

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

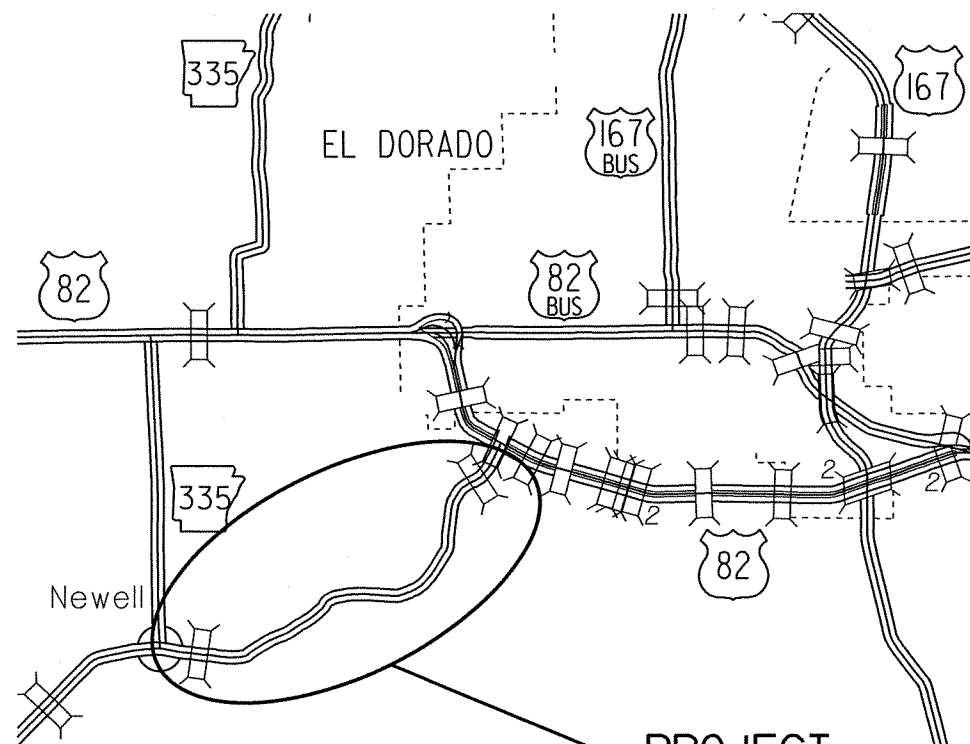
HWY. 335-HWY. 82
STRS. & APPRS. (S)

UNION COUNTY

ROUTE 15 SECTION 1

JOB 070273

F. A. P. NO. BRN-0070(31)



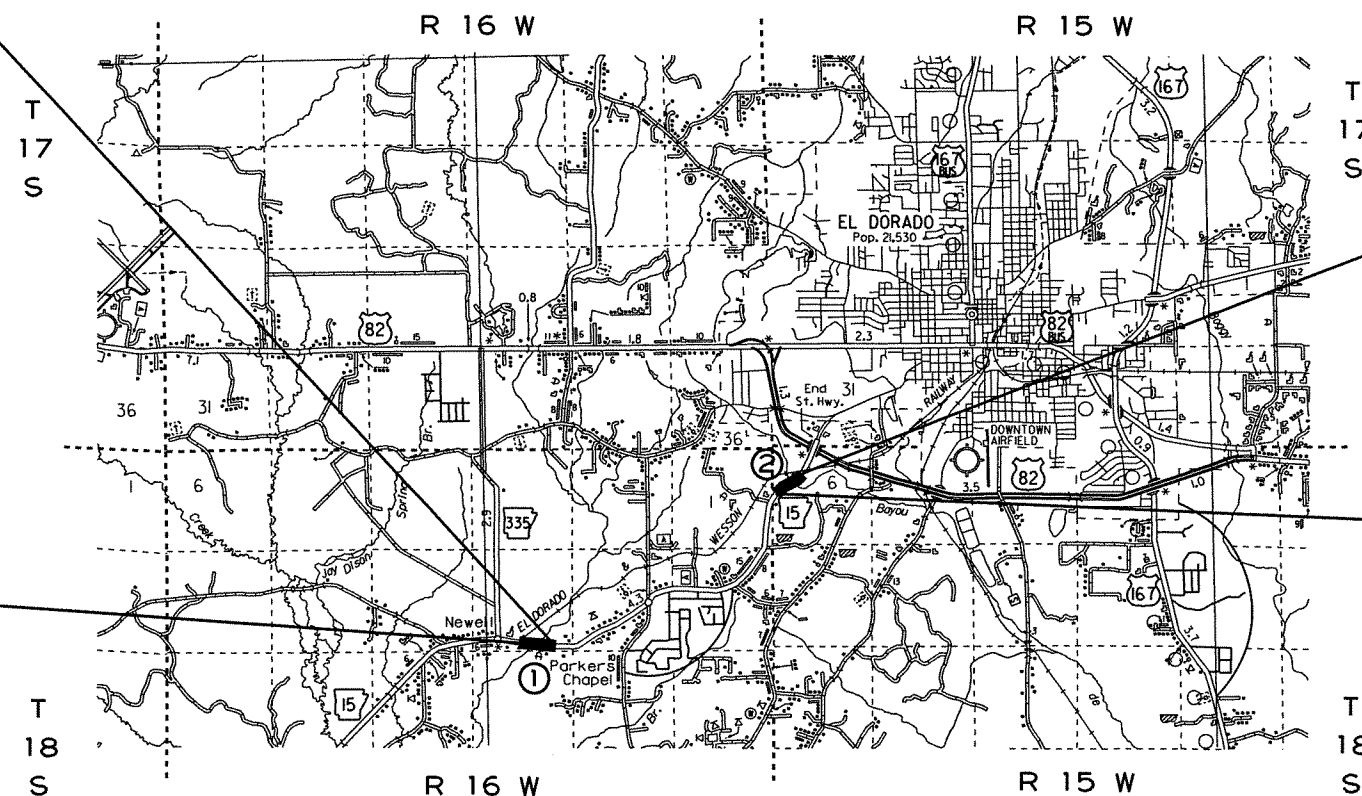
VICINITY MAP
PROJECT LOCATION

STA. 126+43.47
END SECTION 1

STRUCTURES OVER 20' -0" SPAN

- ① BR. END STA. 110+14.87
BRIDGE NO. 07221
40' -0" CLEAR ROADWAY
162'-3 1/8" TOTAL LENGTH
160' -0" CONT. COMP.
W-BEAM UNIT (50' -60' -50')
BR. END STA. 111+77.13
- ② STA. 510+77 IN PLACE
TRIPLE 8' X 5' X 35' R.C. BOX CULVERT
W/ HDWL'S LT. & RT.
RETAIN & EXTEND (METHOD 2)
25' LT. & 25' RT.
TO A COMPLETED LENGTH = 85'
W/ 3:1 WINGS LT. & RT.
Q25 = 790 CFS D.A. = 1.3 SQ. MI.
SPAN LENGTH = 26.67'

STA. 101+47.78 -
BEGIN JOB 070273
BEGIN SECTION 1
LOG MILE 16.93



• DESIGN TRAFFIC DATA •

DESIGN YEAR ----- 2031
2011 ADT ----- 2100
2031 ADT ----- 2500
2031 DHV ----- 275
DIRECTIONAL DISTRIBUTION ----- 60%
TRUCKS ----- 18%
DESIGN SPEED ----- 60 MPH

STA. 511+25.00 -
END SECTION 2
END JOB 070273

STA. 510+25.00 -
BEGIN SECTION 2
LOG MILE 20.60

APPROVED

STATE OF
ARKANSAS
REGISTERED
PROFESSIONAL
ENGINEER
No. 3917
FRANK VOZEL
10/17/11
DEPUTY DIRECTOR
AND CHIEF ENGINEER

BEGINNING OF PROJECT MID-POINT OF PROJECT END OF PROJECT
LAT. = N 33°09'58" LAT. = N 33°11'02" LAT. = N 33°11'18"
LONG. = W 92°44'42" LONG. = W 92°42'04" LONG. = W 92°41'48"

	GROSS LENGTH OF PROJECT	2595.69	FEET OR	0.492	MILES
NET	" " ROADWAY	2406.76	" "	0.456	"
NET	" " BRIDGES	188.93	" "	0.036	"
NET	" " PROJECT	2595.69	" "	0.492	"

P.E. 070273
NON-PART.

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. 070273	2	81

2 INDEX OF SHEETS, GOV. SPECS. AND GENERAL NOTES

INDEX OF SHEETS				
SHEET NO.	TITLE	BRIDGE NO.	DRAWING NO.	DATE
1	TITLE SHEET			
2	INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES			
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27	LAY OUT OF BRIDGE OVER BRANCH OF DRY CREEK (SHEET 2 OF 2)	07221	52086	
28	DETAILS OF END BENTS (SHEET 1 OF 2)	07221	52087	
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31	DETAILS OF 24" SQUARE PRESTRESSED CONCRETE PILES	07221	52090	
32	DETAILS OF 160' CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 1 OF 5)	07221	52091	
33	DETAILS OF 160' CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 2 OF 5)	07221	52092	
34	DETAILS OF 160' CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 3 OF 5)	07221	52093	
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36	DETAILS OF 160' CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 5 OF 5)	07221	52095	
37	DETAILS OF JOINTS	07221	52096	
38	DETAILS OF ELASTOMERIC BEARINGS	07221	52097	
39	EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS		1888A	4-10-03
40	DETAILS OF DUMPED RIPRAP AND FILTER BLANKET AND DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES		1891F	4-10-03
41	DETAILS OF STD. TYPE B APPROACH GUTTERS		2018B	7-14-10
42	DETAILS OF STD. TYPE D BRIDGE NAME PLATES		2387	9-8-11
43	DETAILS OF PERMISSIBLE TYPE PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS		14991	4-10-03
44	STD. DETAILS OF CONCRETE PILES IN SEISMIC PERFORMANCE ZONES 1 & 2		14964	12-10-09
45	CONCRETE DITCH PAVING		CDR-1	11-17-10
46	GUARD RAIL DETAILS		GR-8	7-14-10
47	GUARD RAIL DETAILS		GR-9	4-17-08
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49	GUARD RAIL DETAILS		GR-10	7-14-10
50	GUARD RAIL DETAILS		GR-10A	7-14-10
51	GUARD RAIL DETAILS		GRT-1	7-14-10
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53	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING		PCC-1	5-18-00
54	METAL PIPE CULVERT FILL HEIGHTS & BEDDING		PCM-1	3-30-00
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67	TEMPORARY EROSION CONTROL DEVICES		TEC-2	6-02-94
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71-81	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 - 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
404-1	PRODUCTION VERIFICATION OF ASPHALT CONCRETE HOT MIX
409-1	MINERAL AGGREGATES
410-3	DENSITY TESTING FOR ACHM LEVELING COURSES AND BOND BREAKERS
411-1	ASPHALT CONCRETE COLD PLANT MIX
600-1	WATER FOR VEGETATION
603-1	MAINTENANCE OF TRAFFIC
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
606-2	PIPE CULVERTS
718-2	REFLECTORIZED PAINT PAVEMENT MARKINGS
719-2	THERMOPLASTIC PAVEMENT MARKING MATERIAL
JOB 070273	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 070273	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 070273	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 070273	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 070273	HIGH PERFORMANCE PAVEMENT MARKING
JOB 070273	INTERNET BIDDING
JOB 070273	NESTING SITES OF MIGRATORY BIRDS
JOB 070273	REMOVAL AND DISPOSAL OF GUARDRAIL
JOB 070273	SILICONE JOINT SEALANT
JOB 070273	SOIL STABILIZATION
JOB 070273	STORM WATER POLLUTION PREVENTION PLAN
JOB 070273	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 070273	UTILITY ADJUSTMENTS
JOB 070273	WARM MIX ASPHALT
JOB 070273	WELLHEAD PROTECTION

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE 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.
8. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 UNCLASSIFIED EXCAVATION.
9. THIS PROJECT IS COVERED UNDER A NATIONWIDE 23 SECTION 404 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2003, FOR PERMIT REQUIREMENTS.

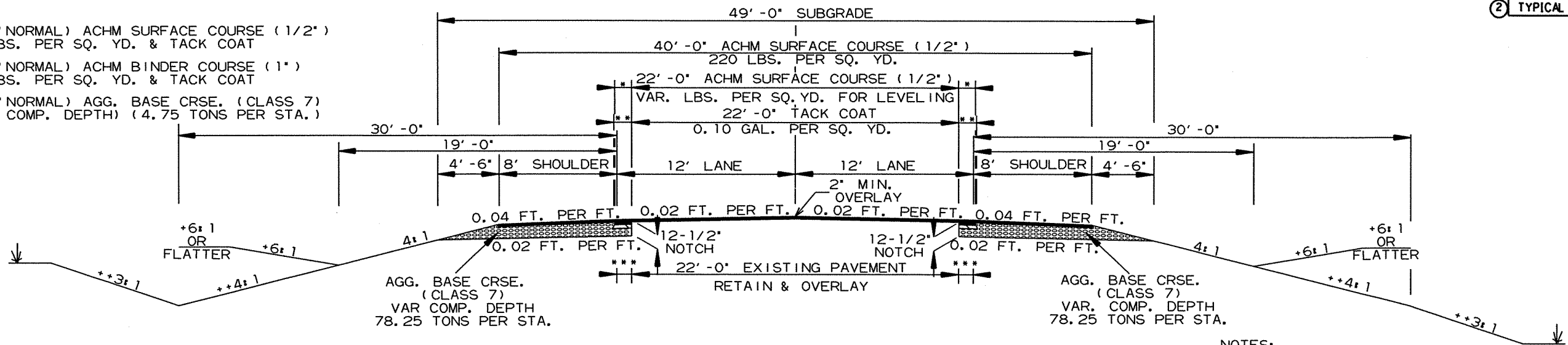


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				6	ARK.			
				JOB NO.	070273		3	81

② TYPICAL SECTIONS OF IMPROVEMENT



- * (1'-2" NORMAL) ACHM SURFACE COURSE (1/2")
220 LBS. PER SQ. YD. & TACK COAT
- ** (1'-3" NORMAL) ACHM BINDER COURSE (1")
330 LBS. PER SQ. YD. & TACK COAT
- *** (1'-0" NORMAL) AGG. BASE CRSE. (CLASS 7)
(7.5' COMP. DEPTH) (4.75 TONS PER STA.)



TYPICAL SECTION OF IMPROVEMENT

- * STA. 101+47.78 - STA. 103+50.00
- ** STA. 103+50.00 - STA. 105+00.00
- * STA. 121+00.00 - STA. 126+43.47 LT.
- ** STA. 121+00.00 - STA. 122+50.00 RT.
- * STA. 122+50.00 - STA. 126+43.47 RT.
- STA. 510+25.00 - STA. 511+25.00

NOTES:

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

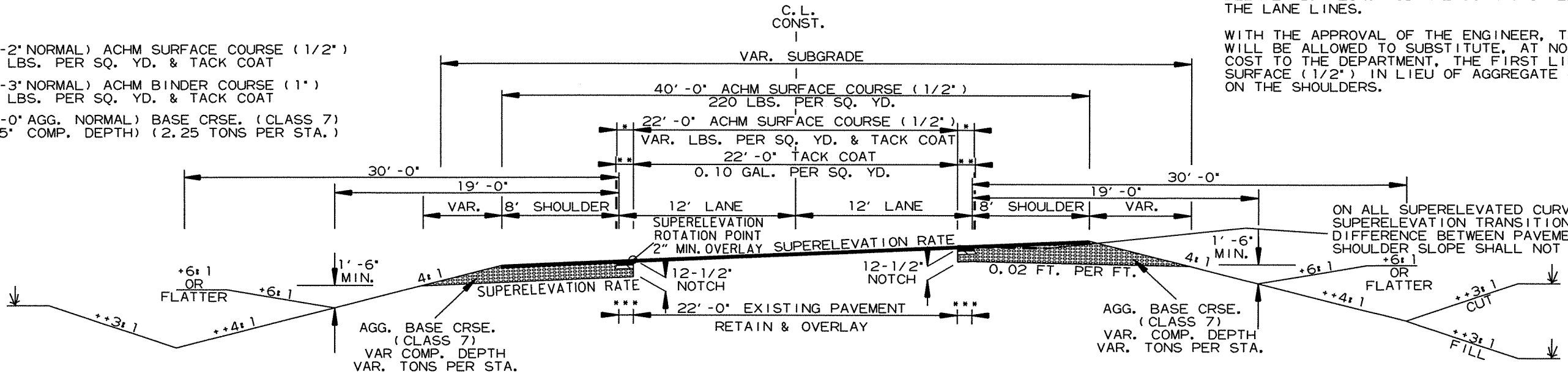
THE THICKNESS OF AGG. BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING.

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

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

- * (1'-2" NORMAL) ACHM SURFACE COURSE (1/2")
220 LBS. PER SQ. YD. & TACK COAT
- ** (1'-3" NORMAL) ACHM BINDER COURSE (1")
330 LBS. PER SQ. YD. & TACK COAT
- *** (1'-0" AGG. NORMAL) BASE CRSE. (CLASS 7)
(7.5' COMP. DEPTH) (2.25 TONS PER STA.)



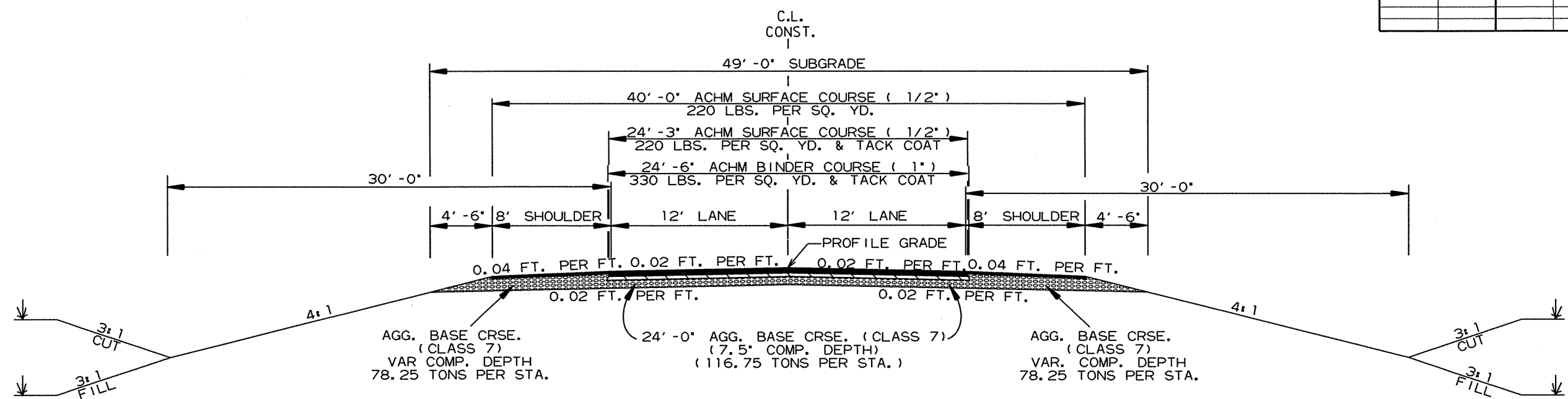
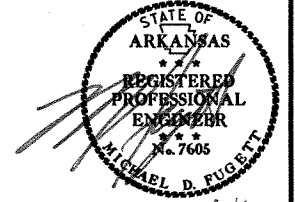
TYPICAL SECTION OF IMPROVEMENT
SUPERELEVATION

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

AGG. BASE CRSE. (CLASS 7)
VAR. COMP. DEPTH
VAR. TONS PER STA.

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② TYPICAL SECTIONS OF IMPROVEMENT



TYPICAL SECTION OF IMPROVEMENT
STA. 105+00.00 - STA. 110+14.87
STA. 111+77.13 - STA. 121+00.00

NOTES:

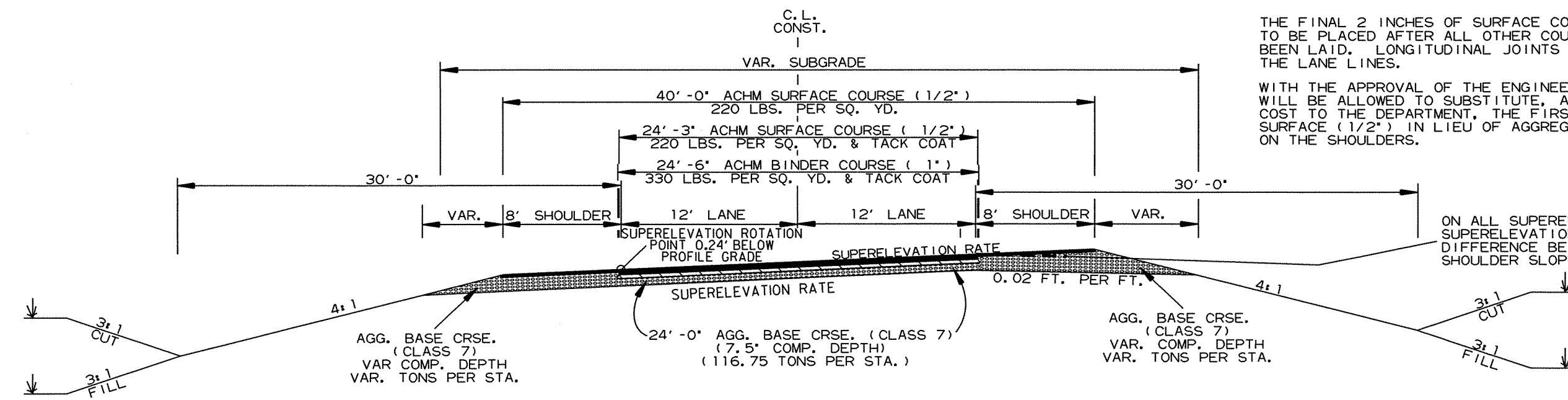
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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

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

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

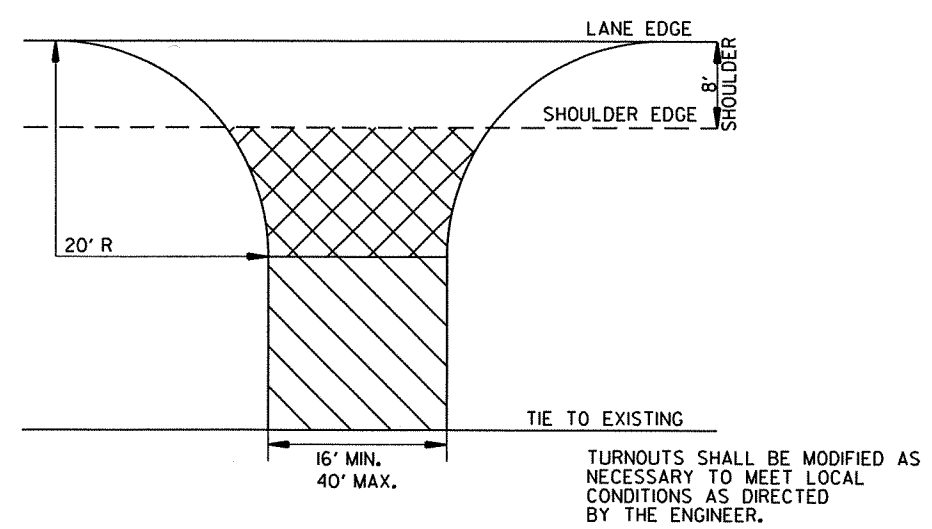
ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS, THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08' /'.



TYPICAL SECTION OF IMPROVEMENT
SUPERELEVATION

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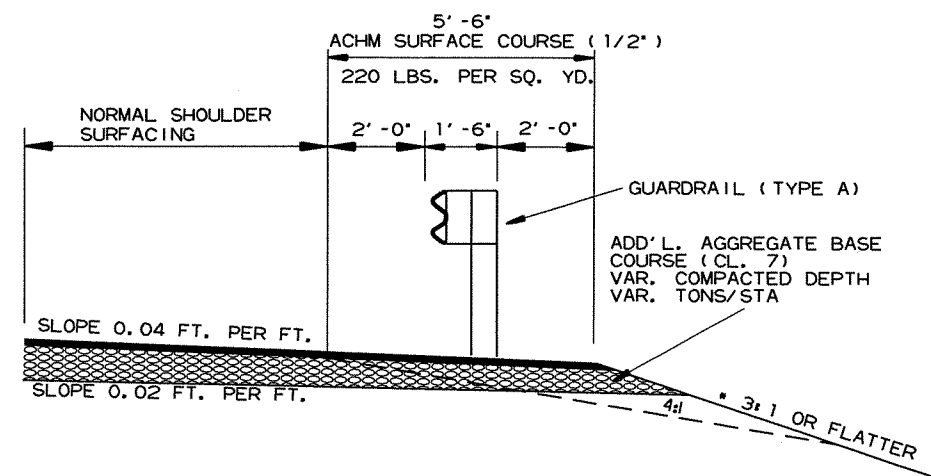
2 SPECIAL DETAILS



- A.C.H.M. SURFACE COURSE (1/2") (220 LBS./SQ. YD.) & AGGREGATE BASE COURSE (CLASS 7) 9" COMP. DEPTH IF ASPHALT DRIVEWAY EXISTS.
- AGGREGATE BASE COURSE (CLASS 7) 9" COMP. DEPTH OR CONFORM TO EXISTING DRIVEWAY.

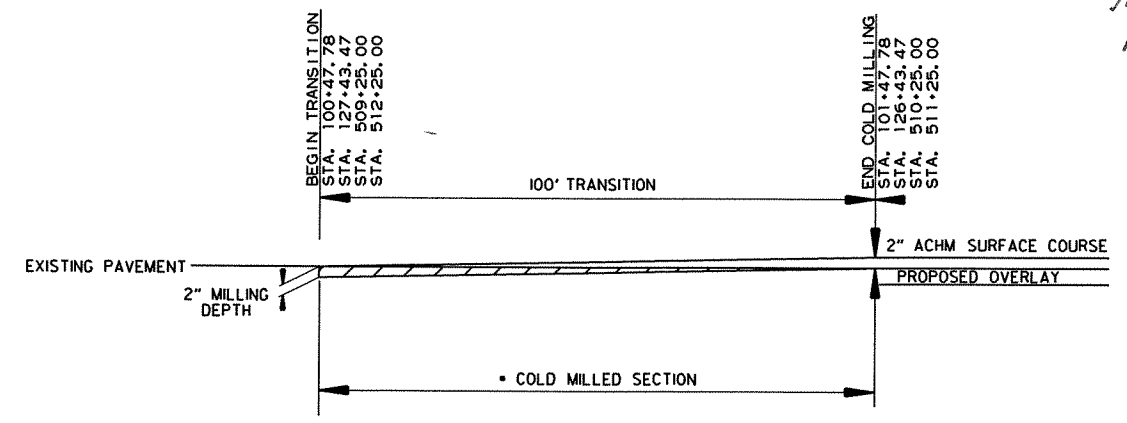
TURNOUTS SHALL BE MODIFIED AS NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)



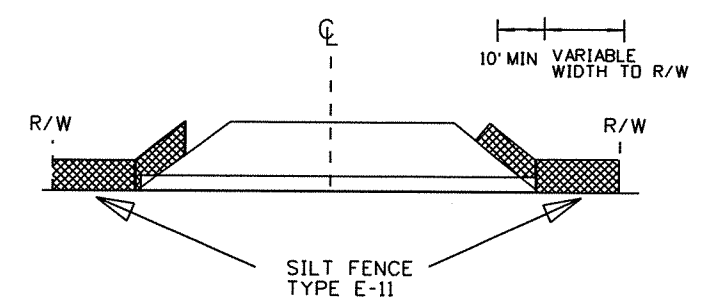
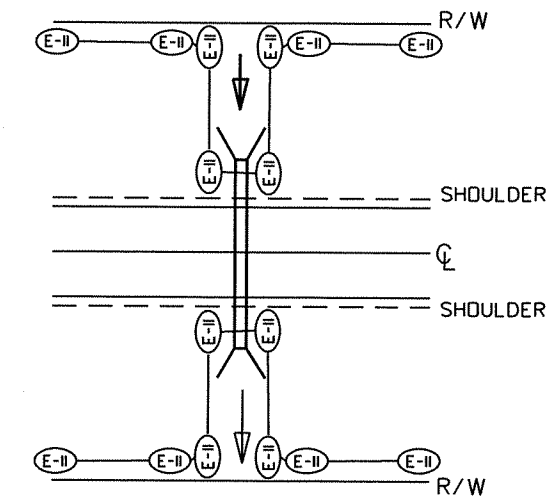
DETAIL OF WIDENING FOR GUARDRAIL

• REFER TO STD. DWG. GR-9A FOR SLOPE REQUIREMENTS BEHIND GUARDRAIL.



DETAIL SHOWING TAPER TO EXISTING PAVEMENT

• TO BE USED AS DIRECTED BY THE ENGINEER



DETAIL OF SILT FENCE AT CROSS DRAIN

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

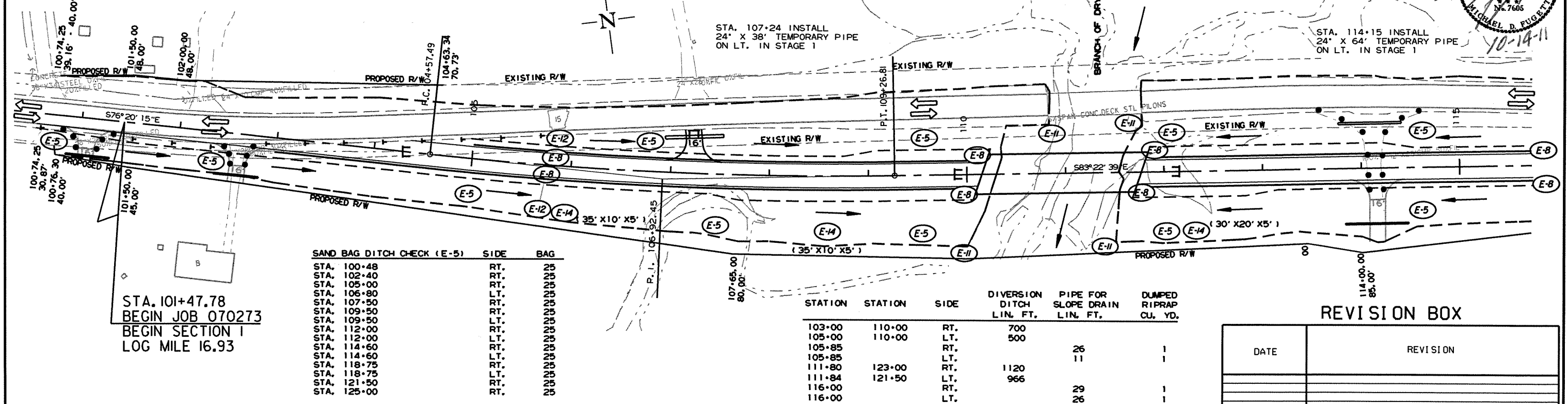
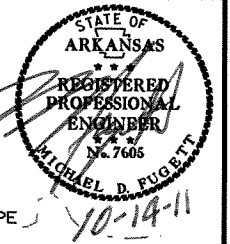
REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EROSION CONTROL QUANTITIES - STAGE 1

SAND BAG DITCH CHECKS (E-5) = 425 BAGS
DIVERSION DITCH (E-8) = 3286 LIN. FT.
SILT FENCE (E-11) = 458 LIN. FT.
PIPE FOR SLOPE DRAIN (E-12) = 92 LIN. FT.
SEDIMENT BASIN (E-14) = 352 CU. YD.
OBLITERATION OF SEDIMENT BASIN = 352 CU. YD.
SEDIMENT REMOVAL AND DISPOSAL = 500 CU. YD.
DUMPED RIPRAP = 4 CU. YD.

- (E-5) SAND BAG DITCH CHECKS
- (E-8) DIVERSION DITCH
- (E-11) SILT FENCE
- (E-12) PIPE FOR SLOPE DRAIN
- (E-14) SEDIMENT BASIN

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2 TEMPORARY EROSION CONTROL DETAILS								



STA. 101+47.78
BEGIN JOB 070273
BEGIN SECTION I
LOG MILE 16.93

SAND BAG DITCH CHECK (E-5)	SIDE	BAG
STA. 100+48	RT.	25
STA. 102+40	RT.	25
STA. 105+00	RT.	25
STA. 106+80	LT.	25
STA. 107+50	RT.	25
STA. 109+50	RT.	25
STA. 109+50	LT.	25
STA. 112+00	RT.	25
STA. 112+00	LT.	25
STA. 114+60	RT.	25
STA. 114+60	LT.	25
STA. 118+75	RT.	25
STA. 118+75	LT.	25
STA. 121+50	RT.	25
STA. 125+00	RT.	25

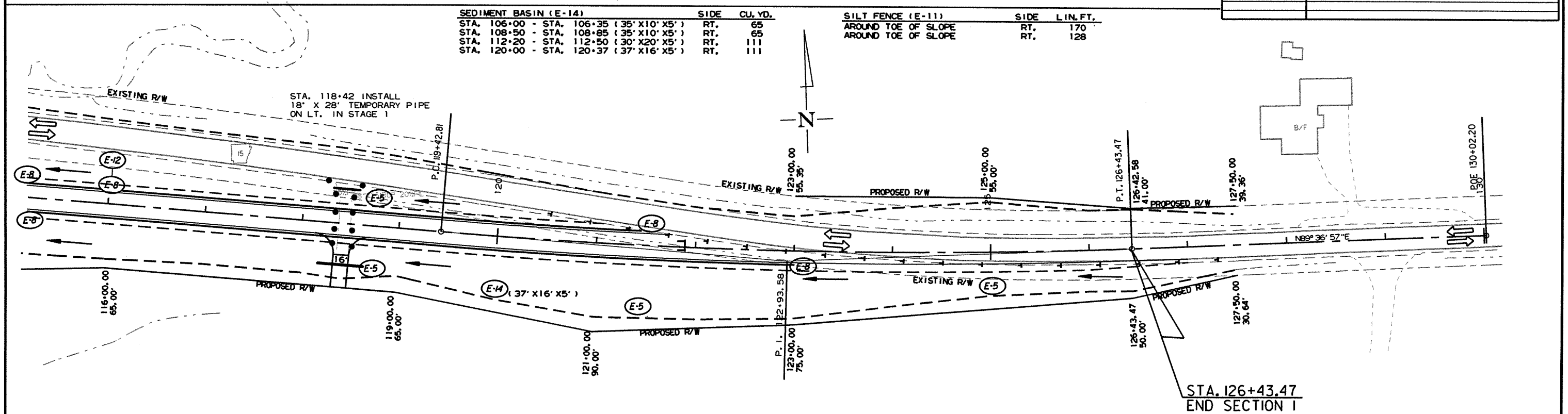
STATION	STATION	SIDE	DIVERSION DITCH LIN. FT.	PIPE FOR SLOPE DRAIN LIN. FT.	DUMPED RIPRAP CU. YD.
103+00	110+00	RT.	700		
105+00	110+00	LT.	500		
105+85		RT.		26	1
105+85		LT.		11	
111+80	123+00	RT.	1120		
111+84	121+50	LT.	966		
116+00		RT.		29	1
116+00		LT.		26	1

REVISION BOX

DATE	REVISION

SEDIMENT BASIN (E-14)	SIDE	CU. YD.
STA. 106+00 - STA. 106+35 (35' X 10' X 5')	RT.	65
STA. 108+50 - STA. 108+85 (35' X 10' X 5')	RT.	65
STA. 112+20 - STA. 112+50 (30' X 20' X 5')	RT.	111
STA. 120+00 - STA. 120+37 (37' X 16' X 5')	RT.	111

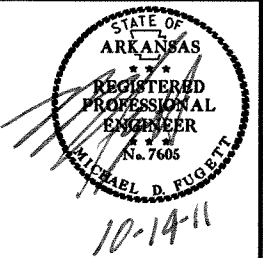
SILT FENCE (E-11)	SIDE	LIN. FT.
AROUND TOE OF SLOPE	RT.	170
AROUND TOE OF SLOPE	RT.	128



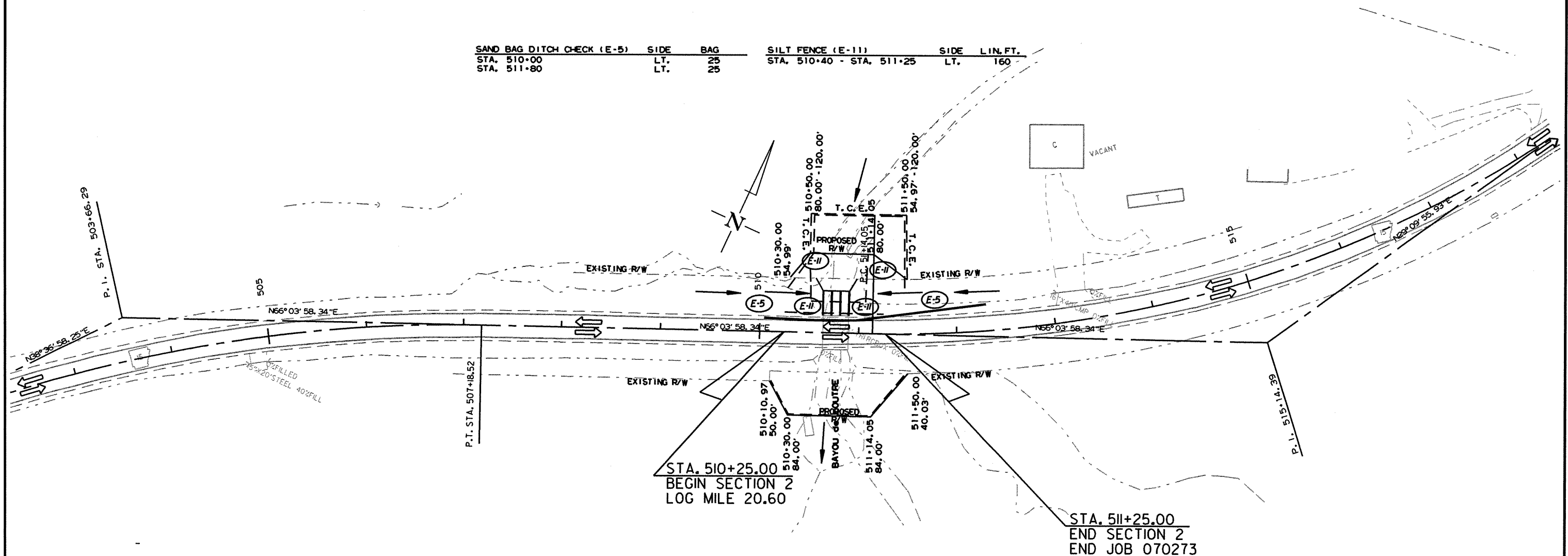
STA. 126+43.47
END SECTION I

TEMPORARY EROSION CONTROL DETAILS
STAGE 1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	070273		7	81
2 TEMPORARY EROSION CONTROL DETAILS								



SAND BAG DITCH CHECK (E-5)	SIDE	BAG	SILT FENCE (E-11)	SIDE	LINE, FT.
STA. 510+00	LT.	25	STA. 510+40 - STA. 511+25	LT.	160
STA. 511+80	LT.	25			



REVISION BOX

DATE	REVISION

TEMPORARY EROSION CONTROL DETAILS
STAGE 1

EROSION CONTROL GENERAL NOTES

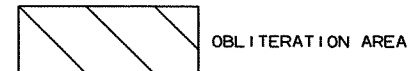
THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED, AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

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

EROSION CONTROL QUANTITIES - STAGE 2

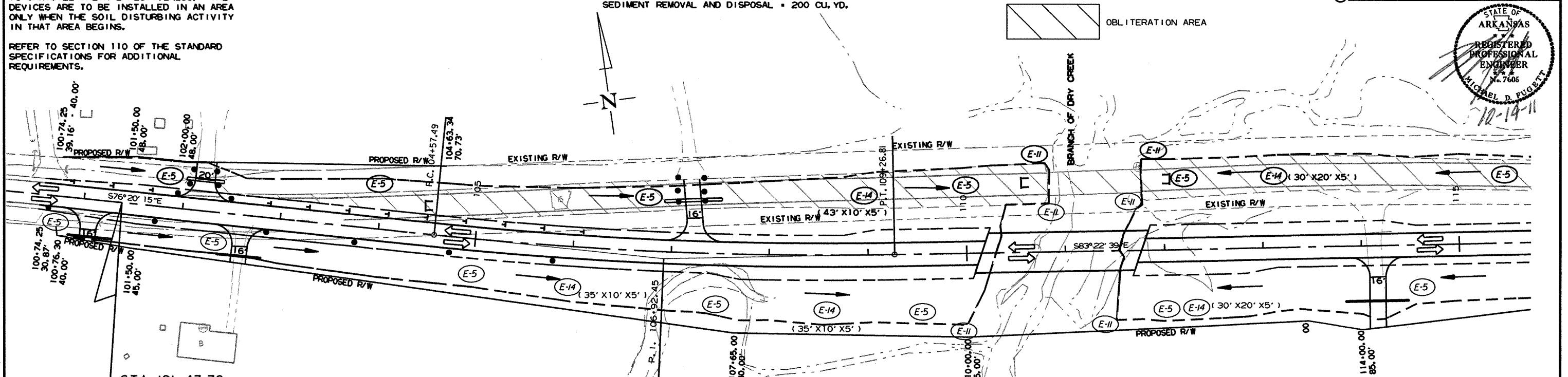
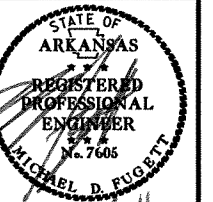
SAND BAG DITCH CHECKS (E-5) = 275 BAGS
SILT FENCE (E-11) = 271 LIN. FT.
SEDIMENT BASIN (E-14) = 191 CU. YD.
OBLITERATION OF SEDIMENT BASIN = 191 CU. YD.
SEDIMENT REMOVAL AND DISPOSAL = 200 CU. YD.

- (E-5) SAND BAG DITCH CHECKS
- (E-11) SILT FENCE
- (E-14) SEDIMENT BASIN



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	070273	8	81	

TEMPORARY EROSION CONTROL DETAILS



STA. 101+47.78
BEGIN JOB 070273
BEGIN SECTION I
LOG MILE 16.93

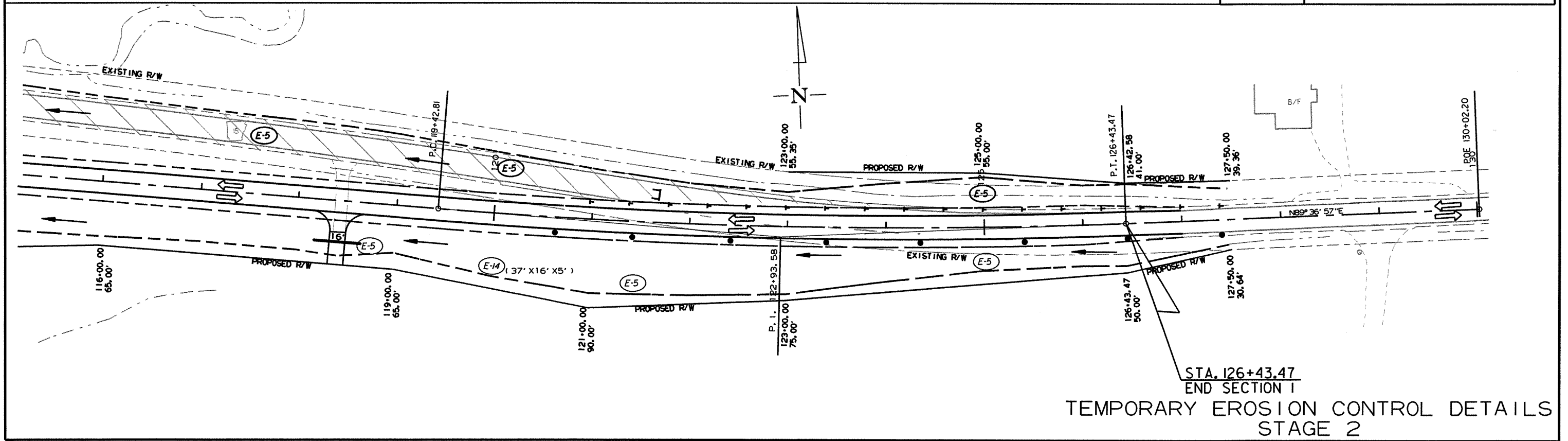
SEDIMENT BASIN (E-14)	SIDE	CU. YD.
STA. 109+00 - STA. 109+43 (43' X 10' X 5')	LT.	80
STA. 113+00 - STA. 113+30 (30' X 20' X 5')	LT.	111

SILT FENCE (E-11)	SIDE	LIN. FT.
AROUND TOE OF SLOPE	LT.	53
AROUND TOE OF SLOPE	RT.	53

SAND BAG DITCH CHECK (E-5)	SIDE	BAG
STA. 101+80	LT.	25
STA. 104+00	LT.	25
STA. 106+85	LT.	25
STA. 110+00	LT.	25
STA. 112+00	LT.	25
STA. 115+50	LT.	25
STA. 117+50	LT.	25
STA. 120+00	LT.	25
STA. 125+00	LT.	25

REVISION BOX

DATE	REVISION



TEMPORARY EROSION CONTROL DETAILS STAGE 2

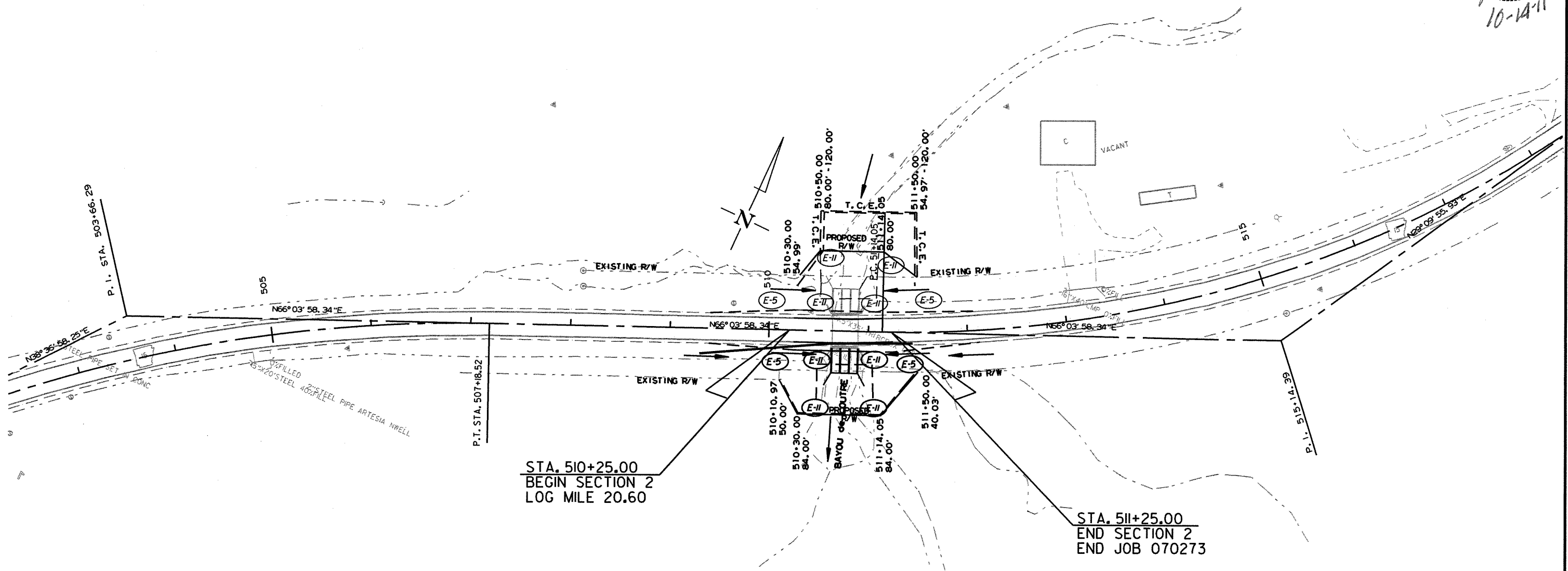
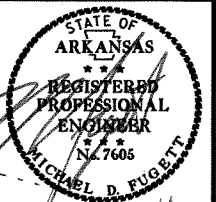
r070273.dgn 10/12/2011

E-5	SAND BAG DITCH CHECKS
E-11	SILT FENCE

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.		070273	9	81

2 TEMPORARY EROSION CONTROL DETAILS



SAND BAG DITCH CHECK (E-5)	SIDE	BAG
STA. 510+25	RT.	25
STA. 511+25	RT.	25

SILT FENCE (E-11)	SIDE	LINE FT.
STA. 510+30 - STA. 511+25	RT.	165

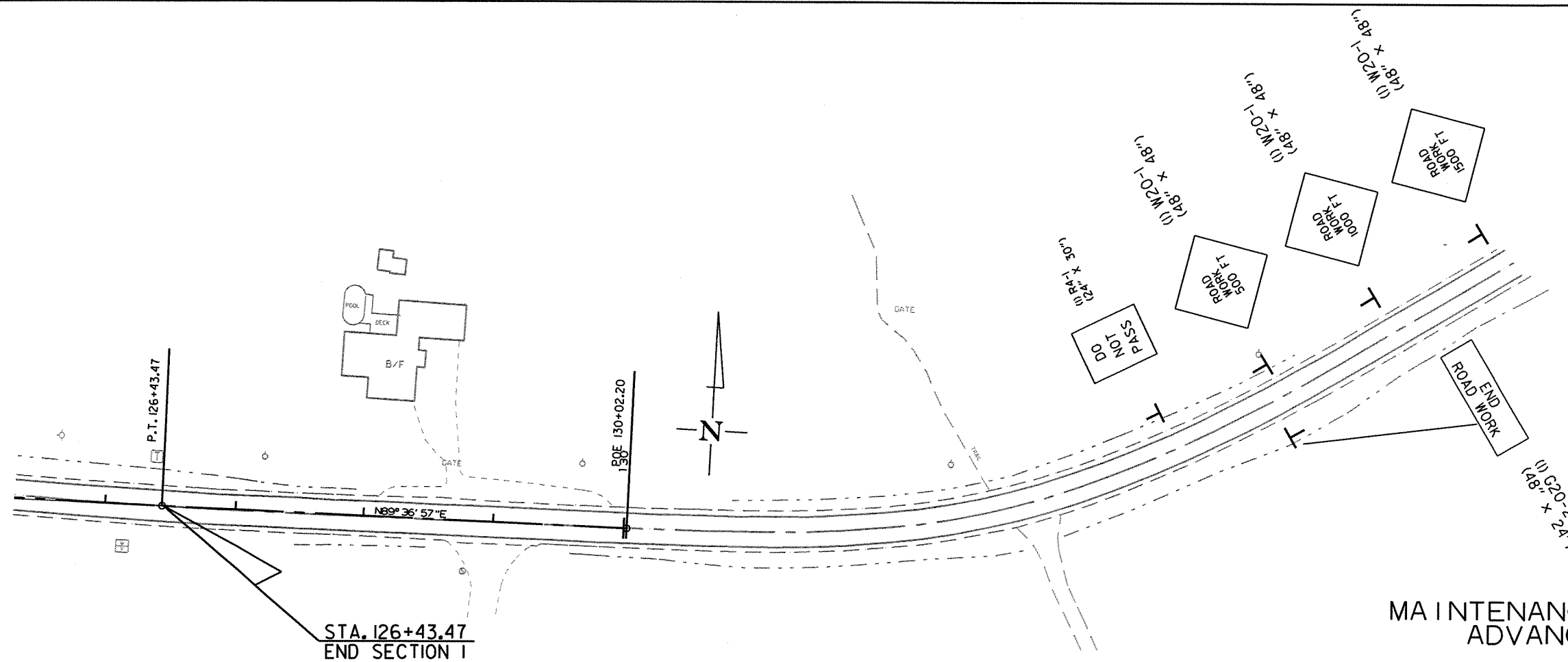
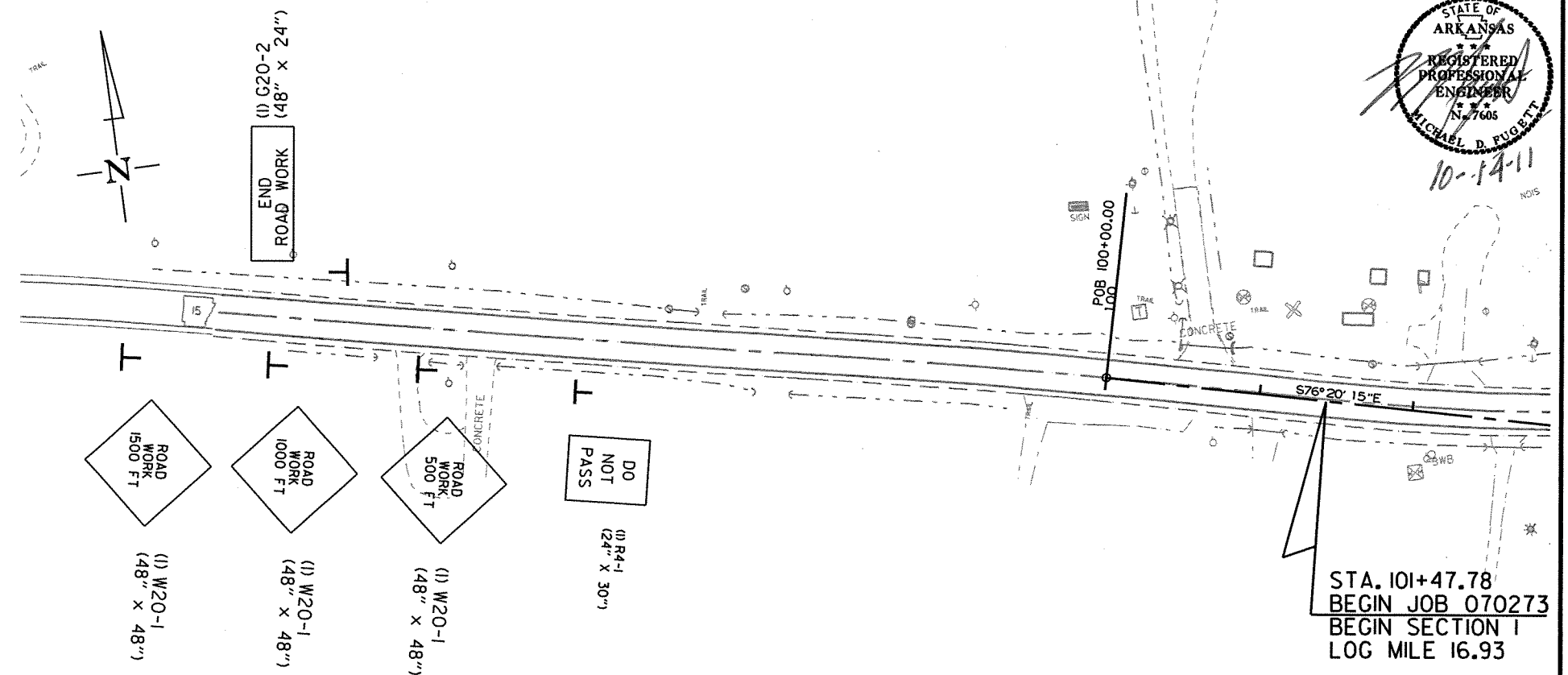
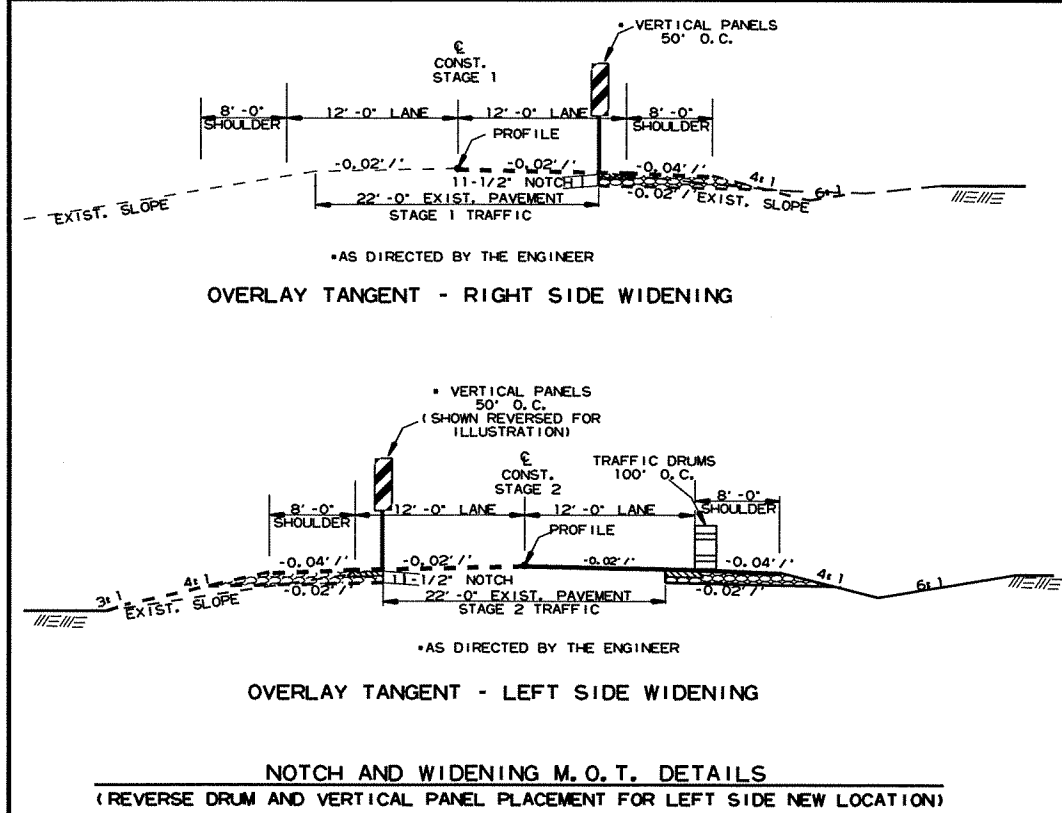
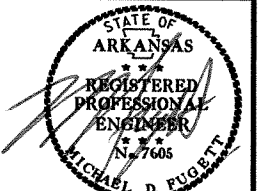
REVISION BOX

DATE	REVISION

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	070273	10	81	

② MAINTENANCE OF TRAFFIC DETAILS



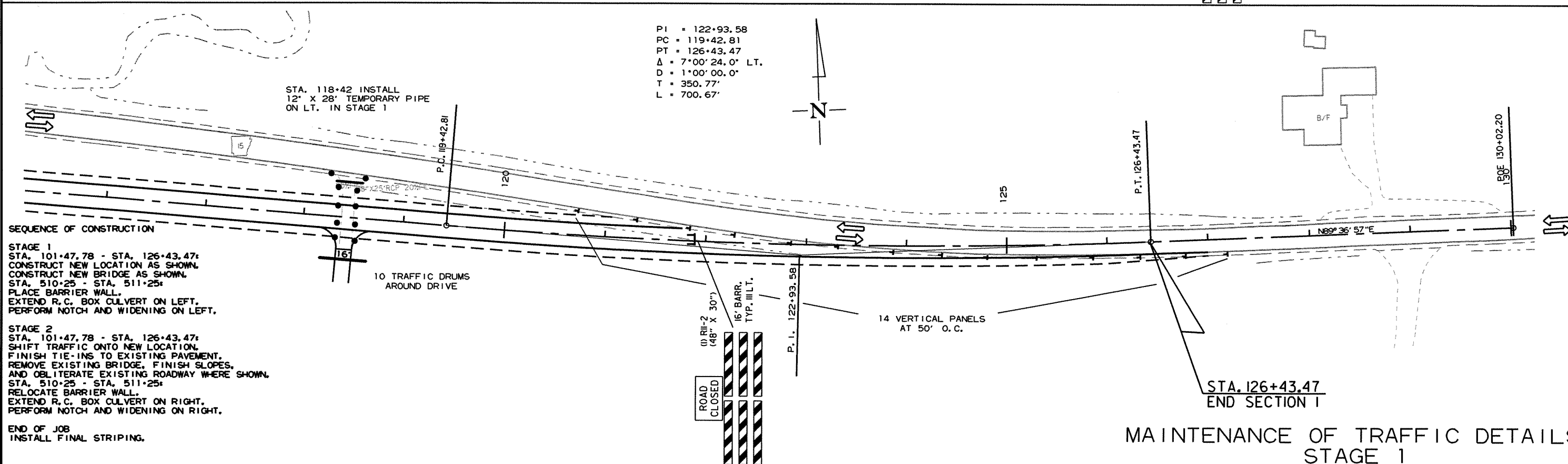
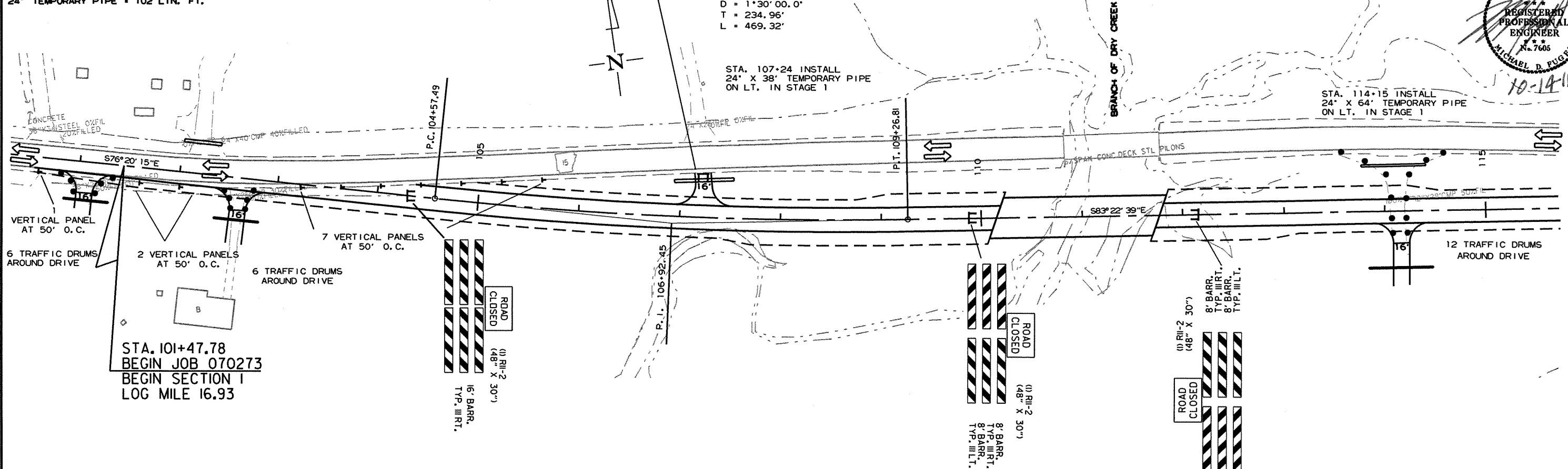
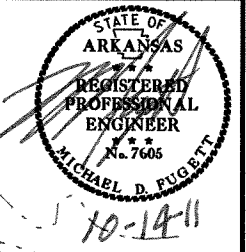
MAINTENANCE OF TRAFFIC DETAILS ADVANCE WARNING SIGNS SECTION 1

MAINTENANCE OF TRAFFIC - STAGE 1 QUANTITIES

SIGNS = 315 SQ. FT.
 BARRICADES TY. 111 LT. = 32 LIN. FT.
 BARRICADES TY. 111 RT. = 48 LIN. FT.
 TRAFFIC DRUMS = 34 EACH
 VERTICAL PANELS = 24 EACH
 CONSTRUCTION PAVEMENT MARKINGS = 10383 LIN. FT.
 FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 226 LIN. FT.
 RAISED PAVEMENT MARKERS (TY. 11) (YEL./YEL.) = 66 EACH
 12" TEMPORARY PIPE = 28 LIN. FT.
 24" TEMPORARY PIPE = 102 LIN. FT.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070273	11	81

② MAINTENANCE OF TRAFFIC DETAILS



MAINTENANCE OF TRAFFIC DETAILS STAGE 1

SEQUENCE OF CONSTRUCTION

STAGE 1
STA. 101+47.78 - STA. 126+43.47:
CONSTRUCT NEW LOCATION AS SHOWN.
CONSTRUCT NEW BRIDGE AS SHOWN.
STA. 510+25 - STA. 511+25:
PLACE BARRIER WALL.
EXTEND R.C. BOX CULVERT ON LEFT.
PERFORM NOTCH AND WIDENING ON LEFT.

STAGE 2
STA. 101+47.78 - STA. 126+43.47:
SHIFT TRAFFIC ONTO NEW LOCATION.
FINISH TIE-INS TO EXISTING PAVEMENT.
REMOVE EXISTING BRIDGE, FINISH SLOPES,
AND OBLITERATE EXISTING ROADWAY WHERE SHOWN.
STA. 510+25 - STA. 511+25:
RELOCATE BARRIER WALL.
EXTEND R.C. BOX CULVERT ON RIGHT.
PERFORM NOTCH AND WIDENING ON RIGHT.

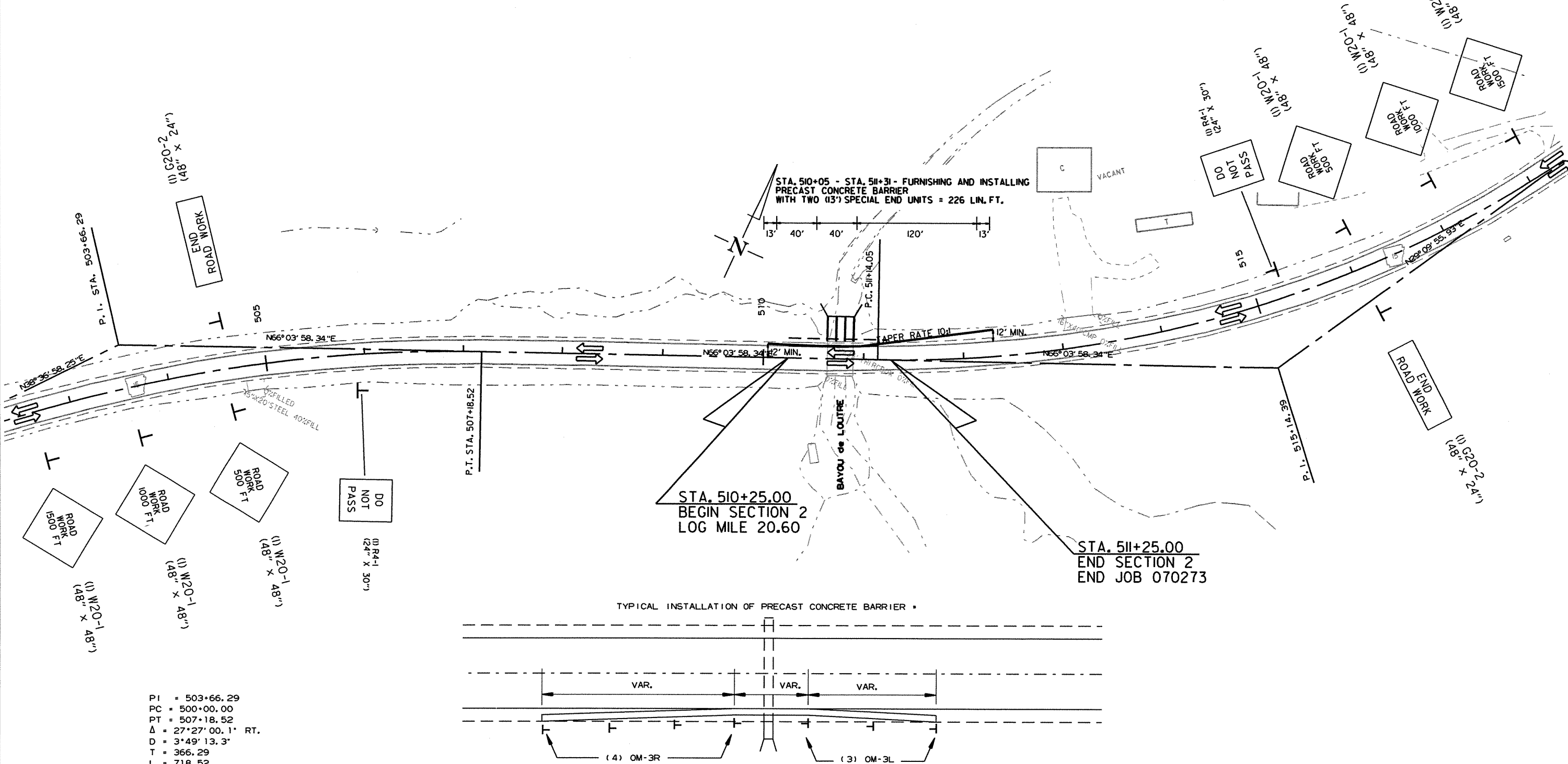
END OF JOB
INSTALL FINAL STRIPING.

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. 070273	12	81

② MAINTENANCE OF TRAFFIC DETAILS



PI = 515+14.39
PC = 511+14.05
PT = 518+86.86
Δ = 36°54'02.4" LT.
D = 4°46'29.4"
T = 400.34
L = 772.82



PI = 503+66.29
PC = 500+00.00
PT = 507+18.52
Δ = 27°27'00.1" RT.
D = 3°49'13.3"
T = 366.29
L = 718.52

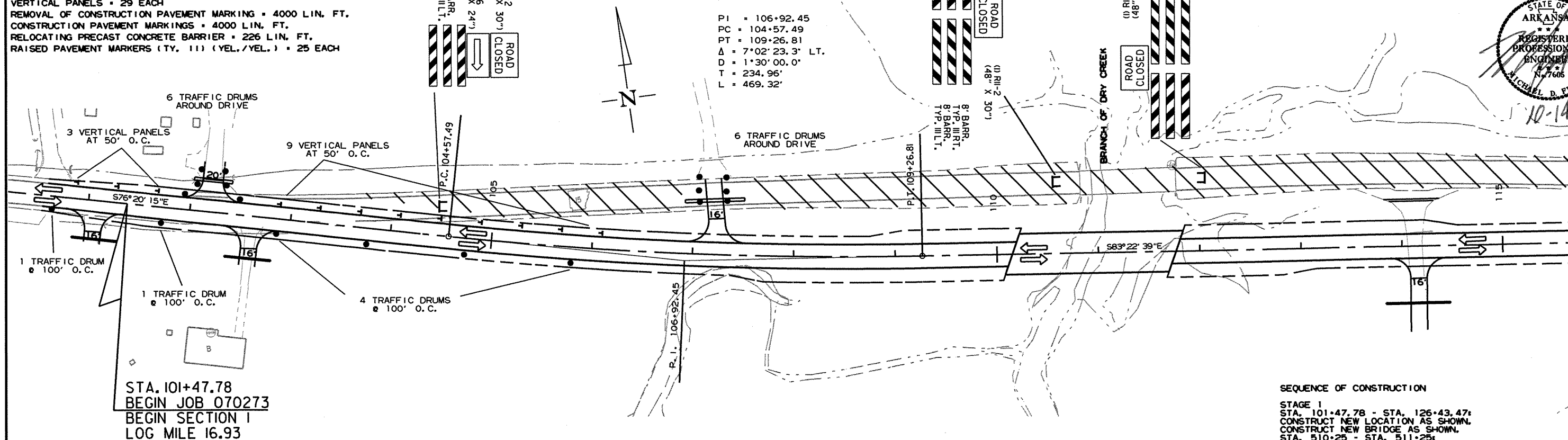
• TO BE INSTALLED AT LOCATIONS DETERMINED BY THE ENGINEER

MAINTENANCE OF TRAFFIC DETAILS
ADVANCE WARNING SIGNS & STAGE 1

SIGNS = 331 SQ. FT.
BARRICADES TY. 111 LT. = 24 LIN. FT.
BARRICADES TY. 111 RT. = 24 LIN. FT.
TRAFFIC DRUMS = 26 EACH
VERTICAL PANELS = 29 EACH
REMOVAL OF CONSTRUCTION PAVEMENT MARKING = 4000 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 4000 LIN. FT.
RELOCATING PRECAST CONCRETE BARRIER = 226 LIN. FT.
RAISED PAVEMENT MARKERS (TY. 11) (YEL./YEL.) = 25 EACH

②	MAINTENANCE OF TRAFFIC DETAILS
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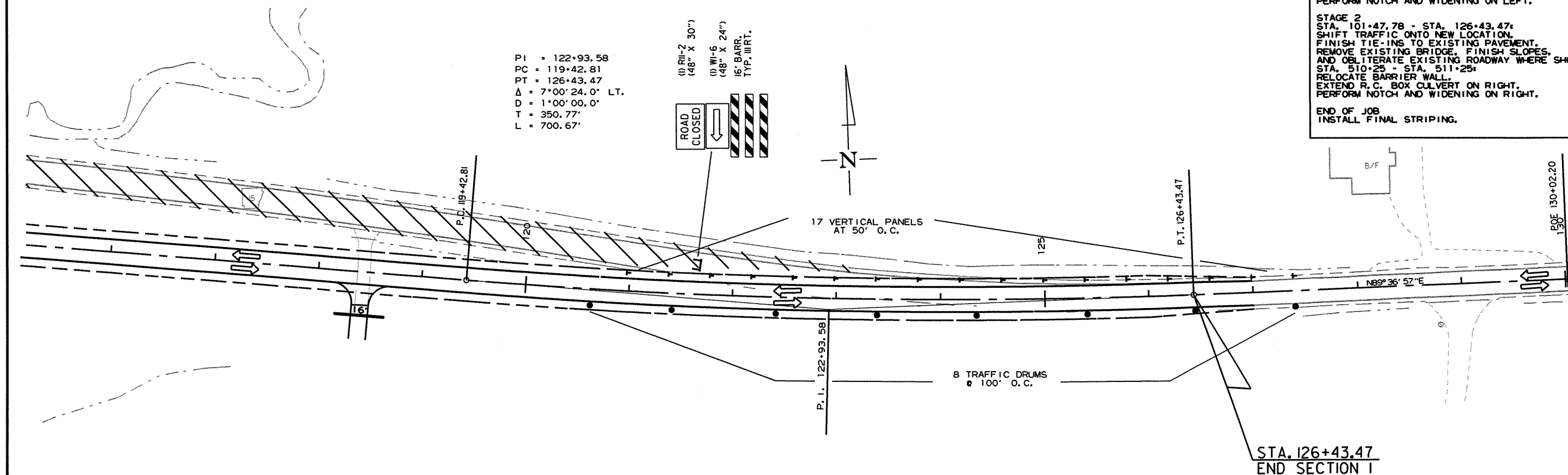
STATE OF
ARKANSAS
REGISTERED
PROFESSIONAL
ENGINEER
No. 7605
MICHAEL D. FUGETT



STAGE 1
STA. 101+47.78 - STA. 126+43.47:
CONSTRUCT NEW LOCATION AS SHOWN.
CONSTRUCT NEW BRIDGE AS SHOWN.
STA. 510+25 - STA. 511+25:
PLACE BARRIER WALL.
EXTEND R.C. BOX CULVERT ON LEFT.
PERFORM NOTCH AND WIDENING ON LEFT.

STAGE 2
STA. 101+47.78 - STA. 126+43.47:
SHIFT TRAFFIC ONTO NEW LOCATION.
FINISH TIE-INS TO EXISTING PAVEMENT.
REMOVE EXISTING BRIDGE, FINISH SLOPES,
AND OBLITERATE EXISTING ROADWAY WHERE SHOWN.
STA. 510+25 - STA. 511+25:
RELOCATE BARRIER WALL.
EXTEND R. C. BOX CULVERT ON RIGHT.
PERFORM NOTCH AND WIDENING ON RIGHT.

END OF JOB
INSTALL FINAL STRIPING.



STA. 126+43.47
END SECTION 1

MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

SEQUENCE OF CONSTRUCTION

STAGE 1
STA. 101+47.78 - STA. 126+43.47:
CONSTRUCT NEW LOCATION AS SHOWN.
CONSTRUCT NEW BRIDGE AS SHOWN.
STA. 510+25 - STA. 511+25:
PLACE BARRIER WALL.
EXTEND R.C. BOX CULVERT ON LEFT.
PERFORM NOTCH AND WIDENING ON LEFT.

STAGE 2
STA. 101+47.78 - STA. 126+43.47:
SHIFT TRAFFIC ONTO NEW LOCATION.
FINISH TIE-INS TO EXISTING PAVEMENT.
REMOVE EXISTING BRIDGE, FINISH SLOPES,
AND OBLITERATE EXISTING ROADWAY WHERE SHOWN.
STA. 510+25 - STA. 511+25:
RELOCATE BARRIER WALL.
EXTEND R.C. BOX CULVERT ON RIGHT.
PERFORM NOTCH AND WIDENING ON RIGHT.

END OF JOB
INSTALL FINAL STRIPING.

PERMANENT PAVEMENT MARKING QUANTITIES

THERMOPLASTIC PAVEMENT MARKING YELLOW (4") = 5668 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING WHITE (4") = 5992 LIN. FT.
HIGH PERFORMANCE CONTRAST MARKING TAPE 4" (YELLOW) = 324 LIN. FT.
RAISED PAVEMENT MARKERS (TY, 11) (YEL./YEL.) = 71 EACH

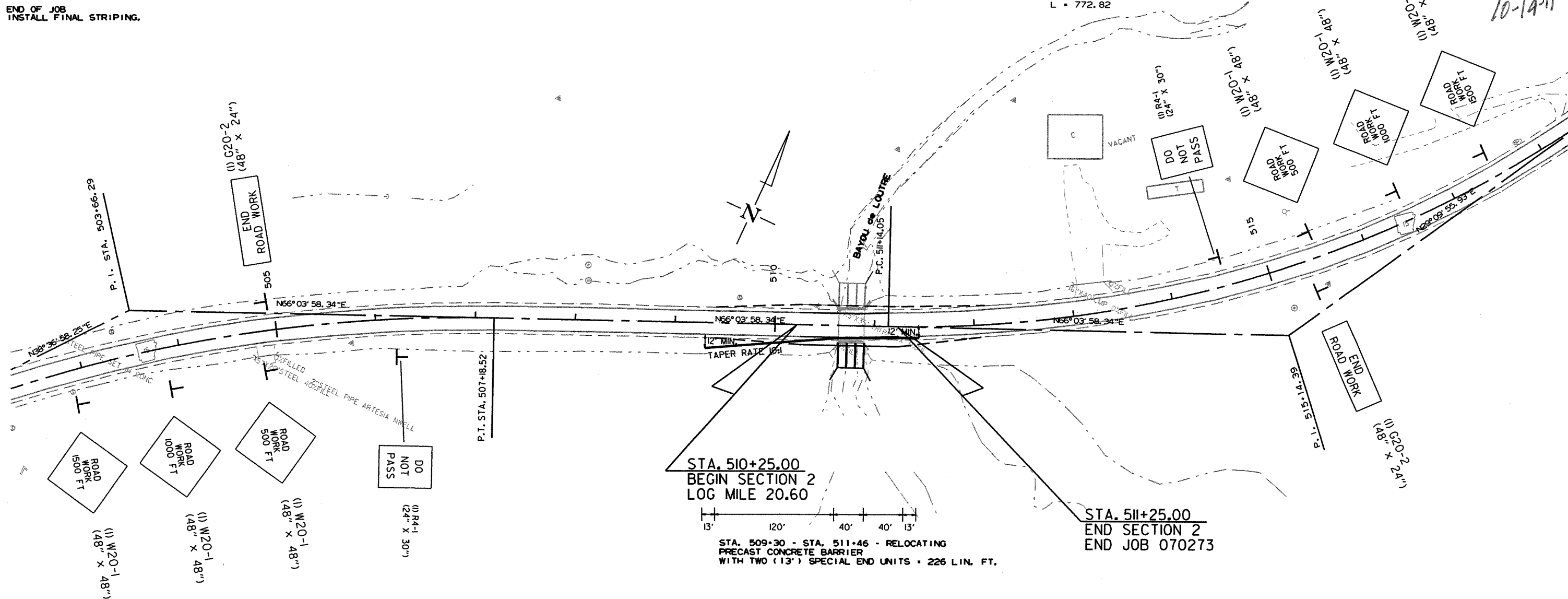
QUANTITY BASED ON A DOUBLE YELLOW CENTERLINE AND WHITE EDGE LINES.

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				6	ARK.			
						JOB NO. 070273	14	81

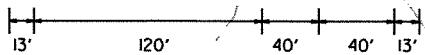
MAINTENANCE OF TRAFFIC DETAILS



PI = 515+14.39
PC = 511+14.05
PT = 518+86.86
Δ = 36°54' 02.4" LT.
D = 4°46' 29.4"
T = 400.34
L = 772.82



STA. 510+25.00
BEGIN SECTION 2
LOG MILE 20.60

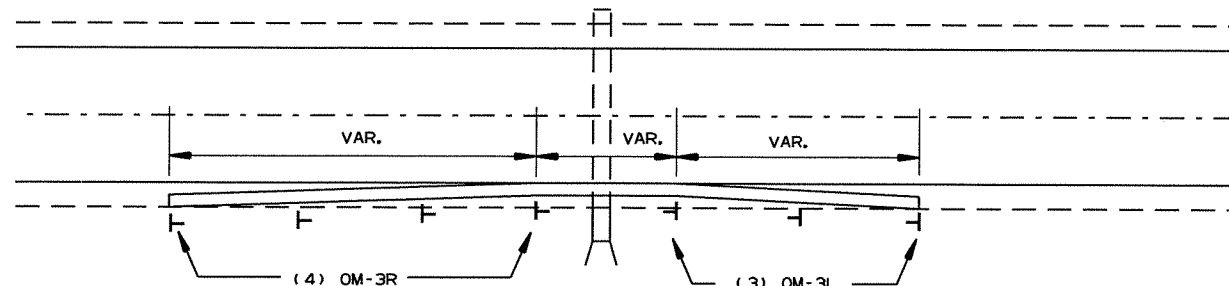


STA. 509+30 - STA. 511+46 - RELOCATING
PRECAST CONCRETE BARRIER
WITH TWO (13') SPECIAL END UNITS = 226 LIN. FT.

STA. 511+25.00
END SECTION 2
END JOB 070273

PI = 503+66.29
PC = 500+00.00
PT = 507+18.52
Δ = 27°27' 00.1" RT.
D = 3°49' 13.3"
T = 366.29
L = 718.52

TYPICAL INSTALLATION OF PRECAST CONCRETE BARRIER



• TO BE INSTALLED AT LOCATIONS DETERMINED BY THE ENGINEER

MAINTENANCE OF TRAFFIC DETAILS
ADVANCE WARNING SIGNS & STAGE 2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO. 070273			15	81

2 QUANTITY SHEETS

MAINTENANCE OF TRAFFIC ITEMS

LOCATION	BARRICADES		TRAFFIC DRUMS	VERTICAL PANELS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	RELOCATING PRECAST CONCRETE BARRIER	RAISED PAVEMENT MARKERS (TY. II) (YEL./YEL.)
	TY. III RT.	TY. III LT.							
	LIN. FT.								
MAIN LANES-STAGE 1	48	32	34	24	10383		226		66
MAIN LANES-STAGE 2	24	24	26	29	4000	4000		226	25
TOTALS	48	32	34	29	14383	4000	226	226	91

NOTE: THIS IS A HIGH VOLUME ROAD AS DEFINED IN SECTION 604.03 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2003.

BENCH MARKS

LOCATION	BENCH MARKS
	EACH
STA. 110+08.11 RT. BRIDGE END	1
STA. 510+77.00 RT. R.C. BOX CULVERT HEADWALL	1

SHOWN FOR INFORMATIONAL PURPOSES ONLY.
BENCH MARKS TO BE FURNISHED, PLACED
AND RECORDED BY STATE FORCES.



SIGNS

SIGN NO.	DESCRIPTION	SIZE	QUANTITY		MAXIMUM REQUIRED	SIGNS SQ. FT.
			STAGE 1	STAGE 2		
G20-2	END ROAD WORK	48" X 24"	4	4	4	32
OM-3L	OBJECT MARKER	12" X 36"	3	3	3	9
OM-3R	OBJECT MARKER	12" X 36"	4	4	4	12
R4-1	DO NOT PASS	24" X 30"	4	4	4	20
RII-2	ROAD CLOSED	48" X 30"	5	5	5	50
W1-6	ARROW	48" X 24"		2	2	16
W20-1	ROAD WORK 1500 FT.	48" X 48"	4	4	4	64
W20-1	ROAD WORK 1000 FT.	48" X 48"	4	4	4	64
W20-1	ROAD WORK 500 FT.	48" X 48"	4	4	4	64
TOTAL						331

GUARDRAIL

STATION	STATION	SIDE	GUARDRAIL (TY. A)	TERMINAL ANCHOR POSTS (TYPE 1)	THREE BEAM GUARDRAIL TERMINAL
			LIN. FT.	EACH	
107+79.43	109+98.18	RT.	200	1	1
109+18.99	110+12.74	LT.	75	1	1
111+79.25	112+73.00	RT.	75	1	1
111+93.81	114+12.56	LT.	200	1	1
TOTALS			550	4	4

EROSION CONTROL ITEMS - PERMANENT

LOCATION	SEEDING	LIME	MULCH COVER	SECOND SEEDING APPL.	WATER
	ACRE	TON	ACRE		M. GAL.
MAIN LANES	4.70	9	4.70	4.70	479.4
TOTALS	4.70	9	4.70	4.70	479.4

BASIS OF ESTIMATE: LIME: 2 TONS PER ACRE SEEDING;
WATER: 102.0 M.GAL. PER ACRE SEEDING

PERMANENT PAVEMENT MARKING ITEMS

LOCATION	THERMOPLASTIC PAVEMENT MARKING		HIGH PERFORMANCE CONTRAST PAVEMENT MARKING	RAISED PAVEMENT MARKERS (TY. II)(YEL./YEL.)
	WHITE	YELLOW	YELLOW	
	*4"	*4"	4"	
	LIN. FT.			EACH
ENTIRE PROJECT	5992	5668	324	71
TOTALS	5992	5668	324	71

NOTE: THIS IS A HIGH VOLUME ROAD AS DEFINED IN SECTION 604.03 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2003.

*QUANTITY BASED ON A DOUBLE YELLOW CENTERLINE AND SOLID WHITE EDGE LINES.

TEMPORARY PIPE CULVERT

LOCATION	TEMPORARY PIPE CULVERT	
	12"	24"
	LIN. FT.	
STA. 107+24 ON LT.		38
STA. 114+15 ON LT.		64
STA. 118+42 ON LT.	28	
TOTALS	28	102

EROSION CONTROL ITEMS - TEMPORARY

LOCATION	SAND BAG DITCH CHECKS (E-5)	DIVERSION DITCH (E-8)	SILT FENCE (E-11)	PIPE FOR SLOPE DRAINS (E-12)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL	TEMPORARY SEEDING	MULCH COVER	WATER	DUMPED RIPRAP	EROSION CONTROL MATTING (TYPE 1)
	BAG											
	LIN. FT.				CU.YD.			ACRE		M. GAL.	CU.YD.	SQ.YD.
MAIN LANES-STAGE 1	425	3286	458	92	352	352	500	4.70	4.70	95.9	4	
MAIN LANES-STAGE 2	275		271		191	191	200					
ENTIRE PROJECT												150
TOTALS	700	3286	729	92	543	543	700	4.70	4.70	95.9	4	150

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

BASIS OF ESTIMATE: WATER 20.4 M.G. PER ACRE TEMP. SEEDING
* QUANTITIES ESTIMATED- TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
	EACH	
ENTIRE PROJECT	2	2
TOTALS	2	2

COLD MILLING ASPHALT PAVEMENT	
LOCATION	COLD MILLING ASPHALT PAVEMENT
	SQ. YD.
STA. 100+47.78 - STA. 101+47.78	244
STA. 126+43.47 - STA. 127+43.47	244
STA. 509+25.00 - STA. 510+25.00	244
STA. 511+25.00 - STA. 512+25.00	244
TOTAL	976

APPROACH GUTTERS (TYPE B)		
LOCATION	APPROACH GUTTERS	REINFORCING
	(TY. B) (W=8') CU.YD.	STEEL - RDWY. (GR. 60) POUND
STA. 109+81.11 - STA. 110+08.11 RT.	6.75	590
STA. 109+95.29 - STA. 110+22.29 LT.	6.75	590
STA. 111+69.86 - STA. 111+96.86 RT.	6.75	590
STA. 111+84.04 - STA. 112+11.04 LT.	6.75	590
TOTALS	27.00	2360

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.	070273		16	81
2 QUANTITY SHEETS								

SELECTED PIPE BEDDING AND SELECTED PIPE BACKFILL

LOCATION	SELECTED PIPE BEDDING	SELECTED PIPE BACKFILL
	CU. YD.	
ENTIRE PROJECT	10	20
TOTALS	10	20

QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.



REMOVAL AND DISPOSAL OF PIPE CULVERTS

STATION	SIDE	DESCRIPTION	EACH
101+07	RT.	18" X 20' R.C. PIPE CULVERT	1
102+21	LT.	24" X 40' C.M. PIPE CULVERT	1
102+62	RT.	18" X 20' R.C. PIPE CULVERT	1
107+24	LT.	24" X 26' R.C. PIPE CULVERT	1
114+15	RT.	12" X 29' C.M. PIPE CULVERT	1
118+42	RT.	18" X 25' R.C. PIPE CULVERT	1
TOTAL			6

REMOVAL AND DISPOSAL OF PIPE CULVERTS INCLUDES HEADWALLS AND FLARED
END SECTIONS IF APPLICABLE.

SOIL STABILIZATION

LOCATION	SOIL STABILIZATION
	TON
ENTIRE PROJECT - IF AND WHERE DIRECTED BY THE ENGINEER.	25
TOTAL	25

QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

REMOVAL AND DISPOSAL ITEMS

STATION	STATION	DESCRIPTION	SIDE	REMOVAL AND DISPOSAL ITEMS		
				*GUARDRAIL	GATES	FENCE
				LIN. FT.	EACH	LIN. FT.
108+80	110+80	GUARDRAIL	LT.	200		
110+05	110+80	GUARDRAIL	LT.	75		
111+77	112+52	GUARDRAIL	LT.	75		
111+77	113+77	GUARDRAIL	LT.	200		
114+16		GATE	RT.		1	
118+60	124+10	FENCE	RT.			340
TOTALS				550	1	340

* REFER TO SPECIAL PROVISION "REMOVAL AND DISPOSAL OF GUARDRAIL".

PIPE UNDERDRAINS

LOCATION	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
	LIN. FT.	EACH
ENTIRE PROJECT - IF AND WHERE DIRECTED BY THE ENGINEER.	1000	8
TOTALS	1000	8

NOTE: QUANTITIES ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

CLEARING AND GRUBBING

STATION	STATION	CLEARING	GRUBBING
		STATION	
101+47.78	126+43.47	26	26
510+25	511+25	2	2
TOTALS		28	28

ASPHALT CONCRETE HOT MIX PATCHING OF EXISTING ROADWAY

LOCATION	A CHM PATCHING OF EXISTING ROADWAY
	TON
ENTIRE PROJECT - IF AND WHERE DIRECTED BY THE ENGINEER.	25
TOTAL	25

QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO SOIL CLASS	COLOR
102+00	27'RT	0-5	ND	NP	A-4(0)	GR/BR
102+00	14'RT	0-5	ND	NP	A-4(0)	GRAY
102+00	6'RT	0-5	ND	NP	A-4(0)	GRAY
110+00	CL	0-5	ND	NP	A-4(0)	BROWN
116+00	CL	0-5	ND	NP	A-2-4(0)	BROWN
124+00	28'LT	0-5	ND	NP	A-2-4(0)	RD/BR
124+00	15'LT	0-5	ND	NP	A-2-4(0)	RD/BR
124+00	6'LT	0-5	ND	NP	A-4(0)	RD/BR
506+00	5'RT	0-5	ND	NP	A-2-4(0)	GRAY
506+00	24'RT	0-5	ND	NP	A-2-4(0)	GRAY
506+00	13'RT	0-5	ND	NP	A-2-4(0)	GRAY
515+00	30'LT	0-5	ND	NP	A-2-4(0)	GRAY
515+00	14'LT	0-5	18	4	A-4(0)	GRAY
515+00	5'LT	0-5	22	5	A-4(0)	BROWN

NOTE: 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 ABOVE TABULATIONS.

CONCRETE DITCH PAVING

LOCATION	TYPE B W=4'	SOLID SODDING	WATER
	SQ. YD.		M. GAL.
ENTIRE PROJECT AS DIRECTED BY THE ENGINEER	444	448	5.6
TOTALS	444	448	5.6

BASIS OF ESTIMATE:
WATER = 12.6 GAL. PER SQ. YD. SOLID SODDING
QUANTITIES ESTIMATED. TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

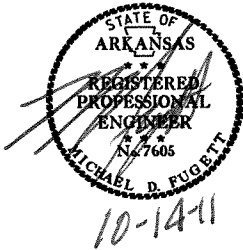
EARTHWORK

STATION	STATION	LOCATION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
100+47.78	127+43.47	MAIN LANES	10967	20598
509+25.00	512+25.00	MAIN LANES	597	1314
ENTIRE PROJECT		DRIVES		910
ENTIRE PROJECT		BARRIER WALL INSTALLATION & REMOVAL	100	100
		CHANNEL EXCAVATION BRANCH OF DRY CREEK	590	
		CHANNEL EXCAVATION BAYOU de LOUTRE	200	
TOTALS			12454	22922

NOTE: EARTHWORK QUANTITIES TO BE PAID AS PLAN QUANTITY.

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. 070273			17	81

2 QUANTITY SHEETS



STATION	DESCRIPTION	SIDE	WIDTH	TURNOUT AREA	EXTENSION AREA		TOTAL DRIVEWAY AREA	*AGGREGATE BASE COURSE (CL. 7)	ACHM SURFACE COURSE (1/2") (220 LB./SQ. YD.)	SIDE DRAIN		
					*AGGREGATE (CLASS 7) (9" COMP. DEPTH)	ASPHALT				18"	36"	42" X 29"
					LIN. FT.	SQ. YD.				TON	TON	LIN. FT.
101+07	PRIVATE DRIVE	RT.	16	54	20		74	32	6	46		
102+21	PRIVATE DRIVE	LT.	20	64	47		111	51	7			38
102+62	PRIVATE DRIVE	RT.	16	54	30		84	38	6	46		
107+24	PRIVATE DRIVE	LT.	16	54	71		125	59	6		60	
114+15	PRIVATE DRIVE	RT.	16	54	90		144	69	6	64		
118+42	PRIVATE DRIVE	RT.	16	54		59	113	46	12	48		
	TEMP. DRIVES							300				
TOTALS								595	43	204	60	38

VOLUME CONTROL:
ACHM SURFACE COURSE (1/2"): MIN. AGGR. 94.7%, ASPHALT BINDER (PG-64-22) 5.3%
N_{max} = 115 GYRATIONS
* REFER TO DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS).

ASPHALT CONCRETE PATCHING FOR MAINT. OF TRAFFIC		
LOCATION	ACHM PATCHING FOR M.O.T.	TACK COAT
	TON	GALLON
ENTIRE PROJECT - IF AND WHERE DIRECTED BY THE ENGINEER.	13	25
TOTALS	13	25
BASIS OF ESTIMATE: PATCHING: 25 TONS PER MILE; TACK COAT: 50 GAL. PER MILE QUANTITY ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.		

R.C. BOX CULVERT-STRUCTURE OVER 20'-0" SPAN										
STATION	DESCRIPTION	SPAN	HEIGHT	LENGTH	UNCLASSIFIED EXCAVATION FOR STRUCTURES-RDWY.	CLASS S CONCRETE- RDWY.	REINFORCING STEEL- RDWY. (GR. 60)	SOLID SODDING	WATER	STANDARD DRAWINGS
			LIN.FT.		CU.YD.	POUND	SQ.YD.	M.GAL.		
510+77	TRP. 8' X 5' X 35' R.C. BOX CULVERT RETAIN AND EXTEND 25' LT & 25' RT. W/3:1 WINGS LT. & RT.	8	5	55	59	119.82	19611	25	0.3	RCB-1, RCB-2, RCB-3, R-300X-0, W-X003-1
TOTALS					59	119.82	19611	25	0.3	
BASIS OF ESTIMATE: WATER = 12.6 GAL. PER SQ. YD. SOLID SODDING										

BASE AND SURFACING																					
STA TION	STA TION	LOCA TION	LENGTH	AGGREGATE BASE COURSE (CL. 7)		ACHM BINDER COURSE (1") (330 LBS./SQ. YD.)			ACHM SURFACE COURSE (1/2")						TACK COAT						
									(220 LBS./SQ. YD.)			*LEVELING			(0.03 GAL./SQ. YD.)			(0.10 GAL./SQ. YD.)			
						AVG. WIDTH	SQ.YD.	TON	AVG. WIDTH	SQ.YD.	TON	AVG. WIDTH	SQ.YD.	LBS./ SQ.YD.	TON	AVG. WIDTH	SQ.YD.	GAL.	AVG. WIDTH	SQ.YD.	GAL.
100+47.78	101+47.78	MAIN LANES-TRANSITION	100.00	117.50	118	1.25	13.89	2	37.33	414.78	46					2.50	27.78	1			
101+47.78	105+00.00	MAIN LANES-NOTCH & WIDEN	352.22	161.50	569	2.50	632.00	104	42.50	1663.26	183	22.00	861	220	95	24.50	958.82	29	22.00	861	86
105+00.00	110+14.87	MAIN LANES-FULL DEPTH	514.87	273.25	1407	24.50	1401.59	231	64.25	3675.60	404					49.00	2803.18	84			
111+77.13	121+00.00	MAIN LANES-FULL DEPTH	922.87	273.25	2522	24.50	2512.26	415	64.25	6588.27	725					49.00	5024.51	151			
121+00.00	126+43.47	MAIN LANES-NOTCH & WIDEN	543.47	161.50	878	2.50	693.00	114	42.50	2566.39	282	22.00	1328	220	146	24.50	1479.45	44	22.00	1328	133
126+43.47	127+43.47	MAIN LANES-TRANSITION	100.00	117.50	118	1.25	13.89	2	37.33	414.78	46					2.50	27.78	1			
509+25.00	510+25.00	MAIN LANES-TRANSITION	100.00	117.50	118	1.25	13.89	2	37.33	414.78	46					2.50	27.78	1			
510+25.00	511+25.00	MAIN LANES-NOTCH & WIDEN	100.00	161.50	162	2.50	27.78	5	42.50	472.22	52	22.00	244	220	27	24.50	272.22	8	22.00	244	24
511+25.00	512+25.00	MAIN LANES-TRANSITION	100.00	117.50	118	1.25	13.89	2	37.33	414.78	46					2.50	27.78	1			
		ADDITIONAL FOR GUARDRAIL WIDENING			390						26										
		ADDITIONAL FOR SUPERELEVATION			244										200						
TOTALS					6644		877		1856		468			320				243			

VOLUME CONTROL:
ACHM BINDER COURSE (1"): MIN. AGGR. 95.6%, ASPHALT BINDER (PG 64-22) 4.4%
ACHM SURFACE COURSE (1/2"): MIN. AGGR. 94.7%, ASPHALT BINDER (PG 64-22) 5.3%
N_{max} = 115 GYRATIONS
*QUANTITY ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

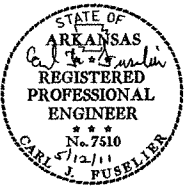
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070273	18	81
① 07221 - QUANTITIES - 52084								

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 070273

BRIDGE NO.	CODE NO.	NAME	PLATE	TITLE	UNIT OF STRUCTURE	ITEM NO.	205	802	802	803	804	804	805	805	805	805	807	808	812	816	816	SP JOB 070273
						ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	CLASS S CONCRETE- BRIDGE	CLASS S(AE) CONCRETE- BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL- BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	① CONCRETE PILING (18' ' SQ.)	② CONCRETE PILING (24' ' SQ.)	① TEST PILE (18' ' SQ.)	② TEST PILE (24' ' SQ.)	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	SILICONE JOINT SEALANT
							UNIT	LUMP SUM	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LB.	CU. IN.	EACH	SQ. YD.	CU. YD.
07221	X071	DRY	CREEK	BENTS 1 & 4			68.80		0.5	6130		315		385	40		1625	2632.5		479	271	
				BENTS 2 & 3			40.80			4530				40		3887.5						
				160' CONT. COMP. W-BEAM UNIT				203.20	16.6		49880				126315		1				92	
				EXIST. BR. NO. M0405 (SITE NO. 1)		1																
TOTALS FOR JOB NO. 070273								109.60	203.20	17.1	10660	49880	315	385	40	40	127940	6520.0	1	479	271	92

- ① PILES SHALL BE PRESTRESSED AND CONFORM TO STD. DWG. NO. 14964.
② PILES SHALL CONFORM TO DWG. NO. 52090.

RICK ELLIS
DESIGN SECTION SUPERVISOR



SCHEDULE OF BRIDGE QUANTITIES
HWY. 335 - HWY. 82 STRS. & APPRS. (S)
UNION COUNTY

ROUTE 15 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 3-31-11 FILENAME: b070273.qldgn
CHECKED BY: CJK DATE: 4/18/11 SCALE: NONE
DESIGNED BY: -- DATE: --

BRIDGE NO. 07221

DRAWING NO. 52084

BRIDGE ENGINEER

SUMMARY OF QUANTITIES

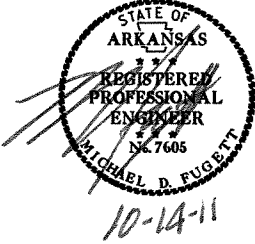
ITEM NO.	ITEM	QUANTITY	UNIT
201	CLEARING	28	STATION
201	GRUBBING	28	STATION
202	REMOVAL AND DISPOSAL OF FENCE	340	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES	1	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	6	EACH
SP&202	REMOVAL AND DISPOSAL OF GUARDRAIL	550	LIN. FT.
210	UNCLASSIFIED EXCAVATION	12454	CU. YD.
210	COMPACTED EMBANKMENT	22922	CU. YD.
SP&210	SOIL STABILIZATION	25	TON
SS&303	AGGREGATE BASE COURSE (CLASS 7)	7239	TON
401	TACK COAT	588	GAL
SPSS&406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	838	TON
SPSS&406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	39	TON
SPSS&407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	2242	TON
SPSS&407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	125	TON
412	COLD MILLING ASPHALT PAVEMENT	976	SQ. YD.
SPSS&414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	13	TON
SPSS&415	ACHM PATCHING OF EXISTING ROADWAY	25	TON
504	APPROACH GUTTERS (TYPE B)	27.00	CU. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP&602	FURNISHING FIELD OFFICE	1	EACH
SS&603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
603	12" TEMPORARY CULVERT	28	LIN. FT.
603	24" TEMPORARY CULVERT	102	LIN. FT.
SS&604	SIGNS	331	SQ. FT.
SS&604	BARRICADES	80	LIN. FT.
SS&604	TRAFFIC DRUMS	34	EACH
SS&604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	226	LIN. FT.
SS&604	RELOCATING PRECAST CONCRETE BARRIER	226	LIN. FT.
SS&604	CONSTRUCTION PAVEMENT MARKINGS	14383	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	4000	LIN. FT.
SS&604	VERTICAL PANELS	29	EACH
605	CONCRETE DITCH PAVING (TYPE B)	444	SQ. YD.
SS&606	18" SIDE DRAIN	204	LIN. FT.
SS&606	36" SIDE DRAIN	60	LIN. FT.
SS&606	42" X 29" SIDE DRAIN	38	LIN. FT.
606	SELECTED PIPE BEDDING	10	CU. YD.
606	SELECTED PIPE BACKFILL	20	CU. YD.
611	UNDERDRAIN OUTLET PROTECTORS	8	EACH
611	4" PIPE UNDERDRAINS	1000	LIN. FT.
SS&617	GUARDRAIL (TYPE A)	550	LIN. FT.
SS&617	TERMINAL ANCHOR POSTS (TYPE 1)	4	EACH
SS&617	THREE BEAM GUARDRAIL TERMINAL	4	EACH
620	LIME	9	TON
620	SEEDING	4.70	ACRE
620	MULCH COVER	9.40	ACRE
SS&620	WATER	581.2	MGAL
621	TEMPORARY SEEDING	4.70	ACRE
621	SILT FENCE	729	LIN. FT.
621	SAND BAG DITCH CHECKS	700	BAG
621	DIVERSION DITCH	3286	LIN. FT.
621	SEDIMENT BASIN	543	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	543	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	700	CU. YD.
621	PIPE FOR SLOPE DRAINS	92	LIN. FT.
623	SECOND SEEDING APPLICATION	4.70	ACRE
624	SOLID SODDING	473	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 1)	150	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	2	EACH
637	MAILBOX SUPPORTS (SINGLE)	2	EACH
SS&719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	5992	LIN. FT.
SS&719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	5668	LIN. FT.
SP&719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	324	LIN. FT.
SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	324	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	162	EACH
804	REINFORCING STEEL - ROADWAY (GRADE 60)	2360	ROUND
816	DUMPED RIPRAP	4	CU. YD.
STRUCTURES OVER 20'-0" SPAN			
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	59	CU. YD.
802	CLASS 5 CONCRETE - ROADWAY	119.82	CU. YD.
802	CLASS 5 CONCRETE - BRIDGE	109.60	CU. YD.
802	CLASS 5(AE) CONCRETE - BRIDGE	203.20	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	17.1	GAL.
804	REINFORCING STEEL - ROADWAY (GRADE 60)	19611	ROUND
804	REINFORCING STEEL - BRIDGE (GRADE 60)	10660	ROUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)	49880	ROUND
805	CONCRETE PILING (18" SQUARE)	315	LIN. FT.
805	CONCRETE PILING (24" SQUARE)	385	LIN. FT.
805	TEST PILE (18" SQUARE)	40	LIN. FT.
805	TEST PILE (24" SQUARE)	40	LIN. FT.
807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)	127940	ROUND
808	ELASTOMERIC BEARINGS	6520.0	CU. IN.
SP	SILICONE JOINT SEALANT	92	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	1	EACH
816	FILTER BLANKET	479	SQ. YD.
816	DUMPED RIPRAP	271	CU. YD.

* DENOTES ALTERNATE BID ITEMS

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.		070273	19	81

2 SUMMARY OF QUANTITIES AND REVISIONS

DATE	DESCRIPTION	PAGE NO.(S)



Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL,
PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

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. 070273	20	81

2 SURVEY CONTROL DETAILS



Point Name	Northing	Easting	Elev	Feature	Description
1	1494946.3630	1084048.2644	180.358	CTL	REBAR+CAP
2	1494872.6410	1084709.0081	171.455	CTL	REBAR+CAP
3	1494775.3148	1085634.9687	172.940	CTL	REBAR+CAP
4	1494569.4215	1087082.7379	217.020	CTL	CPS
5	1494647.8155	1087465.4844	202.480	CTL	REBAR+CAP
6	1501298.8714	1097754.1592	227.435	CTL	REBAR+CAP
7	1501797.5296	1097934.6789	237.331	CTL	REBAR+CAP
8	1502385.5487	1098254.8488	224.306	CTL	REBAR+CAP
9	1502813.8049	1098925.0528	206.392	CTL	REBAR+CAP
10	1503016.8361	1099328.0522	207.231	CTL	REBAR+CAP
11	1503430.2099	1099776.8065	207.945	CTL	REBAR+CAP
12	1504229.3952	1100167.7506	245.129	CTL	CPS
700004A	1494915.8072	1084473.6031	174.328	GPS	RTK ELEV.
700024A	1505203.4132	1099342.9921	237.033	GPS	RTK ELEV.
700023	1495123.1455	1083414.0209	191.579	GPS	RTK ELEV
700024	1504702.6091	1100373.9468	245.184	GPS	RTK ELEC.
900	1511391.1691	1108737.9561	273.645	BM	USGS DISK ELDORADO 1934
901	1511488.9326	1109248.3844	283.861	BM	USGS DISK Z 121 1934
902	1511180.7622	1110011.0823	276.456	BM	USGS DISK Y 121 1934
903	1509782.9893	1107389.2386	265.064	BM	CHSL SQ CONC.WALL HILLSBORO ST.
904	1508054.1780	1106098.0269	246.325	BM	CHSL SQ SIDEWALK ROBERT E LEE ST.
905	1507115.2831	1103327.0718	221.504	BM	CHSL SQ HDWL ROBERT E. LEE ST.
906	1505327.0886	1100570.9430	232.305	BM	CHSL SQ HDWL ROBERT E. LEE&HWY 82
907	1504495.0410	1100230.0039	251.261	BM	CHSL SQ BR END HWY 15&82
908	1504470.8635	1100270.6379	251.282	BM	AHTD DISK BR.HWY 82
909	1503483.6030	1099715.3689	210.644	BM	CHSL SQ BASE RR CROSSING SIG.
910	1502886.9738	1099095.5512	206.706	BM	CHSL SQ HDWL HWY 15
911	1501980.5952	1097931.3426	232.787	BM	CHSL SQ SIGN BASE CHEMTURA SIGN
912	1499021.7115	1097187.6394	278.078	BM	CHSL SQ PUMP ISLAND
913	1497316.2550	1094720.0341	296.280	BM	CHSL SQ 24°RCP AT 2847 HWY 15
914	1497228.1883	1091600.3937	273.494	BM	CHSL SQ CON.PARKING
915	1496017.6943	1090105.0280	231.296	BM	CHSL SQ TELEPHONE BOX
916	1494905.3096	1087913.0566	183.651	BM	CHSLD SQ END CU
917	1494667.2234	1086018.9990	175.655	BM	CHSL SQ TOP 18°RCP
918	1494803.4011	1085283.2299	175.516	BM	CHSL SQ BR.END LOG 17.11

*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 1.0000176905 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.080273G1.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 - 0302-SOUTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 700004A, 700023, 700024, 700024A
CONVERGENCE ANGLE: 0-23-32.7 RIGHT AT LT: 33-11-02.42 LG: 092-42-04.45
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

CONST A

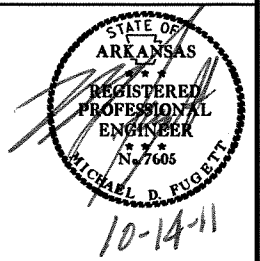
POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	100+00.00	1494929.6341	1084212.1337
8006	P.C.	104+57.49	1494821.5742	1084656.6813
8008	P.T.	109+26.81	1494738.9805	1085118.3770
8009	P.C.	119+42.81	1494621.8075	1086127.5905
8011	P.T.	126+43.47	1494583.7050	1086826.7821
8005	POE	130+02.20	1494586.1097	1087185.5022

EXISTING CENTERLINE B

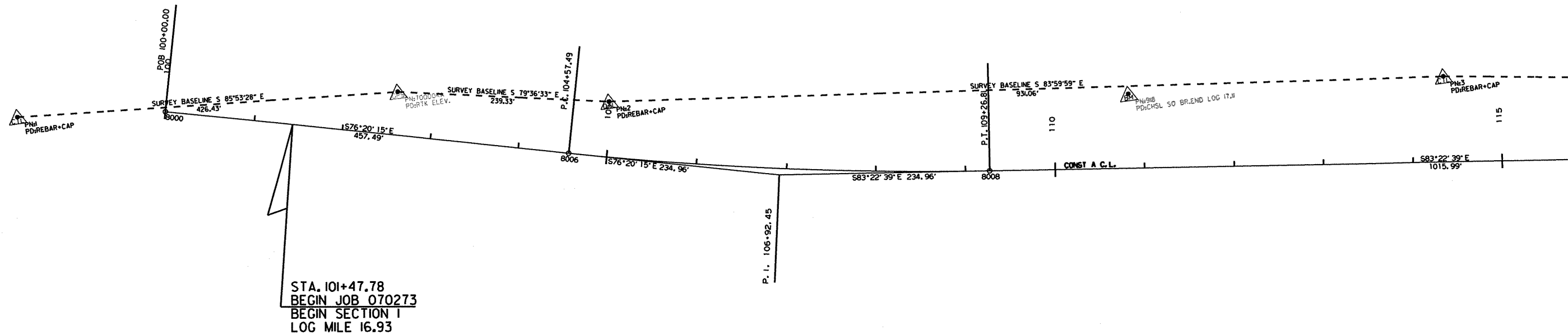
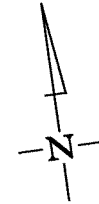
POINT NO.	TYPE	STATION	NORTHING	EASTING
8013	P.C.	500+00.00	1502291.5197	1098211.4581
8015	P.T.	507+18.52	1502726.3191	1098774.8595
8016	P.C.	511+14.05	1502886.7775	1099136.3786
8018	P.T.	518+86.86	1503398.7739	1099697.3982
8019	POE	521+97.29	1503669.8384	1099848.6771

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. 070273		21	81	

② SURVEY CONTROL DETAILS

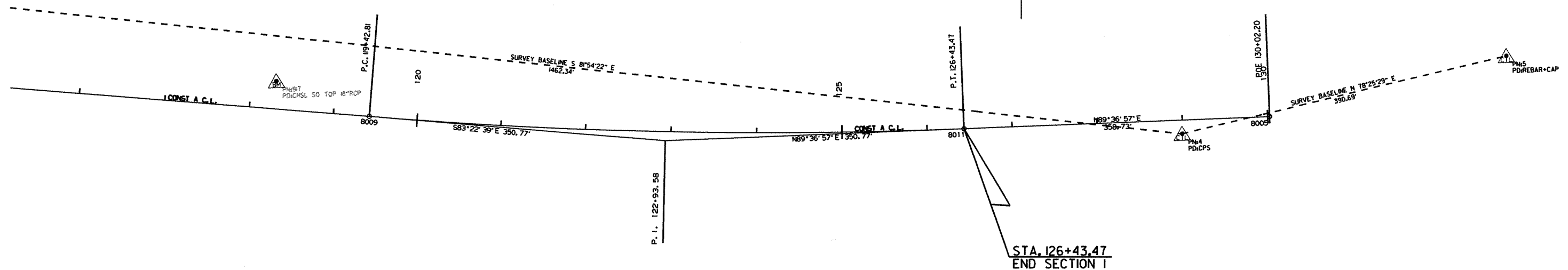


PI = 106+92.45
PC = 104+57.49
PT = 109+26.81
Δ = 7°02'23.3" LT.
D = 1°30'00.0"
T = 234.96'
L = 469.32'



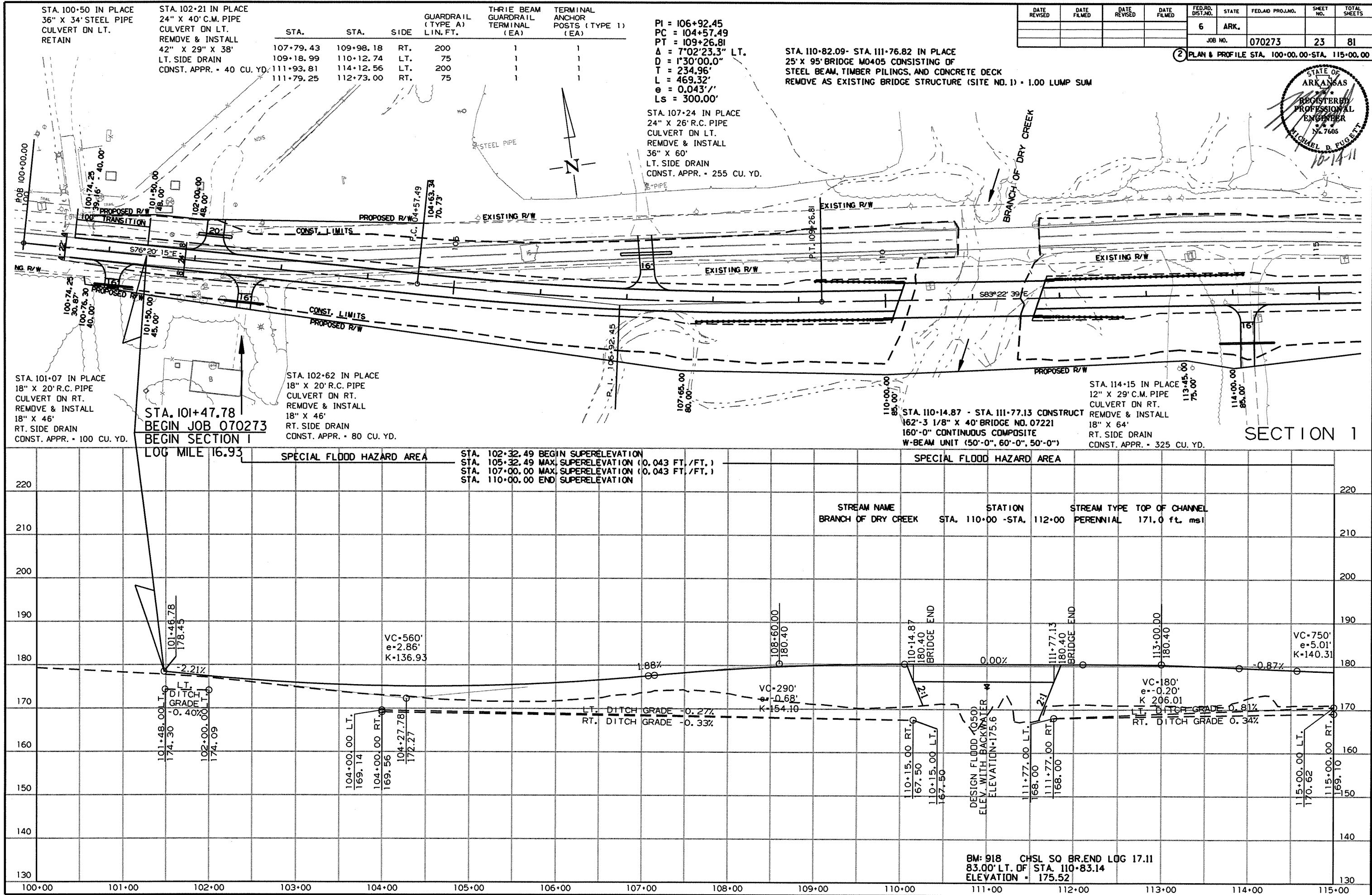
STA. 101+47.78
BEGIN JOB 070273
BEGIN SECTION I
LOG MILE 16.93

PI = 122+93.58
PC = 119+42.81
PT = 126+43.47
Δ = 7°00'24.0" LT.
D = 1°00'00.0"
T = 350.77'
L = 700.67'



STA. 126+43.47
END SECTION I

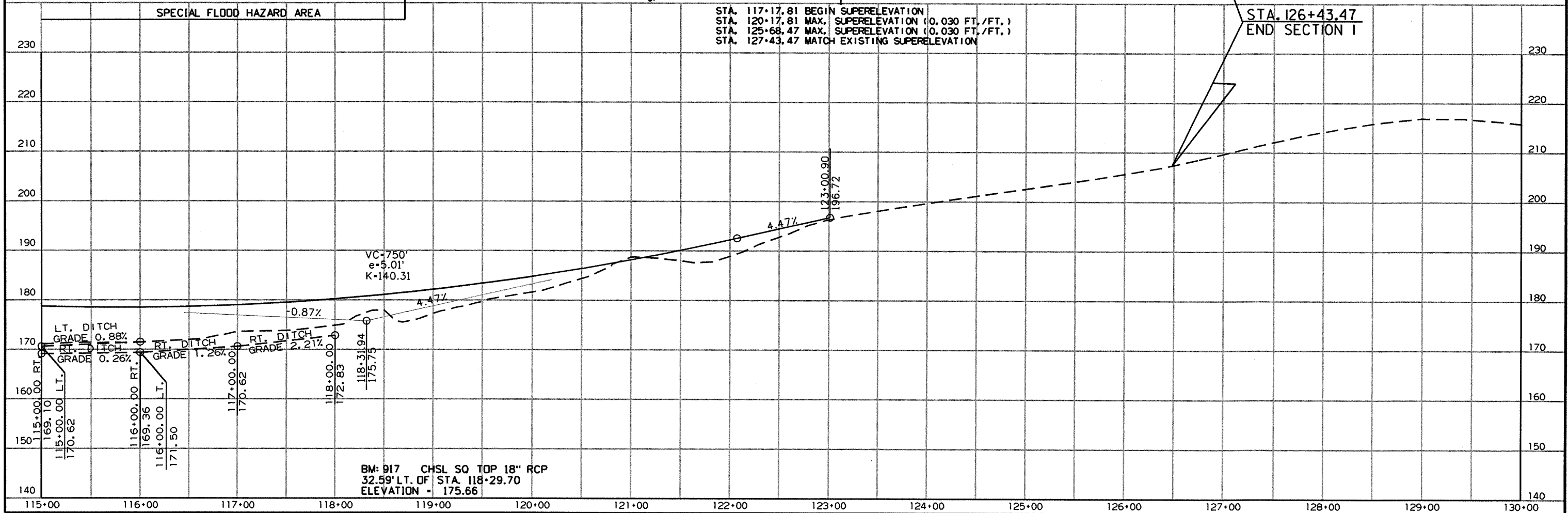
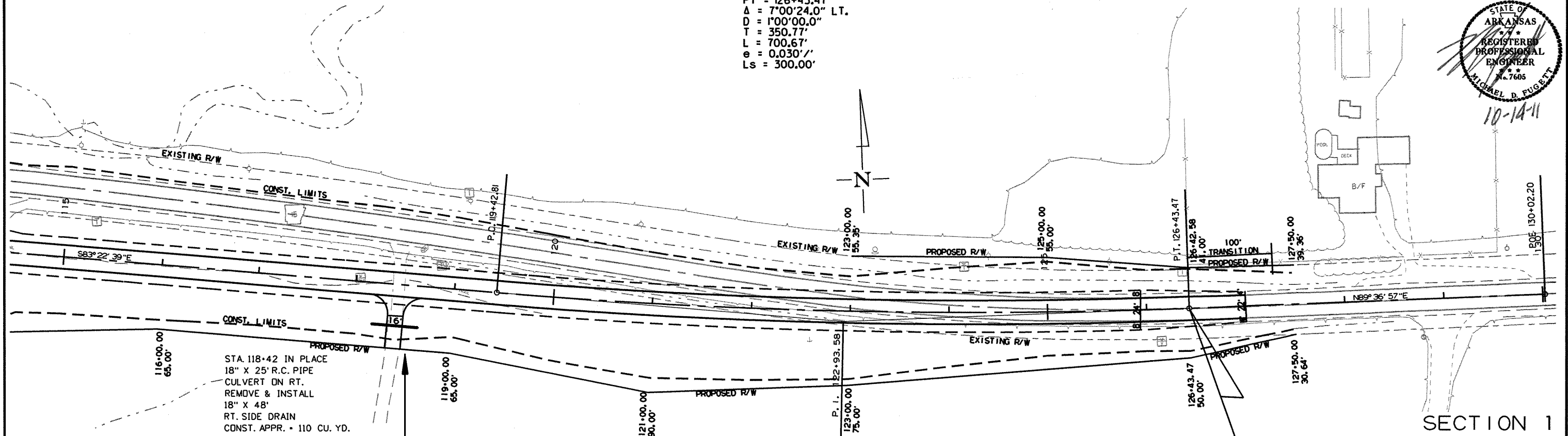
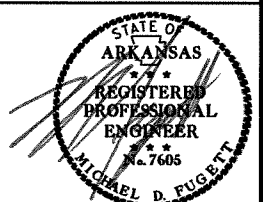
SURVEY CONTROL DETAILS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	070273		24	81

2 PLAN & PROFILE STA. 115+00.00-STA. 130+02.20

PI = 122+93.58
 PC = 119+42.81
 PT = 126+43.47
 Δ = 7°00'24.0" LT.
 D = 1°00'00.0"
 T = 350.77'
 L = 700.67'
 e = 0.030'/'
 Ls = 300.00'

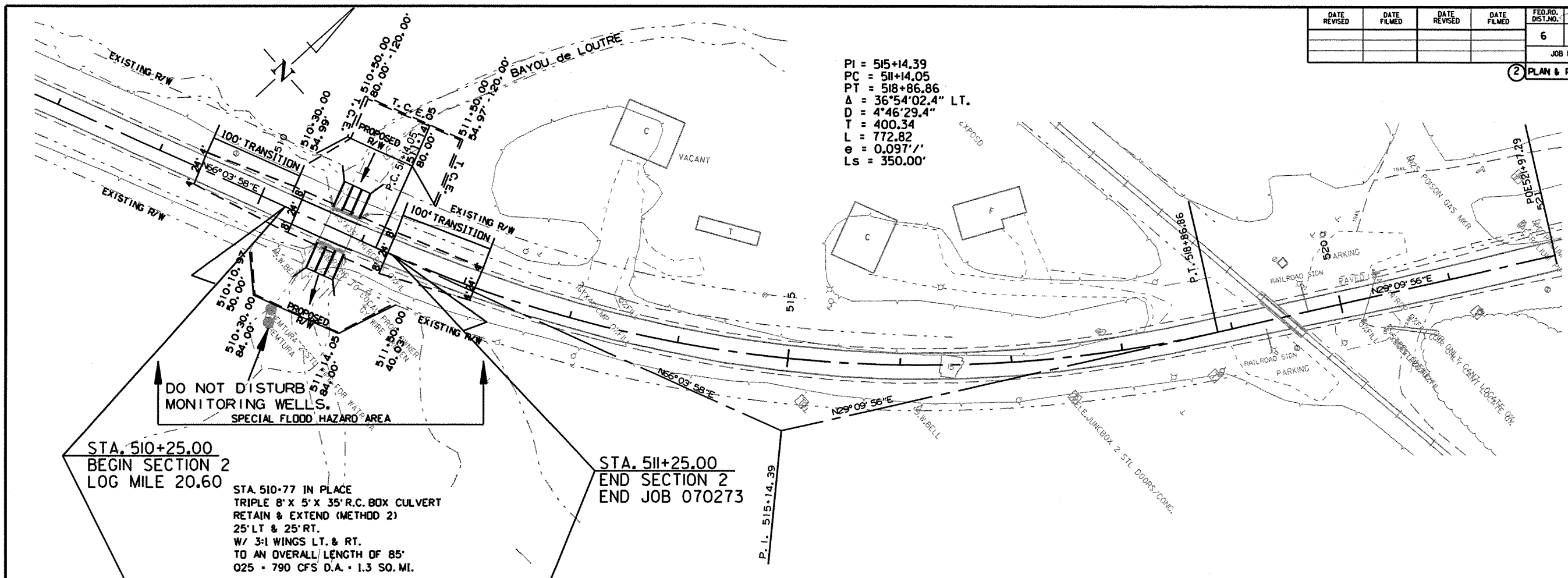


r070273.dgn 10/12/2011

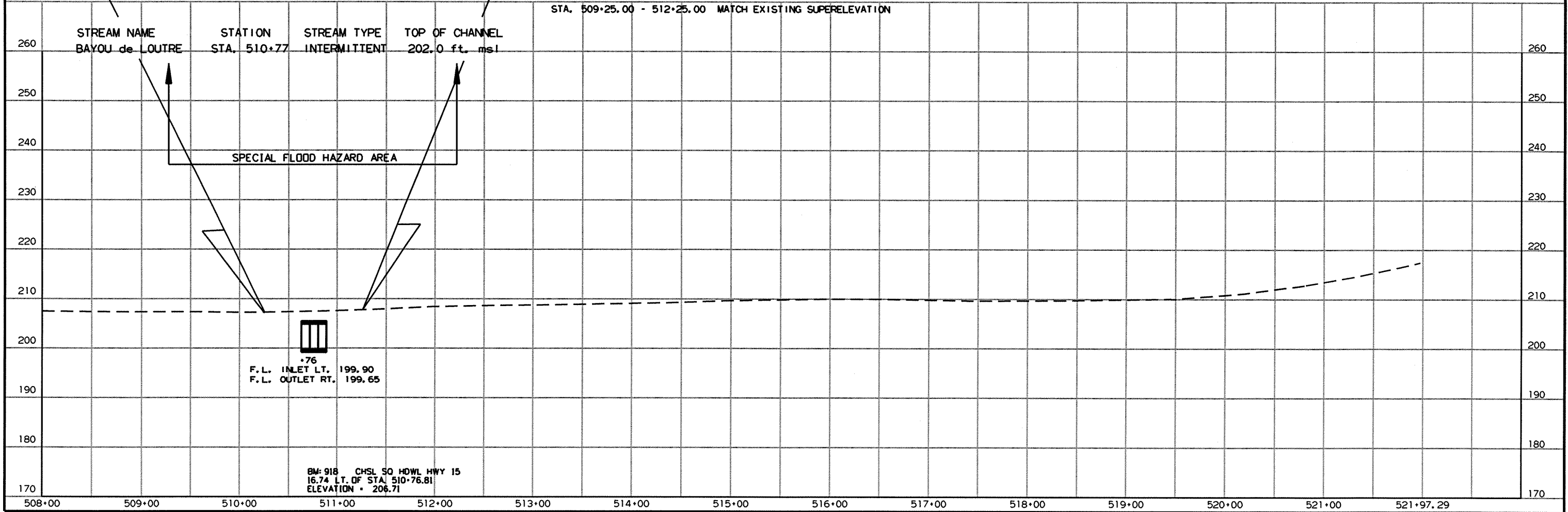
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	070273		25	81
2 PLAN & PROFILE STA. 508+00.00-STA. 521+97.29								



PI = 515+14.39
 PC = 511+14.05
 PT = 518+86.86
 Δ = 36°54'02.4" LT.
 D = 4°46'29.4"
 T = 400.34
 L = 772.82
 e = 0.097'/'
 Ls = 350.00'

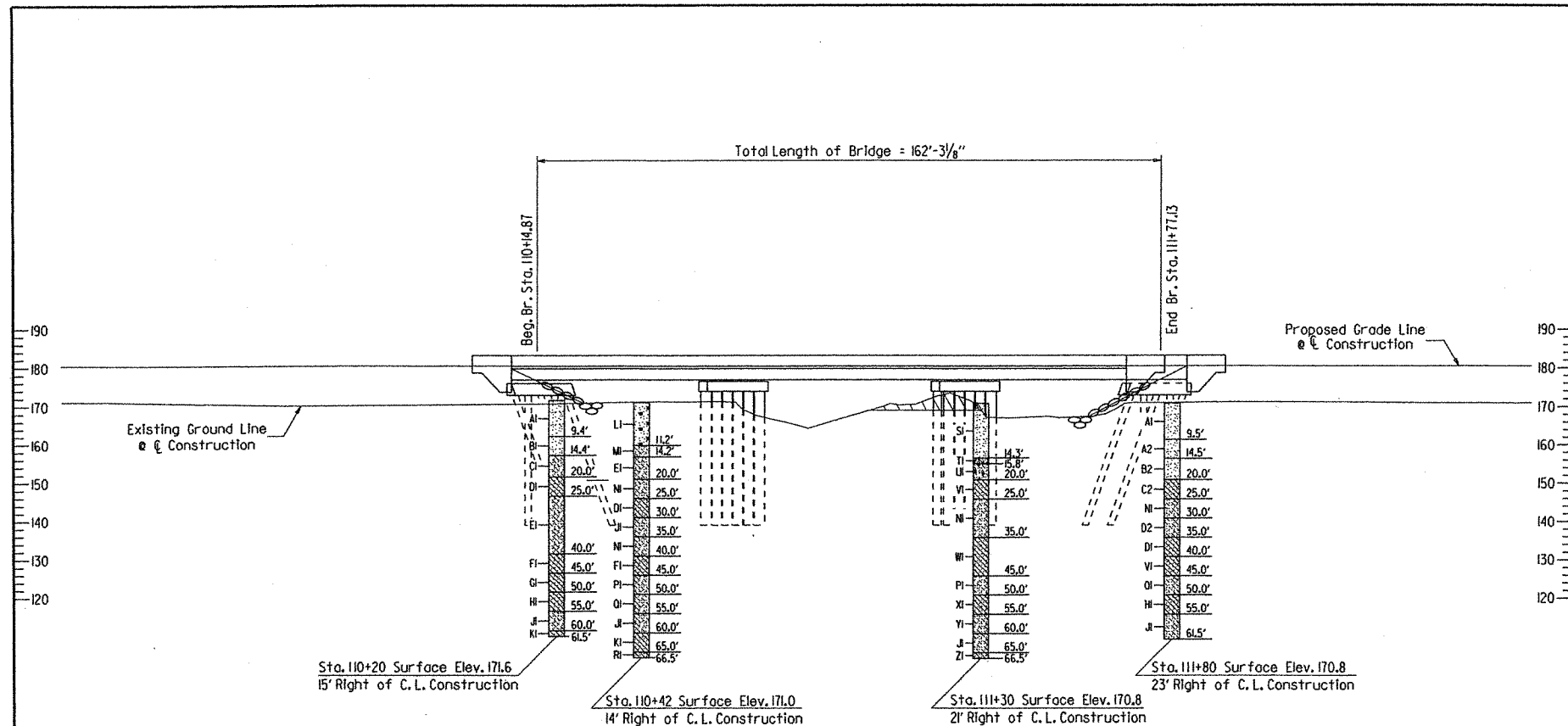


SECTION 2



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.		070273	27	81
				07221	- LAYOUT	-	52086	

①



BORING LEGEND

A1-Moist, Loose, Brown Sand with some Organic Matter
 B1-Wet, Medium Dense, Brown Sand with some Organic Matter
 C1-Wet, Medium Dense, Brown and Gray Sand with Clay and some Organic Matter
 D1-Moist, Very Stiff, Gray Sandy Clay
 E1-Moist, Medium Dense, Gray Sand with Clay
 F1-Moist, Very Stiff, Gray and Brown Clay with Sand
 G1-Moist, Very Hard, Gray and Brown Sandy Clay
 H1-Moist, Hard, Gray and Brown Sandy Clay
 J1-Moist, Dense, Gray Clayey Sand
 K1-Moist, Hard, Gray Sandy Clay
 L1-Moist, Loose, Brown Sand with Organic Matter (Wood)
 M1-Moist, Loose, Brown and Gray Sand with Clay
 N1-Moist, Medium Dense, Gray Clayey Sand
 P1-Moist, Very Dense, Gray and Brown Clayey Sand
 Q1-Moist, Dense, Gray and Brown Clayey Sand
 R1-Moist, Very Hard, Gray Sandy Clay with Cemented Sand Seams
 S1-Moist, Very Loose, Brown Sand with some Organic Matter
 T1-Moist, Dense to Medium Dense, Brown Sand with Clay, Organic Matter and Cemented Sand Seams
 U1-Moist, Medium Dense, Brown Sand with Clay and Organic Matter
 V1-Moist, Very Stiff, Gray and Brown Sandy Clay
 W1-Moist, Very Stiff, Gray to Gray and Brown Sandy Clay
 X1-Moist, Hard, Brown Sandy Clay
 Y1-Moist, Very Dense, Gray Clayey Sand
 Z1-Moist, Hard, Gray and Brown Sandy Clay with Cemented Sand Seams
 A2-Wet, Loose, Gray Sand with some Organic Matter
 B2-Wet, Medium Dense, Brown and Gray Sand with some Gravel and Organic Matter
 C2-Moist, Very Stiff Gray and Brown Sandy Clay
 D2-Moist, Medium Dense, Gray and Brown Clayey Sand

Bent No.

①

②

③

④

ELEVATION

"N" VALUES

Sta. 110+20 - 15' Right of C.L. of Construction

4.9- 5.9, N=6
 9.9- 10.9, N=11
 14.9- 15.9, N=20
 20.5- 21.5, N=20
 25.5- 26.5, N=24
 30.5- 31.5, N=28
 35.5- 36.5, N=27
 40.5- 41.5, N=27
 45.5- 46.5, N=72
 50.5- 51.5, N=34
 55.5- 56.5, N=47
 60.5- 61.5, N=34

Sta. 110+42 - 14' Right of C.L. of Construction

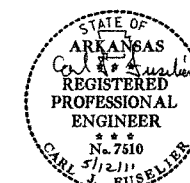
4.7- 5.7, N=8
 11.7- 12.7, N=9
 14.7- 15.7, N=22
 20.5- 21.5, N=19
 25.5- 26.5, N=23
 30.5- 31.5, N=32
 35.5- 36.5, N=27
 40.5- 41.5, N=22
 45.5- 46.5, N=62
 50.5- 51.5, N=34
 55.5- 56.5, N=42
 60.5- 61.5, N=33
 65.5- 66.5, N=113

Sta. 111+30 - 21' Right of C.L. of Construction

4.8- 5.8, N=4
 9.8- 10.8, N=6
 14.8- 15.8, N=21
 20.5- 21.5, N=21
 25.5- 26.5, N=23
 30.5- 31.5, N=26
 35.5- 36.5, N=27
 40.5- 41.5, N=24
 45.5- 46.5, N=55
 50.5- 51.5, N=38
 55.5- 56.5, N=52
 60.5- 61.5, N=44
 65.5- 66.5, N=45

Sta. 111+80 - 23' Right of C.L. of Construction

5.0- 6.0, N=7
 10.0- 11.0, N=6
 15.0- 16.0, N=12
 20.5- 21.5, N=20
 25.5- 26.5, N=21
 30.5- 31.5, N=28
 35.5- 36.5, N=29
 40.5- 41.5, N=29
 45.5- 46.5, N=35
 50.5- 51.5, N=38
 55.5- 56.5, N=45
 60.5- 61.5, N=43



BRIDGE ENGINEER

SHEET 2 OF 2
 LAYOUT OF BRIDGE OVER
 BRANCH OF DRY CREEK
 HWY. 335 - HWY. 82
 STRS. & APPRS.(S)
 UNION COUNTY

ROUTE 15 SEC. 1
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: CJR DATE: 7/1/10 FILENAME: b070273_11.dgn
 CHECKED BY: [Signature] DATE: 10-20-10 SCALE: 1" = 20'
 DESIGNED BY: [Signature] DATE: 6/10
 BRIDGE NO. 07221 DRAWING NO. 52086

①

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS	
B40I	4	43'-3"	Str.	Dimensions are out to out of bars.	
B50I	54	13'-2"	2 1/2"		
B502	24	9'-4"	2 1/2"		
B60I	7	44'-7"	4 1/2"		
B70I	8	43'-3"	Str.		

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

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

For additional information see layout.



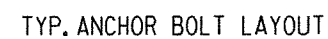
Scale: $\frac{3}{8}'' = 1'-0''$



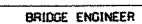
Scale: $\frac{3}{8}'' = 1'-0''$



Scale: $\frac{3}{4}'' = 1'-0''$



No Scale

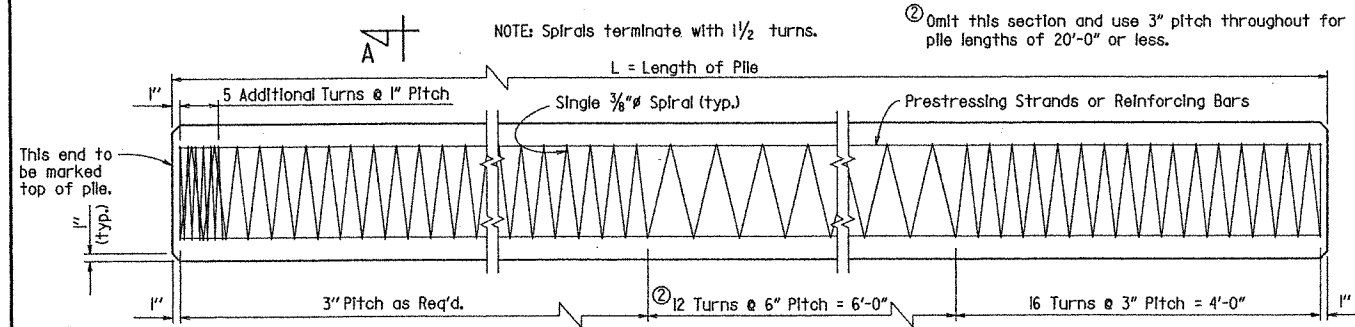


DRAWN BY: KDH DATE: 2-28-11 FILENAME: b070273.b2.dgn
 CHECKED BY: mcB DATE: 3/21/11 SCALE: AS NOTED
 DESIGNED BY: ph DATE: 12-10

BRIDGE NO. 07221

DRAWING NO. 52089

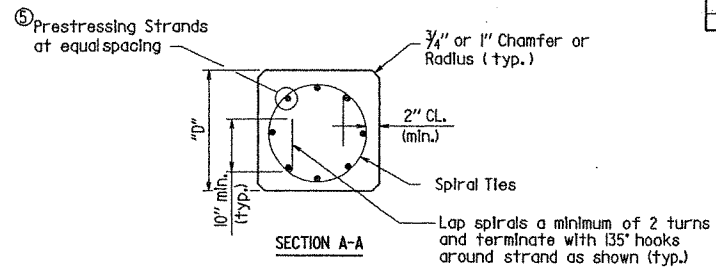
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070273	31	81
				07221	CONCRETE PILES			52090



PLAN OF PILE SHOWING SPIRAL TIE SPACING

For anchorage of pile to bent, see Bent Details.

NOTE: Strand location shall be symmetrical about the axis of the pile. Circular spiral ties are required for all piles.



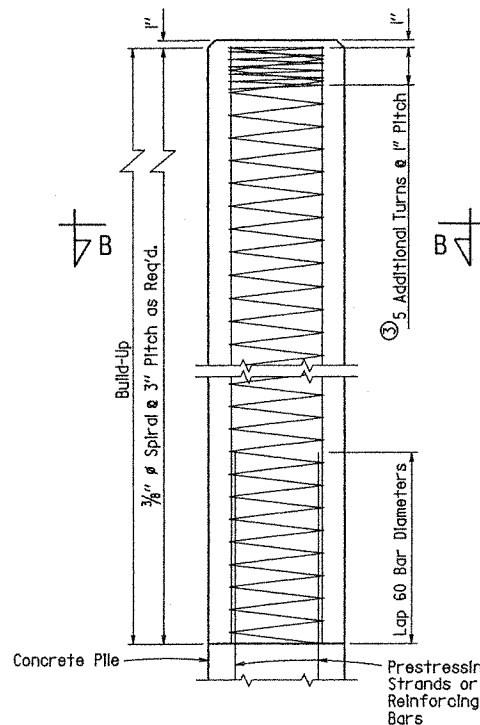
See table "Prestressed Concrete Pile Properties" for actual number of strands per pile size.

PRESTRESSED CONCRETE PILE PROPERTIES

	Grade	Strand Diameter	① No. of Strands per Size "d" 24" Sq.	Minimum Ultimate Tensile Strength Per Strand (Lbs.)	Initial Prestressing Force Per Strand (Lbs.)
Low Relaxation	250	7/16"	24	27,000	20,300
		1/2"	18	36,000	27,000
	270	7/16"	21	31,000	23,300
		1/2"	16	41,300	31,000

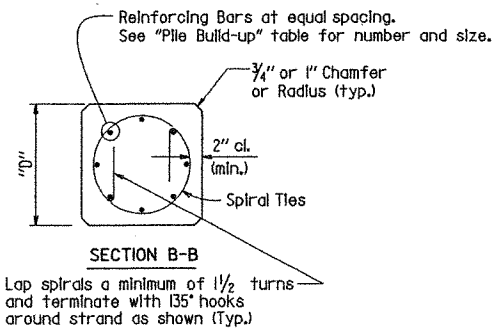
① Number based on initial pre-stress force of "B" x Ultimate Tensile Stress, Prestress Losses and min. 700 psi Unit Prestress on concrete after Losses.

"B" - 0.75 Low Relaxation



BUILD-UP

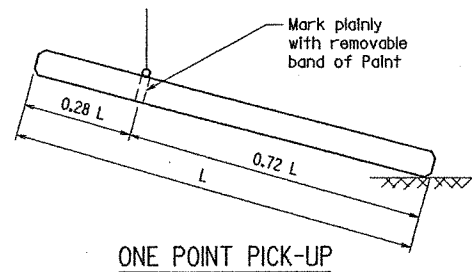
③ The five additional turns of spiral reinforcing may be omitted for build-up without additional driving.



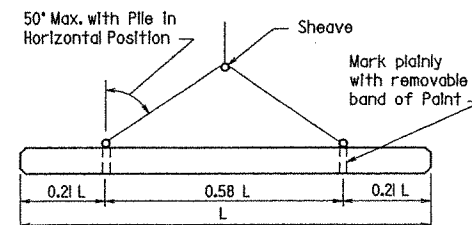
BUILD-UP PILE REINFORCING

Pile Size	No. Req'd.	Bar Size
24" Sq.	12	# 9

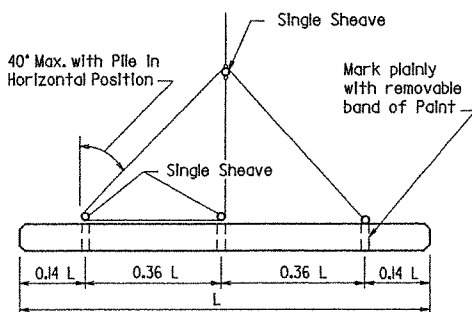
PILE BUILD-UP



ONE POINT PICK-UP



TWO POINT PICK-UP



THREE POINT PICK-UP

MAXIMUM PICKUP LENGTHS "L"

Type of Pick-Up	Prestressed 24" Sq.
One Point	69'
Two Point	104'
Three Point	138'

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, Fourth Edition.

SEISMIC PERFORMANCE ZONES: 1 & 2

The Contractor shall use prestressed piles ONLY. Piles will be measured and paid for at the contract unit price bid for "Concrete Piling".

CONCRETE: Concrete in prestressed piles shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 5,000 psi at 28 days. Compressive strength at transfer of the prestressing force shall be not less than 4,000 psi. Concrete in build-ups shall have a minimum compressive strength of 4,000 psi and shall be cured for a minimum of 10 days.

COARSE AGGREGATE: Maximum size of coarse aggregate shall be 3/4".

PRESTRESSING REINFORCING: Seven-wire low relaxation strands shall conform to the general requirements of AASHTO M 203. Broken wires within individual strands will be permitted up to 2% of the total number of wires in each pile, providing that there is not more than one broken wire per strand. Two or more broken wires per strand will be cause for replacement of the strand, even though the two broken wires are within the 2% limitation.

SPIRAL REINFORCING: Spiral reinforcing shall be steel wire meeting the requirements of AASHTO M 32 or M 225 or shall be plain round steel bars meeting the requirements of AASHTO M 31 or M 53, Gr. 60.

REINFORCING STEEL: Reinforcing Steel for pile build-up shall conform to AASHTO M 31 or M 53.

MANUFACTURE, TRANSPORTATION AND STORAGE: Shipment of piles from the plant site or pile driving will not be permitted until the required minimum compressive strength is reached, and in no case less than 10 days after pouring the concrete. Prestressed piles may be removed from the casting bed to nearby storage any time after transfer of stress. See Section 802 "Concrete for Structures" of the Standard Specifications for additional information.

Unless otherwise approved by the Engineer, all protruding or exposed pile lifting or transporting devices above the finished ground shall be removed after pile driving is complete. Removal shall be a minimum of 1" below the surface of the pile and the cavity shall be filled with a non-shrink grout listed on the Department's QPL.

FORMS: For forming exterior of piles, the use of steel forms on concrete-founded casting beds is required unless otherwise approved by the Engineer. Side forms may have a maximum drift on each side not exceeding 1/4" per foot.

TOLERANCES: Pile ends shall be plane surfaces perpendicular to the longitudinal axis of pile with a maximum tolerance of 1/8" per foot transversely.

The maximum sweep (deviation from straightness measured from end to end of the pile, while not subject to bending forces) shall not exceed 1/8" in 10 feet.

BUILD-UPS: To provide for build-ups of piles where authorized by the Engineer, concrete shall be cut back to expose the reinforcing steel for a distance sufficient to provide a lap of 60 diameters of the reinforcing bars required for build-up.

INSTALLATION, MEASUREMENT AND PAYMENT: See Section 805 "Piling" of the Standard Specifications.



BRIDGE ENGINEER

DETAILS OF 24" SQUARE PRESTRESSED CONCRETE PILES DRY CREEK

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

DRAWN BY: MCB DATE: 05/05/11 FILENAME: b070273_pilling.dgn
CHECKED BY: CRE DATE: 5-10-11 SCALE: No Scale
DESIGNED BY: Std. DATE:
BRIDGE NO. 07221 DRAWING NO. 52090

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.		070273	32	81
						07221- 160 FT. UNIT		52091

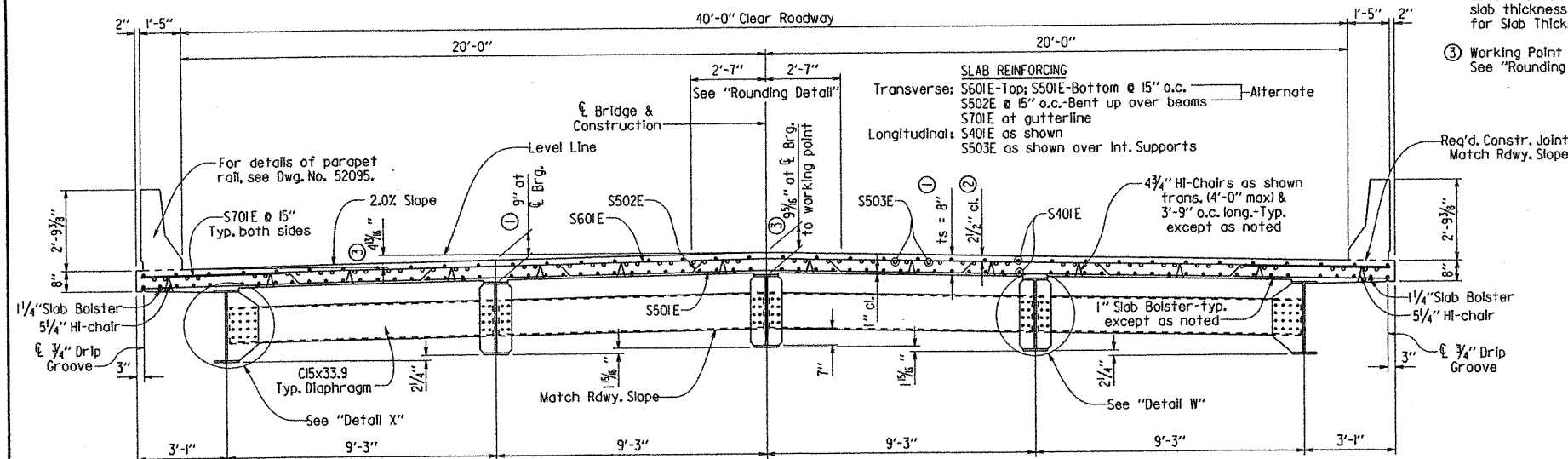
NOTE: Class I Protective Surface Treatment shall be applied to the Roadway Surface and to the Face & Top of the Concrete Parapet Rail.

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

① See "Adjustment for Slab Thickness Tolerance"

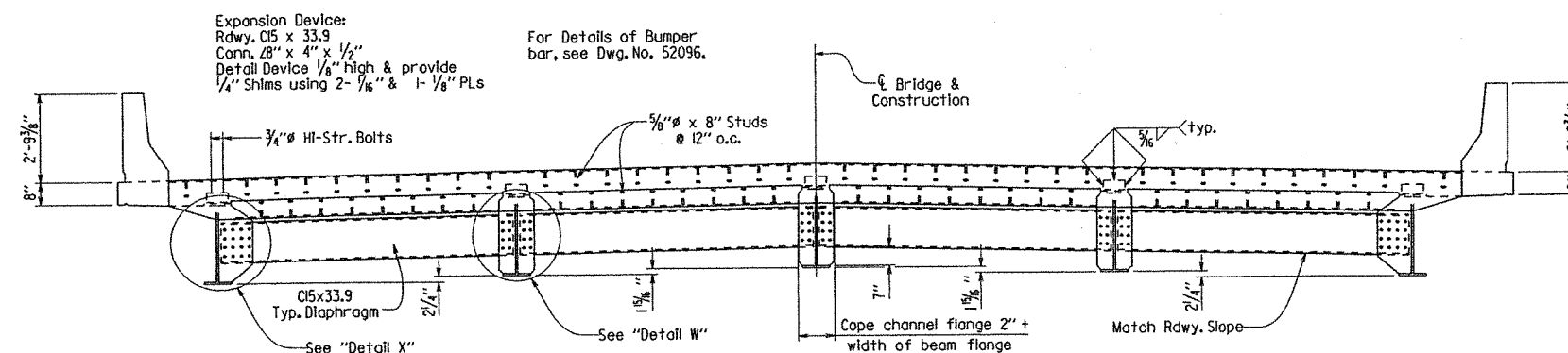
② Tolerance: Minus = $\frac{1}{4}$ "; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".

③ Working Point to Gutterline See "Rounding Detail"



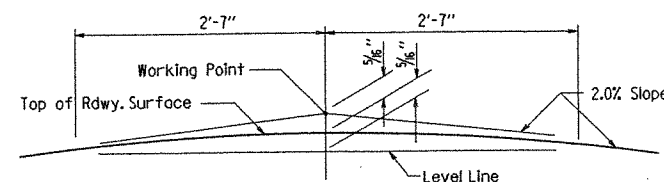
TYPICAL ROADWAY SECTION

Scale: $\frac{3}{8}$ " = 1'-0"



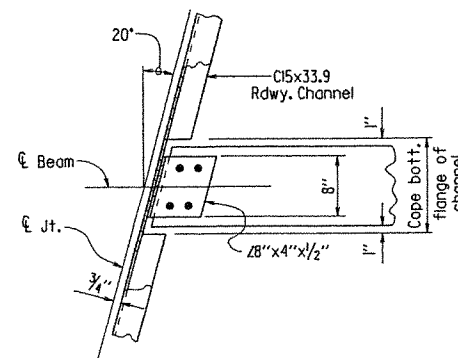
TYPICAL SECTION THRU JOINT

Scale: $\frac{3}{8}$ " = 1'-0"



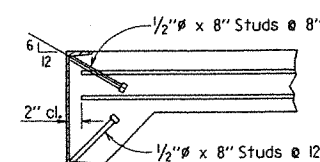
ROUNDING DETAIL

No Scale



CHANNEL CONNECTION DETAIL

No Scale

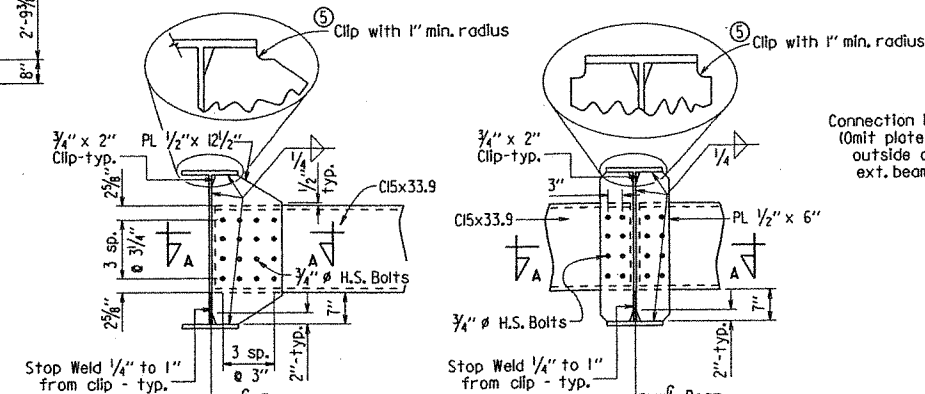


Note: As an alternate to $\frac{5}{8}$ " studs, $\frac{1}{2}$ " x 8" studs spaced as shown may be used. Use weight of $\frac{5}{8}$ " stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS

No Scale

⑤ If permanent steel bridge deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form support.



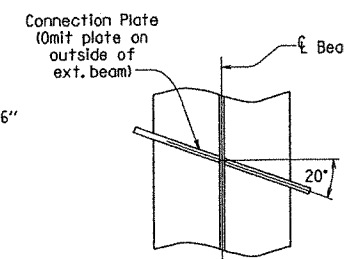
DETAIL X

No Scale

DETAIL W

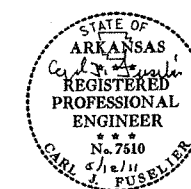
No Scale

Note: Bolts in connections shall be properly installed and tightened in accordance with subsection 807.71.



SECTION A-A

No Scale



BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF 160' CONTINUOUS
COMPOSITE W-BEAM UNIT
DRY CREEK

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 12-13-10 FILENAME: b070273-sll.dgn

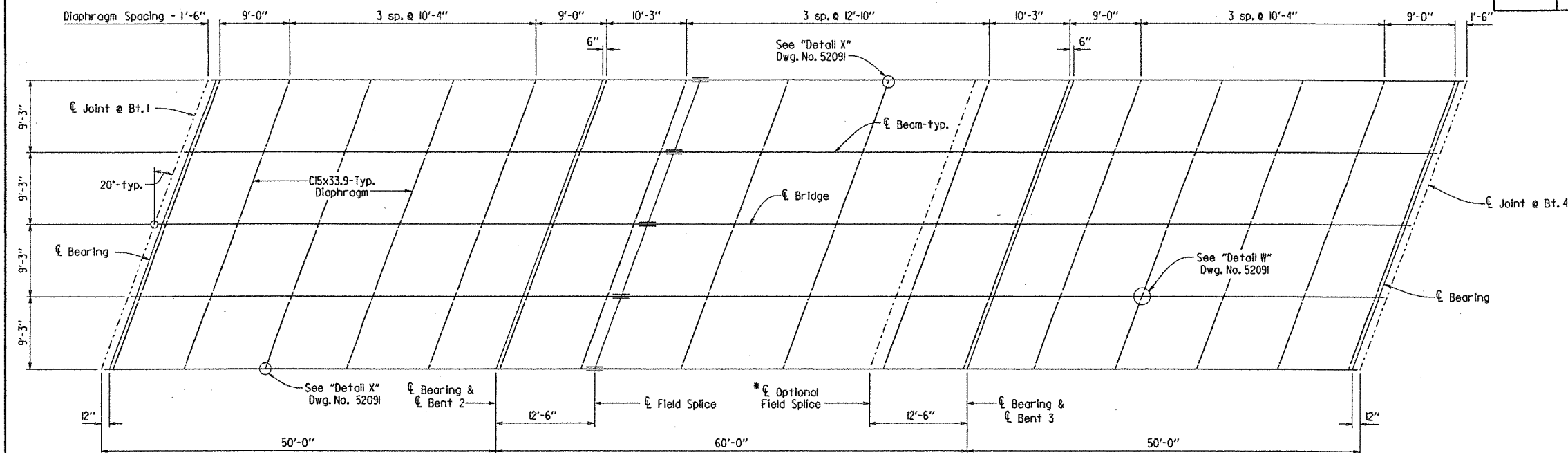
CHECKED BY: MCB DATE: 2/11/11 SCALE: AS NOTED

DESIGNED BY: CJK DATE: 11/10

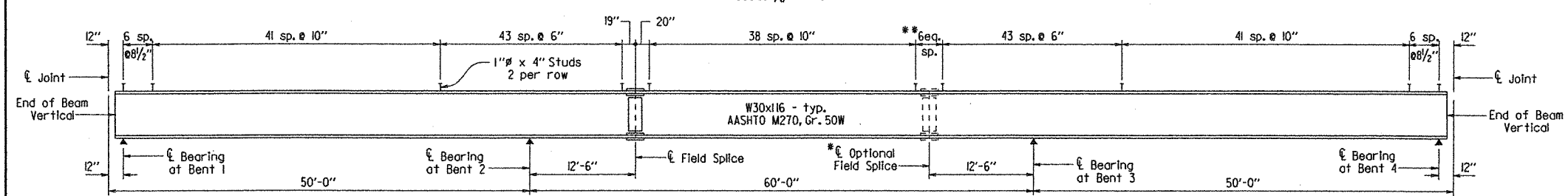
BRIDGE NO. 07221

DRAWING NO. 52091

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.		070273	33	81
				07221 -	160 FT. UNIT	-	52092	



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

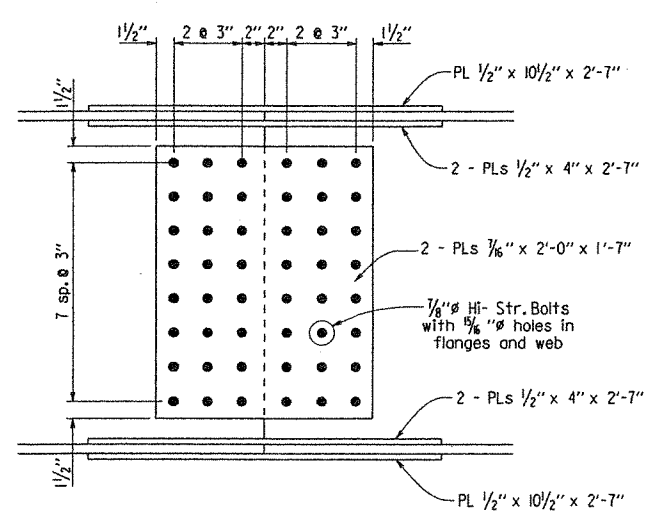


BEAM ELEVATION
Scale: 1/8" = 1'-0"

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

* At the Contractor's option, a field splice may be provided at this location. No additional payment will be made for the optional field splice.

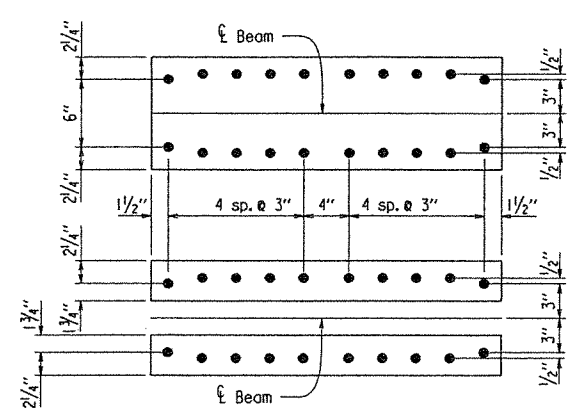
** If the optional field splice is used eliminate the shear connectors at this location.



WEB SPlice

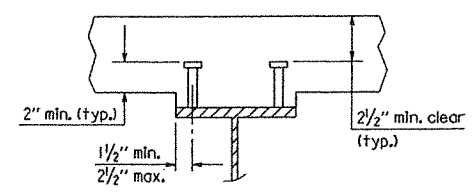
Note: All splice plates shall be AASHTO M270, Gr. 50W

FIELD SPlice DETAIL
Scale: 1/2" = 1'-0"



FLANGE SPlice

Stud Shear Connectors shown shall be 1" 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. Maximum stud spacing = 24".

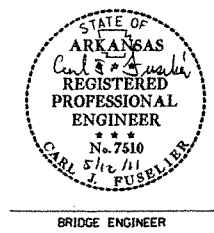


SHEAR CONNECTOR DETAIL
No Scale

TABLE FOR WELD

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To 3/4" Inclusive	1/4"	
Over 3/4"	3/8"	

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.



SHEET 2 OF 5
DETAILS OF 160' CONTINUOUS
COMPOSITE W-BEAM UNIT
DRY CREEK

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

DRAWN BY: KDH DATE: 12-14-10 FILENAME: b070273_sl2.dgn
CHECKED BY: MCB DATE: 2/11/11 SCALE: AS NOTED
DESIGNED BY: CJP DATE: 11/10
BRIDGE NO. 07221 DRAWING NO. 52092

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).

MATERIALS AND STRENGTHS

Class (S/AE) Concrete $f'_c = 4,000$ psi.
Reinforcing Steel (AASHTO M31 or M53, Gr. 60) $f_y = 60,000$ psi.
Structural Steel (AASHTO M 270, Gr. 50W) $F_y = 50,000$ psi.
Structural Steel (AASHTO M 270, Gr. 36) $F_y = 36,000$ psi.

CONCRETE: Concrete shall be poured in the dry and all exposed corners to be chamfered $\frac{3}{4}$ " unless otherwise noted. All concrete shall be Class (S/AE) with a minimum 28 day compressive strength $f'_c = 4,000$ psi.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class (S/AE) Concrete. See Standard Drawing No. 14991 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

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 deck shall be given a fine finish in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future dead load deflection due to the rolling. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet rolling.

REINFORCING STEEL: All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL: Structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with subsection 807.84(e) unless otherwise noted. Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36 unless otherwise noted.

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

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes and materials shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

Beams and field 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)".

All beams shall be blocked in their true position in the shop with webs horizontal in groups as specified in subsection 807.54(b)(2). The camber, length of sections, distance between bearings and openings of joints shall be measured with the beams in their true position and this information shall become part of the permanent records for this job. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of $\frac{1}{4}$ " +/- is allowed for camber.

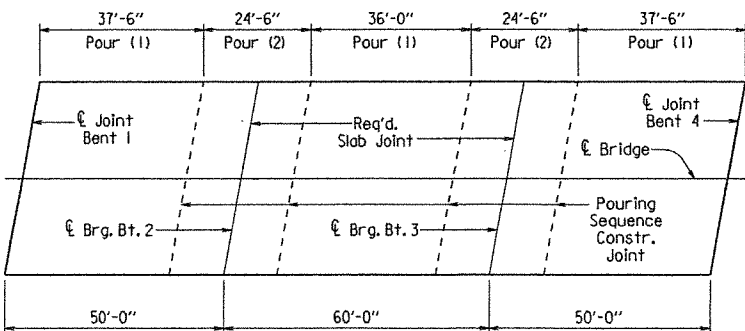
Flange field splice plates shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching falsework support devices or screed roll 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.

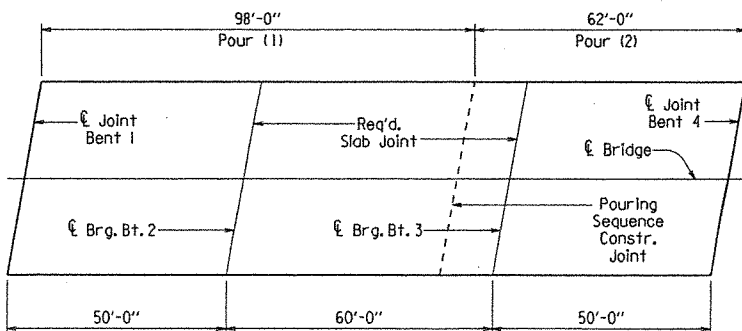
Field connections shall be bolted with high-strength bolts and shall be $\frac{3}{4}$ " bolts unless otherwise noted. Open holes shall be $\frac{1}{8}$ " unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges. Holes for $\frac{3}{4}$ " high-strength bolts may be $\frac{1}{2}$ " diameter if a washer is supplied for use under both the nut and head of the bolt.

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.

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



ALTERNATE NO. 1



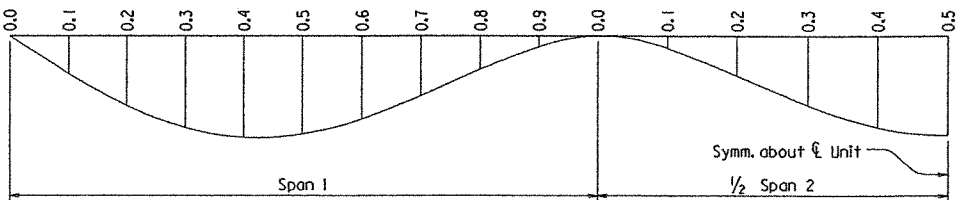
ALTERNATE NO. 2

No Scale

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel	Structural Steel + Slab	Structural Steel + Slab + Parapet
Span 1	0	0	0	0
	0.1	0.022	0.153	0.163
	0.2	0.040	0.282	0.300
	0.3	0.053	0.370	0.393
	0.4	0.058	0.407	0.433
	0.5	0.056	0.393	0.418
	0.6	0.048	0.333	0.354
	0.7	0.034	0.238	0.253
	0.8	0.019	0.131	0.139
	0.9	0.006	0.040	0.043
1/2 Span 2	0	0	0	0
	0.1	0.008	0.057	0.061
	0.2	0.026	0.180	0.191
	0.3	0.044	0.310	0.330
	0.4	0.058	0.406	0.432
	0.5	0.063	0.440	0.468

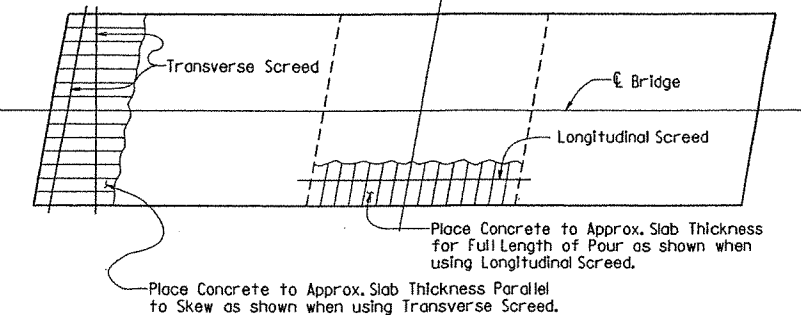
Symm. about C Unit



DEAD LOAD DEFLECTIONS DIAGRAM

Note:
Camber for Dead Load Deflection plus Vertical curve $\pm \frac{1}{4}$ " tolerance.
Deflections shown are from a chord from C Bearing to C Bearing.

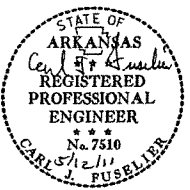
Note: At the Contractor's Option, the Transverse Screed may be placed parallel to the skew or perpendicular to C Bridge.



CONCRETE PLACEMENT PROCEDURE

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 rolling pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.



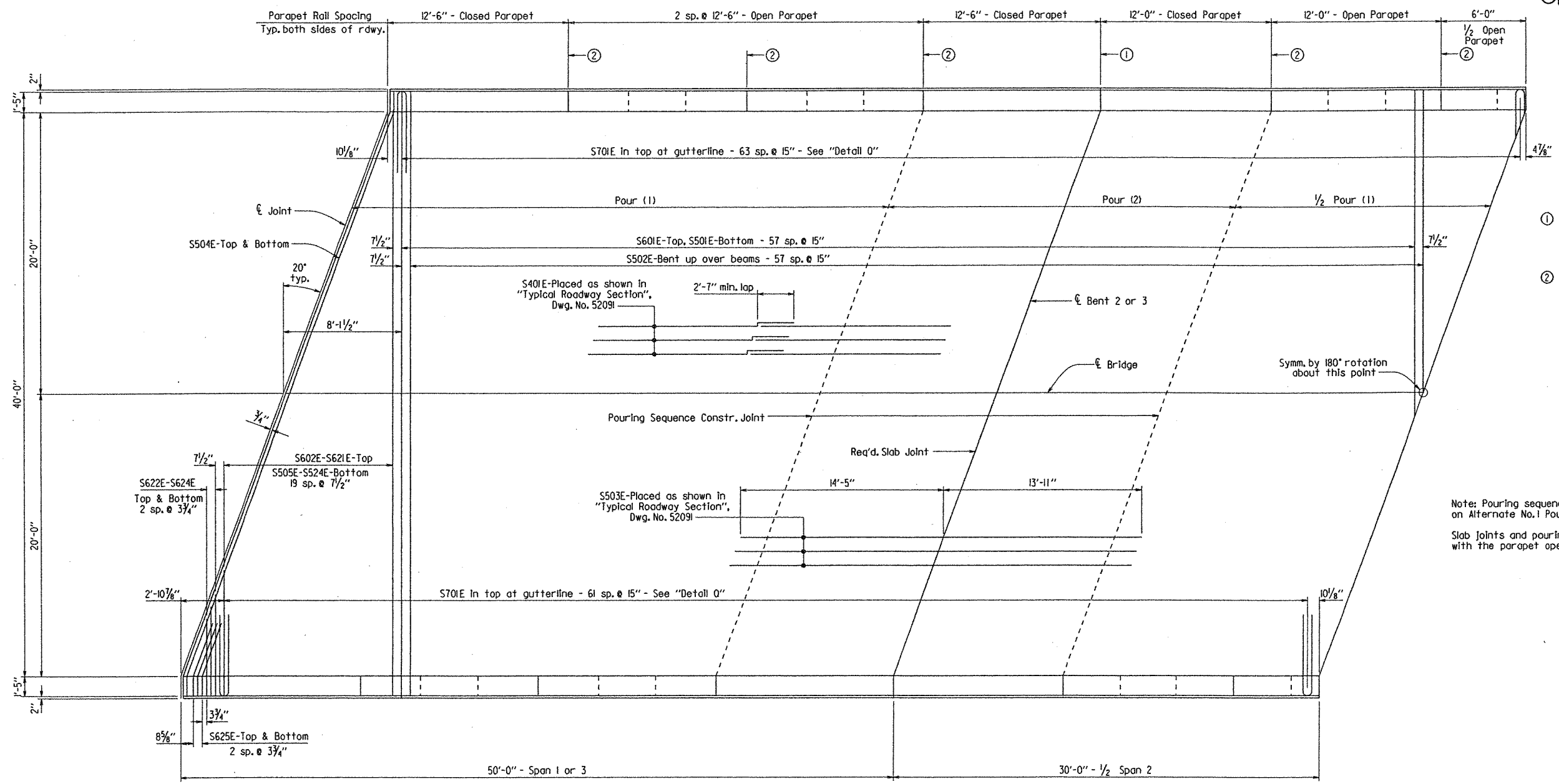
BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF 160' CONTINUOUS
COMPOSITE W-BEAM UNIT
DRY CREEK

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

DRAWN BY: KDH DATE: 12-16-10 FILENAME: b070273-sl3.dgn
CHECKED BY: mcb DATE: 3/4/11 SCALE: AS NOTED
DESIGNED BY: CJP DATE: 1/10
BRIDGE NO. 07221 DRAWING NO. 52093

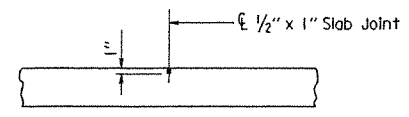
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070273	35	81
						07221 - 160 FT. UNIT		- 52094



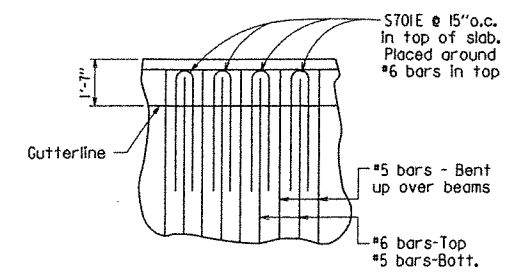
- ① Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab. Typ. both sides of Rdwy.
- ② Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab. Typ. both sides of Rdwy.

Note: Pouring sequence joints shown are based on Alternate No. 1 Pouring Sequence. See Dwg. No. 52093.
Slab joints and pouring sequence joints shall align with the parapet open joints.

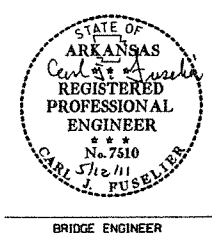
Use Type 3, 4, or 6 Joint Sealer. See subsections 501.02 (h) and 501.05 (j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck slab (gutterline to gutterline). Slab joints shall align with parapet open joints.



SLAB JOINT DETAIL
No Scale



DETAIL 0
No Scale



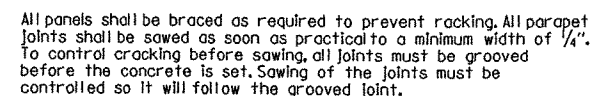
SHEET 4 OF 5
DETAILS OF 160' CONTINUOUS
COMPOSITE W-BEAM UNIT
DRY CREEK

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

DRAWN BY: KDH DATE: 12-21-10 FILENAME: b070273_sl4.dgn
CHECKED BY: mcb DATE: 3/11/11 SCALE: AS NOTED
DESIGNED BY: CJP DATE: 11/10
BRIDGE NO. 07221 DRAWING NO. 52094

Figure 1: Typical Section of Parapet Wall. The diagram illustrates a cross-section of a parapet wall with a total span length. The wall is divided into three main sections: "A" - Closed Parapet on the left and right, and "C" - Open Parapet in the center. Section "A" includes a 3-inch thick top layer with P401E & P501E reinforcement bars spaced at 6 inches maximum. Section "C" includes a 6-inch thick top layer with P401E & P501E reinforcement bars spaced at 6 inches maximum. The wall is supported by a foundation with P403E reinforcement bars. The diagram also shows a "D" section for the "E" Drain and a "B" section for the "F" eq. spaces. The total span length is indicated at the bottom.

② 1/4" Partial-Depth Parapet Joint (1/4" to 1" max.) as shown in "Half-Reinforcing Plan", Dwg. No. 52094. Stop 1'-2" from top of slab.



The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

No Scale

"A"	"B"	P4xx Bar	"C"	"D"	"E"	"F"	"G"	P4xx Bar
Closed Parapet			Open Parapet					
I2'-6"	24	P404E	I2'-6"	4'-3"	4'-0"	8	7	P404E
I2'-0"	23	P405E	I2'-0"	4'-0"	4'-0"	7	7	P405E

Note: For location of Open and Closed Parapet panels, see "Half-Reinforcing Plan", Dwg. No. 52094.

BENDING DIAGRAMS

Dimensions are out to out of bars.

S501E: 3" p.d., 2'-7 1/2", 12 3/4", 1'-3", 12 3/4", 1'-7 1/2", 1'-4", 5'-9", 8 1/2".

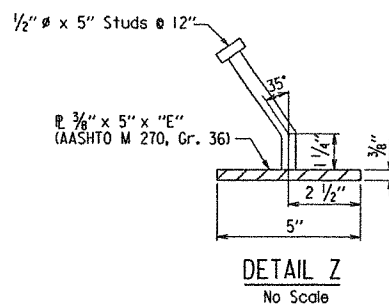
S701E: 3" p.d., 2'-7 1/2", 12 3/4", 1'-3", 12 3/4", 1'-7 1/2", 1'-4", 5'-9", 8 1/2".

S504E: 1'-5", 42'-7", 1'-5", 14 3/8".

S625E: 1'-5", 4'-0", 14 3/8".

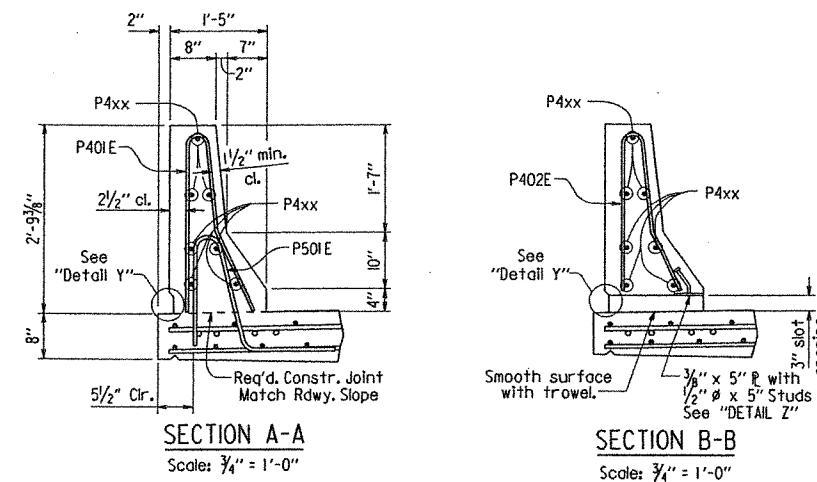
S502E: 5'-2 3/4", 4'-7 1/2", 4'-7 1/2", 4'-7 1/2", 2'-3 3/4", 4 1/2", 2 1/4", 4" min., 1/2" over tolerance, No Under tolerance, Symm. about center line.

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

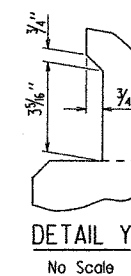


Note:
The surfaces of the $\frac{3}{8}$ " plates which will not be in contact with concrete shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M270, Gr. 50W)." 10

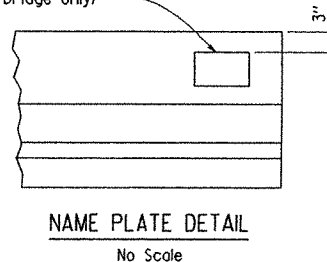
Parapet studs shall be 5" long, granular flux filled, solid fluxed or equal, and automatically end welded to the plate. Studs and plates shall meet the requirements of Section 807 and shall be measured and paid for as "Structural Steel In Beam Spans (W270, Gr. 50W)."



SECTION B-B
Scale: $\frac{3}{4}" = 1'-0"$



Place Type D Bridge Name Plate
on right parapet rail approx.
2'-0" from front face of backwall.
(Beg. of bridge only)



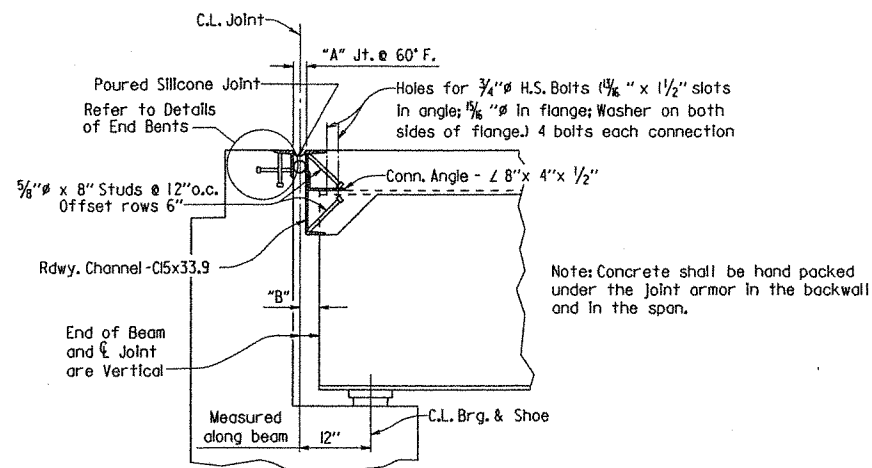
STATE OF
ARKANSAS
Carl J. Fuselier
REGISTERED
PROFESSIONAL
ENGINEER

No. 7510
5/12/11
CARL J. FUSELIER

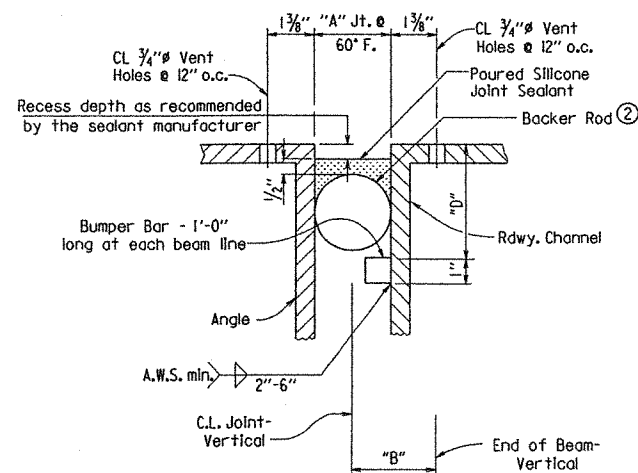
BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF 160' CONTINUOUS
COMPOSITE W-BEAM UNIT
DRY CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: KDH DATE: 12-22-10 FILENAME: b070273.sis
CHECKED BY: mcn DATE: 3/11/11 SCALE: AS NOTED
DESIGNED BY: CRK DATE: 1/10
BRIDGE NO. 07221 DRAWING NO. 52095

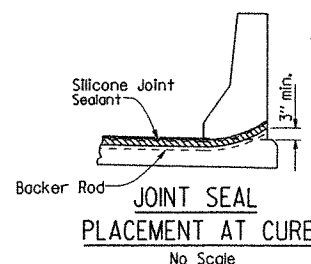
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				6	ARK.			
				JOB NO.		070273	37	81
						07221 - JOINTS	-	52096



SECTION THRU JOINT AT BENTS 1 & 4
No Scale



DETAIL OF POURED SILICONE JOINT SEAL
No Scale



JOINT SEAL
PLACEMENT AT CURB
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 Bar Size	"D"
	40°F	60°F	80°F			
1 & 4	1 5/8"	1 1/2"	1 3/8"	2" ±	1" x 3/4"	4"

- (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.

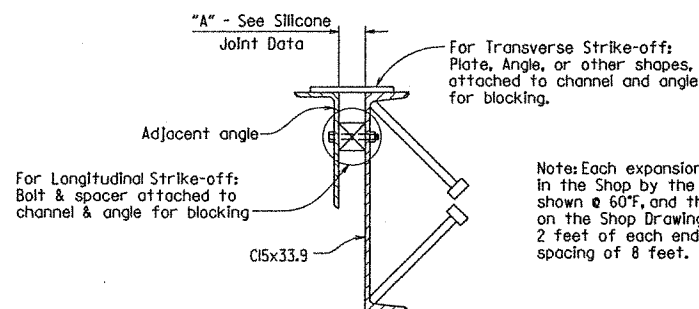
The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80°F.

- (2) 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.

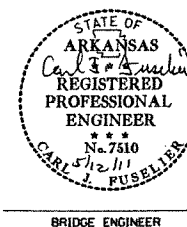


DETAILS FOR BLOCKING EXPANSION JOINT DEVICE
No Scale

EXPANSION DEVICE INSTALLATION AT END BENTS

The Contractor may elect to install the expansion device for the end bents 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. Backfill shall not be placed behind the backwall until the deck concrete on the adjacent span has been placed.

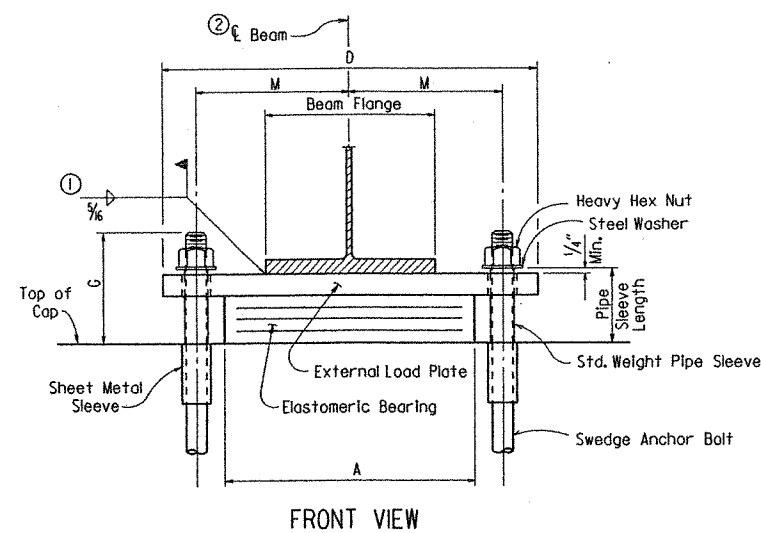


BRIDGE ENGINEER

DETAILS OF JOINTS
DRY CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: KDH DATE: 12-22-10 FILENAME: b070273-jt1.dgn
CHECKED BY: mcb DATE: 2/14/11 SCALE: AS NOTED
DESIGNED BY: CBF DATE: 11/10
BRIDGE NO. 07221 DRAWING NO. 52096

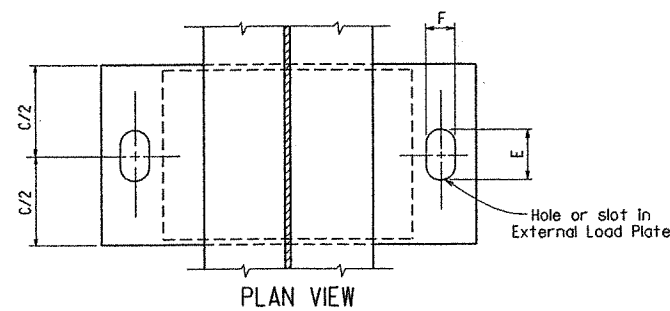
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		070273	38	81

07221 - ELASTO. BRGS. - 52097

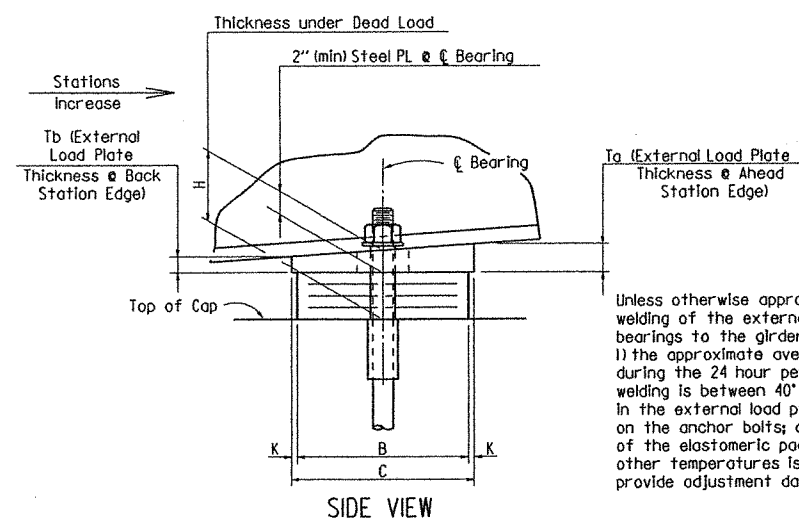


FRONT VIEW

- ① Care shall be taken to ensure that the external load plate is in full and complete contact with the beam flange before welding begins.
- ② Elastomeric Bearing shall be aligned with $\bar{C}$ Beam.

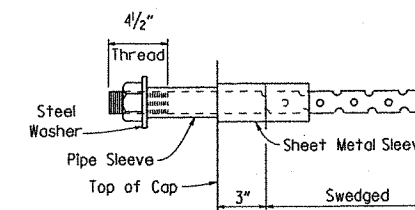


PLAN VIEW



SIDE VIEW

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.



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 OPL 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 (M270, 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 shall conform to AASHTO M270, 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 shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with subsection 808.03. Other surfaces shall be blast cleaned in accordance with subsection 807.84(e) for unpainted Grade 50W steel.

Anchor Bolts, Washers and Nuts shall conform to subsection 807.07. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)". External load plates will not be measured or paid for separately but will be considered included in the unit bid price for "Elastomeric Bearings".

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

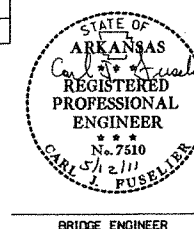
TABLE OF FABRICATOR VARIABLES

* Maximum Design Load = Service ! Limit State										ELASTOMERIC PAD							EXTERNAL LOAD PLATE										ANCHOR BOLT					
BRIDGE NO.	LOCATION		BEARING	NO. of BEARINGS EACH BENT	* MAXIMUM DESIGN LOAD (KIPS)	G	H	A	B	N	t _i	t _e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	T _a	T _b	ANCHOR BOLT		PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)					
	BENT NO(S).	BEAM OR GIRDER NO.																					(ø x L)	GRADE								
07221	1 & 4	All	Exp.	5	98	6 7/8"	4 3/8"	12"	9"	3	1/2"	1/4"	4 @ 12 Gauge	2 7/8"	10"	21"	3 3/8"	2"	1/2"	8"	2"	2"	1 1/4" x 21 1/2"	55	1 1/4" x 4 5/8"	3" x 9"	2 1/2"					
	2 & 3	All	Fix	5	194	7 1/8"	4 3/8"	14 1/2"	11"	3	1/2"	1/4"	4 @ 12 Gauge	2 7/8"	12"	26 1/2"	3 3/8"	3 3/8"	1/2"	10"	2"	2"	2 1/4" x 33 1/2"	55	2 1/2" x 4 5/8"	4" x 9"	4"					

Tabular Data by : KDH Date: 12-22-10

Checked by : MCB Date: 2/14/11

Designed by : CRP Date: 11/10



BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS DRY CREEK

ROUTE SEC.

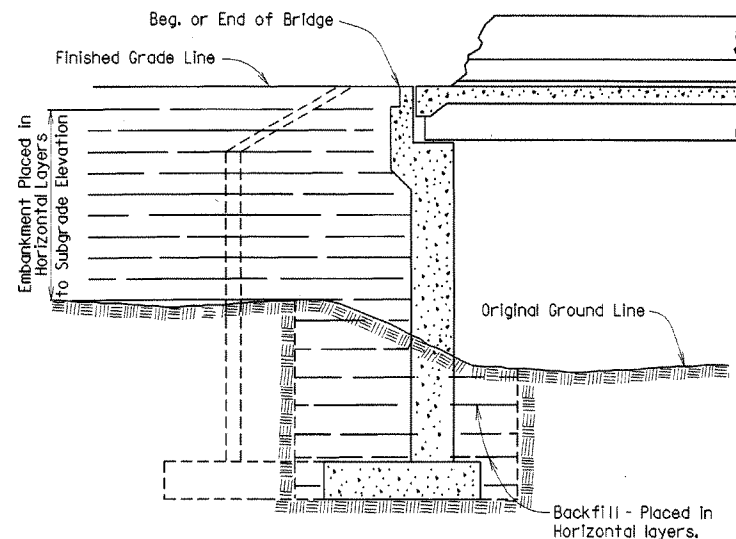
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

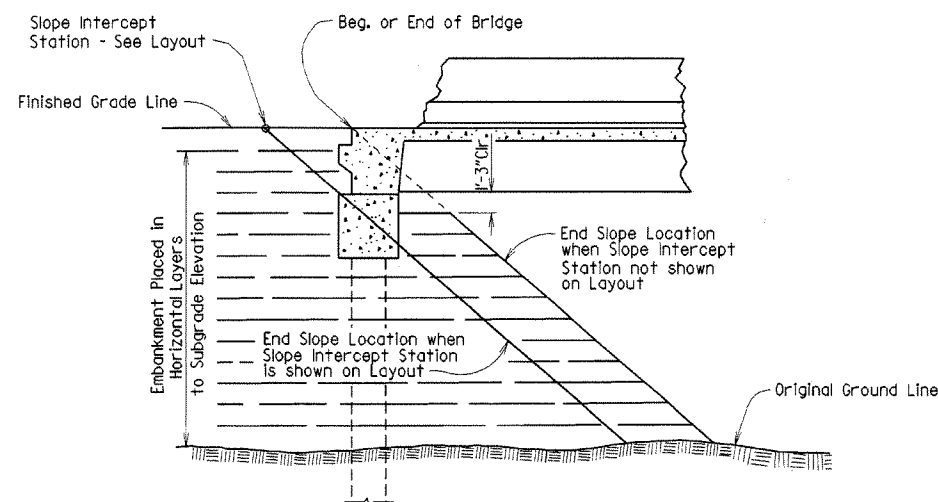
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CHECKED BY: JAC DATE: 4-25-01 SCALE: NONE

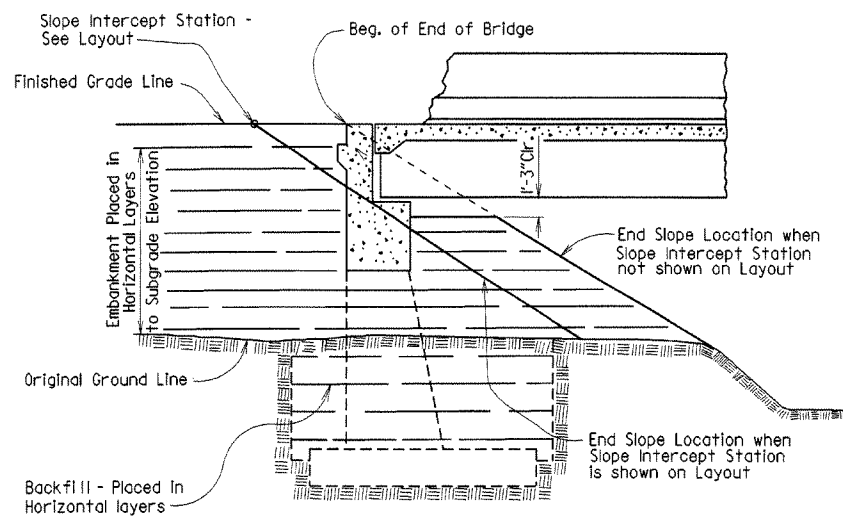
DESIGNED BY: Std. DATE: BRIDGE NO. 07221 DRAWING NO. 52097



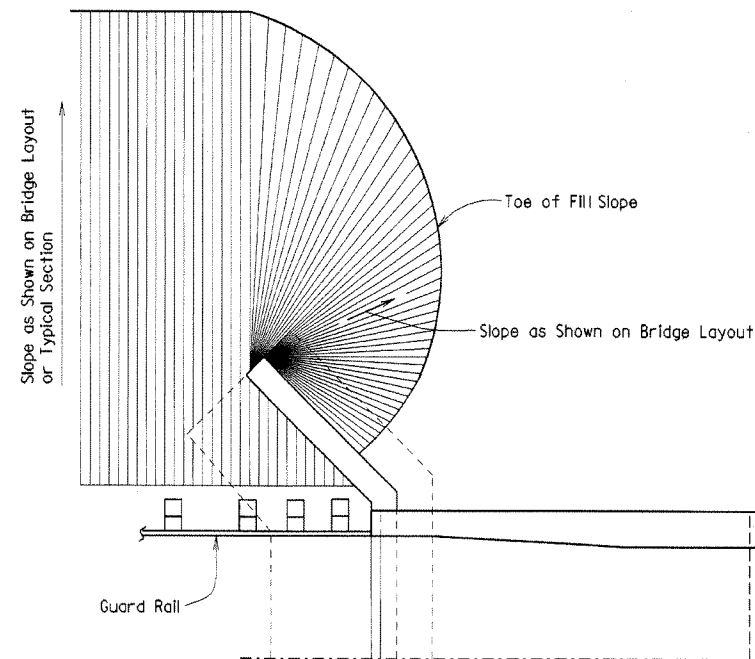
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL
AT VERTICAL WALL ABUTMENTS



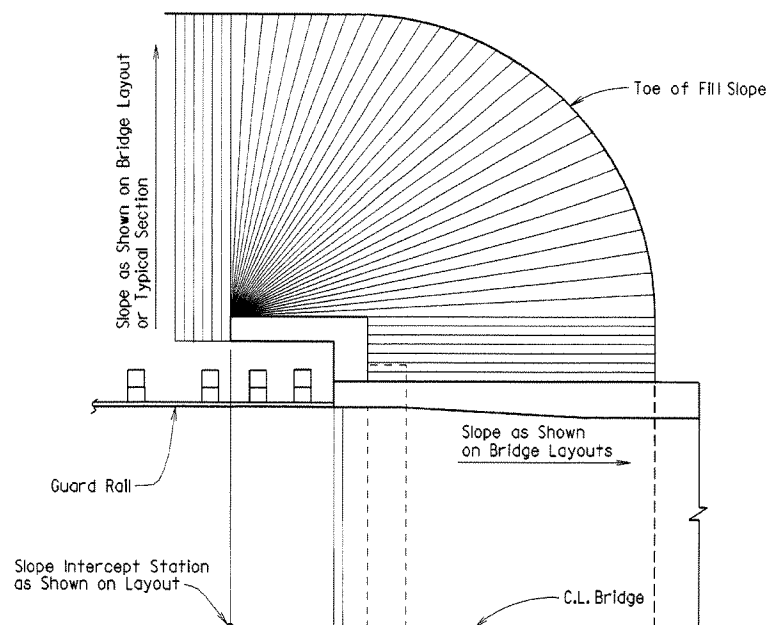
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH
PILE END BENTS



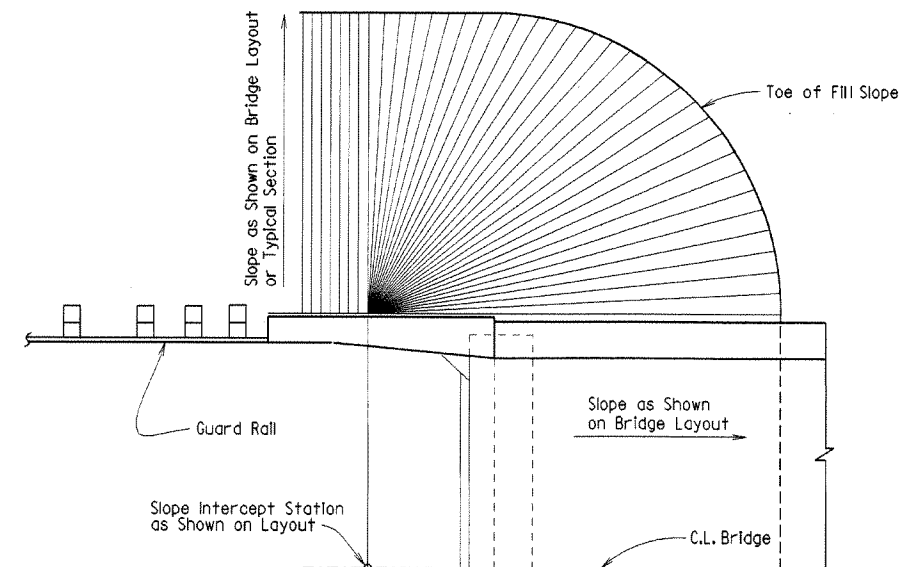
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL
AT SPILL-THROUGH END BENTS



VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

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: cjsf 04-10-2003



BRIDGE ENGINEER

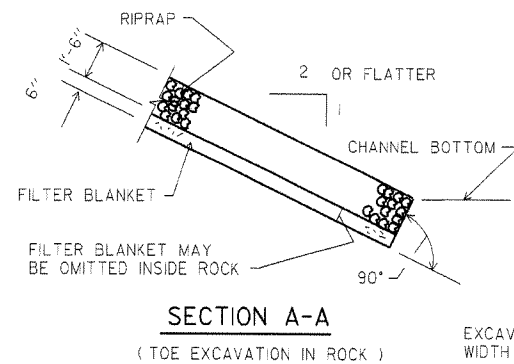
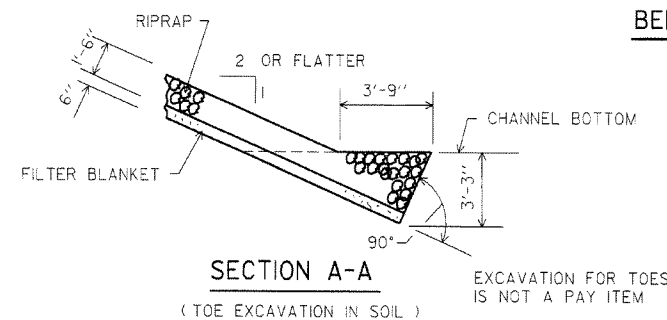
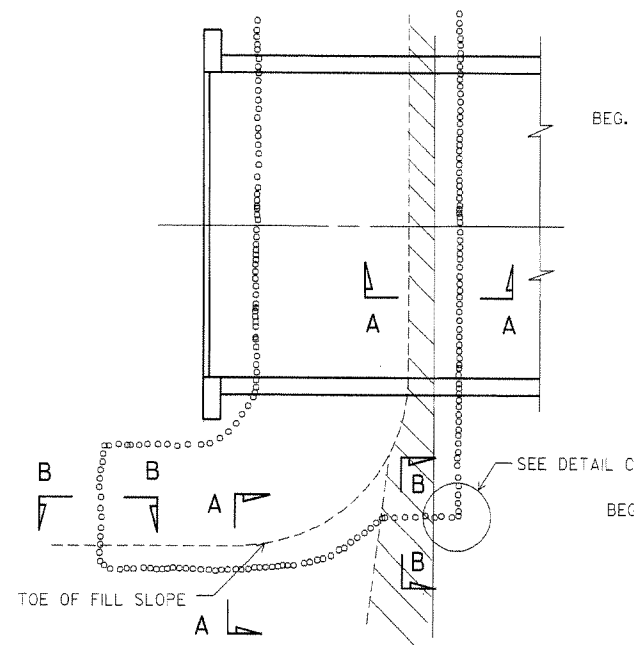
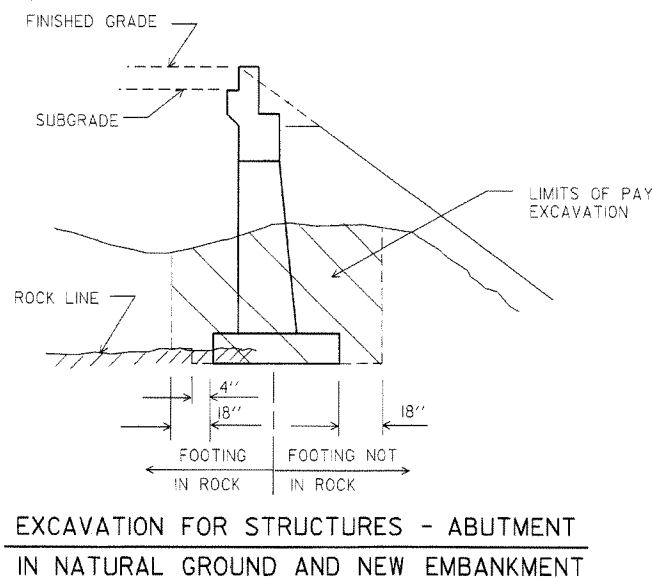
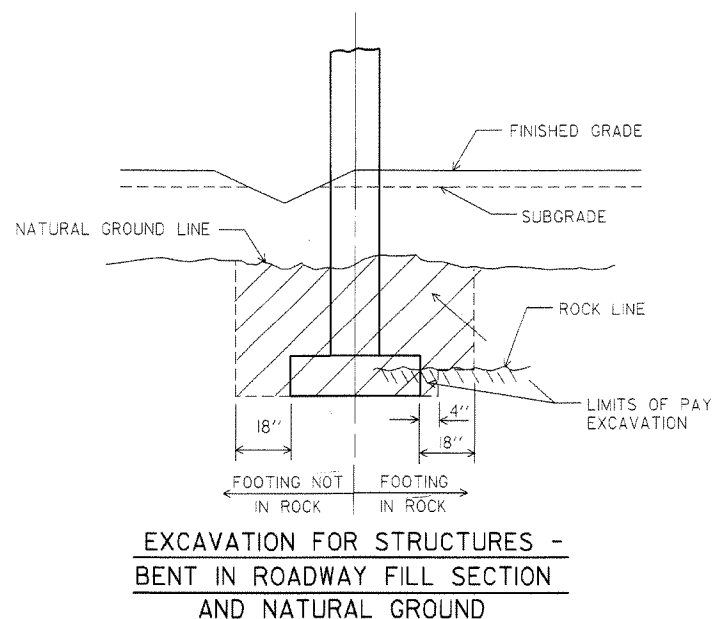
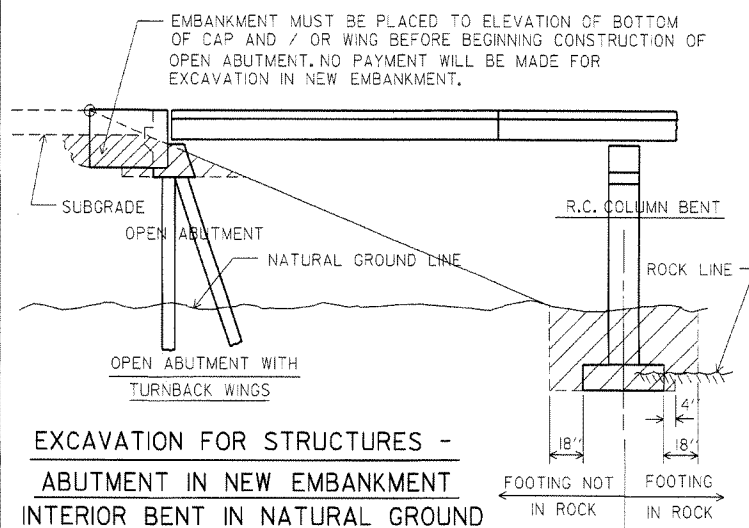
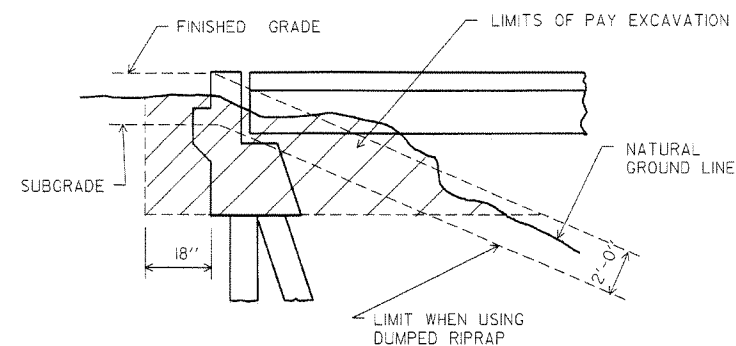
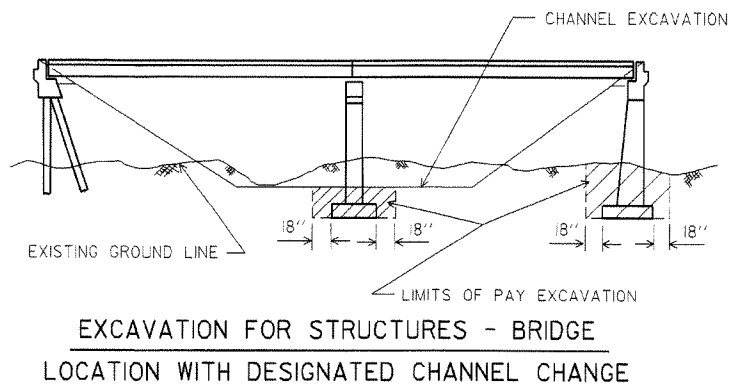
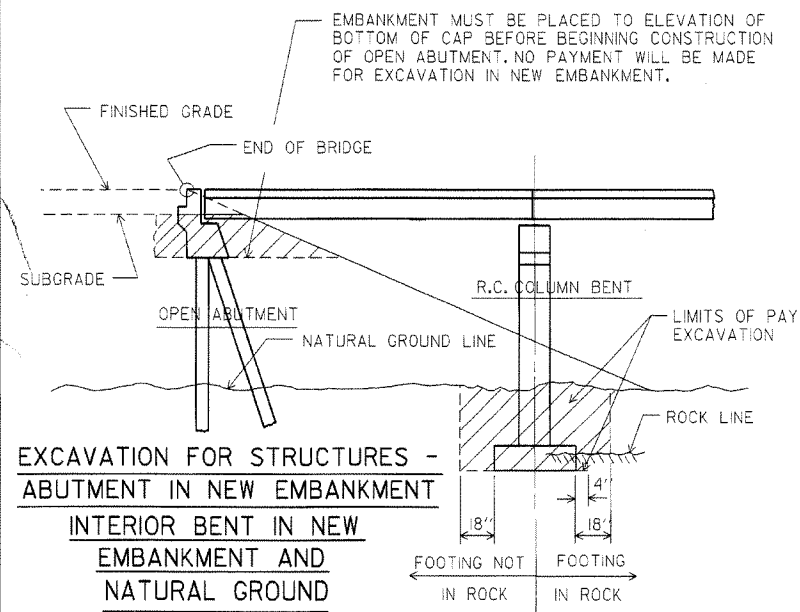
EMBANKMENT CONSTRUCTION AND BACKFILL
AT BRIDGE ENDS

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.		39	
				JOB NO.				
							EMBANKMENT & BACKFILL 1888A	

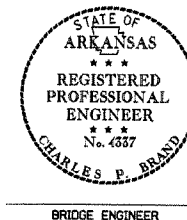
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04-10-2003				6	ARK.		46	
				JOB NO.				
				1 RIP. & EXCAV. 189IF				



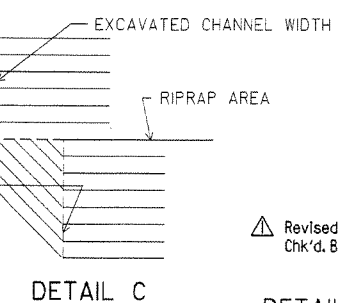
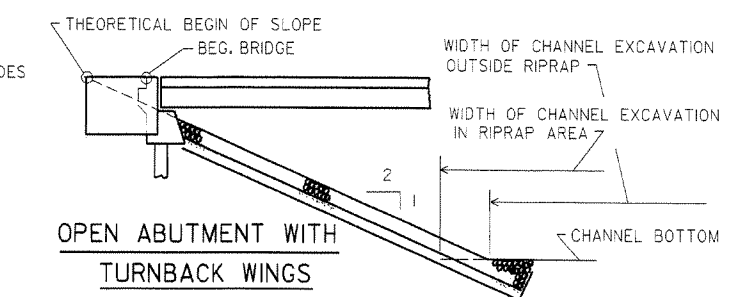
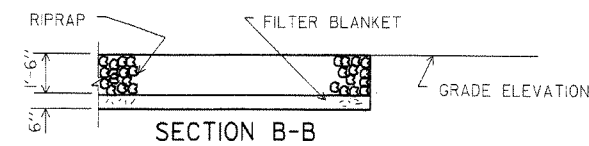
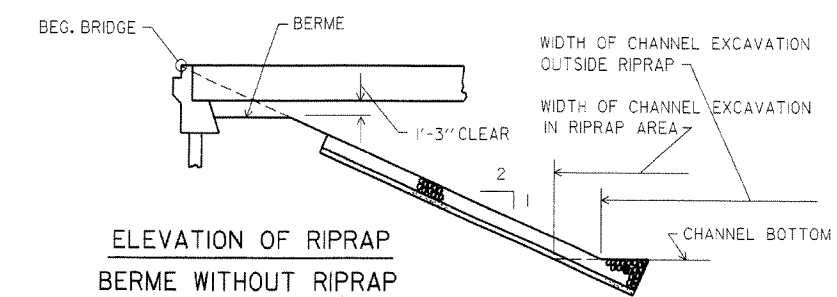
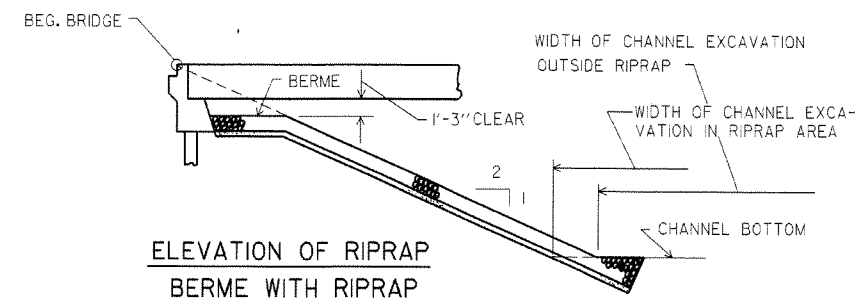
NOTE: USE THIS TYPE OF TOE WHEN ROCK IS ENCOUNTERED WHICH IS IN A STABLE CONDITION.

NOTE: IN LIEU OF AN AGGREGATE FILTER BLANKET, A SYNTHETIC FIBER GEOTEXTILE FABRIC COMPLYING WITH THE REQUIREMENTS OF SUBSECTION 816.02(e) MAY BE USED.

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



BRIDGE ENGINEER



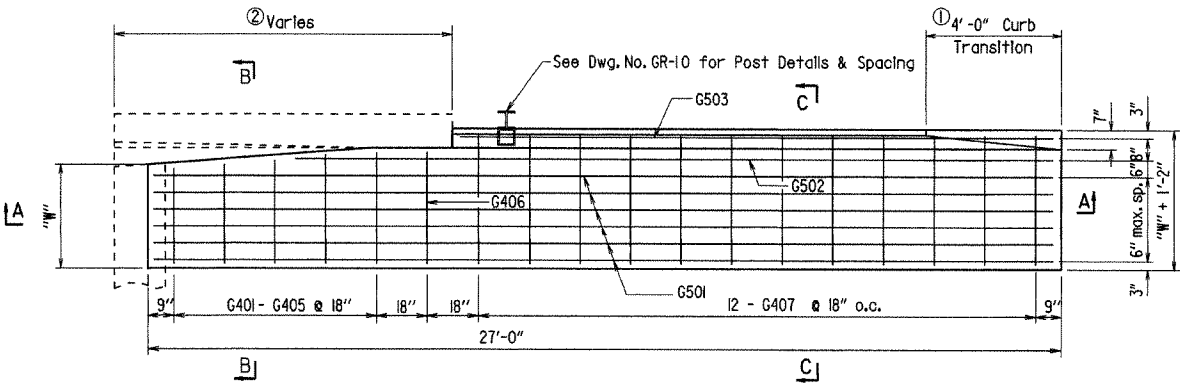
Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

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

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

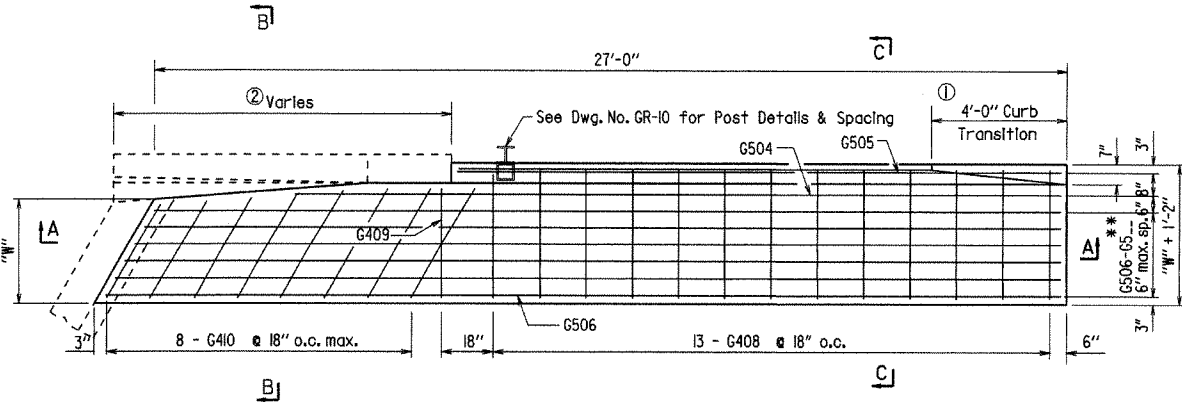
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CHECKED BY: CJF DATE: 04-10-2003 SCALE: NO SCALE
DESIGNED BY: STD DATE: BRIDGE NO. DRAWING NO. 189IF

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4-10-2003 07-14-2010				6	ARK.		41	
				JOB NO.				
				①	TYPE B GUTTERS			2016B

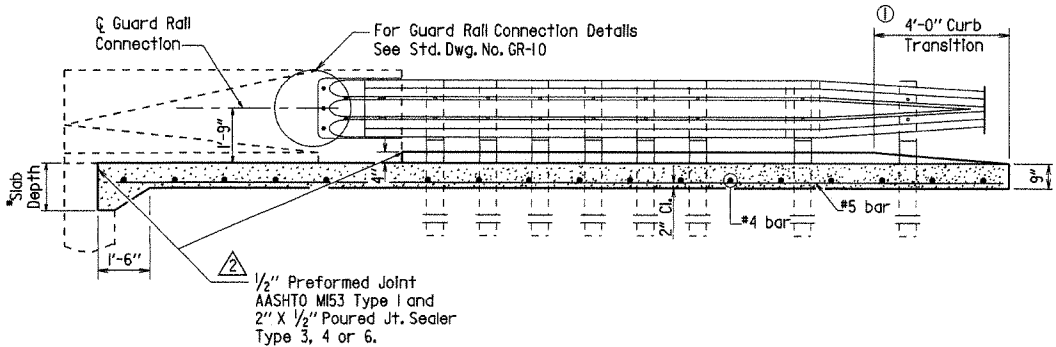


HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE

② Length varies. See End Bent details for actual length.
Quantities shown are for 10'-0" Transition Rail.



PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE

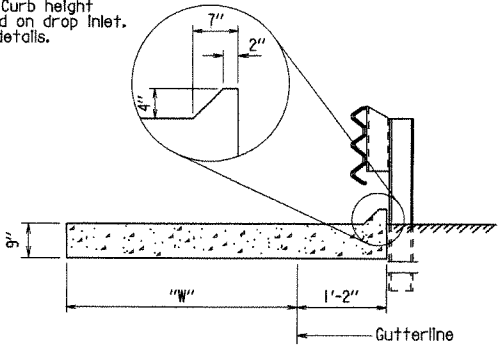


SECTION A - A

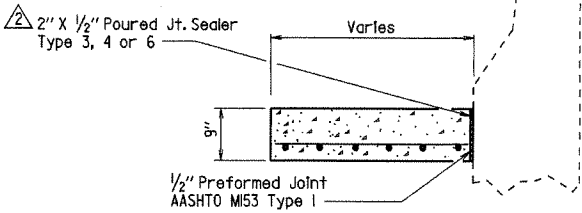
*Slab Depth Varies - See
Span and Bent Details

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

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



SECTION C - C
N.T.S.



SECTION B - B
N.T.S.

*** BAR LIST ②
TYPE B GUTTER

Mark	No. Required for Width "W"				Length	Square or Skewed
	3'-0"	4'-0"	6'-0"	8'-0"		
G401 - G405	1 each	1 each	1 each	1 each	"W" - 3" to "W" + 3"	Square
G406	1	1	1	1	"W" + 3"	Square
G407	12	12	12	12	"W" + 10"	Square
G408	13	13	13	13	"W" + 10"	Skewed
G409	1	1	1	1	"W" + 3"	Skewed
G410	8	8	8	8	*	Skewed
G501	6	8	12	16	26'-8"	Square
G502	1	1	1	1	22'-2"	Square
G503	1	1	1	1	17'-8"	Square
G504	1	1	1	1	*	Skewed
G505	1	1	1	1	*	Skewed
G506 - G5... **	1 each	1 each	1 each	1 each	*	Skewed

* Bar Lengths vary with Skew.
** G512 for "W" = 3'
G514 for "W" = 4'
G518 for "W" = 6'
G522 for "W" = 8'

*** Special bar list required when
skew angle exceeds 40° for W = 8';
50° for W = 6'; or 60° for W = 4'.

QUANTITIES FOR ONE
SQUARE APPROACH GUTTER

"W" Width (ft.)	Reinforcing Steel (lbs.)	Concrete (cubic yards)
3	252	3.00
4	319	3.75
6	459	5.25
8	590	6.75

GENERAL NOTES

Concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement.

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

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

① Revised and redrawn 4-10-2003. By KDH CK. By: CJF 4-10-2003

② Added joint sealer type & revised transition rail length 07-14-2010 by MJT Checked by: CJF 07-14-2010

DETAILS OF STANDARD TYPE B APPROACH GUTTERS

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

DRAWN BY: KDH DATE: 4-10-2003 FILENAME: B2016B.STD
CHECKED BY: CJF DATE: 4-10-2003 SCALE: 3/8" = 1'-0"
DESIGNED BY: STD DATE:
BRIDGE NO. DRAWING NO. 2016B



BRIDGE ENGINEER

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9-8-11				6	ARK.		42	
				JOB NO.				
				NAME PLATE			2387	

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

Line 1	Example 1	Example 2	Example 3	Example 4
Line 2	Red River	Southern	Saline	
Line 3	Relief	Railroad	River	Highway 5
		Overpass	Relief	

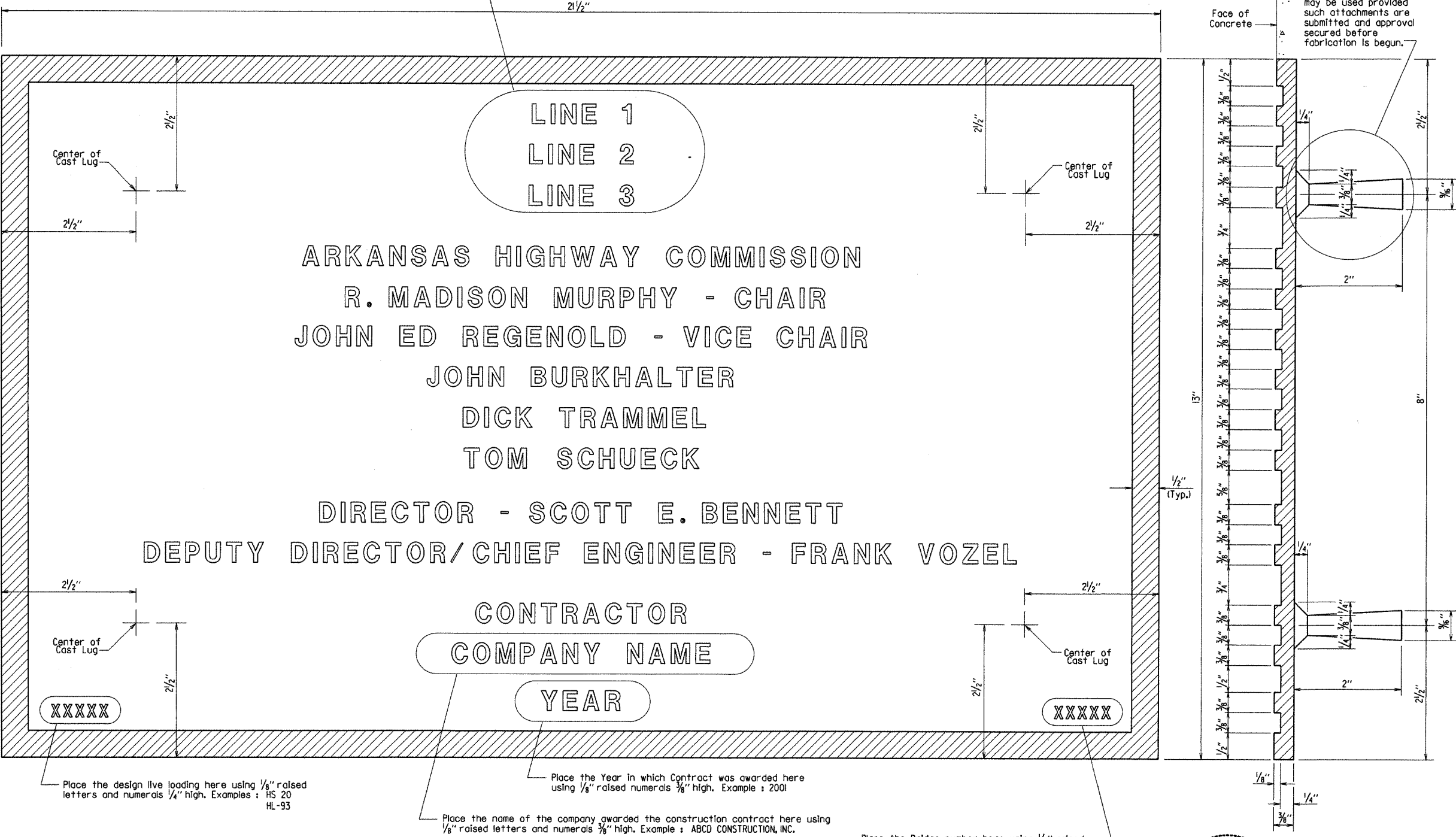
GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2003 Edition) with applicable Supplemental Specifications and Special Provisions.

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

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 1/2" x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered. The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.



TYPICAL BRIDGE NAME PLATE

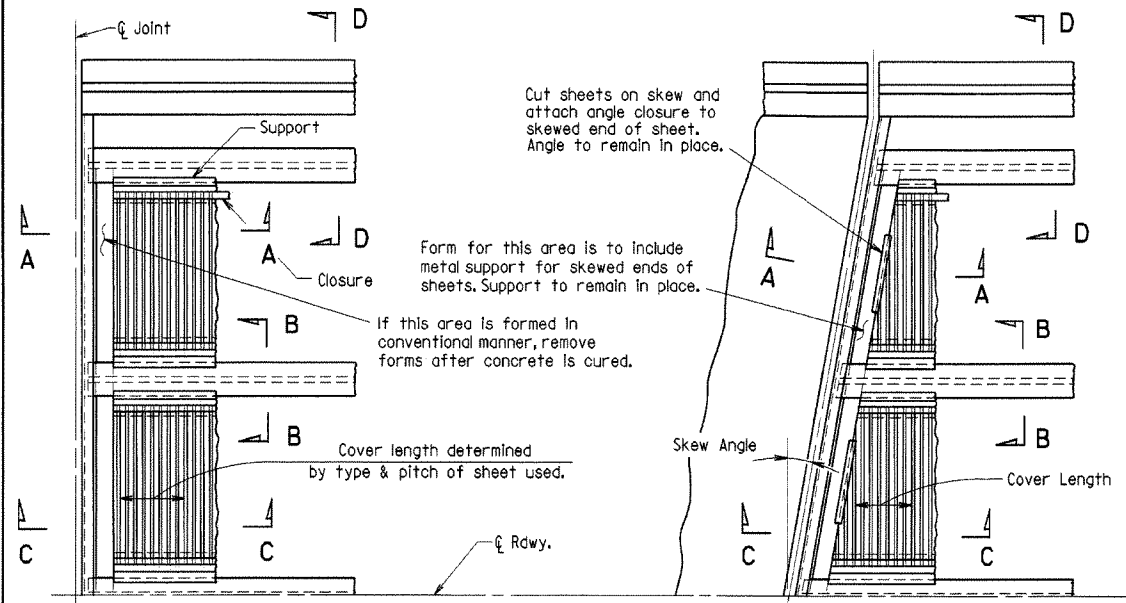


DETAILS OF STANDARD TYPE D
BRIDGE NAME PLATE
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-8-11 FILENAME: B2387.STD
CHECKED BY: CRE DATE: 9-8-11 SCALE: 1"=0' OR AS NOTED
DESIGNED BY: STD. DATE: BRIDGE NO. DRAWING NO. 2387

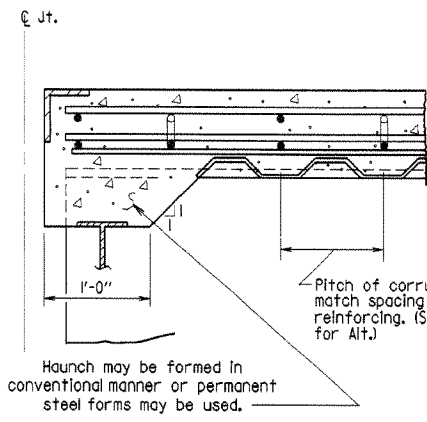
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11-27-96						6	ARK.		43	
04-10-2003										

BR. DECK FORMS 14991

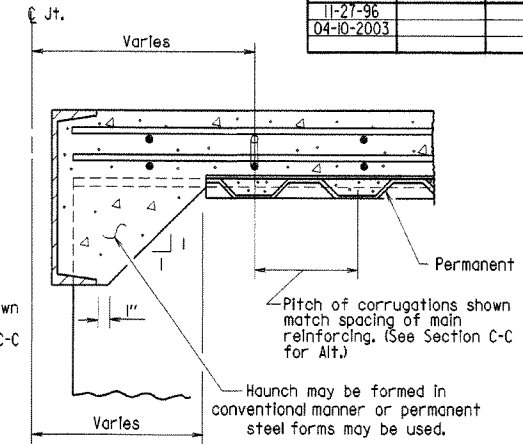


PART PLAN - SQUARE SPAN
3/8" = 1'-0"

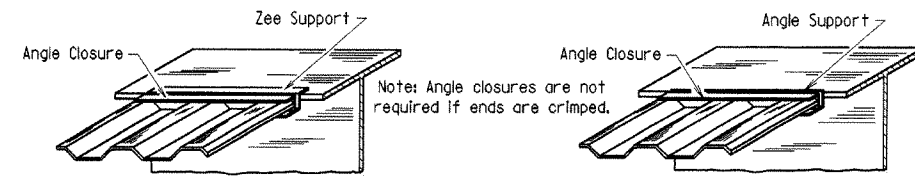
PART PLAN - SKEWED SPAN
3/8" = 1'-0"



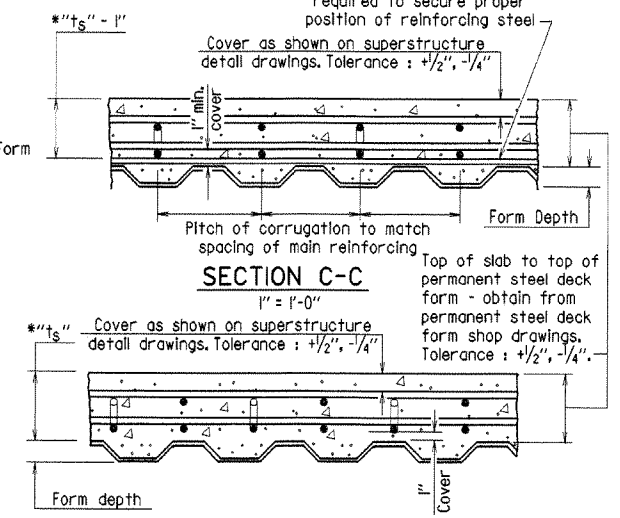
SECTION A-A
N.T.S.
(Angle at end of span)



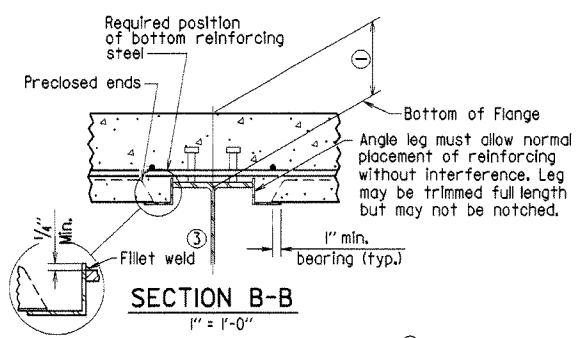
SECTION A-A
N.T.S.
(Channel at end of span)



SKETCH OF PERMISSIBLE SUPPORTS
N.T.S.

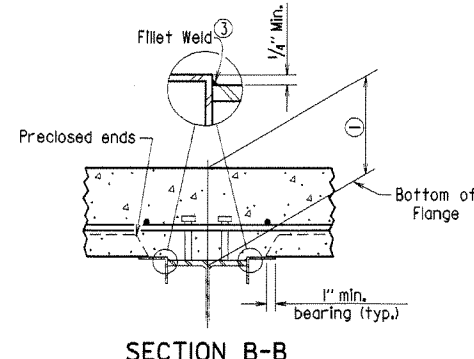


SECTION C-C - ALTERNATE
1" = 1'-0"
(Applicable when corrugations do not match spacing of main reinforcement)



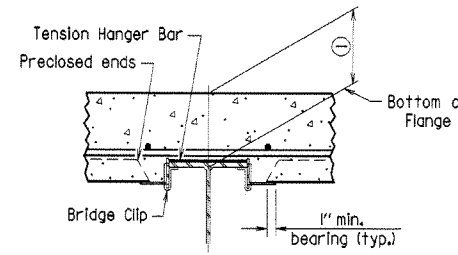
SECTION B-B
1" = 1'-0"

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



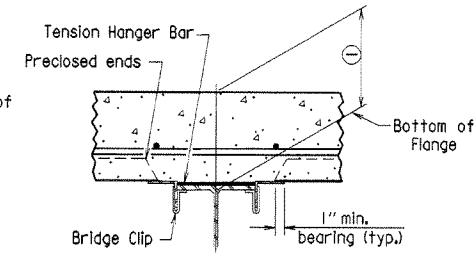
SECTION B-B
1" = 1'-0"

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



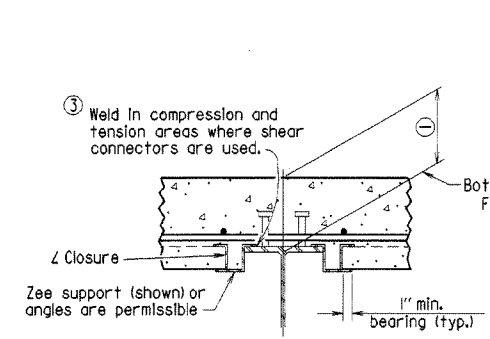
SECTION B-B
1" = 1'-0"

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



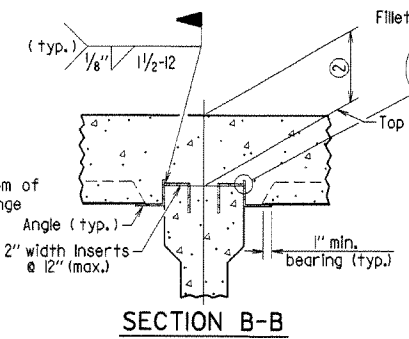
SECTION B-B
1" = 1'-0"

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



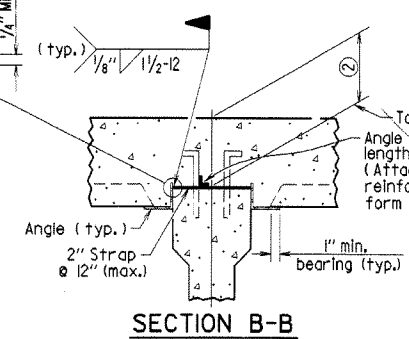
SECTION B-B
1" = 1'-0"

(Showing Z Closure)



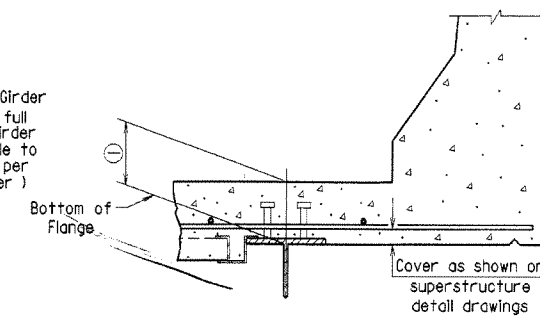
SECTION B-B (FOR CONCRETE GIRDERS)
1" = 1'-0"

(Showing support by insert cast in girder)



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

(Showing support by Strap)



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

Note: Only Bottom Reinforcing is shown.

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

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

Permanent steel deck forms shall conform to subsection 802.14(b) 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.

**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
DESIGNED BY: STD DATE: —
BRIDGE NO. DRAWING NO. 14991



Redrawn and revised 11/27/96; MJT

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

14991 STD

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. PROJ. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-10-2009				6	ARK.		44	
				JOB NO.				
				CONCRETE PILES	14964			

MAXIMUM PICKUP LENGTHS "L"

Type of Pick-Up	Prestressed		Non-Prestressed	Prestressed		Non-Prestressed
	16" Oct.	18" Oct.		14" Sq.	16" Sq.	
One Point	52'	55'	46'	55'	59'	63'
Two Point	75'	80'	67'	79'	84'	90'
Three Point	105'	112'	93'	110'	117'	126'

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, Fourth Edition.

SEISMIC PERFORMANCE ZONES: 1 & 2

The Contractor may use prestressed piles or non-prestressed piles. Either type will be measured and paid for at the contract unit price bid for "Concrete Piling".

SPIRAL REINFORCING: Spiral reinforcing shall be steel wire meeting the requirements of AASHTO M 32 or M 225 or shall be plain round steel bars meeting the requirements of AASHTO M 31 or M 53, Gr. 60.

MANUFACTURE, TRANSPORTATION AND STORAGE: Shipment of piles from the plant site or pile driving will not be permitted until the required minimum compressive strength is reached, and in no case less than 10 days after pouring the concrete. Prestressed piles may be removed from the casting bed to nearby storage any time after transfer of stress. See Section 802 "Concrete for Structures" of the Standard Specifications for additional information.

Unless otherwise approved by the Engineer, all protruding or exposed pile lifting or transporting devices above the finished ground shall be removed after pile driving is complete. Removal shall be a minimum of 1" below the surface of the pile and the cavity shall be filled with a non-shrink grout listed on the Department's QPL.

FORMS: For forming exterior of piles, the use of steel forms on concrete-founded casting beds is required unless otherwise approved by the Engineer. Side forms may have a maximum drift on each side not exceeding 1/4" per foot.

TOLERANCES: Pile ends shall be plane surfaces perpendicular to the longitudinal axis of pile with a maximum tolerance of 1/8" per foot transversely.

The maximum sweep (deviation from straightness measured from end to end of the pile, while not subject to bending forces) shall not exceed 1/8" in 10 feet.

BUILD-UPS: To provide for build-ups of piles where authorized by the Engineer, concrete shall be cut back to expose the reinforcing steel for a distance sufficient to provide a lap of 60 diameters of the reinforcing bars required for build-up. Reinforcing for build-ups shall be the reinforcing shown for non-prestressed piles.

INSTALLATION, MEASUREMENT AND PAYMENT: See Section 805 "Piling" of the Standard Specifications.

ADDITIONAL NOTES FOR PRESTRESSED PILES ONLY:

CONCRETE: Concrete in prestressed piles shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 5,000 psi at 28 days. Compressive strength at transfer of the prestressing force shall be not less than 4,000 psi. Concrete in build-ups shall have a minimum compressive strength of 4,000 psi and shall be cured for a minimum of 10 days.

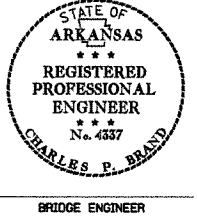
PRESTRESSING REINFORCING: Seven-wire stress-relieved or low relaxation strands shall conform to the general requirements of AASHTO M 203. Broken wires within individual strands will be permitted up to 2% of the total number of wires in each pile, providing that there is not more than one broken wire per strand. Two or more broken wires per strand will be cause for replacement of the strand, even though the two broken wires are within the 2% limitation.

ADDITIONAL NOTES FOR NON-PRESTRESSED PILES ONLY:

All concrete shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 4,000 psi at 28 days.

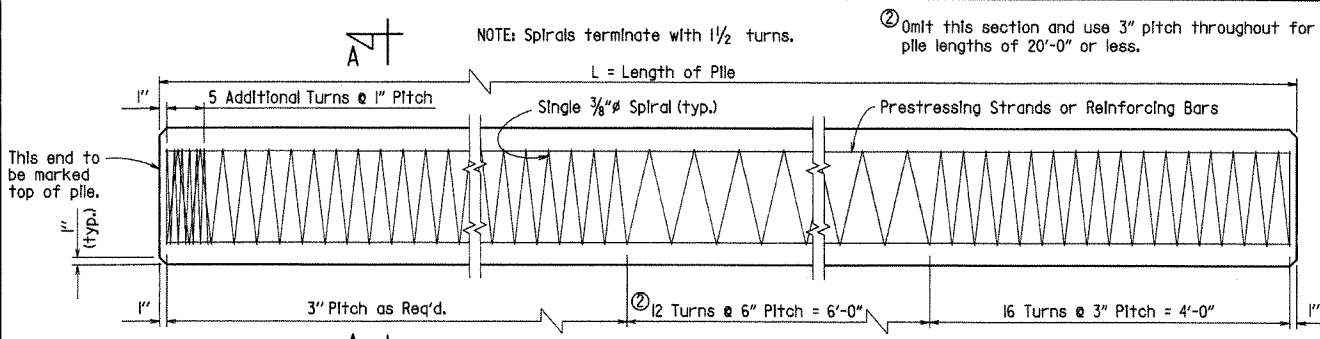
All longitudinal reinforcing bars shall be deformed bars and shall conform to the requirements of AASHTO M 31 or M 53, Gr. 60.

Added paragraph to General Notes KDH 12-10-2009
Checked by: c.j.f. Date: 12-10-2009



STANDARD DETAILS OF CONCRETE PILES
IN SEISMIC PERFORMANCE
ZONES 1 & 2
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

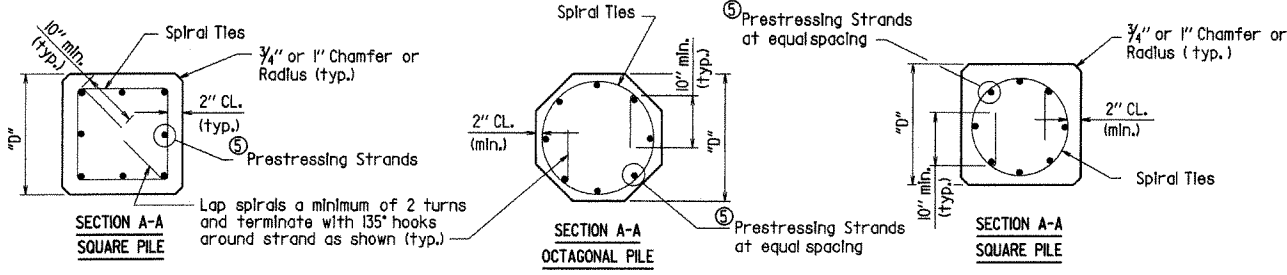
DRAWN BY: KMY DATE: 1-17-08 FILENAME: b14964_std.dgn
CHECKED BY: JAC DATE: 1-17-08 SCALE: no scale
DESIGNED BY: Std. DATE: —
BRIDGE NO. DRAWING NO. 14964



PLAN OF PILE SHOWING SPIRAL TIE SPACING

For anchorage of pile to bent, see Bent Details.

NOTE: Strand location shall be symmetrical about the axis of the pile with no more than one strand difference between any two adjacent sides. Circular spiral ties are required for odd number of strands.



PRESTRESSED CONCRETE PILES

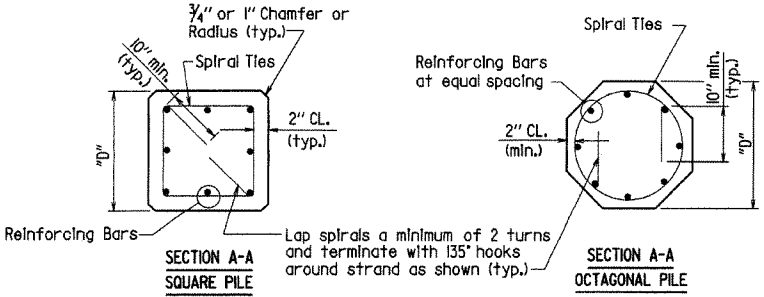
① Number based on Initial pre-stress force of "B" x Ultimate Tensile Stress, Prestress Losses and min. 700 psi Unit Prestress on concrete after Losses.

"B" 0.75 Low Relaxation
0.70 Stress-Relieved

⑤ See table "Prestressed Concrete Pile Properties" for actual number of strands per pile size.

PRESTRESSED CONCRETE PILE PROPERTIES

	Grade	Strand Diameter	① Number of Strands per Size "D"					Minimum Ultimate Tensile Strength Per Strand (Lbs.)	Initial Prestressing Force Per Strand (Lbs.)
			16" Oct.	18" Oct.	④ 14" Sq.	16" Sq.	18" Sq.		
Stress-Relieved	250	7/8"	11	13	10	13	16	27,000	18,900
		1/2"	8	10	8	10	12	36,000	25,200
	270	7/8"	9	11	8	12	14	31,000	21,700
		1/2"	7	9	6	8	10	41,300	28,900
Low Relaxation	250	7/8"	9	11	8	11	14	27,000	20,200
		1/2"	7	9	6	8	10	36,000	27,000
	270	7/8"	8	10	7	9	12	31,000	23,300
		1/2"	6	8	6	7	9	41,300	31,000

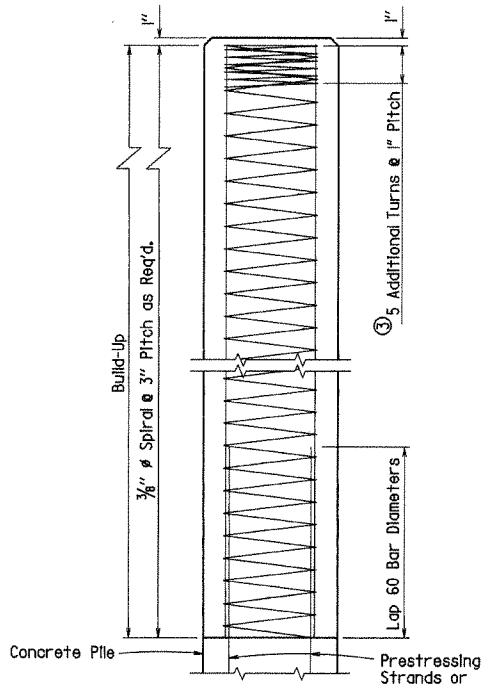


NON-PRESTRESSED CONCRETE PILES

NON-PRESTRESSED PILE REINFORCING

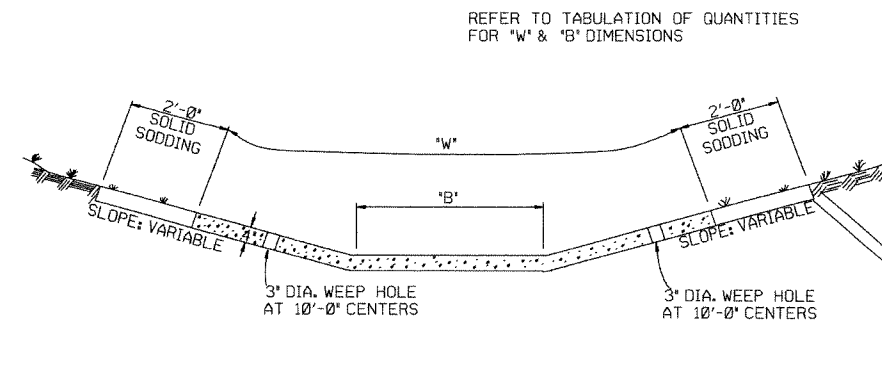
Pile Size	No. Req'd.	Bar Size
16" Oct.	8	# 7
18" Oct.	8	# 7
④ 14" Sq.	8	# 7
16" Sq.	8	# 7
18" Sq.	8	# 8

④ 14" sq. piles to be used in Seismic Performance Zone 1 only.

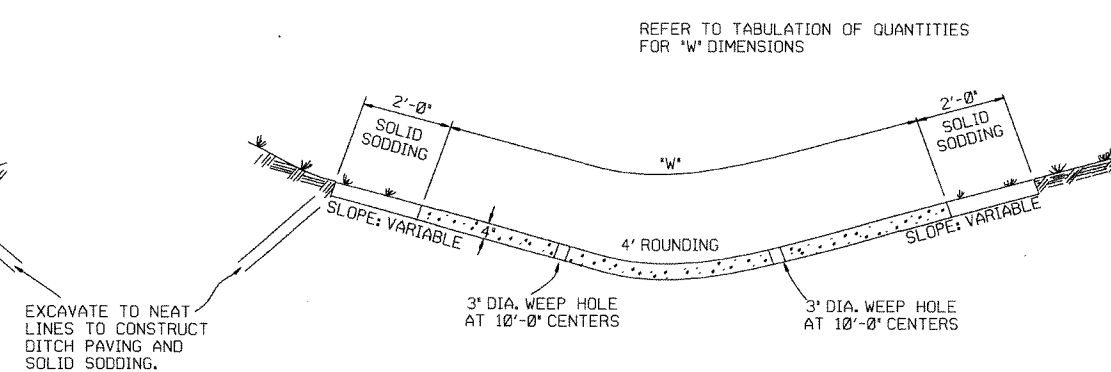


BUILD-UP

③ The five additional turns of spiral reinforcing may be omitted for build-up without additional driving.

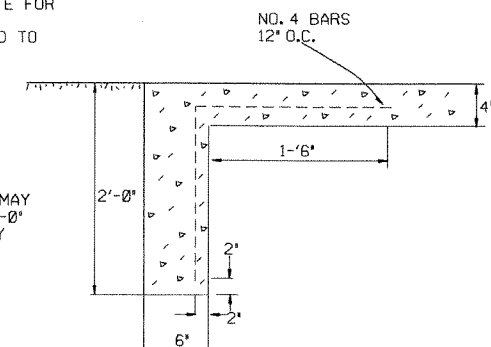


TYPE A

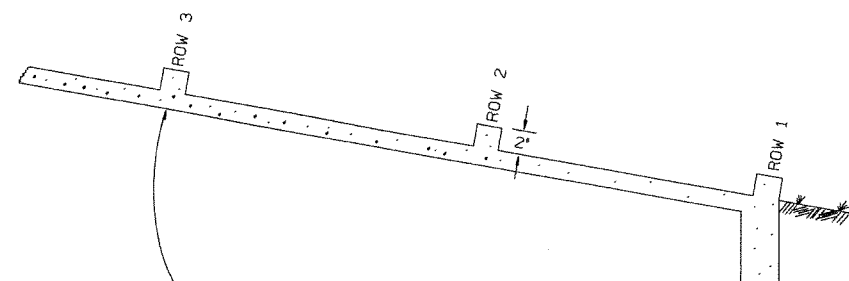


TYPE B

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

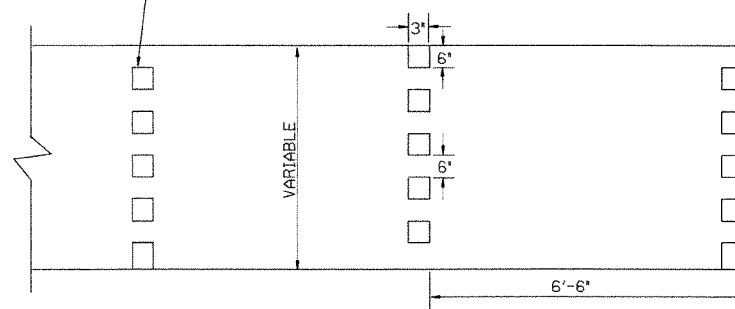


TOE WALL DETAIL FOR CONCRETE DITCH PAVING



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

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



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

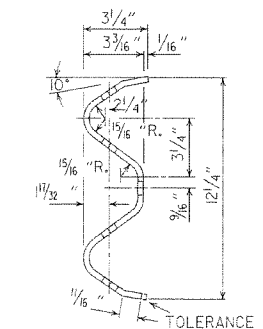
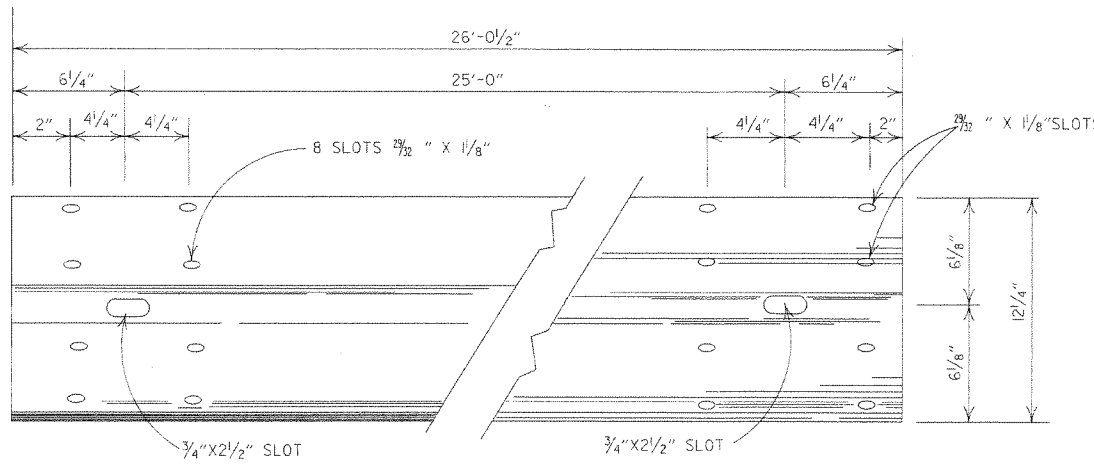
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

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

ARKANSAS STATE HIGHWAY COMMISSION

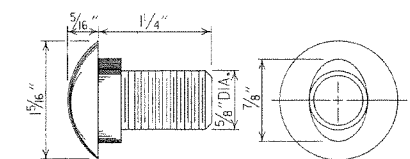
CONCRETE DITCH PAVING

STANDARD DRAWING CDP-1

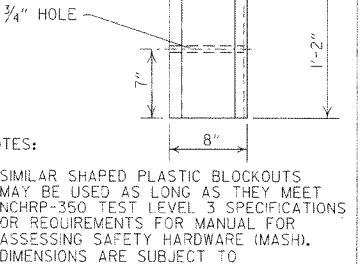
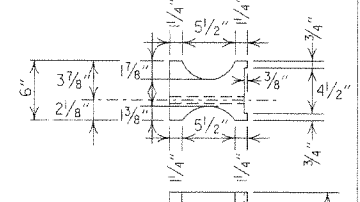
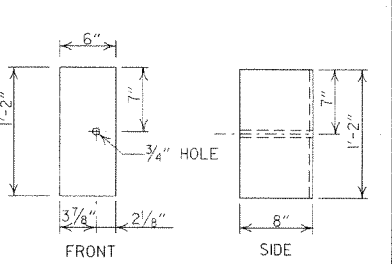
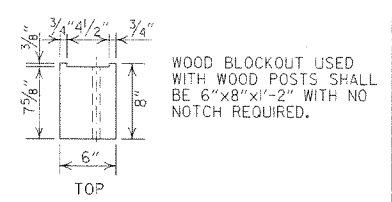
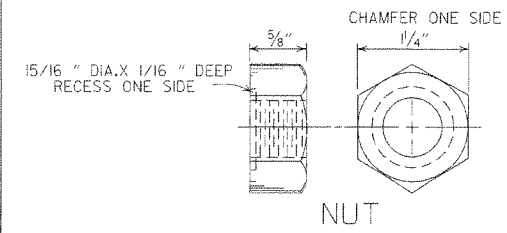
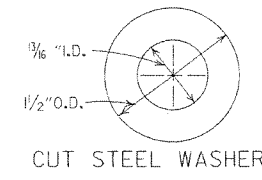


DETAILS OF W-BEAM GUARD RAIL

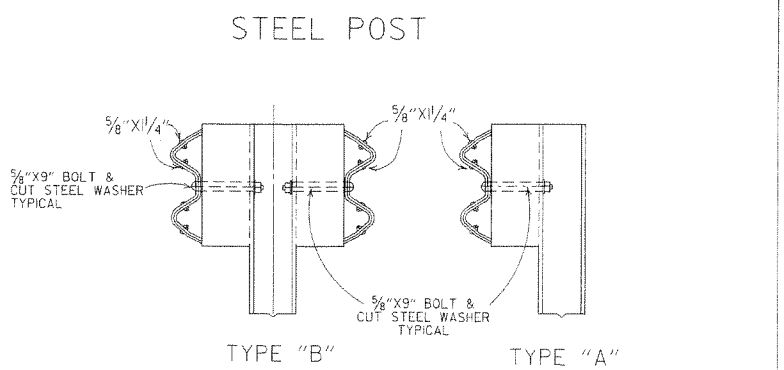
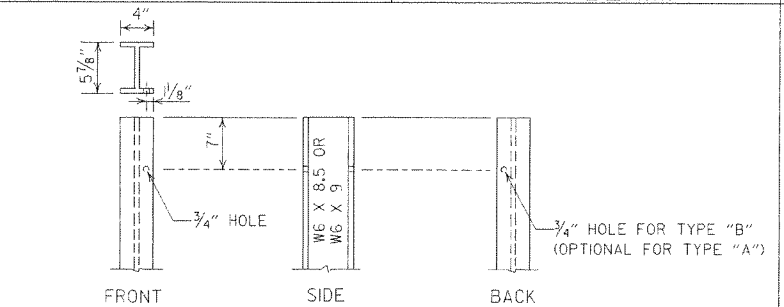
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



SPLICE BOLT POST BOLT - SAME EXCEPT LENGTH



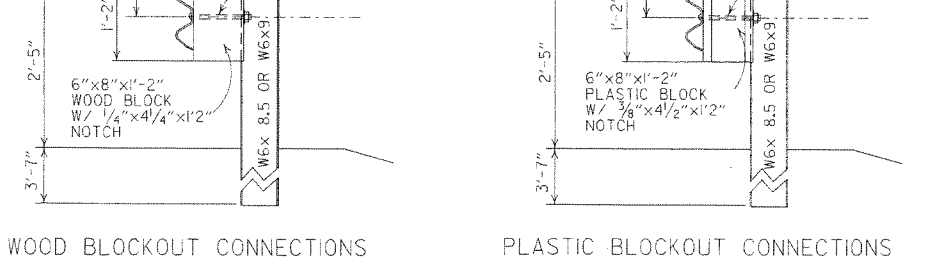
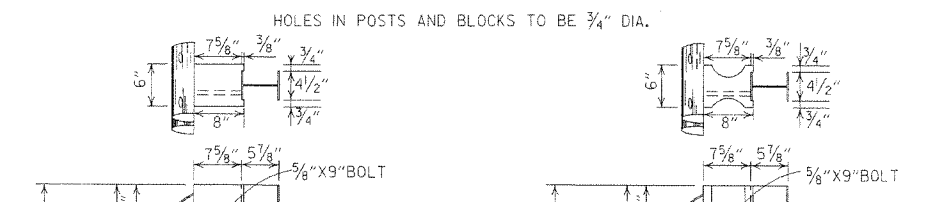
NOTES:
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.



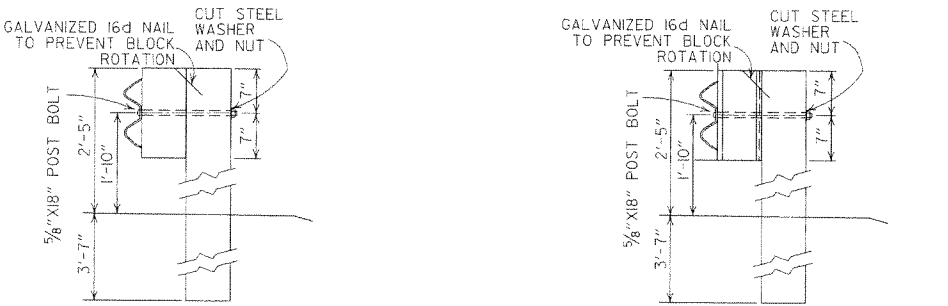
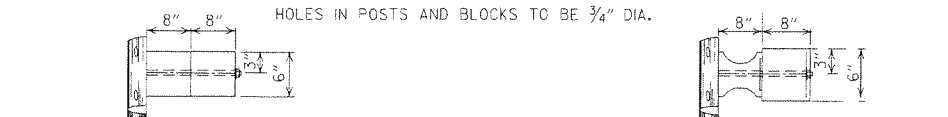
DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.
WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.
W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.
USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.
ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 #) OR NO. 1 350 # SOUTHERN PINE.
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.



DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



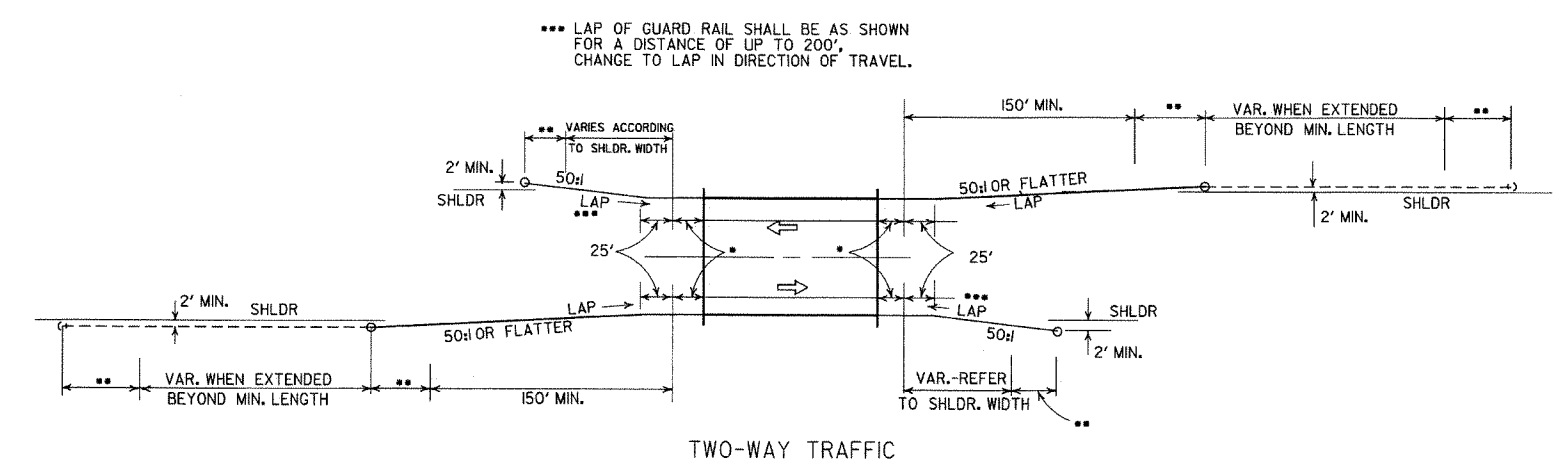
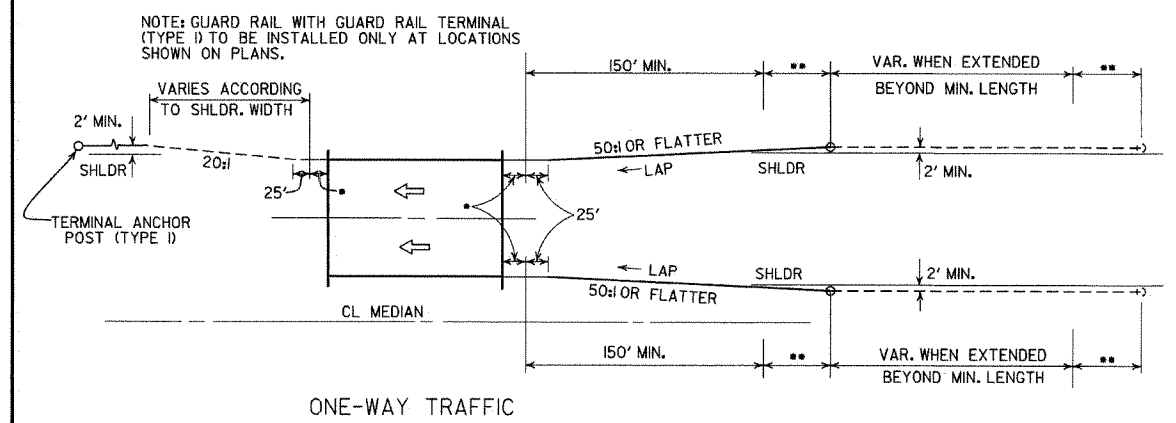
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

7-4-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
1-12-00	ADDED PLASTIC BLOCKOUT	
8-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARD RAIL REPLACE BEHIND CURB & DET. OF POST PLACE IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
4-3-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
6-2-94	ADDED ALT. STEEL POST SIZE	
8-5-93	REVISED STEEL POST SIZE	8-5-93
10-1-92	REDRAWN & REVISED	10-1-92
8-15-91	REVISED WASHER NOTE	8-5-91
8-2-90	REV. GEN. NOTE & DEPTH OF ANC. POST IN ROCK	8-2-90
7-15-88	REVISED SECTION 3 & GENERAL NOTES	
3-4-88	REV. ANCHOR POST, ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-9-87	REDRAWN & REVISED	802-10-9-87
DATE	REVISION	DATE FILM

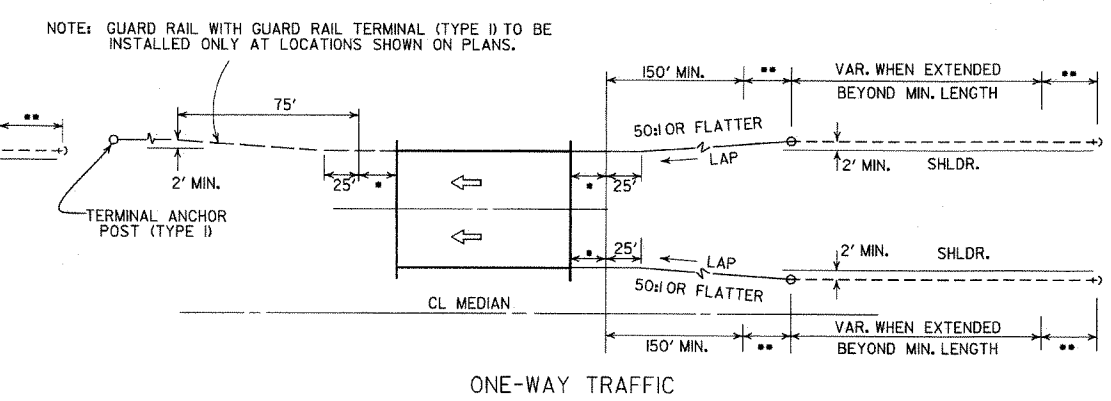
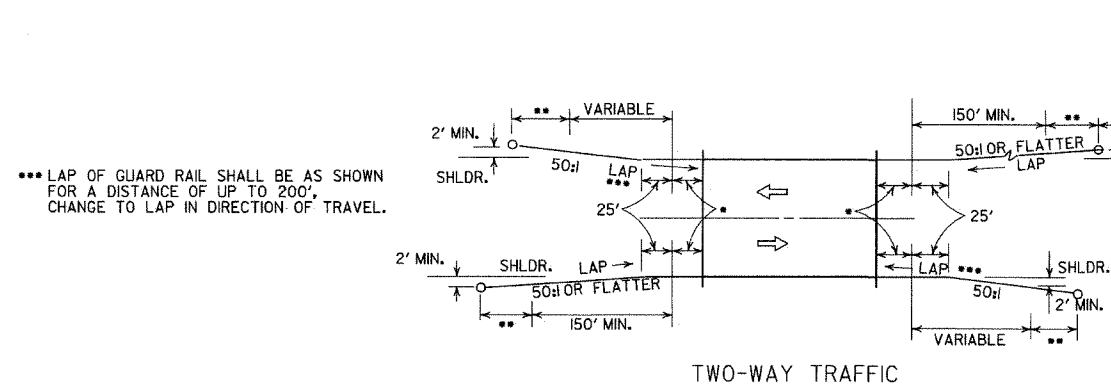
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

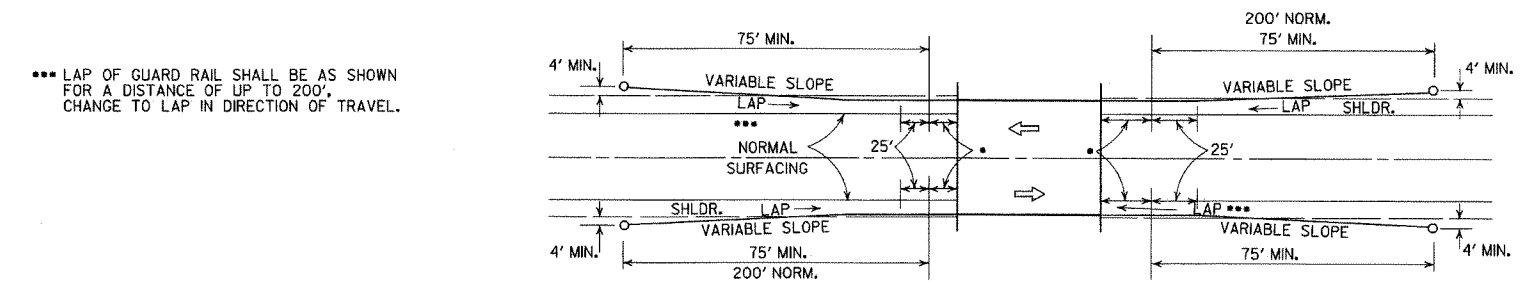
STANDARD DRAWING GR-8



METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)



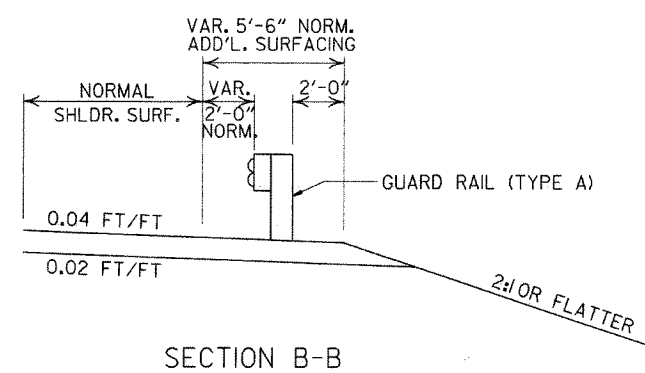
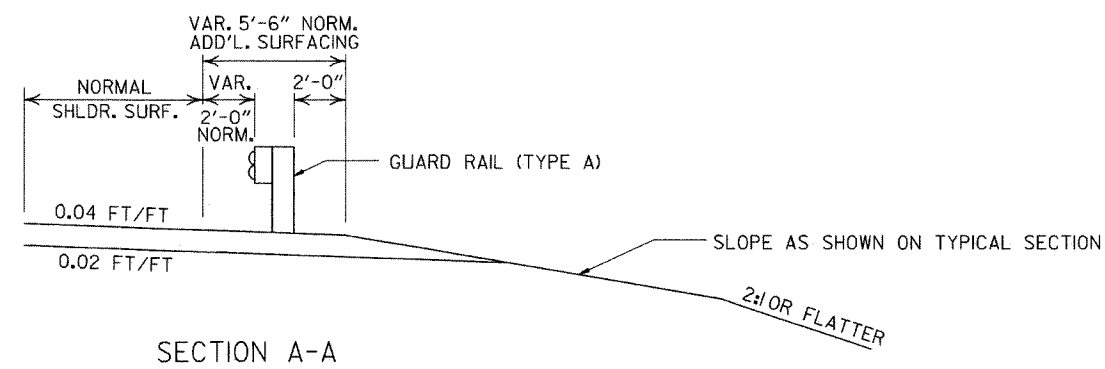
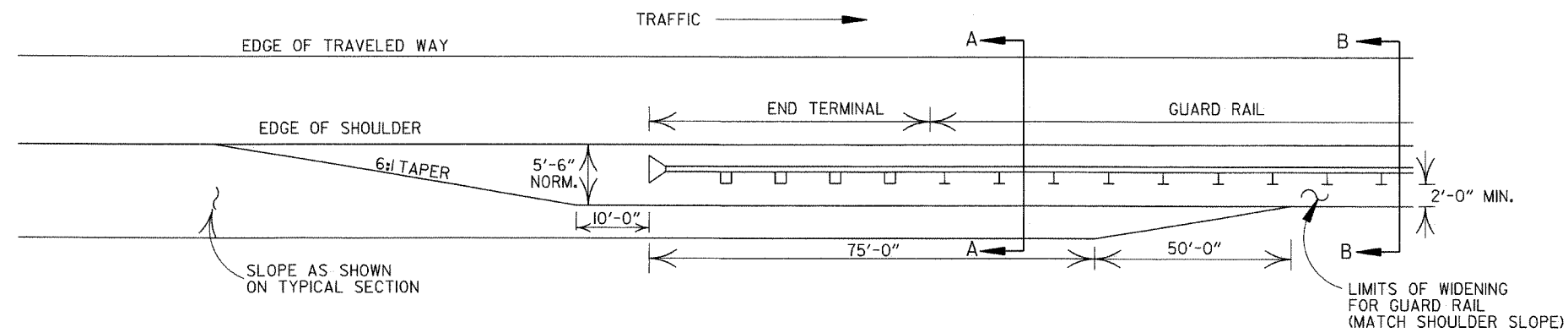
METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)



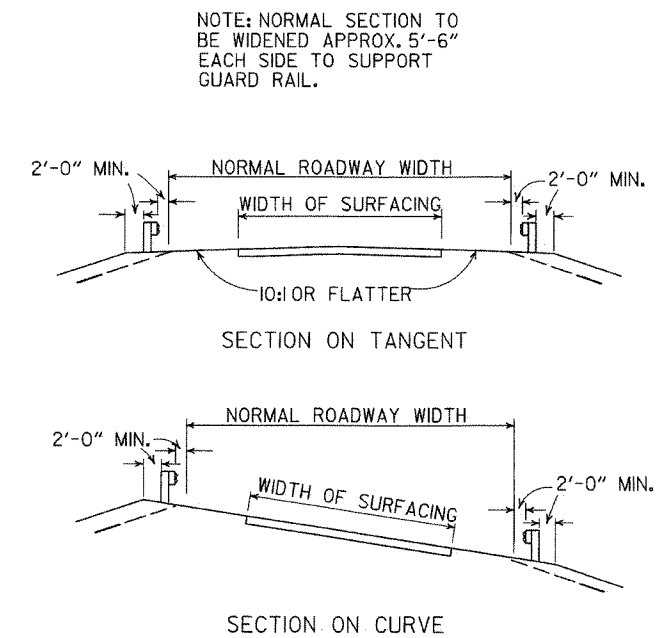
LEGEND

- THREE BEAM GUARD RAIL TERMINAL
- GUARD RAIL TERMINAL (TYPE 2)

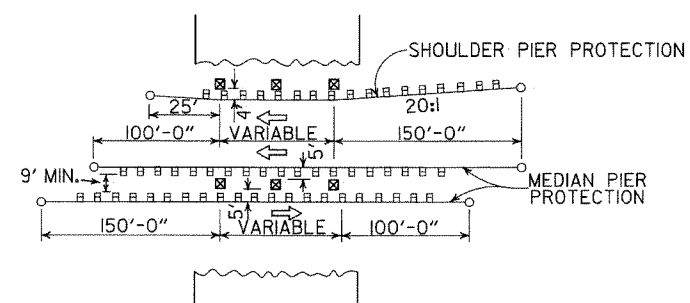
ARKANSAS STATE HIGHWAY COMMISSION		
GUARD RAIL DETAILS		
STANDARD DRAWING GR-9		
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. 1)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	
DATE	REVISION	DATE FILED



DETAILS OF WIDENING FOR GUARD RAIL

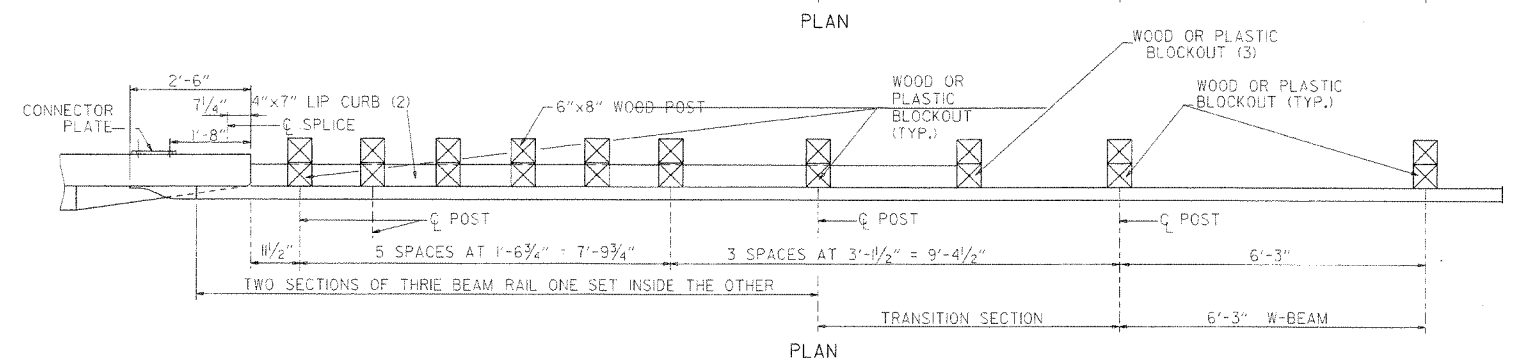
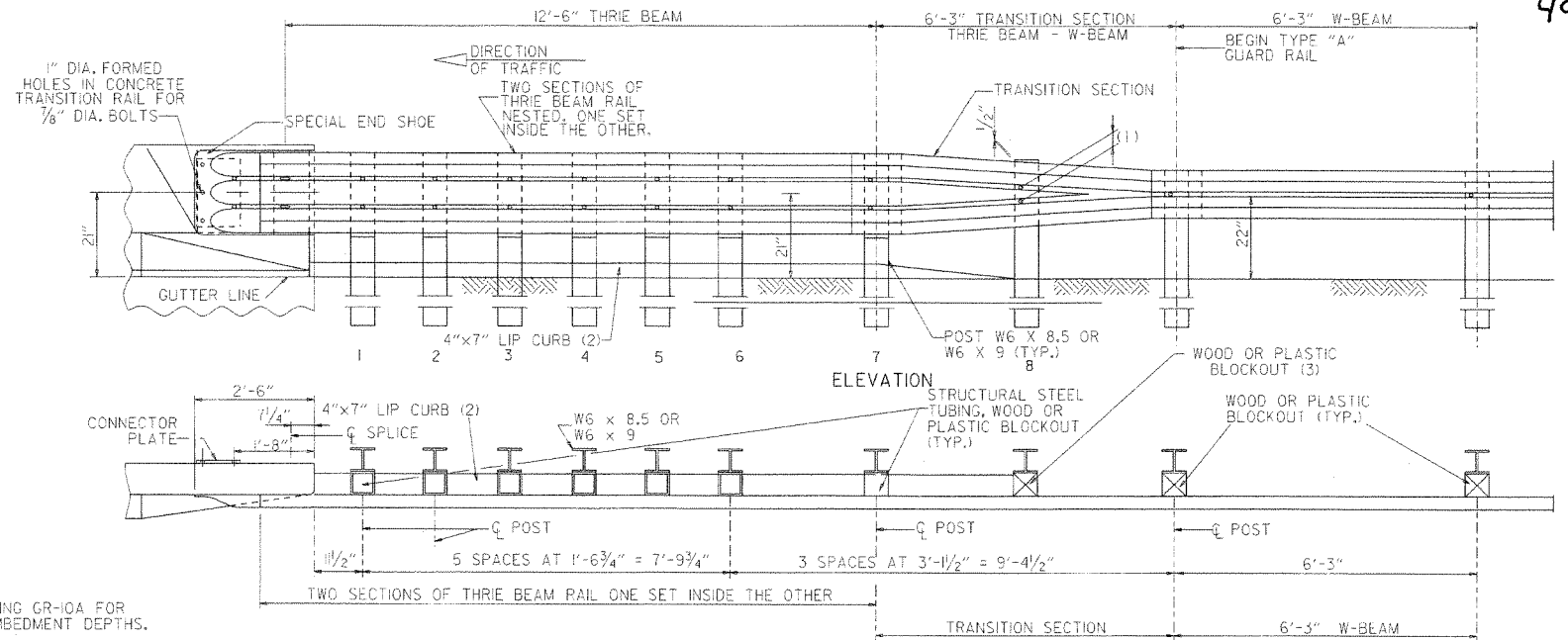
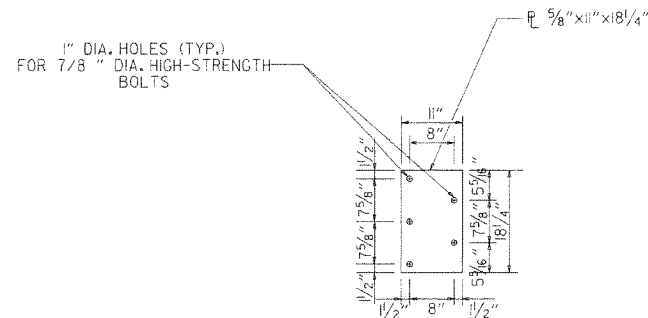
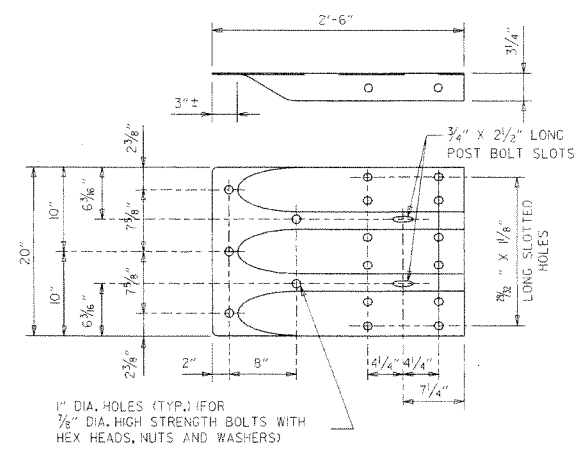
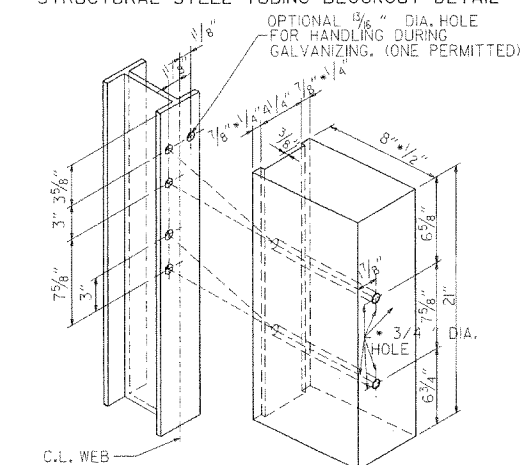
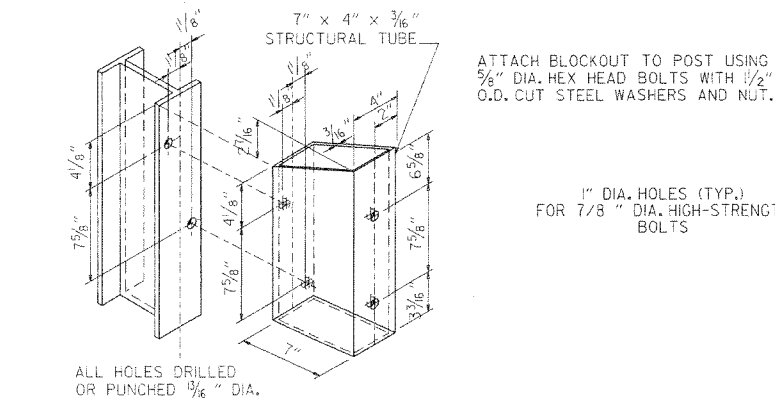
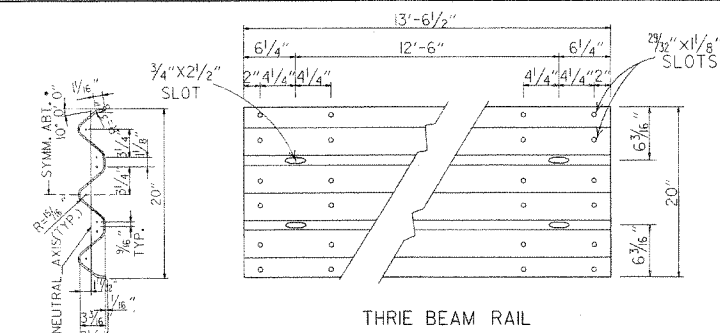


DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



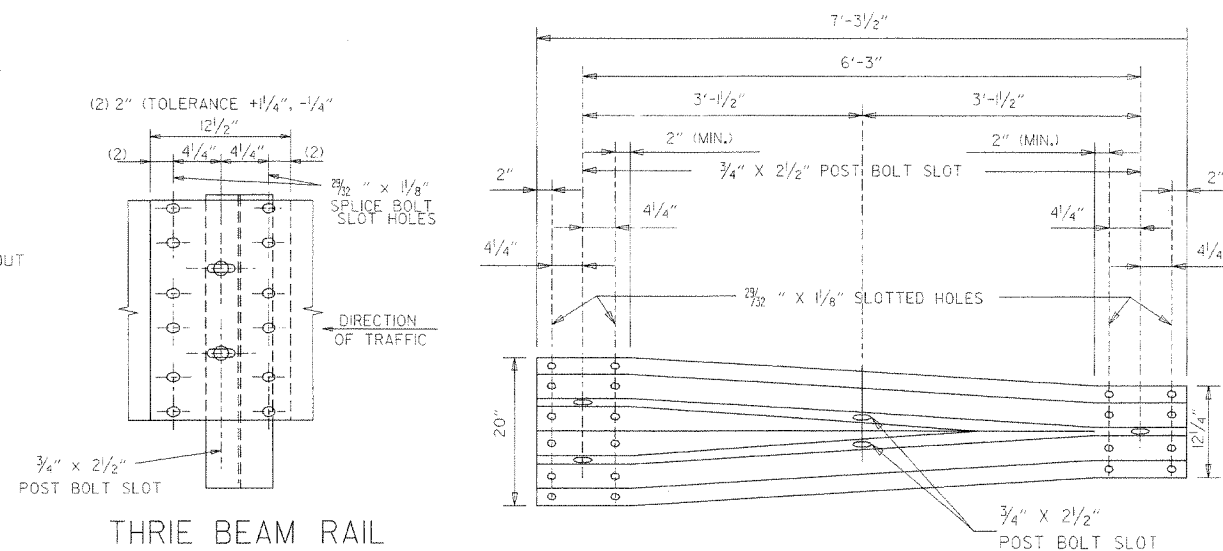
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

			ARKANSAS STATE HIGHWAY COMMISSION
			GUARD RAIL DETAILS
			STANDARD DRAWING GR-9A
4-17-08	MINOR REVISION		
8-10-05	DRAWN		
DATE	REVISION	DATE	FILM

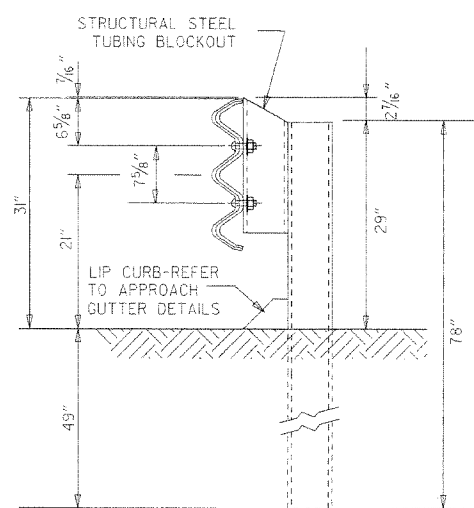


- (1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
- (2) REFER TO APPROACH GUTTER DETAILS.
- (3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

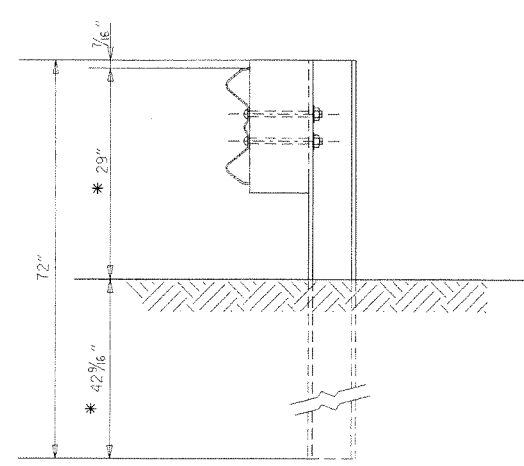
THREE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS



7-14-10	RAISED HEIGHT OF W-BEAM 1"		ARKANSAS STATE HIGHWAY COMMISSION
11-29-07	ADDED PLASTIC BLOCKOUTS		
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT		GUARD RAIL DETAILS
11-18-04	REVISED GENERAL NOTES		
10-9-03	REVISED GENERAL NOTES		STANDARD DRAWING GR-10
4-10-03	REVISED GENERAL NOTES		
8-22-02	REVISED NOTE (2)		
6-29-00	MOVED DIMENSION LINES		
5-18-00	ADDED NOTE		
3-30-00	DRAWN & ISSUED		
DATE	REVISION	DATE FILM	

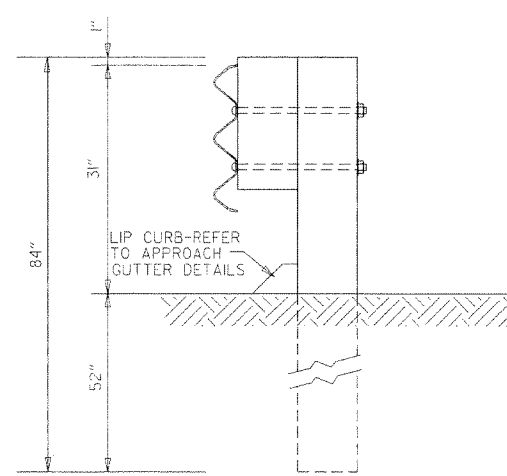


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

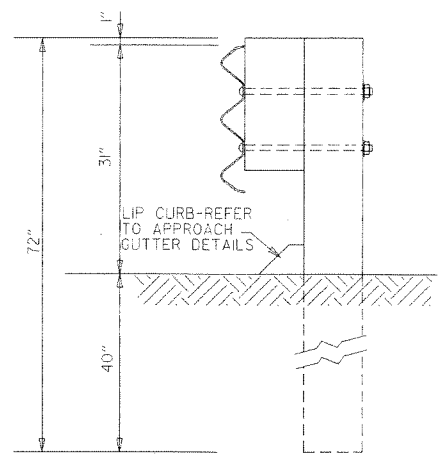


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

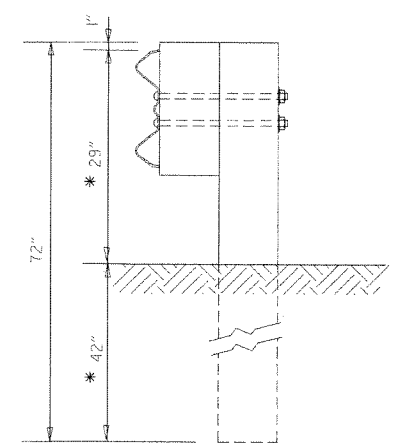
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED
IN THE FIELD TO MAKE THE TRANSITION FROM
21" MID POINT OF THRIE BEAM TO 22" MID POINT
OF W-BEAM.



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUTS & WOOD POSTS
POSTS 1-6



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUT & WOOD POST
POST 7



W-BEAM TO THRIE BEAM
TRANSITION RAIL WITH WOOD OR
PLASTIC BLOCKOUT & WOOD POST
POST 8

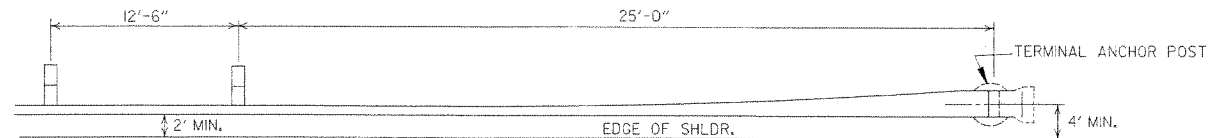
GENERAL NOTES:
RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND
VERTICALLY IN CROSS SECTION.
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR
BETTER 9.7f (1400 f) OR NO. 1 350 f SOUTHERN PINE.

ARKANSAS STATE HIGHWAY COMMISSION

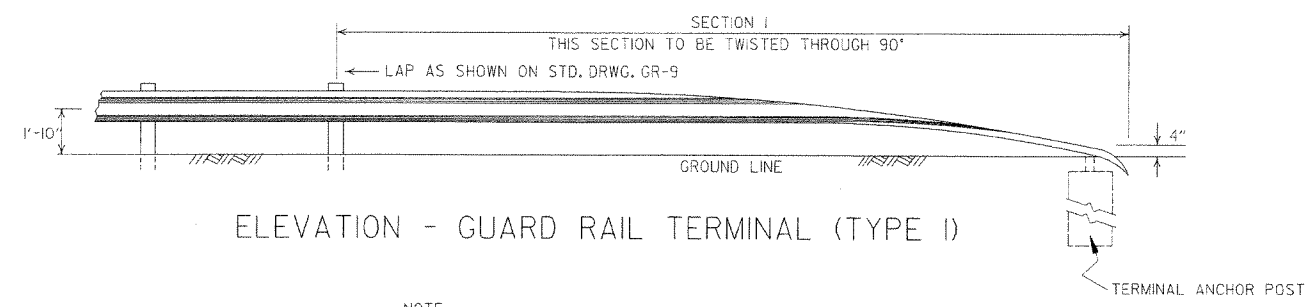
GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

DATE	REVISION	DATE FILM
7-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
8-22-02	REVISED LIP CURB NOTE	
3-30-00	DRAWN & ISSUED	

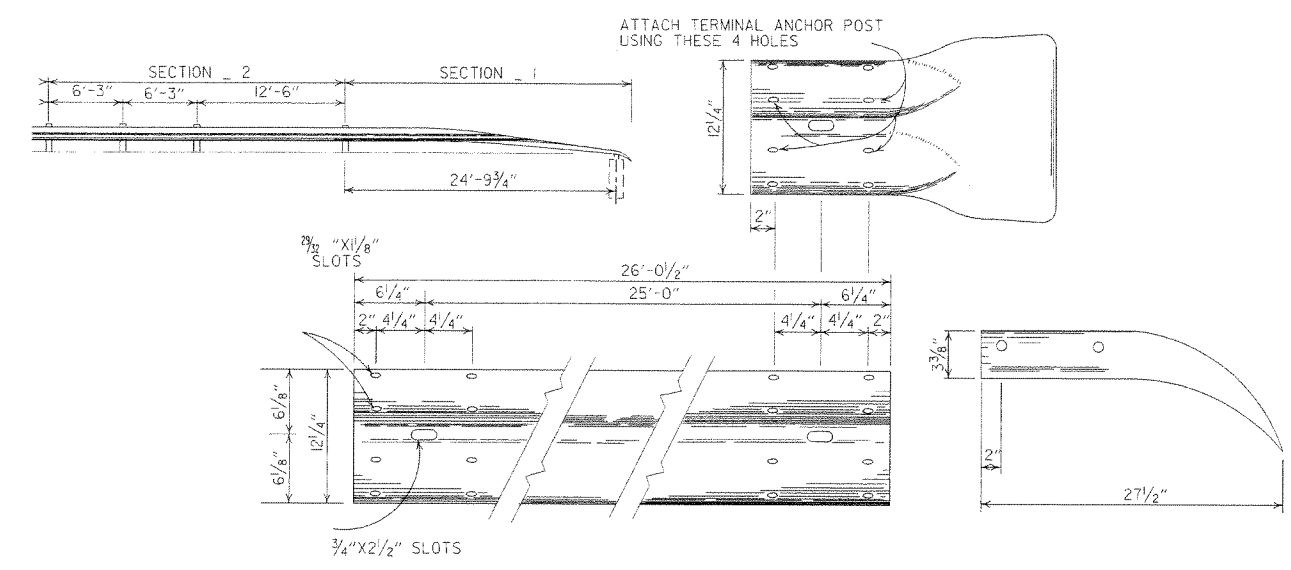


PLAN - GUARD RAIL TERMINAL (TYPE I)



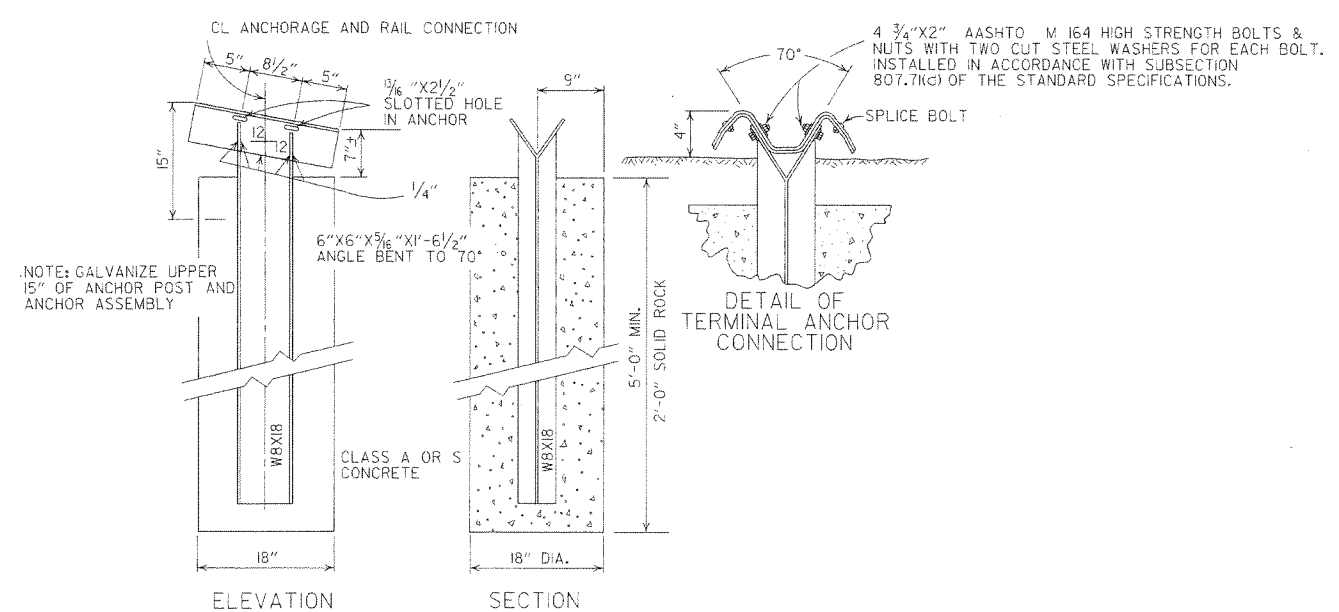
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

NOTE:
SECTIONS 1 AND 2 OF GUARD RAIL TERMINAL
SHALL BE PAID FOR AT THE PRICE BID PER
LINEAR FOOT OF THE TYPE OF GUARD RAIL SPECIFIED.



SECTION 1

TERMINAL SECTION



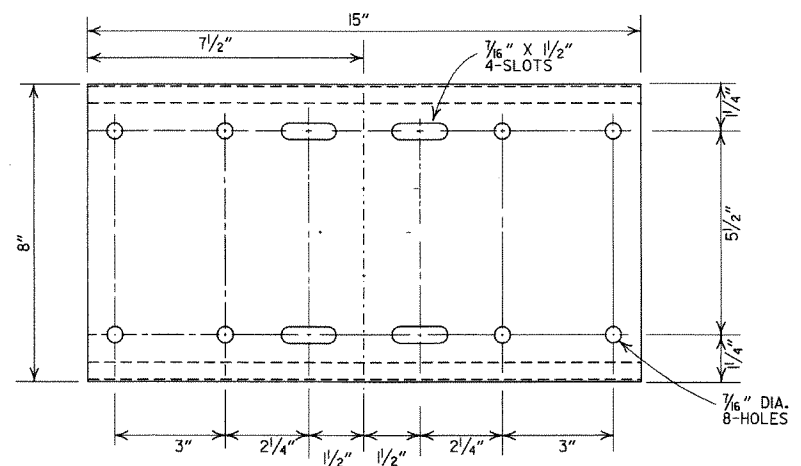
ELEVATION

SECTION

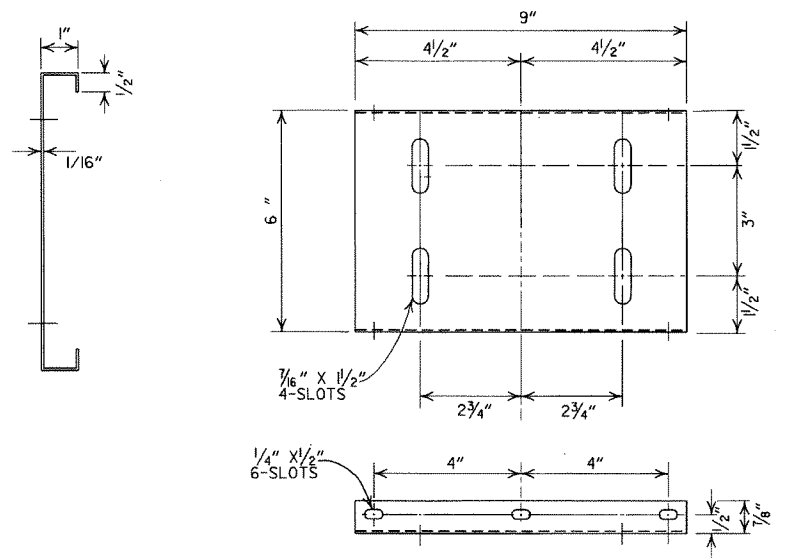
NOTE: RAIL MEMBERS MAY BE BOLTED TO ANGLE AT TERMINAL ANCHOR AND THE TWO ASSEMBLIES POSITIONED TO PROPER ALIGNMENT PRIOR TO PLACING CONCRETE AROUND 8 WF 17 POST IF CONTRACTOR SO DESIRES.

DETAIL OF TERMINAL ANCHOR POST (TYPE I)

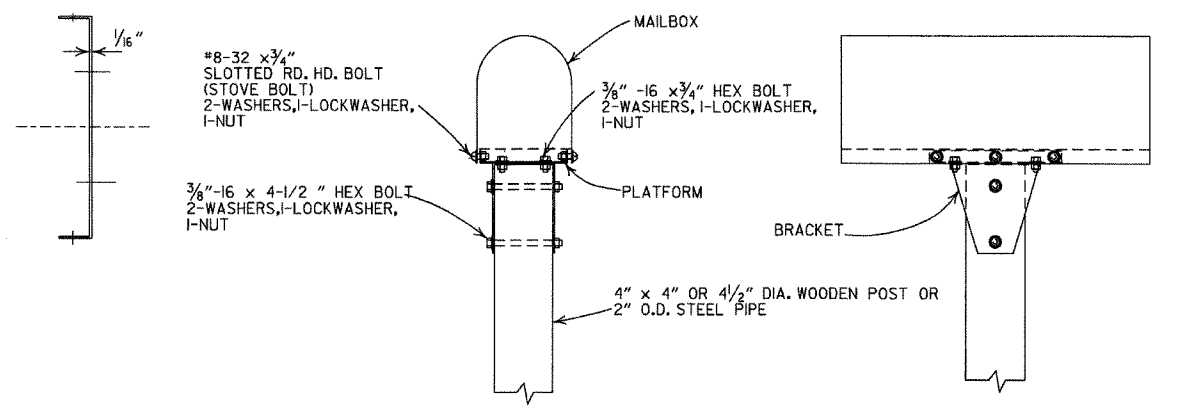
			ARKANSAS STATE HIGHWAY COMMISSION
			GUARD RAIL DETAILS
			STANDARD DRAWING GRT-1
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"		
6-26-97	REVISED LAP NOTE		
10-18-96	REVISED ASTM REF. TO AASHTO		
11-3-94	DIMENSION TERMINAL DETAIL		
11-11-92	ADDED NOTE FOR PAYMENT	11-11-92	
10-1-92	DRAWN & ISSUED	10-1-92	
DATE	REVISION	DATE	FILM



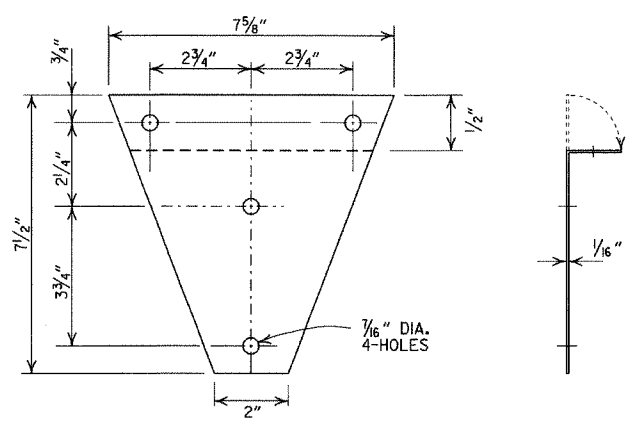
SHELF



PLATFORM

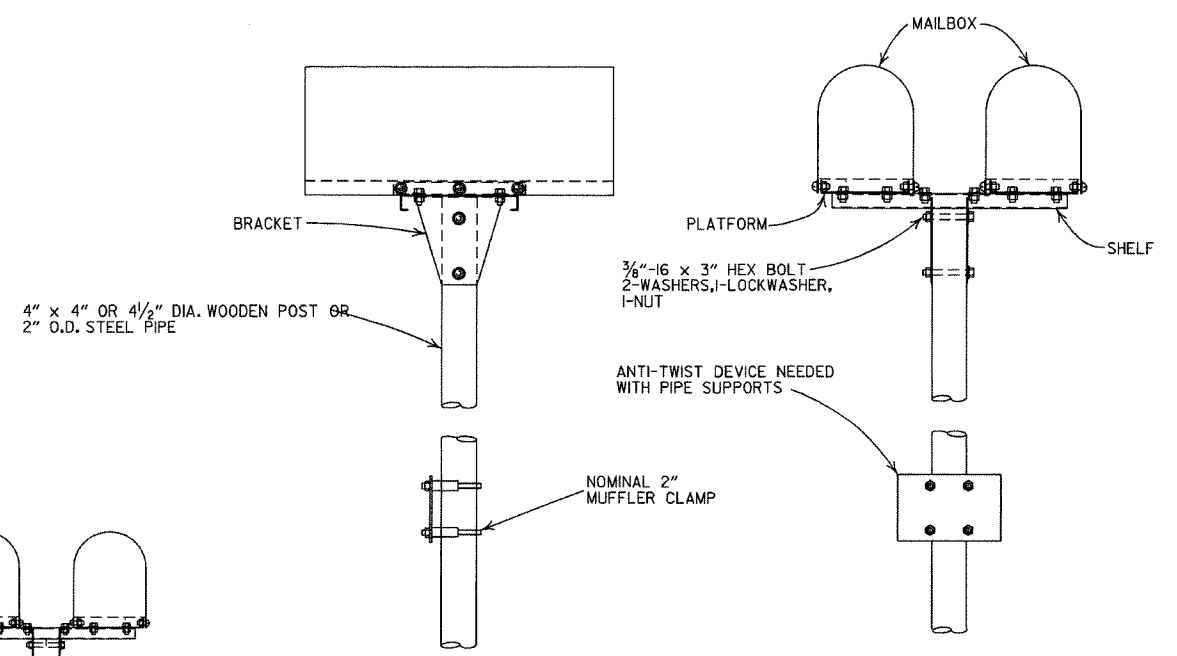


SINGLE INSTALLATION

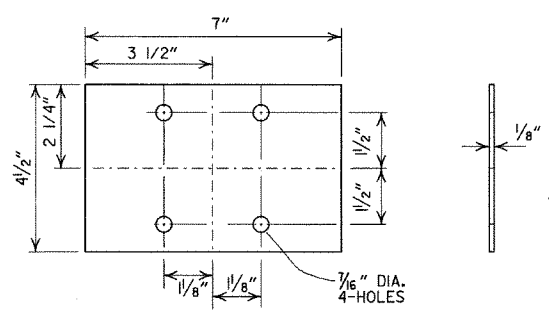


BRACKET

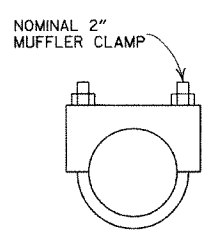
- GENERAL NOTES
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
 2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
 3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF 3/4" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X 3/4" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
 4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
 5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.45" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
 6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



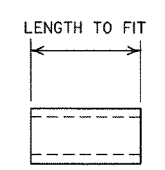
DOUBLE INSTALLATION



ANTI-TWIST PLATE

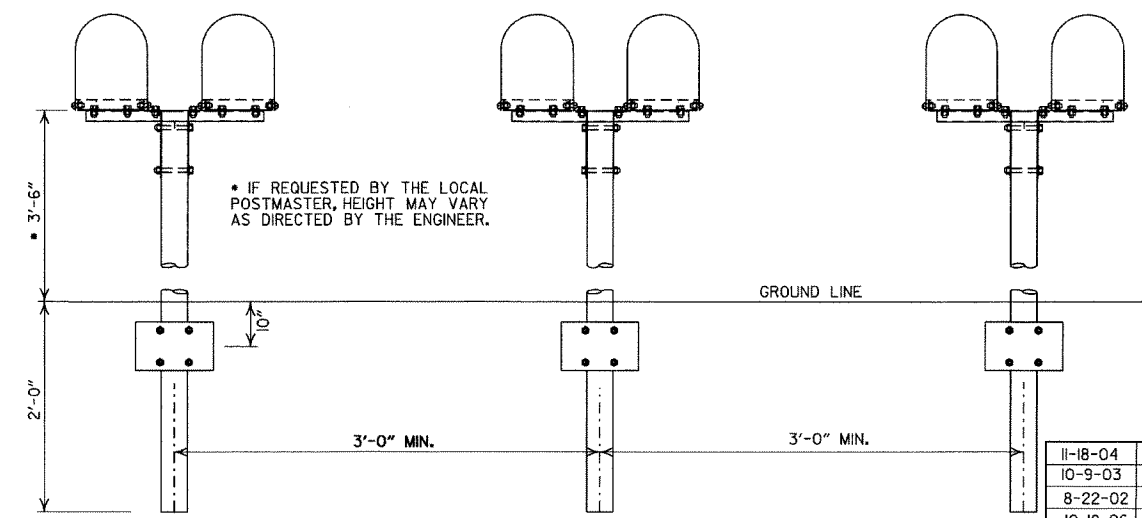


CLAMP



SPACER

NOMINAL 1/2" STD. WT. PIPE



SPACING FOR MULTIPLE POST INSTALLATION

DATE	FILED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	120-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

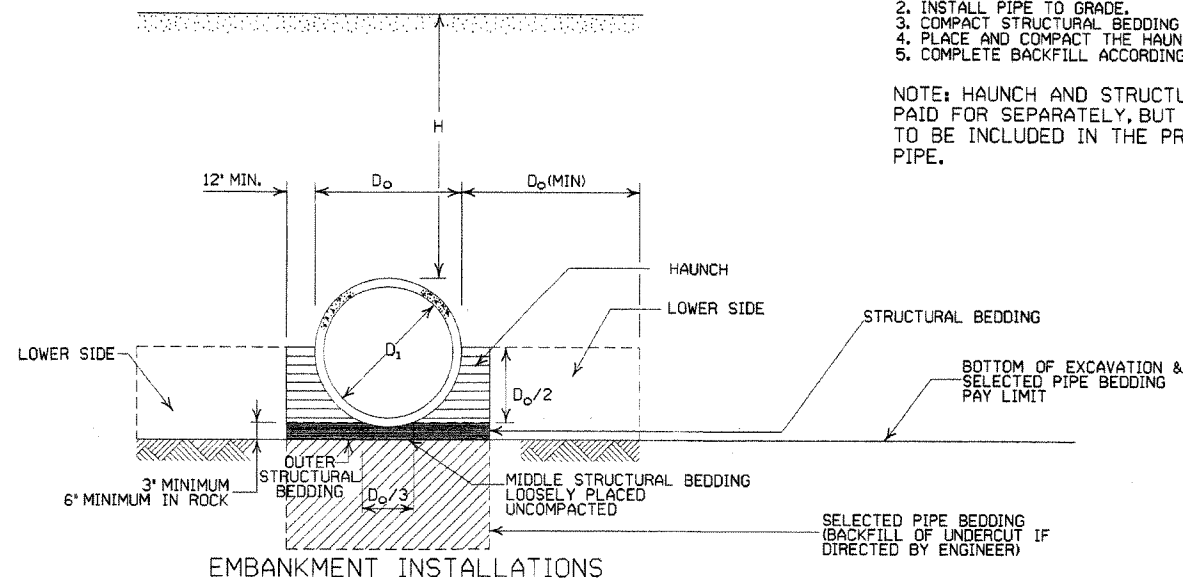
MAILBOX DETAILS

STANDARD DRAWING MB-1

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.

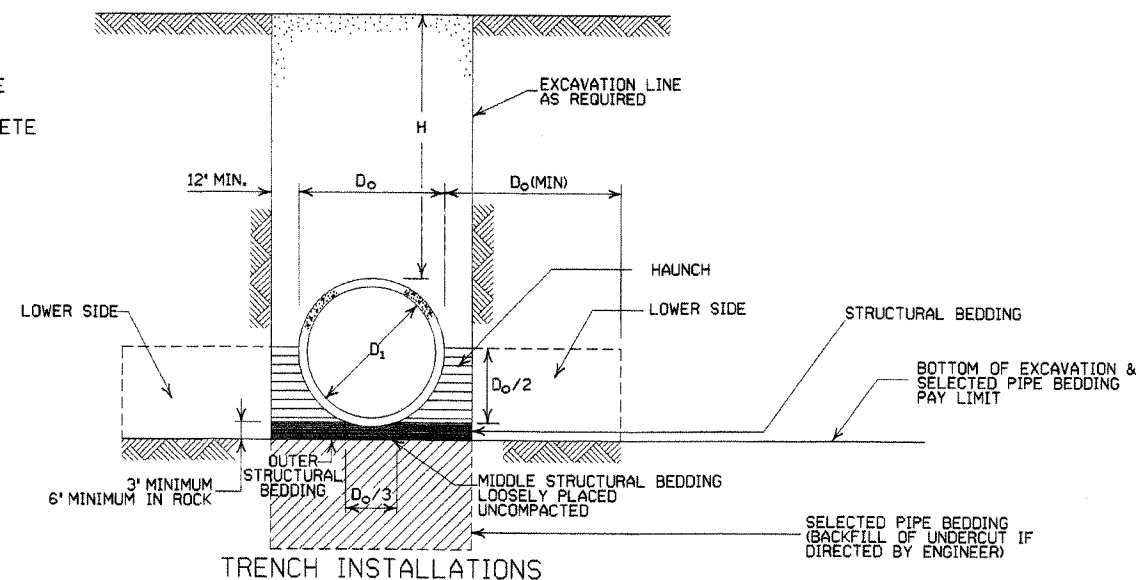
REINFORCED CONCRETE
ARCH PIPE DIMENSIONS

EQUIV. DIA. INCHES	*SPAN		*RISE	
	AASHTO M 206	AHD NOMINAL	AASHTO M 206	AHD NOMINAL
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 3/4	27
42	51 1/4	51	31 1/4	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 1/4	87
120	154	154	96 1/2	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.

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.'



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.

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.

- LEGEND -

D₁ = NORMAL INSIDE DIAMETER OF PIPE
D₀ = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT
FILL HEIGHTS & BEDDING

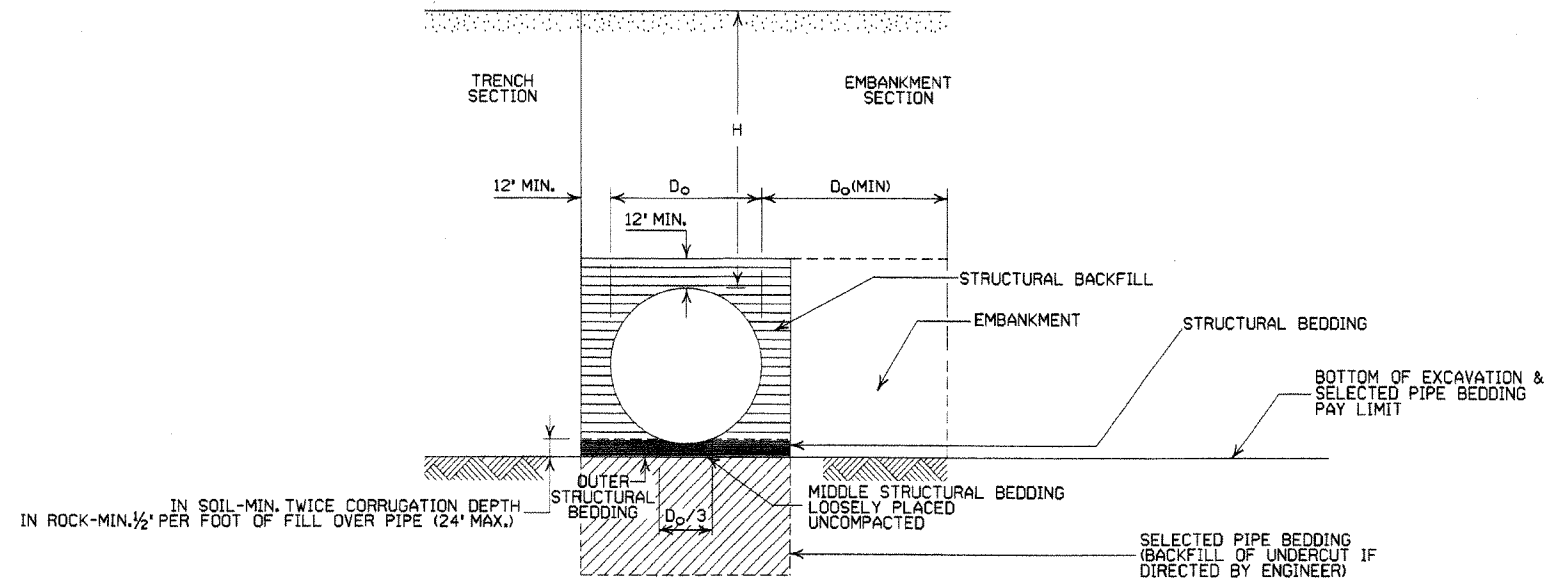
STANDARD DRAWING PCC-1

CORRUGATED STEEL 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				
		0.064	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			
24	12	42	36	59		
30	12	34	30	47		
36	12		30	39	41	
42	12		43	46	70	50
48	12		37	45	61	73
		3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION** RIVETED, WELDED, HELICAL, OR ROLTED				
36	12	48	68	89	111	131
42	12	41	61	84	107	127
48	12	36	57	77	99	119
54	12	32	52	71	90	110
60	12	29	49	66	84	104
66	12	26	47	63	81	101
72	12	24	44	60	77	97
78	12		41	57	73	93
84	12		38	54	69	89
90	12		35	51	66	86
96	12		33	49	63	83
102	24		31	47	61	81
108	24		30	46	60	80
114	24		28	43	57	77
120	24		27	42	56	76

* 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 1/2 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 GAGE 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.

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_o = OUTSIDE DIAMETER OF PIPE
 MAX. = MAXIMUM
 MIN. = MINIMUM
 = STRUCTURAL BACKFILL MATERIAL
 = 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	45			
18	12	30	30	52		
24	12	22	22	39	41	
30	12	18	18	31	32	34
36	12		15	26	27	28
42	12		26	43	43	44
48	12			40	41	43
54	12			35	37	38
60	12				33	34
66	12				30	31
72	12					29

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 HEIGHT 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		2 TONS	3 TONS
			2 1/2 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, OR HELICAL				2 1/2 INCH BY 1/2 INCH CORRUGATION RIVETED 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			
			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			

1 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 1/2 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 GAGE AND CORRUGATION.

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

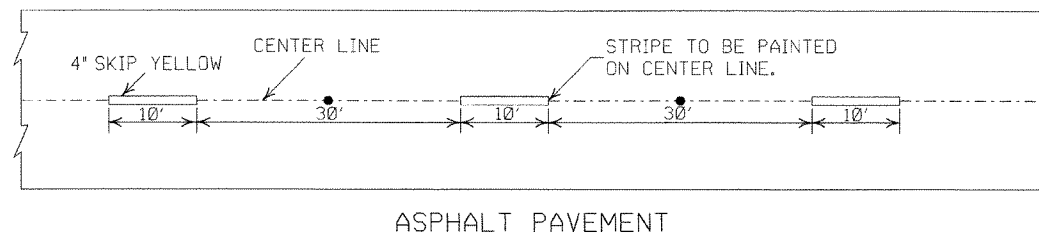
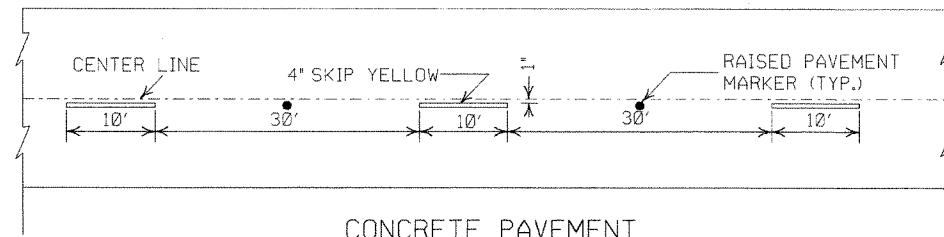
ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT
FILL HEIGHTS & BEDDING

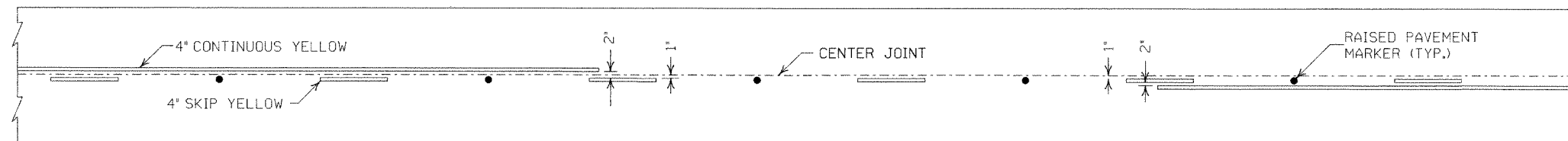
STANDARD DRAWING PCM-1

NOTES:

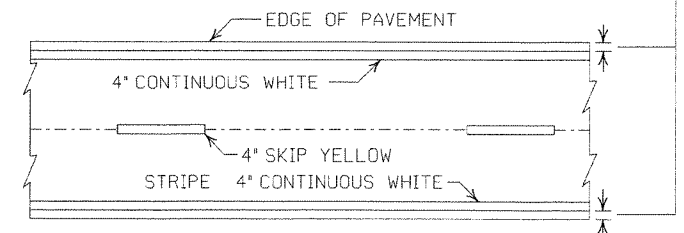
1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.



BROKEN LINE STRIPING

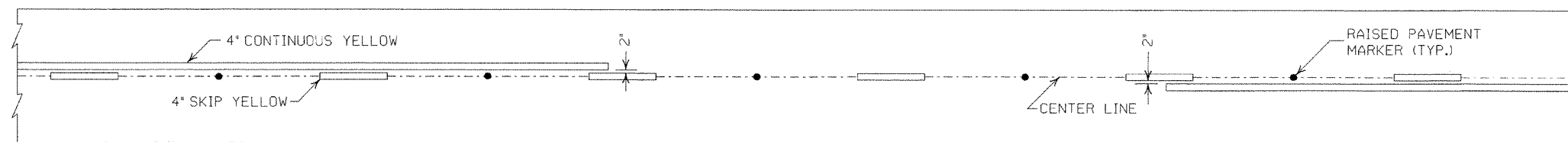


2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT

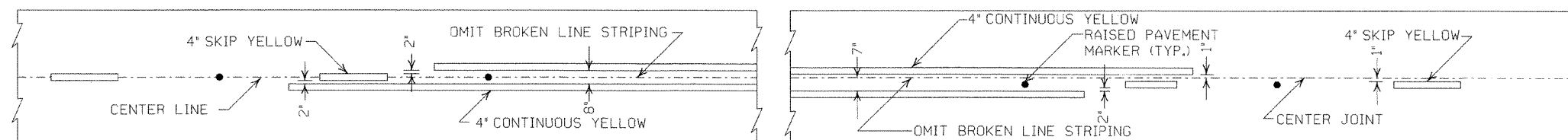


PAVEMENT EDGE LINE MARKING

SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT



TYPE II
RED/CLEAR OR
YELLOW/YELLOW

4.7"

PRISMATIC REFLECTOR

TYPE I
CLEAR OR
YELLOW

2.3"

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

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

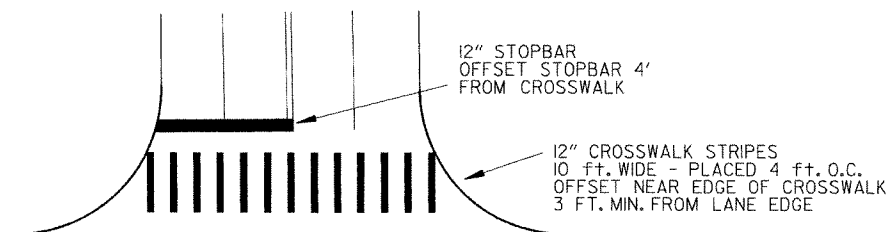
GENERAL NOTES:

THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY
AND THE FINAL LOCATION OF THE STRIPING AND RAISED
PAVEMENT MARKERS SHALL BE DETERMINED BY THE
ENGINEER.

THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH
THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES",
LATEST REVISION.

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

STRIPING AT ADJACENT NO PASSING LANES



CROSSWALK AND STOPBAR DETAILS

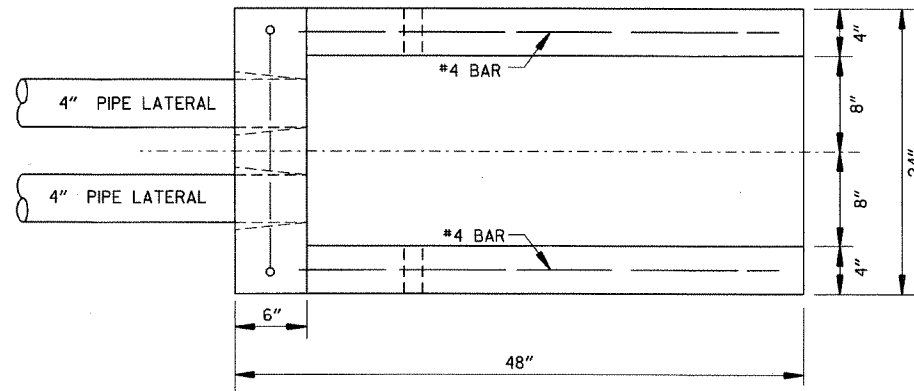
11-17-10	REVISED GENERAL NOTES & REMOVED FLOWABLE PVMT MARKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80
DATE	REVISION	FILMED

ARKANSAS STATE HIGHWAY COMMISSION

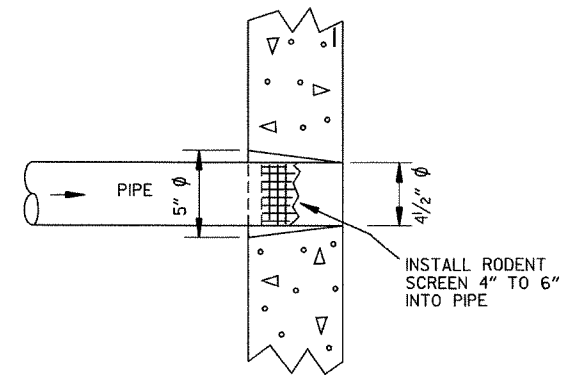
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

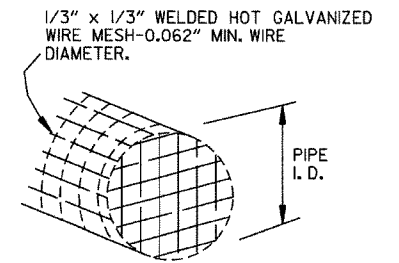
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.
2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



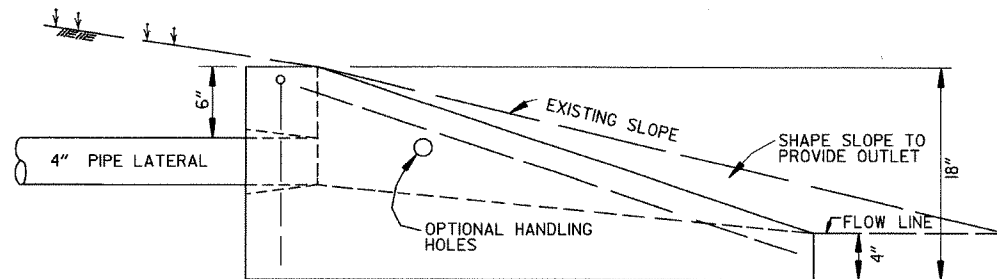
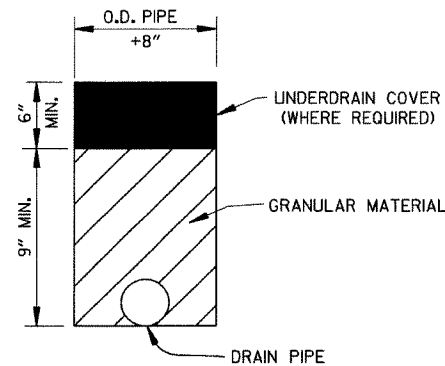
PLAN VIEW



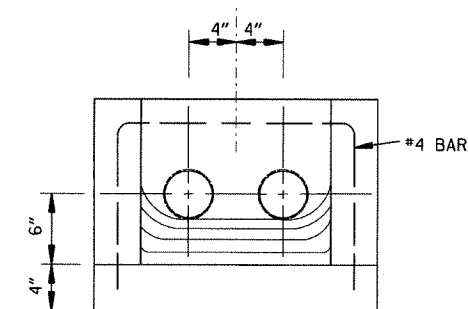
DETAIL OF HOLE FOR 4" PIPE



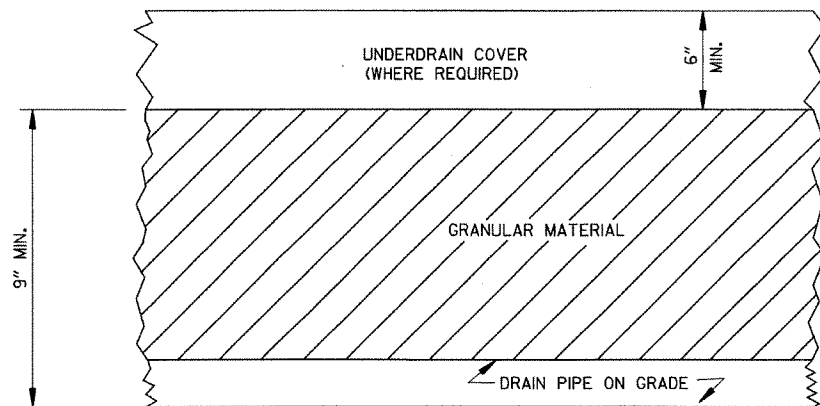
DETAIL OF RODENT SCREEN



SIDE VIEW



FRONT VIEW

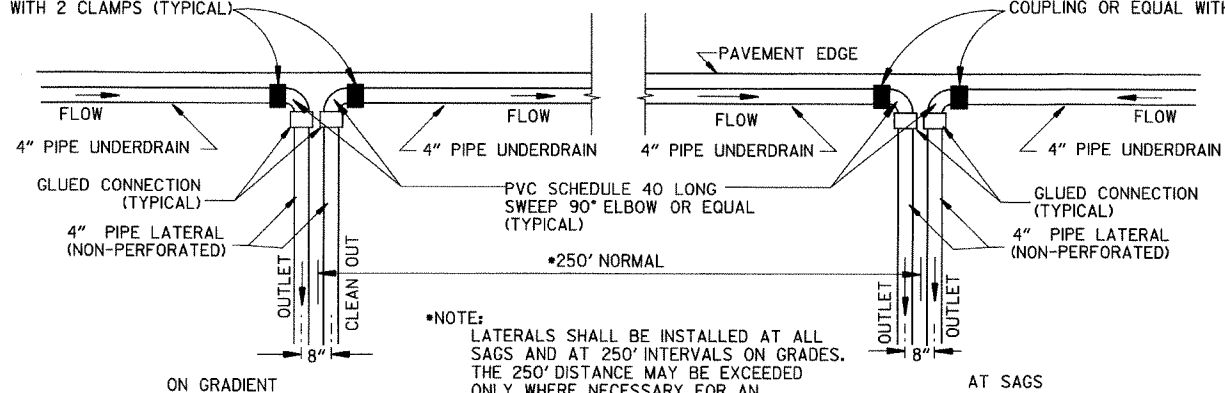


DETAILS OF PIPE UNDERDRAIN

FERNCO 1056-44 (4" CI/PLASTIC) OR
FERNCO 1051-44 (4" AC/DIOR 4" CI/PLASTIC)
COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)

UNDERDRAIN OUTLET PROTECTORS

FERNCO 1056-44 (4" CI/PLASTIC) OR
FERNCO 1051-44 (4" AC/DIOR 4" CI/PLASTIC)
COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)



NOTE:
LATERALS SHALL BE INSTALLED AT ALL SAGS AND AT 250' INTERVALS ON GRADES. THE 250' DISTANCE MAY BE EXCEEDED ONLY WHERE NECESSARY FOR AN ACCEPTABLE OUTLET.

DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5 1/2" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11-3-94	REVISED FOR DUAL LATERALS	11-3-94
10-1-92	SUBSTITUTED GEOTEXTILE	10-1-92
8-15-91	ADDED POLYETHYLENE PIPE	8-15-91
11-8-90	DELETED ALTERNATE NOTE	11-8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

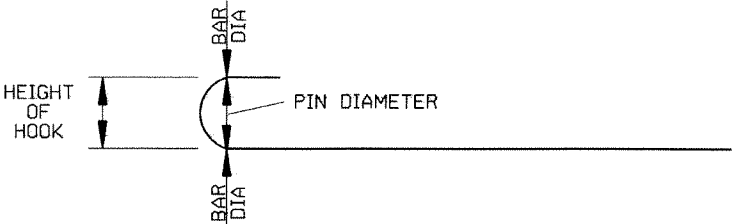
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2 1/4"	4"
4	3 "	4 1/2"
5	3 3/4"	5"
6	4 1/2"	6"
7	5 1/4"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2 3/4 INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

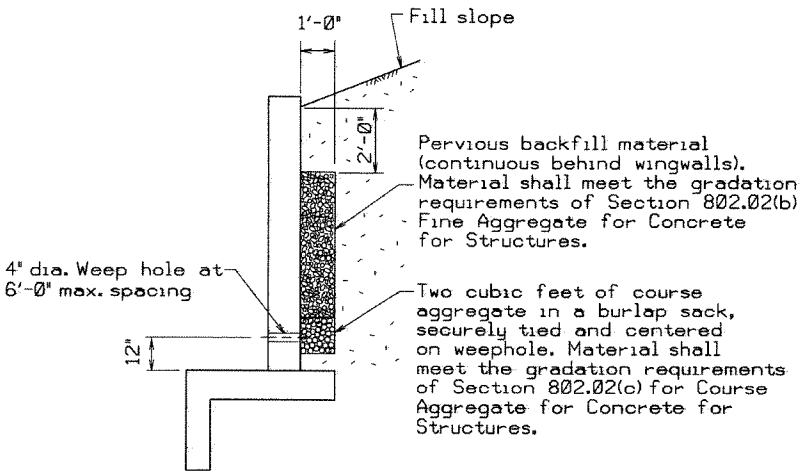
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

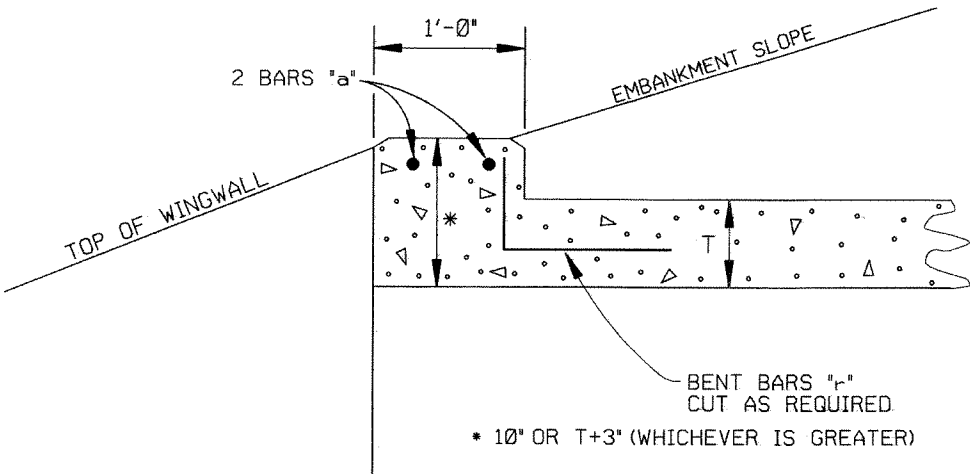
MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS 1/2 INCH.

WEEP HOLES IN WINGWALLS: THE MAXIMUM HORIZONTAL SPACING OF WEEP HOLES IN WINGWALLS SHALL BE 6'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND PLACED 12" ABOVE TOP OF WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

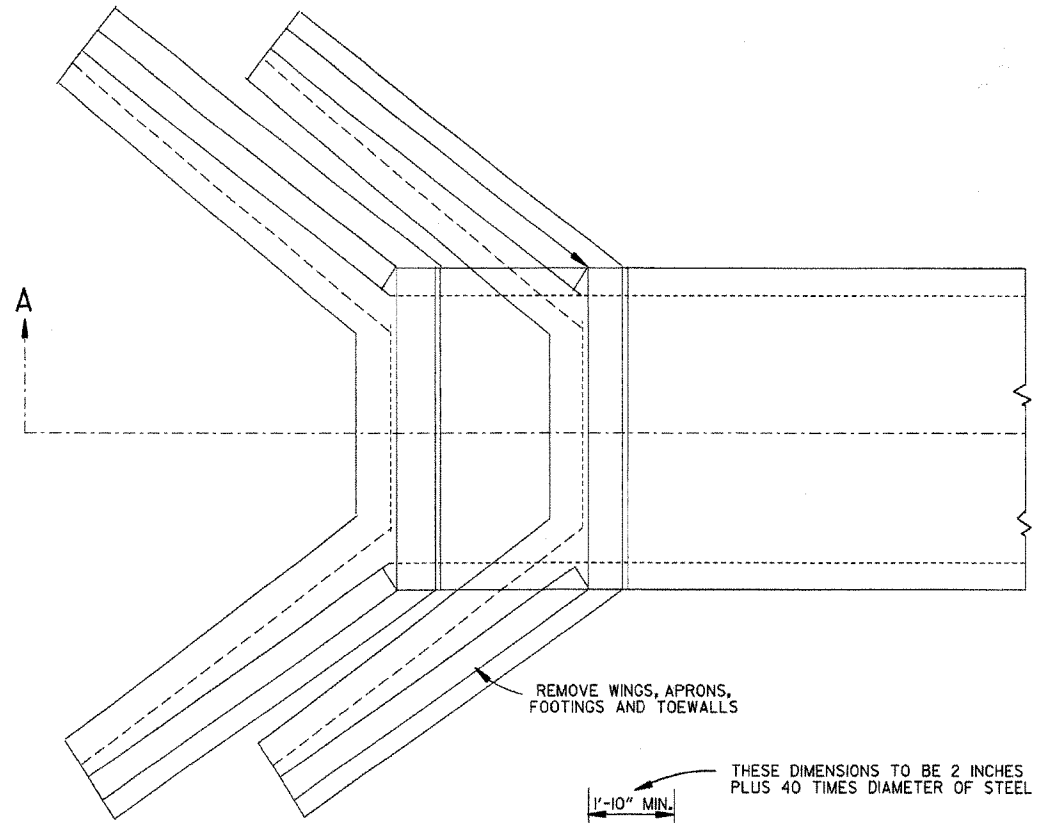
R.C. BOX CULVERT HEADWALL MODIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION

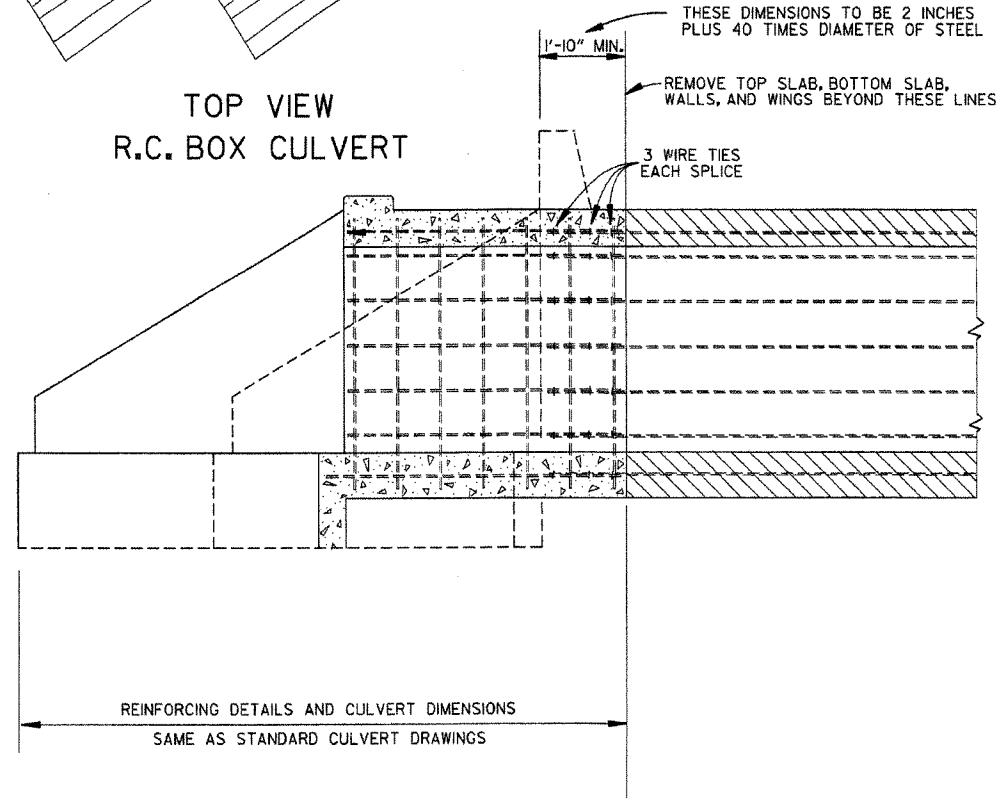
REINFORCED CONCRETE BOX
CULVERT DETAILS

STANDARD DRAWING RCB-1

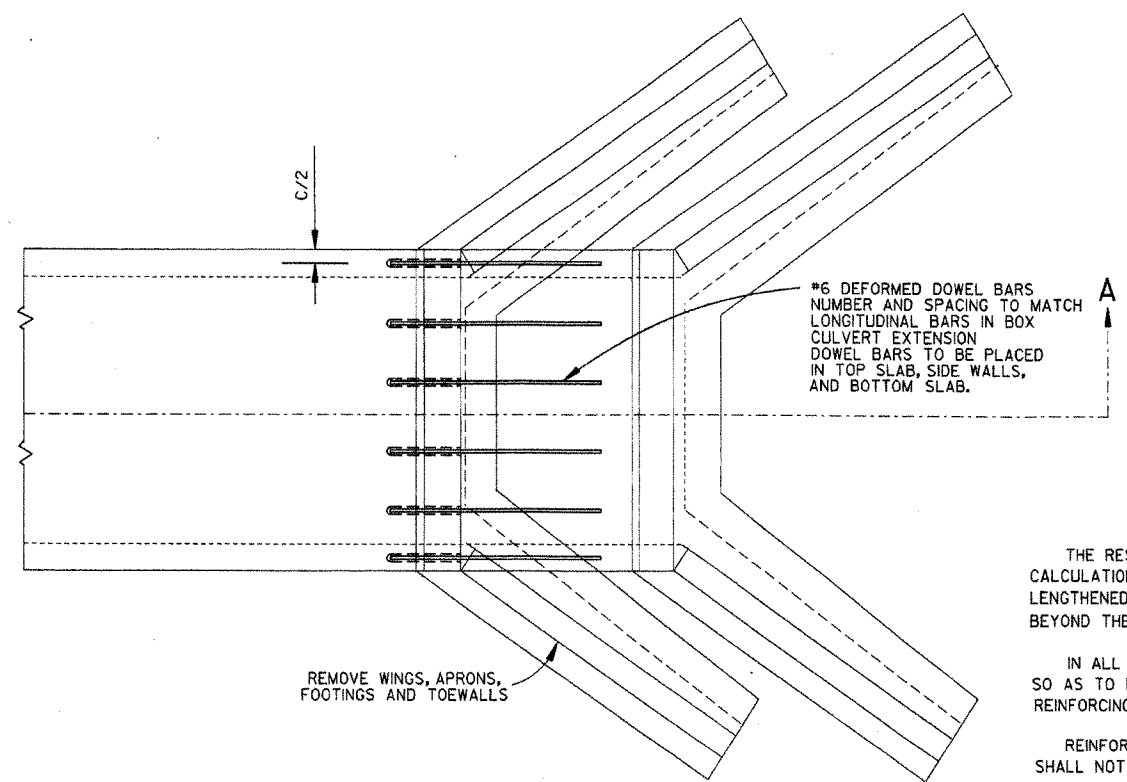
05-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO A- ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	
DATE	REVISION	DATE FILMED



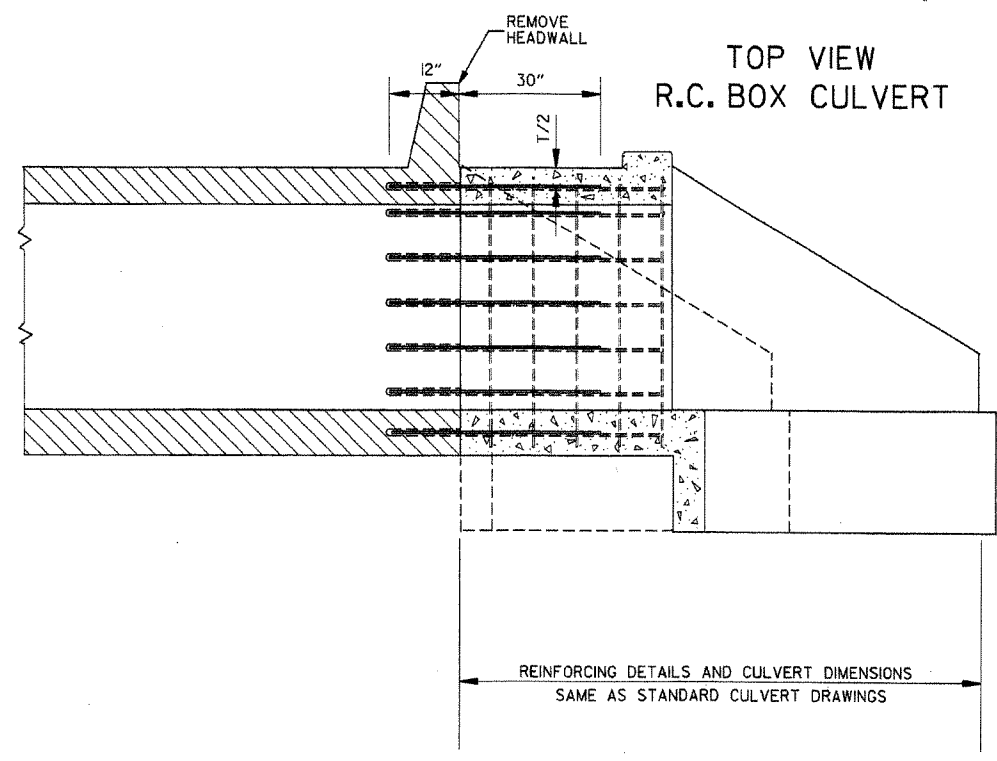
TOP VIEW
R.C. BOX CULVERT



SECTION A-A
METHOD 1



TOP VIEW
R.C. BOX CULVERT



SECTION A-A
METHOD 2

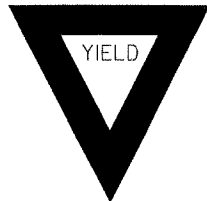
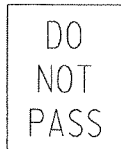
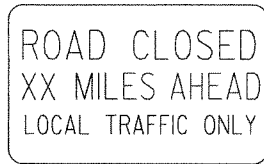
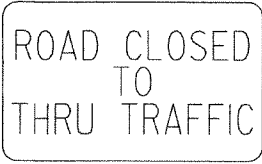
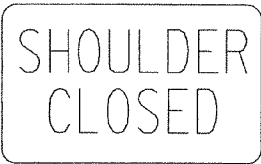
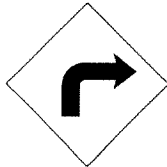
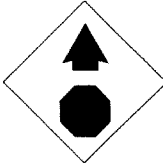
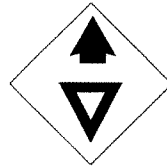
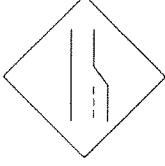
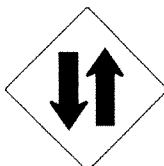
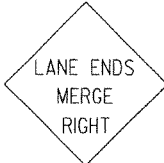
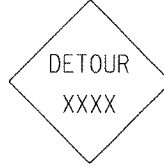
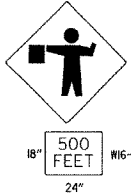
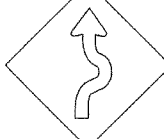
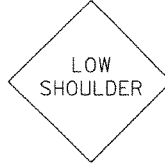
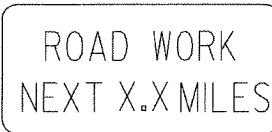
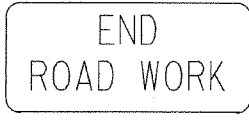
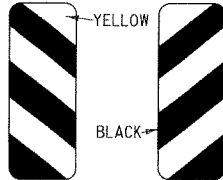
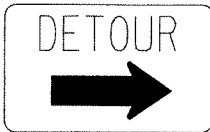
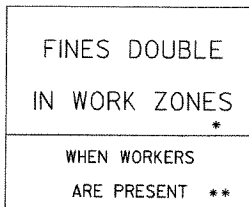
- GENERAL NOTES
- THE RESIDENT ENGINEER WILL MAKE INDIVIDUAL CALCULATIONS OF QUANTITIES FOR EACH STRUCTURE LENGTHENED, MAKING NO ALLOWANCE FOR OVERBREAKAGE BEYOND THE LINES INDICATED.
- IN ALL INSTANCES CONCRETE SHALL BE REMOVED SO AS TO PERMIT FULL 40 DIAMETER SPLICE OF REINFORCING STEEL.
- REINFORCING STEEL REMOVED FROM EXISTING STRUCTURE SHALL NOT BE REUSED IN CONSTRUCTING EXTENSION.
- ON R.C. BOX CULVERTS THAT HAVE AN EXISTING CONCRETE APRON, THE CONCRETE APRON SHALL BE REMOVED WITH THE WINGS. THE COST OF REMOVING ALL OLD CONCRETE WILL BE INCLUDED IN THE PRICE BID PER CUBIC YARD FOR NEW CONCRETE OF THE CLASS SPECIFIED AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- MATERIALS FOR SECURING DOWEL BARS SHALL MEET THE REQUIREMENTS OF SECTION 507.02 OF THE STANDARD SPECIFICATIONS.
- DOWEL BARS SHALL BE INSTALLED AS FOLLOWS: THE DRILLING PROCEDURE SHALL BE APPROVED BY THE ENGINEER, THE FILLING SYSTEM SHALL BE APPROVED BY THE ENGINEER, AND SHALL BE AN INJECTION-TYPE SYSTEM WHICH WILL INSURE THAT SUFFICIENT MATERIAL IS INJECTED SO IT COMPLETELY SURROUNDS THE BARS AND FILLS THE HOLES.
- THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER METHOD 1 OR METHOD 2, REGARDLESS OF WHICH METHOD IS USED, PAY QUANTITIES WILL BE CALCULATED BASED ON METHOD 1.

NOTE:
NO PART OF THIS STANDARD IS TO BE USED FOR ANY DETAILS RELATIVE TO NEW CONSTRUCTION.
SEE STANDARD DRAWING LISTED IN TABULATION OF STRUCTURES FOR ALL NEW CONSTRUCTION DETAILS.

ARKANSAS STATE HIGHWAY COMMISSION		
METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS		
STANDARD DRAWING RCB-3		
10-12-95	CHANGED DRAWING * FROM 144-A	
4-1-93	ADDED GENERAL NOTE	
10-1-92	ADDED ALT. METHOD OF EXTENSION	
11-30-89	REDRAWN	
1-4-83	ELIMINATED CONCRETE CLASS	
12-20-56	RETRACED	
DATE	REVISION	DATE FILM

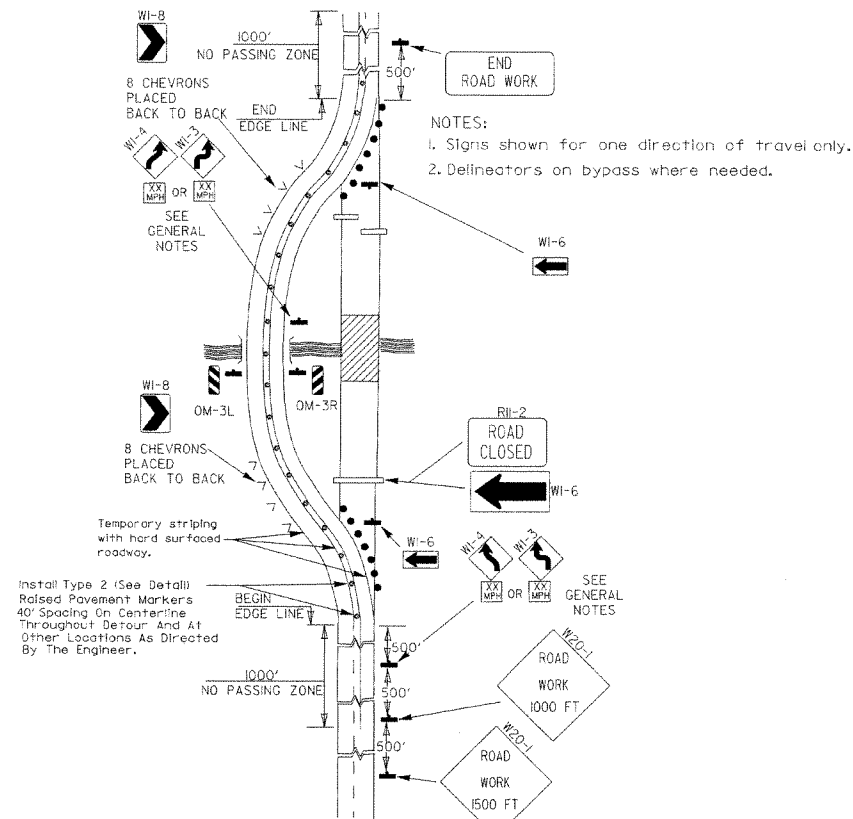
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH		40 MPH		50 MPH		55 MPH		60 MPH		70 MPH	
	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)
0° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
0° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
0° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
2° 00'	R.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
2° 15'	R.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
2° 30'	0.021		0.021		0.031		0.037		0.043		0.054	
2° 45'	0.023		0.025		0.036		0.043		0.049		0.062	
3° 00'	0.025		0.028		0.040		0.048		0.055		0.070	
3° 15'	0.027		0.031		0.045		0.053		0.061		0.078	
3° 30'	0.029		0.034		0.049		0.058		0.067		0.085	
3° 45'	0.031		0.037		0.053		0.063		0.072		0.091	
4° 00'	0.033		0.040		0.057		0.067		0.077		0.096	
4° 15'	0.035		0.043		0.061		0.072		0.082		0.100	
4° 30'	0.037		0.046		0.065		0.076		0.086		0.108	
4° 45'	0.039		0.049		0.069		0.080		0.090		0.110	
5° 00'	0.041		0.051		0.072		0.083		0.093		0.115	
5° 15'	0.043		0.053		0.074		0.085		0.095		0.118	
5° 30'	0.045		0.056		0.076		0.087		0.097		0.120	
5° 45'	0.047		0.058		0.078		0.089		0.099		0.122	
6° 00'	0.049		0.060		0.080		0.091		0.101		0.125	
6° 15'	0.051		0.062		0.082		0.093		0.103		0.128	
6° 30'	0.053		0.064		0.084		0.095		0.105		0.130	
6° 45'	0.055		0.066		0.086		0.097		0.107		0.132	
7° 00'	0.057		0.068		0.088		0.099		0.109		0.135	
7° 15'	0.059		0.070		0.090		0.101		0.111		0.138	
7° 30'	0.061		0.072		0.092		0.103		0.113		0.140	
7° 45'	0.063		0.074		0.094		0.105		0.115		0.142	
8° 00'	0.065		0.076		0.096		0.107		0.117		0.145	
8° 15'	0.067		0.078		0.098		0.109		0.119		0.148	
8° 30'	0.069		0.080		0.100		0.111		0.121		0.150	
8° 45'	0.071		0.082		0.102		0.113		0.123		0.152	
9° 00'	0.073		0.084		0.104		0.115		0.125		0.155	
9° 15'	0.075		0.086		0.106		0.117		0.127		0.158	
9° 30'	0.077		0.088		0.108		0.119		0.129		0.160	
9° 45'	0.079		0.090		0.110		0.121		0.131		0.162	
10° 00'	0.081		0.092		0.112		0.123		0.133		0.165	
10° 15'	0.083		0.094		0.114		0.125		0.135		0.168	
10° 30'	0.085		0.096		0.116		0.127		0.137		0.170	
10° 45'	0.087		0.098		0.118		0.129		0.139		0.172	
11° 00'	0.089		0.100		0.120		0.131		0.141		0.175	
11° 15'	0.091		0.102		0.122		0.133		0.143		0.178	
11° 30'	0.093		0.104		0.124		0.135		0.145		0.180	
11° 45'	0.095		0.106		0.126		0.137		0.147		0.182	
12° 00'	0.097		0.108		0.128		0.139		0.149		0.185	
12° 15'	0.099		0.110		0.130		0.141		0.151		0.188	
12° 30'	0.101		0.112		0.132		0.143		0.153		0.190	
12° 45'	0.103		0.114		0.134		0.145		0.155		0.192	
13° 00'	0.105		0.116		0.136		0.147		0.157		0.195	
13° 15'	0.107		0.118		0.138		0.149		0.159		0.198	
13° 30'	0.109		0.120		0.140		0.151		0.161		0.200	
13° 45'	0.111		0.122		0.142		0.153		0.163		0.202	
14° 00'	0.113		0.124		0.144		0.155		0.165		0.205	
14° 15'	0.115		0.126		0.146		0.157		0.167		0.208	
14° 30'	0.117		0.128		0.148		0.159		0.169		0.210	
14° 45'	0.119		0.130		0.150		0.161		0.171		0.212	
15° 00'	0.121		0.132		0.152		0.163		0.173		0.215	
15° 15'	0.123		0.134		0.154		0.165		0.175		0.218	
15° 30'	0.125		0.136		0.156		0.167		0.177		0.220	
15° 45'	0.127		0.138		0.158		0.169		0.179		0.222	
16° 00'	0.129		0.140		0.160		0.171		0.181		0.225	
16° 15'	0.131		0.142		0.162		0.173		0.183		0.228	
16° 30'	0.133		0.144		0.164		0.175		0.185		0.230	
16° 45'	0.135		0.146		0.166		0.177		0.187		0.232	
17° 00'	0.137		0.148		0.168		0.179		0.189		0.235	
17° 15'	0.139		0.150		0.170		0.181		0.191		0.238	
17° 30'	0.141		0.152		0.172		0.183		0.193		0.240	
17° 45'	0.143		0.154		0.174		0.185		0.195		0.242	
18° 00'	0.145		0.156		0.176		0.187		0.197		0.245	
18° 15'	0.147		0.158		0.178		0.189		0.199		0.248	
18° 30'	0.149		0.160		0.180		0.191		0.201		0.250	
18° 45'	0.151		0.162		0.182		0.193		0.203		0.252	
19° 00'	0.153		0.164		0.184		0.195		0.205		0.255	
19° 15'	0.155		0.166		0.186		0.197		0.207		0.258	
19° 30'	0.157		0.168		0.188		0.199		0.209		0.260	
19° 45'	0.159		0.170		0.190		0.201		0.211		0.262	
20° 00'	0.161		0.172		0.192		0.203		0.213		0.265	
20° 15'	0.163		0.174		0.194		0.205		0.215		0.268	
20° 30'	0.165		0.176		0.196		0.207		0.217		0.270	
20° 45'	0.167		0.178		0.198		0.209		0.219		0.272	
21° 00'	0.169		0.180		0.200		0.211		0.221		0.275	
21° 15'	0.171		0.182		0.202		0.213		0.223		0.278	
21° 30'	0.173		0.184		0.204		0.215		0.225		0.280	
21° 45'	0.175		0.186		0.206		0.217		0.227		0.282	
22° 00'	0.177		0.188		0.208		0.219		0.229		0.285	
22° 15'	0.179		0.190		0.210		0.221		0.231		0.288	
22° 30'	0.181		0.192		0.212		0.223		0.233		0.290	
22° 45'	0.183		0.194		0.214		0.225		0.235		0.292	
23° 00'	0.185		0.196		0.216		0.227		0.237		0.295	
23° 15'	0.187		0.198		0.218		0.229		0.239		0.298	
23° 30'	0.189		0.200		0.220		0.231		0.241		0.300	
23° 45'	0.191		0.202		0.222		0.233		0.243		0.302	
24° 00'	0.193		0.204		0.224		0.235		0.245		0.305	
24° 15'	0.195		0.206		0.226		0.237		0.247		0.308	
24° 30'	0.197		0.208		0.228		0.239		0.249		0.310	
24° 45'	0.199		0.210		0.230		0.241		0.251		0.312	
25° 00'	0.201		0.212		0.232		0.243		0.253		0.315	
25° 15'	0.203		0.214		0.234		0.245		0.255		0.318	
25° 30'	0.205		0.216		0.236		0.247		0.257		0.320	
25° 45'	0.207		0.218		0.238		0.249		0.259		0.322	
26° 00'	0.209		0.220		0.240		0.251		0.261		0.325	
26° 15'	0.211		0.222		0.242		0.253		0.263		0.328	
26° 30'	0.213		0.224		0.244		0.255		0.265		0.330	
26° 45'	0.215		0.226		0.246		0.257		0.267		0.332	
27° 00'	0.217		0.228		0.248		0.259		0.269		0.335	
27° 15'	0.219		0.230		0.250		0.261		0.271		0.338	
27° 30'	0.221		0.232		0.252		0.263		0.273		0.340	
27° 45'	0.223		0.234		0.254		0.265		0.275		0.342	
28° 00'	0.225		0.236		0.256		0.267		0.277		0.345	
28° 15'	0.227		0.238		0.258		0.269		0.279		0.348	
28° 30'	0.229		0.240		0.260		0.271		0.281		0.350	
28° 45'	0.231		0.242		0.262		0.273		0.283		0.352	
29° 00'	0.233		0.244		0.264		0.275		0.285		0.355	
29° 15'	0.235		0.246		0.266		0.277		0.287		0.358	
29° 30'	0.237		0.248		0.268		0.279		0.289		0.360	
29° 45'	0.239		0.250		0.270		0.281		0.291		0.362	
30° 00'	0.241		0.252		0.272		0.283		0.293		0.365	
30° 15'	0.243		0.254		0.274		0.285		0.295		0.368	
30° 30'	0.245											

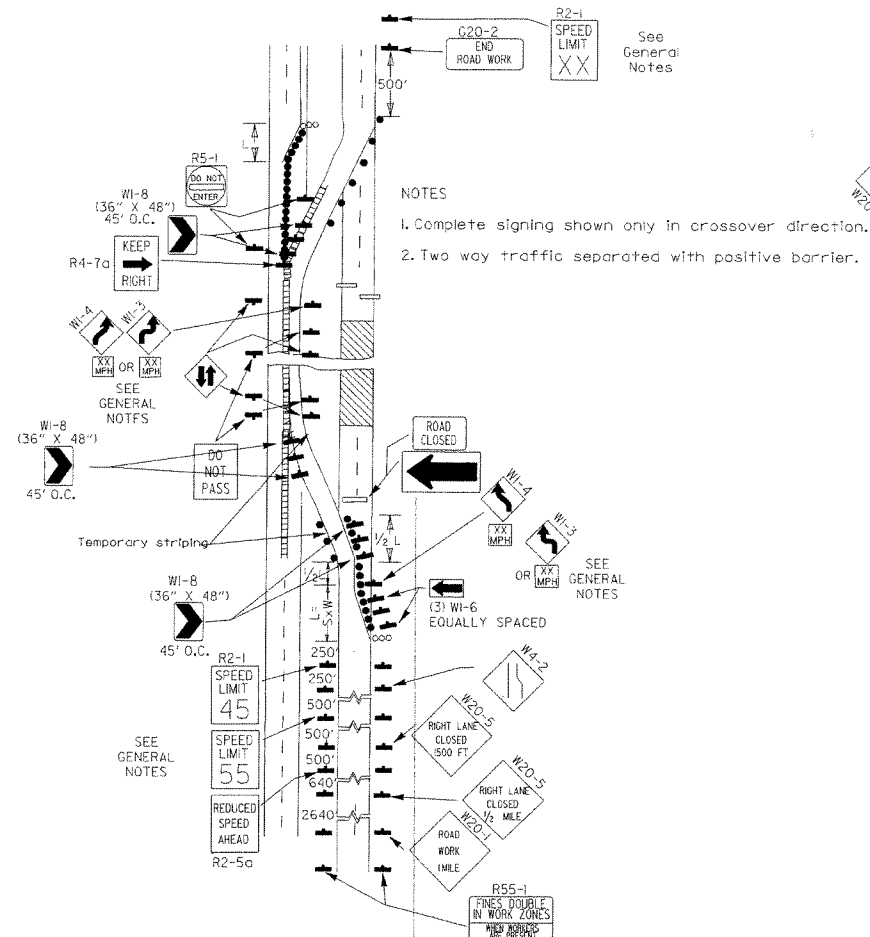
RI-1  STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"	RI-2  STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"	R2-1  STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"	R2-5A  STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"	R2-5C  STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"	R4-1  STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"	R4-2  STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"	ADVANCE DISTANCES (XXXX) 500 FT 1/2 MILE 1000 FT 3/4 MILE 1500 FT 1 MILE AHEAD GENERAL NOTES: 1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION. 2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER. 3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED. 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE. 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3. 6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE. 7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS. 8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDOLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS. 9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT. 10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN. * NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.	
R5-1  STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"	R11-2  48"x30"	R11-3A  60"x30"	R11-4  60"x30"	RSP-1  48"x30"	WI-1  STD. 36"x36" FWY. 48"x48"	WI-2  STD. 36"x36" FWY. 48"x48"		
WI-3  STD. 48"x48"	WI-4  STD. 48"x48"	WI-6  STD. 48"x24" SPECIAL 60"x30"	WI-8  STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"	W3-1  STD. 36"x36" SPECIAL 48"x48"	W3-2  STD. 36"x36" SPECIAL 48"x48"	W4-2  STD. 36"x36" FWY. 48"x48"		
W5-1  STD. 36"x36" SPECIAL 48"x48"	W6-3  EXPWY. 36"x36" SPECIAL 48"x48"	W8-7  EXPWY. 36"x36" FWY. 48"x48"	W9-2  STD. 36"x36" FWY. 48"x48"	W13-1  STD. 24"x24"	W20-1  STD. 48"x48"	W20-2  STD. 48"x48"	W20-3  STD. 48"x48"	
W20-4  STD. 48"x48"	W20-5  STD. 48"x48"	W20-7a  STD. 36"x36" FWY. 48"x48"	W21-2  STD. 30"x30" SPECIAL 36"x36"	W21-5  STD. 30"x30" SPECIAL 36"x36"	W24-1  STD. 36"x36"	WI-4b  STD. 48"x48"	R56-1  STD. 18"x18"	
W8-II  STD. 36"x36" FWY. 48"x48"	W8-9  STD. 36"x36" FWY. 48"x48"	G20-1  60"x24"	G20-2  48"x24"	OM-3L OM-3R  12"x36"	M4-9  STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"	M4-10  48"x18"	R55-1  36"x60" * USE 6" C LETTERS ** USE 4" D LETTERS	

11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
8-18-04	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	
DATE	REVISION	FILMED

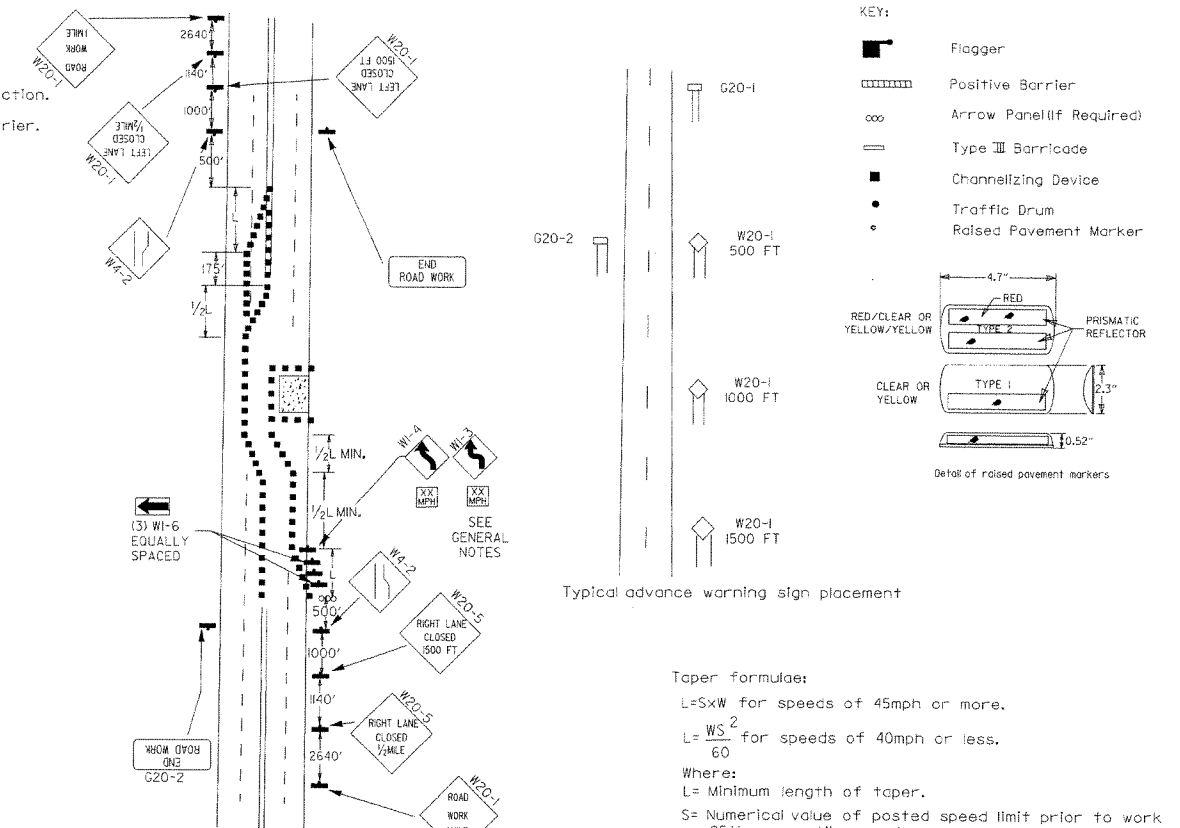
ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-1



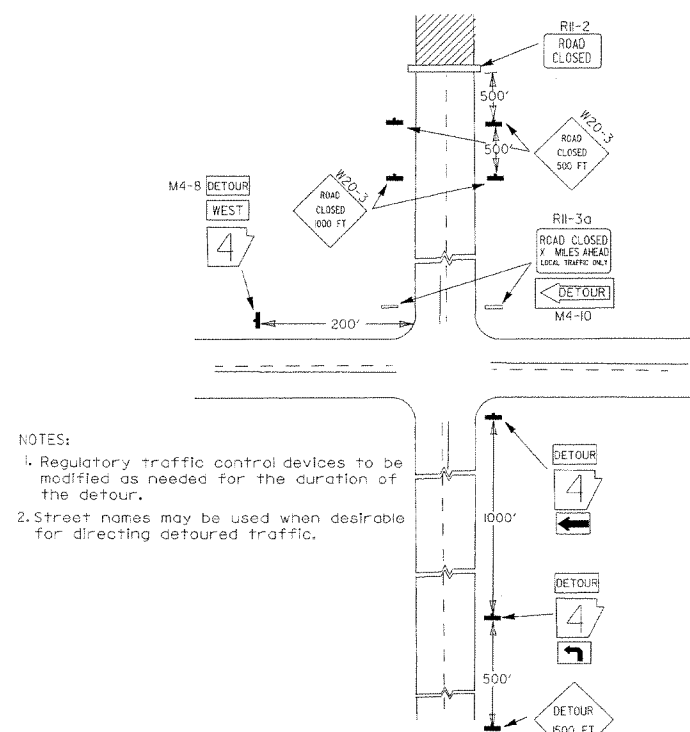
(A) Typical application of traffic control devices on a 2-lane highway where the entire roadway is closed and a bypass detour is provided.



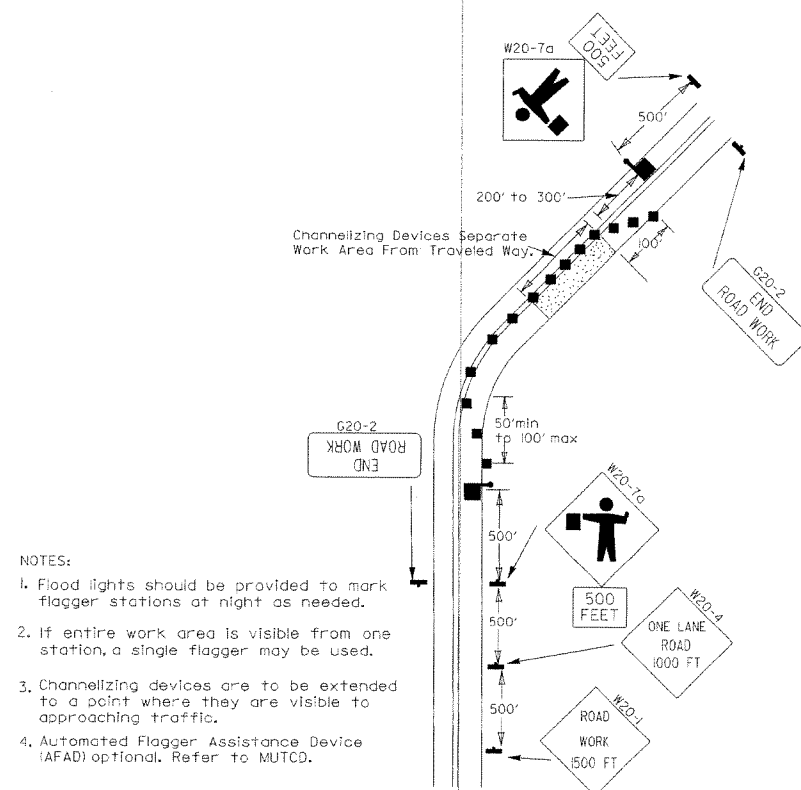
(B) Typical application - 4-lane divided roadway where one roadway is closed.



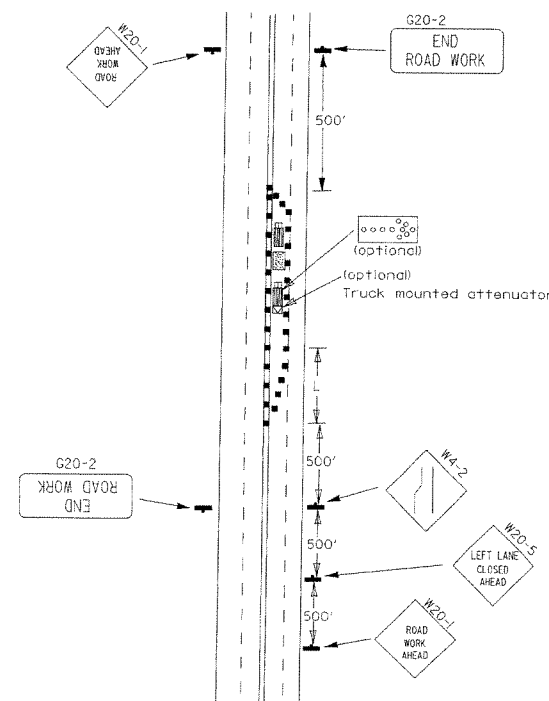
(C) Typical application - 4-lane undivided roadway where half of the roadway is closed.



(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.

Taper formulae:

L=SxW for speeds of 45mph or more.

$$L = \frac{WS^2}{60}$$
 for speeds of 40mph or less.

Where:

L= Minimum length of taper.

S= Numerical value of posted speed limit prior to work or 85th percentile speed.

W= Width of offset.

GENERAL NOTES:

1. Advisory speed posted on W1-3 or W1-4 curve warning signs to be determined at site. Use W1-4 when speed is greater than 30mph and W1-3 when 30mph or less.

2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1155 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 R2-1(xx)
shall be installed to match original speed limit.

3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-145 shall be omitted. Additional R2-155mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-(xx) shall be installed to match original speed limit.

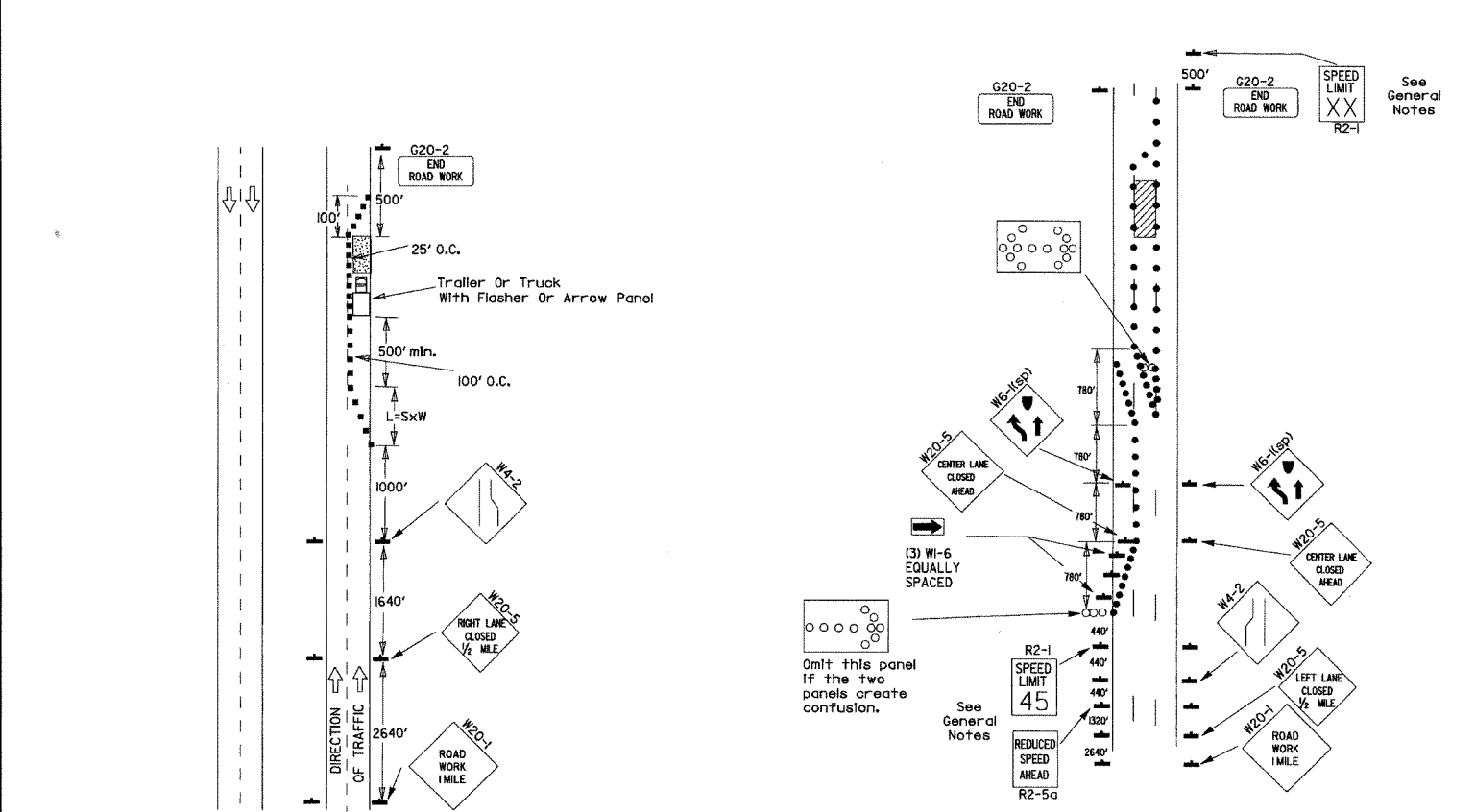
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit.

Beyond the taper, maximum spacing shall be two times the speed limit, or as directed by the Engineer.

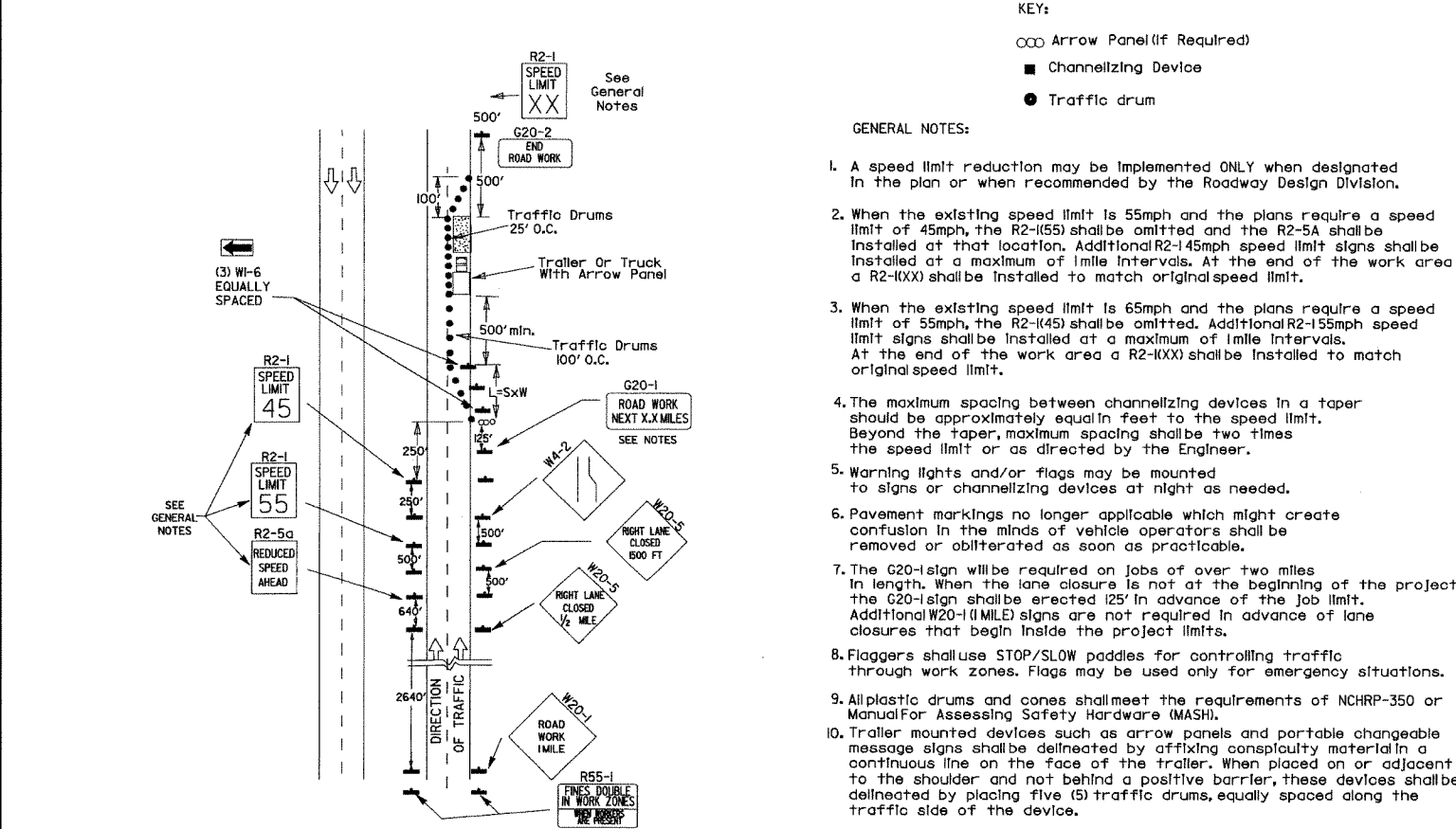
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.

3-11-0	ADDED (14FAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-8-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON WI-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	
DATE	REVISION	FIL. MFD.

ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-2

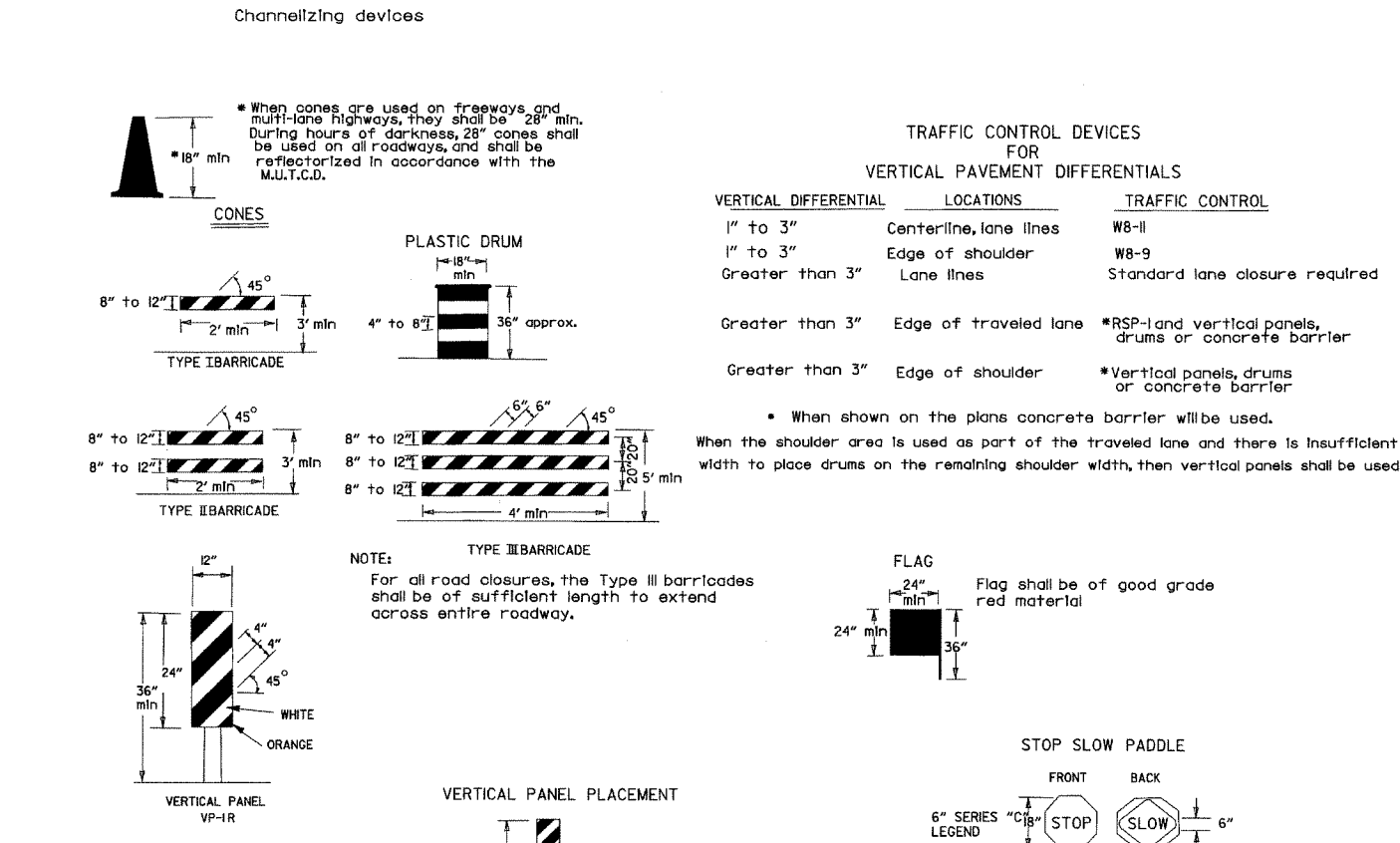


(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.

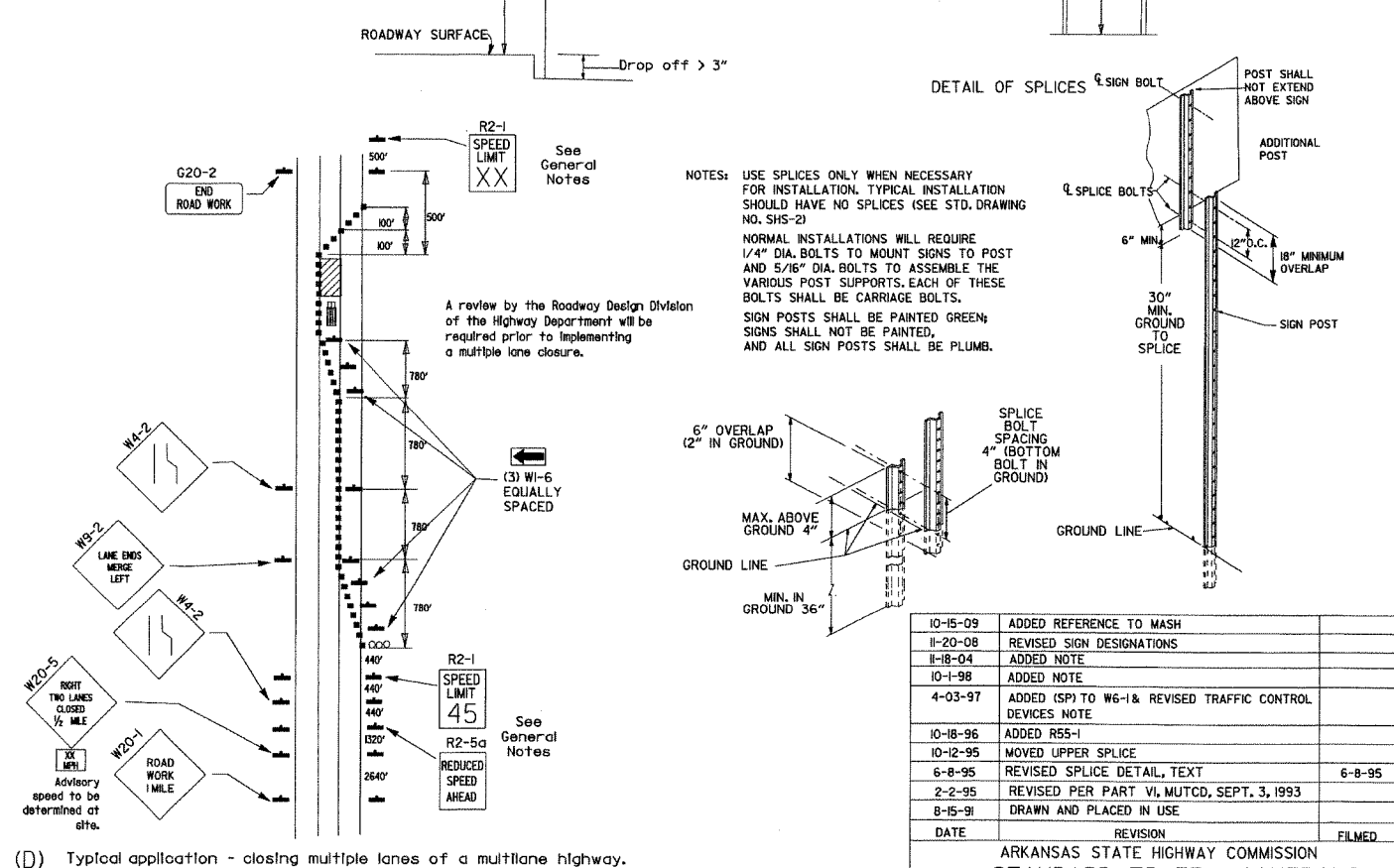


(B) Typical application - 3-lane onway roadway where center lane is closed.

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



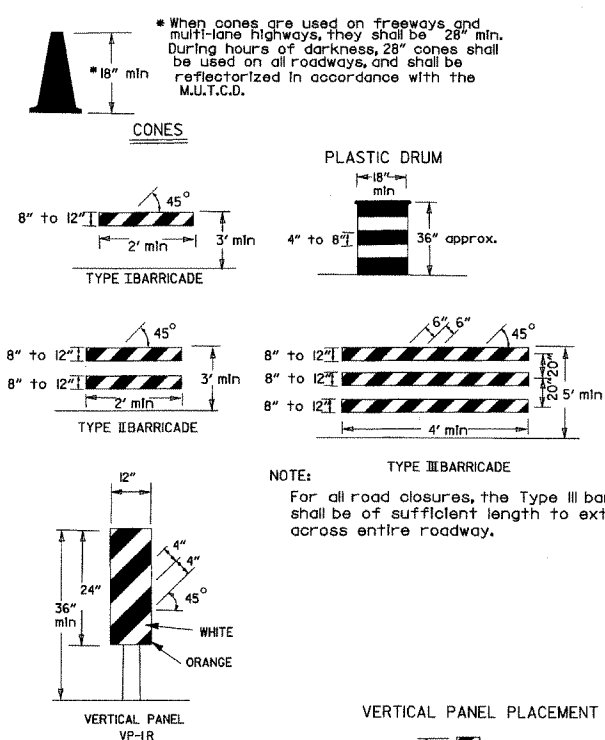
(D) Typical application - closing multiple lanes of a multilane highway.



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

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

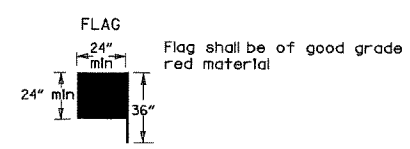
Channelizing devices



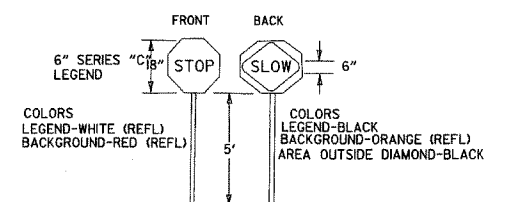
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-II
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-and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

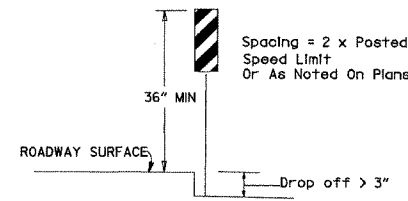
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.



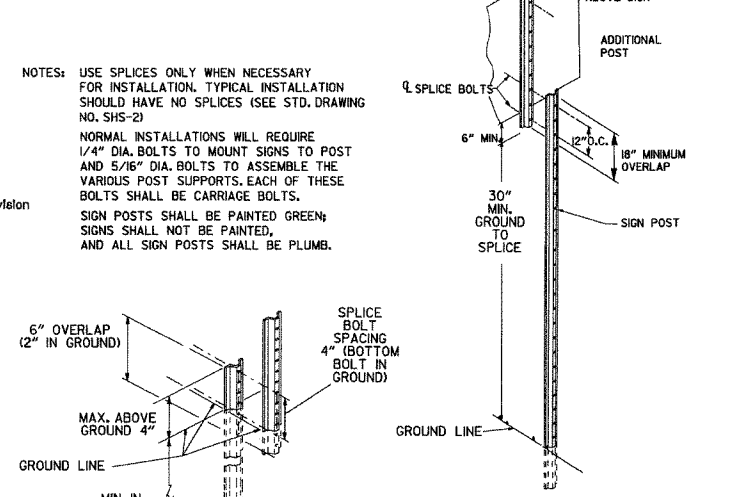
STOP SLOW PADDLE



VERTICAL PANEL PLACEMENT

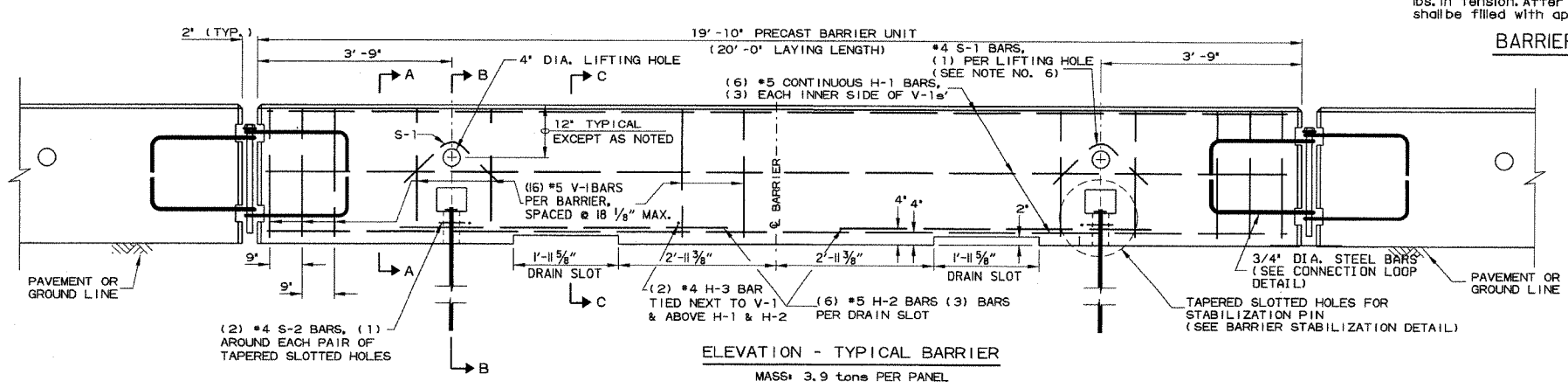
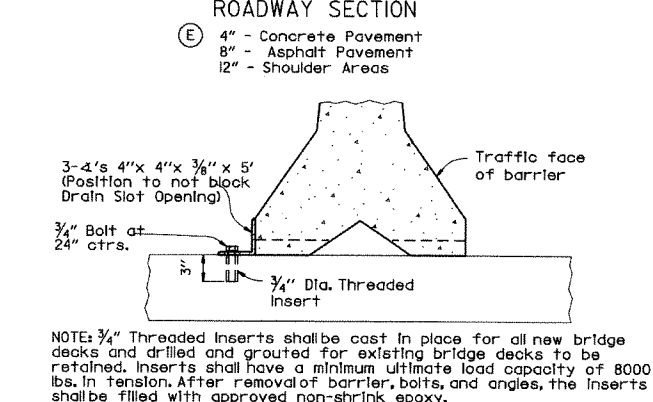
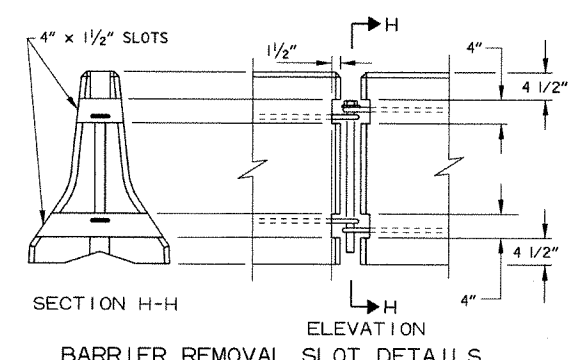
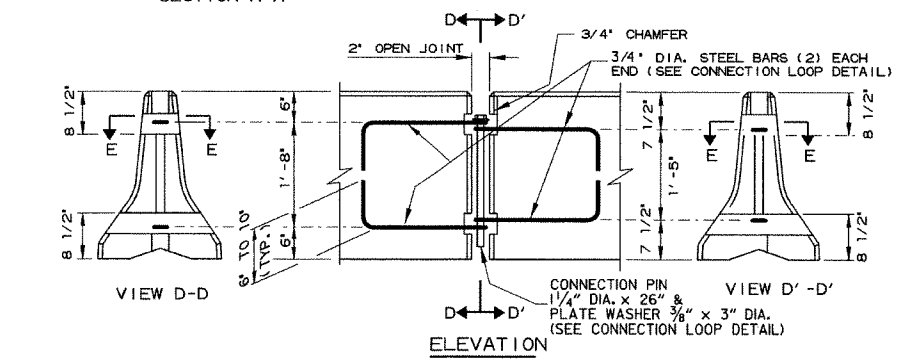
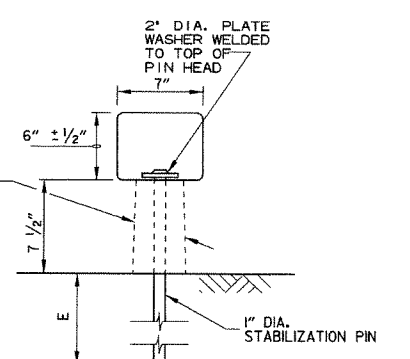
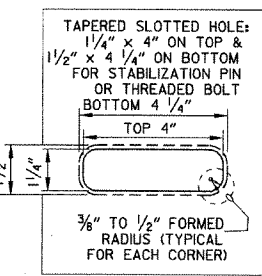
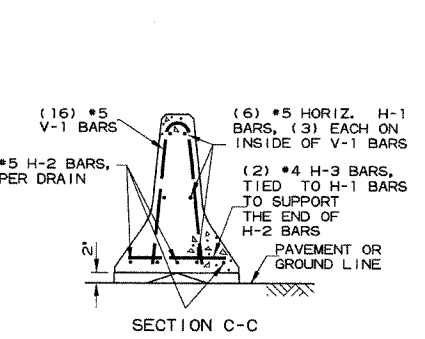
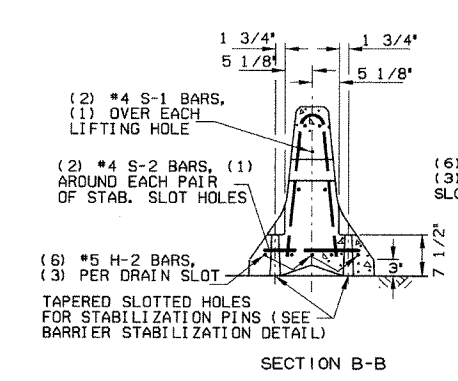
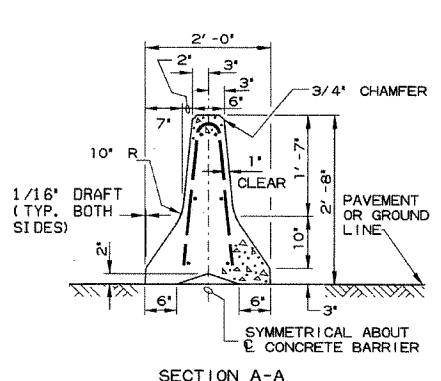
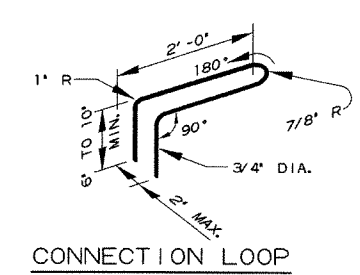
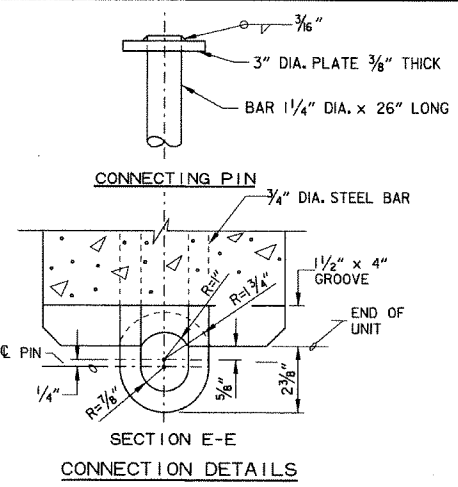


DETAIL OF SPLICES



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	

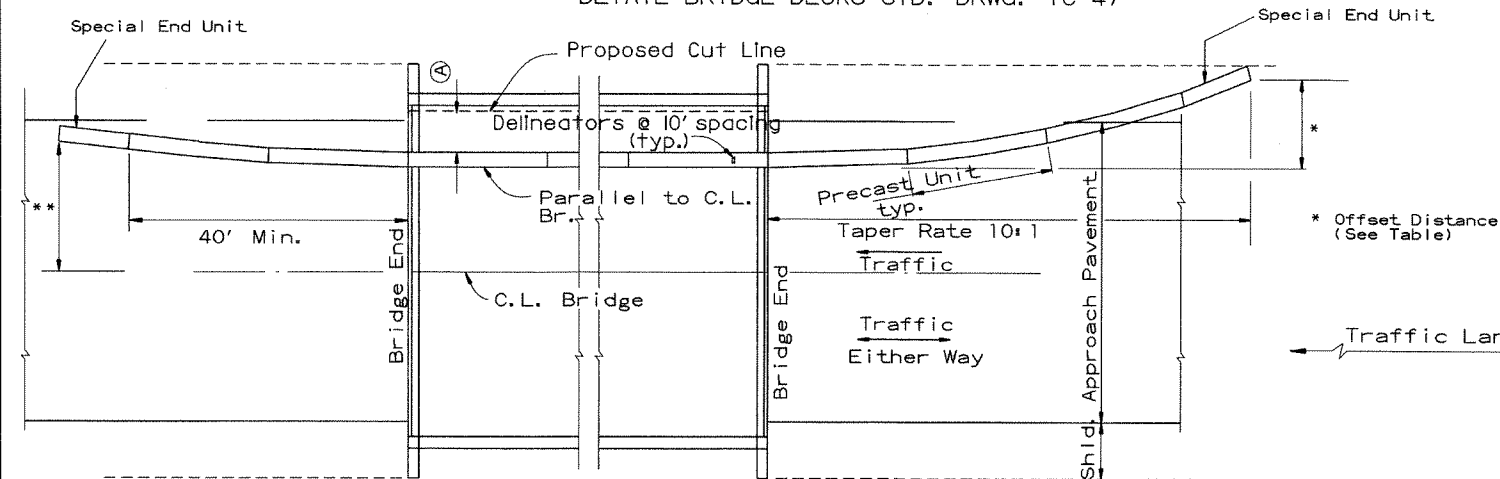
REINFORCING BAR TABLE PER BARRIER UNIT				
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	
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)	



- 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 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.

10-15-09	ADDED REFERENCE TO MASH		ARKANSAS STATE HIGHWAY COMMISSION
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS		
11-29-07	REVISED NOTE 3		
5-25-06	DELETED GENERAL NOTE 7		
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS		
4-10-03	REVISED GENERAL NOTE 2		STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER
8-22-02	ISSUED NEW DRAWING		
DATE	REVISION	FILMED	STANDARD DRAWING TC-4

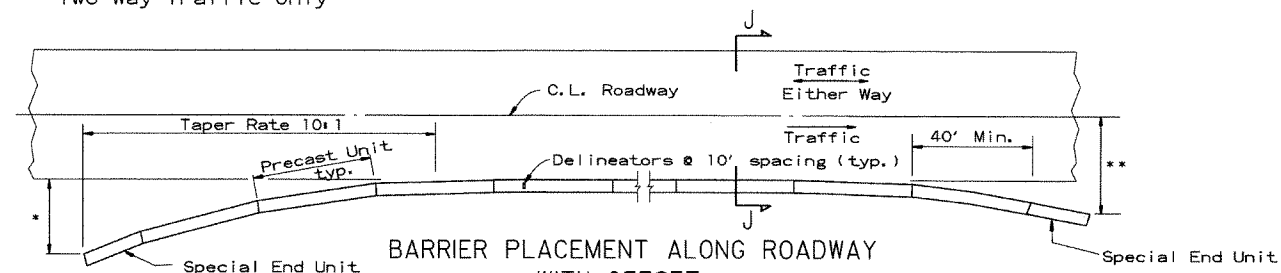
(A) 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

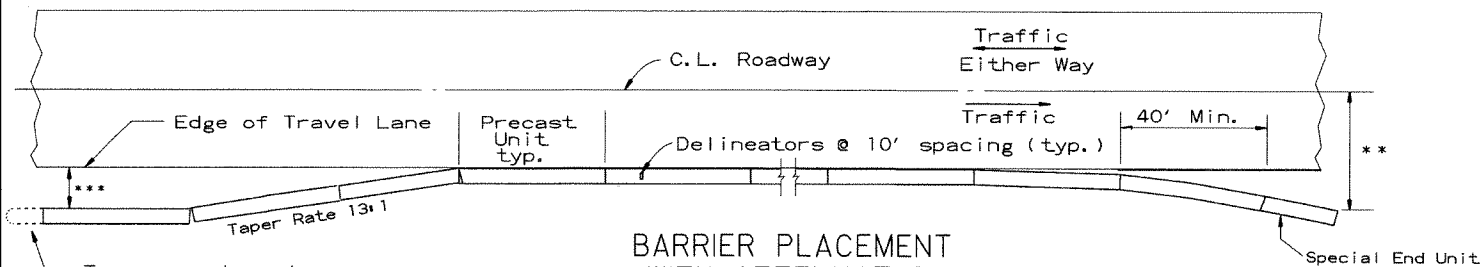
No Scale

* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

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

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

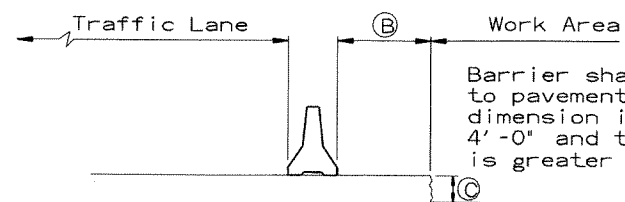


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

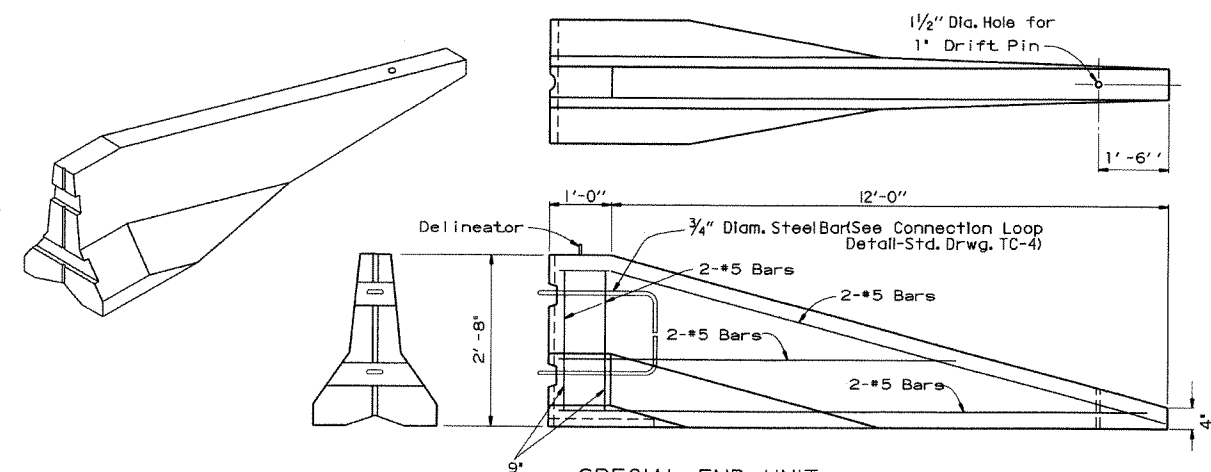
***Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

** Offset Distance For Two Way Traffic Only



SECTION J-J

No Scale



SPECIAL END UNIT

No Scale

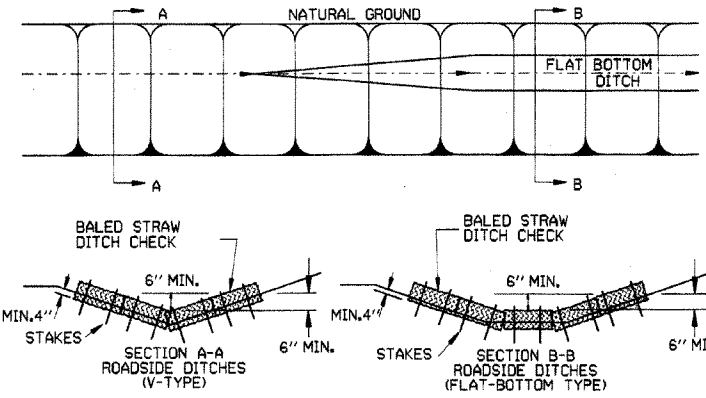
General Notes

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.'

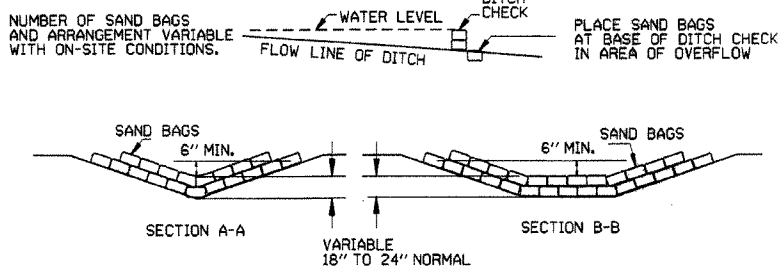
			ARKANSAS STATE HIGHWAY COMMISSION	
			STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER	
			STANDARD DRAWING TC-5	
10-15-09	ADDED REFERENCE TO MASH			
5-25-06	REVISED BARRIER PLACEMENT			
8-22-02	ISSUED NEW DRAWING			
DATE	REVISION	FILMED		

GENERAL NOTES

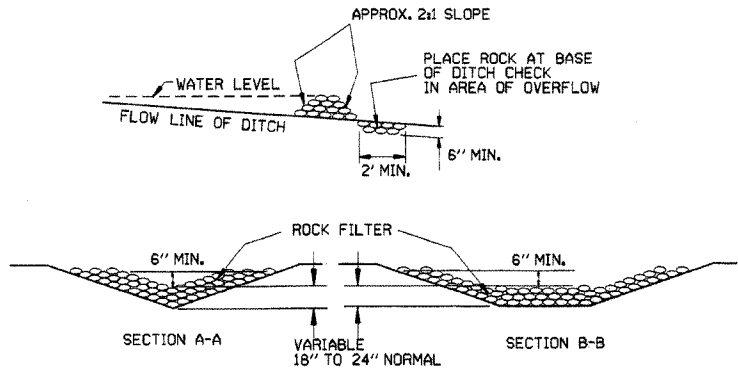
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
2. STRAW BALES SHALL BE KEYED INTO SOIL A MINIMUM OF 4' AND NO GAPS SHALL BE LEFT BETWEEN BALES.



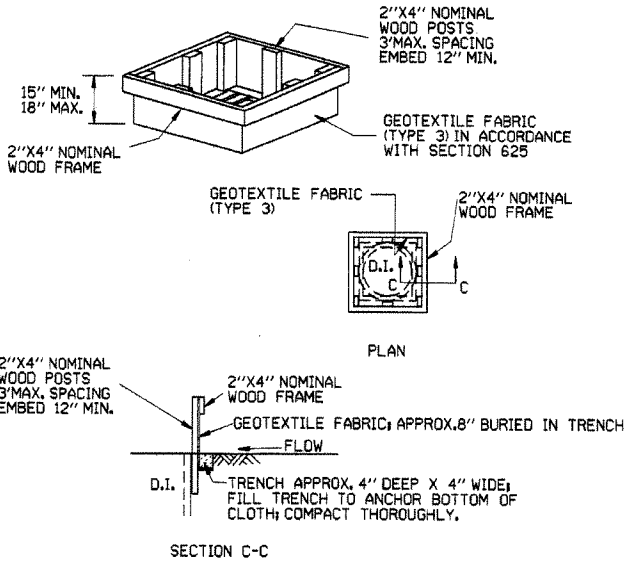
BALED STRAW DITCH CHECK (E-1)



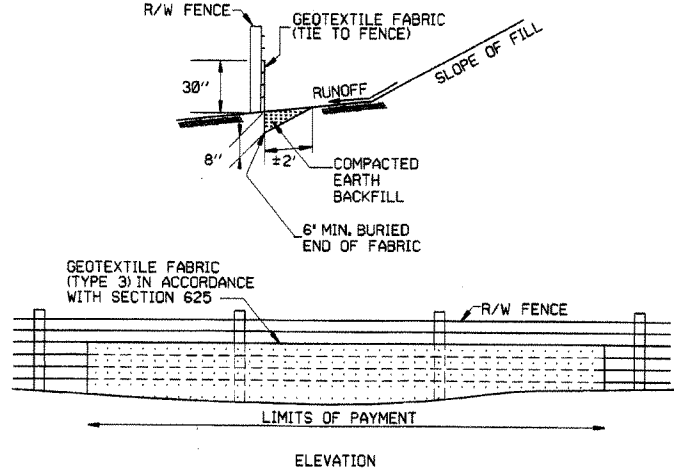
SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)

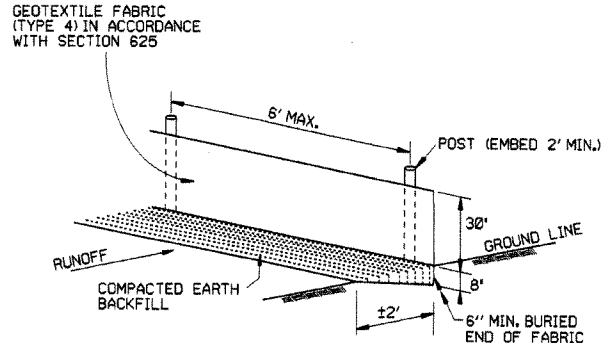


DROP INLET SILT FENCE (E-7)



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

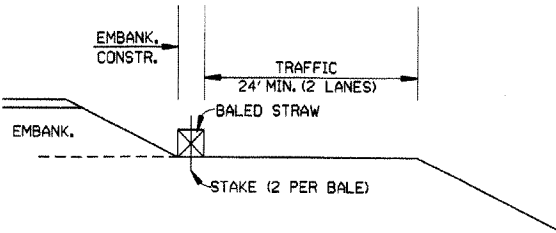
- GENERAL NOTES
- GEOTEXTILE FABRIC SHALL BE SPICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)

- GENERAL NOTES
- GEOTEXTILE FABRIC SHALL BE SPICED 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.

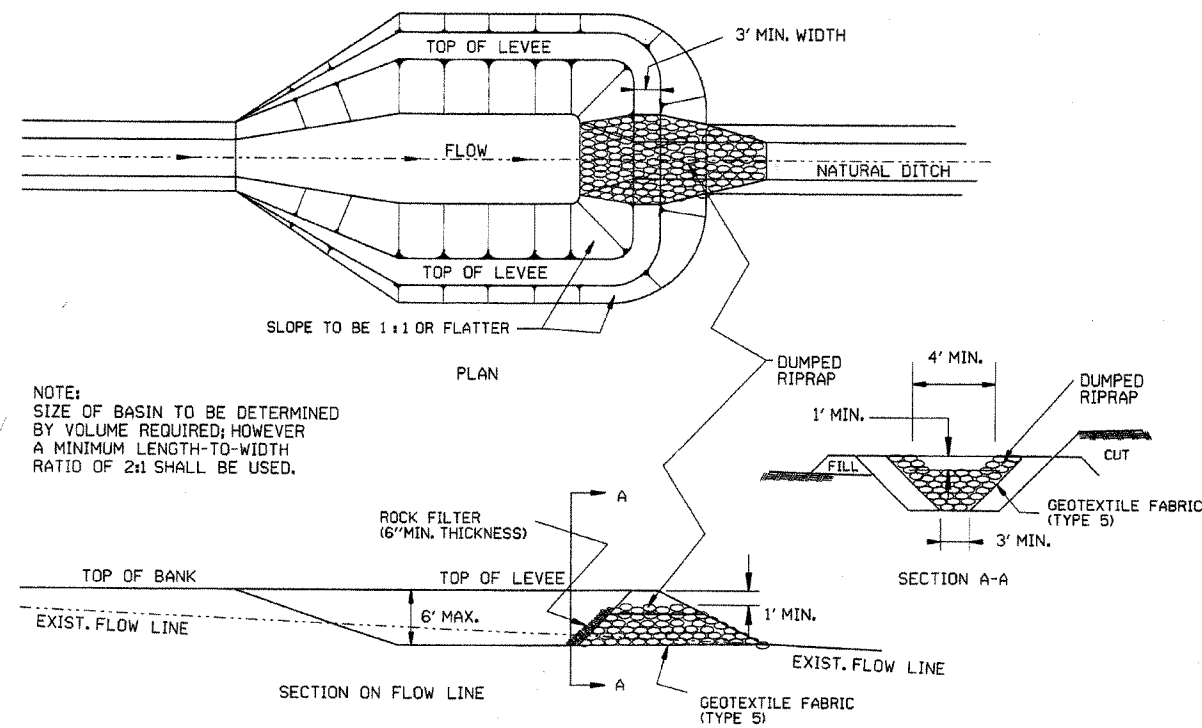


BALED STRAW FILTER BARRIER (E-2)

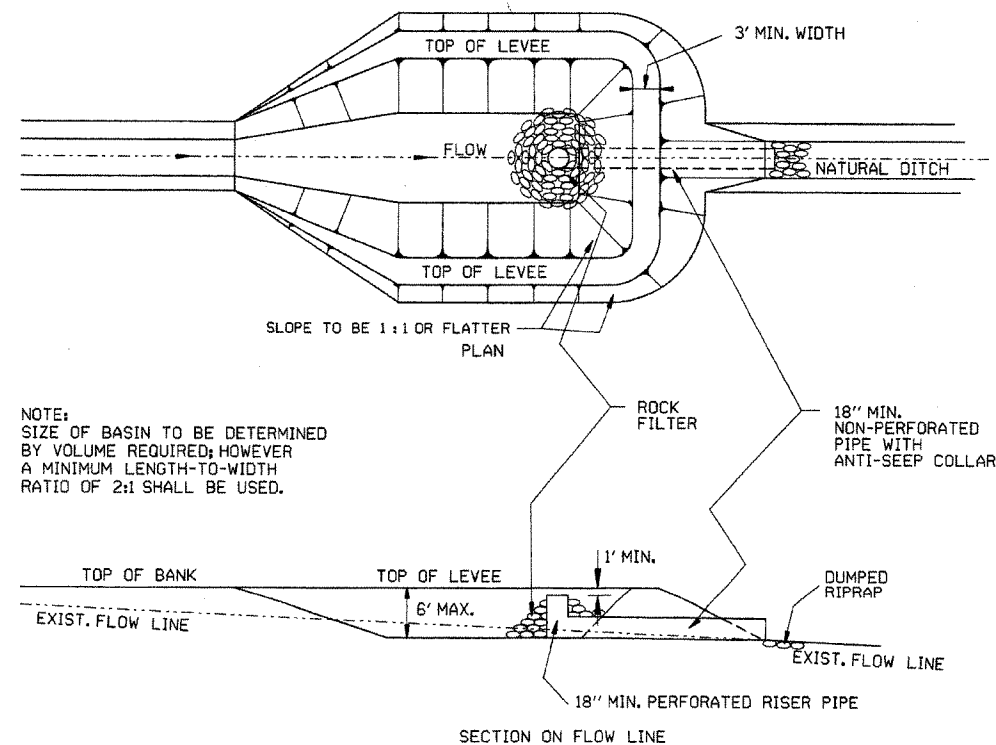
11-18-98	ADDED NOTES	11-18-98	ARKANSAS STATE HIGHWAY COMMISSION
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)		
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95	
7-15-94	Rev. E-4 & E-11 Min. 13' Buried End of Fabric		
6-2-94	Revised E-1, 4, 7, & 11 Deleted E-2 & 3	6-2-94	
4-1-93	REDRAWN		
10-1-92	REDRAWN		
8-2-76	ISSUED R.D.M.	298-7-28-76	
DATE	REVISION	FILMED	

TEMPORARY EROSION CONTROL DEVICES

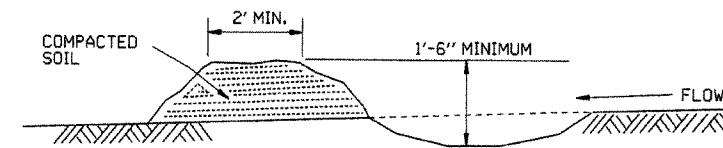
STANDARD DRAWING TEC-1



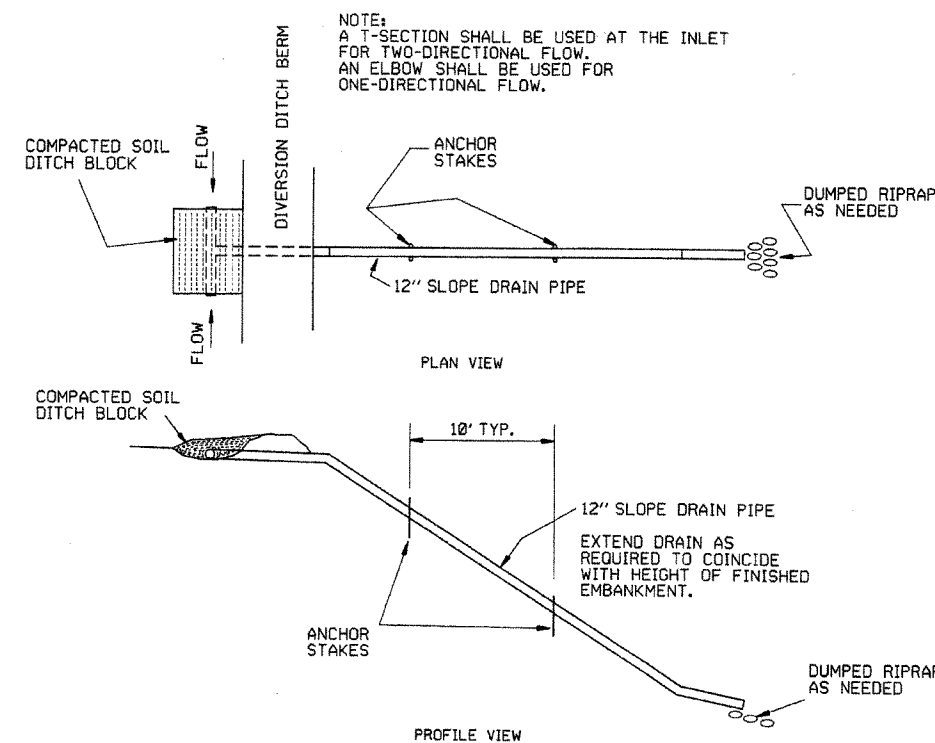
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



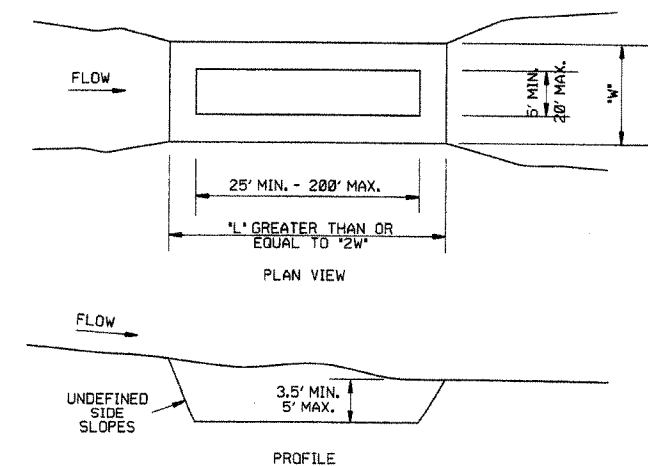
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



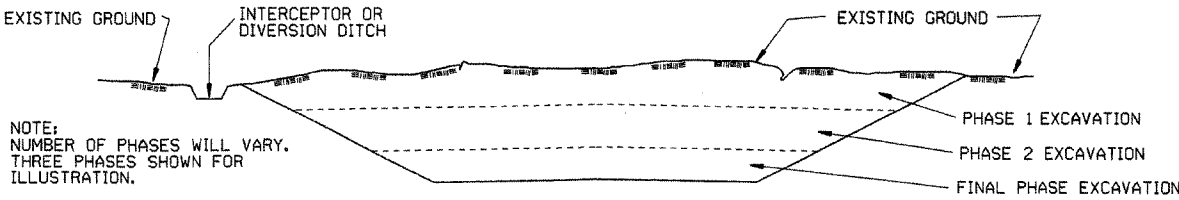
SEDIMENT BASIN (E-14)

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

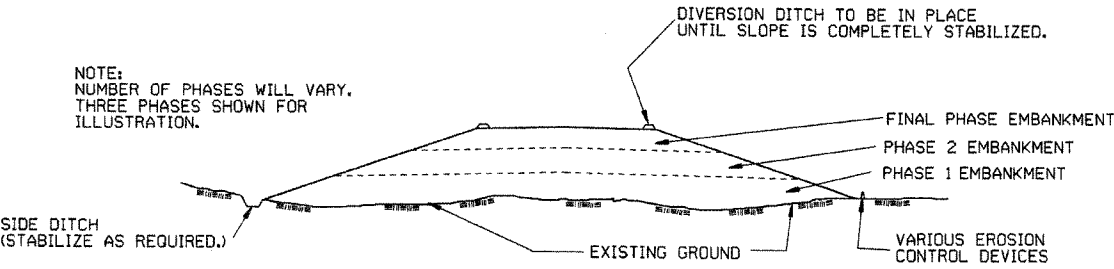


GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

- CONSTRUCTION SEQUENCE
1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
 2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
 3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
 4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

- CONSTRUCTION SEQUENCE
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
 2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
 3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
 4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

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



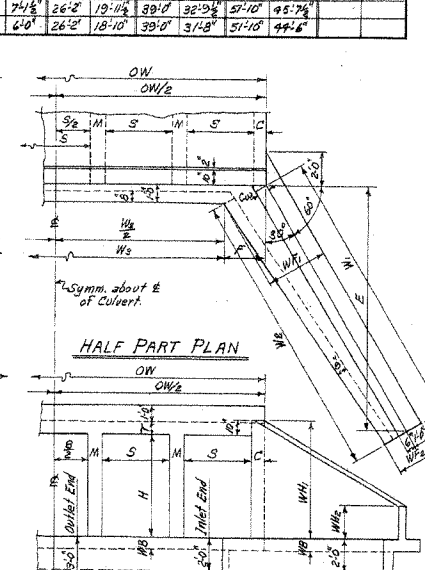
CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL - WINGS	CLASS S CONCRETE - 4 WINGS				
					HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS				
S	H	C _W	W _B	L _B	SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
					CUYD.	CUYD.	CUYD.	CUYD.	CUYD.
4	2'	6"	7"	108.0	4.50	5.44	6.42	7.38	8.34
	3'	6"	7"	149.0	6.26	7.21	8.17	9.13	10.09
	4'	6"	7"	254.6	8.33	9.29	10.24	11.20	12.16
	5'	6"	7"	357.8	10.72	11.68	12.64	13.60	14.56
	6'	7"	8"	583.1	14.55	15.53	16.52	17.51	18.49
5	3'	6"	7"	149.0	6.47	7.43	8.39	9.36	10.32
	4'	6"	7"	254.6	8.54	9.70	10.87	12.03	13.20
	5'	6"	7"	357.8	10.94	12.10	13.26	14.43	15.59
	6'	7"	8"	583.1	14.77	15.94	17.15	18.34	19.54
	7'	7 1/2"	8 1/2"	1134.6	18.94	20.15	21.37	22.59	23.80
6	3'	6"	7"	149.0	6.68	8.06	9.42	10.80	12.18
	4'	6"	7"	254.6	8.75	10.14	11.49	12.87	14.25
	5'	6"	7"	357.8	11.15	12.53	13.89	15.27	16.65
	6'	7"	8"	583.1	14.98	16.39	17.78	19.18	20.59
	7'	7 1/2"	8 1/2"	1134.6	19.15	20.58	22.00	23.43	24.86
7	8'	8"	9"	1425.6	25.09	25.53	26.96	28.39	29.83
	4'	6"	7"	254.6	8.97	10.58	12.15	13.76	15.35
	5'	6"	7"	357.8	11.36	12.97	14.54	16.15	17.75
	6'	7"	8"	583.1	15.20	16.82	18.42	20.04	21.66
	7'	7 1/2"	8 1/2"	1134.6	19.38	21.02	22.64	24.28	25.92
8	8'	8"	9"	1425.6	24.32	25.97	27.60	29.25	30.89
	4'	6"	7"	254.6	9.19	11.03	12.82	14.65	16.45
	5'	7"	7"	357.8	12.03	13.89	15.70	17.55	19.34
	6'	7"	8"	583.1	15.42	17.27	19.09	20.93	22.75
	7'	7 1/2"	8 1/2"	1134.6	19.59	21.46	23.30	25.16	26.93
9	8'	8"	9"	1425.6	24.54	26.41	28.24	30.11	31.94
	5'	7"	7"	357.8	12.26	14.33	16.37	18.45	20.47
	6'	7 1/2"	8"	583.1	15.94	18.04	20.09	22.19	24.23
	7'	7 1/2"	8 1/2"	1134.6	19.91	21.91	23.96	26.06	28.10
	8'	8"	9"	1425.6	24.76	26.66	28.61	31.00	33.05
10	5'	7"	7"	357.8	12.49	14.80	17.05	19.26	21.52
	6'	7 1/2"	8"	583.1	16.17	18.50	20.77	22.99	25.28
	7'	7 1/2"	8 1/2"	1134.6	20.04	22.37	24.64	26.87	29.15
	8'	8"	9"	1425.6	24.98	27.31	29.58	31.81	34.10
	6'	8"	8"	583.1	16.69	19.27	21.76	24.23	
11	6'	8"	8 1/2"	1134.6	20.64	23.22	25.71	28.18	
	7'	8"	9"	1425.6	25.19	27.77	30.27	32.74	
	6'	8"	8"	583.1	16.92	19.75	22.45	25.18	
	7'	8"	8 1/2"	1134.6	20.87	23.69	26.40	29.13	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS
FOR
REINFORCED CONCRETE BOX CULVERTS

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS 3:1 SLOPES
SINGLES, DOUBLES, TRIPLES, ALL DEPTHS OF COVER
QUADRUPLES & QUINTUPLES. FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X003-1



HALF END ELEVATION
QUINTUPLE BARREL CULVERT

REVISIONS:- Membrane added. 5-10-66 W.C.H.

Designed By:- M.C.H. 8-20-62. Checked By:-
 Drawn By:- M.C.H. 12-4-62. Checked By:- R.H.S. 1-9-63
 Quantities By:- M.C.H. 12-17-62. Checked By:- R.H.S. 1-31-63
 Rechecked By:- R.H.S. 3-29-63

[illegible]

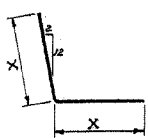
BAR SIZE	PIN DIM	K	ADD FOR 2 HOOKS
#5	2 $\frac{1}{8}$ "	4 $\frac{1}{2}$ "	0:11 $\frac{1}{2}$ "
#6	3"	5"	1:2"

BENDING DIAGRAM FOR BARS $\bar{b}$ and $\bar{b}_2$

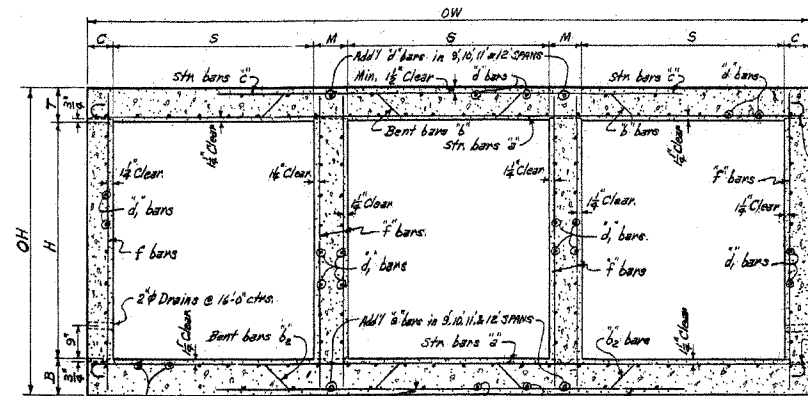
The bending diagram illustrates the distribution of moments for bars $\bar{b}$ and $\bar{b}_2$. The horizontal axis is divided into segments: Z, X (length $\frac{5}{8}$), Y (length $\frac{1}{2}$), X (length $\frac{5}{8}$), and Z. A downward moment $K+M$ is applied at the start of the first X segment, and a downward moment K is applied at the end of the second X segment. A pin diameter is indicated at the end of the second X segment.

NOTE: - Dimensions are to centers of bars (b_1 and b_2)

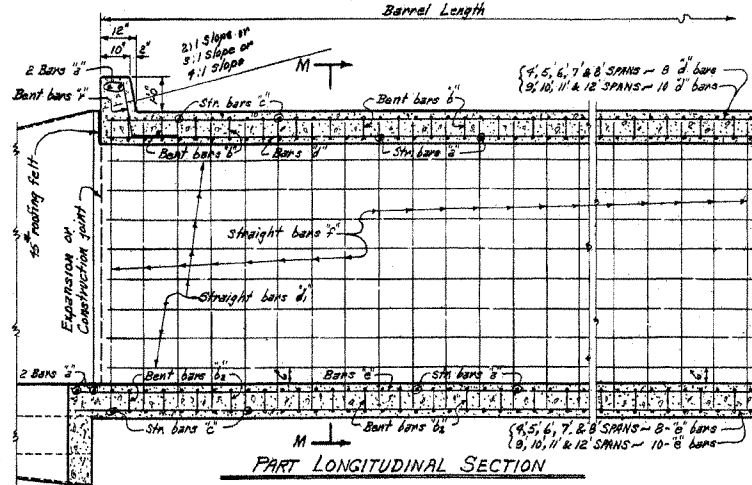
DOWEL BARS FOR TWO HEADWALLS					
SPANS @	SIZE	SPACING	NO REIN	LENGTH	X
Bars "r" Dowel bars in Headwalls					
4'	#4	12"±	30	2'-5"	1'-2½"
5'	#4	12"±	36	2'-6"	1'-3"
6'	#4	12"±	42	2'-7"	1'-3½"
7'	#4	12"±	48	2'-8"	1'-4"
8'	#4	12"±	54	2'-9"	1'-4½"
9'	#4	12"±	60	2'-10"	1'-5"
10'	#4	12"±	66	2'-11"	1'-5½"
11'	#4	12"±	72	3'-0"	1'-6"
12'	#4	12"±	78	3'-1"	1'-6½"



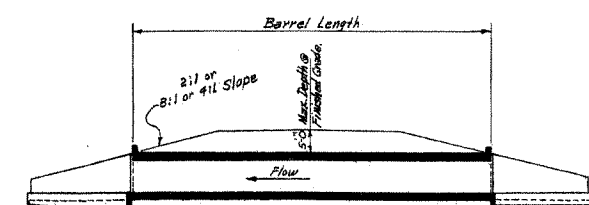
MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS										UNIT QUANTITIES				
	CLEAR SPANS		CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDE WALLS	THICKNESS OF DIVISION WALLS	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	REINFORCING STEEL				
	D	S									CLASS S CONC. PER LIN. FT. OF BARREL	ADDITIONAL			
												PER LIN. FT. OF BARREL	PER LAP	TWO HEADWALLS & APPROX.	
5'-0"	3 @ 8'	2'	24'	14'-4"	6 1/2"	6'	8'	6"	3'-0"	0.726	137.76	6.63	195.33		
		3'	36'	14'-4"		6'	8'		4'-0"	0.812	145.78	7.19	195.33		
		4'	48'	14'-4"		6'	8'		5'-0"	0.899	153.79	7.65	195.33		
		5'	60'	14'-4"		6'	8'		6'-0"	0.985	161.81	8.16	195.33		
		6'	72'	14'-4"		7'	9'		7'-0"	1.158	171.56	8.67	198.11		
		3'	45'	17'-0"		6'	8'		4'-4"	0.981	159.23	8.10	208.79		
	3 @ 9'	4'	60'	17'-0"	6'	8'	5'-4"	1.068	203.23	8.61	208.79				
		5'	75'	17'-0"	6'	8'	6'-4"	1.154	211.27	9.12	208.79				
		6'	90'	17'-0"	7'	9'	7'-4"	1.323	221.96	9.13	302.80				
		7'	105'	17'-0"	7 1/2"	10"	8'-4"	1.503	231.37	10.14	306.80				
		3'	54'	20'-4"	6'	8'	4'-2"	1.169	226.39	9.25	351.21				
		4'	72'	20'-4"	6'	8'	5'-2"	1.256	234.91	9.57	351.21				
3 @ 6'	5'	90'	20'-4"	6'	8'	6'-2"	1.342	242.92	10.58	351.21					
	6'	108'	20'-4"	7'	9'	7'-2"	1.517	262.84	10.59	355.21					
	7'	126'	20'-4"	7 1/2"	10"	8'-2"	1.692	272.78	10.10	358.22					
	8'	144'	21'-0"	8'	10"	9'-2"	1.829	288.98	10.61	359.22					
	4'	84'	23'-4"	6'	8'	5'-8"	1.490	278.99	10.15	404.29					
	5'	105'	23'-4"	6'	8'	6'-8"	1.566	280.99	10.66	404.29					
3 @ 7'	6'	126'	23'-4"	7'	9'	7'-8"	1.793	298.53	11.17	408.29					
	7'	147'	23'-4"	7 1/2"	10"	8'-8"	1.919	308.55	11.68	411.30					
	8'	168'	24'-0"	8'	10"	9'-8"	2.056	328.87	12.19	412.30					
	9'	189'	24'-0"	9'	11"	10'-8"	2.294	350.27	12.60	416.30					
	3'	96'	26'-4"	6'	8'	5'-5"	1.727	330.89	11.65	458.38					
	4'	120'	26'-4"	7'	9'	6'-5"	1.893	344.19	11.66	463.38					
3 @ 8'	5'	144'	26'-4"	7 1/2"	9'	7'-5"	1.992	349.45	12.17	463.38					
	7'	168'	26'-4"	7 1/2"	10"	8'-5"	2.148	359.89	12.68	468.38					
	8'	192'	27'-0"	8'	10"	9'-5"	2.306	375.76	13.19	467.39					
	9'	216'	27'-0"	9'	11"	10'-5"	2.495	402.04	13.69	471.39					
	10'	240'	27'-0"	10'	12"	11'-5"	2.645	422.39	14.81	475.40					
	3'	155'	29'-0"	7'	9'	6'-6"	2.192	372.01	12.92	520.47					
3 @ 9'	6'	162'	29'-0"	7 1/2"	10"	7'-6"	2.310	387.21	13.73	528.48					
	7'	189'	29'-0"	8'	10"	8'-6"	2.498	396.23	13.74	523.48					
	8'	216'	30'-0"	8'	10"	9'-6"	2.555	411.21	14.75	524.48					
	9'	243'	30'-4"	9'	11"	10'-6"	2.796	432.60	15.76	528.48					
	10'	270'	30'-4"	10'	12"	11'-6"	3.042	453.90	16.77	532.49					
	11'	297'	30'-0"	11'	12"	12'-6"	3.275								



TYPICAL SECTION M-M



PART LONGITUDINAL SECTION



LONGITUDINAL SECTION

GENERAL NOTES:-

CONCRETE: All concrete to be Class S₁ and shall be poured in the dry.
All exposed corners to have 3% chamfers.

REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.

BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 36" length of barrel over 36". Lap longitudinal bars 30 diameters.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division walls and slabs shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961

SPECIAL MILITARY LOADING.

Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-

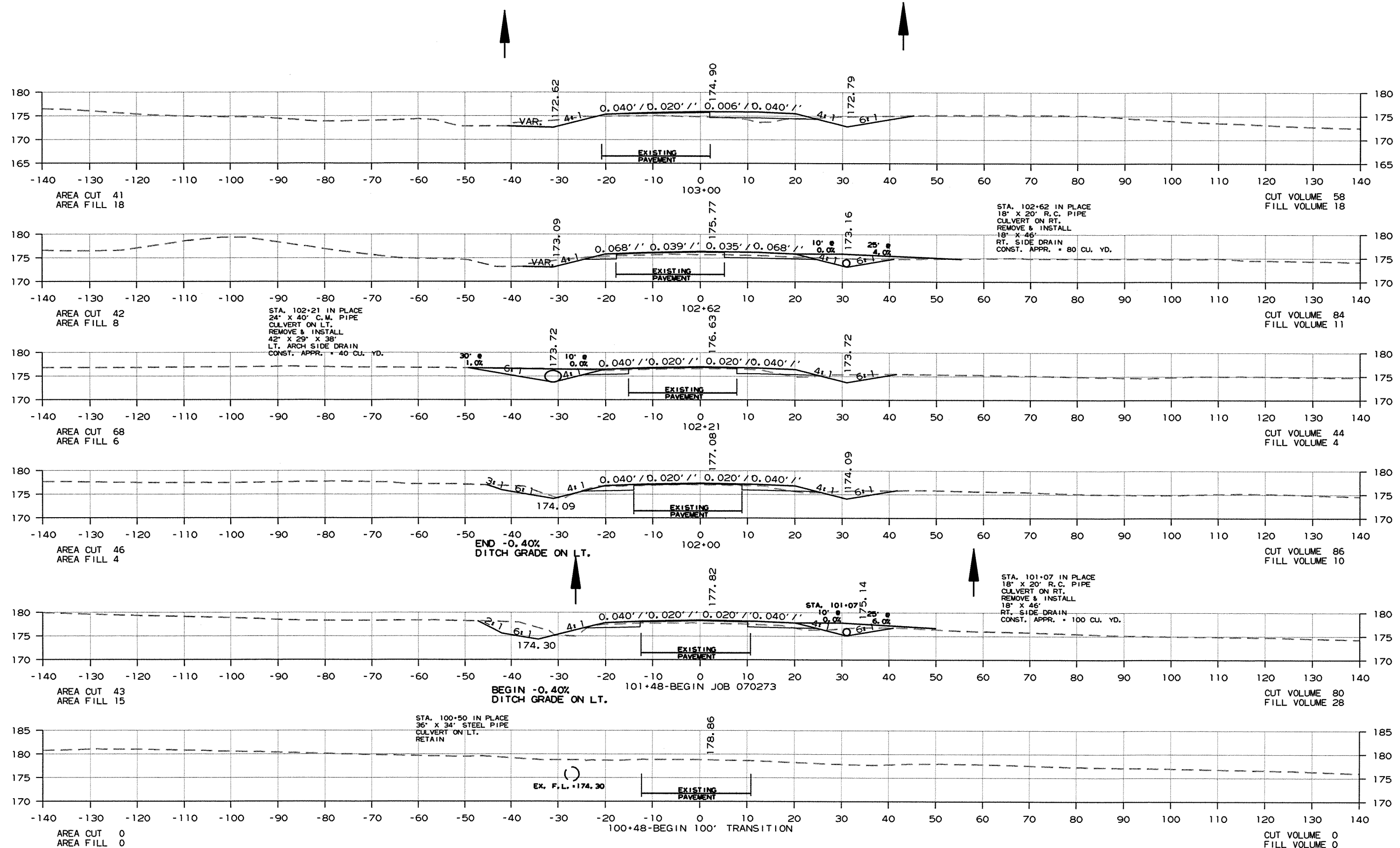
UNIT STRESSES:-
Class S Concrete ($n=10$) 1200*%
Reinforcing Steel 29000*%

NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X003-1 or W-X003-2 and W-X004-1 or W-X004-2. Also Drawing Nos. W-X002-1 or W-X002-2.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF STANDARD BARREL SECTIONS
FOR
REINFORCED CONCRETE BOX CULVERTS
4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS 3:1 OR 4:1 SLOPES
TRIPLES UNDER 5'-0" COVER
STANDARD DRAWING NO. R-300X-O

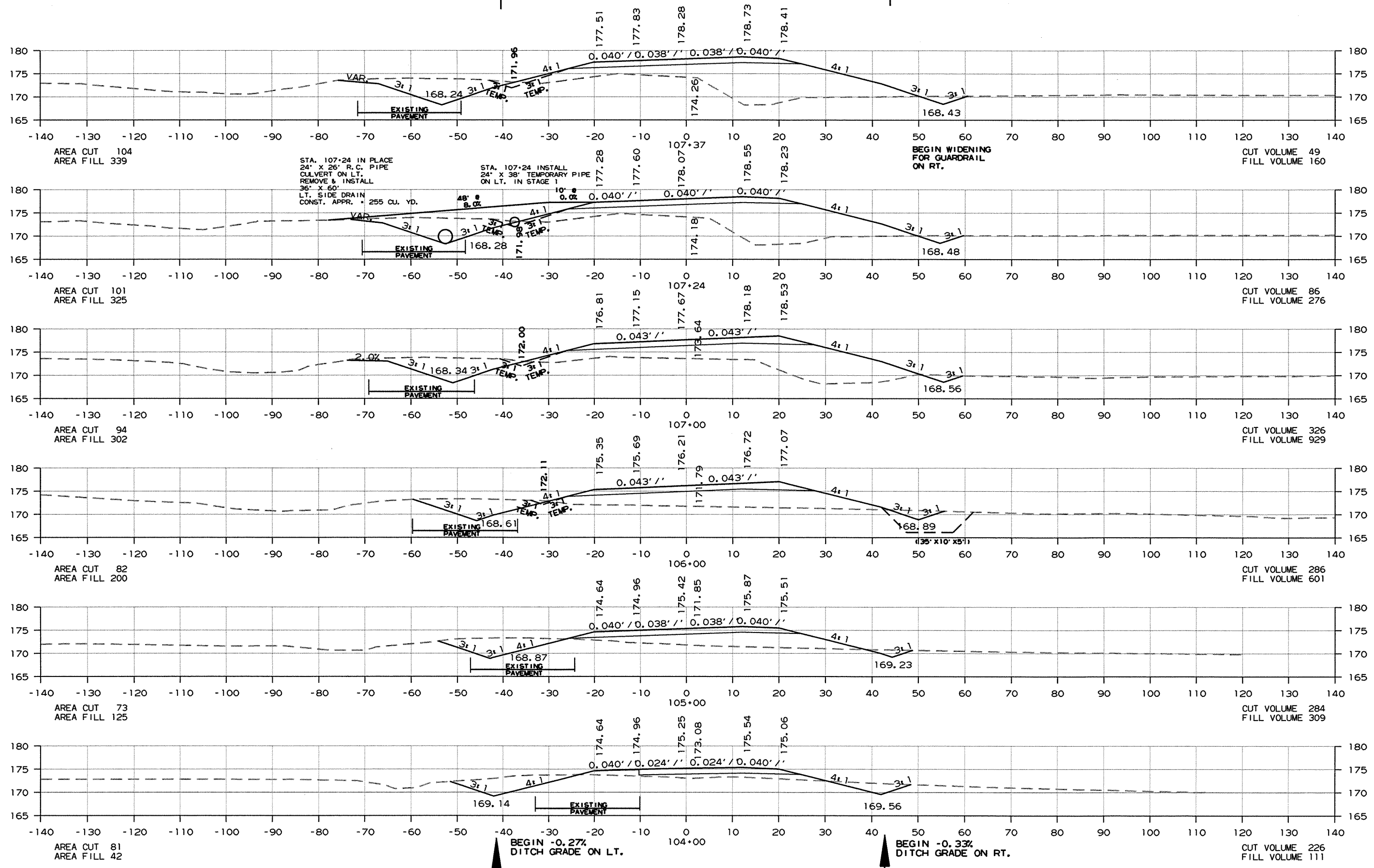
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	070273		71	81
(2) CROSS SECTIONS								



CROSS SECTION STA. 100+48 TO STA. 103+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	070273		72	81

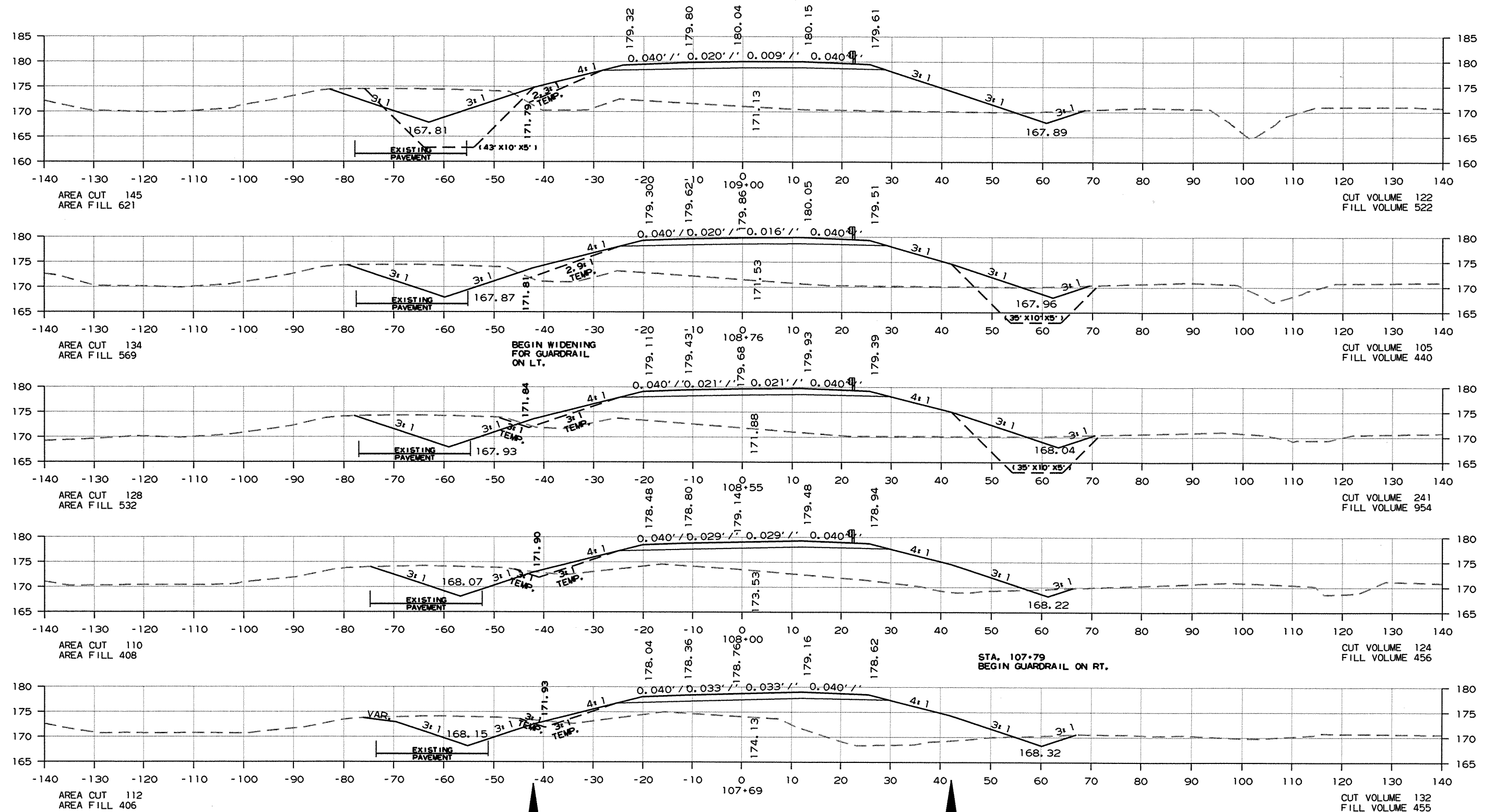
② CROSS SECTIONS



CROSS SECTION STA. 104+00 TO STA. 107+37

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.	070273		73	81

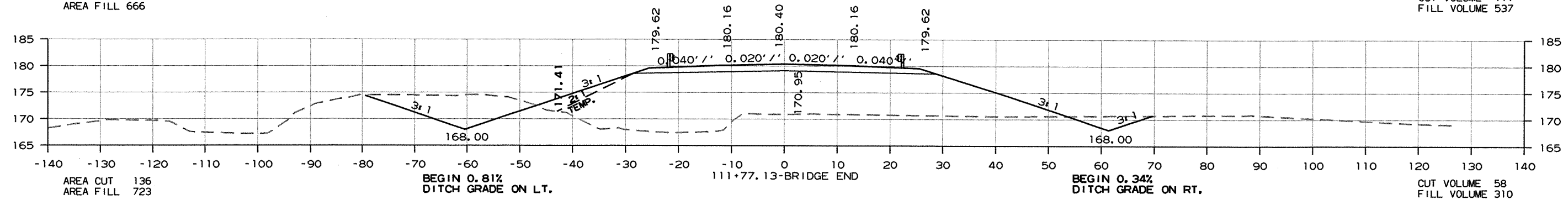
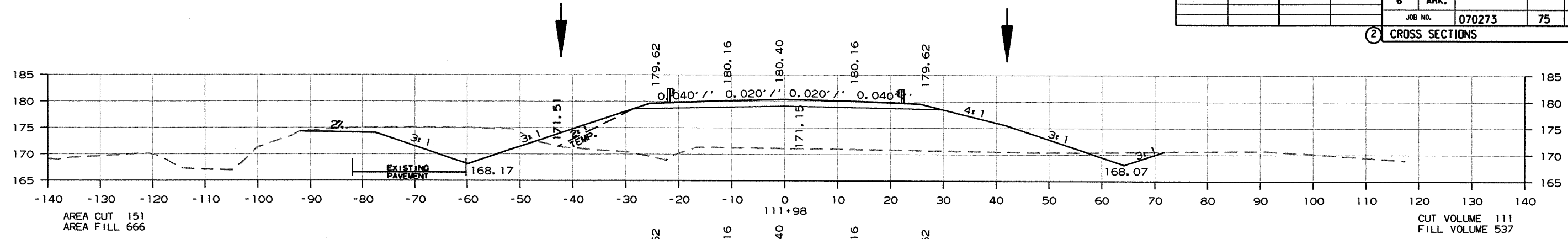
2 CROSS SECTIONS



CROSS SECTION STA. 107+69 TO STA. 109+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 070273	75	81

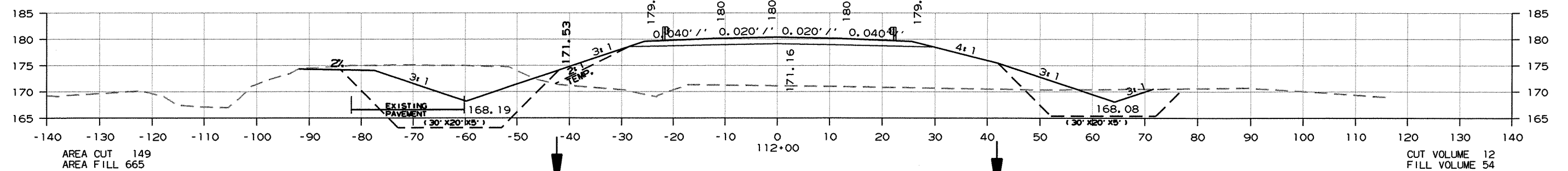
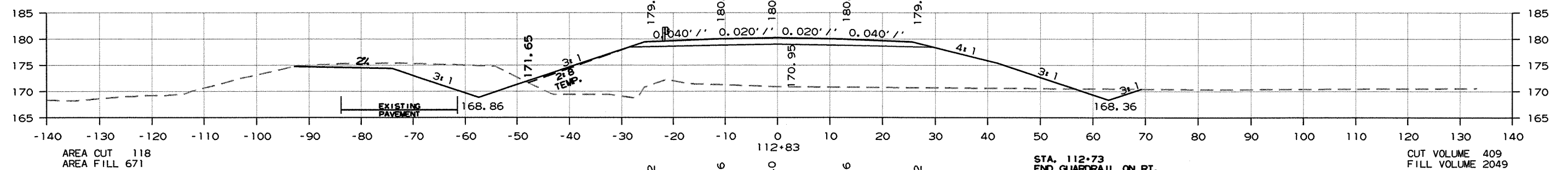
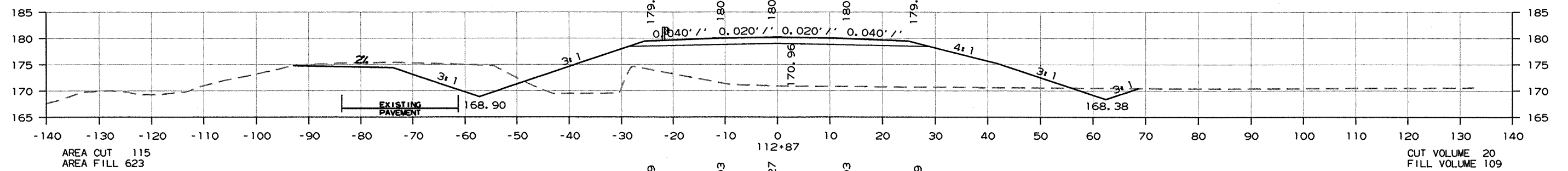
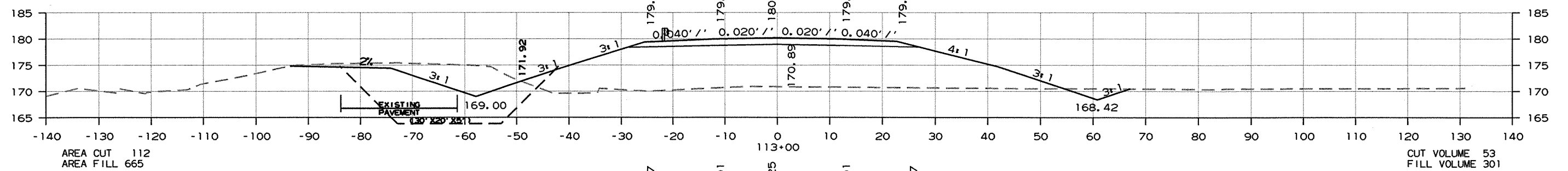
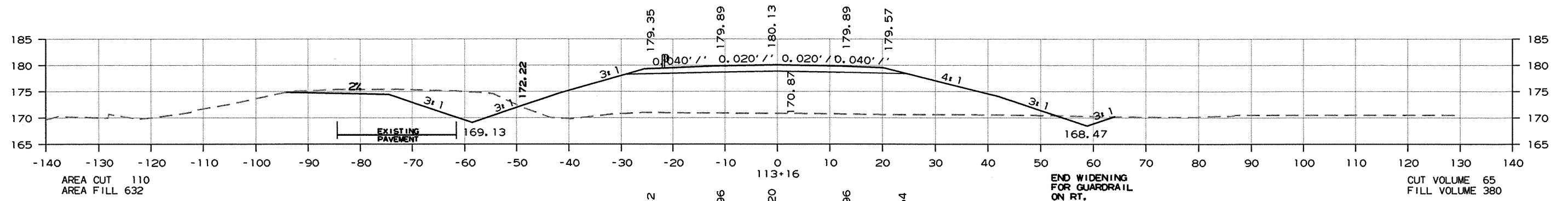
2 CROSS SECTIONS



AREA CUT 0
AREA FILL 0
111+54.00-TOE OF SLOPE
CUT VOLUME 0
FILL VOLUME 0

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.	070273		76	81

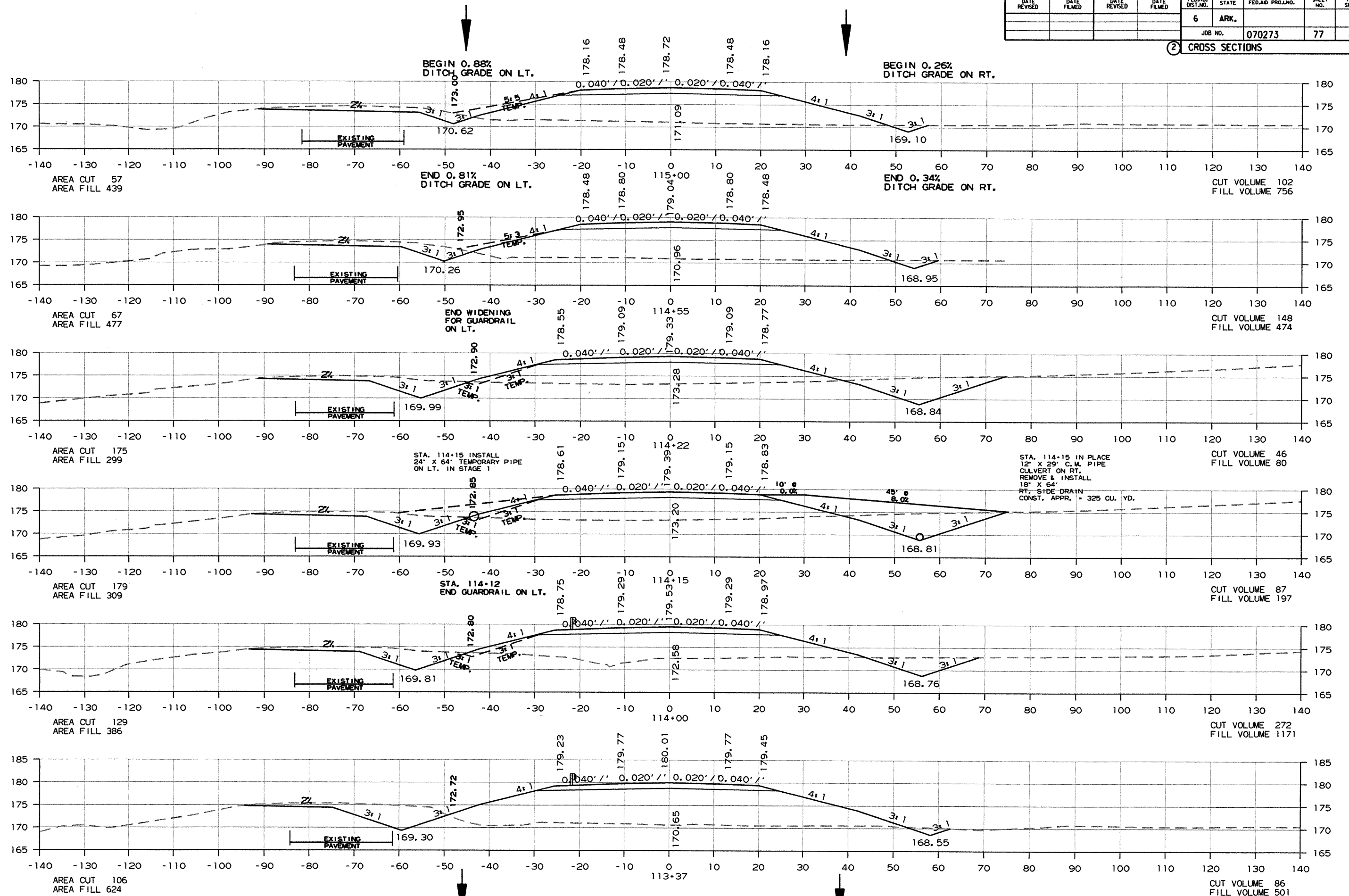
② CROSS SECTIONS



CROSS SECTION STA. 112+00 TO STA. 113+16

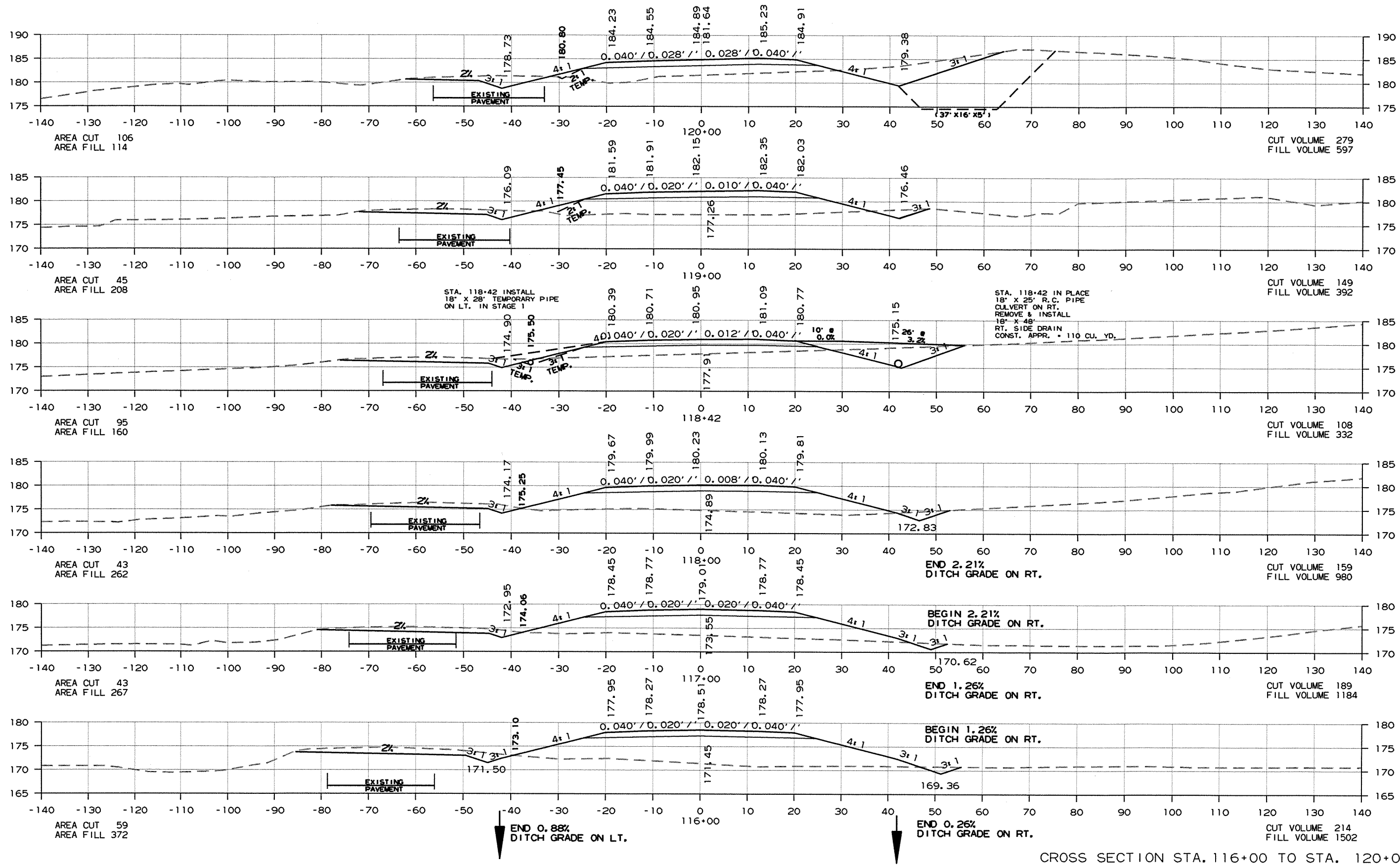
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	070273		77	81

2 CROSS SECTIONS

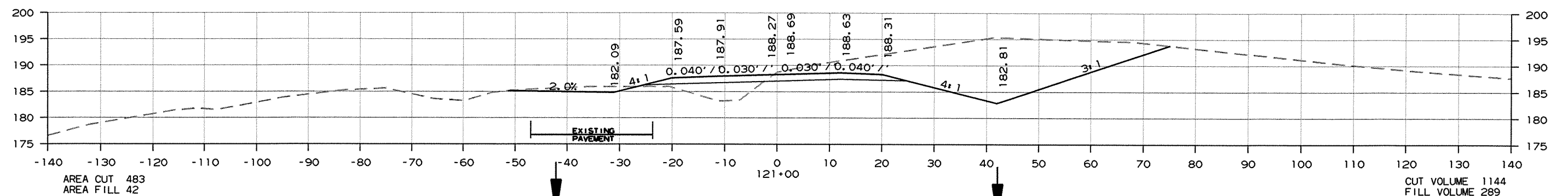
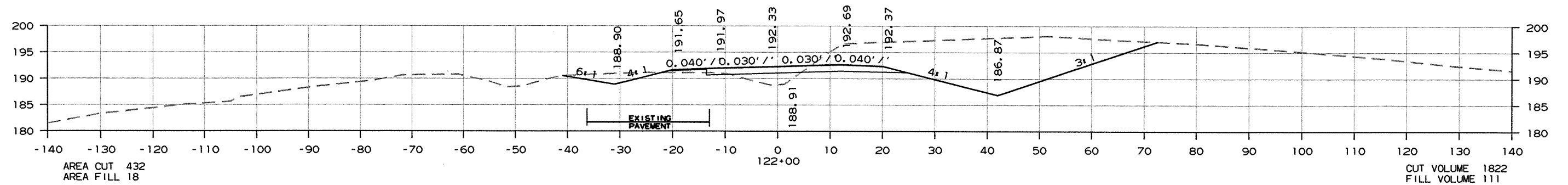
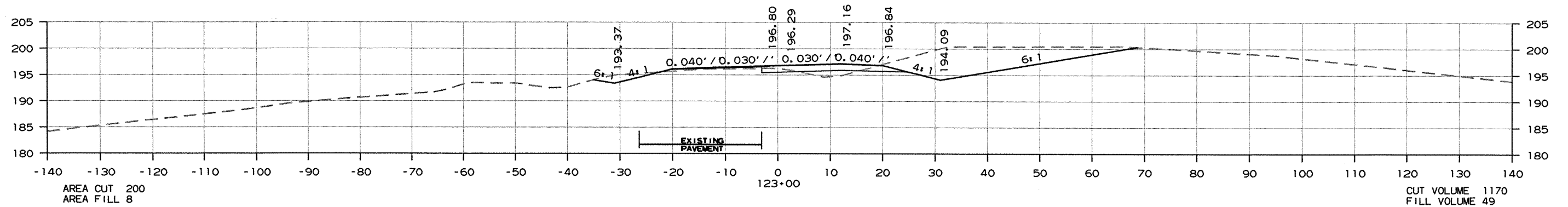
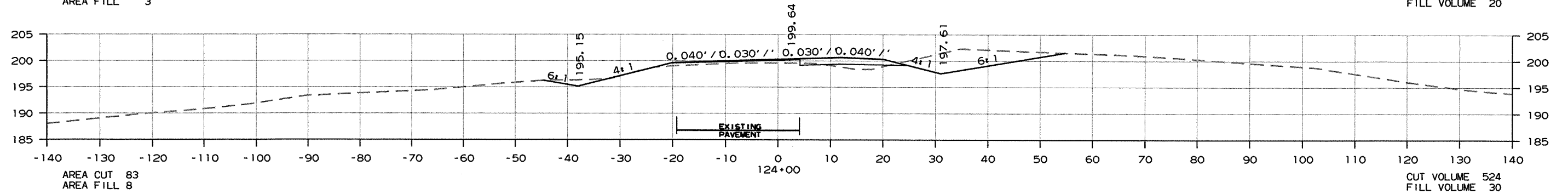
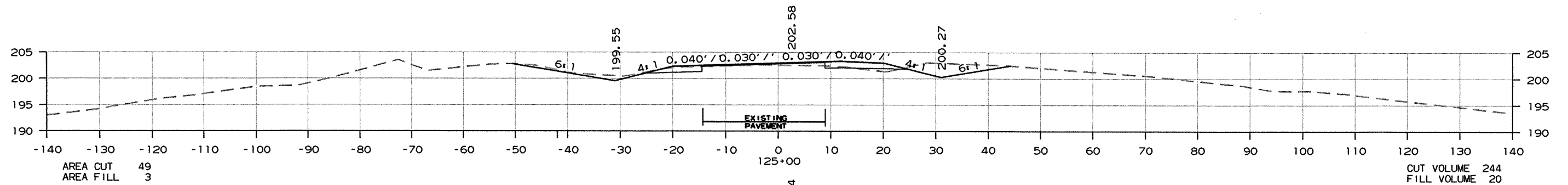


CROSS SECTION STA. 113+37 TO STA. 115+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	070273		78	81
2 CROSS SECTIONS								



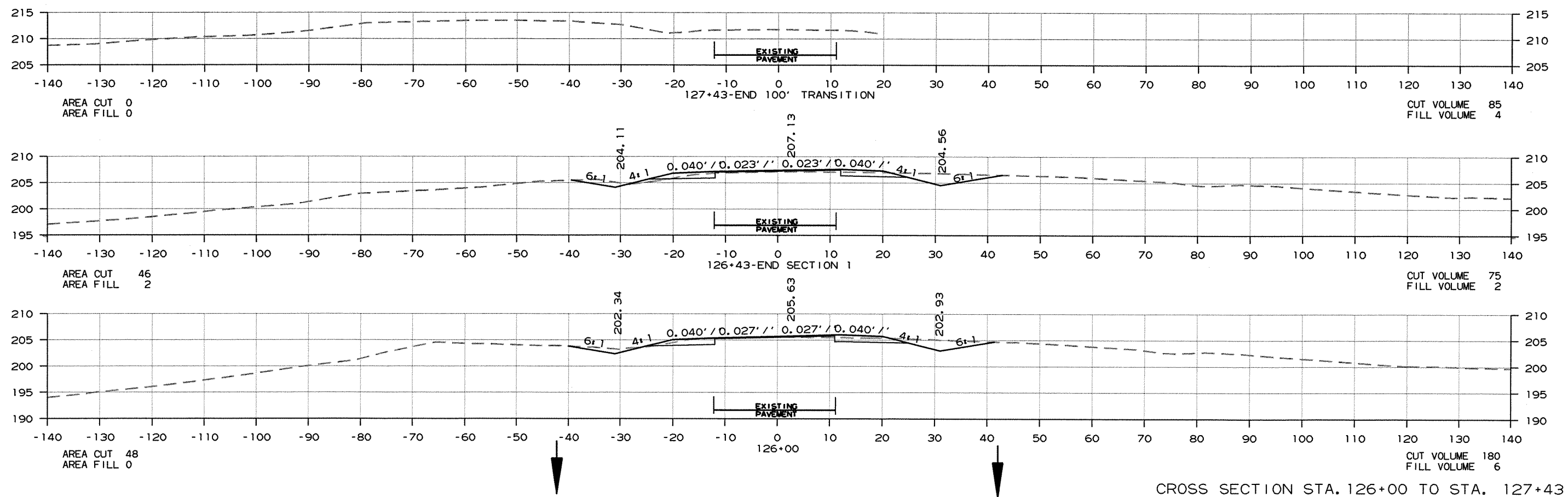
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				6	ARK.			
				JOB NO.	070273		79	81
(2) CROSS SECTIONS								



CROSS SECTION STA. 121+00 TO STA. 125+00

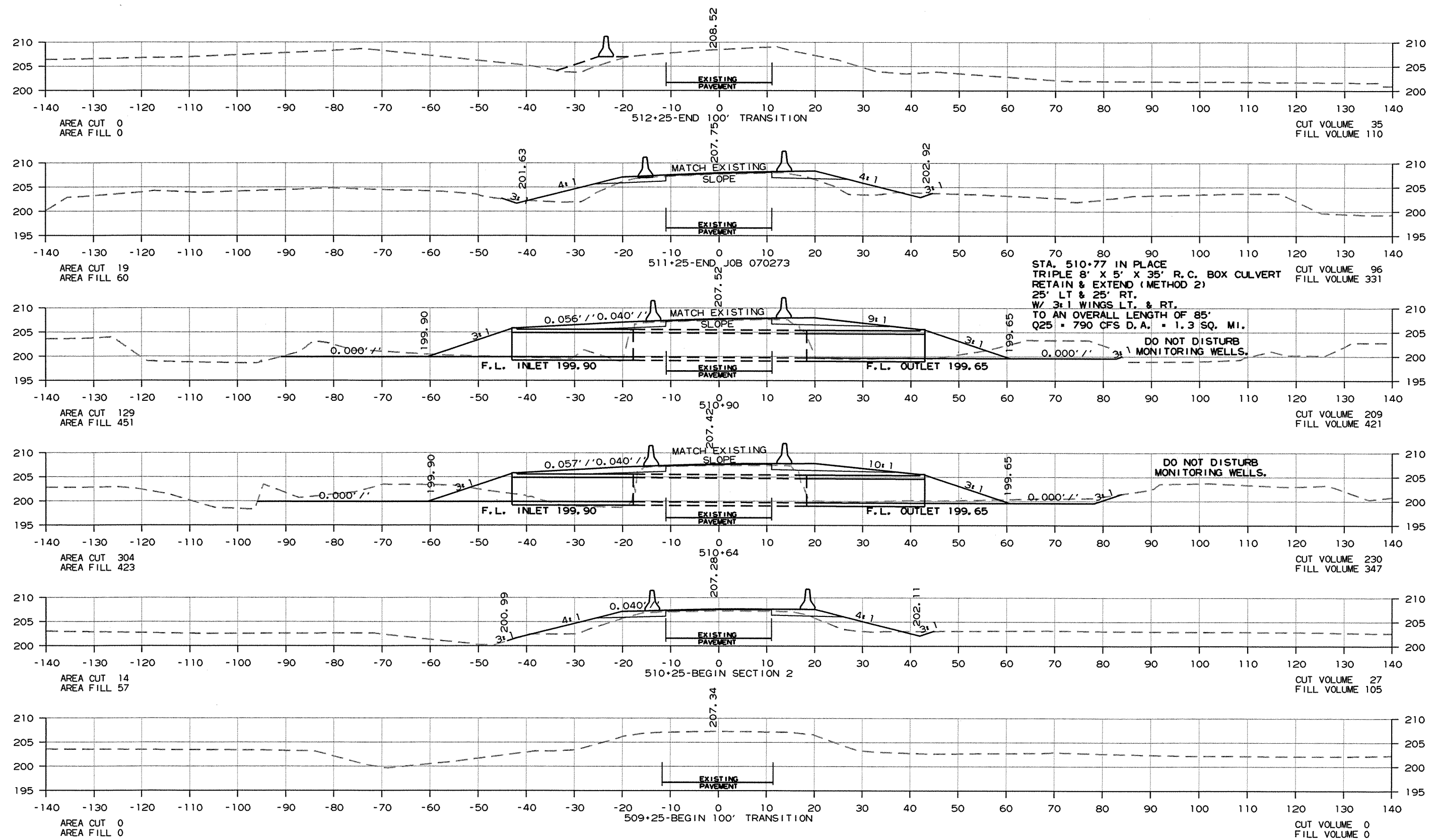
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				6	ARK.			
				JOB NO. 070273		80	81	

2 CROSS SECTIONS



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.	070273		81	81

2 CROSS SECTIONS



CROSS SECTION STA. 509+25 TO STA. 512+25