

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		1	27
				JOB NO.		C08006		

② BERRYVILLE FREEMAN AVE. EXTENSION (S)

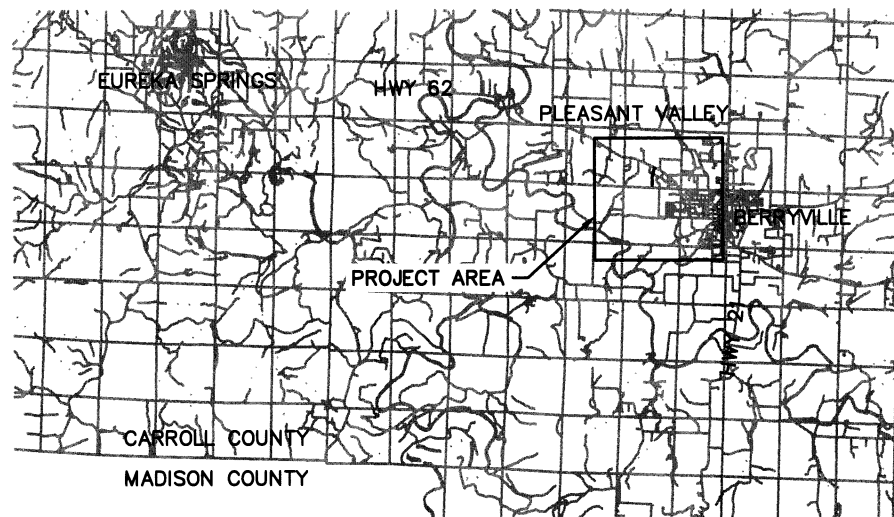
ARKANSAS DEPARTMENT OF TRANSPORTATION  
CONSTRUCTION PLANS FOR PROPOSED CITY STREET

# BERRYVILLE FREEMAN AVE. EXTENSION (S)

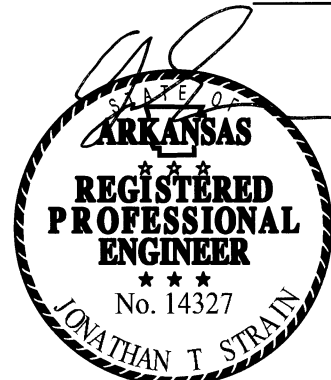
## PHASE 2 FREEMAN AVE.

CARROLL COUNTY

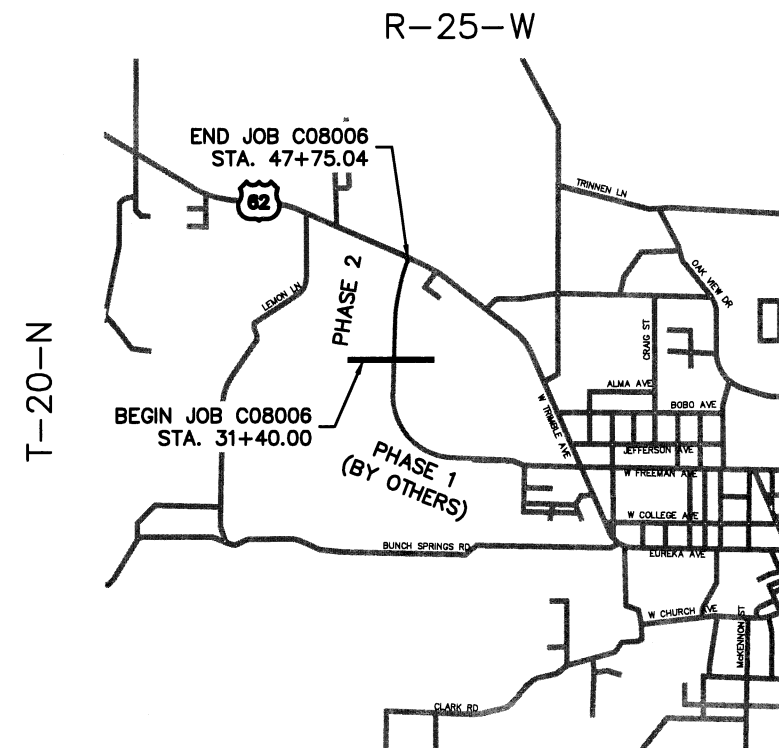
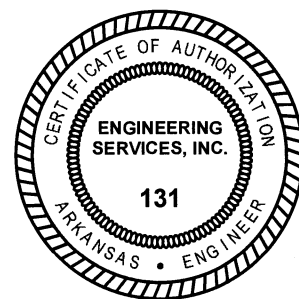
JOB NO. C08006



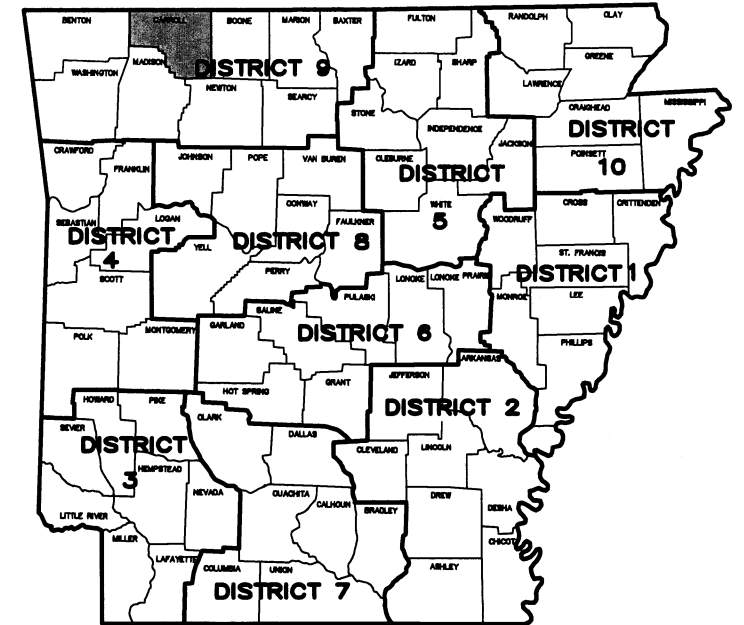
VICINITY MAP



3-28-19



T-20-N

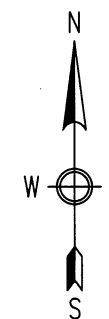


ARK. HWY. DIST. NO. 9

DESIGN TRAFFIC DATA

EXISTING HIGHWAY 62	
2019 AADT:	11,000
2039 AADT:	12,500
2039 DHV:	1,875

FREEMAN AVE: STA. 31+40.00 TO END  
DESIGN SPEED = 40 MPH  
MINIMUM LONGITUDINAL SLOPE = 0.5%  
MAXIMUM LONGITUDINAL SLOPE = 10.0%  
MINIMUM CREST K VALUE = 44  
MINIMUM SAG K VALUE = 64



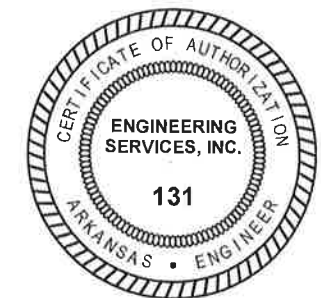
	BEGIN PROJECT	MID POINT OF PROJECT	END PROJECT
LATITUDE	N 36°22'31"	N 36°22'39"	N 36°22'47"
LONGITUDE	W 93°35'24"	W 93°35'24"	W 93°35'21"

LENGTH OF PROJECT CALCULATED ALONG CONSTRUCTION C.L. FREEMAN AVE  
GROSS LENGTH OF PROJECT 1635.04 FEET OR 0.310 MILES

ROADWAY STANDARD DETAILS		
DRWG. NO.	TITLE	DATE
CG-1	CURBING DETAILS	11-29-07
DR-1	DETAILS OF DRIVEWAYS & ISLANDS	2-27-14
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
FPC-9	DETAILS OF DROP INLETS & JUNCTION BOXES	11-16-01
FPC-9D	DETAILS OF DROP INLETS	08-22-02
FPC-9E	DETAILS OF DROP INLETS (TYPE C)	08-22-02
FPC-9M	DETAILS OF DROP INLETS (TYPE MO)	08-22-02
FPC-9S	DETAILS OF DROP INLETS AND JUNCTION BOXES (TYPE ST)	07-26-12
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PM-1	PAVEMENT MARKING DETAILS	06-01-17
SD-6	HEAVY DUTY PULL BOX	11-16-17
SHS-1	STANDARD HIGHWAY SIGNS AND SUPPORT ASSEMBLIES	09-12-13
SHS-2	U-CHANNEL POST ASSEMBLIES	02-27-14
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	04-13-17
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	09-02-15
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	09-02-15
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
TEC-4	TEMPORARY EROSION CONTROL DEVICES	07-26-12
WF-1	WIRE FENCE TYPE A AND B	08-22-02
WR-1	WHEELCHAIR RAMPS NEW CONSTRUCTION AND ALTERATIONS	11-10-05

INDEX OF SHEETS	
SHEET No.	DESCRIPTION
1	TITLE SHEET
2	INDEX OF SHEETS, GOVERNING SPECS, AND GENERAL NOTES
3	TYPICAL SECTION OF IMPROVEMENT
4-6	TEMPORARY EROSION CONTROL DETAILS
7	DEMOLITION PLAN
8	MAINTENANCE OF TRAFFIC
9	SIGNAGE AND STRIPING PLAN
10-11	QUANTITIES
12	SUMMARY OF QUANTITIES AND REVISIONS
13	SURVEY CONTROL
14	OVERALL LAYOUT
15-18	STREET PLAN AND PROFILES
19-22	STORM DRAINAGE PROFILES
23	LIGHTING PLAN
24-27	CROSS SECTIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4/24/19				6	ARK.		2	27
				JOB NO.	C08006			
				BERRYVILLE FREEMAN AVE. EXTENSION (S)				
				INDEX OF SHEETS, GOVERNING SPECS, AND GENERAL NOTES				



**GENERAL NOTES:**

- ALL EXISTING UTILITIES SHALL BE RELOCATED OUTSIDE OF THE PROPOSED RIGHT OF WAY.
- ALL EXISTING FENCES WITHIN THE PROPOSED RIGHT OF WAY SHALL BE REMOVED.
- COORDINATION TO OCCUR WITH ALL UTILITY COMPANIES WHERE NEEDED.
- CONTRACTOR TO FIELD VERIFY LOCATION, SIZES, AND DEPTHS OF ALL UTILITIES.
- CONTRACTOR TO MAINTAIN DRAINAGE PATTERNS THROUGHOUT ALL PHASES OF CONSTRUCTION.
- REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
- THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH(25mm) 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.
- IT IS INTENDED THAT THE SUBGRADE SHALL BE FINISHED IN CONFORMITY WITH THE LINES, GRADES, AND CROSS SECTIONS SHOWN ON THE PLANS. HOWEVER, A TOLERANCE OF PLUS OR MINUS ONE-TENTH FOOT(30mm) WILL BE ALLOWED.
- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U.S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
- ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
- ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.

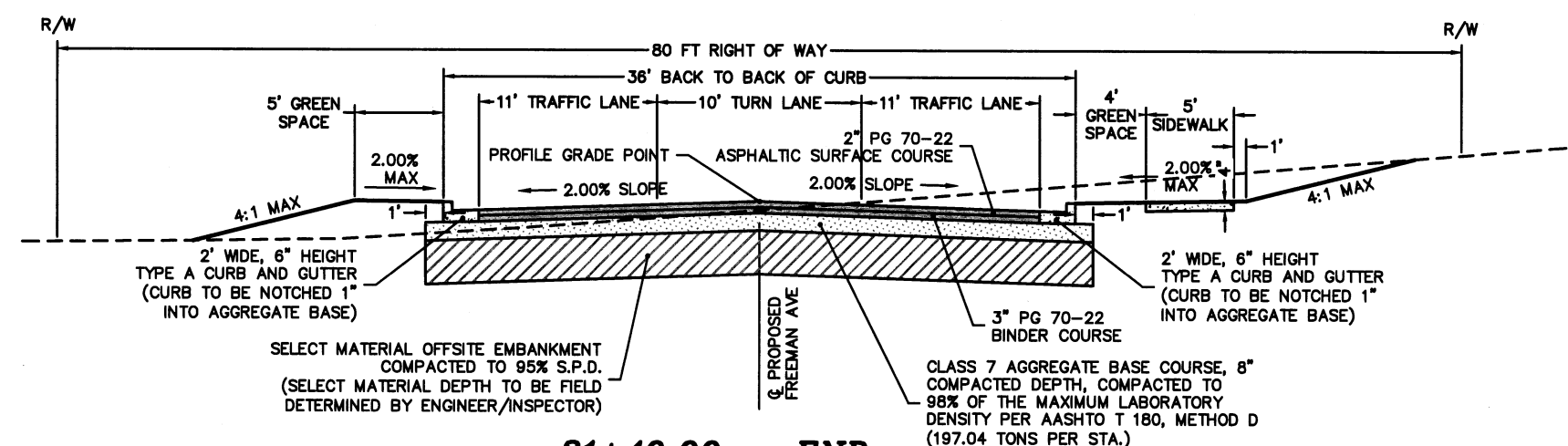
**WHEN AND WHERE TO USE GOVERNING SPECIFICATIONS  
ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY  
CONSTRUCTION, EDITION OF 2014, AND THE FOLLOWING SPECIAL PROVISIONS AND  
SUPPLEMENTAL SPECIFICATIONS:**

NUMBER	TITLE
ERRATA _____	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
100-3 _____	CONTRACTOR'S LICENSE
100-4 _____	DEPARTMENT NAME CHANGE
102-2 _____	ISSUANCE OF PROPOSALS
108-1 _____	LIQUIDATED DAMAGES
108-2 _____	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1 _____	PROTECTION OF WATER QUALITY AND WETLANDS
303-1 _____	AGGREGATE BASE COURSE
306-1 _____	QUALITY CONTROL AND ACCEPTANCE
400-1 _____	TACK COATS
400-4 _____	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5 _____	PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6 _____	LIQUID ANTI-STRIP ADDITIVE
410-1 _____	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2 _____	DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
505-1 _____	PORTLAND CEMENT CONCRETE DRIVE
600-2 _____	INCIDENTAL CONSTRUCTION
604-1 _____	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
620-1 _____	MULCH COVER
633-1 _____	CONCRETE WALKS, CONCRETE STEPS, AND HAND RAILING
634-1 _____	CURBING
723-1 _____	GENERAL REQUIREMENTS FOR SIGNS
JOB <u>C08006</u>	ADJUSTMENT OF QUANTITIES FOR STATE-AID STREET PROJECTS
JOB <u>C08006</u>	BIDDING REQUIREMENTS AND CONDITIONS
JOB <u>C08006</u>	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB <u>C08006</u>	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB <u>C08006</u>	DENSITIES FOR ACHM SURFACE COURSE
JOB <u>C08006</u>	MANDATORY ELECTRONIC CONTRACT
JOB <u>C08006</u>	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB <u>C08006</u>	RECYCLED ASPHALT SHINGLES
JOB <u>C08006</u>	SETTLEMENT AGREEMENTS
JOB <u>C08006</u>	SHORING FOR CULVERTS
JOB <u>C08006</u>	STORM WATER POLLUTION PREVENTION PLAN
JOB <u>C08006</u>	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB <u>C08006</u>	WARM MIX ASPHALT
JOB <u>C08006</u>	WELLHEAD PROTECTION



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				JOB NO.	C08006			

② BERRYVILLE FREEMAN AVE. EXTENSION (S)  
TYPICAL SECTION OF IMPROVEMENT



**31+40.00 - END**  
**TYPICAL FREEMAN AVE ROAD SECTION**  
NOT TO SCALE

\*NO SUPERELEVATION IS PROPOSED FOR FREEMAN AVE, AS ALL RADII MEET OR EXCEED MINIMUM RADII FOR THE DESIGN SPEED. (GREEN BOOK SECTION 3.3.6, TABLE 3-13b)



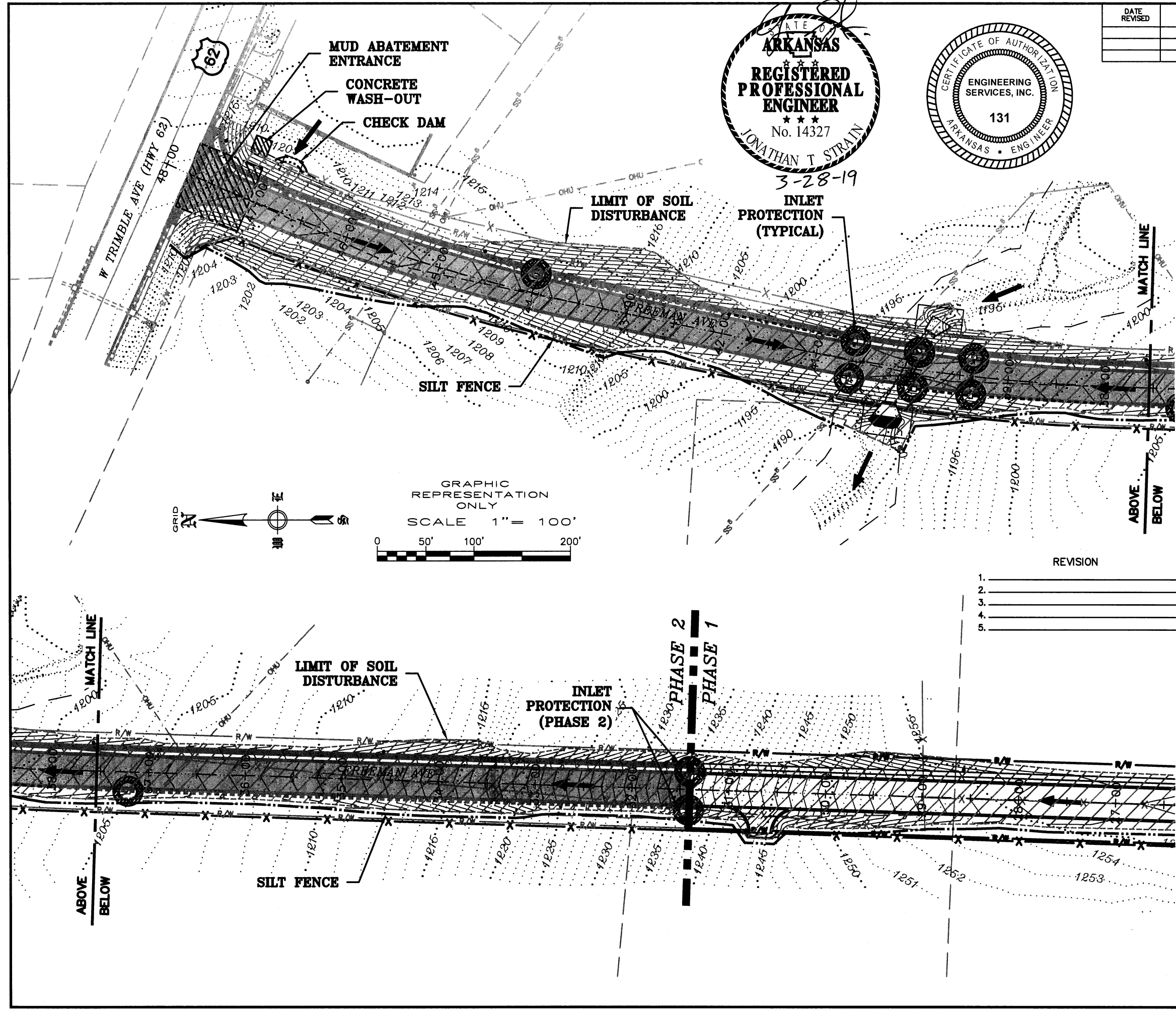
3-28-19

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				6	ARK.		4	27

② BERRYVILLE FREEMAN AVE. EXTENSION (S)  
TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS  
**REGISTERED PROFESSIONAL ENGINEER**  
No. 14327  
JONATHAN T. STRAIN  
3-28-19

CERTIFICATE OF AUTHORIZATION  
ENGINEERING SERVICES, INC.  
131  
ARKANSAS ENGINEER



### LEGEND

- PROPOSED FLOWLINE DIRECTION
- INLET PROTECTION
- WIRED REINFORCED BURIED EDGE SILT FENCE
- CHECK DAM
- EXISTING CONTOURS
- PROPOSED CONTOURS
- AREA OF SOIL DISTURBANCE

**NOTE:**

NO CHANGE MAY BE MADE TO THESE APPROVED PLANS WITHOUT PRIOR WRITTEN APPROVAL BY THE CITY OF BERRYVILLE.

WITHIN 40 DAYS OF PLACEMENT OF CURBS, THEY SHALL BE BACKFILLED, FINE GRADED WITH A MINIMUM OF 4-INCHES OF TOPSOIL, AND HYDROMULCHED OR SODDED WITH PERMANENT GRASSES.

ALL DISTURBED AREAS, THAT ARE NOT PAVED, SHALL BE TOPSOILED, SEEDING AND STRAWED UNTIL GRASS IS ESTABLISHED.

**CONSTRUCTION SEQUENCE:**

- 1.) INSTALL EROSION CONTROL.
- 2.) STRIP EXISTING TOP SOIL.
- 3.) PREPARE SUB-GRADE AND BASE MATERIAL.
- 4.) PLACE CONCRETE AND ASPHALT.
- 5.) FINAL GRADING AND ESTABLISH VEGETATION.

**NOTES:**

- 1) NATURAL VEGETATION SHALL BE RETAINED WHEREVER POSSIBLE.
- 2) SEED AND MULCH SHALL BE PLACED IN ALL AREAS WHERE VEGETATION IS DISTURBED.
- 3) STRAW AND WOOD CHIPS SHALL BE PLACED TO PROVIDE TEMPORARY PROTECTION WHILE FINAL GRADING IS BEING COMPLETED.
- 4) PLACE WATTLES ON ALL CURB INLETS. ALL BEST MANAGEMENT PRACTICES MUST BE MAINTAINED OR REPLACED THROUGHOUT ALL PHASES OF CONSTRUCTION. ADDITIONAL BMPs MAY BE NEEDED WITH EACH PHASE OF CONSTRUCTION.

AREA OF SOIL DISTURBANCE:  
PHASE 1: 5.54 ACRES  
PHASE 2: 2.15 ACRES

TOTAL: 7.69 ACRES

REVISION

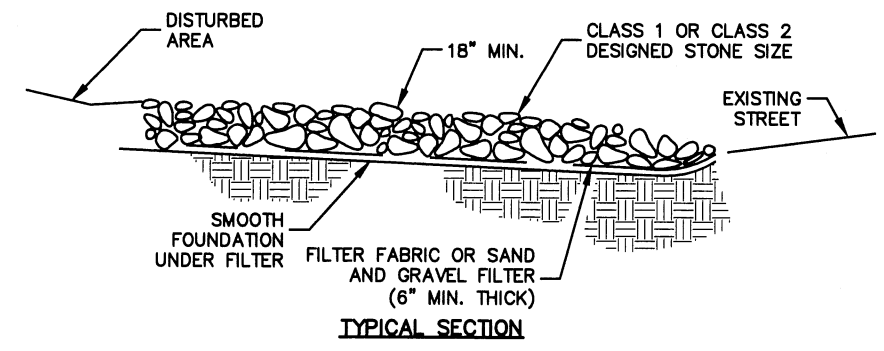
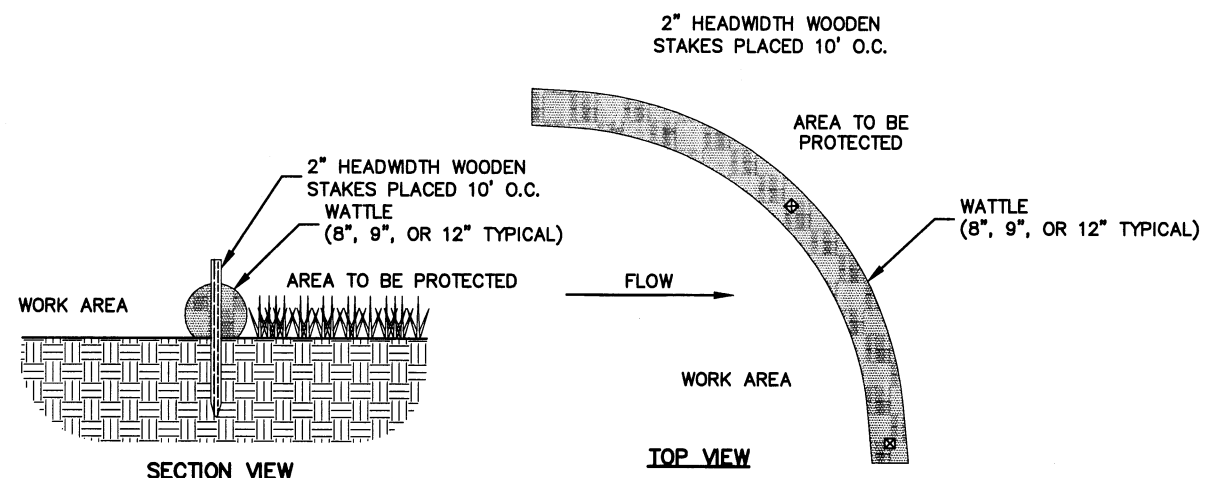
1.	
2.	
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3-28-19

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				JOB NO.		C08006		

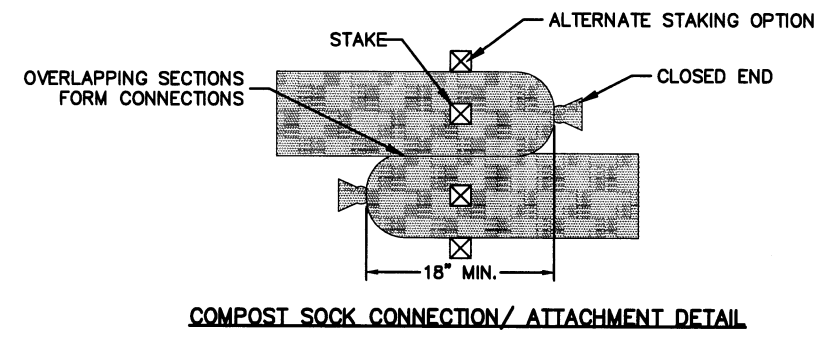
② BERRYVILLE FREEMAN AVE. EXTENSION (S)  
TEMPORARY EROSION CONTROL DETAILS



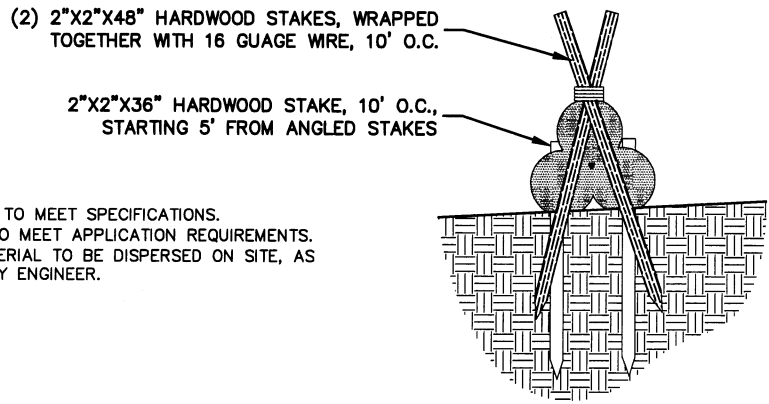
- NOTES:**
- 1) MINIMUM THICKNESS SHALL BE 18". THE STONE DIAMETER, NEVER LESS THAN 6".
  - 2) MINIMUM LENGTH SHALL BE 50'

**MUD ABATEMENT ENTRANCE**  
NOT TO SCALE

THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE CONSIDERED INCLUDED IN THE CONTRACT PRICES BID FOR OTHER ITEMS OF THE CONTRACT.



**PYRAMID STAKING DETAIL**

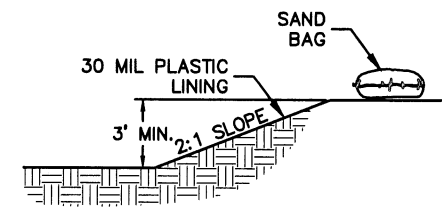


- NOTES:**
- 1) ALL MATERIAL TO MEET SPECIFICATIONS.
  - 2) WATTLE FILL TO MEET APPLICATION REQUIREMENTS.
  - 3) COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

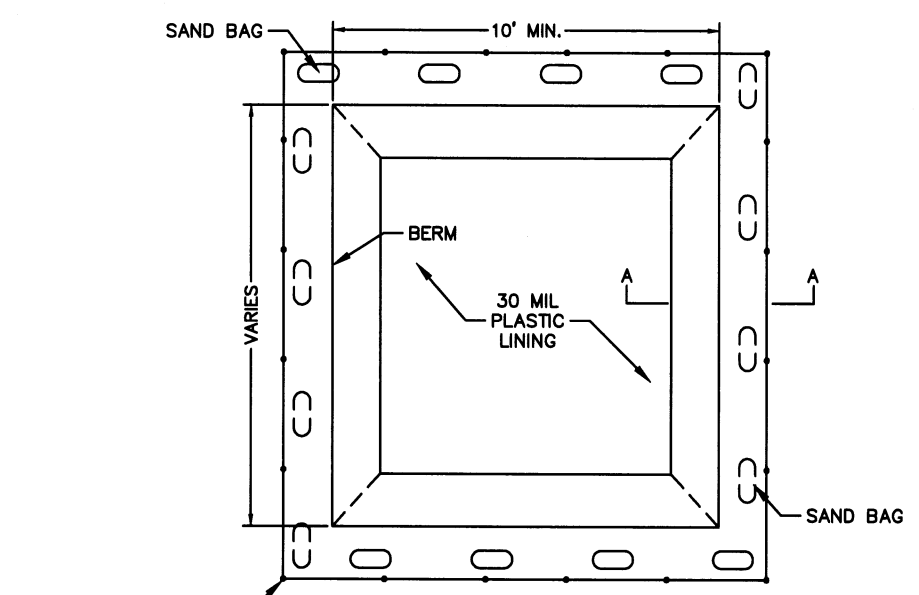
**CHECK DAM DETAIL**  
NOT TO SCALE



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				② BERRYVILLE FREEMAN AVE. EXTENSION (S)				
				TEMPORARY EROSION CONTROL DETAILS				



SECTION A - A

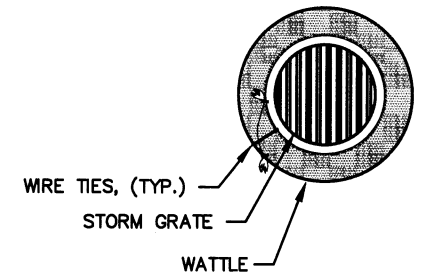


PLAN

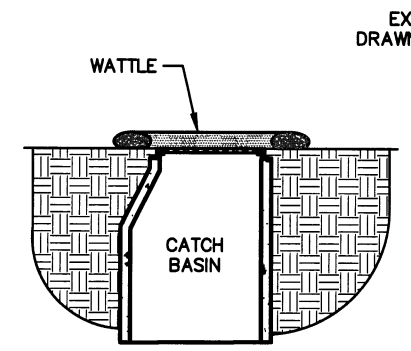
- NOTES:
- 1) LATH AND FLAGGING SHOULD BE COMMERCIAL TYPE.
  - 2) PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 30 MIL POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

**CONCRETE WASH-OUT AREA**  
NOT TO SCALE

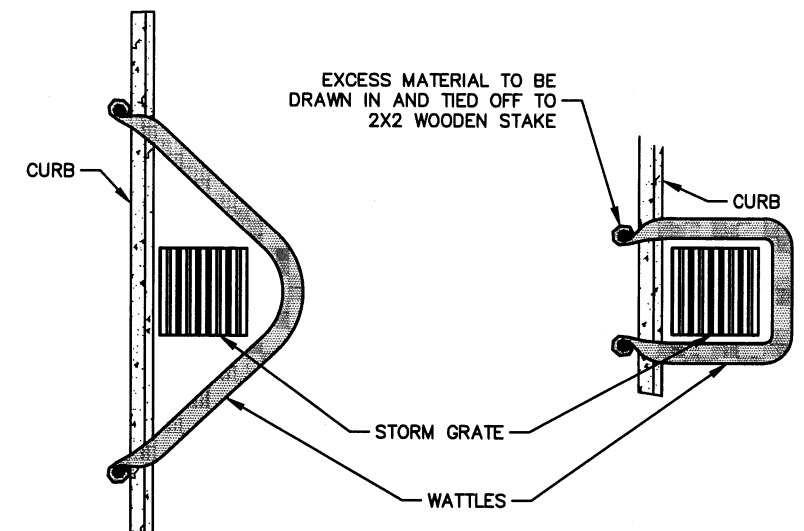
THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE CONSIDERED INCLUDED IN THE CONTRACT PRICES BID FOR OTHER ITEMS OF THE CONTRACT.



DRAIN INLET PLAN

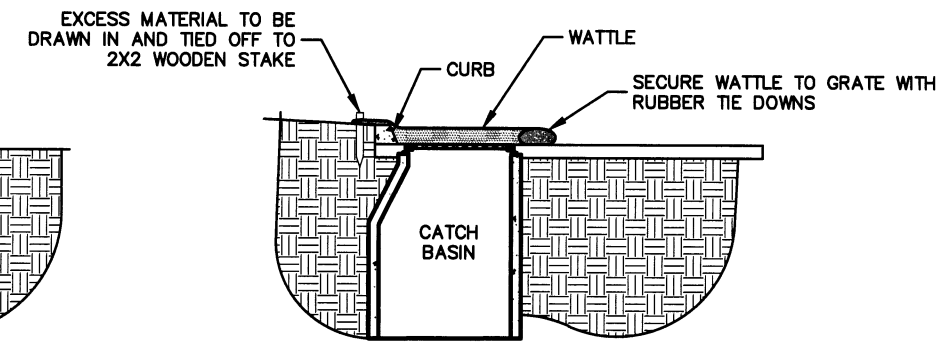


DRAIN INLET SECTION



CURB SIDE OPTION "A" PLAN

CURB SIDE OPTION "B" PLAN



CURB SIDE SECTION

- NOTES:
- 1) ALL MATERIAL TO MEET SPECIFICATIONS.
  - 2) WATTLES TO MEET APPLICATION REQUIREMENTS.
  - 3) COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

**INLET PROTECTION**  
NOT TO SCALE



3-28-19

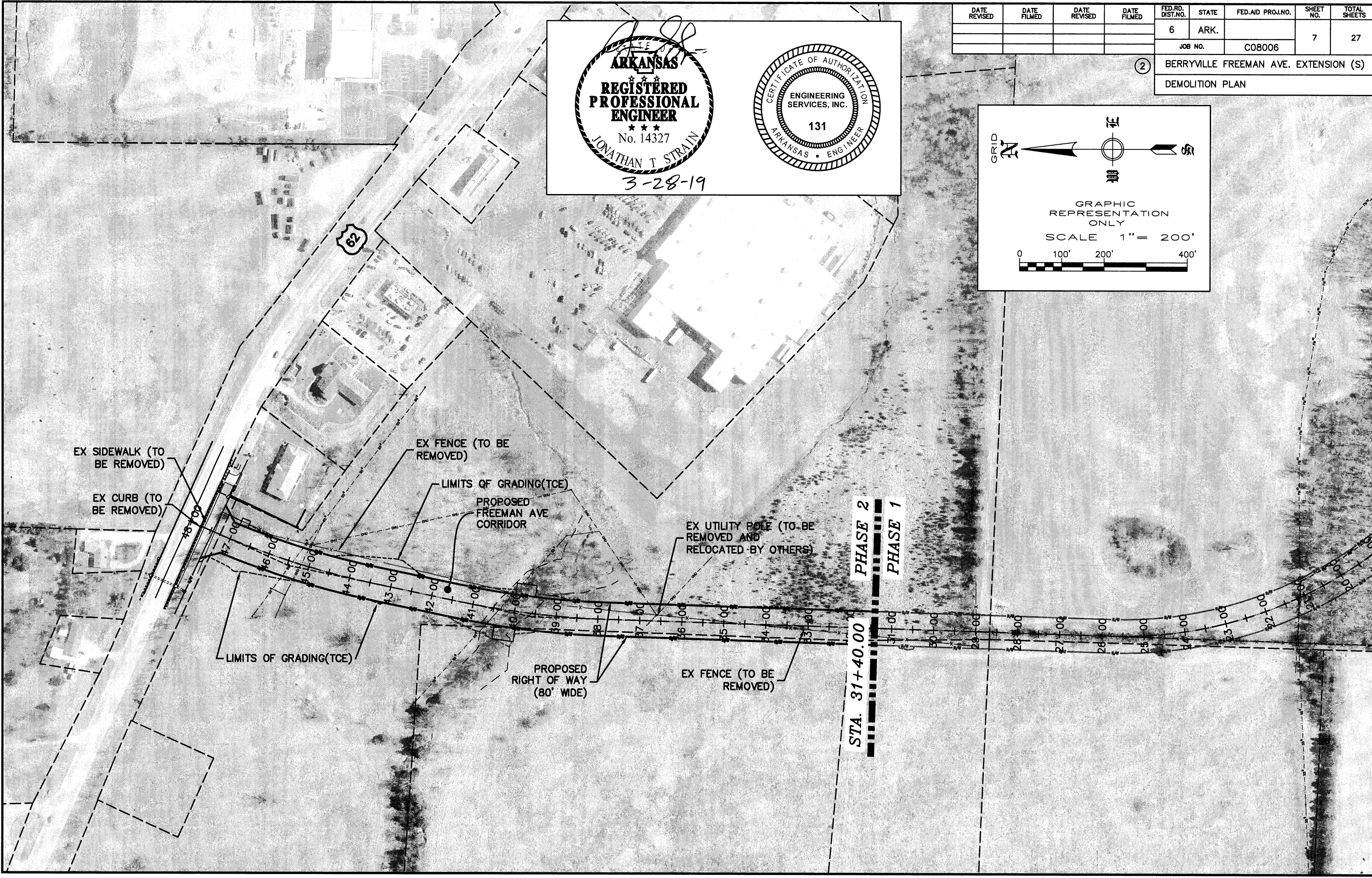


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				BERRYVILLE FREEMAN AVE. EXTENSION (S)				
				DEMOLITION PLAN				

**ARKANSAS**  
REGISTERED  
PROFESSIONAL  
ENGINEER  
No. 14327  
JONATHAN T. STRAIN  
3-28-19

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GRAPHIC REPRESENTATION ONLY  
SCALE 1" = 200'

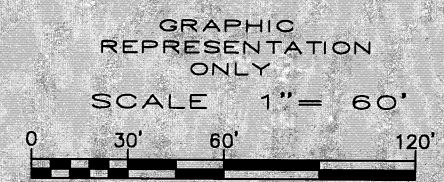
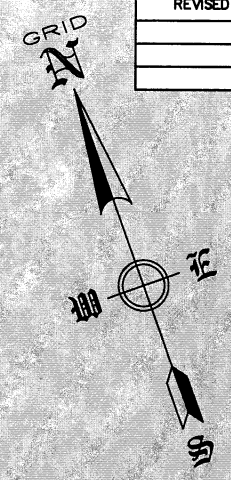




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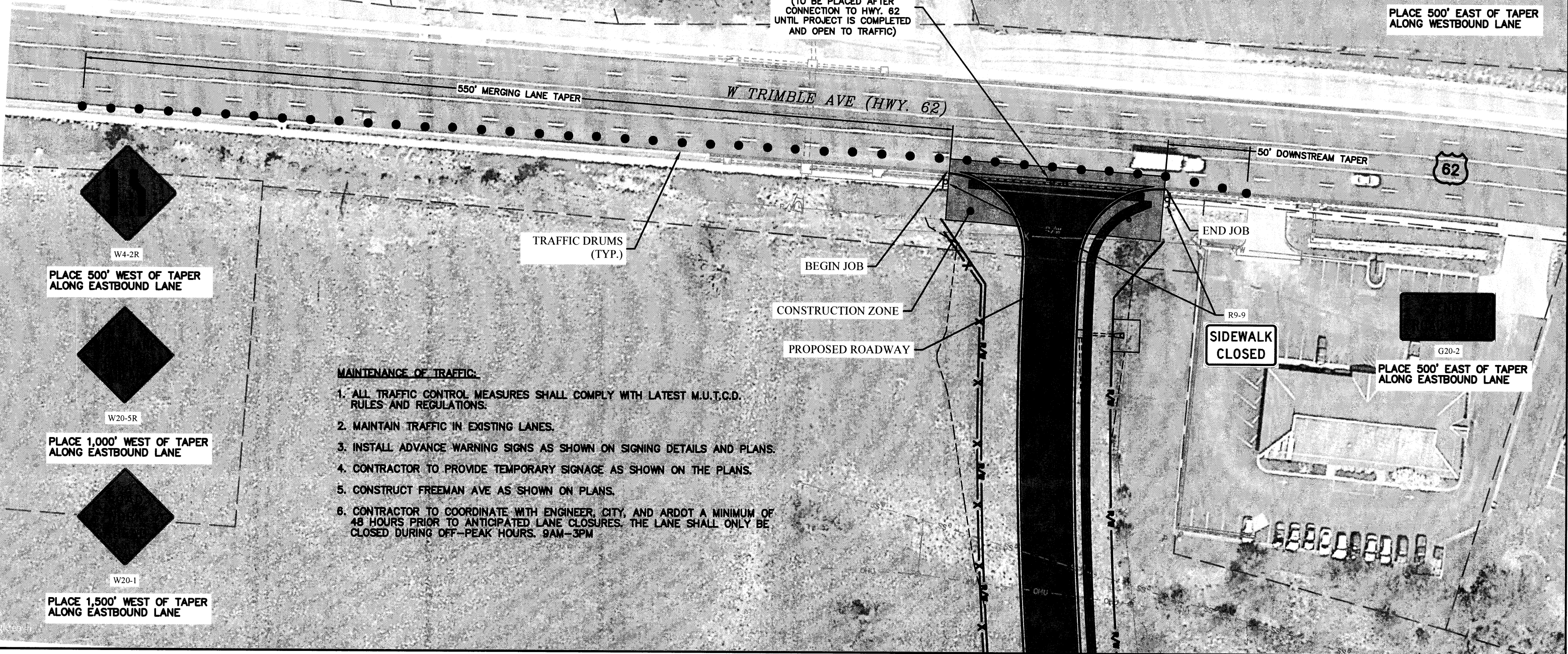
2 BERRYVILLE FREEMAN AVE. EXTENSION (S)  
MAINTENANCE OF TRAFFIC

**END ROAD WORK**  
G20-2  
PLACE 500' WEST OF TAPER ALONG WESTBOUND LANE

**ROAD CLOSED**

BARRICADES  
R11-2 ROAD CLOSED SIGN  
(TO BE PLACED AFTER CONNECTION TO HWY. 62 UNTIL PROJECT IS COMPLETED AND OPEN TO TRAFFIC)

**W20-1**  
PLACE 500' EAST OF TAPER ALONG WESTBOUND LANE



- MAINTENANCE OF TRAFFIC:**
1. ALL TRAFFIC CONTROL MEASURES SHALL COMPLY WITH LATEST M.U.T.C.D. RULES AND REGULATIONS.
  2. MAINTAIN TRAFFIC IN EXISTING LANES.
  3. INSTALL ADVANCE WARNING SIGNS AS SHOWN ON SIGNING DETAILS AND PLANS.
  4. CONTRACTOR TO PROVIDE TEMPORARY SIGNAGE AS SHOWN ON THE PLANS.
  5. CONSTRUCT FREEMAN AVE AS SHOWN ON PLANS.
  6. CONTRACTOR TO COORDINATE WITH ENGINEER, CITY, AND ARDOT A MINIMUM OF 48 HOURS PRIOR TO ANTICIPATED LANE CLOSURES. THE LANE SHALL ONLY BE CLOSED DURING OFF-PEAK HOURS. 9AM-3PM

**W4-2R**  
PLACE 500' WEST OF TAPER ALONG EASTBOUND LANE

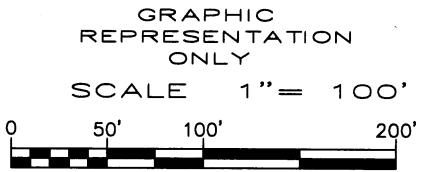
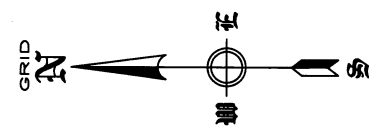
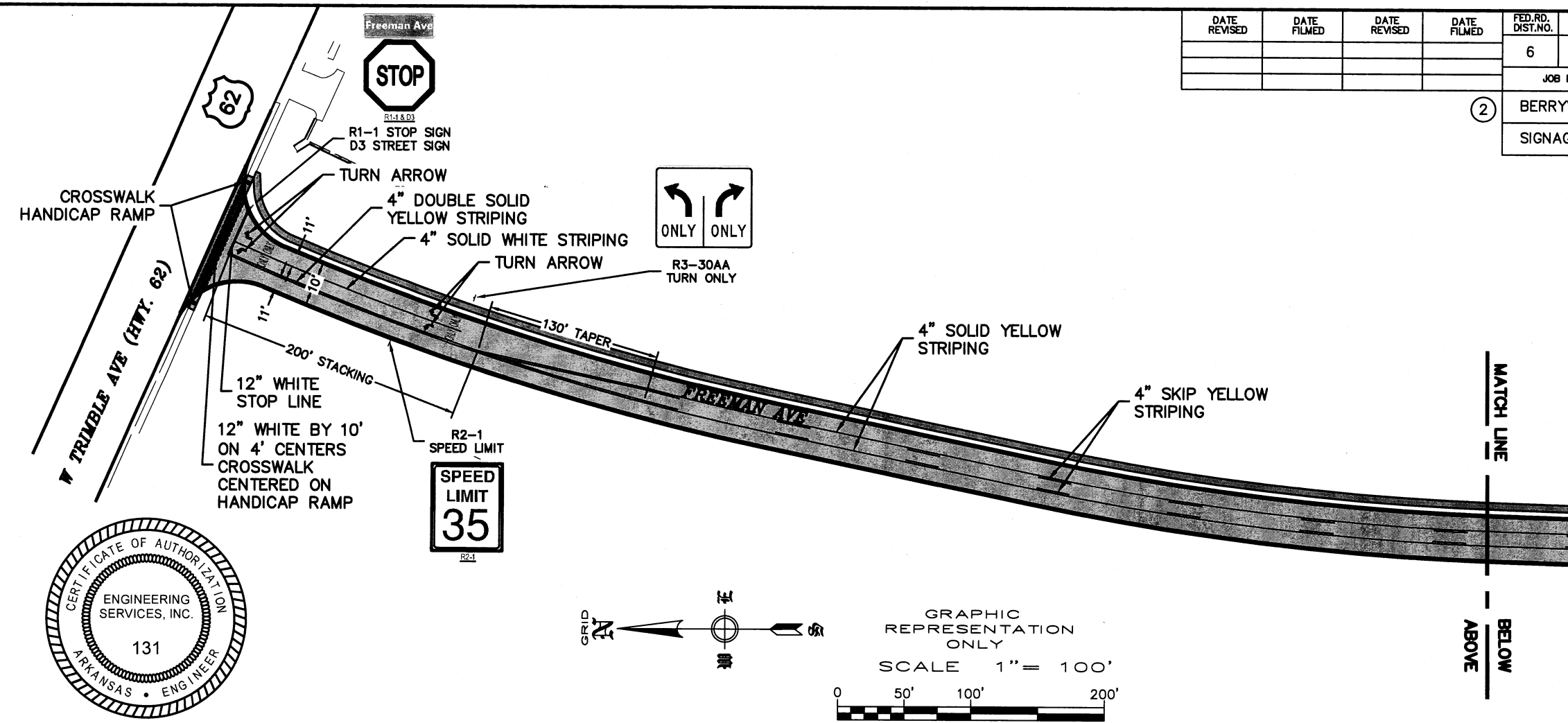
**W20-5R**  
PLACE 1,000' WEST OF TAPER ALONG EASTBOUND LANE

**W20-1**  
PLACE 1,500' WEST OF TAPER ALONG EASTBOUND LANE

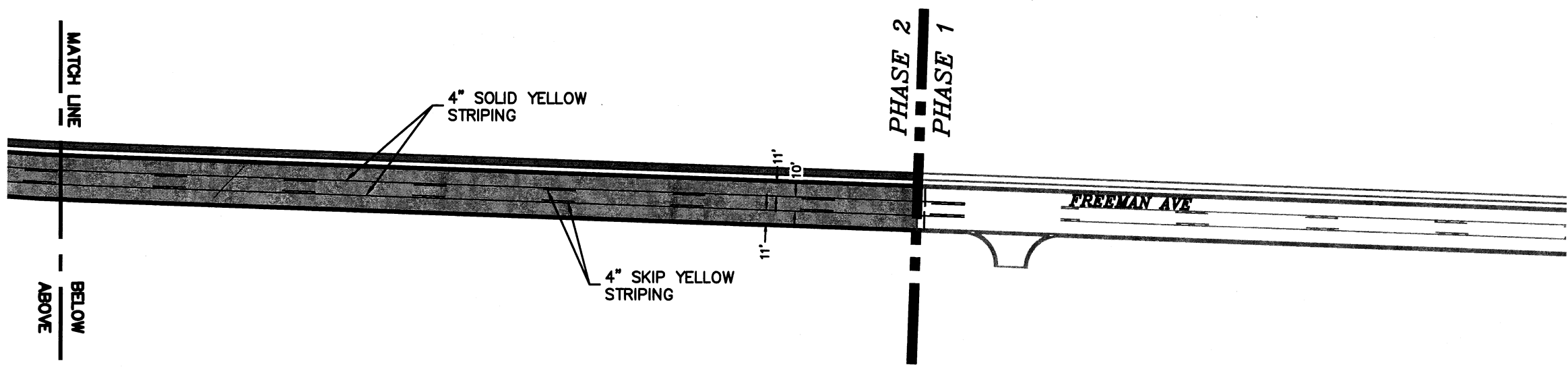


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② BERRYVILLE FREEMAN AVE. EXTENSION (S)  
SIGNAGE AND STRIPING PLAN



3-28-19



**ADVANCE WARNING SIGNS AND DEVICES**

SIGN NUMBER	DESCRIPTION	SIGN SIZE	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS EACH	BARRICADES (TYPE III) LIN. FT.
			NO.	SQ. FT.		
<b>HIGHWAY 62 (W TRIMBLE AVE) MAIN LANES</b>						
W20-1	ROAD WORK AHEAD	48" x 48"	2	32		
W20-5	RIGHT LANE CLOSED AHEAD	48" x 48"	1	16		
W4-2	RIGHT LANE ENDS (SYMBOL)	36" x 36"	1	9		
R11-2	ROAD CLOSED	48" x 30"	1	10		
G20-2	END ROAD WORK	48" x 24"	2	16		
R9-9	SIDEWALK CLOSED	24" x 12"	2	4		
	TRAFFIC DRUMS				42	
	BARRICADES					120
<b>TOTALS:</b>			<b>9</b>	<b>87</b>	<b>42</b>	<b>120</b>

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		10	27
				JOB NO.	C08006			
				BERRYVILLE FREEMAN AVE. EXTENSION (S)				
				QUANTITIES				

**REMOVAL AND DISPOSAL OF FENCE**

STATION	STATION	LOCATION	FENCE LIN. FT.
31+40	39+00	FREEMAN AVENUE RT.	760
40+00	47+40	FREEMAN AVENUE RT.	625
<b>TOTAL:</b>			<b>1385</b>

**STANDARD HIGHWAY SIGNS**

SIGN NUMBER	DESCRIPTION	SIGN SIZE	TOTAL SIGNS REQUIRED	
			SUPPORT ASSEMBLIES (TYPE A) EACH	SQ. FT.
<b>FREEMAN AVENUE</b>				
R3-30AA	LEFT AND RIGHT TURN ONLY	36" x 30"	1	7.50
R2-1	SPEED LIMIT 35	24" x 30"	1	5.00
R1-1	STOP	30" x 30"	1	6.25
D3-1	STREET NAME (FREEMAN AVE)	9" x 30"	1	1.88
<b>TOTALS:</b>			<b>4</b>	<b>20.63</b>

**EARTHWORK**

LOCATION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
	CU. YD.	
<b>FREEMAN AVENUE EXTENSION</b>		
ENTIRE PROJECT	3250	7500
*UNDERCUT AND BACKFILL	3500	3500
<b>TOTALS:</b>	<b>6750</b>	<b>11000</b>

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

\*QUANTITIES ARE ESTIMATED AND THIS WORK SHALL BE PERFORMED IF AND WHERE DIRECTED BY THE ENGINEER. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

**FENCING**

STATION	STATION	LOCATION	WIRE FENCE TYPE C LIN. FT.
31+40	47+40	FREEMAN AVENUE LT.	1675
<b>TOTAL:</b>			<b>1675</b>

**CLEARING AND GRUBBING**

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
31+40	47+75.05	FREEMAN AVENUE LT. & RT.	17	17
<b>TOTALS:</b>			<b>17</b>	<b>17</b>

**REMOVAL AND DISPOSAL OF ITEMS**

STATION	STATION	LOCATION	CURB AND GUTTER	WALKS
			LIN. FT.	SQ. YD.
47+75	47+75	FREEMAN AVENUE	120	50
<b>TOTALS:</b>			<b>120</b>	<b>50</b>

**CONCRETE WALKS**

STATION	STATION	LOCATION	LENGTH LIN. FT.	CONCRETE WALKS SQ. YD.
31+40	47+66	FREEMAN AVENUE RT.	1640	912
<b>TOTALS:</b>			<b>1640</b>	<b>912</b>

**CONCRETE COMBINATION CURB AND GUTTER**

STATION	STATION	LOCATION	TYPE A (2'0") H=6" LIN. FT.	TYPE A (1'6") H=6" LIN. FT.
			31+40	47+75
31+40	47+75	FREEMAN AVENUE LT.	1650	
47+75	47+75	FREEMAN AVENUE / HWY. 62		120
<b>TOTAL:</b>			<b>3300</b>	<b>120</b>

**TOPSOIL FURNISHED AND PLACED**

LOCATION	CU. YD.
<b>FREEMAN AVENUE EXTENSION</b>	
ENTIRE PROJECT	790
<b>TOTAL:</b>	<b>790</b>

NOTE: TOPSOIL QUANTITIES SHOWN SHALL BE PAID AS PLAN QUANTITY.

**EROSION CONTROL**

LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL						
	SEEDING ACRE	LIME TON	MULCH COVER ACRE	WATER M. GAL.	SECOND SEEDING APPLICATION ACRE	TEMPORARY SEEDING ACRE	MULCH COVER ACRE	WATER M. GAL.	SAND BAG DITCH CHECKS (E-5) BAG	WATTLE (18") (E-7) LIN. FT.	SILT FENCE (E-11) LIN. FT.	*SEDIMENT REMOVAL & DISPOSAL CU. YD.
<b>FREEMAN AVENUE EXTENSION</b>												
ENTIRE PROJECT	1.47	3.00	1.47	149.94	1.47	1.47	29.99	22	162	1675	38	
<b>TOTALS:</b>	<b>1.47</b>	<b>3.00</b>	<b>1.47</b>	<b>149.94</b>	<b>1.47</b>	<b>1.47</b>	<b>29.99</b>	<b>22</b>	<b>162</b>	<b>1675</b>	<b>38</b>	

BASIS OF ESTIMATE:

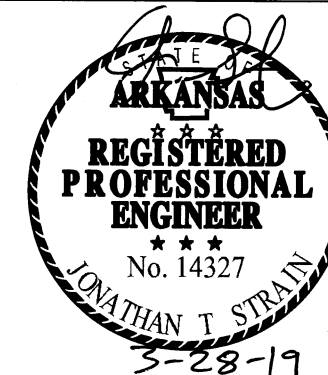
- LIME - 2 TONS / ACRE OF SEEDING
- WATER - 102.0 M.G. / ACRE OF SEEDING
- WATER - 20.4 M.G. / ACRE OF TEMPORARY SEEDING
- SAND BAG DITCH CHECKS - 22 BAGS / LOCATION
- DROP INLET SILT FENCE - 18 LIN. FT. / LOCATION

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

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

**WHEELCHAIR RAMPS**

STATION	LOCATION	TYPE 2 SQ. YD.
47+66	FREEMAN AVENUE RT.	6
47+66	FREEMAN AVENUE LT.	6
<b>TOTAL:</b>		<b>12</b>



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		11	27
				JOB NO.	C08006			

② BERRYVILLE FREEMAN AVE. EXTENSION (S)  
QUANTITIES



3-28-19  
PORTLAND CEMENT CONCRETE DRIVEWAY

STATION	LOCATION	SQ. YD.
47+75	FREEMAN AVENUE/HWY. 62	89
<b>TOTAL:</b>		<b>89</b>

**PERMANENT PAVEMENT MARKINGS**

DESCRIPTION	TOTAL REQUIRED	
	LIN. FT.	EACH
<b>FREEMAN AVENUE EXTENSION</b>		
RAISED PAVEMENT MARKERS TYPE II (YELLOW/RED)		45
THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	2530	
THERMOPLASTIC PAVEMENT MARKING (SKIP LINE) YELLOW (4")	633	
THERMOPLASTIC PAVEMENT MARKING DOUBLE YELLOW (4")	360	
THERMOPLASTIC PAVEMENT MARKING WHITE (4")	180	
THERMOPLASTIC PAVEMENT MARKING WHITE (12")	280	
THERMOPLASTIC PAVEMENT MARKING (WORDS)		4
THERMOPLASTIC PAVEMENT MARKING (ARROWS)		4
NO PERMANENT PAVEMENT MARKINGS SHALL BE PLACED UNTIL A MINIMUM OF 3 DAYS AFTER ALL MAIN LANE PAVING HAS BEEN COMPLETED.		
NO PERMANENT PAVEMENT MARKINGS SHALL BE PLACED DURING THE TIME PERIOD FROM DECEMBER 21 TO MARCH 15, INCLUSIVE.		

**SELECTED PIPE BEDDING**

LOCATION	SELECTED PIPE BEDDING
	CU. YD.
ENTIRE PROJECT	60
<b>TOTALS:</b>	<b>60</b>

QUANTITY ESTIMATED. TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS

**STREET LIGHTING**

DESCRIPTION	TOTAL REQUIRED
<b>FREEMAN AVENUE EXTENSION</b>	
NON-METALLIC CONDUIT (2")	1,925 LF
CONCRETE PULL BOX (TYPE 2 HD)	7 EACH

**STRUCTURES**

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 24" LIN. FT.	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 24"	DROP INLETS				JUNCTION BOXES (TYPE ST)	SOLID SODDING SQ. YD.	WATER M.GAL.
				TYPE		EXT.				
				MO	MODIFY	4'	8'			
<b>FREEMAN AVENUE EXTENSION</b>										
31+40	DROP INLET ON RT.	40		1		1	1			
31+40	DROP INLET ON LT.	364		1			1			
35+04.14	JUNCTION BOX ON LT.	217						1		
37+21.33	JUNCTION BOX ON LT.	79						1		
39+37.16	MODIFY DROP INLET ON RT.				1	1				
39+37.16	MODIFY DROP INLET ON LT.				1	1				
39+94.93	MODIFY DROP INLET ON LT.				1					
39+94.93	MODIFY DROP INLET ON RT.			1						
40+62.52	MODIFY DROP INLET ON LT.				1	1				
40+62.52	MODIFY DROP INLET ON RT.	220			1	1				
44+00.98	DROP INLET ON RT.	276		1		1				
46+80.35	JUNCTION BOX ON RT.	21	1					1	12	0.2
<b>TOTALS:</b>		<b>1217</b>	<b>1</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>2</b>	<b>3</b>	<b>12</b>	<b>0.2</b>

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.

**BASE AND SURFACING**

STATION	STATION	LOCATION	LENGTH FEET	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")			
				TON / STATION	TON	AVG. 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
				31+40	47+75.05	FREEMAN AVENUE	1635.05	197.04	3290.00	64.00	11710.00	0.05	585.50	32.00	5855.00	330.00	966.08
<b>TOTALS:</b>			<b>1635.05</b>	<b>197.04</b>	<b>3290.00</b>	<b>64.00</b>	<b>11710.00</b>	<b>0.05</b>	<b>585.50</b>	<b>32.00</b>	<b>5855.00</b>	<b>330.00</b>	<b>966.08</b>	<b>32.00</b>	<b>5855.00</b>	<b>220.00</b>	<b>644.05</b>

BASIS OF ESTIMATE:  
ACHM SURFACE COURSE (1/2") - 94.6% MIN. AGGR / 5.4% ASPHALT BINDER  
ACHM BINDER COURSE (1") - 95.4% MIN. AGGR / 4.6% ASPHALT BINDER  
MAXIMUM NUMBER OF GYRATION: 160 FOR PG 70-22



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4/24/19				6	ARK.		12	27
				JOB NO.		C08006		

② BERRYVILLE FREEMAN AVE. EXTENSION (S)  
SUMMARY OF QUANTITIES AND REVISIONS

SUMMARY OF QUANTITIES			
ITEM NUMBER	ITEM	QUANTITIES	UNIT
201	CLEARING	17	STATION
201	GRUBBING	17	STATION
202	REMOVAL AND DISPOSAL OF CURB AND GUTTER	120	LIN. FT.
202	REMOVAL AND DISPOSAL OF FENCE	1385	LIN. FT.
202	REMOVAL AND DISPOSAL OF WALKS	50	SQ. YD.
210	UNCLASSIFIED EXCAVATION	6750	CU. YD.
210	COMPACTED EMBANKMENT	11000	CU. YD.
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	3290	TON
SS & 401	TACK COAT	586	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	922	TON
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")	44	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	609	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")	35	TON
SS & 505	PORTLAND CEMENT CONCRETE DRIVEWAY	89	SQ. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SS & 604	SIGNS	87	SQ. FT.
SS & 604	TRAFFIC DRUMS	42	EACH
SS & 604	BARRICADES	120	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	1217	LIN. FT.
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	1	EACH
606	SELECTED PIPE BEDDING	60	CU. YD.
SS & 609	DROP INLETS (TYPE MO)	4	EACH
SS & 609	JUNCTION BOXES (TYPE ST)	3	EACH
SS & 609	DROP INLET EXTENSIONS (4')	6	EACH
SS & 609	DROP INLET EXTENSIONS (8')	2	EACH
619	WIRE FENCE TYPE C	1675	LIN. FT.
620	LIME	3	TON
620	SEEDING	1.47	ACRE
SS & 620	MULCH COVER	2.94	ACRE
620	WATER	180.1	M.GAL.
621	TEMPORARY SEEDING	1.47	ACRE
621	SILT FENCE	1675	LIN. FT.
621	SAND BAG DITCH CHECKS	22	BAG
621	WATTLE (18")	162	LIN. FT.
621	SEDIMENT REMOVAL AND DISPOSAL	38	CU. YD.
623	SECOND SEEDING APPLICATION	1.47	ACRE
624	SOLID SODDING	12	SQ. YD.
628	TOPSOIL FURNISHED AND PLACED	790	CU. YD.
SS & 633	CONCRETE WALKS	912	SQ. YD.
SS & 634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (2'0")	3300	LIN. FT.
SS & 634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1'6")	120	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
640	MODIFYING DROP INLETS	5	EACH
641	WHEELCHAIR RAMPS (TYPE 2)	12	SQ. YD.
710	NON-METALLIC CONDUIT (2")	1925	LIN. FT.
711	CONCRETE PULL BOX (TYPE 2 HD)	7	EACH
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	180	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	280	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (12")	3523	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	4	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	4	EACH
721	RAISED PAVEMENT MARKERS (TYPE II)	45	EACH
SS & 726	STANDARD SIGN	20.63	SQ. FT.
729	CHANNEL POST SIGN SUPPORT (TYPE A)	4	EACH

REVISIONS

DATE	REVISION	SHEET NO.
4/24/19	REMOVED SS 104-3 FROM GOVERNING SPECS LIST UPDATED SS 400-4 NAME ADDED SS 505-1 REVISED ASPHALT BINDER IN ACHM SURFACE COURSE AND WIRE FENCE TYPE C PAY ITEMS	2 & 12

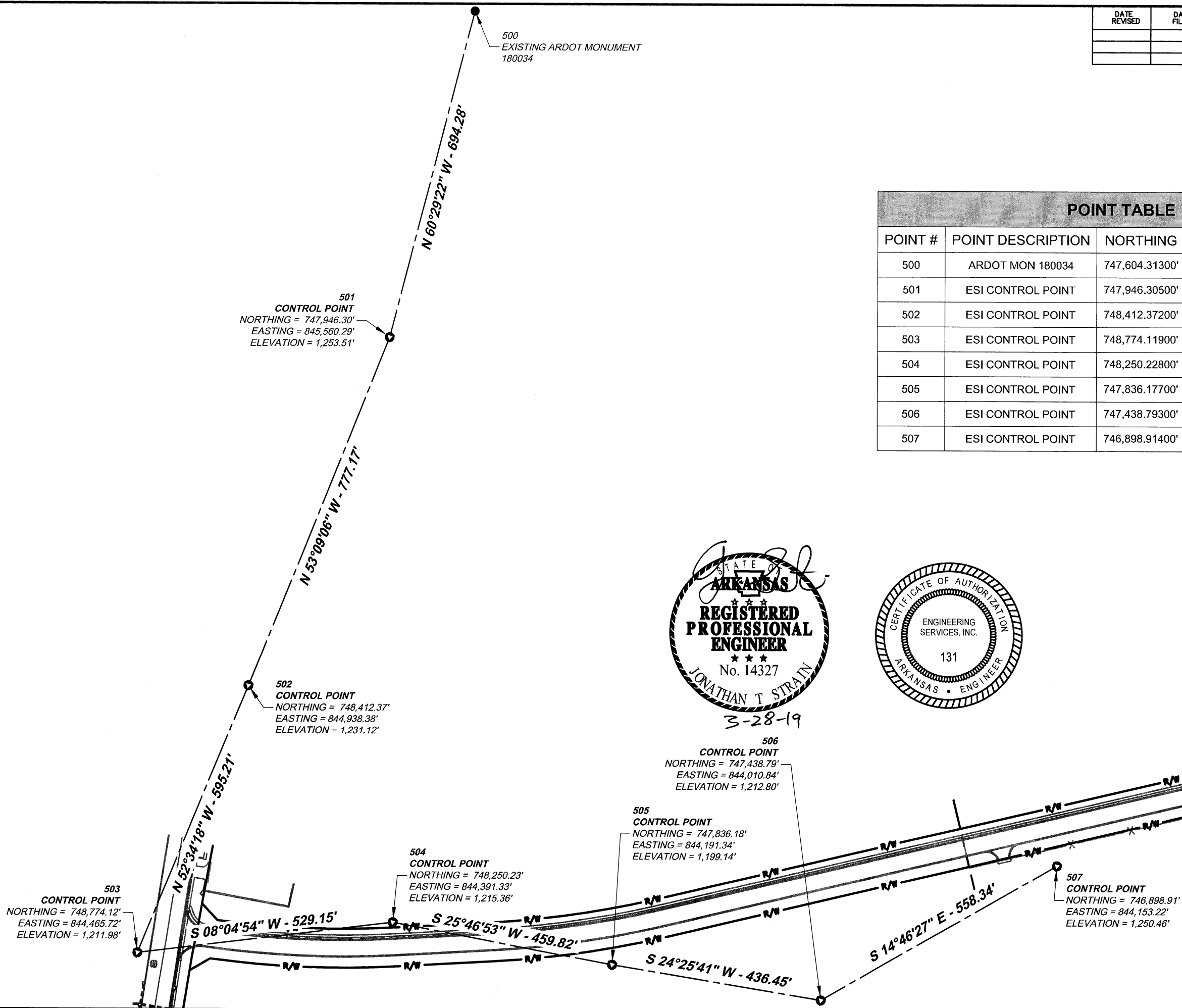


4-29-19

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		13	27
JOB NO.						C08006		

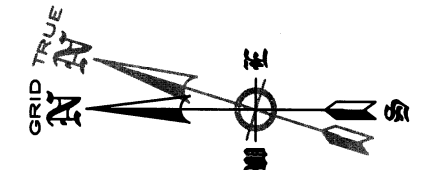
② BERRYVILLE FREEMAN AVE. EXTENSION (S)  
SURVEY CONTROL

POINT TABLE				
POINT #	POINT DESCRIPTION	NORTHING	EASTING	ELEVATION
500	ARDOT MON 180034	747,604.31300'	846,164.50000'	1,271.59'
501	ESI CONTROL POINT	747,946.30500'	845,560.29300'	1,253.51'
502	ESI CONTROL POINT	748,412.37200'	844,938.38100'	1,231.12'
503	ESI CONTROL POINT	748,774.11900'	844,465.72000'	1,211.98'
504	ESI CONTROL POINT	748,250.22800'	844,391.32900'	1,215.36'
505	ESI CONTROL POINT	747,836.17700'	844,191.33600'	1,199.14'
506	ESI CONTROL POINT	747,438.79300'	844,010.84000'	1,212.80'
507	ESI CONTROL POINT	746,898.91400'	844,153.22300'	1,250.46'

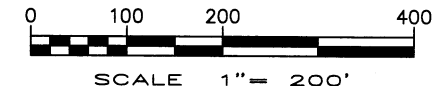


STATE OF ARKANSAS  
REGISTERED PROFESSIONAL ENGINEER  
No. 14327  
JONATHAN T. STRAIN  
3-28-19

CERTIFICATE OF AUTHORIZATION  
ENGINEERING SERVICES, INC.  
131  
ARKANSAS ENGINEER

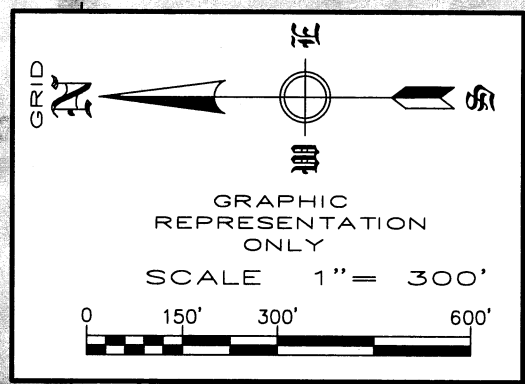


GRAPHIC REPRESENTATION ONLY  
BASIS OF BEARINGS:  
ARKANSAS STATE PLANE COORDINATE SYSTEM  
NORTH ZONE 0301  
CONVERGENCE ANGLE: -00°55'17.14"  
COMBINED SCALED FACTOR: 0.9999725



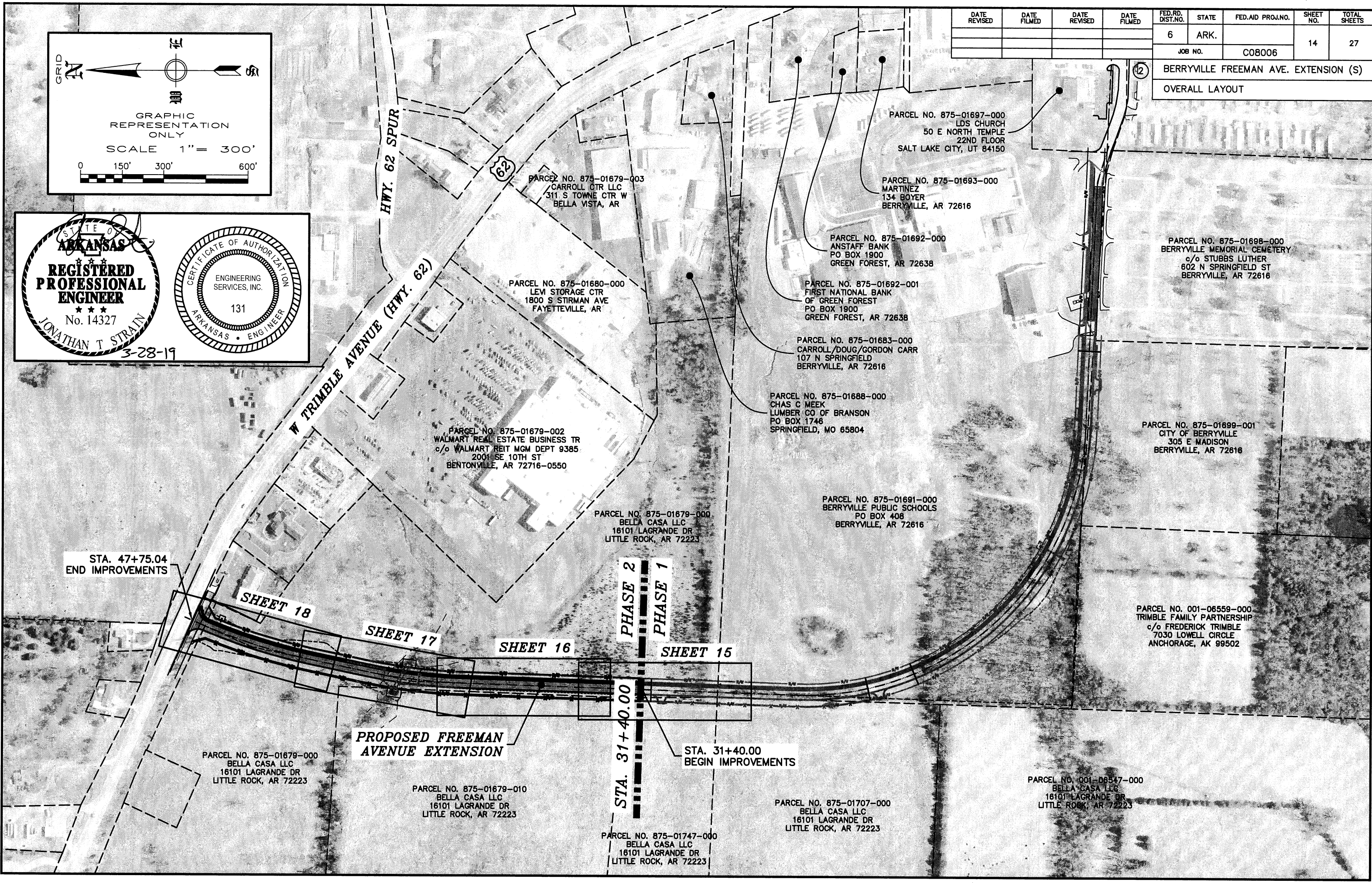


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		14	27
JOB NO.						C08006		
BERRYVILLE FREEMAN AVE. EXTENSION (S)								
OVERALL LAYOUT								



STATE OF ARKANSAS  
**REGISTERED PROFESSIONAL ENGINEER**  
No. 14327  
JONATHAN T. STRAIN  
3-28-19

CERTIFICATE OF AUTHORIZATION  
ENGINEERING SERVICES, INC.  
131  
ARKANSAS ENGINEER



PARCEL NO. 875-01679-003  
CARROLL CTR LLC  
311 S TOWNE CTR W  
BELLA VISTA, AR

PARCEL NO. 875-01697-000  
LDS CHURCH  
50 E NORTH TEMPLE  
22ND FLOOR  
SALT LAKE CITY, UT 84150

PARCEL NO. 875-01693-000  
MARTINEZ  
134 BOYER  
BERRYVILLE, AR 72616

PARCEL NO. 875-01692-000  
ANSTAFF BANK  
PO BOX 1900  
GREEN FOREST, AR 72638

PARCEL NO. 875-01692-001  
FIRST NATIONAL BANK  
OF GREEN FOREST  
PO BOX 1900  
GREEN FOREST, AR 72638

PARCEL NO. 875-01683-000  
CARROLL/DOUG/GORDON CARR  
107 N SPRINGFIELD  
BERRYVILLE, AR 72616

PARCEL NO. 875-01688-000  
CHAS C MEEK  
LUMBER CO OF BRANSON  
PO BOX 1746  
SPRINGFIELD, MO 65804

PARCEL NO. 875-01698-000  
BERRYVILLE MEMORIAL CEMETERY  
c/o STUBBS LUTHER  
602 N SPRINGFIELD ST  
BERRYVILLE, AR 72616

PARCEL NO. 875-01680-000  
LEVI STORAGE CTR  
1800 S STIRMAN AVE  
FAYETTEVILLE, AR

PARCEL NO. 875-01679-002  
WALMART REAL ESTATE BUSINESS TR  
c/o WALMART REIT MGM DEPT 9385  
2001 SE 10TH ST  
BENTONVILLE, AR 72716-0550

PARCEL NO. 875-01699-001  
CITY OF BERRYVILLE  
305 E MADISON  
BERRYVILLE, AR 72616

PARCEL NO. 875-01679-000  
BELLA CASA LLC  
16101 LAGRANDE DR  
LITTLE ROCK, AR 72223

PARCEL NO. 875-01691-000  
BERRYVILLE PUBLIC SCHOOLS  
PO BOX 408  
BERRYVILLE, AR 72616

PARCEL NO. 001-06559-000  
TRIMBLE FAMILY PARTNERSHIP  
c/o FREDERICK TRIMBLE  
7030 LOWELL CIRCLE  
ANCHORAGE, AK 99502

PARCEL NO. 875-01679-000  
BELLA CASA LLC  
16101 LAGRANDE DR  
LITTLE ROCK, AR 72223

PARCEL NO. 875-01679-010  
BELLA CASA LLC  
16101 LAGRANDE DR  
LITTLE ROCK, AR 72223

PARCEL NO. 875-01747-000  
BELLA CASA LLC  
16101 LAGRANDE DR  
LITTLE ROCK, AR 72223

PARCEL NO. 875-01707-000  
BELLA CASA LLC  
16101 LAGRANDE DR  
LITTLE ROCK, AR 72223

PARCEL NO. 001-06547-000  
BELLA CASA LLC  
16101 LAGRANDE DR  
LITTLE ROCK, AR 72223

STA. 47+75.04  
END IMPROVEMENTS

STA. 31+40.00  
BEGIN IMPROVEMENTS

SHEET 18

SHEET 17

SHEET 16

SHEET 15

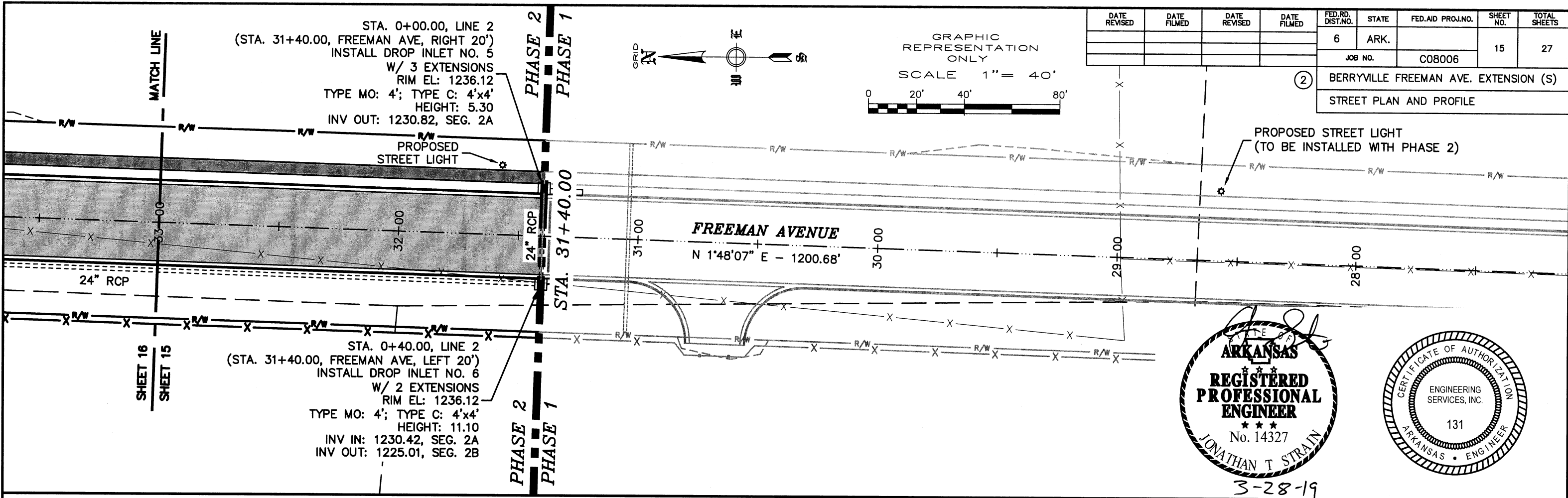
PHASE 2  
PHASE 1  
STA. 31+40.00

PROPOSED FREEMAN  
AVENUE EXTENSION

HWY. 62 SPUR  
W TRIMBLE AVENUE (HWY. 62)



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		15	27
				JOB NO.		C08006		
							BERRYVILLE FREEMAN AVE. EXTENSION (S)	
STREET PLAN AND PROFILE								



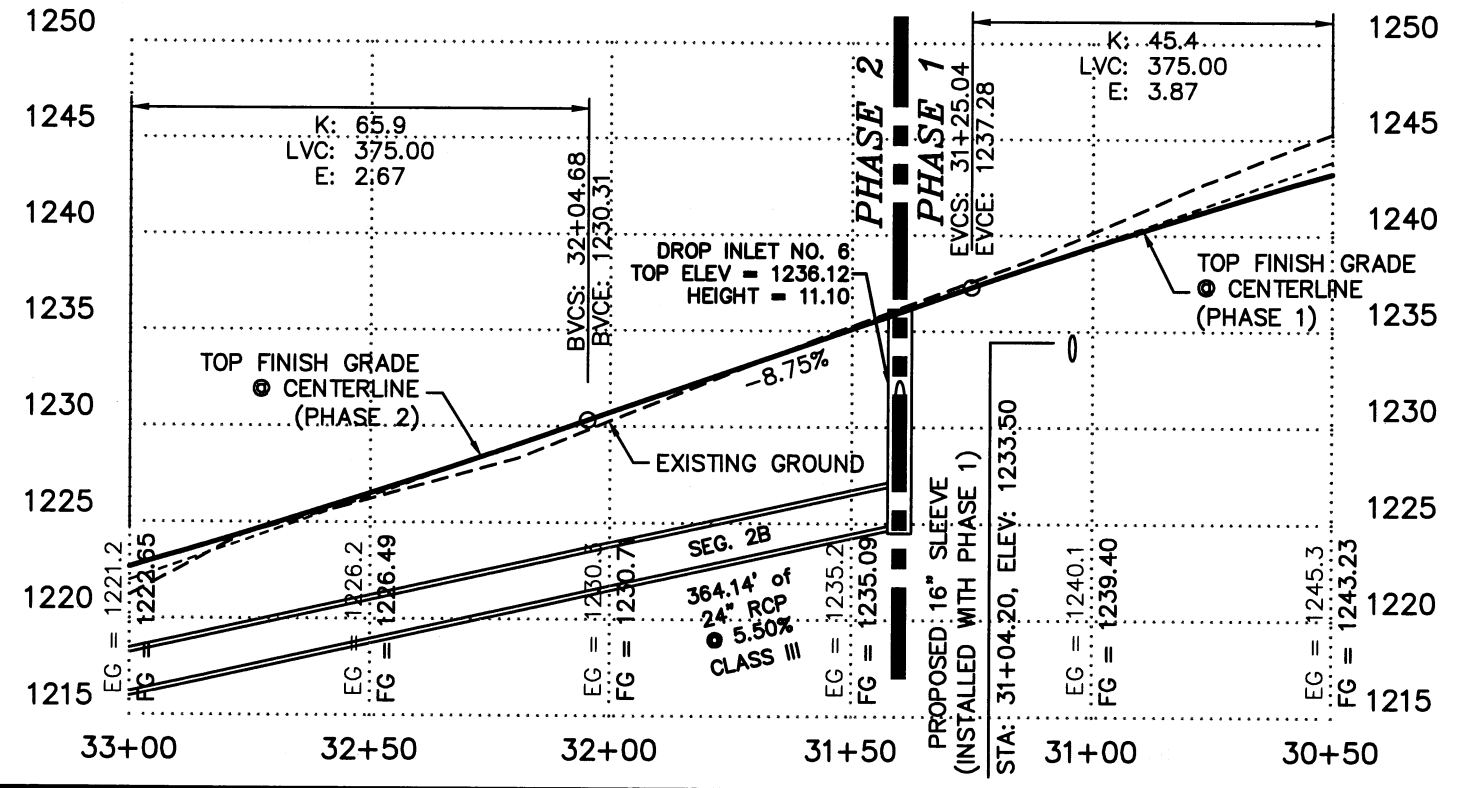
STATE OF ARKANSAS  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 14327  
 JONATHAN T. STRAIN  
 3-28-19

CERTIFICATE OF AUTHORIZATION  
 ENGINEERING SERVICES, INC.  
 131  
 ARKANSAS ENGINEER

**FREEMAN AVENUE**  
**STA. 33+00 TO 30+50**

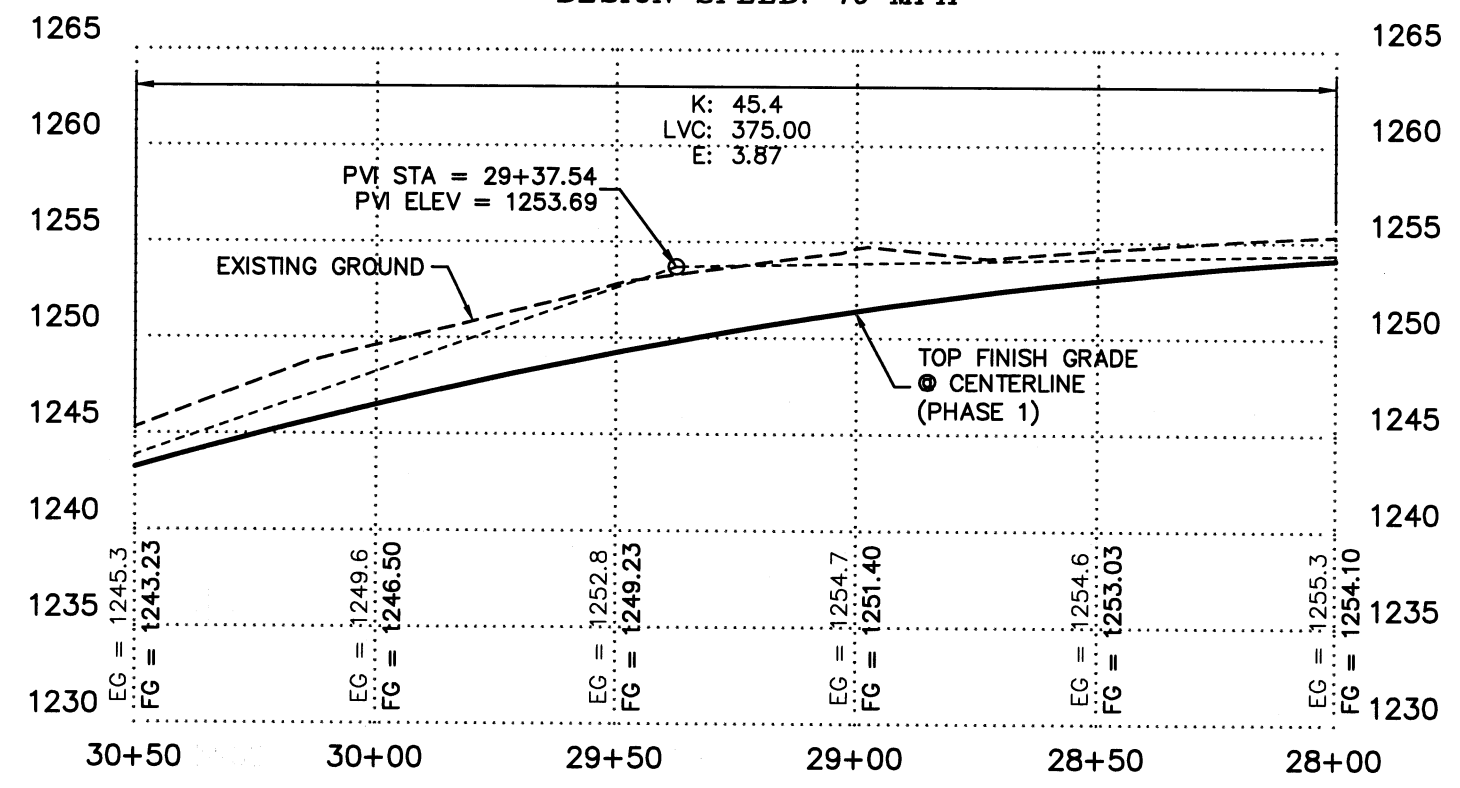
DESIGN SPEED: 40 MPH

SCALES:  
 HORIZONTAL: 1" = 40'  
 VERTICAL: 1" = 10'

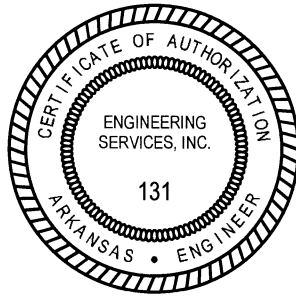
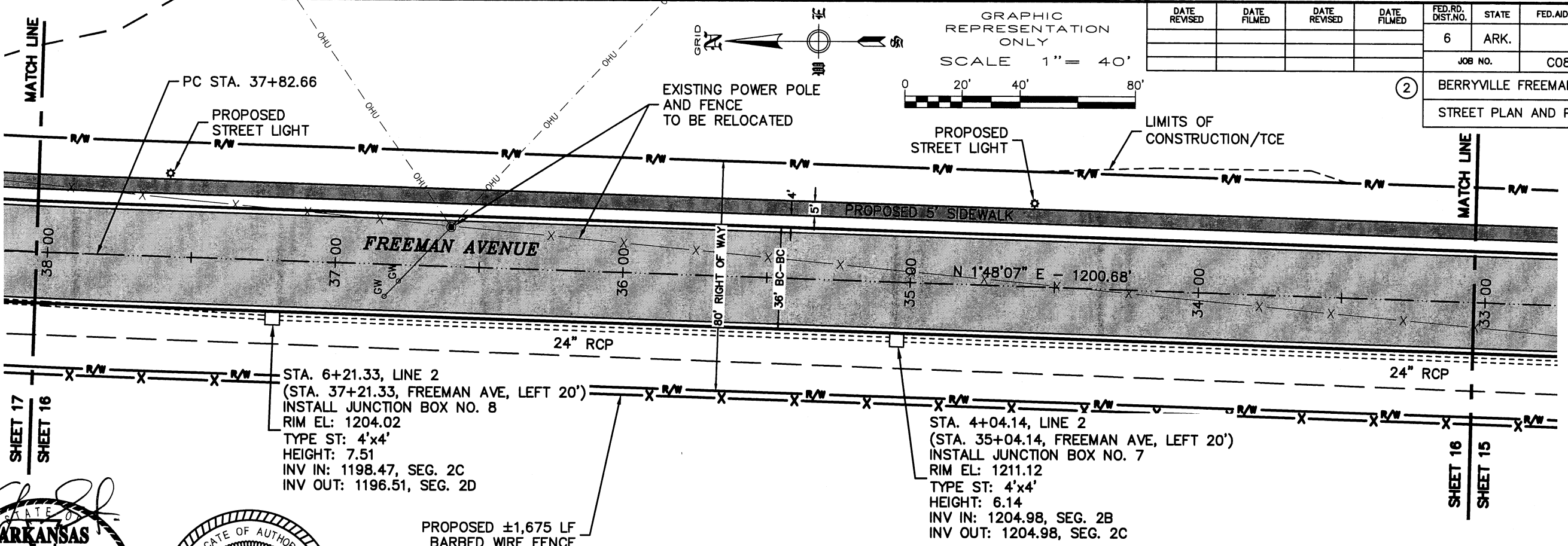


**FREEMAN AVENUE**  
**STA. 30+50 TO 28+00**

DESIGN SPEED: 40 MPH



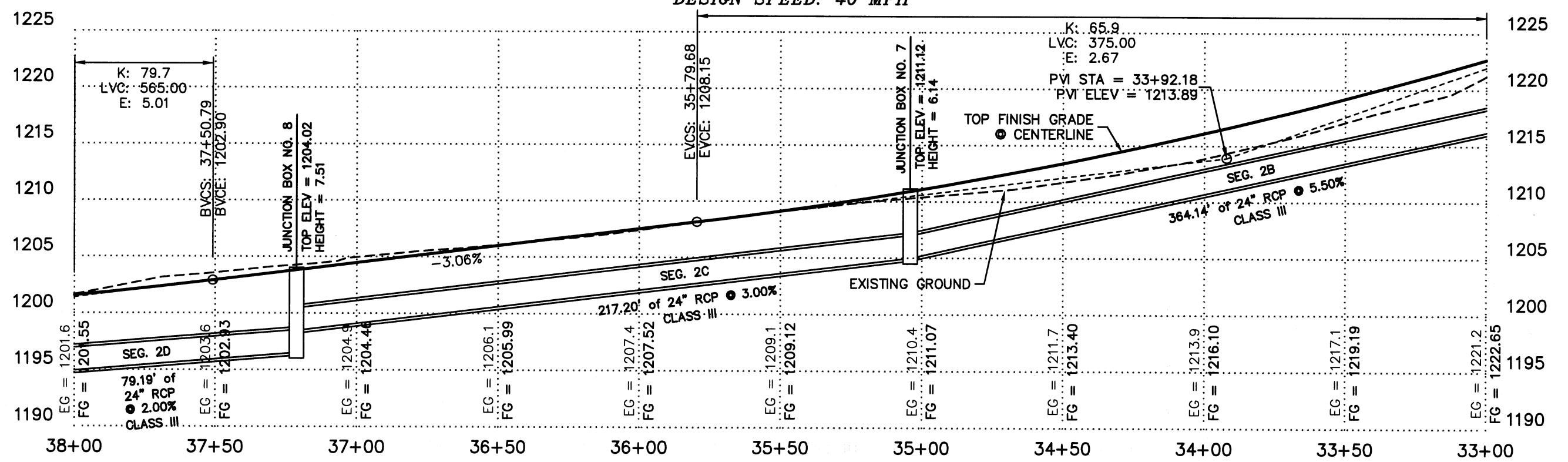
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		16	27
						JOB NO.	C08006	
						BERRYVILLE FREEMAN AVE. EXTENSION (S)		
						STREET PLAN AND PROFILE		



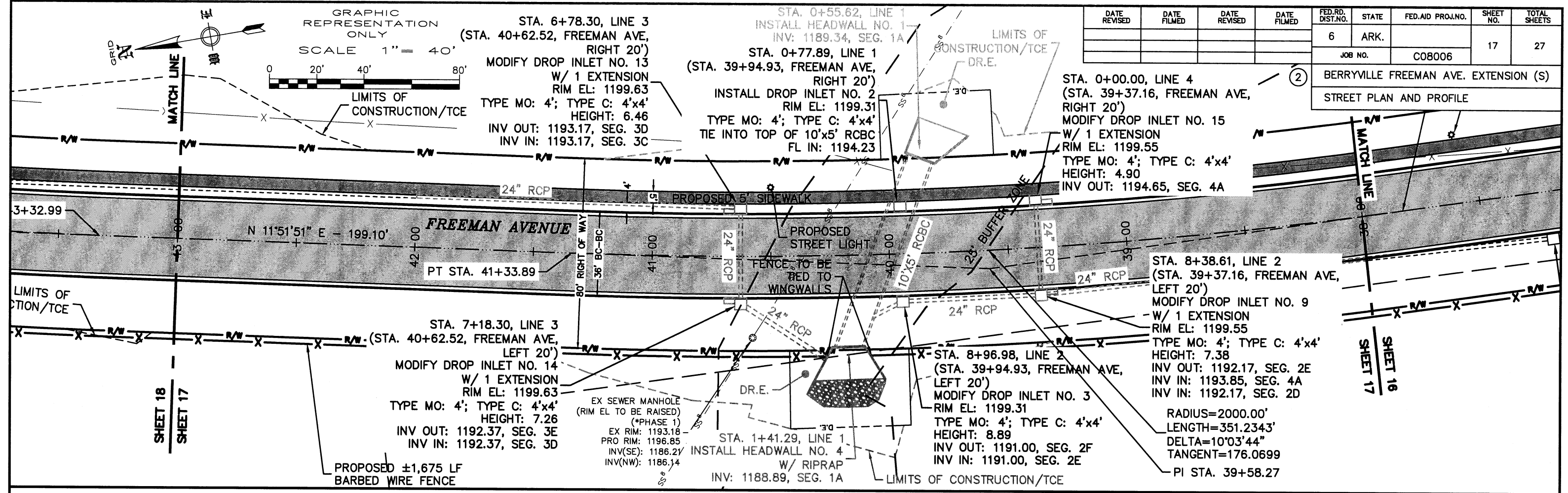
## FREEMAN AVENUE STA. 38+00 TO 33+00

DESIGN SPEED: 40 MPH

SCALES :  
HORIZONTAL : 1" = 40'  
VERTICAL : 1" = 10'



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		17	27
						JOB NO.	C08006	
						BERRYVILLE FREEMAN AVE. EXTENSION (S)		
						STREET PLAN AND PROFILE		



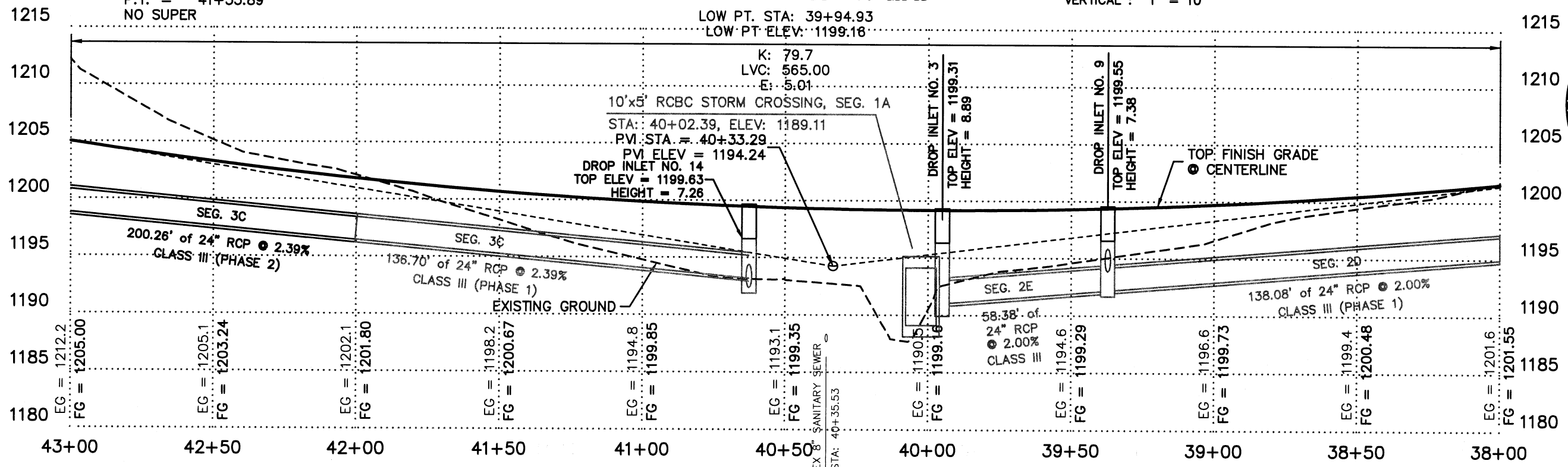
P.I. = 39+58.27  
 Δ = 10°03'44"  
 D = 2°51'53"  
 T = 176.0699  
 L = 351.2343'  
 P.C. = 37+82.66  
 P.T. = 41+33.89  
 NO SUPER

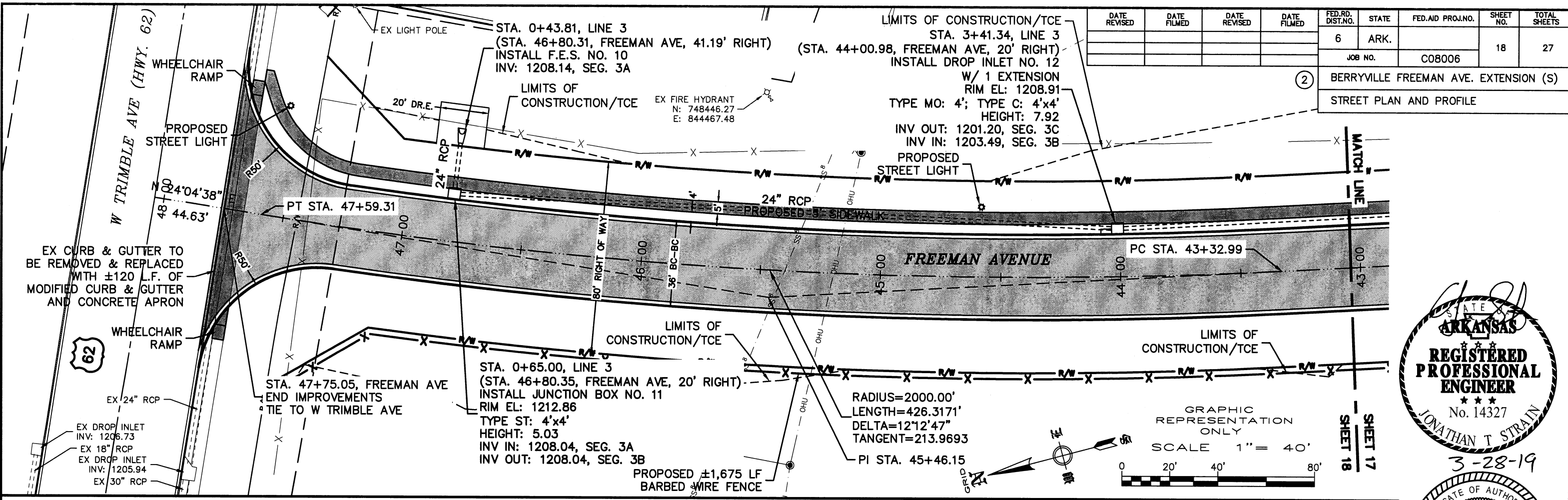
# FREEMAN AVENUE STA. 43+00 TO 38+00

DESIGN SPEED: 40 MPH  
 LOW PT. STA: 39+94.93  
 LOW PT. ELEV: 1199.16

SCALES:  
 HORIZONTAL: 1" = 40'  
 VERTICAL: 1" = 10'

NOTE:  
 ALL STORM DRAINS BETWEEN STA. 38+00 - 42+00 WERE INSTALLED DURING PHASE 1 CONSTRUCTION. SUBGRADE AND STORM INLETS WERE BROUGHT TO WITHIN 3' OF FINISHED ASPHALT GRADE DURING PHASE 1 CONSTRUCTION.





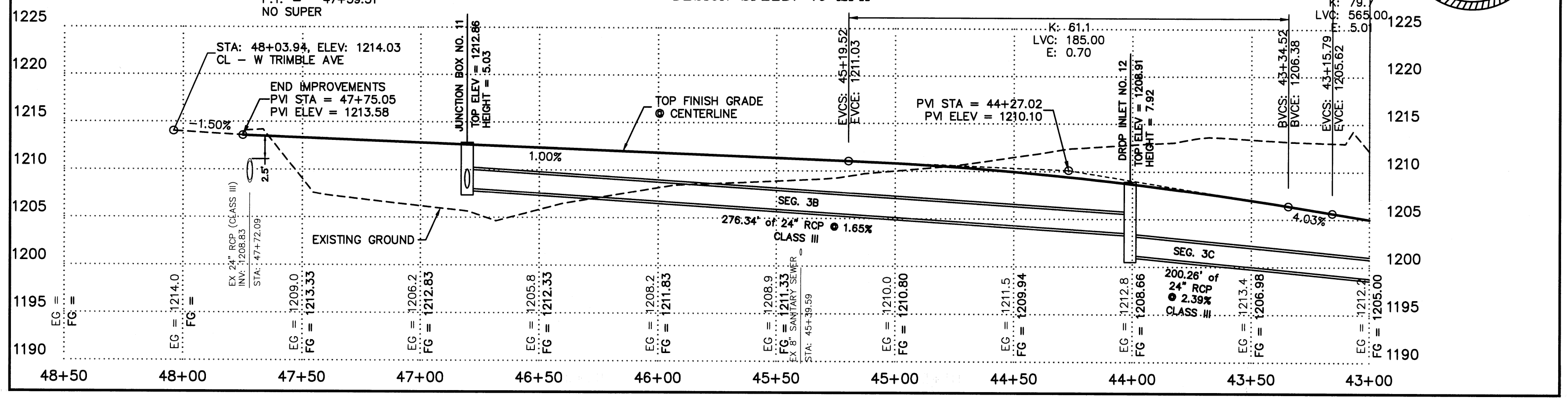
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		18	27
						JOB NO.	C08006	
						BERRYVILLE FREEMAN AVE. EXTENSION (S)		
						STREET PLAN AND PROFILE		



## FREEMAN AVENUE STA. 48+50 TO 43+00 DESIGN SPEED: 40 MPH

P.I. = 45+46.15  
 Δ = 12°12'47"  
 D = 2°51'53"  
 T = 213.9693  
 L = 426.3171'  
 P.C. = 43+32.99  
 P.T. = 47+59.31  
 NO SUPER

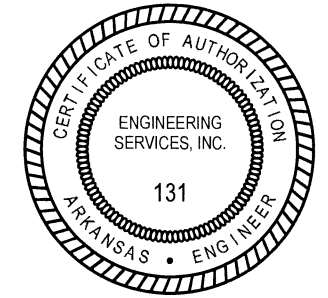
SCALES :  
 HORIZONTAL : 1" = 40'  
 VERTICAL : 1" = 10'



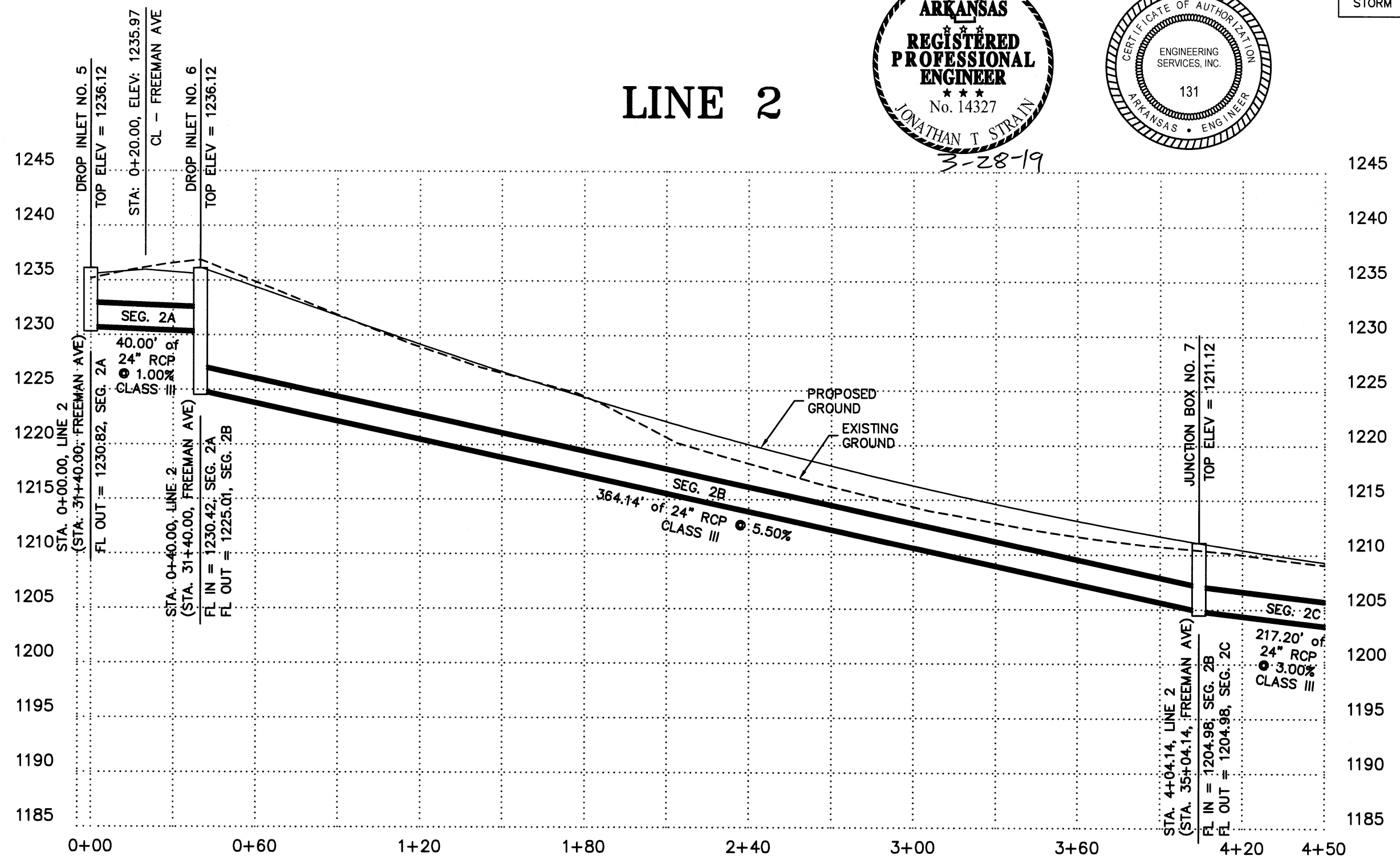


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		19	27
				JOB NO.	C08006			

② BERRYVILLE FREEMAN AVE. EXTENSION (S)  
STORM DRAINAGE PROFILES



# LINE 2

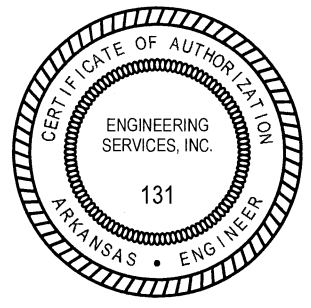


SCALES :  
HORIZONTAL : 1" = 40'  
VERTICAL : 1" = 10'



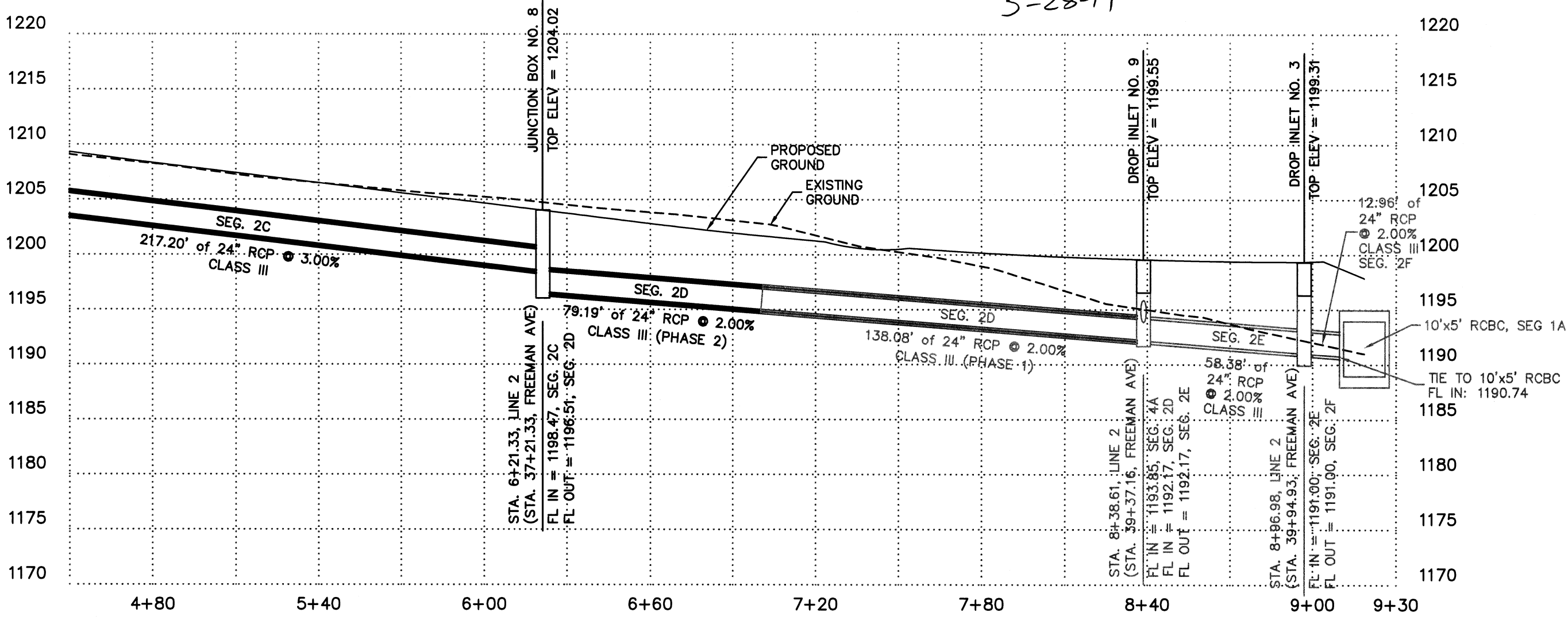
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		20	27
				JOB NO.		C08006		

② BERRYVILLE FREEMAN AVE. EXTENSION (S)  
STORM DRAINAGE PROFILES



# LINE 2

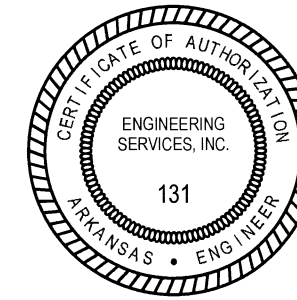
3-28-19



SCALES :  
HORIZONTAL : 1" = 40'  
VERTICAL : 1" = 10'

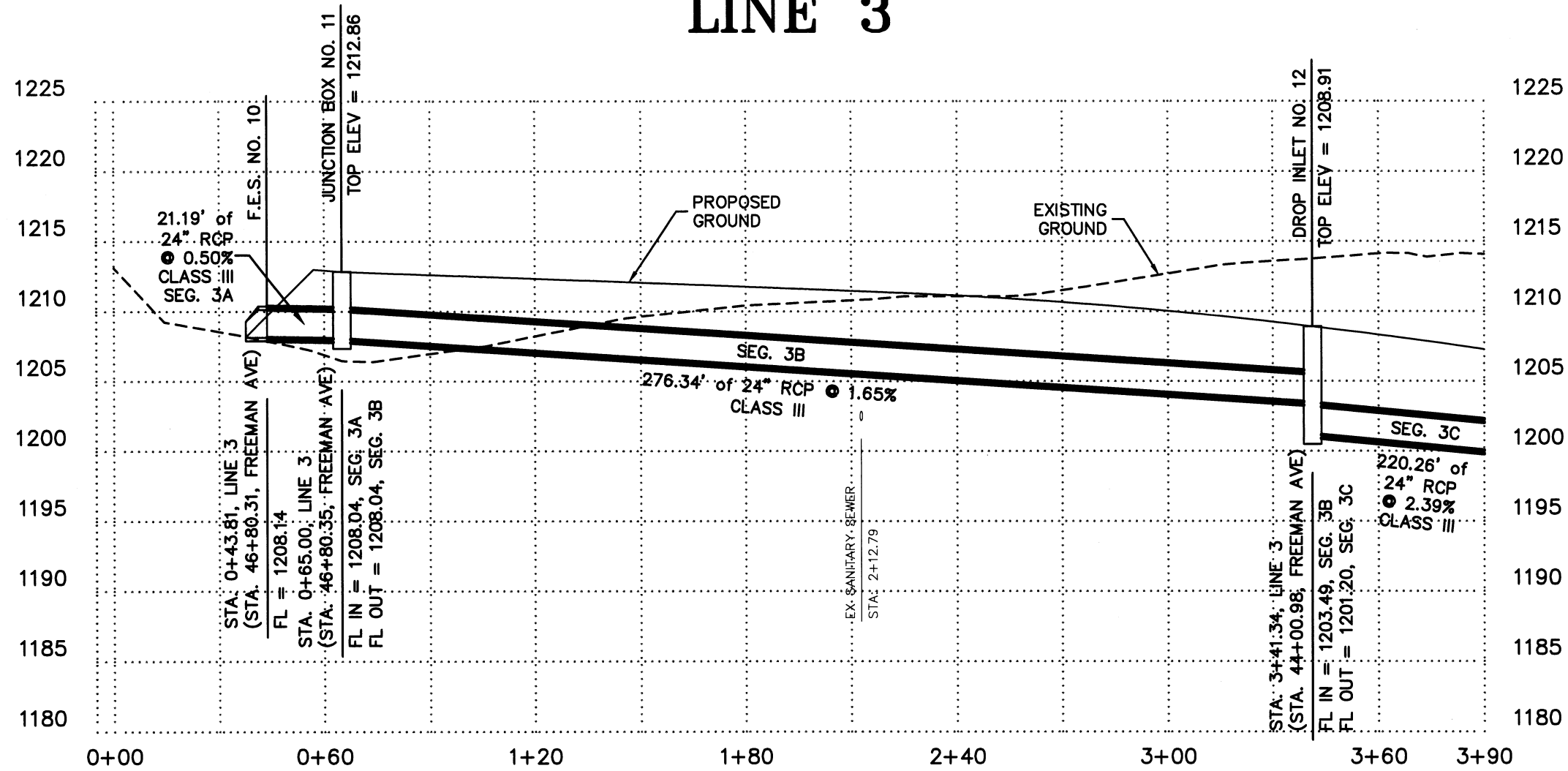
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		21	27
				JOB NO.		C08006		

② BERRYVILLE FREEMAN AVE. EXTENSION (S)  
STORM DRAINAGE PROFILES



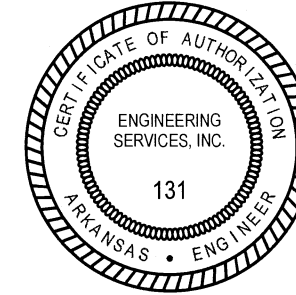
3-28-19

# LINE 3



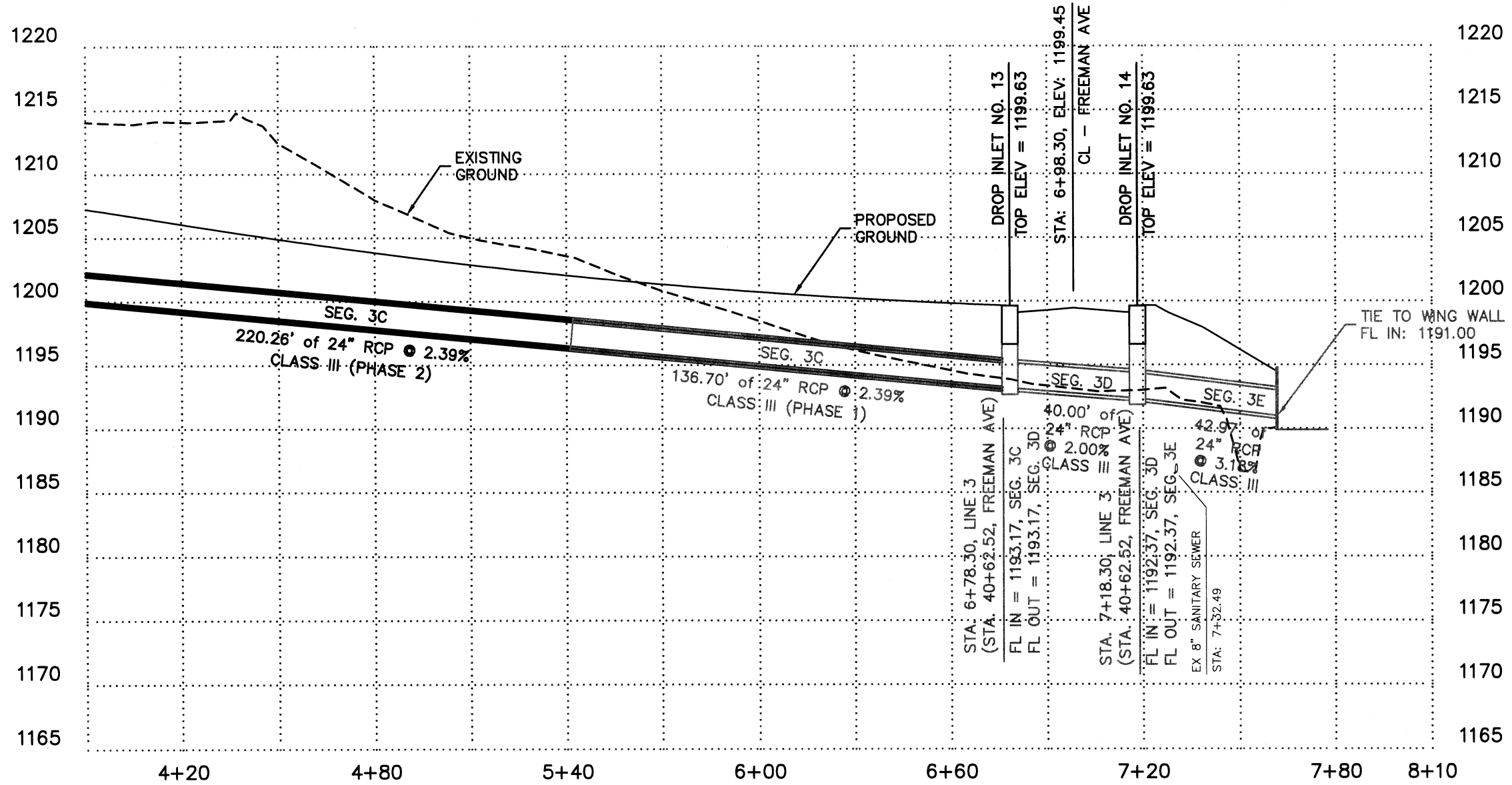
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		22	27
				JOB NO.		C08006		

② BERRYVILLE FREEMAN AVE. EXTENSION (S)  
STORM DRAINAGE PROFILES



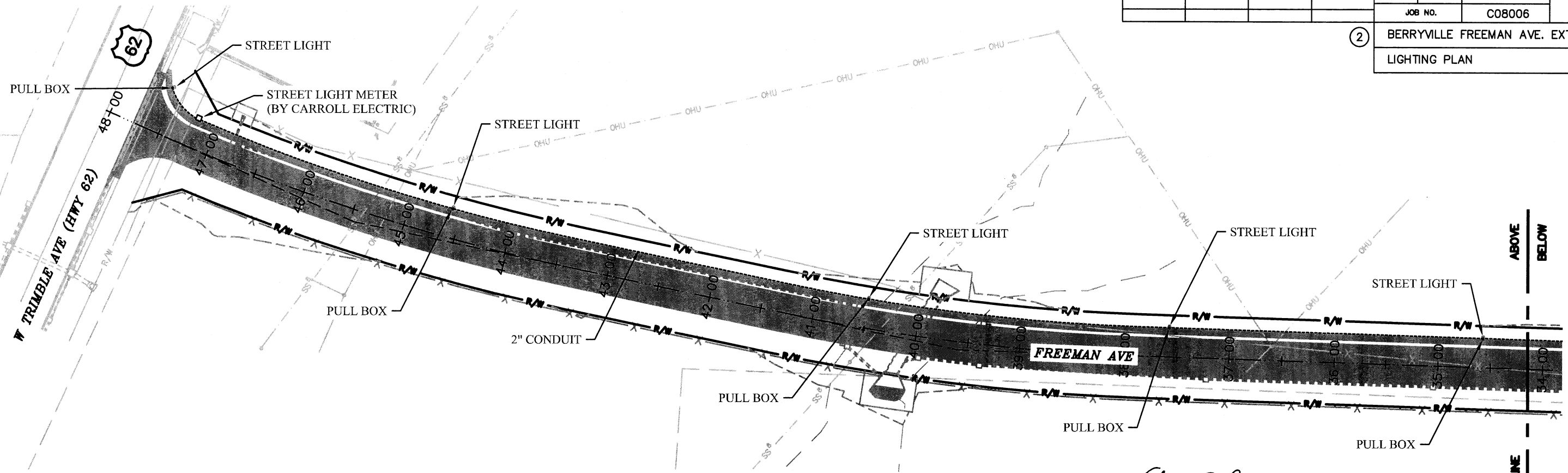
# LINE 3

3-28-19



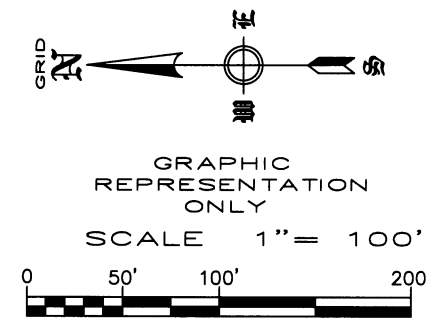
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		23	27
				JOB NO.		C08006		

② BERRYVILLE FREEMAN AVE. EXTENSION (S)  
LIGHTING PLAN



ABOVE  
BELOW  
MATCH LINE

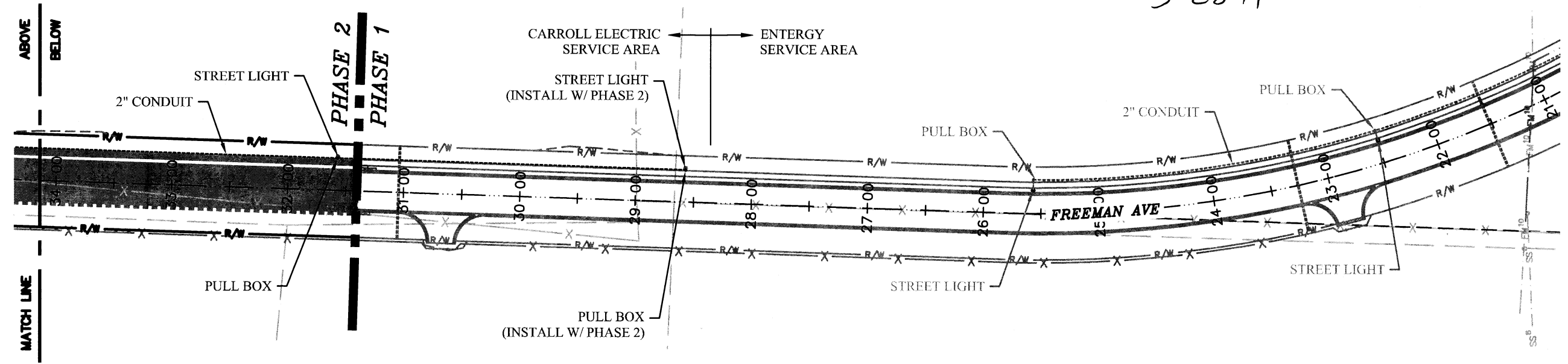
2" CONDUIT AND PULL BOXES TO BE INSTALLED WITH THIS CONTRACT. STREET LIGHTS (INCLUDING FOUNDATIONS AND WIRING) TO BE DONE BY OTHERS



LEGEND	
*	PROPOSED STREET LIGHT (TO BE ON 300' SPACING)
---	PROPOSED 2" CONDUIT

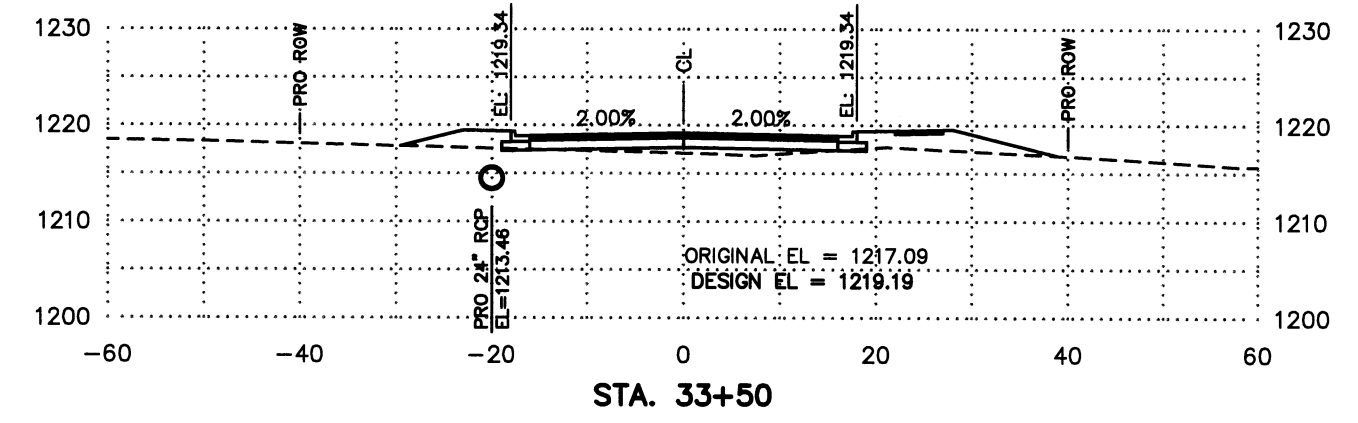
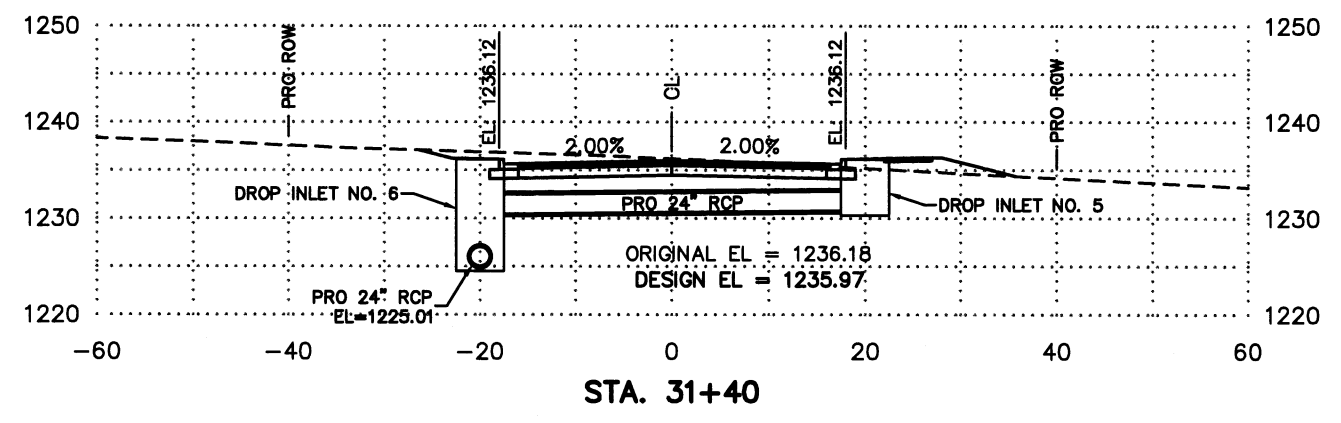
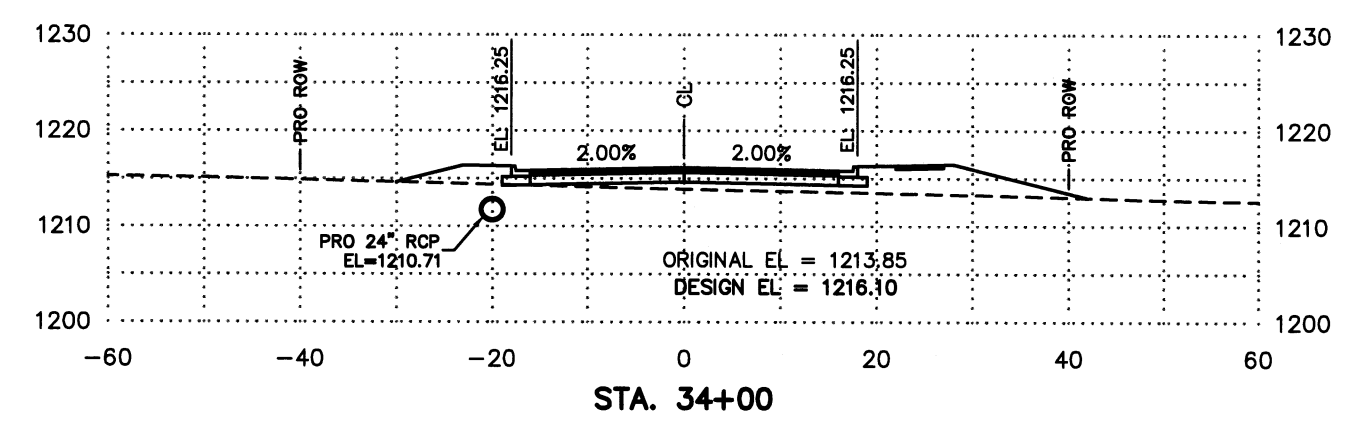
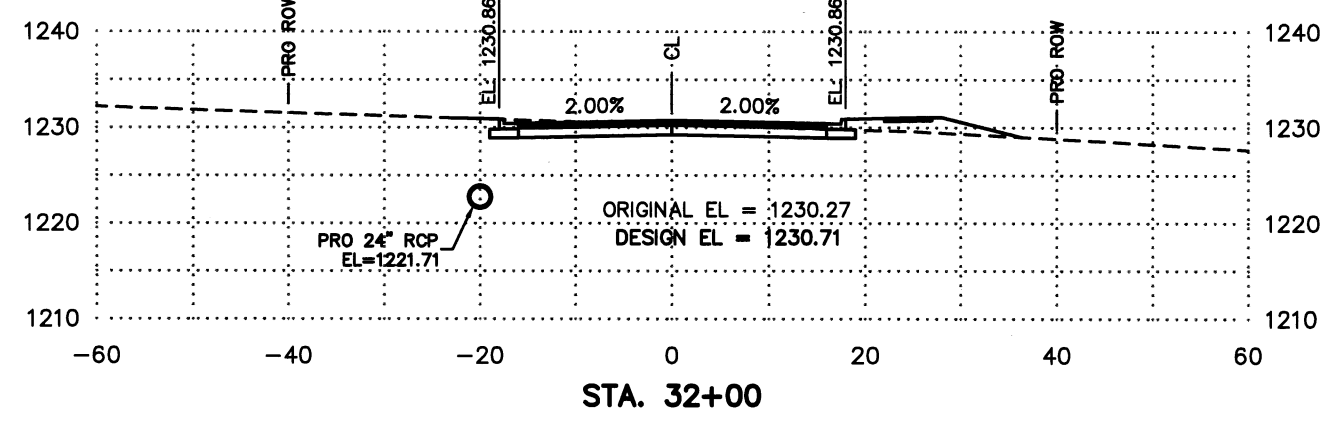
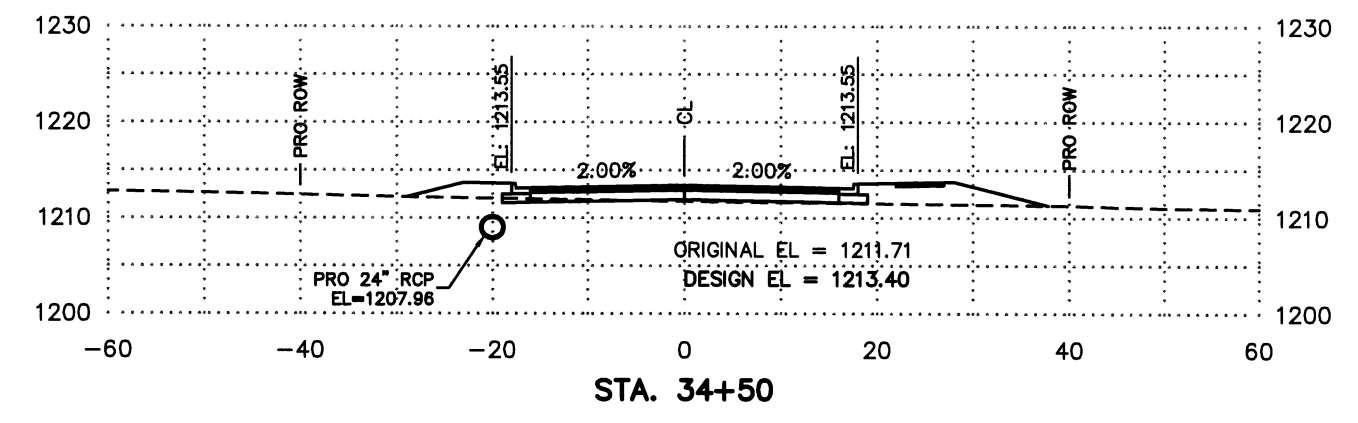
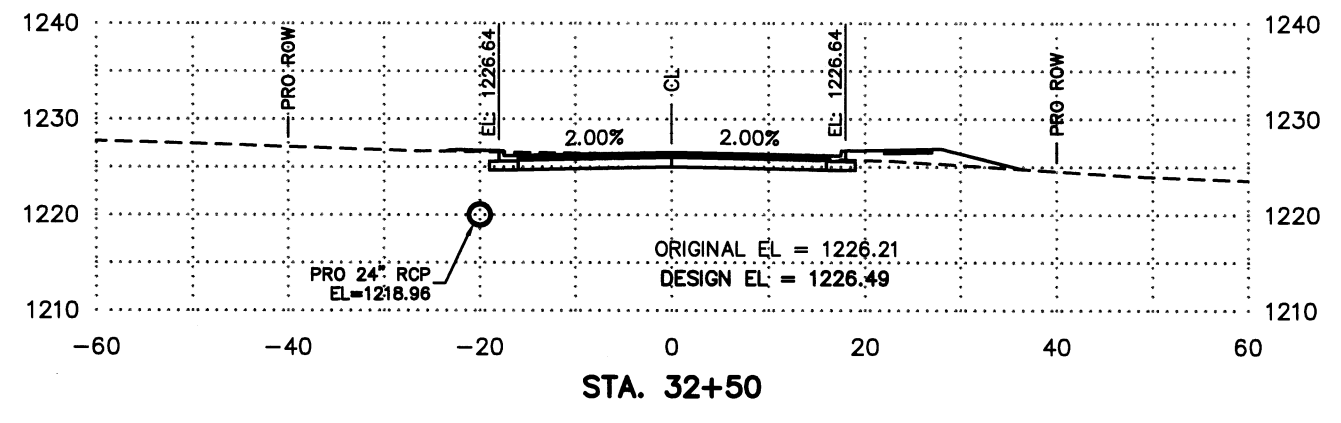
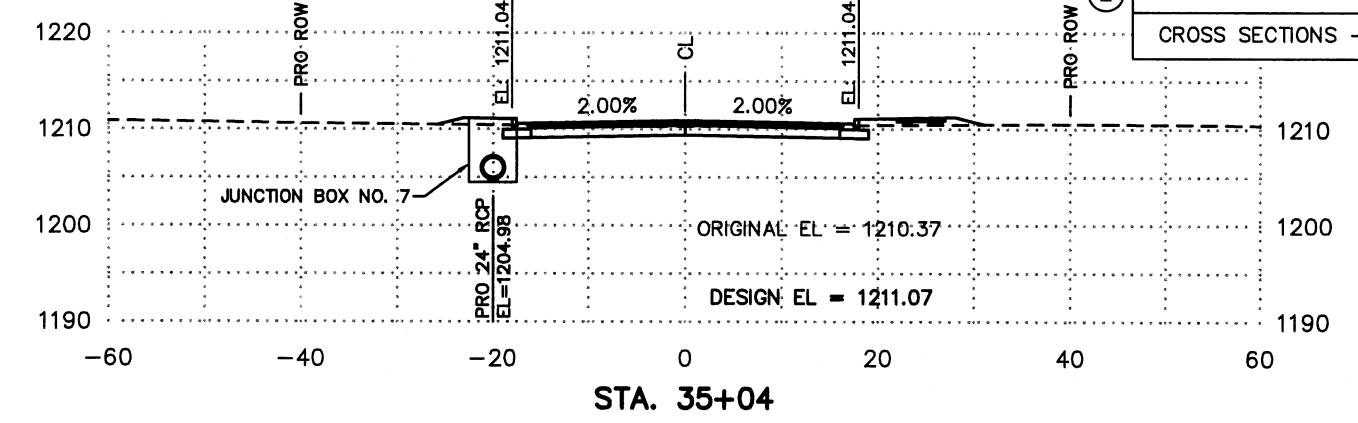
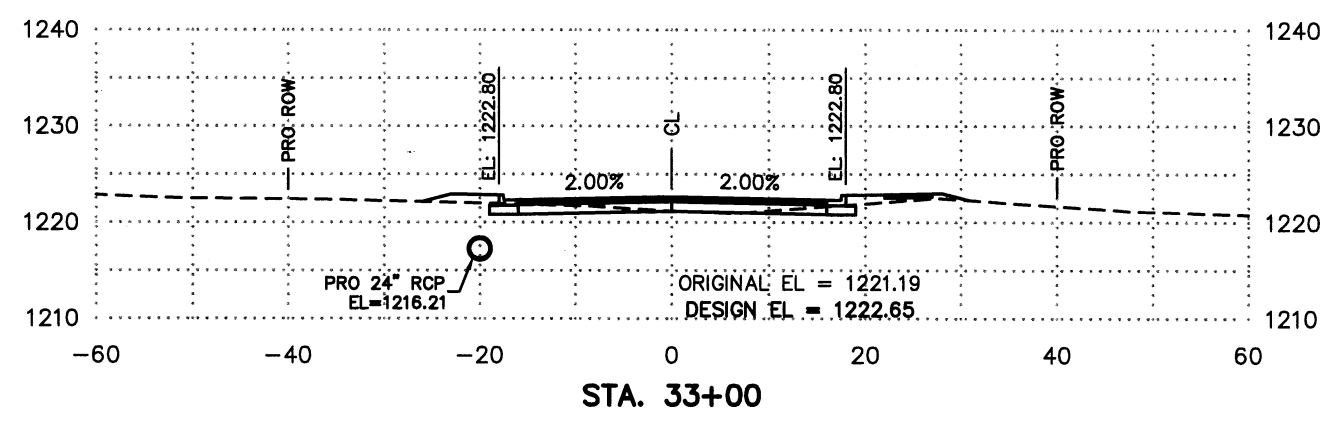
REGISTERED PROFESSIONAL ENGINEER  
 No. 14327  
 JONATHAN T. STRAIN  
 3-28-19

CERTIFICATE OF AUTHORIZATION  
 ENGINEERING SERVICES, INC.  
 131  
 ARKANSAS ENGINEER



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		24	27
				JOB NO.		C08006		

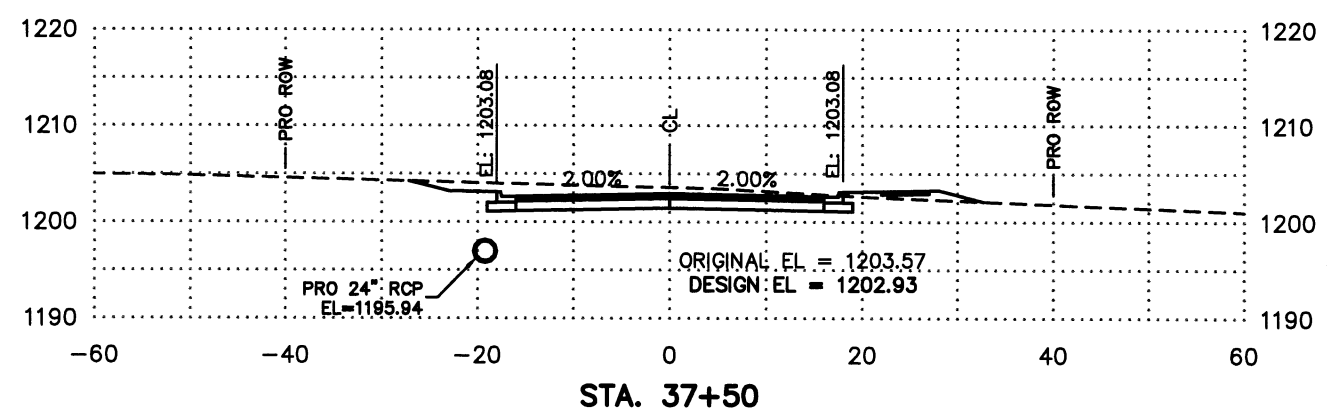
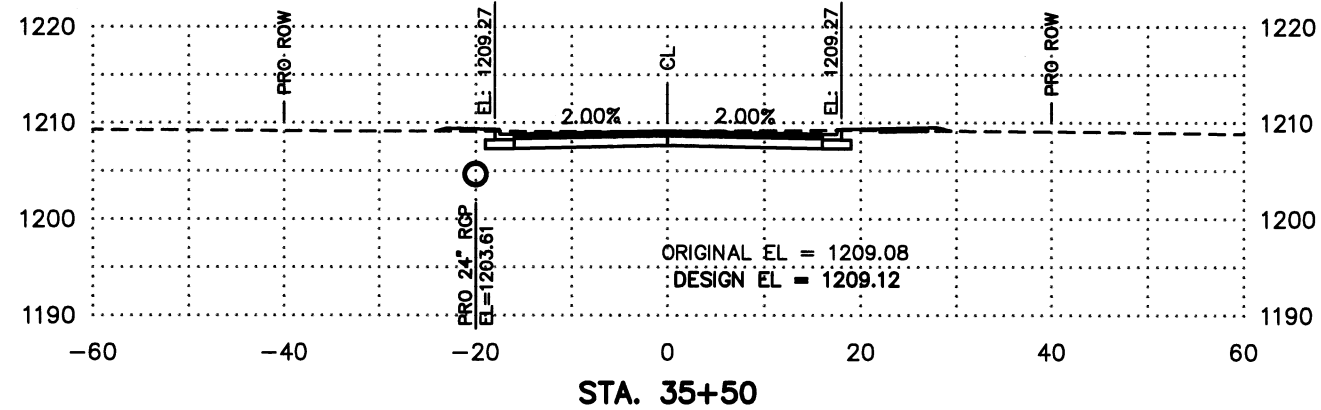
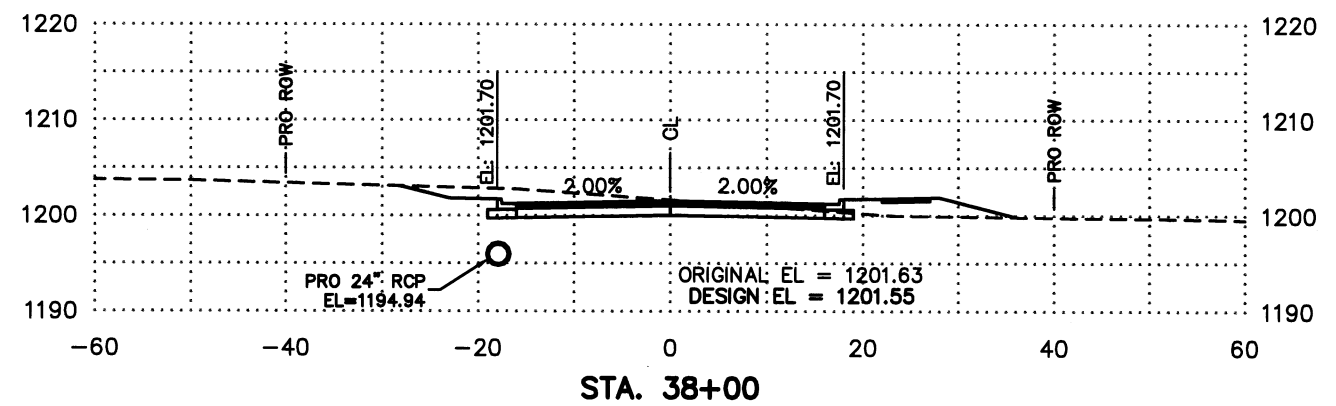
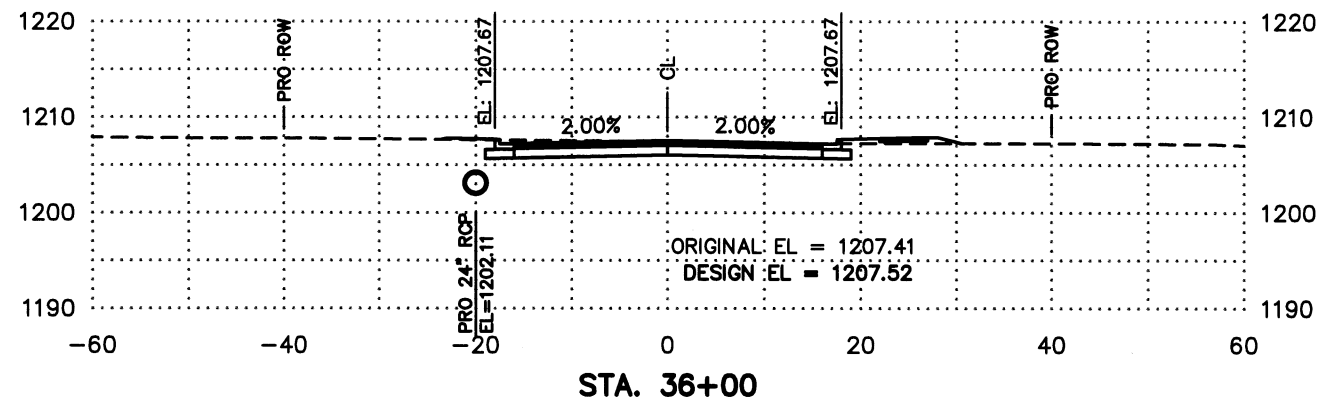
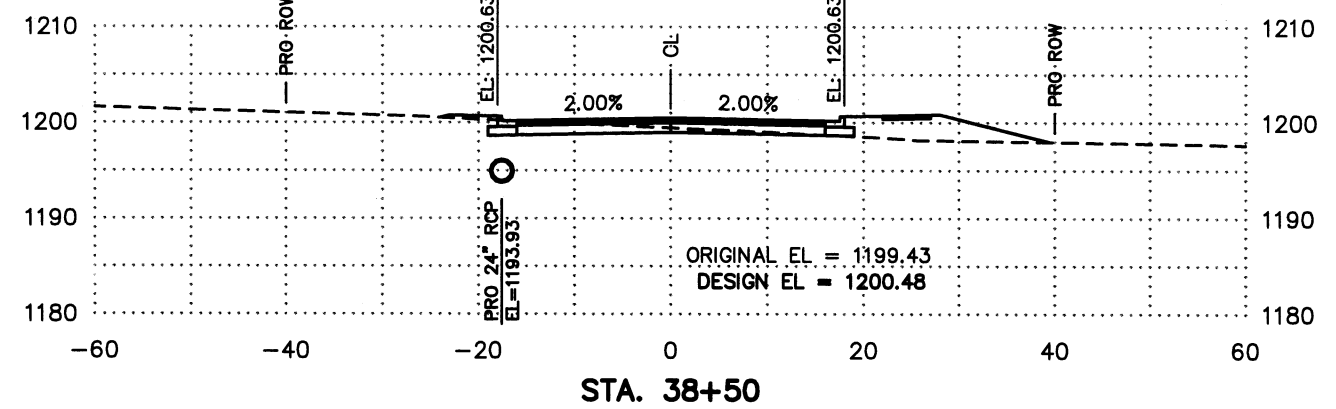
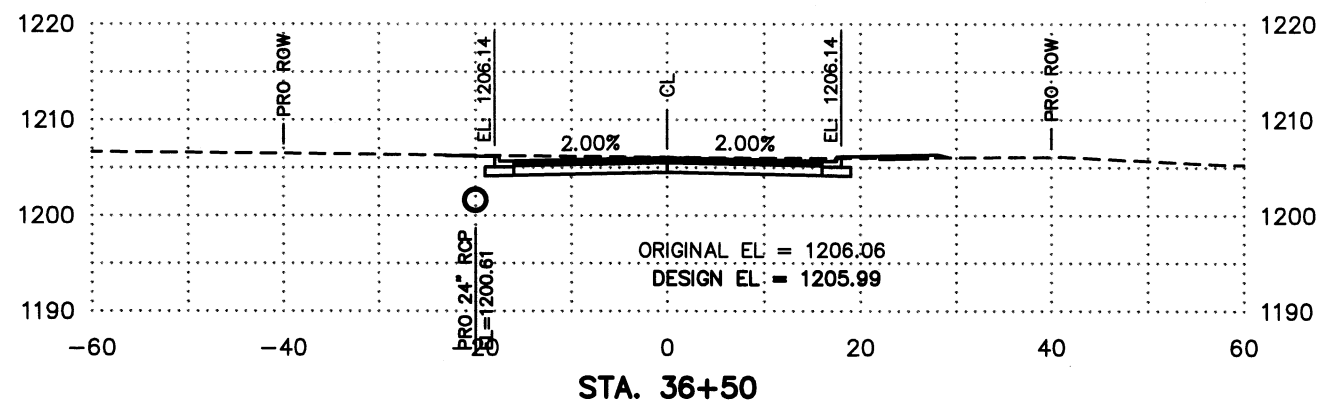
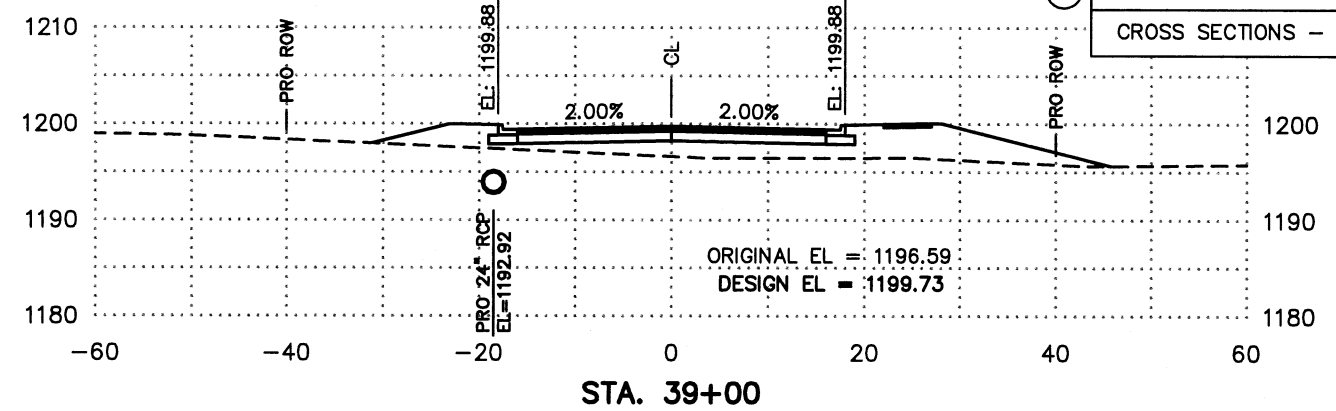
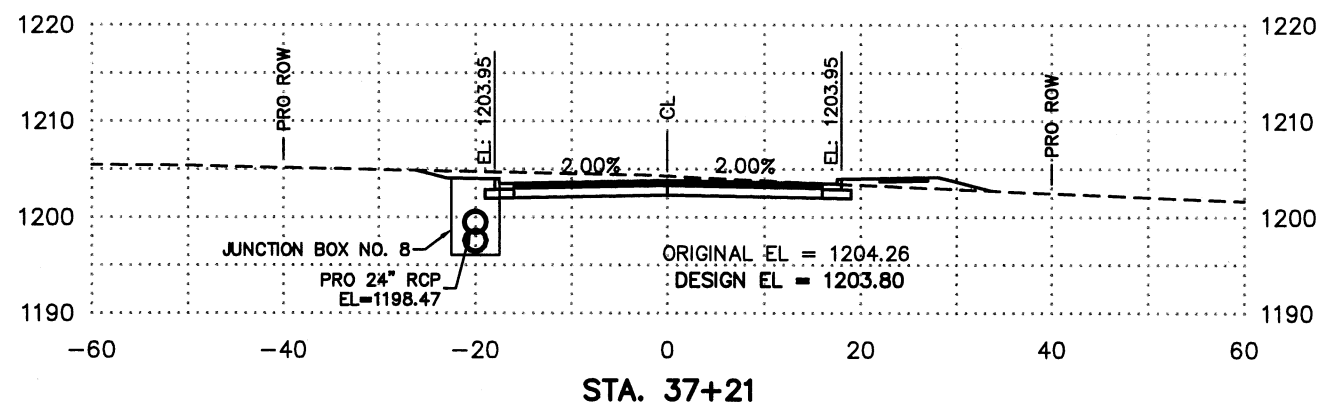
BERRYVILLE FREEMAN AVE. EXTENSION (S)  
CROSS SECTIONS - FREEMAN AVENUE





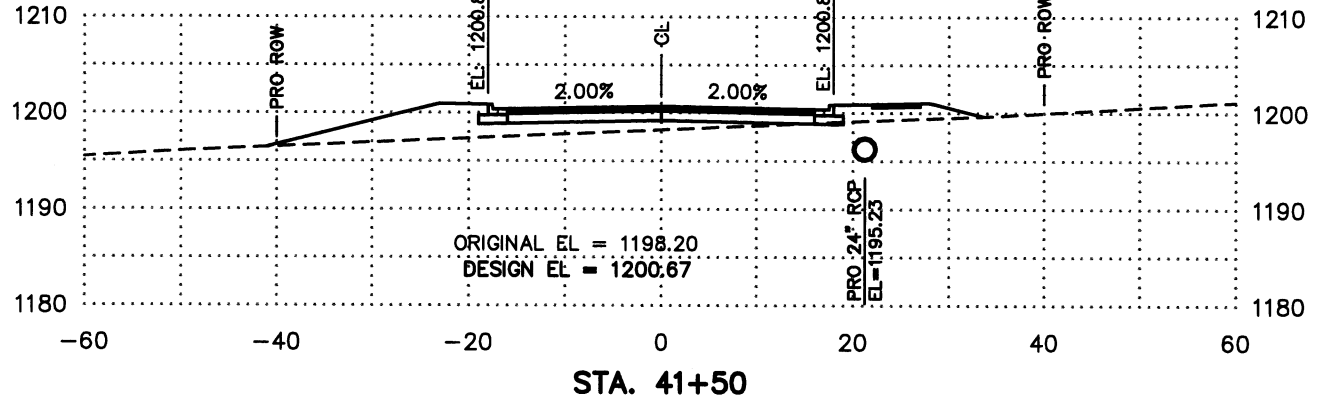
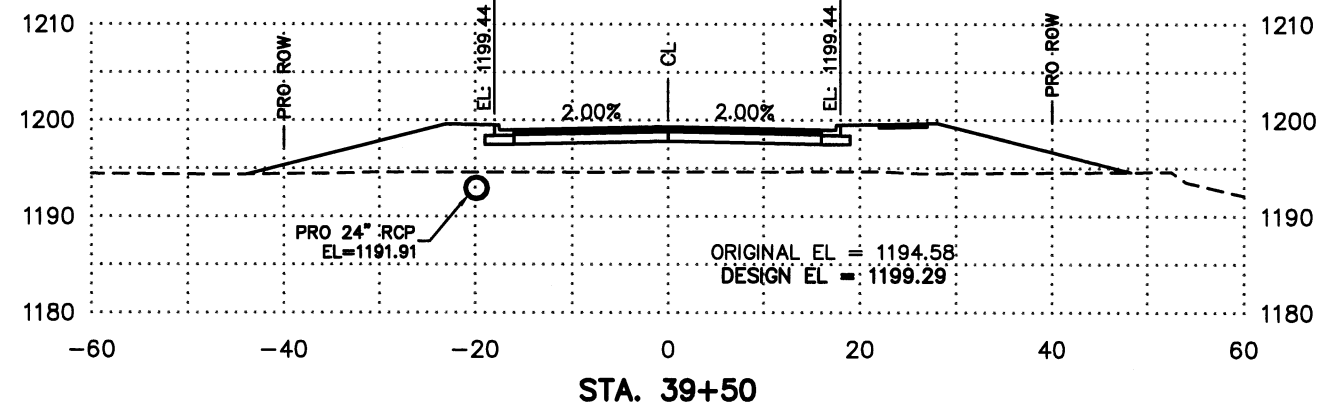
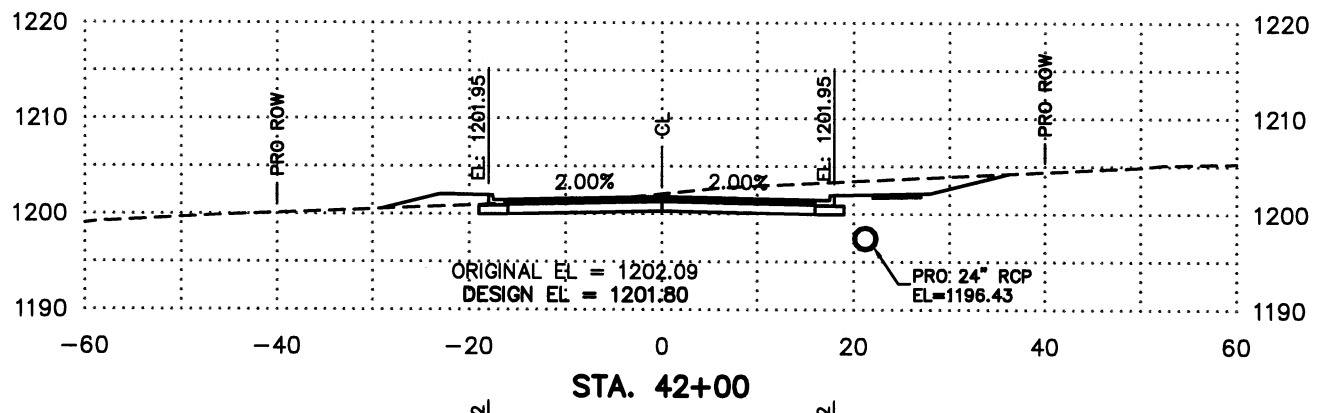
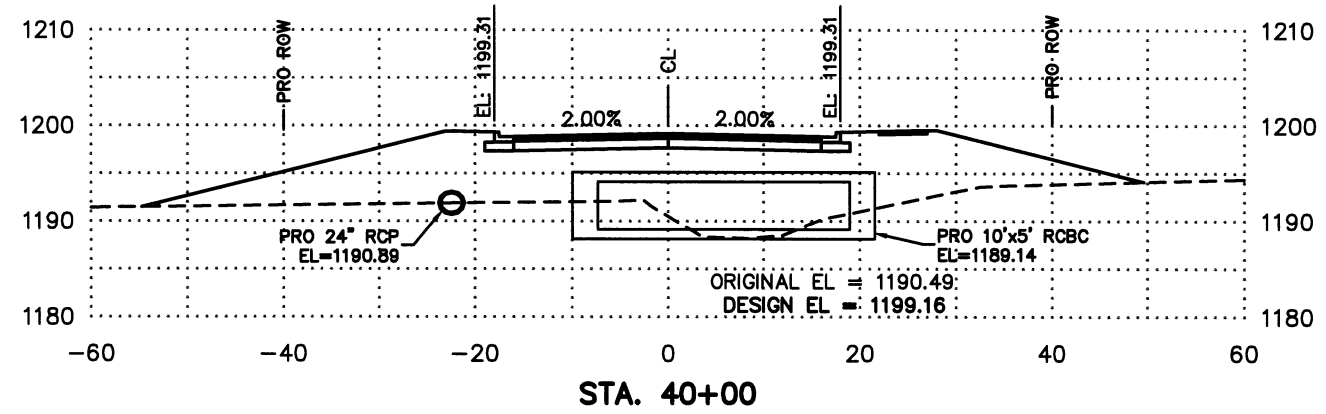
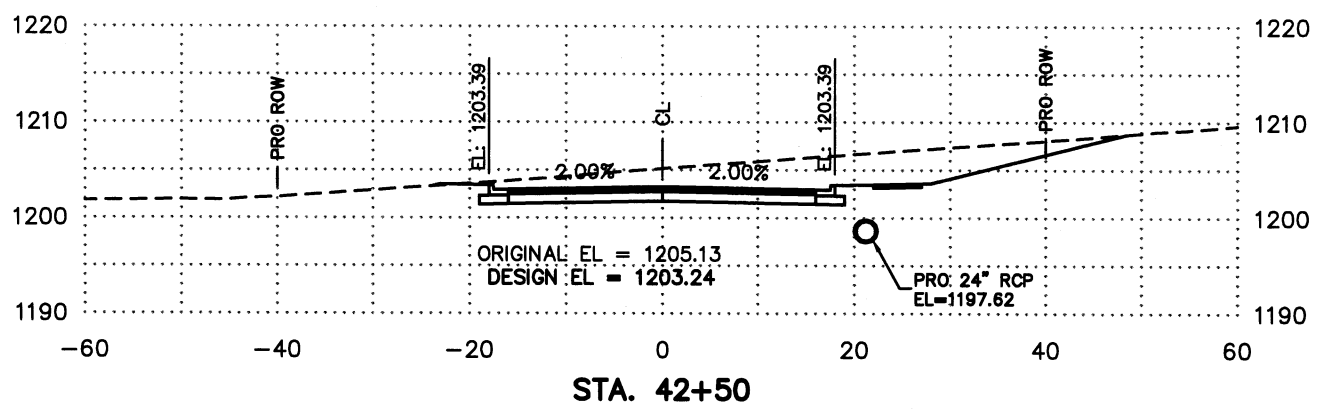
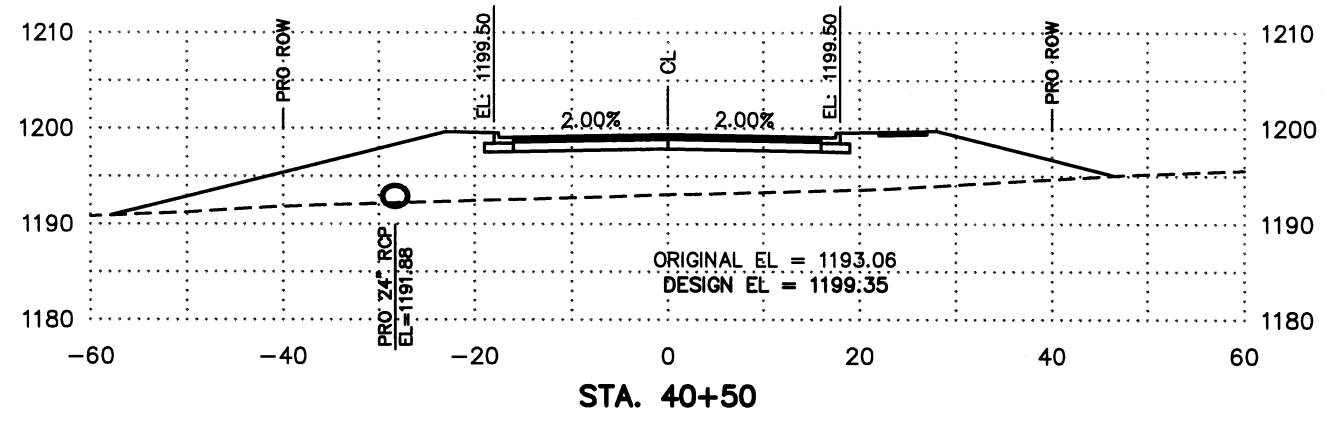
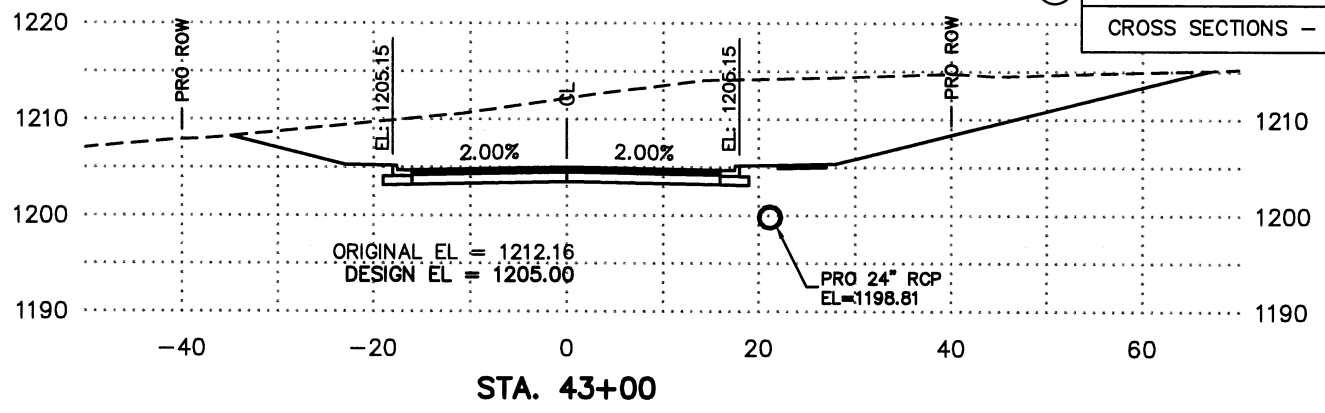
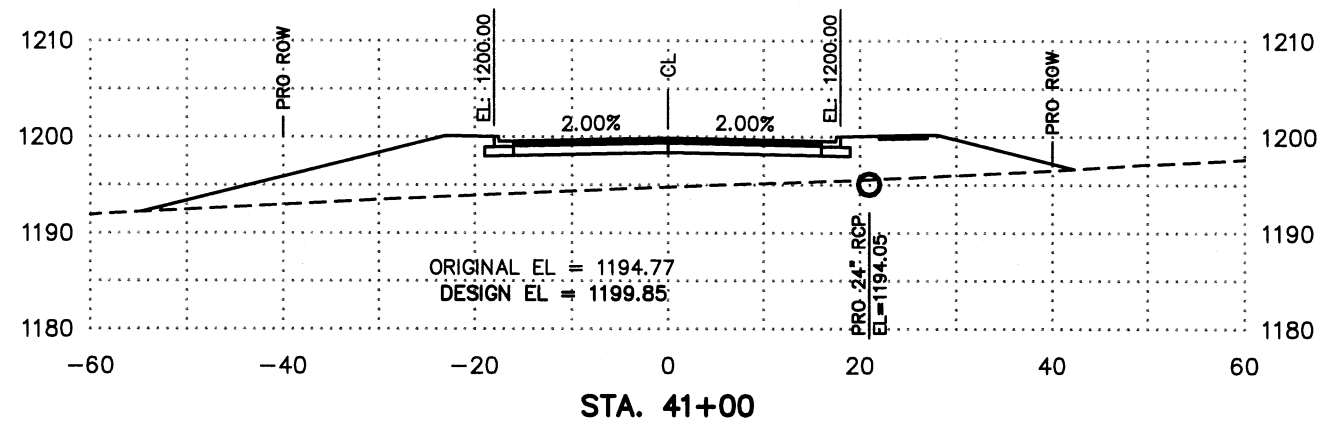
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		25	27
				JOB NO.		C08006		

② BERRYVILLE FREEMAN AVE. EXTENSION (S)  
CROSS SECTIONS - FREEMAN AVENUE



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		26	27
				JOB NO.		C08006		

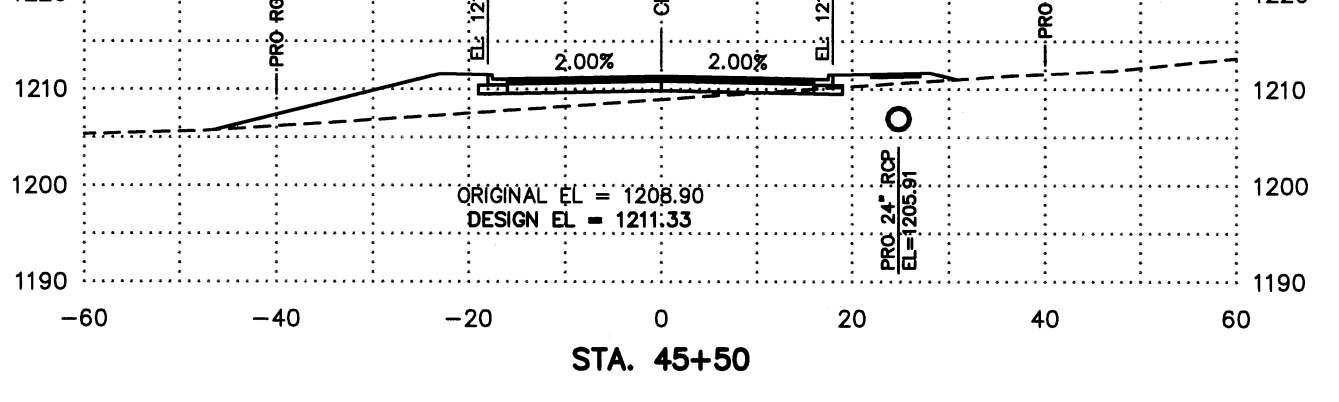
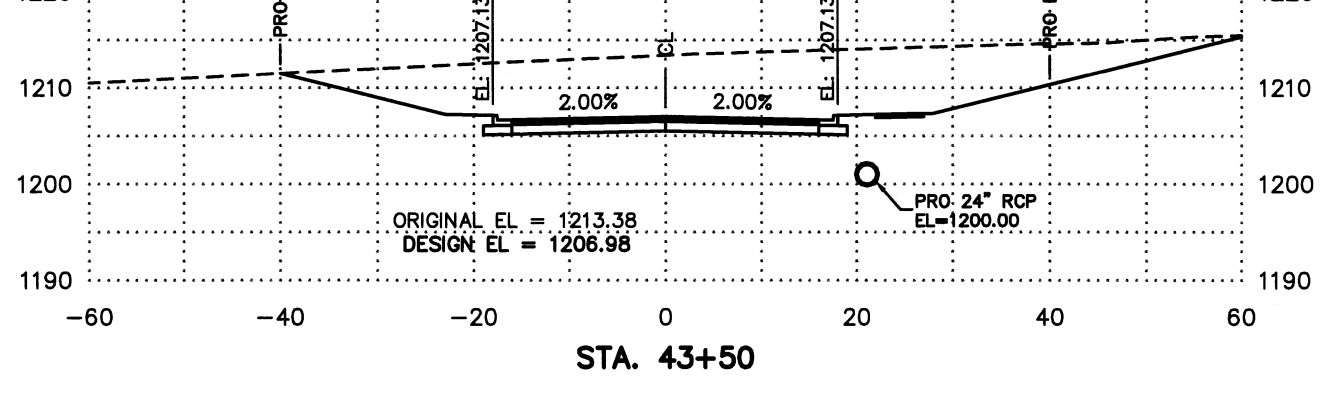
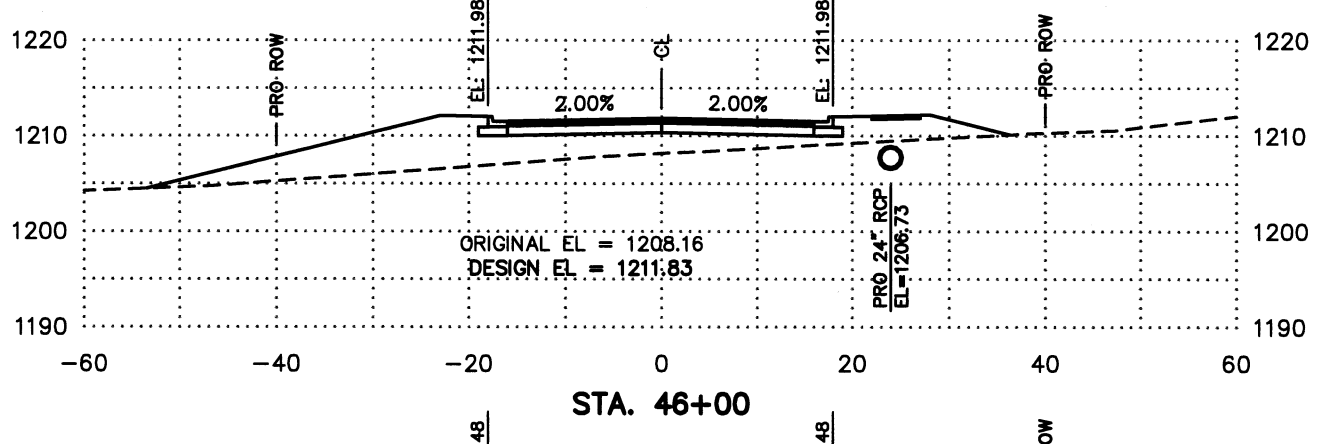
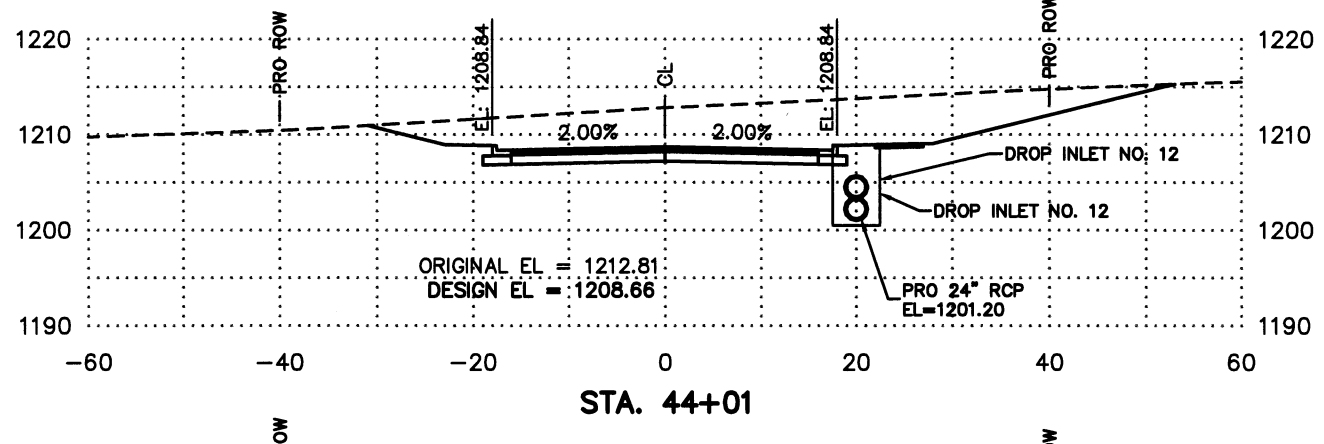
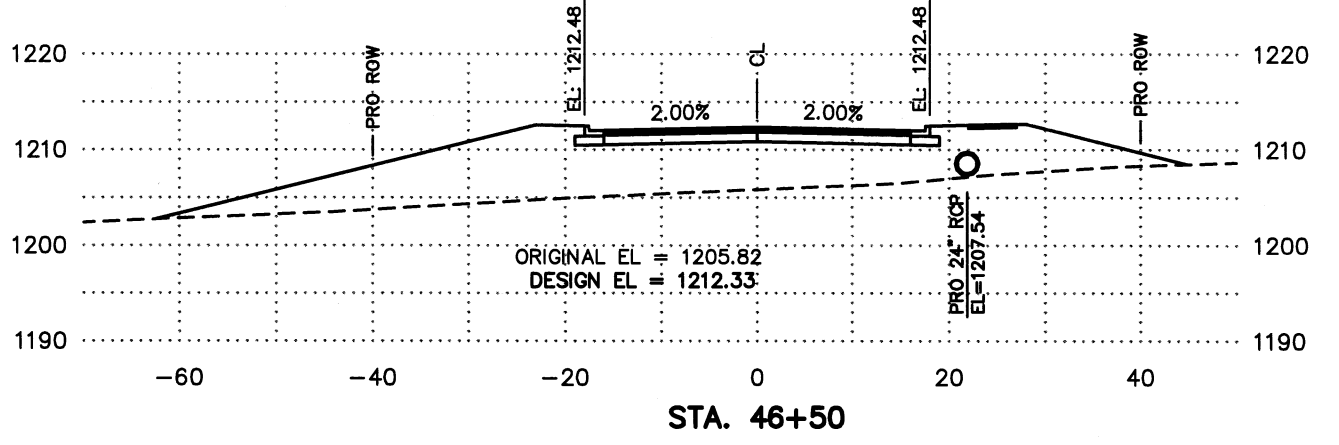
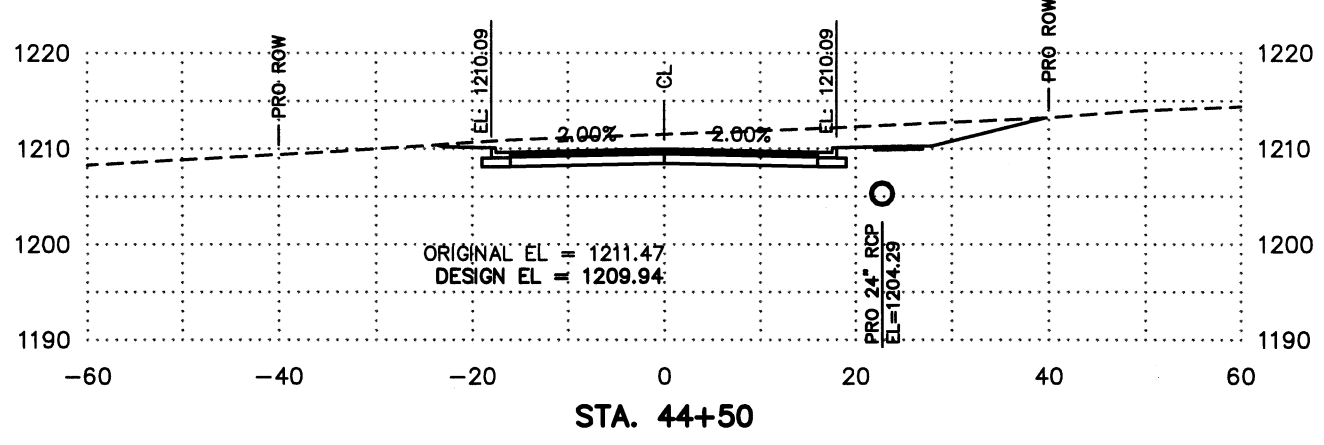
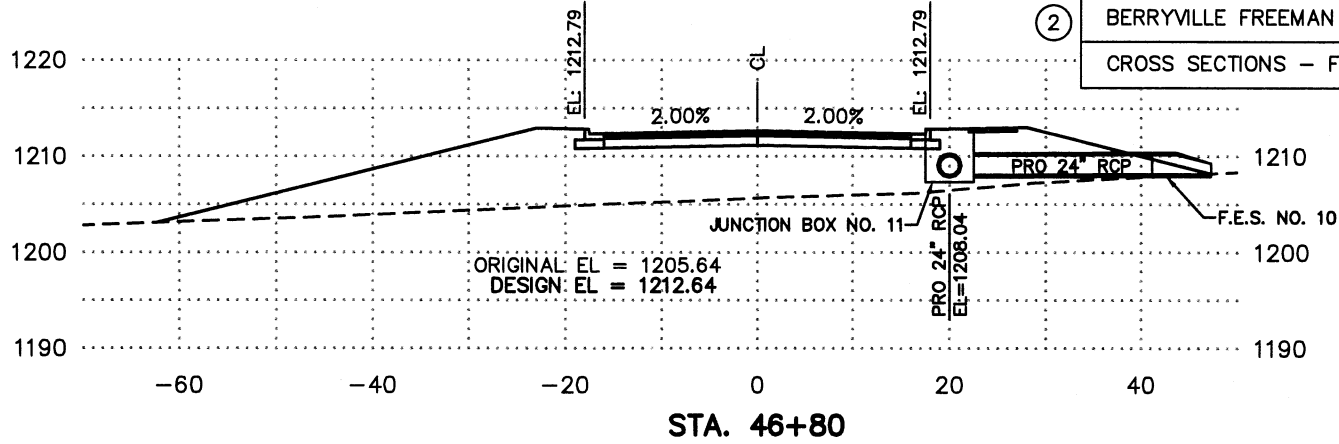
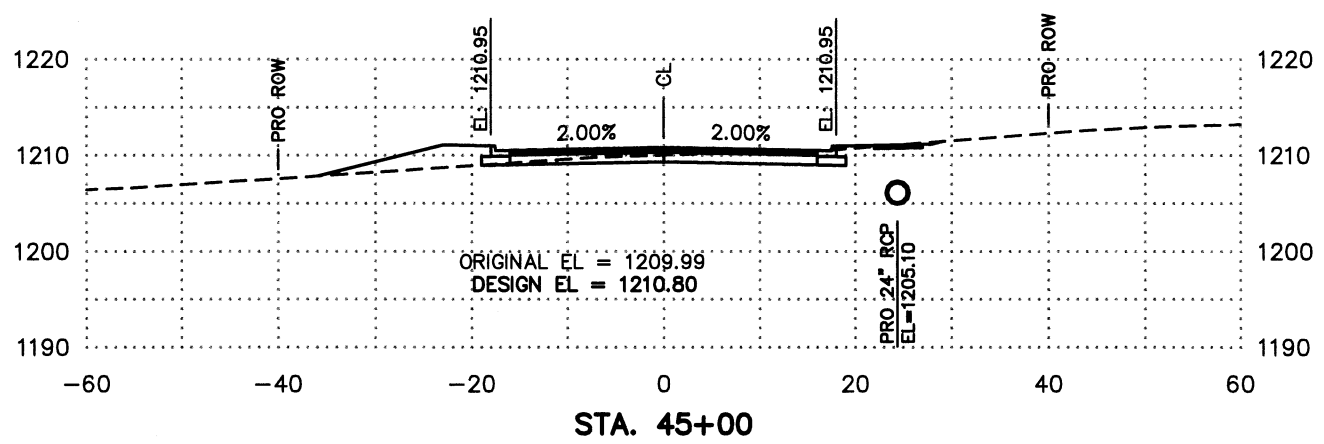
② BERRYVILLE FREEMAN AVE. EXTENSION (S)  
CROSS SECTIONS - FREEMAN AVENUE

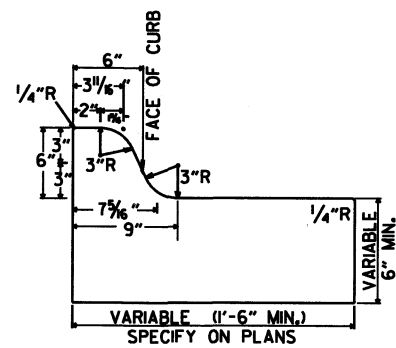




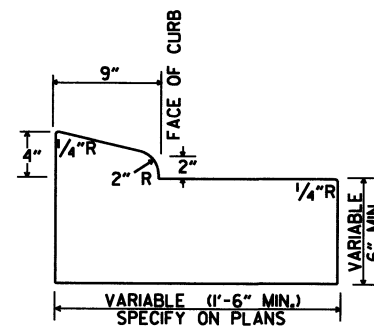
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		27	27
				JOB NO.		C08006		

② BERRYVILLE FREEMAN AVE. EXTENSION (S)  
CROSS SECTIONS - FREEMAN AVENUE

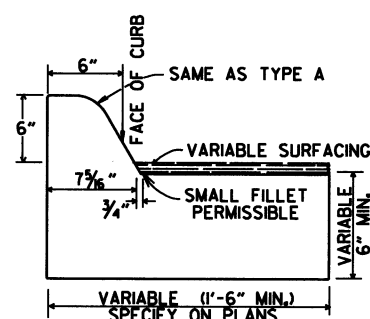




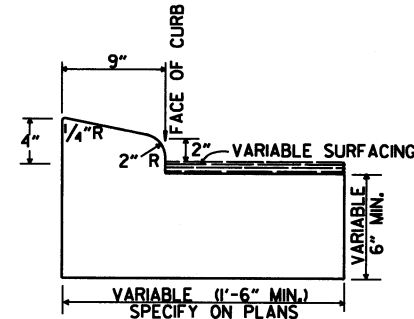
TYPE A



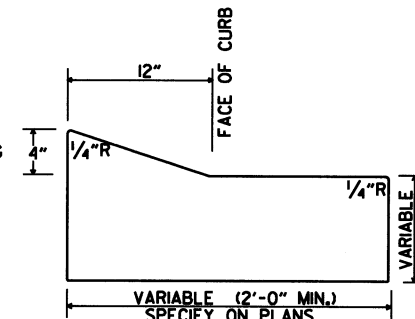
TYPE B-1



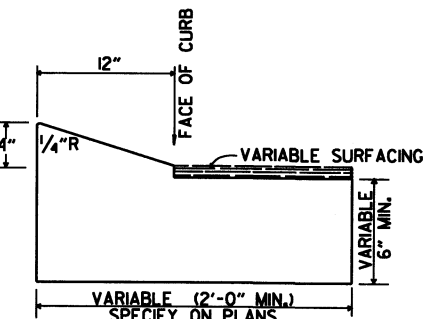
TYPE C



TYPE B-2

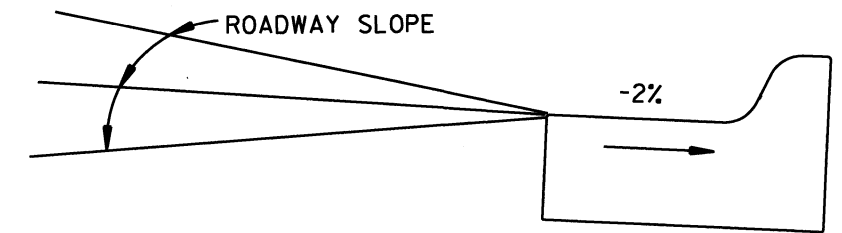


TYPE E-1

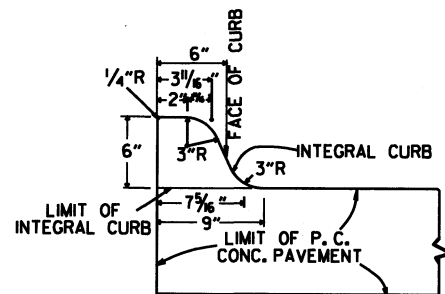


TYPE E-2

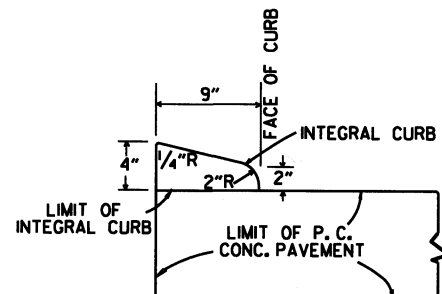
CONCRETE COMBINATION CURB AND GUTTER



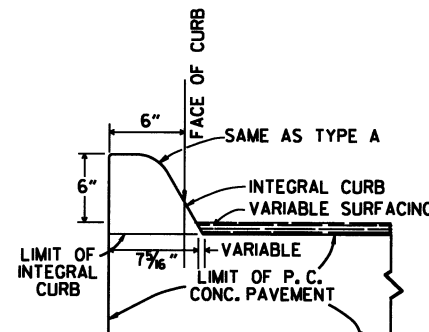
DETAIL OF GUTTER SLOPE  
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

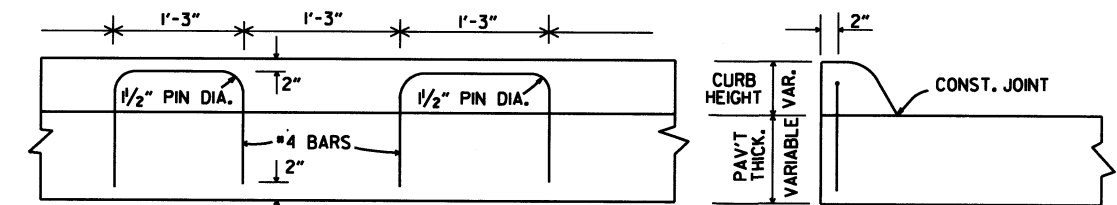


TYPE B



TYPE C

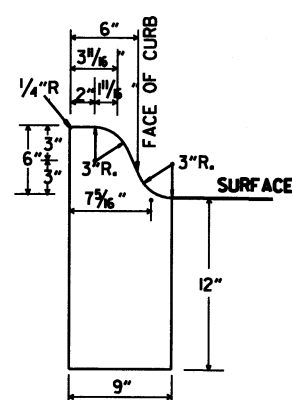
INTEGRAL CURB



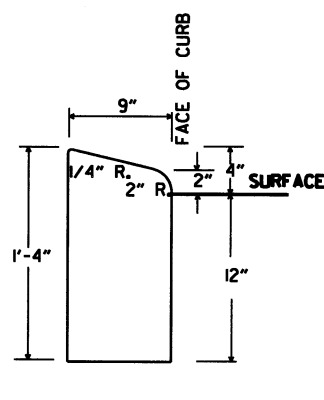
LONGITUDINAL SECTION

ELEVATION

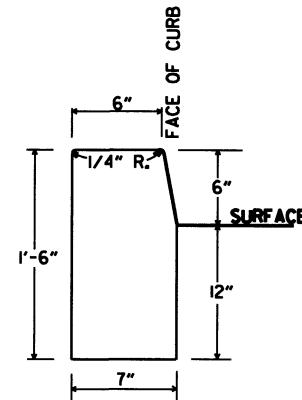
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



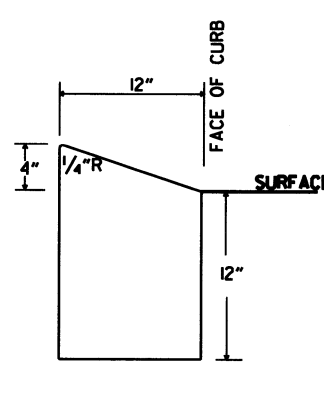
TYPE A



TYPE B

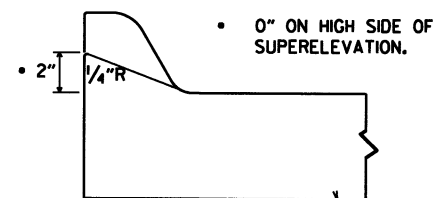


TYPE D



TYPE E

CONCRETE CURB



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

DETAILS OF MODIFIED CURB

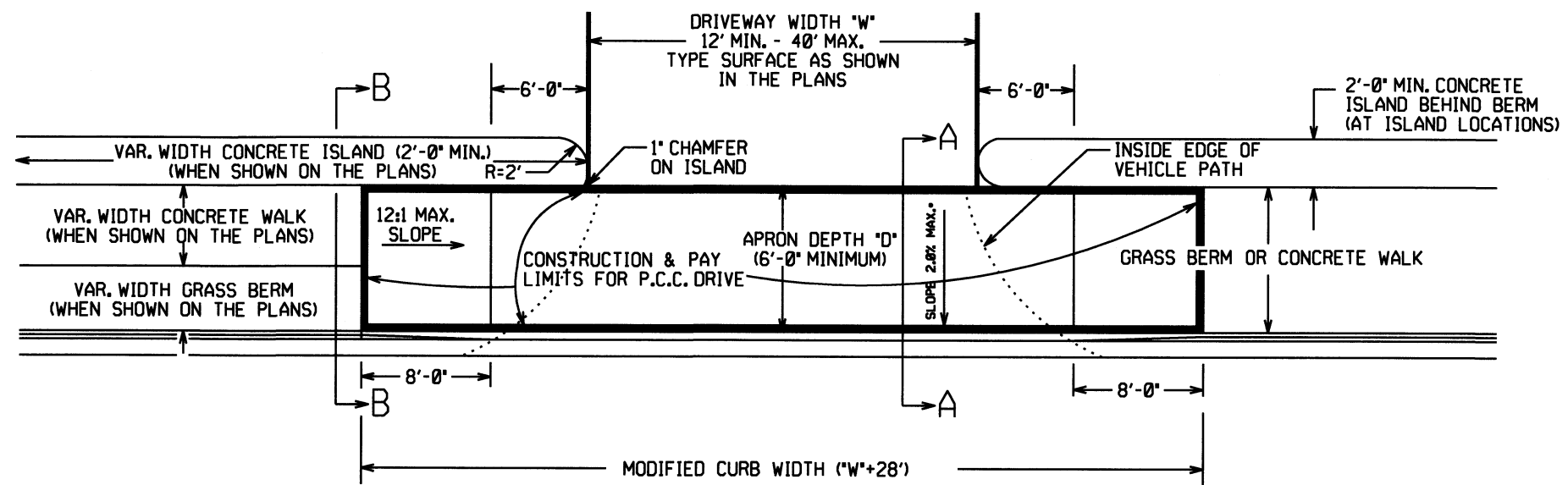
DATE	REVISION	DATE FILMED
1-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
1-10-05	ADDED DETAILS OF TYPE E CURBS	
1-16-01	REVISED CONCRETE CURB TYPE B	
1-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
1-30-89	VARIABLE DEPTH TYPE A & B 1	1-30-89
7-25-88	REVISED MODIFIED CURB	630-7-25-88
1-1-73	REVISED MODIFIED CURB	500-1-1-73
10-2-72	REVISED AND REDRAWN	52-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

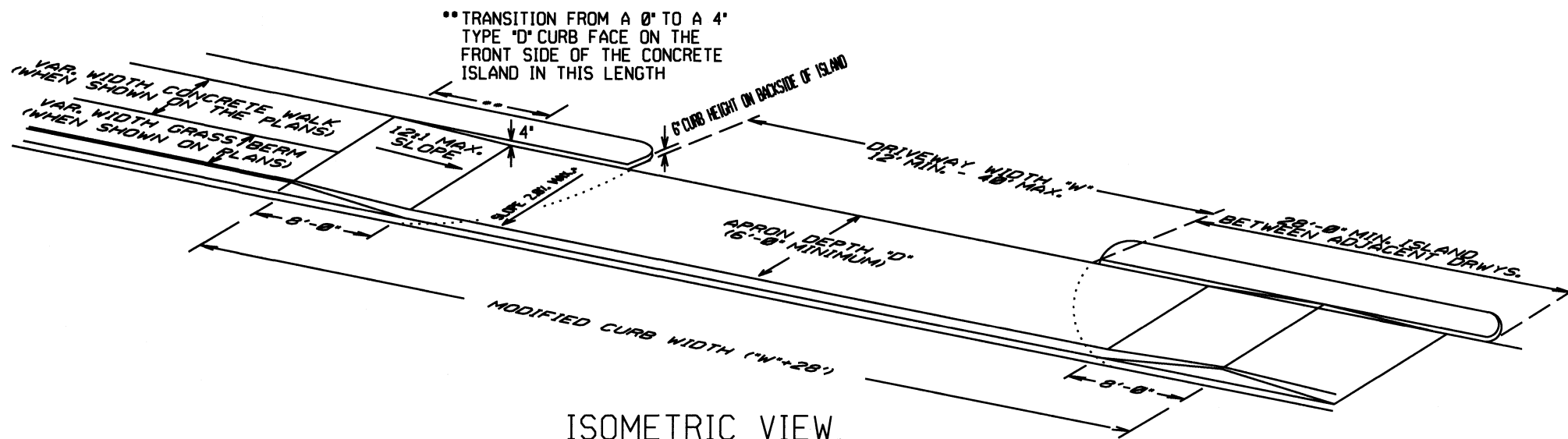
CURBING DETAILS

STANDARD DRAWING CG-1



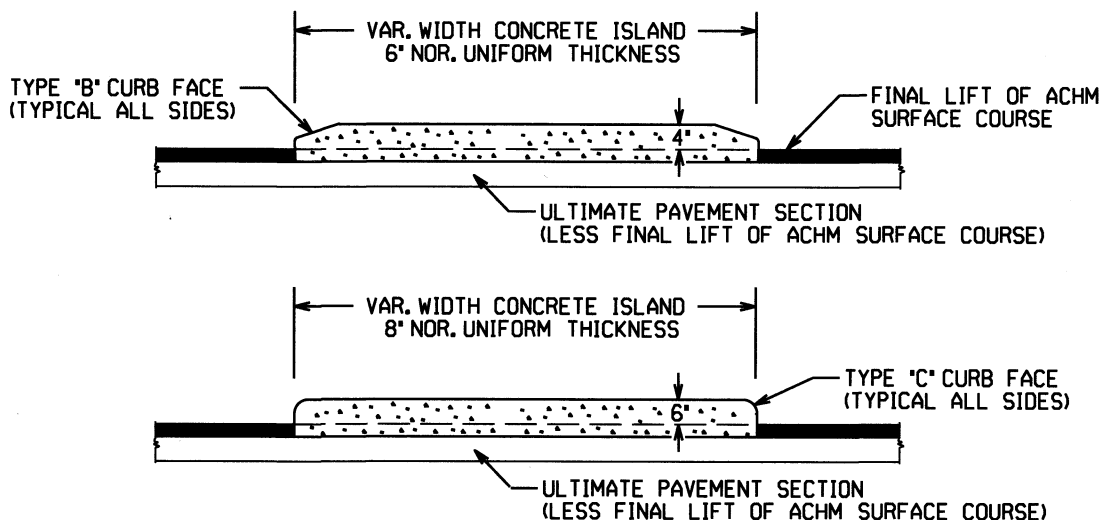


PLAN VIEW

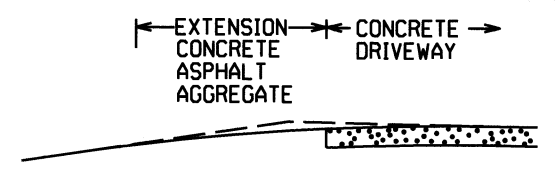


ISOMETRIC VIEW

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



CURBED ISLANDS FOR CHANNELIZATION

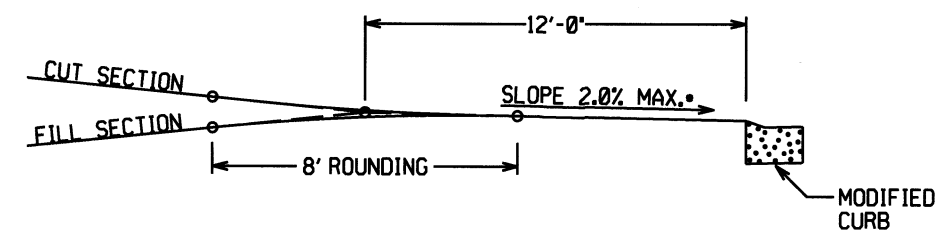


EXTENSION TYPICAL SECTIONS

- 1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY
- 2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")  
4" ACHM BINDER COURSE (1") OR  
4" ACHM BASE COURSE (1-1/2")
- 3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")  
7" AGGREGATE BASE COURSE
- 4: AGGREGATE - 6" AGGREGATE BASE COURSE

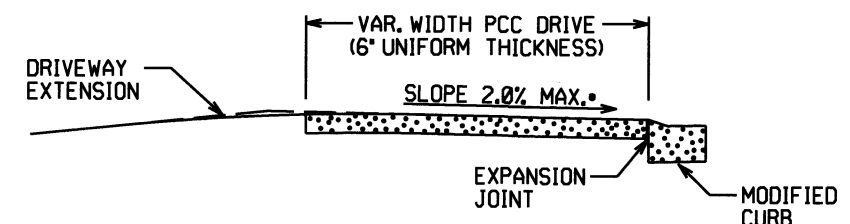
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

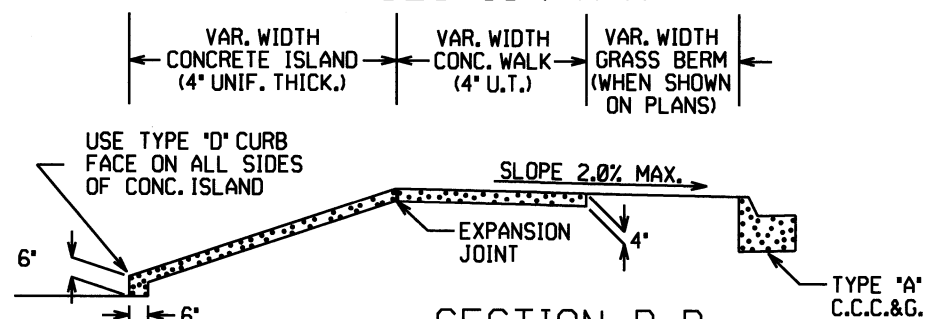


DRIVEWAY VERTICAL ALIGNMENT DETAILS

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



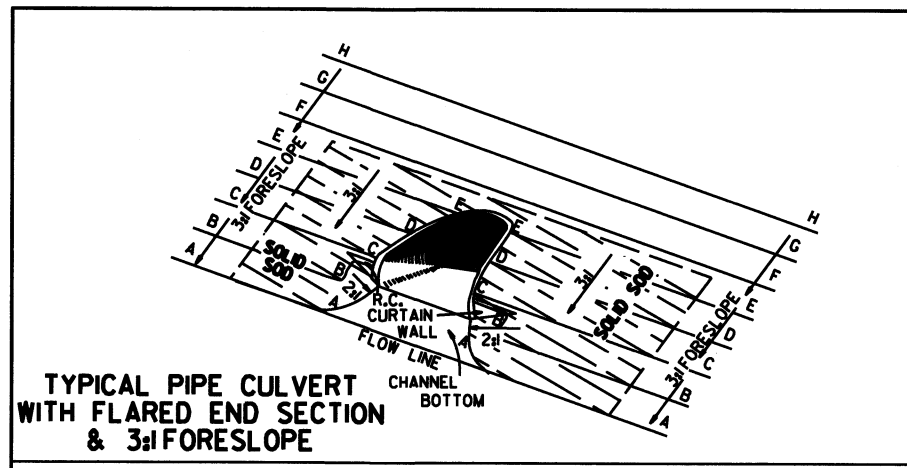
SECTION A-A



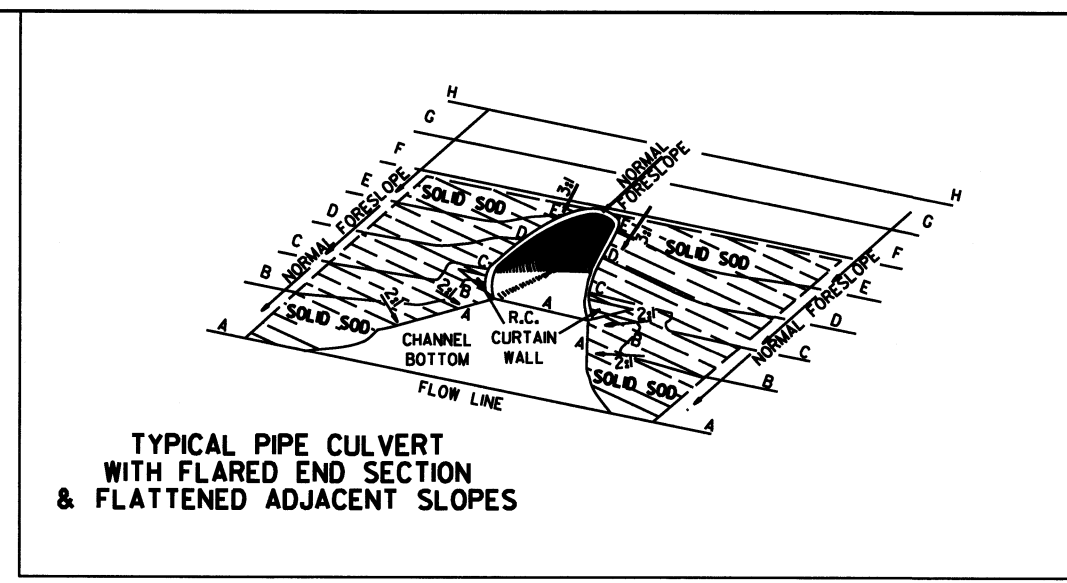
SECTION B-B  
CURBED ISLAND BEHIND WALK

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

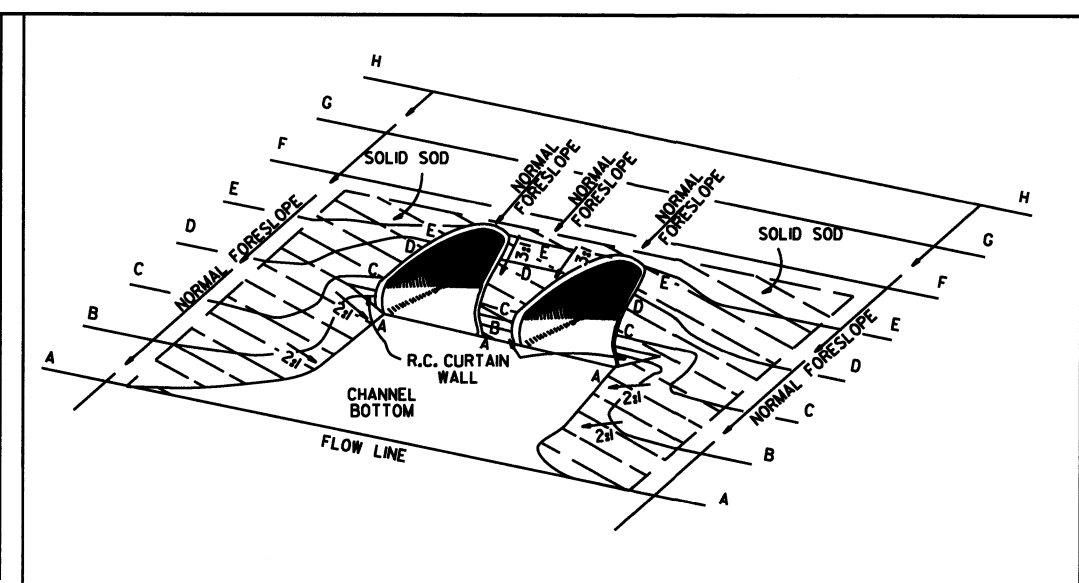
ARKANSAS STATE HIGHWAY COMMISSION  
DETAILS OF DRIVEWAYS & ISLANDS  
STANDARD DRAWING DR-1



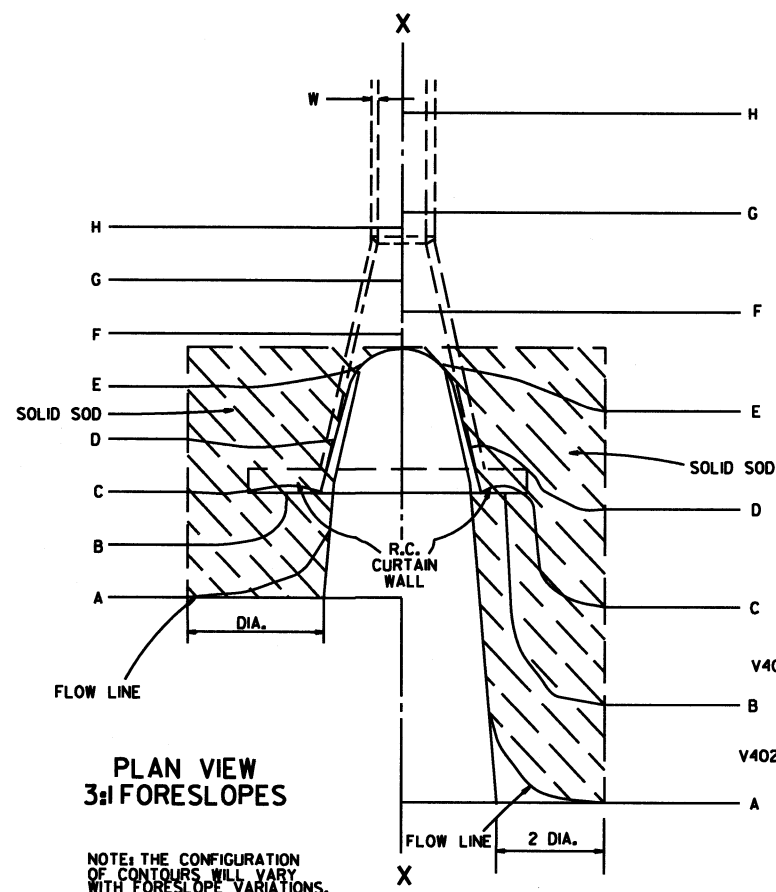
TYPICAL PIPE CULVERT WITH FLARED END SECTION & 3:1 FORESLOPE



TYPICAL PIPE CULVERT WITH FLARED END SECTION & FLATTENED ADJACENT SLOPES



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



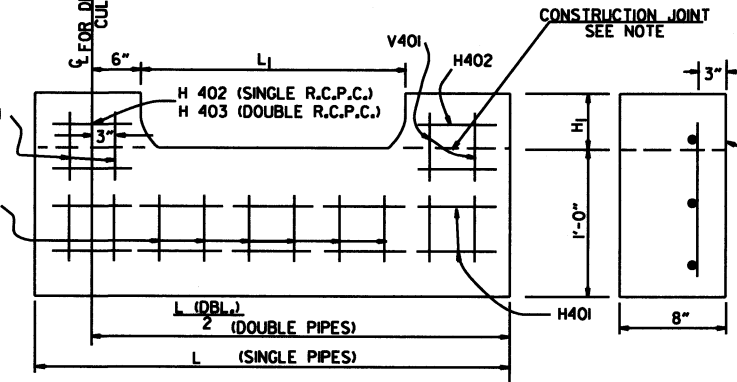
PLAN VIEW 3:1 FORESLOPES

PLAN VIEW FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

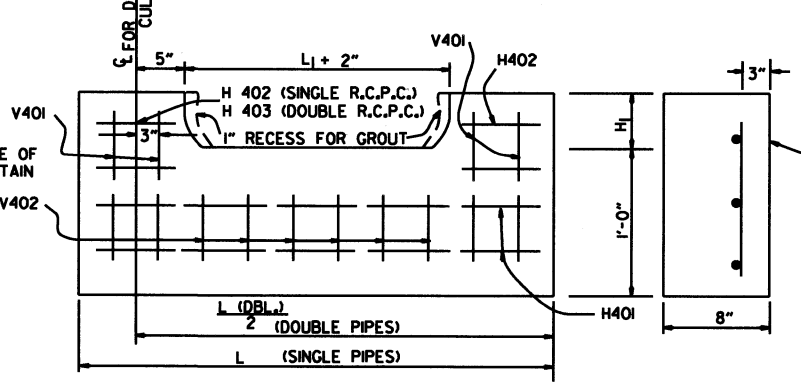
PIPE DIA.	H <sub>1</sub>	L <sub>1</sub>	L	L (DBL.) 2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11/2"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0 1/2"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3 1/2"	5'-7"	11'-0"	9'-0"	0.45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

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



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

R.C. CURTAIN WALL DETAILS



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

REINFORCING STEEL SCHEDULE

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

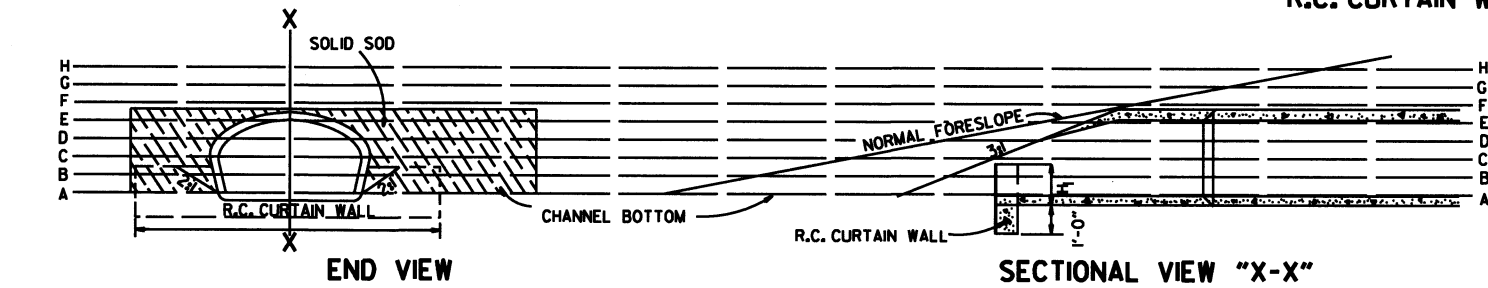
ALL REINFORCING STEEL #4 BARS @ 6" O.C.

SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C.						DOUBLE R.C.P.C.					
	3:1		4:1		6:1		3:1		4:1		6:1	
	SO. YDS.	SO. YDS.	SO. YDS.	SO. YDS.	SO. YDS.	SO. YDS.	SO. YDS.	SO. YDS.	SO. YDS.	SO. YDS.	SO. YDS.	
18"	5	8	12	19	6	8	13	19	29	14	19	30
24"	8	12	19	29	9	13	20	28	41	18	28	43
30"	13	18	26	41	18	28	43	42	55	25	37	57
36"	17	26	41	68	31	48	70	48	73	37	59	87
42"	23	35	55	85	41	68	107	60	92	48	81	127
48"	29	46	68	104	48	81	127	72	107	65	107	159
54"	35	57	85	127	59	87	159	84	127	77	127	198
60"	45	67	104	159	77	127	198	104	159	99	159	258
72"	64	92	156	228	107	159	258	144	228	135	228	360

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

- GENERAL NOTES
1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
  2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
  3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
  4. WELDED WIRE MESH 3 x 3 W/10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.



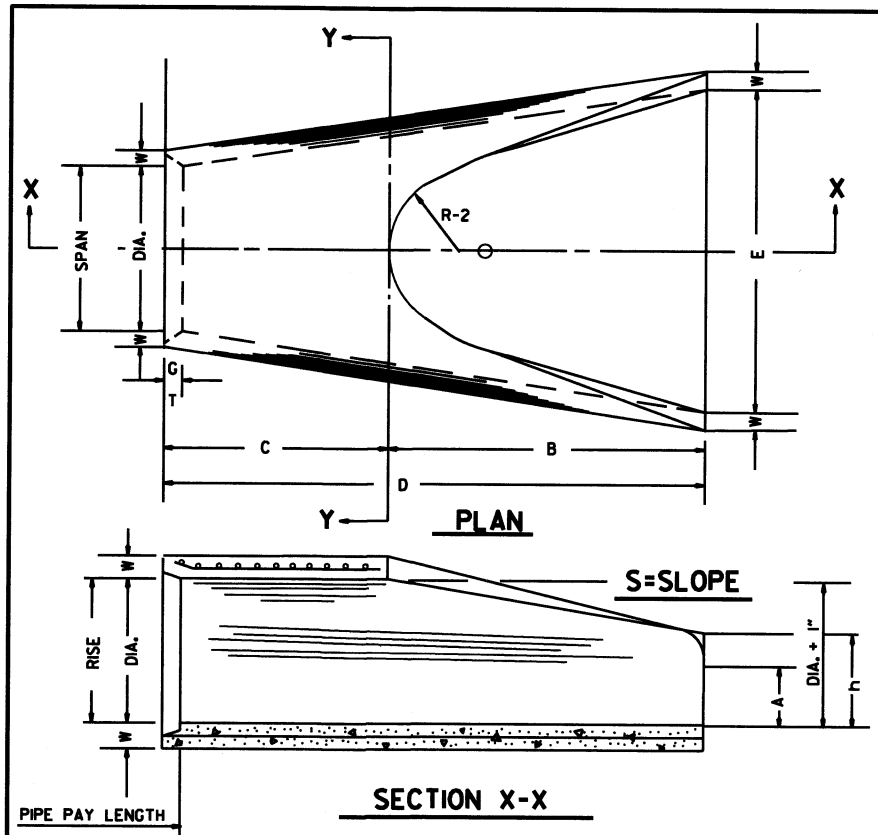
END VIEW

SECTIONAL VIEW "X-X"

10-18-96 ADDED NOTE TO SOLID SODDING	ARKANSAS STATE HIGHWAY COMMISSION
10-12-95 CORRECTED SPELLING	
11-3-94 ADDED GENERAL NOTE NO. 4	
8-15-91 REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.	
3-2-81 ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80 ADDED PRECAST WALL & GENERAL NOTES	
10-2-72 REVISED AND REDRAWN	
DATE	REVISION
	FILMED
	STANDARD DRAWING FES-1

FLARED END SECTION

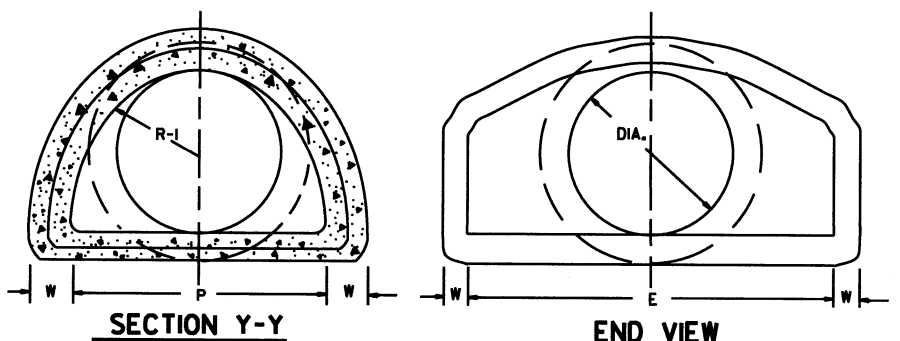




**END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS**

**TABLE OF DIMENSIONS**

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15 1/2"	12"	2"	1000	1'-0 1/2"
24"	3"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3:1	25"	33 3/4"	16 3/4"	14"	2 1/2"	1600	1'-1 1/2"
30"	3 1/2"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18 1/2"	15"	3 1/4"	1940	1'-4 3/4"
36"	4"	1'-3"	5'-3"	2'-10 1/4"	8'-1 1/4"	6'-0"	3:1	37"	47 3/4"	24 3/4"	20"	3 1/2"	4100	1'-8"
42"	4 1/2"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53 3/4"	27 1/2"	22"	3 3/4"	5380	2'-2 1/2"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56 3/4"	28 1/2"	22"	3 3/4"	6550	2'-6"
54"	5 1/2"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65 1/2"	33 3/4"	24"	4"	8750	2'-10 1/2"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72 1/2"	36 3/4"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 3/4"	38 3/4"	24"	5"	13250	4'-6"

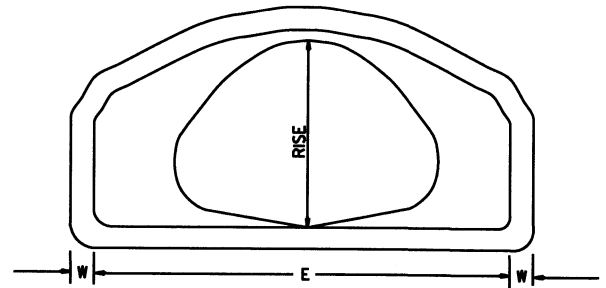


**SECTION Y-Y** and **END VIEW**  
NOTE: TONGUE END ON UPSTREAM SECTION  
GROOVE END ON DOWNSTREAM SECTION

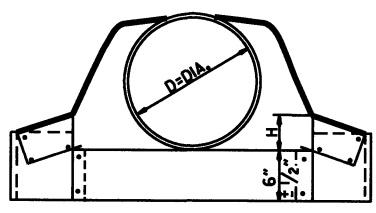
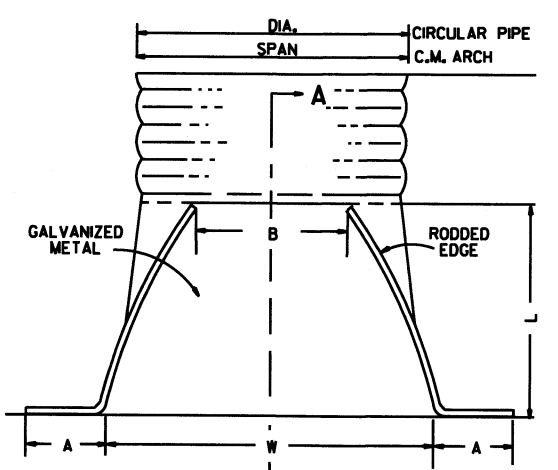
**ARCH PIPE**

EQUIV. DIA.	SPAN		RISE		W	A	B	C	D	E	P	R2	G-T	S
	AASHTO M 206	AHD NOMINAL	AASHTO M 206	AHD NOMINAL										
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1 1/2"	2 1/2:1
18	22	22	13 1/2	14	2 1/2"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32 1/2"	13"	2 1/2"	2 1/2:1
21	26	26	15 1/2	16	3"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34 1/4"	14"	2 1/2"	2 1/2:1
24	28 1/2	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 3/4"	15"	2 1/2"	2 1/2:1
30	36 1/4	36	22 1/2	23	3 1/2"	10"	3'-1"	3'-0"	6'-1 1/2"	6'-0"	47 3/4"	20"	3"	2 1/2:1
36	43 3/4	44	26 3/4	27	4"	10 1/2"	4'-0"	2'-1 1/2"	6'-1 1/2"	6'-6"	54 3/4"	22"	3 3/4"	2 1/2:1
42	51 1/4	51	31 3/4	31	4 1/2"	11 1/2"	4'-7"	1'-10 1/4"	6'-5 1/4"	7'-2"	59 1/2"	23"	3 3/4"	2 1/2:1
48	58 1/2	59	36	36	5"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	7'-10"	70 3/4"	24"	4 1/4"	2 1/2:1
54	65	65	40	40	5 1/2"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/4"	24"	4 3/4"	2 1/2:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 3/4"	24"	5"	2 1/2:1

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



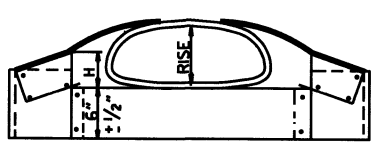
**END VIEW CONCRETE ARCH PIPE**



**CIRCULAR PIPE**

**CIRCULAR PIPE**

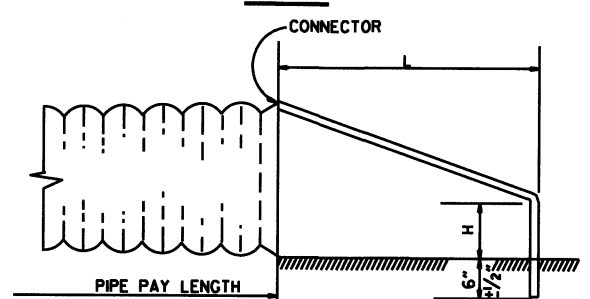
D. DIA.	GAUGE	INCHES						S
		A ±	B. MAX.	H ±	L ±	W ±		
12	16	6	6	6	21	24	2 1/2:1	
15	16	7	8	6	26	30	2 1/2:1	
18	16	8	10	6	31	36	2 1/2:1	
21	16	9	12	6	36	42	2 1/2:1	
24	16	10	13	6	41	48	2 1/2:1	
30	14	12	16	8	51	60	2 1/2:1	
36	14	14	19	9	60	72	2 1/2:1	
42	12	16	22	11	69	84	2 1/2:1	
48	12	18	27	12	78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



**C.M. ARCH PIPE**

**C.M. ARCH PIPE**

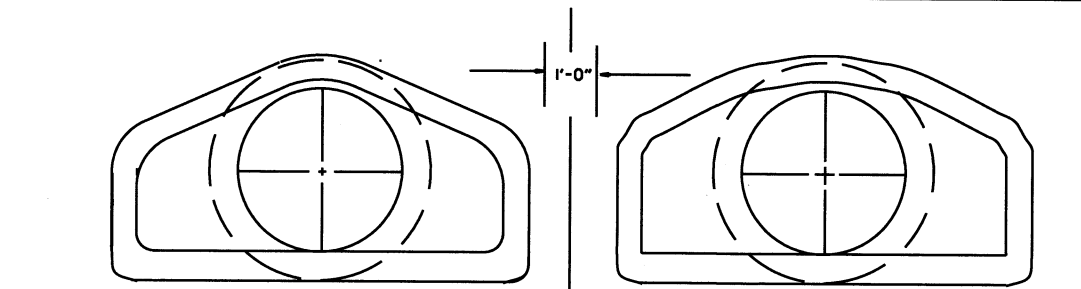
EQUIV. DIA.	SPAN	RISE	INCHES						S	GAUGE
			A ±	B MAX.	H ±	L ±	W ±			
15"	17	13	7	9	6	19	30	2 1/2:1	16	
18"	21	15	7	10	6	23	36	2 1/2:1	16	
21"	24	18	8	12	6	28	42	2 1/2:1	16	
24"	28	20	9	14	6	32	48	2 1/2:1	16	
30"	35	24	10	16	6	39	60	2 1/2:1	14	
36"	42	29	12	18	8	46	75	2 1/2:1	14	
42"	49	33	13	21	9	53	85	2 1/2:1	12	
48"	57	38	18	26	12	63	90	2 1/2:1	12	
54"	64	43	18	30	12	70	102	2 1/2:1	12	
60"	71	47	18	33	12	77	114	2 1/4:1	12	



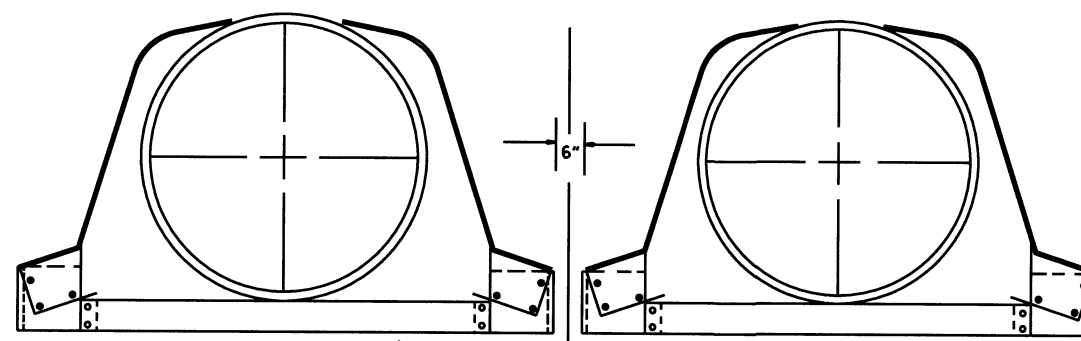
**SECTION A-A**

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

**END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS**

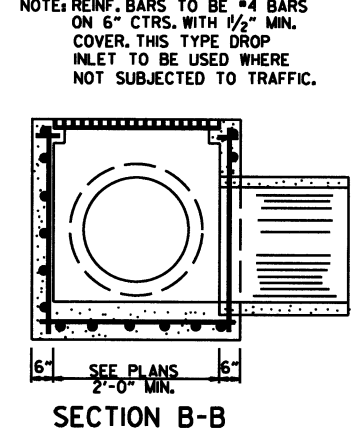
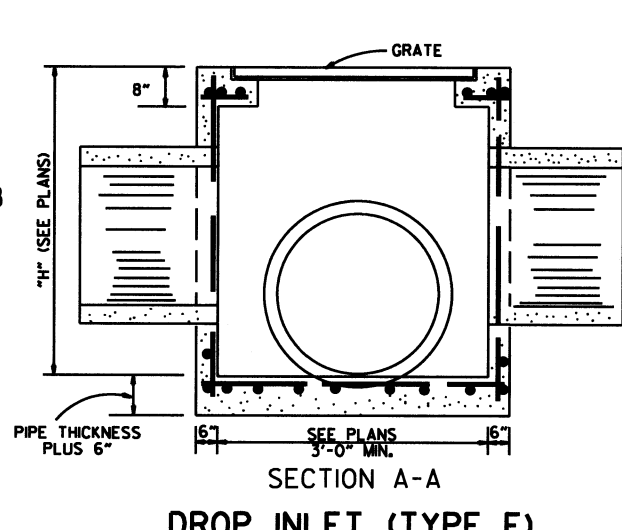
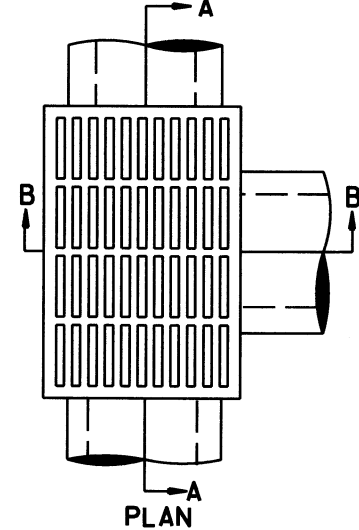
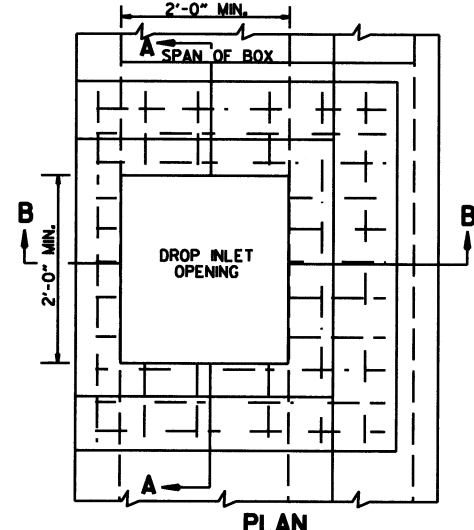
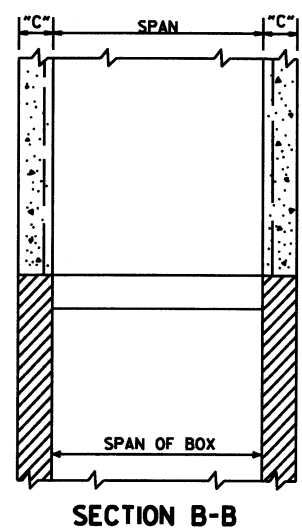


**MULTIPLE R.C. PIPE CULVERTS**

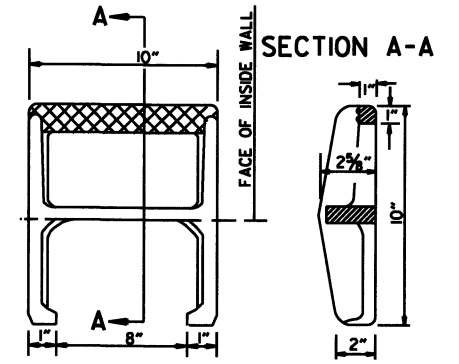


**MULTIPLE C.M. PIPE CULVERTS**

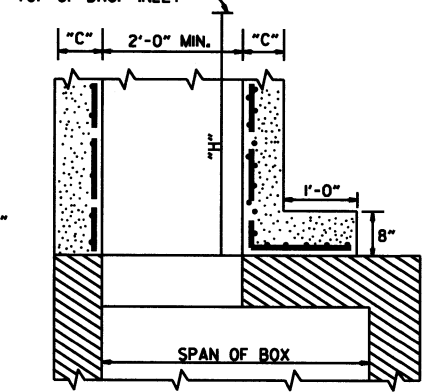
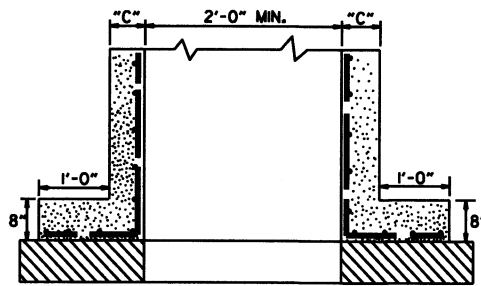
10-18-96	REVISED ASTM REF. TO AASHTO		ARKANSAS STATE HIGHWAY COMMISSION
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80	
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78	
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75	
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74	
5-24-73	CMP END SECTION SHOW PIPE PAY LENGTH	627-5-24-73	
10-2-72	REVISED AND REDRAWN	760-10-2-72	
DATE:	REVISION	FILE NO.	STANDARD DRAWING FES-2



DROP INLET (TYPE E)



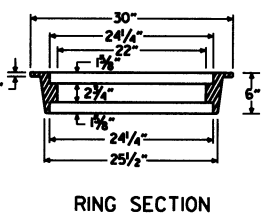
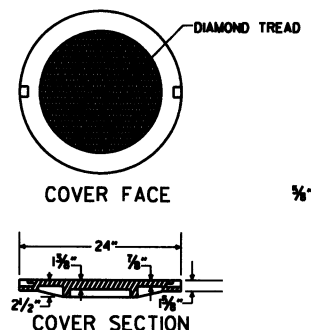
DETAIL OF STEP FOR DROP INLET  
APPROX. WEIGHT = 11 LBS. (CAST IRON)  
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.



SECTION A-A

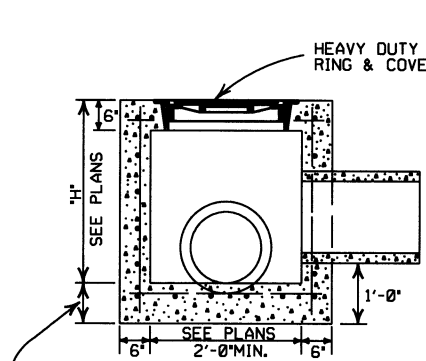
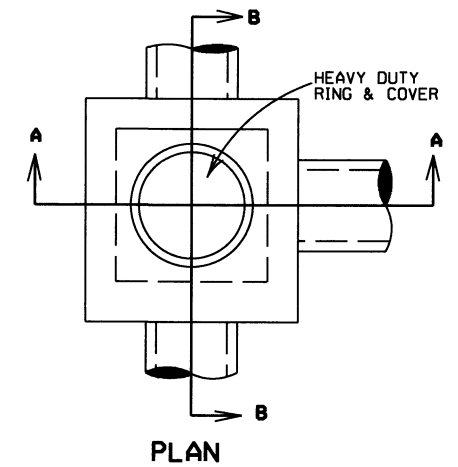
SECTION B-B

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



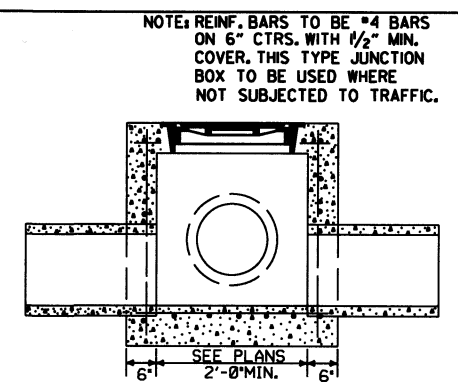
APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



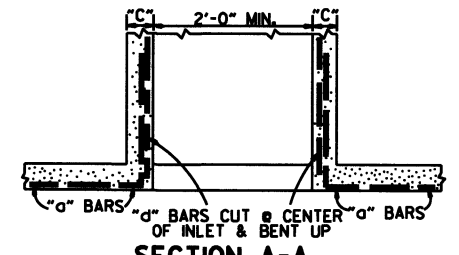
SECTION A-A

JUNCTION BOX (TYPE E)

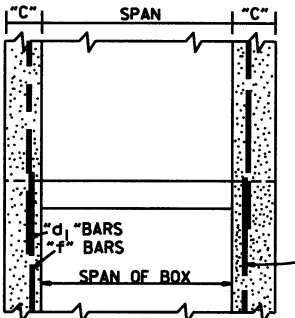


SECTION B-B

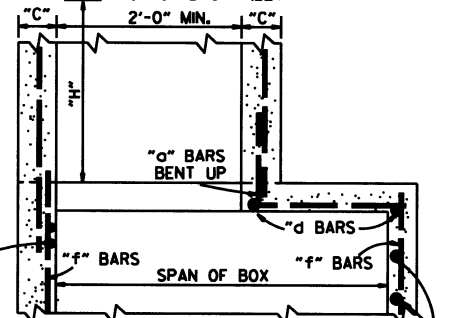
NOTE: REINF. BARS TO BE #4 BARS ON 6\"/>



SECTION A-A



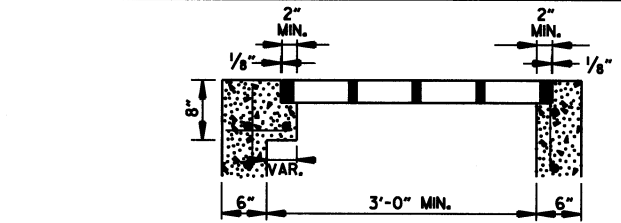
SECTION B-B



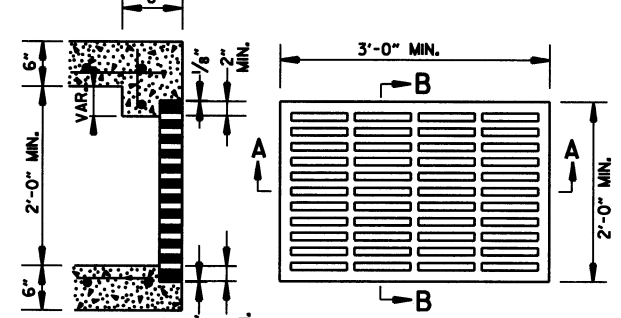
SECTION B-B

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.



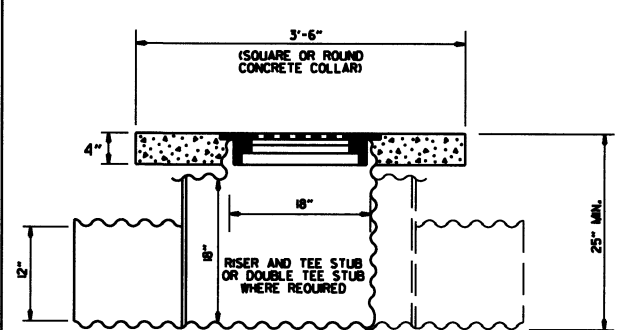
SECTION A-A



SECTION B-B

GRATE FOR TYPE E DROP INLET

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.



DETAIL OF YARD DRAIN

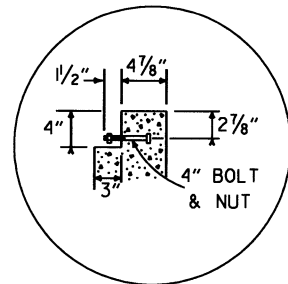
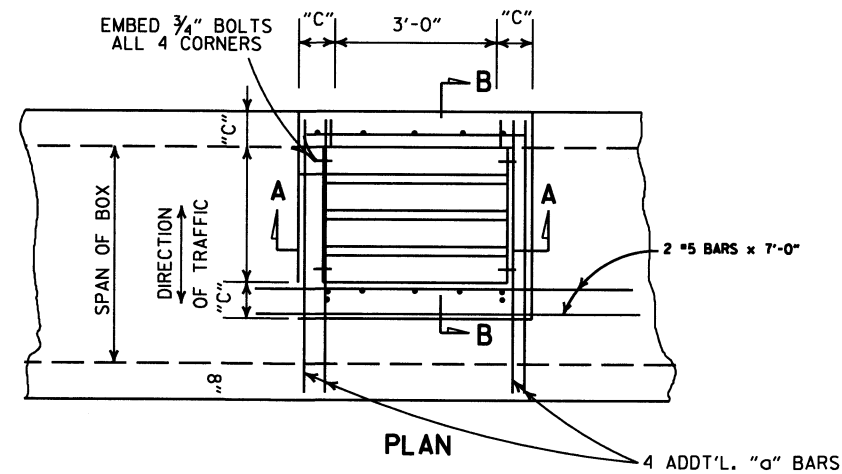
NOTE: CONCRETE COLLAR TO BE CAST IN PLACE. 12\"/>

USE MENEAR R-590-C OR EQUIVALENT BICYCLE SAFE FRAME AND GRATE

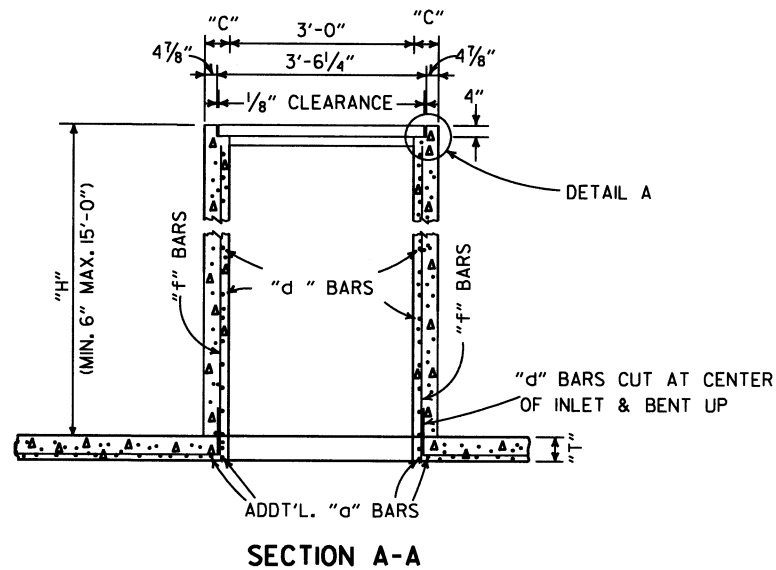
- GENERAL NOTES:
1. ALL EXPOSED CORNERS SHALL BE 3/4" CHAMFERED.
  2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
  3. EXPANSION JOINT MATERIAL SHALL BE 3/4" PREFORMED FIBER.
  4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
  5. GRATE AND FRAME SHALL NOT BE PAINTED.
  6. GRATE SHALL BE BICYCLE SAFE.
  7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
  8. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
  9. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
  10. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER, REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

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

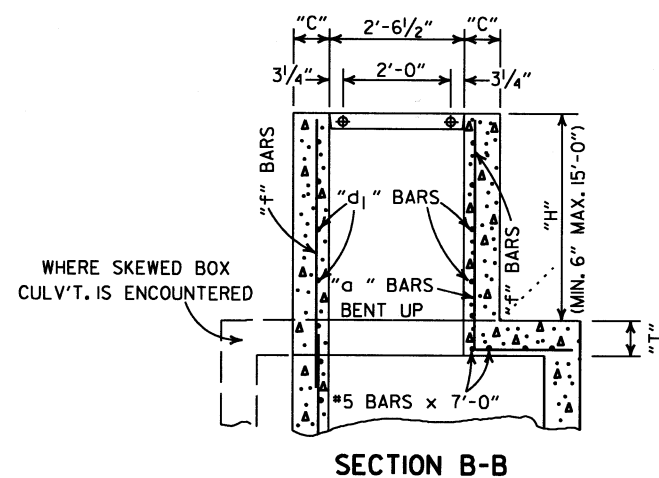
ARKANSAS STATE HIGHWAY COMMISSION  
DETAILS OF DROP INLETS & JUNCTION BOXES  
STANDARD DRAWING FPC-9



DETAIL A



SECTION A-A

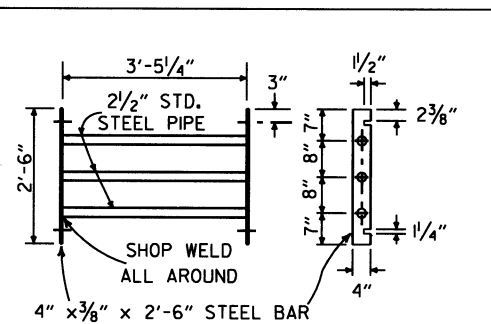


SECTION B-B

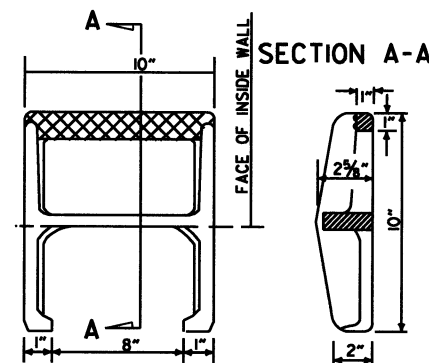
NOTE: ADD'L. REINF. STEEL TO BE INCLUDED IN UNIT PRICE BID PER TYPE "TM" D.I.

DIMENSIONS & REINF. BARS FOR D.I. TO BE THE SAME AS THOSE SHOWN ON APPLICABLE STD. BARREL DRAWING FOR R.C. BOX CULVERTS.

**DROP INLET TYPE "TM" FOR REINFORCED CONC. BOX CULVERTS**



GRATE DETAIL



SECTION A-A PLAN

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

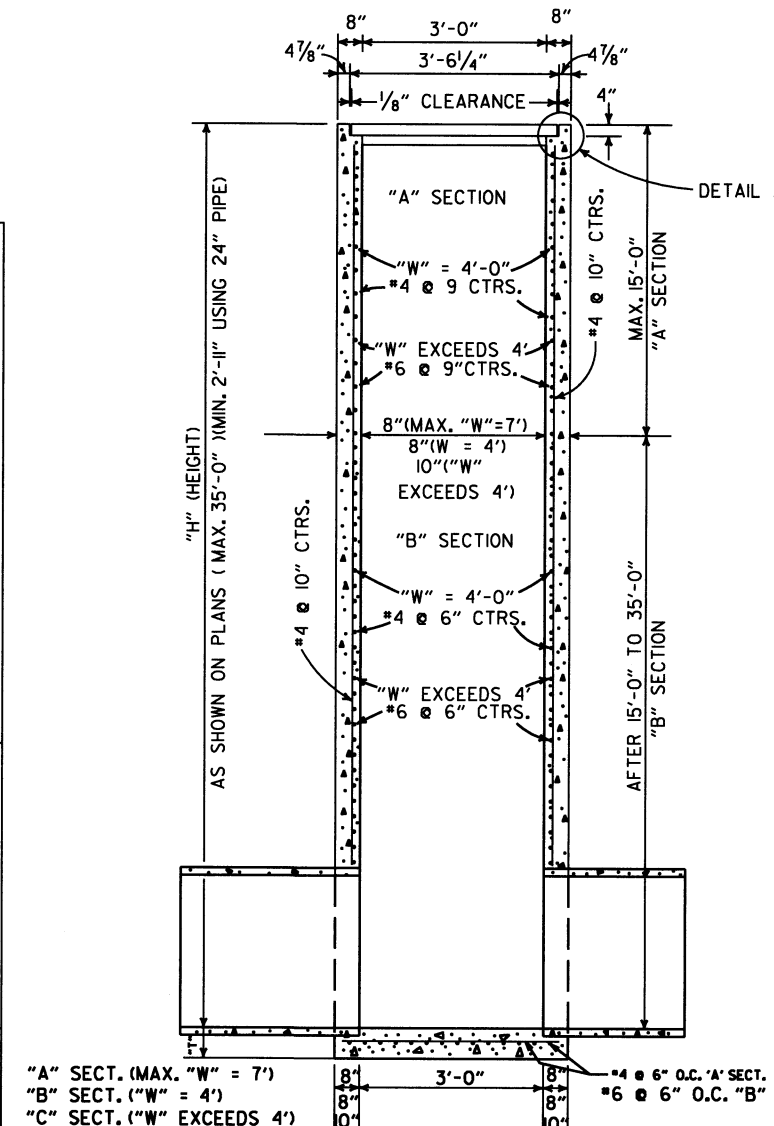
**DETAIL OF STEP FOR DROP INLET**

- GENERAL NOTES:
- STEEL PIPE FOR GRATES AND BOLTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 807. BOLTS SHALL CONFORM TO ONE OF THE FOLLOWING: ASTM A193, GRADE BB CLASS 10R 2, ASTM A307 OR AASHTO M 164.
  - STEEL PIPE FOR GRATES SHALL BE "STANDARD WEIGHT" PIPE CONFORMING TO ASTM A53 NATIONAL STANDARD PIPE.
  - BOLTS, NUTS, WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 232 OR AASHTO M 298, CLASS 40 OR 50.
  - ALL EXPOSED CORNERS TO HAVE 1/4" CHAMFER.
  - ALL #4 AND #5 REINFORCING BARS TO HAVE 1/2" COVER, LARGER SIZES TO HAVE 2" COVER.
  - THE COMPLETE PIPE GRATE SHALL BE PAINTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

**TABLE OF "W" DIMENSIONS**

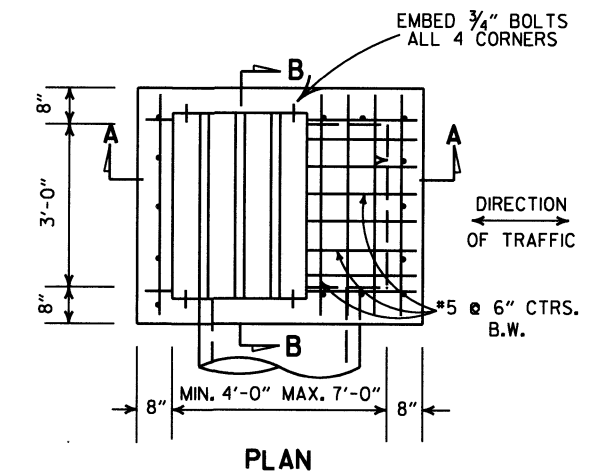
I.D. PIPE	SKEW OF CROSS DRAIN		
	STRAIGHT	30°	45°
24"	"W"	"W"	"W"
30"	4'-0"	4'-0"	4'-0"
36"	4'-0"	4'-3"	5'-3"
42"	4'-3"	4'-11"	6'-1"
48"	4'-10"	5'-7"	6'-8"

NOTE: DIMENSIONS SHOWN ABOVE ARE FOR PIPES INTERSECTING DROP INLET ON ONE SIDE ONLY. FOR SKEWED PIPES INTERSECTING BOTH SIDES OF DROP INLET, "W" WILL NEED TO BE INCREASED OR AXIS OF INTERSECTING PIPES WILL NEED TO BE SHIFTED.

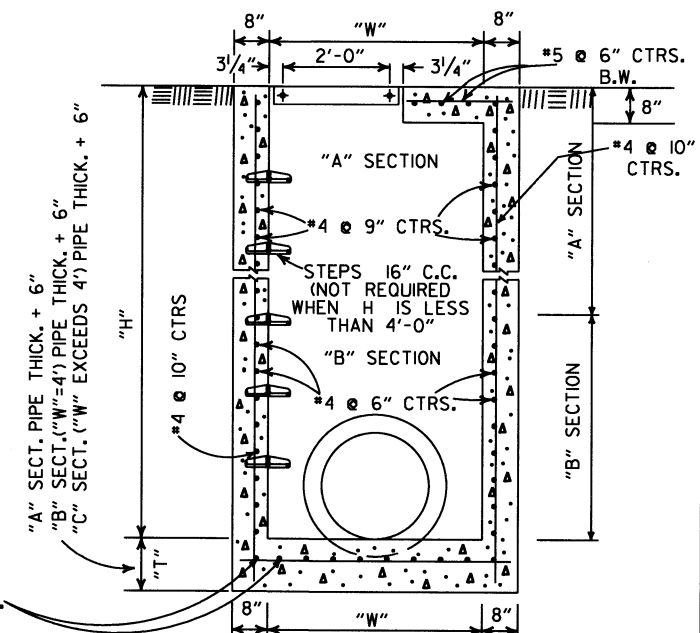


SECTION B-B

**DROP INLET (TYPE RM)**



PLAN



SECTION A-A

8-22-02	ADDED & REVISED DIMENSION TO SECTION A-A	
1-12-00	CORRECTED DIMENSION ON SECTION B-B	
11-06-97	ADDED DIMENSION TO SECTION A-A	
10-18-96	REVISED ASTM REF. TO AASHTO AND ADDED NOTE TO TABLE OF "W" DIMENSIONS	
10-1-92	ADDED DIRECTION OF TRAFFIC	10-1-92
8-15-91	ADDED NOTE ABOUT PAINTING OF GRATE	8-15-91
11-30-89	ALTERED DETAIL A	11-30-89
7-15-88	REVISED STEP DETAIL, TM & RM D.I. & GRATE DETAIL	7-15-88
10-2-72	REVISED AND REDRAWN	542-10-2-72
REVISED		DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS

STANDARD DRAWING FPC-9D



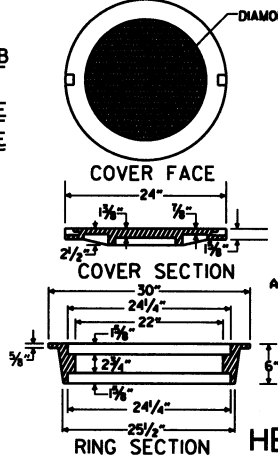
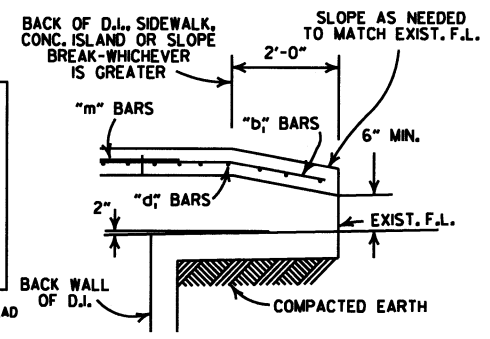
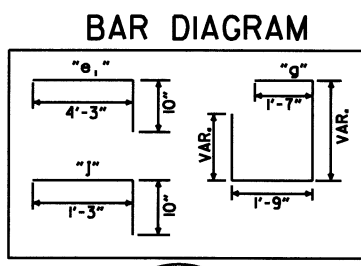
**4'-0" LENGTH DROP INLET DROP INLET EXTENSION**

PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0"		PLUS OR MINUS PER LIN. FT. OF HEIGHT		4'-0"		8'-0"	
		CLASS A CONC. CU. YDS.	REINF. STEEL POUNDS	CLASS A CONC. CU. YDS.	REINF. STEEL POUNDS	CLASS A CONC. CU. YDS.	REINF. STEEL POUNDS	CLASS A CONC. CU. YDS.	REINF. STEEL POUNDS
18"	2'-6"	1.77	156	0.28	22	0.58	38	0.87	72
24"	2'-6"	1.79	156	0.28	22				
30"	3'-2"	2.39	205	0.30	26				
36"	3'-8"	2.63	236	0.32	28				
42"	4'-4"	2.95	250	0.34	30				
48"	4'-10"	3.21	265	0.36	32				
						DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.			
						0.04	3		

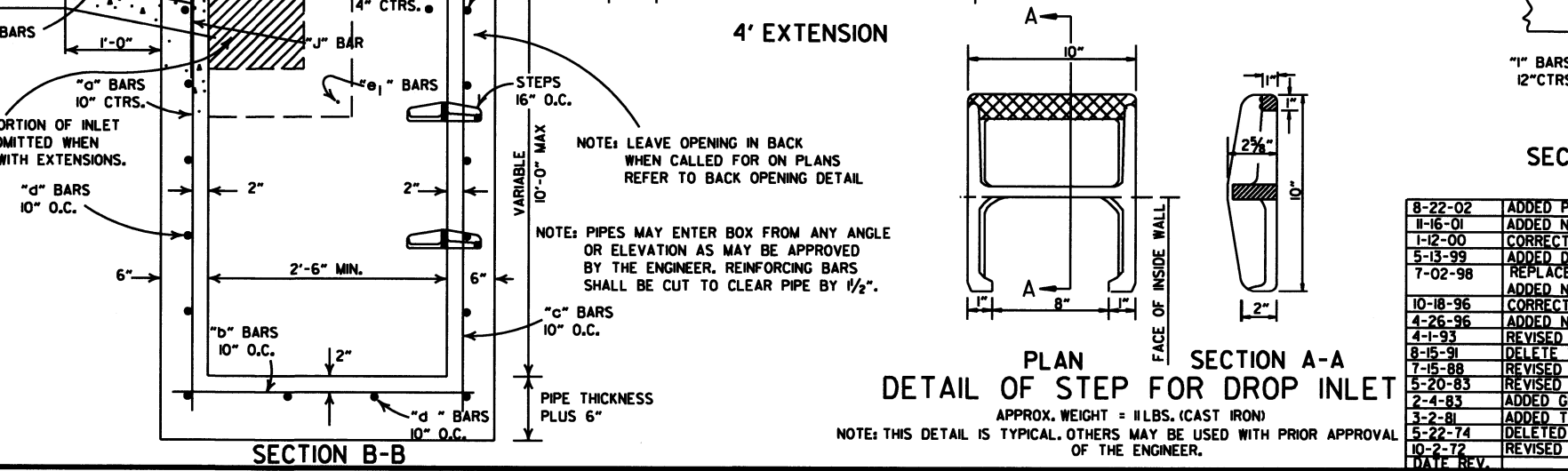
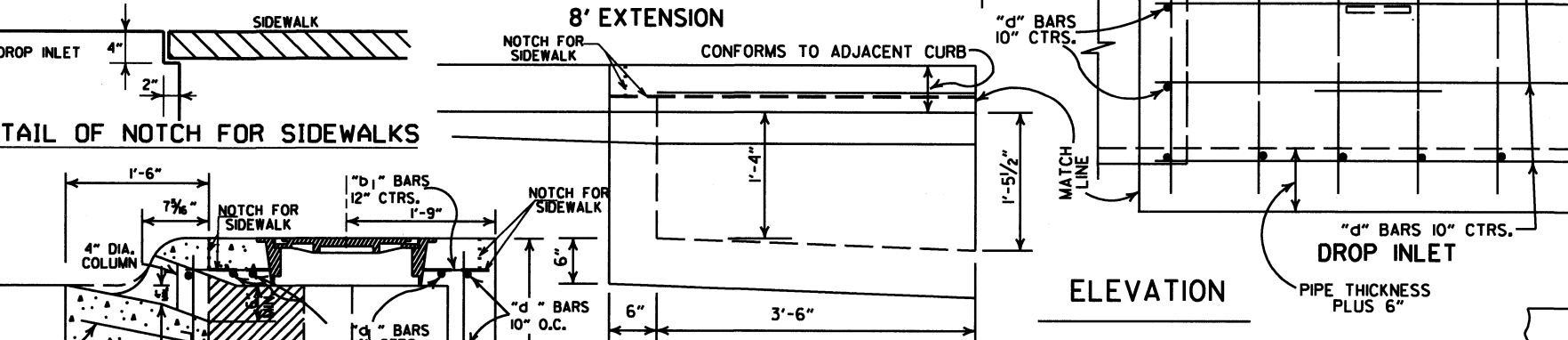
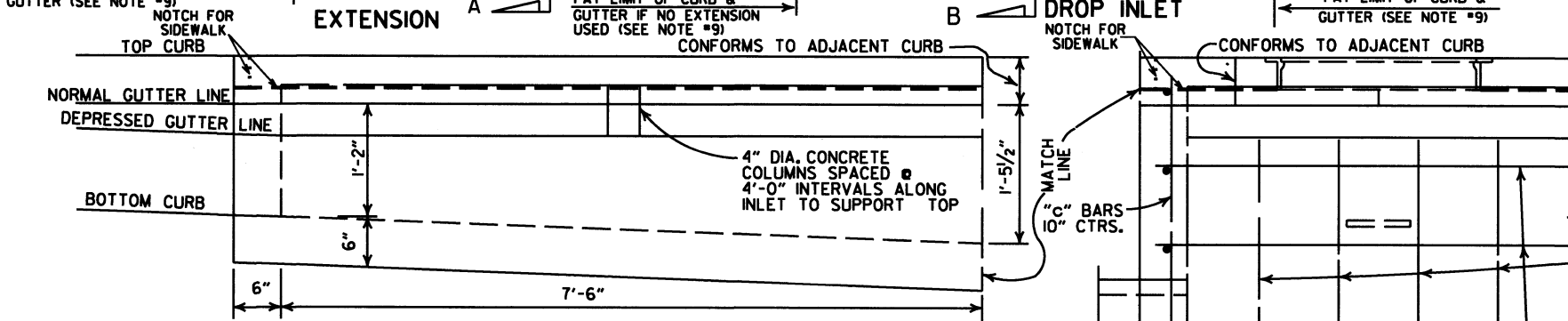
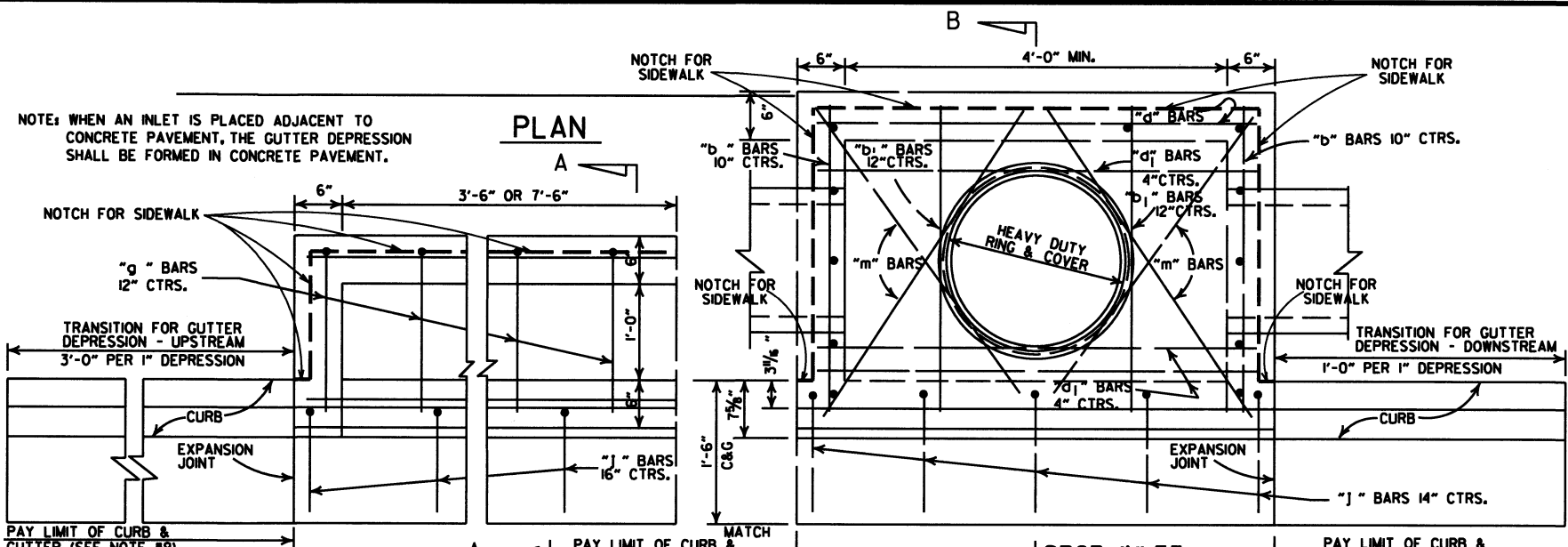
NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

**DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET**

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



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

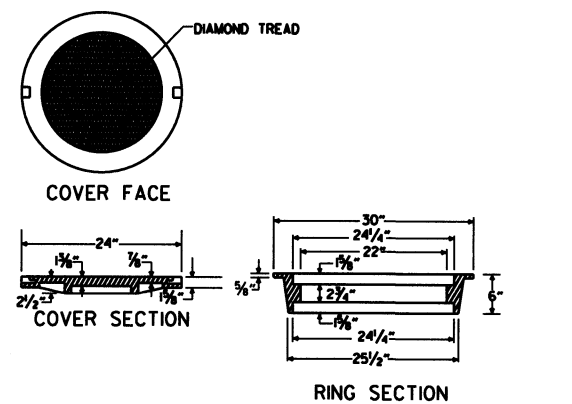
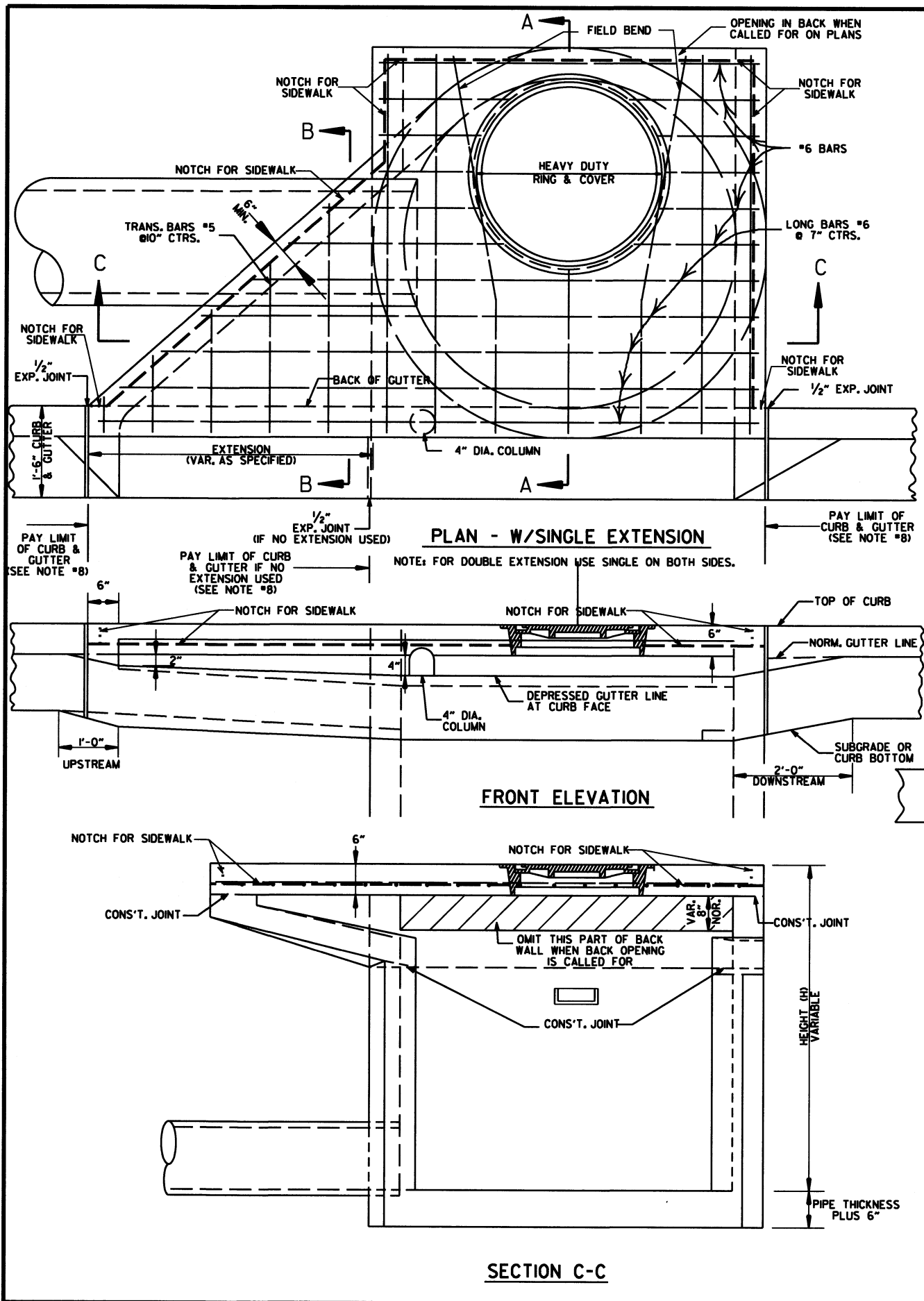


DATE	REV.	REVISION	DATE	FILED
8-22-02		ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B		
11-16-01		ADDED NOTE 13; REVISED SECTION B-B		
1-12-00		CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER		
5-13-99		ADDED DETAIL OF NOTCH FOR SIDEWALKS		
7-02-98		REPLACED RING & COVER W/HEAVY DUTY RING & COVER		
10-18-96		ADDED NOTES 9, 10, & 11		
4-26-96		CORRECTED SPELLING		
4-1-93		ADDED NOTE 8 & REVISED (4'x8') EXTENSION TITLES		
8-15-91		REMOVED BACK OPENING & NOTE		
7-15-88		DELETE TYPE IV GRATE		
5-20-83		REMOVED STEP DETAIL		
2-4-83		REMOVED DETAILS OF GRATES (TYPE IV & IV-A)		
3-2-81		ADDED GENERAL NOTE NO. 4		
10-2-72		ADDED TYPE IV-A GRATE		
		DELETED INLET (TYPE F) & GRATE (TYPE III)		
		REVISED AND REDRAWN		

**ARKANSAS STATE HIGHWAY COMMISSION**

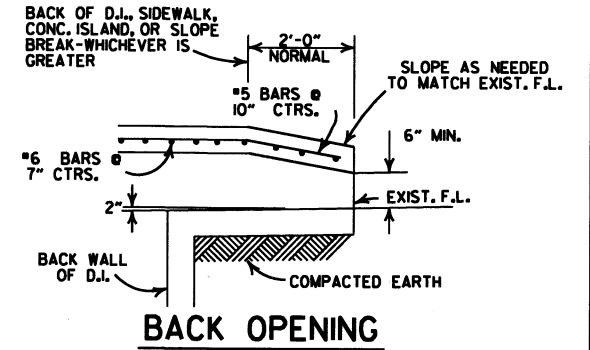
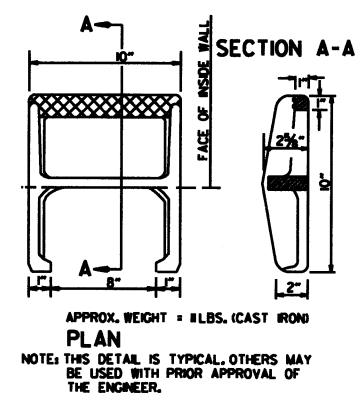
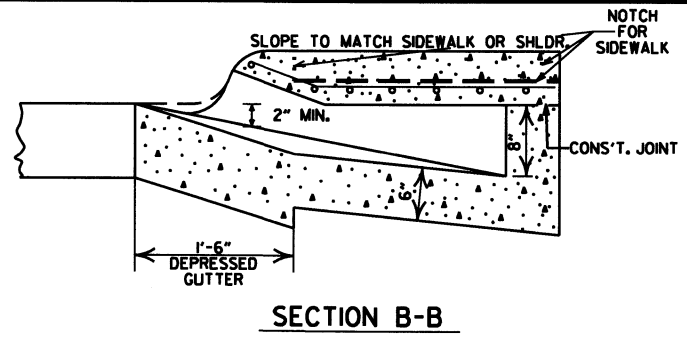
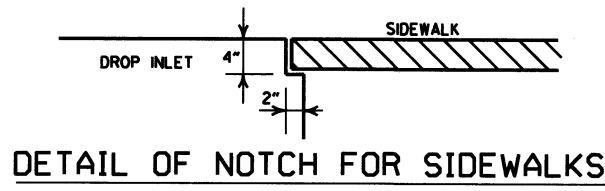
**DETAILS OF DROP INLETS (TYPE C)**

**STANDARD DRAWING FPC-9E**



**HEAVY DUTY RING & COVER**

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

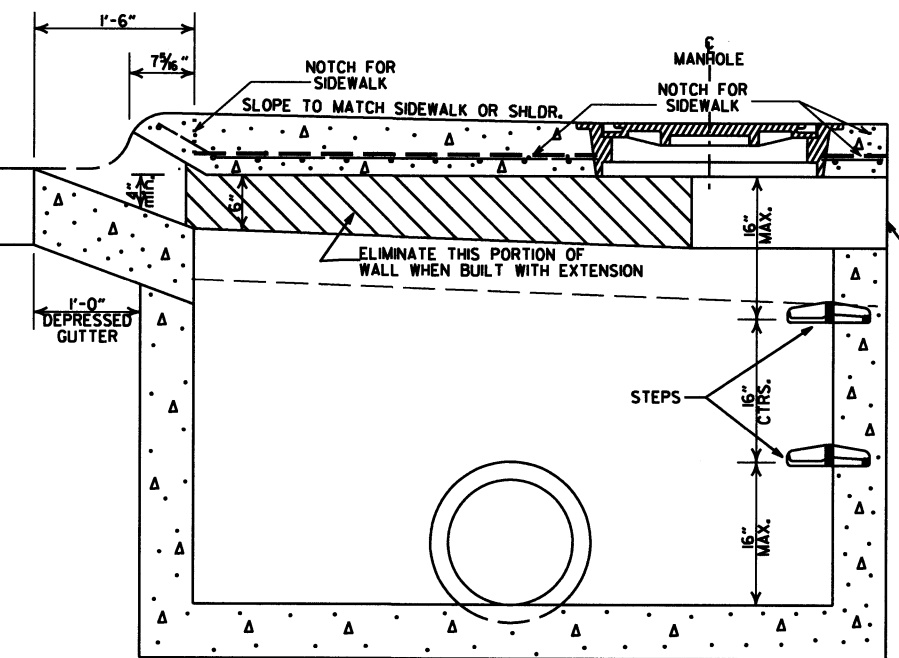


WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE MO).

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

**DETAIL OF NOTCH FOR SIDEWALKS**

**DETAIL OF STEP FOR DROP INLET**



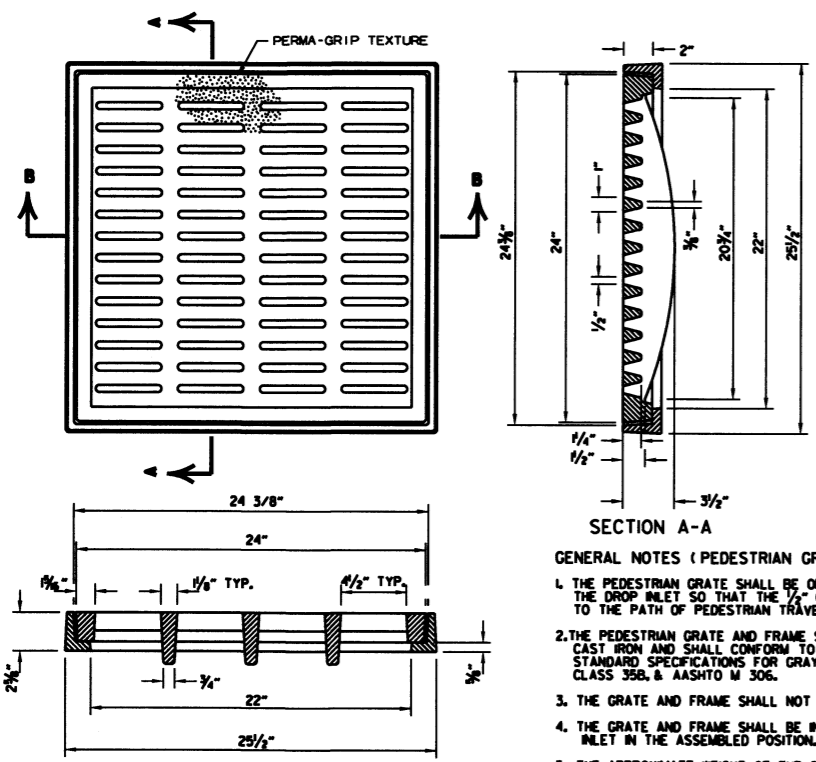
MINIMUM WALL THICKNESS			
DIA. OF D.I.	DIA. OF OUTLET PIPE	CAST IN PLACE	PRECAST
4" L.D.	12" THRU 27"	6"	5"
5" L.D.	30" THRU 42"	8"	6"
6" L.D.	48" THRU 54"	8"	7"

18-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
18-16-01	ADDED NOTE 13	
11-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-95	ADDED NOTE 11, ALL OPENING DIMENSION	
12-20-92	ADDED NOTE 10, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
12-23-92	TYPE C TO MO (OPEN BACK DETAIL)	
12-13-92	REVISED GENERAL NOTES	12-13-92
12-13-92	ADDED NOTE 13	12-13-92
12-13-92	REVISED NOTES 12 & 13, ADDED BACK OPEN DETAIL	12-13-92
12-13-92	ADDED NOTE 10	12-13-92
12-13-92	ADDED NOTE 10, 11, MINIMUM WALL THICKNESS	12-13-92
12-13-92	ADDED GENERAL NOTE TO SECTION A-A	12-13-92
12-13-92	ADDED MINIMUM WALL THICKNESS	12-13-92
12-13-92	ISSUED	12-13-92

ARKANSAS STATE HIGHWAY COMMISSION

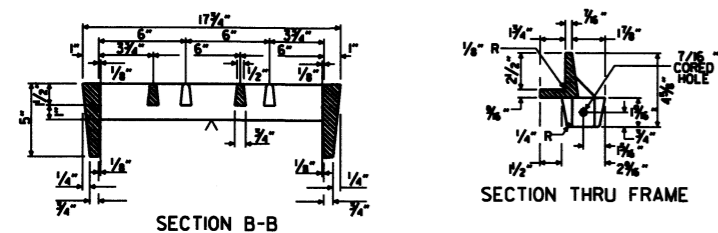
**DETAILS OF DROP INLET (TYPE MO)**

STANDARD DRAWING FPC-9M

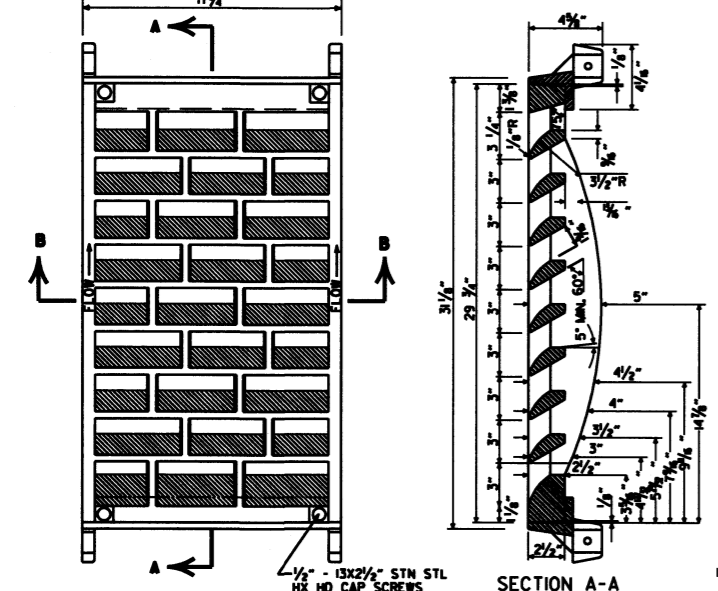


SECTION B-B  
DETAILS OF PEDESTRIAN GRATE AND FRAME

- GENERAL NOTES (PEDESTRIAN GRATE & FRAME)**
1. THE PEDESTRIAN GRATE SHALL BE ORIENTED IN THE TOP OF THE DROP INLET SO THAT THE 1/4" OPENINGS ARE PERPENDICULAR TO THE PATH OF PEDESTRIAN TRAVEL.
  2. THE PEDESTRIAN 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, & AASHTO M 306.
  3. THE GRATE AND FRAME SHALL NOT BE PAINTED.
  4. THE GRATE AND FRAME SHALL BE INSTALLED IN THE DROP INLET IN THE ASSEMBLED POSITION.
  5. THE APPROXIMATE WEIGHT OF THE GRATE AND FRAME SHALL BE 20 LBS.
  6. THE MINIMUM WATERWAY OPENING SHALL BE 122 SQ. IN.

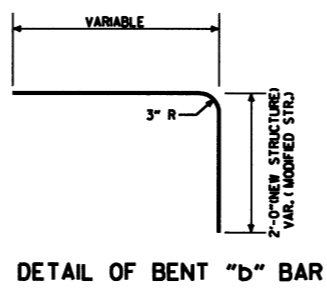


SECTION B-B  
SECTION THRU FRAME

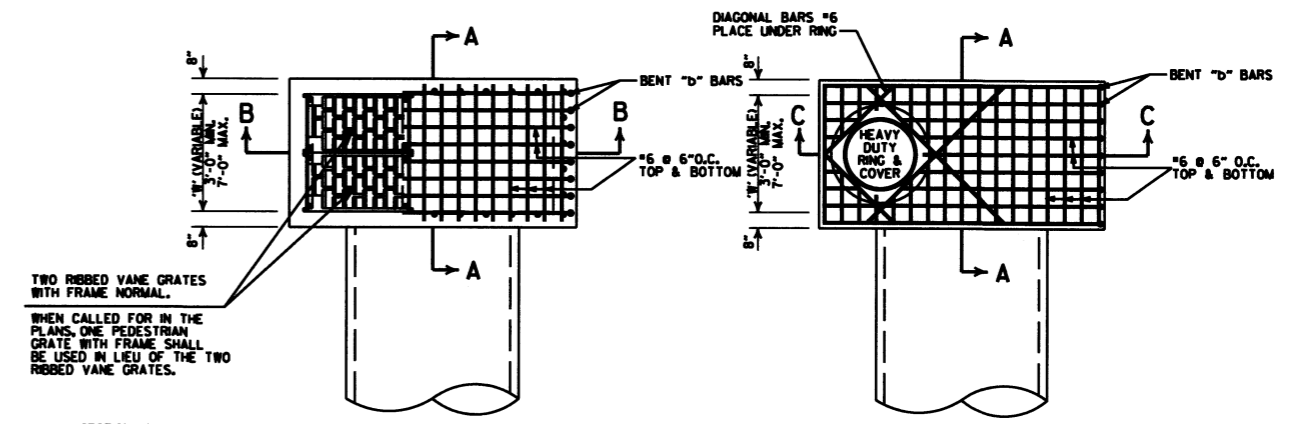


SECTION A-A  
SECTION B-B  
DETAILS OF RIBBED VANE GRATE AND FRAME

- GENERAL NOTES (RIBBED VANE GRATE & FRAME)**
1. RIBBED VANE 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, & AASHTO M 306.
  2. GRATE AND FRAME SHALL NOT BE PAINTED.
  3. GRATE AND FRAME SHALL BE INSTALLED IN DROP INLET IN ASSEMBLED POSITION.
  4. APPROXIMATE WEIGHT OF GRATE SHALL BE 170 LBS.

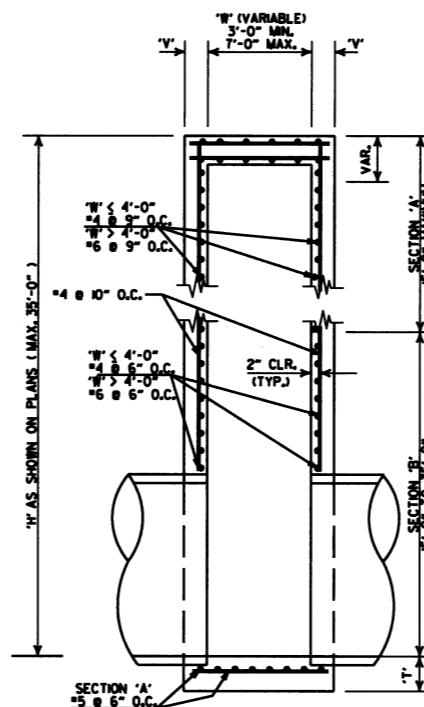


DETAIL OF BENT "D" BAR

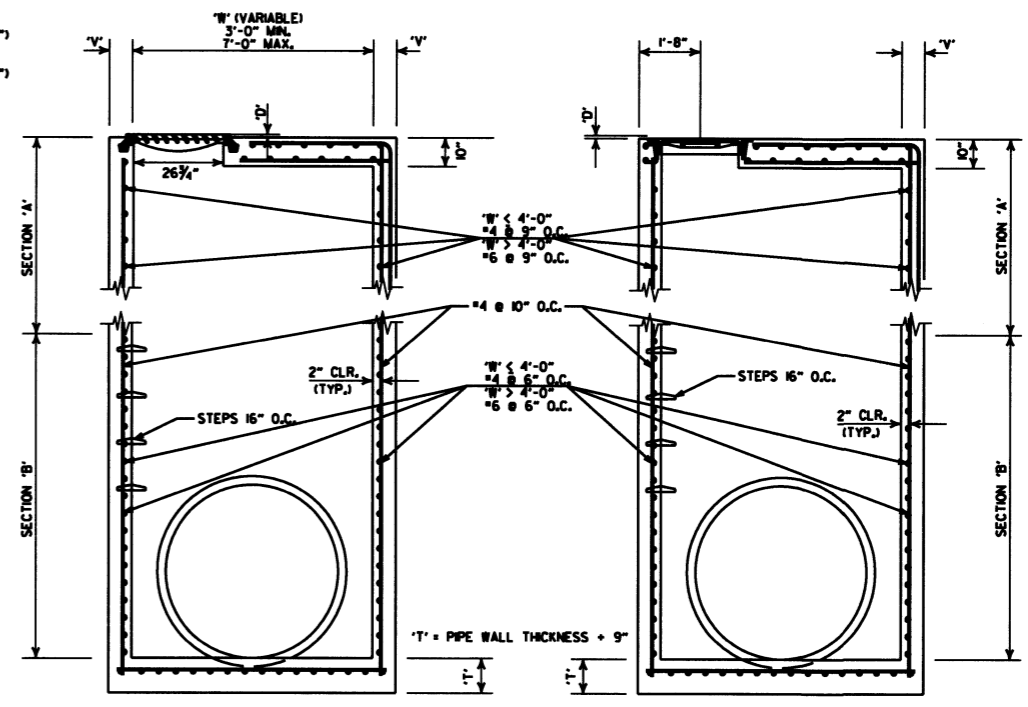


TWO RIBBED VANE GRATES WITH FRAME NORMAL.  
WHEN CALLED FOR IN THE PLANS, ONE PEDESTRIAN GRATE WITH FRAME SHALL BE USED IN LIEU OF THE TWO RIBBED VANE GRATES.

- SECTION 'A'  
"V" = 8"  
SECTION 'B' (W < 4'-0")  
"V" = 8"  
SECTION 'B' (W > 4'-0")  
"V" = 10"



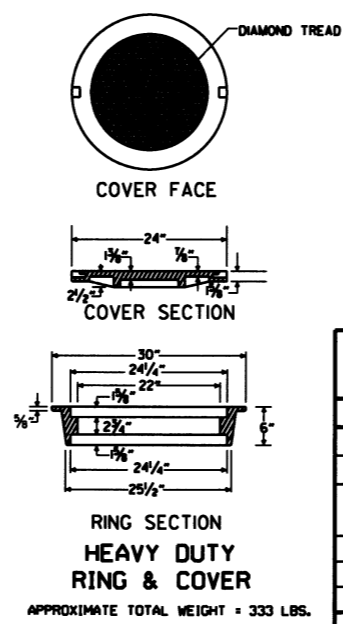
SECTION A-A  
DETAILS OF DROP INLET (TYPE ST)



SECTION B-B  
SECTION C-C  
DETAILS OF JUNCTION BOX (TYPE ST)

- GENERAL NOTES (TYPE ST DROP INLET & JUNCTION BOX)**
1. THE 'D' DIMENSION SHALL MATCH THE FINAL LIFT OF ACHM SURFACE COURSE SHOWN IN THE PLANS WHEN ASPHALT PAVING SURROUNDS THE GRATE OR RING COVER, AND SHALL BE 0" AT OTHER INSTALLATIONS.
  2. THE STEPS SHALL BE OMITTED WHERE 'H' IS LESS THAN 4'-0".
  3. ALL EXPOSED CORNERS ARE TO HAVE A 3/4" CHAMFER.

- GENERAL NOTES (HEAVY DUTY RING & COVER):**
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
  2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
  3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
  4. 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.



RING SECTION  
HEAVY DUTY RING & COVER  
APPROXIMATE TOTAL WEIGHT = 333 LBS.

DATE REVISED	DATE FILMED	DESCRIPTION
7-26-12		REMOVED NOTE 4, REVISED 'T', REVISED BOTTOM SLAB REBAR FOR SECTION 'A', SHOWED REBAR CLEARANCE IN SECTIONS
11-16-01		ADDED NOTE 4
1-12-00		REVISED HEAVY DUTY RING & COVER
5-13-99		ADDED PEDESTRIAN FRAME & GRATE
7-02-98		REMOVED NOTE 5, REV. DIMENSIONS, ADDED HEAVY DUTY RING & COVER, ADDED AASHTO REF. REVISED GRATE
10-18-96		REVISED & REISSUED
10-1-92		REVISED & REISSUED
8-15-91	8-15-91	REVISED & REISSUED

ARKANSAS STATE HIGHWAY COMMISSION  
DETAILS OF DROP INLET & JUNCTION BOX (TYPE ST)  
STANDARD DRAWING FPC-95



**REINFORCED CONCRETE ARCH PIPE DIMENSIONS**

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43¾	44	26¾	27
42	51½	51	31¾	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87½	87
120	154	154	96¾	97
132	168¾	169	106½	107

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

**REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS**

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

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

**CONSTRUCTION SEQUENCE**

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

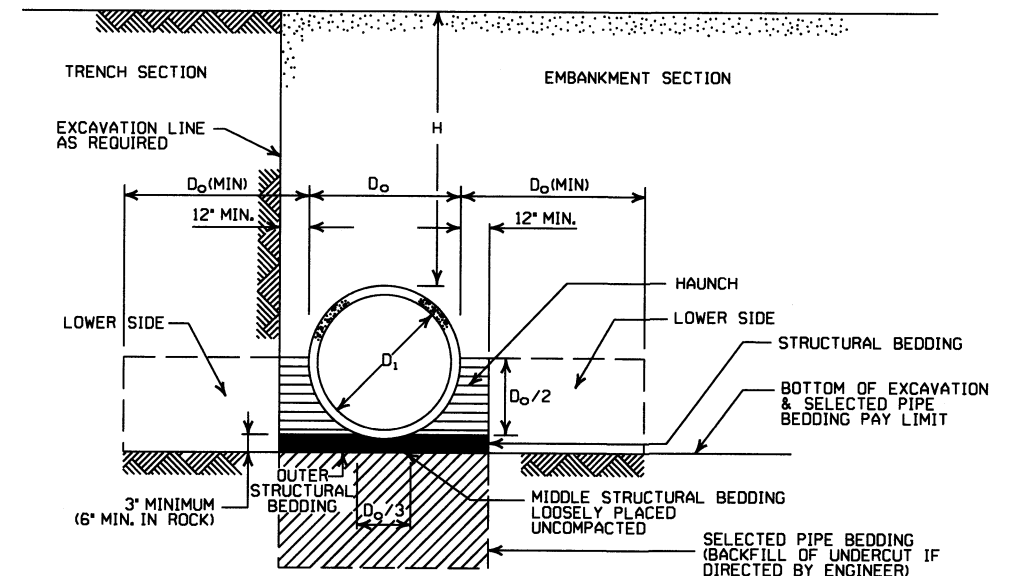
NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

**- LEGEND -**

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

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

- \* SM-3 WILL NOT BE ALLOWED.
- \*\* MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



**EMBANKMENT AND TRENCH INSTALLATIONS**

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

**GENERAL NOTES**

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS, UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M10, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

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

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

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

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

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

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

**MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS**

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
TYPE 2 OR TYPE 3	2.5	1.5

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

**MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS**

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
TYPE 2	13	21
TYPE 3	10	16

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT  
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1



**CORRUGATED STEEL PIPE (ROUND)**

PIPE DIAMETER (INCHES)	① MINIMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2 1/2 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

**CONSTRUCTION SEQUENCE**

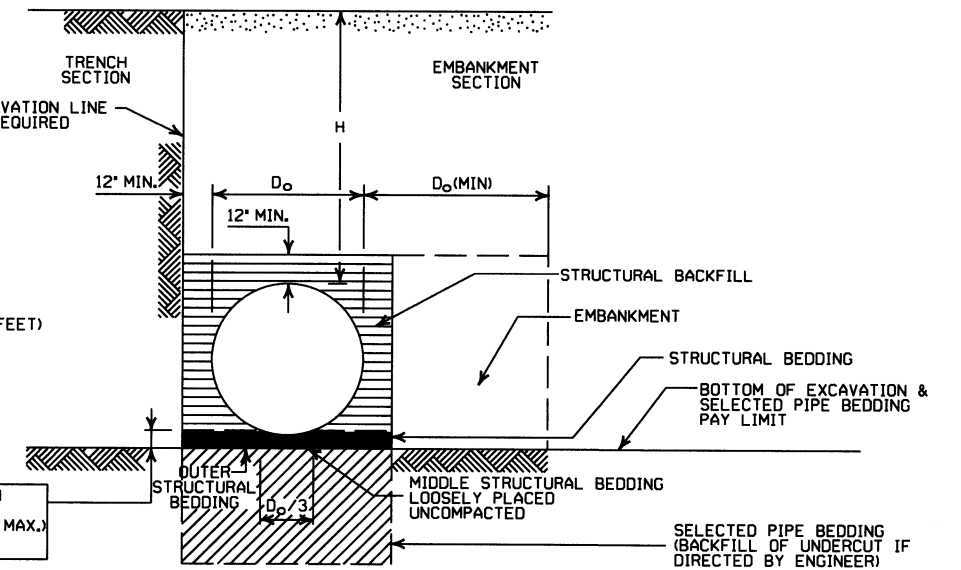
1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. COMPLETE STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT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

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

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL ③

③ SM-3 WILL NOT BE ALLOWED.

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



**EMBANKMENT AND TRENCH INSTALLATIONS**

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALLATION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2 1/2" x 1/2" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" x 1" OR 5" x 1" CORRUGATION.

**GENERAL NOTES**

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS, UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

**CORRUGATED ALUMINUM PIPE (ROUND)**

PIPE DIAMETER (INCHES)	① MINIMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
2 1/2 INCH BY 1/2 INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM						
12	1	45	45			
18	2	30	30	52	41	
24	2	22	22	39	32	34
30	2		18	31	27	28
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

**EQUIVALENT METAL THICKNESSES AND GAUGES**

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8

**CORRUGATED METAL PIPE ARCHES**

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINIMUM CORNER RADIUS (INCHES)	STEEL			ALUMINUM		
			MIN. THICKNESS REQUIRED (INCHES)	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)	MIN. THICKNESS REQUIRED (INCHES)	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)
				INSTALLATION	INSTALLATION		INSTALLATION	INSTALLATION
2 1/2 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM								
15	17x13	3	0.064	2	15	0.060	2	15
18	21x15	3	0.064	2	15	0.060	2	15
21	24x18	3	0.064	2,25	15	0.060	2,25	15
24	28x20	3	0.064	2,5	15	0.075	2,5	15
30	35x24	3	0.079	3	12	0.075	3	12
36	42x29	3 1/2	0.079	3	12	0.105	3	12
42	49x33	4	0.079	3	12	0.105	3	12
48	57x38	5	0.109	3	13	0.135	3	13
54	64x43	6	0.109	3	14	0.135	3	14
60	71x47	7	0.138	3	15	0.164	3	15
66	77x52	8	0.168	3	15			
72	83x57	9	0.168	3	15			
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM								
			INSTALLATION		INSTALLATION			
			TYPE 2	TYPE 1	TYPE 2	TYPE 1		
36	40x31	5	0.079	3	2	12	15	
42	46x36	6	0.079	3	2	13	15	
48	53x41	7	0.079	3	2	13	15	
54	60x46	8	0.079	3	2	13	15	
60	66x51	9	0.079	3	2	13	15	
66	73x55	12	0.079	3	2	15	15	
72	81x59	14	0.079	3	2	15	15	
78	87x63	14	0.079	3	2	15	15	
84	95x67	16	0.109	3	2	15	15	
90	103x71	16	0.109	3	2	15	15	
96	112x75	18	0.109	3	2	15	15	
102	117x79	18	0.109	3	2	15	15	
108	128x83	18	0.138	3	2	15	15	

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

② WHERE THE STANDARD 2 1/2" x 1/2" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

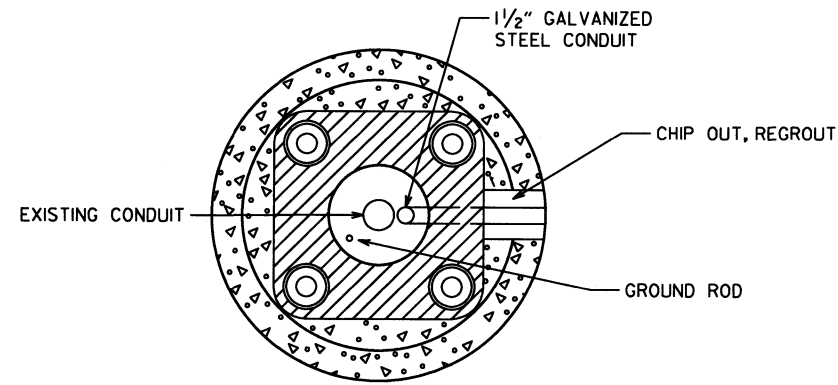
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

**ARKANSAS STATE HIGHWAY COMMISSION**

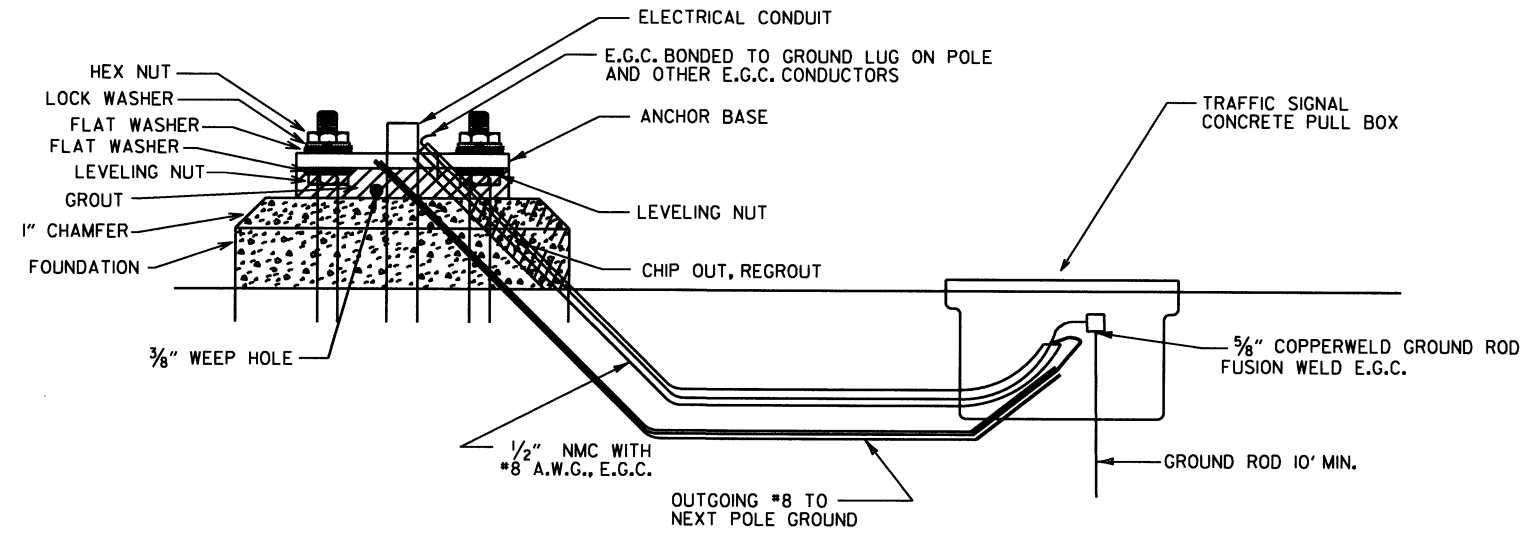
**METAL PIPE CULVERT  
FILL HEIGHTS & BEDDING**

**STANDARD DRAWING PCM-1**

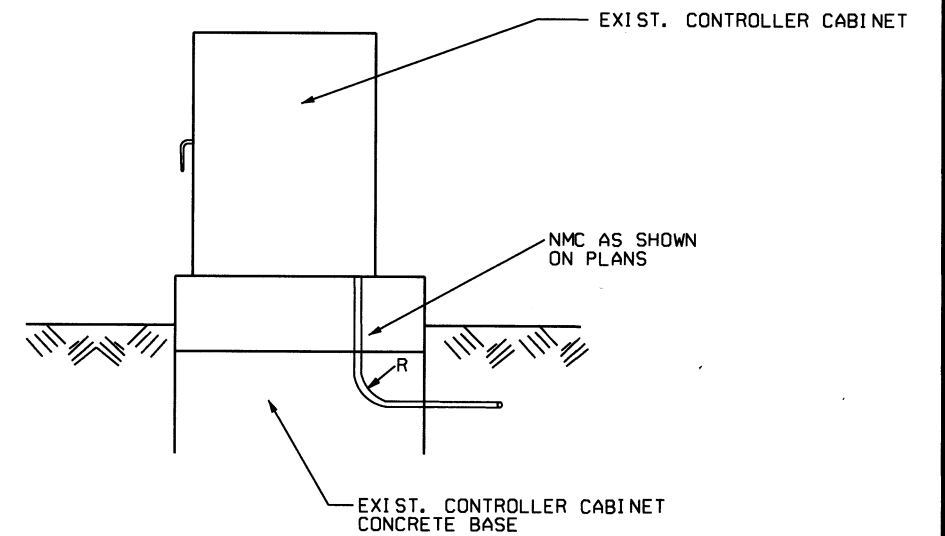
### CONDUIT ENTRY TO EXISTING POLE BASE



### ANCHOR BASE

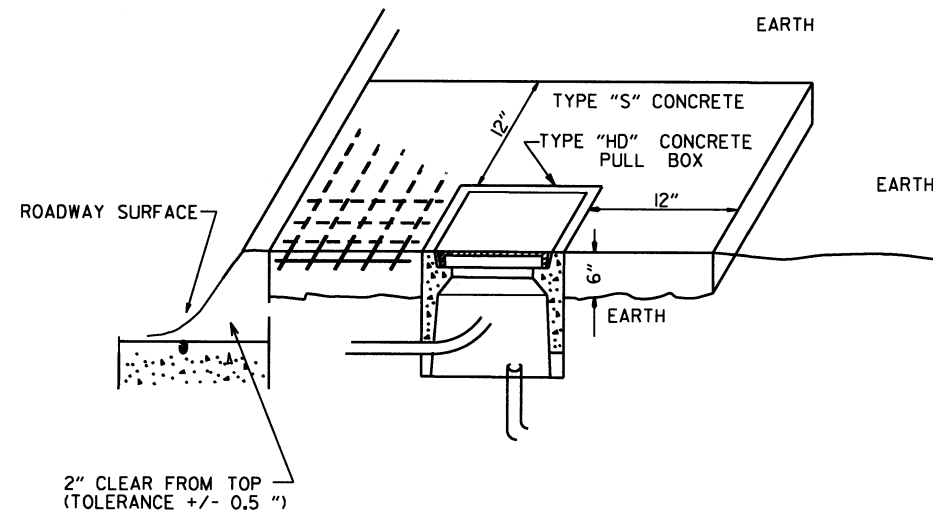


### CONDUIT ENTRY TO EXISTING CONTROLLER CABINET

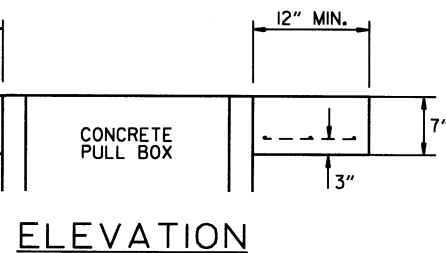
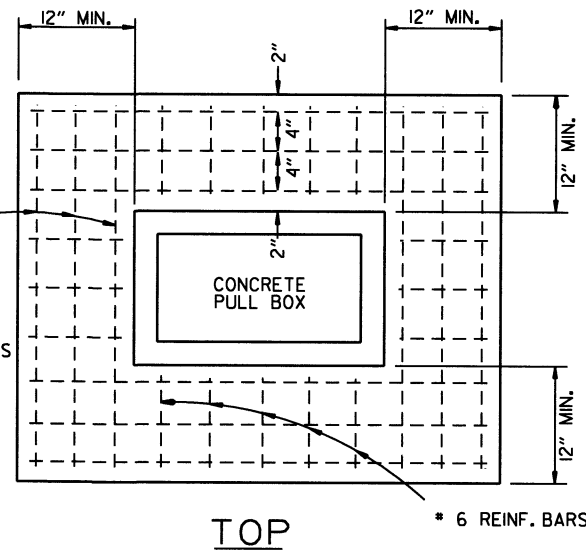


NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.

### TYPE "HD" CONCRETE PULL BOX DETAIL



NOTE: ALL REINFORCING BARS TO BE GRADE 60

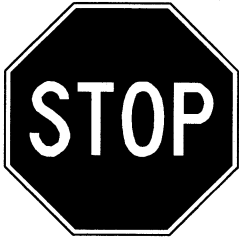
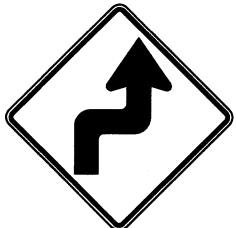
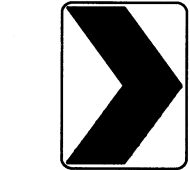
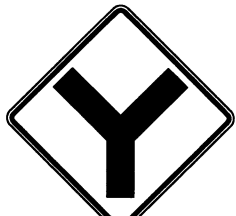


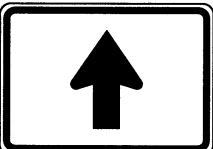
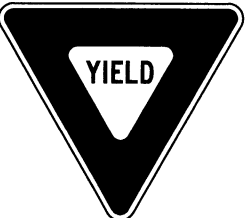

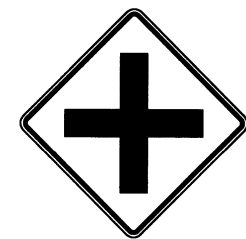

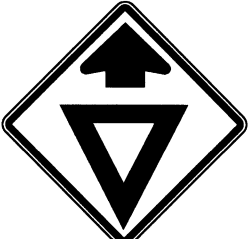

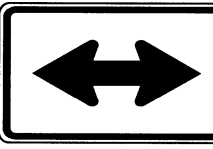
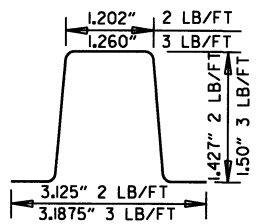
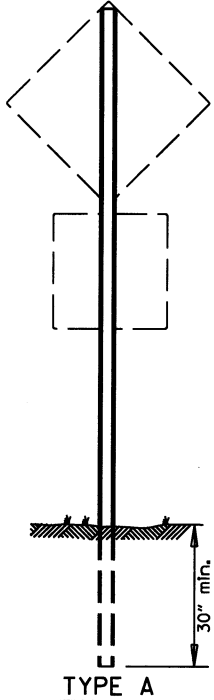
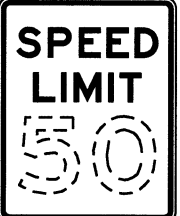

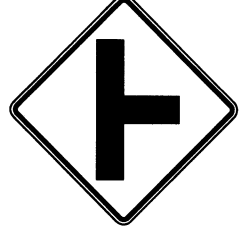



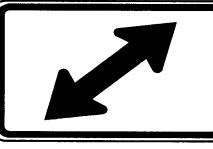

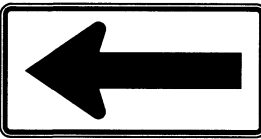
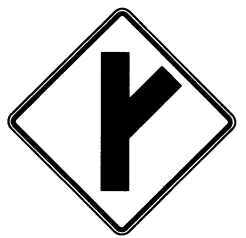

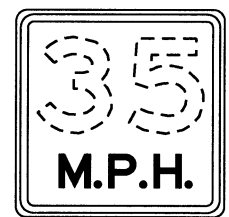

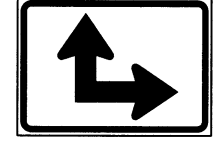
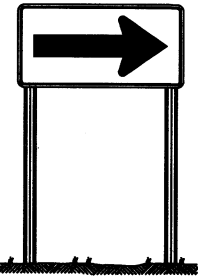
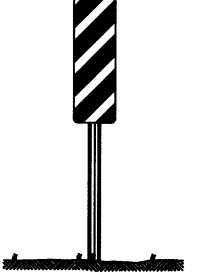

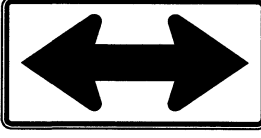
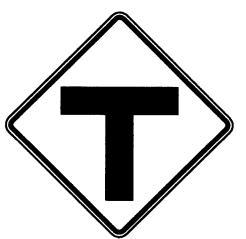

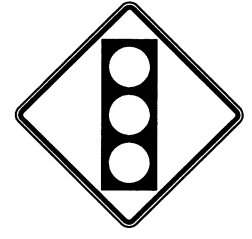

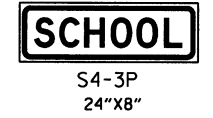



NOTE: ALL TYPE 1 AND TYPE 2 HD CONCRETE PULL BOXES ARE INSTALLED WITH AN APRON OF CONCRETE 12" WIDE AND 7" IN DEPTH. ALL PAYMENT SHALL BE INCLUDED IN THE PRICE OF THE TYPE HD CONCRETE PULL BOX. THE CONCRETE PULL BOX SHALL BE INSTALLED FLUSH TO SURROUNDING GRADE UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. THE CONCRETE SHALL BE CLASS "S". THREE #6 REINFORCING BARS IN THE APRON ON ALL SIDES OF THE CONCRETE PULL BOX IS REQUIRED IN CONCRETE.

DATE	REVISION	FILMED
11-16-17	REVISED NOTES	
09-02-15	REVISED PULL BOX DEPTH	
09-12-13	ISSUED AS STANDARD DRAWING	
05-21-09	REVISED GROUNDING	
07-31-08	ADDED & REVISED CONDUIT ENTRY	
06-23-04	REVISED CLEARANCE AT CURB ENTRY	
01-04-02	ADDED REINFORCING TO BOX APRON	
07-02-01	REVISED	
12-27-99	REVISED NOTES	
11-18-98	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION
HEAVY DUTY PULL BOX
STANDARD DRAWING SD-6



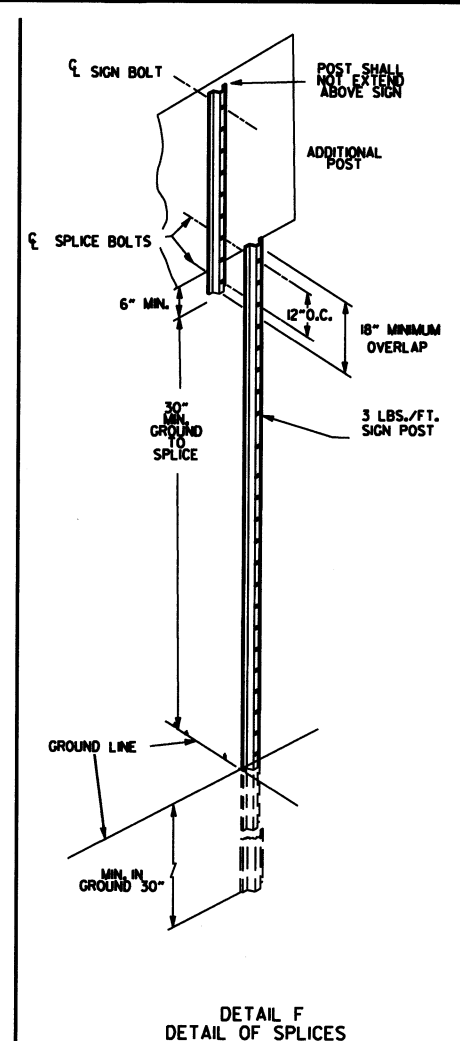
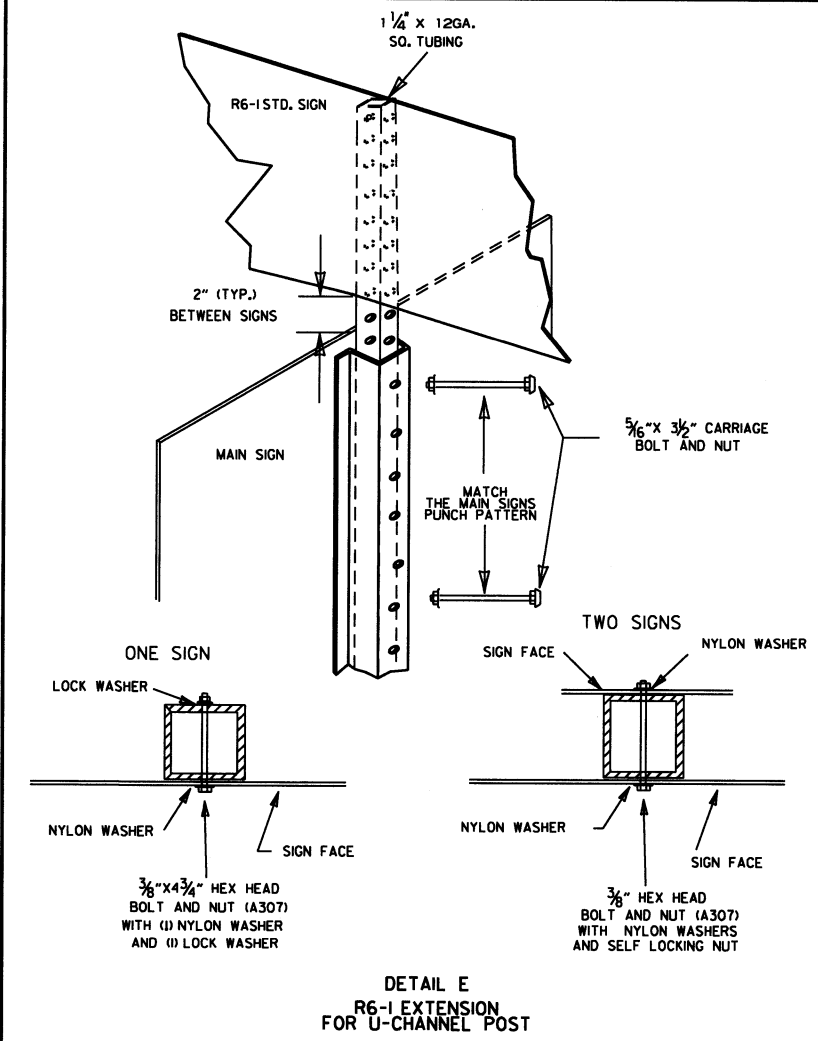
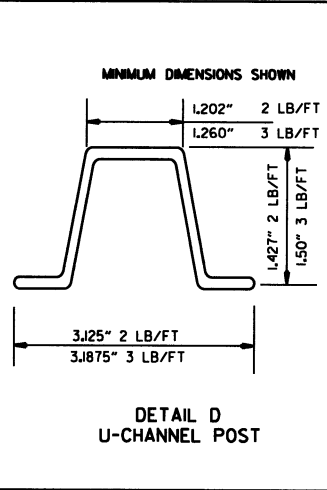
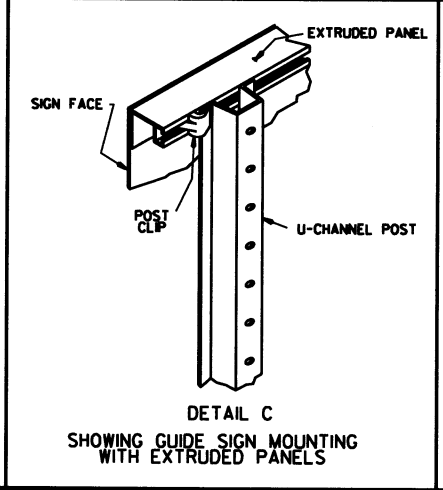
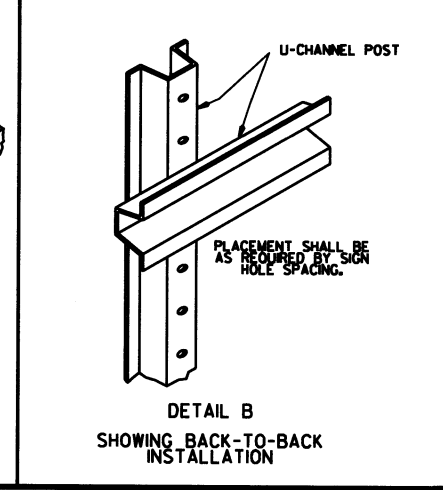
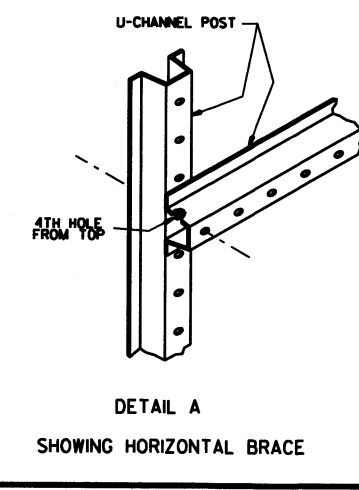
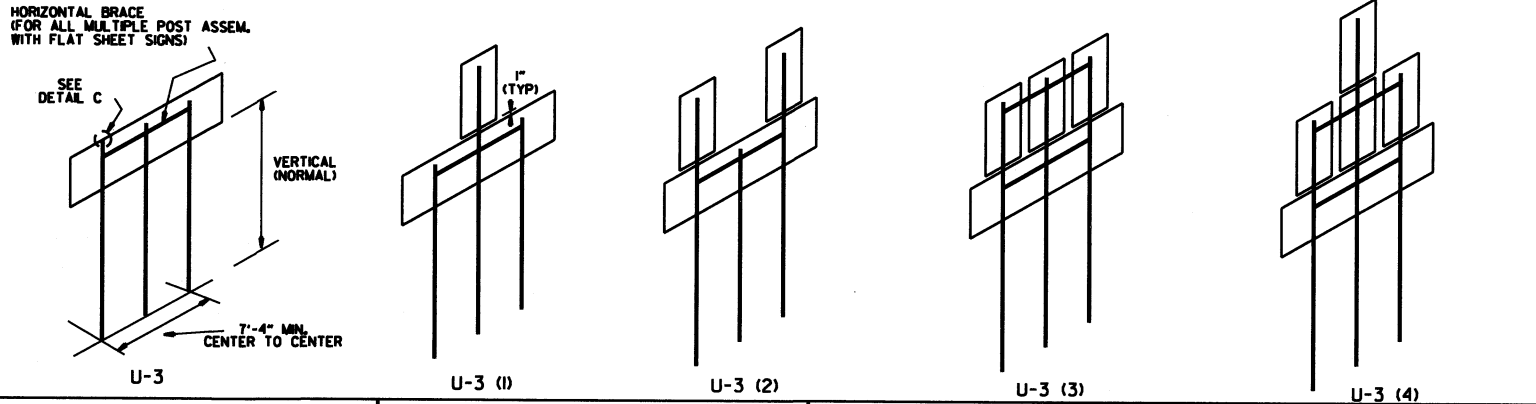
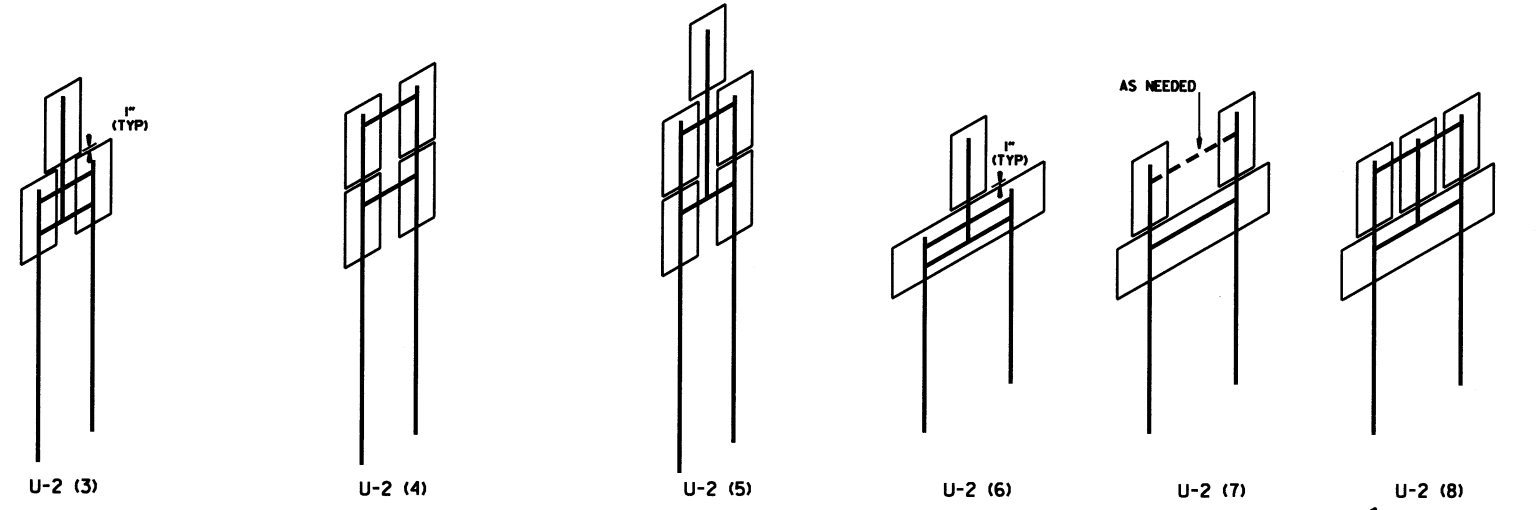
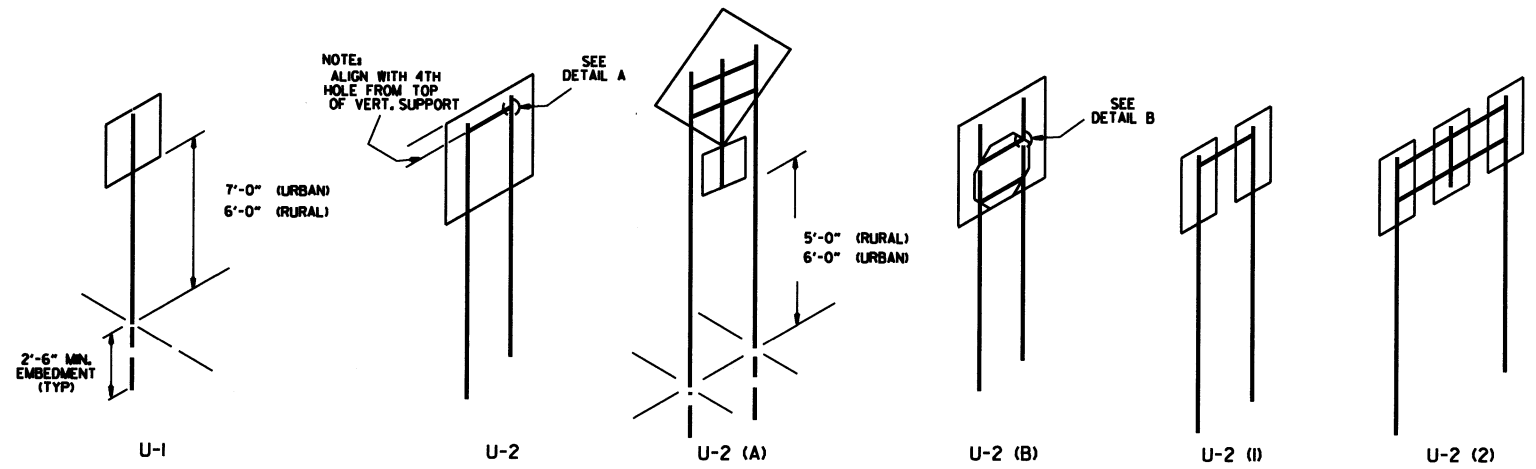
 RI-1 30"x30"	 W1-3 30"x30" (LT. OR RT.)	 W1-8 18"x24"	 W2-5 30"x30"	 W3-1 36"x36"	 W5-1 36"x36"	 M6-3 21"x15"		
 RI-2 36"x36"x36"	 W1-4 30"x30" (LT. OR RT.)	 W2-1 30"x30"	 SI-1 36"x36"	 W3-2 36"x36"	 LASSEN 16 COUNTY County Route Marker MI-6 24"x24"	 M6-4 21"x15"		<p>MINIMUM DIMENSIONS SHOWN SUPPORT SECTION</p>  <p>(U-CHANNEL) STANDARD SUPPORT ASSEMBLIES</p>  <p>TYPE A</p> <p>NOTE: LENGTH OF SIGN POSTS SHALL BE DETERMINED SO AS TO PROVIDE FOR MINIMUM VERTICAL CLEARANCES AS CALLED FOR IN THE SPECIFICATIONS PLUS A MINIMUM VERTICAL PENETRATION OF 30" IN THE SOIL.</p>
 R2-1 24"x30"	 W1-5 30"x30" (LT. OR RT.)	 W2-2 30"x30"	 W5-2 36"x36"	 W8-3 36"x36"	NOTE: REFLECTORIZED YELLOW LEGEND (COUNTY NAME, ROUTE LETTER & NUMBER) & BORDER ON A BLUE BACKGROUND.	 RI-3P 18"x6"	 M6-5 21"x15"	
 W1-1 30"x30" (LT. OR RT.)	 W1-6 48"x24"	 W2-3 30"x30" (LT. OR RT.)	 W5-3 36"x36"	 W13-1P 18"x18"	 M6-1 21"x15"	 M6-6 21"x15"		 <p>TYPE B</p>  <p>TYPE C</p> <p>MINIMUM WEIGHT TYPE A &amp; B = 3 LBS./FT. TYPE C = 2 LBS./FT.</p>
 W1-2 30"x30" (LT. OR RT.)	 W1-7 48"x24"	 W2-4 30"x30"	 W10-1 36" DIAMETER	 W3-3 36"x36"	 M6-2 21"x15"	 S4-3P 24"x8"	 WHEN CHILDREN ARE PRESENT S4-2P 24"x10"	

STANDARD HIGHWAY SIGNS

SUPPORT ASSEMBLIES

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

9-12-13	DELETED JOB NO. BLOCK REVISED RI-3 TO RI-3P	
4-17-08	REVISED SIGN DESIGNATION - W3-1 & W3-2	
4-10-03	REVISED W5-2, W8-3, OM-3, ADDED W1-8	
1-5-81	REDRAWN	960-1-15-81
9-5-78	ADDED W4-3	877-9-15-78
9-2-76	POST WT.	623-9-3-76
5-3-76	STEEL POST WT. FROM 2"-3"; ADDED S4-2 & S4-3	504-5-3-76
8-12-74	REV. HT. TYPE "C" ASSEMBLY	500-8-21-74
12-21-72	ADDED M6-2, 3, 4, 5, 6	500-12-21-72
12-1-72	ISSUED	562-12-1-72
DATE	REVISION	DATE FILMED



NOTES:

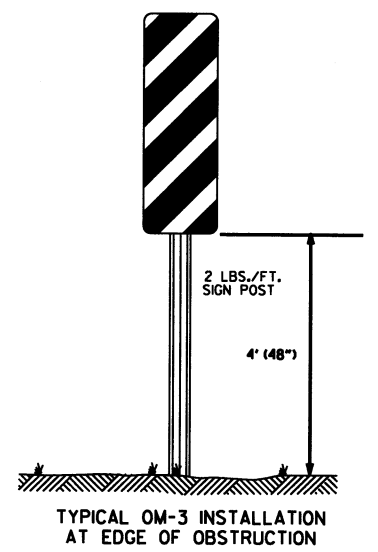
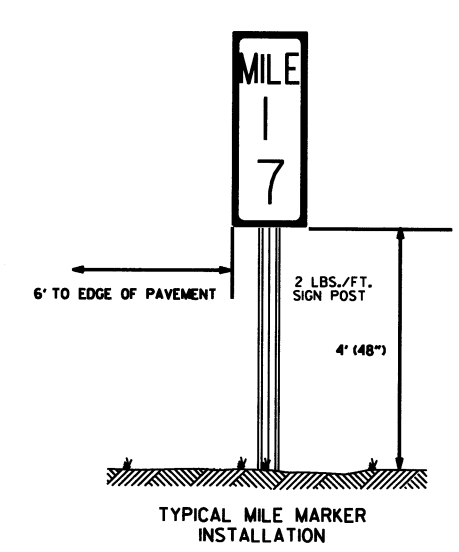
SIGNS AT LEAST 8' IN LENGTH MAY BE INSTALLED ON THREE 3 LB. POST. IN NO CASE SHALL THERE BE MORE THAN TWO 3 LB. POSTS WITHIN A 7' PATH.

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


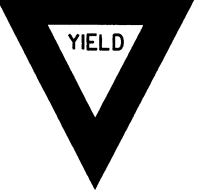



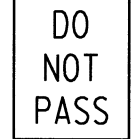
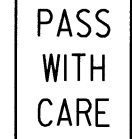


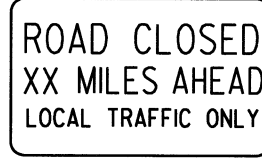
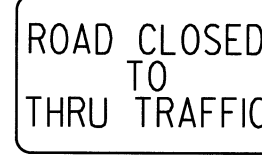

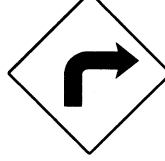





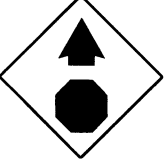
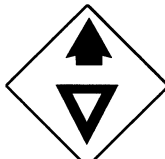
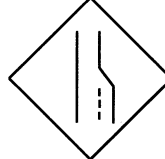

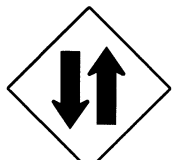











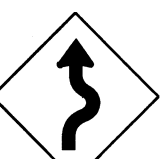
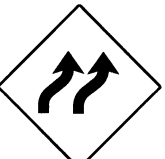



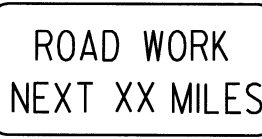
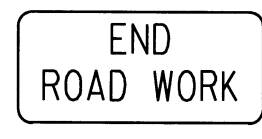
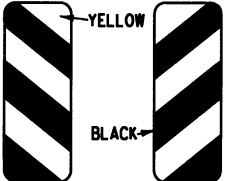


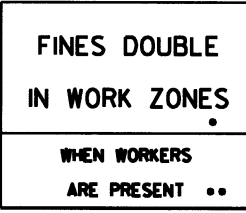
NORMAL INSTALLATIONS WILL REQUIRE 5/16" DIA. CARRIAGE BOLTS TO MOUNT SIGNS TO POST AND TO ASSEMBLE THE VARIOUS POST SUPPORTS.

ALL SIGN POSTS SHALL BE PLUMB.

THE POST FOR "TYPE U" SUPPORTS SHALL BE HOT DIP GALVANIZED.

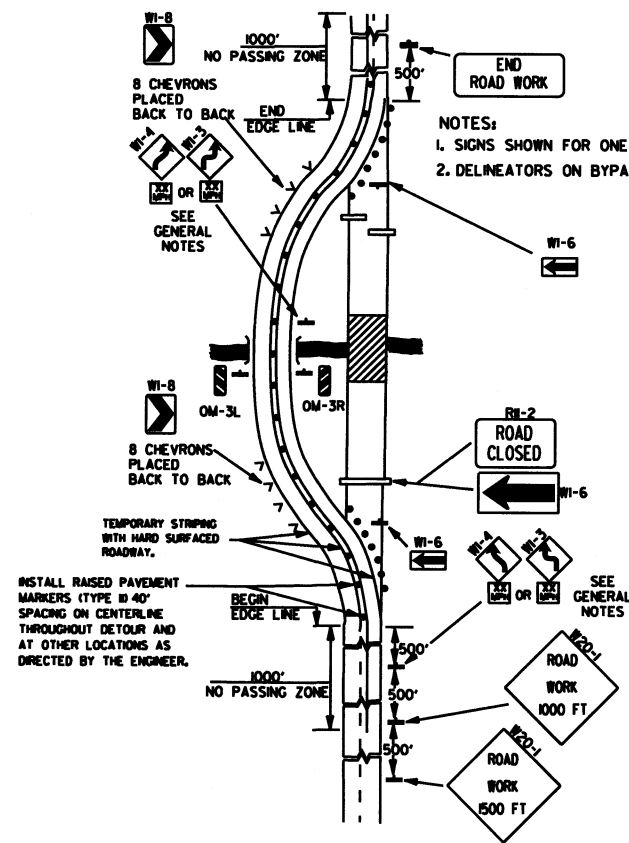


ARKANSAS STATE HIGHWAY COMMISSION	
U-CHANNEL POST ASSEMBLIES	
STANDARD DRAWING SHS-2	
2-27-14	REVISED NOTES.
9-12-13	REVISED U-2(3), U-2(6), U-3(4), DETAIL D; ADDED DETAILS E & F; ADDED TYPICAL MARKERS
10-9-03	REMOVED ROUND POST & REVISED SPACING
10-12-95	MOVED UPPER SPLICE
6-8-95	REVISED SPLICE DETAIL
2-2-95	REDRAWN
DATE	REVISION
	6-8-95
	2-2-95
	FILMED

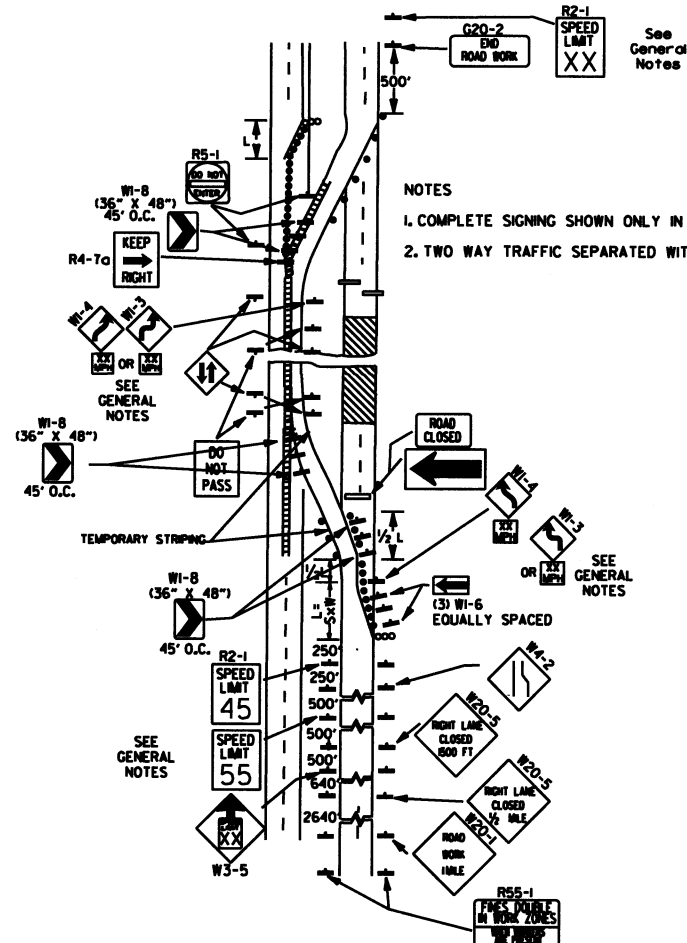
							ADVANCE DISTANCES (XXXX)	
<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>W3-5</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>W3-5a</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>500 FT 1/2 MILE 1000 FT 3/4 MILE 1500 FT 1 MILE AHEAD</p>	
<p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>R11-2</p>  <p>48"x30"</p>	<p>R11-3A</p>  <p>60"x30"</p>	<p>R11-4</p>  <p>60"x30"</p>	<p>W21-5a</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W1-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W1-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>GENERAL NOTES:</p> <ol style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.</li> <li>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.</li> <li>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.</li> </ol> <p>* NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 &amp; 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.</p>	
<p>W1-3</p>  <p>STD. 48"x48"</p>	<p>W1-4</p>  <p>STD. 48"x48"</p>	<p>W1-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>W1-8</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>STD. 36"x36" FWY. 48"x48"</p>	<p>W21-2</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W21-5</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W24-1</p>  <p>STD. 36"x36"</p>	<p>W1-4b</p>  <p>STD. 48"x48"</p>		<p>R56-1</p>  <p>STD. 18"x18"</p>
<p>W8-11</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W8-9</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>G20-1</p>  <p>60"x24"</p>	<p>G20-2</p>  <p>48"x24"</p>	<p>OM-3L OM-3R</p>  <p>12"x36"</p>	<p>M4-9</p>  <p>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</p>	<p>M4-10</p>  <p>48"x18"</p>		<p>R55-1</p>  <p>36"x60"</p> <p>• USE 6" C LETTERS •• USE 4" D LETTERS</p>

4-13-17	DELETED RSP-1 & ADDED W21-5a	
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
1-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
1-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
1-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
1-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	
DATE	REVISION	FILMED

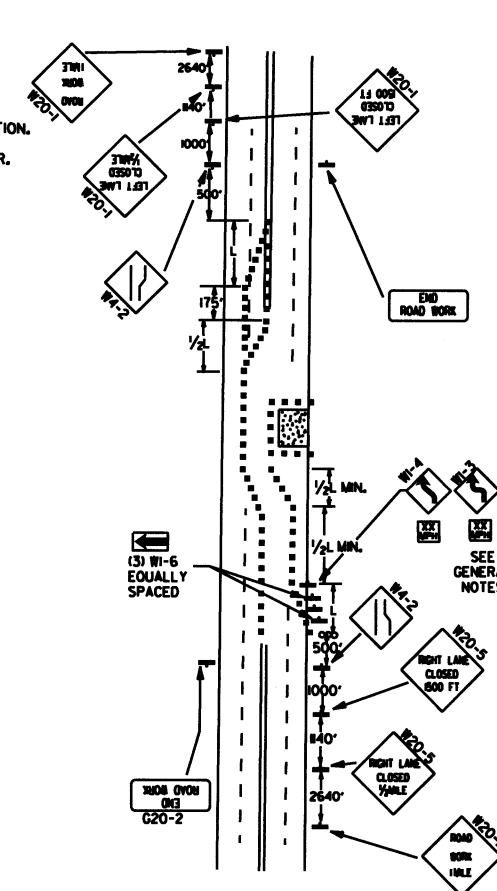




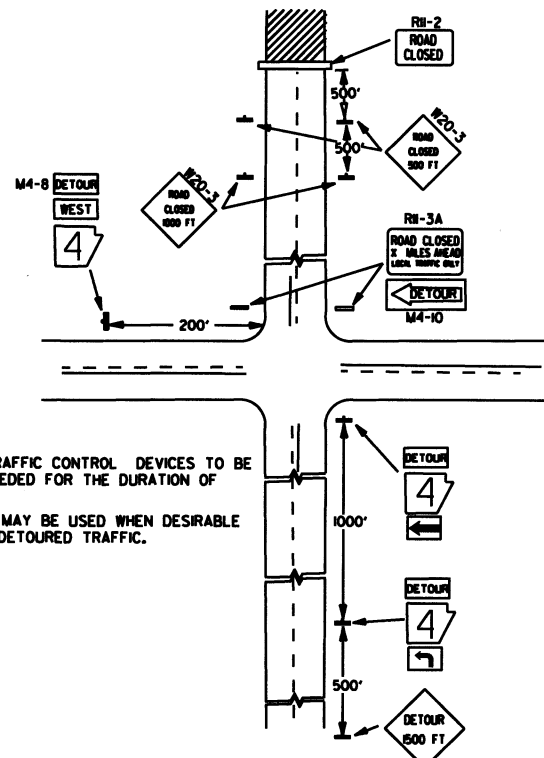
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



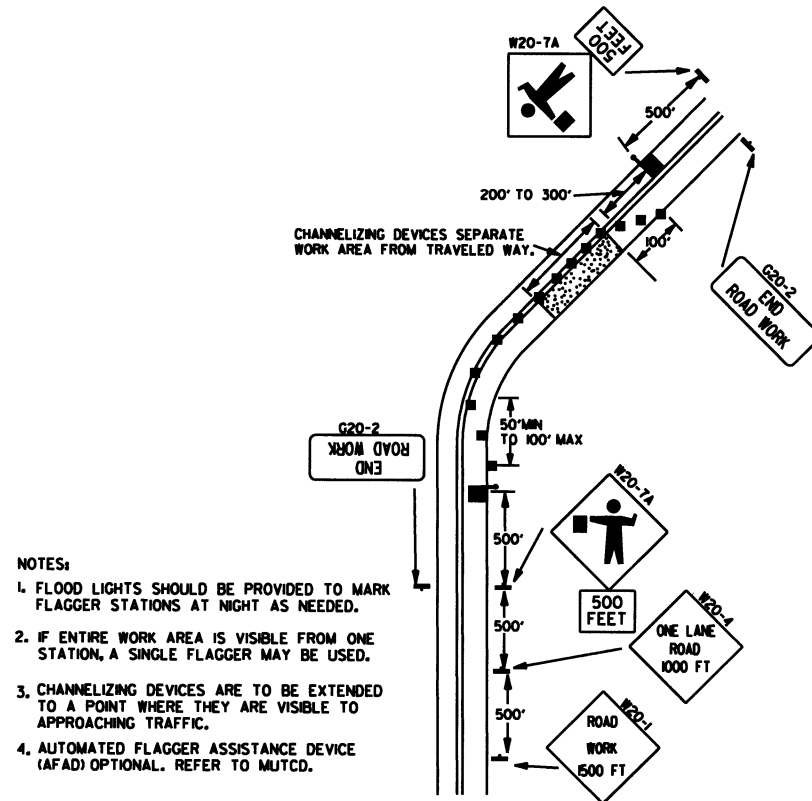
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



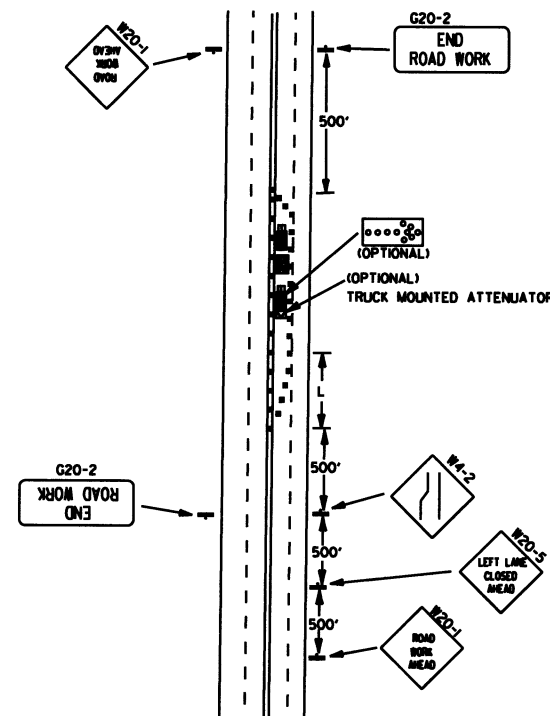
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.

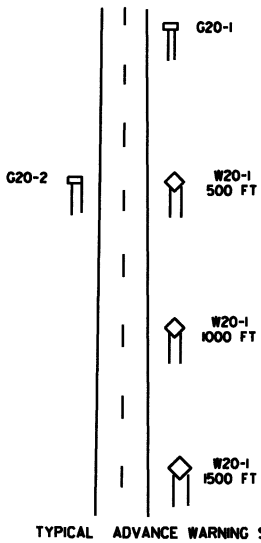
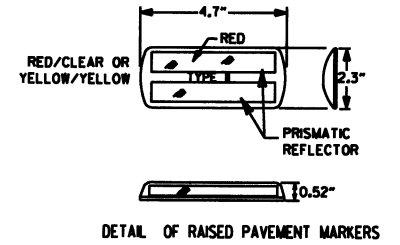


(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

- KEY:
- FLAGGER
  - POSITIVE BARRIER
  - ARROW PANEL (IF REQUIRED)
  - TYPE III BARRICADE
  - CHANNELIZING DEVICE
  - TRAFFIC DRUM
  - RAISED PAVEMENT MARKER

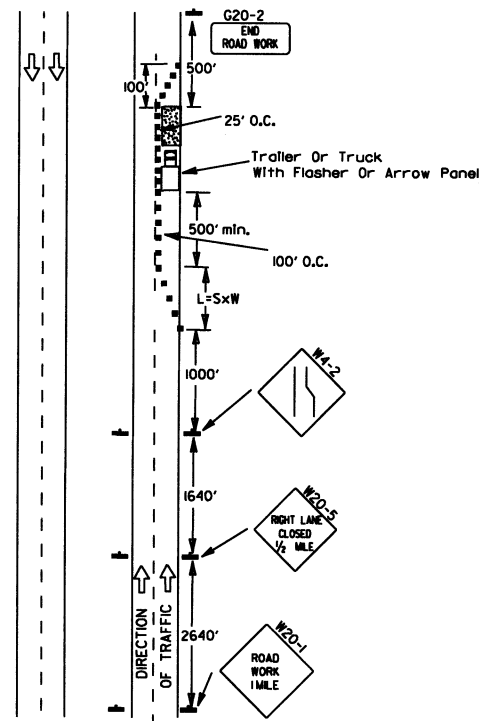


TYPICAL ADVANCE WARNING SIGN PLACEMENT

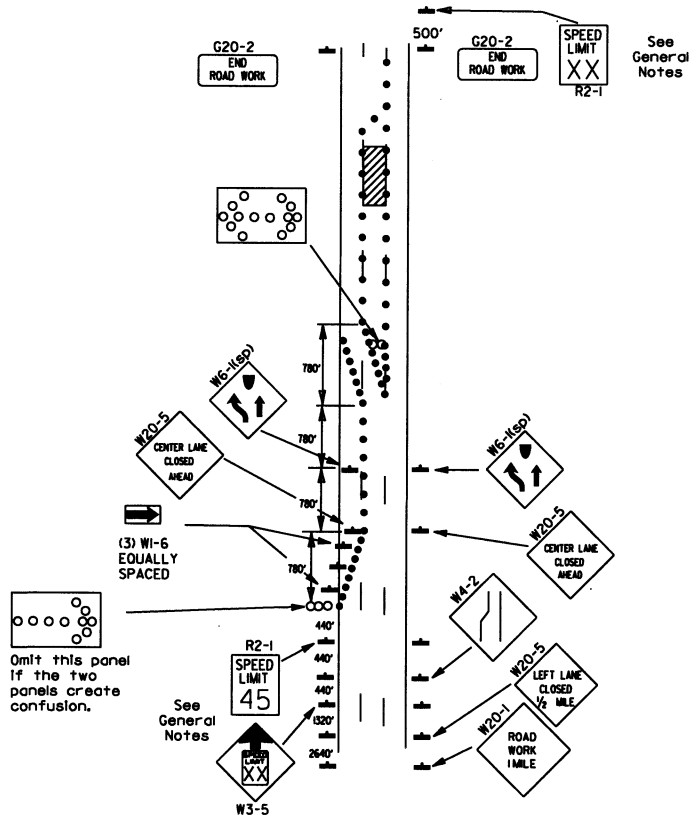
TAPER FORMULAE:  
 $L = SKW$  FOR SPEEDS OF 45MPH OR MORE.  
 $L = \frac{WS^2}{60}$  FOR SPEEDS OF 40MPH OR LESS.  
 WHERE:  
 L = MINIMUM LENGTH OF TAPER.  
 S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.  
 W = WIDTH OF OFFSET.

- 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-K55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXX) 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-K45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXX) 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 CONSPICUOUS 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.
  - 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.

9-2-85	REVISED NOTE 2, ADDED NOTE 6, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-85	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-8-86	ADDED (AFAD)	
8-20-88	REVISED SIGN DESIGNATIONS	
8-18-84	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	
DATE	REVISION	FILED



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

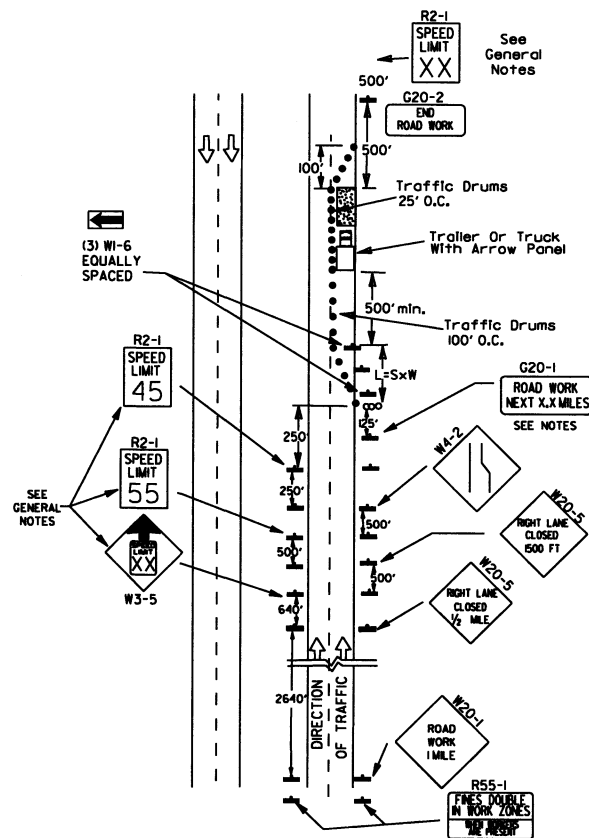


(B) Typical application - 3-lane oneway roadway where center lane is closed.

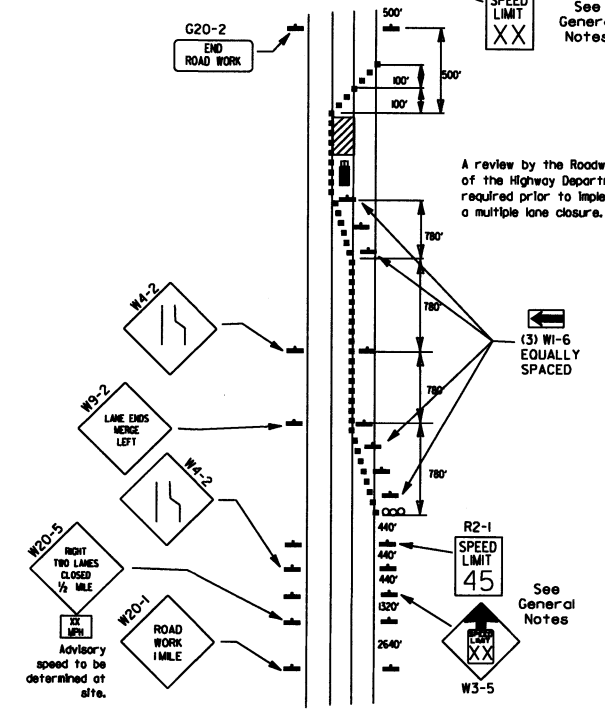
- KEY:
- Arrow Panel (if Required)
  - Channelizing Device
  - Traffic drum

GENERAL NOTES:

1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1(45) 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.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(65) shall be omitted. Additional R2-1(55) 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.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

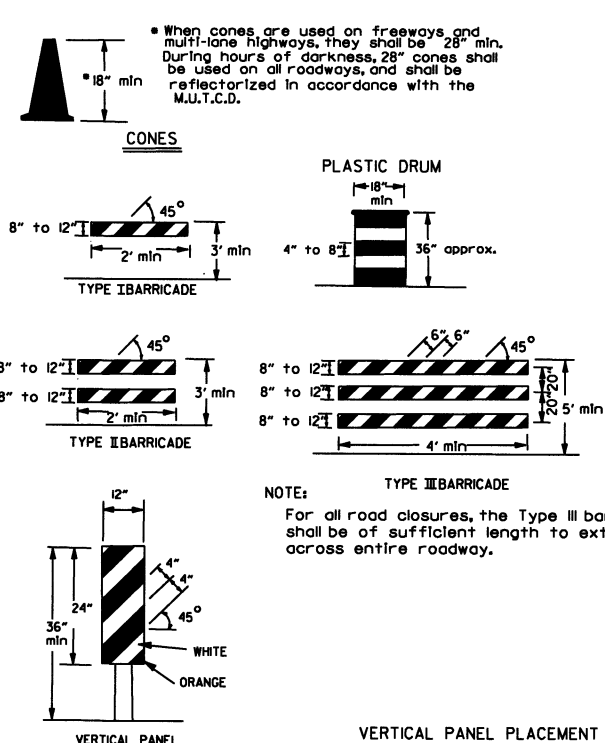


(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.



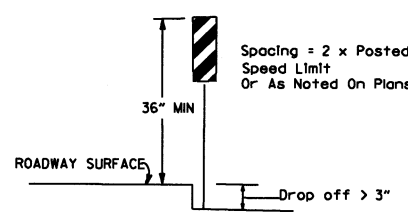
(D) Typical application - closing multiple lanes of a multilane highway.

Channelizing devices



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

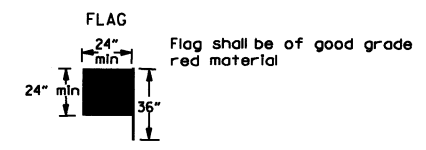
VERTICAL PANEL PLACEMENT



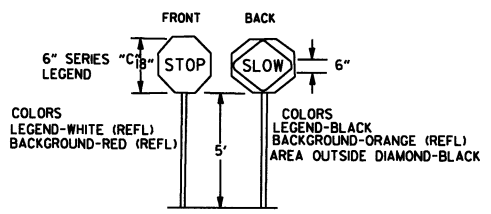
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

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

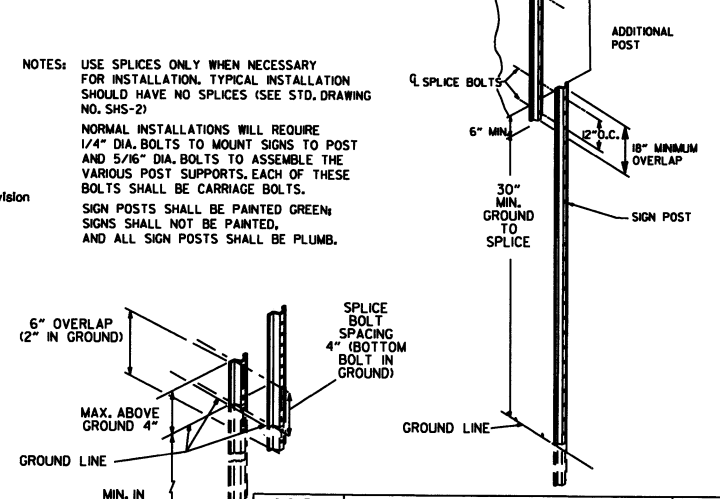
\* When shown on the plans concrete barrier will be used.  
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.



STOP SLOW PADDLE

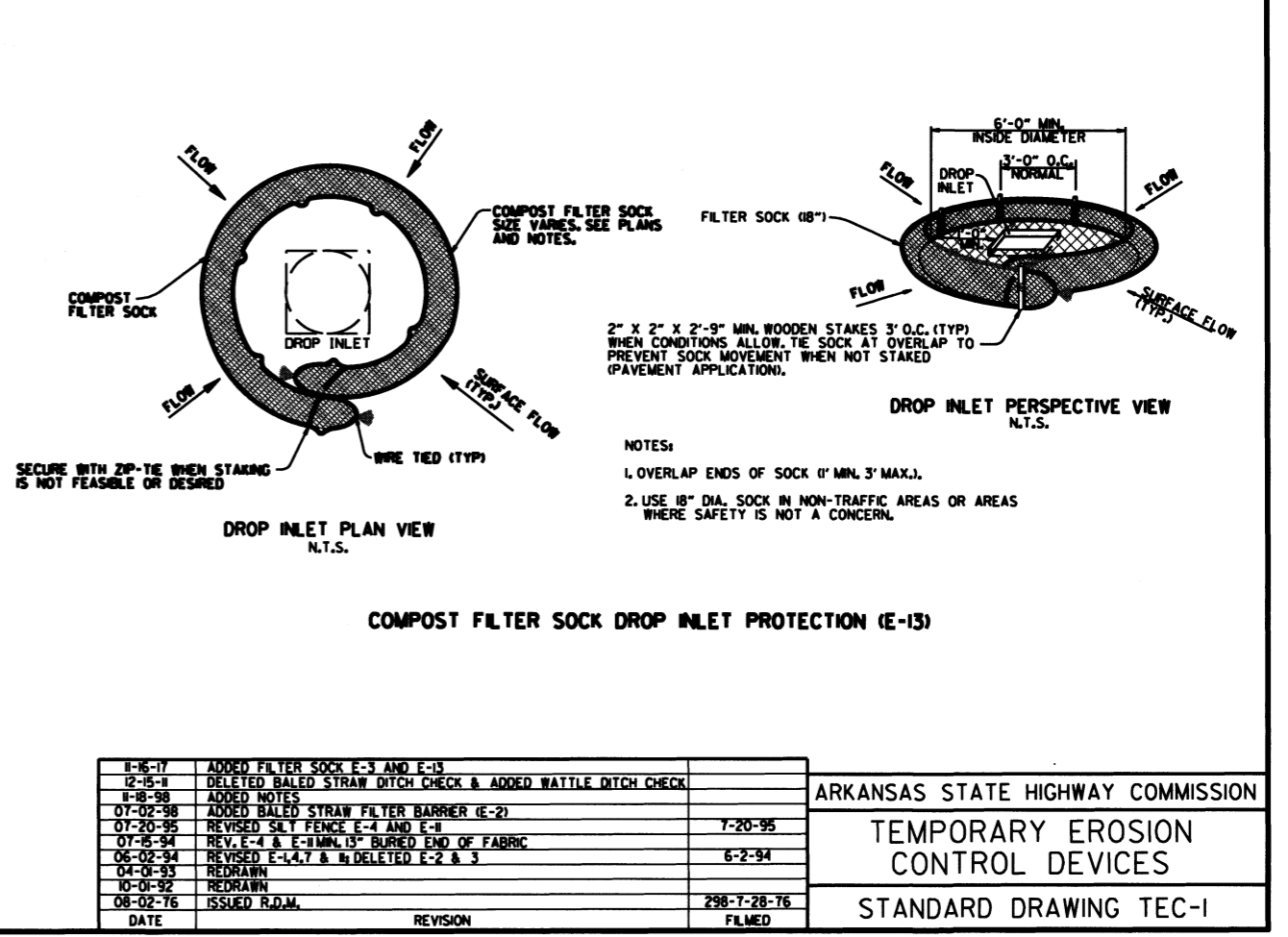
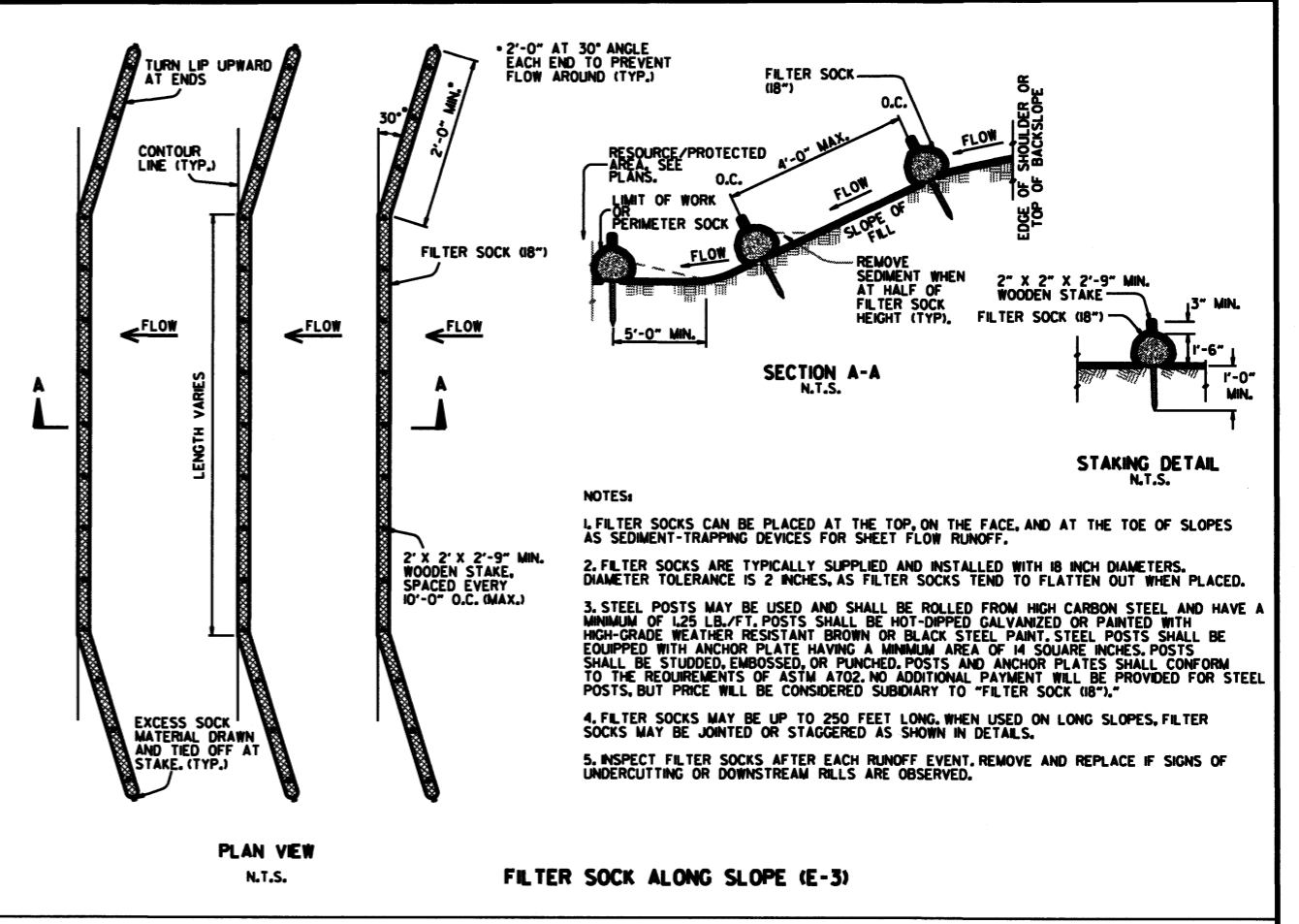
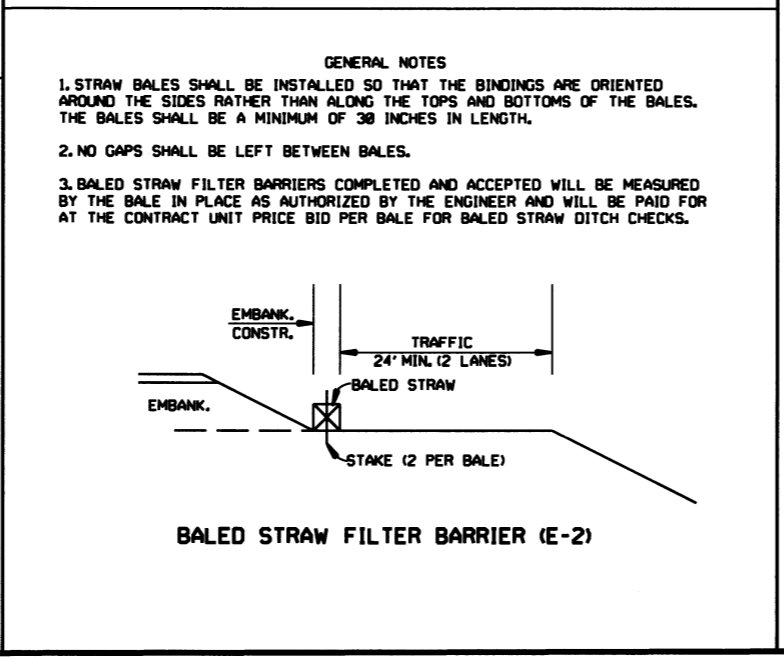
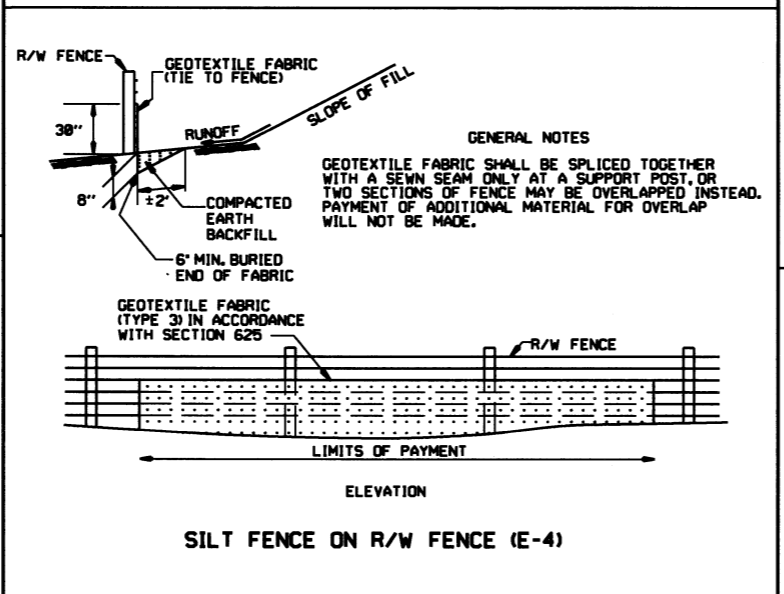
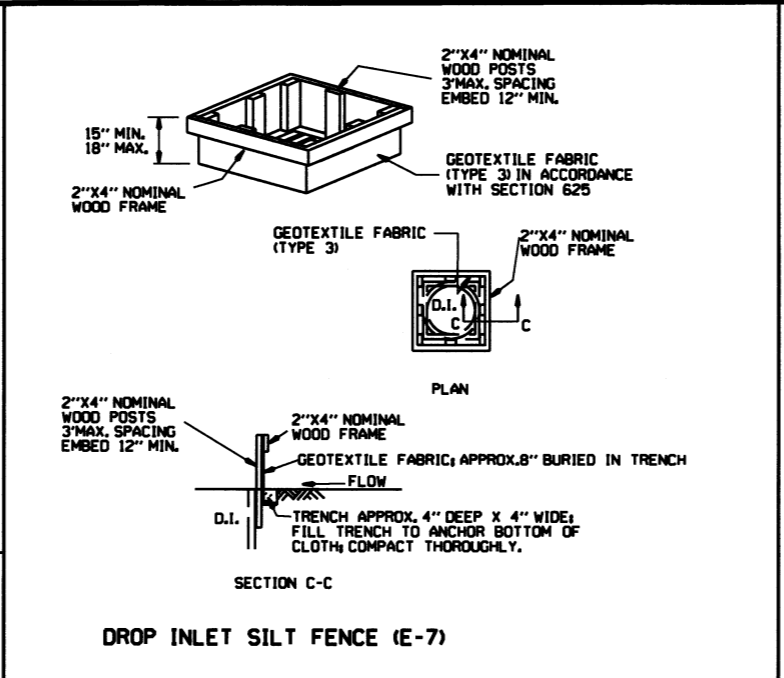
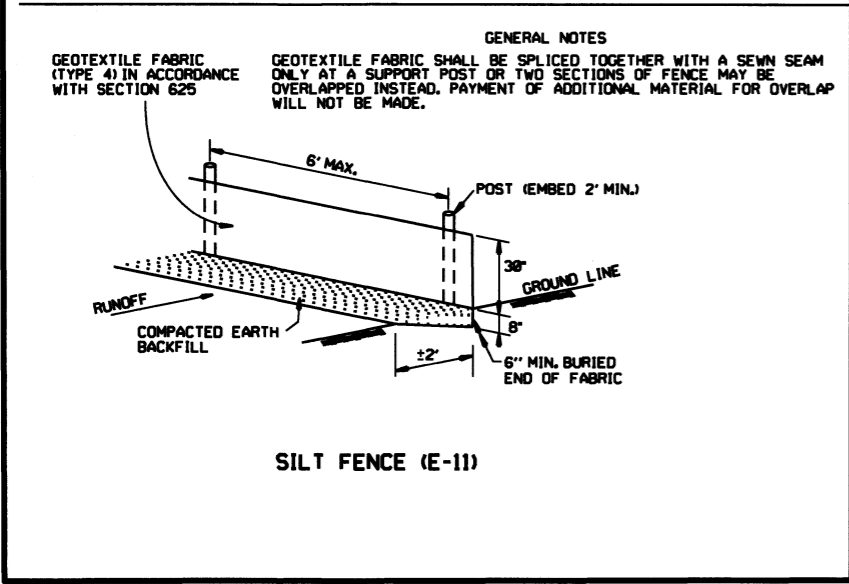
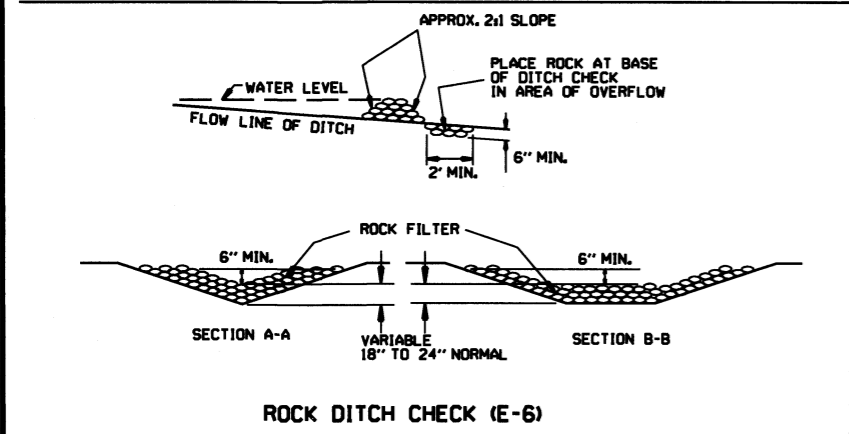
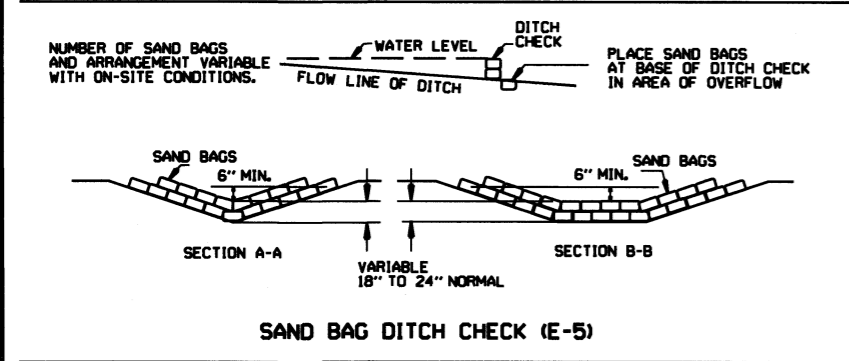
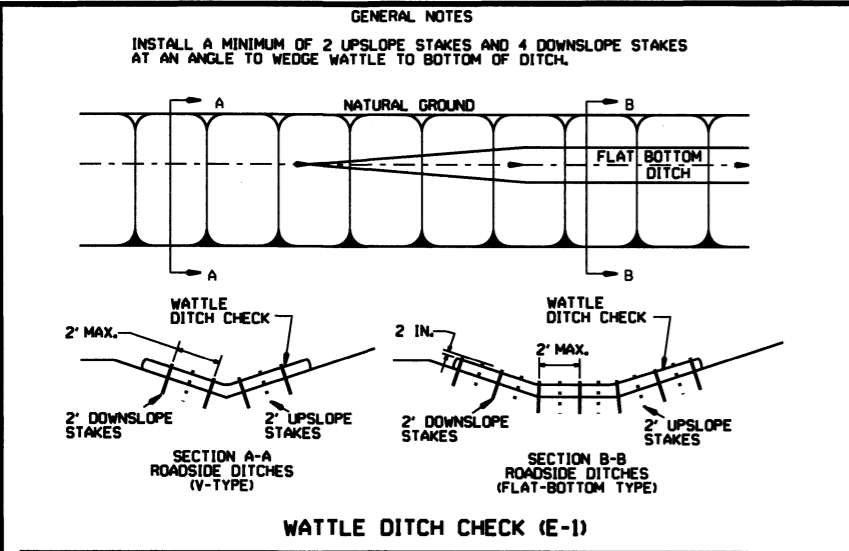


DETAIL OF SPLICES



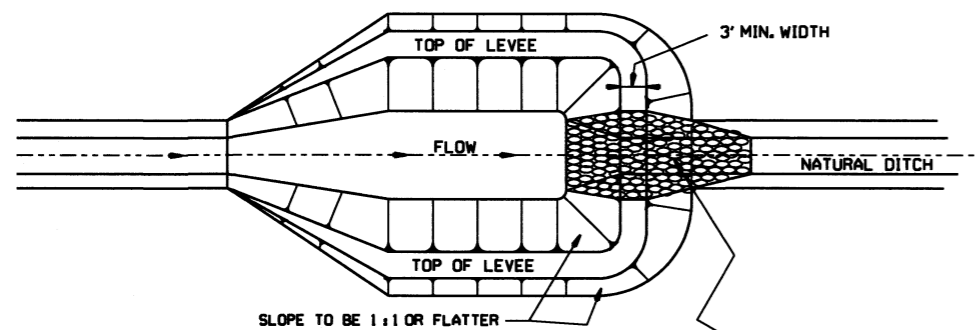
NOTES:  
USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)  
NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE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

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
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	

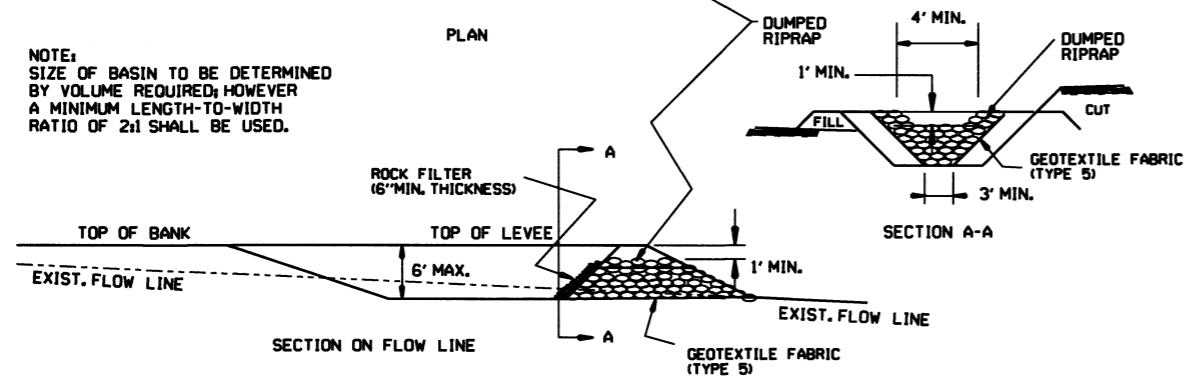


DATE	REVISION	FILED
11-16-17	ADDED FILTER SOCK E-3 AND E-13	
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
07-20-95	REVISED SILTS FENCE E-4 AND E-11	7-20-95
07-15-94	REV. E-4 & E-11 MIN. 15" BURIED END OF FABRIC	
06-02-94	REVISED E-1, 4, 7 & 16 DELETED E-2 & 3	6-2-94
04-01-93	REDRAWN	
10-01-92	REDRAWN	
08-02-76	ISSUED R.D.M.	298-7-28-76

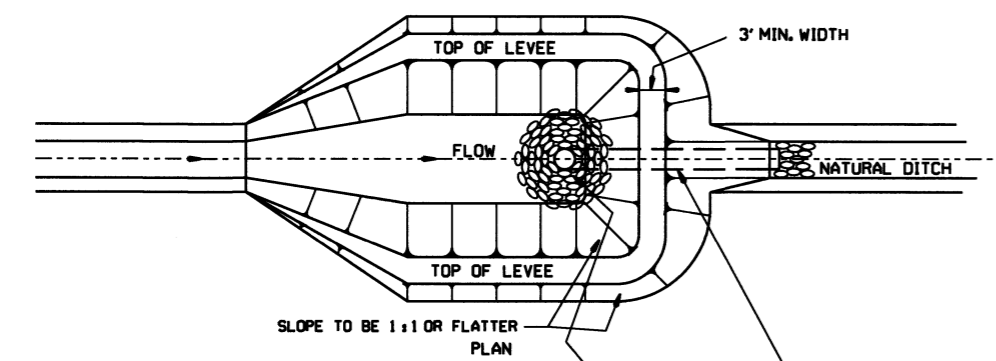
ARKANSAS STATE HIGHWAY COMMISSION  
TEMPORARY EROSION CONTROL DEVICES  
STANDARD DRAWING TEC-1



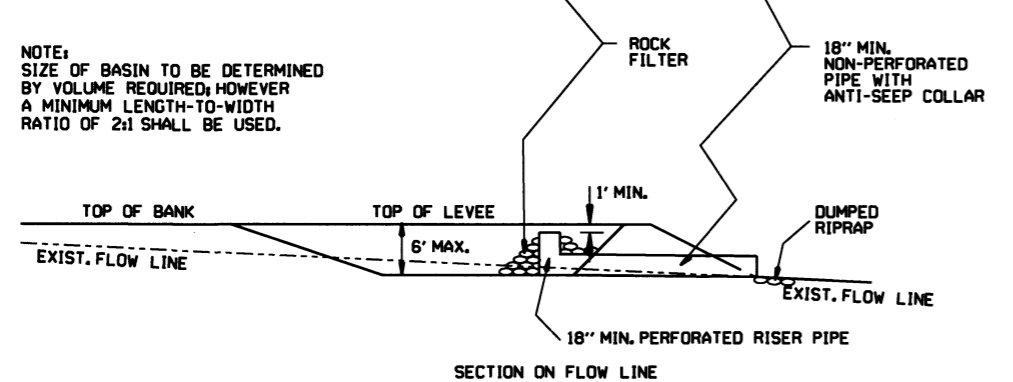
NOTE:  
SIZE OF BASIN TO BE DETERMINED  
BY VOLUME REQUIRED; HOWEVER  
A MINIMUM LENGTH-TO-WIDTH  
RATIO OF 2:1 SHALL BE USED.



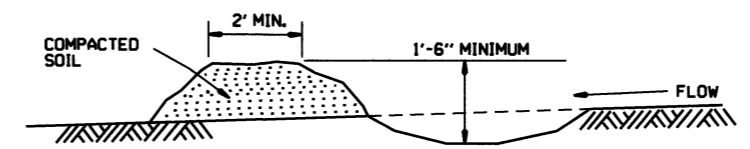
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



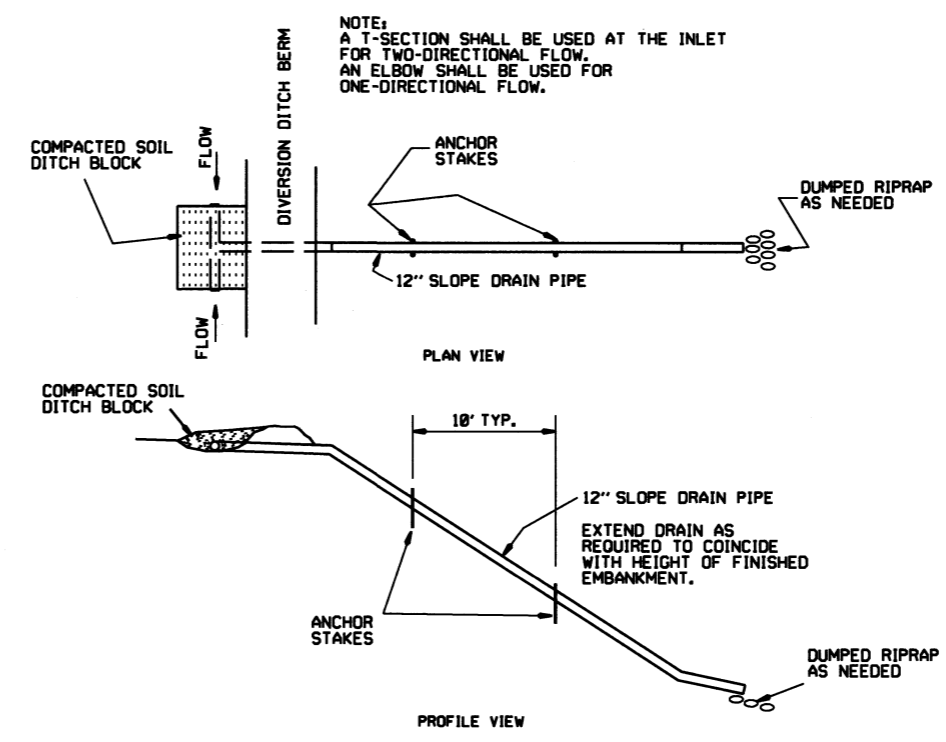
NOTE:  
SIZE OF BASIN TO BE DETERMINED  
BY VOLUME REQUIRED; HOWEVER  
A MINIMUM LENGTH-TO-WIDTH  
RATIO OF 2:1 SHALL BE USED.



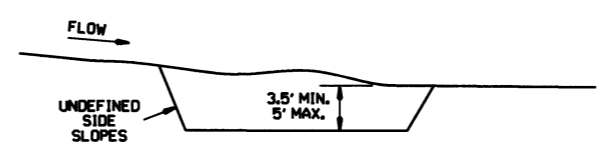
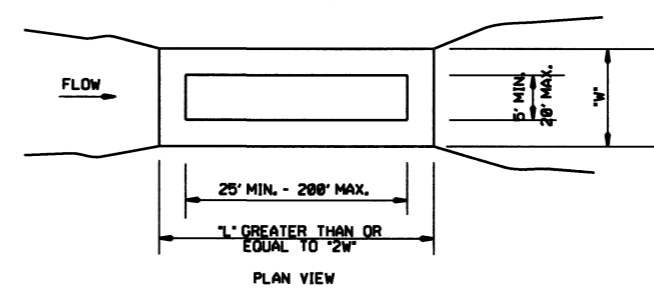
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

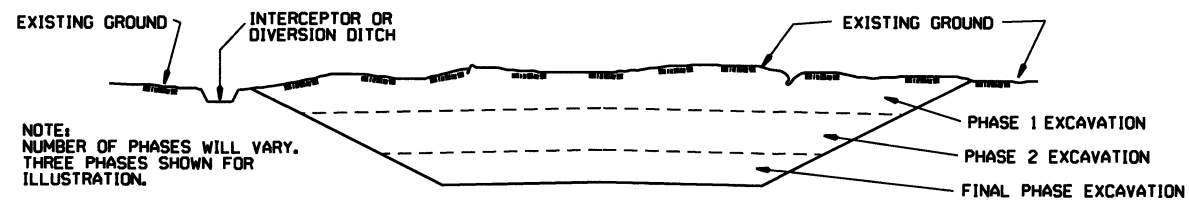


## CLEARING AND GRUBBING

### 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.

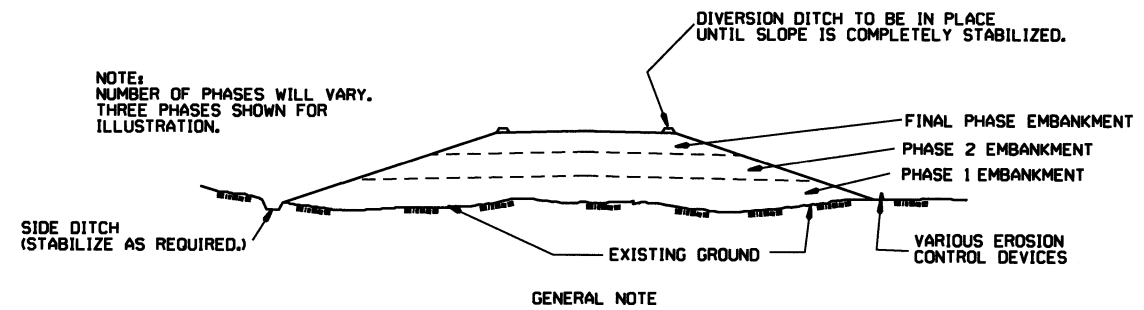
### GENERAL NOTE

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.

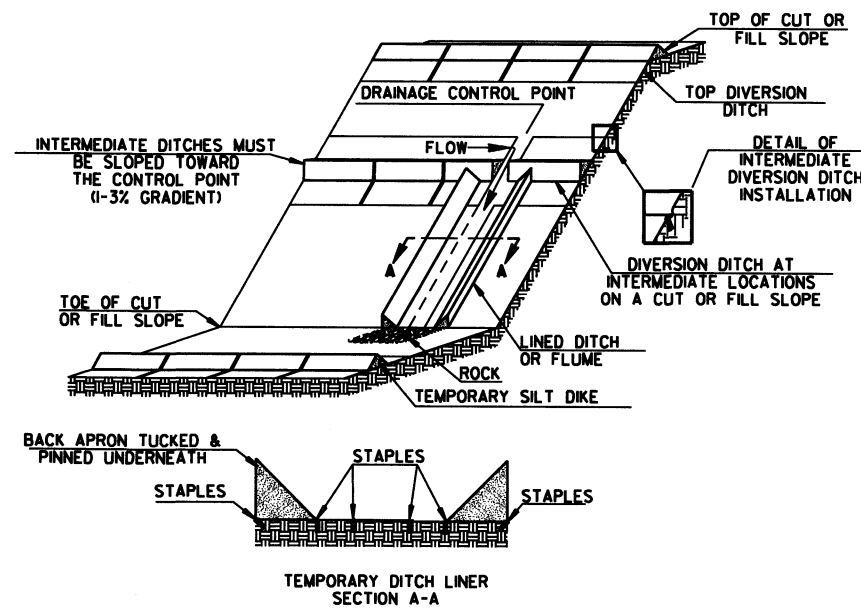
### GENERAL NOTE

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.

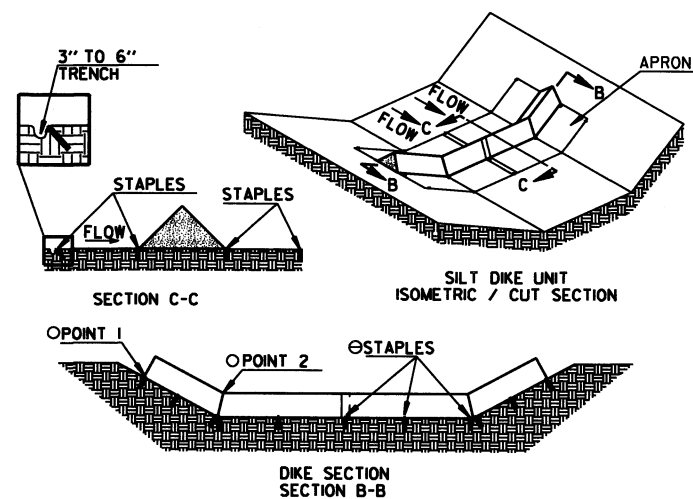
### CONSTRUCTION SEQUENCE

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

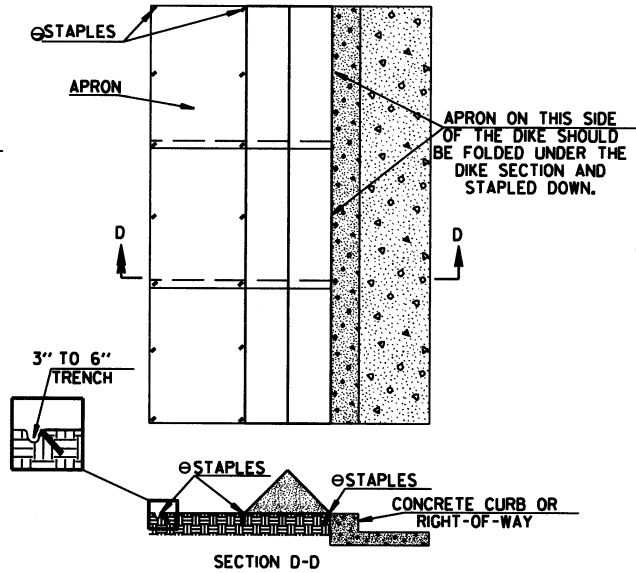


TRIANGULAR SILT DIKE INSTALLATION FOR DIVERSION DITCH AND/OR DITCH LINER

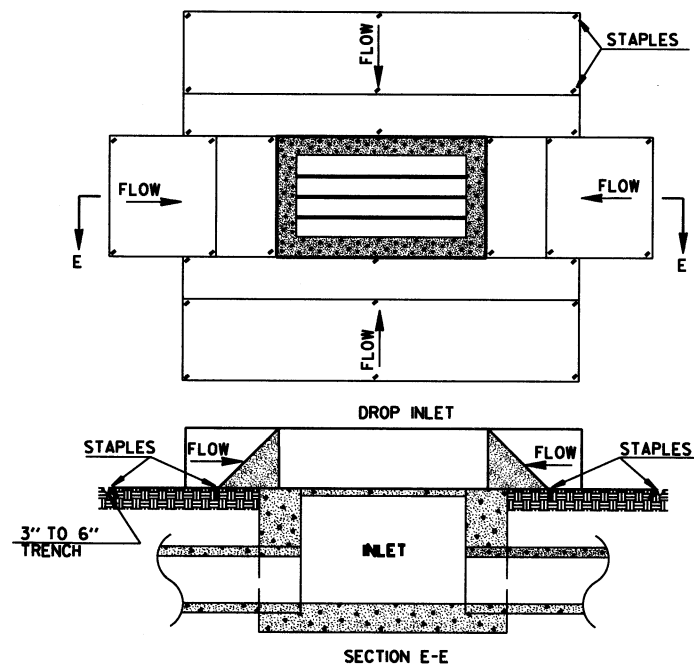


TRIANGULAR SILT DIKE INSTALLATION FOR ROADWAY DITCH OR DRAINAGE DITCH

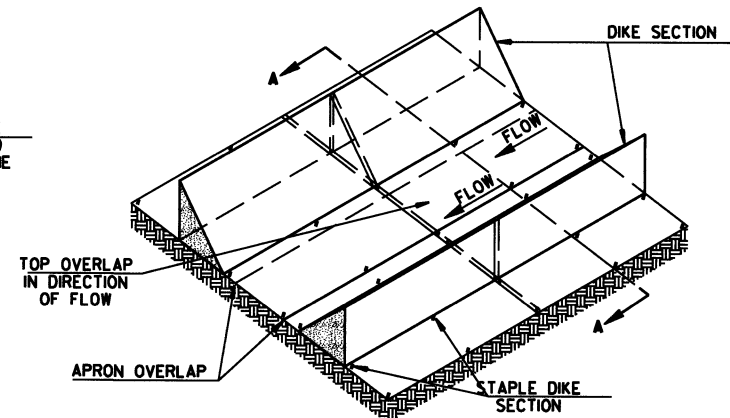
○ POINT "1" MUST BE HIGHER THAN POINT "2" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.  
 ⊗ STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE UNIT AS SHOWN ON THE DIAGRAM.



TRIANGULAR SILT DIKE INSTALLATION FOR CONTINUOUS BARRIER



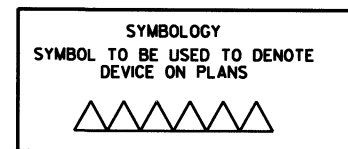
TRIANGULAR SILT DIKE INSTALLATION FOR DROP INLETS



TRIANGULAR SILT DIKE INSTALLATION FOR TEMPORARY DITCH LINER

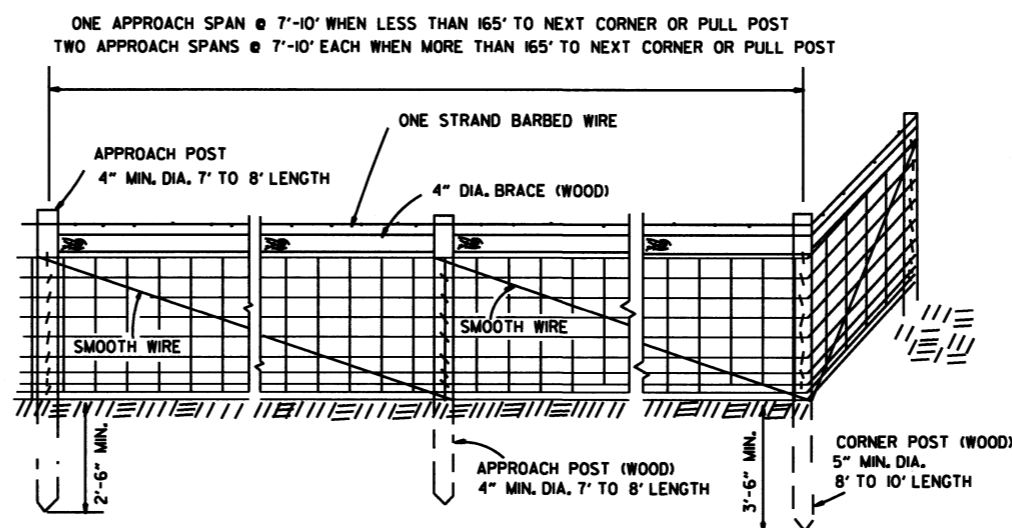
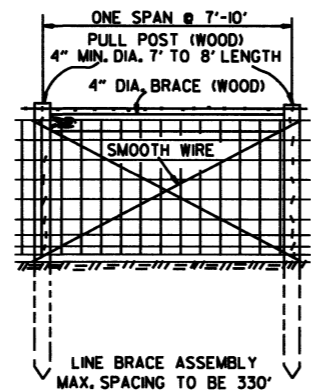
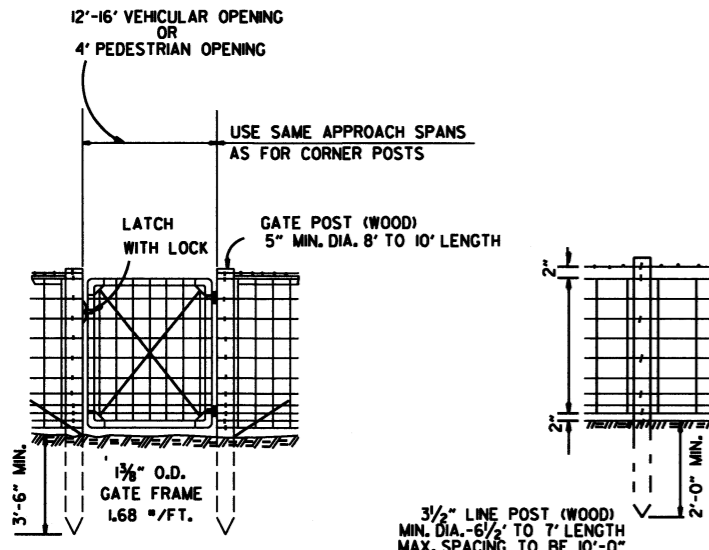
GENERAL NOTES

1. THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND MAINTAINING THE TRIANGULAR SILT DIKE. THE DIKES SHALL BE USED AS A CONTINUOUS LINE BARRIER AT THE TOE OF SLOPE OR ACROSS THE ROADWAY DITCH TO CONTAIN SEDIMENT AND MINIMIZE EROSION, OR AS DIRECTED BY THE ENGINEER. THESE DIKES SHALL BE INSTALLED AND LOCATED AS SOON AS CONSTRUCTION WILL ALLOW OR AS DIRECTED BY THE ENGINEER.
2. TRIANGULAR SILT DIKE SHALL BE TRIANGULAR SHAPED HAVING A HEIGHT OF AT LEAST 8" TO 10" IN THE CENTER WITH EQUAL SIDES AND A 16" TO 20" BASE. THE TRIANGULAR SHAPED INNER MATERIAL SHALL BE URETHANE FOAM. THE OUTER COVER SHALL BE A WOVEN GEOTEXTILE FABRIC PLACED AROUND THE INNER MATERIAL & ALLOWED TO EXTEND BEYOND BOTH SIDES OF THE TRIANGLE 24" TO 36". THIS FABRIC SHOULD BE MILDEW RESISTANT, ROT-PROOF AND RESISTANT TO HEAT AND ULTRAVIOLET RADIATION MEETING REQUIREMENTS FOR SEDIMENT CONTROL IN AASHTO M288. THE DIKES SHALL BE ATTACHED TO THE GROUND WITH WIRE STAPLES. THE STAPLES SHALL BE NO. 11 GAUGE WIRE AND BE AT LEAST 6" TO 8" LONG. STAPLES SHALL BE PLACED AS SHOWN ON THESE DETAILS.
3. THE CONTRACTOR SHALL INSPECT ALL DIKES AFTER EACH RAINFALL EVENT OF AT LEAST 0.5" OR GREATER. ANY DEFICIENCIES OR DAMAGE SHALL BE REPAIRED BY THE CONTRACTOR. ACCUMULATED SILT OR DEBRIS SHALL BE REMOVED AND RELOCATED AS DIRECTED BY THE ENGINEER. IF THE DIKES ARE DAMAGED OR INADVERTENTLY MOVED DURING THE SILT REMOVAL PROCESS, THE CONTRACTOR SHALL IMMEDIATELY REPLACE AFTER DAMAGE OCCURS.
3. ACCEPTED TRIANGULAR SILT DIKE, MEASURED AS PROVIDED ABOVE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR TRIANGULAR SILT DIKE. PRICE BID WILL INCLUDE THE COST OF FURNISHING THE DIKES, INSTALLING, MAINTAINING AND REMOVAL WHEN DIRECTED BY THE ENGINEER.



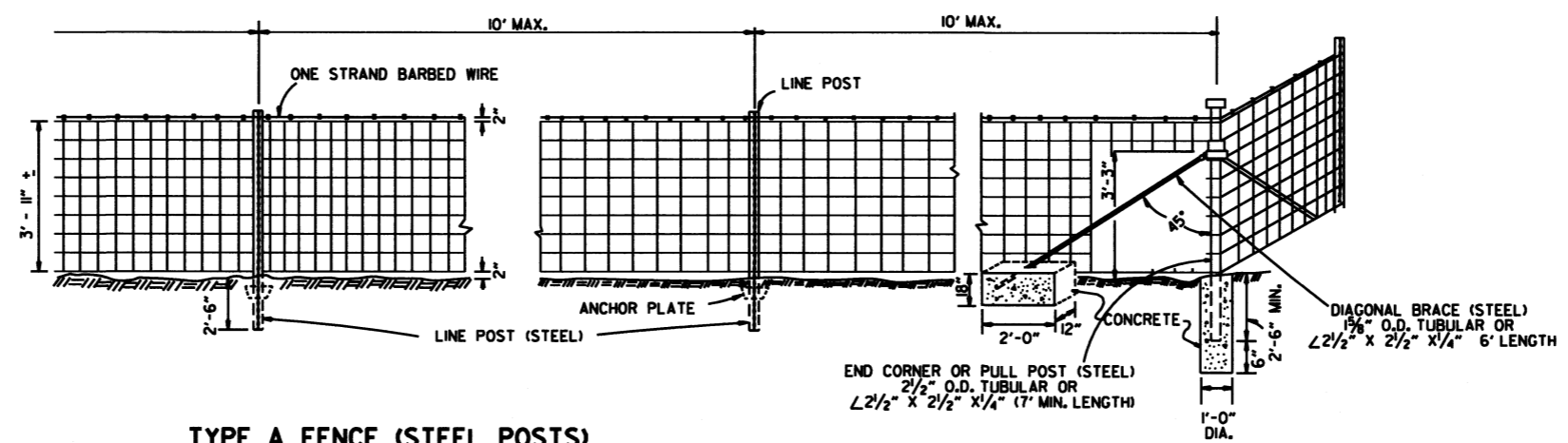
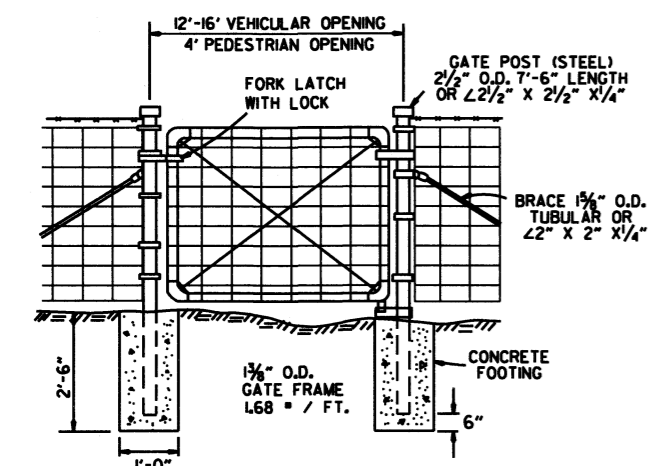
NOTE: SILT DIKE SHOULD ONLY BE USED FOR DROP INLETS IN SUMP LOCATIONS.

			ARKANSAS STATE HIGHWAY COMMISSION
			TEMPORARY EROSION CONTROL DEVICES
7-26-12	REVISED GENERAL NOTE 2.		
12-15-11	ISSUED		
DATE	REVISION		FILMED
			STANDARD DRAWING TEC-4

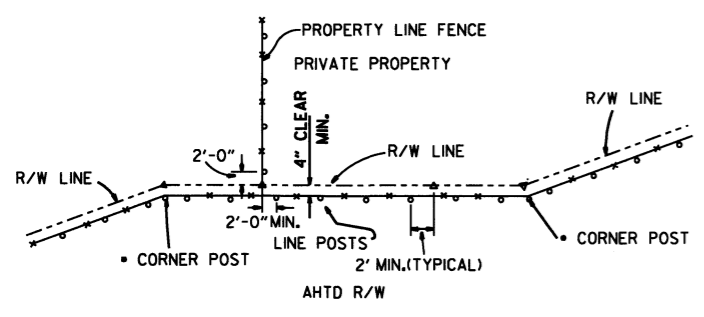


NOTE: STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE A FENCE (WOOD POSTS)



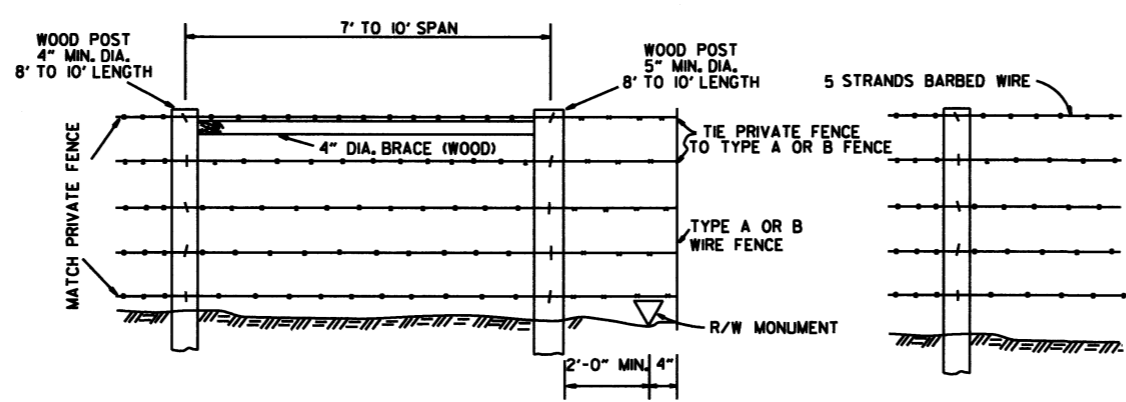
TYPE A FENCE (STEEL POSTS)



NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

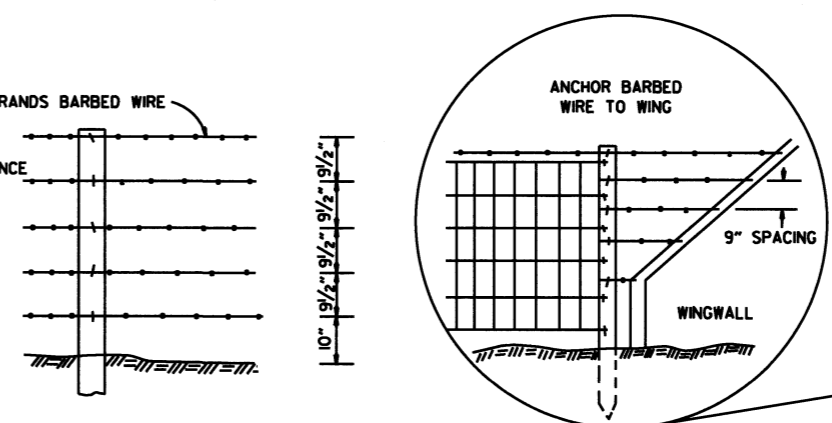
▲ - R/W MONUMENTS  
○ - FENCE POSTS

RIGHT-OF-WAY FENCE LOCATION



WHERE EXISTING PRIVATE FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN WITH TYPE A FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.

PRIVATE FENCE TERMINAL INSTALLATION

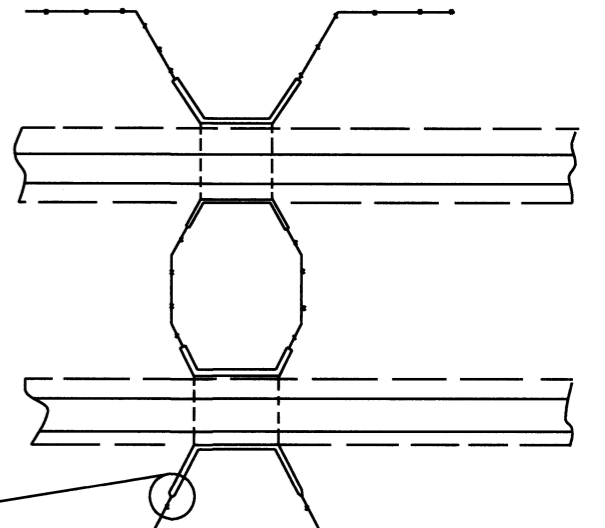


SPACING AND SIZE OF POSTS FOR TYPE B FENCE SHALL BE THE SAME AS TYPE A FENCE.

TYPE B FENCE

GENERAL NOTES:

- STEEL LINE POSTS SHALL BE GALVANIZED, 7 FT. IN LENGTH.
- TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK).
- THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF WOOD LINE POSTS OF 7' LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.
- GATE HINGES AND LATCHES WITH LOCKS TO BE OF A TYPE APPROVED BY THE ENGINEER. DRIVEWAY GATES, EITHER SINGLE 12' OR 16' OR DOUBLE 6' TO 8' OPENINGS OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE FOR USE BY MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON THE PLANS OR AS DESIGNATED BY THE ENGINEER.
- AT STREAM CROSSINGS THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF BANK TO THE BRIDGE STRUCTURE, A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO THE BRIDGE ABUTMENTS OR CULVERT WINGWALLS.
- SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.
- SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD" AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRE A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.



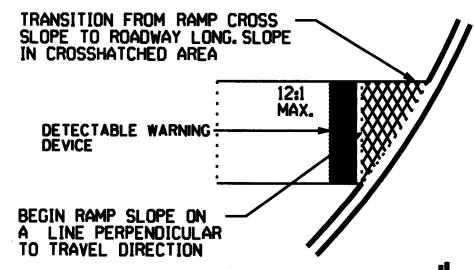
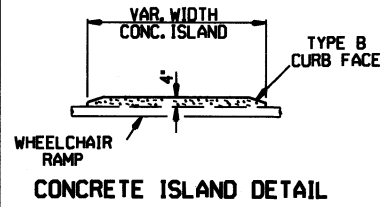
DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

DATE	REVISION	DATE FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	ADDED CORNER POST NOTE	6-2-94
8-5-93	REVISED R-O-W LOCATION DETAIL	8-5-93
10-1-92	ADDED STAPLE NOTE	
8-2-90	REV'D PULL POST LENGTH	
11-30-89	DELETED CLASS CONC.	
7-15-88	ADDED SPLICE NOTES	
7-15-88	ADDED HEIGHT DIMENSION	
4-3-87	REVISED VARIOUS NOTES AND GENERAL NOTES	
11-1-84	MAX. POST SPACING	
1-4-83	MIN. DIA. LINE POST	
10-2-72	REVISED & REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE  
TYPE A AND B

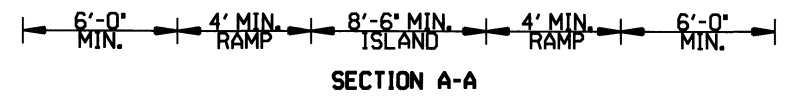
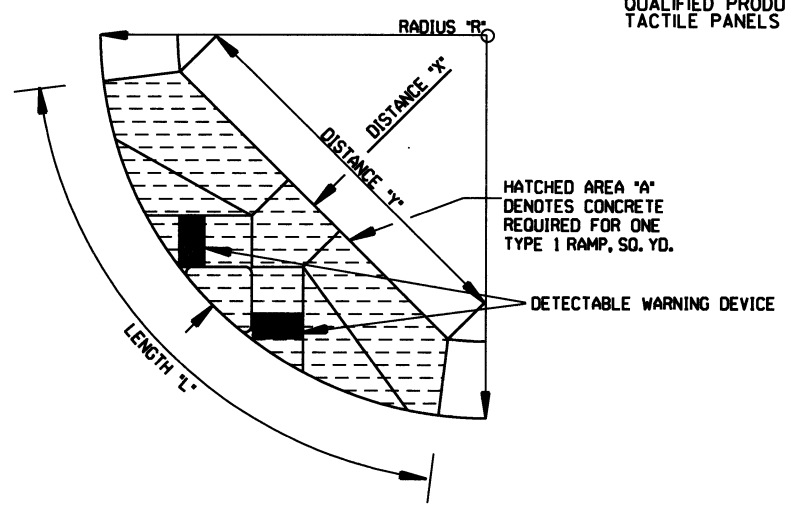
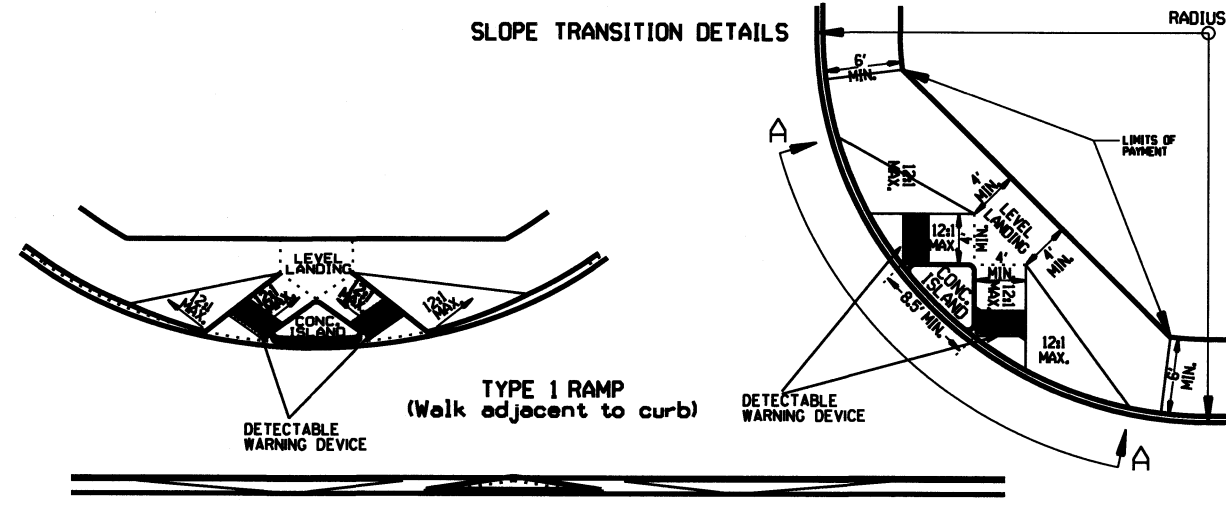
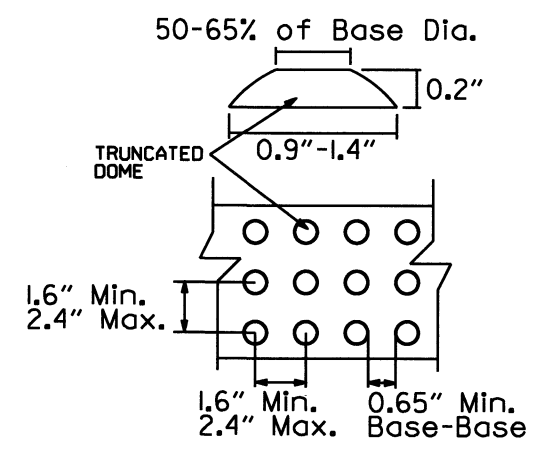
STANDARD DRAWING WF-1



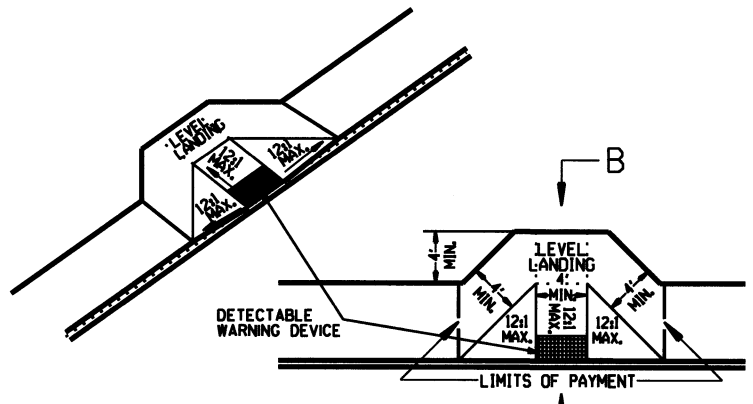
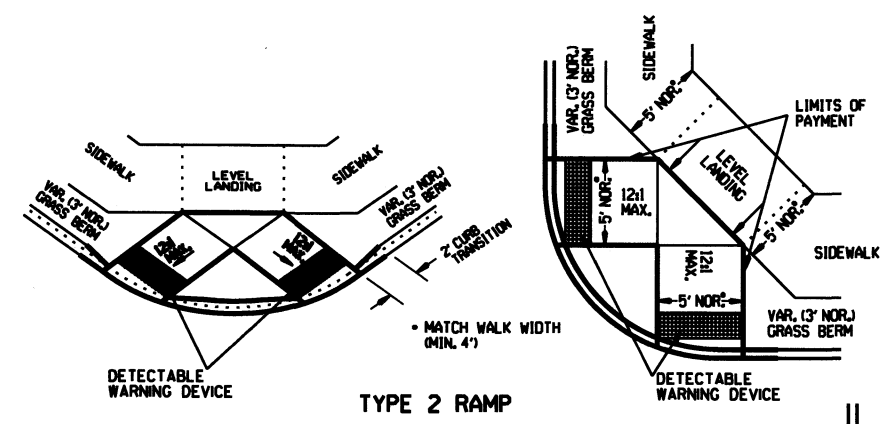
**TYPE 1 RAMP DIMENSIONS AND QUANTITIES**

RADIUS "R"	DISTANCE "X"	DISTANCE "Y"	LENGTH "L"	RAMP AREA "A"
FEET	FEET	FEET	FEET	SQ. YD.
15	11.67	18.82	32.18	26.21
20	11.52	22.28	35.46	30.07
25	11.43	26.60	38.77	33.80
30	11.37	30.26	40.93	36.90
35	11.33	33.51	43.11	39.77
40	11.30	36.45	45.26	42.45
45	11.27	39.16	47.34	44.97
50	11.25	41.69	49.36	47.35
55	11.24	44.07	51.31	49.63
60	11.22	46.33	53.21	51.80

**GENERAL NOTES FOR DETECTABLE WARNING DEVICES**  
 THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB. TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN. DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES. DETECTABLE WARNING DEVICE SHALL BE 24 INCHES IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE. DETECTABLE WARNING DEVICE SHALL BE ON THE AHTD QUALIFIED PRODUCTS LIST FOR CAST-IN-PLACE TACTILE PANELS (ADA DETECTABLE WARNING).



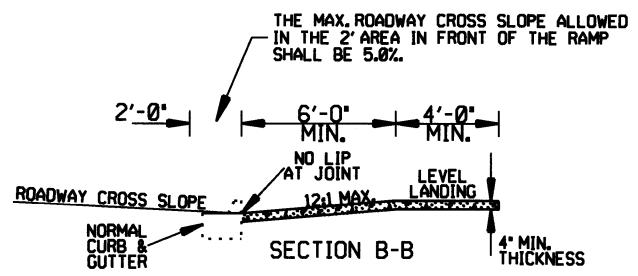
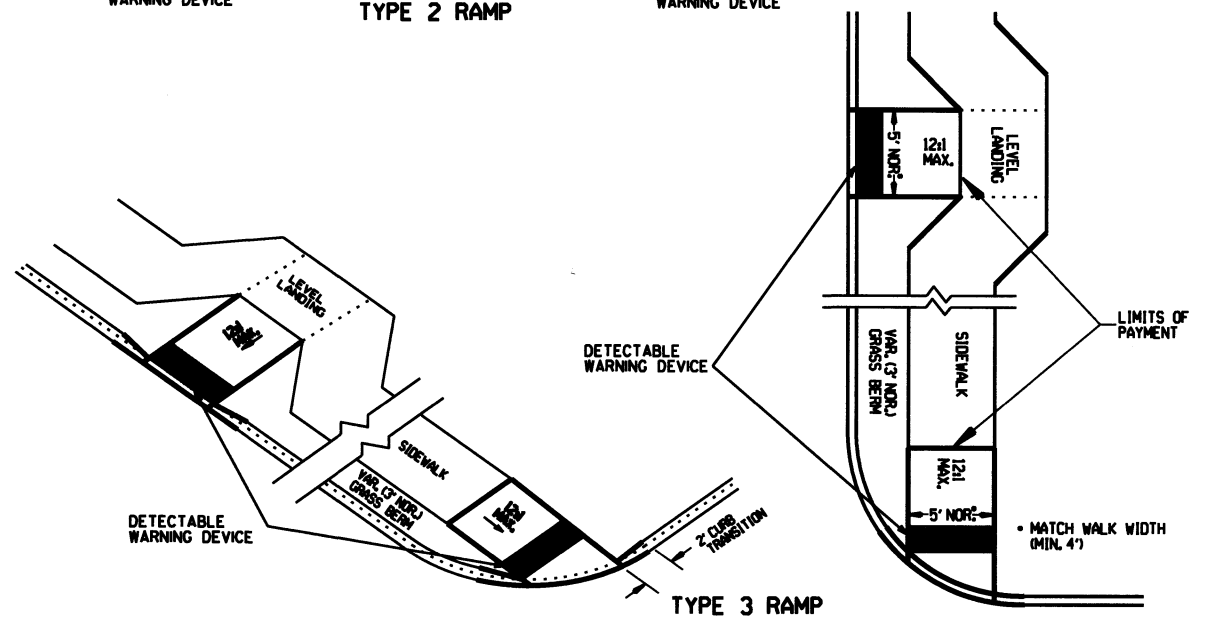
**NOTE:** THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGITUDINAL GRADE.



**RAMP SELECTION CRITERIA**

CHOICE	TYPE	DESCRIPTION
FIRST CHOICE	TYPE 1	CORNER LOCATIONS WITH THE WALK ADJACENT TO THE CURB (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 2	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE INSUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 3	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE SUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 4	TANGENT LOCATIONS (BOTH NEW CONSTRUCTION AND ALTERATIONS).
SECOND CHOICE	TYPE 5	TANGENT LOCATIONS (ALTERATIONS ONLY).
THIRD CHOICE	TYPE 6	CORNER LOCATIONS (ALTERATIONS ONLY). THIS RAMP MAY BE USED ONLY IF THE TYPE 5 RAMPS CANNOT BE PLACED AT THE ENDS OF THE RADIUS.
FOURTH CHOICE		IF SITE CONSTRAINTS PREVENT THE CONSTRUCTION OF ANY OF THE TYPES LISTED, THEN AND ONLY THEN CAN THE 12:1 MAX. SLOPE ON THE RAMP BE EXCEEDED TO PROVIDE ACCESS TO THE STREET LEVEL (ALTERATIONS ONLY). THE SLOPE CAN BE STEEPENED TO A 10:1 MAX. FOR A MAX. LENGTH OF 5' OR A 8:1 MAX. FOR A MAX. LENGTH OF 2'. SLOPES STEEPER THAN 8:1 ARE NOT ALLOWED UNDER ANY CIRCUMSTANCES.

**NOTE:** IN ALTERATIONS, THE SELECTION OF THE TYPE OF WHEELCHAIR RAMP TO BE CONSTRUCTED SHALL BE BASED ON THE AMOUNT OF RIGHT-OF-WAY AVAILABLE, AND ON THE PRESENCE OF OTHER SITE CONSTRAINTS (UTILITIES, BUILDINGS, ETC.). THE TABLE ABOVE LISTS THE ORDER IN WHICH THE RAMPS ARE TO BE CONSIDERED. AN ALTERATION IS DEFINED AS A PROJECT THAT CHANGES OR AFFECTS THE USE OF A PEDESTRIAN PATHWAY (OVERLAYS, SIGNALIZATION PROJECTS, ETC.) BUT DOES NOT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY. ALL PROJECTS THAT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY WILL USUALLY BE CONSIDERED NEW CONSTRUCTION FOR THE PURPOSES OF THE CHART ABOVE.



DATE	REVISION	DATE FILED
1-10-05	REVISED TO NEW SIDEWALKS POLICY	
10-9-03	REVISED GEN. NOTES & ADDED NOTE	
4-10-03	REV. DETECTABLE WARNING DEVICES	
8-22-02	ADD DETECTABLE WARNING DEVICES	
3-30-00	ADD SLOPE TRANS. & REV. ISL. DIMS.	
8-8-98	REVISED NOTES	
8-3-98	REVISED TEXTURE	
7-02-98	REPAIR & RESSUED	
10-8-95	CORRECTED DIMENSIONS	10-8-95
5-24-90	FROM 10:1 MAX. SLOPES	5-24-90
7-5-88	ADJUSTED MAX. SLOPE	682-7-5-88
7-4-88	INCL. CONC. ISLD. IN PAY ITEM	
6-02-76	ISSUED-P.H.D.	299-7-28-76

**ARKANSAS STATE HIGHWAY COMMISSION**  
**WHEELCHAIR RAMPS**  
**NEW CONSTRUCTION**  
**AND ALTERATIONS**  
**STANDARD DRAWING WR-1**