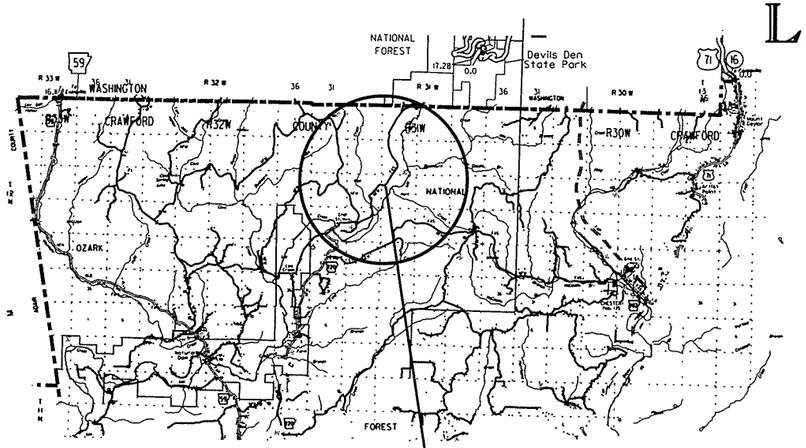
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	1	215
				(2)	LEE CREEK - EAST (S)			

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

LEE CREEK - EAST (S)

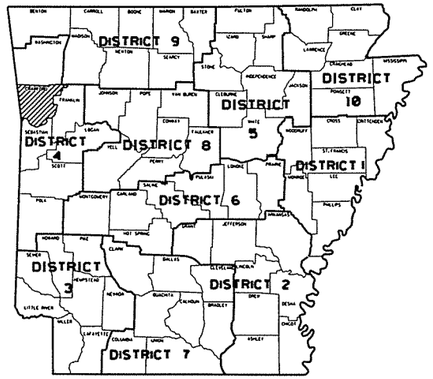
CRAWFORD COUNTY
ROUTE 220 SECTION 2
JOB 040206
F.A.P. FLAP-200(1)

NOT TO SCALE

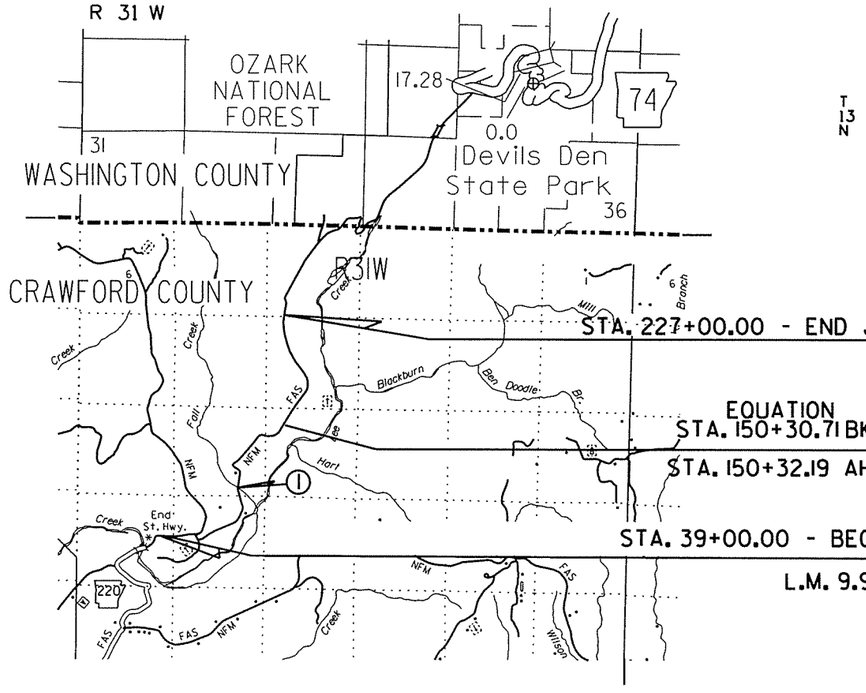


VICINITY MAP

PROJECT LOCATION



ARK. HWY. DIST. NO. 4



STA. 227+00.00 - END JOB 040206

EQUATION
STA. 150+30.71 BK. =
STA. 150+32.19 AHD.

STA. 39+00.00 - BEGIN JOB 040206

L.M. 9.90

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2035
2015 ADT	60
2035 ADT	80
2035 DHV	9
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	3%
DESIGN SPEED	20 MPH

BRIDGE DATA

(1) BR. END STA. 101+33.68
BRIDGE NO. 06725
28'-0" CLEAR ROADWAY
197'-7 3/4" TOTAL LENGTH
195'-0"CONTINUOUS COMPOSITE W-BEAM UNIT
(60', 75', 60')
BR. END STA. 103+31.32

BEGINNING:	LAT:	N 35° 42' 20"
	LONG:	W 94° 19' 19"
MID POINT:	LAT:	N 35° 43' 26"
	LONG:	W 94° 17' 55"
ENDING:	LAT:	N 35° 45' 09"
	LONG:	W 94° 17' 30"

GROSS LENGTH OF PROJECT	18801.48	FEET OR	3.561	MILES
NET " " ROADWAY	18603.84	" "	3.524	"
NET " " BRIDGES	197.64	" "	0.037	"
NET " " PROJECT	18801.48	" "	3.561	"

P.E. JOB 040206
" NON - PART."

APPROVED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7836
M.E. BANKS

3-20-15
DEPUTY DIRECTOR
AND CHIEF ENGINEER

12/17/2014
R040206.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
4/14/2015				6	ARK.			
				JOB NO.		040206	2	215

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-14-15

INDEX OF SHEETS

SHEET NO.		TITLE	BRIDGE NO.	DRAWING NO.	DATE
1	___	TITLE SHEET			
2	___	INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES			
3	___	TYPICAL SECTIONS OF IMPROVEMENT			
4-5	___	SPECIAL DETAILS			
6-9	___	TEMPORARY EROSION CONTROL DETAILS			
10-14	___	MAINTENANCE OF TRAFFIC DETAILS			
15	___	PERMANENT PAVEMENT MARKING DETAILS			
16-21	___	QUANTITIES			
22	___	SCHEDULE OF BRIDGE QUANTITIES	06725	38737	
23	___	SUMMARY OF QUANTITIES AND REVISIONS			
24-31	___	SURVEY CONTROL DETAILS			
32-38	___	PLAN AND PROFILE SHEETS			
39	___	LAYOUT OF BRIDGE OVER FALL CREEK	06725	38737A	
40	___	DETAILS OF BENT NO. 1 FALL CREEK (SHEET 1 OF 2)	06725	38738	
41	___	DETAILS OF BENT NO. 1 FALL CREEK (SHEET 2 OF 2)	06725	38739	
42	___	DETAILS OF BENT NOS. 2 & 3 FALL CREEK	06725	38740	
43	___	DETAILS OF BENT NO. 4 FALL CREEK (SHEET 1 OF 2)	06725	38741	
44	___	DETAILS OF BENT NO. 4 FALL CREEK (SHEET 2 OF 2)	06725	38742	
45	___	DETAILS OF 195'-0" CONTINUOUS W-BEAM UNIT FALL CREEK (SHEET 1 OF 5)	06725	38743	
46	___	DETAILS OF 195'-0" CONTINUOUS W-BEAM UNIT FALL CREEK (SHEET 2 OF 5)	06725	38744	
47	___	DETAILS OF 195'-0" CONTINUOUS W-BEAM UNIT FALL CREEK (SHEET 3 OF 5)	06725	38745	
48	___	DETAILS OF 195'-0" CONTINUOUS W-BEAM UNIT FALL CREEK (SHEET 4 OF 5)	06725	38746	
49	___	DETAILS OF 195'-0" CONTINUOUS W-BEAM UNIT FALL CREEK (SHEET 5 OF 5)	06725	38747	
50	___	DETAILS OF ELASTOMERIC BEARINGS	06725	38748	
51	___	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS		55000	2/27/14
52	___	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES		55001	2/27/14
53	___	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDERS SPANS		55005	2/27/14
54	___	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE		55010	1/14/15
55	___	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS		55020	2/27/14
56	___	STANDARD DETAILS FOR TYPE A APPROACH GUTTERS		55030A	2/27/14
57	___	GUARD RAIL DETAILS		GR-8	7/14/10
58	___	GUARD RAIL DETAILS		GR-8A	7/14/10
59	___	GUARD RAIL DETAILS		GR-9	4/17/08
60	___	GUARD RAIL DETAILS		GR-9A	4/17/08
61	___	GUARD RAIL DETAILS		GR-10	7/14/10
62	___	GUARD RAIL DETAILS		GR-10A	7/14/10
63	___	GUARD RAIL DETAILS		GRT-1	7/14/10
64	___	MAILBOX DETAILS		MB-1	11/18/04
65	___	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING		PCC-1	2/27/14
66	___	METAL PIPE CULVERT FILL HEIGHTS & BEDDING		PCM-1	2/27/14
67	___	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)		PCP-1	2/27/14
68	___	PLASTIC PIPE CULVERT (PVC F949)		PCP-2	2/27/14
69	___	PAVEMENT MARKING DETAILS		PM-1	9/12/13
70	___	DETAILS OF PIPE UNDERDRAIN		PU-1	4/10/03
71	___	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC		SE-2	10/18/96
72	___	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-1	12/15/11
73	___	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-2	9/12/13
74	___	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-3	10/15/09
75	___	TEMPORARY EROSION CONTROL DEVICES		TEC-1	12/15/11
76	___	TEMPORARY EROSION CONTROL DEVICES		TEC-2	6/2/94
77	___	TEMPORARY EROSION CONTROL DEVICES		TEC-3	11/3/94
78-215	___	CROSS SECTIONS			

NOTE: CROSS SECTIONS ARE NOT NORMALLY INCLUDED IN THE PLANS SOLD TO PROSECTIVE BIDDERS, BUT MAY BE HAD UPON REQUEST.

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____	SUPLLEMENT - 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
410-1_____	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1_____	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1_____	PIPE CULVERTS FOR SIDE DRAINS
620-1_____	MULCH COVER
JOB 040206____	BIDDING REQUIREMENTS AND CONDITIONS
JOB 040206____	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 040206____	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 040206____	CAVE DISCOVERY
JOB 040206____	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 040206____	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 040206____	ELASTOMERIC BEARINGS
JOB 040206____	FOREST SERVICE REQUIREMENTS
JOB 040206____	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 040206____	HIGH PERFORMANCE PAVEMENT MARKING
JOB 040206____	MANDATORY ELECTRONIC CONTRACT
JOB 040206____	PARTNERING REQUIREMENTS
JOB 040206____	PLASTIC PIPE
JOB 040206____	ROCK DITCH LINER
JOB 040206____	PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS
JOB 040206____	ROCK FILL
JOB 040206____	SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS
JOB 040206____	STORM WATER POLLUTION PREVENTION PLAN
JOB 040206____	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 040206____	UTILITY ADJUSTMENTS
JOB 040206____	VALUE ENGINEERING
JOB 040206____	WARM MIX ASPHALT
JOB 040206____	WELLHEAD PROTECTION

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U.S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.

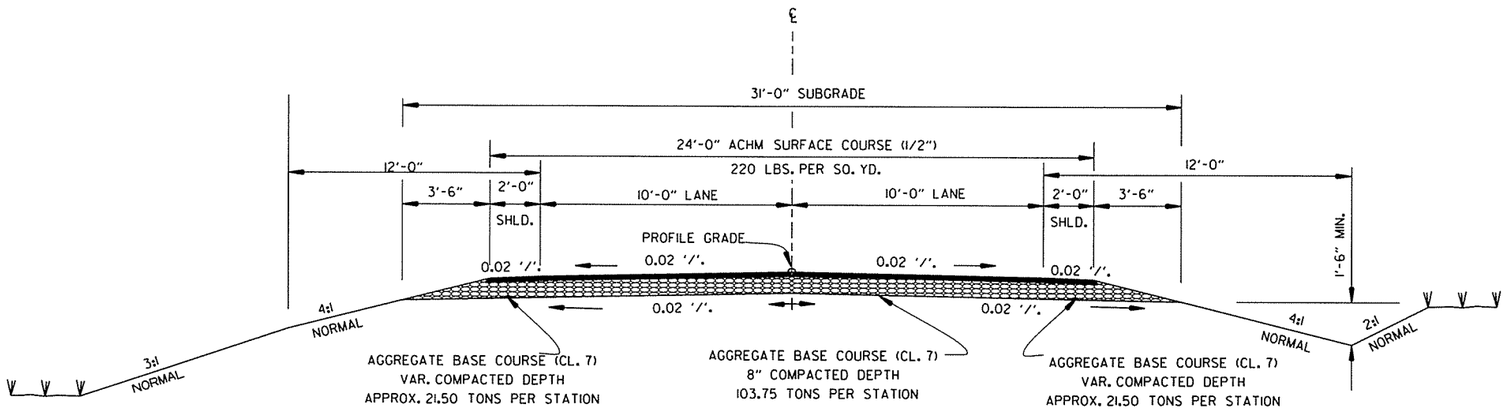
4/14/2015

R040206.DGN

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.		040206	3	215

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15



TYPICAL SECTION OF IMPROVEMENT - NORMAL

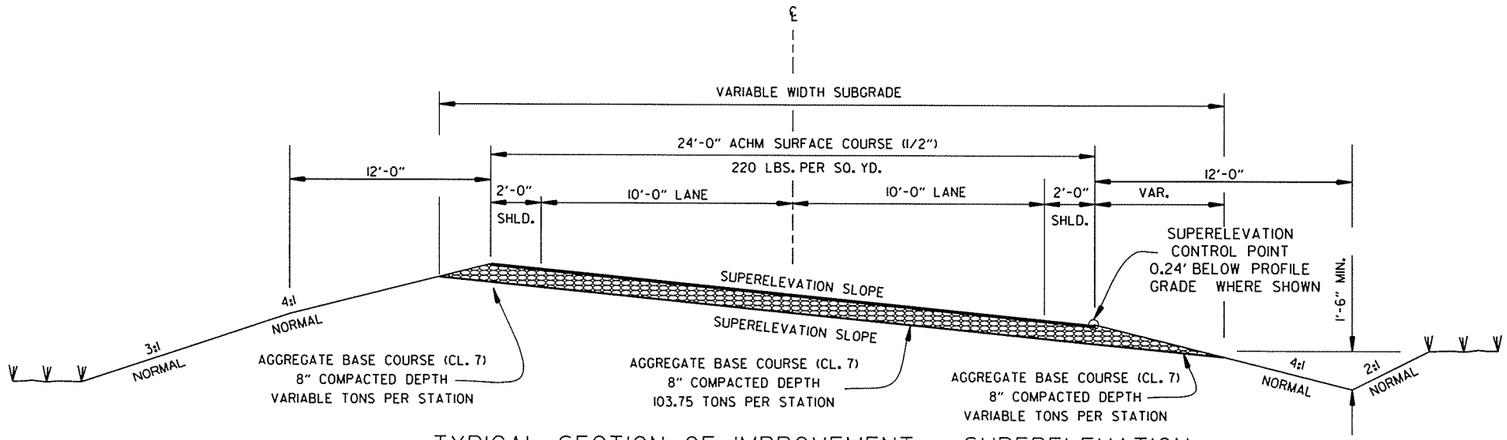
STA. 39+00.00 - 101+33.68
STA. 103+31.32 - 227+00.00

NOTES:

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

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

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



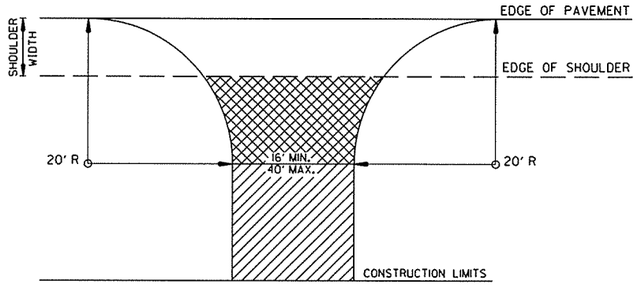
TYPICAL SECTION OF IMPROVEMENT - SUPERELEVATION

3/20/2015

ZBORDER.CEL

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.		040206	4	215

(2) SPECIAL DETAILS

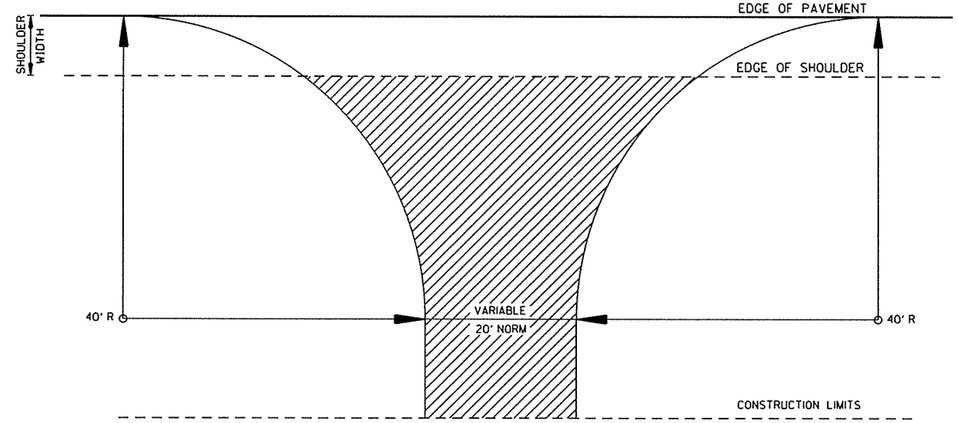


A.C.H.M. SURFACE COURSE (1/2") (220 LBS./SQ. YD.) & AGGREGATE BASE COURSE (CLASS 7) (7" COMPACTED DEPTH)

AGGREGATE BASE COURSE (CLASS 7) (9" COMPACTED DEPTH)

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

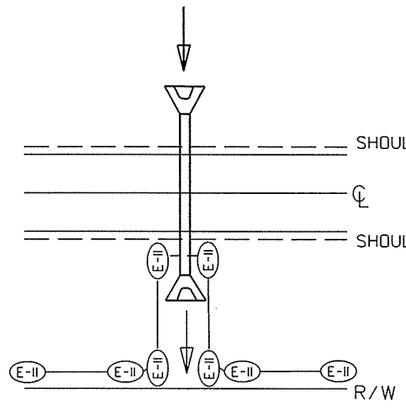
DETAIL FOR DRIVEWAY TURNOUTS

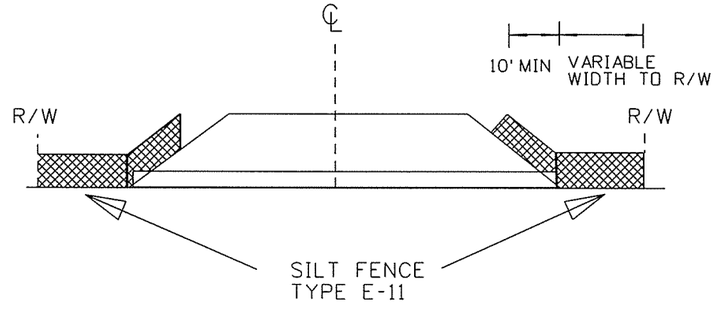


ASPHALT CONCRETE HOT MIX SURFACE COURSE (½") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) (7" COMPACTED DEPTH)

TURNOUTS SHALL BE MODIFIED AS NECESSARY TO MEET LOCAL CONDITIONS, AS SHOWN IN PLANS AND IF AND WHERE DIRECTED BY THE ENGINEER.

DETAIL FOR COUNTY ROAD TURNOUT





DETAILS OF SILT FENCE AT CROSS DRAINS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 3-20-15

11/21/2013

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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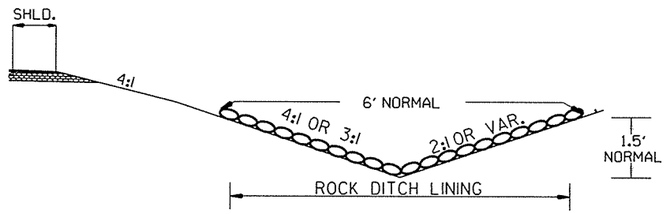
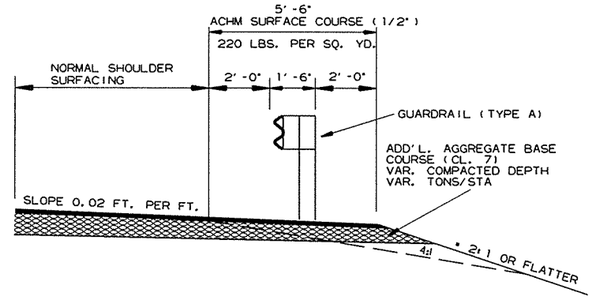
(2) SPECIAL DETAILS

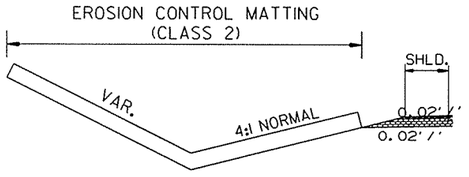


DITCH LINING DETAILS



DETAIL OF WIDENING FOR GUARDRAIL

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



EROSION CONTROL MATTING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15

11/21/2013

ZBORDER.CEL

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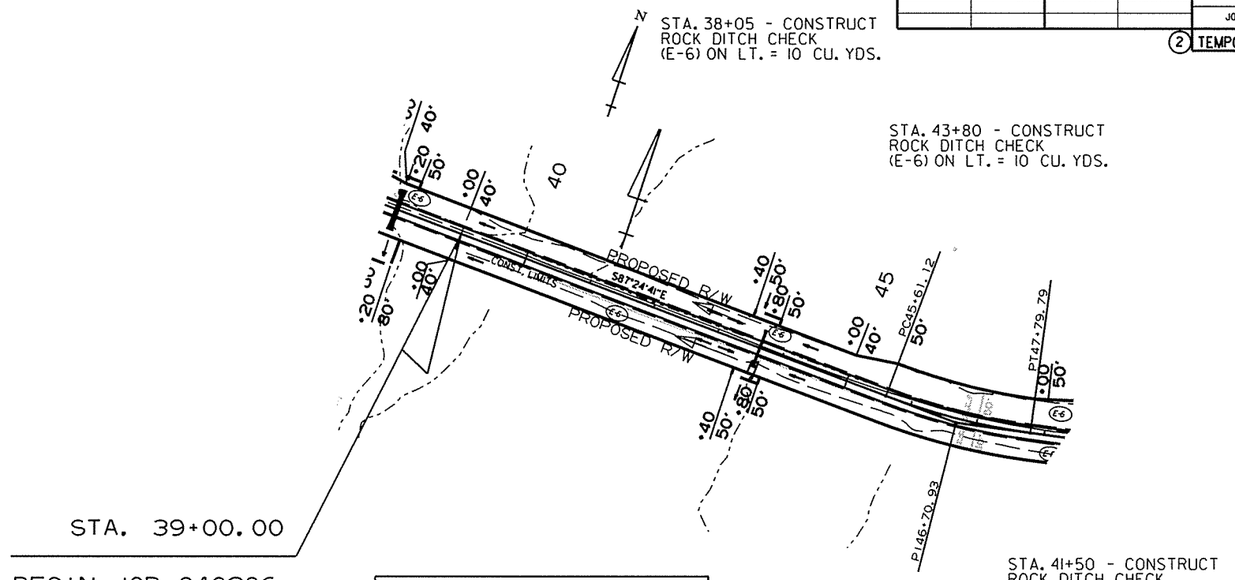
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15

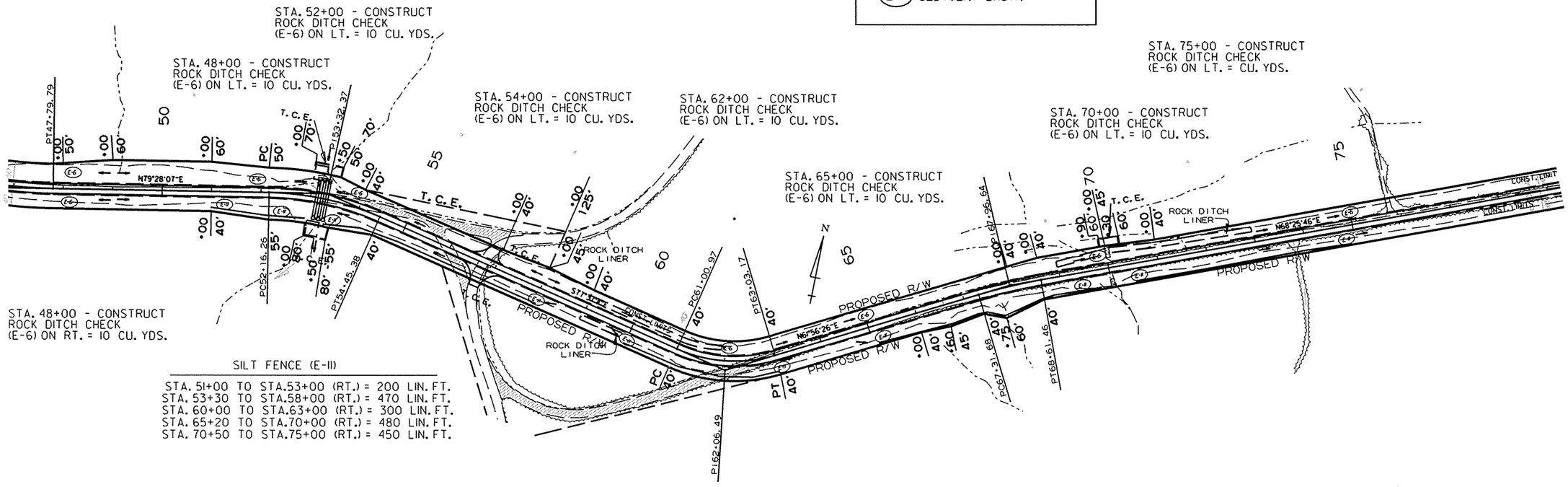
REVISIONS

DATE OF REVISION	REVISION



LEGEND

- (E-5) SAND BAG DITCH CHECKS
- (E-6) ROCK DITCH CHECKS
- (E-11) SLIT FENCE
- (E-14) SEDIMENT BASIN



SILT FENCE (E-11)

STA. 51+00 TO STA.53+00 (RT.) = 200 LIN. FT.
STA. 53+30 TO STA.58+00 (RT.) = 470 LIN. FT.
STA. 60+00 TO STA.63+00 (RT.) = 300 LIN. FT.
STA. 65+20 TO STA.70+00 (RT.) = 480 LIN. FT.
STA. 70+50 TO STA.75+00 (RT.) = 450 LIN. FT.

TEMPORARY EROSION CONTROL DETAILS

11/8/2011

ZBORDER.CEL

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(2) TEMPORARY EROSION CONTROL DETAILS

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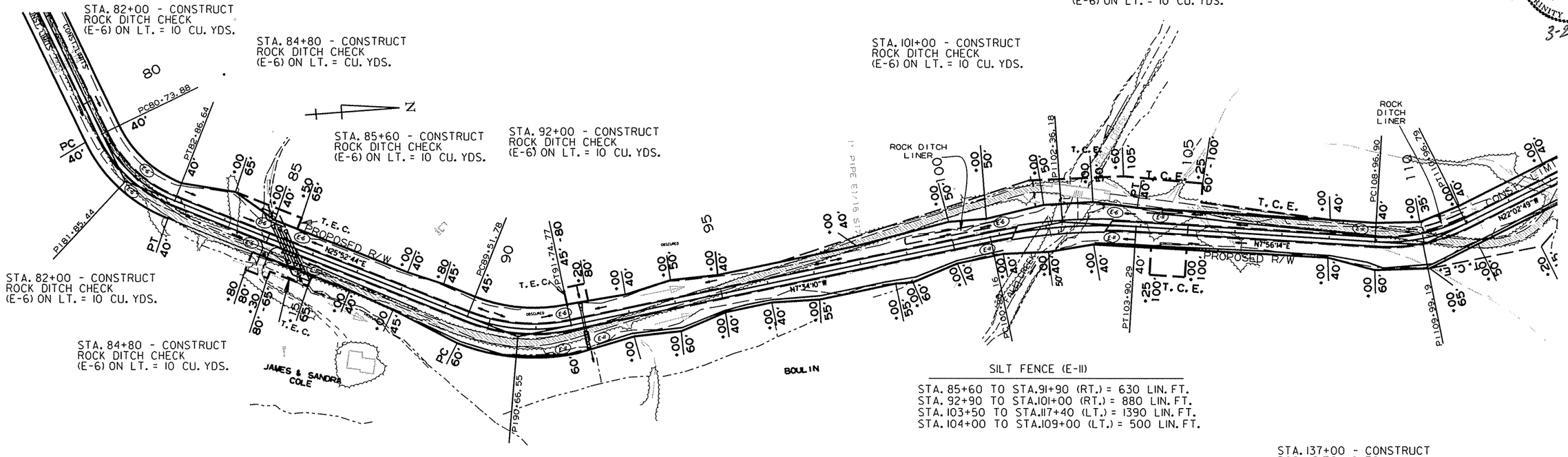
TRINITY D. SMITH
3-20-15



SILT FENCE (E-11)

STA. 85+60 TO STA. 91+90 (RT.) = 630 LIN. FT.
STA. 92+90 TO STA. 101+00 (RT.) = 880 LIN. FT.
STA. 103+50 TO STA. 117+40 (LT.) = 1390 LIN. FT.
STA. 104+00 TO STA. 109+00 (LT.) = 500 LIN. FT.

STA. 137+00 - CONSTRUCT ROCK DITCH CHECK (E-6) ON LT. = 10 CU. YDS.

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) SAND BAG DITCH CHECKS
- (E-6) ROCK DITCH CHECKS
- (E-11) SLIT FENCE
- (E-14) SEDIMENT BASIN

11/8/2011

ZBORDER.CEL

TEMPORARY EROSION CONTROL DETAILS

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(2) TEMPORARY EROSION CONTROL DETAILS

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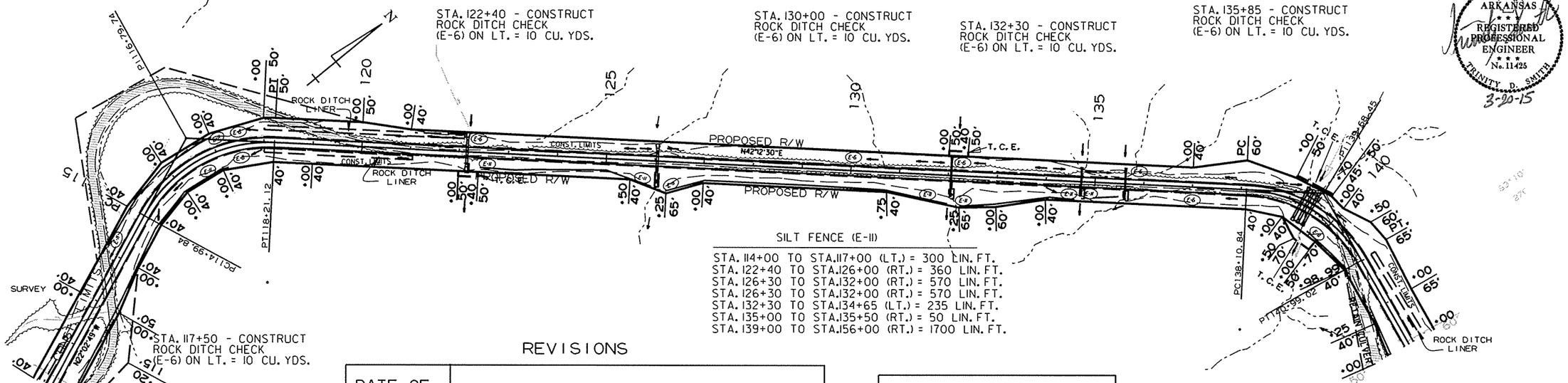
TRINITY D. SMITH
3-20-15

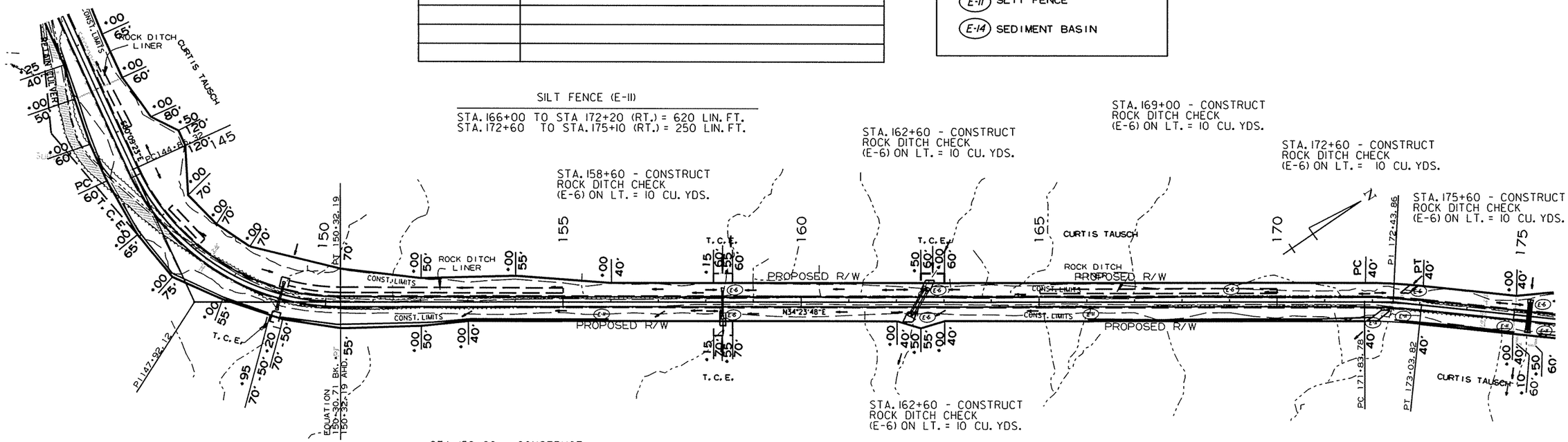


REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) SAND BAG DITCH CHECKS
- (E-6) ROCK DITCH CHECKS
- (E-11) SLIT FENCE
- (E-14) SEDIMENT BASIN



TEMPORARY EROSION CONTROL DETAILS

12/12/2014

R040206.DGN

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(2) TEMPORARY EROSION CONTROL DETAILS

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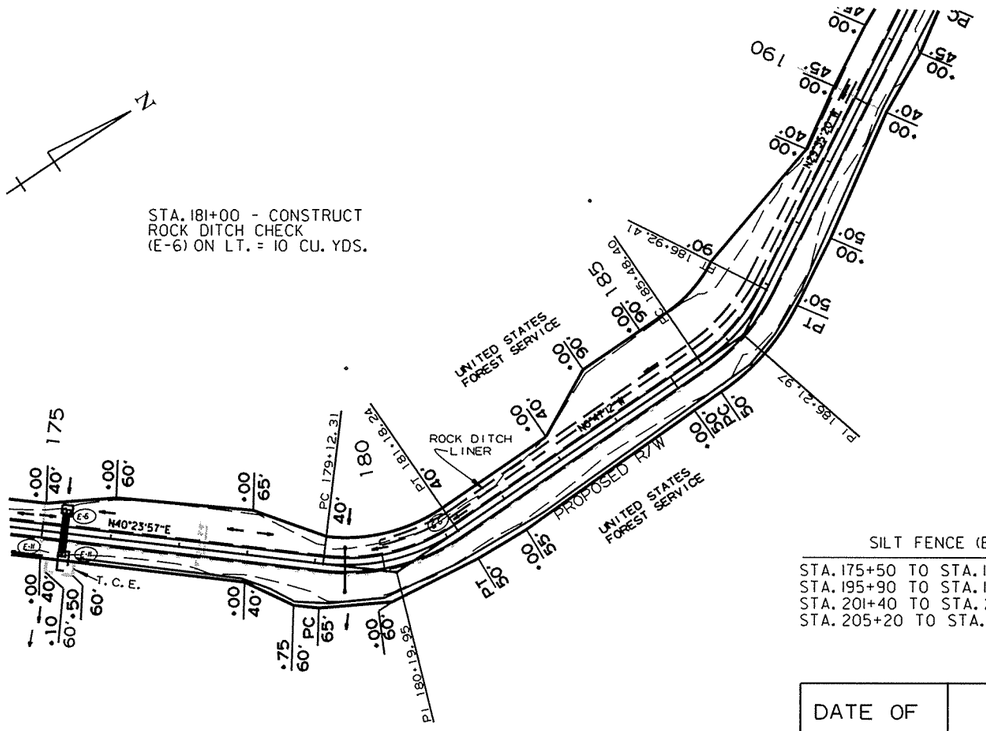
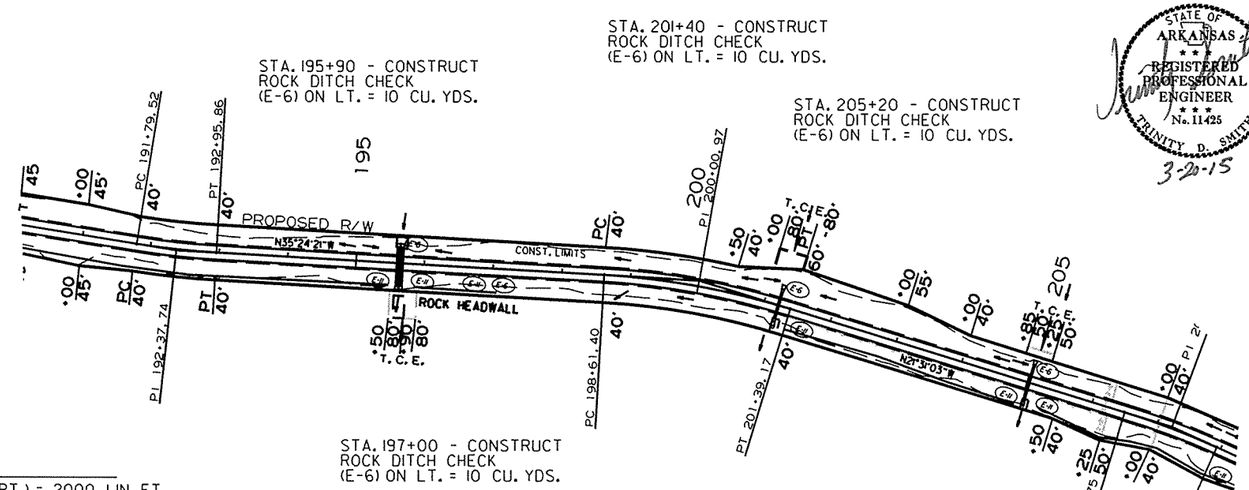
3-20-15





STA. 197+00 - CONSTRUCT ROCK DITCH CHECK (E-6) ON LT. = 10 CU. YDS.

SILT FENCE (E-11)

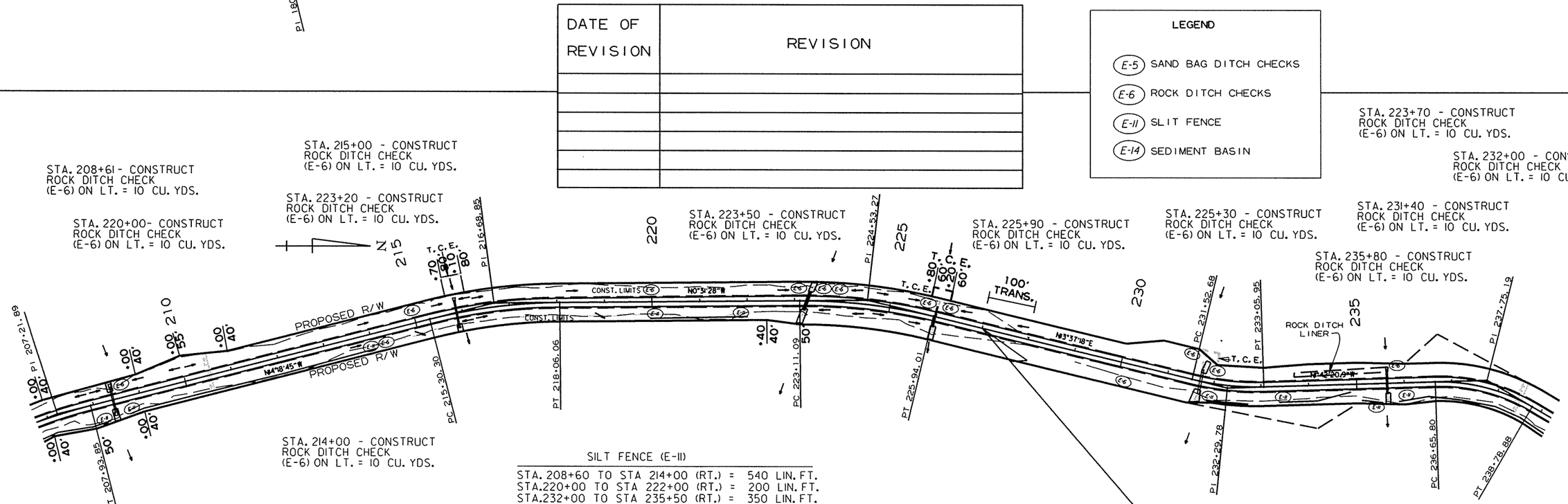
STA. 175+50 TO STA. 195+50 (RT.) = 2000 LIN. FT.
STA. 195+90 TO STA. 197+00 (RT.) = 110 LIN. FT.
STA. 201+40 TO STA. 204+90 (RT.) = 350 LIN. FT.
STA. 205+20 TO STA. 208+30 (RT.) = 350 LIN. FT.

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) SAND BAG DITCH CHECKS
- (E-6) ROCK DITCH CHECKS
- (E-11) SLIT FENCE
- (E-14) SEDIMENT BASIN



SILT FENCE (E-11)

STA. 208+60 TO STA 214+00 (RT.) = 540 LIN. FT.
STA.220+00 TO STA 222+00 (RT.) = 200 LIN. FT.
STA.232+00 TO STA 235+50 (RT.) = 350 LIN. FT.
STA.235+80 TO STA 240+80 (RT.) = 500 LIN. FT.

STA. 214+00 - CONSTRUCT ROCK DITCH CHECK (E-6) ON LT. = 10 CU. YDS.

STA. 230+00 - CONSTRUCT ROCK DITCH CHECK (E-6) ON LT. = 10 CU. YDS.

STA. 227+00.00
END JOB 040206

TEMPORARY EROSION CONTROL DETAILS

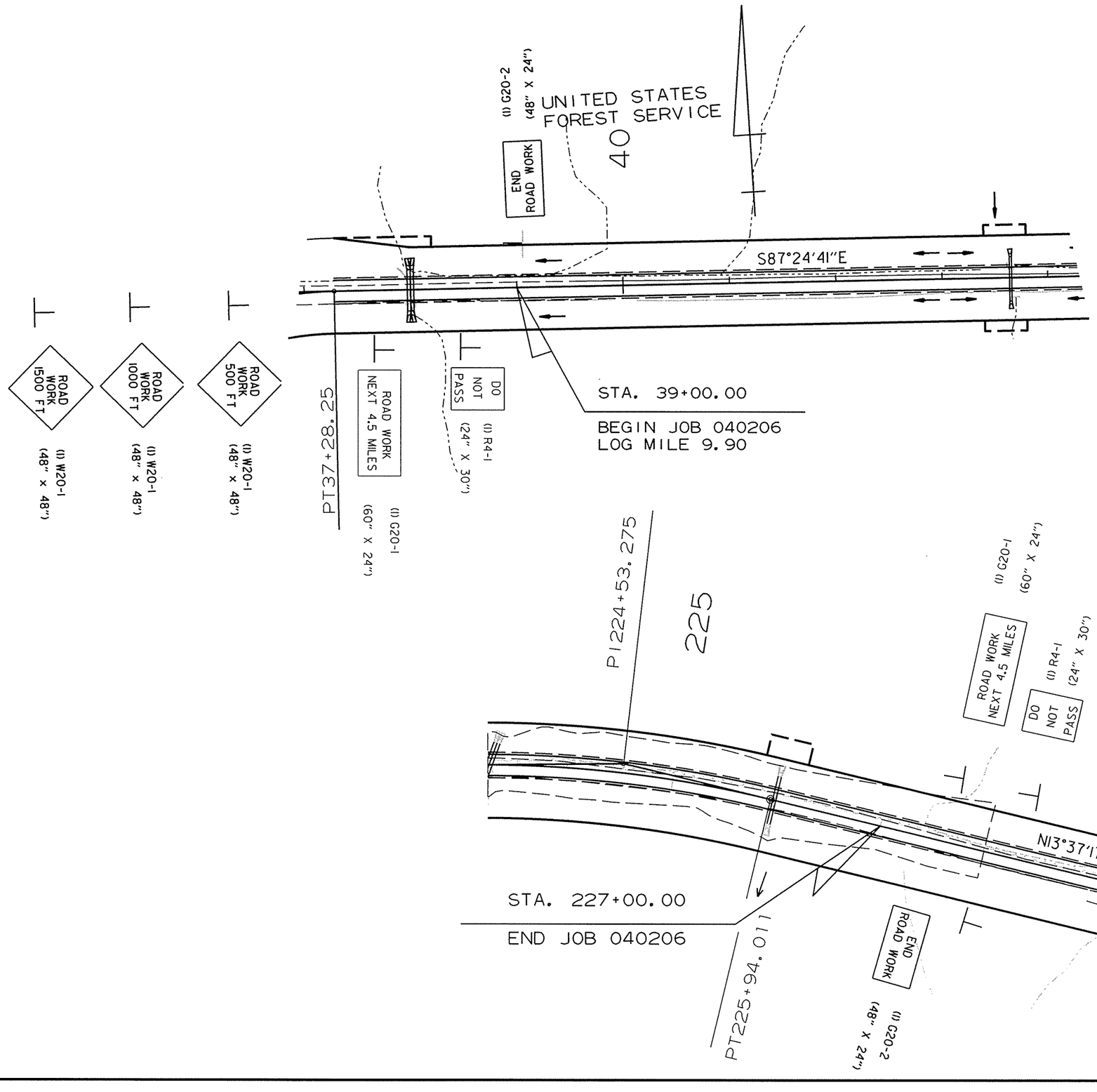
11/13/2013

R040206.DGN

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.		040206	10	215

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-2015



SEQUENCE OF CONSTRUCTION

STAGE 1:

PLACE ADVANCE WARNING SIGNS, INSTALL EROSION CONTROL ITEMS, AND CONSTRUCT CULVERTS AND ROADWAY UNDER TRAFFIC.

STAGE 2:

CONSTRUCT ACHM SURFACE COURSE. PERFORM FINAL PAVEMENT STRIPING. OBLITERATE OLD ROADWAY AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

ADVANCE WARNING SIGNS
MAINTENANCE OF TRAFFIC DETAILS

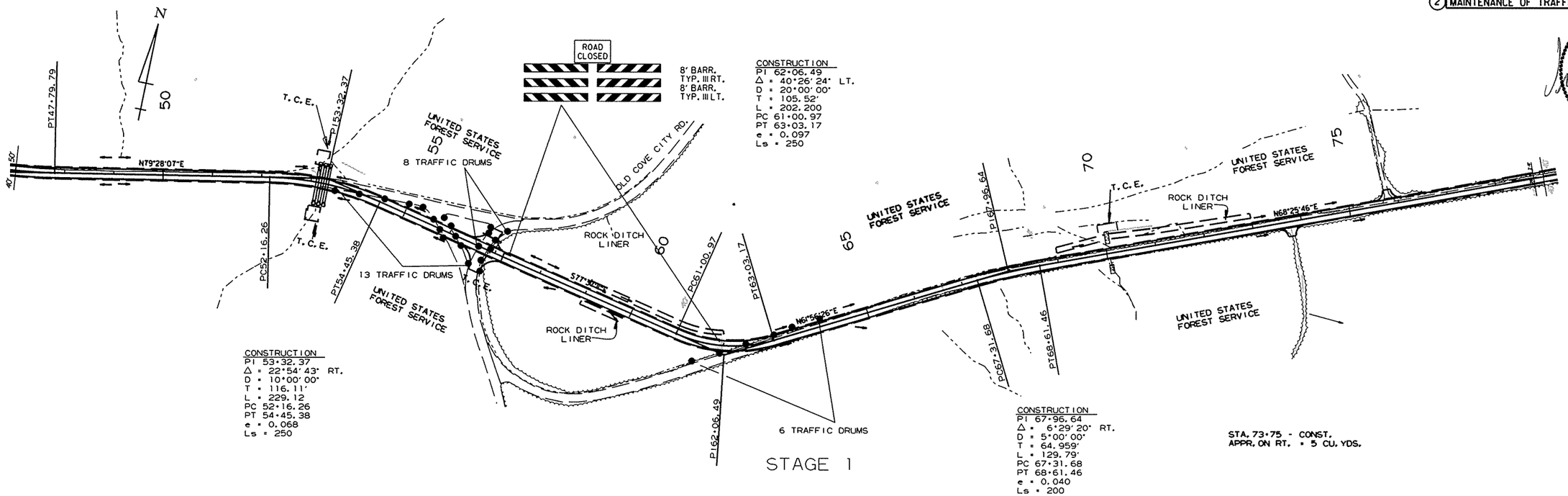
12/12/2014

R040206.DGN

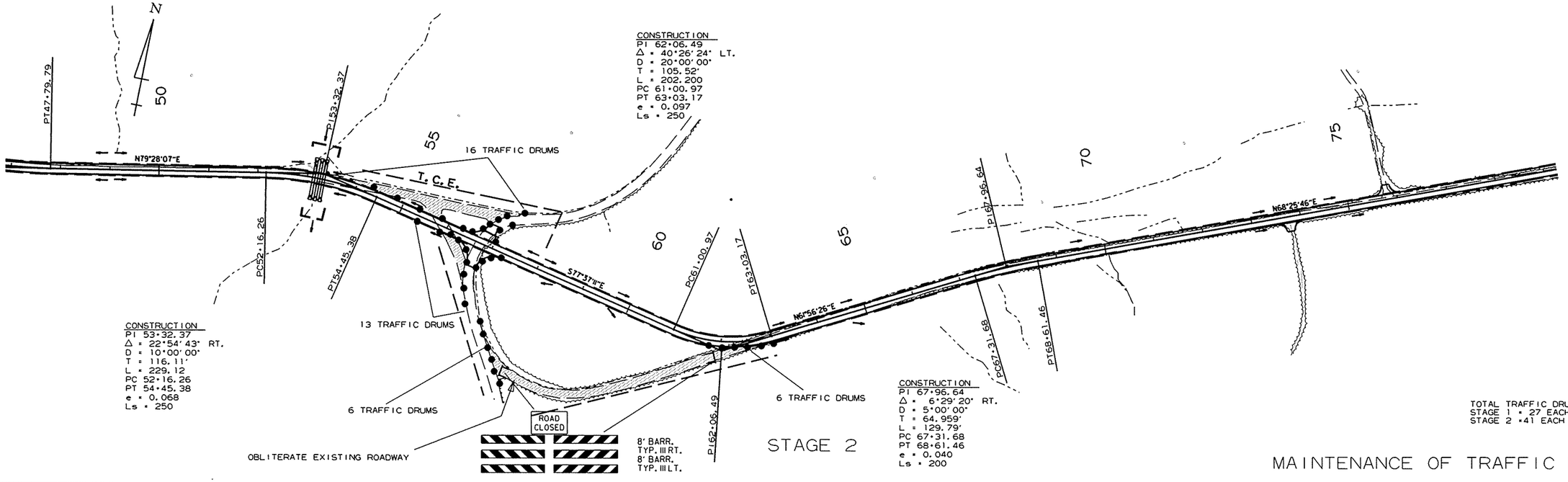
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	11	215

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15



STAGE 1



STAGE 2

TOTAL TRAFFIC DRUMS
STAGE 1 = 27 EACH
STAGE 2 = 41 EACH

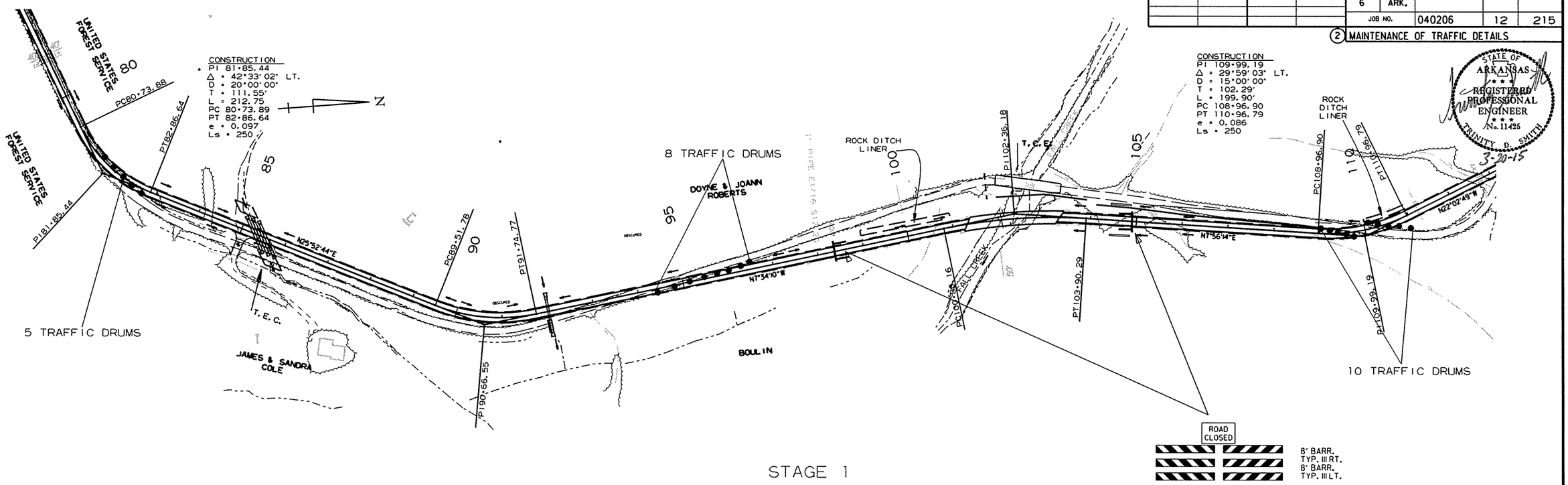
MAINTENANCE OF TRAFFIC DETAILS

12/18/2014

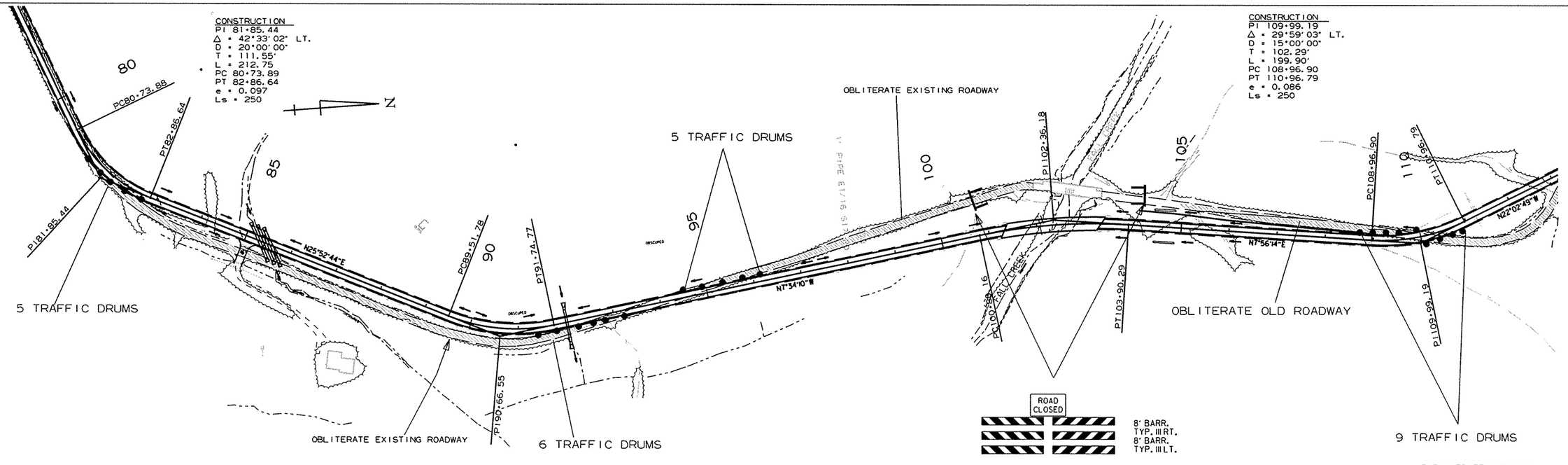
R040206.DGN

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.		040206	12	215

(2) MAINTENANCE OF TRAFFIC DETAILS



STAGE 1



STAGE 2

TOTAL TRAFFIC DRUMS
STAGE 1 = 23 EACH
STAGE 2 = 25 EACH

MAINTENANCE OF TRAFFIC DETAILS

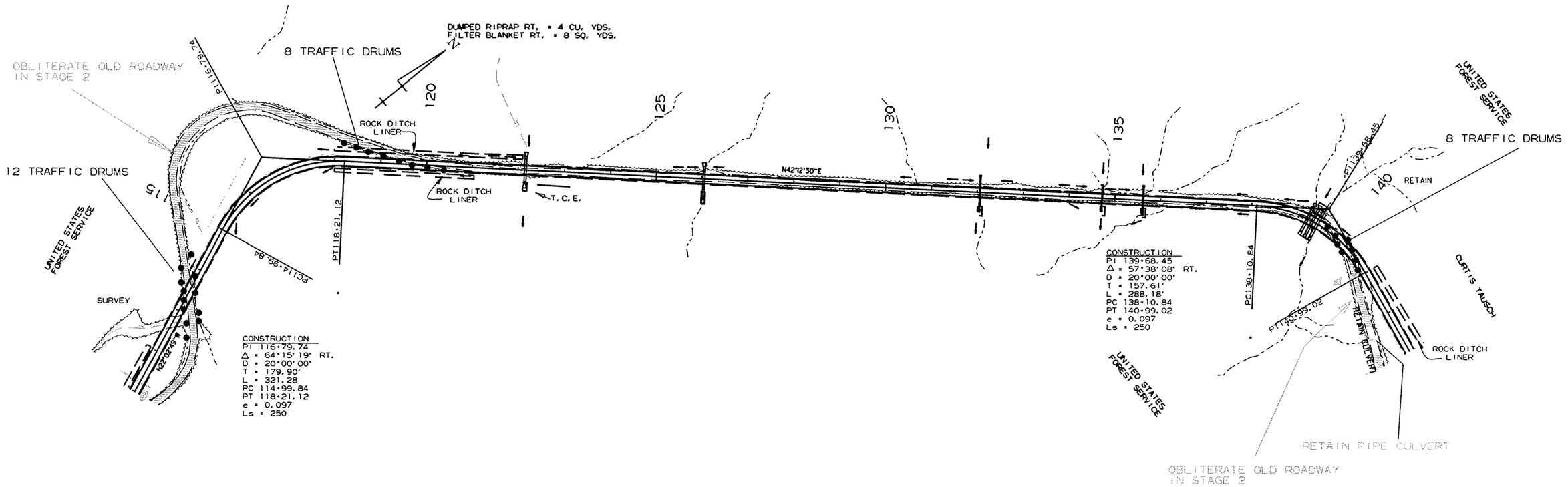
12/18/2014

R040206.DGN

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.		040206	13	215

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15



TOTAL TRAFFIC DRUMS
STAGE 1 = 28 EACH

MAINTENANCE OF TRAFFIC DETAILS

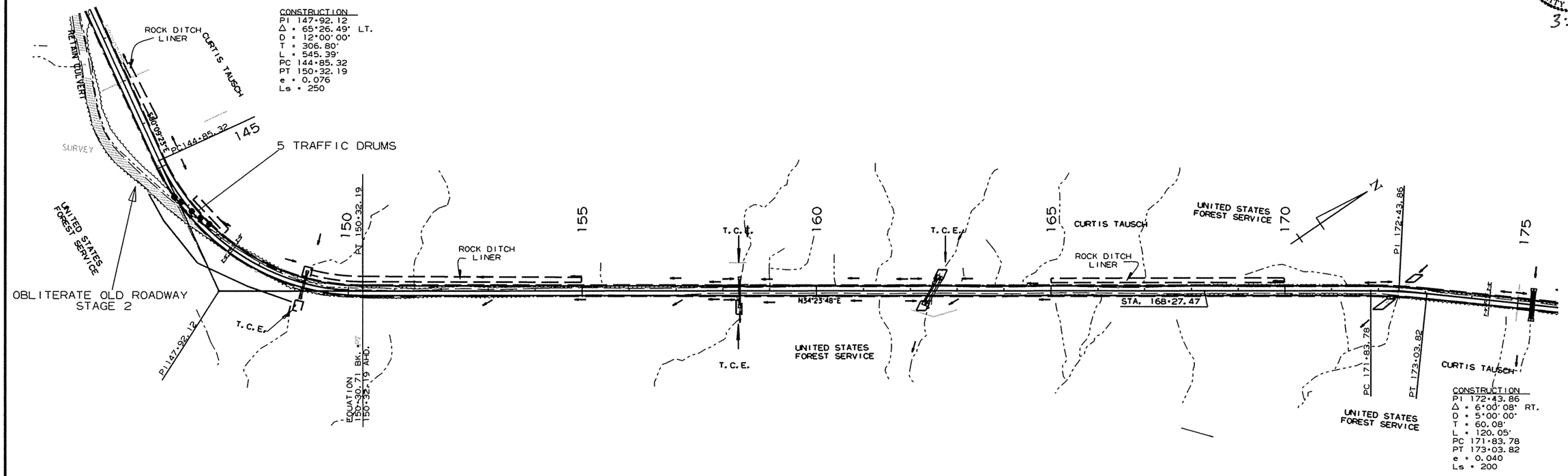
12/18/2014

R040206.DGN

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.		040206	14	215

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15



TOTAL TRAFFIC DRUMS
STAGE 1 = 5 EACH

MAINTENANCE OF TRAFFIC DETAILS

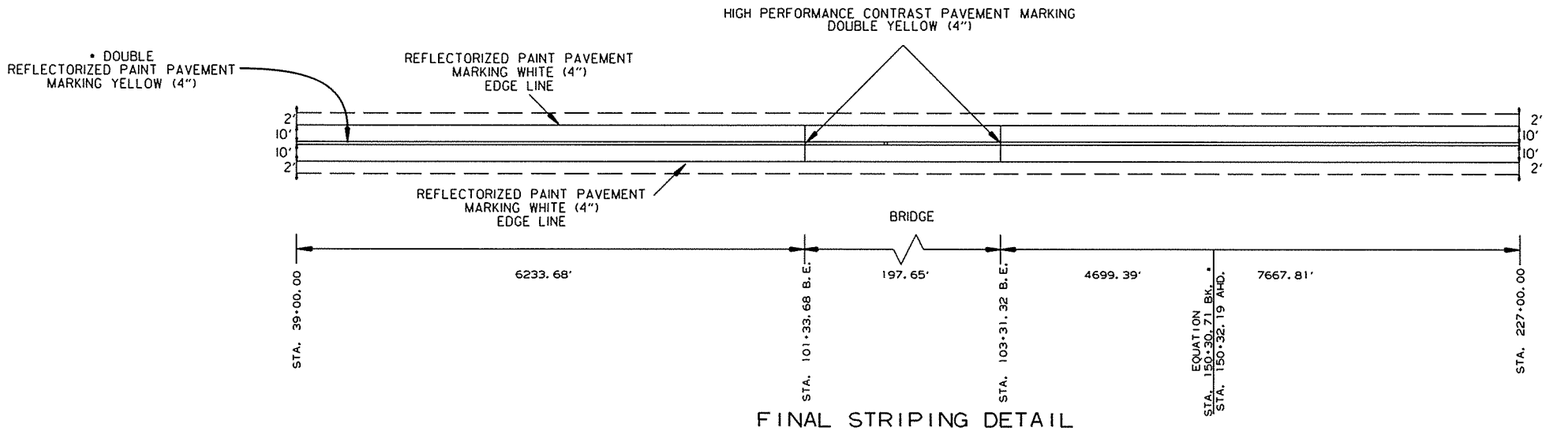
12/18/2014

R040206.DGN

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.		040206	15	215

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15



FINAL STRIPING DETAIL

SEQUENCE OF CONSTRUCTION

STAGE 1:

PLACE ADVANCE WARNING SIGNS, INSTALL EROSION CONTROL ITEMS, AND CONSTRUCT CULVERTS, BRIDGE STRUCTURE AND ROADWAY UNDER TRAFFIC AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

STAGE 2:

CONSTRUCT ACHM SURFACE COURSE AND PERFORM FINAL PAVEMENT STRIPING. OBLITERATE OLD ROADWAY AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

FINAL STRIPING:

REFLECTORIZED PAINT PAVEMENT MARKING (4"):
RT. AND LT. EDGE LINES • 37603 LIN. FT. WHITE
DBL. CENTERLINE • 37,208 LIN. FT. YELLOW

HIGH PERFORMANCE CONTRAST MARKING TAPE (4"):
DBL. CENTERLINE • 396 LIN. FT. YELLOW

• THE 4" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

12/12/2014

R040206.DGN

PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	16	215

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-25-15

ADVANCE WARNING SIGNS AND DEVICES, AND PERMANENT PAVEMENT MARKINGS

SIGN NUMBER	DESCRIPTION	STAGE 1	STAGE 2	SIGN SIZE	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		BARRICADES		TRAFFIC DRUMS	4" REFLECTORIZED PAINT PAVEMENT MARKING		HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")
								RT.	LT.		WHITE	YELLOW	
		SQ. FT. - EACH - LIN. FT.				NO.	SQ. FT.	LIN. FT.		EACH	LIN. FT.		LIN. FT.
W20-1	ROAD WORK 1500 FT.	2	2	48" x 48"	2	2	32.0						
W20-1	ROAD WORK 1000 FT.	2	2	48" x 48"	2	2	32.0						
W20-1	ROAD WORK 500 FT	2	2	48" x 48"	2	2	32.0						
W20-1	ROAD WORK AHEAD	2	2	48" x 48"	2	2	32.0						
G20-2	END ROAD WORK	2	2	48" x 24"	2	2	16.0						
R4-1	DO NOT PASS	2	2	24" x 30"	2	2	10.0						
	TYPE III BARRICADE - RT. (8')	4	4					32					
	TYPE III BARRICADE - LT. (8')	4	4						32				
	TRAFFIC DRUMS	99								99			
	REFLECTORIZED PAINT PAVEMENT MARKING- WHITE (4")										37603		
	REFLECTORIZED PAINT PAVEMENT MARKING- YELLOW (4")											37208	
	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")												396
TOTALS:							154.0	32	32	99	37603	37208	396

NOTE: THIS IS A LOW TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014.

* THE 4" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

12/18/2014

R040206.DGN

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.		040206	17	215

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO SOIL
		FEET			
48+00	5' RT. OF C.L.	0-4	71	44	A-7-6(46)
56+00	3' RT OF C.L.	0-4	ND	NP	A-4(0)
64+00	C.L.	0-4	31	14	A-4(0)
72+00	C.L.	0-4	24	8	A-4(3)
80+00	C.L.	0-4	24	7	A-4(2)
88+00	C.L.	0-4	28	12	A-6(6)
96+00	50' RT. OF C.L.	0-4	33	16	A-6(10)
104+00	C.L.	0-4	22	7	A-4(0)
112+00	C.L.	0-4	24	7	A-4(1)
120+00	C.L.	0-4	22	7	A-4(1)
128+00	C.L.	0-4	25	10	A-4(4)
136+00	C.L.	0-4	38	18	A-6(12)
144+00	C.L.	0-4	63	37	A-7-6-(29)
152+00	70' RT. OF C.L.	0-4	24	8	A-4(2)
160+00	C.L.	0-4	24	9	A-4(3)
168+00	C.L.	0-4	30	16	A-6(9)
176+00	C.L.	0-4	34	18	A-6(9)
184+00	C.L.	0-4	32	16	A-6(10)
192+00	C.L.	0-4	21	4	A-4(0)
200+00	C.L.	0-4	26	11	A-6(4)
208+00	C.L.	0-4	25	9	A-4(3)
216+00	C.L.	0-4	27	11	A-6(5)
224+00	C.L.	0-4	21	5	A-4(0)

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

MAILBOXES

LOCATION	MAILBOX SUPPORTS (SINGLE)	MAILBOXES
	EACH	EACH
ENTIRE PROJECT	1	1
TOTALS:	1	1

CLEARING AND GRUBBING

STATION	STATION	CLEARING	GRUBBING
		STATION	
39+00	227+00	188	188
TOTALS:		188	188

APPROACH GUTTERS

STATION	STATION	SIDE	APPROACH GUTTERS (TYPE A)	REINFORCING STEEL - RDWY. (GRADE 60)
			(W=4')	
			CU. YD.	POUND
100+93.88	101+23.88	RT.	4.25	360
101+13.48	101+43.48	LT.	4.25	360
103+21.52	103+51.52	RT.	4.25	360
103+41.12	103+71.12	LT.	4.25	360
TOTALS:			17.00	1440

BENCH MARKS

LOCATION	BENCH MARKS
	EACH
WING WALL OF BRIDGE STA. 101+31	1

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

4" PIPE UNDERDRAINS

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

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

3/19/2015

R040206.DGN

QUANTITIES

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.		040206	18	215

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-26-15

REMOVAL AND DISPOSAL ITEMS

STATION	DESCRIPTION	PIPE CULVERTS	BOX CULVERTS	LOW WATER SLAB
		EACH	EACH	SQ. YDS.
43+65	24" x 22' C M PIPE	1		
53+14	30" X 36' CM PIPE	1		
70+05	16" X 22' C M PIPE	1		
85+05	18" X 24' C M PIPE RSD	1		
85+86	DOUBLE 30" X 26' C M PIPE	2		
92+02	18" X 22' C M PIPE	1		
101+99	142' X 23' CONCRETE SLAB & QUIN 36" x 24' C M PIPE	5		363
122+16	24" X 25" X 22' C M PIPE	1		
126+12	24" X 25' C M PIPE	1		
132+15	24" X 25' C M PIPE	1		
135+71	24" X 24" 24' ROCK BOX		1	
139+48	36" X 32' C M PIPE	1		
149+05	24" X 26' C M PIPE	1		
158+04	24" X 24' C M PIPE	1		
162+47	24" X 22' C M PIPE	1		
172+43	18" X 22' C M PIPE	1		
175+32	24" X 22' C M PIPE	1		
179+44	16" X 24' CM PIPE	1		
195+64	24" X 25' C M PIPE	1		
201+21	24" X 22' C M PIPE	1		
205+05	24" X 24' C M PIPE	1		
208+43	24" X 24' C M PIPE	1		
215+88	24" X 27' C M PIPE	1		
223+31	24" X 23' CM PIPE	1		
225+99	24" X 25' C M PIPE	1		
TOTALS:		29	1	363

GUARDRAIL

STATION	STATION	SIDE	GUARDRAIL (TYPE A)	TERMINAL ANCHOR POSTS (TYPE 1)	THRIE BEAM GUARDRAIL TERMINAL
			LIN. FT.	EACH	EACH
88+00	94+00	RT	600	2	
* 96+00.	101+23.88	RT	524	1	1
* 100+38.33	101+13.33	LT	75	1	1
* 103+51.67	104+26.67	RT	75	1	1
* 103+71.27	105+35.	LT	164	1	1
113+00	118+00	LT	500	2	
140+00	151+00	RT	1100	2	
175+00	185+00	RT	1000	2	
200+00	208+00	RT	800	2	
TOTALS:			4838	14	4

* BRIDGE END CONNECTION

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		ACHM SURFACE COURSE (1/2") (PG -64-22) 220 LBS./SQ.YD.		
			LIN. FT.	TONS PER STATION	TON	AVG. WIDTH	SQ. YD.	TON
39+00.00	101+33.68	MAIN LANES	6233.68	146.75	9147.93	24.00	16623.15	1828.55
103+31.31	227+00.00	MAIN LANES	12368.69	146.75	18151.05	24.00	32983.17	3628.15
ENTIRE	PROJECT	ADDITIONAL FOR SUPERELEVATION			155.00			
TOTALS:					27453.98		49606.32	5456.70

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2"): MIN. AGGR. 94.4% , ASPHALT BINDER (PG 64-22) 5.6%
MAXIMUM NUMBER OF GYRATIONS = 115

DITCH LINER

STATION	STATION	SIDE	* ROCK DITCH LINER	**EROSION CONTROL MATTING (CLASS 3)
			TON	SQ. YD.
59+00	60+00	RT	53	
59+00	62+00	LT	160	
69+00	73+00	LT	213	
99+00	101+00	LT	107	
110+00	112+00	LT	107	
118+00	121+00	RT	160	
118+00	122+00	LT	213	
141+00	144+00	LT	160	
145+00	146+00	LT	53	
149+00	154+00	LT	267	
165+00	170+00	LT	267	
180+00	190+00	LT	533	
223+60	225+00	LT	75	
ENTIRE PROJECT-TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			200	100
TOTALS:			2568	100

*BASIS OF ESTIMATE:
AVERAGE WIDTH..... 6'
AVERAGE DEPTH..... 1'-6"
**QUANTITY ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

12/12/2014

R040206.DGN

QUANTITIES

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.		040206	19	215

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-25-15

ADDITIONAL BASE AND SURFACING

STATION	STATION	DESCRIPTION	AGGREGATE BASE COURSE (CLASS 7)			ACHM SURFACE COURSE (1/2") 220 LBS./SQ. YD.	
			TONS PER STA. OR TURNOUT	ADDITIONAL LENGTH LIN.FT.	TOTAL TONS	SQ. YD.	TON
56+80		CO. RD. TURNOUT ON RT.	51.00		51.00	146.00	16.06
56+80		CO. RD. TURNOUT ON LT.	51.00		51.00	146.00	16.06
73+75		PVT. ENTRANCE ON RT	16.00		16.00	45.00	4.95
75+75		PVT. ENTRANCE ON LT	16.00		16.00	45.00	4.95
85+05		PVT. ENTRANCE ON RT	16.00	38	40.00	45.00	4.95
88+00	94+00	GUARDRAIL WIDENENING RT.	38.00		228.00	139.33	15.33
96+00	101+23	GUARDRAIL WIDENENING RT.	38.00		199.00	319.61	35.16
100+38.33	101+13.33	GUARDRAIL WIDENENING LT.	38.00		28.50	45.83	5.04
103+51.67	104+26.67	GUARDRAIL WIDENENING RT.	38.00		28.50	45.83	5.04
103+71.27	105+35.00	GUARDRAIL WIDENENING LT.	38.00		62.00	100.22	11.02
113+00	118+00	GUARDRAIL WIDENENING LT.	38.00		190.00	305.56	33.61
140+00	150+00	GUARDRAIL WIDENENING RT.	38.00		380.00	611.11	67.22
175+00	185+00	GUARDRAIL WIDENENING RT.	38.00		380.00	611.11	67.22
200+00	208+00	GUARDRAIL WIDENENING RT.	38.00		304.00	488.89	53.78
TOTALS:					1974.00	3094.49	340.39

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2"): MIN. AGGR. 94.4% , ASPHALT BINDER (PG 64-22) 5.6%
MAXIMUM NUMBER OF GYRATIONS = 115

EARTHWORK

STATION	STATION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	ROCK FILL	*PRESPLITTING
		CU. YD.		CU. YD.	SQ. YD.
39+00	101+33.68	25737	14357		
103+31.32	227+00	50707	40081		
142+00.	147+00	1603		5051	
CHANNEL EXCAVATION		910			
ADDITIONAL EXCAVATION		285			
OBLITERATE OLD RDWY.		540			
DRIVEWAYS			100		
TEMPORARY DRIVEWAYS			40		
TEMPORARY WORK ROAD			100		
ENTIRE PROJECT				1000	10700
TOTALS:		79782	54678	6051	10700

*QUANTITIES ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

EROSION CONTROL

LOCATION	PERMANENT SEEDING						TEMPORARY SEEDING		
	SEEDING	MULCH COVER	LIME	WATER	SECOND SEEDING APPLICATION	WATER	TEMPORARY SEEDING	MULCH COVER	WATER
	ACRE		TON	M. GAL.	ACRES	M. GAL.	ACRE		M. GAL.
MAIN LANES CONSTRUCTION	31.75	31.75	64	3238.5	35.00	3570.0	31.75	31.75	3238.5
OBLITERATION OF EXISTING ROADWAY	1.72	1.72	3	175.4					
* ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.	2.00	2.00	4	204.0	2.00	204.0			
TOTALS:	35.47	35.47	71	3617.9	37.00	3774.0	31.75	31.75	3238.5

BASIS OF ESTIMATE: LIME = 2 TONS PER ACRE SEEDING
WATER = 102.0 M. G. PER ACRE (SEEDING);
* QUANTITIES ESTIMATED - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

12/12/2014

R040206.DGN

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.		040206	20	215

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15

EROSION CONTROL ITEMS - TEMPORARY

STATION	STATION	SIDE	ROCK DITCH CHECKS (E-6)		SILT FENCE	SAND BAG DITCH CHECKS (E-5)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	EROSION CONTROL MATTING (CLASS 2)	SEDIMENT REMOVAL AND DISPOSAL
			NO.	CU. YD.	LIN. FT.	BAG	CU. YD.	CU. YD.	SQ. YD.	CU. YD.
35+05		RT	1	10						
41+50		RT	1	10						
43+80		LT	1	10						
48+00		LT & RT.	2	20						
51+00	53+00	RT			200					
52+00		LT	1	10						
53+30	58+00	RT			470					
54+00		LT	1	10						
60+00	63+00	RT			300					
62+00		LT	11	10						
65+00		LT	1	10						
65+20	70+00	RT			480					
70+00		LT	1	10						
70+50	75+00	RT			450					
75+00		LT	1	10						
82+00		LT & RT	2	20						
84+80		LT & RT	2	20						
85+60		LT	1	10						
85+60	91+90	RT			630					
92+00		LT	1	10						
92+20	101+00	RT			880					
101+00		LT	1	10						
103+50	117+40	RT			1390					
104+00		LT	1	10						
104+00	109+00	LT			500					
114+00	117+00	LT			300					
117+50		LT & RT	2	20						
122+40		LT	1	10						
122+40	126+00	RT			360					
126+30	132+00	RT			570					
130+00		LT	1	10						
132+30		LT	1	10						
132+30	134+65	LT	1	10	235					
135+00	135+50	RT			50					
135+85		LT	1	10						
137+00		RT	1	10						
139+00	156+00	RT			1700					
158+60		LT & RT	2	20						
162+60		LT & RT	2	20						
166+00	172+20				620					
169+00		LT	1	10						
172+60		LT	1	10						
172+60	175+10	RT			250					
175+60		LT	1	10						
175+50	195+50	RT			2000					
181+00		RT	1	10						
195+90		LT	1	10						
195+90	197+00	RT			110					
197+00		RT	1	10						
201+40		LT	1	10						
201+40	204+90	RT			350					
205+20		LT	1	10						
205+20	208+30	RT			310					
208+60		LT	1	10						
208+60	214+00	RT			540					
214+00		RT	1	10						
215+00		LT	1	10						
220+00		LT	1	10						
220+00	222+00	RT			200					
223+20		LT	1	10						
223+50		LT	1	10						
223+70		LT	1	10						
225+30		LT	1	10						
225+90		LT	1	10						
226+10		LT	1	10						
*ENTIRE PROJECT- TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.						1000	250	250	1000	1000
TOTALS:			59	490	12895	1000	250	250	1000	1000

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

BASIS OF ESTIMATE:

ROCK DITCH CHECKS - 10 CU.YD. EACH
SAND BAG DITCH CHECKS - 20 BAG EACH

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

12/12/2014

R040206.DGN

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.		040206	21	215

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15

STRUCTURES

STATION	DESCRIPTION	PIPE CULVERTS																				F.E.S. ALTERNATES						SIDE DRAINS			SOLID SODDING	WATER	SELECTED PIPE BEDDING	PIPE END PROTECTION		STANDARD DRAWING NUMBER
		R.C. CROSS DRAIN ALT.					C. M. CROSS DRAINS ALT.					R.C. CROSS DRAIN ALT.					C.M. CROSS DRAINS ALT.																		DUMPED RIPRAP	FILTER BLANKET	
		CLASS III										CLASS IV																								
		24"	30"	36"	42"	60"	24"	30"	36"	42"	60"	30"	36"	42"	54"	60"	30"	36"	42"	54"	60"	24"	30"	36"	42"	54"	60"	18"	24"	36"						
		LIN. FT.																				EACH						LIN. FT.			SQ. YD.	M. GAL.	CU. YD.	CU. YD.	SQ. YD.	
43+65	CONSTRUCT PIPE CULVERT W / F.E. S.	43					48															2									16	0.20	4	4	8	PCC-1, PCM-1, PCP-1,PCP-2 FES-1, FES-2
53+14	CONSTRUCT TRIPLE PIPE CULVERT W / F.E.S.					207					219															6					270	3.40	32	58	116	PCC-1, PCM-1, FES-1, FES-2
56+80	INSTALL PIPE CULVERT LT. SIDE DRAIN																												42						PCC-1, PCM-1, PCP-1,PCP-2
73+75	INSTALL PIPE CULVERT RT. SIDE DRAIN																											18							PCC-1, PCM-1, PCP-1,PCP-2
75+75	INSTALL PIPE CULVERT LT. SIDE DRAIN																											32							PCC-1, PCM-1, PCP-1,PCP-2
85+05	INSTALL PIPE CULVERT RT. SIDE DRAIN																											28							PCC-1, PCM-1, PCP-1,PCP-2
85+86	CONSTRUCT TRIPLE PIPE CULVERT ON 45° RT. FWD. SKEW W / FES														201						213						6				270	3.40	30	56	112	PCC-1, PCM-1, PCP-1,PCP-2, FES-1, FES-2
92+02	CONSTRUCT PIPE CULVERT W / F.E. S.		68					71															2								26	0.33	6	6	12	PCC-1, PCM-1, PCP-1,PCP-2, FES-1, FES-2
104+65	INSTALL PIPE CULVERT LT. SIDE DRAIN																													46					PCC-1, PCM-1, PCP-1,PCP-2
104+65	INSTALL PIPE CULVERT RT. SIDE DRAIN																													42					PCC-1, PCM-1, PCP-1,PCP-2
122+16	CONSTRUCT PIPE CULVERT W / F.E. S.											47					50						2								26	0.33	4	4	8	PCC-1, PCM-1, PCP-1,PCP-2, FES-1, FES-2
126+12	CONSTRUCT PIPE CULVERT W / F.E. S.				54					60														2							46	0.58	7	6	12	PCC-1, PCM-1, PCP-1, FES-1, FES-2
132+15	CONSTRUCT PIPE CULVERT W / F.E. S..	61					66															2									16	0.20	4	3	6	PCC-1, PCM-1, PCP-1,PCP-2, FES-1, FES-2
134+81	CONSTRUCT PIPE CULVERT W / F.E. S.	43					48															2									16	0.20	3	3	6	PCC-1, PCM-1, PCP-1,PCP-2, FES-1, FES-2
135+71	CONSTRUCT PIPE CULVERT W / F.E. S.	47					52															2									16	0.20	4	3	6	PCC-1, PCM-1, PCP-1,PCP-2, FES-1, FES-2
139+48	CONSTRUCT TRIPLE PIPE CULVERT W / F.E.S.														180					192						6					210	2.65	18	20	40	PCC-1, PCM-1, FES-1, FES-2
149+05	CONSTRUCT DBL. PIPE CULVERT W / F.E. S.													92					104						4						92	1.16	14	22	44	PCC-1, PCM-1, PCP-1, FES-1, FES-2
158+44	CONSTRUCT PIPE CULVERT W / F.E. S.											44					50							2							34	0.43	4	7	14	PCC-1, PCM-1, PCP-1,PCP-2, FES-1, FES-2
162+53	CONSTRUCT DOUBLE PIPE CULVERT 30° LT. FWD. SKEW W/ F.E.S.													84					96					4							168	2.12	4	23	46	PCC-1, PCM-1, PCP-1, FES-1, FES-2
172+43	CONSTRUCT PIPE CULVERT 4 5° RT. FWD. SKEW W / FES	61					66															2									16	0.20	4	3	6	PCC-1, PCM-1, PCP-1,PCP-2, FES-1, FES-2
175+32	CONSTRUCT DBL. PIPE CULVERT W / F.E. S.			84					96															4							68	0.86	9	17	34	PCC-1, PCM-1, PCP-1,PCP-2, FES-1, FES-2
179+44	CONSTRUCT PIPE CULVERT W/ F.E.S.	55					61															2														PCC-1, PCM-1, PCP-1,PCP-2, FES-1, FES-2
195+64	CONSTRUCT PIPE CULVERT W / F.E. S.			100					112															4							68	0.86	13	26	52	PCC-1, PCM-1, PCP-1,PCP-2, FES-1, FES-2
201+26	CONSTRUCT PIPE CULVERT W / F.E. S..			38					44															2							34	0.43	4	4	8	PCC-1, PCM-1, PCP-1,PCP-2, FES-1, FES-2
205+05	CONSTRUCT PIPE CULVERT W / F.E. S.											46					52							2							34	0.43	4	5	10	PCC-1, PCM-1, PCP-1,PCP-2, FES-1, FES-2
208+43	CONSTRUCT PIPE CULVERT W / F.E. S.													46					52						2						46	0.58	4	10	20	PCC-1, PCM-1, PCP-1, FES-1, FES-2
215+88	CONSTRUCT PIPE CULVERT W / F.E. S.											38					44							2							34	0.43	4	5	10	PCC-1, PCM-1, PCP-1,PCP-2, FES-1, FES-2
223+48	CONSTRUCT DOUBLE PIPE CULVERT 20° LT. FWD. SKEW W/ F.E.S.											84					96							4							68	0.86	8	12	24	PCC-1, PCM-1, PCP-1,PCP-2, FES-1, FES-2
225+99	CONSTRUCT PIPE CULVERT W / F.E. S.			44					50															2							34	0.43	4	5	10	PCC-1, PCM-1, PCP-1,PCP-2, FES-1, FES-2
TOTALS:		310	68	266	54	207	341	71	302	60	219	47	212	222	180	201	50	242	252	192	213	12	4	26	8	6	12	78	42	88	1608	20.28	188	302	604	

BASIS OF ESTIMATE:
WATER -------- 12.6 GAL. / SQ.Y.D. OF SOLID SODDING
NOTE:
FOR R.C. PIPE CULVERT INSTALLATIONS, USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
FOR C.M. PIPE CULVERT INSTALLATIONS, USE TYPE 2 BEDDING, UNLESS OTHERWISE SPECIFIED.

12/16/2014

R040206.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040206	22	215
① 06725		QUANTITIES		38737

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 040206

BRIDGE NO. / CODE NO. / NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	801	802	802	803	804	805	807	SP & 808	809	812	816	816
		ITEM	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	STEEL② PILING (HP 12X53)	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP
		UNIT	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LIN. FT.	LB.	CU. IN.	LIN. FT.	EACH	SQ. YD.	CU. YD.
06725 / X071 / FALL CREEK	BENT NO. 1			27.31		0.2	3,037	75	646	1,848.0			180	103
	BENT NO. 2		29	43.79			6,850			2,883.0				
	BENT NO. 3		79	49.79			7,805			2,883.0				
	BENT NO. 4		74	38.91		0.2	5,758		646	1,848.0			192	110
	195'-0" CONT. COMP. W-BEAM UNIT				190.60	15.3	41,420		145,638		75	1		
TOTALS FOR JOB NO. 040206			182①	159.80	190.60	15.7	64,870	75	146,930	9,462.0	75	1	372	213

① INCLUDES APPROX. 36 CUBIC YARDS OF ROCK EXCAVATION.

② THESE STEEL PILES ARE REQUIRED TO HAVE SPECIAL TIPS WHICH WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO THE ITEM "STEEL PILING (HP 12X53)".

AILEEN SCHUBEL
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
CHARLES K. ELLIS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
5-8-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
LEE CREEK - EAST (S)
CRAWFORD COUNTY

ROUTE 220 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KMG DATE: 06 Oct 00 FILENAME: b040206_g1.dgn
CHECKED BY: JYP DATE: 7/17/14 SCALE: None
DESIGNED BY: — DATE: —

BRIDGE NO. 06725 DRAWING NO. 38737

INT DATE: 7/16/2014

SUMMARY OF QUANTITIES

	ITEM NO.	ITEM		QUANTITY	UNIT
	201	CLEARING		188	STA.
	201	GRUBBING		188	STA.
	202	REMOVAL AND DISPOSAL OF LOW WATER SLAB		363	SQ. YD.
	202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		29	EACH
	202	REMOVAL AND DISPOSAL OF BOX CULVERTS		1	EACH
	210	PRESPLITTING		10700	SQ.YD.
	210	UNCLASSIFIED EXCAVATION		79782	CU.YD.
	210	COMPACTED EMBANKMENT		54678	CU.YD.
	SP&210	ROCK FILL		6051	CU.YD.
	303	AGGREGATE BASE COURSE (CLASS 7)		29428	TON
	SP,SS&407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		5472	TON
	SP,SS&407	ASPHALT BINDER (PG 64-22) ACHM SURFACE COURSE (1/2")		325	TON
	504	APPROACH GUTTERS		17.00	CU.YD.
	601	MOBILIZATION		1.00	LUMP SUM
	SP&602	FURNISHING FIELD OFFICE		1	EACH
	603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
	SS&604	SIGNS		154	SQ. FT.
	SS&604	TRAFFIC DRUMS		99	EACH
	SS&604	BARRICADES		64	LIN. FT.
*	606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	ALTERNATE NO. 1	310	LIN. FT.
*	606	24" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	ALTERNATE NO. 2	341	LIN. FT.
*	606	24" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	ALTERNATE NO. 3	341	LIN. FT.
*	606	24" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (16 GAUGE)	ALTERNATE NO. 4	341	LIN. FT.
*	SP&606	24" HIGH DENSITY POLYETHYLENE PIPE	ALTERNATE NO. 5	341	LIN. FT.
*	SP&606	24" PVC PIPE	ALTERNATE NO. 6	341	LIN. FT.
*	606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	ALTERNATE NO. 1	68	LIN. FT.
*	606	30" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	ALTERNATE NO. 2	71	LIN. FT.
*	606	30" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	ALTERNATE NO. 3	71	LIN. FT.
*	606	30" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (16 GAUGE)	ALTERNATE NO. 4	71	LIN. FT.
*	SP&606	30" HIGH DENSITY POLYETHYLENE PIPE	ALTERNATE NO. 5	71	LIN. FT.
*	SP&606	30" PVC PIPE	ALTERNATE NO. 6	71	LIN. FT.
*	606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	ALTERNATE NO. 1	47	LIN. FT.
*	606	30" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	ALTERNATE NO. 2	50	LIN. FT.
*	606	30" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	ALTERNATE NO. 3	50	LIN. FT.
*	606	30" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (16 GAUGE)	ALTERNATE NO. 4	50	LIN. FT.
*	SP&606	30" HIGH DENSITY POLYETHYLENE PIPE	ALTERNATE NO. 5	50	LIN. FT.
*	SP&606	30" PVC PIPE	ALTERNATE NO. 6	50	LIN. FT.
*	606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	ALTERNATE NO. 1	266	LIN. FT.
*	606	36" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	ALTERNATE NO. 2	302	LIN. FT.
*	606	36" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	ALTERNATE NO. 3	302	LIN. FT.
*	606	36" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	ALTERNATE NO. 4	302	LIN. FT.
*	SP&606	36" HIGH DENSITY POLYETHYLENE PIPE	ALTERNATE NO. 5	302	LIN. FT.
*	SP&606	36" PVC PIPE	ALTERNATE NO. 6	302	LIN. FT.
*	606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	ALTERNATE NO. 1	212	LIN. FT.
*	606	36" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	ALTERNATE NO. 2	242	LIN. FT.
*	606	36" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	ALTERNATE NO. 3	242	LIN. FT.
*	606	36" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	ALTERNATE NO. 4	242	LIN. FT.
*	SP&606	36" HIGH DENSITY POLYETHYLENE PIPE	ALTERNATE NO. 5	242	LIN. FT.
*	SP&606	36" PVC PIPE	ALTERNATE NO. 6	242	LIN. FT.
*	606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	ALTERNATE NO. 1	54	LIN. FT.
*	606	42" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	ALTERNATE NO. 2	60	LIN. FT.
*	606	42" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	ALTERNATE NO. 3	60	LIN. FT.
*	606	42" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	ALTERNATE NO. 4	60	LIN. FT.
*	SP&606	42" HIGH DENSITY POLYETHYLENE PIPE	ALTERNATE NO. 5	60	LIN. FT.
*	606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	ALTERNATE NO. 1	222	LIN. FT.
*	606	42" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	ALTERNATE NO. 2	252	LIN. FT.
*	606	42" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	ALTERNATE NO. 3	252	LIN. FT.
*	606	42" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	ALTERNATE NO. 4	252	LIN. FT.
*	SP&606	42" HIGH DENSITY POLYETHYLENE PIPE	ALTERNATE NO. 5	252	LIN. FT.
*	606	54" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	ALTERNATE NO. 1	180	LIN. FT.
*	606	54" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	ALTERNATE NO. 2	192	LIN. FT.
*	606	54" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	ALTERNATE NO. 3	192	LIN. FT.
*	606	54" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (16 GAUGE)	ALTERNATE NO. 4	192	LIN. FT.
*	606	60" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	ALTERNATE NO. 1	207	LIN. FT.
*	606	60" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	ALTERNATE NO. 2	219	LIN. FT.
*	606	60" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	ALTERNATE NO. 3	219	LIN. FT.
*	606	60" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (16 GAUGE)	ALTERNATE NO. 4	219	LIN. FT.
*	606	60" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	ALTERNATE NO. 1	201	LIN. FT.
*	606	60" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	ALTERNATE NO. 2	213	LIN. FT.
*	606	60" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	ALTERNATE NO. 3	213	LIN. FT.
*	606	60" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (16 GAUGE)	ALTERNATE NO. 4	213	LIN. FT.
	SP,SS&606	18" SIDE DRAIN		78	LIN. FT.
	SP,SS&606	24" SIDE DRAIN		42	LIN. FT.
	SP,SS&606	36" SIDE DRAIN		88	LIN. FT.
*	606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	ALTERNATE NO. 1	12	EACH
*	606	24" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	ALTERNATE NO. 2	12	EACH
*	606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	ALTERNATE NO. 1	4	EACH
*	606	30" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	ALTERNATE NO. 2	4	EACH
*	606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	ALTERNATE NO. 1	26	EACH
*	606	36" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	ALTERNATE NO. 2	26	EACH
*	606	42" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	ALTERNATE NO. 1	8	EACH
*	606	42" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	ALTERNATE NO. 2	8	EACH
*	606	54" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	ALTERNATE NO. 1	6	EACH
*	606	54" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	ALTERNATE NO. 2	6	EACH
*	606	60" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	ALTERNATE NO. 1	12	EACH
*	606	60" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	ALTERNATE NO. 2	12	EACH
	606	SELECTED PIPE BEDDING		188	CU. YD.
	611	4" PIPE UNDERDRAINS		1000	LIN. FT.
	611	UNDERDRAIN OUTLET PROTECTORS		8	EACH
	617	GUARDRAIL (TYPE A)		4838	LIN. FT.
	617	TERMINAL ANCHOR POST (TYPE 1)		14	EACH
	617	THRIE BEAM GUARDRAIL TERMINAL		4	EACH
	620	SEEDING		35.47	ACRE
	620	LIME		71	TON
	SS&620	MULCH COVER		67.22	ACRE
	620	WATER		10650.7	M. GAL.
	621	TEMPORARY SEEDING		31.75	ACRE
	621	SAND BAG DITCH CHECKS		1000	BAG
	621	ROCK DITCH CHECKS		490	CU. YD.
	621	SILT FENCE		12895	LIN. FT.
	621	SEDIMENT BASIN		250	CU. YD.
	621	OBLITERATION OF SEDIMENT BASIN		250	CU. YD.
	621	SEDIMENT REMOVAL AND DISPOSAL		1000	CU. YD.
	SP	ROCK DITCH LINER		2568	TON
	623	SECOND SEEDING APPLICATION		37.00	ACRE
	624	SOLID SODDING		1608	SQ. YD.
	626	EROSION CONTROL MATTING (CLASS 2)		1000	SQ. YD.
	626	EROSION CONTROL MATTING (CLASS 3)		100	SQ. YD.
	635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
	637	MAILBOX SUPPORT (SINGLE)		1	EACH
	637	MAILBOXES		1	EACH
	718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4")		37603	LIN. FT.
	718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4")		37208	LIN. FT.
*	SP&719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	ALTERNATE NO. 1	396	LIN. FT.
*	SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	ALTERNATE NO. 2	396	LIN. FT.
	804	REINFORCING STEEL - ROADWAY (GRADE 60)		1440	POUND
	816	DUMPED RIPRAP		302	CU. YD.
	816	FILTER BLANKET		604	SQ. YD.
		STRUCTURES OVER 20' - 0" SPAN			
	636	BRIDGE CONSTRUCTION CONTROL		1.00	LUMP SUM
	801	UNCLASSIFIED EXCAVATION FOR STRUCTURES - BRIDGE		182	CU.YD.
	802	CLASS S CONCRETE - BRIDGE		159.80	CU.YD.
	802	CLASS (AE) CONCRETE -BRIDGE		190.60	CU.YD.
	803	CLASS 1 PROTECTIVE SURFACE TREATMENT		15.7	GALLON
	804	REINFORCING STEEL - BRIDGE (GRADE 60)		64870	POUND
	805	STEEL PILING (HP 12X53)		75	LIN. FT.
	807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)		146930	POUND
	SP&808	ELASTOMERIC BEARINGS		9462.0	CU. IN.
	809	SILICONE JOINT SEALANT		75	LIN. FT.
	812	BRIDGE NAME PLATE (TYPE D)		1	EACH
	816	FILTER BLANKET		372	SQ. YD.
	816	DUMPED RIPRAP		213	CU. YD.

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE		SHEET NUMBER
4/14/2015	ADDED SPECIAL PROVISION MANDATORY ELECTRONIC CONTRACT	2,23

SUMMARY OF QUANTITIES AND REVISIONS

STATE OF ARKANSAS * * * REGISTERED PROFESSIONAL ENGINEER No. 11425 * * * TIMOTHY D. SMITH 4-14-15

DATE REVISED	DATE PLANS	DATE REVISED	DATE PLANS
4/14/2015			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	040206	23	215

2 SUMMARY OF QUANTITIES AND REVISIONS

SURVEY CONTROL COORDINATES
Project Name: s040218
Date: 12/16/2014
Coordinate System; Azimuth Derived by Solar Observation
Lat and Long Scaled from Quadmap
U.S. Survey Foot
Units:

Point No.	Northing	SY	Easting	SX	Elevation	SZ	Feature Code	Point Description
1	507648.0386	0.0965	622678.0663	0.025	908.837	0.0084	CTL	PD:AHTD STD. CTL MON. STAMPED PN:1
2	507602.658	0.0638	623203.1184	0.0239	933.841	0.0084	CTL	PD:AHTD STD. CTL MON. STAMPED PN:2
3	507583.9708	0.0355	623750.0237	0.0222	953.444	0.0082	CTL	PD:AHTD STD. CTL MON. STAMPED PN:3
4	507718.4406	0.0239	624425.8185	0.0215	948.752	0.0075	CTL	PD:AHTD STD. CTL MON. STAMPED PN:4
5	507521.1978	0.0286	625302.2732	0.0217	938.637	0.0066	CTL	PD:AHTD STD. CTL MON. STAMPED PN:5
6	507810.5997	0.0341	625806.6312	0.0245	914.979	0.0064	CTL	PD:AHTD STD. CTL MON. STAMPED PN:6
7	508056.9196	0.0313	626484.3326	0.0257	861.79	0.0054	CTL	PD:AHTD STD. CTL MON. STAMPED PN:7
8	508319.2244	0.0273	627095.3699	0.025	844.324	0.0048	CTL	PD:AHTD STD. CTL MON. STAMPED PN:8
9	508598.1827	0.0273	627288.7478	0.0253	833.899	0.005	CTL	PD:AHTD STD. CTL MON. STAMPED PN:9
10	509109.2708	0.0315	627511.1639	0.0351	839.627	0.0042	CTL	PD:AHTD STD. CTL MON. STAMPED PN:10
11	509948.1888	0.0314	627320.8853	0.0561	847.876	0.0015	CTL	PD:AHTD STD. CTL MON. STAMPED PN:11
12	510212.5652	0.032	627252.7258	0.0592	825.586	0.0028	CTL	PD:AHTD STD. CTL MON. STAMPED PN:12
13	510724.4326	0.033	627356.3214	0.0607	830.652	0.0038	CTL	PD:AHTD STD. CTL MON. STAMPED PN:13
14	511236.597	0.0346	627457.4903	0.0603	858.776	0.0042	CTL	PD:AHTD STD. CTL MON. STAMPED PN:14
15	511882.8116	0.0334	627368.8391	0.042	962.697	0.0056	CTL	PD:AHTD STD. CTL MON. STAMPED PN:15
16	512362.5264	0.0267	627796.512	0.0293	996	0.0065	CTL	PD:AHTD STD. CTL MON. STAMPED PN:16
17	513859.6572	0.0257	630008.1764	0.0295	1115.071	0.0078	CTL	PD:AHTD STD. CTL MON. STAMPED PN:17
18	514531.9796	0.0325	630448.8943	0.0442	1134.475	0.0076	CTL	PD:AHTD STD. CTL MON. STAMPED PN:18
19	515249.361	0.0317	630939.8175	0.0467	1173.284	0.0082	CTL	PD:AHTD STD. CTL MON. STAMPED PN:19
20	515926.047	0.0287	631512.7937	0.0433	1176.593	0.0083	CTL	PD:AHTD STD. CTL MON. STAMPED PN:20
21	516547.0412	0.0282	631510.0634	0.0422	1221.816	0.0084	CTL	PD:AHTD STD. CTL MON. STAMPED PN:21
22	517725.2878	0.0253	630746.4827	0.0365	1300.57	0.0086	CTL	PD:AHTD STD. CTL MON. STAMPED PN:22
23	519298.8903	0.0237	630259.1411	0.0374	1309.534	0.0085	CTL	PD:AHTD STD. CTL MON. STAMPED PN:23
24	520079.1706	0.0232	630257.5172	0.0394	1285.03	0.0087	CTL	PD:AHTD STD. CTL MON. STAMPED PN:24
25	520671.0249	0.0224	630410.513	0.0351	1288.687	0.0088	CTL	PD:AHTD STD. CTL MON. STAMPED PN:25
26	521897.5394	0.0229	630732.843	0.0293	1287.667	0.0088	CTL	PD:AHTD STD. CTL MON. STAMPED PN:26
27	522761.774	0.0233	631238.3636	0.029	1294.185	0.0086	CTL	PD:AHTD STD. CTL MON. STAMPED PN:27
28	524268.0997	0.0224	632264.6692	0.0237	1314.781	0.0087	CTL	PD:AHTD STD. CTL MON. STAMPED PN:28
29	524841.4154	0.0206	632804.1181	0.02	1295.535	0.0087	CTL	PD:AHTD STD. CTL MON. STAMPED PN:29
30	525203.1313	0.0287	633608.014	0.0221	1219.105	0.0085	CTL	PD:AHTD STD. CTL MON. STAMPED PN:30
31	525808.6456	0.031	634156.7913	0.0247	1174.71	0.0082	CTL	PD:AHTD STD. CTL MON. STAMPED PN:31
32	527907.5457	0.089	637275.3424	0.1031	955.528	0.0069	CTL	PD:AHTD STD. CTL MON. STAMPED PN:32
33	528754.2535	0.0459	638161.3669	0.0623	960.736	0.0067	CTL	PD:AHTD STD. CTL MON. STAMPED PN:33
34	529215.5286	0.0257	638648.8031	0.0415	967.682	0.0063	CTL	PD:AHTD STD. CTL MON. STAMPED PN:34
35	530134.9279	0.0185	639011.473	0.0216	979.114	0.0062	CTL	PD:AHTD STD. CTL MON. STAMPED PN:35
36	530870.9256	0.0149	639423.9687	0.0158	967.355	0.0058	CTL	PD:AHTD STD. CTL MON. STAMPED PN:36
37	526414.2191	0.0339	635176.496	0.0361	1128.102	0.0056	CTL	PD:AHTD STD. CTL MON. STAMPED PN:37
38	526563.9419	0.0393	635325.3316	0.0423	1112.274	0.0061	CTL	PD:AHTD STD. CTL MON. STAMPED PN:38
39	526848.974	0.0494	635559.2512	0.0541	1087.012	0.0067	CTL	PD:AHTD STD. CTL MON. STAMPED PN:39
40	527216.4877	0.0568	635710.6685	0.0718	1097.523	0.0066	CTL	PD:AHTD STD. CTL MON. STAMPED PN:40
41	527322.0299	0.0649	635895.9777	0.0766	1086.948	0.0064	CTL	PD:AHTD STD. CTL MON. STAMPED PN:41
42	527430.8818	0.0715	636094.4238	0.08	1086.465	0.0062	CTL	PD:AHTD STD. CTL MON. STAMPED PN:42
43	527591.6531	0.0779	636295.1725	0.0846	1073.187	0.0058	CTL	PD:AHTD STD. CTL MON. STAMPED PN:43
44	527725.5731	0.084	636512.9209	0.0877	1049.944	0.0063	CTL	PD:AHTD STD. CTL MON. STAMPED PN:44
45	527859.1742	0.0873	636703.1497	0.0896	1036.196	0.0064	CTL	PD:AHTD STD. CTL MON. STAMPED PN:45
46	527983.6262	0.089	636854.8087	0.0907	1018.529	0.0064	CTL	PD:AHTD STD. CTL MON. STAMPED PN:46
47	528110.1423	0.0878	637066.1293	0.0902	976.842	0.0056	CTL	PD:AHTD STD. CTL MON. STAMPED PN:47
48	528223.3369	0.0848	637246.9144	0.0887	986.401	0.0048	CTL	PD:AHTD STD. CTL MON. STAMPED PN:48
49	528326.8154	0.0802	637461.3271	0.0867	962.954	0.0029	CTL	PD:AHTD STD. CTL MON. STAMPED PN:49
50	513282.8623	0.0224	629424.0831	0.0207	1077.343	0.0079	CTL	PD:AHTD STD. CTL MON. STAMPED PN:50
51	508858.5577	0.0296	627404.8958	0.0302	832.887	0.0042	CTL	PD:AHTD STD. CTL MON. STAMPED PN:51
52	532817.0859	0.0156	642530.8507	0.0136	1092.228	0.002	CTL	PD:AHTD STD. CTL MON. STAMPED PN:52
101	532912.3198	0.0207	642763.9976	0.0166	1101.021	-99999	GPS	PD:AHTD GPS #720008
902	532849.1097	30	642286.3009	30	1084.57	0.0001	TBM	PD:RR SPIKE IN 20" OAK
903	532525.5628	30	641371.1628	30	1068.97	0.0031	TBM	PD:NIS 12" OAK
905	531109.934	30	639570.6623	30	987.442	0.005	TBM	PD:RR SPIKE IN 12" CEDAR
918	524907.2581	30	633012.1828	30	1266.765	0.0087	TBM	PD:RR SPIKE ROOT 24" OAK
924	521434.2322	30	630492.3276	30	1279.933	0.0087	TBM	PD:NIS 16" OAK
933	513375.958	30	629670.6669	30	1080.026	0.0079	TBM	PD:NIS 18" OAK
958	509896.729	30	627387.1213	30	846.48	0.0001	TBM	PD:CPS IN ROOT 12" OAK
961	528960.5445	30	638142.6154	30	965.897	0.016	TBM	PD:NIS 12" CEDAR
1200	507628.004	0.03	623955.523	0.03	960.166	0.0081	CTL	PD:8 SPK
1400	507613.24	0.0245	624890.1812	0.0207	968.644	0.003	CTL	PD:8 SPK
1500	507568.96	0.03	625091.393	0.03	957.037	0.0071	CTL	PD:8 SPK
1900	508554.973	0.03	627216.204	0.03	847.692	0.005	CTL	PD:8 SPK
2000	508771.9317	0.0288	627321.4275	0.0288	836.761	0.005	CTL	PD:8 SPK
2100	509019.2277	0.031	627441.3131	0.0348	846.3	0.0059	CTL	PD:8 SPK
2300	509237.8231	0.0901	627475.7881	0.0001	842.83	0.0001	CTL	PD:8 SPK
2400	509919.3773	0.0001	627385.154	0.0001	845.216	0.0001	CTL	PD:8 SPK
2600	510381.7251	0.0336	627345.8142	0.0616	826.786	0.0126	CTL	PD:8 SPK
2900	511457.3913	0.0364	627242.9225	0.055	897.914	0.0116	CTL	PD:8 SPK
3000	511655.3876	0.0387	627162.7753	0.0493	914.926	0.0114	CTL	PD:8 SPK
3200	512683.756	0.03	628094.717	0.03	1020.809	0.0068	CTL	PD:8 SPK
3300	513386.6263	0.0256	628732.1325	0.0233	1050.738	0.0084	CTL	PD:8 SPK
3400	513388.6882	0.0236	629250.23	0.0217	1093.265	0.0018	CTL	PD:8 SPK
3600	513258.684	0.03	629586.285	0.03	1051.309	0.0077	CTL	PD:8 SPK
3700	513414.14	0.03	629692.714	0.03	1082.02	0.0079	CTL	PD:8 SPK
4200	517077.7263	0.0275	631197.6791	0.0418	1254.051	0.0136	CTL	PD:8 SPK
4400	518371.51	0.03	630490.931	0.03	1314.284	0.0086	CTL	PD:8 SPK
4500	518659.9016	0.0234	630417.7145	0.0309	1318.51	0.0049	CTL	PD:8 SPK
4900	521027.3721	0.0216	630426.9176	0.0306	1303.386	0.0055	CTL	PD:8 SPK
5000	521377.148	0.03	630416.544	0.03	1281.922	0.0086	CTL	PD:8 SPK
5100	522240.3642	0.024	630919.7923	0.031	1295.551	0.0083	CTL	PD:8 SPK
5200	523190.469	0.03	631474.297	0.03	1304.869	0.0086	CTL	PD:8 SPK
5400	523750.9879	0.0229	631845.1532	0.0255	1311.702	0.008	CTL	PD:8 SPK
5500	524615.051	0.03	632534.838	0.03	1318.445	0.0088	CTL	PD:8 SPK
5600	524991.273	0.0001	632835.4872	0.0001	1307.949	0.0087	CTL	PD:8 SPK
5700	525072.579	0.03	633103.705	0.03	1261.883	0.0086	CTL	PD:8 SPK
6000	525828.7355	0.032	634136.0202	0.0258	1188.599	0.0078	CTL	PD:8 SPK
6100	525797.5041	0.0274	634721.6592	0.0246	1159.998	0.005	CTL	PD:8 SPK
6200	525933.545	0.03	634989.368	0.03	1143.094	0.0082	CTL	PD:8 SPK
6900	527542.7849	0.1089	636896.1996	0.1221	964.354	0.0157	CTL	PD:8 SPK
7000	528300.528	0.0736	637692.7417	0.0873	957.524	0.0131	CTL	PD:8 SPK
7200	529718.074	0.03	638846.168	0.03	999.706	0.0063	CTL	PD:8 SPK
7400	530575.214	0.03	639155.342	0.03	972.409	0.006	CTL	PD:8 SPK
7500	530878.837	0.03	639363.932	0.03	970.042	0.0056	CTL	PD:8 SPK
7600	531184.218	0.03	639573.795	0.03	992.128	0.005	CTL	PD:8 SPK
7700	531399.057	0.03	639793.321	0.03	1002.672	0.0049	CTL	PD:8 SPK
7800	531665.253	0.03	640174.623	0.03	1019.055	0.0049	CTL	PD:8 SPK
7900	532055.882	0.03	640666.249	0.03	1022.76	0.0046	CTL	PD:8 SPK
8000	532414.143	0.03	641117.148	0.03	1057.541	0.0037	CTL	PD:8 SPK
8100	532523.174	0.03	641254.383	0.03	1065.286	0.0035	CTL	PD:8 SPK
8200	532605.365	0.03	641512.412	0.03	1078.185	0.0027	CTL	PD:8 SPK
8300	532750.648	0.03	641968.582	0.03	1077.118	0.002	CTL	PD:8 SPK
8400	532848.553	0.03	642488.801	0.03	1093.97	0.002	CTL	PD:8 SPK
8500	532966.802	0.03	642596.672	0.03	1111.963	0.0033	CTL	PD:CPS
9200	532907.56	0.03	642841.629	0.03	1097.14	0.003	CTL	PD:8 SPK

*Standard Primary Control Monument - Rebar and Cap - Standard - 5/8"x 24" Rebar with 2"Aluminum Cap stamped: "(include all common information here)" plus other markings indicated in the point description of the individual point. AHTD monuments will be stamped "Arkansas Hwy & Trans Dept" with "PN: ###" & "Job ######". Monuments that are set by Consultants will be stamped "Arkansas Hwy & Trans Dept" with "PN:###", "Job######", & "PS####". The consultant Professional Surveyor in charge will stamp his/her PS license number on the cap.
**Standard GPS Control Point Monument - 5/8" x 48" Rebar with 2.5"Aluminum Cap stamped: "(include all common information here)" plus other markings indicated in the point description of the individual point. These monuments will be stamped "Ark. State Hwy Trans. Dept.", "GPS Survey", & "Point No. ######".
SX, SY, SZ – Represents the standard error estimate of the coordinate values of each point at the 67% confidence level (one sigma) based on the least squares analysis of the control network. See the AASHTO SDMS Technical Data Guide data tag definition for SX:, SY:, and SZ: for additional information. These values shall be used when control points are added and the entire network is reprocessed using least square analysis. A value of 0.001 is defined as fixed (no adjustment) in the least square analysis process. A value of 30 is defined as location by handheld GPS device or scaled from USGS Quadmap.
Reference Control points (1500 series) shall be used to re-establish horizontal datum if the primary control has been destroyed. These reference control points shall not be used for vertical control unless the elevation has been established from the project datum with 3-wire level techiniques.
All additional project control shall be occupied, measured, and adjusted with direct survey ties to at least two of the control points listed in the table above. New survey control shall not be independent of the survey control listed above. This includes horizontal coordinates and elevations.

Positional Accuracy:
Horizontal - GPS (1.0 cm ± 1PPM) PN: 101
Horizontal - Primary (2.0cm± 20PPM). PN: 1-52, 1200-9200
Horizontal - Secondary (3 cm ± 50PPM): PN: N/A
Vertical - NGS 1st Order (±4mm x vdist in km) PN: N/A
Vertical - NGS 2nd Order (±6mm x vdist in km) PN: N/A
Vertical - NGS 3rd Order (±8mm x vdist in km) PN: N/A

Horizontal Datum: State Plane Zone:
The adjustment year is based on metadata in the SDMS Control file
A project CAF of: has been used to compute the above coordinates.
The project CAF shall have a minimum precision of 9 digits right of the decimal.
This CAF is intended for use within the project limits only.
Grid Distance = Ground Distance X CAF
If Coordinates are listed as Ground:
To compute Grid Coordinates, multiply the Ground Coordinates by CAF about the origin of X=0 & Y=0
If Coordinates are listed as Grid:
To compute Ground Coordinates, divide the Grid Coordinates by CAF about the origin of X=0 & Y=0

Vertical Datum: NAVD 1988 based NGS BM:
A project Elevation Factor of: 0.999954861 has been computed and incorporated in the above CAF.
This is based on the average elevation of the project: 943.669 Feet
3-Wire Leveling techniques have been used to establish elevations on
Points:
From NGS BM: *SEE HEADER

Basis of Bearing: Grid Bearings based on GPS Points
Convergence Angle is: at PN:
LT: LG:
Grid Azimuth = Astronomical Azimuth - Convergence Angle

Note: Information in Italics is for clarification only. It is not to be part of the actual Control Table or Control Detail Sheets.

Geometry Reports
Construction Alignment

OFFSET PT NAME	BASELINE STATION	OFFSET	OFFSET NORTHING	OFFSET EASTING	OFFSET ELEVATION
8000	0+02.8200	0.00	505662.4920	620289.3860	0.0000
8001	2+36.1540	0.00	505845.7402	620144.9393	0.0000
8002	7+31.8960	0.00	506273.4067	620230.6050	0.0000
8003	15+85.1745	0.00	506688.3708	620976.1847	0.0000
8004	17+96.8445	0.00	506770.0541	621170.9895	0.0000
8005	26+38.5752	0.00	507007.6900	621978.4793	0.0000
8006	29+40.7456	0.00	507163.7819	622233.1270	0.0000
8007	34+54.8929	0.00	507537.4447	622586.2891	0.0000
8008	37+28.2503	0.00	507636.7862	622832.0015	0.0000
8009	45+61.1183	0.00	507599.1689	623664.0195	0.0000
8010	47+79.7888	0.00	507614.2807	623881.6887	0.0000
8011	52+16.2606	0.00	507694.0576	624310.8078	0.0000
8012	54+45.3800	0.00	507690.3856	624538.3741	0.0000
8013	61+00.9710	0.00	507549.8260	625178.7197	0.0000
8014	63+03.1706	0.00	507576.8369	625374.8975	0.0000
8015	67+31.6833	0.00	507778.4043	625753.0427	0.0000
8016	68+61.4615	0.00	507832.8418	625870.7752	0.0000
8017	80+73.8846	0.00	508278.5857	626998.2866	0.0000
8018	82+86.6368	0.00	508419.9612	627150.7137	0.0000
8019	89+51.7804	0.00	509018.4029	627441.0300	0.0000
8020	91+74.7693	0.00	509235.4386	627476.0064	0.0000
8021	100+80.1558	0.00	510132.9356	627356.7430	0.0000
8022	103+90.2886	0.00	510442.1212	627357.7356	0.0000
8023	108+96.8969	0.00	510943.8761	627427.6925	0.0000
8024	110+96.7921	0.00	511140.0018	627403.4206	0.0000
8025	114+99.8422	0.00	511513.5794	627252.1288	0.0000
8026	118+21.1187	0.00	511813.5787	627305.4622	0.0000
8027	138+10.8416	0.00	513287.3812	628642.2132	0.0000
8028	140+99.0183	0.00	513377.1780	628903.3872	0.0000
8029	144+85.3173	0.00	513311.1357	629283.9984	0.0000
8030	150+32.1900	0.00	513511.8414	629759.6046	0.0000
8031	171+83.7784	0.00	515287.2144	630975.0810	0.0000
8032	173+03.8233	0.00	515382.5389	631047.9566	0.0000
8033	179+12.3144	0.00	515845.9349	631442.3239	0.0000
8034	181+18.2435	0.00	516035.5377	631510.6079	0.0000
8035	185+48.4046	0.00	516465.6583	631504.7011	0.0000
8036	186+92.4147	0.00	516603.1797	631467.3688	0.0000
8037	191+79.5161	0.00	517026.7589	631226.8517	0.0000
8038	192+95.8572	0.00	517124.8407	631164.3731	0.0000
8039	198+61.3987	0.00	517585.7957	630836.7183	0.0000
8040	201+39.1684	0.00	517829.3959	630704.6654	0.0000
8041	206+49.7516	0.00	518304.3946	630517.3920	0.0000
8042	207+93.8480	0.00	518441.4141	630473.0964	0.0000
8043	215+30.2983	0.00	519155.0061	630291.0375	0.0000
8044	218+06.0623	0.00	519427.8025	630255.5180	0.0000
8045	223+11.0932	0.00	519932.8122	630250.8962	0.0000
8046	225+94.0107	0.00	520213.1705	630283.0798	0.0000
8047	231+52.6787	0.00	520756.1246	630414.6501	0.0000
8048	233+05.9518	0.00	520908.1157	630430.5120	0.0000
8049	236+65.8029	0.00	521267.8074	630419.8002	0.0000
8050	238+78.8783	0.00	521471.6369	630471.6605	0.0000
8051	262+00.0165	0.00	523476.6059	631641.1824	0.0000
8052	263+67.2766	0.00	523614.4310	631735.6841	0.0000
8053	281+31.3602	0.00	524991.3050	632835.5570	0.0000

SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
CLINTON D. SMITH
No. 11425
3-20-15

DATE REVISED	DATE PLATED	DATE REVISED	DATE PLATED	FED.AID PROJ. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
					ARK.	040206	24	215

2 SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	25	215

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15

NBC 0.1200 CEDAR
NBC 0.5000 OAK
NBC 0.1000 OAK
P1 36+00.64
NBC 0.1200 OAK
NBC 0.1300 OAK
NBC 0.1000 ELM
NBC 0.2100 OAK
NBC 0.2400 TWIN HICKORY
NBC 0.2400 OAK
N 43°23'19" E 99.57'
N 43°23'04" E 145.75'
PT. NO. 10
S 87°24'41" E 145.75'
PT. NO. 9
PT. NO. 8
N 43°22'53" E 210.32'
PT. NO. 8007
N 43°23'05" E 504.69'
N 43°23'04" E 514.15'
CONSTRUCTION
PI 36+00.64
Δ = 49°12'16" RT.
D = 18°00'00"
T = 145.75'
L = 273.36'
PC 34+54.89
PT 37+28.25
PC34+54.89
PT37+28.25
PT. NO. 8008
N
C.L. CONSTRUCTION & SURVEY BASELINE
S 87°24'41" E 1088.43'
S 87°24'41" E 832.87'
STA. 39+00.00
BEGIN JOB 040206
LOG MILE 9.90
NBC 0.1700 ELM
NBC 0.1600 ELM
NBC 0.3500 OAK
P1 53+32.37
N 79°28'06" E 116.11'
PT. NO. 13
S 77°37'11" E 116.11'
N 79°28'05" E 477.48'
PT. NO. 8011
N 79°28'06" E 436.47'
N 79°28'10" E 184.91'
PT. NO. 12
PT. NO. 8010
PT. NO. 8009 S 87°24'41" E 109.82'
PT. NO. 11 N 79°28'06" E 109.82'
CONSTRUCTION
PI 46+70.93
Δ = 13°07'13" LT.
D = 6°00'00"
T = 109.82'
L = 218.67'
PC 45+61.12
PT 47+79.79
e = 0.046 '/'
Ls = 200'
PC45+61.12
PT47+79.79
NBC 0.2800 OAK
NBC 0.2400 HICKORY
NBC 0.2400 ELM
P1 46+70.93
NBC 0.1000 HICKORY
NBC 0.4000 CEDAR
NBC 0.6200 OAK
CONSTRUCTION
PI 53+32.37
Δ = 22°54'43" RT.
D = 10°00'00"
T = 116.11'
L = 229.12'
PC 52+16.26
PT 54+45.38
e = 0.068 '/'
Ls = 250'
PC52+16.26
PT54+45.38
PT. NO. 8012
S 77°37'06" E 476.25'
C.L. CONSTRUCTION & SURVEY BASELINE
NBC 0.4200 OAK
NBC 0.3500 OAK
NBC 0.2500 OAK
PT. NO. 14
S 77°37'11" E 655.59'
S 77°36'48" E 206.06'

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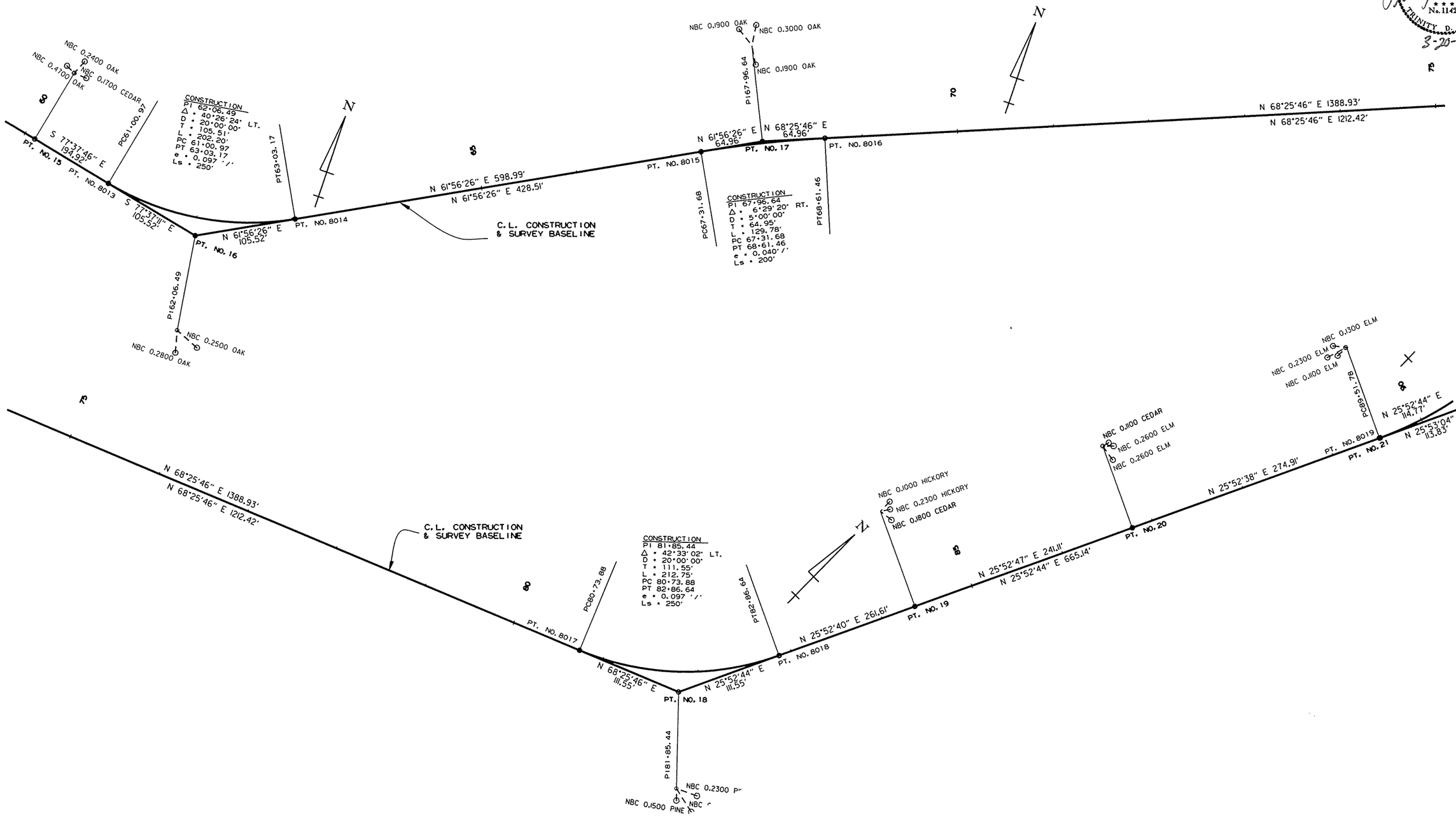
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	26	215

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15



SURVEY CONTROL DETAILS

12/19/2014

R040206.DGN

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.		040206	27	215

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15

CONSTRUCTION
PI 90+66.55
Δ = 33°26'54" LT.
D = 15°00'00"
T = 114.77'
L = 222.99'
PC 89+51.78
PT 91+74.77
e = 0.086 '/'
Ls = 250'

NBC 0.2900 CEDAR
NBC 0.1900 CEDAR
NBC 0.2400 CEDAR

N 25°52'44" E 114.77'
N 25°53'04" E 113.83'
N 7°34'10" W 114.77'
N 7°34'19" W 117.08'
PT. NO. 22
PT. NO. 23
PT. NO. 8020
PT 191+74.77
P190+66.55
NBC 0.3600 OAK
NBC 0.1900 ELM
NBC 0.3600 CEDAR

C.L. CONSTRUCTION & SURVEY BASELINE

N 7°34'09" W 687.60'
N 7°34'10" W 905.39'
N 7°34'09" W 371.50'
N 7°34'10" W 156.02'
PT. NO. 24
PT. NO. 8021
PT. NO. 25
PC100+80.16

NBC 0.1500 CEDAR
NBC 0.3000 OAK
NBC 0.2400 HICKORY

N 14°27'24" W 273.02'
NBC 0.1500 MAPLE
NBC 0.2000 MAPLE
NBC 0.1000 MAPLE
P1102+36.18

N 5°59'08" E 94.69'
N 11°26'29" E 522.25'
NBC 0.5200 OAK
NBC 0.3000 GUM
NBC 0.2600 WALNUT

N 7°56'14" E 156.02'
PT. NO. 26
PT. NO. 8022
PT103+90.29

CONSTRUCTION
PI 102+36.18
Δ = 15°30'24" RT.
D = 5°00'00"
T = 156.02'
L = 310.13'
PC 100+80.16
PT 103+90.29
e = 0.040 '/'
Ls = 200'

N 5°56'53" E 655.69'
N 7°56'14" E 506.61'
N 11°10'26" E 522.06'
PC108+96.90
PT. NO. 27
PT. NO. 8023
N 7°56'14" E 102.29'
P1109+99.19

CONSTRUCTION
PI 109+99.19
Δ = 29°59'03" LT.
D = 15°00'00"
T = 102.29'
L = 199.90'
PC 108+96.90
PT 110+96.79
e = 0.086 '/'
Ls = 250'

NBC 0.3000 CEDAR
NBC 0.1300 CEDAR
NBC 0.0500 ELM
NBC 0.0500 ELM
NBC 0.0800 MULBERRY
P1110+96.79

N 22°06'42" W 81.27'
PT. NO. 28
PT. NO. 8024
N 22°02'49" W 102.23'
N 22°01'59" W 375.97'
N 22°02'49" W 403.05'
N 44°10'50" W 301.88'

SURVEY BASELINE
C.L. CONSTRUCTION

N 22°01'57" W 213.56'
N 22°02'16" W 213.60'
N 22°02'49" W 179.90'
PT. NO. 29
PT. NO. 8025
PC114+99.84

NBC 0.2200 OAK
NBC 0.1400 HICKORY
NBC 0.2300 CEDAR

NBC 0.1400 OAK
NBC 0.1800 OAK
NBC 0.2200 OAK
P1116+79.74
PT. NO. 30

N 42°12'30" E 179.90'
N 42°12'10" E 306.98'

CONSTRUCTION
PI 116+79.74
Δ = 64°15'19" RT.
D = 20°00'00"
T = 179.90'
L = 321.28'
PC 114+99.84
PT 118+21.12
e = 0.097 '/'
Ls = 250'

PT118+21.12
PT. NO. 8026
PT. NO. 31

NBC 0.3700 HICKORY
NBC 0.1400 OAK
NBC 0.2400 OAK

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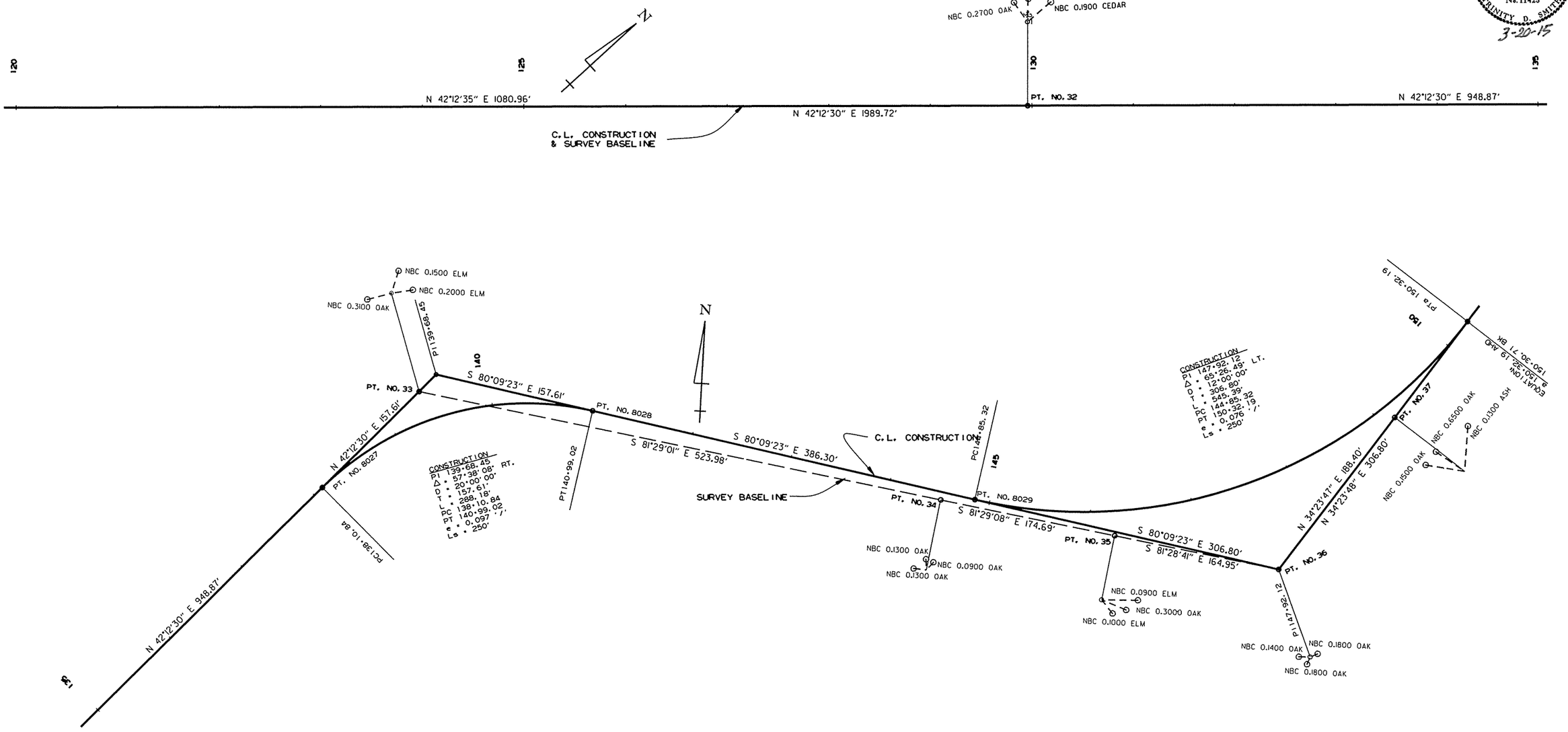
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	28	215

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15



SURVEY CONTROL DETAILS

12/19/2014

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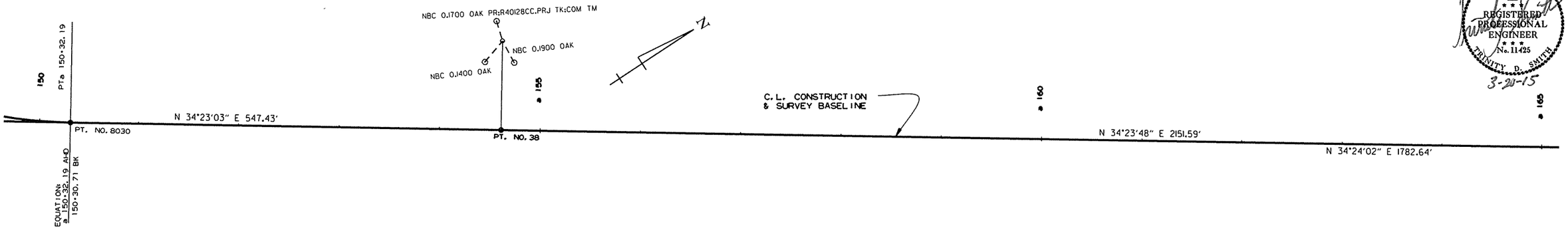
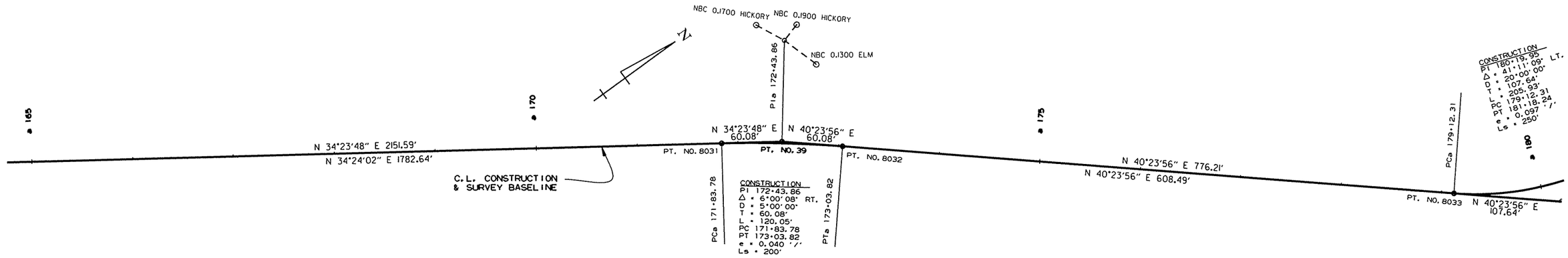
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	29	215

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15





12/19/2014

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SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	30	215

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15

PT. NO. 8033
N 40°23'56" E
107.64'
PT. NO. 40
PCa 179+12.31
CONSTRUCTION
PI 180+19.95
Δ = 41°11'09" LT.
D = 20°00'00"
T = 107.00'
L = 205.64'
PC 179+12.31
PT 181+17.93
e = 0.097 '/'
Ls = 250'
PTa 181+18.24
NBC 0.1500 OAK
NBC 0.2400 OAK
NBC 0.2700 OAK
N 0°47'12" W
107.64'
PT. NO. 8034
N 0°47'12" W 611.36'
N 0°47'12" W 430.16'
C.L. CONSTRUCTION & SURVEY BASELINE
PT. NO. 8035
N 0°47'12" W
73.56'
PT. NO. 41
PCa 185+48.40
CONSTRUCTION
PI 186+21.97
Δ = 28°48'07" LT.
D = 20°00'00"
T = 73.56'
L = 144.01'
PC 185+48.40
PT 186+92.41
e = 0.097 '/'
Ls = 250'
PTa 186+92.41
PTa 186+21.97
NBC 0.1000 ELM
NBC 0.2200 OAK
NBC 0.2500 OAK
N 29°35'20" W
73.56'
N 29°35'20" W 618.88'
N 29°35'20" W 487.10'
PT. NO. 8036
PT. NO. 8037
N 29°35'20" W
58.22'
PCa 191+79.52
CONSTRUCTION
PI 192+37.74
Δ = 5°49'01" LT.
D = 5°00'00"
T = 58.22'
L = 116.34'
PC 191+79.52
PT 192+95.86
e = 0.040 '/'
Ls = 200'
PTa 192+95.86
PT. NO. 42
N 35°24'21" W
58.22'
PT. NO. 8038
PTa 192+37.74
NBC 0.2000 ELM
NBC 0.1300 OAK
NBC 0.2700 OAK
N 35°24'21" W 763.33'
N 35°24'21" W 565.54'
PT. NO. 8039
PCa 198+61.40
CONSTRUCTION
PI 200+00.97
Δ = 13°53'19" RT.
D = 5°00'00"
T = 139.57'
L = 277.77'
PC 198+61.40
PT 201+39.17
e = 0.040 '/'
Ls = 200'
N 35°24'21" W 139.57'
PT. NO. 43
N 21°31'03" W
139.57'
PTa 200+00.97
NBC 0.2000 OAK
NBC 0.6100 OAK
NBC 0.2300 OAK
PTa 201+39.17
PT. NO. 8040
N 21°31'03" W 722.30'
N 21°31'03" W 510.58'
C.L. CONSTRUCTION & SURVEY BASELINE
PT. NO. 8041
N 21°31'03" W
72.14'
N 14°18'45" W
72.14'
PT. NO. 44
PCa 206+49.75
CONSTRUCTION
PI 207+21.89
Δ = 7°12'17" RT.
D = 5°00'00"
T = 72.14'
L = 144.10'
PC 206+49.75
PT 207+93.85
e = 0.040 '/'
Ls = 200'
PTa 207+93.85
NBC 0.1400 HICKORY
NBC 0.3400 OAK
NBC 0.2500 OAK
PTa 207+21.89
N 14°18'39" W 297.13'
PT. NO. 8042

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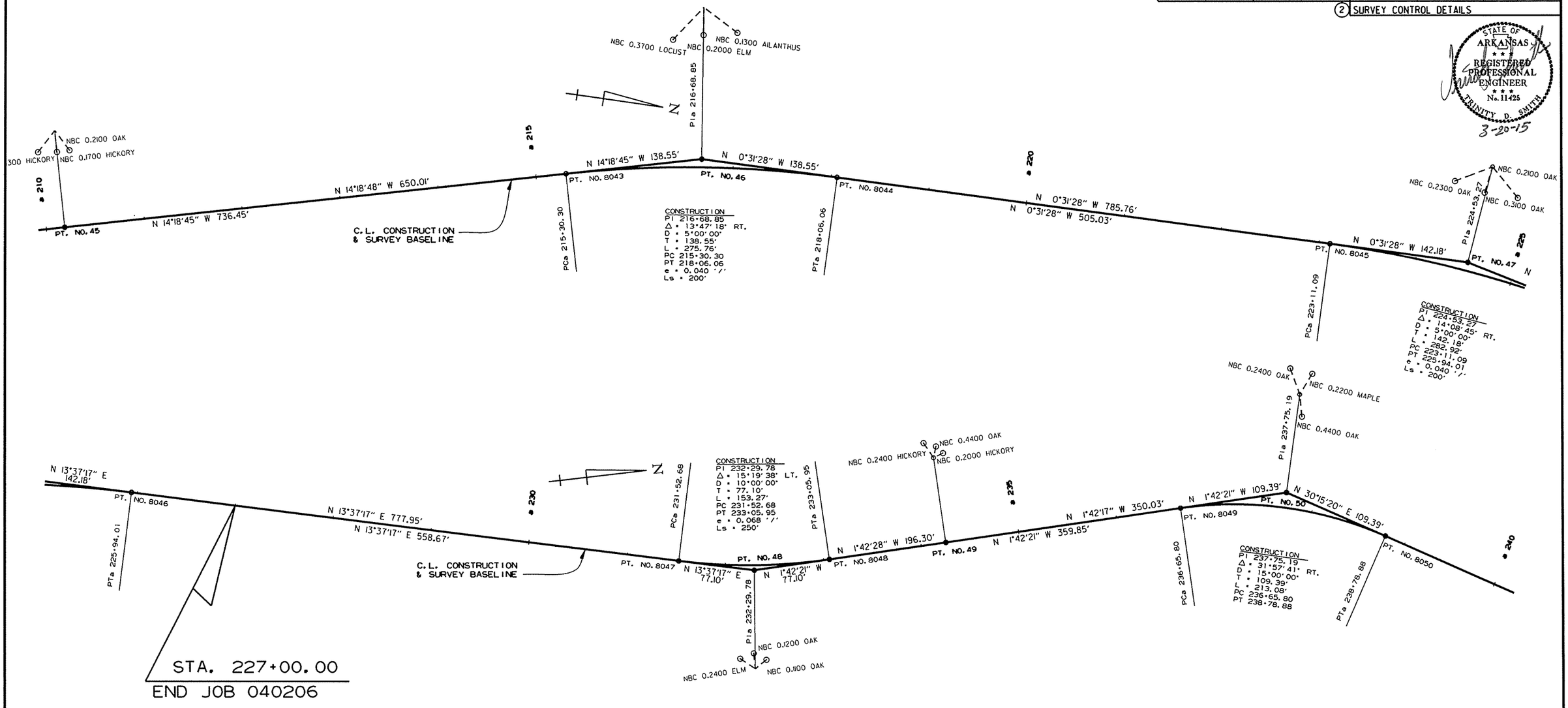
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	31	215

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15



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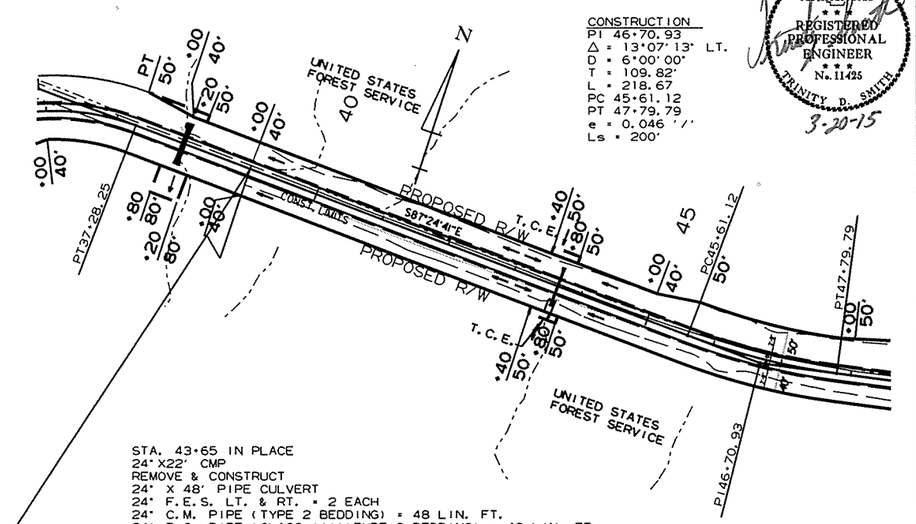
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.ROAD DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	32	215
				(2)	PLAN & PROF STA. 39+00 - 47+00			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15

CONSTRUCTION
PI 46+70.93
Δ = 13°07' 13" LT.
D = 6°00' 00"
T = 109.82'
L = 218.67
PC 45+61.12
PT 47+79.79
e = 0.046 '/'
Ls = 200'

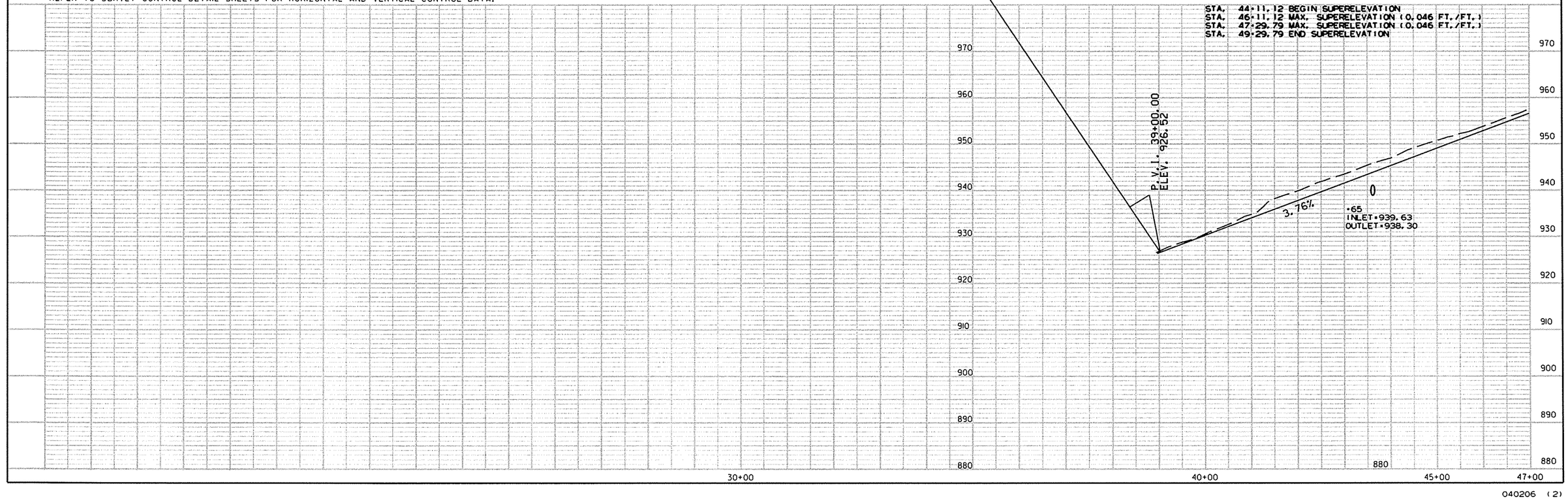


STA. 43+65 IN PLACE
24" X22' CMP
REMOVE & CONSTRUCT
24" X 48' PIPE CULVERT
24" F.E.S. LT. & RT. = 2 EACH
24" C.M. PIPE (TYPE 2 BEDDING) = 48 LIN. FT.
24" R.C. PIPE (CLASS III(TYPE 3 BEDDING) = 43 LIN. FT.
D.A. = 1 Ac. Q25 = 3 C.F.S.
RIPRAP RT. = 4 CU. YDS.
FILTER BLANKET RT. = 8 SQ. YDS.

STA. 39+00.00
BEGIN JOB 040206
L.M. 9.90

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

STA. 44+11.12 BEGIN SUPERELEVATION
STA. 46+11.12 MAX. SUPERELEVATION (0.046 FT./FT.)
STA. 47+29.79 MAX. SUPERELEVATION (0.046 FT./FT.)
STA. 49+29.79 END SUPERELEVATION



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.ROAD DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	33	215

(2) PLAN & PROF STA. 47+00-79+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
3-20-75
TRINITY D. SMITH

STA. 53+14 IN PLACE
36" X 30" CM PIPE
REMOVE & CONSTRUCT
TRP. 60" x 73' PIPE CULVERT
60" F.E.S. LT. & RT. = 6 EACH
60" C.M. PIPE (TYPE 2 BEDDING) = 219 LIN. FT.
60" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 207 LIN. FT.
D.A. = 142 Ac. Q25= 415 C.F.S.
RIPRAP LT.& RT. = 58 CU. YDS.
FILTER BLANKET LT.& RT. = 116 SQ. YDS.

STA. 56+80 - INSTALL
24" X 42" PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 10 CU. YD.

CONSTRUCTION
PI 62+06.49
Δ = 40°26'24" LT.
D = 20°00'00"
T = 105.52'
L = 202.20
PC 61+00.97
PT 63+03.17
e = 0.097 '/'
Ls = 250'

ROCK DITCH LINER
STA. 59+00 - STA. 60+00 RT.
STA. 59+00 - STA. 62+00 LT.
STA. 69+00 - STA. 73+00 LT.

STA. 75+75 IN STALL
18" X 32" PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 40 CU. YDS.

CONSTRUCTION
PI 53+32.37
Δ = 22°54'43" RT.
D = 10°00'00"
T = 116.11'
L = 229.12
PC 52+16.26
PT 54+45.38
e = 0.068 '/'
Ls = 250'

CONSTRUCTION
PI 67+96.64
Δ = 6°29'20" RT.
D = 5°00'00"
T = 64.96'
L = 129.78'
PC 67+31.68
PT 68+61.46
e = 0.040
Ls = 200

STA. 73+75 INSTALL
18" X 28" PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 5 CU. YDS.

STA. 56+80 - CONSTRUCT
CO. RD. TURNOUT ON RT. = 10 CU. YDS.

OBLITERATE EXISTING ROADWAY
2425 SQ. YDS.

UNITED STATES FOREST SERVICE

OLD COVE CITY RD.

ROCK DITCH LINER

PROPOSED R/W

CONST. LIMITS

T.C.E.

N79°28'07"-E

N68°25'46"-E

N66°56'26"-E

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

STA. 44+11.12 BEGIN SUPERELEVATION
STA. 46+11.12 MAX. SUPERELEVATION (0.046 FT./FT.)
STA. 47+29.79 MAX. SUPERELEVATION (0.046 FT./FT.)
STA. 49+29.79 END SUPERELEVATION

STA. 50+28.76 BEGIN SUPERELEVATION
STA. 52+78.76 MAX. SUPERELEVATION (0.068 FT./FT.)
STA. 53+82.88 MAX. SUPERELEVATION (0.068 FT./FT.)
STA. 56+32.28 END SUPERELEVATION

STA. 59+13.47 BEGIN SUPERELEVATION
STA. 61+63.47 MAX. SUPERELEVATION (0.097 FT./FT.)
STA. 62+40.67 MAX. SUPERELEVATION (0.097 FT./FT.)
STA. 64+90.67 END SUPERELEVATION

STA. 65+81.68 BEGIN SUPERELEVATION
STA. 67+81.68 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 68+11.46 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 70+11.46 END SUPERELEVATION

STA. 78+86.39 BEGIN SUPERELEVATION
STA. 81+36.39 MAX. SUPERELEVATION (0.097 FT./FT.)
STA. 82+24.14 MAX. SUPERELEVATION (0.097 FT./FT.)
STA. 84+74.14 END SUPERELEVATION

P.V.I. 49+00.00 ELEV. 964.12
P.V.C. 47+50.00 ELEV. 958.48
P.V.T. 50+50.00 ELEV. 956.89
P.V.C. 50+75.00 ELEV. 955.69
P.V.I. 53+00.00 ELEV. 944.84
P.V.I. 55+25.00 ELEV. 958.12
P.V.T. 53+50.00 ELEV. 961.63
P.V.C. 56+50.00 ELEV. 965.49
P.V.I. 58+00.00 ELEV. 974.34
P.V.I. 62+00.00 ELEV. 940.44
P.V.C. 61+00.00 ELEV. 948.92
P.V.T. 63+00.00 ELEV. 936.22
P.V.C. 68+00.00 ELEV. 915.11
P.V.I. 69+00.00 ELEV. 910.89
P.V.T. 70+00.00 ELEV. 900.89
P.V.C. 72+00.00 ELEV. 880.89
P.V.I. 73+50.00 ELEV. 865.89
P.V.T. 75+00.00 ELEV. 862.25

K=34.97 V.C.=300' e=-3.22'
K=41.98 V.C.=450' e=6.03'
K=20.87 V.C.=300' e=-5.39'
K=47.02 V.C.=200' e=1.06'
K=34.61 VC=200' e=-1.44'
K=39.62 V.C.=300' e=2.84'

3.76%
-4.90%
-8.47%
-4.22%
-10.00%
-2.43%

.14 INLET=942.09 LT. OUTLET=934.01 RT.

040206 (3)

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.ROAD DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	34	215

(2) PLAN & PROF STA. 79+00-111+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TIMOTHY D. SMITH

ROCK DITCH LINER
STA. 99+00 - STA. 101+00 LT.
STA. 110+00 - STA. 112+00 LT.

STA. 92+02 IN PLACE
18"X22' CM PIPE
REMOVE & CONSTRUCT
30"x 71' PIPE CULVERT
30" F.E.S. LT. & RT. = 2 EACH
30" C.M. PIPE (TYPE 2 BEDDING) = 71 LIN. FT.
30" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 68 LIN. FT.
D.A. = 7.3 Ac. Q25= 25 C.F.S.
CONST. INLET & OUTLET = 20 CU. YDS.
RIPRAP RT. = 6 CU. YDS.
FILTER BLANKET RT. = 12 SQ. YDS.

STA 101+99 - 103+41 IN PLACE
142' X 23' BRIDGE M2365 CONSISTING OF
LOW WATER CONCRETE BRIDGE
W/ QUINT. 32' X 24' CM PIPE
REMOVE

BR. END STA. 101+33.68
BRIDGE NO. 06725
28'-0" CLEAR ROADWAY
197'-7 3/4" TOTAL LENGTH
195'-0" CONTINOUS COMPOSITE W-BEAM UNIT
(60', 75', 60')
BR. END STA. 103+31.32

STA. 104+65 - INSTALL
36" X 46' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 60 CU. YDS.

CONSTRUCTION
PI 81+85.44
Δ = 42°33'02" LT.
D = 20°00'00"
T = 111.55'
L = 212.75
PC 80+73.89
PT 82+86.64
e = 0.097 '/'
Ls = 250'

CONSTRUCTION
PI 90+66.55
Δ = 33°26'54" LT.
D = 15°00'00"
T = 114.77'
L = 222.99
PC 89+51.78
PT 91+74.77
e = 0.086 '/'
Ls = 250'

CONSTRUCTION
PI 109+99.19
Δ = 29°59'03" LT.
D = 15°00'00"
T = 102.293'
L = 199.90'
PC 108+96.90
PT 110+96.79
e = 0.086 '/'
Ls = 250'

CONSTRUCTION
PI 102+36.18
Δ = 15°30'24" RT.
D = 5°00'00"
T = 156.02'
L = 310.13
PC 100+80.16
PT 103+90.29
e = 0.040 '/'
Ls = 200'

STA. 85+05 IN PLACE
18"X24' CMP
RIGHT SIDE DRAIN
RETAIN & INSTALL
18' X 28' PIPE CULVT.
CONST. APPR. = 10 CU. YDS.

STA. 85+86 IN PLACE
DBL. 30" X 26' CMP
STA. 85+40
REMOVE & CONSTRUCT
TRP. 60"x71' PIPE CULVERT
45° RT. FWD. SKEW
60" F.E.S. LT. & RT. = 6 EACH
60" C.M. PIPE (TYPE 2 BEDDING) = 213 LIN. FT.
60" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 201 LIN. FT.
D.A. = 133.1 Ac. Q25= 453 C.F.S.
CONST. INLET & OUTLET = 10 CU. YDS.
RIPRAP LT.& RT. = 56 CU. YDS.
FILTER BLANKET LT.& RT. = 112 SQ. YDS.

OBLITERATE OLD ROADWAY
1381 SQ. YDS.

OBLITERATE OLD ROADWAY
1100 SQ. YDS.

STA.	STA.	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	TERMINAL ANCHOR POSTS (TY. 1)
88+00.00 -	94+00.00	RT. 600 L.F.		2 EACH
96+00.00 -	101+23.88	RT. 524 L.F.	1 EACH	1 EACH
100+40.33 -	101+34.08	LT. 75 L.F.	1 EACH	1 EACH
103+30.92 -	104+24.67	RT. 75 L.F.	1 EACH	1 EACH
103+50.52 -	105+69.27	LT. 164 L.F.	1 EACH	1 EACH

APPROACH GUTTERS
STA. 101+14 - STA. 101+34 LT.
STA. 100+96 - STA. 101+23 RT.
STA. 103+45 - STA. 103+72 LT.
STA. 103+22 - STA. 103+49 RT.

STA. 104+65 - INSTALL
36" X 42' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 30 CU. YDS.

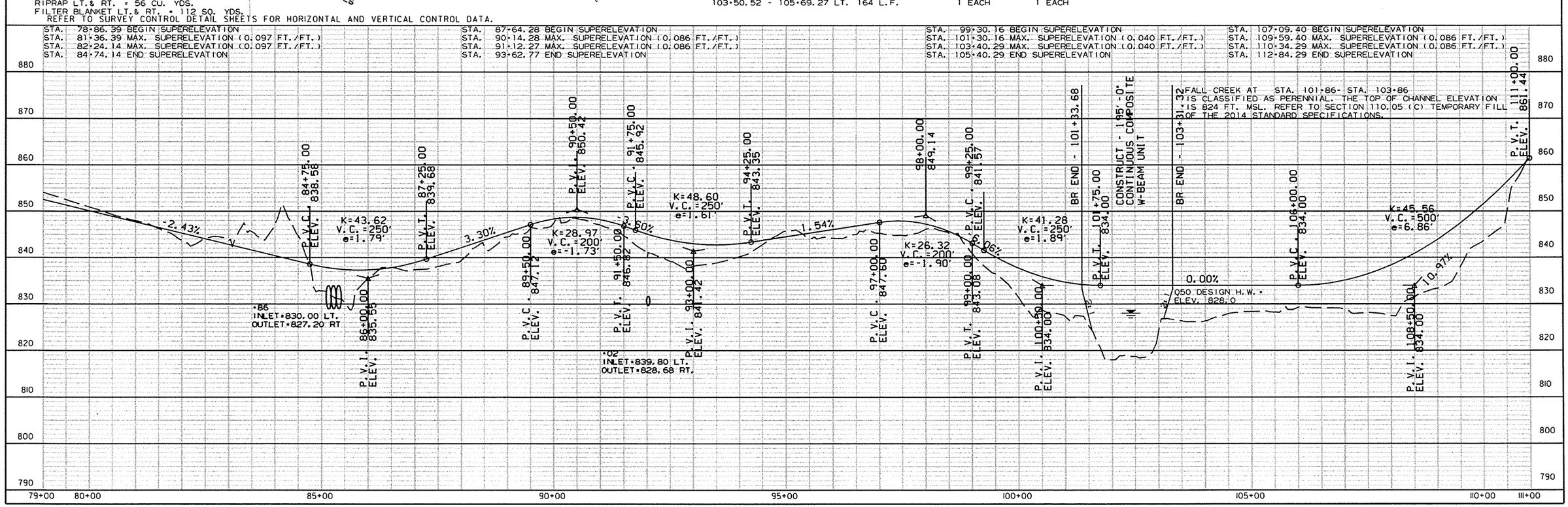
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STA. 78+86.39 BEGIN SUPERELEVATION
STA. 81+36.39 MAX. SUPERELEVATION (0.097 FT./FT.)
STA. 82+24.14 MAX. SUPERELEVATION (0.097 FT./FT.)
STA. 84+74.14 END SUPERELEVATION

STA. 87+64.28 BEGIN SUPERELEVATION
STA. 90+14.28 MAX. SUPERELEVATION (0.086 FT./FT.)
STA. 91+12.27 MAX. SUPERELEVATION (0.086 FT./FT.)
STA. 93+62.77 END SUPERELEVATION

STA. 99+30.16 BEGIN SUPERELEVATION
STA. 101+30.16 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 103+40.29 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 105+40.29 END SUPERELEVATION

STA. 107+09.40 BEGIN SUPERELEVATION
STA. 109+59.40 MAX. SUPERELEVATION (0.086 FT./FT.)
STA. 110+34.29 MAX. SUPERELEVATION (0.086 FT./FT.)
STA. 112+84.29 END SUPERELEVATION



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.ROAD DIST.NO.	STATE	FED. AID PROJ. NO.	NO.	SHEETS
				6	ARK.			
				JOB NO.		040206	35	215
				(2) PLAN & PROF STA. 111+00-143+00				

GUARDRAIL (TYPE A)	TERMINAL ANCHOR POSTS (TY. 1)
STA. 113+00 - STA. 118+00 LT.	500 L.F. 2/EACH
STA. 140+00 - STA. 150+00 RT.	1100 L.F. 2/EACH

OBLITERATE OLD ROADWAY
1100 SQ. YDS.

STA. 122+16 IN PLACE
24" X25" X22" CMP
W/ROCK BOX INLET LT.
REMOVE & CONSTRUCT
30" x 50' PIPE CULVERT
30" F.E.S. LT. & RT. = 2 EACH
30" C.M. PIPE (TYPE 2 BEDDING) = 50 LIN. FT.
30" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 47 LIN. FT.
D.A. = 7.3 Ac. Q25= 25 C.F.S.
CONST. INLET & OUTLET = 5 CU. YDS.
RIPRAP RT. = 4 CU. YDS.
FILTER BLANKET RT. = 8 SQ. YDS.

STA. 134+81 CONSTRUCT
24" X 48' PIPE CULVERT
24" F.E.S. LT. & RT. = 2 EACH
24" C.M. PIPE (TYPE 2 BEDDING) = 48 LIN. FT.
24" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 43 LIN. FT.
D.A. = 2.0 Ac. Q25= 7 C.F.S.
CONST. INLET & OUTLET = 5 CU. YDS.
RIPRAP RT. = 3 CU. YDS.
FILTER BLANKET RT. = 6 SQ. YDS.

STA. 135+71 IN PLACE
24"X24"X24' ROCK BOX CULVERT
REMOVE & CONSTRUCT
24"X 52' PIPE CULVERT
24" F.E.S. LT. & RT. = 2 EACH
24" C.M. PIPE (CLASS III)(TYPE 3 BEDDING) = 52 LIN. FT.
24" R.C. PIPE CULVERT = 47 LIN. FT.
D.A. = 2.0 Ac. Q25= 7 C.F.S.
CONST. INLET = 10 CU. YDS.
RIPRAP RT. = 3 CU. YDS.
FILTER BLANKET RT. = 6 SQ. YDS.

STA. 139+48 IN PLACE
36"X32' CMP
REMOVE & CONSTRUCT
TRP. 54" x 64' PIPE CULVERT
54" F.E.S. LT. & RT. = 6 EACH
54" C.M. PIPE (TYPE 2 BEDDING) = 192 LIN. FT.
54" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 180 LIN. FT.
D.A. = 101.9 Ac. Q25= 346 C.F.S.
RIPRAP LT.& RT. = 20 CU. YDS.
FILTER BLANKET LT.& RT. = 40 SQ. YDS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15

PI 116+79.74
PROPOSED R/W
CONST. LIMITS
ROCK DITCH LINER
PT 118+21.12
PC 114+99.84
UNITED STATES FOREST SERVICE
SURVEY
CONST. LIMITS
N22°02'45"E

CONSTRUCTION
PI 116+79.74
Δ = 64°15'19" RT.
D = 20°00'00"
T = 179.90'
L = 321.28
PC 114+99.84
PT 118+21.12
e = 0.097 '/'
Ls = 250'

ROCK DITCH LINER
STA. 110+00 - STA. 112+00 LT.
STA. 118+00 - STA. 121+00 RT.
STA. 118+00 - STA. 122+00 LT.
STA. 141+00 - STA. 144+00 LT.

STA. 126+12 IN PLACE
24"X25' CMP
REMOVE & CONSTRUCT
42"X 60' PIPE CULVERT
42" F.E.S. LT. & RT. = 2 EACH
42" C.M. PIPE (TYPE 2 BEDDING) = 60 LIN. FT.
42" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 54 LIN. FT.
D.A. = 12.9 Ac. Q25= 44 C.F.S.
RIPRAP RT. = 6 CU. YDS.
FILTER BLANKET RT. = 12 SQ. YDS.

STA. 132+15 IN PLACE
24"X25' CMP
REMOVE & CONSTRUCT
24"X 66' PIPE CULVERT
24" F.E.S. LT. & RT. = 2 EACH
24" C.M. PIPE (TYPE 2) = 66 LIN. FT.
24" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 61 LIN. FT.
D.A. = 3.6 Ac. Q25= 12 C.F.S.
CONST. INLET & OUTLET = 10 CU. YDS.
RIPRAP RT. = 3 CU. YDS.
FILTER BLANKET RT. = 6 SQ. YDS.

UNITED STATES FOREST SERVICE

STA. 142+30 IN PLACE
18"X27' CMP POOR COND.
RIGHT SIDE DRAIN
RETAIN

CONSTRUCTION
PI 139+68.450
Δ = 57°38'08" RT.
D = 20°00'00"
T = 157.61'
L = 288.18'
PC 138+10.84
PT 140+99.02
e = 0.097 '/'
Ls = 250'

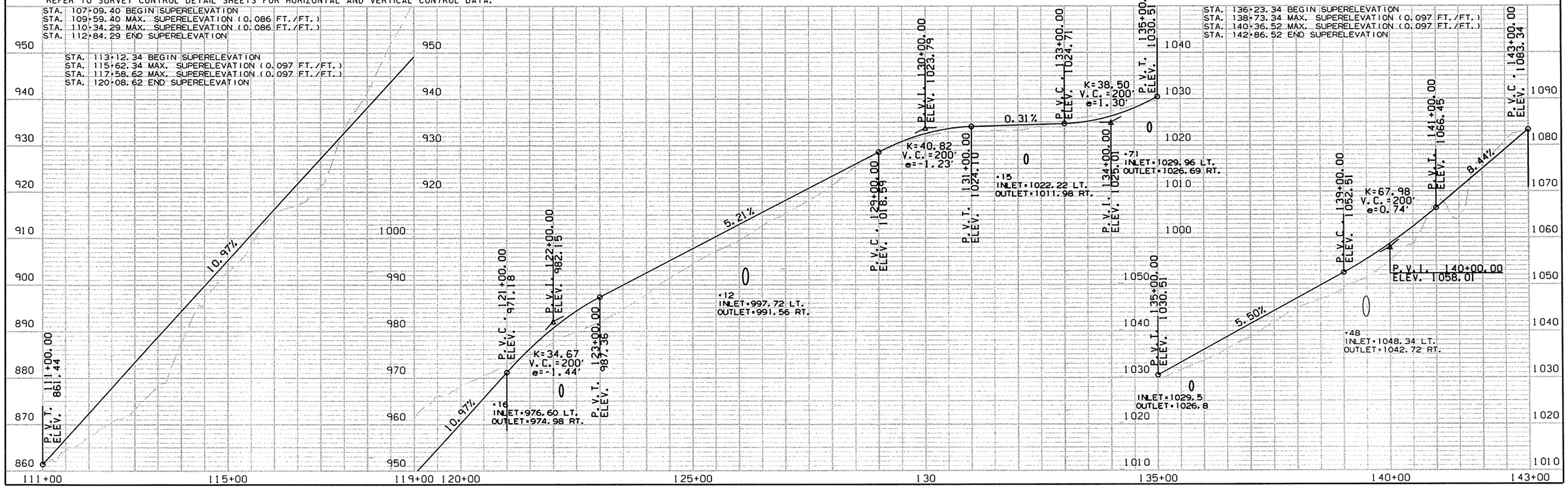
PI 139+68.45
PC 138+10.84
PT 140+99.02
CONST. LIMITS
CURTIS TAUSCH
ROCK DITCH LINER
UNITED STATES FOREST SERVICE

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

STA. 107+09.40 BEGIN SUPERELEVATION
STA. 109+59.40 MAX. SUPERELEVATION (0.086 FT./FT.)
STA. 110+34.29 MAX. SUPERELEVATION (0.086 FT./FT.)
STA. 112+84.29 END SUPERELEVATION

STA. 113+12.34 BEGIN SUPERELEVATION
STA. 115+62.34 MAX. SUPERELEVATION (0.097 FT./FT.)
STA. 117+58.62 MAX. SUPERELEVATION (0.097 FT./FT.)
STA. 120+08.62 END SUPERELEVATION

STA. 136+23.34 BEGIN SUPERELEVATION
STA. 138+73.34 MAX. SUPERELEVATION (0.097 FT./FT.)
STA. 140+36.52 MAX. SUPERELEVATION (0.097 FT./FT.)
STA. 142+86.52 END SUPERELEVATION



DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED.ROAD DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	36	215

(2) PLAN & PROF STA. 143+00-175+00

CONSTRUCTION
PI 147+92.12
Δ = 65°26.49' LT.
D = 12°00'00"
T = 306.80'
L = 545.39'
PC 144+85.32
PT 150+30.71
e = 0.076 '/'
Ls = 250'

STA. 149+05 IN PLACE
24"X26' CMP
REMOVE & CONSTRUCT
DBL. 42"X 52' PIPE CULVERT
42" F.E.S. LT. & RT. = 4 EACH
42" C.M. PIPE (TYPE 2 BEDDING) = 104 LIN. FT.
42" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 92 LIN. FT.
D.A. = 34.9 Ac.; Q25= 119 C.F.S.
CONST. INLET = 30 CU. YDS.
D.A. = 34.9 Ac.; Q25= 119 C.F.S.
CONST. INLET = 30 CU. YDS.

STA. 162+47 IN PLACE
24"X22' CMP
REMOVE
STA. 162+53 CONSTRUCT
DBL. 42"X54' PIPE CULVERT
30° LT. FWD. SKEW
42" F.E.S. LT. & RT.
42" C.M. PIPE (TYPE 2 BEDDING) = 96 LIN. FT.
42" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 84 LIN. FT.
D.A. = 30.3 Ac. Q25= 103 C.F.S.
CONST. INLET = 10 CU. YDS.
RIPRAP LT.& RT. = 23 CU. YDS.
FILTER BLANKET LT.& RT. = 46 SQ. YDS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15

OBLITERATE OLD ROADWAY
1266 SQ. YDS.

ROCK DITCH LINER

STA. 141+00	- STA. 144+00	LT.
STA. 145+00	- STA. 146+00	LT.
STA. 149+00	- STA. 154+00	LT.
STA. 165+00	- STA. 170+00	LT.

STA. 158+34 IN PLACE
24"X24' CMP
REMOVE
STA. 158+44 CONSTRUCT
36"X 50' PIPE CULVERT
36" F.E.S. LT. & RT. = 2 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 50 LIN. FT.
36" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 44 LIN. FT.
D.A. = 11.0 Ac.; Q25= 37 C.F.S.
CONST. INLET & OUTLET = 20 CU. YDS.
RIPRAP RT. = 7 CU. YDS.
FILTER BLANKET RT. = 14 SQ. YDS.

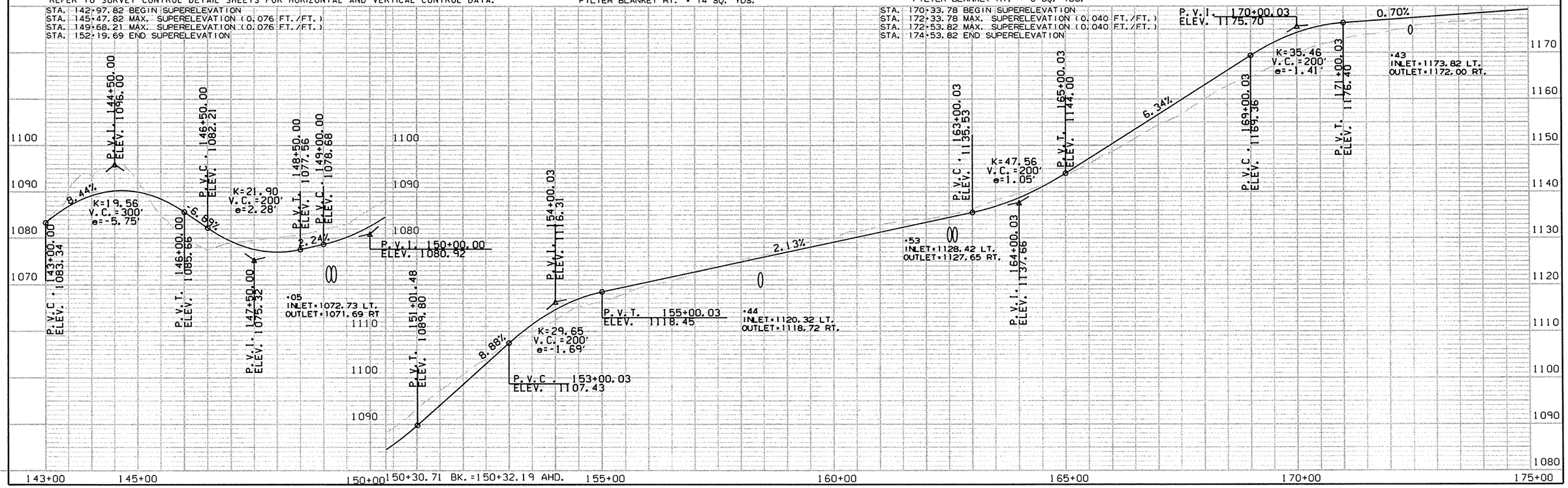
STA. 172+43 IN PLACE
18"X22' CMP
REMOVE & CONSTRUCT
24"X 66' PIPE CULVERT
45°LT. FWD. SKEW
24" F.E.S. LT. & RT. = 2 EACH
24" C.M. PIPE (TYPE 2 BEDDING) = 66 LIN. FT.
24" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 61 LIN. FT.
D.A. = 2.6 Ac.; Q25= 9 C.F.S.
CONST. INLET & OUTLET = 5 CU. YDS.
RIPRAP RT. = 3 CU. YDS.
FILTER BLANKET RT. = 6 SQ. YDS.

CONSTRUCTION
PI 172+43.86
Δ = 6°00'08" RT.
D = 5°00'00"
T = 60.08'
L = 120.05'
PC 171+83.78
PT 173+03.82
e = 0.040 '/'
Ls = 200'

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

STA. 142+97.82 BEGIN SUPERELEVATION
STA. 145+47.82 MAX. SUPERELEVATION (0.076 FT./FT.)
STA. 149+68.21 MAX. SUPERELEVATION (0.076 FT./FT.)
STA. 152+19.69 END SUPERELEVATION

STA. 170+33.78 BEGIN SUPERELEVATION
STA. 172+33.78 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 172+53.82 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 174+53.82 END SUPERELEVATION



040206 (6)

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.ROAD DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	37	215
				(2) PLAN & PROF STA. 175+00-207+00				

STA. 175+32 IN PLACE
24" X22" CMP
REMOVE & CONSTRUCT
DBL. 36" X 48' PIPE CULVERT
36" F.E.S. LT. & RT. = 4 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 96 LIN. FT.
36" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 84 LIN. FT.
D.A. = 23.0 Ac. Q25= 78 C.F.S.
CONST. INLET = 15 CU. YDS.
RIPRAP LT.& RT. = 17 CU. YDS.
FILTER BLANKET LT.& RT. = 34 SQ. YDS.

CONSTRUCTION
PI 180+19.95
Δ = 41°11'09" LT.
D = 20°00'00"
T = 107.64'
L = 205.93'
PC 179+12.31
PT 181+18.24
e = 0.097 '/'
Ls = 250'

CONSTRUCTION
PI 186+21.97
Δ = 28°48'07" LT.
D = 20°00'00"
T = 73.561'
L = 144.010'
PC 185+48.41
PT 186+92.42
e = 0.097 '/'
Ls = 250'

STA. 179+44 IN PLACE
16" X 24" CMP
REMOVE & CONSTRUCT
24" X 61' PIPE CULVERT
24" F.E.S. LT. & RT. = 2 EACH
24" C.M. PIPE (TYPE 2 BEDDING) = 61 LIN. FT.
24" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 55 LIN. FT.
D.A. = 2.6 Ac. Q25= 9 C.F.S.
CONST. INLET = 15 CU. YDS.
RIPRAP RT. = 4 CU. YDS.
FILTER BLANKET RT. = 8 SQ. YDS.

GUARDRAIL (TYPE A)	TERMINAL ANCHOR POSTS (TY. 1)
STA. 175+00 - STA. 185+00 RT.	1000 L.F. 2 EACH
STA. 200+00 - STA. 208+00 RT.	800 L.F. 2 EACH

STA. 195+64 IN PLACE
24" X25' CMP
REMOVE
STA. 195+70 CONSTRUCT
DBL. 36" X 56' PIPE CULVERT
36" F.E.S. LT. & RT. = 4 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 112 LIN. FT.
36" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 100 LIN. FT.
D.A. = 25.7 Ac. Q25= 87 C.F.S.
CONST. INLET = 5 CU. YDS.
RIPRAP LT.& RT. = 26 CU. YDS.
FILTER BLANKET LT.& RT. = 52 SQ. YDS.

CONSTRUCTION
PI 192+37.74
Δ = 5°49'01" LT.
D = 5°00'00"
T = 58.22
L = 116.34'
PC 191+79.52
PT 192+95.86
e = 0.040 '/'
Ls = 200'

ROCK DITCH LINER
STA. 180+00 - STA. 190+00 LT.
STA. 203+60 - STA. 225+00 LT.

STA. 201+21 IN PLACE
24" X22" CMP
REMOVE
STA. 201+26 CONSTRUCT
36" X 44' PIPE CULVERT
36" F.E.S. LT. & RT. = 2 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 44 LIN. FT.
36" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 38 LIN. FT.
D.A. = 11.2 Ac. Q25= 38 C.F.S.
CONST. INLET = 30 CU. YDS.
RIPRAP RT. = 4 CU. YDS.
FILTER BLANKET RT. = 8 SQ. YDS.

CONSTRUCTION
PI 200+00.97
Δ = 13°53'19" RT.
D = 5°00'00"
T = 139.57'
L = 277.77'
PC 198+61.40
PT 201+39.17
e = 0.040 '/'
Ls = 200'

STA. 205+05 IN PLACE
24" X24' CMP
REMOVE & CONSTRUCT
36" PIPE CULVERT
36" X 52' F.E.S. LT. & RT. = 2 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 52 LIN. FT.
36" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 46 LIN. FT.
D.A. = 11.2 Ac. Q25= 38 C.F.S.
CONST. INLET = 10 CU. YDS.
RIPRAP RT. = 5 CU. YDS.
FILTER BLANKET RT. = 10 SQ. YDS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15

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

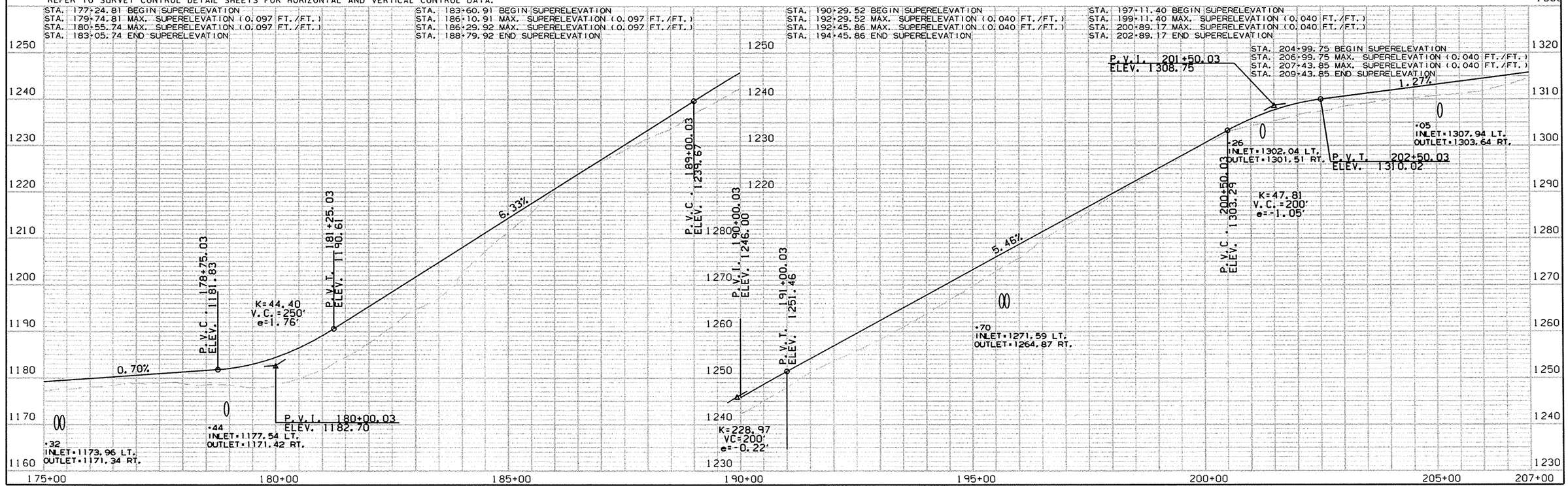
STA. 177+24.81 BEGIN SUPERELEVATION
STA. 179+74.81 MAX. SUPERELEVATION (0.097 FT./FT.)
STA. 180+55.74 MAX. SUPERELEVATION (0.097 FT./FT.)
STA. 183+05.74 END SUPERELEVATION

STA. 183+60.91 BEGIN SUPERELEVATION
STA. 186+10.91 MAX. SUPERELEVATION (0.097 FT./FT.)
STA. 186+29.92 MAX. SUPERELEVATION (0.097 FT./FT.)
STA. 188+79.92 END SUPERELEVATION

STA. 190+29.52 BEGIN SUPERELEVATION
STA. 192+29.52 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 192+45.86 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 194+45.86 END SUPERELEVATION

STA. 197+11.40 BEGIN SUPERELEVATION
STA. 199+11.40 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 200+89.17 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 202+89.17 END SUPERELEVATION

STA. 204+99.75 BEGIN SUPERELEVATION
STA. 206+99.75 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 207+43.85 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 209+43.85 END SUPERELEVATION



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.ROAD DIST.NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	38	215

(2) PLAN & PROF. STA. 207+00-239+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-20-15

ROCK DITCH LINER
STA. 203+60 - STA. 225+00 LT.

STA. 208+43 IN PLACE
24" X24' CMP
REMOVE & CONSTRUCT
42" X 52' PIPE CULVERT
42" F.E.S. LT. & RT. = 2 EACH
42" C.M. PIPE (TYPE 2 BEDDING) = 52 LIN. FT.
42" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 46 LIN. FT.
D.A. = 13.8 Ac. Q25= 47 C.F.S.
CONST. INLET = 5 CU. YDS.
RIPRAP LT.& RT. = 10 CU. YDS.
FILTER BLANKET LT.& RT. = 20 SQ. YDS.

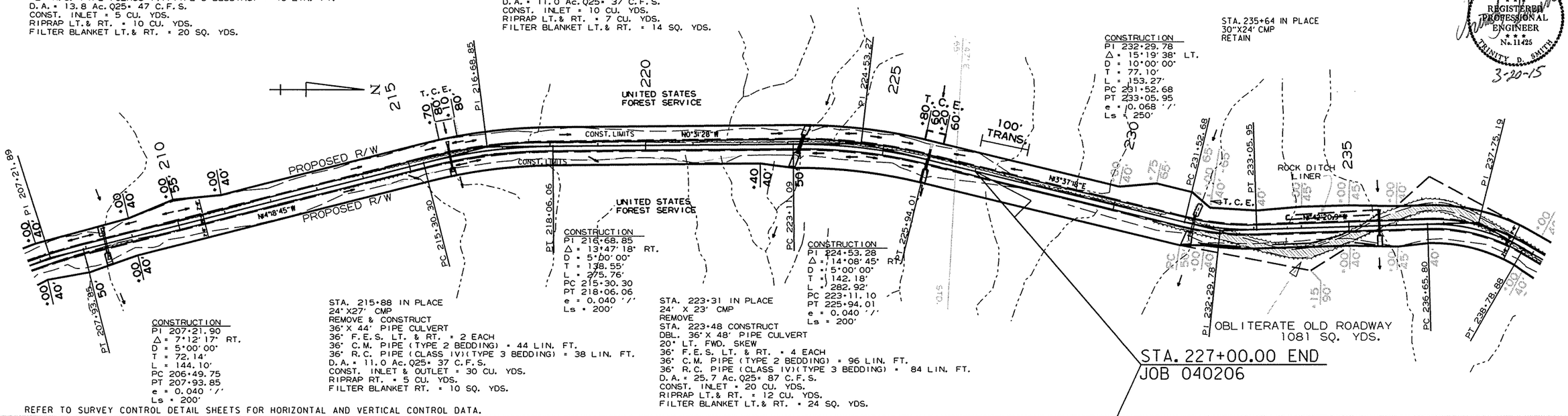
STA. 225+99 IN PLACE
24"X25' CMP
REMOVE & CONSTRUCT
36" x 50' PIPE CULVERT
36" F.E.S. LT. & RT. = 2 EACH
36" C.M. PIPE (CLASS III)(TYPE 3 BEDDING) = 50 LIN. FT.
36" R.C. PIPE CULVERT = 44 LIN. FT.
D.A. = 11.0 Ac. Q25= 37 C.F.S.
CONST. INLET = 10 CU. YDS.
RIPRAP LT.& RT. = 7 CU. YDS.
FILTER BLANKET LT.& RT. = 14 SQ. YDS.

STA. 231+72 IN PLACE
24"X25' CMP
RETAIN

STA. 229+69 IN PLACE
24"X28' CMP
RETAIN

STA. 235+64 IN PLACE
30"X24' CMP
RETAIN

CONSTRUCTION
PI 232+29.78
Δ = 15°19'38" LT.
D = 10°00'00"
T = 77.10'
L = 153.27'
PC 231+52.68
PT 233+05.95
e = 0.068 '/'
Ls = 250'



CONSTRUCTION
PI 207+21.90
Δ = 7°12'17" RT.
D = 5°00'00"
T = 72.14'
L = 144.10'
PC 206+49.75
PT 207+93.85
e = 0.040 '/'
Ls = 200'

CONSTRUCTION
PI 216+68.85
Δ = 13°47'18" RT.
D = 5°00'00"
T = 138.55'
L = 275.76'
PC 215+30.30
PT 218+06.06
e = 0.040 '/'
Ls = 200'

CONSTRUCTION
PI 224+53.28
Δ = 14°08'45" RT.
D = 5°00'00"
T = 142.18'
L = 282.92'
PC 223+11.10
PT 225+94.01
e = 0.040 '/'
Ls = 200'

STA. 215+88 IN PLACE
24"X27' CMP
REMOVE & CONSTRUCT
36"X 44' PIPE CULVERT
36" F.E.S. LT. & RT. = 2 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 44 LIN. FT.
36" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 38 LIN. FT.
D.A. = 11.0 Ac. Q25= 37 C.F.S.
CONST. INLET & OUTLET = 30 CU. YDS.
RIPRAP RT. = 5 CU. YDS.
FILTER BLANKET RT. = 10 SQ. YDS.

STA. 223+31 IN PLACE
24' X 23' CMP
REMOVE
STA. 223+48 CONSTRUCT
DBL. 36"X 48' PIPE CULVERT
20° LT. FWD. SKEW
36" F.E.S. LT. & RT. = 4 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 96 LIN. FT.
36" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 84 LIN. FT.
D.A. = 25.7 Ac. Q25= 87 C.F.S.
CONST. INLET = 20 CU. YDS.
RIPRAP LT.& RT. = 12 CU. YDS.
FILTER BLANKET LT.& RT. = 24 SQ. YDS.

OBLITERATE OLD ROADWAY
1081 SQ. YDS.

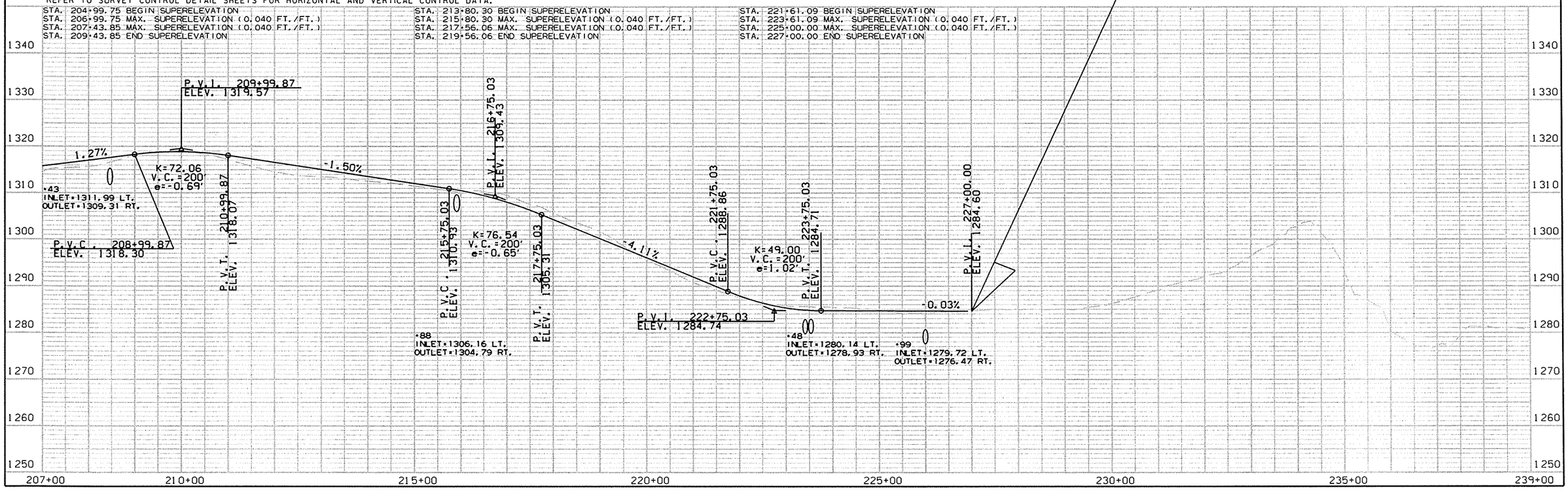
STA. 227+00.00 END
JOB 040206

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

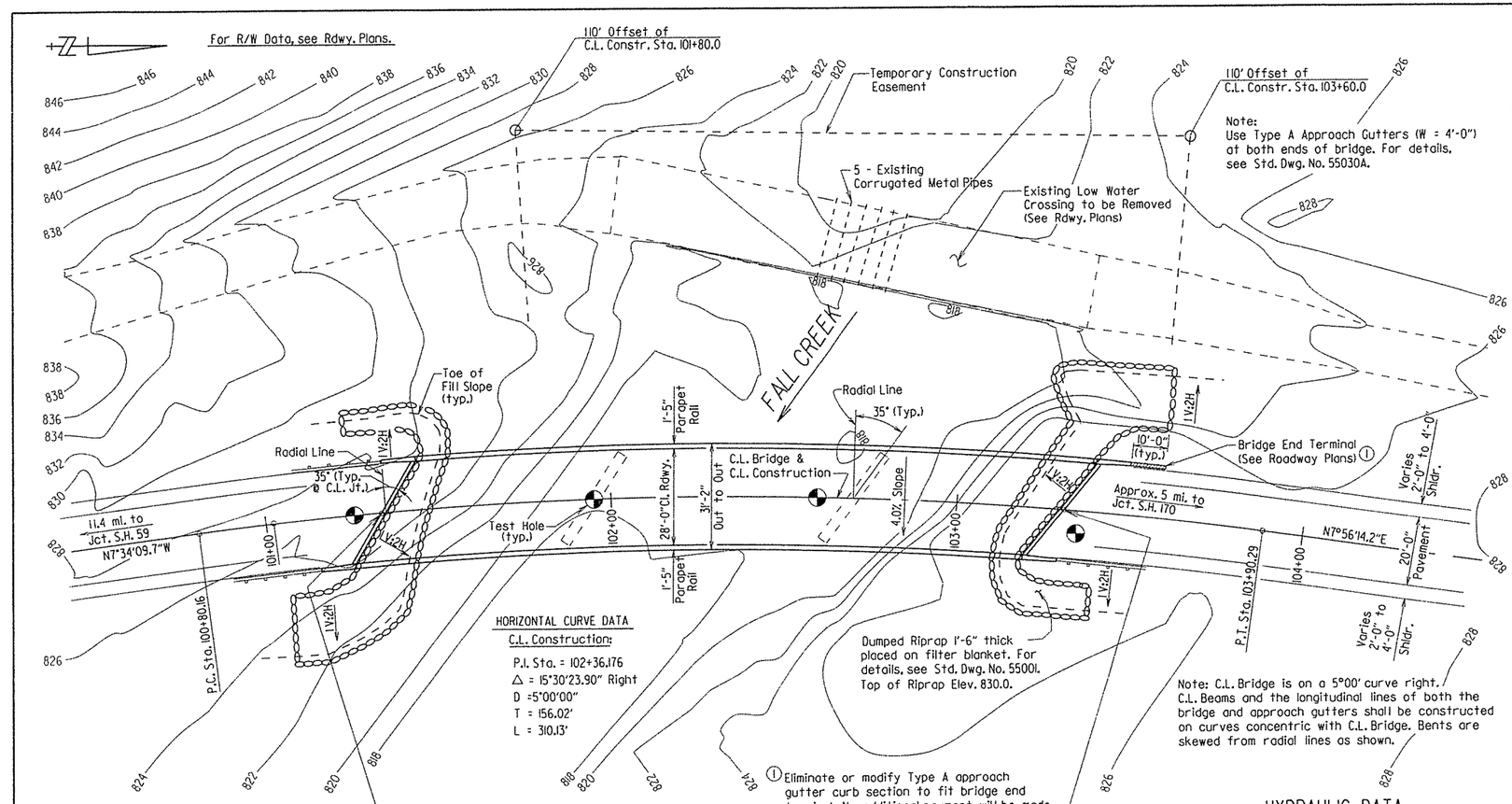
STA. 204+99.75 BEGIN SUPERELEVATION
STA. 206+99.75 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 207+43.85 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 209+43.85 END SUPERELEVATION

STA. 213+80.30 BEGIN SUPERELEVATION
STA. 215+80.30 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 217+56.06 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 219+56.06 END SUPERELEVATION

STA. 221+61.09 BEGIN SUPERELEVATION
STA. 223+61.09 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 225+00.00 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 227+00.00 END SUPERELEVATION



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	39	215
				① 06725		- LAYOUT -	38737A	



HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	*NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	13200	828.0	828.1
Base	100	16000	828.9	829.1
Extreme	500	23800	831.0	834.5
Overtopping	450	23000	830.8	834.0

*Unconstricted water surface without structure or roadway approaches.
Drainage area = 21.6 square miles.
Historical H.W. Elev. = 825.2 ft.
Low Bridge Member Elev. = 830.19 ft.

·Boring Legend
A-Moist, Very Stiff, Brown and Gray Sandy, Silty Clay with Sandstone Fragments, Cobbles and Boulders
B-Hard, Brown and Gray Fractured Sandstone with some Poorly-Cemented Sandstone Seams
C-Hard, Gray Sandstone with Thin Dark Gray Shale Seams
D-Hard, Gray Sandstone with Thin Dark Gray Shale and some Clay-Filled Fractures
E-Moist, Very Stiff, Brown and Gray Sandy Clay with Sandstone Fragments, Cobbles and Boulders
F-Hard, Brown and Gray Fractured Sandstone
G-Wet, Dense, Brown and Gray Gravel, Cobbles and Boulders
H-Hard, Gray Sandstone Interbedded with Medium Hard, Dark Gray Shale
J-Moist, Soft, Brown Sandy, Silty Clay with Sandstone Fragments
K-Medium Hard, Brown Poorly-Cemented Sandstone

GENERAL NOTES
BENCH MARK: Vertical Control Data is shown in the Survey Control Data Sheets.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable supplemental specifications and special provisions. Unless otherwise noted on the plans, Section and Subsection refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges (1996 Edition).

LIVE LOADING: HS20 METHOD OF DESIGN: Load Factor
SEISMIC PERFORMANCE CATEGORY: A

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (Gr. 60, AASHTO M31 or M322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M270, GR. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M270, GR. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Programs and Contracts Division.

STEEL PILING: Piling in Bent 1 shall be HP 12x53 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 60 tons per pile into the material designated as hard sandstone on the boring legend. Piles in Bent 1 shall be driven after embankment to bottom of cap is in place and to a minimum embedment depth of 8' below natural ground. The Contractor shall use approved steel H-Pile driving points on all piles. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805.

Preboring may be required to achieve minimum pile penetration. The depth of preboring shall be sufficient to provide the specified minimum pile penetration and to set the pile tips into the above designated material. The actual size and depths of preboring are to be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free from debris prior to backfilling which may require casings or other methods. After driving is completed, the prebored holes shall be backfilled with Class S Concrete to completely fill voids. Any cost associated with achieving the minimum pile penetration, including any backfill and casings, shall be included in the item "Steel Piling (HP 12x53)".

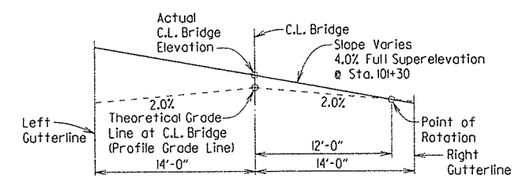
FOOTINGS: Footings at Bents 2 and 3 shall be set a minimum of 2'-6" into material designated as hard sandstone on the boring legend. The top of footings at Bents 2 and 3 shall be set at or below channel bottom as determined by the lowest channel elevation within the footprint of the footing. Footings at Bent 4 shall be set a minimum of 1'-6" into material designated as hard sandstone on the boring legend.

Foundations for footings shall be prepared in accordance with Subsection 801.04. Rock excavations shall be made to neat lines of the concrete footings. Care shall be exercised to protect any caves discovered during construction operations and to avoid shattering of rock faces by excessive blasting. See Special Provision Job No. 040206 "Cave Discovery". Concrete in footings shall be poured directly against excavated surfaces of rock. Excavations in the channel at Bents 2 and 3 shall be backfilled and compacted to the level of the existing ground in accordance with Subsection 801.08.

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

PROTECTIVE SURFACE TREATMENT: Class I Protective Surface Treatment shall be applied to roadway surface and to the face and top of the concrete parapet rail.

DETAIL DRAWINGS:	DRAWING NOS.
End Bents	38738 & 38739, 38741 & 38742
Intermediate Bents	38740
195'-0" Continuous W-Beam Unit	38743-38747
Elastomeric Bearings	38748
Type A Approach Gutters	55030A



SKETCH SHOWING BRIDGE DECK CROSS-SLOPE
(View is Looking Ahead)
No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
5-8-14
CHARLES R. ELLIS
BRIDGE ENGINEER

LAYOUT OF BRIDGE OVER FALL CREEK
LEE CREEK - EAST (S)
CRAWFORD COUNTY

ROUTE 220 SEC. 2

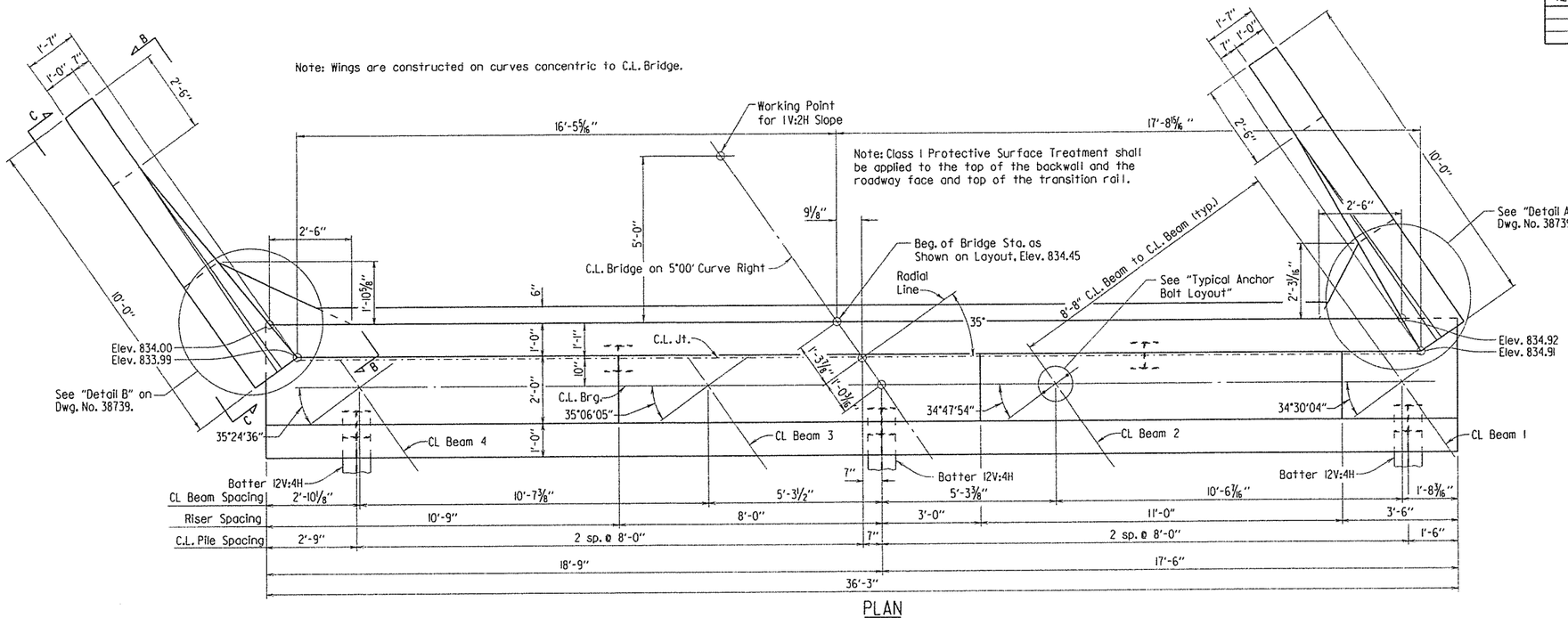
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CAB & LDF DATE: 12-2-98 FILENAME: b040206_11.dgn
CHECKED BY: AMS DATE: 5/22/14 SCALE: 1" = 20'
DESIGNED BY: CAB DATE: 12-98

BRIDGE NO. 06725 DRAWING NO. 38737A

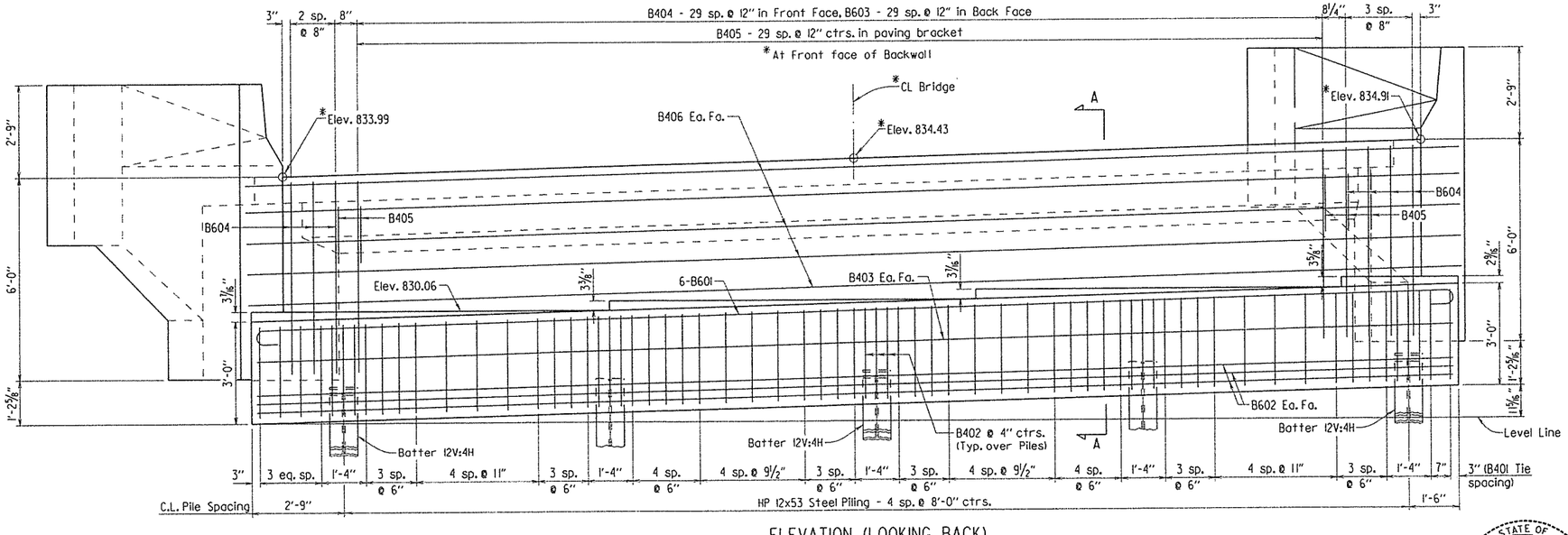
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	40	215
				06725		- END BENT 1 -		38738

Note: Wings are constructed on curves concentric to C.L. Bridge.



PLAN

½" = 1'-0"

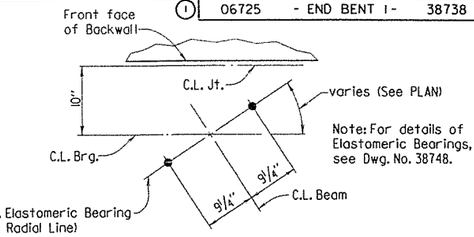


ELEVATION (LOOKING BACK)

½" = 1'-0"

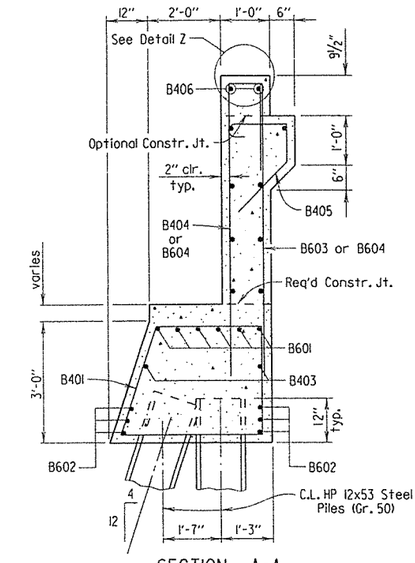
NOTE: The profile of the backwall angle shall be established based on the vertical curve in conjunction with the skew.

NOTE: The Backwall above the required construction joint shall not be poured until the beams are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See Dwg. No. 38743, "Expansion Device Installation at End Bents", for additional information.



TYPICAL ANCHOR BOLT LAYOUT

No Scale



SECTION A-A

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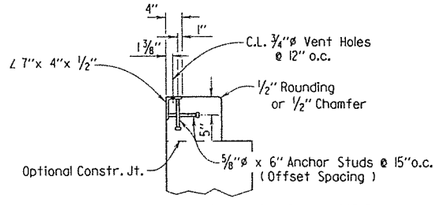


Note: For additional Joint Details, See Dwg. No. 38743. Concrete shall be hand packed under the joint armor in the backwall.

DETAIL Z

¾" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-8-14
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT NO. 1
FALL CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

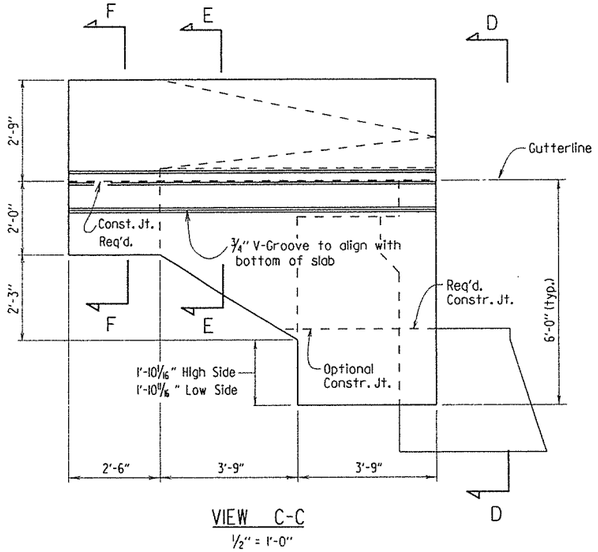
LITTLE ROCK, ARK.

DRAWN BY: KMG DATE: 6 Aug 97 FILENAME: b040206_b1.dgn
CHECKED BY: AMS DATE: 5/16/14 SCALE: As Shown
DESIGNED BY: CSL DATE: Jan 1998

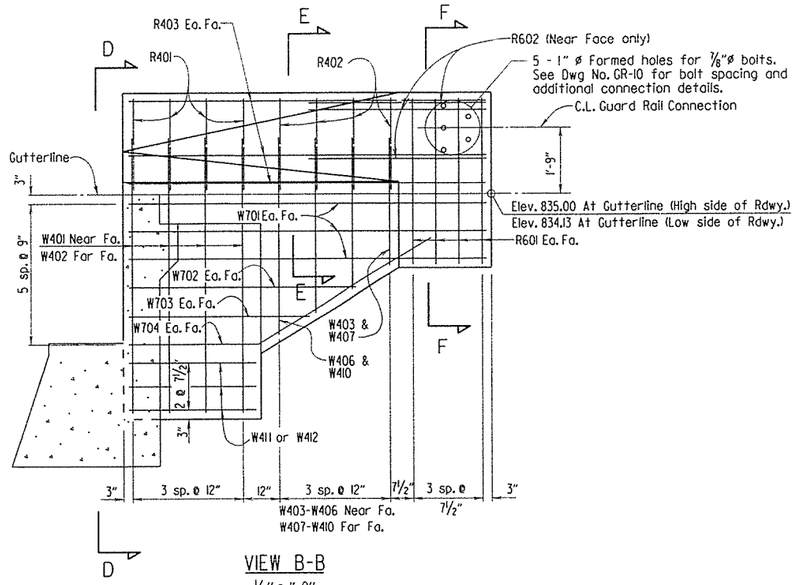
BRIDGE NO. 06725 DRAWING NO. 38738

PRINT DATE: 7/16/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	41	215
				①	06725	- END BENT 1 -	38739	



VIEW C-C
½" = 1'-0"

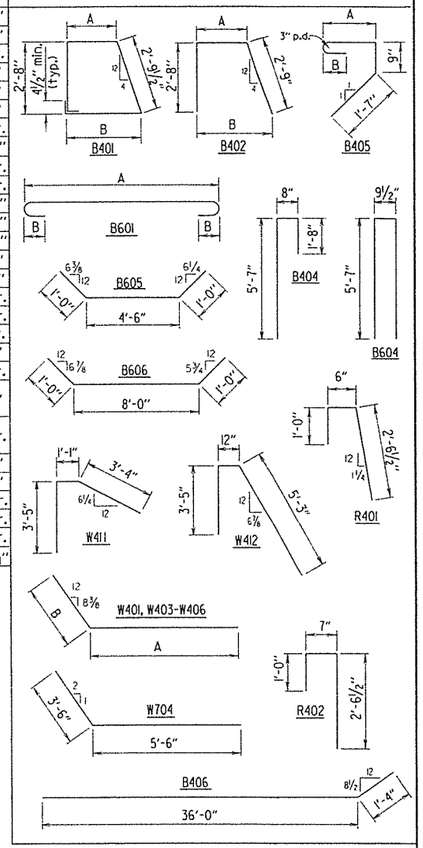


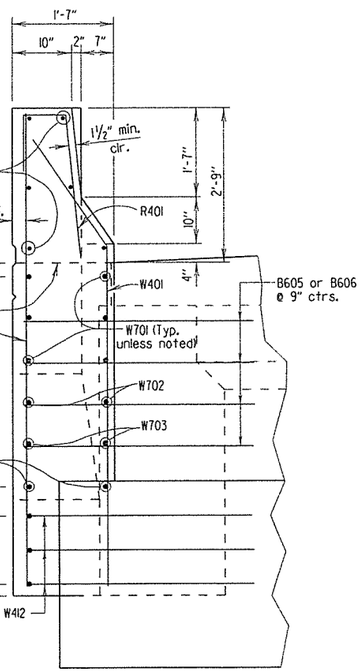
VIEW B-B
½" = 1'-0"

BAR LIST

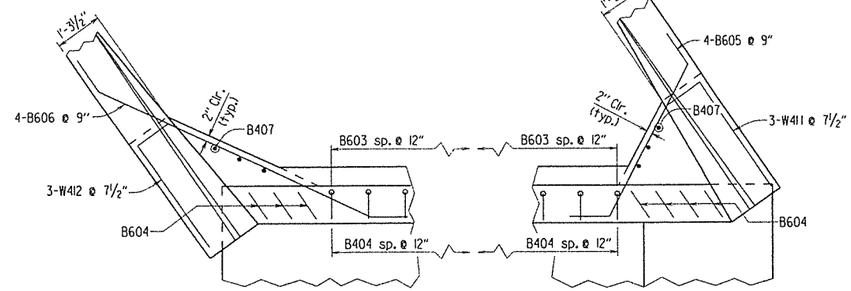
Mark	No. Req'd.	Length	A	B	Pin Dia.
B401	52	12'-2"	2'-8½"	3'-7¼"	2"
B402	15	8'-1"	2'-8½"	3'-7¼"	2"
B403	2	35'-11"			Str.
B404	30	7'-9"			2"
B405	33	3'-11"	1'-2"	4½"	2"
B406	10	37'-4"			2"
B407	6	4'-10"			Str.
B601	6	37'-3"	35'-11"	6"	4½"
B602	6	35'-11"			Str.
B603	30	5'-7"			Str.
B604	7	11'-8"			4½"
B605	4	6'-6"			4½"
B606	4	10'-0"			4½"
R401	8	3'-11"			2"
R402	8	4'-0"			2"
R403	12	9'-8"			Str.
R601	16	4'-5"			Str.
R602	6	5'-0"			Str.
W401	8	7'-3"	6'-1"	1'-2"	2"
W402	8	8'-5"			Str.
W403-W406	2 Ea.	Var. 3'-5" to 5'-2"	Var. 2'-3" to 4'-0"	1'-2"	2"
W407-W410	2 Ea.	Var. 4'-6" to 6'-4"			Str.
W411	3	7'-9"			2"
W412	3	9'-7"			2"
W701	12	9'-8"			Str.
W702	4	6'-2"			Str.
W703	4	4'-11"			Str.
W704	4	9'-0"			5¼"

Bending Diagrams
(Dimensions are out to out of bars.)



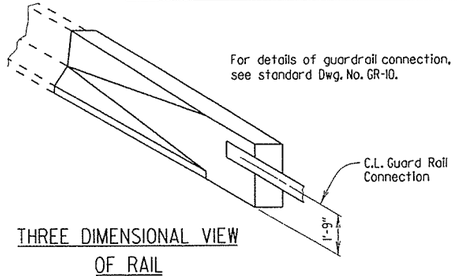


VIEW D-D
¾" = 1'-0"

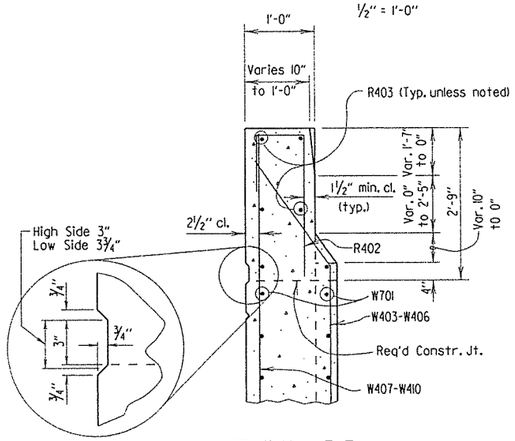


DETAIL B
½" = 1'-0"

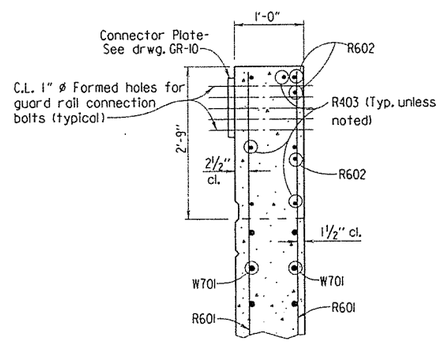
DETAIL A
½" = 1'-0"



THREE DIMENSIONAL VIEW OF RAIL
No Scale



SECTION E-E
¾" = 1'-0"



SECTION F-F
¾" = 1'-0"

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3500 psi. All concrete shall be poured in the dry. All exposed corners shall be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

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

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

For additional information, see Layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-8-14
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT NO. 1
FALL CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

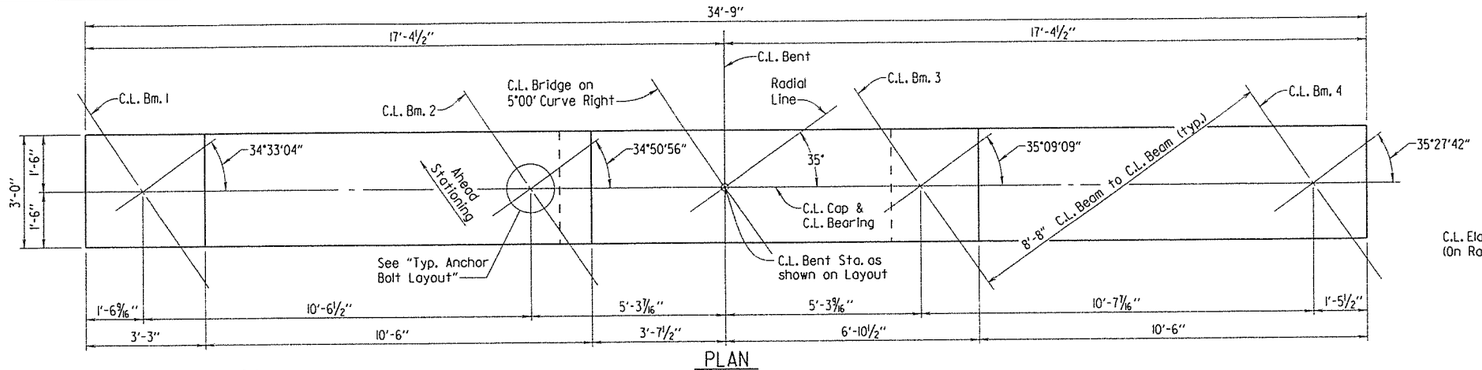
DRAWN BY: KWG DATE: 9 Oct 00 FILENAME: b040206_b1.dgn
CHECKED BY: AMS DATE: 5/16/14 SCALE: As Shown
DESIGNED BY: CSL DATE: Jan 1997

BRIDGE NO. 06725 DRAWING NO. 38739

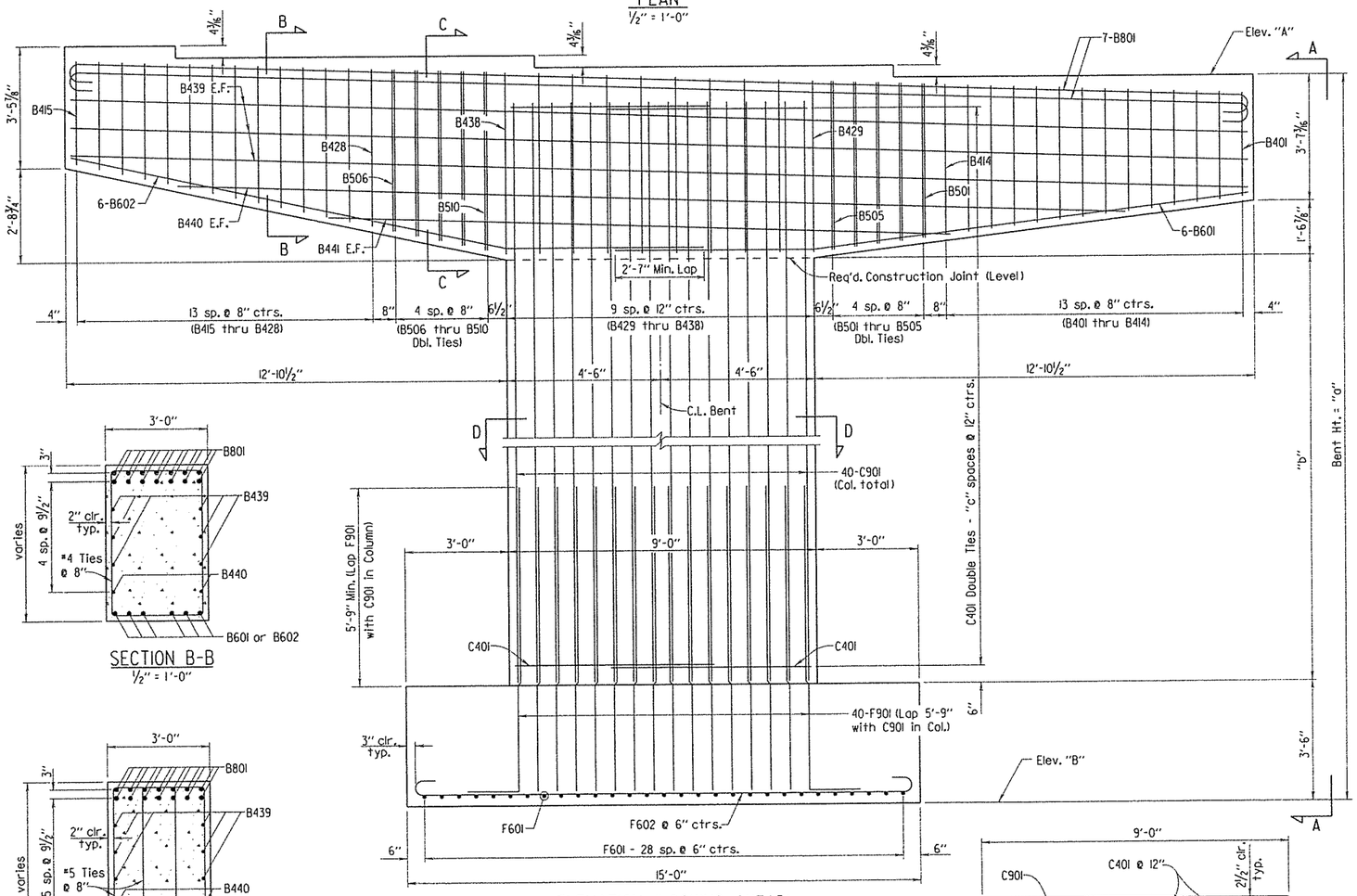
PRINT DATE: 7/16/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040206	42	215
①	06725	- INT BENTS -	38740	

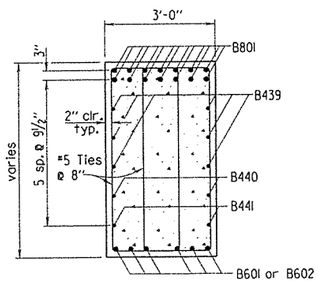


PLAN
½" = 1'-0"

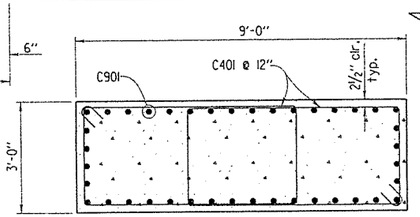


ELEVATION (LOOKING AHEAD)
½" = 1'-0"

SECTION B-B
½" = 1'-0"



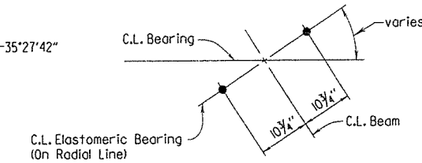
SECTION C-C
½" = 1'-0"



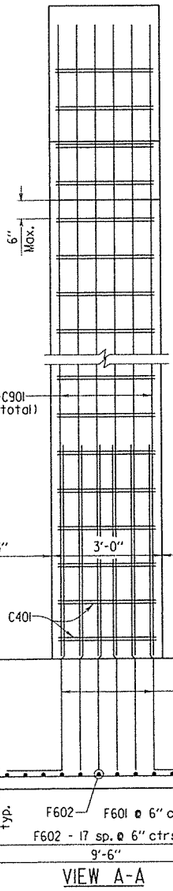
SECTION D-D
½" = 1'-0"

TABLE OF VARIABLES

	"a"	"b"	"c"	"d"	"e"	ELEV. "A"	ELEV. "B"
Bent 2	15'-6"	6'-9 15/16"	10	22	11'-3"	829.78	814.28
Bent 3	21'-6"	12'-9 15/16"	16	34	17'-3"	829.78	808.28



TYPICAL ANCHOR BOLT LAYOUT
No Scale
Note: For details of Elastomeric Bearings, see Dwg. No. 38748.



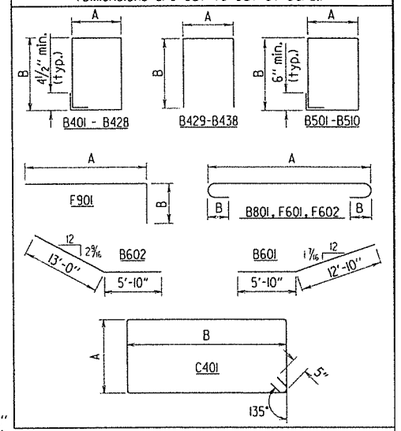
VIEW A-A
½" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-8-14
CHARLES R. ELLIS
BRIDGE ENGINEER

BAR LIST (PER BENT)

Mark	No. Req'd.	Length	A	B	Pin Dia.
B401 - B414	1 of each	Var. 11'-7" to 14'-4"	2'-8"	Var. 2'-11½" to 4'-3¾"	2"
B415 - B428	1 of each	Var. 11'-8" to 14'-9"	2'-8"	Var. 2'-11¾" to 4'-6¼"	2"
B429 - B438	1 of each	Var. 12'-4" to 12'-11"	2'-8"	Var. 4'-11" to 5'-2½"	2"
B439	6	34'-5"			Str.
B440	2	27'-8"			Str.
B441	2	18'-2"			Str.
B501 - B505	2 of each	Var. 13'-2" to 14'-0"	1'-11"	Var. 4'-5" to 4'-10"	2½"
B506 - B510	2 of each	Var. 13'-8" to 14'-7"	1'-11"	Var. 4'-7¾" to 5'-1½"	2½"
B601	6	18'-8"			4½"
B602	6	18'-10"			4½"
B801	14	36'-3"	34'-5"	8"	6"
C401	"d"	17'-4"	2'-7"	5'-10"	3"
C901	40	"e"			Str.
F601	29	10'-4"	9'-0"	6"	4½"
F602	18	15'-10"	14'-6"	6"	4½"
F901	40	12'-4"	10'-11"	1'-8"	9"

Bending Diagrams
(Dimensions are out to out of bars.)



GENERAL NOTES

All concrete shall be Class "S" and shall be poured in the dry. All exposed corners shall be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

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

For additional information, see Layout.

DETAILS OF BENT NOS. 2 AND 3 FALL CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KMG DATE: 14 Aug 97 FILENAME: b040206_b2.dgn
CHECKED BY: AMS DATE: 4/1/14 SCALE: As Shown
DESIGNED BY: CSL DATE: Jan 1997
BRIDGE NO. 06725 DRAWING NO. 38740

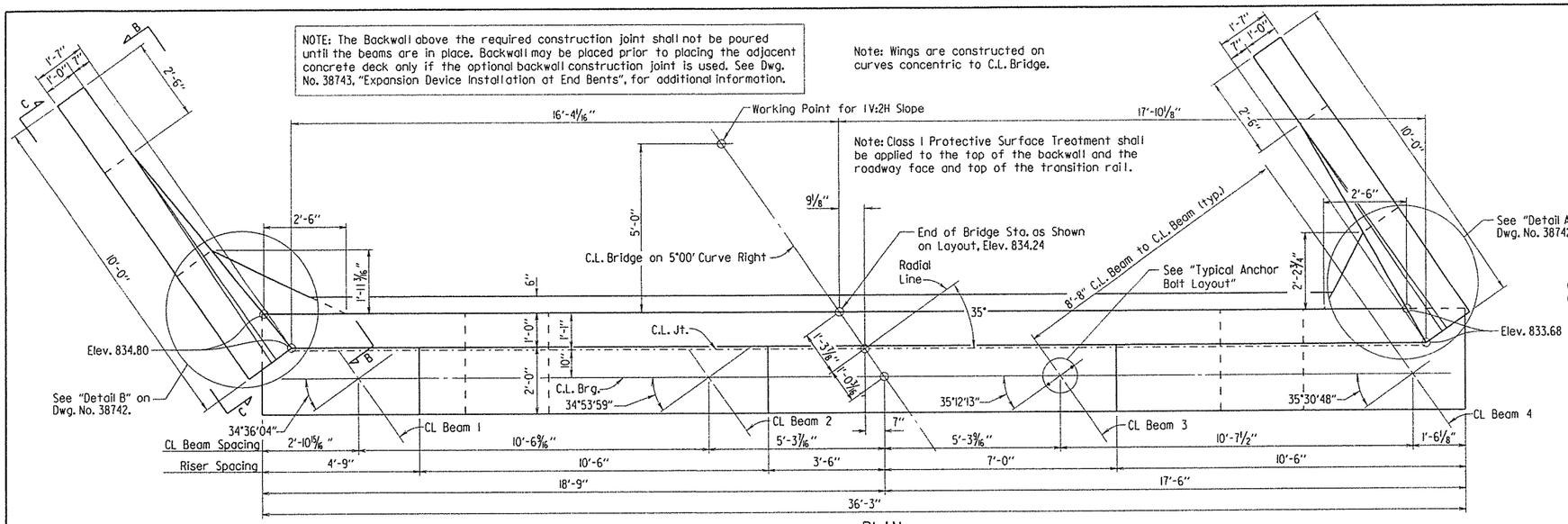
PRINT DATE: 7/16/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	43	215
				①	06725	- END BENT 4 -		38741

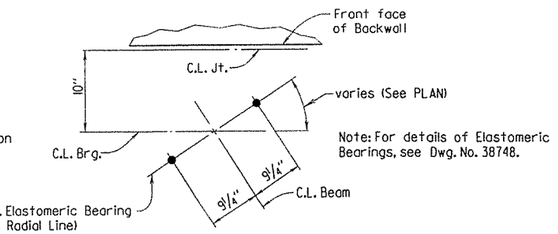
NOTE: The Backwall above the required construction joint shall not be poured until the beams are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See Dwg. No. 38743, "Expansion Device Installation at End Bents", for additional information.

Note: Wings are constructed on curves concentric to C.L. Bridge.

Note: Class I Protective Surface Treatment shall be applied to the top of the backwall and the roadway face and top of the transition rail.



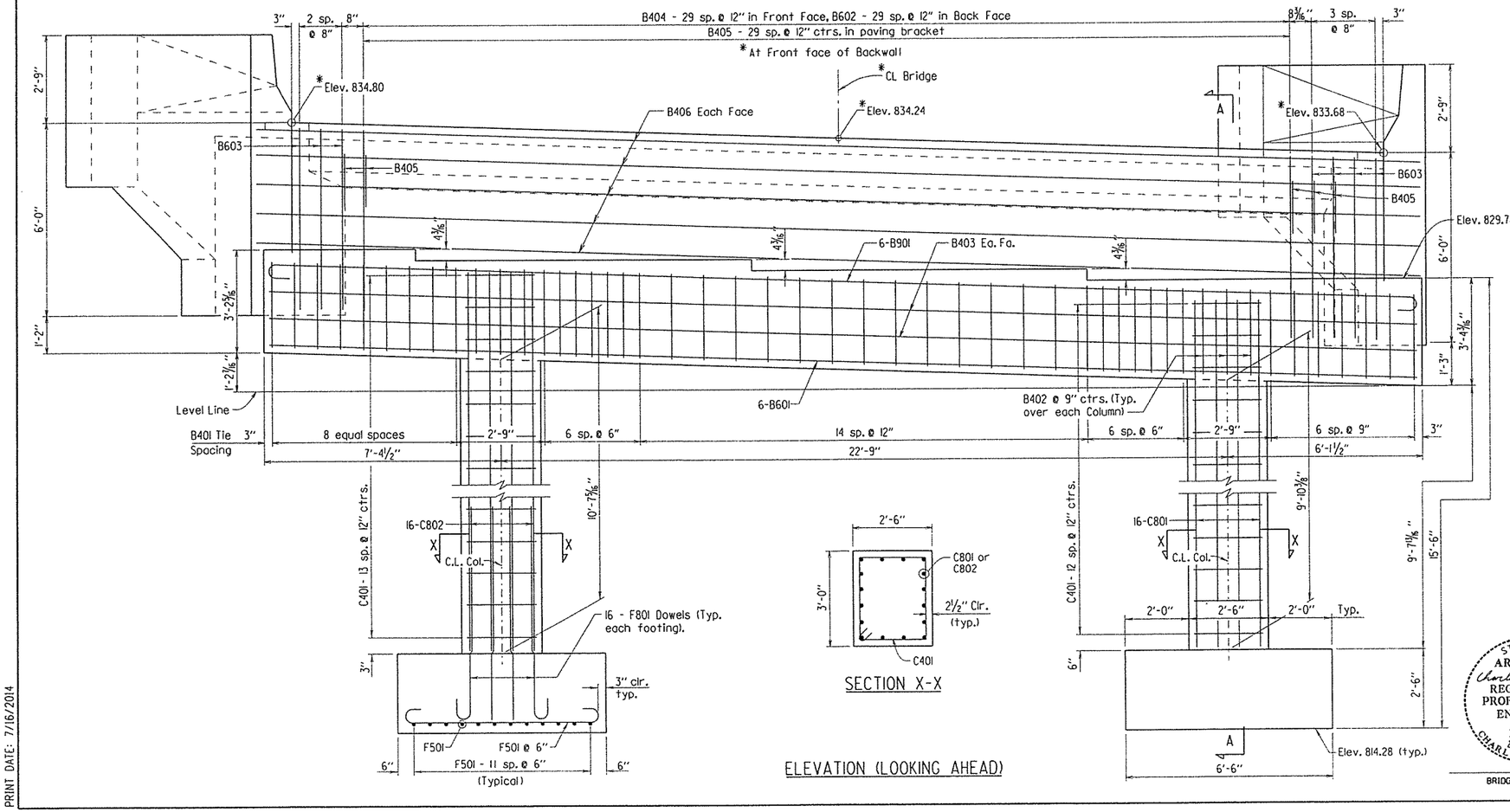
PLAN



Note: For details of Elastomeric Bearings, see Dwg. No. 38748.

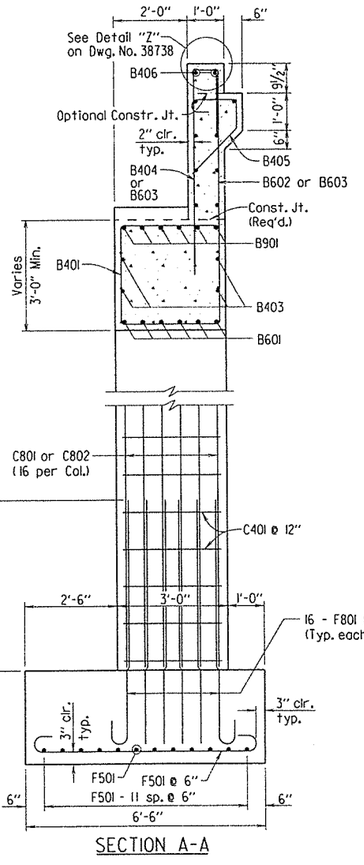
TYPICAL ANCHOR BOLT LAYOUT

No Scale



ELEVATION (LOOKING AHEAD)

SECTION X-X



SECTION A-A

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
7-8-14
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT NO. 4
FALL CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KMG DATE: 12 Aug 97 FILENAME: b040206_b4.dgn

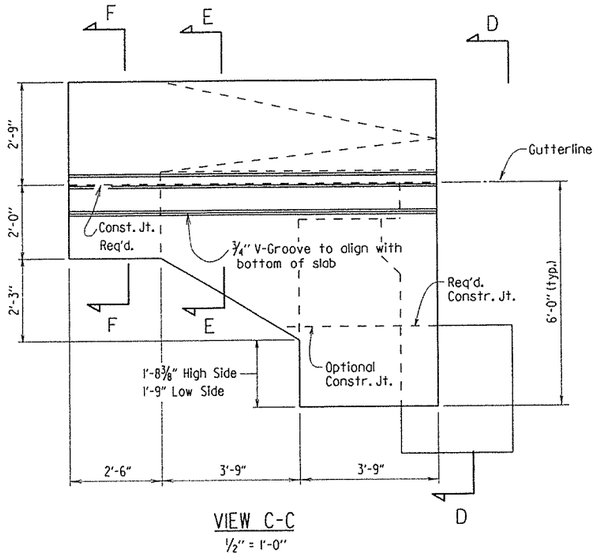
CHECKED BY: AMS DATE: 5/19/14 SCALE: 1/2" = 1'-0"

DESIGNED BY: CSL DATE: Jan 1997

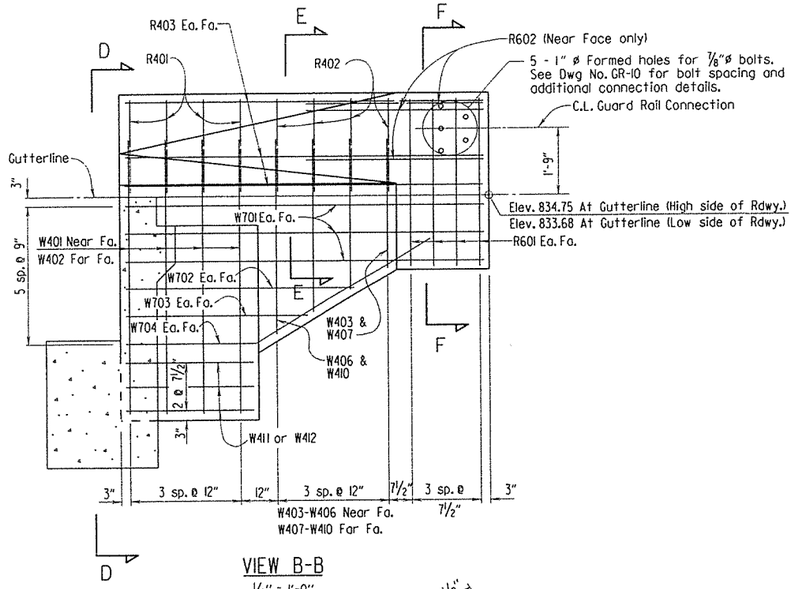
BRIDGE NO. 06725 DRAWING NO. 38741

PRINT DATE: 7/16/2014

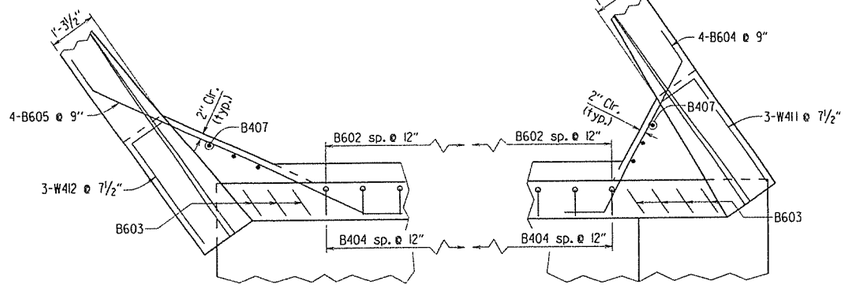
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	44	215
				(1)		06725 - END BENT 4 -		38742



VIEW C-C
½" = 1'-0"

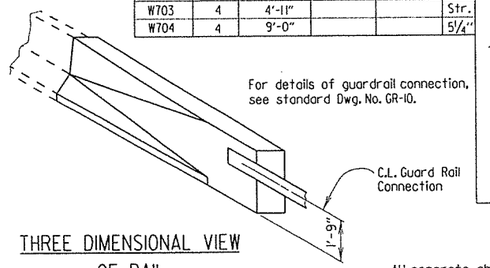


VIEW B-B
½" = 1'-0"



DETAIL B
½" = 1'-0"

DETAIL A
½" = 1'-0"



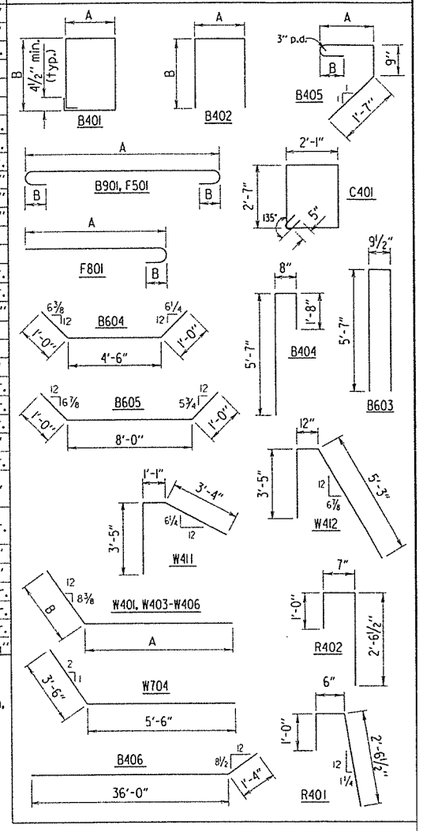
THREE DIMENSIONAL VIEW OF RAIL
No Scale

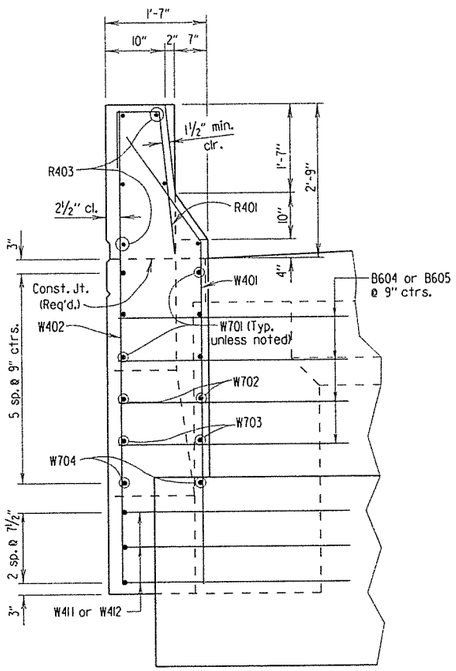
For details of guardrail connection, see standard Dwg. No. GR-10.

BAR LIST

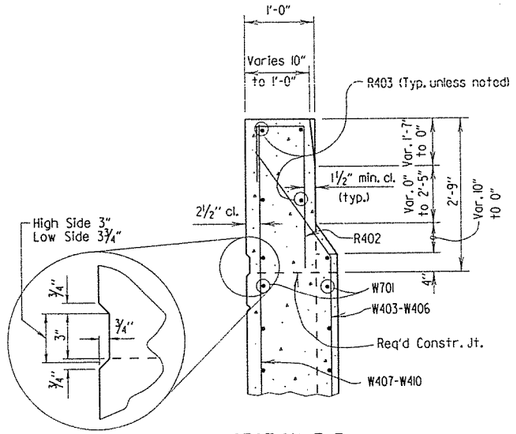
Mark	No. Req'd.	Length	A	B	Pin Dia.
B401	43	11'-0"	2'-8"	2'-8"	2"
B402	6	7'-10"	2'-8"	2'-8"	2"
B403	4	35'-11"			Str.
B404	30	7'-9"			2"
B405	33	3'-11"	1'-2"	4½"	2"
B406	10	37'-4"			2"
B407	6	4'-10"			Str.
B601	6	35'-11"			Str.
B602	30	5'-7"			Str.
B603	7	11'-8"			4½"
B604	4	6'-6"			4½"
B605	4	10'-0"			4½"
B901	6	38'-5"	35'-11"	10"	9"
C401	27	9'-8"			3"
C801	16	12'-7"			Str.
C802	16	13'-4"			Str.
F501	48	7'-2"	6'-0"	5"	3¾"
F801	32	8'-8"	7'-9"	8"	6"
R401	8	3'-11"			2"
R402	8	4'-0"			2"
R403	12	9'-8"			Str.
R601	16	4'-5"			Str.
R602	6	5'-0"			Str.
W401	8	7'-3"	6'-1"	1'-2"	2"
W402	8	8'-5"			Str.
W403-W406	2 Ea.	Var. 3'-5" to 5'-2"	Var. 2'-3" to 4'-0"	1'-2"	2"
W407-W410	2 Ea.	Var. 4'-6" to 6'-4"			Str.
W411	3	7'-9"			2"
W412	3	9'-7"			2"
W701	12	9'-8"			Str.
W702	4	6'-2"			Str.
W703	4	4'-11"			Str.
W704	4	9'-0"			5¼"

Bending Diagrams
(Dimensions are out to out of bars.)

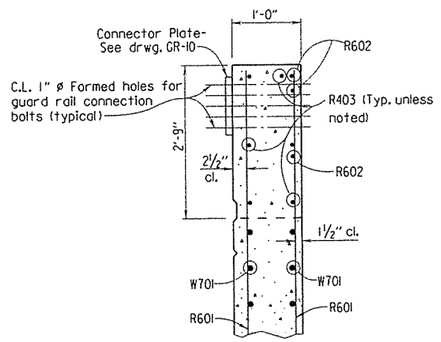




VIEW D-D
¾" = 1'-0"



SECTION E-E
¾" = 1'-0"



SECTION F-F
¾" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-8-14
CHARLES R. ELLIS

BRIDGE ENGINEER

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3500 psi. All concrete shall be poured in the dry. All exposed corners shall be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

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

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

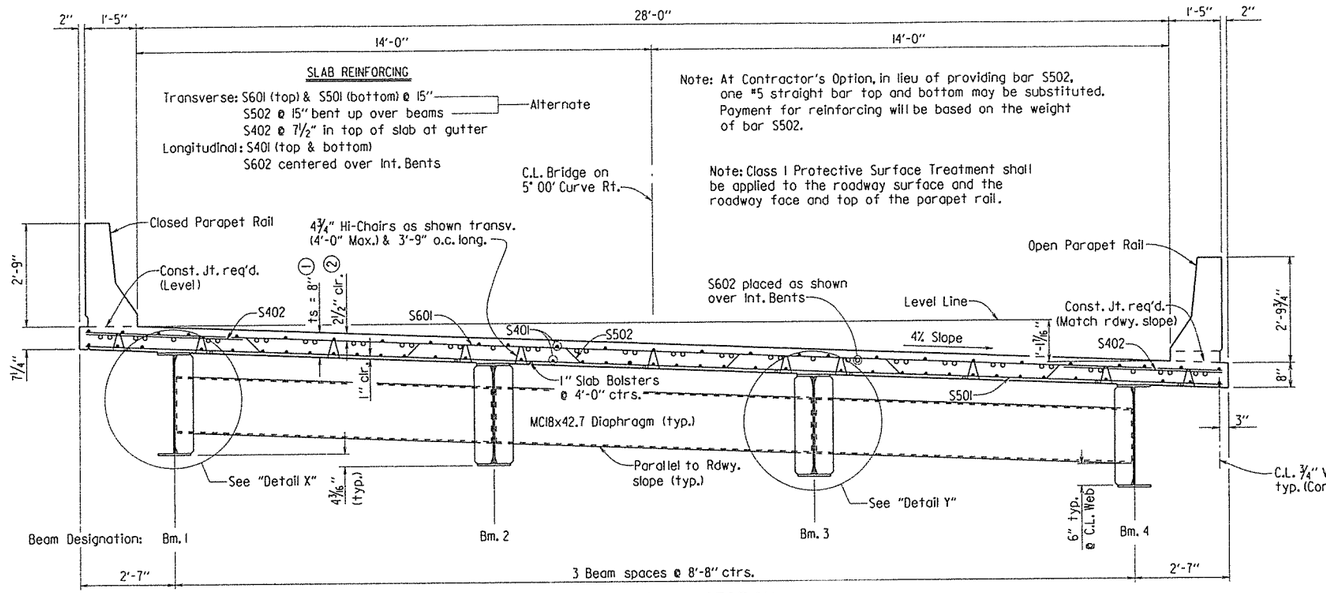
For additional information, see Layout.

SHEET 2 OF 2
DETAILS OF BENT NO. 4
FALL CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KMG DATE: 9 Oct 00 FILENAME: b040206_b4.dgn
CHECKED BY: CRE DATE: 5/19/14 SCALE: As Shown
DESIGNED BY: CSE DATE: Jan 1997
BRIDGE NO. 06725 DRAWING NO. 38742

PRINT DATE: 7/16/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	4.5	2.5
				(1) 06725 -		SPAN DTLS.	- 38743	

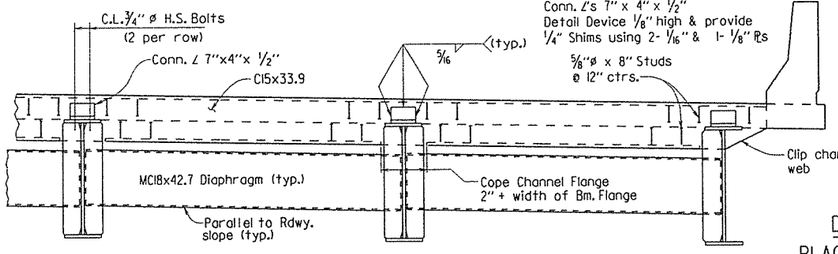


TYPICAL ROADWAY SECTION

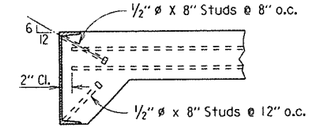
Looking Ahead

① See "Adjustment for Slab Thickness Tolerance"

② Tolerance: Minus = ¼"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".

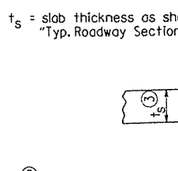


PARTIAL SECTION NEAR JOINT



Note: As an alternate to ⅝" ø studs, ½" ø x 8" studs spaced as shown may be used. Use weight of ⅝" ø stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT



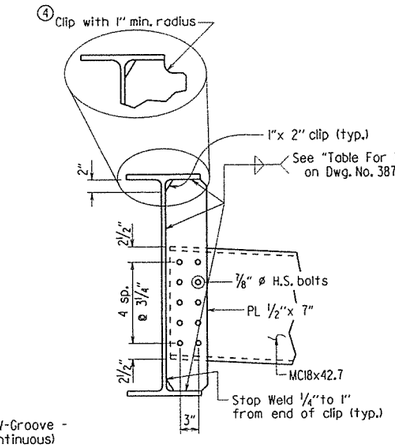
③ Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

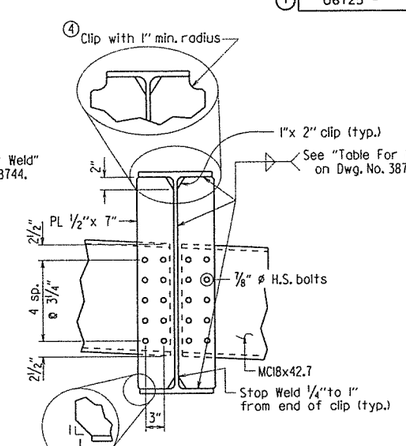
NOTES:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1¾". No increase in concrete and structural steel quantities will be made to maintain tolerances.

Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

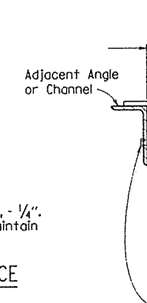
④ If permanent steel bridge deck forms are used, the Fabricator shall clip plate as necessary to accomodate the deck form supports.



DETAIL X



DETAIL Y



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

SILICONE JOINT DATA

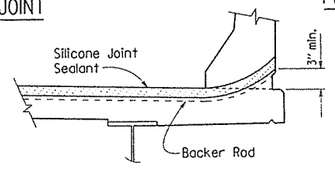
"A" Width Perpendicular to Joint at 24 Hour Average Temperature** Of:			"B" Perpendicular to Joint at 60°F	"D"	Bumper Plate Size
40°F	60°F	80°F			
2⅛"	2"	1⅞"	2¼" ±	4½"	1" x 1"

** The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

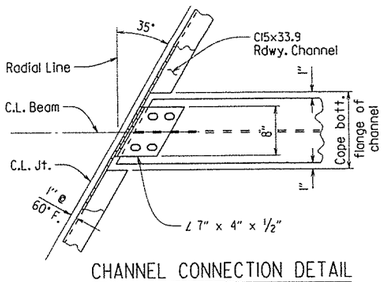
Notes:
The temperature limitations recommended by the sealant Manufacturer shall be observed. The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80° F.

Use an appropriately sized backer rod at the depth shown in the Manufacturer's literature based on the joint width at the time of sealing. Unless otherwise noted, do not install more backer rod than can be sealed in the same day.

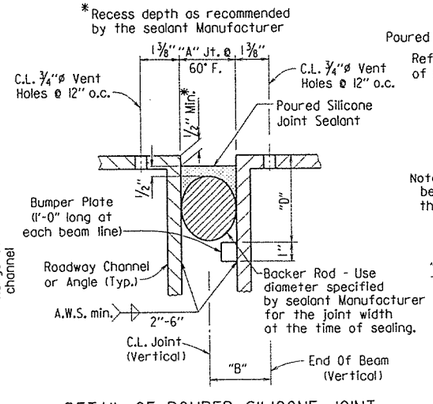
The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.



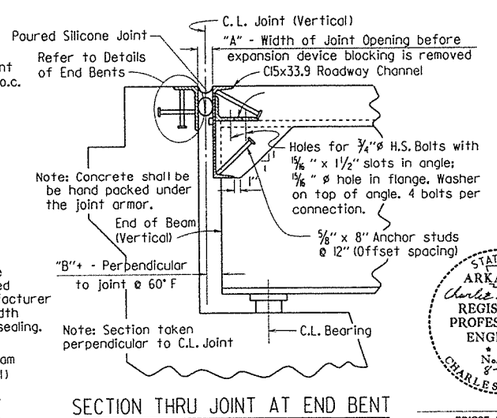
JOINT SEAL PLACEMENT AT CURB



CHANNEL CONNECTION DETAIL



DETAIL OF POURED SILICONE JOINT



SECTION THRU JOINT AT END BENT

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9255
8-8-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 5

DETAILS OF 195'-0" CONTINUOUS W-BEAM UNIT FALL CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KMG DATE: 14 Jan 97 FILENAME: b040206_sl.dgn

CHECKED BY: AMS DATE: 5/14/14 SCALE: No Scale

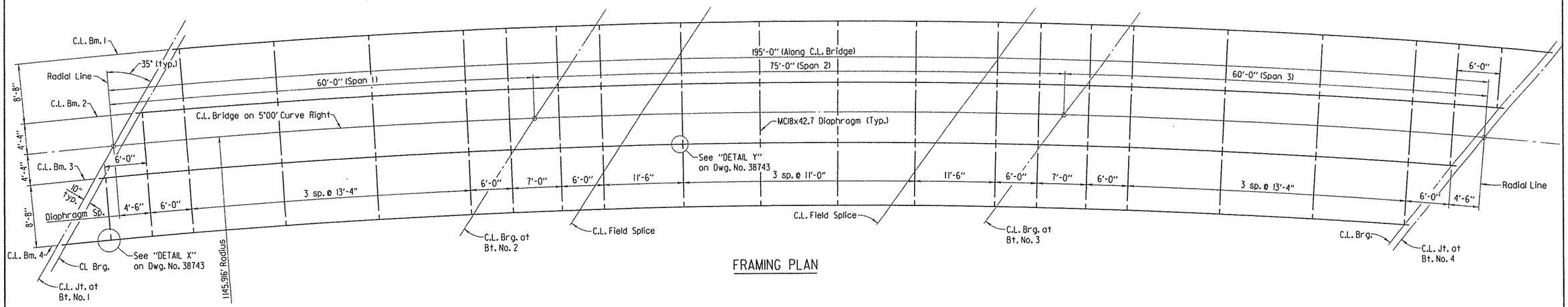
DESIGNED BY: ACP DATE: 5-14

BRIDGE NO. 06725 DRAWING NO. 38743

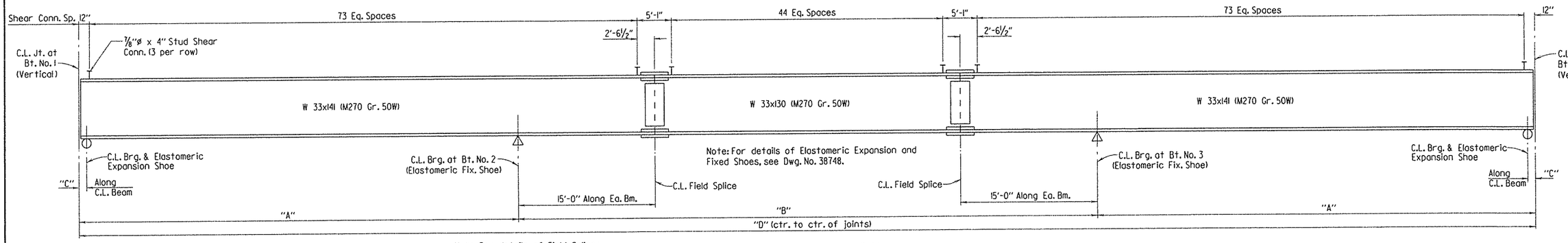
PRINT DATE: 7/16/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	46	215
				06725 -		SPAN DTLS.	- 38744	

Note: All beams are concentric to C.L. Bridge. All diaphragms are on radial lines. Diaphragm spacing shown is measured along C.L. Bridge.



FRAMING PLAN

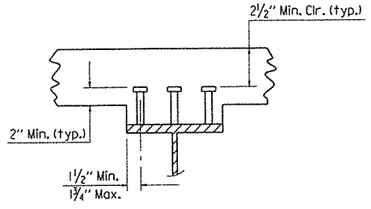


Note: For details of Field Splices, see Dwg. No. 38745.

TYPICAL BEAM ELEVATION

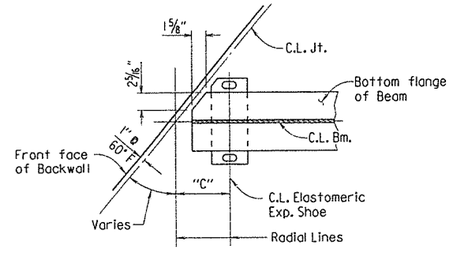
TABLE OF BEAM VARIABLES

BEAM NO.	"A"	"B"	"C"	"D"
1	60'-8 3/16"	75'-10 3/16"	1'-0 1/8"	197'-2 5/16"
2	60'-2 3/4"	75'-3 3/8"	1'-0 1/16"	195'-8 7/8"
3	59'-9 1/4"	74'-8 5/8"	1'-0 1/4"	194'-3 1/8"
4	59'-3 11/16"	74'-1 13/16"	1'-0 1/4"	192'-9 7/16"



Stud Shear Connectors shown shall be 7/8" ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in the field in accordance with the recommendations of the Manufacturer. ¾" ø Studs may be used in place of the 7/8" ø studs shown, at the ratio of 1.361 - ¾" ø studs in place of one 7/8" ø stud. 7/8" ø Studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

SHEAR CONNECTOR DETAIL



PLAN OF BEARING AT END BENTS

TABLE FOR WELD

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	5/16"	

NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
5-8-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF
195'-0" CONTINUOUS W-BEAM UNIT
FALL CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KMG DATE: 14 Jan 97 FILENAME: b040206_sl.dgn
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BRIDGE NO. 06725 DRAWING NO. 38744

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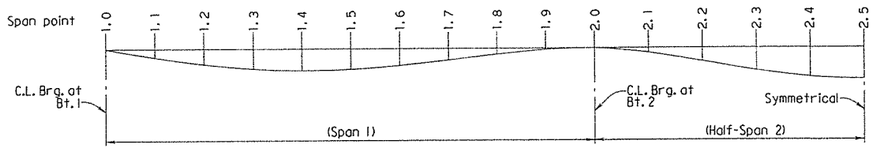
				6	ARK.			
				JOB NO.		040206	47	215
				①	06725 -	SPAN DTLS.	- 38745	

TABLE OF DEFLECTIONS (INCHES)

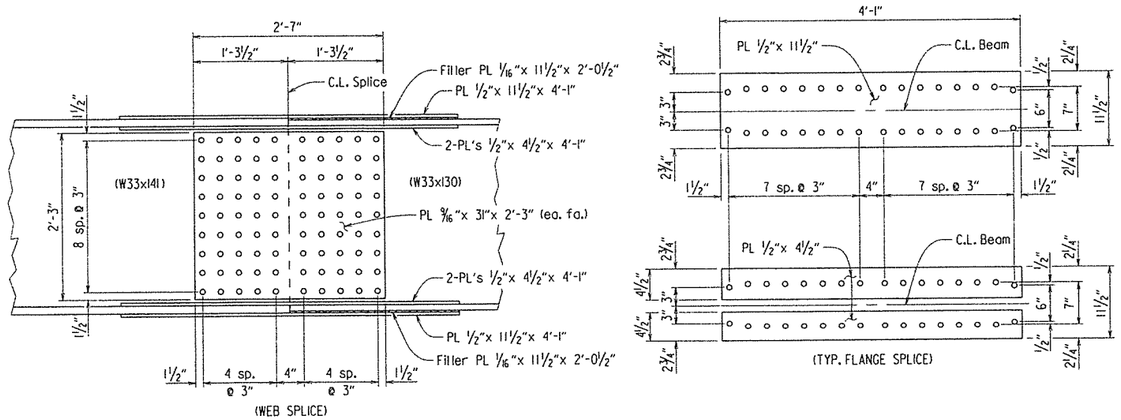
Note: Camber for Dead Load Deflection plus Vertical curve ± 1/4" tolerance. Deflections shown are along C.L. Beam from the plane perpendicular to the web extending from C.L. Bearing to C.L. Bearing. Vertical curve corrections are not included.

Span	Point of Deflection	Structural Steel				Structural Steel + Slab				Structural Steel + Slab + Parapet			
		Beam 1	Beam 2	Beam 3	Beam 4	Beam 1	Beam 2	Beam 3	Beam 4	Beam 1	Beam 2	Beam 3	Beam 4
Span 1	1.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	1.1	0.033	0.032	0.032	0.031	0.190	0.210	0.201	0.178	0.207	0.226	0.217	0.194
	1.2	0.060	0.059	0.058	0.056	0.345	0.385	0.372	0.326	0.377	0.414	0.401	0.356
	1.3	0.079	0.077	0.076	0.073	0.453	0.499	0.491	0.428	0.495	0.538	0.530	0.468
	1.4	0.086	0.084	0.083	0.081	0.493	0.544	0.539	0.470	0.539	0.586	0.582	0.515
	1.5	0.083	0.081	0.080	0.077	0.466	0.515	0.517	0.448	0.509	0.555	0.558	0.492
	1.6	0.069	0.067	0.067	0.064	0.381	0.424	0.432	0.370	0.415	0.457	0.466	0.407
	1.7	0.048	0.047	0.047	0.045	0.258	0.289	0.303	0.256	0.280	0.310	0.326	0.282
	1.8	0.025	0.024	0.024	0.024	0.127	0.144	0.156	0.133	0.137	0.154	0.167	0.147
	1.9	0.007	0.006	0.006	0.006	0.027	0.030	0.039	0.030	0.028	0.032	0.041	0.033
Half-Span 2	2.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	2.1	0.017	0.018	0.017	0.016	0.127	0.135	0.120	0.106	0.143	0.148	0.133	0.118
	2.2	0.050	0.051	0.050	0.048	0.352	0.369	0.346	0.309	0.393	0.404	0.379	0.342
	2.3	0.087	0.089	0.085	0.081	0.591	0.634	0.590	0.526	0.657	0.693	0.645	0.581
	2.4	0.113	0.114	0.112	0.106	0.762	0.809	0.780	0.686	0.845	0.884	0.852	0.757
	2.5	0.122	0.122	0.121	0.115	0.820	0.866	0.849	0.746	0.908	0.946	0.927	0.824

Symmetrical about Half-point of Unit



DEAD LOAD DEFLECTION DIAGRAM



DETAILS FOR FIELD SPLICE

NOTES:
1. All Field Splice Plates to be AASHTO M270 Gr. 50W.
2. All Field Splice bolts to be 7/8"ø H.S. Bolts.
3. All Holes for splice bolts shall be 15/16" ø.

STATE OF ARKANSAS
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SHEET 3 OF 5
DETAILS OF
195'-0" CONTINUOUS W-BEAM UNIT
FALL CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KMG DATE: 15 Jan 97 FILENAME: b040206_sl.dgn
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BRIDGE NO. 06725 DRAWING NO. 38745

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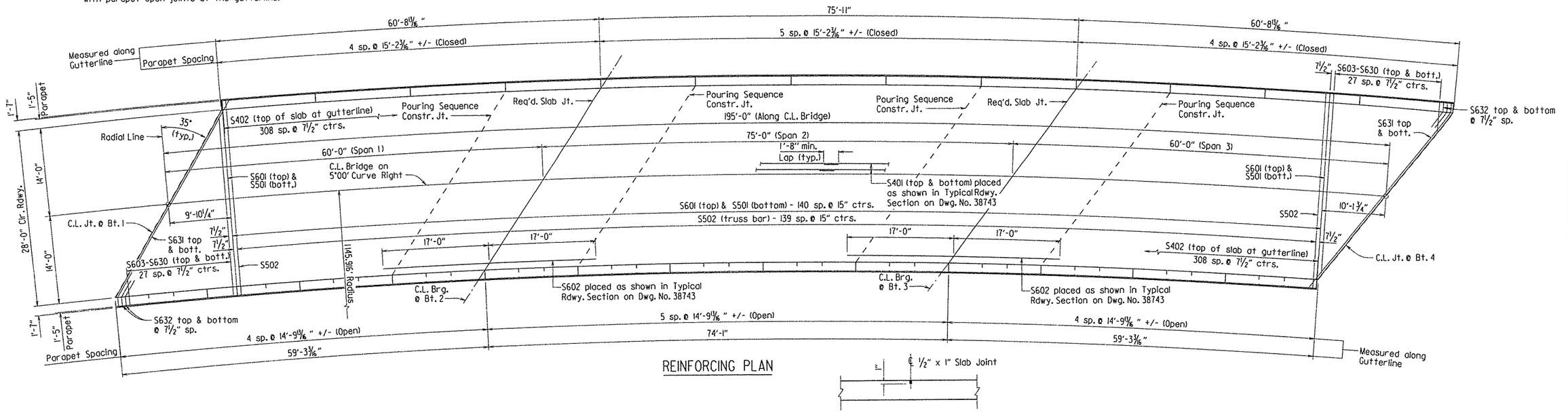
				6	ARK.			
				JOB NO.		040206	48	215
				①	06725 -	SPAN DTLS.	- 38746	

Notes:
All transverse reinforcing shall be placed on radial lines to C.L. Bridge. Spacing shown is measured along C.L. Bridge.

All longitudinal lines and longitudinal reinforcing steel shall be spaced on curves concentric with C.L. Bridge.

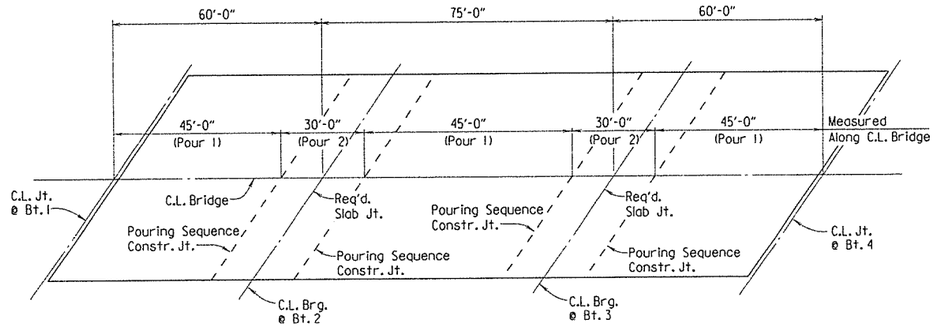
Required slab joints and pouring sequence joints shall align with parapet open joints at the gutterline.



REINFORCING PLAN

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

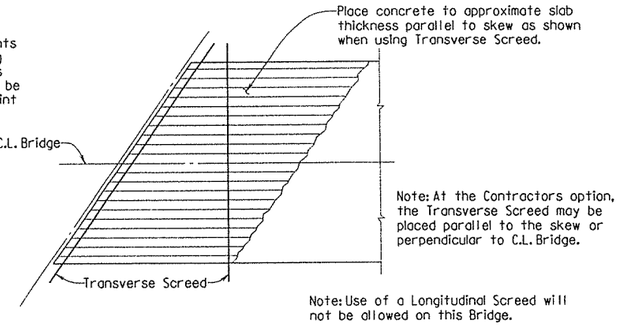
SLAB JOINT DETAIL



SLAB POURING SEQUENCE

Note:
Pours with the same number may be poured simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between pours and 72 hours shall elapse between adjacent pours. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer.

The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.



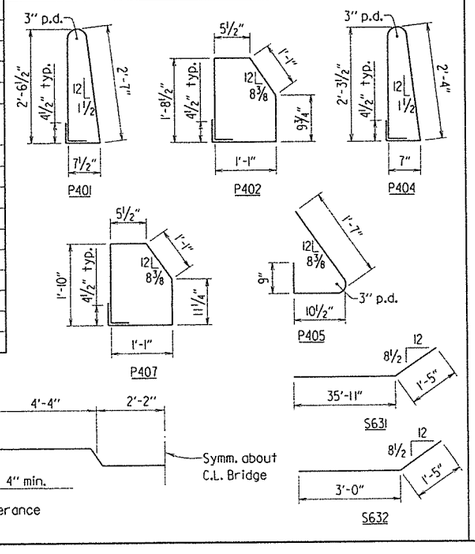
Note: Use of a Longitudinal Screed will not be allowed on this Bridge.

CONCRETE PLACEMENT PROCEDURE

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401	396	34'-4"	Str.
S402	618	4'-4"	Str.
S501	141	30'-10"	Str.
S502	140	31'-6"	3"
S601	141	30'-10"	Str.
S602	96	34'-0"	Str.
S603-S630	4 EA.	4'-4" to 28'-6"	Str.
S631	4	37'-4"	4 1/2"
S632	8	4'-5"	4 1/2"
P401	494	6'-4"	2"
P402	208	5'-6"	2"
P403	78	14'-10"	Str.
P404	52	5'-10"	2"
P405	52	3'-2"	2"
P406	52	14'-5"	Str.
P407	286	5'-9"	2"
P601	65	14'-5"	Str.

BENDING DIAGRAMS
Dimensions are out to out of bars.



STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-8-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF
195'-0" CONTINUOUS W-BEAM UNIT
FALL CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KMG DATE: 15 Jan 97 FILENAME: b040206_sl.dgn
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BRIDGE NO. 06725 DRAWING NO. 38746

PRINT DATE: 7/16/2014

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				6	ARK.			
				JOB NO.		040206	49	215
				①	06725 -	SPAN DTLS.	- 38747	

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable supplemental specifications and special provisions.

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges (1996 edition) with current interim specifications.

LIVE LOADING: HS20 METHOD OF DESIGN: Load Factor

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c = 4,000 psi
Reinforcing Steel (Gr. 60, AASHTO M31 or M322, Type A)	fy = 60,000 psi
Structural Steel (M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (M 270, Gr. 36)	Fy = 36,000 psi

CONCRETE :
Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted. All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Standard Drawing No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The concrete deck shall be given a tine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing.

Use of a longitudinal screed is prohibited.

REINFORCING STEEL :
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Reinforcing Steel - Bridge (Grade 60)".

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

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

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

Beams, field splice plates, diaphragms and connection plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M270, Gr. 50W)".

All beams shall be assembled in the shop as specified in Subsection 807.54(b)(2) and blocked in their true position with webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

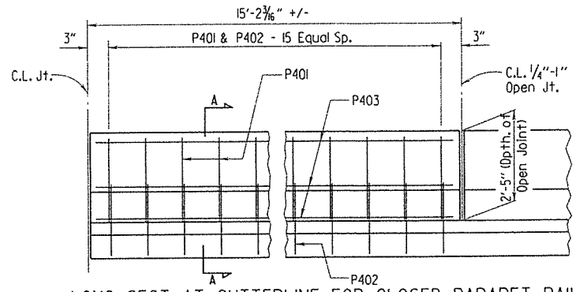
Flange field splice plates for main members shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching falsework support devices or screed rail supports to the structural steel that do not exceed the limitations of Subsection 802.13 will not require approval prior to construction. All welding shall conform to Subsection 807.26.

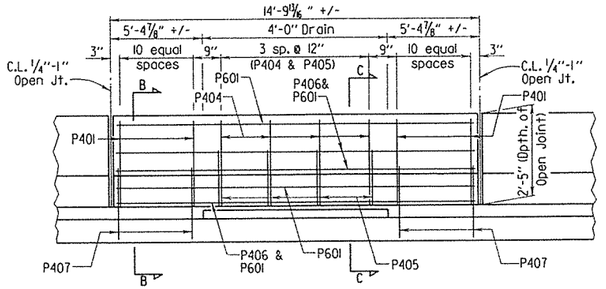
Field connections for diaphragms shall be bolted with high-strength bolts as specified in the plans. Holes for high-strength bolts in diaphragm connections may be 1/16" greater than the diameter of the bolt if a washer is supplied for use under both the nut and head of the bolt.

Steel diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck unless otherwise noted.

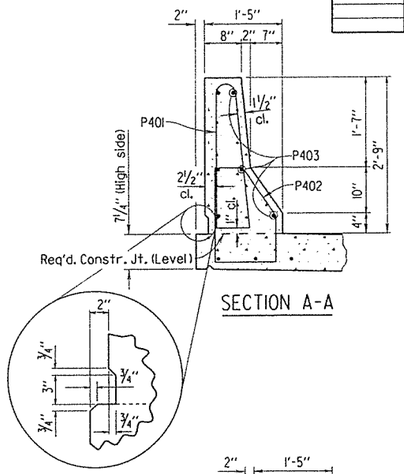
All shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with recommendations of the Manufacturer.



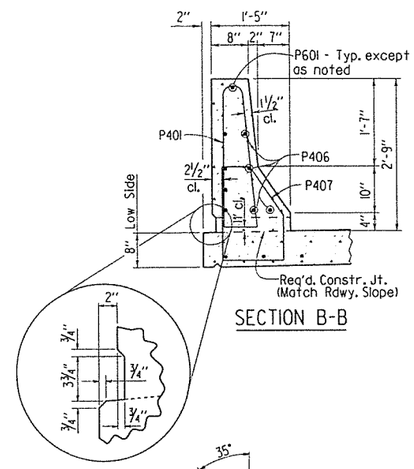
LONG. SECT. AT GUTTERLINE FOR CLOSED PARAPET RAIL



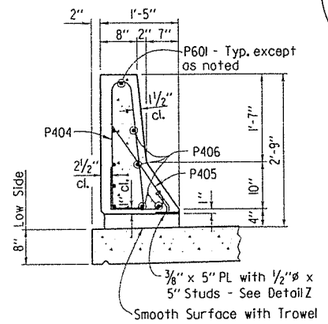
LONG. SECT. AT GUTTERLINE FOR OPEN PARAPET RAIL



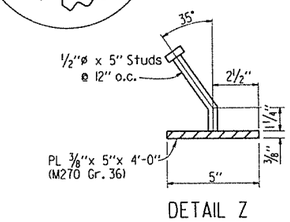
SECTION A-A



SECTION B-B



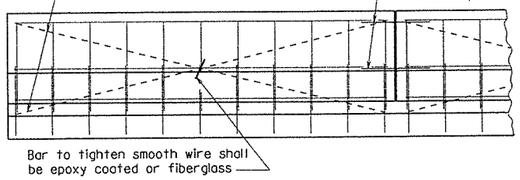
SECTION C-C



DETAIL Z

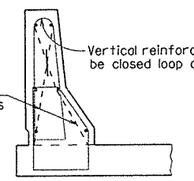
Note:
Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "Structural Steel in Beam Spans (M270 Gr. 50W)".

The surfaces of the 3/8" plates which will not be in contact with concrete shall be painted in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the Fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M270 Gr. 50W)".



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

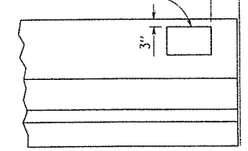
All panels shall be braced as shown to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.



DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL (OPEN OR CLOSED)

Note: For actual placement of reinforcing steel, see parapet details.

Place Type D Bridge Name Plate on front face of span rail approx. 2'-0" from C.L. Joint (right side of roadway only).



VIEW SHOWING LOCATION OF NAME PLATE

STATE OF ARKANSAS
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No. 9235
8-8-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF 195'-0" CONTINUOUS W-BEAM UNIT FALL CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KMG DATE: 16 Jan 97 FILENAME: b040206_sl.dgn
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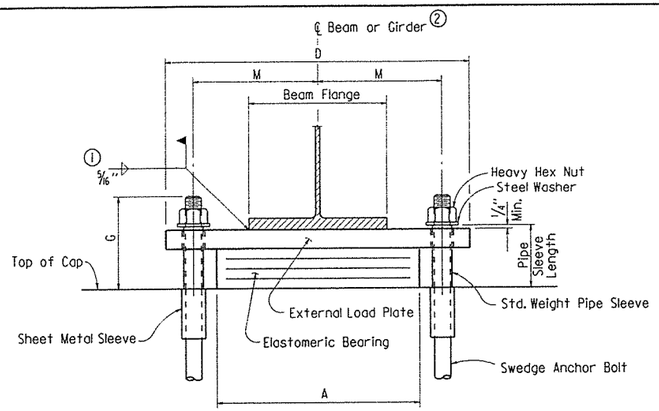
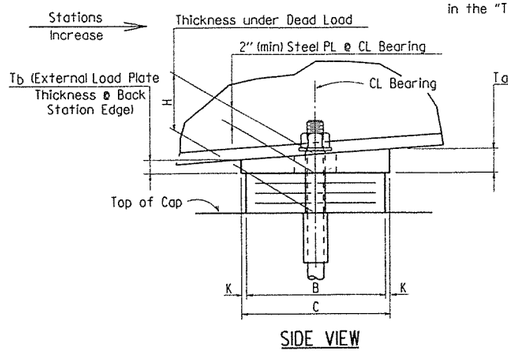
				6	ARK.			
				JOB NO.		040206	50	215
				(1) 06725	-	ELASTO. BRGS.	-	38748



FRONT VIEW

(1) Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.

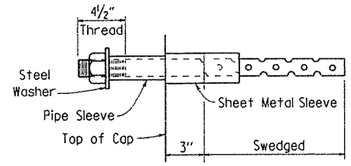
(2) C.L Elastomeric pad shall be aligned with C.L. Beam.



SIDE VIEW

Note:
The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in the "Table of Fabricator Variables".

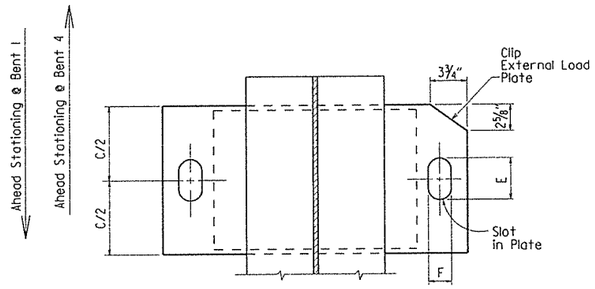
Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.



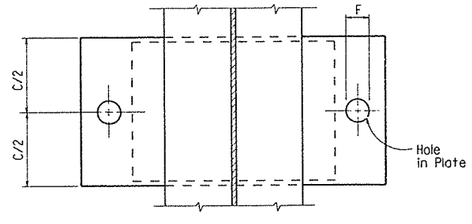
ANCHOR BOLT DETAIL

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

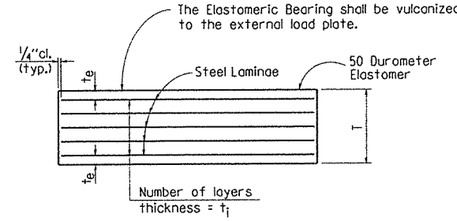
If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the masonry. Bolts placed in drilled holes shall be accurately set and fixed using a OPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50W)"



PLAN VIEW @ BENT NOS. 1 & 4



PLAN VIEW @ BENT NOS. 2 & 3



t_e = thickness of elastomer cover on top and bottom of pad

t_i = thickness of elastomer between steel laminae

N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

GENERAL NOTES

Elastomeric Bearings shall conform to Special Provision Job 040206 " Elastomeric Bearings" and Section 808 of the Standard Specifications and shall be paid for at the unit price bid for "Elastomeric Bearings." Long-duration testing of random lot samples specified in Subsection 808.05 is not required.

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

External load plates shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with Subsection 808.03. Other surfaces shall be blast cleaned in accordance with Subsection 807.84(b) for painted steel and 807.84(e) for unpainted Grade 50W steel.

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

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)".

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

TABLE OF FABRICATOR VARIABLES

*Maximum Design Load = Service Load

BRIDGE NO.	LOCATION BENT NO(S).	LOCATION BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	EXTERNAL LOAD PLATE C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
06725	1	ALL	Exp.	4	89	7¾"	5"	14"	11"	4	½"	¼"	5 @ 12 Ga.	3"	12"	24"	4"	2¼"	½"	9¼"	1.95"	2.05"	1 ½"ø x 25"	55	1 ½" x 5¼"	3"ø x 8"	3"ø
	2	ALL	Fix.	4	190	8¾"	5"	15½"	15½"	4	½"	¼"	5 @ 12 Ga.	3"	16½"	28½"	—	3¾"	½"	10¾"	2.00"	2.00"	2½"ø x 36"	55	3" x 5¼"	4"ø x 12"	4½"ø
	3	ALL	Fix.	4	190	8¾"	5"	15½"	15½"	4	½"	¼"	5 @ 12 Ga.	3"	16½"	28½"	—	3¾"	½"	10¾"	2.00"	2.00"	2½"ø x 36"	55	3" x 5¼"	4"ø x 12"	4½"ø
	4	ALL	Exp.	4	89	7¾"	5"	14"	11"	4	½"	¼"	5 @ 12 Ga.	3"	12"	24"	4"	2¼"	½"	9¼"	2.00"	2.00"	1 ½"ø x 25"	55	1 ½" x 5¼"	3"ø x 8"	3"ø

PRINT DATE: 7/16/2014

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
5-8-14
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS FALL CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

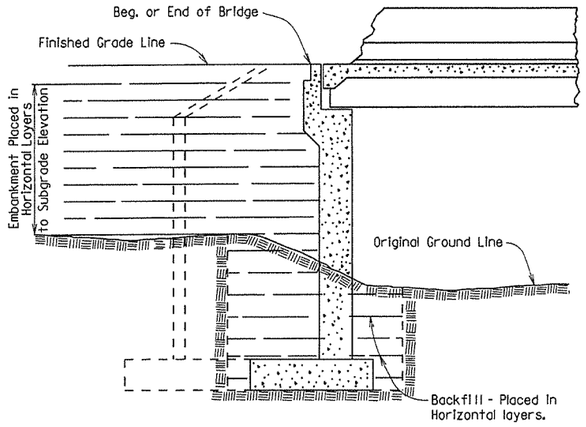
DRAWN BY: AMS. DATE: 5/15/14 FILENAME: b040206_ebl.dgn

CHECKED BY: JVP DATE: 7/17/14 SCALE: NONE

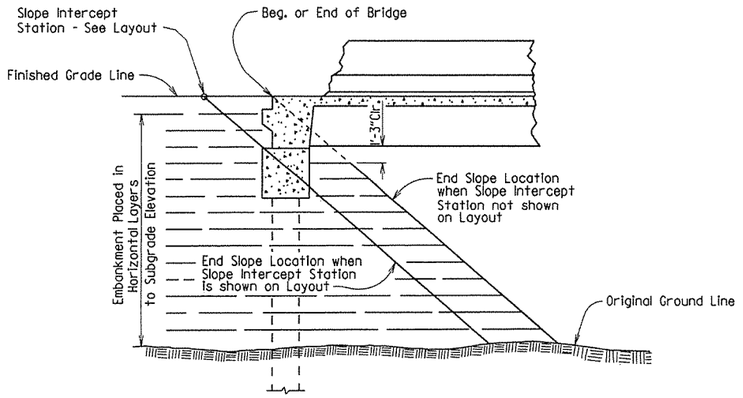
DESIGNED BY: ACP DATE: 5-14

BRIDGE NO. 06725 DRAWING NO. 38748

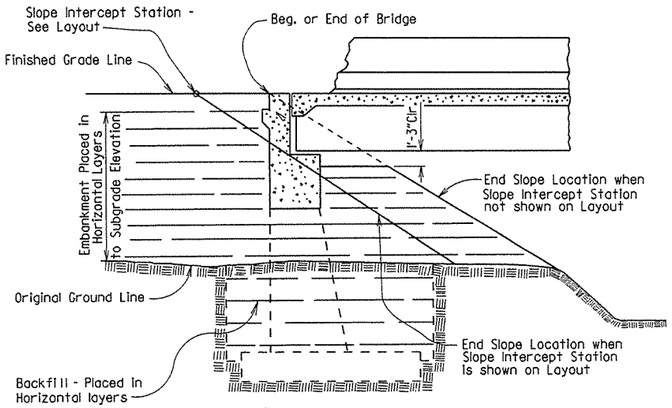
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		51	
				JOB NO.				
				①	EMBANKMENT & BACKFILL		55000	



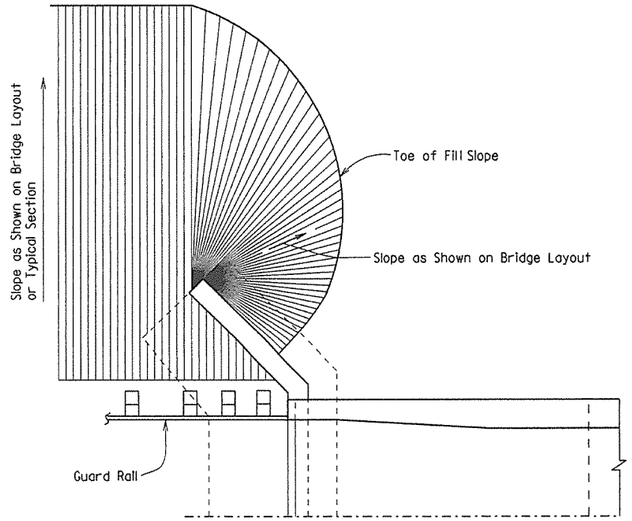
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



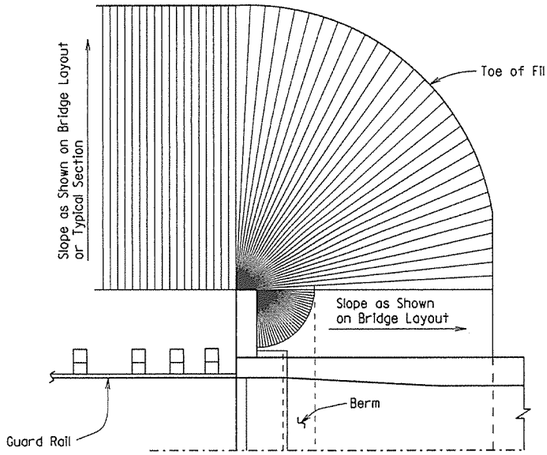
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



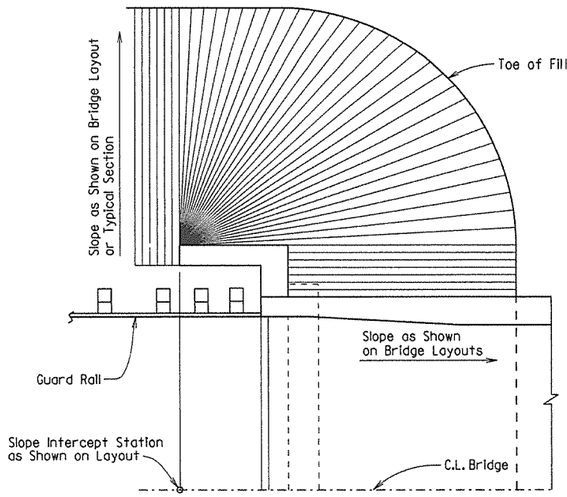
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



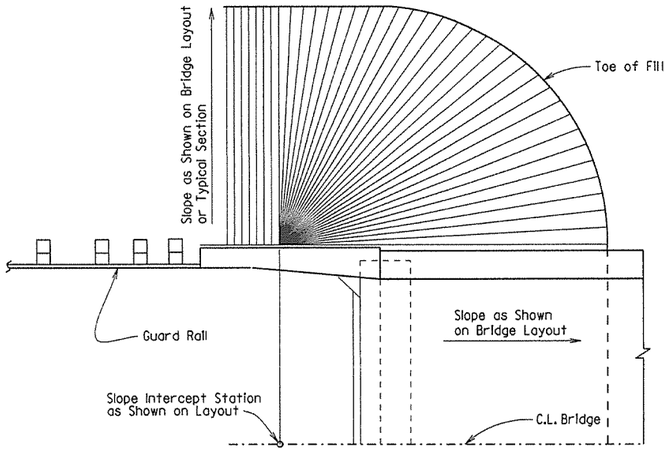
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 6 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to Subsections 210.09, 210.10 and 801.08 for construction requirements.

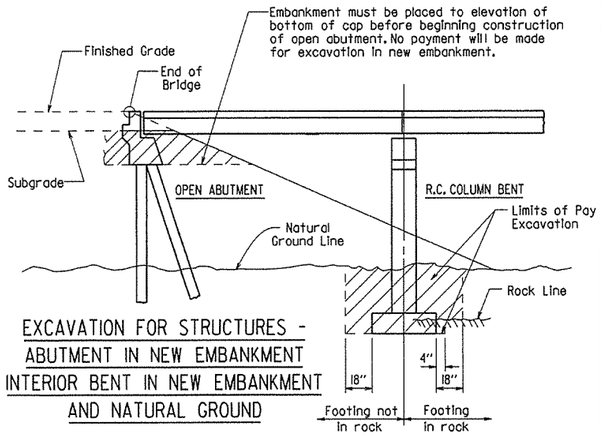
STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

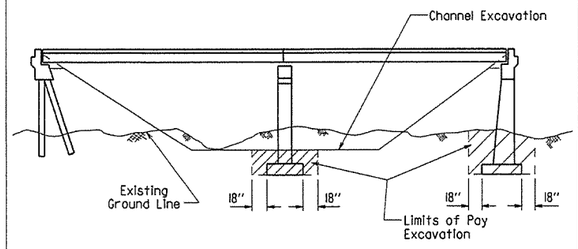
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: -

DRAWING NO. 55000

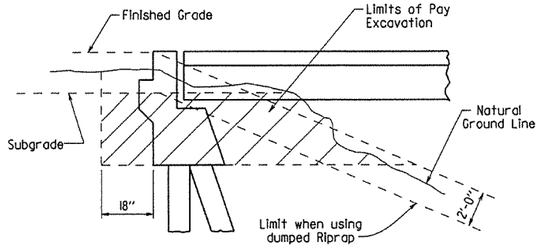
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		52	
				JOB NO.				
				①	RIPRAP & EXCAV. 55001			



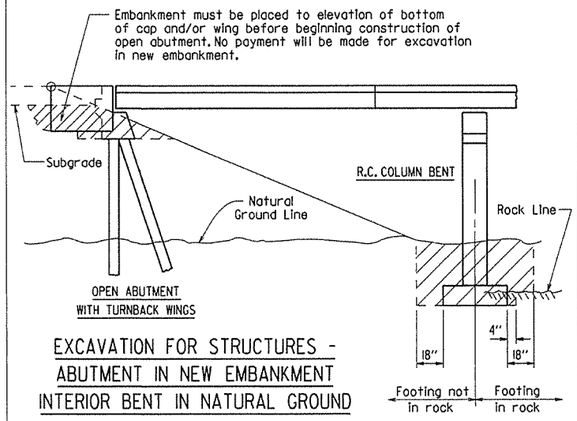
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



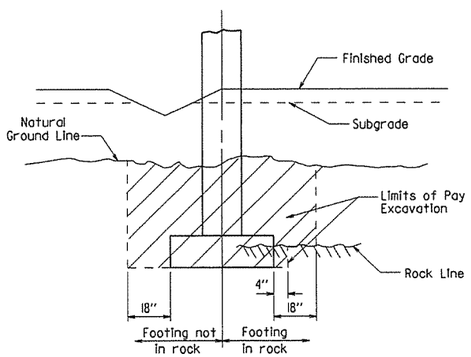
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



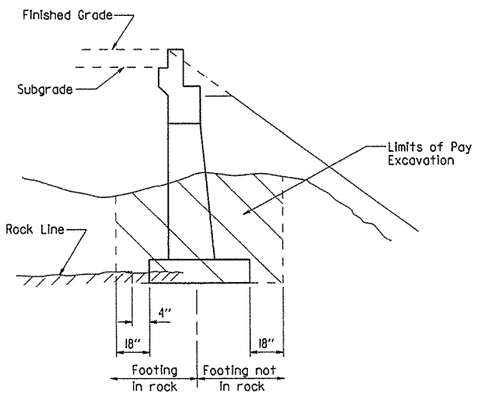
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



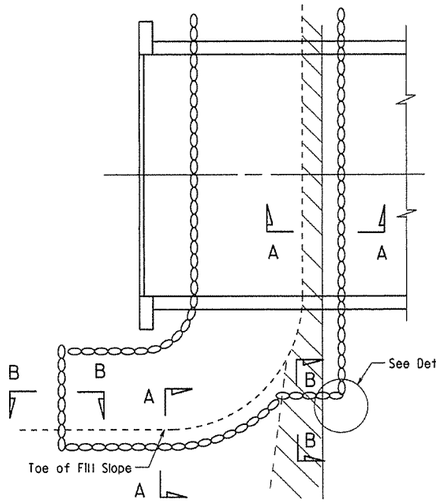
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



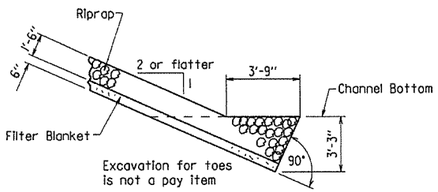
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

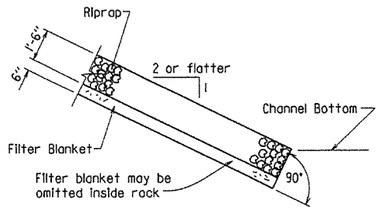


PLAN OF DUMPED RIPRAP



SECTION A-A

(Toe Excavation in Soil)



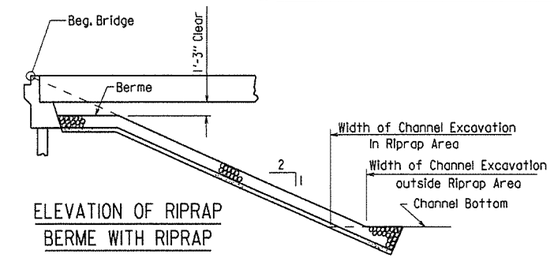
SECTION A-A

(Toe Excavation in Rock)

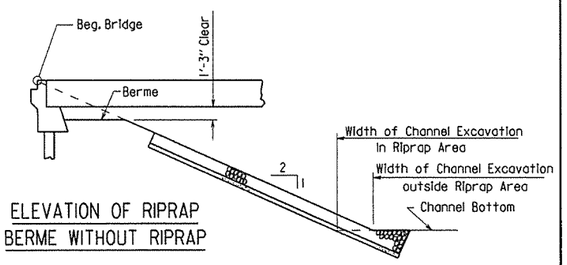
Note : Use this type of toe when rock is encountered which is in a stable condition.

Note : In lieu of an aggregate filter blanket, a synthetic fiber geotextile fabric complying with the requirements of Subsection 816.02(e) may be used.

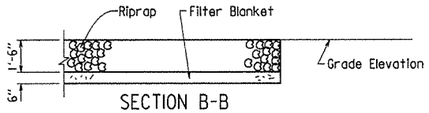
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



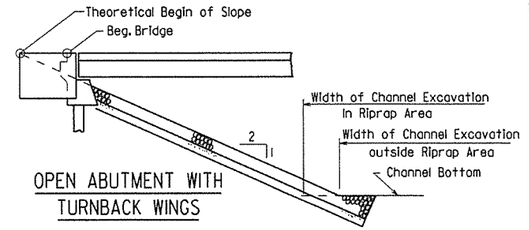
ELEVATION OF RIPRAP BERME WITH RIPRAP



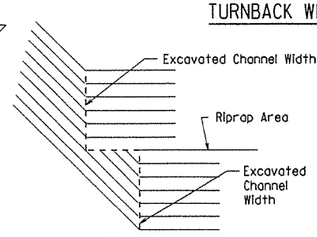
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

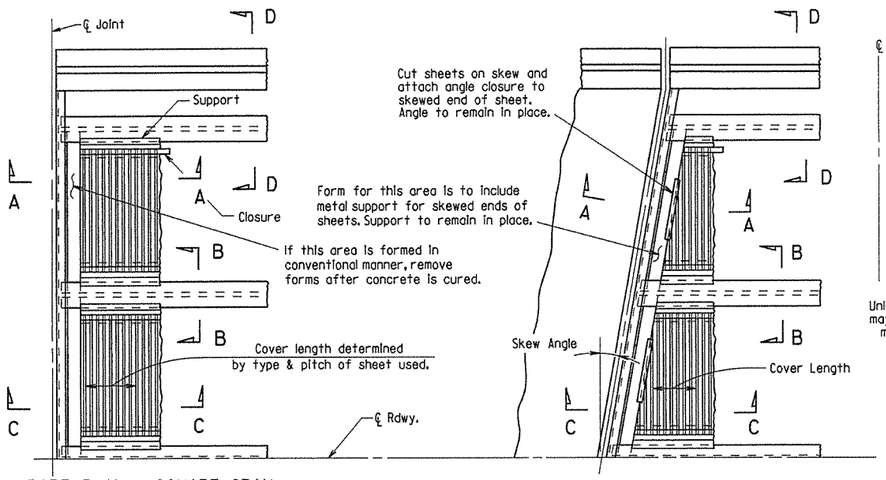
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE:

DRAWING NO. 55001

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		53	
				JOB NO.				
				① BRIDGE DECK FORMS		55005		

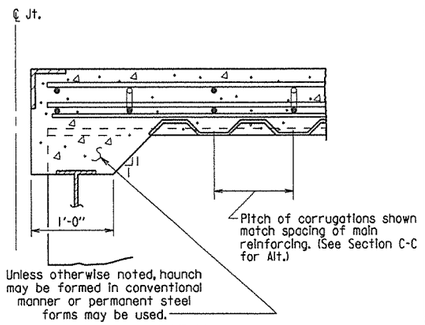


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

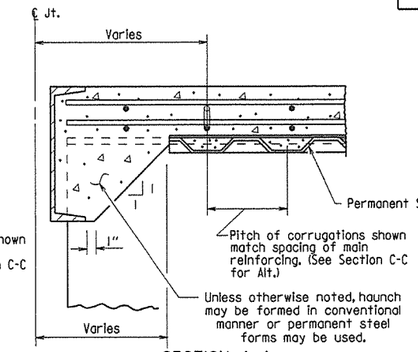
3/8" = 1'-0"



SECTION A-A

N.T.S.

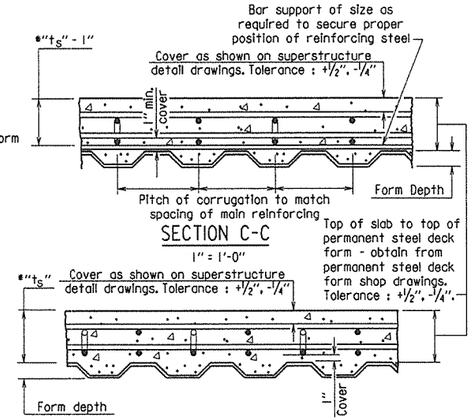
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



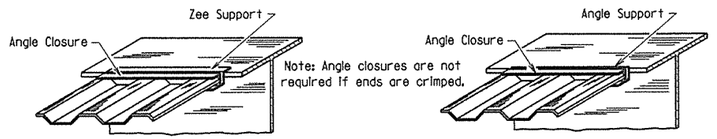
SECTION C-C

1" = 1'-0"

SECTION C-C - ALTERNATE

1" = 1'-0"

(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

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

GENERAL NOTES

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

Permanent steel deck forms shall conform to Subsection 802.14(b). Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Engineer before work of forming the bridge deck is started.

Welding of form supports to the tension flange of steel girders will be permitted only in areas where shear connectors are used. When welding is not allowed, the method of fastening Z or ∠ supports to the flange must be approved by the Engineer.

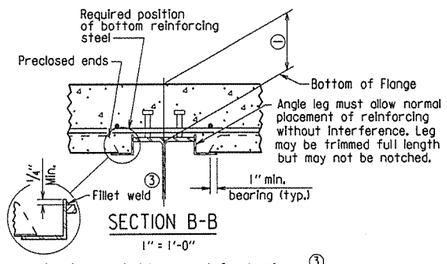
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

When the pitch of form corrugations match the reinforcing spacing, transversely align form sheets across the bridge to maintain the correct orientation of continuous reinforcing bars in the corrugations.

Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

High chairs shall be sized to support the top mat of reinforcing at the proper position. High chairs shall be placed at locations shown on the detail drawings.

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions.

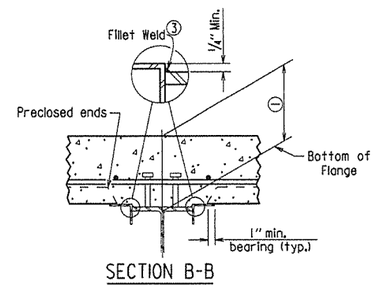


SECTION B-B

1" = 1'-0"

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

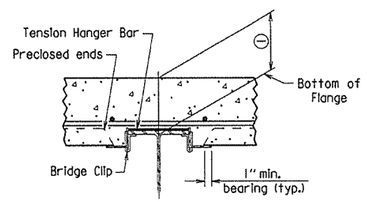
③ Minimum weld: 1/8" x 1' @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

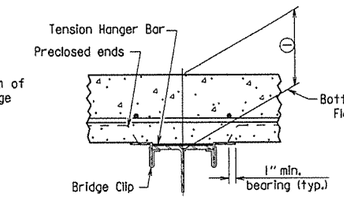
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

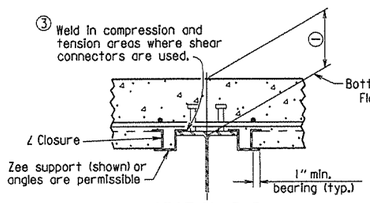
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

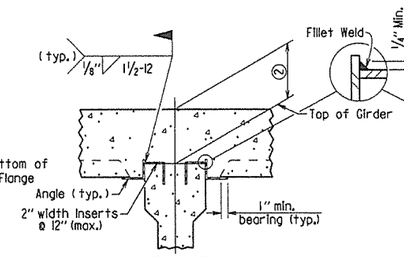
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

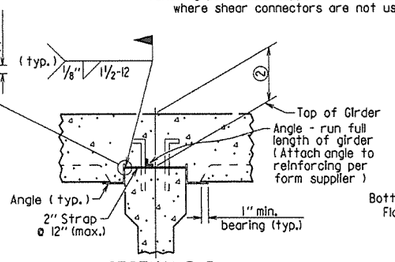


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Insert cast in girder)

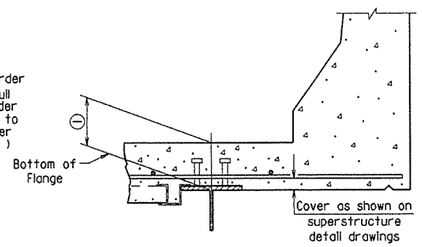


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_s + 1 3/4" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

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

STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55005.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NONE

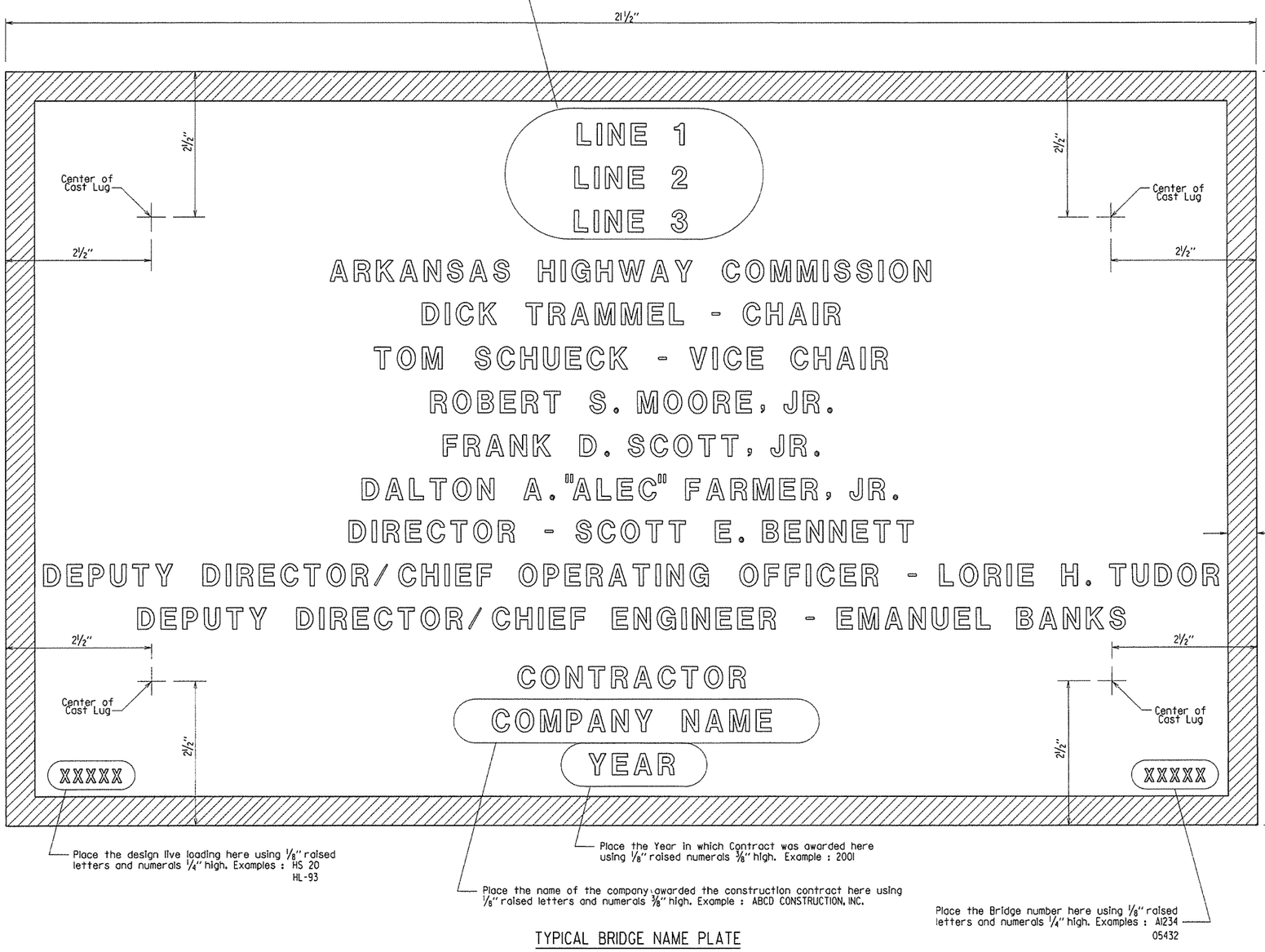
DESIGNED BY: STD. DATE: —

DRAWING NO. 55005

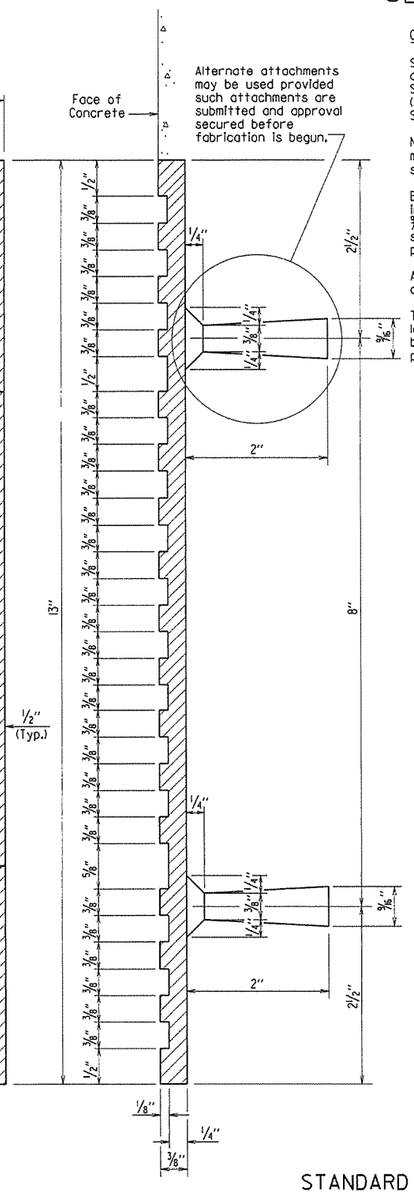
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-1-14				6	ARK.		54	
1-14-15				JOB NO.				
				① TYPE D NAME PLATE			55010	

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

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



TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

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

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 1/8" to 9/16"x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered.

The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

② Revised Chair and Vice Chair Added New Commissioner
1-14-15 KDH Checked By: CRE

① Revised Deputy Director/ Chief Engineer Added Deputy Director/ Chief Operating Officer
12-1-14 KDH Checked By: CRE

STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: ——

DRAWING NO. 55010

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		55	
				JOB NO.				
				①		STEEL H-PILES		55020

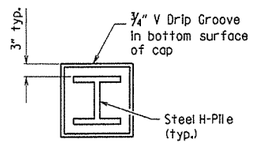
GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.

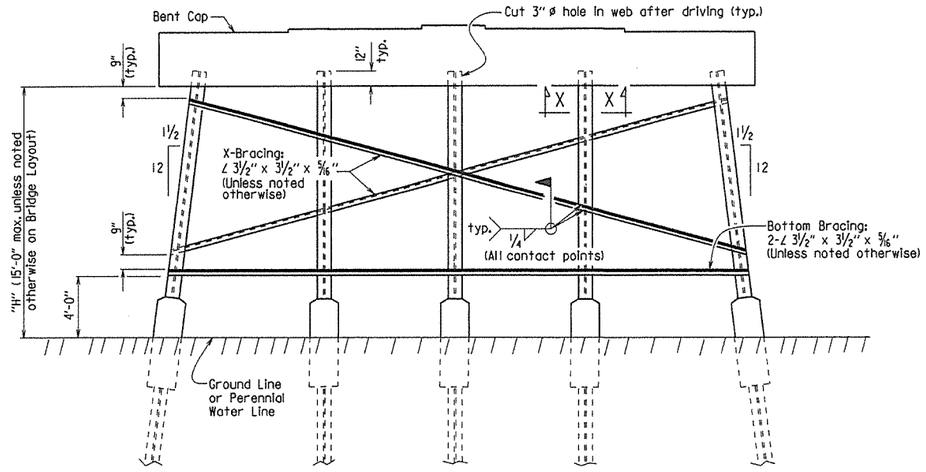
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

Steel H-Piles that extend above the ground and are not protected by pile encasement shall be painted in accordance with Subsection 805.02.

Brackets, lugs, cap plates, pile tips, driving points, pile painting, splicing and welding shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



VIEW X-X



Notes:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under Item 807.

Unless noted otherwise, omit X-Bracing when "H" is less than 8 feet.

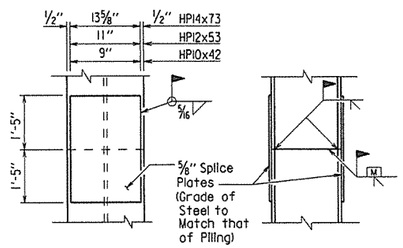
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

When required on the Bridge Layout sheet, pile encasements shall be constructed. See Notes and Details for H-Pile Encasements.

Omit all bracing (and V-groove in cap) when pile encasement is extended to bottom of bent cap.

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)

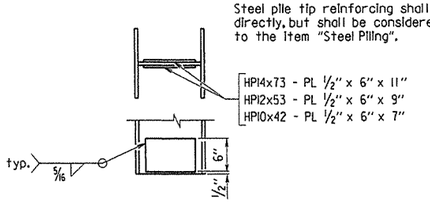


Note:
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

Notes:
Steel pile tip reinforcing not required when approved H-Pile driving points are used.

Steel pile tip reinforcing shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

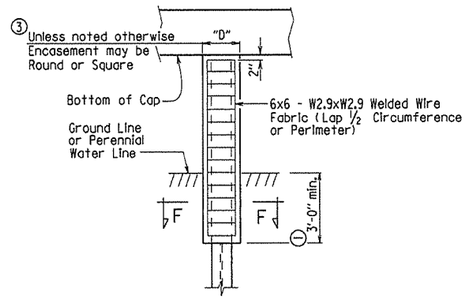
See Bridge Layout for additional notes and required location of pile encasements.

All concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

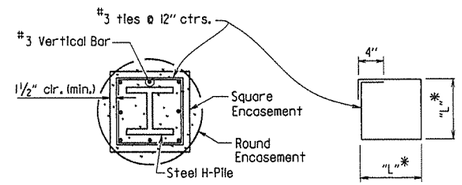
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

Concrete, welded wire fabric or reinforcing steel and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

④ (Shown with Encasement to Bottom of Cap)

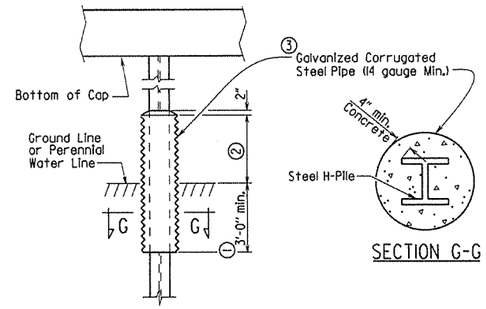


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

Pile Size	"D" Square Encsmt.	"D" Round Encsmt.	"L"*
HPI0x42	1'-7"	2'-0"	1'-4"
HPI2x53	1'-8"	2'-2"	1'-5"
HPI4x73	1'-11"	2'-6"	1'-8"



SECTION G-G

⑤ ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

① Unless otherwise noted on Bridge Layout.

② 3'-0" minimum or as shown on Bridge Layout.

③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1½" and a minimum clearance of 1¼" from the pile.

④ Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

⑤ Alternate pile encasement may not be allowed. See Bridge Layout.

This document was originally issued and sealed by Carl J. Fuselier, PE No. 7510, on February 27, 2014. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

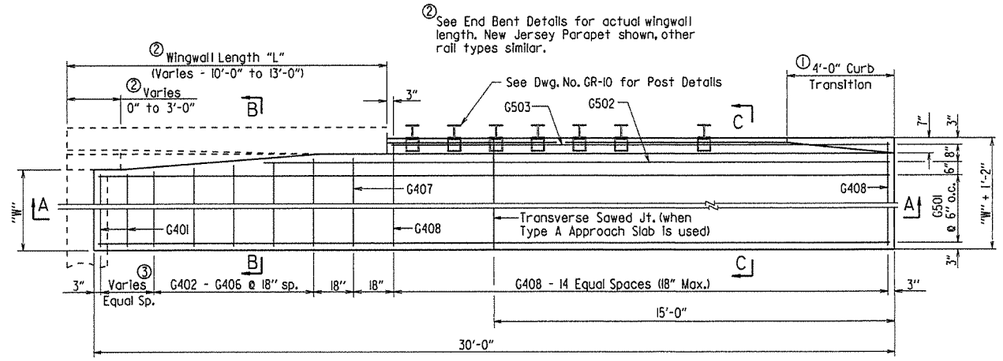
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55020.dgn
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55020

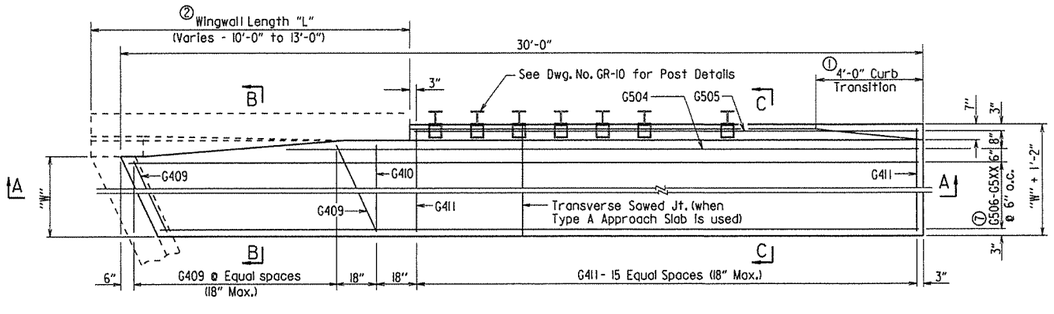
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		56	
				JOB NO.				

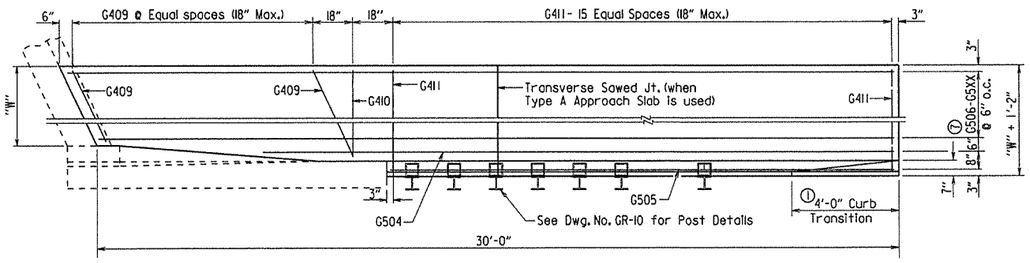
① TYPE A GUTTERS 55030A



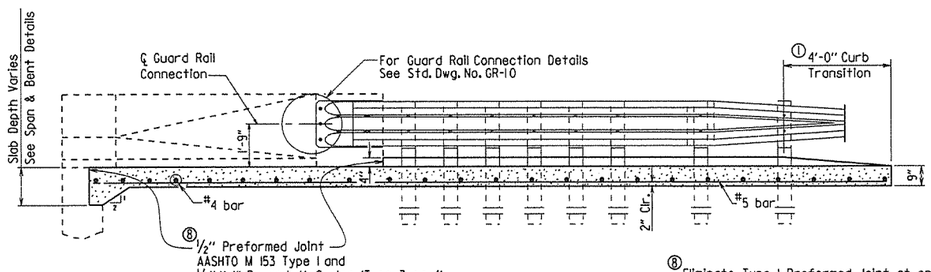
③ Number of G401 bars vary with wingwall length - See Bar List

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





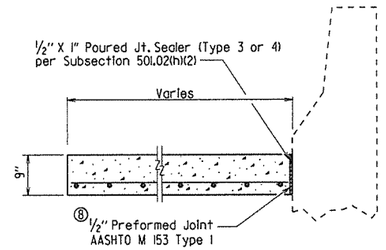
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



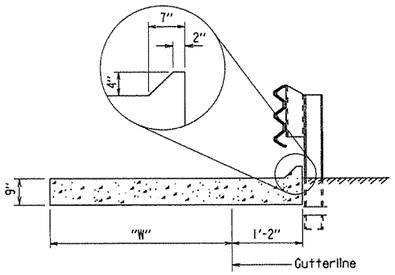
SECTION A-A

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

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



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

Note:
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

⑧ Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type A Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

BAR LIST FOR ONE TYPE A GUTTER

	Mark	No. Req'd. for Width "W" 3'-0"	4'-0"	6'-0"	8'-0"	Length
Square Bridge	G401	④	④	④	④	"W"- 4"
	G402-G406	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	"W"+3"
	G408	15	15	15	15	"W"+ 10"
	G501	6	8	12	16	29'-8"
	G502	1	1	1	1	(35'-5") - "L"
	G503	1	1	1	1	30'-8"-"L"
Skewed Bridge	G409	⑥	⑥	⑥	⑥	⑤
	G410	1	1	1	1	"W"+3"
	G411	16	16	16	16	"W"+ 10"
	G504	1	1	1	1	⑤
	G505	1	1	1	1	⑤
	G506 - G5XX ⑦	1 each	1 each	1 each	1 each	⑤

④ 0 for "L" = 10'
1 for "L" = 11'
2 for "L" = 12'
2 for "L" = 13'

⑦ G511 for "W" = 3'
G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'

⑤ Bar Lengths vary with Skew and Wingwall Length.

⑥ No. Req'd. varies with Skew and Wingwall length.

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

"W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
3	285	3.40
4	360	4.25
6	515	5.90
8	665	7.55

Quantities are based on "L" = 10'-0".

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Gutters will be measured and paid for in accordance with Section 504.

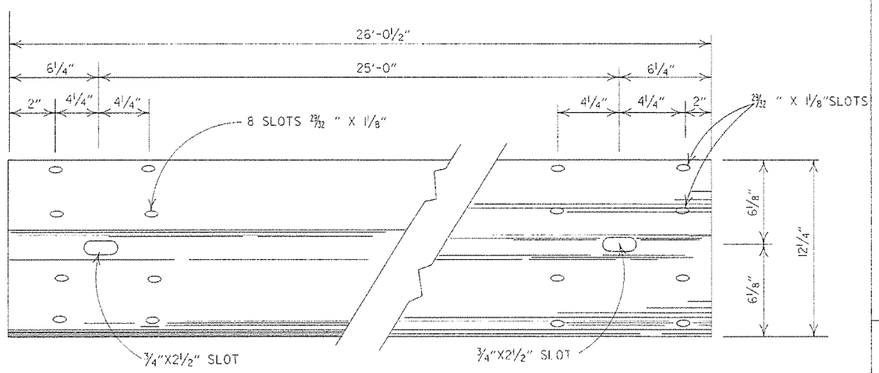
STANDARD DETAILS FOR TYPE A APPROACH GUTTERS

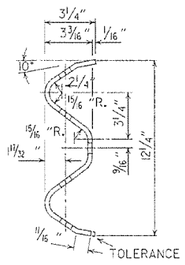
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030a.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: 3/8" = 1'-0" or As Shown
DESIGNED BY: STD. DATE:

DRAWING NO. 55030A

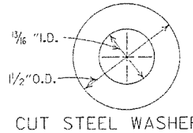




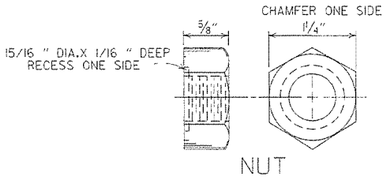
DETAILS OF W-BEAM GUARD RAIL

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

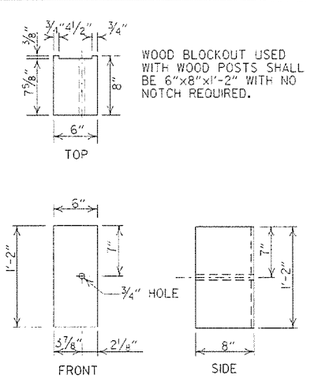
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

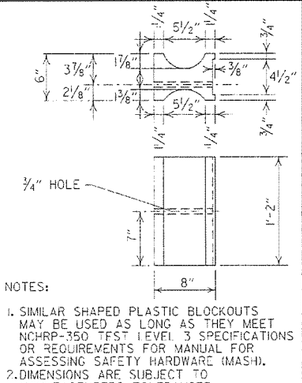


NUT



WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

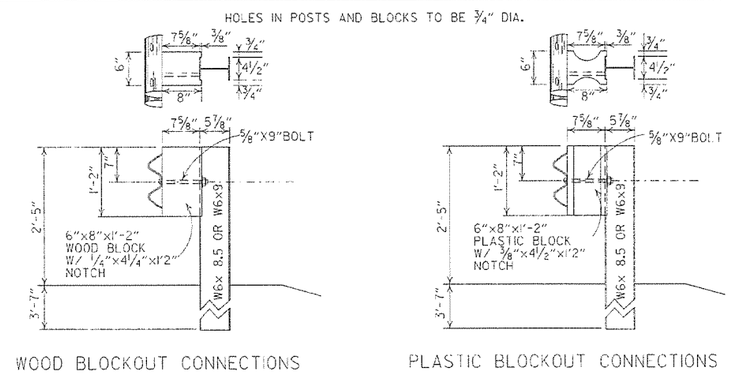
WOOD BLOCKOUT (W-BEAM)



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

PLASTIC BLOCKOUT (W-BEAM)

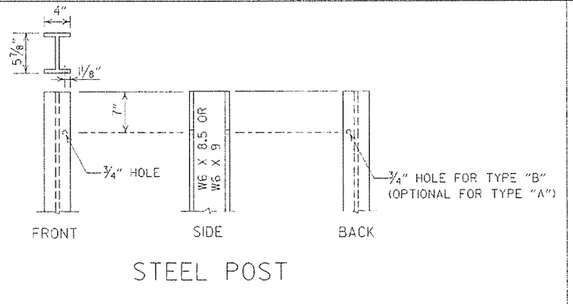
HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.



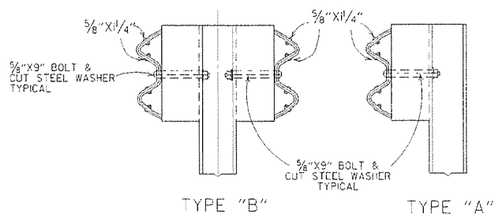
WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



STEEL POST



DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO.1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO.1 1350 f SOUTHERN PINE.

CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.

POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - ¼".

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

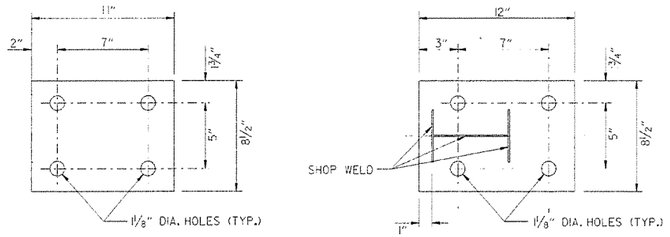
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
1-12-00	ADDED PLASTIC BLOCKOUT	
8-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
4-3-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
6-2-94	ADDED ALT. STEEL POST SIZE	
8-5-93	REVISED STEEL POST SIZE	8-5-93
10-1-92	REDRAWN & REVISED	10-1-92
8-15-91	REVISED WASHER NOTE	8-15-91
8-2-90	REV. GEN. NOTE & DEPHT OF ANC. POST IN ROCK	8-2-90
7-15-88	REVISED SECTION 3 & GENERAL NOTES	
3-4-88	REV. ANCHOR POST, ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-9-87	REDRAWN & REVISED	802-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

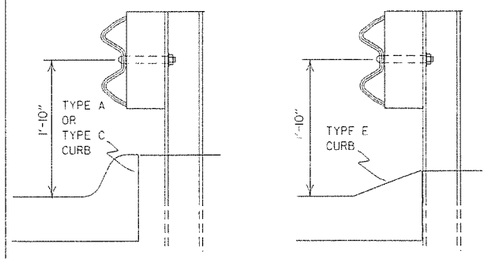
GUARD RAIL DETAILS

STANDARD DRAWING GR-8



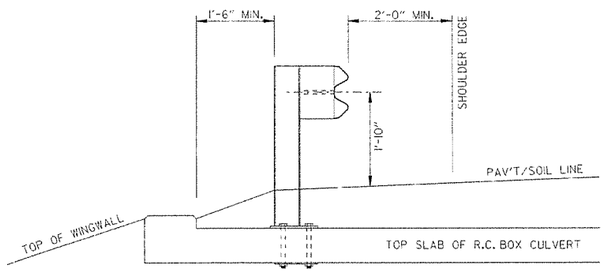
WASHER PLATE BASE PLATE

Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.

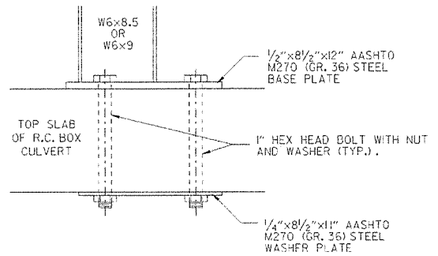


DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

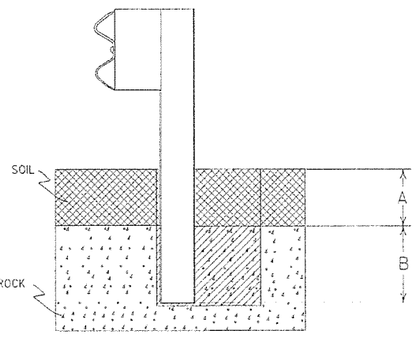
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.

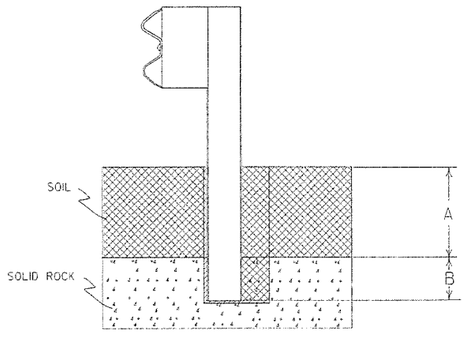


SECTION A-A



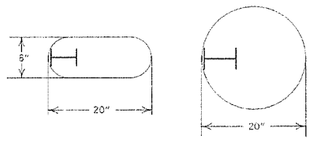
DETAIL OF CONNECTION

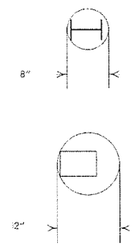




Plan View Steel Posts

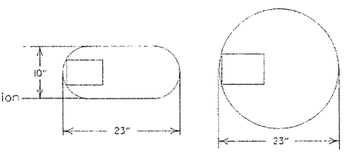
Either hole configuration acceptable





Plan View Wood Posts

Either hole configuration acceptable



Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

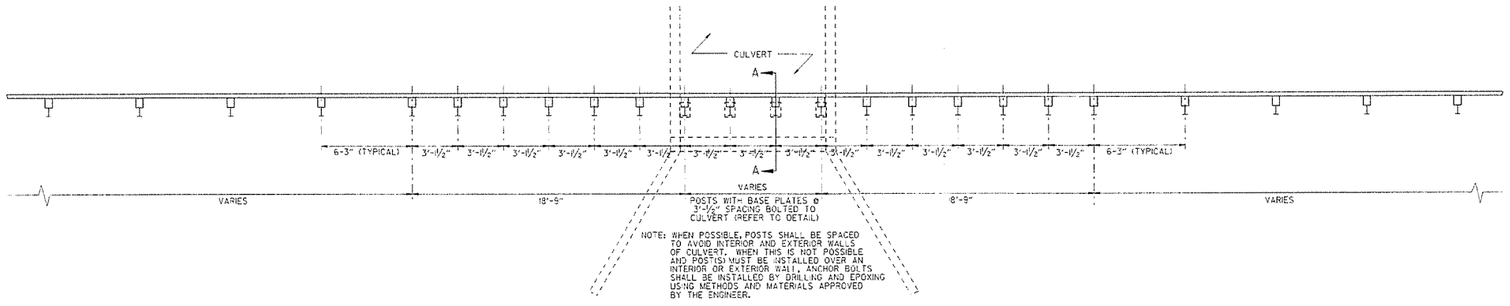
Zone A:
Backfill according to Section 617.03(a).

Zone B:
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.

Notes: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

Zone A & B:
Backfill according to Section 617.03(a).

DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)



PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DWG. GR-8.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
4-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS	
3-30-00	REMOVED CONCRETE INSERT ANCHOR	
8-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADD. DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULV'T. DELETED DET. OF STEEL LINE POST CONN.& ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK	
4-3-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
6-2-94	REVISED ALTERNATE POST SIZE	
8-5-93	REVISED STEEL POST SIZE	
10-1-92	REDRAWN & REVISED	10-1-92
8-2-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
7-15-88	CONFORMED TO 1988 SPECS	
3-4-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-9-87	REDRAWN & REVISED	803-10-9-87

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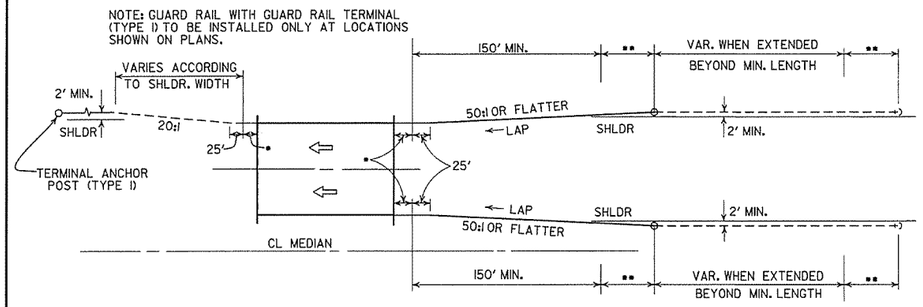
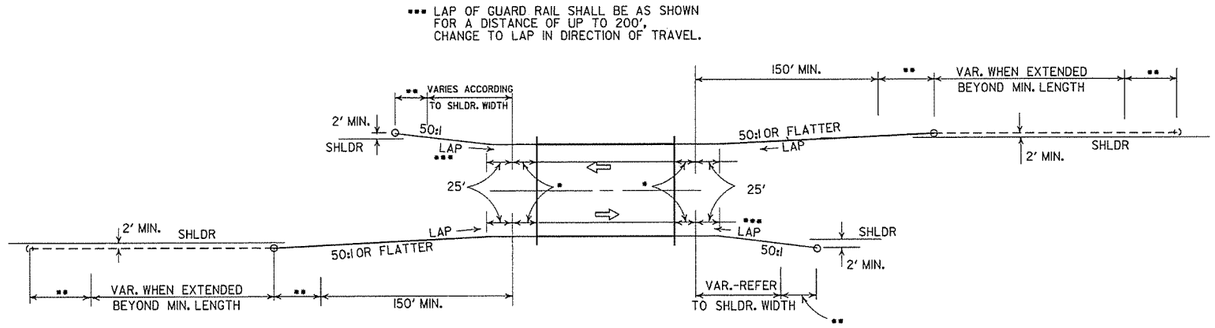
GUARD RAIL DETAILS

STANDARD DRAWING GR-8A



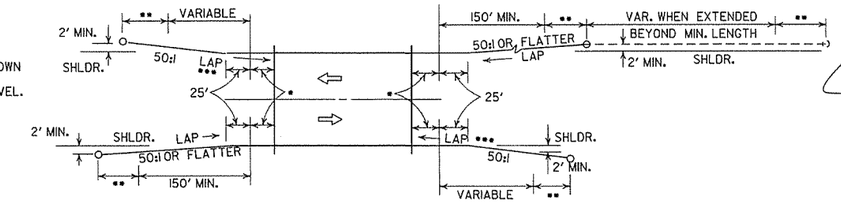
ONE-WAY TRAFFIC



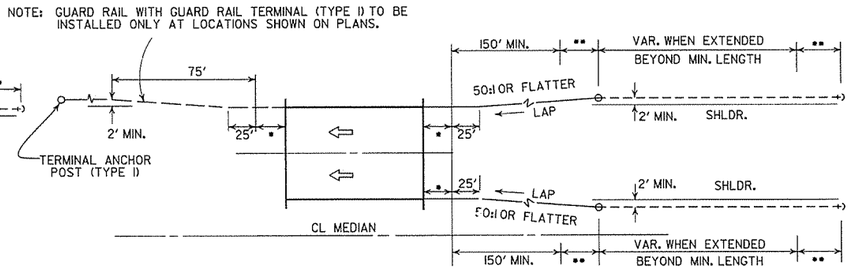
TWO-WAY TRAFFIC

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

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



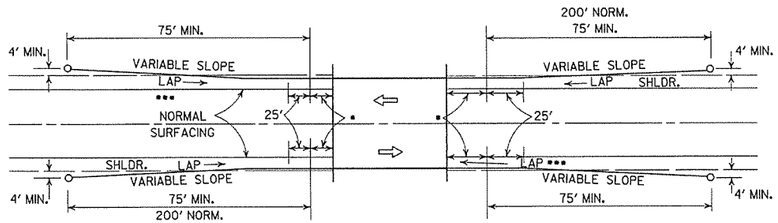
TWO-WAY TRAFFIC



ONE-WAY TRAFFIC

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

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

LEGEND

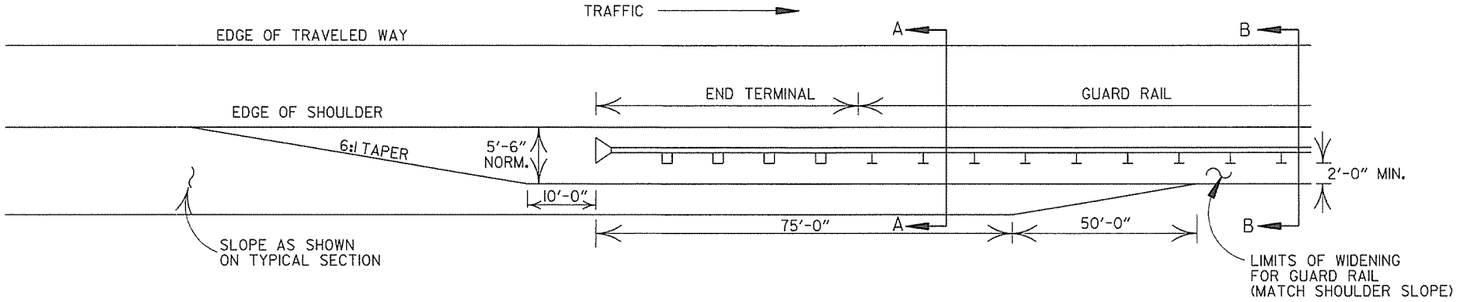
- • THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

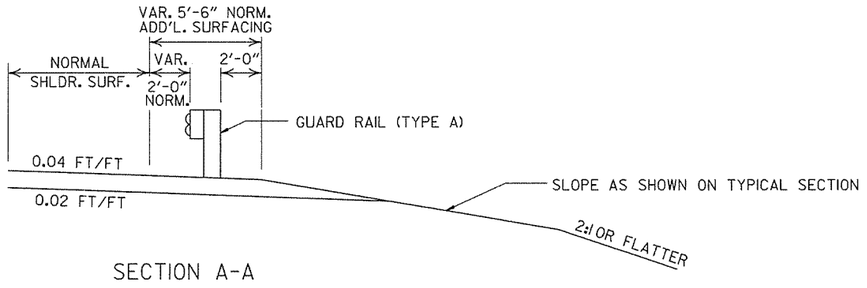
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87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

ARKANSAS STATE HIGHWAY COMMISSION

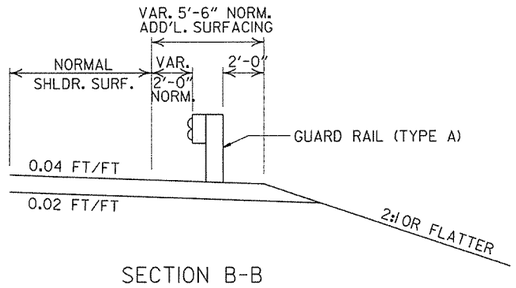
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





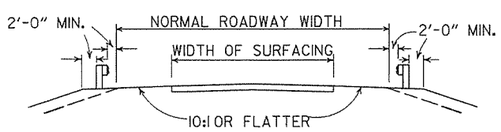
SECTION A-A



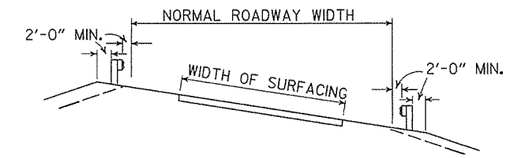
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.

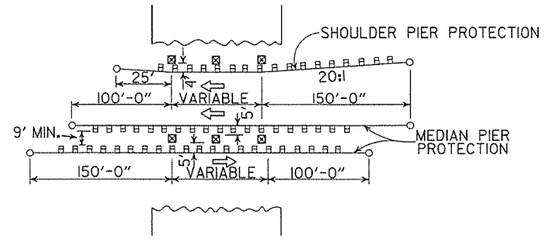


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



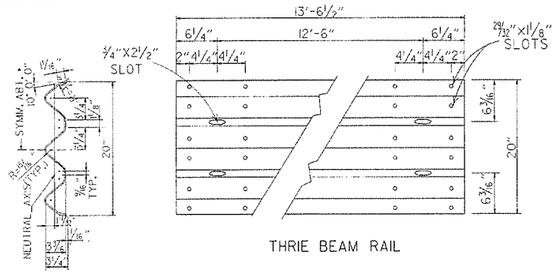
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

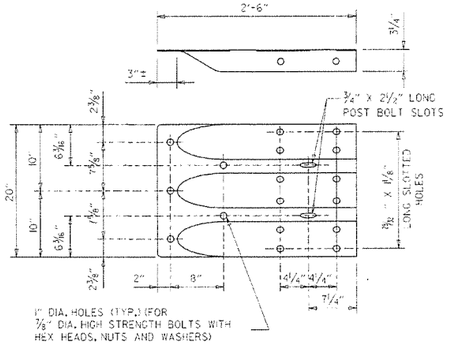
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A

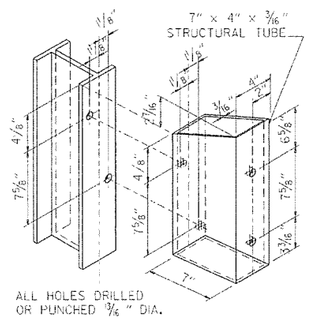


THRIE BEAM RAIL

SECTION THRU
THRIE BEAM RAIL

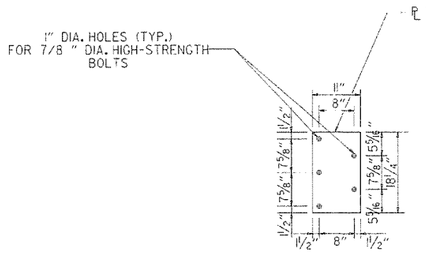


SPECIAL END SHOE



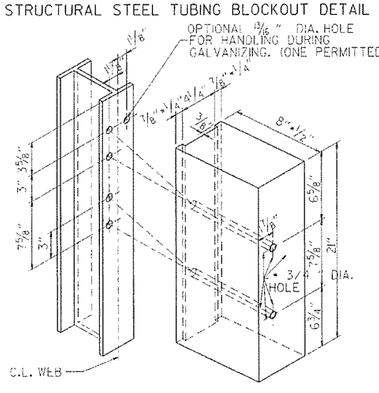
ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.

STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



CONNECTOR PLATE

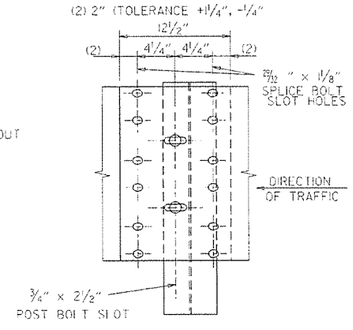
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



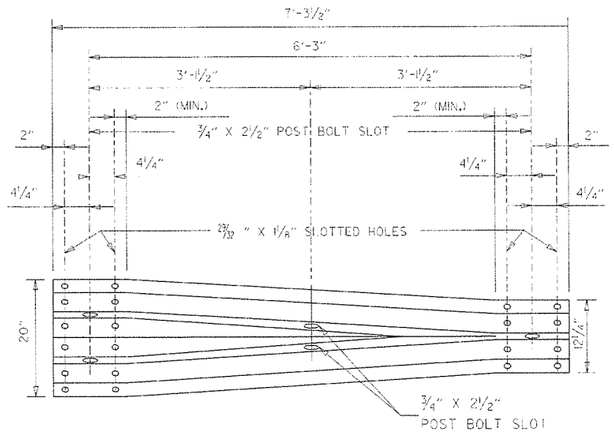
ALL HOLES 15/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL
FOR STEEL POST & WOOD
OR PLASTIC BLOCKOUTS

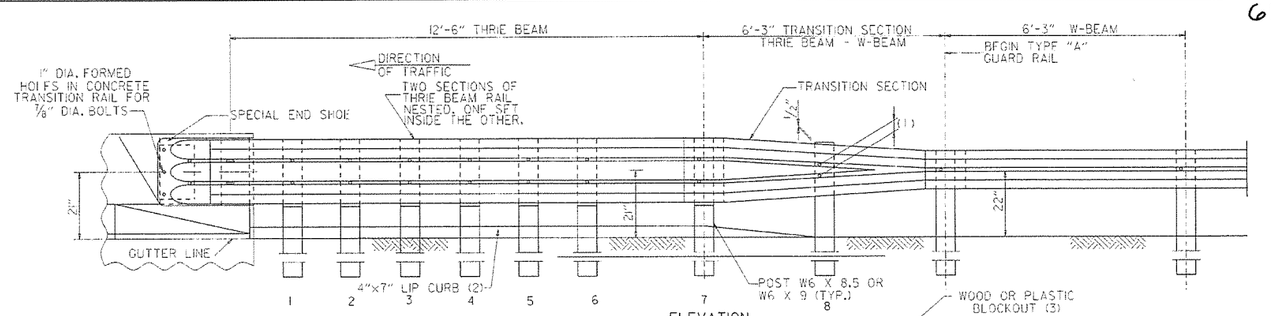
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



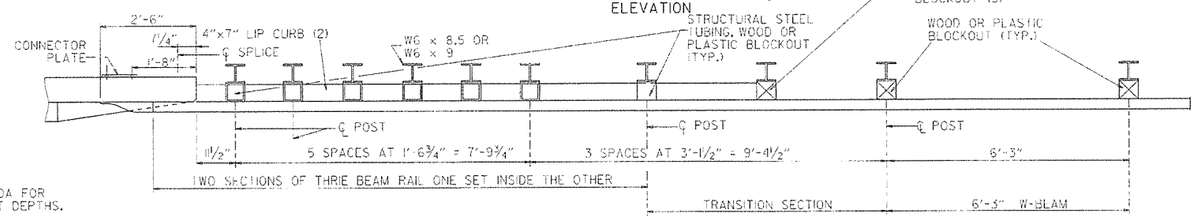
THRIE BEAM RAIL
SPLICE AT POST



TRANSITION SECTION

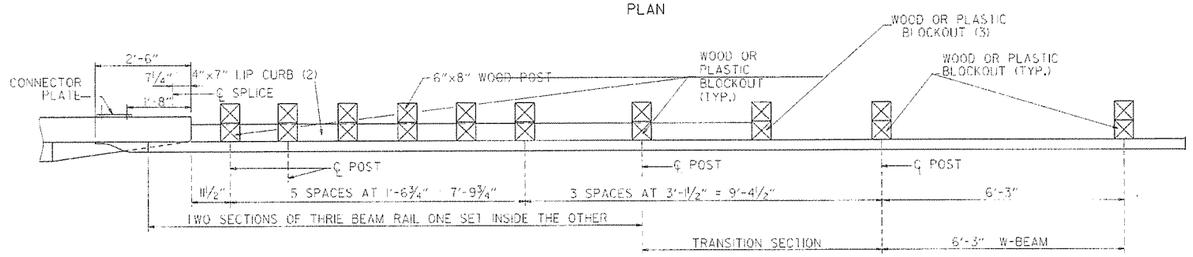


ELEVATION



PLAN

NOTE:
SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.



PLAN

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

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE I.

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-11.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 #) OR NO. 1 1350 f SOUTHERN PINE.

REFER TO STD. DRWG. GR-10A FOR POST DETAILS.

USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

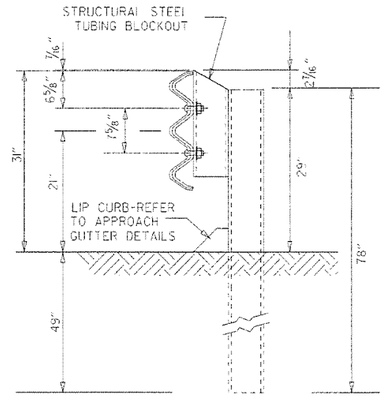
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W BEAM POSTS FOR ENTIRE JOB.

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

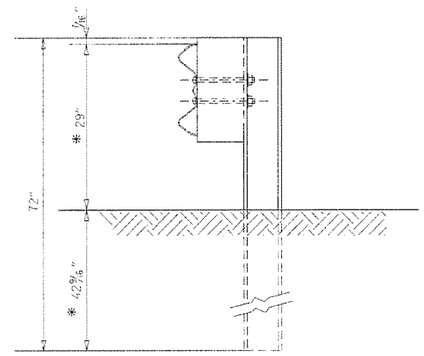
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

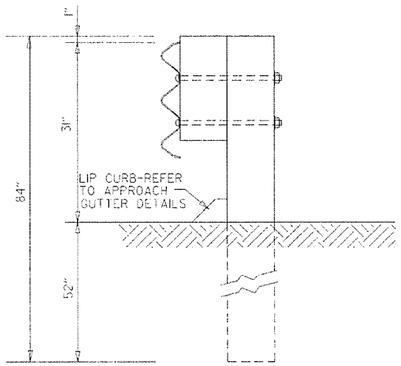


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

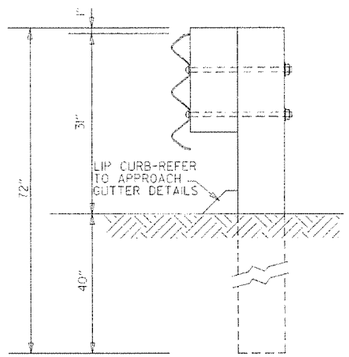


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

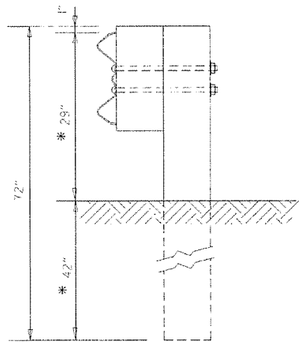
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



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



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



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

GENERAL NOTES:

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

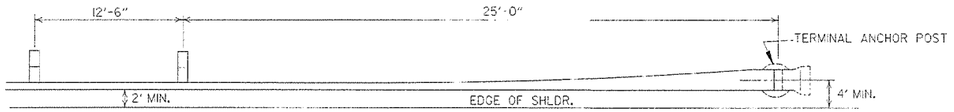
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO.1 1350 f SOUTHERN PINE.

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

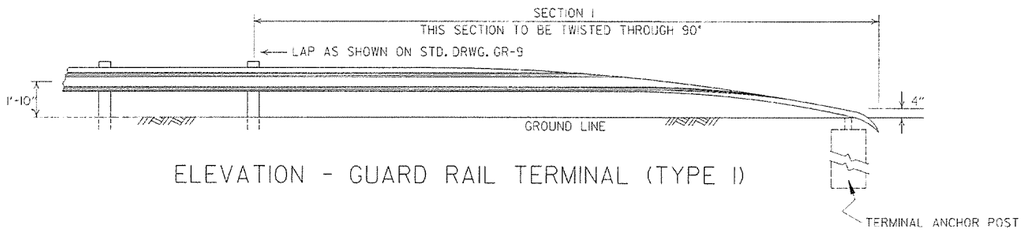
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

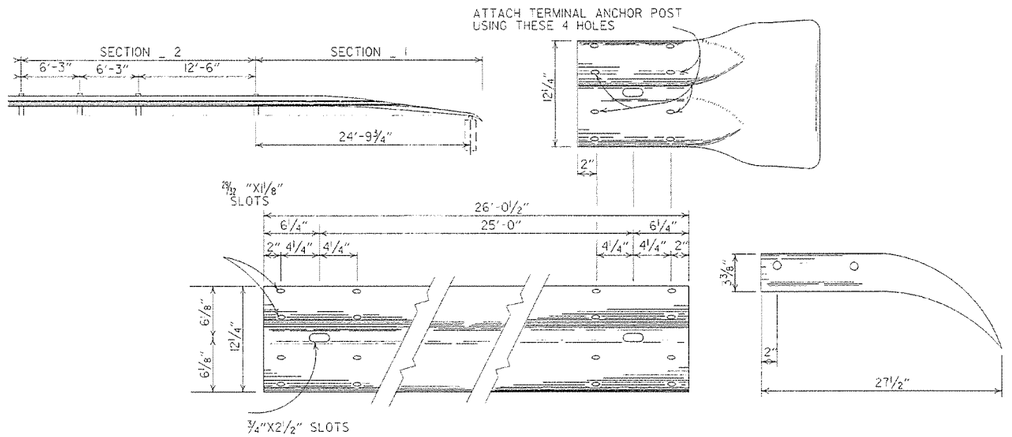


PLAN - GUARD RAIL TERMINAL (TYPE I)



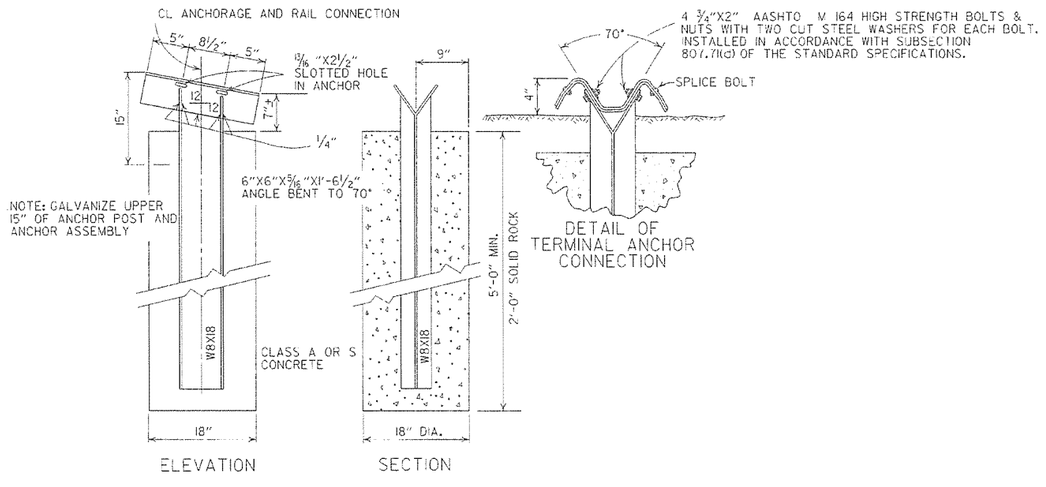
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

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



SECTION 1

TERMINAL SECTION



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

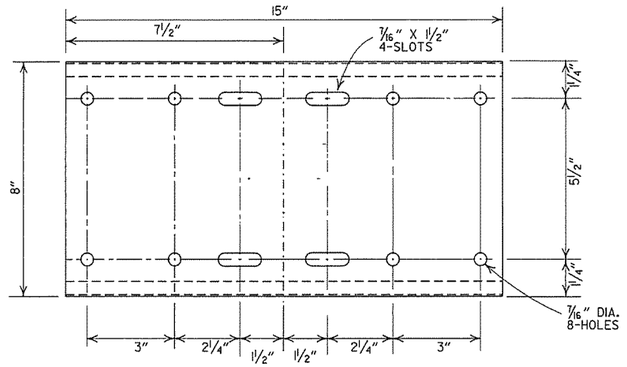
DETAIL OF TERMINAL ANCHOR POST (TYPE I)

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

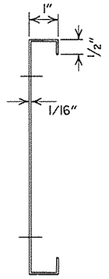
ARKANSAS STATE HIGHWAY COMMISSION

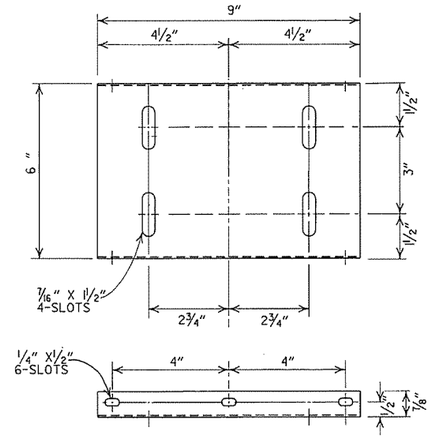
GUARD RAIL DETAILS

STANDARD DRAWING GRT-1

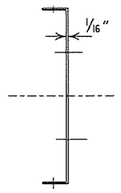


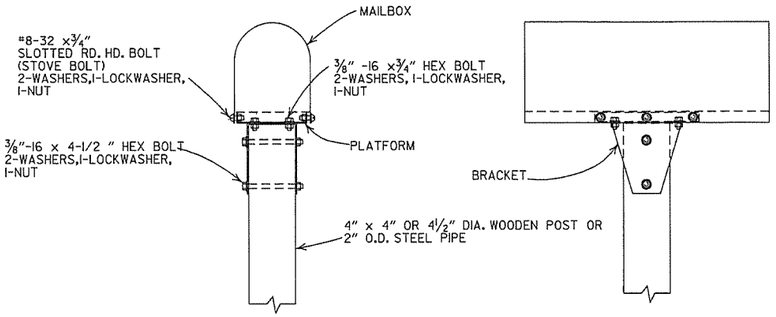
SHELF



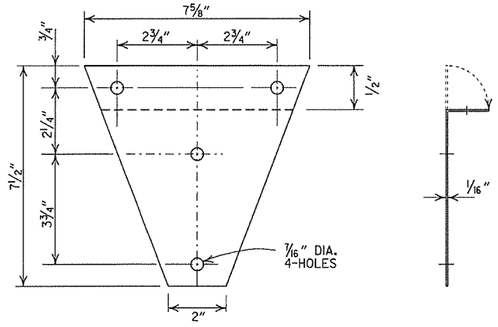


PLATFORM

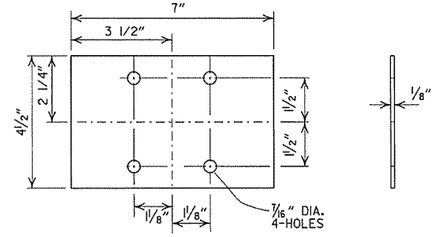




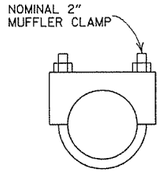
SINGLE INSTALLATION



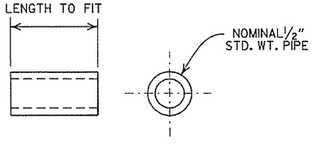
BRACKET



ANTI-TWIST PLATE



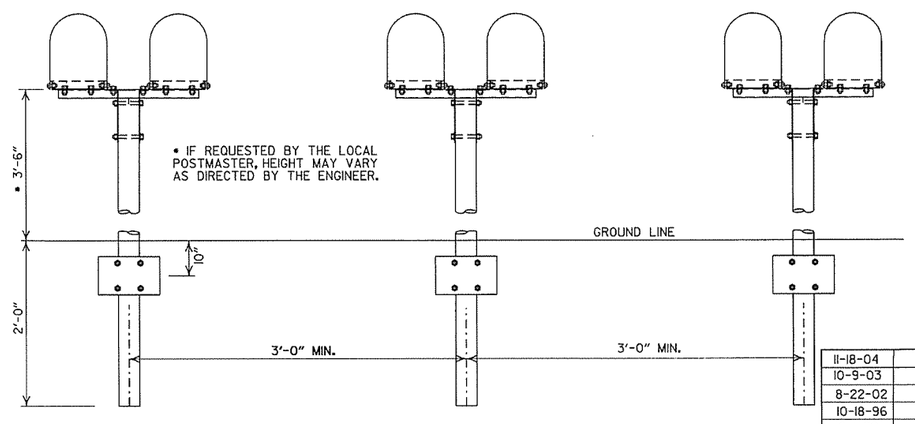
CLAMP



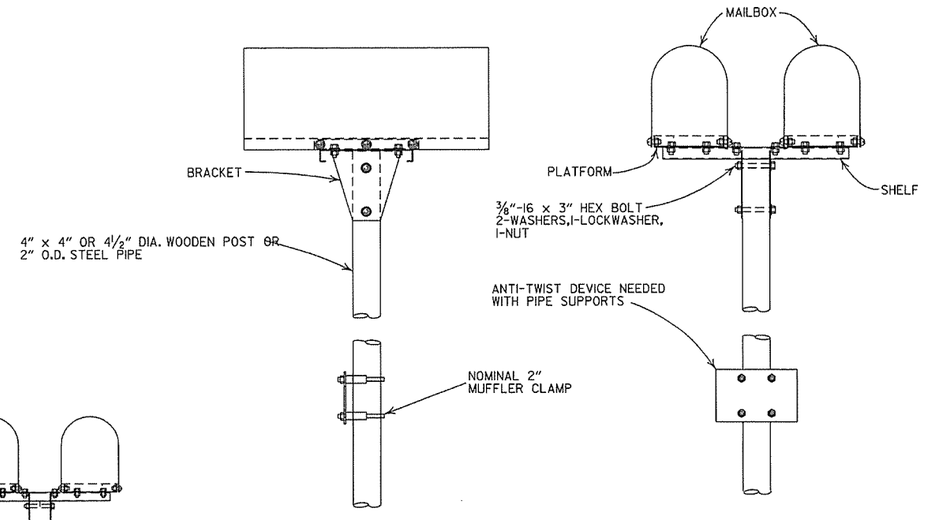
SPACER

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 ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" 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.



SPACING FOR MULTIPLE POST INSTALLATION



DOUBLE INSTALLATION

DATE	FILMED	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	20-7-15-88	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	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31⅜	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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.

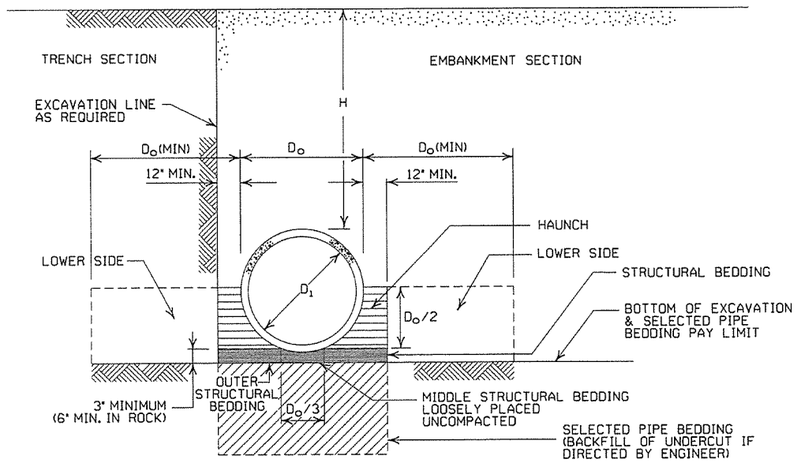
- LEGEND -

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 MINUMUM 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
2⅔ INCH BY ½ 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

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM 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 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
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

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL			ALUMINUM		
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)
				INSTALLATION	INSTALLATION		INSTALLATION	INSTALLATION
				TYPE 1	TYPE 1		TYPE 1	TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED 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	3½	0.079	3	12	0.105	3	12
42	49x33	4	0.079	3	12	0.105	3	12
48	57x38	5	0.109	3	13	0.135	3	13
54	64x43	6	0.109	3	14	0.135	3	14
60	71x47	7	0.138	3	15	0.164	3	15
66	77x52	8	0.168	3	15			
72	83x57	9	0.168	3	15			
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM					
				INSTALLATION	INSTALLATION			
				TYPE 2	TYPE 1	TYPE 2	TYPE 1	
36	40x31	5	0.079	3	2	12	15	
42	46x36	6	0.079	3	2	13	15	
48	53x41	7	0.079	3	2	13	15	
54	60x46	8	0.079	3	2	13	15	
60	66x51	9	0.079	3	2	13	15	
66	73x55	12	0.079	3	2	15	15	
72	81x59	14	0.079	3	2	15	15	
78	87x63	14	0.079	3	2	15	15	
84	95x67	16	0.109	3	2	15	15	
90	103x71	16	0.109	3	2	15	15	
96	112x75	18	0.109	3	2	15	15	
102	117x79	18	0.109	3	2	15	15	
108	128x83	18	0.138	3	2	15	15	

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

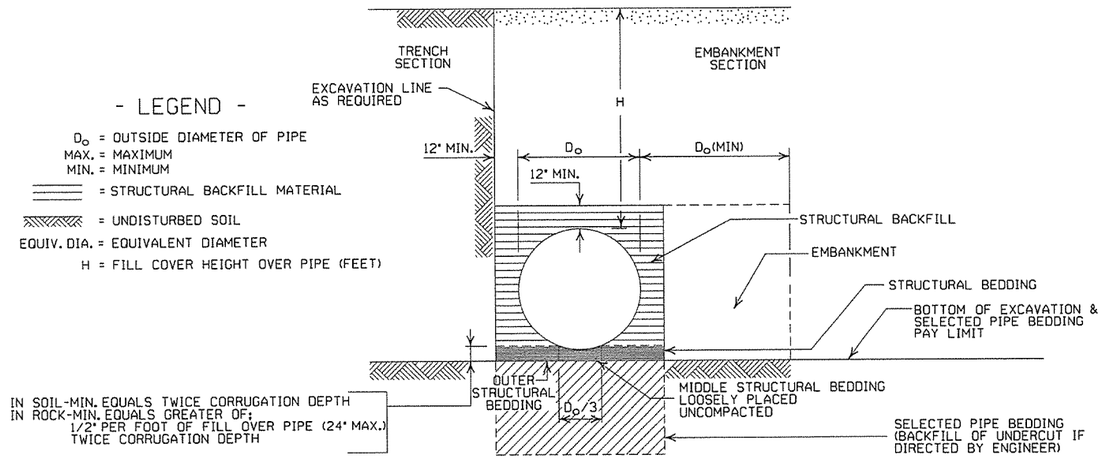
③ SM-3 WILL NOT BE ALLOWED.

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

- LEGEND -

D_o = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM
= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL
EQUIV. DIA. = EQUIVALENT DIAMETER
H = FILL COVER HEIGHT OVER PIPE (FEET)



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" 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."

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

② WHERE THE STANDARD 2 2/3"x ½" 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 1INCH. 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.

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 TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET) "H" < 10'-0"	TRENCH WIDTH (FEET) "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"

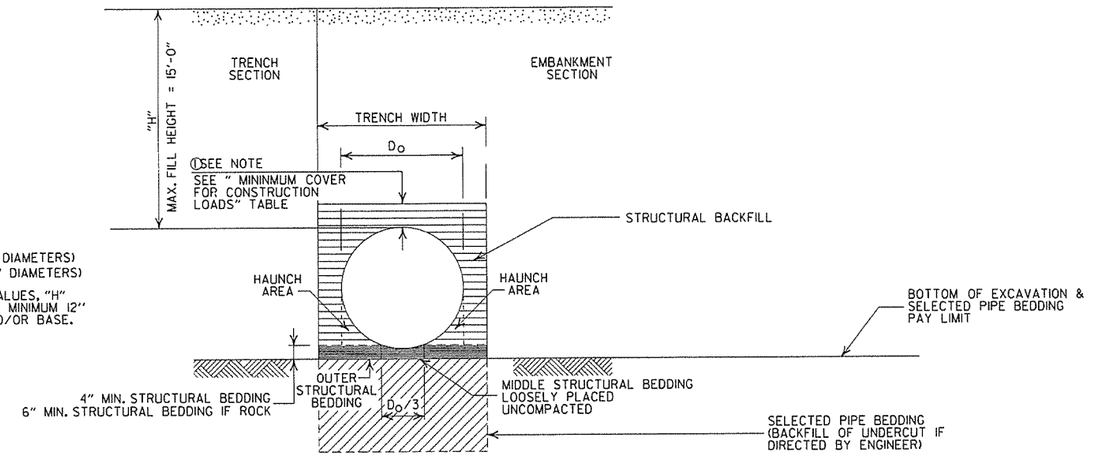
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

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)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. 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 CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS 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.)
Ø = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
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 1INCH. 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.

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"

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

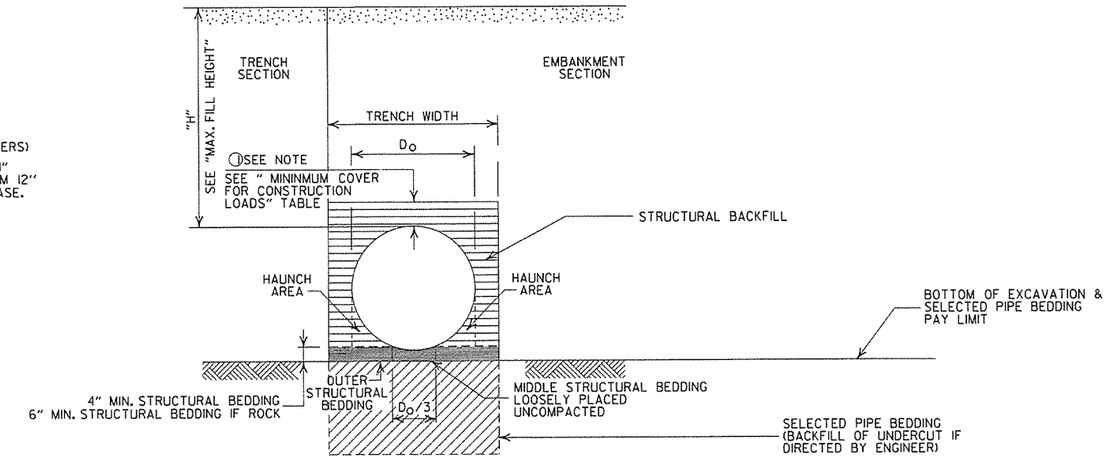
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

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"

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. 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 ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS 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.

- 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 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

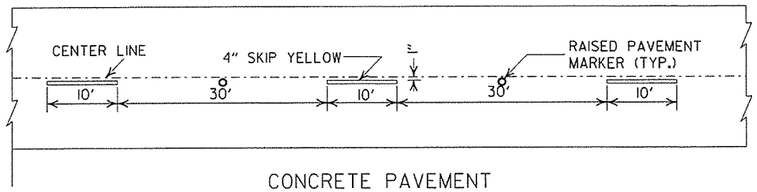
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

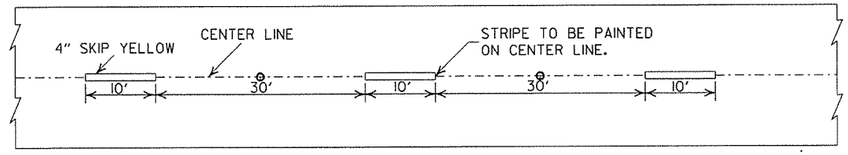
STANDARD DRAWING PCP-2

NOTES:

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

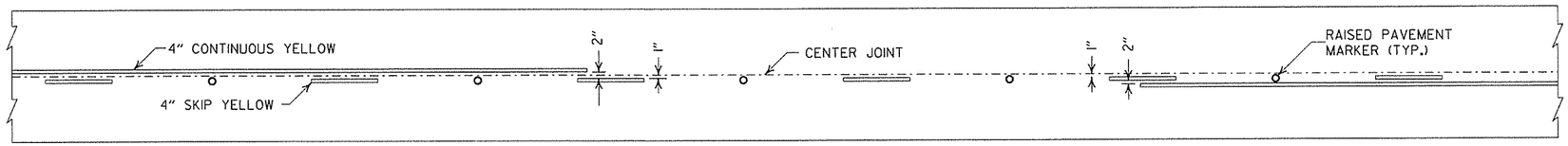


CONCRETE PAVEMENT

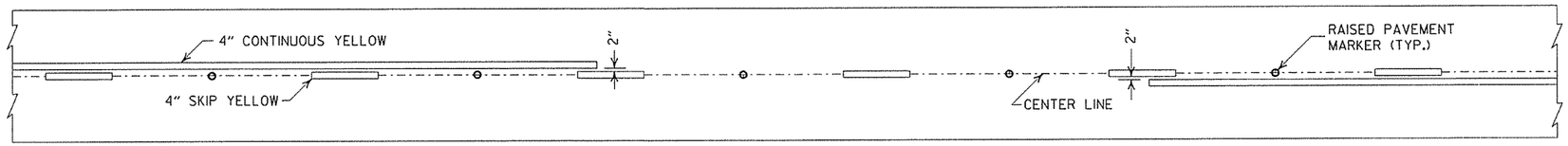


ASPHALT PAVEMENT

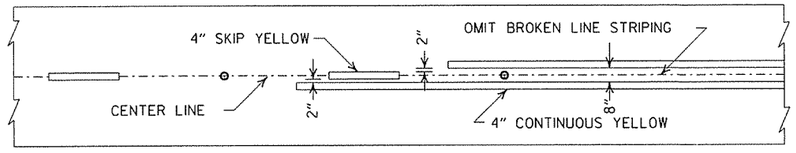
BROKEN LINE STRIPING



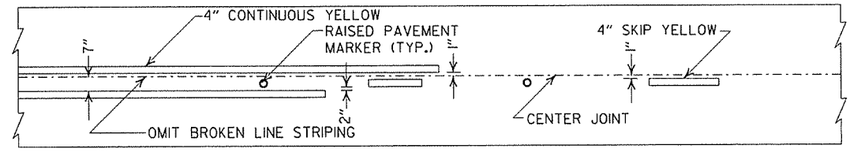
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

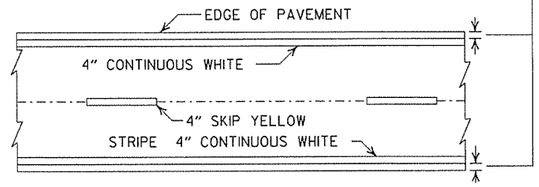


ASPHALT PAVEMENT

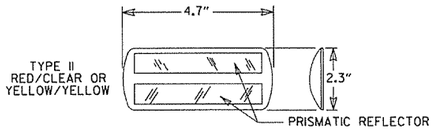


CONCRETE PAVEMENT

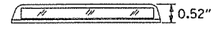
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING



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



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

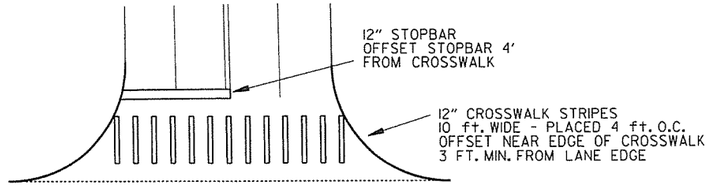
GENERAL NOTES:

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

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

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

STRIPING AT ADJACENT NO PASSING LANES



CROSSWALK AND STOPBAR DETAILS

DATE	REVISION	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80
DATE	REVISION	FILMED

ARKANSAS STATE HIGHWAY COMMISSION

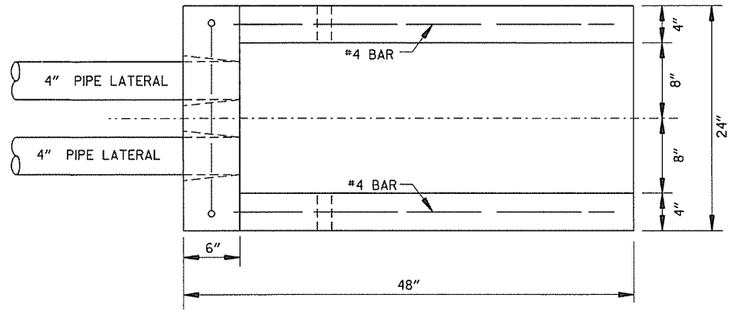
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

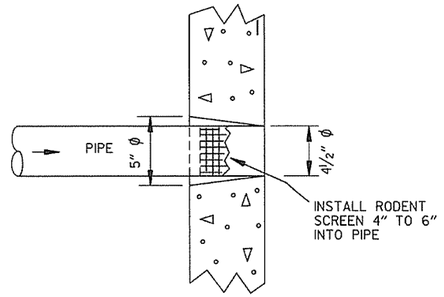
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

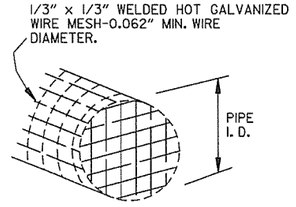
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



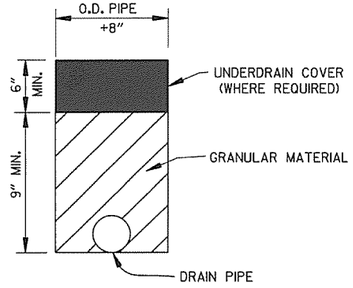
PLAN VIEW

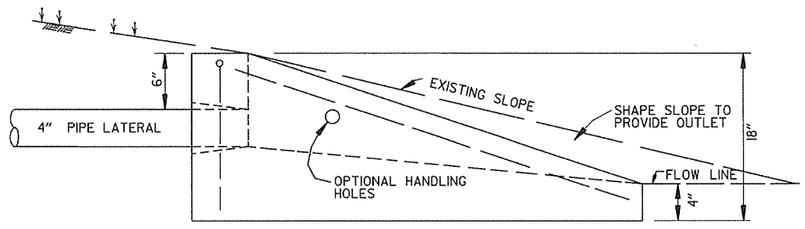


DETAIL OF HOLE FOR 4" PIPE

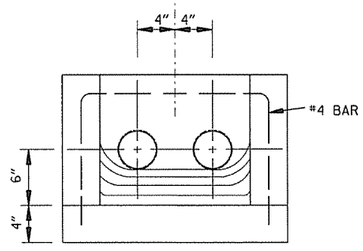


DETAIL OF RODENT SCREEN

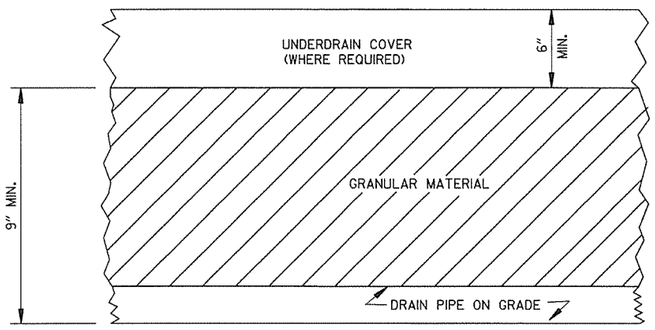




SIDE VIEW

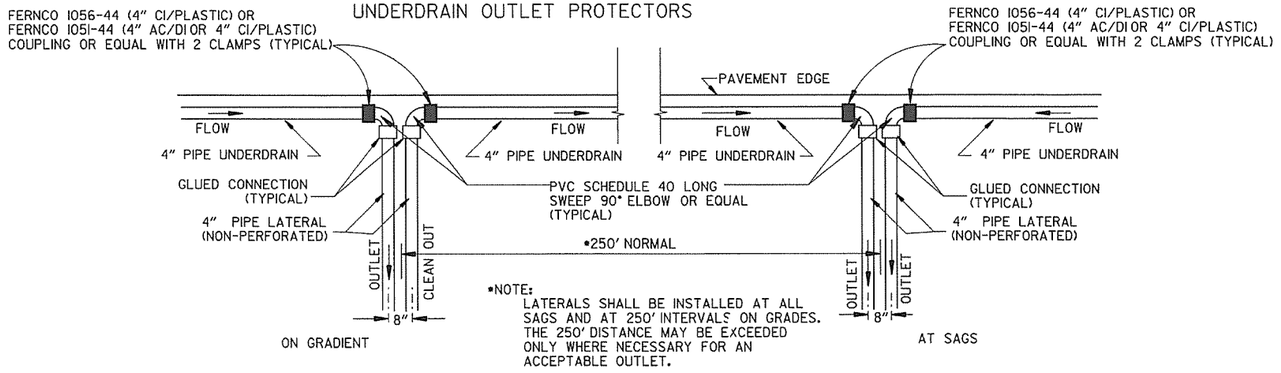


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

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

DATE	REVISION	DATE FILMED
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

7-20-95 INSTD.PUI

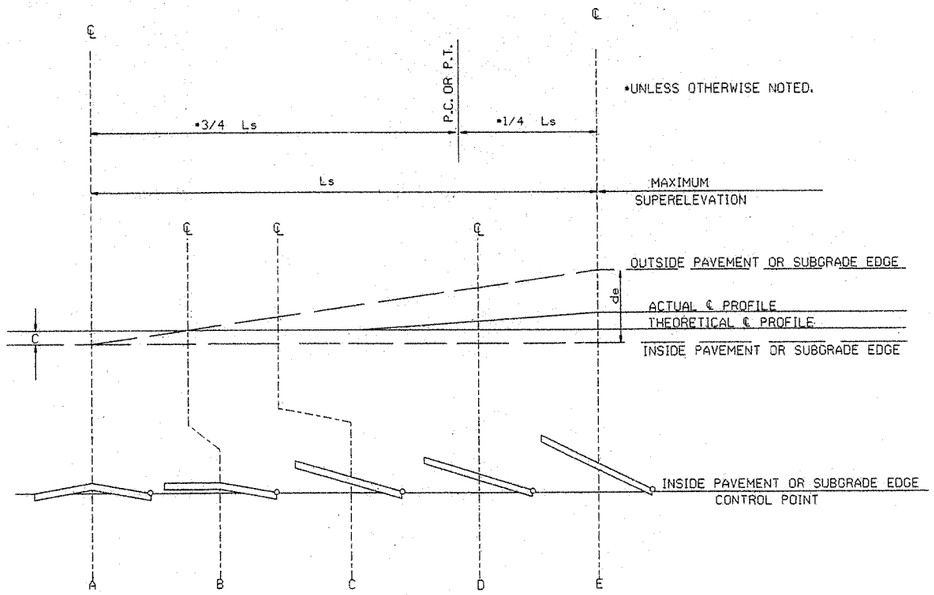
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45′	N.C.			N.C.			R.C.			0.022			0.023			0.028		
1° 00′	N.C.			N.C.			0.021			0.026			0.030			0.037	275	300
1° 15′	N.C.			R.C.			0.026			0.032			0.037			0.046		
1° 30′	N.C.			0.021			0.031	200		0.037	225		0.043	250		0.054		
1° 45′	N.C.			0.025	175		0.036			0.043			0.049			0.062		
2° 00′	R.C.			0.028			0.040			0.048		300	0.055		300	0.070		
2° 15′	R.C.			0.031			0.045		250	0.053			0.061			0.078	300	350
2° 30′	0.021			0.034			0.049			0.058			0.067			0.085	315	
2° 45′	0.023			0.037			0.053			0.063			0.072			0.091	335	
3° 00′	0.025			0.040		200	0.057			0.067	230		0.077	260		0.096	350	400
3° 15′	0.027	150		0.043			0.061			0.072	245		0.082	275		0.098	360	
3° 30′	0.029			0.046			0.065	205		0.076	255		0.086	285		0.100	360	
3° 45′	0.031		200	0.049			0.069	215		0.080	265		0.090	295	350			
4° 00′	0.033			0.051			0.072	225		0.083	270		0.093	305				
4° 30′	0.037			0.056			0.078	240		0.087	280		0.096	315				
5° 00′	0.040			0.061			0.083	250		0.091	295	350	0.098	320				
5° 30′	0.043			0.066	185		0.088	260		0.094	300							
6° 00′	0.046			0.070	190		0.092	270		0.096	305							
6° 30′	0.050			0.074	200		0.095	280	300	0.100	315							
7° 00′	0.053			0.078	210		0.098	285										
7° 30′	0.056			0.081	215		0.099	290										
8° 00′	0.058			0.084	220	250	0.100	290										
8° 30′	0.061			0.087	225													
9° 00′	0.063			0.089	230													
10° 00′	0.068	160		0.094	235													
11° 00′	0.072	170		0.097	250													
12° 00′	0.076	175		0.099	250													
13° 00′	0.080	180		0.100	250													
14° 00′	0.083	190																
15° 00′	0.086	195																
16° 00′	0.089	200																
17° 00′	0.091	200																
18° 00′	0.093	205																
19° 00′	0.095	210																
20° 00′	0.097	215	250															
21° 00′	0.098	215																
22° 00′	0.099	215																
23° 00′	0.099	215																
24° 00′	0.100	220																

D MAX = 24° 45′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 3° 30′

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.)



•UNLESS OTHERWISE NOTED.

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

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

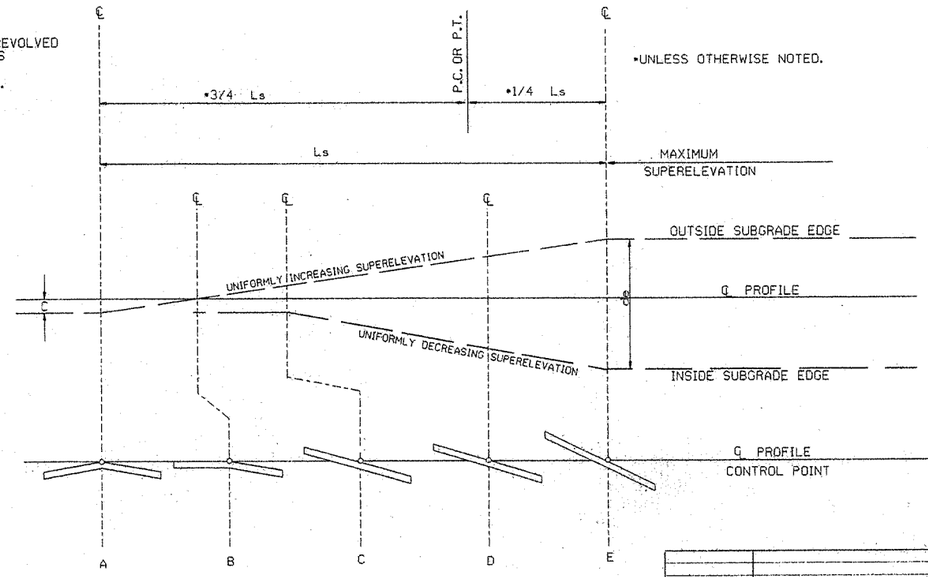
GENERAL NOTES

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.



•UNLESS OTHERWISE NOTED.

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

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

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

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

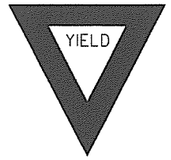
STANDARD DRAWING SE-2

FILE STDSE2.DGN

R1-1

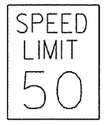
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



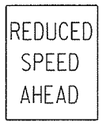
STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5A



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5C

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

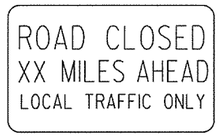
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2

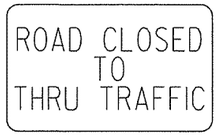
48"X30"

RII-3A



60"X30"

RII-4

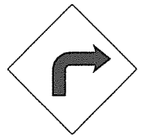


60"X30"

RSP-1

48"X30"

WI-1



STD. 36"X36"
FWY. 48"X48"

WI-2

STD. 36"X36"
FWY. 48"X48"

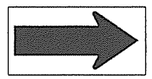
WI-3

STD. 48"X48"

WI-4

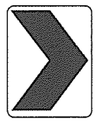
STD. 48"X48"

WI-6



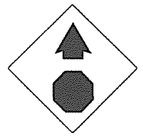
STD. 48"X24"
SPECIAL 60"X30"

WI-8



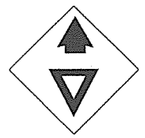
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



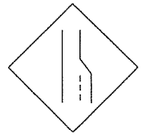
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2

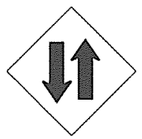


STD. 36"X36"
FWY. 48"X48"

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3



EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

EXPWY. 36"X36"
FWY. 48"X48"

W9-2

STD. 36"X36"
FWY. 48"X48"

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

STD. 36"X36"
FWY. 48"X48"

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

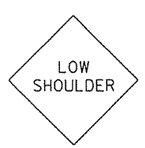
R56-1

STD. 18"X18"

W8-11

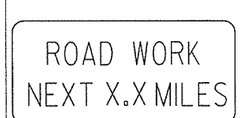
STD. 36"X36"
FWY. 48"X48"

W8-9



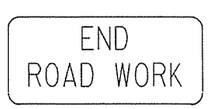
STD. 36"X36"
FWY. 48"X48"

G20-1



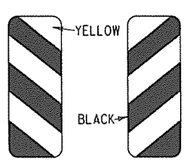
60"X24"

G20-2



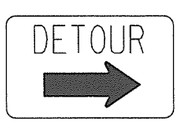
48"X24"

OM-3L OM-3R



12"X36"

M4-9



STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1

FINES DOUBLE
IN WORK ZONES *

WHEN WORKERS
ARE PRESENT **

36"X60"

* USE 6" C LETTERS
** USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

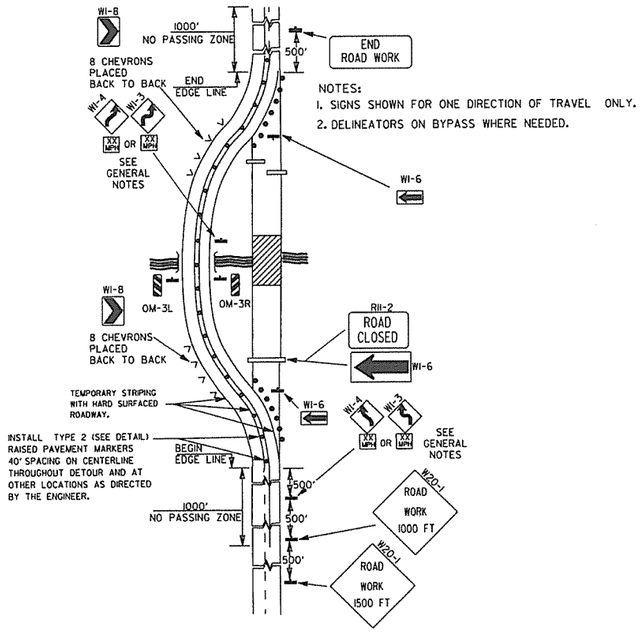
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

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

ARKANSAS STATE HIGHWAY COMMISSION

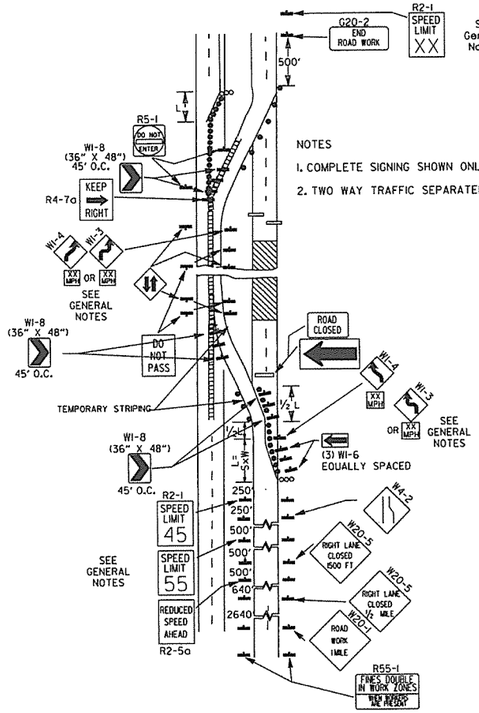
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



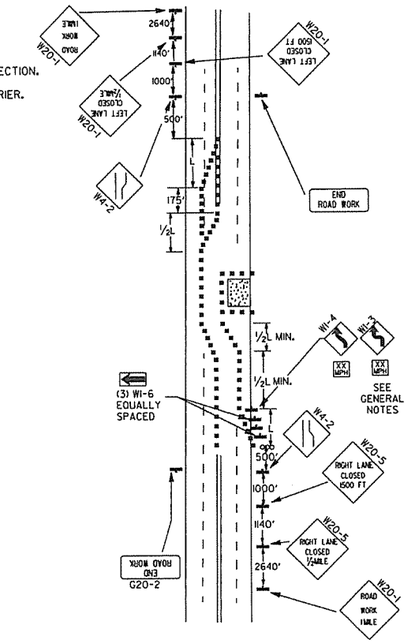
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

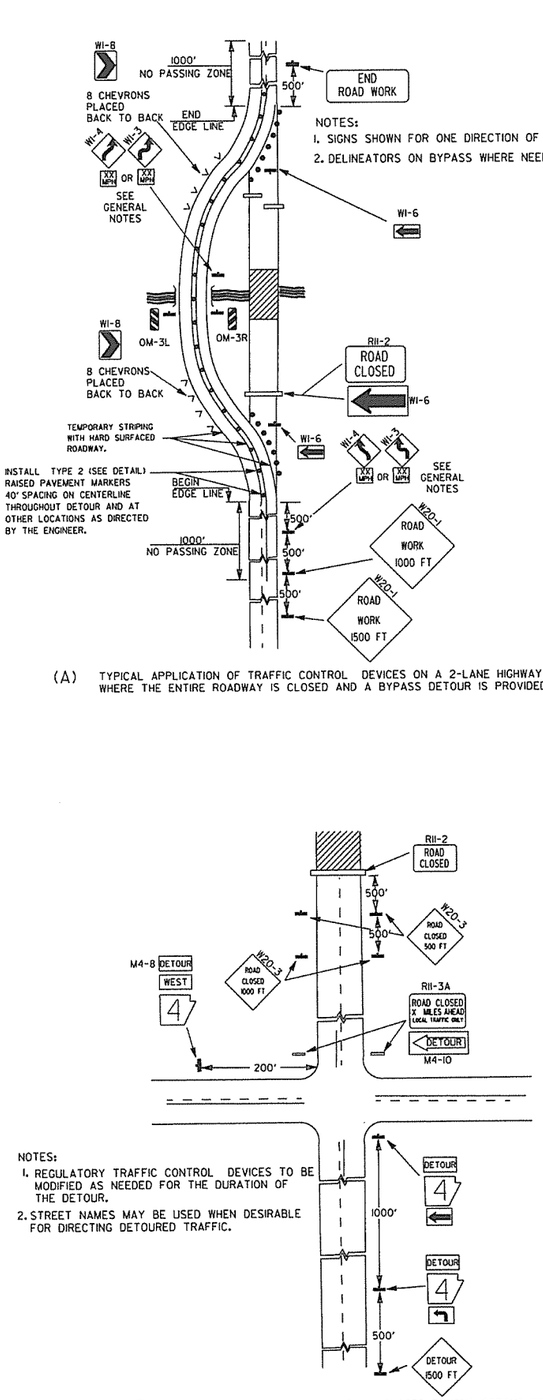


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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

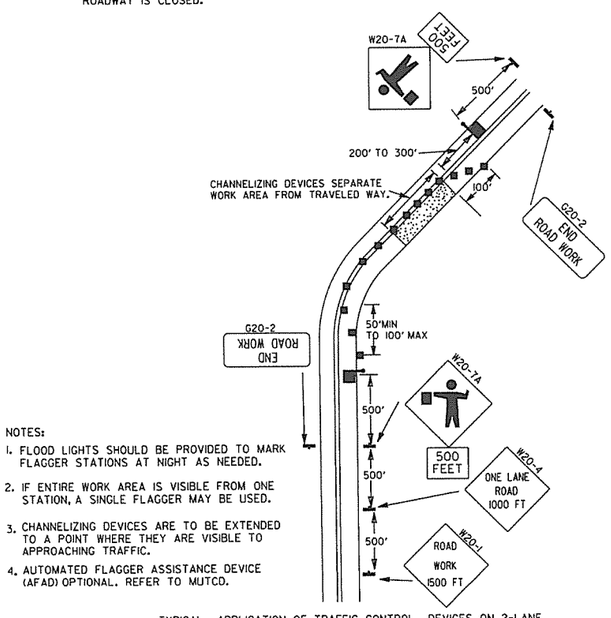


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



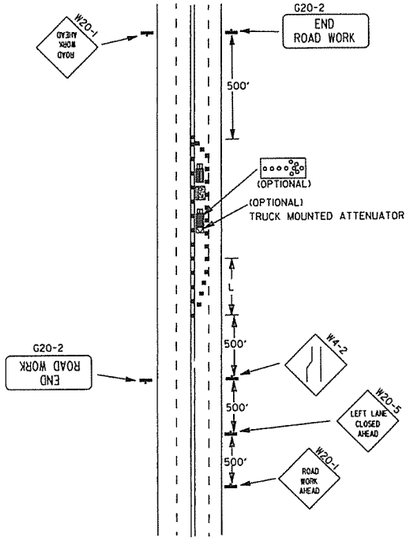
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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

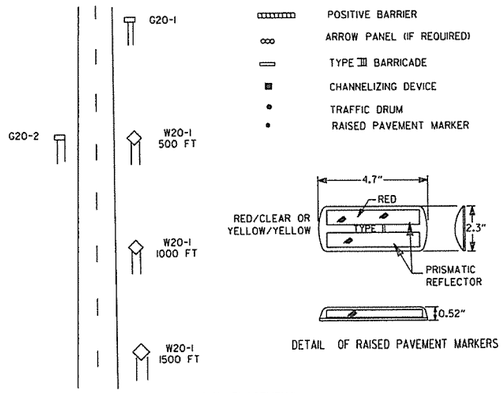


NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

(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.



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

GENERAL NOTES:

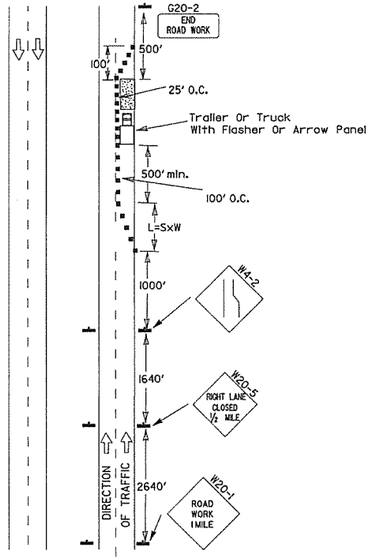
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE R2-5A SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.

DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-8-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

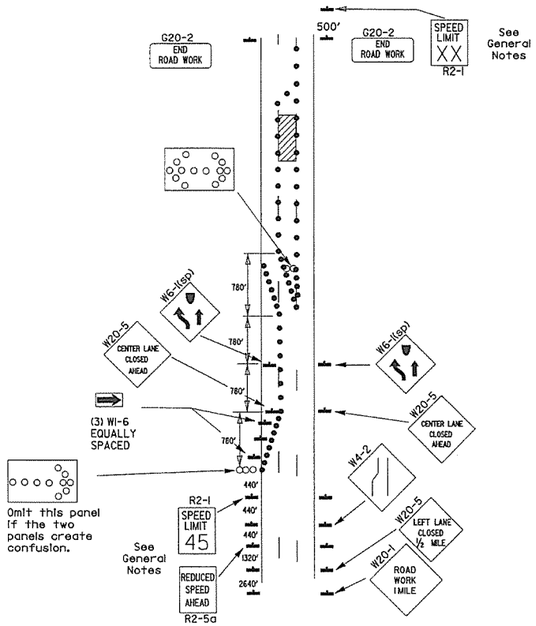
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

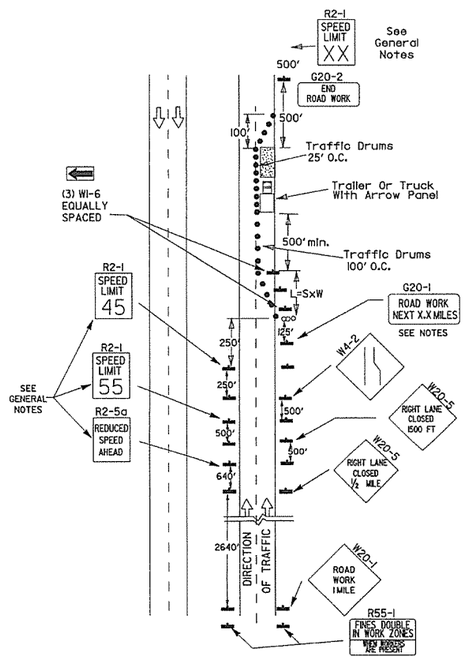
STANDARD DRAWING TC-2



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



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



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

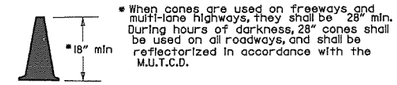
KEY:

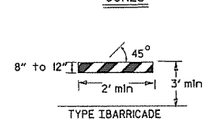
- ○○○ Arrow Panel (If Required)
- ■ Channelizing Device
- ● Traffic drum

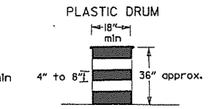
GENERAL NOTES:

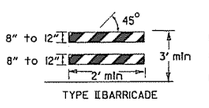
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional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

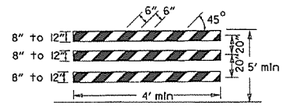
Channelizing devices



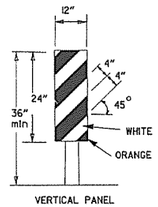








NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



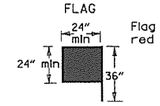
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

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

* When shown on the plans concrete barrier will be used.

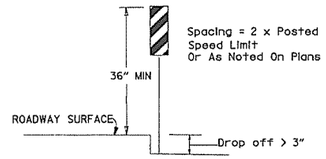
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

FLAG

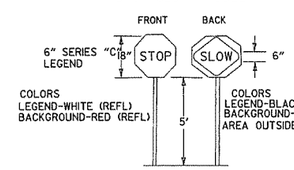


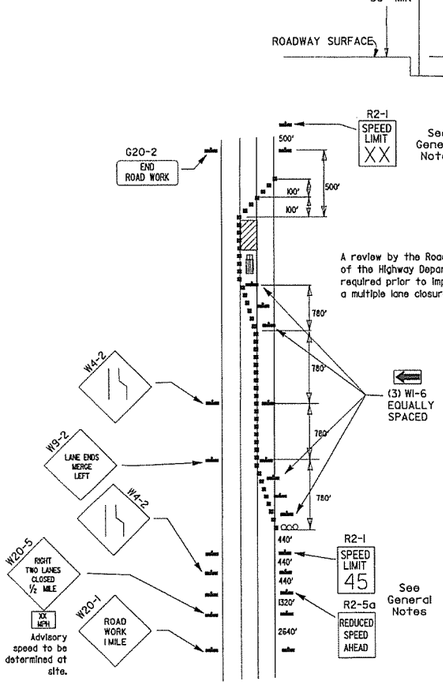
Flag shall be of good grade red material

VERTICAL PANEL PLACEMENT



STOP SLOW PADDLE





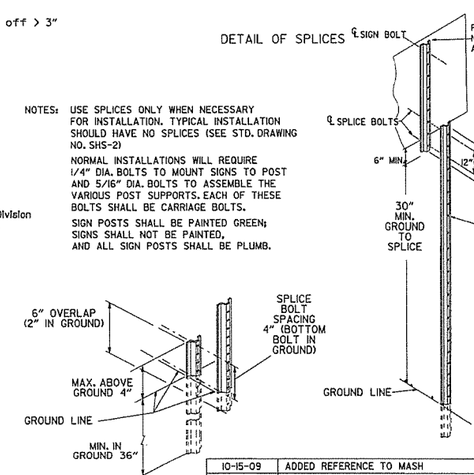
(D) Typical application - closing multiple lanes of a multilane highway.

DETAIL OF SPLICES

NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



DATE	REVISION	FILMED
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	

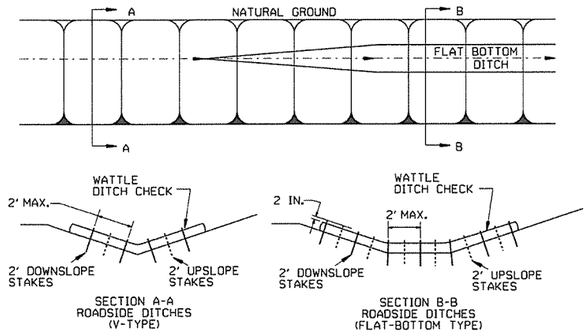
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

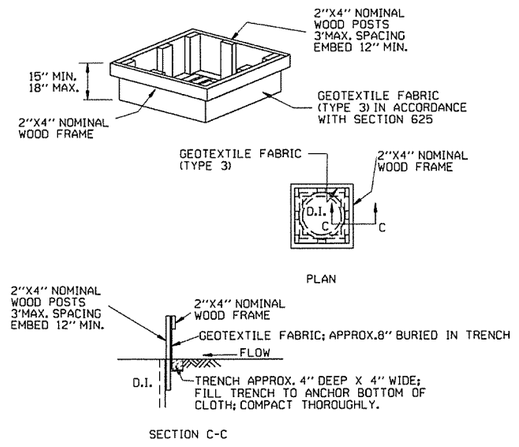
STANDARD DRAWING TC-3

GENERAL NOTES

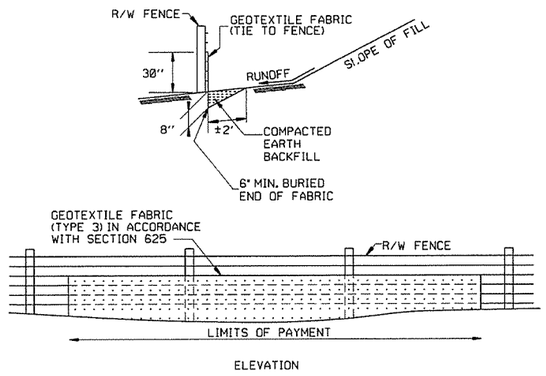
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



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

GENERAL NOTES

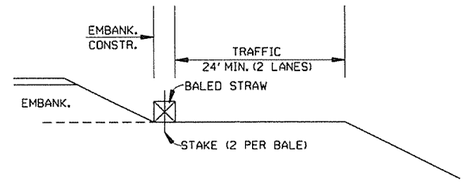
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

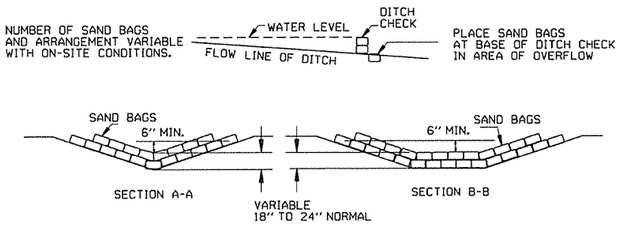
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

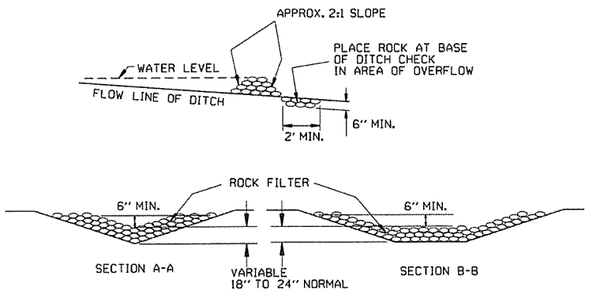
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



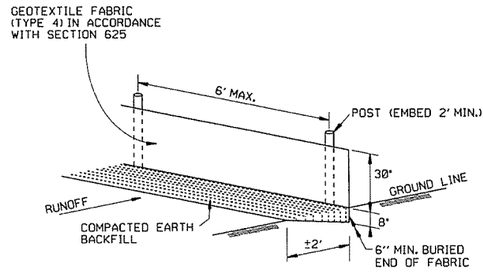
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

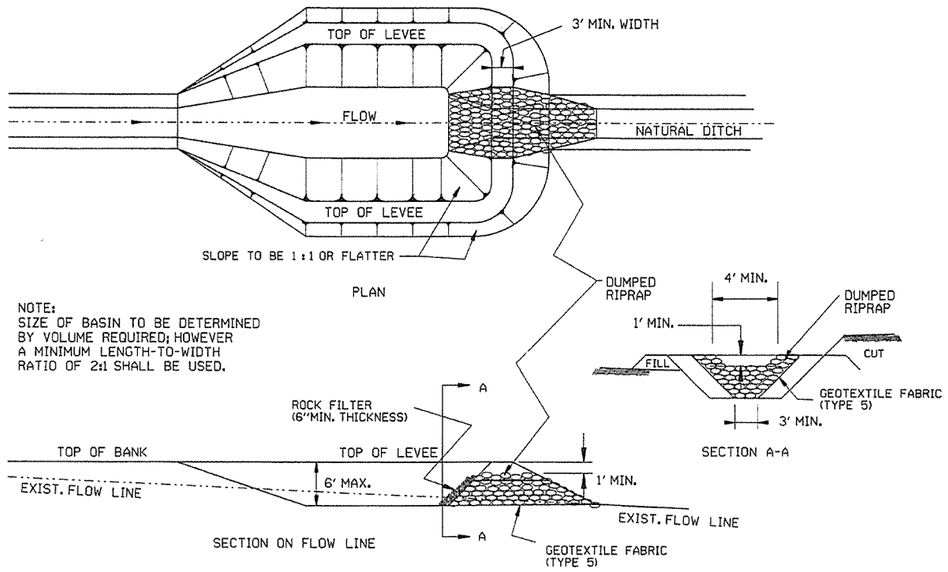
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

DATE	REVISION	FILMED
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
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

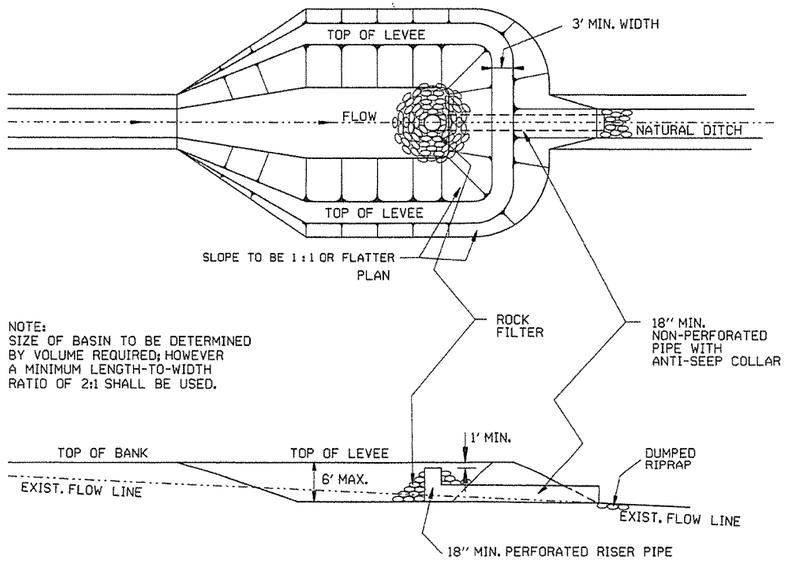
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

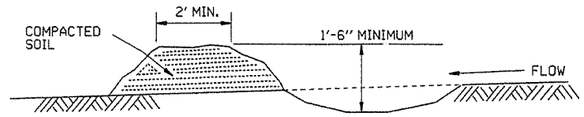
STANDARD DRAWING TEC-1



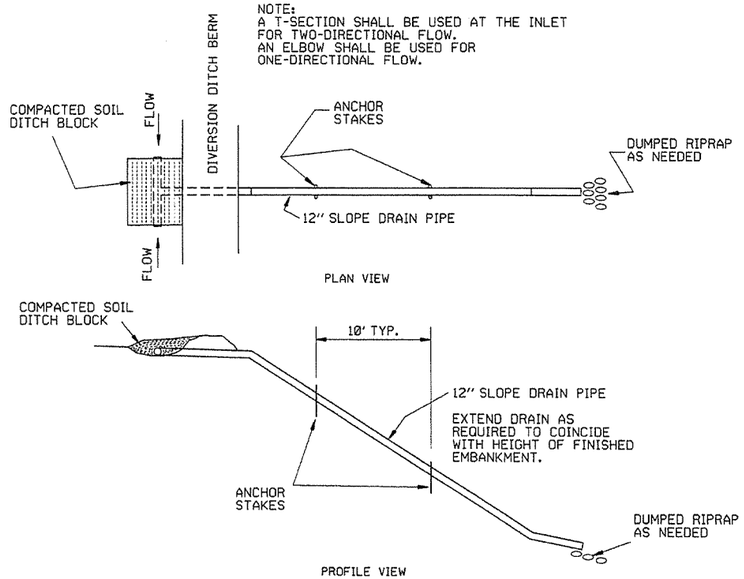
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



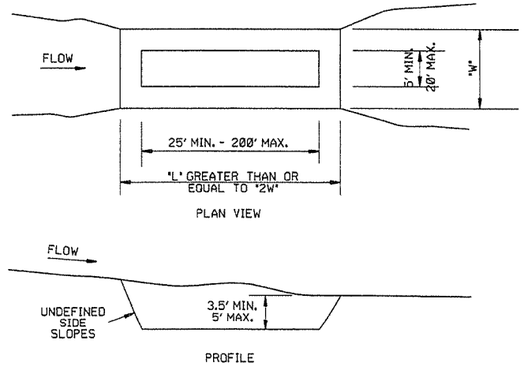
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

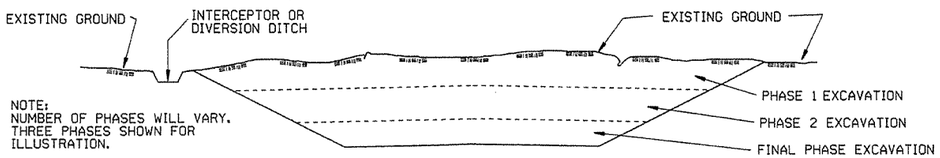
STANDARD DRAWING TEC-2

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



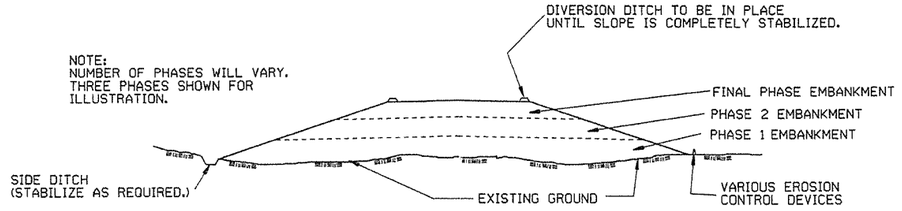
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

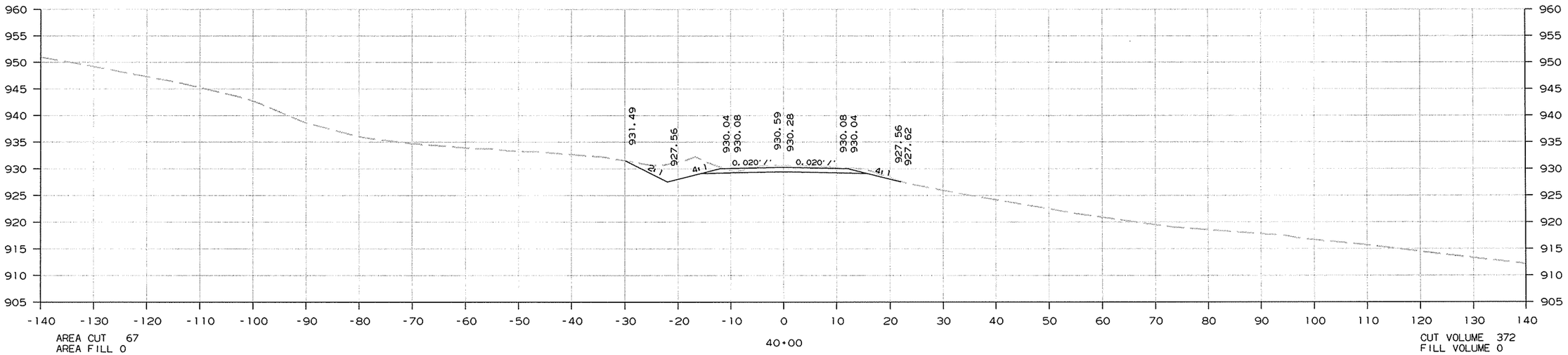
ARKANSAS STATE HIGHWAY COMMISSION

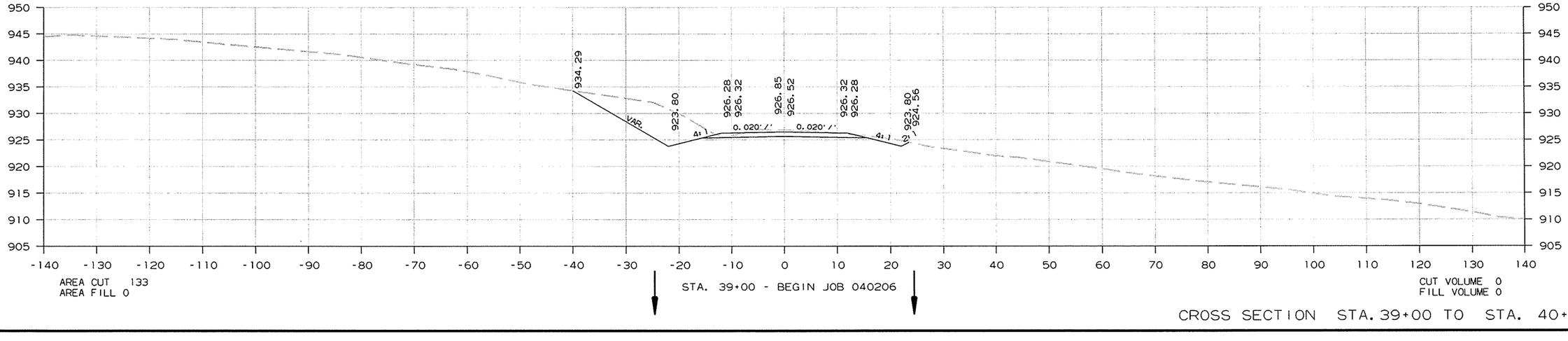
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

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.		040206	78	215

(2) CROSS SECTIONS





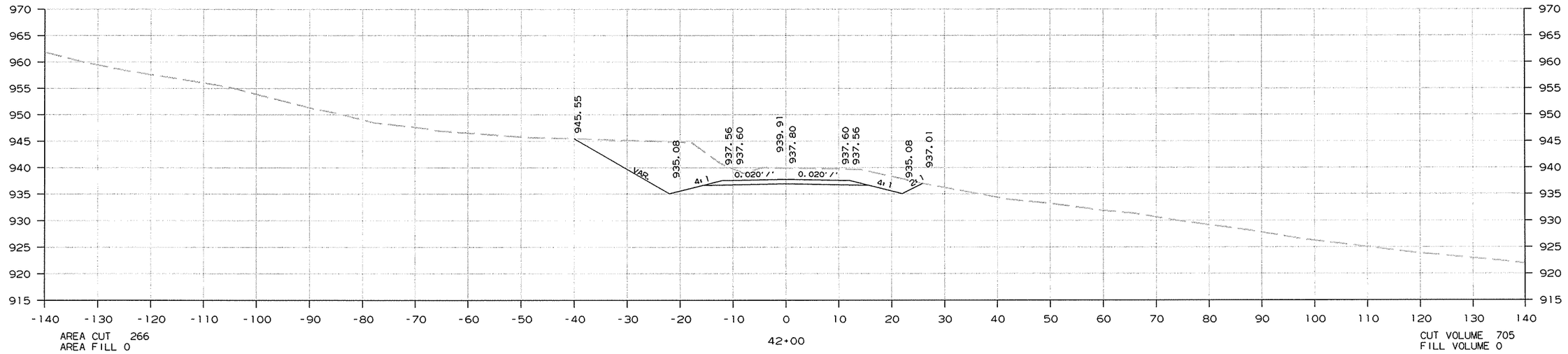
CROSS SECTION STA. 39+00 TO STA. 40+00

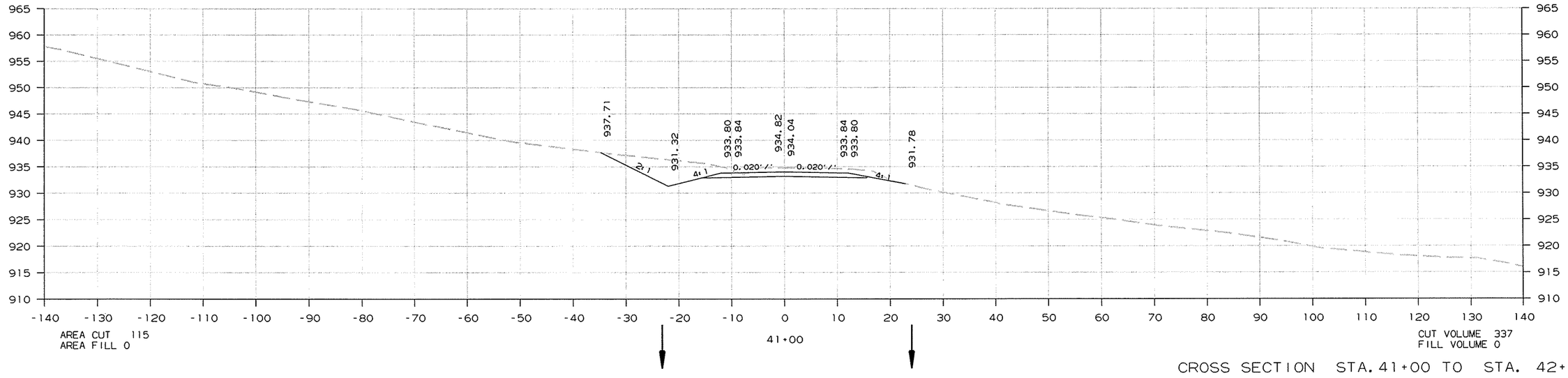
11/8/2011

ZBORDER.CEL

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.		040206	79	215

(2) CROSS SECTIONS





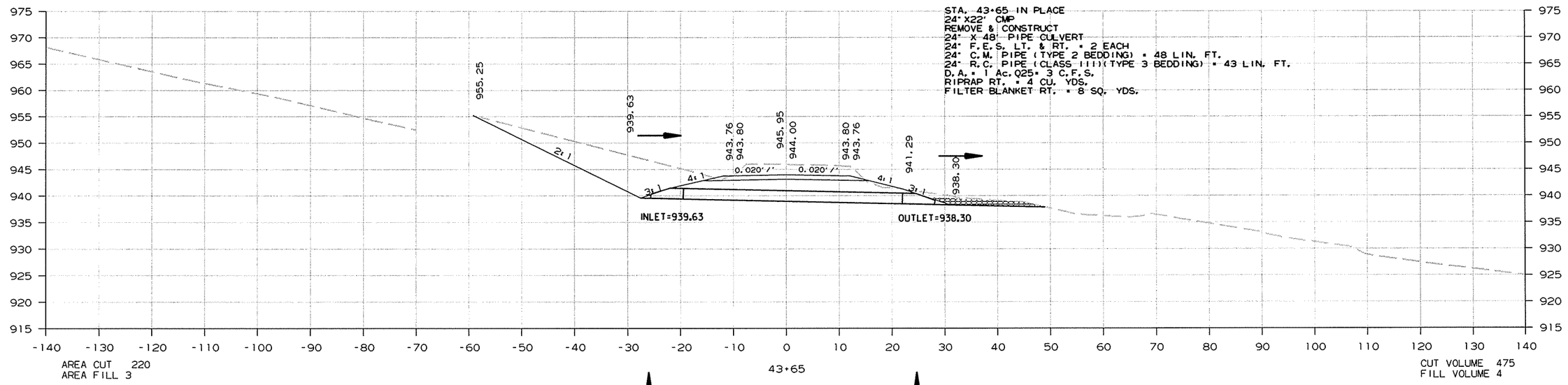
CROSS SECTION STA. 41+00 TO STA. 42+00

11/8/2011

ZBORDER.CEL

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.		040206	80	215

(2) CROSS SECTIONS



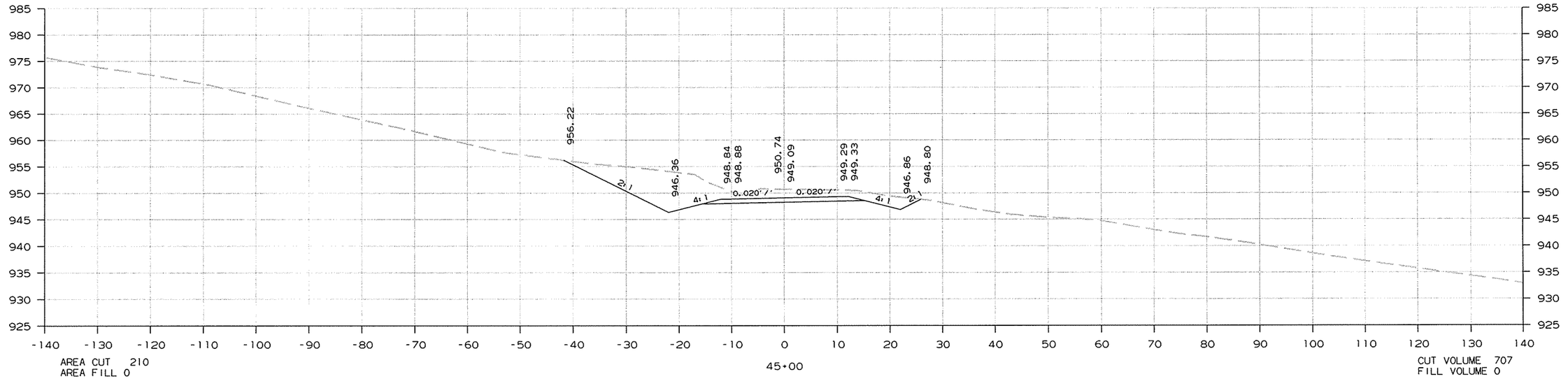
CROSS SECTION STA. 43+00 TO STA. 43+65

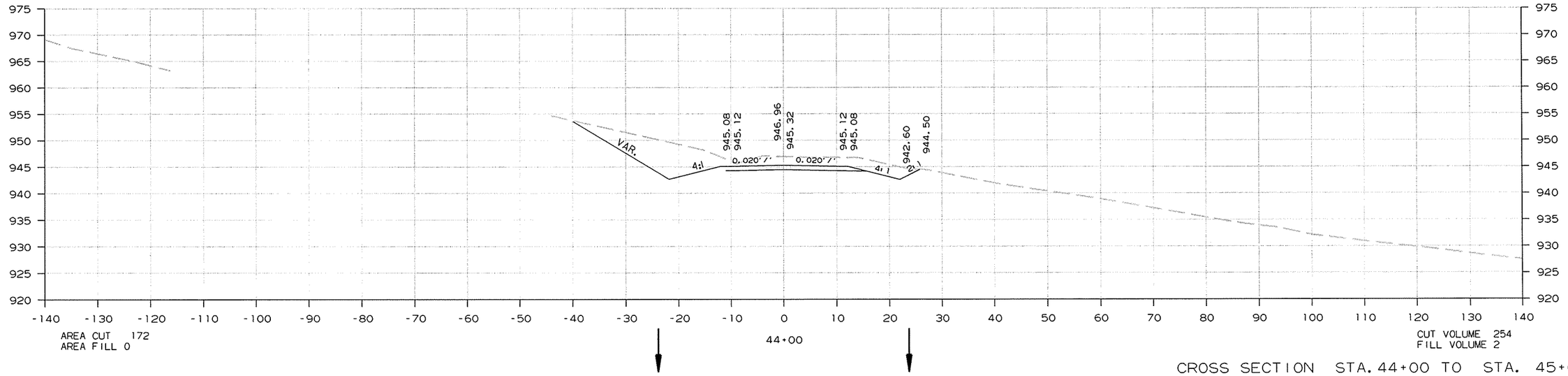
11/8/2011

ZBORDER.CEL

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.		040206	81	215

(2) CROSS SECTIONS





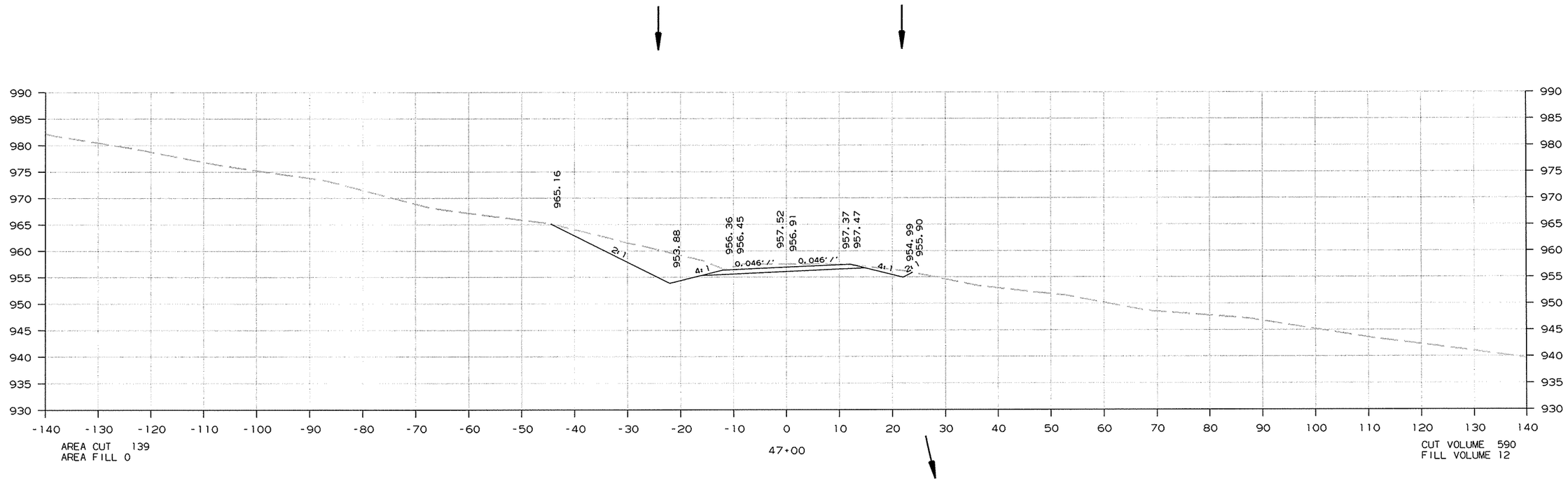
CROSS SECTION STA. 44+00 TO STA. 45+00

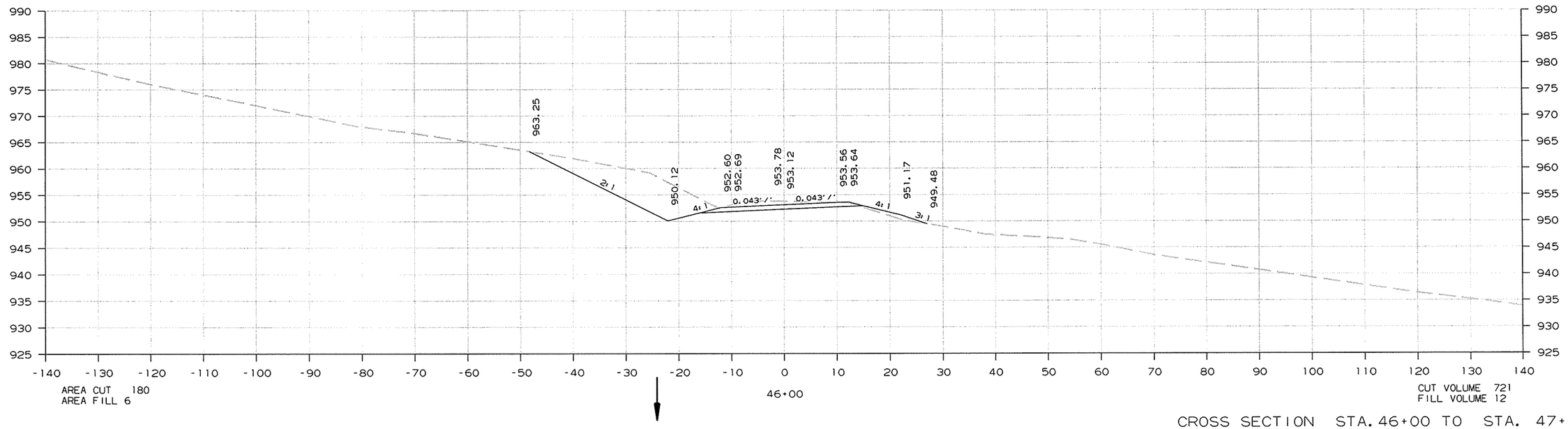
11/8/2011

ZBORDER.CEL

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.		040206	82	215

(2) CROSS SECTIONS





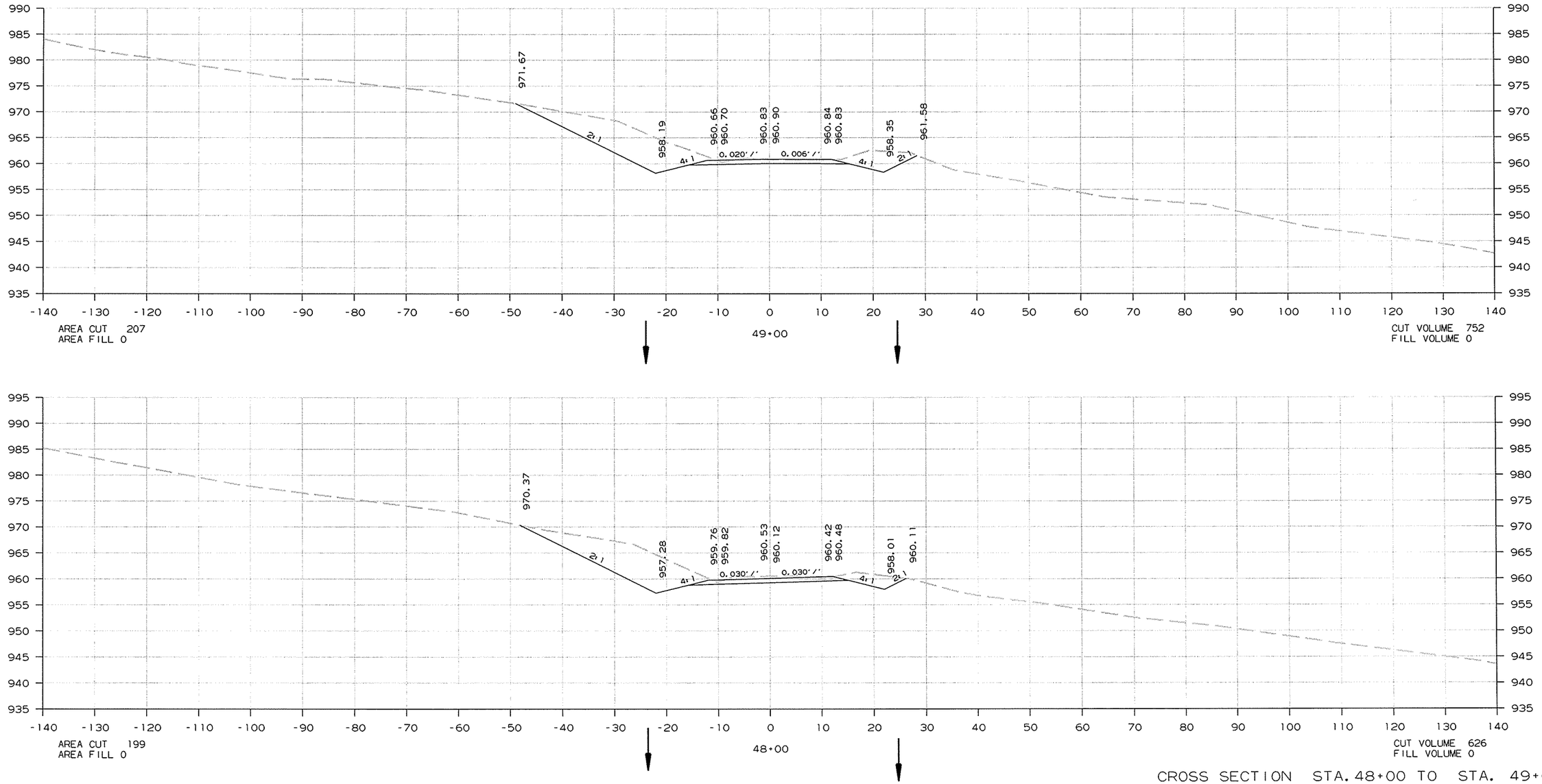
CROSS SECTION STA. 46+00 TO STA. 47+00

11/8/2011

ZBORDER.CEL

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.		040206	83	215

(2) CROSS SECTIONS



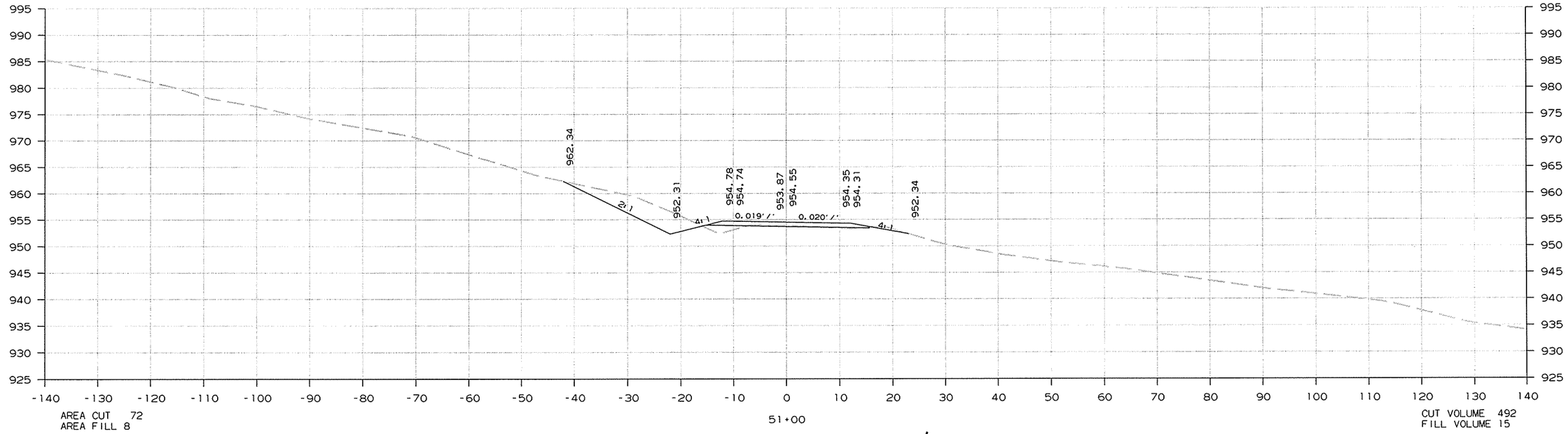
CROSS SECTION STA. 48+00 TO STA. 49+00

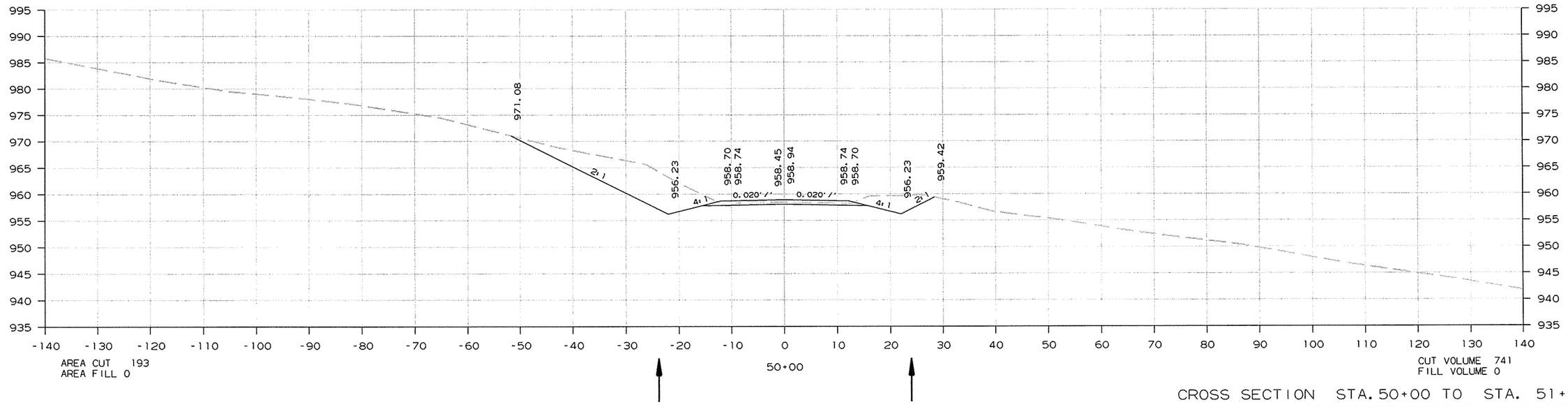
11/8/2011

ZBORDER.CEL

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.		040206	84	215

(2) CROSS SECTIONS





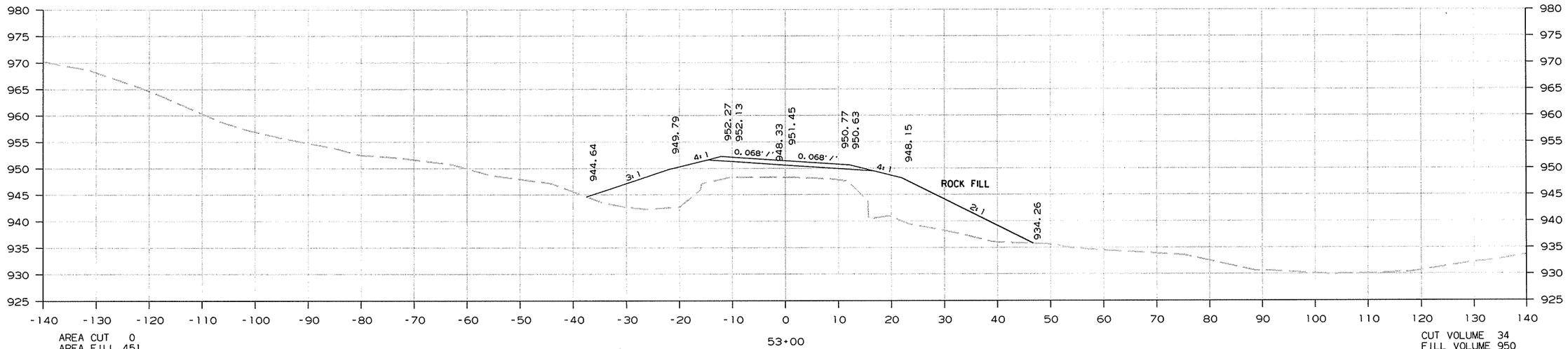
CROSS SECTION STA. 50+00 TO STA. 51+00

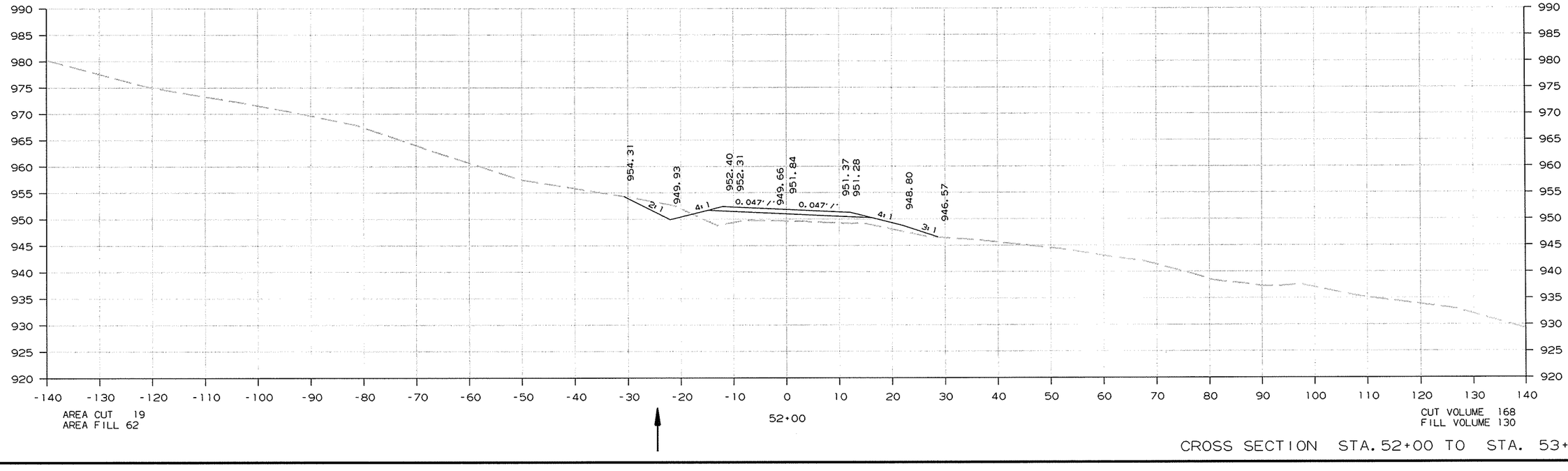
11/8/2011

ZBORDER.CEL

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.		040206	85	215

(2) CROSS SECTIONS





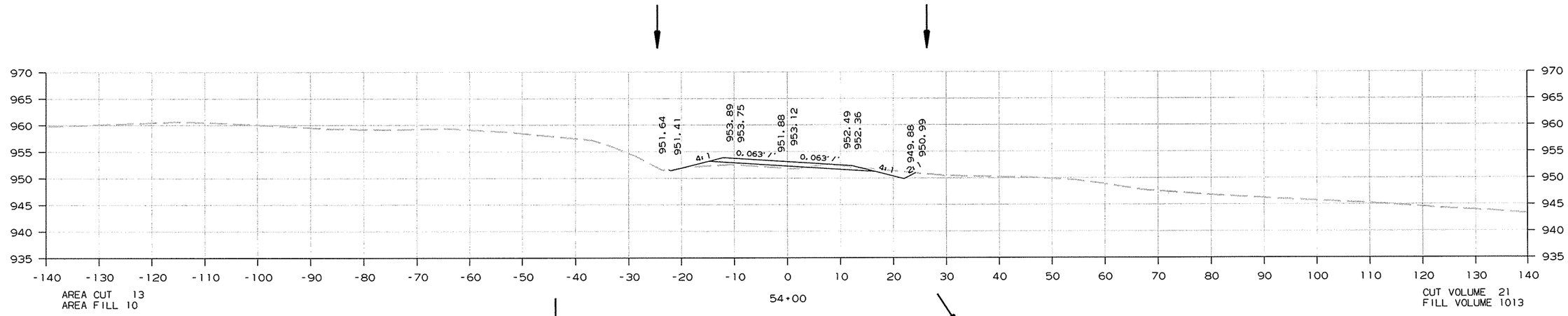
CROSS SECTION STA. 52+00 TO STA. 53+00

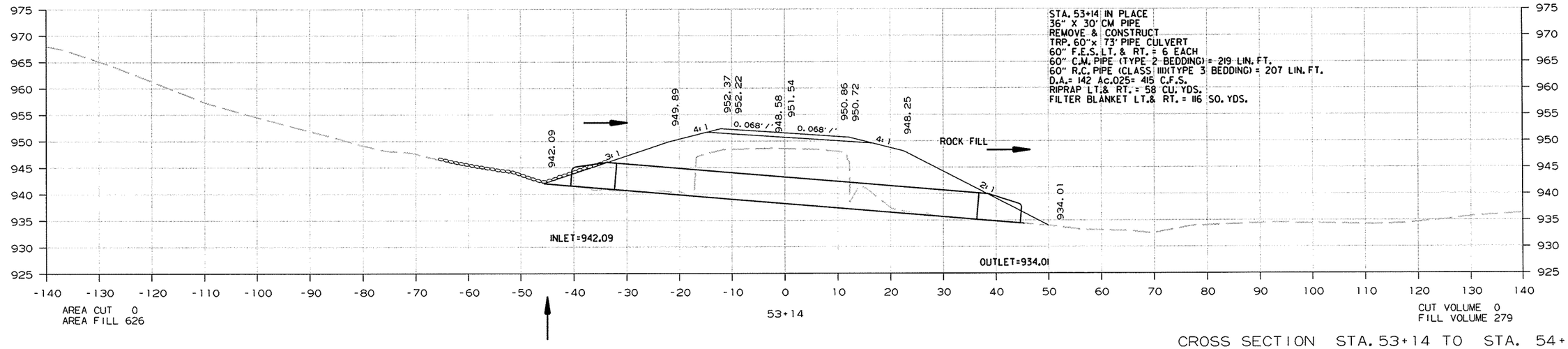
11/8/2011

ZBORDER.CEL

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.		040206	86	215

(2) CROSS SECTIONS





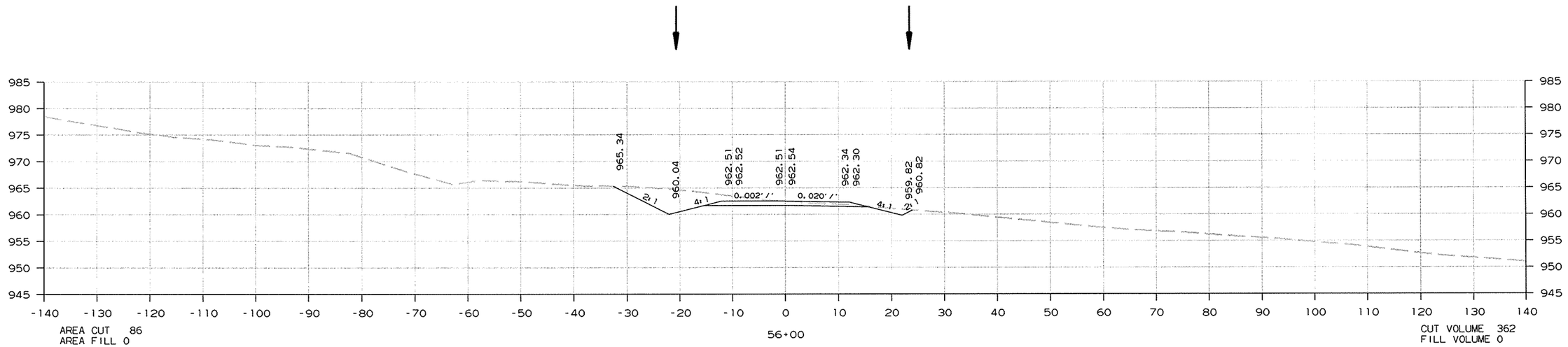
CROSS SECTION STA. 53+14 TO STA. 54+00

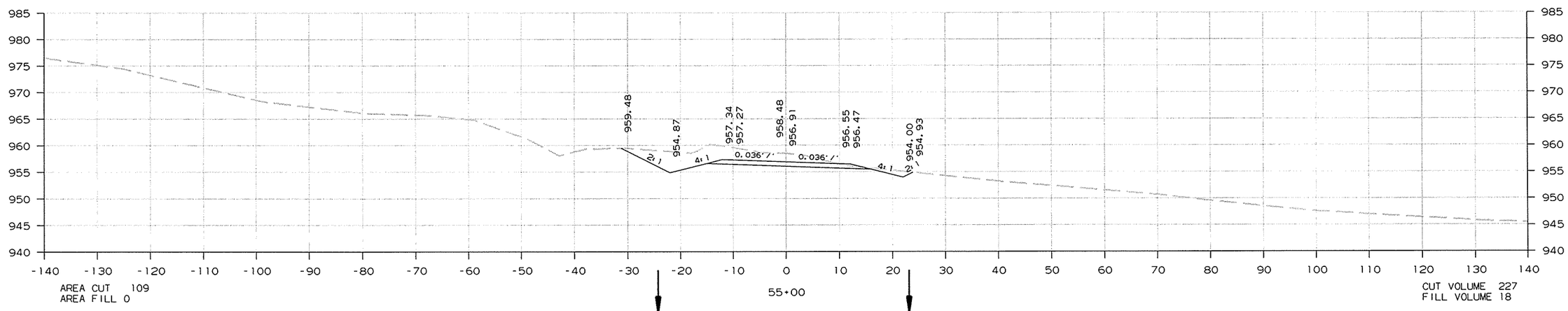
11/8/2011

ZBORDER.CEL

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.		040206	87	215

(2) CROSS SECTIONS





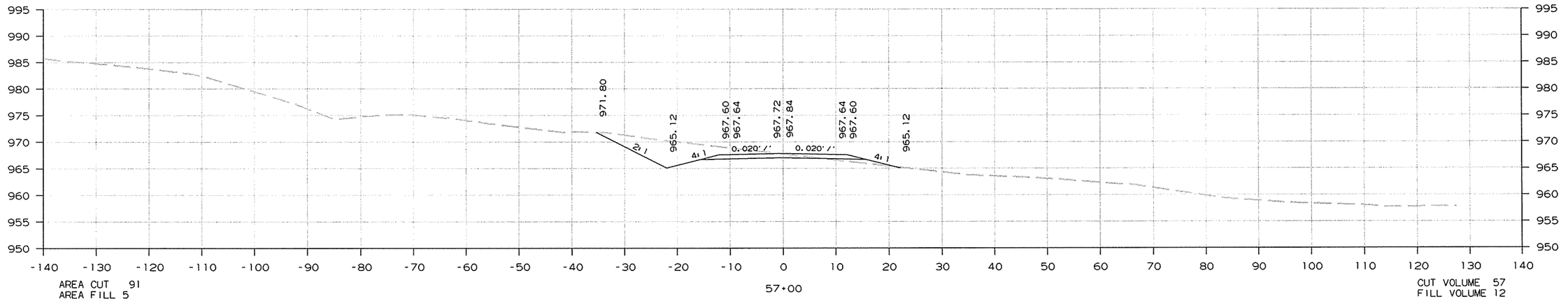
CROSS SECTION STA. 55+00 TO STA. 56+00

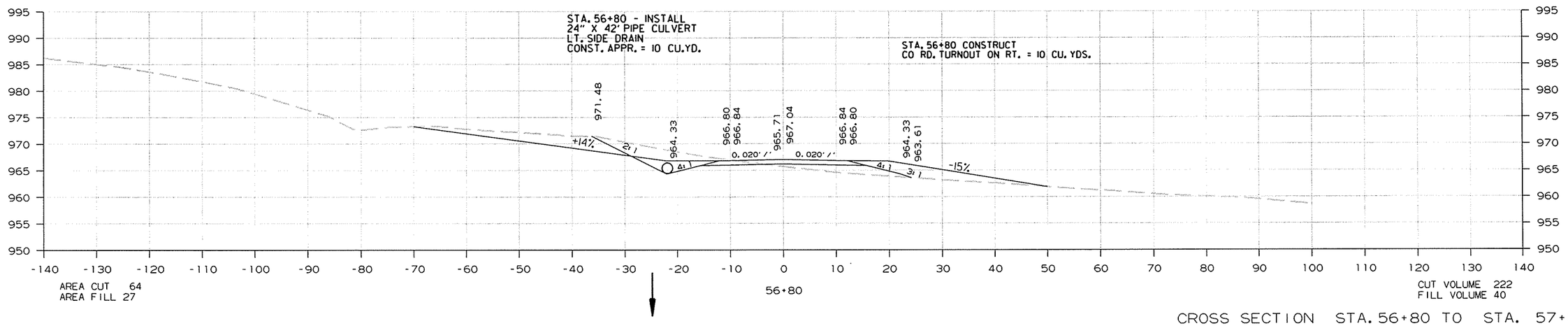
11/8/2011

ZBORDER.CEL

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.		040206	88	215

(2) CROSS SECTIONS





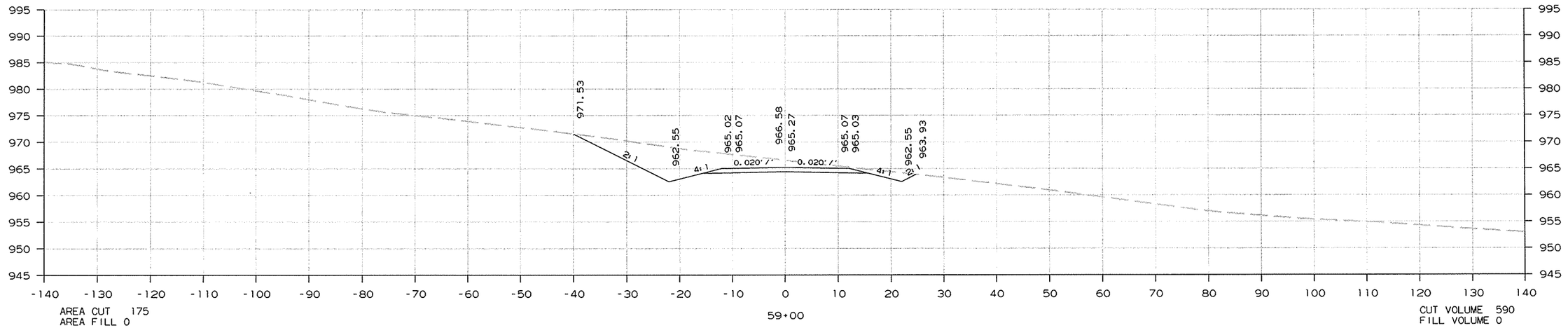
CROSS SECTION STA. 56+80 TO STA. 57+00

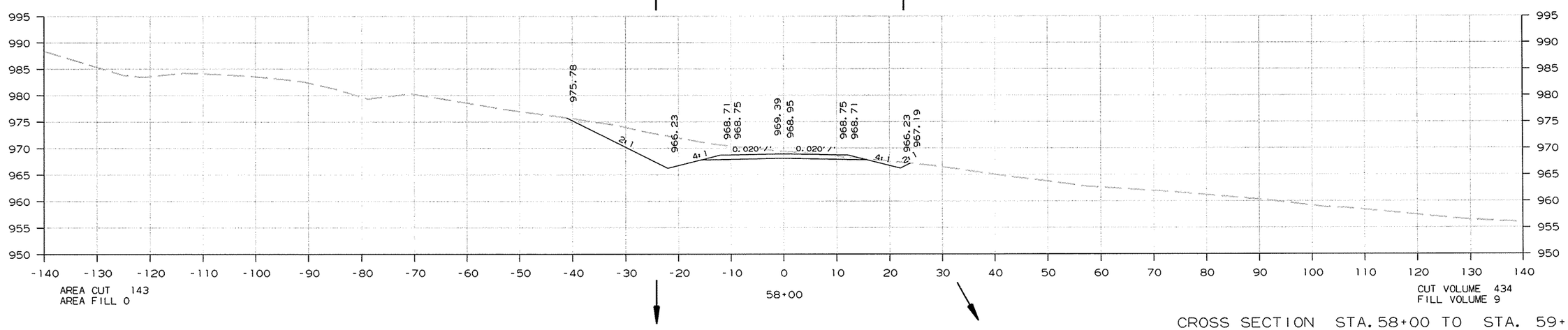
11/8/2011

ZBORDER.CEL

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.		040206	89	215

(2) CROSS SECTIONS





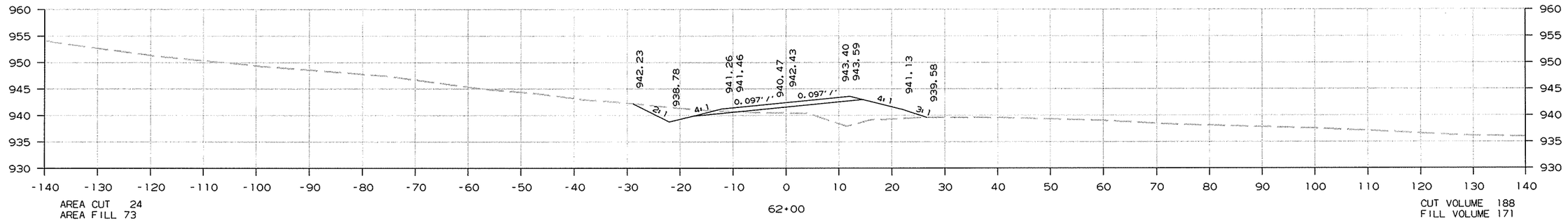
CROSS SECTION STA. 58+00 TO STA. 59+00

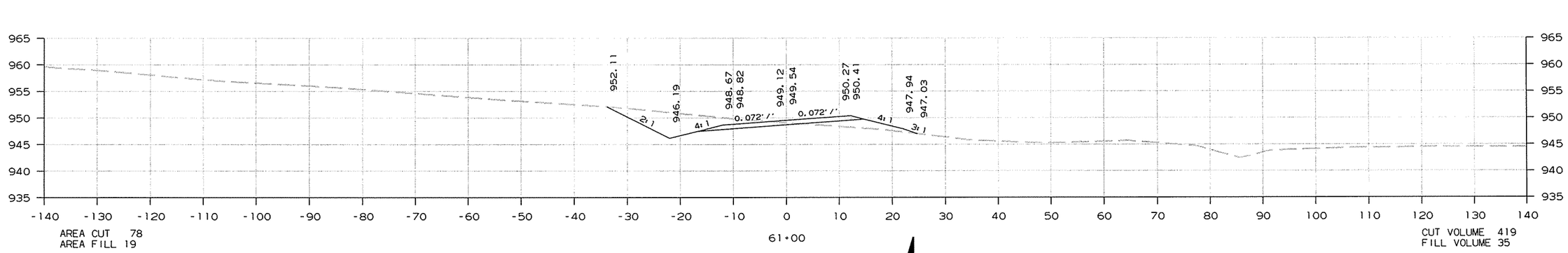
11/8/2011

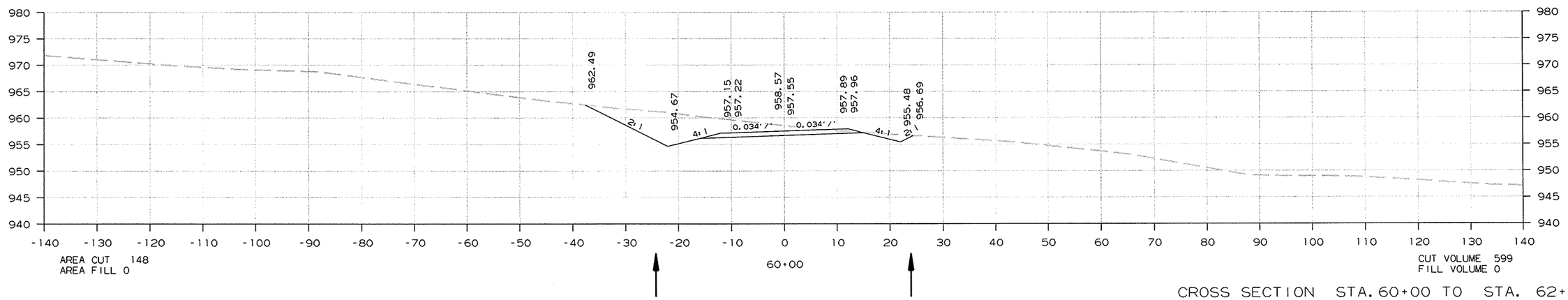
ZBORDER.CEL

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.		040206	90	215

(2) CROSS SECTIONS







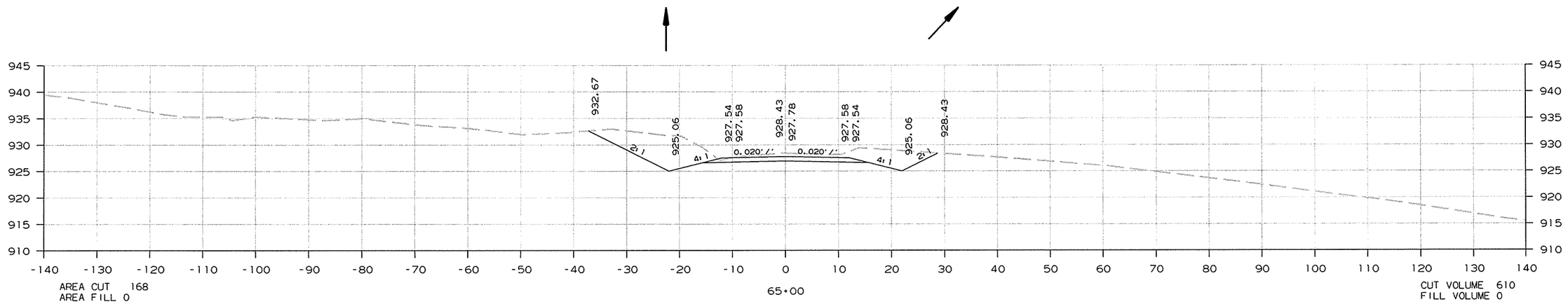
CROSS SECTION STA. 60+00 TO STA. 62+00

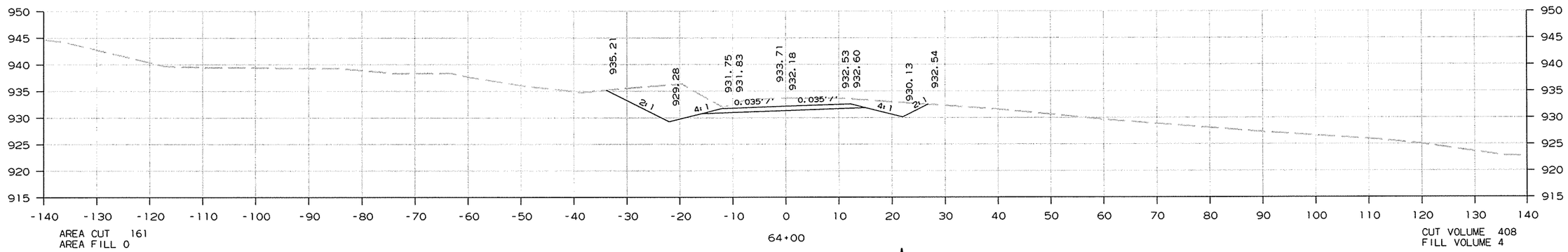
11/8/2011

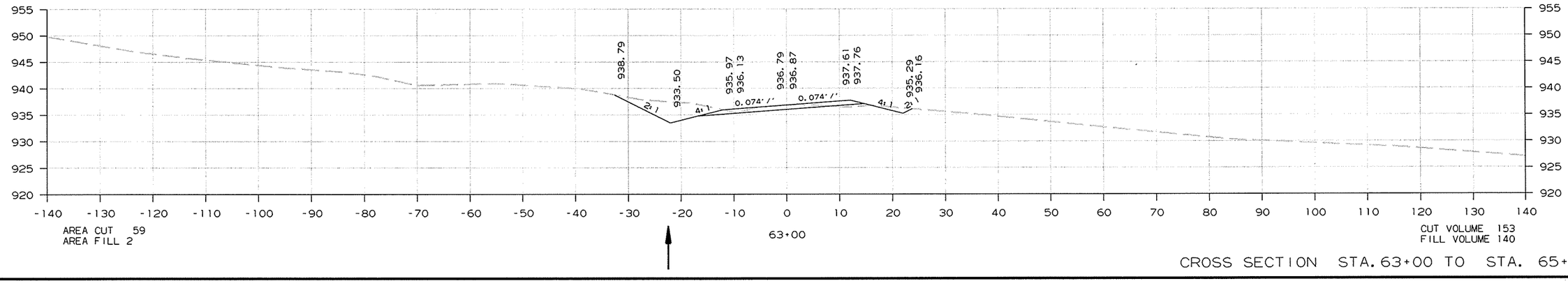
ZBORDER.CEL

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.		040206	91	215

(2) CROSS SECTIONS







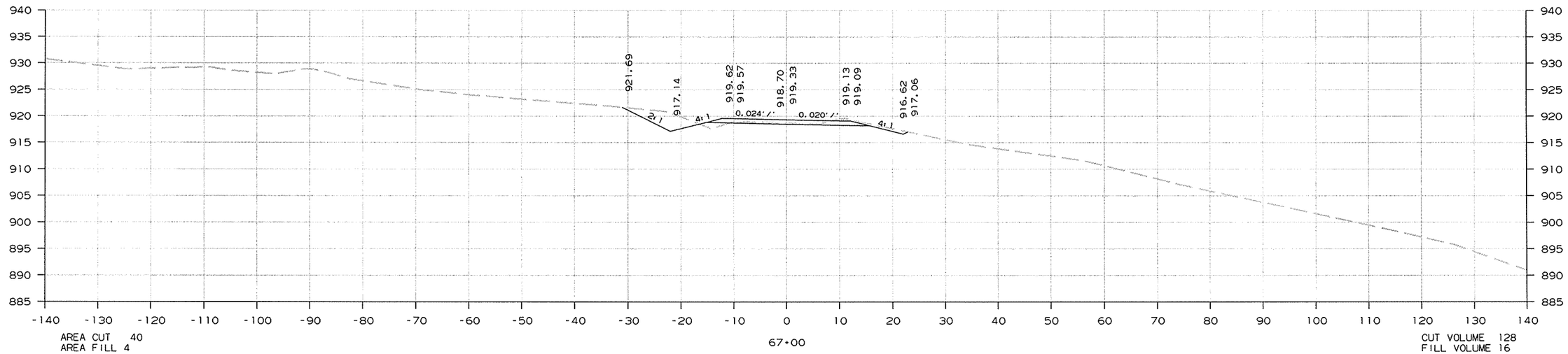
CROSS SECTION STA. 63+00 TO STA. 65+00

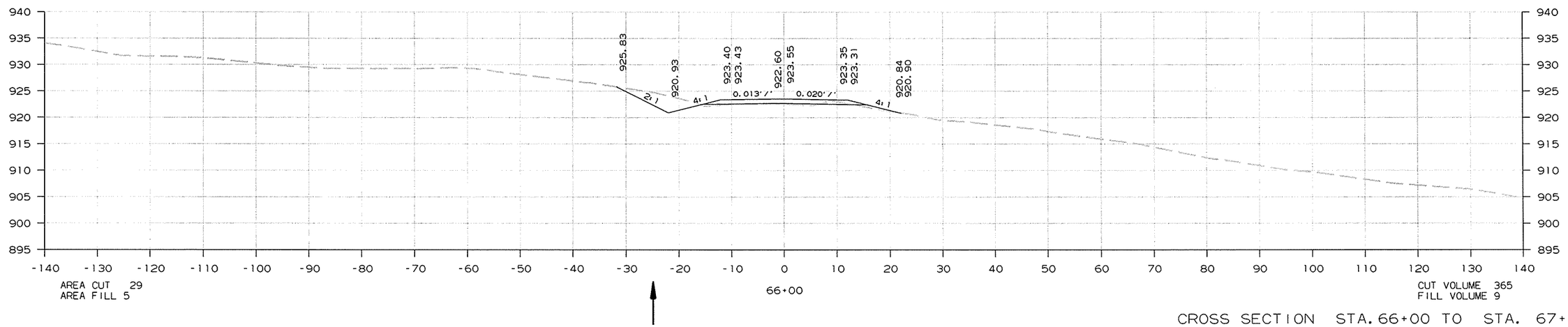
11/8/2011

ZBORDER.CEL

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.		040206	92	215

(2) CROSS SECTIONS





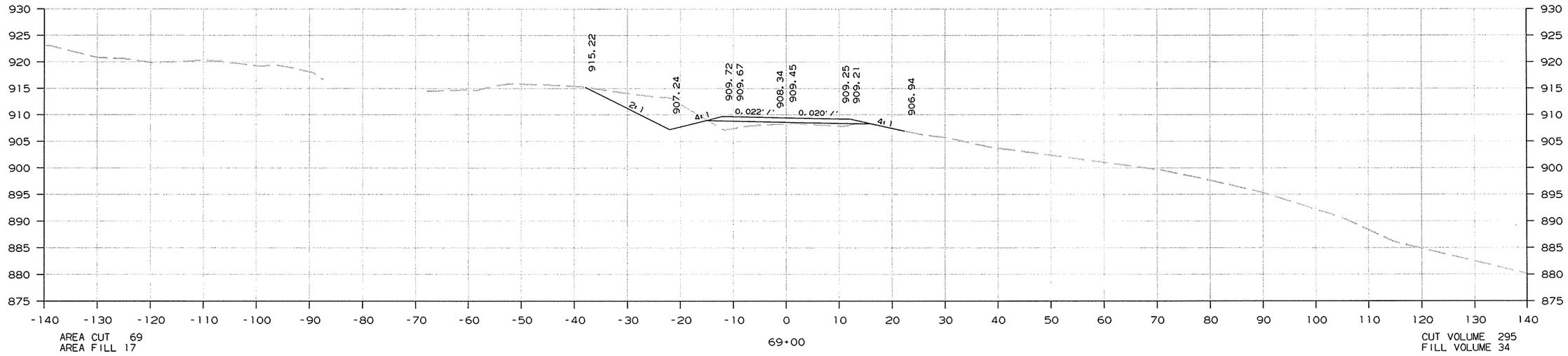
CROSS SECTION STA. 66+00 TO STA. 67+00

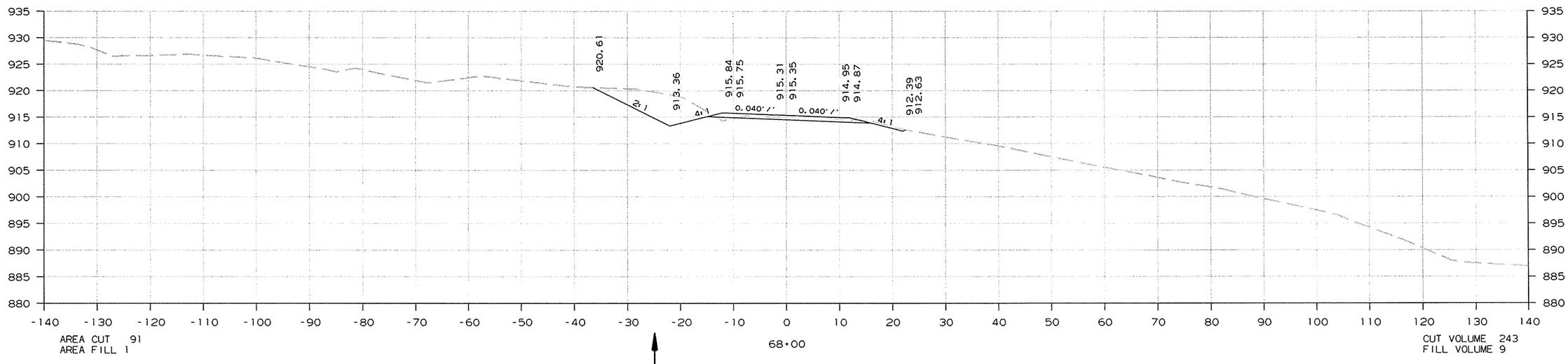
11/8/2011

ZBORDER.CEL

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.		040206	93	215

(2) CROSS SECTIONS





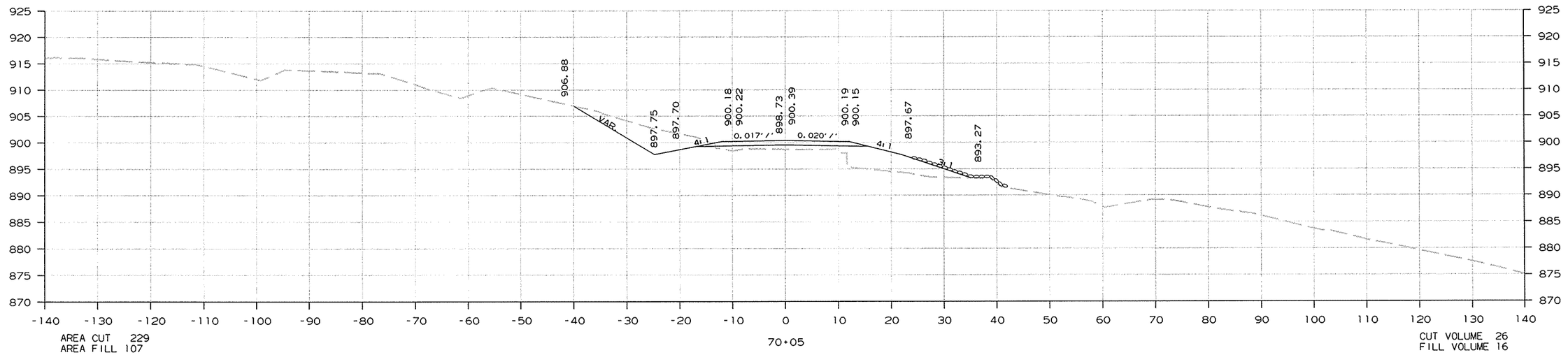
CROSS SECTION STA. 68+00 TO STA. 69+00

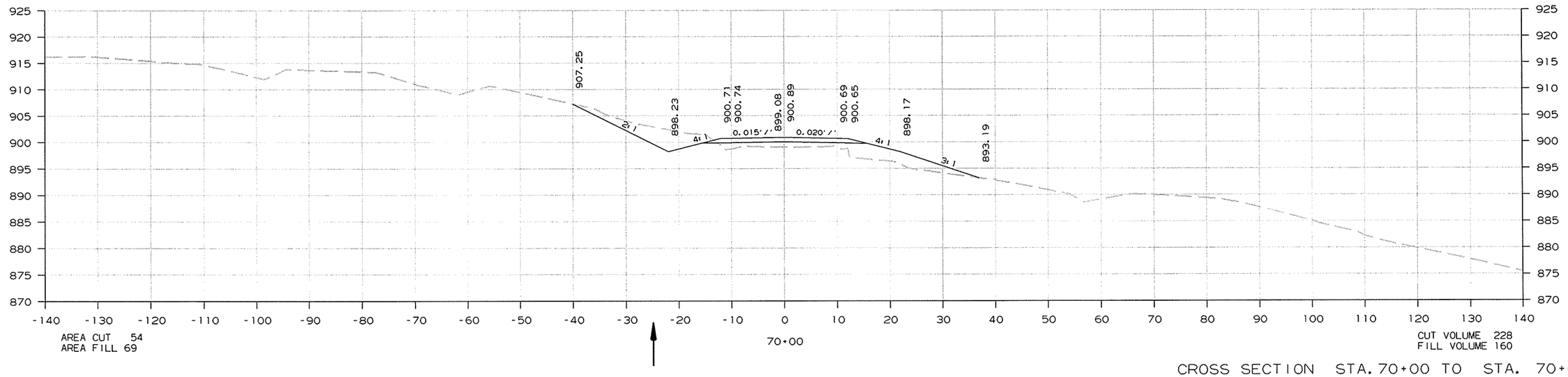
11/8/2011

ZBORDER.CEL

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.		040206	94	215

(2) CROSS SECTIONS





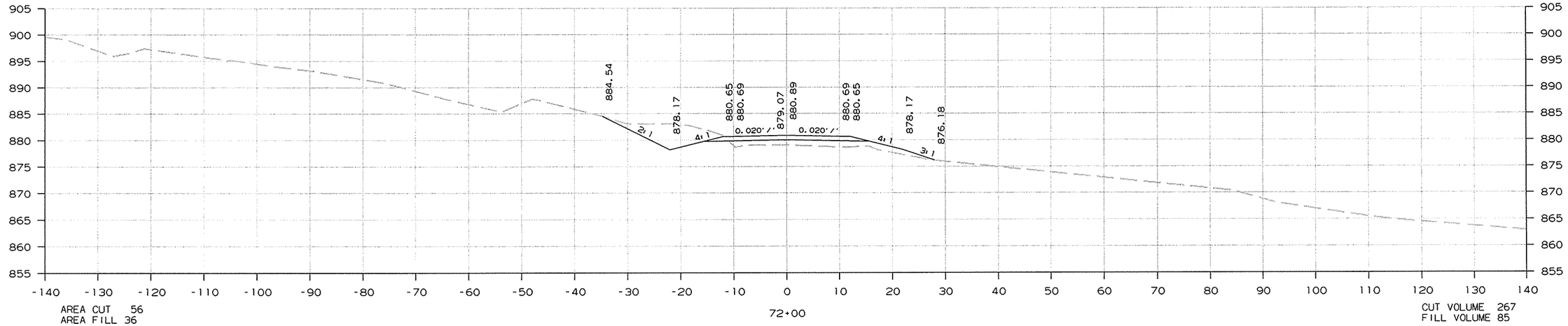
CROSS SECTION STA. 70+00 TO STA. 70+05

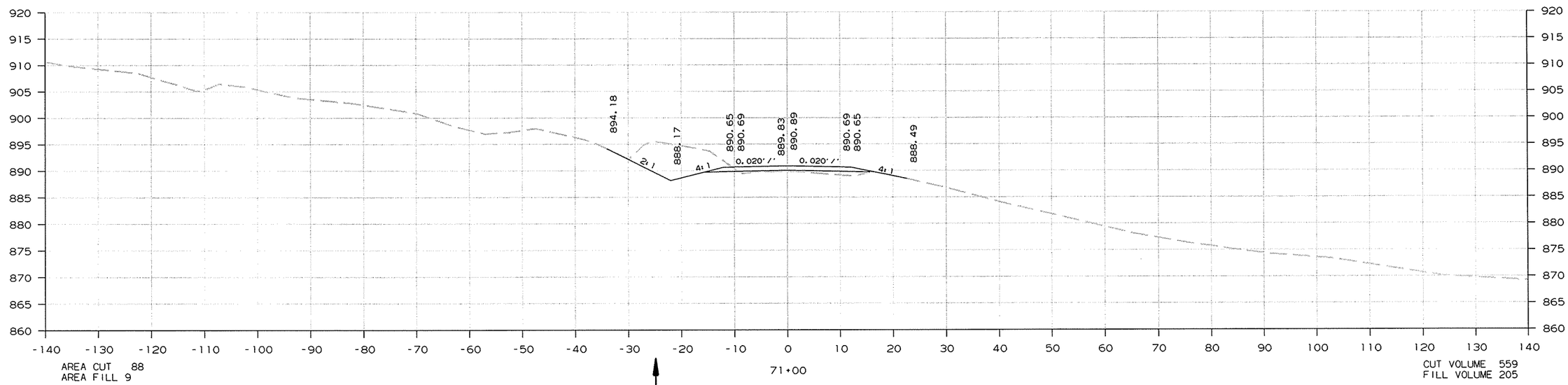
11/8/2011

ZBORDER.CEL

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.		040206	95	215

(2) CROSS SECTIONS





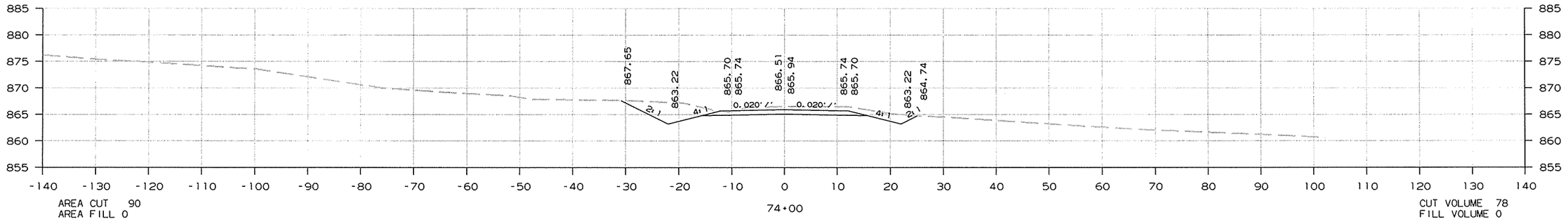
CROSS SECTION STA. 71+00 TO STA. 72+00

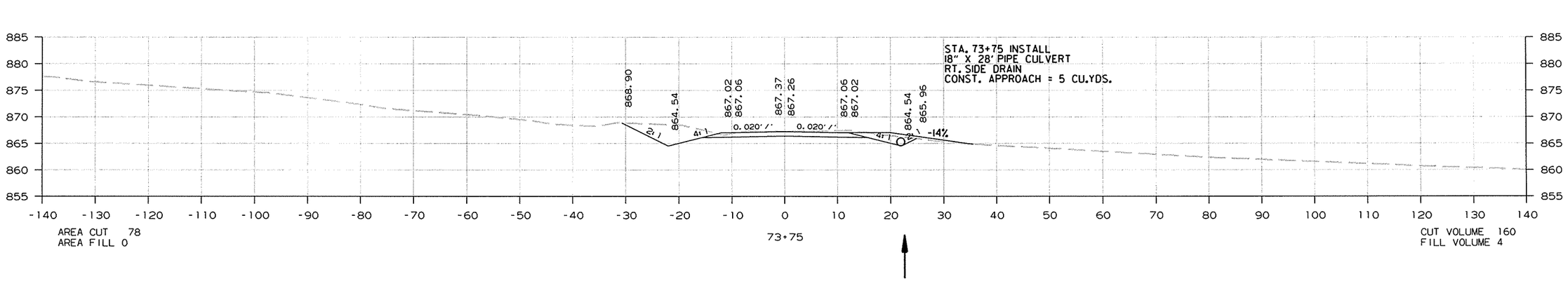
11/8/2011

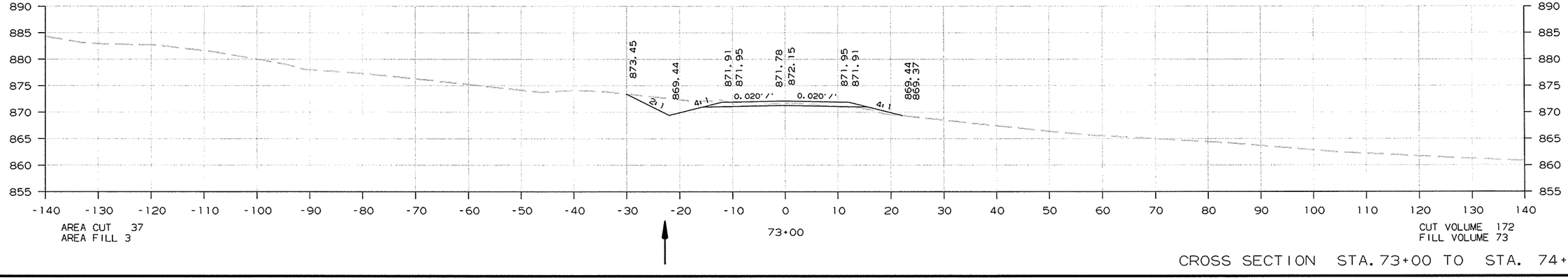
ZBORDER.CEL

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.		040206	96	215

(2) CROSS SECTIONS







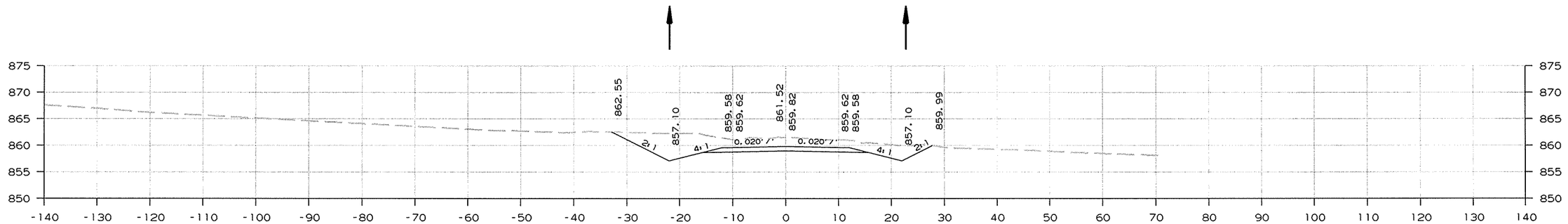
CROSS SECTION STA. 73+00 TO STA. 74+00

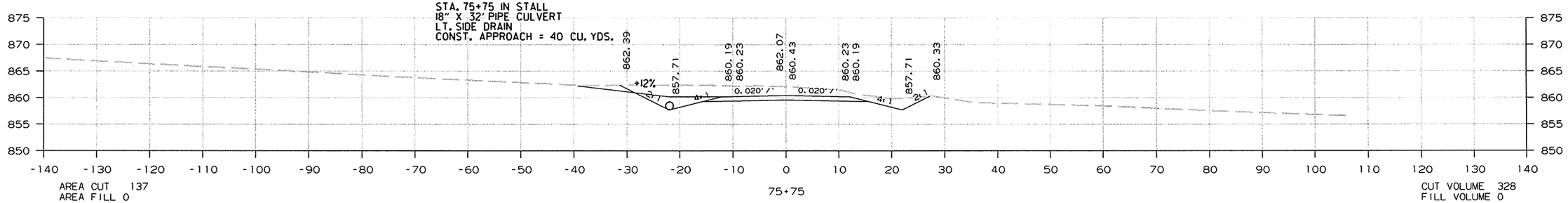
11/8/2011

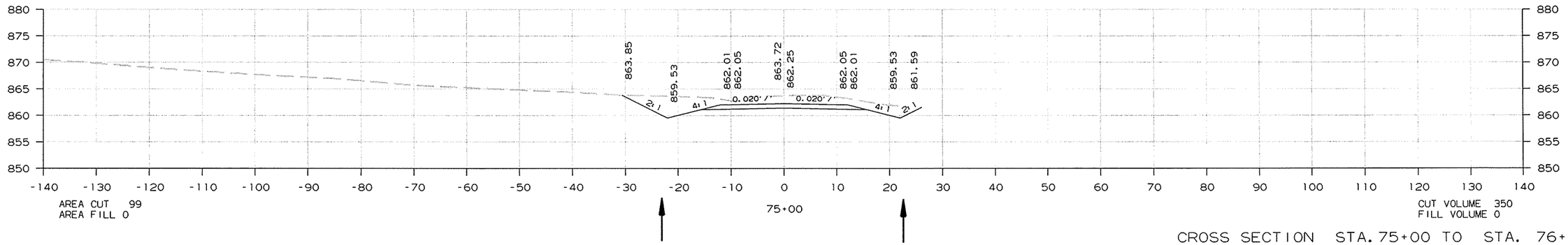
ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	97	215

(2) CROSS SECTIONS







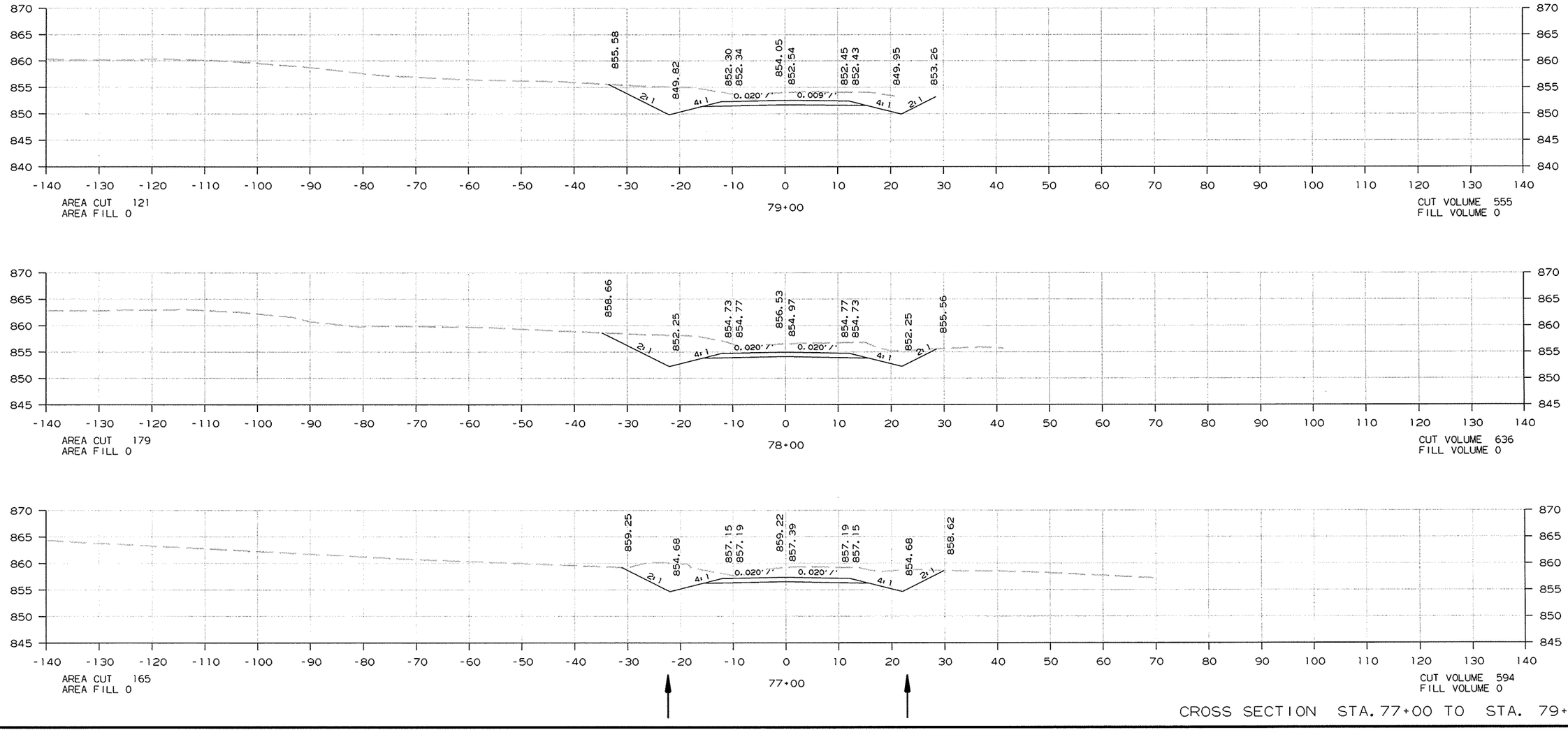
CROSS SECTION STA. 75+00 TO STA. 76+00

11/8/2011

ZBORDER.CEL

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.		040206	98	215

(2) CROSS SECTIONS



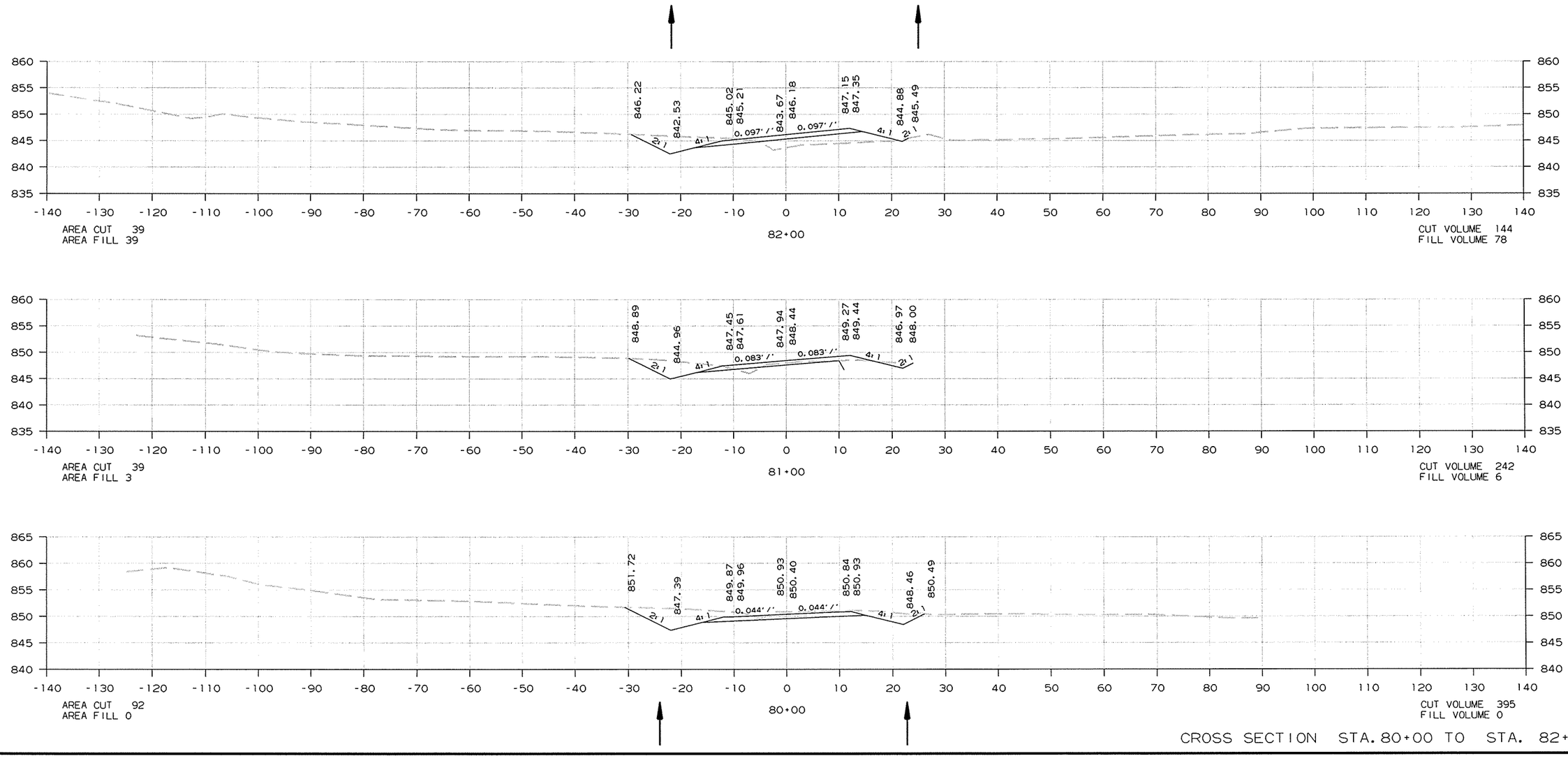
CROSS SECTION STA. 77+00 TO STA. 79+00

11/8/2011

ZBORDER.CEL

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.		040206	99	215

(2) CROSS SECTIONS



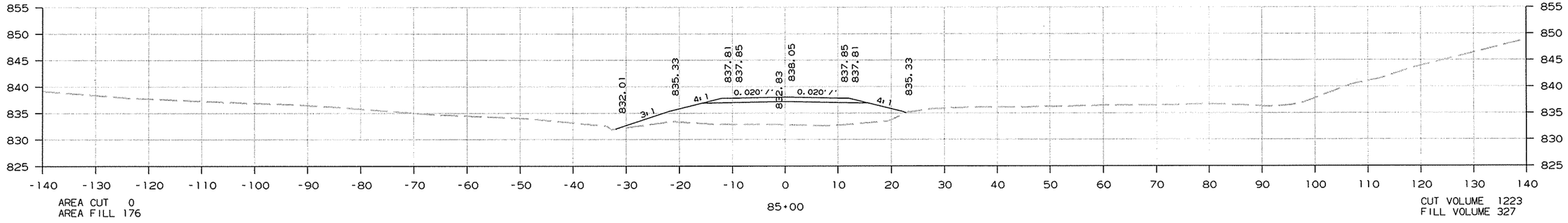
CROSS SECTION STA. 80+00 TO STA. 82+00

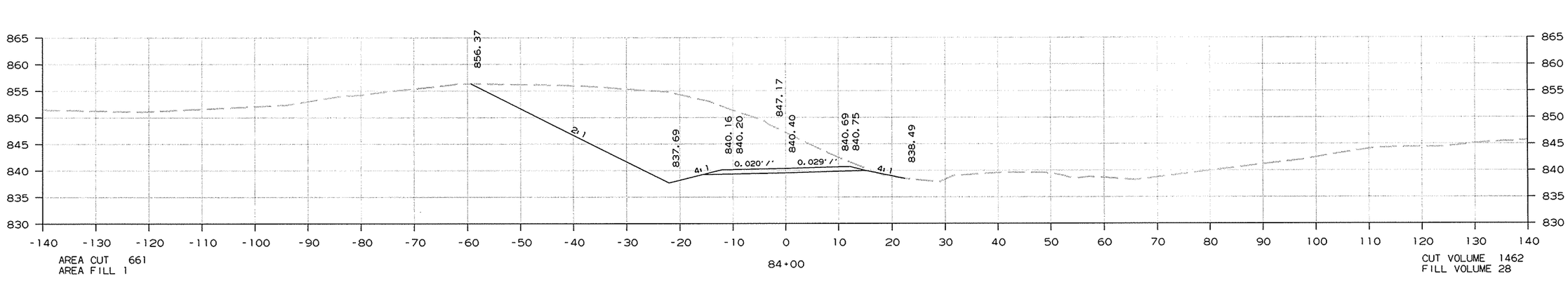
11/8/2011

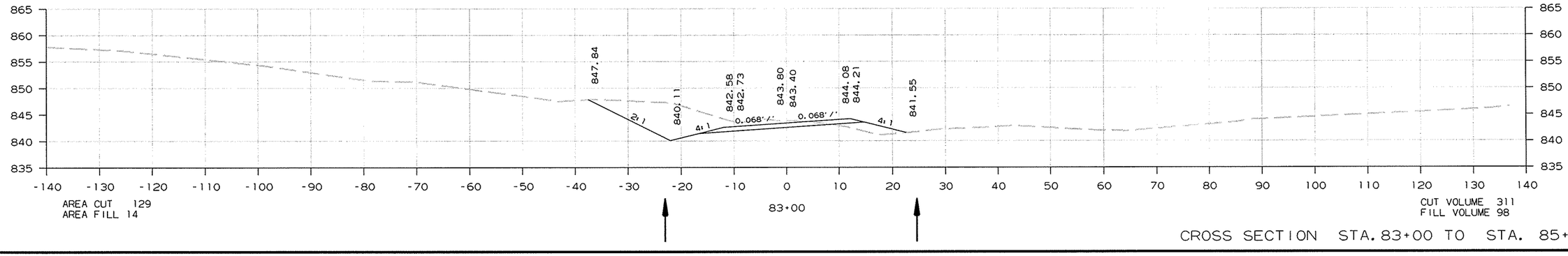
ZBORDER.CEL

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.		040206	100	215

(2) CROSS SECTIONS







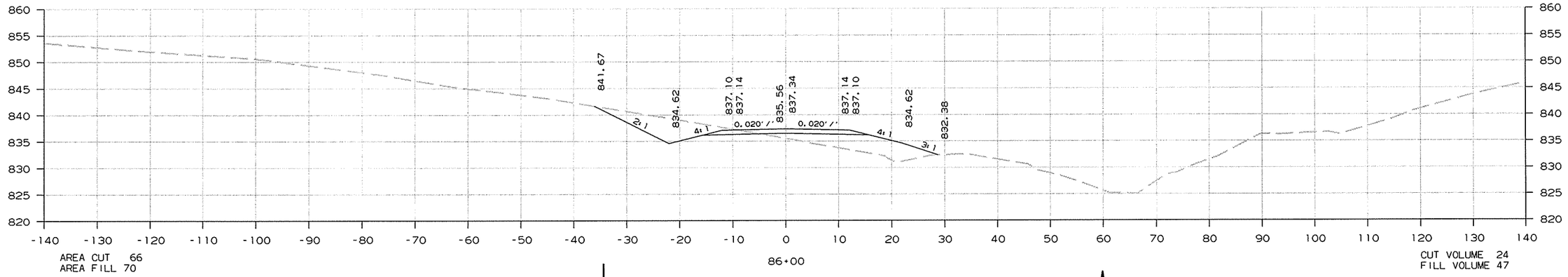
CROSS SECTION STA. 83+00 TO STA. 85+00

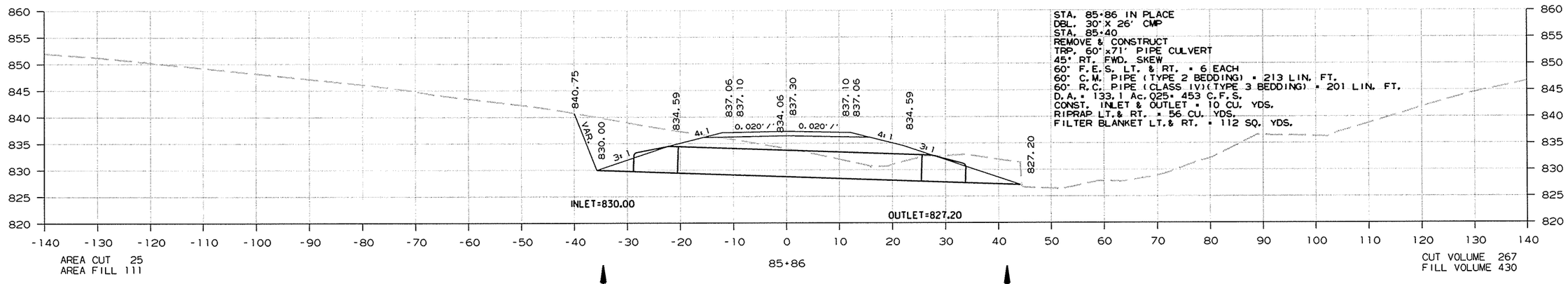
11/8/2011

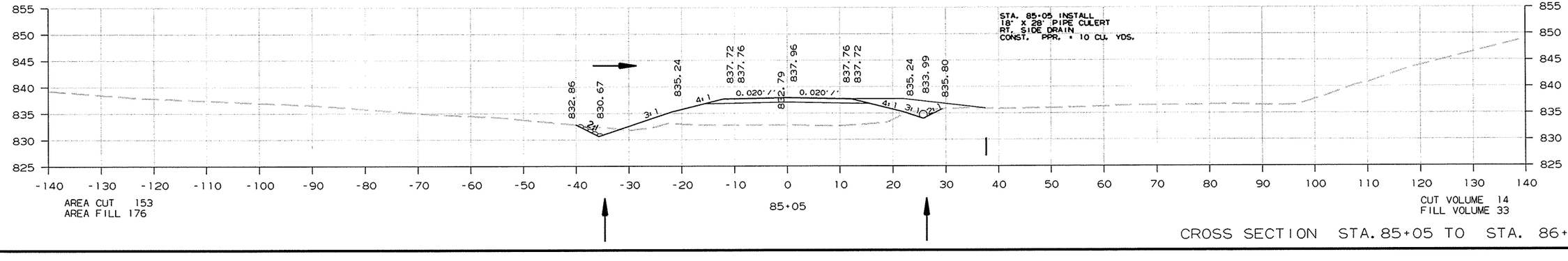
ZBORDER.CEL

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.		040206	101	215

(2) CROSS SECTIONS







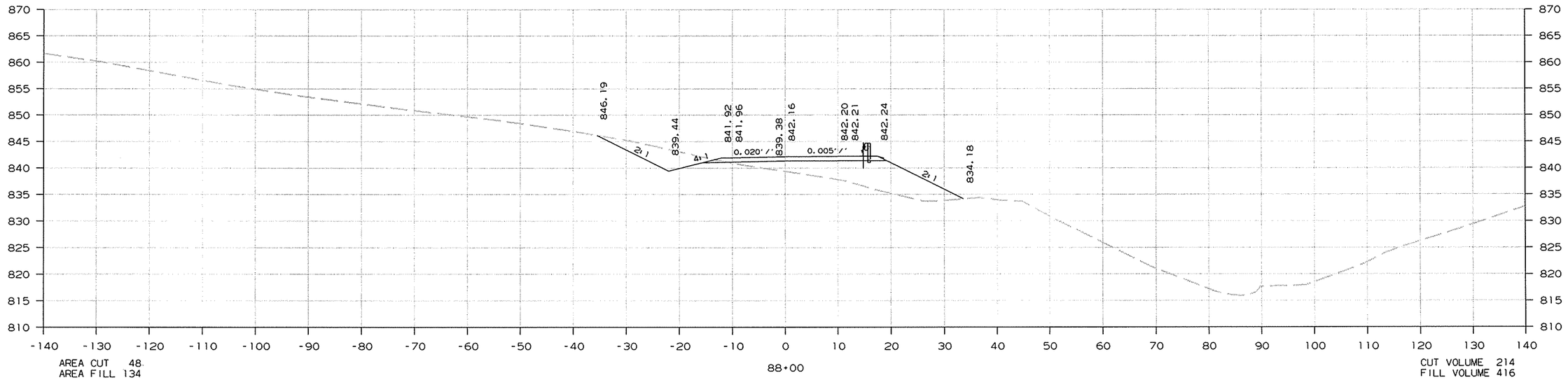
CROSS SECTION STA. 85+05 TO STA. 86+00

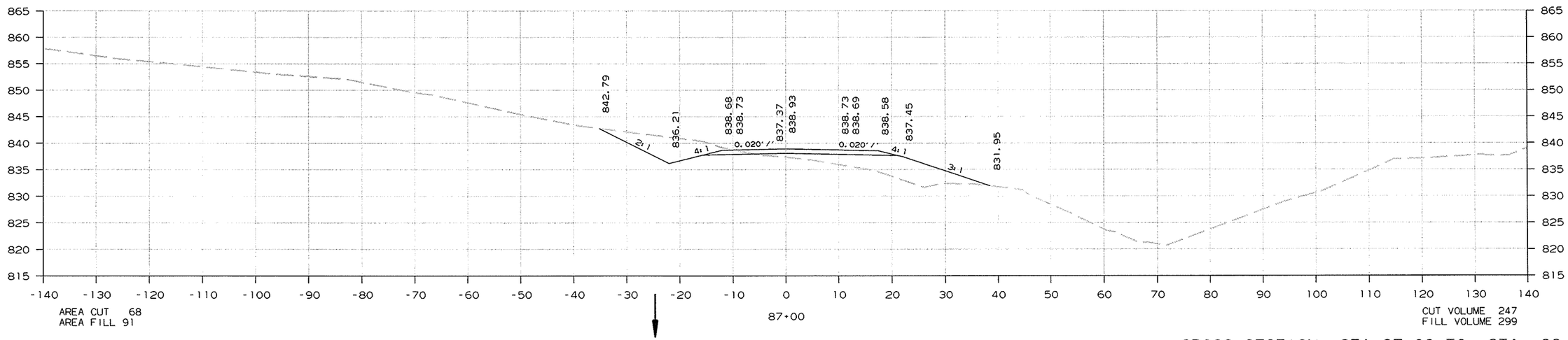
11/8/2011

ZBORDER.CEL

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.		040206	102	215

(2) CROSS SECTIONS





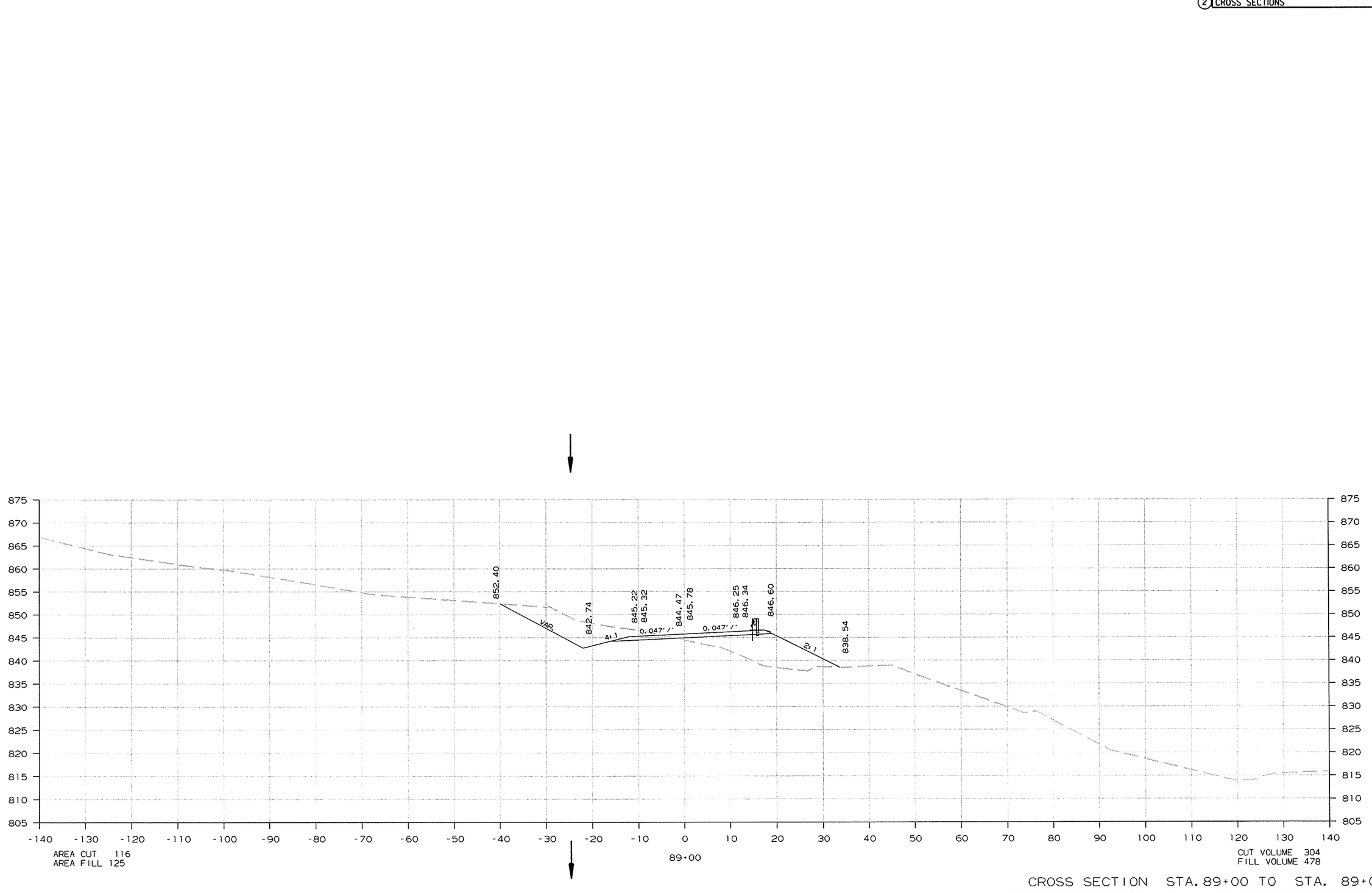
CROSS SECTION STA. 87+00 TO STA. 88+00

11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	103	215

(2) CROSS SECTIONS



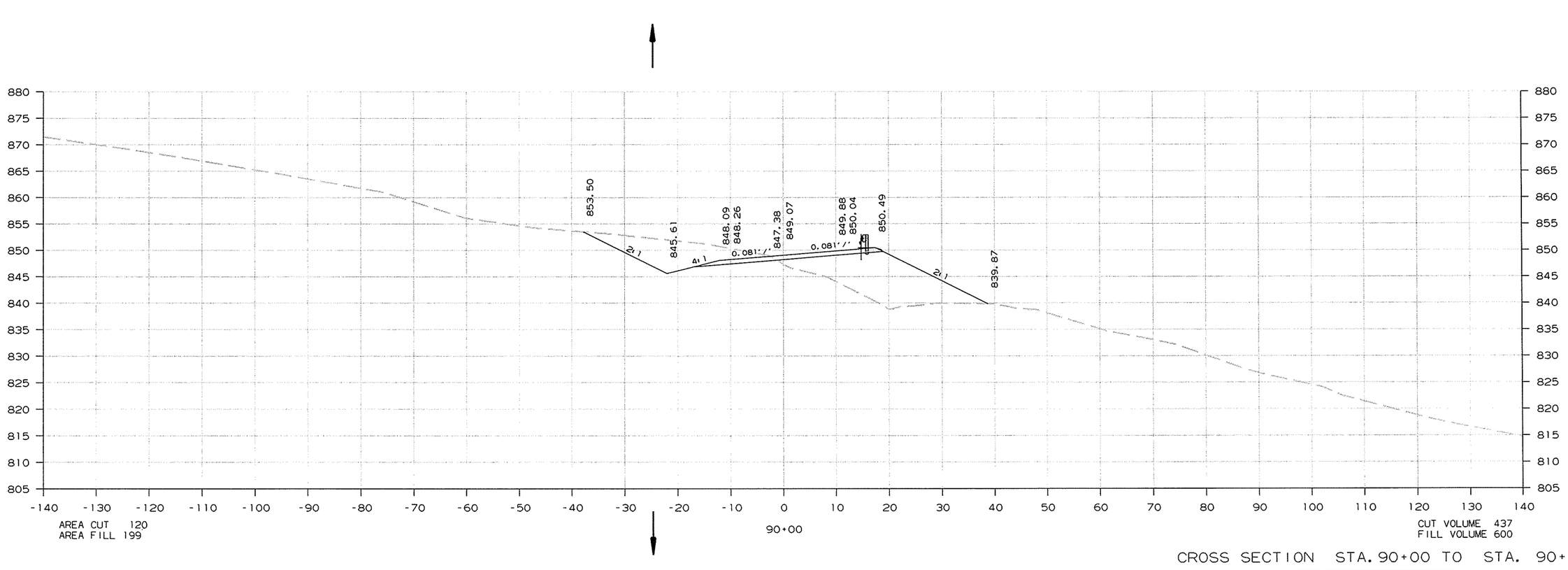
CROSS SECTION STA. 89+00 TO STA. 89+00

11/8/2011

ZBORDER.CEL

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.		040206	104	215

(2) CROSS SECTIONS



AREA CUT 120
AREA FILL 199

CUT VOLUME 437
FILL VOLUME 600

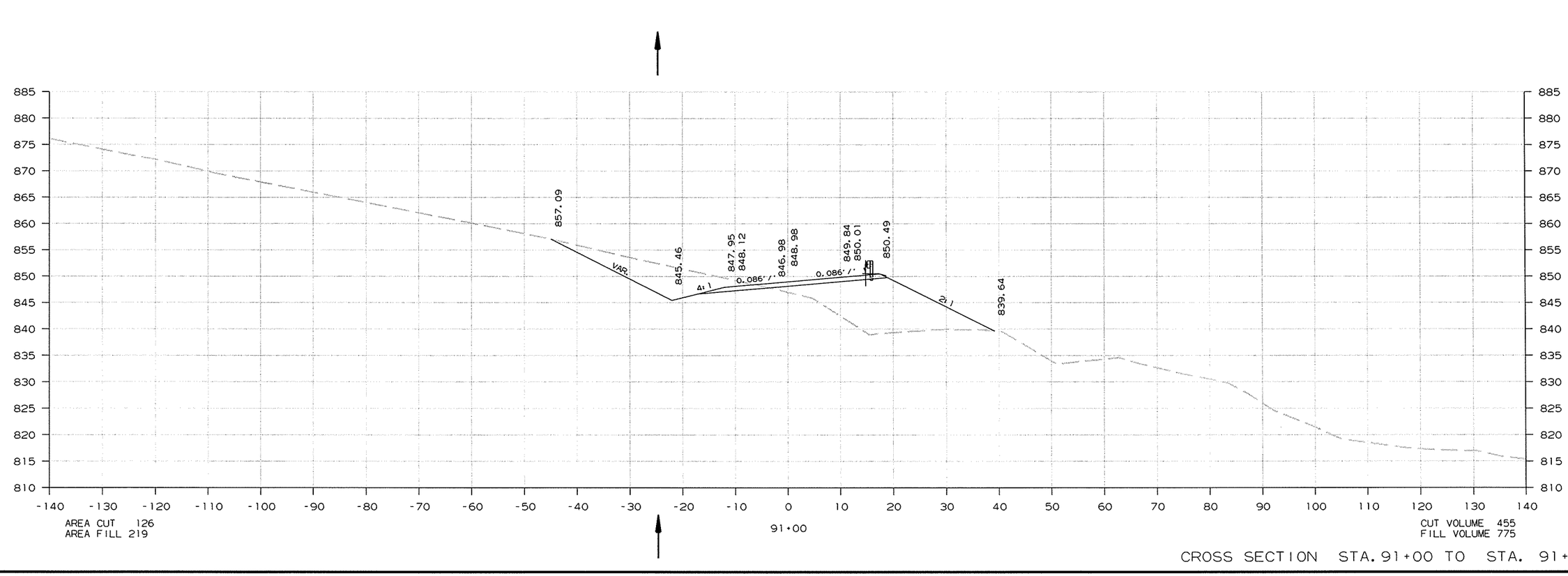
CROSS SECTION STA. 90+00 TO STA. 90+00

11/8/2011

ZBORDER.CEL

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.		040206	105	215

(2) CROSS SECTIONS



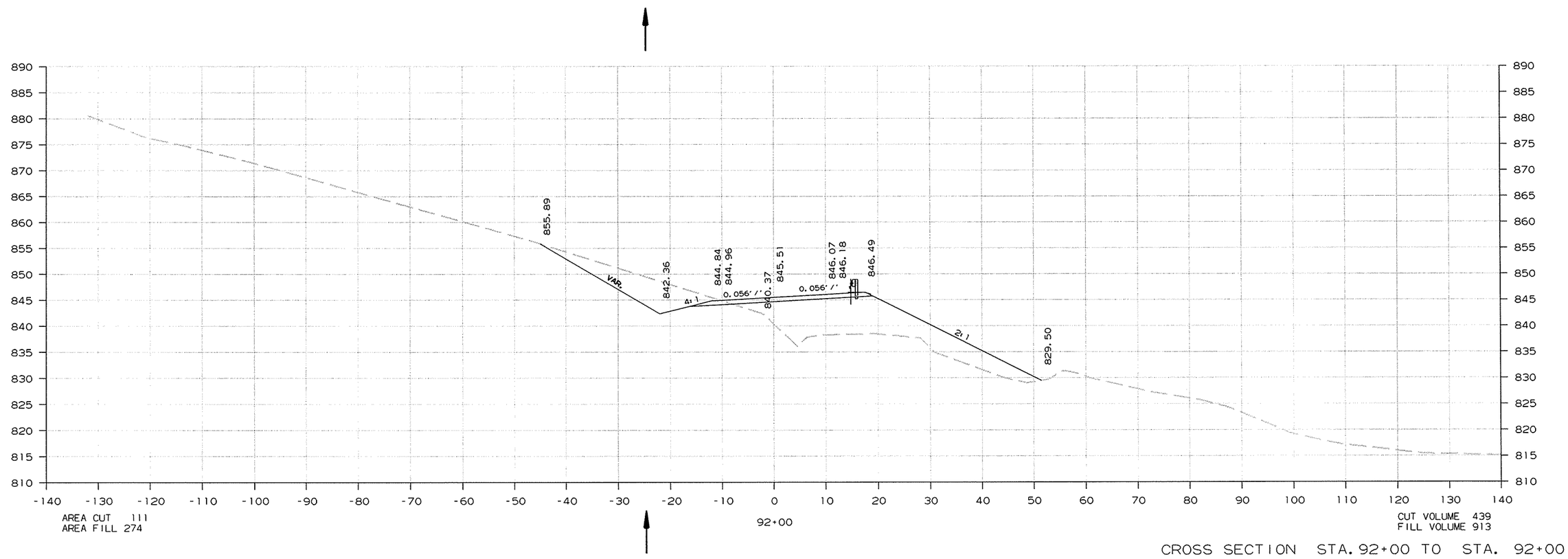
CROSS SECTION STA. 91+00 TO STA. 91+00

11/25/2014

R040206.DGN

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.		040206	106	215

(2) CROSS SECTIONS



AREA CUT 111
AREA FILL 274

CUT VOLUME 439
FILL VOLUME 913

CROSS SECTION STA. 92+00 TO STA. 92+00

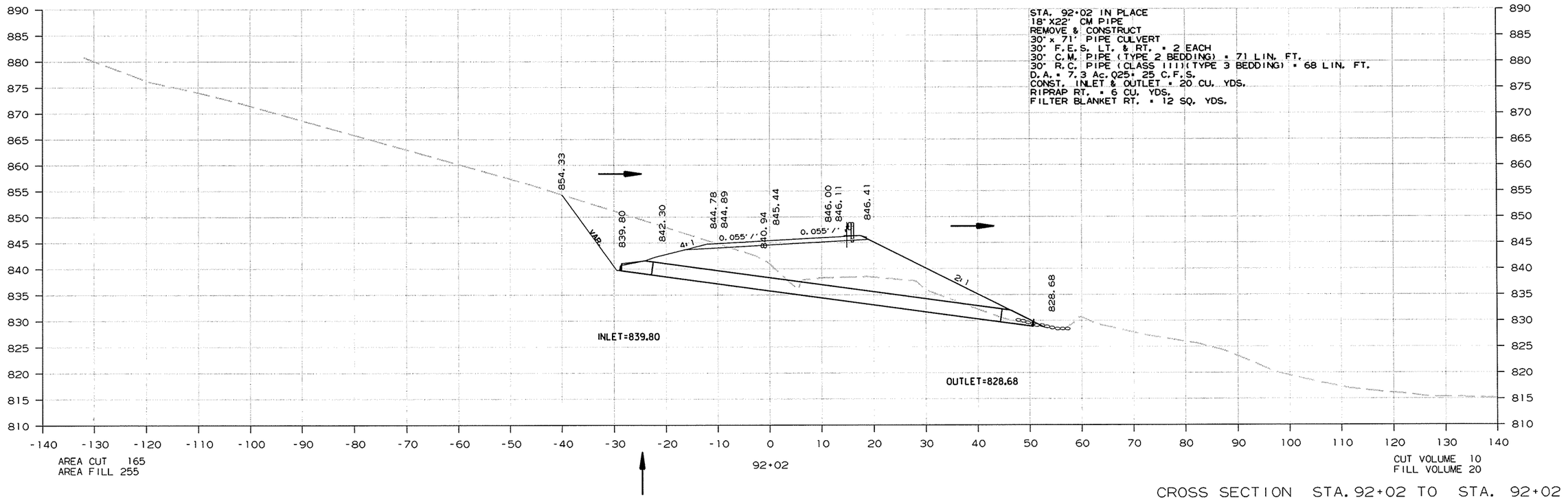
11/25/2014

R040206.DGN

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.		040206	107	215

(2) CROSS SECTIONS



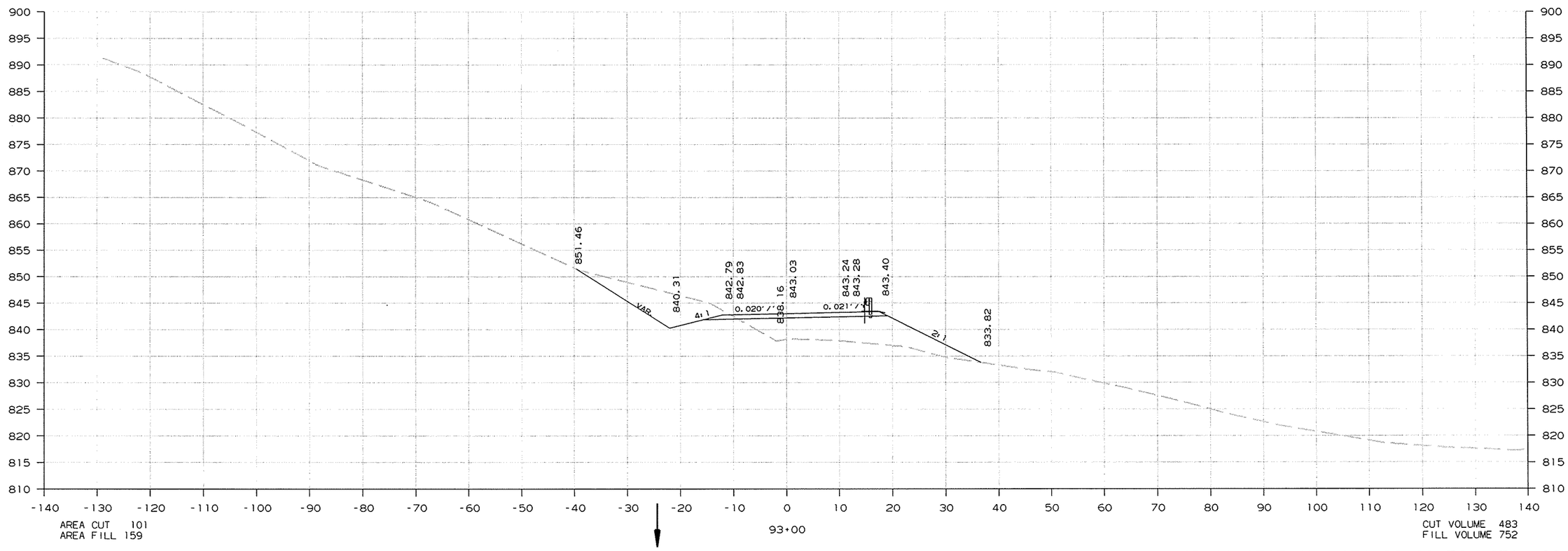
CROSS SECTION STA. 92+02 TO STA. 92+02

11/25/2014

R040206.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	108	215

(2) CROSS SECTIONS



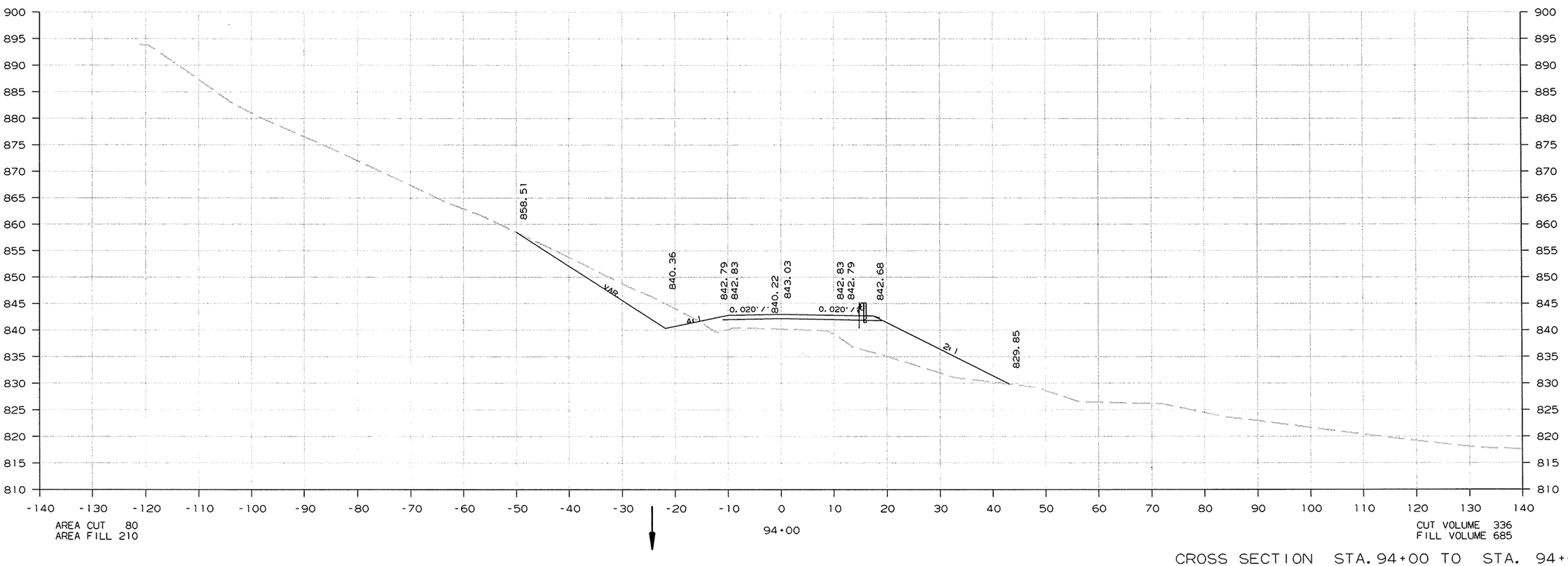
CROSS SECTION STA. 93+00 TO STA. 93+00

11/25/2014

R040206.DGN

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.		040206	109	215

(2) CROSS SECTIONS



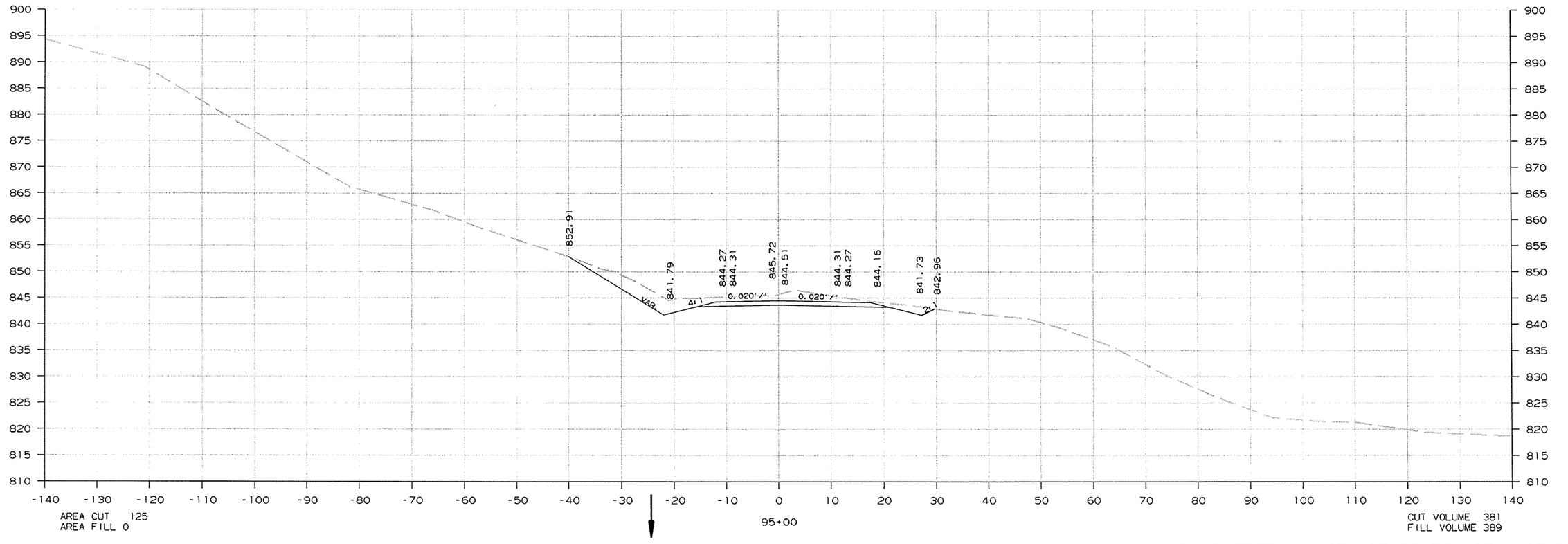
CROSS SECTION STA. 94+00 TO STA. 94+00

11/25/2014

R040206.DGN

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.		040206	110	215

(2) CROSS SECTIONS



AREA CUT 125
AREA FILL 0

CUT VOLUME 381
FILL VOLUME 389

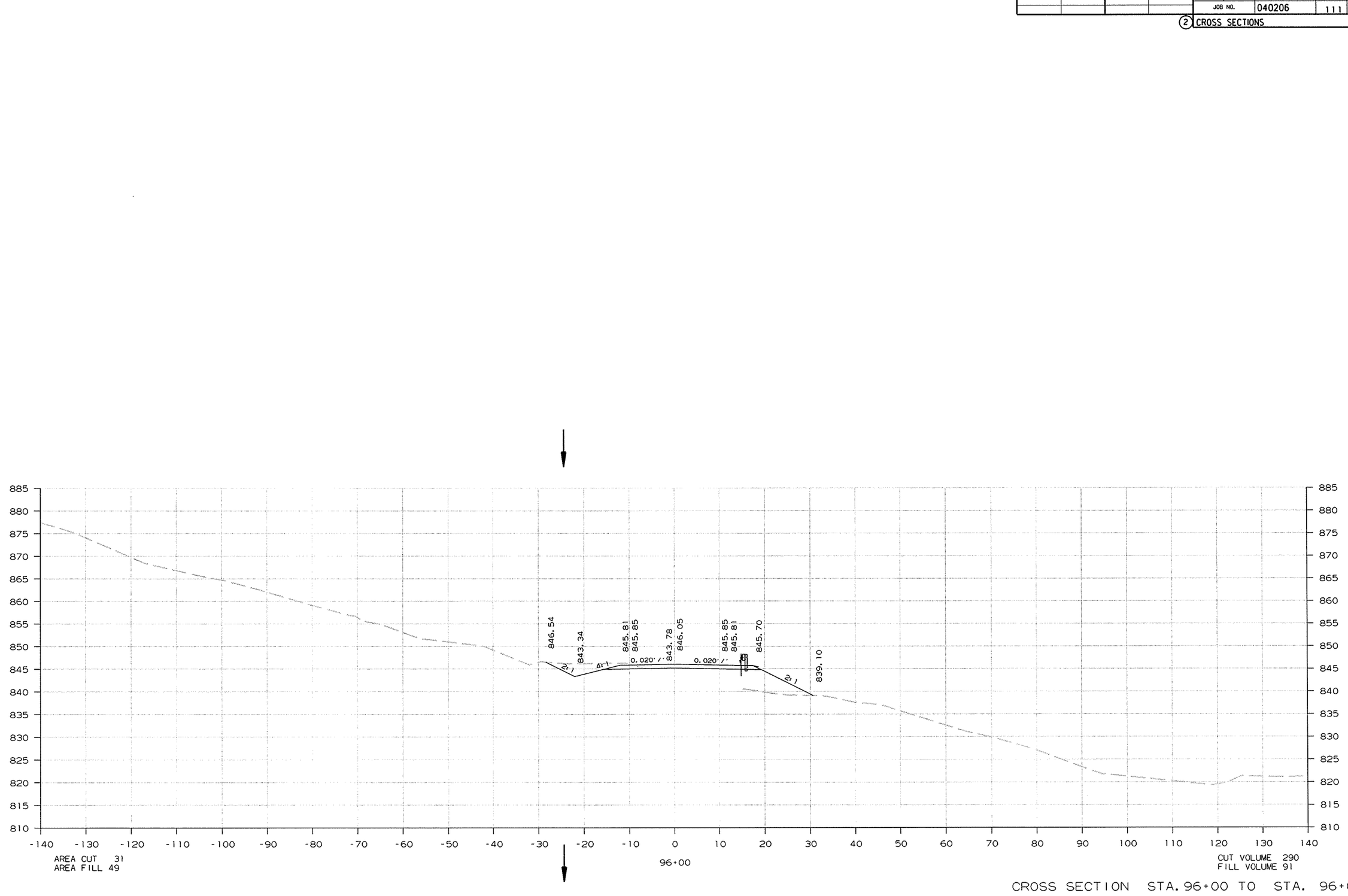
CROSS SECTION STA. 95+00 TO STA. 95+00

11/25/2014

ZBORDER.CEL

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.		040206	111	215

(2) CROSS SECTIONS



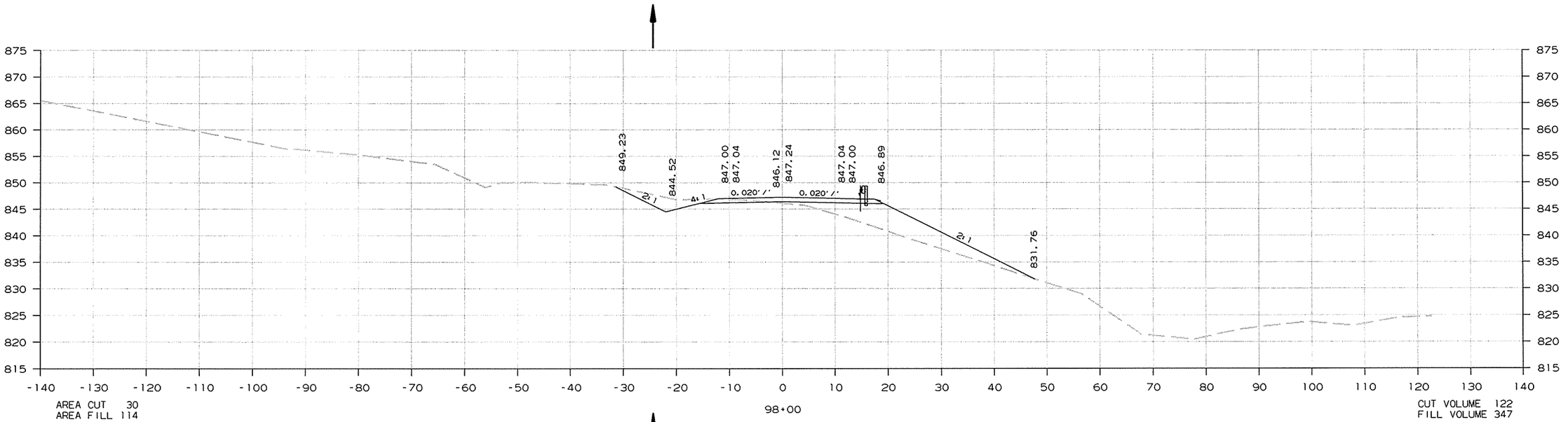
CROSS SECTION STA. 96+00 TO STA. 96+00

11/8/2011

ZBORDER.CEL

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.		040206	112	215

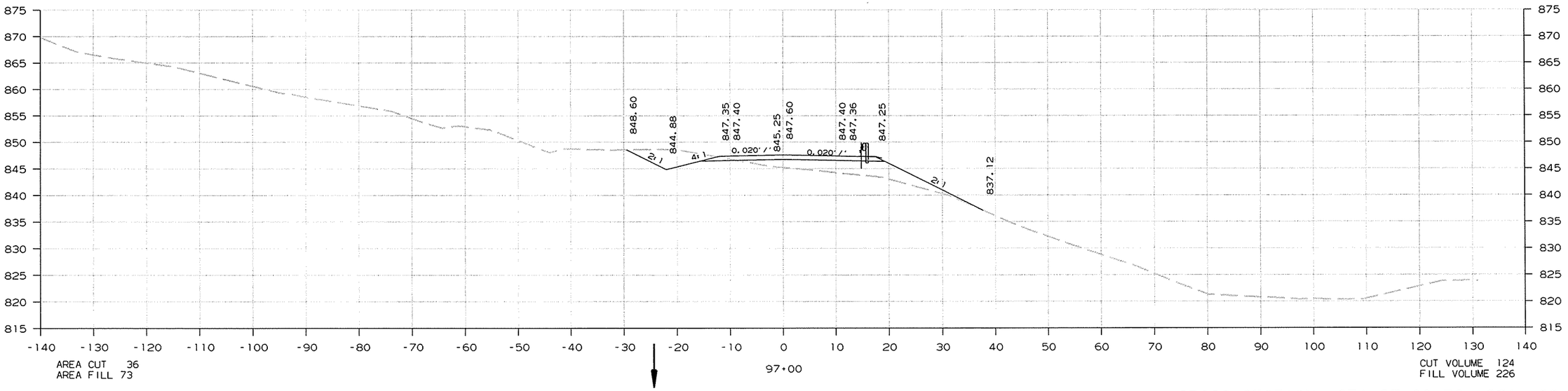
(2) CROSS SECTIONS



AREA CUT 30
AREA FILL 114

98+00

CUT VOLUME 122
FILL VOLUME 347



AREA CUT 36
AREA FILL 73

97+00

CUT VOLUME 124
FILL VOLUME 226

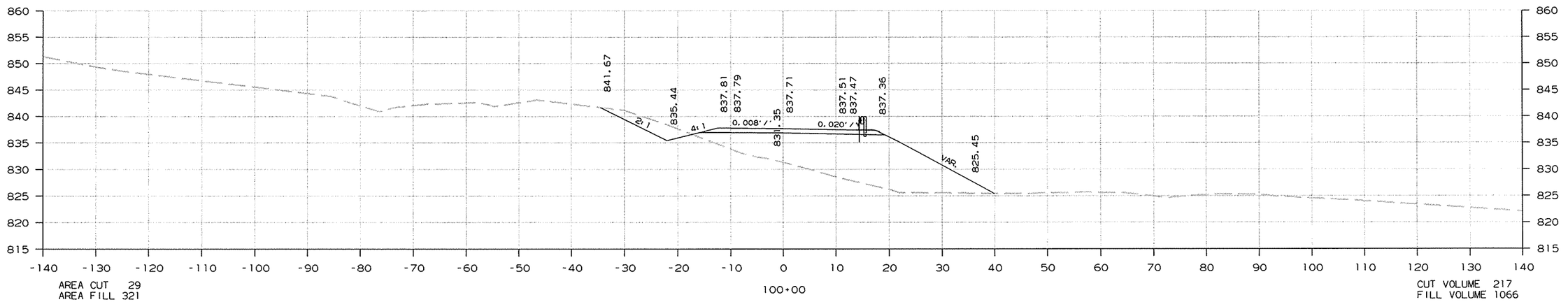
CROSS SECTION STA. 97+00 TO STA. 98+00

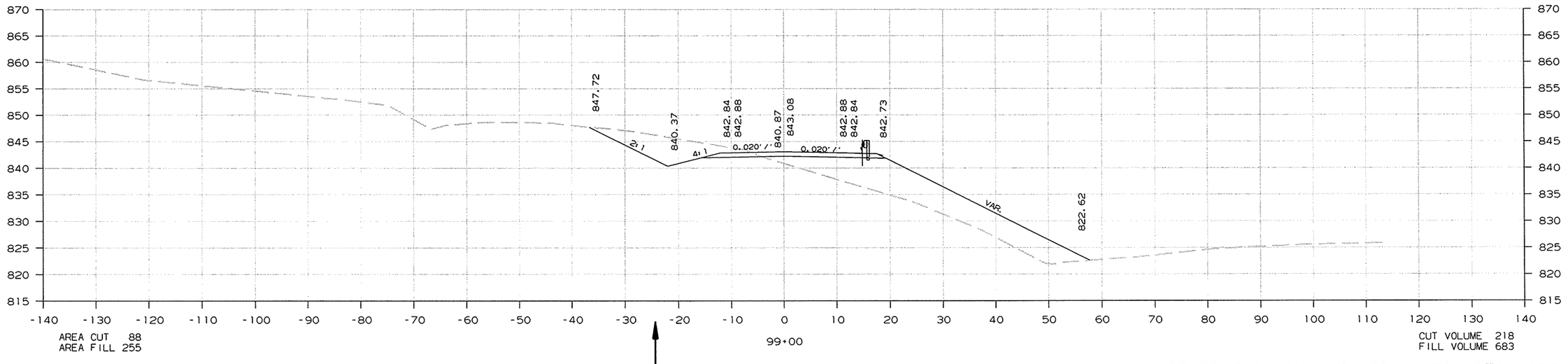
11/8/2011

ZBORDER.CEL

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.		040206	113	215

(2) CROSS SECTIONS





CROSS SECTION STA. 99+00 TO STA. 100+00

11/26/2014

R040206.DGN

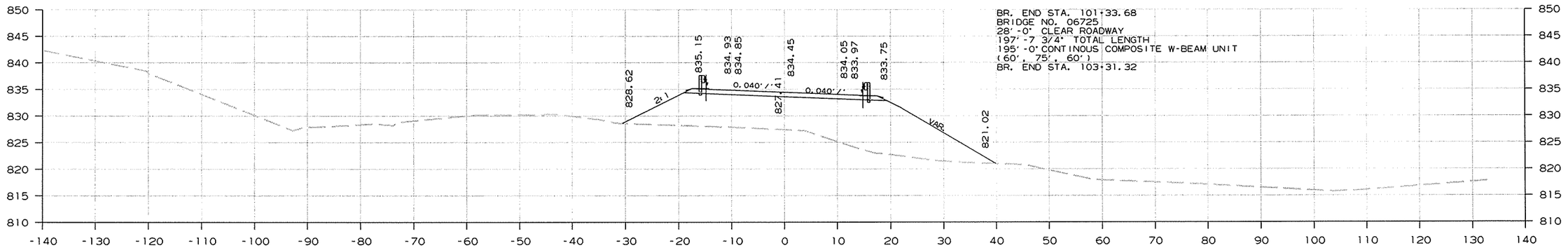
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	114	215

(2) CROSS SECTIONS

AREA CUT 0
AREA FILL 0

STA. 101+49 - TOE OF SLOPE

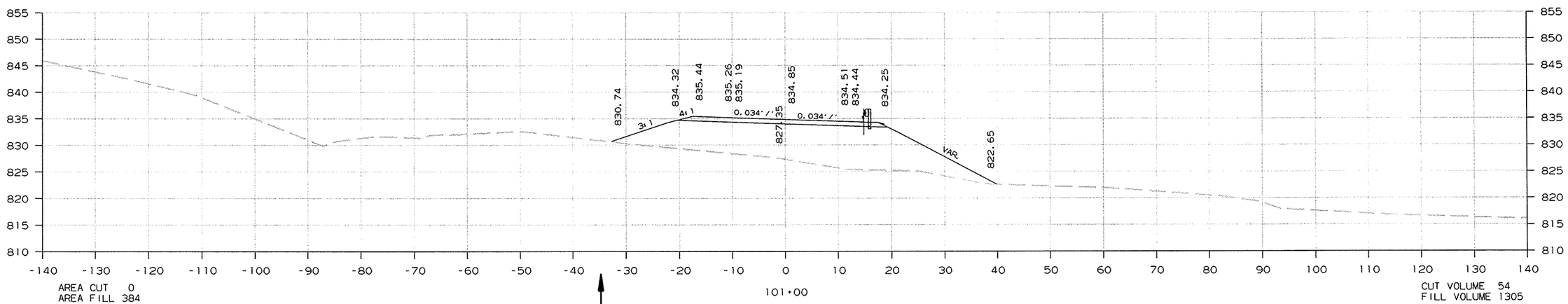
CUT VOLUME 0
FILL VOLUME 116



AREA CUT 0
AREA FILL 417

STA. 101+33.68 - BRIDGE END

CUT VOLUME 0
FILL VOLUME 500



AREA CUT 0
AREA FILL 384

CUT VOLUME 54
FILL VOLUME 1305

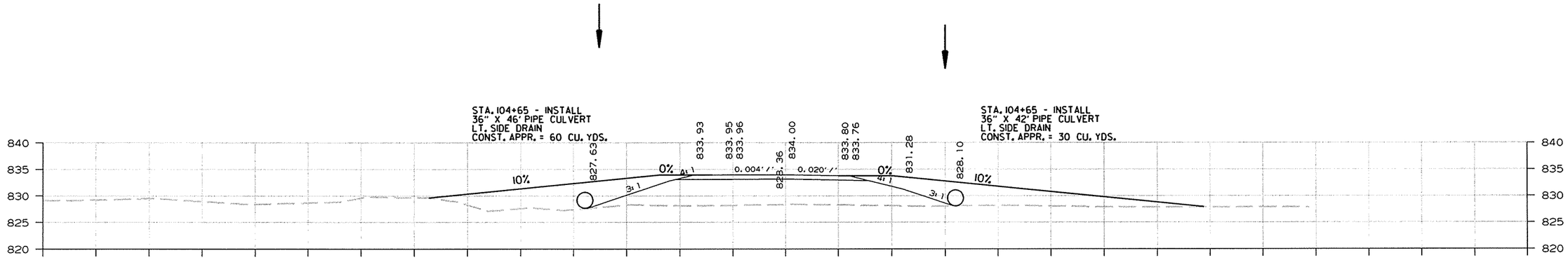
CROSS SECTION STA. 101+00 TO STA. 101+34

11/26/2014

R040206.DGN

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.		040206	115	215

(2) CROSS SECTIONS



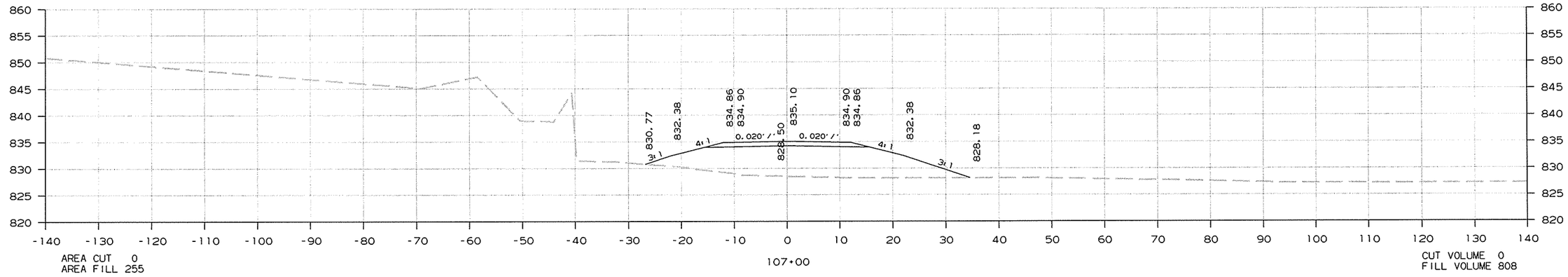
CROSS SECTION STA. 103+31 TO STA. 105+00

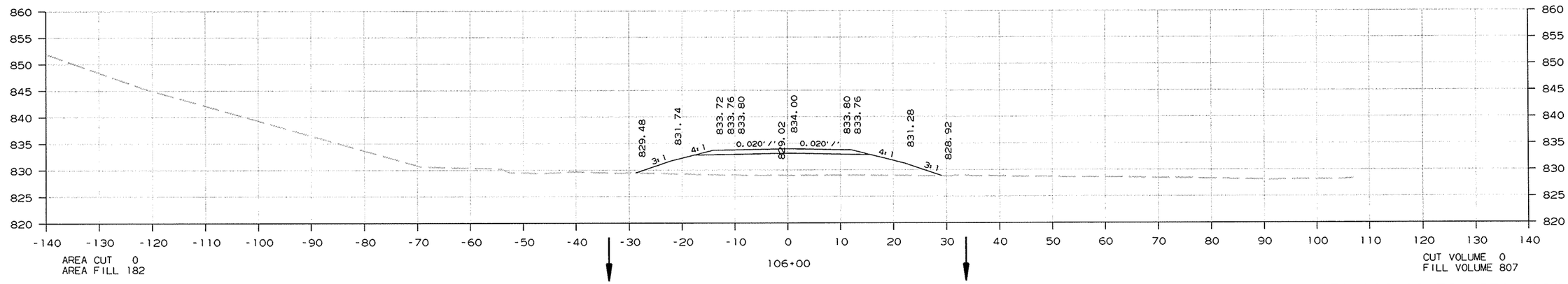
11/26/2014

R040206.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	116	215

(2) CROSS SECTIONS





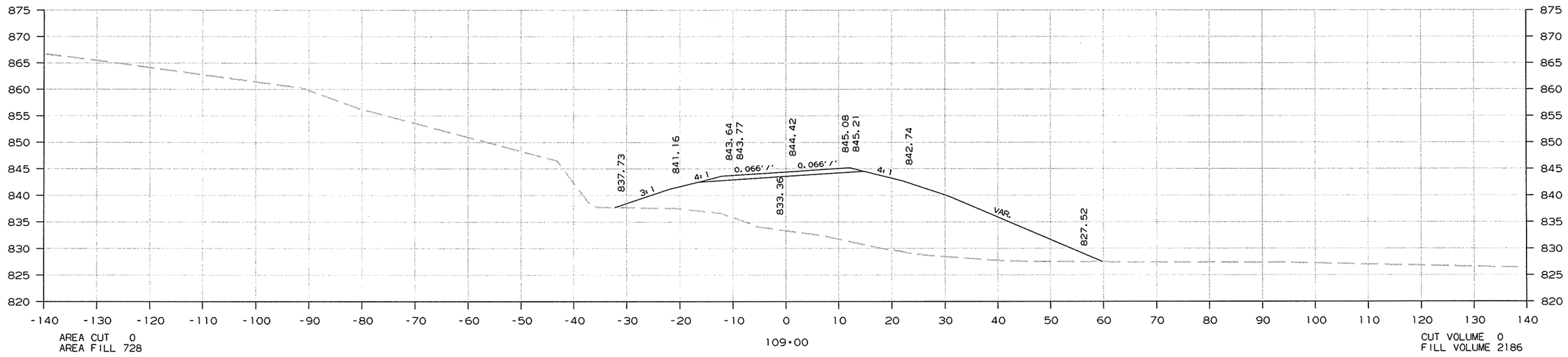
CROSS SECTION STA. 106+00 TO STA. 107+00

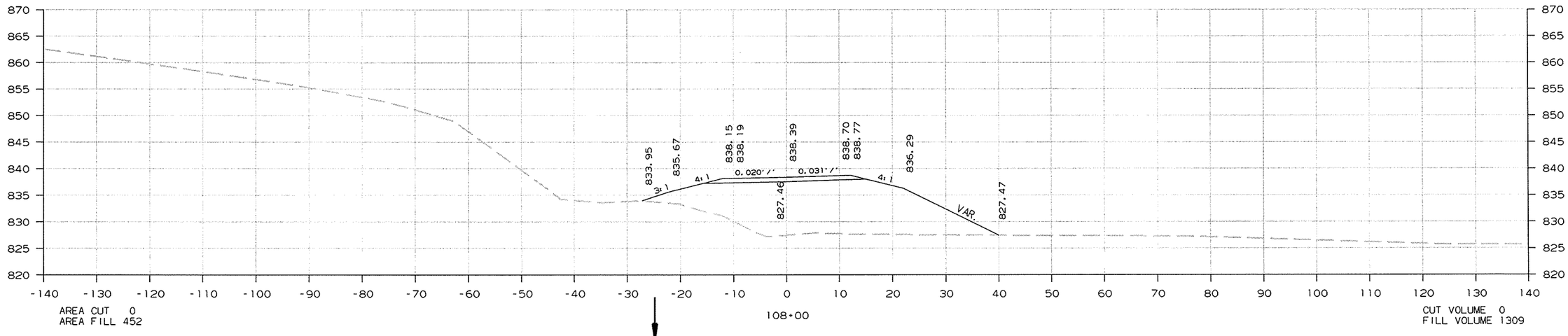
11/26/2014

R040206.DGN

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.		040206	117	215

(2) CROSS SECTIONS





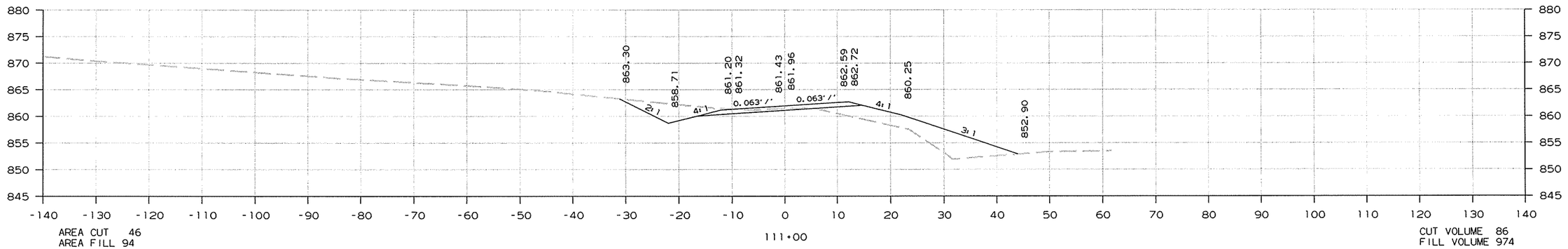
CROSS SECTION STA. 108+00 TO STA. 109+00

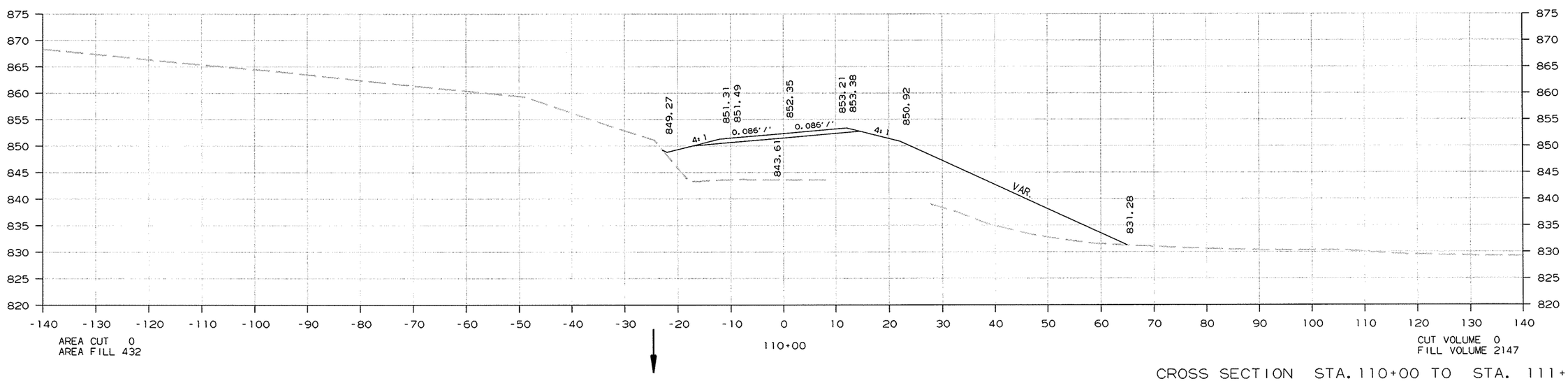
11/26/2014

R040206.DGN

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.		040206	118	215

(2) CROSS SECTIONS





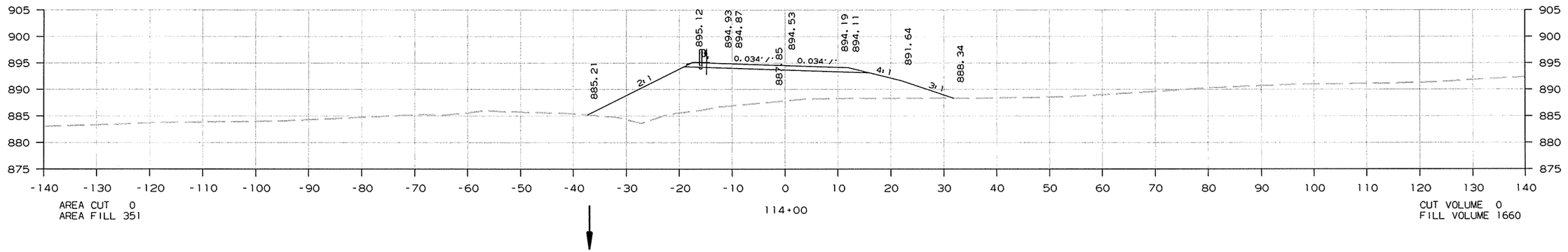
CROSS SECTION STA. 110+00 TO STA. 111+00

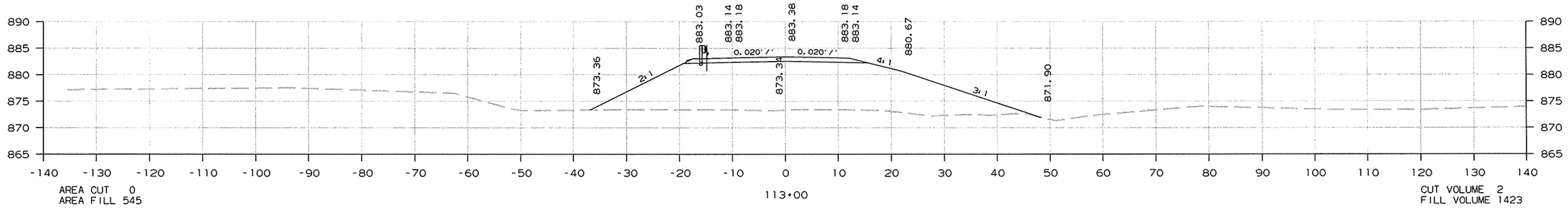
11/26/2014

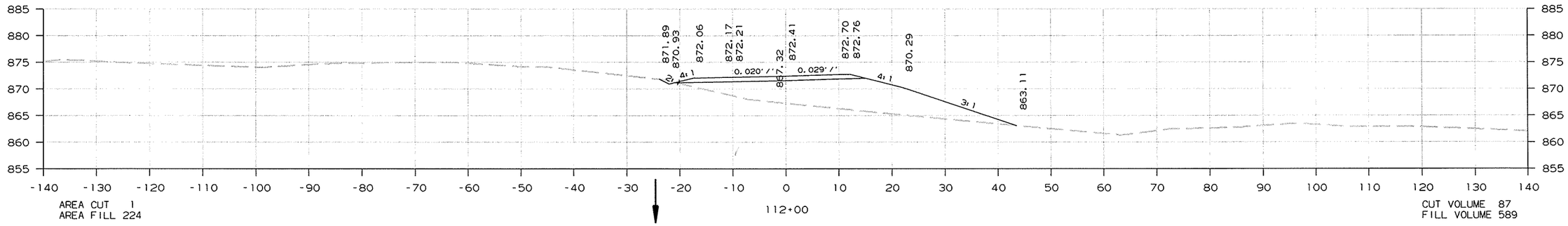
R040206.DGN

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.		040206	119	215

(2) CROSS SECTIONS







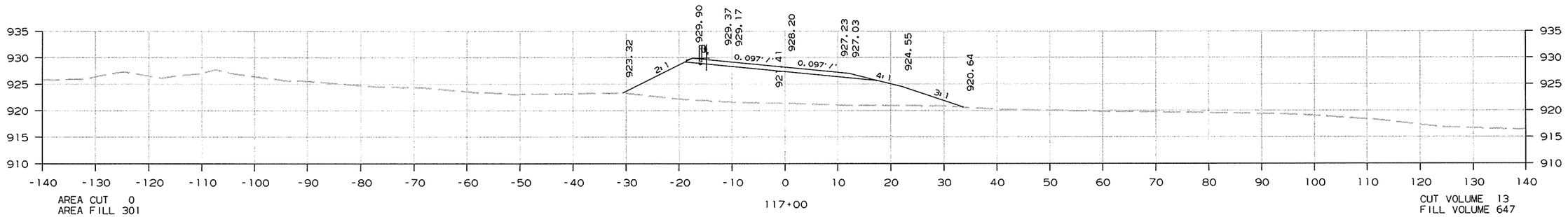
CROSS SECTION STA. 112+00 TO STA. 114+00

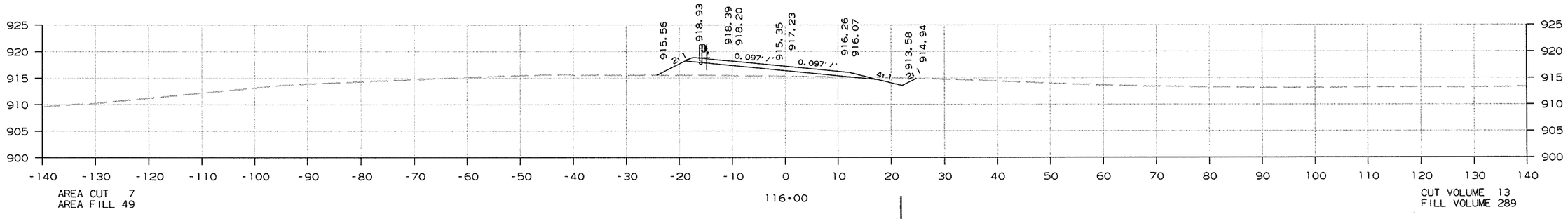
11/26/2014

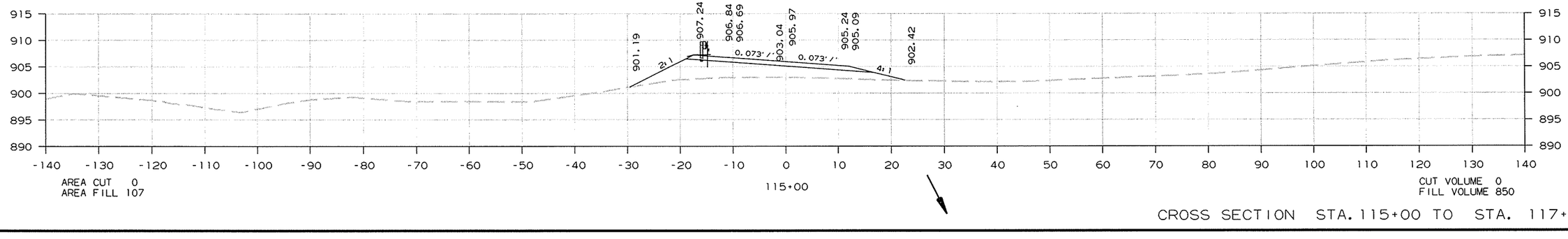
R040206.DGN

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.		040206	120	215

(2) CROSS SECTIONS







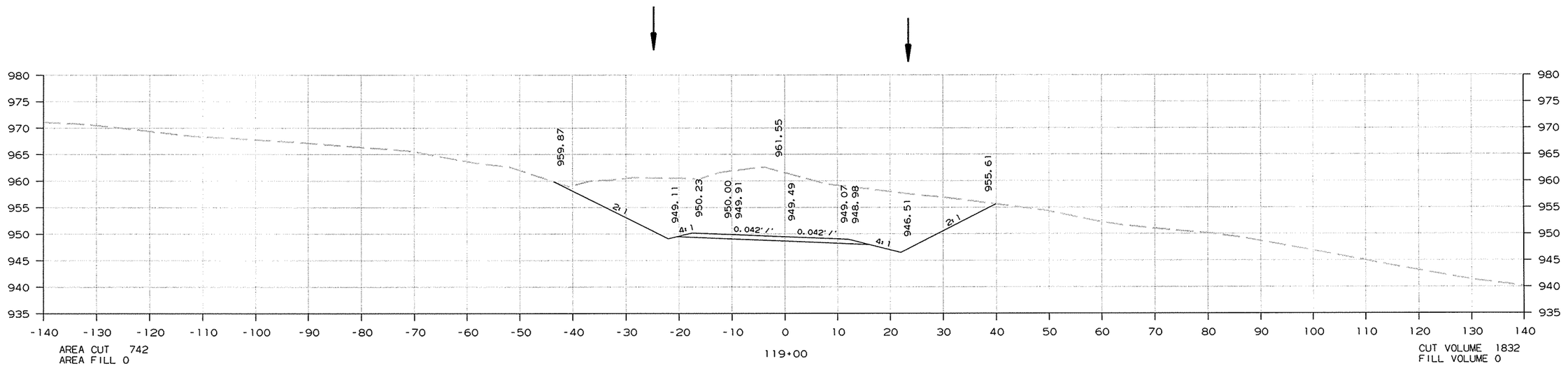
CROSS SECTION STA. 115+00 TO STA. 117+00

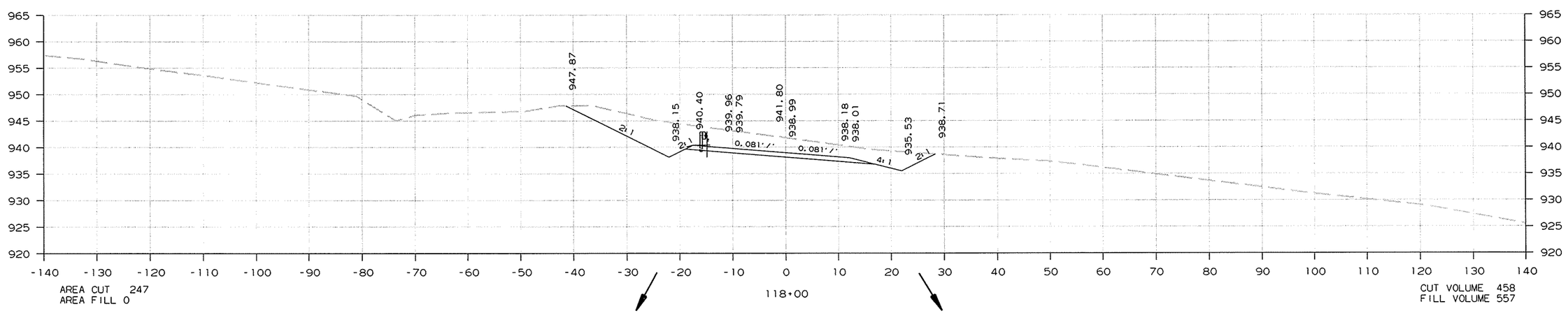
11/26/2014

R040206.DGN

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.		040206	121	215

(2) CROSS SECTIONS





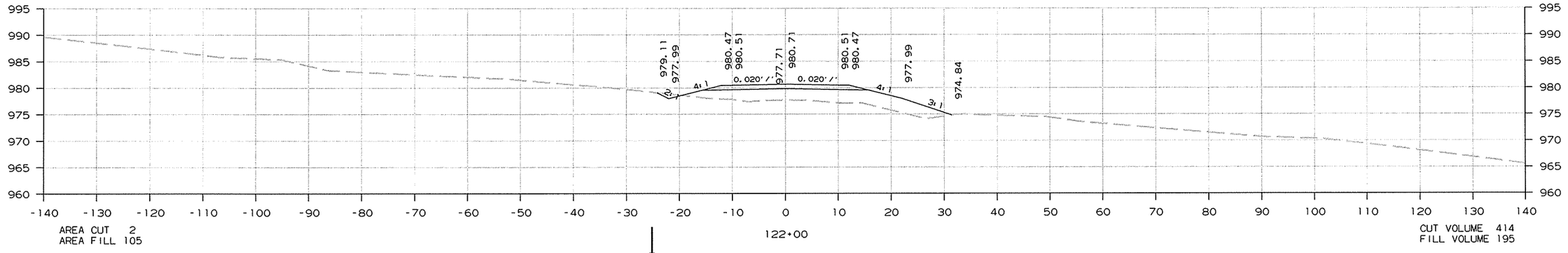
CROSS SECTION STA. 118+00 TO STA. 119+00

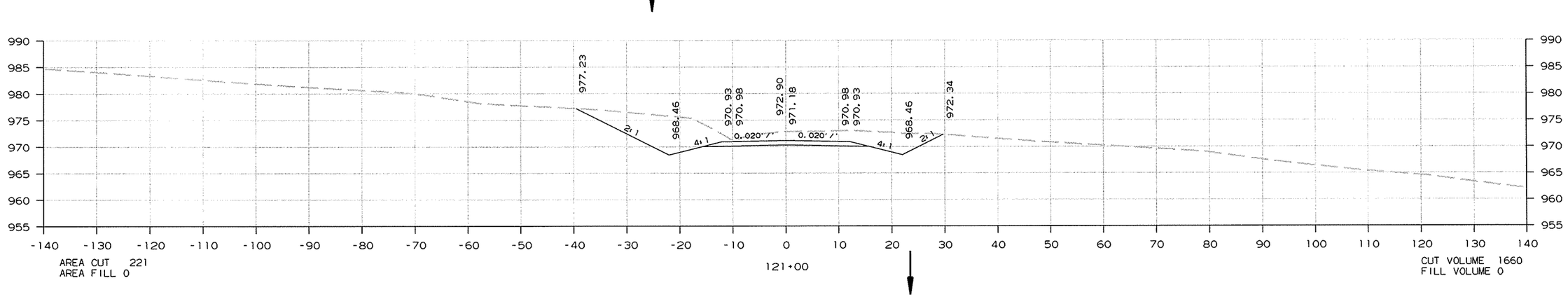
11/26/2014

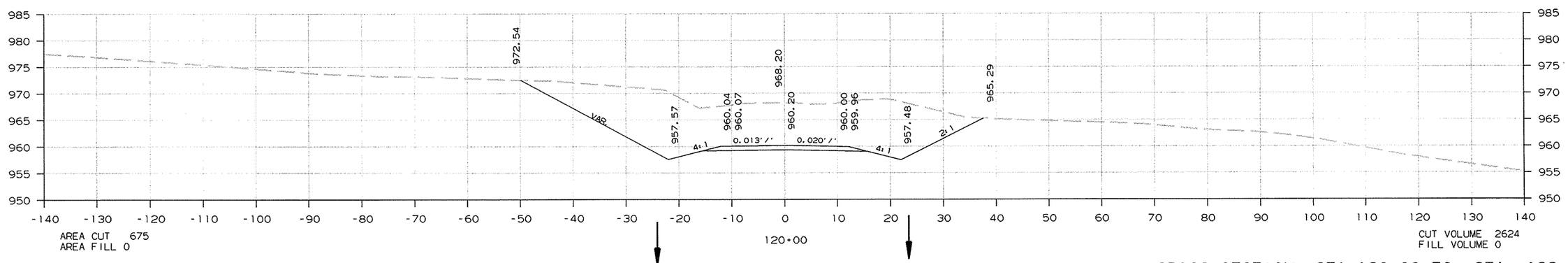
R040206.DGN

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.		040206	122	215

(2) CROSS SECTIONS







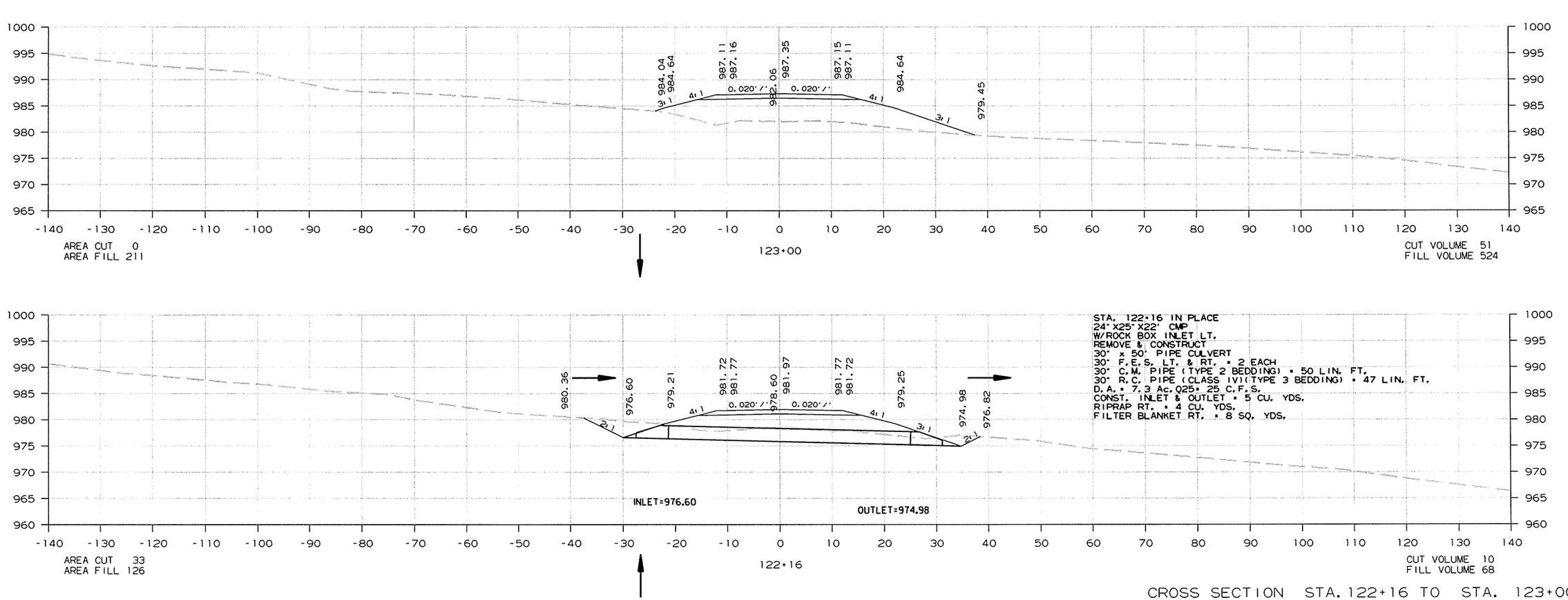
CROSS SECTION STA. 120+00 TO STA. 122+00

11/26/2014

R040206.DGN

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.		040206	123	215

(2) CROSS SECTIONS



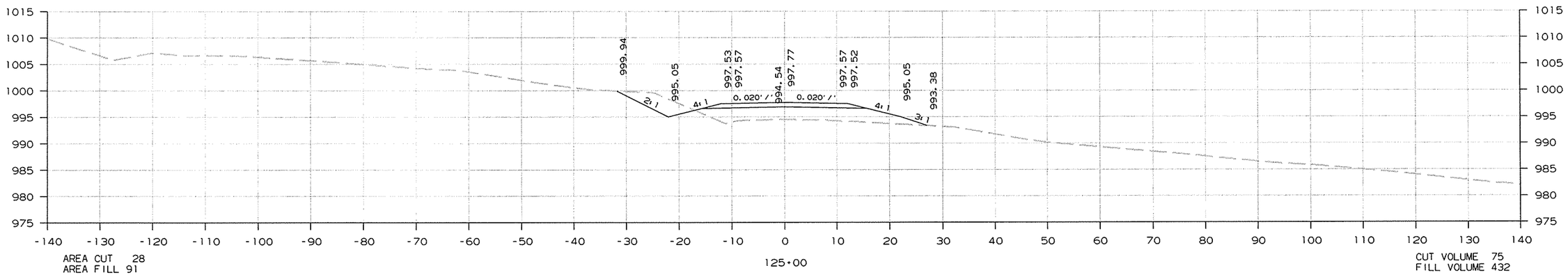
CROSS SECTION STA. 122+16 TO STA. 123+00

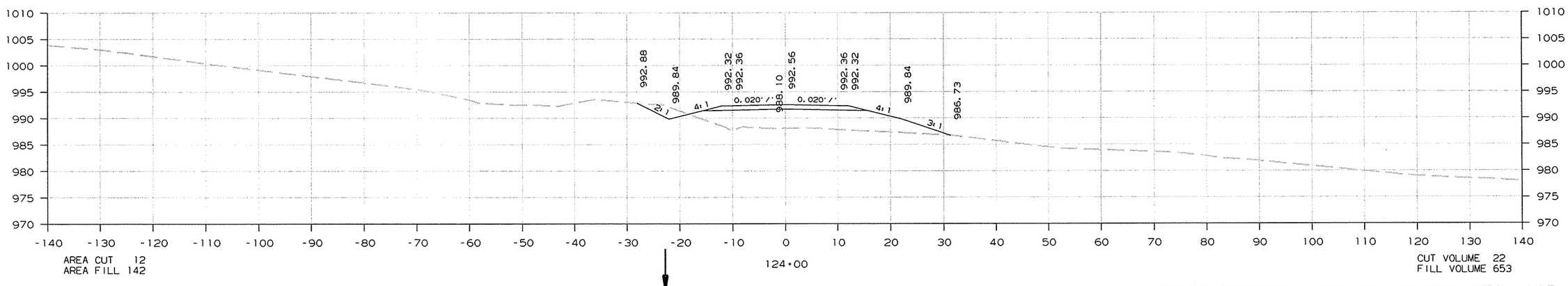
11/26/2014

R040206.DGN

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.		040206	124	215

(2) CROSS SECTIONS





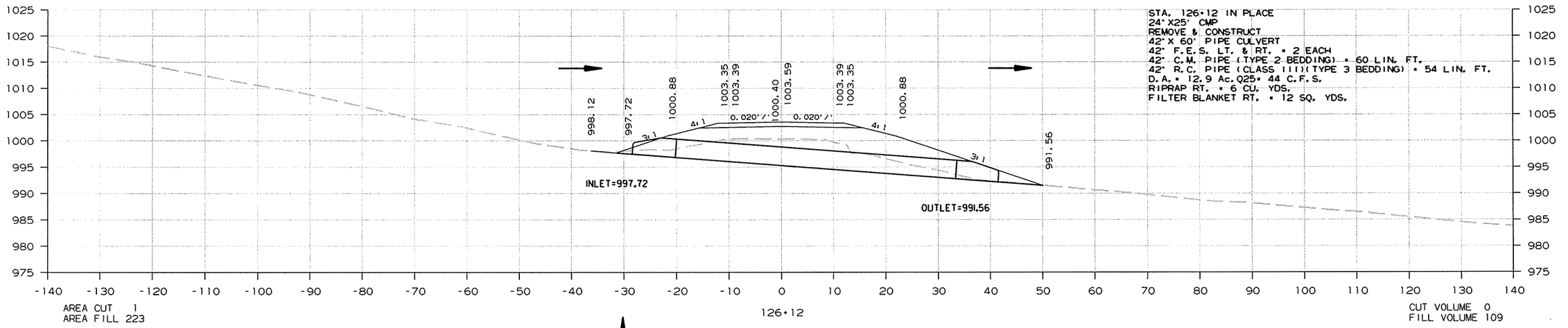
CROSS SECTION STA. 124+00 TO STA. 125+00

11/26/2014

R040206.DGN

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.		040206	125	215

(2) CROSS SECTIONS



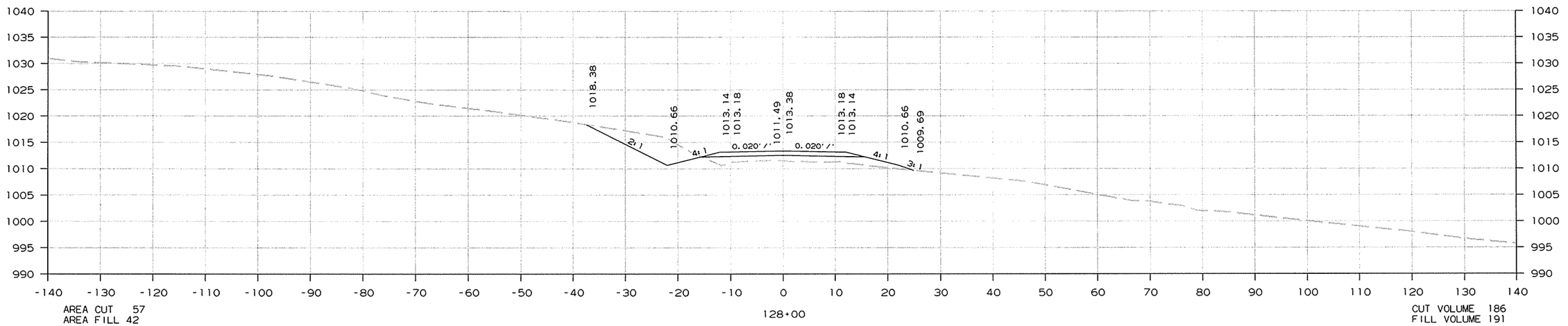
CROSS SECTION STA. 126+00 TO STA. 126+12

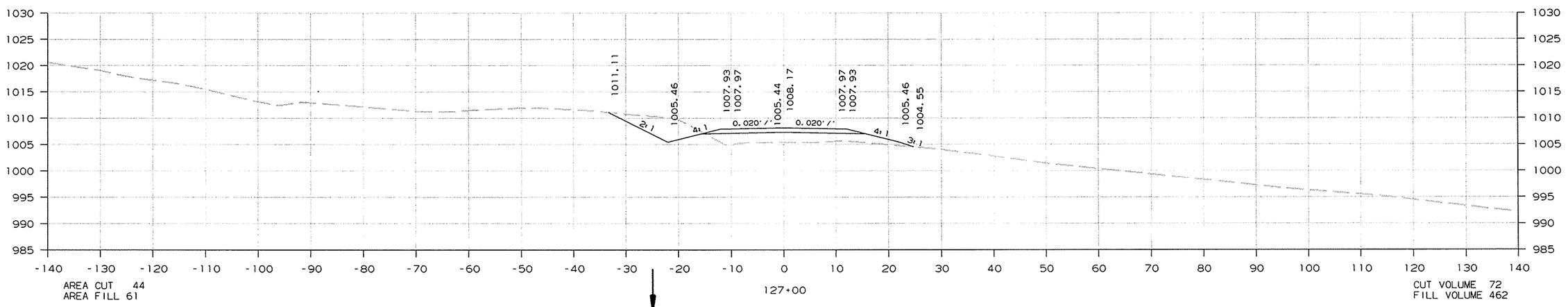
11/26/2014

R040206.DGN

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.		040206	126	215

(2) CROSS SECTIONS





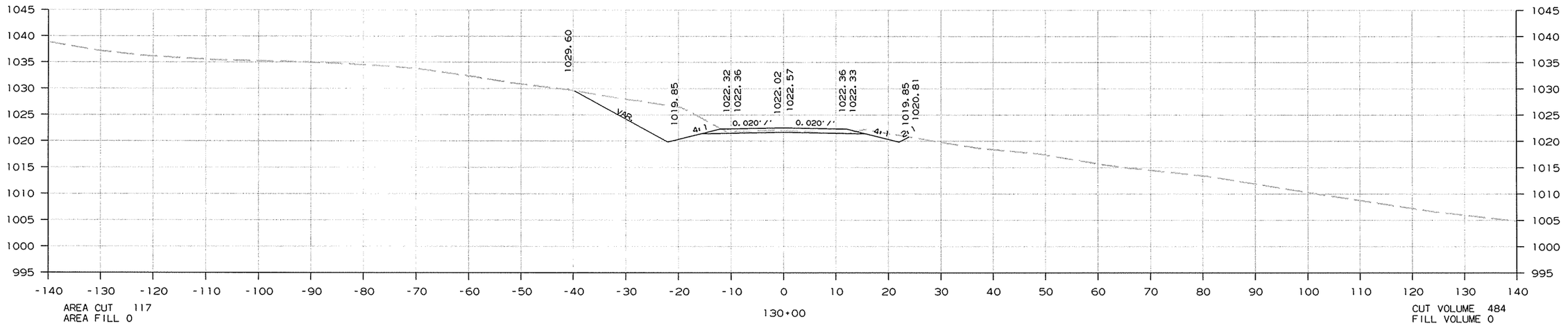
CROSS SECTION STA. 127+00 TO STA. 128+00

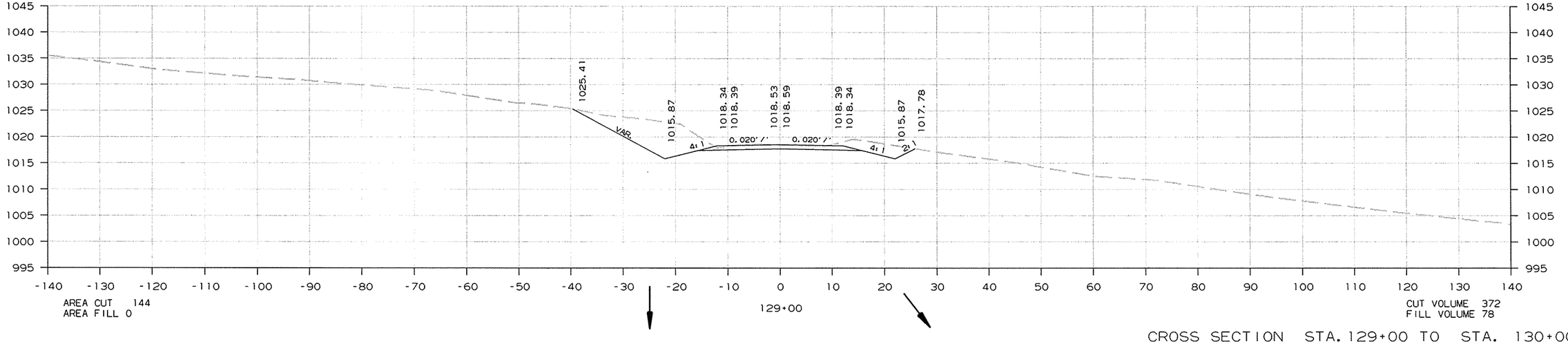
11/26/2014

R040206.DGN

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.		040206	127	215

(2) CROSS SECTIONS





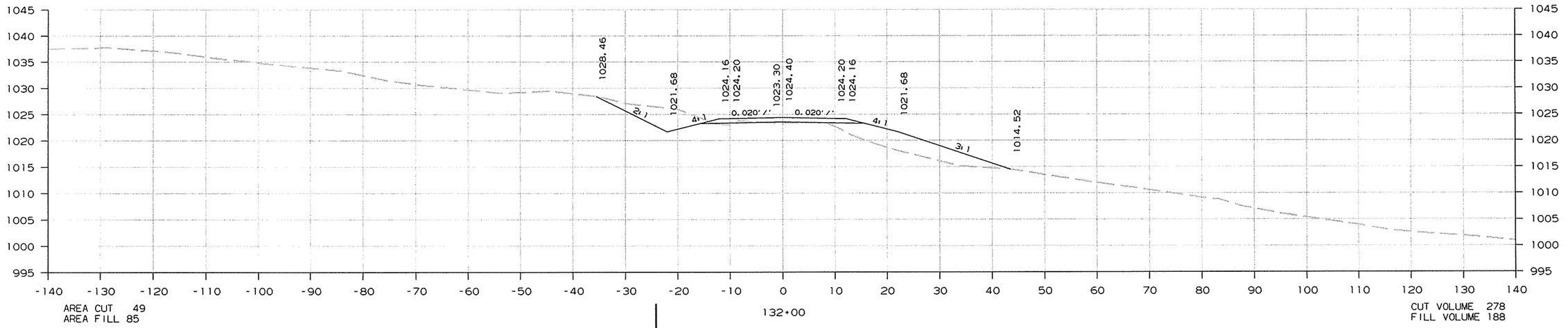
CROSS SECTION STA. 129+00 TO STA. 130+00

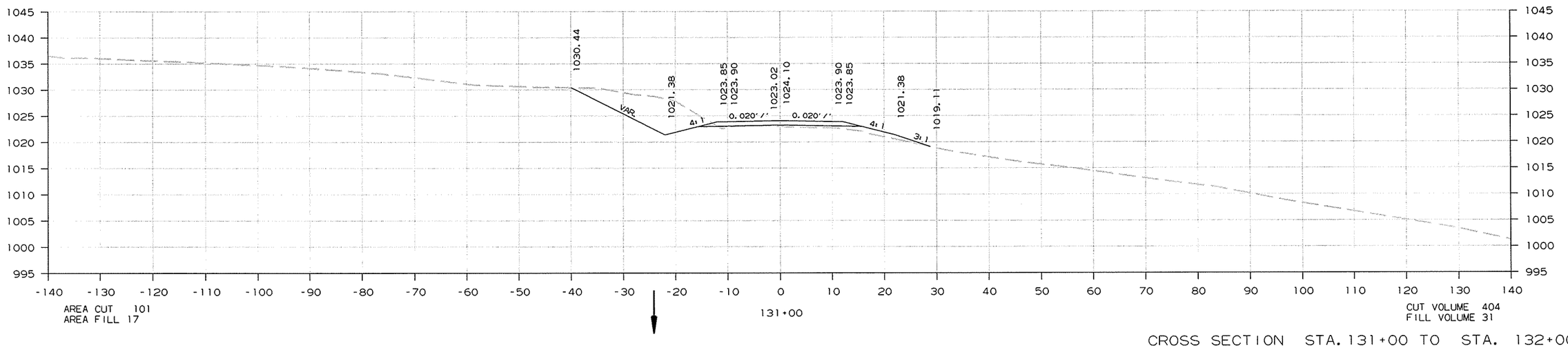
11/26/2014

R040206.DGN

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.		040206	128	215

(2) CROSS SECTIONS





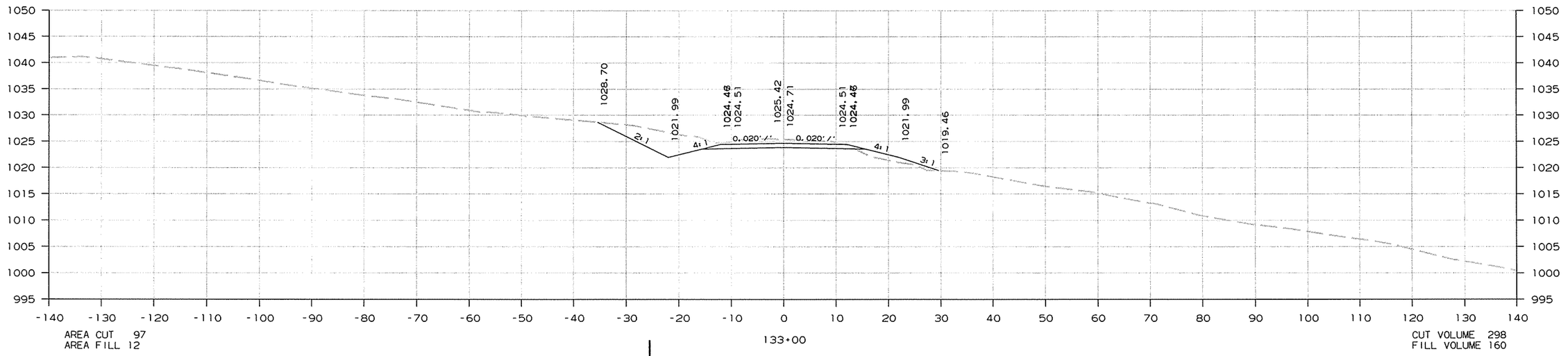
CROSS SECTION STA. 131+00 TO STA. 132+00

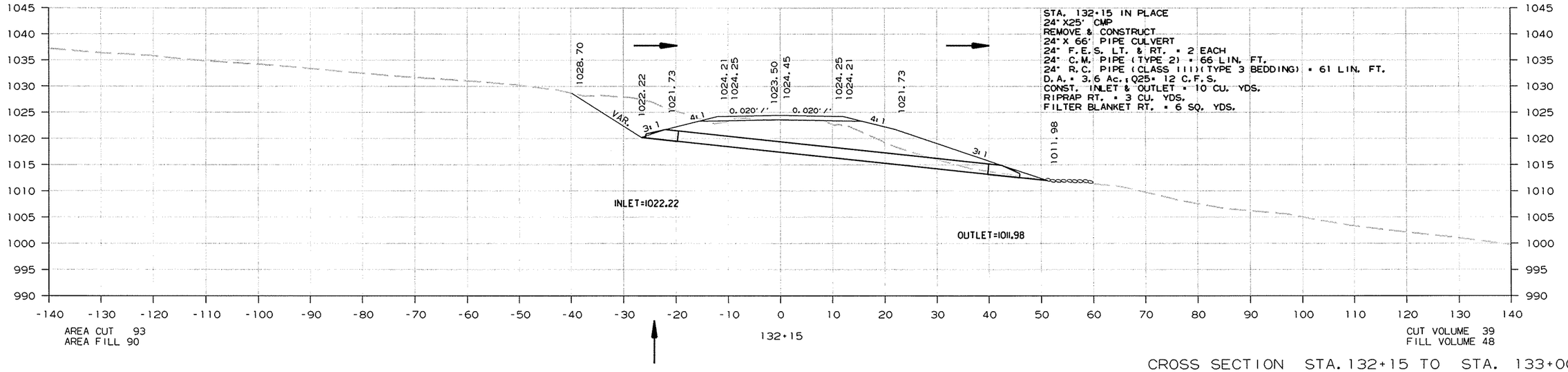
11/26/2014

R040206.DGN

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.		040206	129	215

(2) CROSS SECTIONS





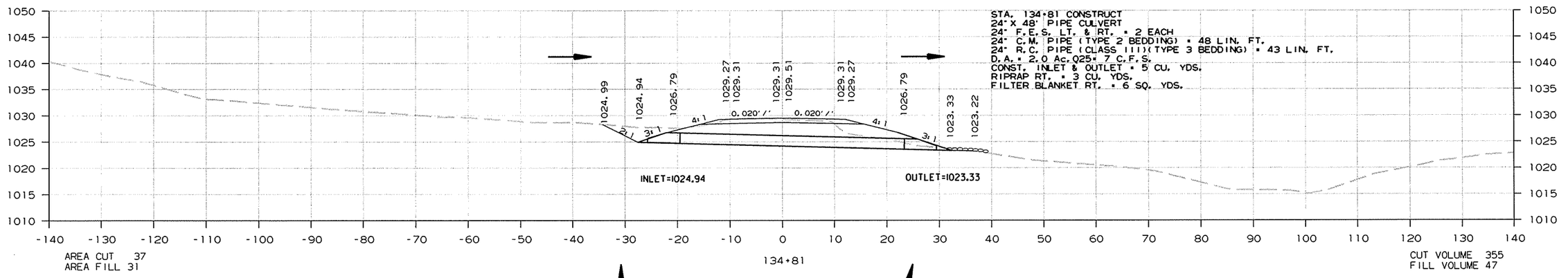
CROSS SECTION STA. 132+15 TO STA. 133+00

11/26/2014

R040206.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	130	215

(2) CROSS SECTIONS



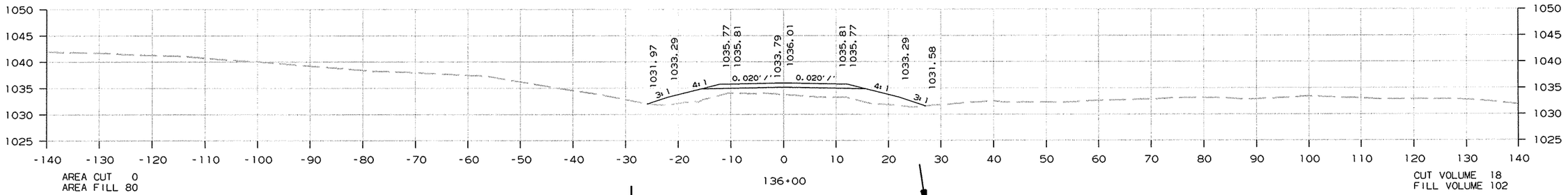
CROSS SECTION STA. 134+00 TO STA. 134+81

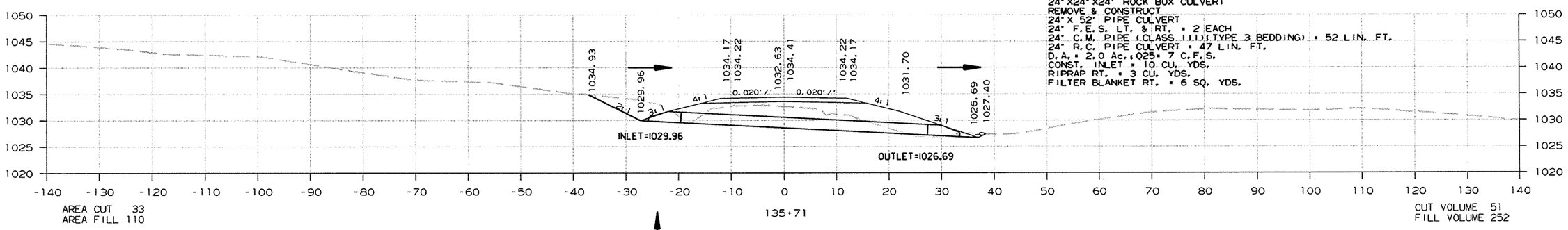
11/26/2014

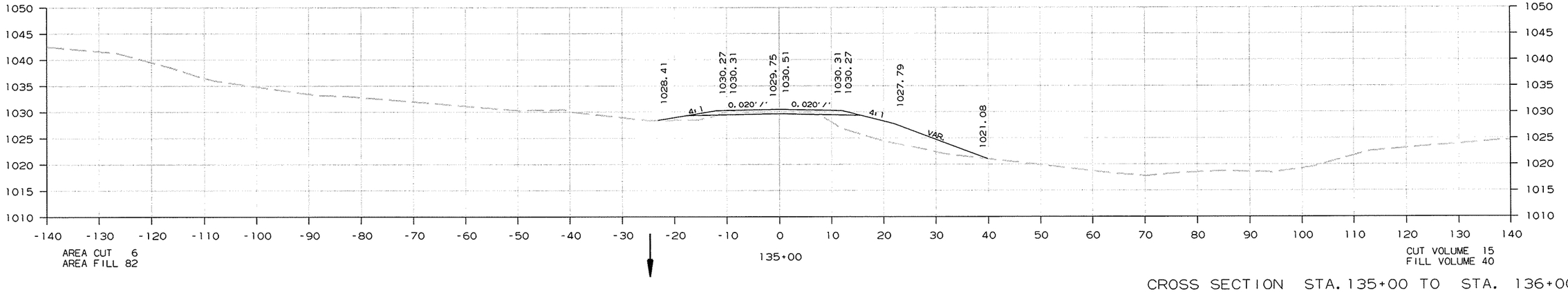
R040206.DGN

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.		040206	131	215

(2) CROSS SECTIONS







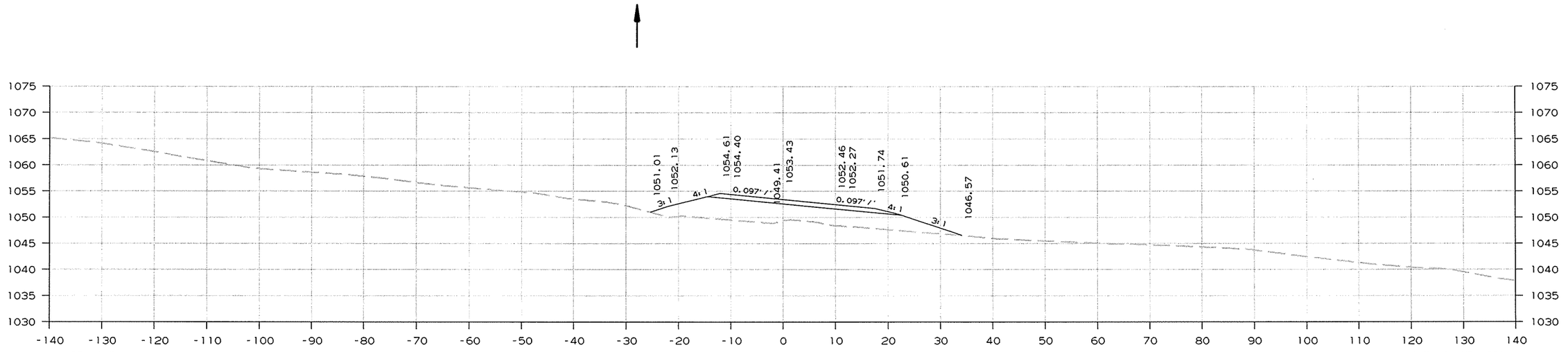
CROSS SECTION STA. 135+00 TO STA. 136+00

11/26/2014

R040206.DGN

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.		040206	132	215

(2) CROSS SECTIONS



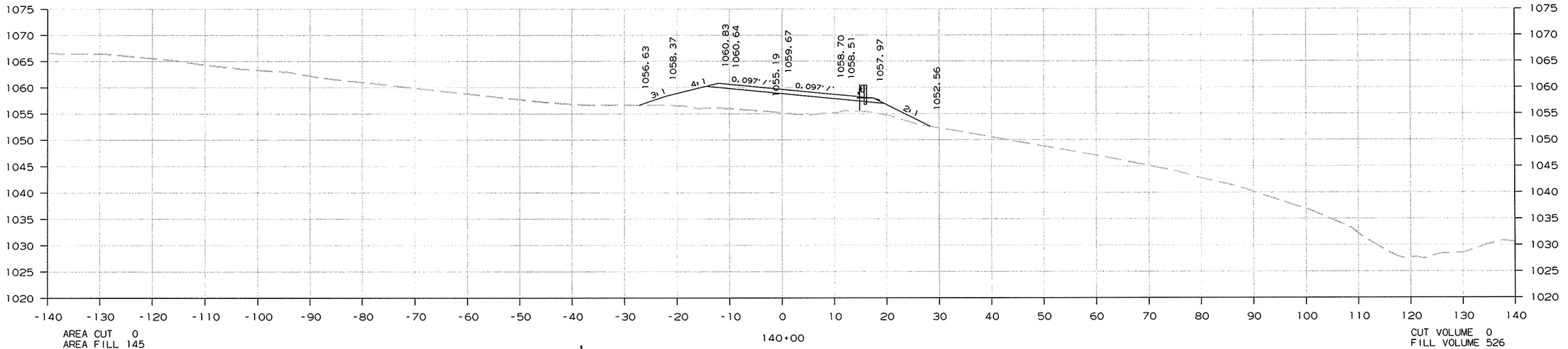
CROSS SECTION STA. 137+00 TO STA. 139+00

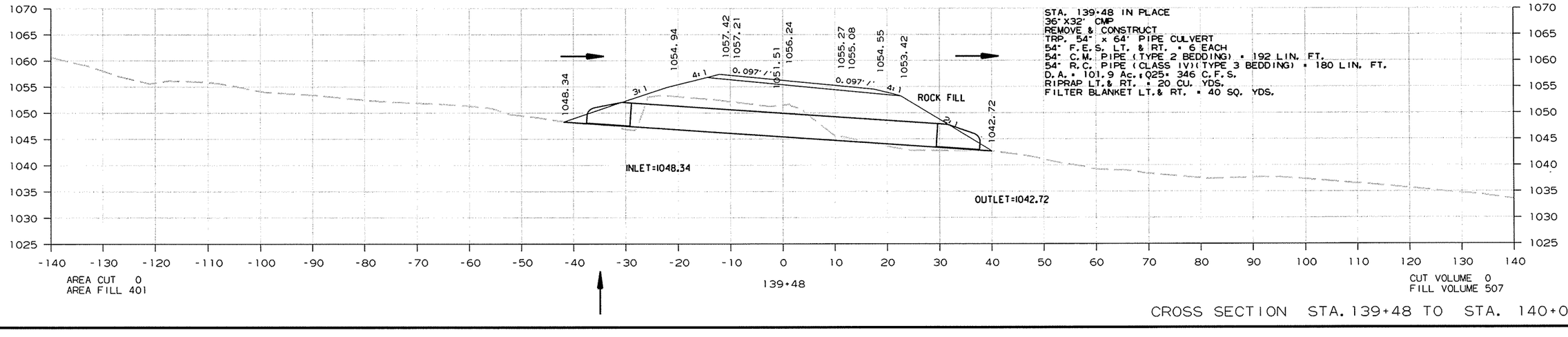
11/26/2014

R040206.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	133	215

(2) CROSS SECTIONS





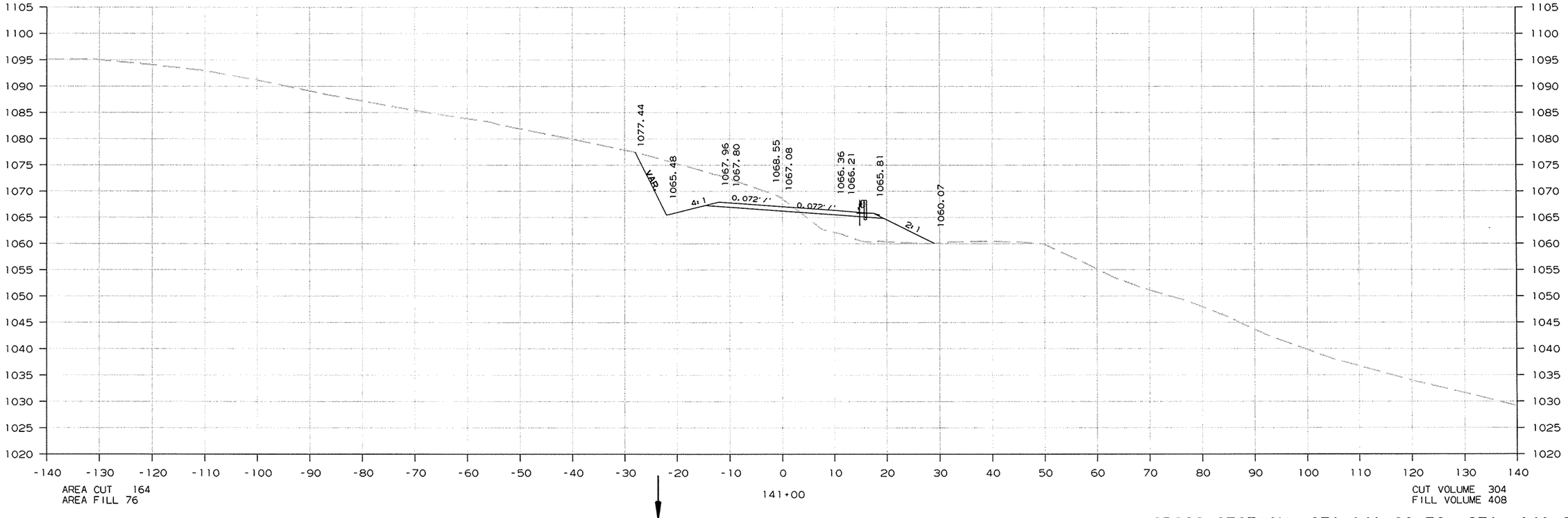
CROSS SECTION STA. 139+48 TO STA. 140+00

11/26/2014

R040206.DGN

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.		040206	134	215

(2) CROSS SECTIONS



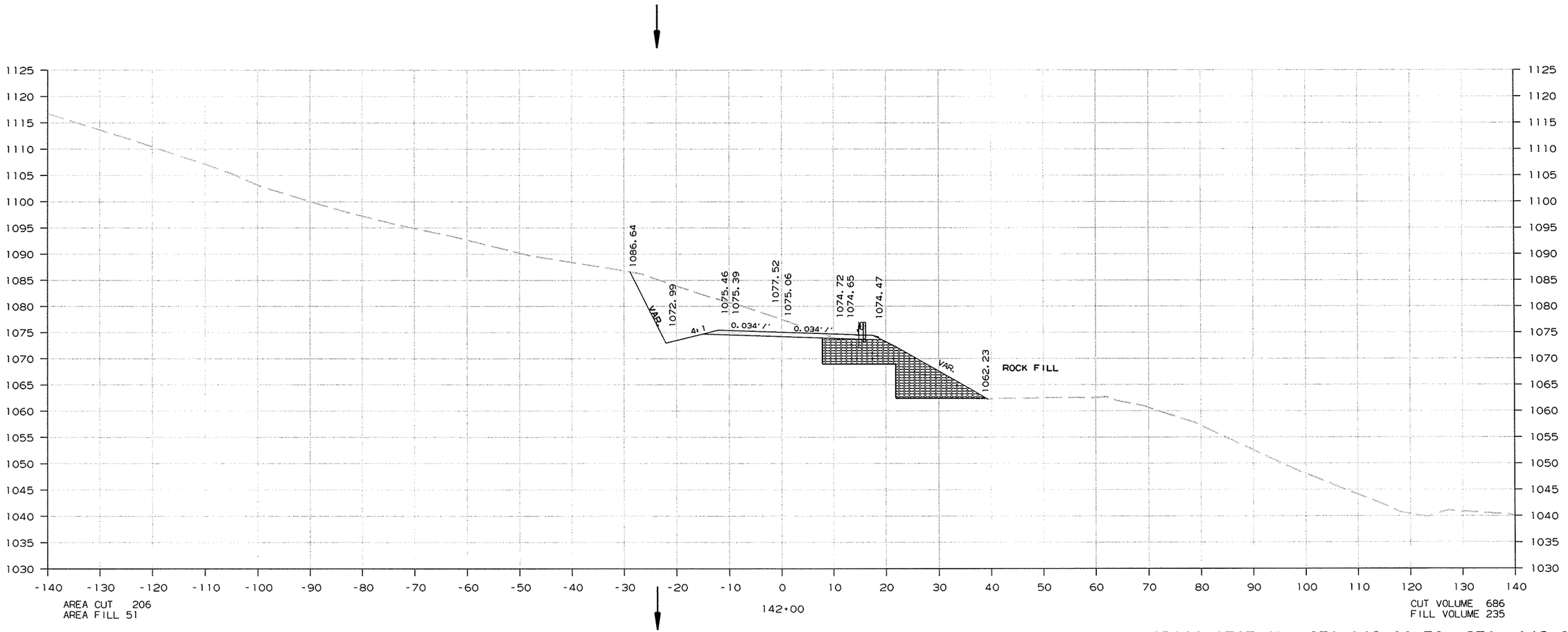
CROSS SECTION STA. 141+00 TO STA. 141+00

11/8/2011

ZBORDER.CEL

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.		040206	135	215

(2) CROSS SECTIONS



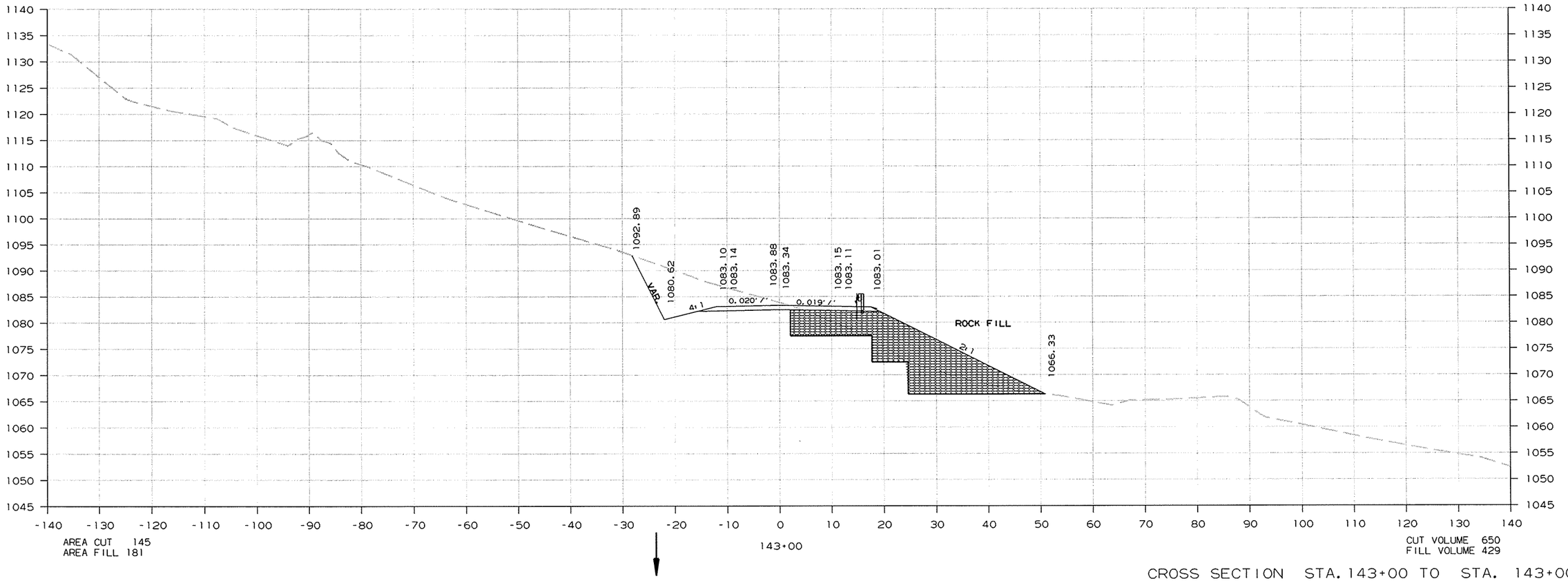
CROSS SECTION STA. 142+00 TO STA. 142+00

11/8/2011

ZBORDER.CEL

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.		040206	136	215

(2) CROSS SECTIONS



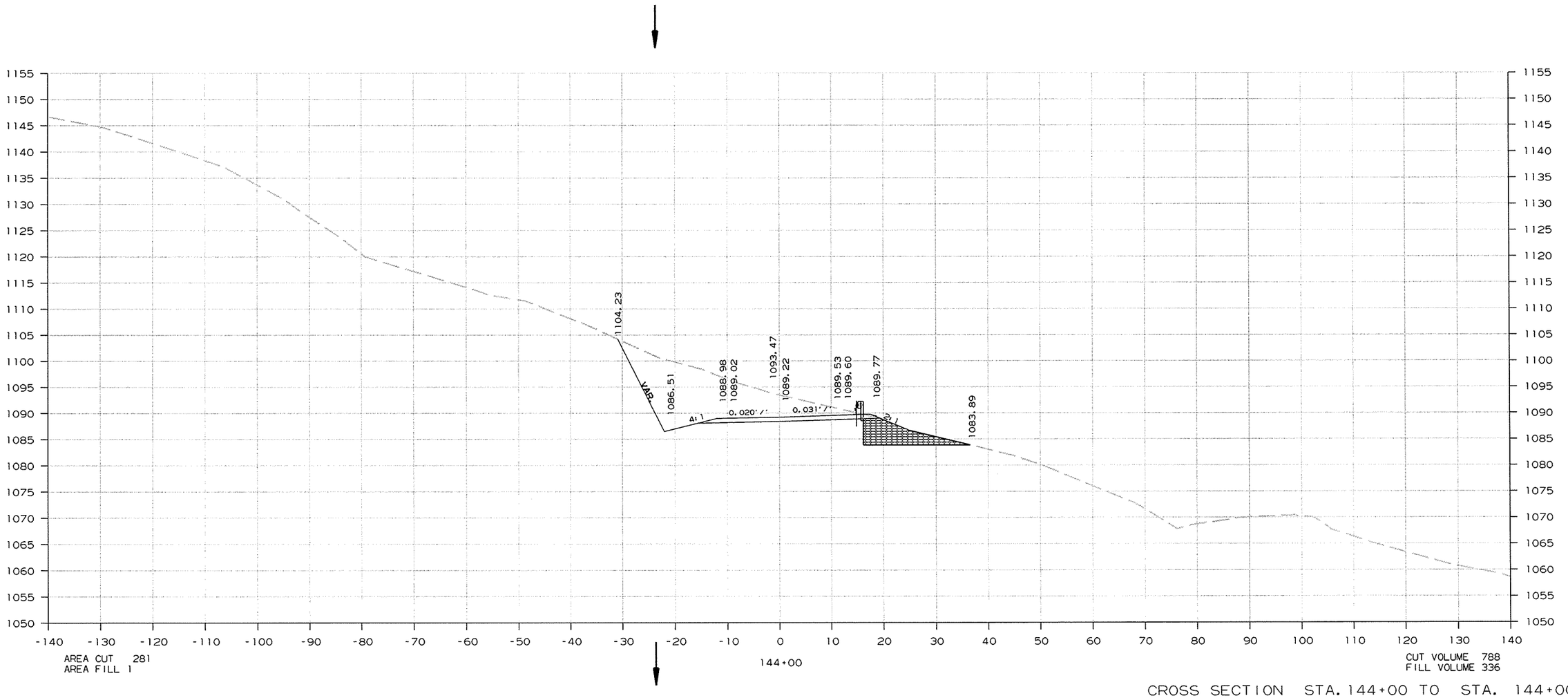
CROSS SECTION STA. 143+00 TO STA. 143+00

11/8/2011

ZBORDER.CEL

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.		040206	137	215

(2) CROSS SECTIONS



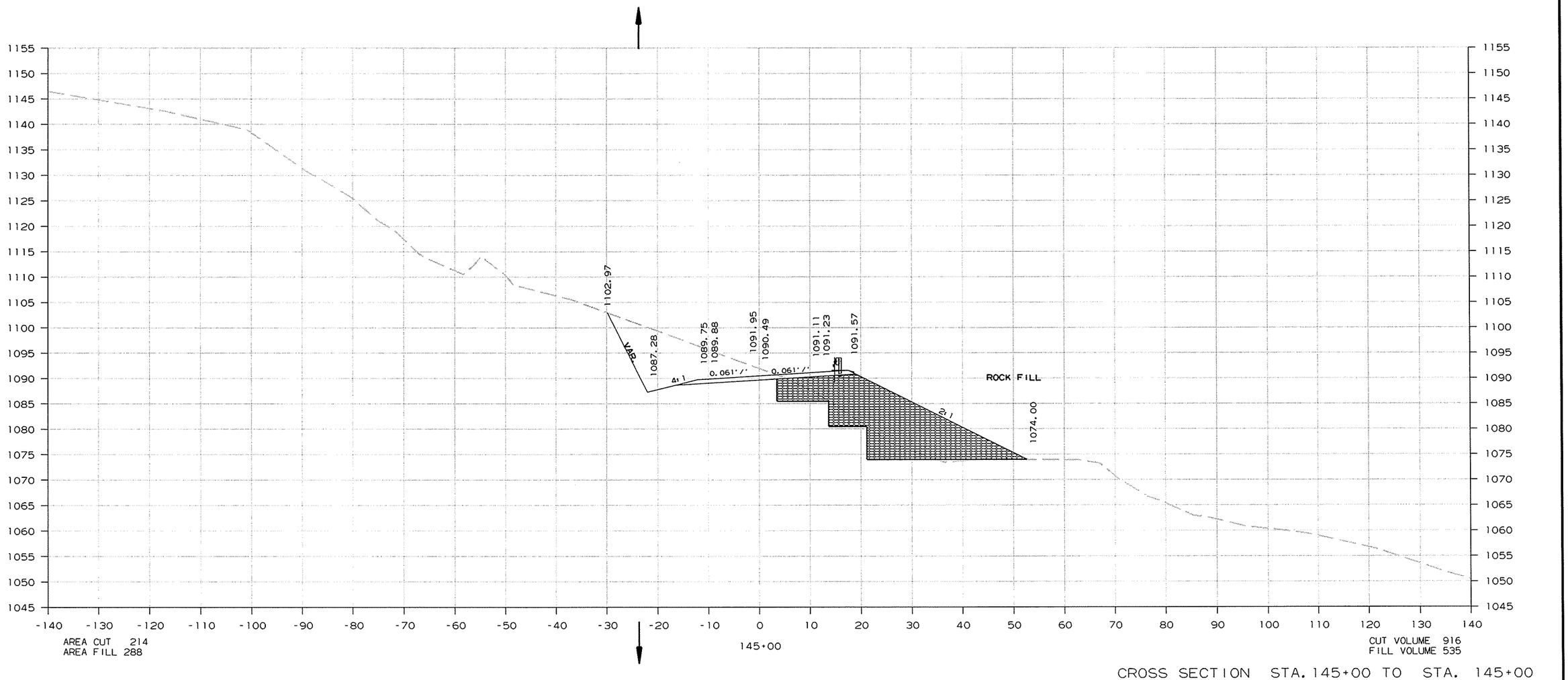
CROSS SECTION STA. 144+00 TO STA. 144+00

11/8/2011

ZBORDER.CEL

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.		040206	138	215

(2) CROSS SECTIONS



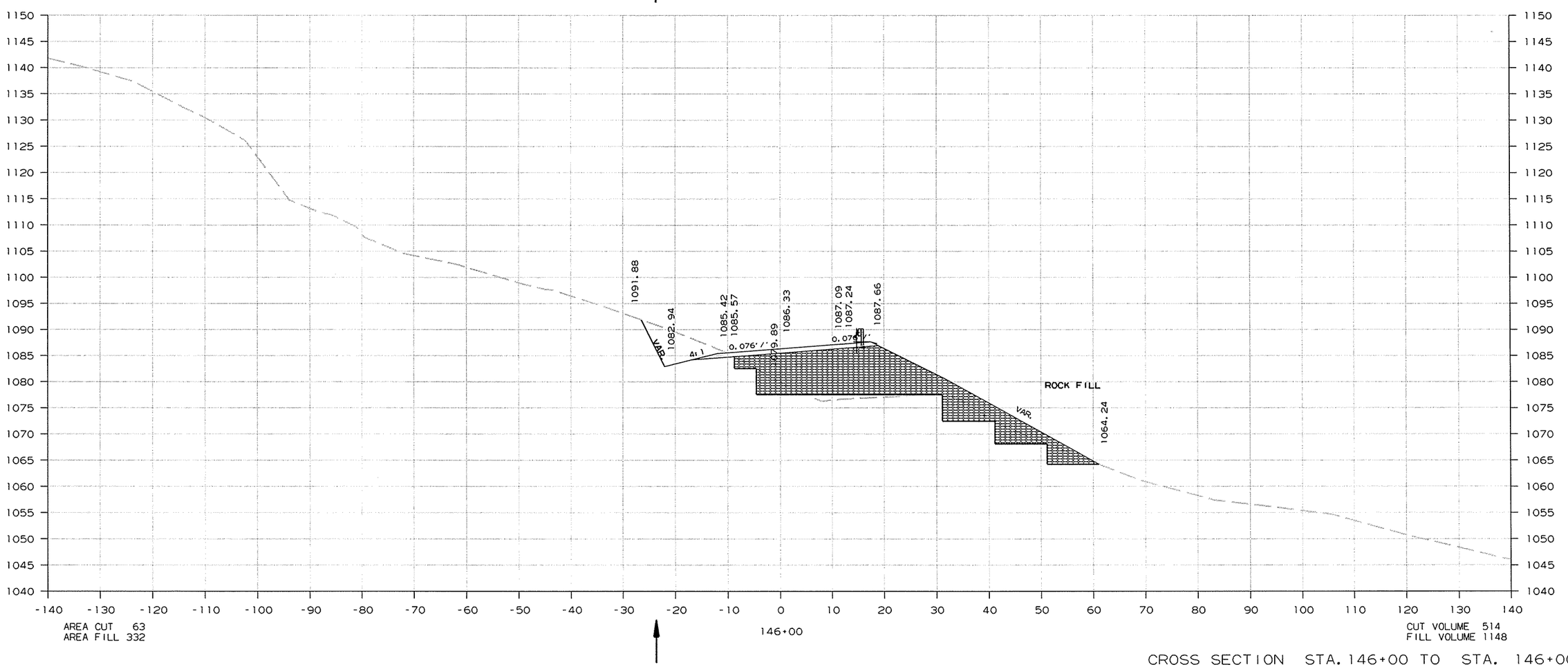
CROSS SECTION STA. 145+00 TO STA. 145+00

11/8/2011

ZBORDER.CEL

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.		040206	139	215

(2) CROSS SECTIONS



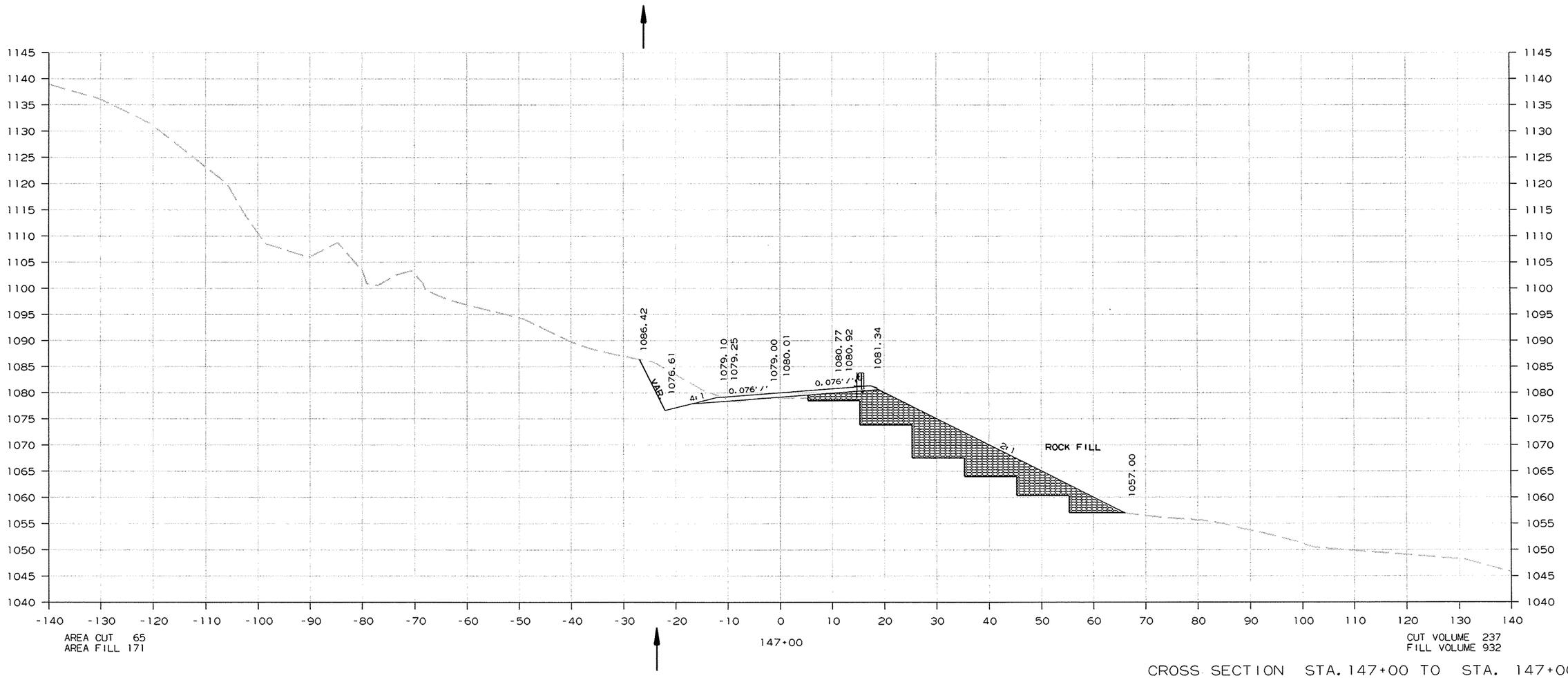
CROSS SECTION STA. 146+00 TO STA. 146+00

11/8/2011

ZBORDER.CEL

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.		040206	140	215

(2) CROSS SECTIONS



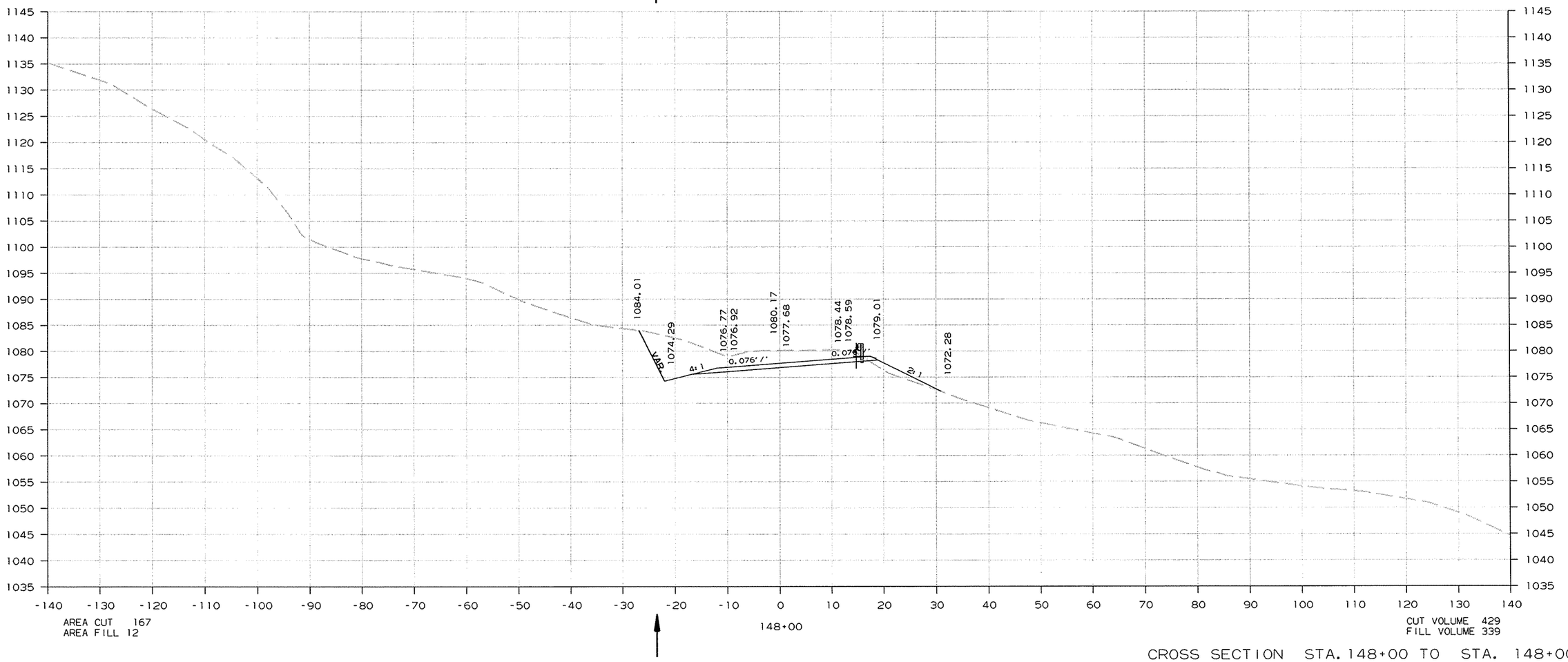
CROSS SECTION STA. 147+00 TO STA. 147+00

11/8/2011

ZBORDER.CEL

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.		040206	141	215

(2) CROSS SECTIONS



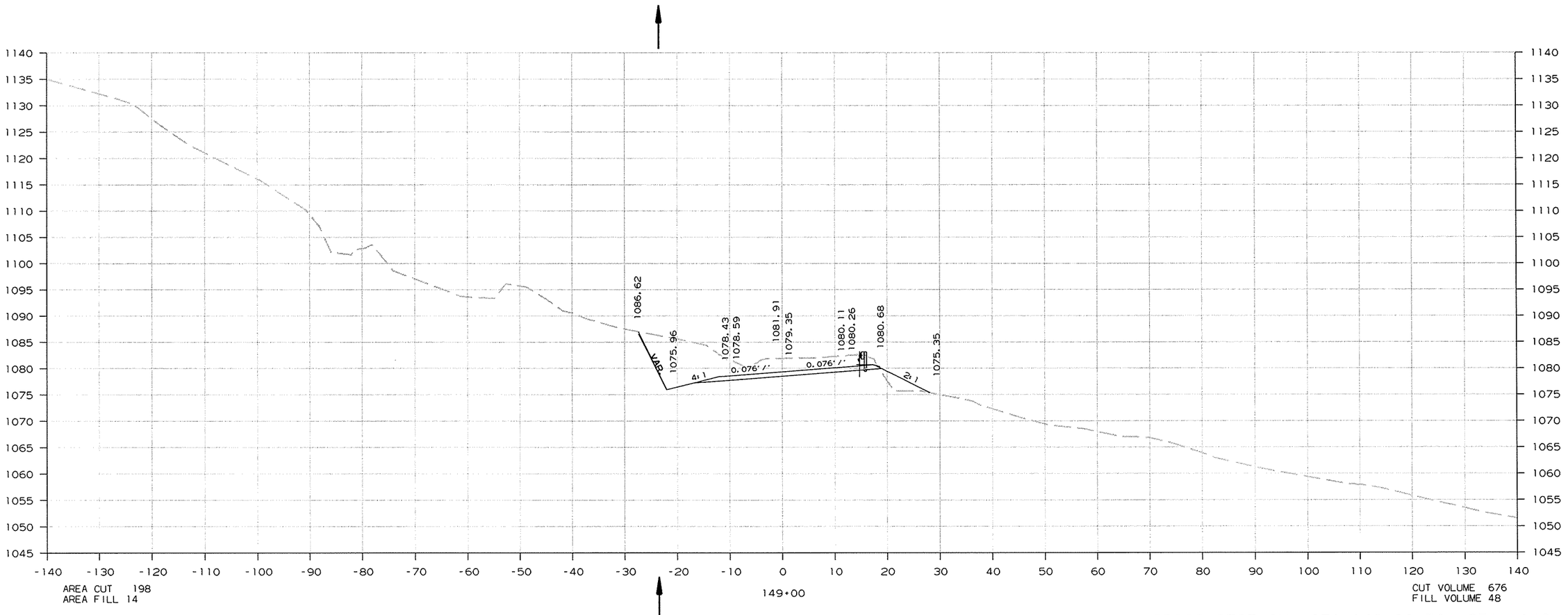
CROSS SECTION STA. 148+00 TO STA. 148+00

11/8/2011

ZBORDER.CEL

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.		040206	142	215

(2) CROSS SECTIONS



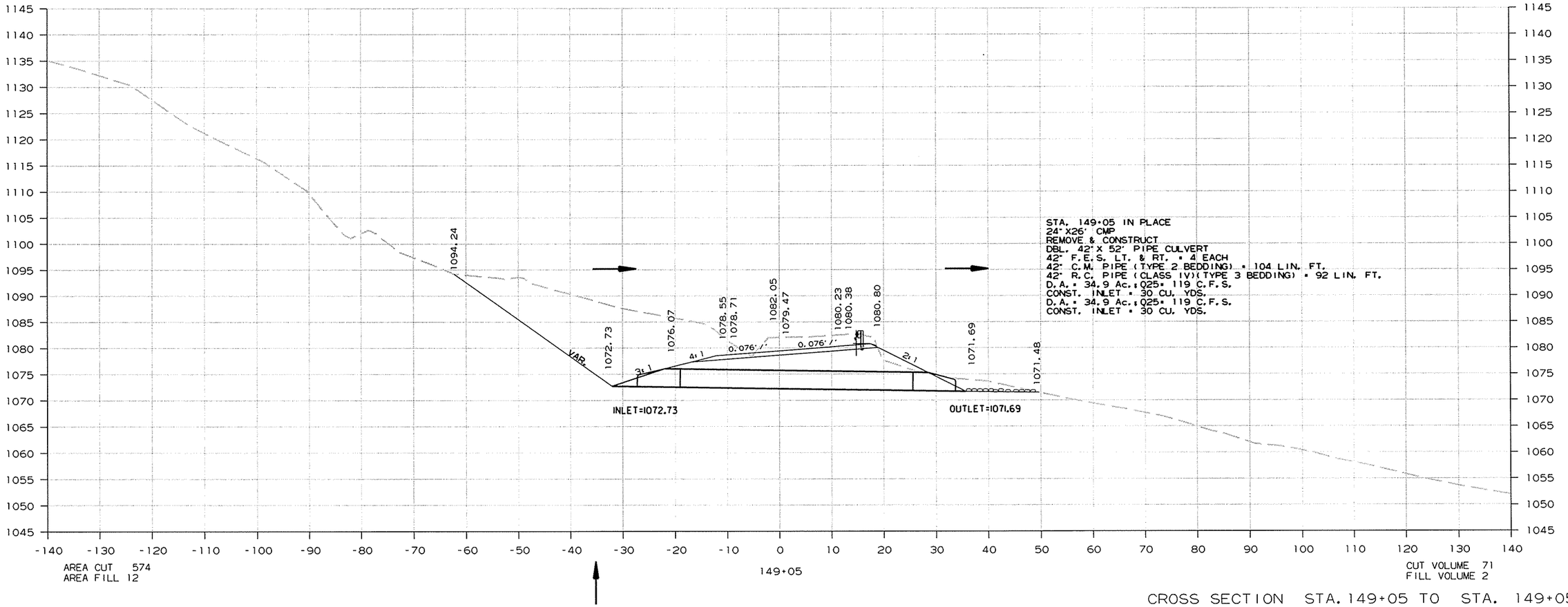
CROSS SECTION STA. 149+00 TO STA. 149+00

11/8/2011

ZBORDER.CEL

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.		040206	143	215

(2) CROSS SECTIONS



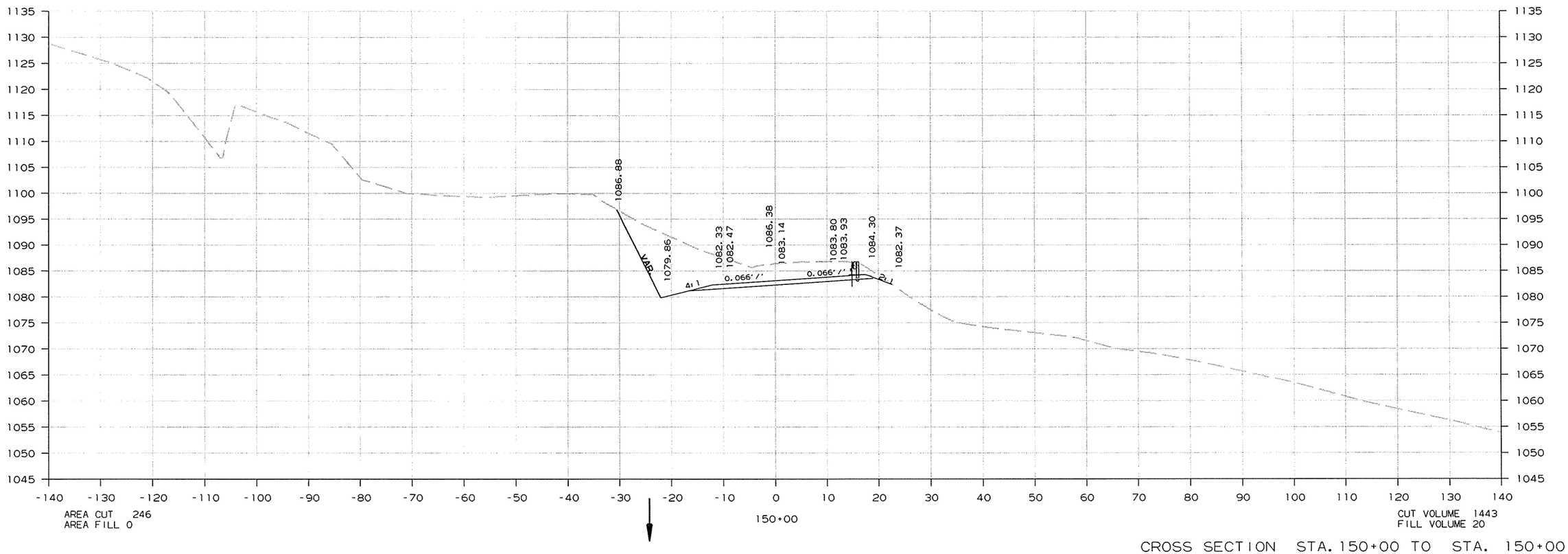
CROSS SECTION STA. 149+05 TO STA. 149+05

11/8/2011

ZBORDER.CEL

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.		040206	144	215

(2) CROSS SECTIONS



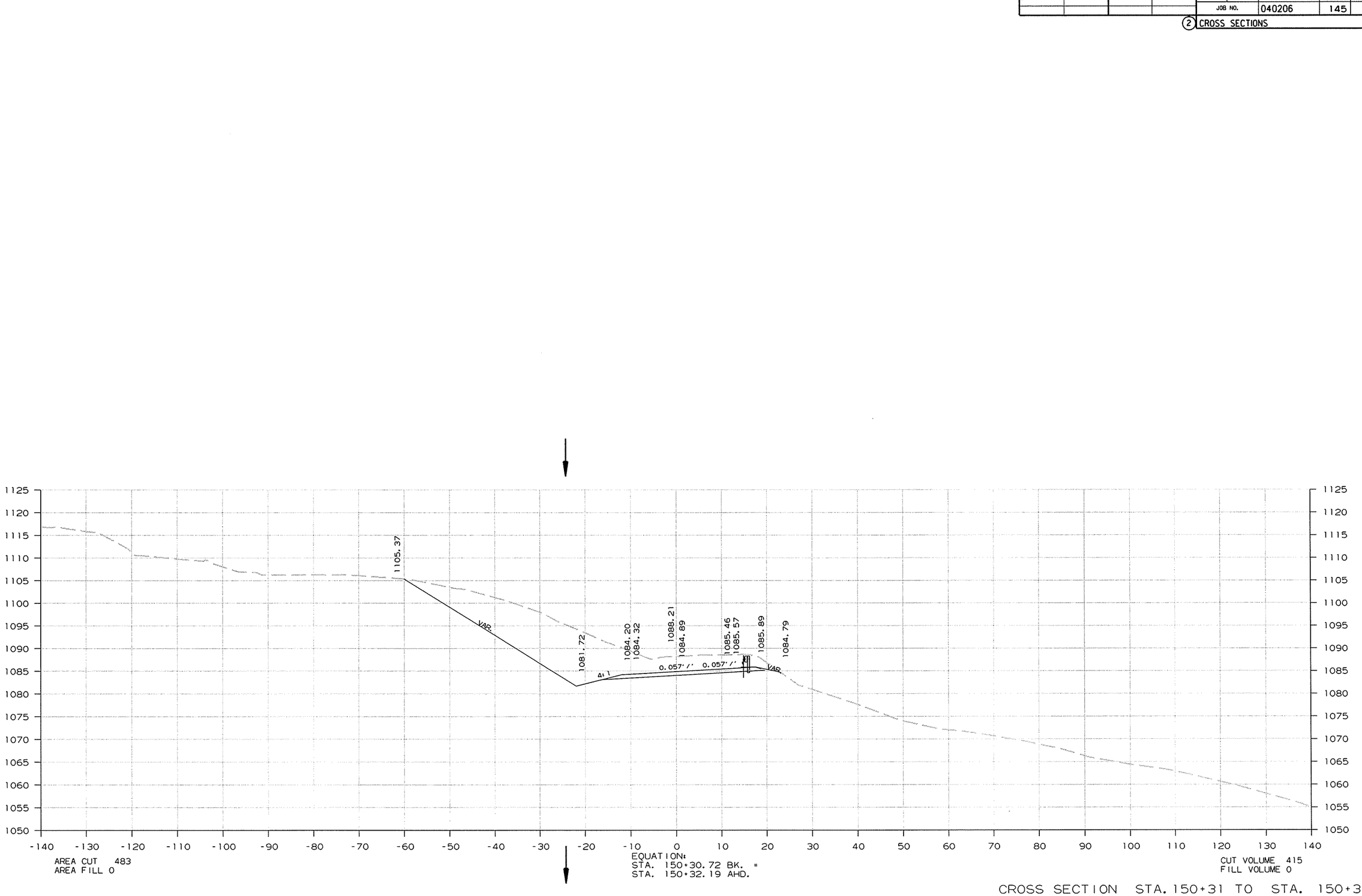
CROSS SECTION STA. 150+00 TO STA. 150+00

11/8/2011

ZBORDER.CEL

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.		040206	145	215

(2) CROSS SECTIONS



CROSS SECTION STA. 150+31 TO STA. 150+31

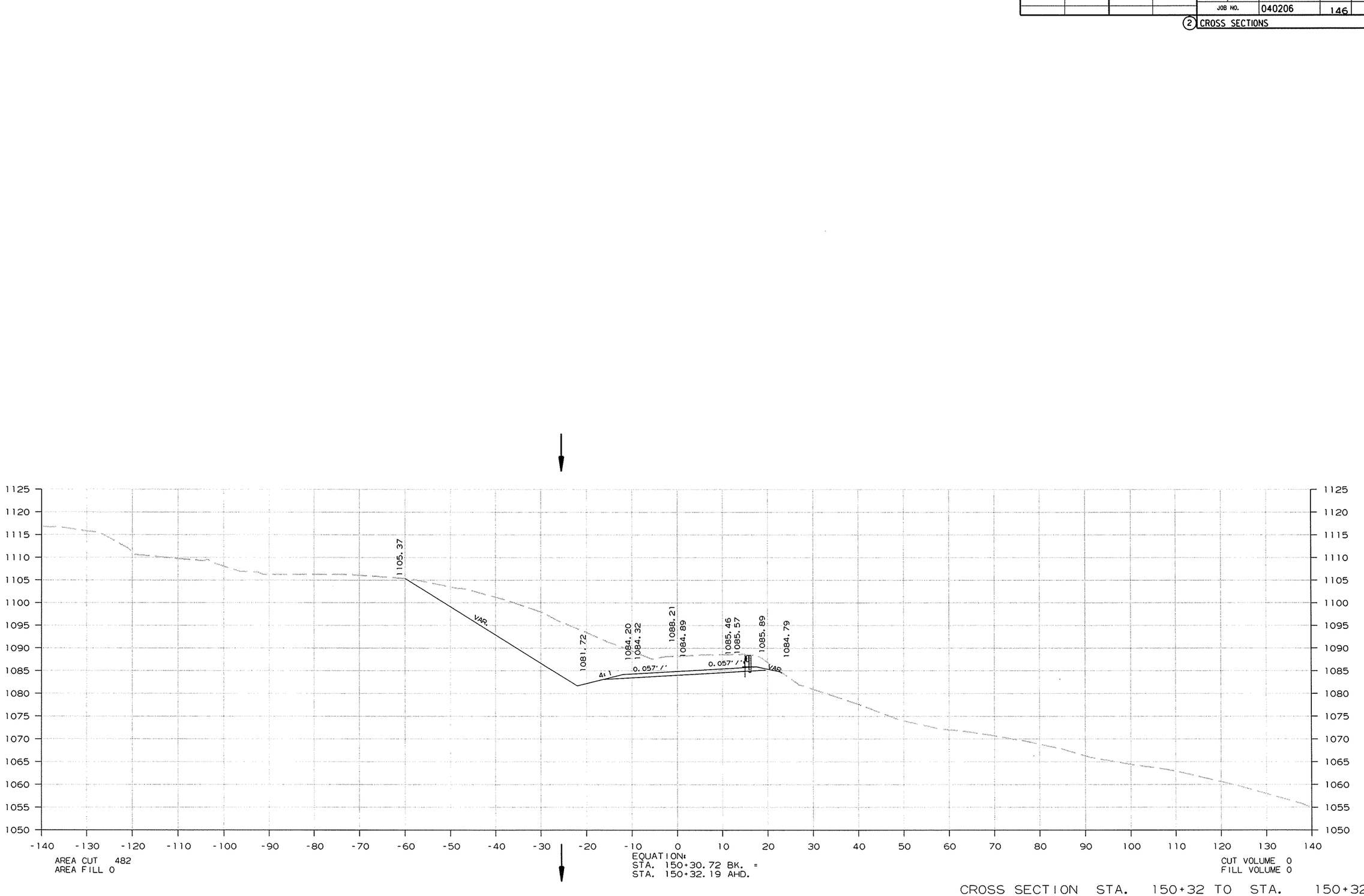
11/8/2011

ZBORDER.CEL

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.		040206	146	215

(2) CROSS SECTIONS



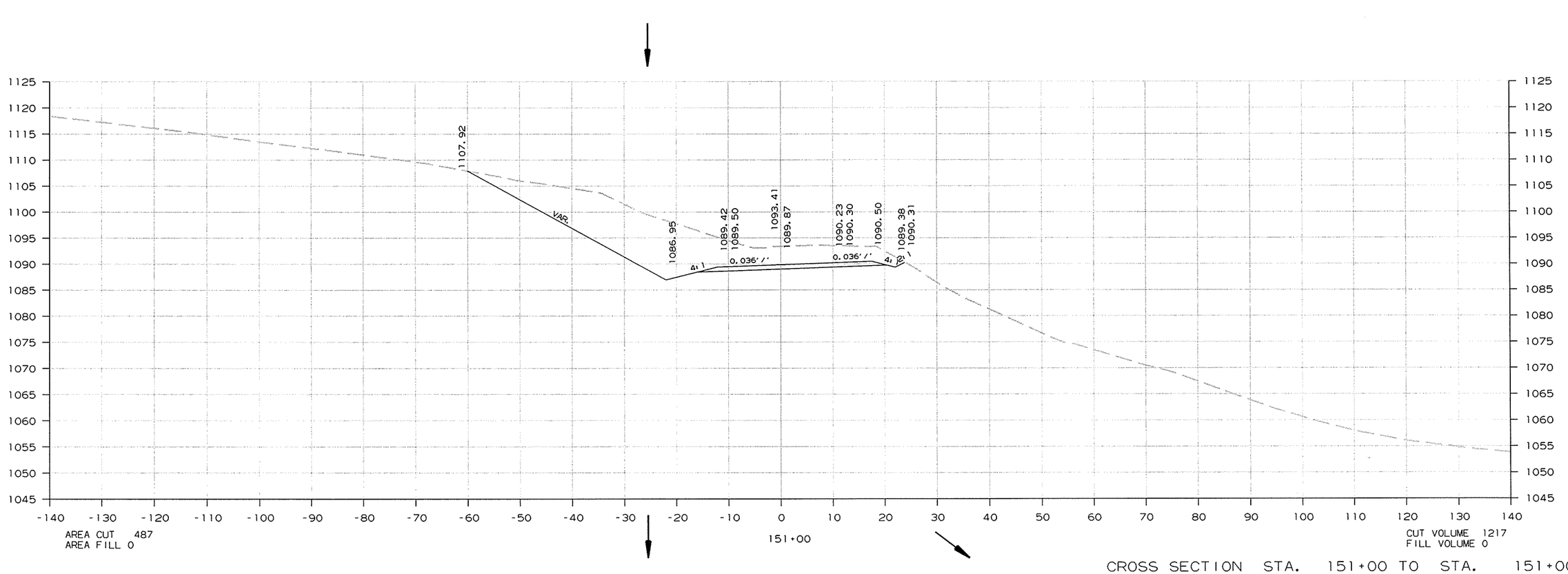
CROSS SECTION STA. 150+32 TO STA. 150+32

11/8/2011

ZBORDER.CEL

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.		040206	147	215

(2) CROSS SECTIONS



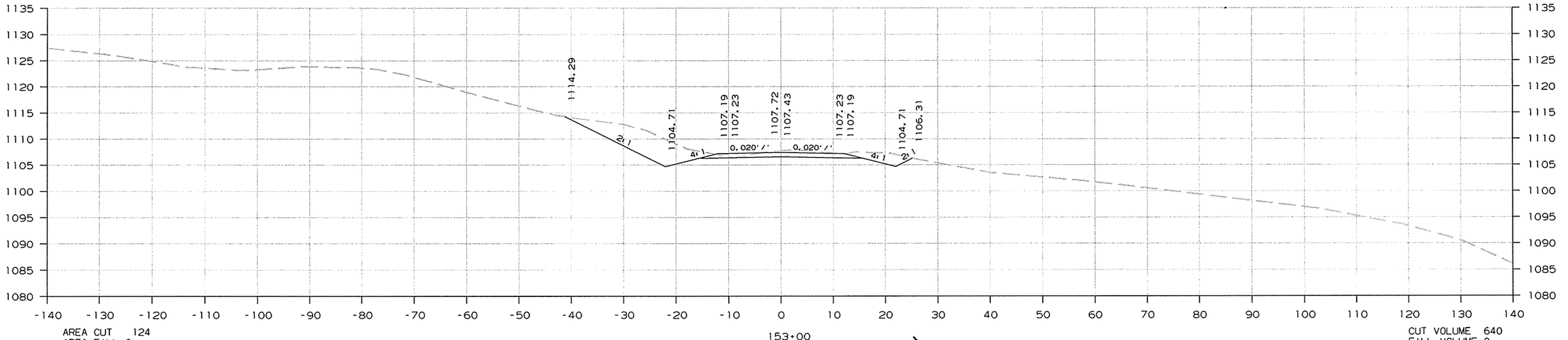
CROSS SECTION STA. 151+00 TO STA. 151+00

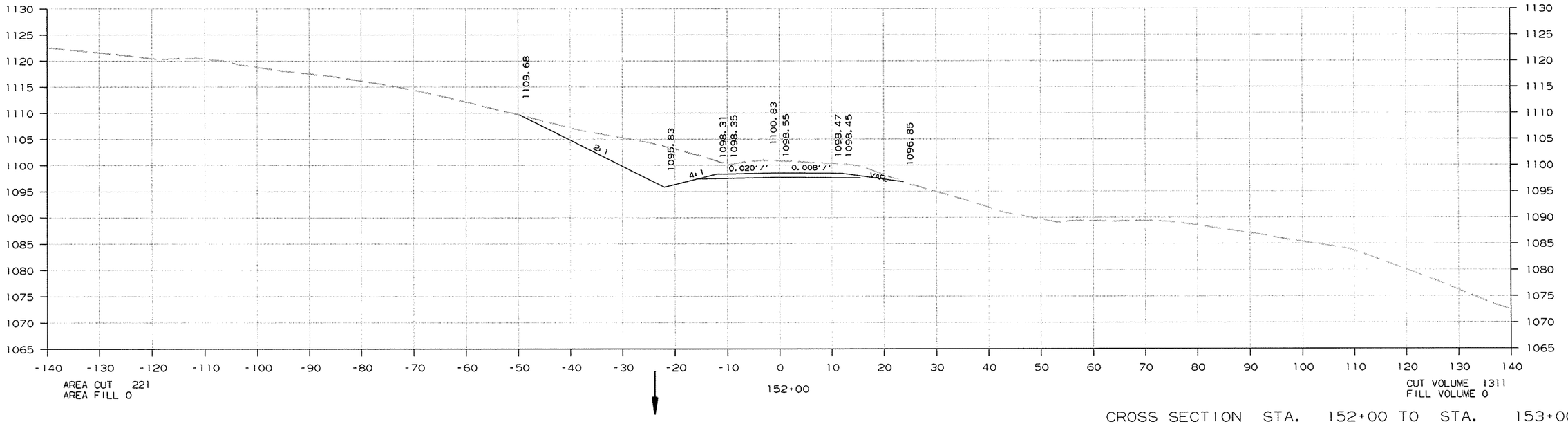
11/8/2011

ZBORDER.CEL

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.		040206	148	215

(2) CROSS SECTIONS





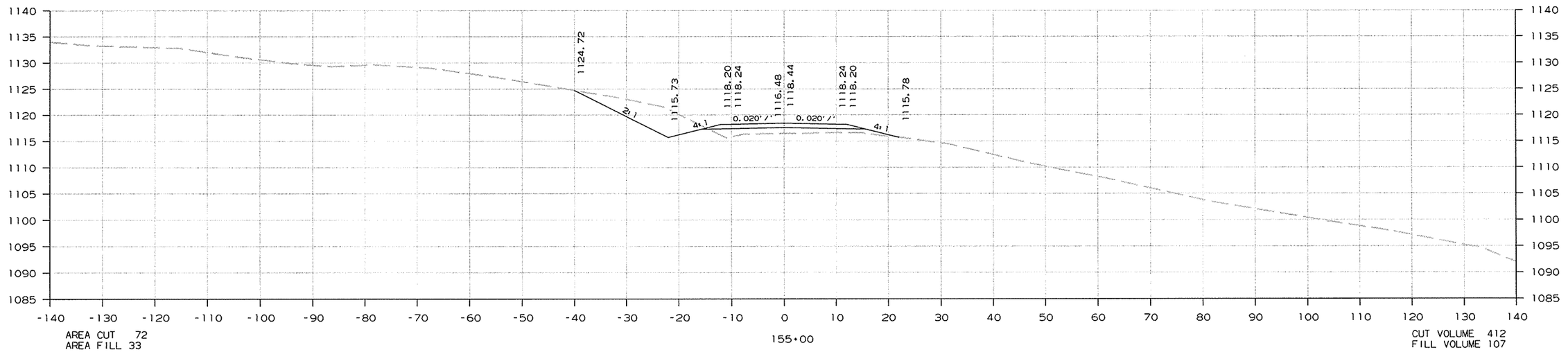
CROSS SECTION STA. 152+00 TO STA. 153+00

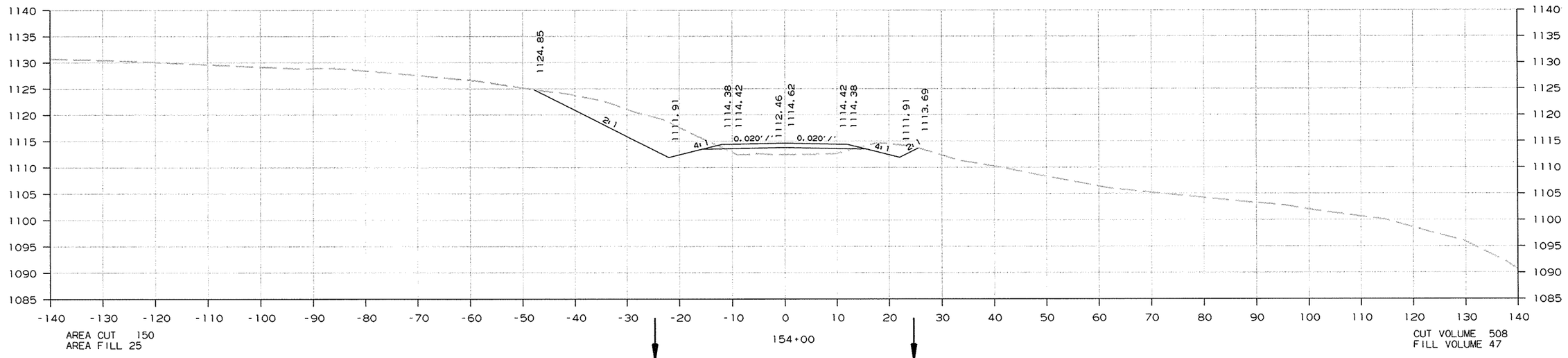
11/8/2011

ZBORDER.CEL

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.		040206	149	215

(2) CROSS SECTIONS





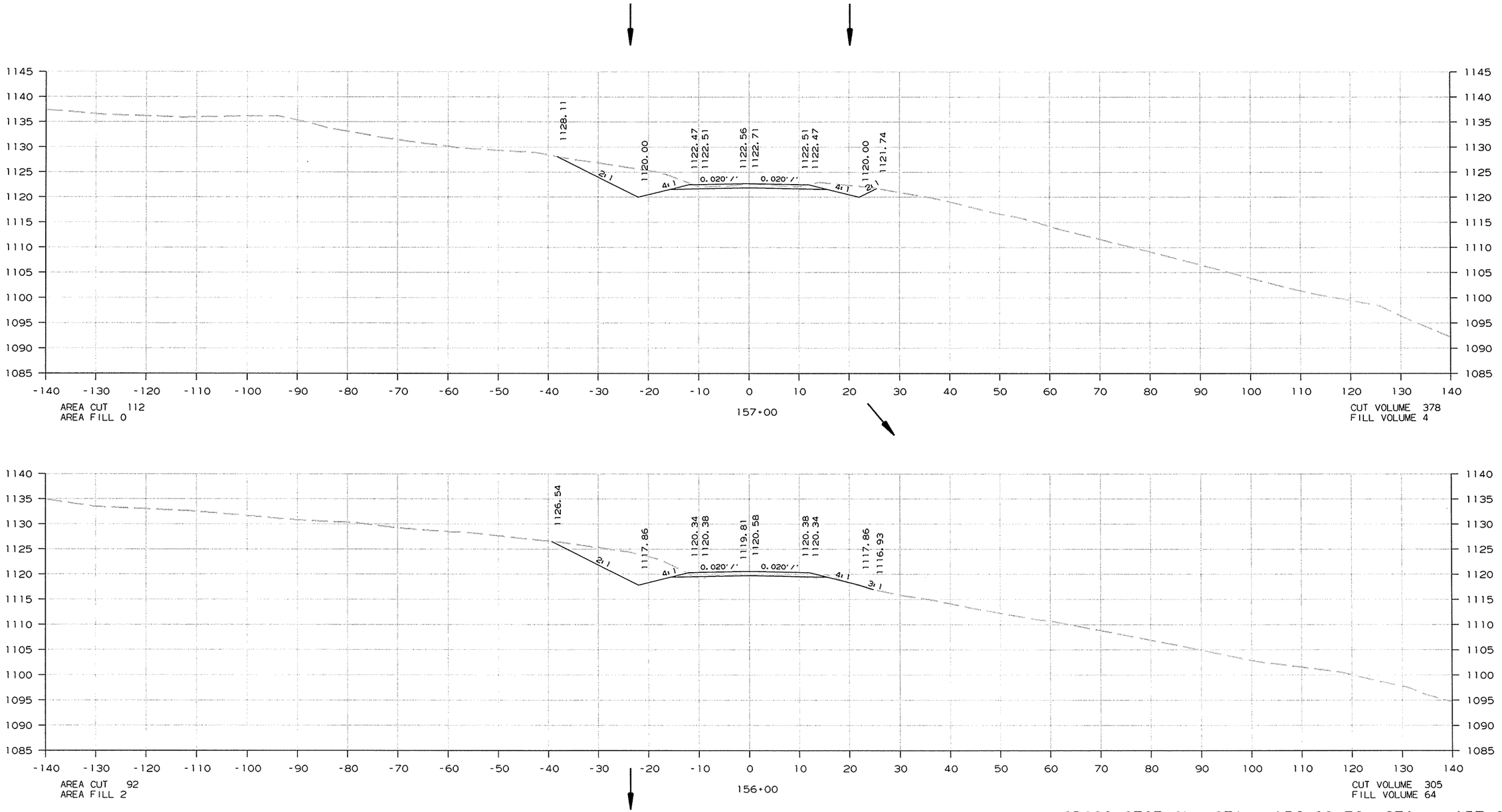
CROSS SECTION STA. 154+00 TO STA. 155+00

11/8/2011

ZBORDER.CEL

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.		040206	150	215

(2) CROSS SECTIONS



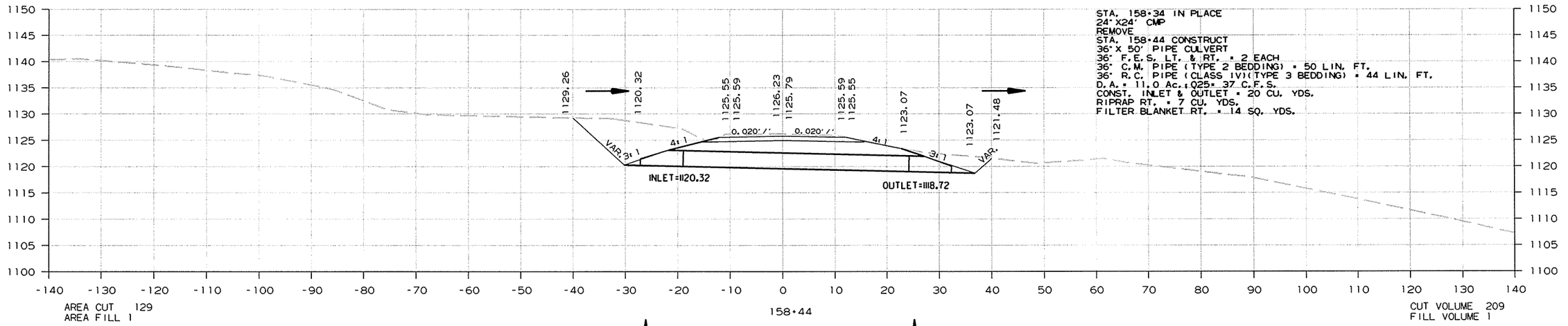
CROSS SECTION STA. 156+00 TO STA. 157+00

11/8/2011

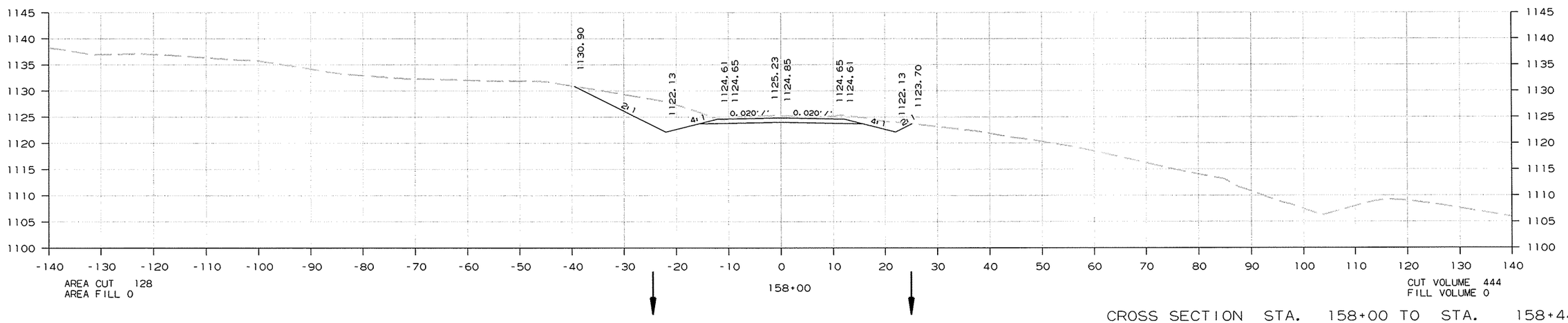
ZBORDER.CEL

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.		040206	151	215

(2) CROSS SECTIONS



STA. 158+34 IN PLACE
24" X24" CMP
REMOVE
STA. 158+44 CONSTRUCT
36" X 50' PIPE CULVERT
36" F.E.S. LT. & RT. = 2 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 50 LIN. FT.
36" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 44 LIN. FT.
D.A. = 11.0 Ac. : 025 = 37 C.F.S.
CONST. INLET & OUTLET = 20 CU. YDS.
RIPRAP RT. = 7 CU. YDS.
FILTER BLANKET RT. = 14 SQ. YDS.



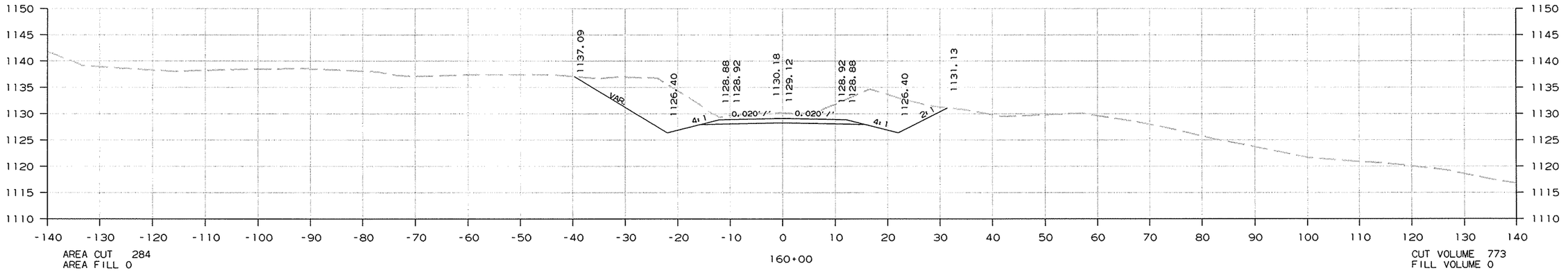
CROSS SECTION STA. 158+00 TO STA. 158+44

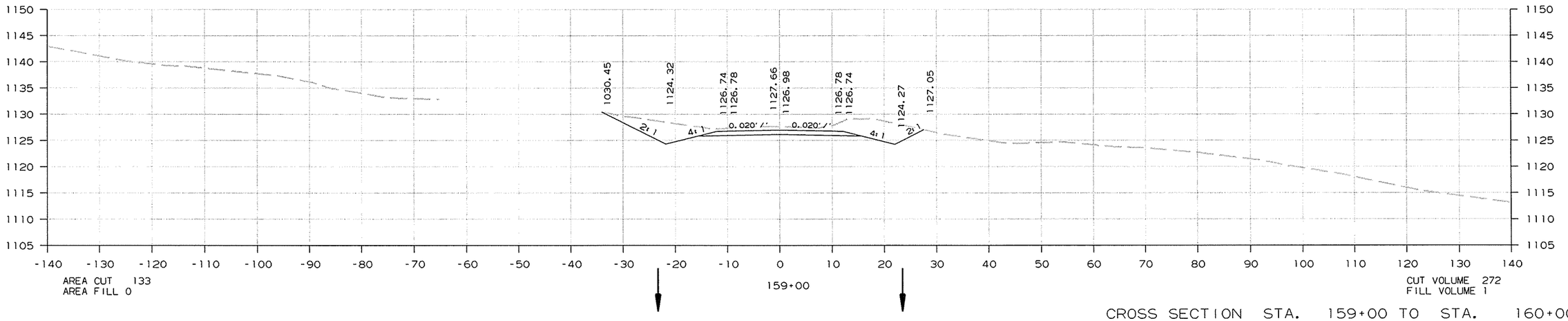
11/8/2011

ZBORDER.CEL

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.		040206	152	215

(2) CROSS SECTIONS





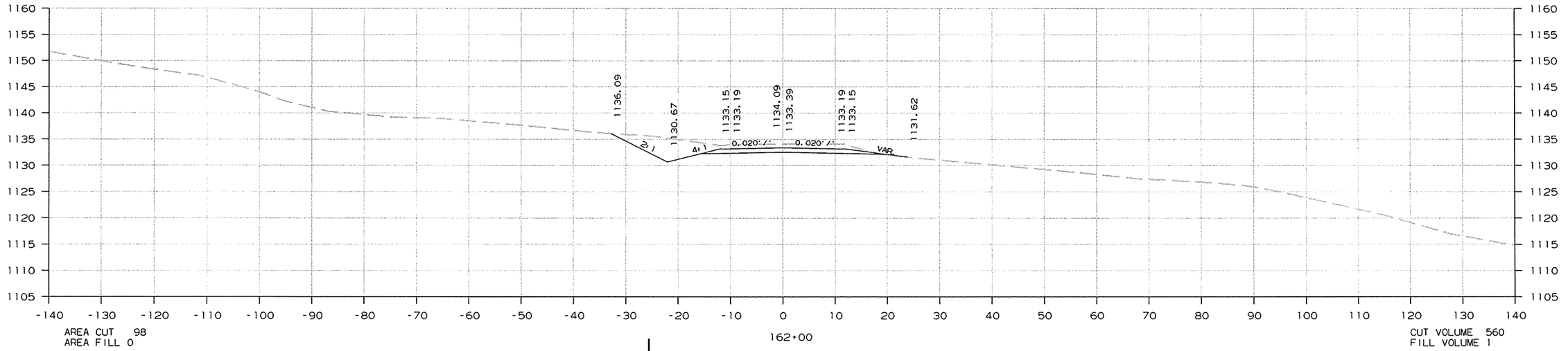
CROSS SECTION STA. 159+00 TO STA. 160+00

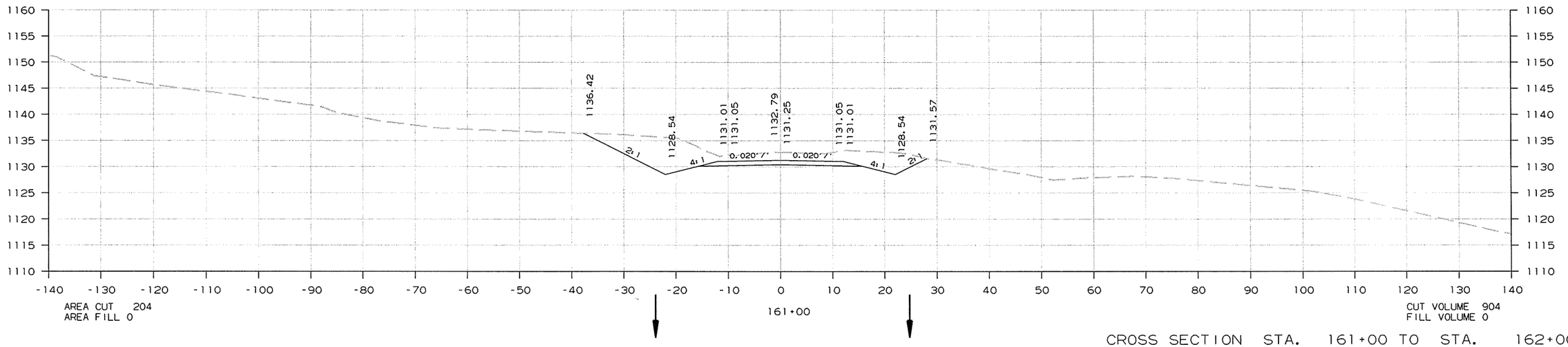
11/8/2011

ZBORDER.CEL

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.		040206	153	215

(2) CROSS SECTIONS





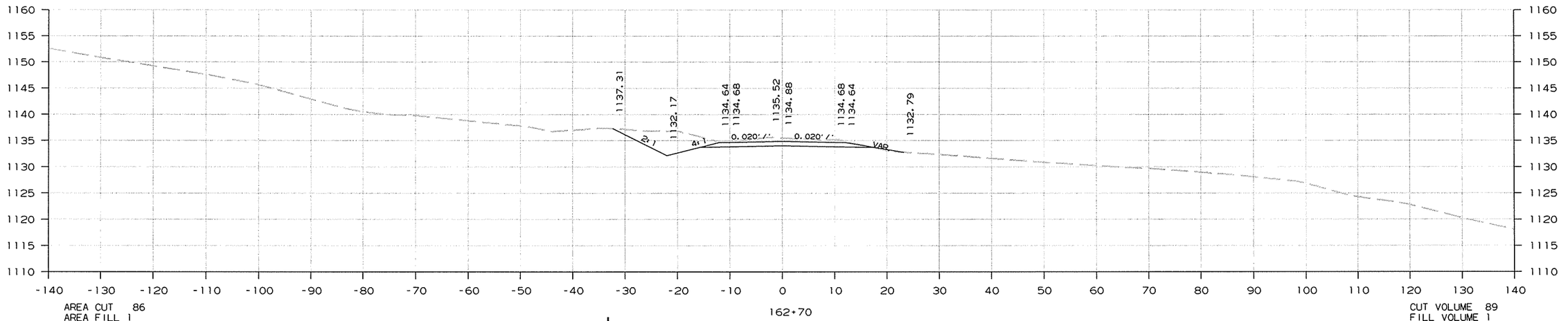
CROSS SECTION STA. 161+00 TO STA. 162+00

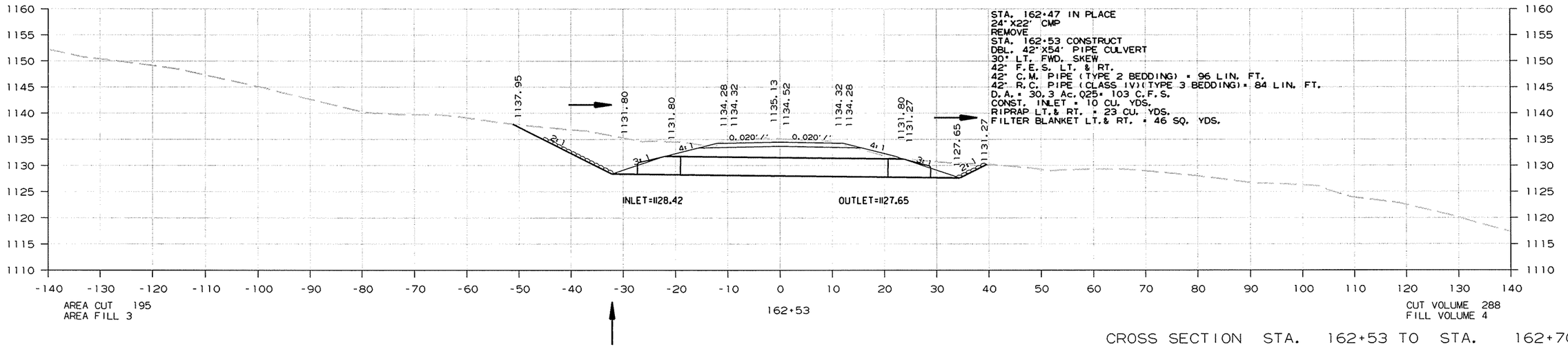
11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	154	215

(2) CROSS SECTIONS





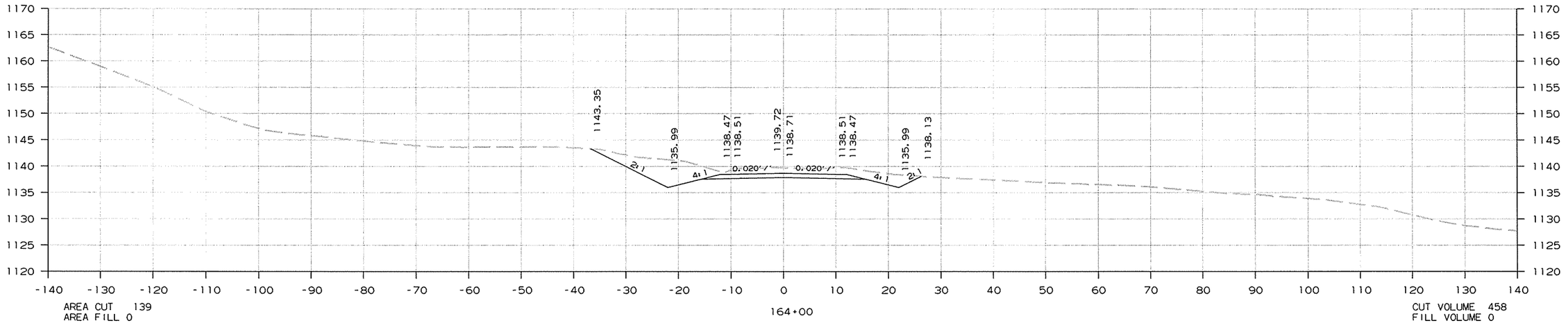
CROSS SECTION STA. 162+53 TO STA. 162+70

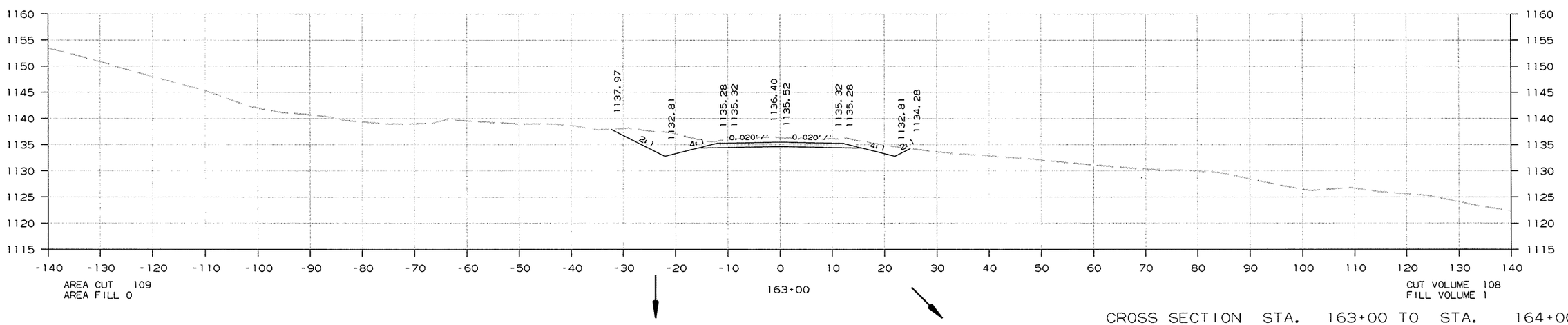
11/8/2011

ZBORDER.CEL

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.		040206	155	215

(2) CROSS SECTIONS





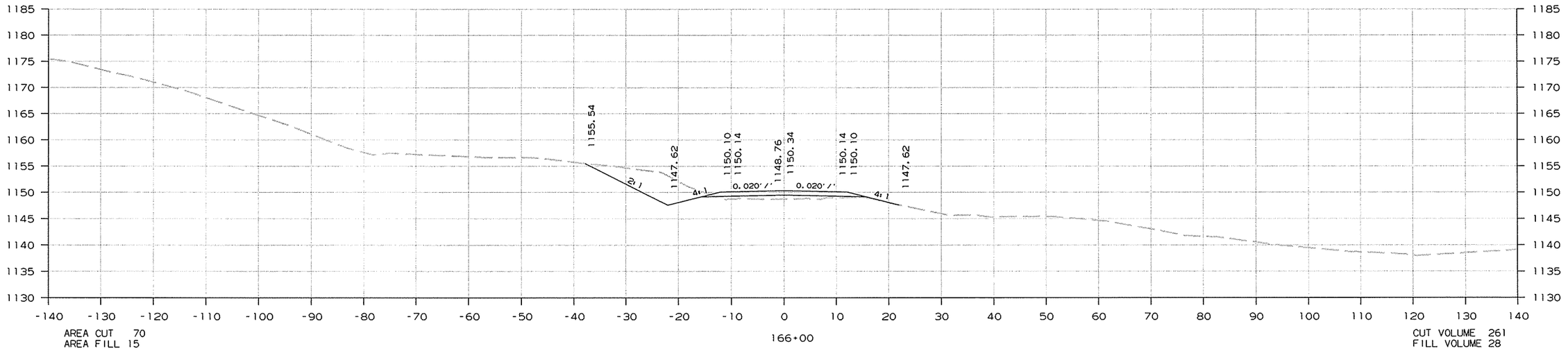
CROSS SECTION STA. 163+00 TO STA. 164+00

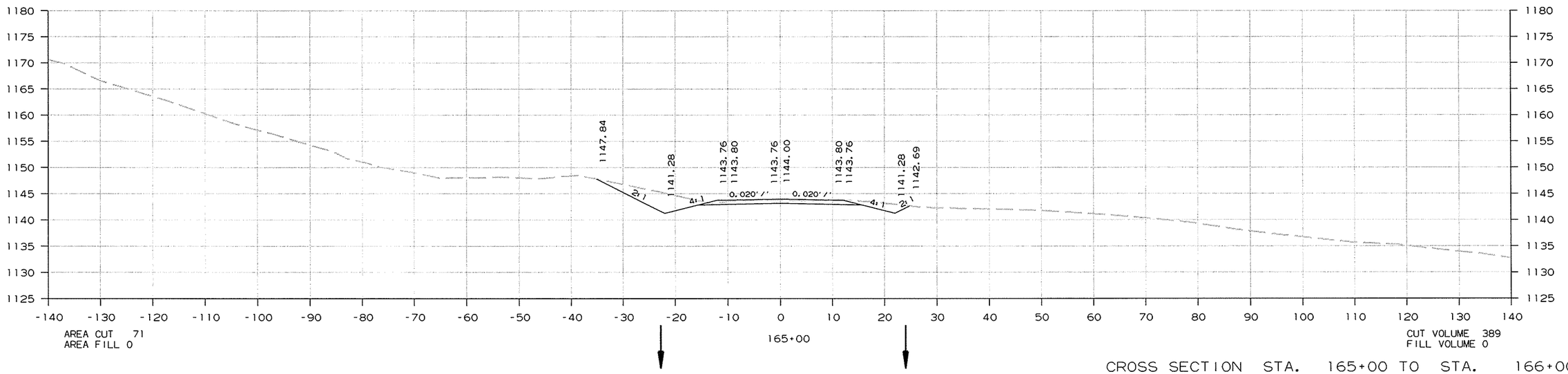
11/8/2011

ZBORDER.CEL

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.		040206	156	215

(2) CROSS SECTIONS





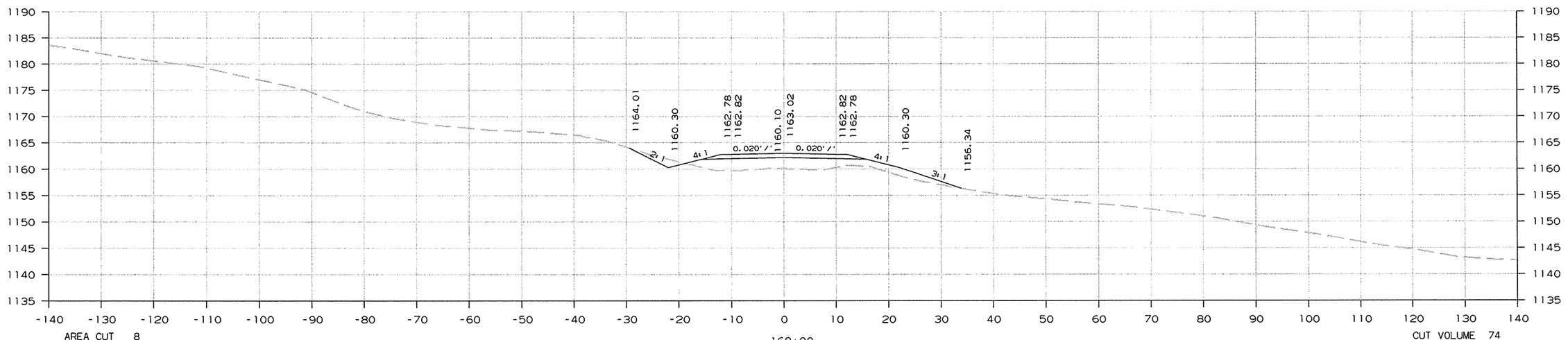
CROSS SECTION STA. 165+00 TO STA. 166+00

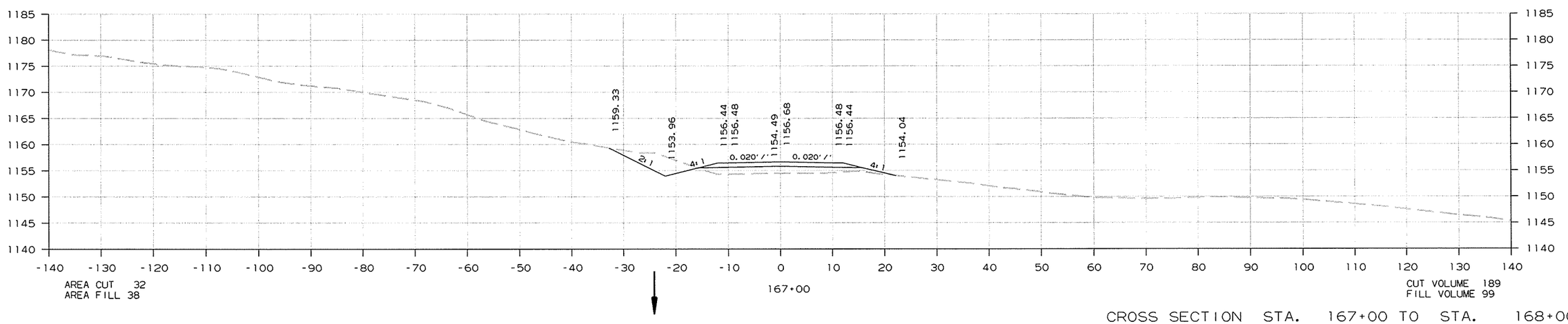
11/8/2011

ZBORDER.CEL

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.		040206	157	215

(2) CROSS SECTIONS





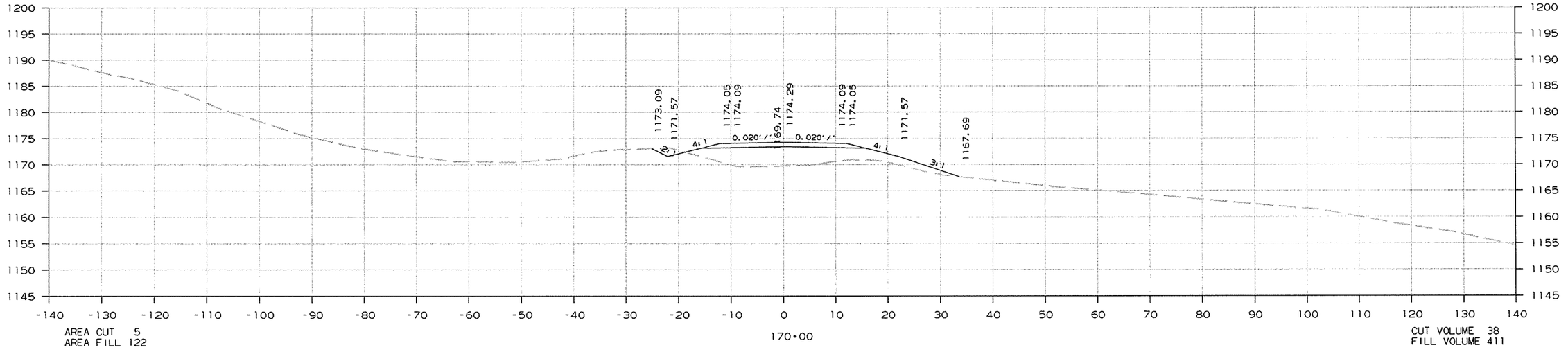
CROSS SECTION STA. 167+00 TO STA. 168+00

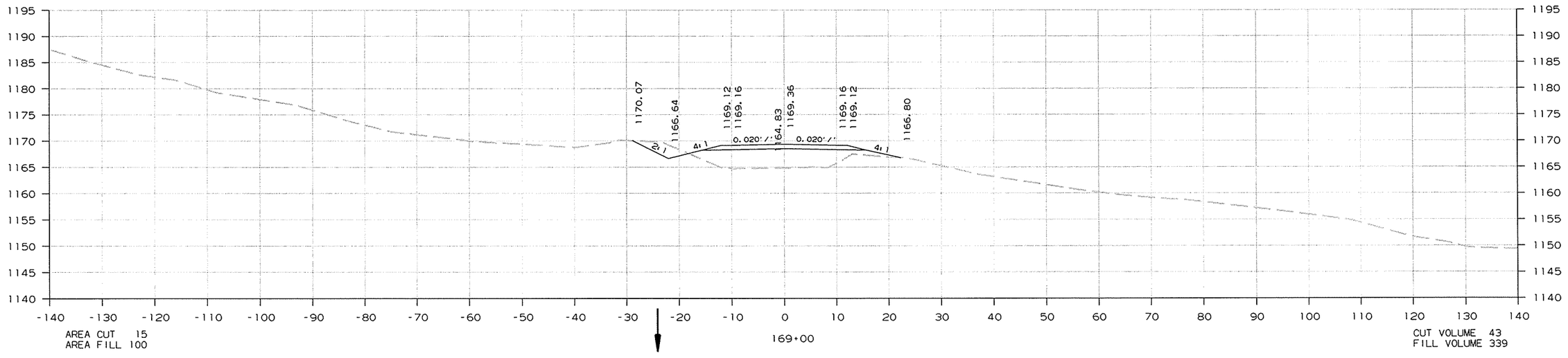
11/8/2011

ZBORDER.CEL

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.		040206	158	215

(2) CROSS SECTIONS





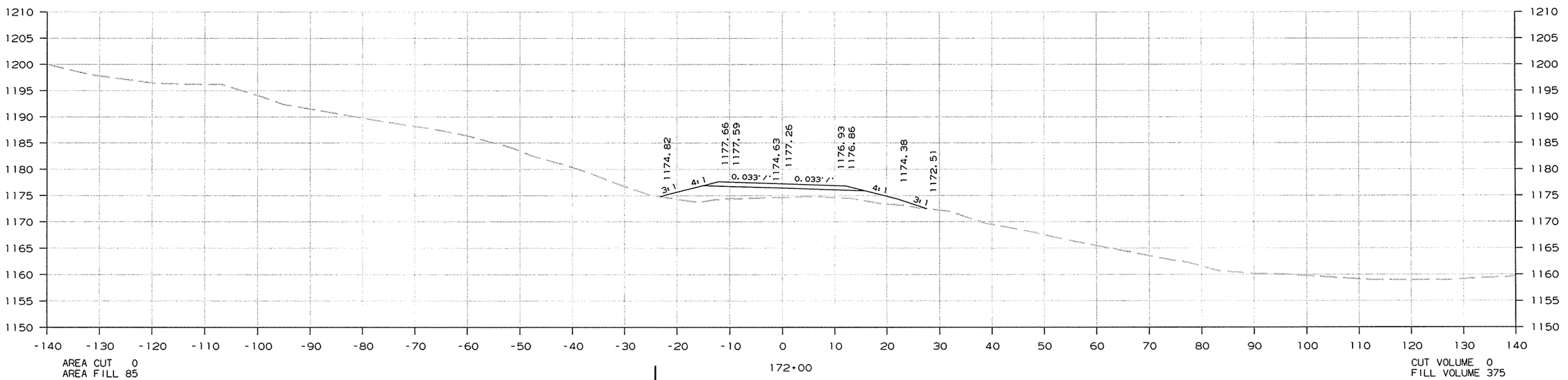
CROSS SECTION STA. 169+00 TO STA. 170+00

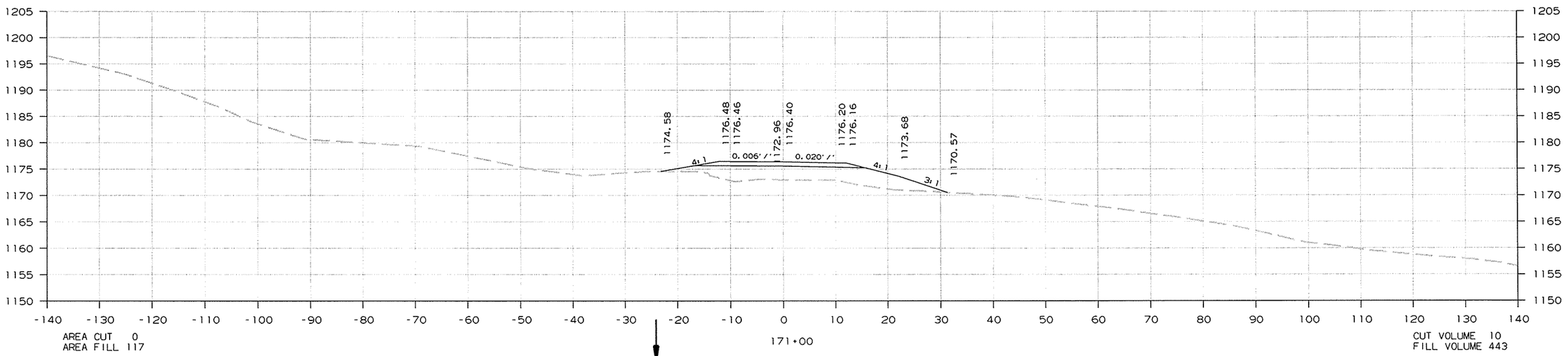
11/8/2011

ZBORDER.CEL

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.		040206	159	215

(2) CROSS SECTIONS





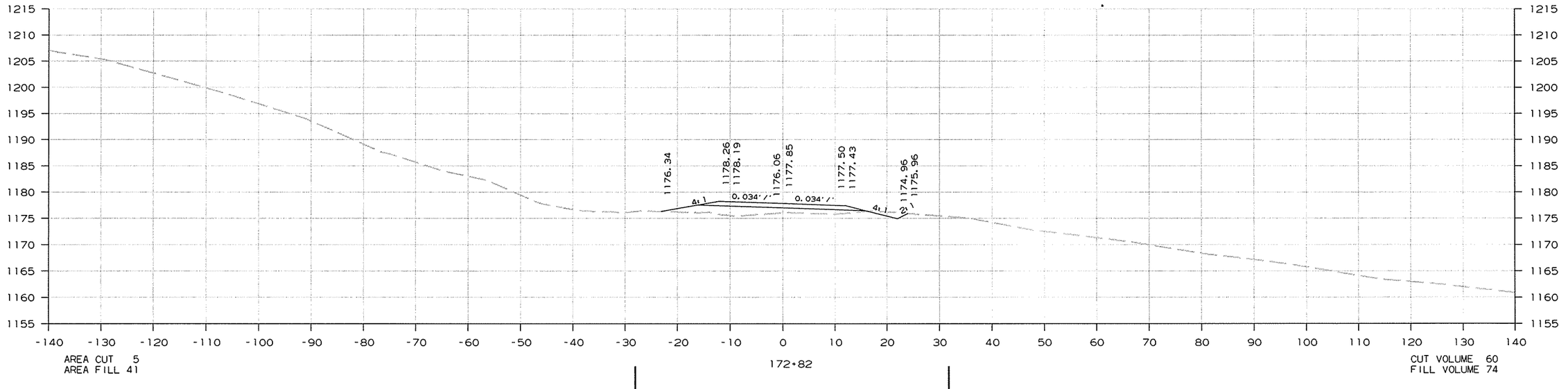
CROSS SECTION STA. 171+00 TO STA. 172+00

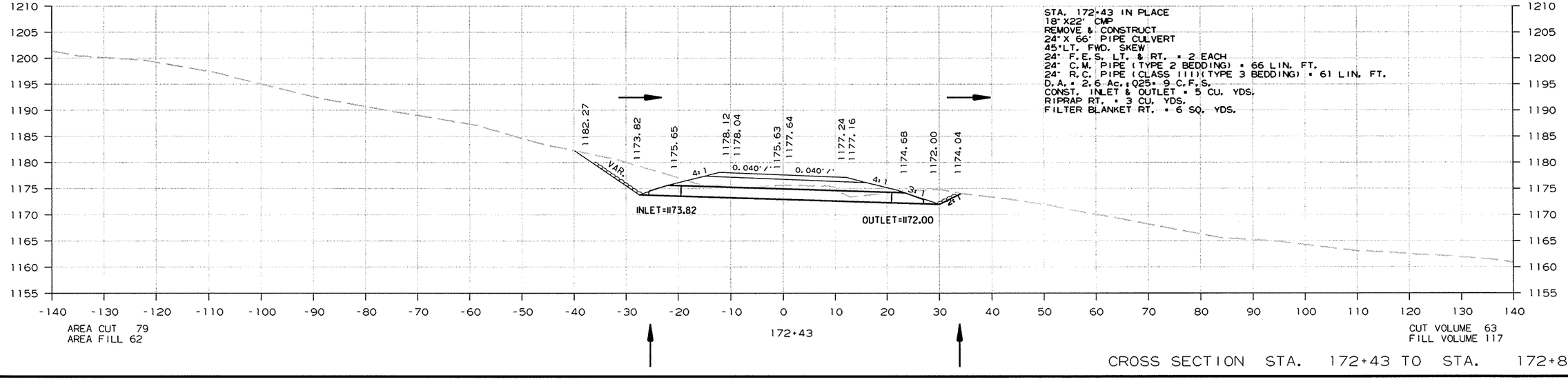
11/8/2011

ZBORDER.CEL

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.		040206	160	215

(2) CROSS SECTIONS





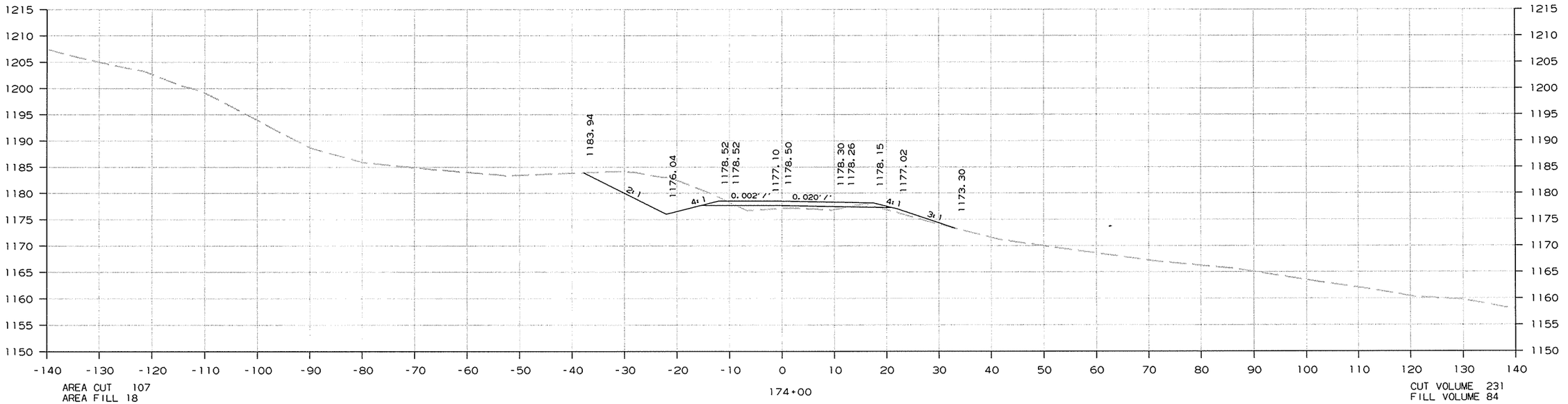
CROSS SECTION STA. 172+43 TO STA. 172+82

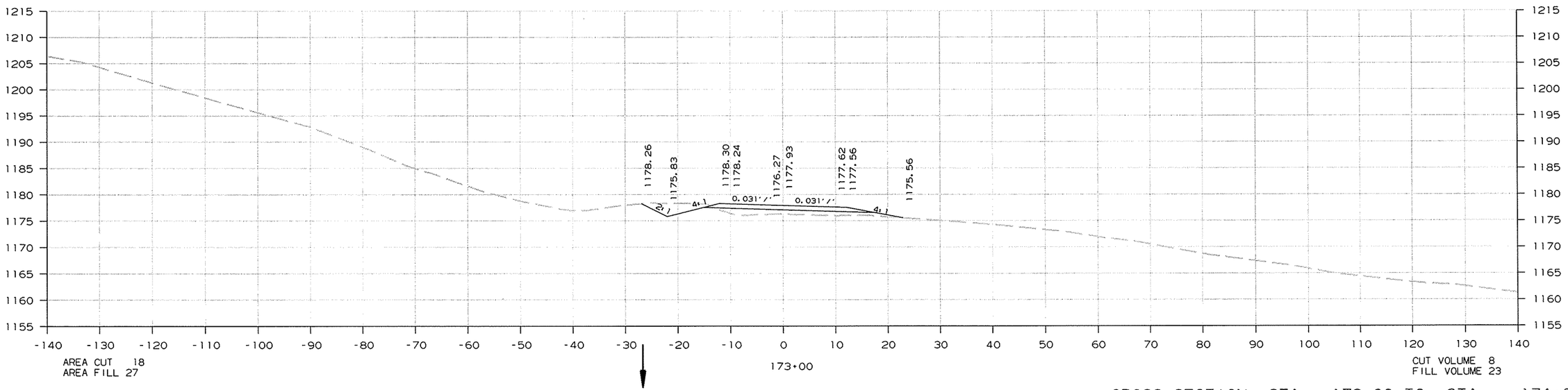
11/8/2011

ZBORDER.CEL

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.		040206	161	215

(2) CROSS SECTIONS





CROSS SECTION STA. 173+00 TO STA. 174+00

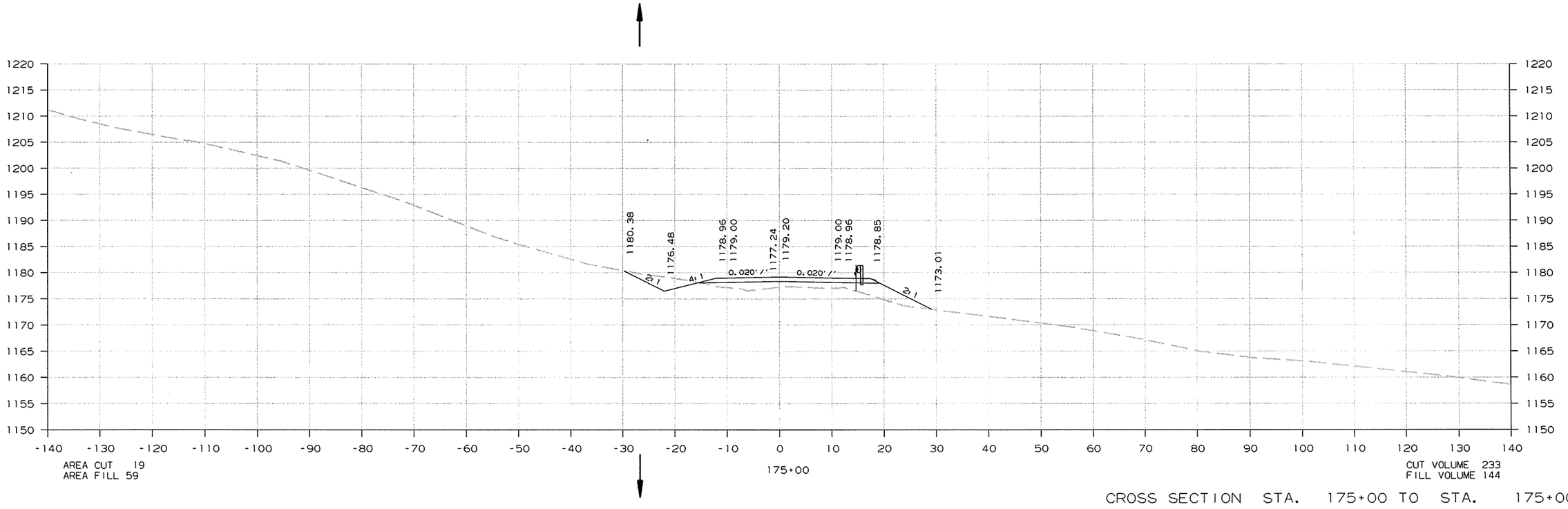
11/8/2011

ZBORDER.CEL

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.		040206	162	215

(2) CROSS SECTIONS



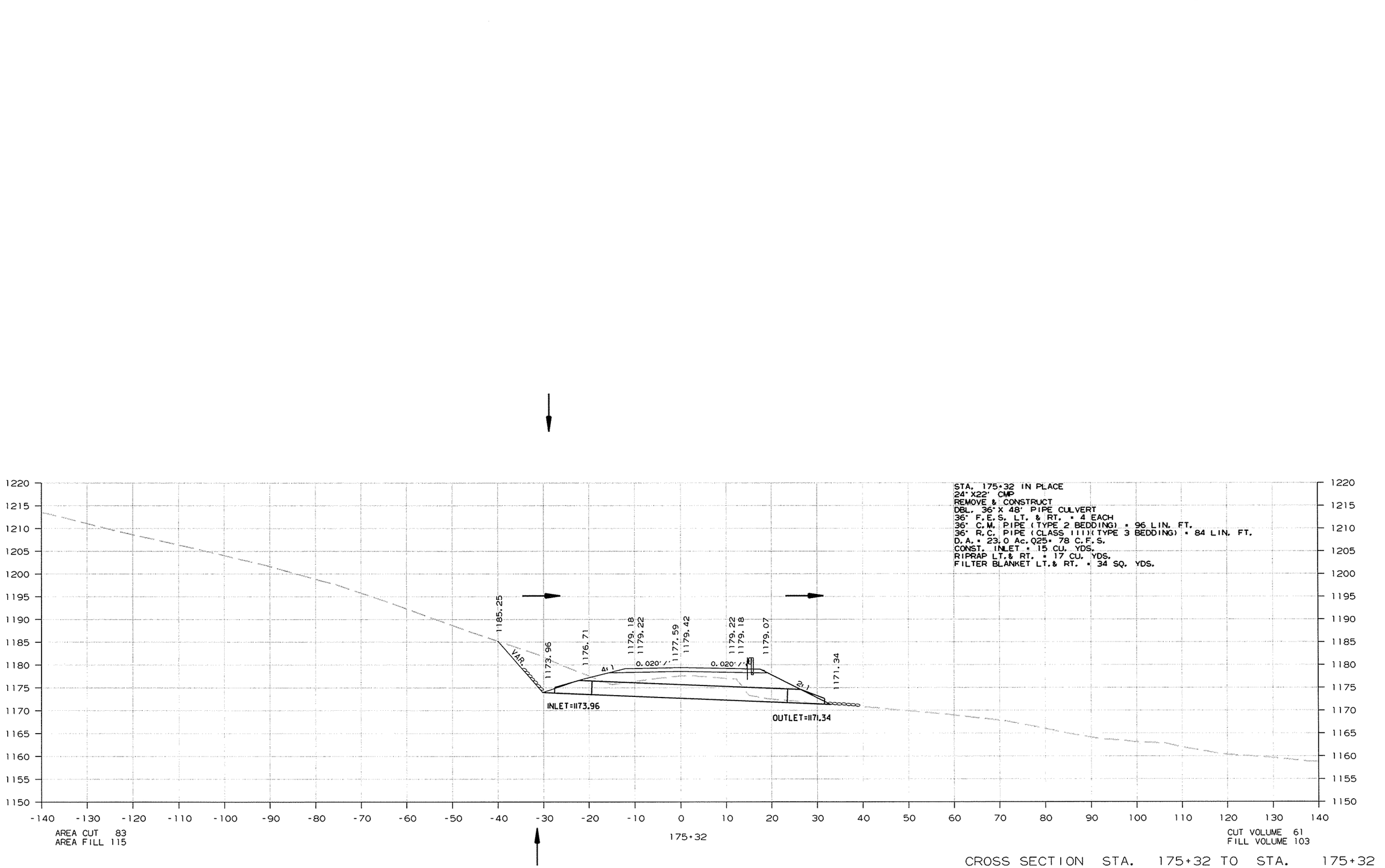
CROSS SECTION STA. 175+00 TO STA. 175+00

11/8/2011

ZBORDER.CEL

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.		040206	163	215

(2) CROSS SECTIONS



CROSS SECTION STA. 175+32 TO STA. 175+32

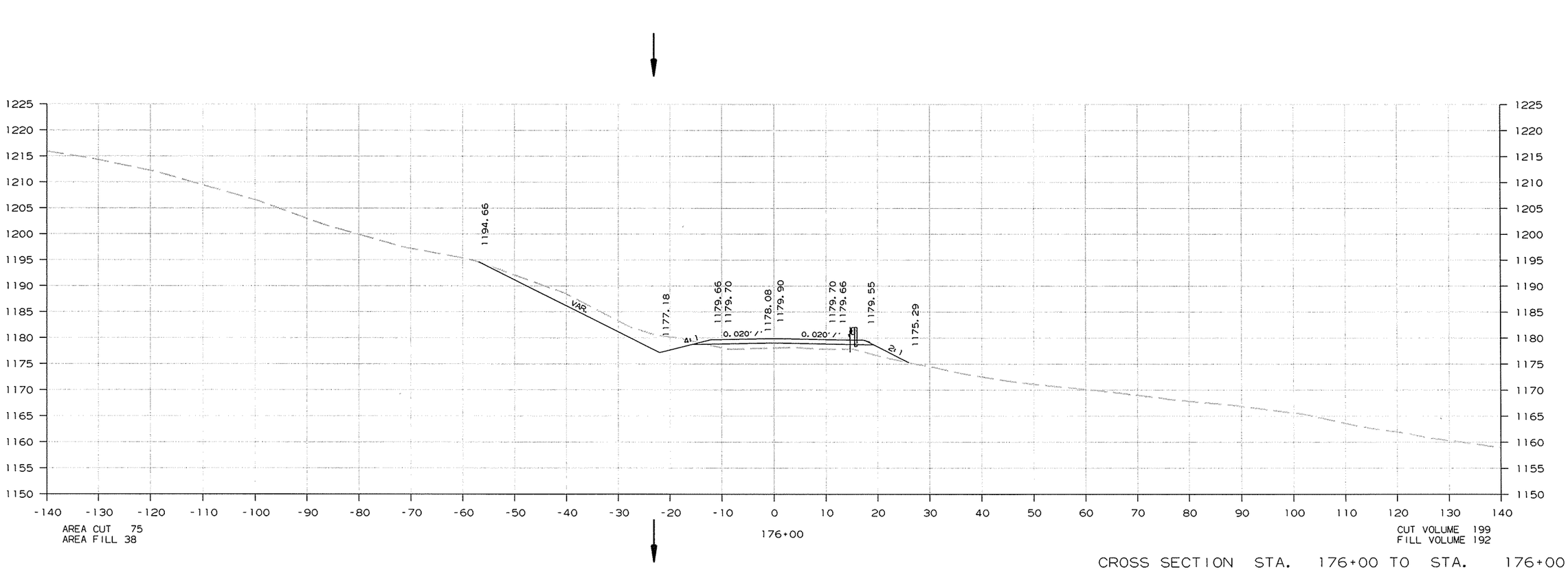
11/8/2011

ZBORDER.CEL

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.		040206	164	215

(2) CROSS SECTIONS



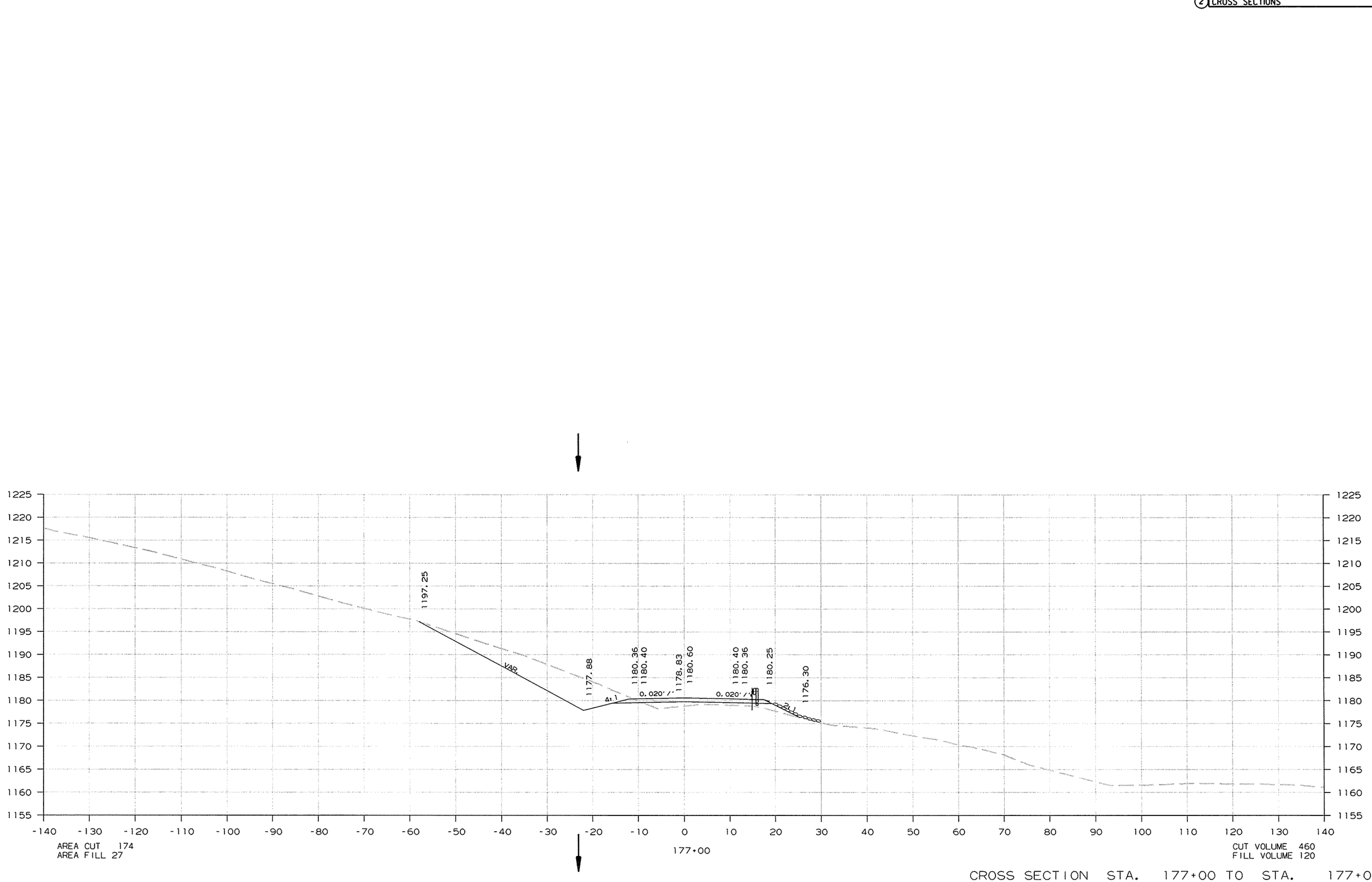
CROSS SECTION STA. 176+00 TO STA. 176+00

11/8/2011

ZBORDER.CEL

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.		040206	165	215

(2) CROSS SECTIONS



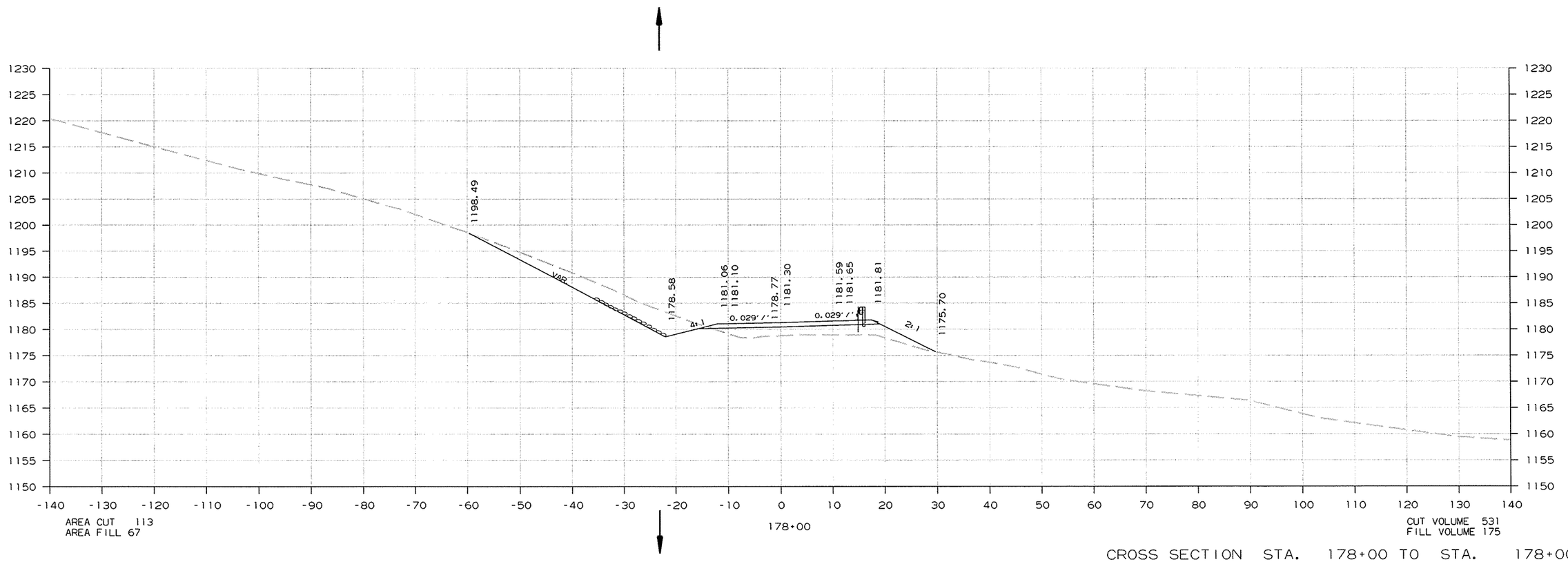
CROSS SECTION STA. 177+00 TO STA. 177+00

11/8/2011

ZBORDER.CEL

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.		040206	166	215

(2) CROSS SECTIONS



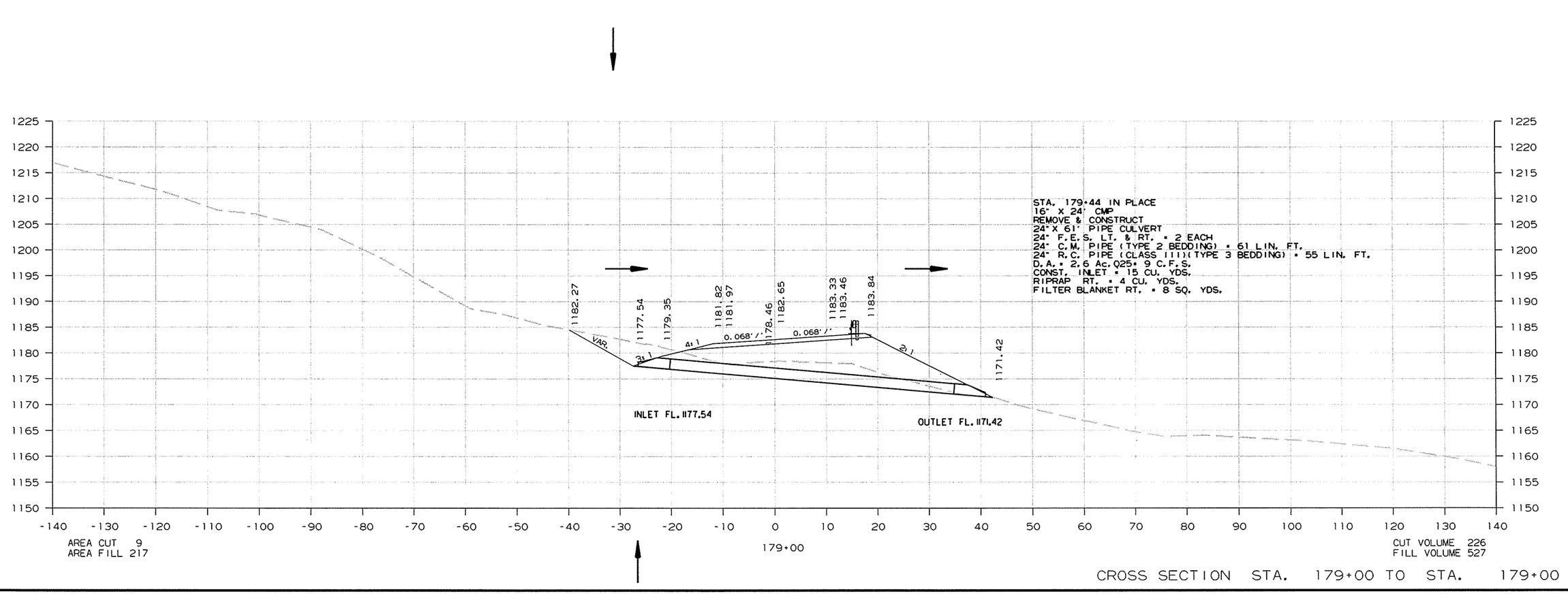
CROSS SECTION STA. 178+00 TO STA. 178+00

11/8/2011

ZBORDER.CEL

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.		040206	167	215

(2) CROSS SECTIONS



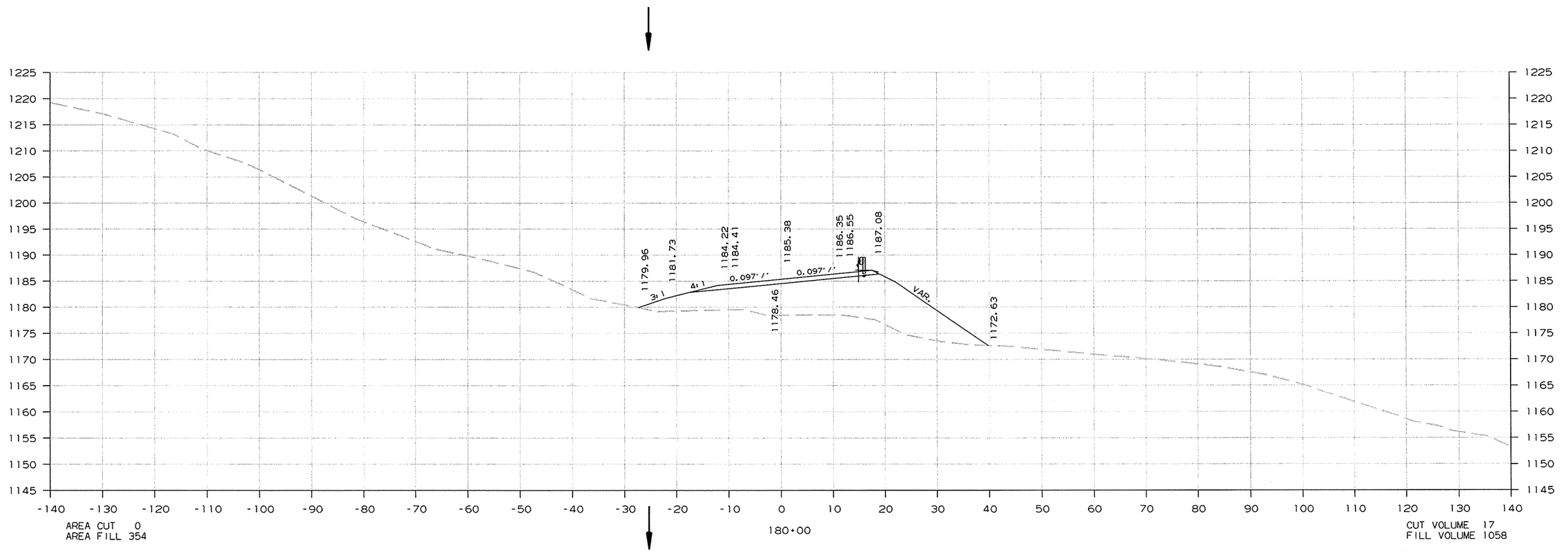
CROSS SECTION STA. 179+00 TO STA. 179+00

11/8/2011

ZBORDER.CEL

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.		040206	168	215

(2) CROSS SECTIONS



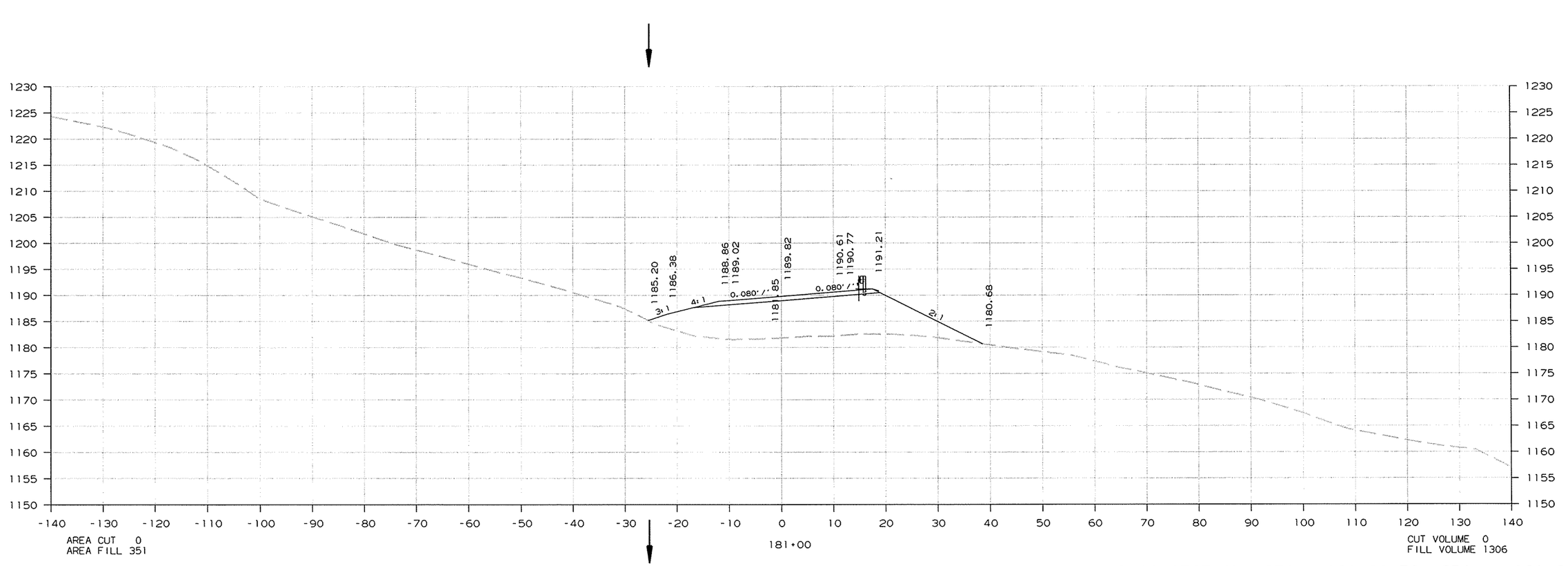
CROSS SECTION STA. 180+00 TO STA. 180+00

11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	169	215

(2) CROSS SECTIONS



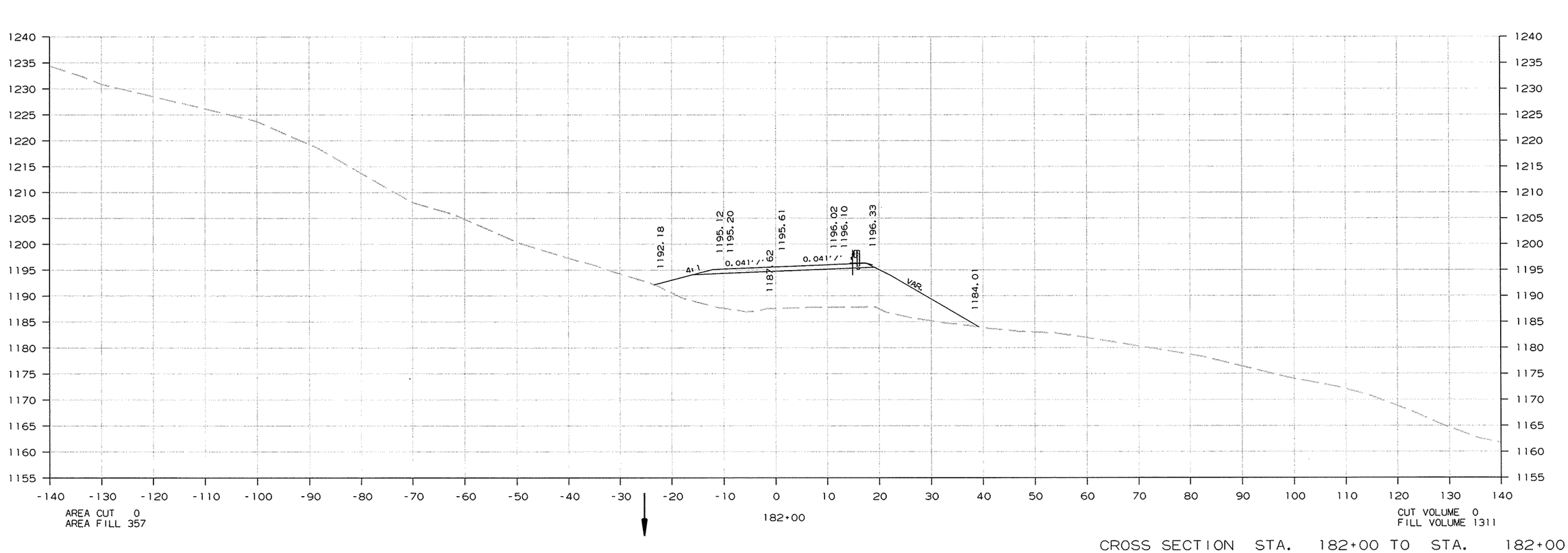
CROSS SECTION STA. 181+00 TO STA. 181+00

11/8/2011

ZBORDER.CEL

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.		040206	170	215

(2) CROSS SECTIONS



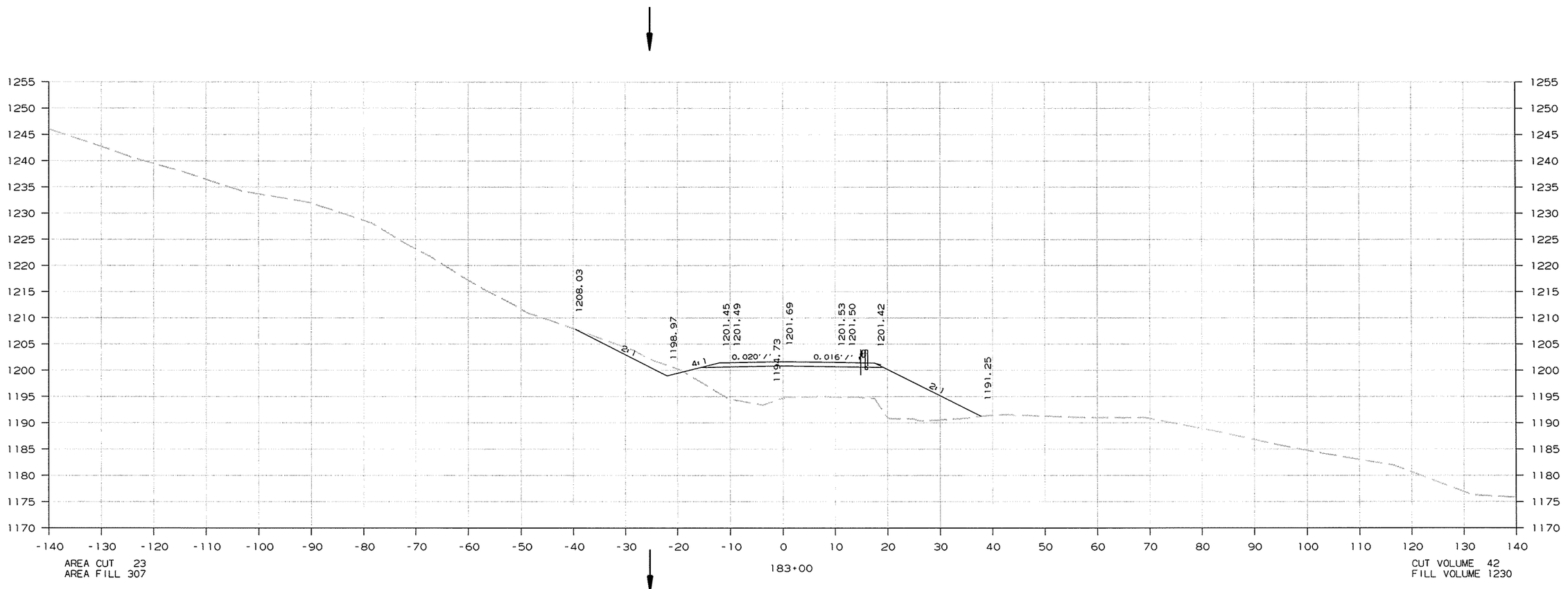
CROSS SECTION STA. 182+00 TO STA. 182+00

11/8/2011

ZBORDER.CEL

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.		040206	171	215

(2) CROSS SECTIONS



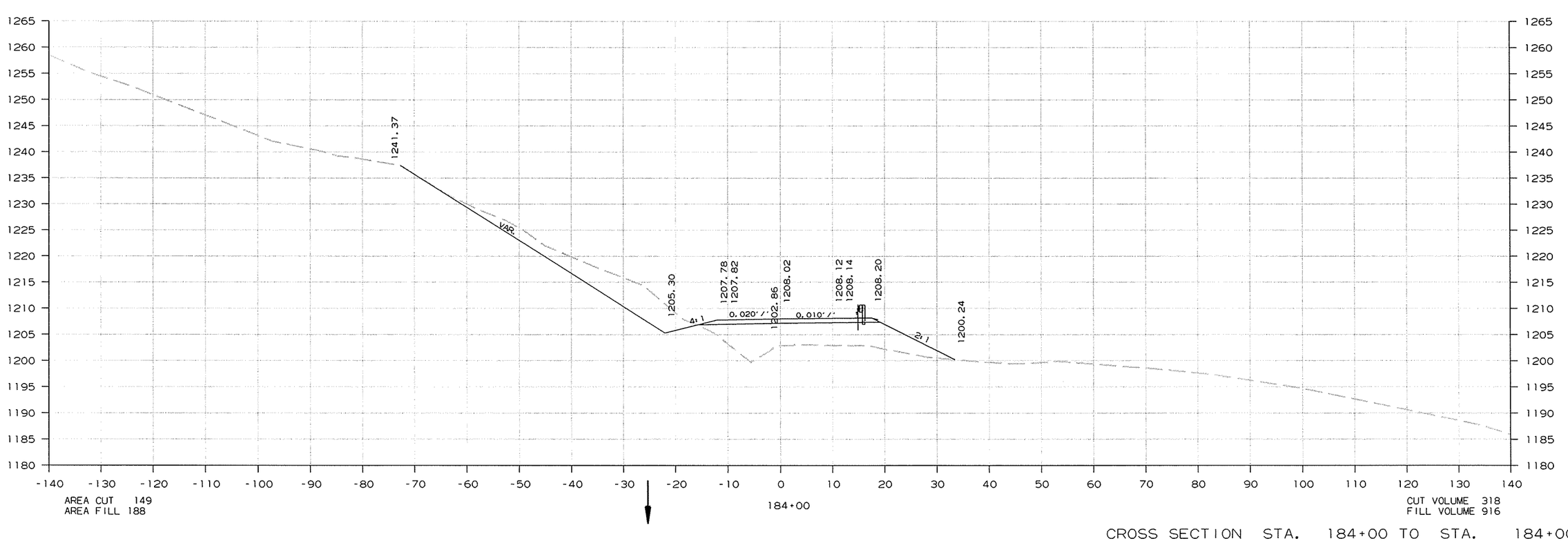
CROSS SECTION STA. 183+00 TO STA. 183+00

11/8/2011

ZBORDER.CEL

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.		040206	172	215

(2) CROSS SECTIONS



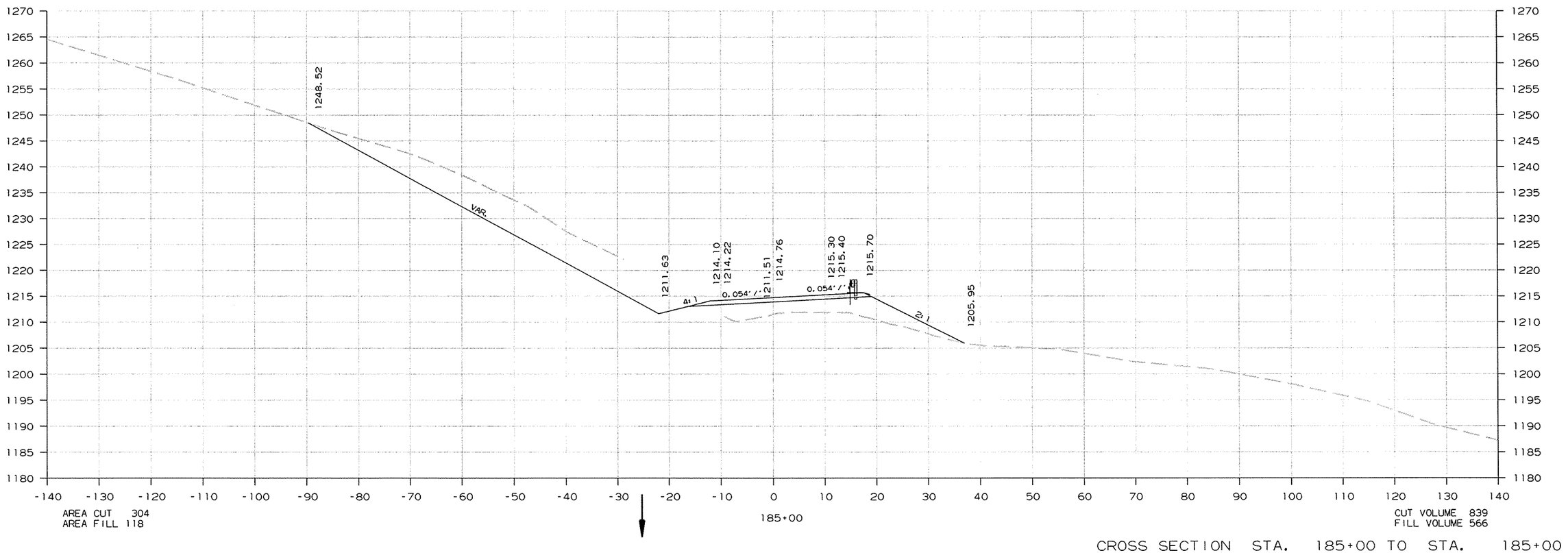
CROSS SECTION STA. 184+00 TO STA. 184+00

11/8/2011

ZBORDER.CEL

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.		040206	173	215

(2) CROSS SECTIONS



AREA CUT 304
AREA FILL 118

CUT VOLUME 839
FILL VOLUME 566

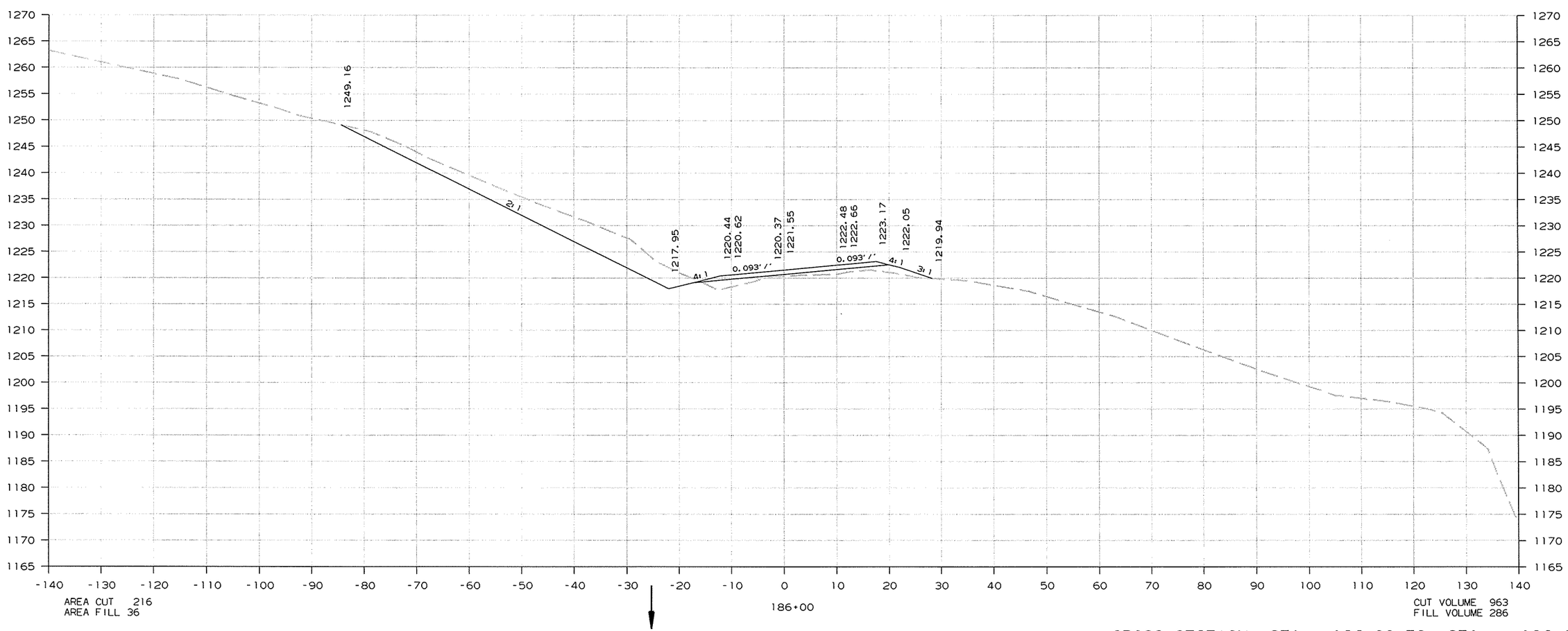
CROSS SECTION STA. 185+00 TO STA. 185+00

11/8/2011

ZBORDER.CEL

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.		040206	174	215

(2) CROSS SECTIONS



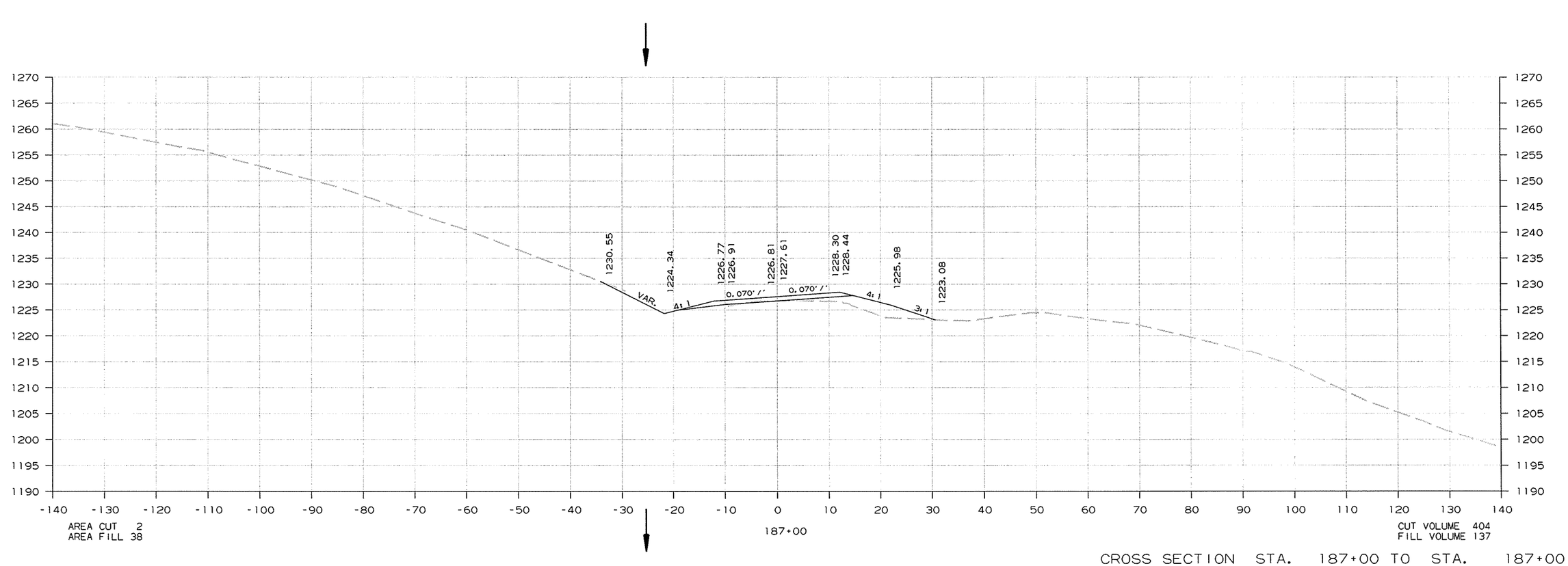
CROSS SECTION STA. 186+00 TO STA. 186+00

11/8/2011

ZBORDER.CEL

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.		040206	175	215

(2) CROSS SECTIONS



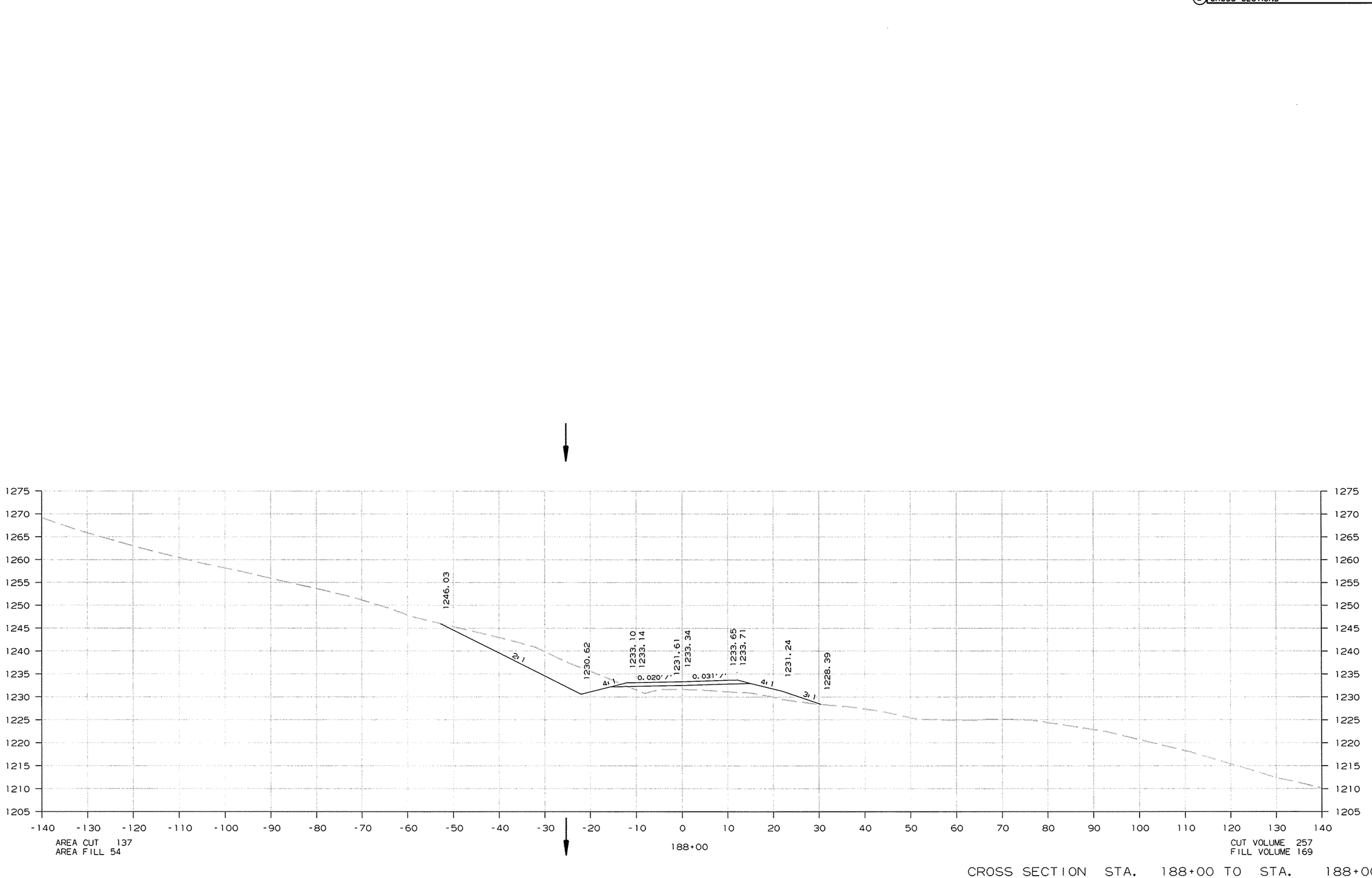
CROSS SECTION STA. 187+00 TO STA. 187+00

11/8/2011

ZBORDER.CEL

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.		040206	176	215

(2) CROSS SECTIONS



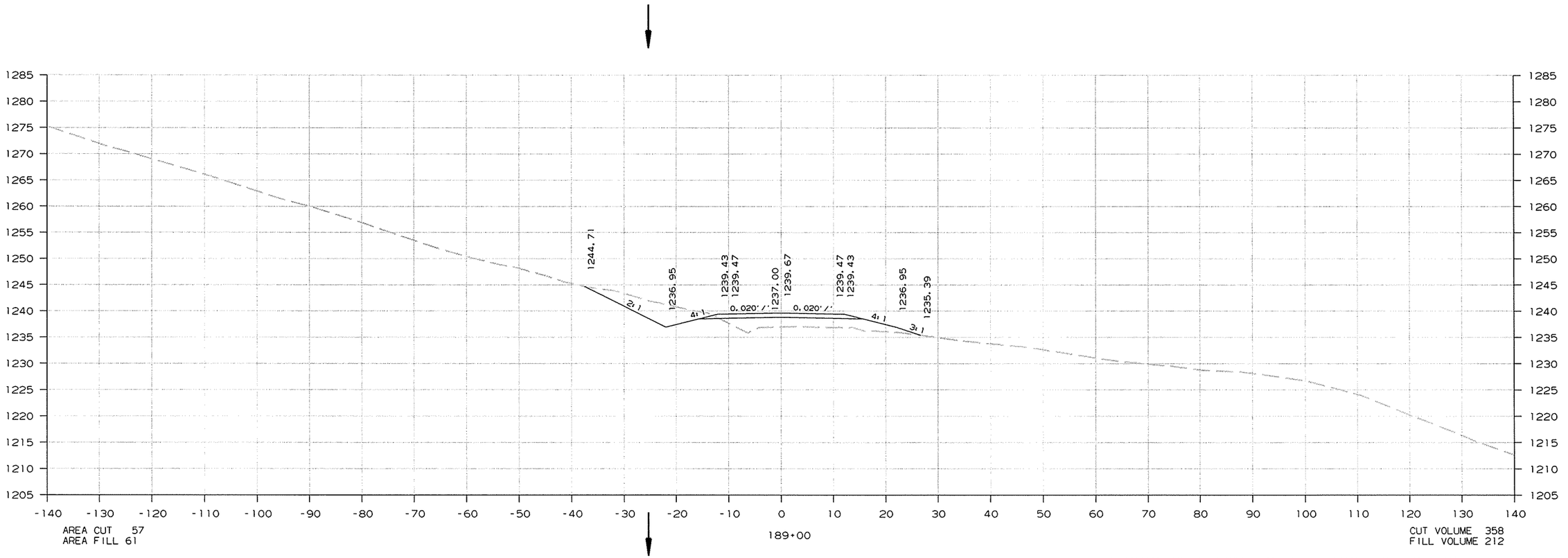
CROSS SECTION STA. 188+00 TO STA. 188+00

11/8/2011

ZBORDER.CEL

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.		040206	177	215

(2) CROSS SECTIONS



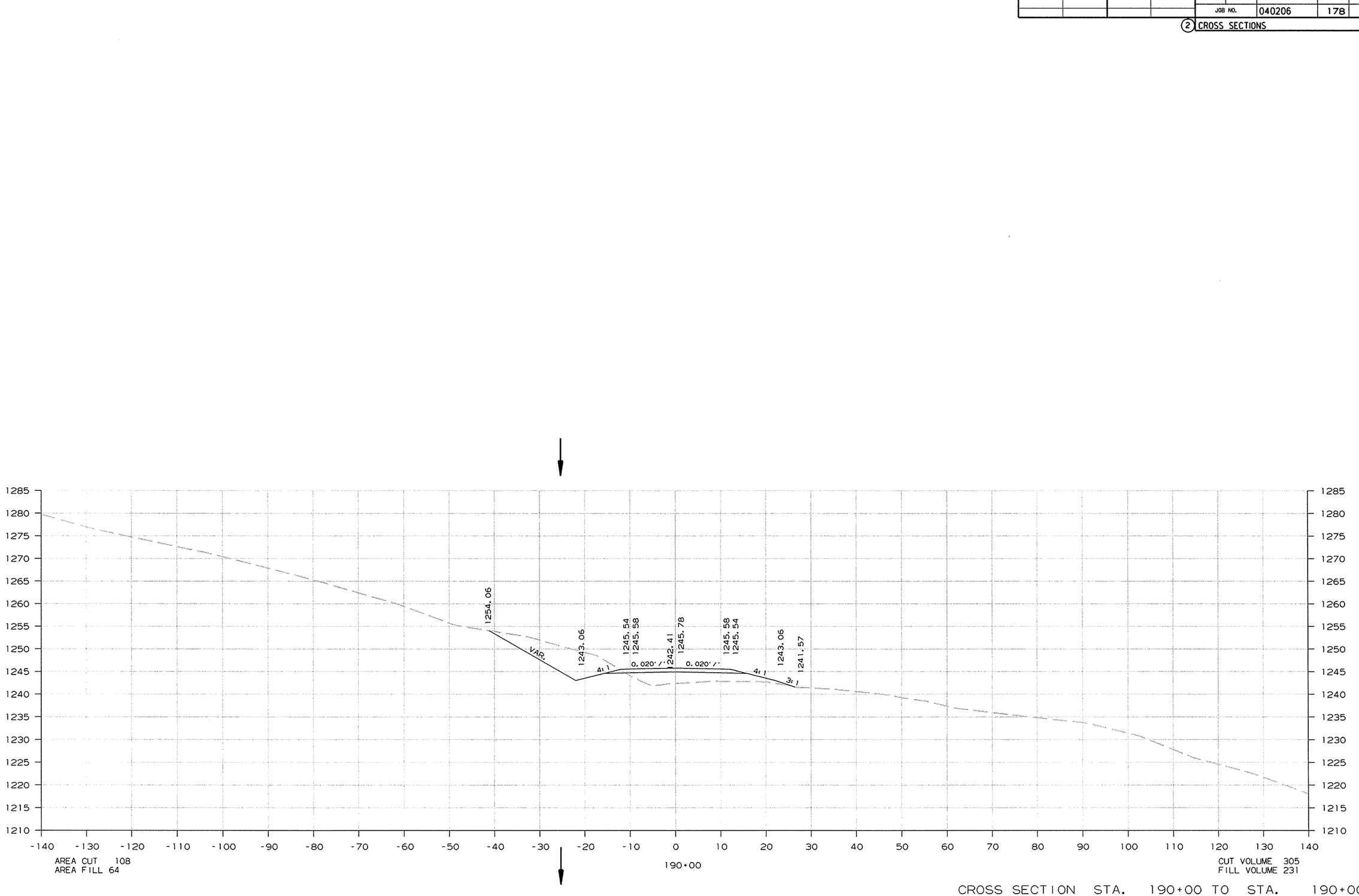
CROSS SECTION STA. 189+00 TO STA. 189+00

11/8/2011

ZBORDER.CEL

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.		040206	178	215

(2) CROSS SECTIONS



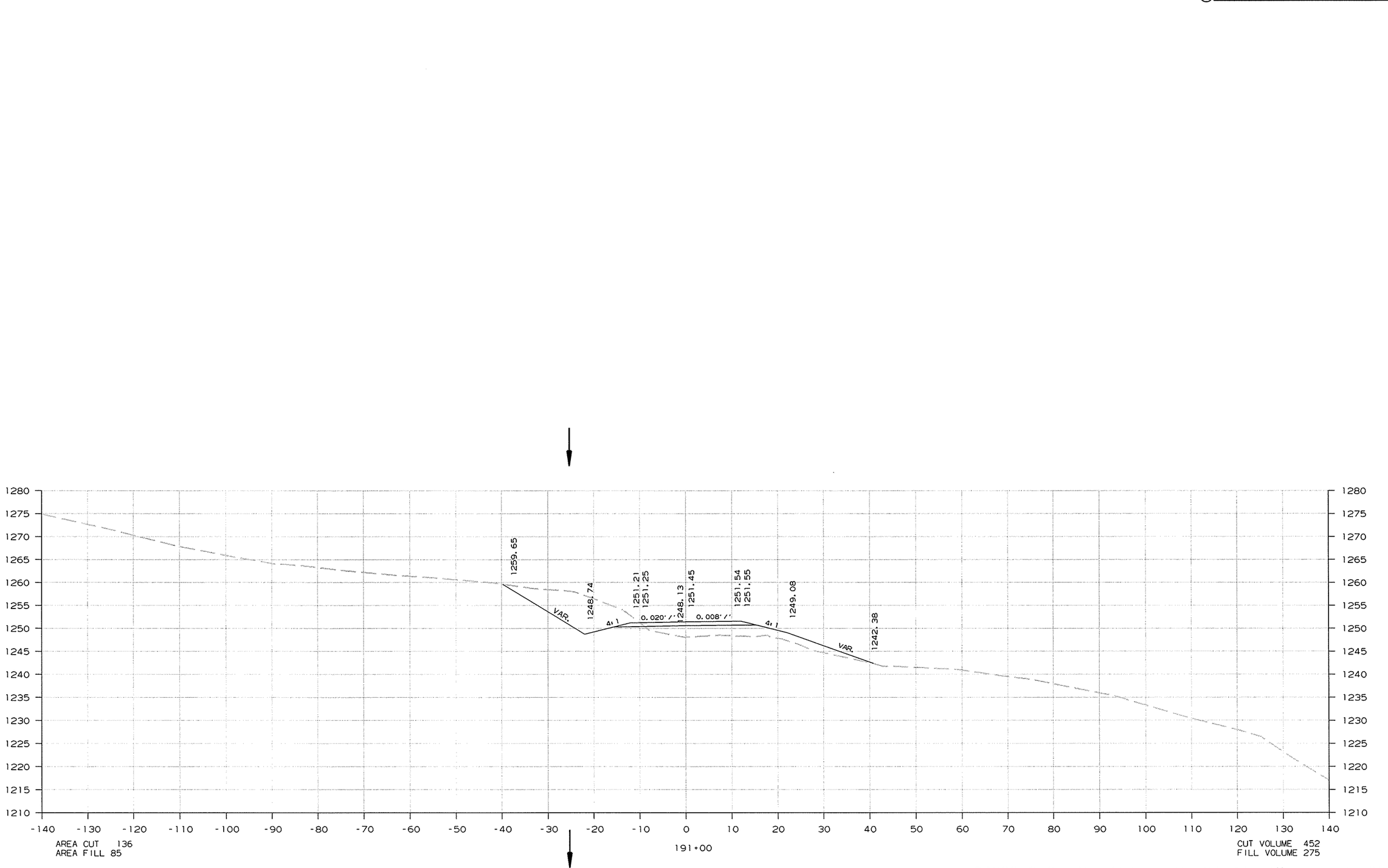
CROSS SECTION STA. 190+00 TO STA. 190+00

11/8/2011

ZBORDER.CEL

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.		040206	179	215

(2) CROSS SECTIONS



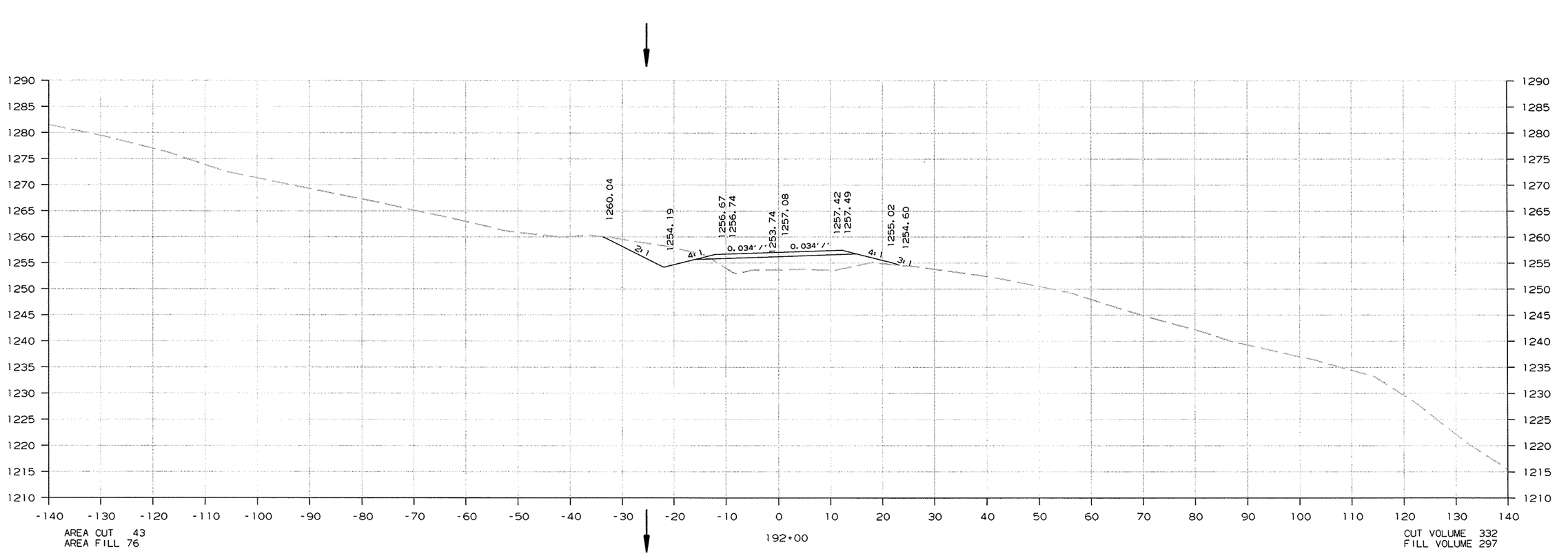
CROSS SECTION STA. 191+00 TO STA. 191+00

11/8/2011

ZBORDER.CEL

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.		040206	180	215

(2) CROSS SECTIONS



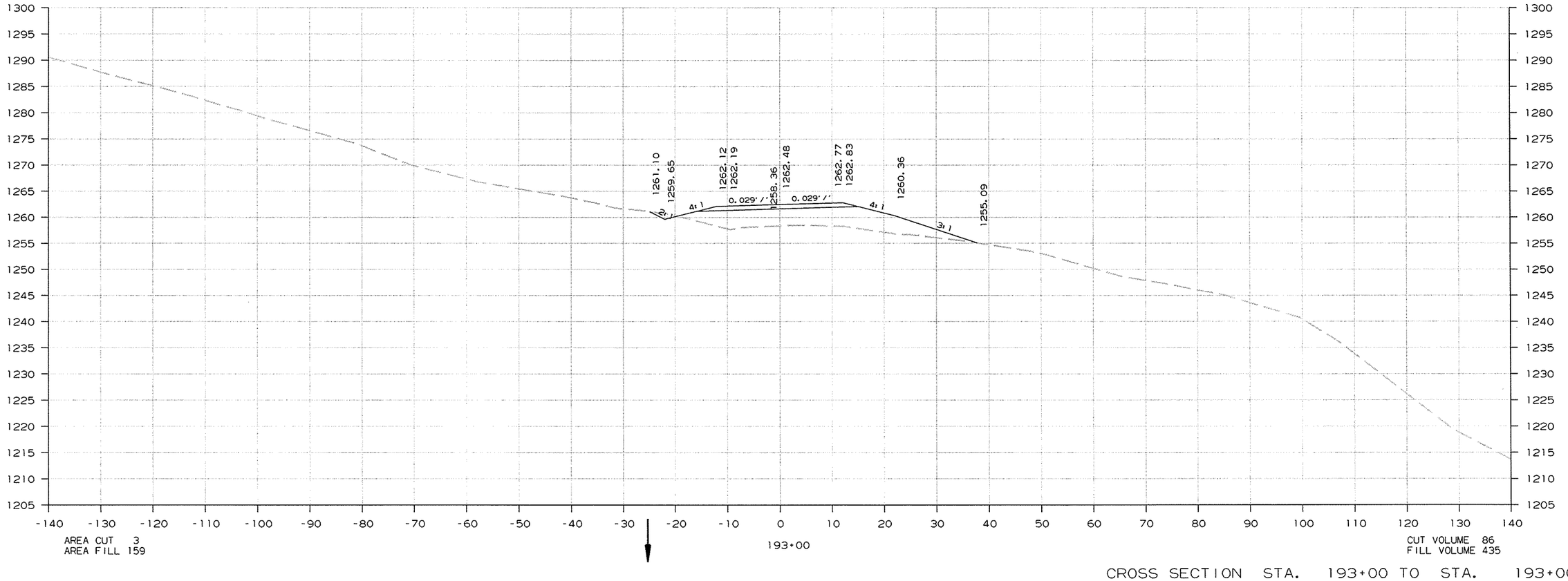
CROSS SECTION STA. 192+00 TO STA. 192+00

11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	181	215

(2) CROSS SECTIONS



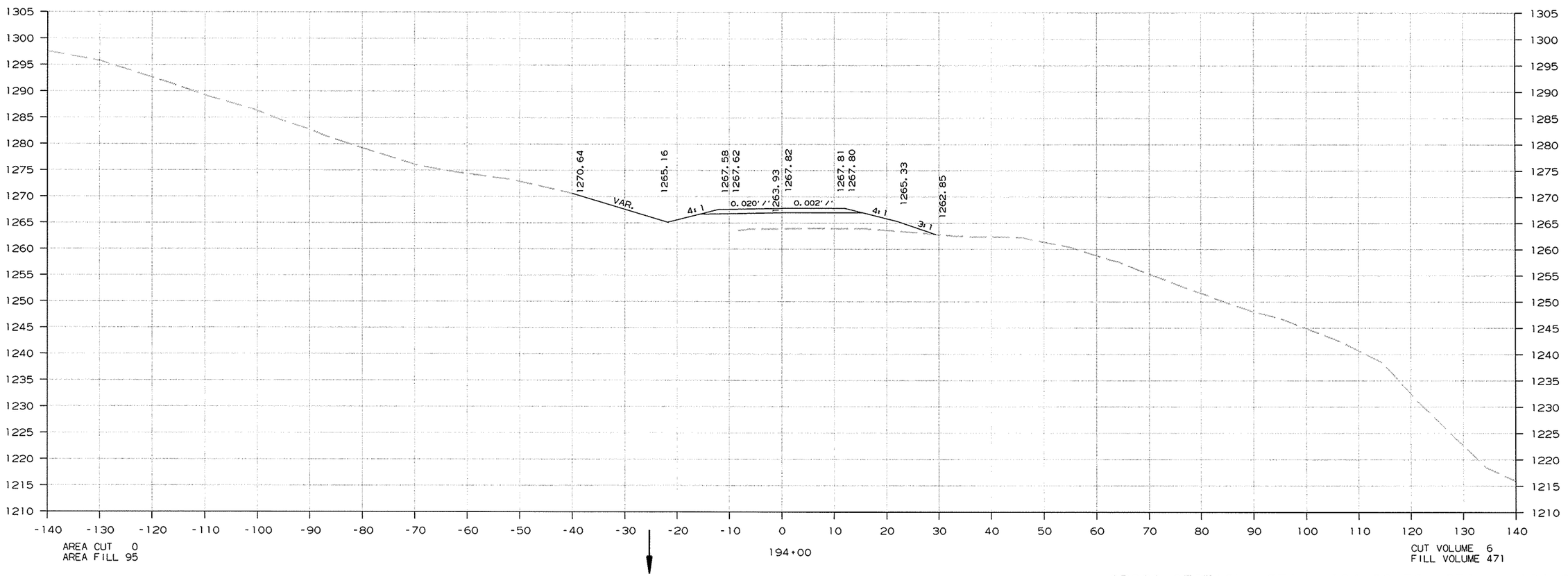
CROSS SECTION STA. 193+00 TO STA. 193+00

11/8/2011

ZBORDER.CEL

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.		040206	182	215

(2) CROSS SECTIONS



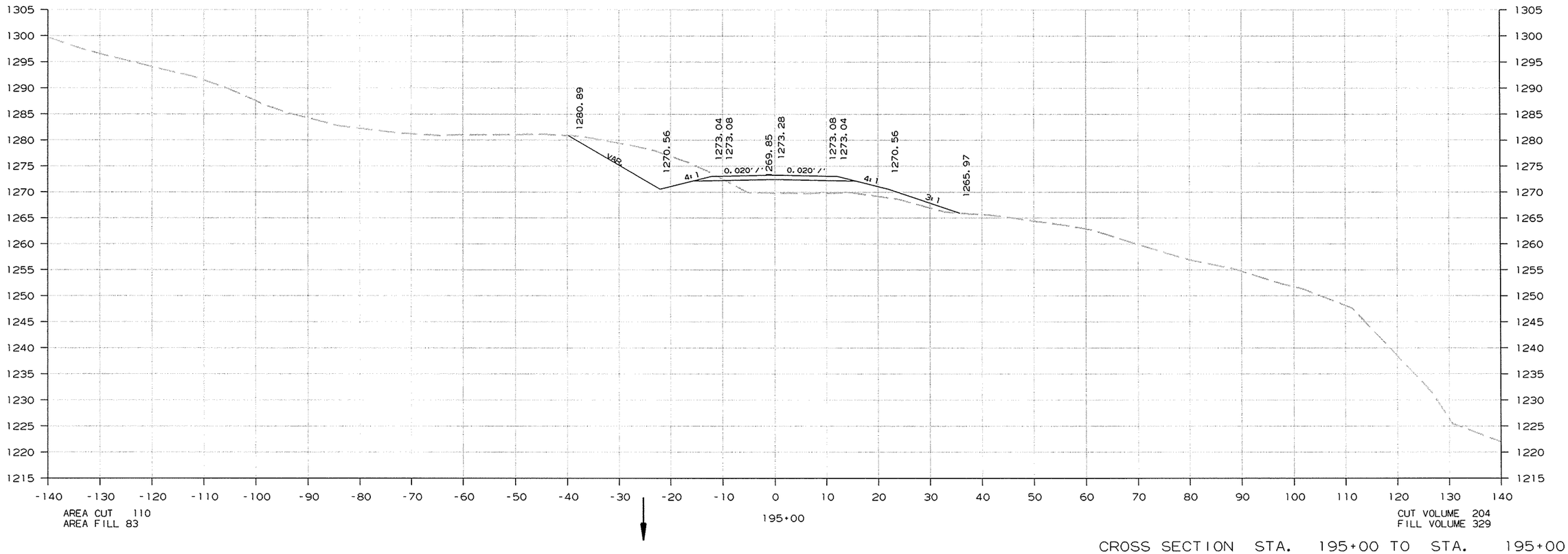
CROSS SECTION STA. 194+00 TO STA. 194+00

11/8/2011

ZBORDER.CEL

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.		040206	183	215

(2) CROSS SECTIONS



CROSS SECTION STA. 195+00 TO STA. 195+00

11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	184	215

(2) CROSS SECTIONS

STA. 195+64 IN PLACE
24" X25' CMP
REMOVE
STA. 195+70 CONSTRUCT
DBL. 36" X 56' PIPE CULVERT
36" F.E.S. LT. & RT. = 4 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 112 LIN. FT.
36" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 100 LIN. FT.
D.A. = 25.7 Ac. Q25= 87 C.F.S.
CONST. INLET = 5 CU. YDS.
RIPRAP LT.& RT. = 26 CU. YDS.
FILTER BLANKET LT.& RT. = 52 SQ. YDS.

1279.04
1276.86
1274.43
1276.86
1276.90
1274.20
1277.10
1276.90
1276.86
1274.43
1276.86
VAR.
4:1
3:1
0.020'/'
0.020'/'
4:1
2:1
INLET=1271.59
OUTLET=1264.87

AREA CUT 0
AREA FILL 188

195+70

CUT VOLUME 143
FILL VOLUME 352

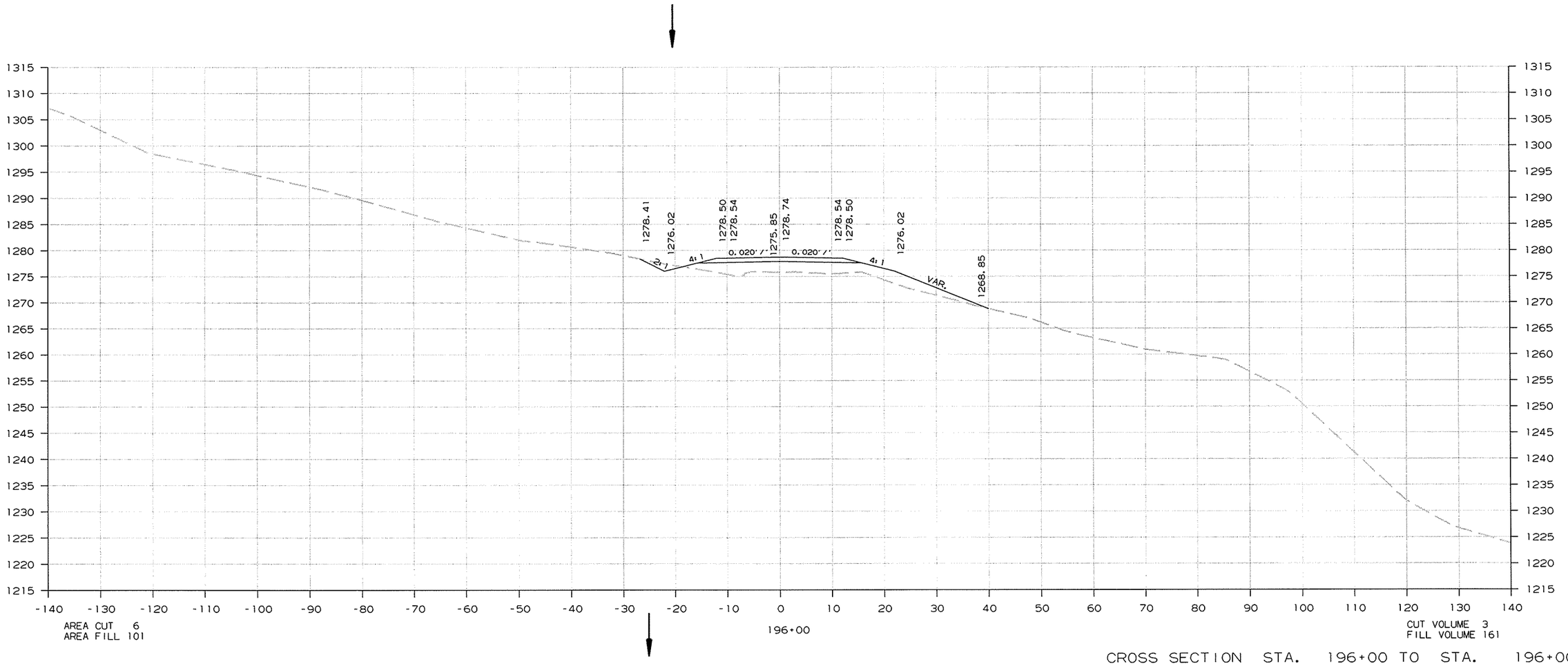
CROSS SECTION STA. 195+70 TO STA. 195+70

11/8/2011

ZBORDER.CEL

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.		040206	185	215

(2) CROSS SECTIONS



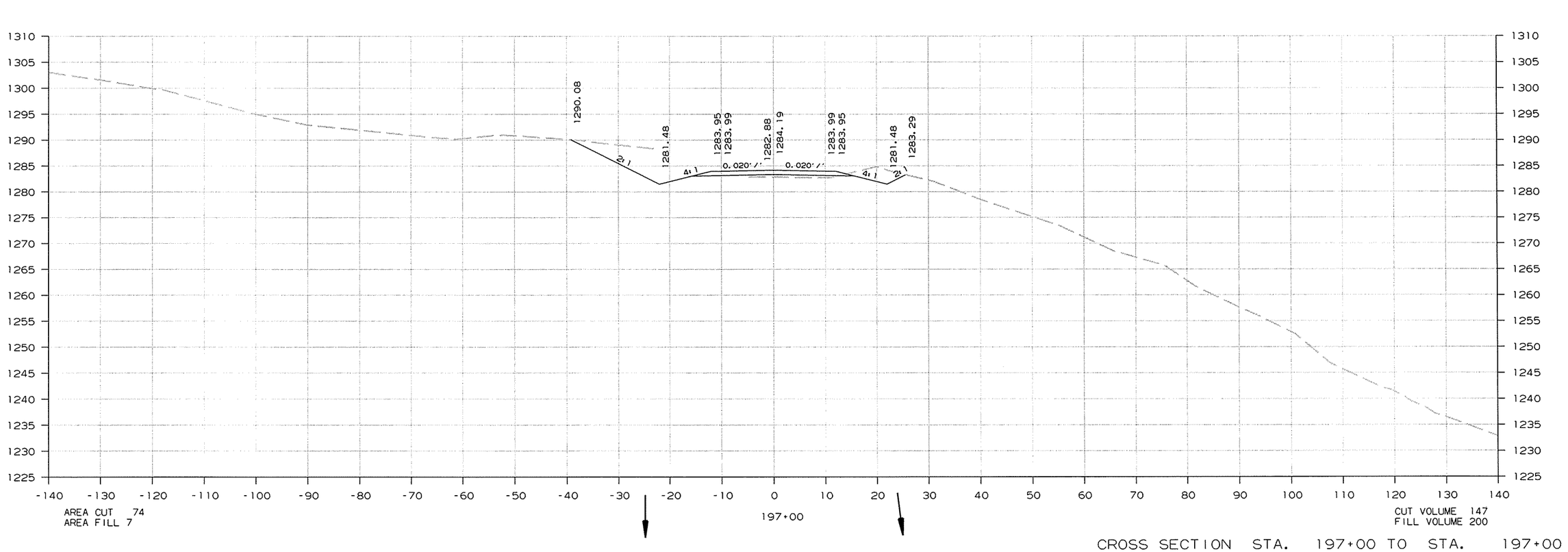
CROSS SECTION STA. 196+00 TO STA. 196+00

11/8/2011

ZBORDER.CEL

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.		040206	186	215

(2) CROSS SECTIONS



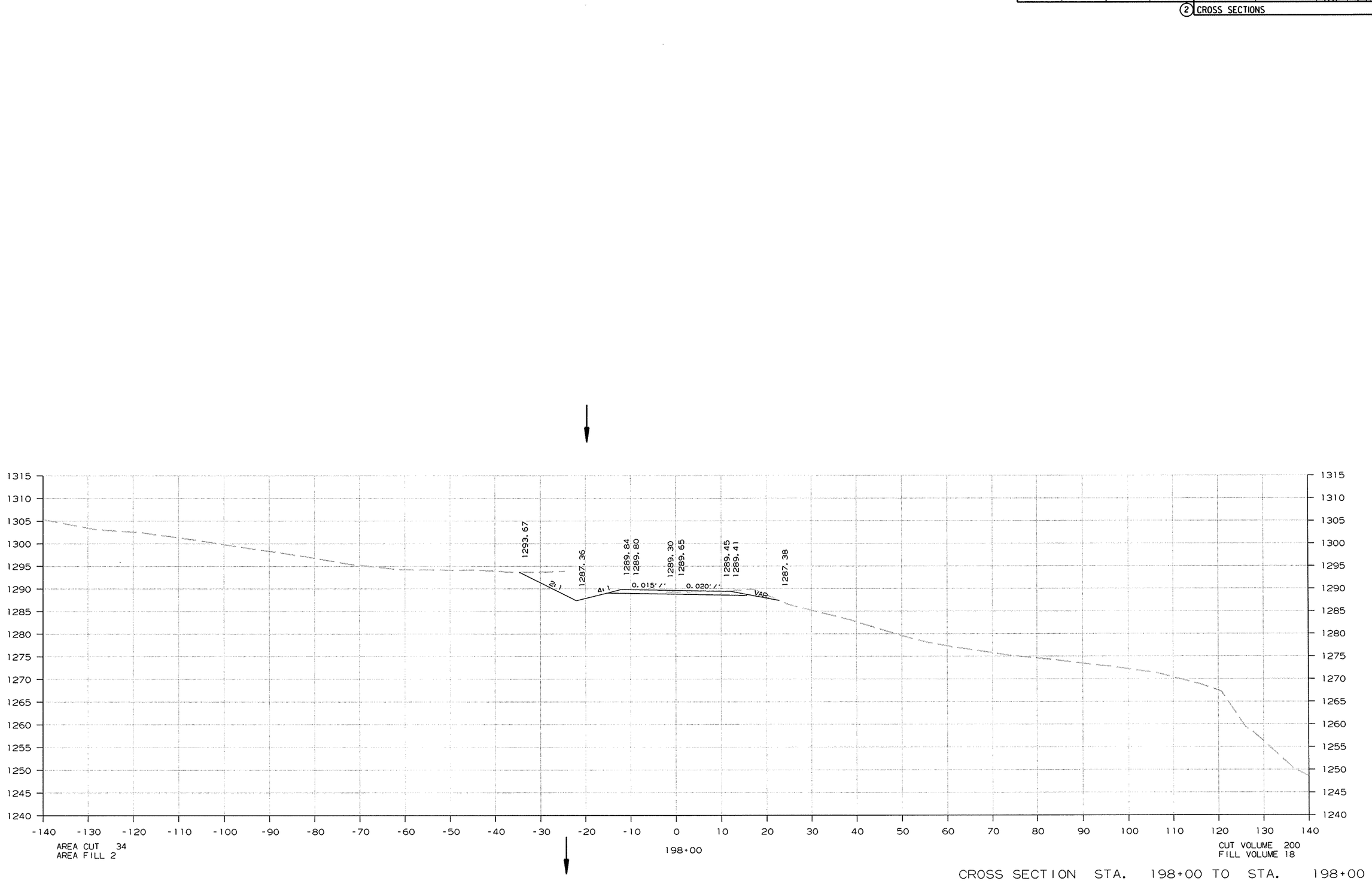
CROSS SECTION STA. 197+00 TO STA. 197+00

11/8/2011

ZBORDER.CEL

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.		040206	187	215

(2) CROSS SECTIONS



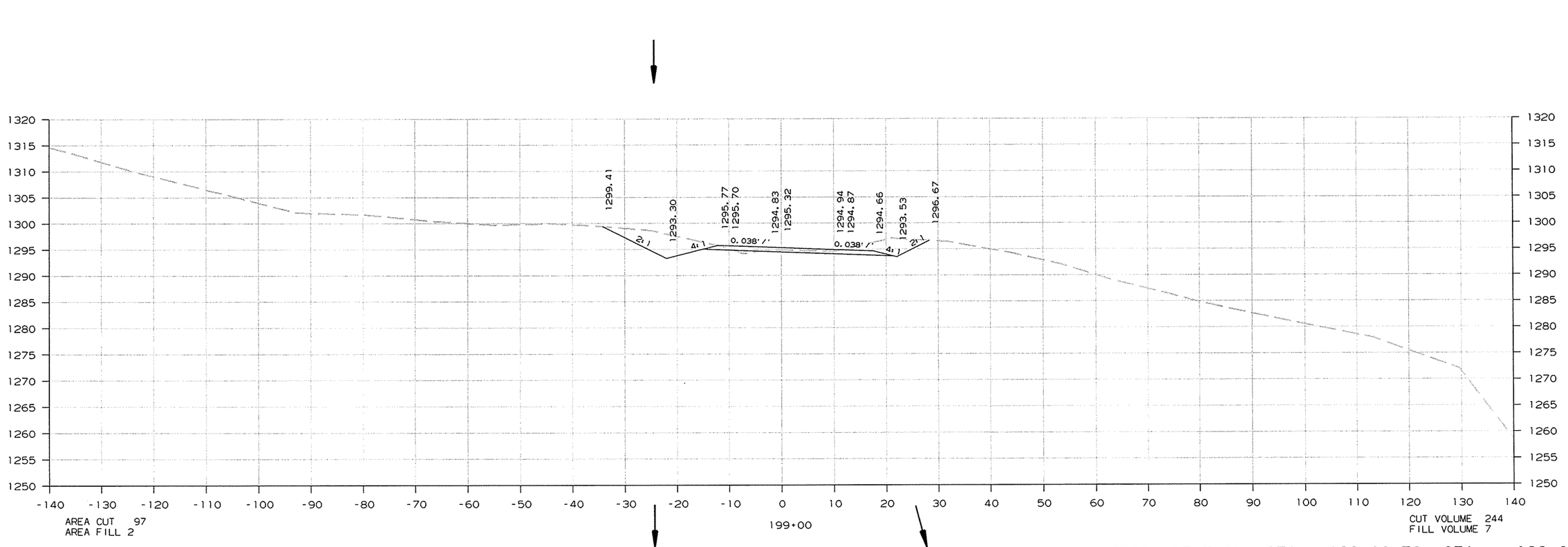
CROSS SECTION STA. 198+00 TO STA. 198+00

11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	188	215

(2) CROSS SECTIONS



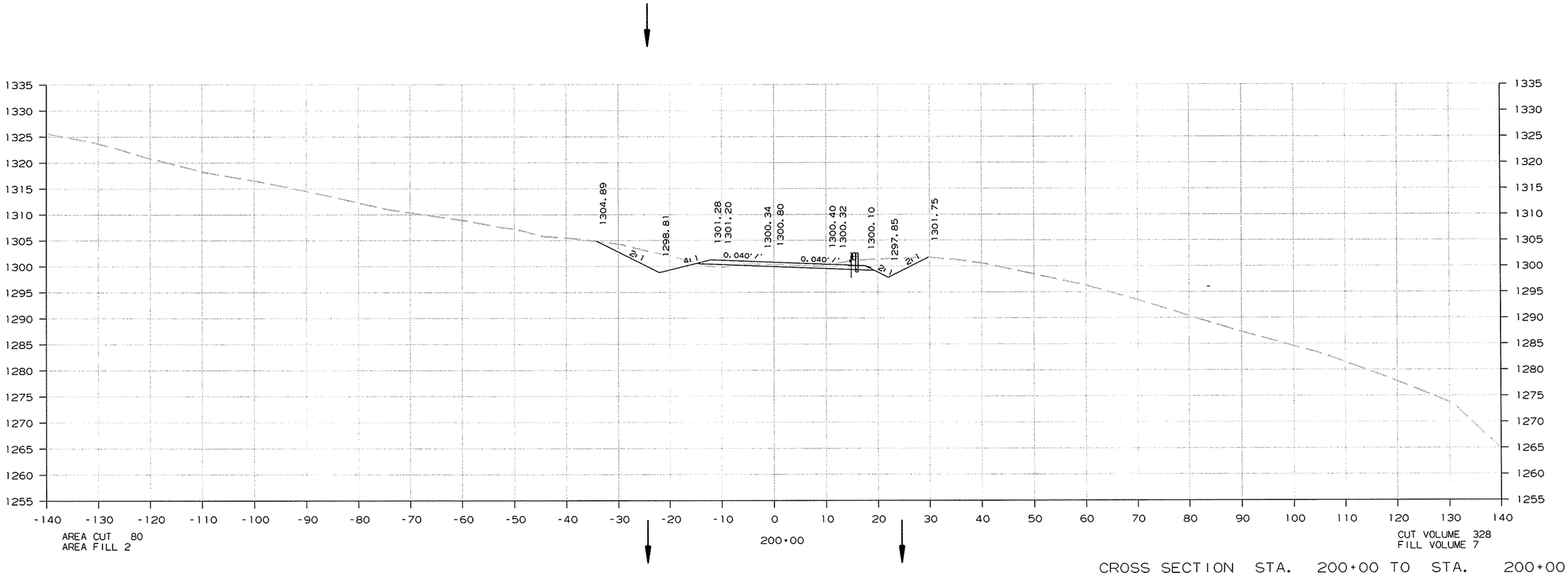
CROSS SECTION STA. 199+00 TO STA. 199+00

11/8/2011

ZBORDER.CEL

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.		040206	189	215

(2) CROSS SECTIONS



AREA CUT 80
AREA FILL 2

CUT VOLUME 328
FILL VOLUME 7

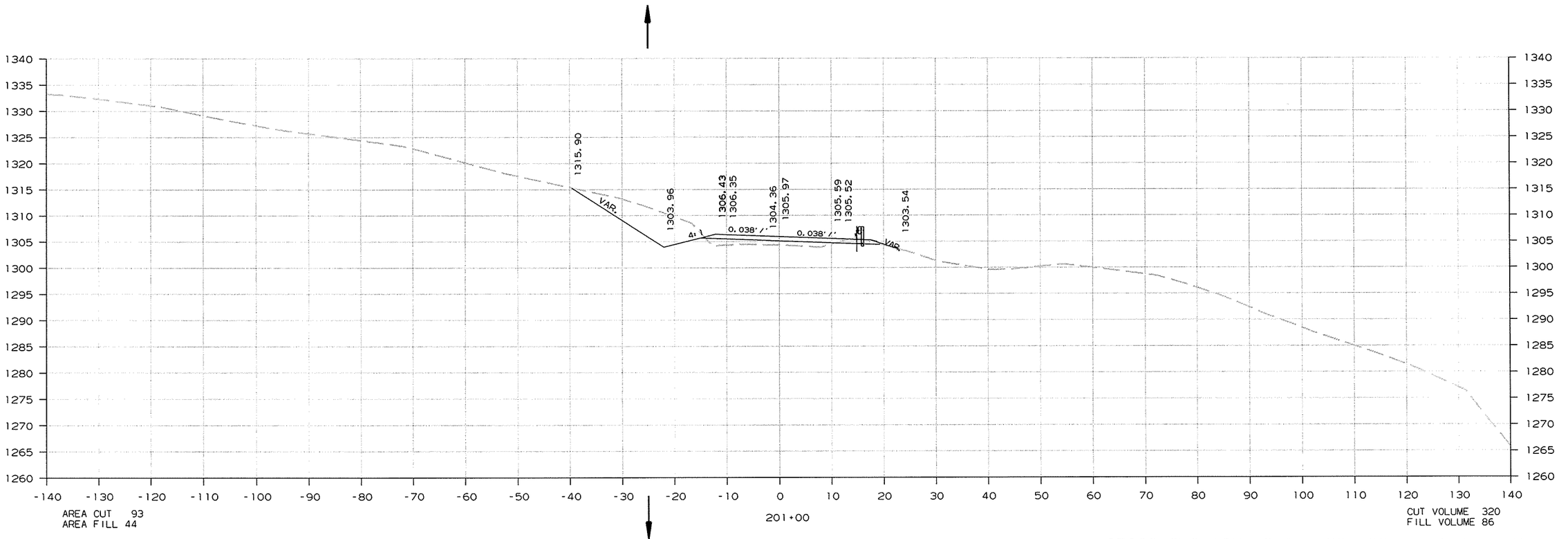
CROSS SECTION STA. 200+00 TO STA. 200+00

11/8/2011

ZBORDER.CEL

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.		040206	190	215

(2) CROSS SECTIONS



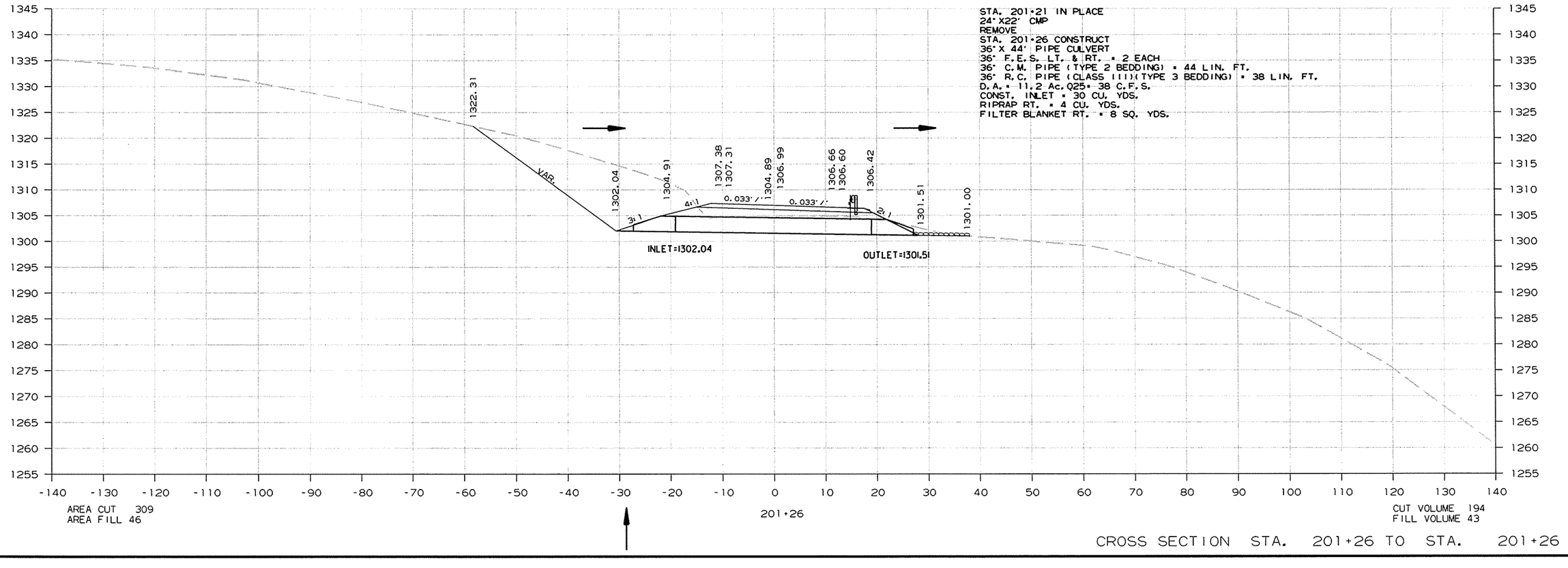
CROSS SECTION STA. 201+00 TO STA. 201+00

11/8/2011

ZBORDER.CEL

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.		040206	191	215

(2) CROSS SECTIONS



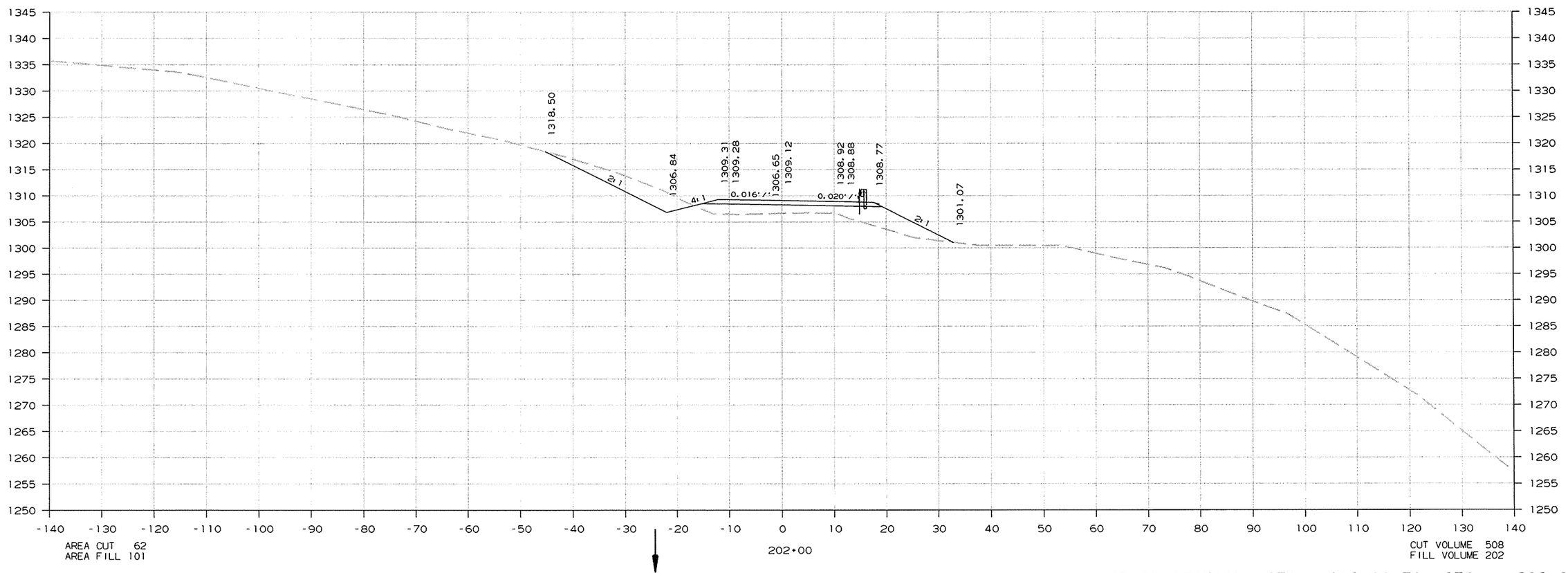
CROSS SECTION STA. 201+26 TO STA. 201+26

11/8/2011

ZBORDER.CEL

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.		040206	192	215

(2) CROSS SECTIONS



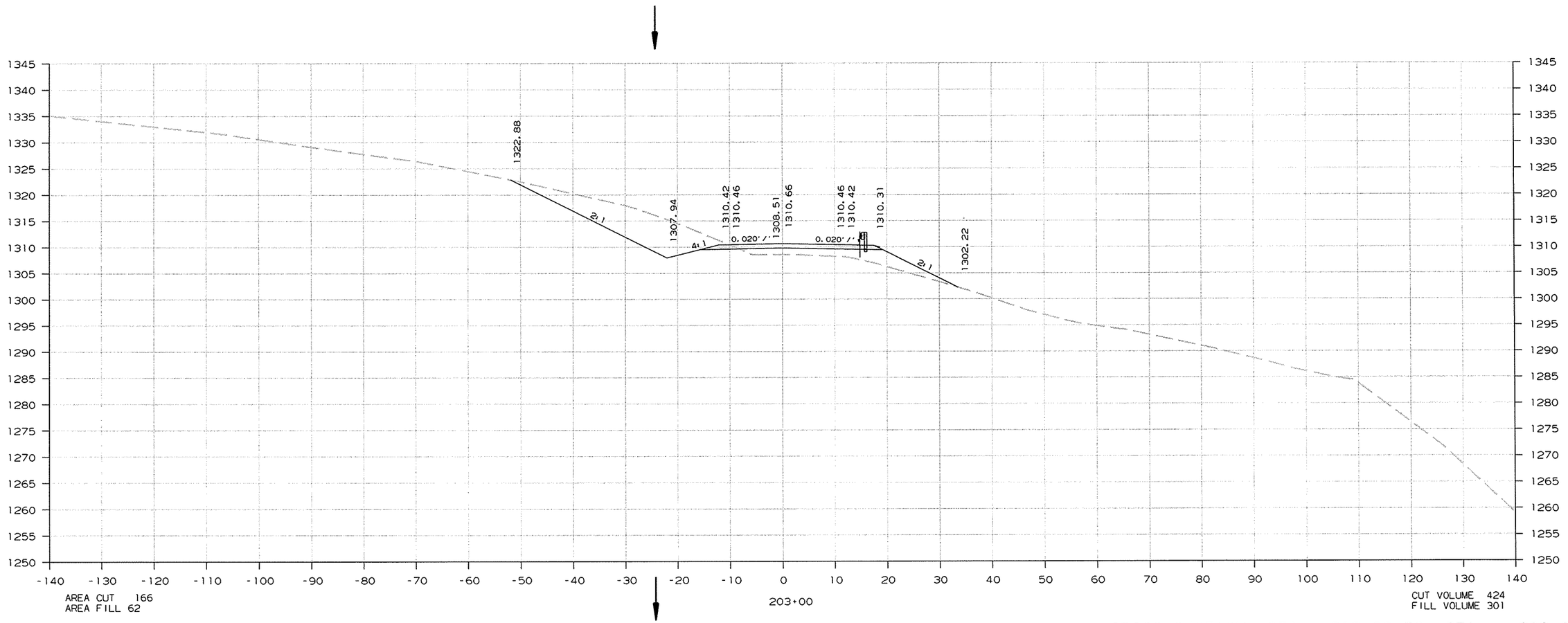
CROSS SECTION STA. 202+00 TO STA. 202+00

11/8/2011

ZBORDER.CEL

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.		040206	193	215

(2) CROSS SECTIONS



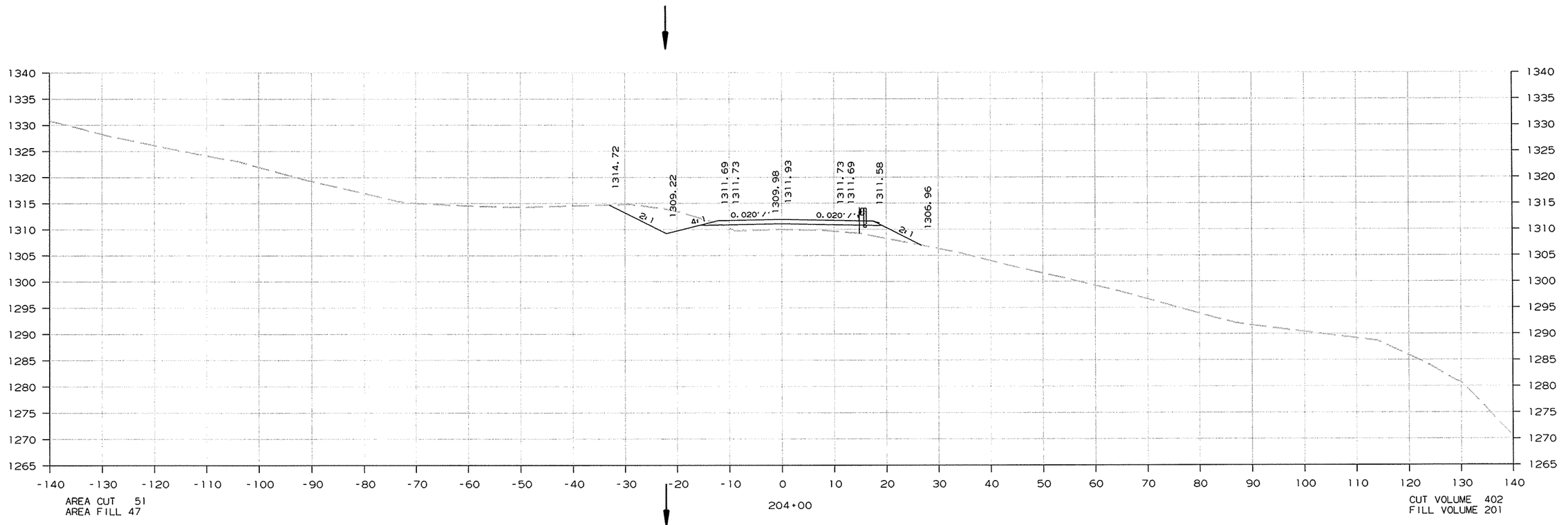
CROSS SECTION STA. 203+00 TO STA. 203+00

11/8/2011

ZBORDER.CEL

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.		040206	194	215

(2) CROSS SECTIONS



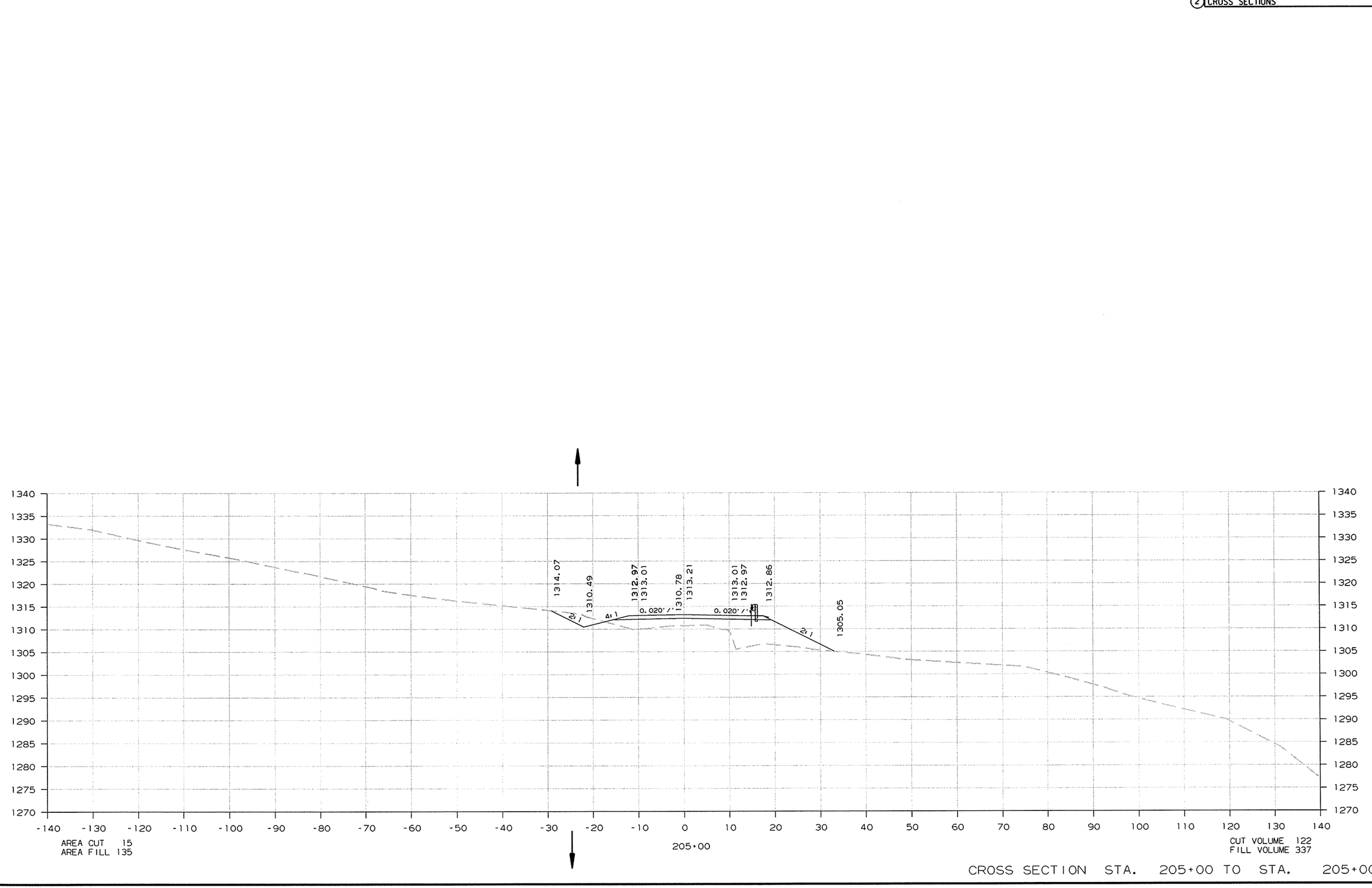
CROSS SECTION STA. 204+00 TO STA. 204+00

11/8/2011

ZBORDER.CEL

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.		040206	195	215

(2) CROSS SECTIONS



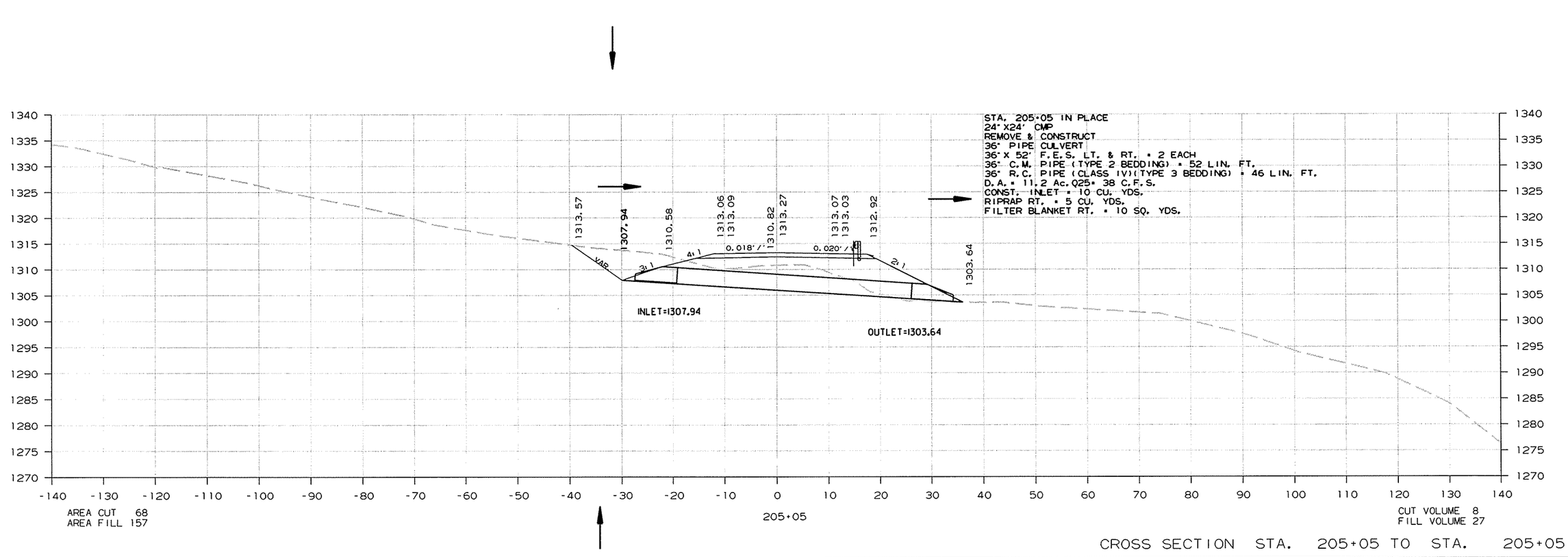
CROSS SECTION STA. 205+00 TO STA. 205+00

11/8/2011

ZBORDER.CEL

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.		040206	196	215

(2) CROSS SECTIONS



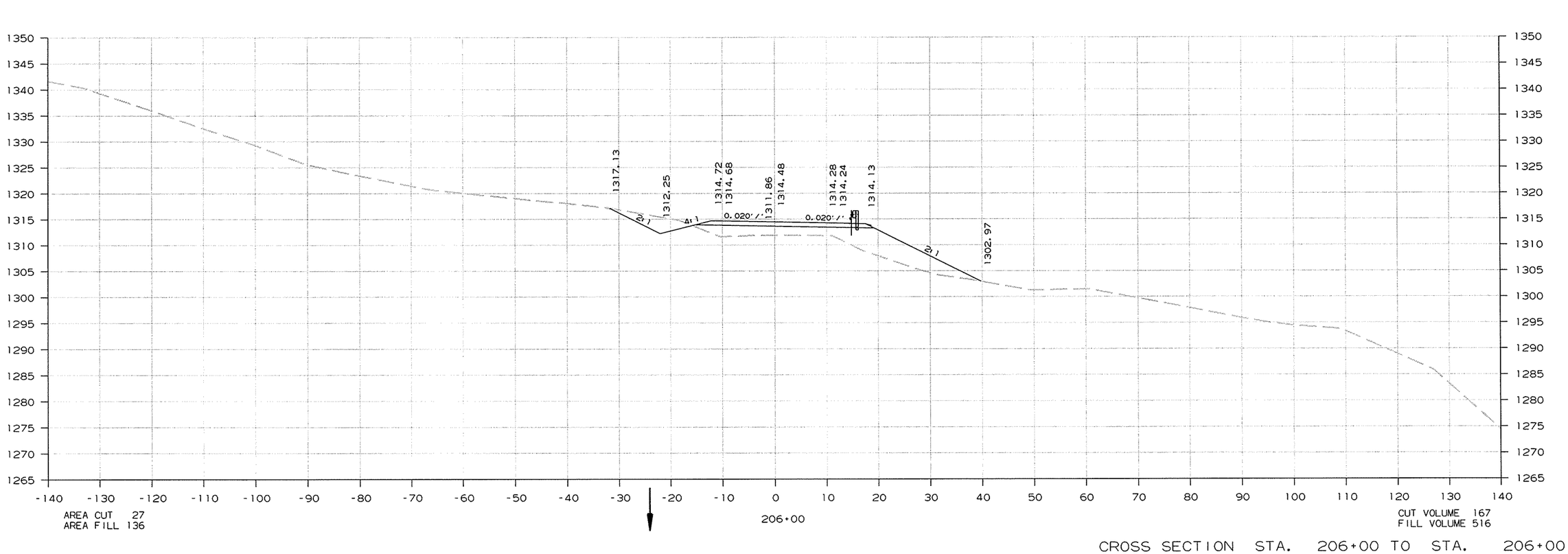
CROSS SECTION STA. 205+05 TO STA. 205+05

11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	197	215

(2) CROSS SECTIONS



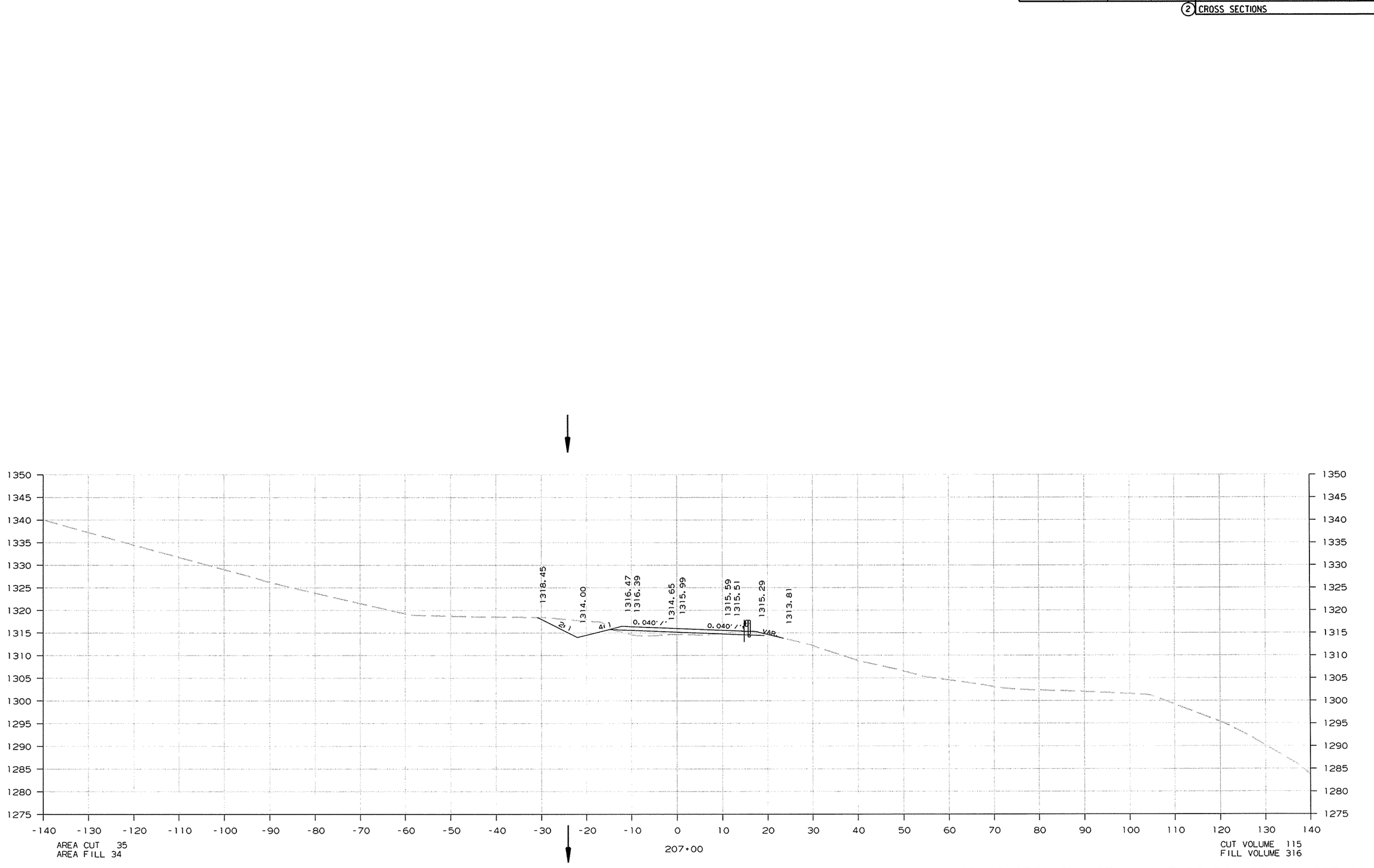
CROSS SECTION STA. 206+00 TO STA. 206+00

11/8/2011

ZBORDER.CEL

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.		040206	198	215

(2) CROSS SECTIONS



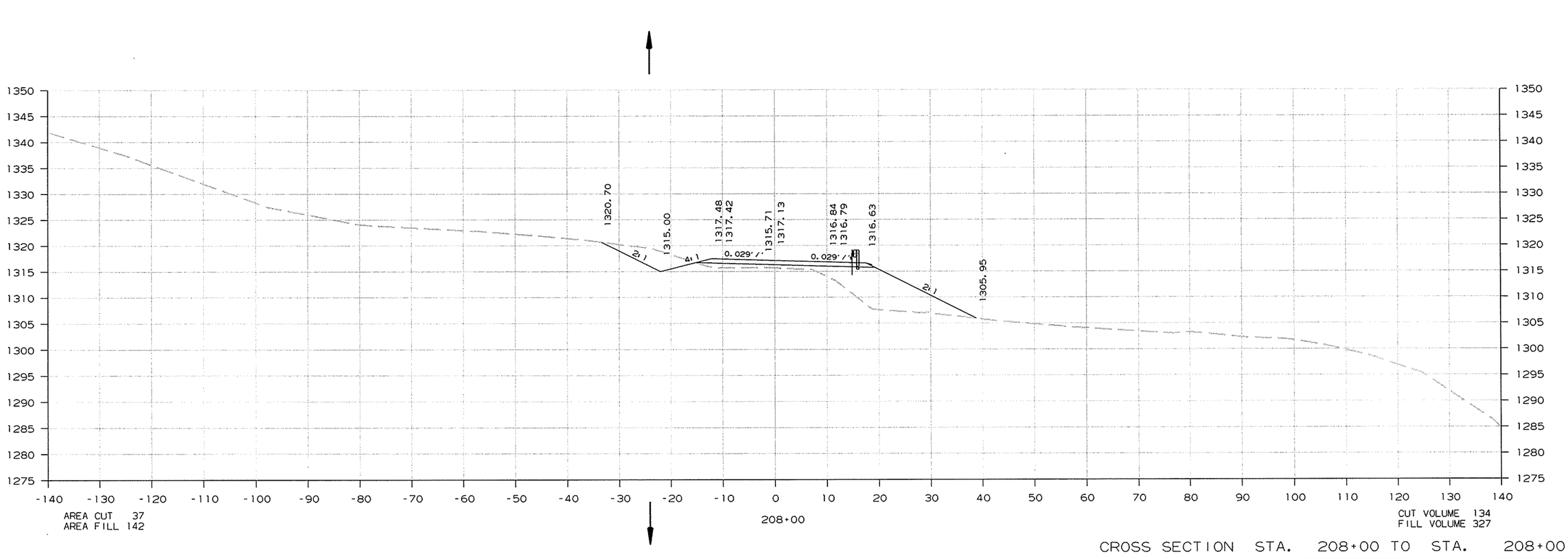
CROSS SECTION STA. 207+00 TO STA. 207+00

11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	199	215

(2) CROSS SECTIONS



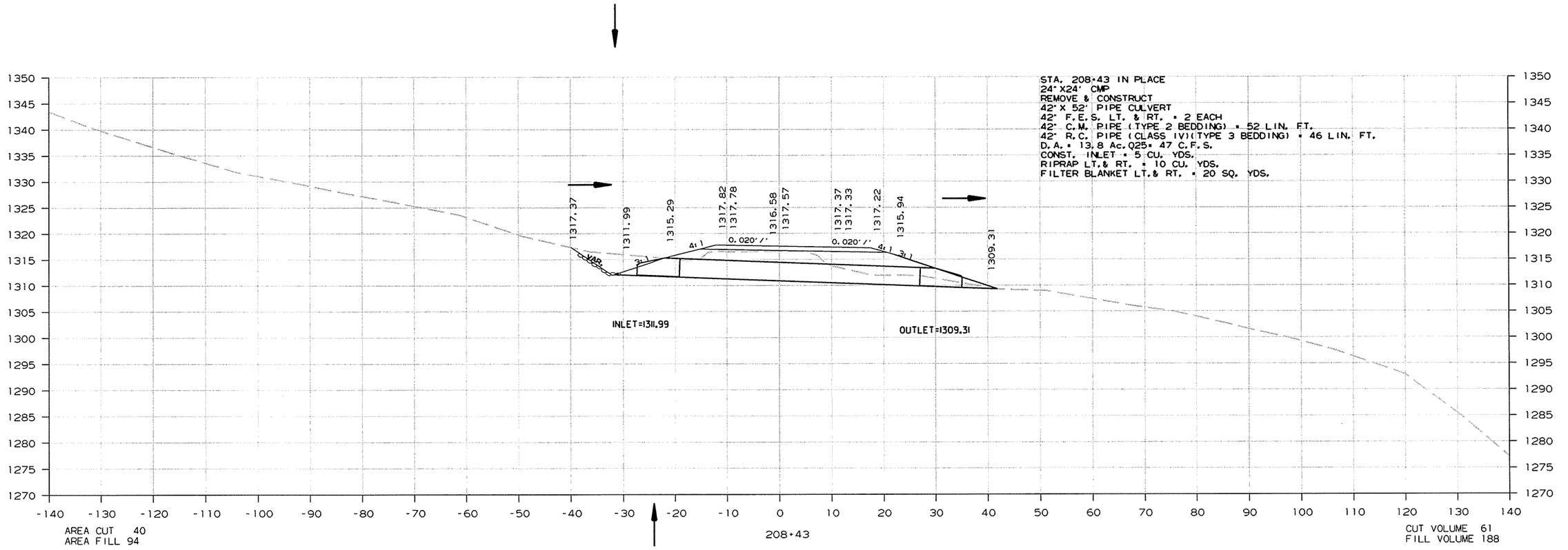
CROSS SECTION STA. 208+00 TO STA. 208+00

11/8/2011

ZBORDER.CEL

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.		040206	200	215

(2) CROSS SECTIONS



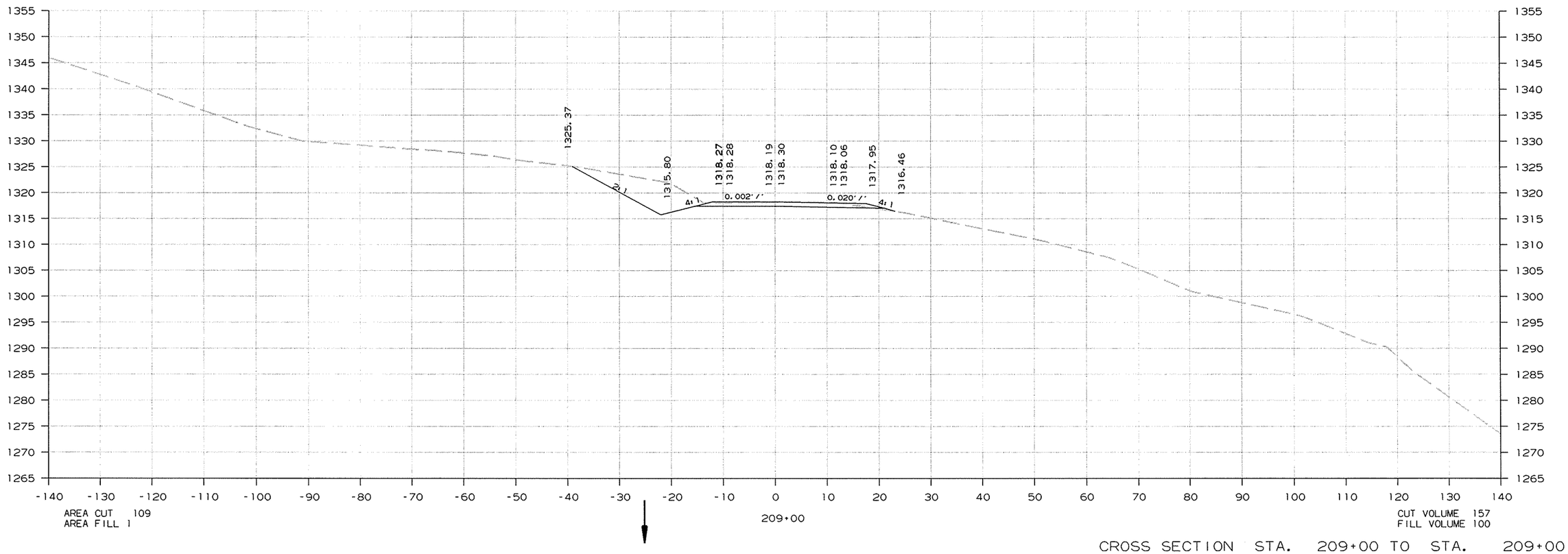
CROSS SECTION STA. 208+43 TO STA. 208+43

11/8/2011

ZBORDER.CEL

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.		040206	201	215

(2) CROSS SECTIONS



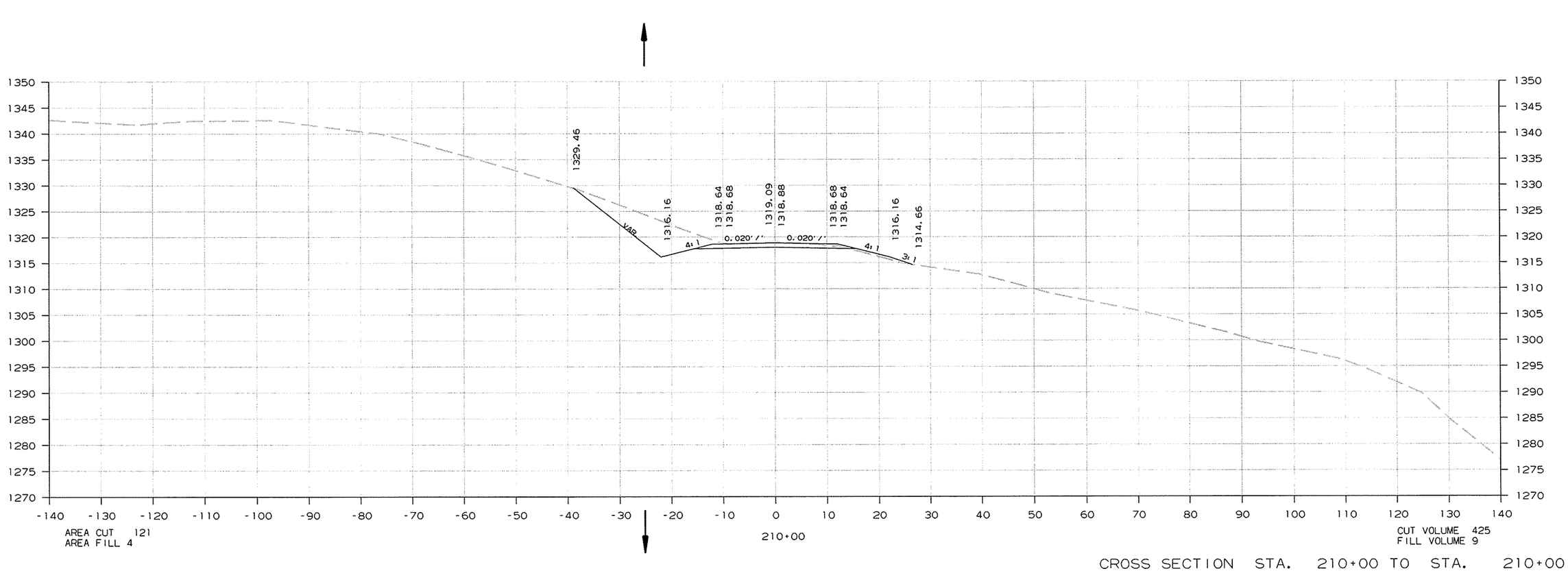
CROSS SECTION STA. 209+00 TO STA. 209+00

11/8/2011

ZBORDER.CEL

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.		040206	202	215

(2) CROSS SECTIONS



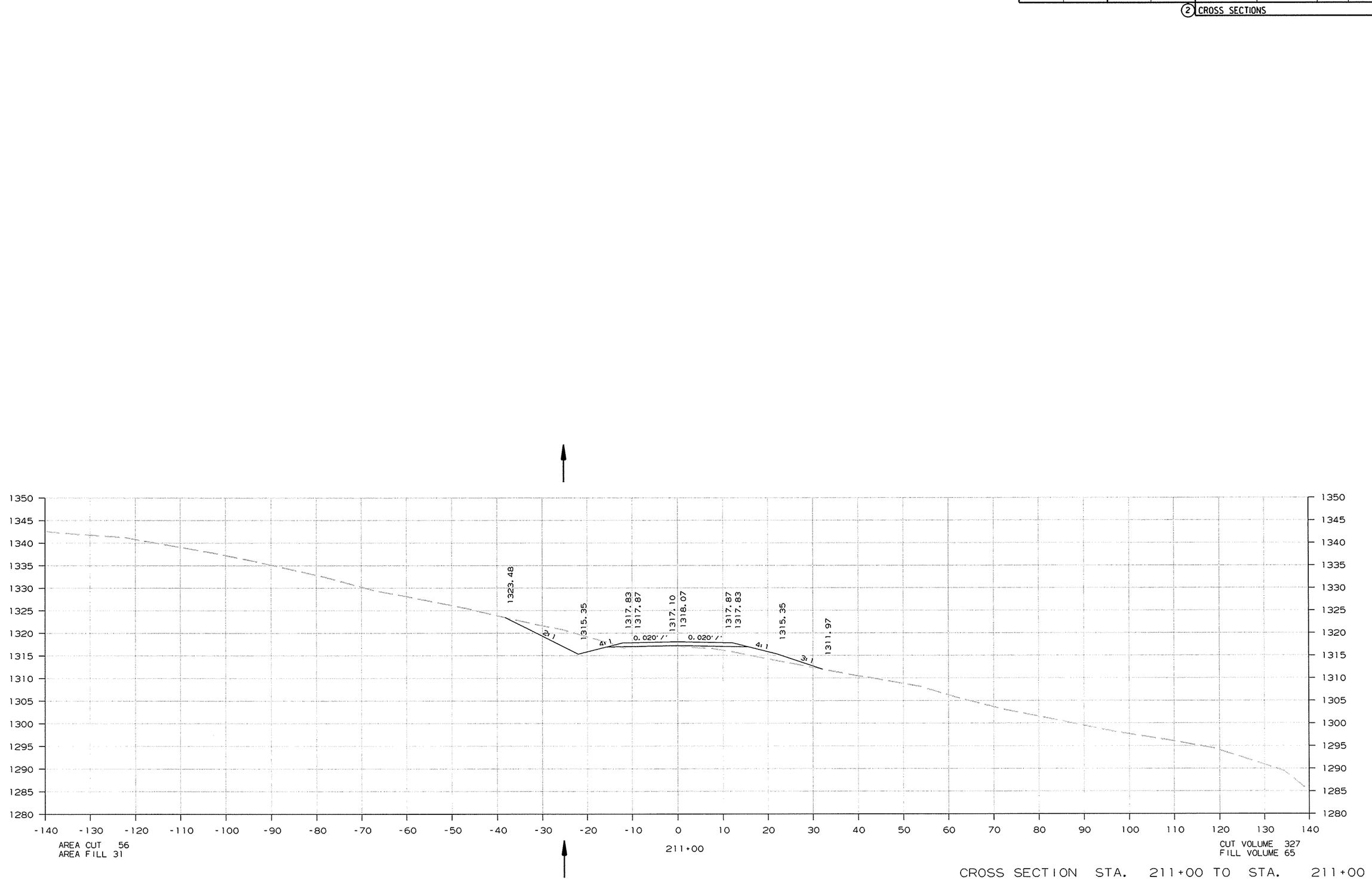
CROSS SECTION STA. 210+00 TO STA. 210+00

11/8/2011

ZBORDER.CEL

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.		040206	203	215

(2) CROSS SECTIONS



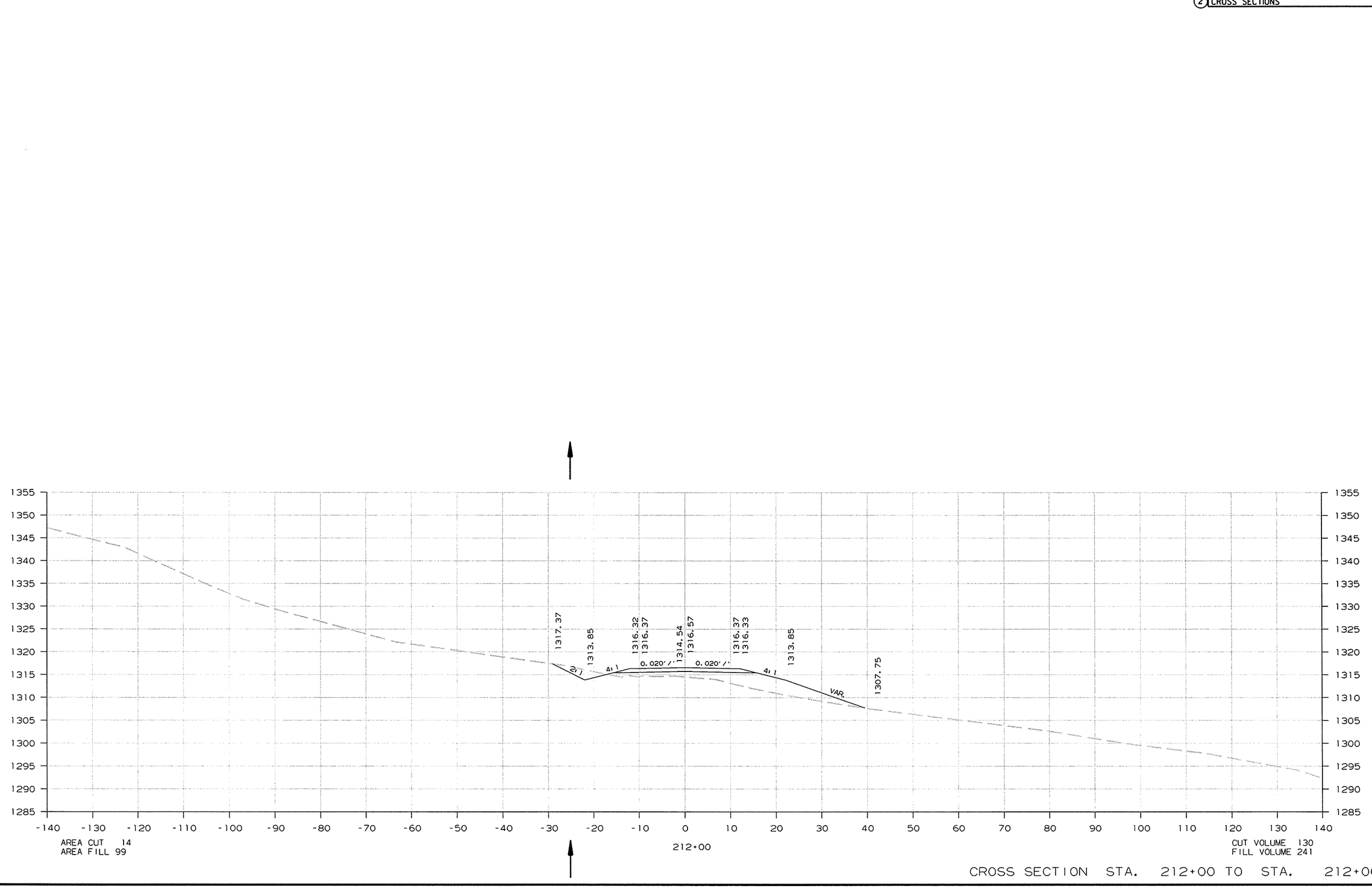
CROSS SECTION STA. 211+00 TO STA. 211+00

11/8/2011

ZBORDER.CEL

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.		040206	204	215

(2) CROSS SECTIONS



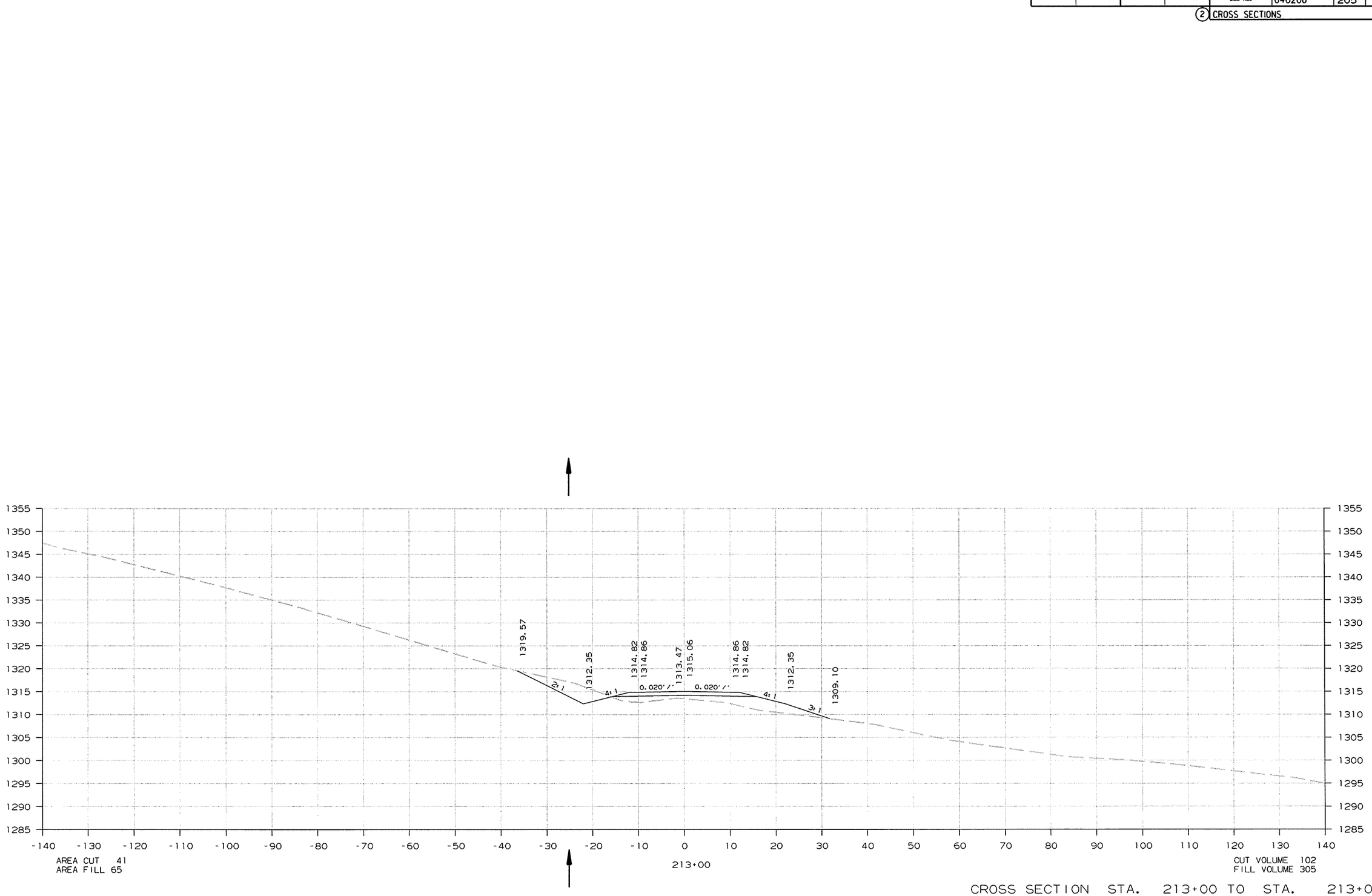
CROSS SECTION STA. 212+00 TO STA. 212+00

11/8/2011

ZBORDER.CEL

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.		040206	205	215

(2) CROSS SECTIONS



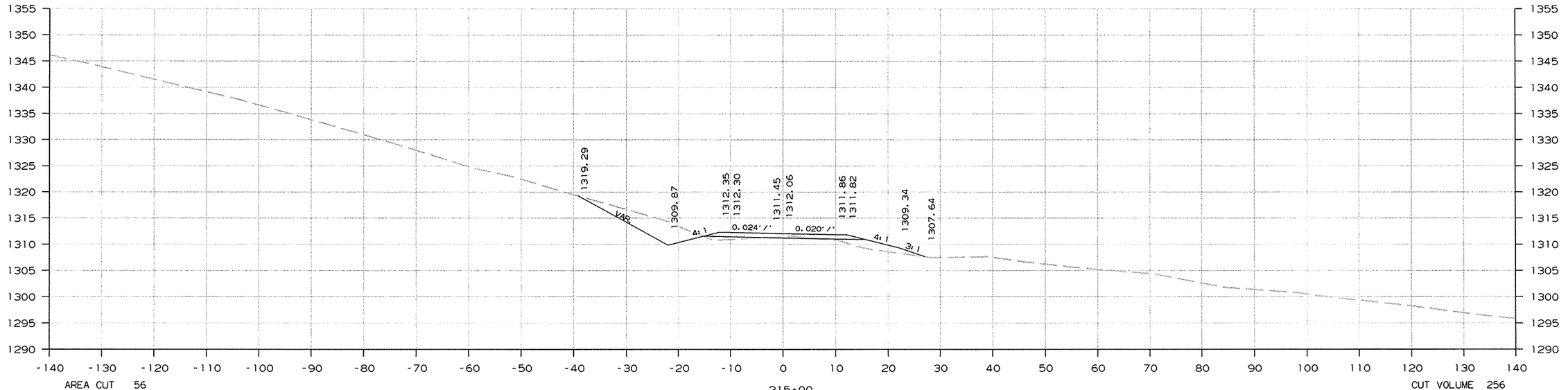
CROSS SECTION STA. 213+00 TO STA. 213+00

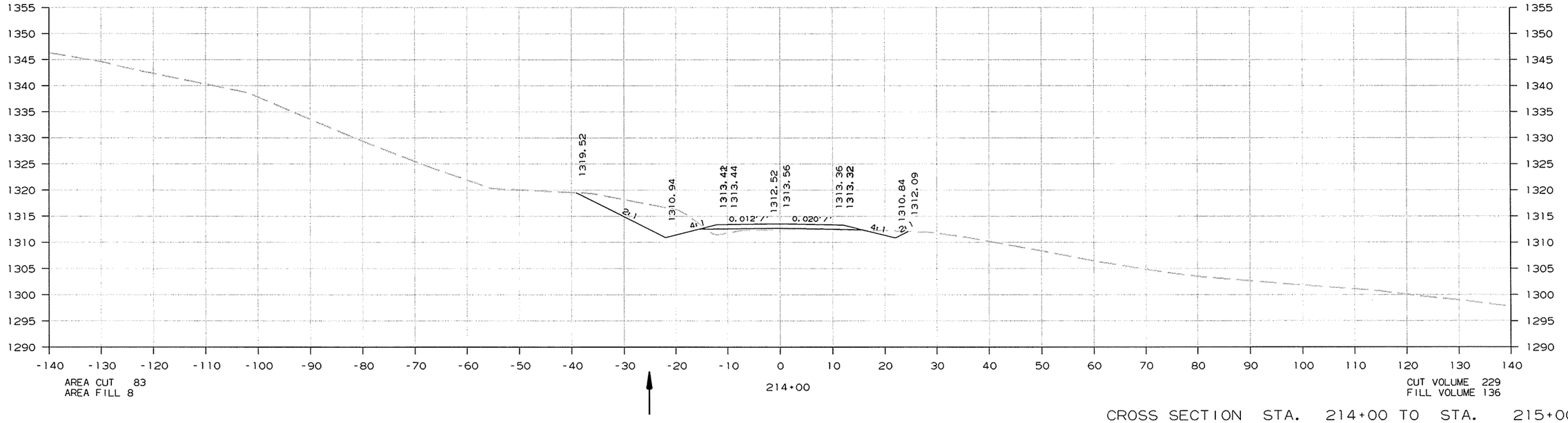
11/8/2011

ZBORDER.CEL

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.		040206	206	215

(2) CROSS SECTIONS





CROSS SECTION STA. 214+00 TO STA. 215+00

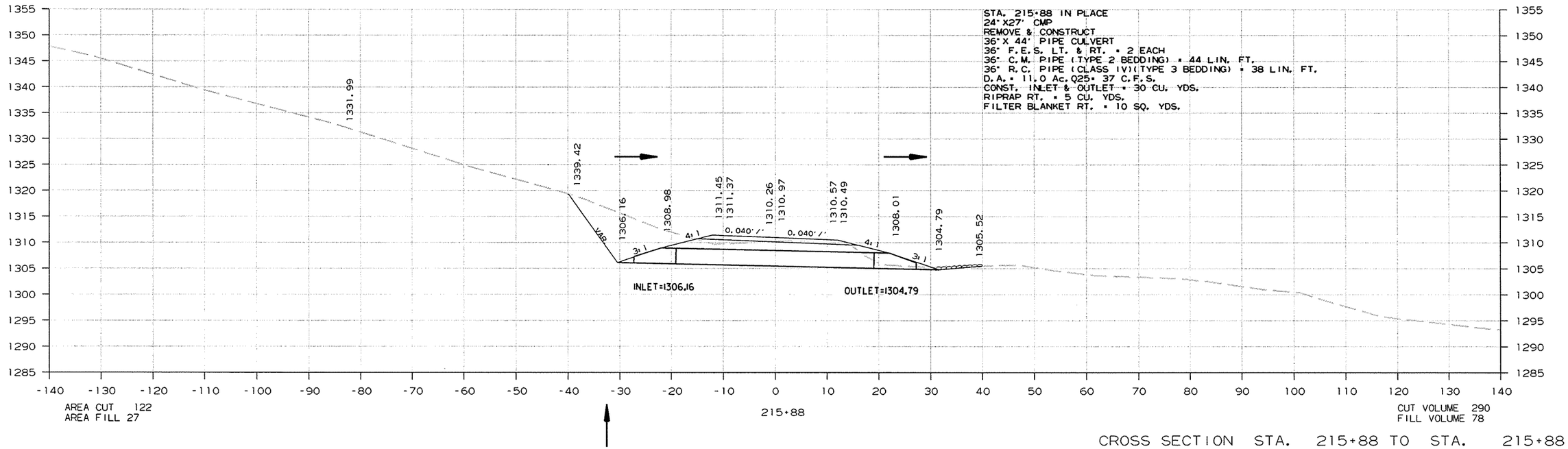
11/8/2011

ZBORDER.CEL

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.		040206	207	215

(2) CROSS SECTIONS



CROSS SECTION STA. 215+88 TO STA. 215+88

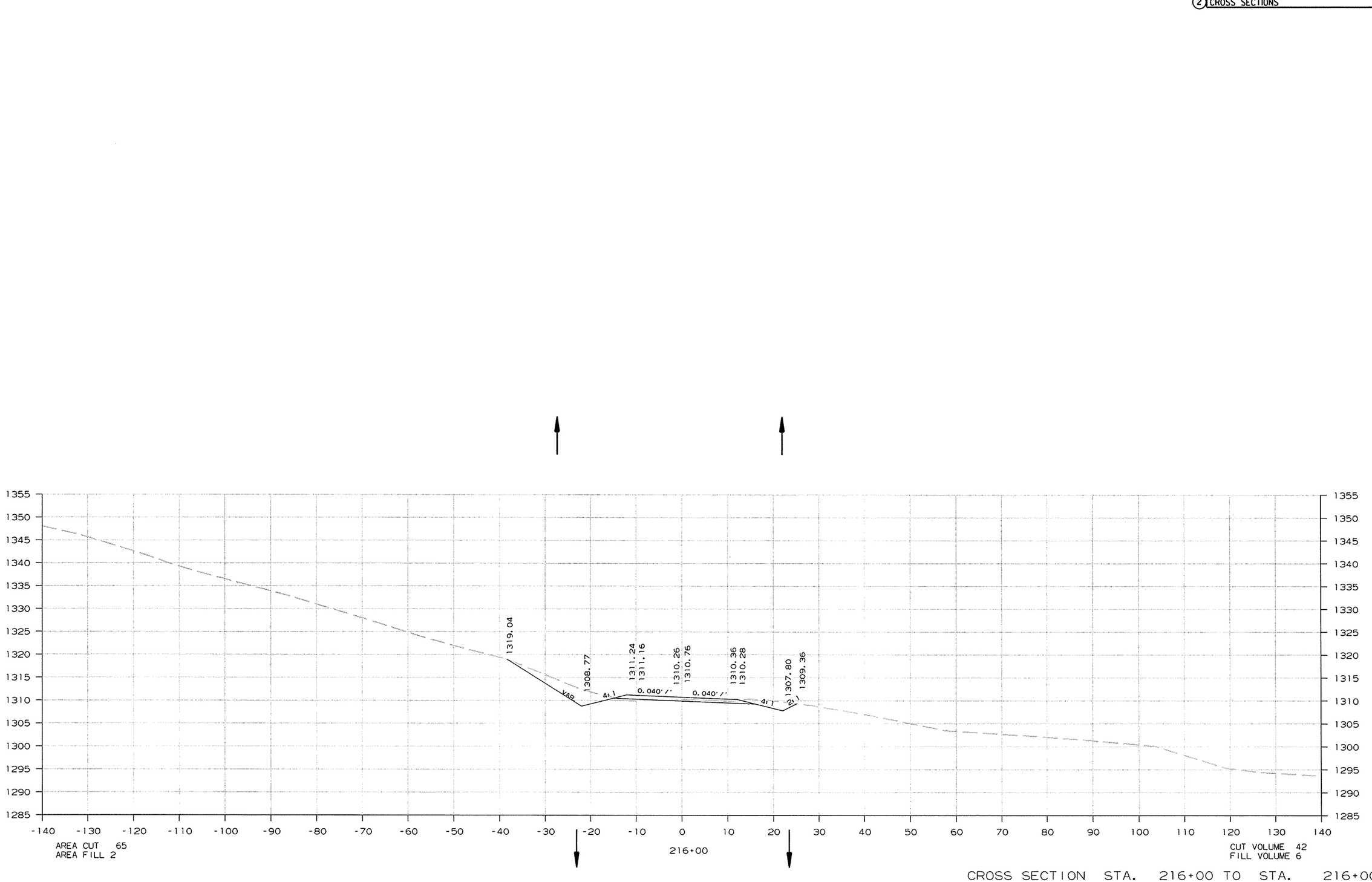
11/8/2011

ZBORDER.CEL

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.		040206	208	215

(2) CROSS SECTIONS



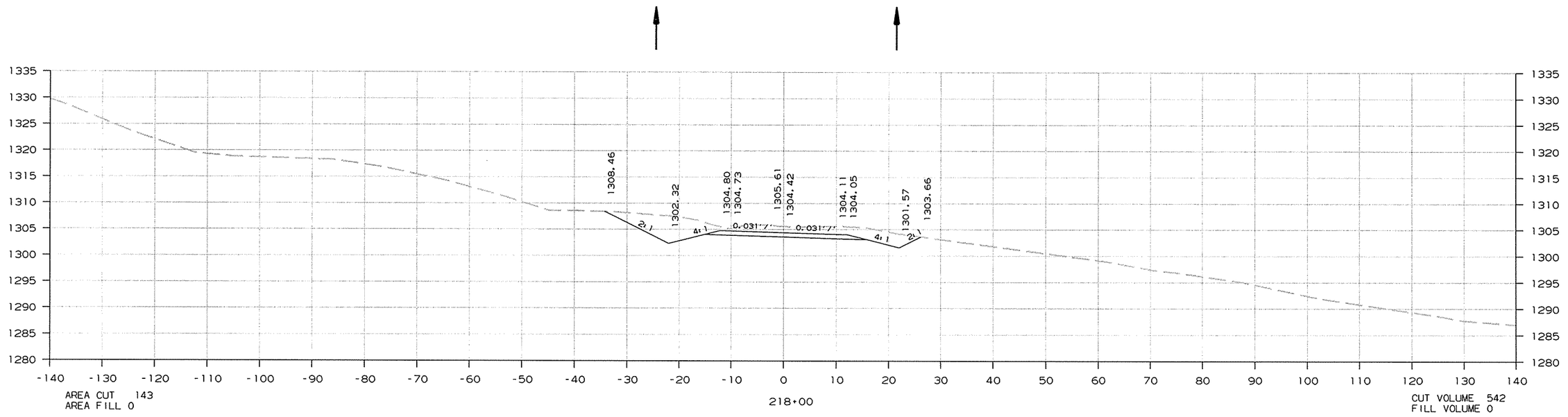
CROSS SECTION STA. 216+00 TO STA. 216+00

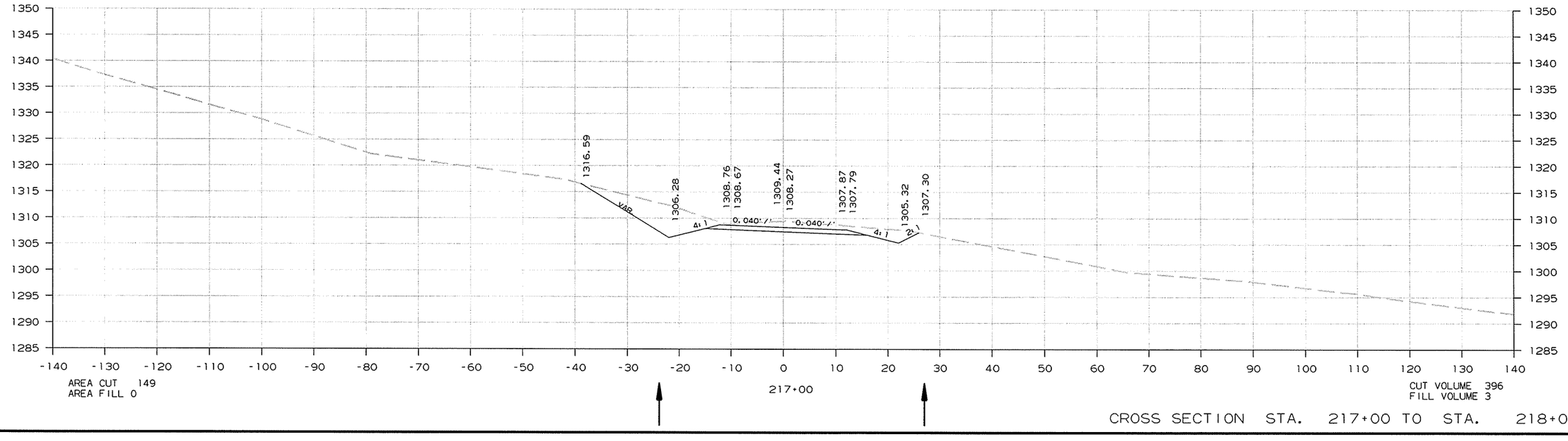
11/8/2011

ZBORDER.CEL

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.		040206	209	215

(2) CROSS SECTIONS





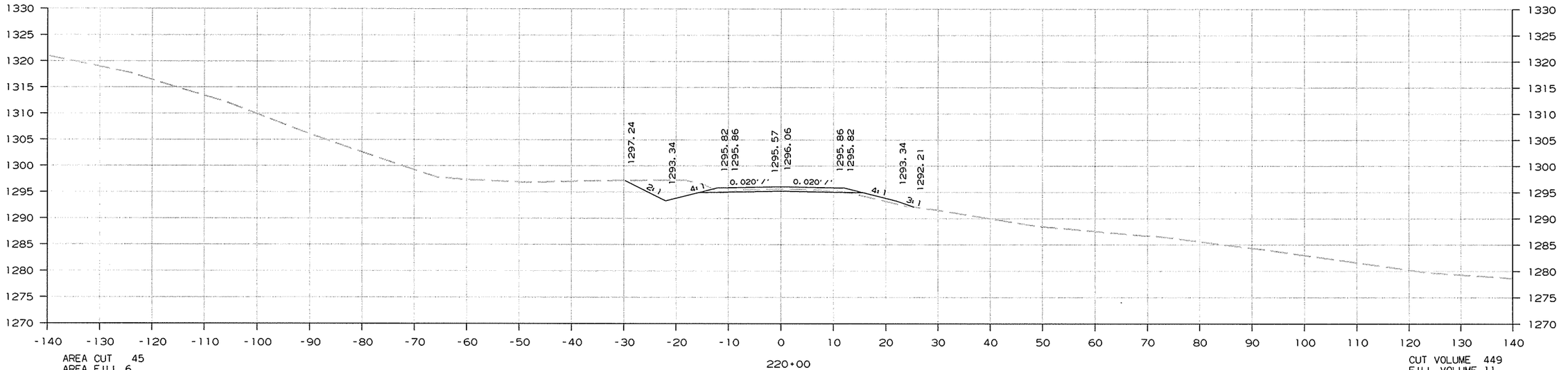
11/8/2011

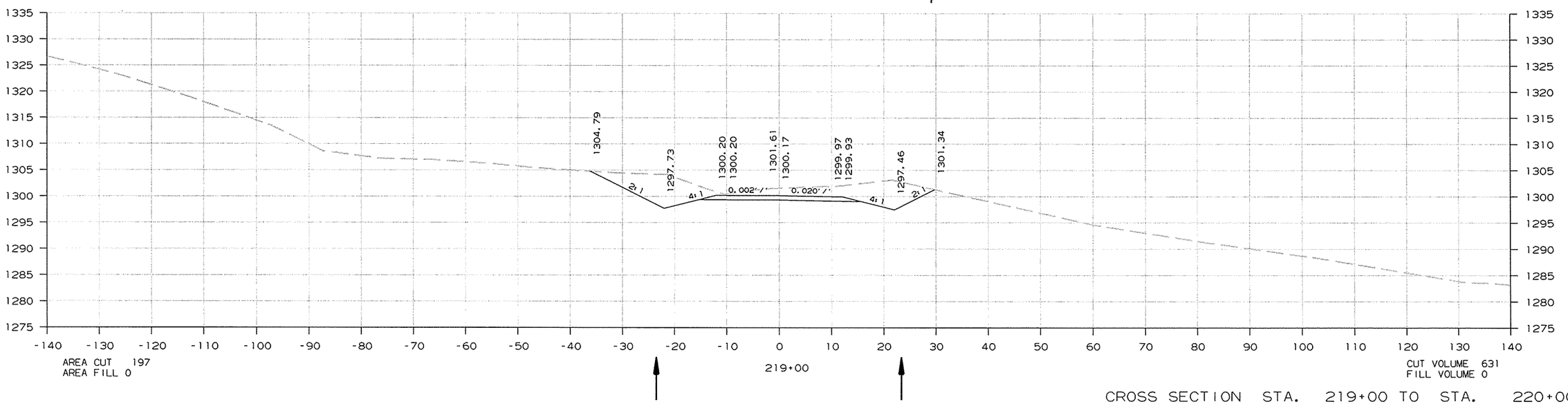
ZBORDER.CEL

CROSS SECTION STA. 217+00 TO STA. 218+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.		040206	210	215

(2) CROSS SECTIONS





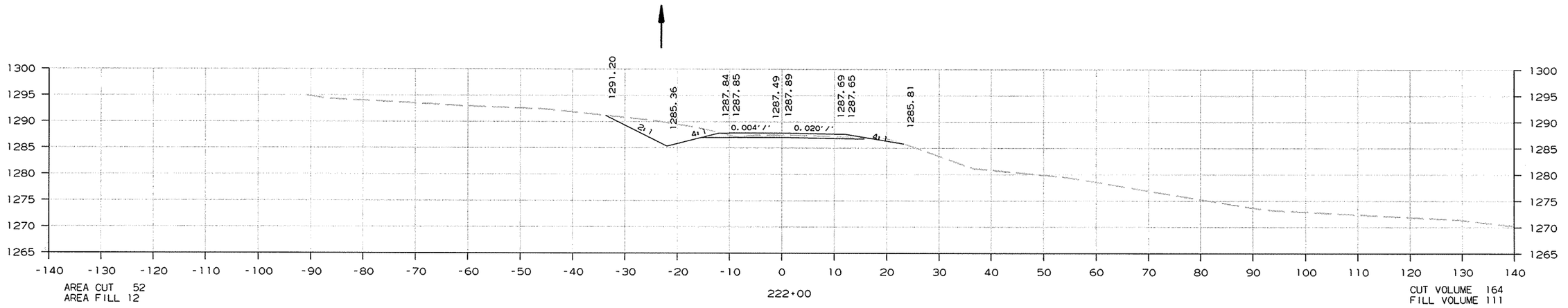
CROSS SECTION STA. 219+00 TO STA. 220+00

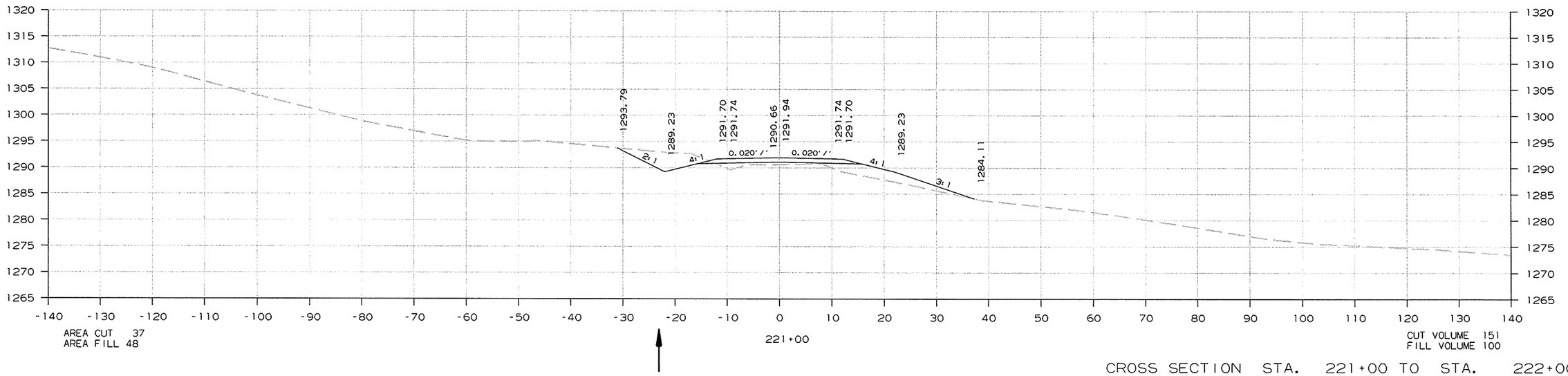
11/8/2011

ZBORDER.CEL

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.		040206	211	215

(2) CROSS SECTIONS





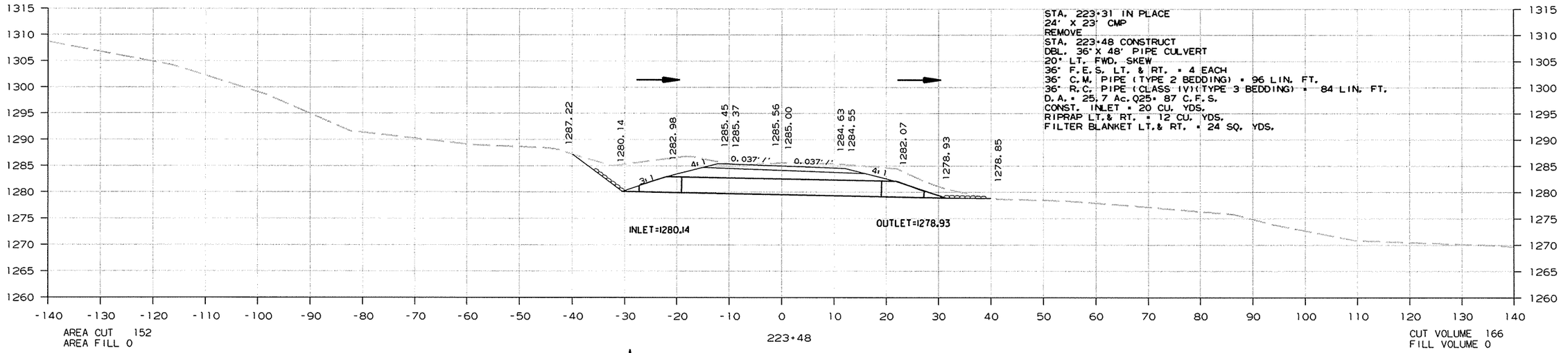
CROSS SECTION STA. 221+00 TO STA. 222+00

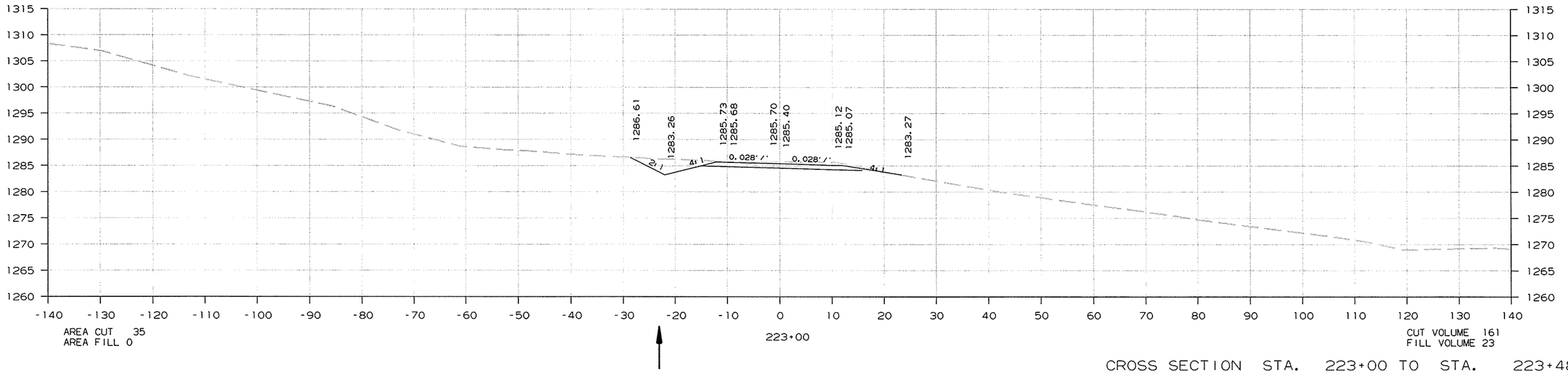
11/8/2011

ZBORDER.CEL

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.		040206	212	215

(2) CROSS SECTIONS





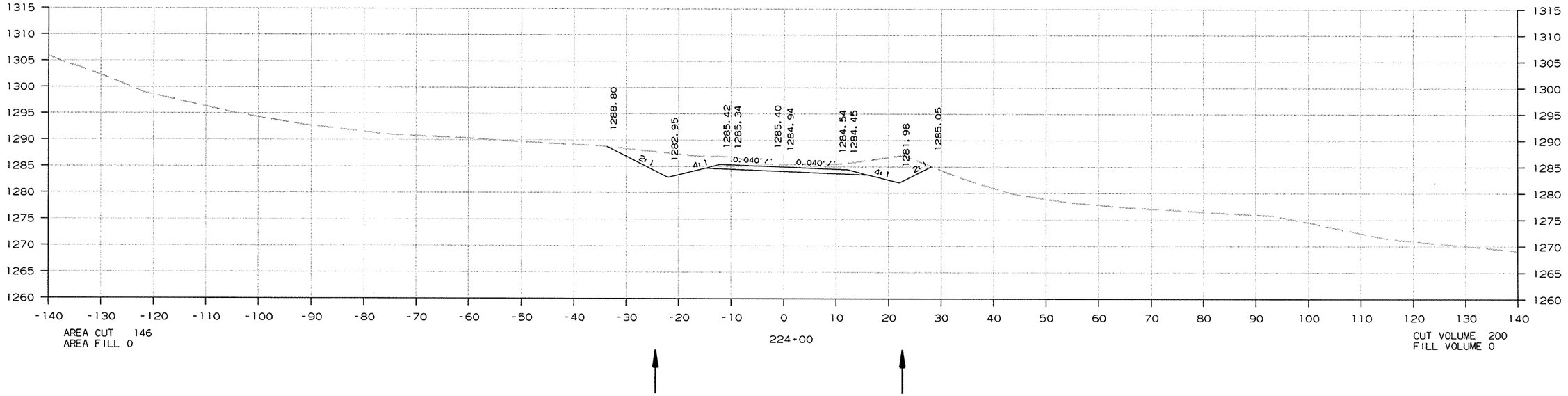
CROSS SECTION STA. 223+00 TO STA. 223+48

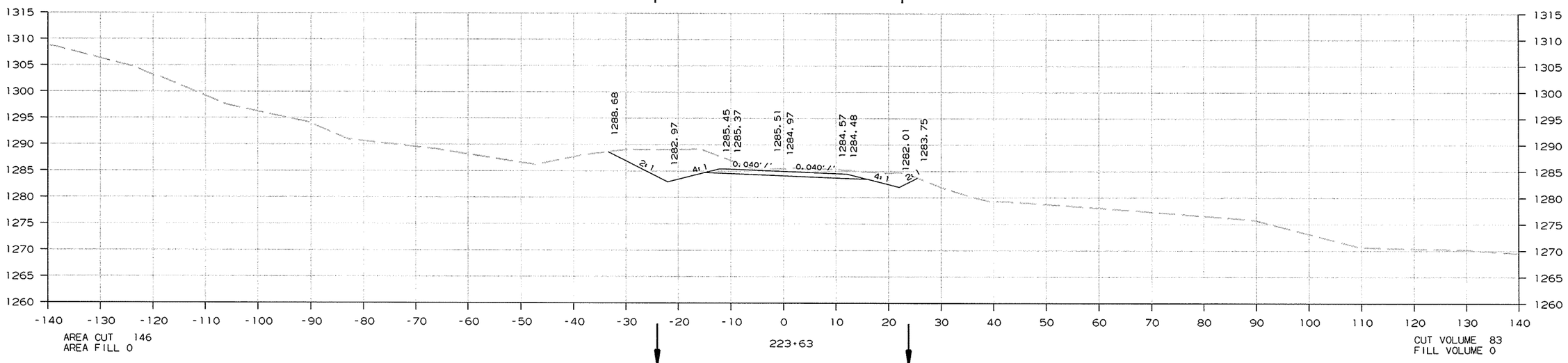
11/8/2011

ZBORDER.CEL

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.		040206	213	215

(2) CROSS SECTIONS





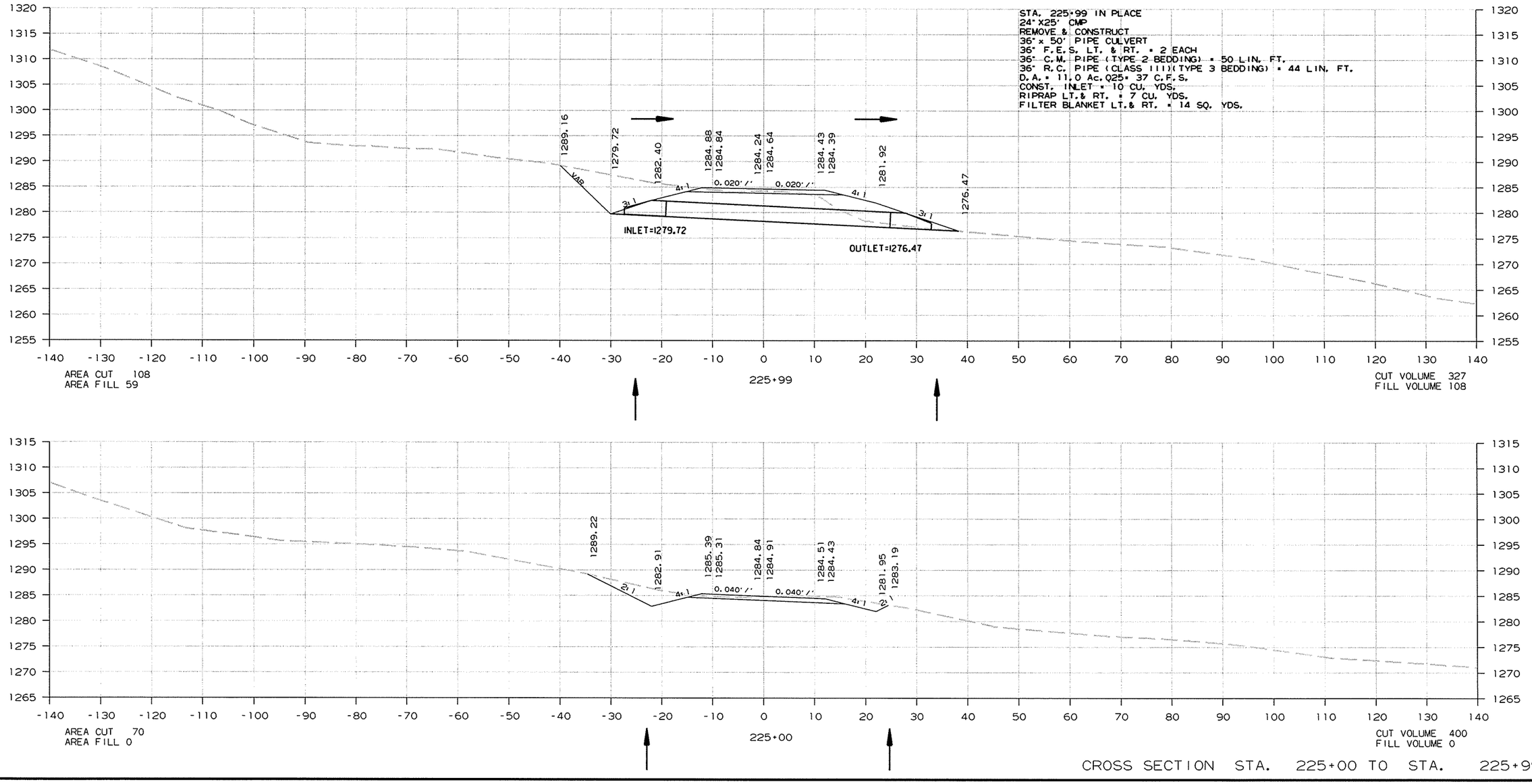
CROSS SECTION STA. 223+63 TO STA. 224+00

11/8/2011

ZBORDER.CEL

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.		040206	214	215

(2) CROSS SECTIONS



CROSS SECTION STA. 225+00 TO STA. 225+99

11/8/2011

ZBORDER.CEL

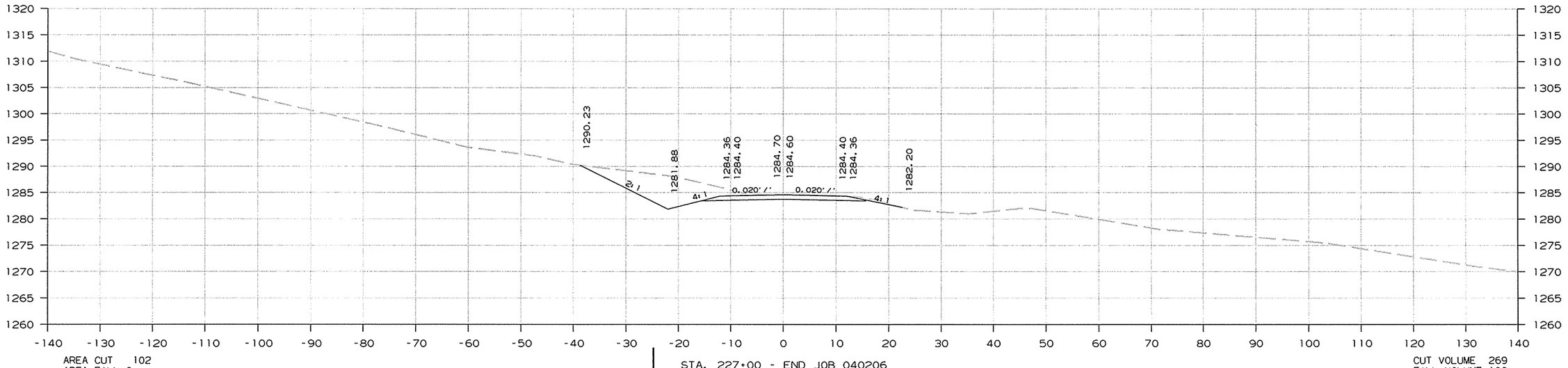
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040206	215	215

(2) CROSS SECTIONS

AREA CUT 0
AREA FILL 0

STA. 228+00 - END TAPER

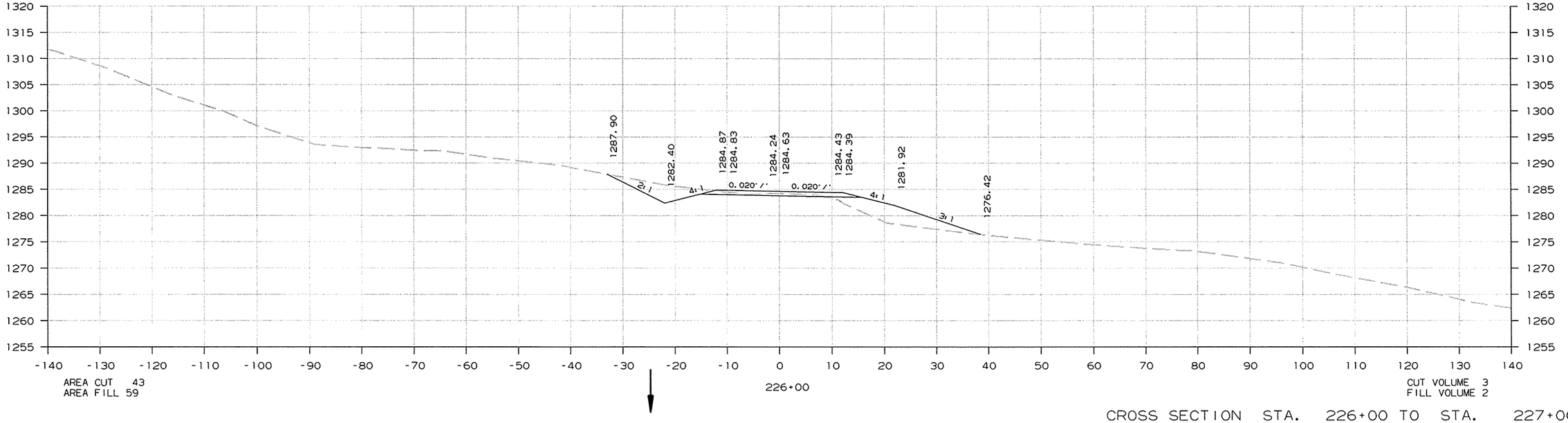
CUT VOLUME 189
FILL VOLUME 0



AREA CUT 102
AREA FILL 0

STA. 227+00 - END JOB 040206

CUT VOLUME 269
FILL VOLUME 109



AREA CUT 43
AREA FILL 59

226+00

CUT VOLUME 3
FILL VOLUME 2

CROSS SECTION STA. 226+00 TO STA. 227+00

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