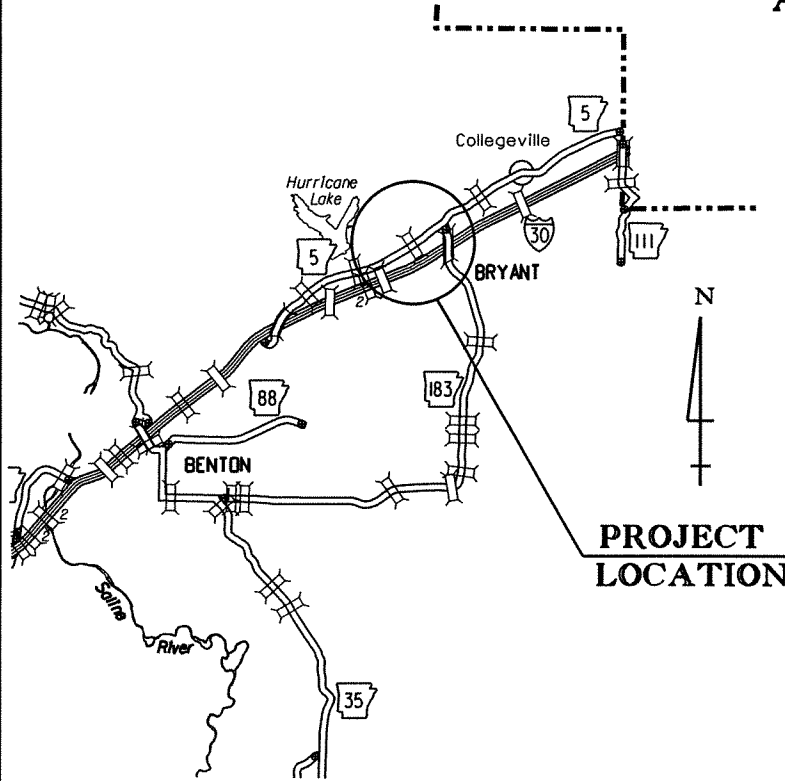


ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

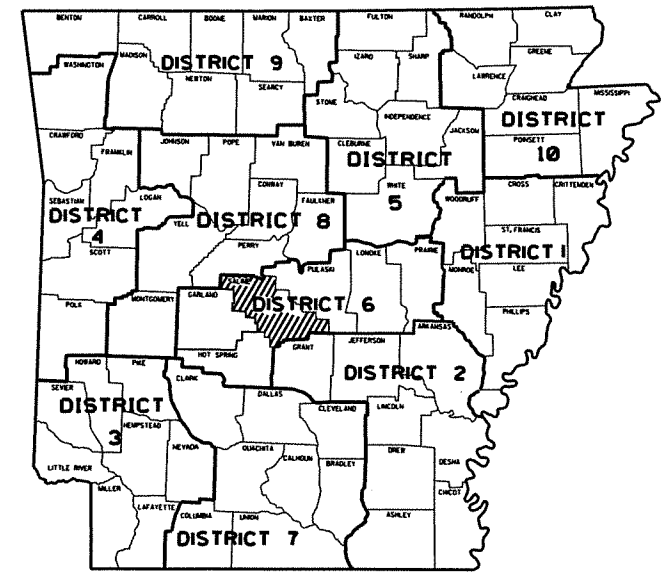
HWY. 5 DRAINAGE STRUCTURE
(BRYANT) (S)
SALINE COUNTY
ROUTE 5 SECTION 8
F.A.P. STP-9061(4)
JOB 061228

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		1	44
				JOB NO. 061228				

2 HWY. 5 DRAINAGE STRUCTURE (BRYANT) (S)



VICINITY MAP



DISTRICT 6

DESIGN TRAFFIC DATA

DESIGN YEAR	-----	2011
2011 ADT	-----	16,000
2031 ADT	-----	21,500
2031 DHV	-----	2365
DIRECTIONAL DISTRIBUTION	-----	60%
TRUCKS	-----	3%
DESIGN SPEED	-----	40 MPH

NOT TO SCALE

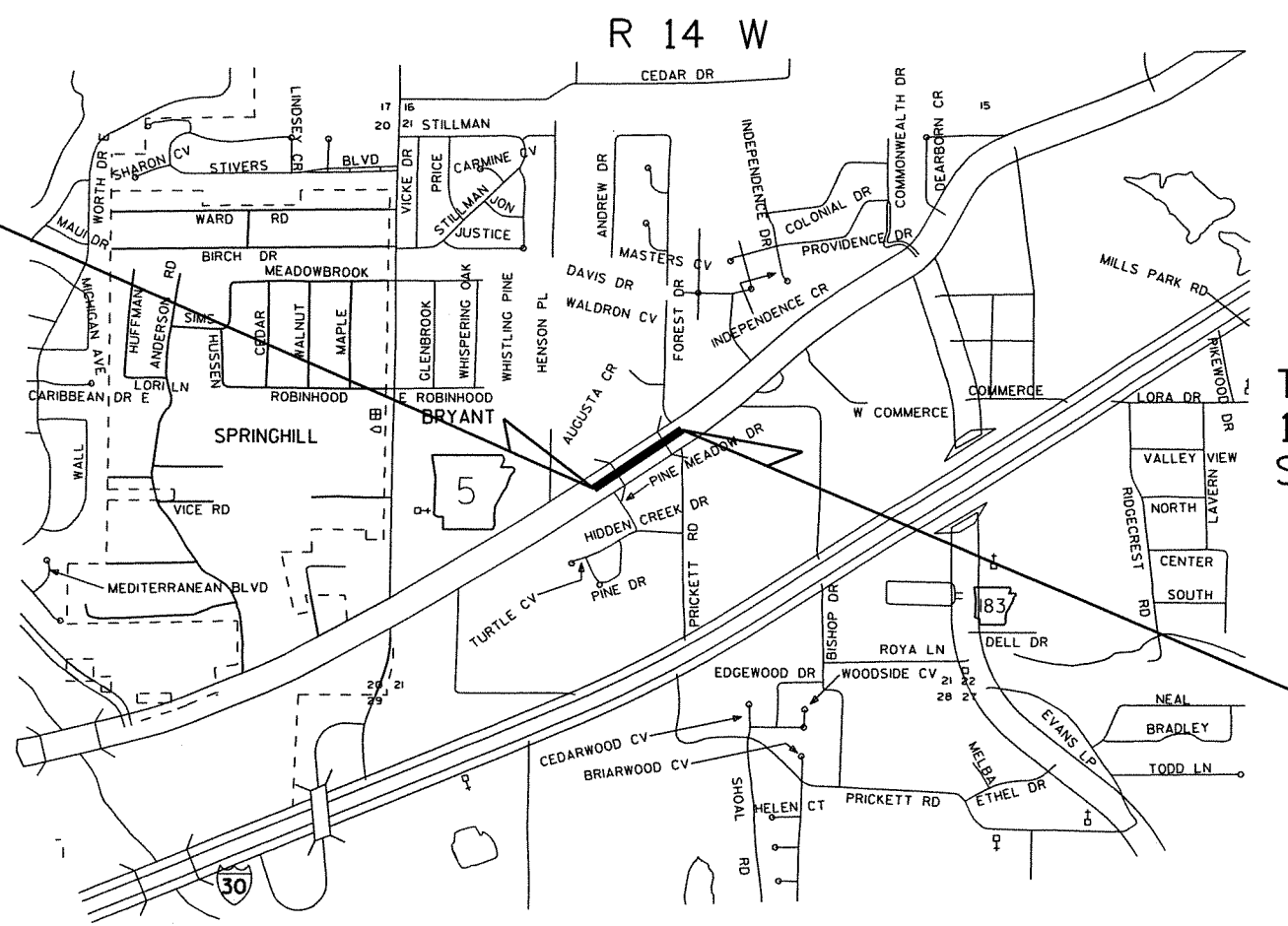
BEGIN JOB 061228
STA. 106+00
LOG MILE 3.249

STRUCTURES OVER 20'-0" SPAN

STATION	DESCRIPTION	SPAN
106+87	TRIP. 10' X 6' X 101' R.C. BOX CULVERT ON A 19° LT. FWD. SKEW W/ 3rd WINGS LT. & RT.	32'-11"

PROJECT COORDINATES:

	BEGIN	MID-POINT	END
LAT.	N34° 37' 10"	N34° 37' 10"	N34° 37' 11"
LON.	W92° 30' 30"	W92° 30' 30"	W92° 30' 29"

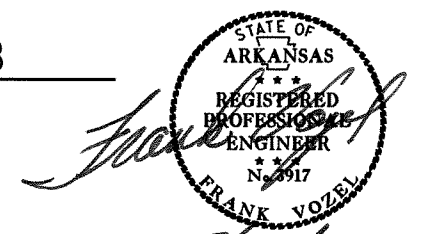


GROSS LENGTH OF PROJECT 150.00 FEET OR 0.028 MILES
NET LENGTH OF ROADWAY 117.08 FEET OR 0.022 MILES
NET LENGTH OF BRIDGES 32.92 FEET OR 0.006 MILES
NET LENGTH OF PROJECT 150.00 FEET OR 0.028 MILES

P.E. JOB 061228
NON-PART.



APPROVED



7/21/11
DEPUTY DIRECTOR
AND CHIEF ENGINEER

END JOB 061228
STA. 107+50

0022100

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.	061228	2 44

2 INDEX OF SHEETS, GOV. SPECS. & GEN. NOTES



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
- 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 061228___ BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
- JOB 061228___ BROADBAND INTERNET SERVICE FOR FIELD OFFICE
- JOB 061228___ GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
- JOB 061228___ INTERNET BIDDING
- JOB 061228___ NESTING SITES OF MIGRATORY BIRDS
- JOB 061228___ REMOVAL OF DEBRIS
- JOB 061228___ SHORING
- JOB 061228___ SITE USE (A + C METHOD)
- JOB 061228___ SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
- JOB 061228___ TEMPORARY IMPACT ATTENUATION BARRIER
- JOB 061228___ UTILITY ADJUSTMENTS
- JOB 061228___ WARM MIX ASPHALT

INDEX OF SHEETS

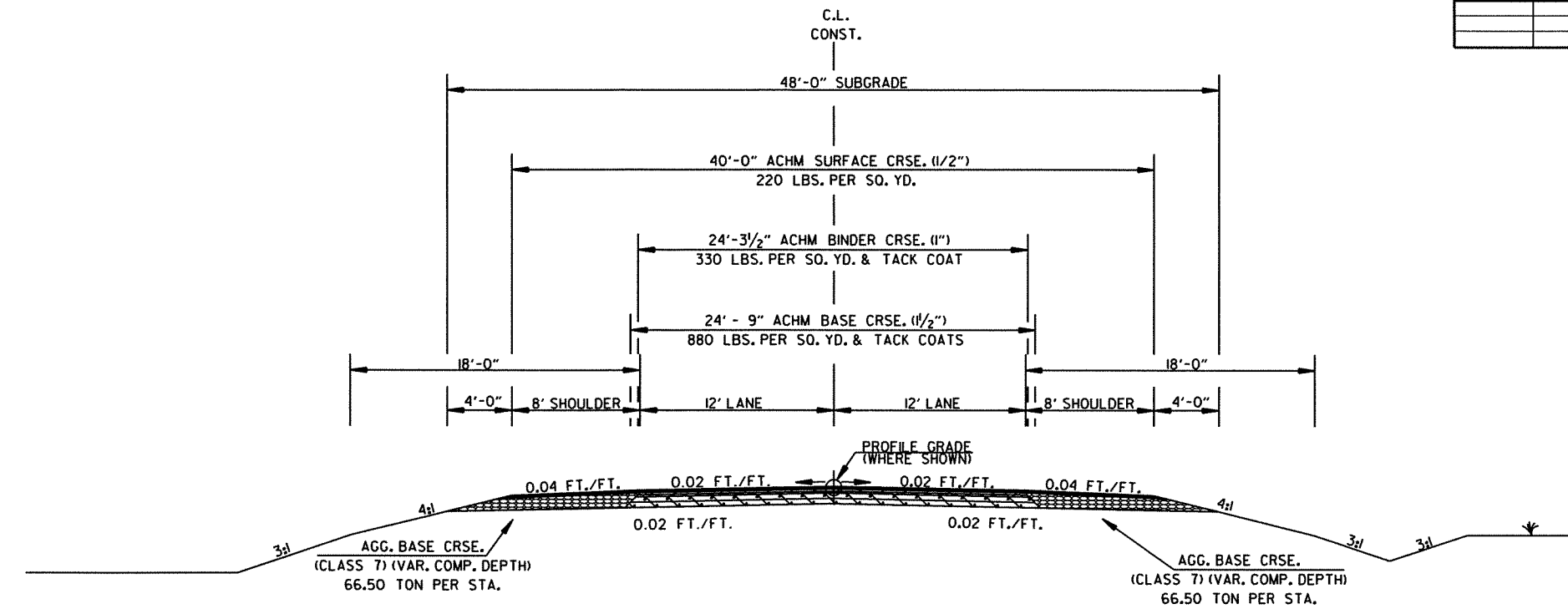
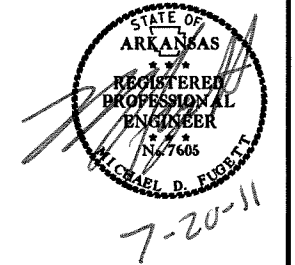
SHEET NO.	TITLE	DRWG. NO.	DATE
1	TITLE SHEET		
2	INDEX OF SHEETS, GOVERNING SPECIFICATIONS AND GENERAL NOTES		
3	TYPICAL SECTIONS OF IMPROVEMENT		
4	SPECIAL DETAILS		
5 - 6	TEMPORARY EROSION CONTROL DETAILS		
7 - 9	MAINTENANCE OF TRAFFIC DETAILS		
10	PERMANENT PAVEMENT MARKING DETAILS		
11 - 13	QUANTITY SHEETS		
14	SUMMARY OF QUANTITIES AND REVISIONS		
15 - 16	SURVEY CONTROL DETAILS		
17	PLAN AND PROFILE SHEET		
18	DETOUR PLAN AND PROFILE SHEET		
19	CONCRETE DITCH PAVING		
20	CURBING DETAILS	CDP-1	11-17-10
21	DETAILS OF DROP INLETS & JUNCTION BOXES	CG-1	11-29-07
22	PRECAST CONCRETE BOX CULVERTS	FPC-9	11-16-01
23	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	PBC-1	10-15-09
24	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	PCC-1	5-18-00
25	PAVEMENT MARKING DETAILS	PCM-1	3-30-00
26	REINFORCED CONCRETE BOX CULVERT DETAILS	PM-1	11-17-10
27	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	RCB-1	5-25-06
28	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	RCB-2	11-20-03
29	SAFETY END SECTION FOR CIRCULAR AND ARCH PIPES	SE-2	10-18-96
30	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	SES-1	10-18-96
31	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-1	11-17-10
32	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-2	3-11-10
33	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-3	10-15-09
34	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	TC-4	10-15-09
35	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	TC-5	10-15-09
36	TEMPORARY EROSION CONTROL DEVICES	TEC-1	11-18-98
37	TEMPORARY EROSION CONTROL DEVICES	TEC-2	6-02-94
38	TEMPORARY EROSION CONTROL DEVICES	TEC-3	11-03-94
39	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	WX153-1	5-10-66
40 - 44	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	R-315X-0	8-28-63
	CROSS SECTIONS		

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. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
5. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED IF AND WHERE DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
6. THIS PROJECT IS COVERED UNDER A NATIONWIDE (LOP) SECTION 404 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2003, FOR PERMIT REQUIREMENTS.
7. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
8. 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.

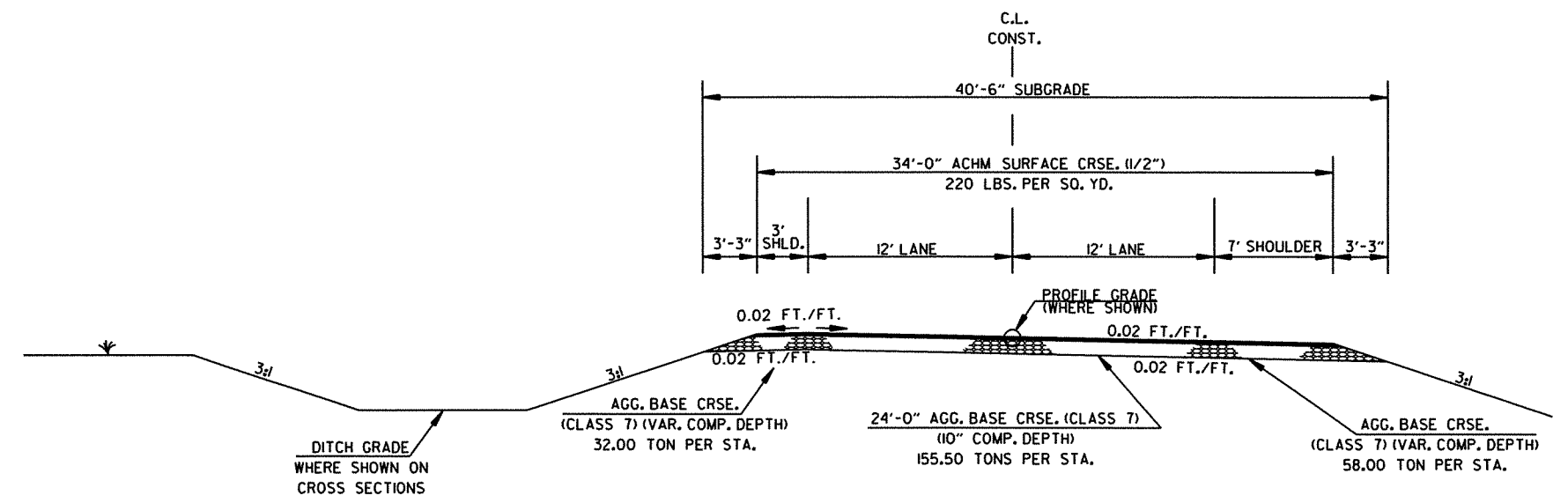
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		3	44
				JOB NO.	061228			

2 TYPICAL SECTIONS OF IMPROVEMENT



TYPICAL SECTION OF IMPROVEMENT

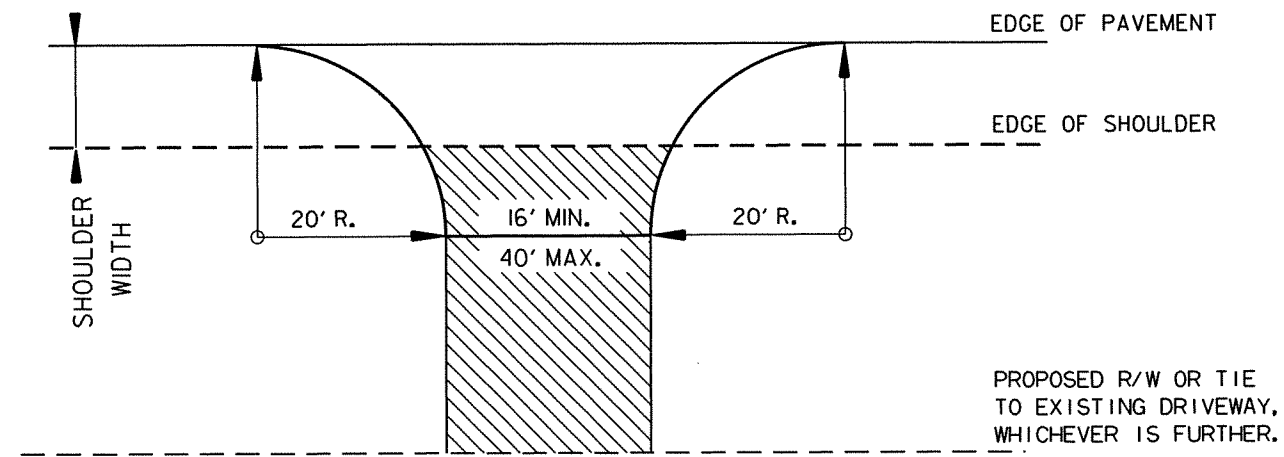
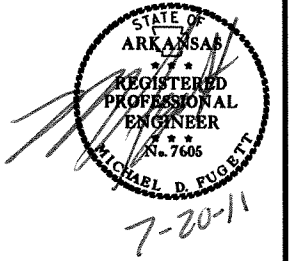
NOTES:
 REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
 THE FINAL 2 INCHES OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.
 THE 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.




TYPICAL SECTION OF DETOUR

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.	061228		4	44

2 SPECIAL DETAILS

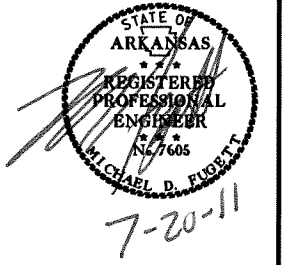


DETAIL FOR DRIVEWAY TURNOUTS

 ASPHALT CONCRETE HOT MIX SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH.

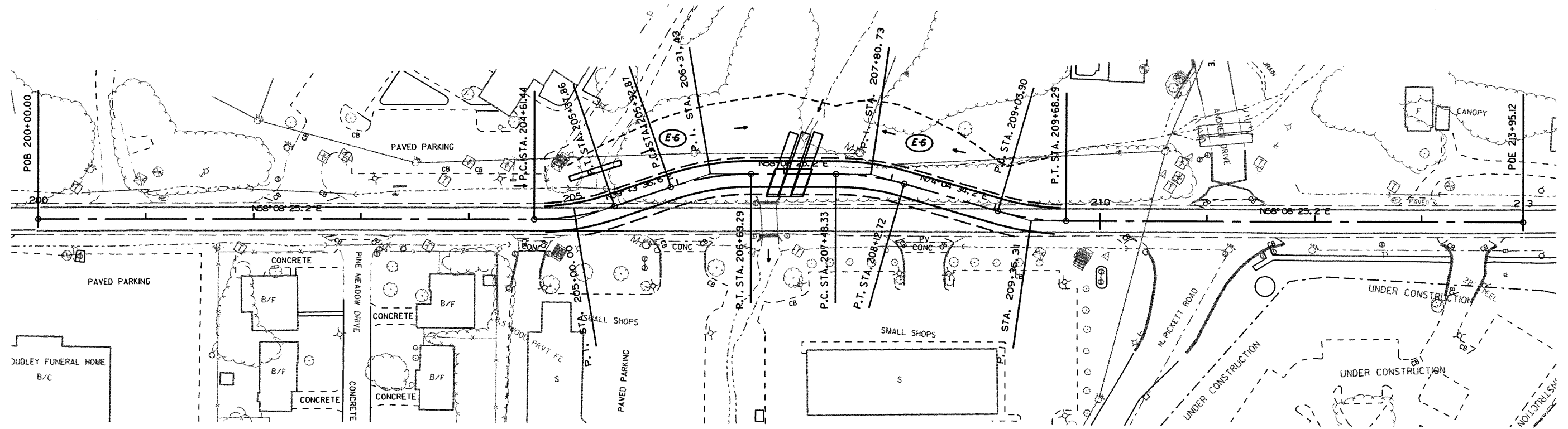
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				6	ARK.			
							JOB NO.	061228

② TEMPORARY EROSION CONTROL DETAILS



(E-6)	ROCK DITCH CHECKS
(E-7)	DROP INLET SILT FENCE
(E-11)	SILT FENCE

LEGEND



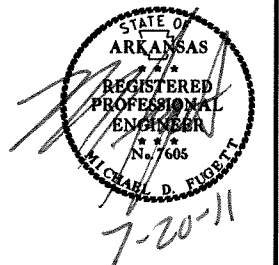
EROSION CONTROL REVISIONS

DATE	REVISION MADE

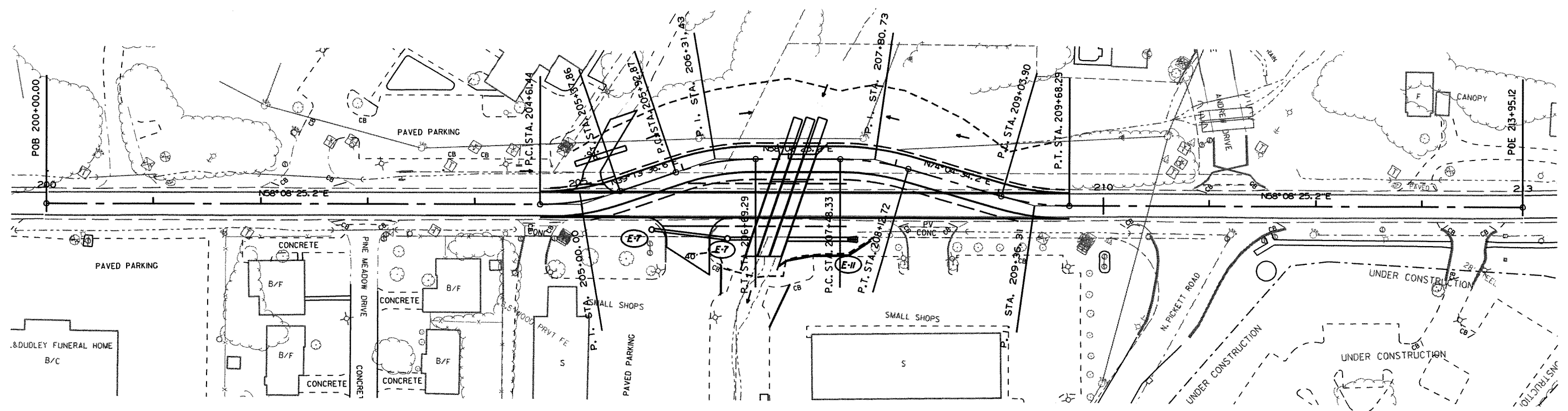
TEMPORARY EROSION CONTROL DETAILS: STAGE 1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		6	44
				JOB NO.		061228	6	44

② TEMPORARY EROSION CONTROL DETAILS



(E-6)	ROCK DITCH CHECKS
(E-7)	DROP INLET SILT FENCE
(E-11)	SILT FENCE
LEGEND	



EROSION CONTROL REVISIONS

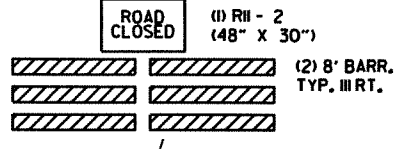
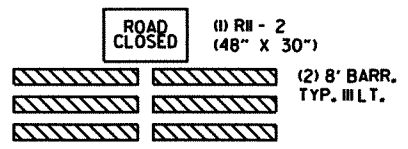
DATE	REVISION MADE

TEMPORARY EROSION CONTROL DETAILS: STAGE 2

MAINTENANCE OF TRAFFIC QUANTITIES: STAGE 1

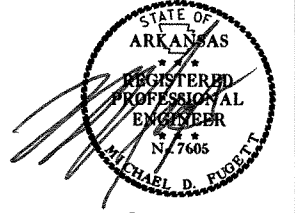
- SIGNS = 195.0 LIN. FT.
- TRAFFIC DRUMS = 14 EACH
- BARRICADES = 32 LIN. FT.
- FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 140 LIN. FT.
- TEMPORARY IMPACT ATTENUATION BARRIER = 1 EACH
- TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR) = 1 EACH

NOTE: R4-1 TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

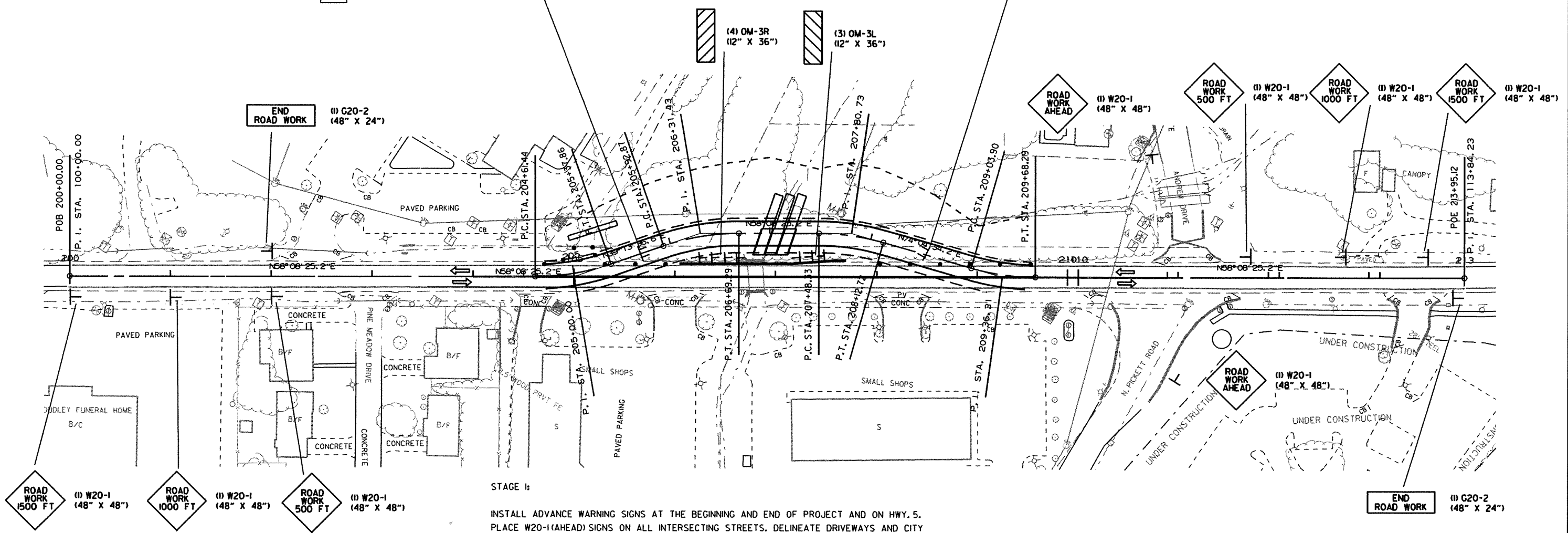


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2 MAINTENANCE OF TRAFFIC DETAILS



9-7-11



STAGE 1:

INSTALL ADVANCE WARNING SIGNS AT THE BEGINNING AND END OF PROJECT AND ON HWY. 5. PLACE W20-1(AHEAD) SIGNS ON ALL INTERSECTING STREETS. DELINEATE DRIVEWAYS AND CITY STREETS WITH TRAFFIC DRUMS (6 DRUMS PER DRIVE). MAINTAIN TRAFFIC THROUGHOUT THE PROJECT USING VERTICAL PANELS PLACED AT 40' O.C. ON THE LEFT SIDE. INSTALL TEMPORARY PRECAST BARRIER WALL FROM STATION 106+04 TO STATION 107+44 ON LEFT WITH TEMPORARY IMPACT ATTENUATION BARRIER. BEFORE R.C. BOX CONSTRUCTION BEGINS, HURRICANE CREEK TRIBUTARY (LT.) MUST BE WIDENED TO MAINTAIN A SUFFICIENT CHANNEL. (REFER TO CROSS SECTIONS.) CONSTRUCT 27'-0" OF TRIPLE 10' x 6' R.C. BOX CULVERT ON LEFT WITHOUT HEADWALL AND WING WALLS AT STATION 106+87 WITH TRIPLE TEMPORARY PIPE. CONSTRUCT DETOUR EMBANKMENT AND TYPICAL SECTION UTILIZING ANY CONSTRUCTION MEASURE(S) TO MINIMIZE LENGTH OF CONSTRUCTION TIME IN CHANNEL.

STAGE 2:

REMOVE ALL CONFLICTING PAVEMENT MARKINGS ON HWY. 5. APPLY CONSTRUCTION PAVEMENT MARKINGS, AND SHIFT TRAFFIC ONTO DETOUR. DELINEATE DRIVEWAYS WITH TRAFFIC DRUMS (6 PER DRIVE) AND ROAD CLOSED BARRICADES ON BOTH SIDES OF NEW CULVERT. INSTALL TEMPORARY PRECAST BARRIER WALL FROM STATION 206+20 TO STATION 207+80. CONSTRUCT 74'-0" OF THE TRIPLE 10' x 6' R.C. BOX CULVERT ON RIGHT. CONSTRUCT FULL DEPTH PAVEMENT OVER THE NEW R.C. BOX CULVERT.

STAGE 3:

REMOVE ALL CONFLICTING PAVEMENT MARKINGS ON HWY. 5. SHIFT TRAFFIC ONTO HWY. 5 USING TRAFFIC DRUMS AT 40' O.C. ON THE LEFT. REMOVE DETOUR EMBANKMENT AS SOON AS POSSIBLE AFTER DETOUR IS NO LONGER REQUIRED. APPLY FINAL STRIPING AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS.

r061228.dgn 7/20/2010

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AT THE BEGINNING AND END OF PROJECT AND ON HWY. 5. PLACE W20-1(AHEAD) SIGNS ON ALL INTERSECTING STREETS. DELINEATE DRIVEWAYS AND CITY STREETS WITH TRAFFIC DRUMS (6 DRUMS PER DRIVE). MAINTAIN TRAFFIC THROUGHOUT THE PROJECT USING VERTICAL PANELS PLACED AT 40' O.C. ON THE LEFT SIDE. INSTALL TEMPORARY PRECAST BARRIER WALL FROM STATION 106+04 TO STATION 107+44 ON LEFT WITH TEMPORARY IMPACT ATTENUATION BARRIER. BEFORE R.C. BOX CONSTRUCTION BEGINS, HURRICANE CREEK TRIBUTARY (L.T.) MUST BE WIDENED TO MAINTAIN A SUFFICIENT CHANNEL. (REFER TO CROSS SECTIONS.) CONSTRUCT 27'-0" OF TRIPLE 10' x 6' R.C. BOX CULVERT ON LEFT WITHOUT HEADWALL AND WING WALLS AT STATION 106+87 WITH TRIPLE TEMPORARY PIPE. CONSTRUCT DETOUR EMBANKMENT AND TYPICAL SECTION UTILIZING ANY CONSTRUCTION MEASURE(S) TO MINIMIZE LENGTH OF CONSTRUCTION TIME IN CHANNEL.

STAGE 2:

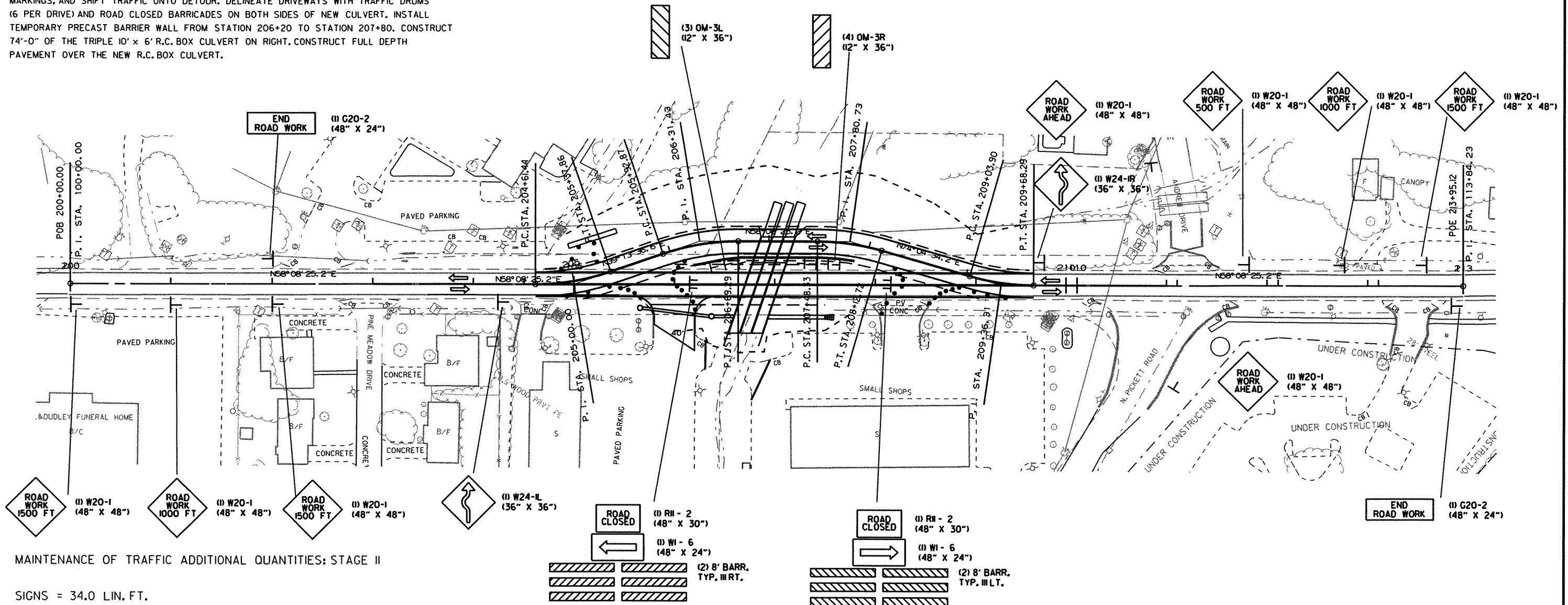
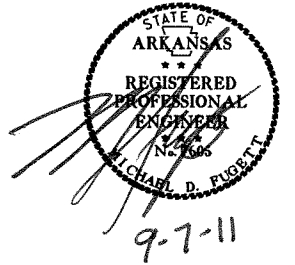
REMOVE ALL CONFLICTING PAVEMENT MARKINGS ON HWY. 5. APPLY CONSTRUCTION PAVEMENT MARKINGS, AND SHIFT TRAFFIC ONTO DETOUR. DELINEATE DRIVEWAYS WITH TRAFFIC DRUMS (6 PER DRIVE) AND ROAD CLOSED BARRICADES ON BOTH SIDES OF NEW CULVERT. INSTALL TEMPORARY PRECAST BARRIER WALL FROM STATION 206+20 TO STATION 207+80. CONSTRUCT 74'-0" OF THE TRIPLE 10' x 6' R.C. BOX CULVERT ON RIGHT. CONSTRUCT FULL DEPTH PAVEMENT OVER THE NEW R.C. BOX CULVERT.

STAGE 3:

REMOVE ALL CONFLICTING PAVEMENT MARKINGS ON HWY. 5. SHIFT TRAFFIC ONTO HWY. 5 USING TRAFFIC DRUMS AT 40' O.C. ON THE LEFT. REMOVE DETOUR EMBANKMENT AS SOON AS POSSIBLE AFTER DETOUR IS NO LONGER REQUIRED. APPLY FINAL STRIPING AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8/11/2011				6	ARK.			
9/7/2011						JOB NO. 061228	8	44

② MAINTENANCE OF TRAFFIC DETAILS



MAINTENANCE OF TRAFFIC ADDITIONAL QUANTITIES: STAGE II

- SIGNS = 34.0 LIN. FT.
- TRAFFIC DRUMS = 24 EACH
- FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 20 LIN. FT.
- RELOCATING PRECAST CONCRETE BARRIER = 140 LIN. FT.
- REMOVAL OF PERMANENT PAVEMENT MARKINGS = 957 LIN. FT.
- CONSTRUCTION PAVEMENT MARKINGS = 1996 LIN. FT.

NOTE: R4-1 TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



MAINTENANCE OF TRAFFIC DETAILS: STAGE 2

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AT THE BEGINNING AND END OF PROJECT AND ON HWY. 5. PLACE W20-1(AHEAD) SIGNS ON ALL INTERSECTING STREETS. DELINEATE DRIVEWAYS AND CITY STREETS WITH TRAFFIC DRUMS (6 DRUMS PER DRIVE). MAINTAIN TRAFFIC THROUGHOUT THE PROJECT USING VERTICAL PANELS PLACED AT 40' O.C. ON THE LEFT SIDE. INSTALL TEMPORARY PRECAST BARRIER WALL FROM STATION 106+04 TO STATION 107+44 ON LEFT WITH TEMPORARY IMPACT ATTENUATION BARRIER. BEFORE R.C. BOX CONSTRUCTION BEGINS, HURRICANE CREEK TRIBUTARY (L.T.) MUST BE WIDENED TO MAINTAIN A SUFFICIENT CHANNEL. (REFER TO CROSS SECTIONS.) CONSTRUCT 27'-0" OF TRIPLE 10' x 6' R.C. BOX CULVERT ON LEFT WITHOUT HEADWALL AND WING WALLS AT STATION 106+87 WITH TRIPLE TEMPORARY PIPE. CONSTRUCT DETOUR EMBANKMENT AND TYPICAL SECTION UTILIZING ANY CONSTRUCTION MEASURE(S) TO MINIMIZE LENGTH OF CONSTRUCTION TIME IN CHANNEL.

STAGE 2:

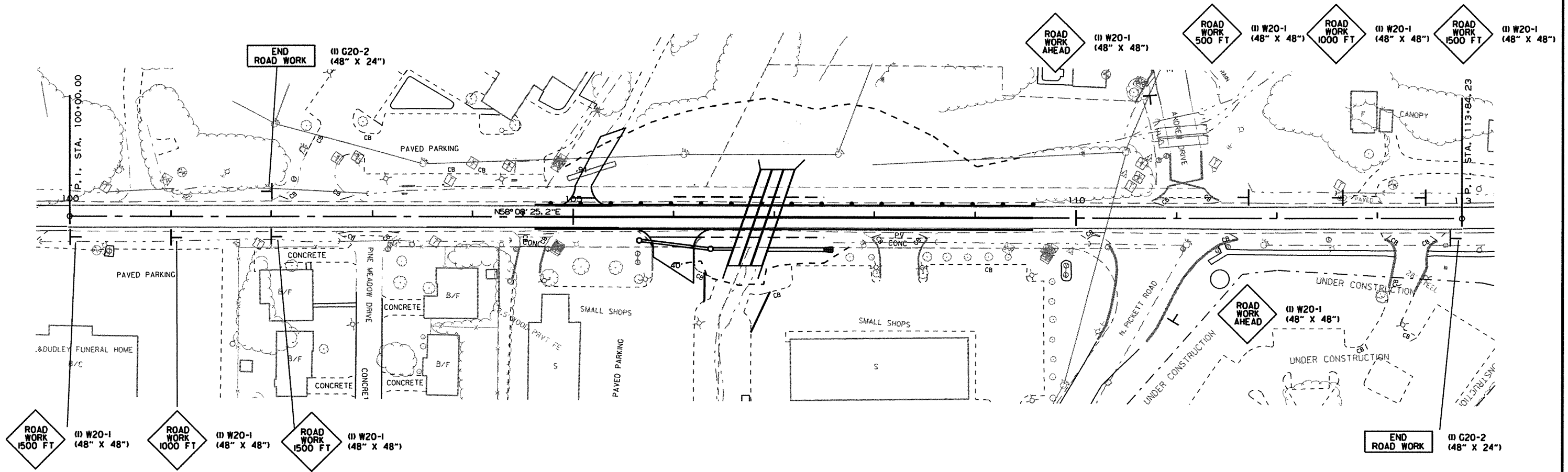
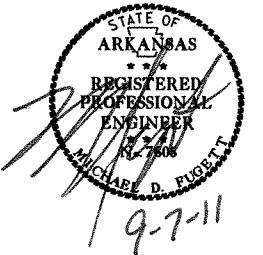
REMOVE ALL CONFLICTING PAVEMENT MARKINGS ON HWY. 5. APPLY CONSTRUCTION PAVEMENT MARKINGS, AND SHIFT TRAFFIC ONTO DETOUR. DELINEATE DRIVEWAYS WITH TRAFFIC DRUMS (6 PER DRIVE) AND ROAD CLOSED BARRICADES ON BOTH SIDES OF NEW CULVERT. INSTALL TEMPORARY PRECAST BARRIER WALL FROM STATION 206+20 TO STATION 207+80. CONSTRUCT 74'-0" OF THE TRIPLE 10' x 6' R.C. BOX CULVERT ON RIGHT. CONSTRUCT FULL DEPTH PAVEMENT OVER THE NEW R.C. BOX CULVERT.

STAGE 3:

REMOVE ALL CONFLICTING PAVEMENT MARKINGS ON HWY. 5. SHIFT TRAFFIC ONTO HWY. 5 USING TRAFFIC DRUMS AT 40' O.C. ON THE LEFT. REMOVE DETOUR EMBANKMENT AS SOON AS POSSIBLE AFTER DETOUR IS NO LONGER REQUIRED. APPLY FINAL STRIPING AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS.

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9/7/2011						JOB NO. 061228	9	44

② MAINTENANCE OF TRAFFIC DETAILS



MAINTENANCE OF TRAFFIC ADDITIONAL QUANTITIES: STAGE III

REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 645 LIN. FT.

NOTE: R4-1 TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 061228							10	44

PERMANENT PAVEMENT MARKING DETAILS

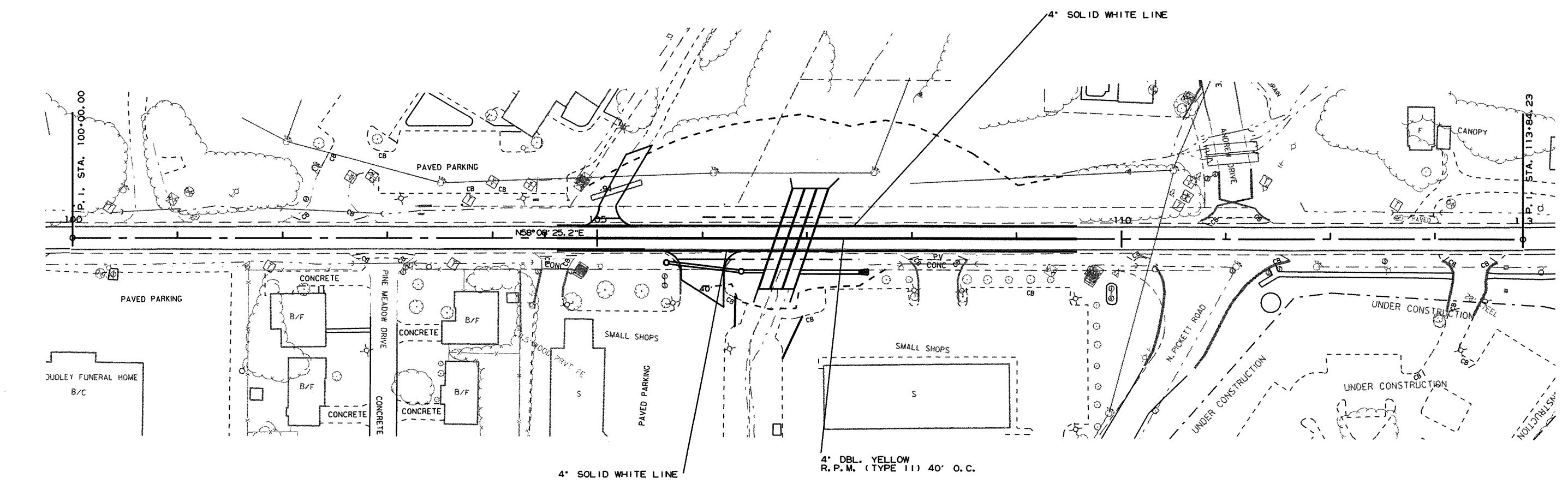


RAISED PAVEMENT MARKERS (TYPE II)(YELLOW/YELLOW) ARE TO BE PLACED ON DOUBLE YELLOW AT 40' INTERVALS.

REFER TO THE PERMANENT PAVEMENT MARKING DETAILS, STD. DRWG. PM-I, AND THE LATEST EDITION OF THE MUTCD FOR ADDITIONAL PAVEMENT MARKING DETAILS.

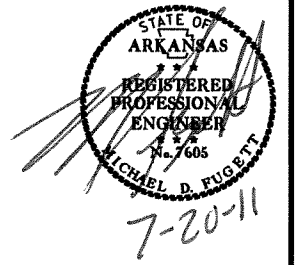
PERMANENT PAVEMENT MARKINGS

- THERMOPLASTIC PAVEMENT MARKING WHITE (4") = 992 LIN. FT.
- THERMOPLASTIC PAVEMENT MARKING YELLOW (4") = 992 LIN. FT.
- RAISED PAVEMENT MARKER (TYPE II) = 11 EACH



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		11	44
				JOB NO.	061228			

2 QUANTITIES SHEETS



ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN. BARR. (REPAIR)
							NO.	SQ. FT.		RIGHT	LEFT				
			LIN. FT. - EACH					EACH		LIN. FT.				EACH	
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	32.0							
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	32.0							
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	32.0							
W20-1	ROAD WORK AHEAD	48"x48"	2	2	2	2	2	32.0							
G20-2	END ROAD WORK	48"x24"	2	2	2	2	2	16.0							
R11-2	ROAD CLOSED	48"x30"	2	2		2	2	20.0							
OM-3L	OBJECT MARKER	12"x36"	3	3		3	3	9.0							
OM-3R	OBJECT MARKER	12"x36"	4	4		4	4	12.0							
W1-6	LARGE ARROW	48"x24"		2		2	2	16.0							
R4-1	DO NOT PASS	24"x30"	2	2	2	2	2	10.0							
W24-1R	DOUBLE REVERSE CURVE RT.	36"x36"		1		1	1	9.0							
W24-1L	DOUBLE REVERSE CURVE LT.	36"x36"		1		1	1	9.0							
TRAFFIC DRUMS			14	38	17	38			38						
TYPE III BARRICADE-RT. (8')			2	2		2				16					
TYPE III BARRICADE-LT. (8')			2	2		2					16				
FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			140	160		160					160				
RELOCATING PRECAST CONCRETE BARRIER				140		140						140			
TEMPORARY IMPACT ATTENUATION BARRIER			1			1							1		
TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)			1			1									1
TOTALS:								229.0	38	16	16	160	140	1	1

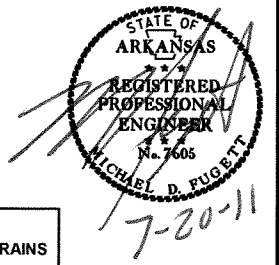
CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 2	STAGE 3	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKINGS		
							TYPE II (YEL/YEL)	4"		
			LIN. FT. - EACH		LIN. FT.		EACH		LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS	957			957						
CONSTRUCTION PAVEMENT MARKINGS	1996				1996					
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		645				645				
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)			11				11			
THERMOPLASTIC PAVEMENT MARKINGS WHITE (4")			992					992		
THERMOPLASTIC PAVEMENT MARKINGS YELLOW (4")			992						992	
TOTALS:				957	1996	645	11	992	992	

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

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		12	44
				JOB NO.	061228			

2 QUANTITIES SHEETS



CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
104+00	110+00	LEFT OF MAIN LANES	6	6
TOTALS:			6	6

SHORING

STATION	LOCATION	LUMP SUM
106+87	MAIN LANES ON LEFT	1.00
TOTAL:		1.00

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CURB AND GUTTER	DEBRIS	POST	SIGN FOUNDATIONS	SIGNS
			LIN. FT.	LUMP SUM	EACH	EACH	EACH
105+34		8" WOOD SIGN POST ON LEFT					
105+74		SIGN FOUNDATION WITH ELECTRIC ON RIGHT				1	
105+93		SIGN ON LEFT			1		1
106+30	106+43	RIGHT ON MAIN LANES IN PARKING LOT	27				
106+75	106+96	RIGHT ON MAIN LANES IN PARKING LOT	44				
106+87		OUTLET CHANNEL		1.00			
TOTALS:			71	1.00	1	1	1

REMOVAL AND DISPOSAL OF CULVERTS AND JUNCTION BOXES

STATION	DESCRIPTION	PIPE CULVERTS	BOX CULVERTS	JUNCTION BOXES
		EACH	EACH	EACH
105+08	SIDE DRAIN ON LEFT	1		
105+65	JUNCTION BOX WITH PIPE OUTLET ON RIGHT	1		1
106+87	15' x 4' x 33' R.C. BOX CULVERT		1	
TOTALS:		2	1	1

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
106+78	RIGHT OF MAIN LANES - HEADWALL	1
TOTAL:		1

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

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE A (1' 6")
			LIN. FT.
106+31		RIGHT ON MAIN LANES IN PARKING LOT	30
106+77	106+96	RIGHT ON MAIN LANES IN PARKING LOT	45
TOTAL:			75

SELECTED PIPE BEDDING & BACKFILL

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

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	5	10
TOTALS:	5	10

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
ENTIRE PROJECT		STAGE 1-MAIN LANES	1825	2351
ENTIRE PROJECT		STAGE 2-MAIN LANES	645	185
ENTIRE PROJECT		DETOUR REMOVAL	1673	
ENTIRE PROJECT		APPROACHES		225
TOTALS:			4143	2761

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

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

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
		FEET				
104+00	15' RT.	0-5	61	35	A-7-6(31)	RD/GR
104+00	5' RT.	0-5	19	4	A-4(0)	BROWN
104+00	15' RT.	0-5	39	24	A-6(9)	RD/GR
110+00	5' LT.	0-5	37	19	A-6(10)	BROWN
110+00	20' LT.	0-5	25	25	A-6(3)	BROWN

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

CONCRETE DITCH PAVING

STATION	LOCATION	LENGTH	"W"	"B"	CONC. DITCH PAVING (TYPE A)	SOLID SODDING	WATER
		LIN. FT.	FEET	FEET	SQ. YD.	SQ. YD.	M. GAL.
106+87	OUTLET OF BOX CULVERT	23.00	58.75	34.75	150.14	10.22	0.13
TOTALS:					150.14	10.22	0.13

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

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	25
TOTAL:	25

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

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS
			FEET	SQ. YD.	TON	TON	57"X38" LIN. FT.
105+10	LT.	MAIN LANES	16	154.2	17.0	63.0	50
106+00	RT.	MAIN LANES	40	201.3	22.1	82.2	
ENTIRE PROJECT TEMPORARY DRIVES						30.0	
TOTALS:						39.1	175.2

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....95.1% MIN. AGGR.....4.9% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

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

NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
NOTE: FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

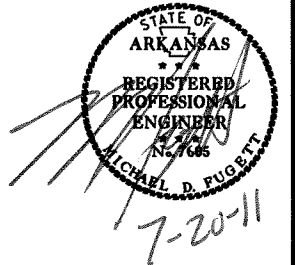
DUMPED RIPRAP AND FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YDS.	SQ. YDS.
106+87	INLET OF PIPE CULVERT	517	1033
106+87	OUTLET OF PIPE CULVERT	139	278
TOTALS:		656	1311

NOTE: FILTER BLANKET SHALL BE GEOTEXTILE FABRIC (TYPE 5).

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. PROJ. NO.	STATE	FED. AD PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	061228		13	44

2 QUANTITIES SHEETS



EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL											
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	DUMPED RIPRAP	FILTER BLANKET	ROCK DITCH CHECKS	DROP INLET SILT FENCE	SILT FENCE	*SEDIMENT BASIN	*OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL	
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	CU. YDS.	SQ. YDS.	CU. YD.	LINE FT.	LINE FT.	CU. YD.	CU. YD.	CU. YD.	
ENTIRE PROJECT	STAGE 1							0.66	0.66	13.5	113			10			10		12
ENTIRE PROJECT	STAGE 2							0.21	0.21	4.3				50	92				5
ENTIRE PROJECT	MAIN LANES		0.45	0.90	0.45	45.9	0.45												
TOTALS:			0.45	0.90	0.45	45.9	0.45	0.87	0.87	17.8	113	226	10	50	92	10	10	17	

BASIS OF ESTIMATE:

LIME 2 TONS / ACRE OF SEEDING
 WATER 102.0 M.G. / ACRE OF SEEDING.
 WATER 20.4 M.G. / ACRE OF TEMPORARY SEEDING.
 WATER 12.6 GAL. / SQ. YD. OF SOLID SODDING.
 ROCK DITCH CHECKS 5 CU. YD. / LOCATION

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

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

STRUCTURES

STATION	DESCRIPTION	PIPE CULVERT STORM DRAIN ALTERNATES 1 & 2		SAFETY END SECTIONS FOR CROSS DRAINS PIPE CULVERTS (CLASS 2)	TEMPORARY PIPE CULVERTS	JUNCT. BOX (TYPE E)	SPAN	HEIGHT	LENGTH	CLASS 5 CONCRETE ROADWAY	REINF. STEEL ROADWAY (GRADE 60)	UNCL. EXC. FOR STR. ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.							
		24"	36"													36"	102" X 62"	CU. YD.	POUND	CU. YD.	SQ. YD.	M.GAL.
		LINE FT.	LINE FT.													EACH	LINE FT.	EACH	LINE FT.	LINE FT.	LINE FT.	LINE FT.
105+65	JUNCTION BOX WITH PIPE OUTLET ON RT.	68				1																
106+37	JUNCTION BOX WITH PIPE OUTLET ON RT.	22				1																
106+87	TRIPLE TEMPORARY CULVERT				114																	
107+50	PIPE CULVERT WITH SES		58	1																		
SUBTOTALS:		90	58	1	114	2																
STRUCTURES OVER 20' - 0" SPAN																						
106+87	TRIPLE 10' x 6' x 101' R.C. BOX CULVERT						10	6	101	282.27	48785	127	28	0.35	R315X-0, W-X153-1, RCB-1, RCB-2							
SUBTOTALS:										282.27	48785	127	28	0.35								
TOTALS:		90	58	1	114	2				282.27	48785	127	28	0.35								

BASIS OF ESTIMATE:

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

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

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

BASE AND SURFACING

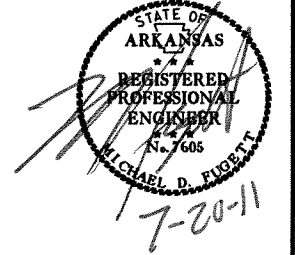
STATION	STATION	LOCATION	LENGTH FEET	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")			
				TON / STATION	TON	TOTAL WID. FEET	SQ. YD.	GALLONS / SQ. YD.	GALLON	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	PG 70-22 TON	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	PG 70-22 TON	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	PG 76-22 TON
MAIN LANES																					
106+00	107+50	MAIN LANES	150.0	133.00	199.5	49.1	818.3	0.30	245.5	24.8	413.3	880.0	181.9	24.3	405.0	330.0	66.8	40.0	666.7	220.0	73.3
DETOUR																					
204+97.56	206+03	DETOUR	105.4	138.00	145.5													18.5	216.7	220.0	23.8
206+03	208+16	DETOUR	213.0	245.50	522.9													34.0	804.7	220.0	88.5
208+16	209+29.53	DETOUR	113.5	138.00	156.6													18.5	233.3	220.0	25.7
TOTALS:					1024.5				245.5				181.9				66.8				211.3

BASIS OF ESTIMATE:

ACHM SURFACE COURSE (1/2") 95.1% MIN. AGGR 4.9% ASPHALT BINDER
 ACHM BINDER COURSE (1") 96.1% MIN. AGGR 3.9% ASPHALT BINDER
 ACHM BASE COURSE (1 1/2") 96.3% MIN. AGGR 3.7% ASPHALT BINDER
 MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
 MAXIMUM NUMBER OF GYRATIONS = 205 FOR PG 76-22

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				6	ARK.			
				JOB NO.	061228		15	44

2 SURVEY CONTROL DETAILS

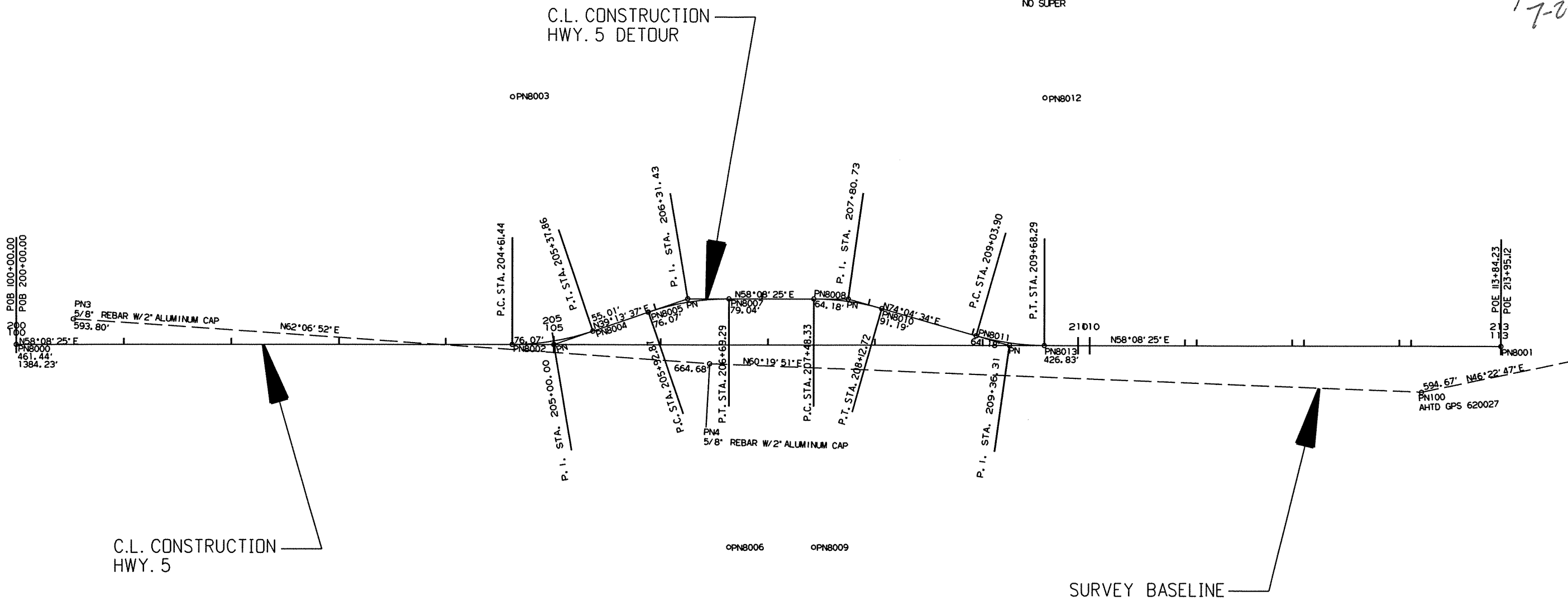


DETOUR ROAD
P. I. = 205+00.00
Δ = 18°54'48.64" LT.
D = 24°45'00.00"
T = 38.56'
L = 76.42'
P.C. = 204+61.44
P.T. = 205+37.86
NO SUPER

DETOUR ROAD
P. I. = 209+36.31
Δ = 15°56'08.92" LT.
D = 24°45'00.00"
T = 32.40'
L = 64.39'
P.C. = 209+03.90
P.T. = 209+68.29
NO SUPER

DETOUR ROAD
P. I. = 206+31.43
Δ = 18°54'48.64" RT.
D = 24°45'00.00"
T = 38.56'
L = 76.42'
P.C. = 205+92.87
P.T. = 206+69.29
Ls = 250.00'
e = 0.100'/'

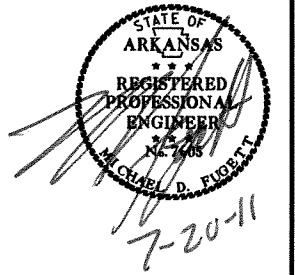
DETOUR ROAD
P. I. = 207+80.73
Δ = 15°56'08.92" RT.
D = 24°45'00.00"
T = 32.40'
L = 64.39'
P.C. = 207+48.33
P.T. = 208+12.72
Ls = 250.00'
e = 0.100'/'



SURVEY CONTROL COORDINATES

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.	061228		16	44

2 SURVEY CONTROL DETAILS



Point Name	Northing	Easting	Elev	Feature	Description
1	-99999.0000	-99999.0000	413.54	CTL	5** REBAR W\ ALUM CAP
2	-99999.0000	-99999.0000	416.22	CTL	5** REBAR W\ ALUM CAP
3	2023117.6512	1158915.8858	417.78	CTL	5** REBAR W** ALUMINUM CAP
4	2023395.3777	1159440.7397	414.36	CTL	5** REBAR W** ALUMINUM CAP
5	2024134.6412	1160448.7843	431.78	CTL	5** REBAR W** ALUMINUM CAP
10	2033252.9412	1179320.1201	332.62	CTL	5** REBAR W\ ALUM CAP FROM JOB#061202
11	2033094.7177	1178618.6141	332.77	CTL	5** REBAR W\ ALUM CAP
100	2023724.3900	1160018.2822	419.95	GPS	AHTD GPS 620027
101	2024608.0502	1161039.1193	452.61	GPS	AHTD GPS 620027A
102	2020952.0793	1154202.2864	375.15	GPS	AHTD GPS 620019A
103	2020015.3135	1156396.0006	405.03	GPS	AHTD GPS 620019
900	-99999.0000	-99999.0000	375.92	BM	CHISELED SQUARE @ SOUTHEAST CORNER OF HEADWALL FOR 24" RCP
901	-99999.0000	-99999.0000	408.20	BM	CHISELED SQUARE @ NORTHEAST CORNER OF HWY 5 & HURRICANE LAKE RD., SOUTHWEST CORNER OF PAD CONCRETE PAD FOR TELEPHONE BOX
902	-99999.0000	-99999.0000	421.81	BM	CHISELED SQUARE ON WEST EDGE OF CONCRETE STORM DRAIN BASIN
903	-99999.0000	-99999.0000	448.07	BM	CHISELED SQUARE SOUTHWEST CORNER OF STORM DRAIN BASIN, 3' SOUTHWEST OF MANHOLE
904	-99999.0000	-99999.0000	442.41	BM	CHISELED SQUARE NORHT EDGE OF CONCRETE STORM DRAIN BASIN, 4' NORTH OF MANHOLE
905	-99999.0000	-99999.0000	414.45	BM	CHISELED SQUARE ON NORTH SIDE OF 5' DIAMETER STORM DRAIN BASIN, 15' NORTH OF MALVERN NATIONAL BANK
906	-99999.0000	-99999.0000	428.62	BM	CHISELED SQUARE ON SOUTHWEST CORNER OF STORM DRAIN BASIN, 3' SOUTHWEST OF MANHOLE
907	-99999.0000	-99999.0000	451.24	BM	CHISELED SQUARE ON SOUTH EDGE OF CONCRETE STORM DRAIN BASIN, 7' EAST OF A POWER POLE
908	-99999.0000	-99999.0000	455.89	BM	CHISELED SQUARE ON SOUTH EDGE OF CONCRETE STORM DARIN BASIN, SOUTHEAST OF 2 STORY BRICK HOUSE
909	-99999.0000	-99999.0000	480.84	BM	5** REBAR W\ ALUM CAP 3' EAST OF A MAILBOX (ADDRESS IS 3121 HILLTOP)
910	-99999.0000	-99999.0000	457.78	BM	2' EAST OF STOP AHEAD SIGN, 3' FROM NORTH EDGE OF HILLTOP ROAD
911	-99999.0000	-99999.0000	551.22	BM	NGS BM D-99, 4" DIAMETER DISC
912	-99999.0000	-99999.0000	460.70	BM	5** REBAR W\ ALUM CAP 17' EAST OF A POWER POLE, 2' WEST OF EDGE OF SPRINGHILL ROAD
913	-99999.0000	-99999.0000	475.44	BM	5** REBAR W\ ALUM CAP 9' SOUTHWEST OF A WATER METER, 4' SOUTH OF A MAILBOX
914	-99999.0000	-99999.0000	480.07	BM	CHISELED SQUARE, SOUTH SIDE OF VILLAGE DRIVE ON A CONCRETE STORM DRAIN BASIN, 13' SOUTHEAST OF A STOP SIGN
915	-99999.0000	-99999.0000	477.96	BM	5** REBAR W\ ALUM CAP 19.5' WEST OF A POWER POLE, SOUTHEAST OF 3803 SPRINGHILL ROAD
916	-99999.0000	-99999.0000	461.22	BM	5** REBAR W\ ALUM CAP 8' NORTHEAST OF NORTH END OF A 18" CMP, 2' WEST OF EDGE OF ROAD
917	-99999.0000	-99999.0000	455.12	BM	CHISELED SQUARE IN NORTHEAST CORNER OF CONCRETE PAD FOR TELEPHONE BOX
918	-99999.0000	-99999.0000	458.23	BM	5** REBAR W\ ALUM CAP 9' NORTH OF MAILBOX, 18' SOUTHEAST OF POWER POLE
919	-99999.0000	-99999.0000	443.07	BM	CHISELED SQUARE 2.7' NORTH OF A DRAIN/MANHOLE
920	-99999.0000	-99999.0000	400.07	BM	5** REBAR W\ ALUM CAP 4' SOUTH OF A STOP SIGN, 14' NORTH OF A WATER VALVE
921	-99999.0000	-99999.0000	384.65	BM	5** REBAR W\ ALUM CAP 2' NORTHWEST OF A POWER POLE
922	-99999.0000	-99999.0000	399.86	BM	5** REBAR W\ ALUM CAP 11.5' NORTHWEST OF A 4' TALL WOODEN FENCE, 32' SOUTHWEST OF A GUY WIRE
923	-99999.0000	-99999.0000	418.35	BM	CHISELED SQUARE IN NORTHWEST CORNER OF HEADWALL, 5.5' NORTH OF EDGE OF ROAD
924	-99999.0000	-99999.0000	417.39	BM	5** REBAR W\ ALUM CAP 6.5' WEST OF A POWER POLE, 2' NORTH OF NORTH END OF "BEWARE OF HITCHHIKERS" SIGN
925	-99999.0000	-99999.0000	380.29	BM	5** REBAR W\ ALUM CAP 19' EAST/NORTHEAST OF FIRE HYDRANT, 9.5' NORTHEAST OF SHORT'S BODY SHOP SIGN
926	-99999.0000	-99999.0000	384.00	BM	5** REBAR W\ ALUM CAP 19' NORTHEAST OF TELEPHONE PEDESTAL, 28' NORTHWEST OF C/L OF ROAD
927	-99999.0000	-99999.0000	356.65	BM	5** REBAR W\ ALUM CAP 2' SOUTH/SOUTHEAST OF 50 MPH SPEED LIMIT SIGN, 3' NORTHWEST OF EDGE OF ROAD
928	-99999.0000	-99999.0000	368.19	BM	5** REBAR W\ ALUM CAP 16' SOUTHWEST OF 30" PINE
929	-99999.0000	-99999.0000	358.62	BM	CHISELED SQUARE 6.5' SOUTHWEST OF A POWER POLE ON NORTHWEST CORNER OF STORM DRAIN BASIN
930	-99999.0000	-99999.0000	344.46	BM	5** REBAR W\ ALUM CAP 19' NORTH OF BLOCK WALL FOR SAFE AND SOUND STORAGE, 19.5' NORTH OF BRADFORD PEAR
931	2033111.3049	1178766.0555	332.57	BM	CHISELED SQUARE FROM JOB#061202 ON SOUTHEAST CORNER OF CONCRETE PAD FOR MANHOLE
932	-99999.0000	-99999.0000	433.56	BM	5** REBAR W\ ALUM CAP 3.6' NORTH OF EDGE OF ROAD, 1' SOUTH OF A STOP SIGN

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped *(standard markings common to all caps), or as indicated (other markings indicated in the point description of the individual point). ALL DISTANCES ARE GROUND. USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT. A PROJECT CAF OF 0.9999621733 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, S061228GI.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: 620027 - 620027A, 620019A CONVERGENCE ANGLE: 0-99-99.9 LEFT/RIGHT AT LT: 34-37-13 LG: 092-30-23 GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

HWY. 5

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	100+00.00	2023069.54	1158883.14
8001	POE	113+84.23	2023800.20	1160058.83

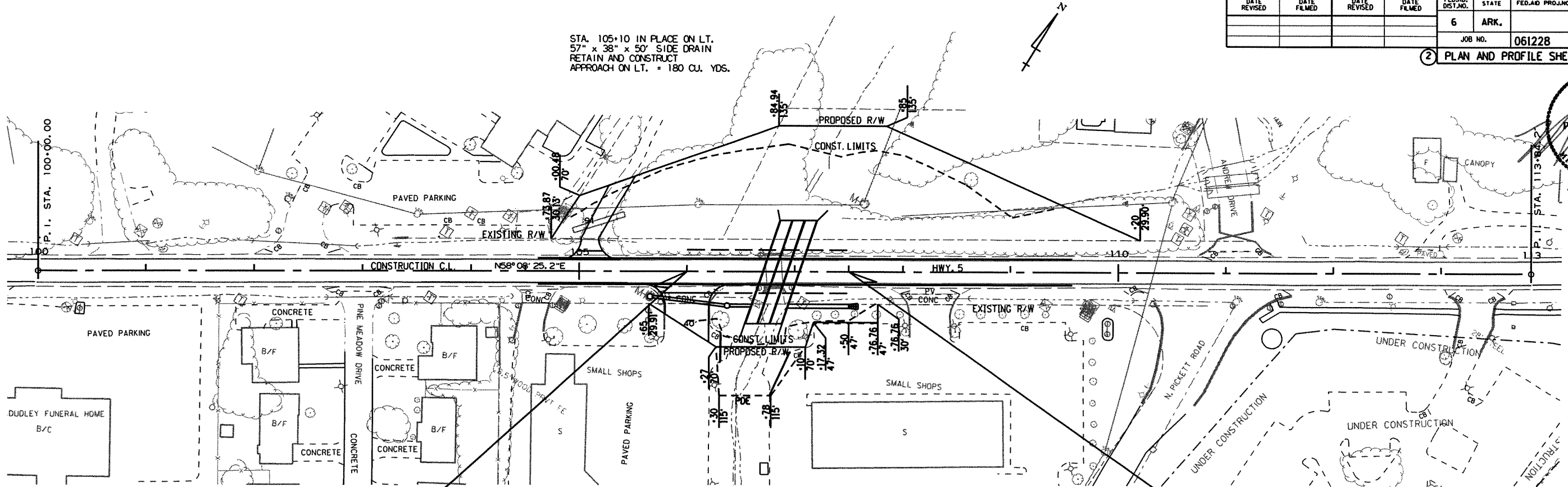
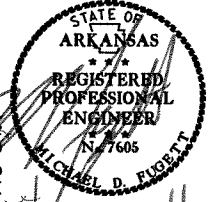
HWY. 5 DETOUR

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	200+00.00	2023069.54	1158883.14
8002	P. C. STA.	204+61.44	2023313.11	1159275.06
8004	P. T. STA.	205+37.86	2023363.33	1159332.19
8005	P. C. STA.	205+92.87	2023405.95	1159366.98
8007	P. T. STA.	206+69.29	2023456.17	1159424.12
8008	P. C. STA.	207+48.33	2023497.89	1159491.25
8010	P. T. STA.	208+12.72	2023523.89	1159549.93
8011	P. C. STA.	209+03.90	2023548.91	1159637.62
8013	P. T. STA.	209+68.29	2023574.90	1159696.30
8001	POE	213+95.12	2023800.20	1160058.83

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.	061228		17	44

2 PLAN AND PROFILE SHEET



BEGIN JOB 061228
STA. 106+00
LOG MILE 3.249

END JOB 061228
STA. 107+50

STA. 105+65 EXISTING
JUNCTION BOX ON RT.
18" x 90' PIPE CULVERT
REMOVE AND CONSTRUCT
JUNCTION BOX ON RT. H = 3' - 0"
24" x 68" PIPE CULVERT
TO JUNCTION BOX ON RT.
TYPE E JUNCTION BOX = 4' x 4'

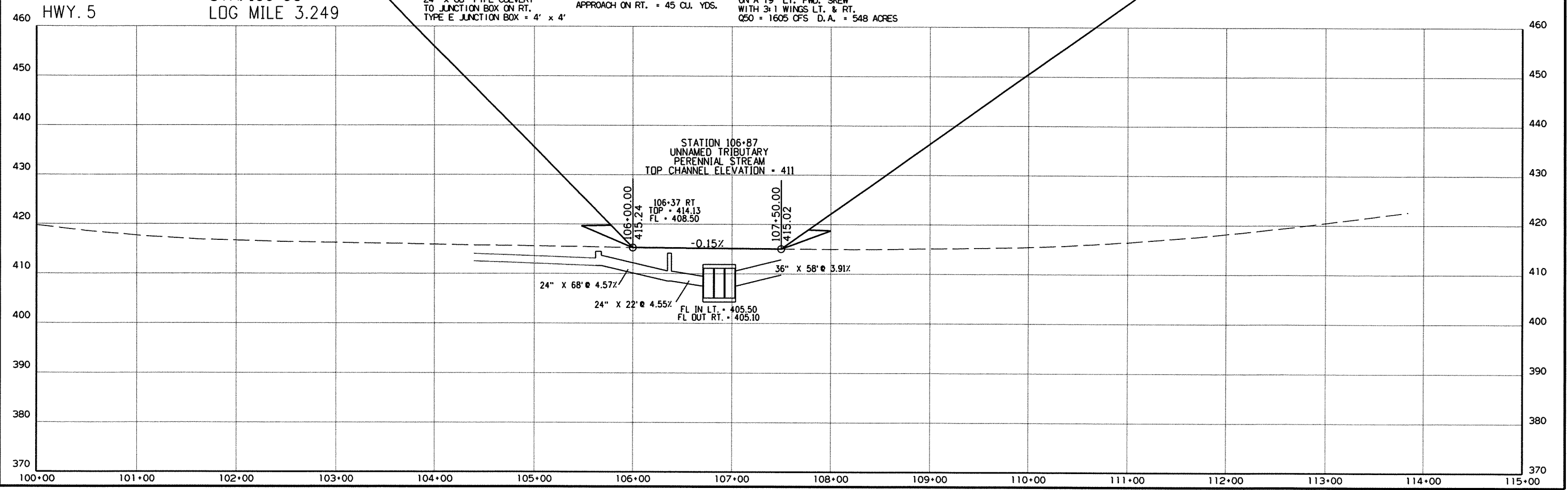
STA. 106+37 CONSTRUCT
JUNCTION BOX ON RT. H=5' - 9"
24" x 22" PIPE CULVERT
TO R.C. BOX CULVERT ON RT.
TYPE E JUNCTION = 4' x 4'

STA. 106+00 CONSTRUCT
APPROACH ON RT. = 45 CU. YDS.

STA. 106+87 IN PLACE
15' x 4' R.C. BOX CULVERT
REMOVE AND CONSTRUCT
TRIPLE 10' x 6' x 101' R.C. BOX CULVERT
ON A 19° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q50 = 1605 CFS D.A. = 548 ACRES

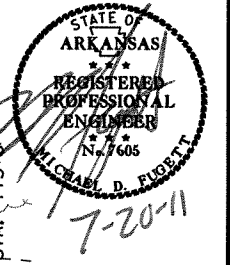
STA. 107+50 CONSTRUCT
36" x 58' PIPE CULVERT WITH SES ON RT.
TO R.C. BOX CULVERT ON RT.

STA. 108+26 IN PLACE
24" x 70' PIPE CULVERT ON RT.
RETAIN



DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		18	44

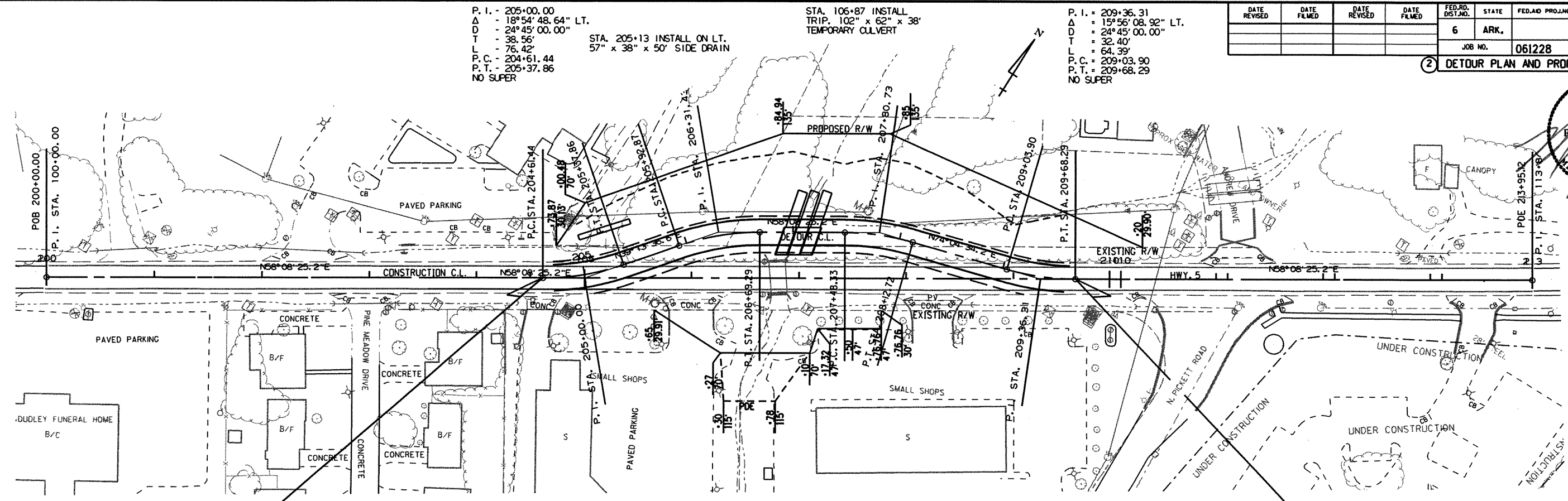
2 DETOUR PLAN AND PROFILE SHEET



P. I. = 205+00.00
 Δ = 18°54'48.64" LT.
 D = 24°45'00.00"
 T = 38.56'
 L = 76.42'
 P.C. = 204+61.44
 P.T. = 205+37.86
 NO SUPER

STA. 106+87 INSTALL
 TRIP, 102" x 62" x 38"
 TEMPORARY CULVERT

P. I. = 209+36.31
 Δ = 15°56'08.92" LT.
 D = 24°45'00.00"
 T = 32.40'
 L = 64.39'
 P.C. = 209+03.90
 P.T. = 209+68.29
 NO SUPER



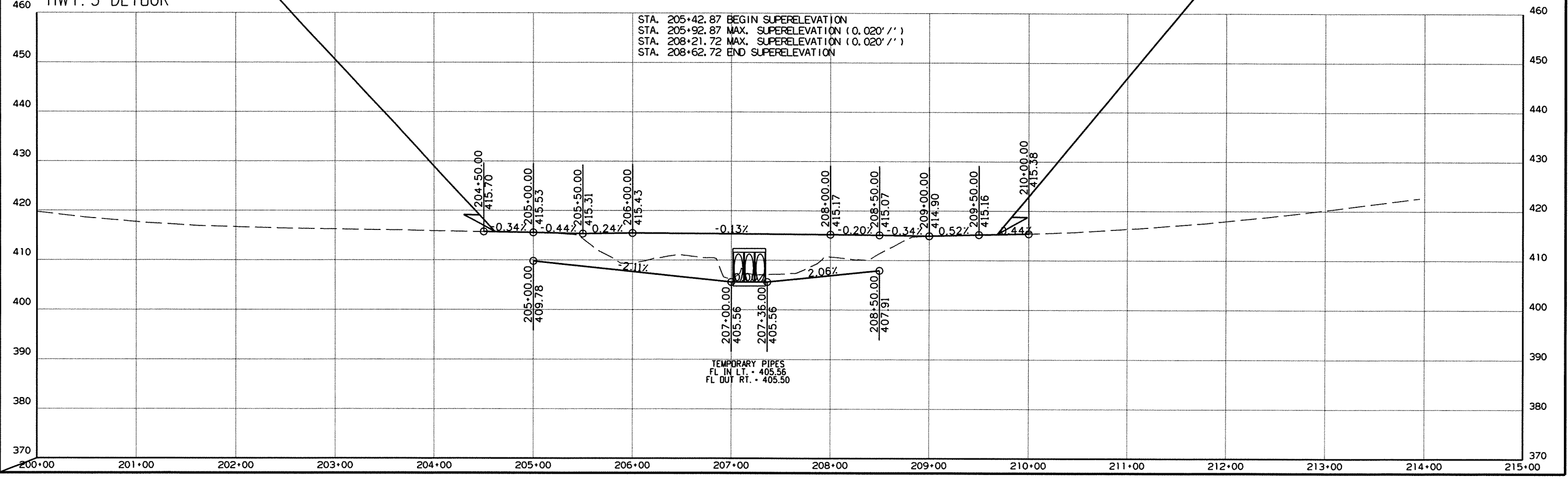
BEGIN DETOUR
 STA. 204+61.44 =
 STA. 104+61.44 (HWY. 5)

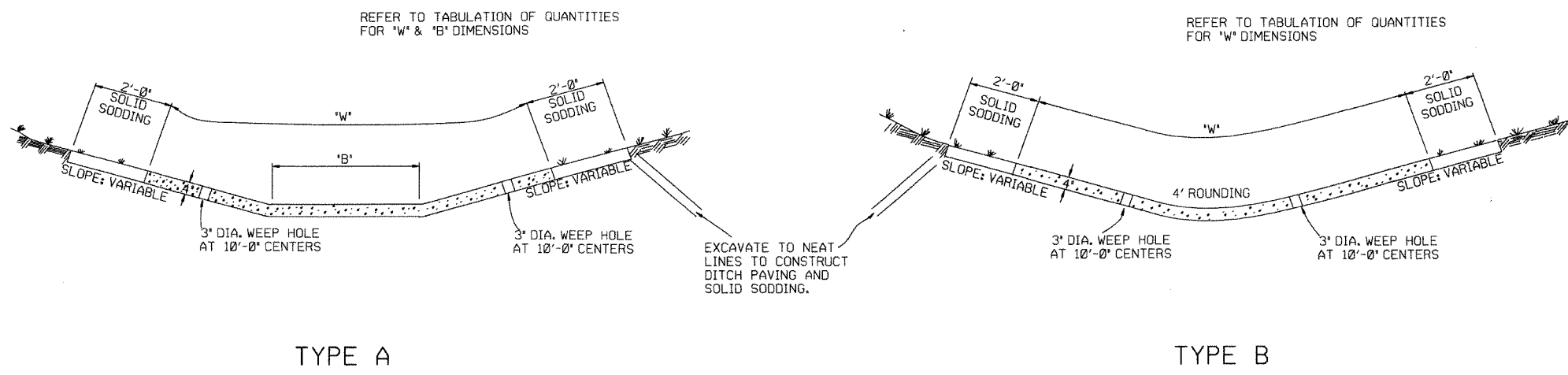
P. I. = 206+31.43
 Δ = 18°54'48.64" RT.
 D = 24°45'00.00"
 T = 38.56'
 L = 76.42'
 P.C. = 205+92.87
 P.T. = 206+69.29
 e = -0.100'/'

P. I. = 207+80.73
 Δ = 15°56'08.92" RT.
 D = 24°45'00.00"
 T = 32.40'
 L = 64.39'
 P.C. = 207+48.33
 P.T. = 208+12.72
 Ls = -250.00'
 e = -0.100'/'

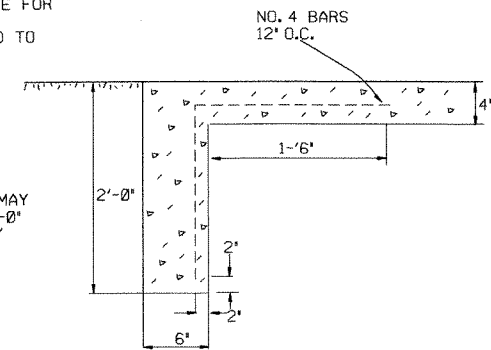
END DETOUR
 STA. 209+68.29 =
 STA. 109+57.40 (HWY. 5)

HWY. 5 DETOUR





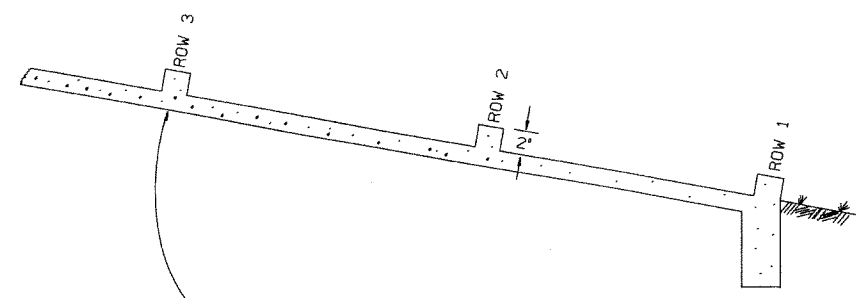
THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR 'CONCRETE DITCH PAVING.'



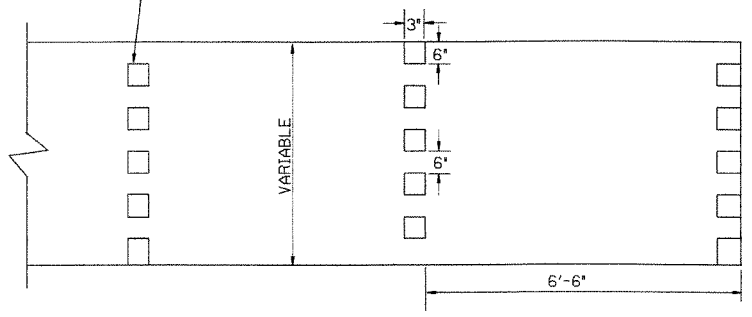
TOE WALL DETAIL FOR CONCRETE DITCH PAVING

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.



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 INCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.



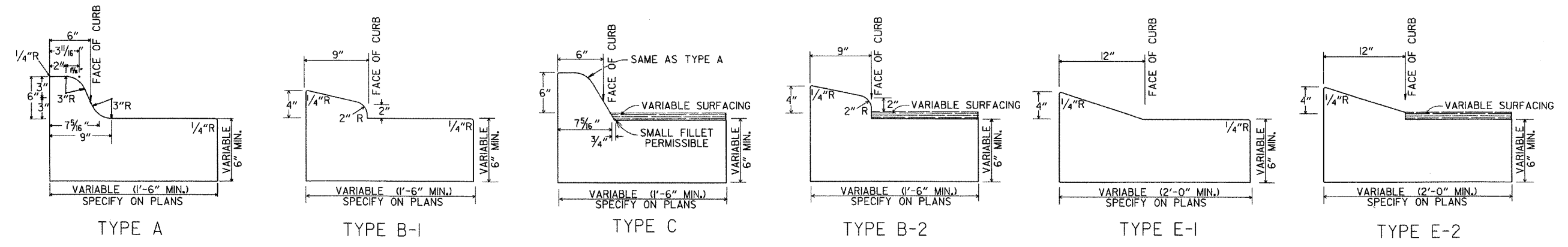
ENERGY DISSIPATORS (NO SCALE)

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

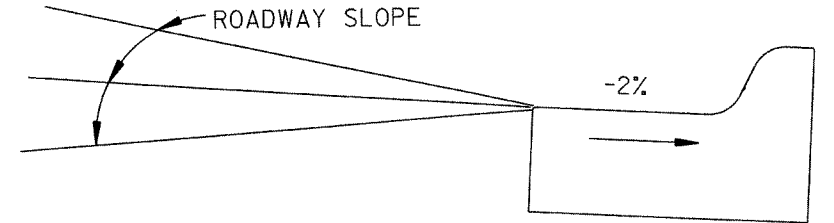
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

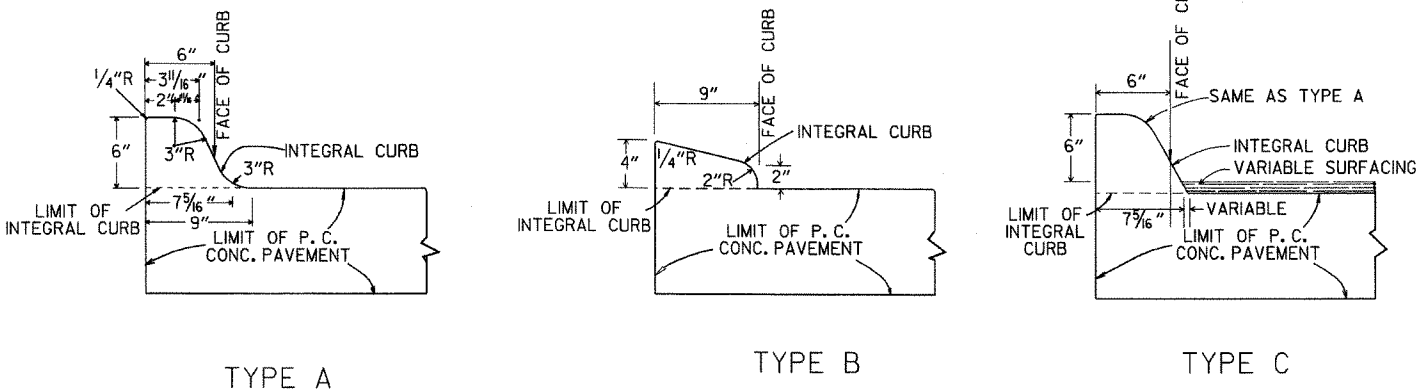
STANDARD DRAWING CDP-1



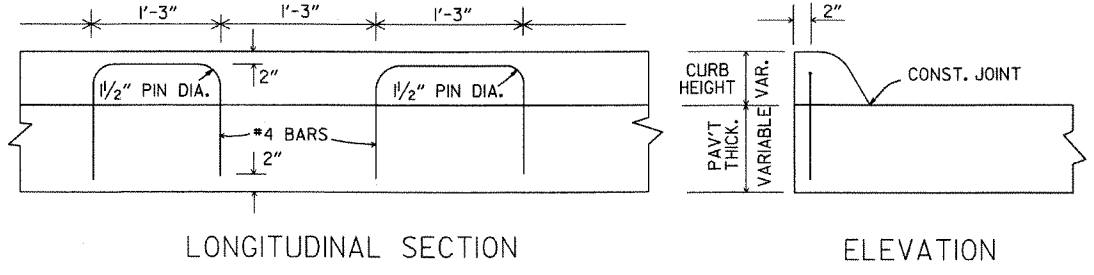
CONCRETE COMBINATION CURB AND GUTTER



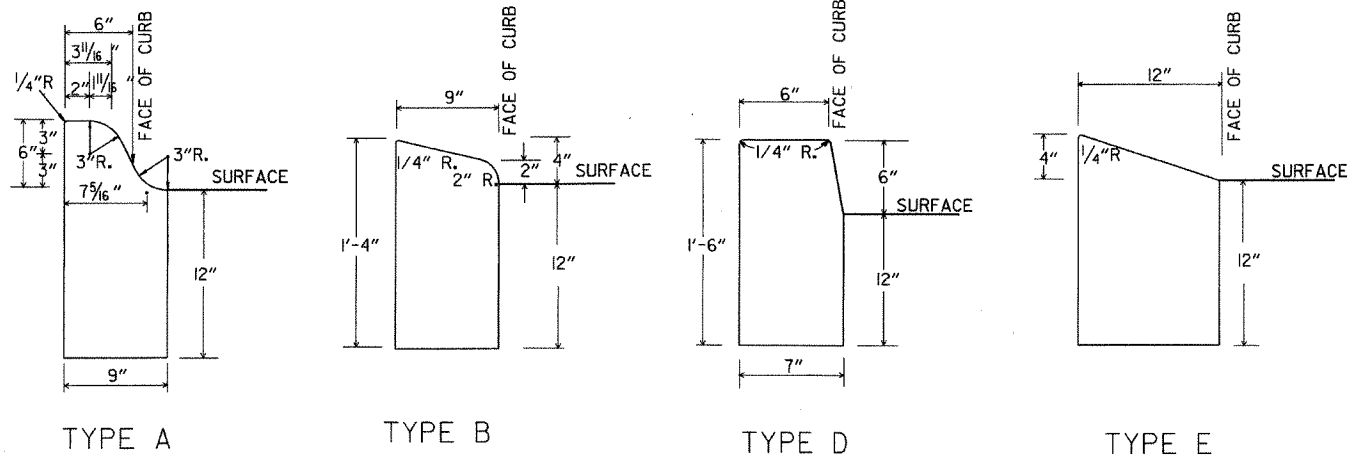
DETAIL OF GUTTER SLOPE
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



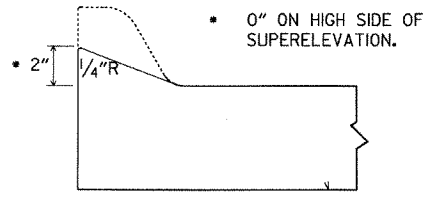
INTEGRAL CURB



ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



CONCRETE CURB



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

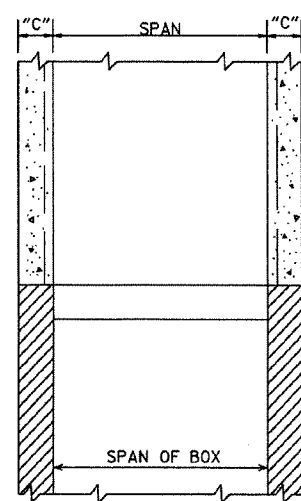
DETAILS OF MODIFIED CURB

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

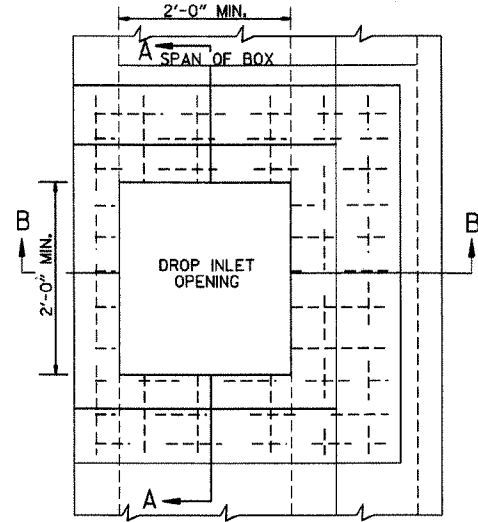
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

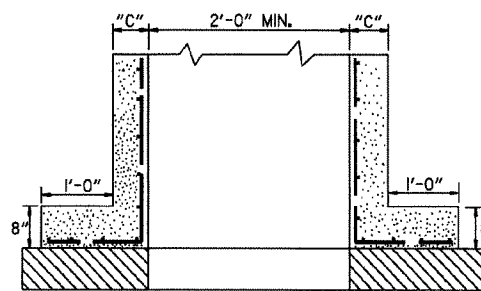
STANDARD DRAWING CG-1



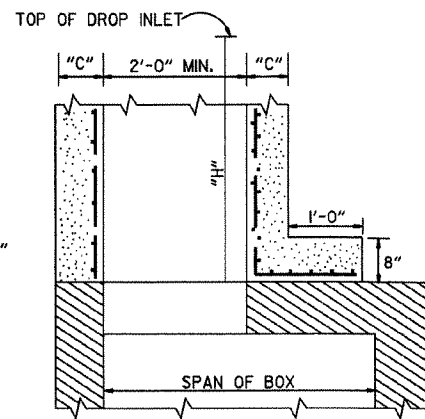
SECTION B-B



PLAN

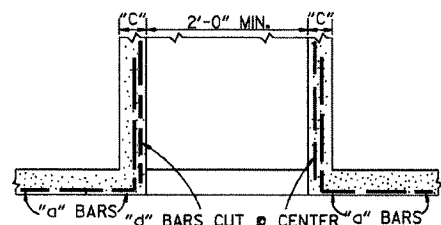


SECTION A-A

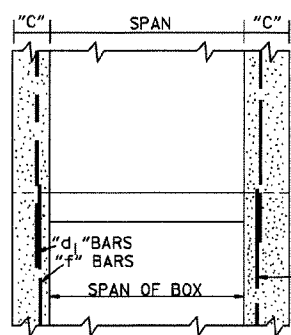


SECTION B-B

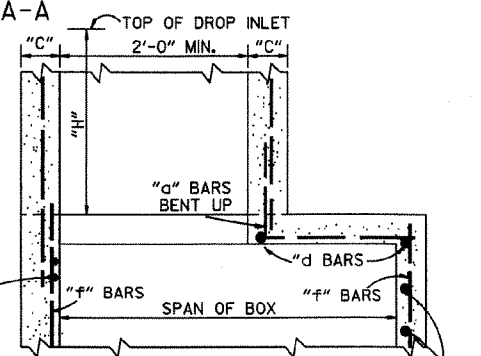
METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



SECTION A-A



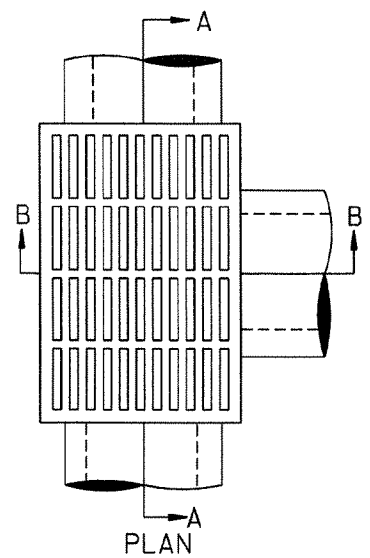
SECTION B-B



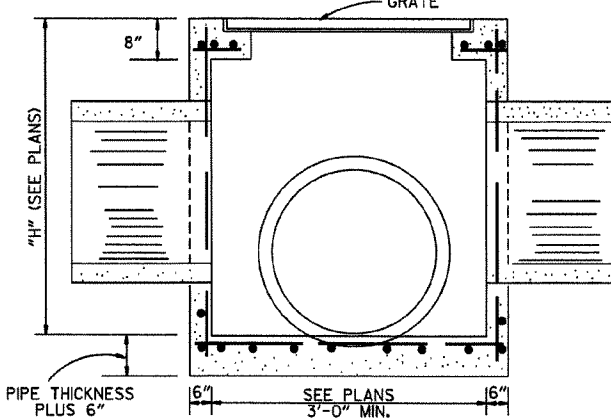
SECTION B-B

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

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



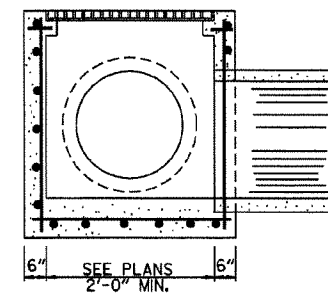
PLAN



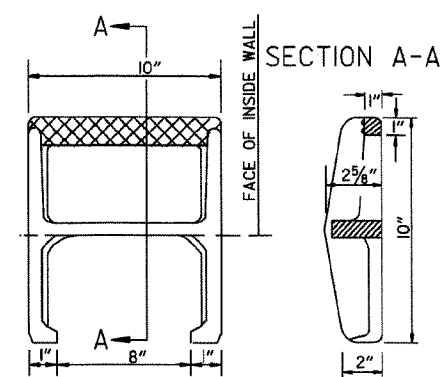
SECTION A-A

DROP INLET (TYPE E)

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



SECTION B-B

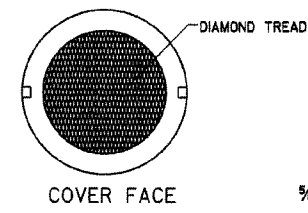


APPROX. WEIGHT = 11 LBS. (CAST IRON)

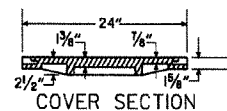
PLAN

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

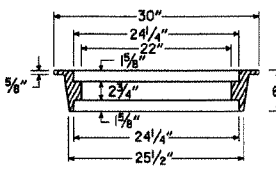
DETAIL OF STEP FOR DROP INLET



COVER FACE



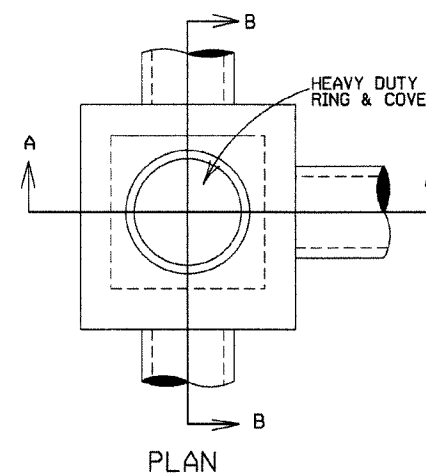
COVER SECTION



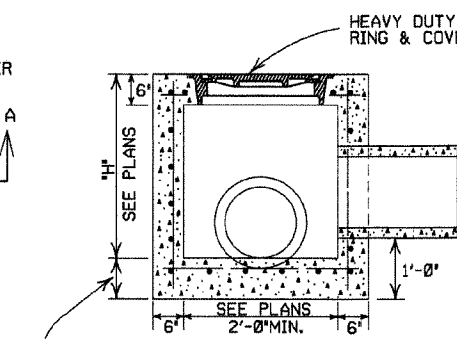
RING SECTION

APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

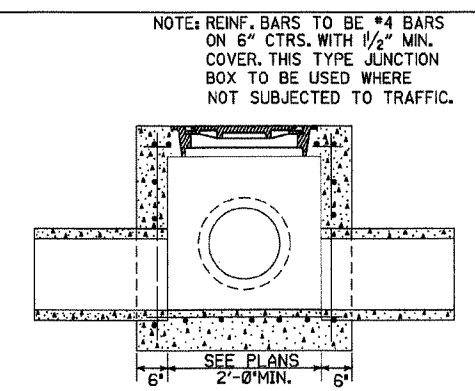


PLAN



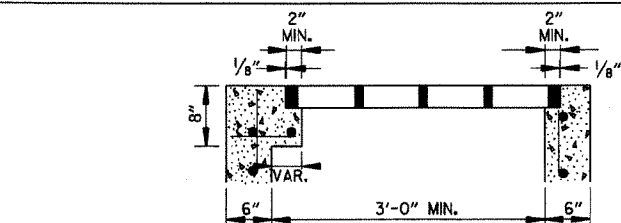
SECTION A-A

JUNCTION BOX (TYPE E)

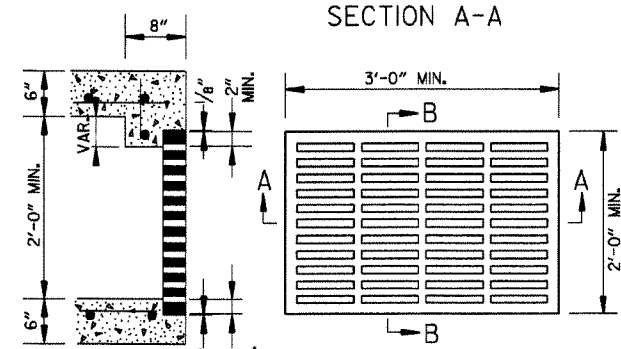


SECTION B-B

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



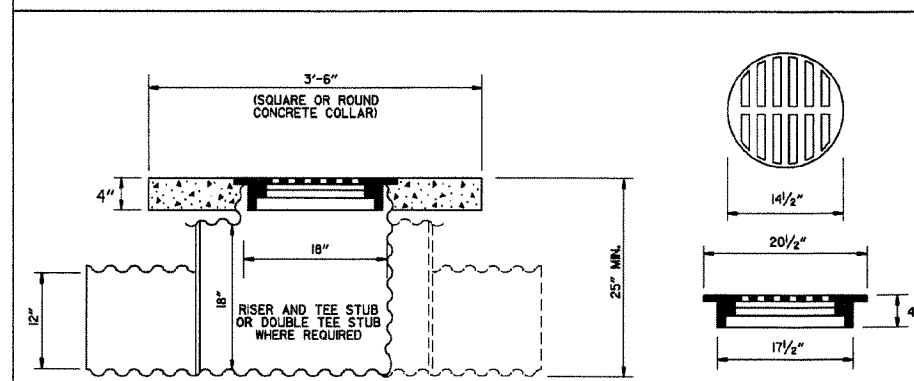
SECTION A-A



SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

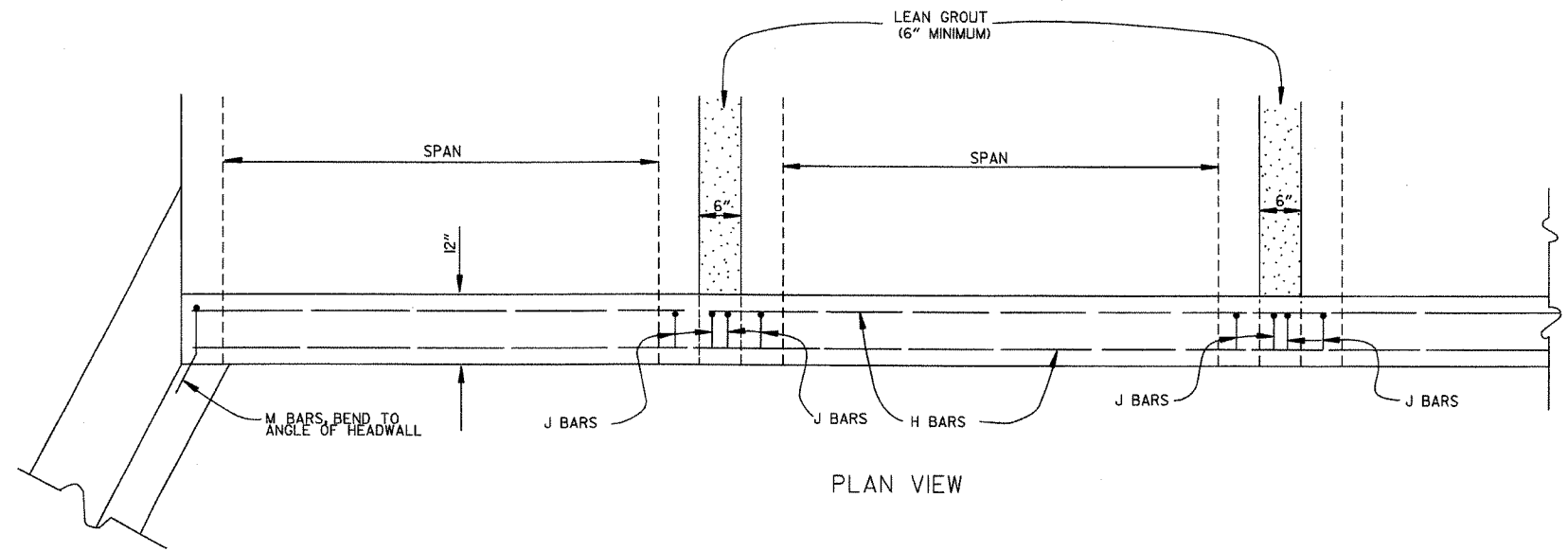


DETAIL OF YARD DRAIN

DATE	REV.	REVISION	DATE FILMED
11-16-01		ADDED NOTE 10	
1-12-00		REVISED HEAVY DUTY RING & COVER	
7-02-98		CHANGED GRATE DETAIL, DELETED DI (TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97		ADDED DIMENSION TO TYPE IV-A	
10-18-96		ADDED DETAIL OF YARD DRAIN	
8-15-91		DELETE TYPE IV GRATE	
7-15-88		REVISED STEP DETAIL	
5-20-83		REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83		ADDED GENERAL NOTE NO. 4	
3-2-81		ADDED TYPE IV-A GRATE	
5-22-74		DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72		REVISED AND REDRAWN	

- GENERAL NOTES:
- ALL EXPOSED CORNERS SHALL BE 3/4" CHAMFERED.
 - STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
 - EXPANSION JOINT MATERIAL SHALL BE 3/4" PREFORMED FIBER.
 - GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
 - GRATE AND FRAME SHALL NOT BE PAINTED.
 - GRATE SHALL BE BICYCLE SAFE.
 - HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
 - HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B & AASHTO M 306.
 - HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
 - DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

ARKANSAS STATE HIGHWAY COMMISSION
 DETAILS OF DROP INLETS
 & JUNCTION BOXES
 STANDARD DRAWING FPC-9



PLAN VIEW

BAR LIST

BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	

• NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT

GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE STANDARD WING DRAWING, STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFERS.

WINGWALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.

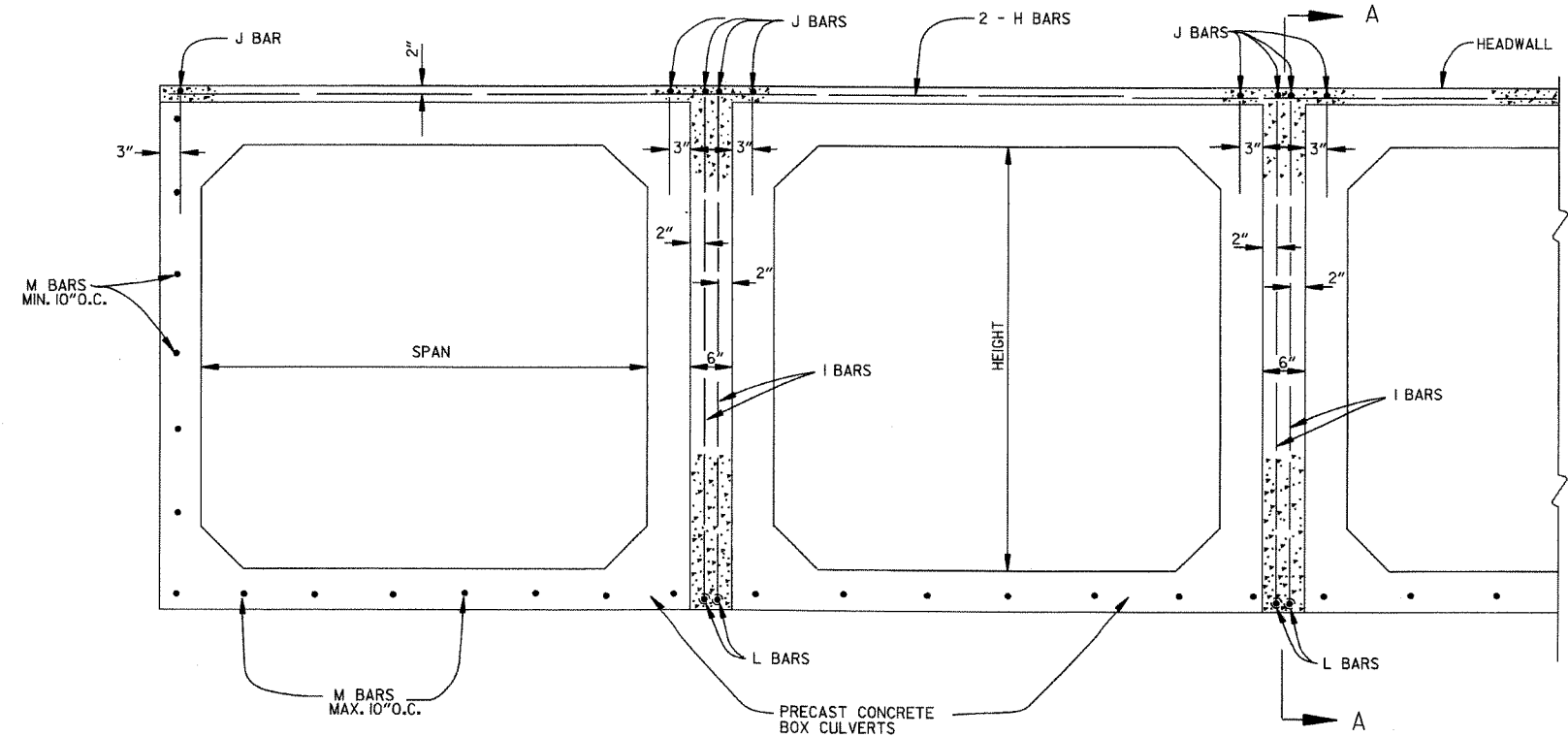
LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS:
 PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85.
 SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS. THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE. THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

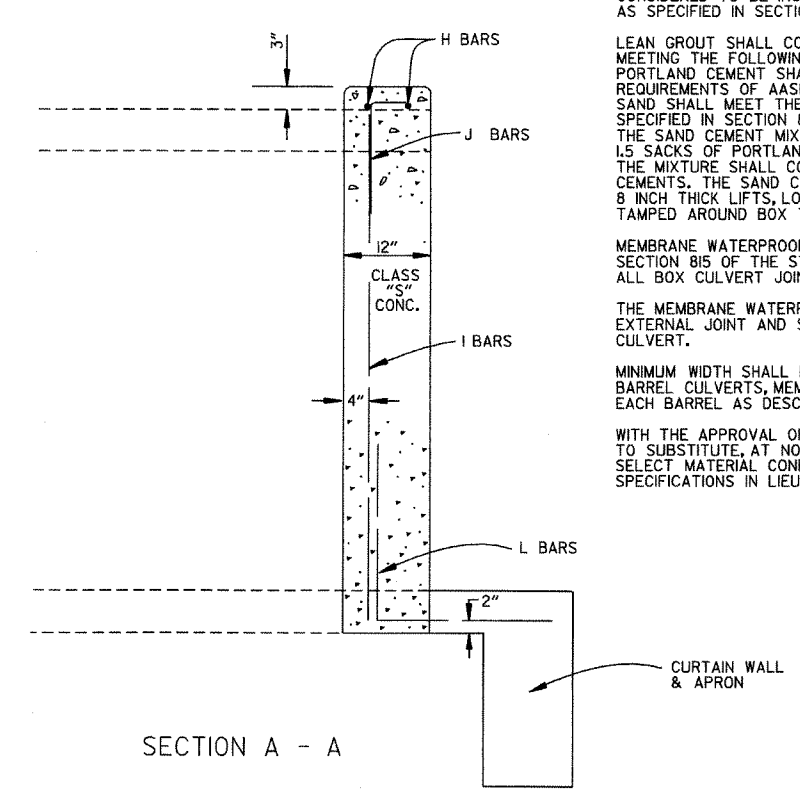
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT). ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.



END VIEW



SECTION A - A

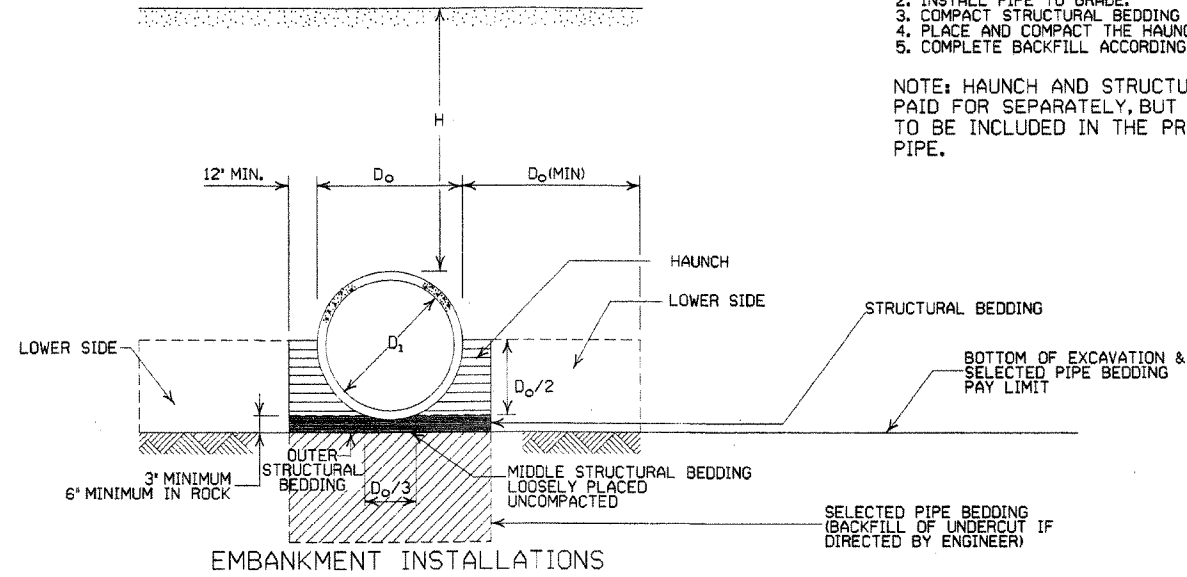
DATE	REVISION	DATE FILMED
10-15-09	ADDED GENERAL NOTE	
11-10-05	REVISED SPACING OF "M" BARS	
4-10-03	REVISED GENERAL NOTES	
10-18-96	CORRECTED AASHTO REF.	
10-1-92	ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91	ADDED NOTE FOR LEAN GROUT	
11- 8-90	REVISED FOR 1991 SPECS	
11-30-89	ISSUED; JABE	

ARKANSAS STATE HIGHWAY COMMISSION
 PRECAST CONCRETE BOX CULVERTS
 STANDARD DRAWING PBC-1

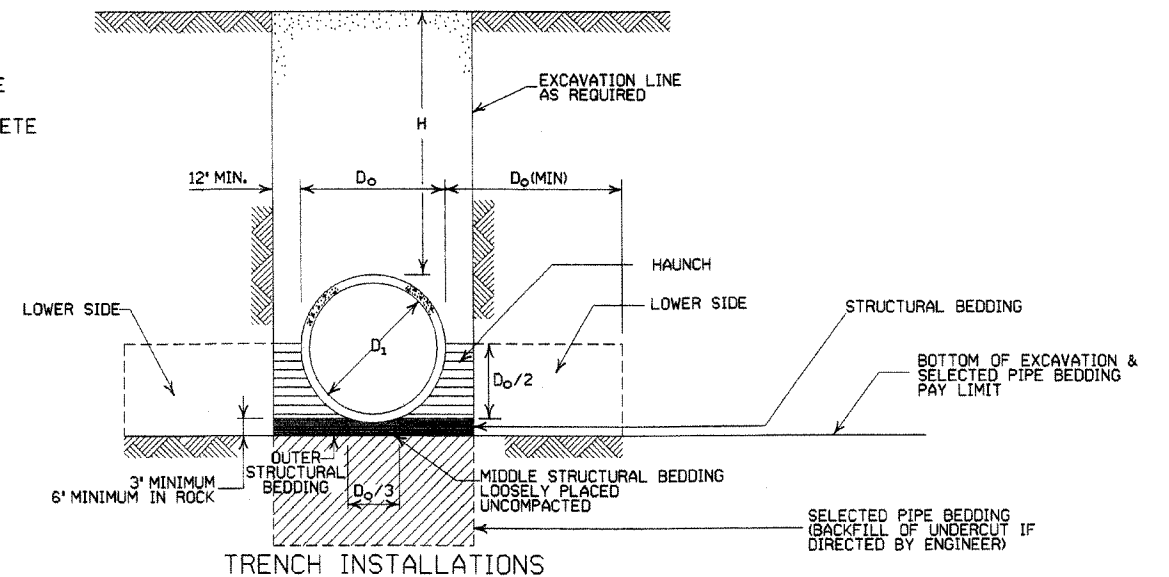
CONSTRUCTION SEQUENCE

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

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



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



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

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	*SPAN		*RISE	
	AASHTO M 206	AHD NOMINAL	AASHTO M 206	AHD NOMINAL
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 1/2	51	31 3/4	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 3/8	97
132	168 3/4	169	106 1/2	107

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

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

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

MAXIMUM HEIGHT OF FILL OVER R.C. PIPE CULVERTS

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

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

GENERAL NOTES

1. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
2. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
4. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE.
5. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
6. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
7. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS 'STRUCTURAL BEDDING' ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS 'SELECTED PIPE BEDDING.'
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF 'SELECTED PIPE BACKFILL.'

- LEGEND -

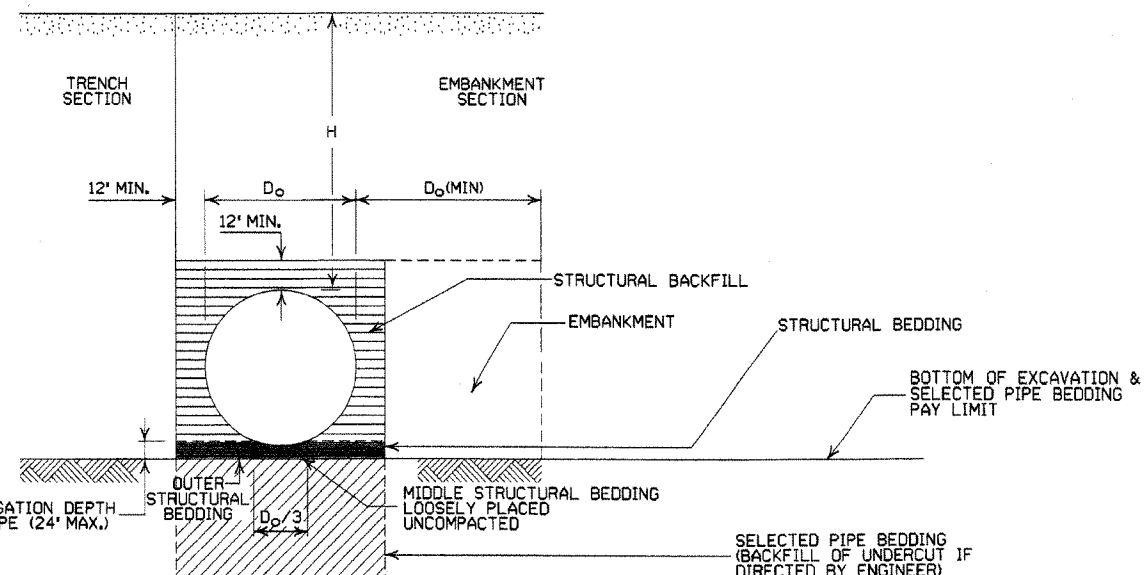
D₁ = NORMAL INSIDE DIAMETER OF PIPE
 D₀ = OUTSIDE DIAMETER OF PIPE
 H = FILL COVER HEIGHT OVER PIPE (FEET)
 MIN. = MINIMUM
 = UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION
**CONCRETE PIPE CULVERT
 FILL HEIGHTS & BEDDING**
 STANDARD DRAWING PCC-1

PIPE DIAMETER (INCHES)	MINIMUM COVER TOP OF PIPE TO TOP OF SUBGRADE (INCHES)	MAX. FILL HEIGHT ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.064	0.079	0.109	0.138	0.168
		2 1/2 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, OR HELICAL				
12	12	84	91			
15	12	67	73			
18	12	66	61			
24	12	42	46	59		
30	12	34	36	47		
36*	12		30	39	41	
42*	12		43	46	67	48
48*	12		37	45	58	46
		3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION** RIVETED, WELDED, HELICAL, OR BOLTED				
36	12	48	60	78	88	89
42	12	41	51	64	72	71
48	12	36	45	57	64	61
54	12	32	40	52	59	55
60*	12	29	36	49	53	51
66	12	26	33	47	49	58
72*	12	24	30	44	47	53
78	12		28	41	46	49
84*	12		26	38	45	46
90	12		24	35	43	45
96*	12		22	33	38	44
102	24			31	38	42
108*	24			30	35	39
114	24			28	34	37
120*	24			27	32	35

* MAX. FILL CAN BE INCREASED IN THESE DIAMETER PIPES BY USING THE NEXT LARGER CORRUGATION. REFER TO 'CORRUGATED METAL PIPE', REVISED 1970, PUBLISHED BY U.S. DEPARTMENT OF TRANSPORTATION, F.H.W.A., B.P.R.
 ** WHERE THE STANDARD 2 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 GAUGE AND CORRUGATION



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

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

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

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

GENERAL NOTES

1. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
2. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
4. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE.
5. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
6. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
7. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS 'STRUCTURAL BEDDING' ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS 'SELECTED PIPE BEDDING.'
8. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF 'SELECTED PIPE BACKFILL.'

- LEGEND -

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

CORRUGATED ALUMINUM PIPE (ROUND) H-20 LOADING

PIPE DIAMETER (INCHES)	MINIMUM COVER TOP OF PIPE TO TOP OF SUBGRADE (INCHES)	MAX. FILL HEIGHT ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 1/2 INCH BY 1/2 INCH CORRUGATION RIVETED OR HELICAL				
12	12	45	45			
18	12	30	30	52	41	
24	12	22	22	39		
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		8	12
				3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION** RIVETED, WELDED, OR HELICAL					
36	40x31	5	12	0.079	15	15+			
42	46x36	6	12	0.079	15	15+			
48	53x41	7	12	0.079	15	15+			
54	60x46	8	12	0.079	15	15+			
60	66x51	9	12	0.079	15	15+			
66	73x55	12	12	0.079	15	15+			
72	81x59	14	18	0.079	15	15+			
78	87x63	14	18	0.079	14	15+			
84	95x67	16	18	0.109	13	15+			
90	103x71	16	24	0.109	12	15+			
96	112x75	18	24	0.109	11	15+			
102	117x79	18	24	0.109	10	15			
108	128x83	18	24	0.138	9	14			

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 GAUGE AND CORRUGATION.

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

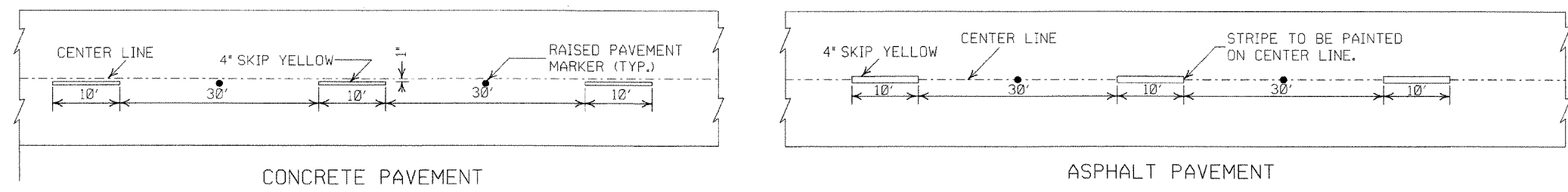
ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT
FILL HEIGHTS & BEDDING

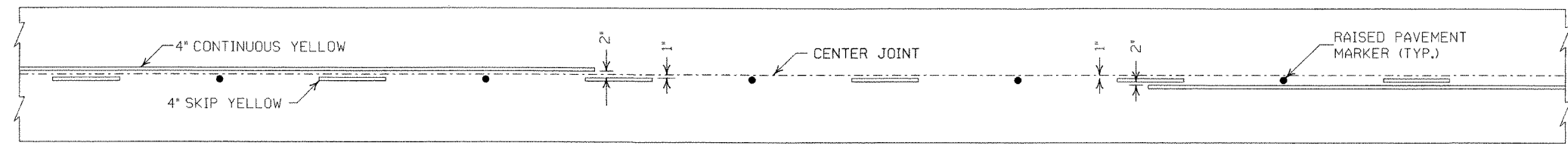
STANDARD DRAWING PCM-1

NOTES:

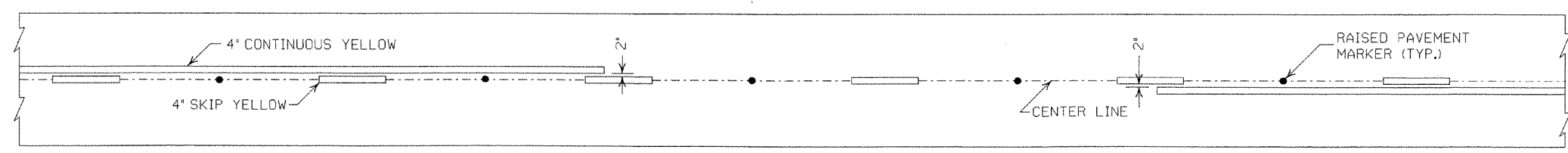
1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED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



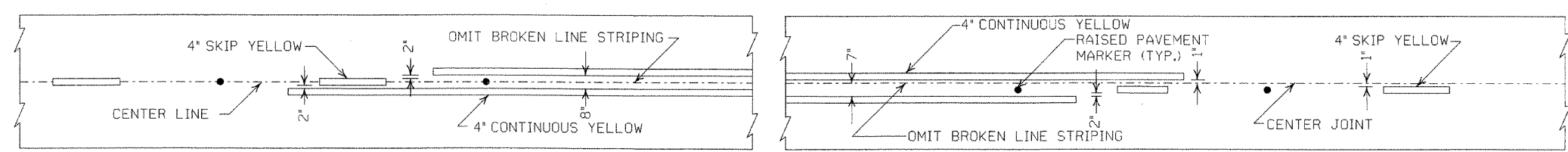
BROKEN LINE STRIPING



SOLID LINE STRIPING ON CONCRETE PAVEMENT



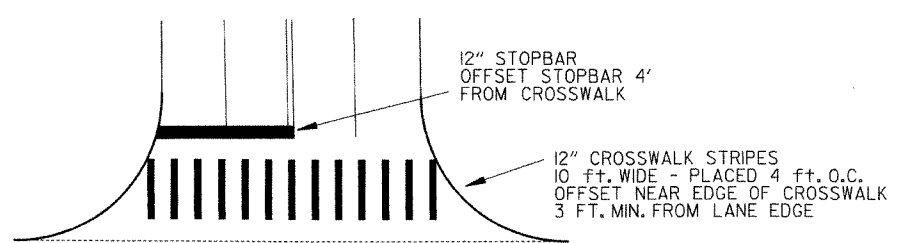
SOLID LINE STRIPING ON ASPHALT PAVEMENT



ASPHALT PAVEMENT

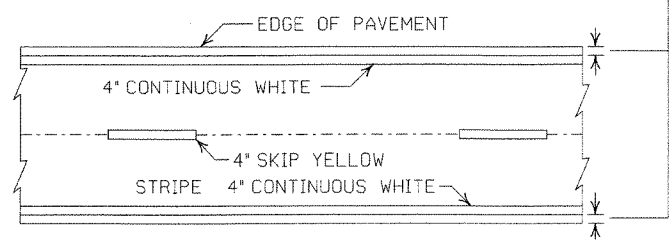
CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

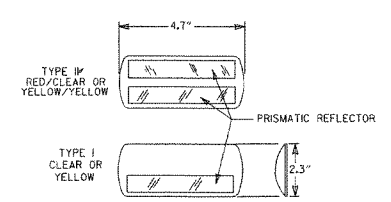


CROSSWALK AND STOPBAR DETAILS

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



PAVEMENT EDGE LINE MARKING



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

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.

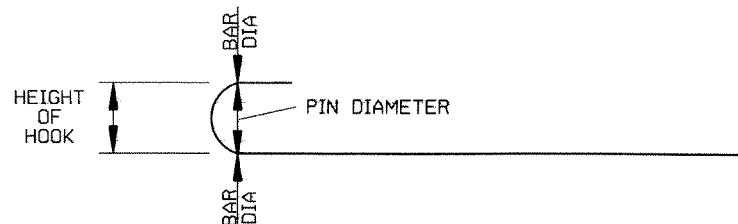
DATE	REVISION	FILMED
11-17-10	REVISED GENERAL NOTES & REMOVED FLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

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

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

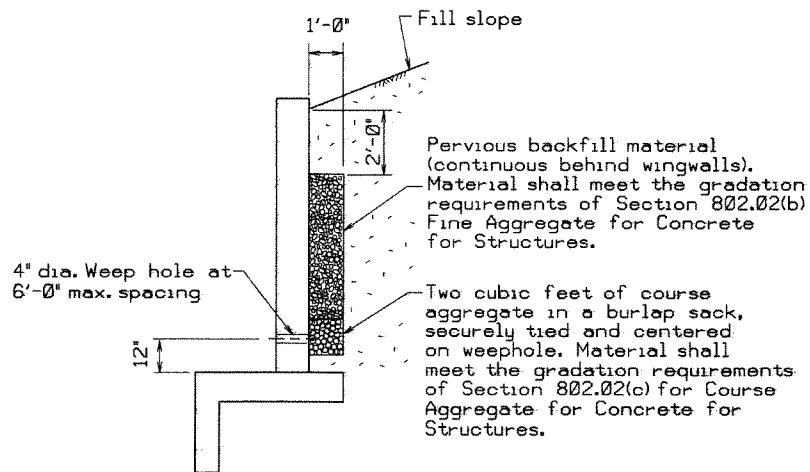
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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 = "DW" - 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'.

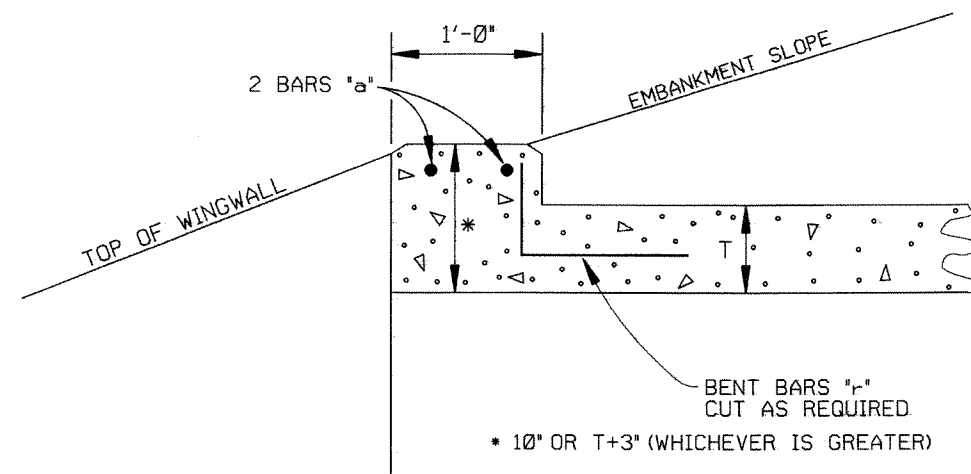
MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

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.

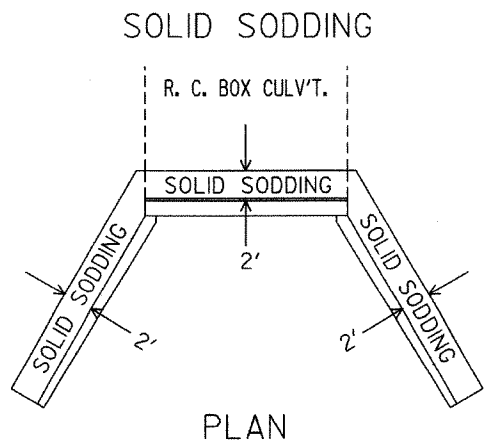
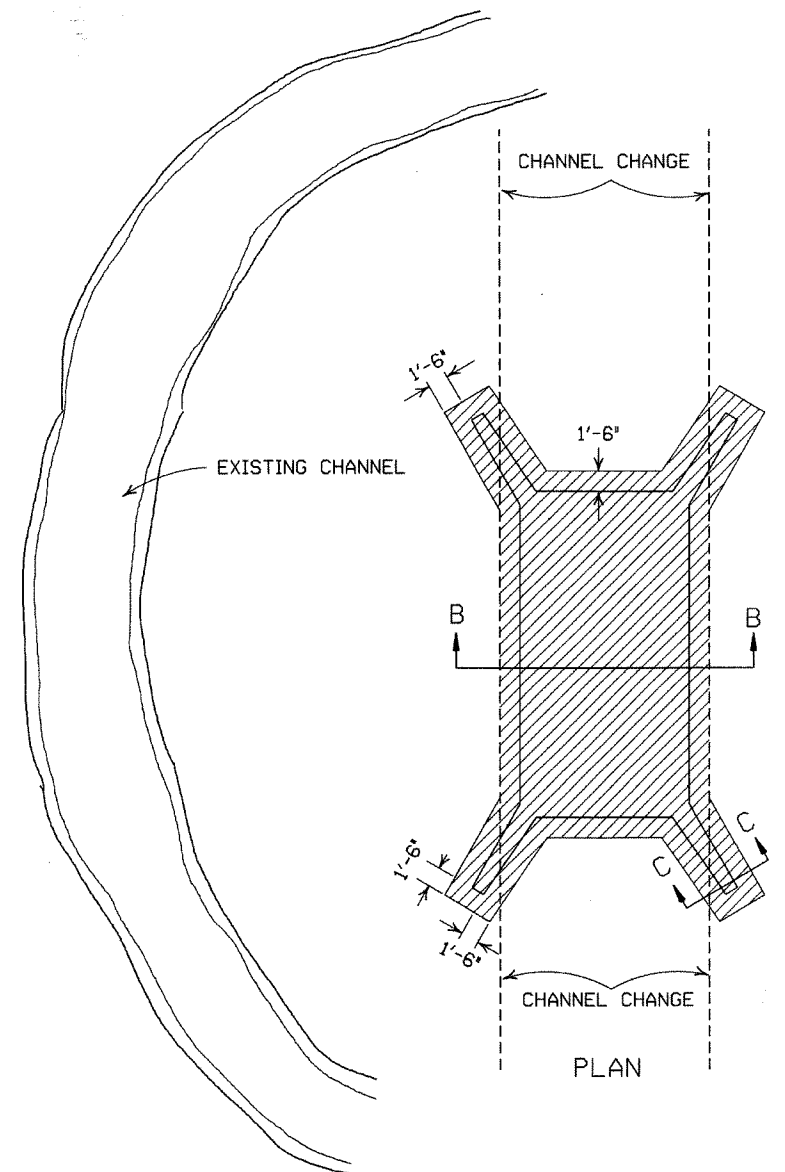
R.C. BOX CULVERT HEADWALL MODIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE BOX CULVERT DETAILS

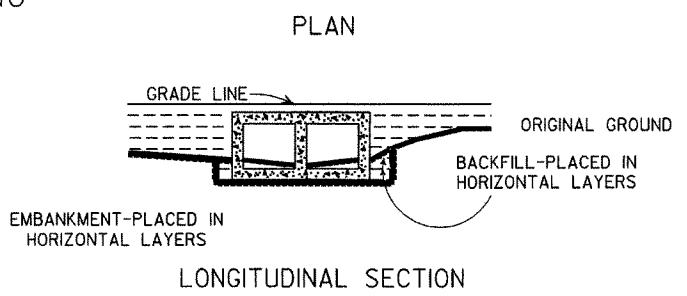
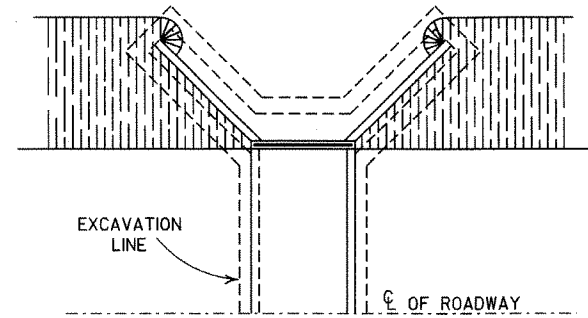
STANDARD DRAWING RCB-1

DATE	REVISION	DATE FILMED
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 & 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	

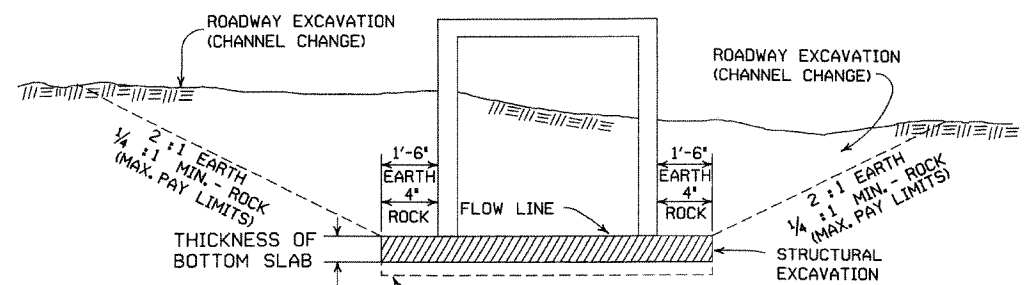
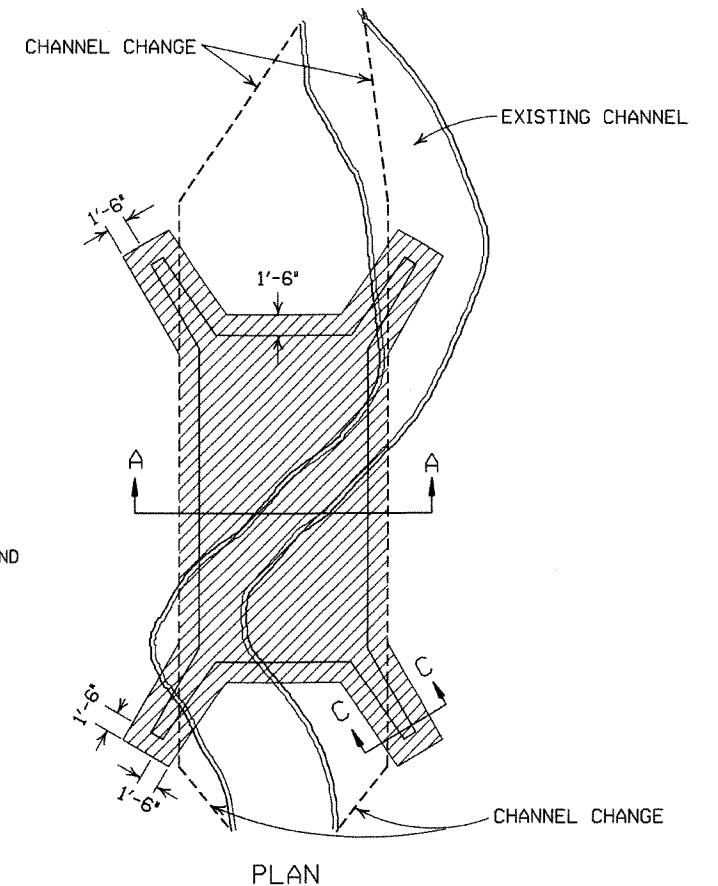


PLAN
PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

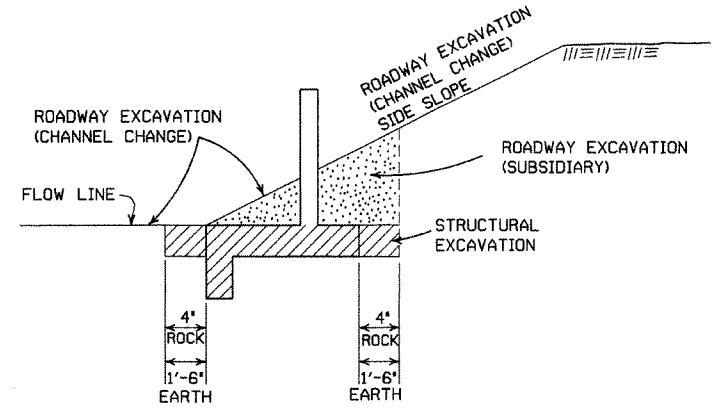


LONGITUDINAL SECTION
BACKFILL DETAILS FOR BOX CULVERT

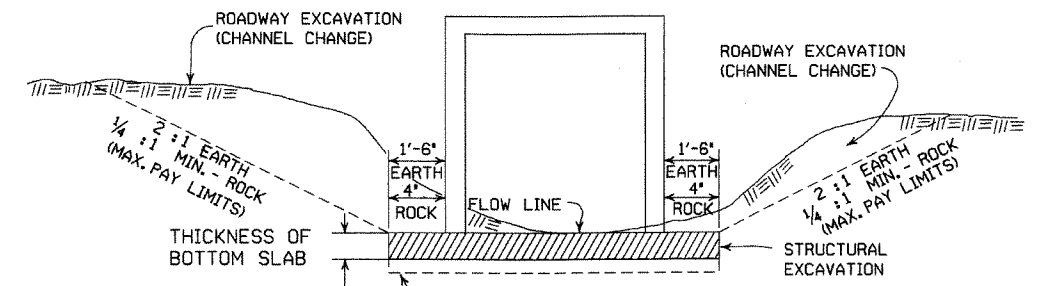


SECTION B-B
DETAILS FOR NEW CHANNELS

UNDERCUT SHALL BE MEASURED AND PAID FOR ACCORDING TO SECTIONS 801.10 AND 801.11, RESPECTIVELY, OF THE STANDARD SPECIFICATIONS.



SECTION C-C



SECTION A-A
DETAILS THROUGH EXISTING CHANNELS

UNDERCUT SHALL BE MEASURED AND PAID FOR ACCORDING TO SECTIONS 801.10 AND 801.11, RESPECTIVELY, OF THE STANDARD SPECIFICATIONS.

GENERAL NOTES:

ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES AND ADDED MAXIMUM PAY LIMIT NOTES.	674-1-4-83
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72
DATE	REVISION	FILMED

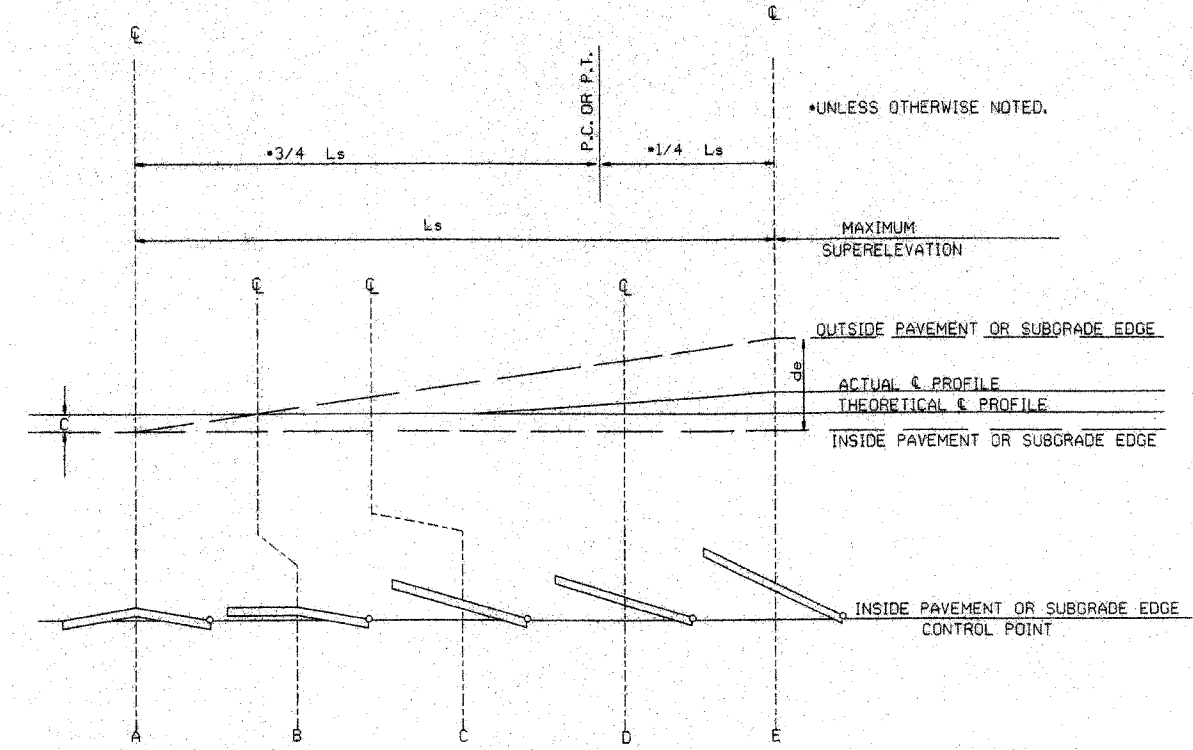
ARKANSAS STATE HIGHWAY COMMISSION

EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

STANDARD DRAWING RCB-2

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH		40 MPH		50 MPH		55 MPH		60 MPH		70 MPH	
	Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)	
e	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE
0° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
0° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
0° 45'	N.C.		N.C.		N.C.		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.		R.C.		R.C.		R.C.		R.C.		R.C.	
2° 15'	R.C.		R.C.		R.C.		R.C.		R.C.		R.C.	
2° 30'	0.021		0.028		0.036		0.043		0.049		0.054	
2° 45'	0.023		0.031		0.040		0.048		0.055		0.062	
3° 00'	0.025		0.034		0.044		0.053		0.061		0.070	
3° 15'	0.027		0.037		0.047		0.057		0.066		0.076	
3° 30'	0.029		0.040		0.051		0.062		0.072		0.082	
3° 45'	0.031		0.043		0.055		0.067		0.079		0.091	
4° 00'	0.033		0.046		0.059		0.072		0.085		0.098	
4° 30'	0.037		0.051		0.065		0.080		0.095		0.110	
5° 00'	0.040		0.056		0.072		0.088		0.104		0.120	
5° 30'	0.043		0.060		0.077		0.094		0.111		0.128	
6° 00'	0.046		0.064		0.082		0.099		0.117		0.135	
6° 30'	0.050		0.069		0.088		0.106		0.124		0.142	
7° 00'	0.053		0.073		0.092		0.110		0.128		0.146	
7° 30'	0.056		0.077		0.096		0.114		0.132		0.150	
8° 00'	0.058		0.081		0.100		0.118		0.136		0.154	
8° 30'	0.061		0.085		0.104		0.122		0.140		0.158	
9° 00'	0.063		0.089		0.108		0.126		0.144		0.162	
10° 00'	0.068		0.094		0.113		0.131		0.149		0.167	
11° 00'	0.072		0.099		0.118		0.136		0.154		0.172	
12° 00'	0.076		0.104		0.123		0.141		0.159		0.177	
13° 00'	0.080		0.109		0.128		0.146		0.164		0.182	
14° 00'	0.084		0.114		0.133		0.151		0.169		0.187	
15° 00'	0.088		0.119		0.138		0.156		0.174		0.192	
16° 00'	0.091		0.124		0.143		0.161		0.179		0.197	
17° 00'	0.093		0.129		0.148		0.166		0.184		0.202	
18° 00'	0.095		0.134		0.153		0.171		0.189		0.207	
19° 00'	0.097		0.139		0.158		0.176		0.194		0.212	
20° 00'	0.099		0.144		0.163		0.181		0.200		0.217	
21° 00'	0.098		0.143		0.162		0.180		0.199		0.216	
22° 00'	0.099		0.144		0.163		0.181		0.200		0.217	
23° 00'	0.099		0.144		0.163		0.181		0.200		0.217	
24° 00'	0.100		0.145		0.164		0.182		0.201		0.218	



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

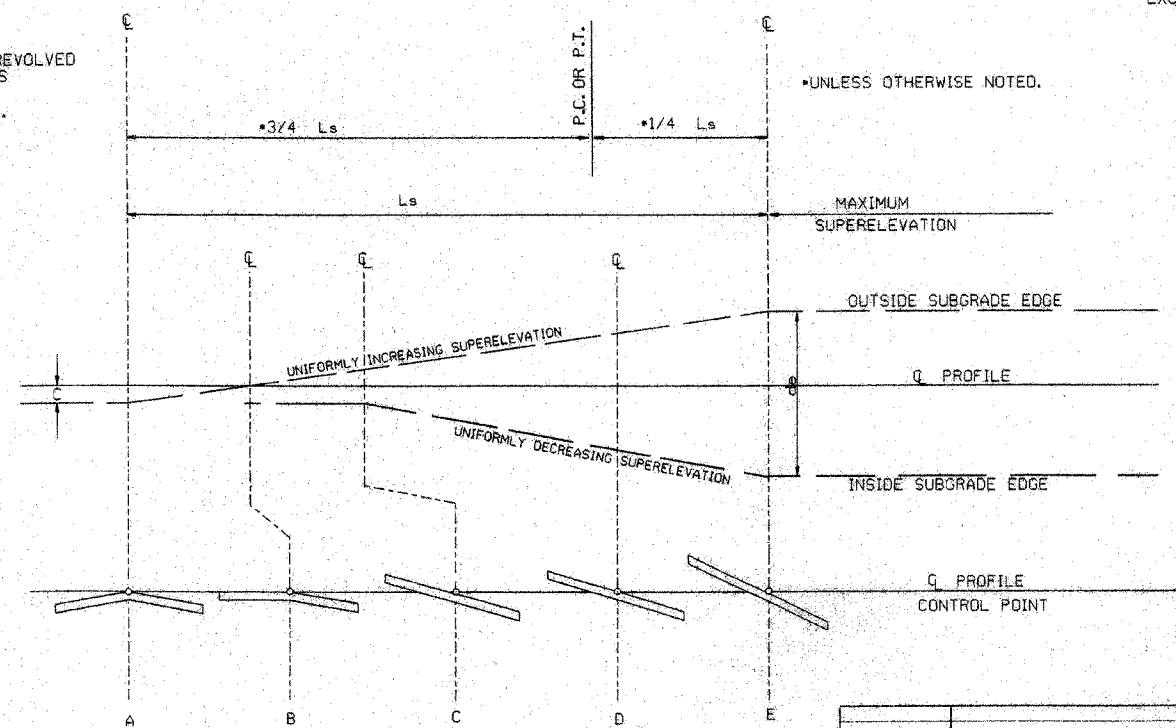
ABBREVIATIONS

- NC - NORMAL CROWN
- RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
- e - RATE OF SUPERELEVATION (FT. PER FT.)
- Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
- L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
- d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
- C - NORMAL CROWN (FT.)

GENERAL NOTES

1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:
 - 3 LANE UNDIVIDED - - - - +20%
 - 4 LANE UNDIVIDED - - - - +50%
 - 5 LANE UNDIVIDED - - - - +80%
 - 6 LANE UNDIVIDED - - - - +100%

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.
RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

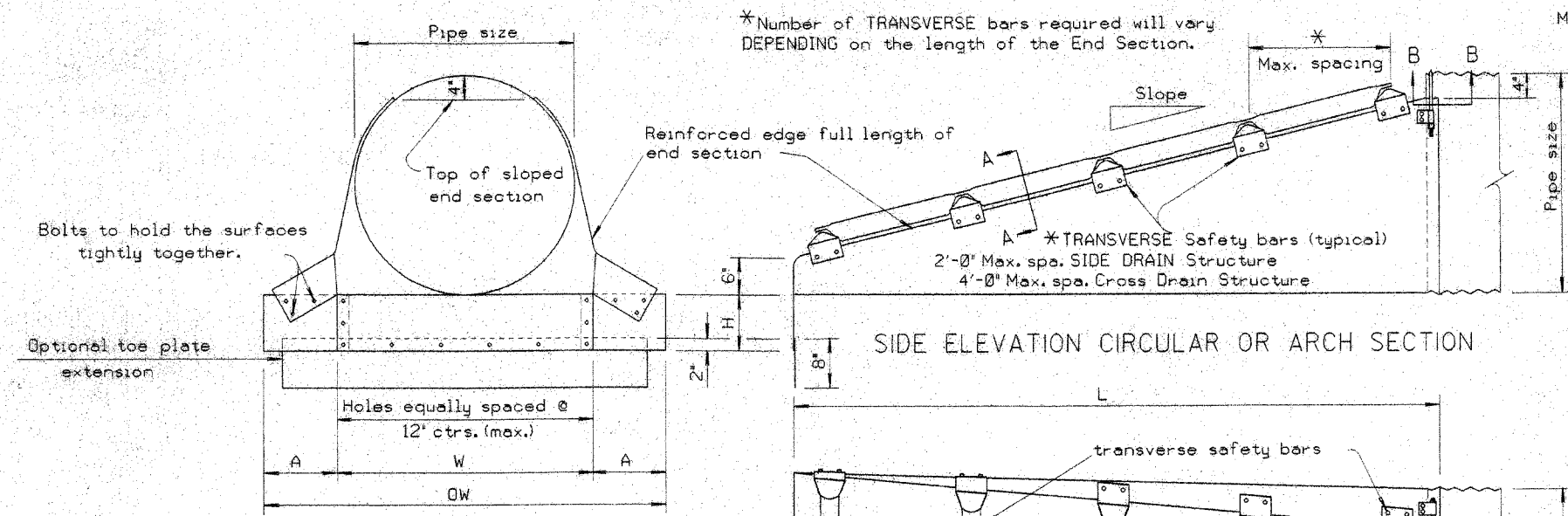
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87
DATE	REVISION	DATE FILLED

ARKANSAS STATE HIGHWAY COMMISSION

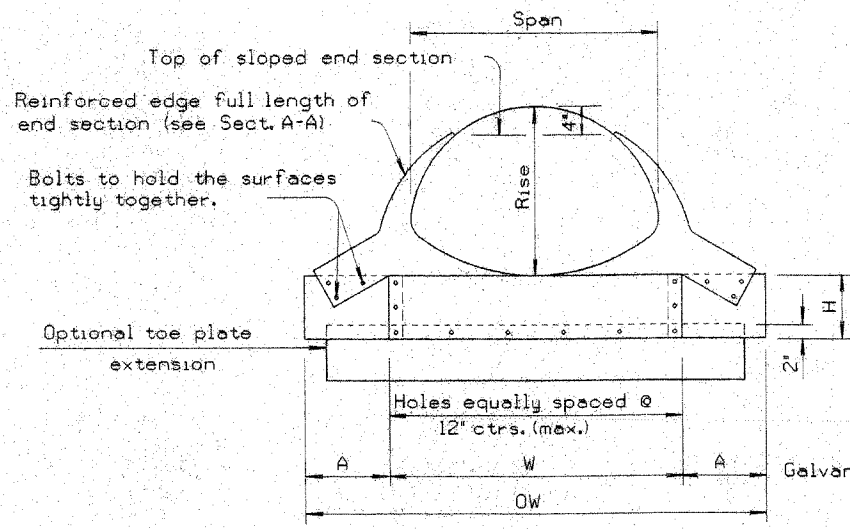
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

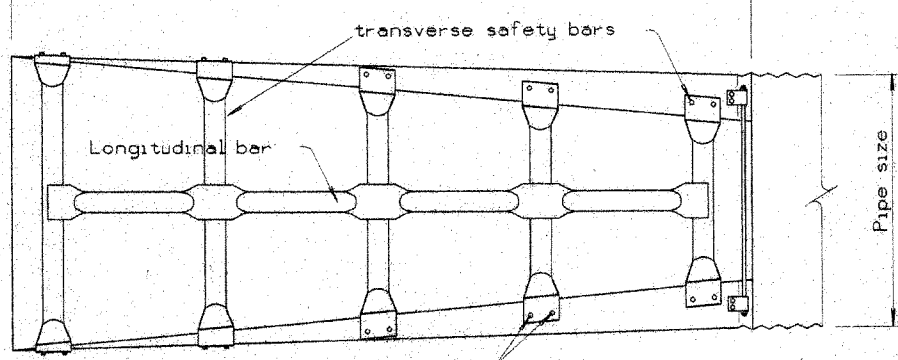


FRONT VIEW CIRCULAR PIPE

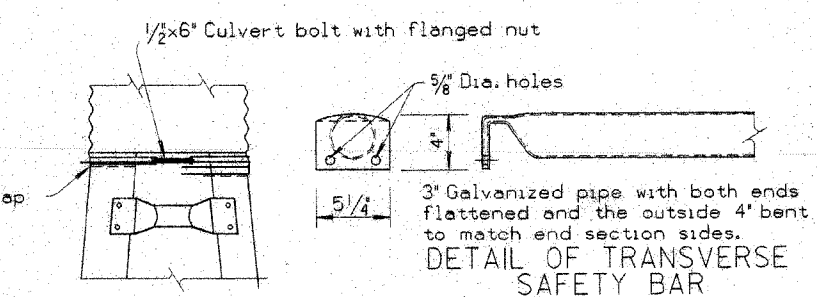
SIDE ELEVATION CIRCULAR OR ARCH SECTION



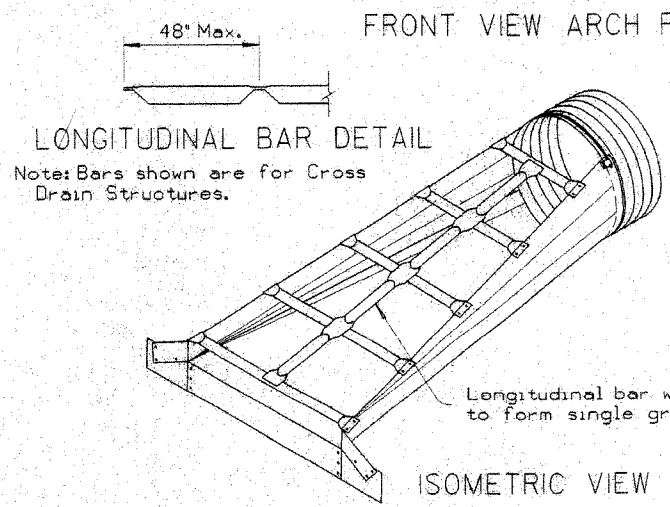
FRONT VIEW ARCH PIPE



TOP VIEW CIRCULAR OR ARCH SECTION



TYPE #1 CONNECTOR DETAIL
For 15" thru 24" pipe

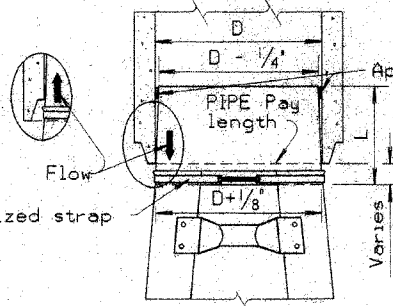


TYPE #2 CONNECTOR DETAIL
For 30" and larger round pipes & 21"x15" thru 64"x43" arch pipes

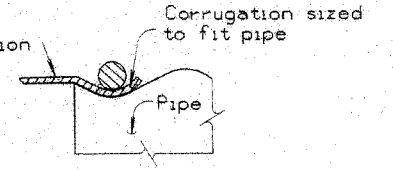
Minimum 1/8" dia. galvanized steel rod or No.4 galvanized reinforcing bar.

Edge of sidewall sheet rolled snugly against steel rod.

SECTION A-A



SECTION B-B



D - 12" to 24" L = 12"
D - 30" & Larger L = 16"

Note: Metal end section to be firmly wedged INTO PIPE END BEFORE BACKFILLING PIPE.

(Tapered sleeve to be 12 Ga. smooth galvanized steel in accordance with AASHTO M 218.)

STEEL END SECTION FOR CONCRETE PIPE
(Alternate for Concrete End Section)

GENERAL NOTES

End sections shall be fabricated from galvanized steel meeting the requirements of SUBSECTION 606.02(c)(1) OF THE STANDARD SPECIFICATIONS. When specified optional toe plate extension shall be punched and bolted to end section apron lip with 3/8" diameter galvanized bolts. Steel for toe plate extension shall be same gauge as end section. Dimensions shall be overall width less 6" by 8" high. Attachment to circular pipes 15" through 24" diameter shall be made with Type #1 straps. All other sizes shall be attached with Type #2 rods and lugs. Safety bars shall be fabricated from steel pipe meeting the requirements of ASTM A-53 Schedule 40 Specifications. Safety bars shall be hot dipped galvanized after fabrication. All work and materials required for construction and installation of safety end section shall be included in the PRICE BID EACH FOR SAFETY END SECTIONS FOR PIPE CULVERTS. Longitudinal and transverse bars will be required for cross drain structures when span is greater than 30". No safety bars will be REQUIRED FOR 30" SPAN OR LESS WHEN USED ON CROSS DRAIN STRUCTURES. Transverse bars will be required for all sizes of side drain structures. Class 1 safety end sections shall be end sections with a 4:1 slope. Class 2 safety end sections shall be end sections with a 6:1 slope.

SAFETY END SECTIONS FOR ARCH PIPES											SAFETY END SECTIONS FOR CIRCULAR PIPES											
Equiv. Dia.	Nom. W.W. Area Sq Ft	Pipe Arch		Min. Gauge End Sect.	Dimensions in Inches				Slope Sp	L (In)	Slope (In)	L (In)	Pipe Dia.	Min. Gauge Ends	Dimensions in Inches				L Dimensions in Inches			
		Span (In.)	Rise (In.)		A	H	W	OW							A 1" Tol	H 1" Tol	W 2" Tol	OW	Slope	L	Slope	L
18"	1.6	21	15	16	8	6	27	43	4:1	20	6:1	30	15"	16	8	6	21	37	4:1	20	6:1	30
21"	2.2	24	18	16	8	6	30	46	4:1	32	6:1	48	18"	16	8	6	24	40	4:1	32	6:1	48
24"	2.9	28	20	16	8	6	34	50	4:1	40	6:1	60	21"	16	8	6	27	43	4:1	44	6:1	66
30"	4.5	35	24	14	12	9	41	65	4:1	56	6:1	84	24"	16	8	6	30	46	4:1	56	6:1	84
36"	6.5	42	29	12	12	9	48	72	4:1	76	6:1	114	30"	12	12	9	36	60	4:1	80	6:1	120
42"	8.9	49	33	12	16	12	55	87	4:1	92	6:1	138	36"	12	12	9	42	66	4:1	104	6:1	156
48"	11.6	57	38	12	16	12	63	95	4:1	112	6:1	168	42"	12	16	12	48	80	4:1	128	6:1	192
54"	14.7	64	43	12	16	12	70	102	4:1	132	6:1	198	48"	12	16	12	54	86	4:1	152	6:1	228
60"	18.1	71	47	12	16	12	77	109	4:1	148	6:1	222	54"	12	16	12	60	92	4:1	176	6:1	264
72"	26.0	83	57	12	16	12	89	121	4:1	188	6:1	282	60"	12	16	12	66	98	4:1	200	6:1	300

10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
8-15-91	DRAWN & ISSUED	
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION
SAFETY END SECTION
FOR CIRCULAR AND ARCH PIPES
STANDARD DRAWING SES-1

ADVANCE DISTANCES (XXXX)


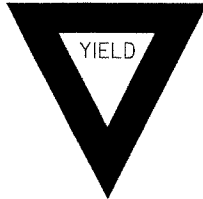






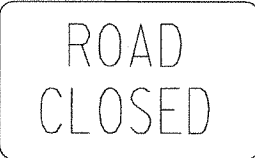
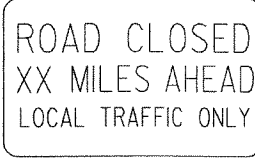
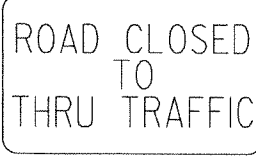
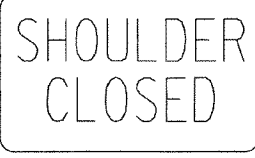
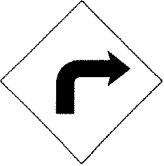






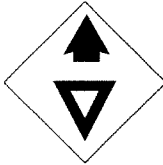
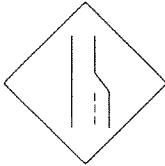

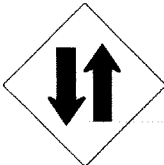
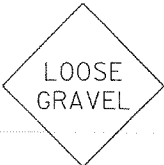
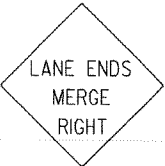

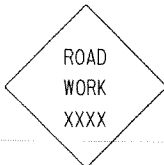

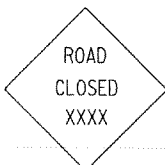


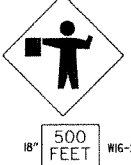


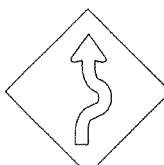
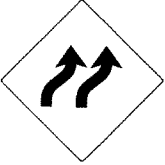


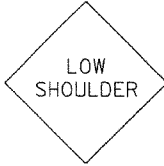
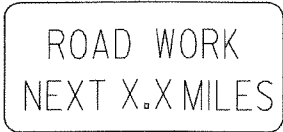

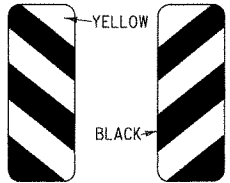
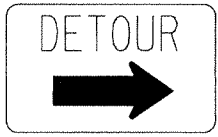

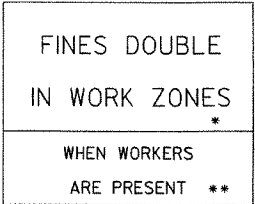
500 FT	1/2 MILE
1000 FT	3/4 MILE
1500 FT	1 MILE AHEAD

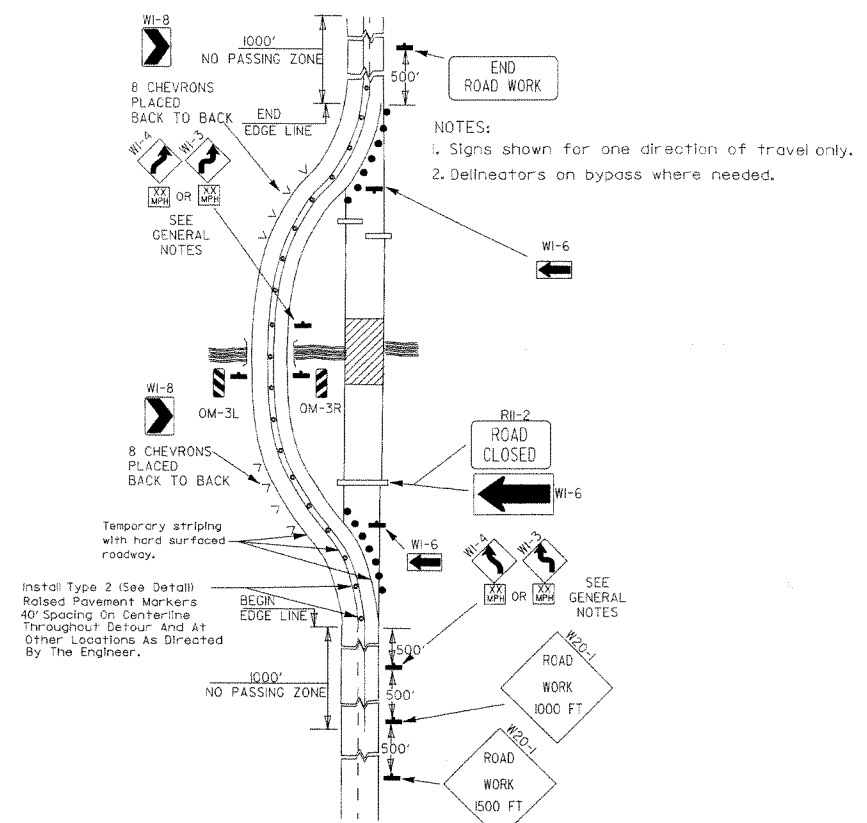
GENERAL NOTES:

- ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
- TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
- EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
- SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
- SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
- POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
- ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.
- FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
- MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
- R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

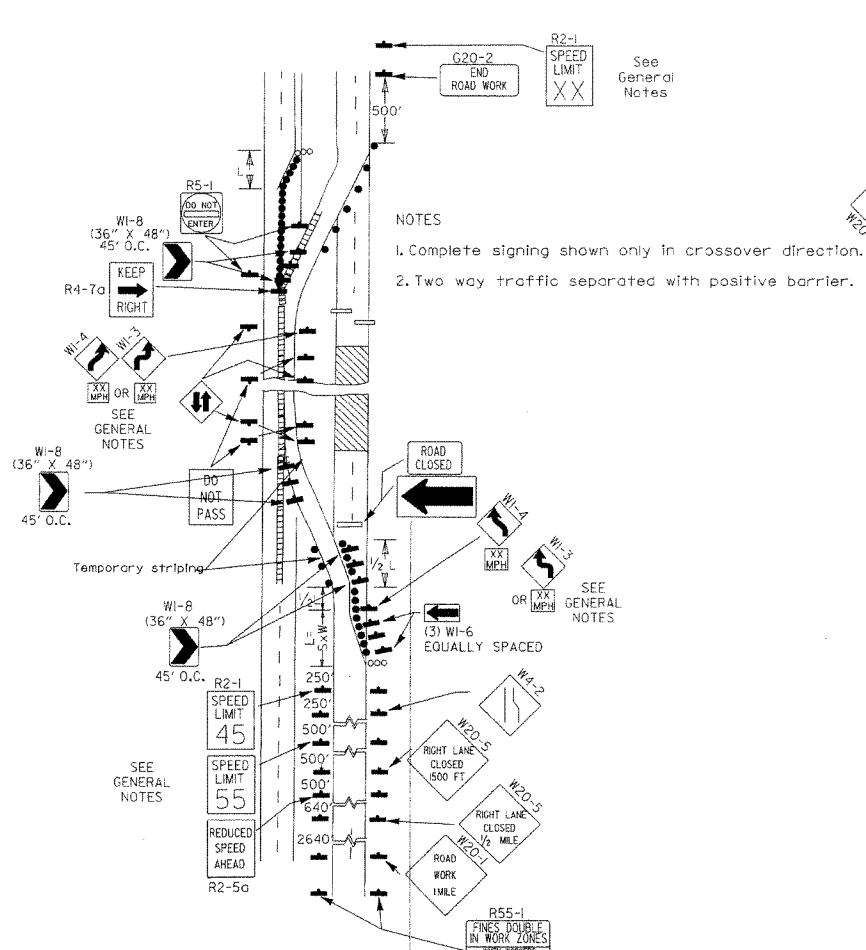
* NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

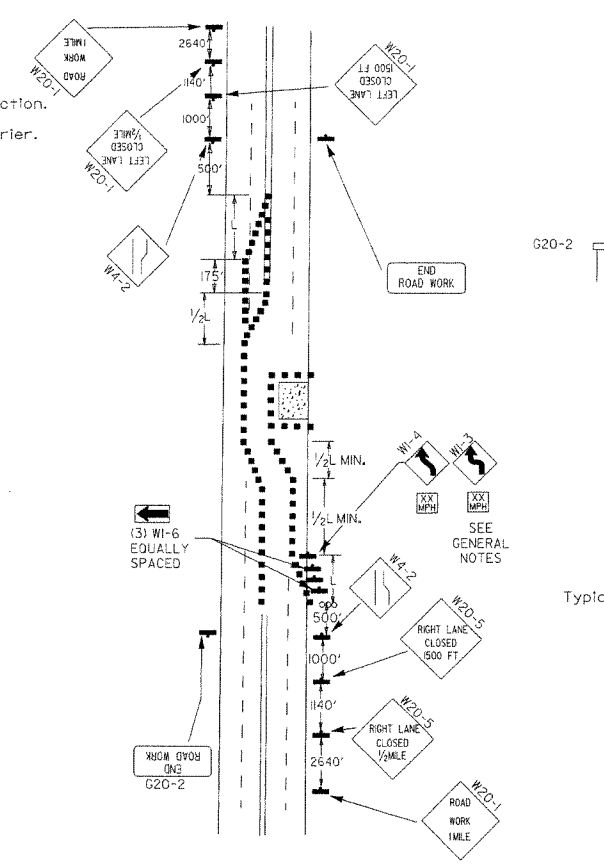
<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5A</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5C</p>  <p>STD. 24"x30" EXPWY.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



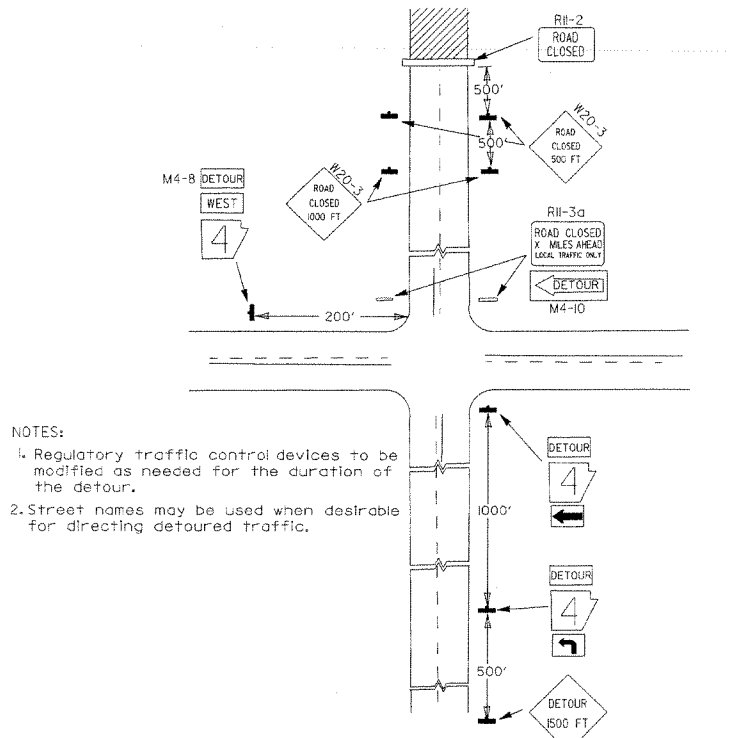
(A) Typical application of traffic control devices on a 2-lane highway where the entire roadway is closed and a bypass detour is provided.



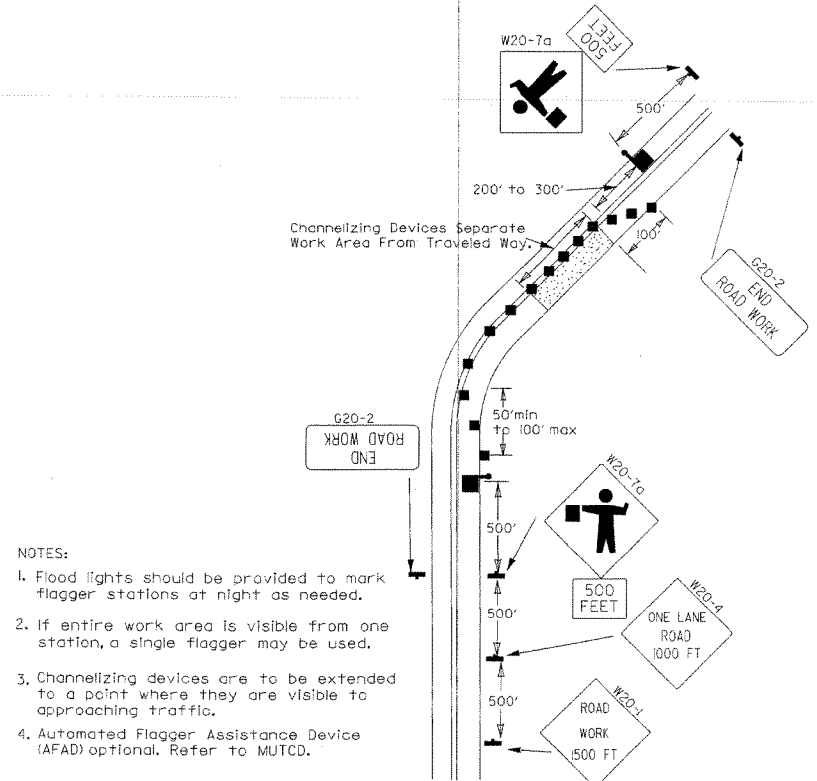
(B) Typical application - 4-lane divided roadway where one roadway is closed.



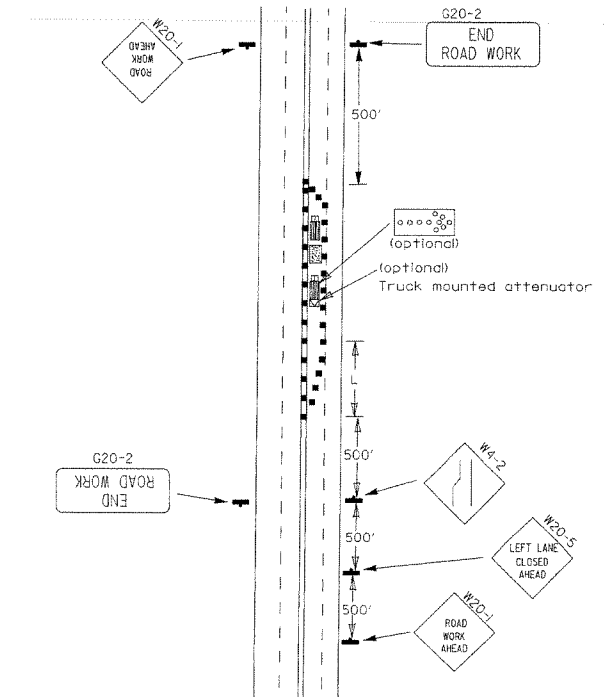
(C) Typical application - 4-lane undivided roadway where half of the roadway is closed.



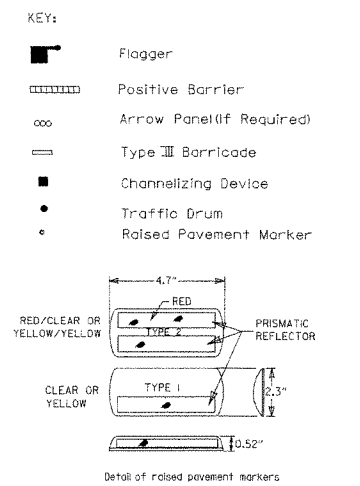
(D) Typical application - roadway closed beyond detour point.



(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.

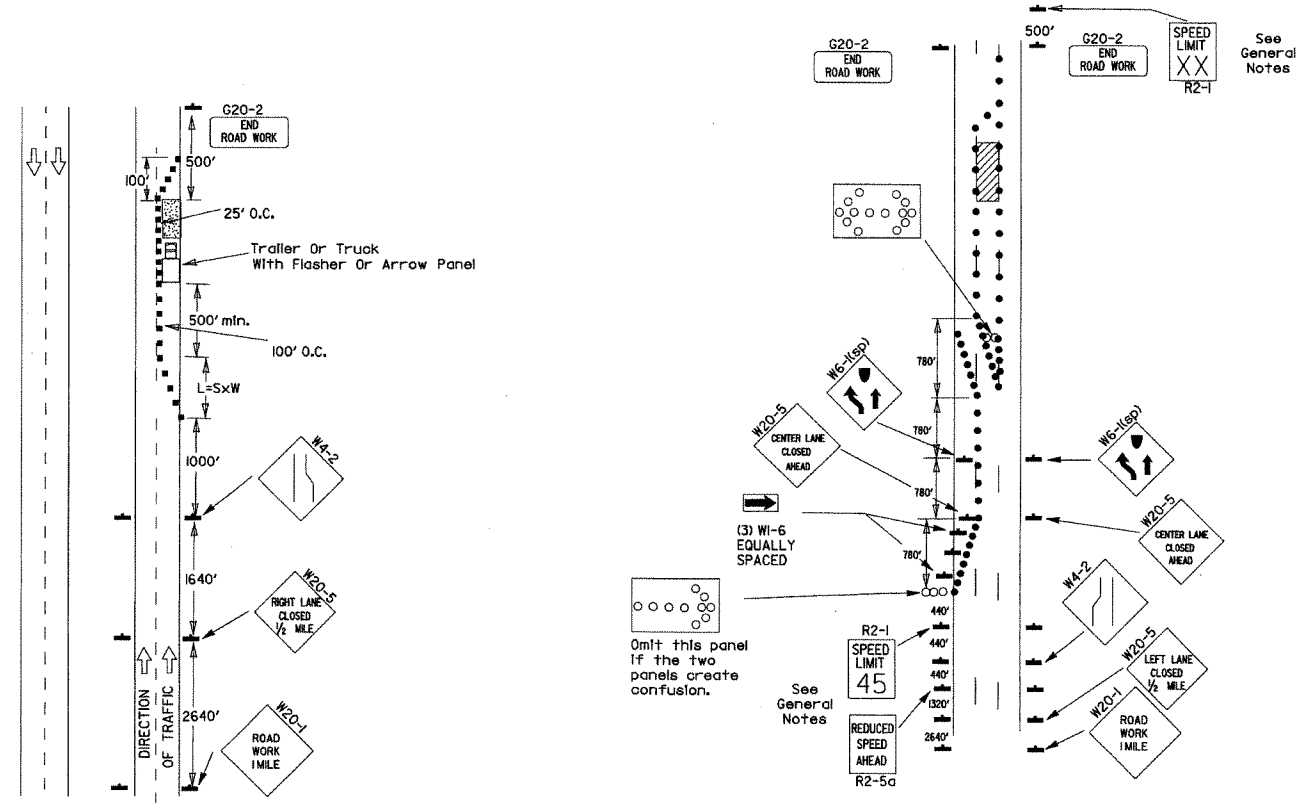


Typical advance warning sign placement

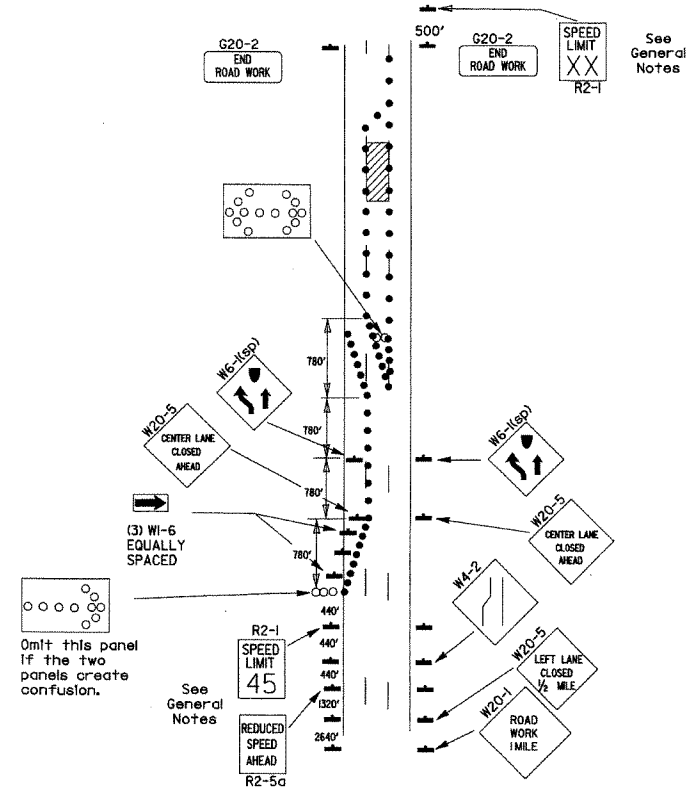
Taper formulae:
 $L = S \times W$ for speeds of 45mph or more.
 $L = \frac{WS^2}{60}$ for speeds of 40mph or less.
 Where:
 L = Minimum length of taper.
 S = Numerical value of posted speed limit prior to work or 85th percentile speed.
 W = Width of offset.

- GENERAL NOTES:
- Advisory speed posted on W1-3 or W1-4 curve warning signs to be determined at site. Use W1-4 when speed is greater than 30mph and W1-3 when 30mph or less.
 - When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(45) shall be omitted and the R2-5A shall be installed at that location. Additional R2-1(45) 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.
 - When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1(55) 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.
 - The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit, or as directed by the Engineer.
 - Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
 - Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
 - Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

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

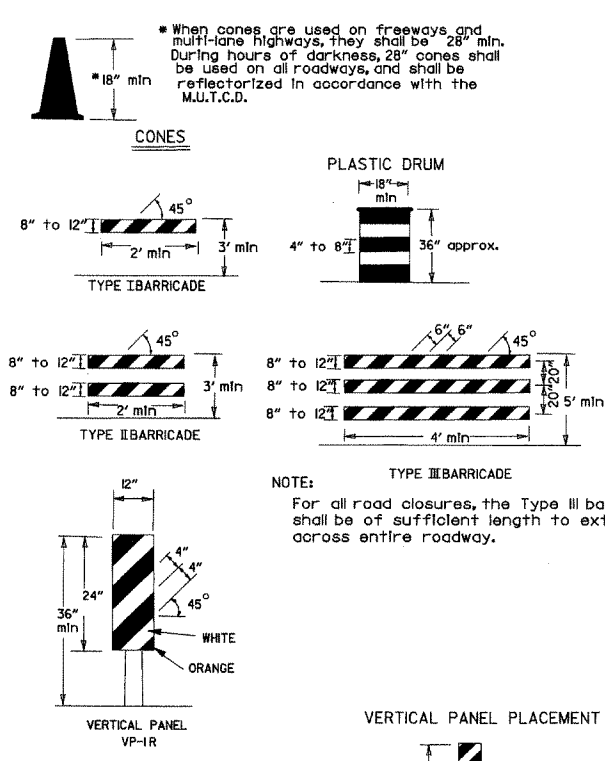


(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



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

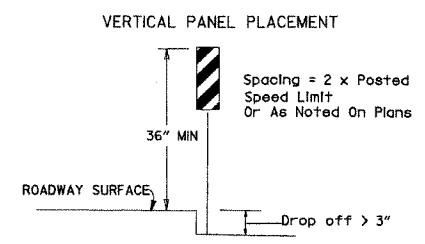
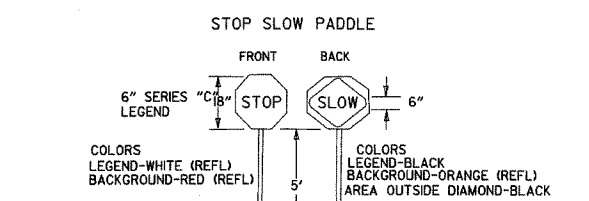
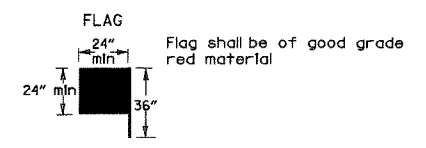
Channelizing devices



TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

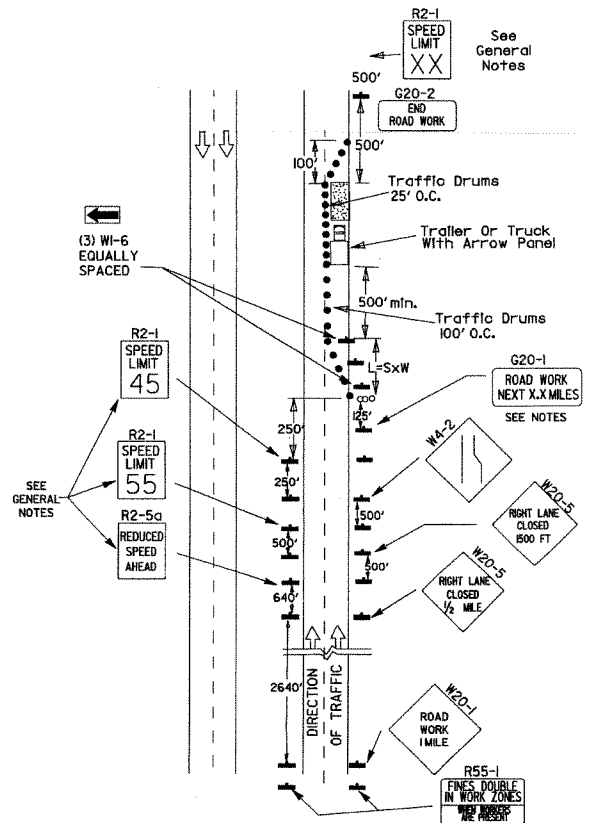
VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

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

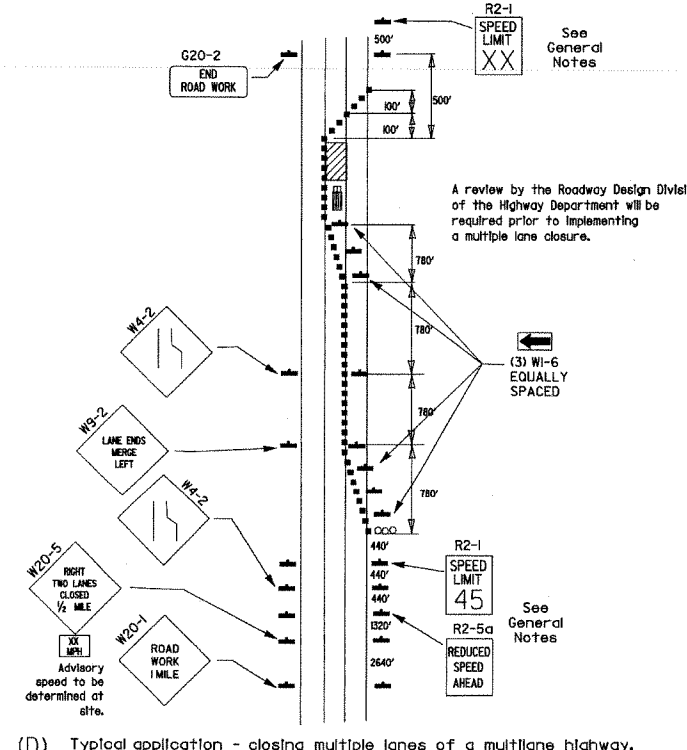


- KEY:
- Arrow Panel (if Required)
 - Channelizing Device
 - Traffic drum

- GENERAL NOTES:
- A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
 - When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-145mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
 - When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-155mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
 - The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
 - Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
 - Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
 - The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 1/2 mile in advance of the job limit. Additional W20-1 (1/2 MILE) signs are not required in advance of lane closures that begin inside the project limits.
 - Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
 - All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual for Assessing Safety Hardware (MASH).
 - Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

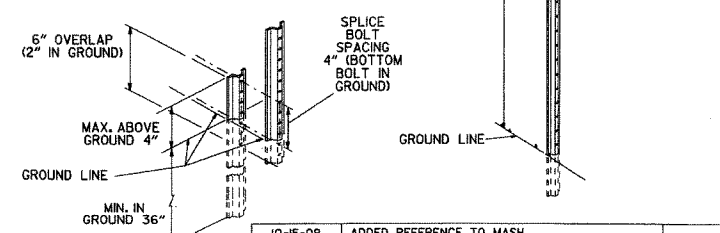


(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.



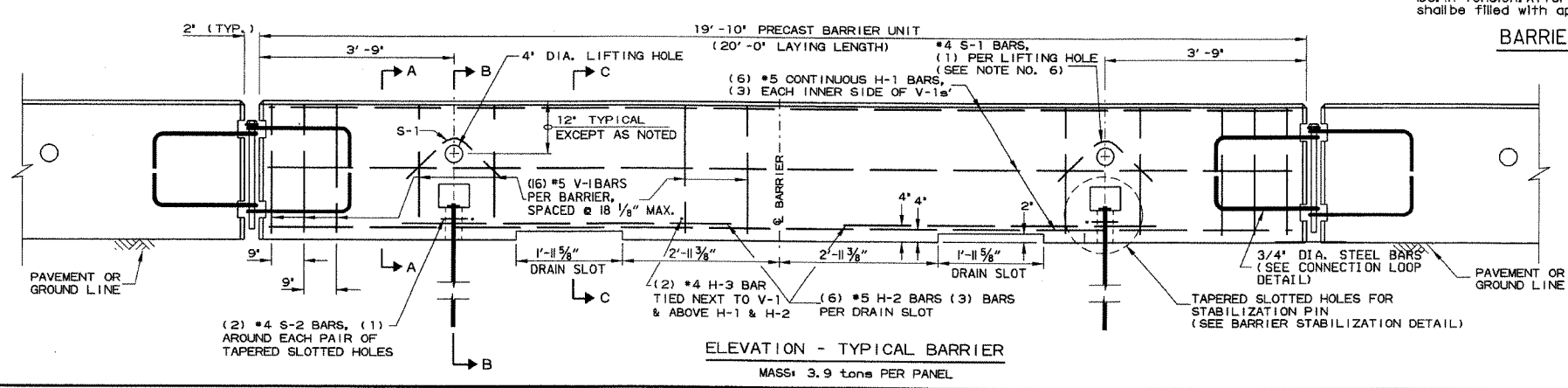
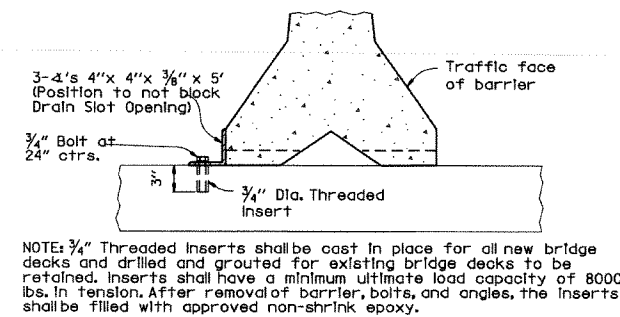
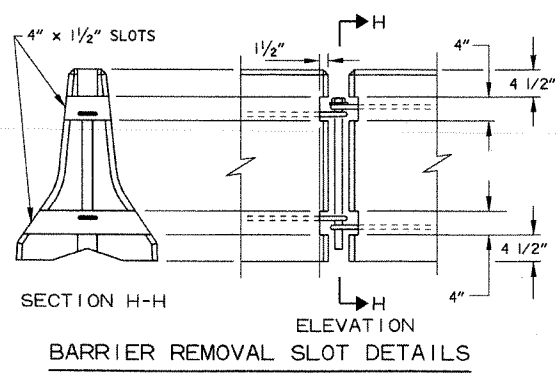
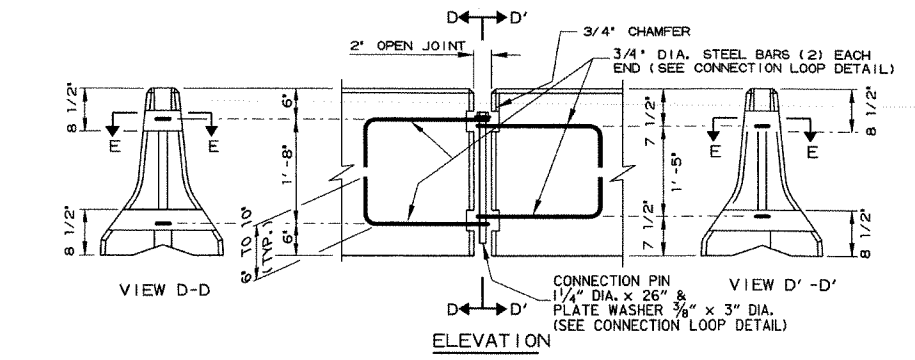
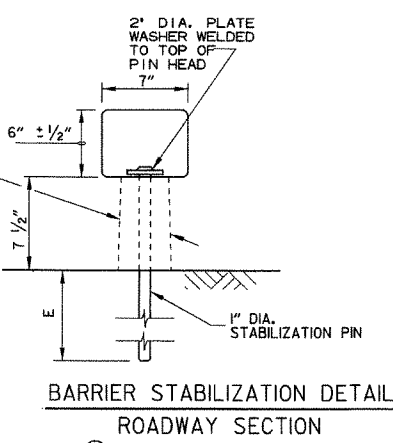
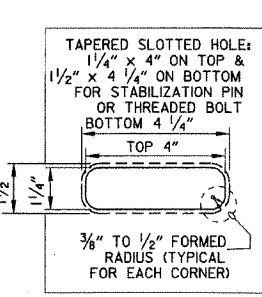
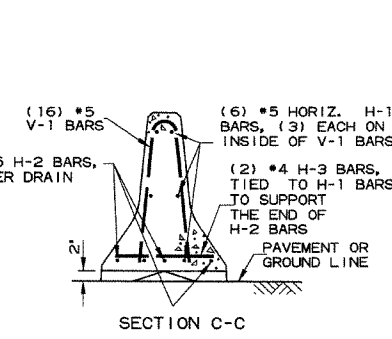
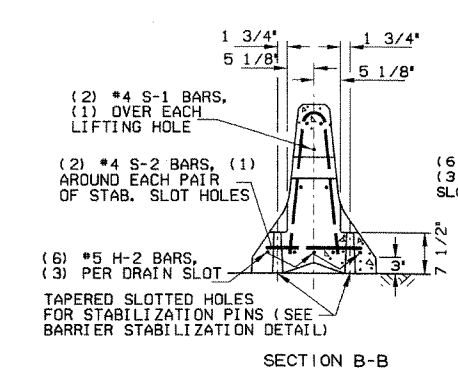
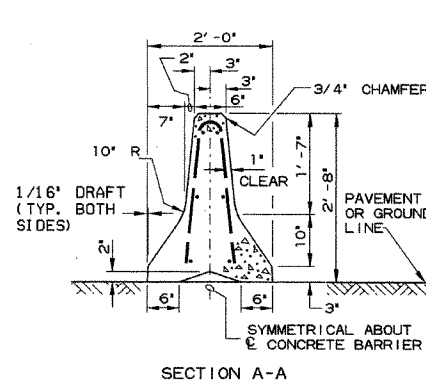
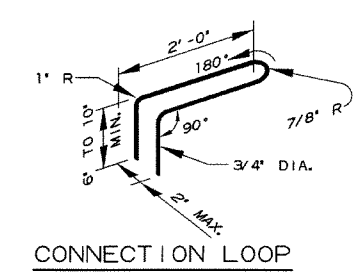
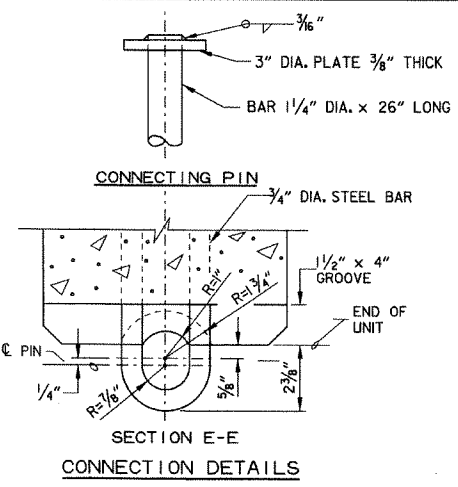
(D) Typical application - closing multiple lanes of a multilane highway.

- NOTES:
- USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)
 - NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.
 - SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



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

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



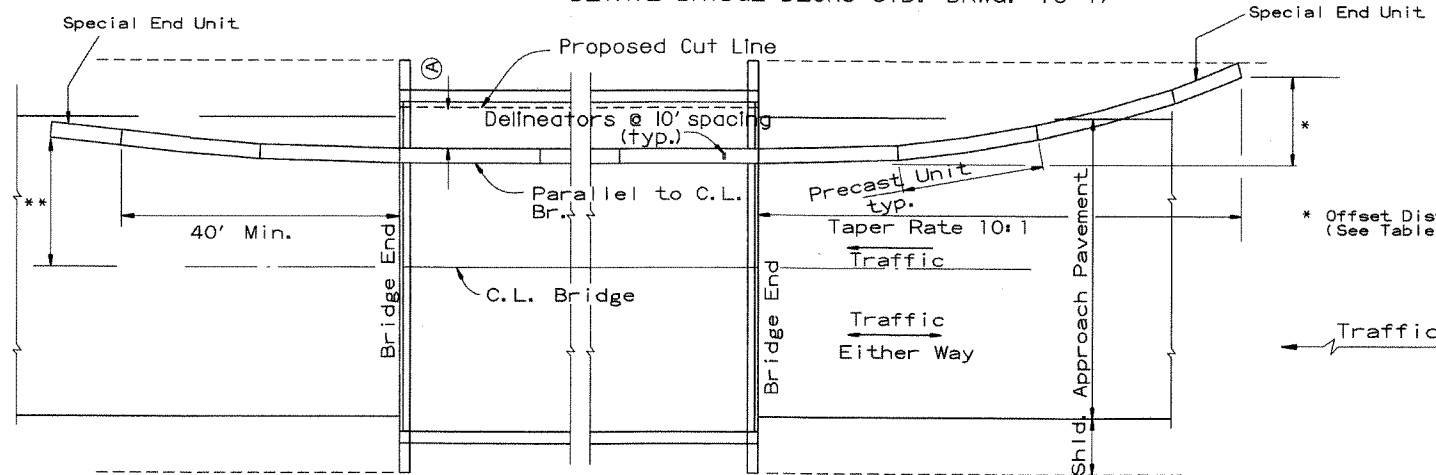
- General Notes**
- The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.
 - Materials shall meet the following minimum requirements:
Concrete: 2500 psi compressive strength at 28 days.
Reinforcing Steel: AASHTO M 31 or M 53, Grade 60
Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin. Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.

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

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

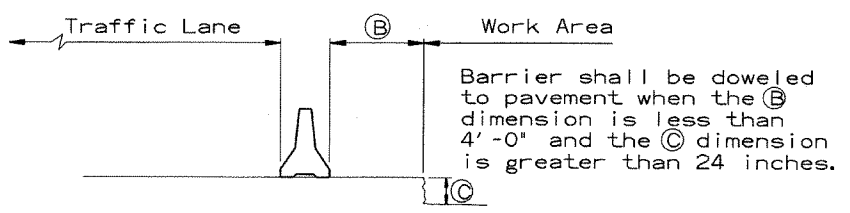
ARKANSAS STATE HIGHWAY COMMISSION	
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER	
STANDARD DRAWING TC-4	

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



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

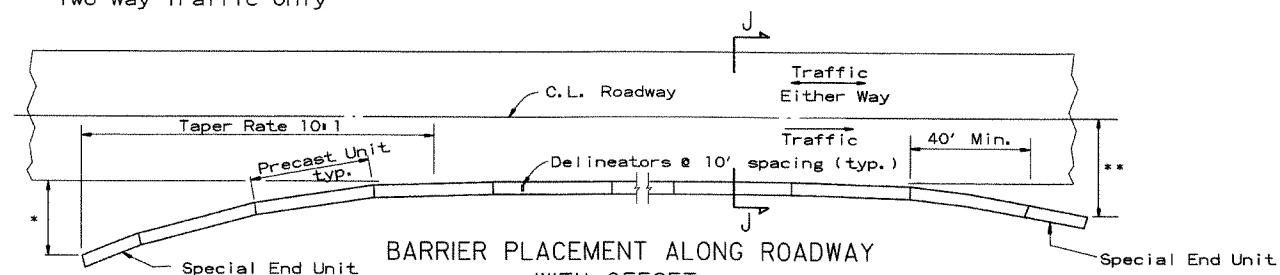
No Scale



SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

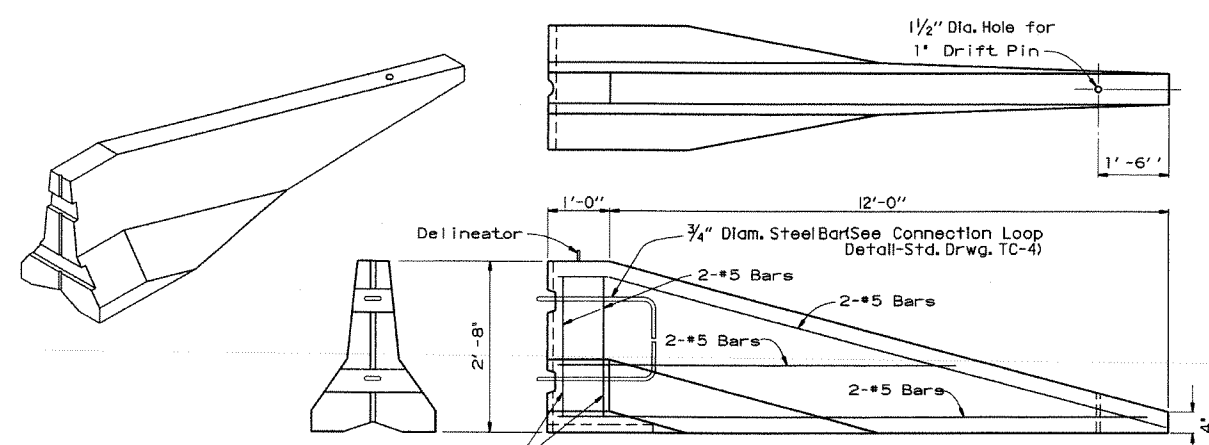
No Scale

** Offset Distance For Two Way Traffic Only

* Offset Distance (See Table)

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

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

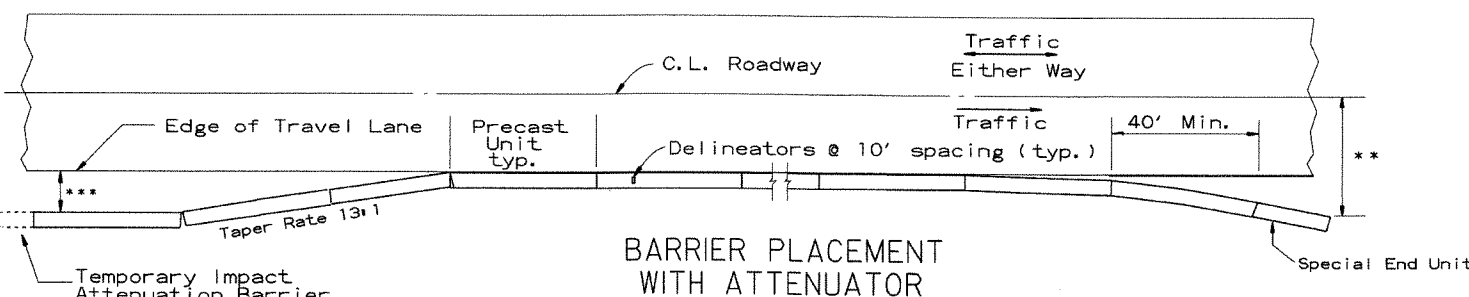


SPECIAL END UNIT

No Scale

General Notes

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



BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

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

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

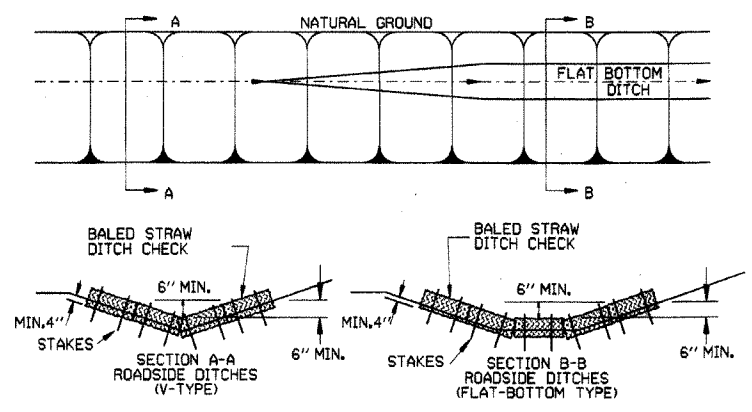
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

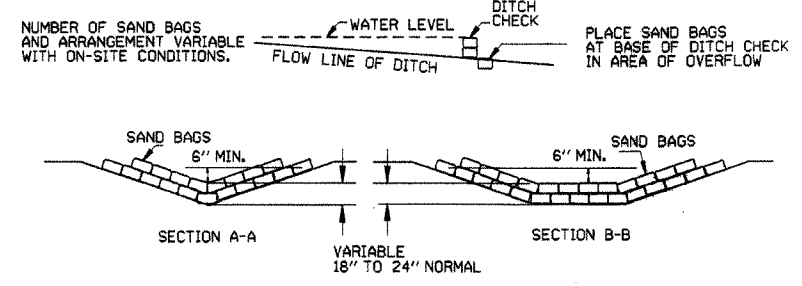
STANDARD DRAWING TC-5

GENERAL NOTES

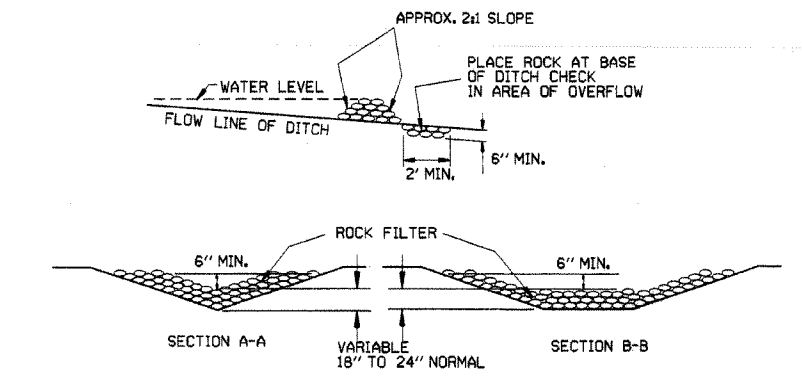
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
2. STRAW BALES SHALL BE KEYPED INTO SOIL A MINIMUM OF 4' AND NO GAPS SHALL BE LEFT BETWEEN BALES.



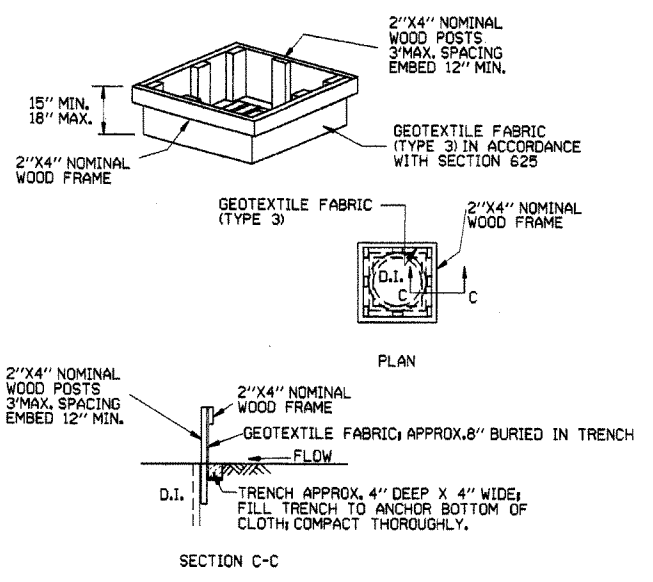
BALED STRAW DITCH CHECK (E-1)



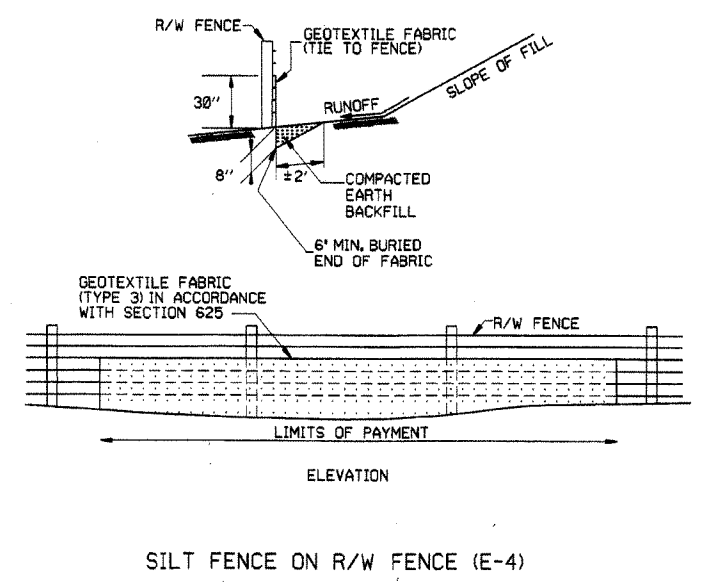
SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



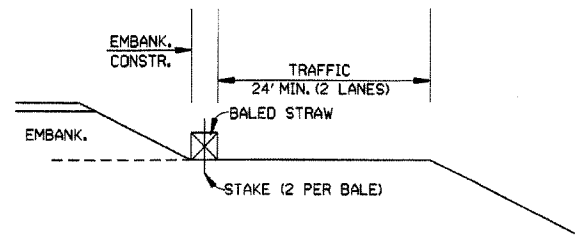
DROP INLET SILT FENCE (E-7)



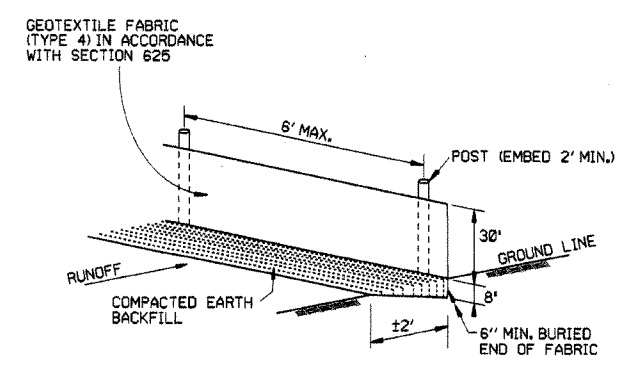
SILT FENCE ON R/W FENCE (E-4)

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

- GENERAL NOTES
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
 2. NO GAPS SHALL BE LEFT BETWEEN BALES.
 3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



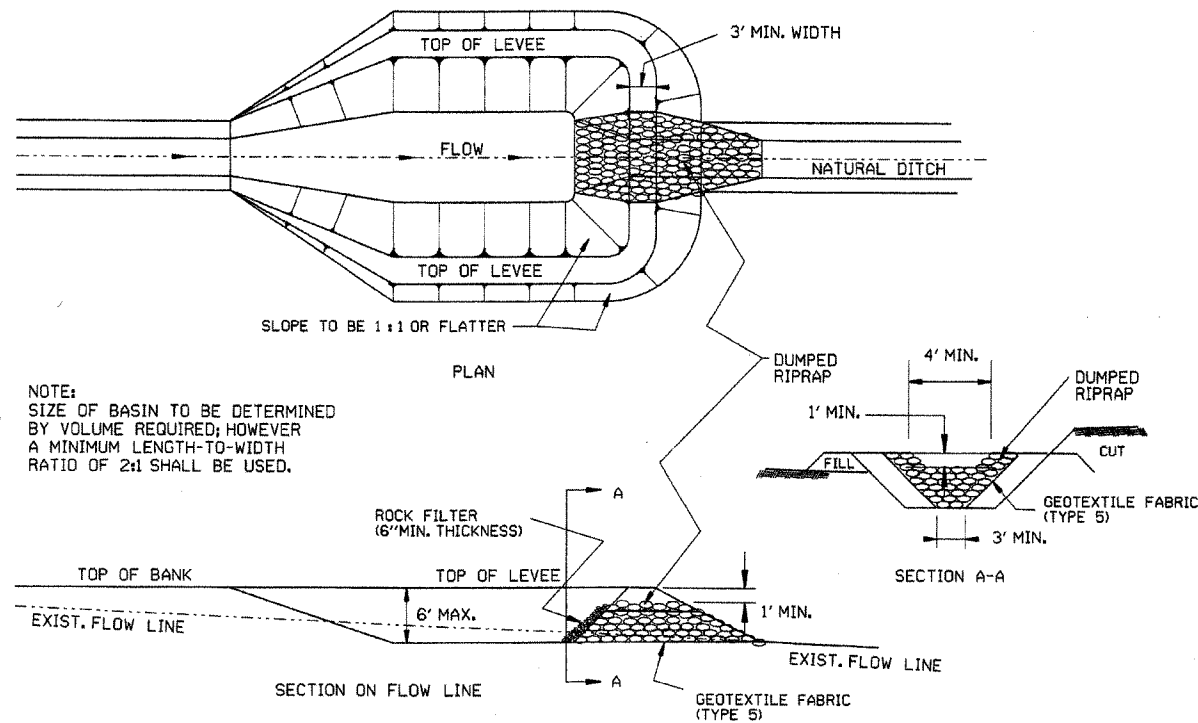
BALED STRAW FILTER BARRIER (E-2)



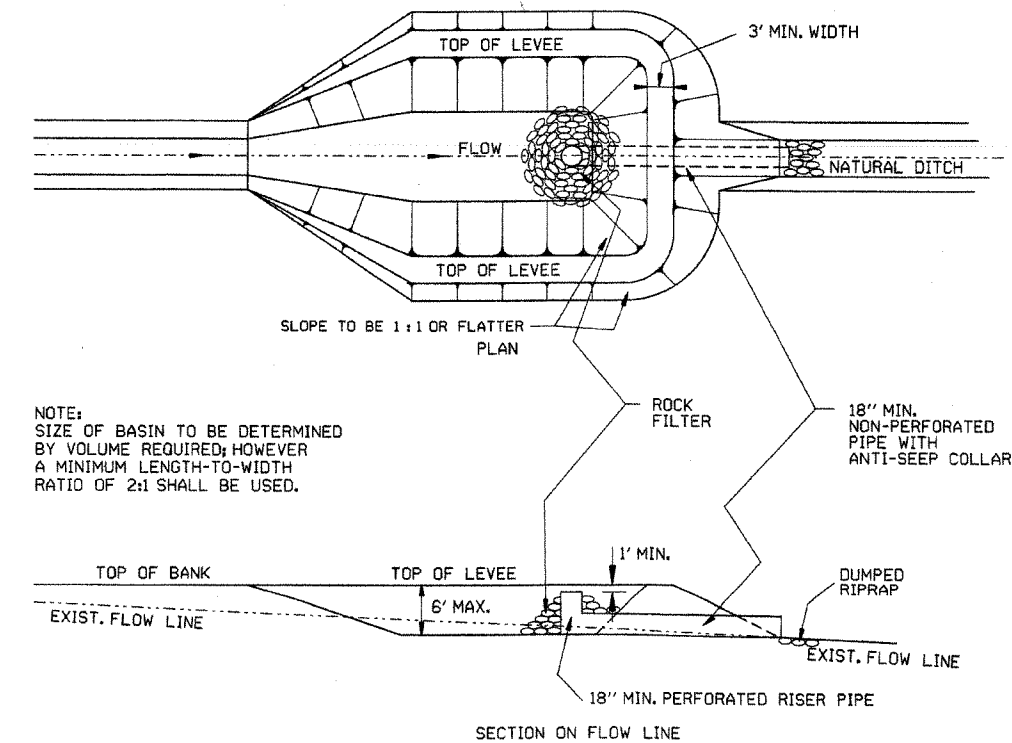
SILT FENCE (E-11)

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

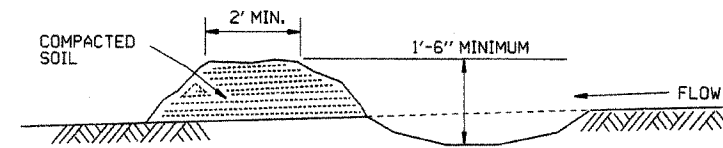
11-18-98	ADDED NOTES	11-18-98	ARKANSAS STATE HIGHWAY COMMISSION
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)		
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95	TEMPORARY EROSION CONTROL DEVICES
7-15-94	Rev. E-4 & E-11 Min. 13' Buried End of Fabric		
6-2-94	Revised E-1,4,7, & 11 Deleted E-2 & 3	6-2-94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



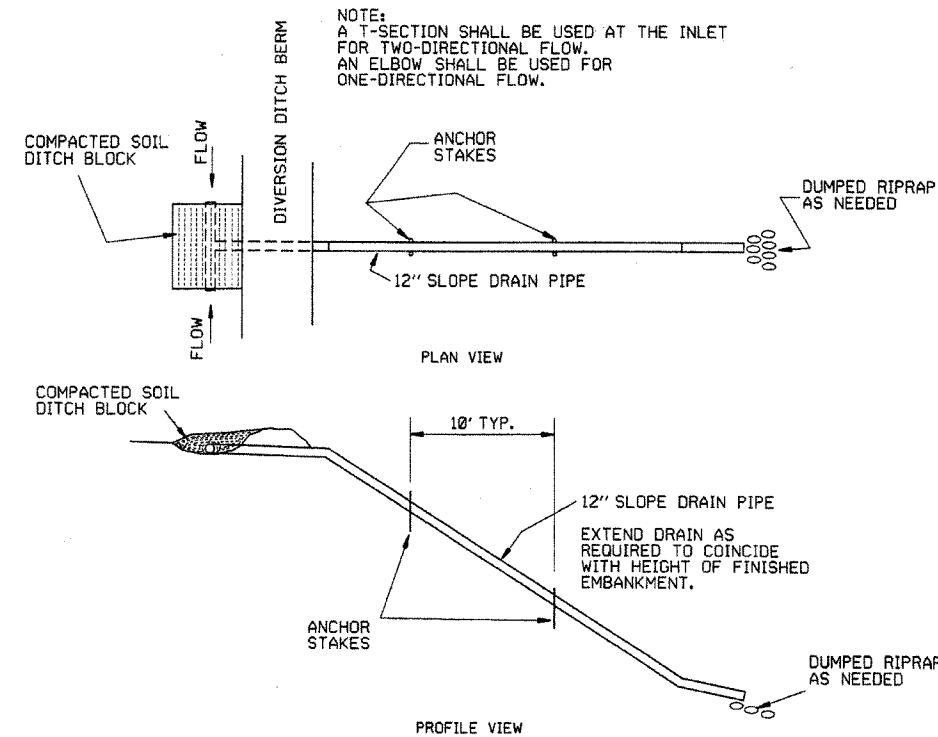
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



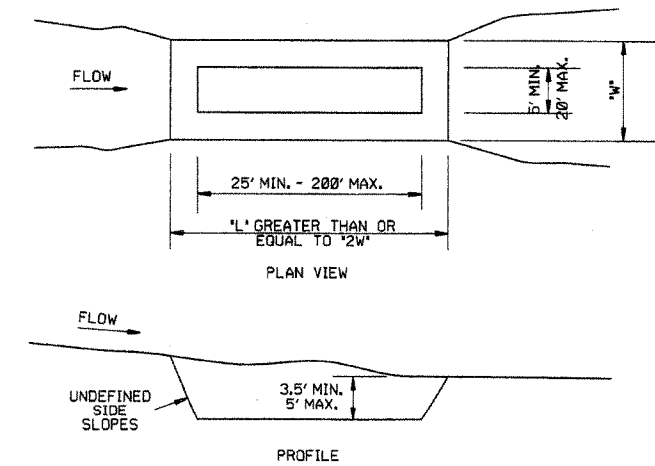
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13		
4-1-93	ISSUED		
DATE	REVISION		FILMED

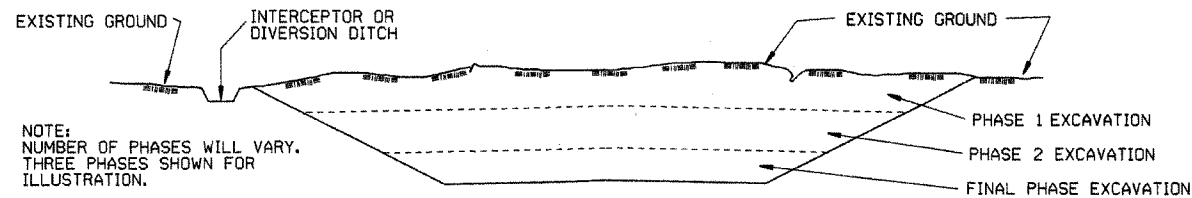
ARKANSAS STATE HIGHWAY COMMISSION
 TEMPORARY EROSION CONTROL DEVICES
 STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES, DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



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

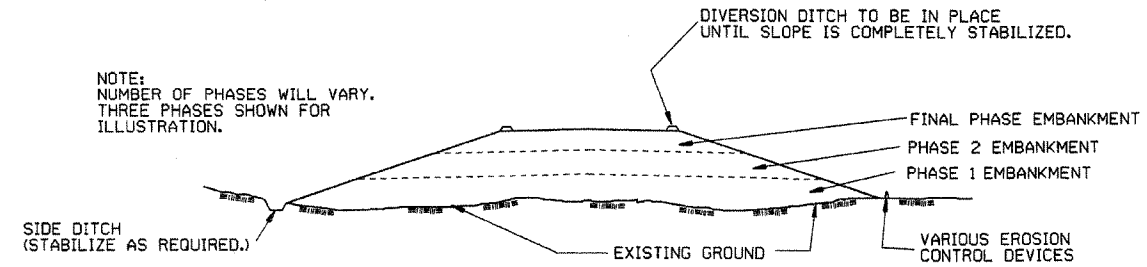
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



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

GENERAL NOTE

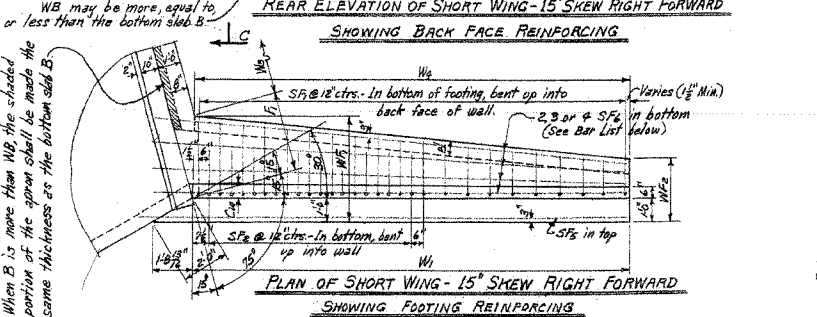
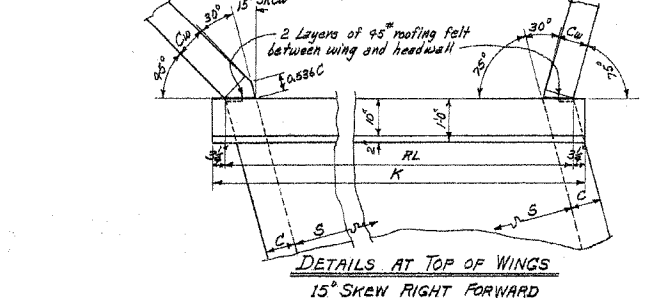
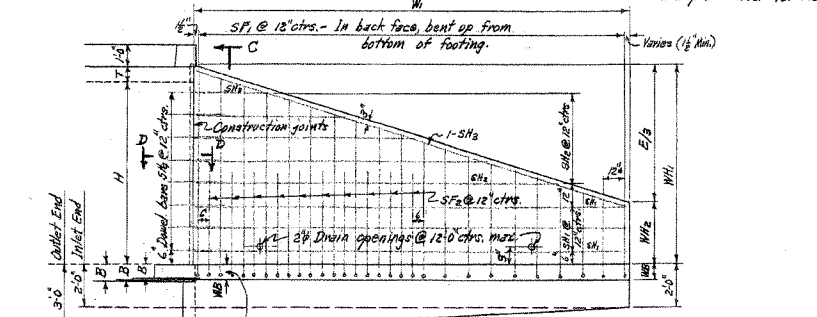
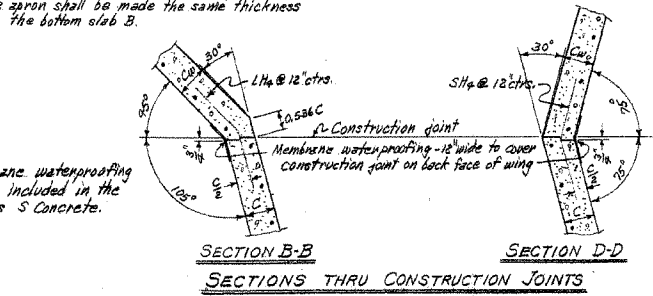
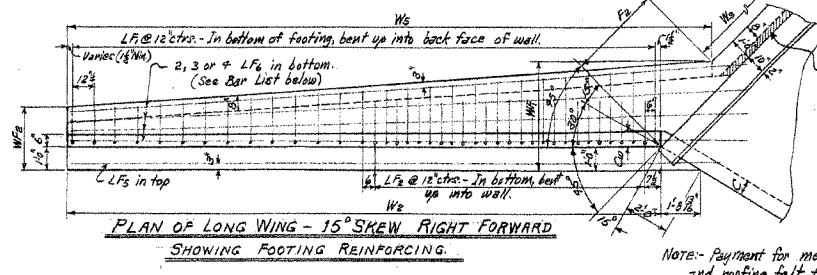
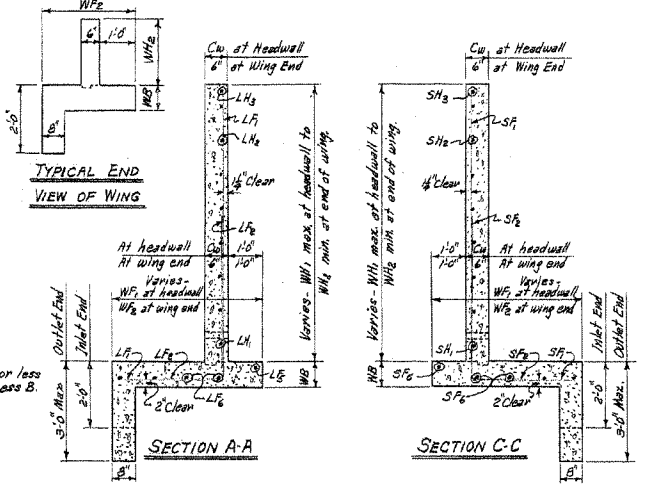
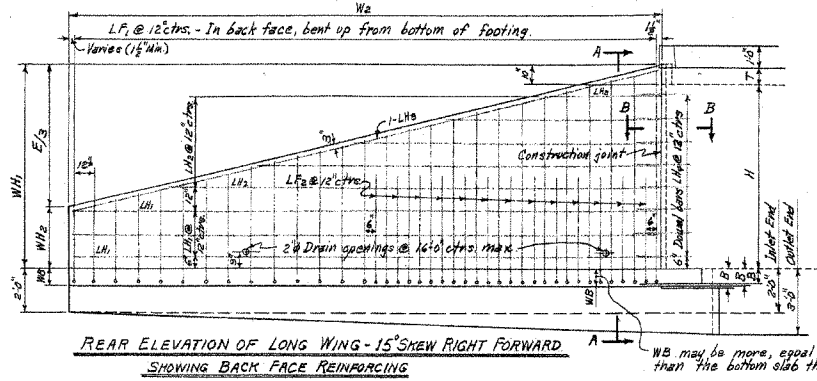
ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

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

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

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			38	
JOB No.					



REGULAR WING DIMENSIONS - 3:1 SLOPES

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL	WIDTHS OF WING FOOTINGS		LENGTHS OF WING WALLS		INSIDE FOOTING DIMENSIONS		QUANTITY PER WING								
			AT HEADWALL	AT END OF WING	SHORT WING	LONG WING	SHORT WING	LONG WING	SHORT WING	LONG WING	SHORT WING	LONG WING	SHORT WING	LONG WING			
2'	7"	6"	2'-10"	0'-8"	2'-5"	2'-0"	1'-4"	1'-0"	6'-6"	6'-8"	9'-2"	6'-0"	9'-4"	0.789	1.094	0.876	1.212
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-4"	1'-4"	1'-0"	8'-6"	8'-8"	12'-0"	8'-2"	12'-3"	1.186	1.650	1.300	1.808
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-8"	1'-4"	1'-0"	10'-6"	10'-8"	15'-0"	10'-2"	15'-3"	1.654	2.305	1.797	2.502
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-8"	1'-4"	1'-0"	12'-6"	12'-8"	17'-8"	12'-6"	18'-7"	2.194	3.059	2.343	3.295
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-8"	1'-4"	1'-0"	14'-6"	15'-0"	20'-6"	14'-8"	21'-9"	3.052	4.242	3.294	4.517
7'	8"	7"	7'-10"	2'-4"	4'-2"	2'-8"	1'-4"	1'-0"	16'-6"	17'-0"	23'-6"	16'-8"	25'-9"	3.114	4.329	3.309	4.605
8'	8"	7"	8'-10"	2'-8"	4'-6"	2'-8"	1'-4"	1'-0"	18'-6"	19'-0"	26'-6"	18'-8"	29'-9"	3.177	4.417	3.371	4.693
9'	8"	7"	9'-10"	3'-2"	5'-0"	2'-8"	1'-4"	1'-0"	20'-6"	21'-0"	29'-6"	20'-8"	32'-9"	3.998	5.560	4.220	5.877
10'	8"	7"	10'-10"	3'-6"	5'-4"	2'-8"	1'-4"	1'-0"	22'-6"	23'-0"	32'-6"	22'-8"	35'-9"	4.079	5.675	4.301	5.991
11'	8"	7"	11'-10"	4'-0"	5'-8"	2'-8"	1'-4"	1'-0"	24'-6"	25'-0"	35'-6"	24'-8"	38'-9"	5.111	7.111	5.360	7.470

QUANTITIES

CLASS S CONCRETE - 4 WINGS

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	CLASS S CONCRETE - 4 WINGS				
				HEADWALLS	WING WALLS	FOOTINGS	TRENCHES AND APRONS	REINFORCING STEEL - 4 WINGS
5	7'	6"	7"	LB.	CU YD.	CU YD.	CU YD.	CU YD.
5	7'	6"	7"	117	4.73	5.78	4.77	7.77
6	7'	6"	7"	174	6.65	7.64	6.63	9.63
7	7'	6"	7"	267	8.85	9.84	8.83	11.83
8	7'	6"	7"	379	11.90	12.88	11.89	14.87
9	7'	6"	7"	526	16.55	17.53	16.54	20.52
10	7'	6"	7"	716	22.87	23.85	22.86	27.84
11	7'	6"	7"	951	31.14	32.12	31.13	36.11
12	7'	6"	7"	1234	41.66	42.64	41.65	47.63

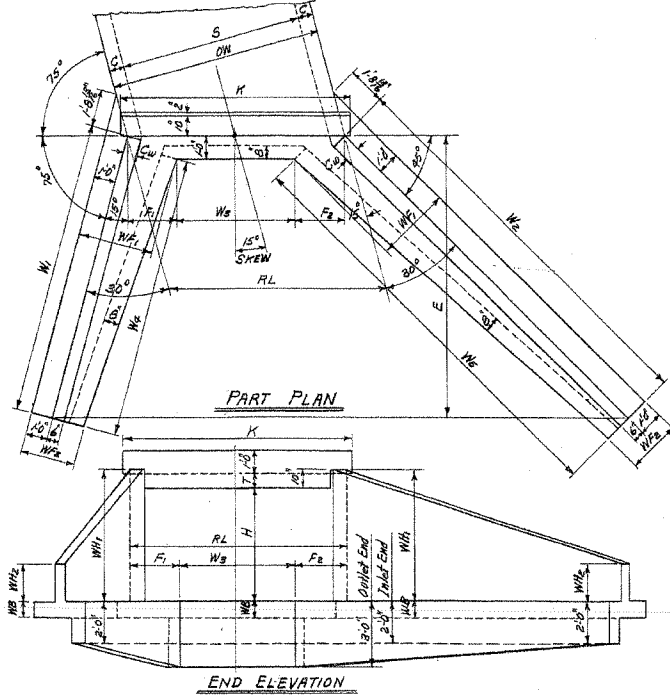


TABLE 'A' - DIMENSIONS FOR DETAIL 'A'

S	H	F1	F2	W4	W5	W3	Y
5'	7'	3'-0"	3'-5 1/2"	16'-10 1/2"	25'-0 3/4"	0'	1'-0 1/2"
6'	8'	3'-6"	4'-1 1/2"	19'-0 1/2"	28'-3 3/4"	0'	1'-1 1/2"

BAR LIST FOR ONE SHORT AND ONE LONG WING - 2 EACH REQUIRED

CLEAR HEIGHT	WING LOCATION	SF1 & LF1				SF2 & LF2				SF3 & LF3				SF4 & LF4				BAR BENDING DIAGRAM	QUANTITY									
		BENT		STRAIGHT		BENT		STRAIGHT		BENT		STRAIGHT		BENT														
2'	Short	7	1'-5"	3'-11"	0'-8"	1'-0"	1'-0"	3'-0"	1	9'-2"	3	2	7'-0"	3	12	1	6'-5"	3	12	1	3'-6"	3	12	2	2'-8"	1'-4"	24.9	33.4
3'	Short	9	1'-9"	3'-11"	0'-8"	1'-0"	1'-0"	3'-0"	1	11'-8"	3	2	10'-0"	3	12	1	8'-11"	3	12	1	4'-8"	3	12	3	1'-0"	1'-0"	37.7	50.3
4'	Short	11	2'-3"	3'-11"	0'-8"	1'-0"	1'-0"	3'-0"	1	14'-4"	3	2	14'-0"	3	12	1	11'-9"	3	12	1	6'-11"	3	12	3	1'-0"	1'-0"	57.3	76.4
5'	Short	13	2'-7"	3'-11"	0'-8"	1'-0"	1'-0"	3'-0"	1	17'-8"	3	2	17'-0"	3	12	1	14'-9"	3	12	1	8'-11"	3	12	3	1'-0"	1'-0"	81.1	108.4
6'	Short	15	3'-1"	3'-11"	0'-8"	1'-0"	1'-0"	3'-0"	1	20'-8"	3	2	20'-0"	3	12	1	17'-9"	3	12	1	10'-11"	3	12	3	1'-0"	1'-0"	109.8	148.1
7'	Short	17	3'-5"	3'-11"	0'-8"	1'-0"	1'-0"	3'-0"	1	23'-8"	3	2	23'-0"	3	12	1	20'-9"	3	12	1	13'-11"	3	12	3	1'-0"	1'-0"	138.5	187.2
8'	Short	19	3'-9"	3'-11"	0'-8"	1'-0"	1'-0"	3'-0"	1	26'-8"	3	2	26'-0"	3	12	1	23'-9"	3	12	1	16'-11"	3	12	3	1'-0"	1'-0"	167.2	225.9
9'	Short	21	4'-3"	3'-11"	0'-8"	1'-0"	1'-0"	3'-0"	1	29'-8"	3	2	29'-0"	3	12	1	26'-9"	3	12	1	19'-11"	3	12	3	1'-0"	1'-0"	196.0	264.6
10'	Short	23	4'-7"	3'-11"	0'-8"	1'-0"	1'-0"	3'-0"	1	32'-8"	3	2	32'-0"	3	12	1	29'-9"	3	12	1	22'-11"	3	12	3	1'-0"	1'-0"	224.7	303.3

GENERAL NOTES:-
 CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have 1/2 chamfers.
 REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.
 CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidealls shall be only where shown on plans.
 SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable special provisions.
 UNIT STRESSES:-
 Class S Concrete (n=10) 1200%
 Reinforcing Steel 20,000%

NOTE:- This drawing to be used in conjunction with Std. Barrel Sections, Drawing Nos. SINGLES DOUBLES TRIPLES QUADRUPLES QUINTUPLES R-115X-0 R-215X-0 R-315X-0 R-415X-0 R-515X-0 R-115X-1 R-215X-1 R-315X-1 R-415X-1 R-515X-1 R-215X-2 R-315X-2

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION
 DETAILS OF STANDARD WINGS
 FOR
 REINFORCED CONCRETE BOX CULVERTS
 15° SKEW

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-X15-1

Designed By- W.C.H. 5-15-63 Checked By- B.M.S. 9-7-63
 Drawn By- W.C.H. 6-20-63 Checked By- B.M.S. 9-23-63
 Quantities By- W.C.H. 9-23-63

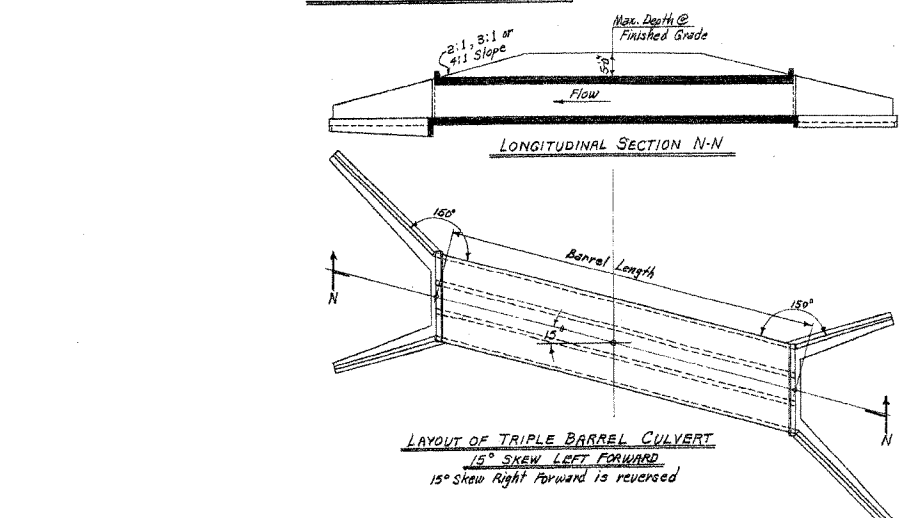
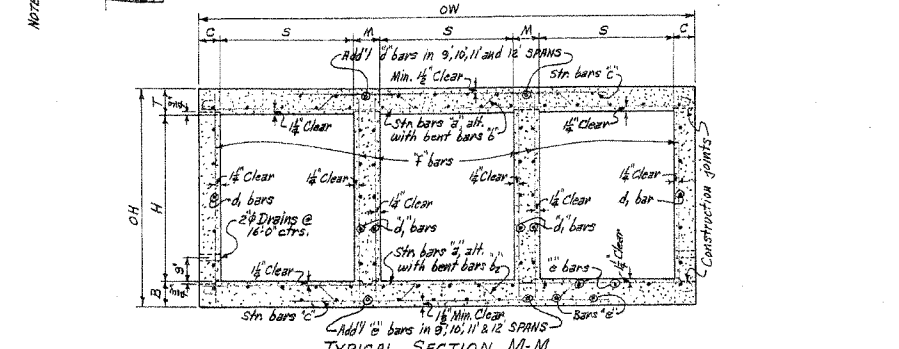
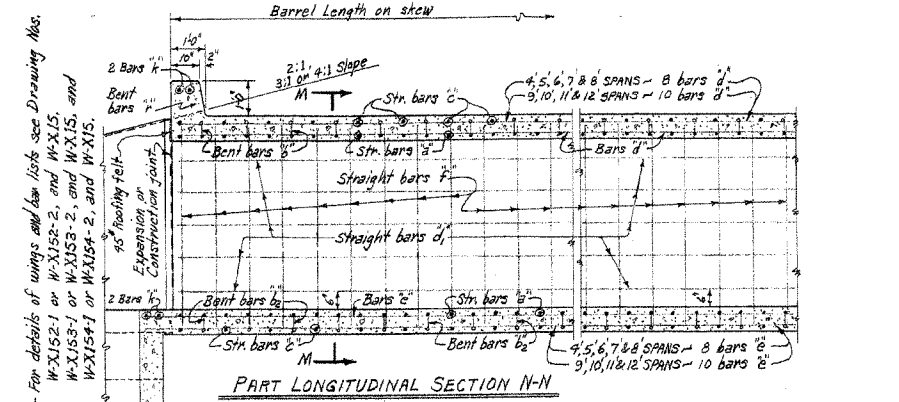
REVISIONS:- Membrane Added, 5-10-66 W.C.H.

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			39	
JOB No.					

BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH

DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	a bars		b bars				c bars				d bars		e bars		f bars		g bars														
			STRAIGHT		BENT - See Diagram below				BENT - See Diagram below				STRAIGHT		STRAIGHT		STRAIGHT		STRAIGHT														
			In Top and Bottom Slab of Barrel	In Bottom of Top Slab bent up over Division Walls-hooked.	In Top of Bottom Slab bent down under Division Walls-hooked.				In Top and Bottom Slab of Barrel.				Longitudinal in Top Slab of Barrel.	Longitudinal in Sidelwalls and Division Walls	Longitudinal in Bottom Slab of Barrel.	Verticals in Sidelwalls and Division Walls	2 in Top of Headwalls and Aprons-Each																
D	H	SIZE	SPACING	NO. REQ'D	LENGTH	W	X	Y	Z	SIZE	SPACING	NO. REQ'D	LENGTH	W	X	Y	Z	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH
4'-0" TO 5'-0" MAXIMUM	12'	120 14'-7"	12	59	15'-0"	2'-7"	0'-3"	2'-5"	3'-5 1/2"	59	15'-9"	2'-7"	0'-3"	2'-5"	3'-5 1/2"	120 9'-8"	22	12	360 2'-0"	8	15'-1"	360 3'-0"	8	15'-1"	360 4'-0"	8	15'-1"	360 5'-0"	8	15'-1"	360 6'-0"	8	15'-1"

MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS										UNIT QUANTITIES					
	D	H	A	O	W	T	C	M	B	O	R	L	K	CLASS S CONC. PER LIN. FT. OF BARREL	REINFORCING STEEL PER LAP	PER TWO HEADWALLS & APRONS
5'-0"	12'	2'	24	14'-4"	6"	8"	5'-6"	14'-0"	15'-4"	0.726	140.54	66.63	203.65			



NOTE: For details of wings and low lists see Drawing Nos. W-X152-1 or W-X152-2, and W-X15, W-X153-1 or W-X153-2, and W-X15, and W-X154-1 or W-X154-2, and W-X15.

CLASS S CONCRETE

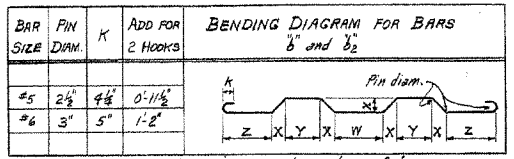
ARKANSAS STATE HIGHWAY COMMISSION
 DETAILS OF STANDARD BARREL SECTIONS
 FOR
 REINFORCED CONCRETE BOX CULVERTS
 15° SKEW
 4,5,6,7,8,9,10,11,12 SPANS 2:1, 3:1 OR 4:1 SLOPES
 TRIPLES UNDER 5'-0" COVER
 STANDARD DRAWING NO. R-315X-0

GENERAL NOTES:-
 CONCRETE- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have 3/4" 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 33'-0" length of barrel over 33'-0". 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.

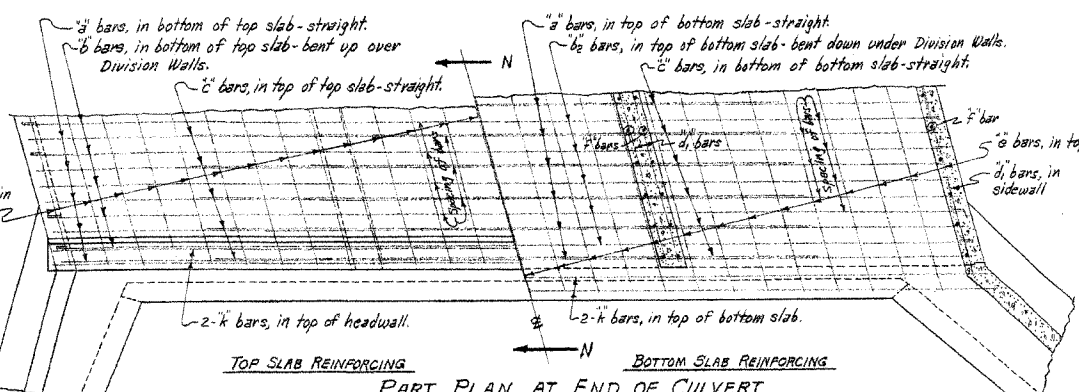
DESIGN LIVE LOAD
 H20-S16 LOADING A.A.S.H.O. 1961
 AND
 SPECIAL MILITARY LOADING
 Two 24,000 Lb. Axles @ 4'-0" ctrs.
 UNIT STRESSES:-
 Class S Concrete (n=10) 1200 psi
 Reinforcing Steel 20000 psi

NOTE: The a, b, c, and d bars are placed parallel with the headwall. The e bars in top of top slab, and f bars in bottom of bottom slab are not shown.

Checked By: W.C.H. 1-22-63
 Drawn By: W.C.H. 8-28-63
 Quantities By: W.C.H. 8-30-63



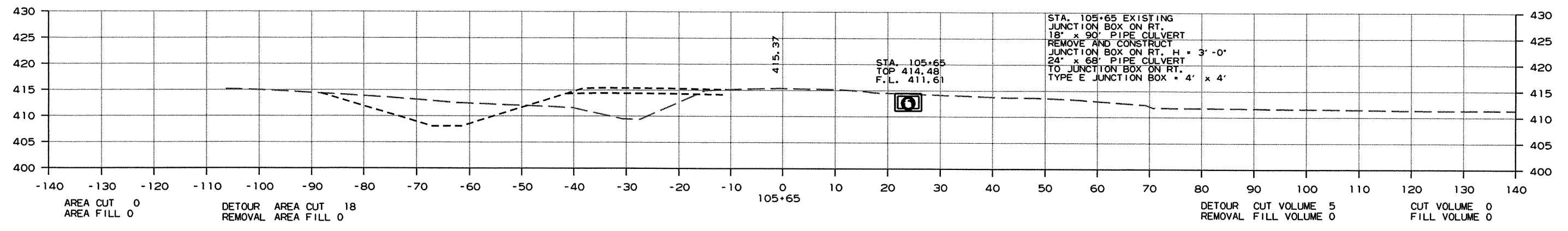
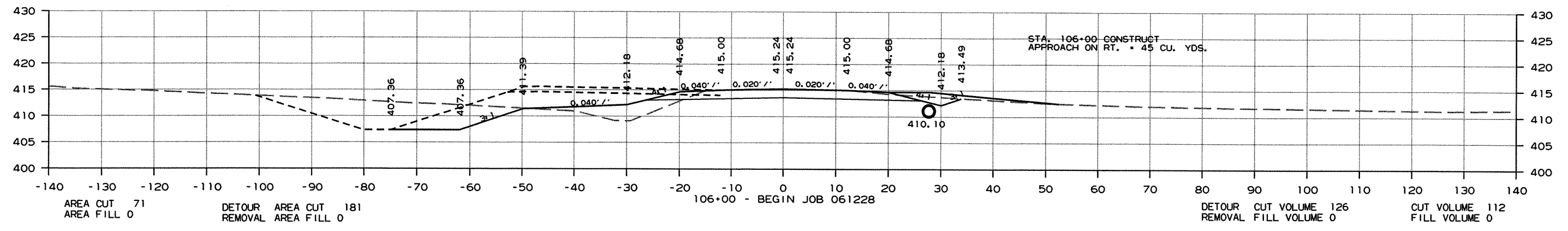
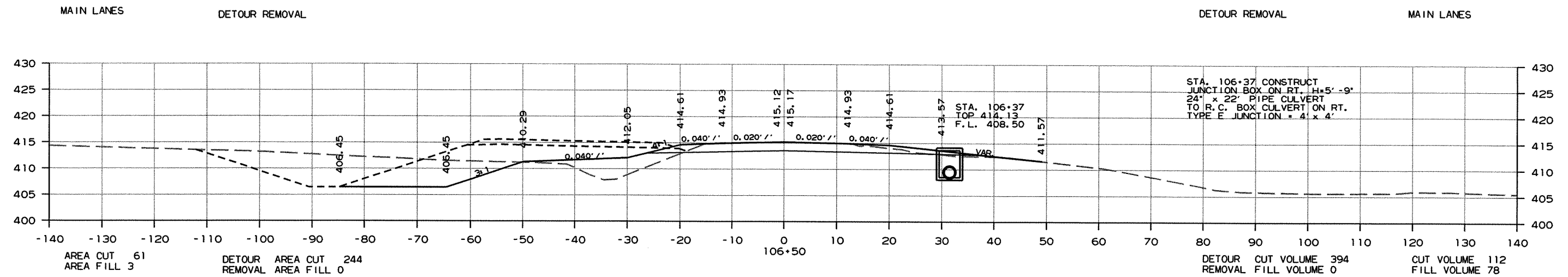
SPACING @	SIZE	SPACING	NO. REQ'D	LENGTH	X
4'	12	30	2'-5"	1'-2 1/2"	
5'	12	36	2'-6"	1'-3"	
6'	12	42	2'-7"	1'-3 1/2"	
7'	12	48	2'-8"	1'-4"	
8'	12	54	2'-9"	1'-4 1/2"	
9'	12	60	2'-10"	1'-5"	
10'	12	66	2'-11"	1'-5 1/2"	
11'	12	72	2'-11 1/2"	1'-6"	
12'	12	80	3'-0"	1'-6 1/2"	



NOTE: The a, b, c, and d bars are placed parallel with the headwall. The e bars in top of top slab, and f bars in bottom of bottom slab are not shown.

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. 061228							40	44

2 CROSS SECTIONS



DETOUR REMOVAL AREA CUT 1
DETOUR REMOVAL AREA FILL 0

STA. 105+10 IN PLACE ON LT.
57' x 38' x 50' SIDE DRAIN
RETAIN AND CONSTRUCT
APPROACH ON LT. = 180 CU. YDS.

DETOUR REMOVAL AREA CUT 0
DETOUR REMOVAL AREA FILL 0

DETOUR REMOVAL AREA CUT 1
DETOUR REMOVAL AREA FILL 0

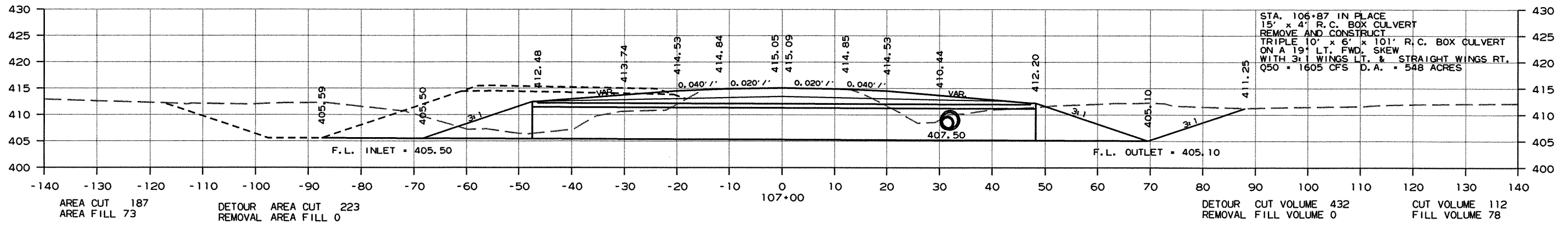
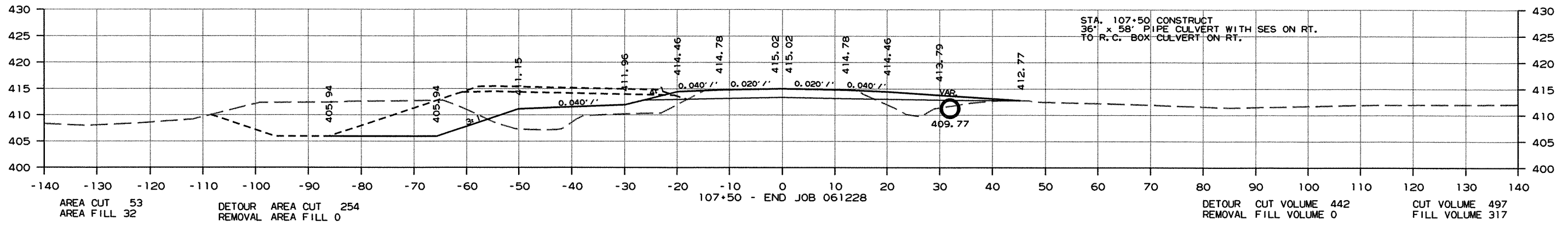
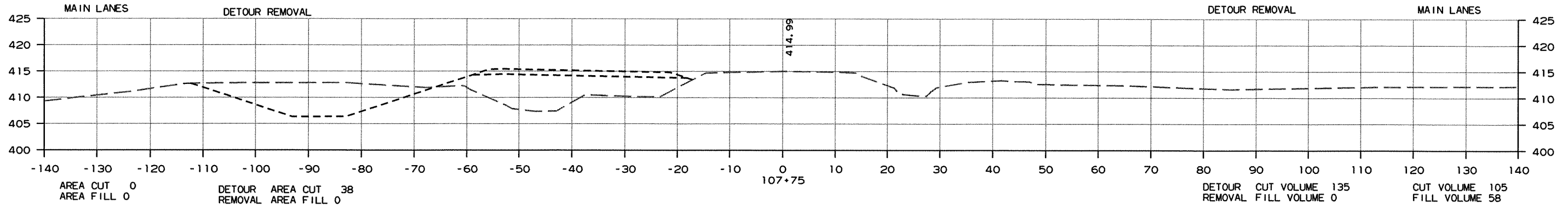
DETOUR REMOVAL AREA CUT 0
DETOUR REMOVAL AREA FILL 0

CROSS SECTION STA. 105+65 TO STA. 106+50

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	061228		41	44

2 CROSS SECTIONS

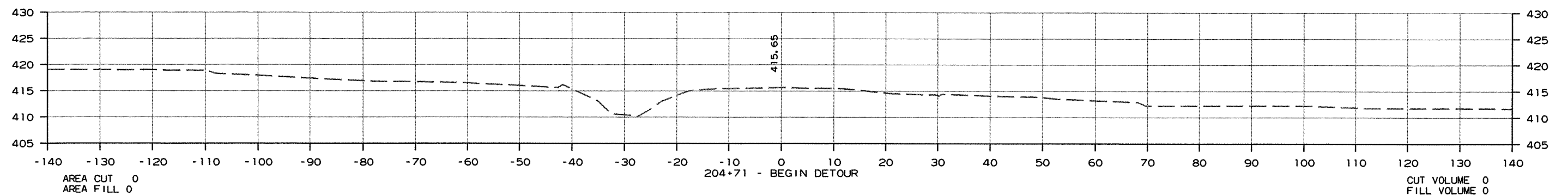
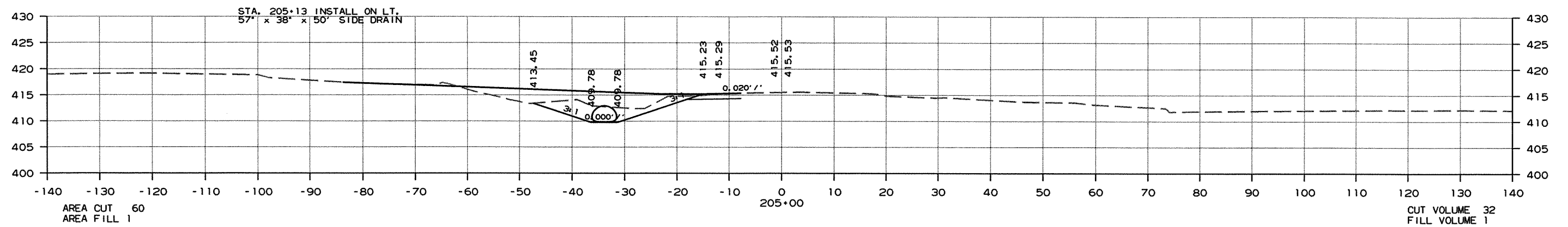
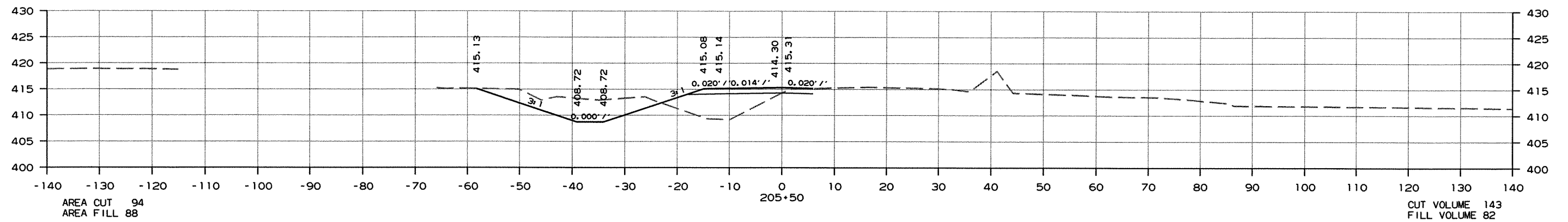
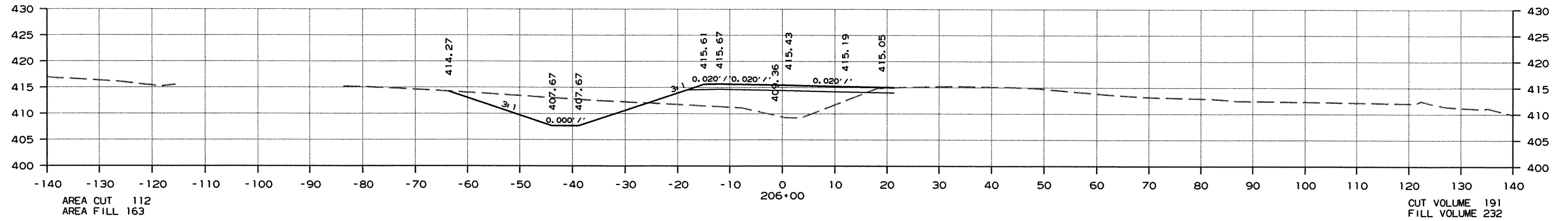
DETOUR AREA CUT 0 REMOVAL AREA FILL 0	109+65	DETOUR CUT VOLUME 0 REMOVAL FILL VOLUME 0
DETOUR AREA CUT 0 REMOVAL AREA FILL 0	109+50	DETOUR CUT VOLUME 8 REMOVAL FILL VOLUME 0
DETOUR AREA CUT 9 REMOVAL AREA FILL 0	109+00	DETOUR CUT VOLUME 31 REMOVAL FILL VOLUME 0
DETOUR AREA CUT 25 REMOVAL AREA FILL 0	108+50	DETOUR CUT VOLUME 59 REMOVAL FILL VOLUME 0
DETOUR AREA CUT 39 REMOVAL AREA FILL 0	108+00	DETOUR CUT VOLUME 36 REMOVAL FILL VOLUME 0



CROSS SECTION STA. 107+00 TO STA. 107+75

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.						061228	42	44

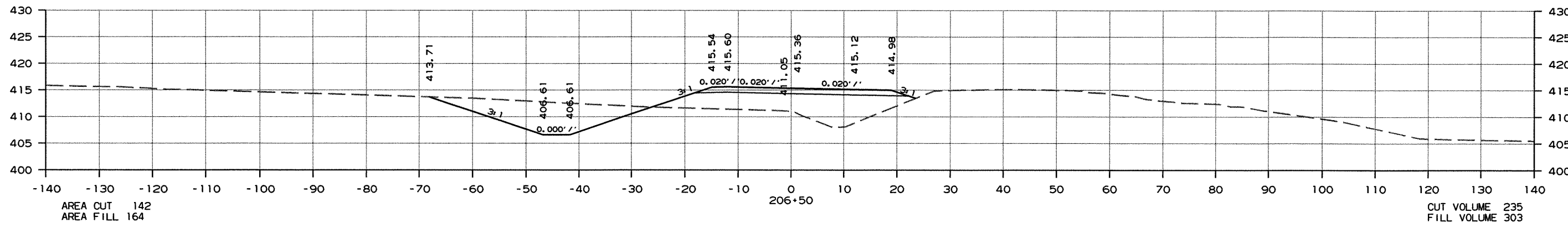
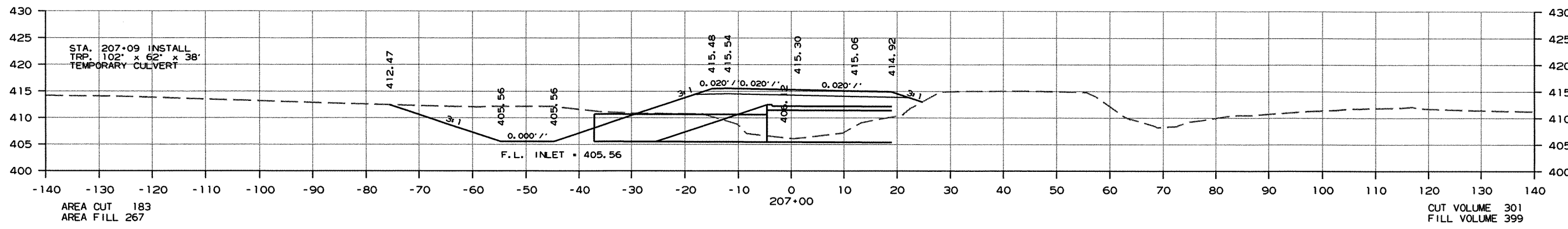
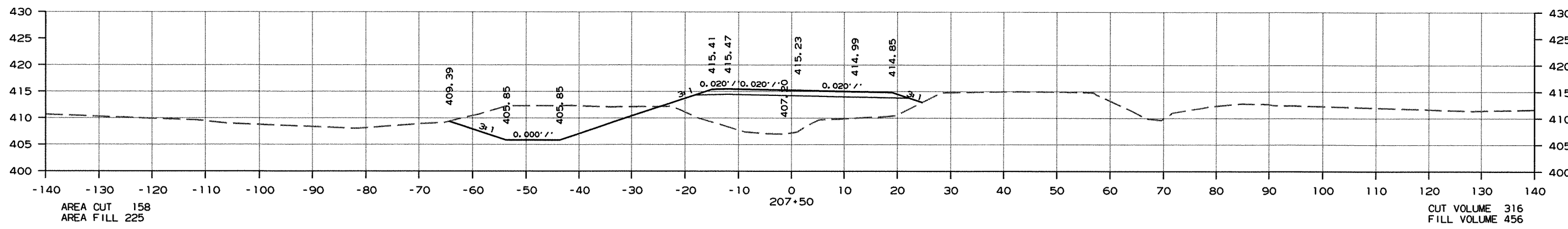
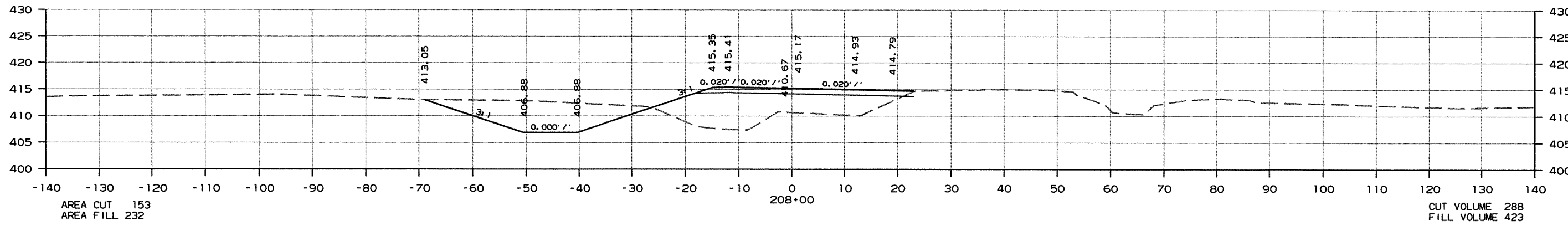
② CROSS SECTIONS



DETOUR ROAD CROSS SECTION STA. 204+71 TO STA. 206+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. 061228	43	44

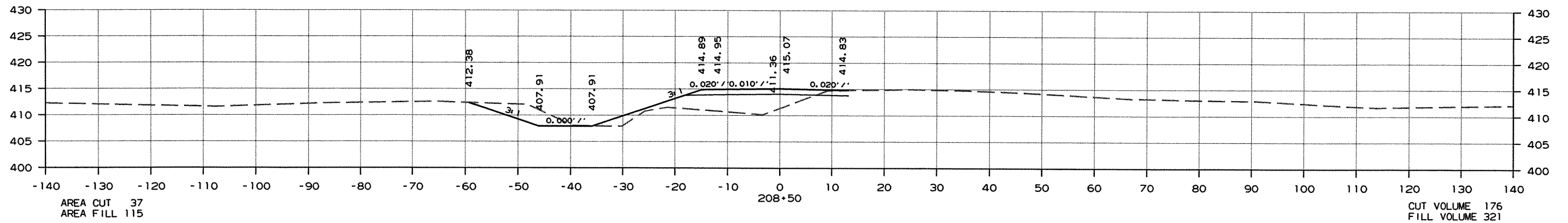
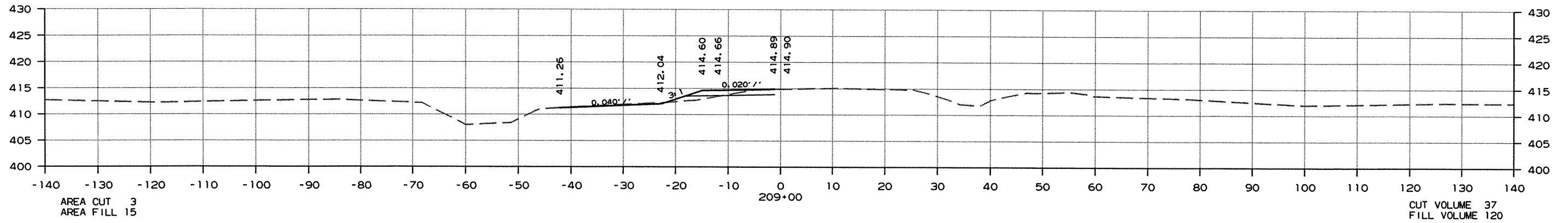
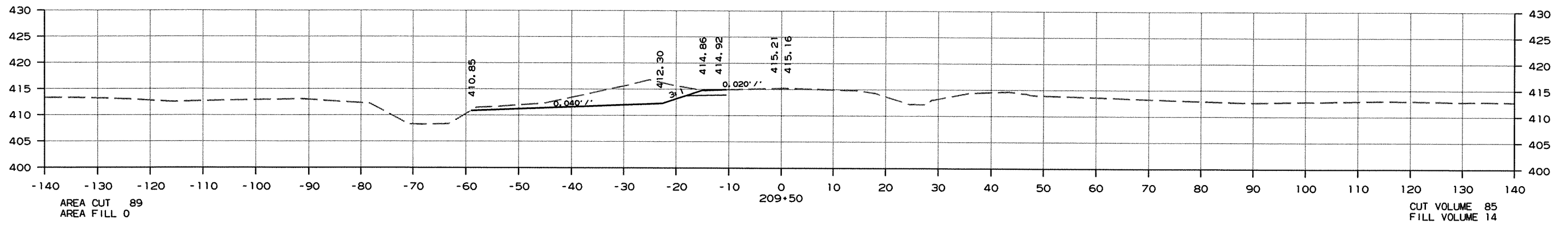
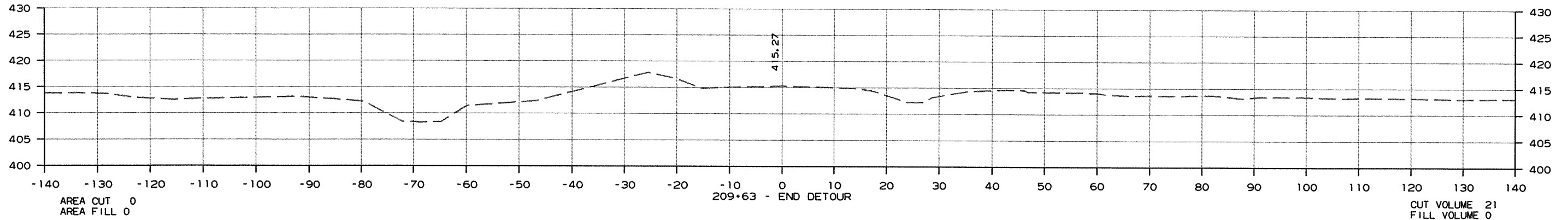
2 CROSS SECTIONS



DETOUR ROAD CROSS SECTION STA. 206+50 TO STA. 208+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		44	44
JOB NO. 061228								

② CROSS SECTIONS



DETOUR ROAD CROSS SECTION STA. 208+50 TO STA. 209+63