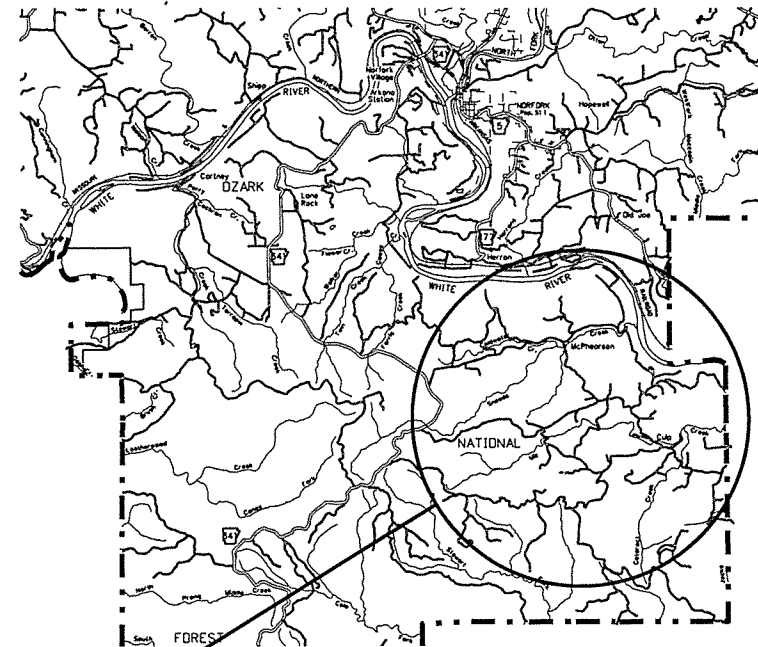


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	STPR-0003(51)		
				JOB NO.		FA0313	1	66

4 HWY. 341 SOUTHEAST-STONE CO. LINE (PHASE 1) (S)



PROJECT LOCATION

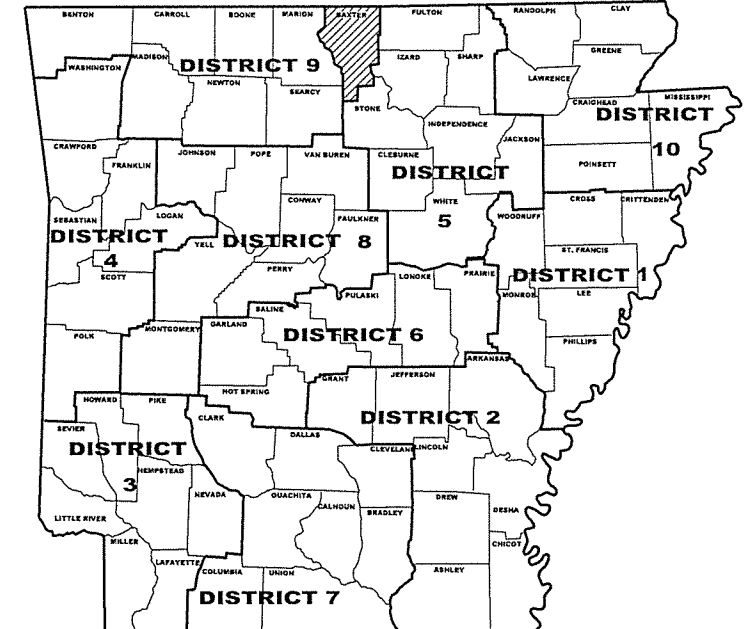
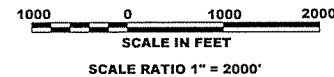
VICINITY MAP

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR PROPOSED COUNTY ROAD

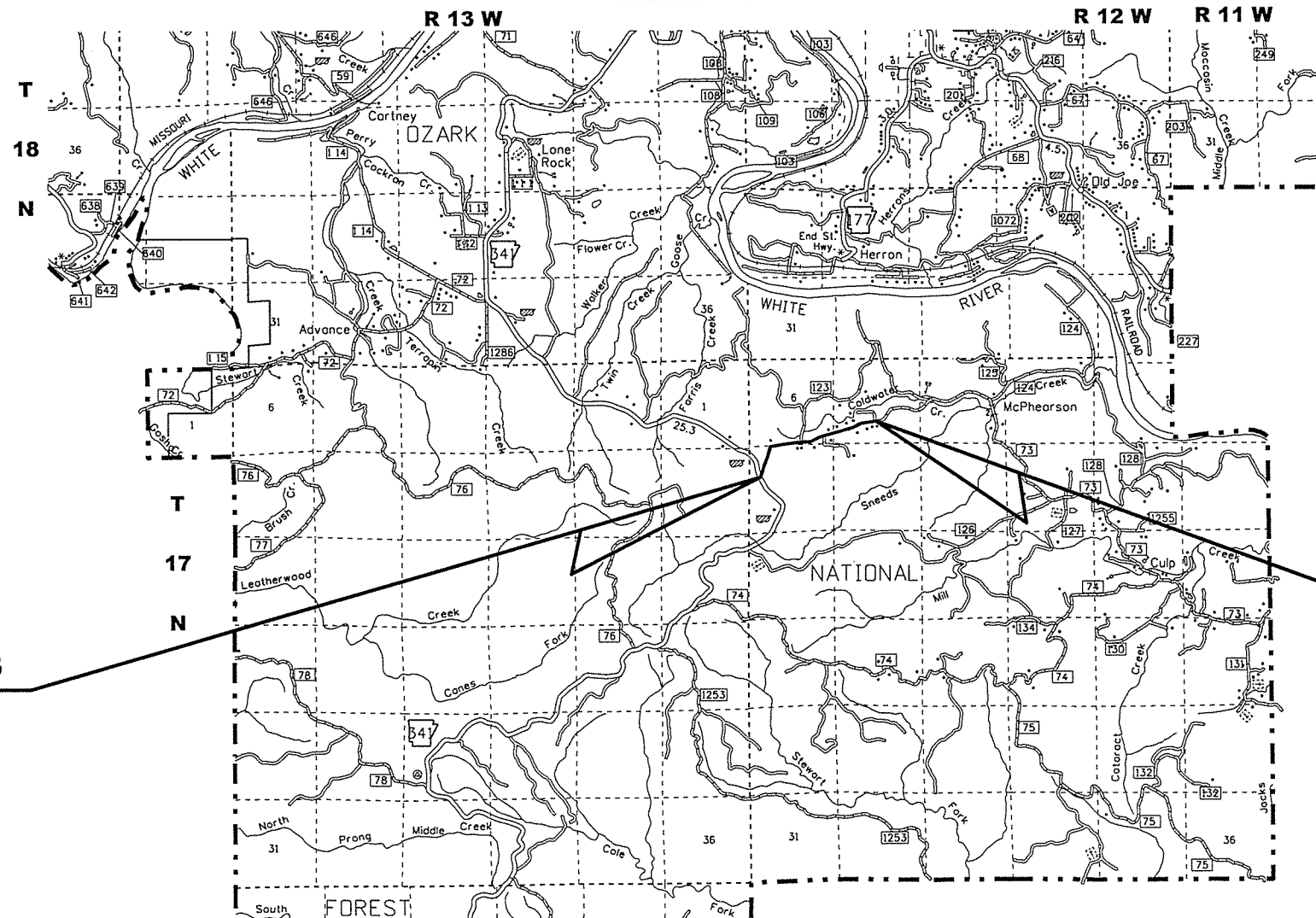
**HWY. 341 SOUTHEAST -
STONE CO. LINE (PHASE 1) (S)**

**COUNTY ROAD 73
BAXTER COUNTY
FED. AID PROJECT STPR-0003(51)**

JOB FA0313



ARKANSAS HIGHWAY DIST. 9



DESIGN TRAFFIC DATA

DESIGN YEAR	2034
2014 ADT	30
2034 ADT	50
2034 DHV	4
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	3%
DESIGN SPEED	30 MPH

**STA. 100+00.00 BEGIN JOB FA0313
FED. AID PROJECT STPR-0003(51)**

**STA. 187+00.00 END JOB FA0313
FED. AID PROJECT STPR-0003(51)**

APPROVED



Ralph G. Hall
DEPUTY DIRECTOR
AND CHIEF ENGINEER

	BEGIN	MID-POINT	END
LATITUDE	N36°07'44"	N36°08'06"	N36°08'15"
LONGITUDE	W92°18'02"	W92°17'18"	W92°16'34"

GROSS LENGTH OF PROJECT	8700.00 FEET OR 1.648 MILES
NET " " ROADWAY	8700.00 " " 1.648 "
NET " " BRIDGE	0.00 " " 0.000 "
NET " " PROJECT	8700.00 " " 1.648 "

P.E. JOB FA0312

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-12-2014				6	ARK.			
						JOB NO. FA0313	2	66

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

INDEX OF SHEETS

SHEET NO.	TITLE	DRWG. NO.	DATE
1.	TITLE SHEETS		
2.	INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES		
3-4.	TYPICAL SECTION OF IMPROVEMENT AND SPECIAL DETAILS		
5-11.	TEMPORARY EROSION CONTROL DETAILS		
12-14.	QUANTITIES		
15.	SUMMARY OF QUANTITIES AND REVISIONS		
16-21.	SURVEY CONTROL DETAIL		
22-28.	PLAN AND PROFILE SHEETS		
29.	FLARED END SECTION	FES-1	10-18-96
30.	FLARED END SECTION	FES-2	10-18-96
31.	MAILBOX DETAILS	MB-1	11-18-04
32.	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	PCC-1	02-27-14
33.	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	PCM-1	02-27-14
34.	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	PCP-1	02-27-14
35.	PLASTIC PIPE CULVERT (PVC F949)	PCP-2	02-27-14
36.	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	SE-2	10-18-96
37.	STANDARD HIGHWAY SIGNS AND SUPPORT ASSEMBLIES	SHS-1	09-12-13
38.	U-CHANNEL POST ASSEMBLIES	SHS-2	02-27-14
39.	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-1	12-15-11
40.	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-2	09-12-13
41.	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-3	10-15-09
42.	TEMPORARY EROSION CONTROL DEVICES	TEC-1	12-15-11
43.	TEMPORARY EROSION CONTROL DEVICES	TEC-2	06-02-94
44.	TEMPORARY EROSION CONTROL DEVICES	TEC-3	11-03-94
45.	WIRE FENCE TYPE C AND D	WF-4	08-22-02
46-66.	CROSS SECTIONS		

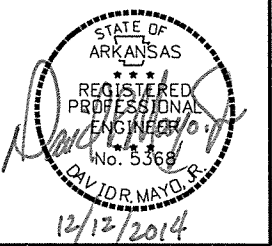
GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS.

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
108-1	LIQUIDATED DAMAGES
620-1	MULCH COVER
JOB FA0313	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB FA0313	CAVE DISCOVERY
JOB FA0313	FOREST SERVICE REQUIREMENTS
JOB FA0313	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB FA0313	MANDATORY USE OF INTERNET BIDDING
JOB FA0313	PLASTIC PIPE
JOB FA0313	RESTRAINING CONDITION
JOB FA0313	SPECIAL SEEDING REQUIREMENTS
JOB FA0313	STORM WATER POLLUTION PREVENTION PLAN
JOB FA0313	UTILITY ADJUSTMENTS

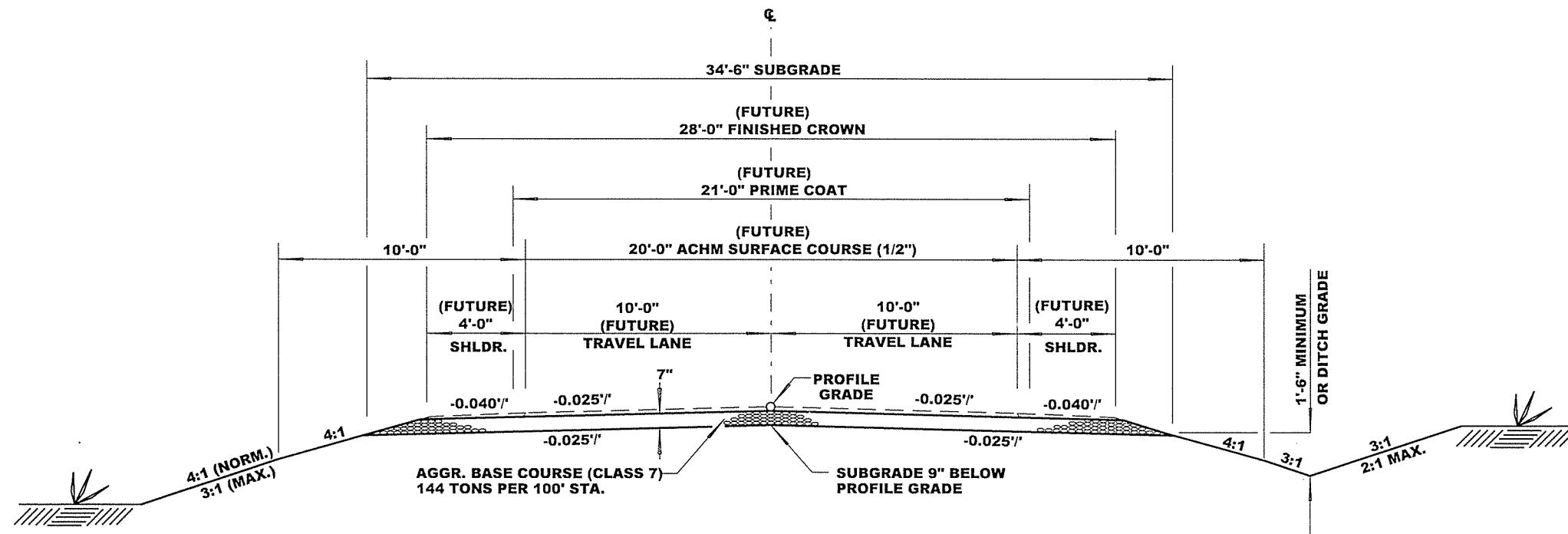
GENERAL NOTES

- GRADE LINE DENOTES FUTURE FINISHED GRADE WHERE SHOWN ON PLANS.
- UTILITIES INTERFERING WITH CONSTRUCTION SHALL BE MOVED BY THE OWNERS.
- 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 INSURE 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.
- SUPERELEVATION SHALL BE COMPUTED IN ACCORDANCE WITH STD. DRWG. SE-2 USING 30 M.P.H. DESIGN VALUES AND REVOLVE ABOUT THE INNER EDGE OF TRAVEL LANE UNLESS OTHERWISE SHOWN.
- ALL SALVAGEABLE PIPE CULVERTS SHALL BE STORED ON THE RIGHT OF WAY AND REMAIN THE PROPERTY OF BAXTER COUNTY.
- THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SUPPLEMENTAL SPECIFICATION 110-1, FOR PERMIT REQUIREMENTS.
- ROAD IS TO REMAIN OPEN THROUGHOUT THE COMPLETION OF THE PROJECT.
- 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 CLEARING ACTIVITIES SHALL BE CONDUCTED BETWEEN NOVEMBER 30 AND MARCH 15. SEE JOB SPECIAL PROVISION - FOREST SERVICE REQUIREMENTS AND JOB SPECIAL PROVISION - RESTRAINING CONDITION. PLEASE NOTE SHOULD THE CONTRACTOR NOT COMPLETE CLEARING PRIOR TO MARCH 15 THE CONTRACTOR WILL NOT RESTART CLEARING UNTIL DECEMBER 1, 2015. THE CONTRACTOR IS ADVISED THAT NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR THIS DELAY.



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313	3	66	

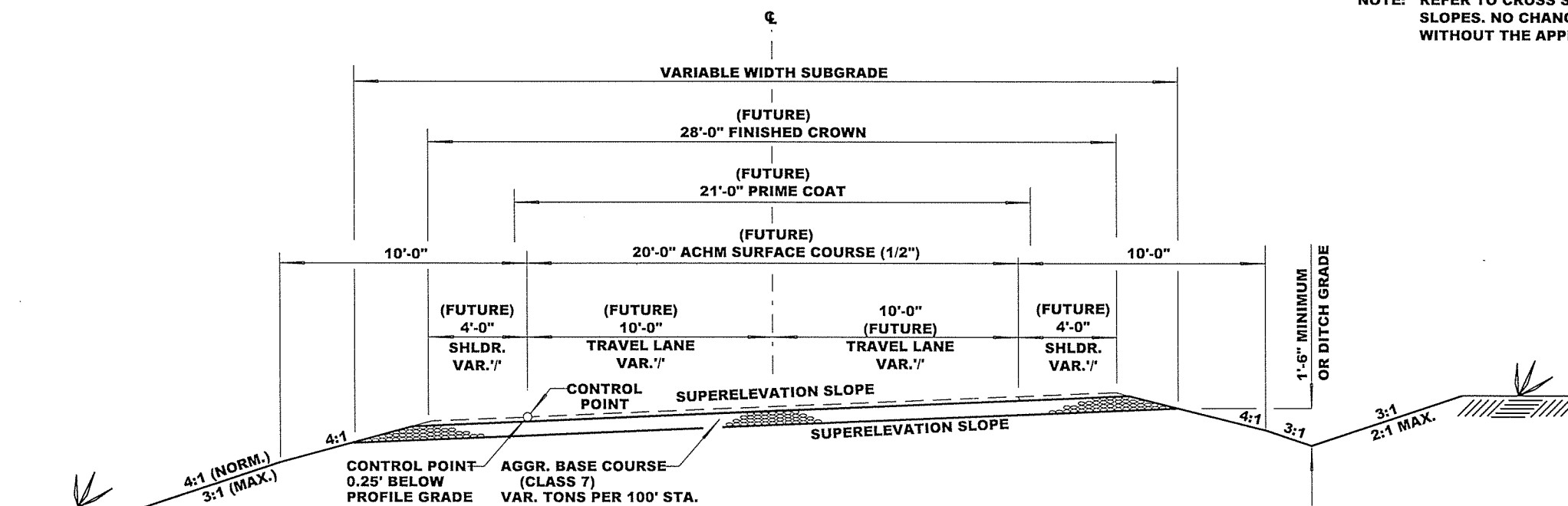
4 TYPICAL SECTION OF IMPROVEMENT & SPECIAL DTLS.



TANGENT SECTION

NOTE: AGGREGATE BASE TO BE PLACED AND SPREAD TO CONFORM TO TYPICAL SECTION. THE MATERIAL IN THE BASE COURSE SHALL BE UNIFORMLY COMPACTED, STABLE, AND FREE OF SEGREGATED AREAS. DENSITY REQUIREMENTS ARE NOT A PART OF THIS CONTRACT.

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



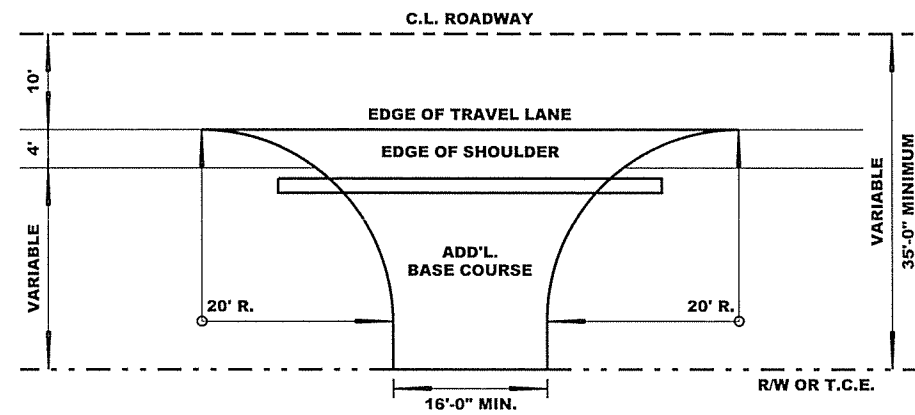
SUPERELEVATION SECTION

TYPICAL SECTION OF IMPROVEMENT



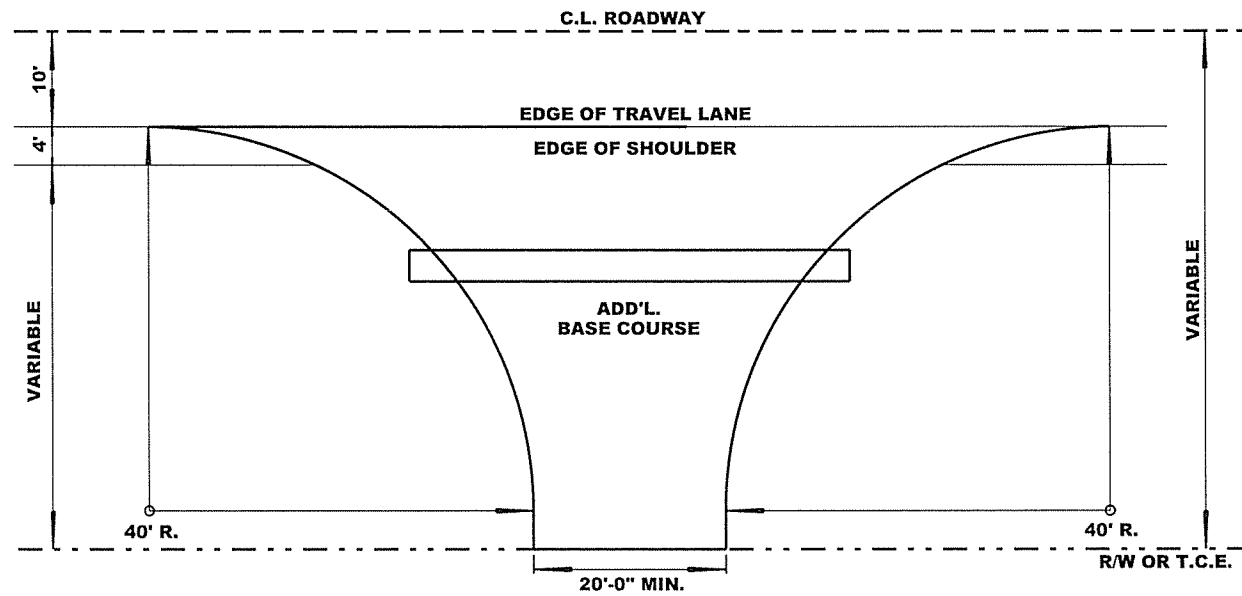
9/24/2014

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				6	ARK.			
				JOB NO.	FA0313		4	66
				4 SPECIAL DETAILS				



DETAIL OF PRIVATE ENTRANCES

ADD'L. BASE COURSE
SEE QUANTITY BOX



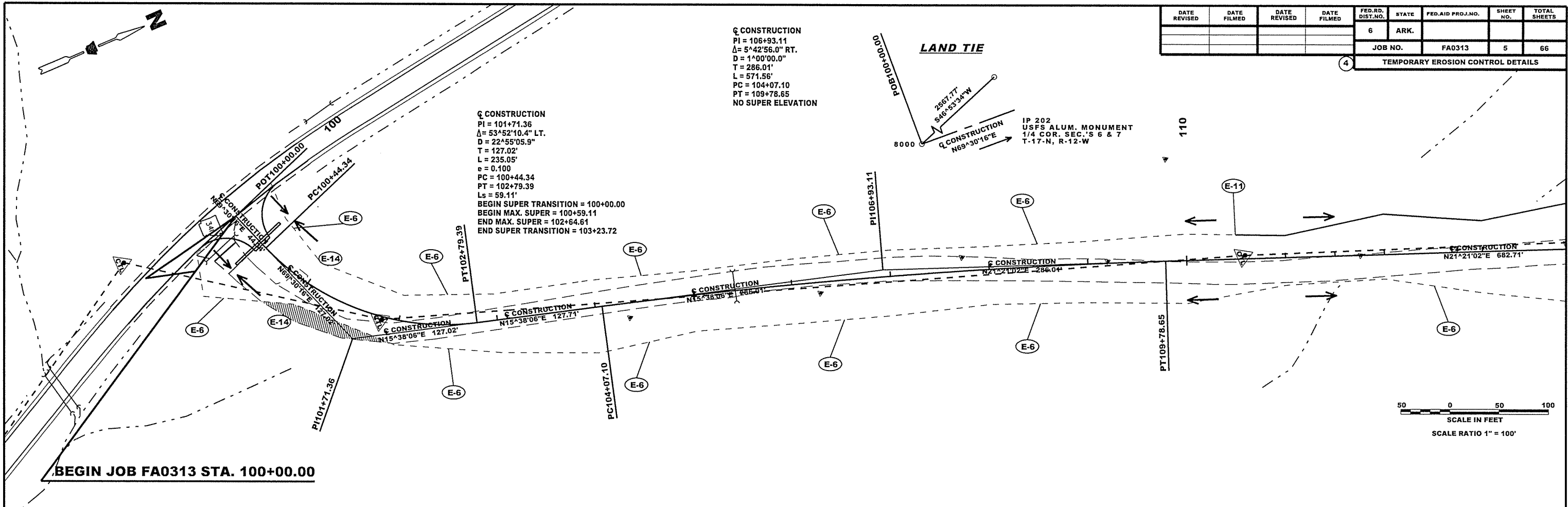
DETAIL OF COUNTY ROAD TURNOUT

ADD'L. BASE COURSE
SEE QUANTITY BOX

SPECIAL DETAILS



9/24/2014



BEGIN JOB FA0313 STA. 100+00.00

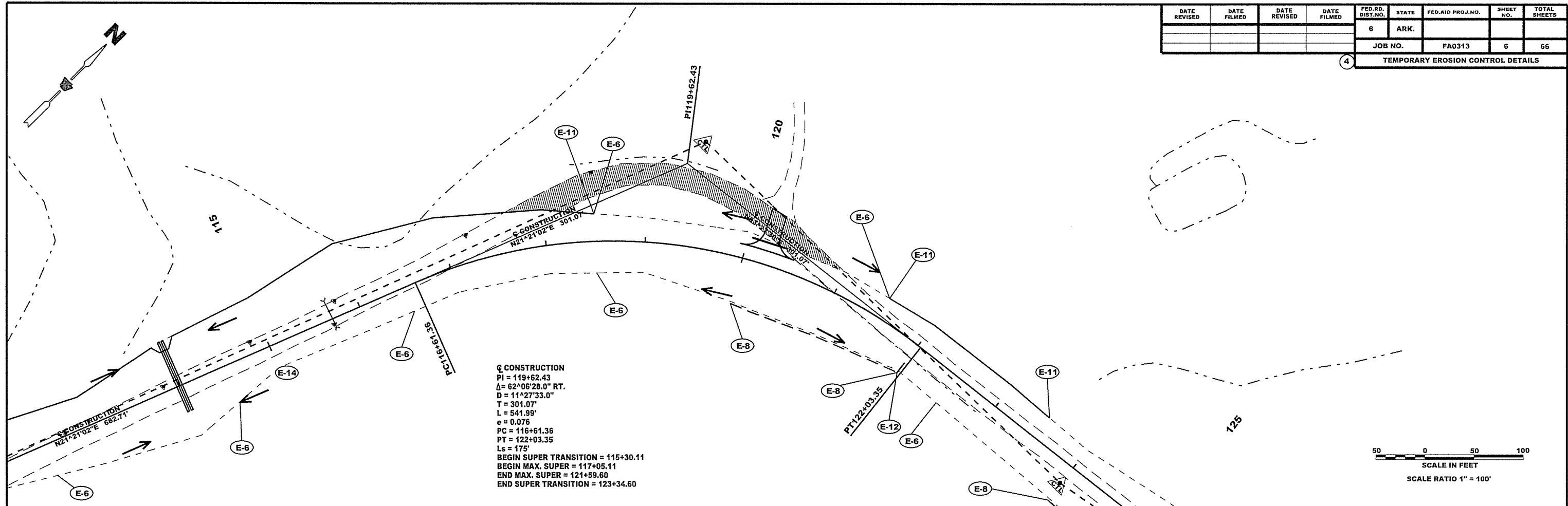
TEMPORARY EROSION CONTROL DEVICES			
ROCK DITCH CHECKS (E-6) SEDIMENT REMOVAL AND DISPOSAL			
STA. 100+50	LT. & RT. = 2	CU. YD. 2	CU. YD.
STA. 102+50	LT. & RT. = 2	CU. YD. 2	CU. YD.
STA. 104+50	LT. & RT. = 2	CU. YD. 2	CU. YD.
STA. 106+50	LT. & RT. = 2	CU. YD. 2	CU. YD.
STA. 108+50	LT. & RT. = 2	CU. YD. 2	CU. YD.
STA. 112+50	RT. = 1	CU. YD. 1	CU. YD.
SILT FENCE (E-11) SEDIMENT REMOVAL AND DISPOSAL			
STA. 110+50 - STA. 118+50	LT. = 833 LIN. FT.	26	CU. YD.
SEDIMENT BASIN (E-14) SEDIMENT REMOVAL AND DISPOSAL			
STA. 101+00	LT. = 107 CU. YD.	107	CU. YD.
STA. 101+00	RT. = 107 CU. YD.	107	CU. YD.
OBLIT. OF SED. BASIN = 214 CU. YD.			

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STATE OF ARKANSAS
 REGISTERED PROFESSIONAL ENGINEER
 No. 3368
 CHV. IDR. MAYO, R.
 9/24/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313		6	66

4 TEMPORARY EROSION CONTROL DETAILS



50 0 50 100
 SCALE IN FEET
 SCALE RATIO 1" = 100'

TEMPORARY EROSION CONTROL DEVICES

ROCK DITCH CHECKS (E-6) SEDIMENT REMOVAL AND DISPOSAL
 STA. 114+50 RT. = 1 CU. YD. 1 CU. YD.
 STA. 116+50 RT. = 1 CU. YD. 1 CU. YD.
 STA. 118+50 LT. & RT. = 2 CU. YD. 2 CU. YD.
 STA. 121+50 LT. = 1 CU. YD. 1 CU. YD.
 STA. 122+50 RT. = 1 CU. YD. 1 CU. YD.

SILT FENCE (E-11) SEDIMENT REMOVAL AND DISPOSAL
 STA. 121+50 - STA. 123+50 LT. = 203 LIN. FT. 7 CU. YD.

SEDIMENT BASIN (E-14)
 STA. 115+00 RT. = 66 CU. YD. 66 CU. YD.

OBLIT. OF SED. BASIN = 66 CU. YD.

DIVERSION DITCH (E-8)
 STA. 120+00 - STA. 122+00 RT. = 184 LIN. FT.

PIPE FOR SLOPE DRAINS (E-12)
 STA. 122+00 RT. = 15 LIN. FT.

REVISION NO.

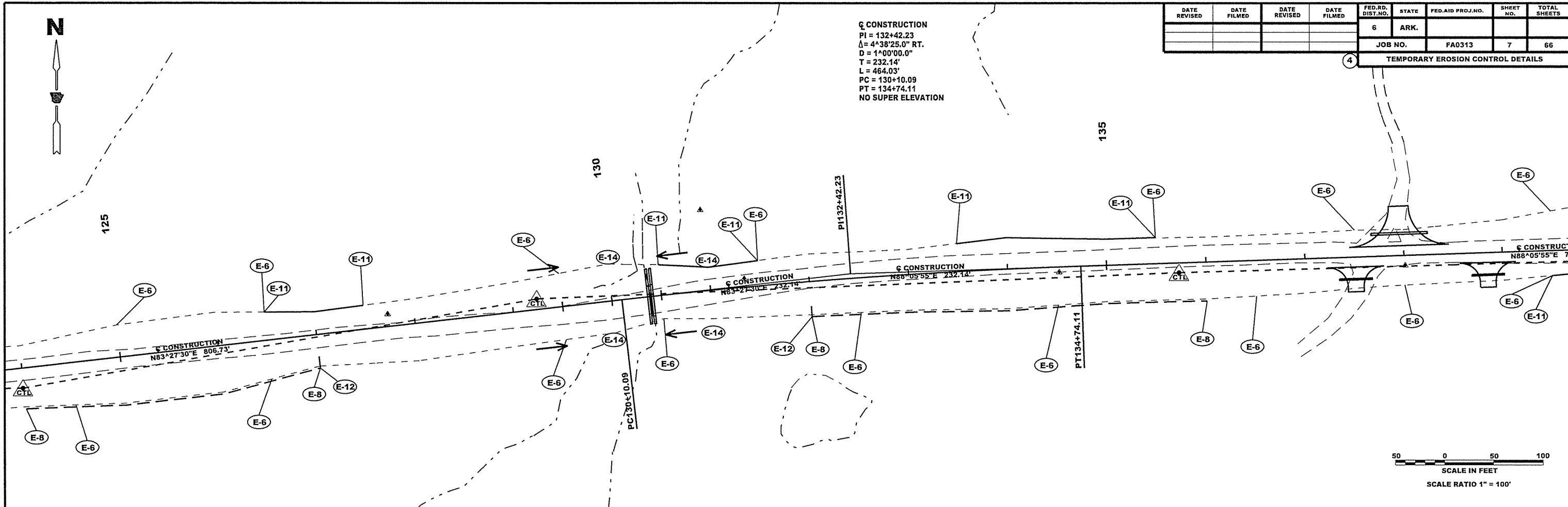
REVISION

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STATE OF ARKANSAS
 REGISTERED PROFESSIONAL ENGINEER
 No. 5368
 DAVID R. MAYOR
 9/24/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		7	66
				JOB NO.		FA0313		

TEMPORARY EROSION CONTROL DETAILS



TEMPORARY EROSION CONTROL DEVICES

ROCK DITCH CHECKS (E-6)		SEDIMENT REMOVAL AND DISPOSAL	
STA. 124+00	RT. = 1	CU. YD.	1
STA. 125+00	LT. = 1	CU. YD.	1
STA. 126+50	LT. & RT. = 2	CU. YD.	2
STA. 129+50	LT. & RT. = 2	CU. YD.	2
STA. 130+50	RT. = 1	CU. YD.	1
STA. 131+50	LT. = 1	CU. YD.	1
STA. 132+50	RT. = 1	CU. YD.	1
STA. 134+50	RT. = 1	CU. YD.	1
STA. 135+50	LT. = 1	CU. YD.	1
STA. 136+50	RT. = 1	CU. YD.	1

SILT FENCE (E-11)		SEDIMENT REMOVAL AND DISPOSAL	
STA. 126+50 - STA. 127+50	LT. = 101 LIN. FT.	4 CU. YD.	
STA. 130+50 - STA. 131+50	LT. = 101 LIN. FT.	4 CU. YD.	
STA. 133+50 - STA. 135+50	LT. = 201 LIN. FT.	7 CU. YD.	

SEDIMENT BASIN (E-14)			
STA. 130+00	LT. = 107	CU. YD.	107
STA. 130+00	RT. = 107	CU. YD.	107
STA. 131+00	LT. = 98	CU. YD.	98
STA. 131+00	RT. = 98	CU. YD.	98

OBLIT. OF SED. BASIN = 410 CU. YD.

DIVERSION DITCH (E-8)	
STA. 124+00 - STA. 127+00	RT. = 303 LIN. FT.
STA. 132+00 - STA. 136+00	RT. = 400 LIN. FT.

PIPE FOR SLOPE DRAINS (E-12)	
STA. 127+00	RT. = 15 LIN. FT.
STA. 132+00	RT. = 25 LIN. FT.

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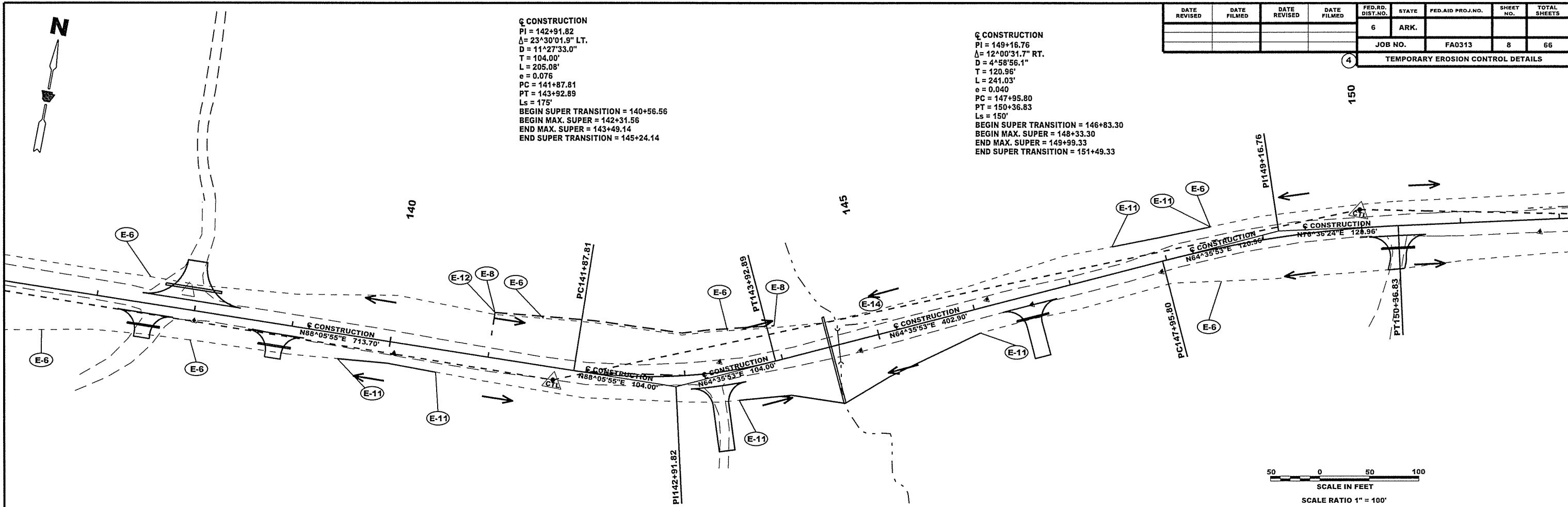
STATE OF ARKANSAS
 REGISTERED PROFESSIONAL ENGINEER
 No. 5368
 DR. IDR. MAYDOR
 9/24/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313	8	66	

4 TEMPORARY EROSION CONTROL DETAILS

☉ CONSTRUCTION
 PI = 142+91.82
 $\Delta = 23^\circ 30' 01.9''$ LT.
 $D = 11^\circ 27' 33.0''$
 $T = 104.00'$
 $L = 205.08'$
 $e = 0.076$
 PC = 141+87.81
 PT = 143+92.89
 $L_s = 175'$
 BEGIN SUPER TRANSITION = 140+56.56
 BEGIN MAX. SUPER = 142+31.56
 END MAX. SUPER = 143+49.14
 END SUPER TRANSITION = 145+24.14

☉ CONSTRUCTION
 PI = 149+16.76
 $\Delta = 12^\circ 00' 31.7''$ RT.
 $D = 4^\circ 58' 56.1''$
 $T = 120.96'$
 $L = 241.03'$
 $e = 0.040$
 PC = 147+95.80
 PT = 150+36.83
 $L_s = 150'$
 BEGIN SUPER TRANSITION = 146+83.30
 BEGIN MAX. SUPER = 148+33.30
 END MAX. SUPER = 149+99.33
 END SUPER TRANSITION = 151+49.33



50 0 50 100
 SCALE IN FEET
 SCALE RATIO 1" = 100'

TEMPORARY EROSION CONTROL DEVICES

ROCK DITCH CHECKS (E-6)		SEDIMENT REMOVAL AND DISPOSAL	
STA. 137+50	LT. = 1	CU. YD.	1 CU. YD.
STA. 138+00	RT. = 1	CU. YD.	1 CU. YD.
STA. 141+50	LT. = 1	CU. YD.	1 CU. YD.
STA. 143+50	LT. = 1	CU. YD.	1 CU. YD.
STA. 148+50	LT. & RT. = 2	CU. YD.	2 CU. YD.

SILT FENCE (E-11)		SEDIMENT REMOVAL AND DISPOSAL	
STA. 139+50 - STA. 140+50	RT. = 101 LIN. FT.	4 CU. YD.	
STA. 143+50 - STA. 146+00	RT. = 262 LIN. FT.	8 CU. YD.	
STA. 147+50 - STA. 148+50	LT. = 102 LIN. FT.	4 CU. YD.	

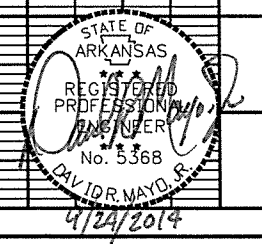
SEDIMENT BASIN (E-14)
 STA. 145+00 LT. = 69 CU. YD. 69 CU. YD.

OBLIT. OF SED. BASIN = 69 CU. YD.

DIVERSION DITCH (E-8)
 STA. 141+00 - STA. 144+00 LT. = 284 LIN. FT.

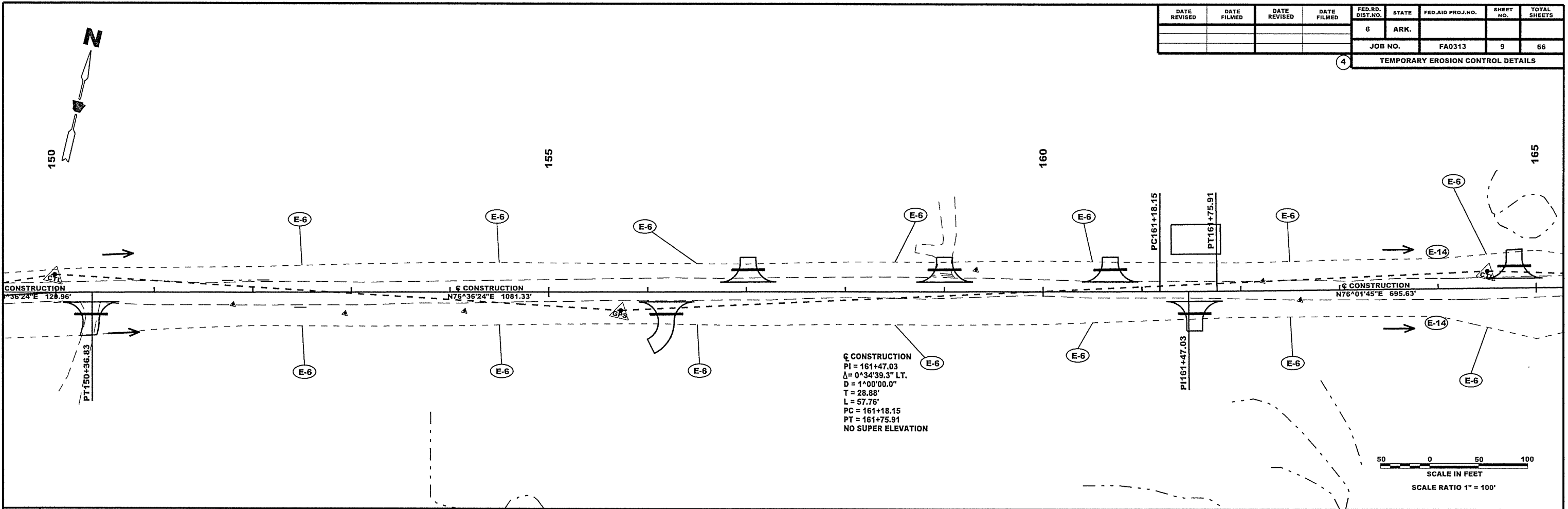
PIPE FOR SLOPE DRAINS (E-12)
 STA. 141+00 LT. = 27 LIN. FT.

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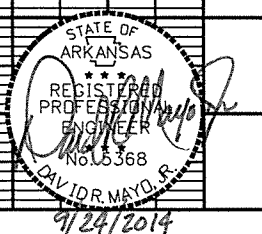
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				6	ARK.			
				JOB NO.	FA0313	9	66	

4 TEMPORARY EROSION CONTROL DETAILS



TEMPORARY EROSION CONTROL DEVICES			
ROCK DITCH CHECKS (E-6)		SEDIMENT REMOVAL AND DISPOSAL	
STA. 152+50	LT. & RT. = 2	CU. YD.	2 CU. YD.
STA. 154+50	LT. & RT. = 2	CU. YD.	2 CU. YD.
STA. 156+50	LT. & RT. = 2	CU. YD.	2 CU. YD.
STA. 158+50	LT. & RT. = 2	CU. YD.	2 CU. YD.
STA. 160+50	LT. & RT. = 2	CU. YD.	2 CU. YD.
STA. 162+50	LT. & RT. = 2	CU. YD.	2 CU. YD.

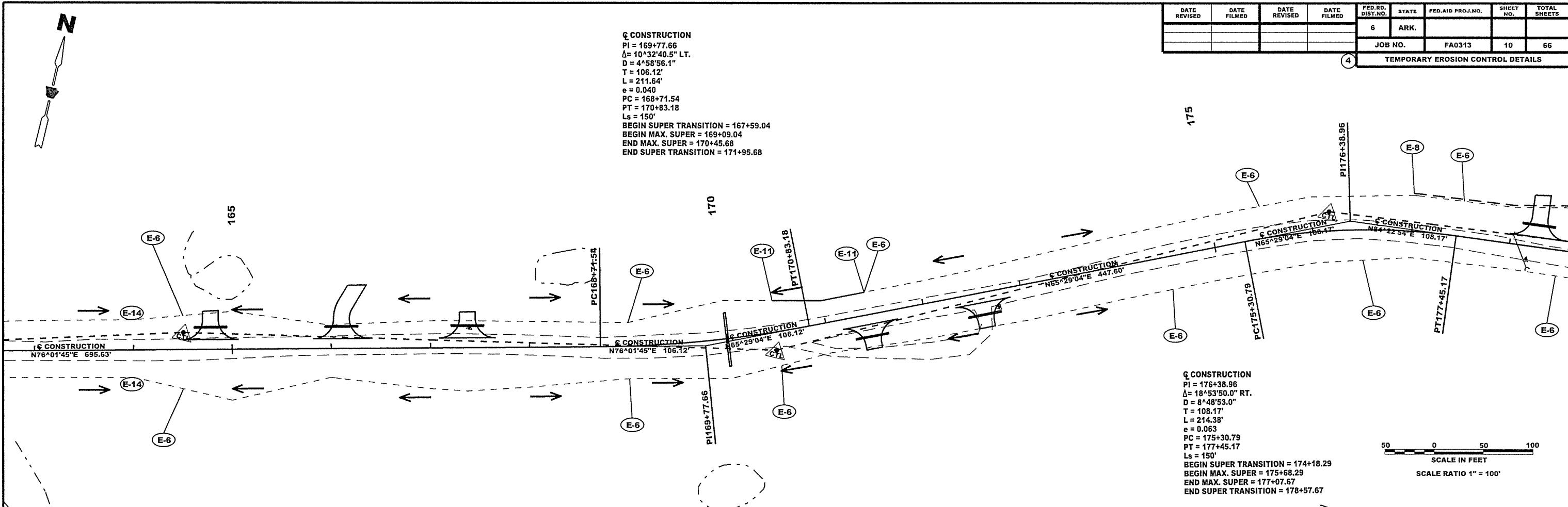
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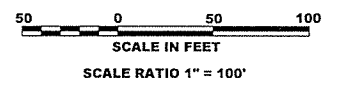
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313	10	66	

Q CONSTRUCTION
 PI = 169+77.66
 $\Delta = 10^{\circ}32'40.5''$ LT.
 D = 4^{\circ}58'56.1''
 T = 106.42'
 L = 211.64'
 e = 0.040
 PC = 168+71.54
 PT = 170+83.18
 Ls = 150'
 BEGIN SUPER TRANSITION = 167+59.04
 BEGIN MAX. SUPER = 169+09.04
 END MAX. SUPER = 170+45.68
 END SUPER TRANSITION = 171+95.68

175



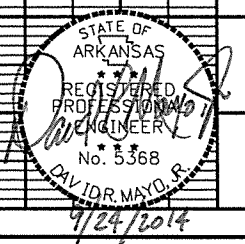
Q CONSTRUCTION
 PI = 176+38.96
 $\Delta = 18^{\circ}53'50.0''$ RT.
 D = 8^{\circ}48'53.0''
 T = 108.17'
 L = 214.38'
 e = 0.063
 PC = 175+30.79
 PT = 177+45.17
 Ls = 150'
 BEGIN SUPER TRANSITION = 174+18.29
 BEGIN MAX. SUPER = 175+68.29
 END MAX. SUPER = 177+07.67
 END SUPER TRANSITION = 178+57.67



TEMPORARY EROSION CONTROL DEVICES

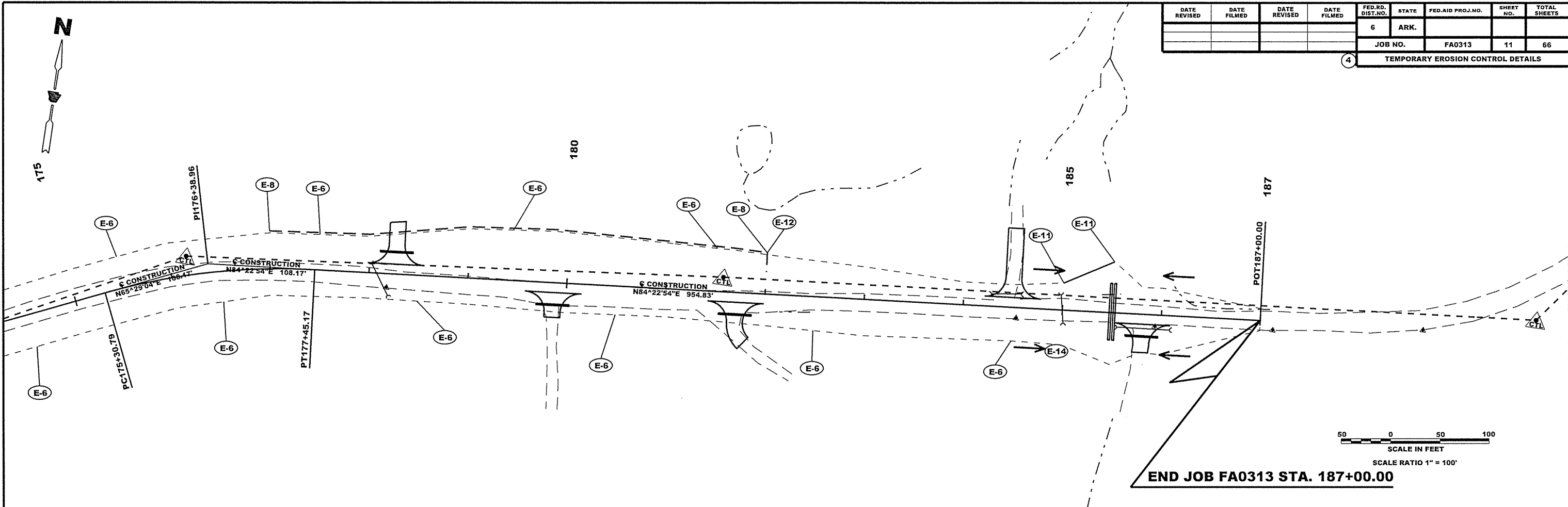
ROCK DITCH CHECKS (E-6)				SEDIMENT REMOVAL AND DISPOSAL			
STA. 164+50	LT. & RT. = 2	CU. YD.	2	CU. YD.	2	CU. YD.	
STA. 169+00	LT. & RT. = 2	CU. YD.	2	CU. YD.	2	CU. YD.	
STA. 170+50	RT. = 1	CU. YD.	1	CU. YD.	1	CU. YD.	
STA. 171+50	LT. = 1	CU. YD.	1	CU. YD.	1	CU. YD.	
STA. 174+50	RT. = 1	CU. YD.	1	CU. YD.	1	CU. YD.	
STA. 175+50	LT. = 1	CU. YD.	1	CU. YD.	1	CU. YD.	
SILT FENCE (E-11)				SEDIMENT REMOVAL AND DISPOSAL			
STA. 170+50 - STA. 171+50	LT. = 94 LIN. FT.	3	CU. YD.				
SEDIMENT BASIN (E-14)							
STA. 164+00	LT. = 138 CU. YD.			138	CU. YD.		
STA. 164+00	RT. = 138 CU. YD.			138	CU. YD.		
OBLIT. OF SED. BASIN = 276 CU. YD.							

REVISION NO.	REVISION
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313	11	66	

4 TEMPORARY EROSION CONTROL DETAILS



TEMPORARY EROSION CONTROL DEVICES			
ROCK DITCH CHECKS (E-6)		SEDIMENT REMOVAL AND DISPOSAL	
STA. 176+50	RT. = 1	CU. YD. 1	CU. YD.
STA. 177+50	LT. = 1	CU. YD. 1	CU. YD.
STA. 178+50	RT. = 1	CU. YD. 1	CU. YD.
STA. 179+50	LT. = 1	CU. YD. 1	CU. YD.
STA. 180+50	RT. = 1	CU. YD. 1	CU. YD.
STA. 181+50	LT. = 1	CU. YD. 1	CU. YD.
STA. 182+50	RT. = 1	CU. YD. 1	CU. YD.
STA. 184+50	RT. = 1	CU. YD. 1	CU. YD.
SILT FENCE (E-11)		SEDIMENT REMOVAL AND DISPOSAL	
STA. 185+00 - STA. 185+50	LT. = 56 LIN. FT.	2	CU. YD.
SEDIMENT BASIN (E-14)			
STA. 185+00	RT. = 129 CU. YD.	129	CU. YD.
OBLIT. OF SED. BASIN = 129 CU. YD.			
DIVERSION DITCH (E-8)			
STA. 177+00 - STA. 182+00	LT. = 505 LIN. FT.		
PIPE FOR SLOPE DRAINS (E-12)			
STA. 182+00	LT. = 24 LIN. FT.		

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STATE OF ARKANSAS
 REGISTERED PROFESSIONAL ENGINEER
 No. 5368
 CH. IDR. MAYO, R.
 9/24/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	
				6	ARK.				
				JOB NO.	FA0313	12	66		
								4	QUANTITIES

TRAFFIC CONTROL DEVICES

LOCATION	W20-1								G20-1		G20-2		RII-2		WI-6		BARRICADES (TYPE III)	TRAFFIC DRUMS	STANDARD DRAWING NUMBER		
	1500 FT.		1000 FT.		500 FT.		AHEAD		NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.				LIN. FT.	EACH
	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.													
STA. 100+00									1	10	1	8							TC-1, 2 & 3		
STA. 137+96							1	16											TC-1, 2 & 3		
STA. 187+00									1	10	1	8							TC-1, 2 & 3		
STA. 192+00					1	16													TC-1, 2 & 3		
STA. 197+00			1	16															TC-1, 2 & 3		
STA. 202+00	1	16											4	40	4	32	32	40	TC-1, 2 & 3		
ENTIRE JOB																	32	40	TC-1, 2 & 3		
TOTALS:	1	16	1	16	1	16	1	16	2	20	2	16	4	40	4	32	32	40			

EARTHWORK

STATION	STATION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT		
			MAIN LANES	ADDITIONAL	TOTAL
CU. YD.					
100+00	187+00	24784	10226		10226
120+23				35	35
137+51				25	25
137+96				45	45
138+85				25	25
143+32				100	100
146+55				40	40
150+36				25	25
156+19				25	25
157+02				20	20
159+00				20	20
160+68				20	20
161+53				20	20
164+78				20	20
166+10				50	50
167+37				20	20
171+44				20	20
172+60				20	20
178+27				25	25
179+87				20	20
181+70				20	20
184+50				70	70
185+80				25	25
TOTALS:		24784	10226	690	10916

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

REMOVAL AND DISPOSAL ITEMS

STATION	STATION	LOCATION	DESCRIPTION	PIPE CULVERTS	FENCE	METAL GATE
				EACH	LIN. FT.	EACH
100+11		CENTER	24" X 40' C.M. PIPE CULVERT CROSS DRAIN	1		
105+43		CENTER	18" X 30' C.M. PIPE CULVERT CROSS DRAIN	1		
115+70		CENTER	18" X 30' C.M. PIPE CULVERT CROSS DRAIN	1		
121+05	130+17	LT.	WEBWIRE - 2 STRAND BARBED WIRE		925	
130+19	135+71	RT.	4B - 4 STRAND BARBED WIRE		569	
130+39		CENTER	36" X 30' C.M. PIPE CULVERT CROSS DRAIN	1		
130+36	137+70	LT.	4B - 4 STRAND BARBED WIRE		745	
135+70		RT.	16' METAL GATE			1
135+71	136+17	RT.	4B - 4 STRAND BARBED WIRE		61	
138+08	138+76	RT.	4B - 4 STRAND BARBED WIRE		84	
138+11	143+70	LT.	WEBWIRE - 1 STRAND BARBED WIRE		584	
138+85		RT.	16' METAL GATE			1
138+92	142+69	RT.	4B - 4 STRAND BARBED WIRE		390	
144+23	146+32	RT.	3B - 3 STRAND BARBED WIRE		209	
144+25	145+00	RT.	3B - 3 STRAND BARBED WIRE		103	
144+59		CENTER	24" X 32' C.M. PIPE CULVERT CROSS DRAIN	1		
146+75	150+18	RT.	3B - 3 STRAND BARBED WIRE		343	
148+45	153+04	LT.	WEBWIRE - 1 STRAND BARBED WIRE		464	
150+45	152+04	RT.	3B - 3 STRAND BARBED WIRE		187	
155+87	156+76	LT.	WEBWIRE - 1 STRAND BARBED WIRE		89	
157+36	158+90	LT.	WEBWIRE - 1 STRAND BARBED WIRE		164	
157+51	161+45	RT.	4B - 4 STRAND BARBED WIRE		408	
159+11	160+48	LT.	WEBWIRE - 1 STRAND BARBED WIRE		146	
160+88	164+70	LT.	WEBWIRE - 1 STRAND BARBED WIRE		384	
161+53		RT.	16' METAL GATE			1
161+61	170+30	RT.	4B - 4 STRAND BARBED WIRE		874	
164+78		LT.	16' WIRE GATE			1
164+86	165+97	LT.	4B - 4 STRAND BARBED WIRE		107	
166+09		LT.	2-12' WIRE GATES			1
166+21	167+29	LT.	4B - 4 STRAND BARBED WIRE		116	
167+37		LT.	16' WIRE GATE			1
167+45	173+31	LT.	4B - 4 STRAND BARBED WIRE		608	
172+78	178+20	RT.	4B - 4 STRAND BARBED WIRE		541	
174+10	175+86	LT.	4B - 4 STRAND BARBED WIRE		197	
175+86	178+19	LT.	4B - 4 STRAND BARBED WIRE		240	
178+07		CENTER	18" X 36' C.M. PIPE CULVERT CROSS DRAIN	1		
178+27		LT.	16' METAL GATE			1
178+35	184+42	LT.	4B - 4 STRAND BARBED WIRE		603	
181+82	182+41	RT.	4B - 4 STRAND BARBED WIRE		59	
184+43		LT.	18" X 30' C.M. PIPE CULVERT SIDE DRAIN LT.	1		
184+50		LT.	16' METAL GATE			1
184+58	185+43	LT.	4B - 4 STRAND BARBED WIRE		114	
185+00		CENTER	18" X 29' C.M. PIPE CULVERT CROSS DRAIN	1		
185+79		RT.	18" X 53' C.M. PIPE CULVERT SIDE DRAIN RT.	1		
TOTALS:				9	9314	8

AGGREGATE BASE COURSE

STATION	STATION	DESCRIPTION	LENGTH	AGGREGATE BASE CRS. (CLASS 7)
			LIN. FT.	TON
100+00	187+00	COUNTY ROAD 73	8700	12528
120+23		PRIVATE DRIVE - LT. SIDE		33
137+51		PRIVATE DRIVE - RT. SIDE		26
137+96		COUNTY ROAD TURNOUT - LT. SIDE		68
138+85		FIELD ENTRANCE - RT. SIDE		26
143+32		PRIVATE DRIVE - RT. SIDE		58
146+55		PRIVATE DRIVE - RT. SIDE		30
150+36		PRIVATE DRIVE - RT. SIDE		30
156+19		PRIVATE DRIVE - RT. SIDE		48
157+02		PRIVATE DRIVE - LT. SIDE		35
159+00		PRIVATE DRIVE - LT. SIDE		26
160+68		FIELD ENTRANCE - LT. SIDE		26
161+53		FIELD ENTRANCE - RT. SIDE		30
164+78		FIELD ENTRANCE - LT. SIDE		29
166+10		PRIVATE DRIVE - LT. SIDE		54
167+37		PRIVATE DRIVE - LT. SIDE		29
171+44		PRIVATE DRIVE - RT. SIDE		30
172+60		PRIVATE DRIVE - RT. SIDE		34
178+27		FIELD ENTRANCE - LT. SIDE		39
179+87		PRIVATE DRIVE - RT. SIDE		28
181+70		PRIVATE DRIVE - RT. SIDE		40
184+50		PRIVATE DRIVE - LT. SIDE		59
185+80		PRIVATE DRIVE - RT. SIDE		47
ENTIRE JOB		MAINTENANCE OF TRAFFIC		900
TOTAL:				13853

BASIS OF ESTIMATE:

AGGREGATE BASE COURSE (CLASS 7).....144 TONS PER 100' STA. (MAIN LANES)

NOTE: QUANTITIES ARE ESTIMATED AND SHALL BE PLACED IF AND WHERE BY THE ENGINEER. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.



STRUCTURES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313	13	66	

STATION	DESCRIPTION	SIDE DRAINS 18"	CROSS DRAIN ALTS.				F.E.S. ALTS.		SOLID SODDING	WATER	*SELECTED PIPE BEDDING	*SELECTED PIPE BACKFILL	STANDARD DRAWING
			24" R.C.P.	24" C.M.P.	24" H.D.P.E.	24" P.V.C.	24" R.C.P.	24" C.M.P.					
			LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH					
100+36	24" CROSS DRAIN		50	54	54	54	2	2	16	0.2	6	38	PCC-1, PCM-1, FES-1, FES-2, PCP-1, PCP-2
114+00	DOUBLE 24" CROSS DRAIN		130	140	140	140	4	4	18	0.3	10	62	PCC-1, PCM-1, FES-1, FES-2, PCP-1, PCP-2
120+23	18" X 36" SIDE DRAIN LT.	36											PCC-1, PCM-1
130+39	DOUBLE 24" CROSS DRAIN		88	98	98	98	4	4	18	0.3	7	45	PCC-1, PCM-1, FES-1, FES-2, PCP-1, PCP-2
137+51	18" X 32" SIDE DRAIN RT.	32											PCC-1, PCM-1
137+96	18" X 56" SIDE DRAIN LT.	56											PCC-1, PCM-1
138+85	18" X 32" SIDE DRAIN RT.	32											PCC-1, PCM-1
144+50	24" CROSS DRAIN		78	84	84	84	2	2	16	0.2	8	56	PCC-1, PCM-1, FES-1, FES-2, PCP-1, PCP-2
146+55	18" X 32" SIDE DRAIN RT.	32											PCC-1, PCM-1
150+36	18" X 32" SIDE DRAIN RT.	32											PCC-1, PCM-1
156+19	18" X 32" SIDE DRAIN RT.	32											PCC-1, PCM-1
157+02	18" X 32" SIDE DRAIN LT.	32											PCC-1, PCM-1
159+00	18" X 32" SIDE DRAIN LT.	32											PCC-1, PCM-1
160+68	18" X 32" SIDE DRAIN LT.	32											PCC-1, PCM-1
161+53	18" X 32" SIDE DRAIN RT.	32											PCC-1, PCM-1
164+78	18" X 32" SIDE DRAIN LT.	32											PCC-1, PCM-1
166+10	18" X 32" SIDE DRAIN LT.	32											PCC-1, PCM-1
167+37	18" X 32" SIDE DRAIN LT.	32											PCC-1, PCM-1
170+00	24" CROSS DRAIN		42	46	46	46	2	2	16	0.2	5	34	PCC-1, PCM-1, FES-1, FES-2, PCP-1, PCP-2
171+44	18" X 32" SIDE DRAIN RT.	32											PCC-1, PCM-1
172+60	18" X 32" SIDE DRAIN RT.	32											PCC-1, PCM-1
178+27	18" X 32" SIDE DRAIN LT.	32											PCC-1, PCM-1
179+87	18" X 32" SIDE DRAIN RT.	32											PCC-1, PCM-1
181+70	18" X 32" SIDE DRAIN RT.	32											PCC-1, PCM-1
185+50	DOUBLE 24" CROSS DRAIN		90	100	100	100	4	4	18	0.3	8	43	PCC-1, PCM-1, FES-1, FES-2, PCP-1, PCP-2
185+80	18" X 32" SIDE DRAIN RT.	32											PCC-1, PCM-1
TOTALS:		668	478	522	522	522	18	18	102	1.5	44	278	

BASIS OF ESTIMATE:

WATER: 12.6 GAL. PER SQ. YD. SOLID SODDING.

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

QUANTITIES ARE ESTIMATED AND SHALL BE PLACED IF AND WHERE BY THE ENGINEER.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

STANDARD HIGHWAY SIGNS AND SUPPORT ASSEMBLIES

STATION	SIDE	STANDARD SIGN NUMBER								SUPPORT ASSEMBLIES (TYPE A)	STANDARD DRAWING NUMBER
		W1-2 LT.		W1-2 RT.		R1-1		W3-1			
		NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.		
100+30	LT.					1	6.25			1	SHS - 1 & 2
104+55	LT.			1	6.25					1	SHS - 1 & 2
105+00	LT.					1	9.00			1	SHS - 1 & 2
114+85	RT.			1	6.25					1	SHS - 1 & 2
123+80	LT.	1	6.25							1	SHS - 1 & 2
140+15	RT.	1	6.25							1	SHS - 1 & 2
145+70	LT.			1	6.25					1	SHS - 1 & 2
146+20	RT.			1	6.25					1	SHS - 1 & 2
152+10	LT.	1	6.25							1	SHS - 1 & 2
166+95	RT.	1	6.25							1	SHS - 1 & 2
172+60	LT.			1	6.25					1	SHS - 1 & 2
173+55	RT.			1	6.25					1	SHS - 1 & 2
179+20	LT.	1	6.25							1	SHS - 1 & 2
TOTALS:		5	31.25	6	37.50	1	6.25	1	9.00	13	

NOTE: ALL STANDARD SIGN BLANKS TO BE 0.080" THICK. REFER TO STANDARD DWG. SHS-2 FOR CHANNEL POST SPLICING DETAILS.

MAILBOXES

STATION	SIDE	MAILBOX SUPPORTS (SINGLE)	MAILBOX SUPPORTS (DOUBLE)	MAILBOX	STANDARD DRAWING NUMBER
120+45	RT.	1		1	MB-1
137+89	RT.	1		1	MB-1
143+44	RT.	1		1	MB-1
157+28	RT.		1	2	MB-1
158+92	RT.	1		1	MB-1
167+57	RT.	1		1	MB-1
171+99	RT.	1		1	MB-1
180+15	RT.	1		1	MB-1
181+85	RT.		1	2	MB-1
183+94	RT.	1		1	MB-1
TOTALS:		8	2	12	

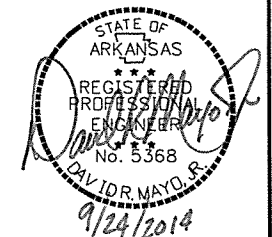
NOTE: FINAL LOCATION TO BE DETERMINED BY THE ENGINEER.

WIRE FENCE

STATION	STATION	SIDE	WIRE FENCE	WIRE FENCE	STANDARD DRAWING NUMBER
			(TYPE C)	(TYPE D)	
			LIN. FT.	LIN. FT.	
121+05	130+17	LT.	919		WF-4
130+19	135+71	RT.		548	WF-4
130+36	137+71	LT.		739	WF-4
135+87	136+17	RT.		30	WF-4
138+08	138+76	RT.		68	WF-4
138+11	143+70	LT.	541		WF-4
138+92	142+69	RT.		382	WF-4
144+23	146+32	RT.		213	WF-4
146+75	150+18	RT.		343	WF-4
148+45	153+04	LT.	464		WF-4
150+45	152+04	RT.		159	WF-4
155+87	156+76	LT.	89		WF-4
157+36	158+90	LT.	154		WF-4
157+51	161+45	RT.		393	WF-4
159+11	160+48	LT.	137		WF-4
160+88	164+70	LT.	384		WF-4
161+61	170+30	RT.		877	WF-4
164+86	165+97	LT.		107	WF-4
166+21	167+29	LT.		107	WF-4
167+45	173+31	LT.		578	WF-4
172+78	178+20	RT.		530	WF-4
174+10	175+86	LT.		180	WF-4
175+86	178+19	LT.		242	WF-4
178+35	184+41	LT.	607		WF-4
181+82	182+41	RT.		59	WF-4
184+58	185+43	LT.		89	WF-4
TOTALS:			3295	5644	

CLEARING AND GRUBBING

STATION	STATION	CLEARING	GRUBBING
		STATIONS	STATIONS
100+00	187+00	87	87
TOTALS:		87	87



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				6	ARK.			
				JOB NO.	FA0313	14	66	
				QUANTITIES				

TEMPORARY EROSION CONTROL

STATION	STATION	LOCATION	ROCK DITCH CKS. (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLIT. OF SEDIMENT BASIN	DIVERSION DITCH	PIPE FOR SLOPE DRAINS (E-12)	SEDIMENT REMOVAL & DISPOSAL	STANDARD DRAWING NUMBER
			CU. YD.	LIN. FT.	CU. YD.	CU. YD.	LIN. FT.	LIN. FT.	CU. YD.	
100+00	187+00	MAIN LANES	63	2054	1164	1164	1676	106	1296	TEC-1, 2&3
ENTIRE PROJECT AS DIRECTED BY ENGINEER			20	200					20	TEC-1, 2&3
TOTALS:			83	2254	1164	1164	1676	106	1316	

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.

NOTE: QUANTITIES ARE ESTIMATED AND SHALL BE PLACED IF AND WHERE BY THE ENGINEER. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

DUMPED RIPRAP

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YD.	SQ. YD.
114+00	LT. OUTLET	12	24
144+50	RT. OUTLET	8	16
TOTALS:		20	40

OBLITERATION OF ABANDONED ROADWAY

STATION	STATION	SIDE	UNCLASSIFIED EXCAVATION	LIME	SPECIAL SEEDING	MULCH COVER	SPECIAL SECOND SEEDING APPLICATION	WATER
			CU. YD.	TON	ACRE	ACRE	ACRE	M. GAL.
100+75	101+96	RT.	54	0.08	0.04	0.04	0.04	8.2
117+65	120+98	LT.	282	0.36	0.18	0.18	0.18	36.7
TOTALS:			336	0.44	0.22	0.22	0.22	44.9

USE:
BASIS OF ESTIMATE:

LIME: 2 TONS PER ACRE
WATER: 102 M. GALS. PER ACRE SPECIAL SEEDING

NOTE: EXCAVATION FROM OBLITERATION OF EXISTING ROADWAY, IF DEEMED SUITABLE BY THE ENGINEER, TO BE USED AS ROADWAY EMBANKMENT. EXCAVATION UNSUITABLE SHALL BE DISPOSED OF AS APPROVED BY THE ENGINEER.

METAL VEHICULAR GATES

STATION	SIDE	WIDTH	12'	16'
		LIN. FT.	EACH	EACH
135+70	RT.	16		1
138+85	RT.	16		1
161+53	RT.	16		1
164+78	LT.	16		1
166+09	LT.	24	2	
167+37	LT.	16		1
178+27	LT.	16		1
184+50	LT.	16		1
TOTALS:			2	7

TEMPORARY & SPECIAL SEEDING

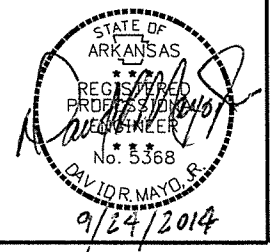
STATION	TEMPORARY SEEDING	LIME	SPECIAL SEEDING	MULCH COVER	SPECIAL SECOND SEEDING APPLICATION	WATER	STANDARD DRAWING NO.
	ACRE	TON	ACRE	ACRE	ACRE	M. GAL.	
ENTIRE PROJECT	11.24	12	5.62	16.86	5.62	1375.8	TEC-3
TOTALS:	11.24	12	5.62	16.86	5.62	1375.8	

BASIS OF ESTIMATE:

LIME: 2 TONS PER ACRE
WATER: 102 M. GALS. PER ACRE SPECIAL SEEDING
WATER: 20.4 M. GALS. PER ACRE TEMPORARY SEEDING

ITEMS REMOVED AND RECONSTRUCTED

STATION	STATION OR SIDE	DESCRIPTION	FENCE REM. AND RECONST.	GATES REM. AND RECONST.
			LIN. FT.	EACH
152+30	155+82	WOOD RAIL FENCE ON RT.	381	
160+81	LT.	20' STEEL GATE		2
TOTALS:			381	2



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12-12-2014				6	ARK.			
				JOB NO.	FA0313	15	66	

4 SUMMARY OF QUANTITIES AND REVISIONS

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	87	STA.
201	GRUBBING	87	STA.
202	REMOVAL AND DISPOSAL OF FENCE	9314	LIN. FT.
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	9	EACH
202	REMOVAL AND DISPOSAL OF GATES	8	EACH
208	FENCE REMOVED AND RECONSTRUCTED	381	LIN. FT.
208	GATES REMOVED AND RECONSTRUCTED	2	EACH
210	UNCLASSIFIED EXCAVATION	25120	CU. YD.
210	COMPACTED EMBANKMENT	10916	CU. YD.
303	AGGREGATE BASE COURSE (CLASS 7)	13853	TON
601	MOBILIZATION	1.00	LUMP SUM
SP&602	FURNISHING FIELD OFFICE	1	EACH
603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
604	SIGNS	172	SQ. FT.
604	TRAFFIC DRUMS	40	EACH
604	BARRICADES	32	LIN. FT.
SP&606	18" SIDE DRAIN	668	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	478	LIN. FT.
606	24" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	522	LIN. FT.
606	24" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	522	LIN. FT.
606	24" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	522	LIN. FT.
SP&606	24" HIGH DENSITY POLYETHYLENE PIPE	522	LIN. FT.
SP&606	24" PVC PIPE	522	LIN. FT.
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	18	EACH
606	24" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	18	EACH
606	SELECTED PIPE BEDDING	44	CU. YD.
606	SELECTED PIPE BACKFILL	278	CU. YD.
619	WIRE FENCE (TYPE C)	3295	LIN. FT.
619	WIRE FENCE (TYPE D)	5644	LIN. FT.
619	12' STEEL GATES	2	EACH
619	12' ALUMINUM GATES	2	EACH
619	16' STEEL GATES	7	EACH
619	16' ALUMINUM GATES	7	EACH
620	LIME	13	TON
SP&620	SPECIAL SEEDING	5.84	ACRE
SS&620	MULCH COVER	17.08	ACRE
620	WATER	1422.2	M. GAL.
SP&621	TEMPORARY SEEDING	11.24	ACRE
621	SILT FENCE	2254	LIN. FT.
621	ROCK DITCH CHECKS	83	CU. YD.
621	SEDIMENT BASIN	1164	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	1164	CU. YD.
621	DIVERSION DITCH	1676	LIN. FT.
621	PIPE FOR SLOPE DRAINS	106	LIN. FT.
621	SEDIMENT REMOVAL AND DISPOSAL	1316	CU. YD.
SP&623	SPECIAL SECOND SEEDING APPLICATION	5.84	ACRE
624	SOLID SODDING	102	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	12	EACH
637	MAILBOX SUPPORTS (SINGLE)	8	EACH
637	MAILBOX SUPPORTS (DOUBLE)	2	EACH
726	STANDARD SIGN	84.00	SQ. FT.
729	CHANNEL POST SIGN SUPPORTS (TYPE A)	13	EACH
816	DUMPED RIPRAP	20	CU. YD.
816	FILTER BLANKET	40	SQ. YD.

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
12-12-2014	ALL REFERENCE TO "GRUBBING ACTIVITIES" HAS BEEN REMOVED FROM GENERAL NOTE 11 ON SHEET 2, THE "FOREST SERVICE REQUIREMENTS" SPECIAL PROVISION, AND THE "RESTRAINING CONDITION" SPECIAL PROVISION.	2&15



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313	16	66	

4 SURVEY CONTROL DETAIL

SURVEY BASELINE

POINT NAME	NORTHING	EASTING	ELEVATION	STYLE	DESCRIPTION	POINT NAME	NORTHING	EASTING	ELEVATION	STYLE	DESCRIPTION
1	652114.25690	1224949.90410	808.36	CP	5/8" REBAR W/ 2" CAP	56	648625.26060	1245604.10410	515.75	CTL	5/8" REBAR W/2" CAP
2	652738.92570	1224175.83900	733.12	CTL	5/8" REBAR W/ 2" CAP	57	647975.82890	1246057.74890	444.39	CTL	5/8" REBAR W/2" CAP
3	653650.20390	1223602.97230	787.35	CTL	5/8" REBAR W/ 2" CAP	58	647775.08880	1246366.34120	442.58	CTL	5/8" REBAR W/2" CAP
4	653868.05590	1223758.21270	789.65	CTL	5/8" REBAR W/ 2" CAP	59	647627.23910	1246610.28140	429.13	CTL	5/8" REBAR W/2" CAP
5	654696.65920	1224040.50970	804.88	CTL	5/8" REBAR W/ 2" CAP	60	647318.65590	1246774.22950	430.43	CTL	5/8" REBAR W/2" CAP
6	655565.46200	1224370.25760	829.01	CTL	5/8" REBAR W/ 2" CAP	61	647198.21950	1247100.33380	428.88	CTL	5/8" REBAR W/2" CAP
7	655573.01380	1224868.29250	826.02	CTL	5/8" REBAR W/ 2" CAP	62	646974.82560	1247669.09610	415.52	CTL	5/8" REBAR W/2" CAP
8	655663.62740	1225387.18570	795.59	CTL	5/8" REBAR W/ 2" CAP	63	646661.24420	1247870.94220	428.77	CTL	5/8" REBAR W/2" CAP
9	655690.30110	1226034.66620	801.91	CTL	5/8" REBAR W/ 2" CAP	64	646669.55300	1248314.58070	466.91	CTL	5/8" REBAR W/2" CAP
10	655707.43130	1226629.97830	804.34	CTL	5/8" REBAR W/ 2" CAP	65	646521.45700	1248518.06070	478.11	CTL	5/8" REBAR W/2" CAP
11	656030.12200	1227396.76650	810.37	CTL	5/8" REBAR W/ 2" CAP	66	646573.81170	1248759.01430	496.67	CTL	5/8" REBAR W/2" CAP
12	656368.57290	1228808.14070	778.77	CTL	5/8" REBAR W/ 2" CAP	67	646213.82810	1249047.82270	526.32	CTL	5/8" REBAR W/2" CAP
13	656491.76680	1229394.68230	779.63	CTL	5/8" REBAR W/ 2" CAP	68	645994.80050	1249112.09270	520.30	CTL	5/8" REBAR W/2" CAP
14	656758.06520	1229903.17510	776.24	CTL	5/8" REBAR W/ 2" CAP	69	645615.35630	1249057.28420	502.54	CTL	5/8" REBAR W/2" CAP
15	656819.36860	1230442.38460	757.23	CTL	5/8" REBAR W/ 2" CAP	70	645495.03870	1249293.57340	479.59	CTL	5/8" REBAR W/2" CAP
16	656900.26670	1231260.00850	745.90	CTL	5/8" REBAR W/ 2" CAP	71	645250.45040	1249349.26780	452.54	CTL	5/8" REBAR W/2" CAP
17	657541.80720	1231742.79380	689.04	CTL	5/8" REBAR W/ 2" CAP	72	645137.30000	1249800.94700	428.32	CTL	5/8" REBAR W/2" CAP
18	657628.81420	1232232.90810	660.54	CTL	5/8" REBAR W/ 2" CAP	73	644612.10650	1249757.01870	479.53	CTL	5/8" REBAR W/2" CAP
19	657621.08740	1232744.57490	608.36	CTL	5/8" REBAR W/ 2" CAP	74	644510.61690	1249898.94680	496.14	CTL	5/8" REBAR W/2" CAP
20	657400.46220	1233275.61580	554.30	CTL	5/8" REBAR W/ 2" CAP	75	644465.14310	1250344.23030	540.81	CTL	5/8" REBAR W/2" CAP
21	657535.27650	1233674.96660	524.06	CTL	5/8" REBAR W/ 2" CAP	76	644391.61610	1250691.95440	556.33	CTL	5/8" REBAR W/2" CAP
22	658042.66560	1234163.15080	484.51	CTL	5/8" REBAR W/ 2" CAP	77	644065.83460	1251320.12470	533.35	CTL	5/8" REBAR W/2" CAP
23	658049.99110	1234478.69370	481.48	CTL	5/8" REBAR W/ 2" CAP	78	644035.07170	1251612.33540	542.83	CTL	5/8" REBAR W/2" CAP
24	657878.87680	1234852.57340	474.14	CTL	5/8" REBAR W/ 2" CAP	79	644062.51110	1251811.32170	540.87	CTL	5/8" REBAR W/2" CAP
25	657918.94390	1235397.78770	465.95	CTL	5/8" REBAR W/ 2" CAP	80	643888.85570	1252041.99410	542.06	CTL	5/8" REBAR W/2" CAP
26	658446.30960	1236351.53690	452.97	CTL	5/8" REBAR W/ 2" CAP	81	643856.47270	1252591.58260	526.37	CTL	5/8" REBAR W/2" CAP
27	658397.67370	1236895.62430	458.79	CTL	5/8" REBAR W/ 2" CAP	82	643923.50060	1252962.12770	502.65	CTL	5/8" REBAR W/2" CAP
28	658173.38380	1237356.88320	446.26	CTL	5/8" REBAR W/ 2" CAP	83	643786.77420	1253758.21380	454.20	CTL	5/8" REBAR W/2" CAP
29	657866.09390	1237858.43580	416.06	CTL	5/8" REBAR W/ 2" CAP	84	643887.85640	1253911.94090	446.38	CTL	5/8" REBAR W/2" CAP
30	657202.71460	1237929.52840	417.65	CTL	5/8" REBAR W/ 2" CAP	85	644109.91670	1253940.19170	431.17	CTL	5/8" REBAR W/2" CAP
31	656755.74650	1238098.20450	423.77	CTL	5/8" REBAR W/ 2" CAP	86	644392.94480	1254194.00020	446.50	CTL	5/8" REBAR W/2" CAP
32	656382.02150	1238170.34670	449.60	CTL	5/8" REBAR W/ 2" CAP	87	644547.99550	1254401.80180	438.99	CTL	5/8" REBAR W/2" CAP
33	655961.53200	1238028.03360	497.91	CTL	5/8" REBAR W/ 2" CAP	88	644575.64470	1254760.28580	432.73	CTL	5/8" REBAR W/2" CAP
34	655666.44090	1238281.43470	635.33	CTL	5/8" REBAR W/ 2" CAP	89	644621.73610	1254968.79000	417.91	CTL	5/8" REBAR W/2" CAP
35	654934.95560	1238904.27790	652.32	CTL	5/8" REBAR W/ 2" CAP	90	644465.01760	1255182.35730	407.53	CTL	5/8" REBAR W/2" CAP
36	654541.12630	1239194.66240	698.70	CTL	5/8" REBAR W/ 2" CAP	91	643977.54140	1255226.61600	369.93	CTL	5/8" REBAR W/2" CAP
37	658049.22840	1234306.15300	488.02	TBM	PN 902 OK KG 06/22/11 9'X4' RCB	92	643906.72490	1255630.67040	361.43	CTL	5/8" REBAR W/2" CAP
38	653949.83320	1239781.24880	748.80	CTL	5/8" REBAR W/ 2" CAP	93	643665.43660	1256240.60370	415.56	CTL	5/8" REBAR W/2" CAP
39	653101.24320	1239682.62310	746.32	CTL	5/8" REBAR W/ 2" CAP	94	643927.77670	1256664.99350	461.81	CTL	5/8" REBAR W/2" CAP
40	652871.33700	1240069.05990	748.62	CTL	5/8" REBAR W/ 2" CAP	95	644225.99610	1256708.12900	491.61	CTL	5/8" REBAR W/2" CAP
41	652308.70050	1240736.51730	803.39	CTL	5/8" REBAR W/ 2" CAP	96	644195.47670	1256824.85280	499.09	CTL	5/8" REBAR W/2" CAP
42	651720.08490	1241210.56180	788.45	CTL	5/8" REBAR W/2" CAP	97	644025.88710	1257107.57850	514.90	CTL	DRILL HOLE 1N BEDROCK
43	651689.88950	1241713.22350	760.95	CTL	5/8" REBAR W/2" CAP	98	657513.04080	1237865.04440	413.77	TBM	SOUTH END OF WEST HEADWALL
44	651871.33960	1242236.26880	756.20	CTL	5/8" REBAR W/2" CAP	100	650592.24380	1224410.97170	702.35	GPS	AHTD GPS 030009
45	651838.81660	1242615.48900	748.42	CTL	5/8" REBAR W/2" CAP	101	651712.53660	1224936.41980	684.29	GPS	AHTD GPS 030009A
46	652018.22240	1243284.36010	714.00	CTL	5/8" REBAR W/2" CAP	102	656127.34620	1227963.36870	802.15	GPS	AHTD GPS 030010
47	651968.99740	1243495.65650	716.87	CTL	5/8" REBAR W/2" CAP	103	658405.33510	1239050.66010	398.24	GPS	AHTD GPS 030011
48	651685.87130	1243853.78100	720.96	CTL	5/8" REBAR W/2" CAP	104	657666.49090	1237874.97480	408.03	GPS	AHTD GPS 030011A
49	651055.81400	1243860.82990	722.33	CTL	5/8" REBAR W/2" CAP	105	652593.52990	1240328.63840	764.13	GPS	AHTD GPS 030012
50	650929.53100	1243978.06240	711.93	CTL	5/8" REBAR W/2" CAP	106	650439.93340	1244702.29410	688.59	GPS	AHTD GPS 030013
51	651055.54600	1244460.95020	699.66	CTL	5/8" REBAR W/2" CAP	107	646178.74330	1249230.44250	526.46	GPS	AHTD GPS 030014
52	650898.41760	1244641.48460	702.84	CTL	5/8" REBAR W/2" CAP	108	643895.25870	1252357.96950	530.01	GPS	AHTD GPS 030015
53	649985.68780	1245157.93760	653.98	CTL	5/8" REBAR W/2" CAP	109	644137.65870	1256962.83060	510.46	GPS	AHTD GPS 690009
54	649320.79510	1245302.08040	585.92	CTL	5/8" REBAR W/2" CAP	110	643358.45820	1257939.30100	540.90	GPS	AHTD GPS 690009A
55	648939.48870	1245324.49120	553.17	CTL	5/8" REBAR W/2" CAP						

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, P.E.
9/24/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0313	17	66

4 SURVEY CONTROL DETAIL

CONSTRUCTION CENTERLINE

POINT NAME	STATION	NORTHING	EASTING
8000	POT100+00.00	653773.21910	1223604.00333
8001	PC 100+44.34	653788.74270	1223645.53287
8002	PI 101+71.36	654022.91752	1223557.99913
8003	PT 102+79.39	653955.54096	1223798.74879
8004	PC 104+07.10	654078.52616	1223833.16761
8005	PI 106+93.11	652534.36923	1229350.74343
8006	PT 109+78.65	654620.34388	1224014.38013
8007	PC 116+61.36	655256.19956	1224262.93495
8008	PI 119+62.43	655074.16393	1224728.62050
8009	PT 122+03.35	655570.90845	1224671.65661
8010	PC 130+10.09	655662.81758	1225473.13555
8011	PI 132+42.23	649970.54471	1226125.89362
8012	PT 134+74.11	655696.96761	1225935.77716
8013	PC 141+87.81	655720.64933	1226649.08479
8014	PI 142+91.82	656220.37400	1226632.49400
8015	PT 143+92.89	655768.71395	1226846.97758
8016	PC 147+95.80	655941.54632	1227210.92840
8017	PI 149+16.76	654902.72823	1227704.24064
8018	PT 150+36.83	656021.45193	1227437.86258
8019	PC 161+18.15	656271.92269	1228489.77944
8020	PI 161+47.03	661845.67458	1227162.61955
8021	PT 161+75.91	656285.58450	1228545.89892
8022	PC 168+71.54	656453.52779	1229220.94680
8023	PI 169+77.66	657569.50939	1228943.30483
8024	PT 170+83.18	656523.18234	1229420.48372
8025	PC 175+30.79	656708.91055	1229827.73656
8026	PI 176+38.96	656117.50830	1230097.44636
8027	PT 177+45.17	656764.38593	1230033.81200
8028	POE187+00.00	656857.86318	1230984.05867

COORDINATES

APPROXIMATE STATE PLANE, DETERMINED FROM A SCALED LATITUDE, AND LONGITUDE FOR THE POSITION OF THE SOLAR OBSERVATION, AS PLOTTED ON A QUADRANGLE SHEET, PROJECTED TO GROUND.

POINT NAME	NORTHING	EASTING	ELEVATION	STYLE	DESCRIPTION
200	644052.07460	1257010.64160	511.04	IP	3" CAP US DEPT OF AGRI
201	655203.17730	1238663.37590	637.60	IP	ALUM UFSF MONUMENT
202	655527.94540	1225478.66660	795.34	IP	USFS AL MONUMENT 1/4 S6;7 (17N
203	658026.65020	1234077.39070	488.26	IP	3" ALUM CAP
204	655472.97570	1228122.88060	763.23	IP	USFS AL MONUMENT SC S5;6;7;8 (1
205	657849.65150	1238730.93130	406.43	IP	USFS ALUM MON 1/4 S3;4 (17N 12W
522	650213.30250	1244780.44440	673.96	CTL	5/8" REBAR W/2" CAP
900	-99999.00000	-99999.00000	754.79	BM	USGS BM 19 EJD
901	-99999.00000	-99999.00000	383.67	BM	USGS BM 20 EJD
902	-99999.00000	-99999.00000	488.02	TBM	SOUTHEAST CULVERT HEADWALL
903	-99999.00000	-99999.00000	413.77	TBM	SOUTH END OF WEST HEADWALL
904	647441.21670	1246688.65260	427.97	TBM	CHISELLED SQUARE CUT IN
905	560196.82890	1278374.65950	427.48	TBM	CHIS SQUARE CUT IN
906	646707.66840	1247761.13970	419.04	TBM	CHISELLED SQUARE CUT IN
907	643904.41550	1255521.66520	358.59	TBM	AHTD CAP SET IN SE END

SURVEY CONTROL COORDINATES

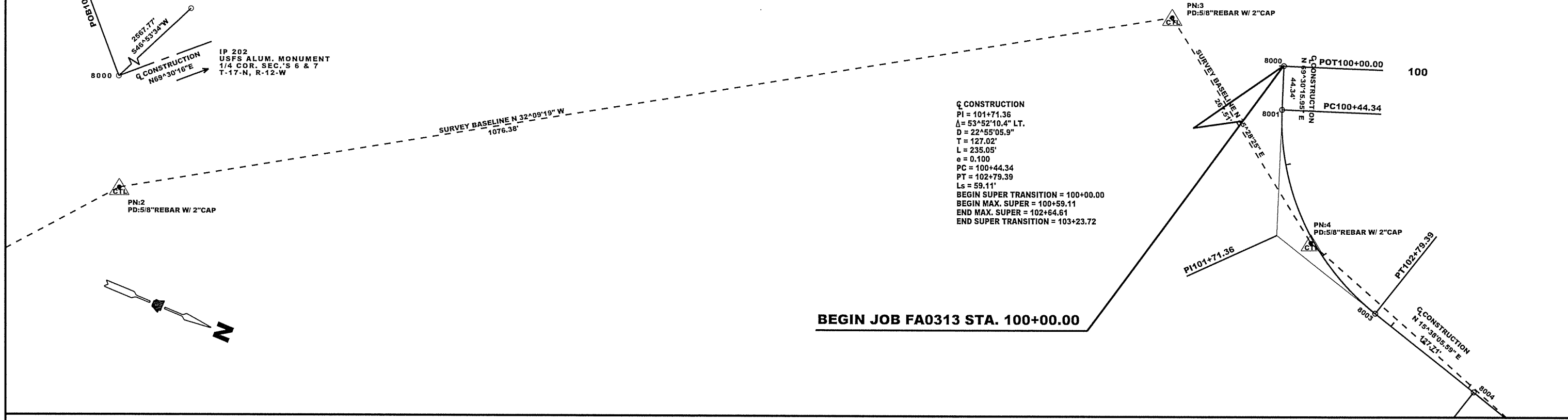
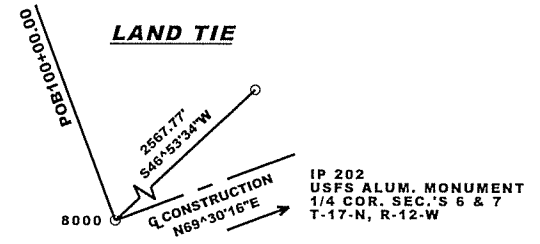
*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped (standard markings common to all caps), or as indicated (other markings indicated in the point description of the individual point). ALL DISTANCES ARE GROUND.
 USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
 A PROJECT CAF OF 0.9999504515 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES. THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
 GRID DISTANCE = GROUND DISTANCE X CAF.
 GRID COORDINATES ARE STORED UNDER FILE NAME sFA0312gi.CTL
 HORIZONTAL DATUM: NAD 83 (1997)
 VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.
 REFERENCE POINTS (1500 SERIES) ARE TO BE USED TO ESTABLISH CONTROL IF THE PRIMARY CONTROL POINTS LISTED ABOVE HAVE BEEN DESTROYED. REFERENCE POINTS ARE NOT TO BE USED FOR VERTICAL CONTROL.
 BASIS OF BEARING:
 ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
 DETERMINED FROM GPS CONTROL POINTS: 030009, 030009A, 030010, 030011A, 030013, 030014, 030015, 690009
 CONVERGENCE ANGLE: 0-08-31 LEFT AT LT:36-07-33.2 LG:092-14-38.4
 GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

NOTE:
 SURVEY CONTROL COORDINATES SHOULD BE USED AS BENCH MARK POINTS.

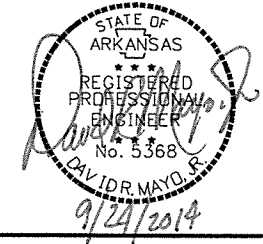
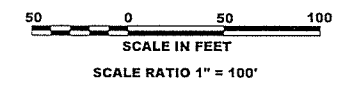
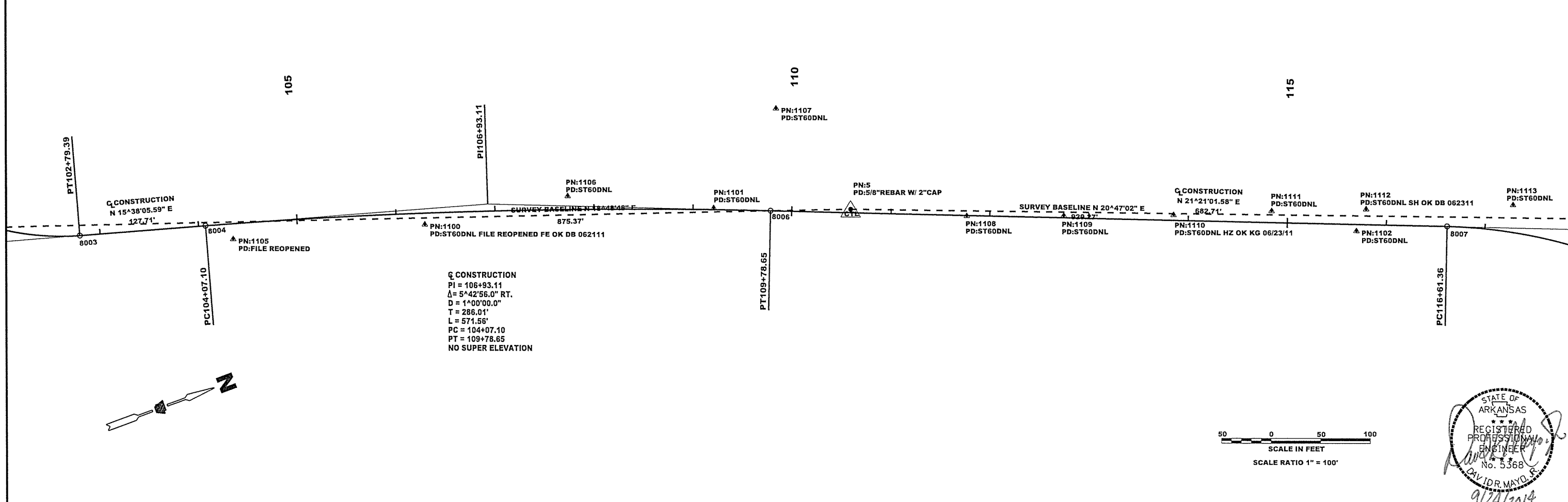


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313	18	66	

4 SURVEY CONTROL DETAIL

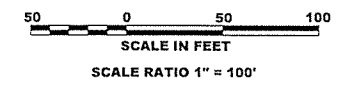
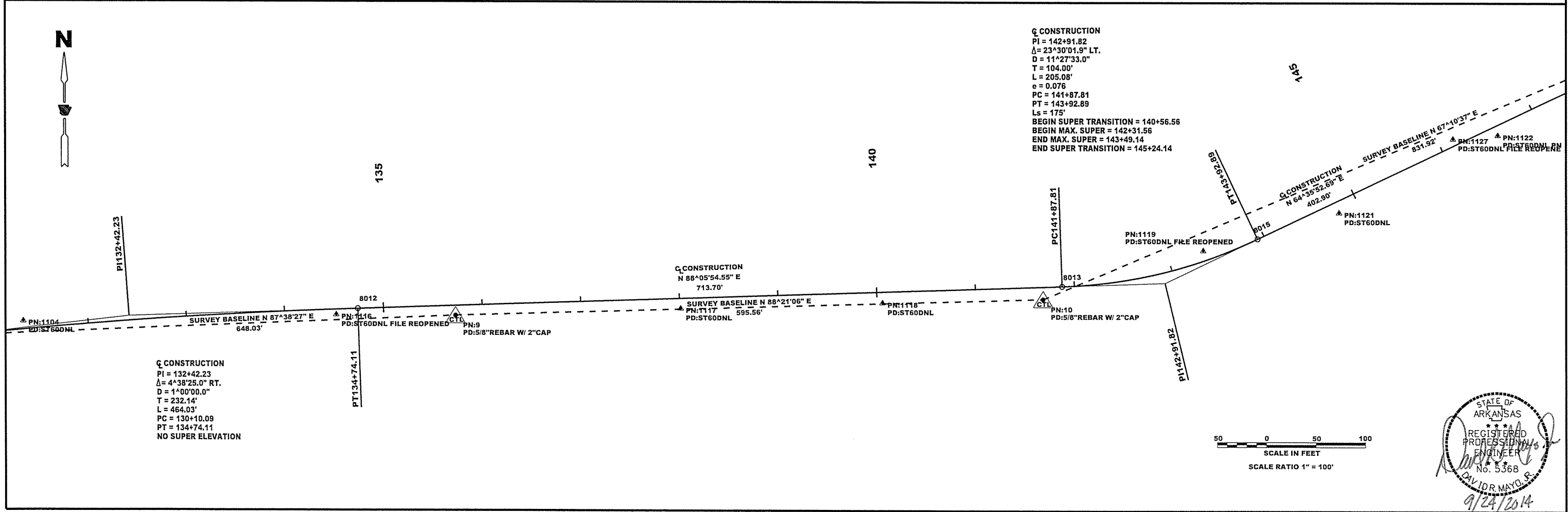
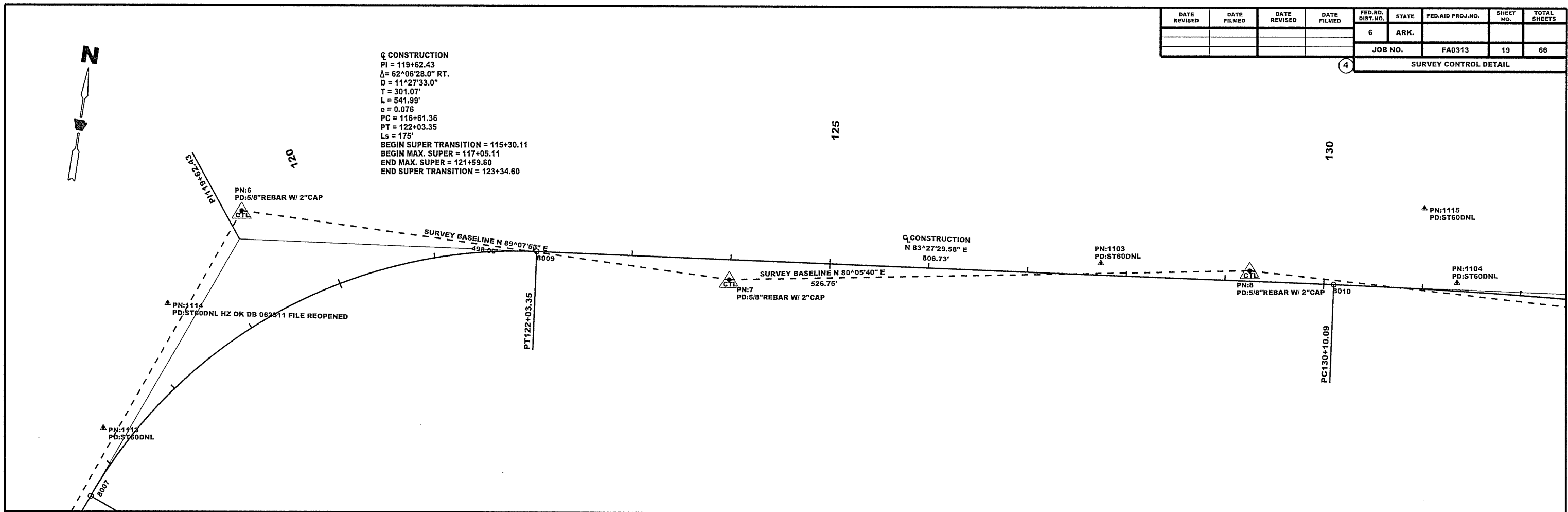


BEGIN JOB FA0313 STA. 100+00.00



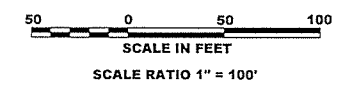
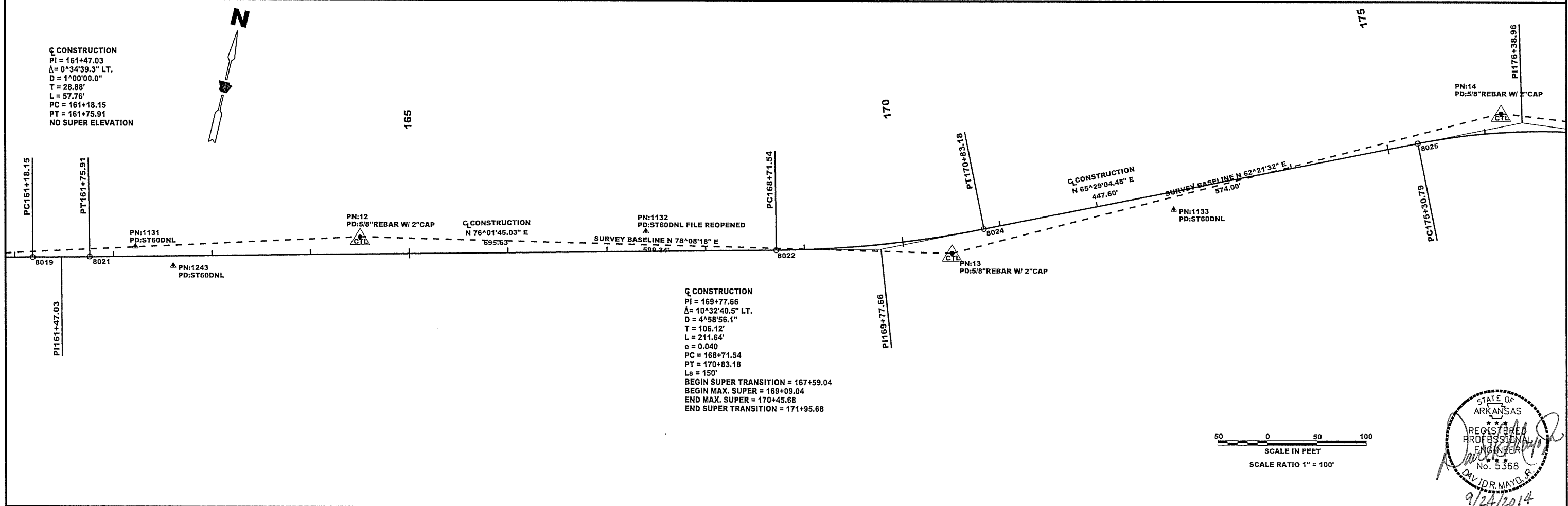
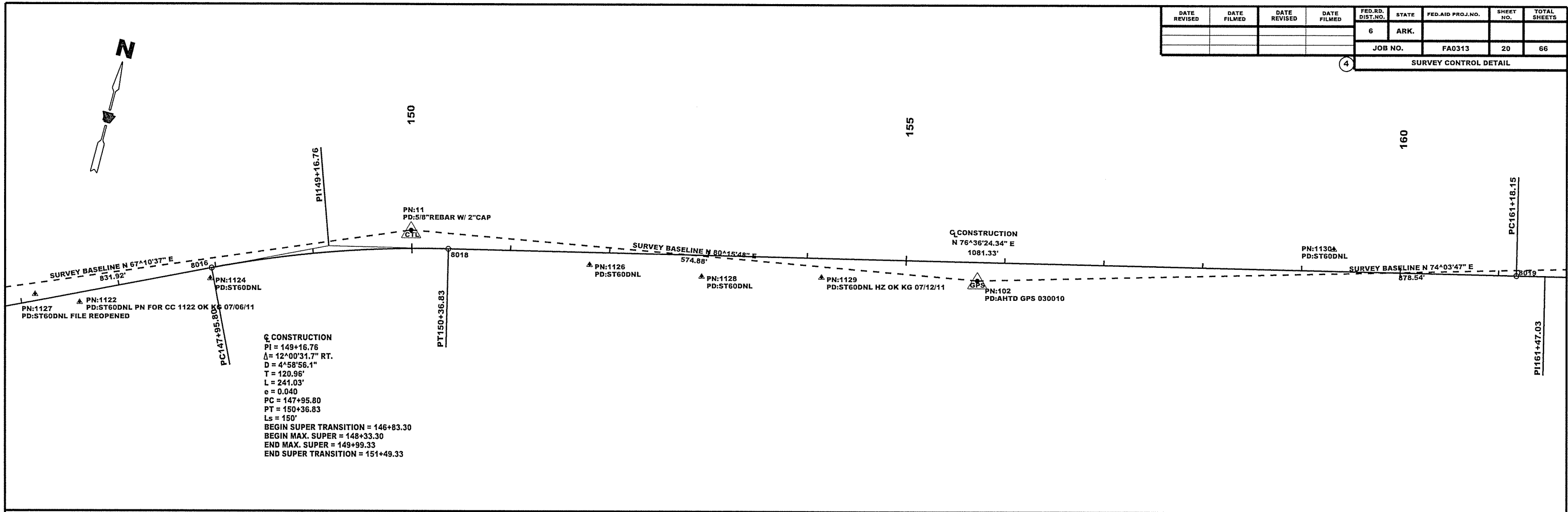
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				6	ARK.			
				JOB NO.	FA0313	19	66	

4 SURVEY CONTROL DETAIL



STATE OF ARKANSAS
 REGISTERED PROFESSIONAL ENGINEER
 No. 5368
 DAVID R. MAYO, P.E.
 9/24/2014

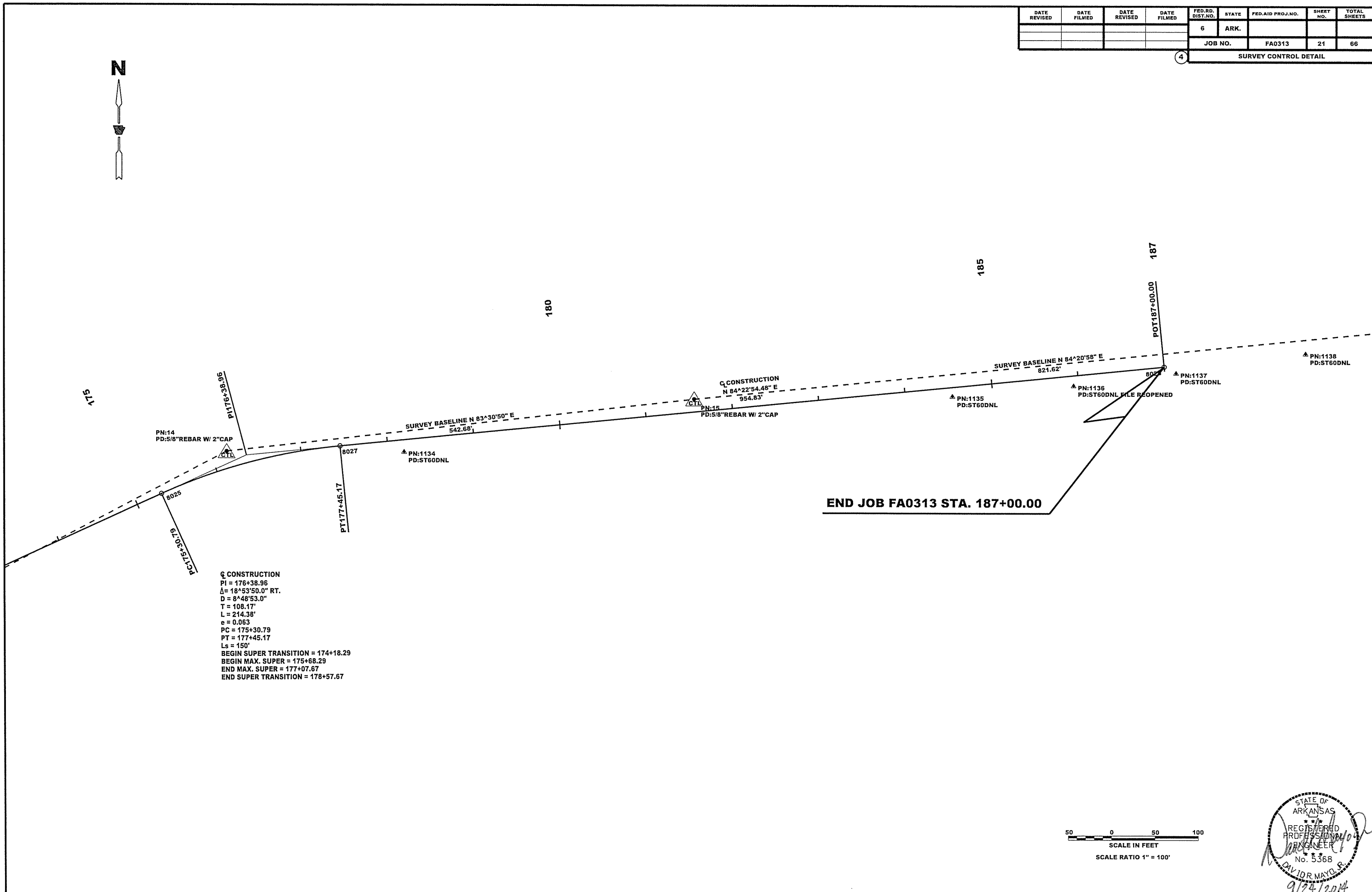
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4 SURVEY CONTROL DETAIL								



STATE OF ARKANSAS
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 DAVID R. MAYO, P.E.
 9/24/2014

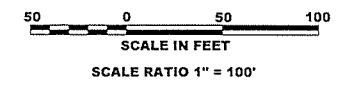
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				6	ARK.			
				JOB NO.	FA0313	21	66	

4 SURVEY CONTROL DETAIL



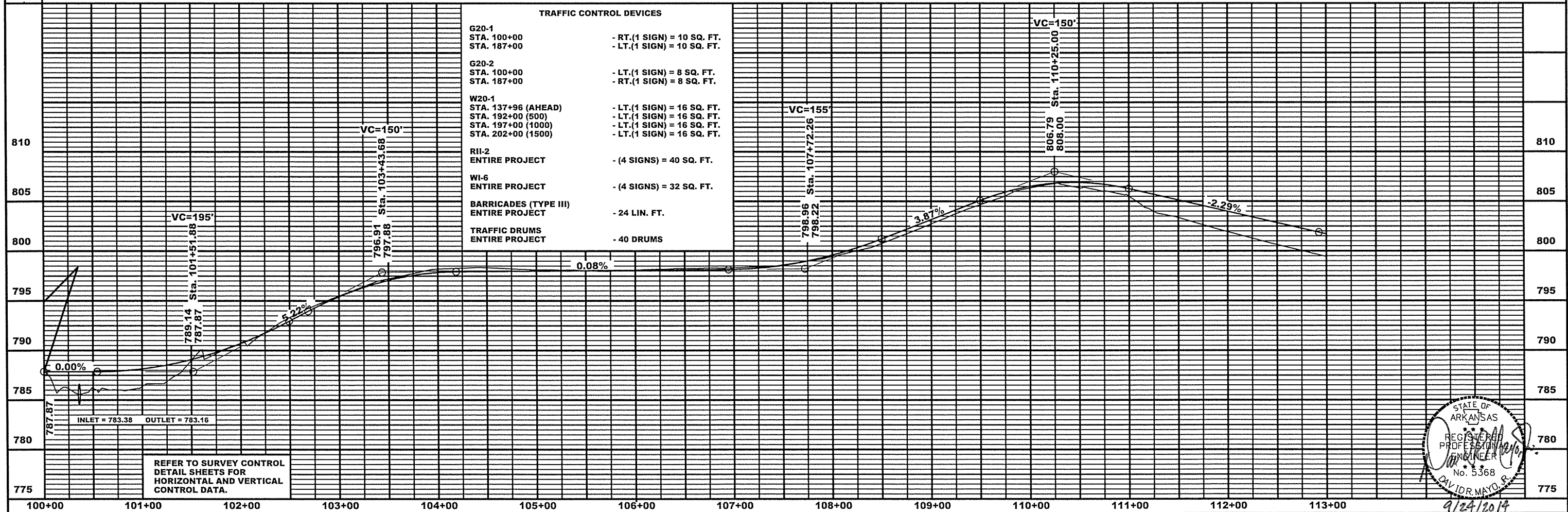
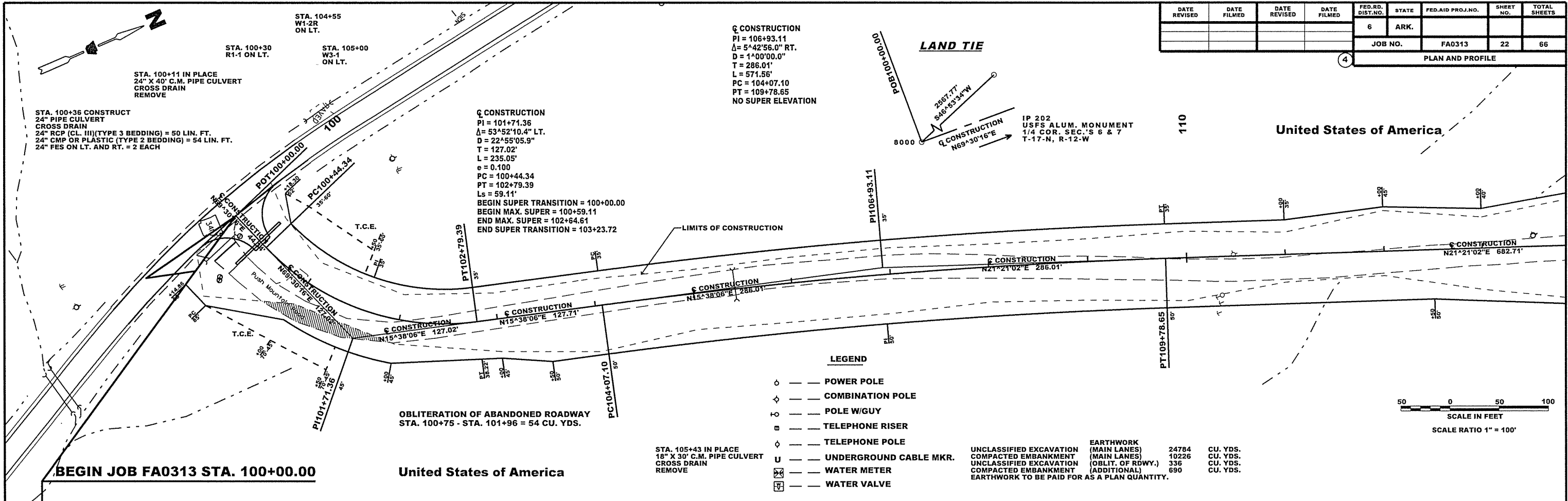
Q CONSTRUCTION
 PI = 176+38.96
 Δ = 18°53'50.0" RT.
 D = 8°48'53.0"
 T = 108.17'
 L = 214.38'
 e = 0.063
 PC = 175+30.79
 PT = 177+45.17
 Ls = 150'
 BEGIN SUPER TRANSITION = 174+18.29
 BEGIN MAX. SUPER = 175+68.29
 END MAX. SUPER = 177+07.67
 END SUPER TRANSITION = 178+57.67

END JOB FA0313 STA. 187+00.00



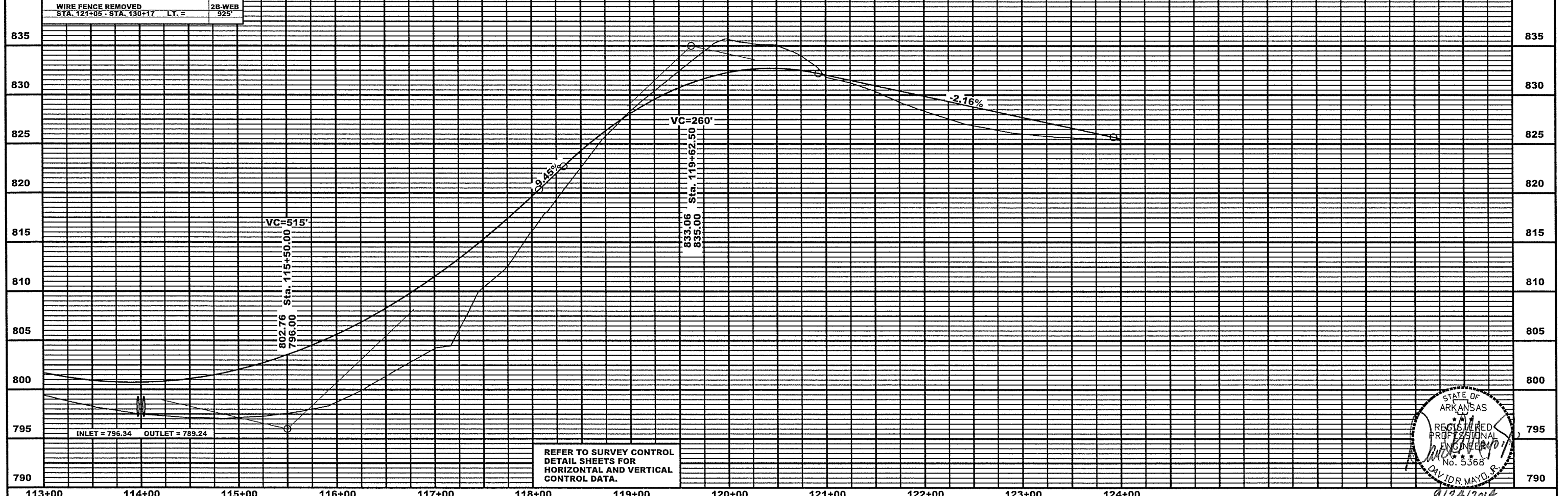
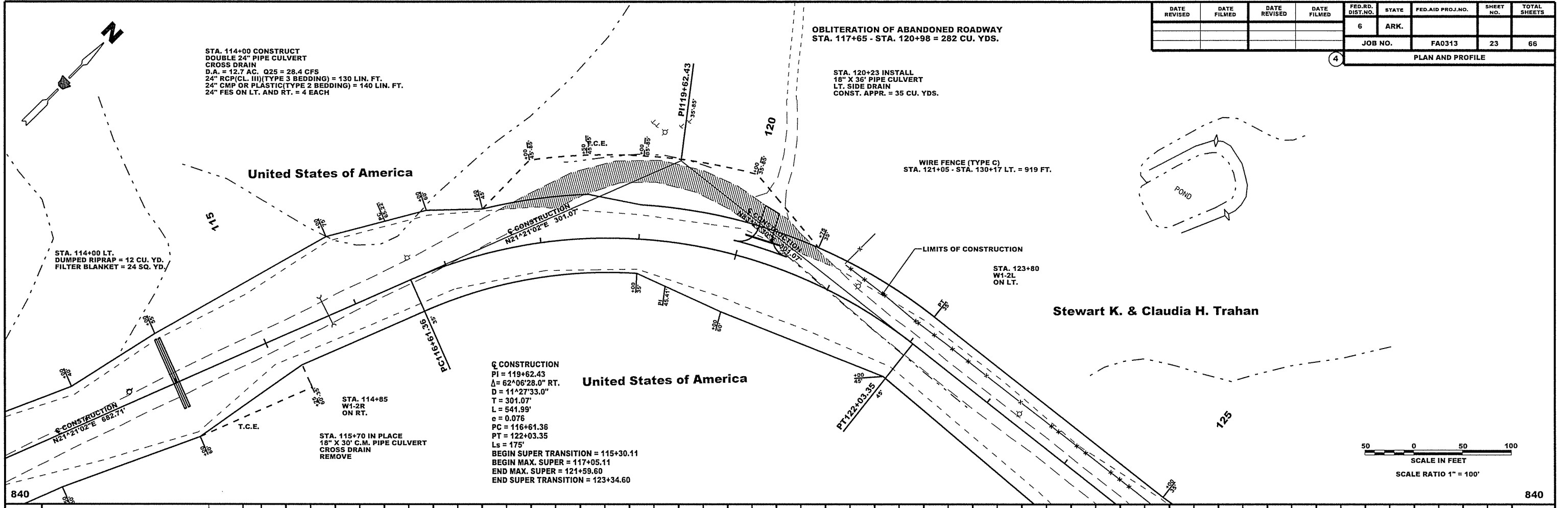
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				6	ARK.			
				JOB NO.	FA0313	22	66	

PLAN AND PROFILE



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, P.E.
9/24/2014

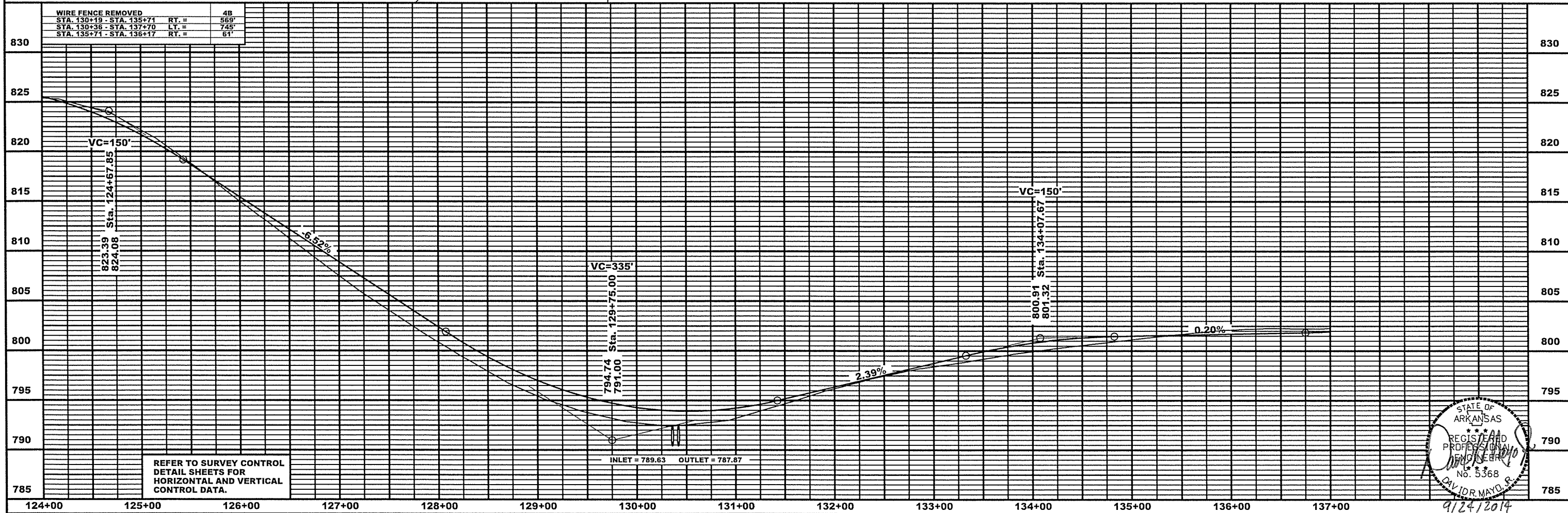
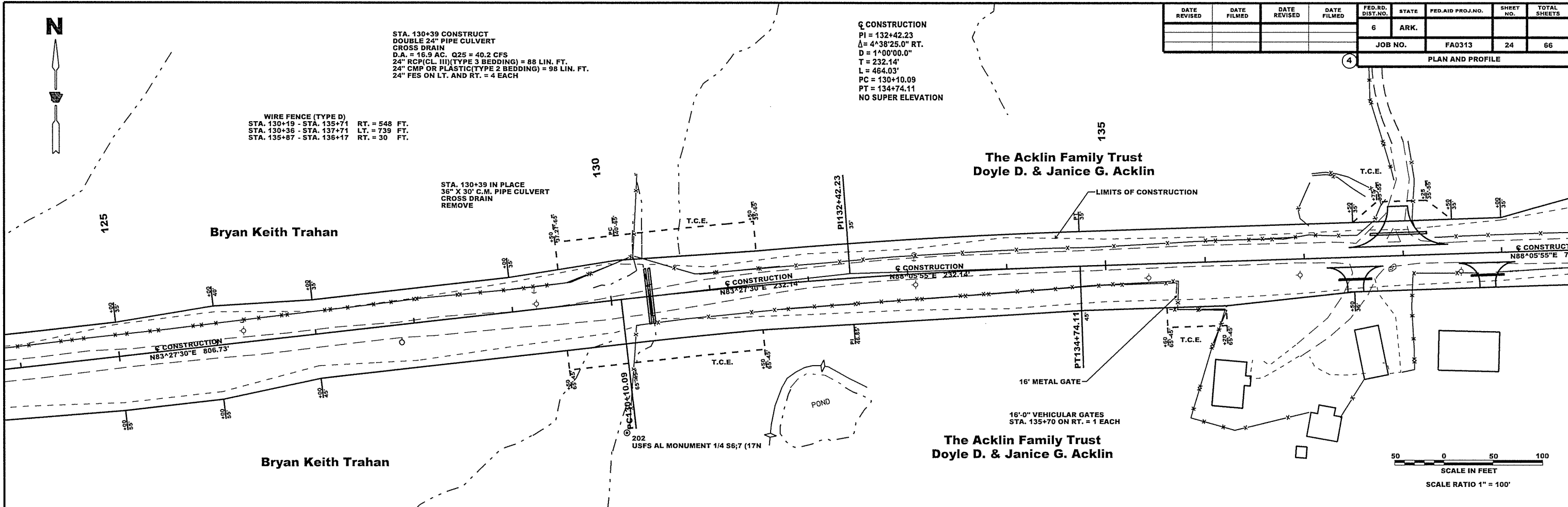
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				6	ARK.		23	66
JOB NO. FA0313							TOTAL SHEETS 66	
4 PLAN AND PROFILE								



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

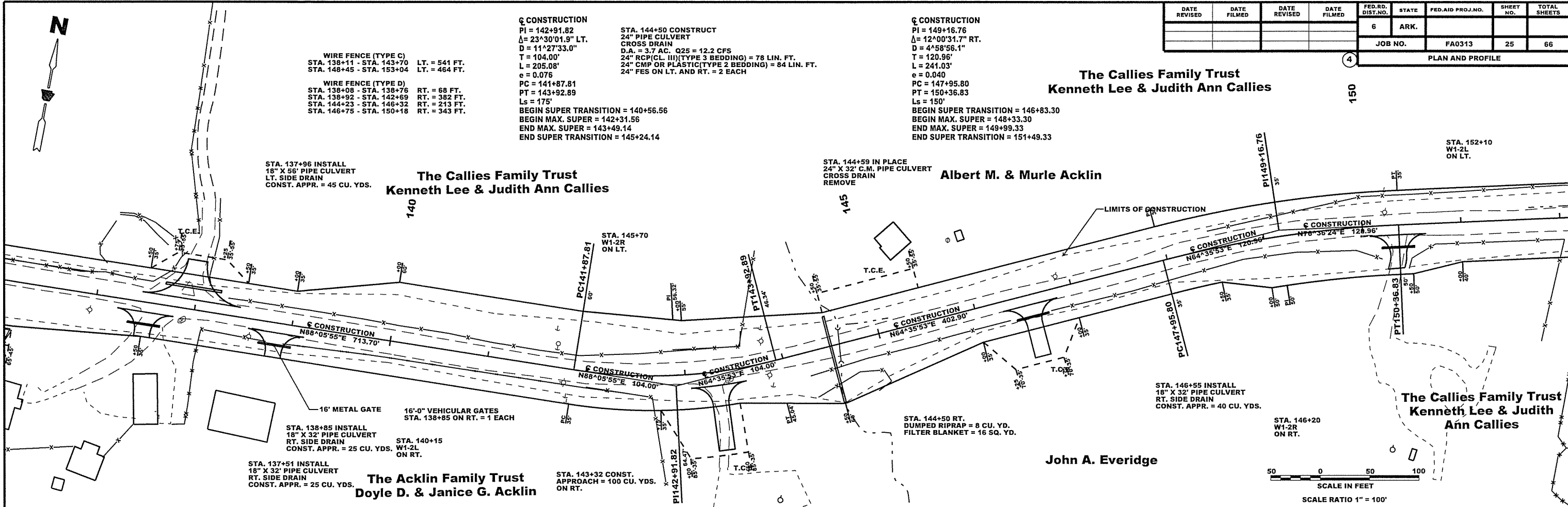
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 5368
D.V. IDR. MAYO, P.E.
9/24/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		24	66
				JOB NO.		FA0313		
				PLAN AND PROFILE				

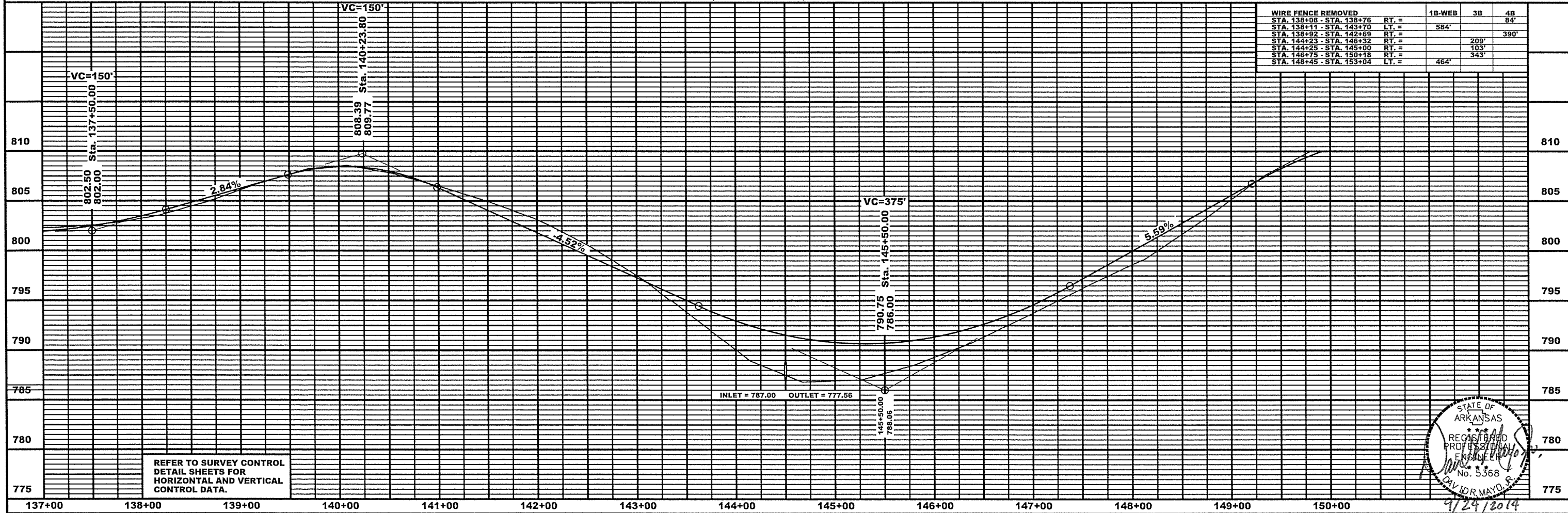


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				6	ARK.			
				JOB NO.	FA0313	25	66	

4 PLAN AND PROFILE



SCALE IN FEET
SCALE RATIO 1" = 100'

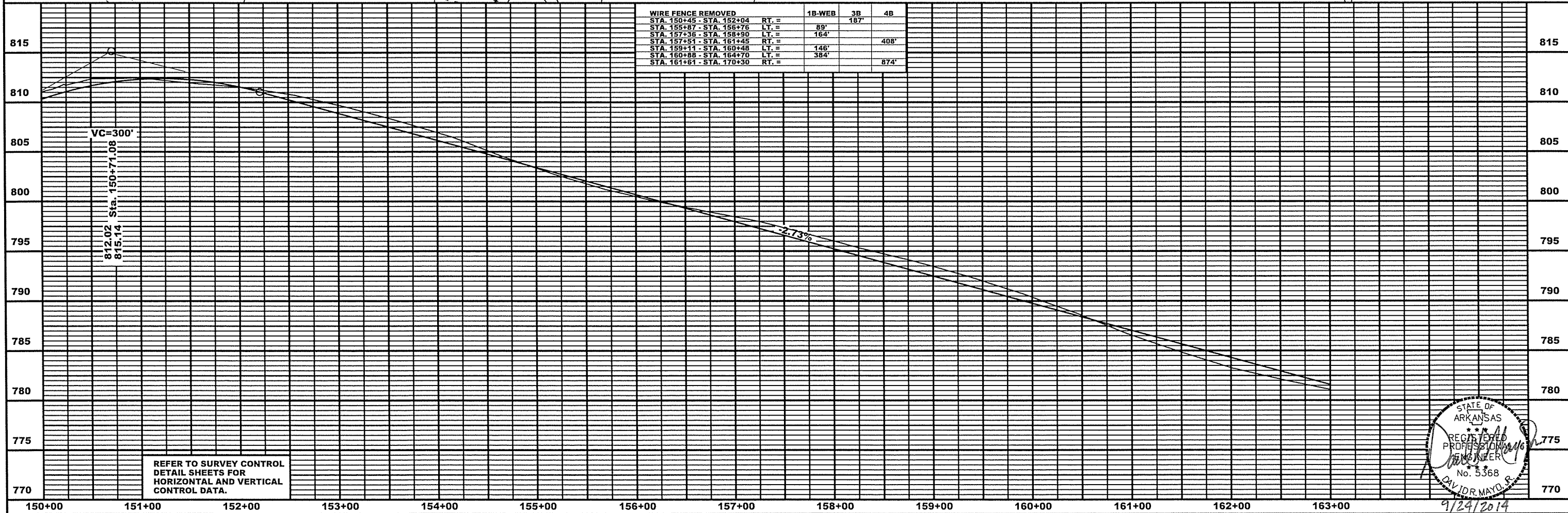
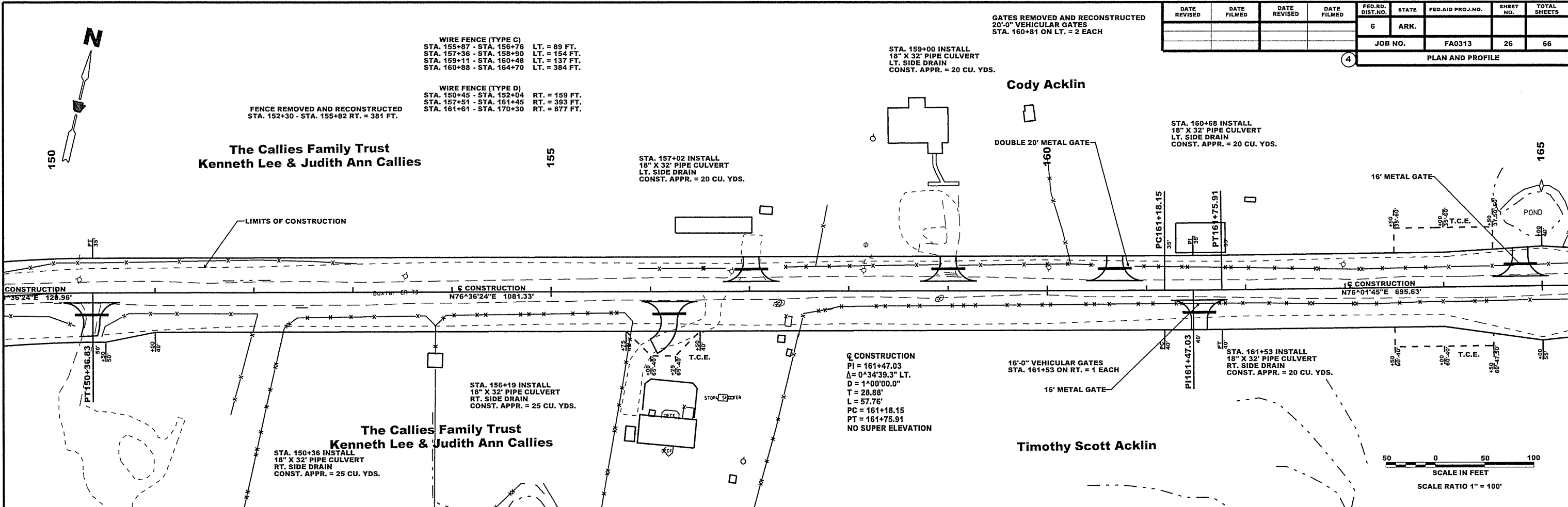


REFER TO SURVEY CONTROL
DETAIL SHEETS FOR
HORIZONTAL AND VERTICAL
CONTROL DATA.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
D. W. DR. MAYO, P.E.
9/24/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO. FA0313		26	66	

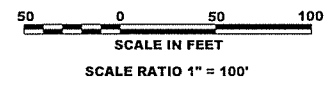
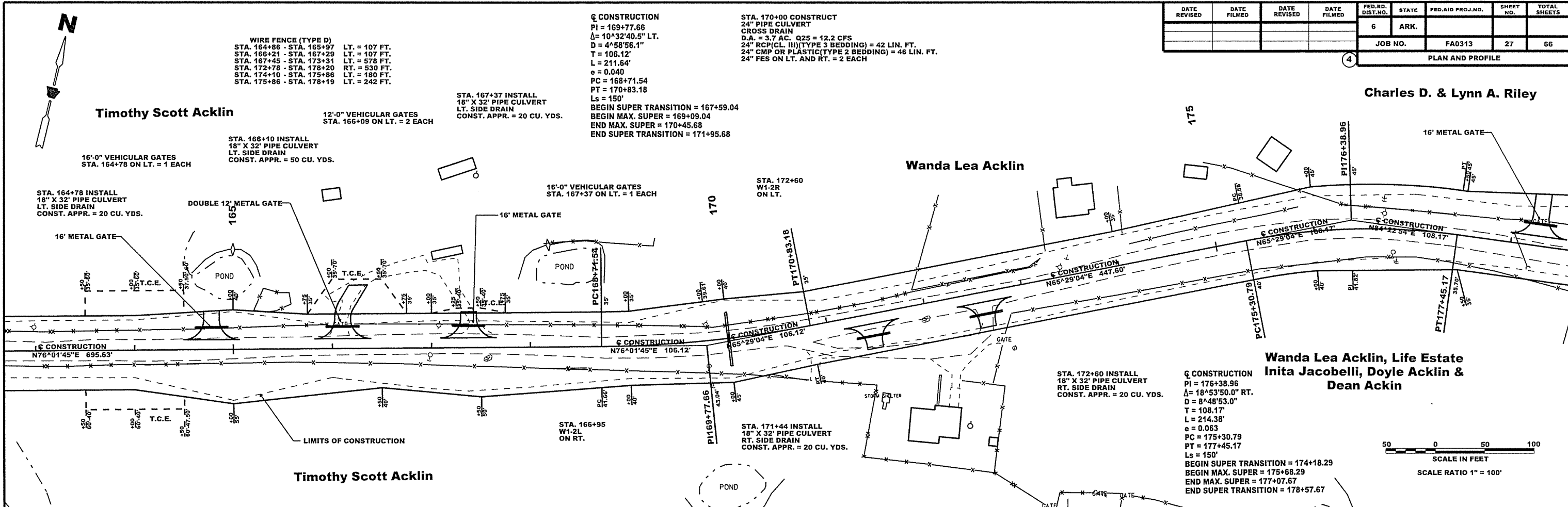
4 PLAN AND PROFILE



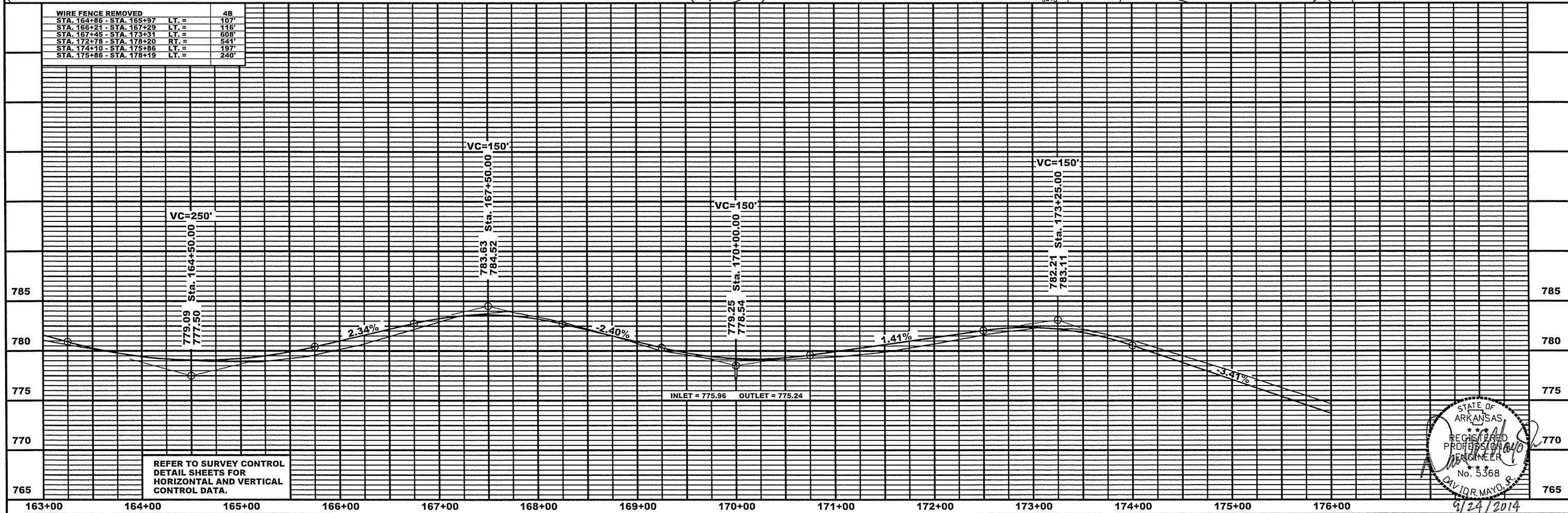
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				6	ARK.			
				JOB NO.	FA0313	27	66	

4 PLAN AND PROFILE

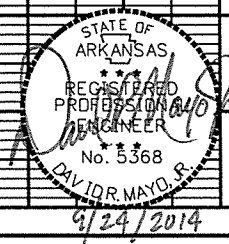
Charles D. & Lynn A. Riley



WIRE FENCE REMOVED			4B
STA. 164+86 - STA. 165+97	LT. =	107'	
STA. 166+21 - STA. 167+29	LT. =	116'	
STA. 167+45 - STA. 173+31	LT. =	808'	
STA. 172+78 - STA. 178+20	RT. =	541'	
STA. 174+10 - STA. 175+86	LT. =	197'	
STA. 175+86 - STA. 178+19	LT. =	240'	

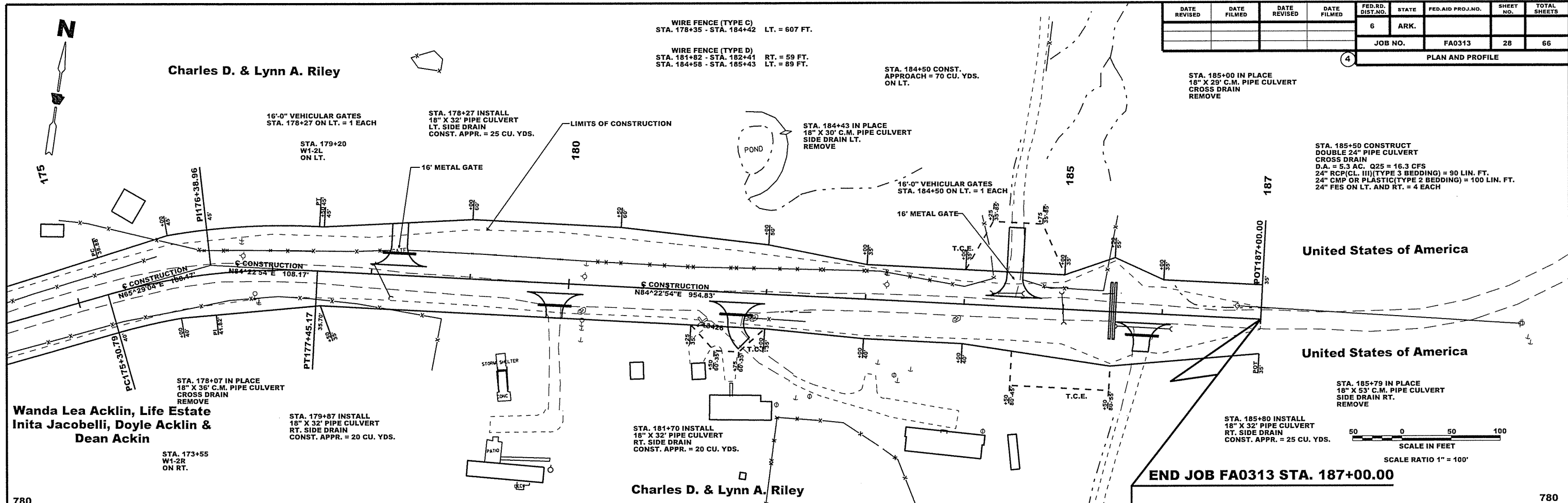


REFER TO SURVEY CONTROL
DETAIL SHEETS FOR
HORIZONTAL AND VERTICAL
CONTROL DATA.



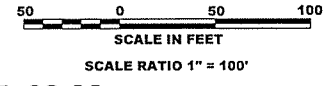
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				6	ARK.			
JOB NO. FA0313							28	66

PLAN AND PROFILE

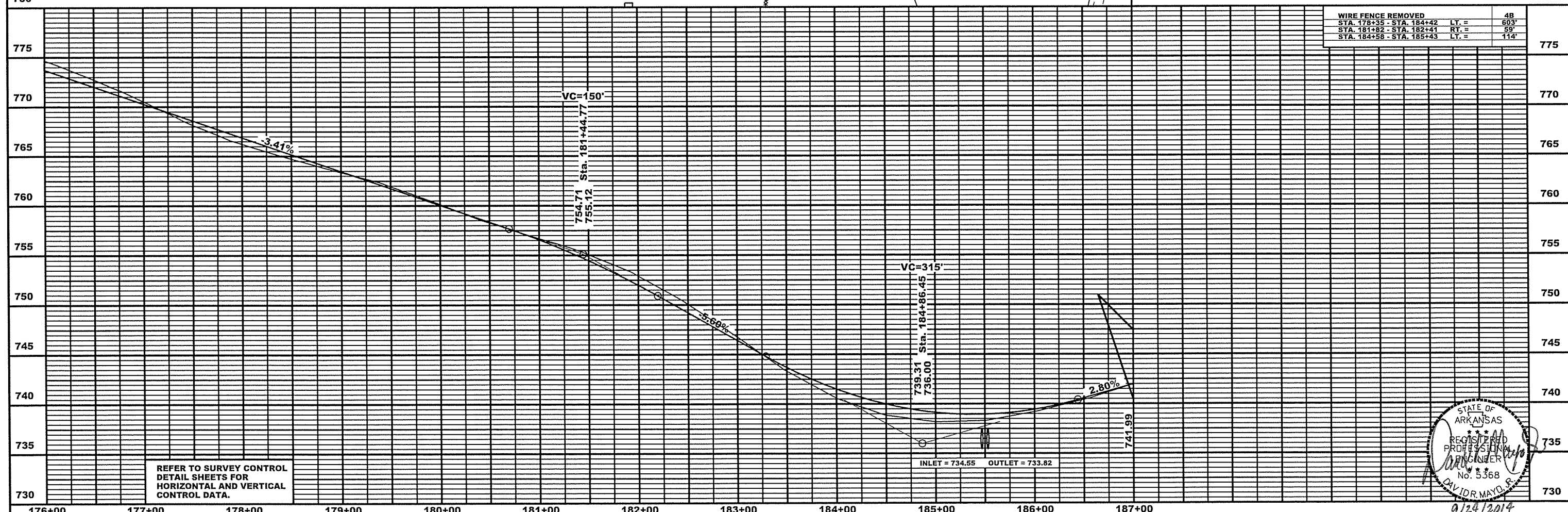


STA. 185+50 CONSTRUCT
DOUBLE 24" PIPE CULVERT
CROSS DRAIN
D.A. = 5.3 AC. Q25 = 16.3 CFS
24" RCP (CL. III) (TYPE 3 BEDDING) = 90 LIN. FT.
24" CMP OR PLASTIC (TYPE 2 BEDDING) = 100 LIN. FT.
24" FES ON LT. AND RT. = 4 EACH

STA. 185+79 IN PLACE
18" X 53' C.M. PIPE CULVERT
SIDE DRAIN RT.
REMOVE

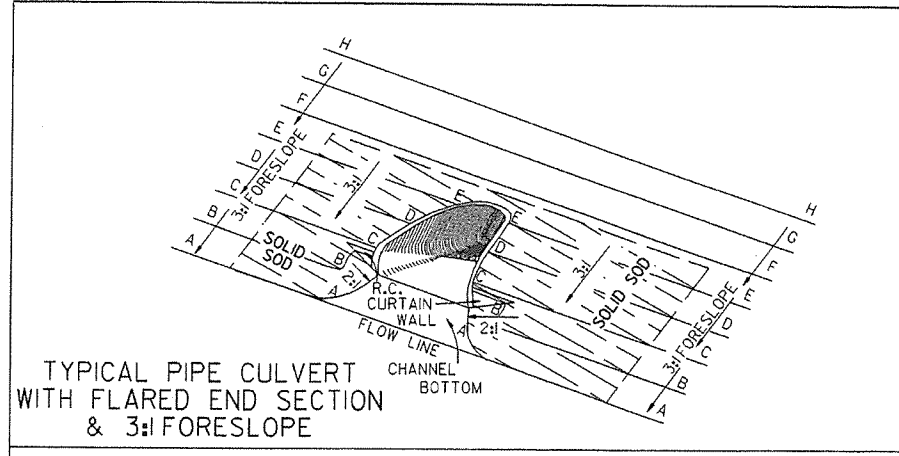


END JOB FA0313 STA. 187+00.00

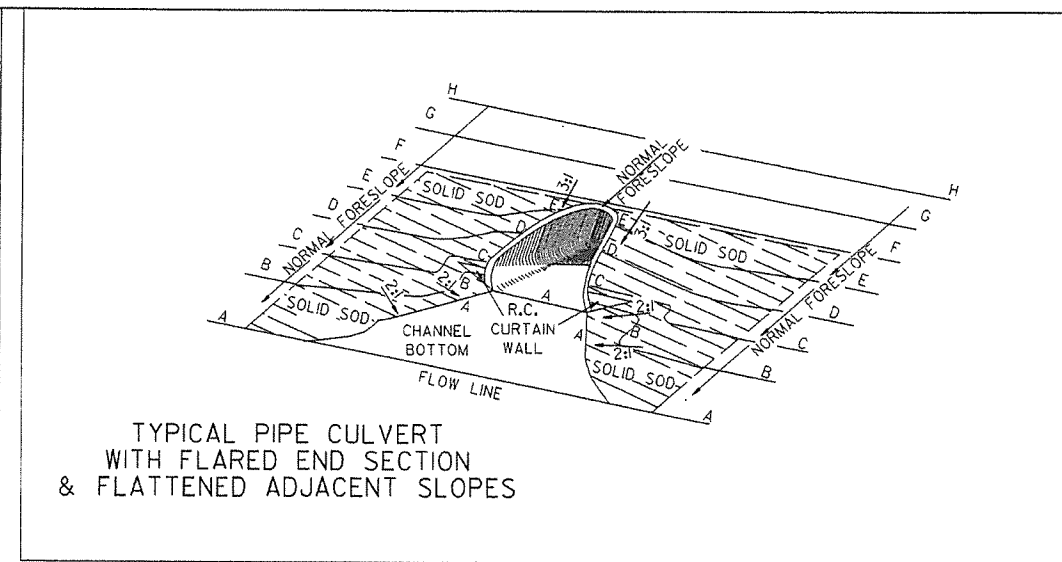


REFER TO SURVEY CONTROL
DETAIL SHEETS FOR
HORIZONTAL AND VERTICAL
CONTROL DATA.

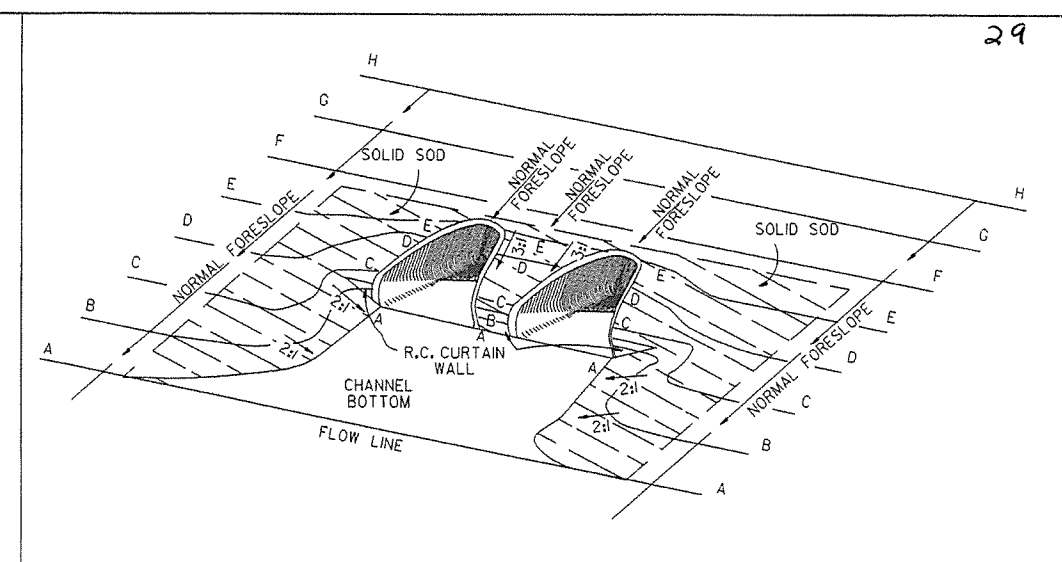
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
9/24/2014



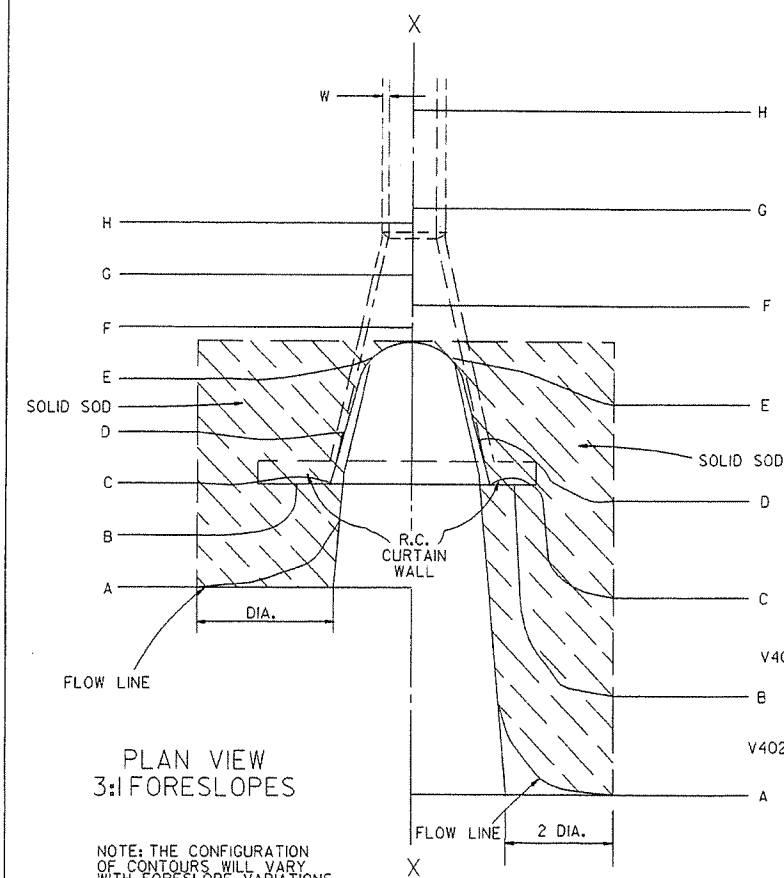
TYPICAL PIPE CULVERT WITH FLARED END SECTION & 3:1 FORESLOPE



TYPICAL PIPE CULVERT WITH FLARED END SECTION & FLATTENED ADJACENT SLOPES

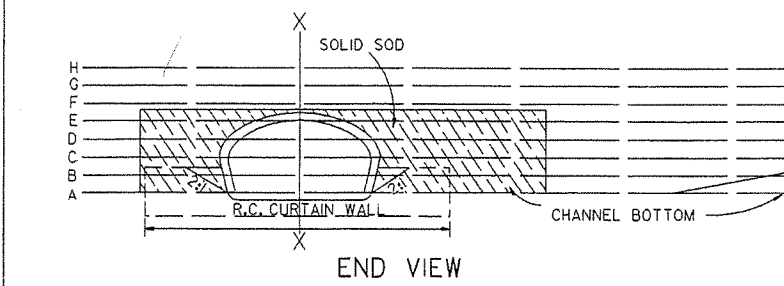


TYPICAL MULTIPLE PIPE CULVERT WITH FLARED END SECTIONS & FLATTENED ADJACENT SLOPES



PLAN VIEW 3:1 FORESLOPES

PLAN VIEW FLATTENED FORESLOPES

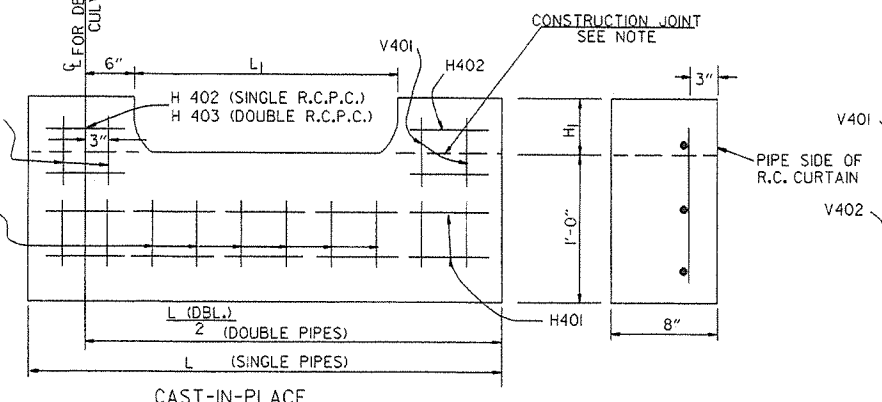


END VIEW

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

PIPE DIA.	H ₁	L ₁	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

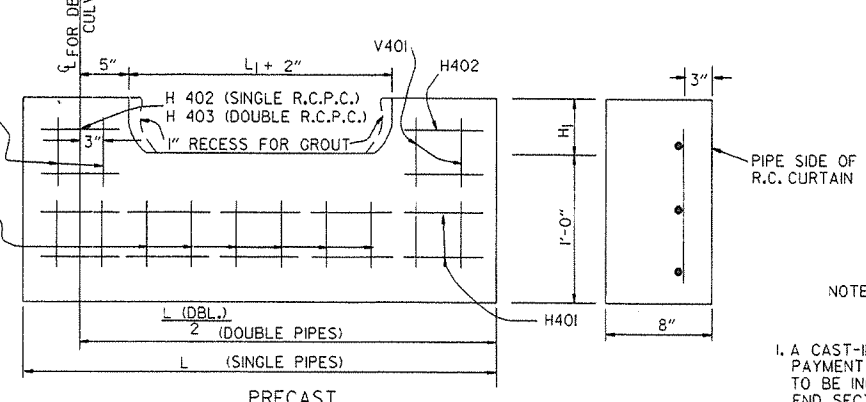
NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.



CAST-IN-PLACE

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

R.C. CURTAIN WALL DETAILS



PRECAST

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

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 1/2"	4	1'-7 1/2"	8	8"	8	12'-2"	2	1'-11 1/2"	4	8"	2	1'-7 1/2"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8 1/2"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8 1/2"	12	8"	18
30"	10'-8"	2	2'-4 1/2"	4	1'-11 1/2"	10	8"	12	17'-8"	2	2'-4 1/2"	4	8"	2	1'-11 1/2"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9 1/2"	8	2'-9 1/2"	16	8"	15	23'-8"	2	3'-9 1/2"	8	8"	4	2'-9 1/2"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8 1/2"	12	3'-5 1/2"	20	8"	17	27'-8"	2	4'-8 1/2"	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.					
18"	5	7	12	6	8	13	5	7	12	6	8	13
24"	8	12	19	9	13	20	8	12	19	9	13	20
30"	13	18	29	14	19	30	13	18	29	14	19	30
36"	17	26	41	18	28	43	17	26	41	18	28	43
42"	23	35	55	25	37	57	23	35	55	25	37	57
48"	29	46	68	31	48	70	29	46	68	31	48	70
54"	35	57	85	37	59	87	35	57	85	37	59	87
60"	45	62	104	48	65	107	45	62	104	48	65	107
72"	64	92	156	67	95	159	64	92	156	67	95	159

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

- GENERAL NOTES
- 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.
 - ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
 - 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 PRECAST CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
 - WELDED WIRE MESH 3 x 3 W/10 x W/10 MAY BE USED IN LIEU OF REINFORCING BARS.

10-18-96	ADDED NOTE TO SOLID SODDING	10-18-96	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

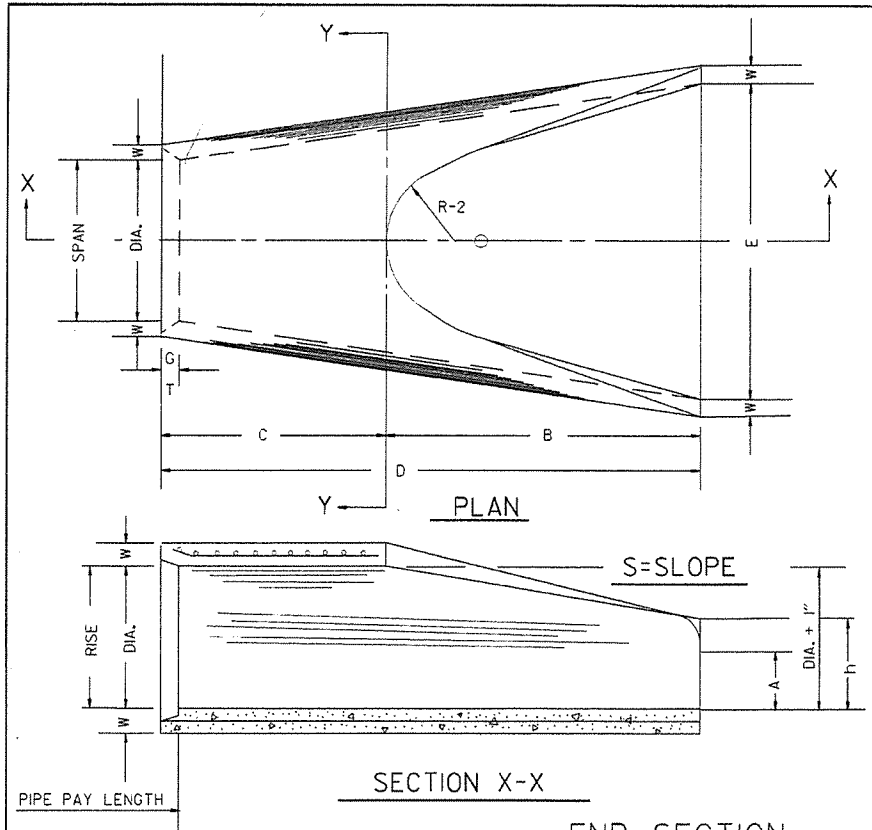
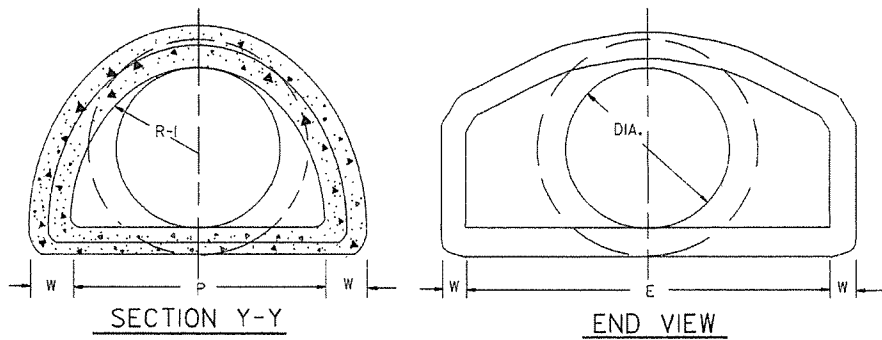


TABLE OF DIMENSIONS

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 3/8"	16 1/8"	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 3/8"
36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1 1/4"	6'-0"	3:1	37"	47 1/8"	24 3/8"	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 1/8"	27 1/2"	22"	3 1/2"	5380	2'-2 1/2"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56 1/2"	28 1/2"	22"	3 1/2"	6550	2'-6"
54"	5 1/2"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65 1/2"	33 1/8"	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 1/8"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 1/8"	38 1/8"	24"	5"	13250	4'-6"



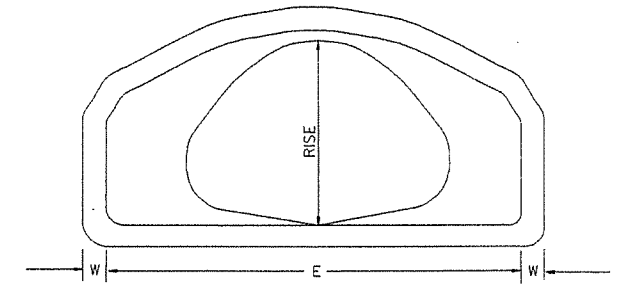
NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

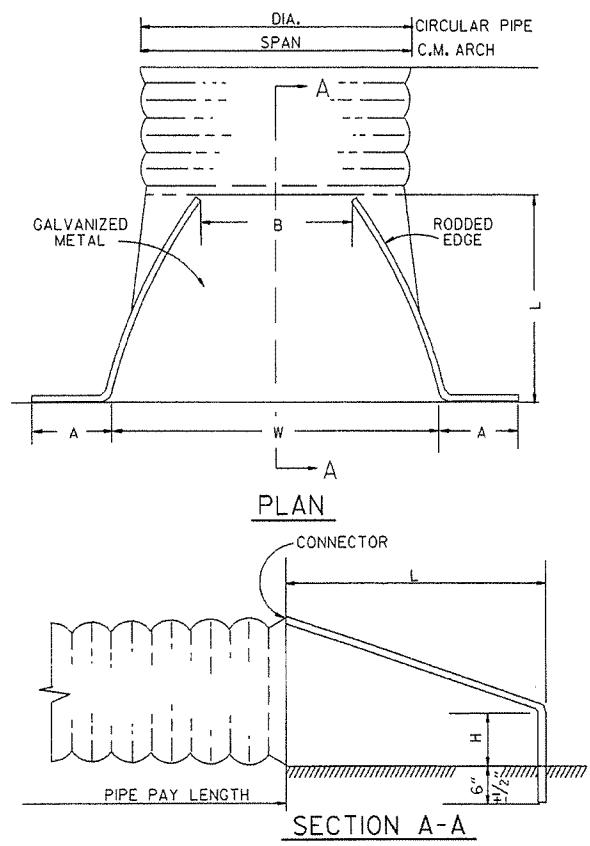
ARCH PIPE

EQUIV. DIA.	SPAN		RISE		W	A	B	C	D	E	P	R2	G-T	S
	AASHTO M 206	AHD NOMINAL	AASHTO M 206	AHD NOMINAL										
INCHES														
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 1/8"	13"	2 1/2"	2 1/2:1
21	26	26	15 1/2	16	2 3/4"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34 1/8"	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 1/8"	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 1/2"	6'-1 1/2"	6'-0"	47 1/8"	20"	3"	2 1/2:1
36	43 3/4	44	26 3/8	27	4"	10 1/2"	4'-0"	2'-1 1/2"	6'-1 1/2"	6'-6"	54 1/8"	22"	3 1/2"	2 1/2:1
42	51 1/8	51	31 3/8	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 3/8"	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 1/8"	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 3/8"	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

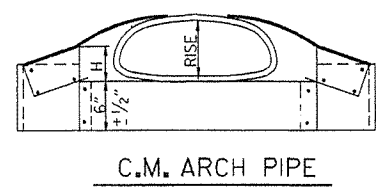
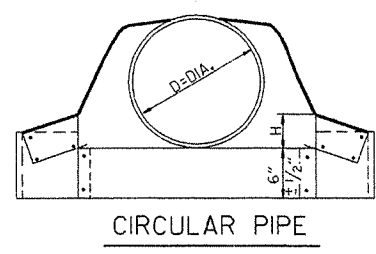


NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS

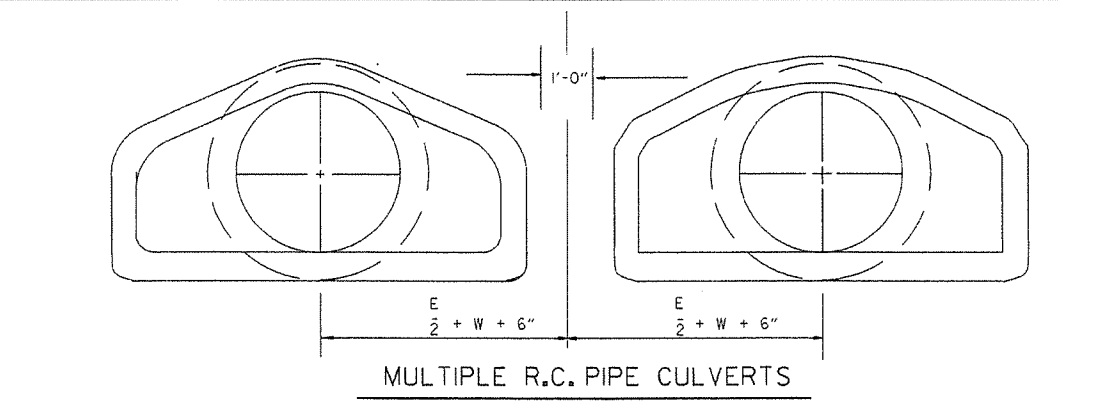
CIRCULAR PIPE

D. DIA.	GAUGE	A 1" ±	B. MAX. 1" ±	H 1 1/2" ±	L 1 1/2" ±	W 2" ±	S
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 3/4:1
66	12	18	36	12	87	120	1 1/2:1
72	12	18	39	12	87	126	1 1/3:1

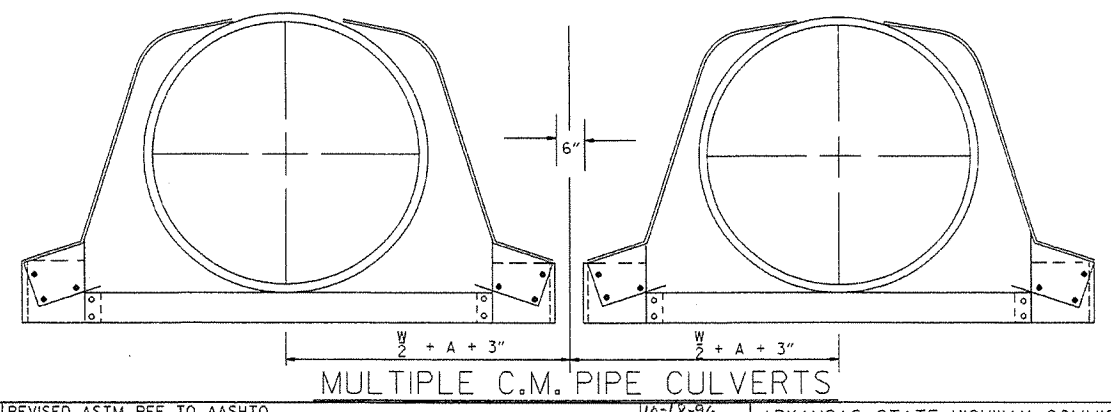


C.M. ARCH PIPE

EQUIV. DIA.	SPAN	RISE	A 1" ±	B. MAX. 1" ±	H 1 1/2" ±	L 1 1/2" ±	W 2" ±	S	GAUGE
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 1/4:1	12
60"	71	47	18	33	12	77	114	2 1/4:1	12

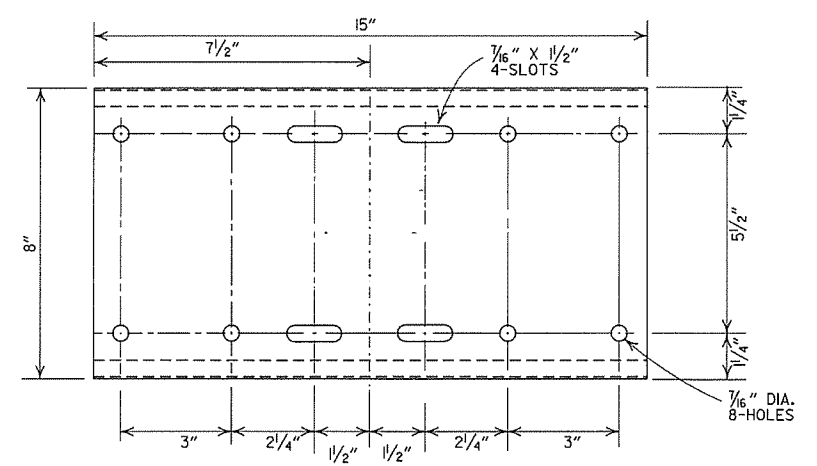


MULTIPLE R.C. PIPE CULVERTS

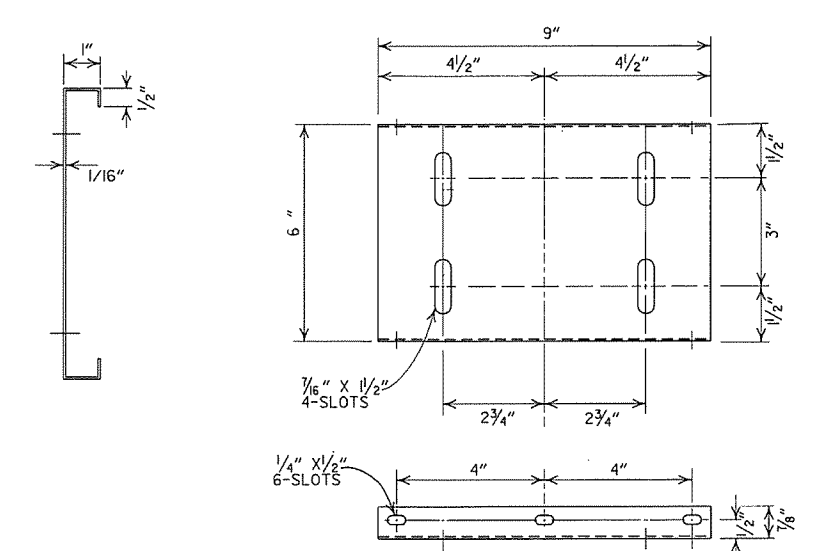


MULTIPLE C.M. PIPE CULVERTS

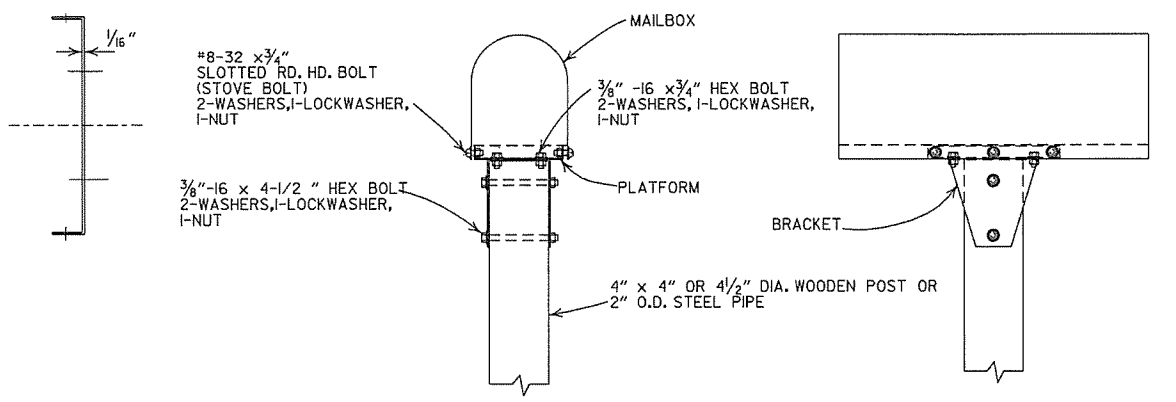
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96	ARKANSAS STATE HIGHWAY COMMISSION
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80	
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78	FLARED END SECTION
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75	
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74	STANDARD DRAWING FES-2
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	FILED	



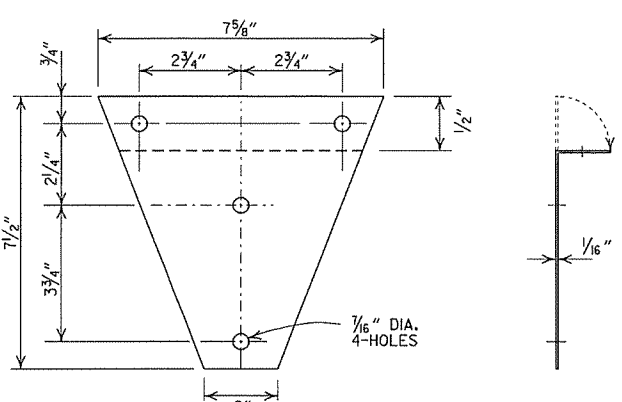
SHELF



PLATFORM

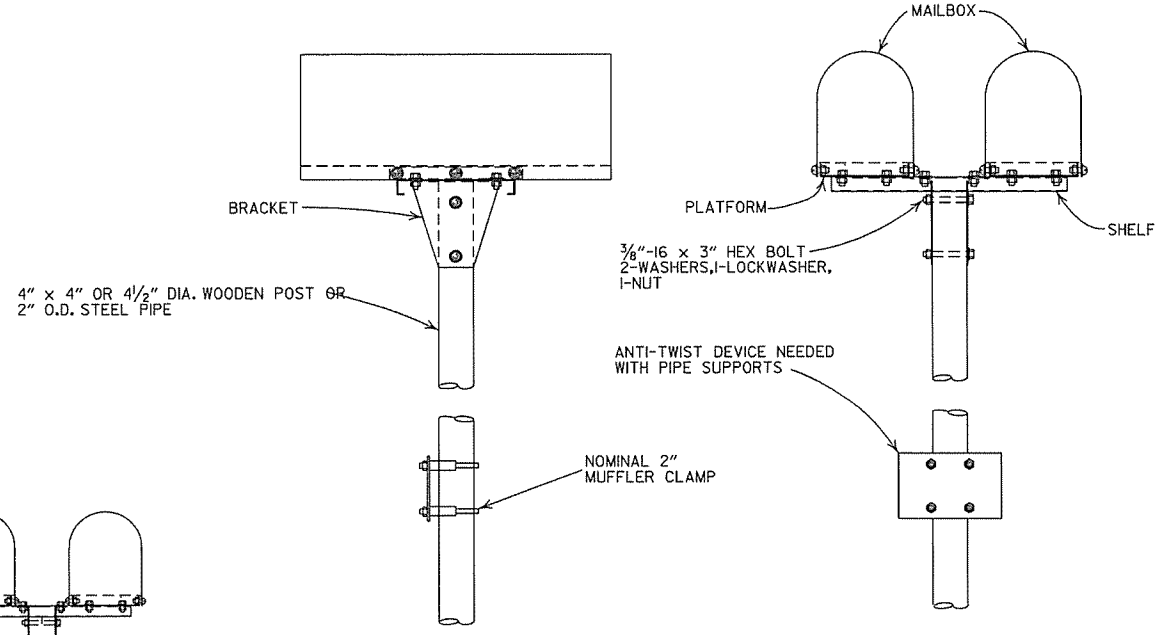


SINGLE INSTALLATION

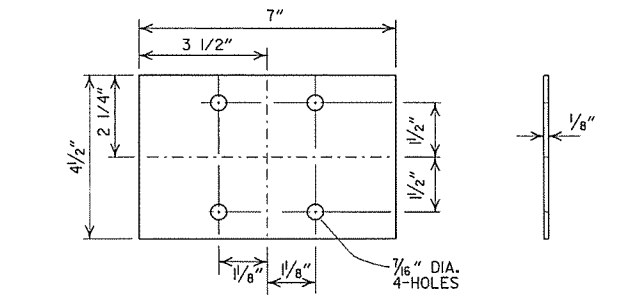


BRACKET

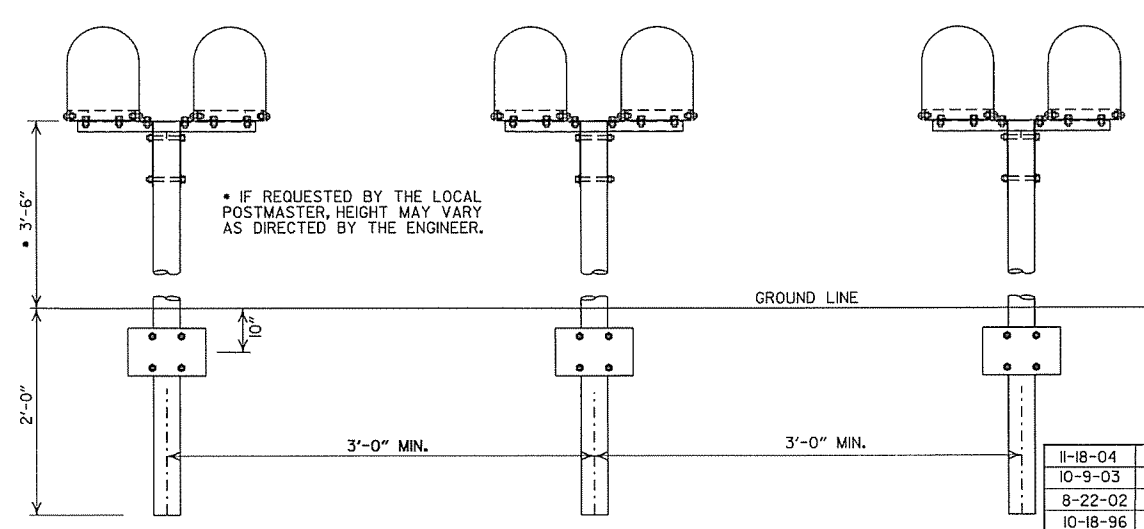
- GENERAL NOTES
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
 2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
 3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF 3/4" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X 3/4" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
 4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
 5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
 6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



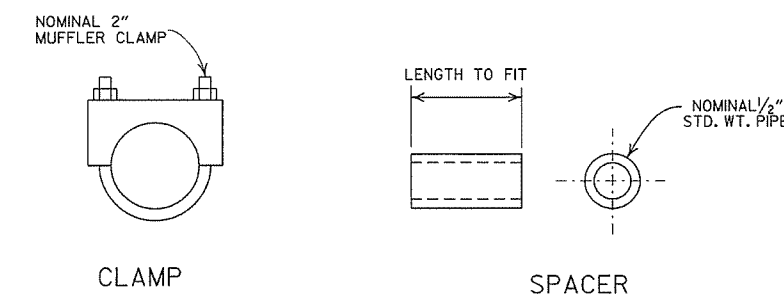
DOUBLE INSTALLATION



ANTI-TWIST PLATE



SPACING FOR MULTIPLE POST INSTALLATION



CLAMP

SPACER

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

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1

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	13 1/2	14
21	26	26	15 1/2	16
24	28 1/2	29	18	18
30	36 1/4	36	22 1/2	23
36	43 3/8	44	26 5/8	27
42	51 1/8	51	31 5/8	31
48	58 1/2	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77 1/2	77
108	138	138	87 1/8	87
120	154	154	96 7/8	97
132	168 3/4	169	106 1/2	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.(FMI).

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.

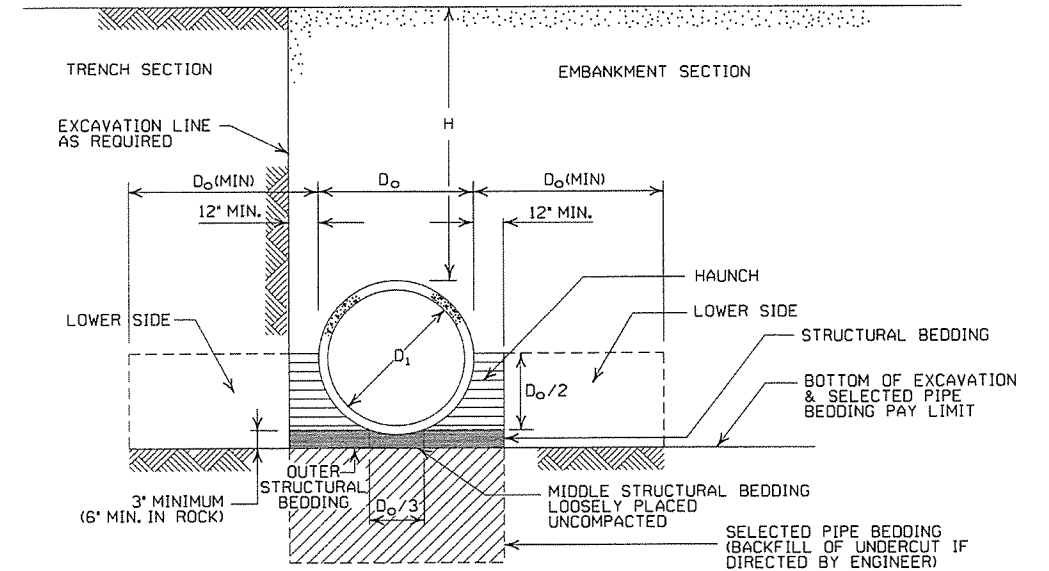
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS, UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

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 3/8 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

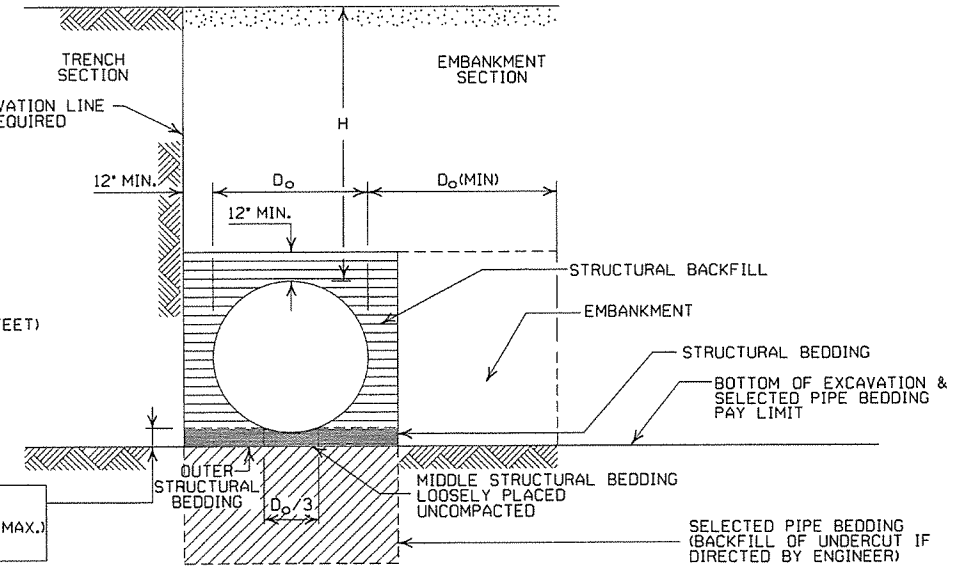
CONSTRUCTION SEQUENCE

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.



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 3/8" 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 3/8 INCH BY 1/2 INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM						
12	1	45	45	52		
18	2	30	30	31	32	34
24	2	22	22	39	41	
30	2		18	31	32	34
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.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)			
				INSTALLATION			INSTALLATION			
				TYPE 1	TYPE 1		TYPE 1	TYPE 1		
2 3/8 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	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	126x83	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 2/3" 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

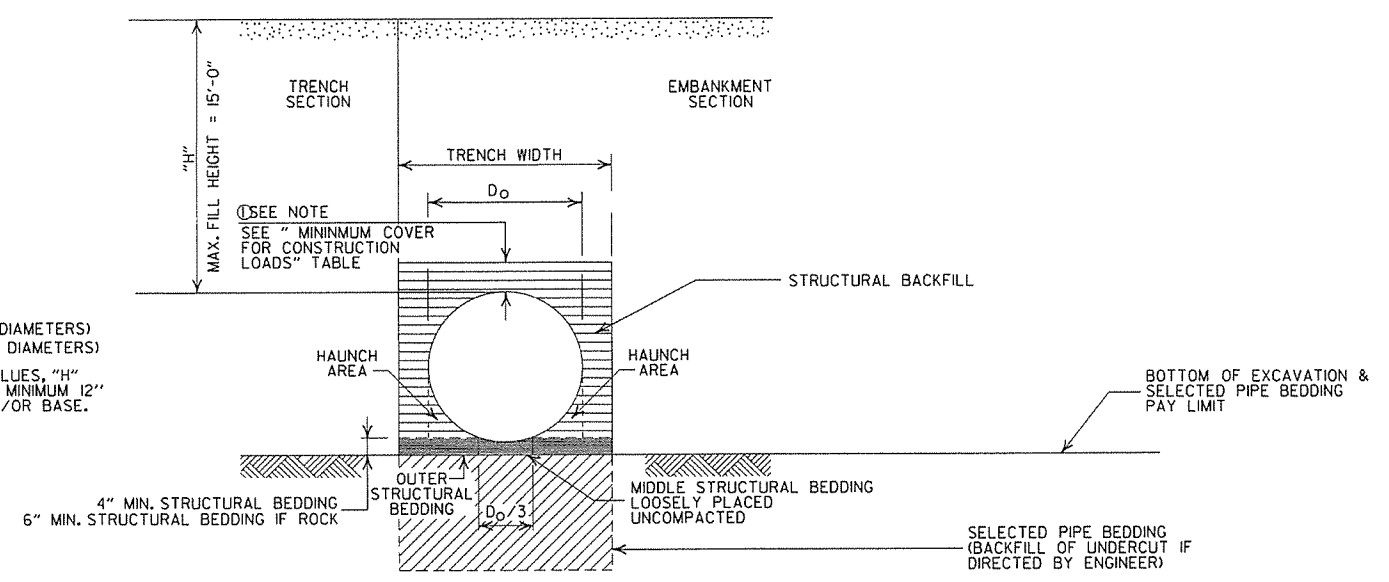
INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.
SM3 WILL NOT BE ALLOWED.
 - STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1/8 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.
- 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 HDPE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)
MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

- I. 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.

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.

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. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. 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.
5. 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."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

- H = FILL HEIGHT (FT.)
- D_o = OUTSIDE DIAMETER OF PIPE
- MAX. = MAXIMUM
- MIN. = MINIMUM
- ===== = STRUCTURAL BACKFILL MATERIAL
- ||||||| = UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE I.	
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT
(HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.
SM3 WILL NOT BE ALLOWED.

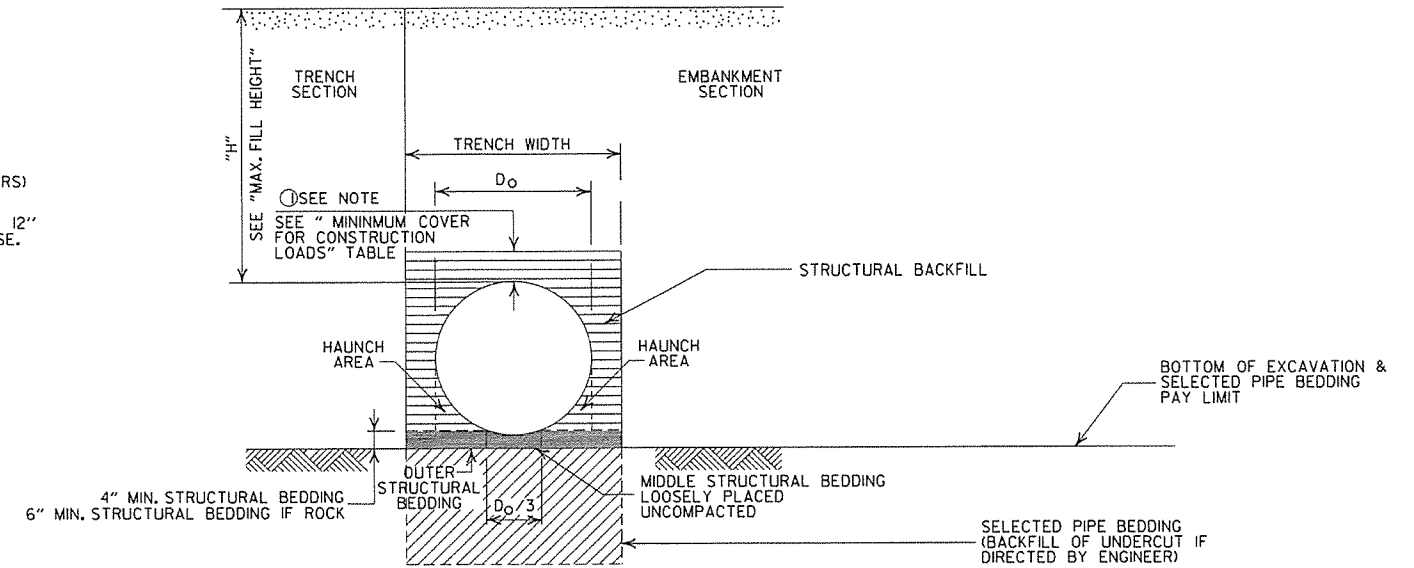
•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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 PVC PIPE.

MAXIMUM FILL HEIGHT
BASED ON STRUCTURAL BACKFILL

PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

① NOTE:
12" MIN. (18" - 36" DIAMETERS)
MINIMUM COVER VALUE, "H"
SHALL INCLUDE A MINIMUM 12"
OF PAVEMENT AND/OR BASE.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

MINIMUM TRENCH WIDTH
BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"

MINIMUM COVER FOR
CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
18" THRU 36"	2'-0"	2'-6"	3'-0"	3'-0"

② MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.

MULTIPLE INSTALLATION OF
PVC PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"

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. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

- LEGEND -

H = FILL HEIGHT (FT.)
D_o = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

==== = STRUCTURAL BACKFILL MATERIAL
===== = UNDISTURBED SOIL

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. 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.
5. 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."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

ARKANSAS STATE HIGHWAY COMMISSION		
PLASTIC PIPE CULVERT (PVC F949)		
STANDARD DRAWING PCP-2		
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	
DATE	REVISION	DATE FILMED

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH		40 MPH		50 MPH		55 MPH		60 MPH		70 MPH	
	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)
0° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
0° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
0° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
2° 00'	R.C.		R.C.		R.C.		R.C.		R.C.		R.C.	
2° 15'	R.C.		R.C.		R.C.		R.C.		R.C.		R.C.	
2° 30'	0.021		0.021		0.021		0.021		0.021		0.021	
2° 45'	0.023		0.023		0.023		0.023		0.023		0.023	
3° 00'	0.025		0.025		0.025		0.025		0.025		0.025	
3° 15'	0.027		0.027		0.027		0.027		0.027		0.027	
3° 30'	0.029		0.029		0.029		0.029		0.029		0.029	
3° 45'	0.031		0.031		0.031		0.031		0.031		0.031	
4° 00'	0.033		0.033		0.033		0.033		0.033		0.033	
4° 30'	0.037		0.037		0.037		0.037		0.037		0.037	
5° 00'	0.040		0.040		0.040		0.040		0.040		0.040	
5° 30'	0.043		0.043		0.043		0.043		0.043		0.043	
6° 00'	0.046		0.046		0.046		0.046		0.046		0.046	
6° 30'	0.050		0.050		0.050		0.050		0.050		0.050	
7° 00'	0.053		0.053		0.053		0.053		0.053		0.053	
7° 30'	0.056		0.056		0.056		0.056		0.056		0.056	
8° 00'	0.058		0.058		0.058		0.058		0.058		0.058	
8° 30'	0.061		0.061		0.061		0.061		0.061		0.061	
9° 00'	0.063		0.063		0.063		0.063		0.063		0.063	
10° 00'	0.068		0.068		0.068		0.068		0.068		0.068	
11° 00'	0.072		0.072		0.072		0.072		0.072		0.072	
12° 00'	0.076		0.076		0.076		0.076		0.076		0.076	
13° 00'	0.080		0.080		0.080		0.080		0.080		0.080	
14° 00'	0.083		0.083		0.083		0.083		0.083		0.083	
15° 00'	0.086		0.086		0.086		0.086		0.086		0.086	
16° 00'	0.089		0.089		0.089		0.089		0.089		0.089	
17° 00'	0.091		0.091		0.091		0.091		0.091		0.091	
18° 00'	0.093		0.093		0.093		0.093		0.093		0.093	
19° 00'	0.095		0.095		0.095		0.095		0.095		0.095	
20° 00'	0.097		0.097		0.097		0.097		0.097		0.097	
21° 00'	0.098		0.098		0.098		0.098		0.098		0.098	
22° 00'	0.099		0.099		0.099		0.099		0.099		0.099	
23° 00'	0.099		0.099		0.099		0.099		0.099		0.099	
24° 00'	0.100		0.100		0.100		0.100		0.100		0.100	

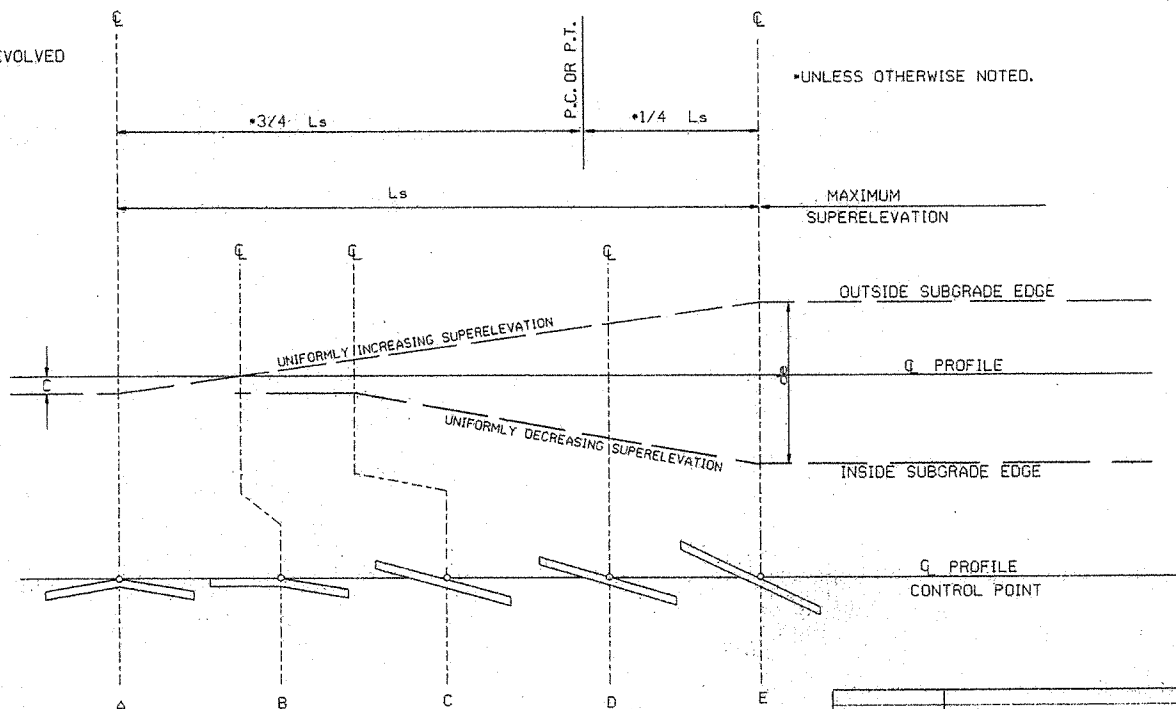
ABBREVIATIONS

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

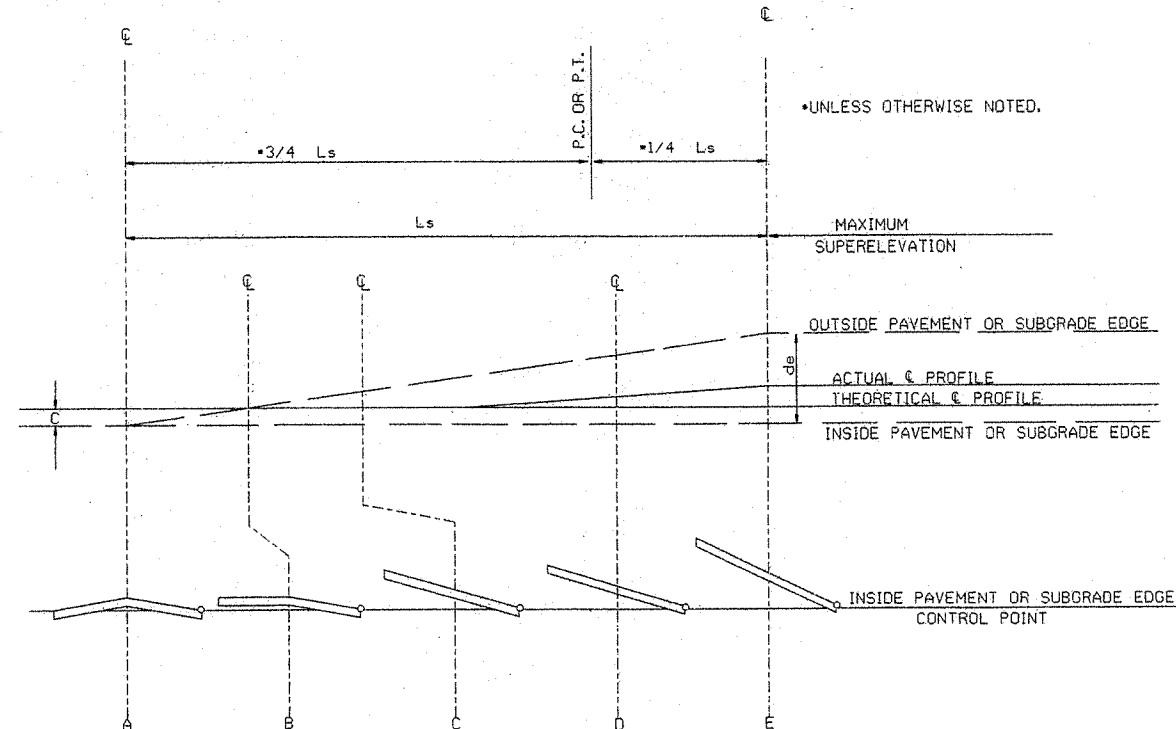
GENERAL NOTES

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

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



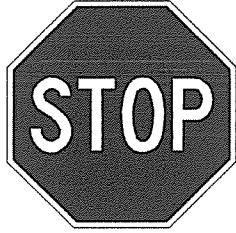
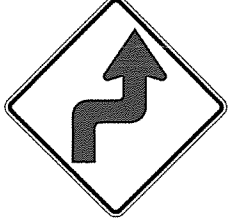
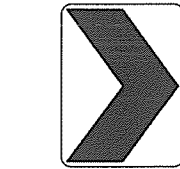



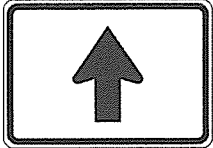
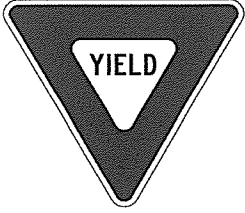
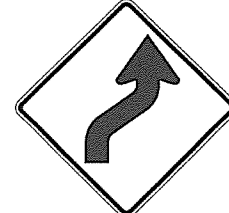
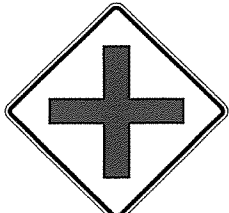

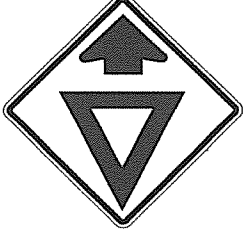

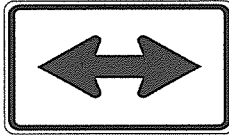
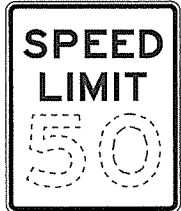
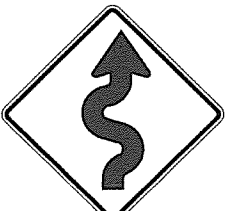
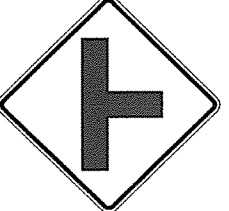



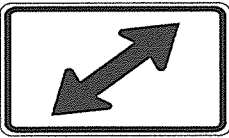
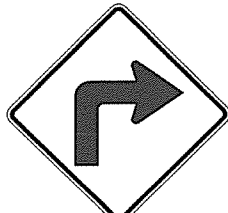
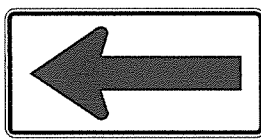
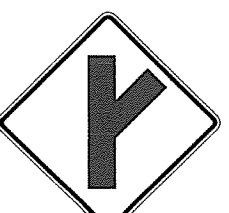

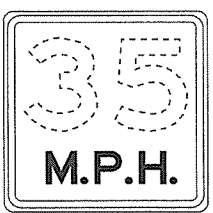
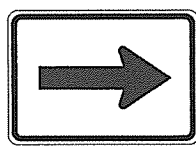
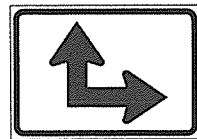
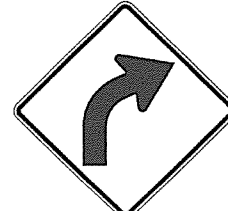
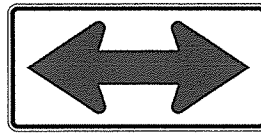
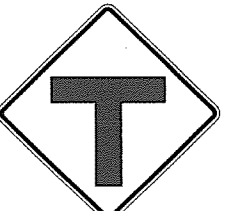
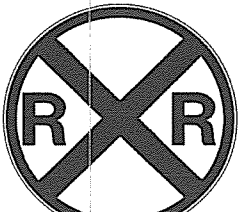
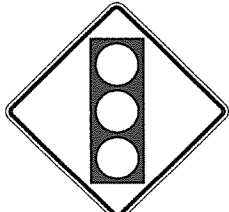

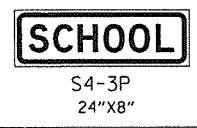

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

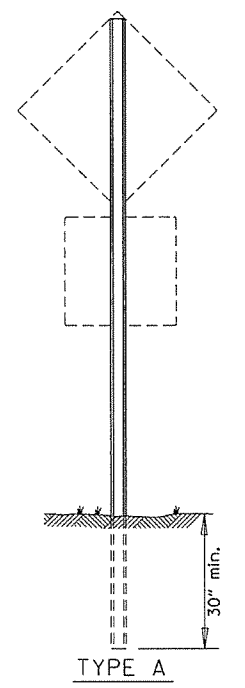
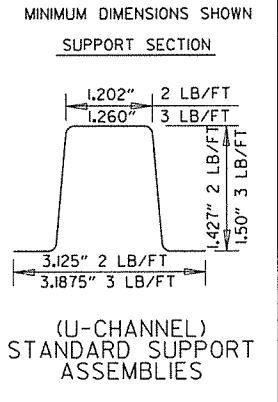
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

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

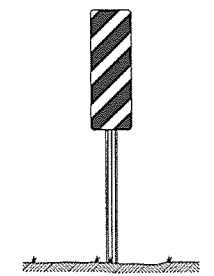
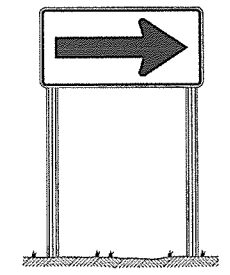
10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87
DATE	REVISION	DATE FILLED

ARKANSAS STATE HIGHWAY COMMISSION
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC
STANDARD DRAWING SE-2

 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"
 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"
 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"



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

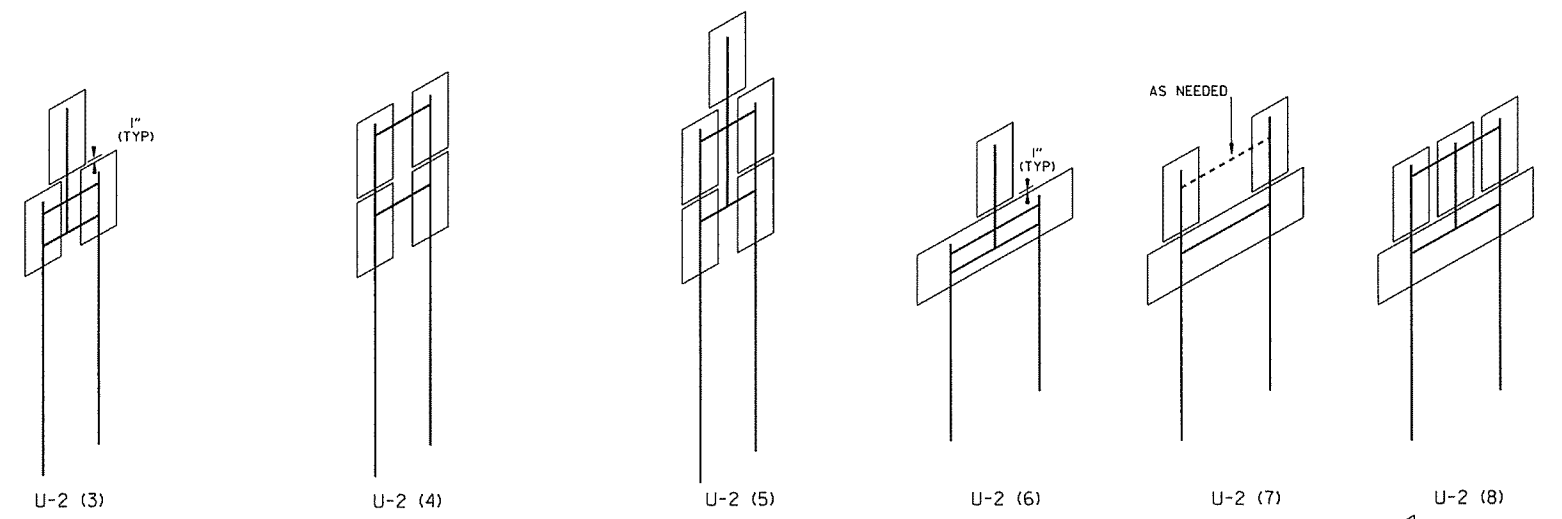
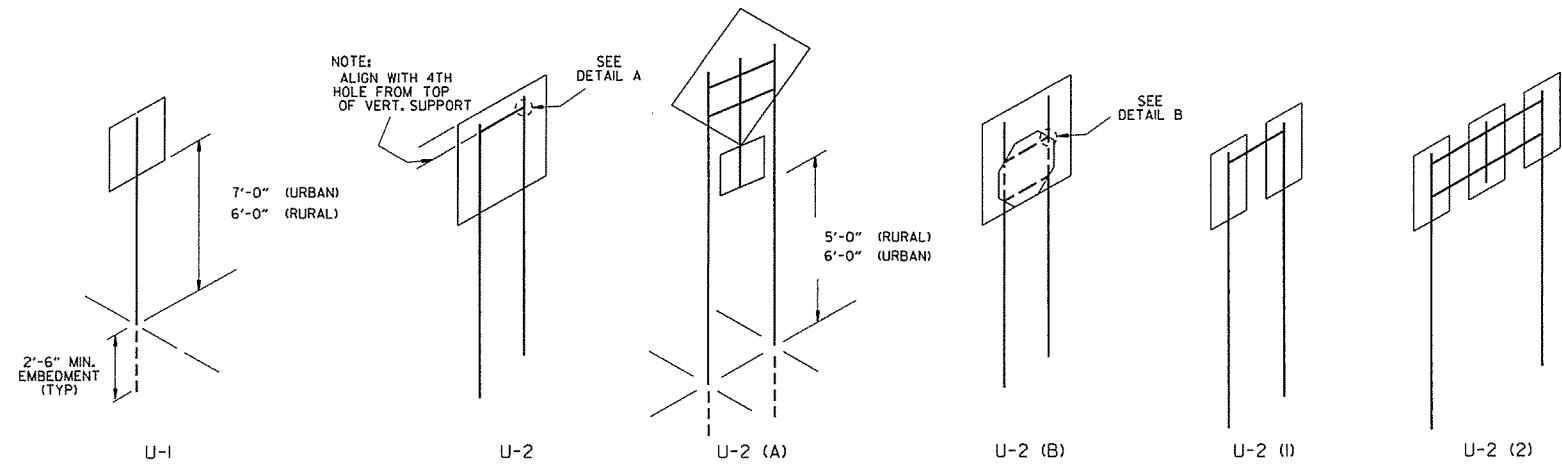


MINIMUM WEIGHT
TYPE A & B = 3 LBS./FT.
TYPE C = 2 LBS./FT.

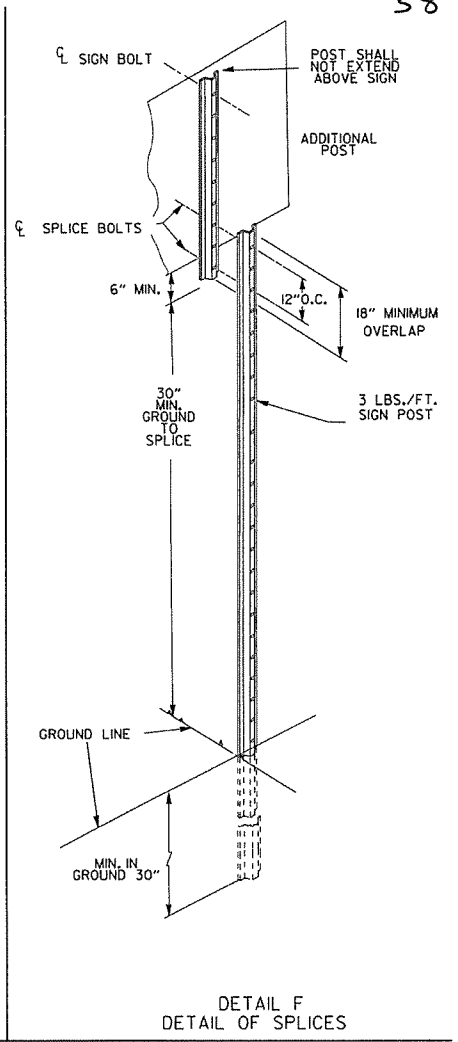
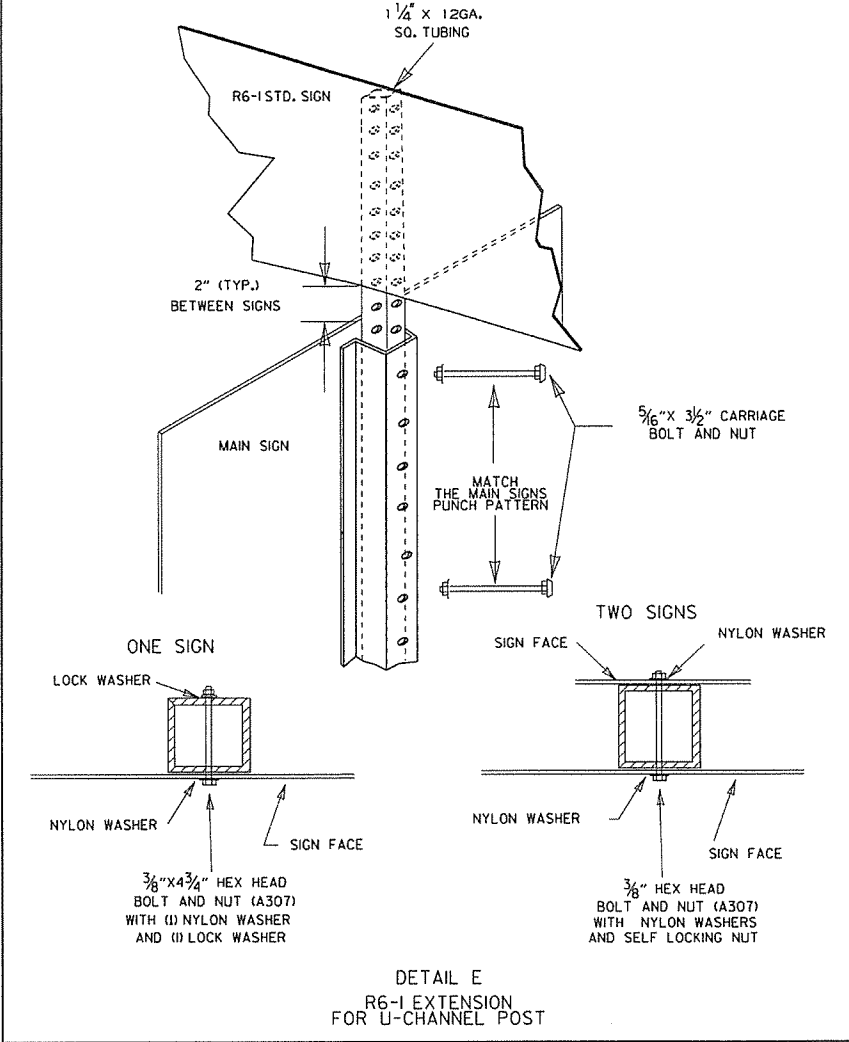
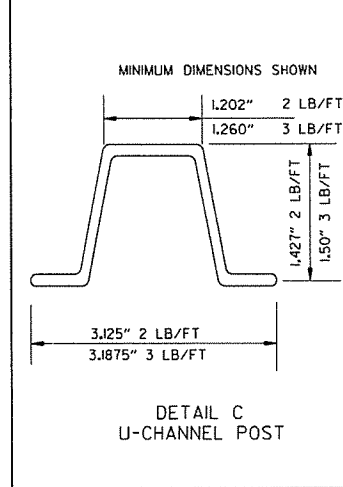
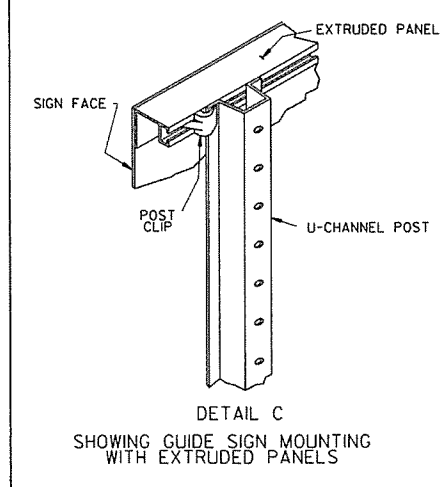
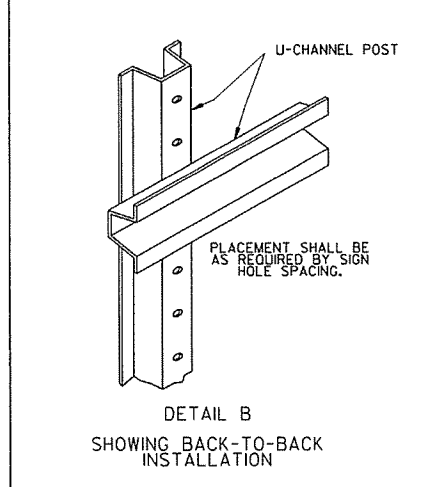
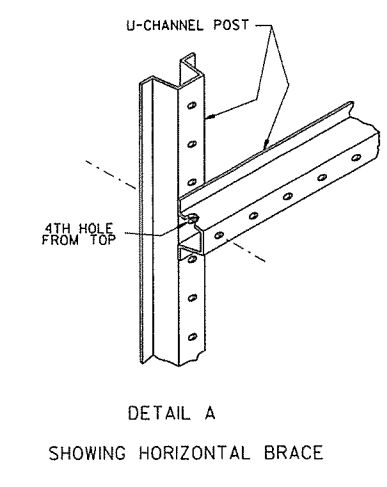
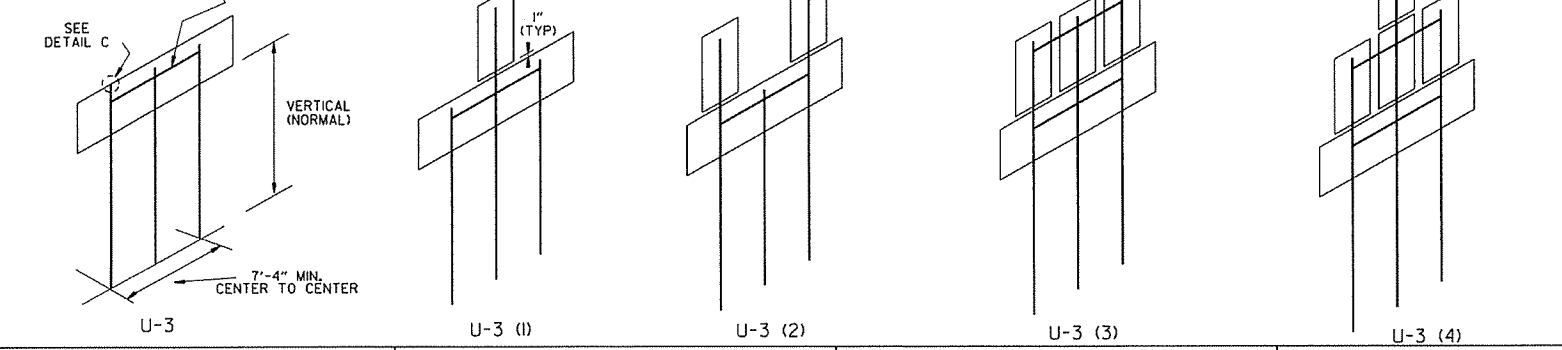
STANDARD HIGHWAY SIGNS

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
9-15-78	ADDED W14-3	877-9-15-78
9-2-76	POST WT.	623-9-3-76
5-3-76	STEEL POST WT. FROM 2" TO 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



HORIZONTAL BRACE (FOR ALL MULTIPLE POST ASSEM. WITH FLAT SHEET SIGNS)



NOTES:

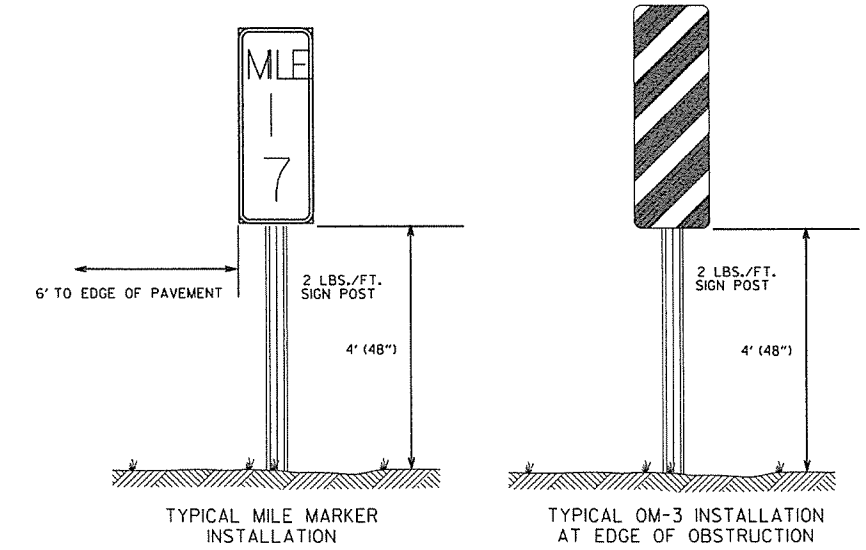
SIGNS AT LEAST 8' IN LENGTH MAY BE INSTALLED ON THREE 3 LB. POST. IN NO CASE SHALL THERE BE MORE THAN TWO 3 LB. POSTS WITHIN A 7' PATH.

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
9-12-13	REVISED U-2(3), U-2(6), U-3(I), 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	6-8-95	
2-2-95	REDRAWN	2-2-95	
DATE	REVISION	FILMED	
			STANDARD DRAWING SHS-2

ADVANCE DISTANCES (XXXX)

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


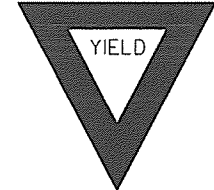
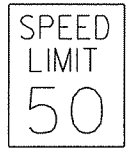
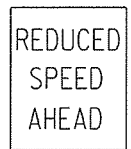



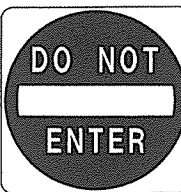

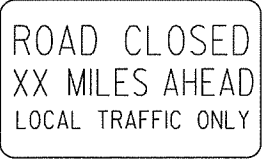
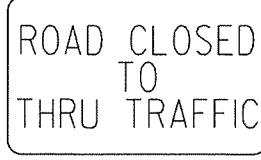

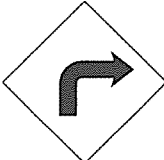
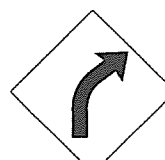
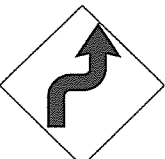
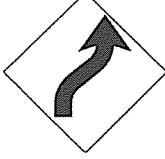
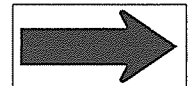
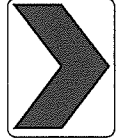
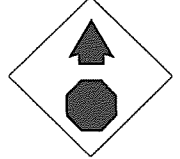
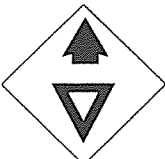
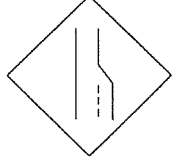

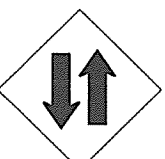

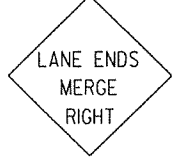





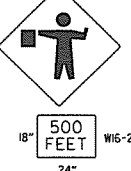


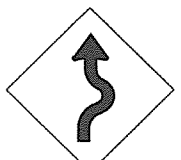


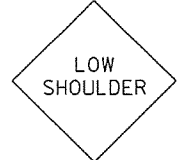
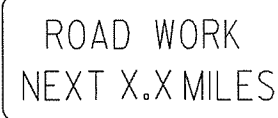
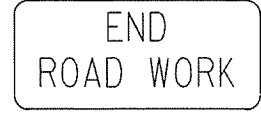
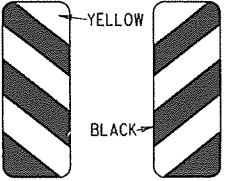
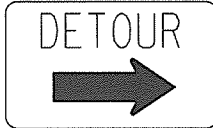


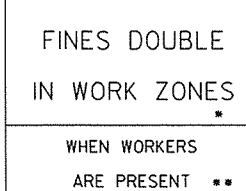
GENERAL NOTES:

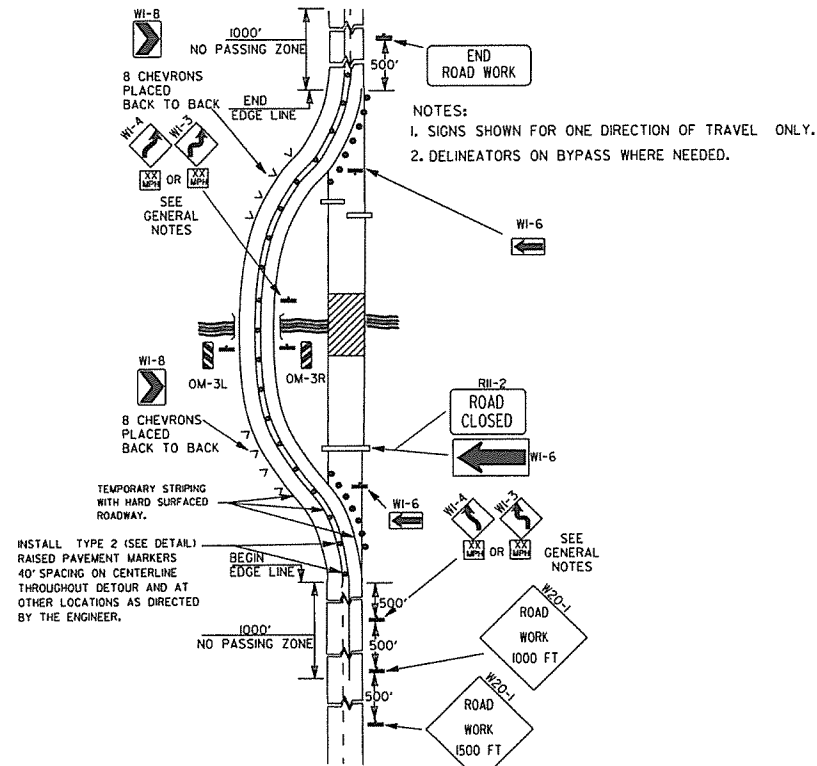
1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACTED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.

8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

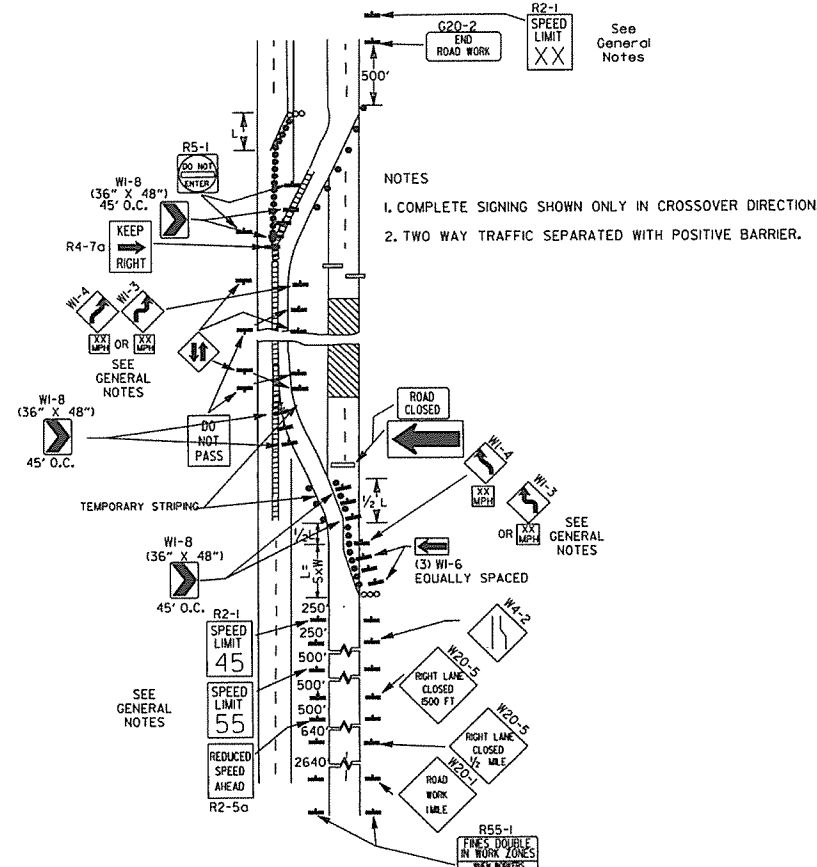
NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

DATE	REVISION	FILMED
12-15-81	REVISED W24-1	
11-17-10	DELETED W8-9c & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

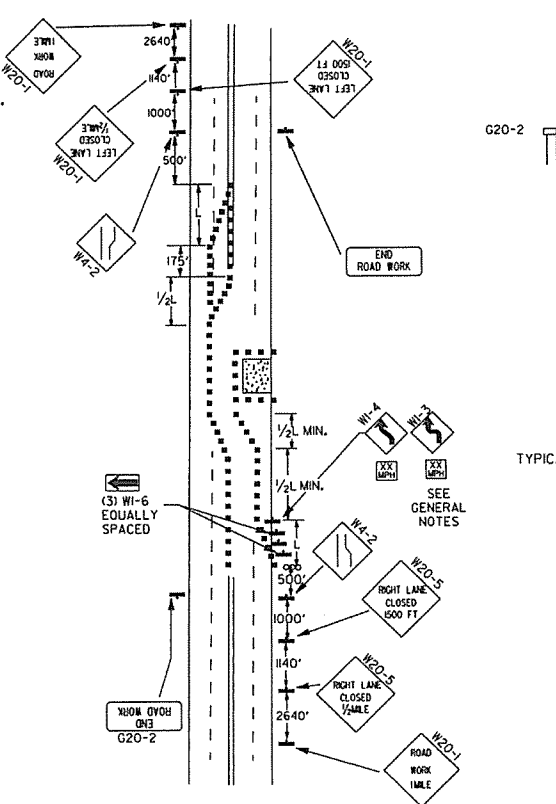
<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5A</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5C</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>
<p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>R11-2</p>  <p>48"x30"</p>	<p>R11-3A</p>  <p>60"x30"</p>	<p>R11-4</p>  <p>60"x30"</p>	<p>RSP-1</p>  <p>48"x30"</p>	<p>WI-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>WI-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>
<p>WI-3</p>  <p>STD. 48"x48"</p>	<p>WI-4</p>  <p>STD. 48"x48"</p>	<p>WI-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>WI-8</p>  <p>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</p>	<p>W3-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W3-2</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W4-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>
<p>W5-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W6-3</p>  <p>EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>W8-7</p>  <p>EXPWY. 36"x36" FWY. 48"x48"</p>	<p>W9-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W13-1</p>  <p>STD. 24"x24"</p>	<p>W20-1</p>  <p>STD. 48"x48"</p>	<p>W20-2</p>  <p>STD. 48"x48"</p>
<p>W20-4</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>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>R56-1</p>  <p>STD. 18"x18"</p>
						<p>R55-1</p>  <p>36"x60"</p> <p>WHEN WORKERS ARE PRESENT **</p> <p>* USE 6" C LETTERS ** USE 4" D LETTERS</p>



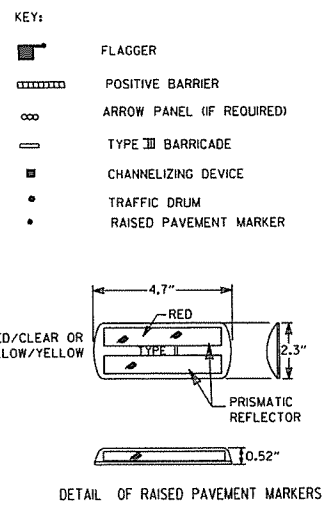
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



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



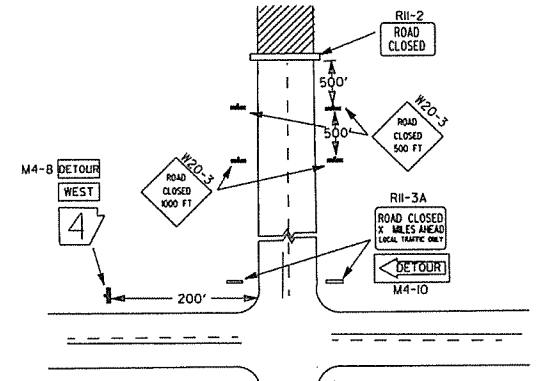
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



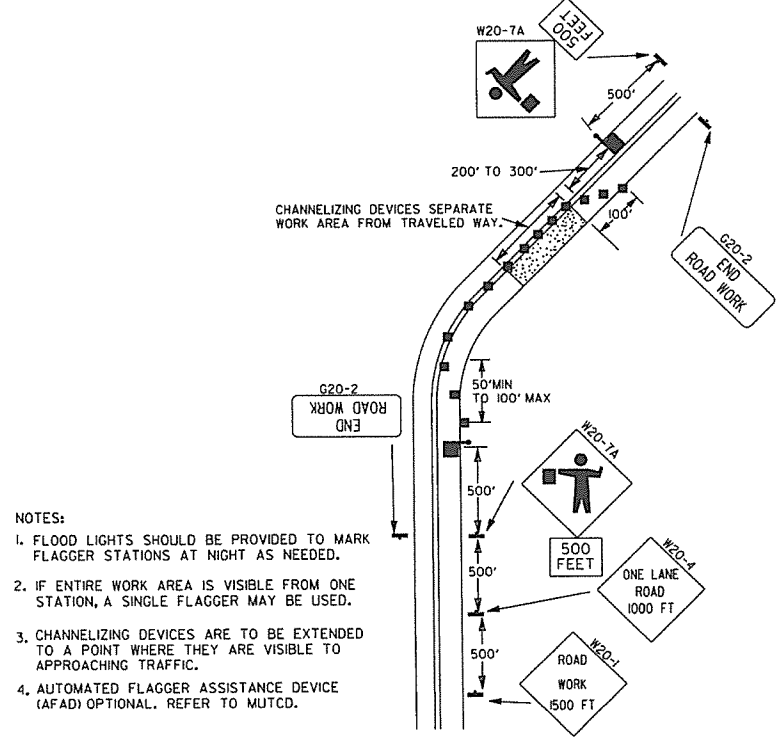
TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:
L=SW 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.

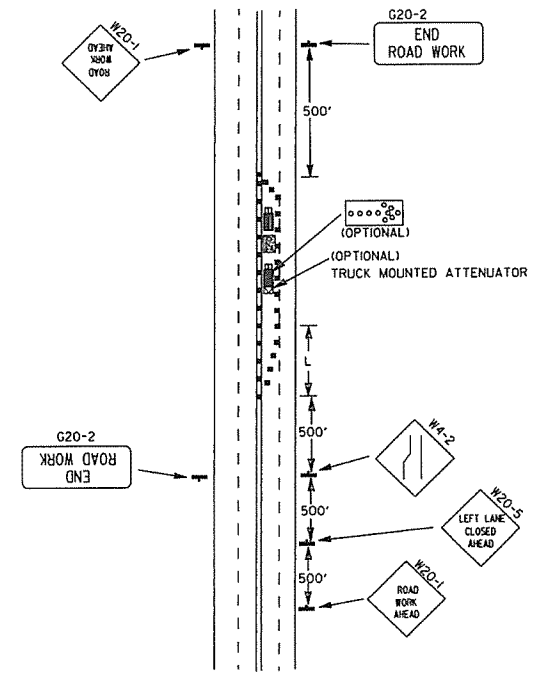
- GENERAL NOTES:
- ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
 - WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-(H55) SHALL BE OMITTED AND THE R2-5A SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(HXX) 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-(H45) 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-(HXX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 - THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
 - WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
 - PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
 - TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.



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



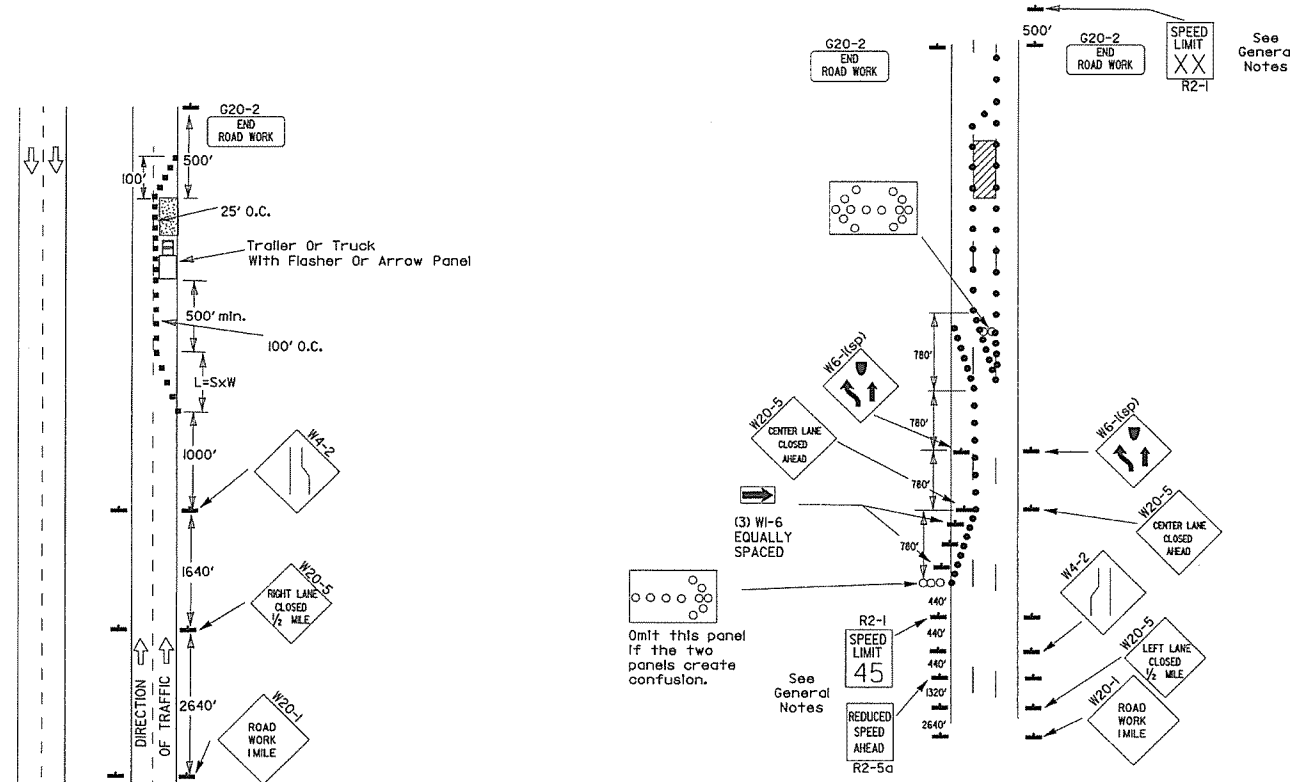
(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



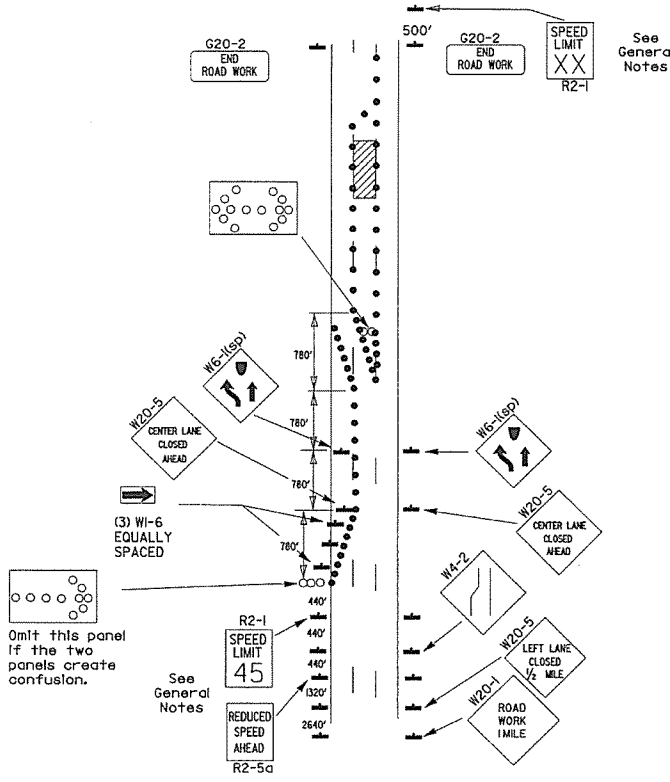
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILED
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (G) 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	

Channelizing devices

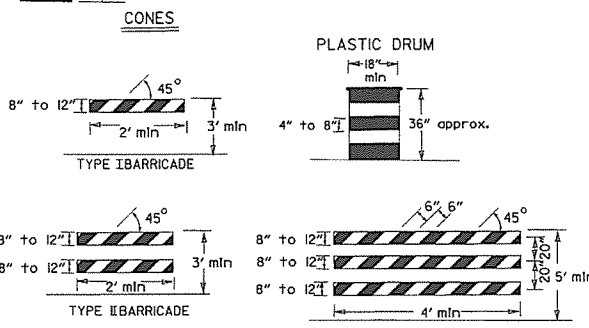


(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.

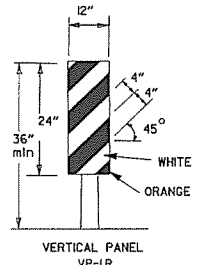


(B) Typical application - 3-lane oneway roadway where center lane is closed.

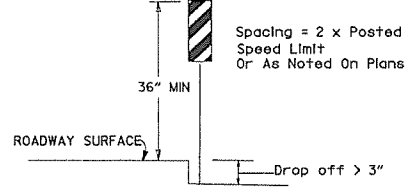
When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be reflectorized in accordance with the M.U.T.C.D.



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



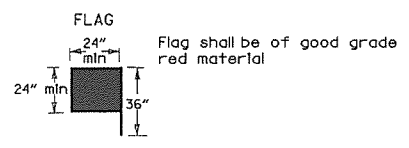
VERTICAL PANEL PLACEMENT



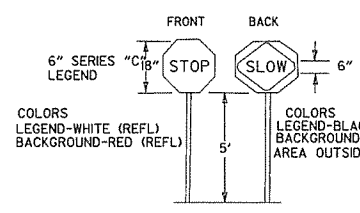
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

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

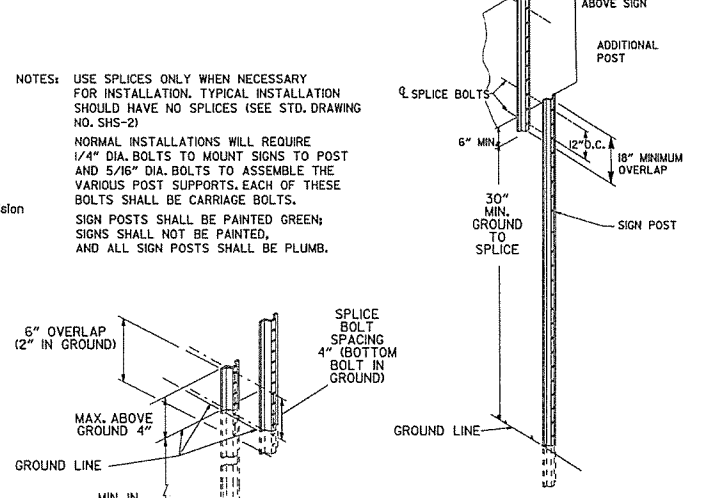
When shown on the plans concrete barrier will be used. When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.



STOP SLOW PADDLE



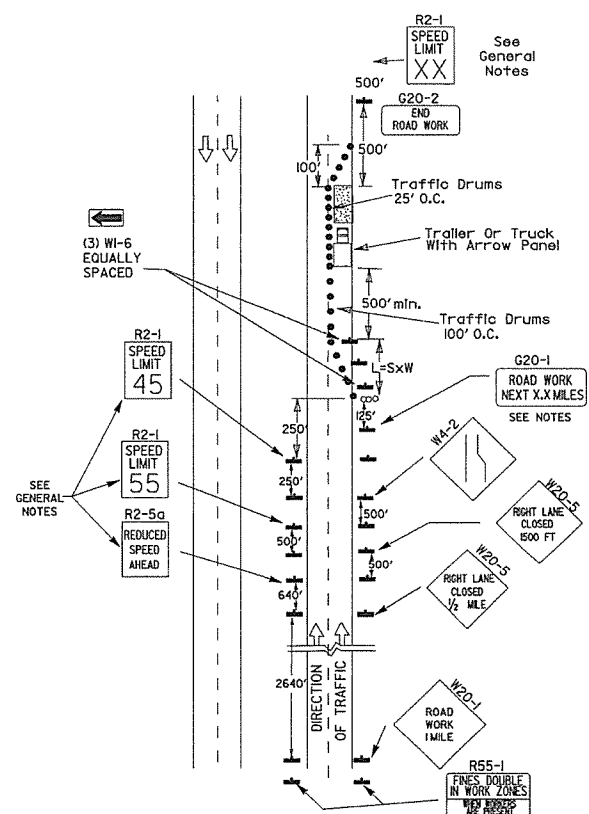
DETAIL OF SPLICES



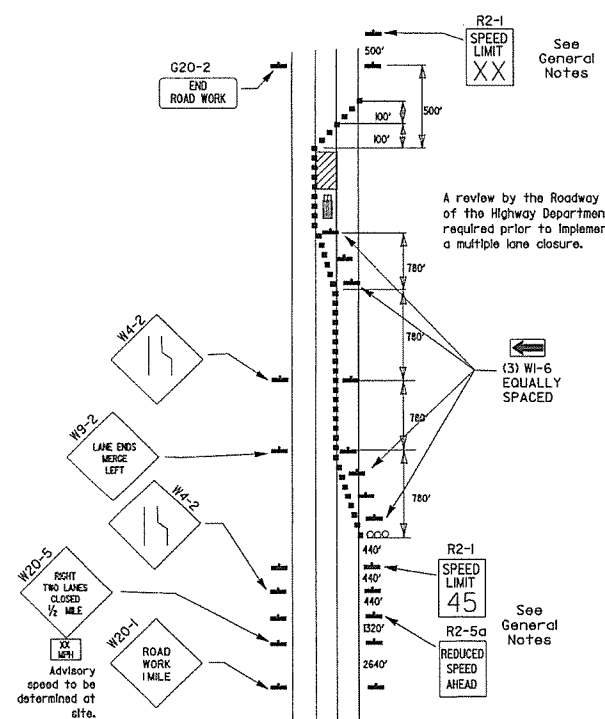
- KEY:
- Arrow Panel (if Required)
 - Channelizing Device
 - Traffic drum

GENERAL NOTES:

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

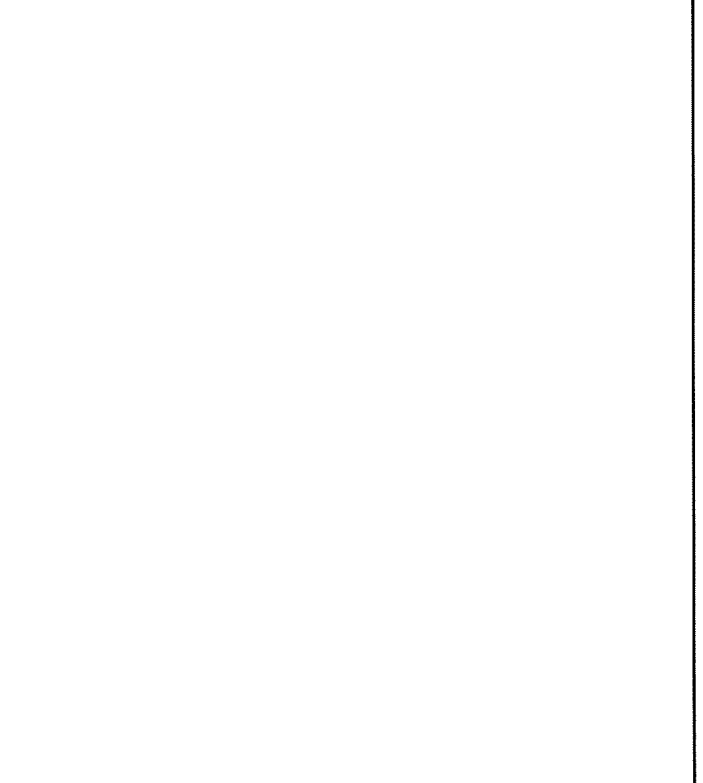
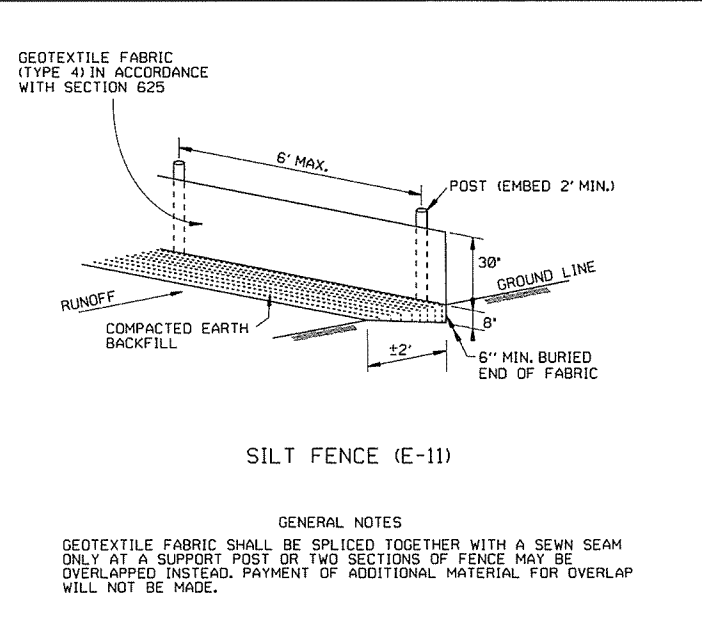
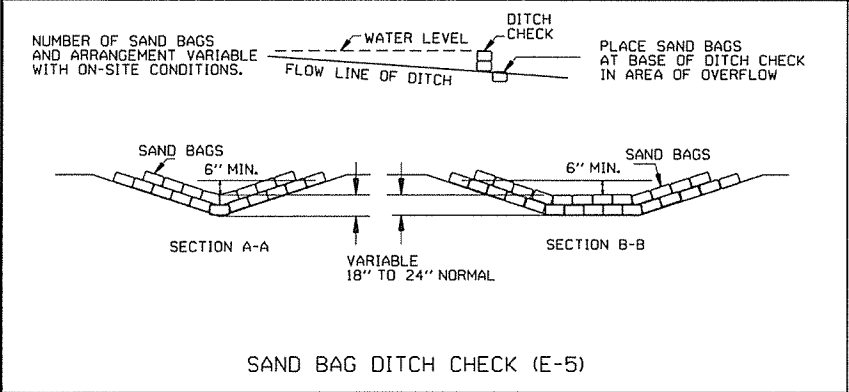
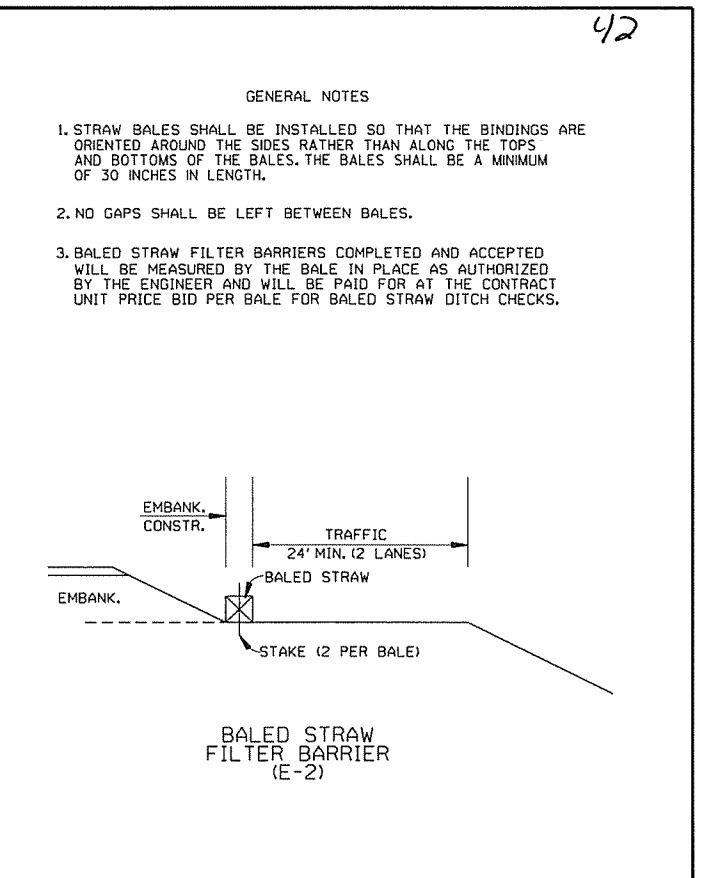
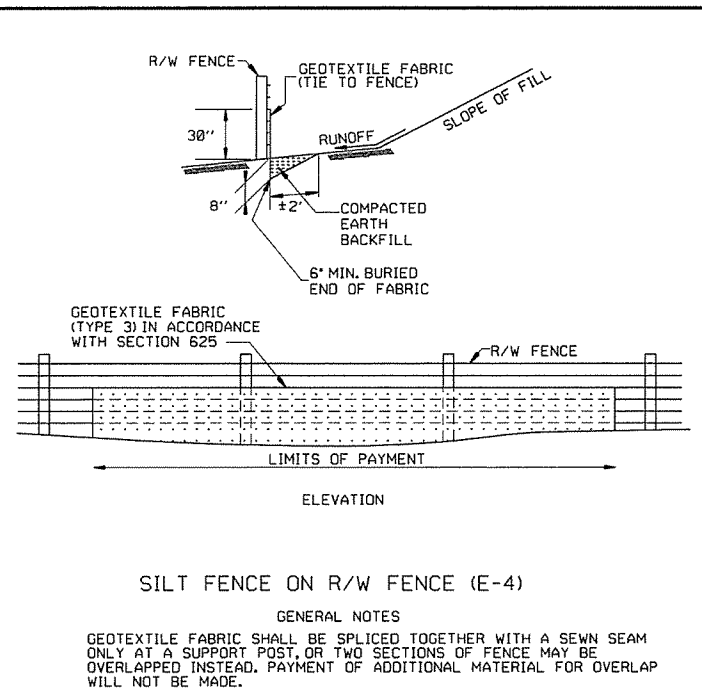
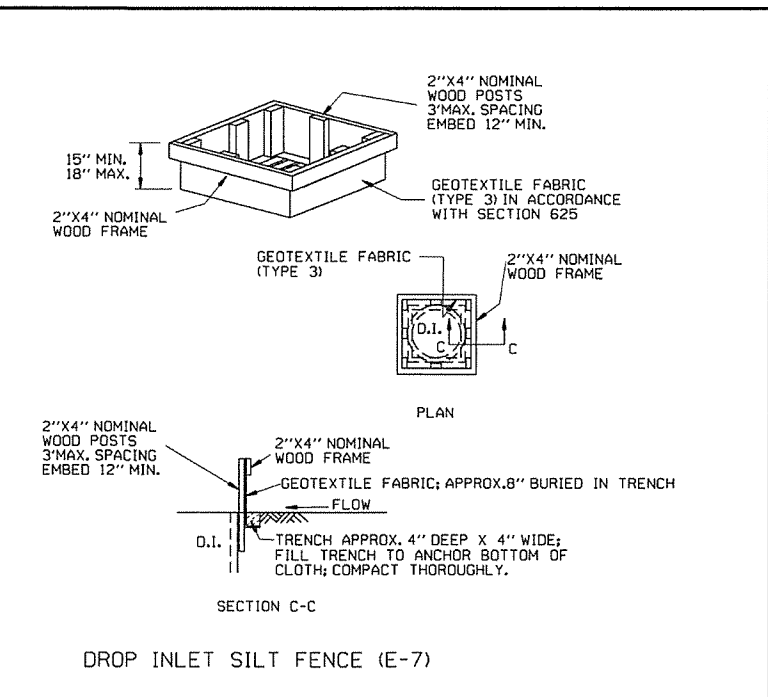
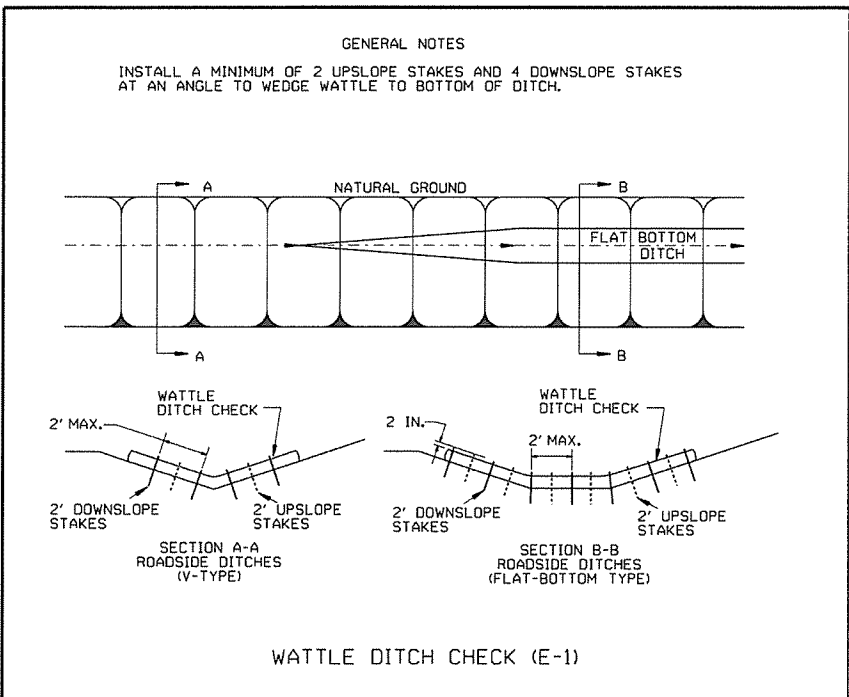


(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.



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

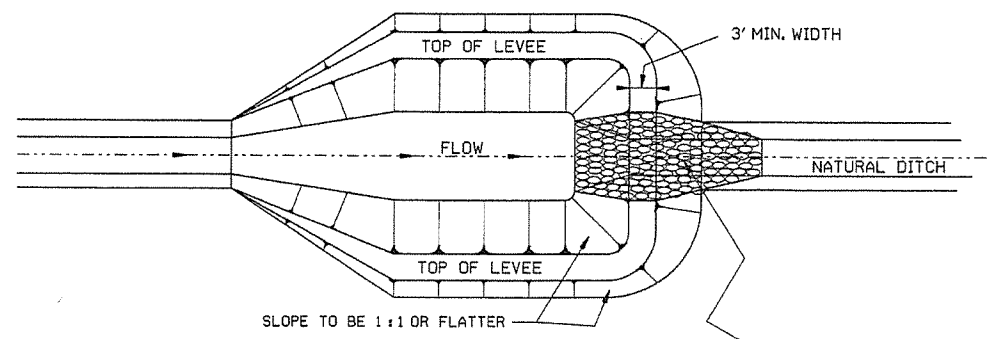
DATE	REVISION	FILED
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED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



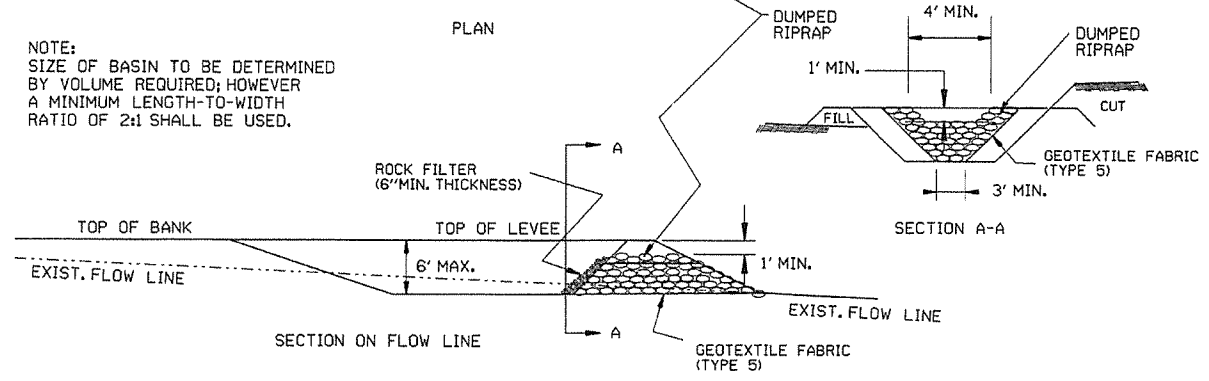
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK		ARKANSAS STATE HIGHWAY COMMISSION
11-18-98	ADDED NOTES		
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)		
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95	
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC		
6-2-94	REVISED E-1, 4, 7 & 11; DELETED E-2 & 3	6-2-94	
4-1-93	REDRAWN		
10-1-92	REDRAWN		
8-2-76	ISSUED R.D.M.	298-7-28-76	
DATE	REVISION	FILMED	

TEMPORARY EROSION CONTROL DEVICES

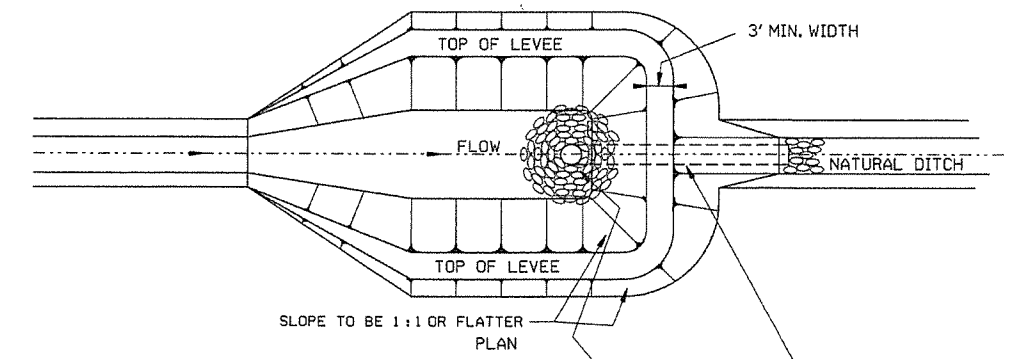
STANDARD DRAWING TEC-1



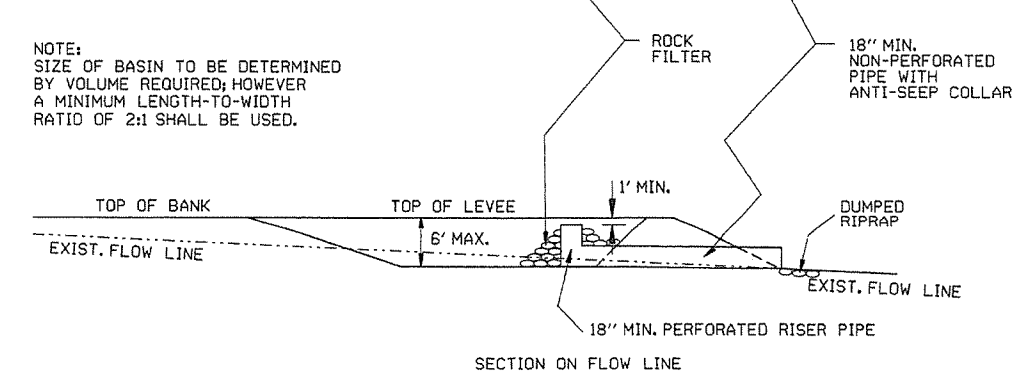
NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.



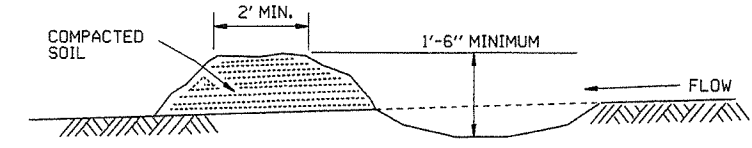
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



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

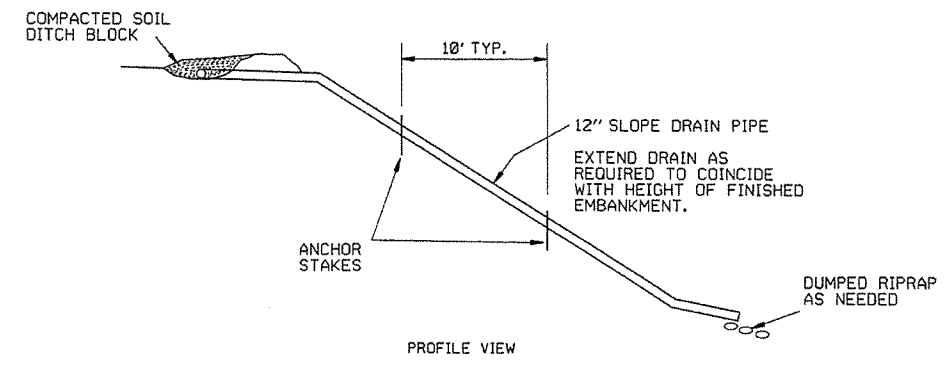
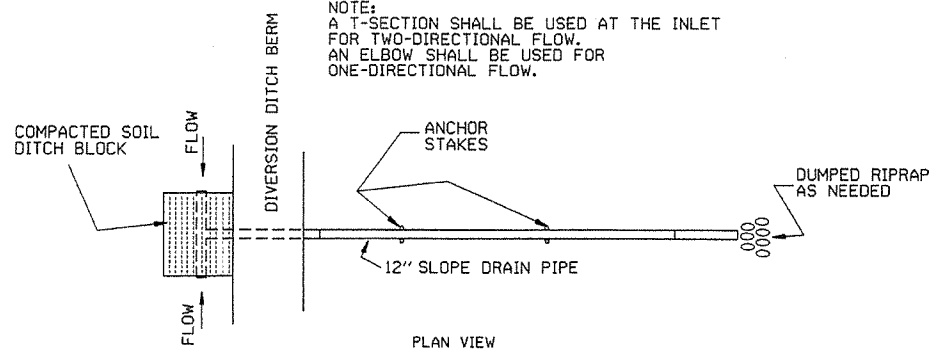


SEDIMENT BASIN WITH PIPE OUTLET (E-10)

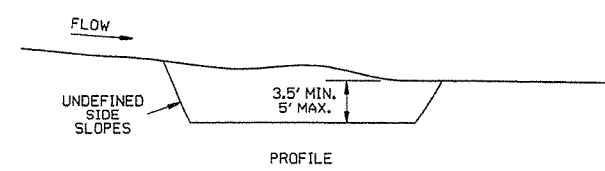
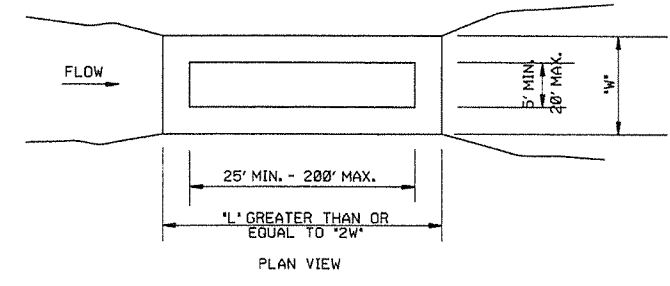


DIVERSION DITCH (E-8)

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



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

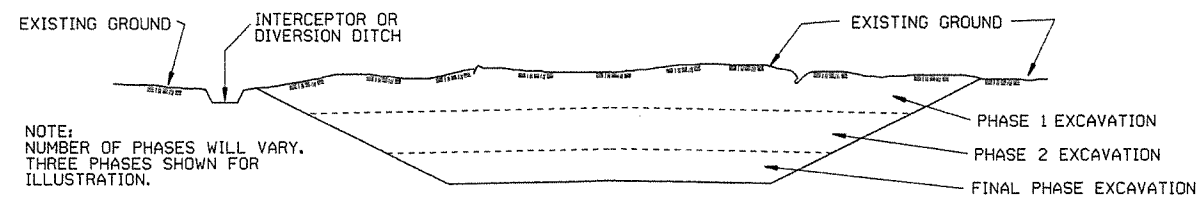
ARKANSAS STATE HIGHWAY COMMISSION
 TEMPORARY EROSION
 CONTROL DEVICES
 STANDARD DRAWING TEC-2

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.

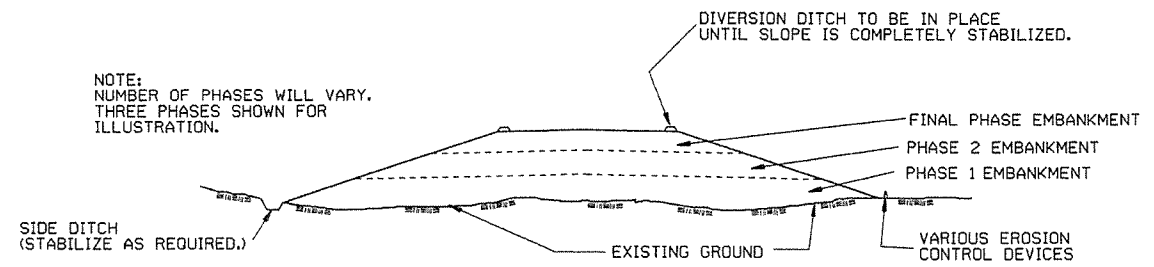
GENERAL NOTE

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

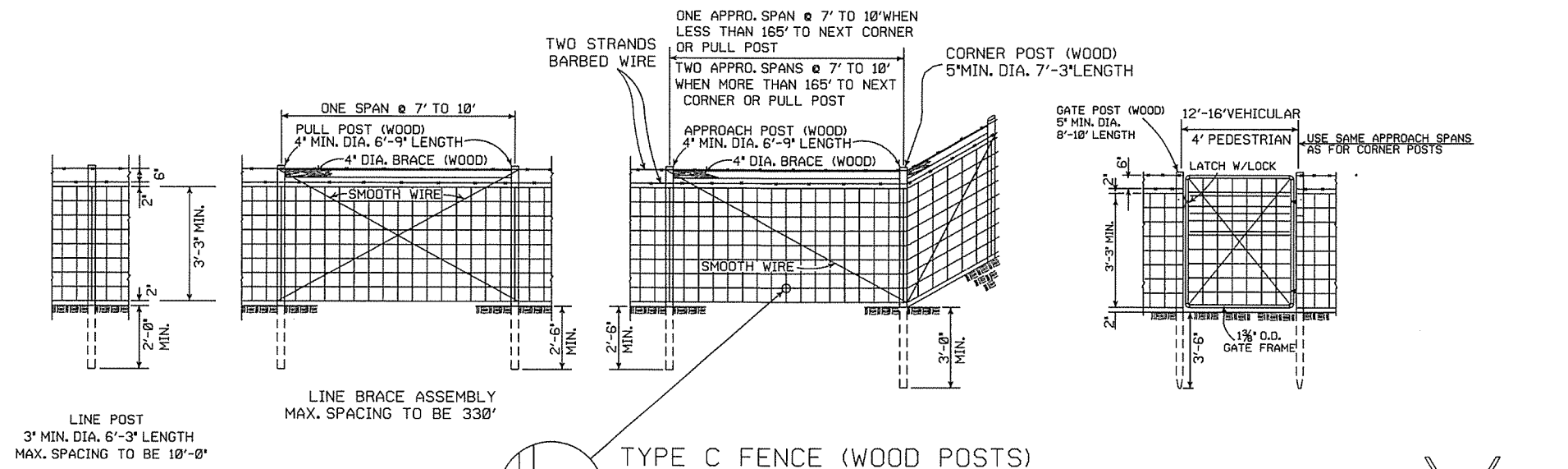
ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

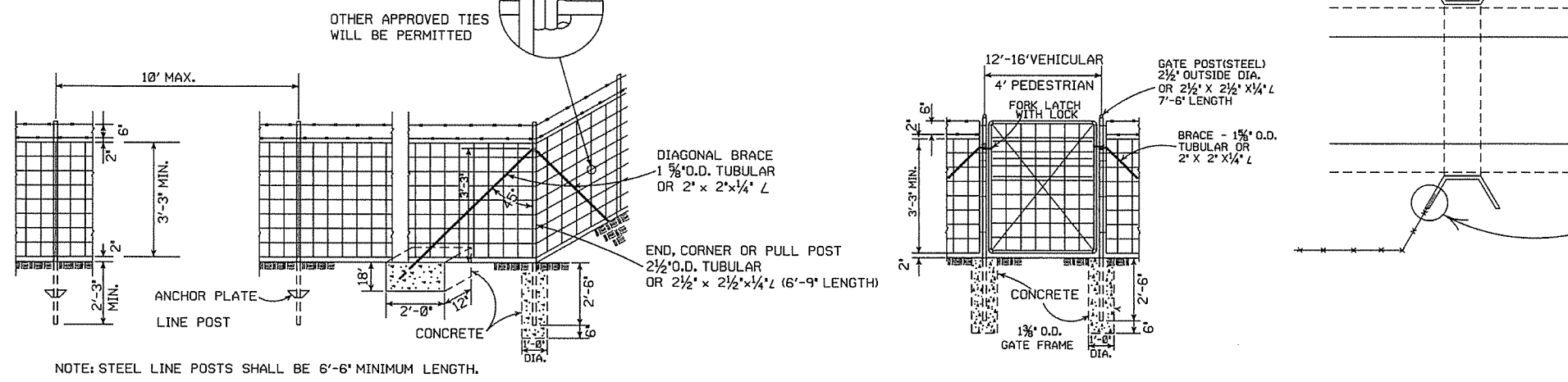
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD 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.

44

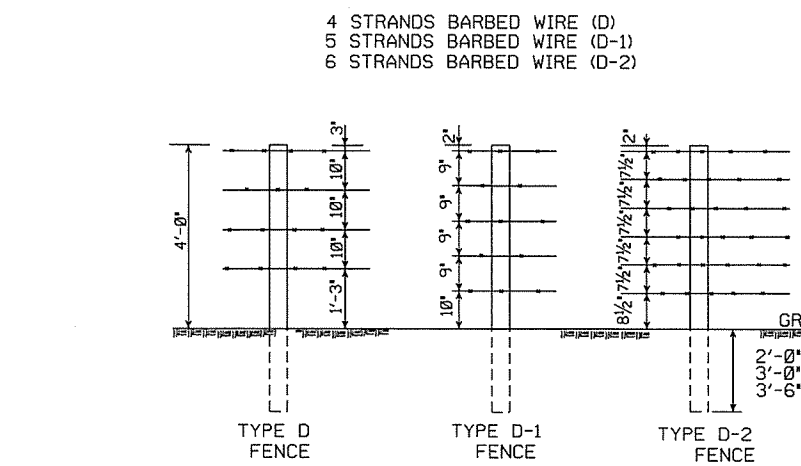
		ARKANSAS STATE HIGHWAY COMMISSION	
		TEMPORARY EROSION CONTROL DEVICES	
		STANDARD DRAWING TEC-3	
11-23-94	CORRECTED SPELLING		
6-2-94	Drawn & Issued	6-2-94	FILMED
DATE	REVISION		



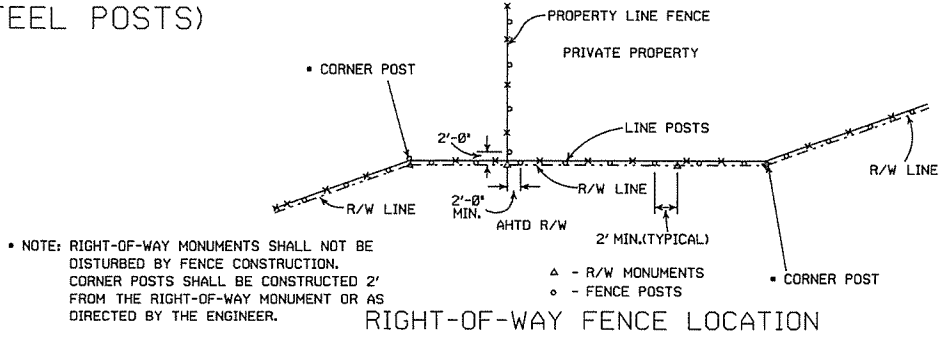
TYPE C FENCE (WOOD POSTS)



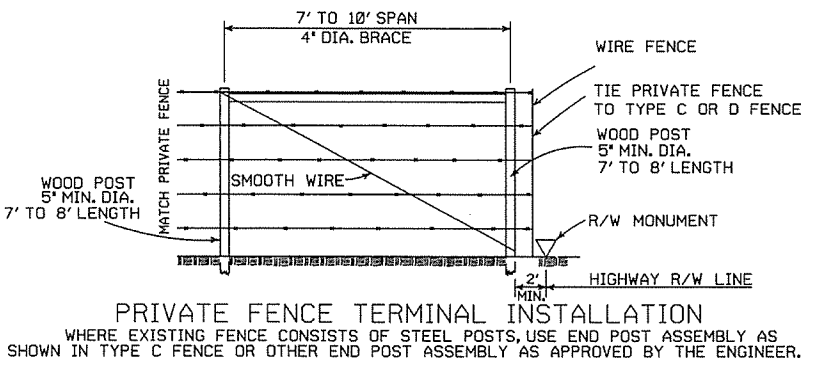
TYPE C FENCE (STEEL POSTS)



NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



RIGHT-OF-WAY FENCE LOCATION



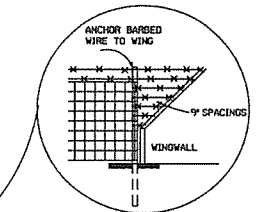
GENERAL NOTES:
STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED. TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE.
AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS SHALL BE -1" TO +2".
TUBULAR POSTS MUST BE PAINTED OR GALVANIZED.

THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF TIMBER LINE POSTS OF 7 FOOT LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING 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 OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON 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 THE 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 BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

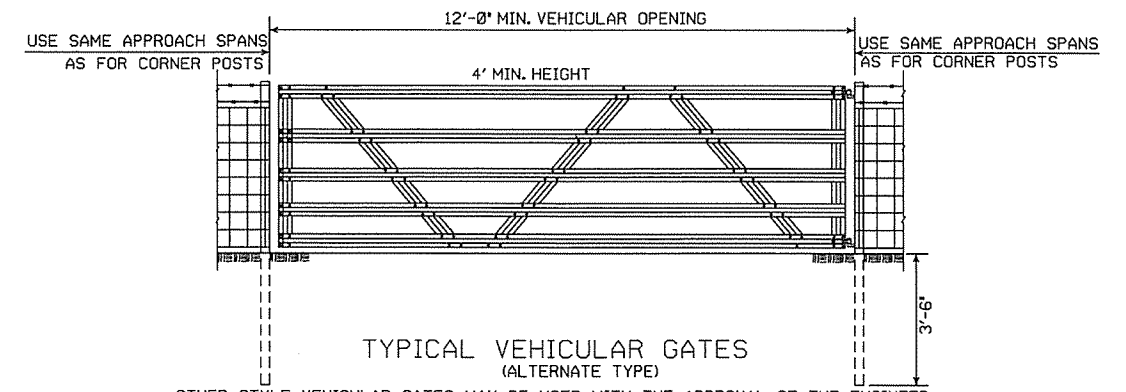
NOTE: USE 3/8" x 1 1/2" LAG BOLT & SHIELD OR AS APPROVED BY THE ENGINEER.



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 WIRES A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

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.

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



OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER. THE METHOD OF SECURING GATE (LATCH AND/OR LOCK) SHALL MEET THE APPROVAL OF THE ENGINEER.

DATE	REVISION	FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
7-15-88	ADDED SPLICE NOTE	700-7-15-88
10-30-87	GENERAL REVISIONS	549-10-30-87
11-1-84	MAX. POST SPACING MIN. WIRE GAUGE	507-11-1-84
1-4-83	MIN. DIA. LINE POST	648-1-4-83
3-2-81	TOLERANCE FOR POST LENGTH	722-3-2-81
12-1-72	ADDED D-1 & FENCE INSTALLATION	564-12-1-72
10-2-72	REVISED AND REDRAWN	540-10-2-72

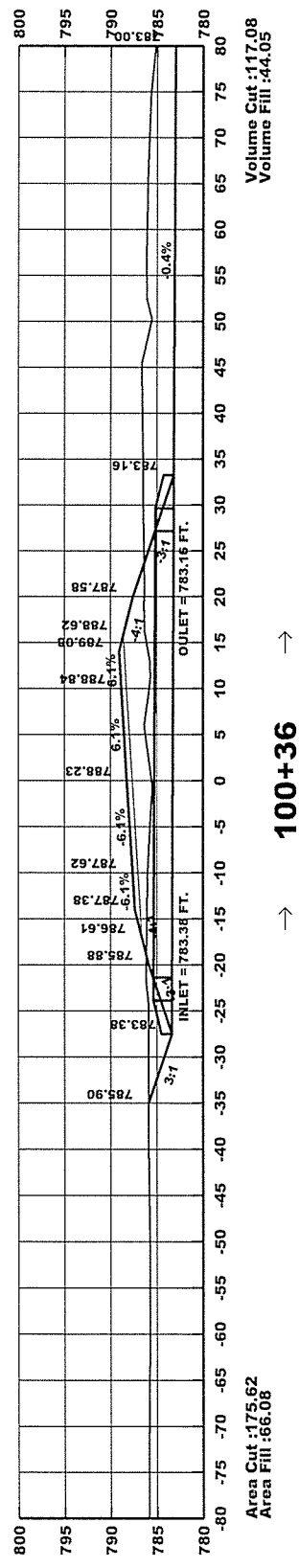
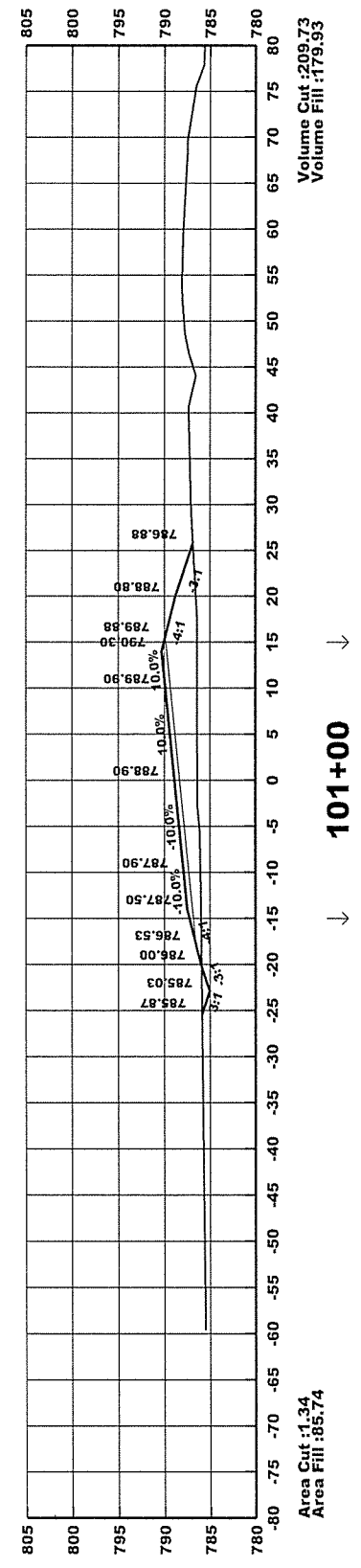
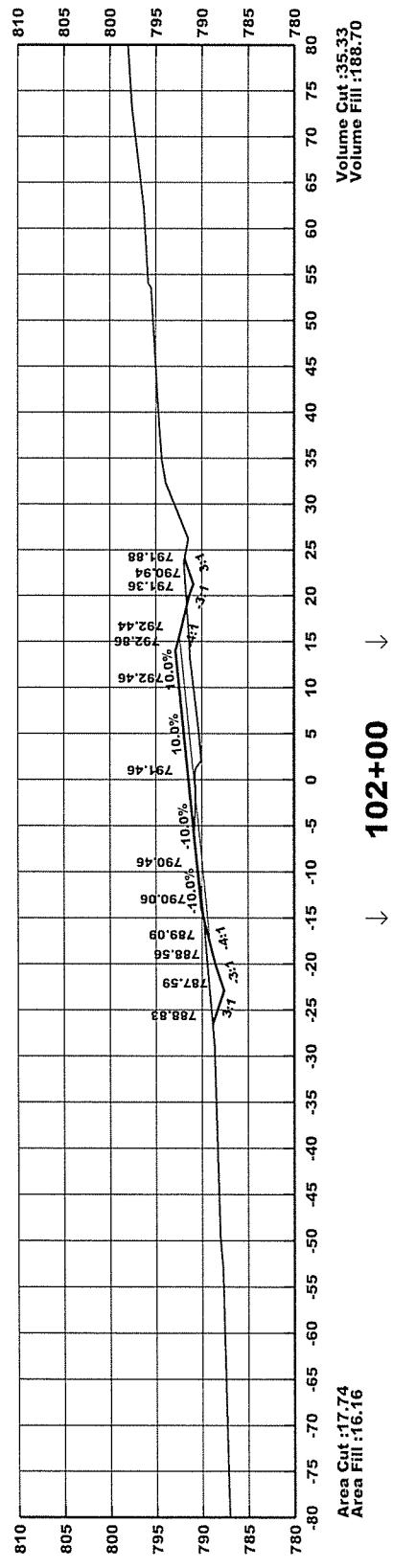
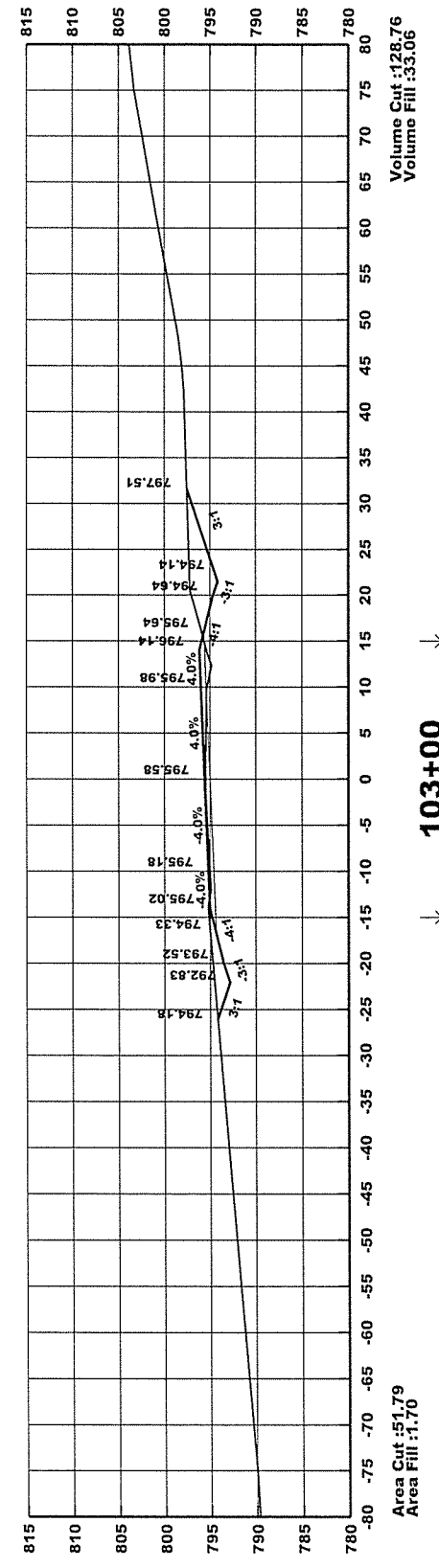
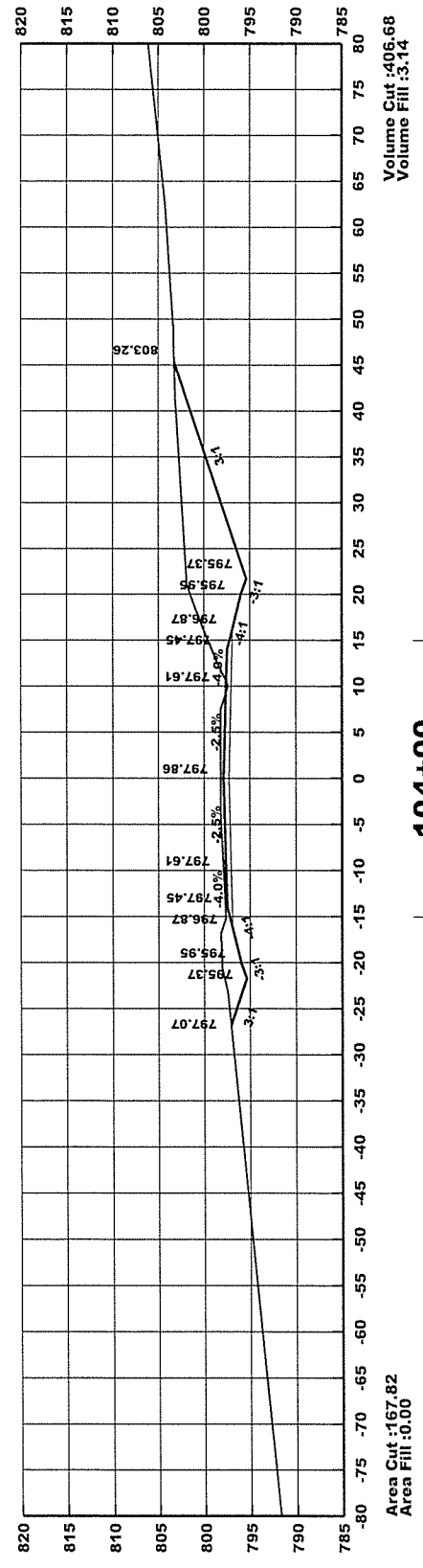
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE C AND D

STANDARD DRAWING WF-4

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313	46	66	

4 CROSS SECTIONS

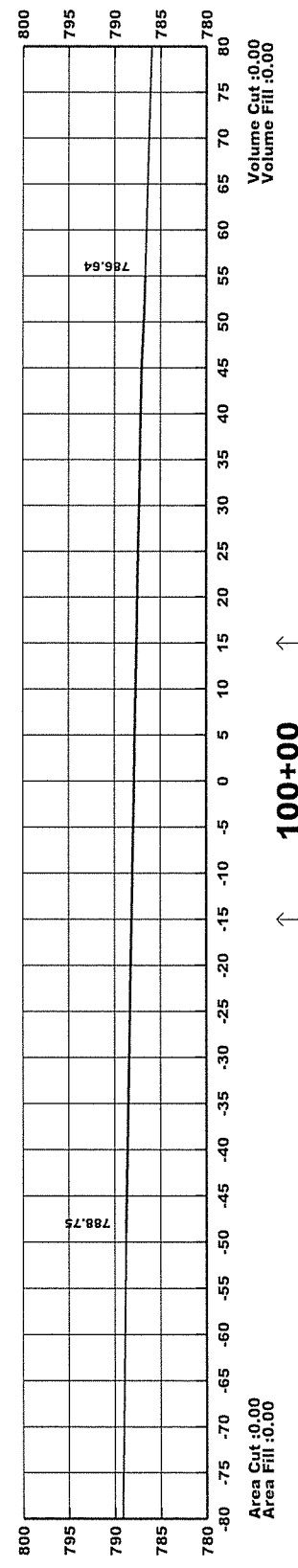


**CONSTRUCT
24" PIPE CULVERT
CROSS DRAIN**

24" RCP (CL. III)(TYPE 3 BEDDING) = 50 LIN. FT.

24" CMP OR PLASTIC (TYPE 2 BEDDING) = 54 LIN. FT.

24 FES ON LT. AND RT. = 2 EACH

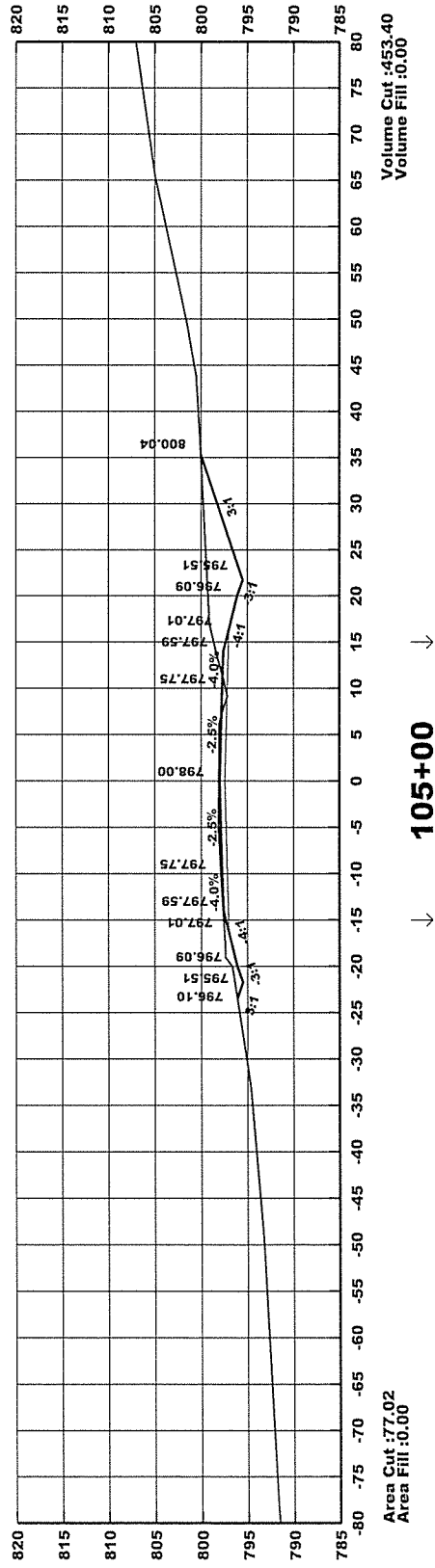
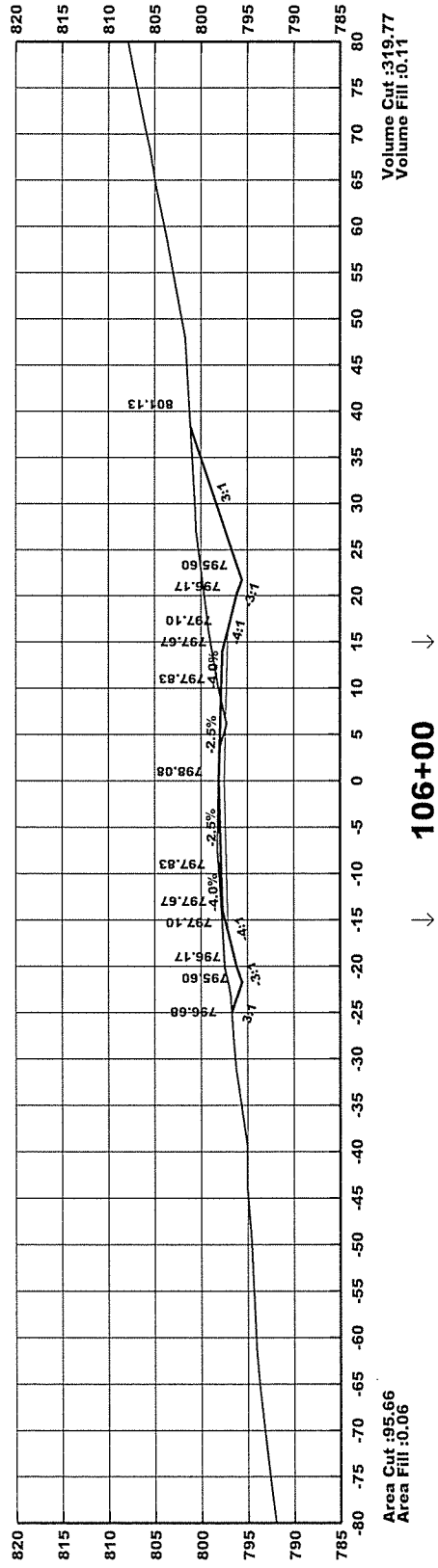
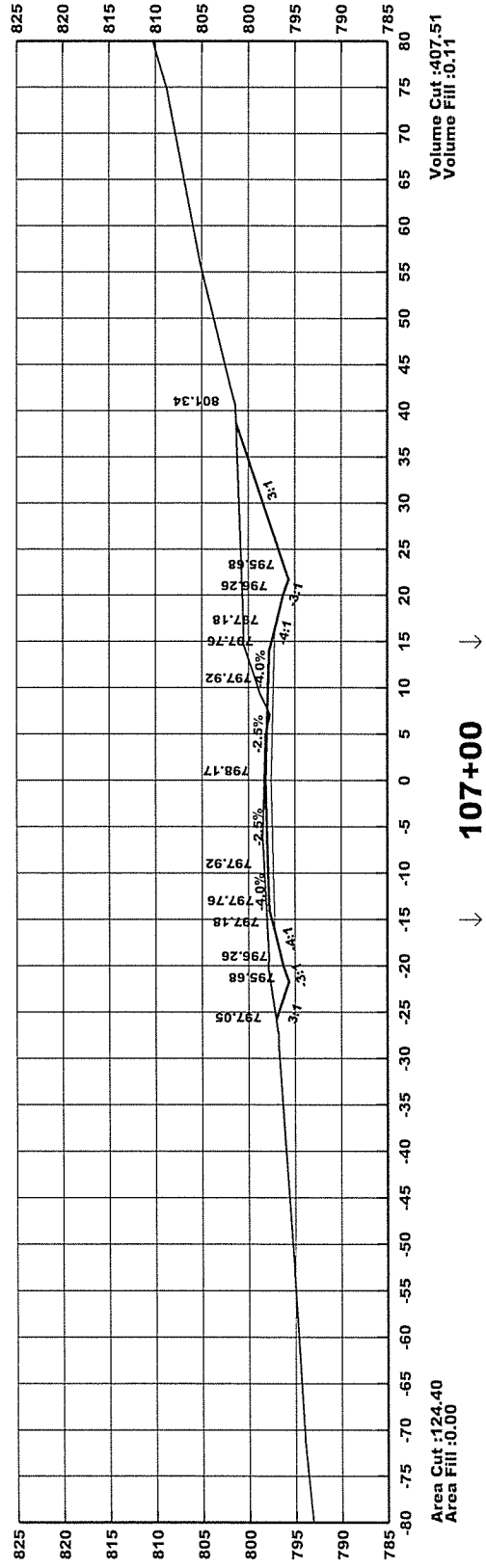
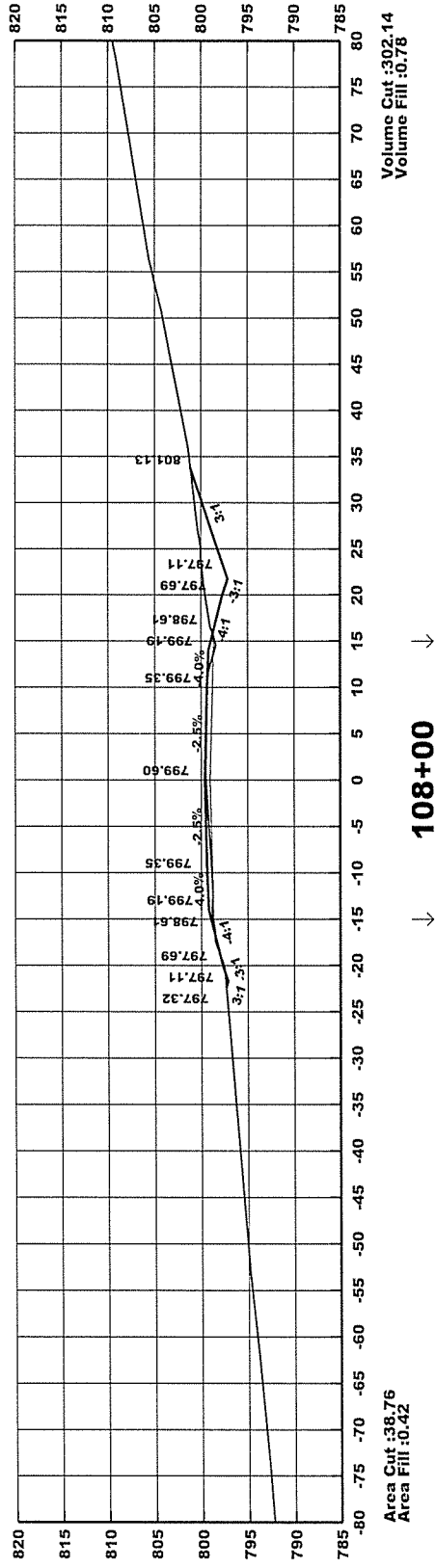
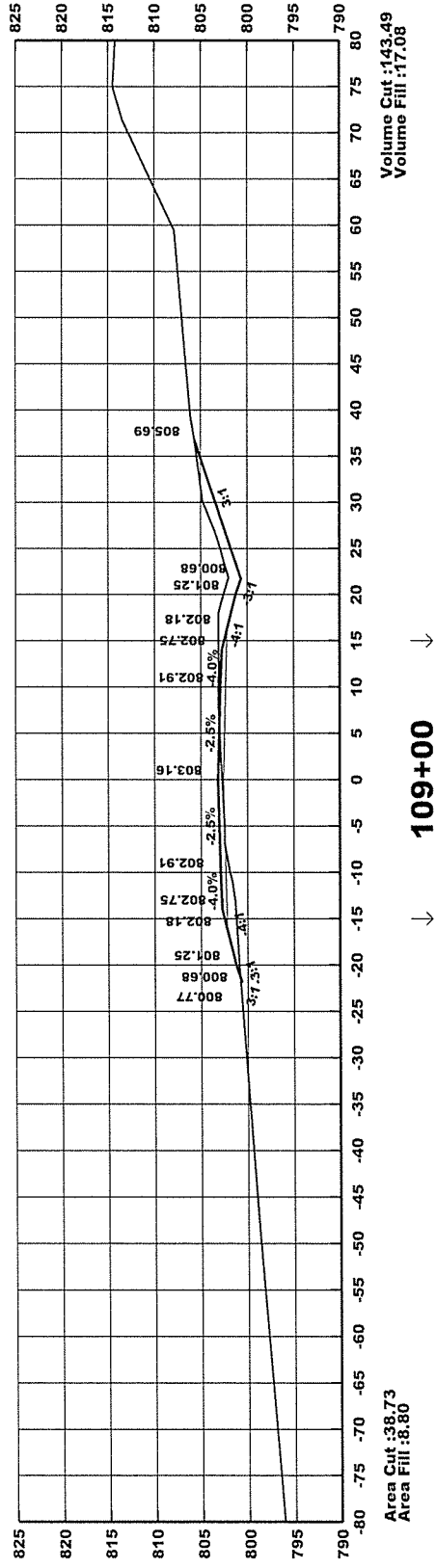
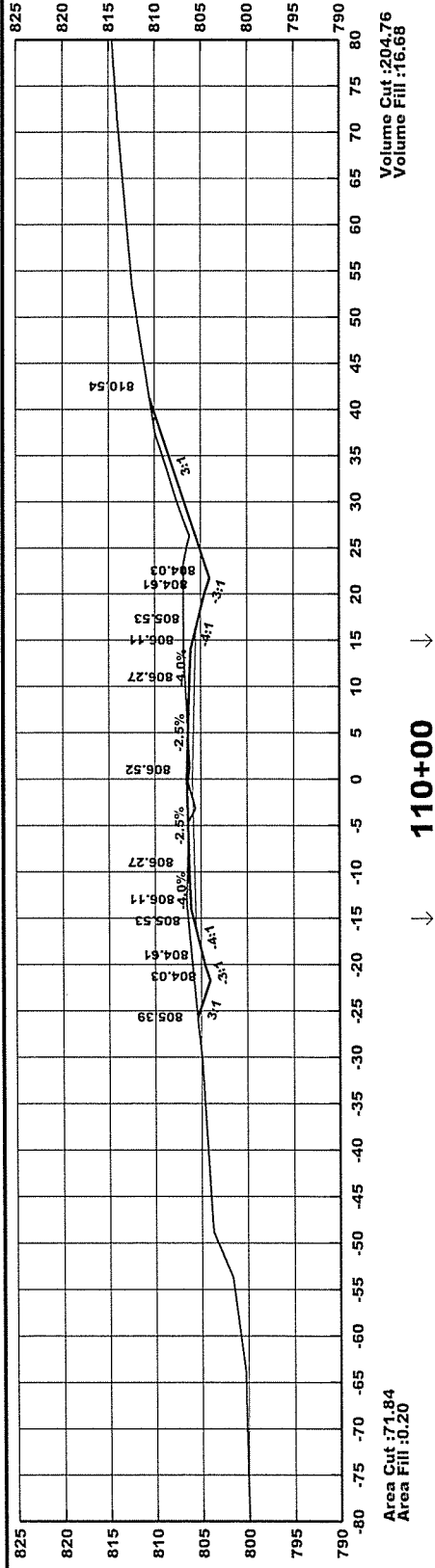


BEGIN JOB FA0313

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				6	ARK.			
				JOB NO.	FA0313		47	66

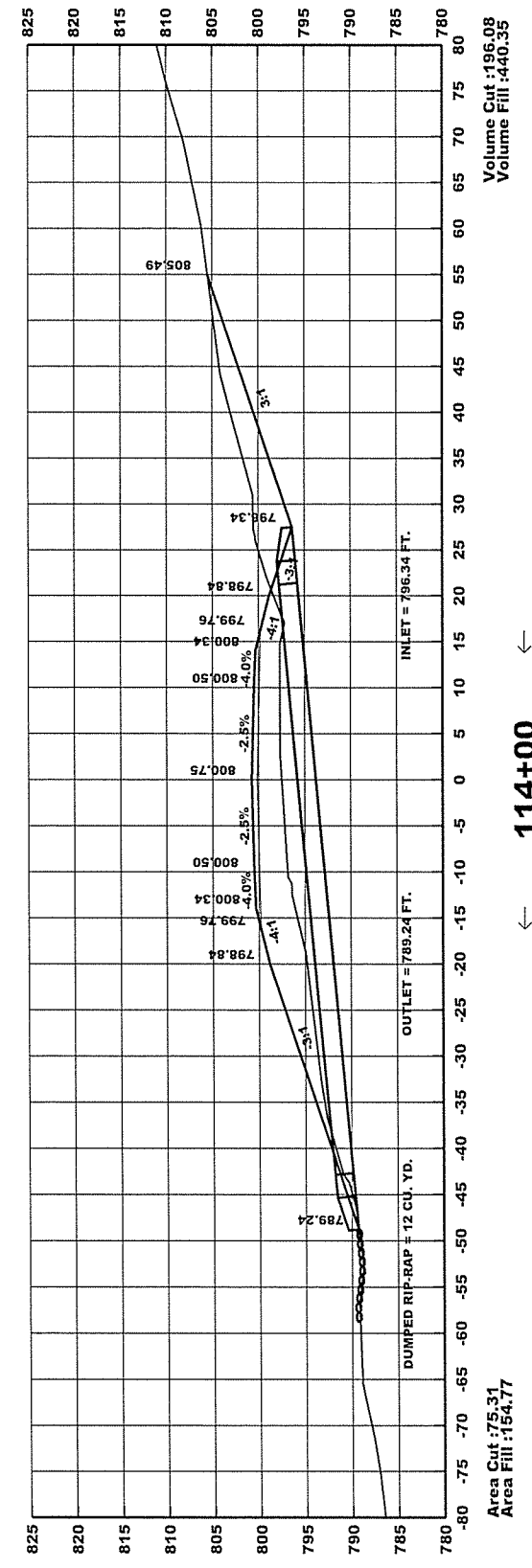
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CROSS SECTIONS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313	48	66	

4 CROSS SECTIONS



114+00

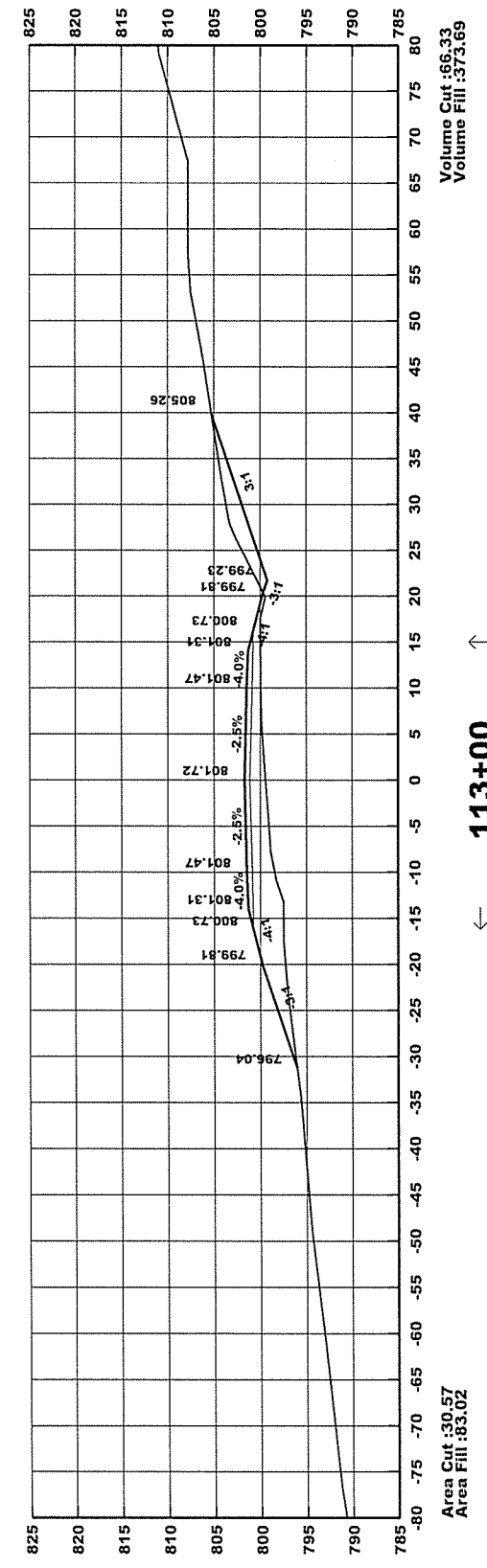
**CONSTRUCT
DOUBLE 24" PIPE CULVERT
CROSS DRAIN**

D.A. = 12.7 AC. Q25 = 28.4 CFS

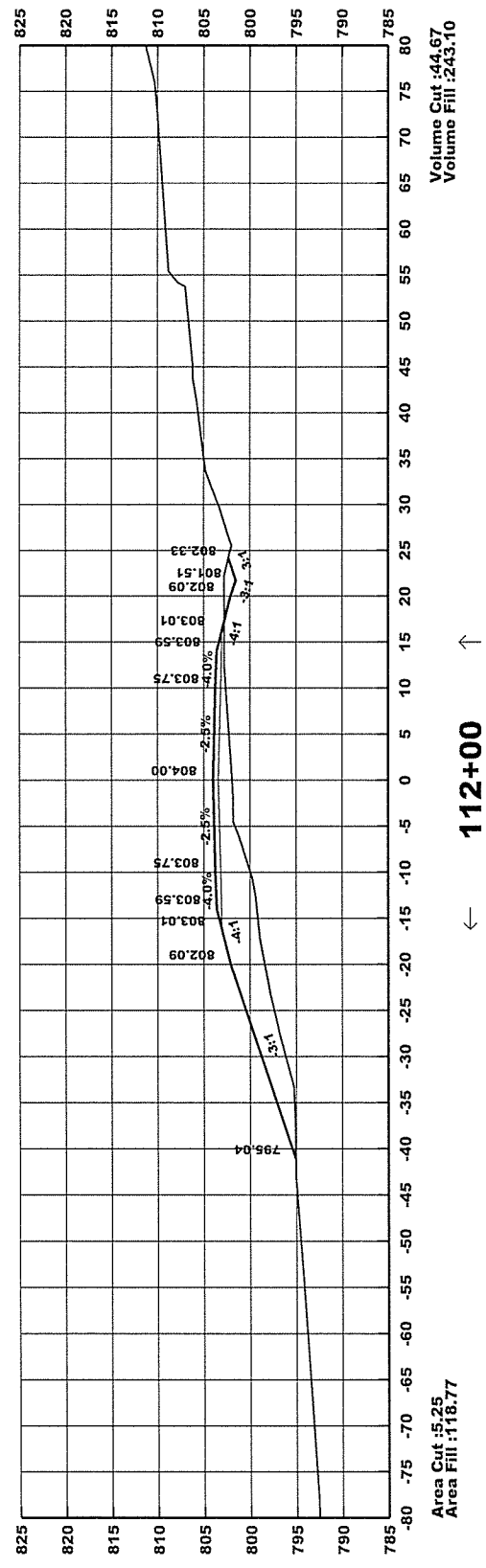
24" RCP (CL. III)(TYPE 3 BEDDING) = 130 LIN. FT.

24" CMP OR PLASTIC (TYPE 2 BEDDING) = 140 LIN. FT.

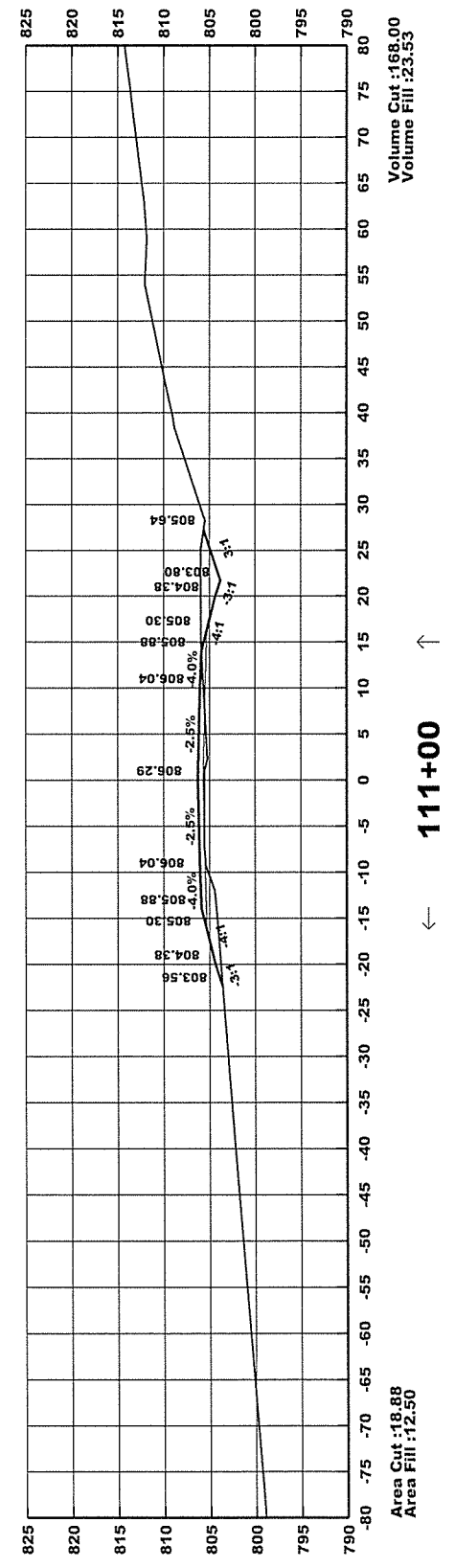
24 FES ON LT. AND RT. = 4 EACH



113+00



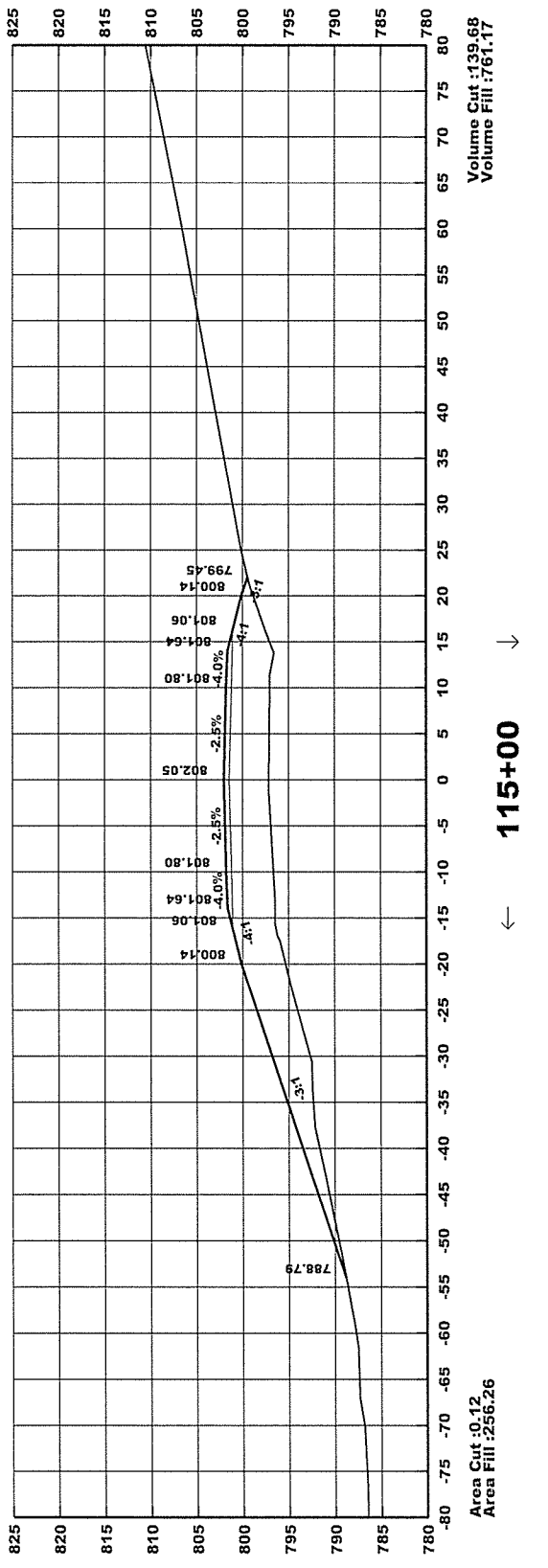
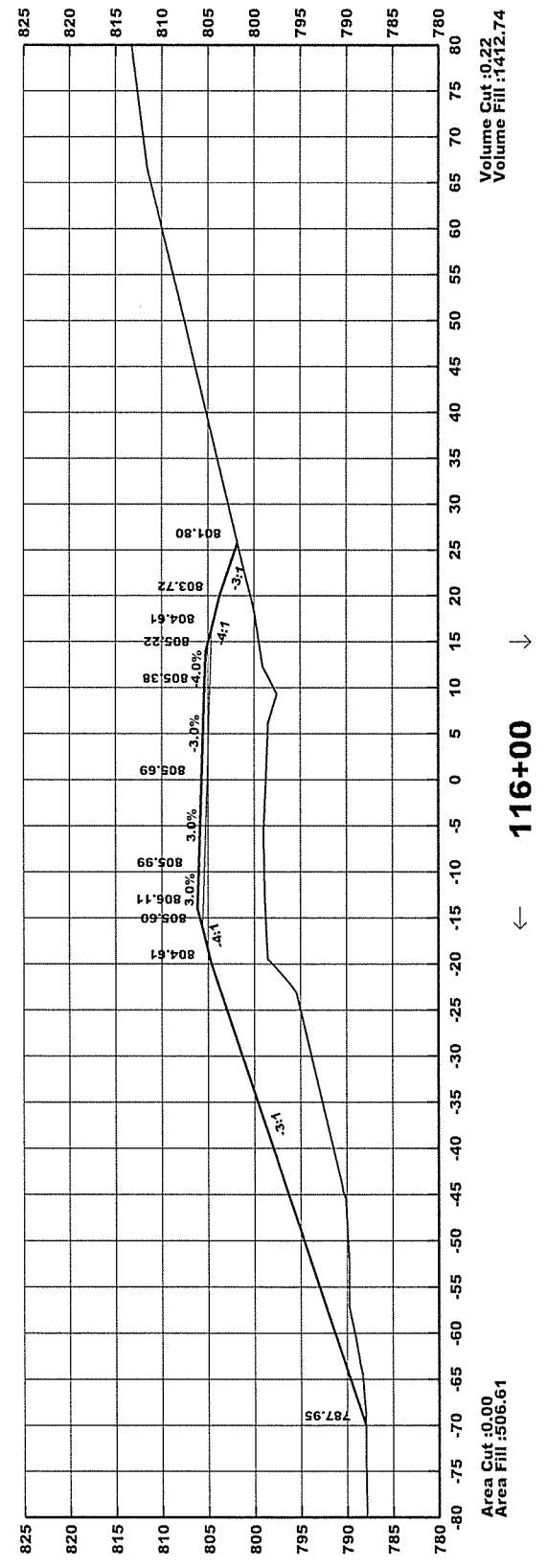
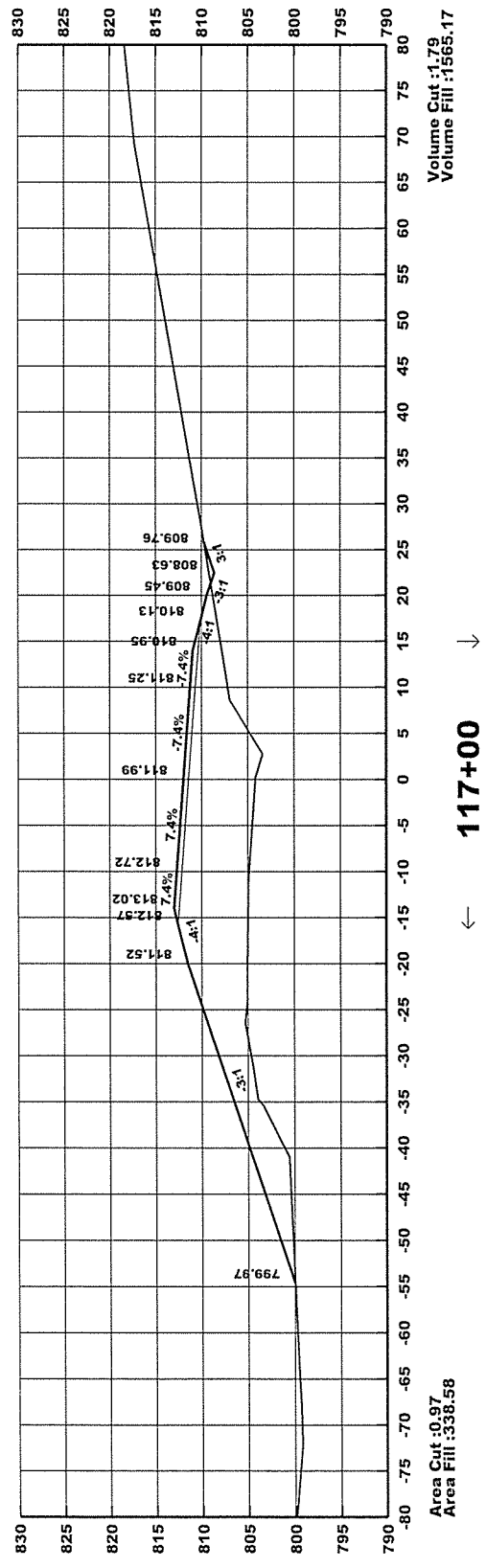
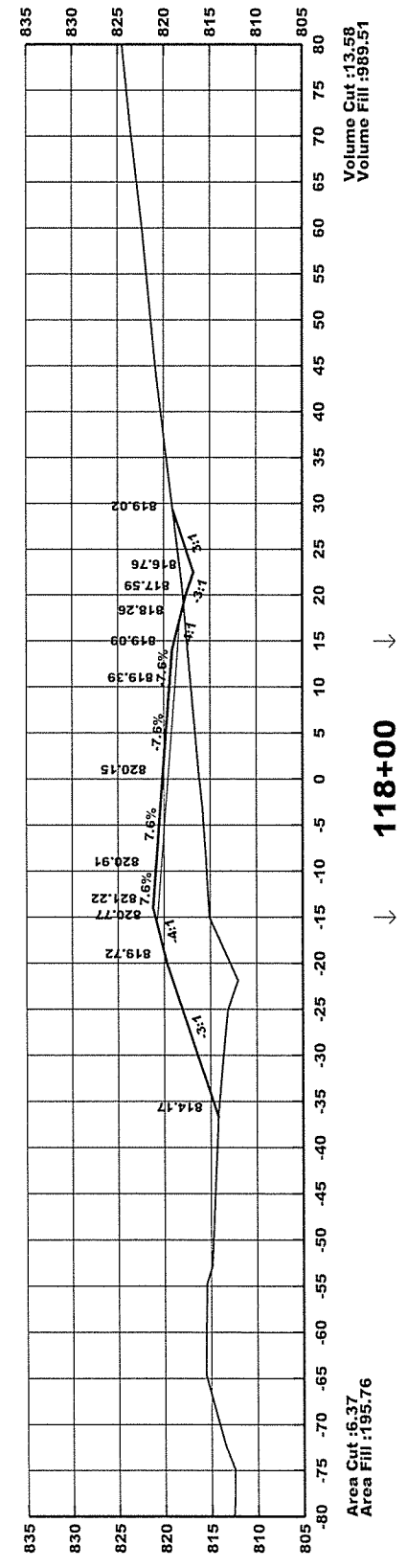
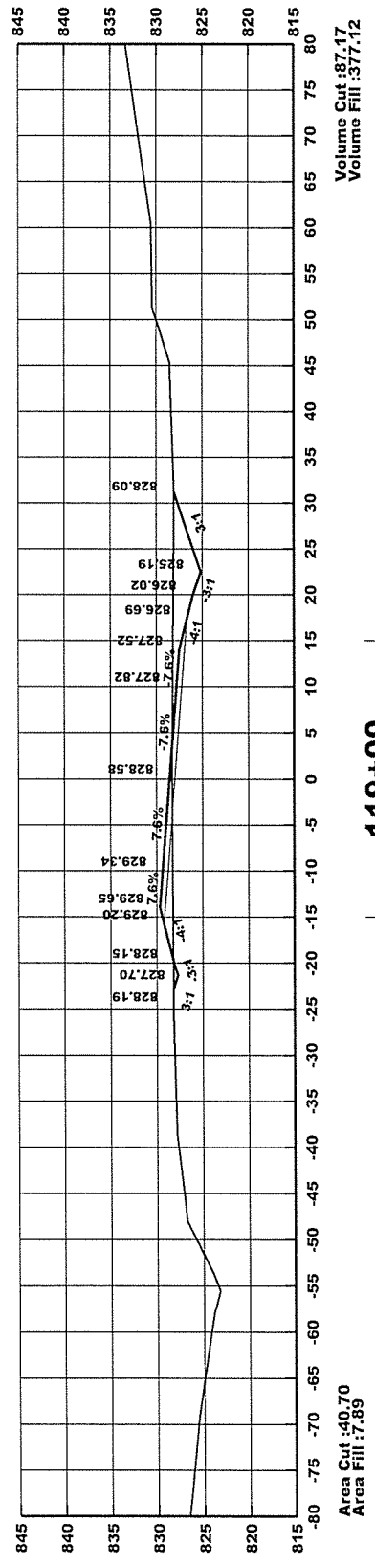
112+00



111+00

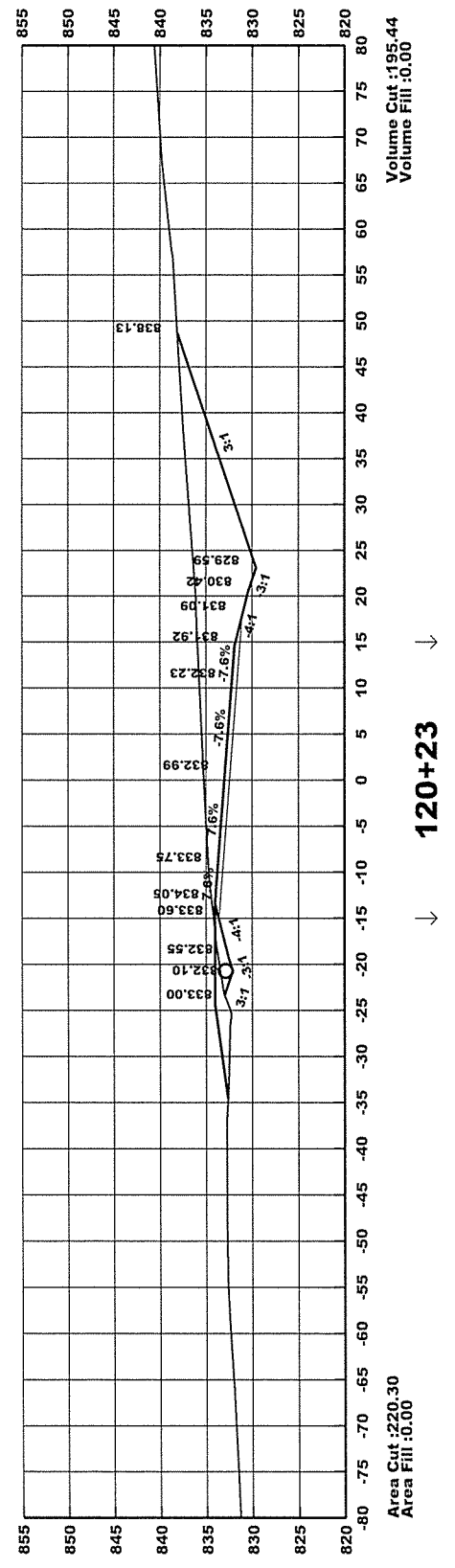
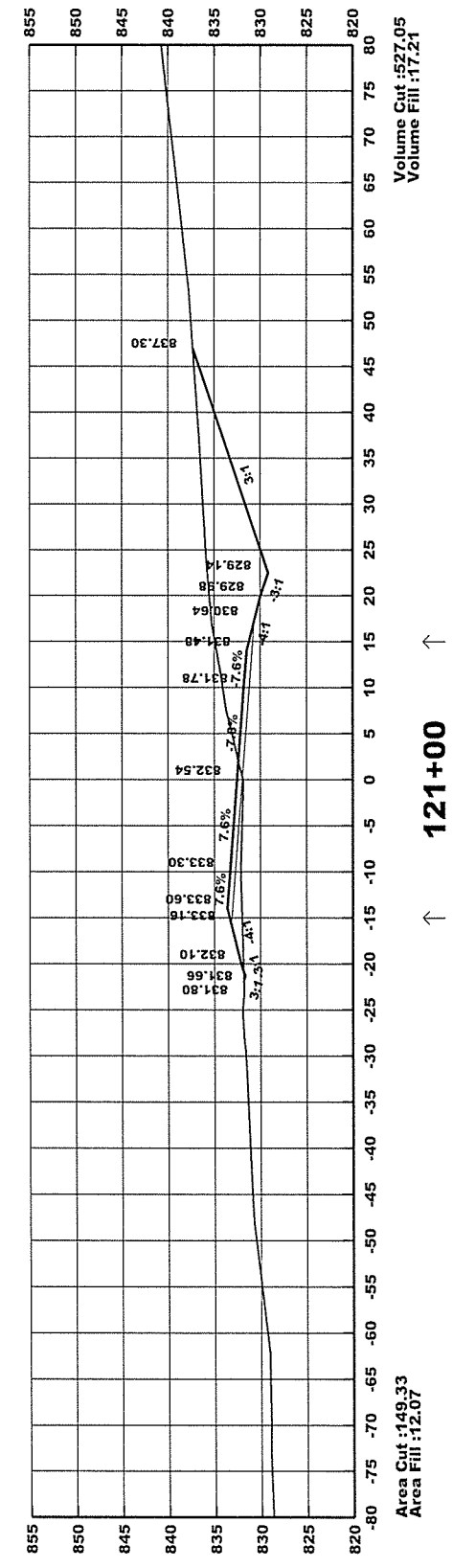
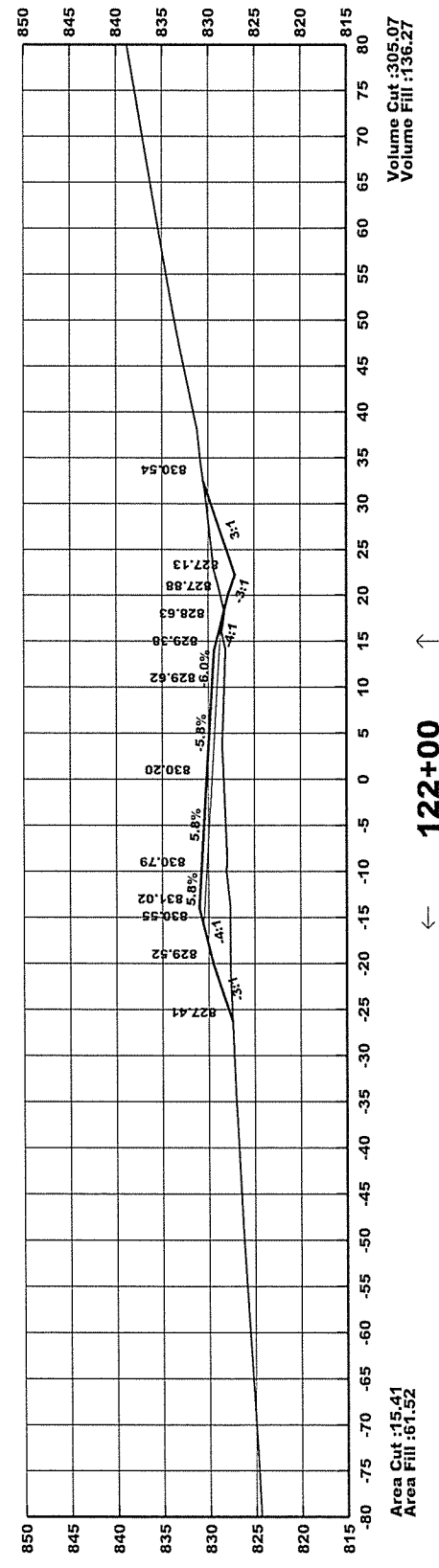
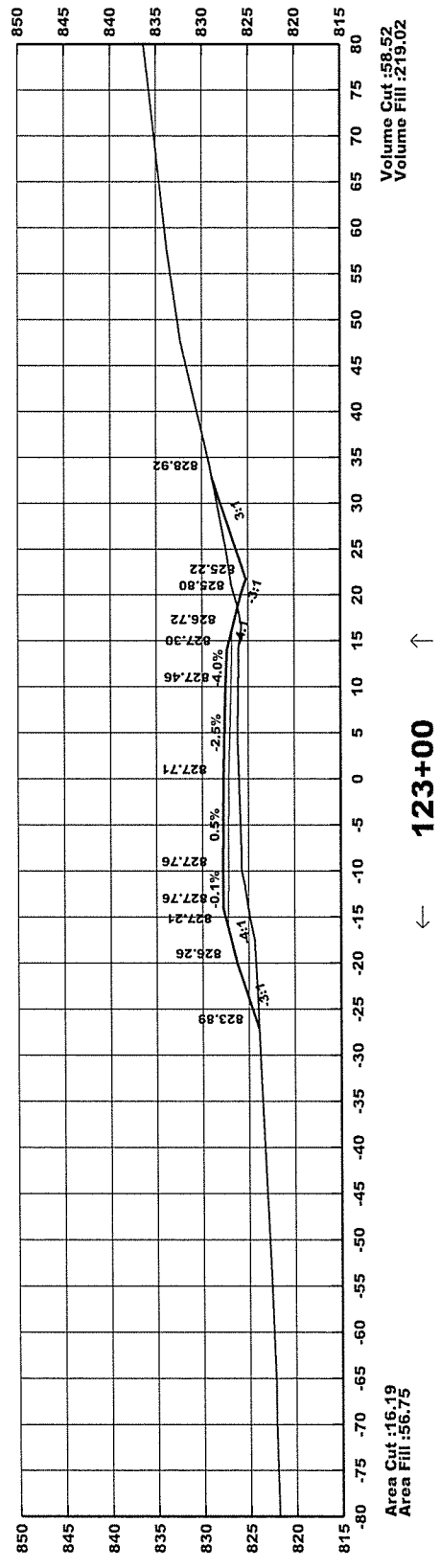
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				6	ARK.			
				JOB NO.	FA0313	49	66	

4 CROSS SECTIONS

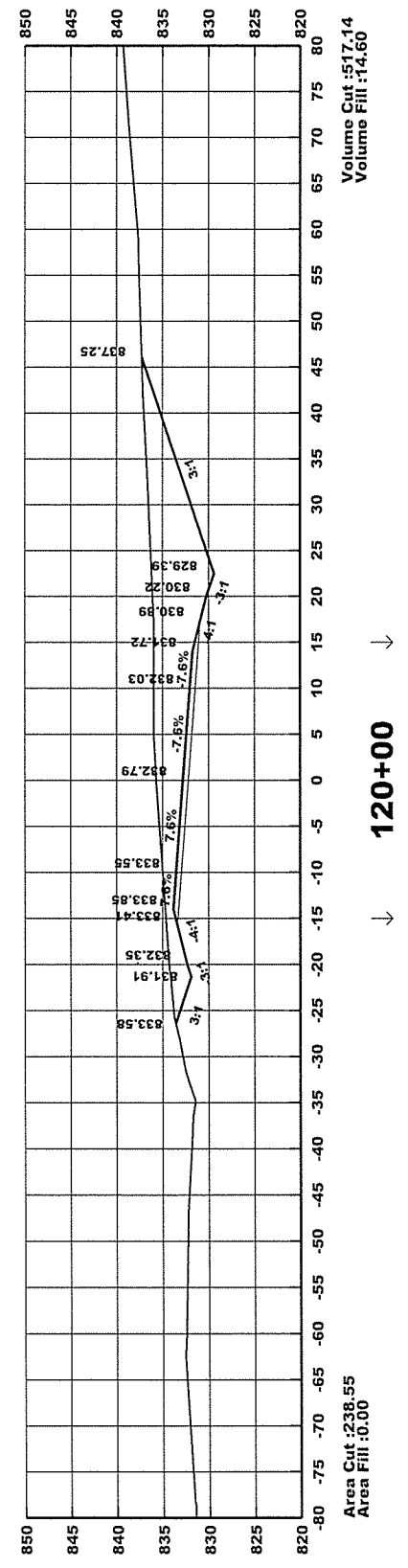


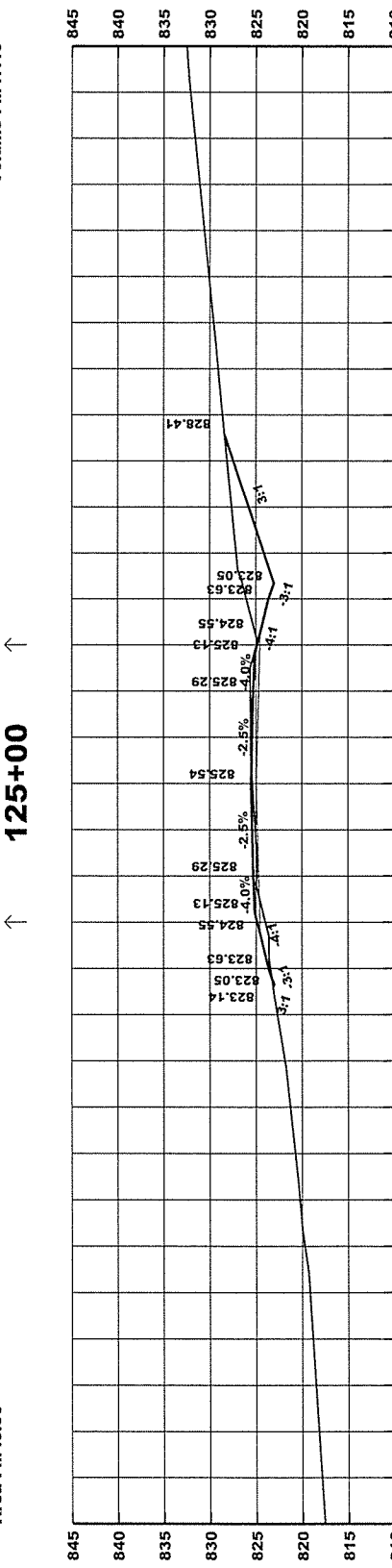
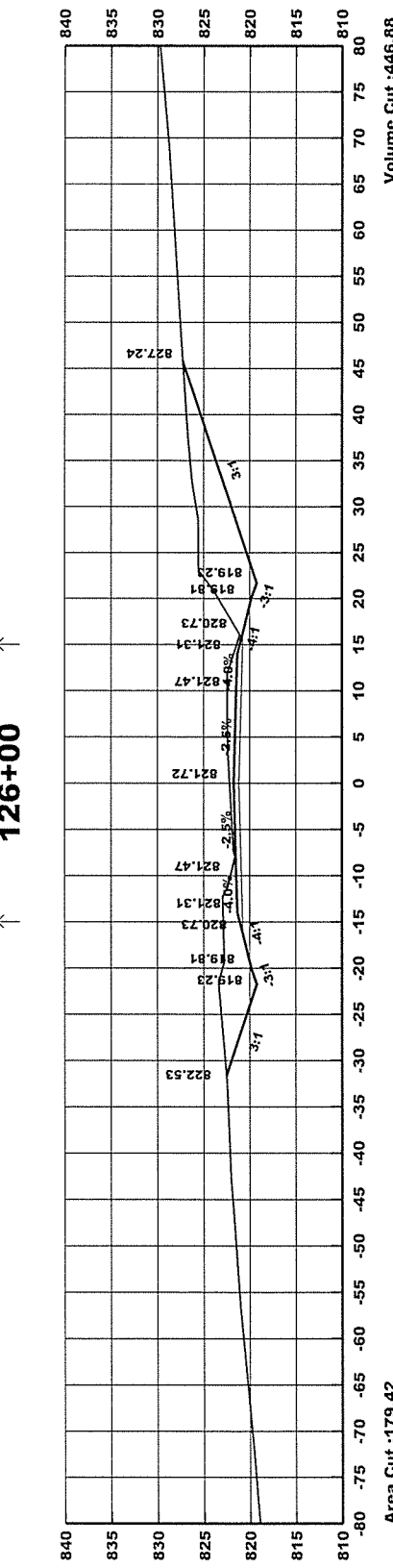
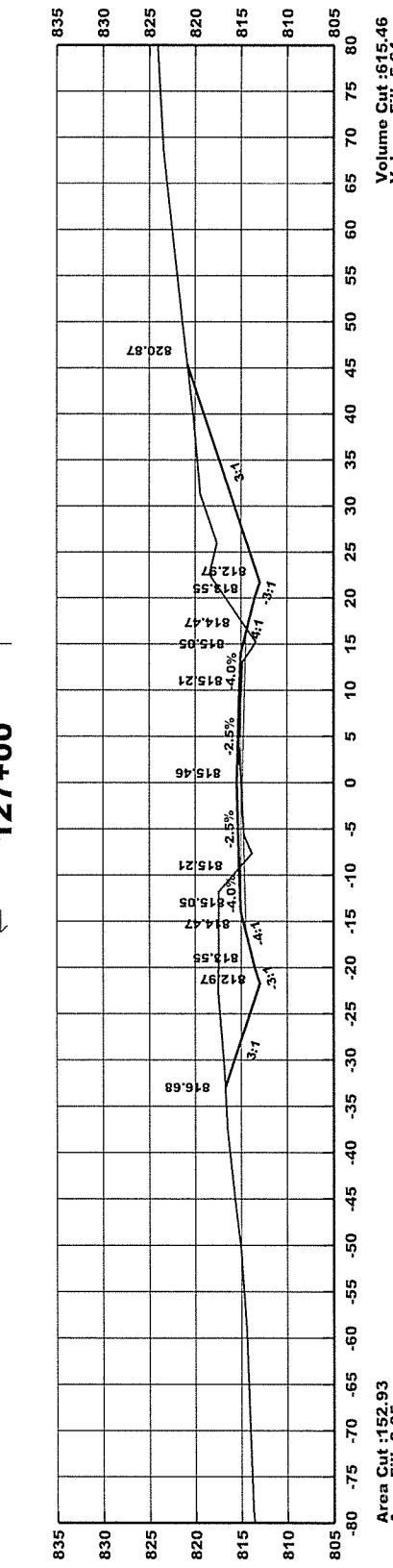
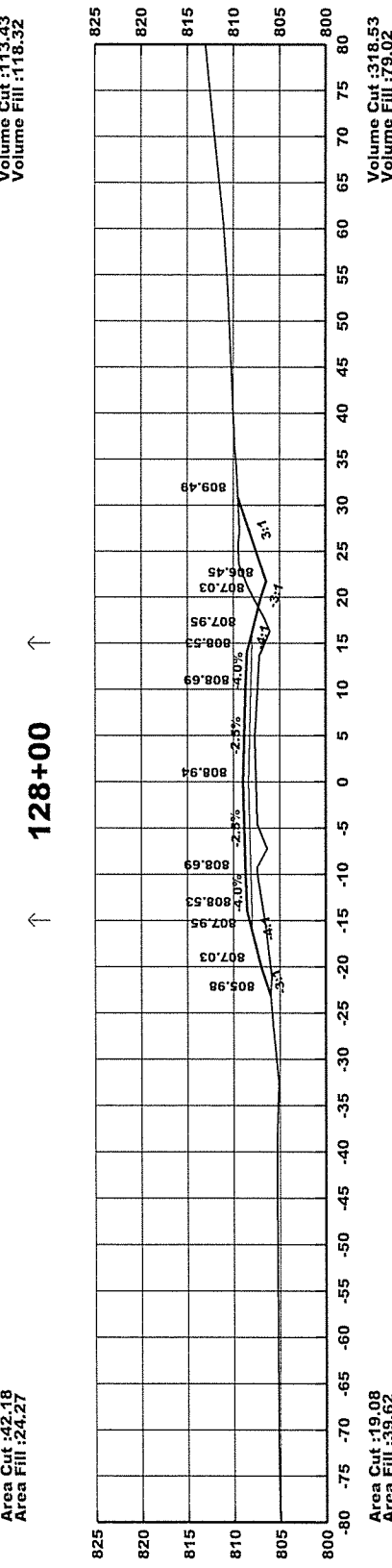
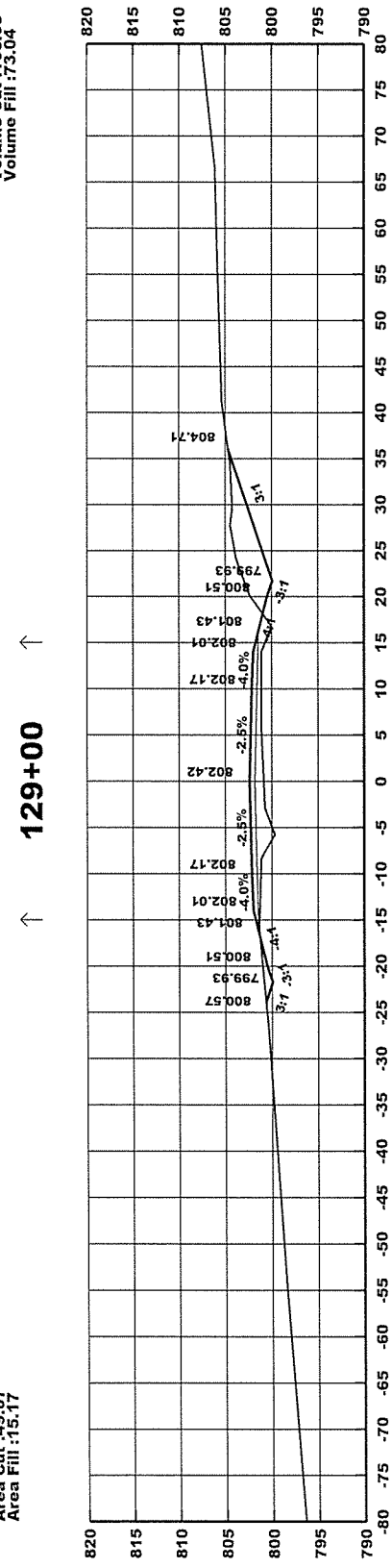
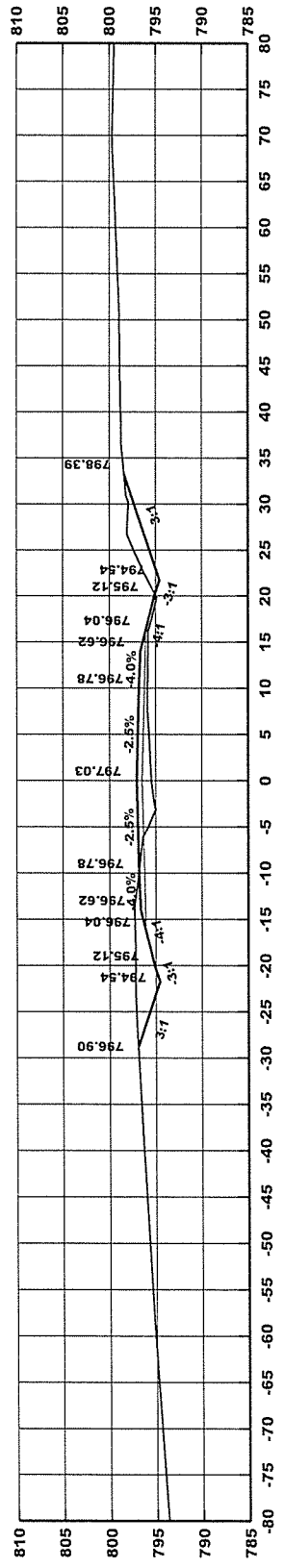
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				6	ARK.			
				JOB NO.	FA0313	50	66	

4 CROSS SECTIONS



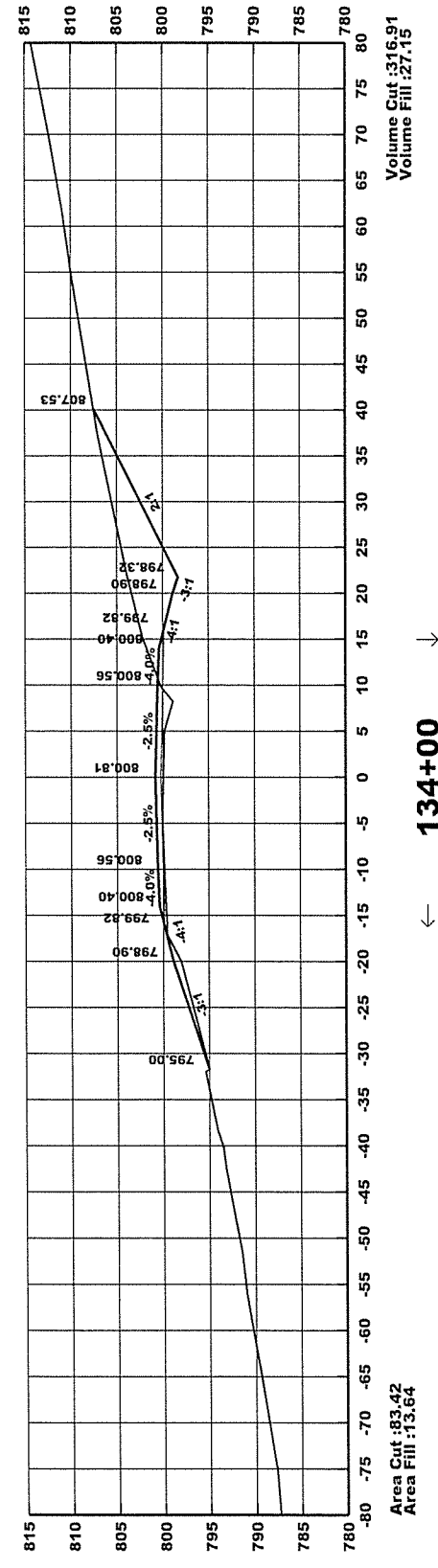
**INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 35 CU. YDS.**



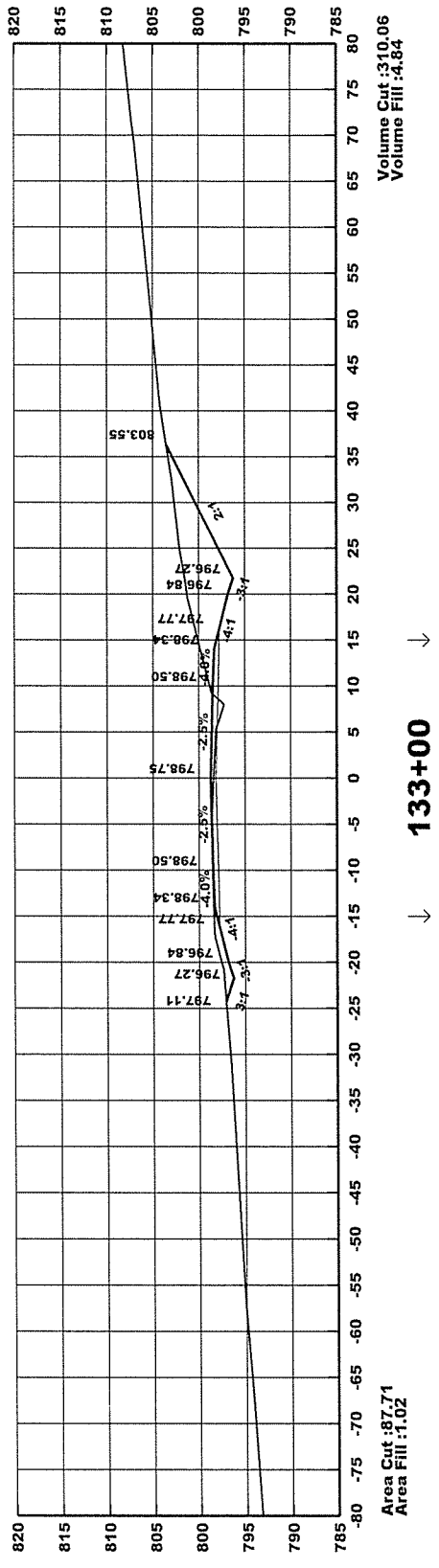


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				6	ARK.			
				JOB NO.	FA0313		51	66

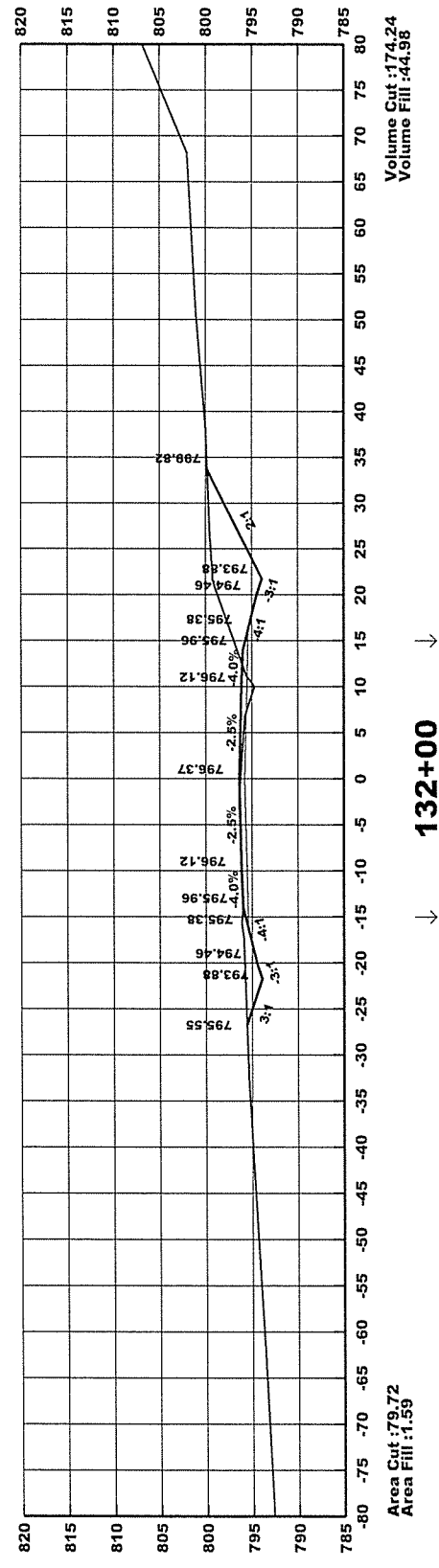
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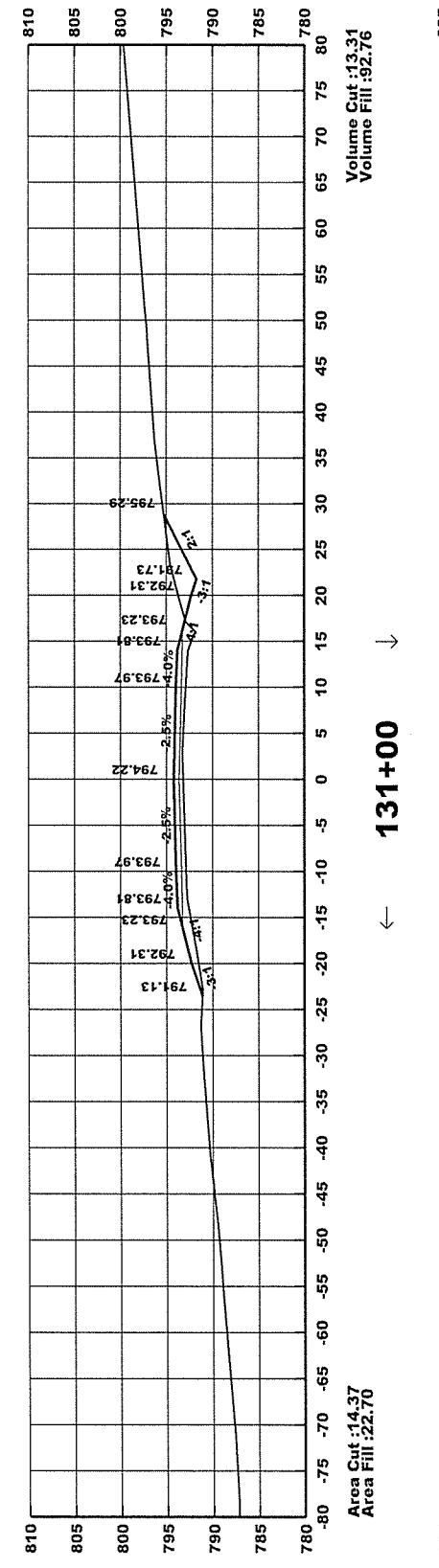
134+00



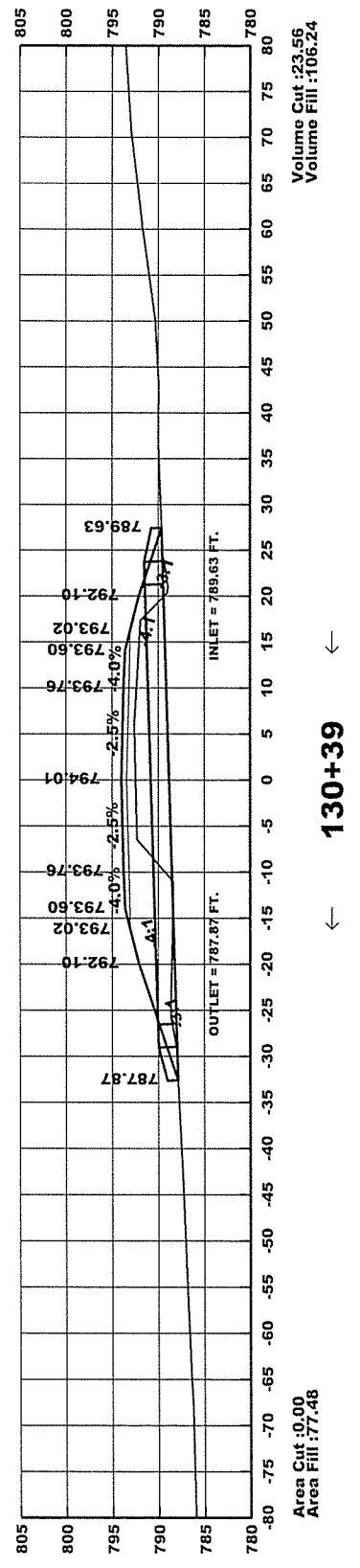
133+00



132+00

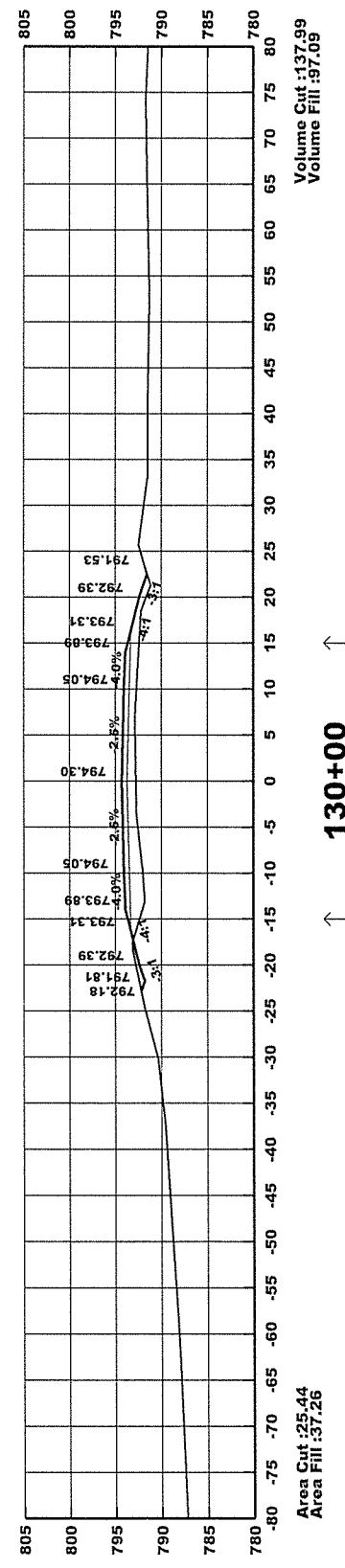


131+00



130+39

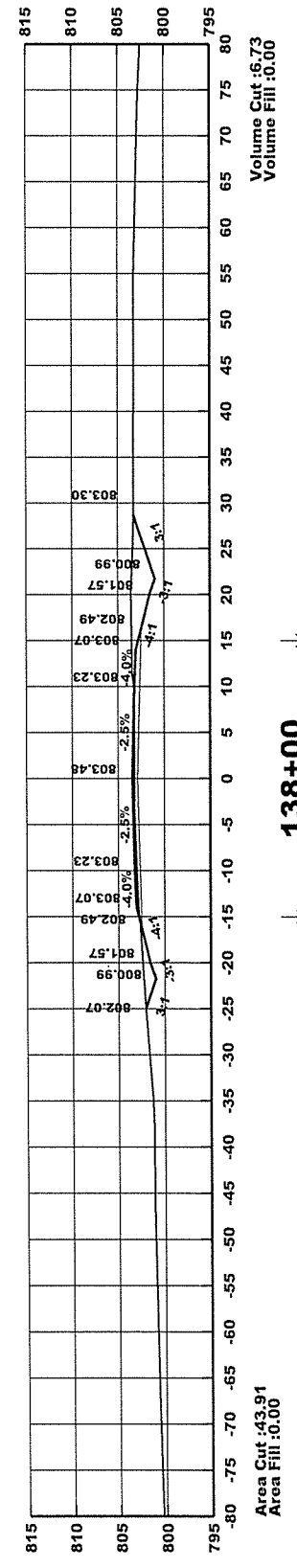
**CONSTRUCT
DOUBLE 24" PIPE CULVERT
CROSS DRAIN**
D.A. = 16.9 AC. Q25 = 40.2 CFS
24" RCP (CL. III)(TYPE 3 BEDDING) = 88 LIN. FT.
24" CMP OR PLASTIC (TYPE 2 BEDDING) = 98 LIN. FT.
24 FES ON LT. AND RT. = 4 EACH



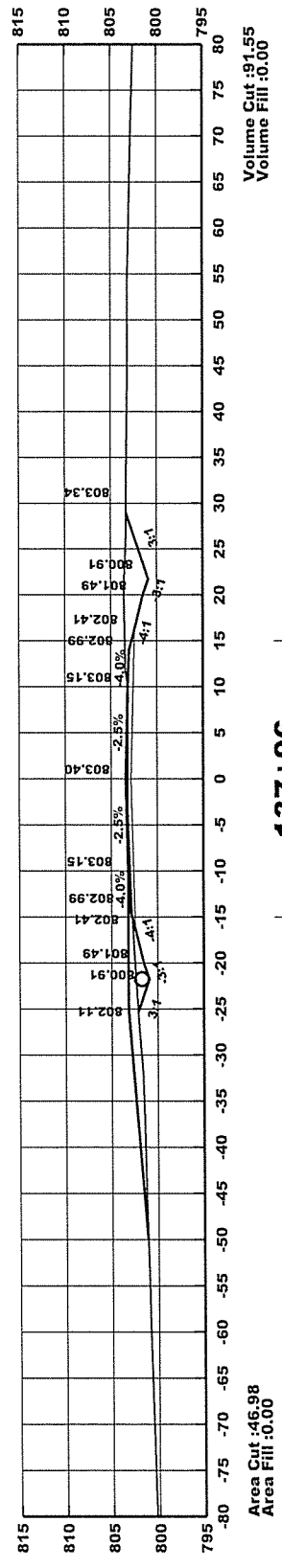
130+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313	53	66	

4 CROSS SECTIONS

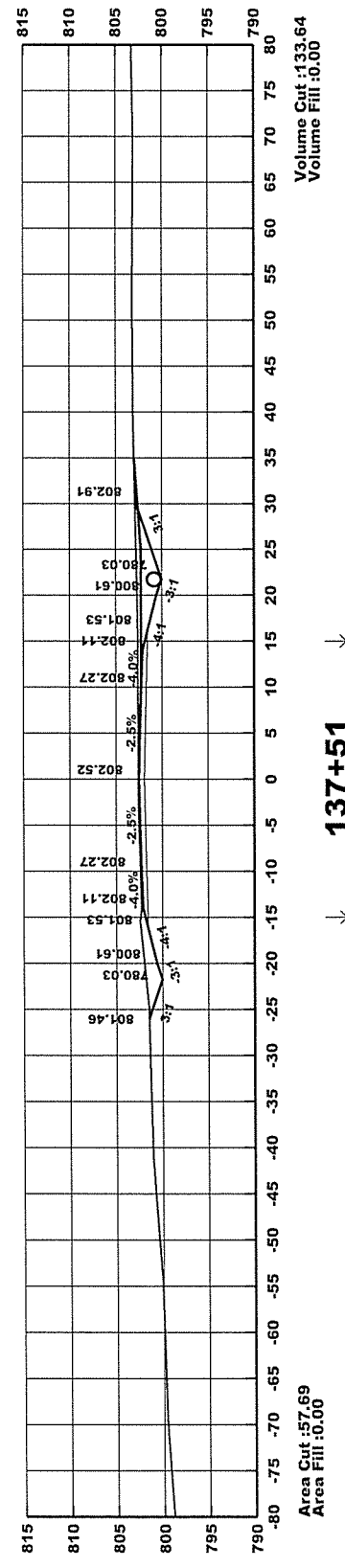


138+00



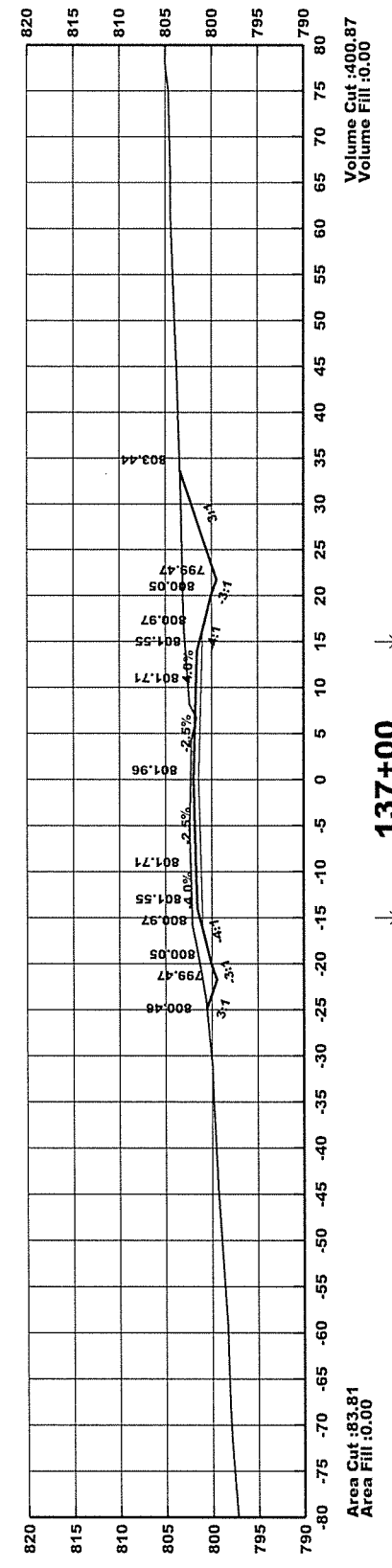
137+96

**INSTALL
18" X 56' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 45 CU. YDS.**

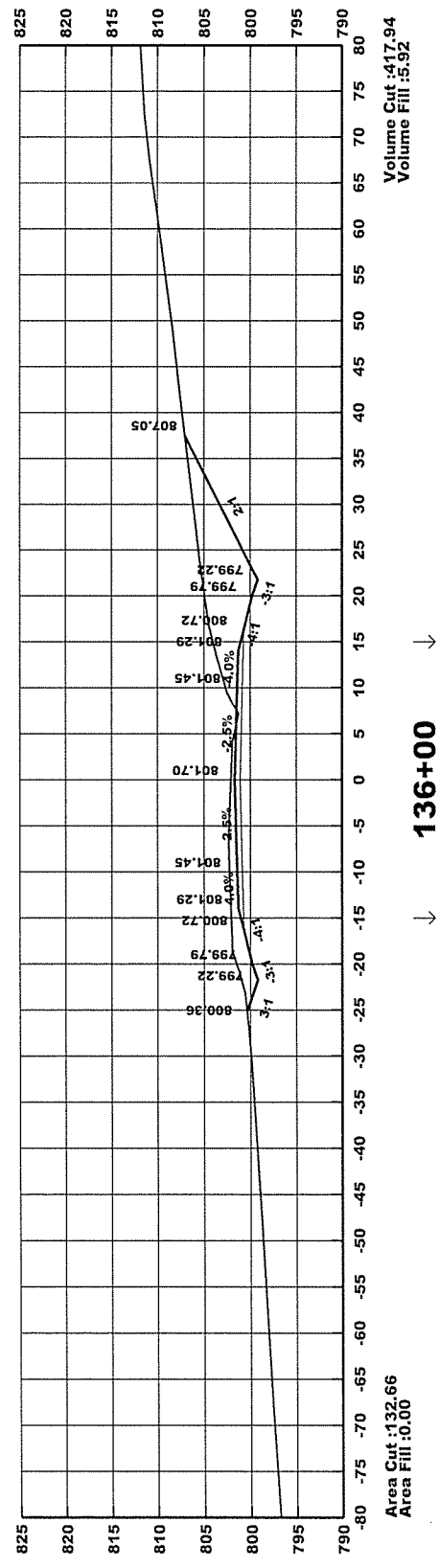


137+51

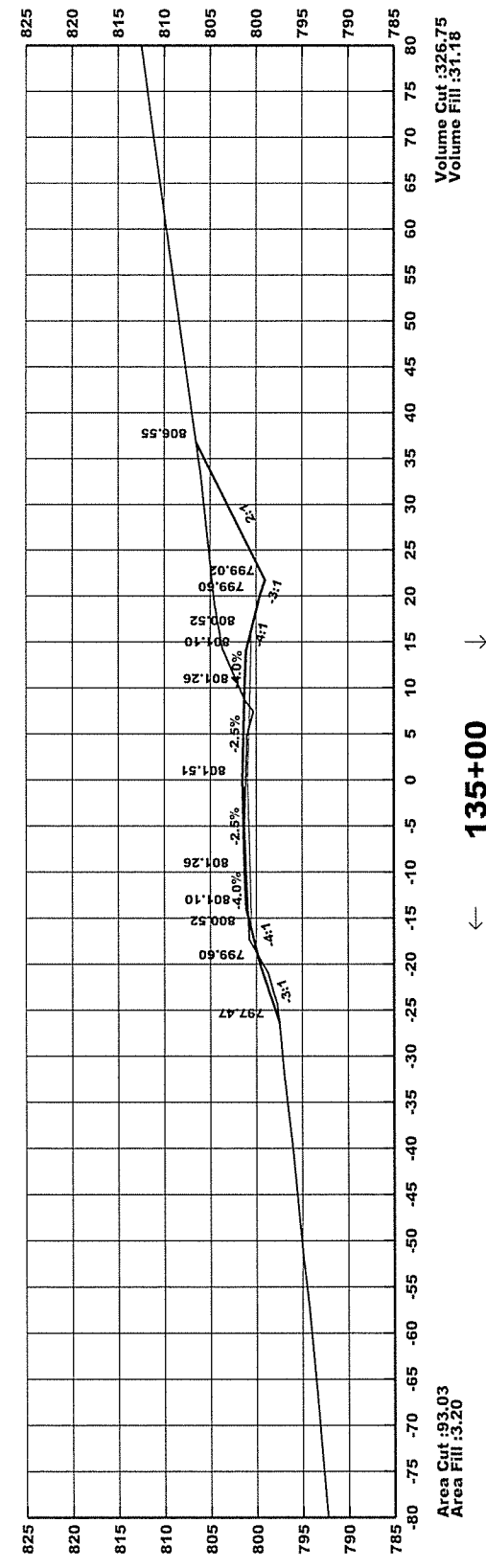
**INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.**



137+00



136+00

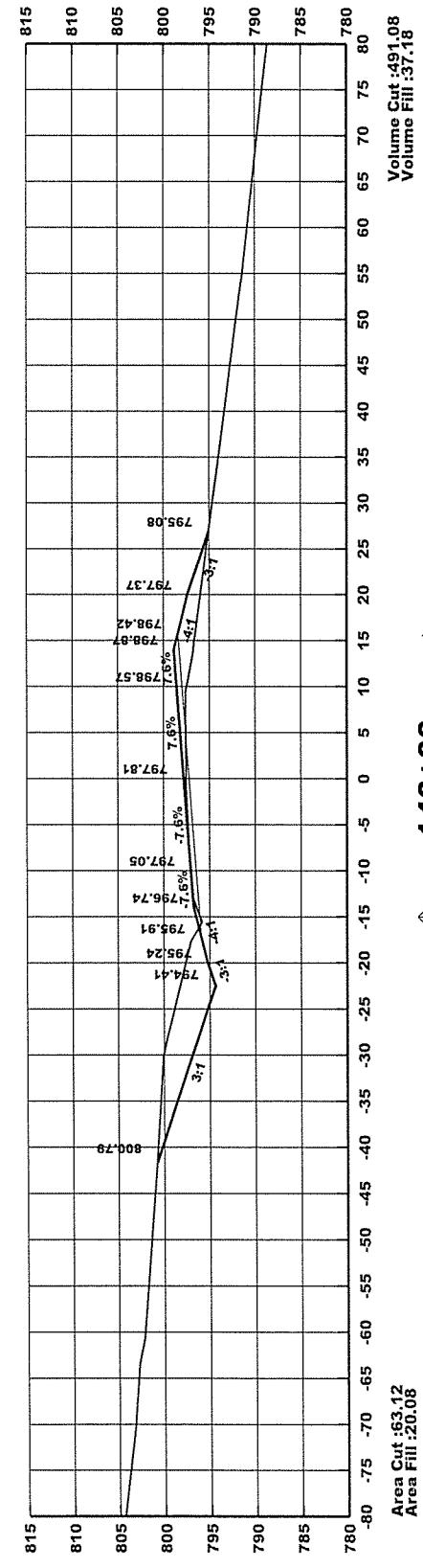


135+00

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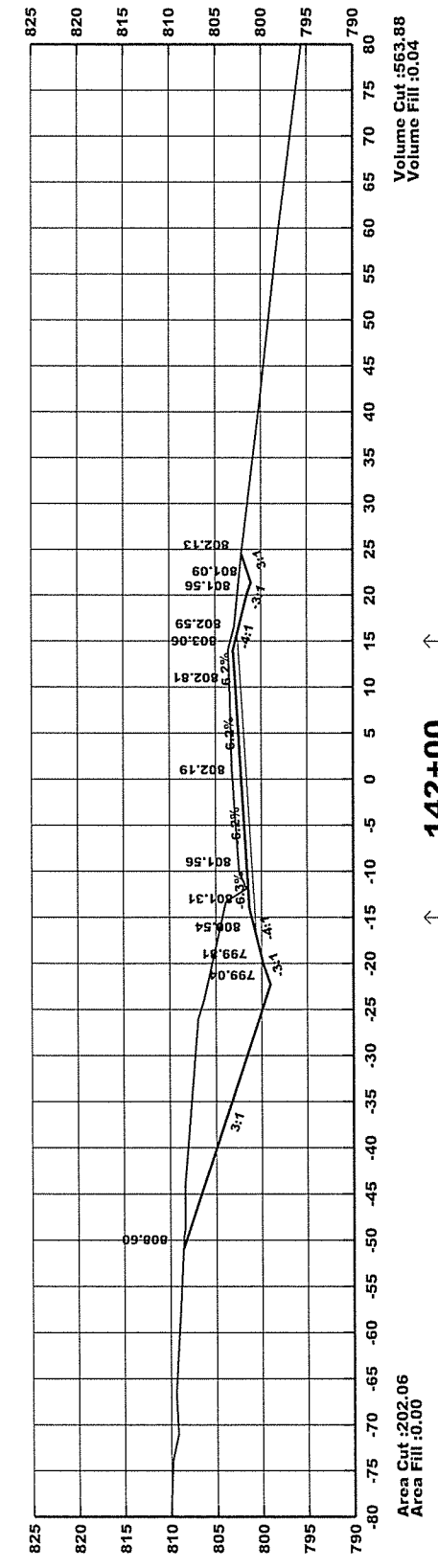
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CROSS SECTIONS



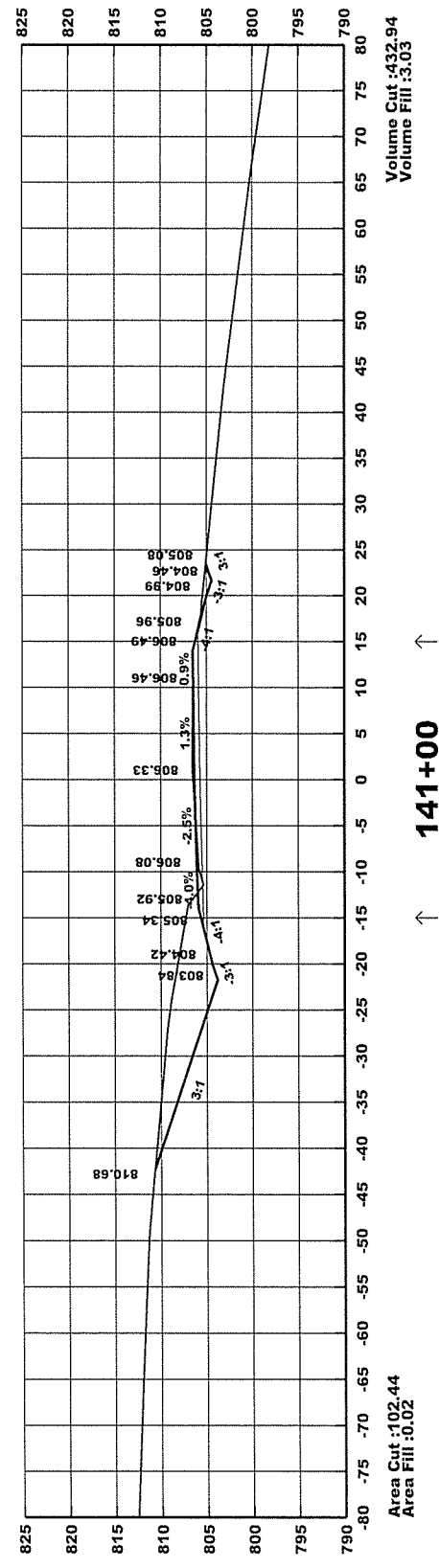
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143+00



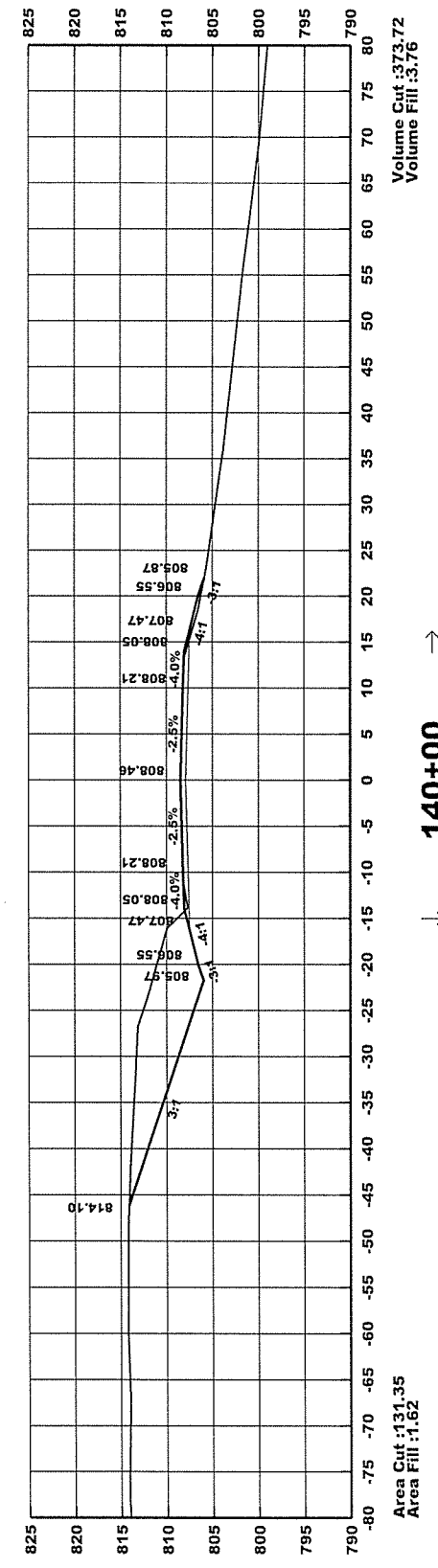
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142+00



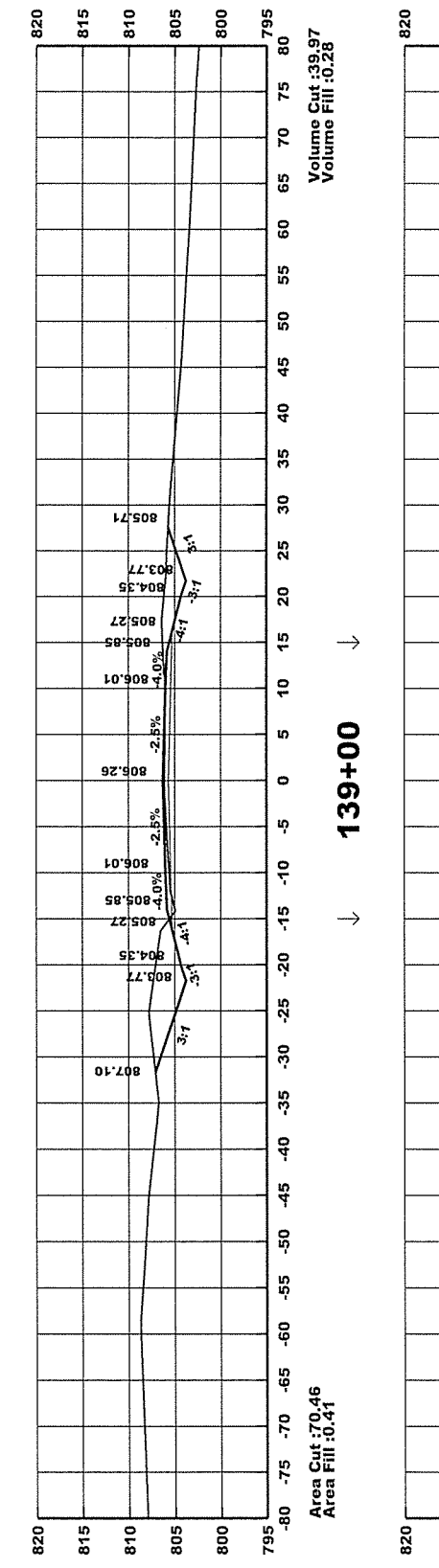
Area Cut: 102.44
Area Fill: 0.02

141+00



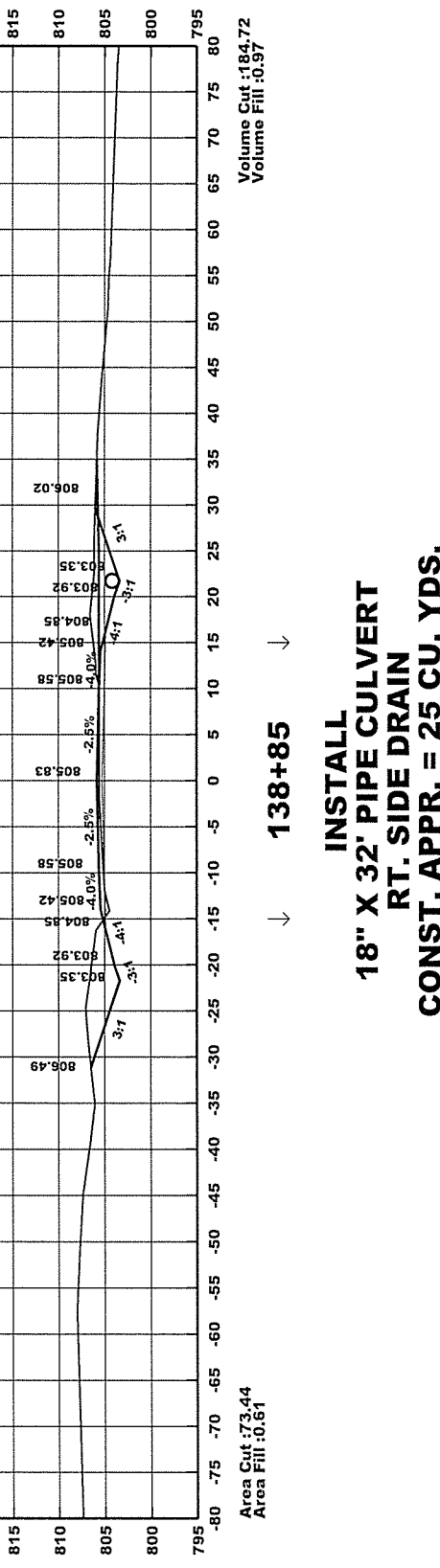
Area Cut: 131.35
Area Fill: 1.62

140+00



Area Cut: 70.46
Area Fill: 0.41

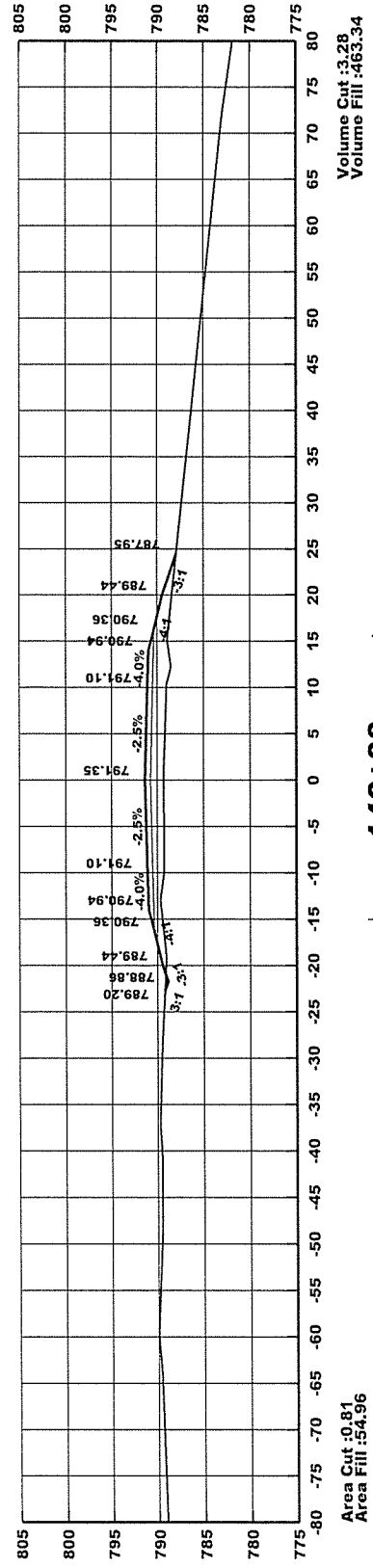
139+00



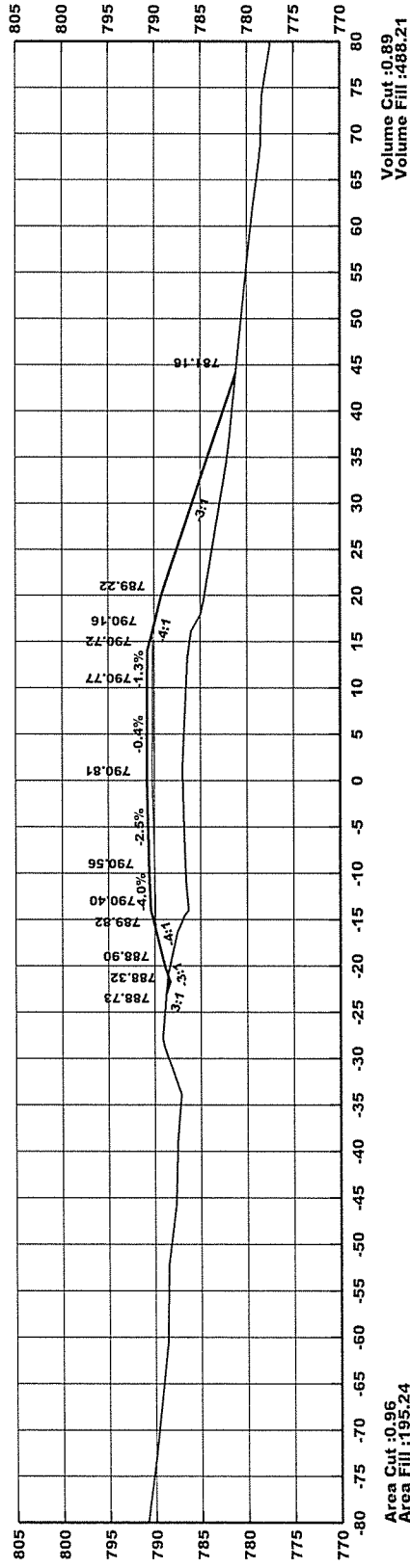
Area Cut: 73.44
Area Fill: 0.61

138+85

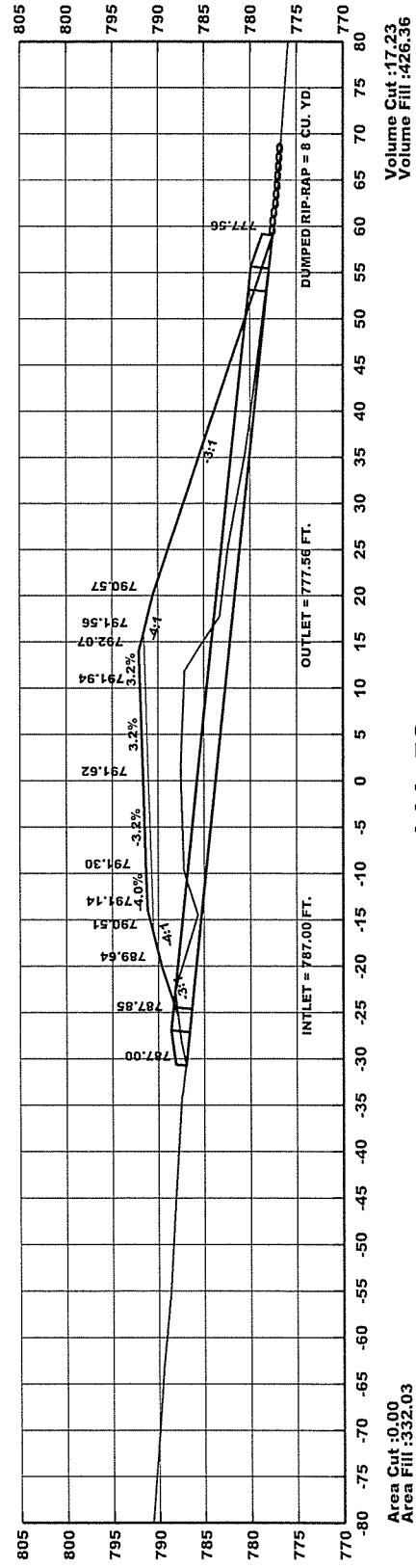
INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.



146+00

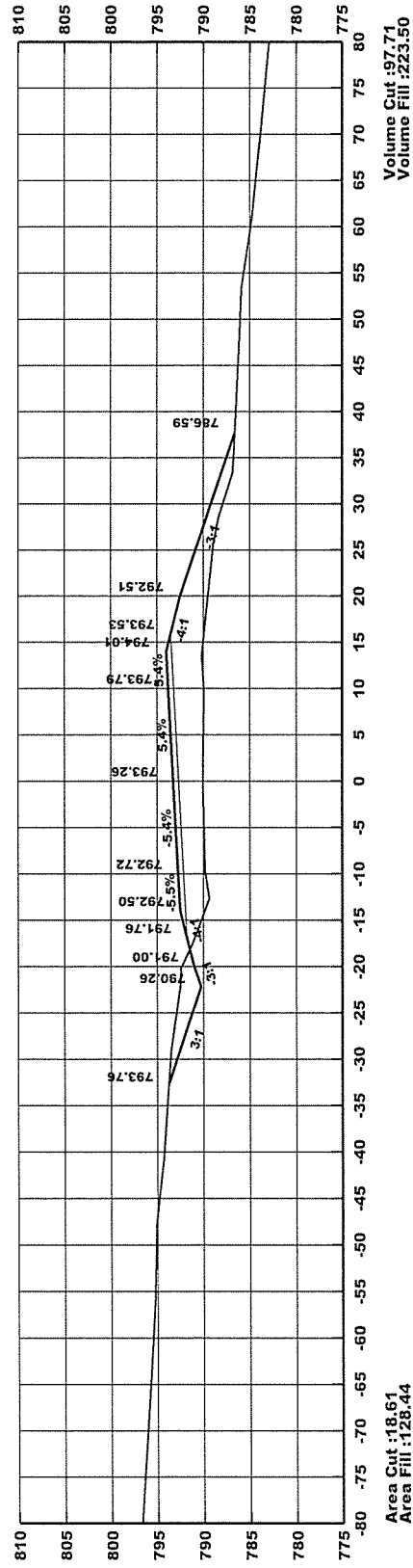


145+00

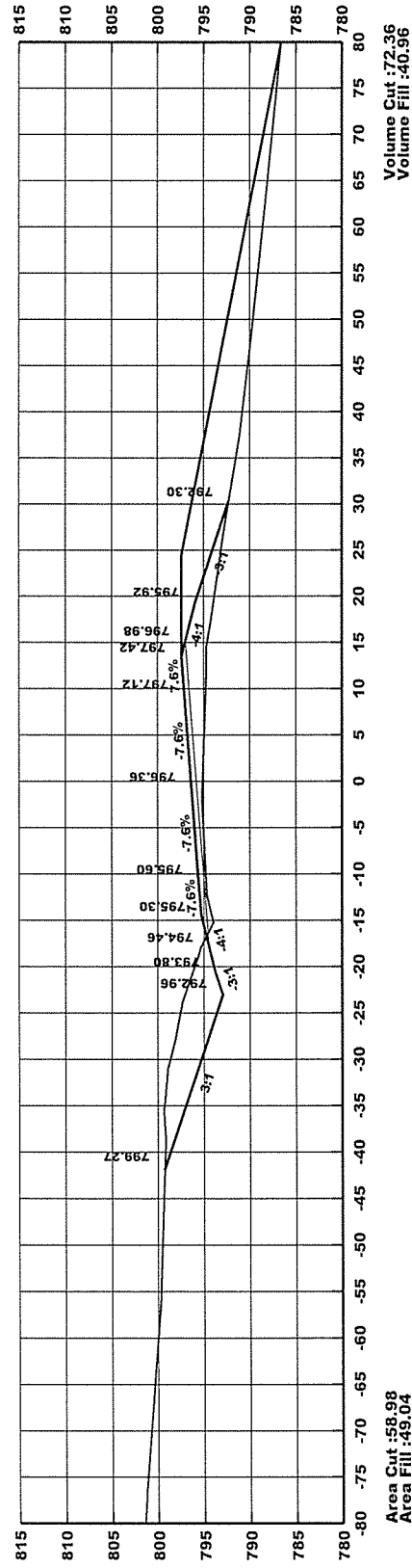


144+50

**CONSTRUCT
24" PIPE CULVERT
CROSS DRAIN**
D.A. = 3.7 AC. Q25 = 12.2 CFS
24" RCP (CL. III)(TYPE 3 BEDDING) = 78 LIN. FT.
24" CMP OR PLASTIC (TYPE 2 BEDDING) = 84 LIN. FT.
24 FES ON LT. AND RT. = 2 EACH



144+00



143+32

**CONST. APPR.
ON RT. = 100 CU. YDS.**

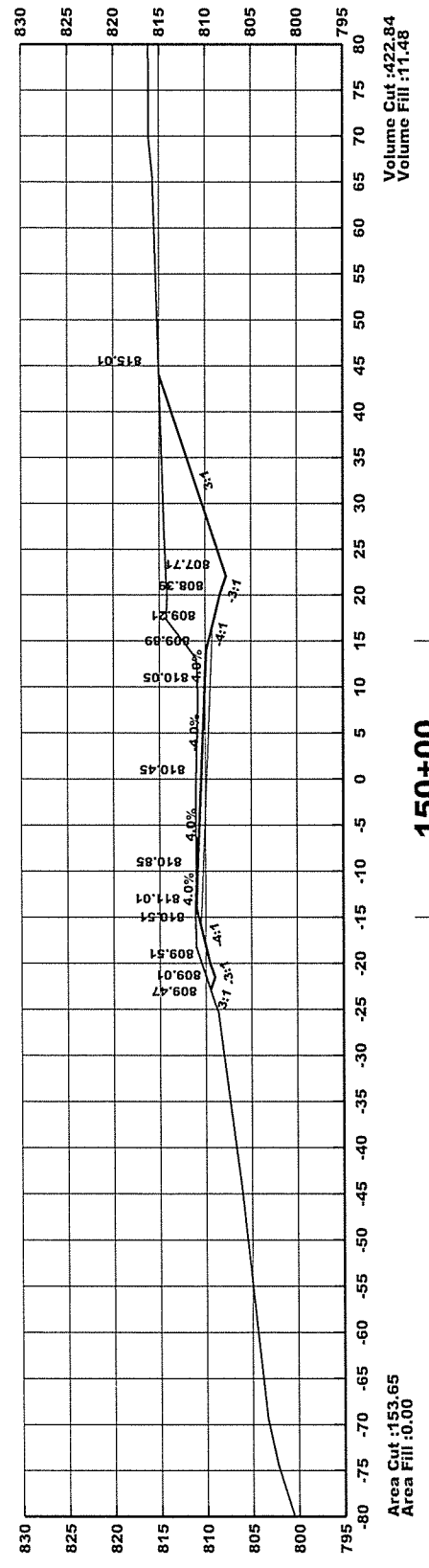
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313	55	66	

4

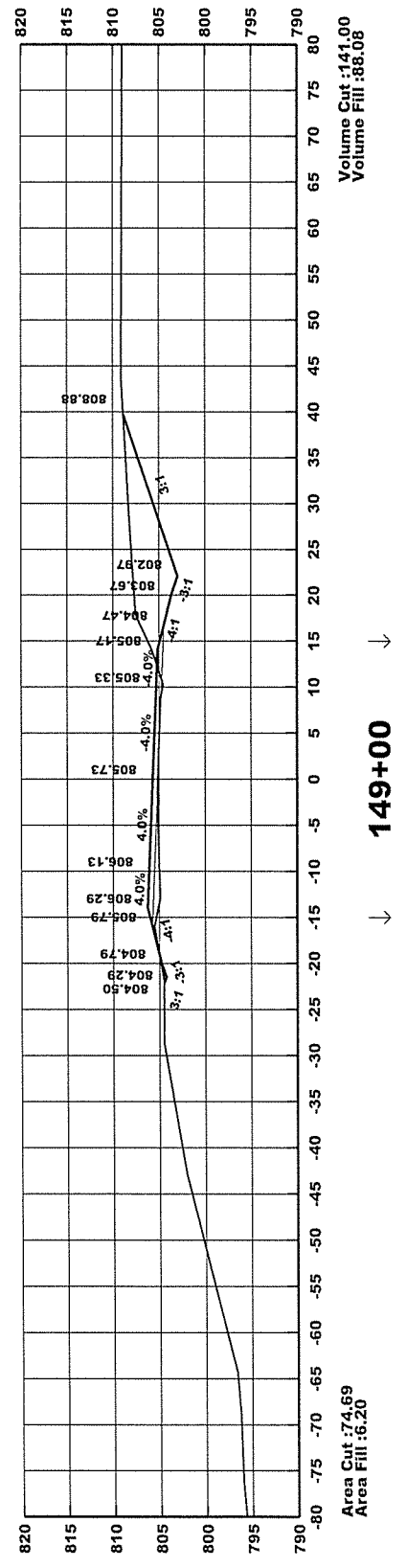
CROSS SECTIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313	56	66	

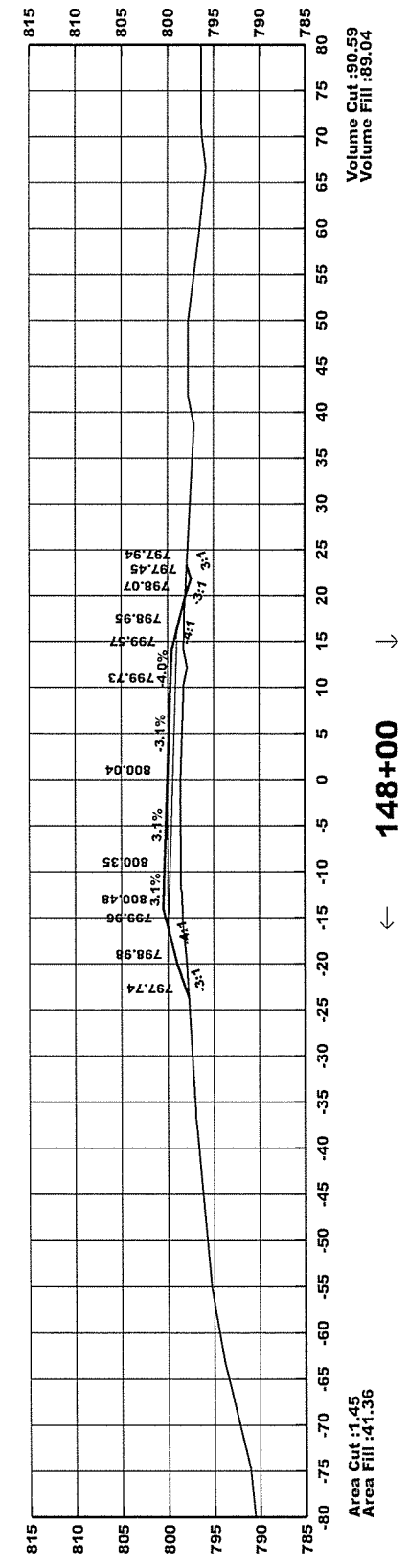
4 CROSS SECTIONS



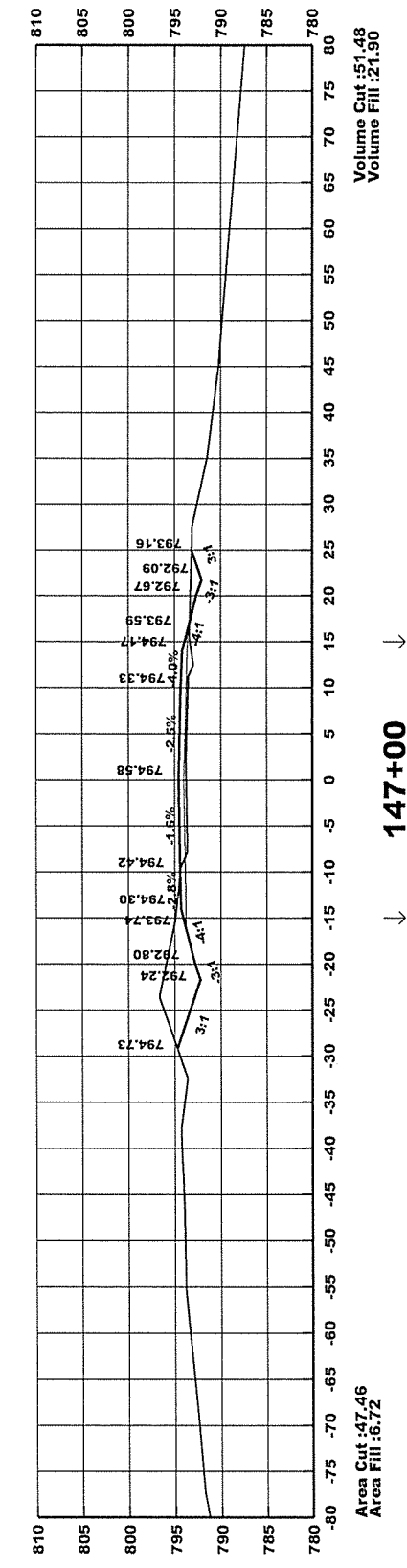
150+00



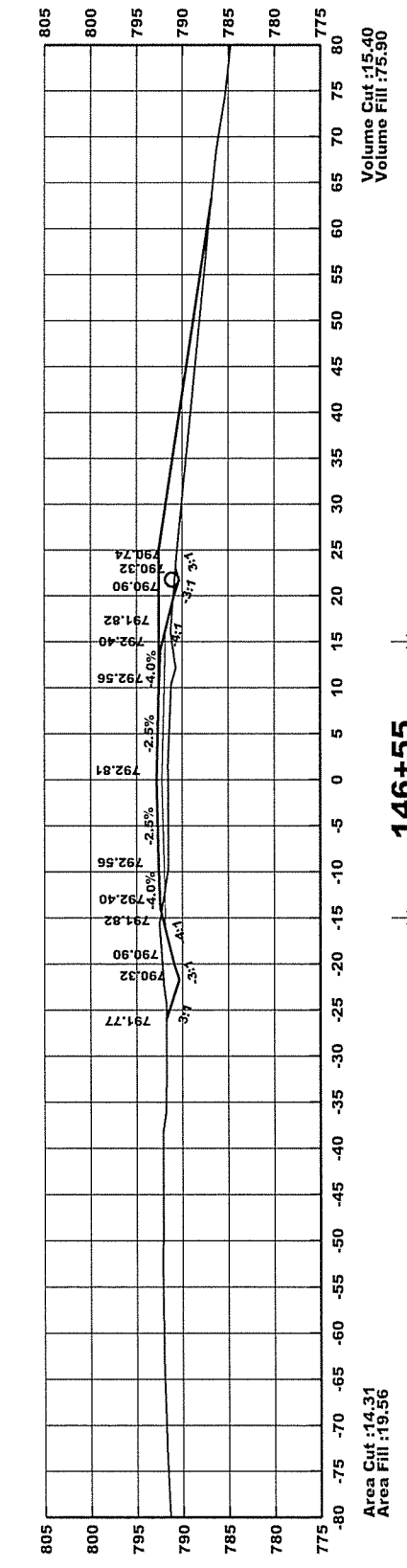
149+00



148+00



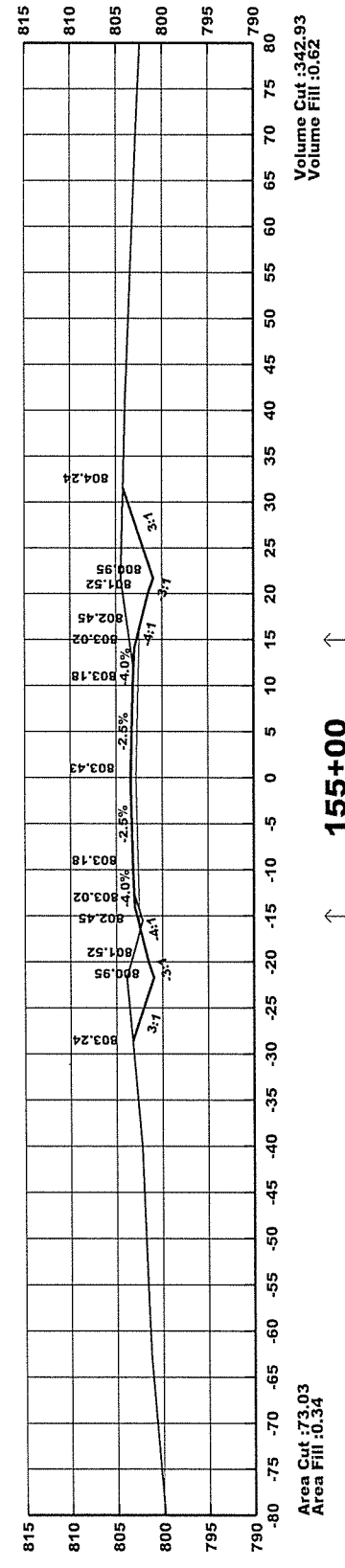
147+00



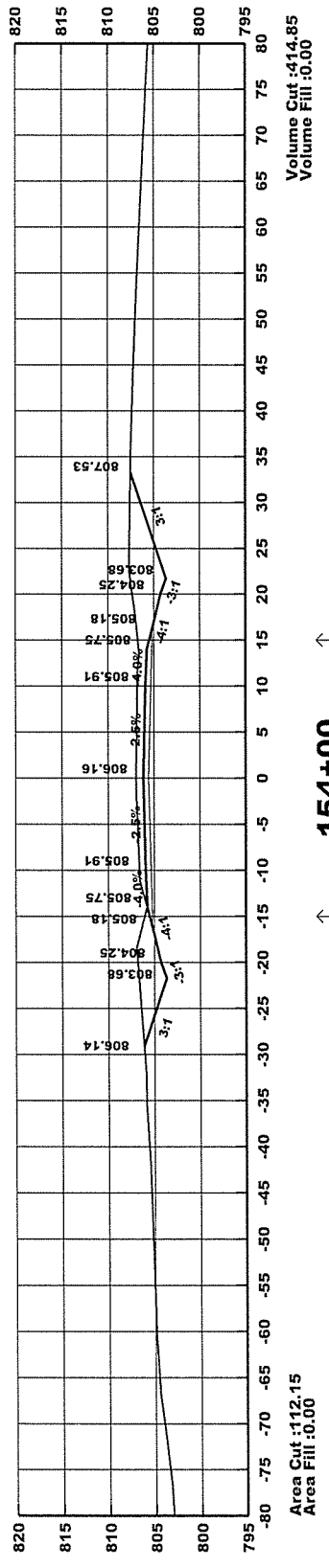
146+55

**INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 40 CU. YDS.**

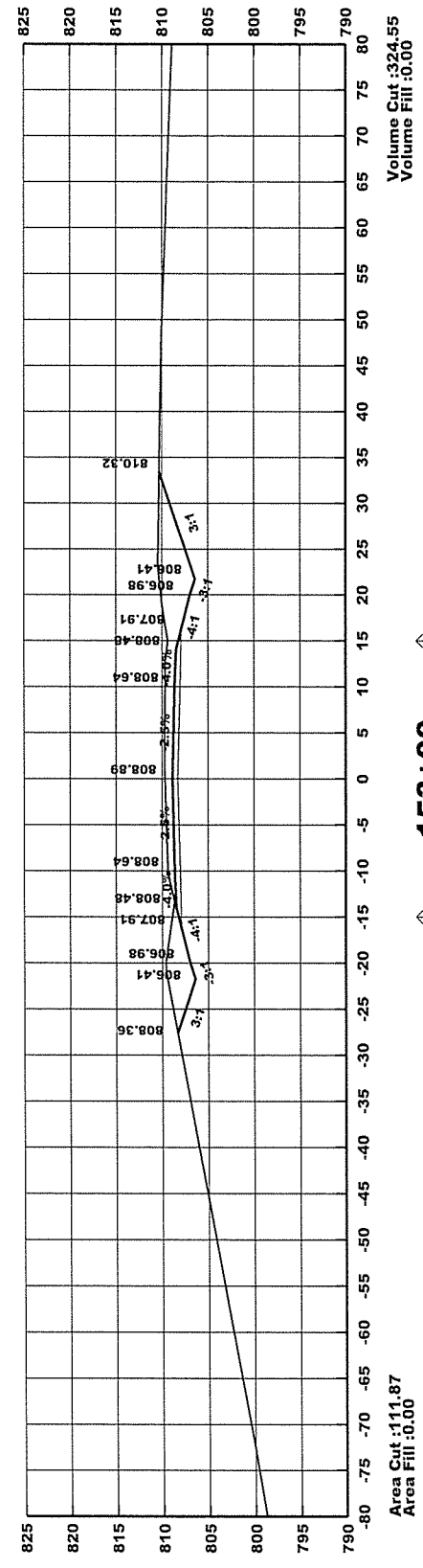
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0313	57	66
				4 CROSS SECTIONS				



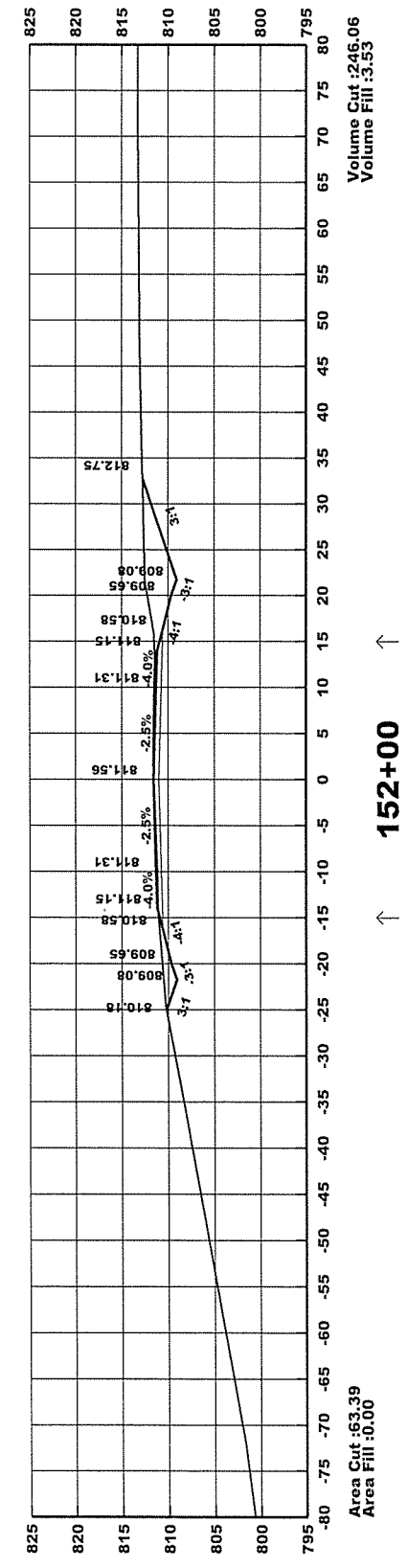
↑ 155+00 ↑



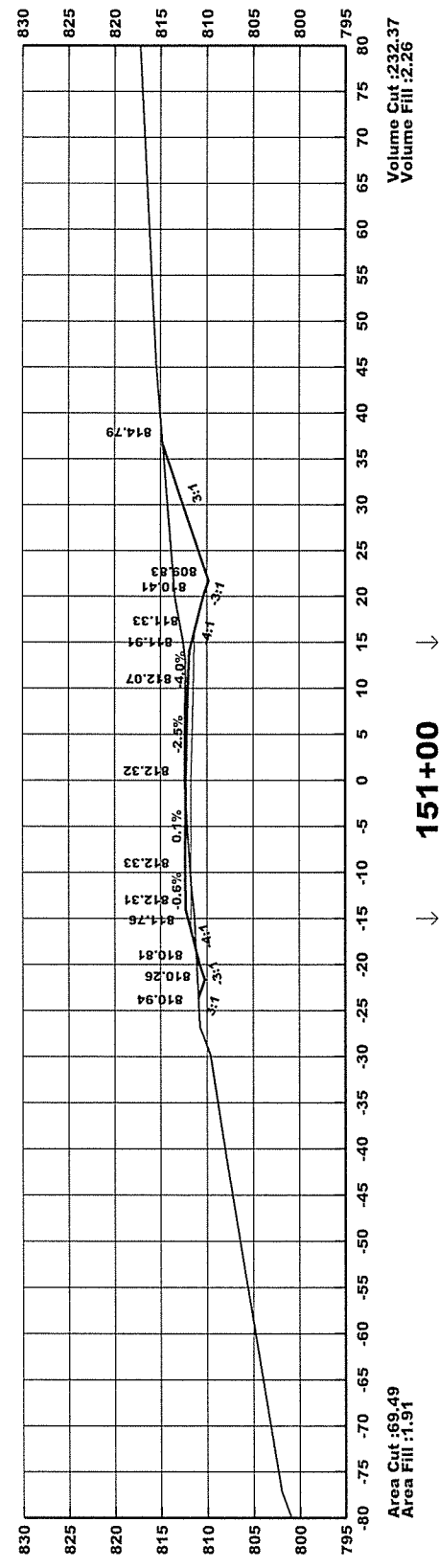
↑ 154+00 ↑



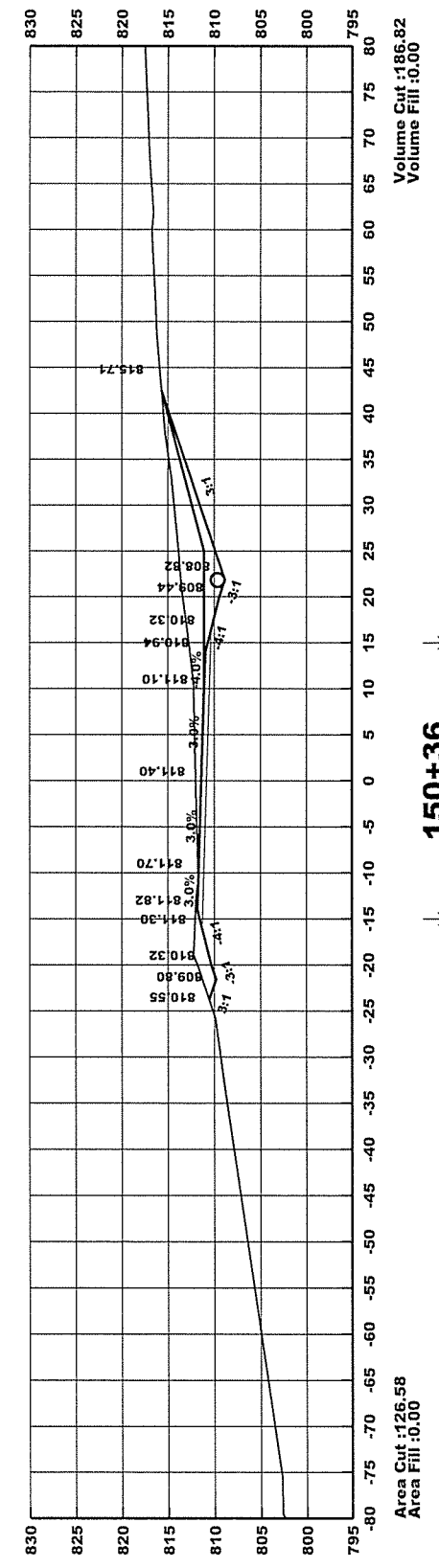
↑ 153+00 ↑



↑ 152+00 ↑



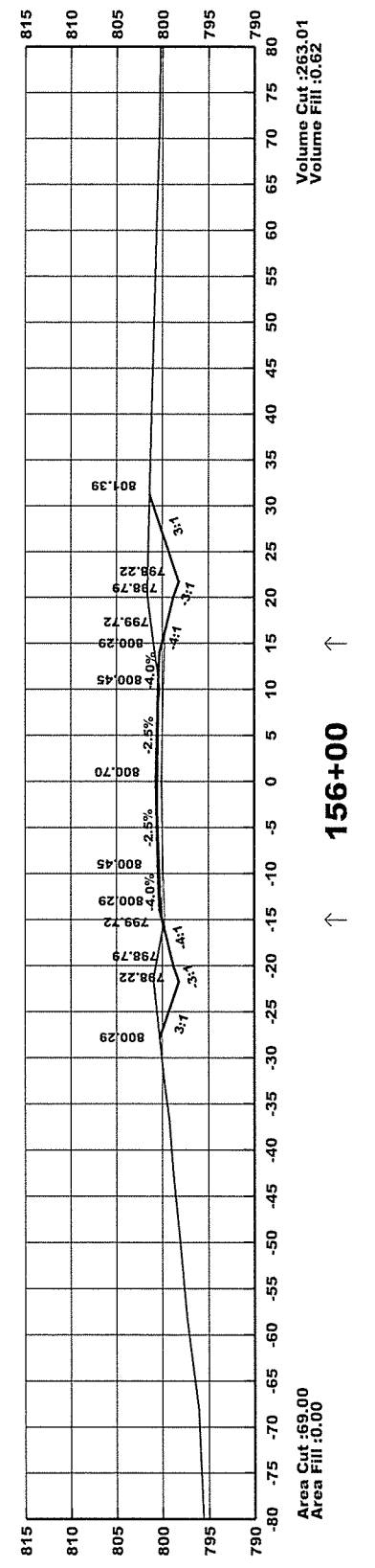
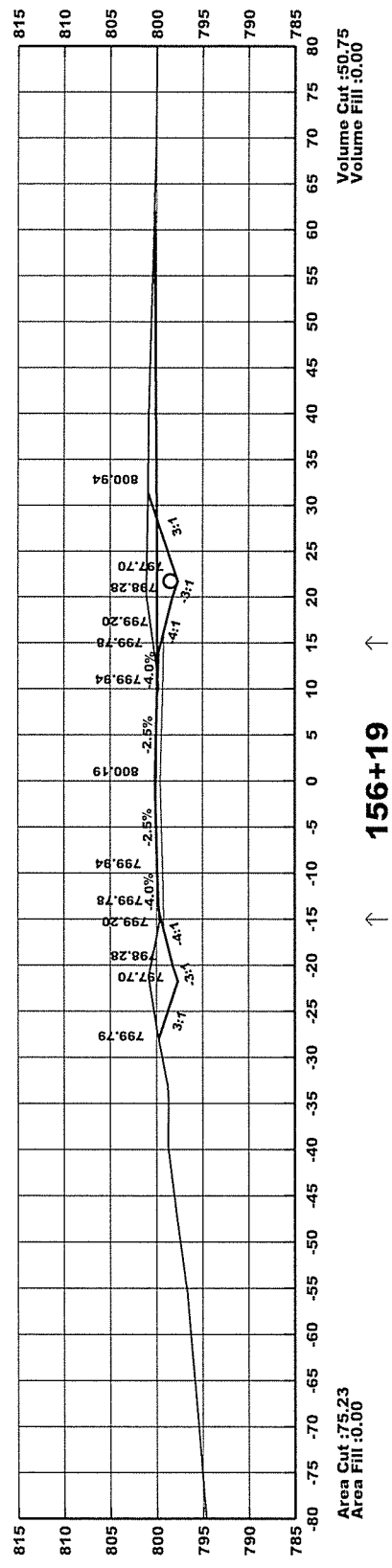
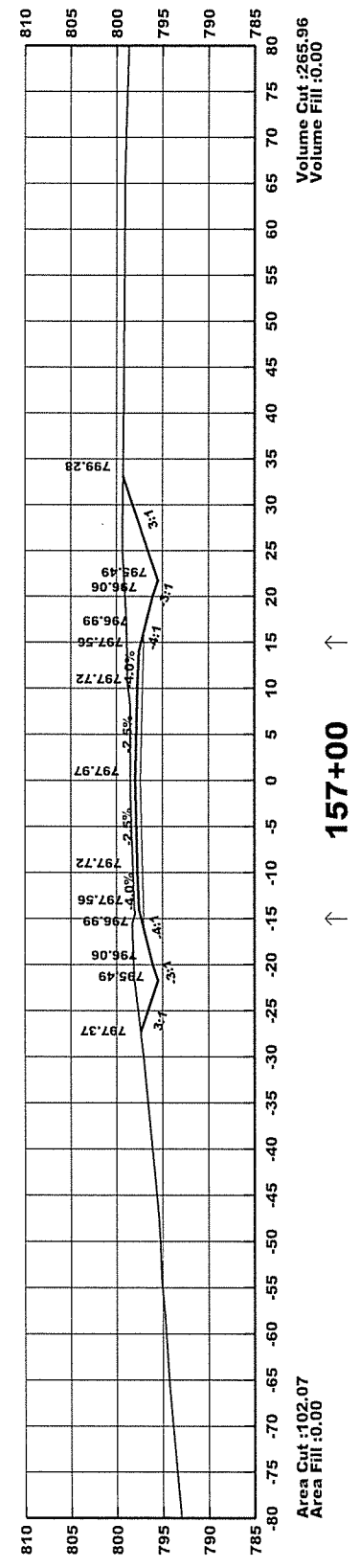
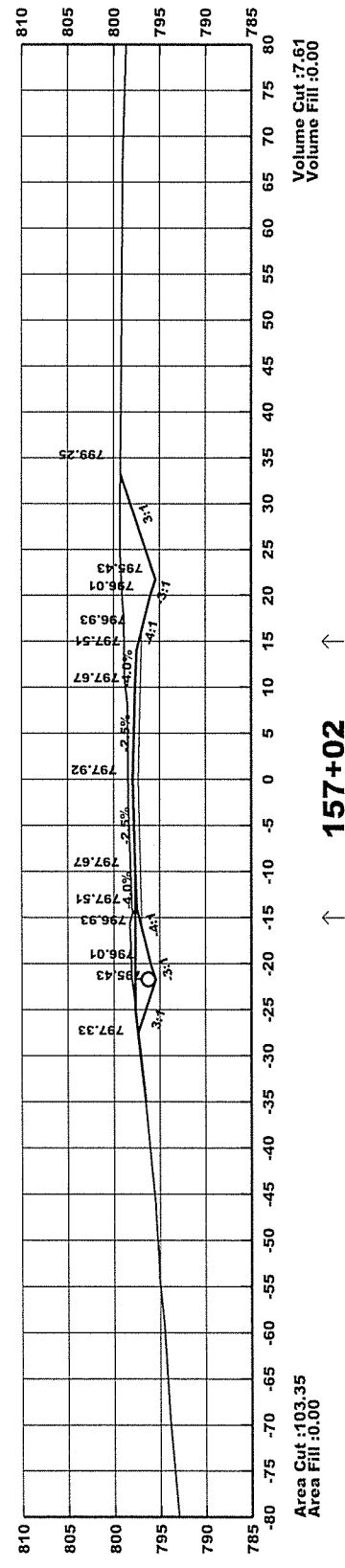
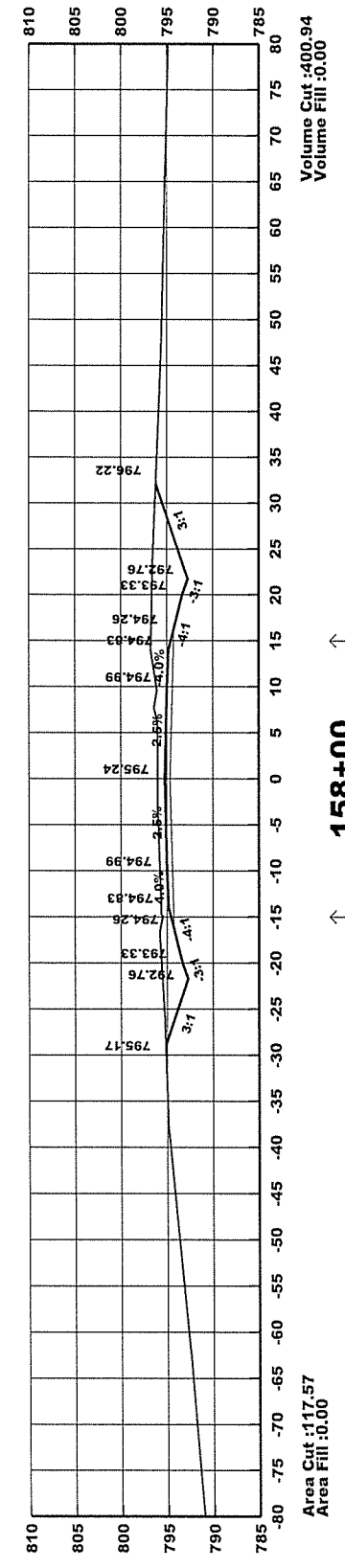
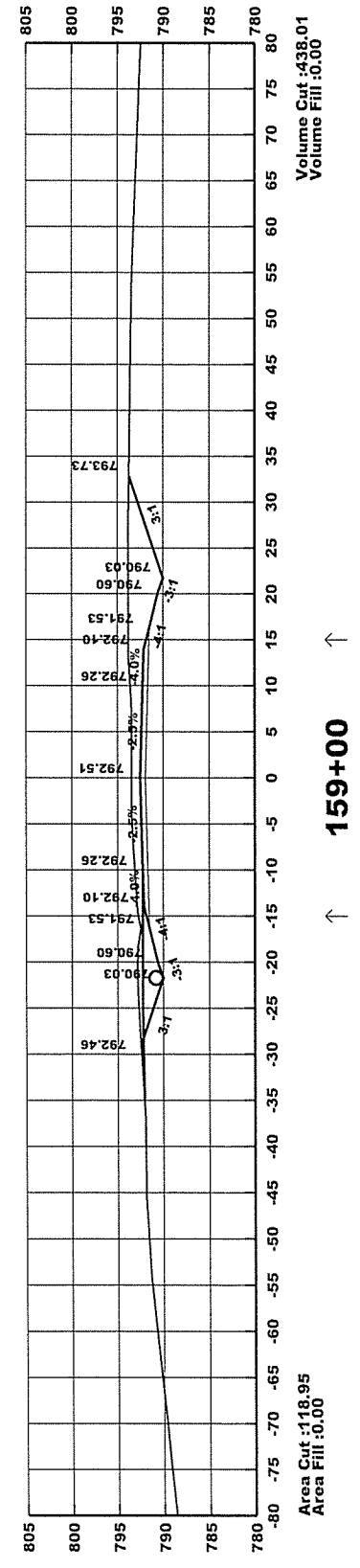
↑ 151+00 ↓



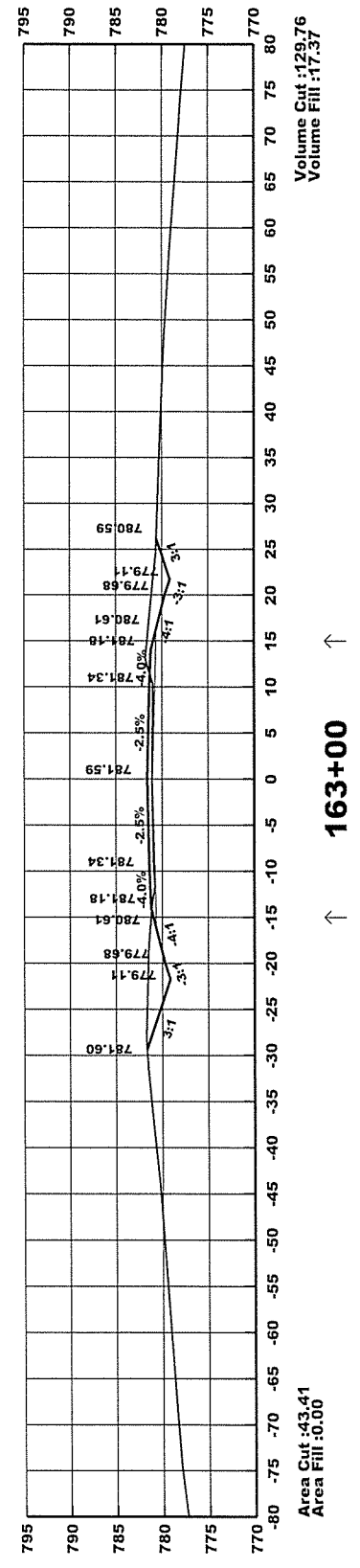
↑ 150+36 ↓

**INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.**

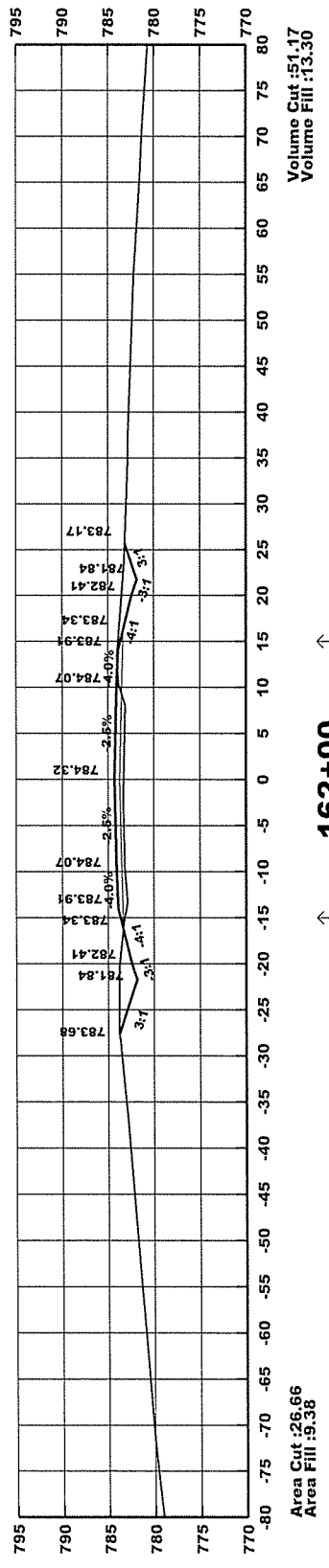
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0313	58	66



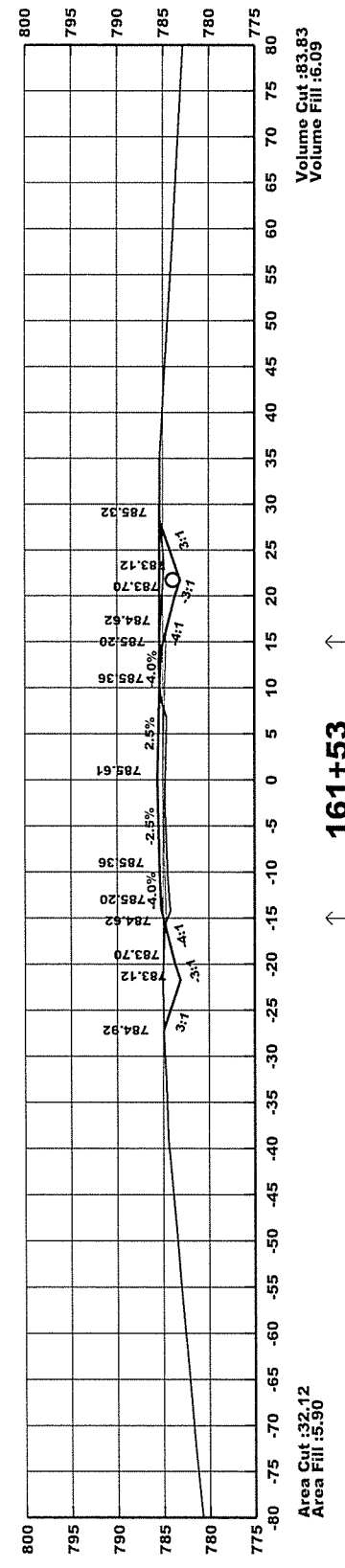
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0313	59	66



163+00

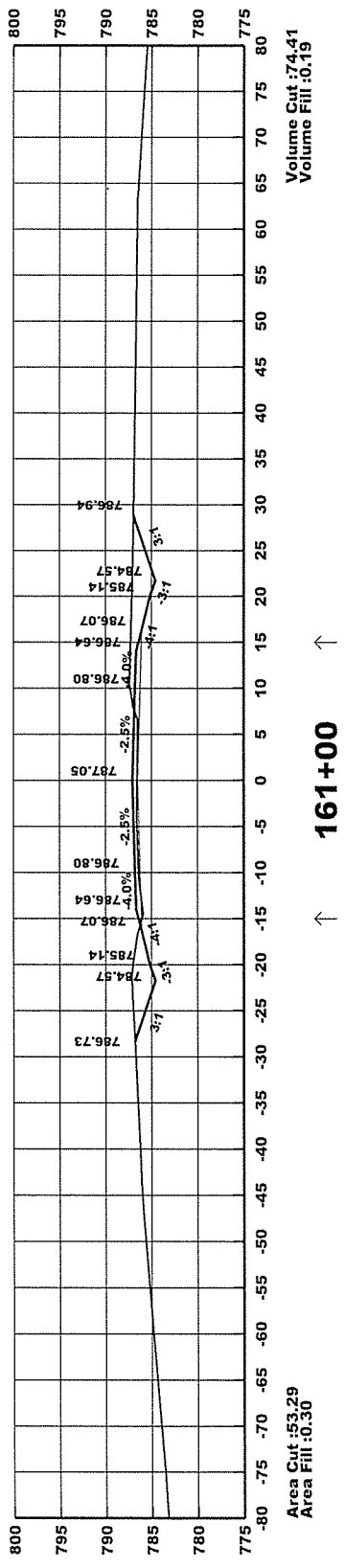


162+00

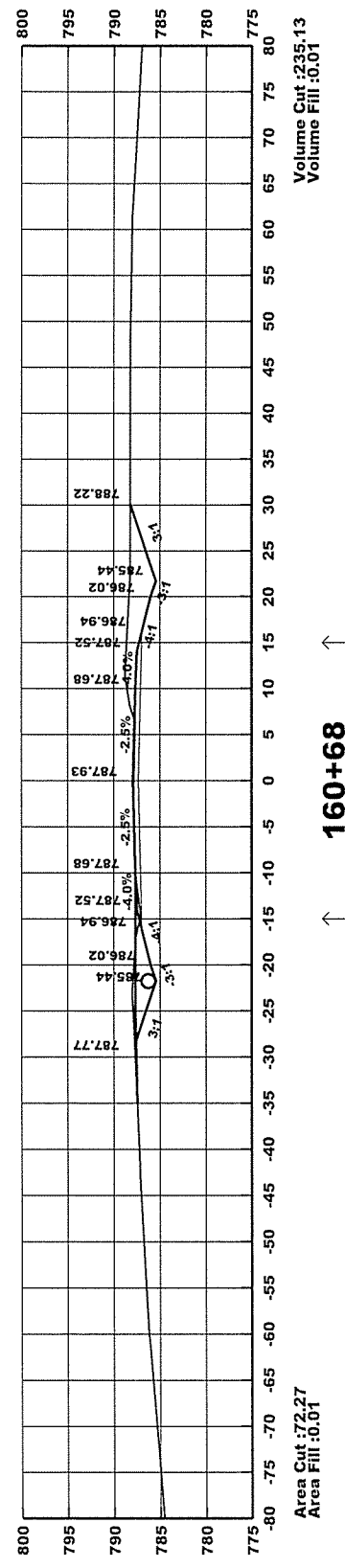


161+53

**INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 20 CU. YDS.**

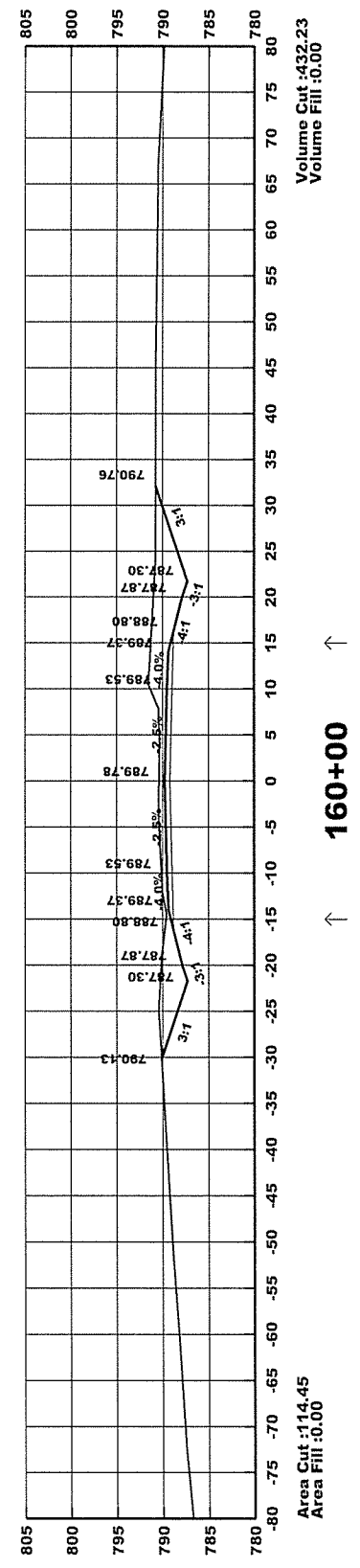


161+00



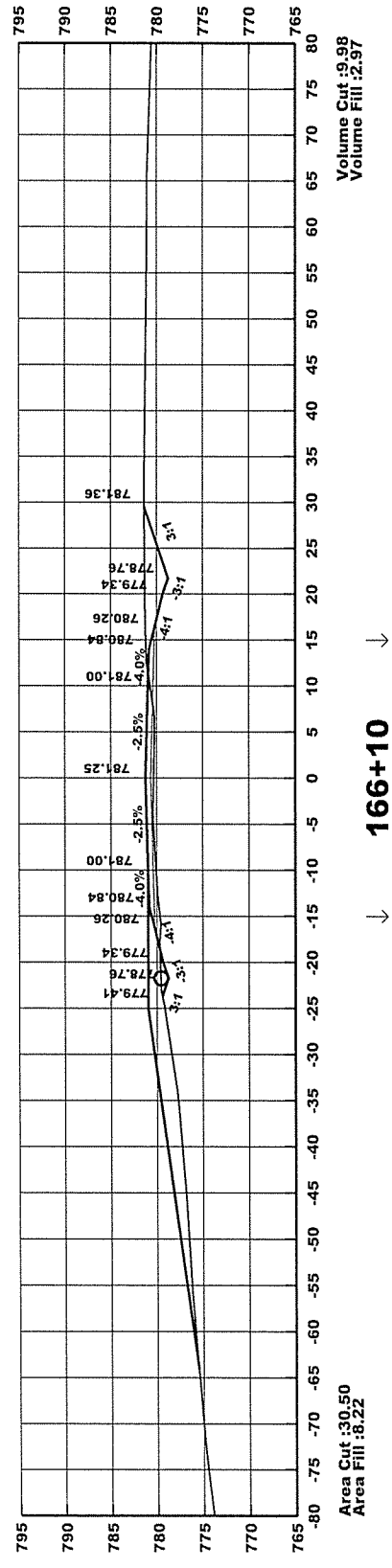
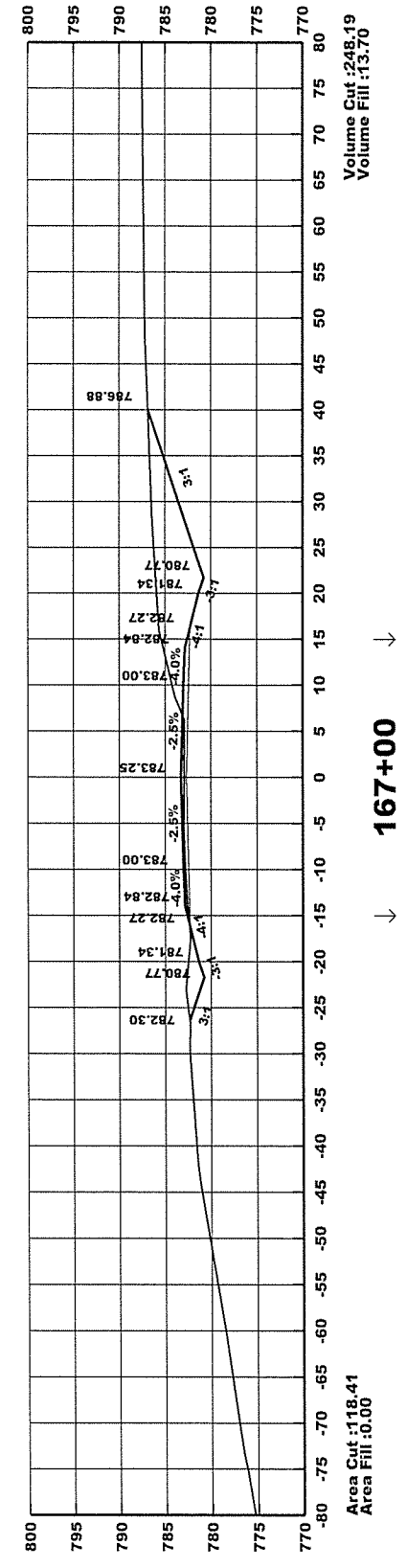
160+68

**INSTALL
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 20 CU. YDS.**

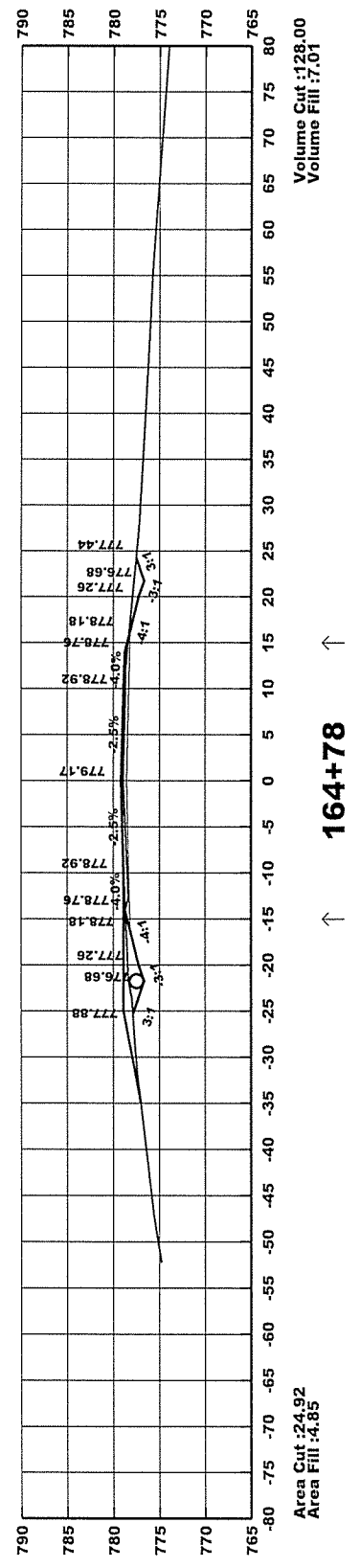
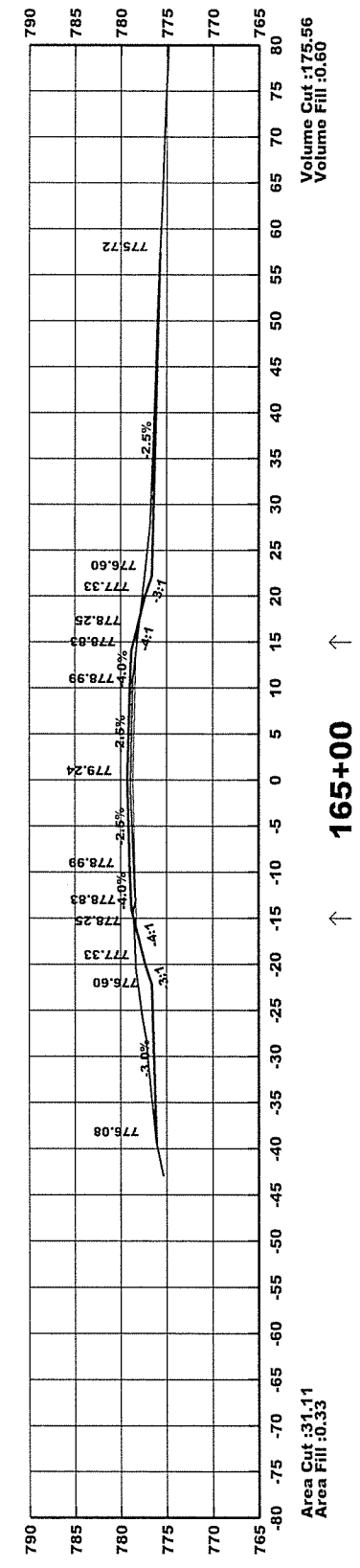
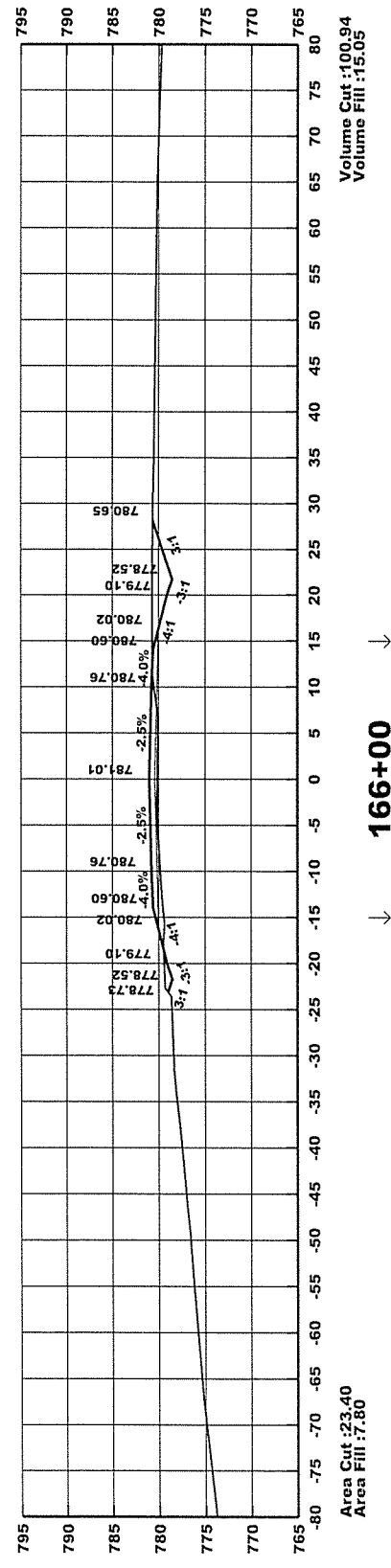


160+00

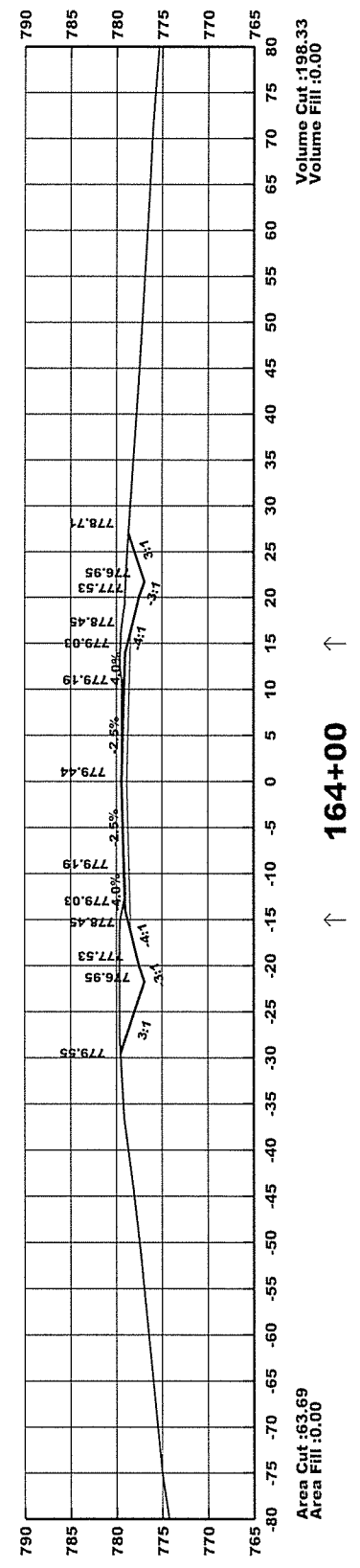
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0313	60	66



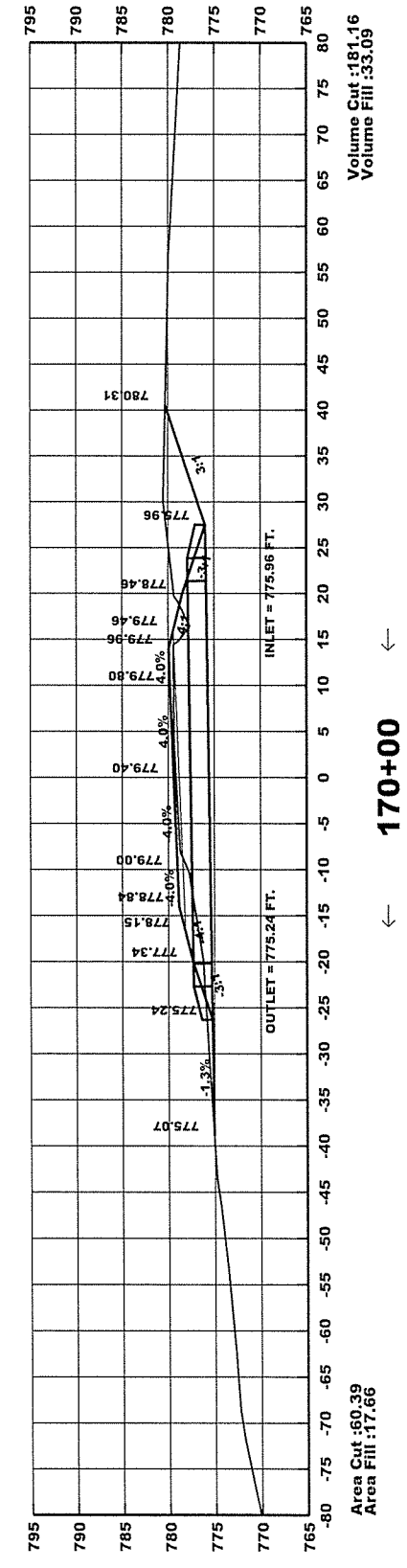
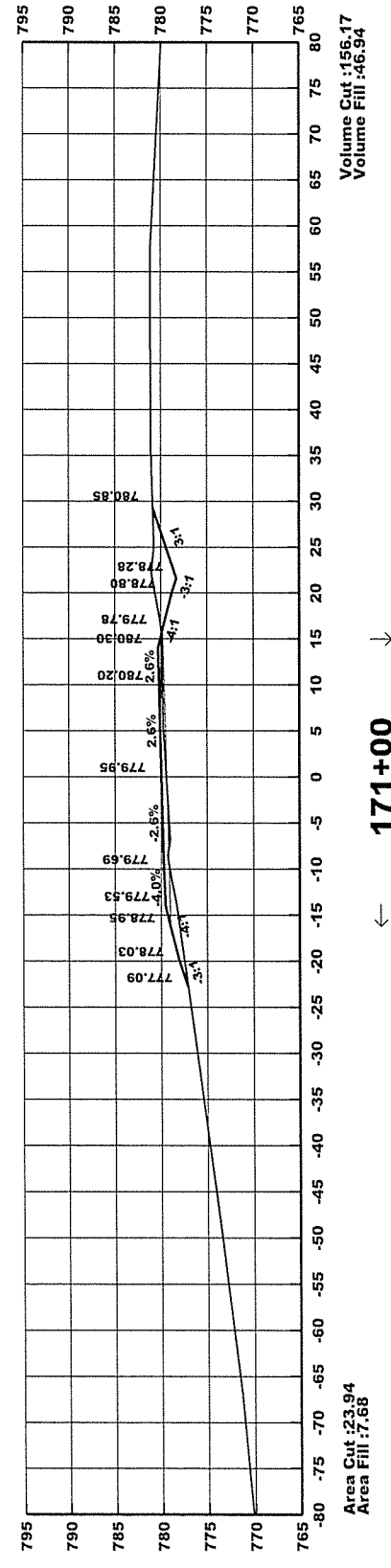
**INSTALL
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 50 CU. YDS.**



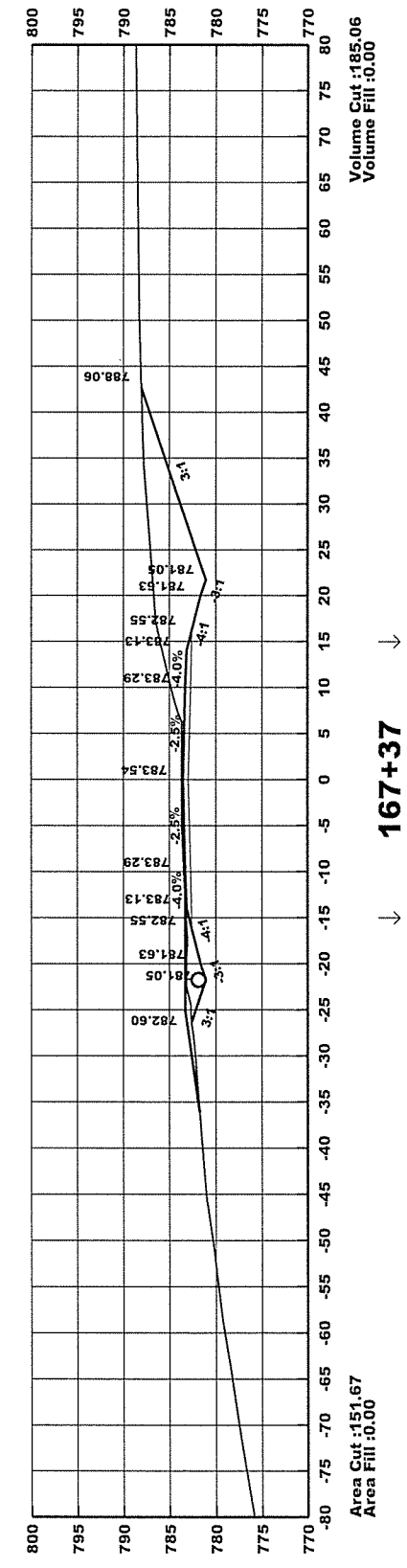
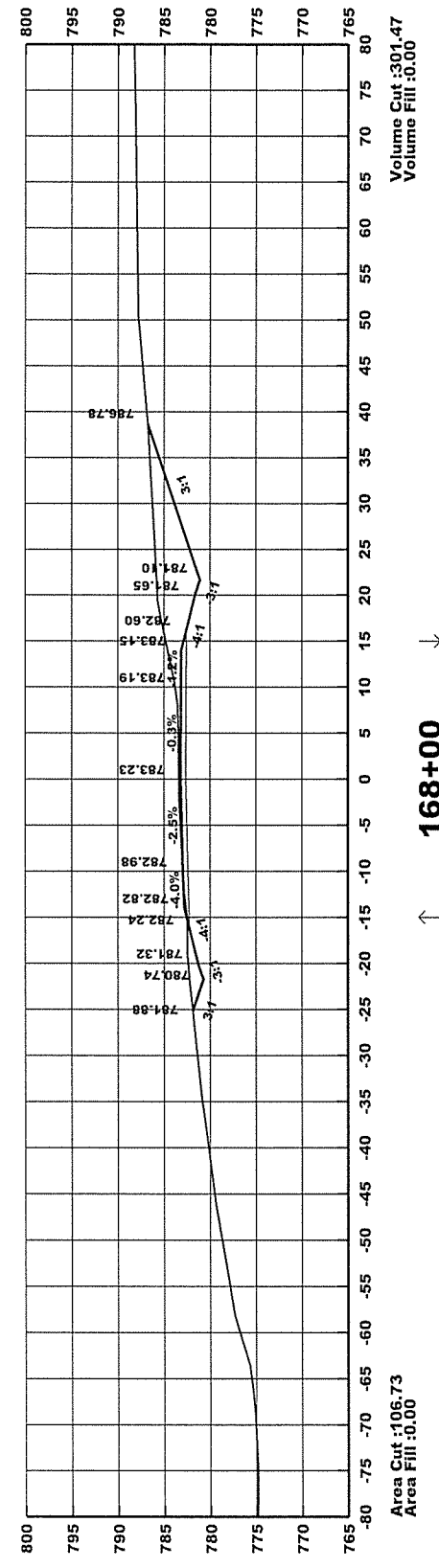
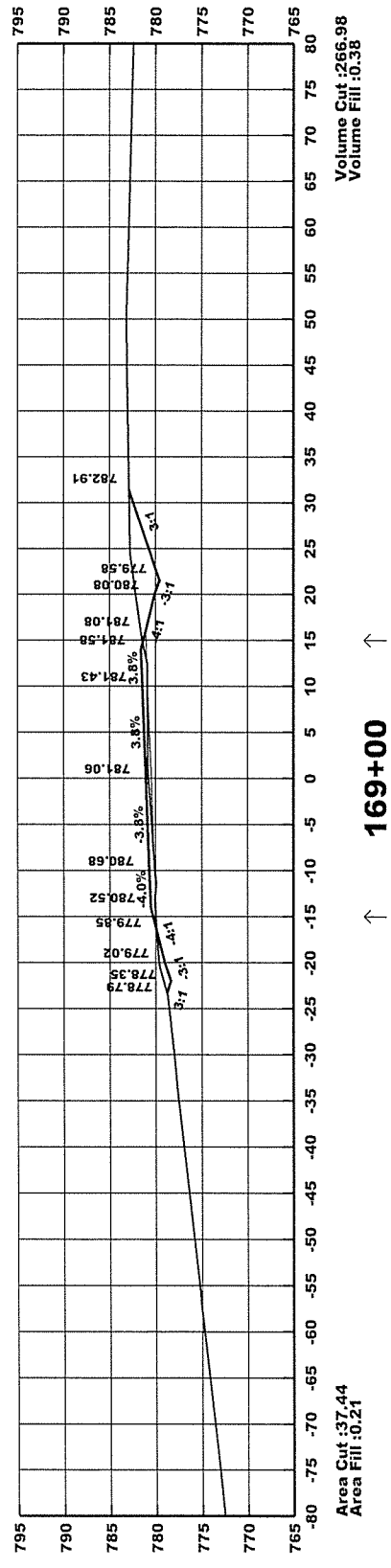
**INSTALL
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 20 CU. YDS.**



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313	61	66	

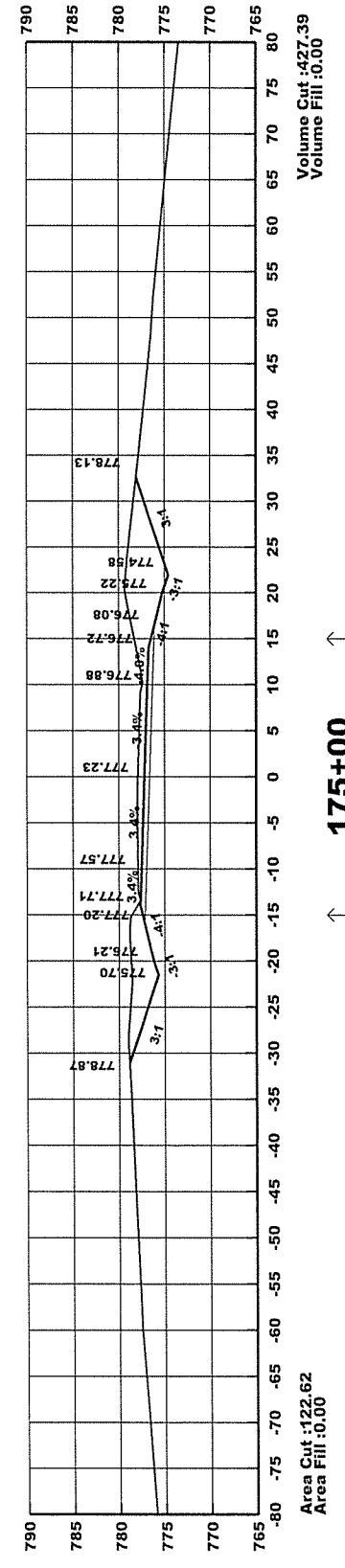


CONSTRUCT
24" PIPE CULVERT
CROSS DRAIN
D.A. = 3.7 AC. Q25 = 12.2 CFS
24" RCP (CL. III)(TYPE 3 BEDDING) = 42 LIN. FT.
24" CMP OR PLASTIC (TYPE 2 BEDDING) = 46 LIN. FT.
24 FES ON LT. AND RT. = 2 EACH

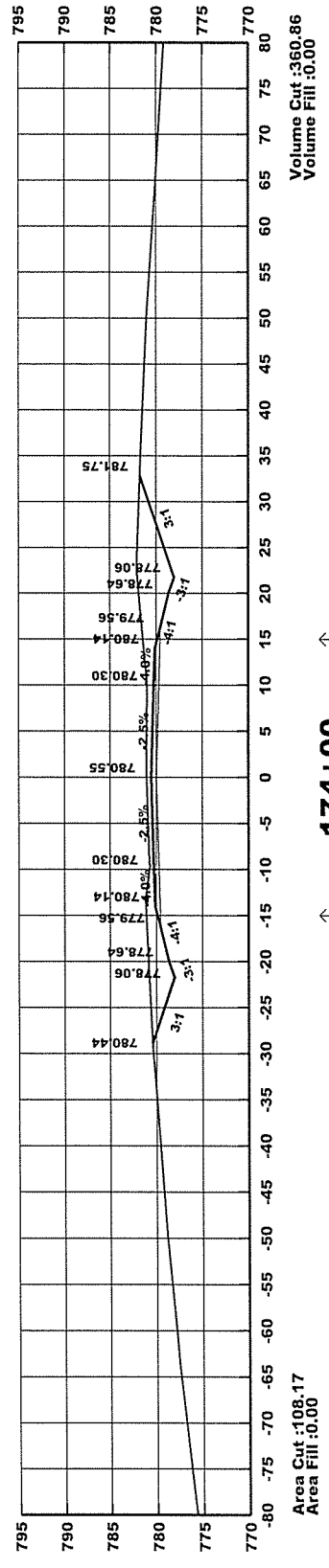


INSTALL
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 20 CU. YDS.

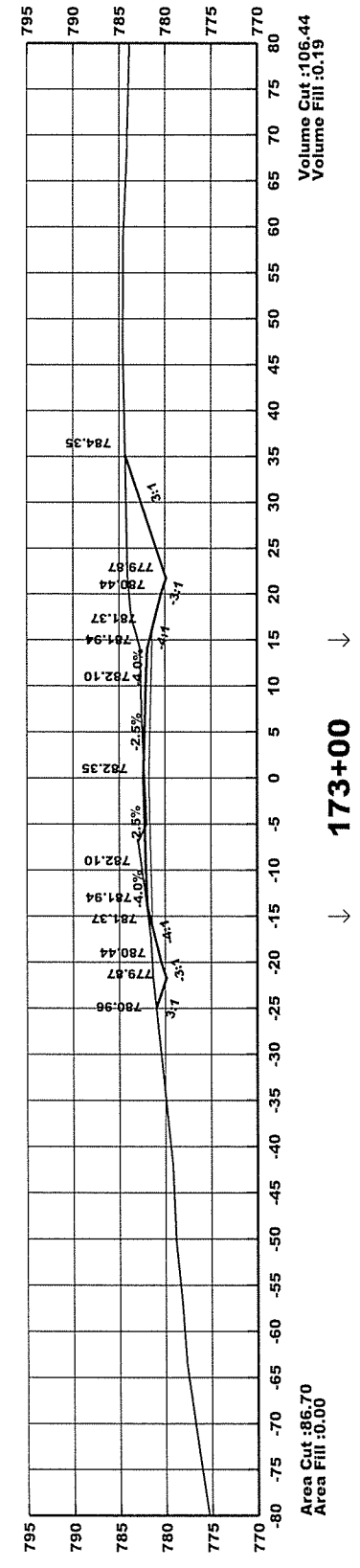
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313	62	66	



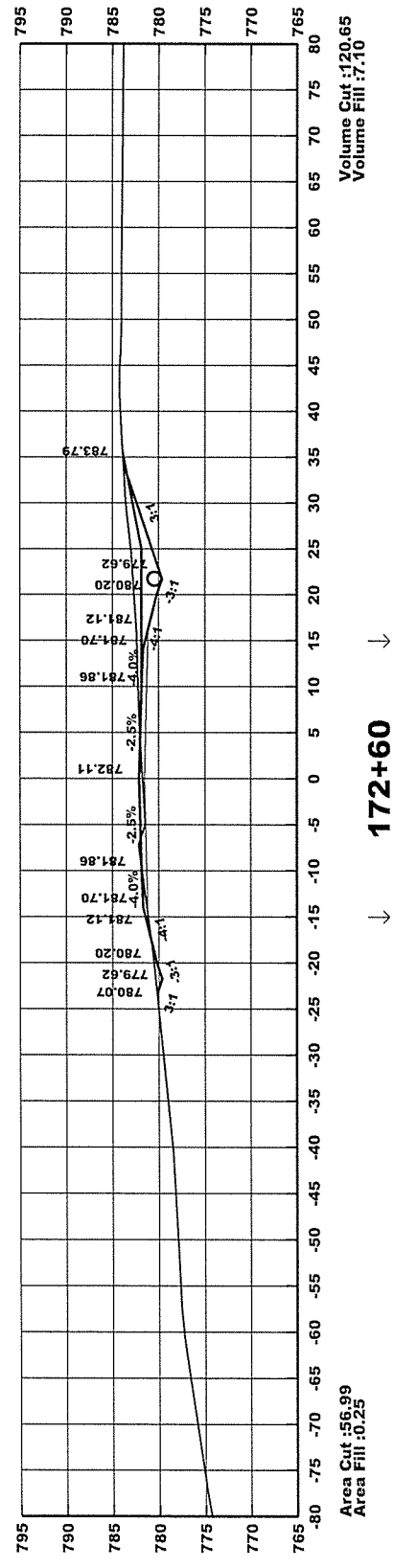
175+00



174+00

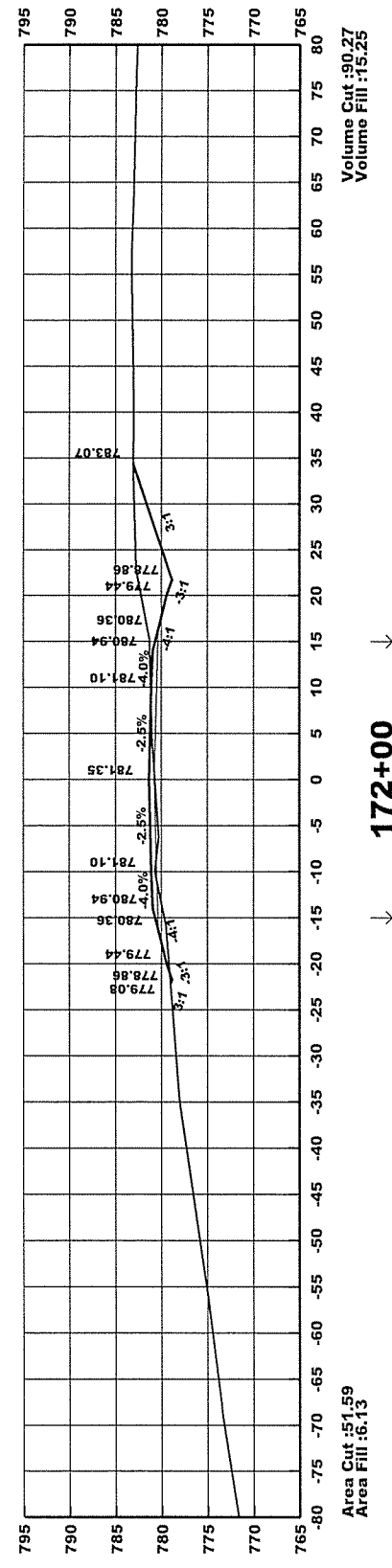


173+00

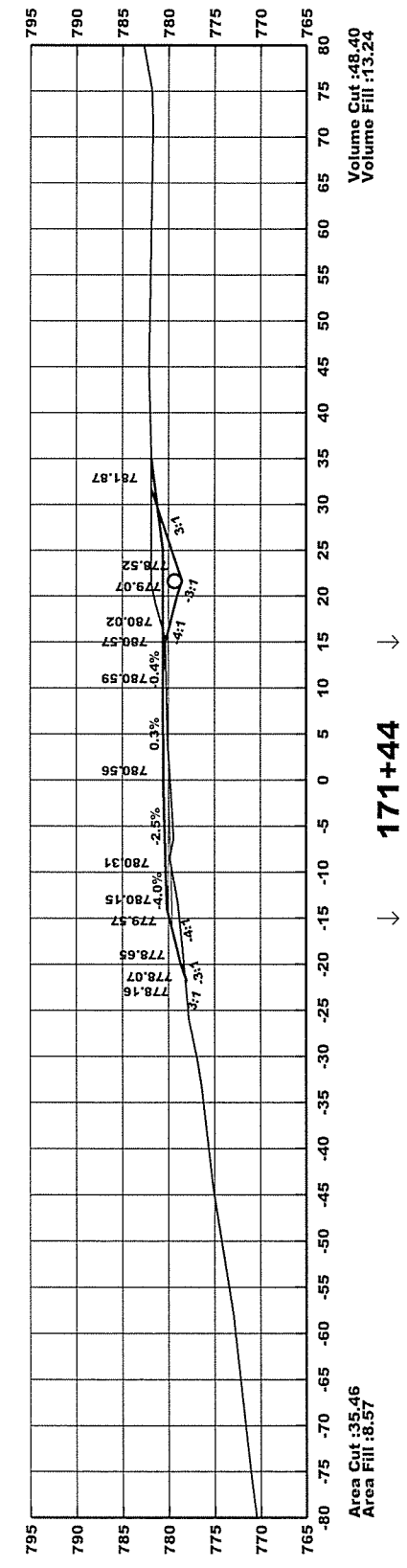


172+60

**INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 20 CU. YDS.**



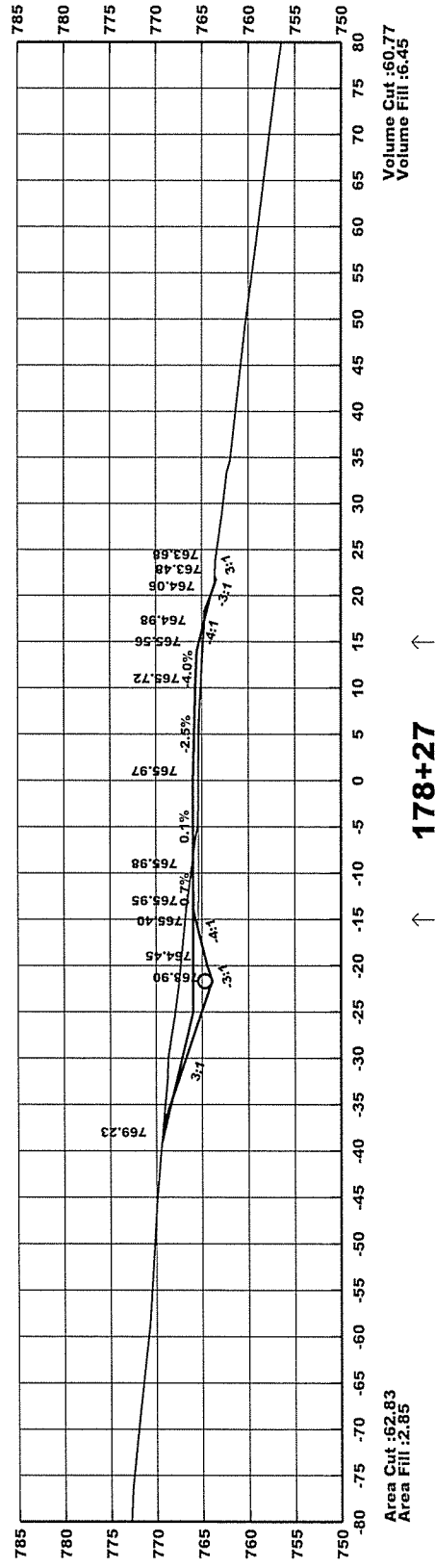
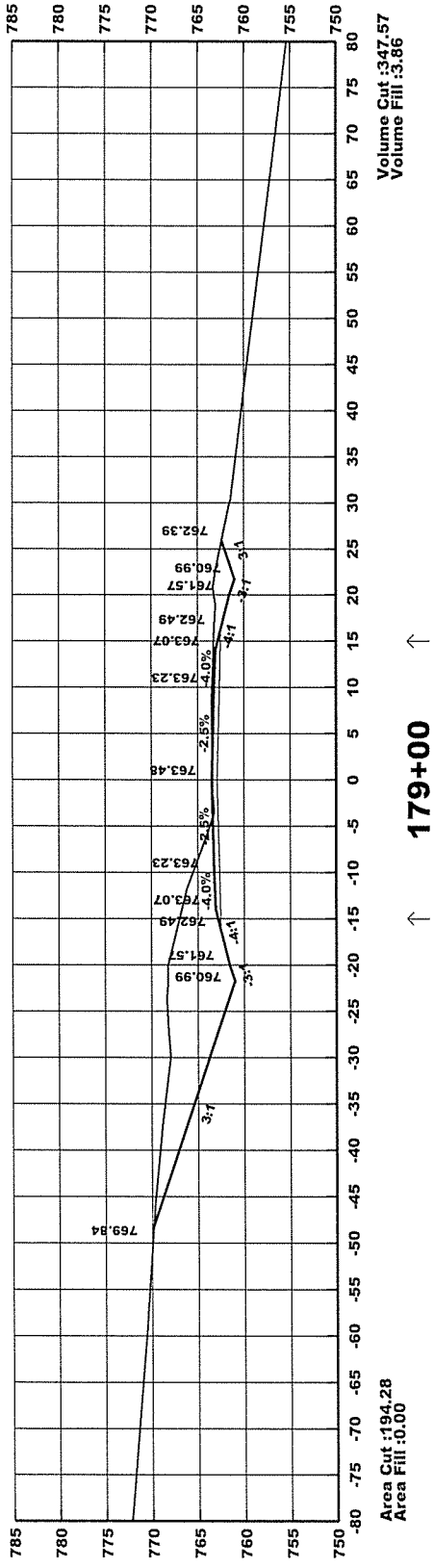
172+00



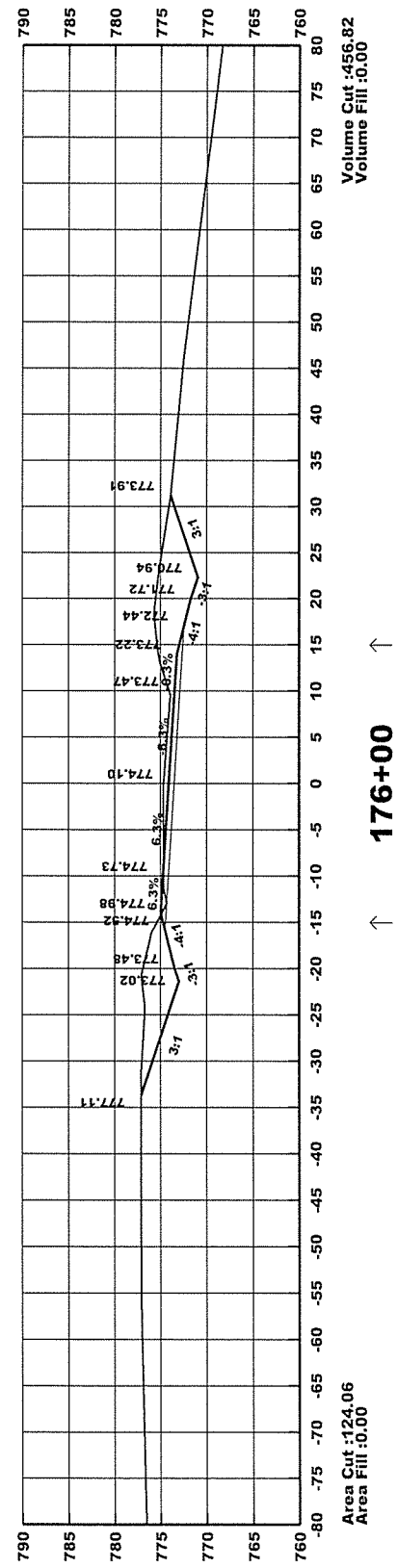
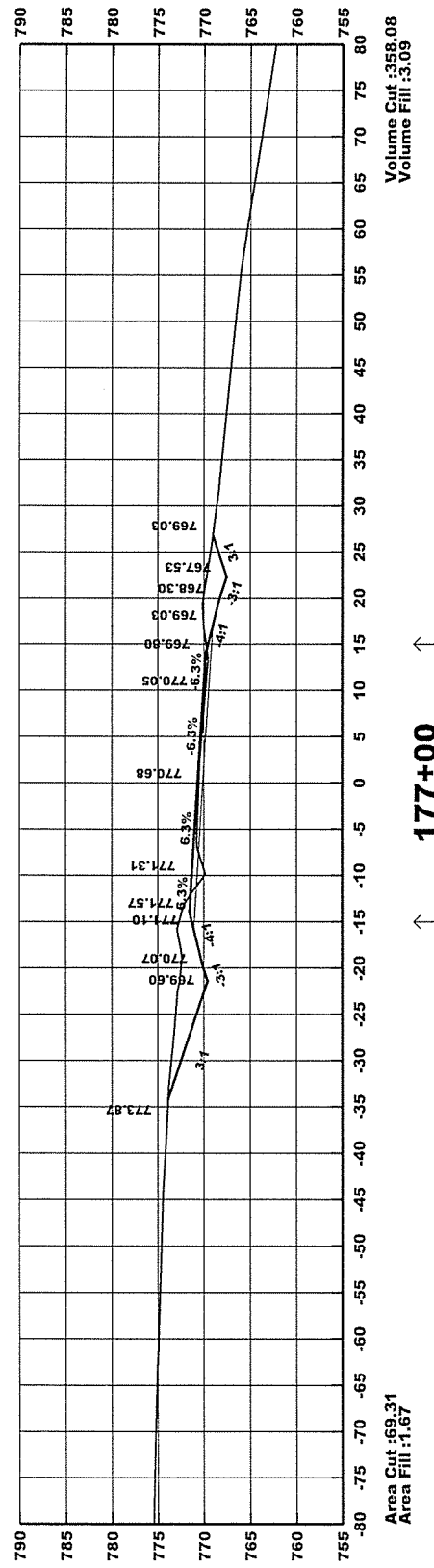
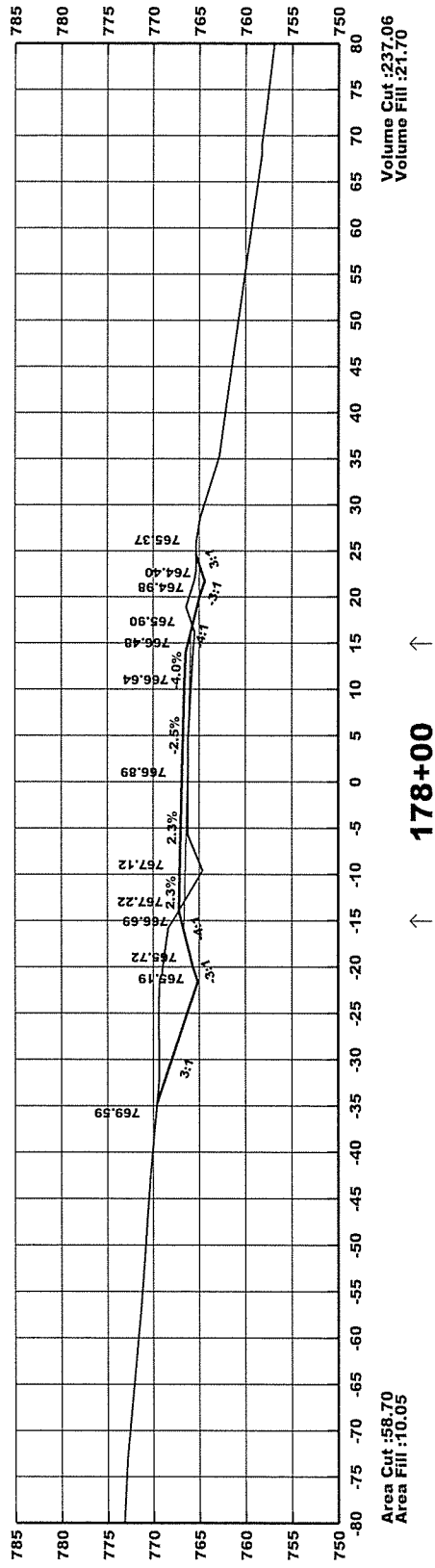
171+44

**INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 20 CU. YDS.**

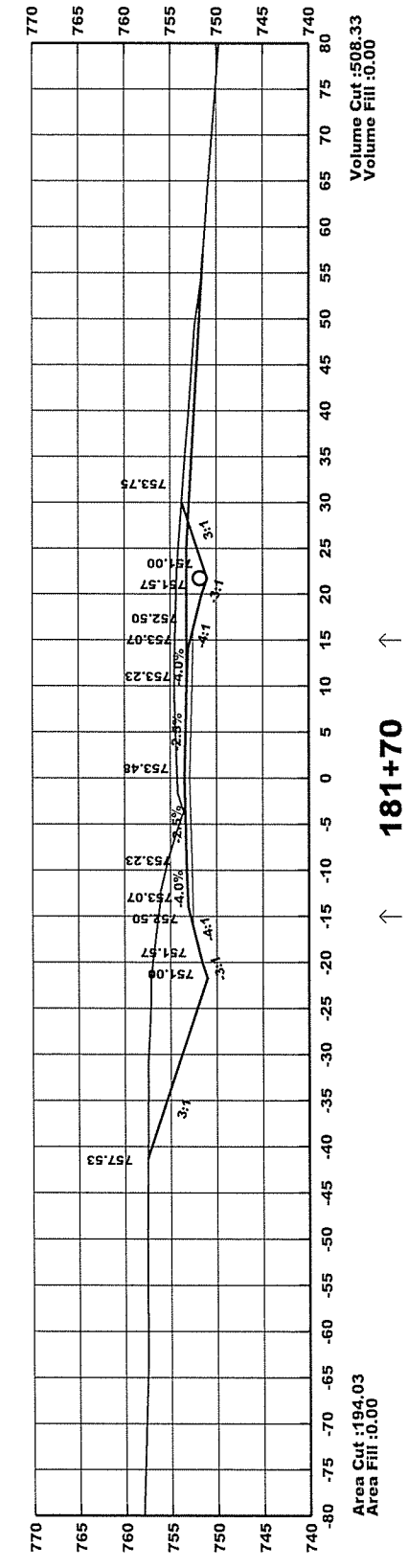
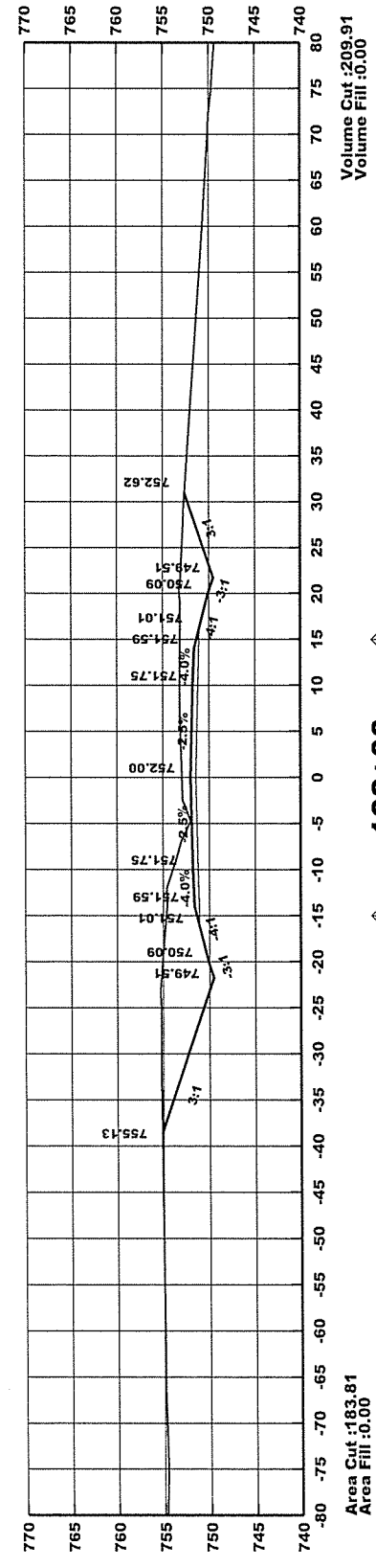
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313		63	66
4 CROSS SECTIONS								



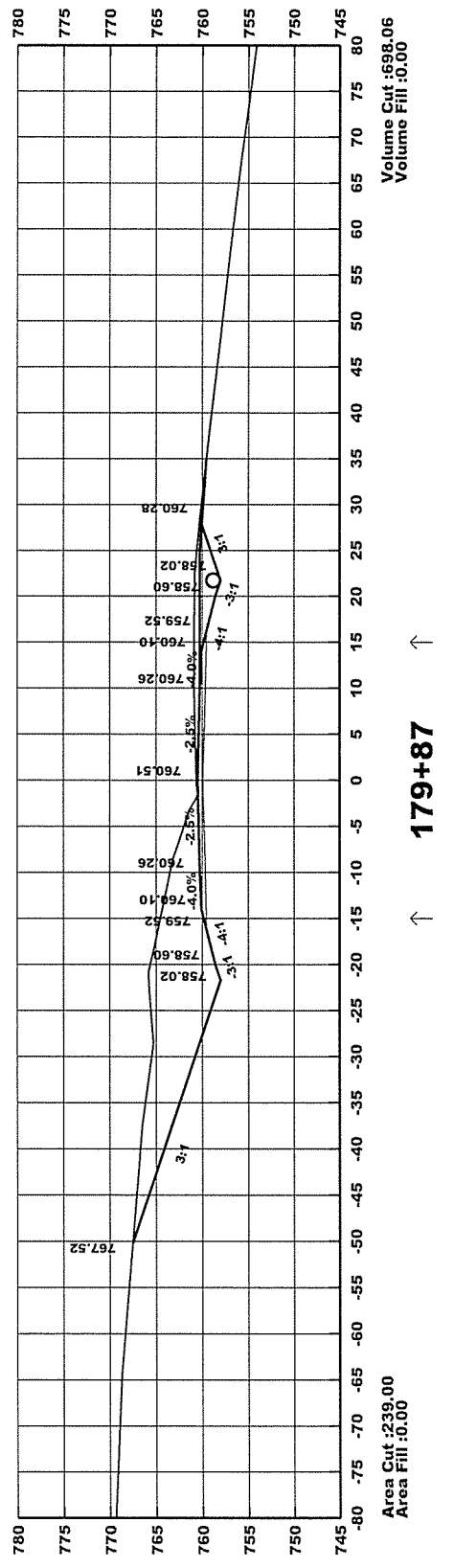
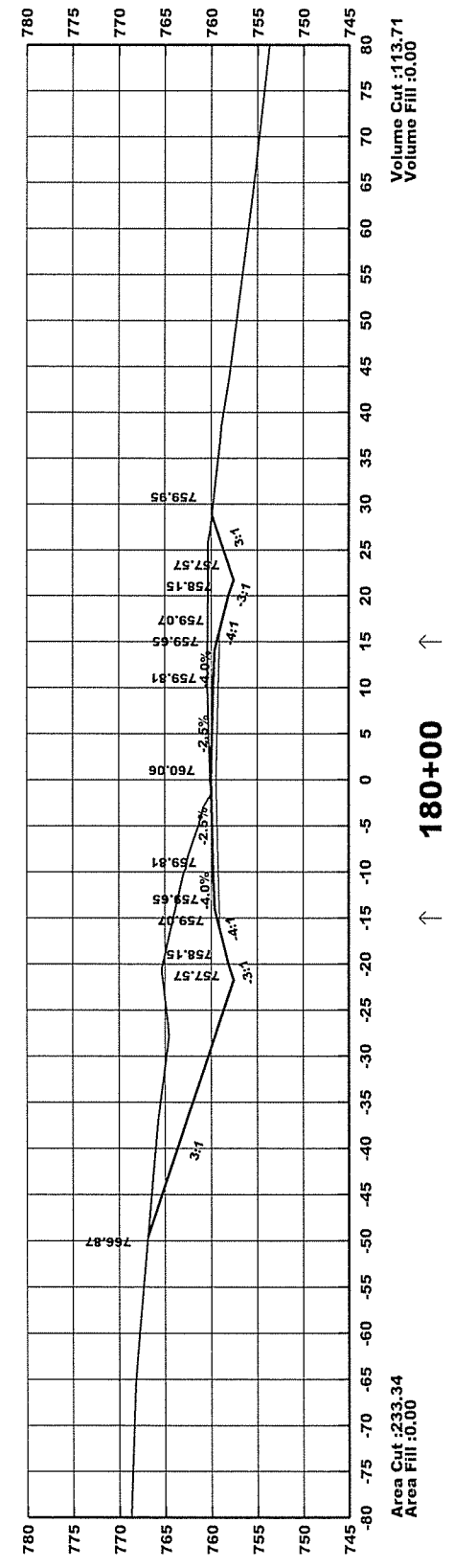
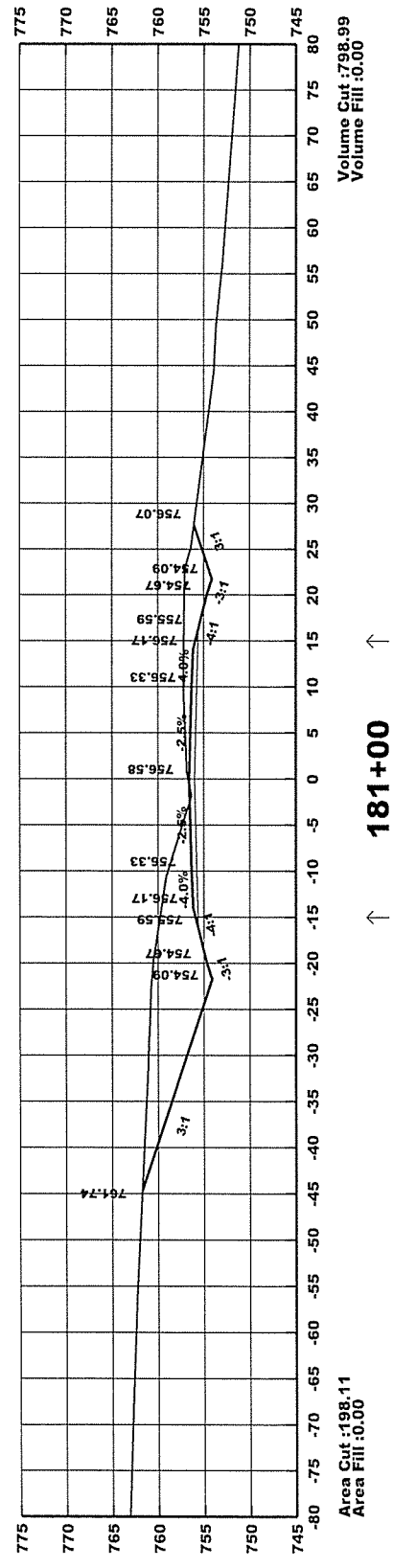
**INSTALL
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.**



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313	64	66	

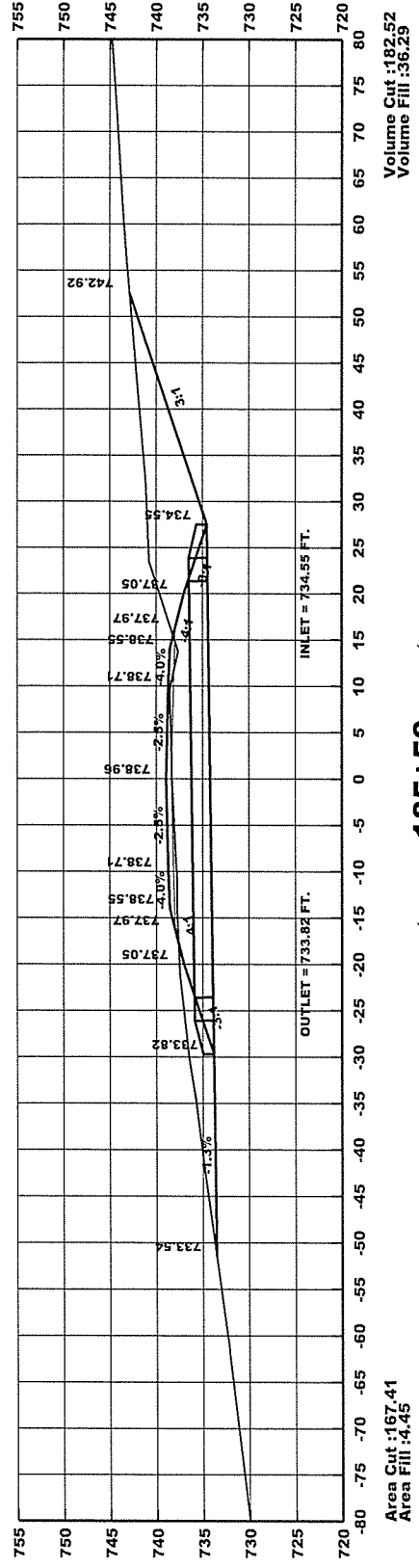


**INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 20 CU. YDS.**



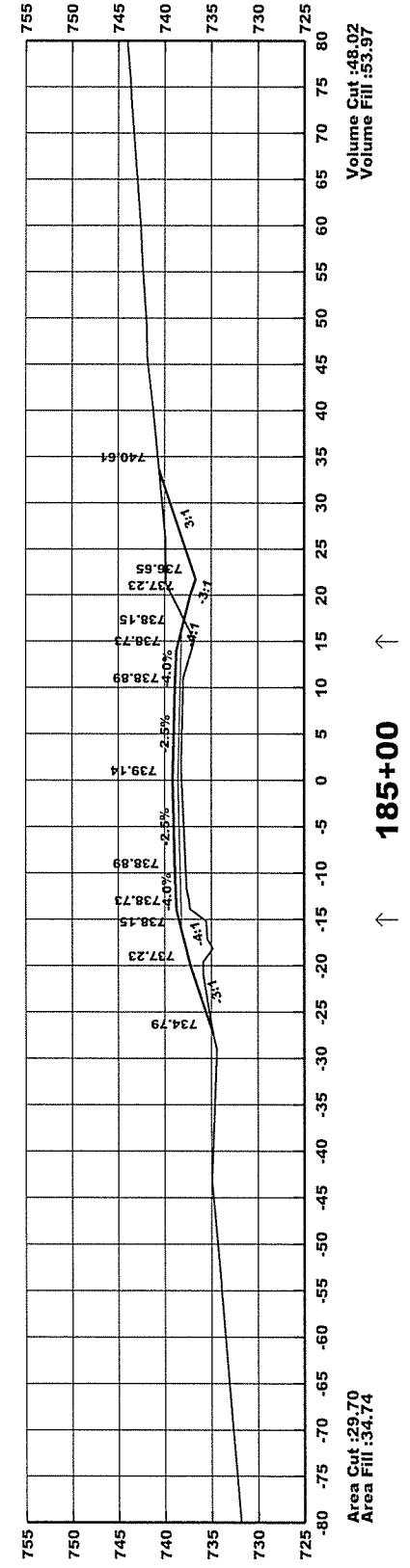
**INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 20 CU. YDS.**

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0313	65	66	

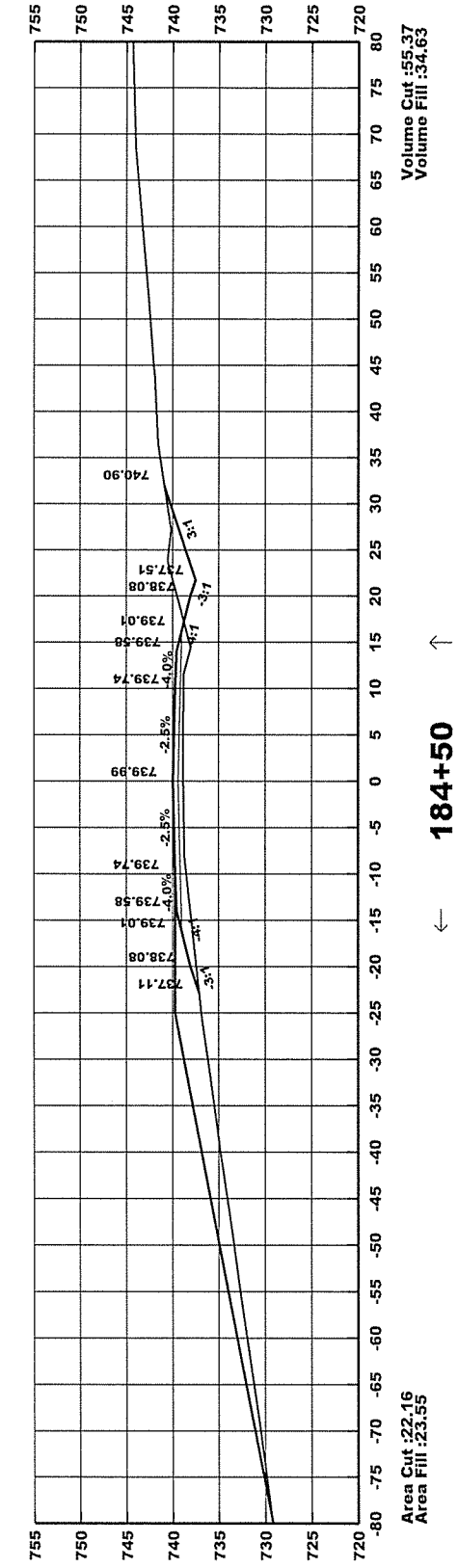


← 185+50 →

**CONSTRUCT
DOUBLE 24" PIPE CULVERT
CROSS DRAIN**
D.A. = 5.3 AC. Q25 = 16.3 CFS
24" RCP (CL. III)(TYPE 3 BEDDING) = 90 LIN. FT.
24" CMP OR PLASTIC (TYPE 2 BEDDING) = 100 LIN. FT.
24 FES ON LT. AND RT. = 4 EACH

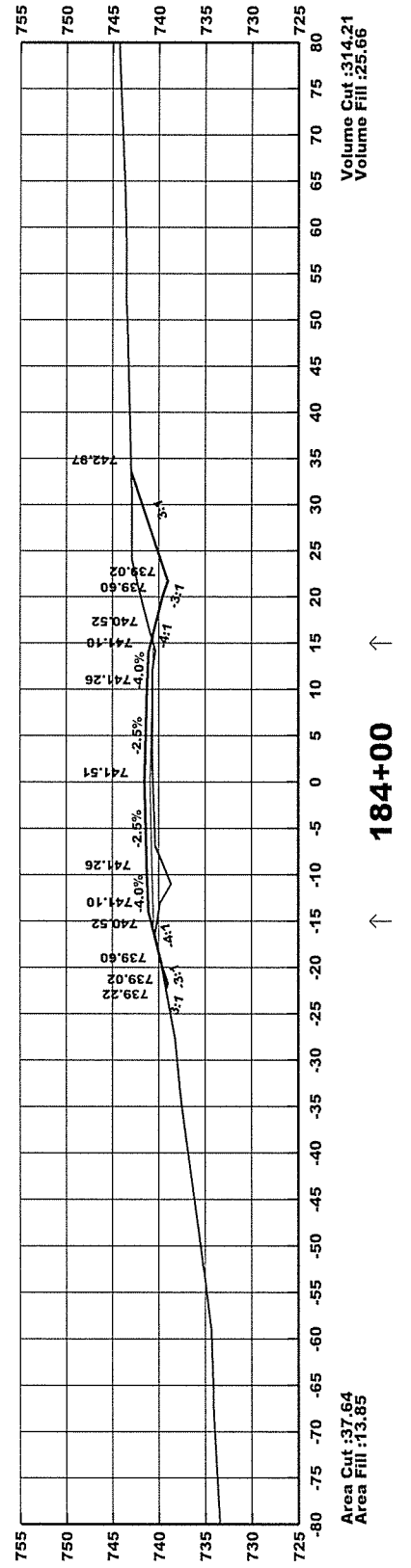


← 185+00 →

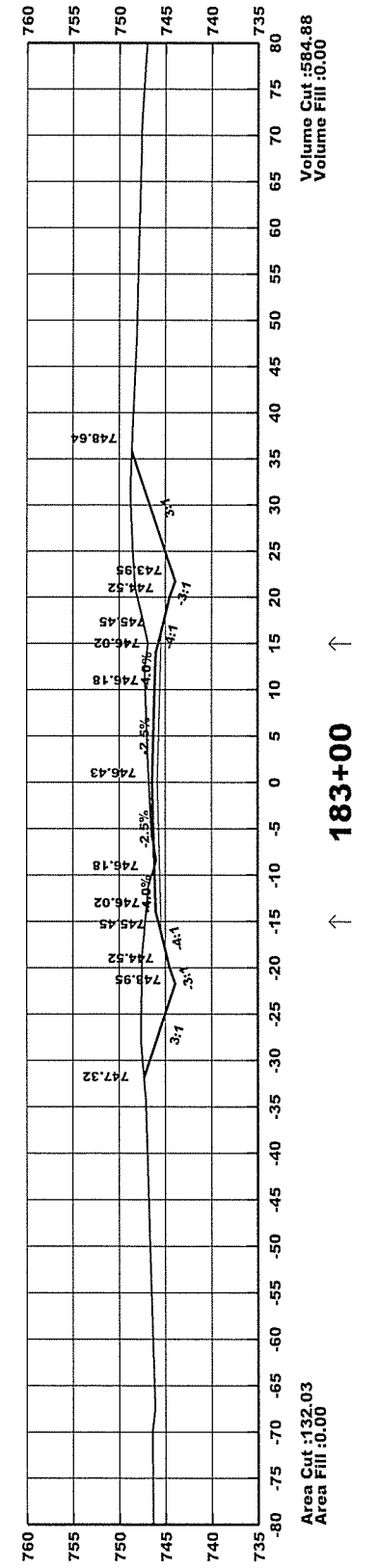


← 184+50 →

**CONST. APPR.
ON LT. = 70 CU. YDS.**



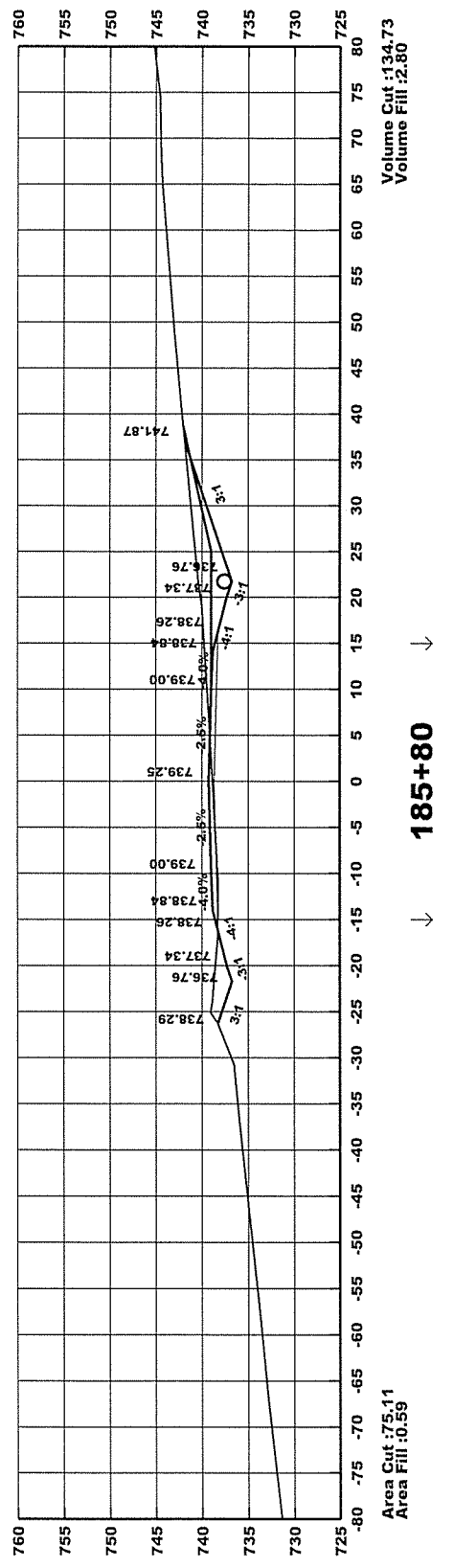
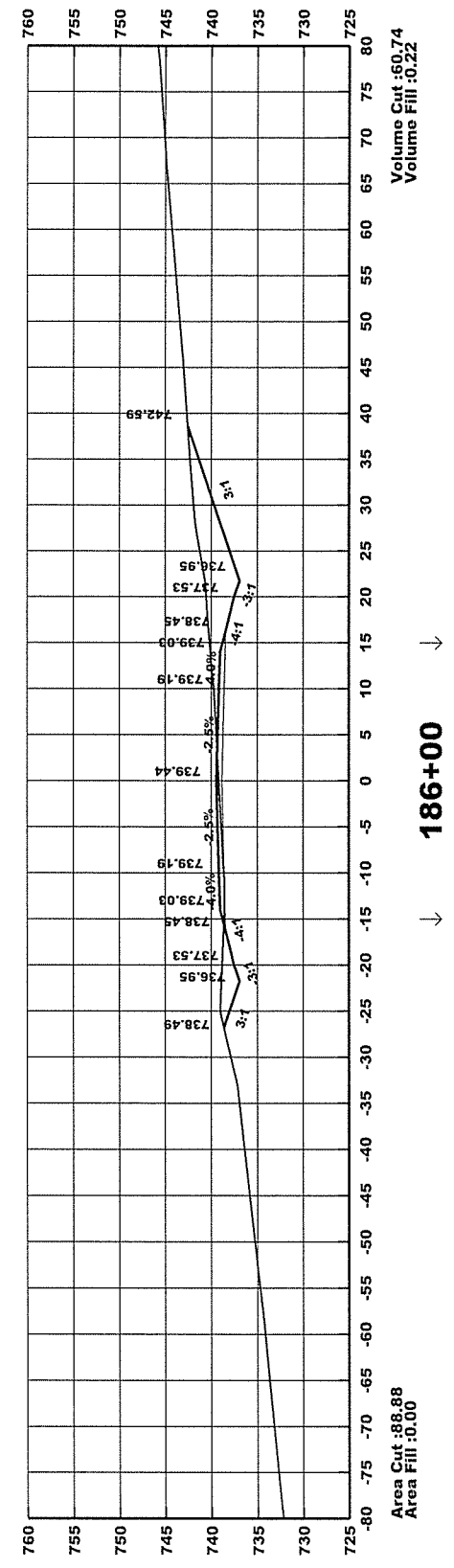
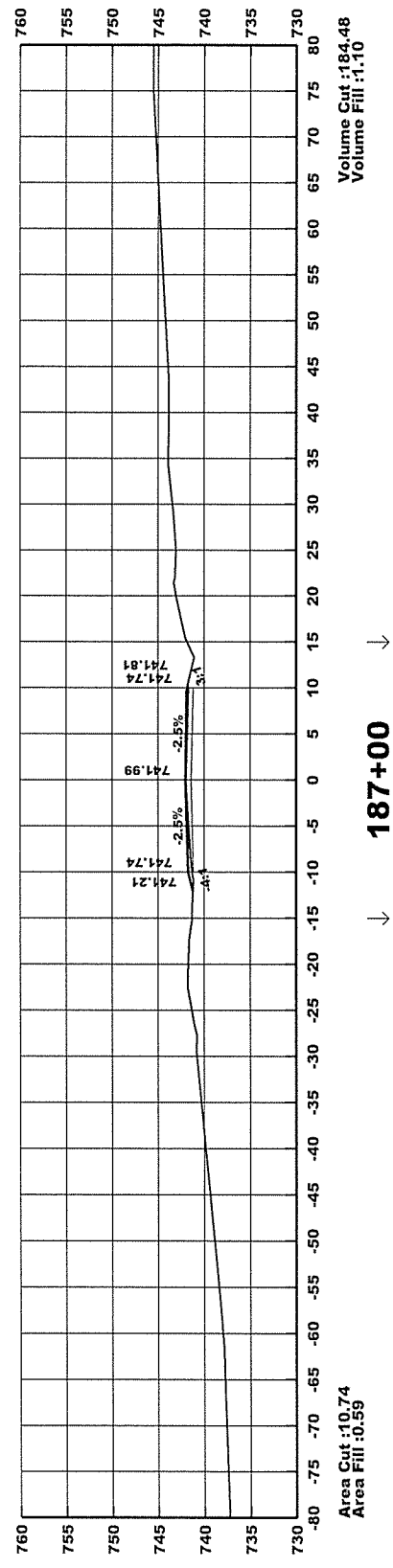
← 184+00 →



← 183+00 →

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0313	66	66
4 CROSS SECTIONS								

END JOB FA0313



**INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.**