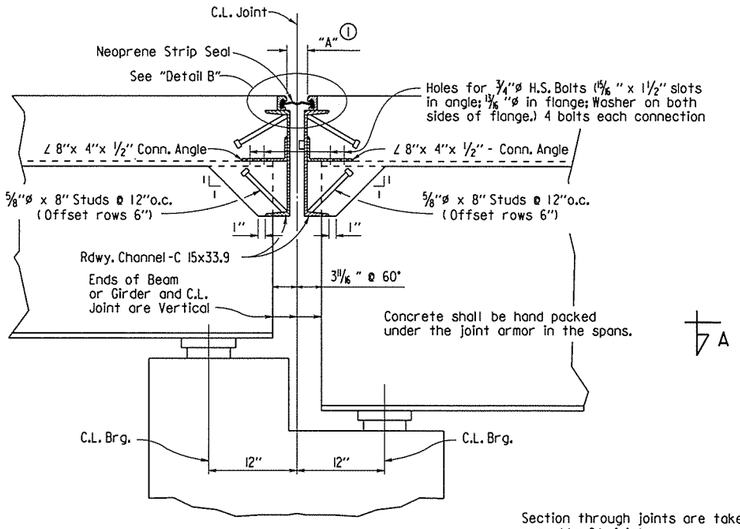
DRAWN BY: CMW DATE: 5/13/2014 FILENAME: bl00759_jt.dgn
CHECKED BY: CRE DATE: 12/17/15 SCALE: No Scale
DESIGNED BY: CMW DATE: 3/14

BRIDGE NO. A6021 DRAWING NO. 57669

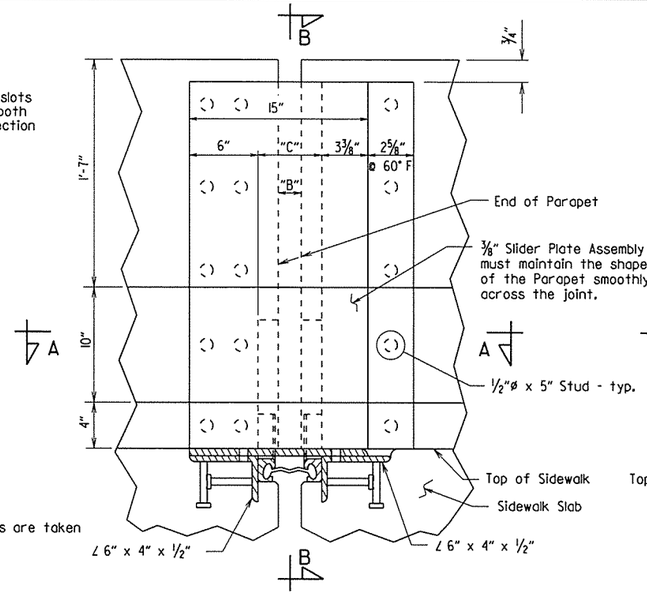
PRINT DATE: 12/17/2015

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.		100759	55	100

(1) A6021 JOINT DETAILS 57670

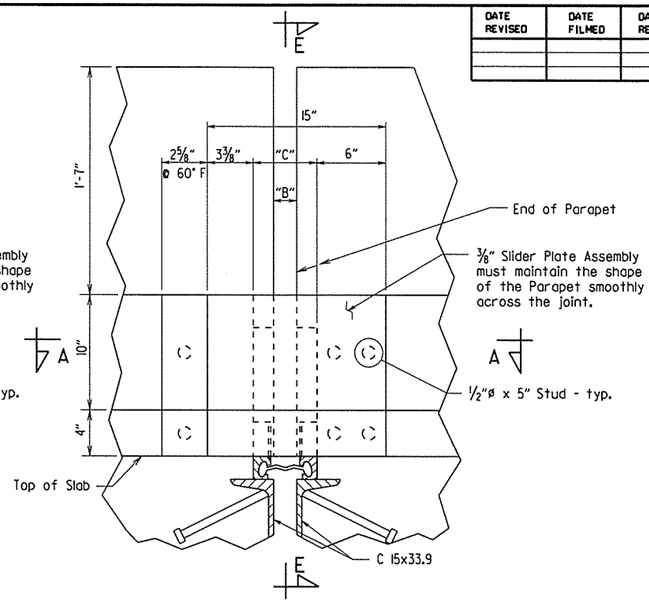


SECTION THRU JOINT AT BENTS 18 & 22

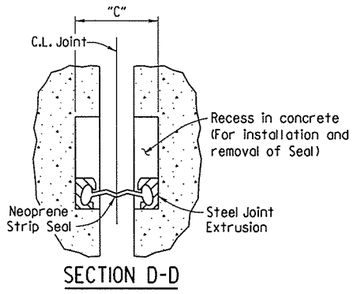


Section through joints are taken normal to C.L. joint.

ELEVATION-STRIP SEAL AT PARAPET CURB (LOW SIDE)



ELEVATION-STRIP SEAL AT PARAPET CURB (HIGH SIDE)



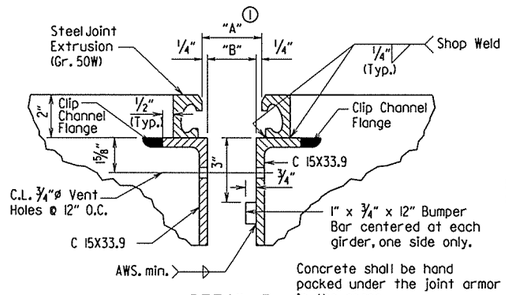
SECTION D-D

TABLE A

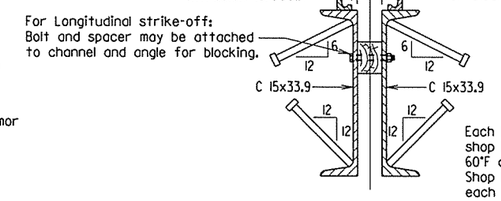
	"A" - Width perpendicular to joint at 24 hour average temperature of:			Joint Opening "B"	Dimension "C" @ 60°F
	40° F	60° F	80° F		
Bent 18	3⅝"	3⅛"	2⅝"	± 2⅝"	5⅝"
Bent 22	3⅝"	3⅛"	2⅝"	± 2⅝"	5⅝"

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

Installation is limited to 40°F min. and 80°F max. See Table A for installation temperatures other than 60°F.



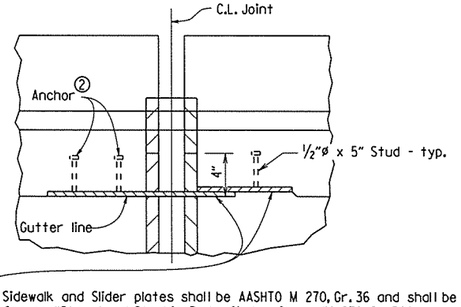
DETAIL B



Each Expansion Joint Device shall be blocked in the shop by the Fabricator to the dimension shown for 60°F and the Blocking Detail shall be shown on the Shop Drawings. Blocking shall be placed within 2' of each end of the device and with a maximum of 8'.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

(2) The method of attachment of the slider plate assembly must be such that it may be removed in order to provide for future replacement of the neoprene seal.

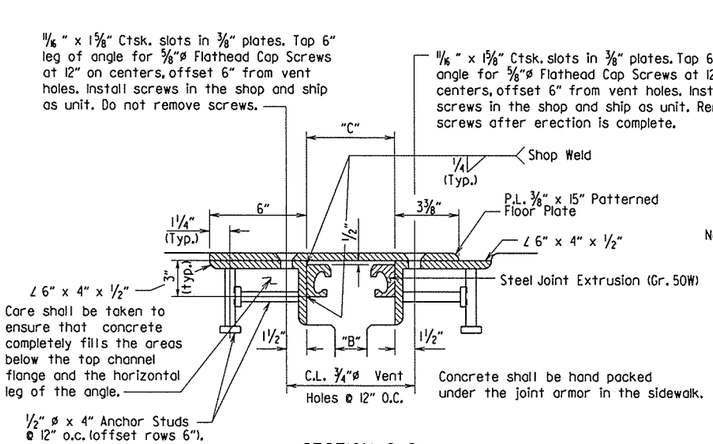


Sidewalk and Slider plates shall be AASHTO M 270, Gr. 36 and shall be paid for as "Structural Steel in Plate Girder Spans (M 270, Gr. 50W)" or "Structural Steel in Beam Spans (M 270, Gr. 50W)". The surfaces of the plates which will not be in contact with the concrete shall be cleaned and painted in accordance with Section 638, or as directed by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting shall not be paid for directly, but will be considered subsidiary to "Structural Steel in Plate Girder Spans (M 270, Gr. 50W)" or Structural Steel in Beam Spans (M 270, Gr. 50W)".

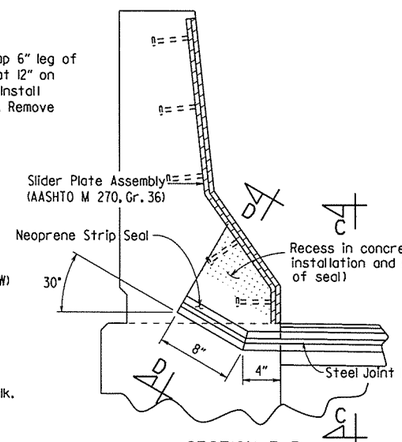
EXPANSION DEVICE INSTALLATION

Bents 18 & 22

After all beams or girders on both sides of the joint are erected, the locked expansion device shall be installed and adjusted for grade. The Connection bolts shall be tightened only on the unit whose concrete will be poured first. Connection bolts on the second unit shall be loosely installed to allow for thermal movements and for end rotation of the beams or girders of the first unit while the concrete deck is poured. After the concrete on the first unit has hardened and immediately prior to pouring concrete for the second unit, the blocking shall be removed and the joint width shall be adjusted for temperature. Joint openings shown are for when concrete is poured at an air temperature of 60° F. If concrete is poured at other temperatures, set the joint width by interpolation of Table A. After the joint width has been set, the connection bolts on the second unit shall be tightened and concrete in the second unit can then be poured. A joint opening adjustment is not required for end rotation of the beams or girders caused by the weight of the slab and parapets.

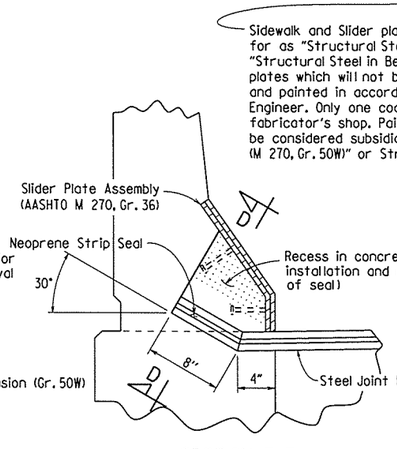


SECTION C-C



SECTION B-B

SECTION A-A



SECTION E-E

STATE OF ARKANSAS
Charles R Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-7-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF JOINTS
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

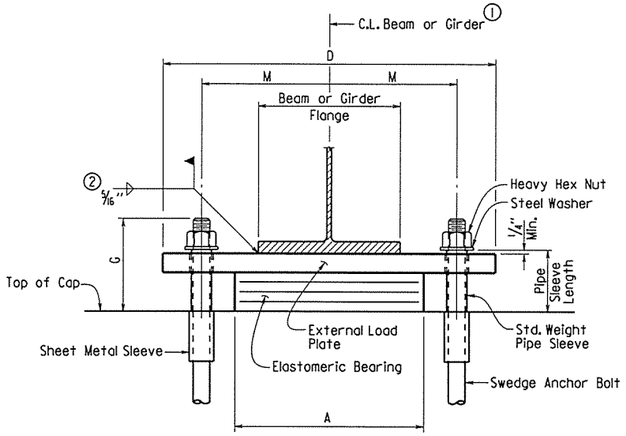
DRAWN BY: CMW DATE: 5/13/2014 FILENAME: bl00759_jt.dgn
CHECKED BY: BHS DATE: 12/11/15 SCALE: No Scale
DESIGNED BY: CMW DATE: 9/14

BRIDGE NO. A6021 DRAWING NO. 57670

PRINT DATE: 12/10/2015

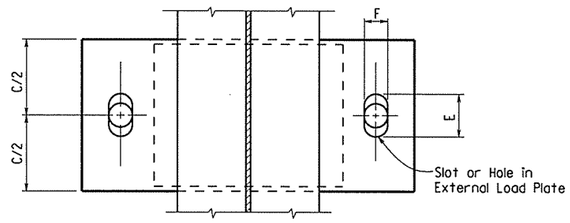
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100759	56	100

① A6021 ELASTOMERIC BEARINGS 57671



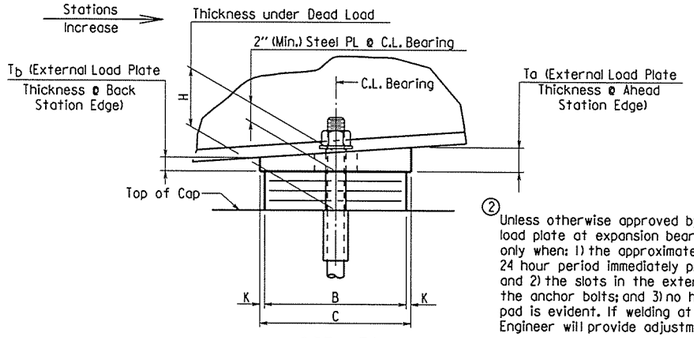
FRONT VIEW

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



PLAN VIEW

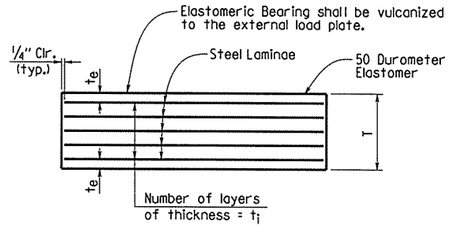
The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in the "Table of Fabricator Variables".



SIDE VIEW

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.



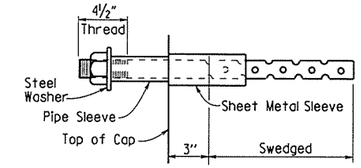
t_e = Thickness of elastomer cover on top and bottom of pad

t_i = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

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



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)" or "Structural Steel in Plate Girder Spans (M 270 Gr. 50W)".

TABLE OF FABRICATOR VARIABLES

*Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION BENT NO(S).	UNIT	GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	ELASTOMERIC PAD G	H	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.)
A6021	1	180'	All	Exp	5	87.00	8"	5"	13"	8"	4	½"	¼"	5 @ 12 Ga.	3"	9"	24"	4⅛"	2⅝"	½"	9"	2.02"	1.98"	1¾"ø x 28"	55	2"ø x 5¼"	4"ø x 6"	3⅜"
	2 & 5	180'	All	Exp	5	167.00	7½"	4⅜"	13"	11"	3	½"	¼"	4 @ 12 Ga.	2 1/16"	12"	24"	3⅝"	2⅝"	½"	9"	2.03"	1.97"	1¾"ø x 28"	55	2"ø x 4⅝"	4"ø x 6"	3⅜"
	3 & 4	180'	All	Fix	5	143.00	7¼"	3 1/16"	13"	11"	2	½"	¼"	3 @ 12 Ga.	1 13/16"	12"	25"	3⅝"	3⅛"	½"	9¼"	2.03"	1.97"	2"ø x 30"	55	2½"ø x 4⅛"	4"ø x 6"	3¾"
	6Bk	180'	All	Exp	5	87.00	8¼"	5"	13"	8"	4	½"	¼"	5 @ 12 Ga.	3"	9"	25"	4⅝"	3⅛"	½"	9¼"	2.02"	1.98"	2"ø x 30"	55	2½"ø x 5¼"	4"ø x 6"	3¾"
	6Ah	216'	All	Exp	5	87.00	8¼"	5⅛"	13"	8"	4	½"	¼"	5 @ 12 Ga.	3"	9"	25"	4⅞"	3⅛"	½"	9¼"	2.14"	2.10"	2"ø x 30"	55	2½"ø x 5¼"	4"ø x 6"	3¾"
	7 & 11	216'	All	Exp	5	167.00	7½"	4⅜"	13"	11"	3	½"	¼"	4 @ 12 Ga.	2 1/16"	12"	24"	3⅞"	2⅝"	½"	9"	2.03"	1.97"	1¾"ø x 28"	55	2"ø x 4⅝"	4"ø x 6"	3⅜"
	8-10	216'	All	Fix	5	143.00	7"	3 1/16"	13"	11"	2	½"	¼"	3 @ 12 Ga.	1 13/16"	12"	24"	2⅝"	2⅝"	½"	9"	2.03"	1.97"	1¾"ø x 28"	55	2"ø x 4⅛"	4"ø x 6"	3⅜"
	12Bk	216'	All	Exp	5	87.00	8¼"	5"	13"	8"	4	½"	¼"	5 @ 12 Ga.	3"	9"	25"	4⅞"	3⅛"	½"	9¼"	2.02"	1.98"	2"ø x 30"	55	2½"ø x 5¼"	4"ø x 6"	3¾"
	12Ah	224'	All	Exp	5	87.00	8¼"	5⅛"	13"	8"	4	½"	¼"	5 @ 12 Ga.	3"	9"	25"	4⅞"	3⅛"	½"	9¼"	2.14"	2.10"	2"ø x 30"	55	2½"ø x 5¼"	4"ø x 6"	3¾"
	13 & 17	224'	All	Exp	5	167.00	7½"	4⅜"	13"	11"	3	½"	¼"	4 @ 12 Ga.	2 1/16"	12"	24"	3⅞"	2⅝"	½"	9"	2.03"	1.97"	1¾"ø x 28"	55	2"ø x 4⅝"	4"ø x 6"	3⅜"
	14-16	224'	All	Fix	5	143.00	7¼"	3 1/16"	13"	11"	2	½"	¼"	3 @ 12 Ga.	1 13/16"	12"	25"	3⅛"	3⅛"	½"	9¼"	2.03"	1.97"	2"ø x 30"	55	2½"ø x 4⅛"	4"ø x 6"	3¾"
	18 Bk	224'	All	Exp	5	87.00	8"	5"	13"	8"	4	½"	¼"	5 @ 12 Ga.	3"	9"	24"	4½"	2⅝"	½"	9"	2.02"	1.98"	1¾"ø x 28"	55	2"ø x 5¼"	4"ø x 6"	3⅜"
	18Ah	425'	All	Exp	5	142.00	10½"	6⅛"	18"	8"	6	½"	¼"	7 @ 12 Ga.	4¼"	9"	31"	7⅛"	3¾"	½"	12"	2.02"	1.98"	2¾"ø x 40"	55	3"ø x 6⅜"	5"ø x 6"	5"
	19	425'	All	Fix	5	376.00	8¼"	3 1/16"	22"	12"	2	½"	¼"	3 @ 12 Ga.	1 13/16"	13"	35"	3¾"	3¾"	½"	14"	2.02"	1.98"	2¾"ø x 40"	55	3"ø x 4⅛"	5"ø x 6"	5"
	20	425'	All	Fix	5	376.00	8¼"	3 1/16"	22"	12"	2	½"	¼"	3 @ 12 Ga.	1 13/16"	13"	35"	3¾"	3¾"	½"	14"	2.00"	2.00"	2¾"ø x 40"	55	3"ø x 4⅛"	5"ø x 6"	5"
	21	425'	All	Fix	5	376.00	8¼"	3 1/16"	22"	12"	2	½"	¼"	3 @ 12 Ga.	1 13/16"	13"	35"	3¾"	3¾"	½"	14"	1.98"	2.02"	2¾"ø x 40"	55	3"ø x 4⅛"	5"ø x 6"	5"
	22Bk	425'	All	Exp	5	142.00	10½"	6⅛"	18"	8"	6	½"	¼"	7 @ 12 Ga.	4¼"	9"	31"	7⅛"	3¾"	½"	12"	1.98"	2.02"	2¾"ø x 40"	55	3"ø x 6⅜"	5"ø x 6"	5"
	22Ah	224'	All	Exp	5	87.00	8"	5"	13"	8"	4	½"	¼"	5 @ 12 Ga.	3"	9"	24"	4½"	2⅝"	½"	9"	1.98"	2.02"	1¾"ø x 28"	55	2"ø x 5¼"	4"ø x 6"	3⅜"
	23 & 27	224'	All	Exp	5	167.00	7½"	4⅜"	13"	11"	3	½"	¼"	4 @ 12 Ga.	2 1/16"	12"	24"	3⅞"	2⅝"	½"	9"	1.97"	2.03"	1¾"ø x 28"	55	2"ø x 4⅝"	4"ø x 6"	3⅜"
	24-26	224'	All	Fix	5	143.00	7¼"	3 1/16"	13"	11"	2	½"	¼"	3 @ 12 Ga.	1 13/16"	12"	25"	3⅛"	3⅛"	½"	9¼"	1.97"	2.03"	2"ø x 30"	55	2½"ø x 4⅛"	4"ø x 6"	3¾"
	28	224'	All	Exp	5	87.00	8"	5"	13"	8"	4	½"	¼"	5 @ 12 Ga.	3"	9"	24"	4⅞"	3⅛"	½"	9¼"	1.98"	2.02"	2"ø x 30"	55	2½"ø x 5¼"	4"ø x 6"	3¾"

PRINT DATE: 12/18/2015

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 50. Pipe sleeves shall be ASTM A53, 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)" or "Structural Steel in Plate Girder 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
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

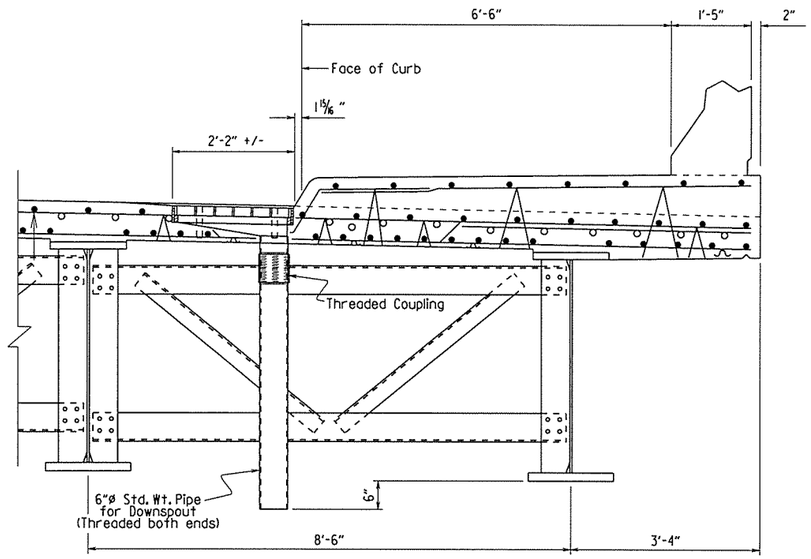
DRAWN BY: CMW DATE: 4/01/15 FILENAME: bl00759_el.dgn

CHECKED BY: BHS DATE: 12/18/15 SCALE: No Scale

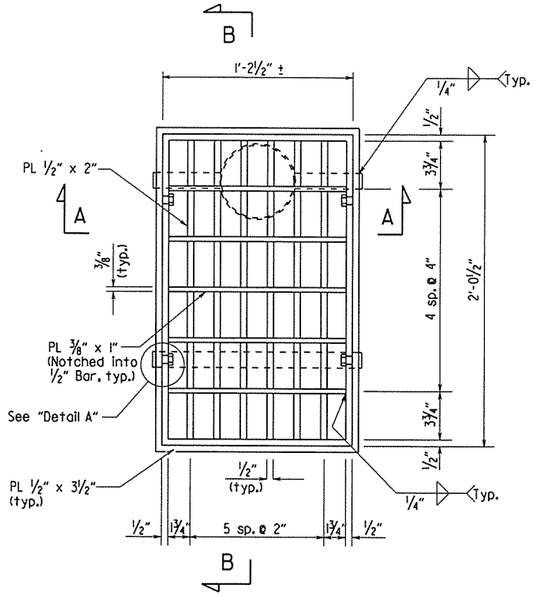
DESIGNED BY: CMW DATE: 3/15

BRIDGE NO. A6021 DRAWING NO. 57671

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.		100759	57	100
				①		A6021 - DECK DRAINS - 57672		



SECTION AT DECK DRAIN



PLAN

GENERAL NOTES:

For Location of Deck Drains, see Superstructure Details.

Drain location may be adjusted to clear cross frame connections and avoid reinforcing bars.

Standard Weight Pipe for Deck Drains shall conform to ASTM A501. All other structural steel shall be AASHTO M 270, Grade 36. After fabrication, all structural steel in drains shall be Galvanized in accordance with AASHTO M 111. Steel Fasteners shall be Galvanized in accordance with AASHTO M 232 or M 298, Class 40 or 50.

Structural Steel in Deck Drains shall not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Grade 50W)" or "Structural Steel in Beam Spans (M 270, Grade 50W)".

Top longitudinal reinforcing steel in the slab shall be cut as required to install the deck drains. Two additional No. 4 x 5'-6" straight bars shall be placed longitudinally on each side of the drain.

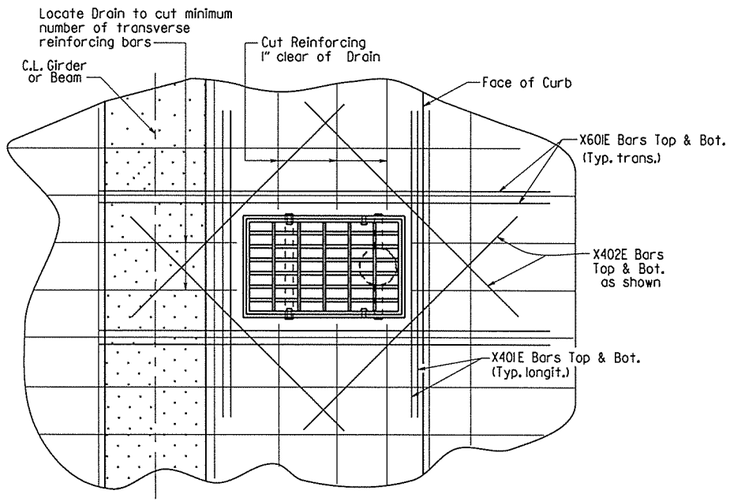
Top and bottom tranverse reinforcing steel in the slab shall be cut as required (Up to a maximum of three bars per mat) to install the deck drain. Two additional No. 6 x 9'-6" straight bars shall be placed transversely per mat on each side of the drain.

One additional No. 4 x 4'-0" straight bar shall be placed at a 45° angle to each corner in both top and bottom mats.

Repair all cut or damaged epoxy bars in accordance with the Standard Specifications.

All additional Reinforcing Steel placed around deck drains shall be epoxy-coated and shall be paid for at the unit price bid for "Epoxy Coated Reinforcing Steel (Grade 60)".

A Pre-Manufactured Grate or Grate and Frame may be submitted for approval by the Engineer in place of the steel fabrication shown in the Plans. Grate shall have an AASHTO-AGC-ARTBA Type 5 or 6 Configuration and shall be designed for a 16,000 lb. wheel load.



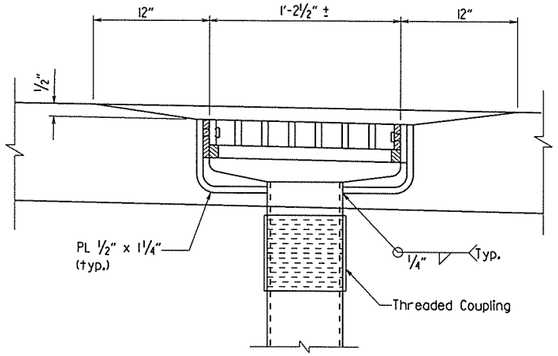
PLAN OF REINFORCING AT DECK DRAINS

BAR LIST FOR ONE DRAIN

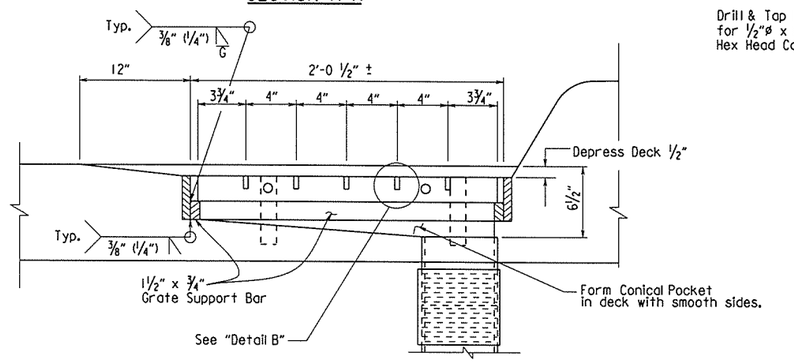
(FOR INFORMATION ONLY)

Mark	No. Req'd.	Length
X401E	8	4'-0"
X402E	8	5'-6"
X601E	8	9'-6"

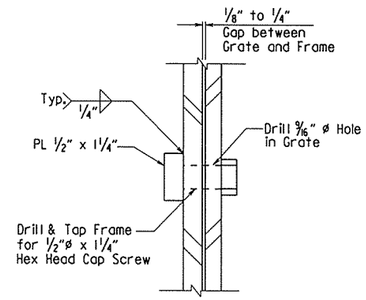
Bars designated with an "E" suffix are to be epoxy coated.



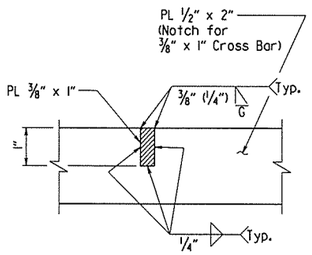
SECTION A-A



SECTION B-B



DETAIL A



DETAIL B

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF DECK DRAINS BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 8/4/15 FILENAME: bl00759_dr.dgn

CHECKED BY: KWV DATE: 12/17/15 SCALE: No Scale

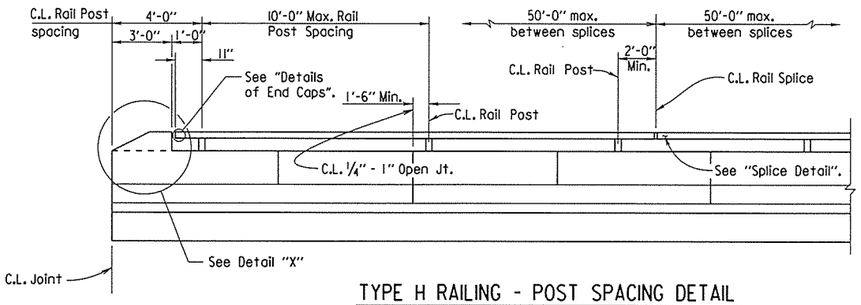
DESIGNED BY: SHD. DATE:

BRIDGE NO. A6021 DRAWING NO. 57672

PRINT DATE: 12/17/2015

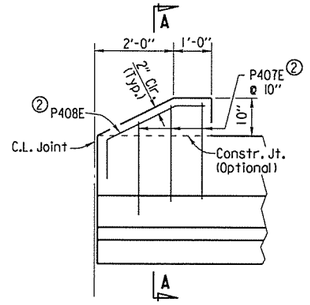
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100759	58	100

(1) A6021 - BRIDGE RAILING - 57673

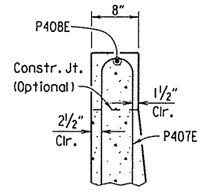


TYPE H RAILING - POST SPACING DETAIL

② See Dwg. Nos. 57656 & 57662 for bar lengths and bending diagrams.



DETAIL X



SECTION A-A

NOTES FOR BRIDGE RAILING:

Rail layout shall conform to vertical and horizontal alignment of bridge. All posts shall be vertical.

Base plates shall not be placed upon areas that are improperly finished, deformed or irregular.

Shop drawings showing details of railing shall be submitted and approval secured before fabrication is begun.

Rail splices shall be at 50' maximum spacing. Centerline splices shall be located at a minimum of 2 feet from centerline of post. Rail sections shall be fabricated to attach to at least three posts.

MATERIALS:

Tubing, Posts, and Accessories: AASHTO M 270, Grade 36 or ASTM A500-Grade B.

Railing End Caps: AASHTO M 270, Grade 36.

Cast in place anchor bolts shall be of stainless steel or high strength steel. Stainless steel anchor bolts shall conform to ASTM A193 or A320-Grade B8 with a minimum yield strength of 80,000 psi. High strength steel anchor bolts shall conform to Subsection 807.07.

Splice Set Screws shall conform to the requirements of ASTM A193 or A320-Gr. B8 (Stainless steel) or AASHTO M 270, Grade 36 (Galvanized).

Nuts: Nuts shall conform to AASHTO M 292, Grade 8A (Stainless steel) or conform to Subsection 807.06 (Galvanized).

Threads: Threads on bolts, screws, and nuts shall conform to American Standard Coarse Series, Class 2 FIT, ASA Specification B1.1.

Washers shall be stainless steel and conform to the requirements of ASTM A276 or A167-Type 302 with dimensions meeting ASTM F436, or galvanized high strength steel conforming Subsection 807.06.

Plate Washers shall be stainless steel and conform to the requirements of ASTM A167-Type 302 or AASHTO M 270, Grade 36, galvanized in accordance with AASHTO M 232 or ASTM B695, Class 40 or 50. Plate Washers shall have dimensions meeting the requirements of ANSI/ASME B18.22.1, Type A plain washer (Wide Series).

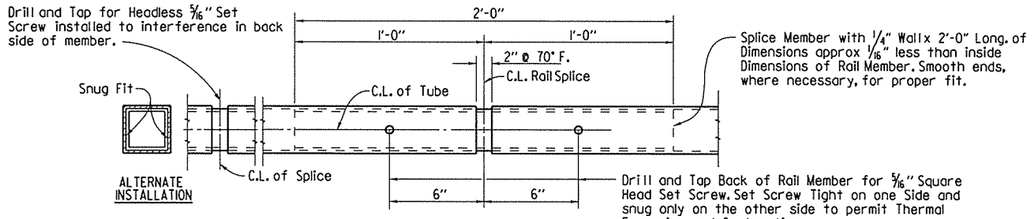
Mixing of stainless steel and galvanized fasteners will not be permitted.

Base plates shall be provided by the Fabricator and shop welded to rail posts. The base plates shall be AASHTO M 270, Grade 36, Galvanized in accordance with AASHTO M 232, or ASTM B695, Class 40 or 50.

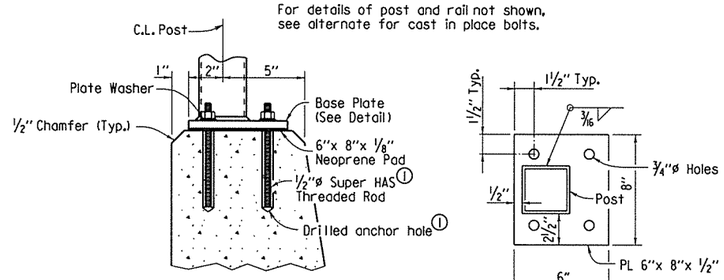
Steel rail members shall be galvanized in accordance with AASHTO M 111 after fabrication. Galvanized surfaces shall be prepared in accordance with Subsection 807.87.

Metal Bridge Railing, including posts, fasteners, base plates, template plates, anchor bolts, neoprene pad, galvanizing; fabrication and erection; and all incidentals necessary to complete the work shall be paid for in accordance with Section 806 at the contract unit price per linear foot bid for "Metal Bridge Railing (Type H)".

For details of concrete parapet rail, see Dwg. Nos. 57654 & 57668.



SPLICE DETAIL

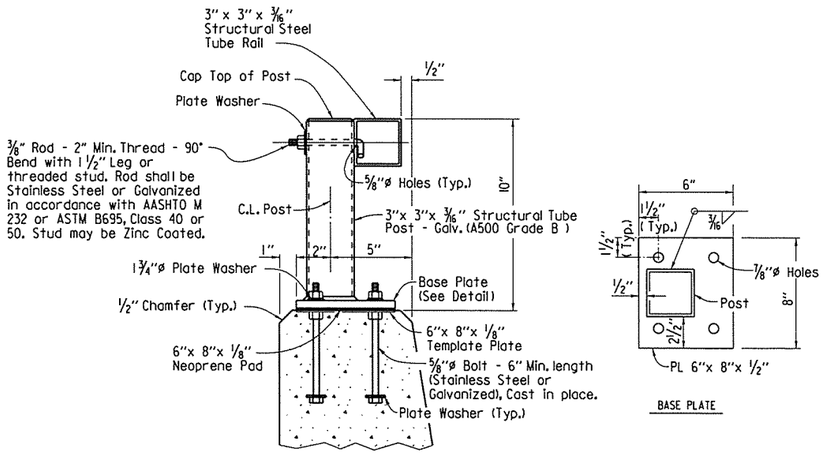


(1) HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4½" embedment or an approved equal.

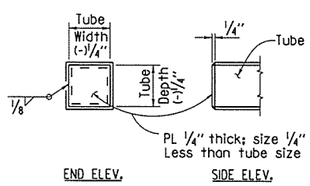
The HILTI Epoxy Adhesive Anchor System shall be installed in accordance with Manufacturer's recommendations.

BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)



DETAILS OF POST ANCHOR SYSTEM
(CAST IN PLACE BOLTS)



DETAILS OF END CAPS

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF METAL BRIDGE RAILING
BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

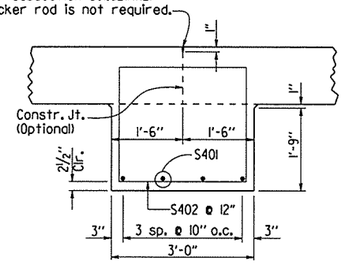
DRAWN BY: CMW DATE: 8/13/15 FILENAME: b061335_rl.dgn
CHECKED BY: DHP DATE: 12/15/15 SCALE: No Scale
DESIGNED BY: DHP DATE:

BRIDGE NO. A6021 DRAWING NO. 57673

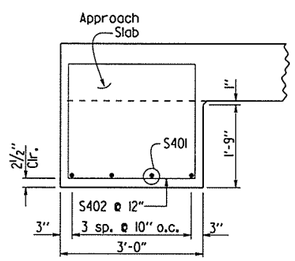
PRINT DATE: 12/10/2015

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.		100759	59	100
				(1)		A6021 - APPROACH SLABS - 57674		

½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2)
Backer rod is not required.

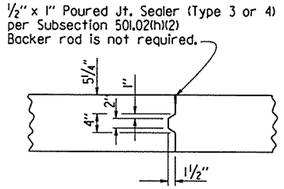


SECTION A-A
No Scale

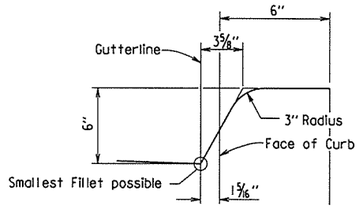


SECTION B-B
No Scale

½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2)
Backer rod is not required.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT
No Scale



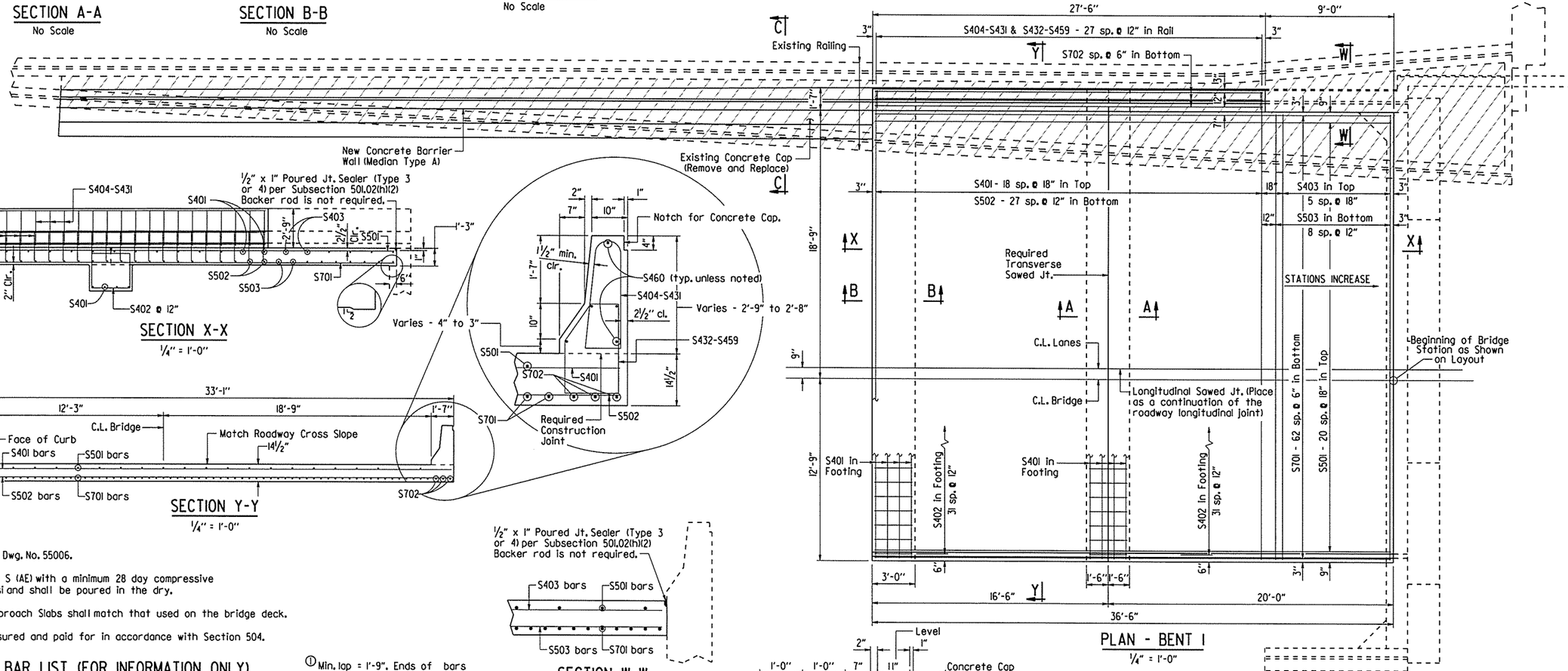
TYPICAL CURB DETAIL
No Scale

NOTE: Remove hatched portions of existing structure as shown to facilitate construction of the new bridge and railing.

Void areas between adjacent rails are filled with sand or donna fill and capped with concrete. Upon completion of the new rail, the void areas shall be backfilled with sand or donna fill and a new concrete cap shall be installed. All work and material associated with this backfill and concrete cap will not be paid for directly, but shall be considered subsidiary to the item "Approach Slabs". The new concrete cap shall be of similar thickness and reinforcement of that removed. Existing sand or donna fill may be reused at the approval of the Engineer.

TABLE OF QUANTITIES
(FOR INFORMATION ONLY)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)	Concrete Barrier Wall (Median Type A) (Lin. Ft.)
8,358	70.3	57



NOTES

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

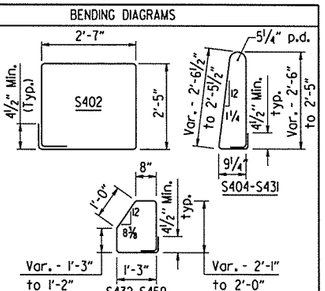
All concrete shall be Class S (AE) with a minimum 28 day compressive strength of f'c = 4,000 psi and shall be poured in the dry.

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

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

APPROACH SLAB BAR LIST (FOR INFORMATION ONLY)

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
S401	27	32'-9"	Str.	
S402	64	10'-4"	2"	
S403	6	31'-2"	Str.	
S404 to S431	1 ea.	Var.-6'-6" to 6'-4"	2"	
S432 to S459	1 ea.	Var. 6'-9" to 6'-7"	2"	
S460	5	27'-2"	Str.	
S501	21	36'-2"	Str.	
S502	28	32'-9"	Str.	
S503	9	31'-2"	Str.	
S701	63	36'-2"	Str.	
S702	3	27'-2"	Str.	



(Dimensions are out to out of bars.)

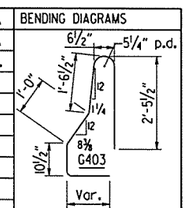
ⓘ Min. lap = 1'-9". Ends of bars shall have 2" clear to ends of barrier walls.

½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2)
Backer rod is not required.

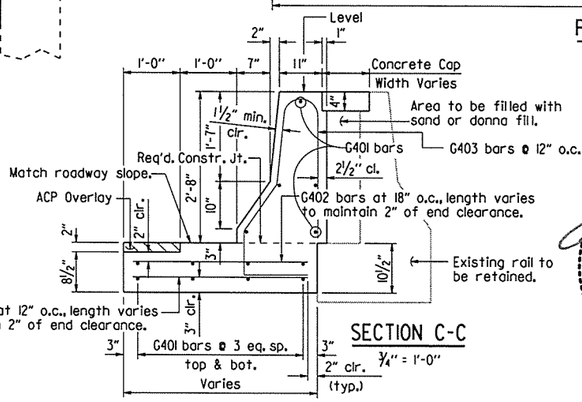
SECTION W-W
½" = 1'-0"

BARRIER WALL BAR LIST (FOR INFORMATION ONLY)

MARK	LENGTH	P.D.	BENDING DIAGRAMS
ⓘ G401	29'-3"	Str.	
G402	Varies	Str.	
G403	Varies	2"	



(Dimensions are out to out of bars.)



SECTION C-C
¾" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF TYPE SPECIAL APPROACH SLAB BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 8/26/15 FILENAME: bl00759_asl.dgn
CHECKED BY: CRE DATE: 12/14/15 SCALE: as noted
DESIGNED BY: DATE:

BRIDGE NO. A6021 DRAWING NO. 57674

PRINT DATE: 12/17/2015

NOTE: Remove hatched portions of existing structure as shown to facilitate construction of the new bridge and railing.

Void areas between adjacent rails are filled with sand or donna fill and capped with concrete. Upon completion of the new rail, the void areas shall be backfilled with sand or donna fill and a new concrete cap shall be installed. All work and material associated with this backfill and concrete cap will not be paid for directly, but shall be considered subsidiary to the item "Approach Slabs". The new concrete cap shall be of similar thickness and reinforcement of that removed. Existing sand or donna fill may be reused at the approval of the Engineer.

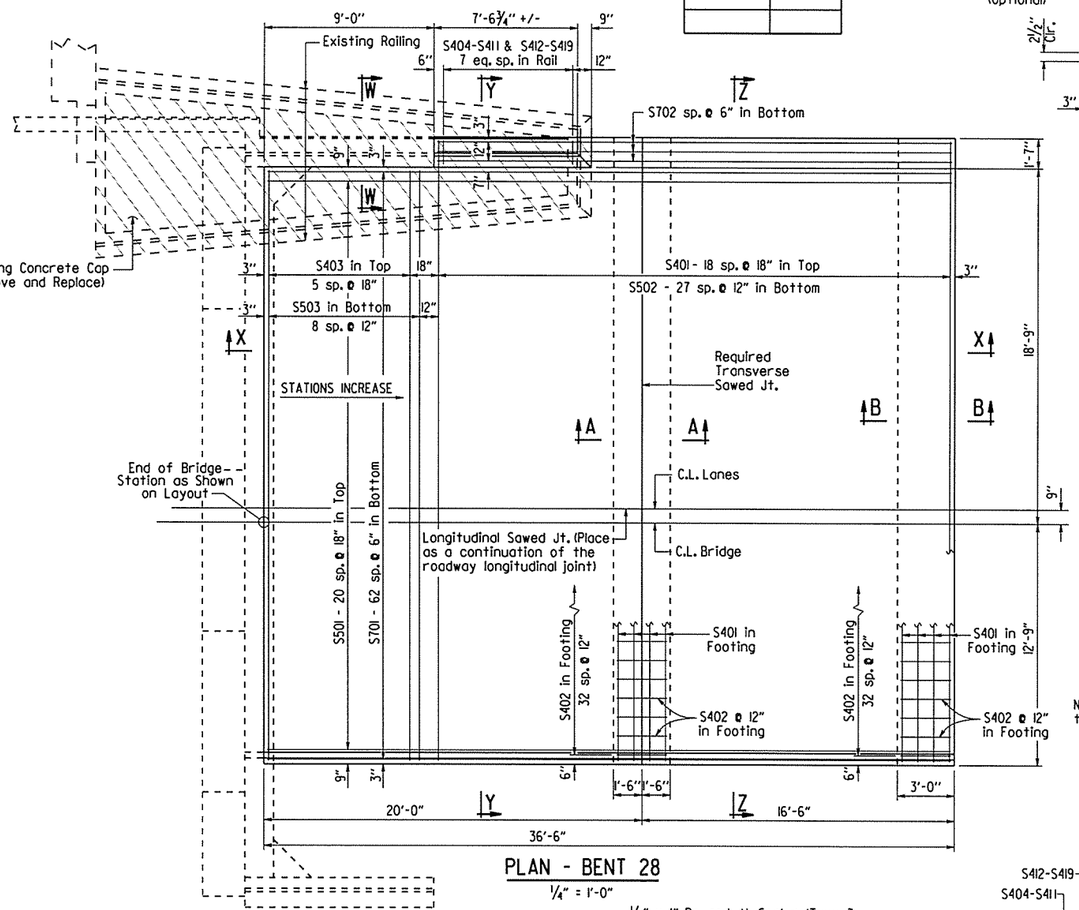
TABLE OF QUANTITIES

(FOR INFORMATION ONLY)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
8,130	68.1

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.		100759	60	100

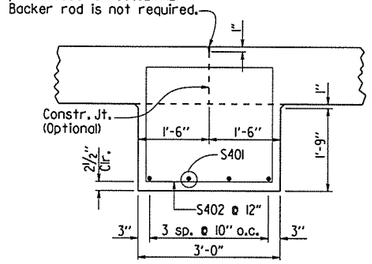
(1) A6021 - APPROACH SLABS - 57675



PLAN - BENT 28

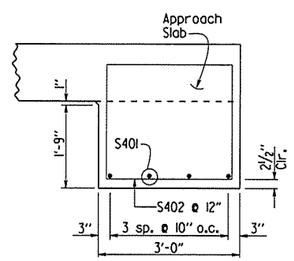
¼" = 1'-0"

½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



SECTION A-A

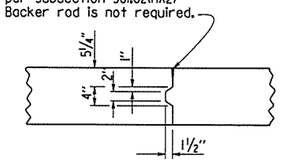
No Scale



SECTION B-B

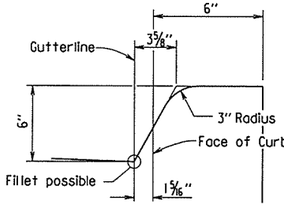
No Scale

½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



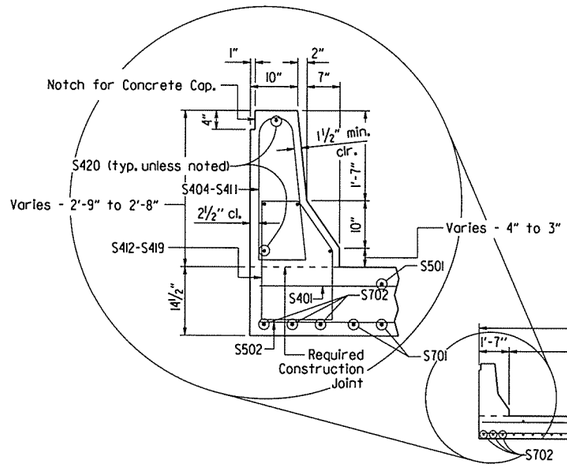
DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

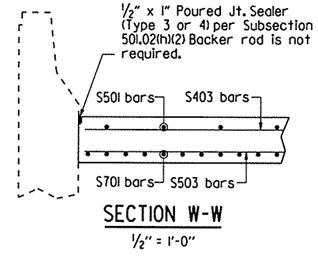
No Scale



TYPICAL CURB DETAIL

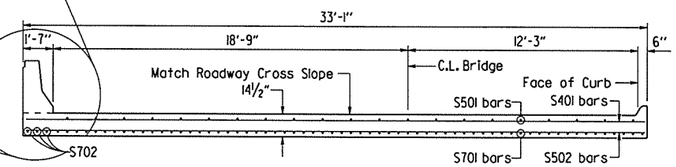
No Scale





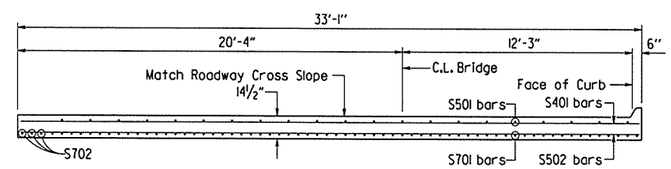
SECTION W-W

½" = 1'-0"



SECTION Y-Y

¼" = 1'-0"



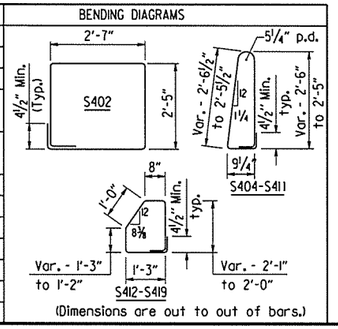
SECTION Z-Z

¼" = 1'-0"

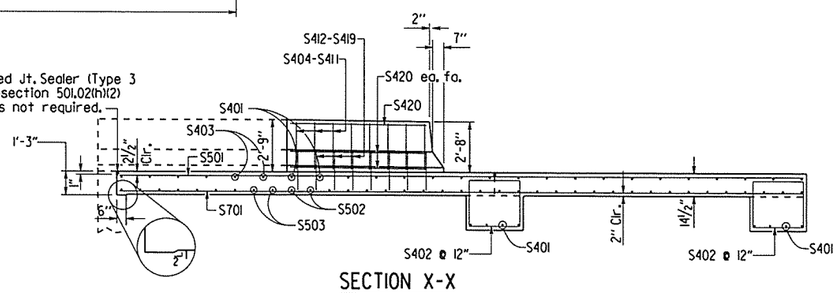
APPROACH SLAB BAR LIST (FOR INFORMATION ONLY)

MARK	NO. REQ'D.	LENGTH	P.D.
S401	27	32'-9"	Str.
S402	66	10'-4"	2"
S403	6	31'-2"	Str.
S404 to S411	1 ea.	Var. 6'-6" to 6'-4"	2"
S412 to S419	1 ea.	Var. 6'-9" to 6'-7"	2"
S501	21	36'-2"	Str.
S502	28	32'-9"	Str.
S503	9	31'-2"	Str.
S420	5	7'-3"	Str.
S701	63	36'-2"	Str.
S702	3	27'-2"	Str.

BENDING DIAGRAMS



(Dimensions are out to out of bars.)



SECTION X-X

¼" = 1'-0"

GENERAL NOTES

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

All reinforcing steel shall be Grade 60 (fy = 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.

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

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF TYPE SPECIAL APPROACH SLAB
BLACK RIVER

ROUTE SEC.

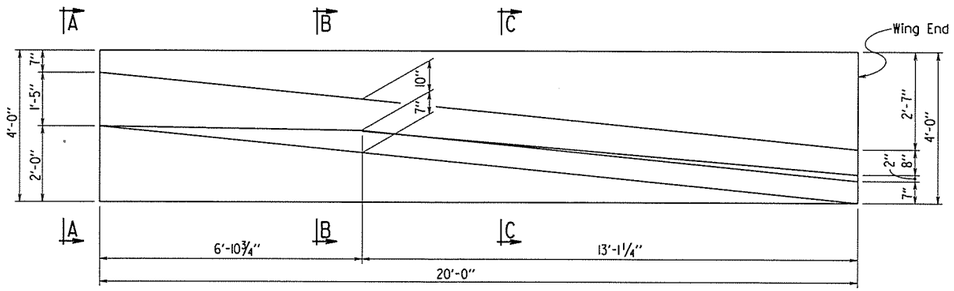
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 8/28/15 FILENAME: bl00759_asl.dgn
CHECKED BY: BHL DATE: 12/16/15 SCALE: as noted
DESIGNED BY: LAD. DATE:

BRIDGE NO. A6021 DRAWING NO. 57675

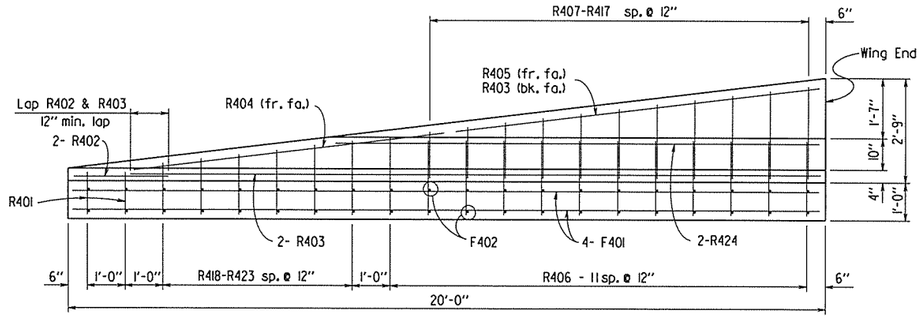
PRINT DATE: 12/17/2015

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.		100759	61	100
				(1)	A6021 - TRANS. APPR. RAIL - 57676			



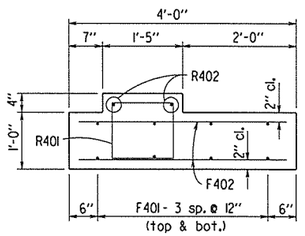
PLAN OF TRANSITIONAL APPROACH RAILING

½" = 1'-0"



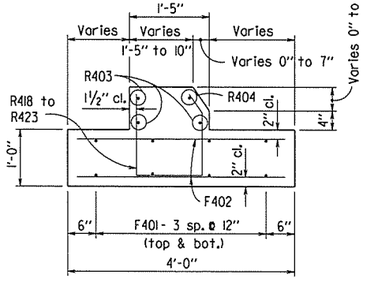
ELEVATION OF TRANSITIONAL APPROACH RAILING

½" = 1'-0"



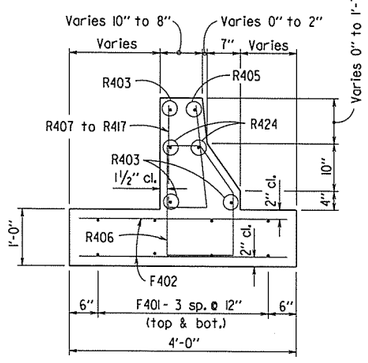
VIEW A-A

¾" = 1'-0"



SECTION B-B

¾" = 1'-0"



SECTION C-C

¾" = 1'-0"

GENERAL NOTES

Transitional Approach Railing shall be placed at the beginning and end of bridge, right side only.

All concrete shall be Class "S" and be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

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

Exposed surfaces shall be given a Class 2 Rubbed Finish. Class I Protective Surface Treatment shall be applied to the roadway face and top of the Transitional Approach Railing.

Transitional Approach Railing shall be paid for at the contract unit price bid per each for "Transitional Approach Railing".

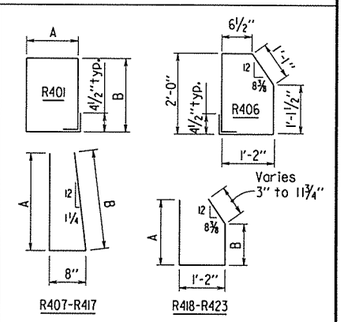
FOR INFORMATION ONLY
SCHEDULE OF QUANTITIES PER RAIL UNIT

CLASS "S" CONCRETE	REINFORCING STEEL (GRADE 60)	CLASS I PROTECTIVE SURFACE TREATMENT
4.20 Cu. Yds.	377 Lbs.	0.2 Gal.

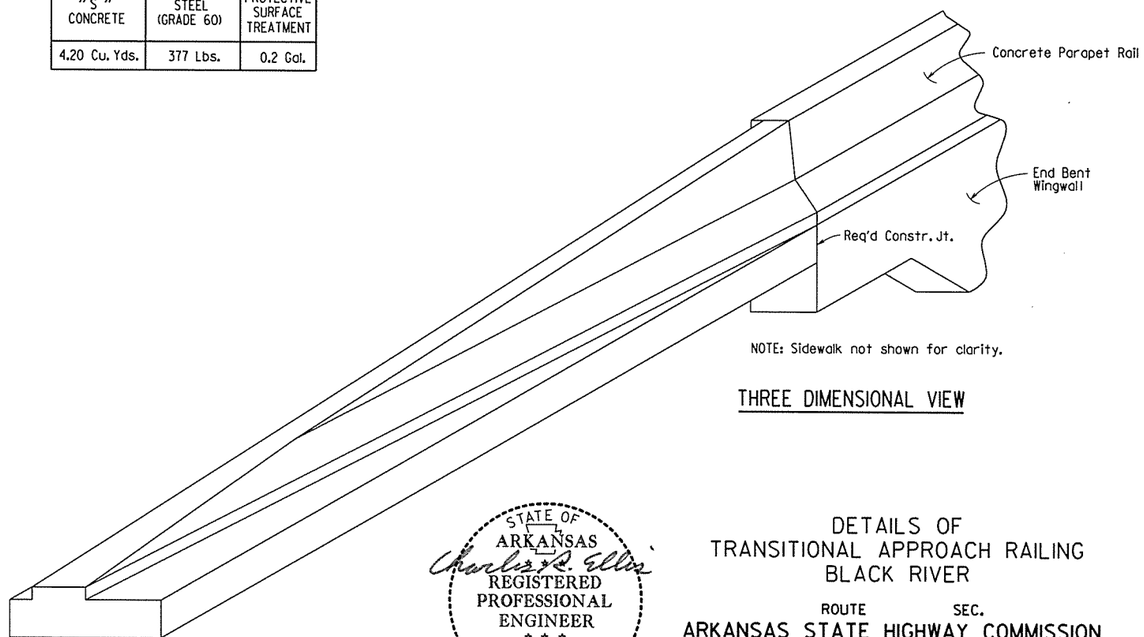
BAR LIST-ONE TRANSITIONAL APPROACH RAIL

Mark	No. Req'd.	Length	A	B	Pin Dia.
F401	8	19'-8"			str.
F402	40	3'-8"			str.
R401	2	4'-10"	1'-2"	1'-1"	2"
R402	2	3'-0"			str.
R403	3	17'-9"			str.
R404	1	5'-0"			str.
R405	1	12'-9"			str.
R406	12	6'-3"			2"
R407 to R417	1ea.	3'-0" to 5'-5"	1'-3" to 2'-5½"	1'-3" to 2'-5½"	2"
R418 to R423	1ea.	3'-9" to 5'-1"	1'-4" to 1'-11¼"	1'-1½"	2"
R424	2	12'-9"			str.

Bending Diagram



Dimensions are out to out of bars.



NOTE: Sidewalk not shown for clarity.

THREE DIMENSIONAL VIEW

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-17-15
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF TRANSITIONAL APPROACH RAILING BLACK RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 8/6/15 FILENAME: b100759_tar.dgn

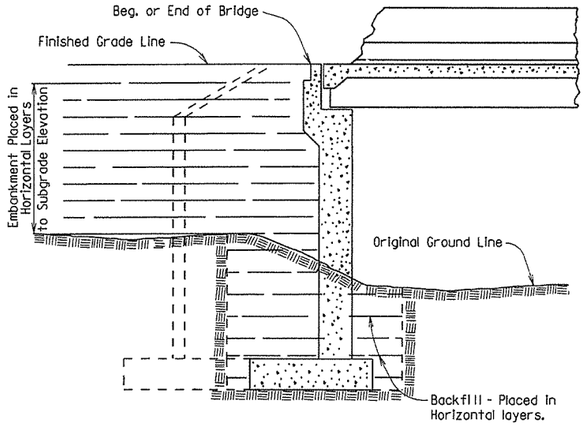
CHECKED BY: CMW DATE: 12/14/15 SCALE: as noted

DESIGNED BY: SWL DATE:

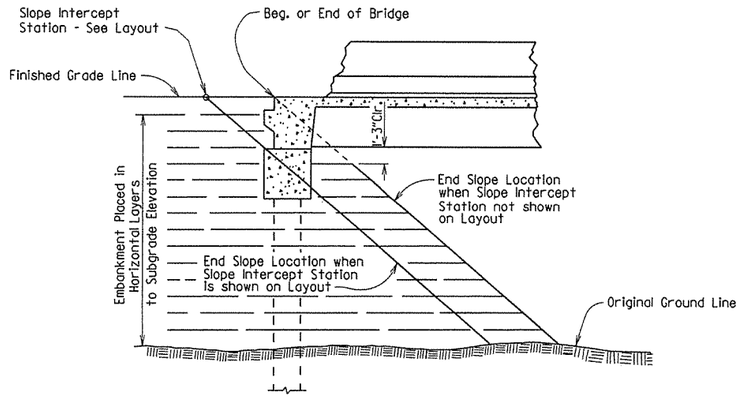
BRIDGE NO. A6021 DRAWING NO. 57676

PRINT DATE: 12/17/2015

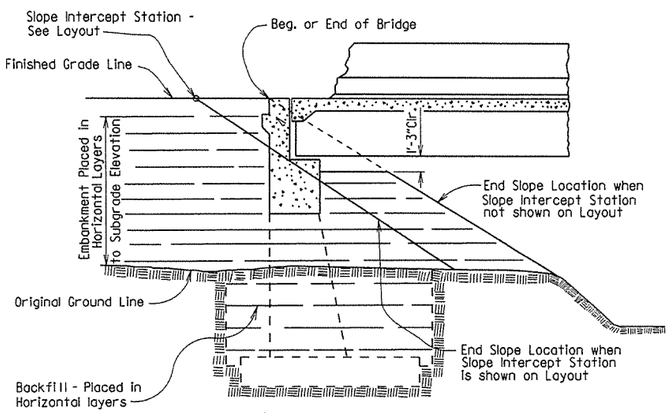
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		6a	
				JOB NO.				
				①	EMBANKMENT & BACKFILL		55000	



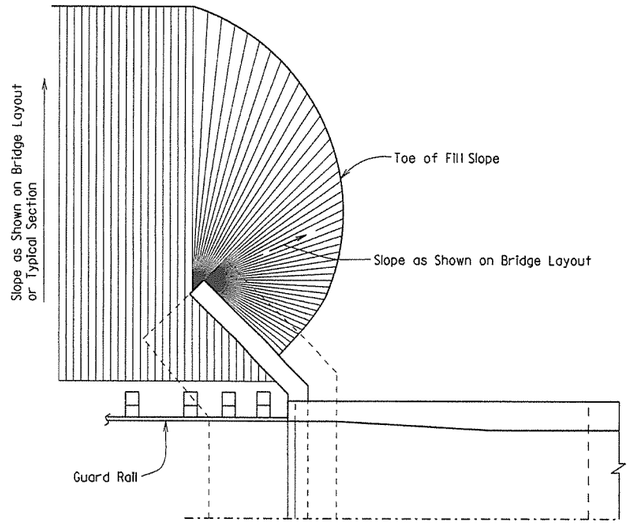
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



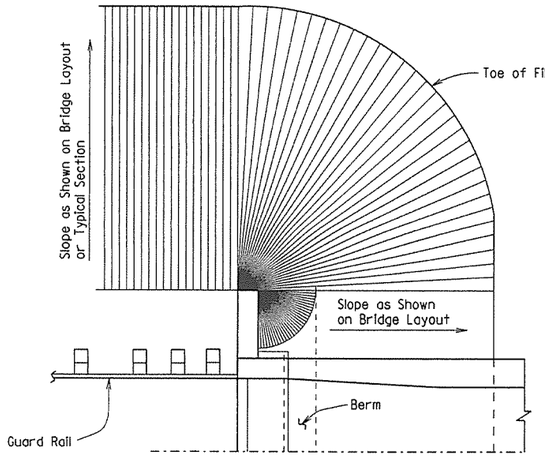
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



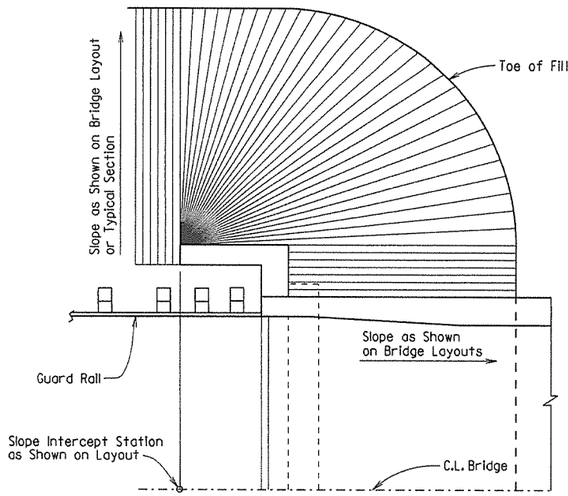
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



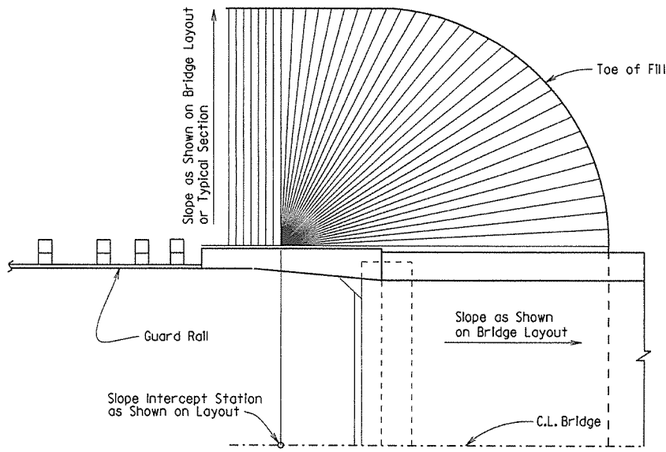
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 6 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to Subsections 210.09, 210.10 and 801.08 for construction requirements.

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

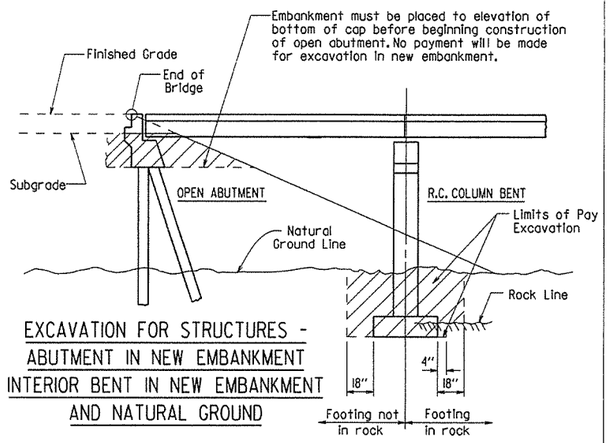
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: -

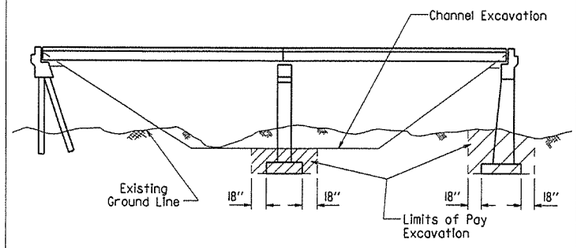
DRAWING NO. 55000

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		63	
				JOB NO.				

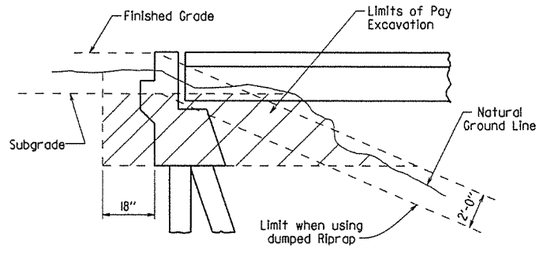
(1) RIPRAP & EXCAV. 55001



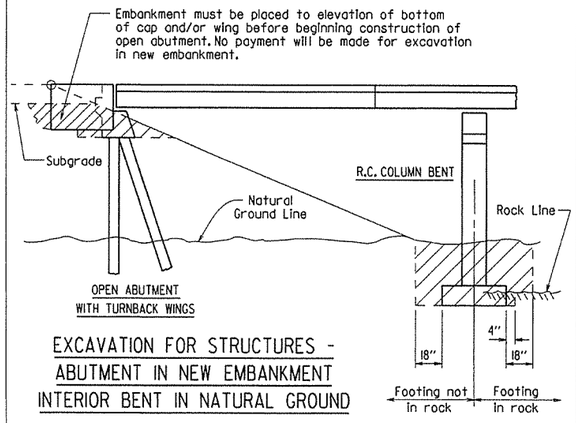
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



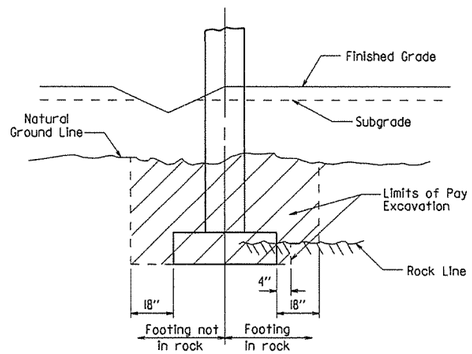
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



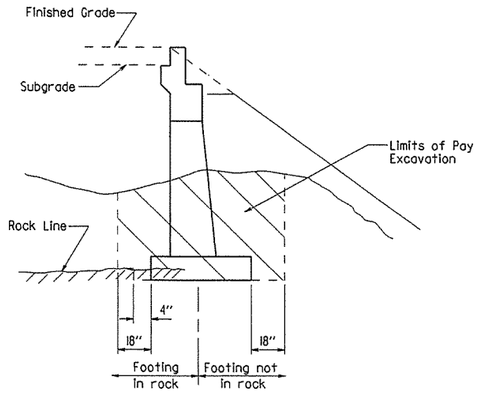
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



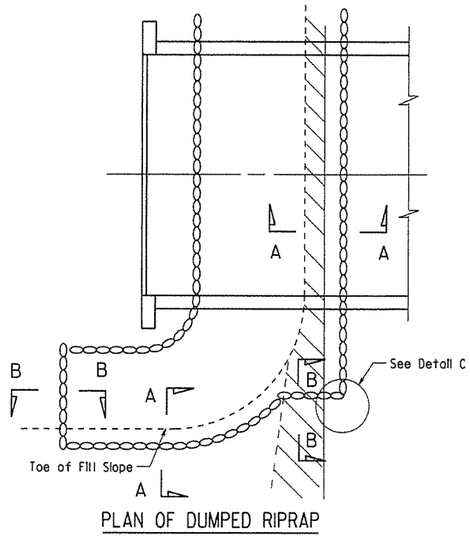
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



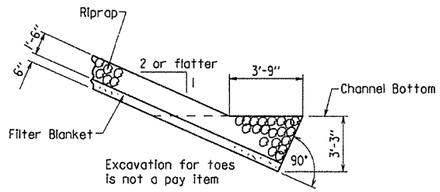
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

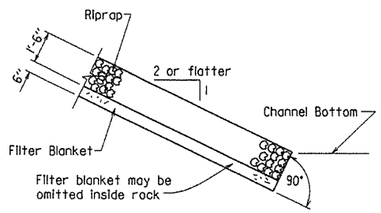


PLAN OF DUMPED RIPRAP



SECTION A-A

(Toe Excavation in Soil)



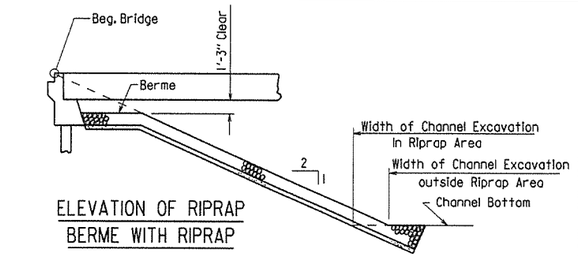
SECTION A-A

(Toe Excavation in Rock)

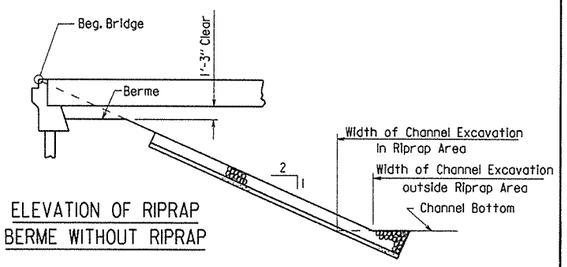
Note : Use this type of toe when rock is encountered which is in a stable condition.

Note : In lieu of an aggregate filter blanket, a synthetic fiber geotextile fabric complying with the requirements of Subsection 816.02(e) may be used.

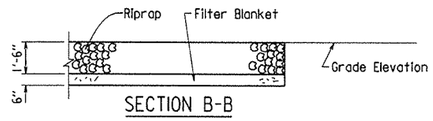
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



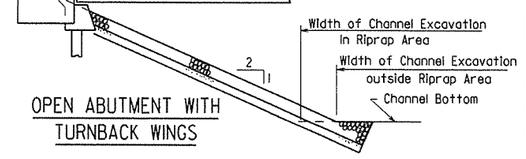
ELEVATION OF RIPRAP BERME WITH RIPRAP



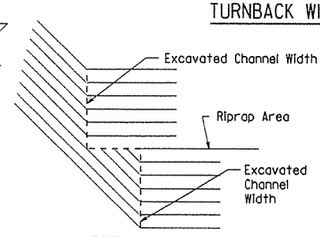
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

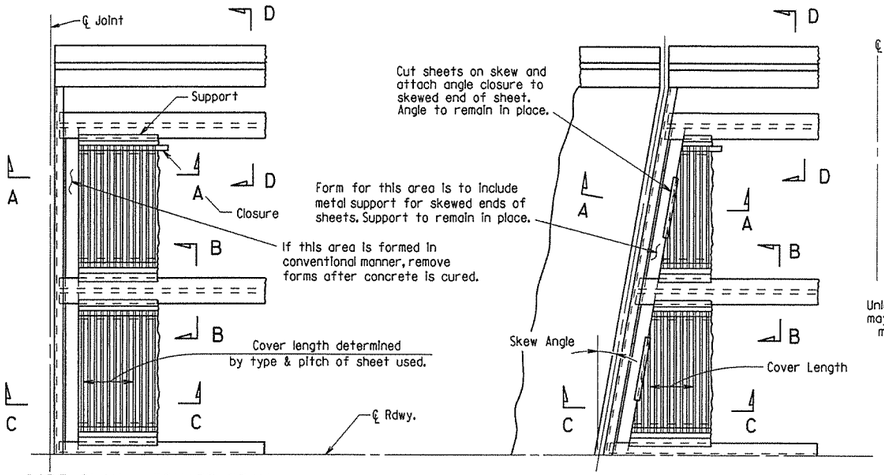
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn

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

DESIGNED BY: STD. DATE:

DRAWING NO. 55001

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		64	
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

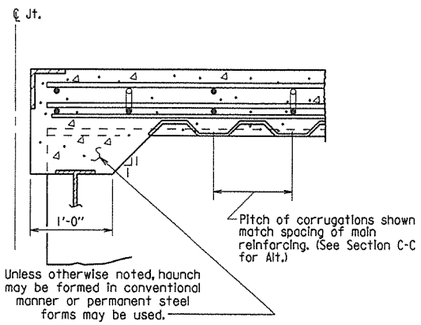


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

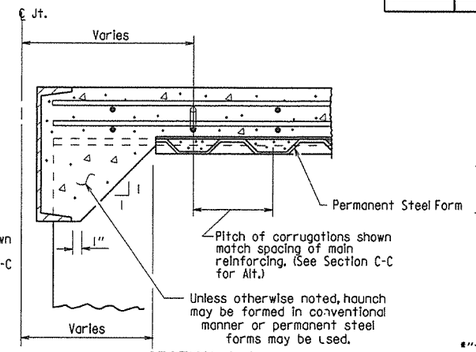
3/8" = 1'-0"



SECTION A-A

N.T.S.

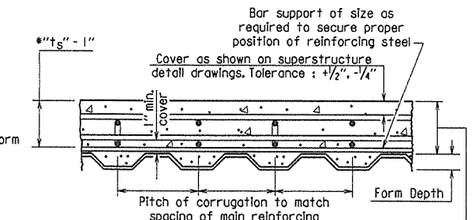
(Angle at end of span)



SECTION A-A

N.T.S.

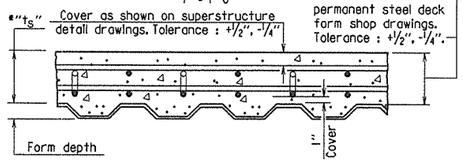
(Channel at end of span)



SECTION C-C

1" = 1'-0"

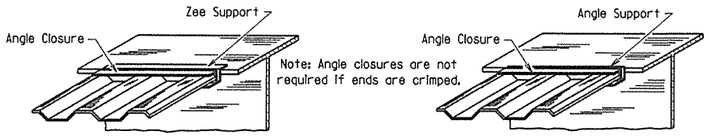
Top of slab to top of permanent steel deck form - obtain from permanent steel deck form shop drawings. Tolerance : +1/2", -1/4".



SECTION C-C - ALTERNATE

1" = 1'-0"

(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

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

GENERAL NOTES

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

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

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

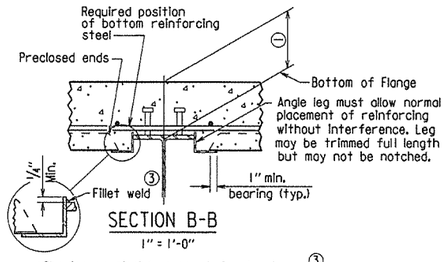
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

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

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

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

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

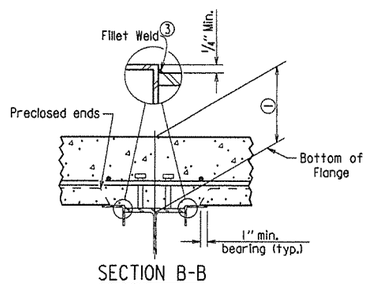


SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

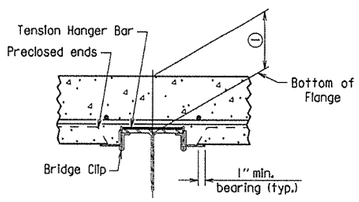
③ Minimum weld: 1/8" x 1' ℄ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

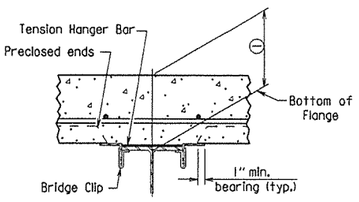
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

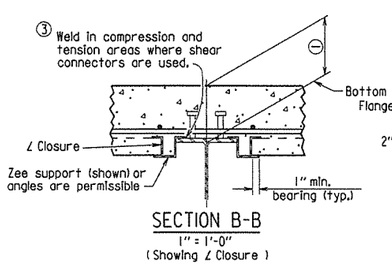
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

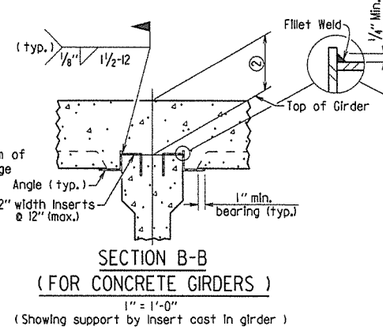
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

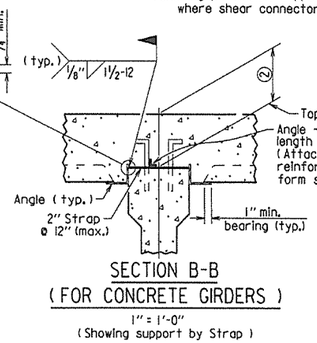


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)

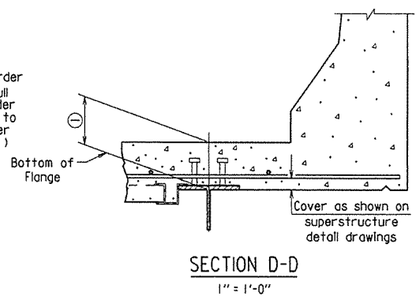


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

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

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

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

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.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		65	
				JOB NO.				

① GENERAL NOTES 55006

STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

DRAWING NO. 55006

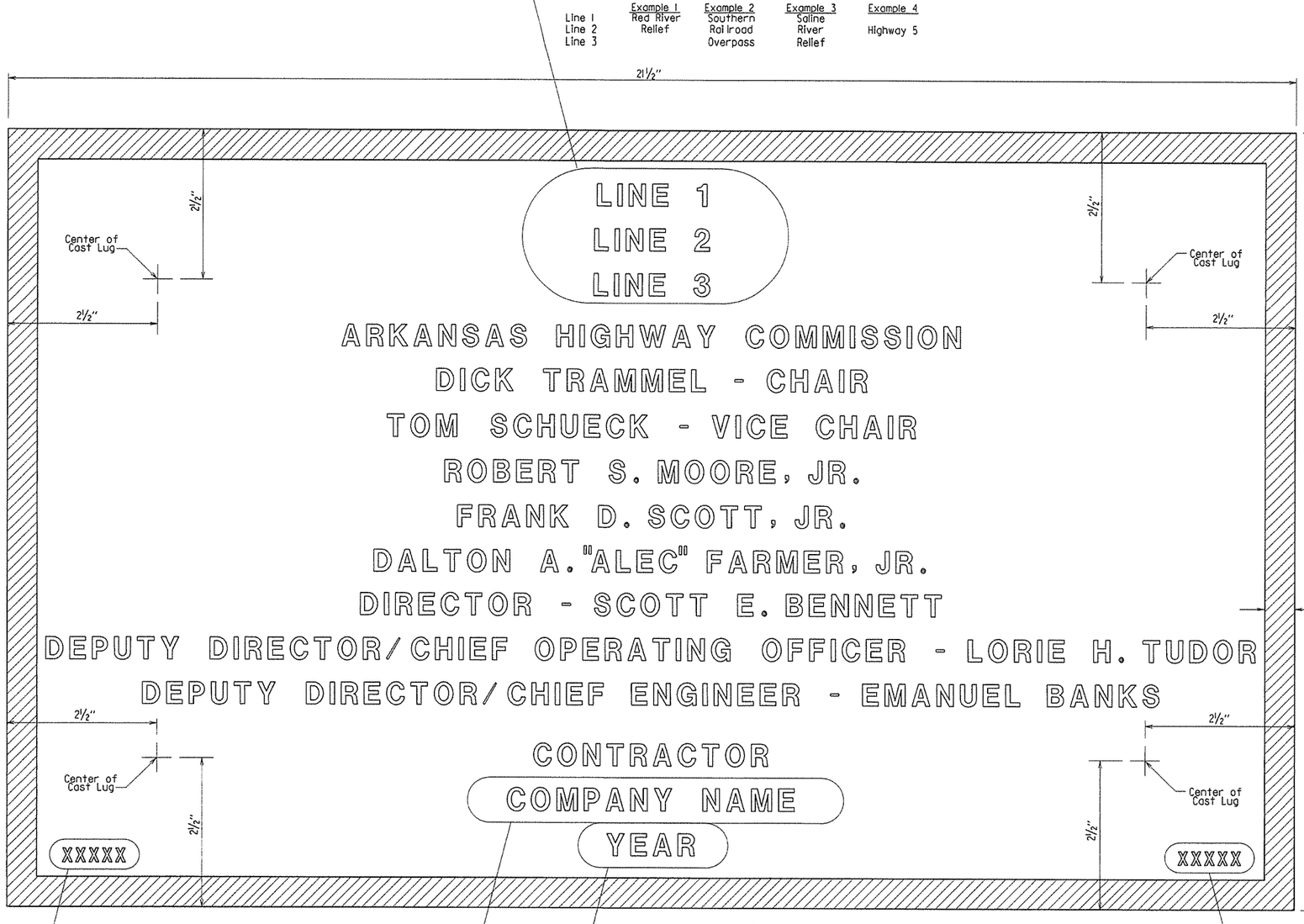
PRINT DATE: 9/10/2015

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.		66	
1-14-15				JOB NO.				

(1) 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	



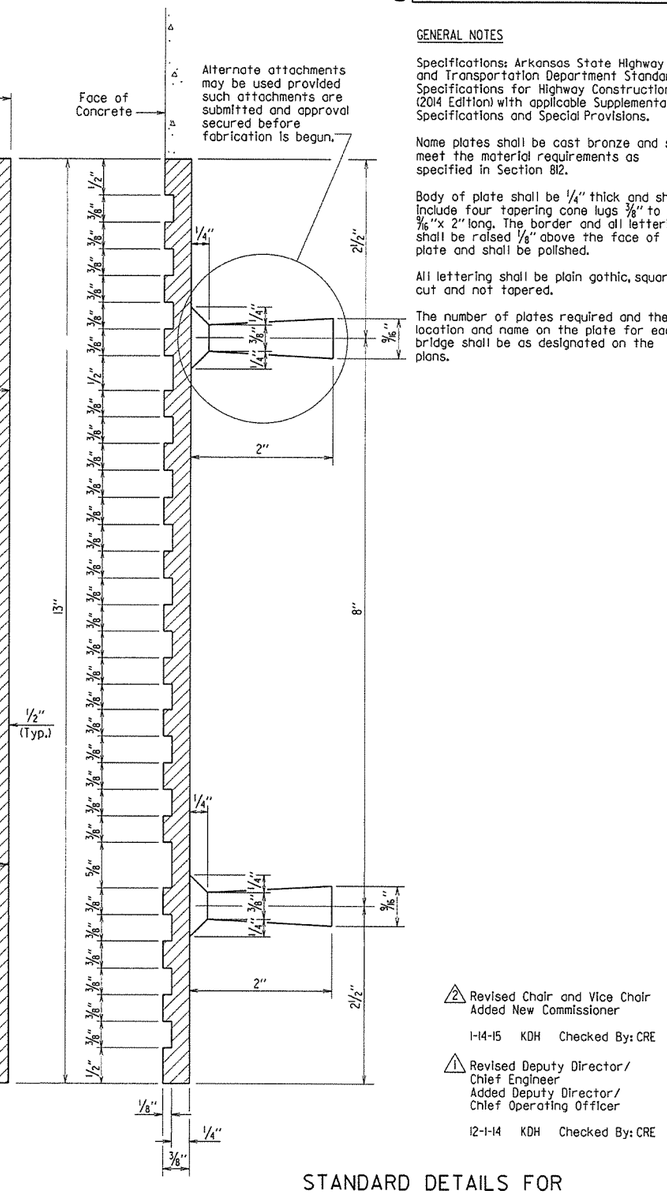
Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20
HL-93

Place the Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example : 2001

Place the name of the company awarded the construction contract here using 1/8" raised letters and numerals 3/8" high. Example : ABCD CONSTRUCTION, INC.

Place the Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples : A1234
05432

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

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

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812.

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" 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.

(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

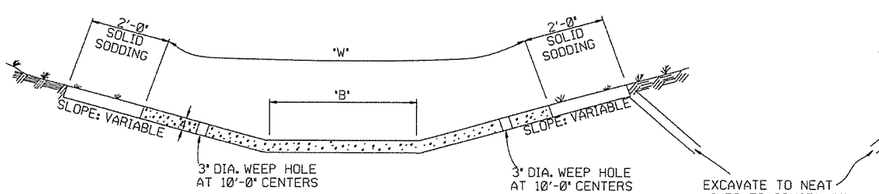
STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE

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: —

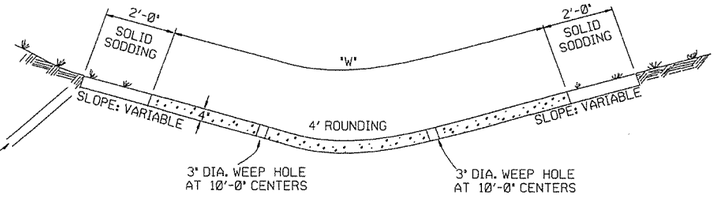
DRAWING NO. 55010

REFER TO TABULATION OF QUANTITIES FOR 'W' & 'B' DIMENSIONS



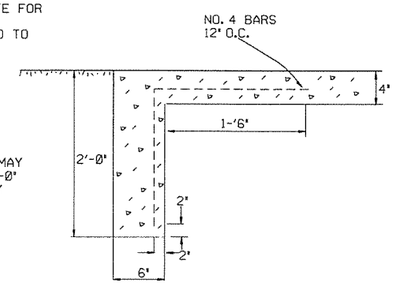
TYPE A

REFER TO TABULATION OF QUANTITIES FOR 'W' DIMENSIONS



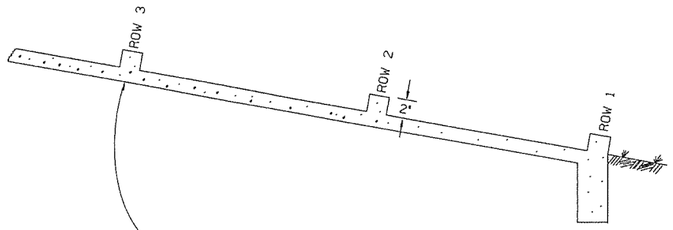
TYPE B

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

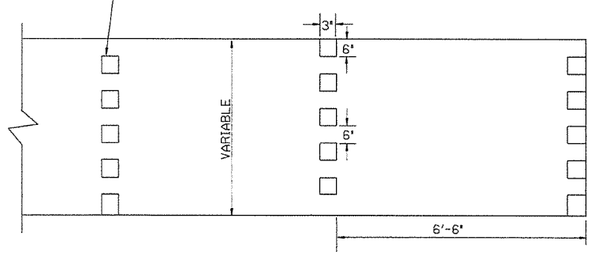


TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

TOE WALL DETAIL FOR CONCRETE DITCH PAVING



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED



ENERGY DISSIPATORS
(NO SCALE)

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

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

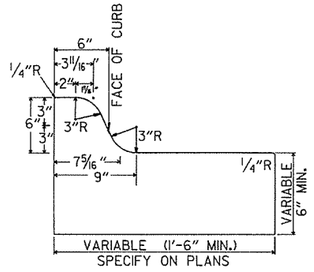
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

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

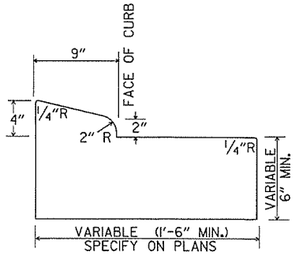
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

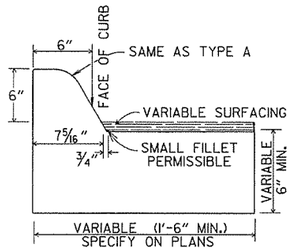
STANDARD DRAWING CDP-1



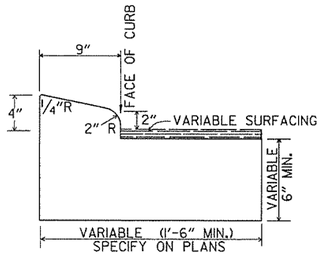
TYPE A



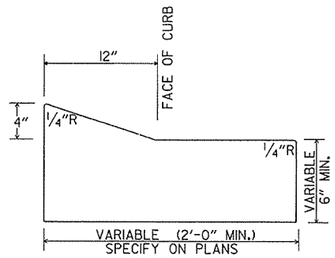
TYPE B-1



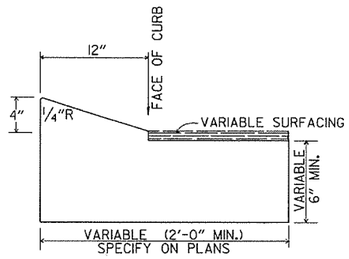
TYPE C



TYPE B-2

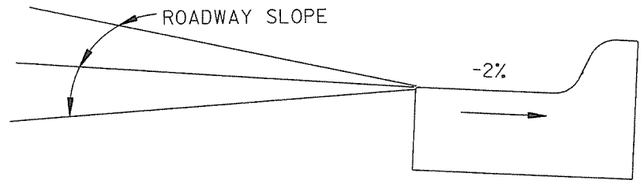


TYPE E-1



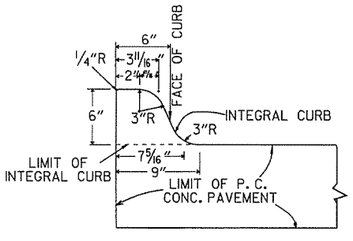
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

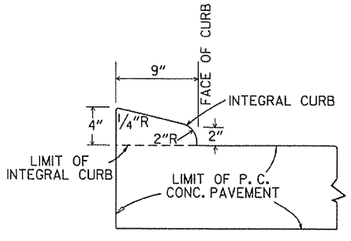


DETAIL OF GUTTER SLOPE

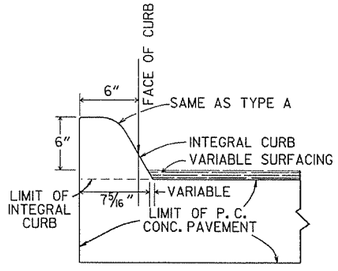
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

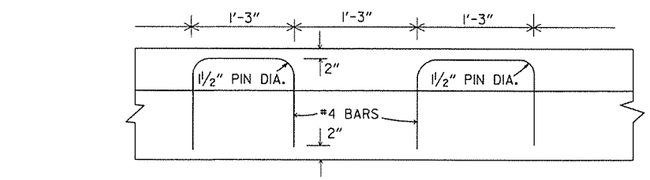


TYPE B

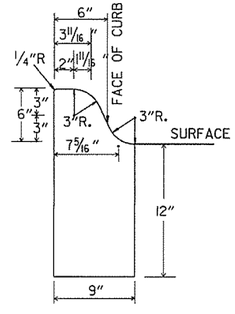


TYPE C

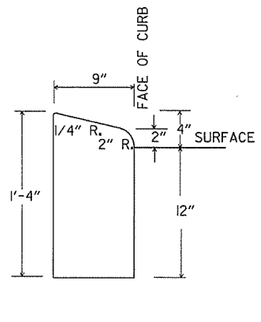
INTEGRAL CURB



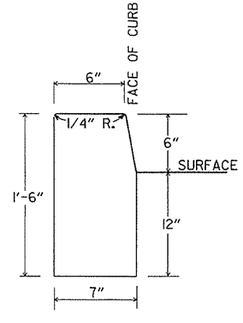
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



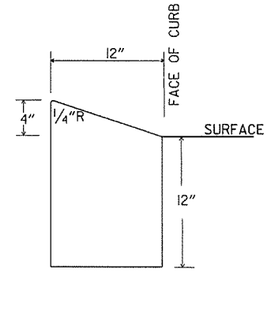
TYPE A



TYPE B

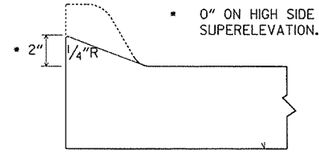


TYPE D



TYPE E

CONCRETE CURB



NOTE: USE MODIFIED CURB AS SPECIFIED ON STD. DR-1. COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR CURB AND GUTTER SPECIFIED.

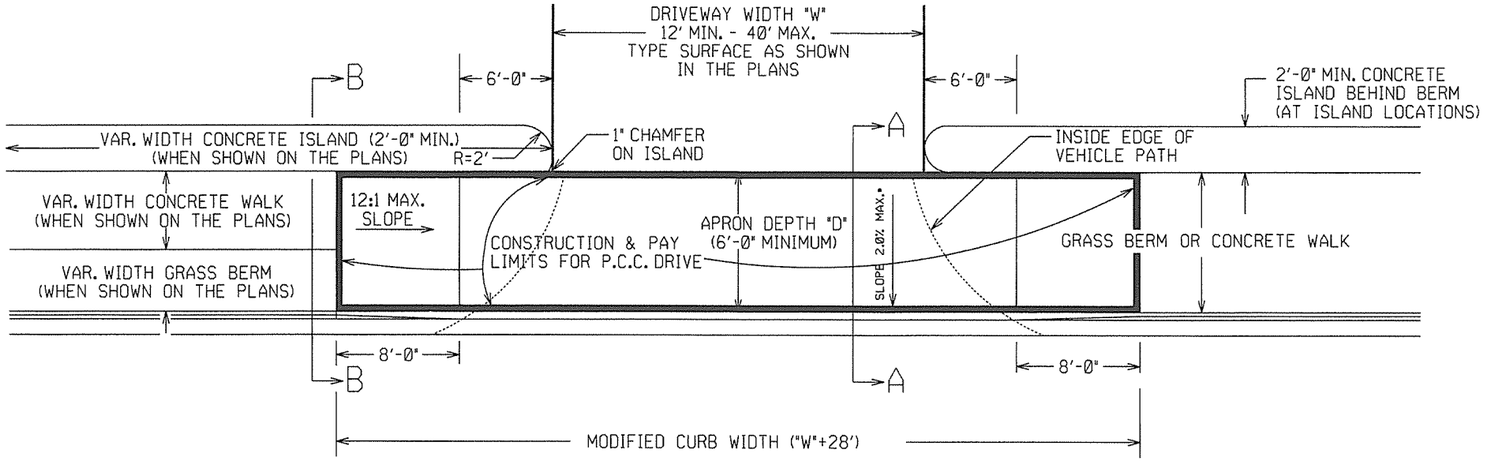
DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIBLE DEPTH TYPE A & B I	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	500-11-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72

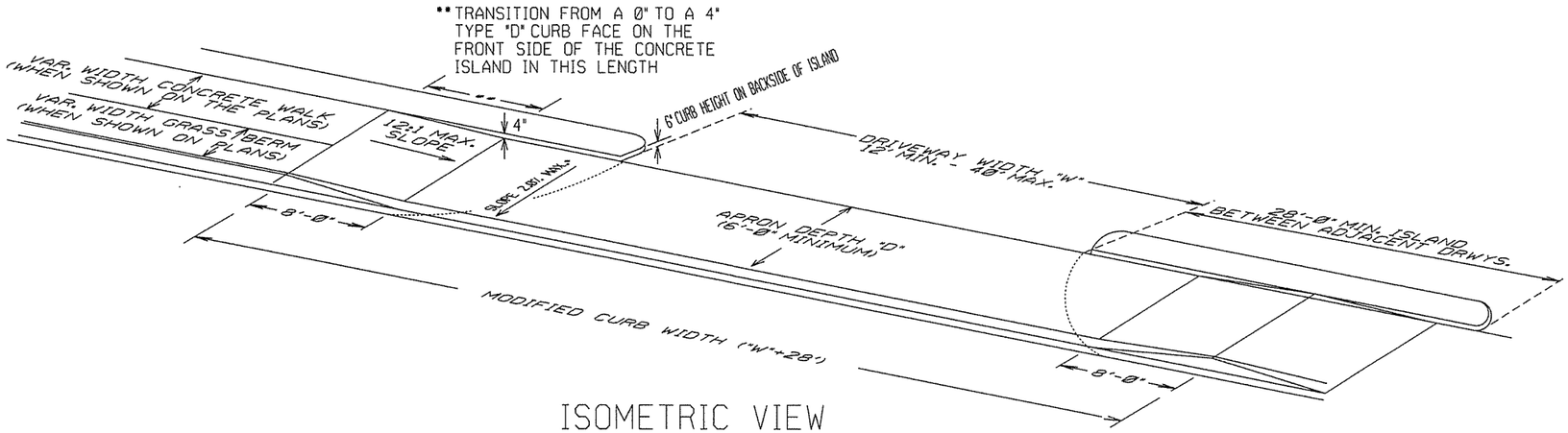
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

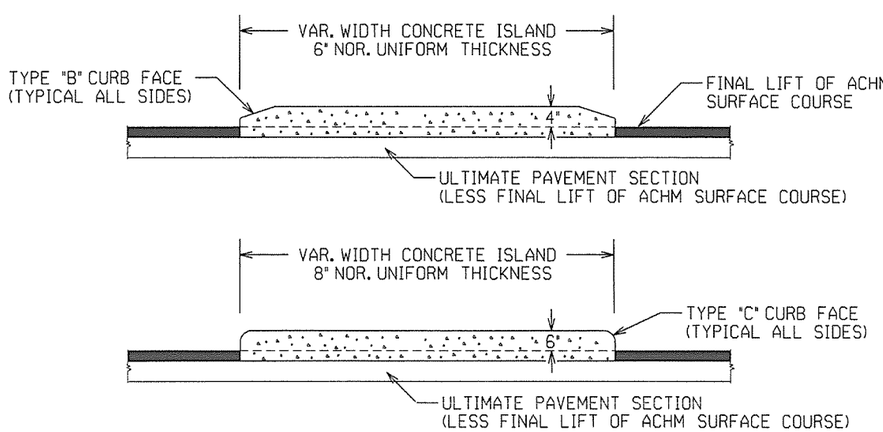
STANDARD DRAWING CG-1



PLAN VIEW

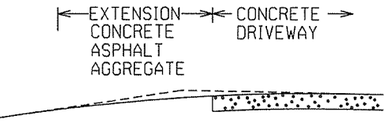


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

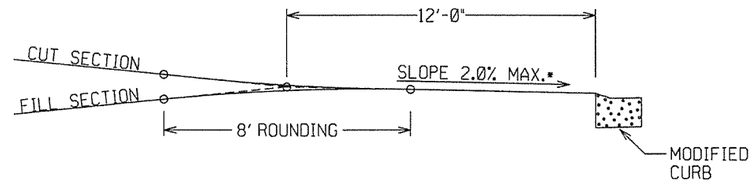
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

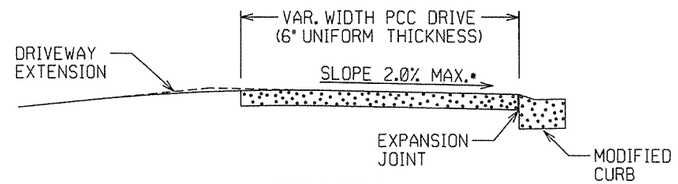
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

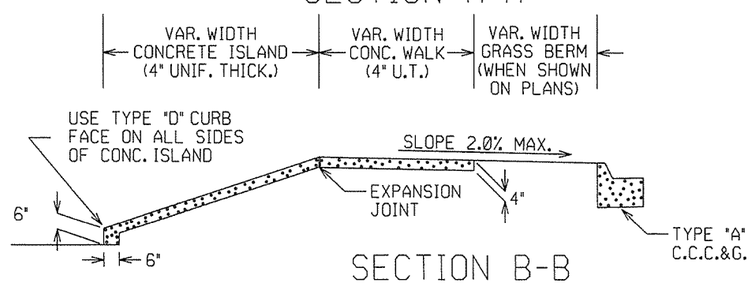


DRIVEWAY VERTICAL ALIGNMENT DETAILS

* NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



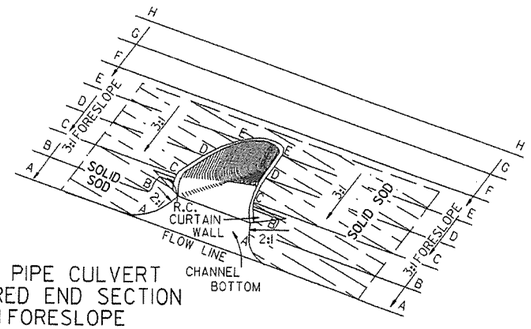
SECTION A-A



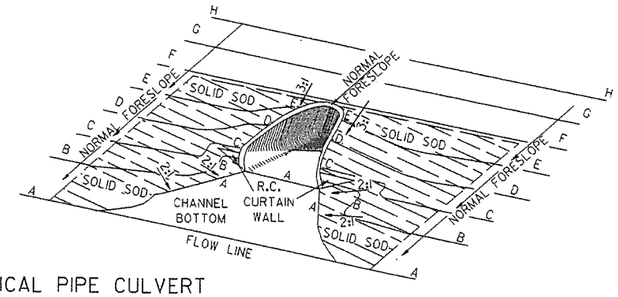
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
2-27-14		REVISED PLAN & ISOMETRIC VIEW
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

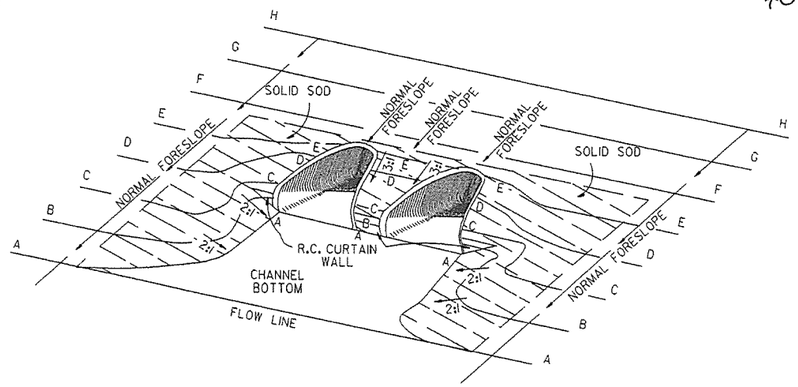
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	1 1/2"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0 1/2"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3 1/2"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1 1/2"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9 1/2"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.

REINFORCING STEEL SCHEDULE

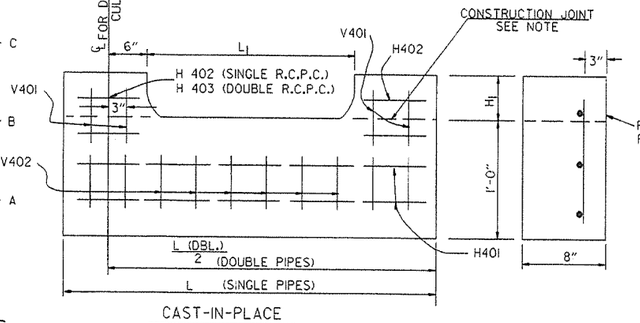
PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	V401 L	V401 NO.	V402 L	V402 NO.	DOUBLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	H403 L	H403 NO.	V401 L	V401 NO.	V402 L	V402 NO.
18"	7'-8"	2	1'-11 1/2"	4	1'-7 1/2"	8	8"	8	12'-2"	2	1'-11 1/2"	4	8"	2	1'-7 1/2"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8 1/2"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8 1/2"	12	8"	18
30"	10'-8"	2	2'-4 1/2"	4	1'-11 1/2"	10	8"	12	17'-8"	2	2'-4 1/2"	4	8"	2	1'-11 1/2"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9 1/2"	8	2'-9 1/2"	16	8"	15	23'-8"	2	3'-9 1/2"	8	8"	4	2'-9 1/2"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8 1/2"	12	3'-5 1/2"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5 1/2"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

ALL REINFORCING STEEL #4 BARS @ 6" O.C.

PLAN VIEW
3:1 FORESLOPES

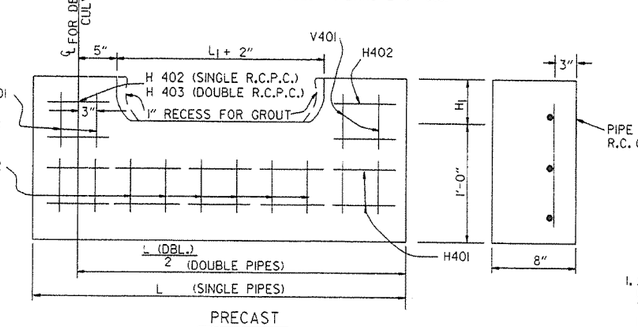
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



CAST-IN-PLACE

NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



PRECAST

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

R.C. CURTAIN WALL DETAILS

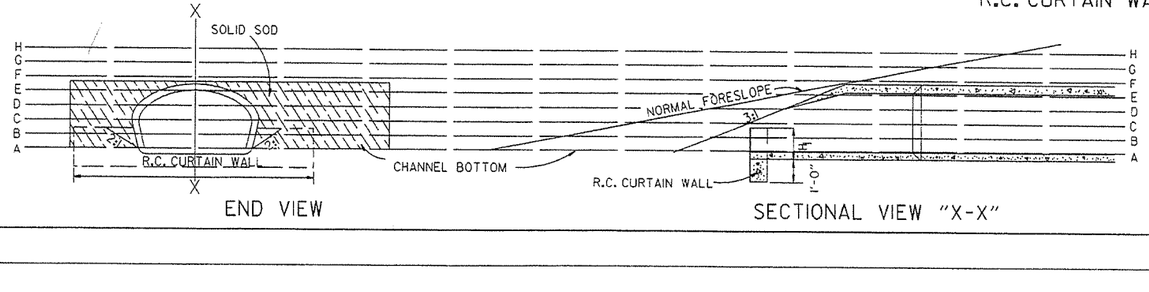
SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C. 3:1	4:1	6:1	DOUBLE R.C.P.C. 3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	36	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

NOTE: QUANTITIES SHOWN ABOVE ARE FOR ONE (1) END OF F.E.S.

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

SECTIONAL VIEW "X-X"

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	10-18-96
10-12-95	CORRECTED SPELLING	
11- 3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1

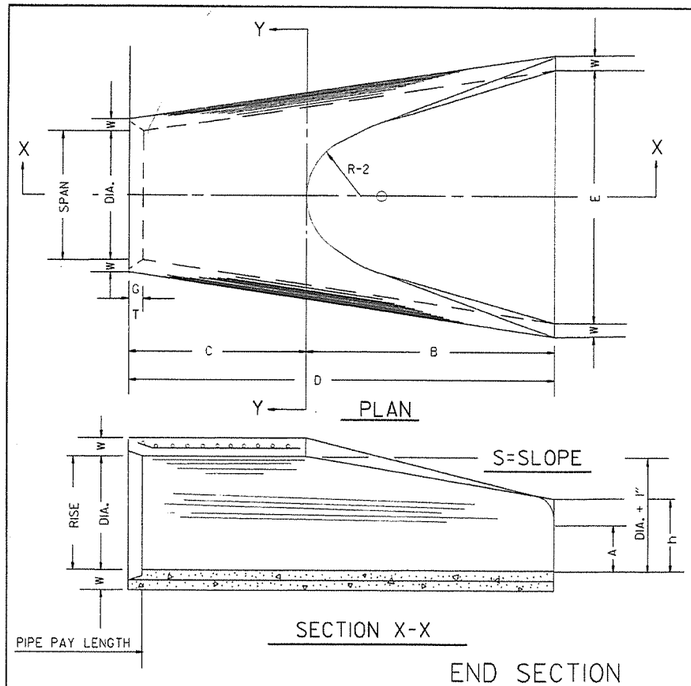
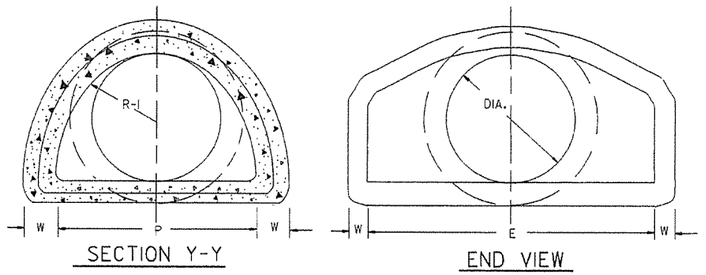


TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. − 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-11½"	4'-0"	3:1	25"	33 3/16"	16 13/16"	14"	2½"	1600	1'-11½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3:1	37"	47 11/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅞"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 13/16"	24"	5"	13250	4'-6"



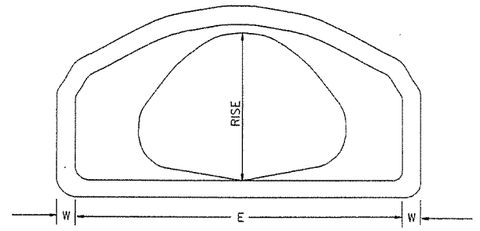
NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

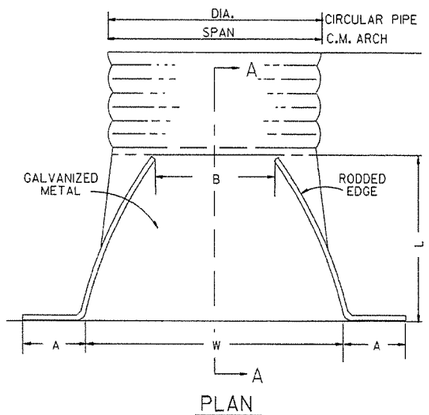
ARCH PIPE

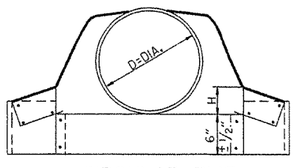
EQUIV. DIA.	* SPAN AASHTO M 206	* SPAN AHD NOMINAL	* RISE AASHTO M 206	* RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅜"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 1/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 13/16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-11½"	6'-1½"	6'-6"	54⅝"	22"	3½"	2½:1
42	51⅛	51	31 5/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 13/16"	24"	5"	2¼:1

* THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.

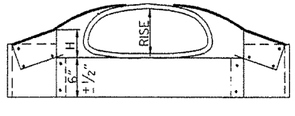


END VIEW
CONCRETE ARCH PIPE





CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

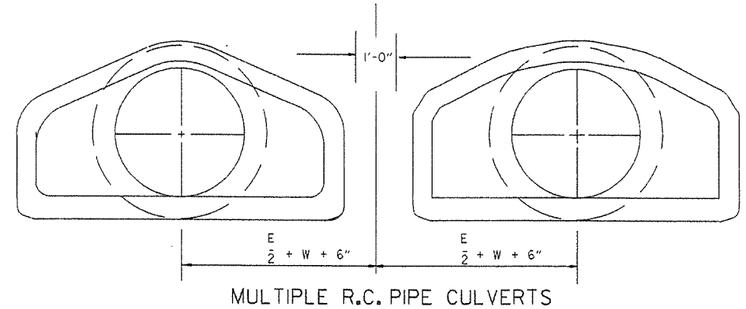
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

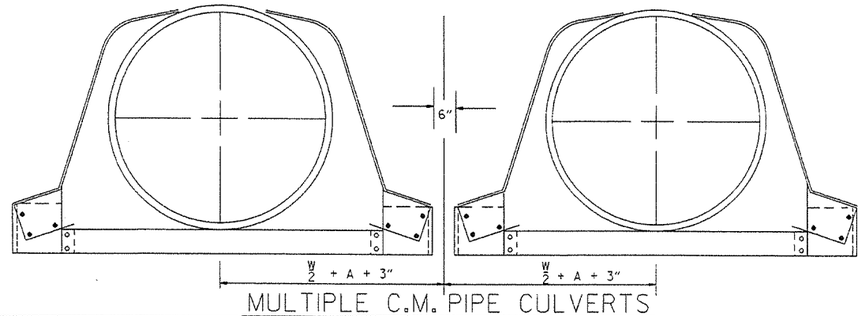
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2¼:1	12
60"	71	47	18	33	12	77	114	2¼:1	12

NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

ARKANSAS STATE HIGHWAY COMMISION

FLARED END SECTION

STANDARD DRAWING FES-2

stdfes2.dgn

4'-0" LENGTH DROP INLET

PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0" CLASS A CONC.	HEIGHT 5'-0" REINF. STEEL	PLUS OR MINUS PER LIN. FT. OF HEIGHT CLASS A CONC.	PLUS OR MINUS PER LIN. FT. OF HEIGHT REINF. STEEL
		CU. YDS.	POUNDS	CU. YDS.	POUNDS
18"	2'-6"	1.77	156	0.28	22
24"	2'-6"	1.79	156	0.28	22
30"	3'-2"	2.39	205	0.30	26
36"	3'-8"	2.63	236	0.32	28
42"	4'-4"	2.95	250	0.34	30
48"	4'-10"	3.21	265	0.36	32

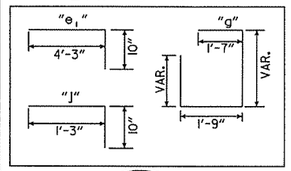
NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

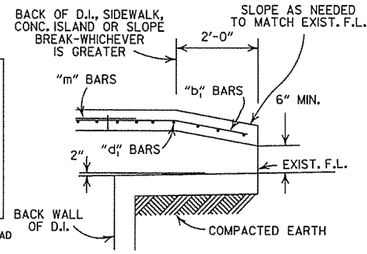
DROP INLET EXTENSION

4'-0" CLASS A CONC.	4'-0" REINF. STEEL	8'-0" CLASS A CONC.	8'-0" REINF. STEEL
CU. YDS.	POUNDS	CU. YDS.	POUNDS
0.58	38	0.87	72
DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.			
0.04	3		

DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET		
INSIDE DIA. PIPE	CLASS A CONC.	REINF. STEEL
INCHES	CU. YDS.	POUNDS
18	0.05	2
24	0.09	3
30	0.13	4
42	0.24	8

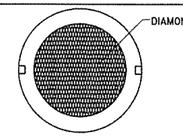
BAR DIAGRAM

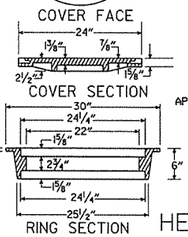




BACK OPENING

WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).



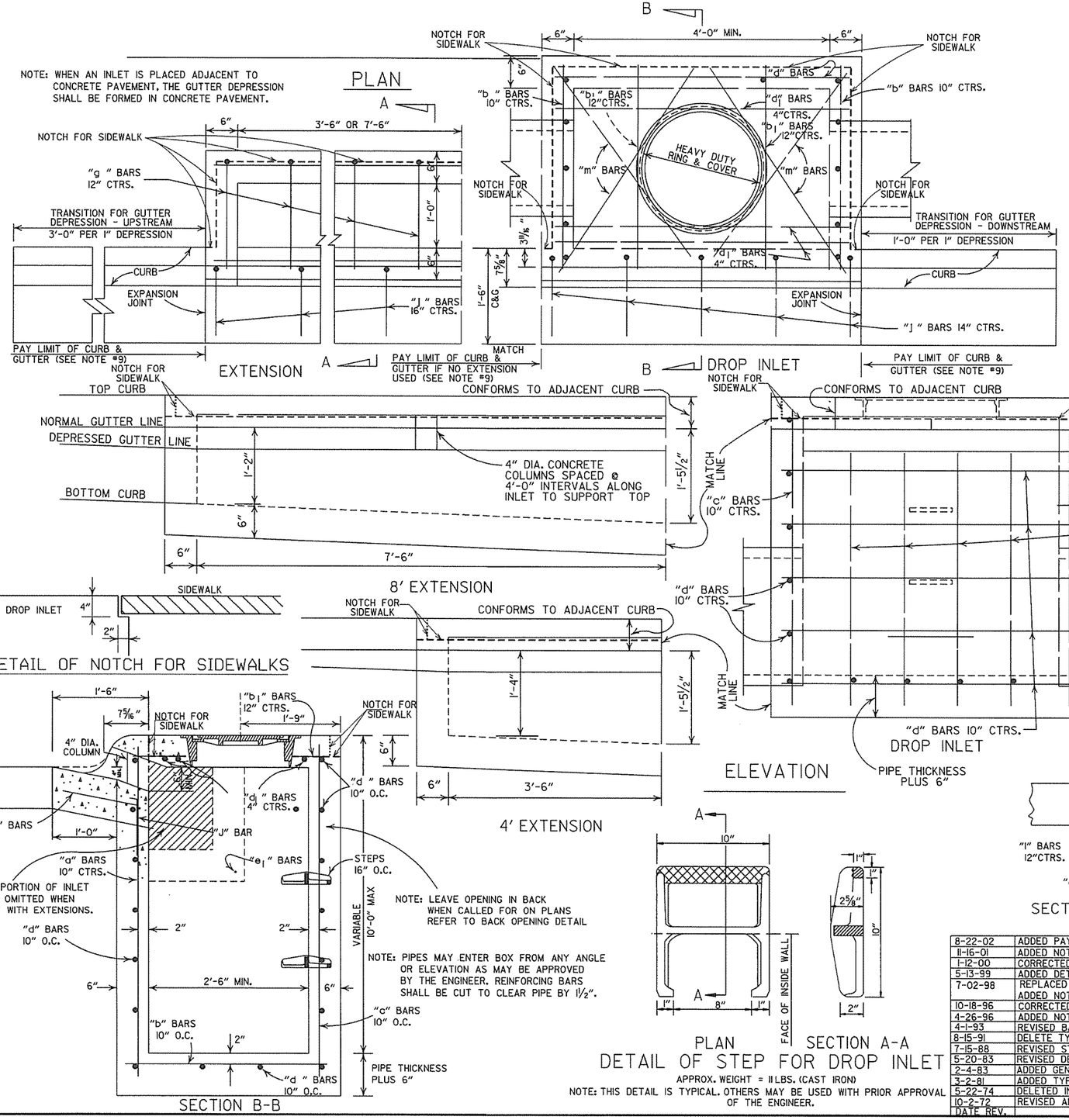


APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
3. ALL REINF. BARS SHALL BE #4 AND HAVE 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
6. WHEN PLANS CALL FOR DROP INLET OVER 10'-0" HIGH, FLOOR AND WALLS SHALL BE CONSTRUCTED AS SHOWN FOR TYPE "RM" DROP INLET (F.P.C.-9D).
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
9. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
10. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
11. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.



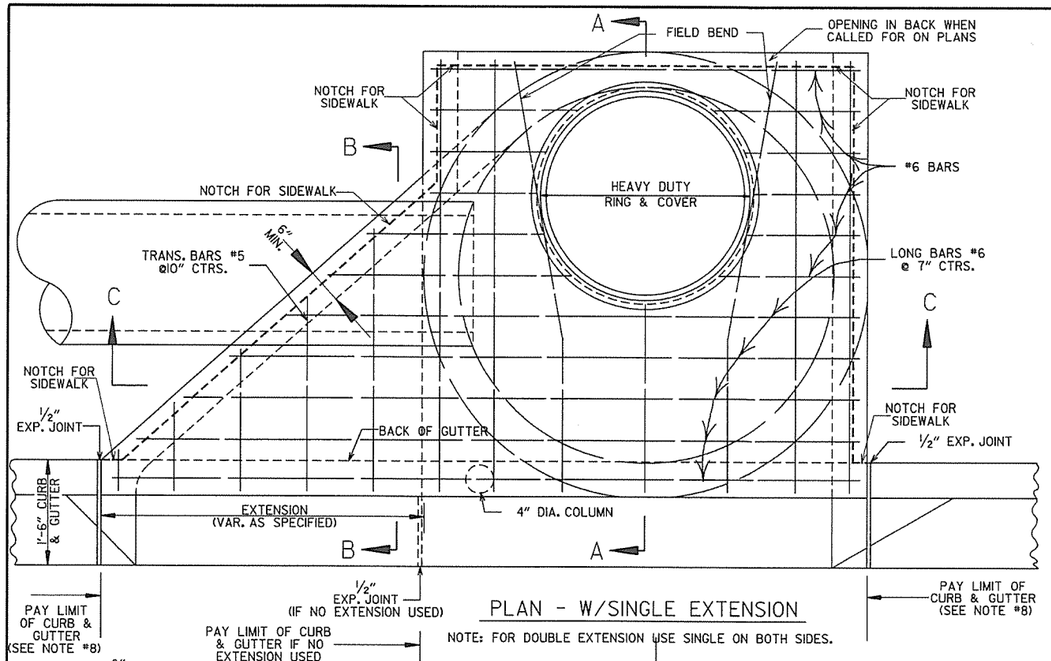
DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER ADDED NOTES 9,10,&11	
10-18-96	CORRECTED SPELLING	
4-26-96	ADDED NOTE 8 & REVISED (4')(8') EXTENSION TITLES	10-18-96
4-1-93	REVISED BACK OPENING & NOTE	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS

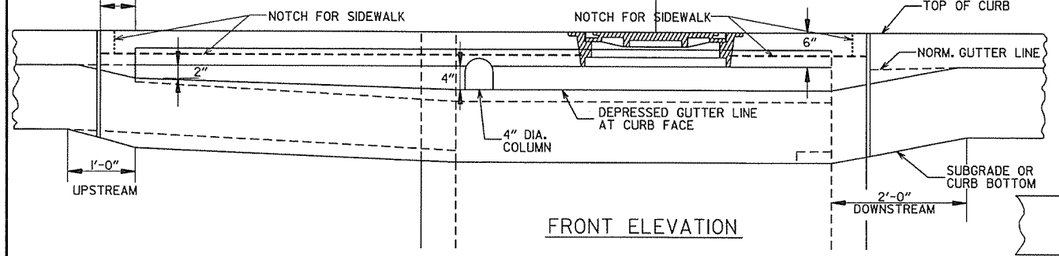
(TYPE C)

STANDARD DRAWING FPC-9E

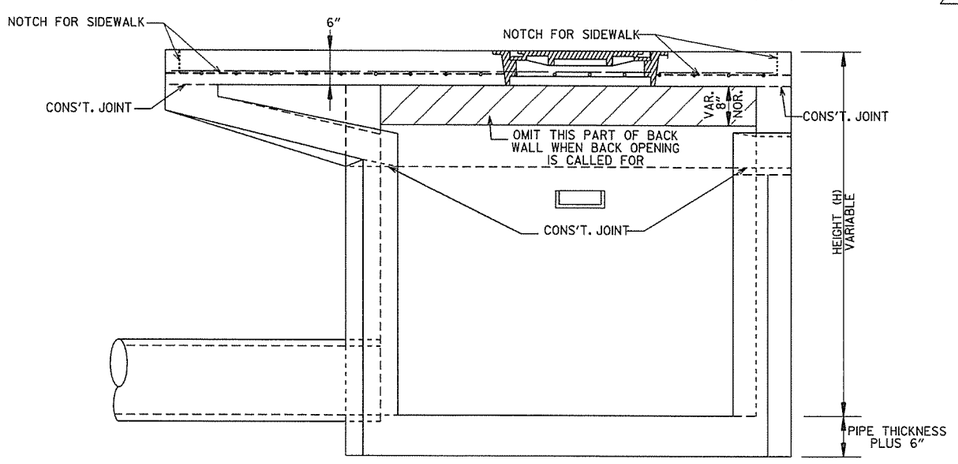


PLAN - W/SINGLE EXTENSION

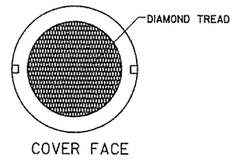
NOTE: FOR DOUBLE EXTENSION USE SINGLE ON BOTH SIDES.



FRONT ELEVATION



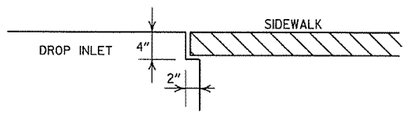
SECTION C-C



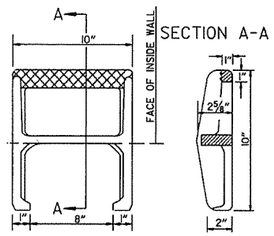
APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.



DETAIL OF NOTCH FOR SIDEWALKS

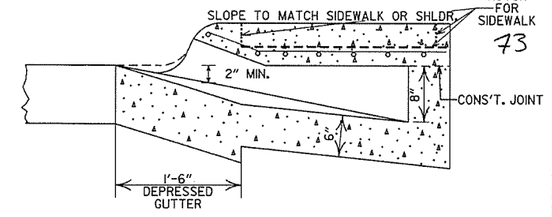


APPROX. WEIGHT = 11 LBS. (CAST IRON)

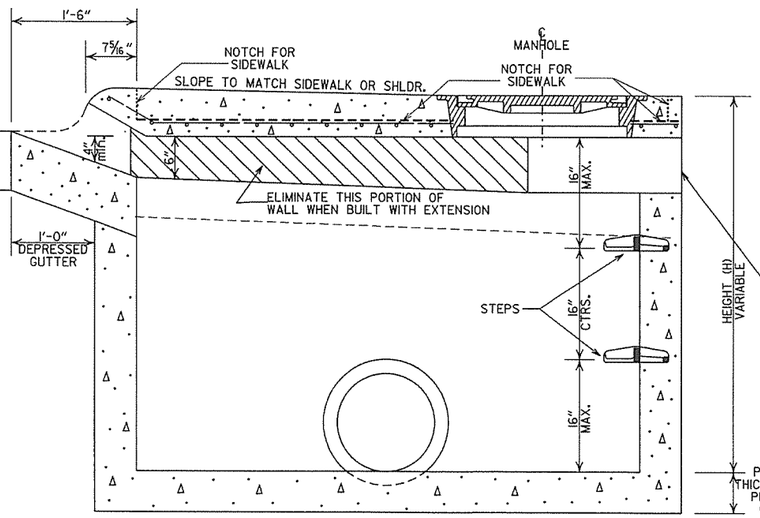
PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

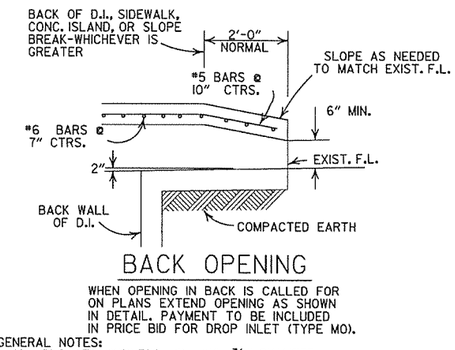
DETAIL OF STEP FOR DROP INLET



SECTION B-B



SECTION A-A



BACK OPENING

WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE MO).

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OR AS DIRECTED BY THE ENGINEER.
3. ALL REINFORCING BARS SHALL BE GRADE 60 AND HAVE MIN. 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. 4" DIA. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLET AND EXTENSION TO SUPPORT TOP.
6. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
8. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
9. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
10. APPROPRIATE SIZE TYPE C DROP INLETS MAY BE SUBSTITUTED FOR TYPE MO DROP INLETS AS APPROVED BY THE ENGINEER. PAYMENT TO BE AS DROP INLET (TYPE MO).
11. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

LEAVE OPENING IN BACK WHEN CALLED FOR ON PLANS REFER TO BACK OPENING DETAIL

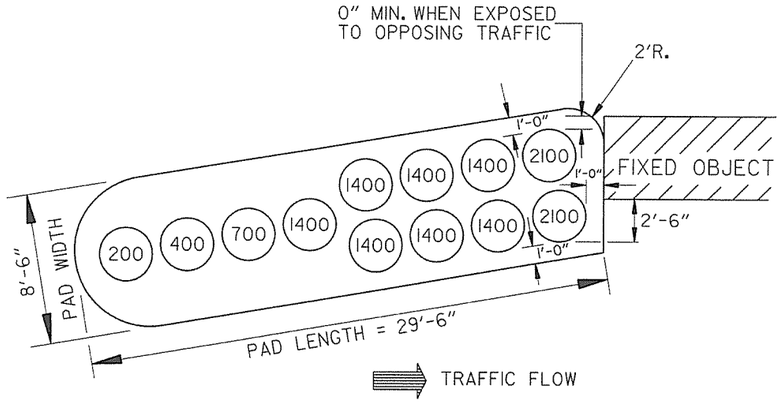
DIA. OF D.I.	DIA. OF OUTLET PIPE	MINIMUM WALL THICKNESS CAST IN PLACE	MINIMUM WALL THICKNESS PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

DATE	REVISIONS	DATE FILMED
6-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-96	ADDED NOTE 11 ADJ. OPENING DIMENSION	
10-12-95	CORRECTED *6 BAR SPACING	
7-20-95	CORRECTED DIAMETER OF D.I. IN BOX	
4-2-95	TYPE C TO MO (OPEN BACK DETAIL)	
11-3-94	REVISED GENERAL NOTES	11-3-94
4-1-93	REV. BACK OPEN DETAIL & NOTE	4-1-93
6-15-91	REVISED NOTES 11,12 & ADDED BK.OPEN DETAIL	6-15-91
11-30-89	ADDED NOTE NO. 12	11-30-89
5-23-89	ADDED NOTE 8 & MINIMUM WALL THICKNESS	513-5-23-89
7-15-88	ADDED EXTEND NOTE TO SECTION A-A	635-7-15-88
1-14-87	MODIFIED WALL THICKNESS	183-1-14-87
6-12-87	ISSUED	4-6-12-87

ARKANSAS STATE HIGHWAY COMMISSION

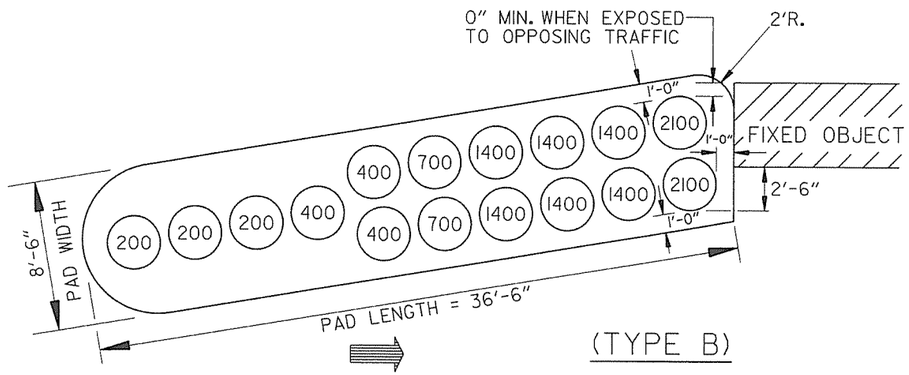
DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M



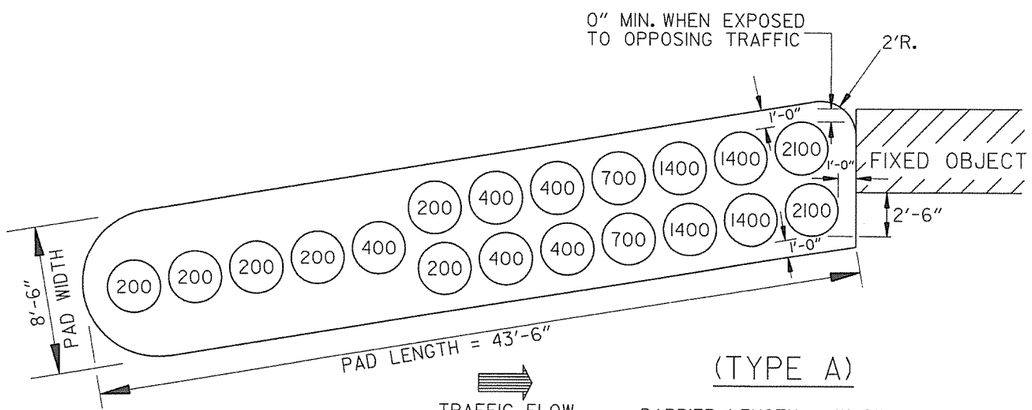
(TYPE C)

BARRIER LENGTH = 27'-6"
DESIGN IMPACT SPEED = 50 M.P.H.= 73.3 fps



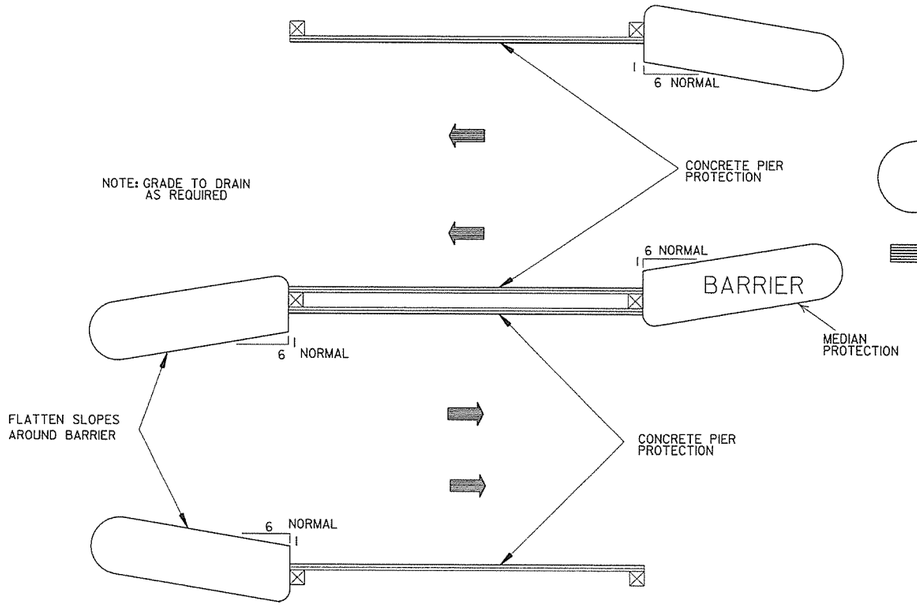
(TYPE B)

BARRIER LENGTH = 34'-6"
DESIGN IMPACT SPEED = 60 M.P.H.= 88 fps

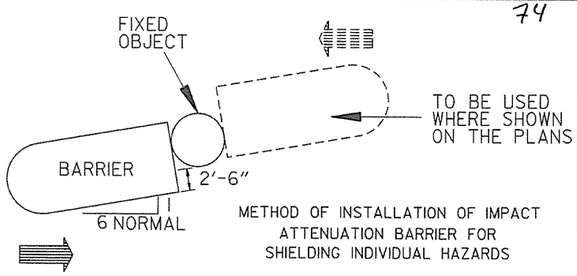


(TYPE A)

BARRIER LENGTH = 41'-6"
DESIGN IMPACT SPEED = 70 M.P.H.= 103 fps



METHOD OF INSTALLATION OF
IMPACT ATTENUATION BARRIER
FOR PIER PROTECTION



METHOD OF INSTALLATION OF IMPACT
ATTENUATION BARRIER FOR
SHIELDING INDIVIDUAL HAZARDS

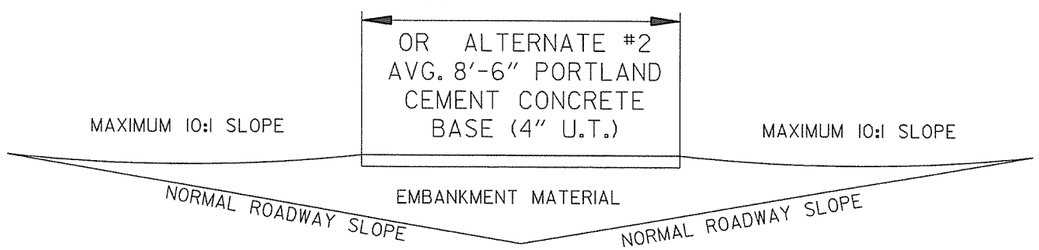
APPROXIMATE QUANTITIES PER PAD

TYPE	ALTERNATE #1		ALTERNATE #2
	AGGR. BASE COURSE	A.C.H.M. SURFACE COURSE	P.C.CONC. BASE (4"U.T.)
	TONS	TONS	SQ.YDS.
A	9.7	4.6	41.6
B	8.1	3.8	34.9
C	6.6	3.1	28.3

NOTE: APPROXIMATE QUANTITIES SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY. PAYMENT TO BE INCLUDED IN UNIT PRICE BID FOR IMPACT ATTENUATION BARRIER.

GENERAL NOTES

1. DIMENSIONS SHOWN ARE TO TOP OF PLASTIC MODULES.
2. SPACING BETWEEN PLASTIC MODULES SHALL NOT EXCEED 6" AT THE TOP.
3. PLASTIC MODULES SHALL MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).



DETAIL OF BARRIER PAD

NOTE: BARRIER PAD TO BE SKEWED TOWARD ONCOMING TRAFFIC
A MAXIMUM OF 6:1 WITH 6:1 BEING NORMAL

DATE	REVISION	DATE FILMED
10-15-09	ADDED REFERENCE TO MASH	
11-29-07	REVISED TY. A & TY. C ARRAYS	
11-19-98	REVISED FIXED OBJECT	
11-18-98	REV. NOTES & TYPE A MOD. WTS.	
10-18-96	REDRAWN	
7-15-88	CONFORMED TO 1988 SPECS	
7-29-87	REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

IMPACT ATTENUATION BARRIER

STANDARD DRAWING IB-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD 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	31⅝	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M206.

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

EQUIV. DIA.	AASHTO M 207	
	SPAN	RISE
INCHES	INCHES	
18	23	14
24	30	19
27	34	22
30	38	24
33	42	27
36	45	29
39	49	32
42	53	34
48	60	38
54	68	43
60	76	48
66	83	53
72	91	58
78	98	63
84	106	68

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M207.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SUBSECTION 606.03.(f)(1).

NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

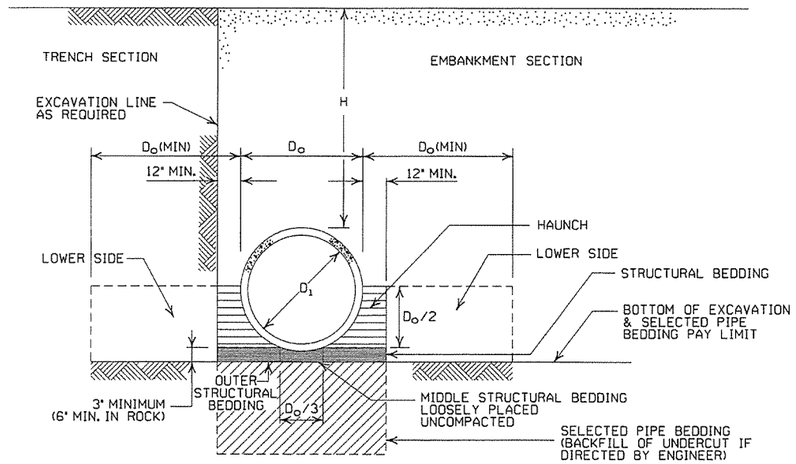
- LEGEND -

D_1 = NORMAL INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
= UNDISTURBED SOIL

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL*
TYPE 3**	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

*SM-3 WILL NOT BE ALLOWED.

**MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

1. MATERIAL IN THE HAUNCH AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. FOR TRENCHES WITH WALLS OF NATURAL SOIL, THE DENSITY OF THE SOIL IN THE LOWER SIDE ZONE SHALL BE AS FIRM AS THE 95% DENSITY REQUIRED FOR THE HAUNCH. IF THE EXISTING SOIL DOES NOT MEET THIS CRITERIA, IT SHALL BE REMOVED AND RECOMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OF MATERIAL USED.
3. FOR EMBANKMENTS, THE MATERIAL IN THE LOWER SIDE ZONE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS 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."

MINIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
INSTALLATION TYPE	TYPE 1 OR 2	TYPE 3	ALL	ALL
PIPE ID (IN.)	FEET			
12-15	2	2.5	2	1
18-24	2.5	3	2	1
27-33	3	4	2	1
36-42	3.5	5	2	1
48	4.5	5.5	2	1
54-60	5	7	2	1
66-78	6	8	2	1
84-108	7.5	8	2	1

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

MAXIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2 OR TYPE 3	2.5	1.5

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

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

MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2	13	21
TYPE 3	10	16

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

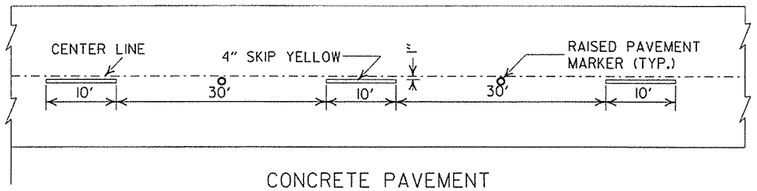
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

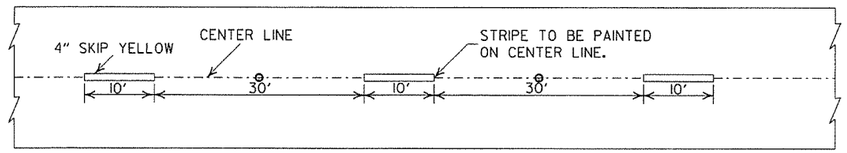
STANDARD DRAWING PCC-1

NOTES:

1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.

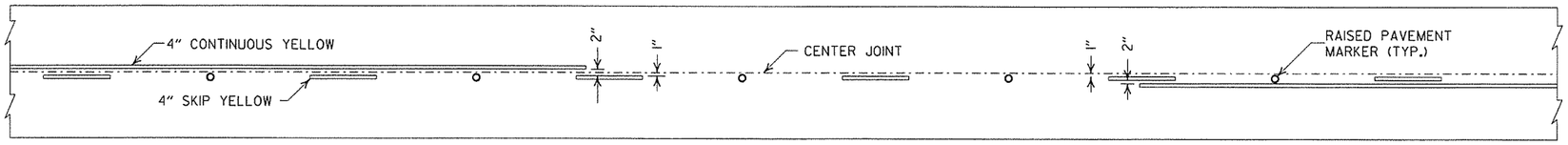


CONCRETE PAVEMENT

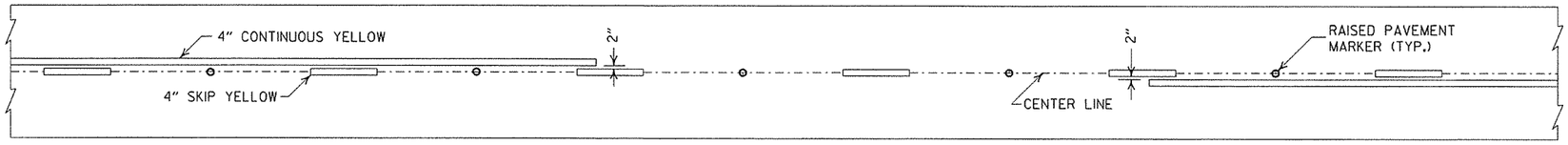


ASPHALT PAVEMENT

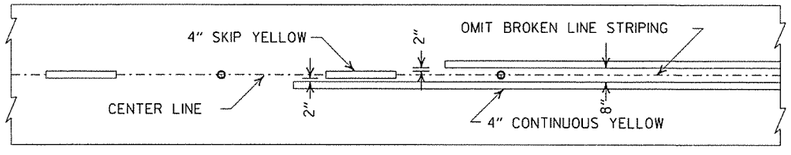
BROKEN LINE STRIPING



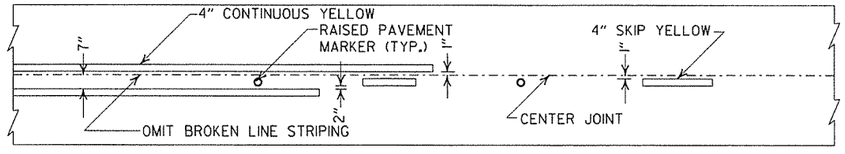
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

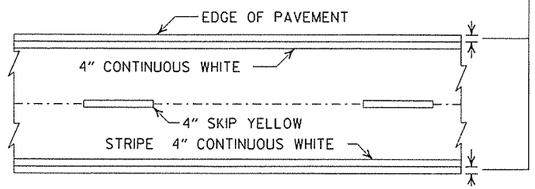


ASPHALT PAVEMENT

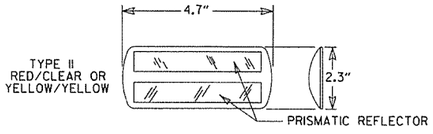


CONCRETE PAVEMENT

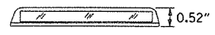
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING



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



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

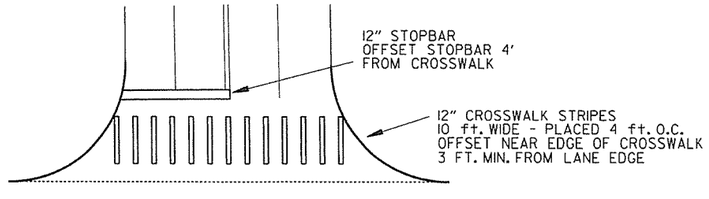
THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.

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.

STRIPING AT ADJACENT NO PASSING LANES



CROSSWALK AND STOPBAR DETAILS

DATE	REVISION	FILMED
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

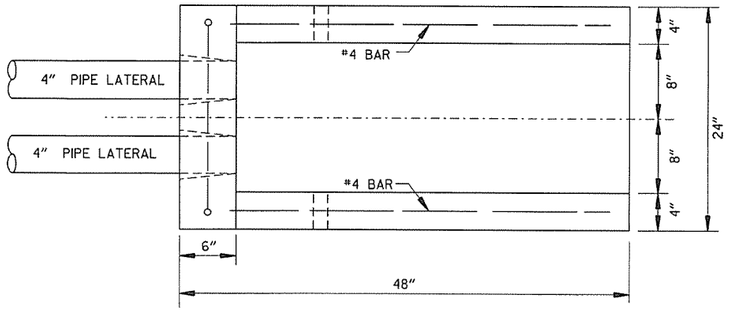
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

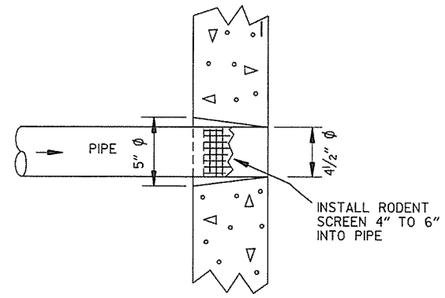
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

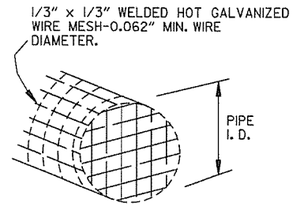
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



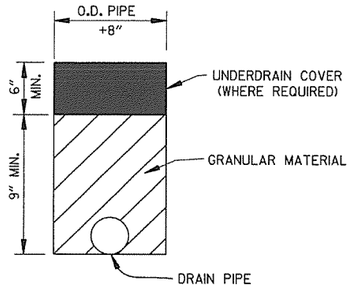
PLAN VIEW

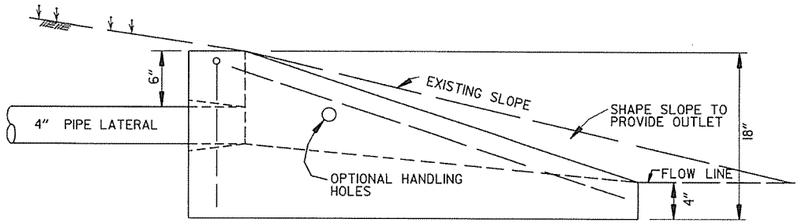


DETAIL OF HOLE FOR 4" PIPE

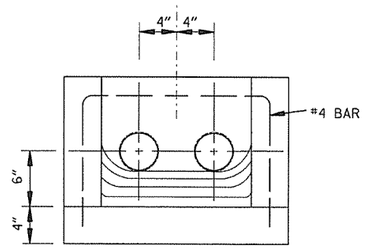


DETAIL OF RODENT SCREEN

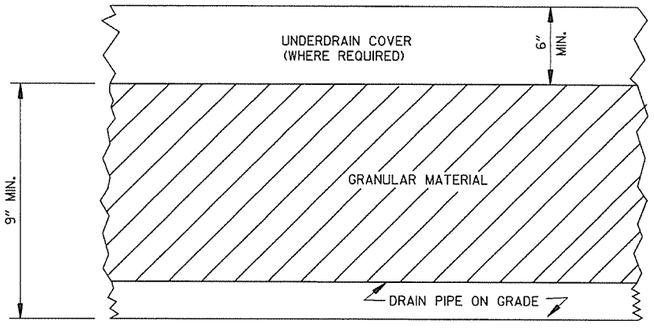




SIDE VIEW

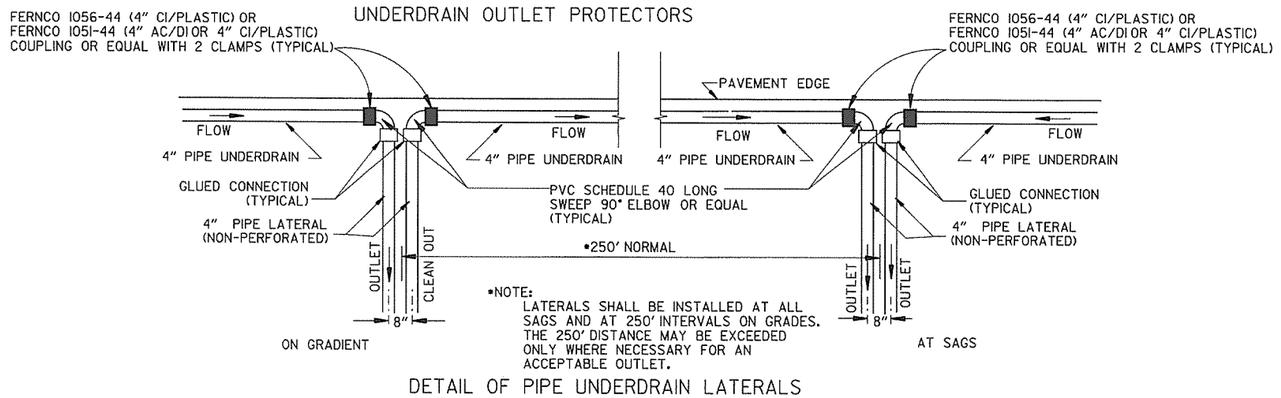


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

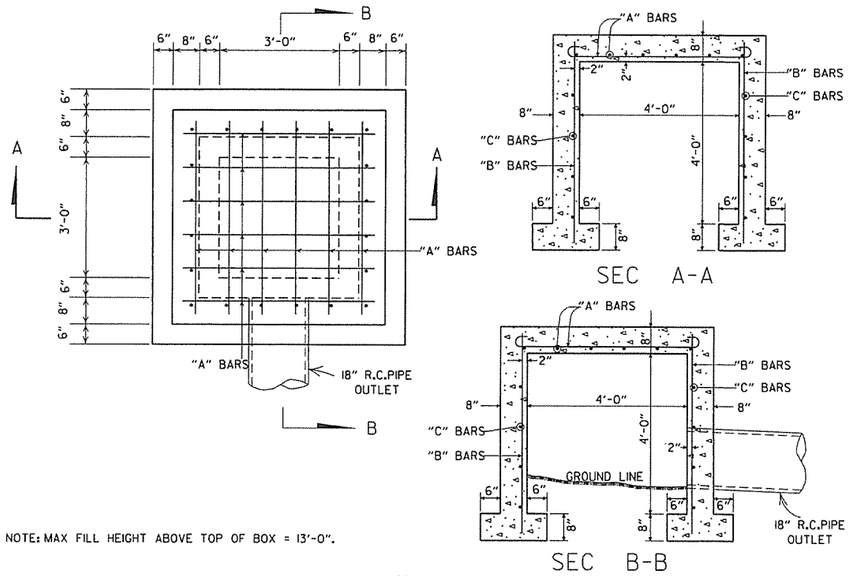
DATE	REVISION	DATE FILMED
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	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

7-20-95 INSTD.PUI

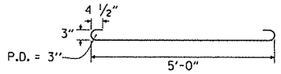


NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 ½"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



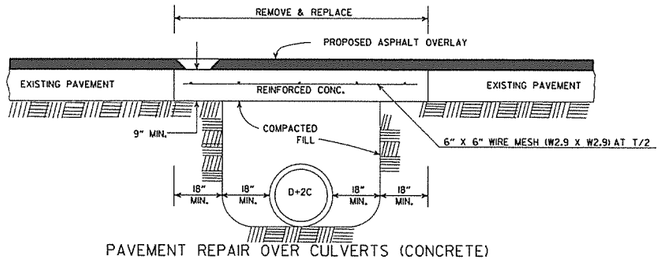
"A" BARS

QUANTITIES

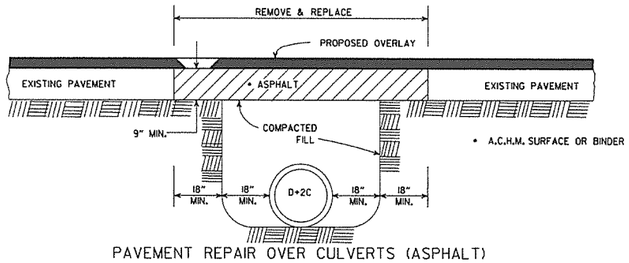
CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

GENERAL NOTE:
THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



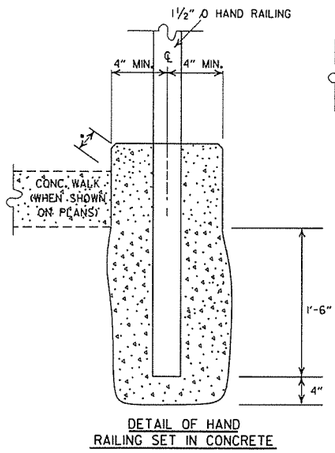
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



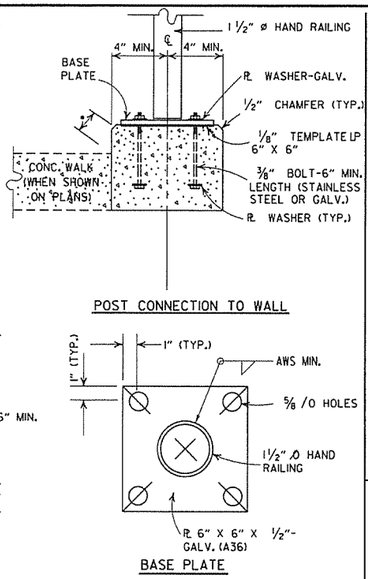
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

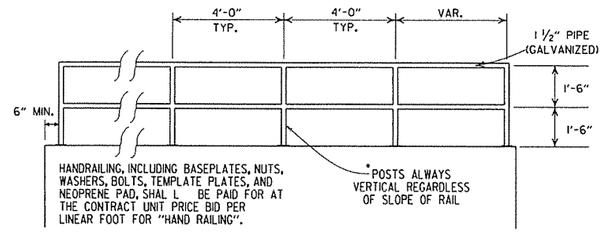
* A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



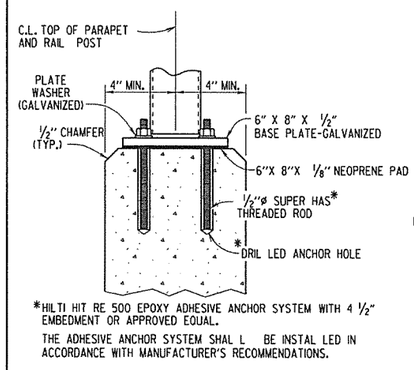
DETAIL OF HAND RAILING SET IN CONCRETE



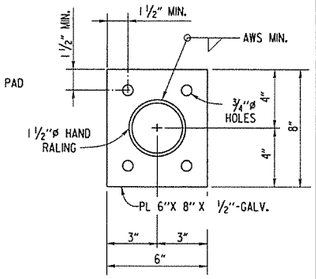
POST CONNECTION DETAILS



HAND RAILING SHALL CONFORM TO SECTION 633.



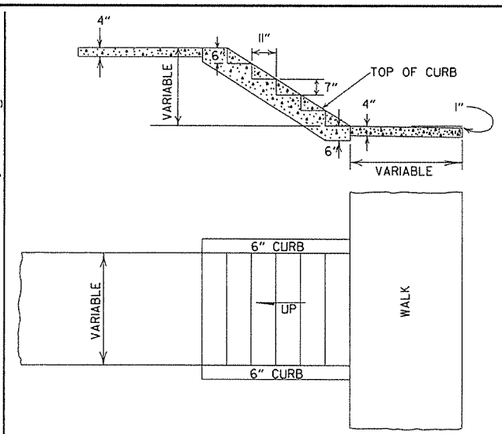
POST CONNECTION TO WALL



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.

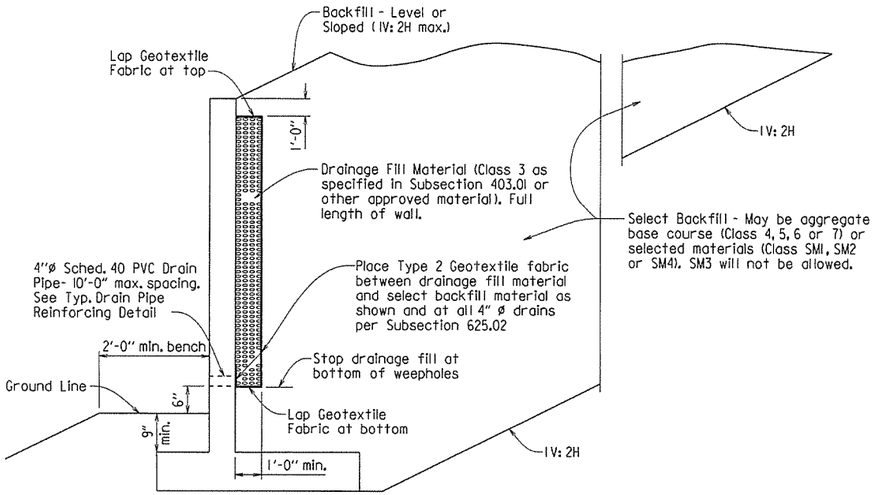
DETAILS OF CONCRETE STEPS & WALKS

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

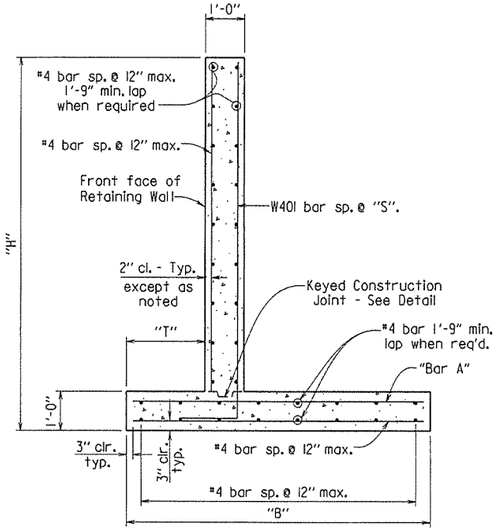
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI-1



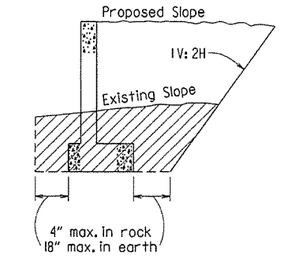
TYPICAL DRAINAGE & BACKFILL DETAILS

N.T.S

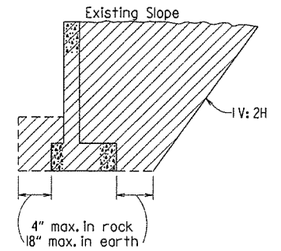


TYPICAL SECTION

N.T.S



In Embankment



In Excavation

NOTE: Hatched area denotes maximum limits of pay excavation.

DETAILS OF EXCAVATION

N.T.S

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: 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.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition (2012).

LIVE LOAD: Live Load Surcharge is not included in the design of these walls. Vehicular Live Load shall not be allowed within a distance equal to one-half the height of the wall.

CONCRETE: Concrete shall be poured in the dry and all exposed corners to be chamfered ½". All concrete shall be Class S with a minimum 28 day compressive strength f'c = 3,500 psi. A Class 2 Surface finish shall be used on all surfaces of the concrete unless otherwise noted.

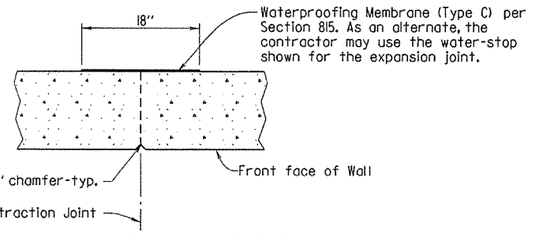
REINFORCING STEEL: All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60.

Foundations for footings shall be prepared in accordance with subsection 801.04. Backfill for retaining walls shall be in accordance with subsection 801.08.

Waterproof Membrane (Type C), waterstops, preformed joints, weep holes & geotextile fabric shall not be paid for directly, but shall be considered subsidiary to Class S Concrete.

Drainage fill material (Class 3) and select backfill shall be measured and paid for as Compacted Embankment.

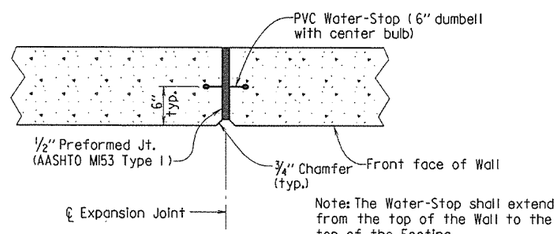
These details are not intended for use along streams or ditches without consideration for scour.



TYPICAL CONTRACTION JOINT DETAIL

N.T.S.

Note: 20'-0" Max. Spacing between Contraction Joints. Horizontal reinforcement shall be continuous through Contraction joints.

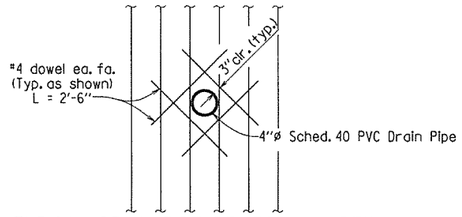


Note: The Water-Stop shall extend from the top of the Wall to the top of the Footing.

TYPICAL EXPANSION JOINT DETAIL

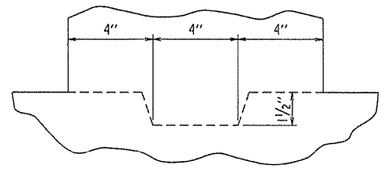
N.T.S.

Note: 60'-0" Max. Spacing between Expansion Joints. Horizontal reinforcing shall stop 2" from ℄ Expansion Joint.



TYPICAL DRAIN PIPE REINFORCING DETAIL

N.T.S



KEYED CONSTRUCTION JOINT DETAIL

N.T.S

SEISMIC ZONE: These walls have been designed for the following site adjusted peak ground accelerations (A_S):
Level Backfill - $A_S \leq .40g$
Sloped Backfill (1V: 2H max.) - $A_S \leq .30g$

TABLE OF RETAINING WALL VARIABLES

(LEVEL BACKFILL)

"H"	"T"	"B"	"S"	"Bar A" Size @ Spacing
3'-0"	9"	2'-6"	12"	#4 @ 12"
4'-0"	9"	3'-6"	12"	#4 @ 12"
5'-0"	9"	4'-0"	12"	#4 @ 12"
6'-0"	9"	4'-6"	12"	#4 @ 12"
7'-0"	9"	5'-6"	12"	#4 @ 10"
8'-0"	9"	6'-0"	12"	#5 @ 10"
9'-0"	1'-0"	7'-0"	12"	#5 @ 6½"

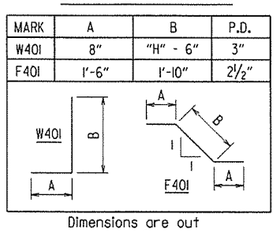
TABLE OF RETAINING WALL VARIABLES

(SLOPED BACKFILL) (1V: 2H MAX.)

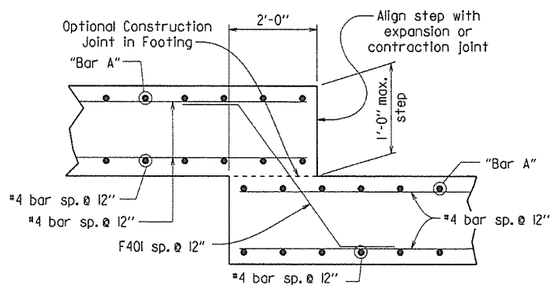
"H"	"T"	"B"	"S"	"Bar A" Size @ Spacing
3'-0"	9"	2'-6"	12"	#4 @ 12"
4'-0"	9"	3'-6"	12"	#4 @ 12"
5'-0"	9"	4'-6"	12"	#4 @ 12"
6'-0"	9"	5'-6"	12"	#4 @ 6"
7'-0"	9"	6'-6"	12"	#5 @ 6½"
8'-0"	1'-6"	8'-0"	7½"	#6 @ 6"
9'-0"	1'-11"	9'-6"	5"	#8 @ 6"

BENDING DIAGRAMS

MARK	A	B	P.D.
W401	8"	"H" - 6"	3"
F401	1'-6"	1'-10"	2½"



Dimensions are out to out of bars.



FOOTING STEP DETAIL

N.T.S.

DATE	REVISION
2-27-14	REVISED GENERAL NOTES.
7-26-12	DRAWING ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

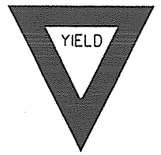
REINFORCED CONCRETE RETAINING WALL (WITHOUT LIVE LOAD SURCHARGE)

STANDARD DRAWING SI - 2

R1-1

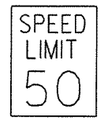
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



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

R2-1



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

W3-5

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

W3-5a

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

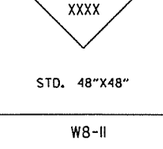
R4-1

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

R4-2

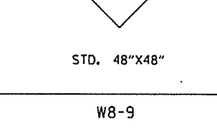
STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R5-1



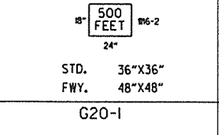
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2



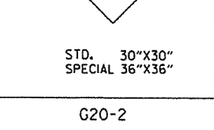
48"X30"

R11-3A



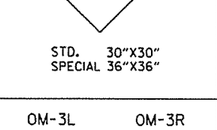
60"X30"

R11-4



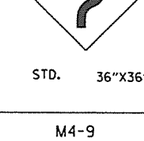
60"X30"

RSP-1



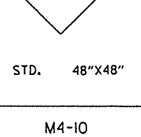
48"X30"

W1-1



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

W1-2

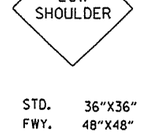


STD. 36"X36"
FWY. 48"X48"

W1-3

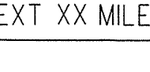
STD. 48"X48"

W1-4



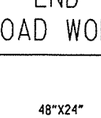
STD. 48"X48"

W1-6



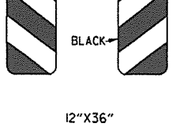
STD. 48"X24"
SPECIAL 60"X30"

W1-8



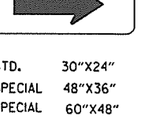
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

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"

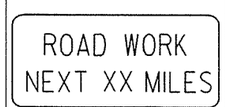
W8-11

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

W8-9

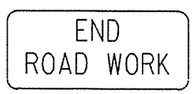
STD. 36"X36"
FWY. 48"X48"

G20-1



60"X24"

G20-2

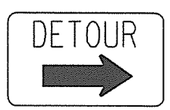


48"X24"

OM-3L OM-3R

12"X36"

M4-9

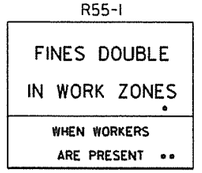


STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

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.

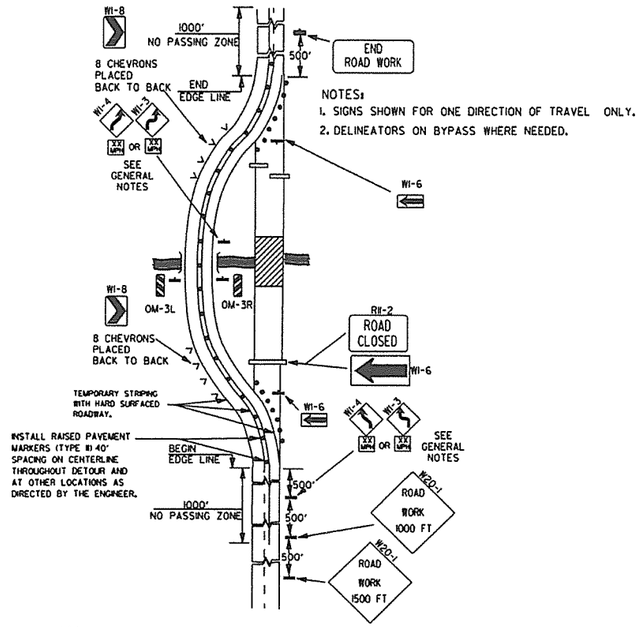
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

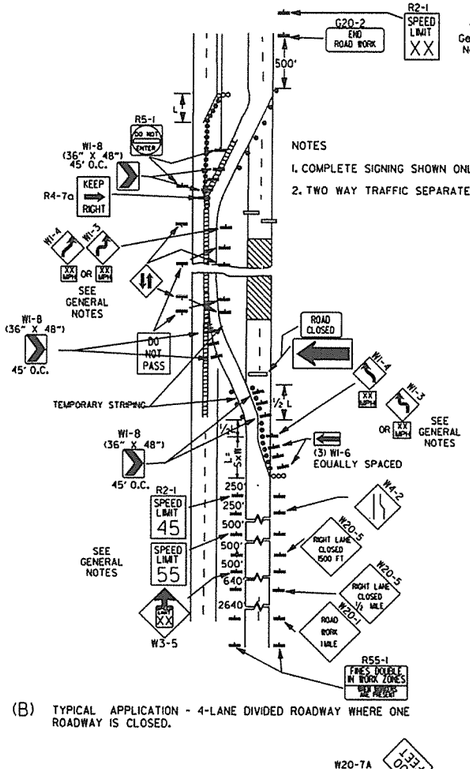
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



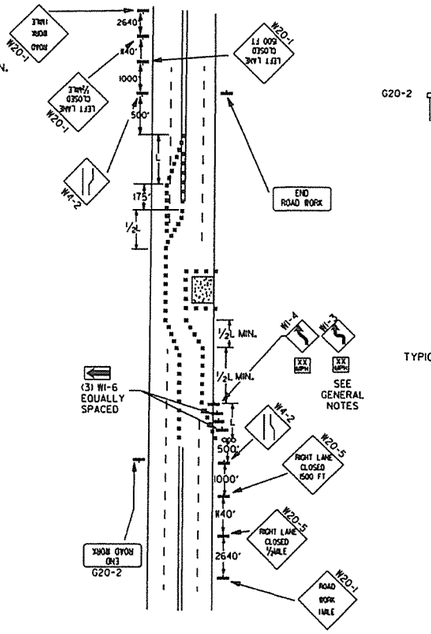
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

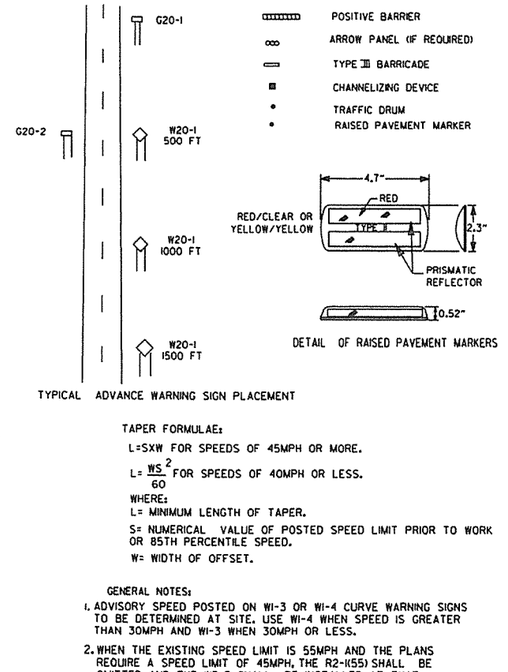


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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



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



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

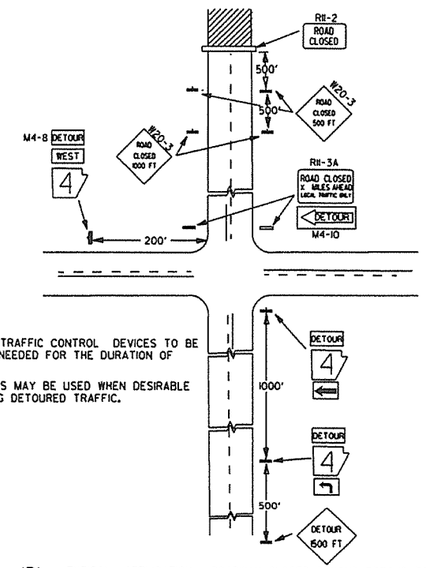
L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

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

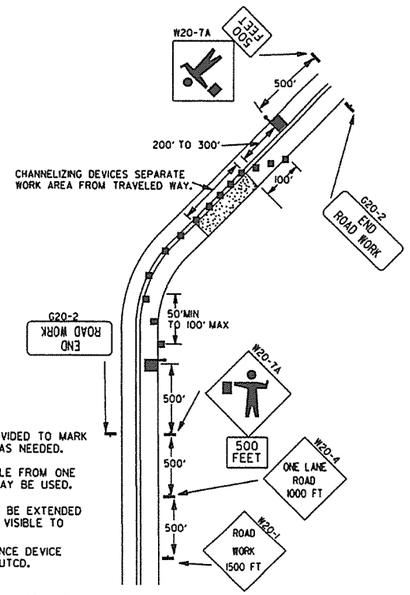
GENERAL NOTES:

1. 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 1 MILE 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 1 MILE 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.



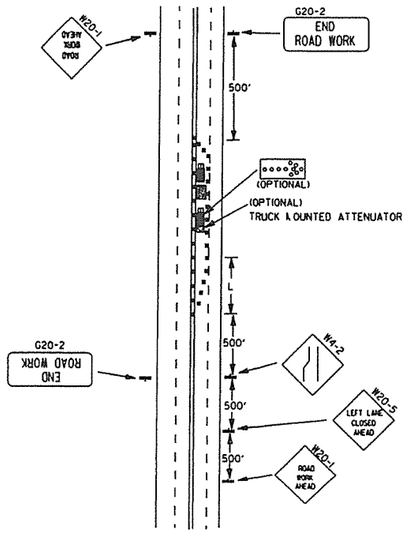
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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



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

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



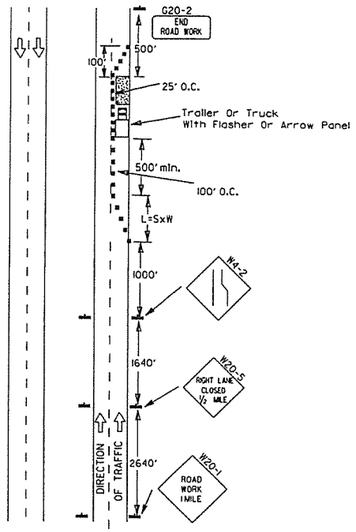
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
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)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

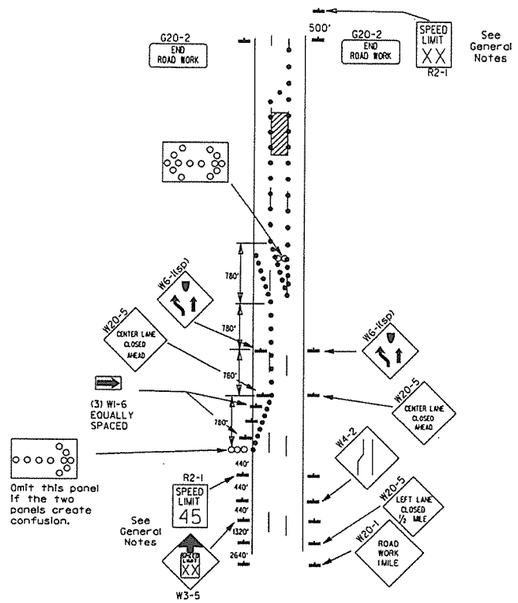
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

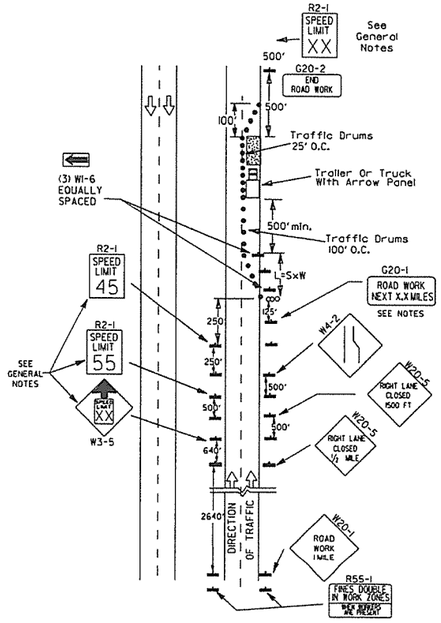
STANDARD DRAWING TC-2



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



(B) Typical application - 3-lane oneway roadway where center lane is closed.



(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

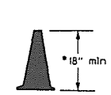
KEY:

- ○○○ Arrow Panel (If Required)
- ■ Channelizing Device
- ● Traffic drum

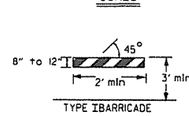
GENERAL NOTES:

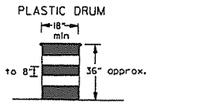
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1 mile 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 1 mile 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.

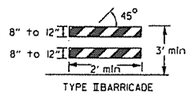
Channelizing devices

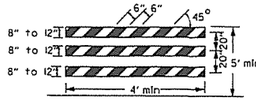


• When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

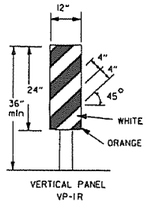




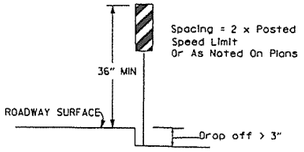




NOTE: For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



VERTICAL PANEL PLACEMENT



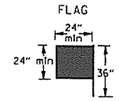
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

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.

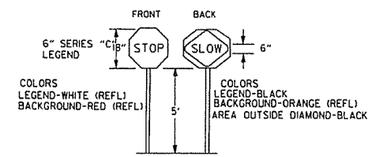
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

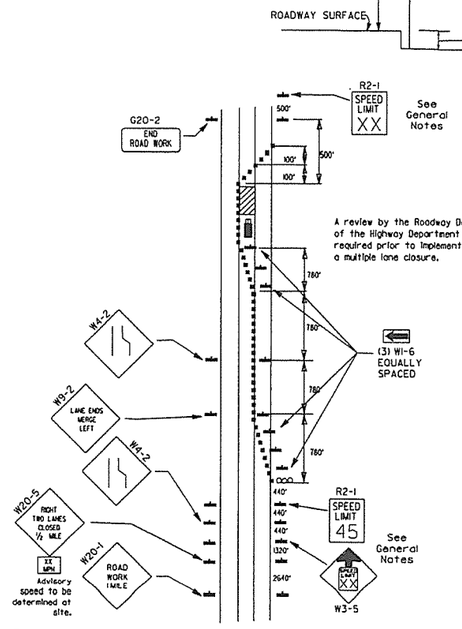
FLAG



Flag shall be of good grade red material

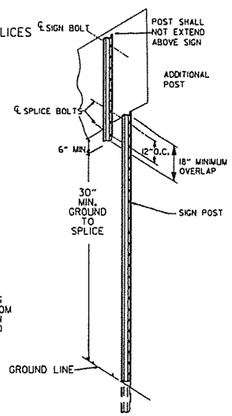
STOP SLOW PADDLE





(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	
11-20-08	REVISED SIGN DESIGNATIONS	
8-18-04	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	

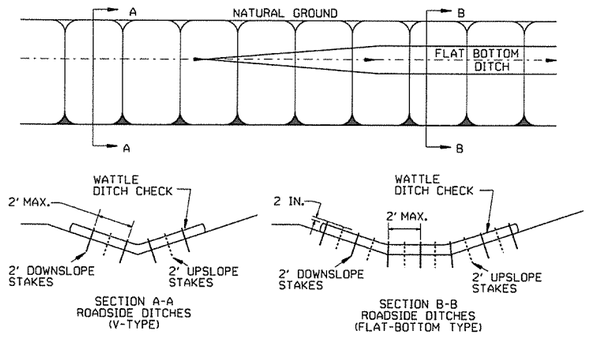
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

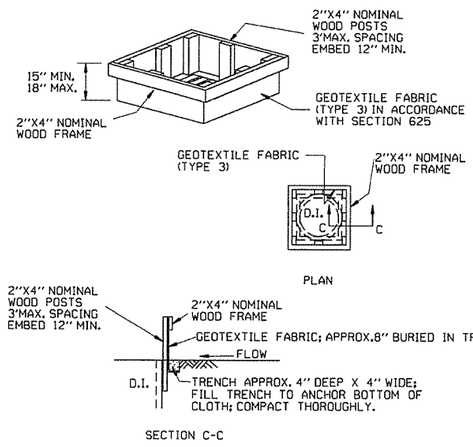
STANDARD DRAWING TC-3

GENERAL NOTES

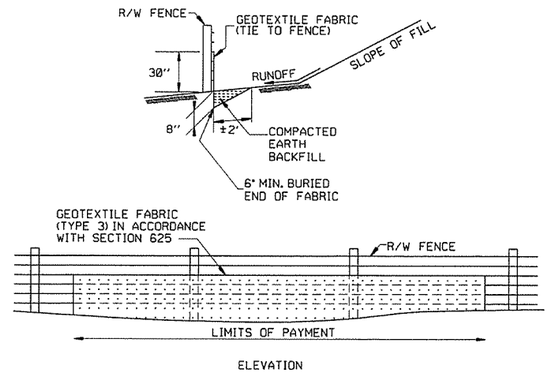
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



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

GENERAL NOTES

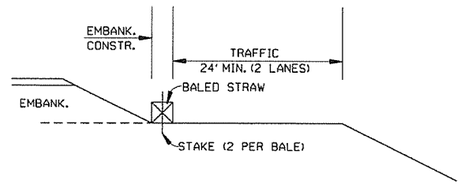
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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.

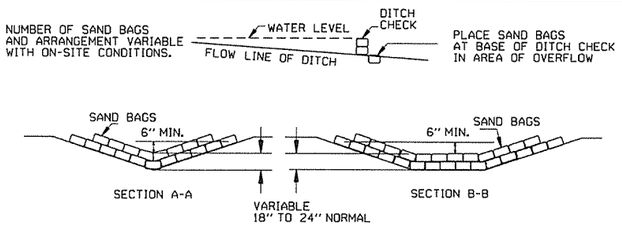
2. NO GAPS SHALL BE LEFT BETWEEN BALES.

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.

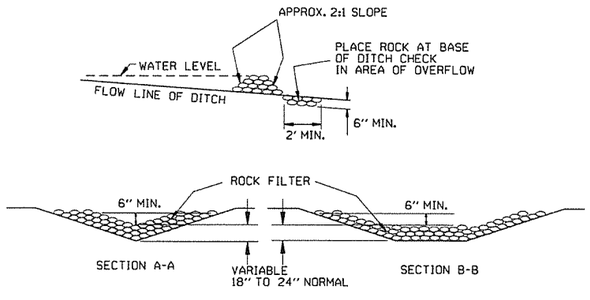


BALED STRAW FILTER BARRIER (E-2)

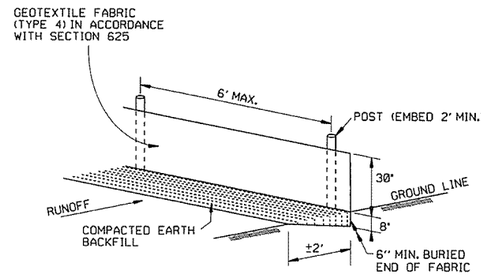
NUMBER OF SAND BAGS AND ARRANGEMENT VARIABLE WITH ON-SITE CONDITIONS.



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

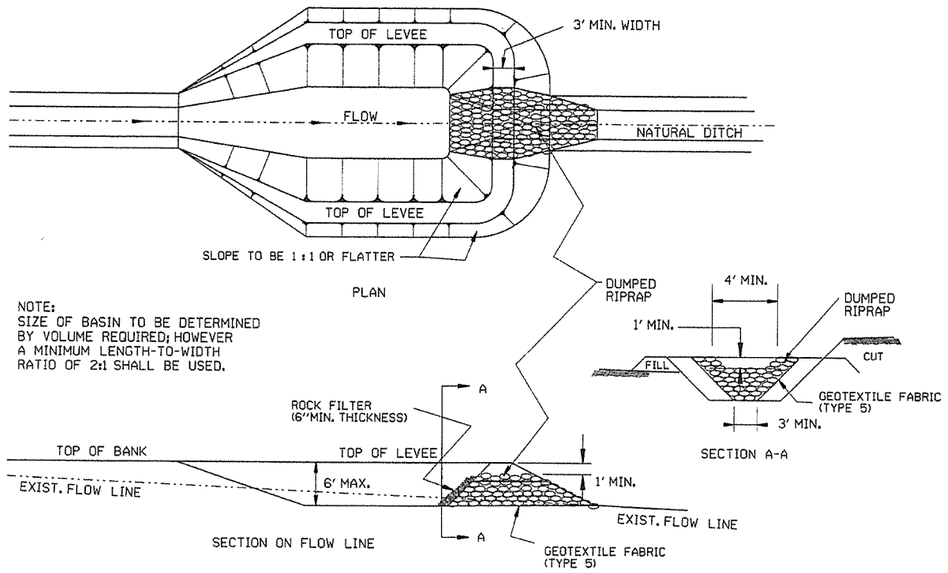
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

DATE	REVISION	FILMED
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
6-2-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
4-1-93	REDRAWN	
10-1-92	REDRAWN	
8-2-76	ISSUED R.D.M.	298-7-28-76

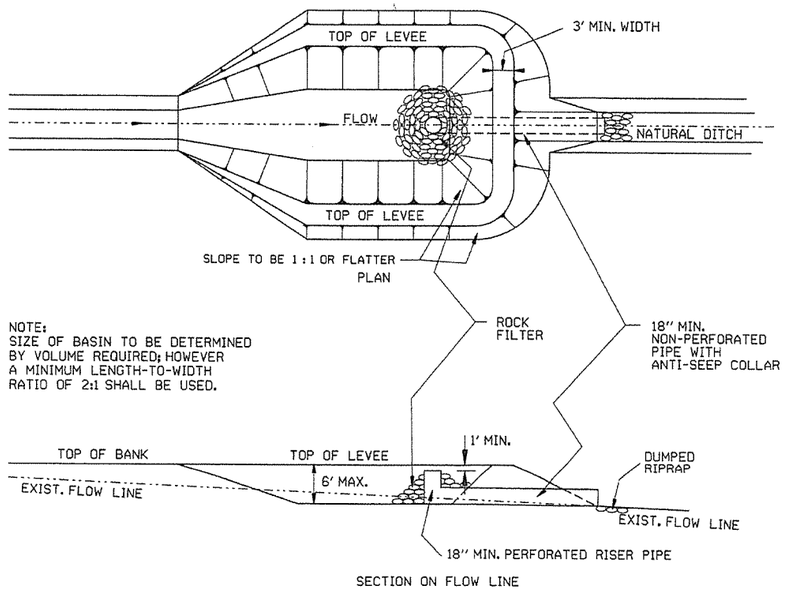
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

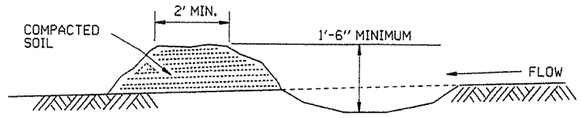
STANDARD DRAWING TEC-1



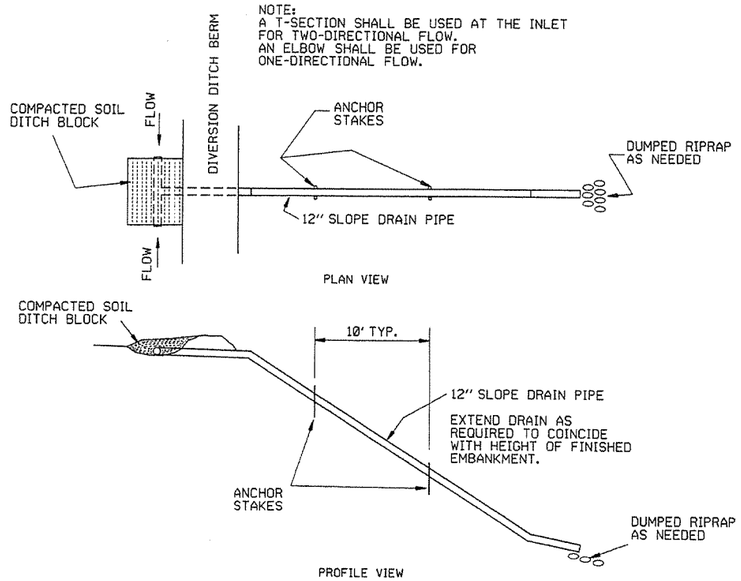
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



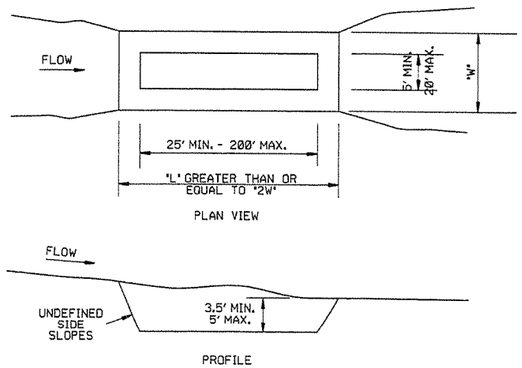
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

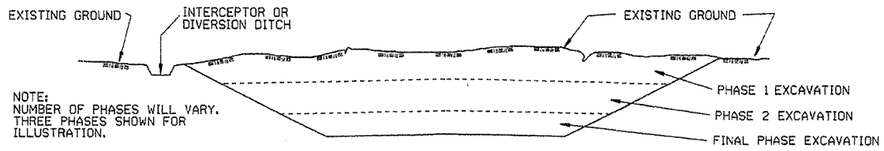
STANDARD DRAWING TEC-2

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



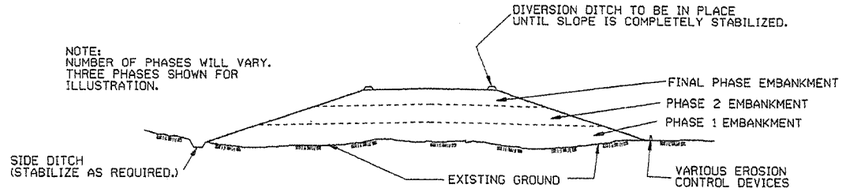
GENERAL NOTE

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

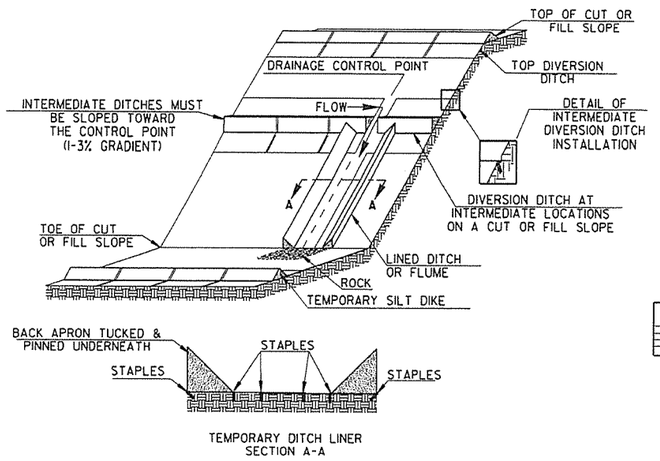
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD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

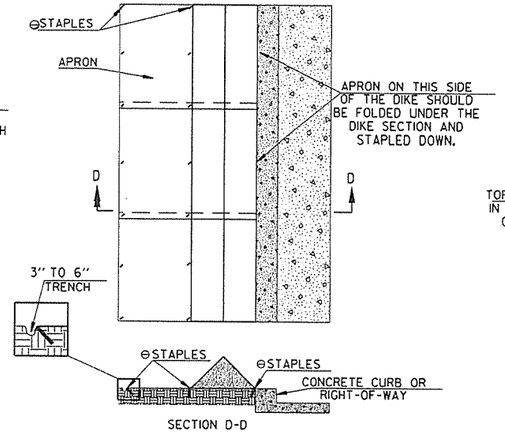
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

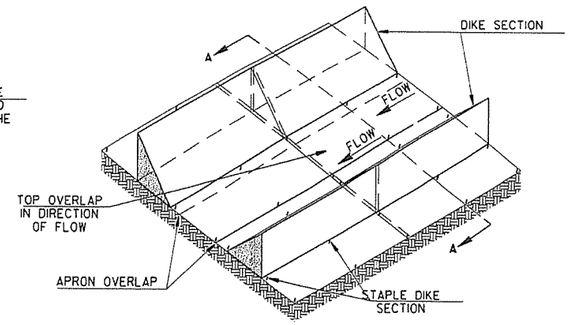
STANDARD DRAWING TEC-3



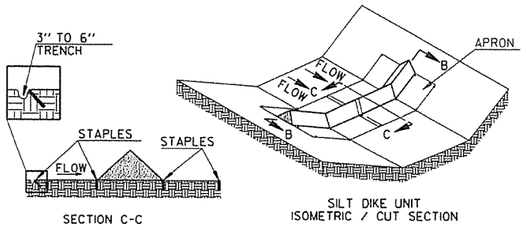
TRIANGULAR SILT DIKE INSTALLATION
FOR
DIVERSION DITCH AND/OR DITCH LINER

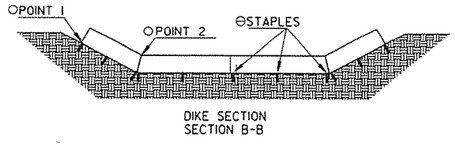


TRIANGULAR SILT DIKE INSTALLATION
FOR
CONTINUOUS BARRIER



TRIANGULAR SILT DIKE INSTALLATION
FOR
TEMPORARY DITCH LINER

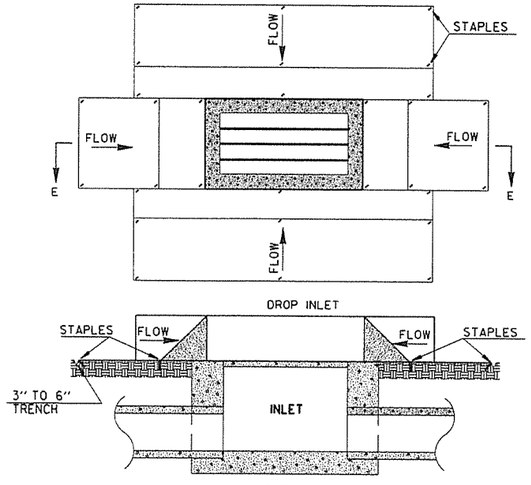




TRIANGULAR SILT DIKE INSTALLATION
FOR
ROADWAY DITCH OR DRAINAGE DITCH

○ POINT "1" MUST BE HIGHER THAN POINT "2" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

⊖ STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE UNIT AS SHOWN ON THE DIAGRAM.



TRIANGULAR SILT DIKE INSTALLATION
FOR
DROP INLETS

SYMBOLOGY
SYMBOL TO BE USED TO DENOTE DEVICE ON PLANS

NOTE: SILT DIKE SHOULD ONLY BE USED FOR DROP INLETS IN SUMP LOCATIONS.

GENERAL NOTES

1. THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND MAINTAINING THE TRIANGULAR SILT DIKE. THE DIKES SHALL BE USED AS A CONTINUOUS LINE BARRIER AT THE TOE OF SLOPE OR ACROSS THE ROADWAY DITCH TO CONTAIN SEDIMENT AND MINIMIZE EROSION, OR AS DIRECTED BY THE ENGINEER. THESE DIKES SHALL BE INSTALLED AND LOCATED AS SOON AS CONSTRUCTION WILL ALLOW OR AS DIRECTED BY THE ENGINEER.

2. TRIANGULAR SILT DIKE SHALL BE TRIANGULAR SHAPED HAVING A HEIGHT OF AT LEAST 8" TO 10" IN THE CENTER WITH EQUAL SIDES AND A 16" TO 20" BASE. THE TRIANGULAR SHAPED INNER MATERIAL SHALL BE URETHANE FOAM. THE OUTER COVER SHALL BE A WOVEN GEOTEXTILE FABRIC PLACED AROUND THE INNER MATERIAL & ALLOWED TO EXTEND BEYOND BOTH SIDES OF THE TRIANGLE 24" TO 36". THIS FABRIC SHOULD BE MILDEW RESISTANT, ROT-PROOF AND RESISTANT TO HEAT AND ULTRAVIOLET RADIATION MEETING REQUIREMENTS FOR SEDIMENT CONTROL IN AASHTO M288. THE DIKES SHALL BE ATTACHED TO THE GROUND WITH WIRE STAPLES. THE STAPLES SHALL BE NO. 11 GAUGE WIRE AND BE AT LEAST 6" TO 8" LONG. STAPLES SHALL BE PLACED AS SHOWN ON THESE DETAILS.

   THE CONTRACTOR SHALL INSPECT ALL DIKES AFTER EACH RAINFALL EVENT OF AT LEAST 0.5" OR GREATER. ANY DEFICIENCIES OR DAMAGE SHALL BE REPAIRED BY THE CONTRACTOR. ACCUMULATED SILT OR DEBRIS SHALL BE REMOVED AND RELOCATED AS DIRECTED BY THE ENGINEER. IF THE DIKES ARE DAMAGED OR INADVERTENTLY MOVED DURING THE SILT REMOVAL PROCESS. THE CONTRACTOR SHALL IMMEDIATELY REPLACE AFTER DAMAGE OCCURS.

3. ACCEPTED TRIANGULAR SILT DIKE, MEASURED AS PROVIDED ABOVE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR TRIANGULAR SILT DIKE. PRICE BID WILL INCLUDE THE COST OF FURNISHING THE DIKES, INSTALLING, MAINTAINING AND REMOVAL WHEN DIRECTED BY THE ENGINEER.

DATE	REVISION	FILMED
7-26-12	REVISED GENERAL NOTE 2.	
12-15-11	ISSUED	

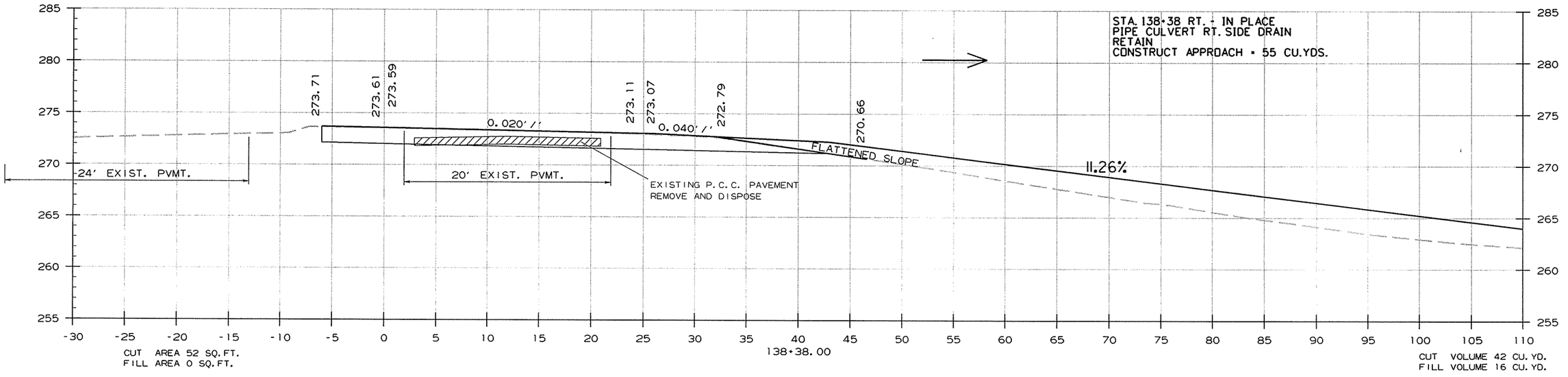
ARKANSAS STATE HIGHWAY COMMISSION

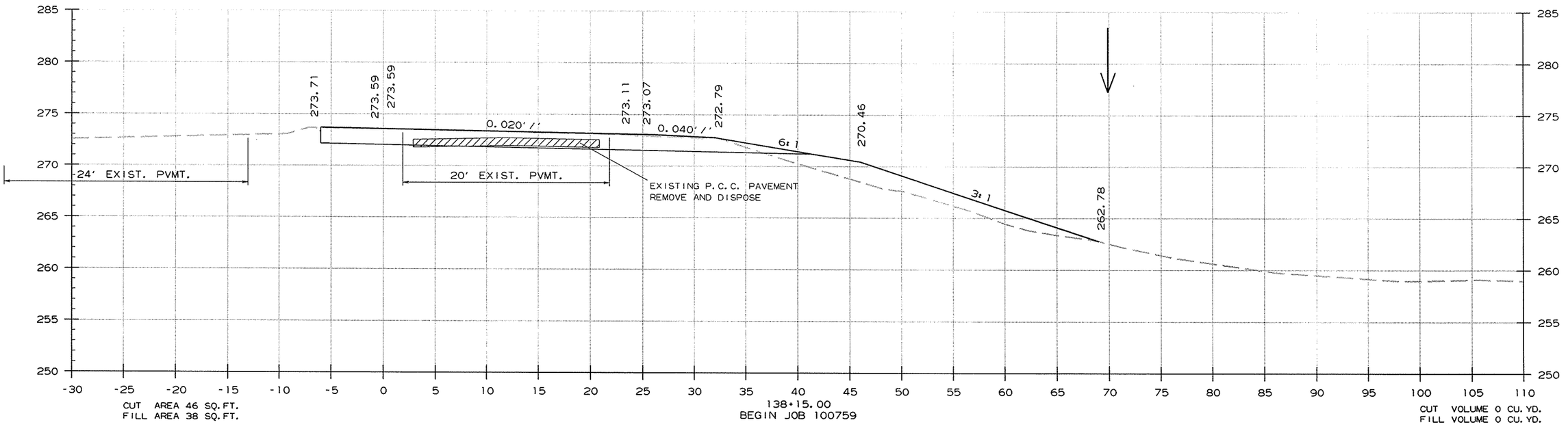
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-4

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.		100759	87	100

(2) CROSS SECTIONS





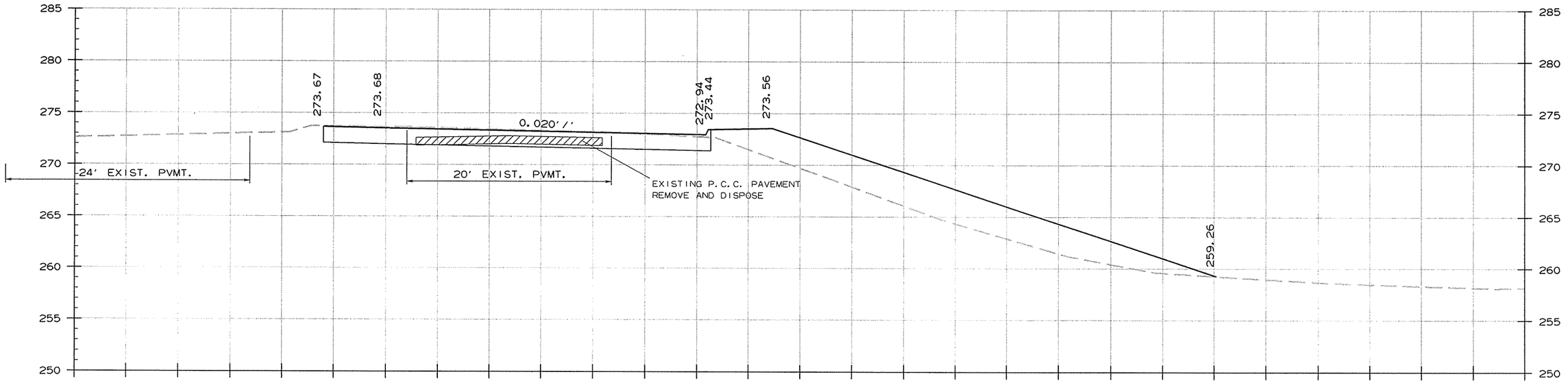
12/17/2015

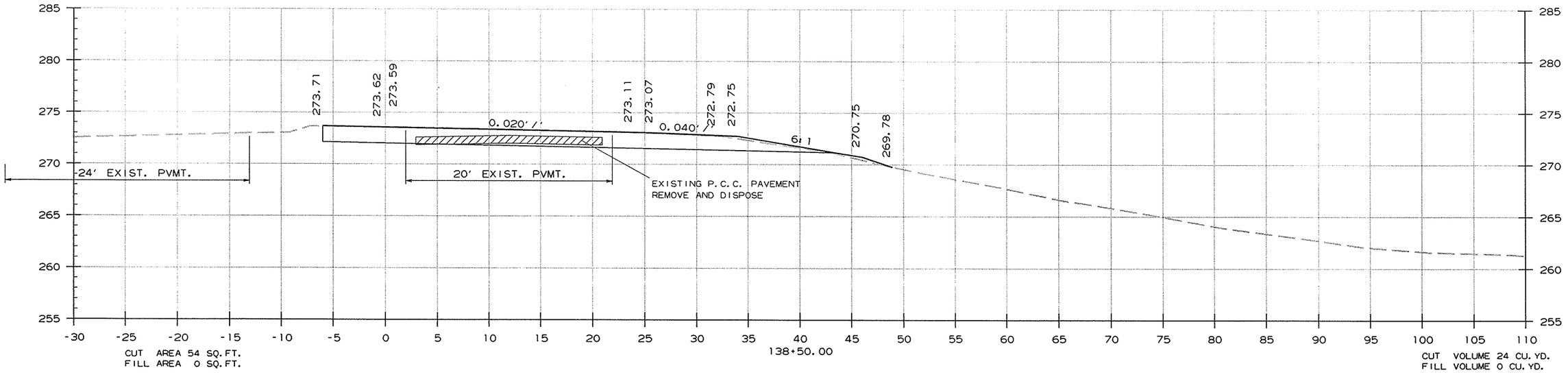
R100759.DGN

CROSS SECTION STA. 138+15 TO STA. 138+38

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.		100759	88	100

(2) CROSS SECTIONS





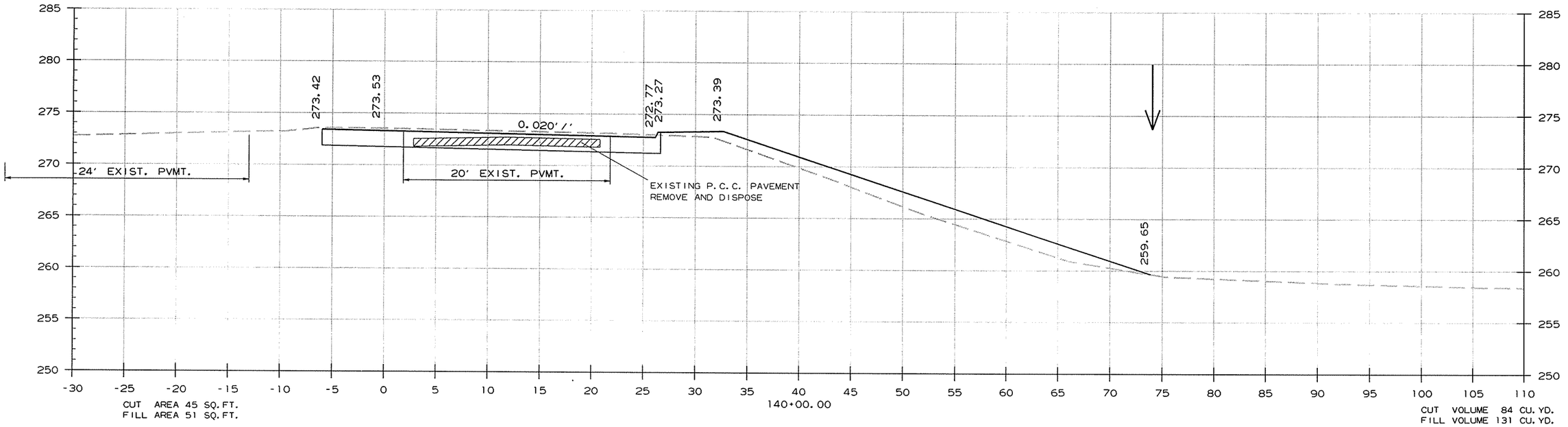
CROSS SECTION STA. 138+50 TO STA. 139+00

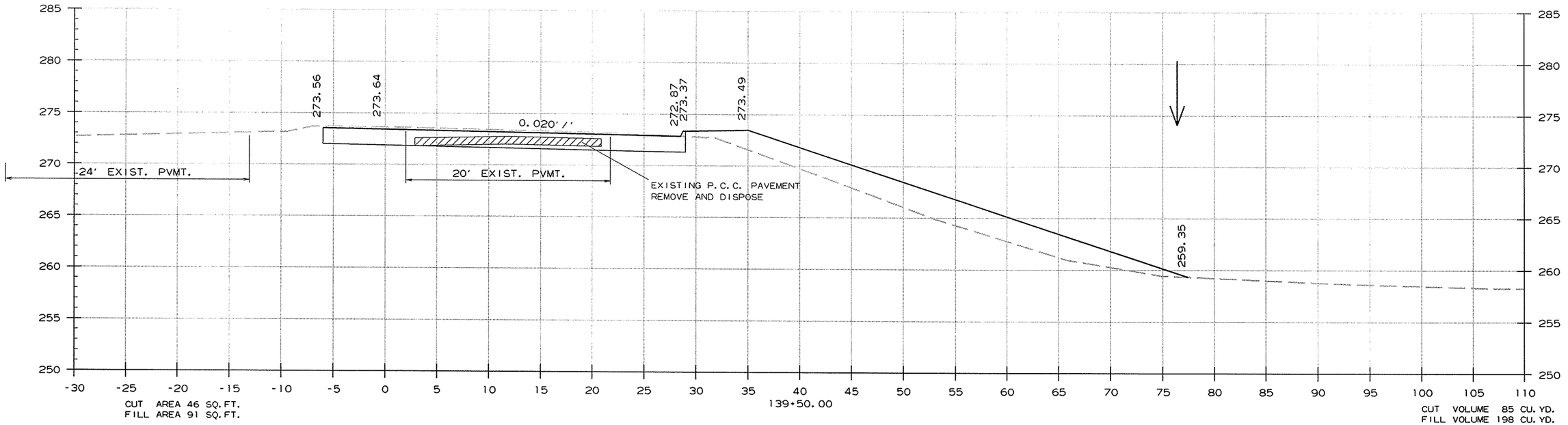
12/17/2015

R100759.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.		100759	89	100

(2) CROSS SECTIONS





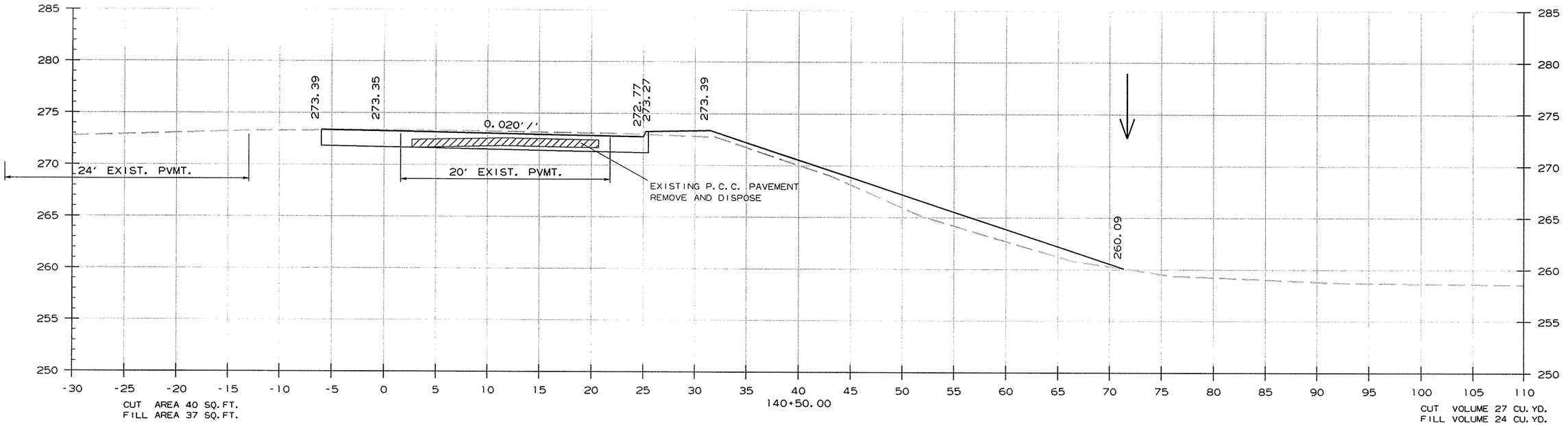
12/17/2015

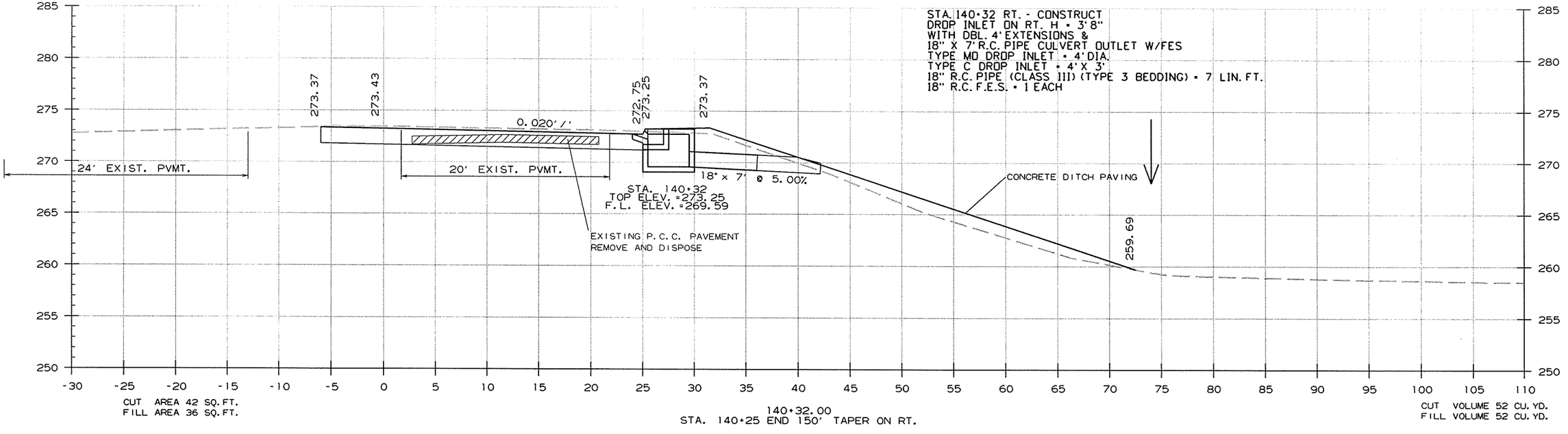
R100759.DGN

CROSS SECTION STA.139+50 TO STA.140+00

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.		100759	90	100

(2) CROSS SECTIONS





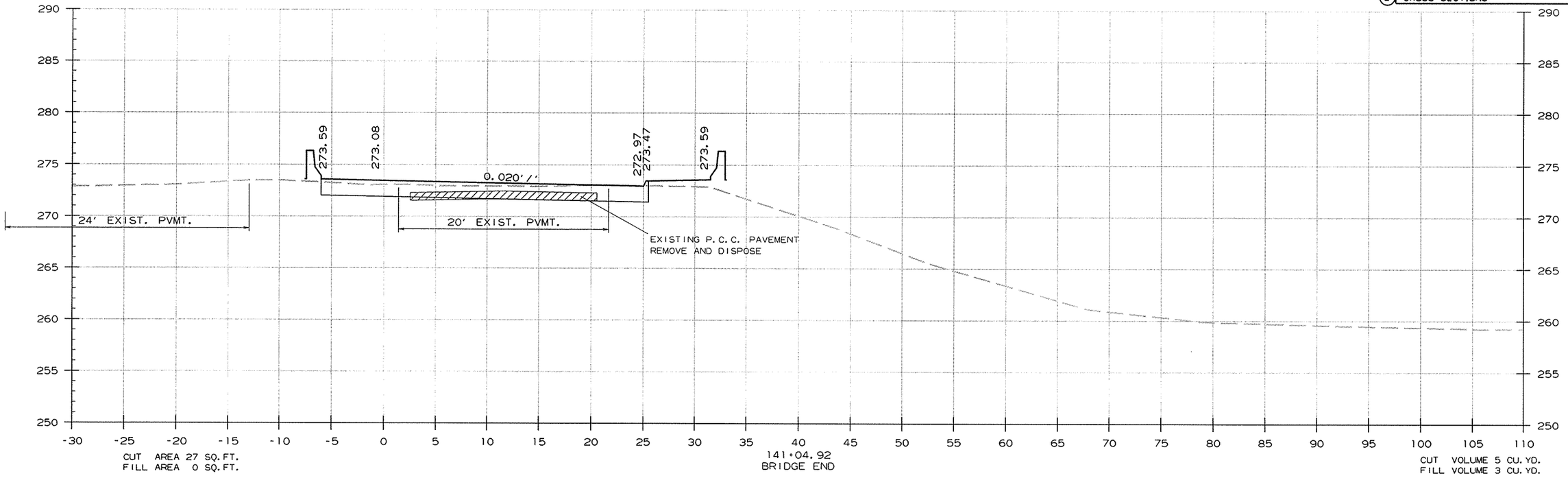
12/17/2015

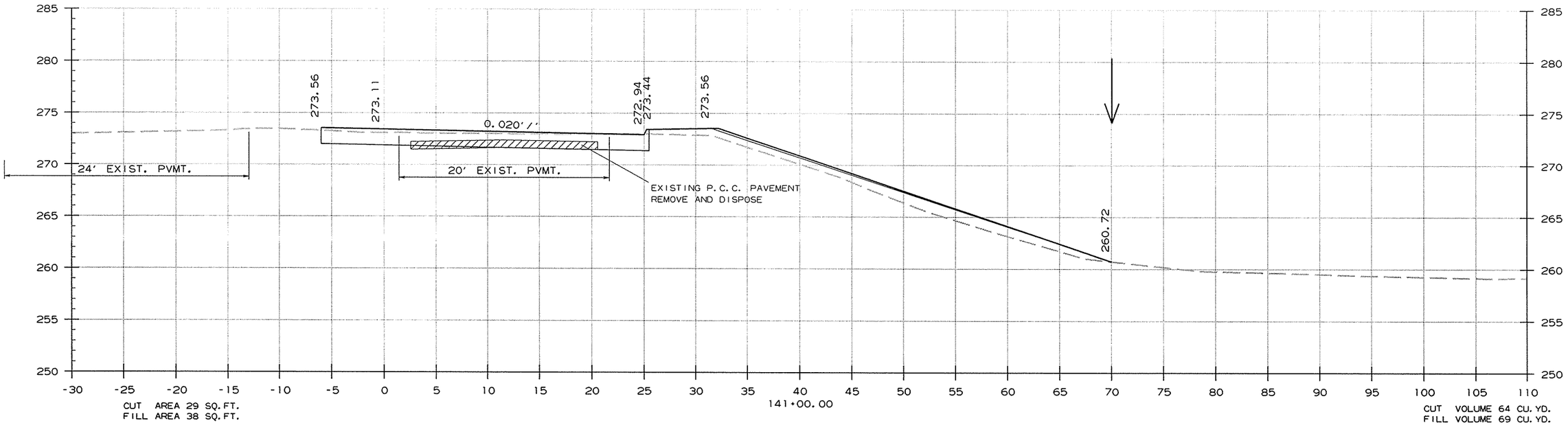
R100759.DGN

CROSS SECTION STA. 140+32 TO STA. 140+50

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.		100759	91	100

(2) CROSS SECTIONS





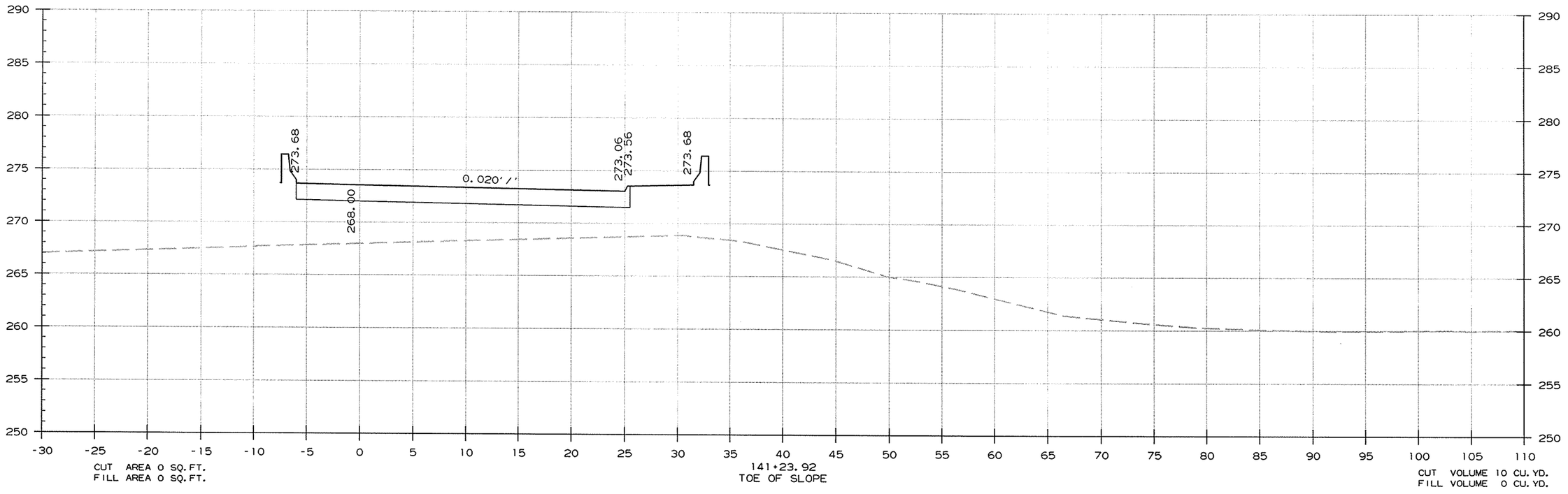
12/17/2015

R100759.DGN

CROSS SECTION STA. 141+00 TO STA. 141+05

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.		100759	92	100

(2) CROSS SECTIONS



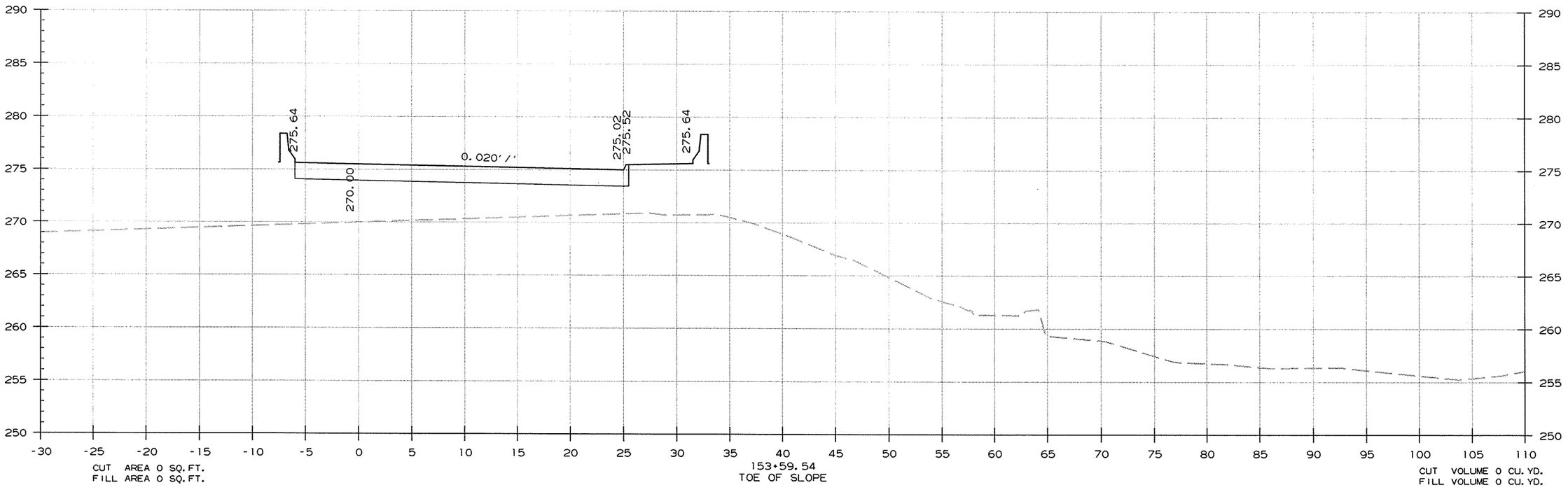
12/17/2015

R100759.DGN

CROSS SECTION STA. 141+24 TO STA. 141+24

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.		100759	93	100

(2) CROSS SECTIONS



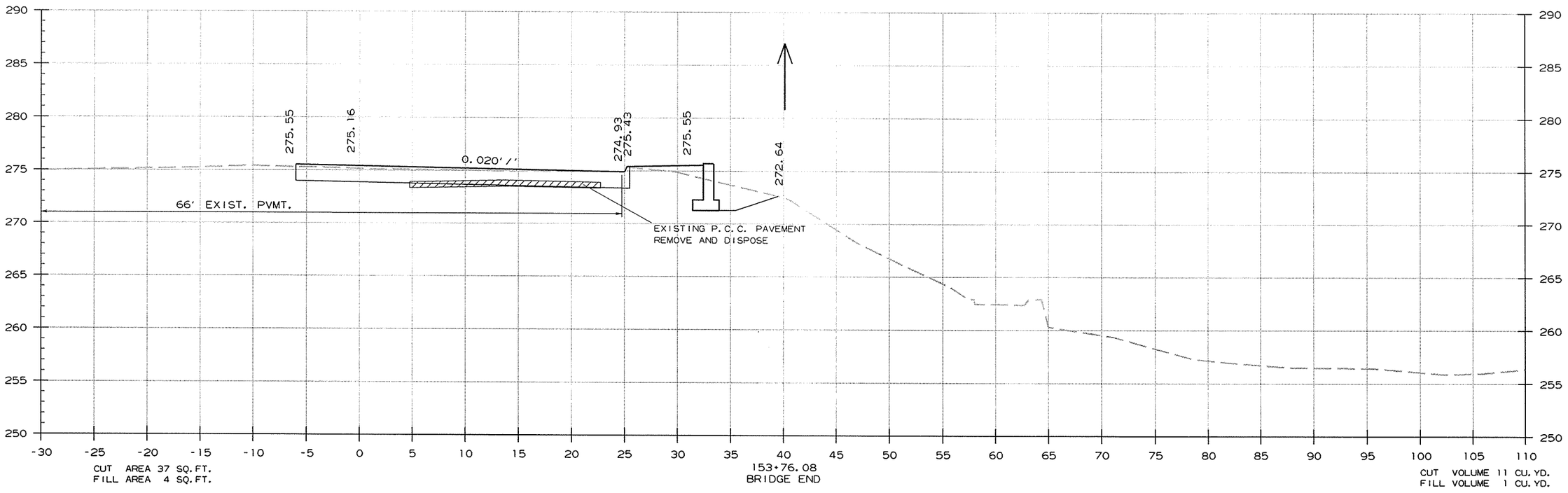
12/17/2015

R100759.DGN

CROSS SECTION STA.153+60 TO STA.153+60

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.		100759	94	100

(2) CROSS SECTIONS



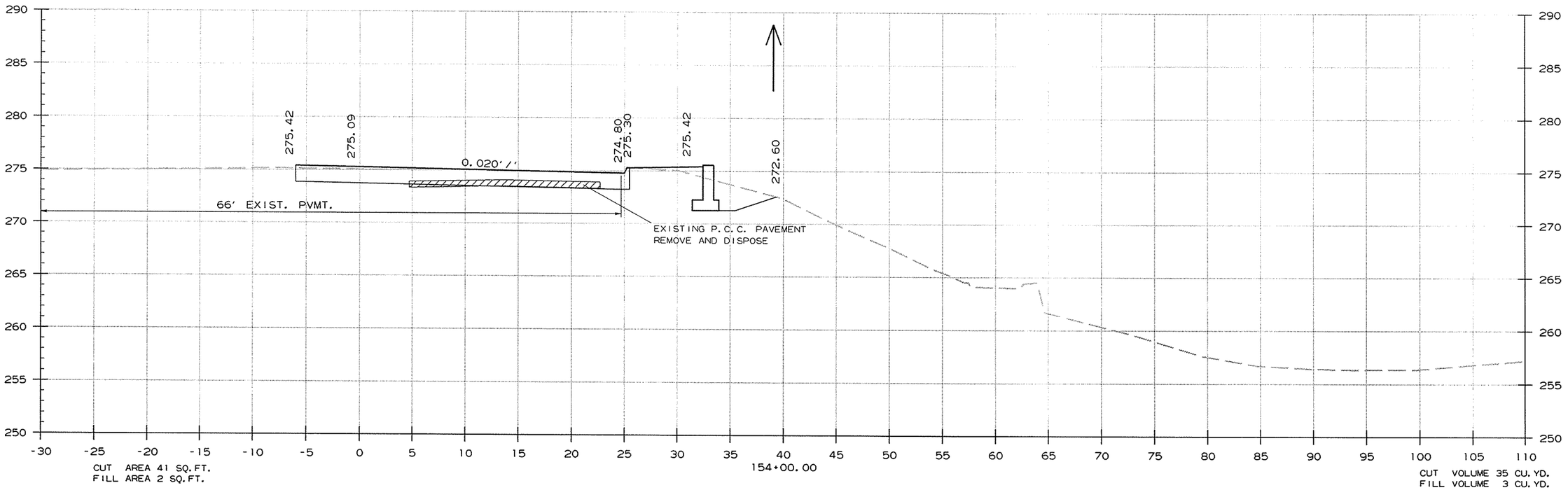
CROSS SECTION STA.153+76 TO STA.153+76

12/17/2015

R100759.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.		100759	95	100

(2) CROSS SECTIONS



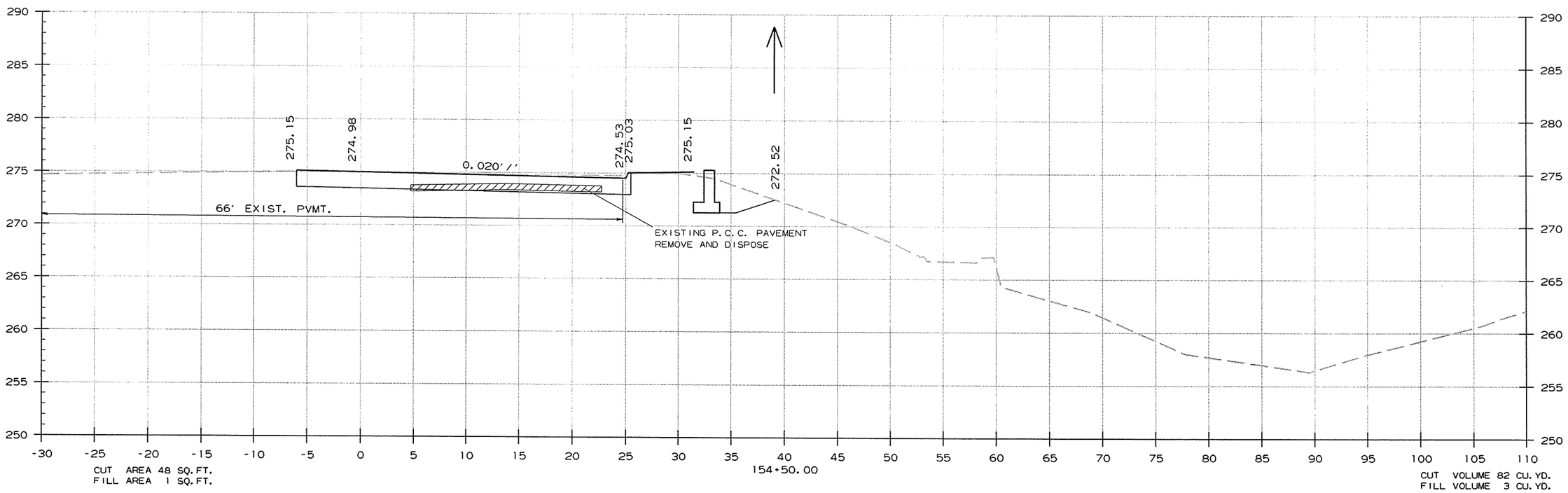
CROSS SECTION STA.154+00 TO STA.154+00

12/17/2015

R100759.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.		100759	96	100

(2) CROSS SECTIONS



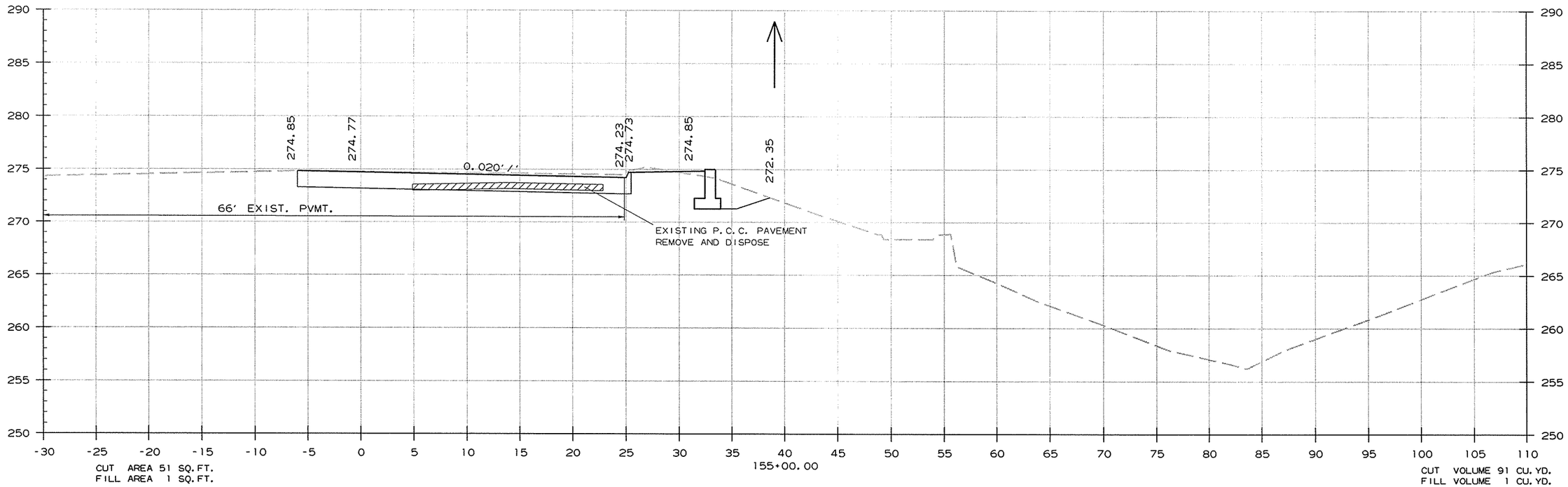
CROSS SECTION STA. 154+50 TO STA. 154+50

12/17/2015

R100759.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.		100759	97	100

(2) CROSS SECTIONS



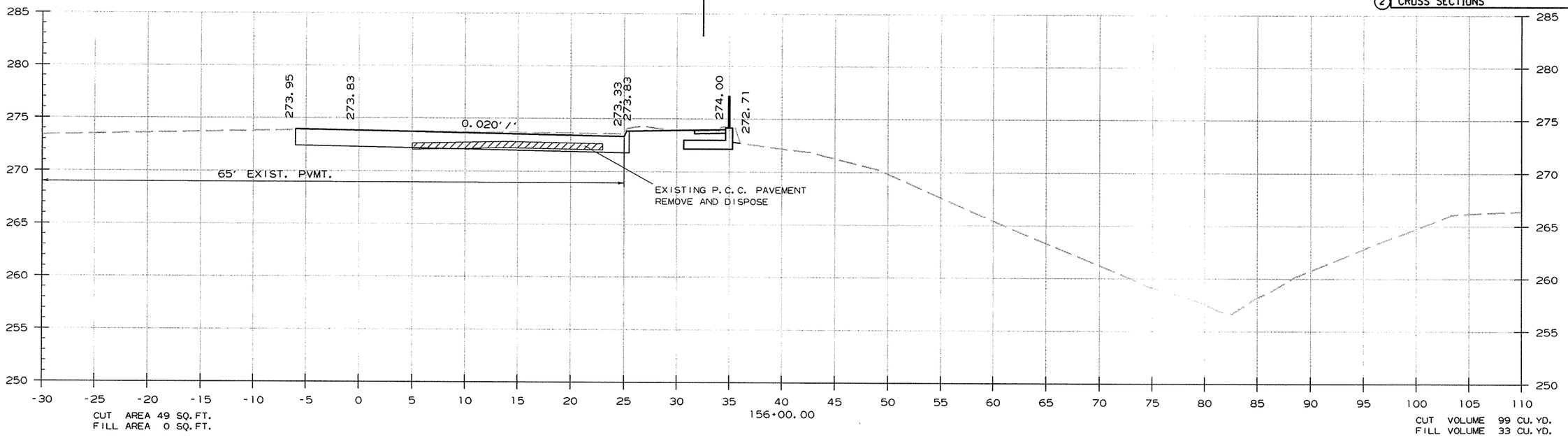
12/17/2015

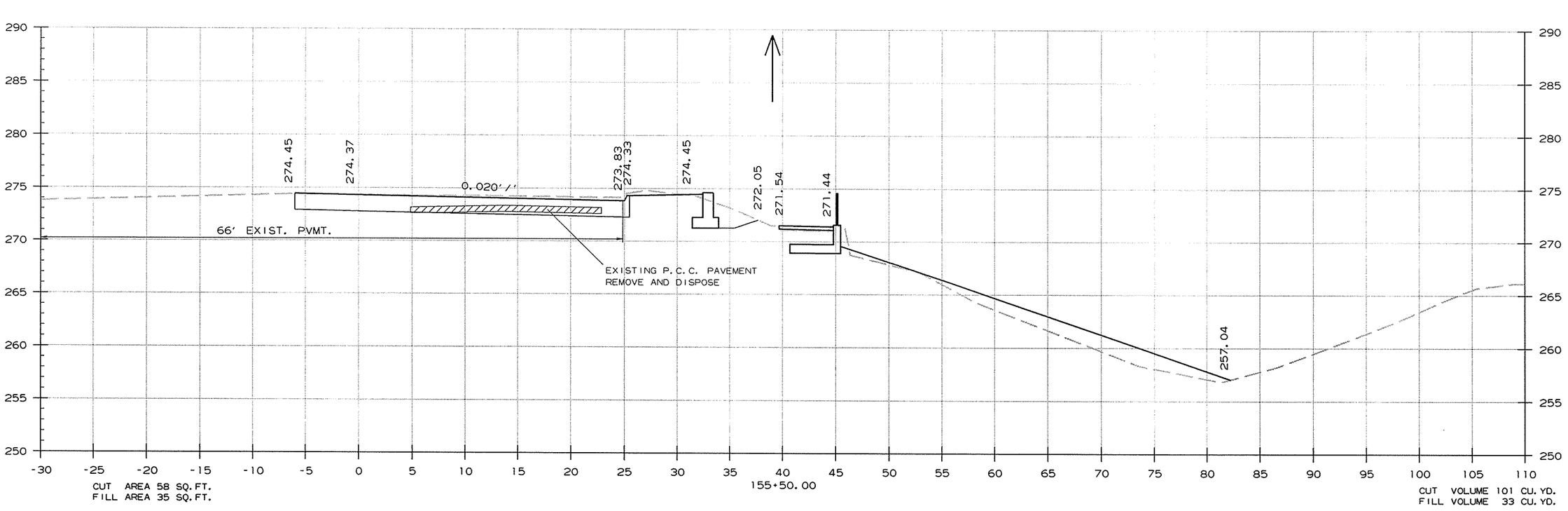
R100759.DGN

CROSS SECTION STA.155+00 TO STA.155+00

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.		100759	98	100

(2) CROSS SECTIONS





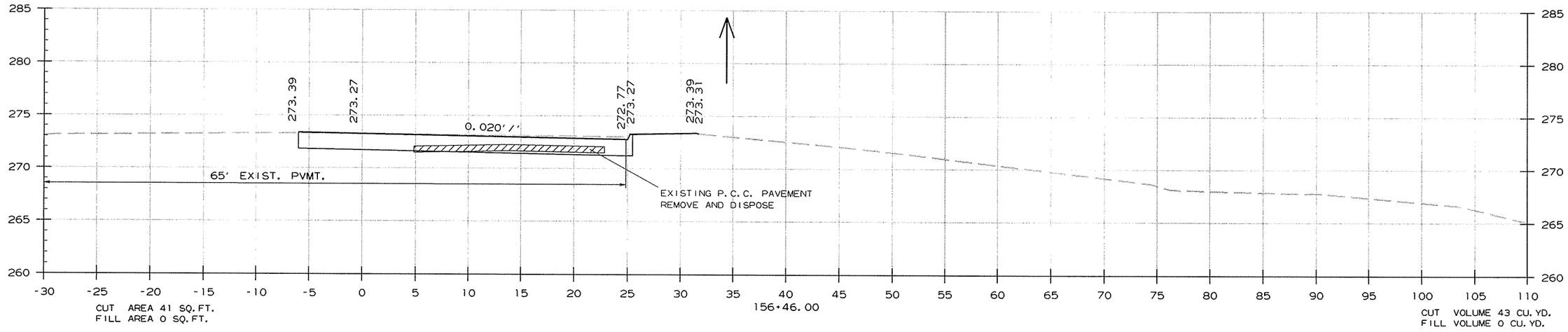
CROSS SECTION STA. 155+50 TO STA. 156+00

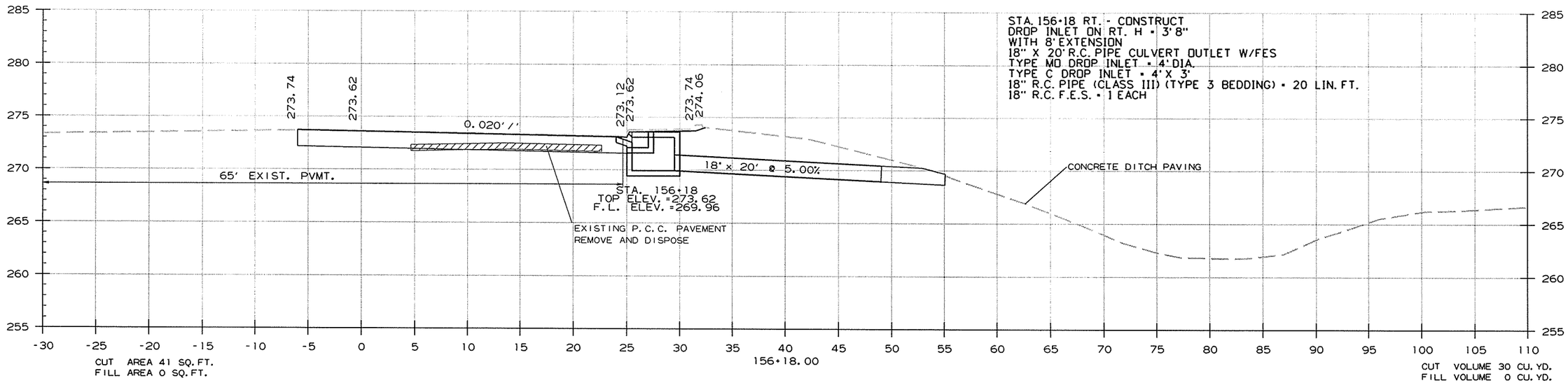
12/17/2015

R100759.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.		100759	99	100

(2) CROSS SECTIONS





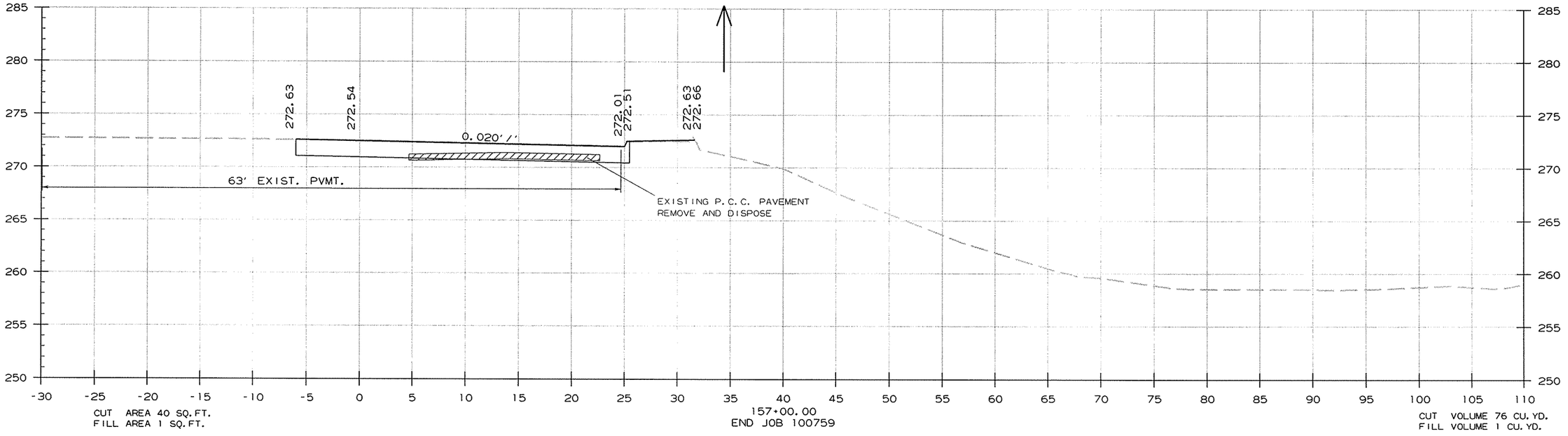
12/17/2015

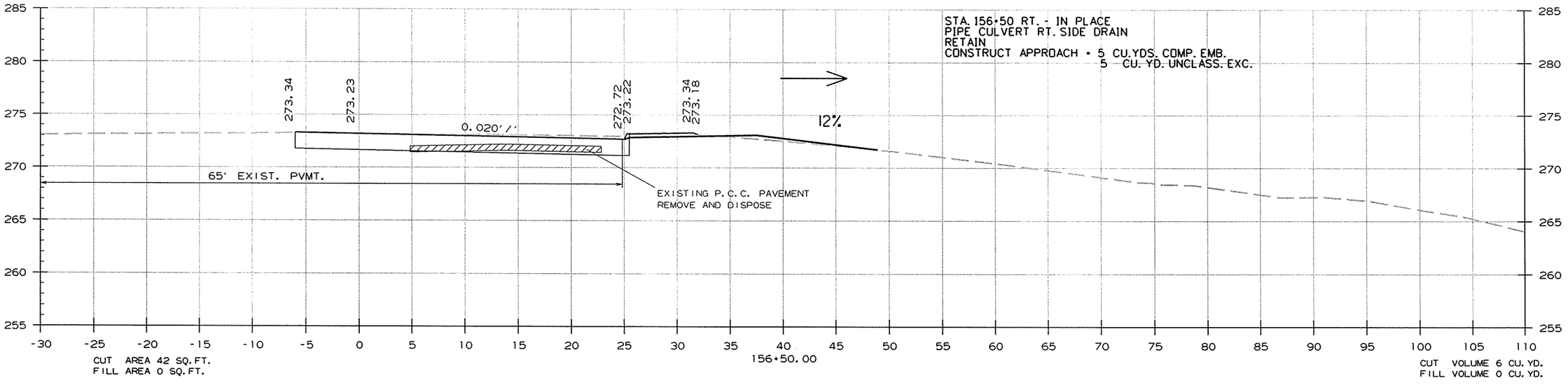
R100759.DGN

CROSS SECTION STA. 156+18 TO STA. 156+46

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.		100759	100	100

(2) CROSS SECTIONS





12/17/2015

R100759.DGN

CROSS SECTION STA. 156+50 TO STA. 157+00