

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT  
CONSTRUCTION PLANS FOR STATE HIGHWAY

**HWY. 18/BNSF R.R. OVERPASS  
STR. & APPRS. (BLYTHEVILLE) (S)**

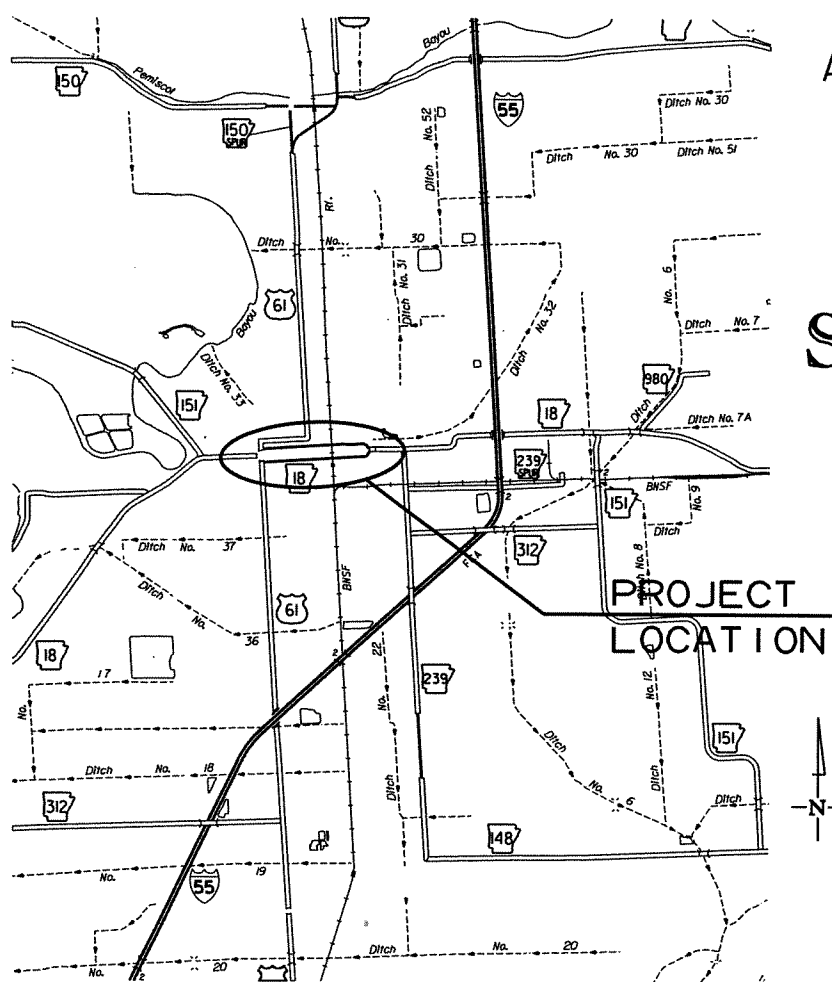
MISSISSIPPI COUNTY

ROUTE 18 SECTION 7

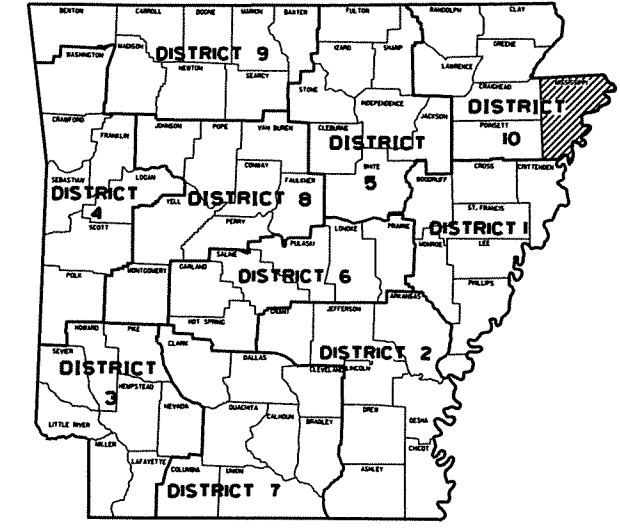
**JOB 100705**

FED. AID PROJ. STP-STPS-STPH-HSIP-FRAP-9051(5) & 9050

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. NO. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO. 100705		1		91
2 HWY. 18/BNSF R.R. OVERPASS STR. & APPRS. (BLYTHEVILLE) (S)								



VICINITY MAP



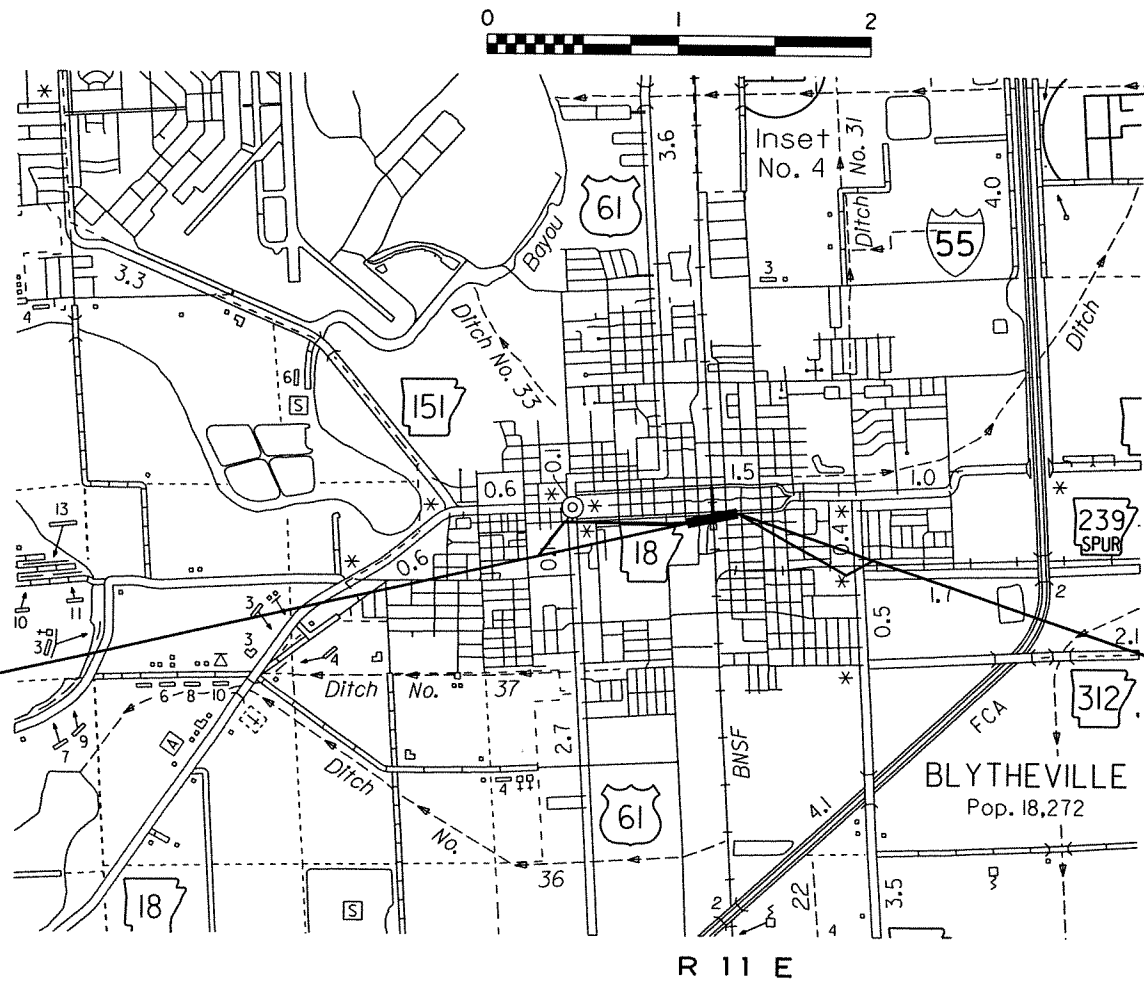
ARK. HWY. DIST. NO. 10

**BRIDGE DATA**

STA. 146+50.91 BRIDGE END  
BRIDGE NO. 07204  
1000'-2 1/4" COMP. PLATE GIRDER  
& COMP. W-BEAM UNITS  
58' CLEAR ROADWAY  
1002.18' BRIDGE LENGTH  
STA. 156+53.09 BRIDGE END

STA. 144+90 - BEGIN JOB 100705

STA. 159+30  
END JOB 100705



• DESIGN TRAFFIC DATA •

DESIGN YEAR	-----	2031
2011 ADT	-----	14,000
2031 ADT	-----	17,000
2031 DHV	-----	1,870
DIRECTIONAL DISTRIBUTION	-----	60%
TRUCKS	-----	8%
DESIGN SPEED	-----	30 MPH

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35° 55' 33"	N 35° 55' 34"	N 35° 55' 35"
LONGITUDE	W 89° 54' 28"	W 89° 54' 20"	W 89° 54' 11"

GROSS LENGTH OF PROJECT	1440.00	FEET	OR	0.273	MILES
NET " " ROADWAY	437.82	" "	" "	0.083	" "
NET " " BRIDGES	1002.18	" "	" "	0.190	" "
NET " " PROJECT	1440.00	" "	" "	0.273	" "

P.E. 100663  
NON-PART.



APPROVED



DEPUTY DIRECTOR  
AND CHIEF ENGINEER

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. 100705							2	91

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	SPECIAL DETAILS			
6 - 7	TEMPORARY EROSION CONTROL DETAILS			
8 - 9	MAINTENANCE OF TRAFFIC DETAILS			
10 - 11	QUANTITY SHEETS			
12	SCHEDULE OF BRIDGE QUANTITIES	07204	52112	
13	SUMMARY OF QUANTITIES AND REVISIONS			
14 - 16	SURVEY CONTROL DETAILS			
17 - 20	PLAN AND PROFILE SHEETS			
21	LAYOUT OF BRIDGE OVER BNSF RAILWAY - SHEET 1 OF 4	07204	52113	
22	LAYOUT OF BRIDGE OVER BNSF RAILWAY - SHEET 2 OF 4	07204	52114	
23	LAYOUT OF BRIDGE OVER BNSF RAILWAY - SHEET 3 OF 4	07204	52115	
24	LAYOUT OF BRIDGE OVER BNSF RAILWAY - SHEET 4 OF 4	07204	52116	
25	LAYOUT OF BRIDGE OVER BNSF RAILWAY - EXHIBIT A	07204	52117	
26	DETAILS OF END BENTS - SHEET 1 OF 3	07204	52118	
27	DETAILS OF END BENTS - SHEET 2 OF 3	07204	52119	
28	DETAILS OF END BENTS - SHEET 3 OF 3	07204	52120	
29	DETAILS OF CONCRETE FILLED STEEL SHELL PILES	07204	52121	
30	DETAILS OF TRANSITIONAL APPROACH RAILING	07204	52122	
31	DETAILS OF BENTS 2, 3, 5, 6, 8 & 9 - SHEET 1 OF 2	07204	52123	
32	DETAILS OF BENTS 2, 3, 5, 6, 8 & 9 - SHEET 2 OF 2	07204	52124	
33	DETAILS OF BENTS 4 & 7 - SHEET 1 OF 2	07204	52125	
34	DETAILS OF BENTS 4 & 7 - SHEET 2 OF 2	07204	52126	
35	DETAILS OF BENT ENHANCEMENT	07204	52127	
36	DETAILS OF 285'-0" CONTINUOUS COMPOSITE W-BEAM UNIT - SHEET 1 OF 8	07204	52128	
37	DETAILS OF 285'-0" CONTINUOUS COMPOSITE W-BEAM UNIT - SHEET 2 OF 8	07204	52129	
38	DETAILS OF 285'-0" CONTINUOUS COMPOSITE W-BEAM UNIT - SHEET 3 OF 8	07204	52130	
39	DETAILS OF 285'-0" CONTINUOUS COMPOSITE W-BEAM UNIT - SHEET 4 OF 8	07204	52131	
40	DETAILS OF 285'-0" CONTINUOUS COMPOSITE W-BEAM UNIT - SHEET 5 OF 8	07204	52132	
41	DETAILS OF 285'-0" CONTINUOUS COMPOSITE W-BEAM UNIT - SHEET 6 OF 8	07204	52133	
42	DETAILS OF 285'-0" CONTINUOUS COMPOSITE W-BEAM UNIT - SHEET 7 OF 8	07204	52134	
43	DETAILS OF 285'-0" CONTINUOUS COMPOSITE W-BEAM UNIT - SHEET 8 OF 8	07204	52135	
44	DETAILS OF 430'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT - SHEET 1 OF 12	07204	52136	
45	DETAILS OF 430'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT - SHEET 2 OF 12	07204	52137	
46	DETAILS OF 430'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT - SHEET 3 OF 12	07204	52138	
47	DETAILS OF 430'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT - SHEET 4 OF 12	07204	52139	
48	DETAILS OF 430'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT - SHEET 5 OF 12	07204	52140	
49	DETAILS OF 430'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT - SHEET 6 OF 12	07204	52141	
50	DETAILS OF 430'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT - SHEET 7 OF 12	07204	52142	
51	DETAILS OF 430'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT - SHEET 8 OF 12	07204	52143	
52	DETAILS OF 430'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT - SHEET 9 OF 12	07204	52144	
53	DETAILS OF 430'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT - SHEET 10 OF 12	07204	52145	
54	DETAILS OF 430'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT - SHEET 11 OF 12	07204	52146	
55	DETAILS OF 430'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT - SHEET 12 OF 12	07204	52147	
56	DETAILS OF ELASTOMERIC BEARINGS	07204	52148	
57	DETAILS OF CHAIN LINK FENCE	07204	52149	
58	DETAILS OF TYPE "H" METAL BRIDGE RAILING	07204	52150	
59	DETAILS OF DECK DRAINS - SHEET 1 OF 2	07204	52151	
60	DETAILS OF DECK DRAINS - SHEET 2 OF 2	07204	52152	
61	DETAILS OF TYPE SPECIAL APPROACH SLAB	07204	52153	
62	EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS		1888A	4-10-03
63	DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES		1891F	4-10-03
64	DETAILS OF STANDARD TYPE D BRIDGE NAME PLATES		2387	1-25-11
65	DETAILS OF PERMISSIBLE TYPE PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS		14991	4-10-03
66	DETAILS OF CONCRETE RIPRAP AND MISCELLANEOUS DETAILS OF STEEL PILING		14995A	4-10-03
67	CURBING DETAILS		CG-1	11-29-07
68	DETAILS OF DROP INLET & JUNCTION BOXES DETAILS		FPC-9	11-16-01
69	DETAILS OF DROP INLETS (TYPE C)		FPC-9E	8-22-02
70	DETAILS OF DROP INLET (TYPE MO)		FPC-9M	8-22-02
71	GUARD RAIL DETAILS (TYPE C) STREET/ROAD BARRICADE OR TEMPORARY INSTALLATION		GR-7	7-14-10
72	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING		PCC-1	5-18-00
73	METAL PIPE CULVERT FILL HEIGHTS & BEDDING		PCM-1	3-30-00
74	PAVEMENT MARKING DETAILS		PM-1	11-17-10
75	STANDARD HIGHWAY SIGNS & SUPPORTS ASSEMBLIES		SHS-1	4-17-08
76	U-CHANNEL POST ASSEMBLIES		SHS-2	10-09-03
77	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-1	11-17-10
78	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-2	3-11-10
79	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-3	10-15-09
80	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER		TC-4	10-15-09
81	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER		TC-5	10-15-09
82	TEMPORARY EROSION CONTROL DEVICES		TEC-1	11-18-98
83	TEMPORARY EROSION CONTROL DEVICES		TEC-2	6-02-94
84	TEMPORARY EROSION CONTROL DEVICES		TEC-3	11-03-94
85	CHAIN LINK FENCE		WF-3	11-17-10
86 - 91	CROSS SECTIONS			

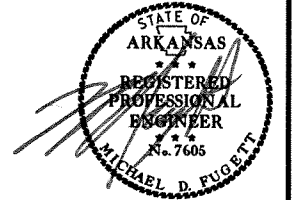
GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2003, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	FHWA-1273 REVISIONS
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 100705
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-2	MANUAL FOR ASSESSING SAFETY HARDWARE (MASH)
103-1	DETERMINATION OF DBE PARTICIPATION
105-1	CONSTRUCTION CONTROL MARKINGS
105-2	EQUIPMENT AND MATERIAL STORAGE ON BRIDGE STRUCTURES
107-1	WORKER VISIBILITY
108-1	LIQUIDATED DAMAGES
110-1	PROTECTION OF WATER QUALITY AND WETLANDS
303-1	AGGREGATE BASE COURSE
600-1	WATER FOR VEGETATION
603-1	MAINTENANCE OF TRAFFIC
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-2	PIPE CULVERTS
718-2	REFLECTORIZED PAINT PAVEMENT MARKINGS
723-1	GENERAL REQUIREMENTS FOR SIGNS
JOB 100705	ARCHITECTURAL FINISH
JOB 100705	ARMORED JOINT WITH NEOPRENE STRIP SEAL
JOB 100705	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 100705	DELAY IN RIGHT-OF-WAY OCCUPANCY
JOB 100705	GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION
JOB 100705	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 100705	INSURANCE, CONSTRUCTION, AND FLAGGING REQUIREMENTS ON RAILROAD PROPERTY (BNSF)
JOB 100705	INTERNET BIDDING
JOB 100705	MAINTENANCE OF PEDESTRIAN TRAFFIC
JOB 100705	NESTING SITES OF MIGRATORY BIRDS
JOB 100705	PARTNERING REQUIREMENTS
JOB 100705	PROTECTION OF UTILITY
JOB 100705	SEQUENCE OF CONSTRUCTION
JOB 100705	SILICONE JOINT SEALANT
JOB 100705	SITE USE (A+C METHOD)
JOB 100705	SOIL STABILIZATION
JOB 100705	SPECIAL SAFETY REQUIREMENTS FOR BRIDGE
JOB 100705	STEEL SHELL PILES
JOB 100705	STORM WATER POLLUTION PREVENTION PLAN
JOB 100705	TEXTURED COATING FINISH
JOB 100705	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES LEFT IN PLACE
JOB 100705	TRANSITIONAL APPROACH RAILING
JOB 100705	UTILITY ADJUSTMENTS
JOB 100705	VALUE ENGINEERING
JOB 100705	WELLHEAD PROTECTION

GENERAL NOTES

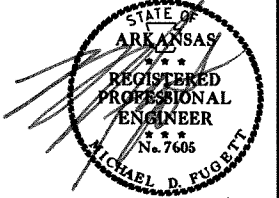
- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- ALL PIPE LINES, POWER, TELEPHONE AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
- ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
- ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED IF AND WHERE 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.
- ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
- 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.



7-22-11

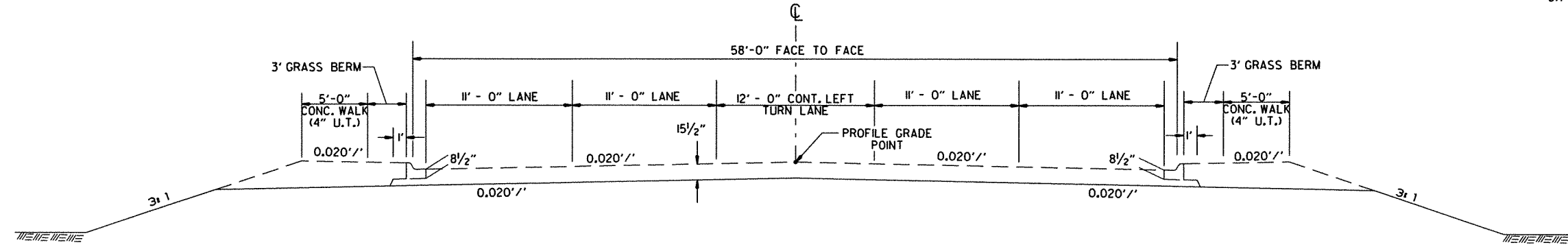
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				6	ARK.			
				JOB NO.	100705		3	91

② TYPICAL SECTIONS OF IMPROVEMENT



7-20-11

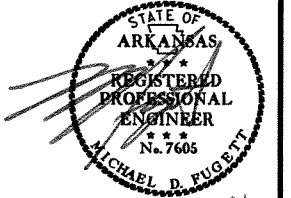
NOTES:  
 REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.  
 IT IS INTENDED THAT THE SUBGRADE SHALL BE FINISHED IN CONFORMITY WITH THE LINES, GRADES, AND CROSS SECTIONS SHOWN ON THE PLANS. HOWEVER, A TOLERANCE OF PLUS OR MINUS ONE-TENTH FOOT WILL BE ALLOWED.



GRADING TYPICAL

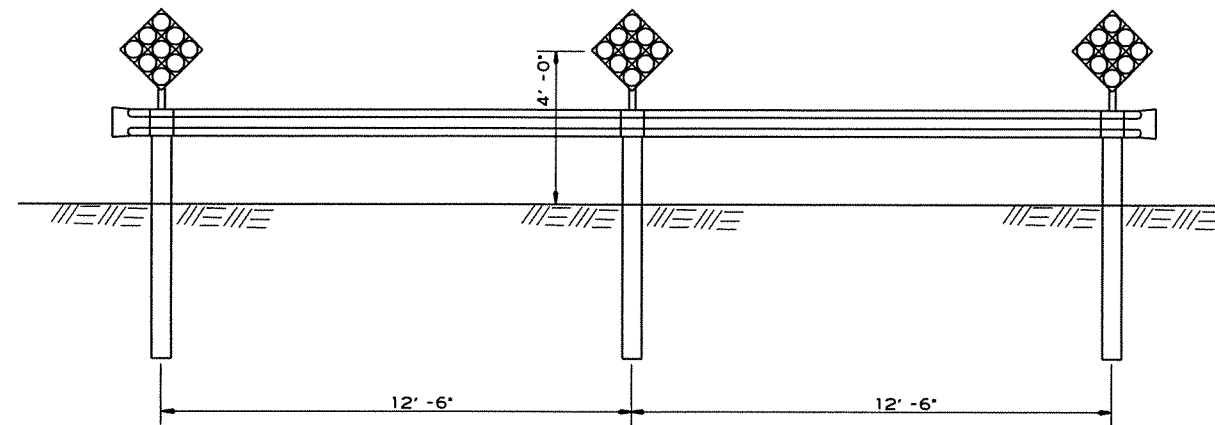
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2 SPECIAL DETAILS



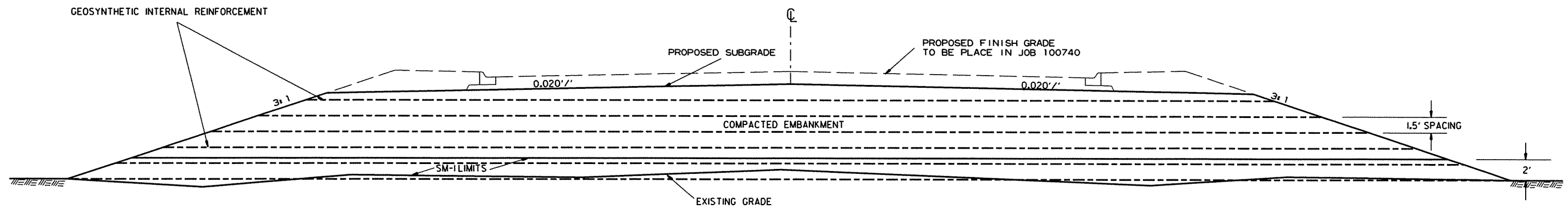
7-20-11

CONSTRUCT 25 LIN. FT. TYPE "C" GUARDRAIL WITH 3 RED DIAMOND REFLECTORS (OM4-3) (18" X 18") MOUNTED ON U-CHANNEL POSTS DIRECTLY BEHIND THE GUARDRAIL AT A HEIGHT OF 4'-0".



**ROAD CLOSED DETAIL**

TO BE USED WHERE EXISTING ROADS WILL BE PERMANENTLY CLOSED. SEE PLAN SHEETS FOR LOCATIONS. SEE STD. DWG. GR-7 FOR MORE DETAILS.



**COMPACTED EMBANKMENT (SPECIAL) DETAIL**

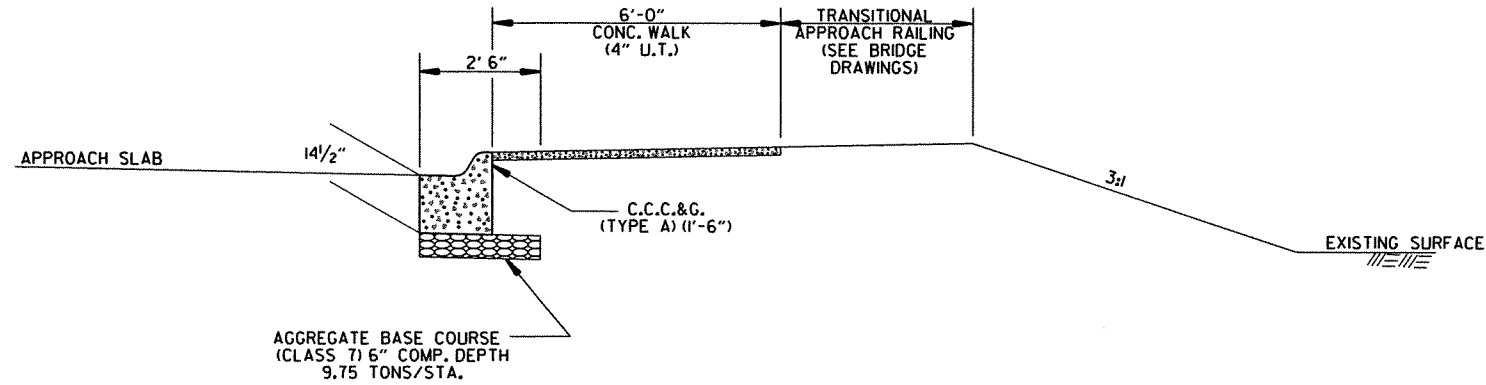
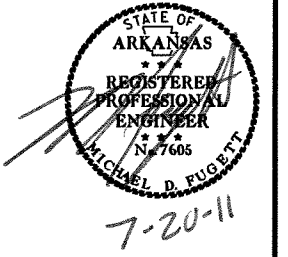
QUANTITY AND PAY ITEM COMPACTED EMBANKMENT (SPECIAL) INCLUDES GEOSYNTHETIC INTERNAL REINFORCEMENT, SM-1 FILL, AND COMPACTED EMBANKMENT MATERIAL AS SPECIFIED IN THE GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION SPECIAL PROVISION.

SPECIAL DETAILS



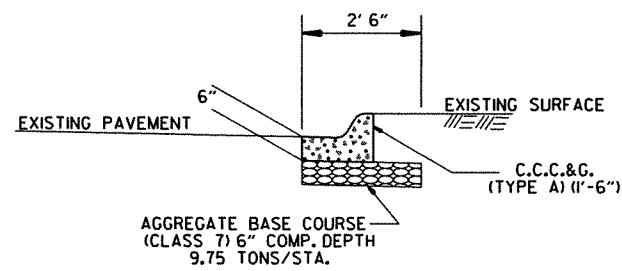
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2 SPECIAL DETAILS



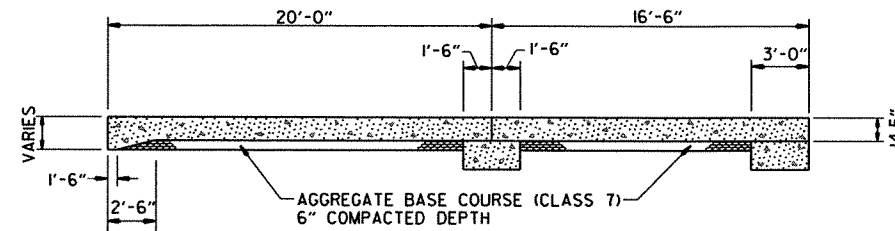
**CURB AND GUTTER DETAILS**

TO BE USED ALONG THE APPROACH SLABS. SEE PLAN SHEETS FOR LOCATIONS.



**CURB AND GUTTER DETAILS**

TO BE USED WHERE EXISTING ROADS WILL BE PERMANENTLY CLOSED. SEE PLAN SHEETS FOR LOCATIONS.

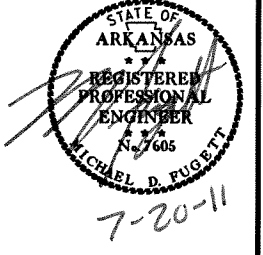


**SECTION OF APPROACH SLAB**

DATE OF REVISION	REVISION

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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2 TEMPORARY EROSION CONTROL DETAILS



LEGEND

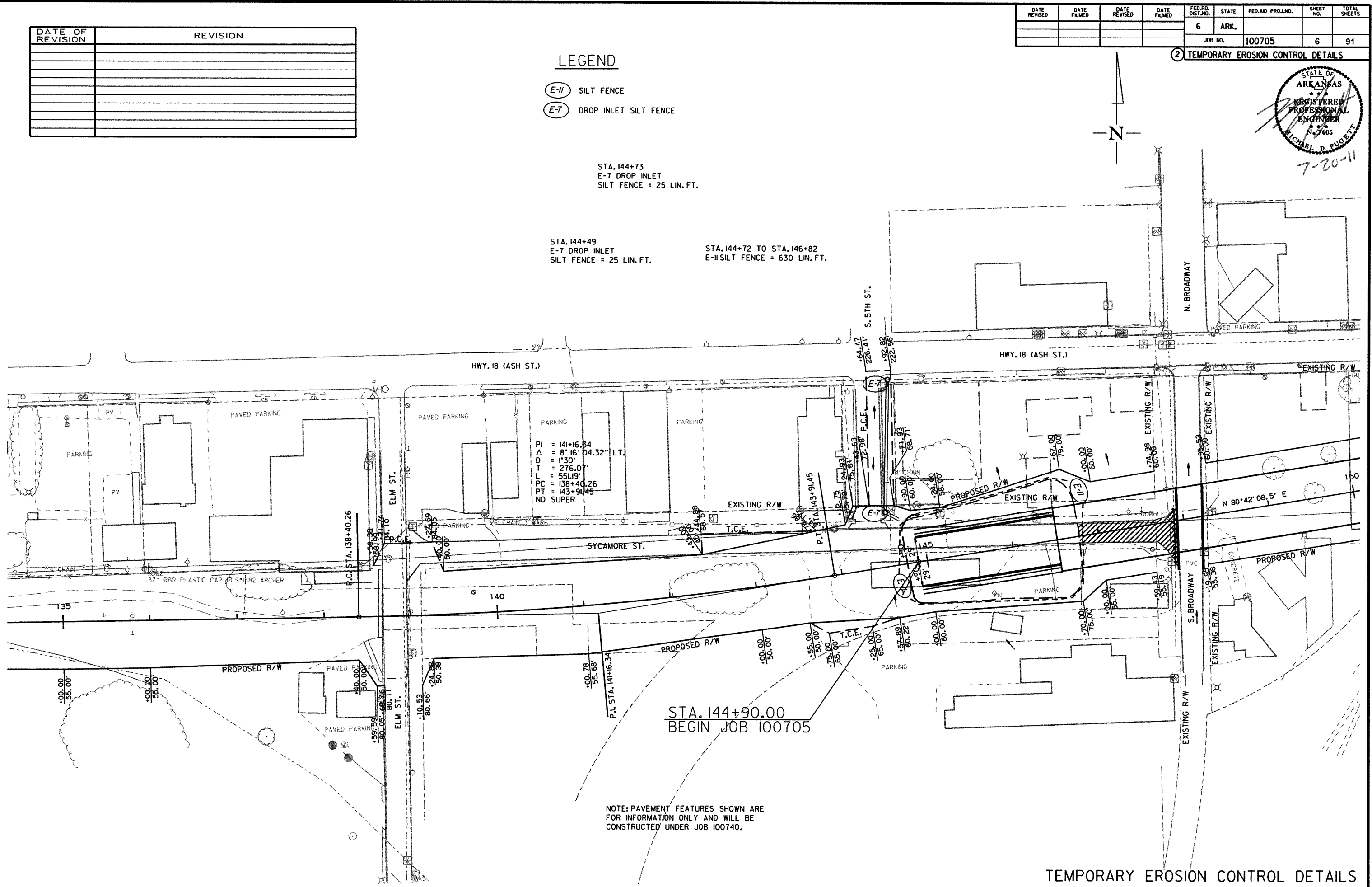
- (E-II) SILT FENCE
- (E-7) DROP INLET SILT FENCE

STA. 144+73  
E-7 DROP INLET  
SILT FENCE = 25 LIN. FT.

STA. 144+49  
E-7 DROP INLET  
SILT FENCE = 25 LIN. FT.

STA. 144+72 TO STA. 146+82  
E-II SILT FENCE = 630 LIN. FT.

PI = 141+16.34  
Δ = 8° 16' 04.32" LT.  
D = 1° 30'  
L = 276.07'  
PC = 138+40.26  
PT = 143+91.45  
NO SUPER



STA. 144+90.00  
BEGIN JOB 100705

NOTE: PAVEMENT FEATURES SHOWN ARE FOR INFORMATION ONLY AND WILL BE CONSTRUCTED UNDER JOB 100740.

TEMPORARY EROSION CONTROL DETAILS

DATE OF REVISION	REVISION

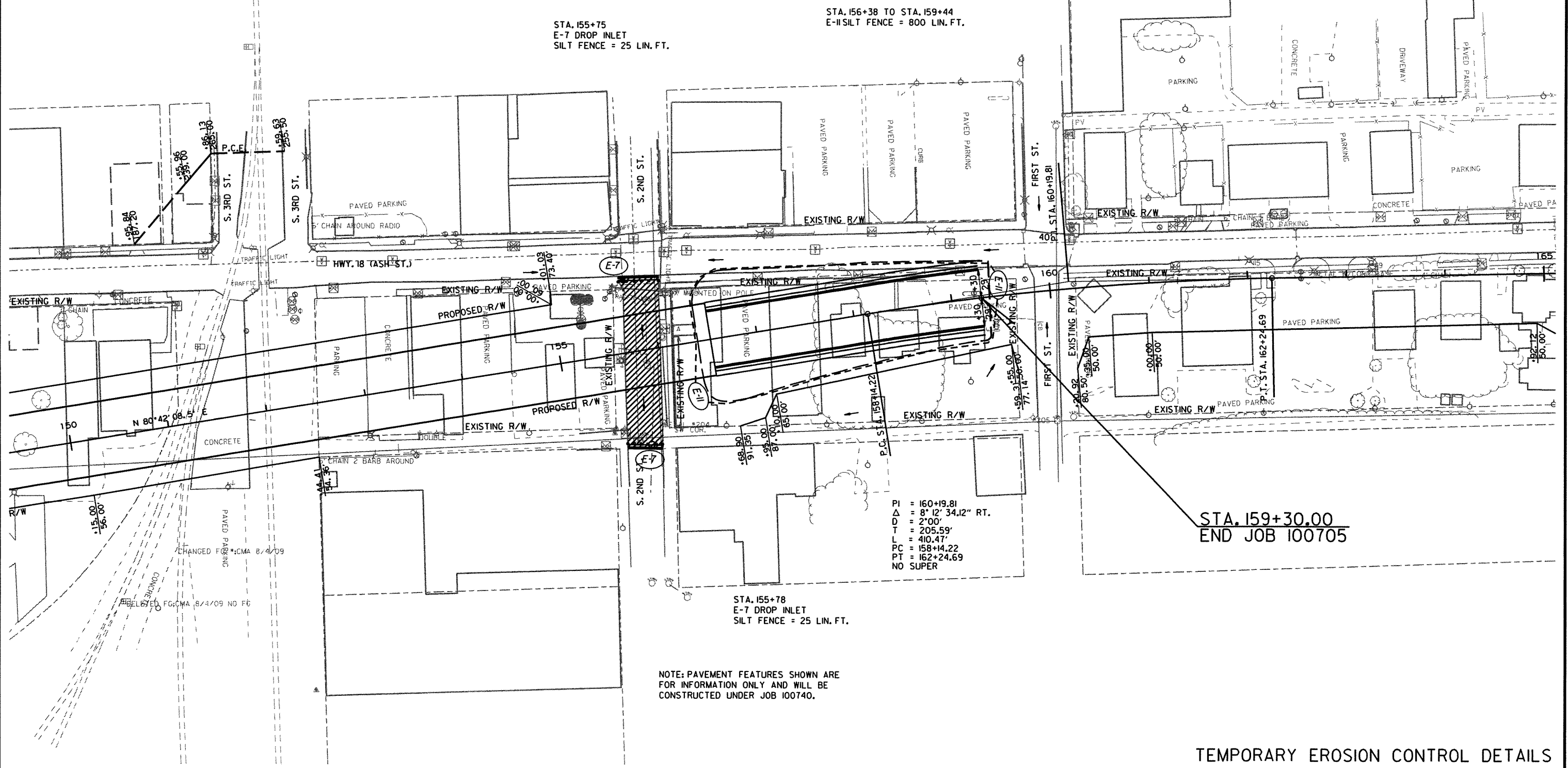
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2 TEMPORARY EROSION CONTROL DETAILS



LEGEND

- (E-II) SILT FENCE
- (E-7) DROP INLET SILT FENCE



NOTE: PAVEMENT FEATURES SHOWN ARE FOR INFORMATION ONLY AND WILL BE CONSTRUCTED UNDER JOB 100740.

TEMPORARY EROSION CONTROL DETAILS

MAINTENANCE OF TRAFFIC: ENTIRE JOB

STA. 144+90 - STA. 159+30 CLOSE EAST LEG OF S. 5TH ST. AND SYCAMORE ST.

WHILE MAINTAINING TRAFFIC ON S. BROADWAY UNDER BRIDGE, CLOSE SOUTH LEG OF S. 2ND ST. AND EXISTING HWY. 18.

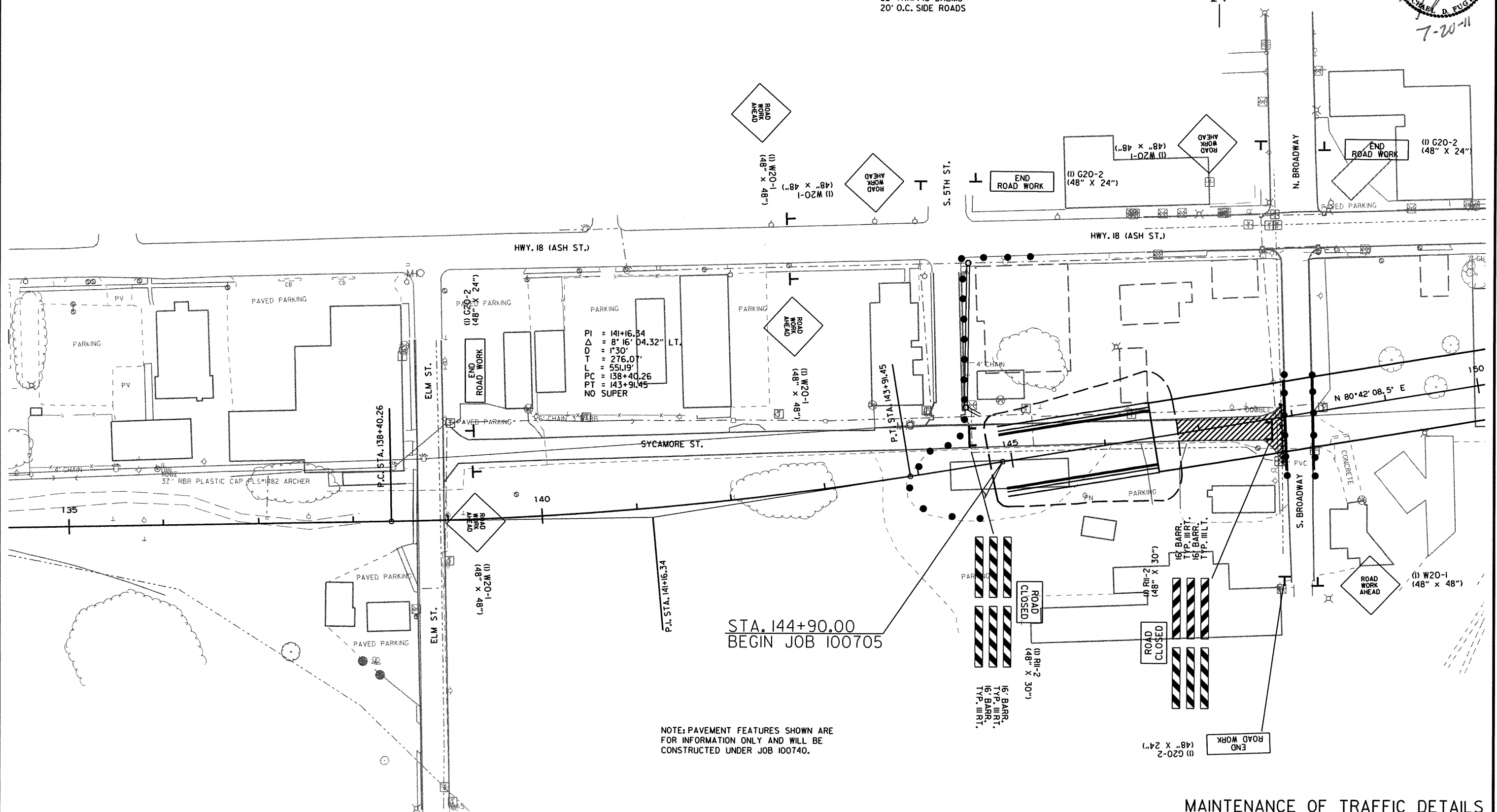
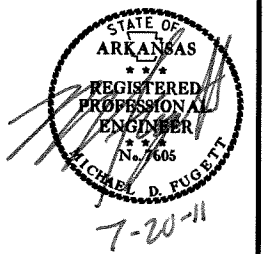
NARROW HWY. 18 LANES AND SHIFT TRAFFIC TO LT. SIDE WITH 2-12' LANES.

CONSTRUCT HWY. 18 BRIDGE AND APPROACHES.

32 TRAFFIC DRUMS  
20' O.C. SIDE ROADS

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2 MAINTENANCE OF TRAFFIC DETAILS



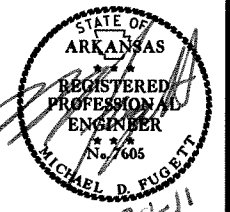
STA. 144+90.00  
BEGIN JOB 100705

NOTE: PAVEMENT FEATURES SHOWN ARE FOR INFORMATION ONLY AND WILL BE CONSTRUCTED UNDER JOB 100740.

R100705.DGN 6/24/2011

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2 MAINTENANCE OF TRAFFIC DETAILS



MAINTENANCE OF TRAFFIC: ENTIRE JOB

STA. 144+90 - STA. 159+30 CLOSE EAST LEG OF S. 5TH ST. AND SYCAMORE ST.

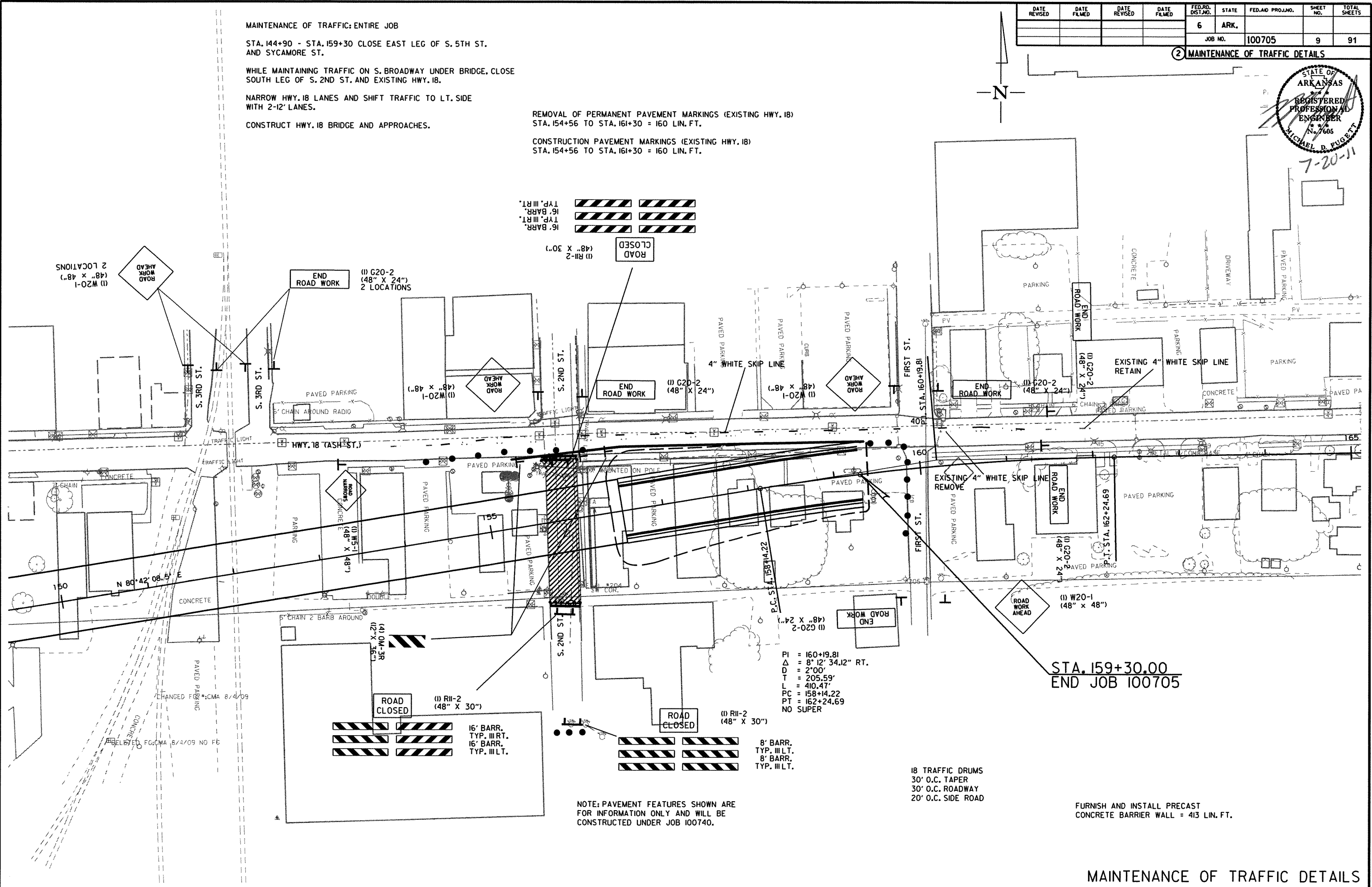
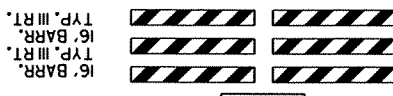
WHILE MAINTAINING TRAFFIC ON S. BROADWAY UNDER BRIDGE, CLOSE SOUTH LEG OF S. 2ND ST. AND EXISTING HWY. 18.

NARROW HWY. 18 LANES AND SHIFT TRAFFIC TO LT. SIDE WITH 2-12' LANES.

CONSTRUCT HWY. 18 BRIDGE AND APPROACHES.

REMOVAL OF PERMANENT PAVEMENT MARKINGS (EXISTING HWY. 18)  
STA. 154+56 TO STA. 161+30 = 160 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS (EXISTING HWY. 18)  
STA. 154+56 TO STA. 161+30 = 160 LIN. FT.



PI = 160+19.81  
 $\Delta$  = 8° 12' 34.12" RT.  
D = 2° 00'  
T = 205.59'  
L = 410.47'  
PC = 158+14.22  
PT = 162+24.69  
NO SUPER

STA. 159+30.00  
END JOB 100705

NOTE: PAVEMENT FEATURES SHOWN ARE FOR INFORMATION ONLY AND WILL BE CONSTRUCTED UNDER JOB 100740.

18 TRAFFIC DRUMS  
30' O.C. TAPER  
30' O.C. ROADWAY  
20' O.C. SIDE ROAD

FURNISH AND INSTALL PRECAST CONCRETE BARRIER WALL = 413 LIN. FT.

R100705.DGN 6/24/2011

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.	100705		10	91

**ADVANCE WARNING SIGNS AND DEVICES LEFT IN PLACE**

SIGN NUMBER	DESCRIPTION	SIGN SIZE	ENTIRE JOB LIN.FT. - EACH	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS EACH	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER
					NO.	SQ. FT.		RIGHT	LEFT	
W20-1	ROAD WORK AHEAD	48"x48"	11	11	11	176.0				
G20-2	END ROAD WORK	48"x24"	11	11	11	88.0				
R11-2	ROAD CLOSED	48"x30"	5	5	5	50.0				
OM-3R	OBJECT MARKER	12"x36"	4	4	4	12.0				
WS-1	ROAD NARROWS	48"x48"	1	1	1	16.0				
	TRAFFIC DRUMS		50	50	50		50			
	TYPE III BARRICADE-LT. (8')		2	2				16		
	TYPE III BARRICADE-RT. (16')		2	2			32			
	TYPE III BARRICADE-LT. (16')		6	6				96		
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		413	413					413	
<b>TOTALS:</b>						<b>342.0</b>	<b>50</b>	<b>32</b>	<b>112</b>	<b>413</b>

NOTE: ALL ITEMS WILL BE LEFT IN PLACE AFTER COMPLETION OF JOB 100705.

**QUANTITIES**



**CONSTRUCTION PAVEMENT MARKINGS**

DESCRIPTION	ENTIRE JOB LIN.FT. - EACH	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS
		LIN.FT.	LIN.FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS	160	160	
CONSTRUCTION PAVEMENT MARKINGS	160		160
<b>TOTALS:</b>		<b>160</b>	<b>160</b>

**EROSION CONTROL**

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL					*SEDIMENT REMOVAL & DISPOSAL CU. YD.	
			SEEDING ACRE	LIME TON	MULCH COVER ACRE	WATER M.GAL.	SECOND SEEDING APPLICATION ACRE	TEMPORARY SEEDING ACRE	MULCH COVER ACRE	WATER M.GAL.	DROP INLET SILT FENCE (E-7) LIN.FT.	SILT FENCE (E-11) LIN.FT.		
														ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
ENTIRE PROJECT	HWY. 18		3.70	7.40	3.70	377.4	3.70							57
<b>TOTALS:</b>			<b>5.70</b>	<b>11.40</b>	<b>5.70</b>	<b>581.4</b>	<b>5.70</b>	<b>2.00</b>	<b>2.00</b>	<b>40.8</b>	<b>150</b>	<b>3430</b>	<b>133</b>	

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.

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

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

**SOIL LOG**

STATION	LOCATION	DEPTH FEET	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
111+00	5' RT.	0-5	31	11	A-6(9)	BROWN
116+30	5' RT.	0-5	ND	NP	A-4(0)	BROWN
120+00	CL	0-5	ND	NP	A-4(0)	BROWN
124+00	CL	0-5	25	5	A-4(2)	BROWN
125+40	48' LT.	0-5	ND	NP	A-4(0)	BROWN
128+90	CL	0-5	25	5	A-4(2)	BROWN
132+10	40' LT.	0-5	28	6	A-4(4)	BROWN
136+00	CL	0-5	27	6	A-4(4)	BROWN
138+80	CL	0-5	25	6	A-4(2)	BROWN
143+00	CL	0-5	ND	NP	A-4(0)	BROWN
148+75	CL	0-5	ND	NP	A-4(0)	GR/BR
156+00	CL	0-5	25	6	A-4(3)	GR/BR
160+25	10' RT.	0-5	ND	NP	A-2-4(0)	BROWN
163+00	CL	0-5	24	2	A-4(0)	BROWN
163+00	24' LT.	0-5	ND	NP	A-4(0)	BROWN
165+75	CL	0-5	21	2	A-4(0)	BROWN
168+75	CL	0-5	ND	NP	A-4(0)	BROWN
171+00	CL	0-5	ND	NP	A-2-4(0)	BROWN
171+00	21' LT.	0-5	ND	NP	A-4(0)	BROWN
178+00	CL	0-5	25	6	A-4(4)	BROWN
402+00	CL	0-5	23	3	A-4(1)	BROWN
120+00	CL	0-5	26	4	A-4(0)	BROWN

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.

Z - AUGER REFUSAL  
 NP - NON-PLASTIC  
 ND - NOT DETERMINABLE

**BENCH MARKS**

STATION	LOCATION	BENCH MARKS EACH
156+53	BRIDGE END	1
<b>TOTAL:</b>		<b>1</b>

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

**REMOVAL AND DISPOSAL OF PIPE CULVERTS AND JUNCTION BOXES**

STATION	DESCRIPTION	PIPE CULVERTS EACH	JUNCTION BOXES EACH
145+27	JUNCTION BOX ON LT		1
145+27	12" x 195' PIPE CULVERT	1	
145+27	18" x 38' PIPE CULVERT	1	
145+27	18" x 68' PIPE CULVERT	1	
<b>TOTALS:</b>		<b>3</b>	<b>1</b>

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

**CLEARING AND GRUBBING**

STATION	STATION	LOCATION	CLEARING STATION	GRUBBING STATION
149+00	150+00	HWY. 18	1	1
157+00	159+00	HWY. 18	2	2
<b>TOTALS:</b>			<b>3</b>	<b>3</b>



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.	100705	11 91

2 QUANTITIES



REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CURB AND GUTTER	CONCRETE PAVEMENT	WALKS	SIGN FOUNDATIONS	SIGNS	WOOD POLE
			LIN. FT.	SQ. YD.	SQ. YD.	EACH	EACH	EACH
146+39		CONCRETE SLAB ON LT.		128				
148+41		CONCRETE SLAB ON LT.		99				
153+23		CONCRETE PARKING LOT		715				
154+27		CONCRETE PARKING LOT		787				
155+39		CONCRETE PARKING LOT		1192				
156+88		CONCRETE PARKING LOT		811				
156+18	159+41	CONCRETE CURB, GUTTER AND WALK ON LT.	323		463			
159+11		CONCRETE PARKING LOT		289				
145+72		PRIVATE POWER POLE						1
149+36		PRIVATE POWER POLE						1
151+81		SIGN (CMA 8-12-09)					1	
155+54		SIGN (EXXON)				2	1	
157+16		SIGN (ENCROACHMENT)					1	
155+85		CURB ON 2ND STREET	310					
<b>TOTALS:</b>			<b>633</b>	<b>4021</b>	<b>463</b>	<b>2</b>	<b>3</b>	<b>2</b>

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	COMPACTED EMBANKMENT (SPECIAL)	* SOIL STABILIZATION
			CU. YD.	CU. YD.	CU. YD.	TON
ENTIRE PROJECT		MAIN LANES			8850	
		OBLITERATION OF SYCAMORE ST.	120	120		
		OBLITERATION OF 2ND ST.	233	233		
ENTIRE PROJECT		TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER				50
<b>TOTALS:</b>			<b>353</b>	<b>353</b>	<b>8850</b>	<b>50</b>

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

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT	PIPE CULVERT & STORM DRAIN ALTERNATES 1 & 2	DROP INLETS			JUNCT. BOX	STD. DWG. NOS.
		(CLASS III)		TYPE	EXT.		(TYPE E)	
		36"	36"	MO	4'	8'		
144+81	DROP INLET ON LT.	16	147	1	8			FPC-9M, FPC-9E, PCC-1, PCM-1
144+87	JUNCTION BOX ON LT.						1	FPC-9
155+75	DROP INLET ON LT.			1		1		FPC-9M, FPC-9E
155+78	DROP INLET ON RT.			1		1		FPC-9M, FPC-9E
<b>TOTALS:</b>		<b>16</b>	<b>147</b>	<b>3</b>	<b>8</b>	<b>2</b>	<b>1</b>	

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

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

APPROACH SLABS

STATION	STATION	LOCATION	APPROACH SLABS (TYPE SPECIAL)	REINFORCING STEEL RDWY. (GR 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU. YD.	POUND	TON
146+14.41	146+50.91	BEGIN BRIDGE	114.40	13347	123.0
156+53.09	156+89.59	END BRIDGE	114.40	13347	123.0
<b>TOTALS:</b>			<b>228.80</b>	<b>26694</b>	<b>246.0</b>

SIGNS

SIGN NUMBER	DESCRIPTION	STANDARD SIGN	CHANNEL POST SIGN SUPPORT (TYPE C)
		SQ. FT.	EACH
OM-3	SYCAMORE AND 3RD	11.3	5
OM-3	2ND ST. AND ASH ST.	9.0	4
OM-3	2ND ST.	6.8	3
<b>TOTALS:</b>		<b>27.1</b>	<b>12</b>

CONCRETE COMBINATION CURB AND GUTTER AND AGGREGATE BASE

STATION	STATION	LOCATION	(TYPE A) (1' 6")	AGGREGATE BASE COURSE (CLASS 7)	
			LIN. FT.	TON/STATION	TON
147+92		S. BROADWAY	194	9.75	19
155+70	156+11	2ND ST. AND ASH ST.	42	9.75	4
155+54	155+87	2ND ST.	33	9.75	3
146+14	146+51	APPROACH SLAB ON LT.	37	9.75	4
146+14	146+51	APPROACH SLAB ON RT.	37	9.75	4
156+53	156+90	APPROACH SLAB ON LT.	37	9.75	4
156+53	156+90	APPROACH SLAB ON RT.	37	9.75	4
<b>TOTAL:</b>			<b>417</b>		<b>42</b>

CONCRETE WALKS

STATION	STATION	LOCATION	LENGTH	CONCRETE WALKS
			LIN. FT.	SQ. YD.
146+14	146+51	APPROACH SLAB ON LT.	37	25
146+14	146+51	APPROACH SLAB ON RT.	37	25
156+53	156+90	APPROACH SLAB ON LT.	37	25
156+53	156+90	APPROACH SLAB ON RT.	37	25
<b>TOTAL:</b>				<b>100</b>

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE C)
			LIN. FT.
147+89.00		ROAD CLOSURE SYCAMORE AND 3RD.	62
155+70.00	156+11.00	ROAD CLOSURE 2ND ST. ON LT.	42
155+54.00	155+87.00	ROAD CLOSURE 2ND ST. ON RT.	33
<b>TOTAL:</b>			<b>137</b>

SELECTED PIPE BEDDING & BACKFILL

LOCATION	SELECTED PIPE BEDDING	SELECTED PIPE BACKFILL		
	CU. YD.			
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	20	40		
<b>TOTALS:</b>			<b>20</b>	<b>40</b>

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

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.	100705		12	91
				07204	QUANTITIES			52112

**SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 100705**

BRIDGE NO. CODE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	619	801	802	802	803	804	804	SP & 805	806	807	807	808	812	816	
			ITEM	7' STEEL CHAIN LINK FENCE	UNCLASSIFIED EXCAVATION FOR STRUCTURES- BRIDGE	CLASS ① S CONCRETE- BRIDGE	CLASS S(AE) CONCRETE- BRIDGE	CLASS I PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL- BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STEEL ② SHELL PILING (24" DIA.)	METAL BRIDGE RAILING (TYPE H)	STRUCTURAL STEEL IN BEAM SPANS (M270, GRADE 50W)	STRUCTURAL STEEL IN PLATE GIRDER SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	BRIDGE NAME PLATE (TYPE D)	CONCRETE RIPRAP	
			UNIT	LIN.FT.	CU.YD.	CU.YD.	CU.YD.	GAL.	LB.	LB.	LIN.FT.	LIN.FT.	LB.	LB.	CU.IN.	EACH	CU.YD.	
07204 X171	HWY. 18 OVER BNSF RAILWAY	BENT NO. 1 & 10				198.12		0.4	31,242	994	1,152		2,970		9,792.0		63	
		BENT NO. 2, 3, 8, & 9		1,420	1,156.32				220,898		9,900		4,311		19,125.0			
		BENT NO. 4 & 7		765	650.80				132,162		4,950			583	15,557.5			
		BENT NO. 5 & 6		939	673.96				128,858		4,860			2,157	15,268.5			
		2 - 285' CONT. COMP. W-BEAM UNIT 1 & 3					1440.17	90.7		308,278		1,128	1,271,609				1	
		430' CONT. COMP. PLATE GIRDER UNIT 2		858			1103.93	68.4		233,368				1,168,830				
TOTALS FOR JOB NO. 100705			858	3,124	2,679.20	2,544.10	159.5	513,160	542,640	20,862	1,128	1,278,890	1,171,570	59,743.0	1	63		

BRIDGE NO. CODE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	SP JOB 100705	SP JOB 100705	SP JOB 100705	SP JOB 100705	SP JOB 100705
			ITEM	SILICONE JOINT SEALANT	ARMORED JOINT WITH NEOPRENE STRIP SEAL	TEXTURED COATING FINISH	ARCHITECTURAL FINISH	TRANSITIONAL APPROACH RAILING
			UNIT	LIN.FT.	LIN.FT.	SQ.YD.	SQ.FT.	EACH
07204 X171	HWY. 18 OVER BNSF RAILWAY	BENT NO. 1 & 10				69		4
		BENT NO. 2, 3, 8, & 9			1,017	2,864		
		BENT NO. 4 & 7			633	2,367		
		BENT NO. 5 & 6			683	3,015		
		2 - 285' CONT. COMP. W-BEAM UNIT 1 & 3		149	75	1,544		
		430' CONT. COMP. PLATE GIRDER UNIT 2			75	1,172		
TOTALS FOR JOB NO. 100705			149	150	5,118	8,246	4	

- ① Class S Concrete quantity for Intermediate bents is measured to the outside diameter of the columns, and includes concrete for Architectural Finish.
- ② Flat tip steel shell piles shall not be used at bents 1 or 10

STEWART LINZ  
DESIGN SECTION SUPERVISOR



SCHEDULE OF BRIDGE QUANTITIES  
BRIDGE OVER BNSF RAILWAY  
HWY. 18/BNSF R.R. OVERPASS  
STR. & APPRS. (BLYTHEVILLE) (S)  
MISSISSIPPI COUNTY  
ROUTE 18 SEC. 7  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

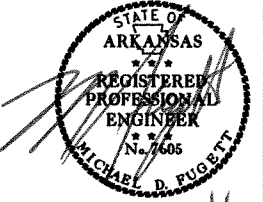
DRAWN BY: RBR DATE: 5-17-2011 FILENAME: bl00705.qldgn  
 CHECKED BY: DHP DATE: 7/6/11 SCALE: No Scale  
 DESIGNED BY: DATE:   
 BRIDGE NO. 07204 DRAWING NO. 52112





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.	100705		14	91

2 SURVEY CONTROL DETAILS



SURVEY CONTROL COORDINATES

Project Name: s100663  
 Date: 9/2/2009  
 Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.  
 Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	586789.4254	1927671.9154	255.20	CTL	T-1 5**RBR 2' ALUM CAP
2	586787.8525	1928179.5087	255.50	CTL	T-2 5**RBR 2' ALUM CAP
3	586789.3113	1928617.0041	255.02	CTL	T-3 5**RBR 2' ALUM CAP
4	586363.5628	1928717.8214	254.82	CTL	T-4 5**RBR 2' ALUM CAP
5	586430.2213	1929192.7708	255.24	CTL	T-5 5**RBR 2' ALUM. CAP
6	586155.6092	1929289.7680	255.19	CTL	T-6 5**RBR 2' ALUM CAP
7	586196.8889	1930515.9778	256.46	CTL	T-7 5**RBR 2' ALUM. CAP
8	585867.5392	1931259.2208	256.05	CTL	T-8 5**RBR 2' ALUM. CAP
9	586300.9373	1931797.9966	255.39	CTL	T-9 5**RBR 2' ALUM. CAP
10	586388.7986	1932195.2560	256.30	CTL	T-10 5** RBR 2' CAP
11	586534.2155	1932574.9228	257.92	CTL	T-11 5** RBR 2' ALUM CAP
12	586505.5382	1933293.4011	255.79	CTL	T-12 5**RBR 2' ALUM. CAP
13	586524.0532	1933900.7157	256.11	CTL	T-13 5**RBR 2' ALUM. CAP
14	586561.5527	1934439.3941	257.34	CTL	T-14 5**RBR 2' ALUM. CAP
15	586885.2563	1934665.0290	256.27	CTL	T-15 5**RBR 2' ALUM CAP
16	586957.4868	1935347.5339	256.92	CTL	T-16 5**RBR 2' ALUM CAP
17	586950.5360	1935782.5821	257.39	CTL	T-17 5**RBR 2' ALUM CAP
18	586561.5085	1934439.3588	257.32	CTL	
100	586208.1189	1931252.5715	257.01	GPS	AHTD CAP 470015
101	586160.6100	1929868.3327	255.87	GPS	AHTP CAP 470015A
102	585034.5030	1955710.7976	256.35	GPS	AHTD GPS 470004
103	586516.2945	1924669.8830	249.23	GPS	AHTD GPS 470013
104	585214.8290	1923155.7618	249.97	GPS	AHTD GPS 470003
901	586791.5383	1928595.4760	255.36	BM	TBM 901 SQ IN CA AT COR. OF MAIN & DIVISION ST
902	586392.5469	1929215.7386	254.93	TBM	TBM 902 SQ CUT IN CA S.W COR OF HWY 18E. & 11TH
903	586210.0139	1930258.9515	256.37	TBM	903 SQ IN HW E. SIDE OF 9TH ST. & N. SYCAMORE ST
904	586586.0313	1932577.6336	258.38	TBM	SQ CUT IN CB 15.0 E. OF CL OF RAILROAD ST.
905	586515.9952	1933887.4942	255.67	TBM	SQ CUT IN CA ON S.E. COR. OF ASH & FRANKLIN
906	586935.1426	1934852.6654	257.03	TBM	SQ ON E. END OF CONC ISL. OF HWY 18 EAST&WEST
907	586950.5468	1935380.4458	257.03	TBM	SQ IN CA ON N. SIDE OF HWY 18 IN S.W. COR. O'REILLY PK
990	585971.4669	1927821.0802	256.96	BM	NGS B 189
991	586241.5162	1931186.6680	257.55	BM	E 189 1956 USCGS DISK
992	587131.8216	1932169.6037	259.16	BM	BM Q 33 USCGS PID FE1832
1500	586113.3034	1927957.0355	255.57	CTL	RBR & ALUM CAP 23.6' 3S OF S. EP SYCAMORE ST
1501	586136.2142	1928539.5937	255.28	CTL	18.0 S. OF S. EP SYCAMORE 36.0 S.W. OF CP
1502	585238.4171	1931270.7820	254.94	CTL	22.0 S. S.E. OF PP 22.3 S OF WM
1503	584448.6930	1931230.6240	253.18	CTL	1.8 OF W. EDGE OF SIDEWALK 48.0 W. OF CP
1504	586182.9009	1934569.4867	256.10	CTL	8.0 S. E. OF HM 14.0 NW OF SW COR SIDEWALK
1505	585538.8390	1934553.1707	256.28	CTL	5.0 W FRONT EDGE OF CB NW INT CHERRY & LILLY

HWY. 18

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	100+00.00	586753.4056	1927598.3216
8001	PC	110+82.53	586760.0422	1928680.8333
8003	PT	113+24.02	586653.4665	1928887.1361
8004	PC	116+60.90	586377.5347	1929080.3968
8006	PT	121+70.19	586155.5604	1929516.3929
8007	PC	138+40.26	586185.5746	1931186.1936
8009	PT	143+91.45	586235.1397	1931734.6716
8010	PC	158+14.22	586465.0058	1933138.7439
8012	PT	162+24.69	586502.1256	1933547.1835
8013	PC	169+63.93	586516.1644	1934286.2918
8015	PT	172+82.37	586680.5031	1934540.0126
8016	PC	173+81.23	586769.9321	1934582.1418
8018	PT	177+10.27	586934.2759	1934846.4685
8019	POE	185+13.38	586919.7950	1935649.4527

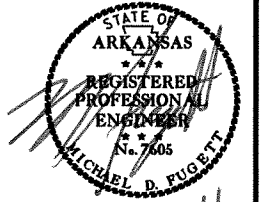
\*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped (standard markings common to all caps), or as indicated (other markings indicated in the point description of the individual point).  
 ALL DISTANCES ARE GROUND.  
 USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.  
 A PROJECT CAF OF 0.999945891 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.  
 THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.  
 GRID DISTANCE = GROUND DISTANCE X CAF.  
 GRID COORDINATES ARE STORED UNDER FILE NAME: s100663.gi.CTL  
 HORIZONTAL DATUM: NAD 83 (1997)  
 VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:  
 ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE  
 DETERMINED FROM GPS CONTROL POINTS: 470015 - 470015A  
 CONVERGENCE ANGLE: 01-12-58.65 RIGHT AT POINT 100  
 GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

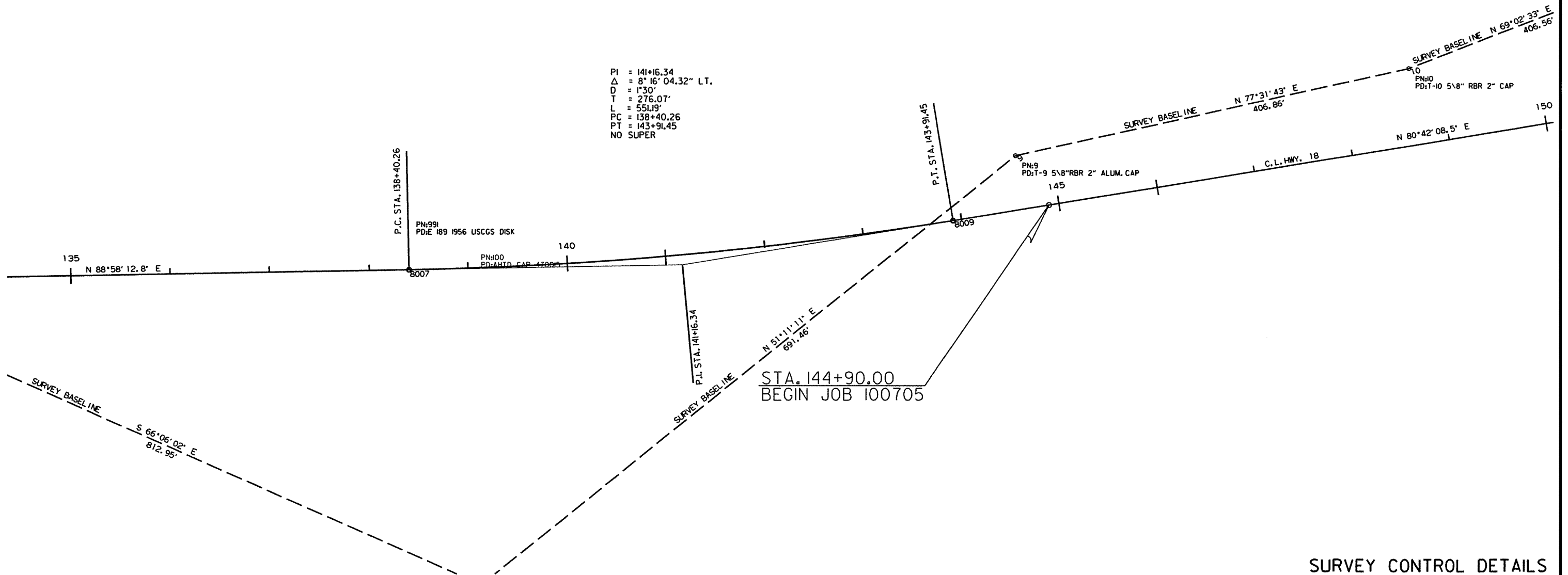
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	100705	15 91

2 SURVEY CONTROL DETAILS



7-20-11

PI = 141+16.34  
 $\Delta$  = 8° 16' 04.32" LT.  
D = 1'30'  
T = 276.07'  
L = 551.19'  
PC = 138+40.26  
PT = 143+91.45  
NO SUPER

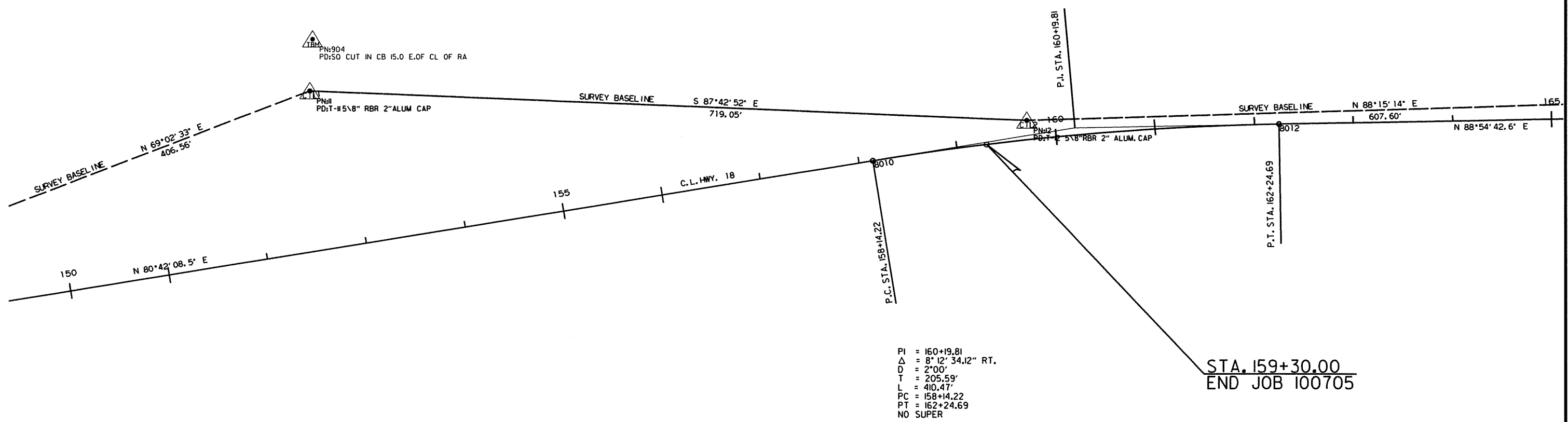
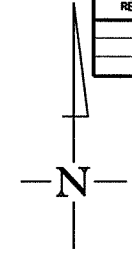


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 100705							16	91

② SURVEY CONTROL DETAILS

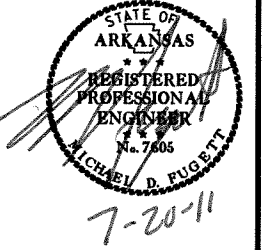


7-20-11



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		17	91
				JOB NO. 100705				

2 PLAN AND PROFILE SHEETS

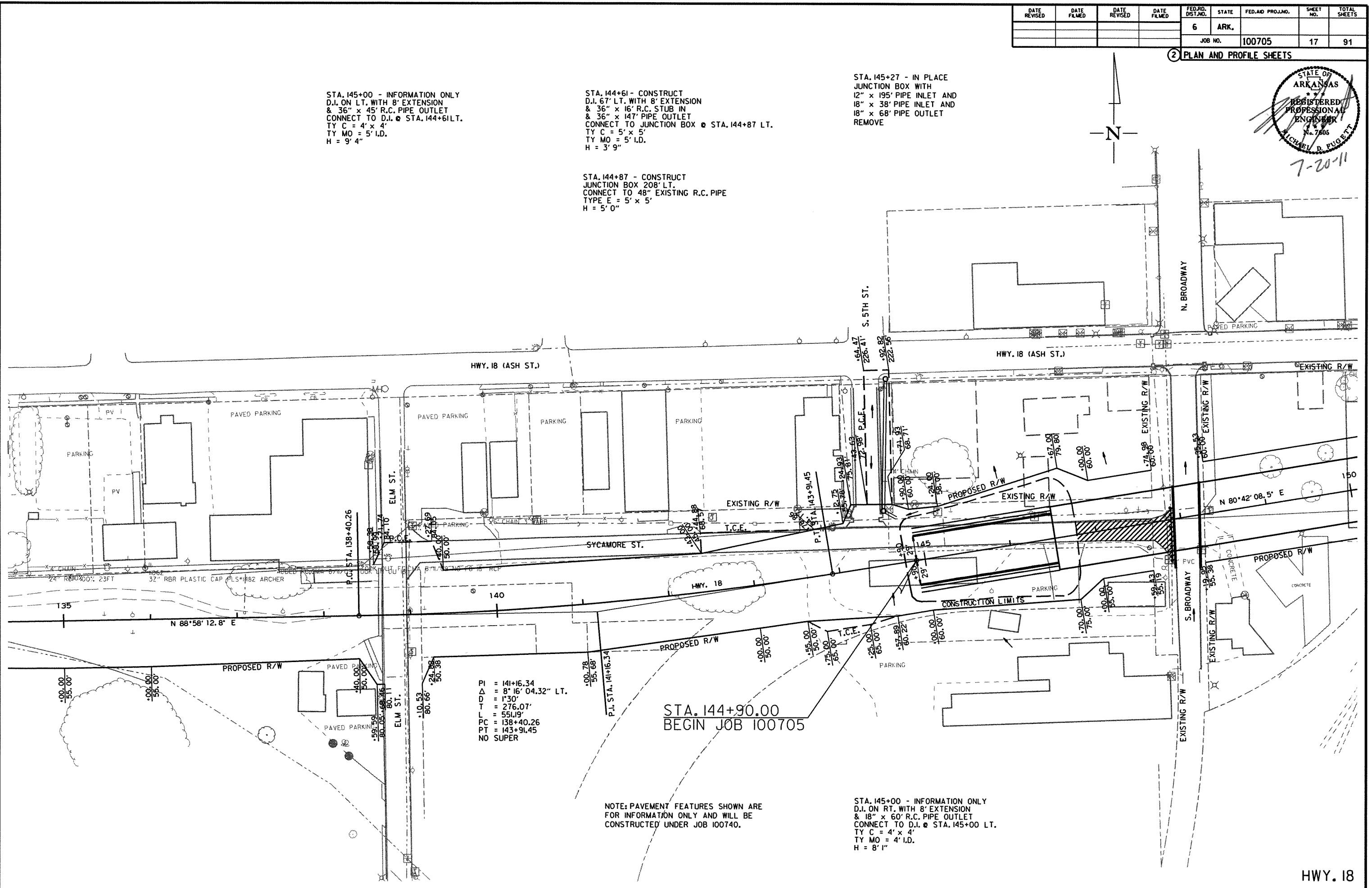


STA. 145+00 - INFORMATION ONLY  
 D.I. ON LT. WITH 8' EXTENSION  
 & 36" x 45" R.C. PIPE OUTLET  
 CONNECT TO D.I. @ STA. 144+61 LT.  
 TY C = 4' x 4'  
 TY MO = 5' I.D.  
 H = 9' 4"

STA. 144+61 - CONSTRUCT  
 D.I. 67' LT. WITH 8' EXTENSION  
 & 36" x 16" R.C. STUB IN  
 & 36" x 147" PIPE OUTLET  
 CONNECT TO JUNCTION BOX @ STA. 144+87 LT.  
 TY C = 5' x 5'  
 TY MO = 5' I.D.  
 H = 3' 9"

STA. 144+87 - CONSTRUCT  
 JUNCTION BOX 208' LT.  
 CONNECT TO 48" EXISTING R.C. PIPE  
 TYPE E = 5' x 5'  
 H = 5' 0"

STA. 145+27 - IN PLACE  
 JUNCTION BOX WITH  
 12" x 195' PIPE INLET AND  
 18" x 38' PIPE INLET AND  
 18" x 68' PIPE OUTLET  
 REMOVE



PI = 141+6.34  
 $\Delta$  = 8' 16" 04.32" LT.  
 D = 1'30"  
 T = 276.07'  
 L = 551.9'  
 PC = 138+40.26  
 PT = 143+91.45  
 NO SUPER

STA. 144+90.00  
 BEGIN JOB 100705

NOTE: PAVEMENT FEATURES SHOWN ARE  
 FOR INFORMATION ONLY AND WILL BE  
 CONSTRUCTED UNDER JOB 100740.

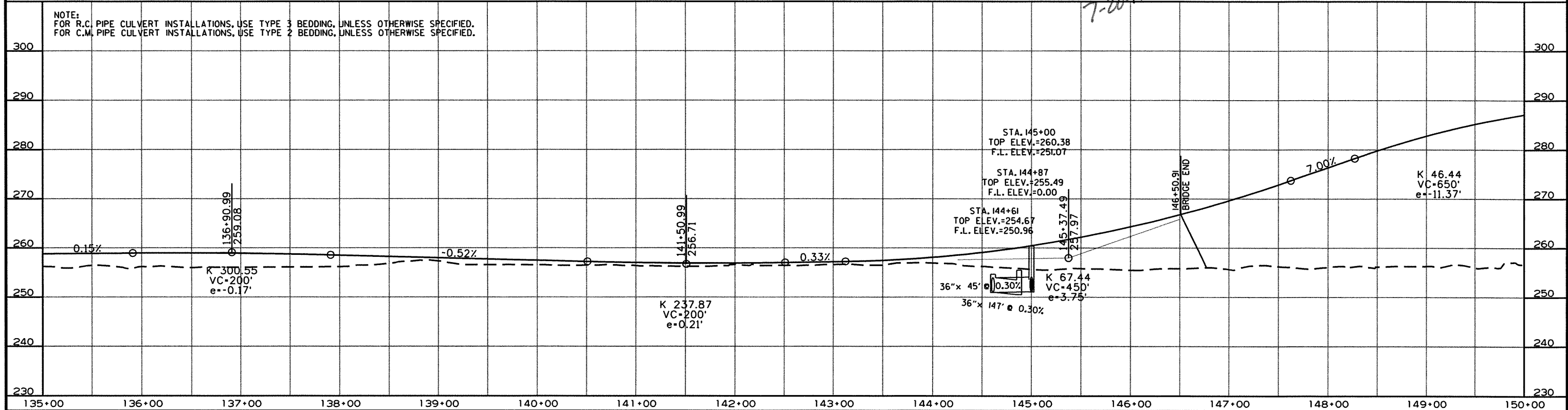
STA. 145+00 - INFORMATION ONLY  
 D.I. ON RT. WITH 8' EXTENSION  
 & 18" x 60" R.C. PIPE OUTLET  
 CONNECT TO D.I. @ STA. 145+00 LT.  
 TY C = 4' x 4'  
 TY MO = 4' I.D.  
 H = 8' 1"



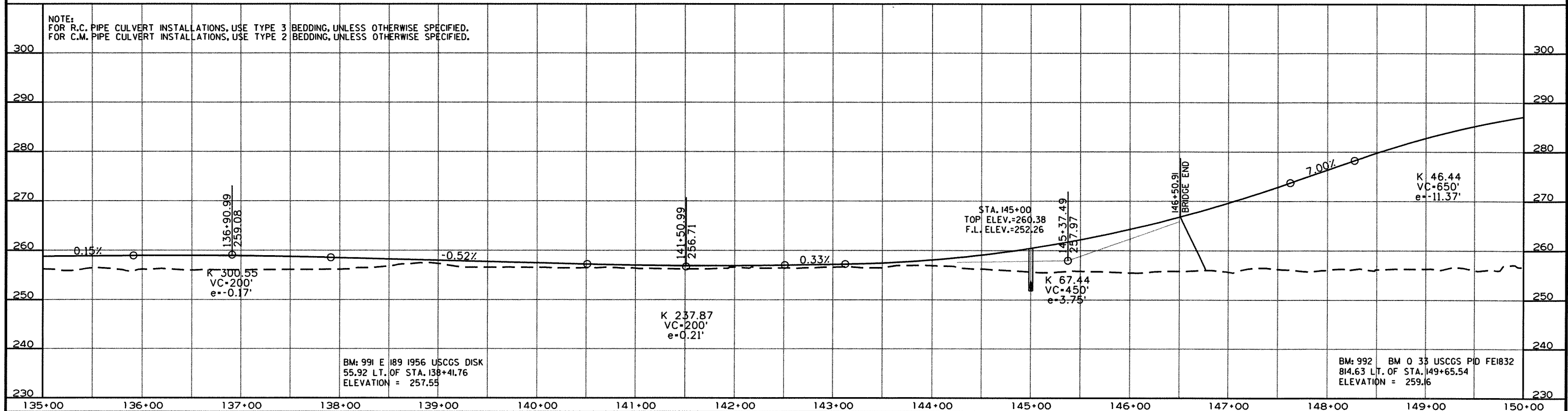
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		18	91

2 PLAN AND PROFILE SHEETS

HWY. 18 LEFT SIDE



HWY. 18 RIGHT SIDE



BM: 991 E 189 1956 USCGS DISK  
55.92 LT. OF STA. 138+41.76  
ELEVATION = 257.55

BM: 992 BM 0 33 USCGS PID FE1832  
84.63 LT. OF STA. 149+65.54  
ELEVATION = 259.16

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. 100705	19	91

2 PLAN AND PROFILE SHEETS



7-20-11

STA. 157+70 - INFORMATION ONLY  
 D.I. ON LT. WITH 4' EXTENSION  
 & 18" x 194" PIPE OUTLET  
 CONNECT TO D.I. @ STA. 159+47 LT.  
 TY C = 4' x 4'  
 TY MO = 4' I.D.  
 H = 4' 6"

STA. 155+75 - CONSTRUCT  
 D.I. ON LT. WITH 8' EXTENSION  
 CONNECT TO 12" EXISTING STORM SEWER  
 TY C = 4' x 4'  
 TY MO = 4' I.D.  
 H = 3' 2"

STA. 155+74 - IN PLACE  
 D.I. ON LT. WITH  
 12" PIPE INLET AND  
 12" PIPE OUTLET  
 RETAIN

STA. 155+94 - IN PLACE  
 D.I. ON LT. WITH  
 12" PIPE OUTLET  
 RETAIN

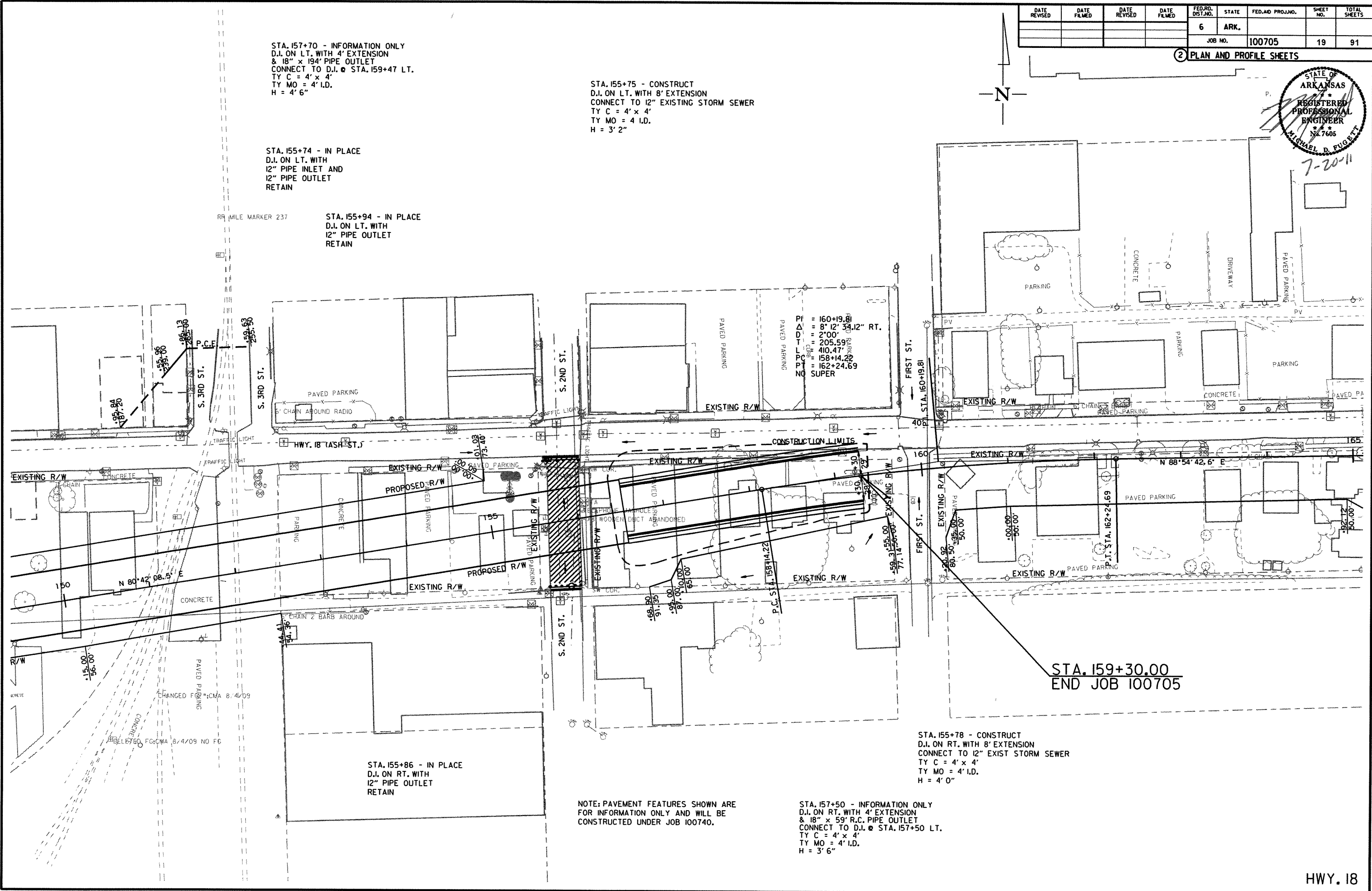
STA. 155+78 - CONSTRUCT  
 D.I. ON RT. WITH 8' EXTENSION  
 CONNECT TO 12" EXIST STORM SEWER  
 TY C = 4' x 4'  
 TY MO = 4' I.D.  
 H = 4' 0"

STA. 157+50 - INFORMATION ONLY  
 D.I. ON RT. WITH 4' EXTENSION  
 & 18" x 59" R.C. PIPE OUTLET  
 CONNECT TO D.I. @ STA. 157+50 LT.  
 TY C = 4' x 4'  
 TY MO = 4' I.D.  
 H = 3' 6"

NOTE: PAVEMENT FEATURES SHOWN ARE  
 FOR INFORMATION ONLY AND WILL BE  
 CONSTRUCTED UNDER JOB 100740.

STA. 155+86 - IN PLACE  
 D.I. ON RT. WITH  
 12" PIPE OUTLET  
 RETAIN

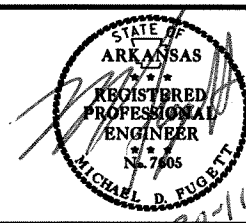
STA. 159+30.00  
 END JOB 100705



R100705.DGN 5/16/2011

HWY. 18

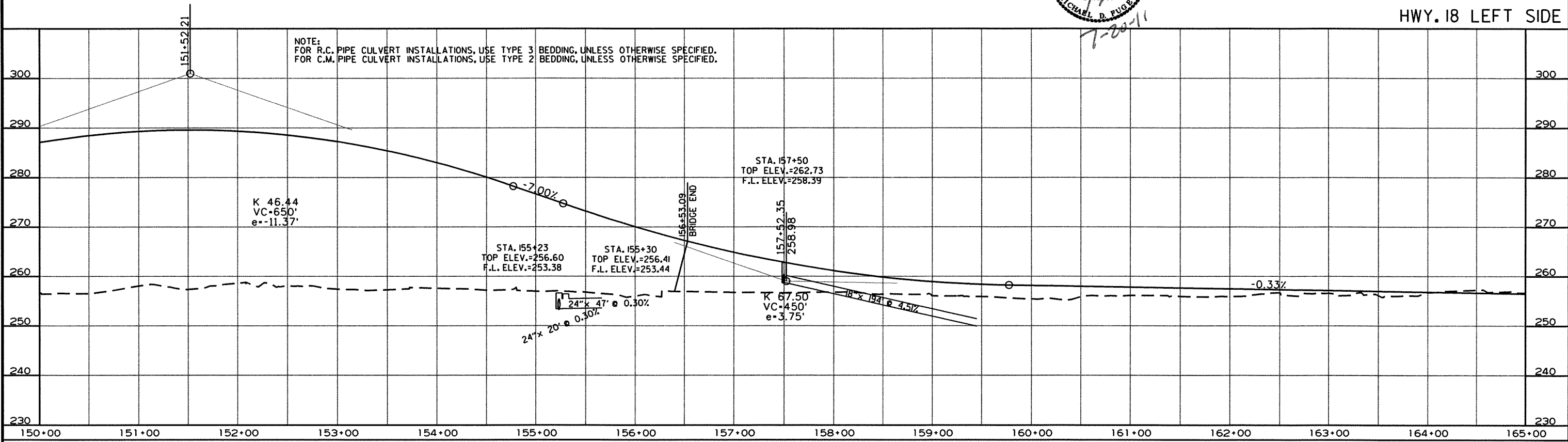




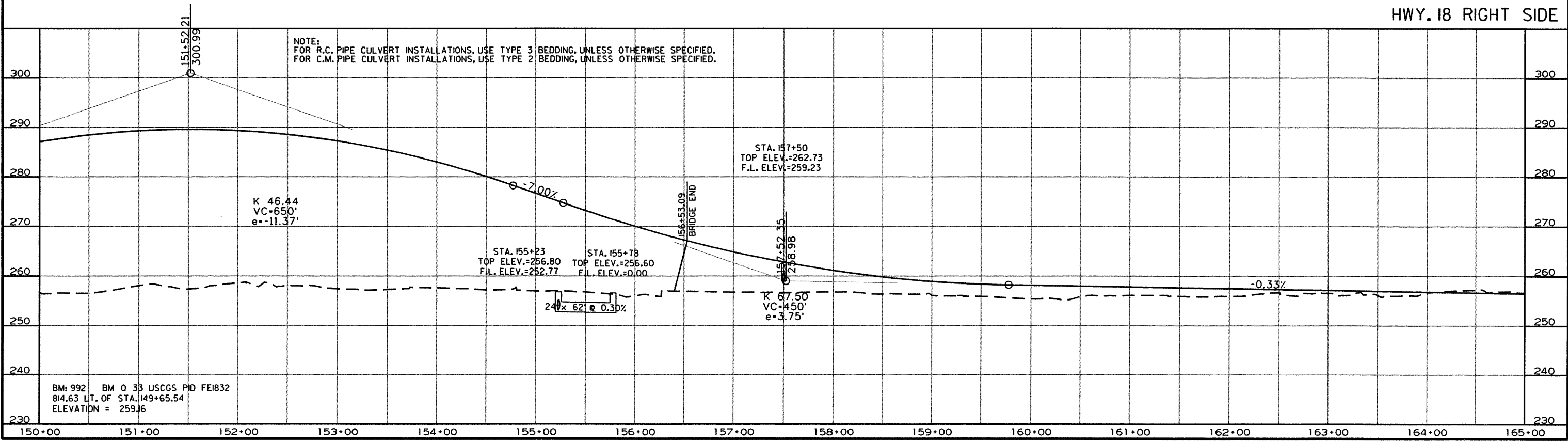
DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		20	91

2 PLAN AND PROFILE SHEETS

HWY. 18 LEFT SIDE



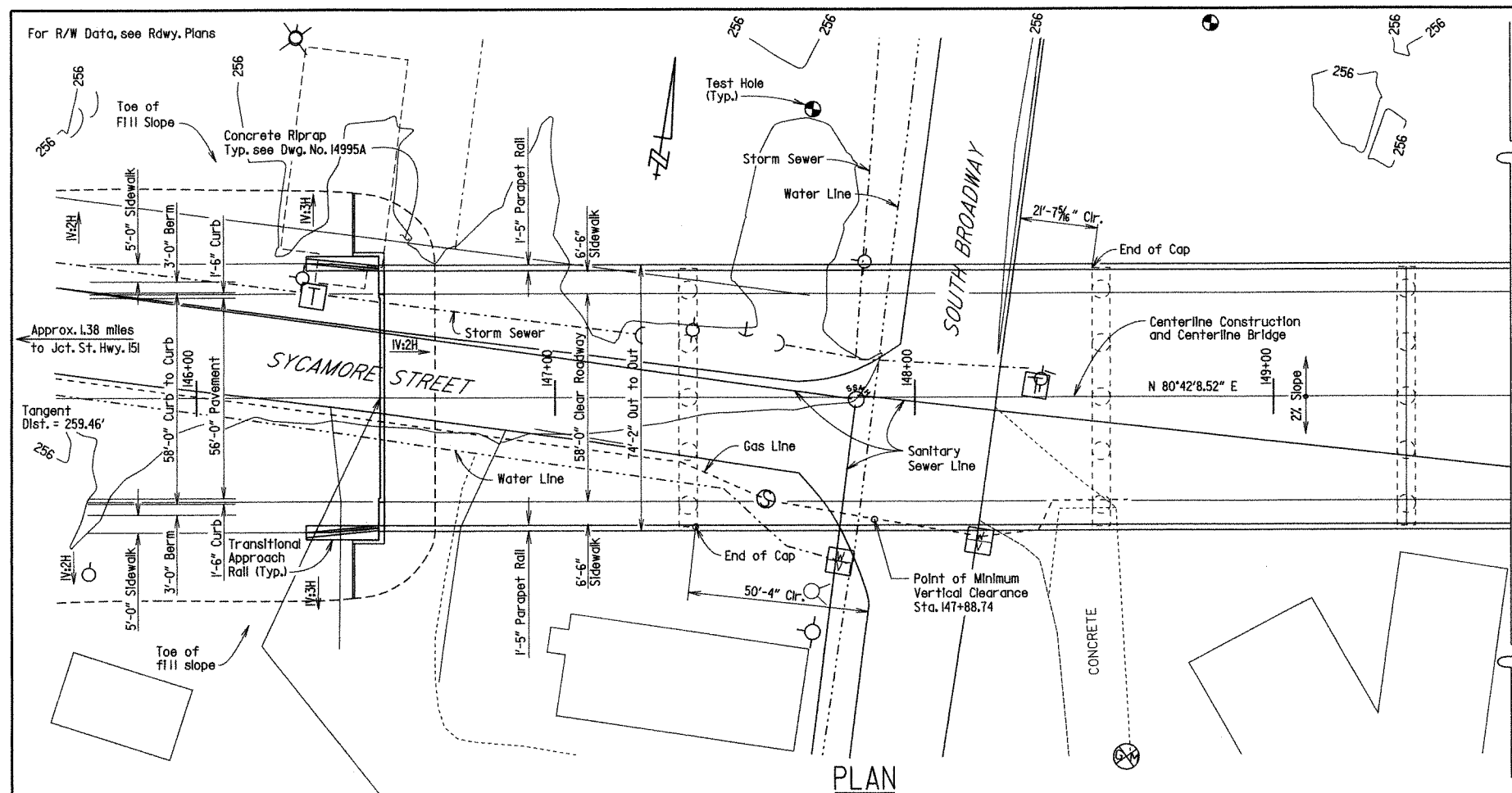
HWY. 18 RIGHT SIDE



BM: 992 BM 0 33 USCGS PID FE1832  
814.63 LT. OF STA. 149+65.54  
ELEVATION = 259.16



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.		100705	2101	
				GENERAL NOTES		07204	LAYOUT	5213



BENCH MARK: USGS Disk E189, 1956, 55.92' Lt. of C.L. Construction Sta. 138+41.77, Elev. 257.55.  
 CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 edition) with applicable Supplemental Specifications and Special Provisions. Unless otherwise noted on the plans, Section and subsection refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications 5th Edition (2010).  
 LIVE LOADING: HL-93  
 SEISMIC ZONE: 4  
 S<sub>g</sub> = 1.3104  
 SITE CLASS = E  
 MATERIALS AND STRENGTHS:  
 Class S(AE) Concrete (superstructure) f'<sub>c</sub> = 4,000 psi  
 Class S Concrete (substructure) f'<sub>c</sub> = 3,500 psi  
 Reinforcing Steel (AASHTO M31 or M53, GR. 60) f<sub>y</sub> = 60,000 psi  
 Structural Steel (AASHTO M270, Gr. 36) f<sub>y</sub> = 36,000 psi  
 Structural Steel (AASHTO M270, Gr. 50W) f<sub>y</sub> = 50,000 psi

BORING LOGS: Boring logs may be obtained from the Programs and Contracts Division.  
 STEEL SHELL PILING: All piling shall be 24" diameter concrete filled steel shell piles and shall be driven to a minimum safe bearing capacity of 115 tons per pile, with an approved air, steam, or diesel hammer. Lengths of piling shown are assumed for estimating quantities only. Actual piling lengths are to be determined in the field. No additional payment will be made for cutoff or build-up. Test piles are not required but may be driven for the Contractor's Information in accordance with Subsection 805.08(g). Piling in Bents 1 and 10 shall be driven after embankment to the bottom of the cap is in place, and in accordance with Special Provision Job No. 100705 "Sequence of Construction". Piling in Bents 1 thru 10 shall be driven to a minimum tip elevation of 195.5 or lower.

JETTING: Water Jetting or other methods as approved by the Engineer may be required to achieve the minimum tip elevation. Any cost associated with achieving the minimum tip elevation shall be included in the item "Steel Shell Piling (24" dia.)".

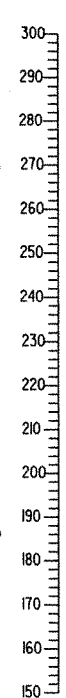
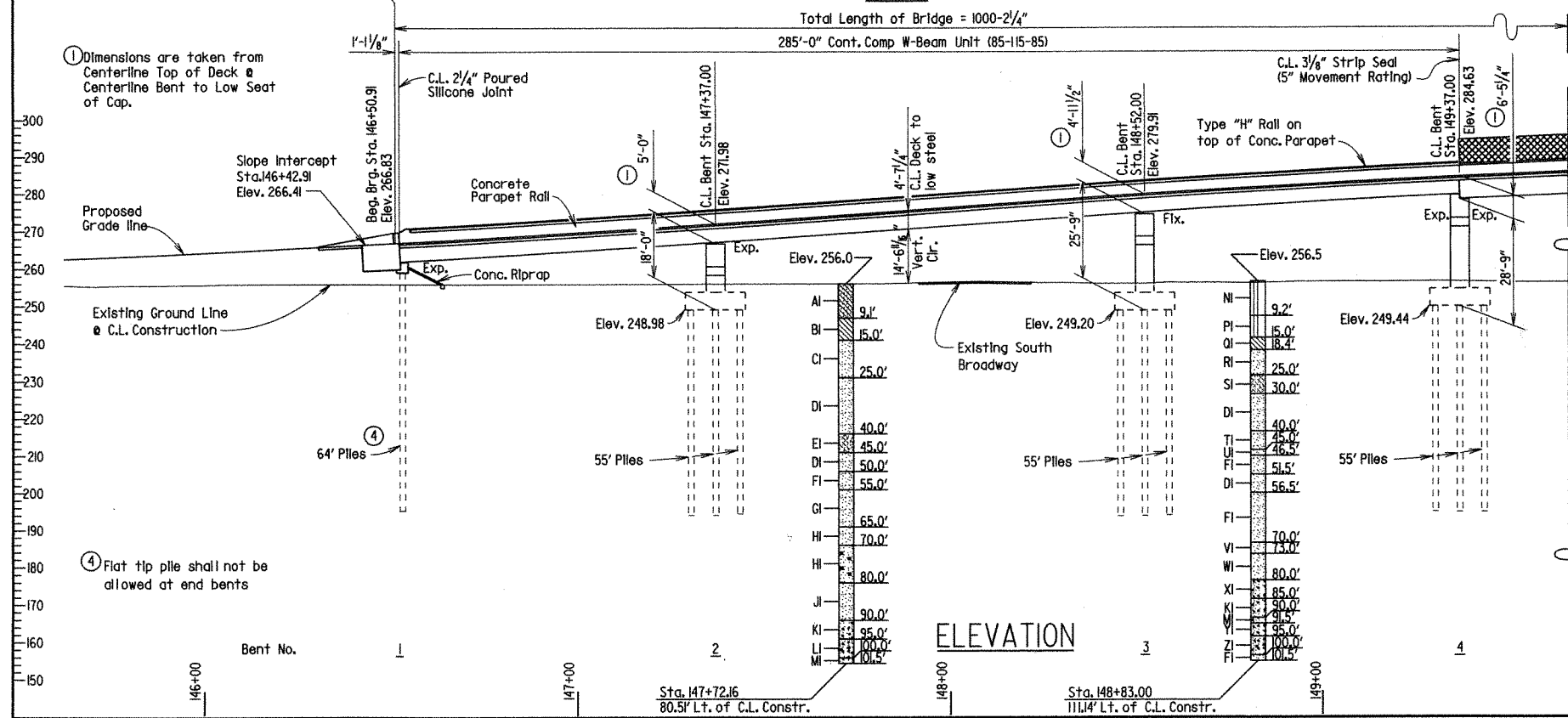
FOOTINGS: Top of footings shall be set a minimum of 2'-0" below finished ground. Foundations for footings shall be prepared in accordance with subsection 801.04 and backfilled according to subsection 801.08.

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

DETAIL DRAWINGS:

End Bents	5218 - 5220
Intermediate Bents	5223 - 5227
285' W-Beam Units	5228 - 5235
430' Plate Girder Unit	5236 - 5247
Elastomeric Bearings	5248
Concrete Filled Steel Shell Piles	5221
Type Special Approach Slab	52153
Transitional Approach Rail	52122
Concrete Riprap	14995A

MAINTENANCE OF TRAFFIC: See Roadway Plans.



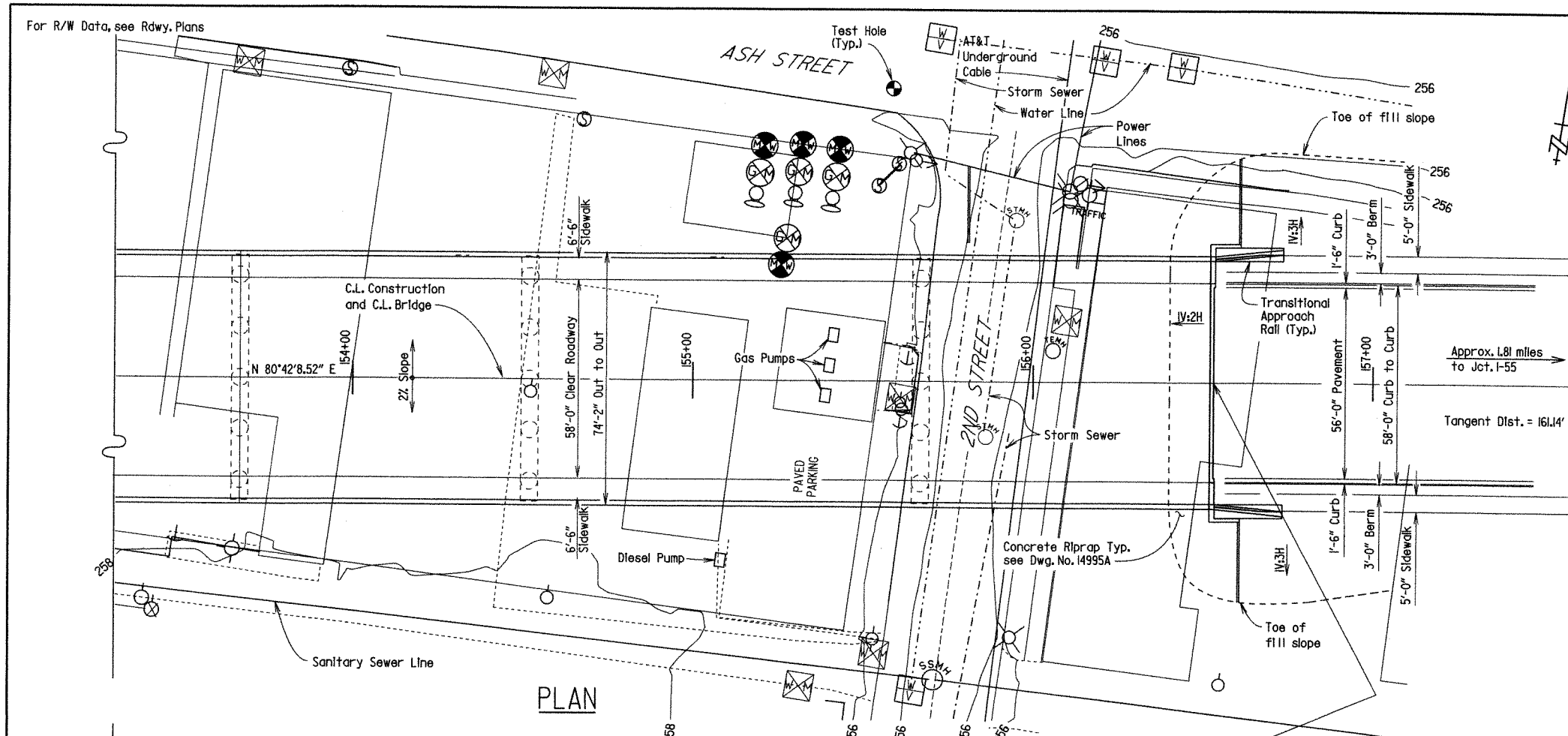
**SHEET 1 OF 4**  
**LAYOUT OF BRIDGE OVER BNSF RAILWAY**  
**HWY. 18/BNSF R.R. OVERPASS**  
**STR. & APPRS. (BLYTHEVILLE) (S)**  
**MISSISSIPPI COUNTY**  
 ROUTE 18 SEC. 7  
**ARKANSAS STATE HIGHWAY COMMISSION**  
 LITTLE ROCK, ARK.  
 DRAWN BY: MRE DATE: 8/13/10 FILENAME: b100705\_ll.dgn  
 CHECKED BY: CSL DATE: July 6, 2011 SCALE: 1" = 20'-0"  
 DESIGNED BY: CSL DATE: April 2011  
 BRIDGE NO. 07204 DRAWING NO. 5213



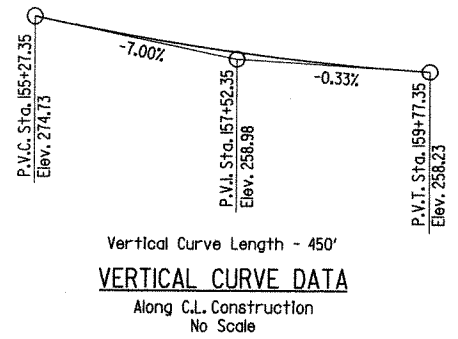
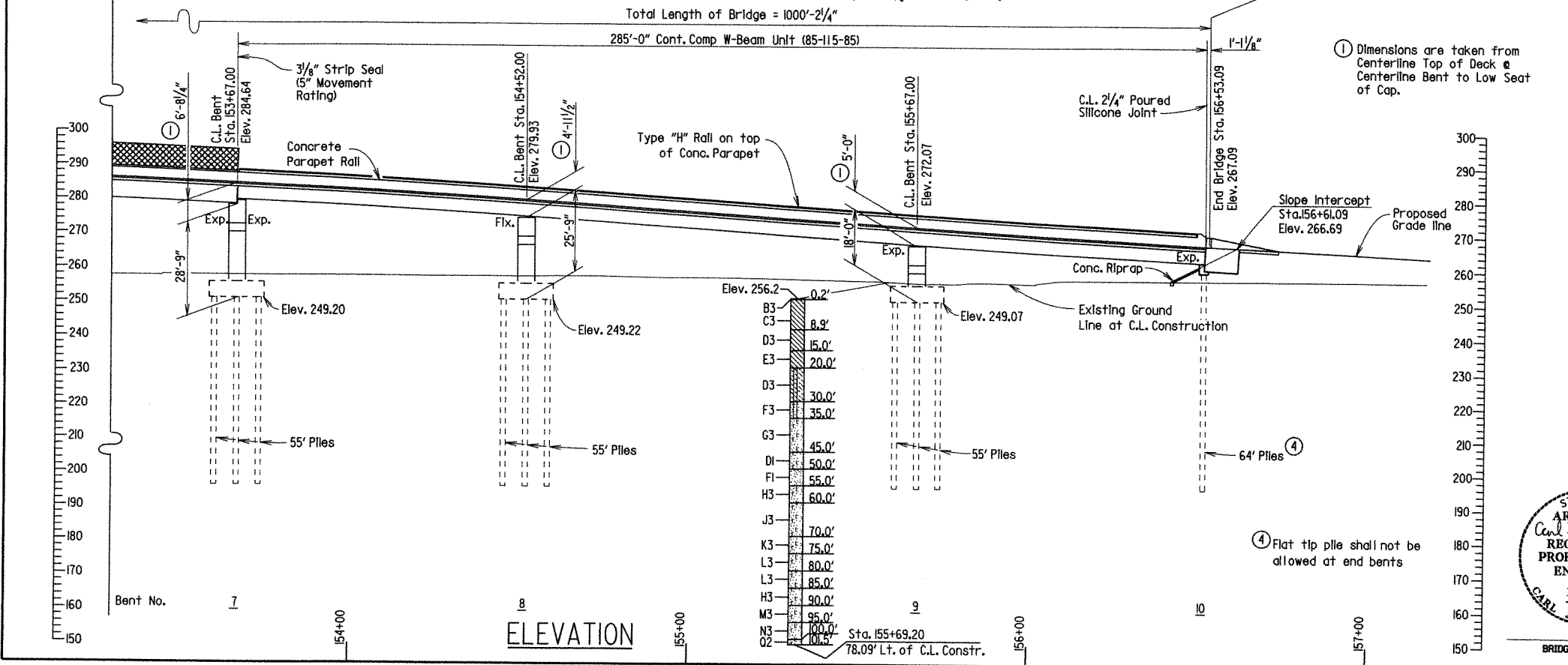


For R/W Data, see Rdwy. Plans

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		23	91
				JOB NO. 100705		LAYOUT		5215



NOTE: The contractor shall take appropriate measures to adequately protect the existing AT&T underground cable, located at approximate Station 156+00, during construction in accordance with Special Provision Job No. 100705 "Protection of Utility".



**SHEET 3 OF 4**  
**LAYOUT OF BRIDGE OVER BNSF RAILWAY**  
**HWY. 18/BNSF R.R. OVERPASS**  
**STR. & APPRS. (BLYTHEVILLE) (S)**  
**MISSISSIPPI COUNTY**  
 ROUTE 18 SEC. 7  
**ARKANSAS STATE HIGHWAY COMMISSION**  
 LITTLE ROCK, ARK.

BRIDGE ENGINEER  
 STATE OF ARKANSAS  
 Carl J. Fuesler  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 7510  
 7/6/11

DRAWN BY: MRE DATE: 8/13/10 FILENAME: b100705\_ill.dgn  
 CHECKED BY: CSL DATE: July 6, 2011 SCALE: 1" = 20'-0"  
 DESIGNED BY: CSL DATE: April 2011  
 BRIDGE NO. 07204 DRAWING NO. 5215

① Dimensions are taken from Centerline Top of Deck @ Centerline Bent to Low Seat of Cap.

④ Flat tip pile shall not be allowed at end bents

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						100705	24	91
				07207	LAYOUT			52116

**BORING LEGEND**

- AI-Molst, Medium Stiff, Gray and Brown Clay with Sand and some Organic Matter
- BI-Molst, Medium Stiff, Gray and Brown Clay with Trace of Sand and Organic Matter
- CI-Wet, Very Loose, Brown Sand
- DI-Wet, Medium Dense, Gray Sand
- EI-Wet, Medium Dense, Gray Sand with Clay Seams
- FI-Wet, Dense, Gray Sand
- GI-Wet, Medium Dense, Gray Sand with some Organic Matter
- HI-Wet, Dense, Gray Sand with Organic Matter
- JI-Wet, Dense, Gray Sand with some Gravel
- KI-Wet, Medium Dense, Gray Sand with Gravel
- LI-Wet, Medium Dense, Gray Sand with Gravel and Organic Matter
- MI-Wet, Dense, Gray Sand with Gravel
- NI-Molst, Loose, Dark Brown and Gray Silt with some Sand
- PI-Molst, Very Loose, Brown and Gray Silt with some Sand
- QI-Molst, Soft, Brown and Gray Clay
- RI-Wet, Loose, Brown Sand with some Clay
- SI-Wet, Loose, Gray Sand with Clay
- TI-Wet, Medium Dense, Gray Sand with Trace of Clay
- UI-Wet, Medium Dense, Gray Sand with Trace of Organic Matter
- VI-Wet, Dense, Gray Sand with Trace of Organic Matter
- WI-Wet, Medium Dense, Gray Sand with Trace of Gravel
- XI-Wet, Medium Dense, Gray Sand with Gravel and Trace of Organic Matter
- YI-Wet, Dense, Gray Sand with Gravel and Trace of Organic Matter
- ZI-Wet, Dense, Gray Sand with Gravel and Organic Matter
- A2-Molst, Loose, Brown and Gray Clayey Silt
- B2-Molst, Soft, Brown Clay with some Organic Matter
- C2-Wet, Very Loose, Brown Sand with Clay
- D2-Wet, Loose, Gray Sand
- E2-Wet, Very Loose, Gray Silty Sand
- F2-Wet, Medium Dense, Gray Sand with Organic Matter
- G2-Wet, Medium Dense, Gray Sand with some Gravel and Trace of Organic Matter
- H2-Wet, Medium Dense, Gray Sand with Organic Matter and some Gravel
- J2-Wet, Dense, Gray Sand with Trace of Gravel
- K2-Wet, Very Dense, Gray Sand
- L2-Wet, Medium Dense, Gray Sand with some Gravel
- M2-Molst, Medium Stiff, Brown and Gray Clay
- N2-Molst, Medium Stiff, Brown Clay
- P2-Wet, Loose, Brown and Gray Clayey Sand
- Q2-Wet, Very Dense, Gray Sand with Trace of Gravel
- R2-Wet, Very Dense, Gray Sand with Trace of Organic Matter
- S2-Wet, Medium Dense, Gray Sand with Gravel and some Cemented Sand
- T2-Wet, Very Dense, Gray and Brown Sand with Trace of Gravel
- U2-Molst, Medium Stiff, Brown and Gray Clay with some Organic Matter
- V2-Molst, Medium Stiff, Gray Clay with some Organic Matter
- W2-Molst, Medium Stiff, Brown Clay with some Organic Matter
- X2-Wet, Very Loose, Gray Clayey Sand with some Organic Matter
- Y2-Wet, Loose, Gray Sand with Organic Matter
- Z2-Wet, Dense, Gray Sand with some Gravel and Trace of Organic Matter
- A3-Wet, Dense, Gray Sand with Organic Matter and some Gravel
- B3-Concrete Pavement (2")
- C3-Molst, Stiff, Gray Clay
- D3-Wet, Soft, Gray Clay
- E3-Molst, Soft, Gray and Brown Clay
- F3-Wet, Loose, Gray Silt with Sand
- G3-Wet, Medium Dense, Gray Sand with Silt
- H3-Wet, Dense, Gray Sand with Silt
- J3-Wet, Dense, Gray Sand with Silt and some Gravel
- K3-Wet, Medium Dense, Gray Sand with Silt, some Gravel and Trace of Organic Matter
- L3-Wet, Dense, Gray Sand with Silt, some Gravel and Trace of Organic Matter
- M3-Wet, Dense, Gray Sand with Silt, some Organic Matter and Trace of Gravel
- N3-Wet, Very Dense, Gray Sand with Silt and some Gravel

**"N" VALUES**

- Sta. 147+72.16  
80.5' Lt. of C.L. Constr.
- 4.6- 5.6, N=6
  - 9.6- 10.6, N=5
  - 15.5- 16.5, N=2
  - 20.5- 21.5, N=4
  - 25.5- 26.5, N=14
  - 30.5- 31.5, N=23
  - 35.5- 36.5, N=30
  - 40.5- 41.5, N=13
  - 45.5- 46.5, N=23
  - 50.5- 51.5, N=35
  - 55.5- 56.5, N=26
  - 60.5- 61.5, N=23
  - 65.5- 66.5, N=42
  - 70.5- 71.5, N=42
  - 75.5- 76.5, N=44
  - 80.5- 81.5, N=36
  - 85.5- 86.5, N=41
  - 90.5- 91.5, N=25
  - 95.5- 96.5, N=26
  - 100.5-101.5, N=32

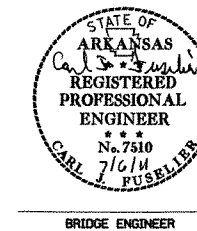
- Sta. 148+83.00  
111.4' Lt. of C.L. Constr.
- 6.7- 7.7, N=9
  - 11.7- 12.7, N=3
  - 15.5- 16.5, N=3
  - 20.5- 21.5, N=7
  - 25.5- 26.5, N=10
  - 30.5- 31.5, N=13
  - 35.5- 36.5, N=14
  - 40.5- 41.5, N=17
  - 45.5- 46.5, N=27
  - 50.5- 51.5, N=33
  - 55.5- 56.5, N=28
  - 60.5- 61.5, N=34
  - 65.5- 66.5, N=48
  - 70.5- 71.5, N=47
  - 75.5- 76.5, N=30
  - 80.5- 81.5, N=29
  - 85.5- 86.5, N=26
  - 90.5- 91.5, N=41
  - 95.5- 96.5, N=41
  - 100.5-101.5, N=48

- Sta. 150+6.97  
124.4' Lt. of C.L. Constr.
- 4.7- 5.7, N=6
  - 9.7- 10.7, N=6
  - 15.5- 16.5, N=3
  - 20.5- 21.5, N=4
  - 25.5- 26.5, N=5
  - 30.5- 31.5, N=11
  - 35.5- 36.5, N=2
  - 40.5- 41.5, N=19
  - 45.5- 46.5, N=40
  - 50.5- 51.5, N=23
  - 55.5- 56.5, N=25
  - 60.5- 61.5, N=19
  - 65.5- 66.5, N=15
  - 70.5- 71.5, N=30
  - 75.5- 76.5, N=23
  - 80.5- 81.5, N=20
  - 85.5- 86.5, N=15
  - 90.5- 91.5, N=20
  - 95.5- 96.5, N=41
  - 100.5-101.5, N=44
  - 105.5-106.5, N=43
  - 110.5-111.5, N=68
  - 115.5-116.5, N=26

- Sta. 151+10.62  
116.28' Lt. of C.L. Constr.
- 4.6- 5.6, N=5
  - 9.6- 10.6, N=3
  - 15.5- 16.5, N=5
  - 20.5- 21.5, N=7
  - 25.5- 26.5, N=5
  - 30.5- 31.5, N=6
  - 35.5- 36.5, N=11
  - 40.5- 41.5, N=24
  - 45.5- 46.5, N=19
  - 50.5- 51.5, N=43
  - 55.5- 56.5, N=41
  - 60.5- 61.5, N=32
  - 65.5- 66.5, N=21
  - 70.5- 71.5, N=35
  - 75.5- 76.5, N=41
  - 80.5- 81.5, N=57
  - 85.5- 86.5, N=54
  - 90.5- 91.5, N=19
  - 95.5- 96.5, N=11
  - 100.5-101.5, N=19
  - 105.5-106.5, N=19
  - 110.5-111.5, N=29
  - 115.5-116.5, N=26
  - 120.5-121.5, N=59

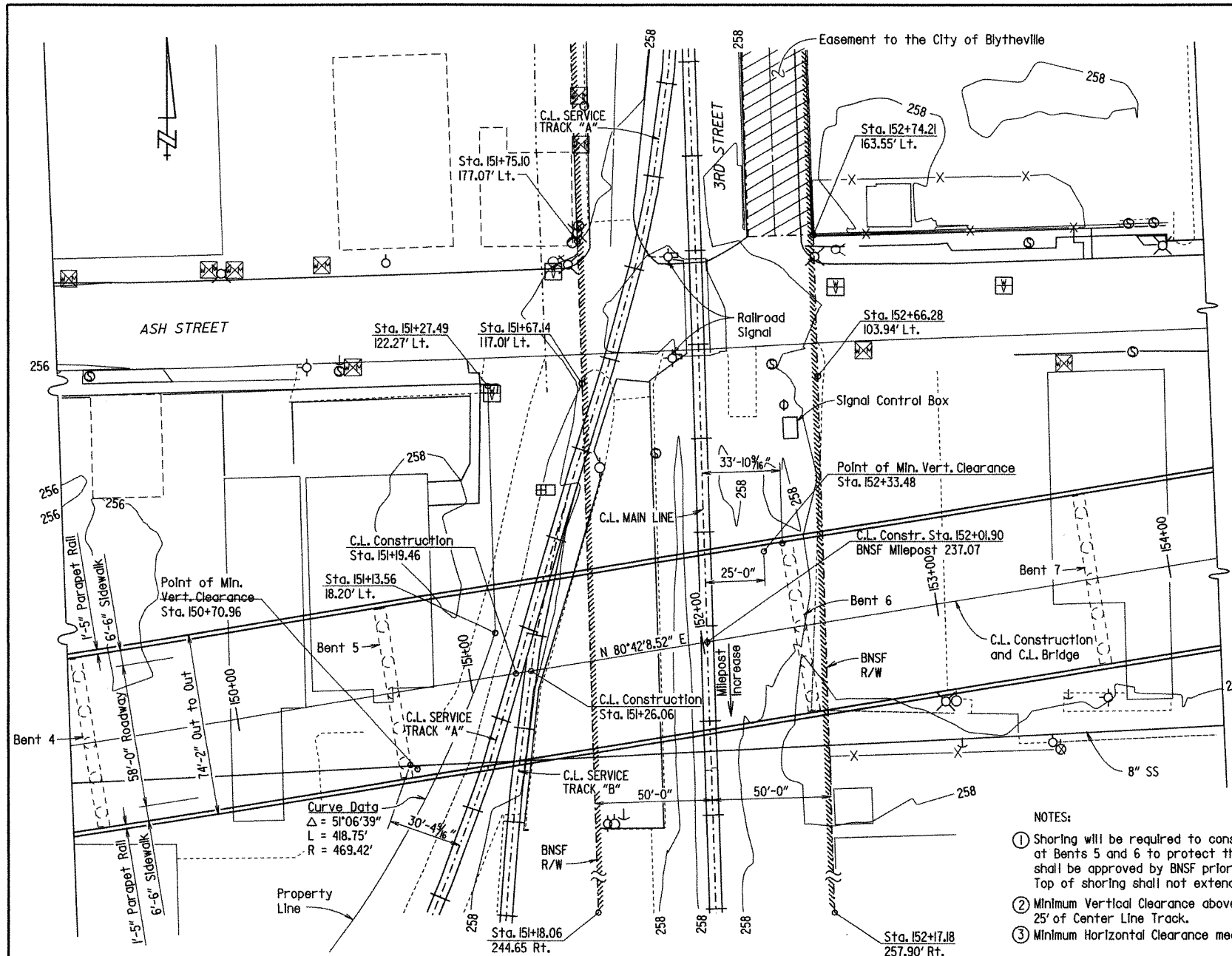
- Sta. 152+85.90  
100.32' Lt. of C.L. Constr.
- 4.5- 5.5, N=6
  - 9.5- 10.5, N=5
  - 15.5- 16.5, N=5
  - 20.5- 21.5, N=0
  - 25.5- 26.5, N=4
  - 30.5- 31.5, N=14
  - 35.5- 36.5, N=8
  - 40.5- 41.5, N=23
  - 45.5- 46.5, N=15
  - 50.5- 51.5, N=28
  - 55.5- 56.5, N=17
  - 60.5- 61.5, N=23
  - 65.5- 66.5, N=28
  - 70.5- 71.5, N=37
  - 75.5- 76.5, N=36
  - 80.5- 81.5, N=39
  - 85.5- 86.5, N=28
  - 90.5- 91.5, N=34
  - 95.5- 96.5, N=39
  - 100.5-101.5, N=21
  - 105.5-106.5, N=47
  - 110.5-111.5, N=46
  - 115.5-116.5, N=27
  - 120.5-121.5, N=30

- Sta. 155+69.20  
78.09' Lt. of C.L. Constr.
- 4.4- 5.4, N=9
  - 9.4- 10.4, N=3
  - 15.5- 16.5, N=4
  - 20.5- 21.5, N=2
  - 25.5- 26.5, N=2
  - 30.5- 31.5, N=10
  - 35.5- 36.5, N=25
  - 40.5- 41.5, N=16
  - 45.5- 46.5, N=21
  - 50.5- 51.5, N=31
  - 55.5- 56.5, N=44
  - 60.5- 61.5, N=33
  - 65.5- 66.5, N=28
  - 70.5- 71.5, N=22
  - 75.5- 76.5, N=39
  - 80.5- 81.5, N=50
  - 85.5- 86.5, N=40
  - 90.5- 91.5, N=45
  - 95.5- 96.5, N=84
  - 100.5-101.5, N=72



**SHEET 4 OF 4**  
**LAYOUT OF BRIDGE OVER BNSF RAILWAY**  
**HWY. 18/BNSF R.R. OVERPASS**  
**STR. & APPRS. (BLYTHEVILLE) (S)**  
**MISSISSIPPI COUNTY**  
 ROUTE 18 SEC. 7  
**ARKANSAS STATE HIGHWAY COMMISSION**  
 LITTLE ROCK, ARK.  
 DRAWN BY: MRE DATE: 8/13/10 FILENAME: b100705\_111.dgn  
 CHECKED BY: CSL DATE: July 6, 2011 SCALE: 1" = 20'-0"  
 DESIGNED BY: CSL DATE: April 2011  
 BRIDGE NO. 07204 DRAWING NO. 52116

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	100705	25	91
				JOB NO.		07204	EXHIBIT "A" 5217	



**GENERAL NOTES:**

All demolitions within the Railroad's right-of-way and/or demolitions that may impact the Railroad's tracks or operations shall comply with the Railroad's demolition requirements.

Erection over the Railroad's right-of-way shall be designed to cause no interruption to the Railroad's operation. Erection over the Railroad's track shall be developed such that it enables the track(s) to remain open to traffic per the Railroad's requirements.

The Contractor must submit a proposed method of erosion and sediment control and have the method approved by the Railroad prior to beginning any grading on the project site.

Railroad requirements do not allow work within 50 feet of track centerline when a train passes the work site and all personnel must clear the area within 25 feet of the track centerline and secure all equipment when trains are present.

The following statement is in the "State Rail Agreement": The State shall not plow, ice, snow, or sleet over the sides of the structure. In consideration of this practice, the Carrier waives its request for the State to attach splash boards to sides of the structure.

Shoring shall comply with the BNSF Railway Requirements. Construction shall comply with the requirements of SP Job 100705 "Insurance, Construction, and Flagging requirements on Railroad property (BNSF)." Railroad review and approval of Shoring, Erection, and False work is required. Allow a minimum of four weeks for the review and approval of each submittal.

Currently there are no known utilities on the railroad right-of-way other than shown.

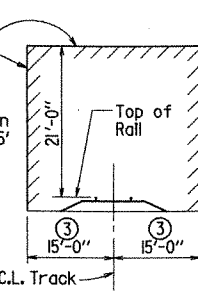
The proposed bridge drainage construction will not change the quantity and/or characteristics of the flow within the Railroad right-of-way.

Closed Parapet Railing (No Deck Drains) over Railroad right-of-way and easement. Typical both sides of bridge.

All permanent clearances shall be verified before project closing.

For Railroad coordination refer to Railroad Minimum Requirements of SP Job 100705 "Insurance, Construction, and Flagging requirements on Railroad property (BNSF)."

- NOTES:**
- Shoring will be required to construct foundations at Bents 5 and 6 to protect the railroad. Details shall be approved by BNSF prior to construction. Top of shoring shall not extend above top of rail.
  - Minimum Vertical Clearance above Top of Rail within 25' of Center Line Track.
  - Minimum Horizontal Clearance measured normal to track.

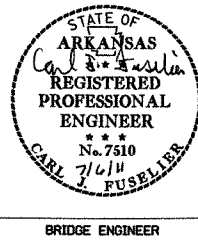
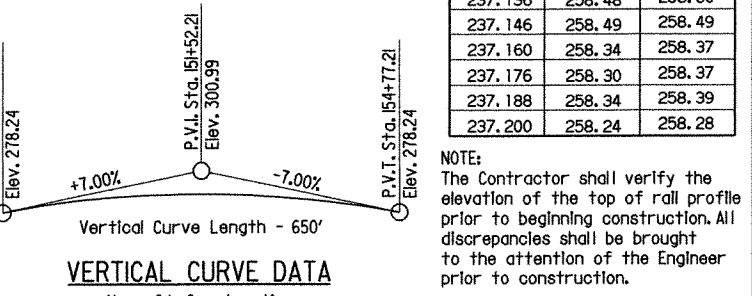
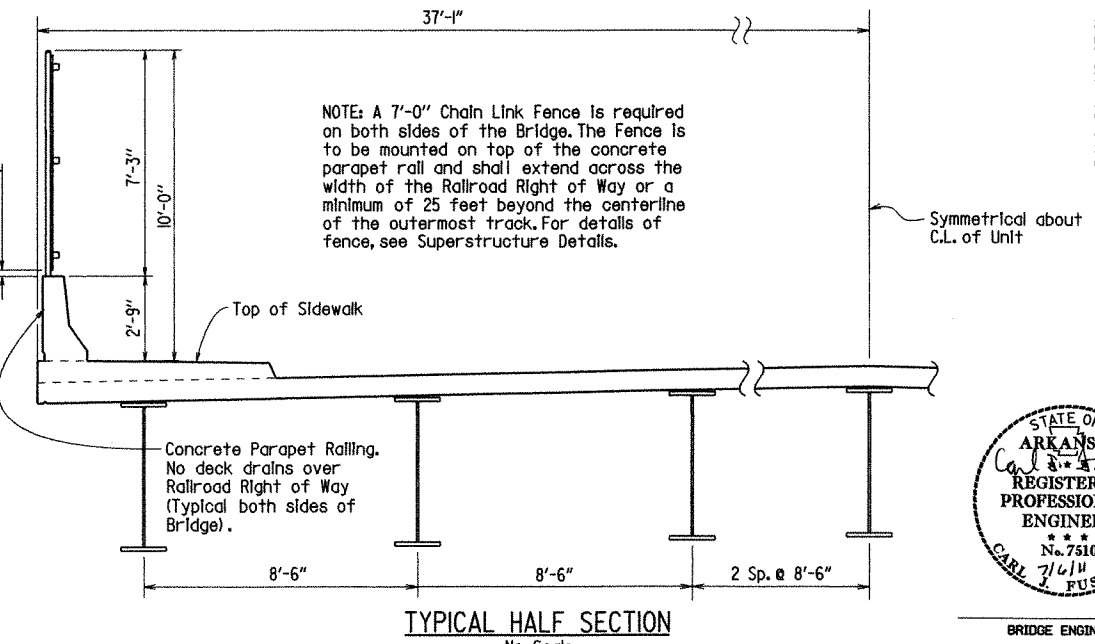
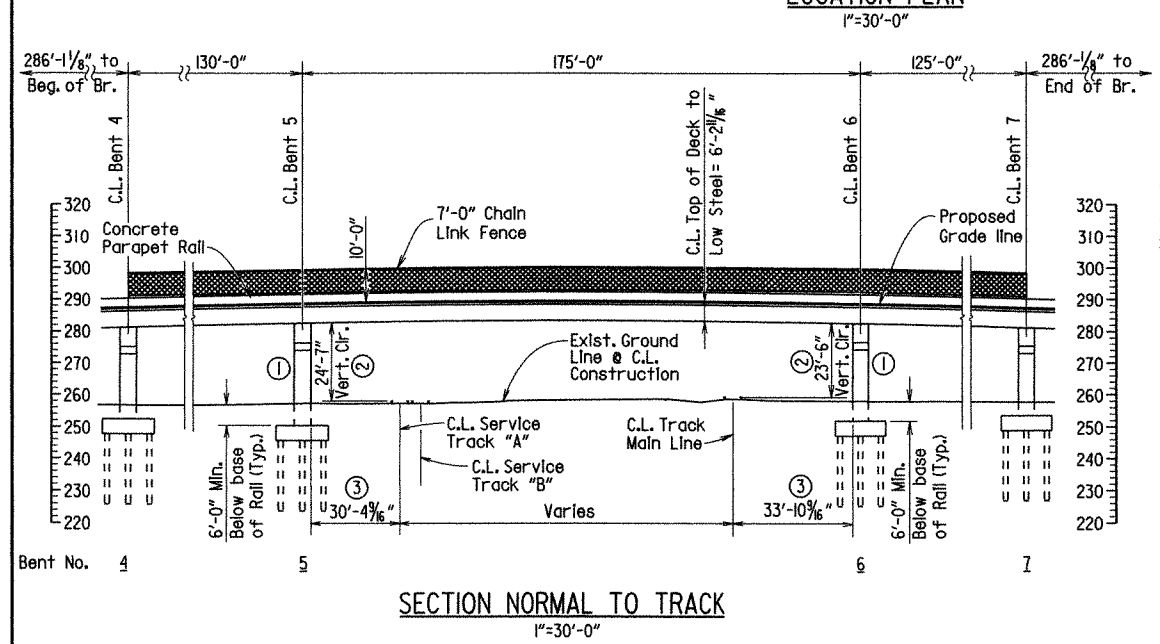


**TOP OF RAIL ELEVATIONS**  
(Looking in direction of Milepost Increase)

MAIN LINE			SERVICE TRACK "A"		
Milepost	Elev. West Rail	Elev. East Rail	Milepost	Elev. West Rail	Elev. East Rail
236.856		258.02	237.009	258.41	258.42
236.860	258.06		237.016	258.50	258.50
236.876	258.01	257.96	237.024	258.62	
236.895	257.94	257.95	237.025	258.63	
236.915	257.95	257.97	237.027		258.63
236.935	257.79	257.79	237.033	258.77	258.77
236.953	257.92	257.93	237.042	258.88	258.94
236.968	257.96	258.03	237.047	258.99	259.03
236.976	258.17	258.17	237.056	259.13	259.13
236.985	258.19	258.16	237.066	258.65	258.62
236.996	258.19	258.19	237.070	258.52	258.49
237.009	258.40	258.43	237.078		258.29
237.016	258.50	258.50	237.079	258.27	
237.024	258.62	258.64	237.088	258.11	258.11
237.026	258.65	258.64	237.097	258.18	258.17
237.033	258.78	258.77	237.106	258.08	258.08
237.043	258.97	258.96	237.114	258.00	
237.048	259.09	259.07	237.115		258.04
237.055	259.24	259.25	237.122		257.99
237.065	259.25	259.24	237.123	257.99	
237.073	259.20		237.125		257.96
237.075		259.18	237.131	257.74	257.78
237.082	259.12	259.12	237.141		257.79
237.088	259.06	259.06	237.142	257.74	
237.098	258.98	258.95			
237.107	258.89	258.89			
237.116	258.86	258.90			
237.125	258.84	258.85			
237.134	258.82	258.81			
237.156	258.88	258.84			
237.159	258.92	258.89			
237.166	258.98	258.94			
237.176	259.04	258.98			
237.177	259.03				
237.193	258.98	259.98			
237.212	258.99	258.99			
237.232	258.91	258.91			
237.238		258.82			

SERVICE TRACK "B"		
Milepost	Elev. West Rail	Elev. East Rail
237.066	258.57	258.65
237.070	258.49	258.53
237.078	258.29	258.34
237.159	258.92	258.89
237.166	258.98	258.94
237.176	259.04	258.98
237.177	259.03	
237.193	258.98	259.98
237.212	258.99	258.99
237.232	258.91	258.91
237.238		258.82



**EXHIBIT A**  
**LAYOUT OF BRIDGE OVER BNSF RAILWAY HWY. 18/BNSF R.R. OVERPASS STR. & APPRS. (BLYTHEVILLE) (S) MISSISSIPPI COUNTY ROUTE 18 SEC. 7 ARKANSAS STATE HIGHWAY COMMISSION**

LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 08/03/10 FILENAME: b100705\_Exhibit\_A.dgn  
 CHECKED BY: ESL DATE: Jul 6, 2011 SCALE: 1"=30'-0"  
 DESIGNED BY: ESL DATE: April 2011  
 BRIDGE NO. 07204 DRAWING NO. 52117



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	100705	26	91
				JOB NO.		07204	END BENTS 52118	

NOTE: Class I Protective Surface Treatment shall be applied to the top of the backwall and the sidewalk surface. Class 3 Textured Coating Finish shall be applied to areas as specified in Special Provision Job No. 100705 "Textured Coating Finish".

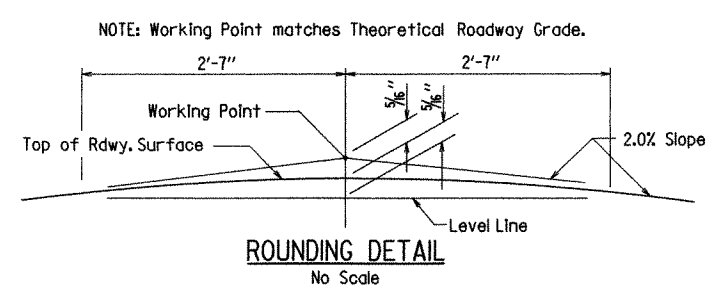
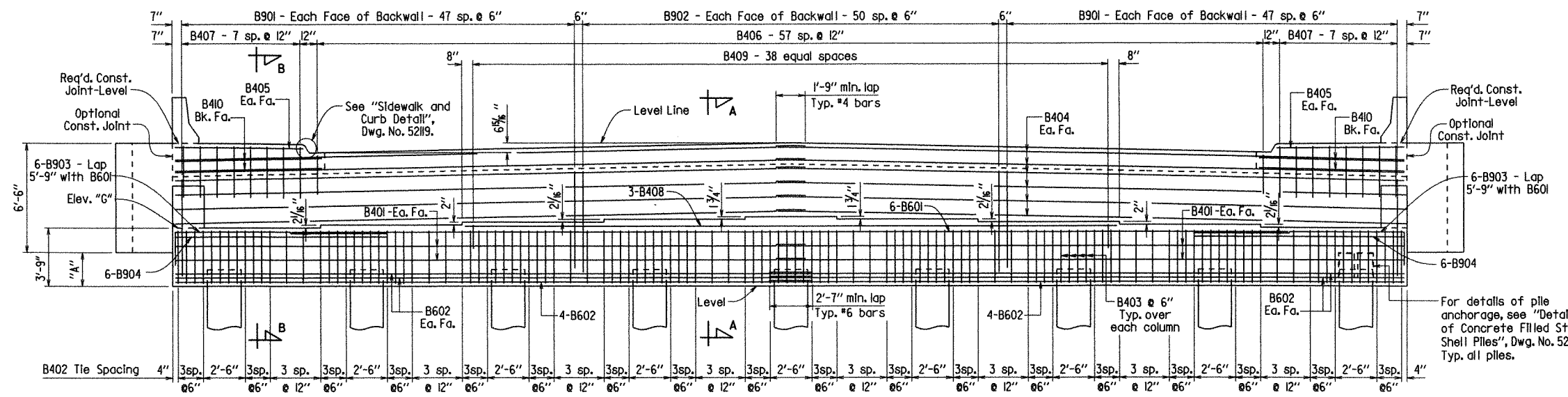
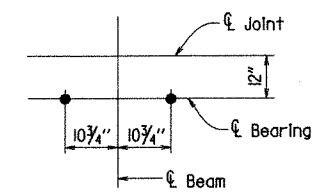
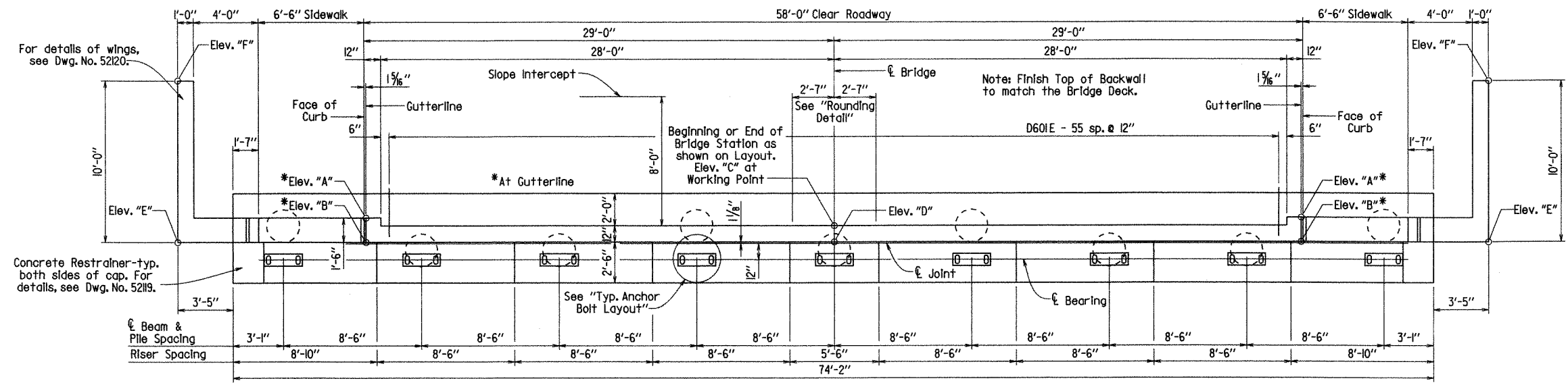
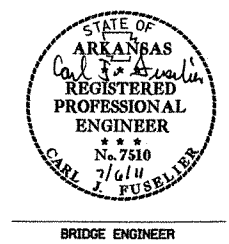


TABLE OF VARIABLES

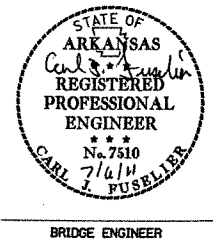
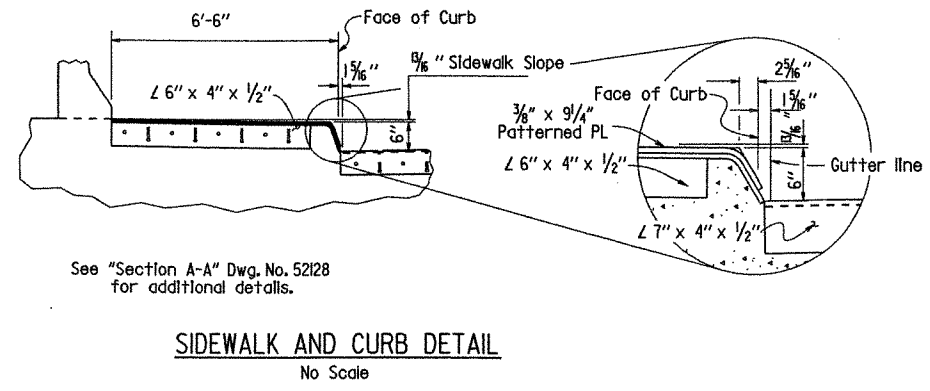
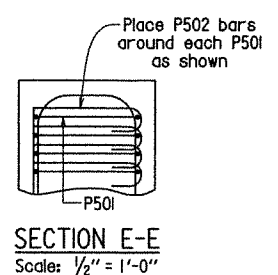
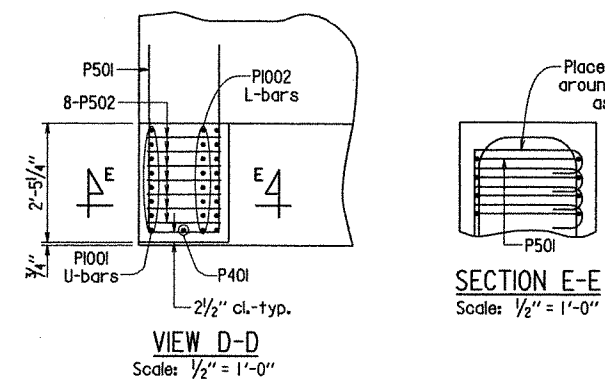
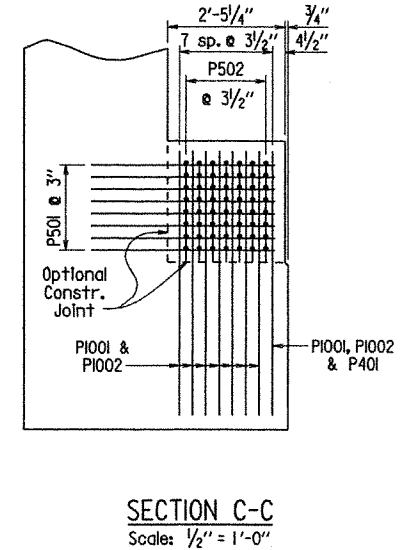
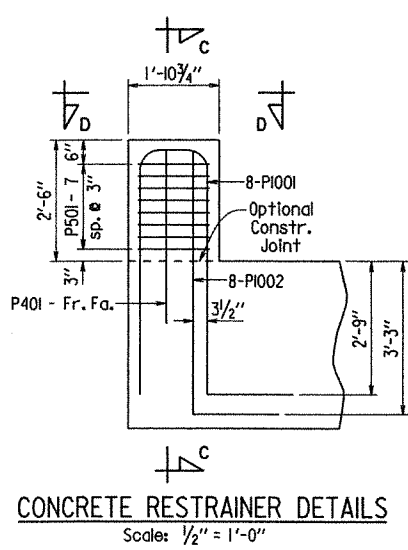
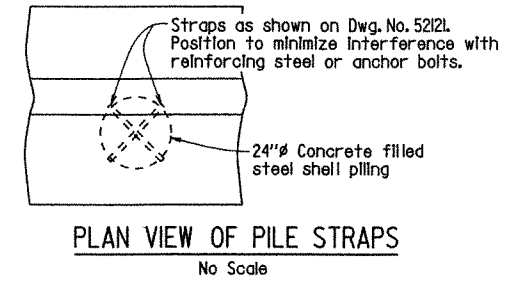
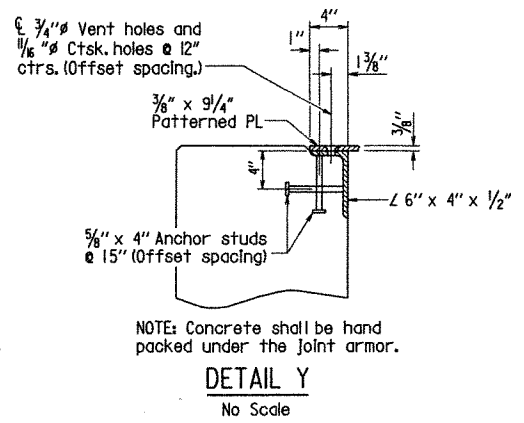
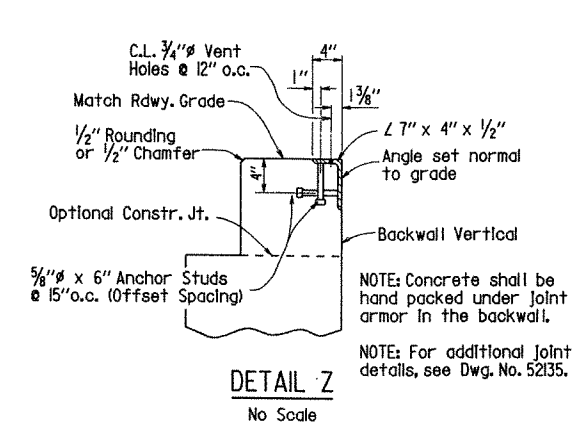
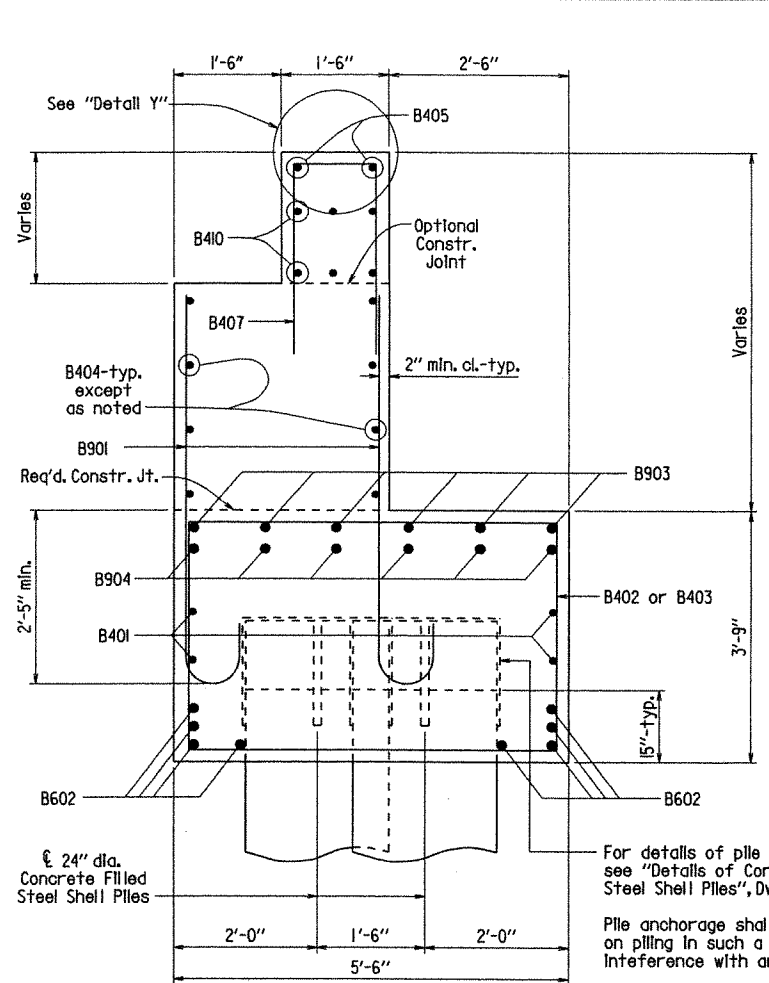
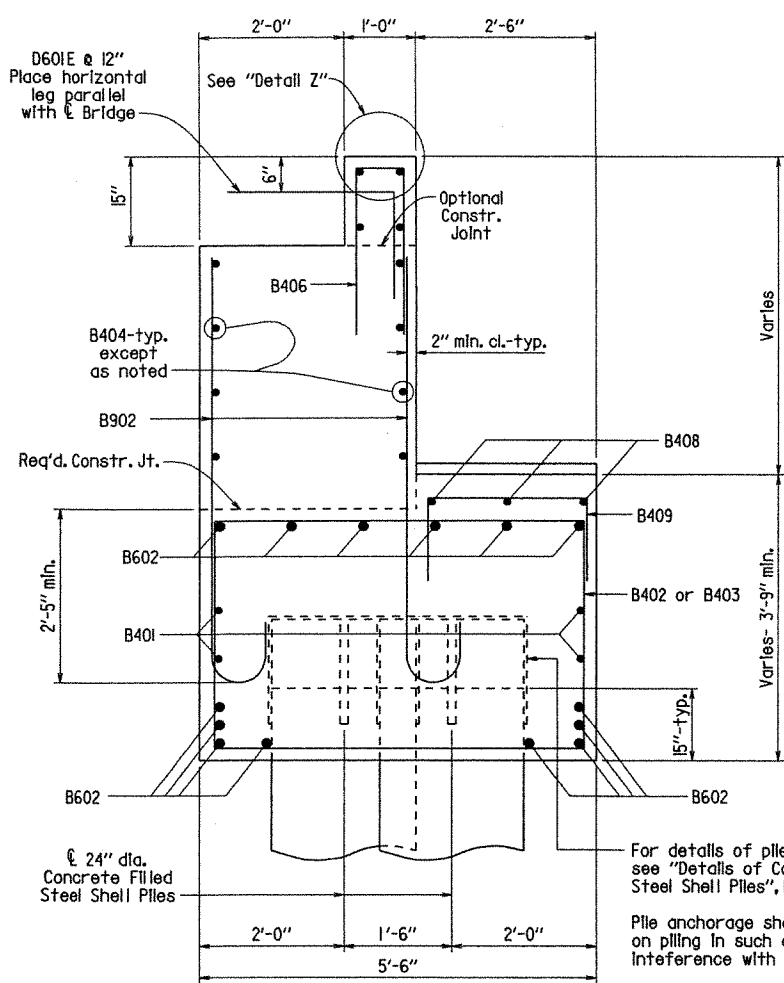
BENT	"A"	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	Elev. "F"	Elev. "G"
1	2'-3 1/2"	266.22	266.30	266.83	266.88	266.87	266.40	261.83
10	2'-3 5/8"	266.49	266.57	267.09	267.15	267.14	266.68	262.09



SHEET 1 OF 3  
DETAILS OF END BENTS

ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: KDH DATE: 6-3-11 FILENAME: b100705-bl.dgn  
CHECKED BY: DHP DATE: 7/6/11 SCALE: AS NOTED  
DESIGNED BY: DHP DATE: 10/17/10  
BRIDGE NO. 07204 DRAWING NO. 52118

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.		100705	27	31
				① 07204		END BENTS		52119

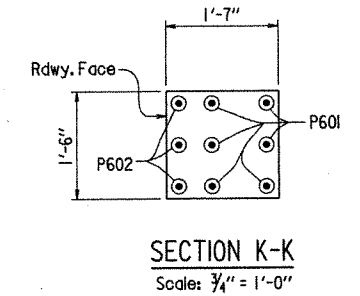
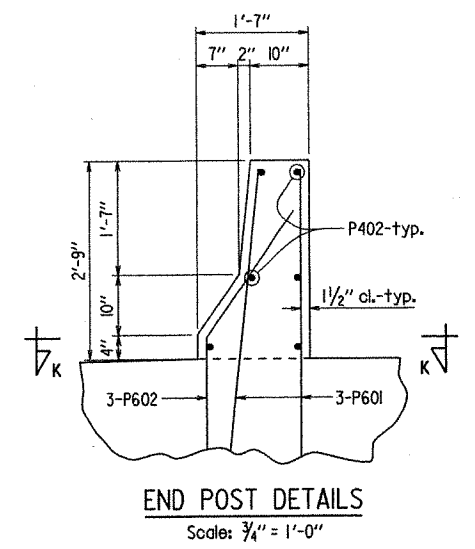
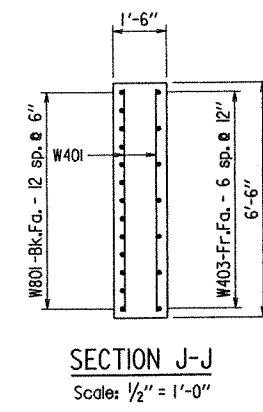
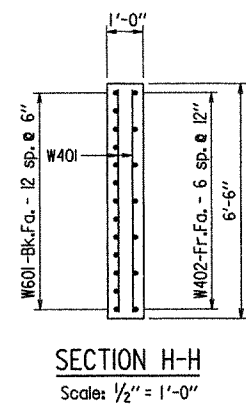
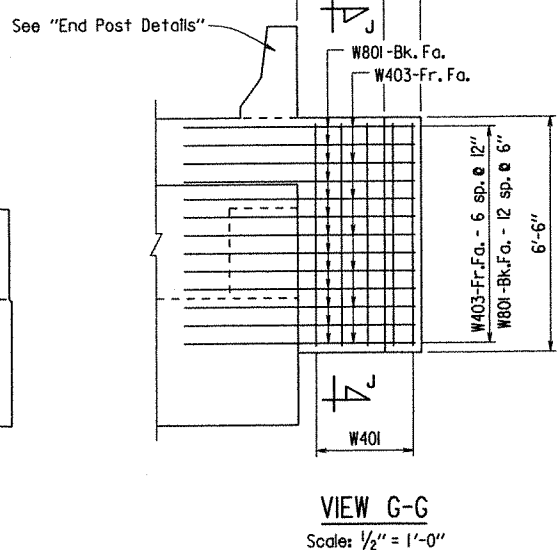
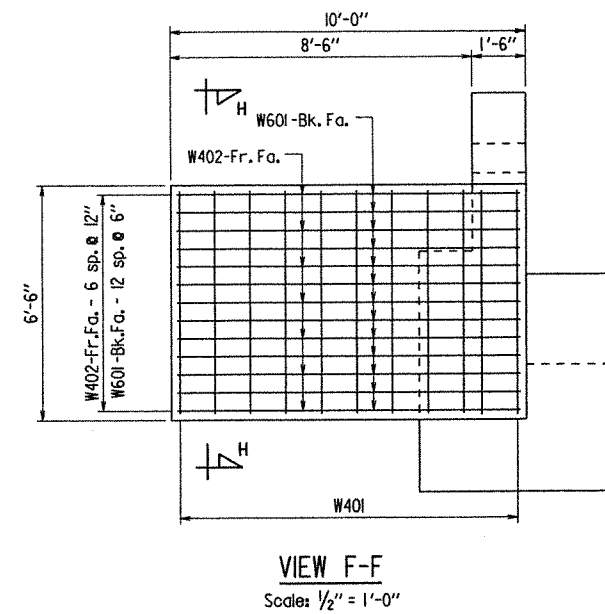
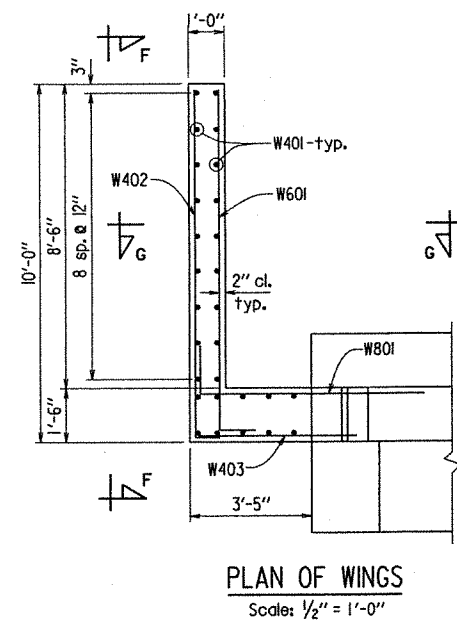


SHEET 2 OF 3  
DETAILS OF END BENTS

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

DRAWN BY: KDH DATE: 6-6-11 FILENAME: b100705\_bll.dgn  
CHECKED BY: DHP DATE: 7/6/11 SCALE: AS NOTED  
DESIGNED BY: DHP DATE: 10/7/10  
BRIDGE NO. 07204 DRAWING NO. 52119

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.	100705	28	91	
				① 07204	END BENTS	52120		



**BAR LIST-PER BENT**

MARK	NO. REQ'D.	LENGTH	A	B	P. D.	BENDING DIAGRAMS
B401	8	37'-10"			Str.	
B402	88	17'-6"	5'-2"	3'-5"	2"	
B403	36	11'-10"	5'-2"	3'-5"	2"	
B404	24	37'-10"			Str.	
B405	4	7'-8"			Str.	
B406	58	5'-2"	8"	2'-4"	3"	
B407	16	7'-2"	1'-2"	3'-1"	3"	
B408	3	39'-2"			Str.	
B409	39	4'-8"	2'-2"	1'-4"	3"	
B410	4	8'-9"			Str.	
P401	2	3'-7"			Str.	
P402	12	1'-2"			Str.	
W401	56	6'-2"			Str.	
W402	14	10'-3"	9'-8"	8"	3"	
W403	14	4'-6"			Str.	
P501	16	9'-0"	1'-5 3/4"	3'-10"	2 1/2"	
P502	112	2'-6"	1'-5 3/4"	5"	3 3/4"	
B601	6	60'-0"			Str.	
B602	16	38'-3"			Str.	
D601E	56	5'-11"	3'-0"	3'-0"	4 1/2"	
P601	12	5'-5"			Str.	
P602	6	4'-11"			4 1/2"	
W601	26	10'-6"	9'-7"	1'-0"	4 1/2"	
W801	26	7'-8"	6'-6"	1'-4"	6"	
B901	192	7'-1"	5'-10"	10"	9"	
B902	102	7'-4"	6'-1"	10"	9"	
B903	12	14'-5"	12'-8"	2'-0"	9"	
B904	12	12'-8"			Str.	
P1001	16	12'-5"	1'-4 1/2"	5'-1"	10"	
P1002	16	7'-0"	5'-6"	1'-9 1/2"	10"	

Dimensions are out to out of bars

Note: Bars designated with an 'E' suffix shall be epoxy coated.

**GENERAL NOTES**

All concrete shall be Class "S" with a minimum 28-day compressive strength  $f'_c = 3500$  psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

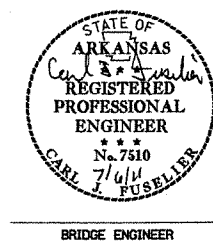
All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 ( $f_y = 60,000$  psi). Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

Structural steel in backwall shall be AASHTO M270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M270, Gr.50W)".

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, see Dwg. No. 52135. No heavy construction equipment shall be allowed directly behind the backwall until the concrete for the span has been completed.

Special care shall be taken to properly and thoroughly consolidate the concrete in the vicinity of the expansion joint device in the backwall. See section 802.09 (a)(3).

For additional information, see layout.



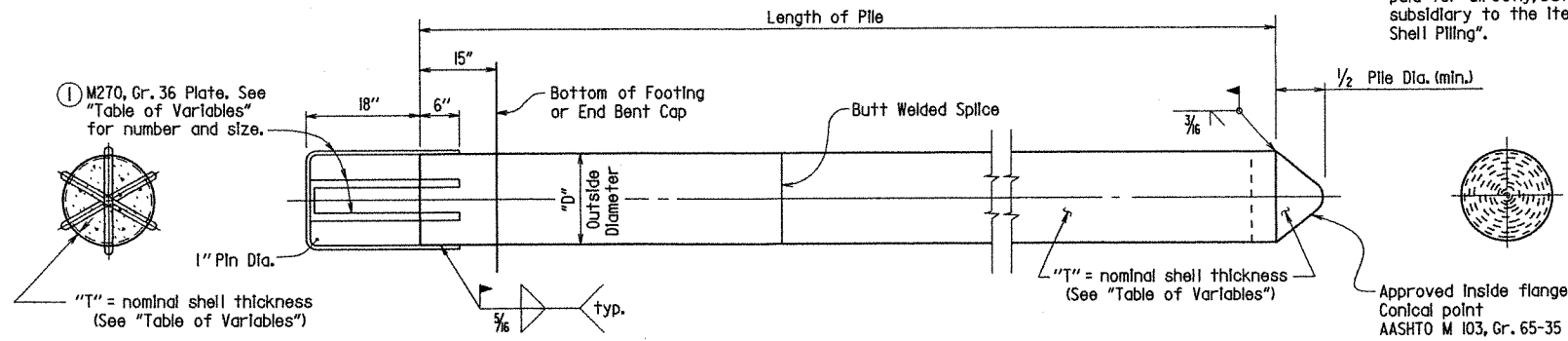
**SHEET 3 OF 3  
DETAILS OF END BENTS**

ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
 LITTLE ROCK, ARK.  
 DRAWN BY: KDH DATE: 6-8-11 FILENAME: b100705\_b1.dgn  
 CHECKED BY: DHP DATE: 7/6/11 SCALE: AS NOTED  
 DESIGNED BY: DHP DATE: 10/7/10  
 BRIDGE NO. 07204 DRAWING NO. 52120



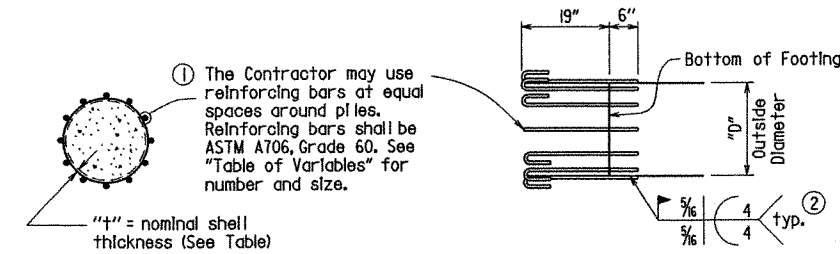
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				6	ARK.			
				JOB NO.		100705	29	91
				07204	STEEL SHELL PILES		52121	

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



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

**CONCRETE FILLED STEEL SHELL PILE**



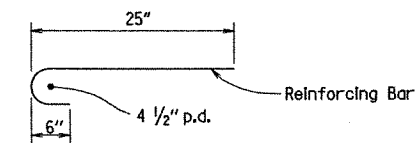
**GENERAL NOTES FOR CONCRETE FILLED STEEL SHELL PILES:**

Steel shells shall conform ASTM A252, Grade 3 (Fy = 45,000 psi).  
 Concrete used for filling of steel shell shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi and shall be poured in the dry.  
 See Bridge Layout for size and estimated length of steel shell piles and for additional driving information.

Concrete, structural steel, and reinforcing steel (including welding) will not be paid for separately, but will be considered subsidiary to the item "Steel Shell Piling".

**ALTERNATE PILE ANCHORAGE DETAIL**

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.

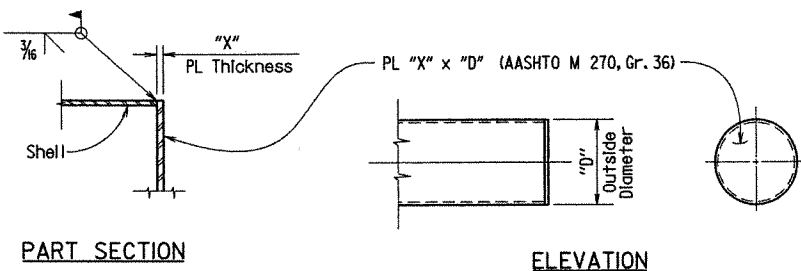


**HOOKED BAR DETAIL**

**TABLE OF VARIABLES**

BRIDGE NUMBER	OUTSIDE DIAMETER "D"	NOMINAL SHELL THICKNESS "T"	* PLATE THICKNESS "X"	PILE STRAPS	
				PLATE	REINFORCING
07204	24"	0.50"	2"	3 @ 1/2" x 2"	9 - #6

\* Flat Tip Alternate Only. Not allowed Bents I and IO

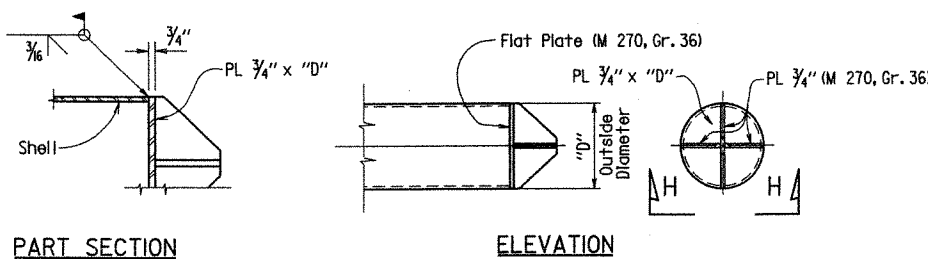


**PART SECTION**

**ELEVATION**

**ALTERNATE FLAT TIP DETAIL**

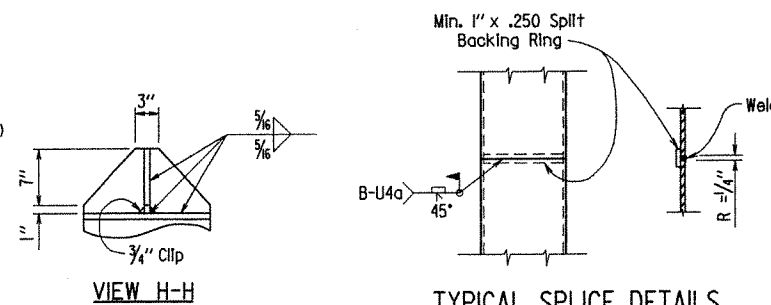
FLAT TIP ALTERNATE NOT ALLOWED FOR BENTS I AND IO



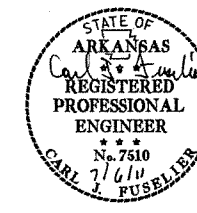
**PART SECTION**

**ELEVATION**

**ALTERNATE VANED TIP DETAIL**



**TYPICAL SPLICE DETAILS**

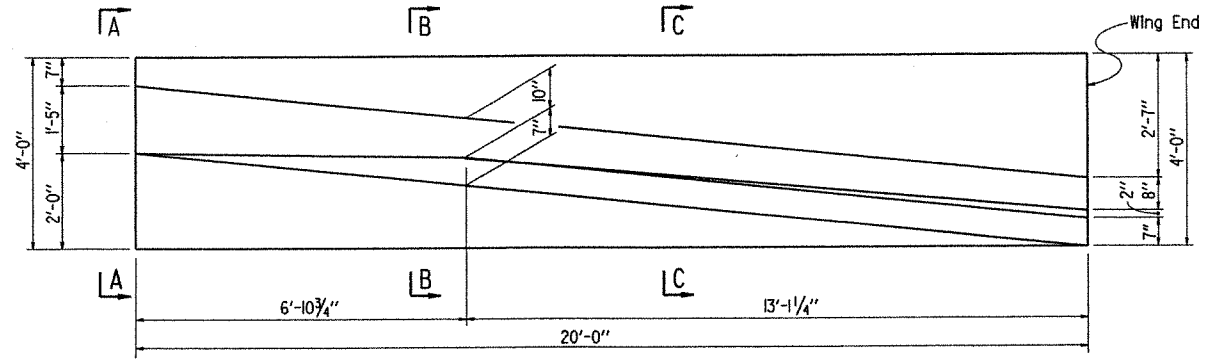


BRIDGE ENGINEER

DETAILS OF  
 CONCRETE FILLED STEEL SHELL PILES  
 ROUTE SECTION  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 06/08/11 FILENAME: b100705\_ssp.dgn  
 CHECKED BY: CSL DATE: July 6 2011 SCALE: NO SCALE  
 DESIGNED BY: STD DATE: -  
 BRIDGE NO. 07204 DRAWING NO. 52121

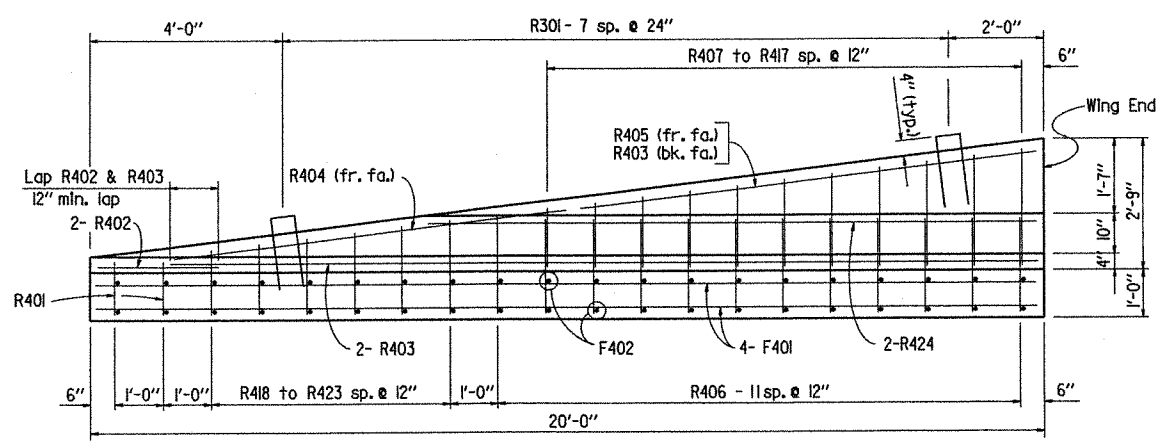
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100705	30	91
				07204 - TRANS. RAIL -		52122		



PLAN OF TRANSITIONAL APPROACH RAILING

NOTE: RAILINGS ON EACH SIDE OF ROADWAY ARE OPPOSITE HAND TO EACH OTHER.

**General Notes**  
 Transitional Approach Railing shall be placed at ends of turnback wings at locations shown on the layout.  
 All Concrete shall be Class "S" and be poured in the dry. All exposed corners to be chamfered 3/4" unless otherwise noted.  
 All Reinforcing Steel shall conform to AASHTO M31 or M53, Grade 60. Reinforcing steel designated as galvanized shall be galvanized in accordance with ASTM A767. Use coating Class I with galvanization after fabrication.  
 Class 3 Textured Coating Finish shall be applied to the inside, and outside face, and top of Railing as specified in Special Provision "Textured Coating Finish" and in accordance with subsection 802.19(b)(3). Textured Coating Finish shall not be applied to surfaces where Class I Protective Surface Treatment is applied.  
 Transitional Approach Railing shall be paid for at the contract unit price bid per each for "Transitional Approach Railing." See SP Job No. 100705 "Transitional Approach Railing."



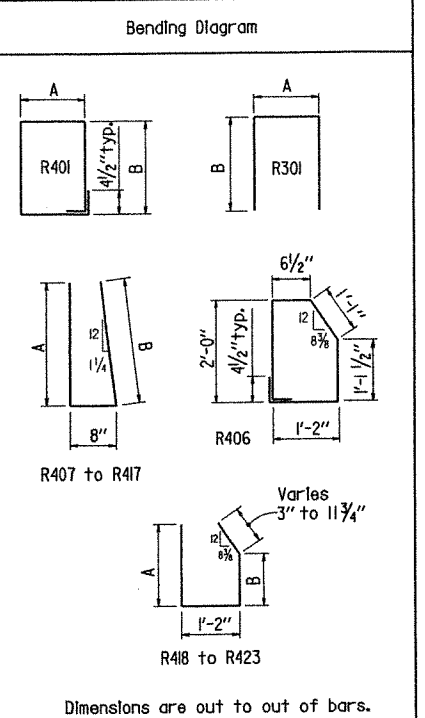
ELEVATION OF TRANSITIONAL APPROACH RAILING

FOR INFORMATION ONLY  
 SCHEDULE OF QUANTITIES PER RAIL UNIT

CLASS "S" CONCRETE	REINFORCING STEEL (GRADE 60)	CLASS 3 TEXTURED COATING FINISH
4.20 Cu. Yds.	383.00 Lbs.	15.3 Sq. Yds.

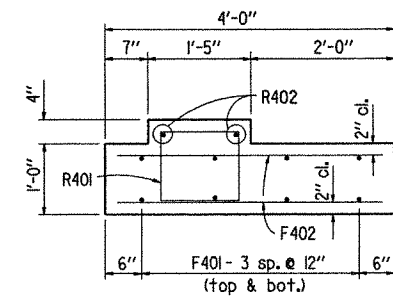
BAR LIST - ONE TRANSITIONAL RAIL

Mark	No. Req'd.	Length	A	B	Pin Dia.
F401	8	19'-8"			str.
F402	40	3'-8"			str.
* R301	8	3'-5"	6"	1'-6"	1 1/2"
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	1 ea.	3'-0" to 5'-5"	1'-3" to 2'-5 1/2"	1'-3" to 2'-5 1/2"	2"
R418 to R423	1 ea.	3'-9" to 5'-1"	1'-4" to 1'-11 1/4"	1'-1 1/2"	2"
R424	2	10'-9"			str.

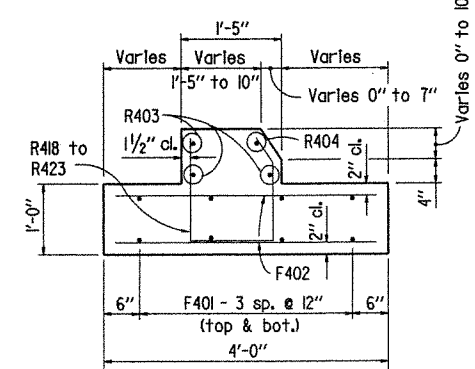


\* R301 reinforcing steel shall be galvanized.

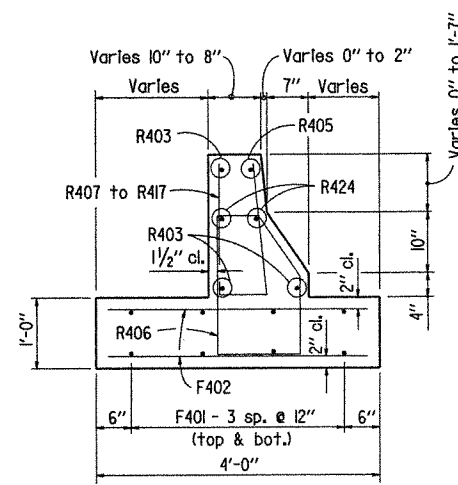
Dimensions are out to out of bars.



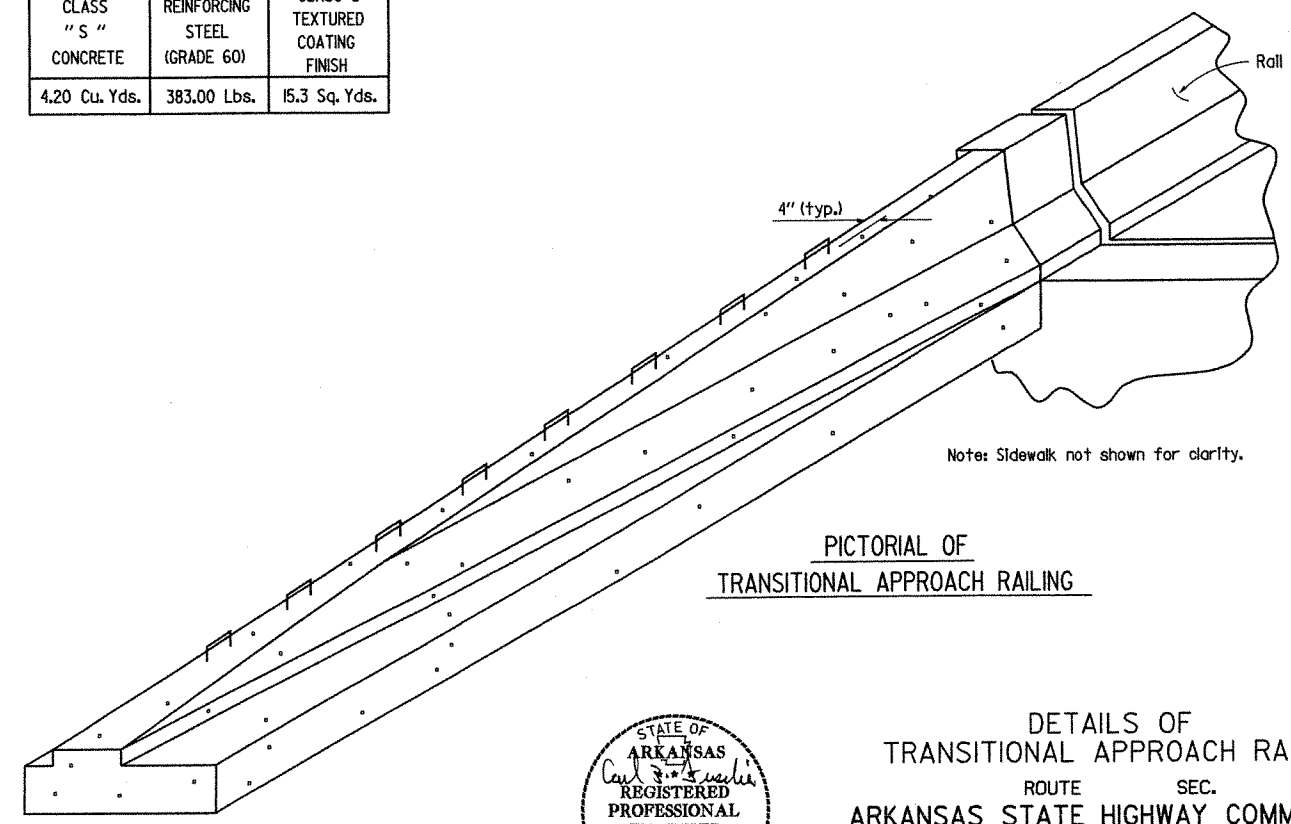
VIEW A - A  
 3/4" = 1'-0"



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



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



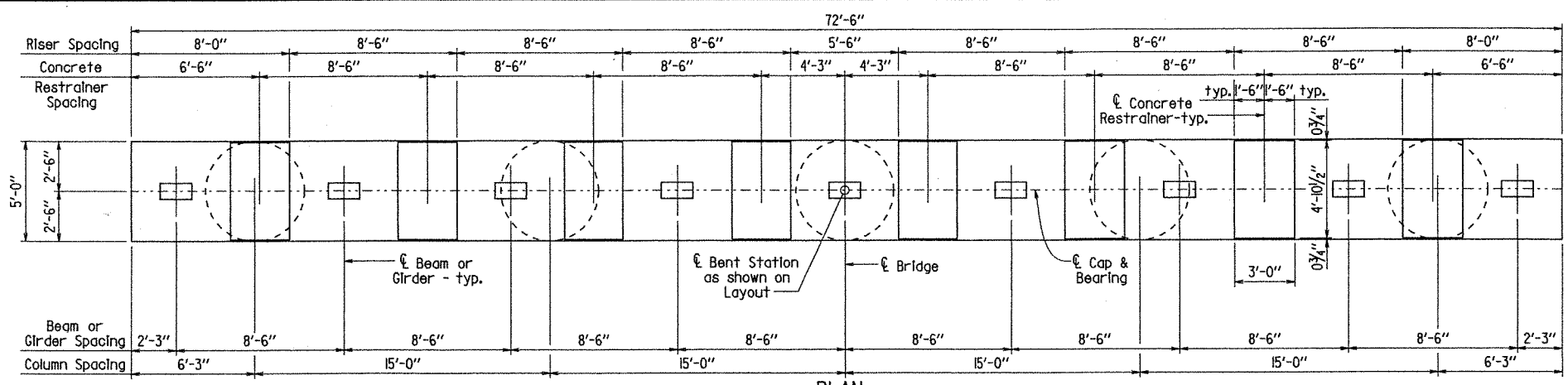
PICTORIAL OF TRANSITIONAL APPROACH RAILING



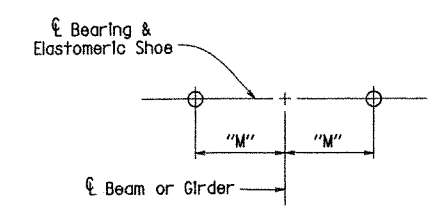
DETAILS OF TRANSITIONAL APPROACH RAILING  
 ROUTE SEC.  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.

DRAWN BY: CSL DATE: 11/21/2005 FILENAME: bl00705.tr.dgn  
 CHECKED BY: KBR DATE: 7/6/11 SCALE: 1/2" = 1'-0" or as noted  
 DESIGNED BY: Std. DATE: BRIDGE NO. 07204 DRAWING NO. 52122

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.		100705	31	91
				07204		INT. BENTS		52123

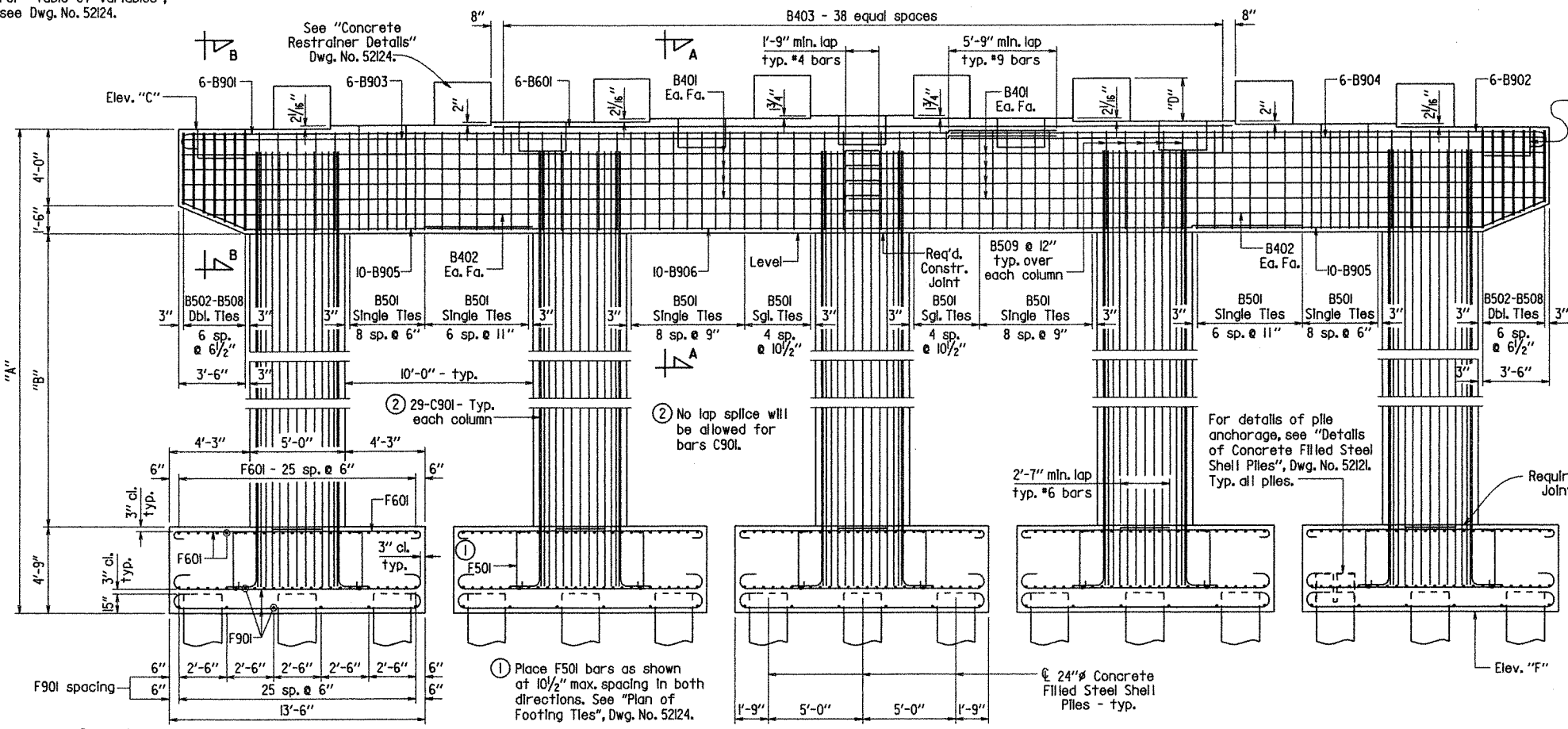


**PLAN**  
Scale: 1/4" = 1'-0"

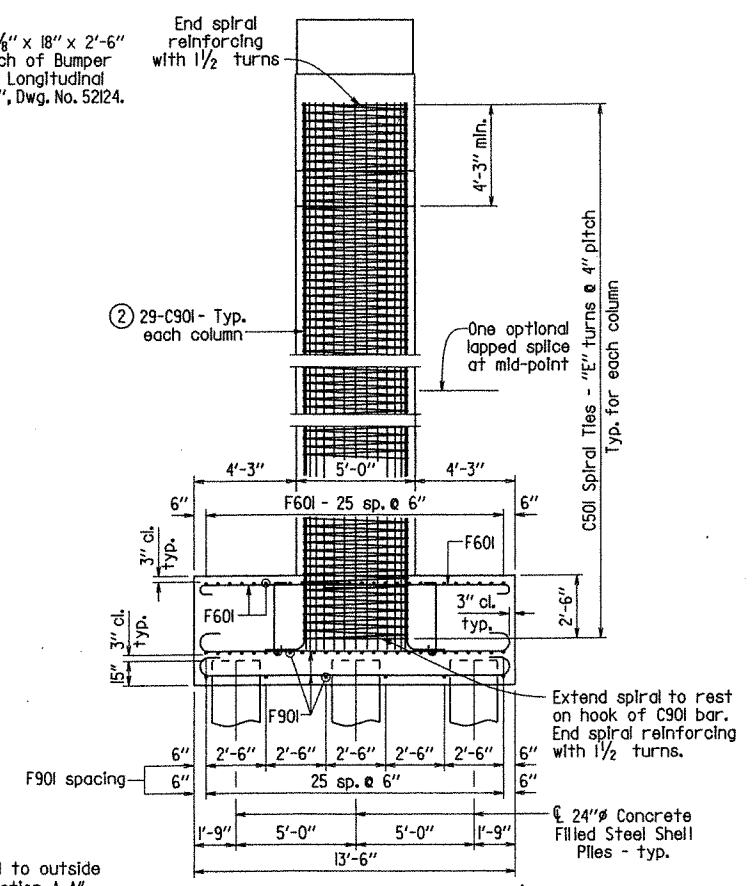


**TYP. ANCHOR BOLT LAYOUT**

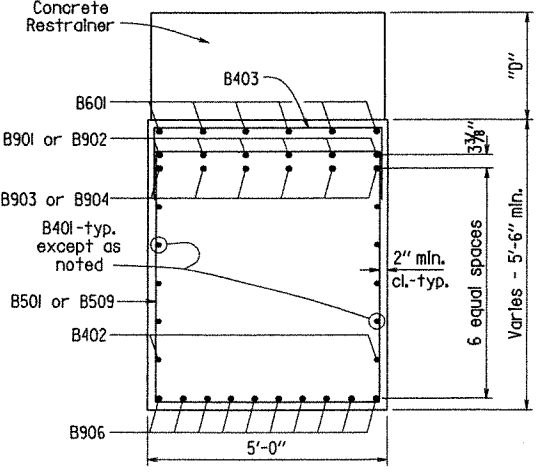
For "Table of Variables", see Dwg. No. 52124.



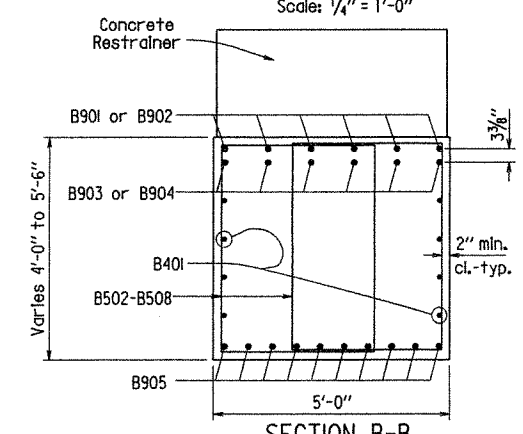
**ELEVATION**  
Scale: 1/4" = 1'-0"



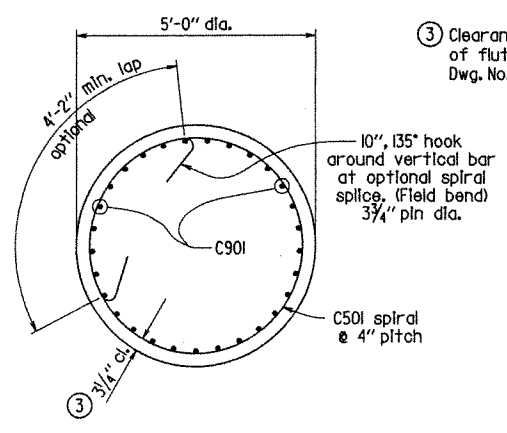
**END VIEW**  
Scale: 1/4" = 1'-0"



**SECTION A-A**  
Scale: 1/2" = 1'-0"

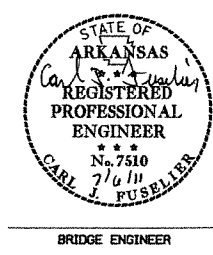


**SECTION B-B**  
Scale: 1/2" = 1'-0"



**TYP. SECTION THRU COLUMN**  
Scale: 1/2" = 1'-0"

③ Clearance is measured to outside of fluted rib, see "Section A-A", Dwg. No. 52127.

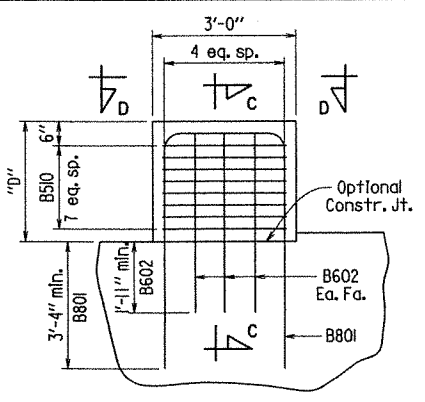


SHEET 1 OF 2  
DETAILS OF BENTS  
2, 3, 5, 6, 8 & 9

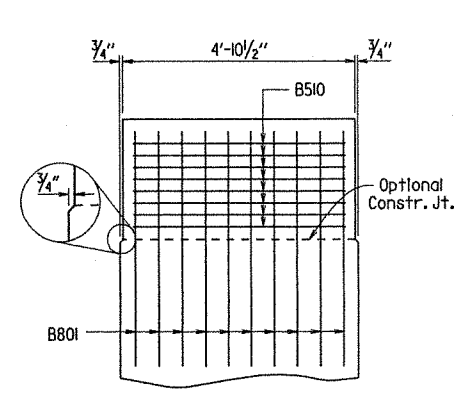
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 5-17-11 FILENAME: b100705\_b2.dgn  
CHECKED BY: RBR DATE: 7/6/11 SCALE: AS NOTED  
DESIGNED BY: DHP DATE: 10/17/10  
BRIDGE NO. 07204 DRAWING NO. 52123

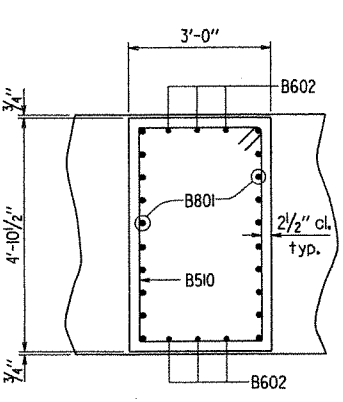
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100705	32	31
				① 07204		INT. BENTS		52124



**CONCRETE RESTRAINER DETAILS**  
Scale: 1/2" = 1'-0"



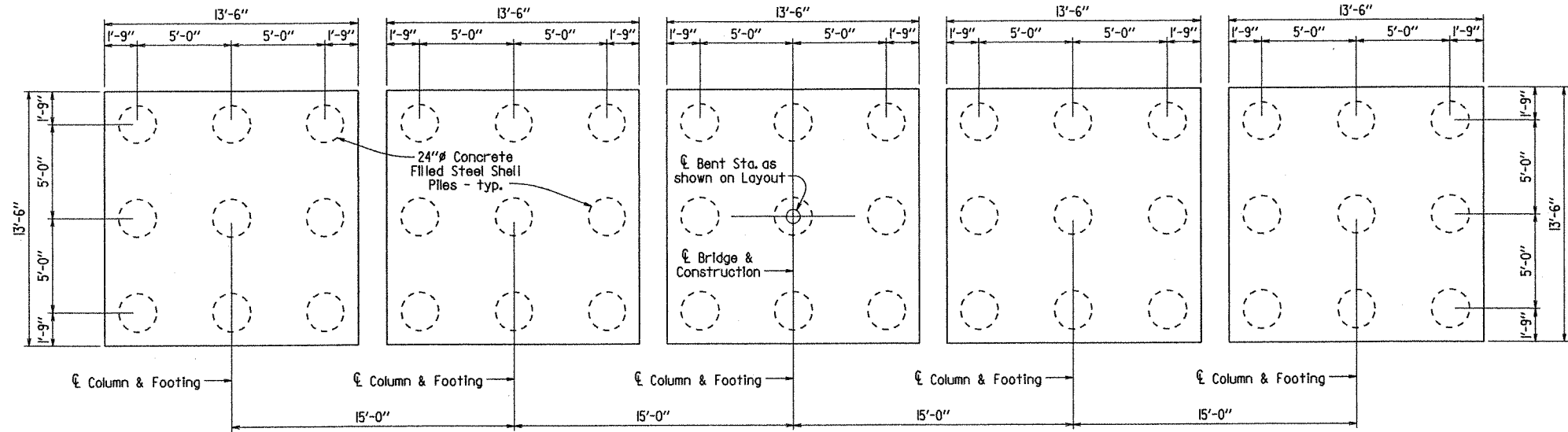
**SECTION C-C**  
Scale: 1/2" = 1'-0"



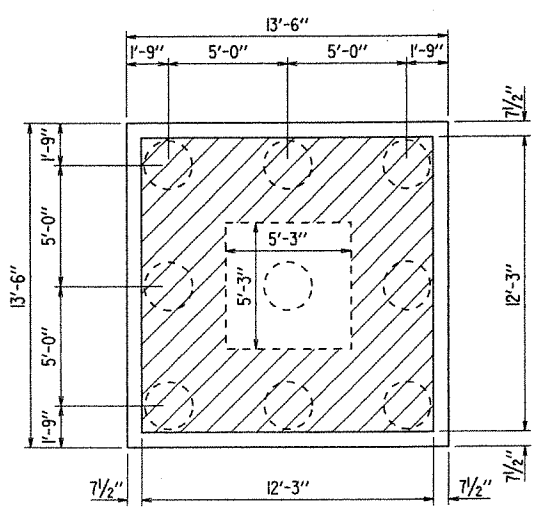
**VIEW D-D**  
Scale: 1/2" = 1'-0"

**TABLE OF VARIABLES**

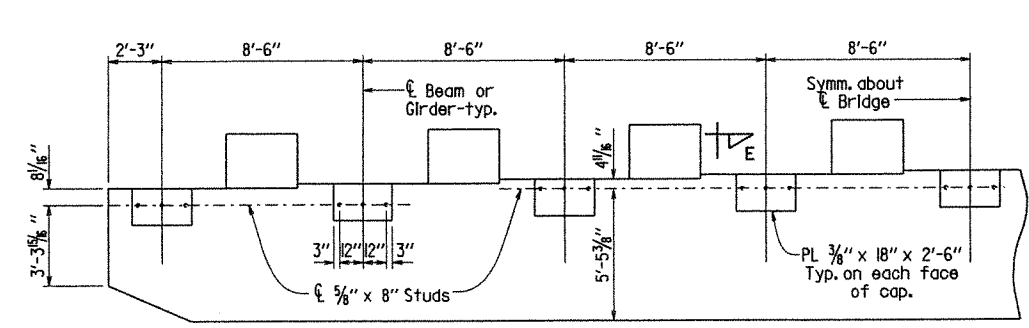
	BENT 2	BENT 3	BENT 5	BENT 6	BENT 8	BENT 9
"A"	18'-0"	25'-9"	35'-3"	34'-3"	25'-9"	18'-0"
"B"	7'-9"	15'-6"	25'-0"	24'-0"	15'-6"	7'-9"
Elev. "C"	266.98	274.95	282.31	282.08	274.97	267.07
"D"	2'-3"	2'-3"	2'-6"	2'-6"	2'-3"	2'-3"
"E"	44	67	96	93	67	44
Elev. "F"	248.98	246.20	247.06	247.83	249.22	249.07
"G"	652'-11"	971'-5"	1372'-11"	1331'-5"	971'-5"	652'-11"
"H"	15'-2"	22'-11"	32'-5"	31'-5"	22'-11"	15'-2"
"J"	16'-6"	24'-3"	33'-10"	32'-10"	24'-3"	16'-6"
"M"	14 3/4"	15 1/4"	18 1/2"	18"	15 1/4"	14 3/4"



**PLAN OF FOOTINGS**  
Scale: 1/4" = 1'-0"



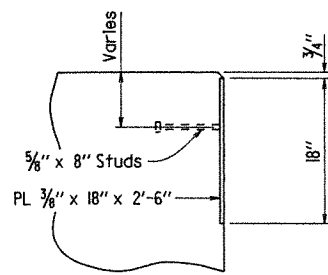
**PLAN OF FOOTING TIES**  
Scale: 1/4" = 1'-0"



**SKETCH OF BUMPER PLATES AT LONGITUDINAL RESTRAINERS**  
Scale: 1/4" = 1'-0"

**NOTE:**  
The surfaces of the 3/8" plates which will not be in contact with the concrete shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M270, Gr. 50W)" or "Structural Steel in Plate Girder Spans (M270, Gr. 50W)". The color of the paint shall be light brown matching Fed. Std. 595B Color Chip 30475.

Studs and plates shall meet the requirements of Section 807 and shall be measured and paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)" or "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".



**SECTION E-E**  
Scale: 1" = 1'-0"

**BAR LIST - PER BENT**

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B401	16	37'-0"	Str.	<p>Dimensions are out to out of bars.</p>
B402	4	35'-8"	Str.	
B403	39	7'-2"	2"	
B501	56	20'-2"	2 1/2"	
B502-B508	4 each	Var. 14'-3" to 17'-0"	2 1/2"	
B509	25	14'-10"	2 1/2"	
B510	64	14'-9"	3 3/4"	
C501	5	"G"	Spiral	
F501	1000	3'-11"	3 3/4"	
B601	6	39'-2"	Str.	
B602	48	4'-3"	Str.	
F601	520	8'-7"	4 1/2"	
B801	80	13'-4"	6"	
B901	6	47'-9"	9"	
B902	6	32'-9"	9"	
B903	6	46'-6"	Str.	
B904	6	31'-6"	Str.	
B905	20	18'-11"	9"	
B906	10	46'-6"	Str.	
C901	145	"J"	9"	
F901	320	15'-6"	9"	

**INTERMEDIATE BENT NOTES**

All concrete in cap, column & footing shall be Class "S" with a minimum 28 day compressive strength, f'c = 3,500 psi. Class "S" concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted. All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (yield strength = 60,000 psi).

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

For additional information see layout.

**NOTES FOR SPIRAL REINFORCING**

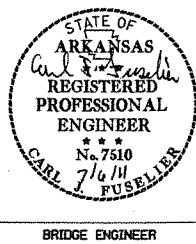
Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M31 or M53 (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum diameter of 0.625".

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

Contractor may elect to use a different number of spiral lapped splices per column. In no case shall a spiral be lapped within the top or bottom 1/4th of the column height.

Splices in spiral reinforcement shall be lapped a minimum of 80 bar diameters.

Spiral reinforcement at lapped splices shall be terminated by a 135° hook with a 10" fall around a vertical bar. Hook may be field bent. Ends of spirals not lapped shall be terminated with 1 1/2 turns and a 135° hook with a 10" fall around a vertical bar.



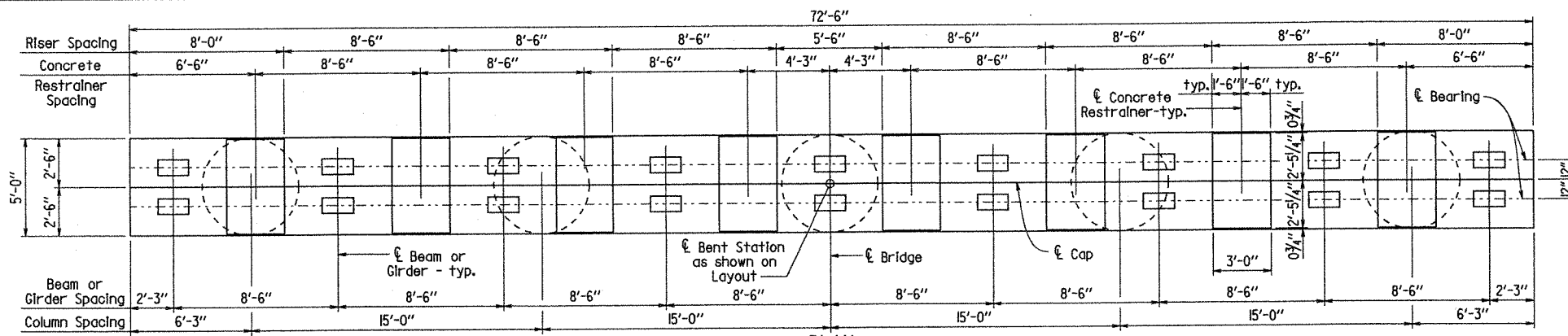
**SHEET 2 OF 2**  
**DETAILS OF BENTS**  
2, 3, 5, 6, 8 & 9

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

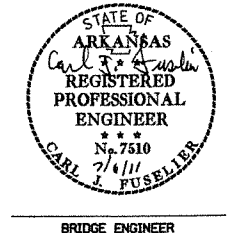
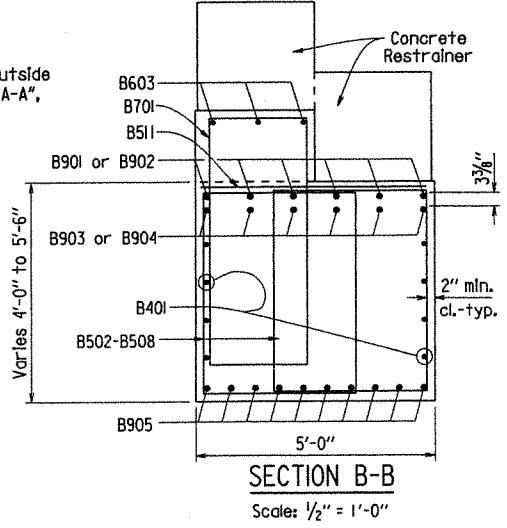
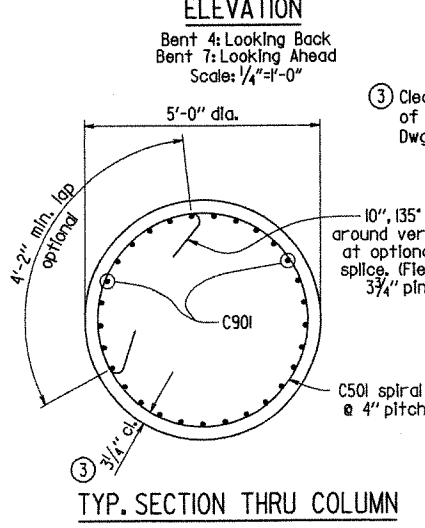
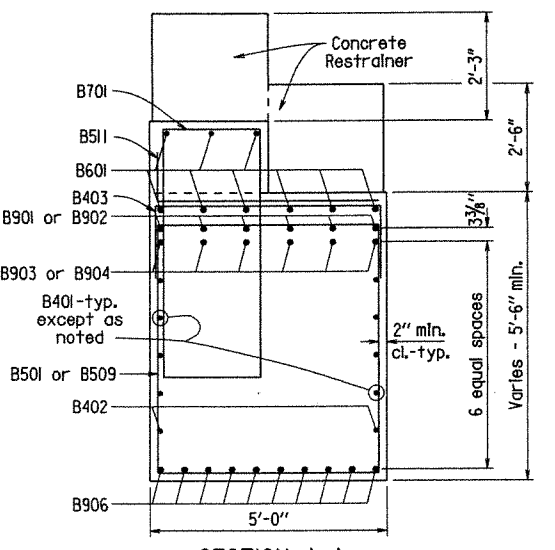
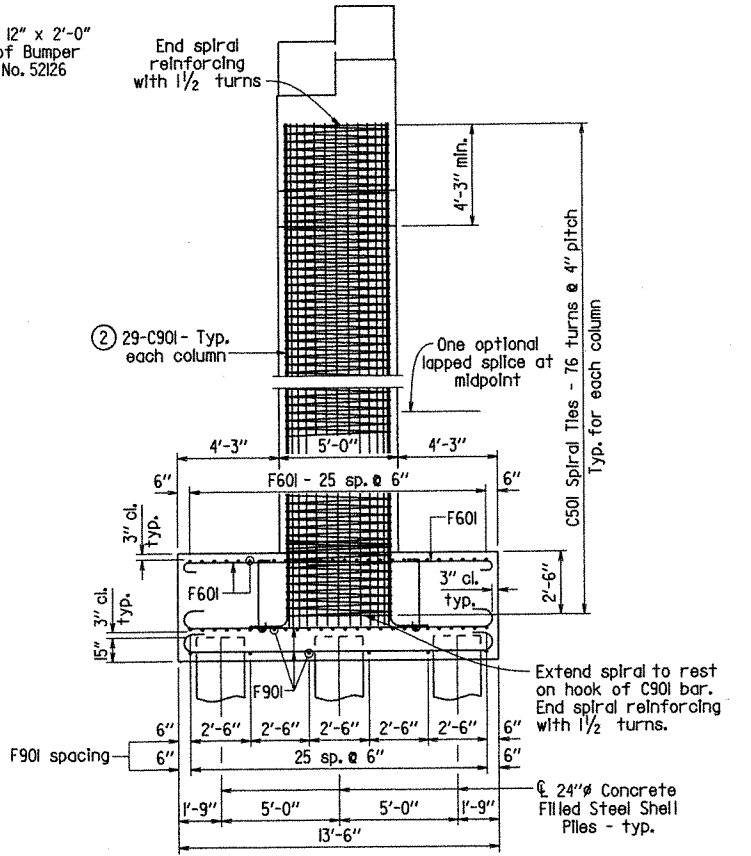
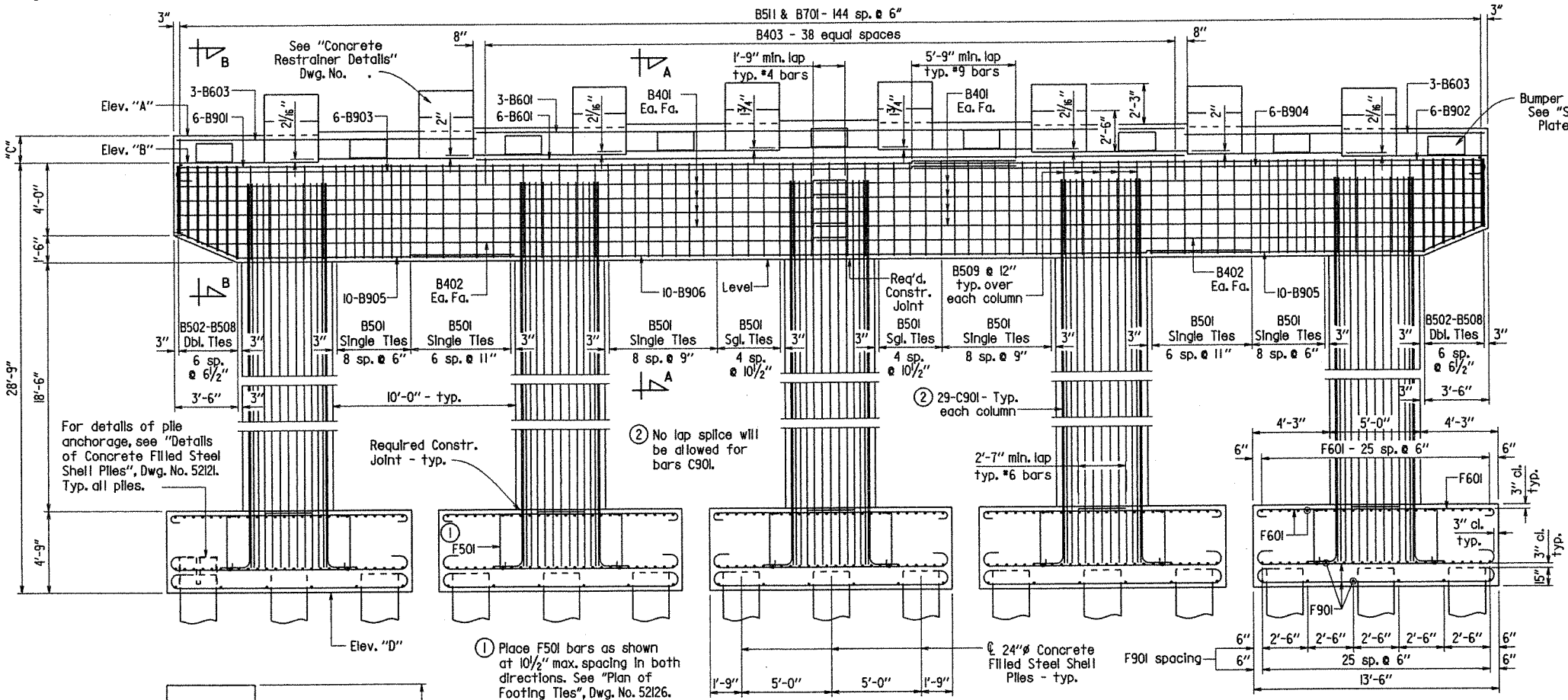
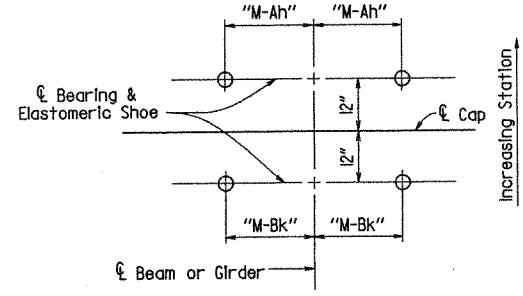
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CHECKED BY: RBR DATE: 7/6/11 SCALE:  
DESIGNED BY: DHP DATE: 10/7/10

BRIDGE NO. 07204 DRAWING NO. 52124

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.		100705	33	91
				07204		INT. BENTS		52125



For "Table of Variables", see Dwg. No. 52126.



For Variable Table see Dwg. No. 52126.

**SHEET 1 OF 2**  
**DETAILS OF BENTS 4 & 7**

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

DRAWN BY: RBR DATE: 5-19-11 FILENAME: b100705\_b4.dgn  
 CHECKED BY: DHP DATE: 7/6/11 SCALE: AS NOTED  
 DESIGNED BY: DHP DATE: 10/7/10  
 BRIDGE NO. 07204 DRAWING NO. 52125



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.		100705	34	91
				07204	INT. BENTS			52126

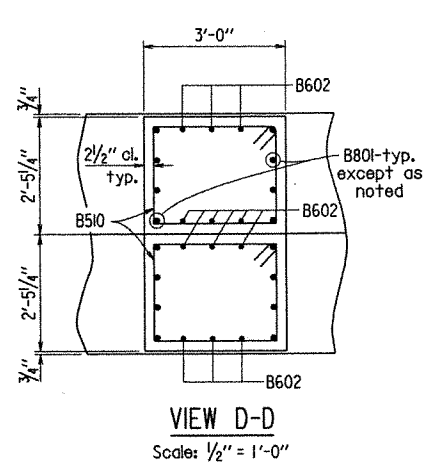
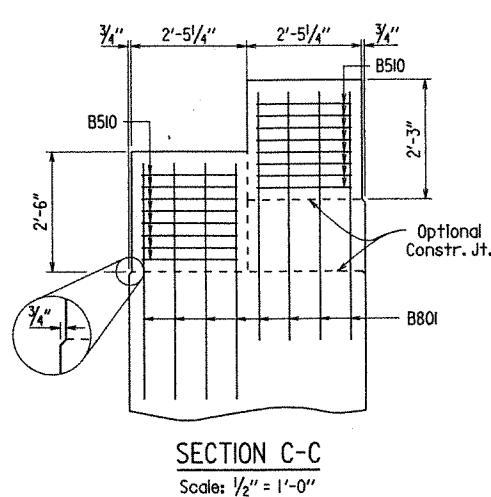
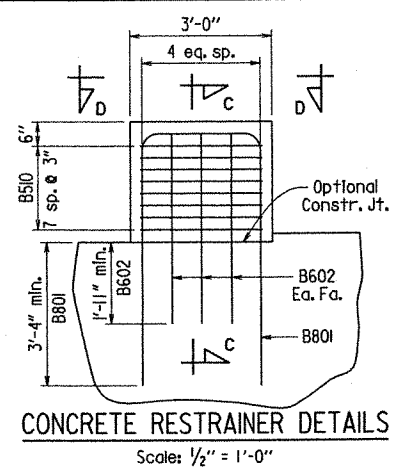
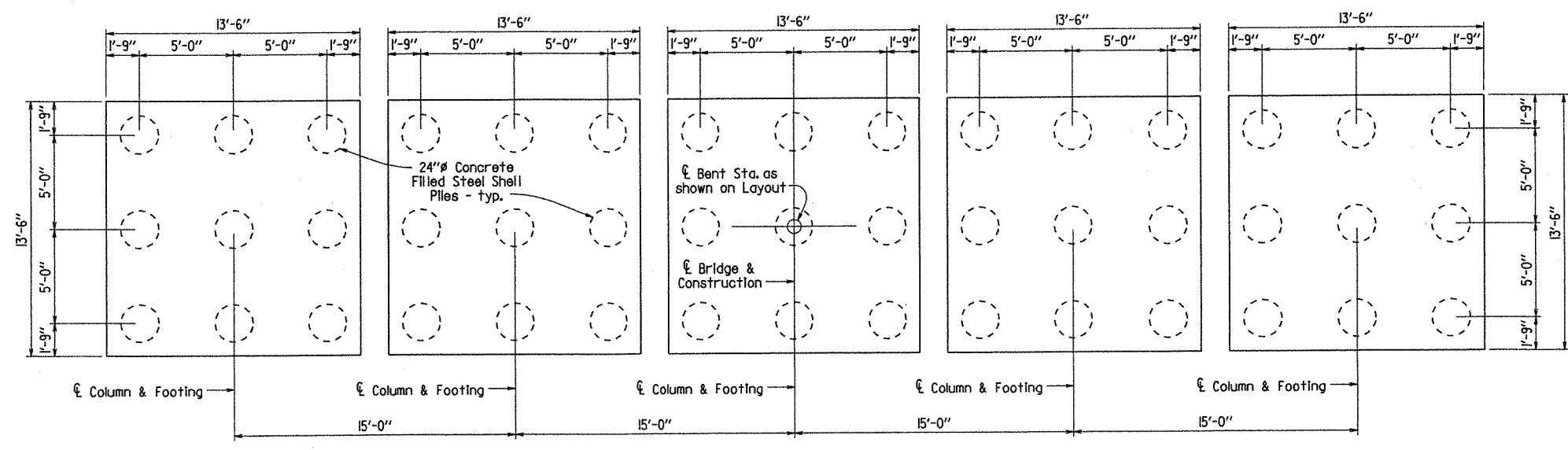
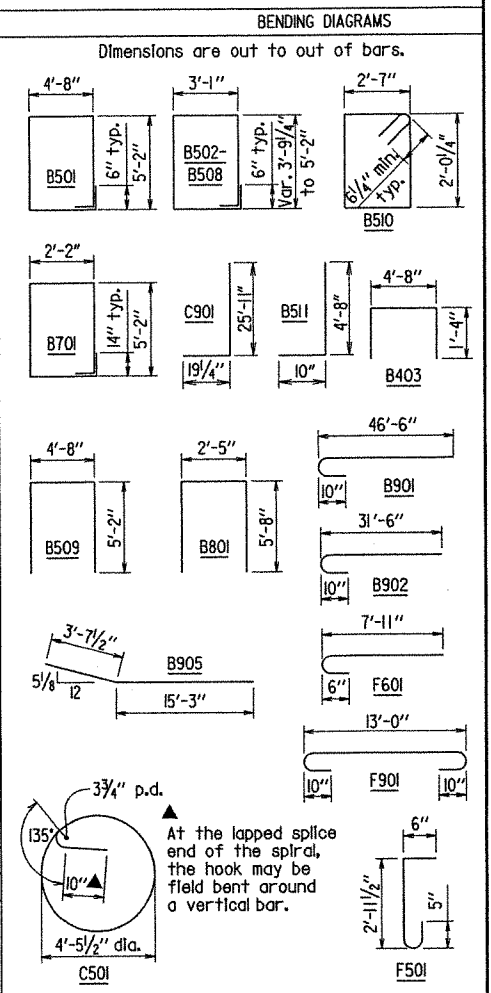


TABLE OF VARIABLES

	BENT 4	BENT 7
Elev. "A"	279.67	279.68
Elev. "B"	278.19	277.95
"C"	1'-5 3/4"	1'-8 3/4"
Elev. "D"	249.44	249.20
"M-BK"	10 1/4"	12 3/4"
"M-AH"	12 1/2"	10 1/4"

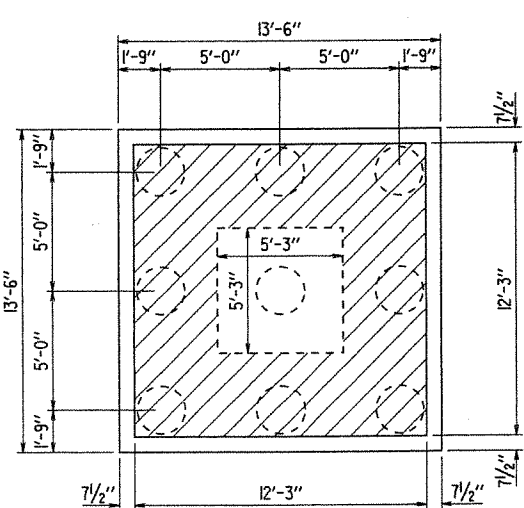
BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	16	37'-0"	Str.
B402	4	35'-8"	Str.
B403	39	7'-2"	2"
B501	56	20'-2"	2 1/2"
B502-B508	4 each	Var. 14'-3" to 17'-0"	2 1/2"
B509	25	14'-10"	2 1/2"
B510	128	9'-11"	3 3/4"
B511	145	5'-5"	3 3/4"
C501	5	1096'-0"	Spiral
F501	1000	3'-11"	3 3/4"
B601	9	39'-2"	Str.
B602	96	4'-3"	Str.
B603	6	16'-6"	Str.
F601	520	8'-7"	4 1/2"
B701	145	16'-1"	5 1/4"
B801	64	13'-4"	6"
B901	6	47'-9"	9"
B902	6	32'-9"	9"
B903	6	46'-6"	Str.
B904	6	31'-6"	Str.
B905	20	18'-11"	9"
B906	10	46'-6"	Str.
C901	145	27'-3"	9"
F901	320	15'-6"	9"



PLAN OF FOOTINGS

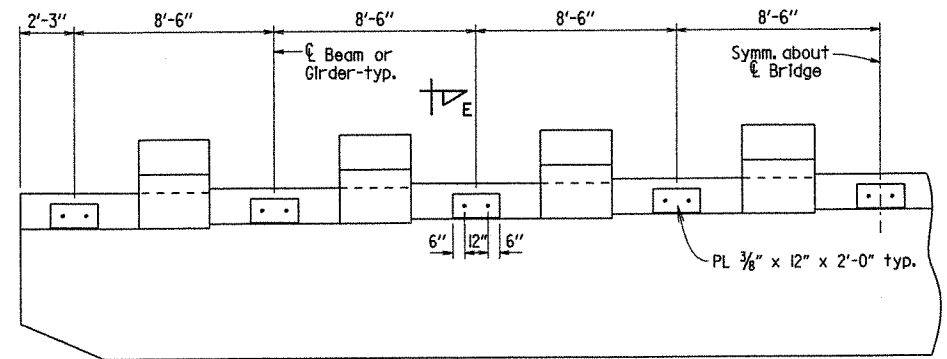
Scale: 1/4" = 1'-0"



Place F501 bars within hatched area at 10 1/2" max. spacing in both directions. F501 bars not needed in area of spiral reinforcing. Alternate hooks between top and bottom mat.

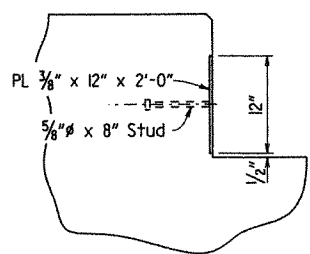
PLAN OF FOOTING TIES

Scale: 1/4" = 1'-0"



SKETCH OF BUMPER PLATES

Scale: 1/4" = 1'-0"



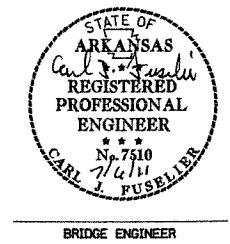
SECTION E-E

Scale: 1" = 1'-0"

NOTE:  
The surfaces of the 3/8" plates which will not be in contact with the concrete shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M270, Gr. 50W)" or "Structural Steel in Plate Girder Spans (M270, Gr. 50W)". The color of the paint shall be light brown matching Fed. Std. 595B Color Chip 30475.

Studs and plates shall meet the requirements of Section 807 and shall be measured and paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

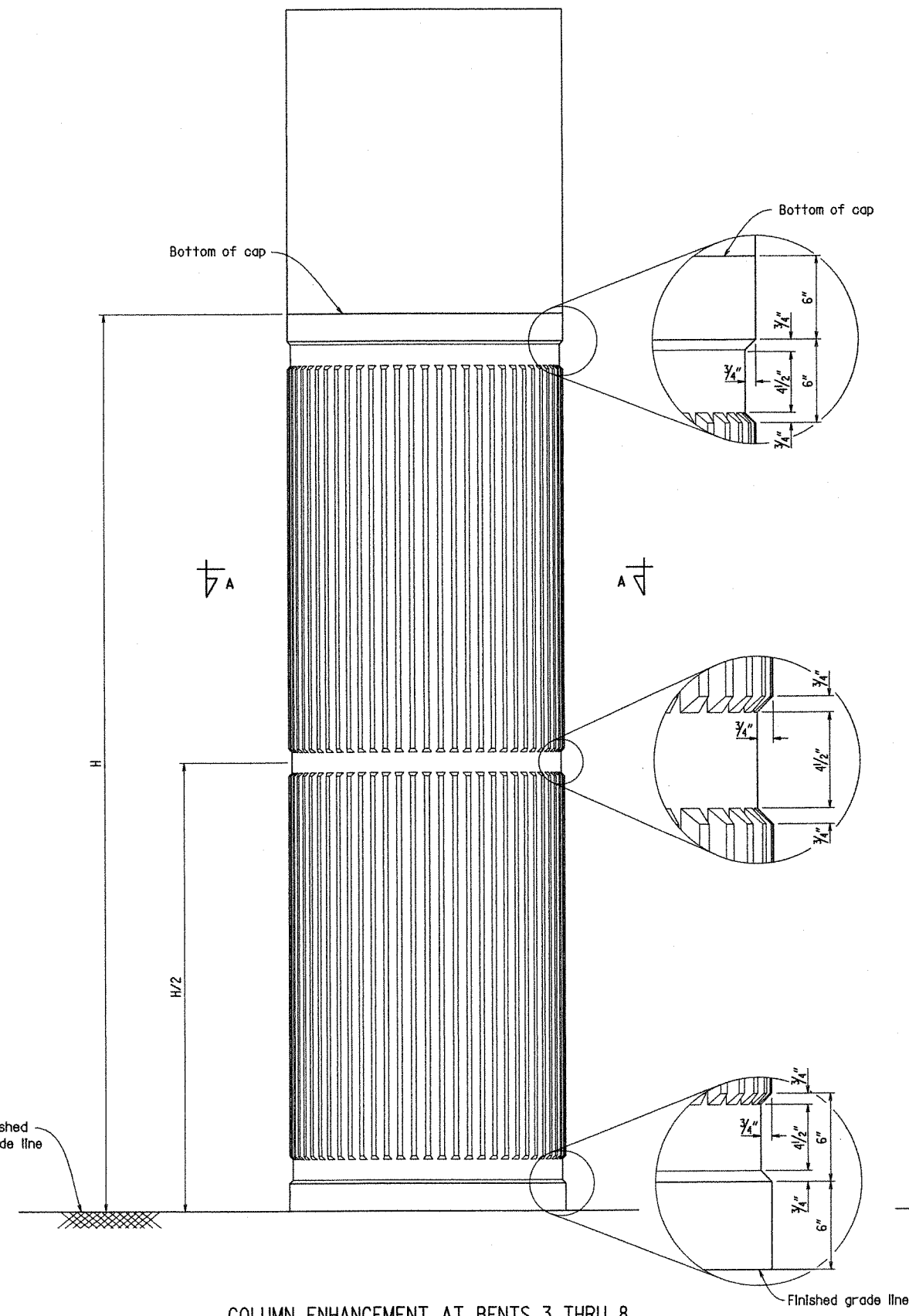
For intermediate bent notes, and spiral reinforcing notes see Dwg. No. 52124.



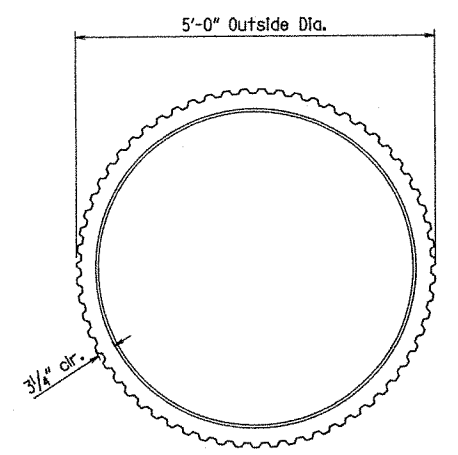
SHEET 2 OF 2  
DETAILS OF BENTS 4 & 7

ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: KDH DATE: 6/10/2011 FILENAME: b100705-b4.dgn  
CHECKED BY: DHP DATE: 7/6/11 SCALE:  
DESIGNED BY: DHP DATE: 10/7/10  
BRIDGE NO. 07204 DRAWING NO. 52126

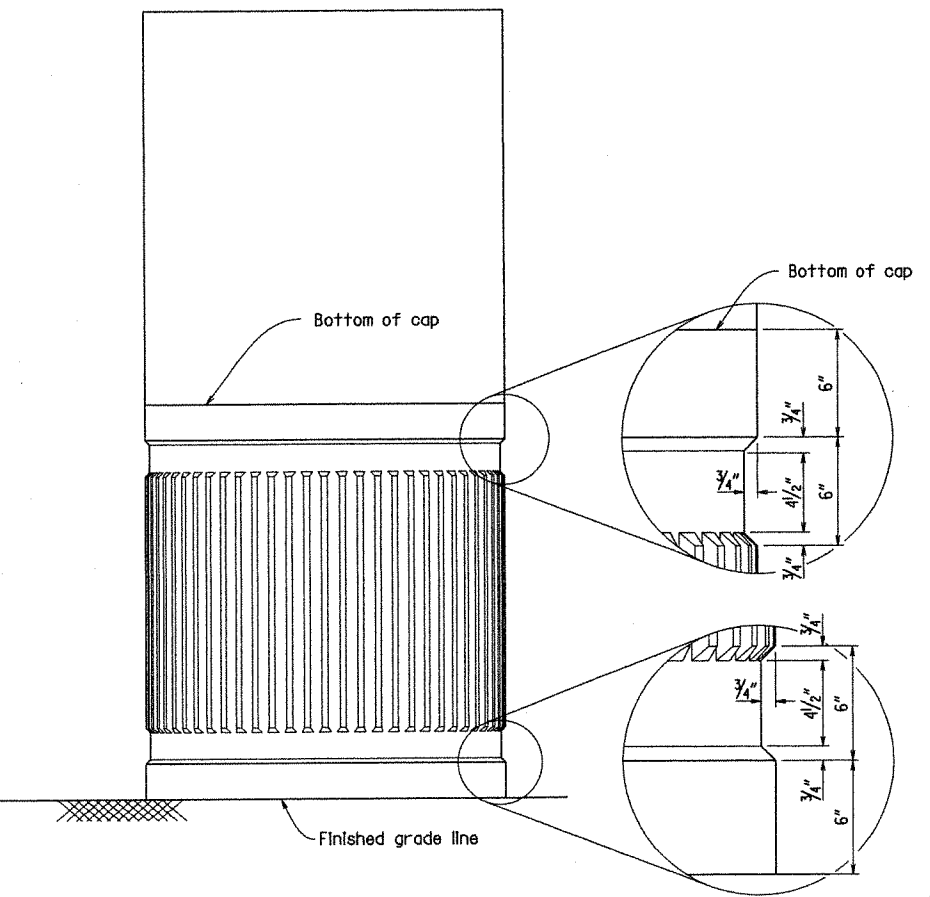
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	100705	35	91	
				07204	BENT ENHANCEMENT	52127		



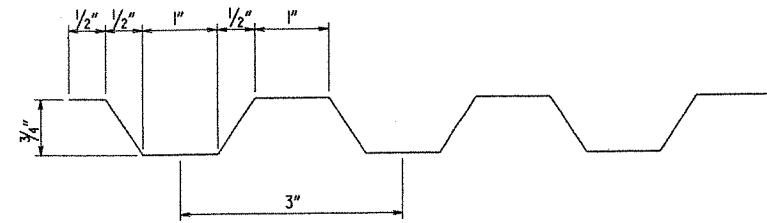
**COLUMN ENHANCEMENT AT BENTS 3 THRU 8**  
Scale: 3/4" = 1'-0"



**SECTION A-A**  
Scale: 3/4" = 1'-0"



**COLUMN ENHANCEMENT AT BENT 2 OR 9**  
Scale: 3/4" = 1'-0"



**DETAIL OF PANEL FORM**  
No Scale

**General Notes:**

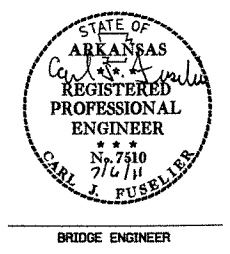
Bent enhancement shall be applied to the exposed surfaces of all intermediate bents in accordance with Special Provision "Architectural Finish" and as shown in the plans. Care shall be taken with form liner handling and installation to insure aesthetic quality of the bent textures maintained. Care shall be taken to vibrate concrete sufficiently to ensure no voids occur within panel form.

Where form liner panels require modification to conform to the location, dimensions and lines shown in the plans the Contractor shall provide edge relief matching that of the unaltered form liner. Payment for bent enhancement shall be in accordance with Special Provision "Architectural Finish".

No adjustments will be made in concrete volume due to the use of "Architectural Finish". Class "S" Concrete shall be measured in accordance with subsection 802.24(a). Care shall be taken in placing concrete to avoid segregation and to eliminate flow lines.

Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision "Textured Coating Finish" and in accordance with subsection 802.19(b)(3).

For details and dimensions not shown, see Dwg. Nos. 52123 thru 52126.



**DETAILS OF BENT ENHANCEMENT**

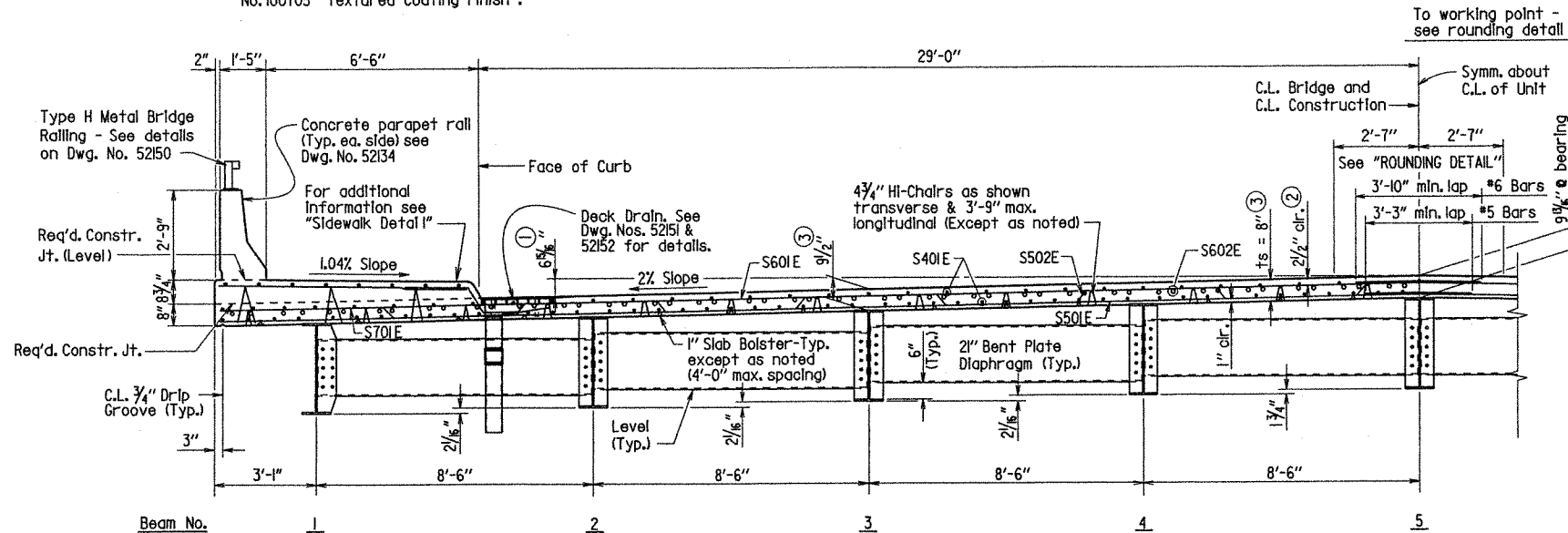
ROUTE \_\_\_\_\_ SEC. \_\_\_\_\_  
**ARKANSAS STATE HIGHWAY COMMISSION**  
 LITTLE ROCK, ARK.

DRAWN BY: RBR DATE: 6/3/2011 FILENAME: bi00705\_benh.dgn  
 CHECKED BY: ASL DATE: July 6, 2011 SCALE: As Shown  
 DESIGNED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 BRIDGE NO. 07204 DRAWING NO. 52127

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.		100705	36	91
				①	07204	SPAN DETAILS		52128

NOTE: Class I Protective Surface Treatment shall be applied to the Roadway Surface, Face of Curb and Sidewalk Surface. Class 3 Textured Coating Finish shall be applied to areas as specified in Special Provision Job No. 100705 "Textured Coating Finish".

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



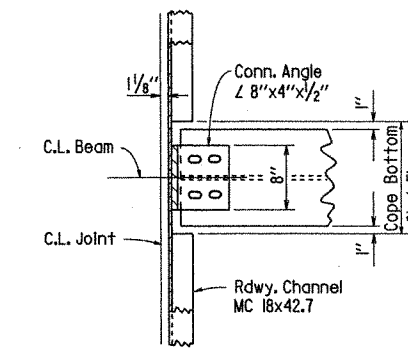
TYPICAL ROADWAY SECTION (LOOKING AHEAD) Scale: 3/8" = 1'-0"

EXPANSION DEVICE:  
Rdwy. Channel MC 18x42.7  
Conn. L's 8" X 4" X 1/2"  
Detail Device 1/8" high and provide 1/4" shims using 2 - 1/8" PL's and 1 - 1/8" PL

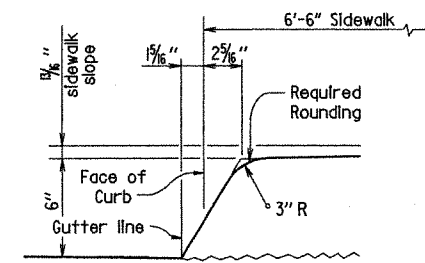
SLAB REINFORCING:  
Longitudinal: S401E in top (Place as shown)  
S401E in bottom (Place as shown)  
S602E centered over Int. Supports and placed as shown  
Transverse: S502E @ 15" o.c. bent up over beams  
S601E @ 15" o.c. in top  
S501E @ 15" o.c. in bottom  
S701E @ 15" o.c. in top (See "Detail A" on Dwg. 52132)

SIWALK REINFORCING:  
Longitudinal: K401E in top (placed as shown)  
Transverse: K402E & K403E @ 15" o.c.

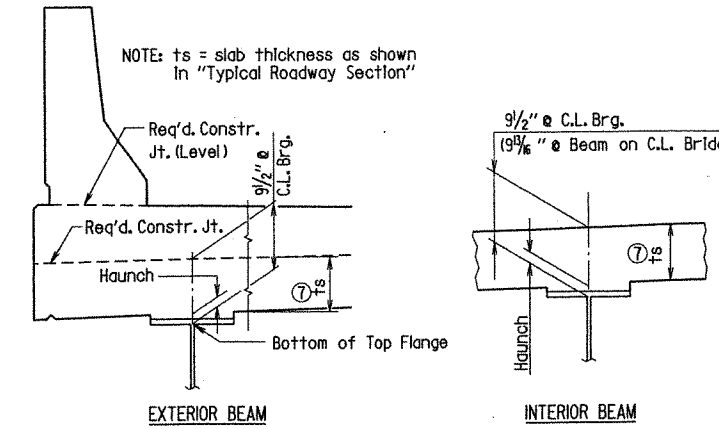
- Working point to gutter line, see "Rounding Detail"
- Tolerance: Minus = 1/4"  
Plus = Amount of slab thickening used to meet slab thickness requirement. See "Adjustment for Slab Thickness Tolerance".
- See "Adjustment for Slab Thickness Tolerance".



CHANNEL CONNECTION DETAILS No Scale



SIWALK CURB DETAIL No Scale



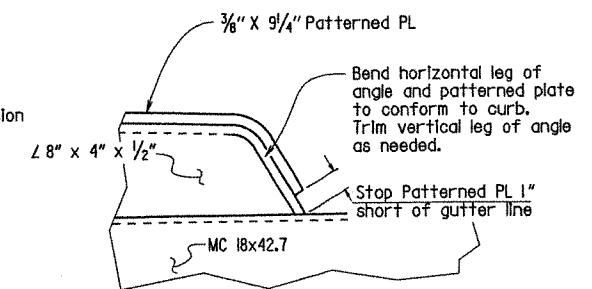
NOTE: ts = slab thickness as shown in "Typical Roadway Section"

⑦ Tolerance when removable deck forming is used is  $1/2"$  -  $1/4"$ . Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

NOTES:

Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum - occurs when top flange contacts bottom reinforcing steel; Maximum - top flange thickness plus  $1 3/4"$ . No increase in concrete and structural steel quantities will be made to maintain tolerances. Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 14991 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

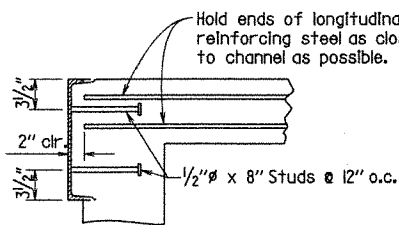


SIWALK JOINT ARMOR DETAIL No Scale

TABLE FOR WELDS

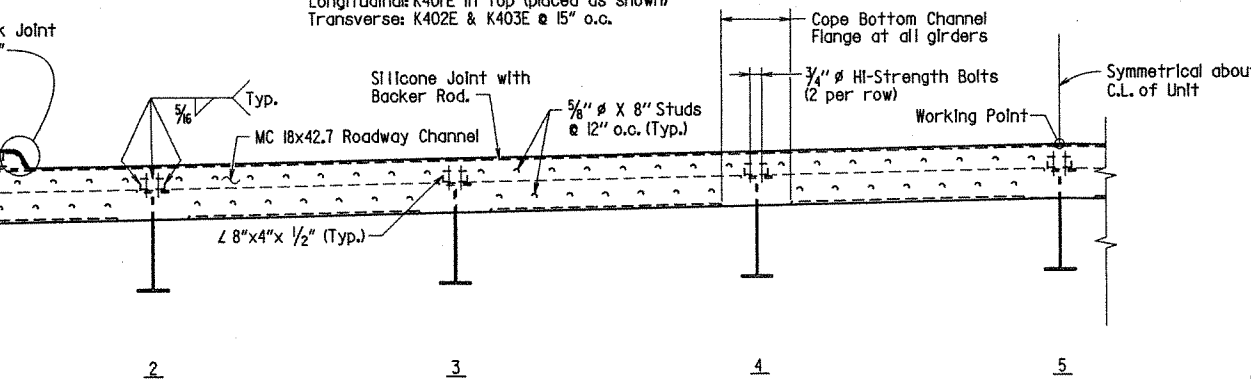
Material Thickness Of Thicker Part Joined (Inches)	Minimum Size Of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To 3/4" Inclusive	1/4"	
Over 3/4"	5/16"	

NOTE: 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.



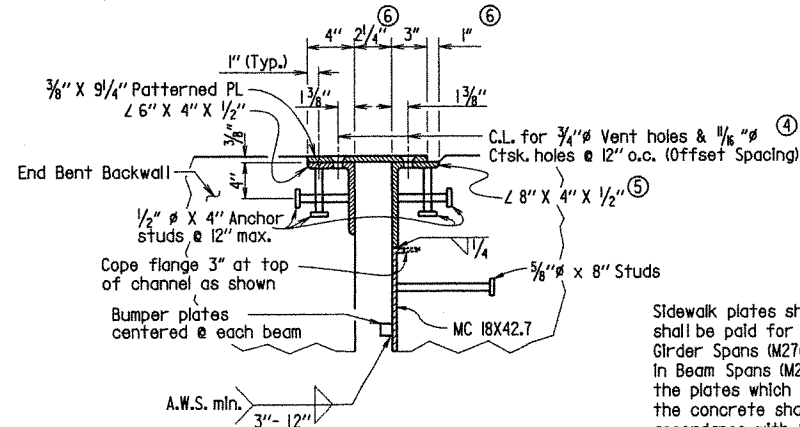
NOTE: As an alternate to 5/8" studs, 1/2" x 8" studs spaced as shown may be used. Use weight of 5/8" stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS No Scale



TYPICAL SECTION THRU JOINT (LOOKING AHEAD BENT 1 & LOOKING BACK BENT 10)

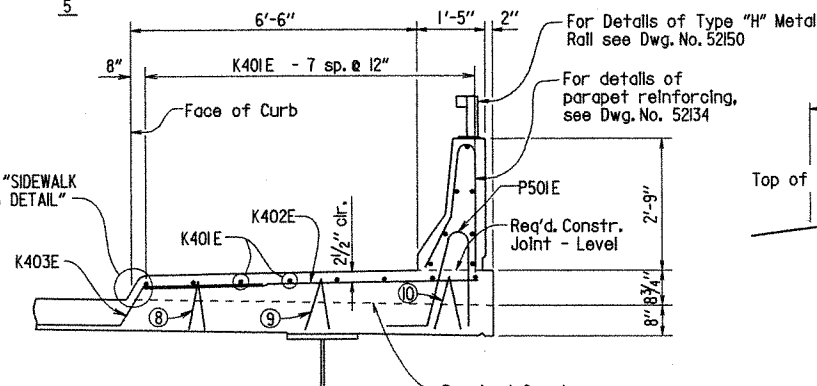
NOTE: For Details of Poured Silicone Joint, see Dwg. No. 52135.



SECTION A-A 1/2" = 1'-0"

NOTE: Concrete shall be hand packed under the joint armor in the sidewalk. For expansion joint detail see "Detail of Poured Silicone Joint Seal" Dwg. No. 52135

Sidewalk plates shall be AASHTO M270, Gr. 36 and shall be paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)" or "Structural Steel in Beam Spans (M270, 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 Beam Spans (M270, Gr. 50W)". The color shall be light brown, color chip no. 30475.

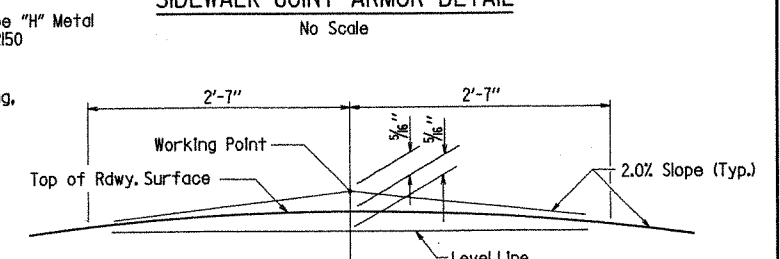


SIWALK DETAIL Scale: 1/2" = 1'-0"

- 1 1/4" Max. HI-chairs at 3'-9" longitudinally
- 1 3/4" Max. HI-chairs at 3'-9" longitudinally
- 1 3/2" Max. HI-chairs at 3'-9" longitudinally



BRIDGE ENGINEER



ROUNDING DETAIL NO SCALE

SHEET 1 OF 8  
DETAILS OF 285'-0" CONTINUOUS COMPOSITE W-BEAM UNIT  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

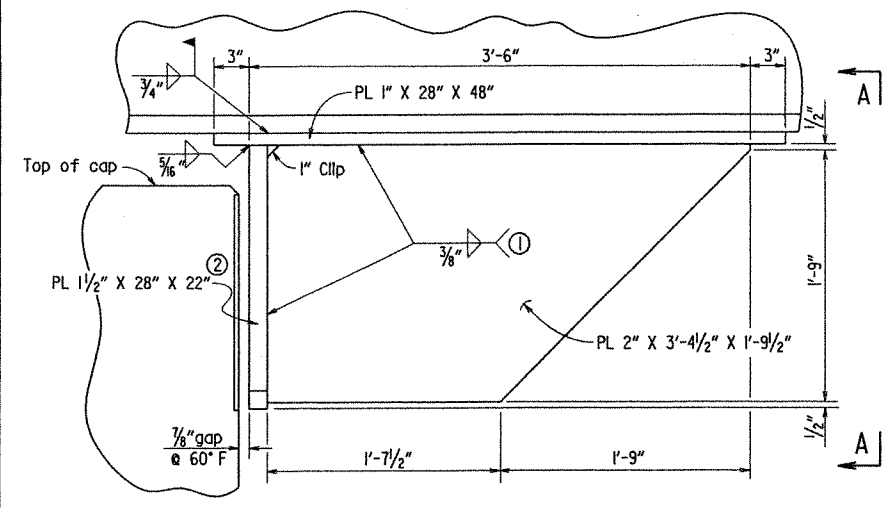
DRAWN BY: MRE DATE: 10/18/10 FILENAME: b100705\_sl.dgn  
CHECKED BY: RBR DATE: 7/6/11 SCALE: 3/8" = 1'-0" or as shown  
DESIGNED BY: DHP DATE: 10/7/10  
BRIDGE NO. 07204 DRAWING NO. 52128





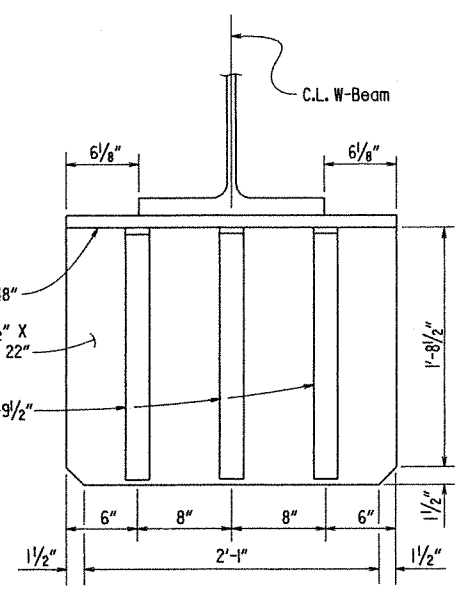
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100705	<b>38</b>	<b>91</b>
				① 07204	SPAN DETAILS			52130

NOTE: Weld longitudinal restrainer after deck has been poured.

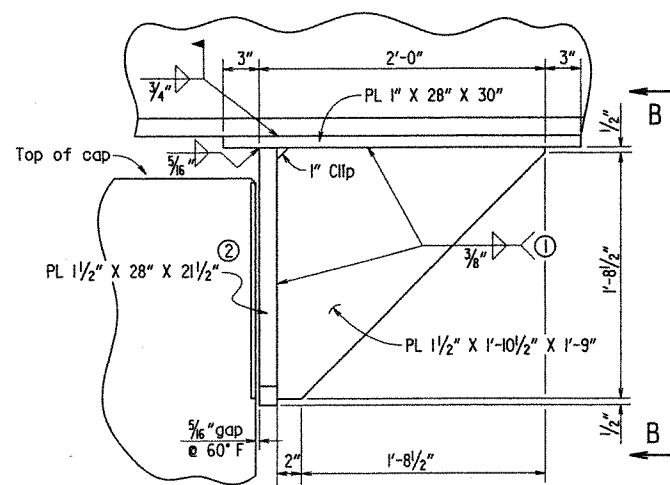


LONGITUDINAL RESTRAINER DETAILS - BENTS 2 & 9  
No Scale

- ① Stop weld 1/2" from clip
- ② Longitudinal restrainer shall be fabricated to account for grade so as the final position of this plate will be vertical.

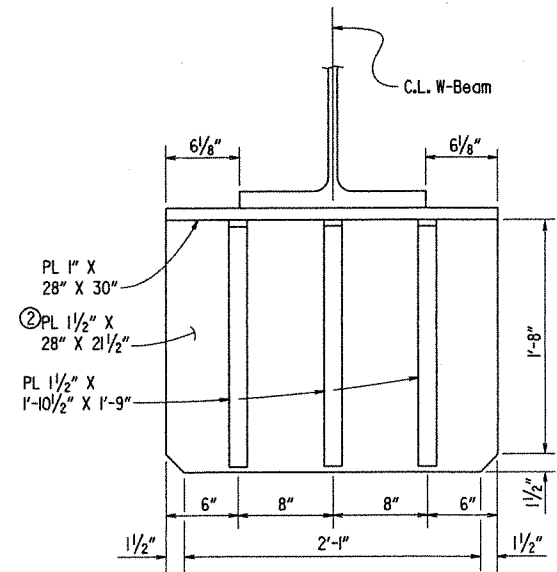


VIEW A-A

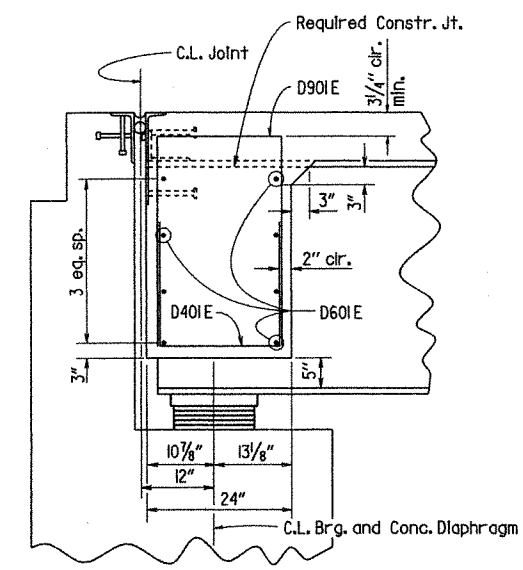


LONGITUDINAL RESTRAINER DETAILS - BENTS 3 & 8  
No Scale

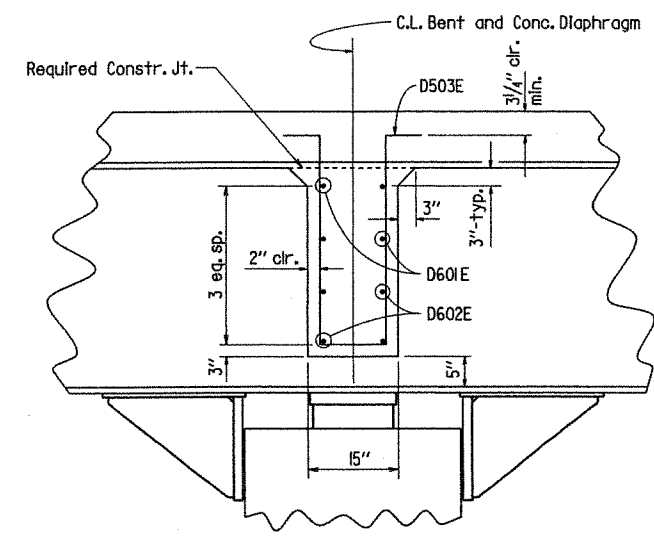
- ① Stop weld 1/2" from clip



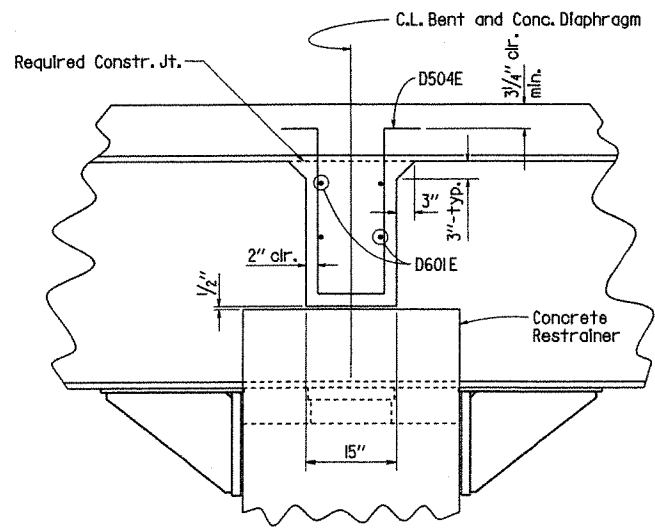
VIEW B-B  
No Scale



SECTION B-B  
Scale: 3/4" = 1'-0"

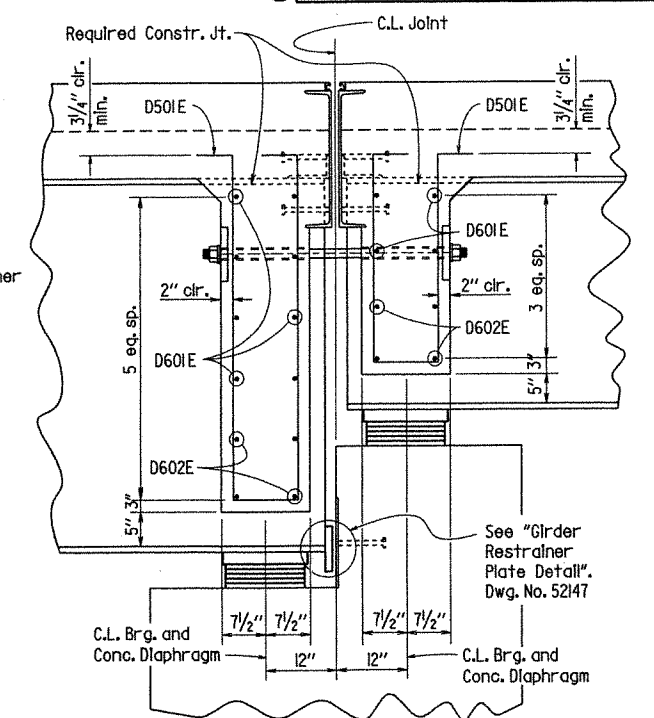


SECTION E-E  
Scale: 3/4" = 1'-0"

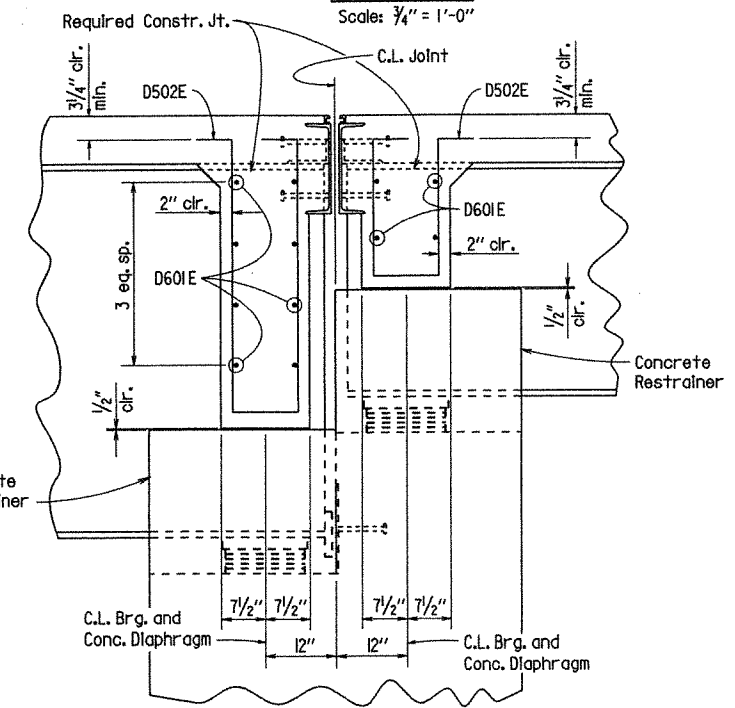


SECTION F-F  
Scale: 3/4" = 1'-0"

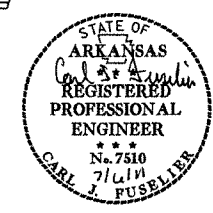
For details of Restrainer Rod, see Dwg. No. 52137



SECTION C-C  
Scale: 3/4" = 1'-0"



SECTION D-D  
Scale: 3/4" = 1'-0"

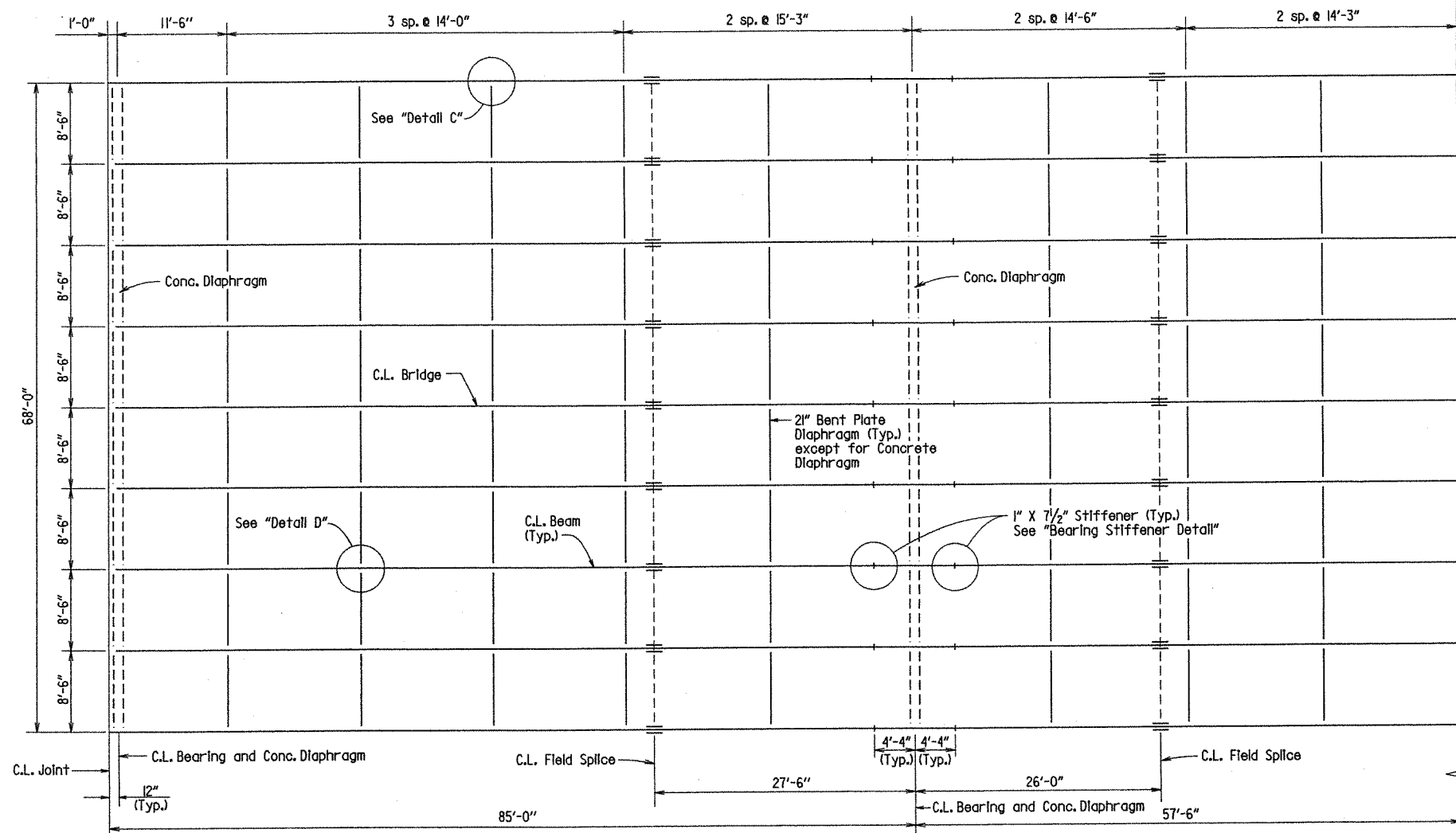


BRIDGE ENGINEER

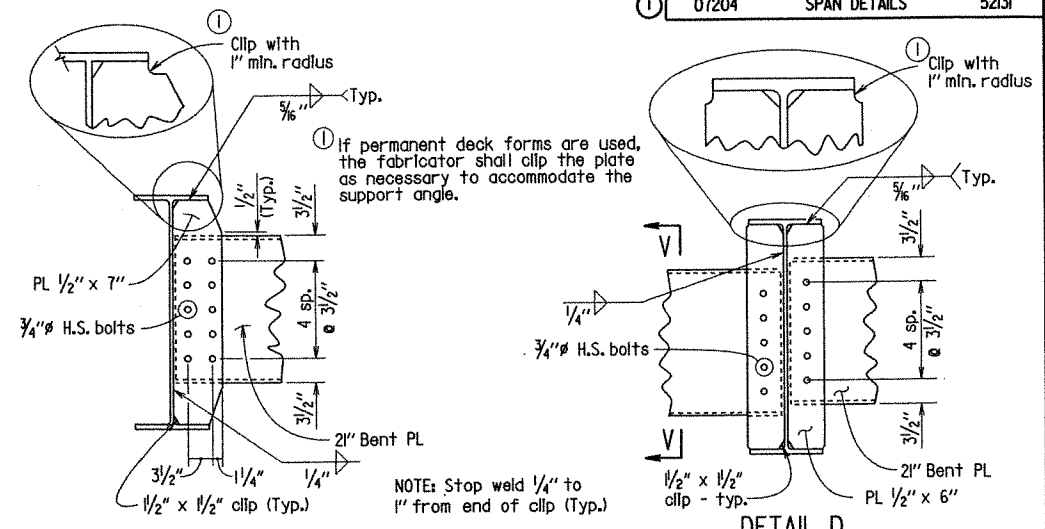
SHEET 3 OF 8  
DETAILS OF 285'-0" CONTINUOUS  
COMPOSITE W-BEAM UNIT  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 02/15/11 FILENAME: bl00705\_sl.dgn  
CHECKED BY: RBR DATE: 7/6/11 SCALE: 3/8" = 1'-0" or as shown  
DESIGNED BY: DHP DATE: 10/7/10  
BRIDGE NO. 07204 DRAWING NO. 52130

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.	100705	39	91	
				07204	SPAN DETAILS	52131		

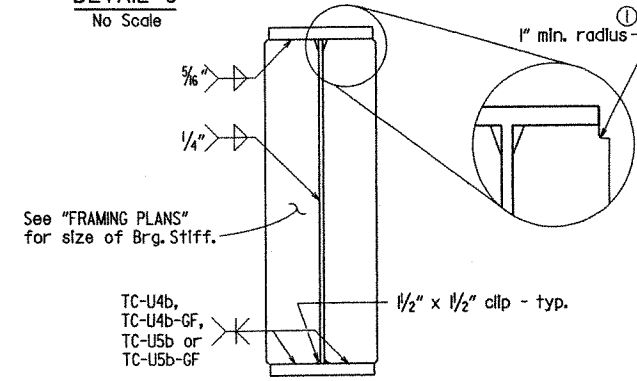


**FRAMING PLAN**  
Scale: 1/8" = 1'-0"

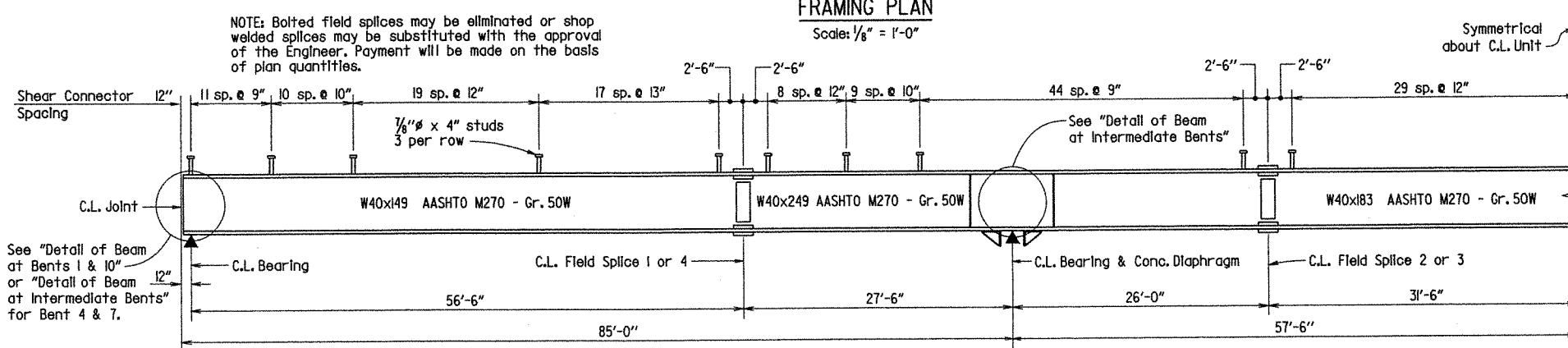


**DETAIL C**  
No Scale

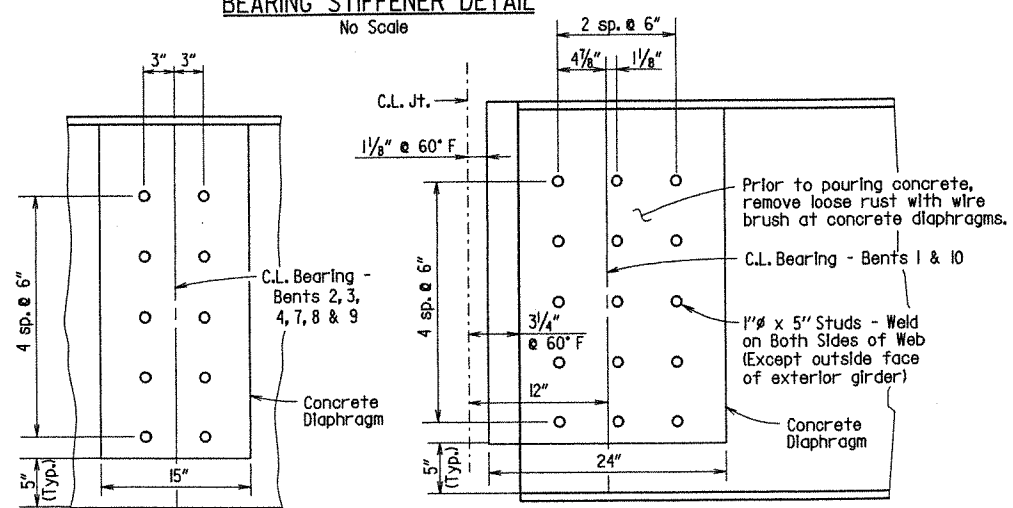
**DETAIL D**  
No Scale



**BEARING STIFFENER DETAIL**  
No Scale

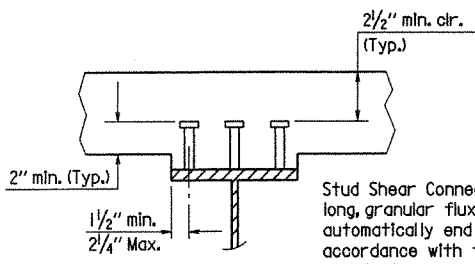


**TYPICAL BEAM ELEVATION**  
Scale: 1/8" = 1'-0"

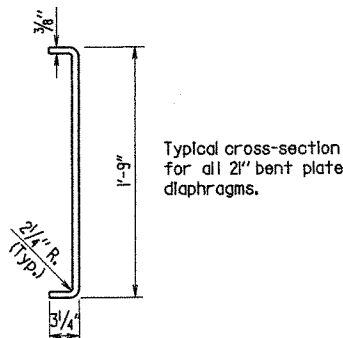


**DETAIL OF BEAM AT INTERMEDIATE BENTS**  
No Scale

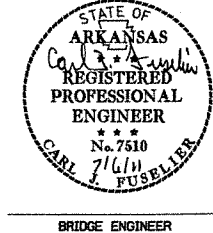
**DETAIL OF BEAM AT BENTS 1 & 10**  
No Scale



**SHEAR CONNECTOR DETAIL**  
No Scale



**SECTION V-V**  
No Scale



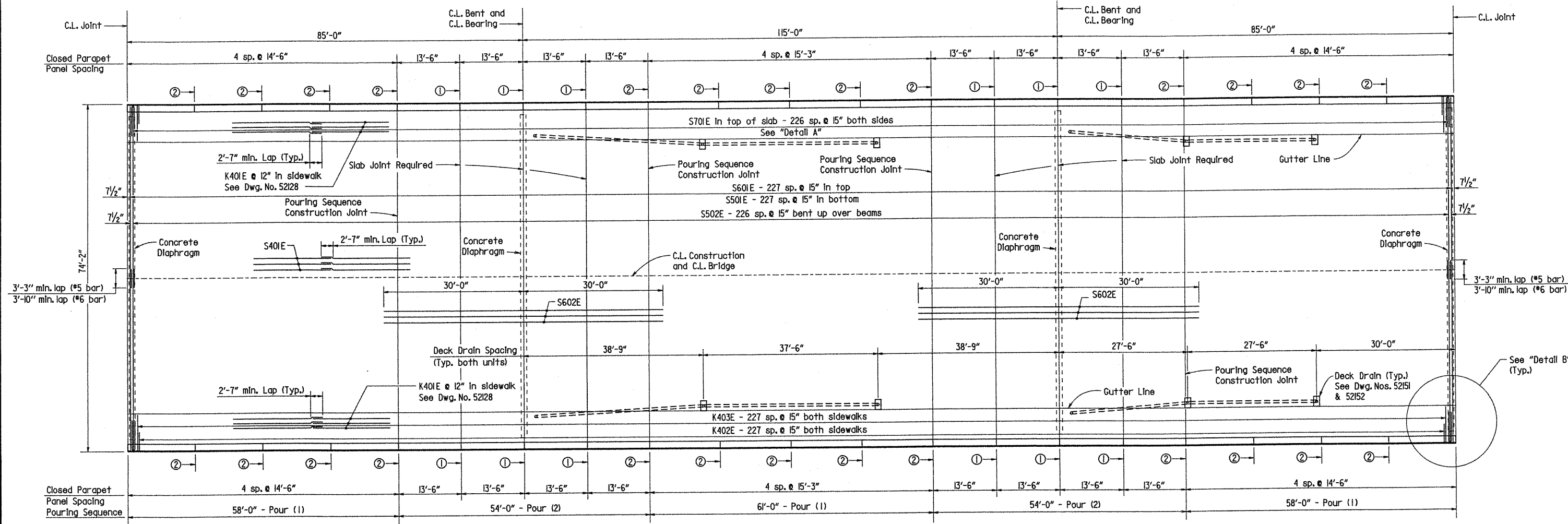
BRIDGE ENGINEER

**SHEET 4 OF 8**  
**DETAILS OF 285'-0" CONTINUOUS COMPOSITE W-BEAM UNIT**  
ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 10/20/10 FILENAME: b100705\_sl.dgn  
CHECKED BY: RBR DATE: 7/6/11 SCALE: 1/8" = 1'-0" or as shown  
DESIGNED BY: DHP DATE: 10/7/10  
BRIDGE NO. 07204 DRAWING NO. 52131

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.		100705	10	91
				07204		SPAN DETAILS		52132

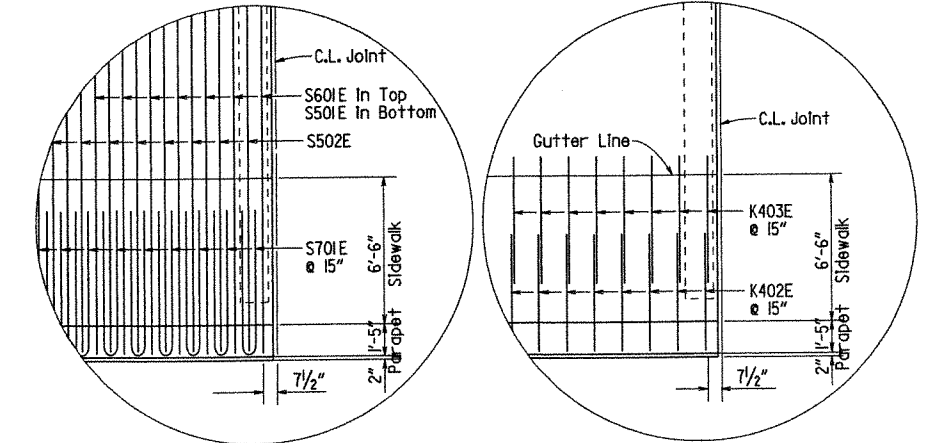
- ① C.L. Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab.
- ② C.L. Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab.



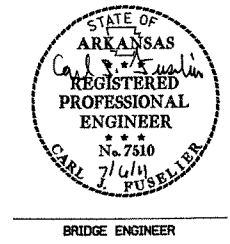
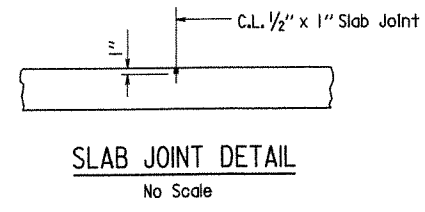
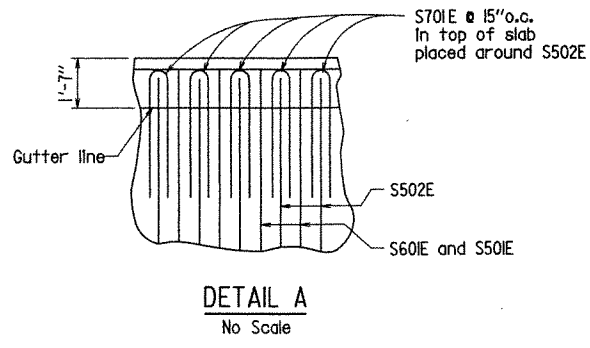
**REINFORCING PLAN & DECK POURING SEQUENCE**  
 1/8" = 1'-0"

NOTE: 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 completion of the sidewalk and the pouring of the parapet railing. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequences shown.

Use Type 3, 4, or 6 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.



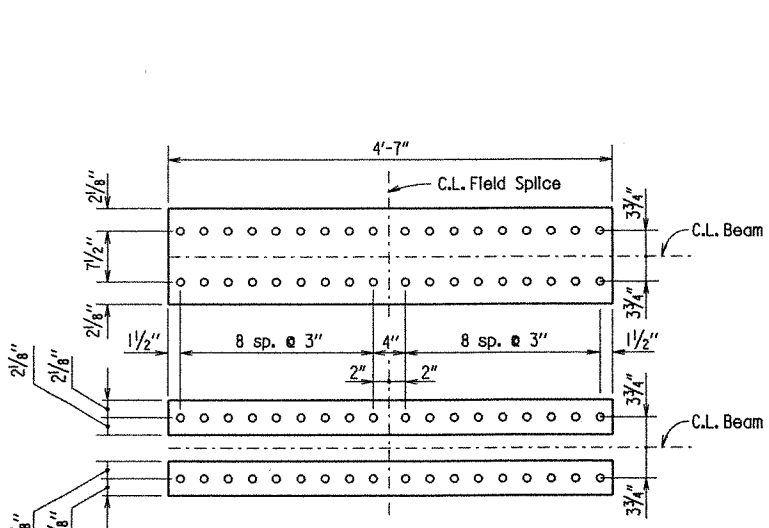
SLAB REINFORCING  
 SIDEWALK REINFORCING  
 DETAIL B  
 No Scale



**SHEET 5 OF 8**  
 DETAILS OF 285'-0" CONTINUOUS COMPOSITE W-BEAM UNIT  
 ROUTE SEC.  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.  
 DRAWN BY: MRE DATE: 10/21/10 FILENAME: b100705.sl.dgn  
 CHECKED BY: RBR DATE: 7/5/11 SCALE: 1/8" = 1'-0" or as noted  
 DESIGNED BY: DHP DATE: 10/7/10  
 BRIDGE NO. 07204 DRAWING NO. 52132

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

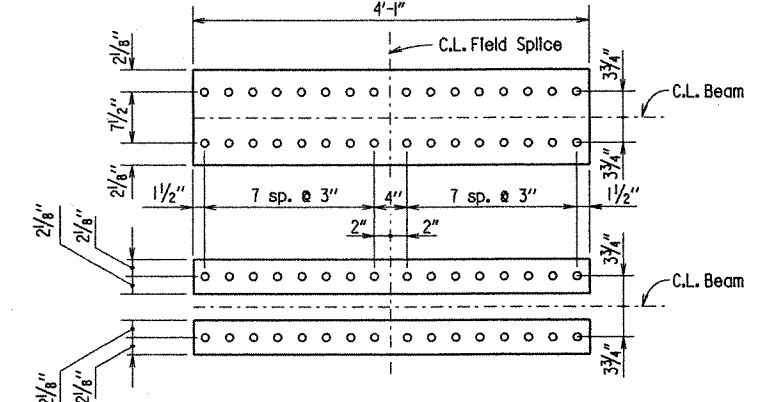
SPAN	BEAM NO.	BEAM 1 OR 9			BEAM 2 OR 8			BEAM 3 OR 7			BEAM 4 OR 6			BEAM 5		
		Point of Deflection	Structural Steel	Structural Steel + Slab	Structural Steel + Slab + Parapet	Structural Steel	Structural Steel + Slab	Structural Steel + Slab + Parapet	Structural Steel	Structural Steel + Slab	Structural Steel + Slab + Parapet	Structural Steel	Structural Steel + Slab	Structural Steel + Slab + Parapet	Structural Steel	Structural Steel + Slab
SPAN 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	0.000	0.000	0.000
	0.1	0.069	0.417	0.519	0.074	0.449	0.517	0.074	0.464	0.510	0.074	0.468	0.508	0.074	0.469	0.506
	0.2	0.120	0.734	0.916	0.130	0.791	0.911	0.130	0.816	0.898	0.130	0.825	0.893	0.130	0.826	0.891
	0.3	0.154	0.951	1.192	0.167	1.024	1.183	0.167	1.058	1.165	0.167	1.068	1.156	0.167	1.070	1.154
	0.4	0.161	1.008	1.267	0.174	1.087	1.256	0.174	1.123	1.236	0.174	1.134	1.227	0.174	1.135	1.224
	0.5	0.144	0.924	1.166	0.156	0.997	1.153	0.156	1.031	1.134	0.156	1.040	1.124	0.156	1.042	1.123
	0.6	0.108	0.724	0.916	0.117	0.783	0.905	0.117	0.809	0.888	0.117	0.817	0.881	0.117	0.818	0.880
	0.7	0.064	0.471	0.599	0.070	0.511	0.589	0.070	0.528	0.577	0.070	0.533	0.573	0.070	0.533	0.572
	0.8	0.021	0.214	0.274	0.024	0.235	0.269	0.024	0.243	0.262	0.024	0.245	0.261	0.024	0.245	0.261
	0.9	-0.001	0.054	0.071	0.000	0.061	0.068	0.000	0.064	0.067	0.000	0.064	0.066	0.000	0.064	0.066
SPAN 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	0.000	0.000	0.000
	0.1	0.075	0.265	0.350	0.078	0.280	0.341	0.078	0.287	0.332	0.078	0.290	0.327	0.078	0.291	0.325
	0.2	0.192	0.738	0.964	0.200	0.782	0.944	0.201	0.803	0.920	0.201	0.812	0.908	0.201	0.814	0.904
	0.3	0.316	1.261	1.637	0.331	1.337	1.606	0.331	1.374	1.568	0.331	1.389	1.547	0.331	1.392	1.540
	0.4	0.409	1.659	2.146	0.428	1.759	2.108	0.429	1.808	2.060	0.429	1.828	2.032	0.429	1.833	2.024
	0.5	0.443	1.805	2.332	0.464	1.914	2.292	0.464	1.968	2.241	0.464	1.990	2.211	0.464	1.995	2.202
	0.6	0.412	1.667	2.156	0.431	1.767	2.117	0.431	1.817	2.070	0.431	1.837	2.042	0.431	1.842	2.034
	0.7	0.325	1.294	1.678	0.340	1.372	1.646	0.340	1.409	1.607	0.340	1.425	1.586	0.340	1.428	1.579
	0.8	0.203	0.782	1.020	0.212	0.829	0.999	0.212	0.851	0.974	0.212	0.860	0.960	0.212	0.862	0.956
	0.9	0.081	0.289	0.382	0.084	0.306	0.372	0.084	0.313	0.362	0.084	0.317	0.357	0.084	0.318	0.355
SPAN 3	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	0.000	0.000	0.000
	0.1	-0.009	0.17	0.020	-0.009	0.021	0.020	-0.009	0.022	0.019	-0.009	0.022	0.020	-0.009	0.022	0.020
	0.2	0.016	0.195	0.250	0.019	0.214	0.244	0.019	0.222	0.239	0.019	0.224	0.238	0.019	0.224	0.238
	0.3	0.054	0.425	0.541	0.059	0.462	0.532	0.059	0.478	0.522	0.059	0.482	0.517	0.059	0.483	0.517
	0.4	0.101	0.697	0.883	0.111	0.755	0.873	0.111	0.780	0.856	0.111	0.787	0.849	0.111	0.788	0.848
	0.5	0.138	0.901	1.138	0.150	0.973	1.126	0.150	1.005	1.106	0.150	1.014	1.096	0.150	1.016	1.095
	0.6	0.157	0.997	1.255	0.170	1.075	1.243	0.170	1.111	1.223	0.170	1.121	1.213	0.170	1.123	1.211
	0.7	0.153	0.949	1.190	0.165	1.023	1.182	0.165	1.056	1.163	0.165	1.067	1.155	0.165	1.068	1.152
	0.8	0.122	0.747	0.934	0.131	0.805	0.928	0.131	0.831	0.915	0.131	0.839	0.908	0.131	0.841	0.907
	0.9	0.068	0.416	0.518	0.074	0.448	0.515	0.074	0.463	0.509	0.074	0.467	0.505	0.074	0.468	0.505



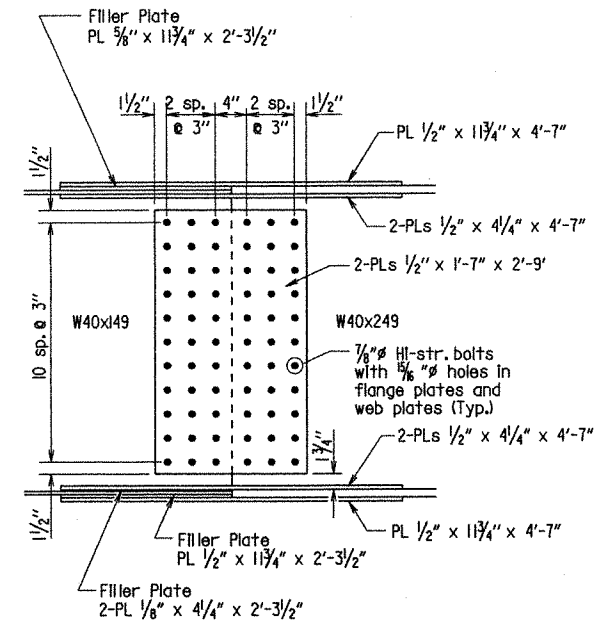
FLANGE SPLICE - FIELD SPLICES 1 & 4

All Field Splice Plates shall be AASHTO M270, Gr. 50W

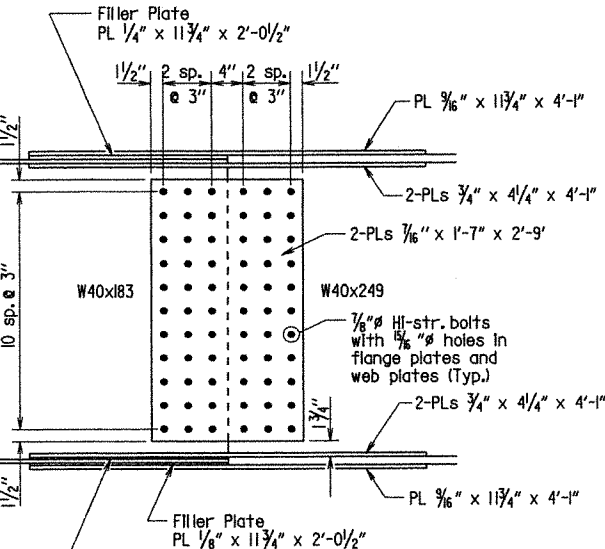
NOTE: Bolted Field Splices may be eliminated or Shop Welded Splices substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.



FLANGE SPLICE - FIELD SPLICES 2 & 3



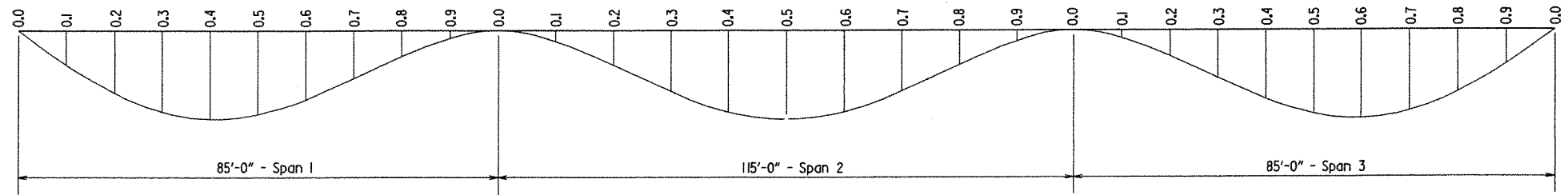
WEB SPLICE - FIELD SPLICES 1 & 4



WEB SPLICE - FIELD SPLICES 2 & 3

FIELD SPLICE - DETAILS

Scale: 1" = 1'-0"



DEAD LOAD DEFLECTION DIAGRAM

NO SCALE

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



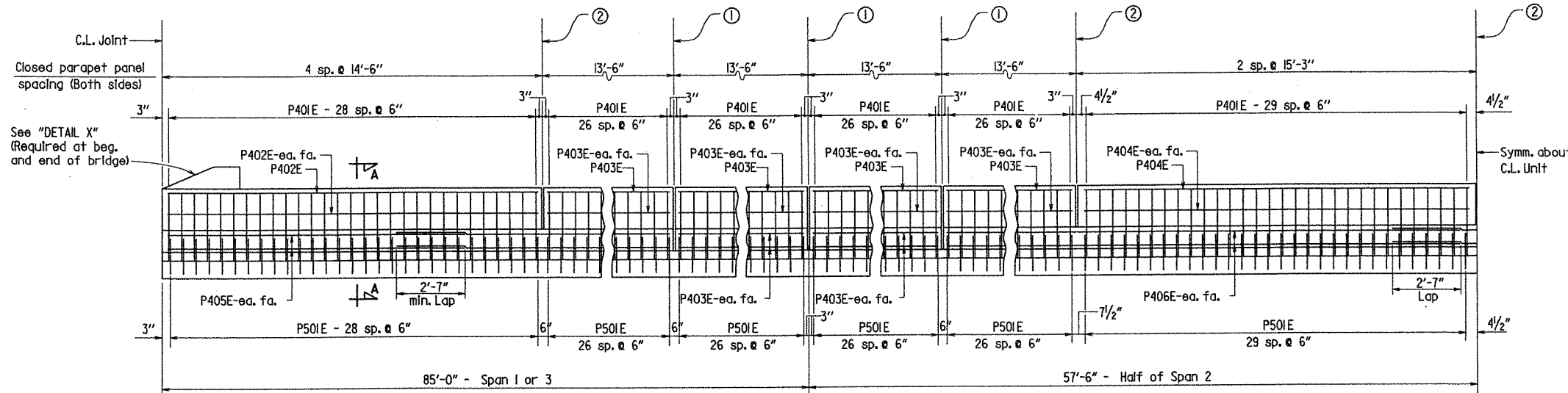
SHEET 6 OF 8  
 DETAILS OF 285'-0" CONTINUOUS  
 COMPOSITE W-BEAM UNIT  
 ROUTE SEC.  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 10/20/10 FILENAME: b100705\_sl.dgn  
 CHECKED BY: RBK DATE: 7/6/11 SCALE: 1/8" = 1'-0" or as shown  
 DESIGNED BY: DHP DATE: 10/7/10  
 BRIDGE NO. 07204 DRAWING NO. 52133

BRIDGE ENGINEER

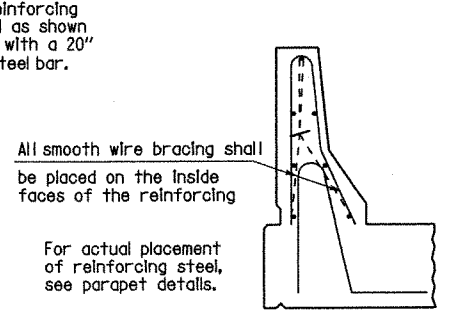
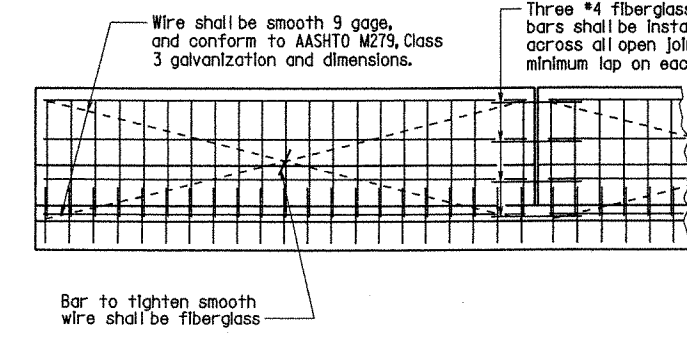
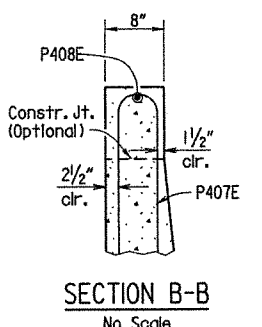
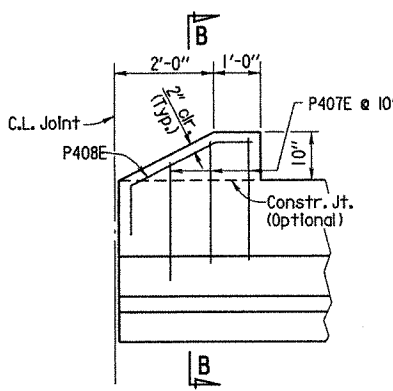
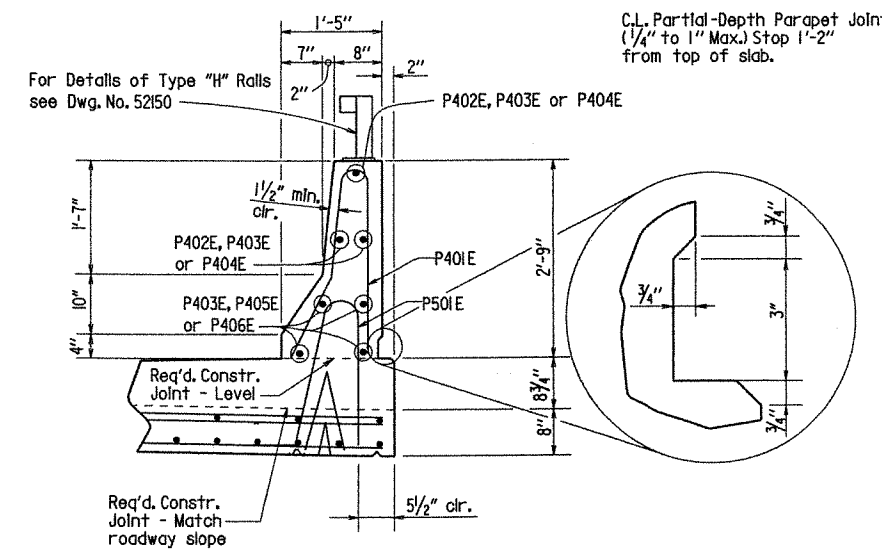


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100705	42	91
				①	07204	- SPAN DETAILS	-	5234



- ① C.L. Full-Depth Parapet Joint (1/4" to 1" Max.) as shown in "Reinforcing Plan & Deck Pouring Sequence" Dwg. No. 52132. Stop 4" from top of slab.
- ② C.L. Partial-Depth Parapet Joint (1/4" to 1" Max.) as shown in "Reinforcing Plan & Deck Pouring Sequence" Dwg. No. 52132. Stop 1'-2" from top of slab.

**DETAILS OF PARAPET RAIL**  
Scale: 3/8" = 1'-0"



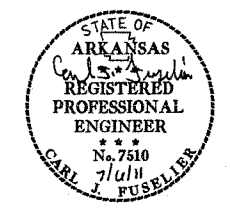
All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surfaces shall be given a Class 3, Textured Coating Finish, see Special Provision Job No. 100705 "Textured Coating Finish"

**BAR LIST PER UNIT**

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
S401E	1272	37'-10"	Str.	
S501E	456	38'-7"	Str.	
S502E	454	39'-4"	3"	
S601E	456	38'-10"	Str.	
S602E	208	60'-0"	Str.	
ST01E	454	11'-8"	6 1/2"	
P401E	1136	5'-6"	3"	
P402E	48	14'-2"	Str.	
P403E	80	13'-2"	Str.	
P404E	24	14'-11"	Str.	
P405E	32	36'-1"	Str.	
P406E	16	45'-2"	Str.	
P407E	6	5'-4"	3"	
P408E	2	3'-9"	3"	
P501E	1136	6'-1"	3 3/4"	
K401E	128	37'-10"	Str.	
K402E	456	7'-7"	Str.	
K403E	456	5'-8"	2"	
D401E	104	7'-0"	3"	
D501E	64	7'-4 1/2"	3 3/4"	
D502E	40	4'-7"	3 3/4"	
D503E	128	7'-4 1/2"	3 3/4"	
D504E	80	4'-0"	3 3/4"	
D601E	160	8'-0"	Str.	
D602E	192	2'-4"	Str.	
D901E	104	6'-10"	9"	

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



**SHEET 7 OF 8**  
**DETAILS OF 285'-0" CONTINUOUS COMPOSITE W-BEAM UNIT**  
ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 10/26/10 FILENAME: bl00705\_sl.dgn  
CHECKED BY: RBR DATE: 7/4/11 SCALE: 3/8" = 1'-0" or as noted  
DESIGNED BY: DHP DATE: 10/7/10  
BRIDGE NO. 07204 DRAWING NO. 52134

**DETAILS OF OPTIONAL SLIP FORMING OF CONCRETE PARAPET RAIL**  
No Scale

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 Edition) with applicable supplemental specifications and special provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications 5th Edition (2010), with 2010 Interims.

LIVE LOADING: HL-93

MATERIALS AND STRENGTHS:

Concrete: All concrete shall be Class (A/E) with a minimum 28 day strength  $f'c = 4,000$  psi.

Reinforcing Steel: Reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (Yield Strength = 60,000 psi).

Structural Steel: Structural steel shall conform to AASHTO M270, Gr. 50W ( $F_y = 50,000$  psi) or AASHTO M270 Gr.36 ( $F_y = 36,000$  psi).

STRUCTURAL STEEL:

All Structural Steel shall be AASHTO M270, Gr. 50W unless otherwise noted. All structural steel shall be paid for as "Structural Steel in Beam Spans (M270, Gr.50W)". Structural Steel completely embedded in concrete may be AASHTO M270, Gr. 36. AASHTO M270, Gr.50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with subsection 807.84e unless noted otherwise.

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.

Beams including web and flange splice plates 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 (M270, Gr.50W)".

Steel 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.

Drawings show general features of design only. Shop drawings shall be made in accordance with subsection 807.04, submitted, and approval secured before fabrication is begun.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with the recommendations of the manufacturer.

All beams shall be blocked in their true position in the shop as specified in subsection 807.54 (b)(1). The camber, length of sections, distance between bearings, and opening of joints shall be measured with the beams in their true position and this information shall become part of the permanent record of this job. The component parts shall be match marked in this assembly and those marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of  $1/4"$  (plus or minus) allowed for camber.

Field connections shall be bolted with high-strength bolts. Bolts shall be  $3/4"$ , except as noted, and open holes shall be  $5/8"$  unless otherwise noted. Holes for  $3/4"$  bolts may be  $5/8"$ . If a washer is supplied for use under both the nut and the head of the bolt. Bolt spacing shall be  $2 1/2"$  for  $3/4"$  bolts. For field splices, bolts shall be  $1/2"$  bolts. Open holes shall be  $5/8"$ . Bolt spacing shall be  $3"$  for  $1/2"$  bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam web and on the bottom of the beam flanges.

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 false work 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.

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.

Elastomeric Bearings shall be seated in accordance with subsection 808.08. This work and material will not be paid for directly but will be considered subsidiary to the Item "Structural Steel in Beam Spans (M270, Gr. 50W)".

REINFORCING STEEL:

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60. The reinforcing steel shall be accurately located in the forms and firmly held in place by steel wire supports, sufficient in size and number, 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)".

CONCRETE:

All concrete shall be Class (A/E) with a minimum 28 day compressive strength  $f'c = 4,000$  psi. Concrete shall be poured in the dry and all exposed corners to be chamfered  $3/4"$  unless otherwise noted.

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 concrete diaphragms at the bents shall be poured before the slab. Removable forms shall be used for Concrete Diaphragms.

The concrete deck shall be given a Tine Finish in accordance with subsection 802.19 for Class 5, Tined Bridge Roadway Surface Finish. The 6'-6" sidewalk shall receive a broomed finish as specified 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.

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 pouring of the sidewalk and the pouring of the parapet railing. Any railing pours made before the entire slab has been placed and cured must be approved by the Engineer.

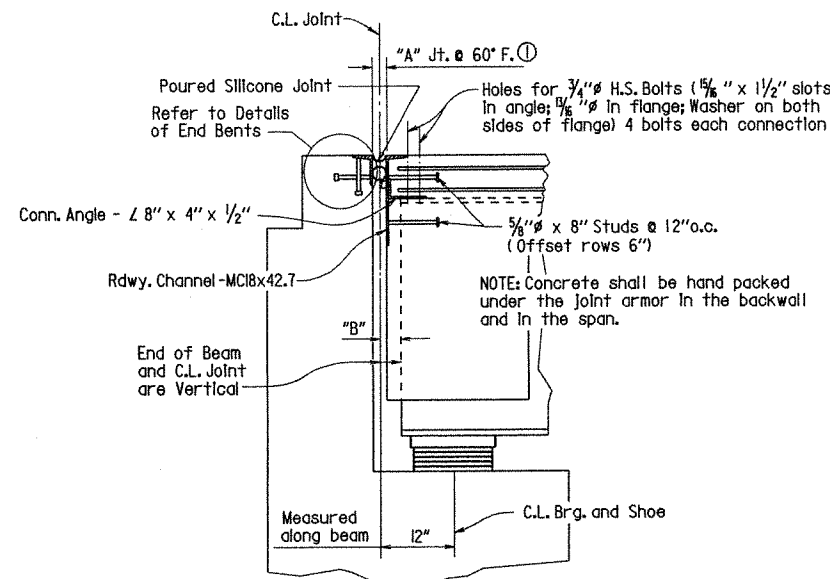
CLASS I PROTECTIVE SURFACE TREATMENT: Class I protective surface treatment shall be applied to the roadway surface, face of curb and sidewalk surface.

Load Distribution

Dead Load:			
A. To W-Beam	Beam No.		
	Beam 1 & 9	733	plf + Wt. of Structural Steel
	Beam 2 thru 8	850	plf + Wt. of Structural Steel
B. To Composite Beam	Beam No.		
	Beam 1 & 9	770	plf ②
	Beam 2 thru 8	330	plf ②

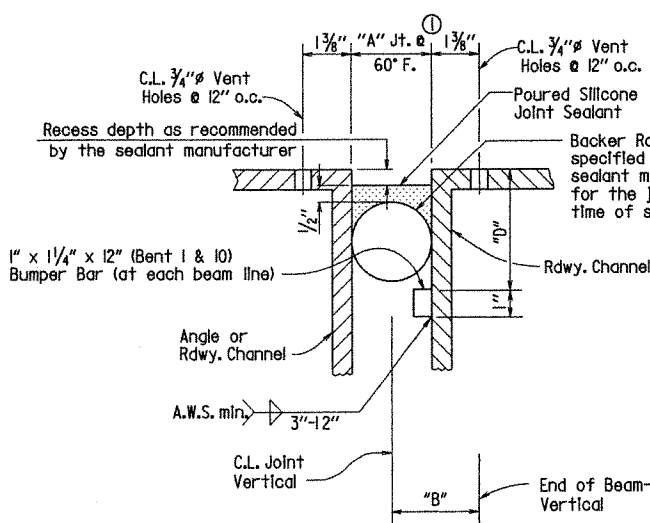
② Includes 160 plf future wearing surface.

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.		100705	43	91
				①	07204	SPAN DETAILS		52135



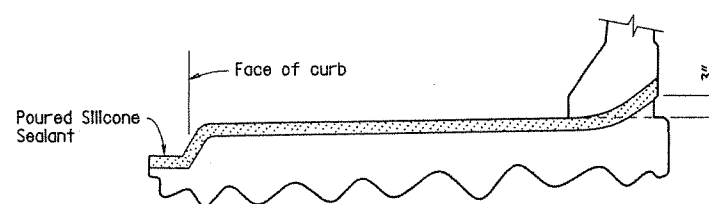
SECTION THRU JOINT AT BENTS 1 & 10

Scale:  $3/4" = 1'-0"$



DETAIL OF POURED SILICONE JOINT SEAL

NO SCALE



JOINT SEAL PLACEMENT AT SIDEWALK & PARAPET

NO SCALE

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 & 10	2 3/8"	2 1/4"	1 5/8"	3 1/4" ±	1" x 1 1/4"	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.

NOTES: 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.

NOTE: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A", 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.

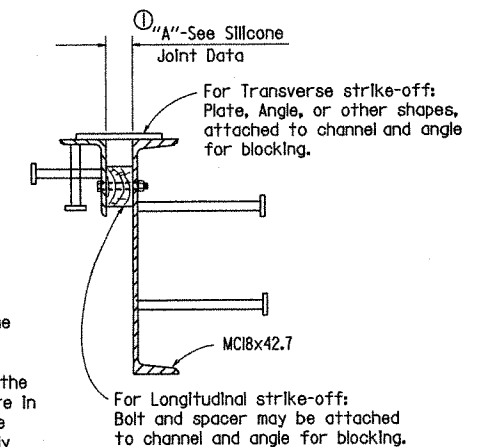
EXPANSION DEVICE INSTALLATION AT END BENTS:

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.

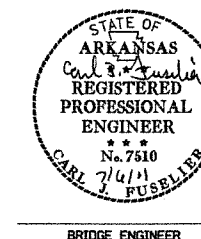
2) The backwall shall be poured to the optional construction joint after beams are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder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

NOTE: See "Expansion Device Installation" at Bents 4 & 7 on Dwg. No. 52146.



DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

NO SCALE



BRIDGE ENGINEER

SHEET 8 OF 8  
DETAILS OF 285'-0" CONTINUOUS COMPOSITE W-BEAM UNIT

ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 10/27/10 FILENAME: bl00705-sl.dgn

CHECKED BY: RBC DATE: 7/4/11 SCALE: As Shown

DESIGNED BY: DHP DATE: 10/17/10

BRIDGE NO. 07204 DRAWING NO. 52135





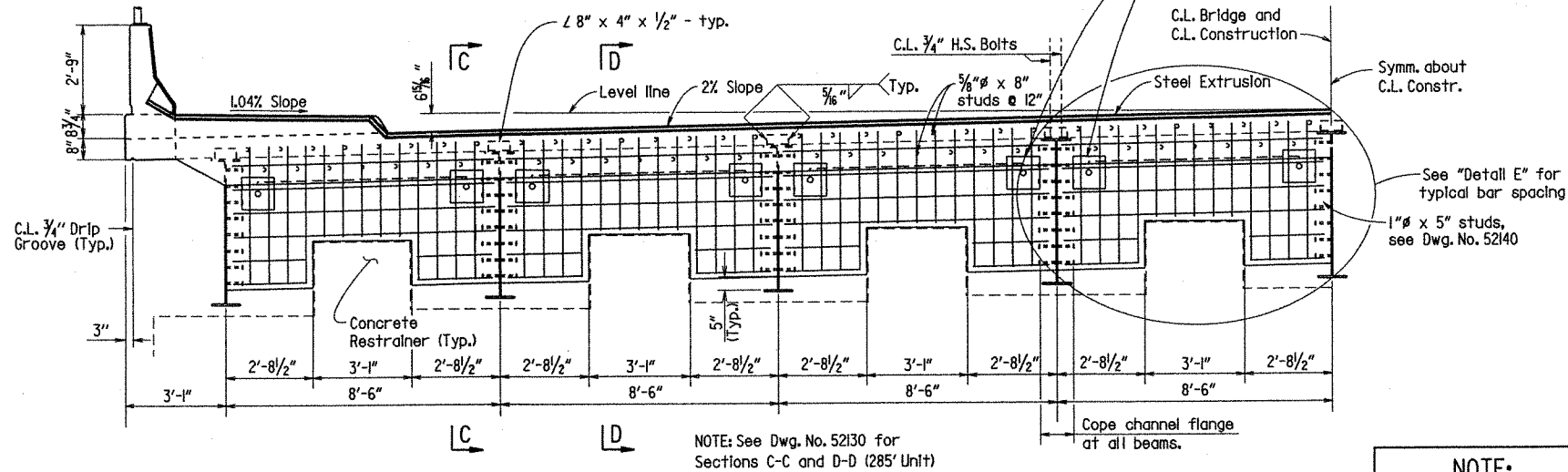
DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DEPT. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
			6	ARK.			
			JOB NO.	100705	45	91	
			07204	SPAN DETAILS	52137		

NOTE: 1/2" Polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place.

NOTE: For details of Strip Seal Joint, see Dwg. No. 52146

See "Restrainer Rod Assembly Detail"

See "Restrainer Rod Assembly Detail" (Typ.) Dwg. No. 52137

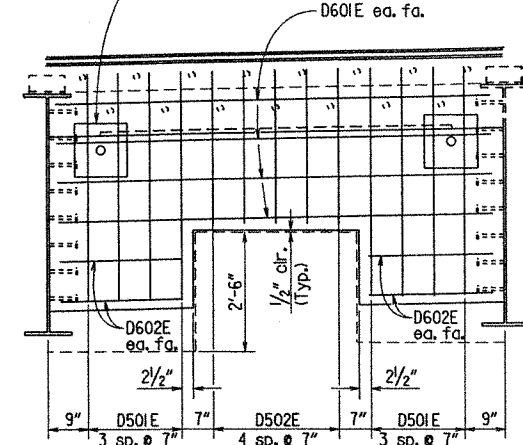


Girder No. 1 2 3 4 5

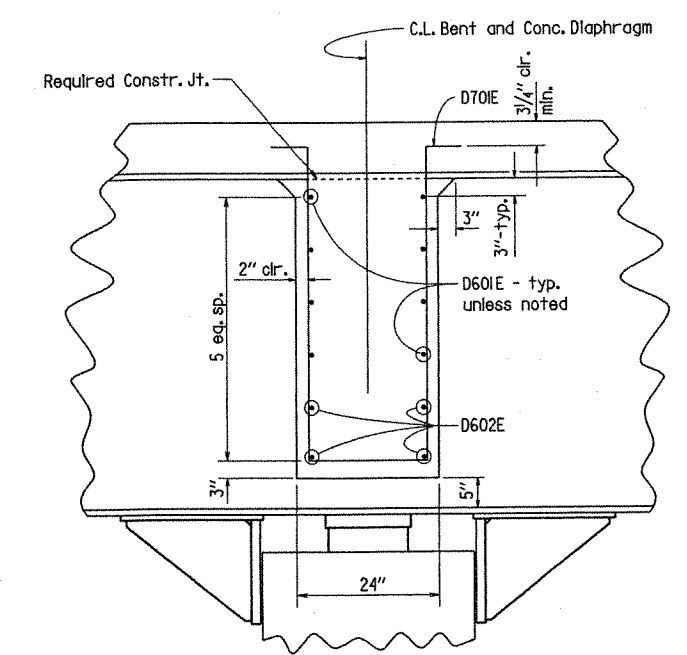
SECTION NEAR STRIP SEAL JOINT- BENTS 4 & 7

NOTE: See Dwg. No. 52130 for Sections C-C and D-D (285' Unit)

NOTE: REMOVABLE FORMS FOR DIAPHRAGMS SHALL BE USED

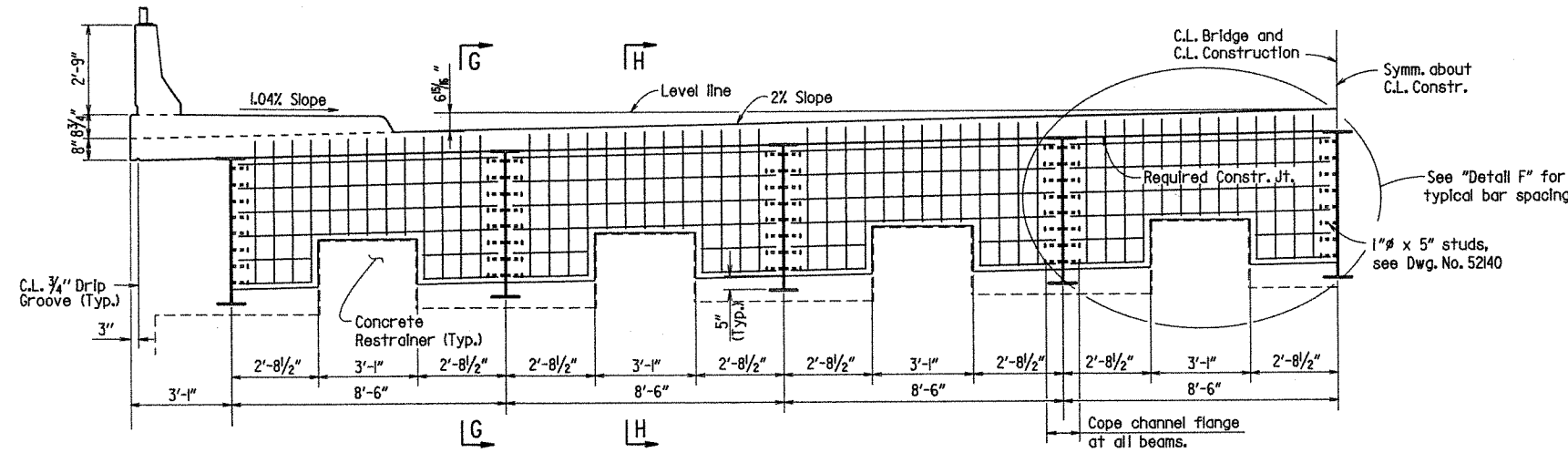


DETAIL E



SECTION G-G

Scale: 3/4" = 1'-0"

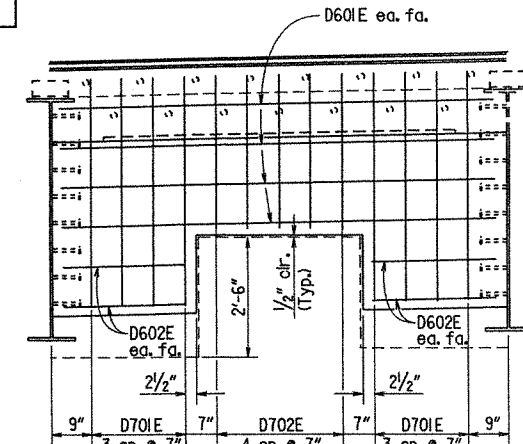


Girder No. 1 2 3 4 5

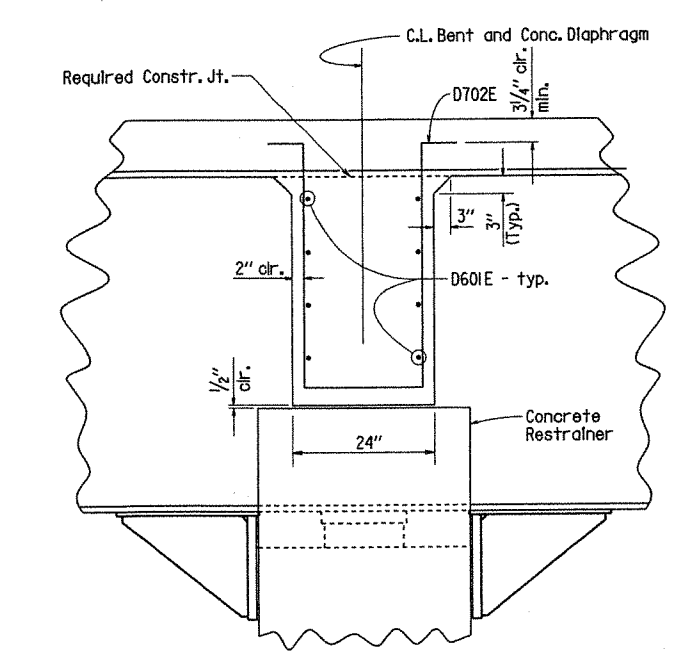
SECTION AT BENTS 5 & 6

Looking Forward

NOTE: Longitudinal restrainers are not shown for clarity.  
NOTE: Concrete Diaphragm shall be poured before slab.

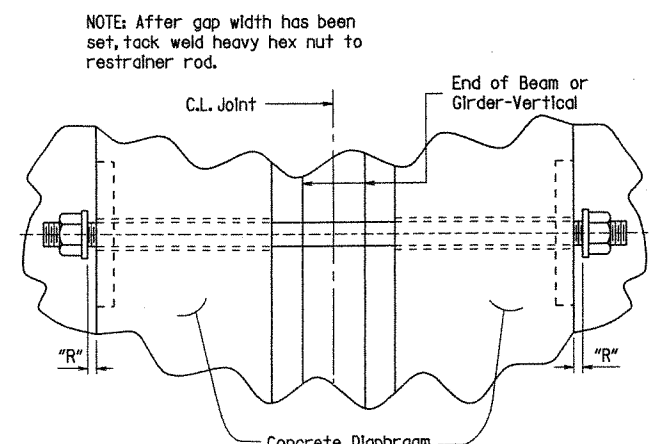


DETAIL F



SECTION H-H

Scale: 3/4" = 1'-0"

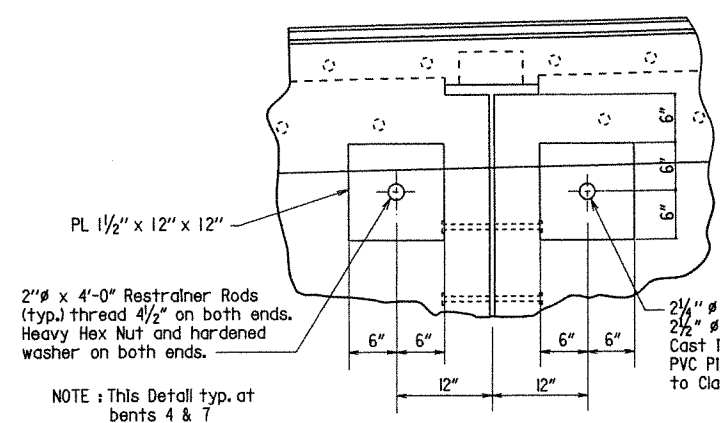


RESTRAINER ROD INSTALLATION DETAIL

No Scale

TABLE B

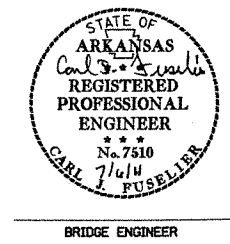
"R" - Cap Width at 24 hour average temp. of:	"R"		
	40° F	60° F	80° F
Bent 4	3/16"	3/4"	5/16"
Bent 7	5/16"	1/4"	1/16"



RESTRAINER ROD ASSEMBLY DETAIL

Scale: 1" = 1'-0"

NOTE: Longitudinal Restrainer Rod shall conform to AASHTO M270, Grade 50 with threads conforming to American Standard Course, Class 2 Fit, ASA Specification B11. Washers for longitudinal restrainer rod shall conform to AASHTO M293. Nuts for longitudinal restrainers shall conform to subsection 807.06. Rods, Nuts and Washers for the longitudinal restrainers shall be galvanized in accordance with AASHTO M232 class C or AASHTO M298 class 50. See "Restrainer Rod Installation Details". Restrainer rod, nut, washers and plate shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)" or "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

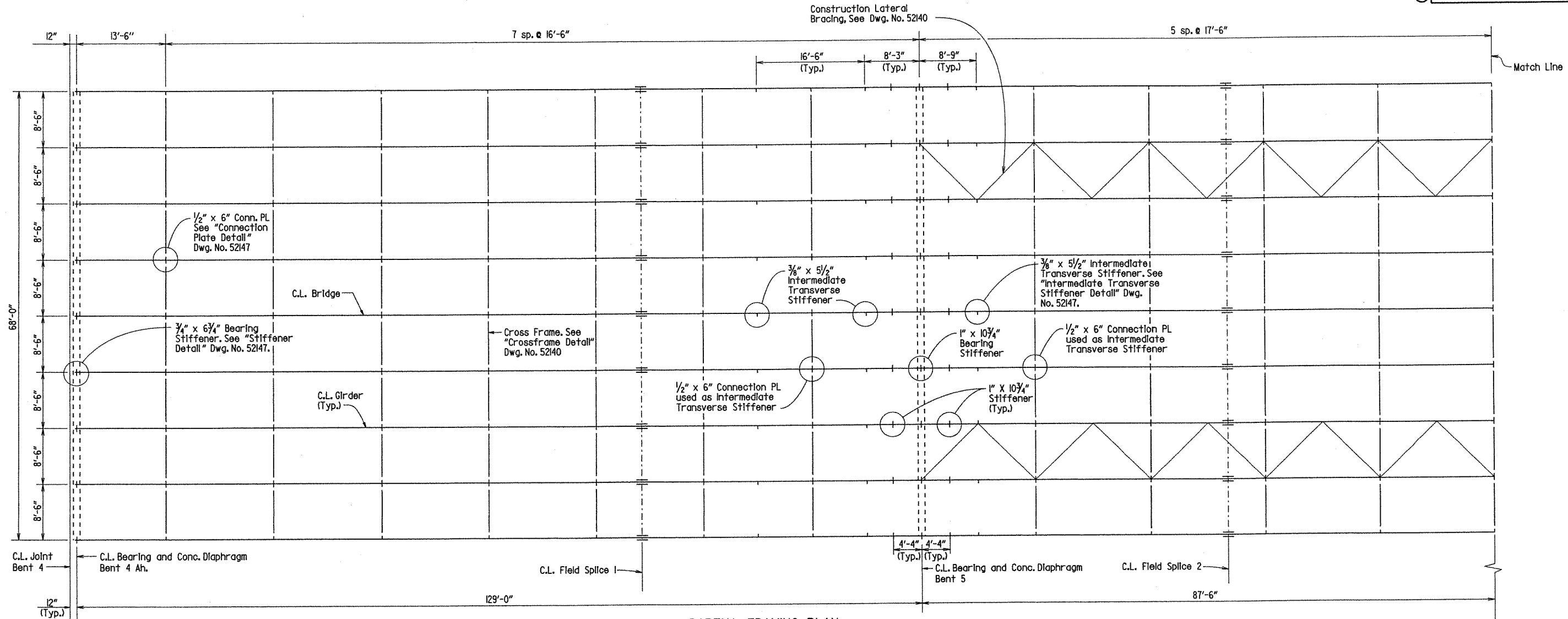


BRIDGE ENGINEER

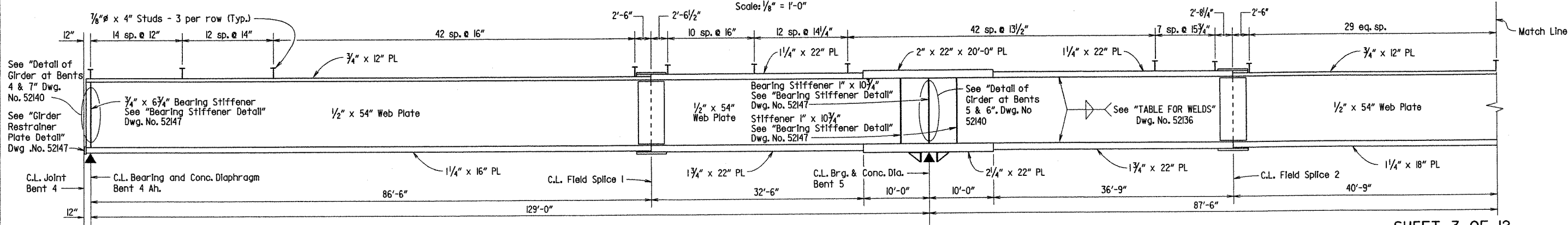
SHEET 2 OF 12  
DETAILS OF 430'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 11/15/10 FILENAME: bi00705\_sl.dgn  
CHECKED BY: CHW DATE: 7/6/11 SCALE: 3/4" = 1'-0" or as shown  
DESIGNED BY: DWP DATE: 10/7/10  
BRIDGE NO. 07204 DRAWING NO. 52137

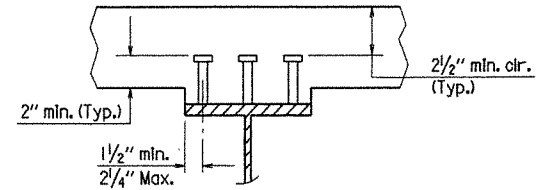
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100705	46	91
				07204	SPAN DETAILS		52138	



**PARTIAL FRAMING PLAN**  
Scale: 1/8" = 1'-0"

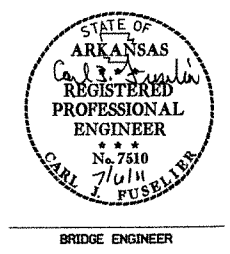


**TYPICAL GIRDER ELEVATION**  
Scale: 1/8" = 1'-0"



**SHEAR CONNECTOR DETAIL**  
No Scale

Stud Shear Connectors shown shall be 7/8" x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

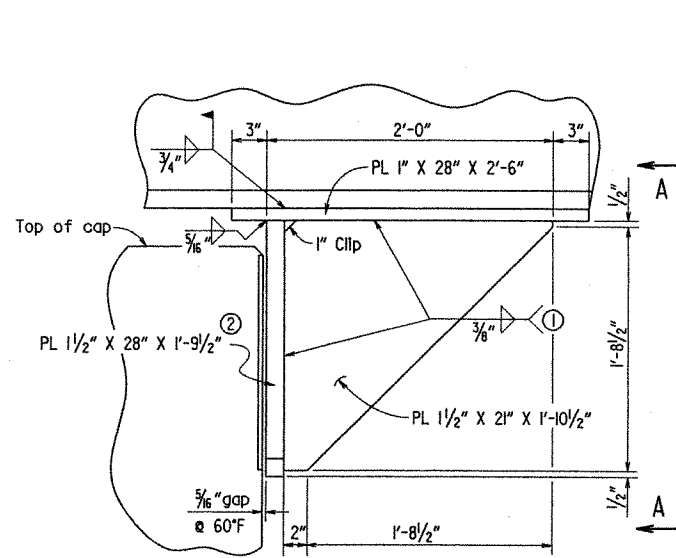


**SHEET 3 OF 12**  
**DETAILS OF 430'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT**  
ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
LITTLE ROCK, ARK.

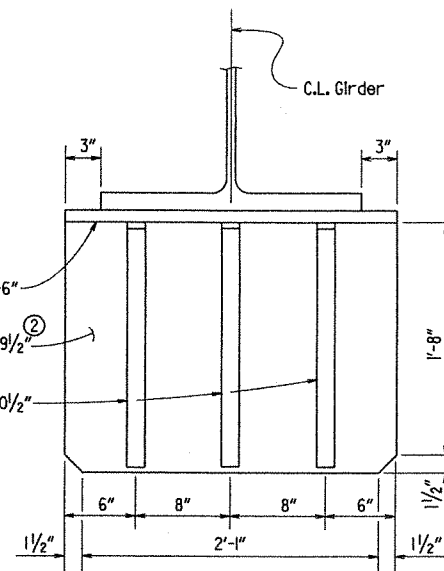
DRAWN BY: MRE DATE: 11/10/10 FILENAME: b100705\_sl.dgn  
CHECKED BY: CHW DATE: 7/6/11 SCALE: 3/8" = 1'-0" or as noted  
DESIGNED BY: DHP DATE: 10/7/10  
BRIDGE NO. 07204 DRAWING NO. 52138



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.		100705	48	91
				①	07204	SPAN DETAILS		52140

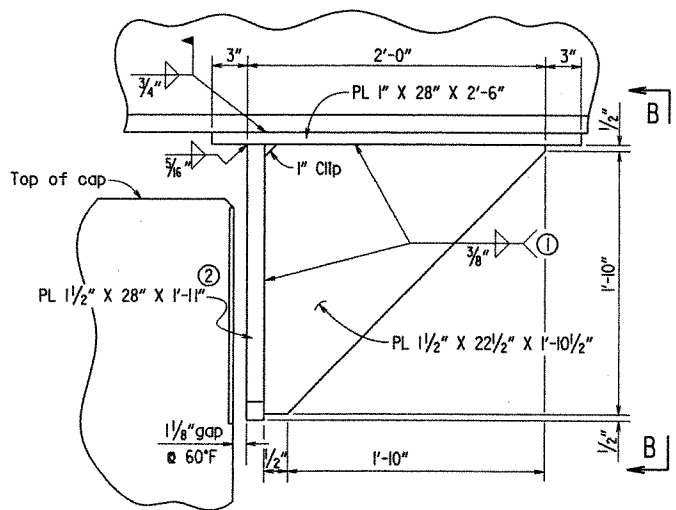


**LONGITUDINAL RESTRAINER DETAILS - BENT 5**  
 No Scale

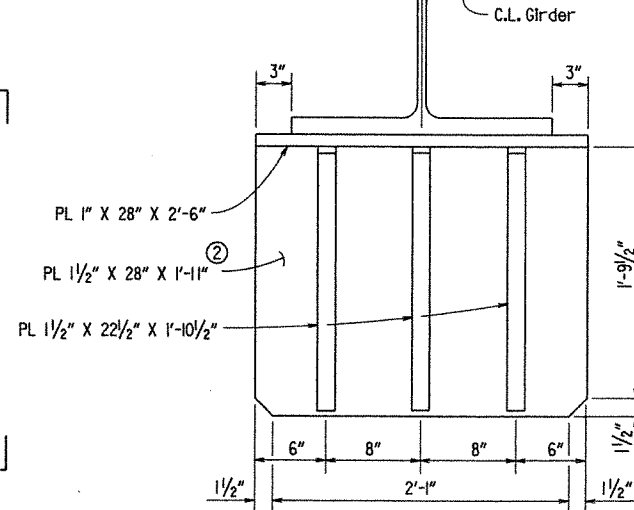


**VIEW A-A**

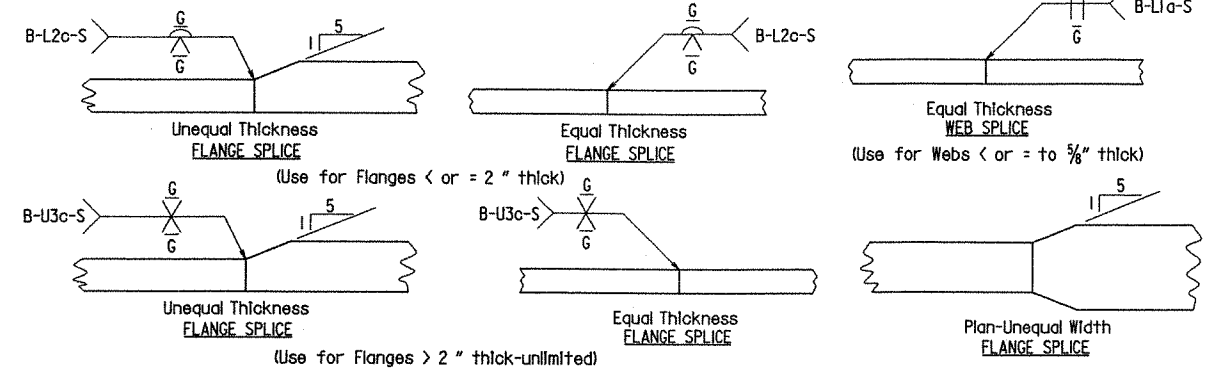
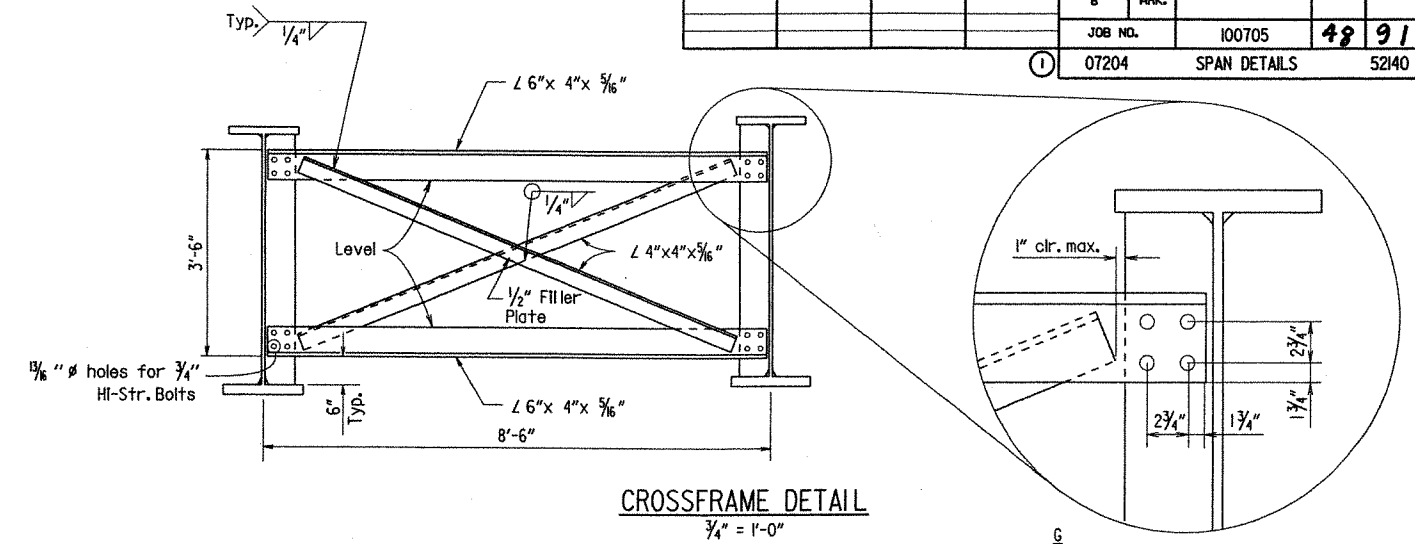
- ① Stop weld 1/2" from clip
- ② Longitudinal restrainer shall be fabricated to account for grade such that the final position of this plate will be vertical.



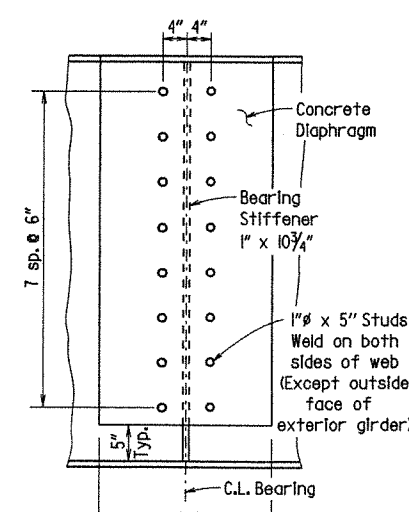
**LONGITUDINAL RESTRAINER DETAILS - BENT 6**  
 No Scale



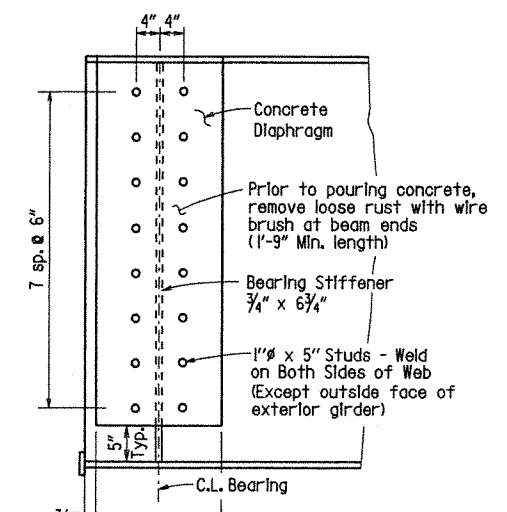
**VIEW B-B**



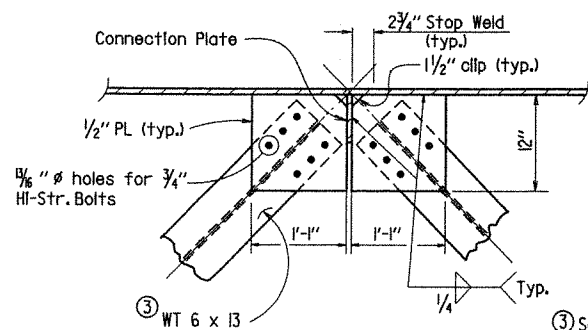
**DETAILS OF WELDED SPLICES**  
 No Scale



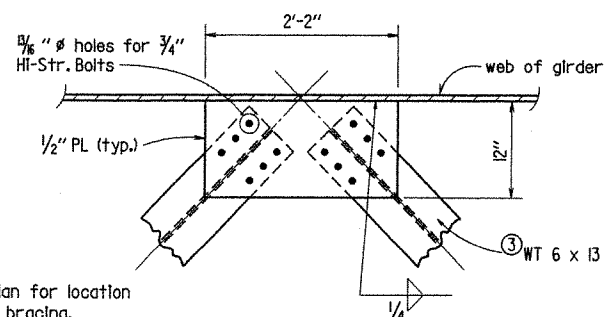
**DETAIL OF BEAM AT BENTS 5 & 6**  
 No Scale



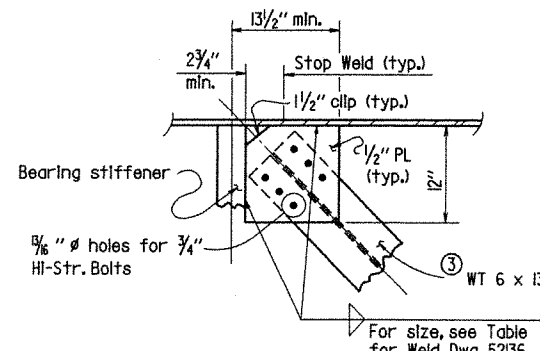
**DETAIL OF BEAM AT BENTS 4 & 7**  
 No Scale



**TYPICAL CONSTRUCTION LATERAL BRACE CONNECTION AT CROSS-FRAME CONNECTION PLATES**  
 No Scale



**TYPICAL CONSTRUCTION LATERAL BRACE CONNECTION AT MID-POINTS**  
 No Scale



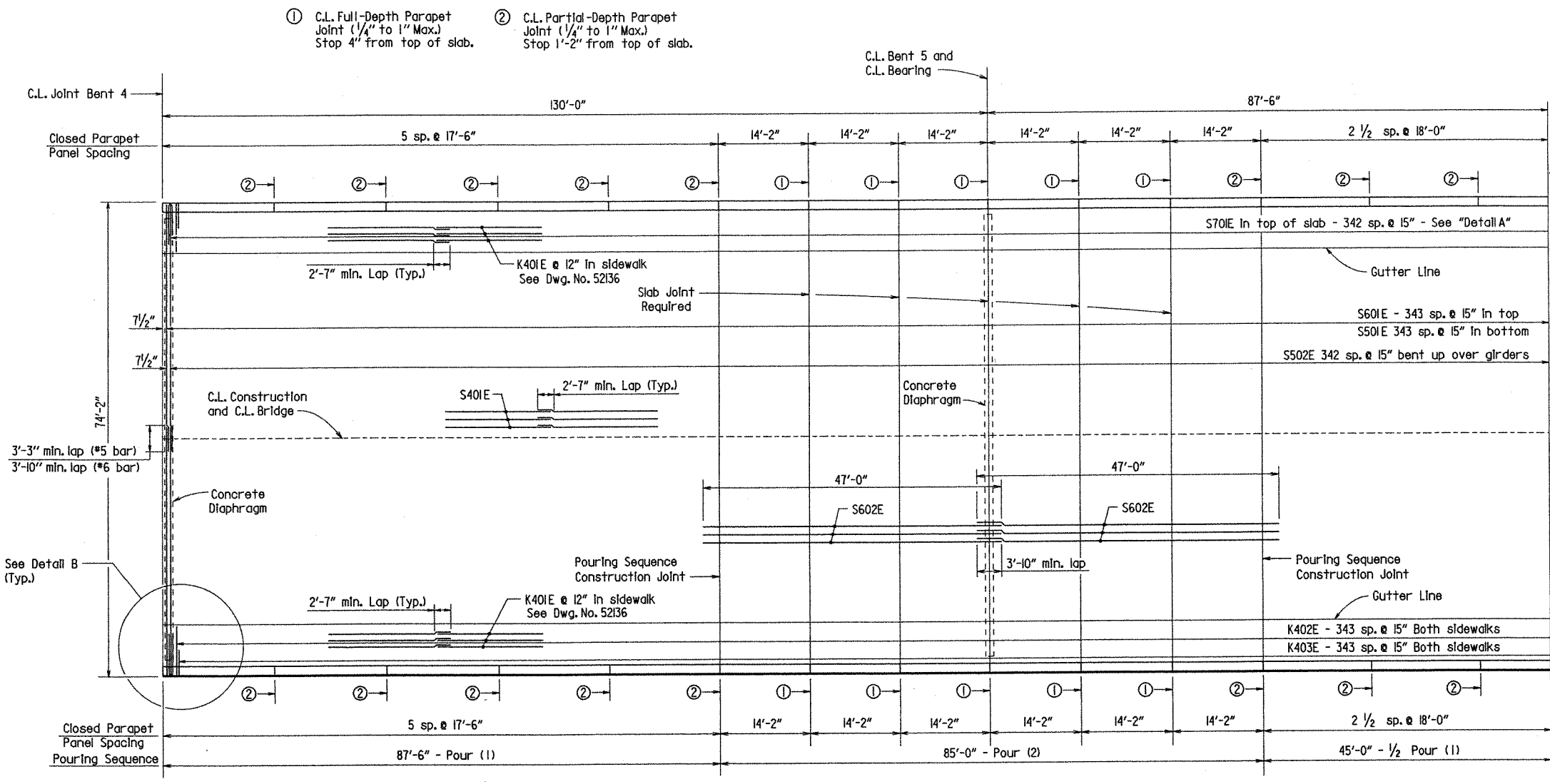
**TYPICAL CONSTRUCTION LATERAL BRACE CONNECTION AT BEARING STIFFENERS**  
 No Scale

STATE OF ARKANSAS  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 7510  
 CARL J. FUSSELL  
 BRIDGE ENGINEER

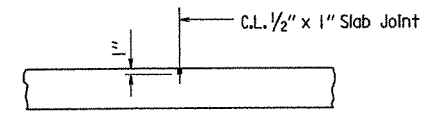
**SHEET 5 OF 12**  
**DETAILS OF 430'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT**  
 ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
 LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 03/10/11 FILENAME: b100705.sldgn  
 CHECKED BY: CMW DATE: 7/6/11 SCALE: 3/8" = 1'-0" or as noted  
 DESIGNED BY: DHP DATE: 10/1/10  
 BRIDGE NO. 07204 DRAWING NO. 52140

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.		100705	49	91
				07204		SPAN DETAILS		52141



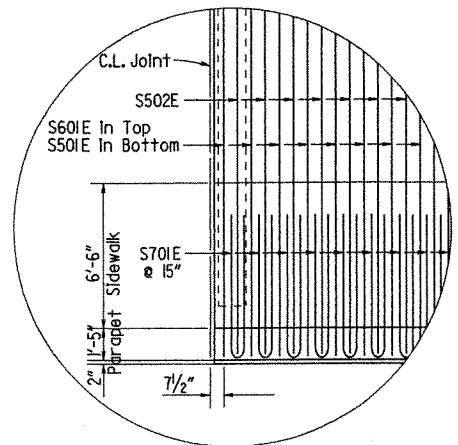
Use Type 3, 4, or 6 Joint Sealer. See subsections 501.02 (h) and 501.05 (j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the sidewalk 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.



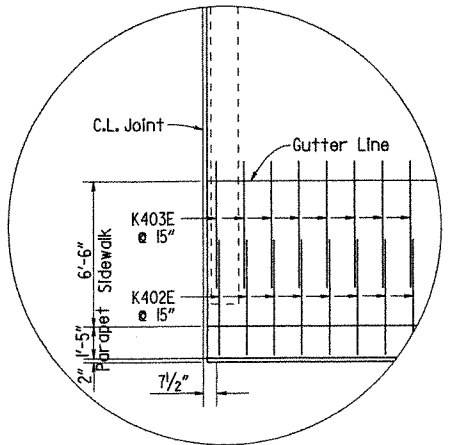
SLAB JOINT DETAIL  
No Scale

NOTE: 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 completion of the sidewalk and the pouring of the parapet railing. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequences shown.

PARTIAL REINFORCING PLAN & DECK POURING SEQUENCE  
1/8" = 1'-0"

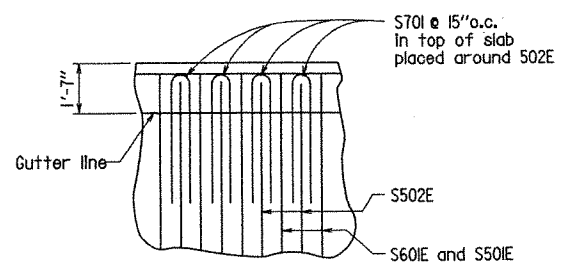


SLAB REINFORCING

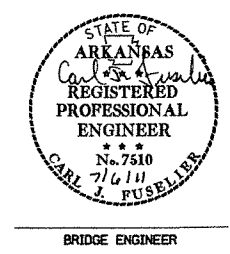


SIDEWALK REINFORCING

DETAIL B  
No Scale



DETAIL A  
No Scale

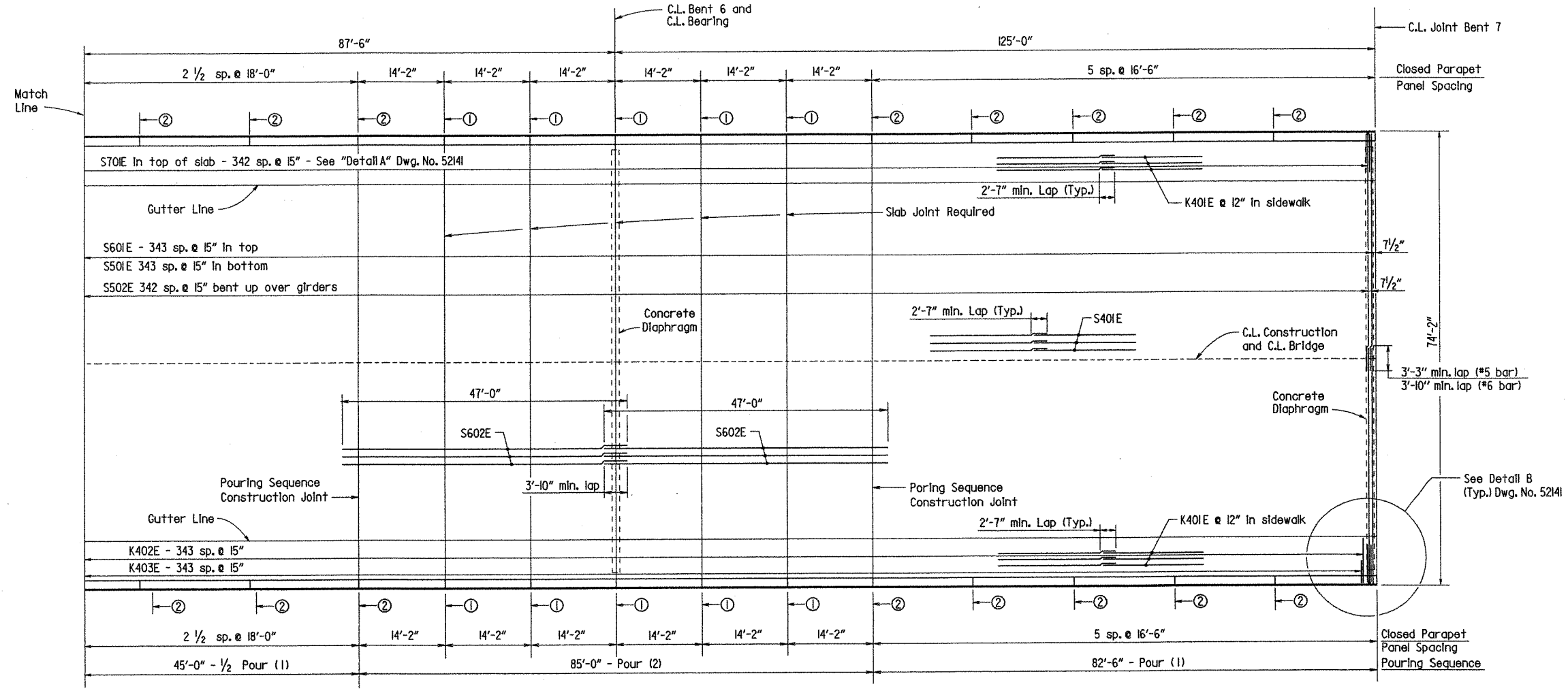


SHEET 6 OF 12  
 DETAILS OF 430'-0" CONTINUOUS  
 COMPOSITE PLATE GIRDER UNIT  
 ROUTE SEC.  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.  
 DRAWN BY: MRE DATE: 10/21/10 FILENAME: b100705\_sl.dgn  
 CHECKED BY: CMW DATE: 7/6/11 SCALE: 3/8" = 1'-0" or as noted  
 DESIGNED BY: DHP DATE: 10/17/10  
 BRIDGE NO. 07204 DRAWING NO. 52141

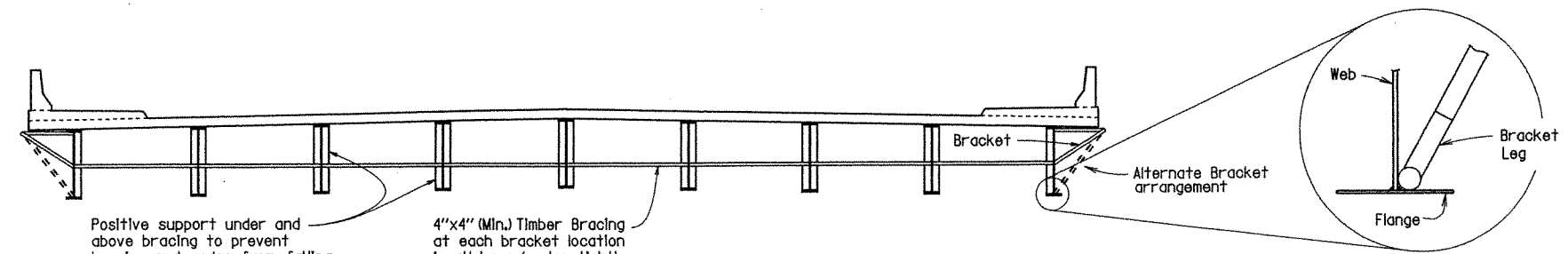


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100705	5091	
				07204		SPAN DETAILS		52142

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



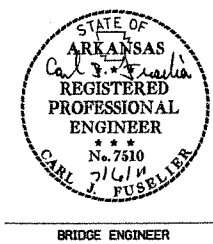
PARTIAL REINFORCING PLAN & DECK POURING SEQUENCE  
 1/8" = 1'-0"



The brackets shall be installed in a manner that avoids any nicks or gouges in the flange, web, and weld.

NOTE: The rail for the transverse screed shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if 1/2" x 6 3/4" web stiffeners are welded to the insides of the exterior girders at the location of each bracket or if the alternate bracket arrangement shown above is used. The Alternate Bracket arrangement shall extend down to the junction of the web and Bottom flange. The stiffener shall conform to the details for intermediate connection plates shown on Drawing No. 52147. No direct payment will be made for brackets, timber bracing, supports, or welded stiffeners. Payment shall be subsidiary to "Structural Steel in Plate Girder Spans (M270, Gr. 50W)."

SCREED RAIL SUPPORT  
 No Scale



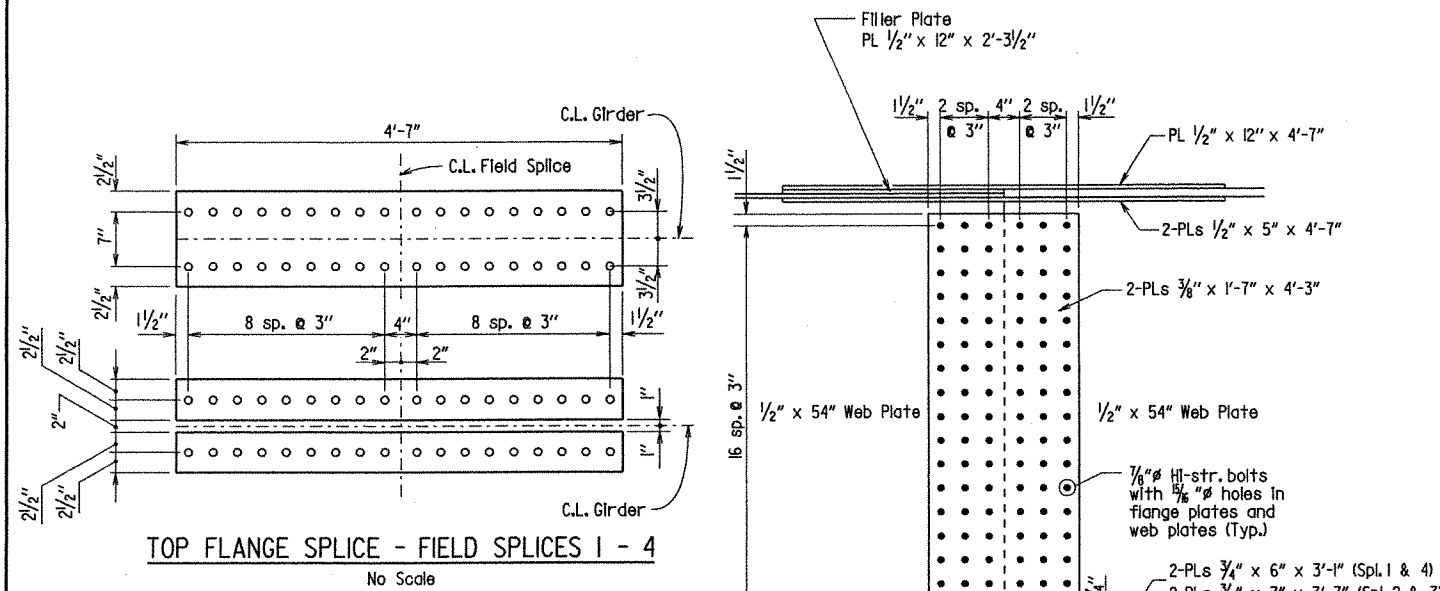
SHEET 7 OF 12  
 DETAILS OF 430'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT  
 ROUTE SEC.  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.  
 DRAWN BY: MRE DATE: 10/21/10 FILENAME: b100705\_sl.dgn  
 CHECKED BY: CMW DATE: 7/6/11 SCALE: 3/8" = 1'-0" or as noted  
 DESIGNED BY: DHP DATE: 10/17/10  
 BRIDGE NO. 07204 DRAWING NO. 52142



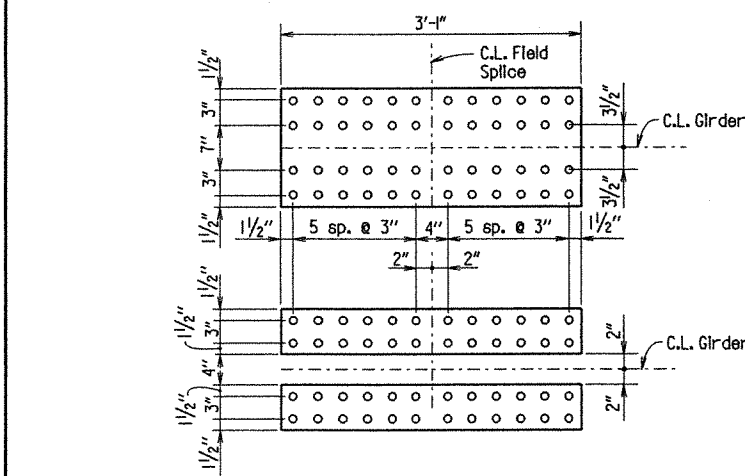
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		51	91
				JOB NO.	100705		51	91
				07204	SPAN DETAILS		52143	

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

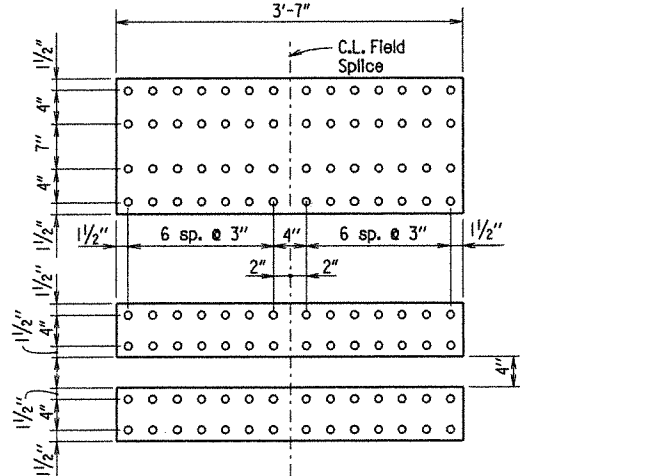
SPAN	BEAM NO.	BEAM 1 OR 9			BEAM 2 OR 8			BEAM 3 OR 7			BEAM 4 OR 6			BEAM 5		
		Point of Deflection	Structural Steel	Structural Steel + Slab	Structural Steel + Slab + Parapet	Structural Steel	Structural Steel + Slab	Structural Steel + Slab + Parapet	Structural Steel	Structural Steel + Slab	Structural Steel + Slab + Parapet	Structural Steel	Structural Steel + Slab	Structural Steel + Slab + Parapet	Structural Steel	Structural Steel + Slab
SPAN 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	0.000	0.000	0.000
	0.1	0.180	0.831	0.998	0.188	0.875	0.996	0.188	0.901	0.990	0.188	0.915	0.987	0.188	0.919	0.987
	0.2	0.324	1.488	1.794	0.338	1.566	1.787	0.338	1.613	1.773	0.338	1.638	1.767	0.338	1.646	1.766
	0.3	0.415	1.898	2.297	0.433	1.998	2.285	0.433	2.058	2.264	0.433	2.091	2.256	0.433	2.101	2.253
	0.4	0.439	1.998	2.426	0.459	2.105	2.411	0.459	2.169	2.387	0.459	2.204	2.376	0.459	2.215	2.373
	0.5	0.397	1.791	2.183	0.415	1.889	2.166	0.415	1.947	2.141	0.415	1.979	2.130	0.415	1.989	2.127
	0.6	0.304	1.360	1.664	0.319	1.438	1.648	0.319	1.484	1.627	0.319	1.508	1.617	0.319	1.516	1.615
	0.7	0.190	0.842	1.034	0.200	0.895	1.022	0.200	0.925	1.007	0.200	0.940	1.000	0.200	0.945	0.999
	0.8	0.082	0.358	0.440	0.086	0.385	0.433	0.086	0.400	0.426	0.086	0.407	0.423	0.086	0.410	0.423
SPAN 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	0.000	0.000	0.000
	0.1	0.128	0.530	0.682	0.131	0.548	0.668	0.131	0.559	0.656	0.131	0.564	0.648	0.131	0.566	0.646
	0.2	0.356	1.495	1.899	0.366	1.551	1.868	0.366	1.583	1.835	0.366	1.601	1.816	0.366	1.606	1.810
	0.3	0.612	2.600	3.268	0.630	2.697	3.223	0.630	2.756	3.173	0.630	2.789	3.143	0.630	2.800	3.134
	0.4	0.815	3.487	4.353	0.840	3.617	4.300	0.840	3.697	4.238	0.840	3.744	4.202	0.840	3.758	4.190
	0.5	0.895	3.835	4.775	0.923	3.978	4.719	0.923	4.067	4.654	0.923	4.118	4.615	0.923	4.135	4.604
	0.6	0.830	3.538	4.410	0.855	3.670	4.357	0.856	3.751	4.295	0.855	3.797	4.258	0.855	3.812	4.246
	0.7	0.637	2.684	3.362	0.655	2.783	3.316	0.656	2.843	3.265	0.656	2.878	3.236	0.656	2.889	3.227
	0.8	0.382	1.583	1.997	0.393	1.640	1.965	0.393	1.674	1.932	0.393	1.693	1.913	0.393	1.699	1.907
SPAN 3	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	0.000	0.000	0.000
	0.1	-0.015	-0.044	-0.053	-0.015	-0.040	-0.054	-0.015	-0.038	-0.054	-0.015	-0.037	-0.052	-0.015	-0.037	-0.052
	0.2	0.028	0.162	0.208	0.031	0.182	0.203	0.031	0.193	0.199	0.031	0.198	0.198	0.031	0.199	0.197
	0.3	0.108	0.535	0.673	0.116	0.578	0.664	0.116	0.601	0.652	0.116	0.613	0.648	0.116	0.616	0.647
	0.4	0.200	0.965	1.201	0.212	1.031	1.189	0.212	1.068	1.171	0.212	1.087	1.164	0.212	1.093	1.163
	0.5	0.277	1.329	1.642	0.292	1.412	1.628	0.292	1.461	1.608	0.292	1.486	1.599	0.292	1.494	1.598
	0.6	0.317	1.518	1.866	0.334	1.610	1.854	0.334	1.663	1.833	0.334	1.691	1.824	0.334	1.700	1.823
	0.7	0.309	1.478	1.808	0.325	1.564	1.798	0.325	1.615	1.780	0.325	1.642	1.773	0.325	1.650	1.772
	0.8	0.246	1.180	1.438	0.259	1.248	1.431	0.259	1.288	1.419	0.259	1.309	1.414	0.259	1.316	1.414
0.9	0.137	0.654	0.793	0.144	0.692	0.791	0.144	0.714	0.786	0.144	0.726	0.785	0.144	0.729	0.784	
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	0.000	0.000	0.000	



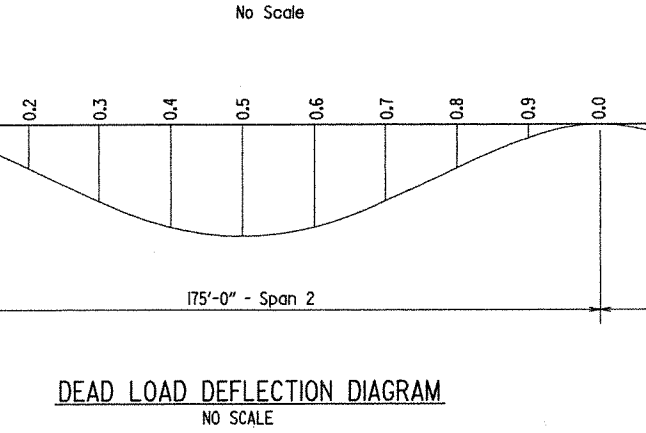
All Field Splice Plates shall be AASHTO M270, Gr. 50W  
 All Field Splice Bolts shall be 5/8" H.S. Bolts  
 All Field Splice Bolt Holes shall be 5/16" Ø



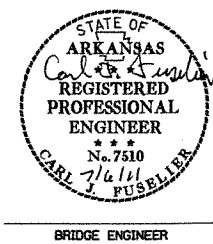
BOTTOM FLANGE SPLICE - FIELD SPLICES 1 & 4  
No Scale



BOTTOM FLANGE SPLICE - FIELD SPLICES 2 & 3  
No Scale



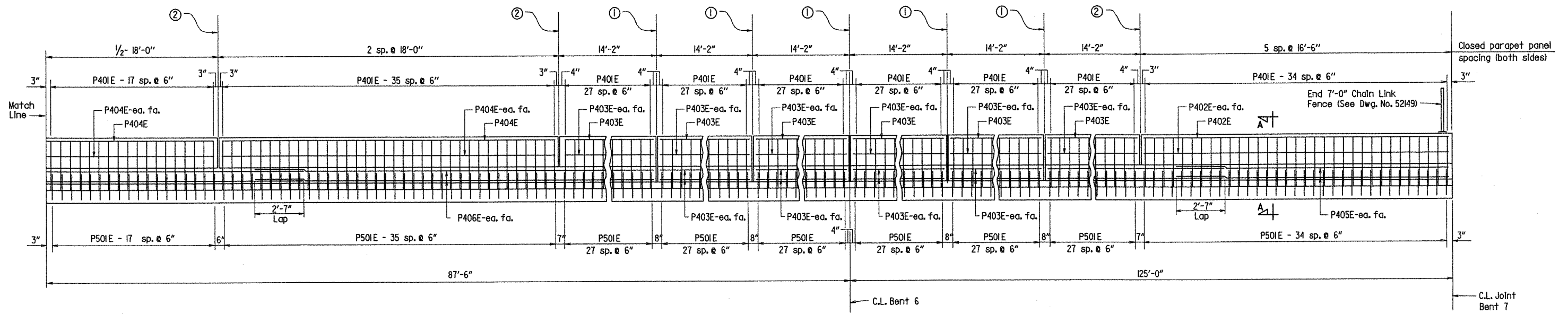
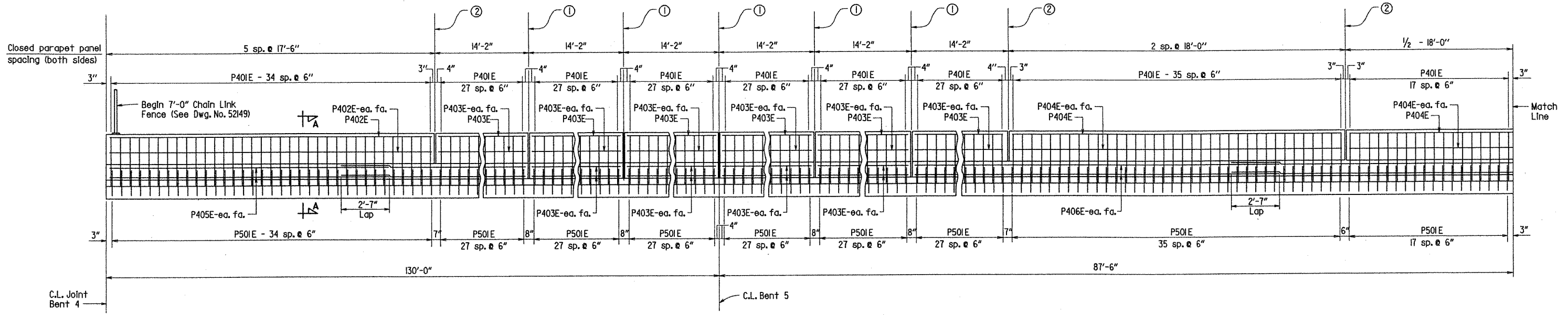
DEAD LOAD DEFLECTION DIAGRAM  
NO SCALE



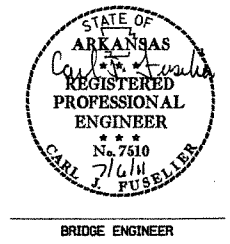
SHEET 8 OF 12  
 DETAILS OF 430'-0" CONTINUOUS  
 COMPOSITE PLATE GIRDER UNIT  
 ROUTE SEC.  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.  
 DRAWN BY: MRE DATE: 10/20/10 FILENAME: b100705\_sl.dgn  
 CHECKED BY: CMW DATE: 7/6/11 SCALE: 1/8" = 1'-0" or as shown  
 DESIGNED BY: DHP DATE: 10/7/10  
 BRIDGE NO. 07204 DRAWING NO. 52143

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.		100705	52	91
				07204		SPAN DETAILS		5244

- ① C.L. Full-Depth Parapet Joint (1/4" to 1" Max.) Stop 4" from top of slab as shown in "Reinforcing Plan & Deck Pouring Sequence" Dwg. No. 52141
- ② C.L. Partial-Depth Parapet Joint (1/4" to 1" Max.) Stop 1'-2" from top of slab as shown in "Reinforcing Plan & Deck Pouring Sequence" Dwg. No. 52141



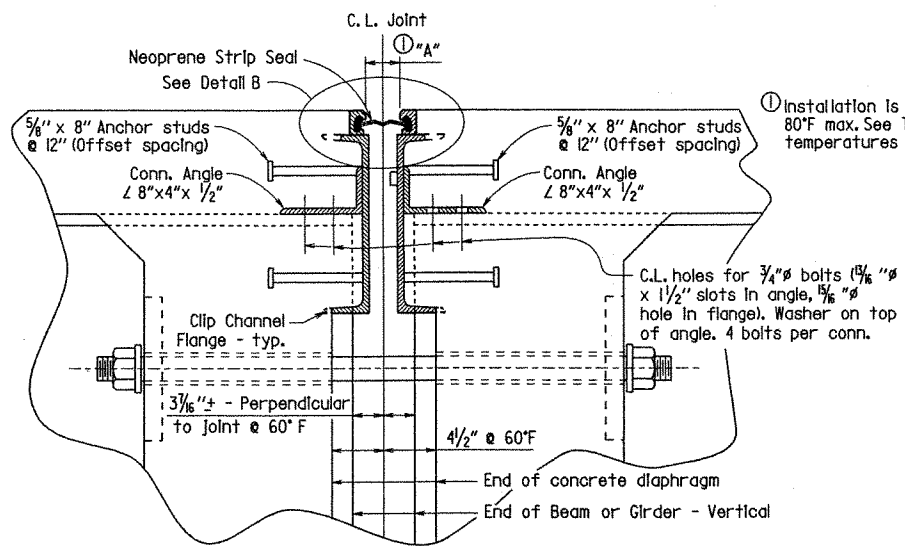
DETAILS OF PARAPET RAIL - BOTH SIDES OF ROADWAY  
Scale: 3/8" = 1'-0"



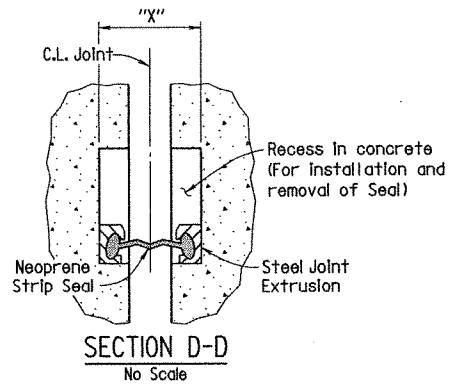
SHEET 9 OF 12  
 DETAILS OF 430'-0" CONTINUOUS  
 COMPOSITE PLATE GIRDER UNIT  
 ROUTE SEC.  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.  
 DRAWN BY: MRE DATE: 11/10/10 FILENAME: b100705-sl.dgn  
 CHECKED BY: CAW DATE: 7/6/11 SCALE: 3/8" = 1'-0" or as noted  
 DESIGNED BY: DHP DATE: 10/7/10  
 BRIDGE NO. 07204 DRAWING NO. 52144



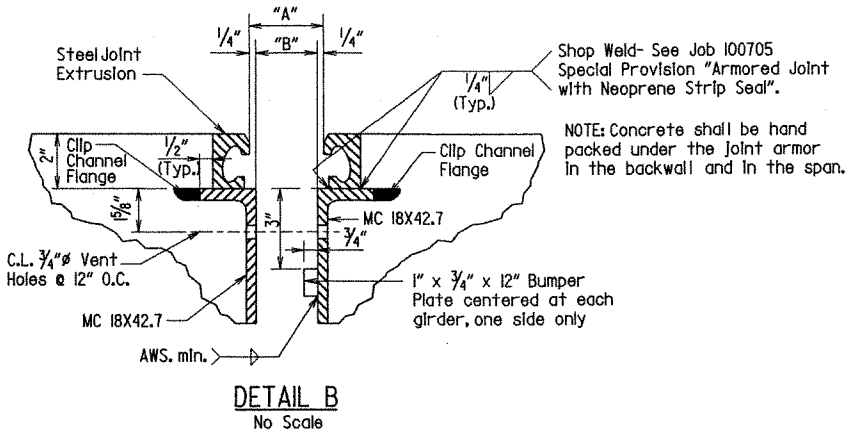
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		54	91
				JOB NO.	100705		52146	
				07204	SPAN DETAILS		52146	



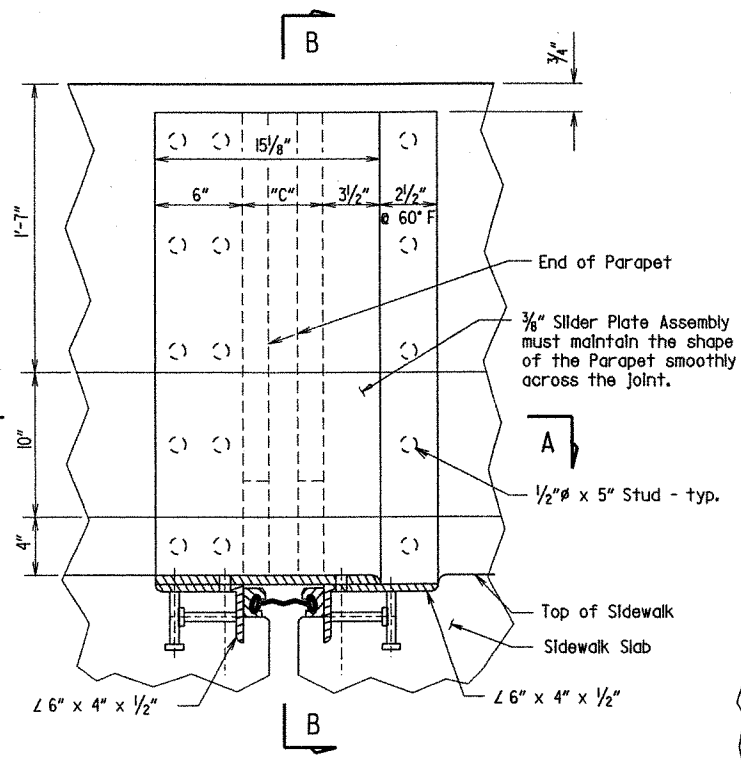
DETAILS OF JOINT AT BENTS 4 & 7  
No Scale



SECTION D-D  
No Scale



DETAIL B  
No Scale



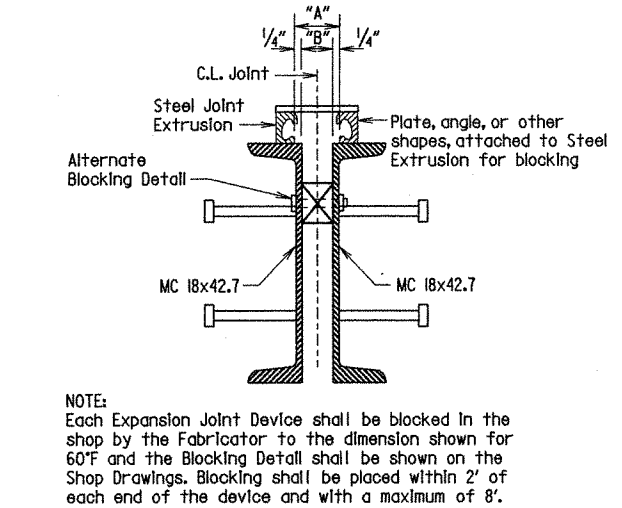
ELEVATION-STRIP SEAL AT PARAPET CURB  
No Scale

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

TABLE A

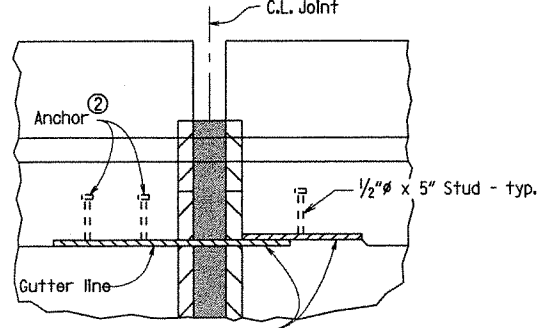
	"A" - Width perpendicular to joint at 24 hour average temperature of:			Joint Opening "B"	Dimension "C" @ 60°F
	40°F	60°F	80°F		
Bent 4	3 3/8"	3 1/8"	2 3/4"	2 5/8"	5 5/8"
Bent 7	3 3/4"	3 1/8"	2 1/2"	2 5/8"	5 5/8"

NOTE: 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.



DETAIL OF BLOCKING EXPANSION JOINT DEVICE  
No Scale

NOTE: 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'.



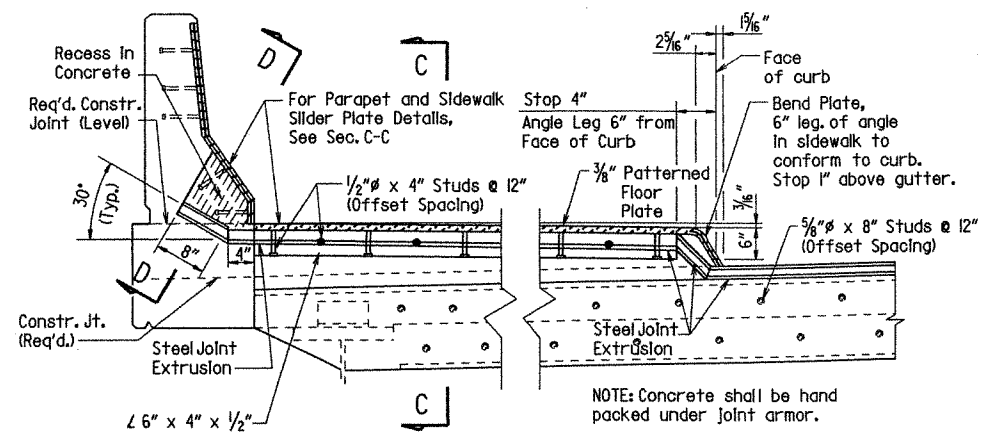
SECTION A-A  
No Scale

Sidewalk and Slider plates shall be AASHTO M270, Gr. 36 and shall be paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)" or "Structural Steel in Beam Spans (M270, 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 (M270, Gr. 50W)". The color shall be light brown, color chip no. 30475.

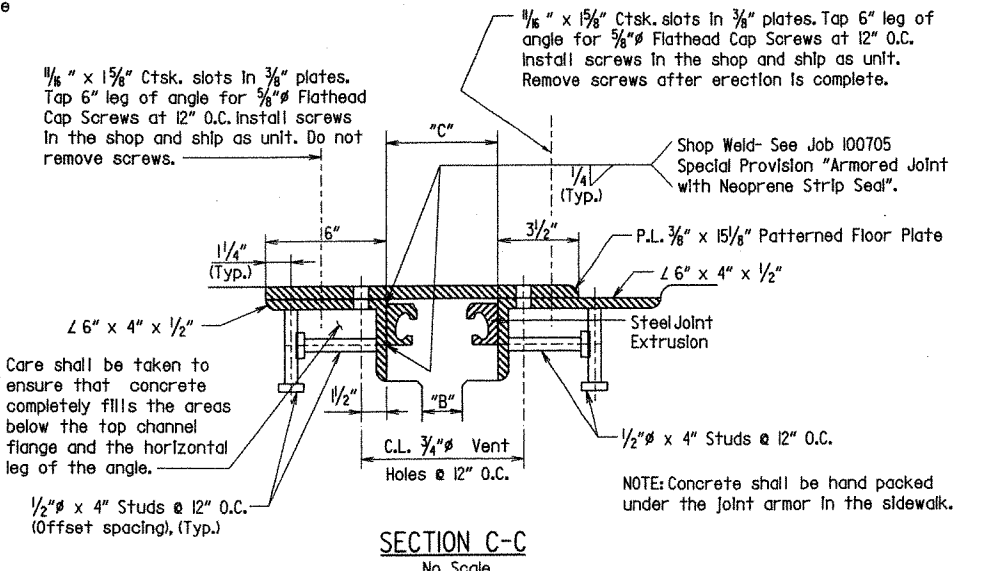
EXPANSION DEVICE INSTALLATION

**Bents 4 & 7**  
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.

NOTE: Details of joint turn-up in curb and parapet are general and show basic design controls only. See SP Job 100705, 'Armored Joint with Neoprene Strip Seal.' Method of installation and fabrication shall be determined by the manufacturer.



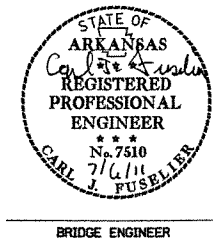
SECTION B-B  
No Scale



SECTION C-C  
No Scale

Care shall be taken to ensure that concrete completely fills the areas below the top channel flange and the horizontal leg of the angle.

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



BRIDGE ENGINEER

SHEET 11 OF 12  
DETAILS OF 430'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT

ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: MRE DATE: 10/27/10 FILENAME: b100705\_sl.dgn  
CHECKED BY: CAW DATE: 7/6/11 SCALE: As Shown  
DESIGNED BY: DHP DATE: 10/7/10  
BRIDGE NO. 07204 DRAWING NO. 52146

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 Edition) with applicable supplemental specifications and special provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications 5th Edition (2010), with 2010 Interims.

LIVE LOADING: HL-93

MATERIALS AND STRENGTHS:

Concrete: All concrete shall be Class (S)AE with a minimum 28 day strength  $f'_c = 4,000$  psi.

Reinforcing Steel: Reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (Yield Strength = 60,000 psi.).

Structural Steel: Structural steel shall conform to AASHTO M270, Gr. 50W ( $F_y = 50,000$  psi.) or AASHTO M270 Gr. 36 ( $F_y = 36,000$  psi.).

STRUCTURAL STEEL:

All Structural Steel shall be AASHTO M270, Gr. 50W unless otherwise noted. All structural steel shall be paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)". Structural Steel completely embedded in concrete may be AASHTO M270, Gr. 36. AASHTO M270, Gr. 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with subsection 807.84e unless noted otherwise.

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.

Girders including web and flange splice plates 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 (M270, Gr. 50W)".

Steel 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.

Drawings show general features of design only. Shop drawings shall be made in accordance with subsection 807.04, submitted, and approval secured before fabrication is begun.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with the recommendations of the manufacturer.

All girders shall be blocked in their true position in the shop as specified in subsection 807.54 (b)(1). The camber, length of sections, distance between bearings, and opening of joints shall be measured with the girders in their true position and this information shall become part of the permanent record of this job. The component parts shall be match marked in this assembly and those marks shall be shown on the erection diagram. All girder dimensions are based on a temperature of 60 degrees F. A tolerance of  $1/4"$  (plus or minus) allowed for camber.

Field connections shall be bolted with high-strength bolts. Bolts shall be  $3/4"$ , except as noted, and open holes shall be  $1/8"$  unless otherwise noted. Holes for  $3/4"$  bolts may be  $7/8"$  if a washer is supplied for use under both the nut and the head of the bolt. Bolt spacing shall be  $2 1/2"$  for  $3/4"$  bolts. For field splices, bolts shall be  $1/2"$  bolts. Open holes shall be  $5/8"$ . Bolt spacing shall be 3" for  $1/2"$  bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior girder web and on the bottom of the girder flanges.

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 false work 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.

Crossframes shall be installed as girders are erected. All bolts in crossframes and field splices shall be installed and tightened in accordance with subsection 807.71 prior to pouring the concrete deck.

Elastomeric Bearings shall be seated in accordance with subsection 808.08. This work and material will not be paid for directly but will be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

REINFORCING STEEL:

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60. The reinforcing steel shall be accurately located in the forms and firmly held in place by steel wire supports, sufficient in size and number, 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)".

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 to be chamfered  $3/4"$  unless otherwise noted.

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 concrete diaphragms at the bents shall be poured before the slab. Removable forms shall be used for Concrete Diaphragms.

The concrete deck shall be given a Tine Finish in accordance with subsection 802.19 for Class 5, Tined Bridge Roadway Surface Finish. The 6'-6" sidewalk shall receive a broomed finish as specified 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.

CLASS I PROTECTIVE SURFACE TREATMENT: Class I protective surface treatment shall be applied to the roadway surface, face of curb, and sidewalk surface.

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 pouring of the sidewalk and the pouring of the parapet railing. Any railing pours made before the entire slab has been placed and cured must be approved by the Engineer.

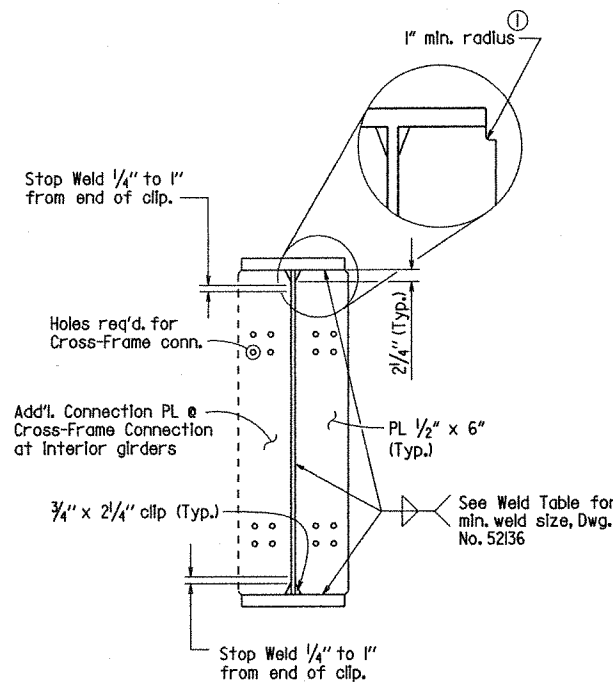
Load Distribution

Dead Load:

A. To Girder	Girder No.		
	Girder 1 & 9	733	plf + Wt. of Structural Steel
	Girder 2 thru 8	850	plf + Wt. of Structural Steel
B. To Composite Girder	Girder No.		
	Girder 1 & 9	770	plf ②
	Girder 2 thru 8	330	plf ②

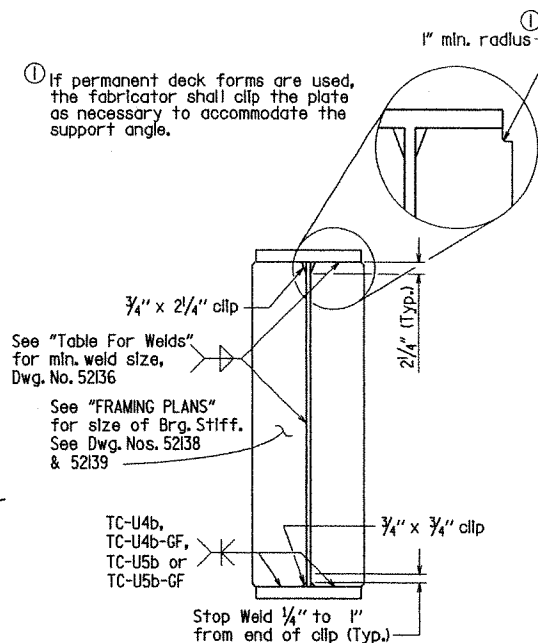
② Includes 160 plf future wearing surface.

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.		100705	5591	
				①	07204	SPAN DETAILS		52147



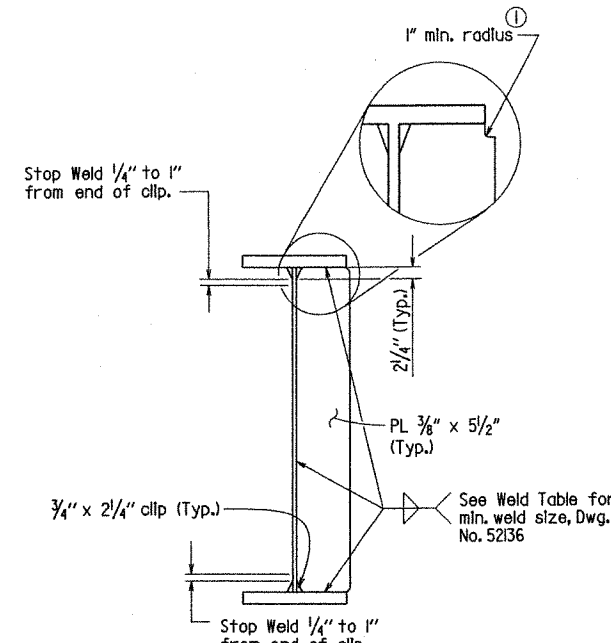
CONNECTION PLATE DETAIL

No Scale



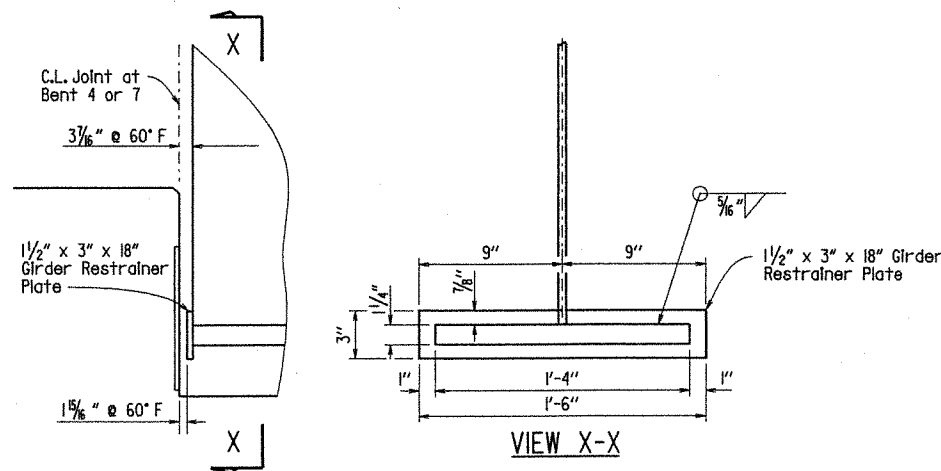
BEARING STIFFENER DETAIL

No Scale



INTERMEDIATE TRANSVERSE STIFFENER DETAIL

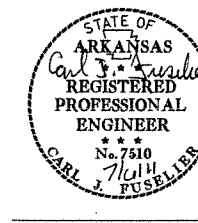
No Scale



GIRDER RESTRAINER PLATE DETAIL

Scale: 1" = 1'-0"

NOTE: Girder Restrainer Plate shall be centered on each girder line.



BRIDGE ENGINEER

SHEET 12 OF 12  
DETAILS OF 430'-0" CONTINUOUS  
COMPOSITE PLATE GIRDER UNIT

ROUTE 12  
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

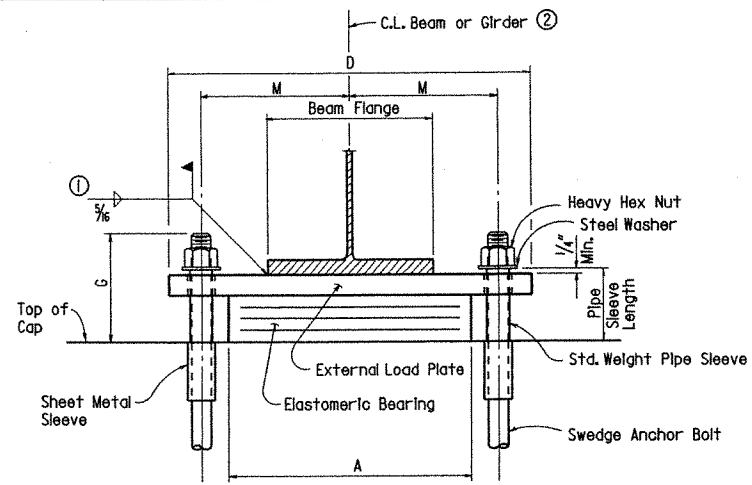
DRAWN BY: MRE DATE: 10/27/10 FILENAME: b100705\_sl.dgn  
CHECKED BY: CMW DATE: 7/6/11 SCALE: As Shown  
DESIGNED BY: DHP DATE: 10/7/10

BRIDGE NO. 07204

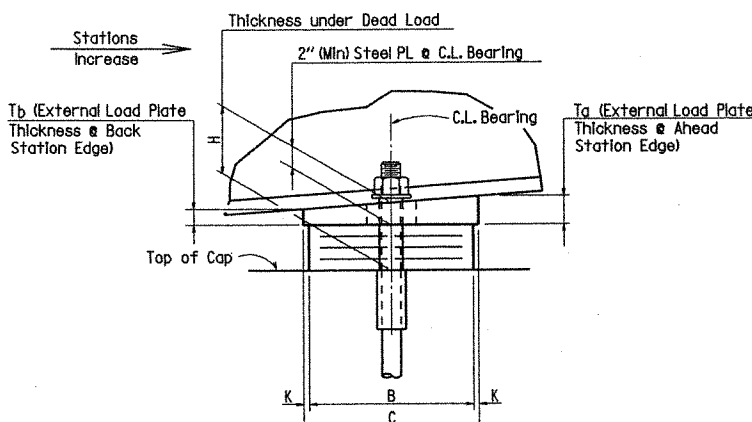
DRAWING NO. 52147



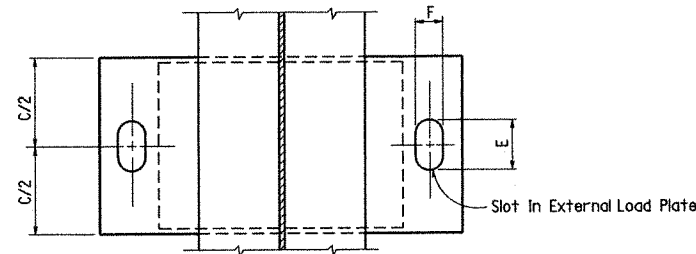
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	100705	56	91	
				① 07204	ELASTOMERIC BEARINGS	5248		



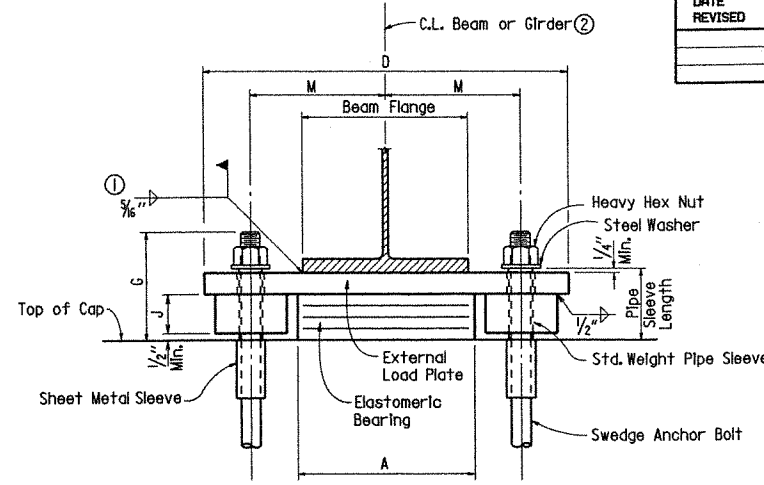
FRONT VIEW - AT BENT NOS. 1, 4BK, 4AH, 7BK, 7AH, 10



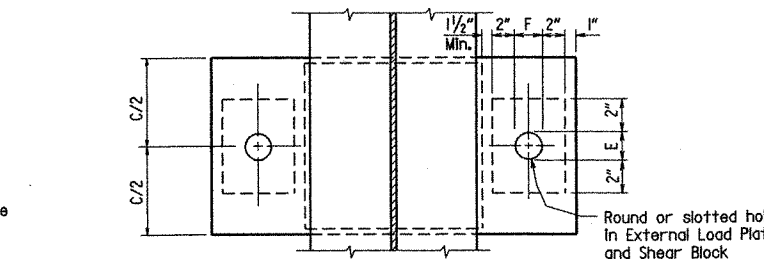
SIDE VIEW - AT BENT NOS. 1, 4BK, 4AH, 7BK, 7AH, 10



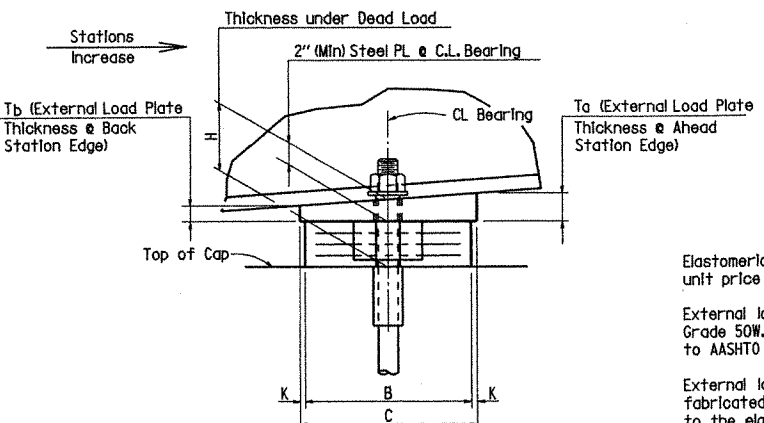
PLAN VIEW - AT BENT NOS. 1, 4BK, 4AH, 7BK, 7AH, 10



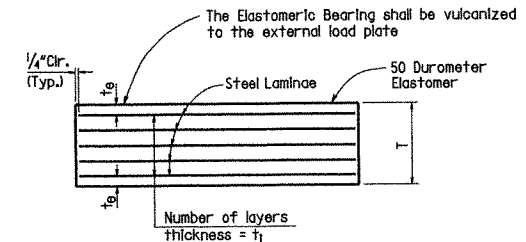
FRONT VIEW - AT BENT NOS. 2, 3, 5, 6, 8, 9



PLAN VIEW - AT BENT NOS. 2, 3, 5, 6, 8, 9

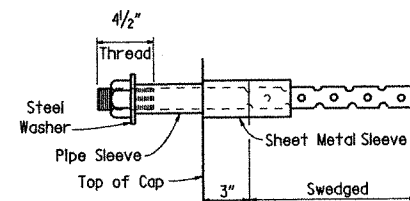


SIDE VIEW - AT BENT NOS. 2, 3, 5, 6, 8, 9



$t_a$  = thickness of elastomer cover on top and bottom of pad  
 $t_1$  = thickness of elastomer between steel laminae  
 $N$  = number of elastomer layers of thickness  $t_1$

**ELASTOMERIC BEARING**



**ANCHOR BOLT DETAIL**

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

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the masonry. 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)," and "Structural Steel in Plate Girder Spans (M 270, Gr. 50W)."

**GENERAL NOTES**

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

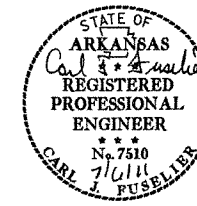
External load plates and shear blocks shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or AASHTO M 298, Class 50.

External load plates and external load plates with shear blocks shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. Surfaces 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) and painted according to subsection 807.75. Painting will not be paid for directly but will be considered subsidiary to "Elastomeric Bearings".

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 (M 270, Gr. 50W)" and "Structural Steel in Plate Girder Spans (M 270, Gr. 50W)". External load plates and shear blocks will not be measured or paid for separately but will be considered included in the unit bid price for "Elastomeric Bearings".

Tabular Data by: DHP Date: 10/7/10  
 Checked by: RBR Date: 7/6/11  
 Designed by: DHP Date: 10/7/10



BRIDGE ENGINEER

**DETAILS OF ELASTOMERIC BEARINGS**

ROUTE 18 SEC. 7  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 10/26/10 FILENAME: b100705.e.dgn  
 CHECKED BY: RBR DATE: 7/6/11 SCALE: No. Scale  
 DESIGNED BY: Std. DATE: \_\_\_\_\_  
 BRIDGE NO. 07204 DRAWING NO. 5248

- 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.
- Centerline Beam or Girder shall align with centerline bearing.

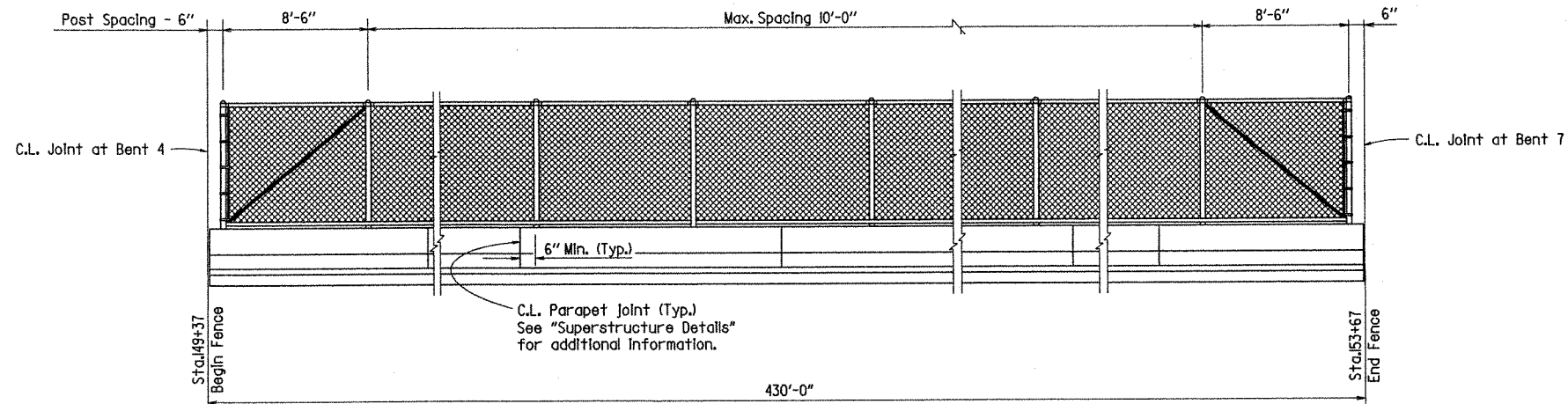
Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external 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.

**TABLE OF FABRICATOR VARIABLES**

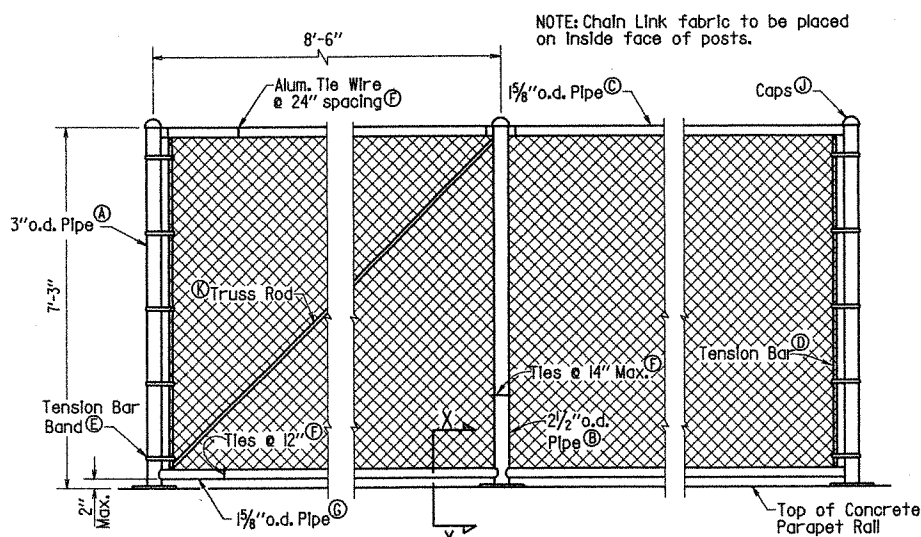
BRIDGE NO.	LOCATION		BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	ELASTOMERIC PAD																EXTERNAL LOAD PLATE										ANCHOR BOLT					
	BENT NO(S).	UNIT BEAM NO.				G	H	A	B	N	t <sub>1</sub>	t <sub>a</sub>	NO. & THICKNESS OF STEEL LAMINAE		T	C	D	E	F	J	K	M	T <sub>a</sub>	T <sub>b</sub>	ANCHOR BOLT		PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)								
																										(ø x L)	GRADE	(ø x L)	(ø x L)								
07204	1	285'	I-9	Exp.	9	130.00	9 1/2"	6 3/8"	16"	8"	6	1/2"	1/4"	7 ø 12 Ga.	4 1/4"	9"	28"	6 1/4"	3 3/8"	NA	1/2"	10 3/4"	2.24"	1.76"	2"ø x 31"	55	2 1/2"ø x 6 1/2"	4"ø x 6"	3 3/4"								
	2	285'	I-9	Exp.	9	341.00	7 1/4"	4 3/8"	20"	12 1/2"	3	1/2"	1/4"	4 ø 12 Ga.	2 3/8"	13 1/2"	37 3/4"	4 1/8"	2 1/4"	1 3/4"	1/2"	14 3/4"	2.45"	1.55"	1 1/2"ø x 24"	55	1 1/2"ø x 4 3/8"	3"ø x 6"	3"								
	3	285'	I-9	Fix	9	341.00	7 1/4"	3 3/8"	20"	12 1/2"	2	1/2"	1/4"	3 ø 12 Ga.	1 3/8"	13 1/2"	39 3/4"	3 3/8"	3 3/8"	1 1/4"	1/2"	15 1/4"	2.44"	1.56"	2"ø x 29"	55	2 1/2"ø x 4 1/8"	4"ø x 6"	3 3/4"								
	4Bk	285'	I-9	Exp.	9	130.00	6 3/4"	3 3/8"	16"	8 1/2"	2	1/2"	1/4"	3 ø 12 Ga.	1 3/8"	9 1/2"	26"	3 5/8"	2 1/4"	NA	1/2"	10 1/4"	2.22"	1.78"	1 1/2"ø x 24"	55	1 1/2"ø x 4 1/8"	3"ø x 6"	3"								
	4Ah	430'	I-9	Exp.	9	159.00	7 1/2"	4 3/8"	20"	7 1/2"	3	1/2"	1/4"	4 ø 12 Ga.	2 3/8"	8 1/2"	31"	4 3/4"	2 5/8"	NA	1/2"	12 1/2"	2.20"	1.80"	1 3/4"ø x 27"	55	2"ø x 4 5/8"	4"ø x 6"	3 3/8"								
	5	430'	I-9	Fix	9	473.00	7 3/4"	3 3/8"	26"	12"	2	1/2"	1/4"	3 ø 12 Ga.	1 3/8"	13"	46 3/4"	3 3/4"	3 3/4"	1 1/4"	1/2"	18 1/2"	2.12"	1.88"	2 1/2"ø x 35"	55	3"ø x 4 1/8"	4"ø x 6"	4 1/2"								
	6	430'	I-9	Exp.	9	465.00	8 3/4"	5 3/8"	26"	12"	5	1/2"	1/4"	6 ø 12 Ga.	3 3/8"	13"	44 3/4"	5 3/8"	2 5/8"	3"	1/2"	18"	1.87"	2.13"	1 3/4"ø x 29"	55	2"ø x 5 1/8"	4"ø x 6"	3 3/8"								
	7Bk	430'	I-9	Exp.	9	155.00	11"	7 3/8"	20"	8"	8	1/2"	1/4"	9 ø 12 Ga.	5 3/8"	9"	32"	7 3/4"	3 3/8"	NA	1/2"	12 3/4"	1.79"	2.21"	2 1/4"ø x 36"	55	2 1/2"ø x 7 5/8"	4"ø x 6"	4"								
	7Ah	285'	I-9	Exp.	9	130.00	6 3/4"	3 3/8"	16"	8 1/2"	2	1/2"	1/4"	3 ø 12 Ga.	1 3/8"	9 1/2"	26"	3 5/8"	2 1/4"	NA	1/2"	10 1/4"	1.78"	2.22"	1 1/2"ø x 24"	55	1 1/2"ø x 4 1/8"	3"ø x 6"	3"								
	8	285'	I-9	Fix	9	341.00	7 1/4"	3 3/8"	20"	12 1/2"	2	1/2"	1/4"	4 ø 12 Ga.	2 3/8"	13 1/2"	39 3/4"	3 3/8"	3 3/8"	1 1/4"	1/2"	15 1/4"	1.56"	2.44"	2"ø x 29"	55	2 1/2"ø x 4 1/8"	4"ø x 6"	3 3/4"								
9	285'	I-9	Exp.	9	341.00	7 1/4"	4 3/8"	20"	12 1/2"	3	1/2"	1/4"	4 ø 12 Ga.	2 3/8"	13 1/2"	37 3/4"	4 1/8"	2 1/4"	1 3/4"	1/2"	14 3/4"	1.57"	2.43"	1 1/2"ø x 24"	55	1 1/2"ø x 4 3/8"	3"ø x 6"	3"									
10	285'	I-9	Exp.	9	130.00	9 1/2"	6 3/8"	16"	8"	6	1/2"	1/4"	7 ø 12 Ga.	4 1/4"	9"	28"	6 1/4"	3 3/8"	NA	1/2"	10 3/4"	1.77"	2.23"	2"ø x 31"	55	2 1/2"ø x 6 1/2"	4"ø x 6"	3 3/4"									

\*Maximum Design Load = Service I Limit State

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.		100705	57	91
① 07204 CHAIN LINK FENCE DETAILS							52149	



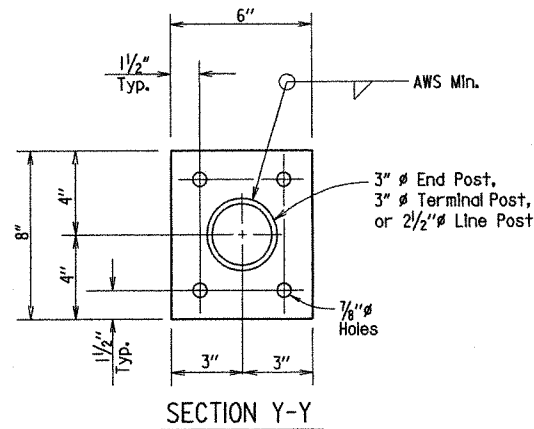
LONGITUDINAL VIEW OF CHAIN LINK FENCE



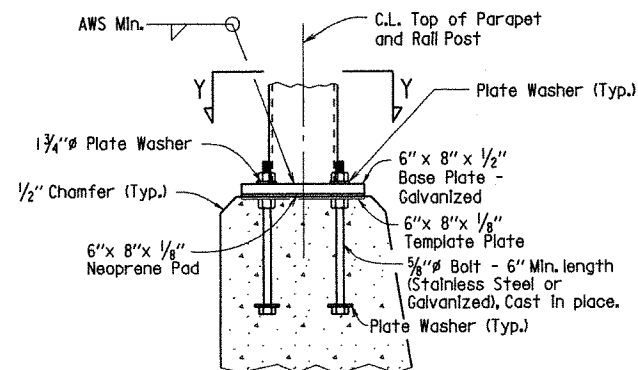
DETAIL OF CHAIN LINK FENCE

- (A) END POST: 3" O.D.
- (B) LINE POST: 2 1/2" O.D.
- (C) TOP RAIL: 1 5/8" O.D.
- (D) TENSION BAR: 3/8" x 3/4" Bar
- (E) TENSION BAR BAND: 3/4" x .074 w/ 5/16" x 1/4" Bolt (1 Band Top and Bottom w/ 15" Max. spaces)
- (F) TIE WIRE: 9 Ga. Aluminum
- (G) BOTTOM RAIL: 1 5/8" O.D.
- (H) FABRIC: 9 Ga. 2" Mesh w/ Knocklug or Twisting Selvage
- (J) CAPS: All Posts shall be Capped and Shall Conform to ASTM F626-84
- (K) TRUSS ROD: Min. of 5/8" Round with Tighteners and Fittings

NOTE: Chain Link Fence attached to Bridge and including tapered panel section shall be paid for as "7' Steel Chain Link Fence". For additional details of Chain Link Fence, See Standard Drawing WF-3.

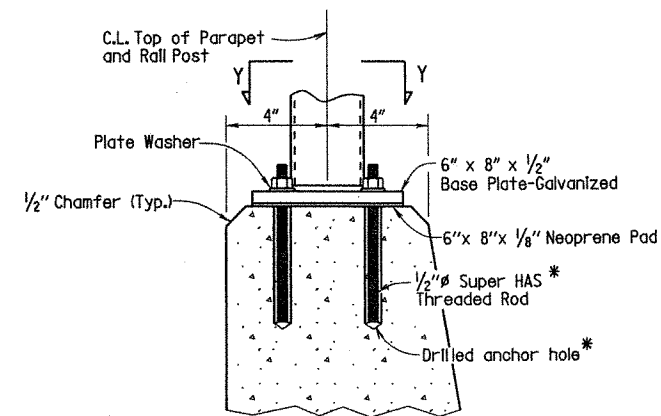


SECTION Y-Y



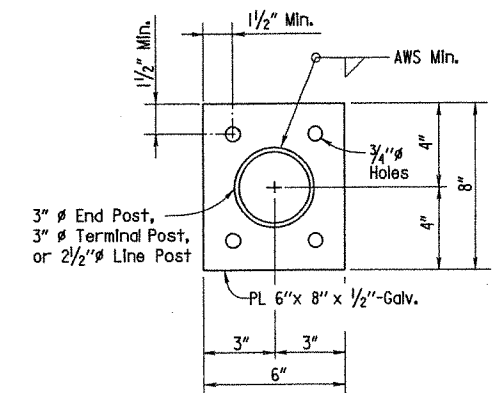
SECTION X-X

DETAILS OF POST ANCHOR SYSTEM



SECTION X-X

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)



SECTION Y-Y

NOTES:

Fence layout shall conform to the vertical and horizontal bridge alignments. Fence posts shall be set plumb (true vertical position). Parapet rail concrete shall be at least 7 days old before stretching and securing fabric to posts.

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 AASHTO M64 or ASTM A354-Grade BC galvanized in accordance with AASHTO M232, or M298, Class 40 or 50.

Nuts: Nuts shall conform to AASHTO M292, Gr. 8A (stainless steel) or galvanized in accordance with AASHTO M232 or M298, Class 40 or 50.

Threads: Threads on bolts, screws, and nuts shall conform to American Standard Course Series, Class 2 Flt, ASA Specification B11.

Washers: Washers shall be stainless steel and conform to the requirements of ASTM A276 or A167-Type 302 with dimensions meeting ASTM F436, or high strength steel conforming to AASHTO M293 and galvanized in accordance with AASHTO M232 or M298, Class 40 or 50.

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

Plate Washers shall be stainless steel and conform to the requirements of ASTM A167-Type 302 or AASHTO M270, Gr. 36, galvanized in accordance with AASHTO M232 or M298, Class 40 or 50. Plate Washers shall have dimensions meeting the requirements of ANSI/ASME B18.22.1, Type A plain washer (Wide Series).

Chain Link Fence attached to Bridge and including tapered panel section shall be paid for as "7' Steel Chain Link Fence". For additional details of Chain Link Fence, See Standard Drawing WF-3.

Neoprene pad and template plates shall not be paid for directly, but shall be considered incidental to the unit price bid for Item "7' Steel Chain Link Fence".

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



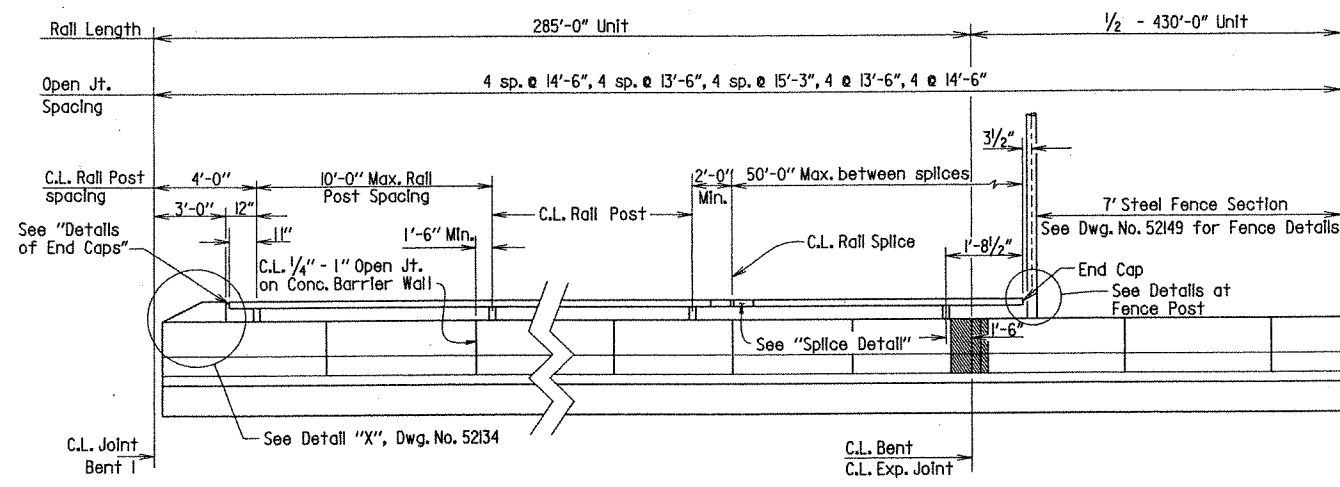
BRIDGE ENGINEER

DETAILS OF CHAIN LINK FENCE  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

ALTERED BY: MRE DATE: 11/18/10 FILENAME: bi00705\_fl.dgn  
CHECKED BY: RBR DATE: 7/5/11 SCALE: No Scale  
DESIGNED BY: Std. DATE: 08/22/02  
BRIDGE NO. 07204 DRAWING NO. 52149



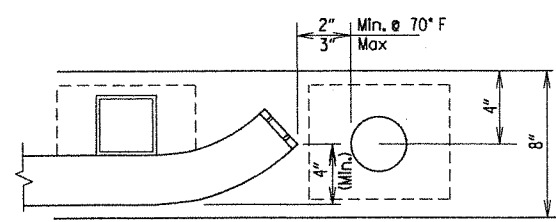
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				6	ARK.			
						100705	58	91
				07204	TYPE "H" RAIL DETAIL		5250	



**RAIL POST SPACING DETAIL**

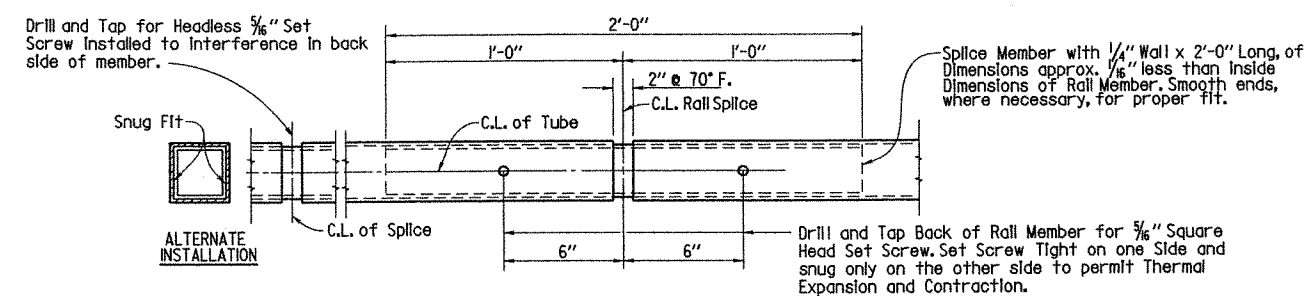
(Horizontal dimensions are along face of Rail and do not include a vertical curve correction.)

Symmetrical about Center of 430'-0" Unit

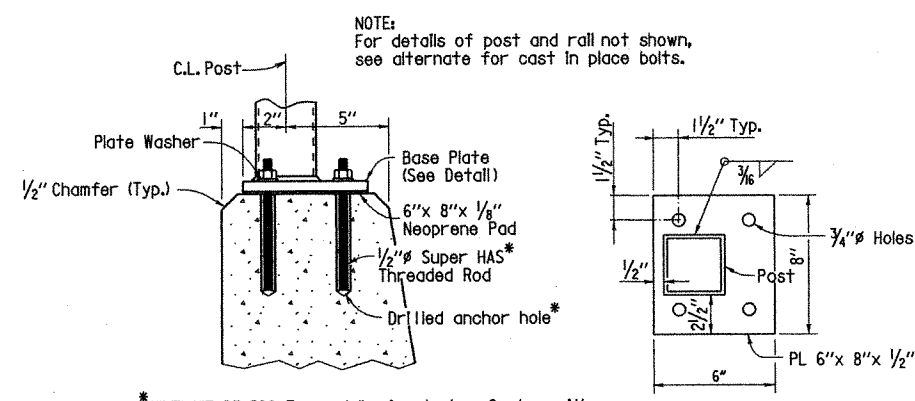


**DETAILS AT FENCE POST**

Bend or Mitre as Shown.

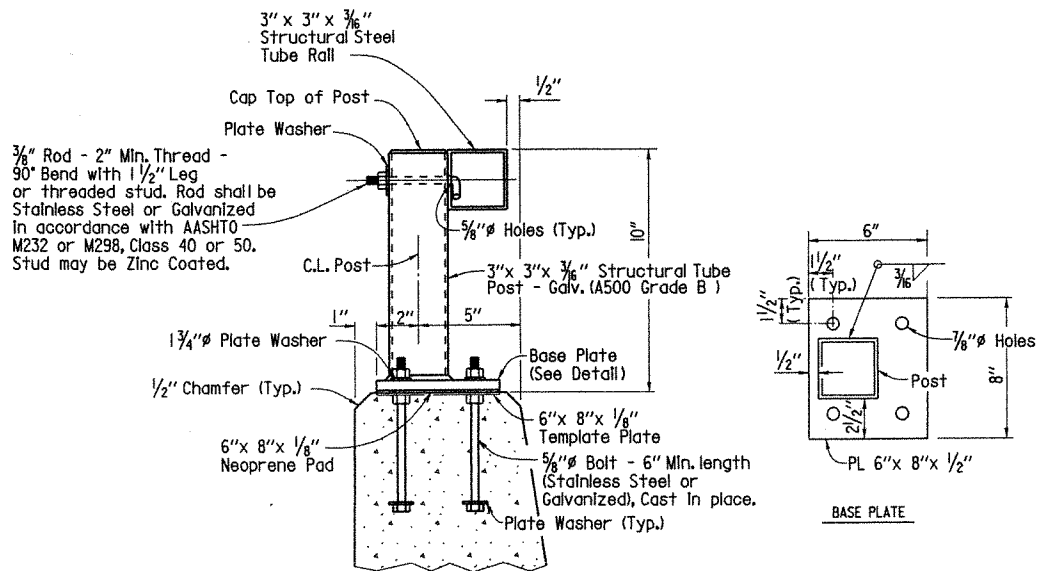


**SPLICE DETAIL**

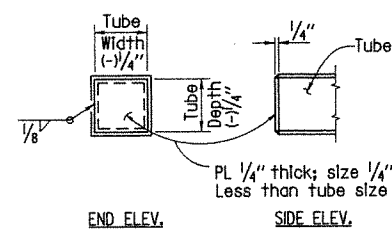


\* HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4 1/2" embedment or an approved equal.  
The HILTI Epoxy Adhesive Anchor System shall be installed in accordance with Manufacturer's recommendations.

**DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)**



**DETAILS OF POST ANCHOR SYSTEM (CAST IN PLACE BOLTS)**



**DETAILS OF END CAPS**



BRIDGE ENGINEER

**NOTES FOR BRIDGE RAILING:**  
 Rail layout shall conform to vertical and horizontal alignment of bridge.  
 Maximum post spacing = 10'-0"  
 Minimum distance from centerline post to centerline open or contraction joints in parapet = 1'-6".  
 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.  
 Base plates shall not be placed upon areas that are improperly finished, deformed or irregular.  
 Bridge railing, including posts, fasteners, template plates, and neoprene pad shall be paid for at the contract unit price bid per linear foot for "Metal Bridge Railing (Type H)".  
 Shop drawings showing details of railing shall be submitted and approval secured before fabrication is begun.

**MATERIALS:**  
 Tubing, Posts, and Accessories: AASHTO M270, Gr. 36 or ASTM A500-Grade B.  
 Railing End Caps: AASHTO M270, Grade 36, galvanized.  
 Steel Rail Members shall be galvanized in accordance with AASHTO M 111 after fabrication.  
 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 AASHTO M64 or A354-Grade BC galvanized in accordance with AASHTO M232 or M298, Class 40 or 50.

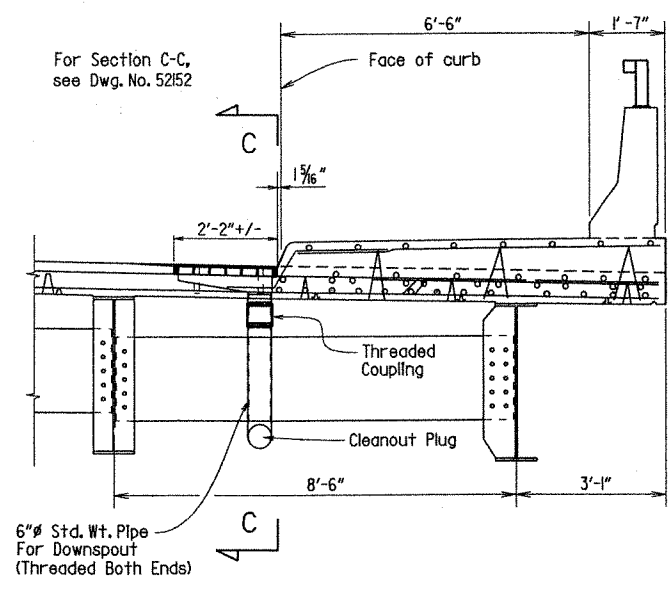
Splice Set Screws shall conform to the requirements of ASTM A193 or A320-Gr. B8 (Stainless steel) or AASHTO M270, Gr. 36 (Galvanized).  
 Nuts: Nuts shall conform to AASHTO M292, Gr. 8A (Stainless steel) or galvanized in accordance with AASHTO M232 or M298, Class 40 or 50.  
 Threads: Threads on bolts, screws, and nuts shall conform to American Standard Coarse Series, Class 2 FIT, ASA Specification B11.  
 Washers shall be stainless steel and conform to the requirements of ASTM A276 or A167-Type 302 with dimensions meeting ASTM F436, or high strength steel conforming to AASHTO M293 and galvanized in accordance with AASHTO M232 or M298, Class 40 or 50.  
 Plate Washers shall be stainless steel and conform to the requirements of ASTM A167-Type 302 or AASHTO M270, Gr. 36, galvanized in accordance with AASHTO M232 or M298, 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.

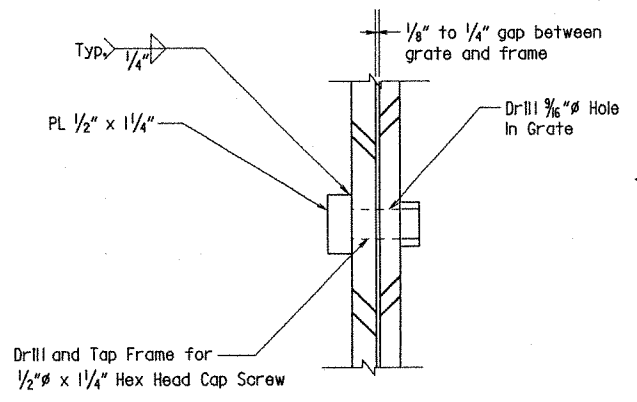
**DETAILS OF TYPE "H" BRIDGE RAILING**  
 ROUTE \_\_\_\_\_ SEC. \_\_\_\_\_  
**ARKANSAS STATE HIGHWAY COMMISSION**  
 LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 6/10/11 FILENAME: bi00705\_fl.dgn  
 CHECKED BY: CMW DATE: 7/6/11 SCALE: No Scale  
 DESIGNED BY: Std. DATE: \_\_\_\_\_  
 BRIDGE NO. 07204 DRAWING NO. 52150

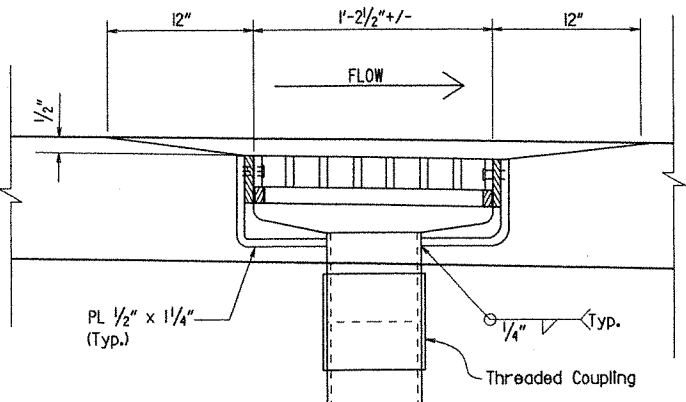
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				6	ARK.			
							JOB NO. 100705	59 91
							07204 DECK DRAIN DETAILS	52151



**SECTION AT DECK DRAIN**  
No Scale

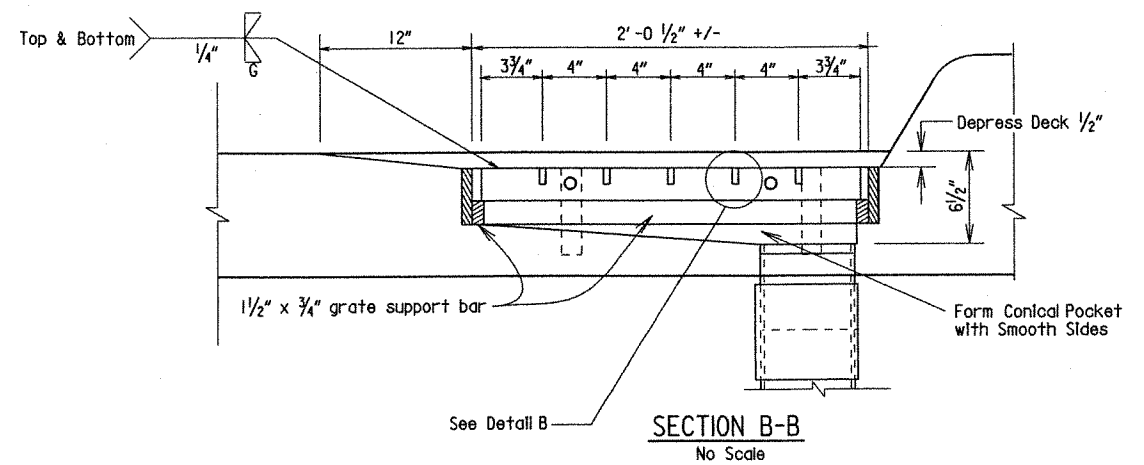


**DETAIL A**  
No Scale



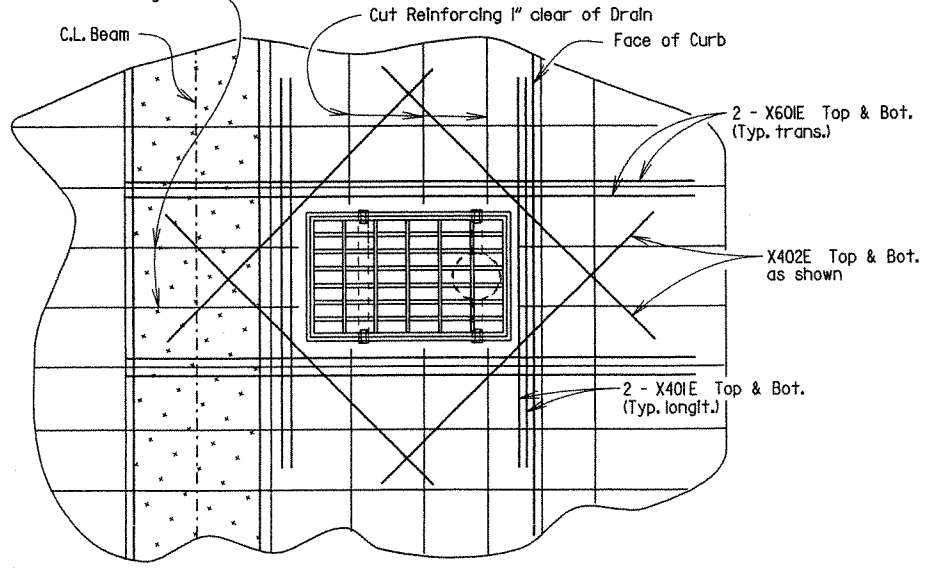
**SECTION A-A**  
No Scale

**NOTES:**  
 For Location of Deck Drains, See Superstructure Details.  
 Drain location may be adjusted to clear diaphragm connections and avoid reinforcing bars.  
 Steel Fasteners shall be galvanized in accordance with AASHTO M232 or M298, Class 40 or 50.  
 Structural Steel in Deck drains shall not be paid for directly but considered subsidiary to the item "Structural Steel in Beam Spans (AASHTO M270, Gr.50W)."  
 Top Longitudinal Reinforcing Steel in the Slab shall be cut as required to install the Deck drains. Two #4 x 5'-6" Straight bars (longitudinally) shall be placed on each side of the drain.  
 Top and bottom Transverse Reinforcing Steel in the slab shall be cut as required (Up to a maximum of three bars per mat) to install Deck drains. Add two #6 x 9'-6" Straight bars (transversely) per mat on each side of the drain.  
 Add one #4 x 4'-0" Straight bar to top and bottom mat of reinforcing @ 45° angle to each corner of Deck drain (Total 8 Bars per Drain).  
 Repair all cut or damaged epoxy bars according to the Standard Construction Specifications.  
 All additional Reinforcing Steel placed around Deck drains, shall be Epoxy Coated and shall not be paid for directly but shall be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)."  
 For additional notes see Dwg. No. 52152

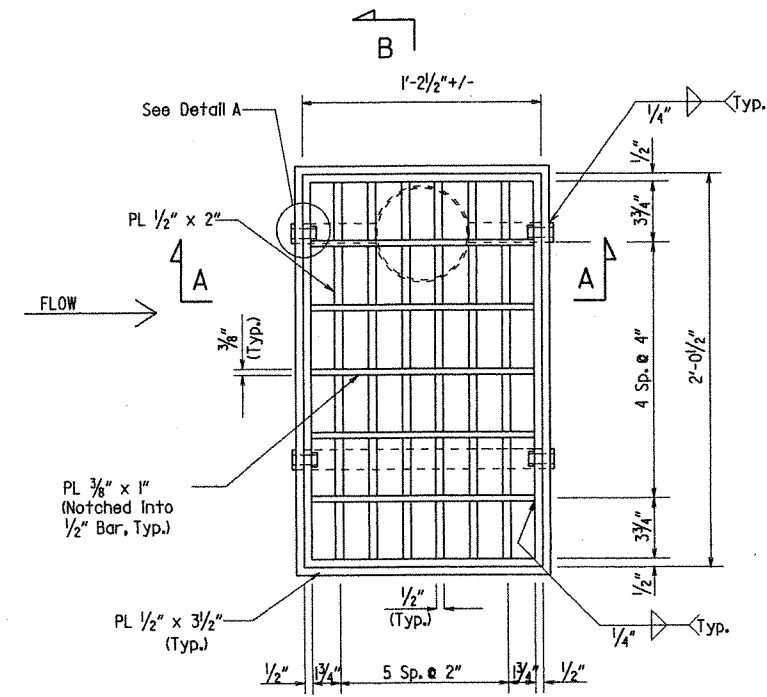


**SECTION B-B**  
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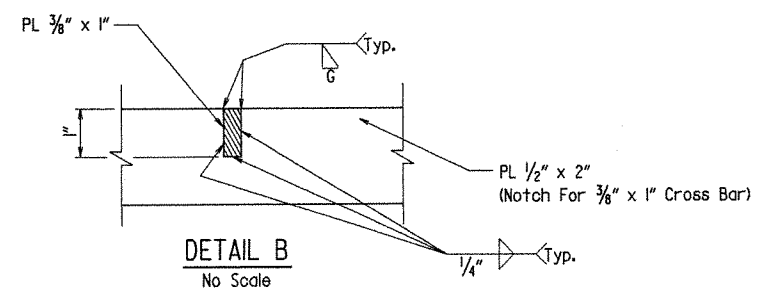
Locate Drain to cut minimum number of transverse reinforcing bars



**PLAN OF REINFORCING AT DECK DRAINS**  
No Scale



**PLAN**  
No Scale



**DETAIL B**  
No Scale

**NOTE:** A Pre-Manufactured Grate or Grate and Frame may be submitted for approval of 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.

**BAR LIST FOR ONE DRAIN**

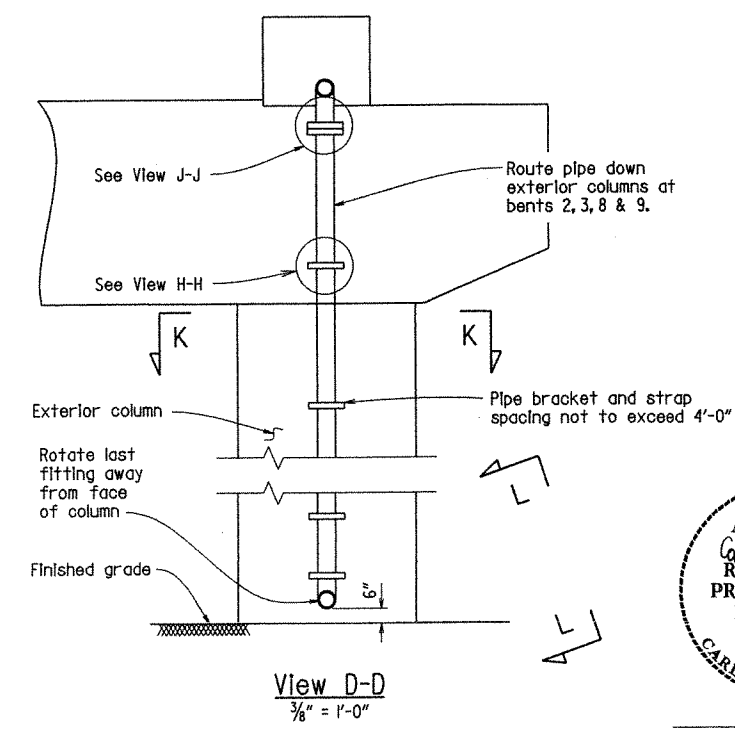
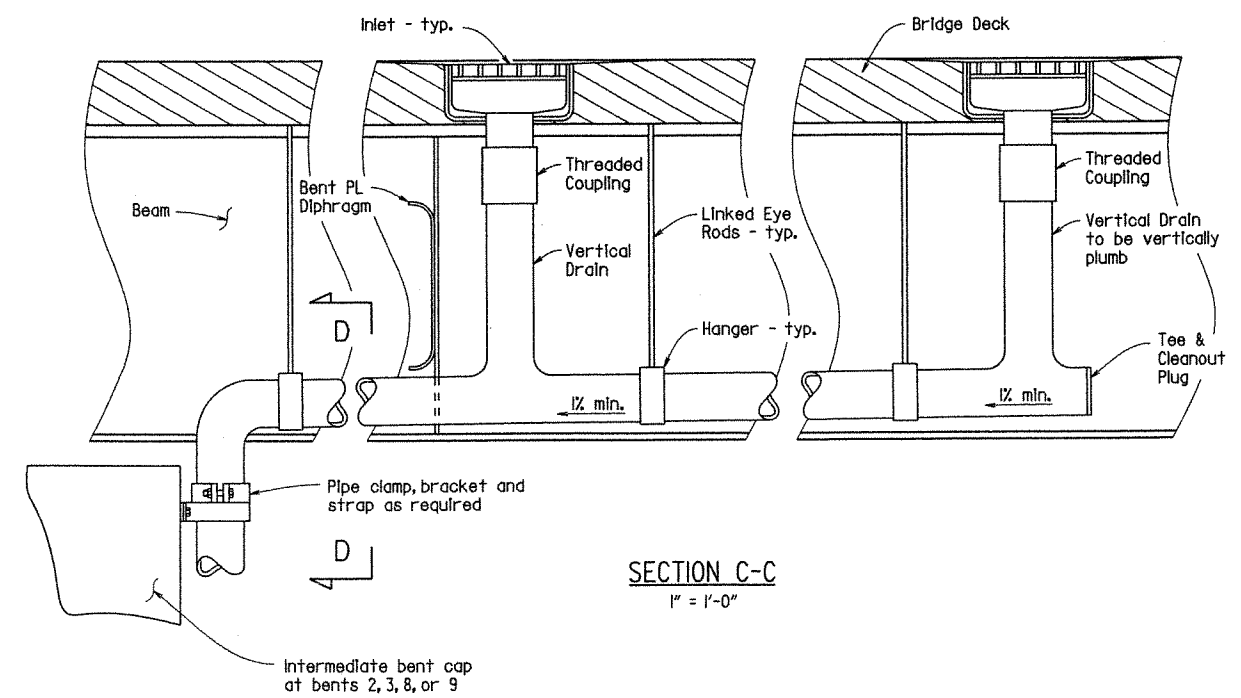
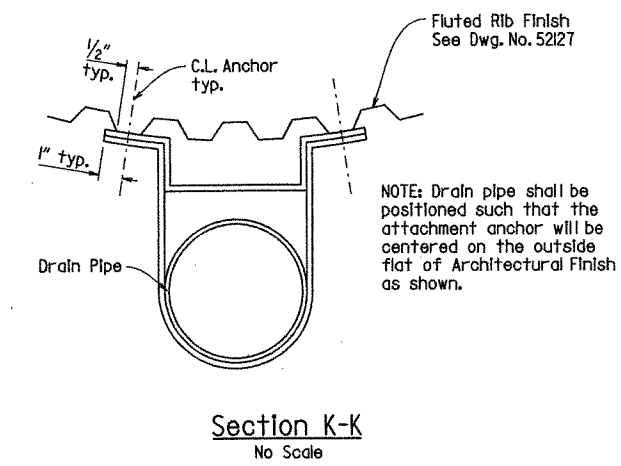
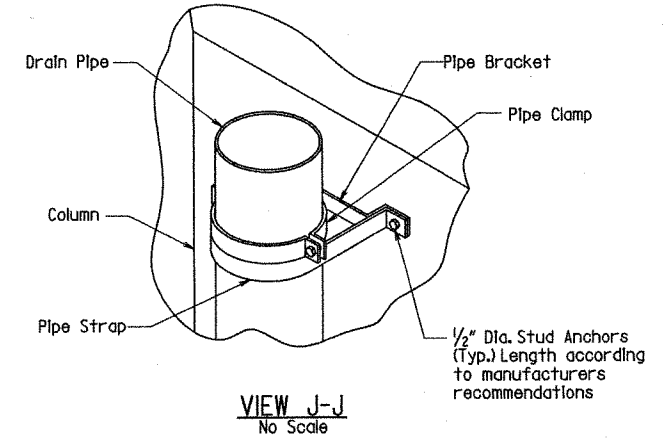
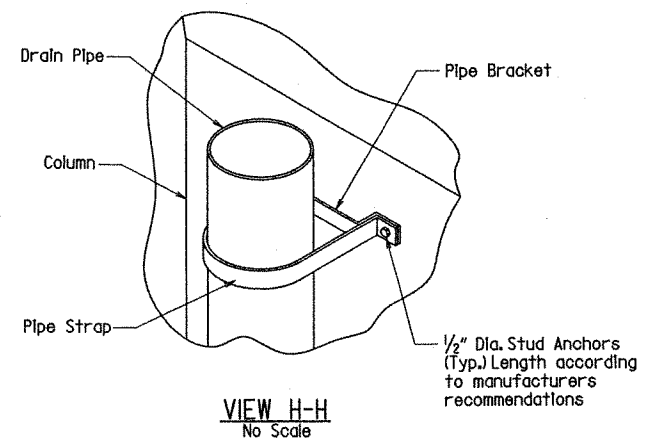
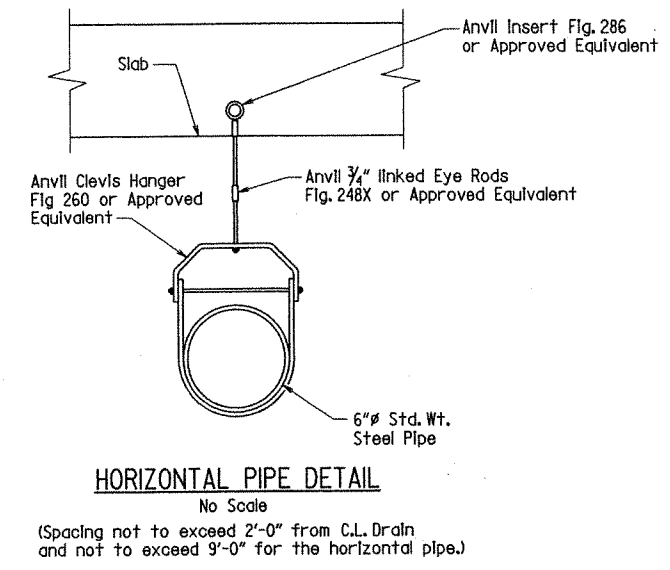
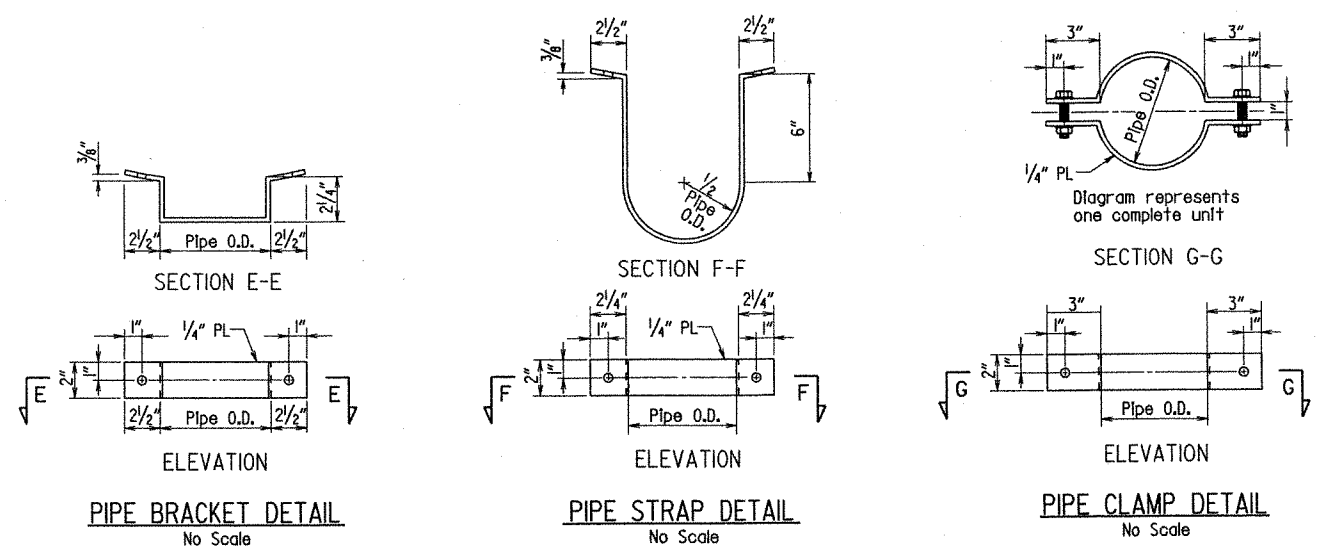
Mark	No. Req'd.	Length
X401E	8	4'-0"
X402E	8	5'-6"
X601E	8	9'-6"



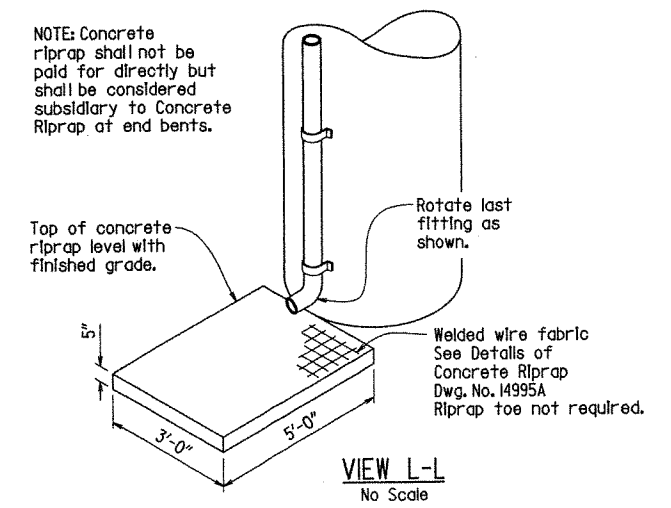
BRIDGE ENGINEER

**SHEET 1 OF 2**  
**DETAILS OF DECK DRAINS**  
 ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
 LITTLE ROCK, ARK.  
 DRAWN BY: MRE DATE: 10/25/10 FILENAME: B100705\_drn.dgn  
 CHECKED BY: RBR DATE: 7/6/11 SCALE: NO SCALE  
 DESIGNED BY: STO DATE: -  
 BRIDGE NO. 07240 DRAWING NO. 52151

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.	100705	60	91	
				07240	DECK DRAIN DETAILS	52152		



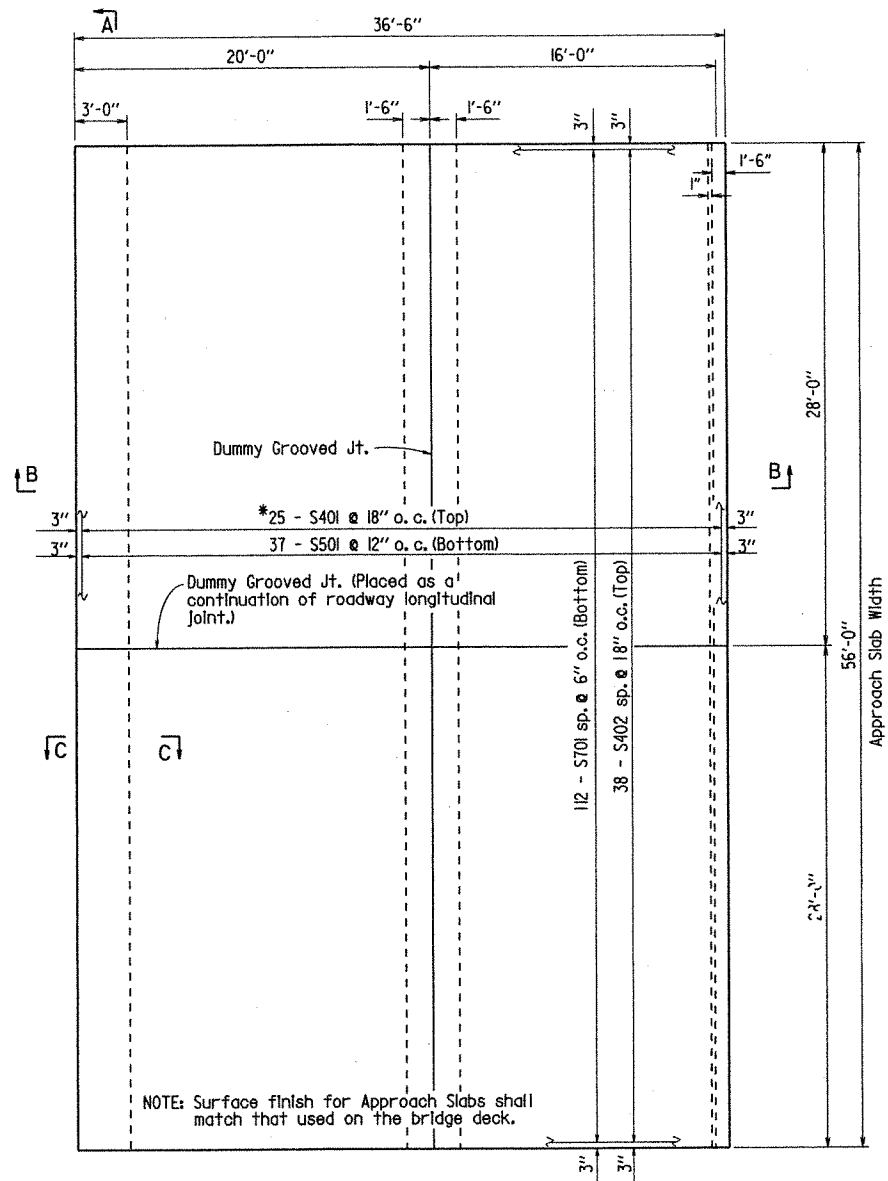
- NOTES:
- All pipe and fittings shall be 6" diameter standard weight steel pipe as noted in the plans. Pipe and fittings shall be in conformance with ASTM A53 or ASTM A501 Grade A and shall be hot-dipped galvanized in accordance with AASHTO M11. Pipe and fittings conforming to ASTM A500 Grade B and galvanized in accordance with ASTM A123 may also be provided.
  - All exposed surfaces of galvanized pipe and fittings and any galvanized eye rods, hangers, and fasteners shall be cleaned in accordance with SSPC-SP1 (Solvent Cleaning). All surfaces of the pipe clamps, pipe straps, pipe brackets, drain inlets and any ungalvanized eye rods, hangers and fasteners shall be cleaned in accordance with Section 638. All elements of the drain system shall be painted with an aluminum epoxy paint conforming to Section 638 prior to final assembly on the bridge structure.
  - All exposed areas of the drain system shall be topcoated with the finish system conforming to Section 807.75. The color of paint for the pipe, fittings, eye rods, hangers, pipe clamps, pipe straps, pipe brackets, and fasteners shall be brown or light brown matching Fed. Std. 595B Color Chip No. 30475 or 30049 as directed by the Engineer, to match the adjacent bridge element.
  - All coatings shall be supplied by the same manufacturers to ensure compatibility and shall be from the Departments Qualified Products List 638.02 or 807.76 as appropriate.
  - Refer to Reinforcing Plan and Deck Pouring Sequence, Dwg. No. 5212, for location of inlets and horizontal routing of drain piping. Horizontal pipe runs must not project lower than the bottom flange of exterior beams.
  - Place pipe clamps atop the pipe strap/bracket assemblies attached to cap and column only. Pipe clamp spacing not to exceed 8'-0".
  - Allow for expansion of materials. Contractor shall not clamp bends on bent cap only.
  - Subject to approval by the Engineer, functionally equivalent, commercially available galvanized metal products may be substituted for the Bracket, Clamp, and Strap detailed. If fabricated as shown, Steel materials shall be ASTM A36 or stronger, and galvanized after fabrication. Concrete anchor studs and their lock nuts shall be 1/2" minimum diameter galvanized or stainless steel with mechanical properties as strong as ASTM A307 or better. Anchor studs shall have minimum embedment of 9 diameters or deeper per manufacturer's recommendations and may be expansion type or epoxy grouted, HIT HSL-3 or HIT RE 500 or approved equal. Installation for stud anchors shall be according to the manufacturer's recommendations.



STATE OF ARKANSAS  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 7510  
 7/6/11  
 CARL J. FUSELLIER  
 BRIDGE ENGINEER

**SHEET 2 OF 2**  
**DETAILS OF DECK DRAINS**  
 ROUTE SEC.  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.  
 DRAWN BY: MRE DATE: 6/10/11 FILENAME: bl00705\_drn.dgn  
 CHECKED BY: RBL DATE: 7/6/11 SCALE: 3/8" = 1'-0" or as shown  
 DESIGNED BY: STD DATE: BRIDGE NO. 07204 DRAWING NO. 52152

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.	100705		61	91
				07204	APPROACH SLAB		52153	



PLAN OF TYPE SPECIAL APPROACH SLAB

1/2" = 1'-0"

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

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

Slab Width	Reinforcing Steel (lbs.)	Concrete (Cu. Yds.)
56'-0"	13,347	114.40

BAR LIST  
TYPE SPECIAL APPROACH SLAB

Mark	No. Req'd.	Length	P.D.	Bending Diagram
* S401	25	55'-8"	Str.	
S402	38	36'-2"	Str.	
* S403	8	55'-8"	Str.	
S404	112	10'-4"	2"	
S501	37	55'-8"	Str.	4 1/2" Min. (Typ.)
S701	112	36'-2"	Str.	Dimensions are out to out of bar.

\*NOTE: At the Contractor's option, two #4 bars may be substituted for bars S401 and S403. Minimum lap length is 1'-9". Payment will be based on weight of S401 and S403 bars.

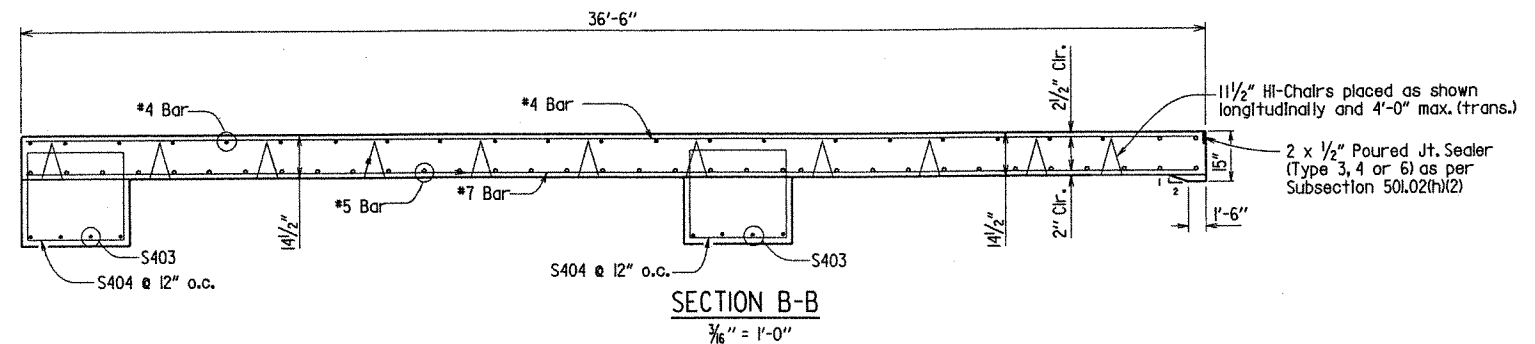
GENERAL NOTES

Concrete shall be Class S (AE) (f'c = 4,000 psi).

Reinforcement Steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi).

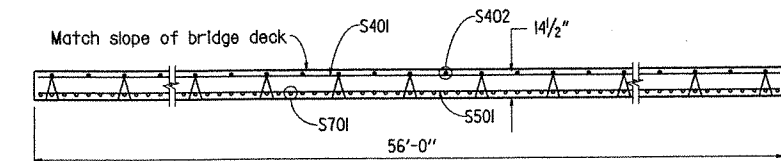
Approach Slabs will be measured and paid for in accordance with Section 504 of the Standard Specifications.

Joint Sealer Included in the pay item "Approach Slab."



SECTION B-B

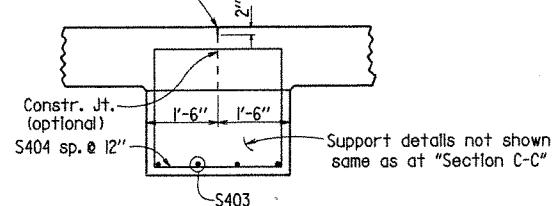
3/16" = 1'-0"



SECTION A-A

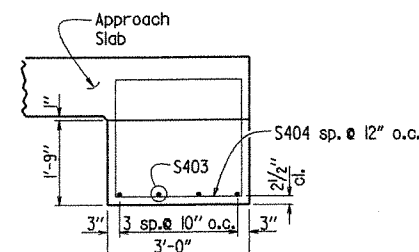
No Scale

1/4" x 2" Poured Synthetic Polymer Jt. Sealer (Type 3, 4 or 6) as per Subsection 501.02(h)(2). Backer rod is not required.



DETAIL OF DUMMY GROOVED JOINT

No Scale



SECTION C-C

No Scale



BRIDGE ENGINEER

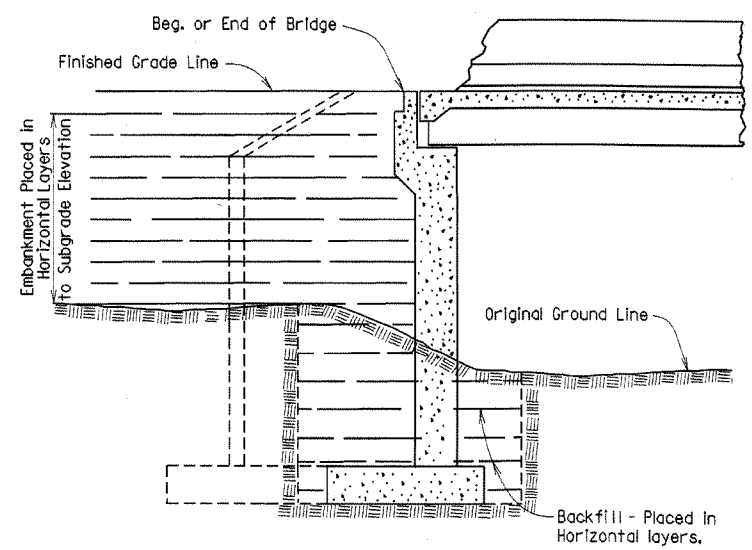
DETAILS OF TYPE SPECIAL APPROACH SLAB

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

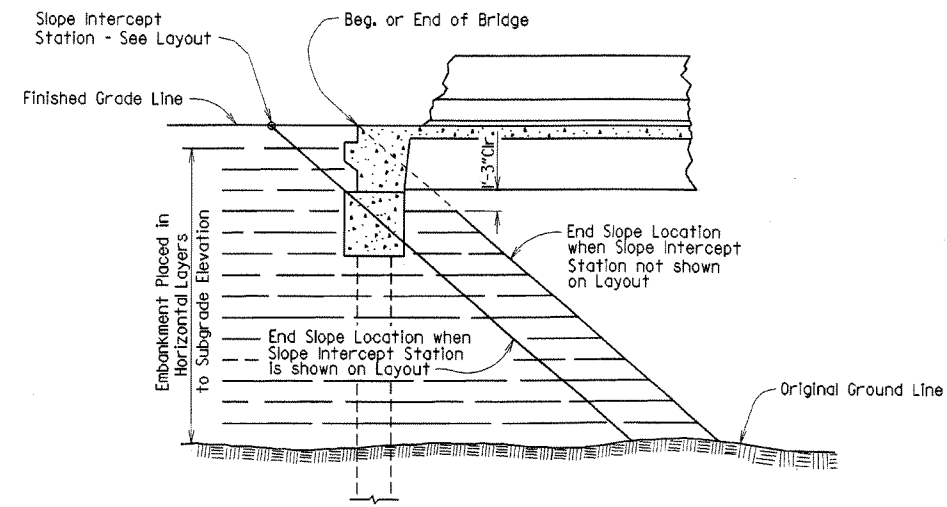
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DESIGNED BY: DATE: BRIDGE NO. 07204 DRAWING NO. 52153

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		62	

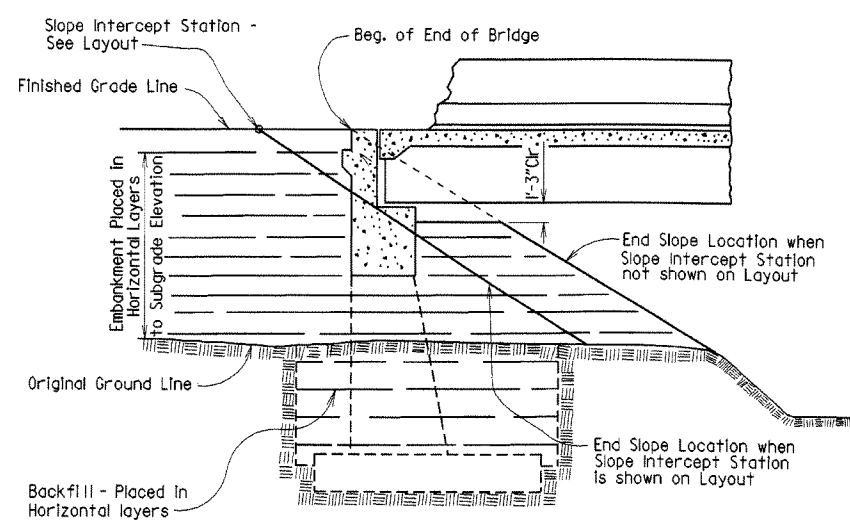
① EMBANKMENT & BACKFILL 1888A



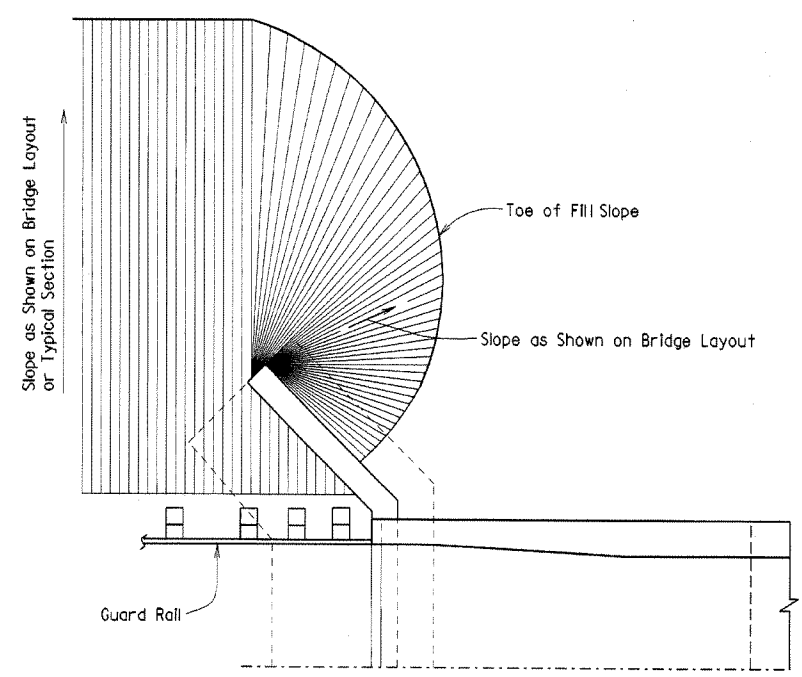
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



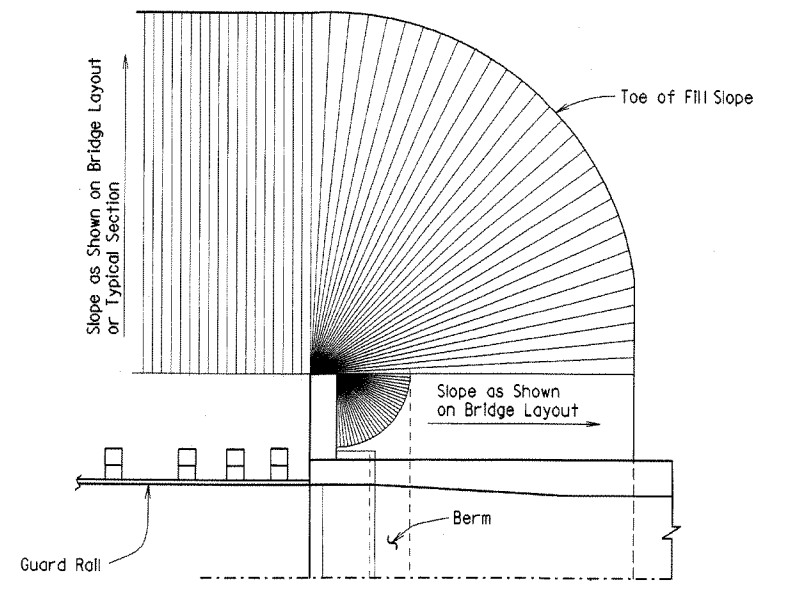
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



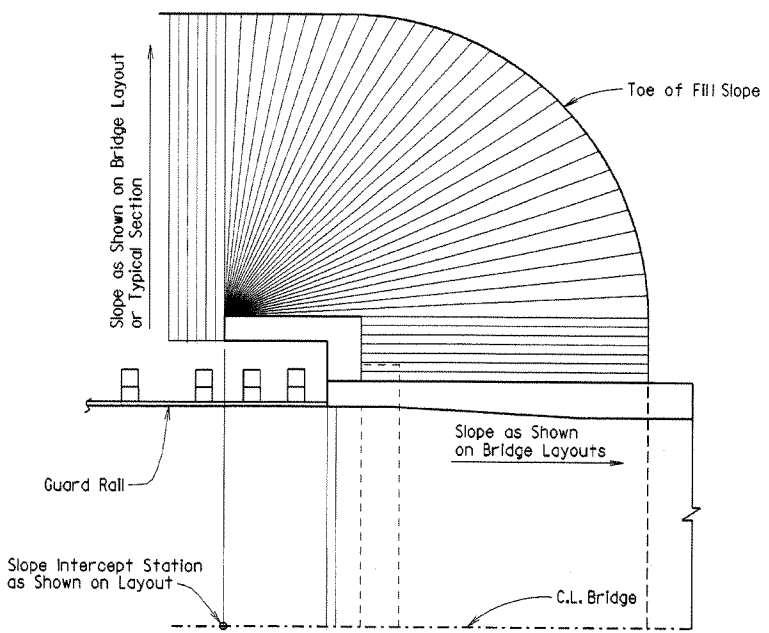
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



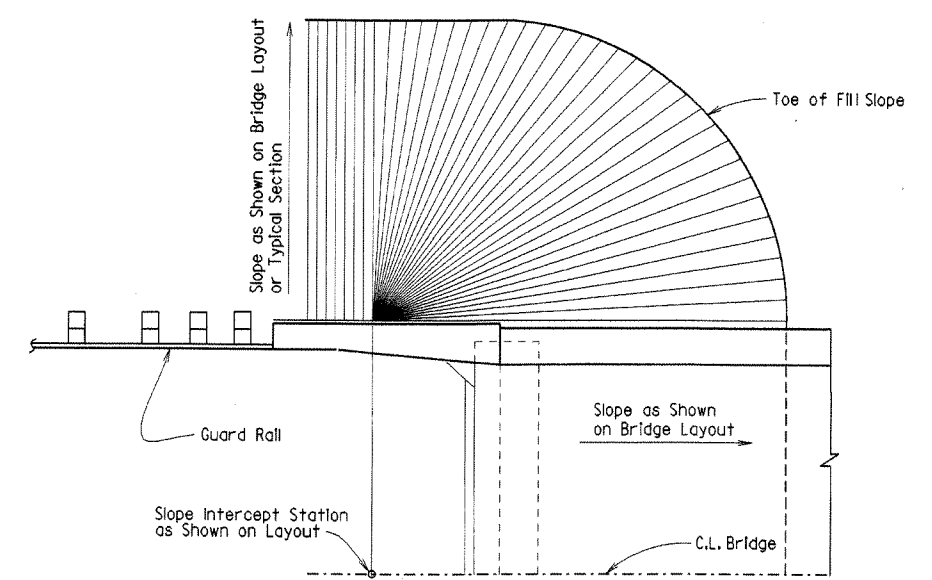
VERTICAL WALL ABUTMENTS



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 4 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 of the Specifications for construction requirements.

Revised and redrawn MJT 04-10-2003  
 Chk'd. By: CJF 04-10-2003



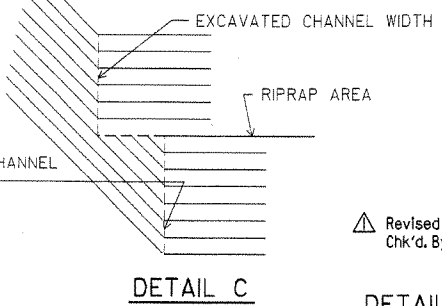
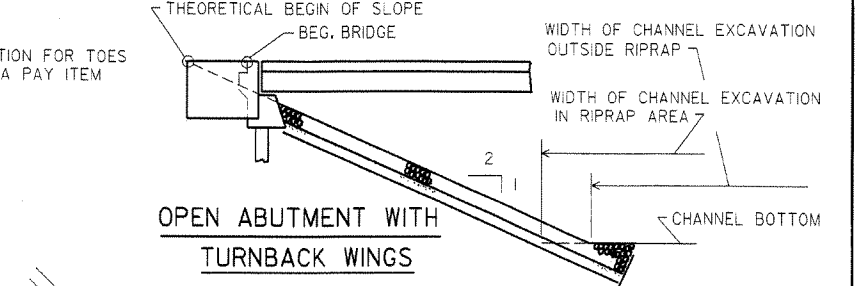
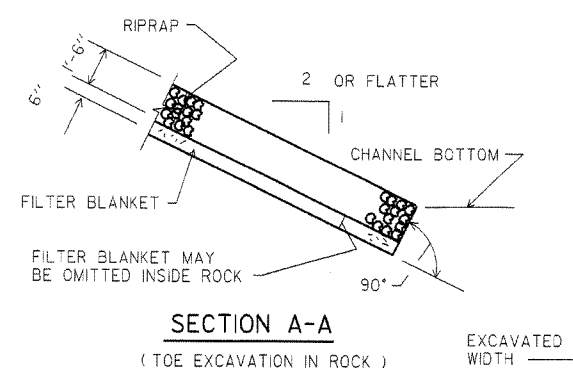
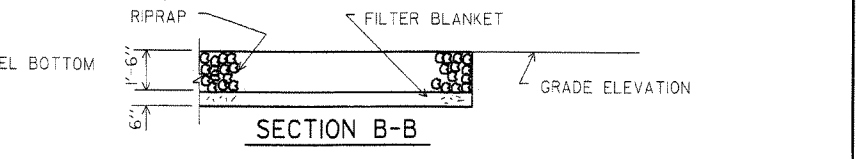
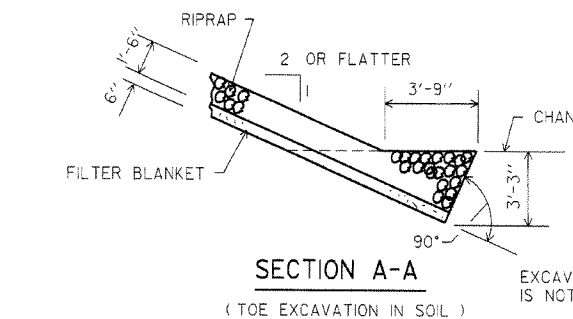
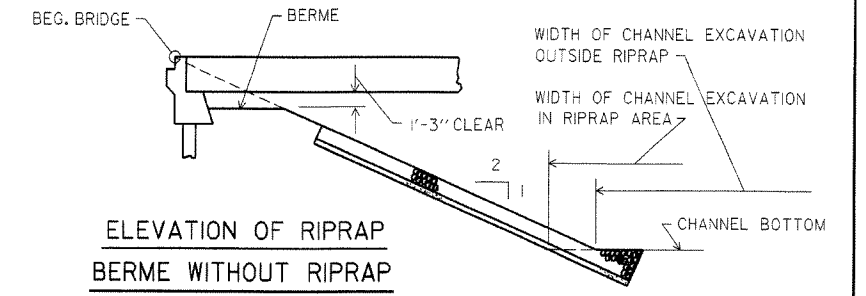
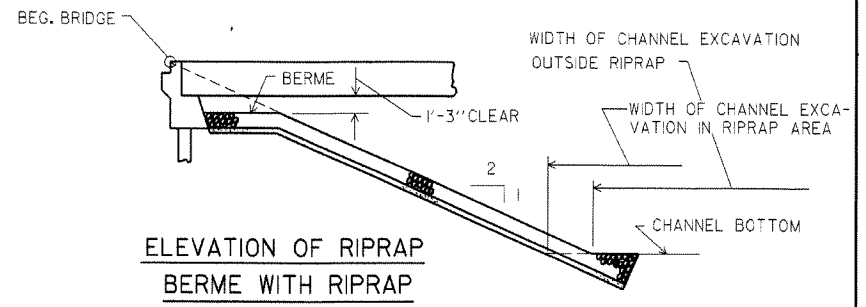
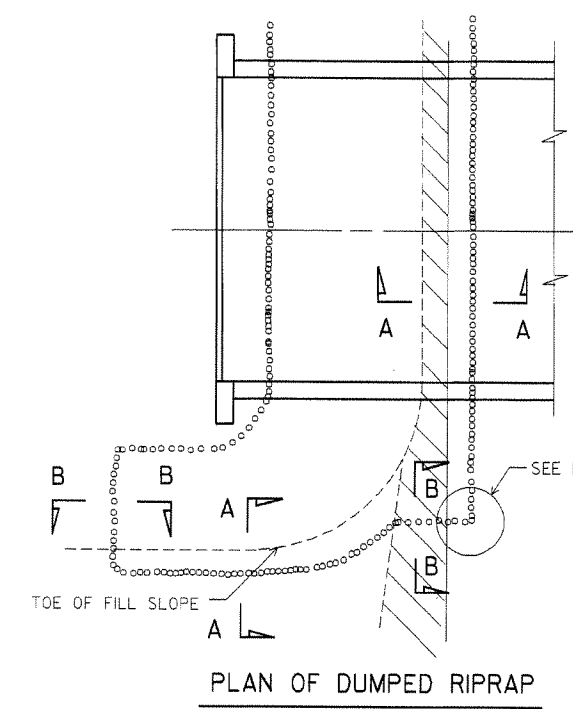
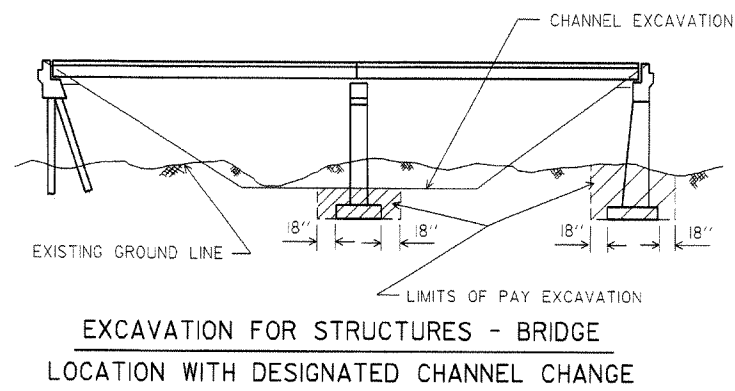
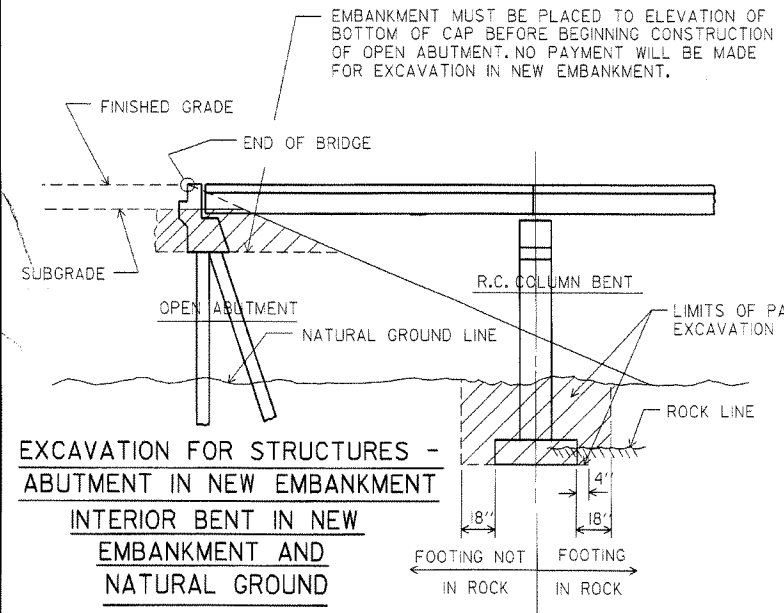
BRIDGE ENGINEER

EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

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

DRAWN BY: MJT DATE: 04-10-2003 FILENAME: B1888A.STD  
 CHECKED BY: CJF DATE: 04-10-2003 SCALE: NO SCALE  
 DESIGNED BY: STD DATE: \_\_\_\_\_  
 BRIDGE NO. \_\_\_\_\_ DRAWING NO. 1888A

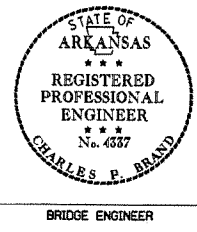
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		63	
JOB NO.							RIP. & EXCAV. 1891F	



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(a) MAY BE USED.

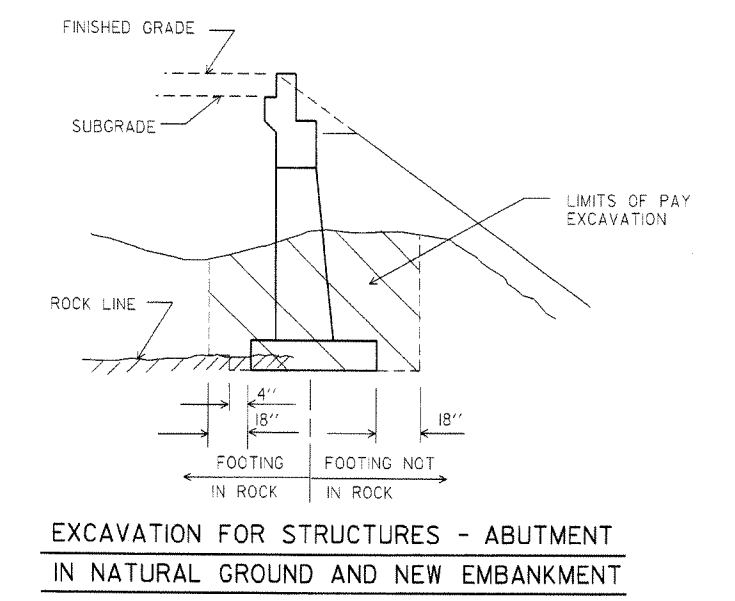
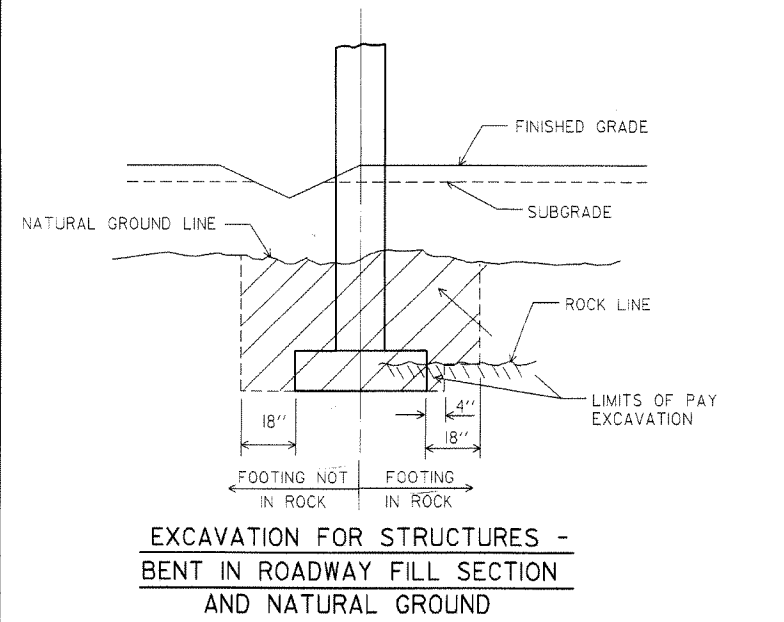
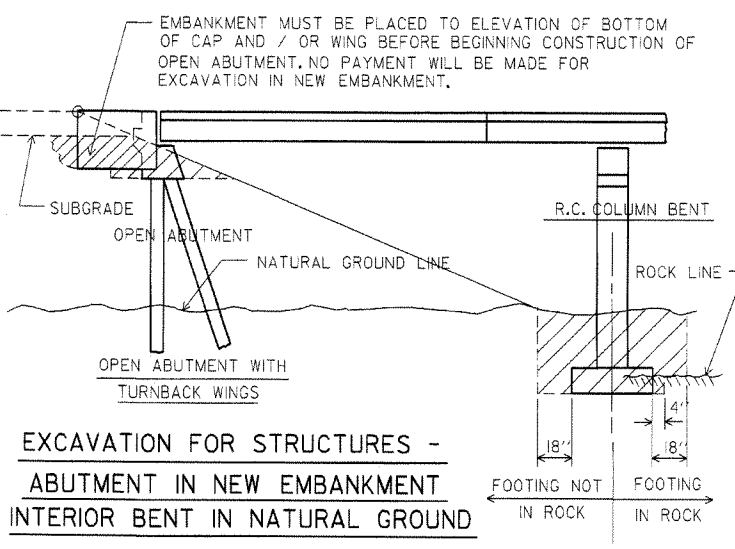
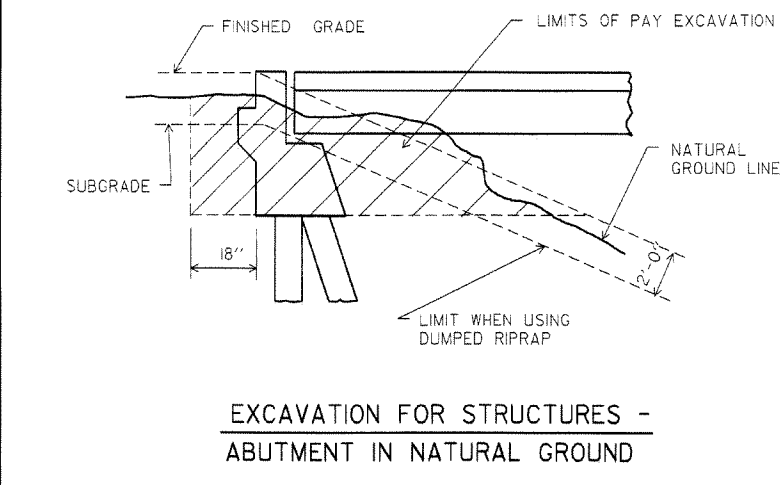
NOTE: DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES ARE INCLUDED FOR INFORMATION AS TO HOW PLAN QUANTITIES WERE CALCULATED AND FOR USE WHEN ADJUSTING QUANTITIES WHEN CHANGING FOOTING ELEVATION.



Revised and redrawn MJT 04-10-2003  
 Chk'd. By: CJF 04-10-2003

**DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES**  
 ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
 LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 04-10-2003 FILENAME: B1891F.STD  
 CHECKED BY: CJF DATE: 04-10-2003 SCALE: NO SCALE  
 DESIGNED BY: STD DATE: \_\_\_\_\_  
 BRIDGE NO. DRAWING NO. 1891F

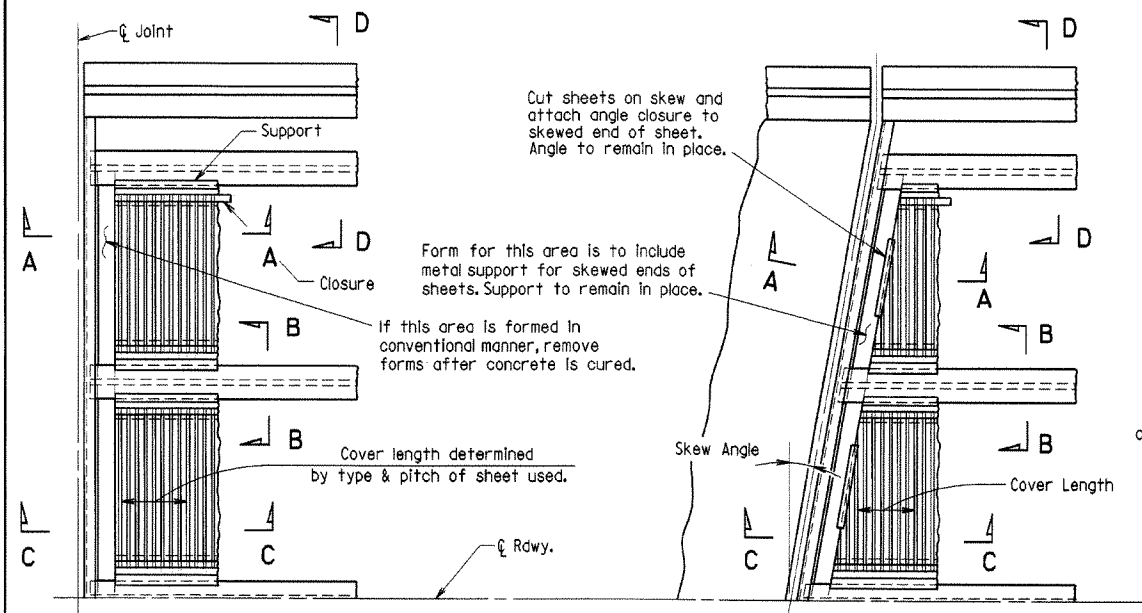






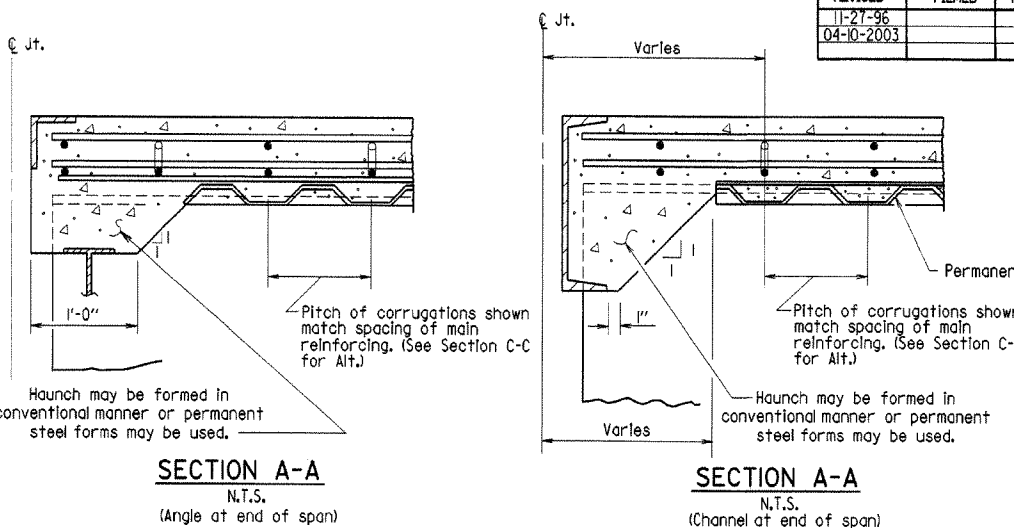
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11-27-96						6	ARK.		65	
04-10-2003										

BR. DECK FORMS 1499I



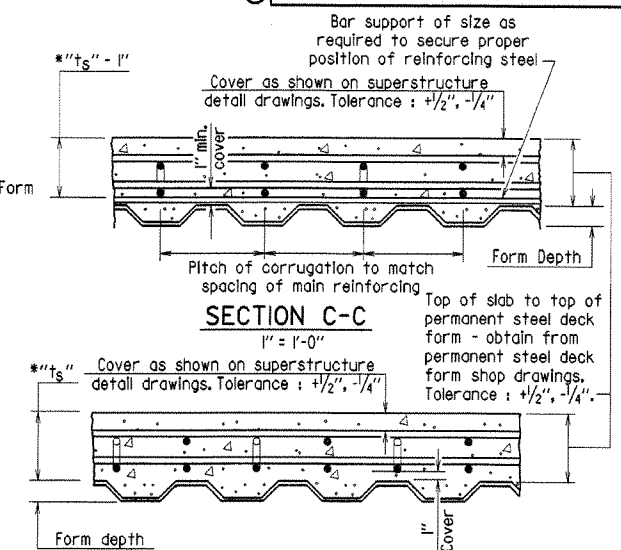
**PART PLAN - SQUARE SPAN**  
3/8" = 1'-0"

**PART PLAN - SKEWED SPAN**  
3/8" = 1'-0"



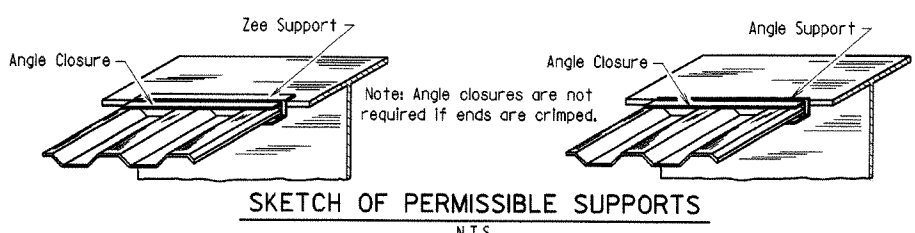
**SECTION A-A**  
N.T.S.  
(Angle at end of span)

**SECTION A-A**  
N.T.S.  
(Channel at end of span)

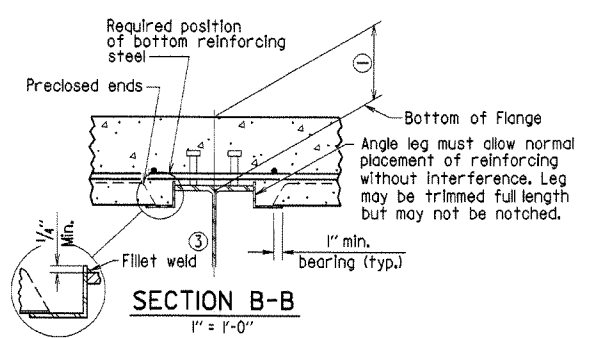


**SECTION C-C**  
1" = 1'-0"

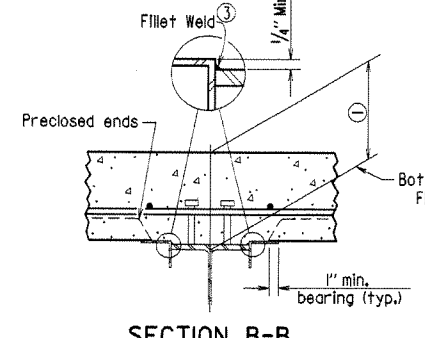
**SECTION C-C - ALTERNATE**  
1" = 1'-0"



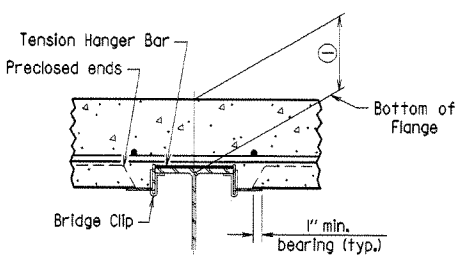
**SKETCH OF PERMISSIBLE SUPPORTS**  
N.T.S.



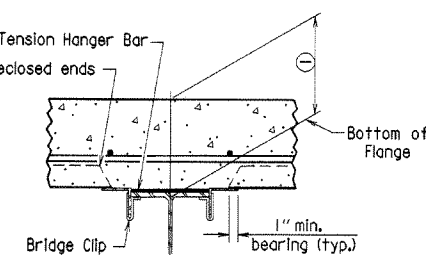
**SECTION B-B**  
1" = 1'-0"



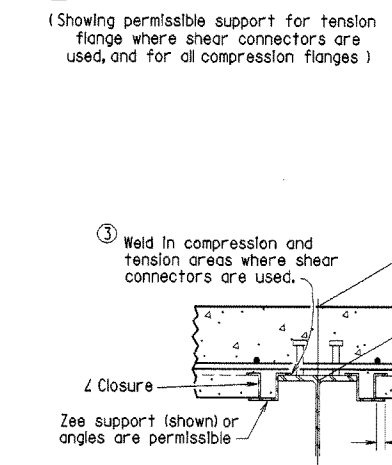
**SECTION B-B**  
1" = 1'-0"



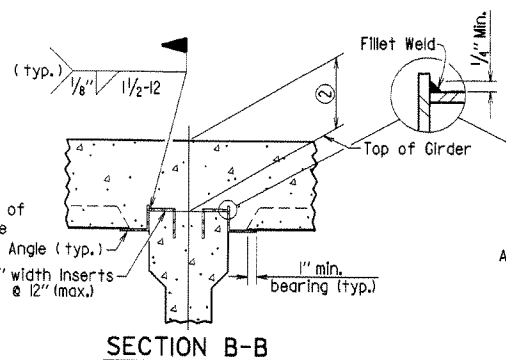
**SECTION B-B**  
1" = 1'-0"



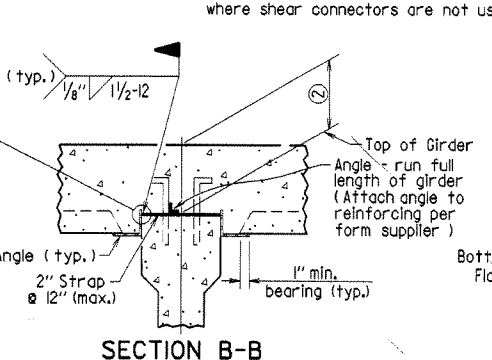
**SECTION B-B**  
1" = 1'-0"



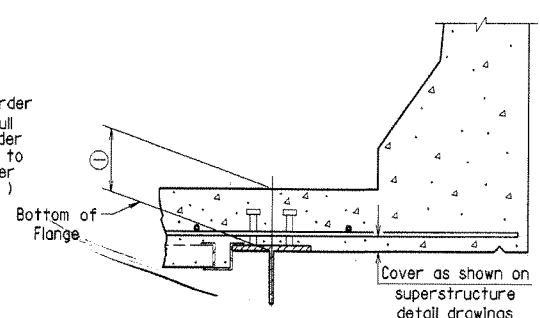
**SECTION B-B**  
1" = 1'-0"



**SECTION B-B (FOR CONCRETE GIRDERS)**  
1" = 1'-0"



**SECTION B-B (FOR CONCRETE GIRDERS)**  
1" = 1'-0"



**SECTION D-D**  
1" = 1'-0"

**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) of the Standard Specifications. Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Bridge 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 L supports to the flange must be approved by the Bridge 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 Bridge 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 (2003 Edition), with applicable supplemental specifications and special provisions.

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 =  $t_s + 1/4"$  + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

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

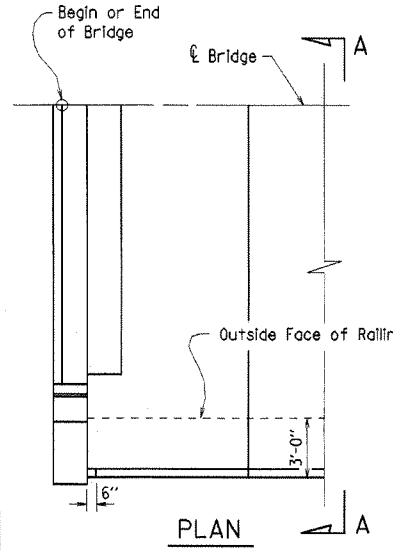
Revised for 2003 AHTD Construction Specifications and CPB Seal, MJT 04-10-2003  
Chk'd. By: CDF 04-10-2003



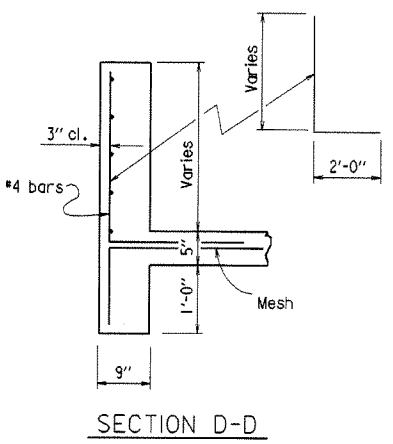
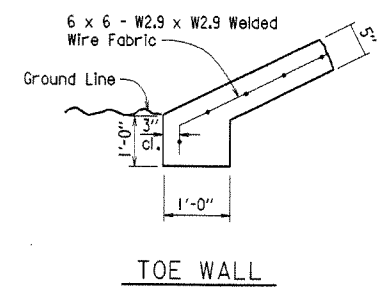
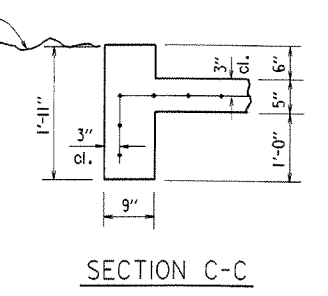
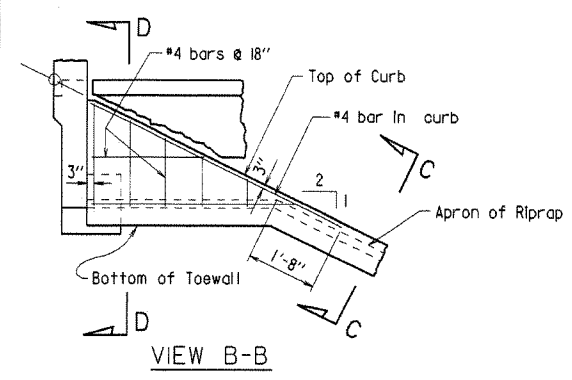
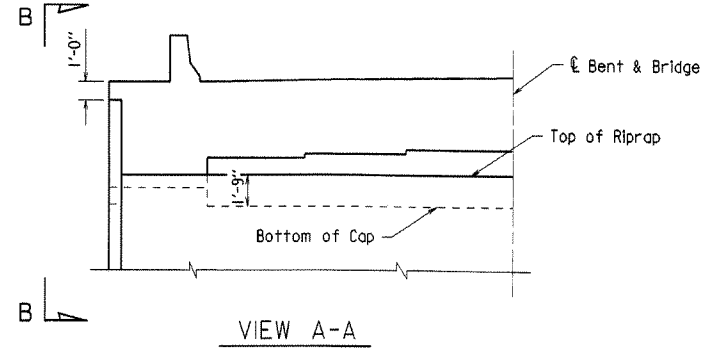
**DETAILS OF PERMISSIBLE TYPE  
PERMANENT STEEL BRIDGE DECK FORMS  
FOR STEEL & CONCRETE GIRDER SPANS**

ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
LITTLE ROCK, ARK.  
DRAWN BY: MJT DATE: 10-17-96  
CHECKED BY: CPB DATE: 10-17-96 SCALE: as noted  
DESIGNED BY: STD. DATE: —  
BRIDGE NO. DRAWING NO. 1499I

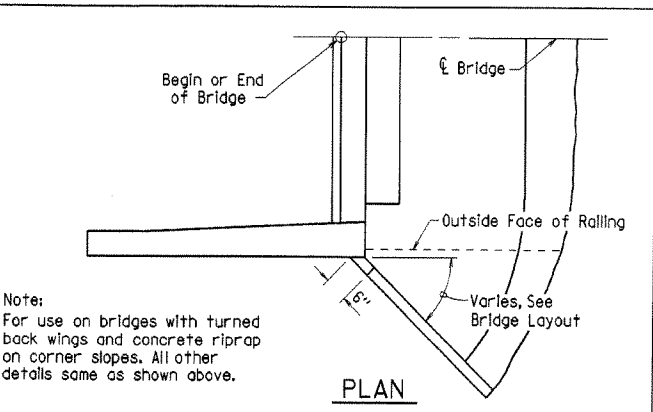
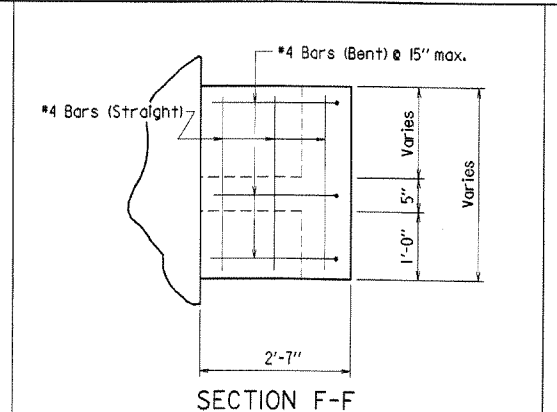
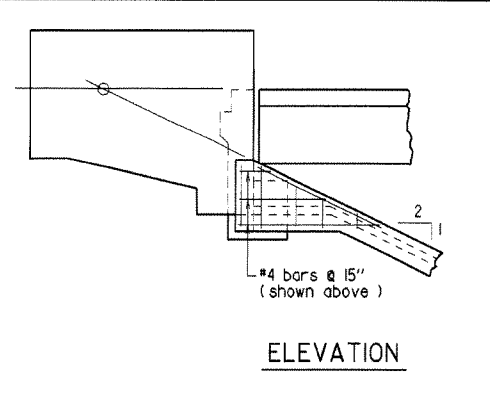
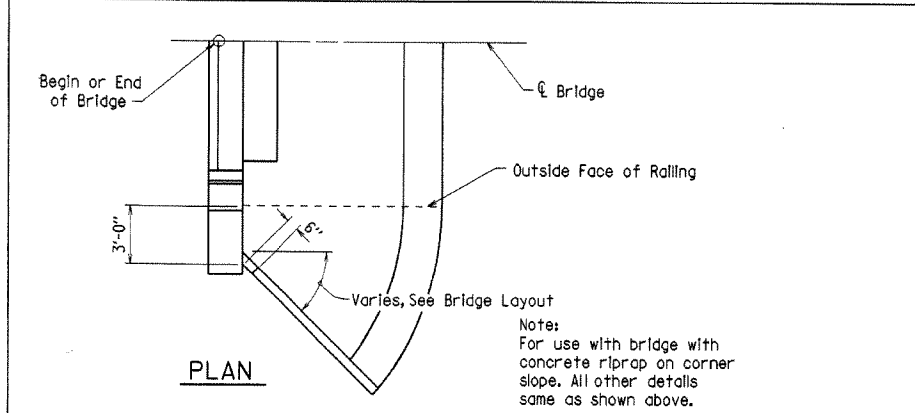
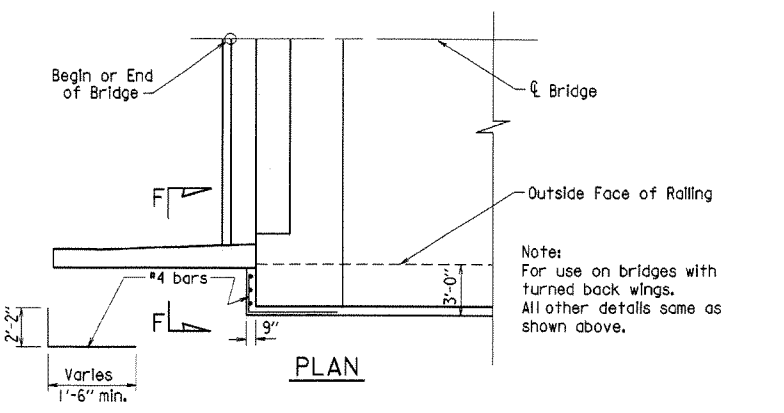
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		66	
				JOB NO.		RIPRAP & PILE - 14995A		



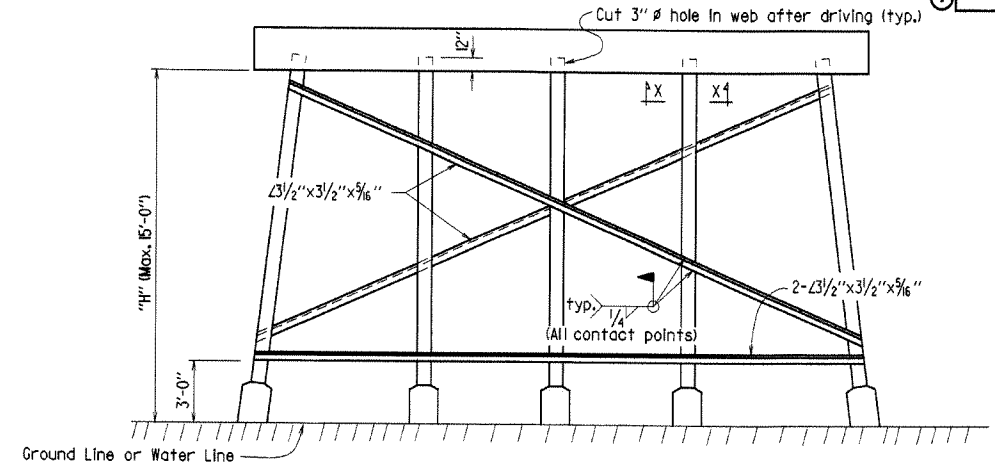
Note:  
Sloped surfaces of concrete riprap to be marked off into blocks (construction joints optional) with an approved grooving tool, spacing the grooved lines about 5' apart.



DETAILS OF CONCRETE RIPRAP



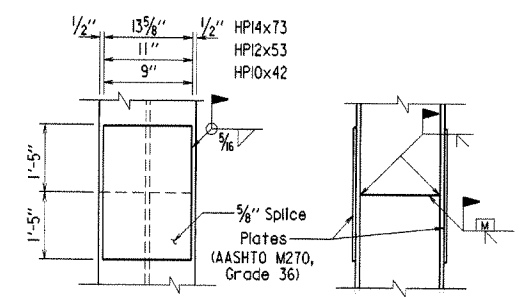
SECTION F-F



Note:  
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under Item 807.  
Omit bottom bracing where "H" is less than 10 ft. Omit all bracing where "H" is less than 5 ft.

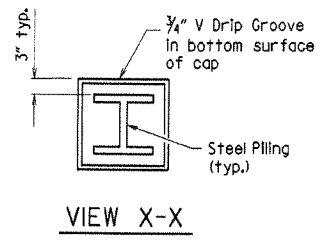
Note:  
Where required by the bridge layout sheet, pile encasements shall be constructed.  
Omit bracing (and V-groove in cap) where pile encasement is extended to bottom of bent cap.

TYPICAL BRACING FOR INT. STEEL PILE BENTS

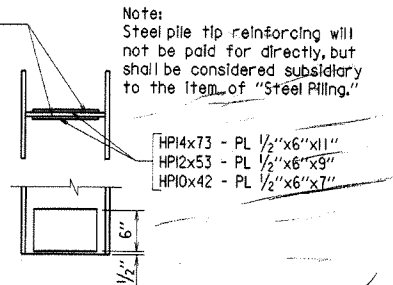


Note:  
The contractor may for his own convenience and at his own expense provide as many as three splices per pile for steel bearing piling. Minimum spacing between splices shall be 5 ft.

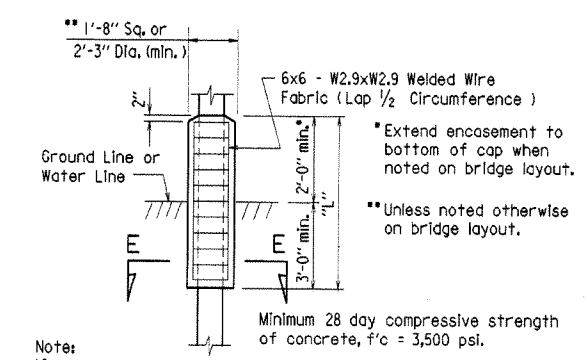
PILE SPICE DETAIL



VIEW X-X

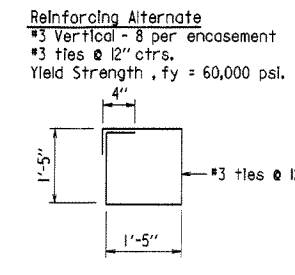


REINFORCING DETAIL FOR STEEL PILE TIP



Note:  
If concrete cannot be placed in the dry, seal concrete may be deposited under water. Concrete & welded wire fabric or reinforcing in encasements shall be paid for at the contract unit price per linear foot bid for "Pile Encasement."

PILE ENCASEMENT DETAIL



SECTION E-E REINF. ALTERNATE



DETAILS OF CONCRETE RIPRAP AND MISC. DETAILS OF STEEL PILING

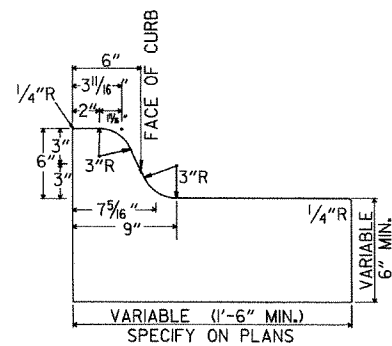
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

Revised and redrawn MJT 04-10-2003  
Chk'd. By: c.j.f. 04-10-2003

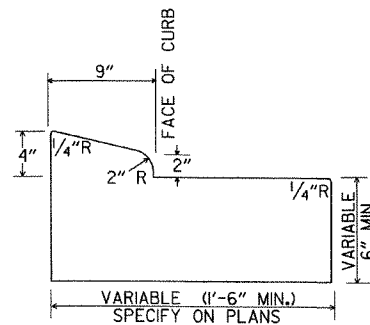
DRAWN BY: MJT DATE: 04-10-2003 FILENAME: B14995A.STD  
CHECKED BY: C.J.F. DATE: 04-10-2003 SCALE: No Scale or As Noted  
DESIGNED BY: STD DATE: —

BRIDGE NO. DRAWING NO. 14995A

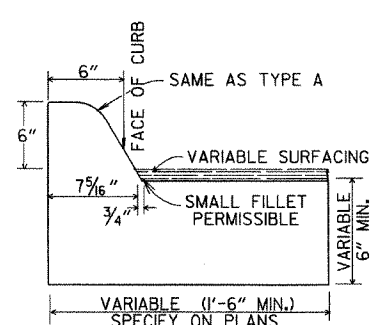
BRIDGE ENGINEER



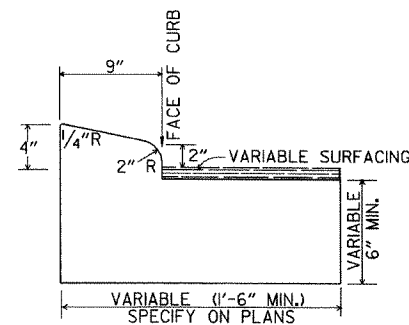
TYPE A



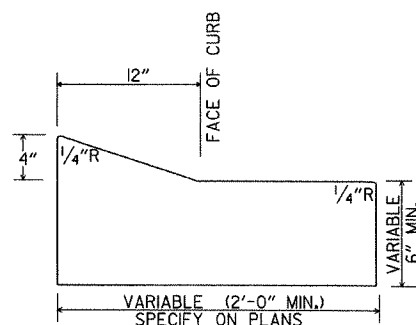
TYPE B-1



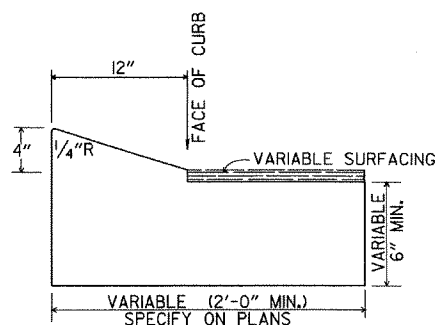
TYPE C



TYPE B-2

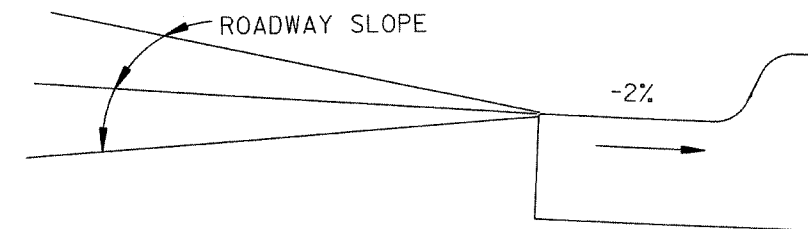


TYPE E-1

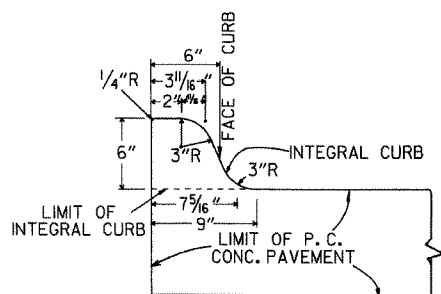


TYPE E-2

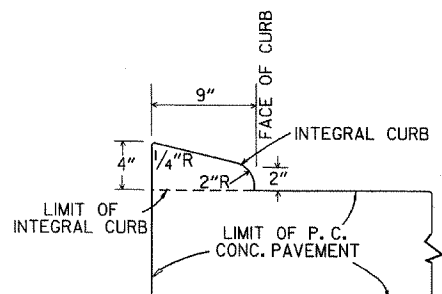
CONCRETE COMBINATION CURB AND GUTTER



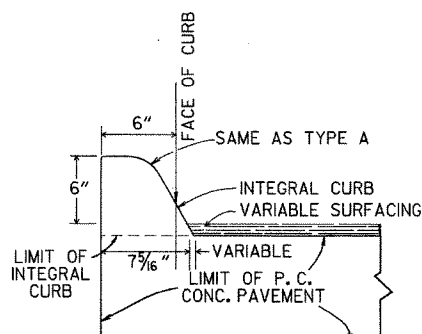
DETAIL OF GUTTER SLOPE  
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

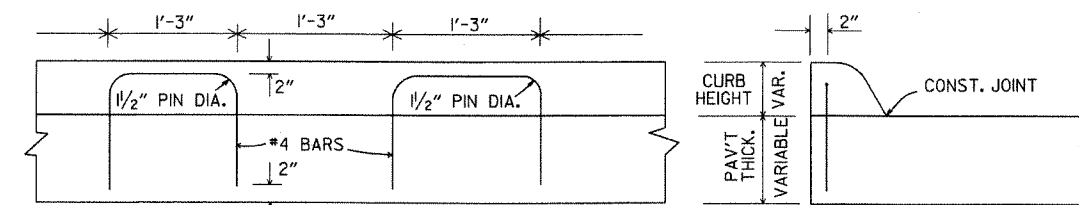


TYPE B



TYPE C

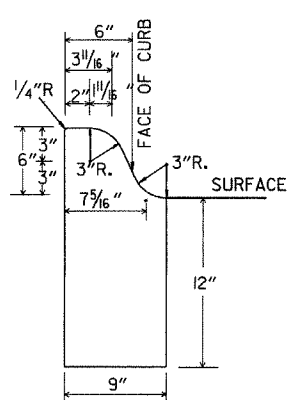
INTEGRAL CURB



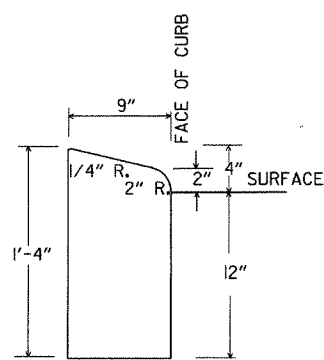
LONGITUDINAL SECTION

ELEVATION

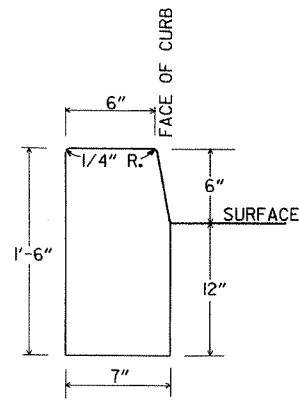
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



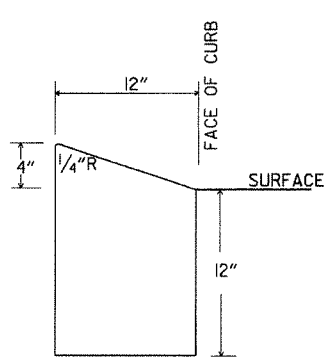
TYPE A



TYPE B

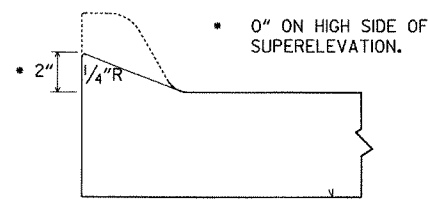


TYPE D



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.

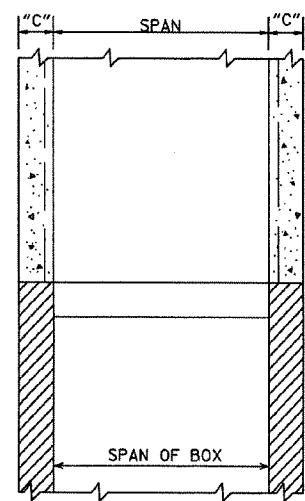
DETAILS OF MODIFIED CURB

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	VARIABLE DEPTH TYPE A & B 1	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

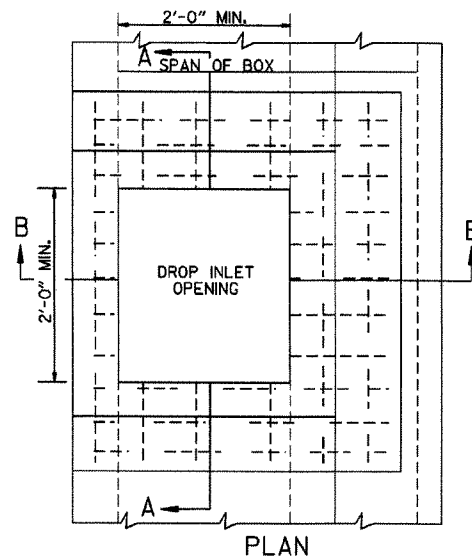
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

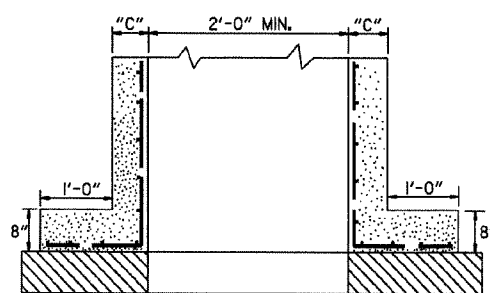
STANDARD DRAWING CG-1



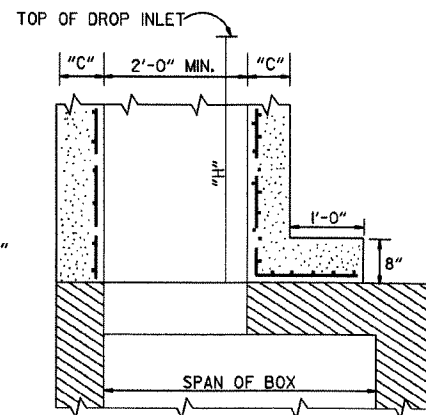
SECTION B-B



PLAN

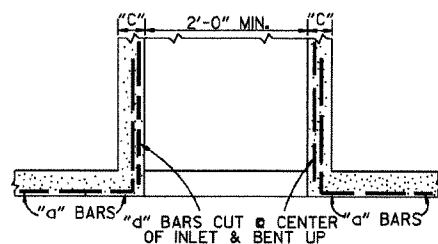


SECTION A-A

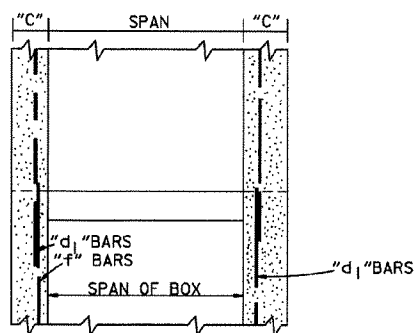


SECTION B-B

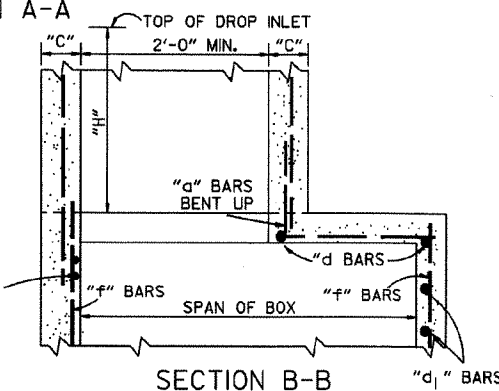
METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



SECTION A-A



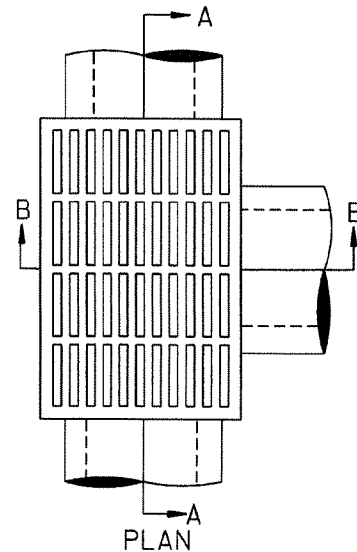
SECTION B-B



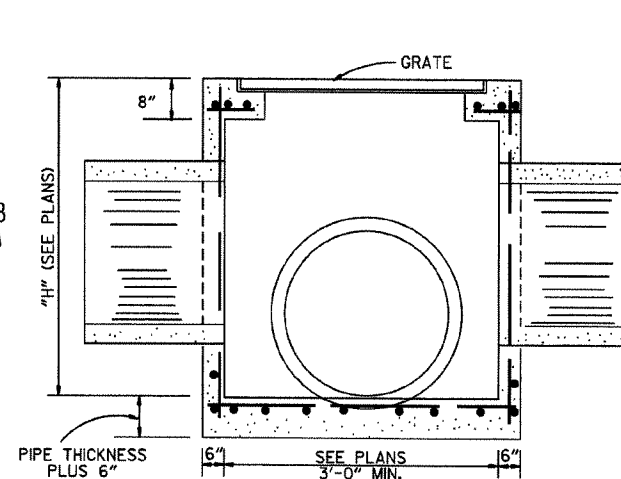
SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON NEW R.C. BOX CULVERT

NOTE: "C" DIMENSIONS AND REINFORCING BAR SIZES, SHALL CONFORM TO THOSE SHOWN ON STANDARD DRAWING FOR DROP INLET.



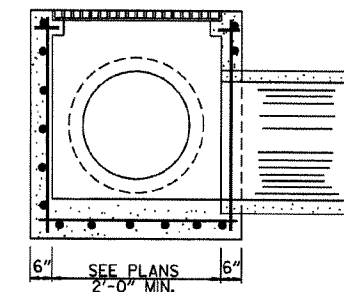
PLAN



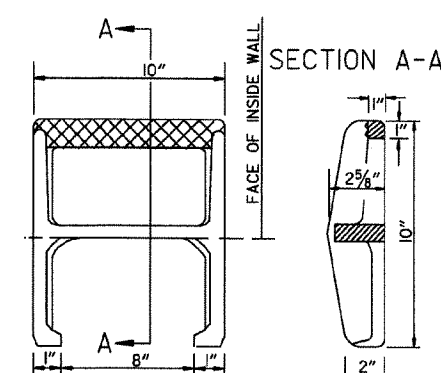
SECTION A-A

DROP INLET (TYPE E)

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1/2" MIN. COVER. THIS TYPE DROP INLET TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B

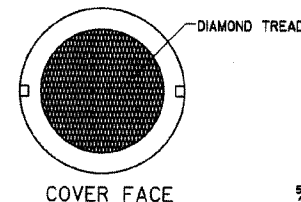


APPROX. WEIGHT = 11 LBS. (CAST IRON)

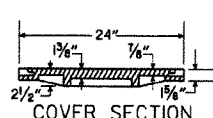
PLAN

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

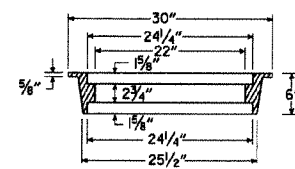
DETAIL OF STEP FOR DROP INLET



COVER FACE



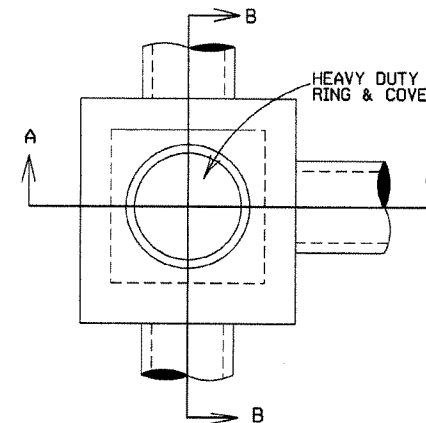
COVER SECTION



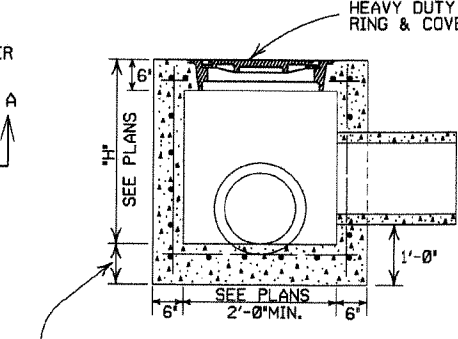
RING SECTION

APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



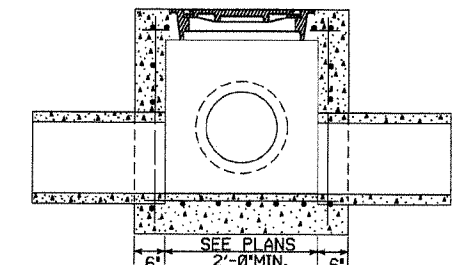
PLAN



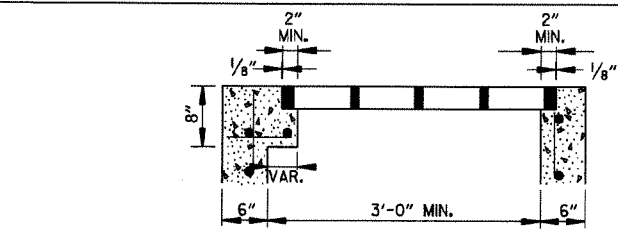
SECTION A-A

JUNCTION BOX (TYPE E)

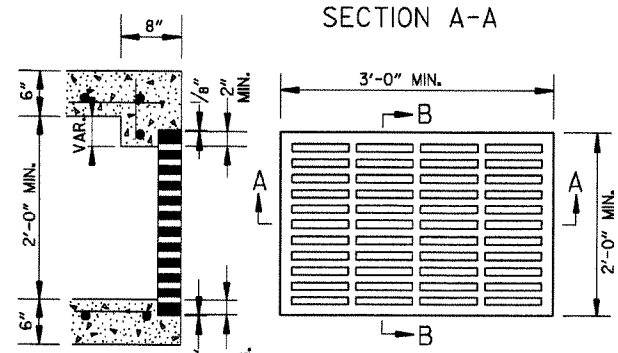
NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1/2" MIN. COVER. THIS TYPE JUNCTION BOX TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B



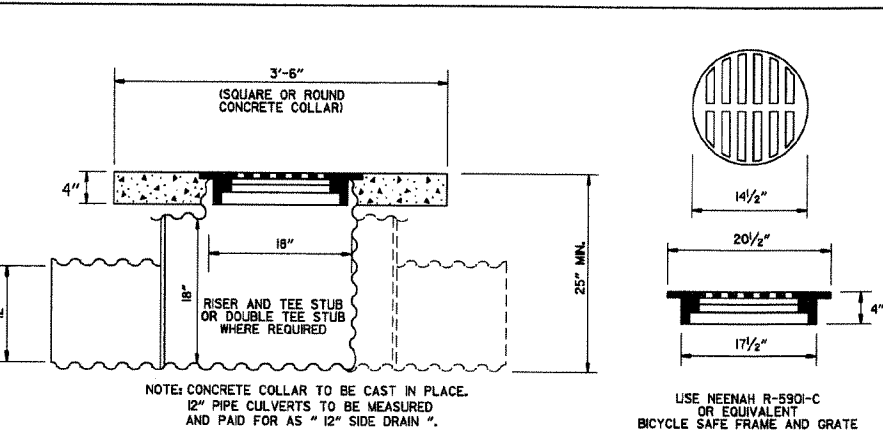
SECTION A-A



SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET



NOTE: CONCRETE COLLAR TO BE CAST IN PLACE. 12" PIPE CULVERTS TO BE MEASURED AND PAID FOR AS "12" SIDE DRAIN".

DETAIL OF YARD DRAIN

- GENERAL NOTES:
1. ALL EXPOSED CORNERS SHALL BE 3/4" CHAMFERED.
  2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
  3. EXPANSION JOINT MATERIAL SHALL BE 3/4" PREFORMED FIBER.
  4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
  5. GRATE AND FRAME SHALL NOT BE PAINTED.
  6. GRATE SHALL BE BICYCLE SAFE.
  7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
  8. 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.
  9. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
  10. 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
11-16-01		ADDED NOTE 10	
1-12-00		REVISED HEAVY DUTY RING & COVER	
7-02-98		CHANGED GRATE DETAIL, DELETED DI (TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97		ADDED DIMENSION TO TYPE IV-A	
10-18-96		ADDED DETAIL OF YARD DRAIN	
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 & JUNCTION BOXES

STANDARD DRAWING FPC-9



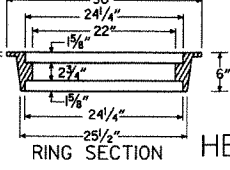
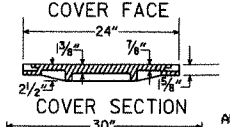
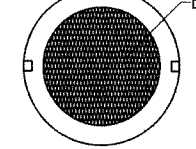
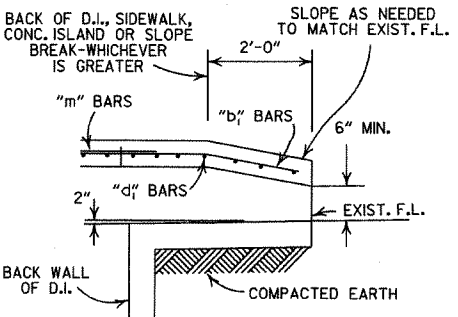
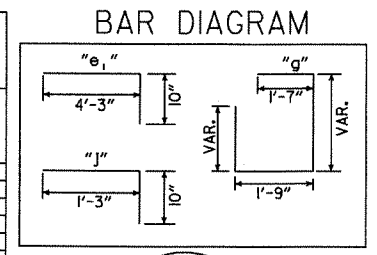
4'-0" LENGTH DROP INLET DROP INLET EXTENSION

PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0"			PLUS OR MINUS PER LIN. FT. OF HEIGHT		4'-0"		8'-0"	
		CLASS A CONC. CU. YDS.	REINF. STEEL POUNDS	REINF. STEEL POUNDS	CLASS A CONC. CU. YDS.	REINF. STEEL POUNDS	CLASS A CONC. CU. YDS.	REINF. STEEL POUNDS		
18"	2'-6"	1.77	156	0.28	22	0.58	38	0.87	72	
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					
DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.							0.04	3		

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

DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET

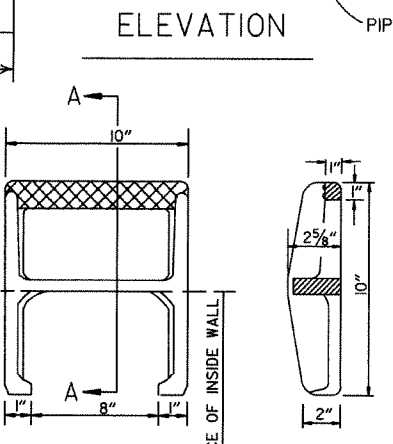
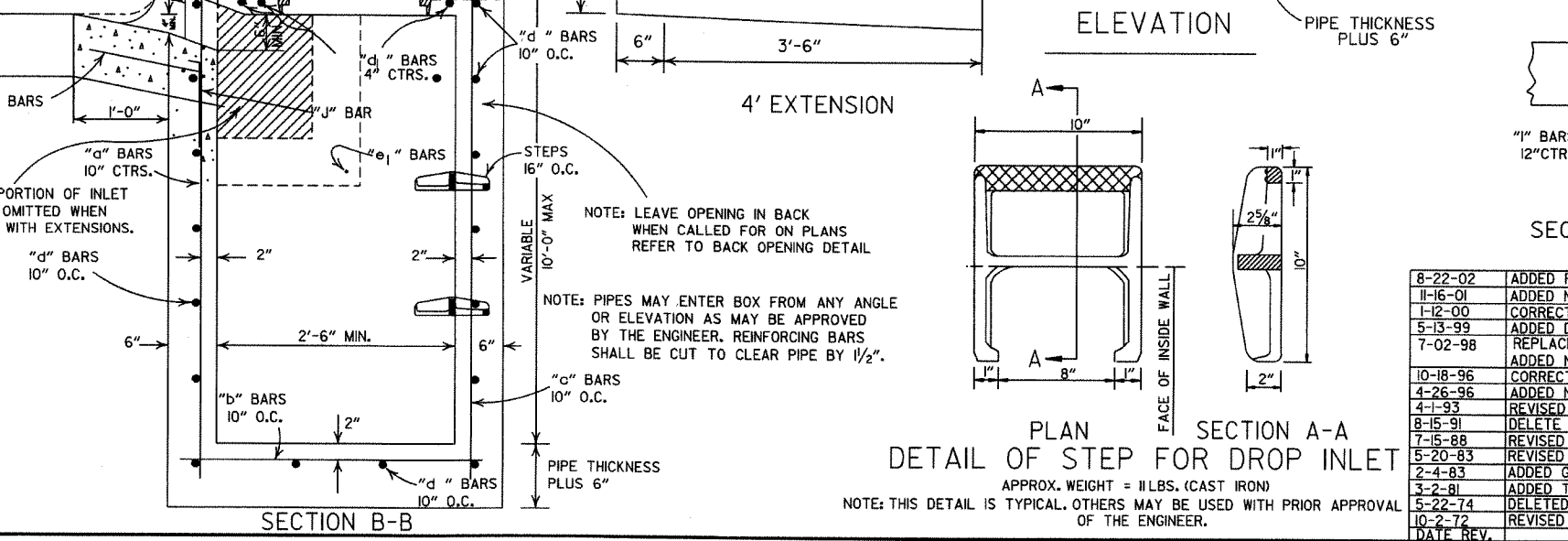
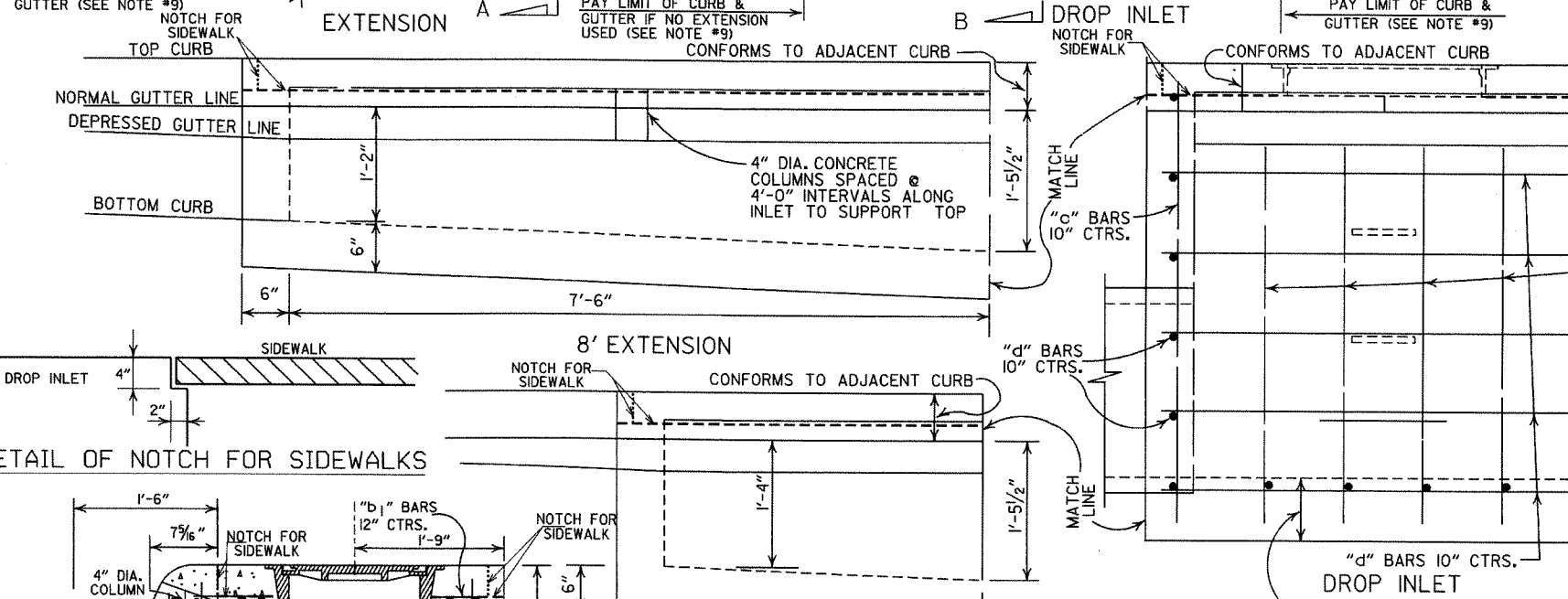
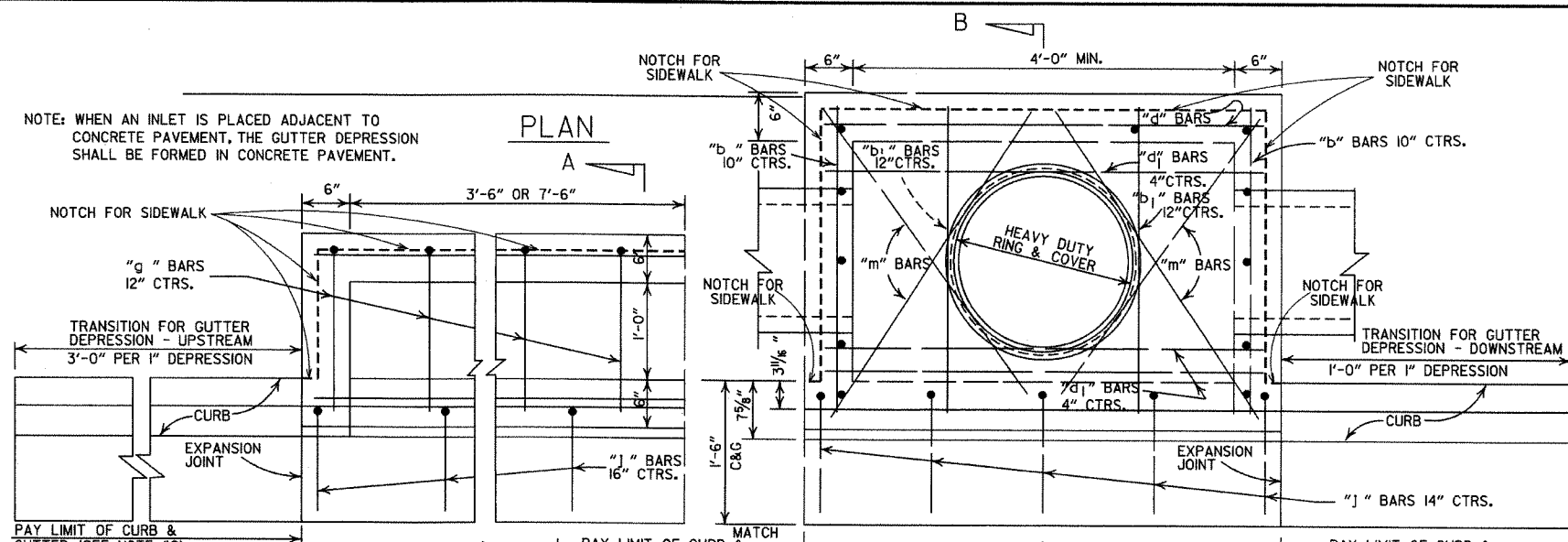
INSIDE DIA. PIPE INCHES	CLASS A CONC. CU. YDS.	REINF. STEEL POUNDS
18	0.05	2
24	0.09	3
30	0.13	4
42	0.24	8



APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

- GENERAL NOTES:
- ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
  - STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
  - ALL REINF. BARS SHALL BE #4 AND HAVE 1/2" COVER.
  - DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
  - THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
  - 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).
  - HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
  - DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
  - 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.
  - 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.
  - HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
  - 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
  - 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.



PLAN SECTION A-A  
DETAIL OF STEP FOR DROP INLET

APPROX. WEIGHT = 11 LBS. (CAST IRON)  
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

NOTE: WHEN AN INLET IS PLACED ADJACENT TO CONCRETE PAVEMENT, THE GUTTER DEPRESSION SHALL BE FORMED IN CONCRETE PAVEMENT.

PAY LIMIT OF CURB & GUTTER (SEE NOTE #9)

MATCH CONFORMS TO ADJACENT CURB

PAY LIMIT OF CURB & GUTTER (SEE NOTE #9)

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).

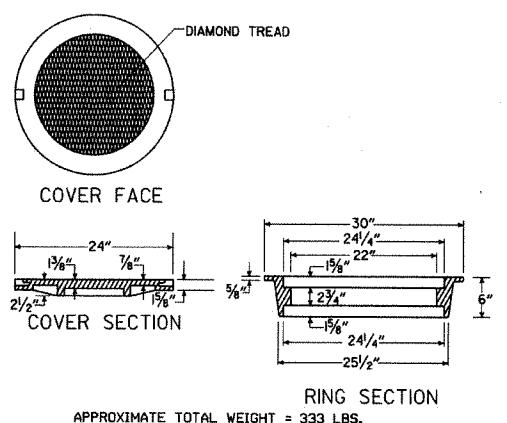
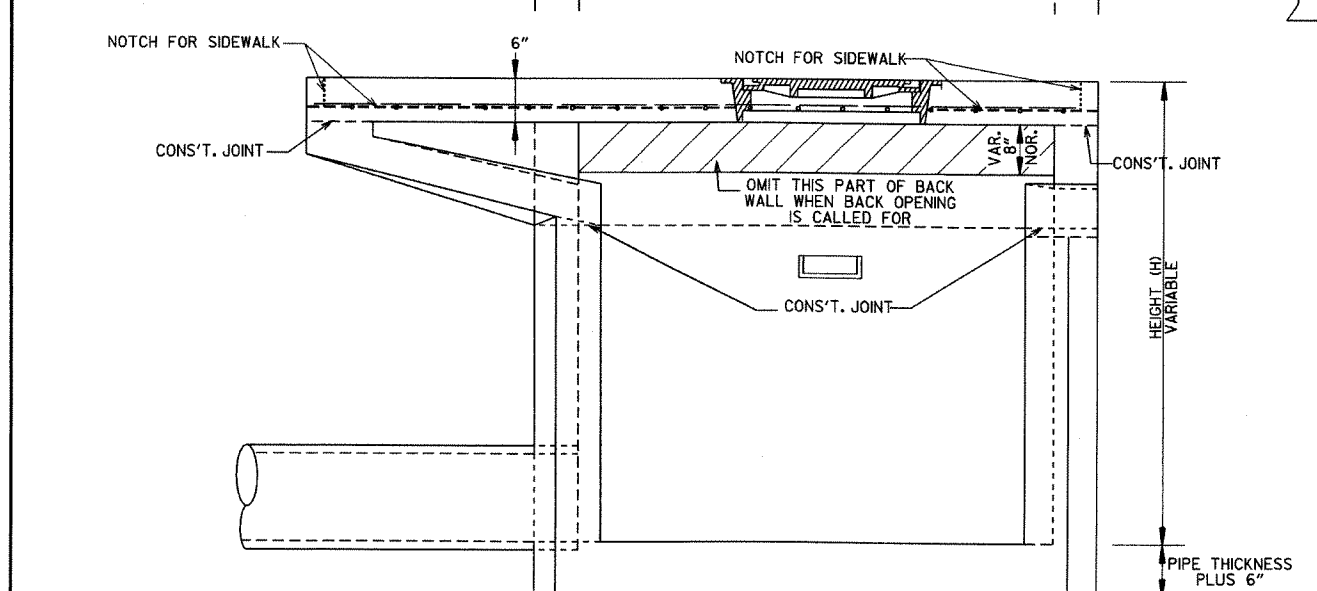
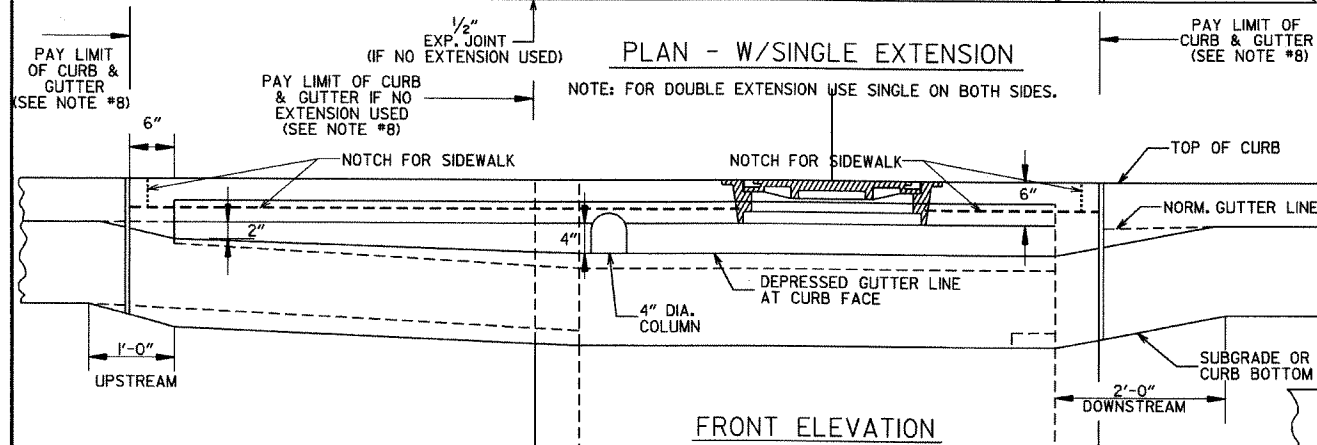
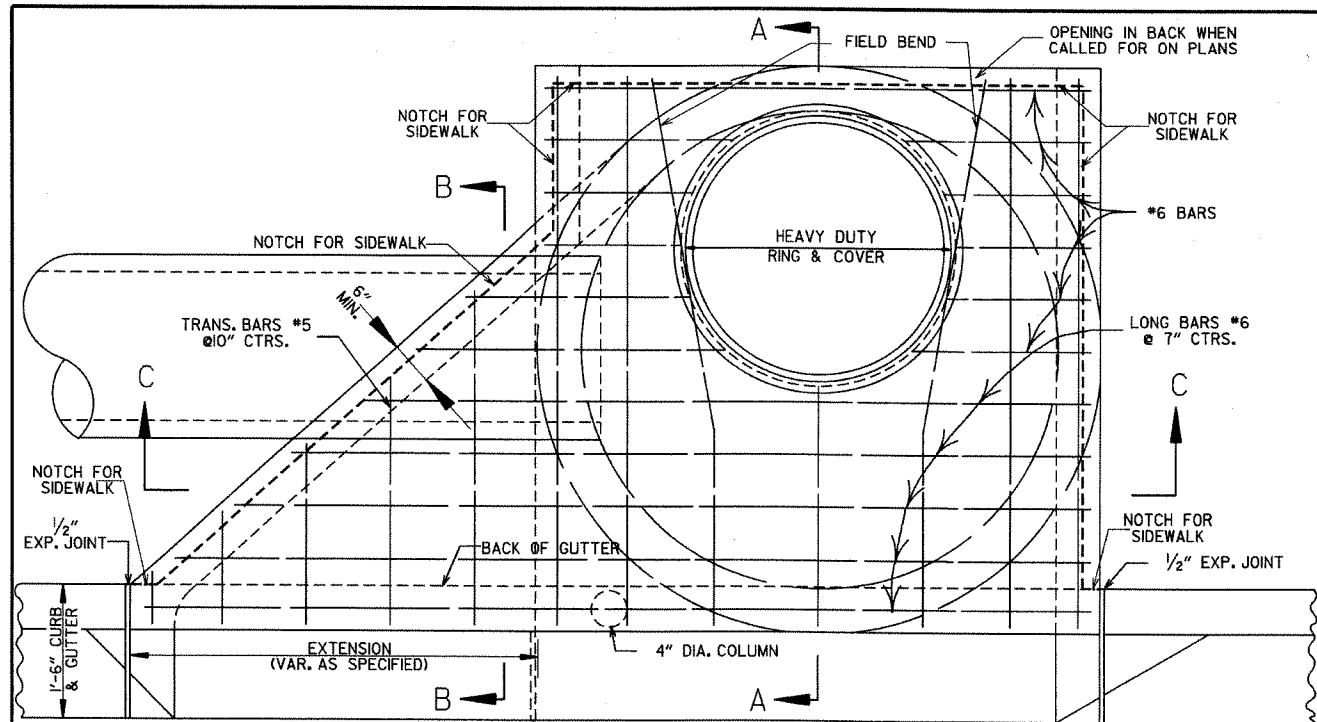
DATE	REV.	DESCRIPTION	DATE FILMED
8-22-02		ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01		ADDED NOTE 13; REVISED SECTION B-B	
1-12-00		CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99		ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98		REPLACED RING & COVER W/HEAVY DUTY RING & 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)

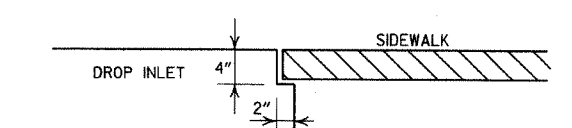
STANDARD DRAWING FPC-9E



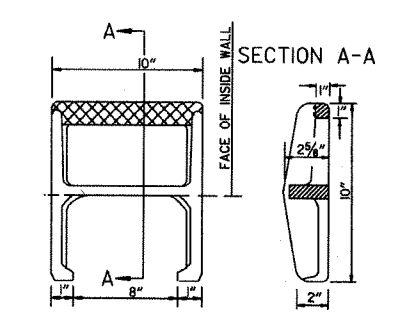


**HEAVY DUTY RING & COVER**

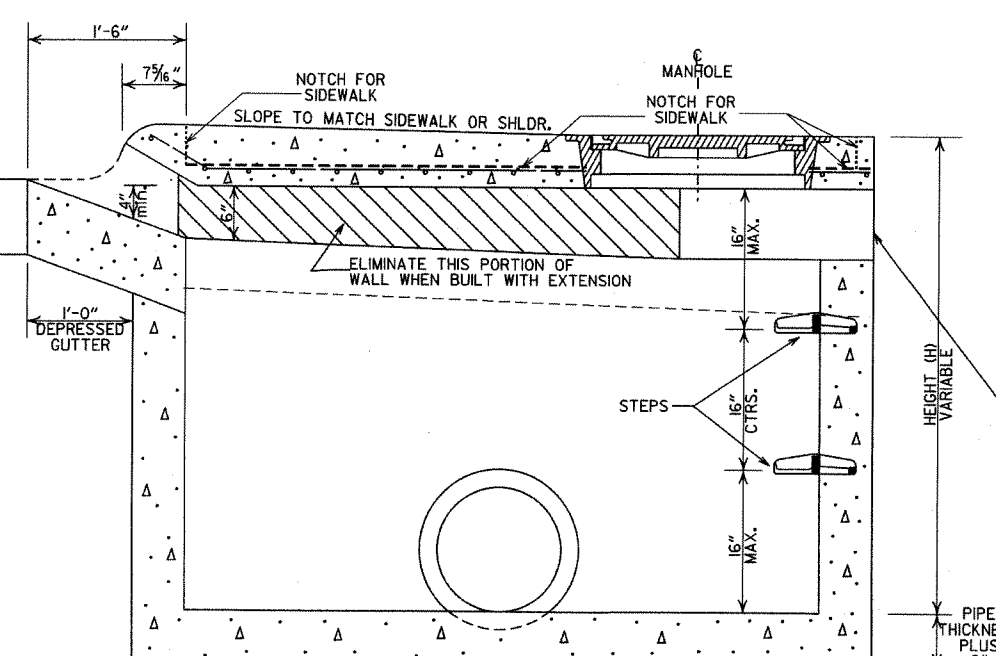
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON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



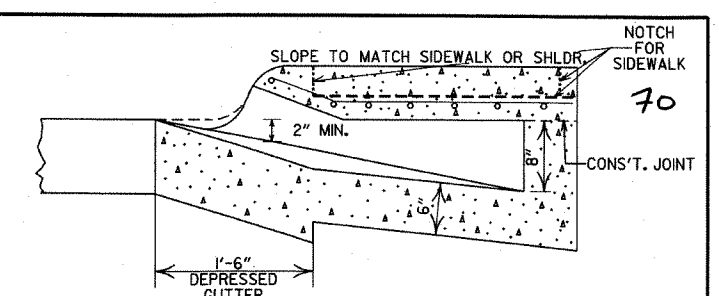
**DETAIL OF NOTCH FOR SIDEWALKS**



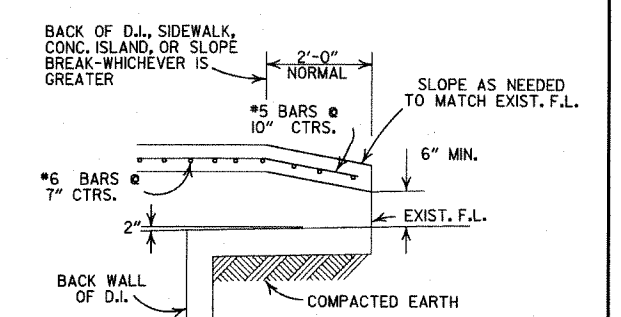
**DETAIL OF STEP FOR DROP INLET**



**SECTION A-A**



**SECTION B-B**



**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 3/4" 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. 1/2" 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

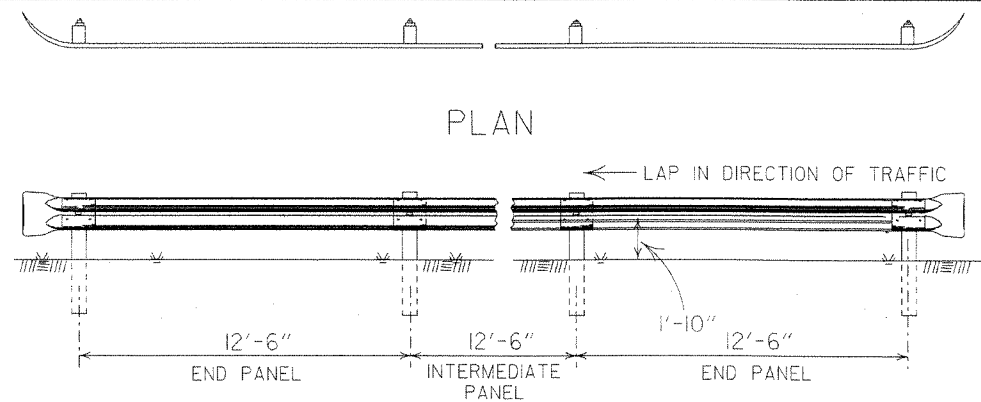
MINIMUM WALL THICKNESS			
DIA. OF D.I.	DIA. OF OUTLET PIPE	CAST IN PLACE	PRECAST
4" I.D.	12" THRU 27"	6"	5"
5" I.D.	30" THRU 42"	8"	6"
6" I.D.	48" THRU 54"	8"	7"

DATE	REVISIONS	DATE FILED
8-22-02	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 (BACK OPENING DIMENSION)	
10-26-95	CORRECTED #6 BAR SPACING	
7-20-95	CORRECTED DIAMETER OF 1 1/2" IN BOX	
7-2-95	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
8-15-91	REVISED NOTES 11, 12 & ADDED BACK OPEN DETAIL	8-15-91
1-30-89	ADDED NOTE NO. 12	1-30-89
1-23-89	ADDED NOTE & MINIMUM WALL THICKNESS	5/8-24-89
1-16-88	ADDED EXTEND NOTE - SECTION A-A	6/8-13-88
1-12-87	MODIFIED WALL THICKNESS	7/8-12-87
	ISSUED	4/2-12-87

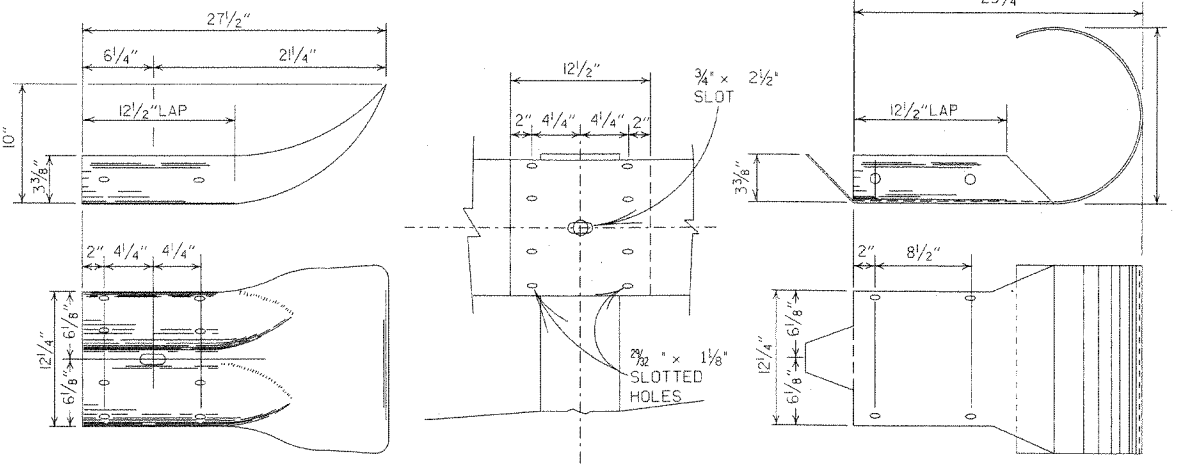
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M



PLAN

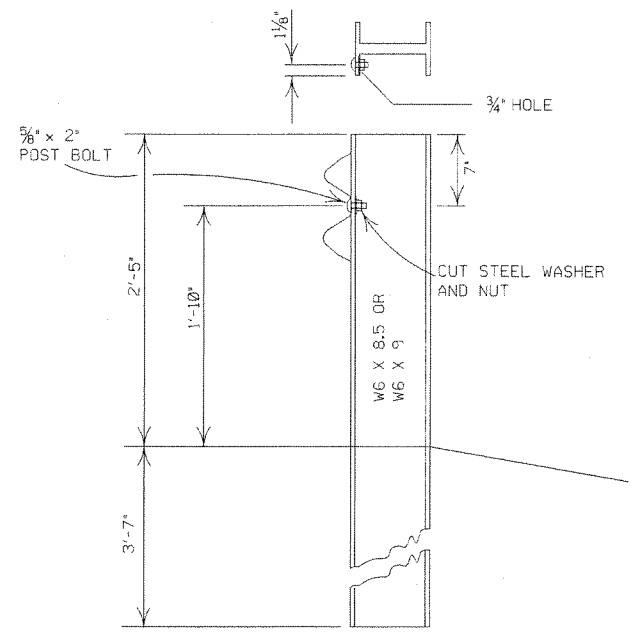


ELEVATION

TERMINAL SECTION

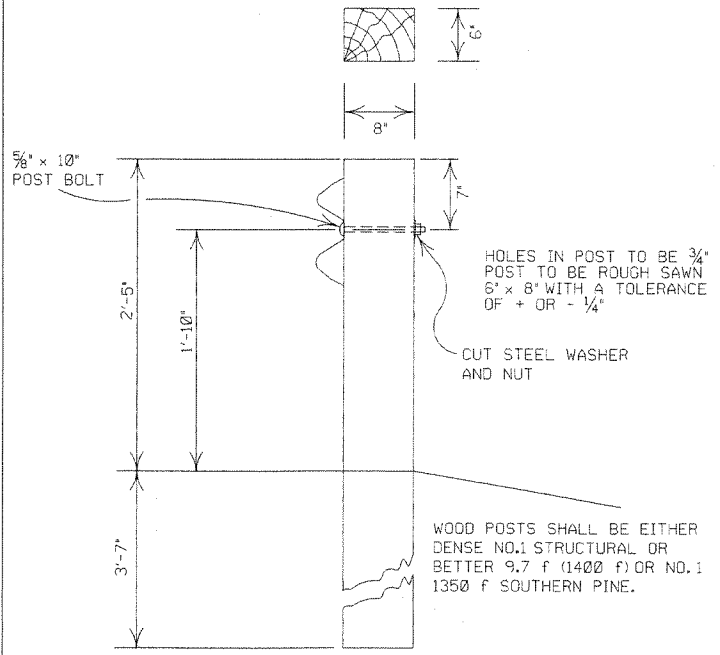
RAIL SPLICE

TERMINAL SECTION



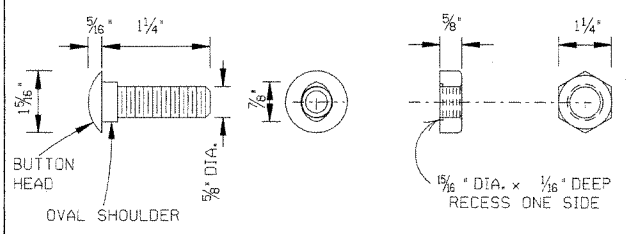
BOLT TO BE ON SIDE AWAY FROM APPROACHING TRAFFIC WHERE FEASIBLE.

STEEL POST



WOOD POST

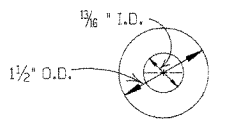
DETAILS OF POST CONNECTIONS



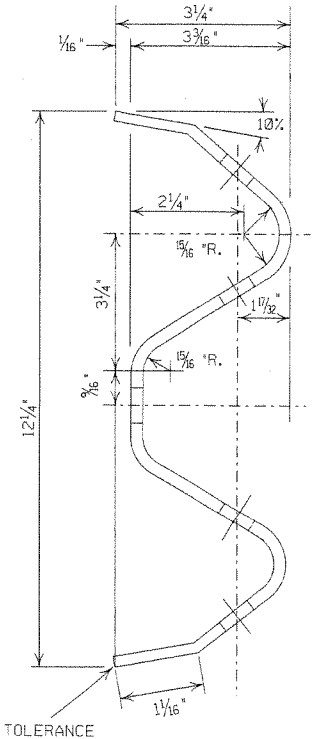
SPLICE BOLT

NUT

NOTE: POST BOLT SAME EXCEPT LENGTH.



CUT STEEL WASHER



SECTION THRU RAIL

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
8-22-02	REVISED DIMENSION ON STEEL POST	
11-16-01	REVISED STEEL AND WOOD POST	
8-12-98	REMOVED CONCRETE POST	
10-18-96	CHANGED WOOD POST NOTE	10-18-96
6-2-94	ADDED ALTERNATE STEEL POST SIZE	
8-5-93	REVISED STEEL POSTS SIZE	8-5-93
8-15-91	DELETE STEEL PLATE WASHER & ADDED TYPE C TO TITLE	8-15-91
10-30-87	REMOVED DET. PLCMNT. ON HWY.	555-11-20-87
1-4-83	GRADE FOR WOOD POSTS	679-1-4-83
10-1-77	HARDENED WASHER	922-10-1-72
10-2-72	REVISED & REDRAWN	521-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

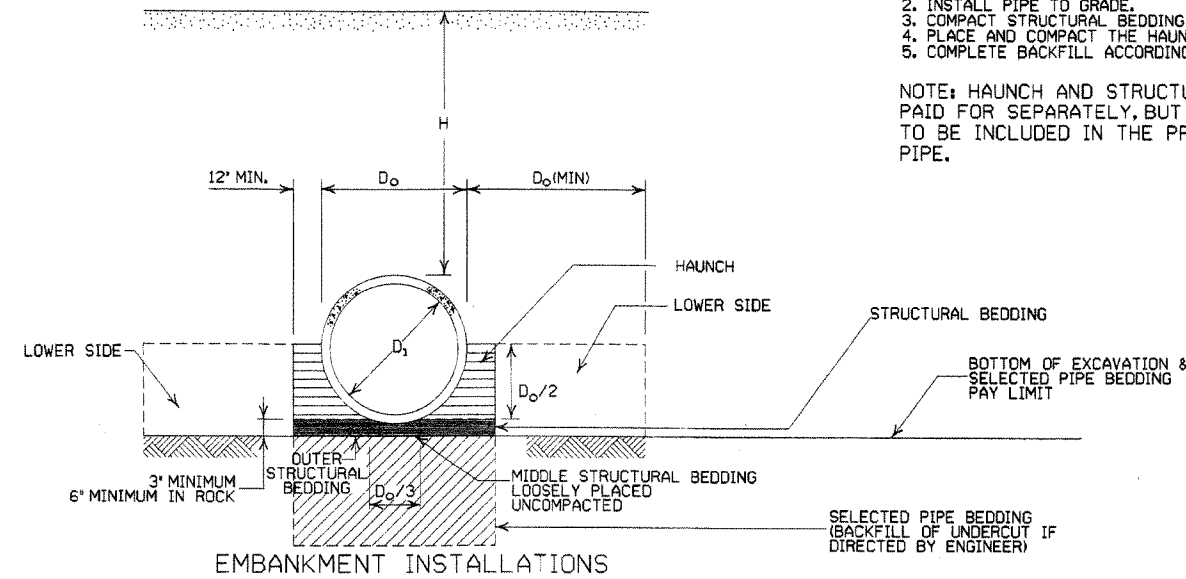
GUARD RAIL DETAILS  
(TYPE C)  
STREET / ROAD BARRICADE OR  
TEMPORARY INSTALLATION

STANDARD DRAWING GR-7

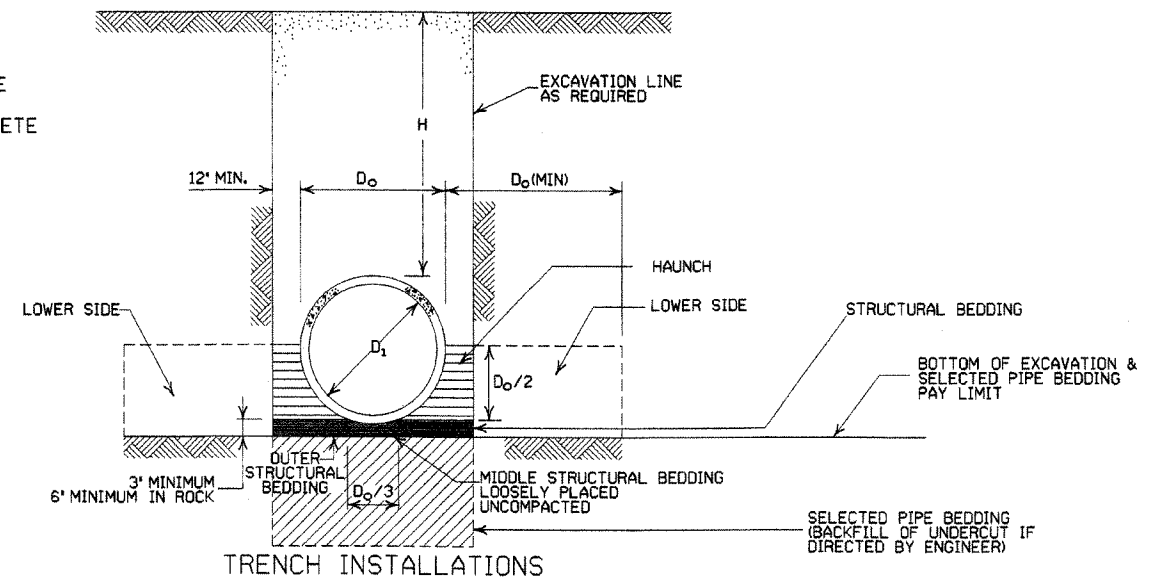
CONSTRUCTION SEQUENCE

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 SPECIFICATIONS.

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.



1. MATERIAL IN THE LOWER SIDE, HAUNCH, AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.



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.

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	• SPAN		• RISE	
	AASHTO M 206	AHD NOMINAL	AASHTO M 206	AHD NOMINAL
	INCHES			
15	18	18	11	11
18	22	22	13 1/2	14
21	26	26	15 1/2	16
24	28 1/2	29	18	18
30	36 1/4	36	22 1/2	23
36	43 3/4	44	26 5/8	27
42	51 1/2	51	31 1/8	31
48	58 1/2	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	77 1/4	77
108	138	138	87 1/2	87
120	154	154	96 3/8	97
132	168 3/4	169	106 1/2	107

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

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-3) OR TYPE 1 INSTALLATION MATERIAL
TYPE 3	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

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

MAXIMUM HEIGHT OF FILL OVER R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	17	27	41
TYPE 3	13	20	32

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

GENERAL NOTES

1. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
2. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
4. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE.
5. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
6. 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.
7. 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.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS 'STRUCTURAL BEDDING' ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS 'SELECTED PIPE BEDDING.'
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED 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.'

- LEGEND -

D<sub>1</sub> = NORMAL INSIDE DIAMETER OF PIPE  
 D<sub>0</sub> = OUTSIDE DIAMETER OF PIPE  
 H = FILL COVER HEIGHT OVER PIPE (FEET)  
 MIN. = MINIMUM  
 = UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

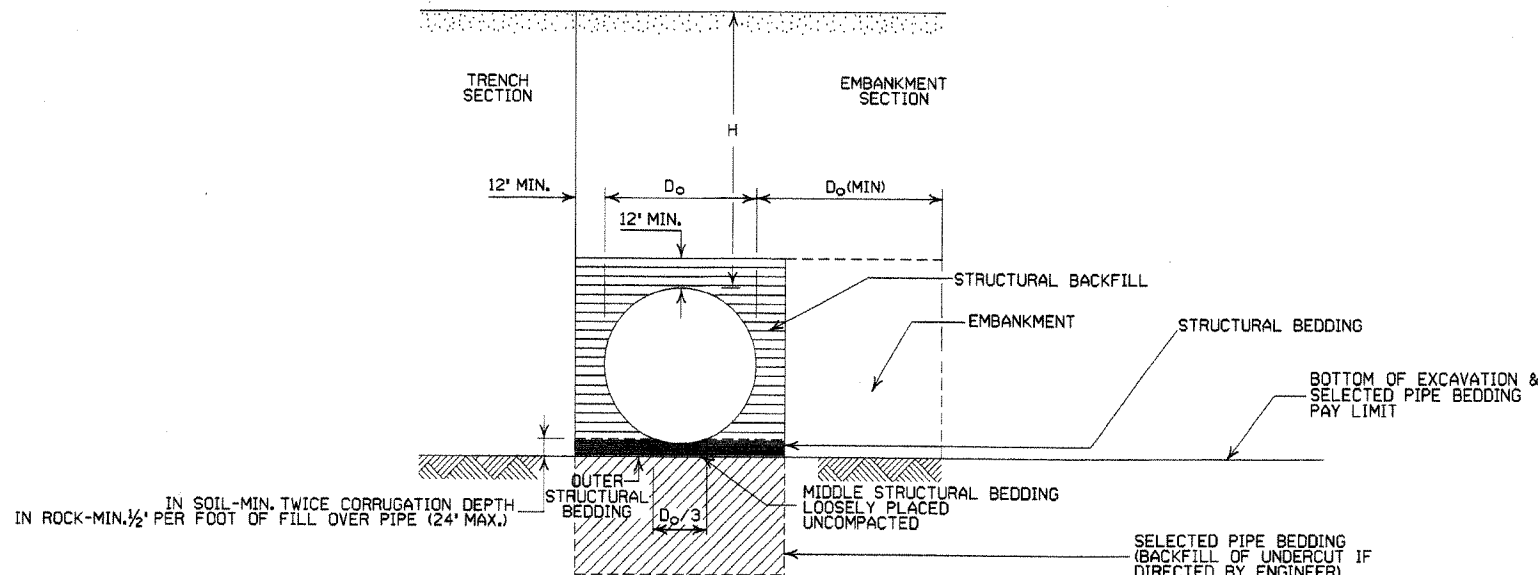
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT  
 FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

PIPE DIAMETER (INCHES)	MINIMUM COVER TOP OF PIPE TO TOP OF SUBGRADE (INCHES)	MAX. FILL HEIGHT ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.064	0.079	0.109	0.138	0.168
		2 1/2 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, OR HELICAL				
12	12	84	73			
15	12	67	61			
18	12	56	46	59		
24	12	42	36	47		
30	12	34	30	39	41	
36*	12		43	46	67	48
42*	12		37	45	56	46
48*	12					70
						50
						47
						64
		3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION** RIVETED, WELDED, HELICAL, OR ROLTED				
36	12	48	60	78	89	101
42	12	41	51	64	71	81
48	12	36	45	57	64	77
54	12	32	40	52	59	71
60*	12	29	36	49	53	64
66	12	26	33	47	49	58
72*	12	24	30	44	47	53
78	12		28	41	46	49
84*	12		26	38	45	46
90*	12		24	35	43	45
96*	12		22	33	40	44
102	24			31	38	42
108*	24			30	35	39
114	24			28	34	37
120*	24			27	32	35

\* MAX. FILL CAN BE INCREASED IN THESE DIAMETER PIPES BY USING THE NEXT LARGER CORRUGATION. REFER TO 'CORRUGATED METAL PIPE', REVISED 1970, PUBLISHED BY U.S. DEPARTMENT OF TRANSPORTATION, F.H.W.A., B.P.R.  
 \*\* WHERE THE STANDARD 2 3/8 x 1/2 CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER A 3' x 1' OR 5' x 1' CORRUGATION PIPE OF THE SAME DIAMETER MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. COMPLETE STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT EXCEED 24 INCHES OR 1/3 THE SIZE OF THE PIPE, WHICHEVER IS LESS.

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	*SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-3)

\* AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL

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

GENERAL NOTES

1. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
2. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
4. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE.
5. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
6. 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.
7. 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.'
8. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF 'SELECTED PIPE BACKFILL.'

- LEGEND -

- D<sub>o</sub> = OUTSIDE DIAMETER OF PIPE
- MAX. = MAXIMUM
- MIN. = MINIMUM
- [Hatched Pattern] = STRUCTURAL BACKFILL MATERIAL
- [Diagonal Lines] = UNDISTURBED SOIL
- ELONG. = ELONGATED
- EQUIV. DIA. = EQUIVALENT DIAMETER
- H = FILL COVER HEIGHT OVER PIPE (FEET)

CORRUGATED ALUMINUM PIPE (ROUND) H-20 LOADING

PIPE DIAMETER (INCHES)	MINIMUM COVER TOP OF PIPE TO TOP OF SUBGRADE (INCHES)	MAX. FILL HEIGHT ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 1/2 INCH BY 1/2 INCH CORRUGATION RIVETED OR HELICAL				
12	12	45	30			
18	12	30	22			
24	12	22	18	31	32	34
30	12	18	15	26	27	28
36	12		26	43	43	44
42	12			40	41	43
48	12			35	37	38
54	12				33	34
60	12				30	31
66	12					29
72	12					

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8
0.188	0.1838		7
0.218	0.2145		5
0.249	0.2451		3
0.280	0.2758		1

CORRUGATED METAL PIPE ARCHES (H - 20 LOADING)

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINIMUM CORNER RADIUS (INCHES)	MIN. COVER TOP OF PIPE TO TOP OF SUBGRADE FOR 2 TONS PER SQ. FT. (INCHES)	STEEL			ALUMINUM		
				MINIMUM THICKNESS REQUIRED INCHES	MAX. FILL HEIGHTS ABOVE TOP OF PIPE (IN FT.) FOR THE FOLLOWING CORNER BEARING PRESSURE IN TONS PER SQ. FT.		MINIMUM THICKNESS REQUIRED INCHES	MAX. FILL HEIGHTS ABOVE TOP OF PIPE (IN FT.) FOR THE FOLLOWING CORNER BEARING PRESSURE IN TONS PER SQ. FT.	
					2 TONS	3 TONS <sup>1</sup>		2 TONS	3 TONS <sup>1</sup>
				2 1/2 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, OR HELICAL					
15	17x13	3	12	0.064	13	15+	0.060	15	
18	21x15	3	12	0.064	12	15+	0.060	14	
21	24x18	3	12	0.064	10	15+	0.060	12	15+
24	28x20	3	12	0.064	10	15	0.060	10	15+
30	35x24	3	12	0.079	9	14	0.075	9	14
36	42x29	3 1/2	12	0.079	9	13	0.075	9	13
42	49x33	4	12	0.079	8	12	0.105	8	12
48	57x38	5	12	0.109	8	12	0.135	8	12
54	64x43	6	12	0.109	8	12	0.135	8	12
60	71x47	7	12	0.138	8	12	0.164	8	12
66	77x52	8	12	0.168	8	12	0.164	8	12
72	83x57	9	12	0.168	9	13		8	12
				3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION** RIVETED, WELDED, OR HELICAL					
36	40x31	5	12	0.079	15	15+			
42	46x36	6	12	0.079	15	15+			
48	53x41	7	12	0.079	15	15+			
54	60x46	8	12	0.079	15	15+			
60	66x51	9	12	0.079	15	15+			
66	73x55	12	12	0.079	15	15+			
72	81x59	14	18	0.079	15	15+			
78	87x63	14	18	0.079	14	15+			
84	95x67	16	18	0.109	13	15+			
90	103x71	16	24	0.109	12	15+			
96	112x75	18	24	0.109	11	15+			
102	117x79	18	24	0.109	10	15			
108	128x83	18	24	0.138	9	14			

<sup>1</sup> WHERE BEARING PRESSURE EXCEEDING 2 TONS PER SQUARE FOOT IS REQUIRED FOR GIVEN FILL HEIGHTS, THE FOUNDATION MATERIAL SHALL BE INVESTIGATED TO DETERMINE THE BEARING CAPACITY.  
 \*\* WHERE THE STANDARD 2 3/8 x 1/2 CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A 3' x 1' OR 5' x 1' CORRUGATION PIPE OF THE SAME DIAMETER MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

DATE	REVISION	DATE FILMED
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

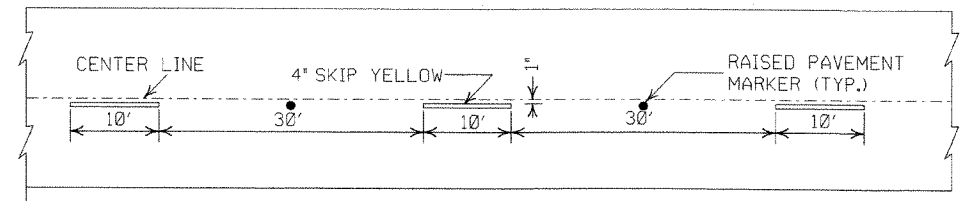
ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT  
FILL HEIGHTS & BEDDING

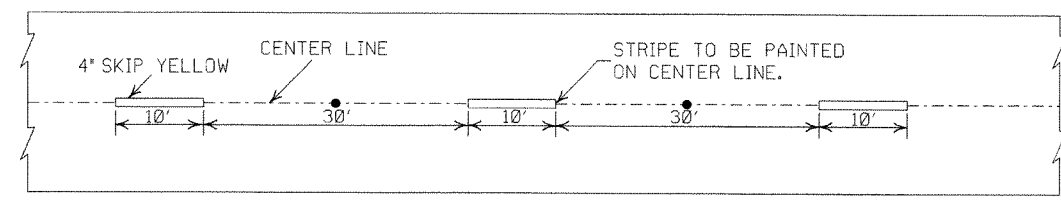
STANDARD DRAWING PCM-1

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.

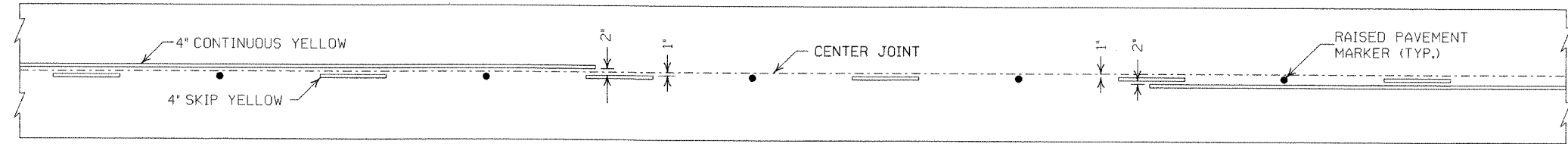


CONCRETE PAVEMENT

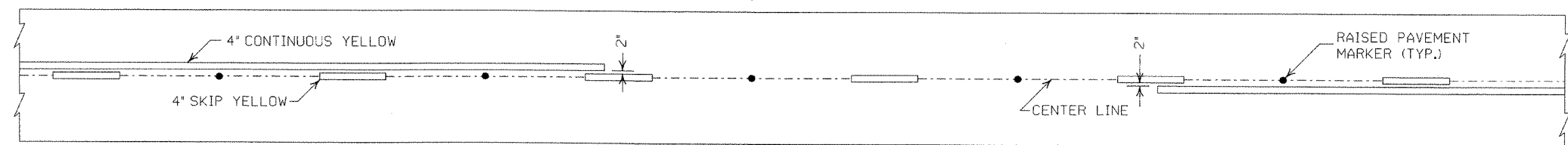


ASPHALT PAVEMENT

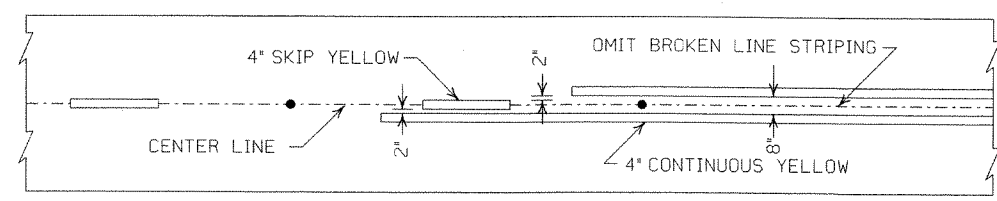
BROKEN LINE STRIPING



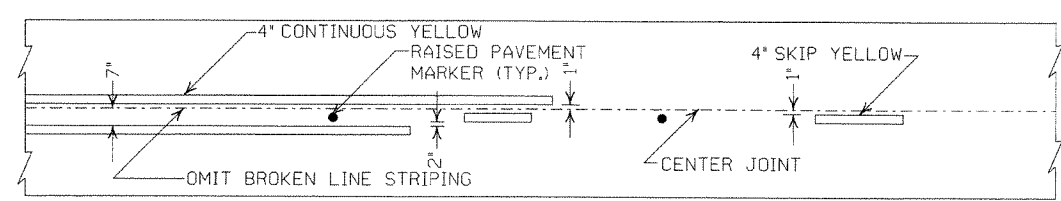
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT



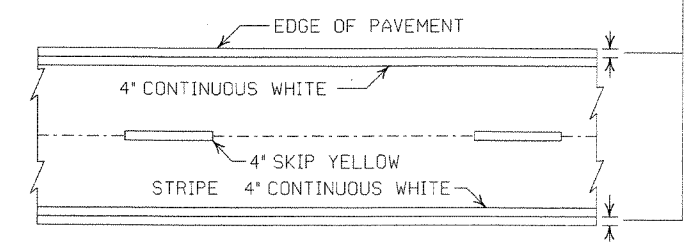
ASPHALT PAVEMENT



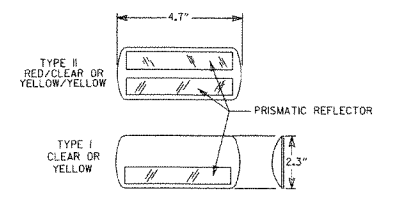
CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

2" FOR ASPHALT OR CONCRETE PAVEMENT  
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING

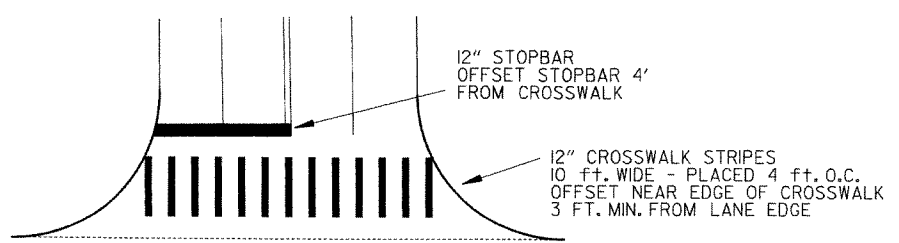


NOTE:  
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.

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.


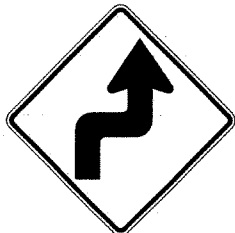





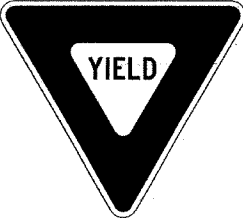

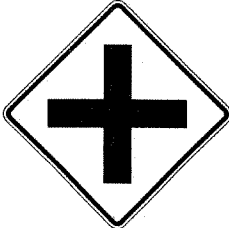

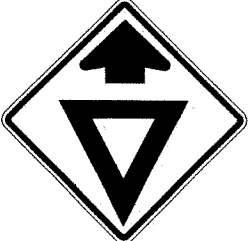

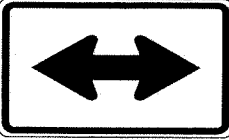
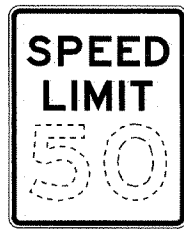

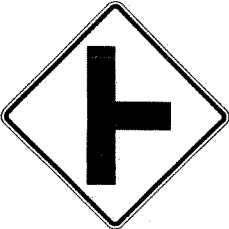



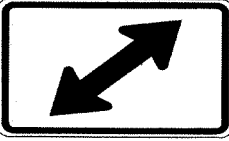


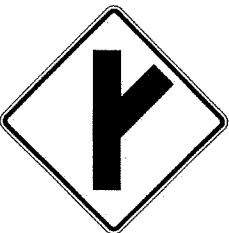

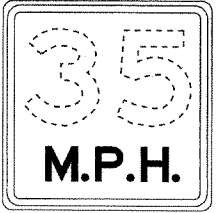
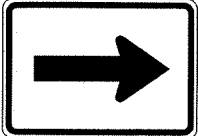
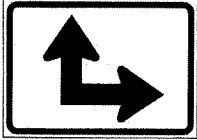

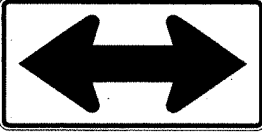
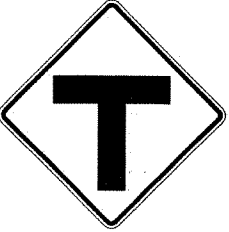

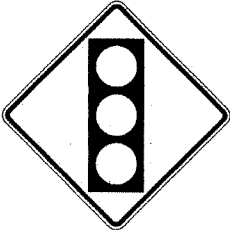



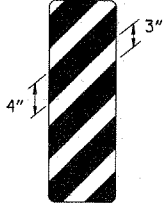
NOTE:  
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

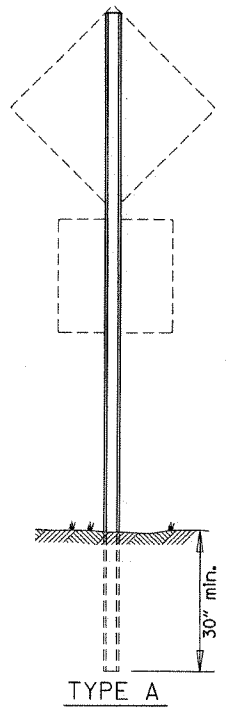
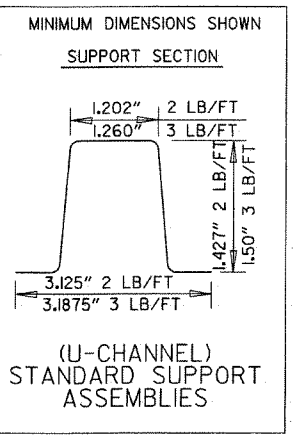


CROSSWALK AND STOPBAR DETAILS

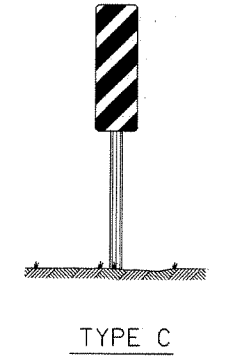
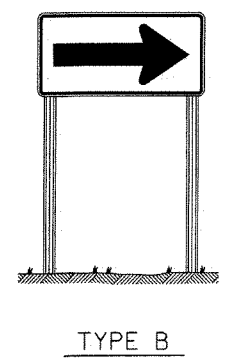
DATE	REVISION	FILMED
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION	
PAVEMENT MARKING DETAILS	
STANDARD DRAWING PM-1	

 RI-1 30"X30"	 WI-3 30"X30" (LT. OR RT.)	 WI-8 18"X24"	 W2-5 30"X30"	 W3-1 36"X36"	 W5-1 36"X36"	 M6-3 21"X15"
 RI-2 36"X36"X36"	 WI-4 30"X30" (LT. OR RT.)	 W2-1 30"X30"	 SI-1 36"X36"	 W3-2 36"X36"	 County Route Marker MI-5 24"X24"	 M6-4 21"X15"
 R2-1 24"X30"	 WI-5 30"X30" (LT. OR RT.)	 W2-2 30"X30"	 W5-2 36"X36"	 W8-3 36"X36"	 RI-3 12"X6"	 M6-5 21"X15"
 WI-1 30"X30" (LT. OR RT.)	 WI-6 48"X24"	 W2-3 30"X30" (LT. OR RT.)	 W5-3 36"X36"	 W13-1 18"X18"	 M6-1 21"X15"	 M6-6 21"X15"
 WI-2 30"X30" (LT. OR RT.)	 WI-7 48"X24"	 W2-4 30"X30"	 W10-1 36" DIAMETER	 W3-3 36"X36"	 M6-2 21"X15"	 S4-3 24"X8"
					 S4-2 24"X10"	 OM-3 12"X36" (LT. OR RT.)



NOTE: LENGTH OF SIGN POSTS SHALL BE DETERMINED SO AS TO PROVIDE FOR MINIMUM VERTICAL CLEARANCES AS CALLED FOR IN THE SPECIFICATIONS PLUS A MINIMUM VERTICAL PENETRATION OF 30" IN THE SOIL.



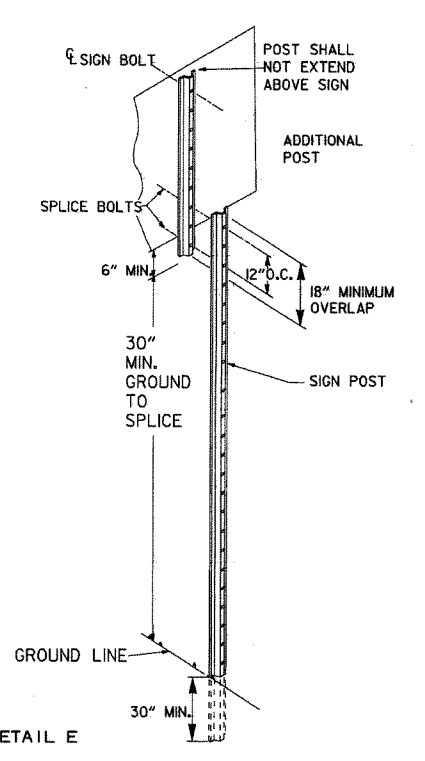
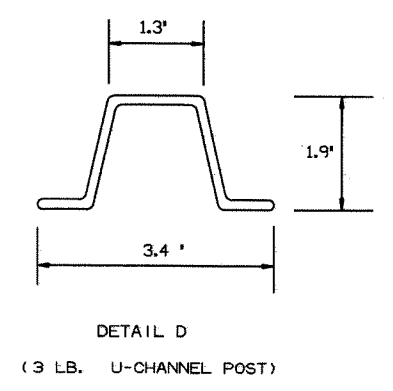
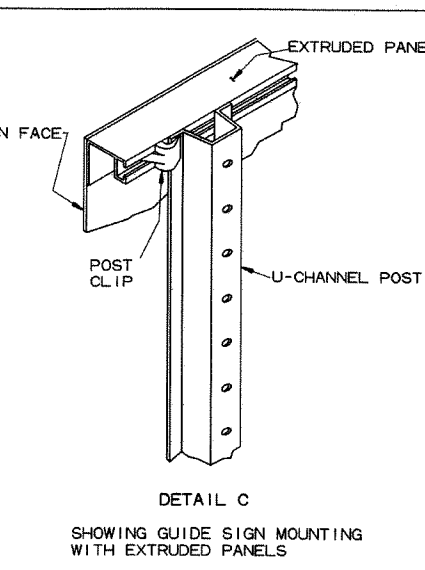
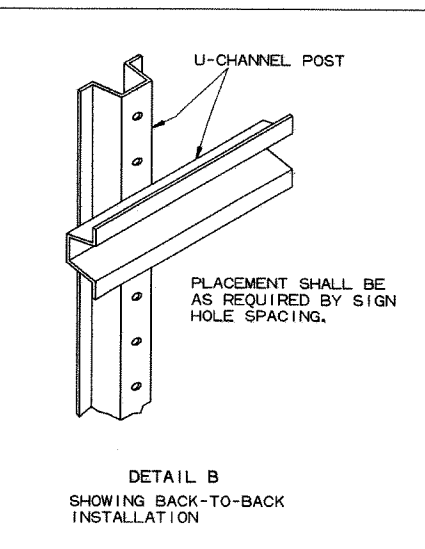
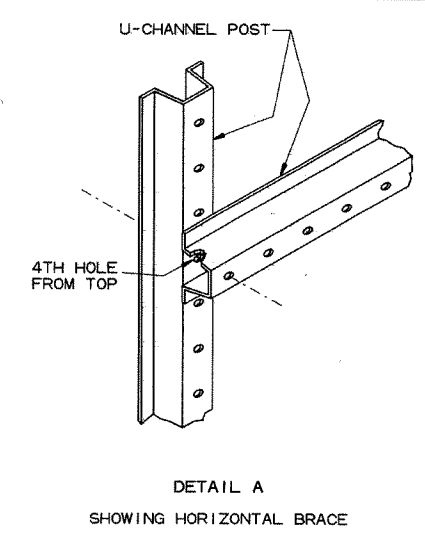
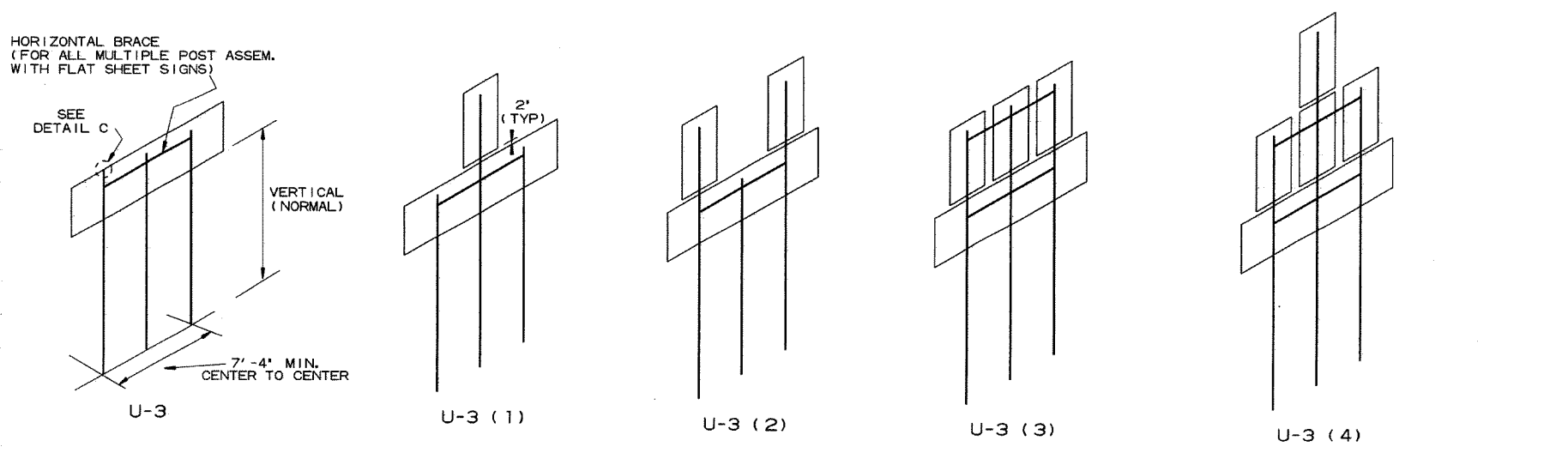
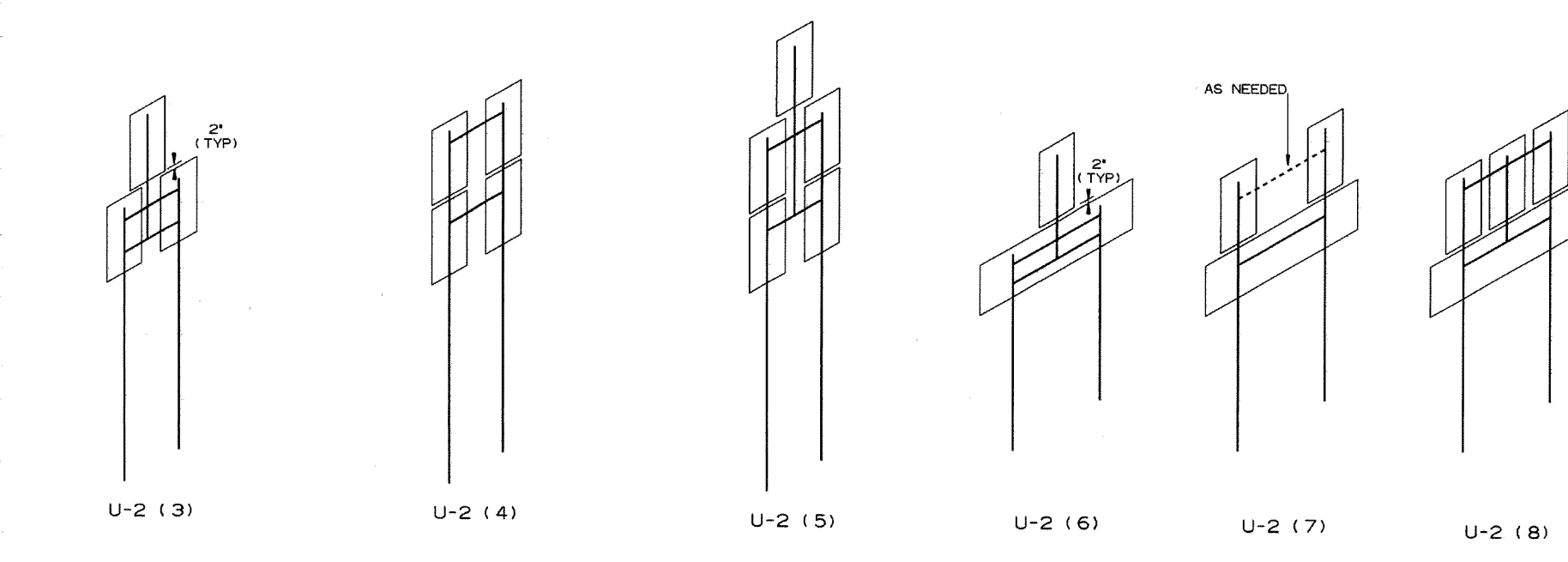
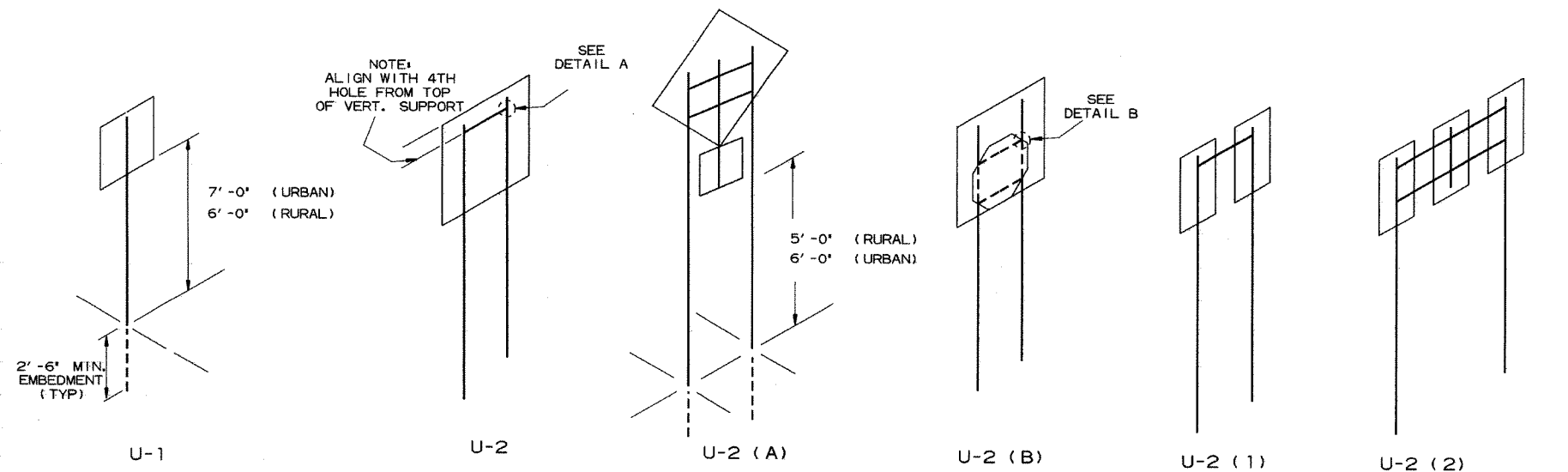
MINIMUM WEIGHT  
TYPE A & B = 3 LBS./FT.  
TYPE C = 2 LBS./FT.

STANDARD HIGHWAY SIGNS

4-17-68	REVISED SIGN DESIGNATION - W3-1 & W3-2	
4-10-63	REVISED W5-2, W8-3, OM-3; ADDED WI-8	
1-5-61	REDRAWN	960-1-15-61
9-15-78	ADDED W14-3	877-9-15-78
9-2-76	POST WT.	923-9-3-76
	STEEL POST WT. FROM 2" - 3"	
5-3-76	ADDED S4-2 & S4-3	504-5-3-76
8-12-74	REV. HT. TYPE "C" ASSEMBLY	500-8-21-74
12-21-72	ADDED M6-2,3,4,5,6	500-12-21-72
12-1-72	ISSUED	562-12-1-72
DATE	REVISION	DATE FILMED

SUPPORT ASSEMBLIES  
ARKANSAS STATE HIGHWAY COMMISSION  
STANDARD HIGHWAY SIGNS  
AND SUPPORT ASSEMBLIES  
STANDARD DRAWING SHS-1





NOTES:

SIGNS AT LEAST 8' IN LENGTH MAY BE INSTALLED ON THREE 3 LB. POST. IN NO CASE SHALL THERE BE MORE THAN TWO 3 LB. POSTS WITHIN A 7' PATH.

SPLICES NECESSARY TO ATTAIN PROPER MOUNTING HEIGHT SHALL BE AS SHOWN IN DETAIL (E).

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. CARRIAGE BOLTS TO MOUNT SIGNS TO POST AND 3/8" DIA. CARRIAGE BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS.


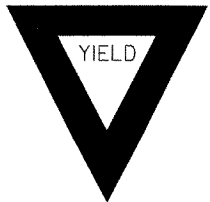







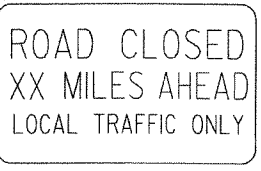
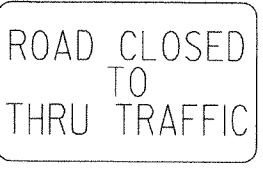
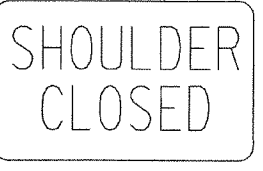
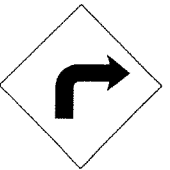


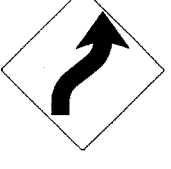


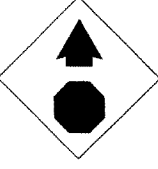
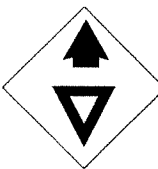
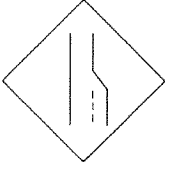

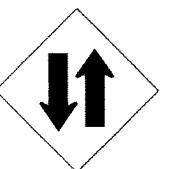

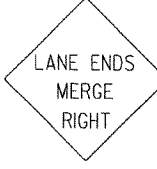


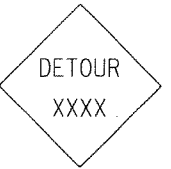






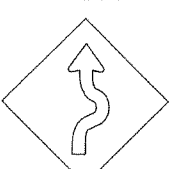
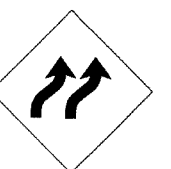

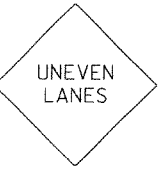
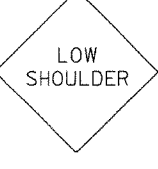
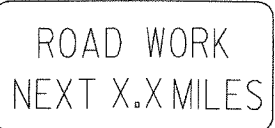
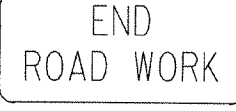
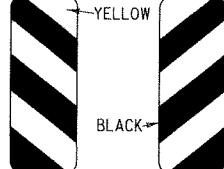
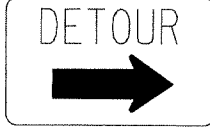

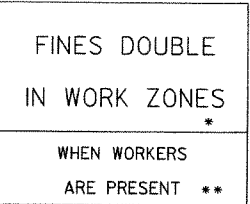
ALL SIGN POSTS SHALL BE PLUMB.

DATE	REVISION	
10-9-03	REMOVED ROUND POST & REVISED SPACING	10-9-03
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL	6-8-95
2-2-95	REDRAWN	2-2-95
		FILMED

ARKANSAS STATE HIGHWAY COMMISSION

U-CHANNEL POST ASSEMBLIES

STANDARD DRAWING SHS-2

							ADVANCE DISTANCES (XXXX)	77
<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5A</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5C</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>500 FT 1/2 MILE 1000 FT 3/4 MILE 1500 FT 1 MILE AHEAD</p>	
<p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>R11-2</p>  <p>48"x30"</p>	<p>R11-3A</p>  <p>60"x30"</p>	<p>R11-4</p>  <p>60"x30"</p>	<p>RSP-1</p>  <p>48"x30"</p>	<p>WI-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>WI-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>		
<p>WI-3</p>  <p>STD. 48"x48"</p>	<p>WI-4</p>  <p>STD. 48"x48"</p>	<p>WI-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>WI-8</p>  <p>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</p>	<p>W3-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W3-2</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W4-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>		
<p>W5-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W6-3</p>  <p>EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>W8-7</p>  <p>EXPWY. 36"x36" FWY. 48"x48"</p>	<p>W9-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W13-1</p>  <p>STD. 24"x24"</p>	<p>W20-1</p>  <p>STD. 48"x48"</p>	<p>W20-2</p>  <p>STD. 48"x48"</p>	<p>W20-3</p>  <p>STD. 48"x48"</p>	
<p>W20-4</p>  <p>STD. 48"x48"</p>	<p>W20-5</p>  <p>STD. 48"x48"</p>	<p>W20-7a</p>  <p>18" 500 FEET 24" W16-2</p> <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W21-2</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W21-5</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W24-1</p>  <p>STD. 36"x36"</p>	<p>W1-4b</p>  <p>STD. 48"x48"</p>	<p>R56-1</p>  <p>STD. 18"x18"</p>	
<p>W8-11</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W8-9</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>G20-1</p>  <p>60"x24"</p>	<p>G20-2</p>  <p>48"x24"</p>	<p>OM-3L OM-3R</p>  <p>12"x36"</p>	<p>M4-9</p>  <p>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</p>	<p>M4-10</p>  <p>48"x18"</p>	<p>R55-1</p>  <p>36"x60"</p> <p>* USE 6" C LETTERS ** USE 4" D LETTERS</p>	

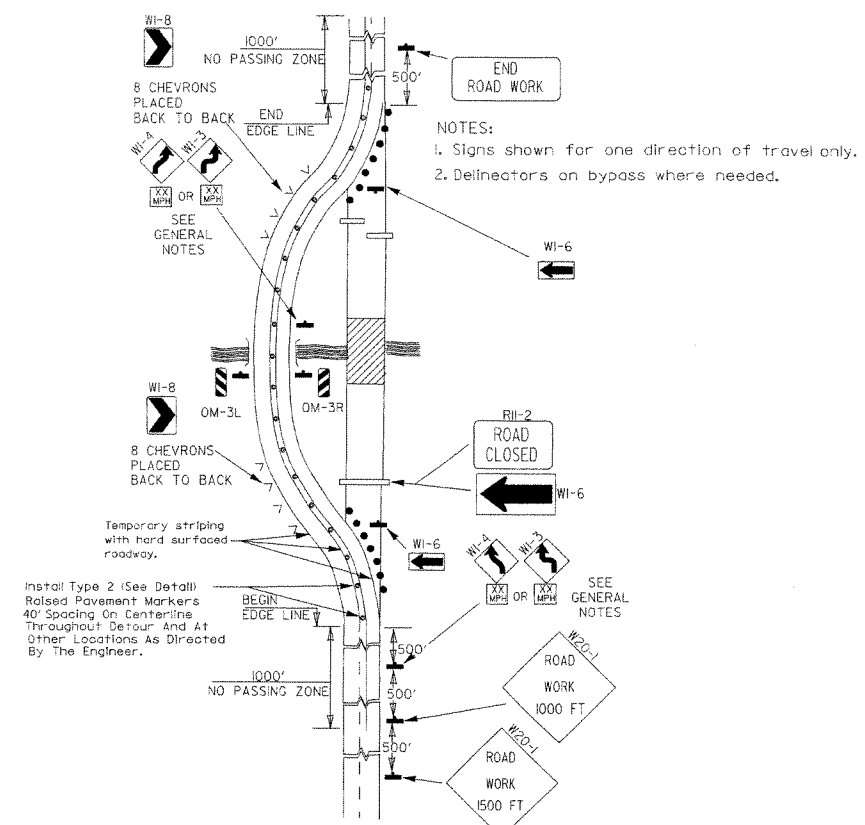
GENERAL NOTES:

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.

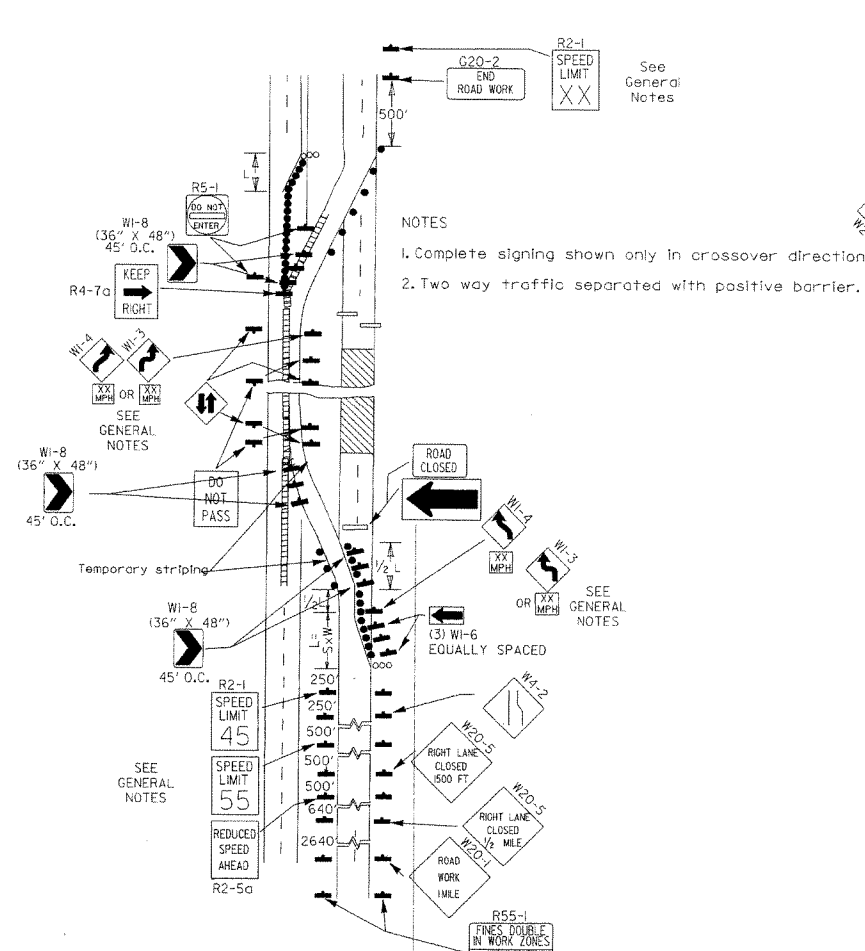
- FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
- MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
- 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.

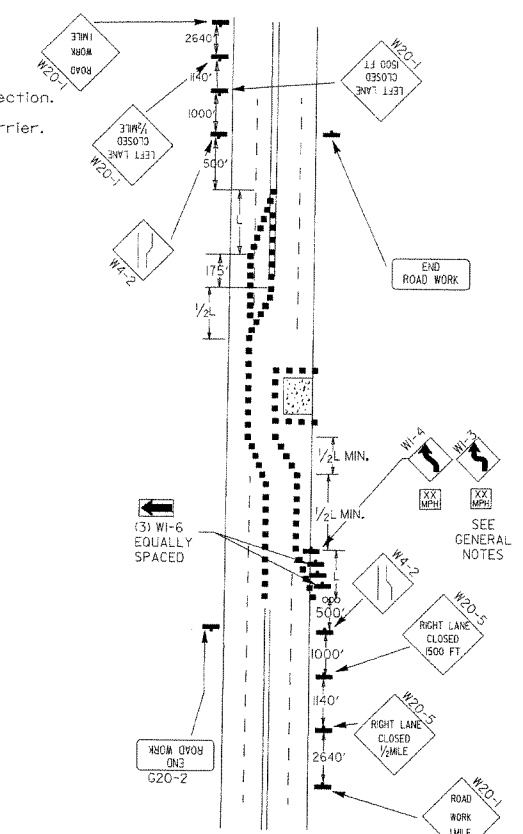
DATE	REVISION	FILMED
1-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED 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	



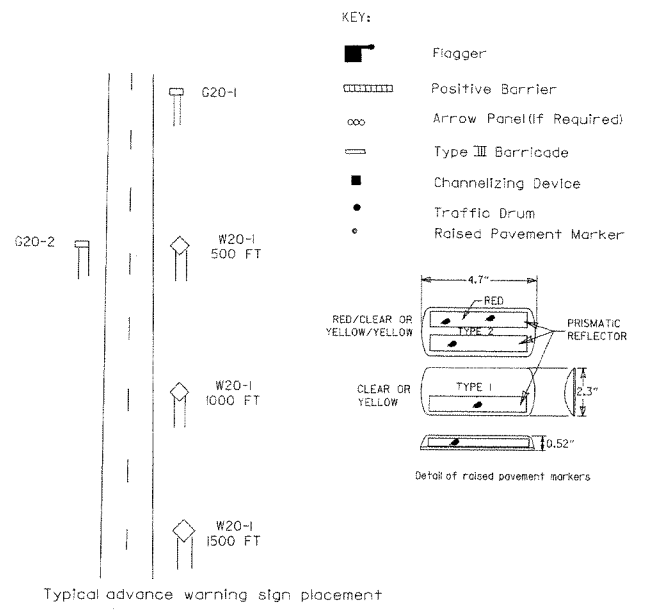
(A) Typical application of traffic control devices on a 2-lane highway where the entire roadway is closed and a bypass detour is provided.



(B) Typical application - 4-lane divided roadway where one roadway is closed.

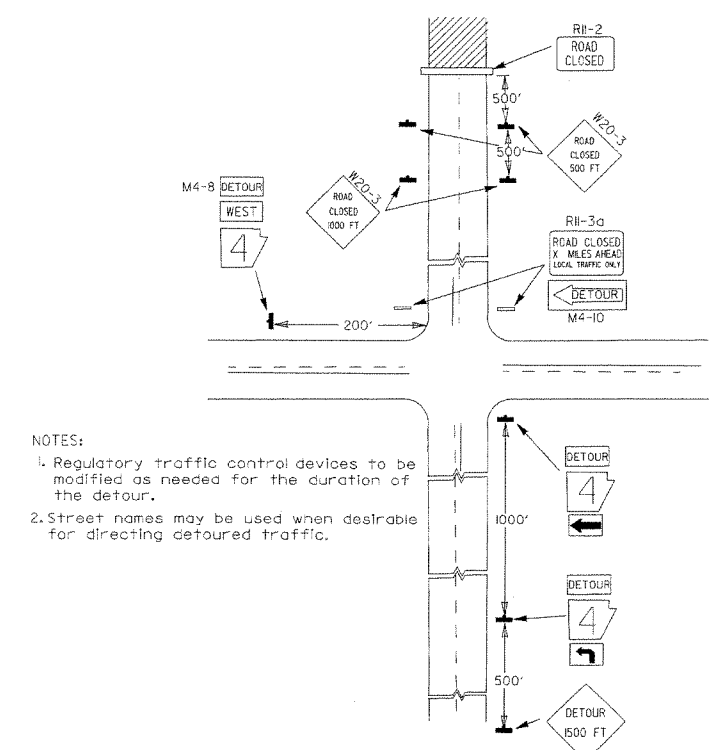


(C) Typical application - 4-lane undivided roadway where half of the roadway is closed.

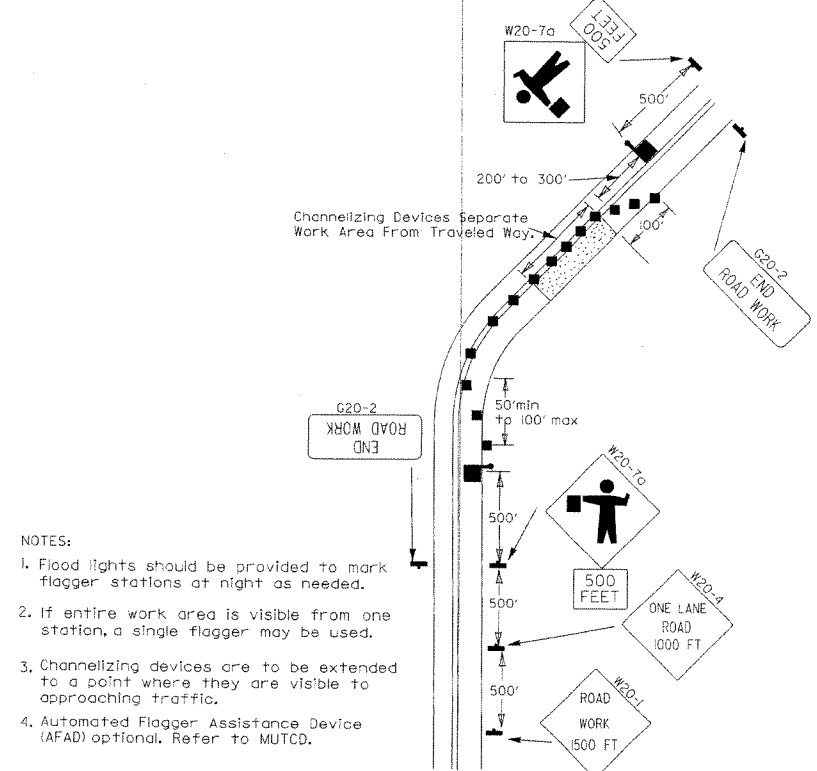


Taper formulae:  
 $L = S \times W$  for speeds of 45mph or more.  
 $L = \frac{WS^2}{60}$  for speeds of 40mph or less.  
 Where:  
 L = Minimum length of taper.  
 S = Numerical value of posted speed limit prior to work or 85th percentile speed.  
 W = Width of offset.

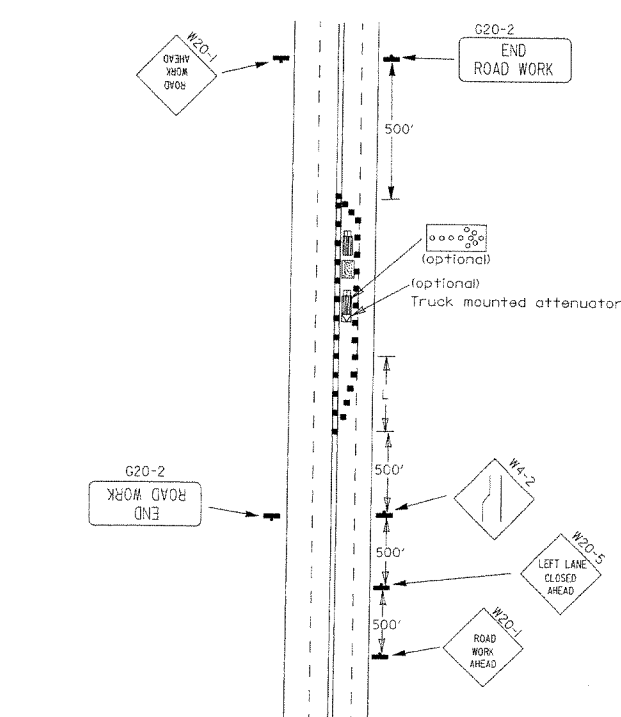
- GENERAL NOTES:
- Advisory speed posted on W1-3 or W1-4 curve warning signs to be determined at site. Use W1-4 when speed is greater than 30mph and W1-3 when 30mph or less.
  - When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-145mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
  - When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(65) shall be omitted. Additional R2-155mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
  - 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.
  - Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
  - Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
  - 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.



(D) Typical application - roadway closed beyond detour point.



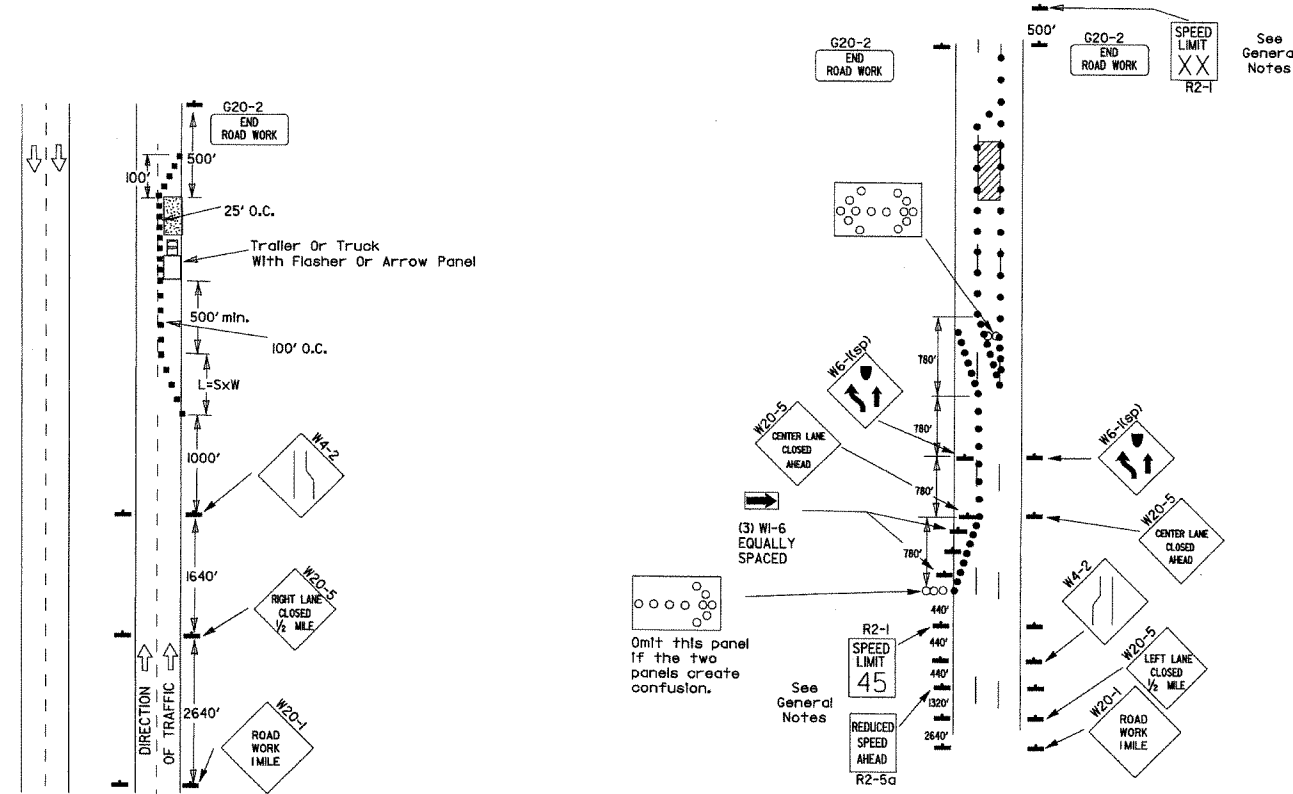
(E) Typical application of traffic control devices on 2-lane highway where one lane is closed and flagging is provided.



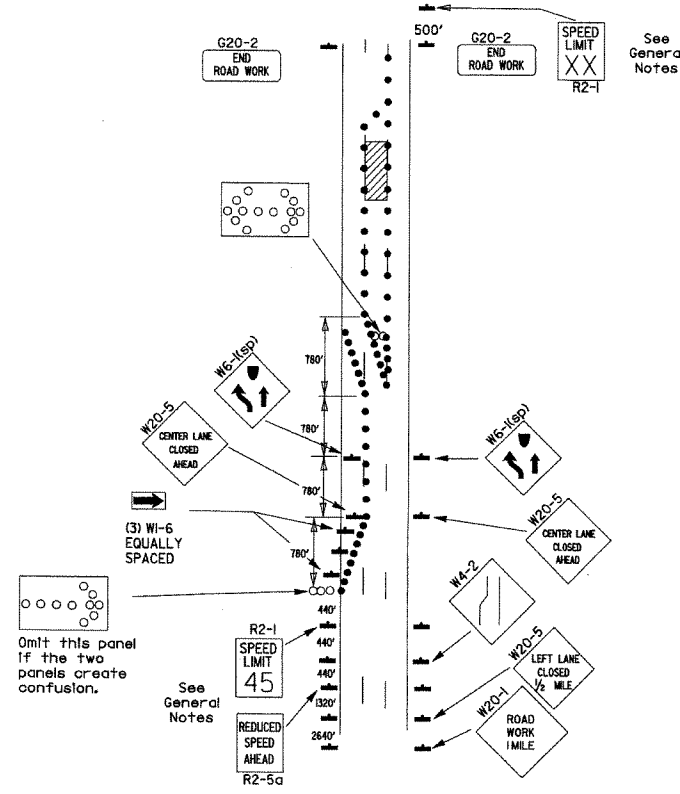
(F) Typical application - 4-lane undivided roadway with inside lane closed.

DATE	REVISION	FILMED
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

Channellizing devices



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.

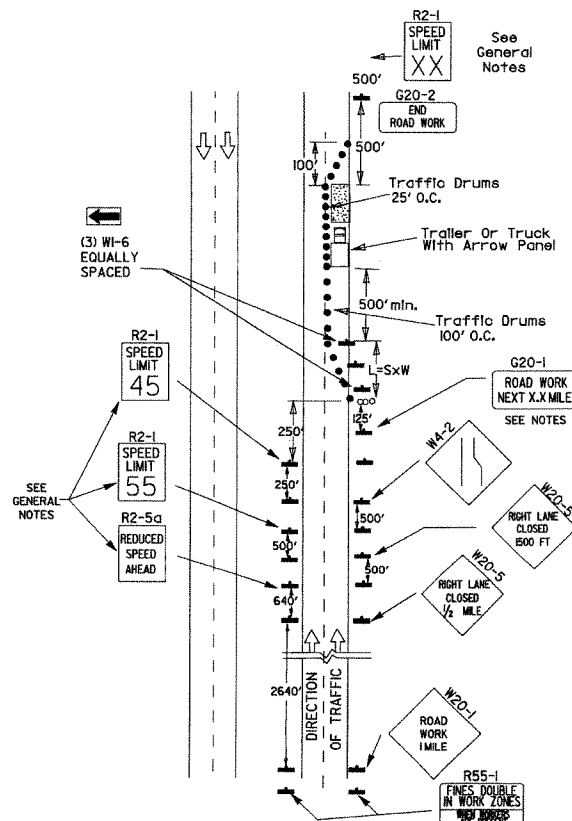


(B) Typical application - 3-lane oneway roadway where center lane is closed.

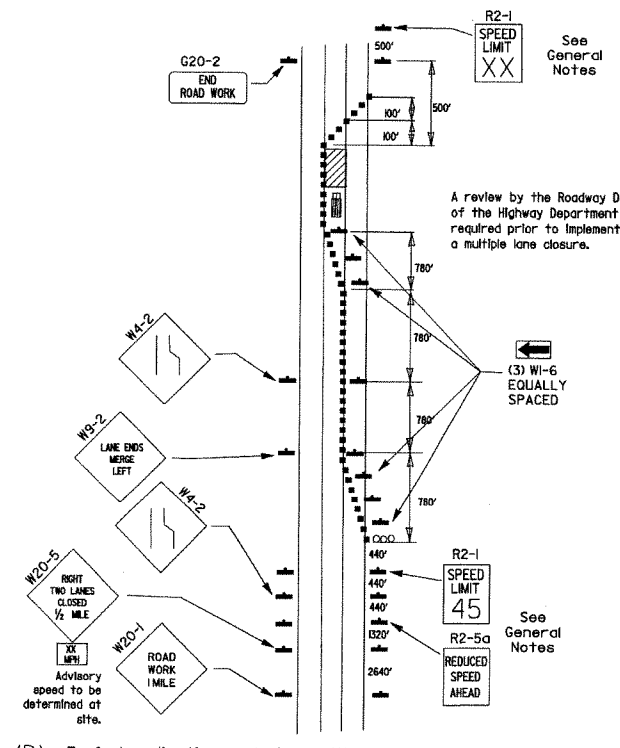
- KEY:
- Arrow Panel (if Required)
  - Channellizing Device
  - Traffic drum

GENERAL NOTES:

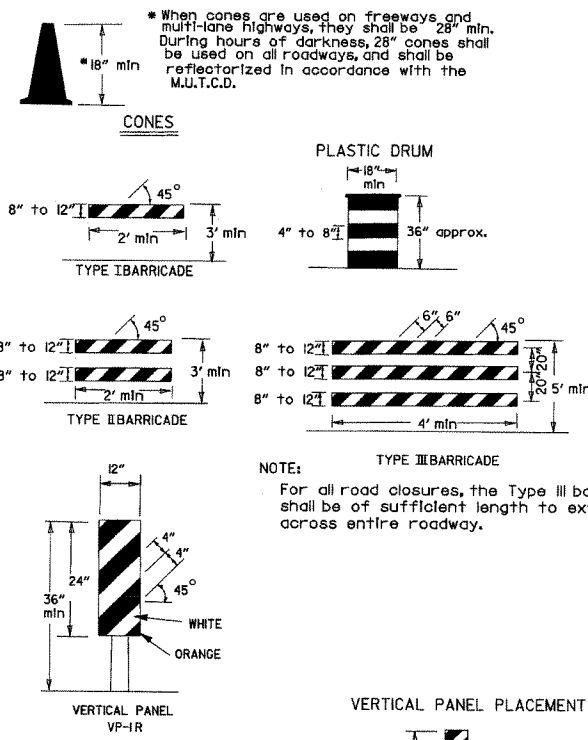
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-(55) shall be omitted and the R2-5a shall be installed at that location. Additional 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-(XXX) 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-(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-(XXX) shall be installed to match original speed limit.
4. The maximum spacing between channellizing 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 channellizing 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.



(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.



(D) Typical application - closing multiple lanes of a multilane highway.



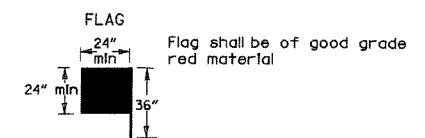
\* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

NOTE: For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.

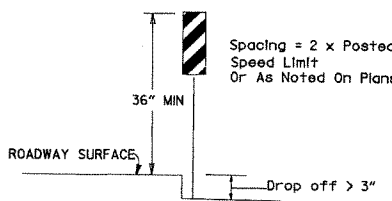
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

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-land vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

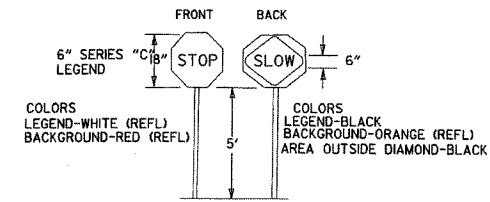
\* When shown on the plans concrete barrier will be used. When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.



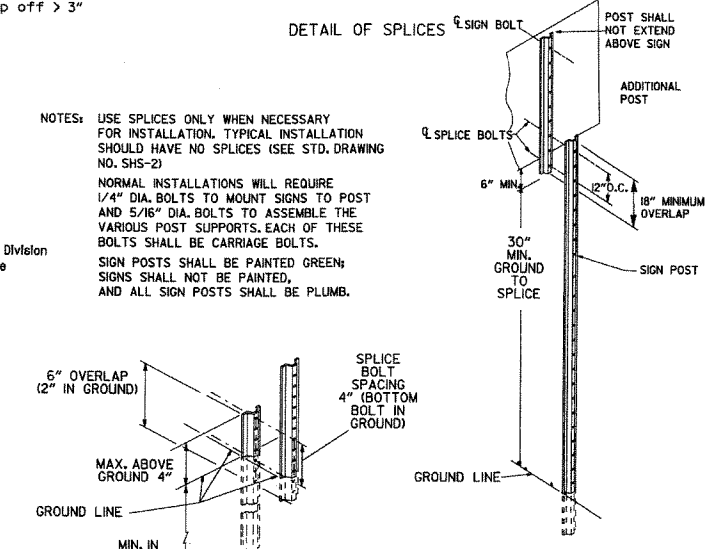
VERTICAL PANEL PLACEMENT



STOP SLOW PADDLE

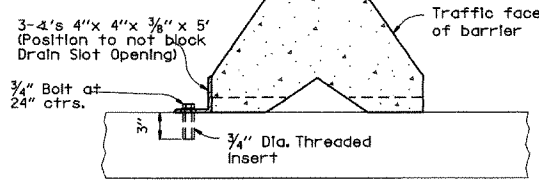
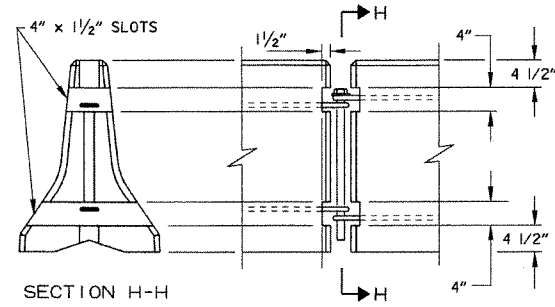
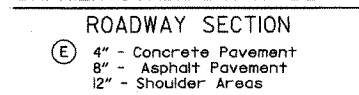
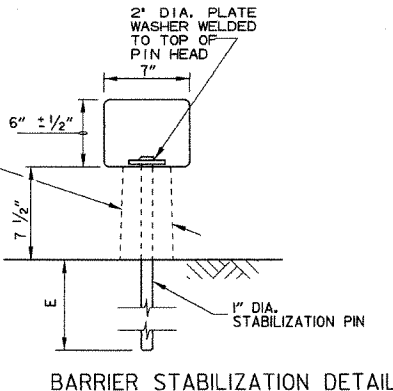
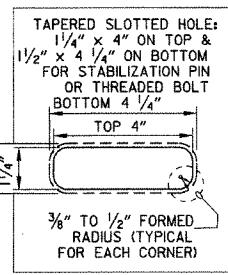
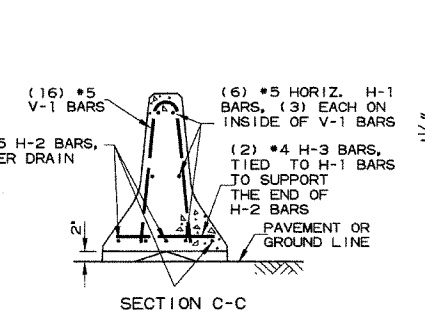
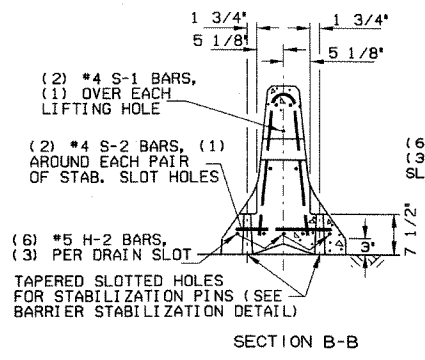
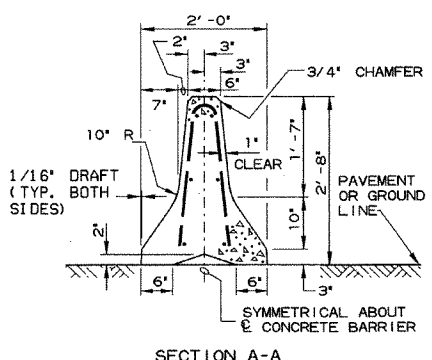
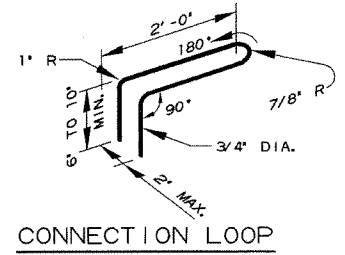
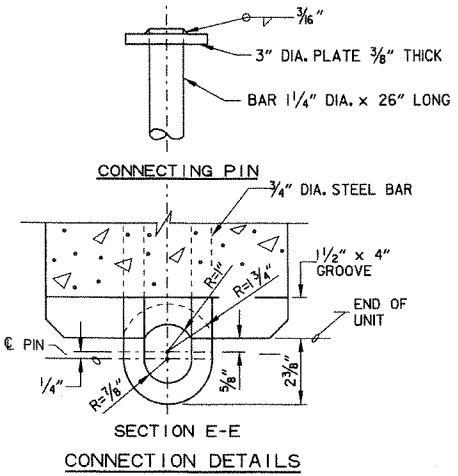


DETAIL OF SPLICES

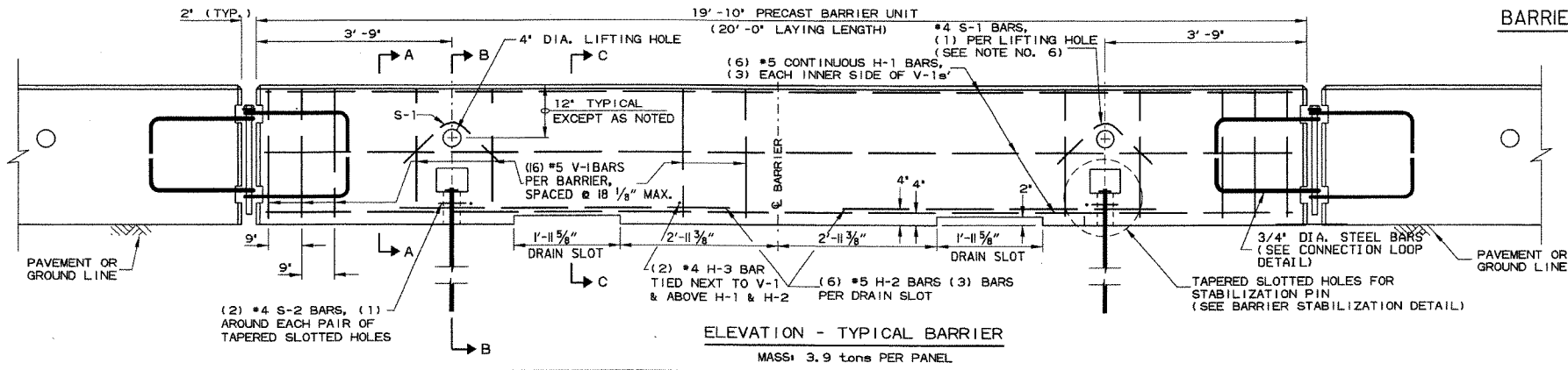
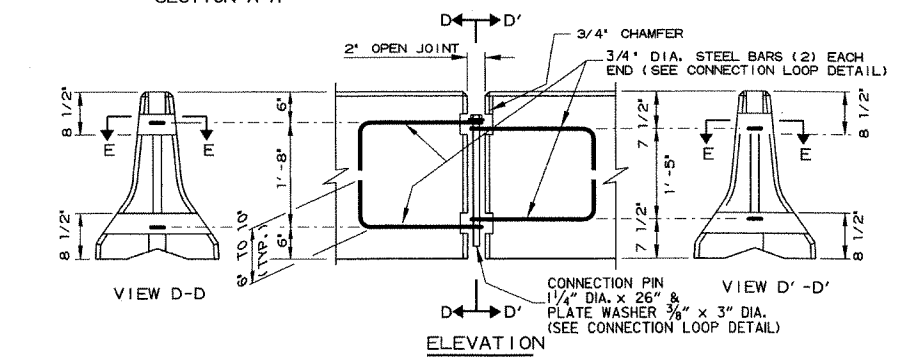


DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

REINFORCING BAR TABLE PER BARRIER UNIT			
MARK	LOCATION	BAR SIZE	(NO. BARS)
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)
S-1	OVER LIFT HOLES	#4	(2)
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S & DRAIN SLOTS	#4	(2)
V-1	VERTICAL IN BARRIER (3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)



NOTE: 3/4" Threaded inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks to be retained. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

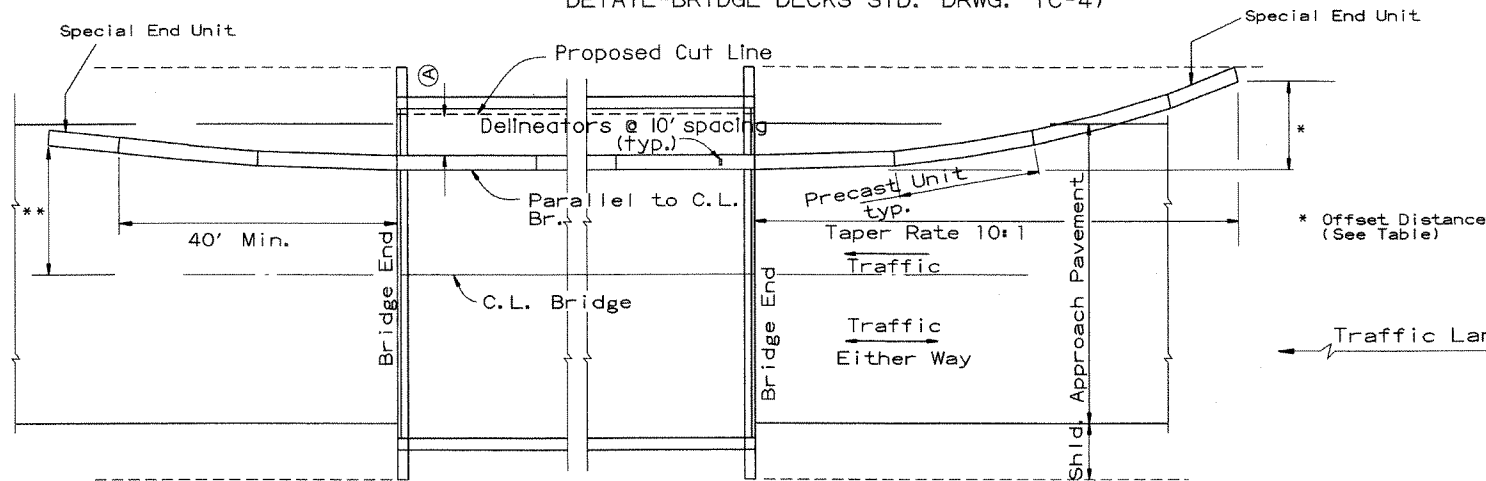


- General Notes**
- The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.
  - Materials shall meet the following minimum requirements:  
Concrete: 2500 psi compressive strength at 28 days.  
Reinforcing Steel: AASHTO M 31 or M 53, Grade 60  
Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin.  
Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.  
  
In applications where barrier walls within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers. Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices. Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.
  - Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.
  - Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.
  - Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.
  - A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

DATE	REVISION	FILED
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
8-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

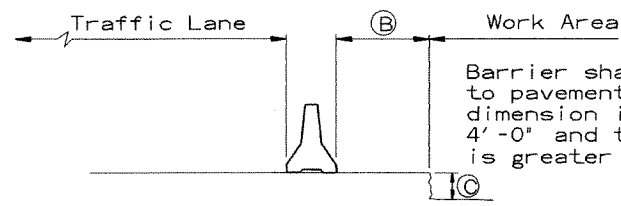
ARKANSAS STATE HIGHWAY COMMISSION  
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER  
STANDARD DRAWING TC-4

(A) 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

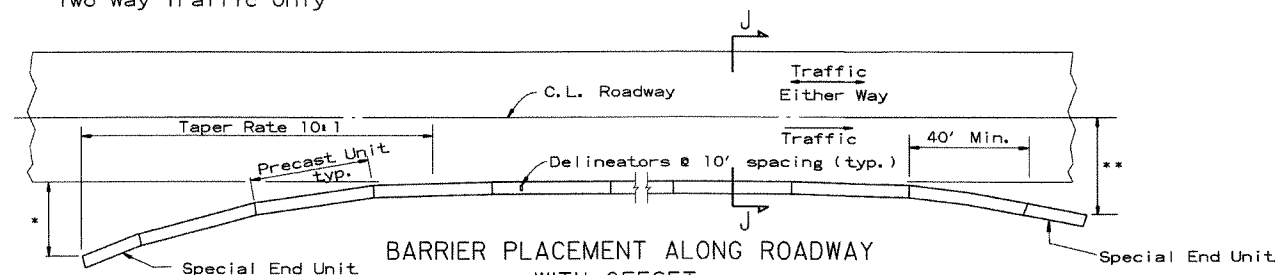
No Scale



SECTION J-J

No Scale

\*\* Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

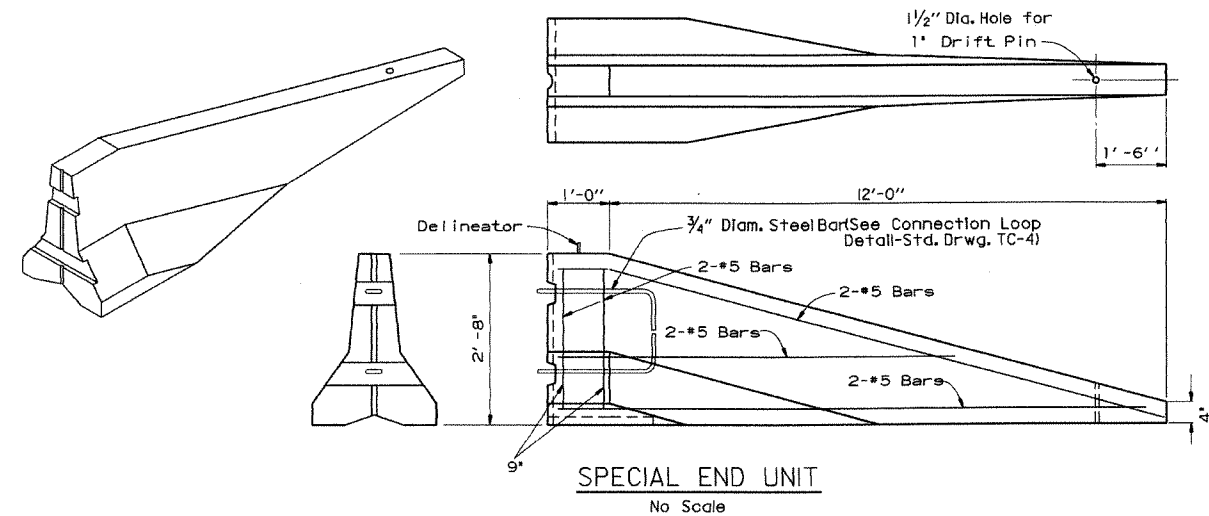
No Scale

\*\* Offset Distance for Two Way Traffic Only

\* Offset Distance (See Table)

Speed (MPH)	Offset Distance (FT.)
≤ 45	12
> 45	18

If offset distance is not attainable, then see 'Barrier Placement With Attenuator' Detail shown below.

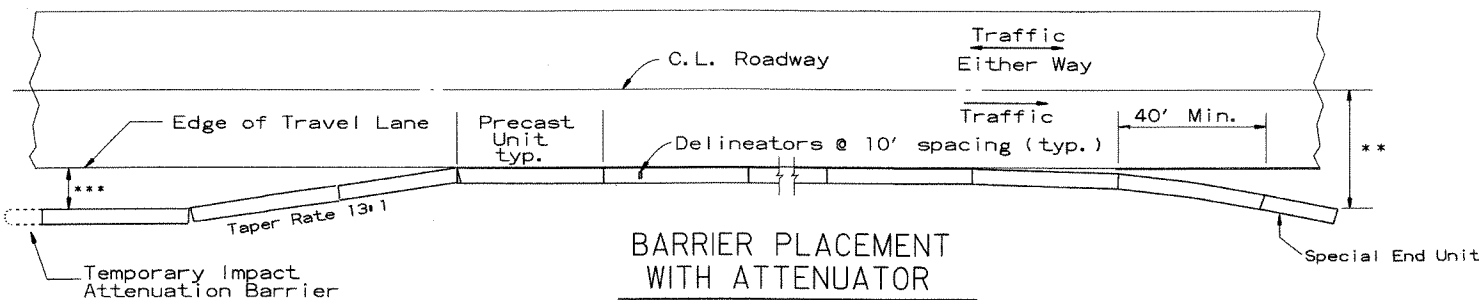


SPECIAL END UNIT

No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of 'Temporary Impact Attenuation Barrier.'



BARRIER PLACEMENT WITH ATTENUATOR

No Scale

\*\* Offset Distance for Two Way Traffic Only

\*\*\* Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

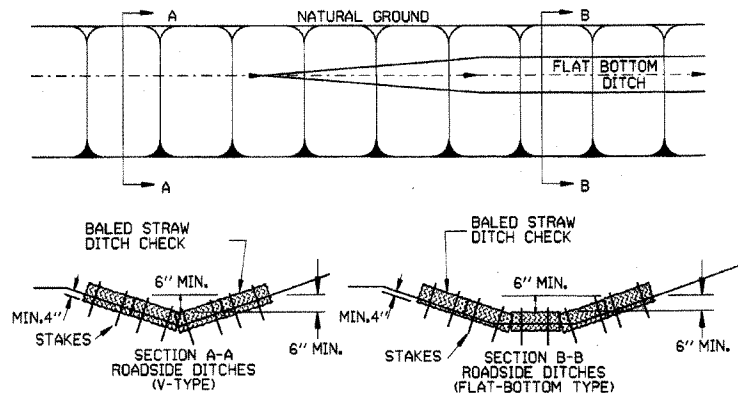
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-5

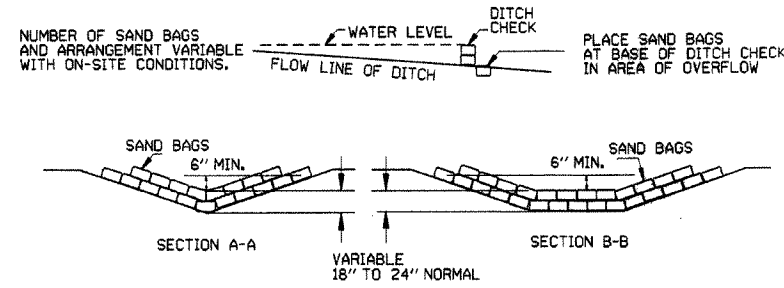


GENERAL NOTES

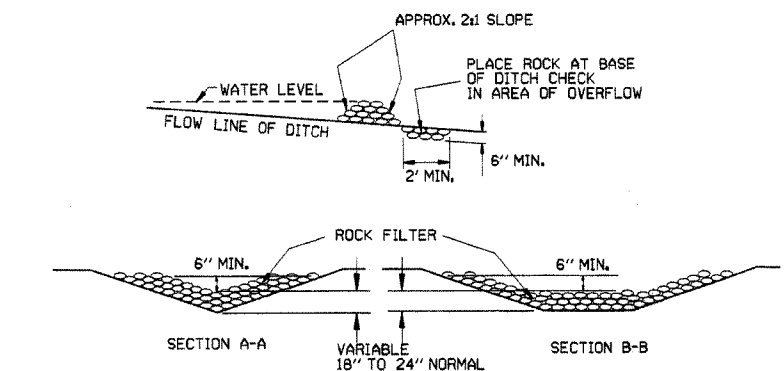
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30" INCHES IN LENGTH.
2. STRAW BALES SHALL BE KEYED INTO SOIL A MINIMUM OF 4' AND NO GAPS SHALL BE LEFT BETWEEN BALES.



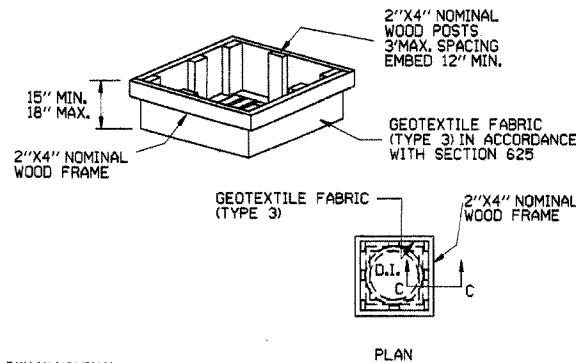
BALED STRAW DITCH CHECK (E-1)



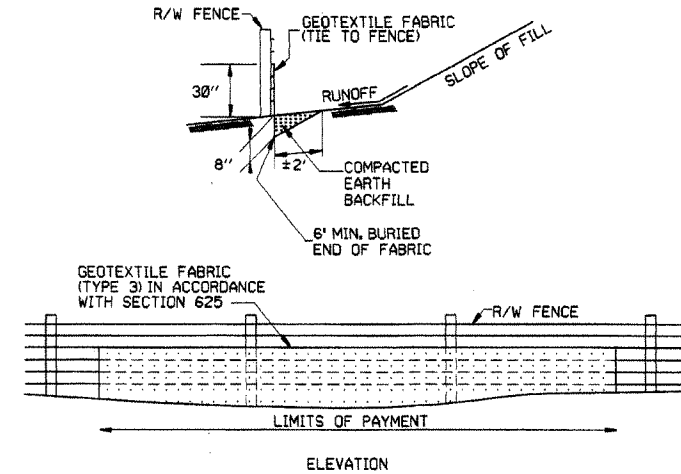
SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



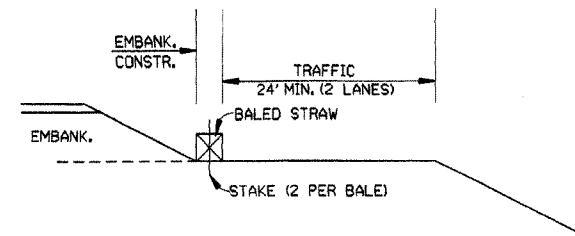
DROP INLET SILT FENCE (E-7)



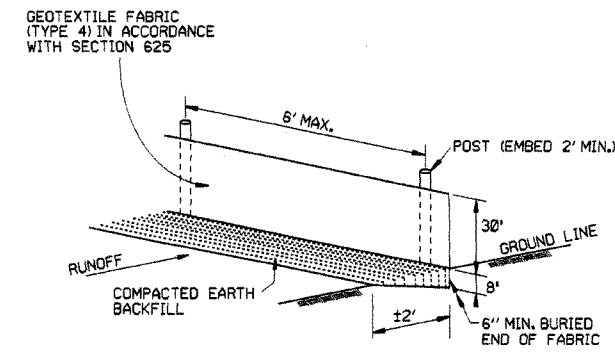
SILT FENCE ON R/W FENCE (E-4)

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)



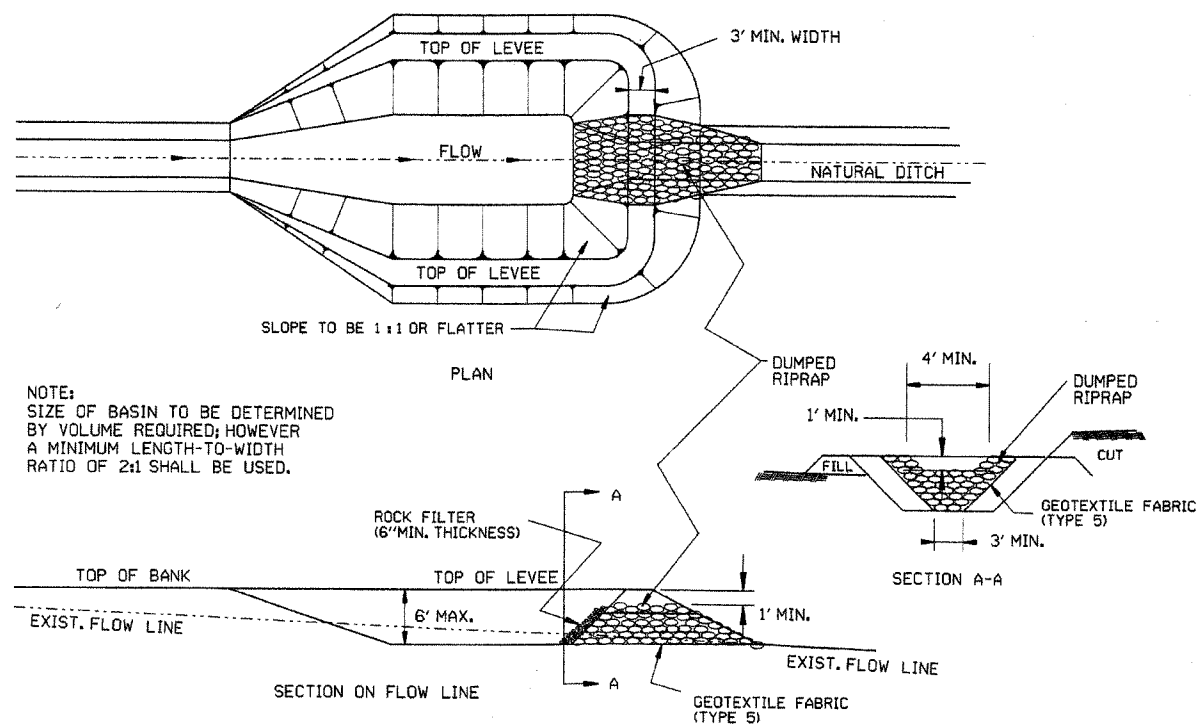
SILT FENCE (E-11)

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.

11-18-98	ADDED NOTES	11-18-98	ARKANSAS STATE HIGHWAY COMMISSION
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	
DATE	REVISION	FILMED	

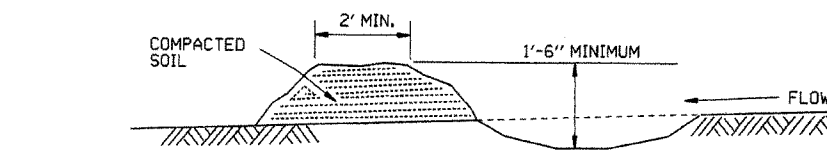
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-1

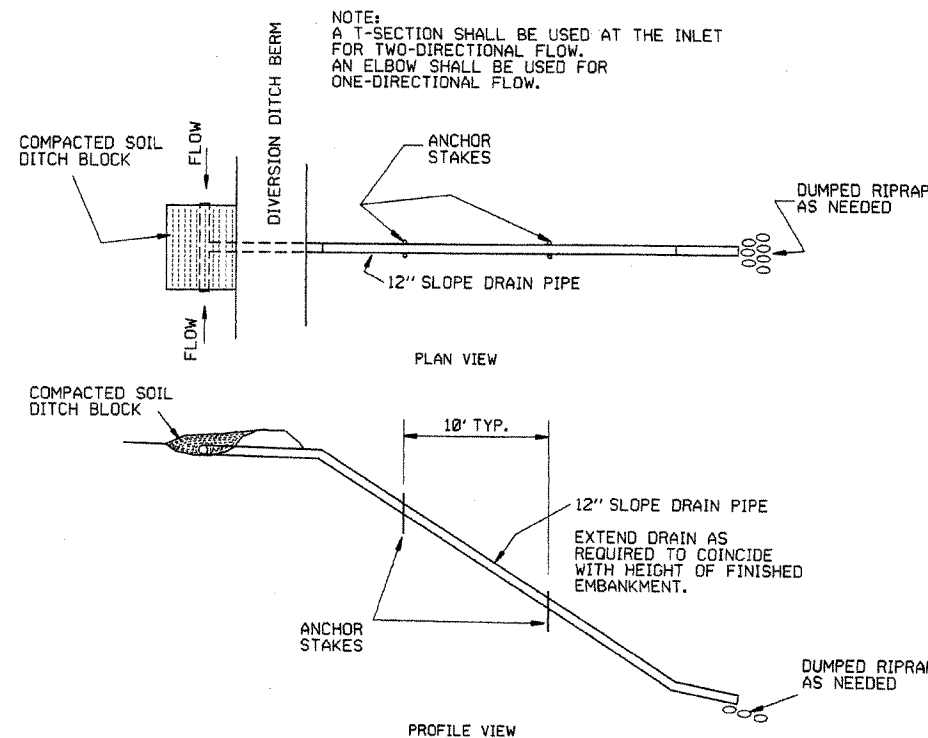


SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)

NOTE:  
SIZE OF BASIN TO BE DETERMINED  
BY VOLUME REQUIRED; HOWEVER  
A MINIMUM LENGTH-TO-WIDTH  
RATIO OF 2:1 SHALL BE USED.

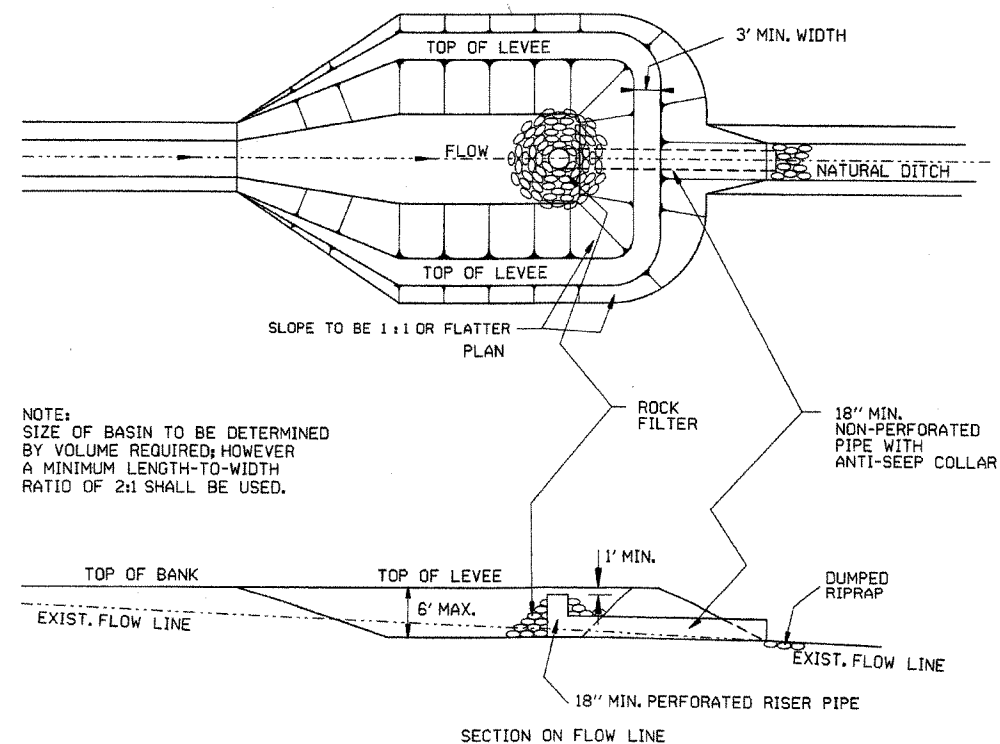


DIVERSION DITCH (E-8)



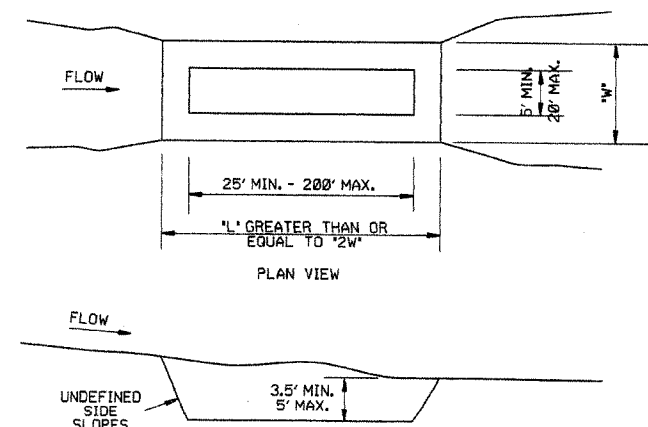
SLOPE DRAIN (E-12)

NOTE:  
A T-SECTION SHALL BE USED AT THE INLET  
FOR TWO-DIRECTIONAL FLOW.  
AN ELBOW SHALL BE USED FOR  
ONE-DIRECTIONAL FLOW.



SEDIMENT BASIN WITH PIPE OUTLET (E-10)

NOTE:  
SIZE OF BASIN TO BE DETERMINED  
BY VOLUME REQUIRED; HOWEVER  
A MINIMUM LENGTH-TO-WIDTH  
RATIO OF 2:1 SHALL BE USED.



SEDIMENT BASIN (E-14)

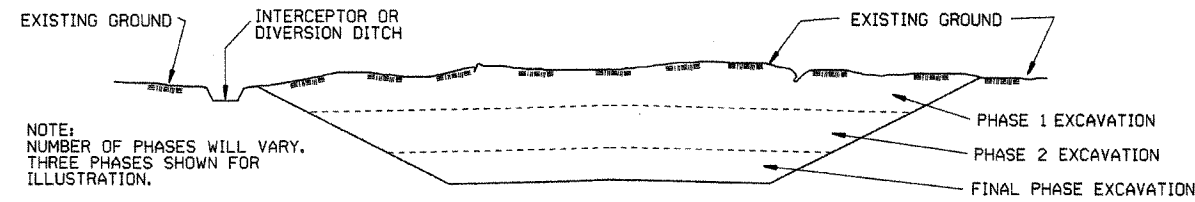
ARKANSAS STATE HIGHWAY COMMISSION			
TEMPORARY EROSION CONTROL DEVICES			
STANDARD DRAWING TEC-2			
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13		
4-1-93	ISSUED		
DATE	REVISION		FILMED

# 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



NOTE:  
NUMBER OF PHASES WILL VARY.  
THREE PHASES SHOWN FOR  
ILLUSTRATION.

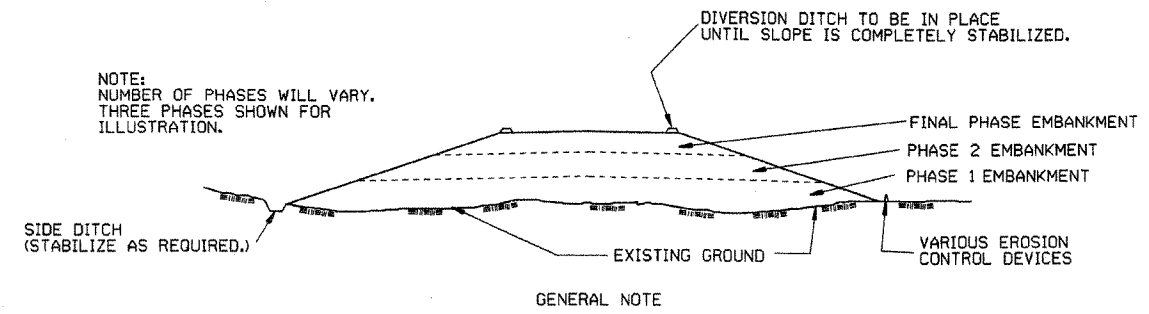
### GENERAL NOTE

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



NOTE:  
NUMBER OF PHASES WILL VARY.  
THREE PHASES SHOWN FOR  
ILLUSTRATION.

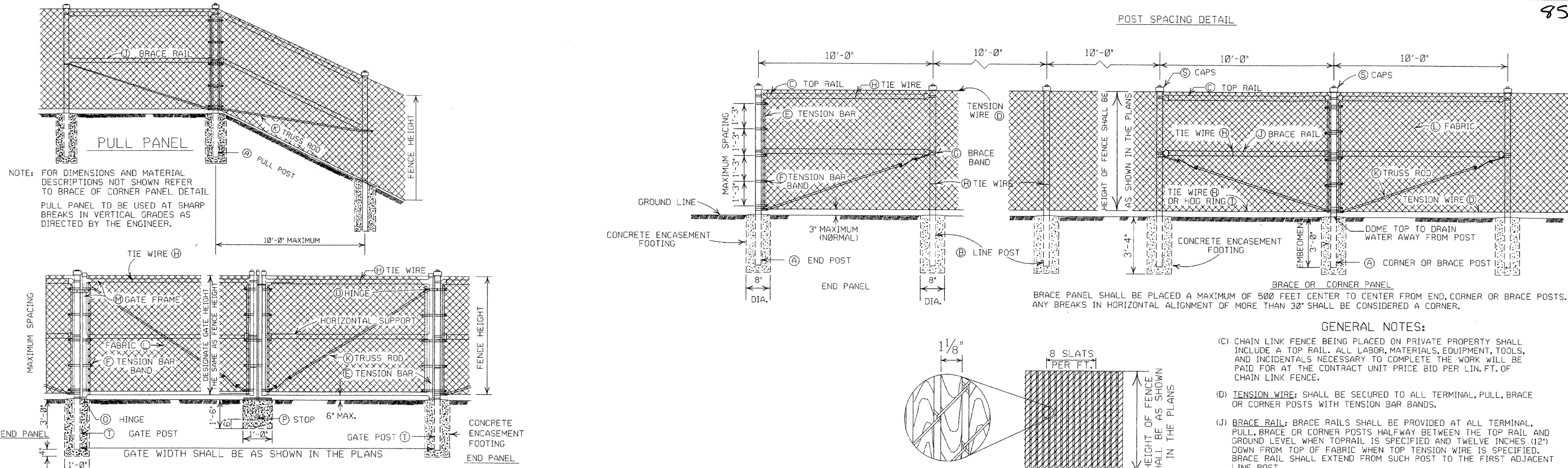
### GENERAL NOTE

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.

ARKANSAS STATE HIGHWAY COMMISSION		
TEMPORARY EROSION CONTROL DEVICES		
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94
DATE	REVISION	FILMED
STANDARD DRAWING TEC-3		



- GENERAL NOTES:**
- (C) CHAIN LINK FENCE BEING PLACED ON PRIVATE PROPERTY SHALL INCLUDE A TOP RAIL. ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LIN. FT. OF CHAIN LINK FENCE.
  - (D) TENSION WIRE: SHALL BE SECURED TO ALL TERMINAL, PULL, BRACE OR CORNER POSTS WITH TENSION BAR BANDS.
  - (J) BRACE RAIL: BRACE RAILS SHALL BE PROVIDED AT ALL TERMINAL, PULL, BRACE OR CORNER POSTS HALF WAY BETWEEN THE TOP RAIL AND GROUND LEVEL WHEN TOPRAIL IS SPECIFIED AND TWELVE INCHES (12") DOWN FROM TOP OF FABRIC WHEN TOP TENSION WIRE IS SPECIFIED. BRACE RAIL SHALL EXTEND FROM SUCH POST TO THE FIRST ADJACENT LINE POST.
  - (M) GATE FRAMES: SHALL BE CONSTRUCTED OF TUBULAR MEMBERS ASSEMBLED BY USE OF HEAVY PRESSED STEEL, MALLEABLE FITTINGS OR BY WELDING. ALL GATES SHALL HAVE ONE HORIZONTAL SUPPORT EXTENDING THE WIDTH OF THE GATE AT THE MIDPOINTS OF VERTICAL FRAME MEMBERS. THE COMPLETE FRAME SHALL BE RIGID AND HAVE AMPLE STRENGTH TO BE FREE FROM SAG AND TWIST.
  - (O) HINGES: SHALL BE OF HEAVY PATTERN, OF ADEQUATE STRENGTH FOR GATE, AND WITH LARGE BEARING SURFACES FOR CLAMPING IN POSITION. THE HINGE SHALL BE OF THE PROPER TYPE TO ALLOW FOR THE DESIGNATED DEGREE OF SWING. THE HINGE SHALL NOT TWIST OR TURN UNDER THE ACTION OF THE GATE. THE GATES SHALL BE CAPABLE OF BEING OPENED AND CLOSED EASILY BY ONE PERSON.
  - (P) LATCHES AND STOPS: SHALL BE PROVIDED FOR ALL GATES. GATES SHALL HAVE A DROP BAR LATCH. LATCHES SHALL BE ARRANGED FOR LOCKING. THE STOP FOR DROP BAR LATCHES SHALL BE SET IN CONCRETE AND ENGAGE THE PLUNGER OF THE BAR LATCH.
  - (S) CAPS: ALL POSTS, EXCEPT ROLL FORMED POSTS AND "T" POSTS SHALL BE CAPPED OVER THE EXTERIOR OF THE POST, AND SHALL CONFORM TO ASTM F626.
- CONCRETE REQUIRED FOR THE EMBEDMENT OF ALL POSTS SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR CHAIN LINK FENCE.
- POSTS SHALL BE SPACED EQUIDISTANT ON A MAXIMUM OF 10' CENTERS.
- EXCAVATION FOR POSTS: IN OTHER THAN ROCK SHALL BE OF THE DIMENSIONS INDICATED. IF ROCK IS ENCOUNTERED BEFORE REACHING THE REQUIRED DEPTH, THE EXCAVATION SHALL BE CONTINUED TO THE DEPTH INDICATED OR 1'-6" INTO THE ROCK, WHICHEVER IS LESS, AND SHALL BE A MINIMUM OF 8 INCHES IN DIAMETER.

HEIGHT OF FENCE FABRIC	(A) END, PULL CORNER OR BRACE POST		(B) LINE POSTS		(C) TOP RAIL			(D) TENSION WIRE		(E) TENSION BAR		(F) TENSION BAR BAND		(G) BRACE BAND	
	SIZE	TIE SPACING	SIZE	TIE SPACING	SIZE	TIE SPACING	MIN. LENGTH	SIZE	TIE SPACING	SIZE	LENGTH	SIZE	BOLT SIZE	SPACING	SIZE
6' AND LESS	2 1/2" O.D.	2' O.D.	2 1/2" O.D.	1 TIE EVERY 1'-2" OF FABRIC HEIGHT	1 1/2" O.D.	1 TIE EVERY 2'-0"	10'-0"	7 GAUGE COIL SPRING WIRE	1 TIE EVERY 1'-0"	3/8" X 3/4"	MIN. OF 2" LESS THAN FABRIC HEIGHT	3/4" X 5/8" X 1 1/4"	1 BAND AT TOP AND BOTTOM 15" MAX. INTERVAL BETWEEN BANDS	3/4" X 0.105	5/8" X 1 1/4"
OVER 6' TO 12' INCL.	3" O.D.	2 1/2" O.D.	2 1/2" O.D.	1 TIE EVERY 2'-0"	1 1/2" O.D.	1 TIE EVERY 2'-0"	10'-0"	7 GAUGE COIL SPRING WIRE	1 TIE EVERY 1'-0"	3/8" X 3/4"	MIN. OF 2" LESS THAN FABRIC HEIGHT	3/4" X 5/8" X 1 1/4"	1 BAND AT TOP AND BOTTOM 15" MAX. INTERVAL BETWEEN BANDS	3/4" X 0.105	5/8" X 1 1/4"

HEIGHT OF FENCE FABRIC	(H) TIE WIRE	(I) HOG RING	(J) BRACE RAIL		(K) TRUSS ROD	(L) FABRIC		(M) GATE FRAME	(N) HORIZONTAL SUPPORT	(O) HINGE TPE	(P) GATE POST		
	SIZE	SIZE	SIZE	TIE SPACING	MIN. OF 3/8" ROUND WITH TIGHTENERS AND FITTINGS	SIZE	MESH SELVAGE	SIZE	TIE SPACING	SIZE	TIE SPACING	SWING	GATE WIDTH GATE WIDTH OVER 12' AND LESS 12' TO 24' INCL.
6' AND LESS	MIN. OF 12 GA. STEEL OR 9 GA. ALUM.	SAME GAUGE AS FABRIC	1 1/2" O.D.	1 TIE EVERY 2'-0"	3/8" ROUND WITH TIGHTENERS AND FITTINGS	9 GA. 2"	KNUCK -ING AND/OR TWIST -ING	2" O.D. 1 TIE EVERY 1'-0"	2" O.D. 1 TIE EVERY 1'-0"	1 TIE EVERY 1'-0"	2" O.D. 1 TIE EVERY 1'-0"	OFFSET	3' O.D. 4' O.D.
OVER 6' TO 12' INCL.	MIN. OF 12 GA. STEEL OR 9 GA. ALUM.	SAME GAUGE AS FABRIC	1 1/2" O.D.	1 TIE EVERY 2'-0"	3/8" ROUND WITH TIGHTENERS AND FITTINGS	9 GA. 2"	KNUCK -ING AND/OR TWIST -ING	2" O.D. 1 TIE EVERY 1'-0"	2" O.D. 1 TIE EVERY 1'-0"	1 TIE EVERY 1'-0"	2" O.D. 1 TIE EVERY 1'-0"	OFFSET	3' O.D. 4' O.D.

NOTE: POST SIZES SHOWN ARE FOR STEEL. WHERE ALUMINUM IS PROVIDED, LINE POSTS SHALL HAVE AN OUT SIDE DIAMETER OF 2 1/2" FOR FENCE HEIGHT OF 6' AND LESS, AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' TO 12'. END, PULL, CORNER OR BRACE POSTS SHALL HAVE AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' AND LESS; AN OUTSIDE DIAMETER OF 3 1/2" FOR FENCE HEIGHTS OF 6' TO 12'. GATE POSTS WHERE GATE WIDTH IS 12' AND LESS SHALL HAVE AN OUTSIDE DIAMETER OF 3 1/2" FOR FENCE HEIGHT OF 6' AND LESS, ALUMINUM TENSION WIRE SHALL BE 0.192" IN DIAMETER. MINIMUM THICKNESS OF MATERIAL FROM WHICH EXPANSION SLEEVES SHALL BE MADE WILL BE 0.078". POSTS AND RAILS MAY HAVE ANY CROSS-SECTIONAL SHAPE THAT WILL MEET THE SPECIFICATIONS.

OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

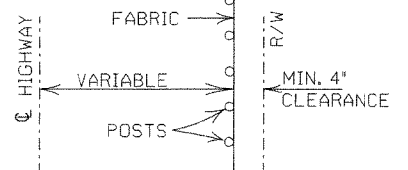
ALL MISCELLANEOUS FITTINGS AND HARDWARE SHALL MEET THE REQUIREMENTS AND PRODUCTION TOLERANCES AS SET FORTH IN THE SPECIFICATIONS. 9 GAUGE ALUMINUM WIRE SHALL BE ACCEPTABLE FOR TIEING FABRIC TO TUBULAR AND ROLL FORMED MEMBERS OF STEEL FENCE.

POSTS AND RAILS

SIZE O.D.	GRADE 1 AND ALUMINUM ALLOY				GRADE 2		
	O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT.		O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT.
			STEEL	ALUMINUM			
1 1/2	1.660	0.140	2.27	0.786	1.660	0.111	1.84
2	1.900	0.145	2.72	0.940	1.900	0.120	2.28
2 1/2	2.375	0.154	3.65	1.264	2.375	0.130	3.11
3	2.875	0.203	5.79	2.004	2.875	0.160	4.64
3 1/2	3.500	0.216	7.58	2.621	3.500	0.160	5.71
4	4.000	0.226	9.11	3.151	4.000	0.160	6.56

TOLERANCES ON DIMENSIONS AND WEIGHTS ACCORDING TO AASHTO M 181

DATE	REVISION	FILMED
11-17-10	REVISED TRUSS ROD	
12-10-09	REVISED POSTS & RAILS TABLE	
5-21-09	ADDED TABLE & GEN. NOTE (C)	
8-22-02	REVISED NOTES, REMOVED TABLE, & REMOVED FENCE ALTERNATE	
4-3-97	REVISED BRACE RAIL NOTE	
10-18-96	REVISED AASHTO & ASTM REF.	
11-3-94	REVISED NOTE (L)	
10-1-92	DELETED ALTERNATE POST	10-1-92
8-15-91	DELETED ROLL FORMED POST DETAIL & ADDED NOTE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
11-17-88	REVISED O.D. SIZES	668-11-17-88
10-30-87	GENERAL REVISIONS	548-10-30-87
4-20-79	REVISED TOP RAIL & TENSION WIRE	695-4-20-79
10-2-72	REVISED AND REDRAWN	530-10-2-72



INSTALLATION MAY BE MODIFIED AS SHOWN IN THE PLANS  
**TYPICAL INSTALLATION DIAGRAM**

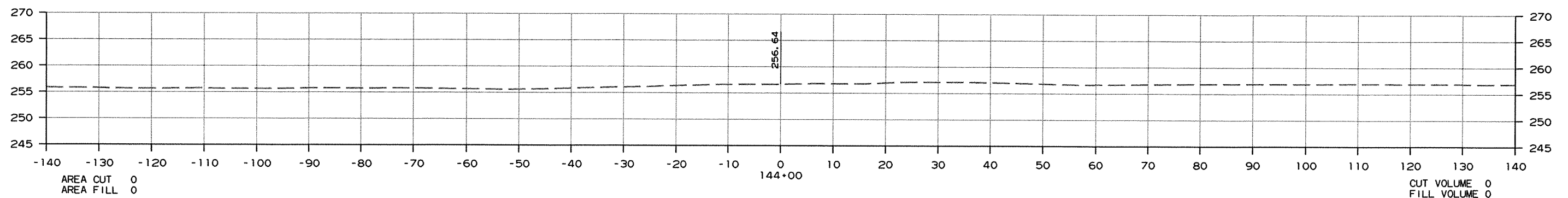
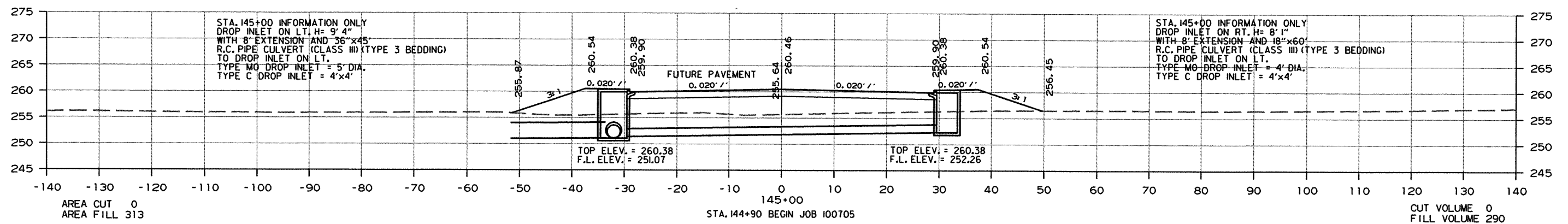
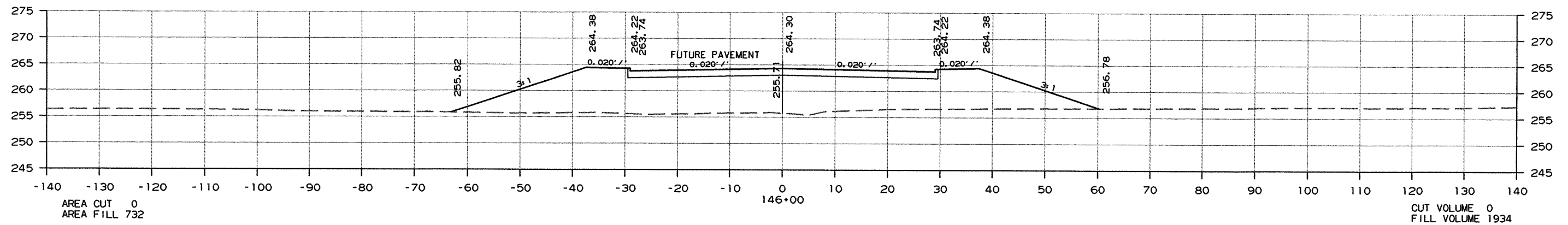
ARKANSAS STATE HIGHWAY COMMISSION

**CHAIN LINK FENCE**

STANDARD DRAWING WF-3

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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						JOB NO. 100705	86	91

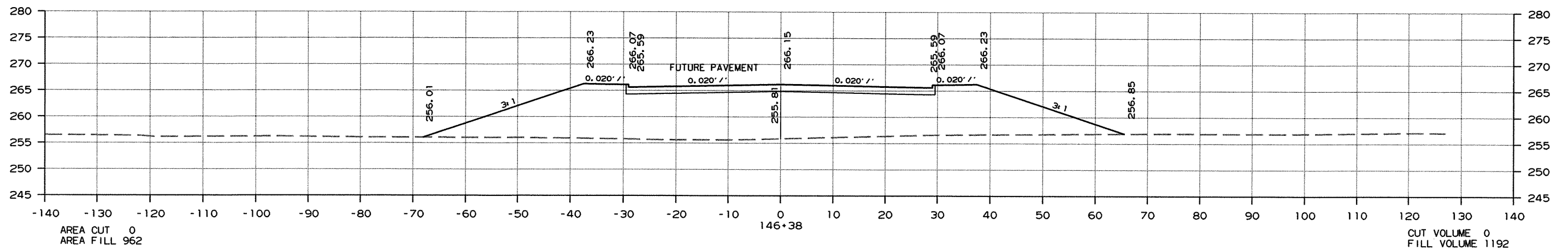
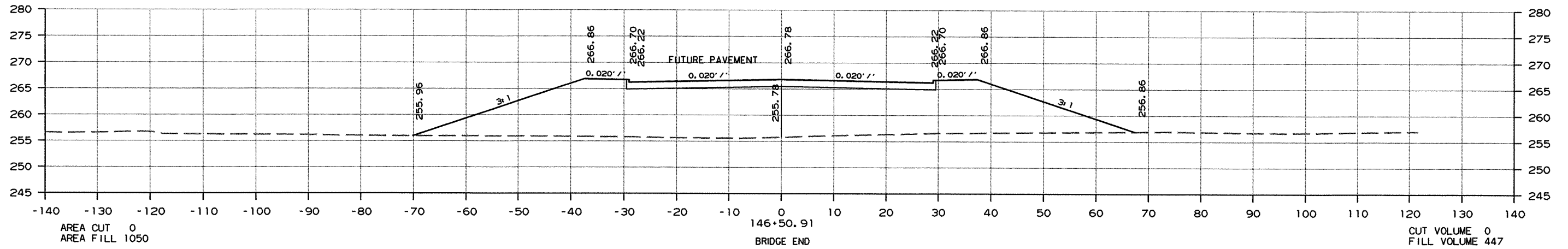
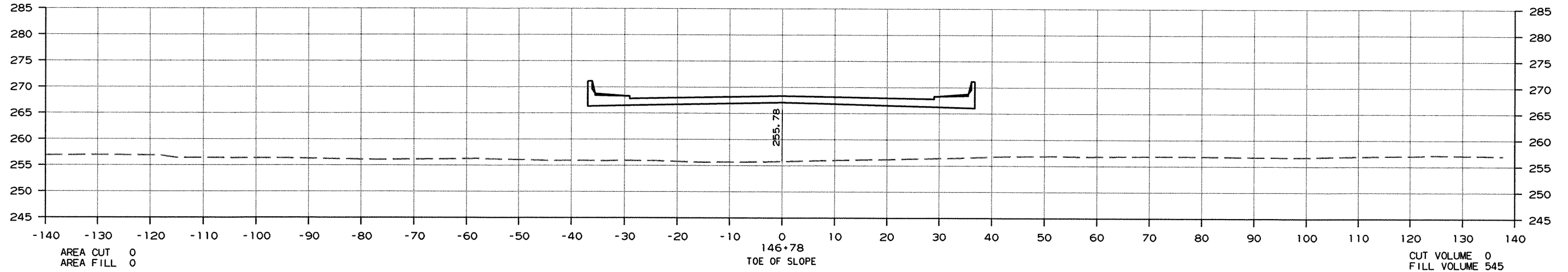
2 CROSS SECTIONS



CROSS SECTION STA. 144+00 TO STA. 146+00

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JOB NO. 100705							87	91

2 CROSS SECTIONS

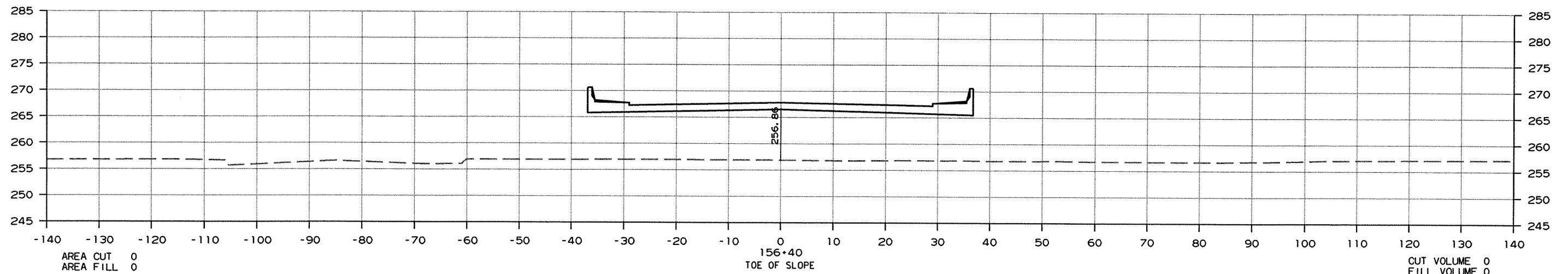
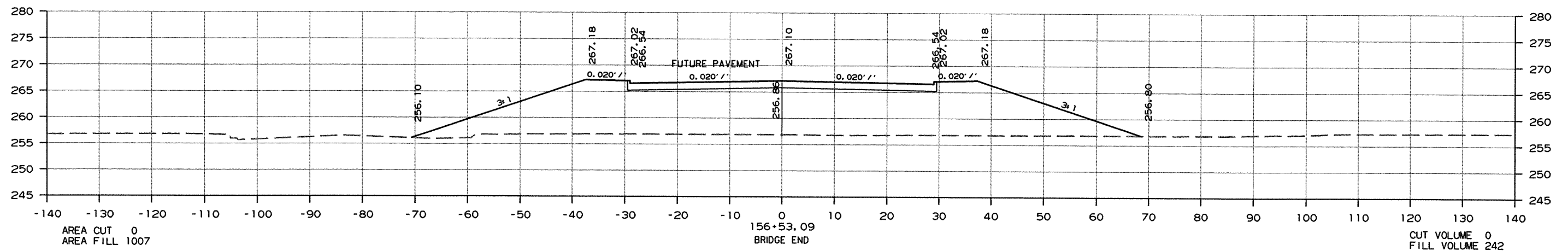
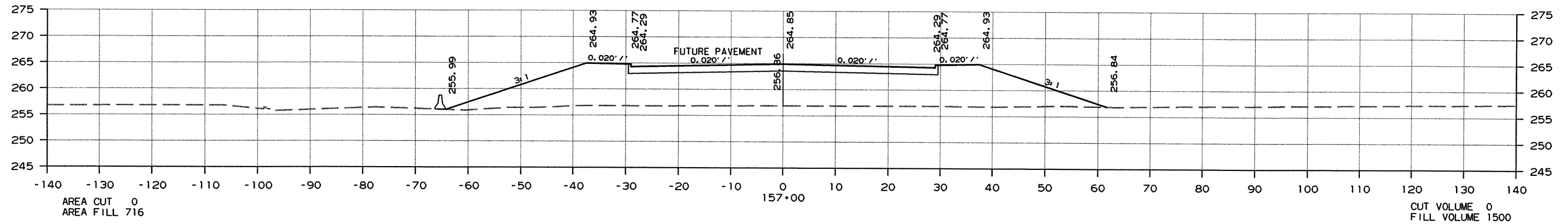


CROSS SECTION STA. 146+38 TO STA. 146+78



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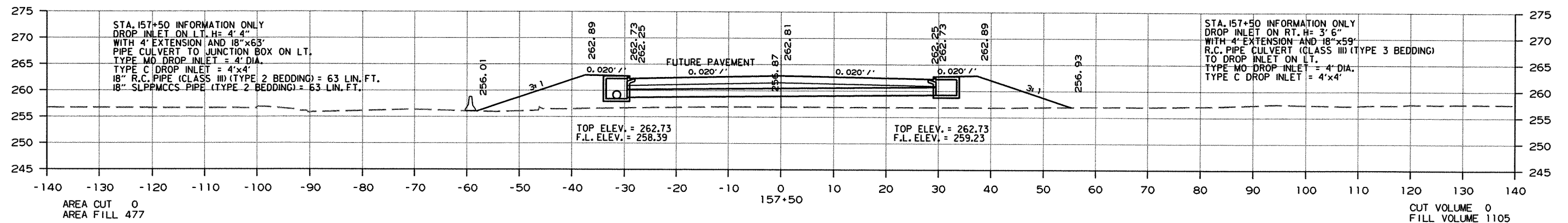
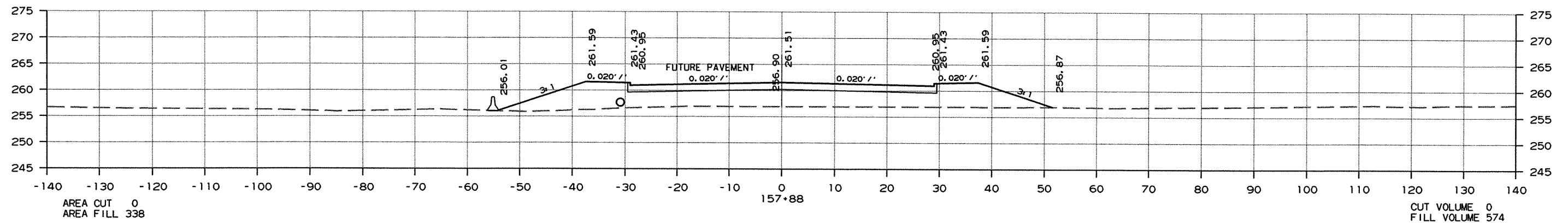
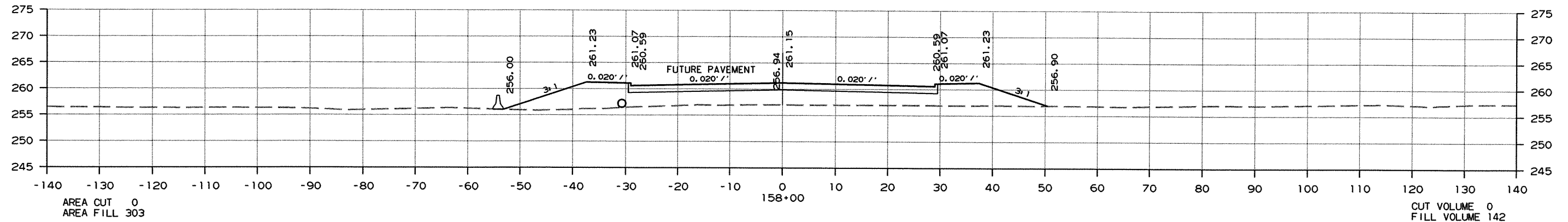
2 CROSS SECTIONS



CROSS SECTION STA. 156+40 TO STA. 157+00

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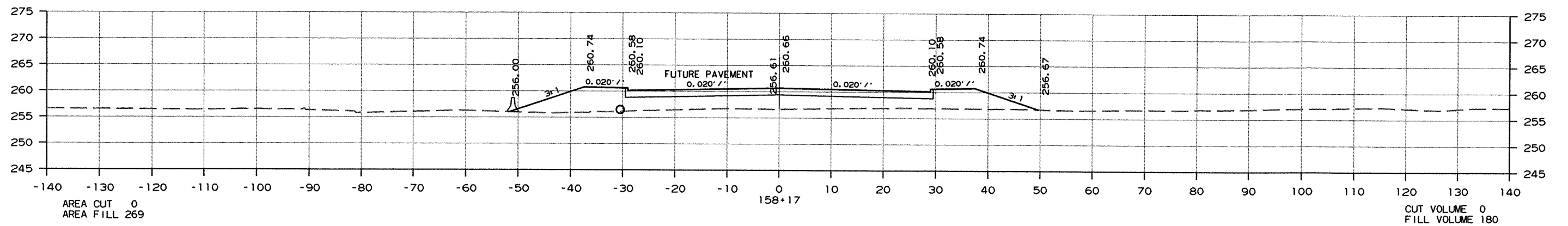
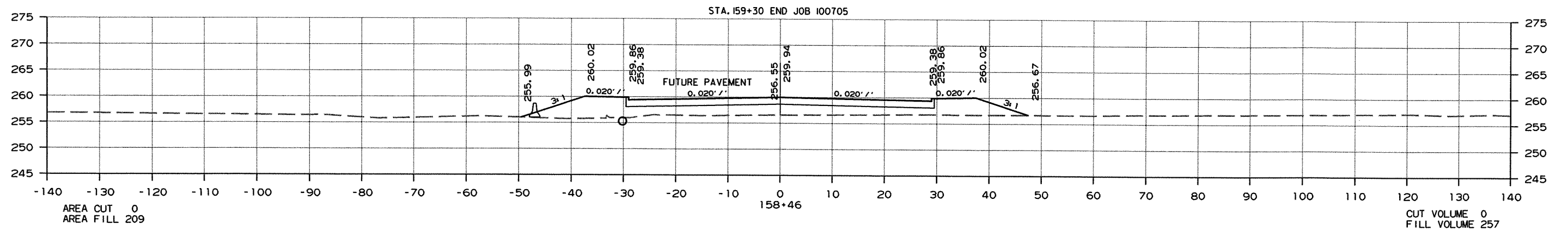
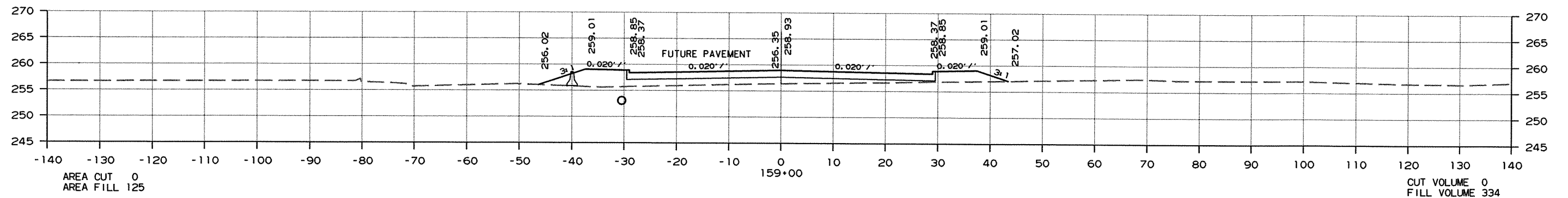
2 CROSS SECTIONS



CROSS SECTION STA. 157+50 TO STA. 158+00

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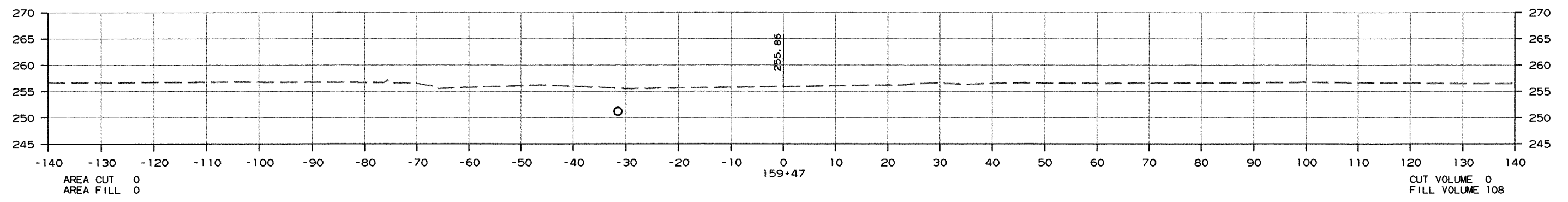
② CROSS SECTIONS



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JOB NO.						100705	91	91

② CROSS SECTIONS



CROSS SECTION STA. 159+47 TO STA. 159+47