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.		040207	1	212
				(2) DEVIL'S DEN-WEST (S)				

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

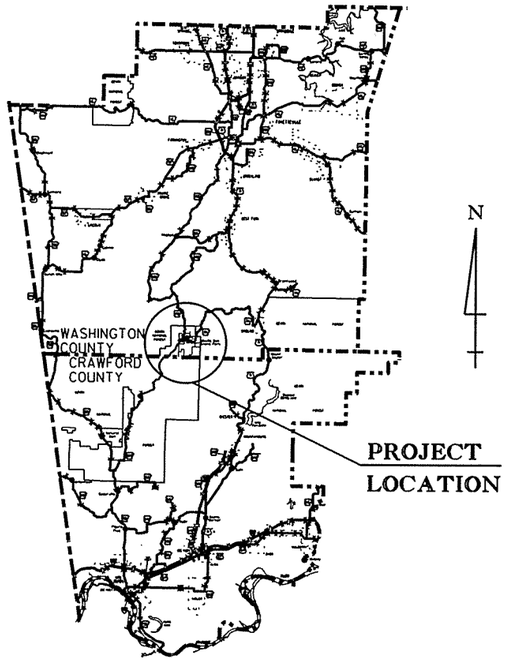
DEVIL'S DEN-WEST (S)

CRAWFORD & WASHINGTON COUNTIES

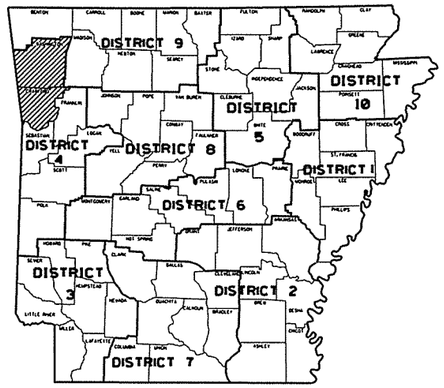
ROUTE 220 SECTIONS 2 & 3

JOB 040207

F.A.P. FLAP-FLAP(5)

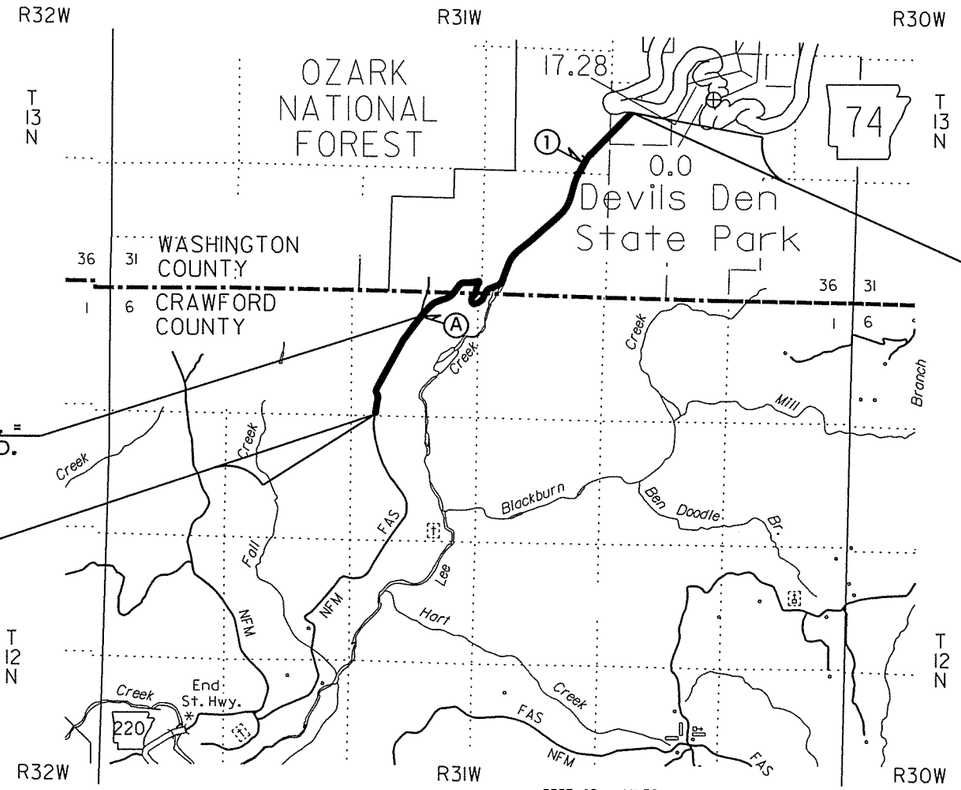


VICINITY MAP



AR. HWY. DIST. NO. 4

NOT TO SCALE



BRIDGE DATA

① STA. 390+89.09 BR. END
BRIDGE NO. 06955
28'-0" CLEAR ROADWAY
142'-10" TOTAL LENGTH
140'-0" CONT. COMP. W-BEAM UNIT
(42'-6", 55', 42'-6")
STA. 392+31.91 BR END

Ⓐ EQUATION:
STA. 275+00.00 BK. =
STA. 275+01.84 AHD.

STA. 227+00.00
BEGIN JOB 040207
END JOB 040206
L.M. 13.46

STA. 431+55.53
END JOB 040207

• 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

BEGINNING:	LAT: N35°	44′	28"	LONG: W94°	17′	54"
MID POINT:	LAT: N35°	45′	23"	LONG: W94°	16′	49"
ENDING:	LAT: N35°	46′	35"	LONG: W94°	15′	29"

			FEET OR	MILES
GROSS LENGTH OF	PROJECT	20453.69	"	3.874
NET "	ROADWAY	20310.87	"	3.847
NET "	BRIDGES	142.82	"	0.027
NET "	PROJECT	20453.69	"	3.874

P.E. JOB 040128

APPROVED

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

10-29-15

DEPUTY DIRECTOR
AND CHIEF ENGINEER

10/28/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	2	212

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

INDEX OF SHEETS

NOTE: CROSS SECTIONS NOT NORMALLY INCLUDED IN PLANS SOLD TO PROSPECTIVE 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	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
108-1	LIQUIDATED DAMAGES
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 040207	BIDDING REQUIREMENTS AND CONDITIONS
JOB 040207	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 040207	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 040207	CAVE DISCOVERY
JOB 040207	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 040207	COORDINATION OF WORK
JOB 040207	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 040207	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 040207	ELASTOMERIC BEARINGS
JOB 040207	FOREST SERVICE REQUIREMENTS
JOB 040207	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 040207	HIGH PERFORMANCE PAVEMENT MARKING
JOB 040207	MANDATORY ELECTRONIC CONTRACT
JOB 040207	NESTING SITES OF MIGRATORY BIRDS
JOB 040207	OFF-SITE RESTRAINING CONDITIONS FOR BATS
JOB 040207	PARTNERING REQUIREMENTS
JOB 040207	PLASTIC PIPE
JOB 040207	PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS
JOB 040207	ROCK DITCH LINER
JOB 040207	ROCK FILL
JOB 040207	SECTION 404 NATIONWIDE 23 PERMIT REQUIREMENTS
JOB 040207	SHORING FOR CULVERTS
JOB 040207	SOIL STABILIZATION
JOB 040207	SPECIAL CLEARING REQUIREMENTS
JOB 040207	SPECIAL SEEDING REQUIREMENTS
JOB 040207	STONE RIPRAP FOR SLOPE PLATING
JOB 040207	STORM WATER POLLUTION PREVENTION PLAN
JOB 040207	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 040207	UTILITY ADJUSTMENTS
JOB 040207	VALUE ENGINEERING
JOB 040207	WARM MIX ASPHALT
JOB 040207	WELLHEAD PROTECTION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-20-15

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
5. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED 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.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.

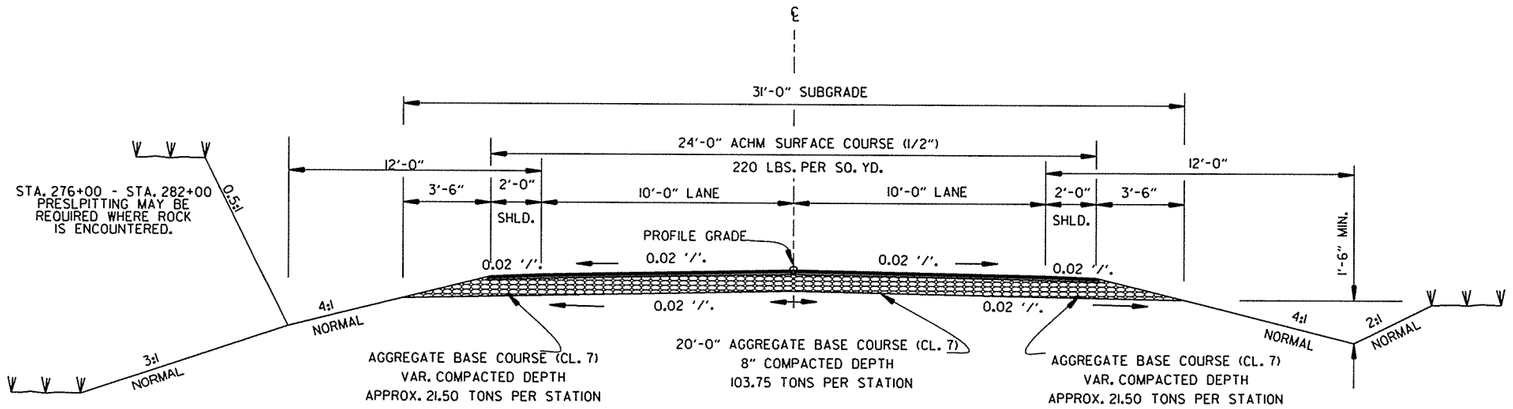
11/20/2015

R040207.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.		040207	3	212

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15



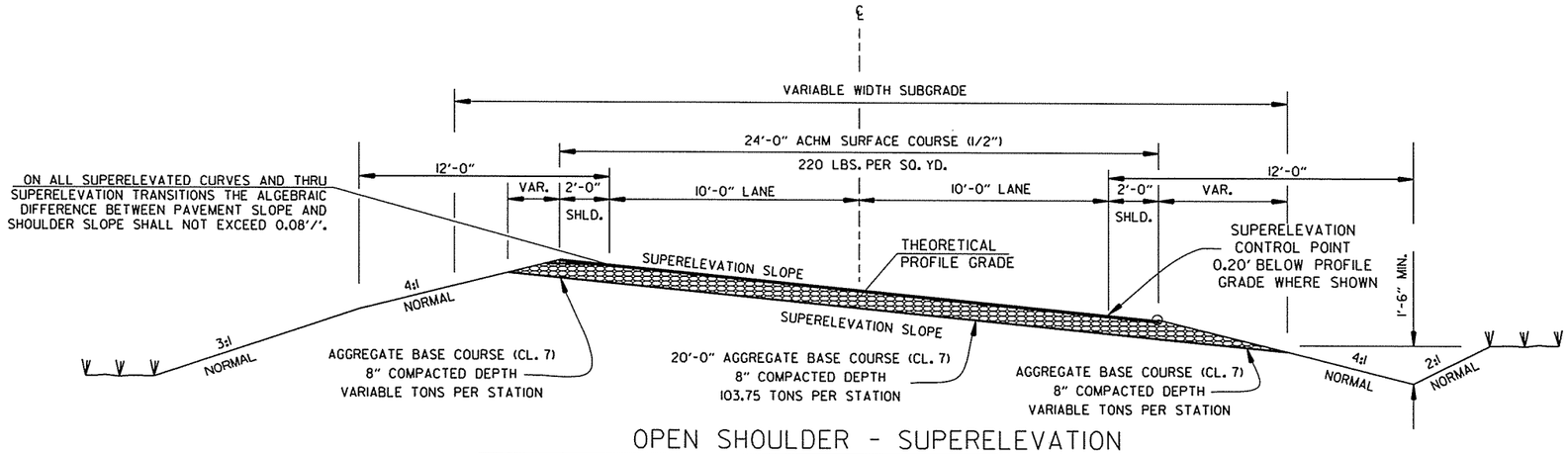
OPEN SHOULDER - NORMAL CROWN

STA. 227+00.00 - STA. 229+65.18
STA. 240+66.38 - STA. 260+50.02
STA. 265+17.28 - STA. 277+44.74
STA. 285+01.81 - STA. 286+31.36
STA. 292+39.25 - STA. 293+73.66
STA. 301+00.73 - STA. 301+35.56
STA. 322+15.51 - STA. 323-95.09
STA. 332+00.00 - STA. 332+20.49
STA. 352+45.77 - STA. 370+64.08
STA. 385+00.00 - STA. 386+43.05
STA. 376+89.69 - STA. 381+00.00
STA. 390+67.34 - STA. 393+28.93
STA. 401+19.61 - STA. 401+47.98
STA. 405+66.30 - STA. 412+43.38
STA. 420+63.43 - STA. 422+64.38
STA. 427+04.56 - STA. 427+30.46

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.



OPEN SHOULDER - SUPERELEVATION

STA. 229+65.18 - STA. 240+66.38
STA. 260+50.02 - STA. 265+17.28
STA. 277+44.74 - STA. 285+01.81
STA. 286+31.36 - STA. 292+39.25
STA. 293+73.66 - STA. 301+00.73
STA. 301+35.56 - STA. 322+15.51
STA. 323+95.09 - STA. 329+00.00
STA. 332+20.49 - STA. 339+00.00
STA. 350+00.00 - STA. 352+45.77
STA. 370+54.08 - STA. 376+89.69
STA. 386+43.05 - STA. 390+67.34
STA. 393+28.93 - STA. 401+19.61
STA. 401+47.98 - STA. 405+66.30
STA. 412+43.38 - STA. 420+63.43
STA. 422+64.38 - STA. 427+04.56
STA. 428+35.32 - STA. 431+55.53

10/28/2015

R040207.DGN

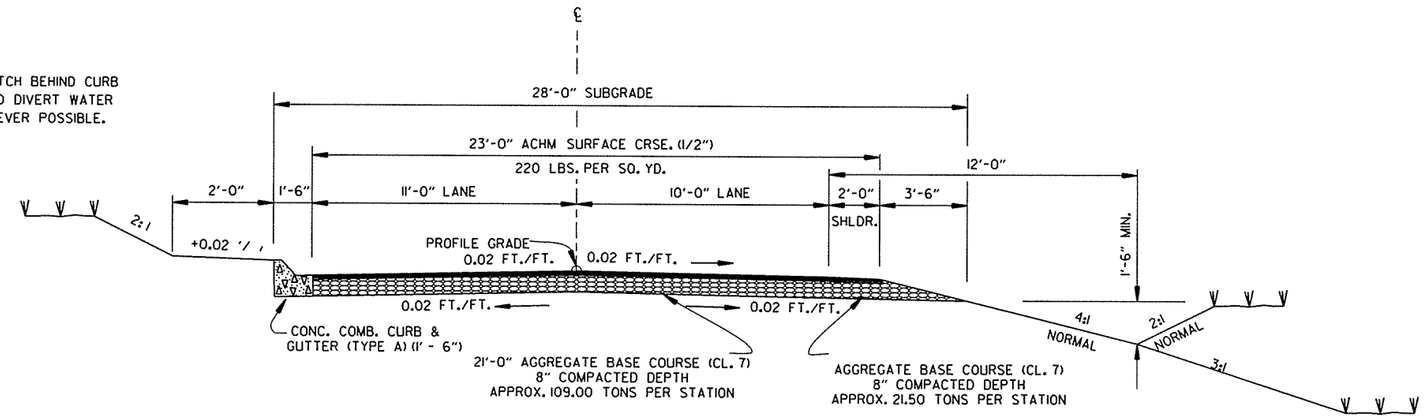
TYPICAL SECTIONS OF IMPROVEMENT

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.		040207	4	212

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15

NOTE: CONSTRUCT A SWALE DITCH BEHIND CURB ON LT. IN CUT AREAS TO DIVERT WATER TO CROSS DRAINS, WHEREVER POSSIBLE.



CURB AND GUTTER - NORMAL CROWN

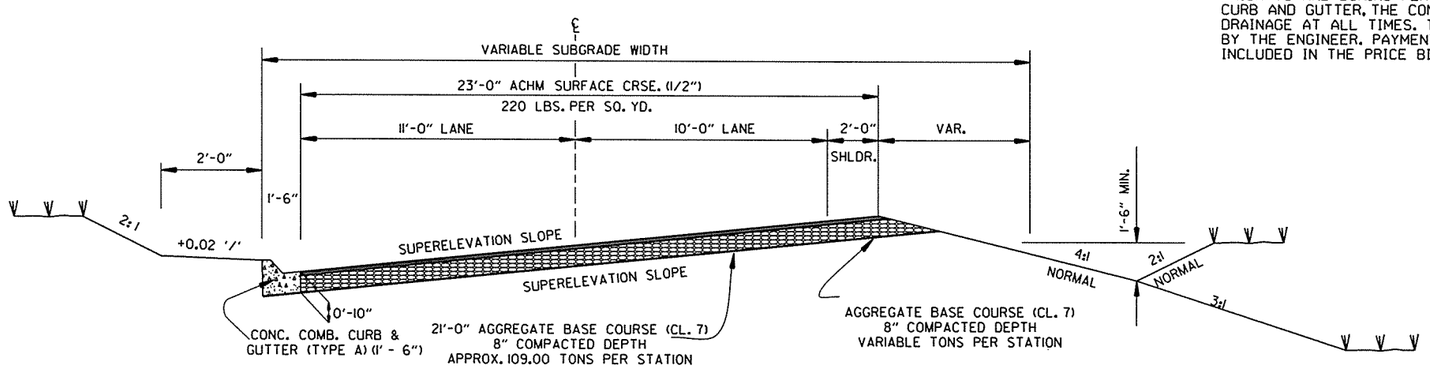
STA. 331+46.07 - STA. 332+00.00
STA. 345+19.09 - STA. 346+82.50
STA. 381+00.00 - STA. 385+00.00

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

THE 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.

PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB AND GUTTER, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.



TYPICAL SECTION OF IMPROVEMENT
CURB AND GUTTER - SUPERELEVATION

STA. 329+00.00 - STA. 331+46.07 (LT. HAND CURVE)
STA. 339+00.00 - STA. 340+49.82 (LT. HAND CURVE)
STA. 340+49.82 - STA. 345+19.09 (RT. HAND CURVE)*
STA. 346+82.50 - STA. 350+00.00 (RT. HAND CURVE)*

* RT. HAND CURVES USE SAME CONTROL POINT AS OPEN SHLD. TYPICAL.

TYPICAL SECTIONS OF IMPROVEMENT

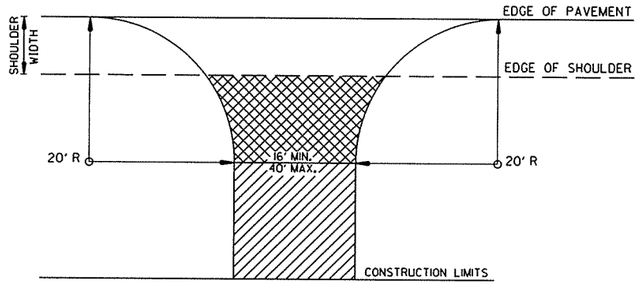
10/28/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	5	212

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-20-15

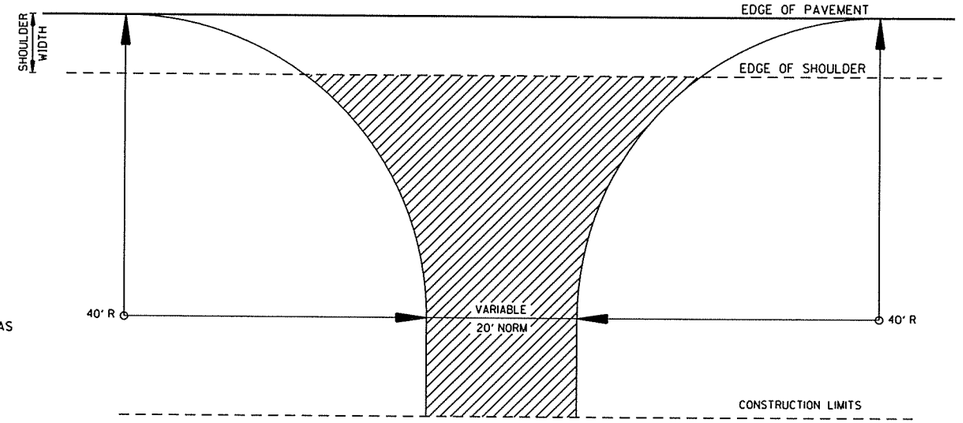


A.C.H.M. SURFACE COURSE (1/2") (220 LBS./SQ. YD.) & AGGREGATE BASE COURSE (CLASS 7) 7" COMPACTED DEPTH

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

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

DETAIL FOR DRIVEWAY TURNOUTS

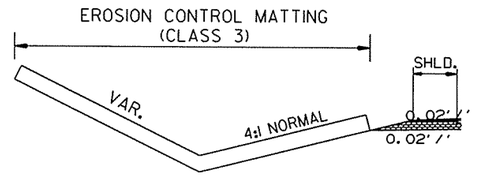


NOTE: REFER TO PLAN SHEETS FOR WIDTH OF COUNTY ROADS.

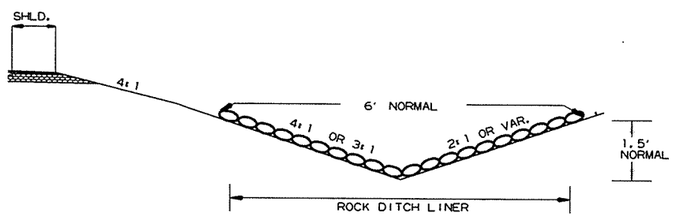
ASPHALT CONCRETE HOT MIX SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMPACTED DEPTH

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

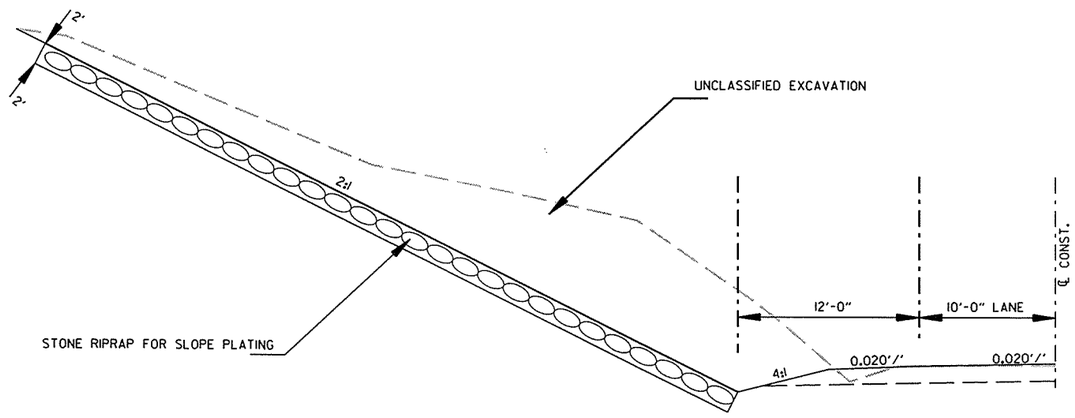
DETAIL FOR COUNTY ROAD TURNOUT



EROSION CONTROL MATTING DETAILS



DITCH LINING DETAILS



DETAIL SHOWING SLOPE PLATING ON LT.

NOTE: REFER TO CROSS SECTIONS AND QUANTITY SHEETS FOR QUANTITIES.

NOTE:
1. SHOULD BE CONSTRUCTED USING MATERIAL MEETING THE REQUIREMENTS OF THE SPECIAL PROVISION "STONE RIPRAP FOR SLOPE PLATING"
2. DEPTHS OF PLATING SHOULD BE EMBEDDED 2'-0" DEEP.

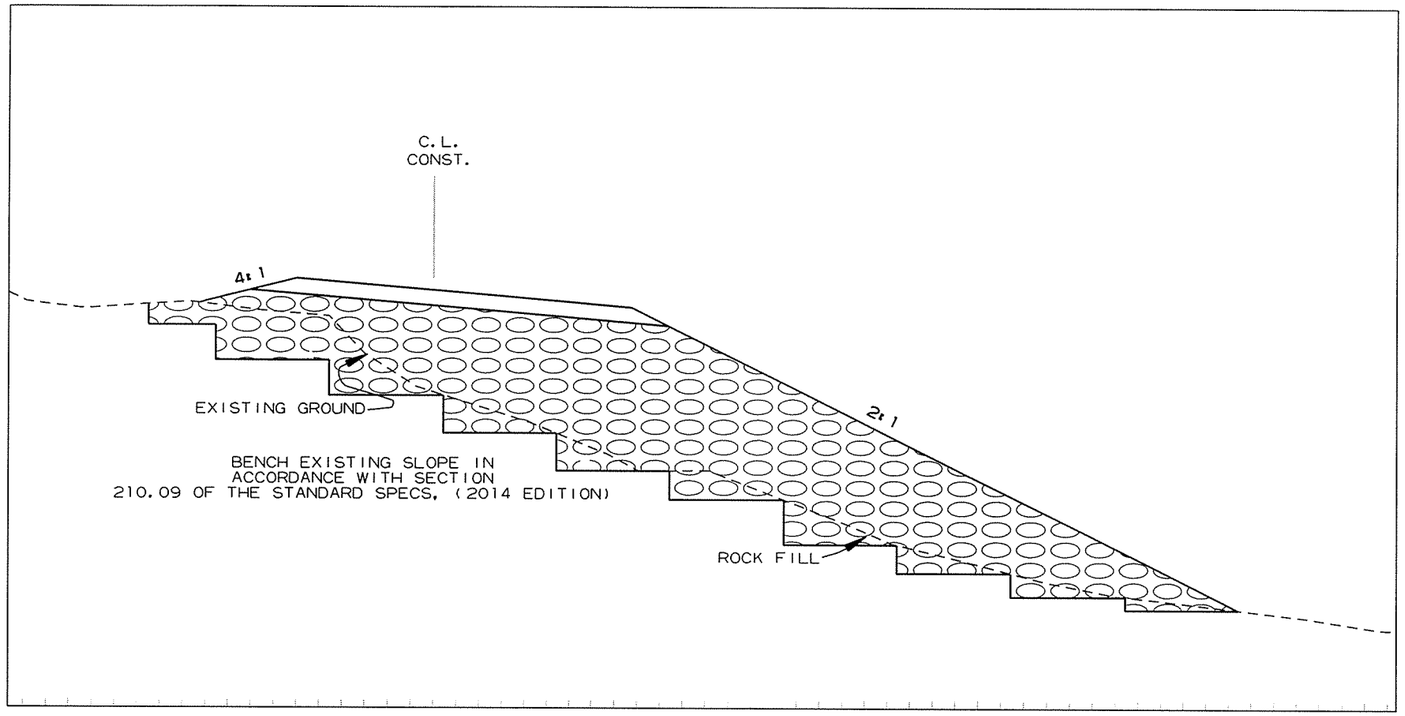
11/20/2015

R040207.DGN

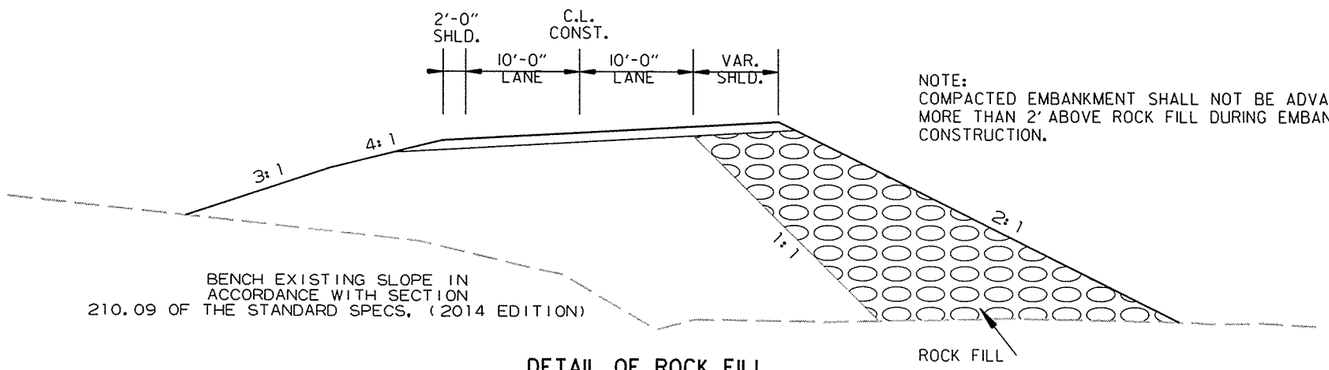
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
11-23-15				JOB NO.		040207	6	212

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-24-15



DETAIL OF ROCK FILL
STA. 239+50 - STA. 242+50
STA. 249+80 - STA. 253+00
STA. 281+00 - STA. 299+00
STA. 305+00 - STA. 312+00
STA. 317+00 - STA. 346+00
STA. 381+00 - STA. 393+50



NOTE:
COMPACTED EMBANKMENT SHALL NOT BE ADVANCED MORE THAN 2' ABOVE ROCK FILL DURING EMBANKMENT CONSTRUCTION.

DETAIL OF ROCK FILL
ONE SIDE ONLY
STA. 426+05 - STA. 431+00

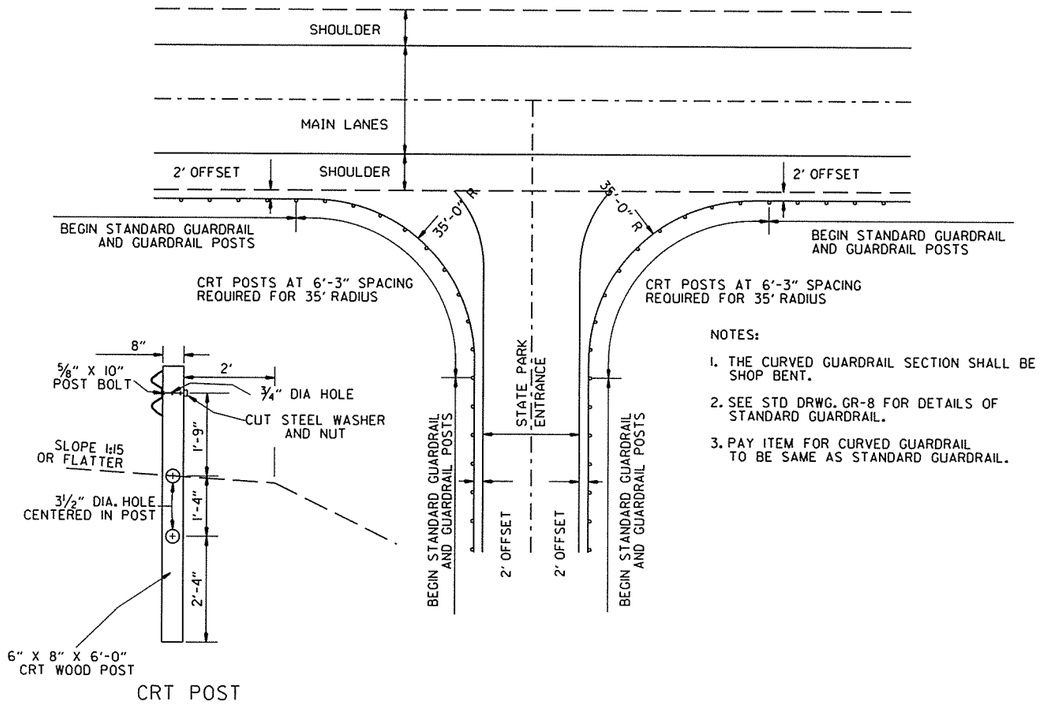
11/20/2015

R040207.DGN

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	7	212

(2) SPECIAL DETAILS

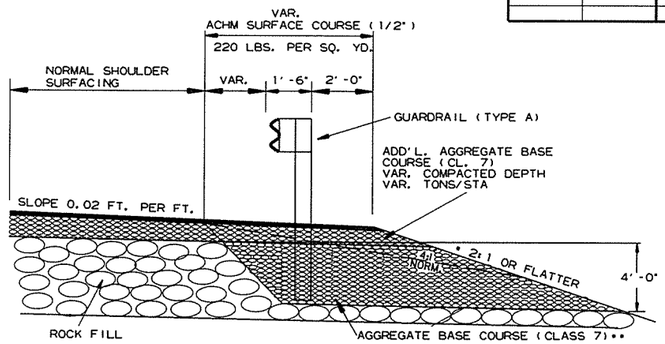


NOTES:

1. THE CURVED GUARDRAIL SECTION SHALL BE SHOP BENT.
2. SEE STD DRWG. GR-8 FOR DETAILS OF STANDARD GUARDRAIL.
3. PAY ITEM FOR CURVED GUARDRAIL TO BE SAME AS STANDARD GUARDRAIL.

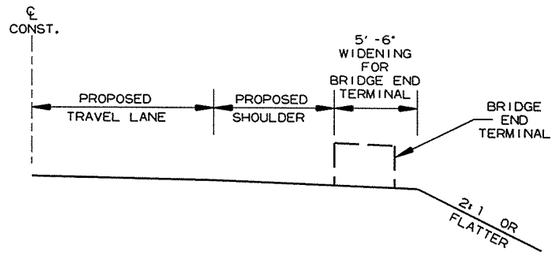
CRT POST

CURVED GUARDRAIL DETAIL (35'-0" RADIUS)



DETAIL OF WIDENING FOR GUARDRAIL

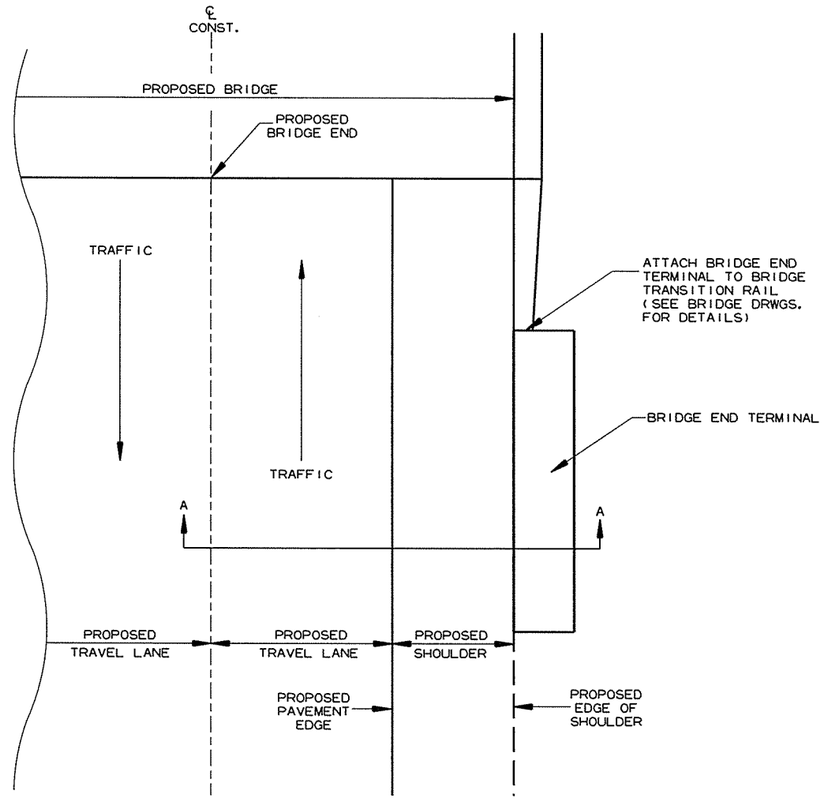
* REFER TO STD. DWG. GR-9A FOR SLOPE REQUIREMENTS BEHIND GUARDRAIL.
** AGGREGATE BASE COURSE (CLASS 7) SHALL BE PLACED IN THE AREA WHERE THE GUARDRAIL POSTS ARE DRIVEN. PAYMENT SHALL BE MADE AS ROCK FILL.



SECTION A-A

NOTE:
ELIMINATE OR MODIFY APPROACH CURB SECTION TO FIT BRIDGE END TERMINAL. NO PAYMENT SHALL BE MADE FOR ELIMINATING OR MODIFYING THIS CURB, BUT SHALL BE CONSIDERED IN PAYMENT MADE FOR APPROACH GUTTERS OF THE TYPE SPECIFIED.

NOTE:
BRIDGE END TERMINAL SHALL CONFORM TO THE FOLLOWING:
- -MAXIMUM LENGTH: 20'
- -MAXIMUM HEIGHT: 2.75'
- -DESIGN SPEED: 60 MPH



PLAN VIEW

BRIDGE END TERMINAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-20-15

11/20/2015

R040207.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.		040207	8	212

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15

ROCK DITCH CHECK (E-6)
STA. 229+50 LT. = 3 CU. YD.
STA. 230+00 LT. = 3 CU. YD.
STA. 231+50 LT. = 3 CU. YD.
STA. 232+20 LT. = 3 CU. YD.
STA. 235+00 LT. = 3 CU. YD.
STA. 237+50 LT. = 3 CU. YD.
STA. 238+00 LT. = 3 CU. YD.
STA. 241+50 LT. = 3 CU. YD.

WATTLE (20') (E-1)
STA. 240+50 LT. = 8 LIN. FT.

CONSTRUCTION
PI 232+29.77
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 237+75.19
Δ = 31°57'41" RT.
D = 15°00'00"
T = 109.39'
L = 213.08'
PC 236+65.80
PT 238+78.88
e = 0.086
Ls = 250

STA 227+00.00
BEGIN JOB 040207
L.M. 13.46

POB 225+94.01
EXIST. R/W
PROP. CONST. LIMITS
PROPOSED R/W
N 13°37'17" E
STA. 226+57.65
PC 231+52.68
PT 233+05.95
PI 232+29.77
PC 236+65.80
PI 237+75.19
PT 238+78.88
T.C.E.
ROCK DITCH LINER
N 1°42'21" W
N 30°15'20" E
22'
230
235
240

ROCK DITCH CHECK (E-6)
STA. 228+00 RT. = 3 CU. YD.
STA. 229+50 RT. = 3 CU. YD.
STA. 230+00 RT. = 3 CU. YD.
STA. 234+00 RT. = 3 CU. YD.

SILT FENCE (E-11)
STA. 228+00 TO STA. 229+50 RT. = 150 LIN. FT.
STA. 231+00 TO STA. 231+50 RT. = 50 LIN. FT.
STA. 231+75 TO STA. 234+00 RT. = 225 LIN. FT.
STA. 234+50 TO STA. 235+50 RT. = 100 LIN. FT.
STA. 236+00 TO STA. 237+00 RT. = 100 LIN. FT.
STA. 237+50 TO STA. 240+50 RT. = 300 LIN. FT.
STA. 241+10 TO STA. 246+50 RT. = 540 LIN. FT.

REVISIONS

DATE	REVISION

LEGEND
- (E-1) WATTLE (20')
- (E-6) ROCK DITCH CHECKS
- (E-8) DIVERSION DITCH
- (E-11) SILT FENCE
- (E-12) SLOPE DRAIN & DUMPED RIPRAP

ROCK DITCH CHECK (E-6)
STA. 243+00 LT. = 3 CU. YD.
STA. 246+80 LT. = 3 CU. YD.
STA. 253+00 LT. = 3 CU. YD.
STA. 255+20 LT. = 3 CU. YD.

WATTLE (20') (E-1)
STA. 246+10 LT. = 8 LIN. FT.
STA. 249+50 LT. = 8 LIN. FT.
STA. 250+00 LT. = 8 LIN. FT.
STA. 253+25 LT. = 8 LIN. FT.
STA. 254+50 LT. = 8 LIN. FT.

245
250
255
PROPOSED R/W
PROP. CONST. LIMITS
T.C.E.
N 30°15'20" E

SILT FENCE (E-11)
STA. 241+10 TO STA. 246+50 RT. = 540 LIN. FT.
STA. 246+70 TO STA. 247+75 RT. = 105 LIN. FT.
STA. 250+00 TO STA. 253+00 RT. = 300 LIN. FT.
STA. 255+00 TO STA. 257+00 RT. = 200 LIN. FT.
STA. 253+00 TO STA. 254+80 RT. = 160 LIN. FT.

WATTLE (20') (E-1)
STA. 248+00 RT. = 8 LIN. FT.
STA. 249+50 RT. = 8 LIN. FT.

10/28/2015
R040207.DGN

TEMPORARY EROSION 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.		040207	9	212

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15

ROCK DITCH CHECK (E-6)
STA. 262+25 LT. = 3 CU. YD.
STA. 263+70 LT. = 3 CU. YD.
STA. 267+25 LT. = 3 CU. YD.
STA. 268+00 LT. = 3 CU. YD.
STA. 270+00 LT. = 3 CU. YD.

WATTLE (20') (E-1)
STA. 257+00 LT. = 8 LIN. FT.
STA. 257+50 LT. = 8 LIN. FT.
STA. 261+00 LT. = 8 LIN. FT.
STA. 266+50 LT. = 8 LIN. FT.
STA. 269+25 LT. = 8 LIN. FT.

ROCK DITCH CHECK (E-6)
STA. 262+40 RT. = 3 CU. YD.

WATTLE (20') (E-1)
STA. 257+00 RT. = 8 LIN. FT.
STA. 258+00 RT. = 8 LIN. FT.
STA. 259+00 RT. = 8 LIN. FT.
STA. 261+35 RT. = 8 LIN. FT.

CONSTRUCTION
PI 262+83.79
Δ = 8°21'47" RT.
D = 5°00'00"
T = 83.78'
L = 167.26'
PC 262+00.02
PT 263+67.28
e = 0.040 '/'
Ls = 200'

SILT FENCE (E-11)
STA. 255+00 TO STA. 257+00 RT. = 200 LIN. FT.
STA. 258+50 TO STA. 259+00 RT. = 50 LIN. FT.
STA. 262+40 TO STA. 266+50 RT. = 410 LIN. FT.
STA. 267+00 TO STA. 269+40 RT. = 240 LIN. FT.
STA. 269+80 TO STA. 274+00 RT. = 420 LIN. FT.

LEGEND
- (E-1) WATTLE (20')
- (E-6) ROCK DITCH CHECKS
- (E-8) DIVERSION DITCH
- (E-11) SILT FENCE
- (E-12) SLOPE DRAIN & DUMPED RIPRAP

REVISIONS

DATE	REVISION

ROCK DITCH CHECK (E-6)
STA. 280+25 LT. = 3 CU. YD.
STA. 282+75 LT. = 3 CU. YD.
STA. 285+90 LT. = 3 CU. YD.

WATTLE (20') (E-1)
STA. 275+00 LT. = 8 LIN. FT.
STA. 277+00 LT. = 8 LIN. FT.
STA. 277+80 LT. = 8 LIN. FT.

DIVERSION DITCH (E-8)
STA. 276+00 TO STA. 284+00 LT. = 800 LIN. FT.

PIPE SLOPE DRAIN & DUMPED RIPRAP (E-12)
STA. 276+90 LT. = 25 LIN. FT. & 3 CU. YD.
STA. 282+50 LT. = 25 LIN. FT. & 3 CU. YD.
STA. 284+00 LT. = 25 LIN. FT. & 3 CU. YD.

SILT FENCE (E-11)
STA. 269+80 TO STA. 274+00 RT. = 420 LIN. FT.
STA. 277+50 TO STA. 283+50 RT. = 600 LIN. FT.
STA. 284+00 TO STA. 285+00 RT. = 100 LIN. FT.

EQUATION:
275+00.00 BK. = 275+01.84 AHD.

WATTLE (20') (E-1)
STA. 274+80 RT. = 8 LIN. FT.
STA. 277+00 RT. = 8 LIN. FT.
STA. 280+40 RT. = 8 LIN. FT.

DIVERSION DITCH (E-8)
STA. 278+95 TO STA. 297+00 RT. = 1805 LIN. FT.

PIPE SLOPE DRAIN & DUMPED RIPRAP (E-12)
STA. 283+00 RT. = 25 LIN. FT. & 3 CU. YD.

CONSTRUCTION
P.I. 281+31.36
Δ = 36°33'54" RT.
D = 8°00'00"
T = 236.62
L = 457.06
P.C. 278+94.74
P.T. 283+51.81
e = 0.058 '/'
Ls = 200'

10/28/2015

R040207.DGN

TEMPORARY EROSION 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.		040207	10	212

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15

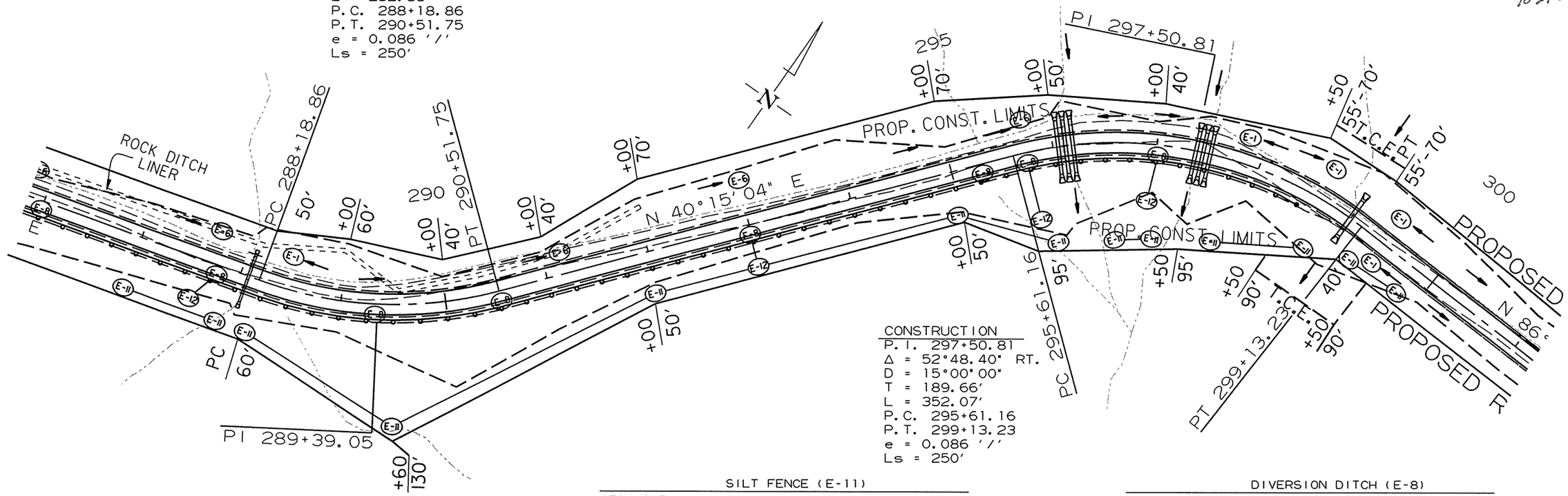
ROCK DITCH CHECK (E-6)

STA. 287+80 LT. = 3 CU. YD.
STA. 291+10 LT. = 3 CU. YD.
STA. 293+00 LT. = 3 CU. YD.
STA. 295+80 LT. = 3 CU. YD.

WATTLE (20') (E-1)

STA. 288+40 LT. = 8 LIN. FT.
STA. 297+60 LT. = 8 LIN. FT.
STA. 298+15 LT. = 8 LIN. FT.
STA. 299+15 LT. = 8 LIN. FT.

CONSTRUCTION
P. I. 289+39.05
Δ = 34°55'57" LT.
D = 15°00'00"
T = 120.19'
L = 232.88'
P.C. 288+18.86
P.T. 290+51.75
e = 0.086 '/'
Ls = 250'



CONSTRUCTION
P. I. 297+50.81
Δ = 52°48.40" RT.
D = 15°00'00"
T = 189.66'
L = 352.07'
P.C. 295+61.16
P.T. 299+13.23
e = 0.086 '/'
Ls = 250'

SILT FENCE (E-11)

STA. 287+00 TO STA. 288+00 RT. = 100 LIN. FT.
STA. 288+20 TO STA. 295+80 RT. = 865 LIN. FT.
STA. 296+50 TO STA. 297+00 RT. = 150 LIN. FT.
STA. 297+50 TO STA. 298+80 RT. = 130 LIN. FT.
STA. 299+15 TO STA. 299+75 RT. = 60 LIN. FT.

DIVERSION DITCH (E-8)

STA. 278+95 TO STA. 297+00 RT. = 1805 LIN. FT.

PIPE SLOPE DRAIN & DUMPED RIPRAP (E-12)

STA. 287+90 RT. = 25 LIN. FT. & 3 CU. YD.
STA. 293+00 RT. = 25 LIN. FT. & 3 CU. YD.
STA. 295+75 RT. = 25 LIN. FT. & 3 CU. YD.
STA. 297+00 RT. = 25 LIN. FT. & 3 CU. YD.

REVISIONS

DATE	REVISION

LEGEND
- E-1 WATTLE (20')
- E-6 ROCK DITCH CHECKS
- E-8 DIVERSION DITCH
- E-11 SILT FENCE
- E-12 SLOPE DRAIN & DUMPED RIPRAP

10/28/2015

R040207.DGN

TEMPORARY EROSION 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.		040207	11	212

(2) TEMPORARY EROSION CONTROL DETAILS

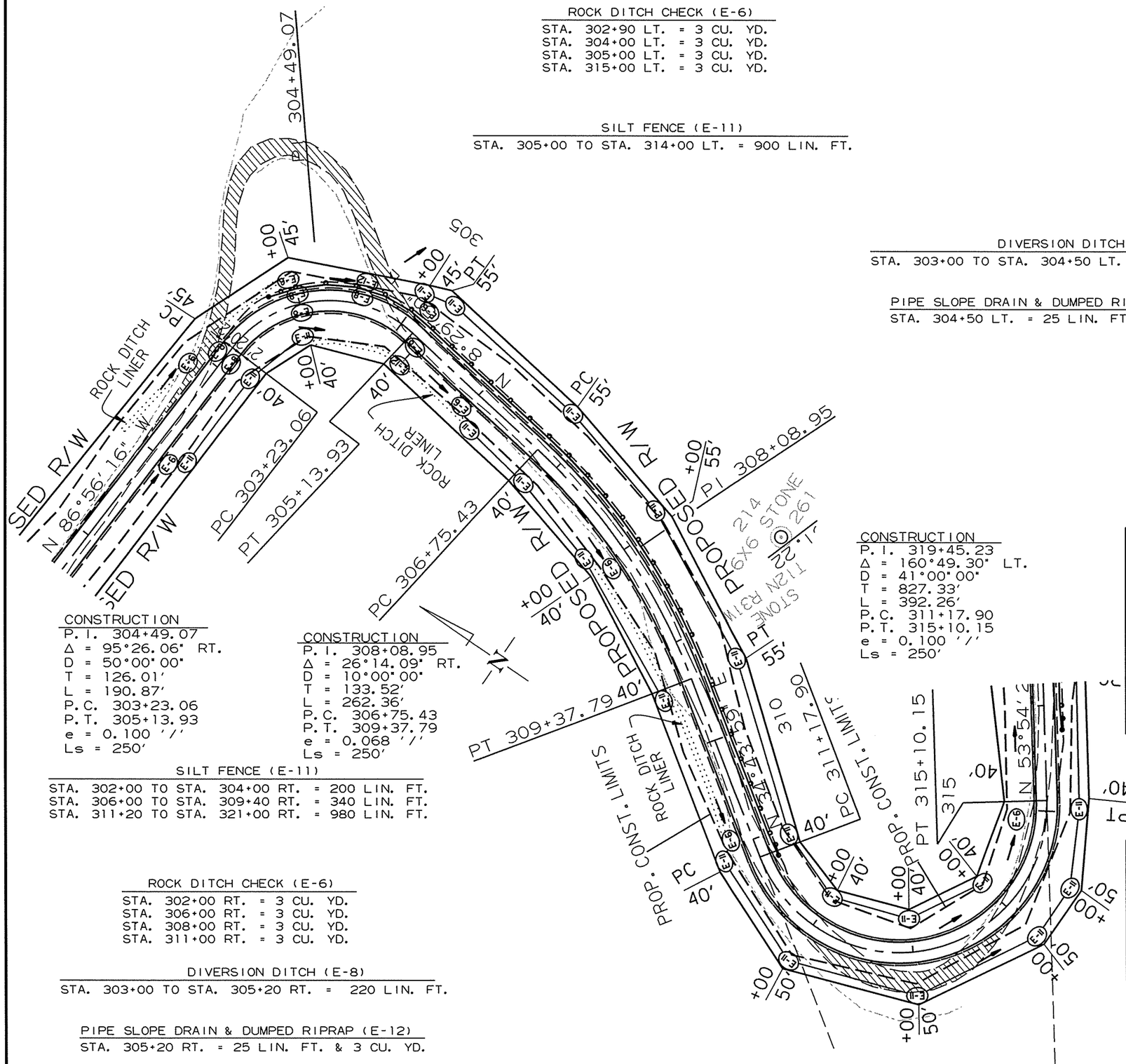
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15

ROCK DITCH CHECK (E-6)
STA. 302+90 LT. = 3 CU. YD.
STA. 304+00 LT. = 3 CU. YD.
STA. 305+00 LT. = 3 CU. YD.
STA. 315+00 LT. = 3 CU. YD.

SILT FENCE (E-11)
STA. 305+00 TO STA. 314+00 LT. = 900 LIN. FT.

DIVERSION DITCH (E-8)
STA. 303+00 TO STA. 304+50 LT. = 150 LIN. FT.

PIPE SLOPE DRAIN & DUMPED RIPRAP (E-12)
STA. 304+50 LT. = 25 LIN. FT. & 3 CU. YD.



CONSTRUCTION
P. I. 304+49.07
Δ = 95°26.06" RT.
D = 50°00'00"
T = 126.01'
L = 190.87'
P. C. 303+23.06
P. T. 305+13.93
e = 0.100 '/'
Ls = 250'

CONSTRUCTION
P. I. 308+08.95
Δ = 26°14.09" RT.
D = 10°00'00"
T = 133.52'
L = 262.36'
P. C. 306+75.43
P. T. 309+37.79
e = 0.068 '/'
Ls = 250'

CONSTRUCTION
P. I. 319+45.23
Δ = 160°49.30" LT.
D = 41°00'00"
T = 827.33'
L = 392.26'
P. C. 311+17.90
P. T. 315+10.15
e = 0.100 '/'
Ls = 250'

SILT FENCE (E-11)
STA. 302+00 TO STA. 304+00 RT. = 200 LIN. FT.
STA. 306+00 TO STA. 309+40 RT. = 340 LIN. FT.
STA. 311+20 TO STA. 321+00 RT. = 980 LIN. FT.

ROCK DITCH CHECK (E-6)
STA. 302+00 RT. = 3 CU. YD.
STA. 306+00 RT. = 3 CU. YD.
STA. 308+00 RT. = 3 CU. YD.
STA. 311+00 RT. = 3 CU. YD.

DIVERSION DITCH (E-8)
STA. 303+00 TO STA. 305+20 RT. = 220 LIN. FT.

PIPE SLOPE DRAIN & DUMPED RIPRAP (E-12)
STA. 305+20 RT. = 25 LIN. FT. & 3 CU. YD.

REVISIONS

DATE	REVISION

LEGEND
- (E-1) WATTLE (20")
- (E-6) ROCK DITCH CHECKS
- (E-8) DIVERSION DITCH
- (E-11) SILT FENCE
- (E-12) SLOPE DRAIN & DUMPED RIPRAP

10/28/2015

R040207.DGN

TEMPORARY EROSION 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.		040207	12	212

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15

ROCK DITCH CHECK (E-6)

STA. 317+90 LT. = 3 CU. YD.
STA. 320+50 LT. = 3 CU. YD.
STA. 325+00 LT. = 3 CU. YD.
STA. 327+00 LT. = 3 CU. YD.
STA. 328+00 LT. = 3 CU. YD.

CONSTRUCTION
P. I. 317+67.845
Δ = 35°45'08" LT.
D = 14°00'00"
T = 131.10'
L = 255.37'
P. C. 316+35.85
P. T. 318+91.22
e = 0.083 '/'
Ls = 250'

CONSTRUCTION
P. I. 320+88.83
Δ = 39°18'23" RT.
D = 20°00'00"
T = 102.31'
L = 196.53'
P. C. 319+86.52
P. T. 321+83.06
e = 0.097 '/'
Ls = 250'

WATTLE (20') (E-1)

STA. 321+35 LT. = 8 LIN. FT.

CONSTRUCTION
P. I. 327+83.36
Δ = 58°07'11" LT.
D = 15°00'00"
T = 212.25'
L = 387.46'
P. C. 325+71.11
P. T. 329+58.57
e = 0.086 '/'
Ls = 250'

SILT FENCE (E-11)

STA. 311+20 TO STA. 321+00 RT. = 980 LIN. FT.
STA. 321+50 TO STA. 327+50 RT. = 600 LIN. FT.
STA. 327+50 TO STA. 332+00 RT. = 450 LIN. FT.

CONSTRUCTION
P. I. 324+74.91
Δ = 24°16'26" RT.
D = 20°00'00"
T = 61.61'
L = 121.37'
P. C. 324+13.30
P. T. 325+34.67
e = 0.097 '/'
Ls = 250'

REVISIONS

DATE	REVISION

LEGEND

(E-1) WATTLE (20')
(E-6) ROCK DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-8) DIVERSION DITCH
(E-11) SILT FENCE
(E-12) SLOPE DRAIN & DUMPED RIPRAP

ROCK DITCH CHECK (E-6)

STA. 332+00 LT. = 3 CU. YD.
STA. 333+75 LT. = 3 CU. YD.
STA. 337+30 LT. = 3 CU. YD.
STA. 338+60 LT. = 3 CU. YD.

WATTLE (20') (E-1)

STA. 341+20 LT. = 8 LIN. FT.
STA. 342+00 LT. = 8 LIN. FT.
STA. 342+75 LT. = 8 LIN. FT.
STA. 343+40 LT. = 8 LIN. FT.

DROP INLET SILT FENCE (E-7)

STA. 339+00 LT. = 20 LIN. FT.
STA. 340+86 LT. = 20 LIN. FT.
STA. 345+19 LT. = 20 LIN. FT.
STA. 346+22 LT. = 20 LIN. FT.

SILT FENCE (E-11)

STA. 327+50 TO STA. 332+00 RT. = 450 LIN. FT.
STA. 332+65 TO STA. 338+90 RT. = 625 LIN. FT.
STA. 339+10 TO STA. 340+15 RT. = 165 LIN. FT.
STA. 341+00 TO STA. 341+40 RT. = 40 LIN. FT.
STA. 341+75 TO STA. 343+00 RT. = 125 LIN. FT.
STA. 343+25 TO STA. 345+00 RT. = 175 LIN. FT.
STA. 345+35 TO STA. 346+00 RT. = 65 LIN. FT.

CONSTRUCTION
P. I. 335+78.60
Δ = 19°16'37" RT.
D = 9°00'00"
T = 108.12'
L = 214.19'
P. C. 334+70.49
P. T. 336+84.67
e = 0.063 '/'
Ls = 200'

CONSTRUCTION
P. I. 338+75.50
Δ = 25°34'21" LT.
D = 12°00'00"
T = 108.36'
L = 213.10'
P. C. 337+67.15
P. T. 339+80.25
e = 0.076 '/'
Ls = 250'

CONSTRUCTION
P. I. 342+26.72
Δ = 21°13'11" RT.
D = 10°00'00"
T = 107.33'
L = 212.20'
P. C. 341+19.39
P. T. 343+31.59
e = 0.068 '/'
Ls = 250'

10/28/2015

R040207.DGN

TEMPORARY EROSION 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.		040207	13	212

(2) TEMPORARY EROSION CONTROL DETAILS

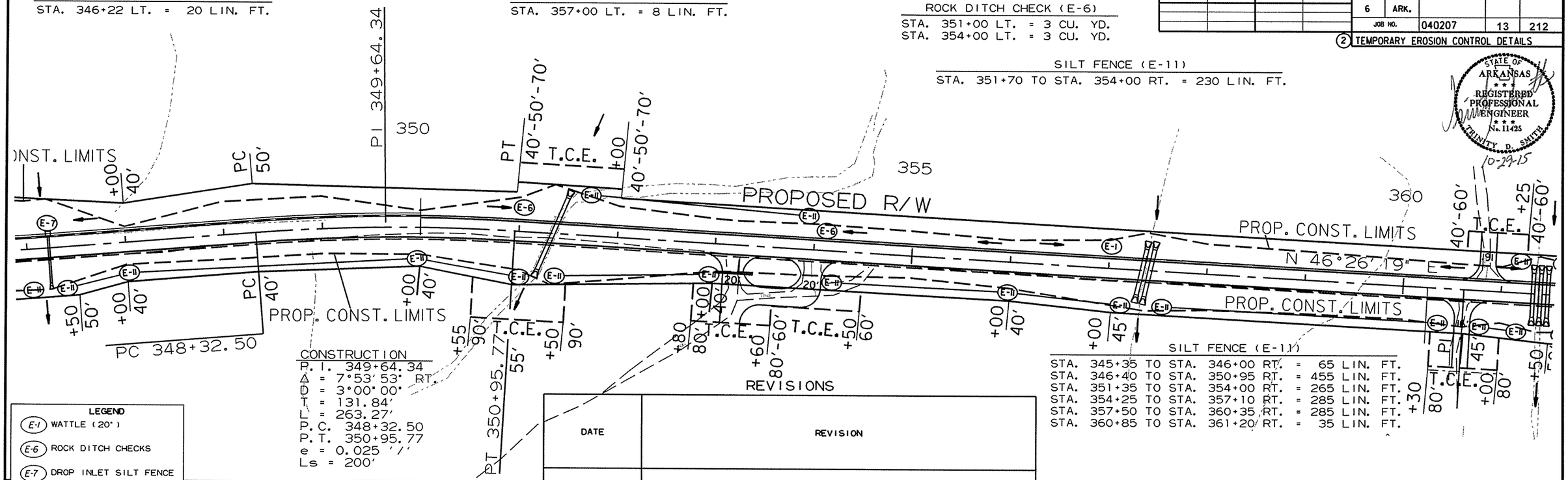
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15

DROP INLET SILT FENCE (E-7)
STA. 346+22 LT. = 20 LIN. FT.

WATTLE (20') (E-1)
STA. 357+00 LT. = 8 LIN. FT.

ROCK DITCH CHECK (E-6)
STA. 351+00 LT. = 3 CU. YD.
STA. 354+00 LT. = 3 CU. YD.

SILT FENCE (E-11)
STA. 351+70 TO STA. 354+00 RT. = 230 LIN. FT.



CONSTRUCTION
P. I. 349+64.34
Δ = 7°53'53" RT.
D = 3°00'00"
T = 131.84'
L = 263.27'
P.C. 348+32.50
P.T. 350+95.77
e = 0.025 '/'
Ls = 200'

SILT FENCE (E-11)

STA. 345+35	TO STA.	346+00	RT. =	65 LIN. FT.
STA. 346+40	TO STA.	350+95	RT. =	455 LIN. FT.
STA. 351+35	TO STA.	354+00	RT. =	265 LIN. FT.
STA. 354+25	TO STA.	357+10	RT. =	285 LIN. FT.
STA. 357+50	TO STA.	360+35	RT. =	285 LIN. FT.
STA. 360+85	TO STA.	361+20	RT. =	35 LIN. FT.

REVISIONS

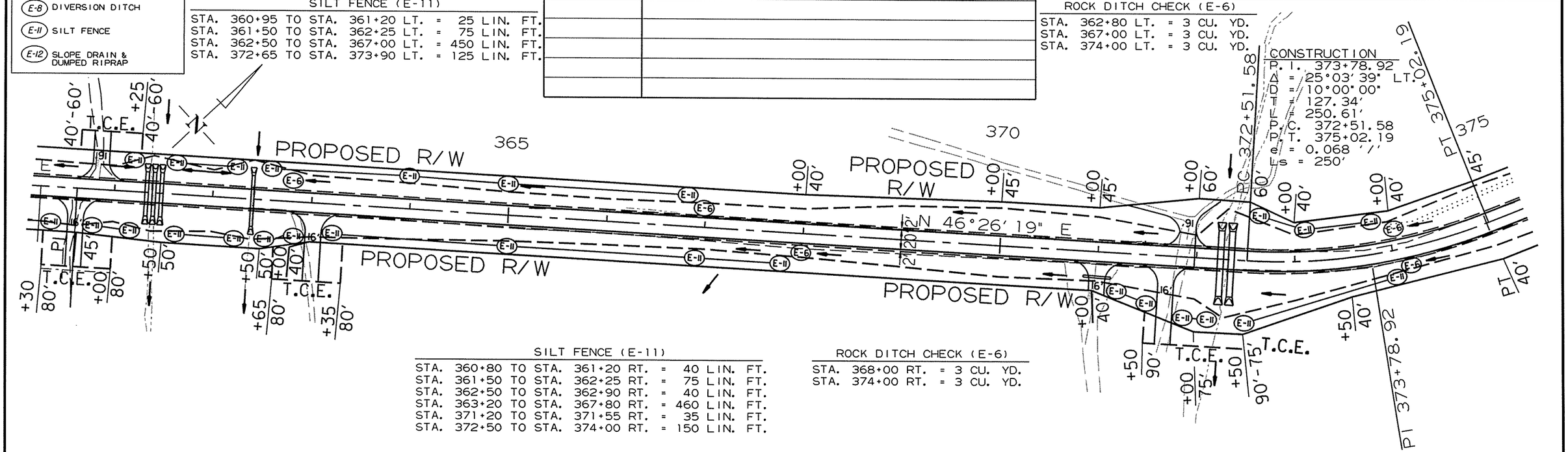
DATE	REVISION

LEGEND
- (E-1) WATTLE (20')
- (E-6) ROCK DITCH CHECKS
- (E-7) DROP INLET SILT FENCE
- (E-8) DIVERSION DITCH
- (E-11) SILT FENCE
- (E-12) SLOPE DRAIN & DUMPED RIPRAP

SILT FENCE (E-11)

STA. 360+95	TO STA.	361+20	LT. =	25 LIN. FT.
STA. 361+50	TO STA.	362+25	LT. =	75 LIN. FT.
STA. 362+50	TO STA.	367+00	LT. =	450 LIN. FT.
STA. 372+65	TO STA.	373+90	LT. =	125 LIN. FT.

ROCK DITCH CHECK (E-6)
STA. 362+80 LT. = 3 CU. YD.
STA. 367+00 LT. = 3 CU. YD.
STA. 374+00 LT. = 3 CU. YD.



CONSTRUCTION
P. I. 373+78.92
Δ = 25°03'39" LT.
D = 10°00'00"
T = 127.34'
L = 250.61'
P.C. 372+51.58
P.T. 375+02.19
e = 0.068 '/'
Ls = 250'

SILT FENCE (E-11)

STA. 360+80	TO STA.	361+20	RT. =	40 LIN. FT.
STA. 361+50	TO STA.	362+25	RT. =	75 LIN. FT.
STA. 362+50	TO STA.	362+90	RT. =	40 LIN. FT.
STA. 363+20	TO STA.	367+80	RT. =	460 LIN. FT.
STA. 371+20	TO STA.	371+55	RT. =	35 LIN. FT.
STA. 372+50	TO STA.	374+00	RT. =	150 LIN. FT.

ROCK DITCH CHECK (E-6)
STA. 368+00 RT. = 3 CU. YD.
STA. 374+00 RT. = 3 CU. YD.

10/28/2015

R040207.DGN

TEMPORARY EROSION 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.		040207	14	212

(2) TEMPORARY EROSION CONTROL DETAILS

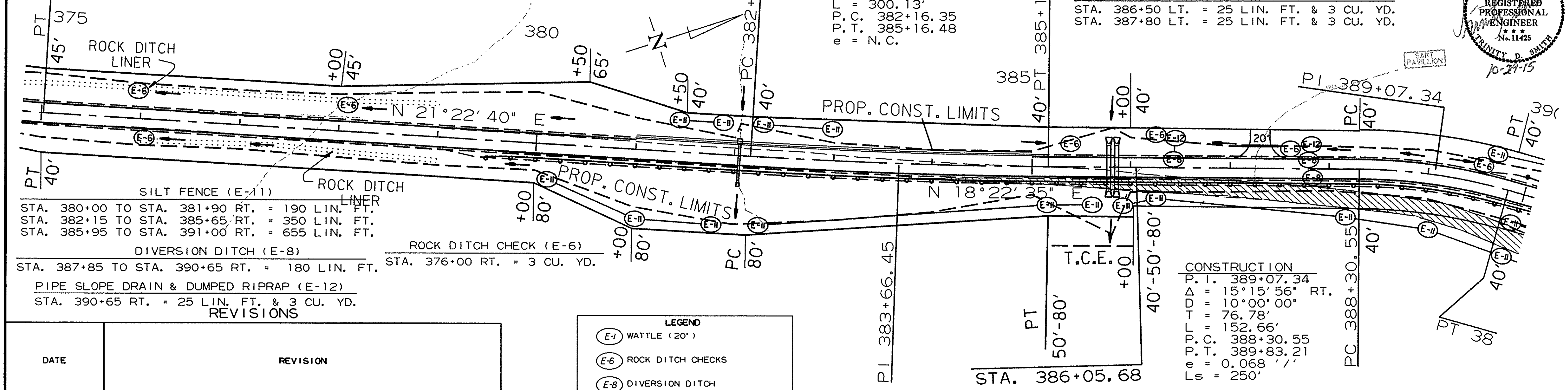
STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 10-29-15

SILT FENCE (E-11)
STA. 381+40 TO STA. 381+90 LT. = 50 LIN. FT.
STA. 382+30 TO STA. 383+00 LT. = 70 LIN. FT.
STA. 389+65 TO STA. 391+60 LT. = 195 LIN. FT.

ROCK DITCH CHECK (E-6)
STA. 376+00 LT. = 3 CU. YD.
STA. 378+00 LT. = 3 CU. YD.
STA. 385+40 LT. = 3 CU. YD.
STA. 386+30 LT. = 3 CU. YD.
STA. 387+60 LT. = 3 CU. YD.
STA. 389+50 LT. = 3 CU. YD.

DIVERSION DITCH (E-8)
STA. 386+50 TO STA. 390+90 LT. = 340 LIN. FT.

PIPE SLOPE DRAIN & DUMPED RIPRAP (E-12)
STA. 386+50 LT. = 25 LIN. FT. & 3 CU. YD.
STA. 387+80 LT. = 25 LIN. FT. & 3 CU. YD.



SILT FENCE (E-11)
STA. 380+00 TO STA. 381+90 RT. = 190 LIN. FT.
STA. 382+15 TO STA. 385+65 RT. = 350 LIN. FT.
STA. 385+95 TO STA. 391+00 RT. = 655 LIN. FT.

DIVERSION DITCH (E-8)
STA. 387+85 TO STA. 390+65 RT. = 180 LIN. FT.

ROCK DITCH CHECK (E-6)
STA. 376+00 RT. = 3 CU. YD.

PIPE SLOPE DRAIN & DUMPED RIPRAP (E-12)
STA. 390+65 RT. = 25 LIN. FT. & 3 CU. YD.

REVISIONS

DATE	REVISION

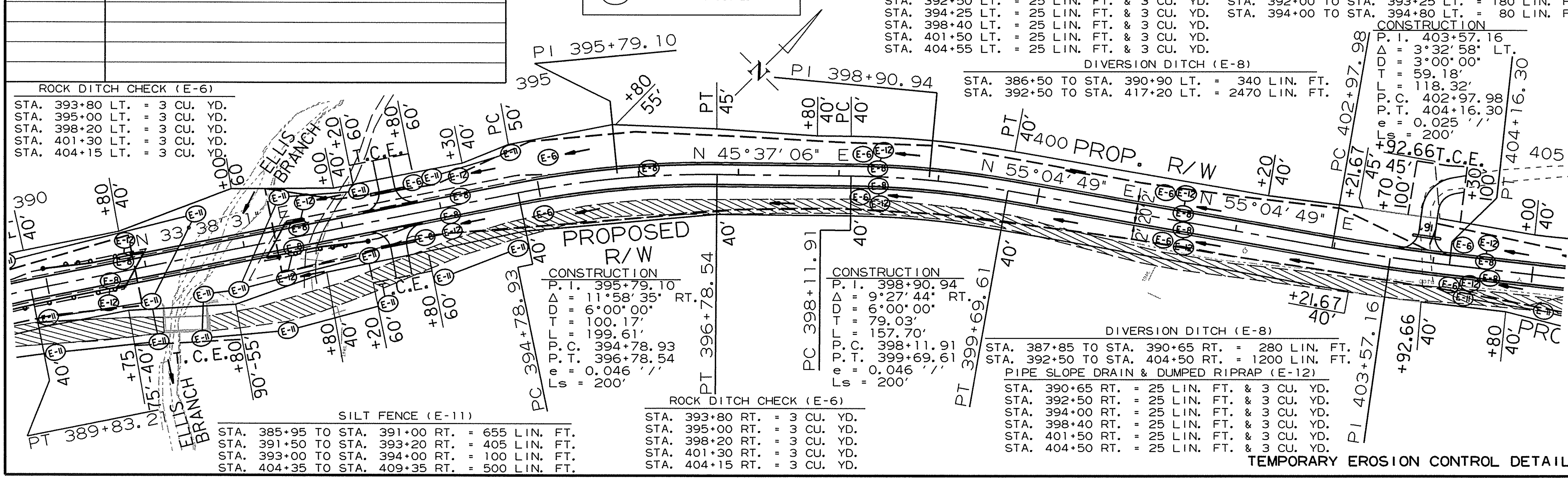
LEGEND
- (E-1) WATTLE (20')
- (E-6) ROCK DITCH CHECKS
- (E-8) DIVERSION DITCH
- (E-11) SILT FENCE
- (E-12) SLOPE DRAIN & DUMPED RIPRAP

PIPE SLOPE DRAIN & DUMPED RIPRAP (E-12)
STA. 390+65 LT. = 25 LIN. FT. & 3 CU. YD.
STA. 392+50 LT. = 25 LIN. FT. & 3 CU. YD.
STA. 394+25 LT. = 25 LIN. FT. & 3 CU. YD.
STA. 398+40 LT. = 25 LIN. FT. & 3 CU. YD.
STA. 401+50 LT. = 25 LIN. FT. & 3 CU. YD.
STA. 404+55 LT. = 25 LIN. FT. & 3 CU. YD.

SILT FENCE (E-11)
STA. 389+65 TO STA. 391+60 LT. = 195 LIN. FT.
STA. 392+00 TO STA. 393+25 LT. = 180 LIN. FT.
STA. 394+00 TO STA. 394+80 LT. = 80 LIN. FT.

DIVERSION DITCH (E-8)
STA. 386+50 TO STA. 390+90 LT. = 340 LIN. FT.
STA. 392+50 TO STA. 417+20 LT. = 2470 LIN. FT.

ROCK DITCH CHECK (E-6)
STA. 393+80 LT. = 3 CU. YD.
STA. 395+00 LT. = 3 CU. YD.
STA. 398+20 LT. = 3 CU. YD.
STA. 401+30 LT. = 3 CU. YD.
STA. 404+15 LT. = 3 CU. YD.



DIVERSION DITCH (E-8)
STA. 387+85 TO STA. 390+65 RT. = 280 LIN. FT.
STA. 392+50 TO STA. 404+50 RT. = 1200 LIN. FT.

PIPE SLOPE DRAIN & DUMPED RIPRAP (E-12)
STA. 390+65 RT. = 25 LIN. FT. & 3 CU. YD.
STA. 392+50 RT. = 25 LIN. FT. & 3 CU. YD.
STA. 394+00 RT. = 25 LIN. FT. & 3 CU. YD.
STA. 398+40 RT. = 25 LIN. FT. & 3 CU. YD.
STA. 401+50 RT. = 25 LIN. FT. & 3 CU. YD.
STA. 404+50 RT. = 25 LIN. FT. & 3 CU. YD.

SILT FENCE (E-11)
STA. 385+95 TO STA. 391+00 RT. = 655 LIN. FT.
STA. 391+50 TO STA. 393+20 RT. = 405 LIN. FT.
STA. 393+00 TO STA. 394+00 RT. = 100 LIN. FT.
STA. 404+35 TO STA. 409+35 RT. = 500 LIN. FT.

ROCK DITCH CHECK (E-6)
STA. 393+80 RT. = 3 CU. YD.
STA. 395+00 RT. = 3 CU. YD.
STA. 398+20 RT. = 3 CU. YD.
STA. 401+30 RT. = 3 CU. YD.
STA. 404+15 RT. = 3 CU. YD.

TEMPORARY EROSION CONTROL DETAILS

10/28/2015 R040207.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.		040207	15	212

(2) TEMPORARY EROSION CONTROL DETAILS

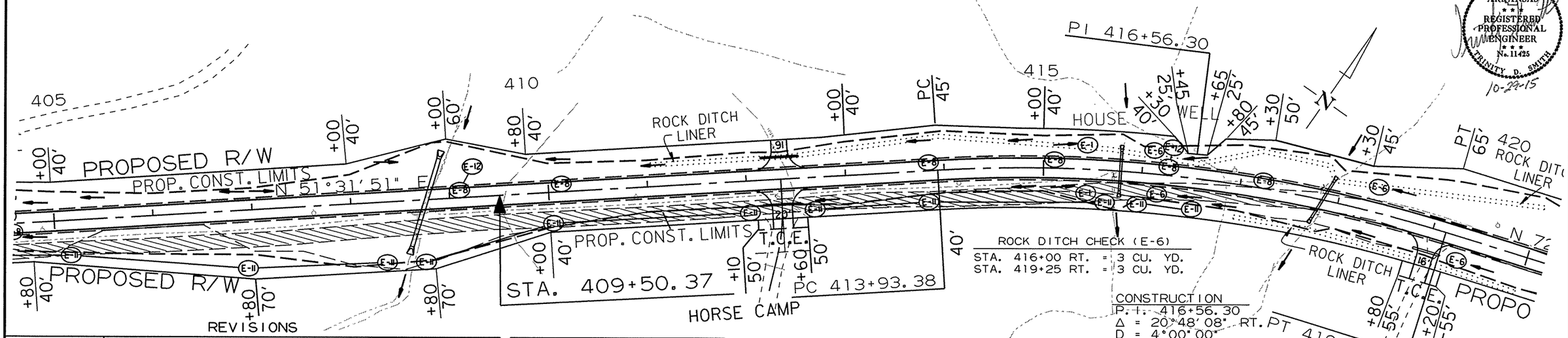
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15

DIVERSION DITCH (E-8)
STA. 409+00 TO STA. 417+25 LT. = 825 LIN. FT.

PIPE SLOPE DRAIN & DUMPED RIPRAP (E-12)
STA. 409+25 LT. = 25 LIN. FT. & 3 CU. YD.
STA. 416+30 LT. = 25 LIN. FT. & 3 CU. YD.

ROCK DITCH CHECK (E-6)
STA. 416+00 LT. = 3 CU. YD.
STA. 418+35 LT. = 3 CU. YD.

WATTLE (20') (E-1)
STA. 415+50 LT. = 8 LIN. FT.



DATE	REVISION

LEGEND
- (E-1) WATTLE (20")
- (E-6) ROCK DITCH CHECKS
- (E-8) DIVERSION DITCH
- (E-11) SILT FENCE
- (E-12) SLOPE DRAIN & DUMPED RIPRAP

SILT FENCE (E-11)
STA. 404+35 TO STA. 409+35 RT. = 500 LIN. FT.
STA. 409+80 TO STA. 412+00 RT. = 220 LIN. FT.
STA. 412+65 TO STA. 415+65 RT. = 300 LIN. FT.
STA. 416+00 TO STA. 416+50 RT. = 50 LIN. FT.

ROCK DITCH CHECK (E-6)
STA. 416+00 RT. = 3 CU. YD.
STA. 419+25 RT. = 3 CU. YD.

CONSTRUCTION
P. I. 416+56.30
Δ = 20°48'08" RT.
D = 4°00'00"
T = 262.92'
L = 520.06'
P. C. 413+93.38
P. T. 419+13.43
e = 0.033 '/'
Ls = 200'

WATTLE (20') (E-1)
STA. 415+50 RT. = 8 LIN. FT.

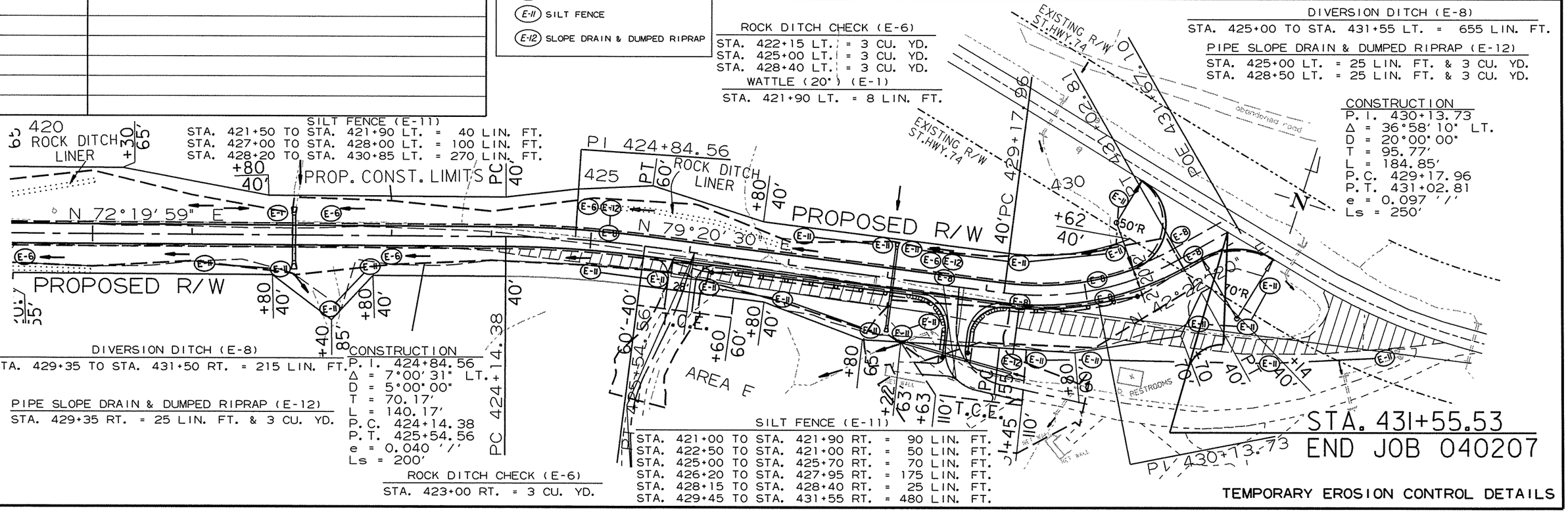
ROCK DITCH CHECK (E-6)
STA. 422+15 LT. = 3 CU. YD.
STA. 425+00 LT. = 3 CU. YD.
STA. 428+40 LT. = 3 CU. YD.

WATTLE (20') (E-1)
STA. 421+90 LT. = 8 LIN. FT.

DIVERSION DITCH (E-8)
STA. 425+00 TO STA. 431+55 LT. = 655 LIN. FT.

PIPE SLOPE DRAIN & DUMPED RIPRAP (E-12)
STA. 425+00 LT. = 25 LIN. FT. & 3 CU. YD.
STA. 428+50 LT. = 25 LIN. FT. & 3 CU. YD.

CONSTRUCTION
P. I. 430+13.73
Δ = 36°58'10" LT.
D = 20°00'00"
T = 95.77'
L = 184.85'
P. C. 429+17.96
P. T. 431+02.81
e = 0.097 '/'
Ls = 250'



TEMPORARY EROSION CONTROL DETAILS

10/28/2015

R040207.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.		040207	16	212

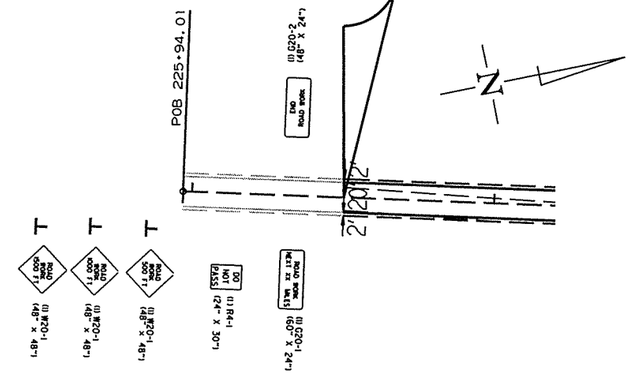
(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION

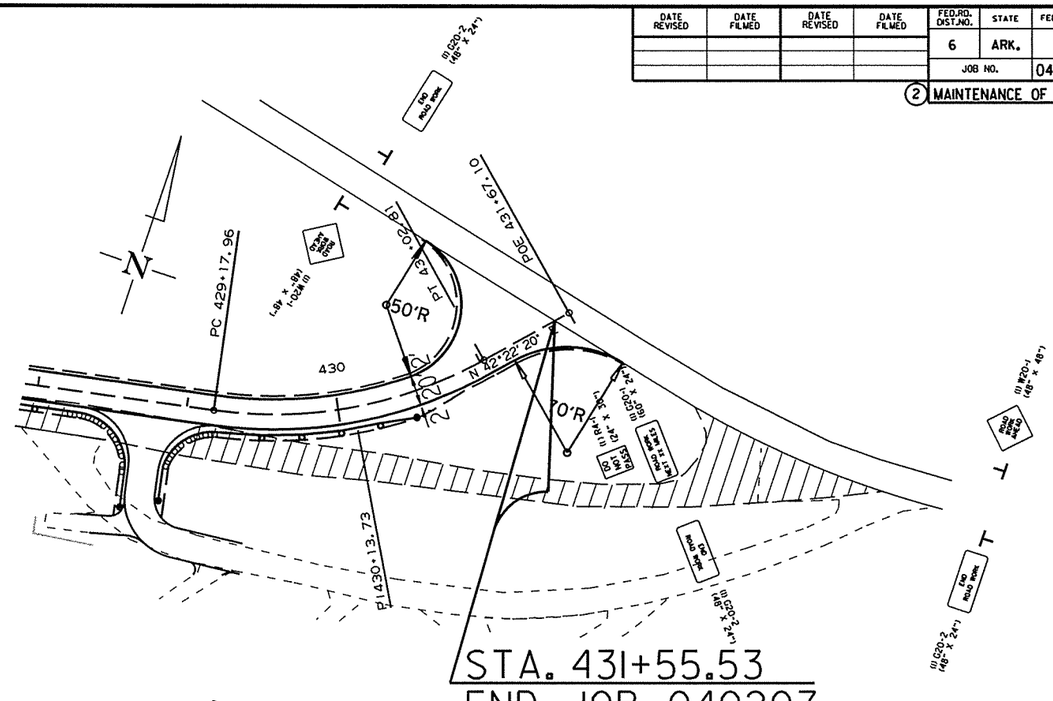
STAGE 1:
PLACE ADVANCE WARNING SIGNS, INSTALL EROSION CONTROL ITEMS, AND CONSTRUCT CULVERTS, BRIDGE STRUCTURE, AND ROADWAY UNDER TRAFFIC AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

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.

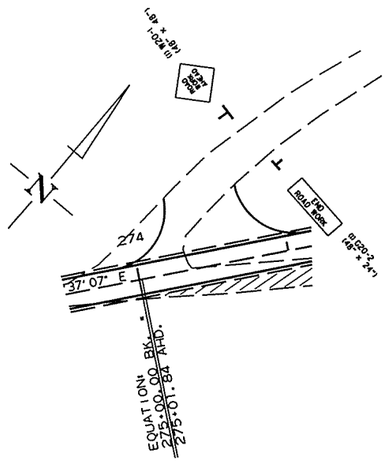
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-24-15



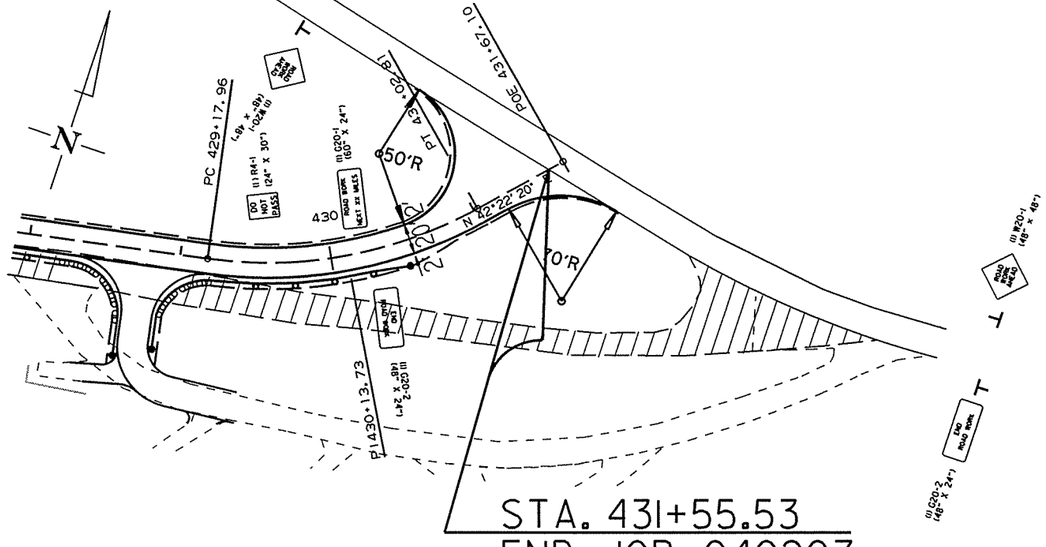
BEGIN JOB
STAGES 1@ 2



END JOB
STAGE 1



CO. RD. TURNOUT
STAGES 1@ 2



END JOB
STAGE 2

ADVANCE WARNING SIGNS
MAINTENANCE OF TRAFFIC DETAILS

10/28/2015

R040207.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.		040207	17	212

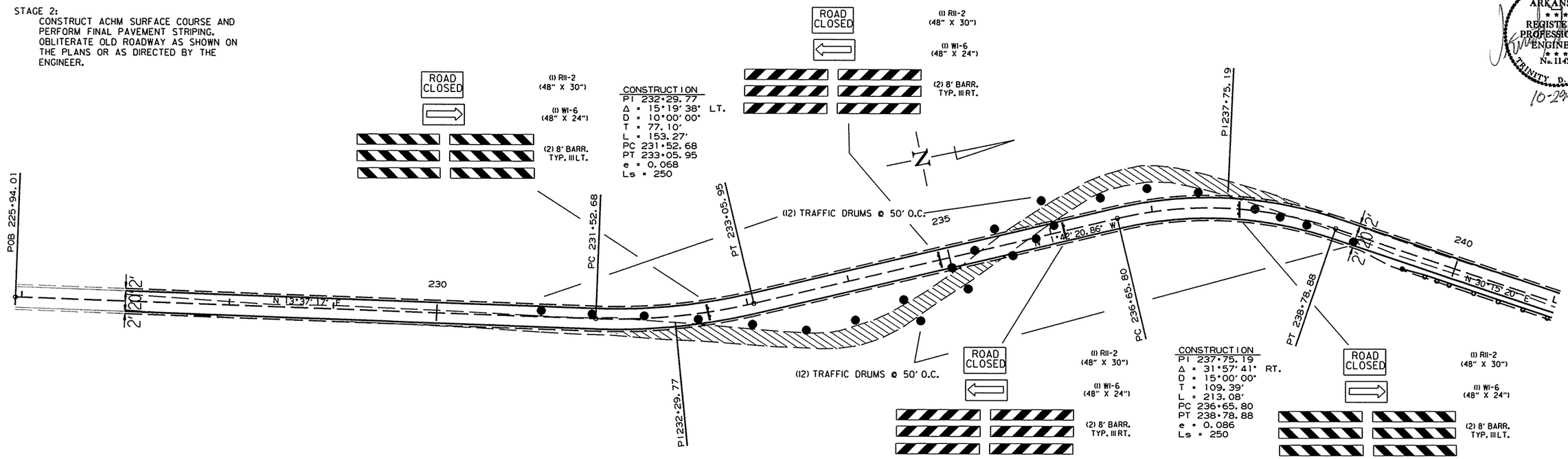
(2) MAINTENANCE OF TRAFFIC DETAILS

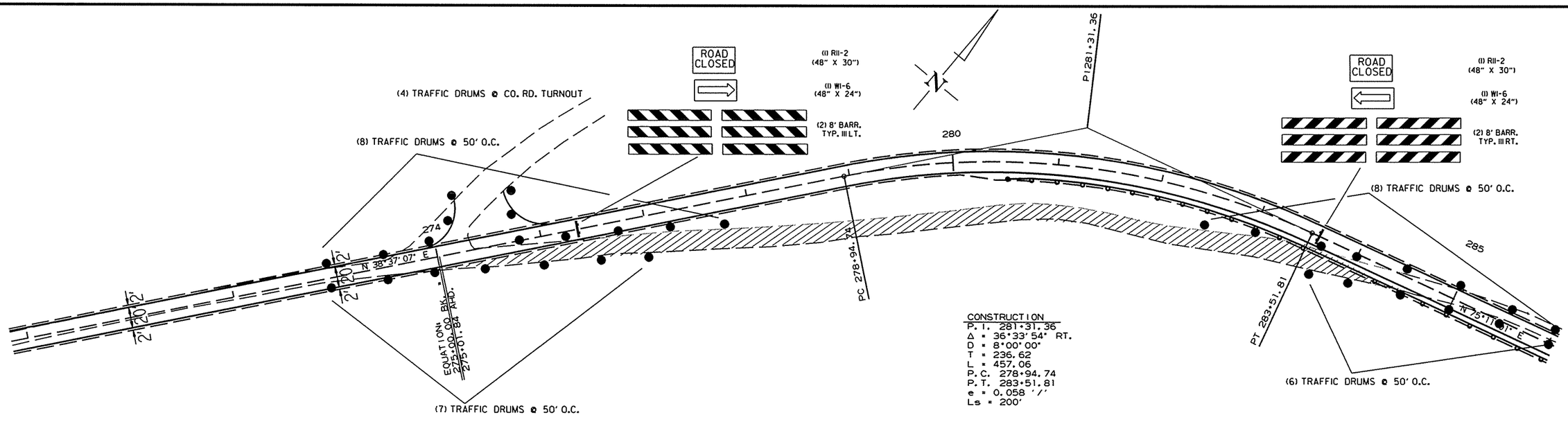
SEQUENCE OF CONSTRUCTION

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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-22-15





STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

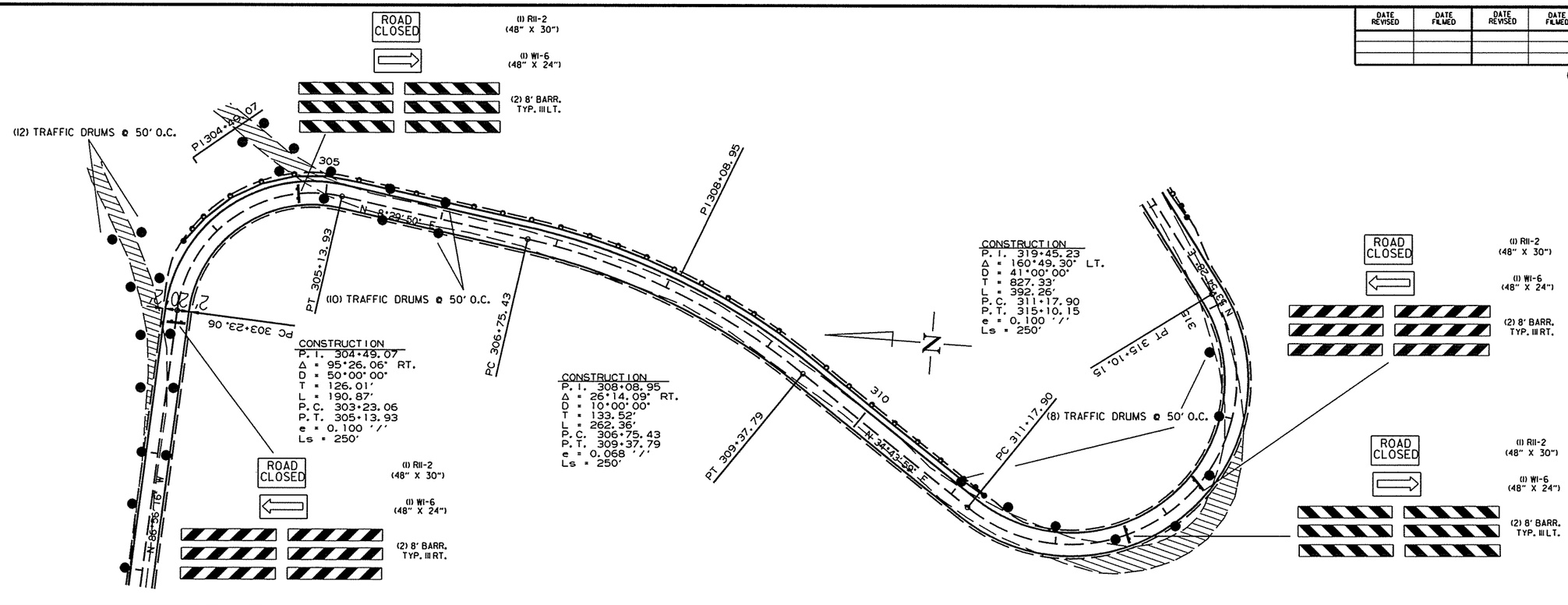
10/28/2015

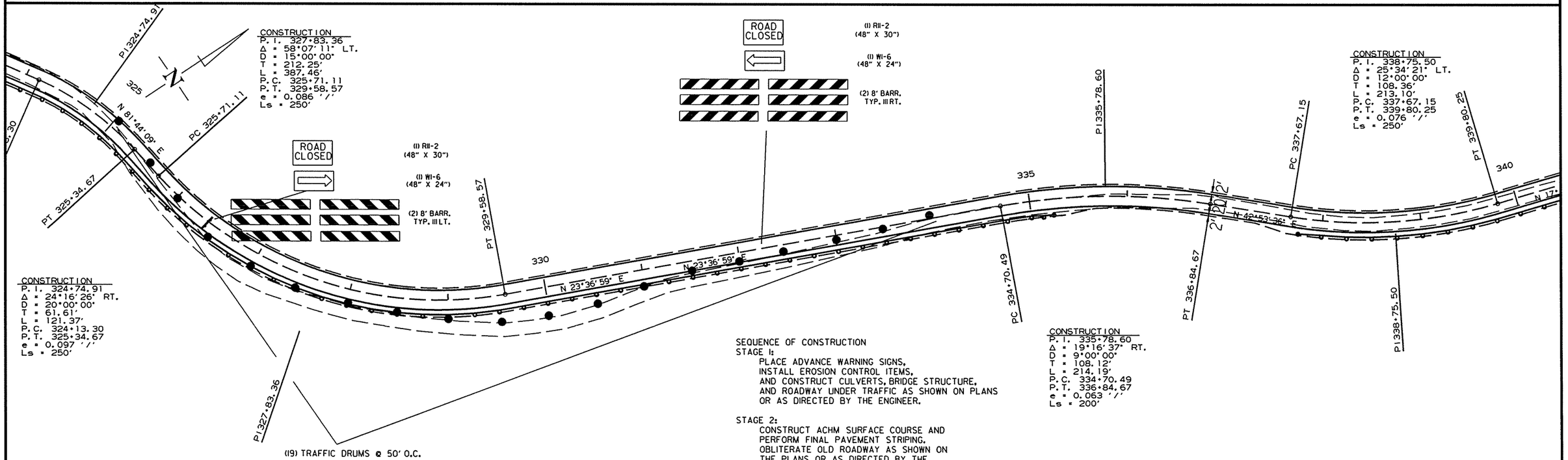
R040207.DGN

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.		040207	18	212

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15





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.

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

10/29/2015

R040207.DGN

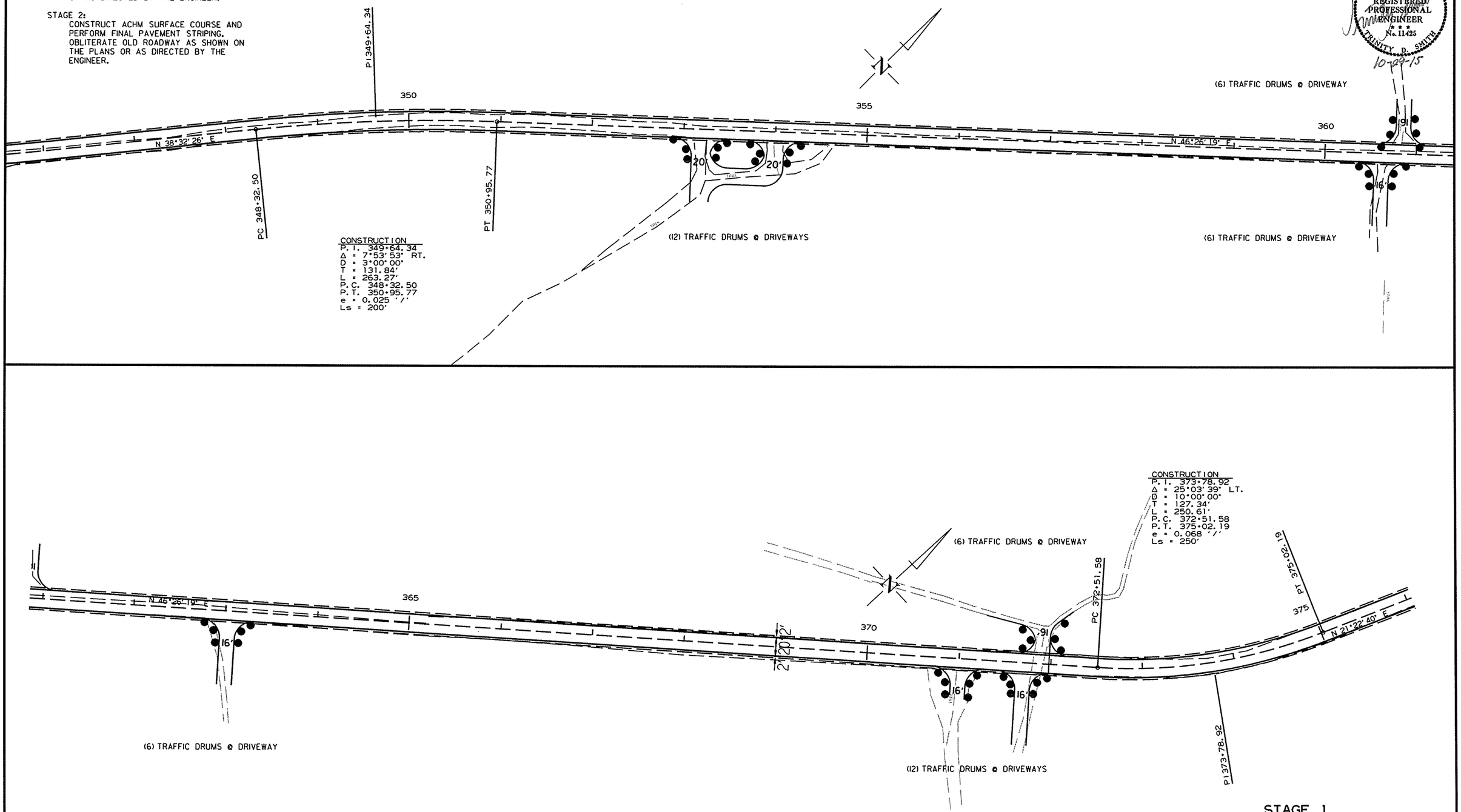
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040207	19	212

(2) MAINTENANCE OF TRAFFIC DETAILS

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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15



STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

10/29/2015

R040207.DGN

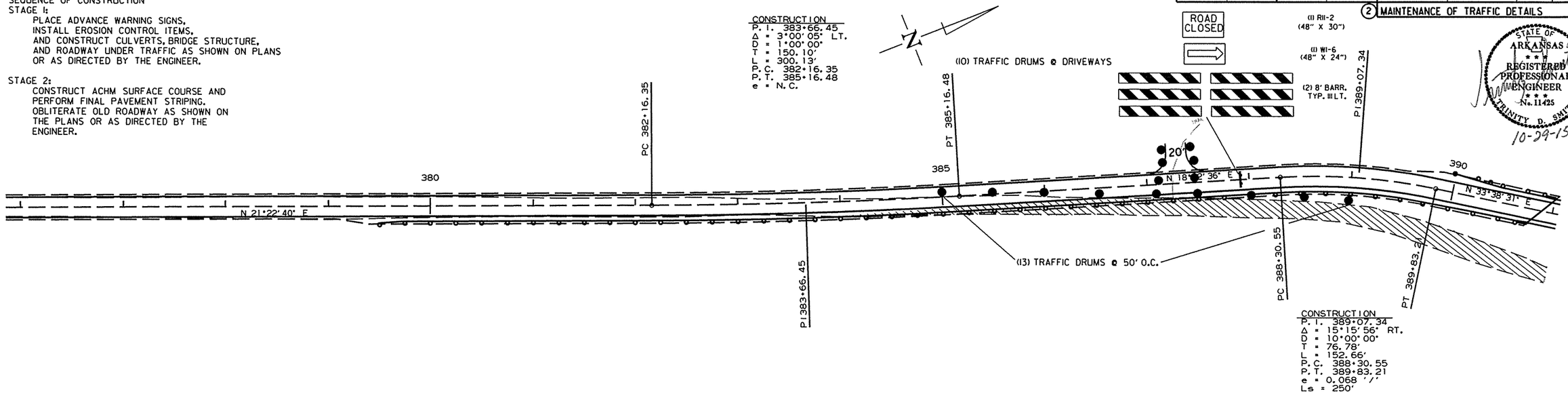
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040207	20	212

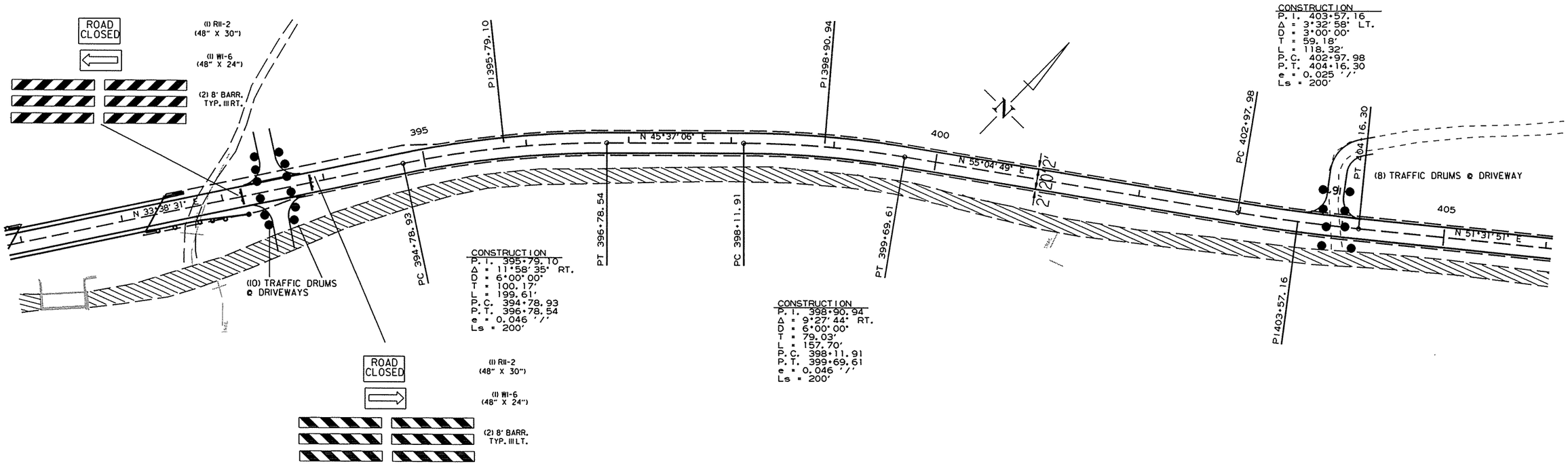
(2) MAINTENANCE OF TRAFFIC DETAILS

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.





STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

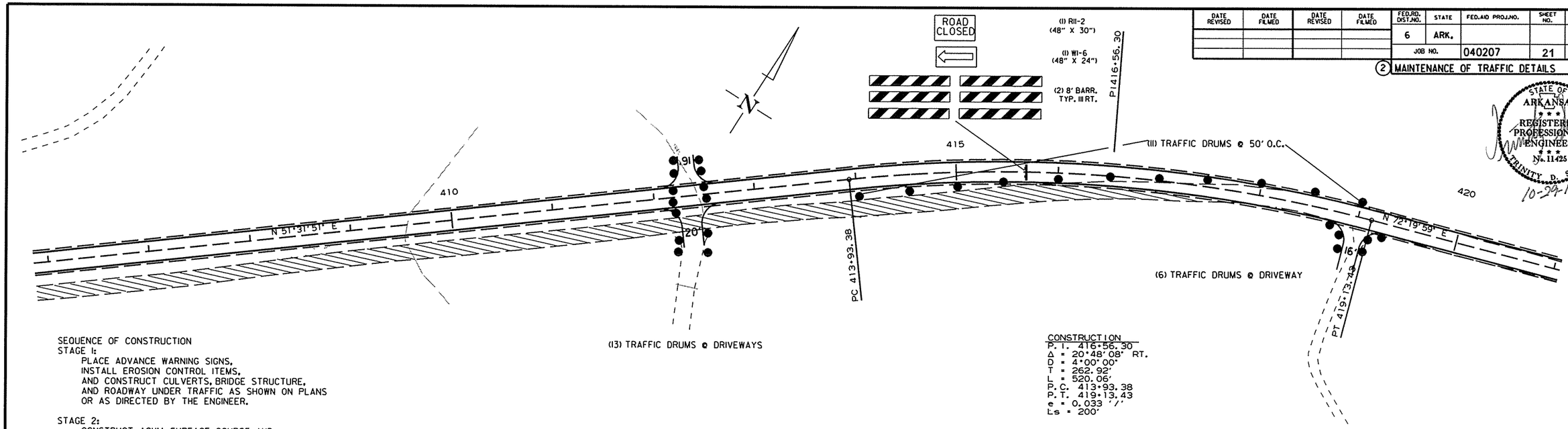
10/29/2015

R040207.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.		040207	21	212

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15



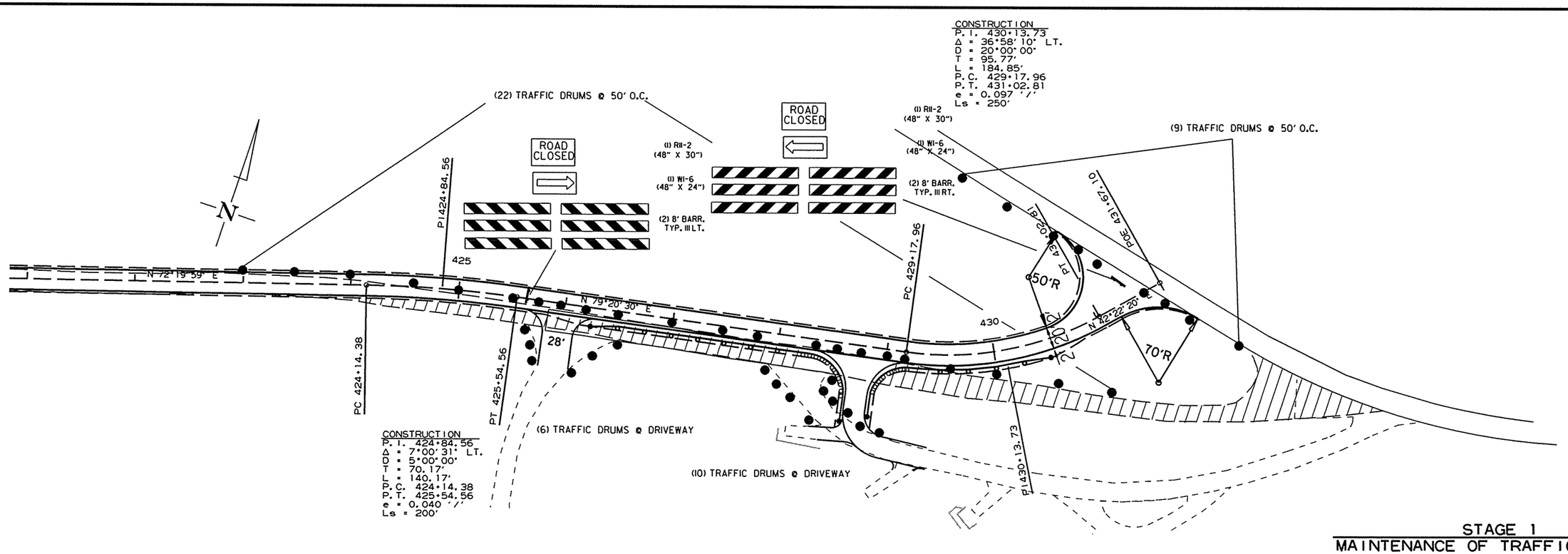
SEQUENCE OF CONSTRUCTION

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.

CONSTRUCTION
P. I. 416+56.30
Δ = 20°48'08" RT.
D = 4°00'00"
T = 262.92'
L = 520.06'
P.C. 413+93.38
P.T. 419+13.43
e = 0.033 '/'
Ls = 200'

CONSTRUCTION
P. I. 430+13.73
Δ = 36°58'10" LT.
D = 20°00'00"
T = 95.77'
L = 184.85'
P.C. 429+17.96
P.T. 431+02.81
e = 0.097 '/'
Ls = 250'



CONSTRUCTION
P. I. 424+84.56
Δ = 7°00'31" LT.
D = 5°00'00"
T = 70.17'
L = 140.17'
P.C. 424+14.38
P.T. 425+54.56
e = 0.040 '/'
Ls = 200'

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

10/29/2015
R040207.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.		040207	22	212

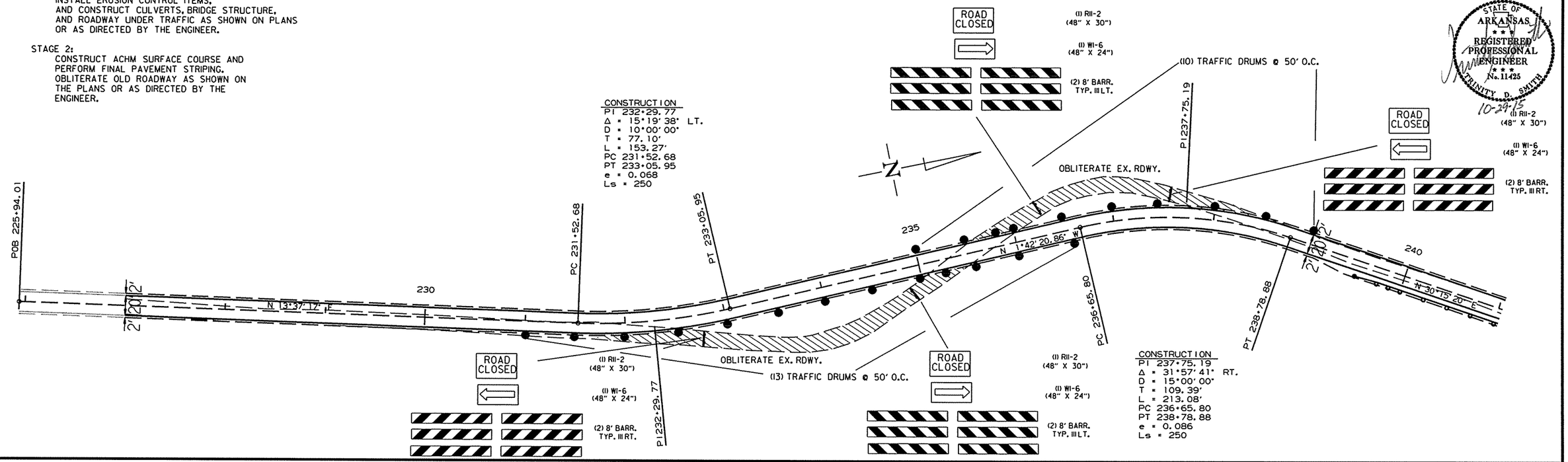
(2) MAINTENANCE OF TRAFFIC DETAILS

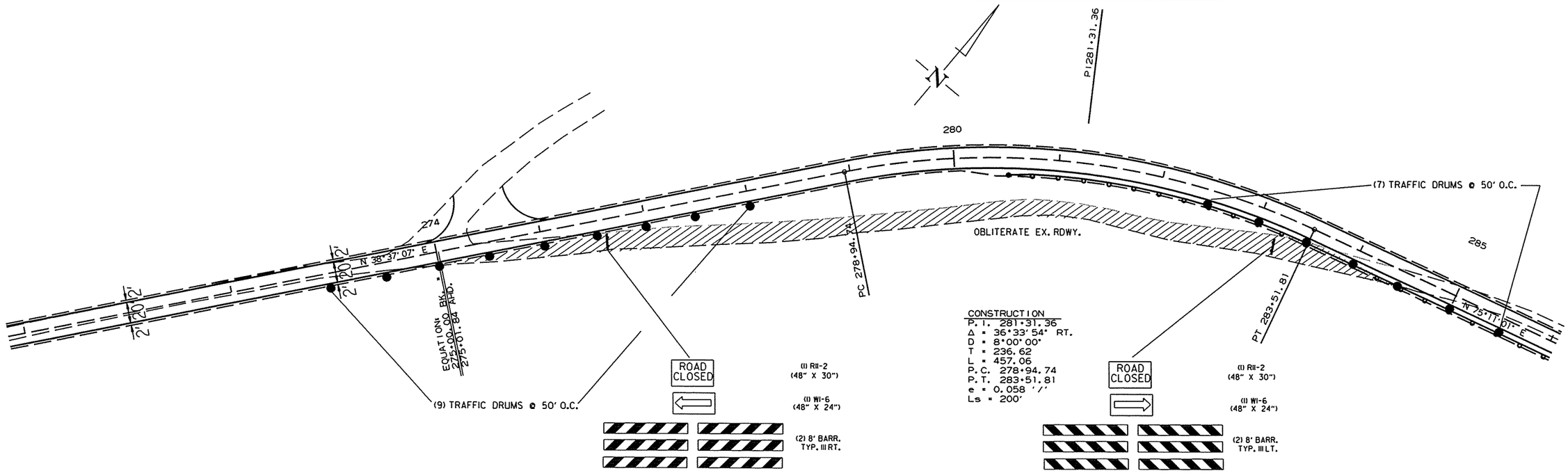
SEQUENCE OF CONSTRUCTION

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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15





STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

10/29/2015

R040207.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.		040207	23	212

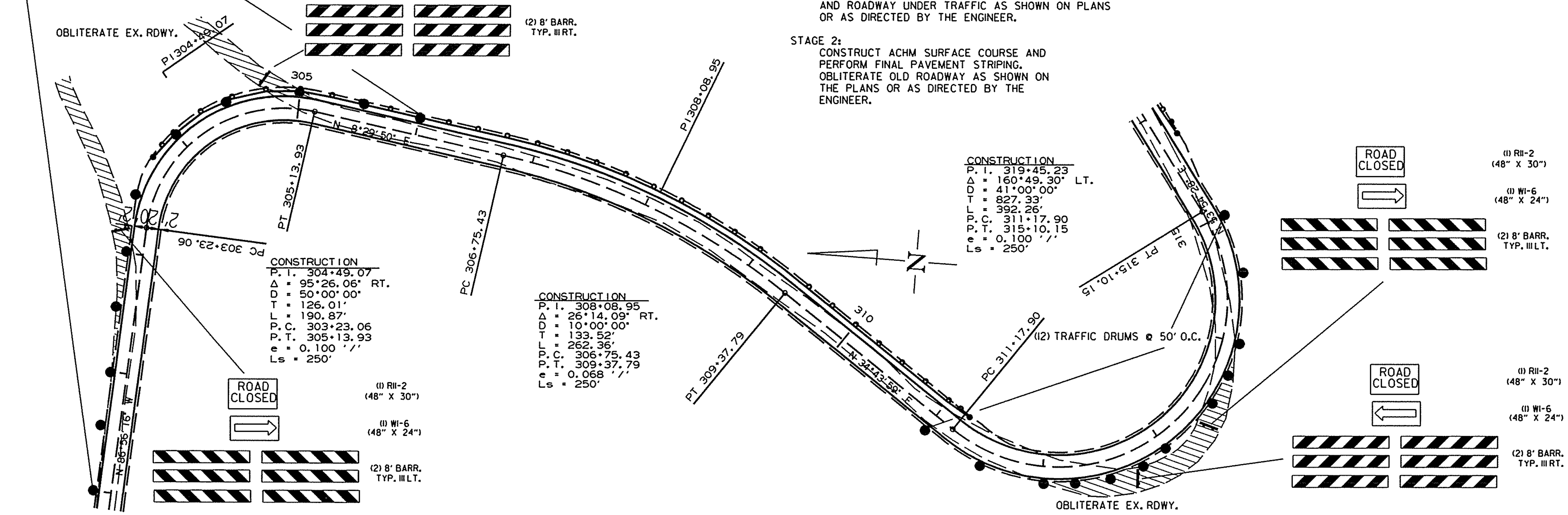
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
10-29-15

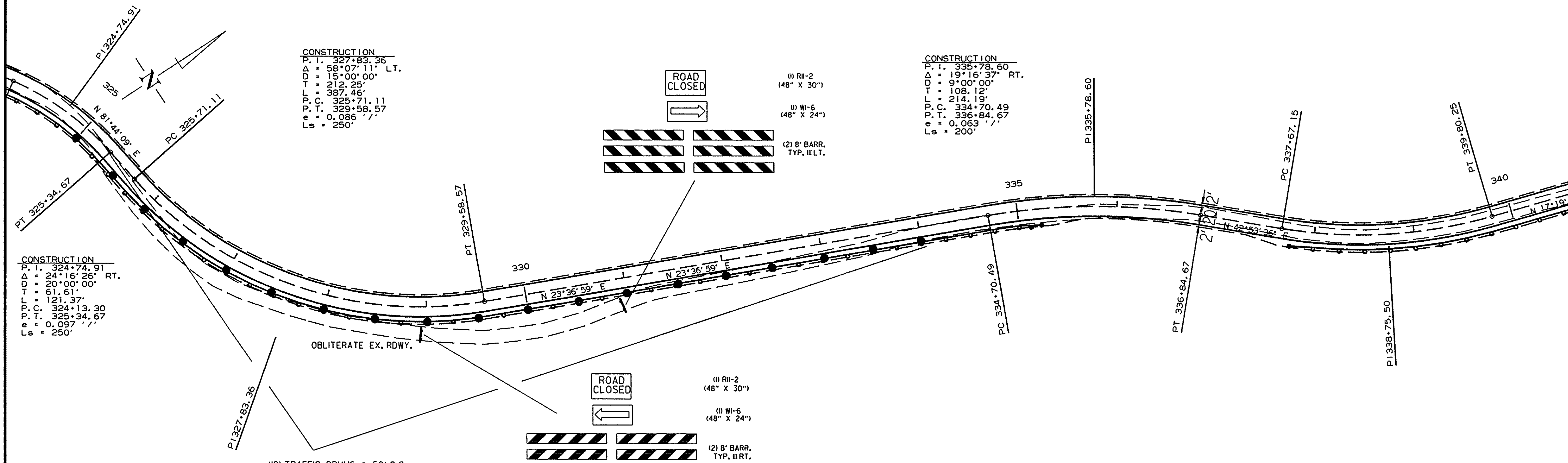
SEQUENCE OF CONSTRUCTION

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.



ROAD CLOSED
(1) R11-2 (48" X 30")
(1) W1-6 (48" X 24")
(2) 8' BARR. TYP. III RT.
(11) TRAFFIC DRUMS @ 50' O.C.
OBLITERATE EX. RDWY.
PI 304+49.07
305
N 8°29'50" E
PT 305+13.93
PC 303+23.06
PC 306+75.43
PI 308+08.95
PT 309+37.79
310
N 34°43'56" E
PC 311+17.90
PT 315+10.15
CONSTRUCTION
P.I. 304+49.07
Δ = 95°26.06' RT.
D = 50°00'00"
T = 126.01'
L = 190.87'
P.C. 303+23.06
P.T. 305+13.93
e = 0.100 '/'
Ls = 250'
CONSTRUCTION
P.I. 308+08.95
Δ = 26°14.09' RT.
D = 10°00'00"
T = 133.52'
L = 262.36'
P.C. 306+75.43
P.T. 309+37.79
e = 0.068 '/'
Ls = 250'
CONSTRUCTION
P.I. 319+45.23
Δ = 160°49.30' LT.
D = 41°00'00"
T = 827.33'
L = 392.26'
P.C. 311+17.90
P.T. 315+10.15
e = 0.100 '/'
Ls = 250'
(12) TRAFFIC DRUMS @ 50' O.C.
ROAD CLOSED
(1) R11-2 (48" X 30")
(1) W1-6 (48" X 24")
(2) 8' BARR. TYP. III LT.
ROAD CLOSED
(1) R11-2 (48" X 30")
(1) W1-6 (48" X 24")
(2) 8' BARR. TYP. III LT.
ROAD CLOSED
(1) R11-2 (48" X 30")
(1) W1-6 (48" X 24")
(2) 8' BARR. TYP. III RT.
OBLITERATE EX. RDWY.



PI 324+74.91
325
N 81°44'09" E
PC 325+71.11
PT 325+34.67
CONSTRUCTION
P.I. 324+74.91
Δ = 24°16'26" RT.
D = 20°00'00"
T = 61.61'
L = 121.37'
P.C. 324+13.30
P.T. 325+34.67
e = 0.097 '/'
Ls = 250'
CONSTRUCTION
P.I. 327+83.36
Δ = 58°07'11" LT.
D = 15°00'00"
T = 212.25'
L = 387.46'
P.C. 325+71.11
P.T. 329+58.57
e = 0.086 '/'
Ls = 250'
PT 329+58.57
330
N 23°36'59" E
PI 327+83.36
OBLITERATE EX. RDWY.
(19) TRAFFIC DRUMS @ 50' O.C.
ROAD CLOSED
(1) R11-2 (48" X 30")
(1) W1-6 (48" X 24")
(2) 8' BARR. TYP. III LT.
ROAD CLOSED
(1) R11-2 (48" X 30")
(1) W1-6 (48" X 24")
(2) 8' BARR. TYP. III RT.
CONSTRUCTION
P.I. 335+78.60
Δ = 19°16'37" RT.
D = 9°00'00"
T = 108.12'
L = 214.19'
P.C. 334+70.49
P.T. 336+84.67
e = 0.063 '/'
Ls = 200'
335
PI 335+78.60
PC 334+70.49
PT 336+84.67
N 42°53'36" E
PC 337+67.15
PI 338+75.50
PT 339+80.25
340
N 17°19'15" E

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

10/29/2015

R040207.DGN

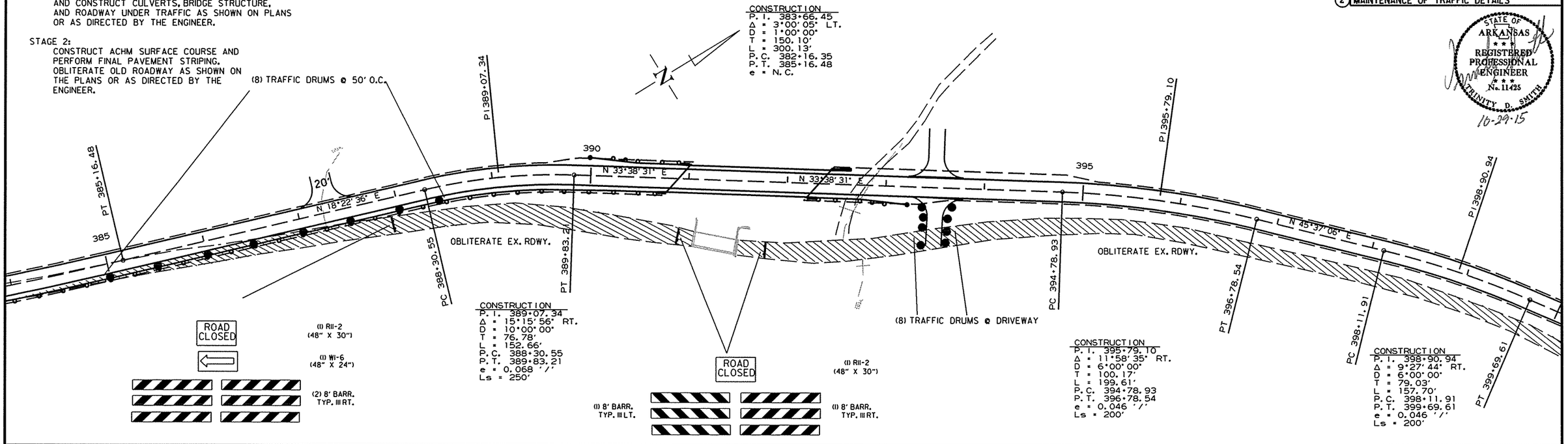
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040207	24	212

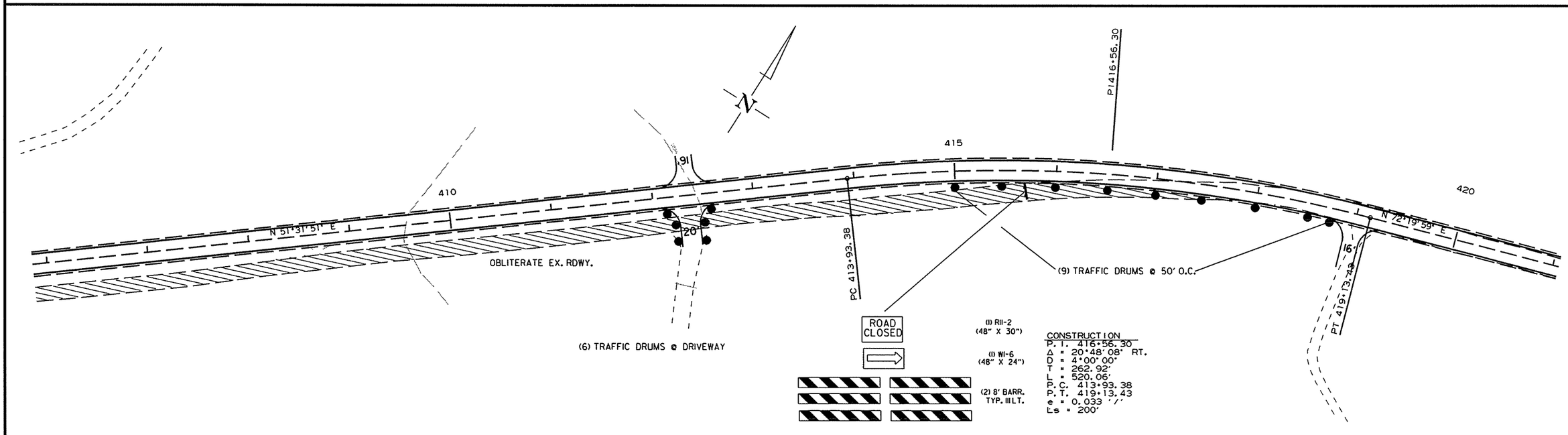
(2) MAINTENANCE OF TRAFFIC DETAILS

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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15





STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

10/29/2015

R040207.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.		040207	25	212

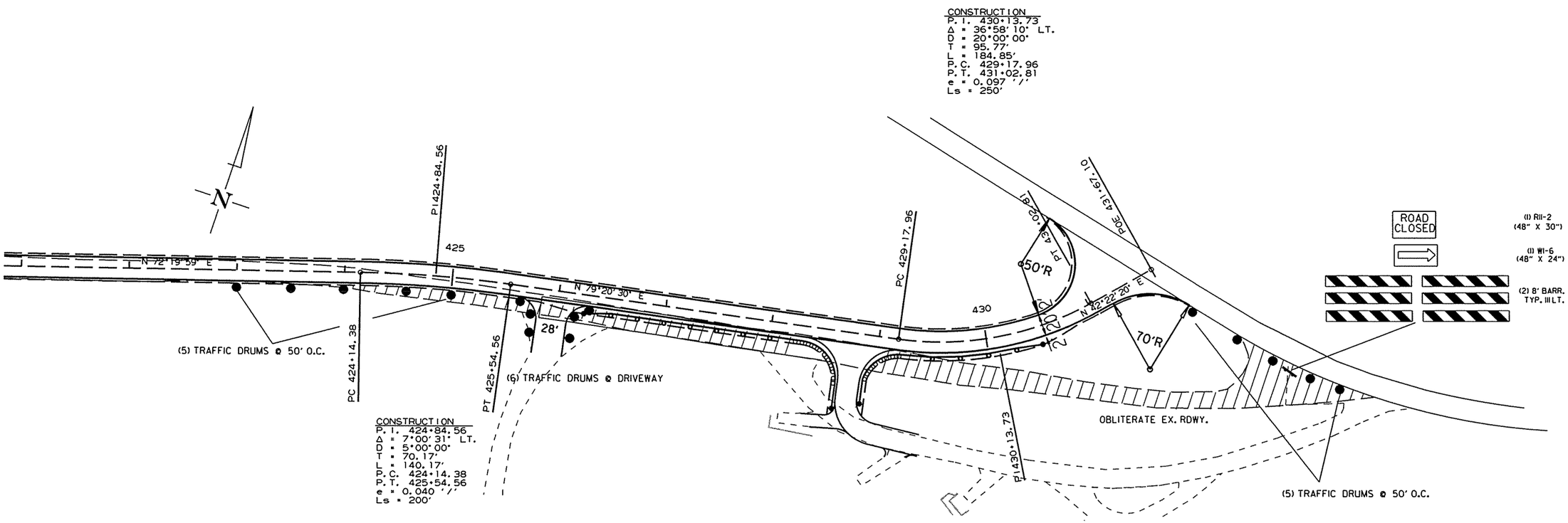
(2) MAINTENANCE OF TRAFFIC DETAILS

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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15



STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

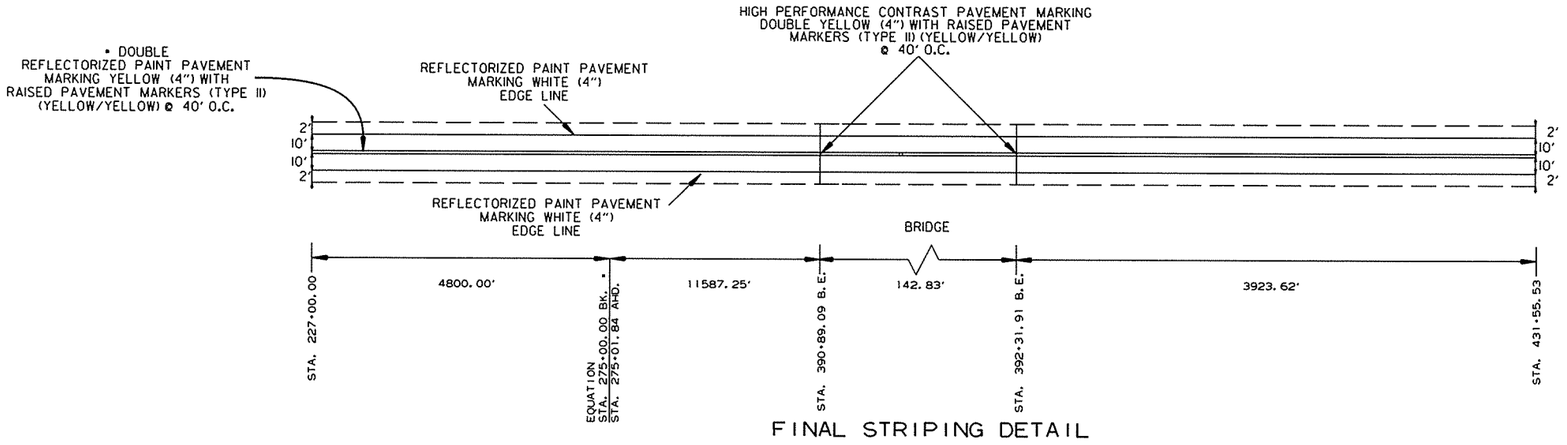
10/29/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	26	212

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 11425
TRINITY D. SMITH
11-20-15



FINAL STRIPING DETAIL

FINAL STRIPING:

REFLECTORIZED PAINT PAVEMENT MARKING (4"):
RT. AND LT. EDGE LINES = 40908 LIN. FT. WHITE
DBL. CENTERLINE = 40622 LIN. FT. YELLOW

HIGH PERFORMANCE CONTRAST MARKING TAPE (4"):
DBL. CENTERLINE = 286 LIN. FT. YELLOW

RAISED PAVEMENT MARKERS
(TYPE II) (YELLOW/YELLOW) = 511 EA.

* 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.

10/28/2015

R040207.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
11-20-15				6	ARK.			
				JOB NO.		040207	27	212

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-20-15

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	BARRICADES (TYPE III)	
									RIGHT	LEFT
			LIN. FT. - EACH			NO.	SQ. FT.	EACH	LIN. FT.	
W20-1	ROAD WORK 1500 FT.	48"x48"	1	1	1	1	16.0			
W20-1	ROAD WORK 1000 FT.	48"x48"	1	1	1	1	16.0			
W20-1	ROAD WORK 500 FT.	48"x48"	1	1	1	1	16.0			
W20-1	ROAD WORK AHEAD	48"x48"	3	3	3	3	48.0			
G20-2	END ROAD WORK	48"x24"	5	5	5	5	40.0			
G20-1	ROAD WORK NEXT xx MILES	60"x24"	2	2	2	2	20.0			
R11-2	ROAD CLOSED	48"x30"	18	14	18	18	180.0			
W1-6	LARGE ARROW	48"x24"	18	14	18	18	144.0			
R4-1	DO NOT PASS	24"x30"	2	2	2	2	10.0			
	TRAFFIC DRUMS		272	128	272			272		
	TYPE III BARRICADE-RT. (8')		18	14	18				144	
	TYPE III BARRICADE-LT. (8')		18	18	18					144
TOTALS:							490.0	272	144	144

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	END OF JOB	RAISED PAVEMENT MARKERS	REFLECTORIZED PAINT PAVEMENT MARKING		HIGH PERFORMANCE CONTRAST PAVEMENT MARKING
		TYPE II (YEL/YEL)	4"		4"
			WHITE	YELLOW	YELLOW
	LIN. FT. - EACH	EACH	LIN. FT.		LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)	511	511			
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4")	40622		40622		
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4")	40908			40908	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING WHITE (4")	286				286
TOTALS:		511	40622	40908	286

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

NOTE: 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 THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	28	212

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-20-15

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
227+00	431+55	MAIN LANES	205	205
TOTALS:			205	205

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE A (1' 6")
			LIN. FT.
329+00	332+00	LT.	300
339+00	350+00	LT.	1100
381+00	385+00	LT.	400
TOTAL:			1800

EARTHWORK

	STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	ROCK FILL **	*PRESPLITTING	* SOIL STABILIZATION	* STONE RIPRAP FOR SLOPE
				CU. YD.			SQ. YD.	TON	SQ. YD.
	ENTIRE	PROJECT	MAIN LANES	68637	39303				
	ENTIRE	PROJECT	APPROACHES	170	2570				
*	ENTIRE	PROJECT	TEMPORARY APPROACHES		100				
	239+50	242+50	MAIN LANES			987			
	249+80	253+00	MAIN LANES			705			
*	276+00	282+00	MAIN LANES - LT.				2733		
	281+00	299+00	MAIN LANES			16700			
	305+00	312+00	MAIN LANES			3565			
	317+00	346+00	MAIN LANES			14953			
	381+00	393+50	MAIN LANES			6823			
	426+05	431+00	MAIN LANES			3795			
*	ENTIRE	PROJECT	TO BE USED IF AND WHERE					100	7100
			DIRECTED BY THE ENGINEER						
			CHANNEL EXCAVATION AT BRIDGE	300					
	TOTALS:			69107	41973	47528	2733	100	7100

* QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

** AGGREGATE BASE COURSE (CLASS 7) SHALL BE PLACED IN THE AREA WHERE THE GUARDRAIL POSTS ARE TO BE DRIVEN. PAYMENT SHALL BE MADE AS ROCK FILL.

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS		STANDARD DRAWINGS
							18"	24"	
			FEET	SQ. YD.	TON	TON	LIN. FT.		
275+50	LT.	CONSTRUCT CO. RD. TURNOUT	20	146.69	16.14	59.90			
353+20	RT.	CONSTRUCT PRIVATE DRIVE	20	52.80	5.81	79.89		36	PCC-1, PCM-1, PCP-1, PCP-2
354+00	RT.	CONSTRUCT PRIVATE DRIVE	20	52.80	5.81	115.48			
360+62	RT.	CONSTRUCT PRIVATE DRIVE	16	44.80	4.93	64.96			
360+86	LT.	CONSTRUCT PRIVATE DRIVE	16	44.80	4.93	46.29			
363+03	RT.	CONSTRUCT PRIVATE DRIVE	16	44.80	4.93	65.90			
371+00	RT.	CONSTRUCT PRIVATE DRIVE	16	44.80	4.93	31.36	28		PCC-1, PCM-1, PCP-1, PCP-2
371+70	RT.	CONSTRUCT PRIVATE DRIVE	16	44.80	4.93	74.30			
371+90	LT.	CONSTRUCT PRIVATE DRIVE	16	44.80	4.93	77.02			
387+30	LT.	CONSTRUCT PRIVATE DRIVE	16	44.80	4.93	27.63	28		PCC-1, PCM-1, PCP-1, PCP-2
393+50	RT.	CONSTRUCT PRIVATE DRIVE	16	44.80	4.93	46.29		30	PCC-1, PCM-1, PCP-1, PCP-2
393+50	LT.	CONSTRUCT PRIVATE DRIVE	16	44.80	4.93	45.36		36	PCC-1, PCM-1, PCP-1, PCP-2
403+93	LT.	CONSTRUCT PRIVATE DRIVE	16	44.80	4.93	95.58		28	PCC-1, PCM-1, PCP-1, PCP-2
412+35	LT.	CONSTRUCT PRIVATE DRIVE	16	44.80	4.93	36.96		28	PCC-1, PCM-1, PCP-1, PCP-2
412+35	RT.	CONSTRUCT PRIVATE DRIVE	20	52.80	5.81	33.23	34		PCC-1, PCM-1, PCP-1, PCP-2
419+15	RT.	CONSTRUCT PRIVATE DRIVE	16	44.80	4.93	42.56	28		PCC-1, PCM-1, PCP-1, PCP-2
426+05	RT.	CONSTRUCT CO. RD. TURNOUT	28	162.13	17.83	66.20			
428+48	RT.	CONSTRUCT CO. RD. TURNOUT	20	435.58	47.91	177.86		98	PCC-1, PCM-1, PCP-1, PCP-2
* ENTIRE	PROJECT	TEMPORARY DRIVES				180.00			
TOTALS:				1440.40	158.47	1366.77	118	256	

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

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

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

REMOVAL AND DISPOSAL OF CULVERTS AND DROP INLETS

STATION	DESCRIPTION	PIPE CULVERTS	BOX CULVERTS
		EACH	EACH
231+72	24" X 25' C M PIPE	1	
235+64	30" X 24' C M PIPE	1	
240+96	18" X 21' C M PIPE	1	
246+52	18" X 14' C M PIPE	1	
249+80	24" X 21' C M PIPE	1	
253+14	24" X 21' C M PIPE	1	
254+90	24" X 21' C M PIPE	1	
258+51	24" X 25' C M PIPE	1	
261+76	30" X 28' C M PIPE	1	
266+73	18" X 22' C M PIPE	1	
269+60	24" X 23' C M PIPE	1	
274+26	18" X 24' C M PIPE	1	
288+10	18" X 22' C.M. PIPE CULVERT	1	
296+07	36" X 30' C.M. PIPE CULVERT	1	
299+04	24" X 22' C.M. PIPE CULVERT	1	
322+95	36" x 25' PIPE CULVERT	1	
324+50	2' X 2' X 28' BOX CULVERT		1
327+55	24" X 25' C.M. PIPE CULVERT	1	
332+60	32" X 27' C.M. PIPE CULVERT	1	
332+70	32" X 30' C.M. PIPE CULVERT	1	
341+60	DBL. 24" X 24' C.M. PIPE CULVERT	1	
343+05	27' PIPE CULVERT	1	
346+22	24" x 24' C.M. PIPE CULVERT	1	
351+34	32" X 25' C.M. PIPE CULVERT	1	
357+38	18" X 25' C.M. PIPE CULVERT	1	
361+38	28" X 22' C.M. PIPE CULVERT	1	
362+40	18" X 20' C.M. PIPE CULVERT	1	
372+24	DBL. PIPE CULVERT	1	
382+05	24" X 32' C.M. PIPE CULVERT	1	
385+82	24" X 27' C.M. PIPE CULVERT	1	
408+66	36" X 25' C.M. PIPE CULVERT	1	
412+45	12" X 23' C.M. PIPE CULVERT	1	
415+78	16" X 16" X 31' BOX CULVERT		1
417+84	24" X 28' C.M. PIPE CULVERT	1	
422+02	24" X 31' C.M. PIPE CULVERT	1	
427+88	24" X 31' C.M. PIPE CULVERT	1	
428+48	18" X 33' C.M. PIPE CULVERT	1	
TOTALS:		35	2

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

11/20/2015

R040207.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.		040207	29	212

(2) QUANTITIES

DITCH LINING

STATION	STATION	SIDE	ROCK DITCH LINER	EROSION CONTROL MATTING (CLASS 3)
			TON	SQ. YD.
227+00	235+00	LT.	427	
280+00	282+00	LT.	107	
285+00	292+00	LT.	373	
302+00	304+00	LT.	107	
304+00	306+00	RT.	107	
308+00	311+00	RT.	160	
318+00	320+00	LT.	107	
323+00	327+00	LT.	213	
374+00	379+00	LT.	267	
376+00	379+00	RT.	160	
411+00	420+00	LT.	480	
417+00	420+00	RT.	160	
425+00	427+00	LT.	107	
* ENTIRE	PROJECT	LT.		100
TOTALS:			2775	100

BASIS OF ESTIMATE:
AVERAGE WIDTH OF ROCK DITCH LINER = 6'-0"
AVERAGE DEPTH OF ROCK DITCH LINER = 1'-6"
AVERAGE WIDTH OF EROSION CONTROL MATTING = 8'-0"
* QUANTITIES ESTIMATED. SEE SECTION 104.03 OF THE STD. SPECS.
* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

DUMPED RIPRAP AND FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YD.	SQ. YD.
229+69	INLET AND OUTLET OF PIPE CULVERT	7	14
231+72	INLET AND OUTLET OF PIPE CULVERT	7	14
235+64	INLET AND OUTLET OF PIPE CULVERT	7	14
237+50	INLET AND OUTLET OF PIPE CULVERT	7	14
240+96	INLET AND OUTLET OF PIPE CULVERT	8	16
246+52	INLET AND OUTLET OF PIPE CULVERT	11	22
249+80	OUTLET OF PIPE CULVERT	4	8
253+14	INLET AND OUTLET OF PIPE CULVERT	7	14
261+76	INLET AND OUTLET OF PIPE CULVERT	41	82
266+73	OUTLET OF PIPE CULVERT	5	10
269+60	INLET AND OUTLET OF PIPE CULVERT	11	22
274+26	OUTLET OF PIPE CULVERT	5	10
*	TO BE USED IF AND WHERE	50	100
	DIRECTED BY THE ENGINEER		
TOTALS:		170	340

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

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
390+89	BR. END	1
TOTAL:		1

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15

GUARDRAIL AND BRIDGE END TERMINAL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	TERMINAL ANCHOR POST (TYPE 1)	BRIDGE END TERMINAL
			LIN. FT.	EACH		
239+50.00	242+50.00	RT.	300		2	
248+50.00	252+50.00	RT.	400		2	
280+50.00	298+50.00	RT.	1800		2	
303+75.00	311+25.00	LT.	750		2	
315+75.00	345+25.00	RT.	2950		2	
379+49.19	390+67.94	BRIDGE END RT.	1100	1	1	
389+97.69	390+91.44	BRIDGE END LT.	75	1	1	
392+53.06	392+73.06	BRIDGE END LT.				1
392+29.56	393+23.31	BRIDGE END RT.	75	1	1	
426+25.00	428+50.00	RT.	225		1	
428+63.75	428+50.00	PARK ENTRANCE RT.	50		1	
428+90.63	429+00.00	PARK ENTRANCE RT.	50		1	
429+00.00	430+50.00	RT.	150		1	
TOTALS:			7925	3	17	1

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL						TEMPORARY EROSION CONTROL												
			SPECIAL SEEDING		LIME	SPECIAL MULCH COVER	WATER	SPECIAL SECOND SEEDING	SPECIAL TEMPORARY SEEDING	SPECIAL MULCH COVER	WATER	WATTLE DITCH CHECKS (20")	ROCK DITCH CHECKS	DROP INLET SILT FENCE	SILT FENCE	DIVERSION DITCH	SLOPE DRAIN (E-12)		*SEDIMENT BASIN	*OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			NATIVE GRASSES	NATIVE WILDFLOWERS													PIPE FOR SLOPE DRAINS	DUMPED RIPRAP			
												(E-1)	(E-6)	(E-7)	(E-11)	(E-8)			(E-14)		
			ACRE	ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	LIN. FT.	CU.YD.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	CU.YD.	CU. YD.	CU. YD.	CU. YD.
ENTIRE	PROJECT	*TO BE USED IF AND WHERE	32.32	32.32	64.64	32.32	3296.6	32.32	32.32	32.32	659.3	264	234	100	21700	11285	700	90			807
		DIRECTED BY THE ENGINEER.																			
* ENTIRE	PROJECT	*TO BE USED IF AND WHERE										70	50	25	1000	500	50	7	100	100	38
		DIRECTED BY THE ENGINEER.																			
TOTALS:			32.32	32.32	64.64	32.32	3296.6	32.32	32.32	32.32	659.3	334	284	125	22700	11785	750	97	100	100	845

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
WATTLE DITCH CHECKS.....9 LIN. FT. / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

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

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

10/29/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	30	212

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-20-15

STRUCTURES

STATION	DESCRIPTION	R.C. PIPE CULVERTS		PIPE CULVERT ALTERNATES																						FLARED END SECTIONS FOR R.C. PIPE CULVERTS	FLARED END SECTION ALTERNATES							DROP INLETS	SOLID SODDING	WATER	STD. DWG. NOS.
		(CLASS III)	(CLASS IV)	R.C. (CLASS III)			CORR. METAL OR PLASTIC			R.C. (CLASS IV)						CORR. METAL OR PLASTIC						R.C. (CLASS V)			CORR. METAL OR PLASTIC										TYPE		
		24"	24"	24"	48"	54"	24"	48"	54"	24"	30"	36"	42"	48"	72"	24"	30"	36"	42"	48"	72"	24"	36"	48"	24"	36"	48"	24"	24"	30"	36"	42"	48"	54"	72"	MO	SQ.YD.	M.GAL.	
		LIN. FT.																								EACH											
229+69	CONST. 36" PIPE CULV. W/FES LT. & RT.																					46			52												34	0.43	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
231+79	CONST. 48" PIPE CULV. @ 10^ LT. FWD. SKEW W/FES LT. & RT.												52						56											2			2				58	0.73	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
235+64	CONST. 36" PIPE CULV. @ 30^ RT. FWD. SKEW W/FES LT. & RT.											54						58													2						34	0.43	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
237+50	CONST. 24" PIPE CULV. @ 45^ LT. FWD. SKEW W/FES LT. & RT.																					58			62												16	0.20	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
240+96	CONST. DBL. 30" PIPE CULV. W/FES LT. & RT.										100						108													4							28	0.35	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
246+52	CONST. 42" PIPE CULV. W/FES LT. & RT.												42						48													2						46	0.58	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
249+80	CONST. 36" PIPE CULV. W/FES LT. & RT.											48						52													2						34	0.43	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
253+14	CONST. 24" PIPE CULV. W/FES LT. & RT.									48						52													2							16	0.20	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
254+90	CONST. 24" PIPE CULV. W/FES LT. & RT.									44						48													2							16	0.20	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
258+35	CONST. 42" PIPE CULV. @ 15^ RT. FWD. SKEW W/FES LT. & RT.												50						56													2						46	0.58	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
261+78	CONST. TRIP. 42" PIPE CULV. @ 35^ RT. FWD. SKEW W/FES LT. & RT.												168						186													6						54	0.68	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
266+88	CONST. 36" PIPE CULV. @ 20^ LT. FWD. SKEW W/FES LT. & RT.											52						58													2						34	0.43	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
269+60	CONST. 48" PIPE CULV. W/FES LT. & RT.													48						52													2				58	0.73	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
274+66	CONST. 36" PIPE CULV. @ 45^ LT. FWD. SKEW W/FES LT. & RT.											40						46													2						34	0.43	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
277+33	CONST. 30" PIPE CULV. @ 10^ LT. FWD. SKEW W/FES LT. & RT.										50						54													2							26	0.33	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
283+45	CONST. DBL. 54" PIPE CULV. @ 35^ RT. FWD. SKEW W/FES LT. & RT.					160			168																								4			74	0.93	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
288+08	CONST. 24" PIPE CULV. W/FES LT. & RT.									46						50													2							16	0.20	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
296+12	CONST. TRIP. 36" PIPE CULV. W/FES LT. & RT.											156						174													6						38	0.48	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
297+45	CONST. TRIP. 36" PIPE CULV. W/FES LT. & RT.											132						150													6						38	0.48	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
299+00	CONST. 48" PIPE CULV. W/FES LT. & RT.																					40			44									2			58	0.73	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
321+10	CONST. 24" PIPE CULV. @ 30^ RT. FWD. SKEW W/FES LT. & RT.			70			74																						2							16	0.20	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
327+55	CONST. 36" PIPE CULV. W/FES LT. & RT.											60						66													2						34	0.43	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
332+36	CONST. TRIP. 42" PIPE CULV. W/FES LT. & RT.												168						186													6						54	0.68	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
339+00	CONST. D. I. (H=4'-6") W/O. B. W/24" R.C. PIPE CULV. IN. & OUT. W/FES LT. & RT.	16	42																									2							1		16	0.20	FES-1 & 2, FPC-9M, PCC-1, FPC-9E
340+86	CONST. D. I. (H=4'-6") W/O. B. W/24" R.C. PIPE CULV. OUTLET W/FES RT.		42																									1							1		8	0.10	FES-1 & 2, FPC-9M, PCC-1, FPC-9E
341+60	CONST. 42" PIPE CULV. W/FES LT. & RT.												54						60													2						46	0.58	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
343+05	CONST. 24" PIPE CULV. W/FES LT. & RT.									48						52													2							16	0.20	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
345+19	CONST. D. I. (H=4'-6") W/24" R.C. PIPE CULV. OUT. W/FES RT.		46																									1							1		8	0.10	FES-1 & 2, FPC-9M, PCC-1, FPC-9E
346+22	CONST. D. I. (H=4'-6") W/O. B. W/24" R.C. PIPE CULV. OUT. W/FES RT.		46																									1							1		8	0.10	FES-1 & 2, FPC-9M, PCC-1, FPC-9E
351+34	CONST. 48" PIPE CULV. @ 20^ LT. FWD. SKEW W/FES LT. & RT.				78			82																								2						58	0.73	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
357+38	CONST. DBL. 48" PIPE CULV. @ 10^ LT. FWD. SKEW W/FES LT. & RT.													100						108													4						62	0.78	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
361+38	CONST. TRIP. 42" PIPE CULV. W/FES LT. & RT.												138						150													6						54	0.68	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
362+40	CONST. 36" PIPE CULV. W/FES LT. & RT.											52						58													2						34	0.43	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
372+30	CONST. DBL. 72" PIPE CULV. W/FES LT. & RT.														136					144														4			134	1.69	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
382+05	CONST. D. I. (H=4'-6") W/O. B. W/24" R.C. PIPE CULV. OUT. W/FES	40																										1							1		8	0.10	FES-1 & 2, FPC-9M, PCC-1, FPC-9E
385+82	CONST. DBL. 48" PIPE CULV. W/FES LT. & RT.													92						100													4						62	0.78	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
408+85	CONST. 48" PIPE CULV. @ 20^ LT. FWD. SKEW W/FES LT. & RT.				94			98																									2						58	0.73	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
415+78	CONST. 24" PIPE CULV. W/FES LT. & RT.									40						44													2							16	0.20	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
417+84	CONST. 24" PIPE CULV. @ 20^ LT. FWD. SKEW W/FES LT. & RT.																				44			48					2							16	0.20	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
422+02	CONST. 36" PIPE CULV. W/FES LT. & RT.											46						52													2						34	0.43	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
428+06	CONST. 24" PIPE CULV. W/FES LT. & RT.			80			84																						2							16	0.20	FES-1 & 2, PCC-1, PCM-1, PCP-1 & 2
TOTALS:		56	176	150	172	160	158	180	168	226	150	640	620	292	136	246	162	714	686	316	144	102	46	40	110	52	44	3	21	6	28	24	18	4	4	5	1516	19.09	

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

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

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

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	31	212

(2) QUANTITIES

BASE AND SURFACING (BOX 1 OF 2)

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		ACHM SURFACE COURSE (1/2")			
				TON / STATION	TON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22
			FEET			FEET			TON
MAIN LANES									
227+00.00	275+00.00	MAIN LANES - FULL DEPTH OPEN SHOULDER	4800.00	146.75	7044.00	24.00	12800.00	220.00	1408.00
275+01.84	329+00.00	MAIN LANES - FULL DEPTH OPEN SHOULDER	5398.16	146.75	7921.80	24.00	14395.09	220.00	1583.46
329+00.00	332+00.00	MAIN LANES - FULL DEPTH CURB & GUTTER	300.00	130.50	391.50	23.00	766.67	220.00	84.33
332+00.00	339+00.00	MAIN LANES - FULL DEPTH OPEN SHOULDER	700.00	146.75	1027.25	24.00	1866.67	220.00	205.33
339+00.00	350+00.00	MAIN LANES - FULL DEPTH CURB & GUTTER	1100.00	130.50	1435.50	23.00	2811.11	220.00	309.22
350+00.00	381+00.00	MAIN LANES - FULL DEPTH OPEN SHOULDER	3100.00	146.75	4549.25	24.00	8266.67	220.00	909.33
381+00.00	385+00.00	MAIN LANES - FULL DEPTH CURB & GUTTER	400.00	130.50	522.00	23.00	1022.22	220.00	112.44
385+00.00	390+89.09	MAIN LANES - FULL DEPTH OPEN SHOULDER	589.09	146.75	864.49	24.00	1570.91	220.00	172.80
392+31.91	431+55.53	MAIN LANES - FULL DEPTH OPEN SHOULDER	3923.62	146.75	5757.91	24.00	10462.99	220.00	1150.93
ADDITIONAL FOR GUARDRAIL WIDENING									
238+82.00	239+15.00	TAPER TO WIDENING RT.	33.00	19.50	6.44	3.75	13.75	220.00	1.51
239+15.00	239+25.00	10' TO TERMINAL RT.	10.00	39.00	3.90	7.50	8.33	220.00	0.92
239+25.00	239+50.00	25' TERMINAL RT.	25.00	33.75	8.44	6.50	18.06	220.00	1.99
239+50.00	242+50.00	WIDENING RT.	300.00	28.50	85.50	5.50	183.33	220.00	20.17
242+50.00	242+75.00	25' TERMINAL RT.	25.00	33.75	8.44	6.50	18.06	220.00	1.99
242+75.00	242+85.00	10' TO TERMINAL RT.	10.00	39.00	3.90	7.50	8.33	220.00	0.92
242+85.00	243+18.00	TAPER TO SHOULDER RT.	33.00	19.50	6.44	3.75	13.75	220.00	1.51
247+82.00	248+15.00	TAPER TO WIDENING RT.	33.00	19.50	6.44	3.75	13.75	220.00	1.51
248+15.00	248+25.00	10' TO TERMINAL RT.	10.00	39.00	3.90	7.50	8.33	220.00	0.92
248+25.00	248+50.00	25' TERMINAL RT.	25.00	33.75	8.44	6.50	18.06	220.00	1.99
248+50.00	252+50.00	WIDENING RT.	400.00	28.50	114.00	5.50	244.44	220.00	26.89
252+50.00	252+75.00	25' TERMINAL RT.	25.00	33.75	8.44	6.50	18.06	220.00	1.99
252+75.00	252+85.00	10' TO TERMINAL RT.	10.00	39.00	3.90	7.50	8.33	220.00	0.92
252+85.00	253+18.00	TAPER TO SHOULDER RT.	33.00	19.50	6.44	3.75	13.75	220.00	1.51
279+82.00	280+15.00	TAPER TO WIDENING RT.	33.00	19.50	6.44	3.75	13.75	220.00	1.51
280+15.00	280+25.00	10' TO TERMINAL RT.	10.00	39.00	3.90	7.50	8.33	220.00	0.92
280+25.00	280+50.00	25' TERMINAL RT.	25.00	33.75	8.44	6.50	18.06	220.00	1.99
280+50.00	298+50.00	WIDENING RT.	1800.00	28.50	513.00	5.50	1100.00	220.00	121.00
298+50.00	298+75.00	25' TERMINAL RT.	25.00	33.75	8.44	6.50	18.06	220.00	1.99
298+75.00	298+85.00	10' TO TERMINAL RT.	10.00	39.00	3.90	7.50	8.33	220.00	0.92
298+85.00	299+18.00	TAPER TO SHOULDER RT.	33.00	19.50	6.44	3.75	13.75	220.00	1.51
303+07.00	303+40.00	TAPER TO WIDENING LT.	33.00	19.50	6.44	3.75	13.75	220.00	1.51
303+40.00	303+50.00	10' TO TERMINAL LT.	10.00	39.00	3.90	7.50	8.33	220.00	0.92
303+50.00	303+75.00	25' TERMINAL LT.	25.00	33.75	8.44	6.50	18.06	220.00	1.99
303+75.00	311+25.00	WIDENING LT.	750.00	28.50	213.75	5.50	458.33	220.00	50.42
311+25.00	311+50.00	25' TERMINAL LT.	25.00	33.75	8.44	6.50	18.06	220.00	1.99
311+50.00	311+60.00	10' TO TERMINAL LT.	10.00	39.00	3.90	7.50	8.33	220.00	0.92
311+25.00	311+58.00	TAPER TO SHOULDER LT.	33.00	19.50	6.44	3.75	13.75	220.00	1.51
315+07.00	315+40.00	TAPER TO WIDENING RT.	33.00	19.50	6.44	3.75	13.75	220.00	1.51
315+40.00	315+50.00	10' TO TERMINAL RT.	10.00	39.00	3.90	7.50	8.33	220.00	0.92
315+50.00	315+75.00	25' TERMINAL RT.	25.00	33.75	8.44	6.50	18.06	220.00	1.99
315+75.00	335+25.00	WIDENING RT.	1950.00	28.50	555.75	5.50	1191.67	220.00	131.08
335+25.00	335+50.00	25' TERMINAL RT.	25.00	33.75	8.44	6.50	18.06	220.00	1.99
335+50.00	335+60.00	10' TO TERMINAL RT.	10.00	39.00	3.90	7.50	8.33	220.00	0.92
335+60.00	335+93.00	TAPER TO SHOULDER RT.	33.00	19.50	6.44	3.75	13.75	220.00	1.51
378+81.19	379+14.19	TAPER TO WIDENING RT.	33.00	19.50	6.44	3.75	13.75	220.00	1.51
379+14.19	379+24.19	10' TO TERMINAL RT.	10.00	39.00	3.90	7.50	8.33	220.00	0.92
379+24.19	379+49.19	25' TERMINAL RT.	25.00	33.75	8.44	6.50	18.06	220.00	1.99
379+49.19	390+67.94	BRIDGE END RT.	1100.00	28.50	313.50	5.50	672.22	220.00	73.94
389+29.69	389+62.69	TAPER TO WIDENING LT.	33.00	19.50	6.44	2.75	10.08	220.00	1.11
389+62.69	389+72.69	10' TO TERMINAL LT.	10.00	39.00	3.90	3.75	4.17	220.00	0.46
389+72.69	389+97.69	25' TERMINAL LT.	25.00	33.75	8.44	7.50	20.83	220.00	2.29
389+97.69	390+91.44	BRIDGE END LT.	75.00	28.50	21.38	6.50	54.17	220.00	5.96
392+53.06	392+73.06	BRIDGE END LT.	20.00	28.50	5.70	5.50	12.22	220.00	1.34
392+73.06	392+83.06	10' TO TERMINAL LT.	10.00	28.50	2.85	5.50	6.11	220.00	0.67
392+83.06	393+16.06	TAPER TO SHOULDER LT.	33.00	14.25	4.70	2.75	10.08	220.00	1.11
392+29.56	393+23.31	BRIDGE END RT.	75.00	28.50	21.38	5.50	45.83	220.00	5.04
393+23.31	393+48.31	25' TERMINAL RT.	25.00	33.75	8.44	6.50	18.06	220.00	1.99
393+48.31	393+58.31	10' TO TERMINAL RT.	10.00	39.00	3.90	7.50	8.33	220.00	0.92
393+58.31	393+91.31	TAPER TO SHOULDER RT.	33.00	19.50	6.44	3.75	13.75	220.00	1.51
425+82.00	426+15.00	TAPER TO WIDENING RT.	33.00	14.25	4.70	2.75	10.08	220.00	1.11
426+15.00	426+25.00	10' TO TERMINAL RT.	10.00	28.50	2.85	5.50	6.11	220.00	0.67
426+25.00	428+50.00	WIDENING RT.	225.00	28.50	64.13	5.50	137.50	220.00	15.13
428+63.75	428+50.00	PARK ENTRANCE RT.	50.00	28.50	14.25	5.50	30.56	220.00	3.36
428+90.63	429+00.00	PARK ENTRANCE RT.	50.00	28.50	14.25	5.50	30.56	220.00	3.36
428+90.00	429+00.00	10' TO TERMINAL RT.	10.00	28.50	2.85	5.50	6.11	220.00	0.67
429+00.00	430+50.00	WIDENING RT.	150.00	28.50	42.75	5.50	91.67	220.00	10.08
430+50.00	430+83.00	TAPER TO SHOULDER RT.	33.00	14.25	4.70	2.75	10.08	220.00	1.11
SUBTOTALS (BOX 1 OF 2):					31759.83		58780.16		6465.85

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

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU. YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	100
ENGINEER	
TOTAL:	100

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

APPROACH GUTTERS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE A)	REINFORCING STEEL-RDWY. (GR. 60)
			CU. YD.	POUND
390+47.34	390+77.34	RT. SIDE	4.25	360
390+70.84	391+00.84	LT. SIDE	4.25	360
392+20.16	392+50.16	RT. SIDE	4.25	360
392+43.66	392+73.66	LT. SIDE	4.25	360
TOTALS:			17.00	1440

NOTE: USE T =10" FOR 4' SHOULDER.

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION
		FEET			
232+00	CENTERLINE	0-4	28	12	A-6(5)
240+00	CENTERLINE	0-4	25	10	A-4(4)
248+00	CENTERLINE	0-4	31	14	A-6(7)
256+00	CENTERLINE	0-4	23	9	A-7-9-(52)
264+00	CENTERLINE	0-4	76	48	A-4(4)
272+00	CENTERLINE	0-4	25	10	A-6(7)
288+00	CENTERLINE	0-4	20	5	A-4(0)
296+00	CENTERLINE	0-4	25	9	A-4(3)
304+00	CENTERLINE	0-4	26	11	A-6(5)
312+00	CENTERLINE	0-2	57	16	A-7-5(14)
320+00	CENTERLINE	0-2	39	11	A-6(10)
328+00	CENTERLINE	0-4	33	16	A-6(10)
336+00	CENTERLINE	0-4	32	16	A-6(8)
344+00	CENTERLINE	0-4	27	12	A-6(6)
352+00	CENTERLINE	0-4	34	17	A-6(11)
360+00	CENTERLINE	0-4	27	11	A-6(6)
368+00	CENTERLINE	0-4	25	8	A-4(3)
376+00	CENTERLINE	0-4	55	35	A-7-6(26)
384+00	CENTERLINE	0-4	36	17	A-6(8)
392+00	CENTERLINE	0-4	30	12	A-6(6)
400+00	CENTERLINE	0-4	21	6	A-4(1)
408+00	CENTERLINE	0-4	23	8	A-4(1)
412+80	CENTERLINE	0-4	36	20	A-6(13)

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-20-15

11/20/2015
R040207.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.		040207	32	212

(2) QUANTITIES

BASE AND SURFACING (BOX 2 OF 2)

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		ACHM SURFACE COURSE (1/2")			
				TON / STATION	TON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22
			FEET			FEET			TON
ADDITIONAL FOR SUPERELEVATION									
229+65.18	232+15.18	SUPER TRANSITION (N.C. TO 0.068 '/')	250.00	5.50	13.75				
232+15.18	232+35.88	SUPER (0.068'/')	20.70	11.00	2.28				
232+35.88	234+85.88	SUPER TRANSITION (0.068 '/' TO N.C.)	250.00	5.50	13.75				
234+85.80	237+35.88	SUPER TRANSITION (N.C. TO 0.086 '/')	250.08	6.88	17.21				
237+35.88	238+16.38	SUPER (0.086 '/')	80.50	13.75	11.07				
238+16.38	240+66.38	SUPER TRANSITION (0.086 '/' TO N.C.)	250.00	6.88	17.20				
260+50.02	262+50.02	SUPER TRANSITION (N.C. TO 0.040 '/')	200.00	3.63	7.26				
262+50.02	263+17.28	SUPER (0.040 '/')	67.26	7.25	4.88				
263+17.28	265+17.28	SUPER TRANSITION (0.040 '/' TO N.C.)	200.00	3.63	7.26				
277+44.74	279+44.74	SUPER TRANSITION (N.C. TO 0.058 '/')	200.00	4.50	9.00				
279+44.74	283+01.81	SUPER (0.058 '/')	357.07	9.00	32.14				
283+01.81	285+01.81	SUPER TRANSITION (0.058 '/' TO N.C.)	200.00	4.50	9.00				
286+31.36	288+81.36	SUPER TRANSITION (N.C. TO 0.086 '/')	250.00	6.88	17.20				
288+81.36	289+89.25	SUPER (0.086 '/')	107.89	13.75	14.83				
289+89.25	292+39.25	SUPER TRANSITION (0.086 '/' TO N.C.)	250.00	6.88	17.20				
293+73.66	296+23.66	SUPER TRANSITION (N.C. TO 0.086 '/')	250.00	6.88	17.20				
296+23.66	298+50.73	SUPER (0.086 '/')	227.07	13.75	31.22				
298+50.73	301+00.73	SUPER TRANSITION (0.086 '/' TO N.C.)	250.00	6.88	17.20				
301+35.56	303+85.56	SUPER TRANSITION (N.C. TO 0.100 '/')	250.00	8.50	21.25				
303+85.56	304+51.43	SUPER (0.100 '/')	65.87	17.00	11.20				
304+51.43	306+15.03	SUPER TRANSITION (0.100 '/' TO 0.035'/')	163.60	11.13	18.21				
306+15.03	307+37.93	SUPER TRANSITION (0.035 '/' TO 0.068 '/')	122.90	8.13	9.99				
307+37.93	308+06.61	SUPER (0.068'/')	68.68	11.00	7.55				
308+06.61	310+56.61	SUPER TRANSITION (0.068 '/' TO N.C.)	250.00	5.50	13.75				
310+56.61	313+06.61	SUPER TRANSITION (N.C. TO 0.100 '/')	250.00	8.50	21.25				
313+06.61	313+23.00	SUPER (0.100 '/')	16.39	17.00	2.79				
313+23.00	315+73.00	SUPER TRANSITION (0.100 '/' TO N.C.)	250.00	8.50	21.25				
315+73.00	317+63.54	SUPER TRANSITION (N.C. TO 0.063 '/')	190.54	5.00	9.53				
317+63.54	319+54.07	SUPER TRANSITION (0.063 '/' TO N.C.)	190.53	5.00	9.53				
319+54.07	320+84.79	SUPER TRANSITION (N.C. TO 0.051 '/')	130.72	25.75	33.66				
320+84.79	322+15.51	SUPER TRANSITION (0.051 '/' TO N.C.)	130.72	25.75	33.66				
323+95.09	324+73.99	SUPER TRANSITION (N.C. TO 0.031 '/')	78.90	2.50	1.97				
324+73.99	325+52.89	SUPER TRANSITION (0.031 '/' TO N.C.)	78.90	2.50	1.97				
325+52.89	327+64.84	SUPER TRANSITION (N.C. TO 0.073 '/')	211.95	6.25	13.25				
327+64.84	329+00.00	SUPER (0.073 '/')	135.16	12.50	16.90				
333+20.49	334+68.82	SUPER TRANSITION (N.C. TO 0.047 '/')	148.33	3.75	5.56				
334+68.82	335+77.58	SUPER (0.047 '/')	108.76	7.50	8.16				
335+77.58	337+25.91	SUPER TRANSITION (0.047 '/' TO N.C.)	148.33	3.75	5.56				
337+25.91	338+73.70	SUPER TRANSITION (N.C. TO 0.045 '/')	147.79	3.75	5.54				
338+73.70	339+00.00	SUPER (0.045 '/')	26.30	7.50	1.97				
346+82.50	348+82.50	SUPER TRANSITION (N.C. TO 0.025 '/')	200.00	2.38	4.76				
348+82.50	350+00.00	SUPER (0.025 '/')	117.50	4.75	5.58				
370+64.08	373+14.08	SUPER TRANSITION (N.C. TO 0.068 '/')	250.00	5.50	13.75				
373+14.08	374+39.69	SUPER (0.068'/')	125.61	11.00	13.82				
374+39.69	376+89.69	SUPER TRANSITION (0.068 '/' TO N.C.)	250.00	5.50	13.75				
386+43.05	388+03.51	SUPER TRANSITION (N.C. TO 0.044 '/')	160.46	3.75	6.02				
388+03.51	389+06.88	SUPER (0.044 '/')	103.37	7.50	7.75				
389+06.88	390+67.34	SUPER TRANSITION (0.044 '/' TO N.C)	160.46	3.75	6.02				
393+28.93	395+28.93	SUPER TRANSITION (N.C. TO 0.046 '/')	200.00	3.75	7.50				
395+28.93	396+28.54	SUPER (0.046 '/')	99.61	7.50	7.47				
396+28.54	397+41.58	SUPER TRANSITION (0.046 '/' TO 0.020 '/')	113.04	5.50	6.22				
397+48.87	398+61.91	SUPER TRANSITION (0.020 '/' TO 0.046 '/')	113.04	5.50	6.22				
398+61.91	399+19.61	SUPER (0.046 '/')	57.70	7.50	4.33				
399+19.61	401+19.61	SUPER TRANSITION (0.046 '/' TO N.C.)	200.00	3.75	7.50				
401+47.98	403+47.98	SUPER TRANSITION (N.C. TO 0.025 '/')	200.00	2.38	4.76				
403+47.98	403+66.30	SUPER (0.025 '/')	18.32	4.75	0.87				
403+66.30	405+66.30	SUPER TRANSITION (0.025 '/' TO N.C.)	200.00	2.38	4.76				
412+43.38	414+43.38	SUPER TRANSITION (N.C. TO 0.033 '/')	200.00	2.63	5.26				
414+43.38	418+63.43	SUPER (0.033 '/')	420.05	5.25	22.05				
418+63.43	420+63.43	SUPER TRANSITION (0.033 '/' TO N.C.)	200.00	2.63	5.26				
422+64.38	424+64.38	SUPER TRANSITION (N.C. TO 0.040 '/')	200.00	3.63	7.26				
424+64.38	425+04.56	SUPER (0.040 '/')	40.18	7.25	2.91				
425+04.56	427+04.56	SUPER TRANSITION (0.040 '/' TO N.C.)	200.00	3.63	7.26				
427+30.46	428+75.61	SUPER TRANSITION (N.C. TO 0.056 '/')	145.15	4.38	6.36				
428+75.61	430+10.39	SUPER (0.056'/'	134.78	8.75	11.79				
430+10.39	431+55.53	SUPER TRANSITION (0.056 '/' TO N.C.)	145.14	4.38	6.36				
SUBTOTALS (BOX 2 OF 2):					729.74				
TOTALS:					32489.57		58780.16		6465.85

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15

4" PIPE UNDERDRAIN

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

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

UNDERDRAINS SHALL BE STUBBED INTO THE PROPOSED DROP INLET IF AND WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR THIS TO BE INCLUDED IN THE UNIT PRICE BID FOR 4" PIPE UNDERDRAIN.

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
400+95	405+20	RT. & LT.	427
TOTAL:			427

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE D)	* 16'-0" GATES
			LIN. FT.	EACH
400+95	403+90	LT.	295	1
404+00	406+00	LT.	200	
TOTALS:			495	1

* DENOTES ALTERNATE BID ITEM.

10/28/2015

R040207.DGN

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.		040207	33	212
				① 06955	-	QUANTITIES	-	45148

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 040207

BRIDGE NO. / NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	802	802	803	804	805	SP & 807	SP & 808	809	812	816	816
		ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	② STEEL PILING (HP 12X53)	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	DUMPED RIPRAP	FILTER BLANKET
		UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	LB.	LIN. FT.	LB.	CU. IN.	LIN. FT.	EACH	CU. YD.	SQ. YD.
06955 ELLIS BRANCH															
	BENT NO. 1				26.86		12.4	2,831	120	691	2,231			31	47
	BENT NO. 2			68	35.60			4,722			2,520				
	BENT NO. 3			57	34.21			4,494			2,520				
	BENT NO. 4			68	50.93		12.4	4,462		691	2,231			45	76
	140'-0" CONT. COMP. W-BEAM UNIT					136.30	547.8	30,061		68,798		79	1		
TOTALS FOR JOB NO. 040207		1	①193	147.60	136.30	572.6	46,570	120	70,180	9,502	79	1	76	123	

① INCLUDES APPROX. 72 CUBIC YARDS OF ROCK EXCAVATION.

② THESE STEEL PILES SHALL BE GRADE 50 AND SHALL HAVE SPECIAL PILE 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 R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-5-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
DEVIL'S DEN - WEST (S)
WASHINGTON COUNTY

ROUTE 220 SEC. 3

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KMG DATE: 11 OCT 00 FILENAME: b040207xl_ql.dgn
CHECKED BY: JNP DATE: 10/5/15 SCALE: None
DESIGNED BY: — DATE: —

BRIDGE NO. 06955 DRAWING NO. 45148

PRINT DATE: 10/5/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	34	212

(2) SUMMARY OF QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-20-15

SUMMARY OF QUANTITIES (BOX 1 OF 3)

	ITEM NUMBER	ITEM		QUANTITY	UNIT
	SP & 201	CLEARING		205	STATION
	201	GRUBBING		205	STATION
	202	REMOVAL AND DISPOSAL OF FENCE		427	LIN. FT.
	202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		35	EACH
	202	REMOVAL AND DISPOSAL OF BOX CULVERTS		2	EACH
	210	UNCLASSIFIED EXCAVATION		69107	CU. YD.
	210	PRESPLITTING		2733	SQ. YD.
	210	COMPACTED EMBANKMENT		41973	CU. YD.
	SP & 210	ROCK FILL		47528	CU. YD.
	SP & 210	SOIL STABILIZATION		100	TON
	303	AGGREGATE BASE COURSE (CLASS 7)		33856	TON
	SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		6253	TON
	SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		371	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		490	SQ. FT.
	SS & 604	BARRICADES		288	LIN. FT.
	SS & 604	TRAFFIC DRUMS		272	EACH
	606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		56	LIN. FT.
	606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		176	LIN. FT.
*	606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	150	LIN. FT.
*	606	24" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 2)	158	LIN. FT.
*	606	24" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 3)	158	LIN. FT.
*	606	24" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 4)	158	LIN. FT.
*	SP & 606	24" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	158	LIN. FT.
*	SP & 606	24" PVC PIPE	(ALTERNATE NO. 6)	158	LIN. FT.
*	606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	(ALTERNATE NO. 1)	226	LIN. FT.
*	606	24" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 2)	246	LIN. FT.
*	606	24" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 3)	246	LIN. FT.
*	606	24" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 4)	246	LIN. FT.
*	SP & 606	24" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	246	LIN. FT.
*	SP & 606	24" PVC PIPE	(ALTERNATE NO. 6)	246	LIN. FT.
*	606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	(ALTERNATE NO. 1)	102	LIN. FT.
*	606	24" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 2)	110	LIN. FT.
*	606	24" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 3)	110	LIN. FT.
*	606	24" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 4)	110	LIN. FT.
*	SP & 606	24" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	110	LIN. FT.
*	SP & 606	24" PVC PIPE	(ALTERNATE NO. 6)	110	LIN. FT.
*	606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	(ALTERNATE NO. 1)	150	LIN. FT.
*	606	30" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 2)	162	LIN. FT.
*	606	30" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 3)	162	LIN. FT.
*	606	30" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (16 GAUGE)	(ALTERNATE NO. 4)	162	LIN. FT.
*	SP & 606	30" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	162	LIN. FT.
*	SP & 606	30" PVC PIPE	(ALTERNATE NO. 6)	162	LIN. FT.
*	606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	(ALTERNATE NO. 1)	640	LIN. FT.
*	606	36" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	714	LIN. FT.
*	606	36" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	714	LIN. FT.
*	606	36" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	714	LIN. FT.
*	SP & 606	36" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	714	LIN. FT.
*	SP & 606	36" PVC PIPE	(ALTERNATE NO. 6)	714	LIN. FT.
*	606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	(ALTERNATE NO. 1)	46	LIN. FT.
*	606	36" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	52	LIN. FT.
*	606	36" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	52	LIN. FT.
*	606	36" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	52	LIN. FT.
*	SP & 606	36" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	52	LIN. FT.
*	SP & 606	36" PVC PIPE	(ALTERNATE NO. 6)	52	LIN. FT.
*	606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	(ALTERNATE NO. 1)	620	LIN. FT.
*	606	42" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	686	LIN. FT.
*	606	42" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	686	LIN. FT.
*	606	42" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	686	LIN. FT.
*	SP & 606	42" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	686	LIN. FT.
*	606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	172	LIN. FT.
*	606	48" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	180	LIN. FT.
*	606	48" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	180	LIN. FT.
*	606	48" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	180	LIN. FT.
*	SP & 606	48" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	180	LIN. FT.
*	606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	(ALTERNATE NO. 1)	292	LIN. FT.
*	606	48" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	316	LIN. FT.
*	606	48" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	316	LIN. FT.
*	606	48" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	316	LIN. FT.
*	SP & 606	48" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	316	LIN. FT.
*	606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	(ALTERNATE NO. 1)	40	LIN. FT.
*	606	48" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	44	LIN. FT.
*	606	48" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	44	LIN. FT.
*	606	48" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	44	LIN. FT.
*	SP & 606	48" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	44	LIN. FT.

* DENOTES ALTERNATE BID ITEMS.

11/20/2015

R040207.DGN

SUMMARY OF QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
11-23-15				JOB NO.		040207	35	212
				(2) SUMMARY OF QUANTITIES & REVISIONS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-24-15

SUMMARY OF QUANTITIES (BOX 2 OF 3)

	ITEM NUMBER	ITEM		QUANTITY	UNIT
*	606	54" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	160	LIN. FT.
*	606	54" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 2)	168	LIN. FT.
*	606	54" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 3)	168	LIN. FT.
*	606	54" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (16 GAUGE)	(ALTERNATE NO. 4)	168	LIN. FT.
*	606	72" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	(ALTERNATE NO. 1)	136	LIN. FT.
*	606	72" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 2)	144	LIN. FT.
*	606	72" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 3)	144	LIN. FT.
*	606	72" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (16 GAUGE)	(ALTERNATE NO. 4)	144	LIN. FT.
	SP, SS, & 606	18" SIDE DRAIN		118	LIN. FT.
	SP, SS, & 606	24" SIDE DRAIN		256	LIN. FT.
	606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		3	EACH
*	606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	21	EACH
*	606	24" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	21	EACH
*	606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	6	EACH
*	606	30" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	6	EACH
*	606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	28	EACH
*	606	36" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	28	EACH
*	606	42" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	24	EACH
*	606	42" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	24	EACH
*	606	48" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	18	EACH
*	606	48" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	18	EACH
*	606	54" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	4	EACH
*	606	54" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	4	EACH
*	606	72" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	4	EACH
*	606	72" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	4	EACH
	606	SELECTED PIPE BEDDING		100	CU. YD.
	609	DROP INLETS (TYPE MO)		5	EACH
	611	UNDERDRAIN OUTLET PROTECTORS		8	EACH
	611	4" PIPE UNDERDRAINS		1000	LIN. FT.
	617	GUARDRAIL (TYPE A)		7925	LIN. FT.
	617	TERMINAL ANCHOR POSTS (TYPE 1)		17	EACH
	617	THRIE BEAM GUARDRAIL TERMINAL		3	EACH
	619	WIRE FENCE (TYPE D)		495	LIN. FT.
*	619	16' STEEL GATES	(ALTERNATE NO. 1)	1	EACH
*	619	16' ALUMINUM GATES	(ALTERNATE NO. 2)	1	EACH
	620	LIME		65	TON
	SP & 620	SPECIAL SEEDING: NATIVE GRASSES		32.32	ACRE
	SP & 620	SPECIAL SEEDING: NATIVE WILDFLOWERS		32.32	ACRE
	SP, SS, & 620	SPECIAL MULCH COVER		64.64	ACRE
	620	WATER		3975.0	M.GAL.
	SP & 621	SPECIAL TEMPORARY SEEDING		32.32	ACRE
	621	SILT FENCE		22700	LIN. FT.
	621	DIVERSION DITCH		11785	LIN. FT.
	621	DROP INLET SILT FENCE		125	LIN. FT.
	621	SEDIMENT BASIN		100	CU. YD.
	621	OBLITERATION OF SEDIMENT BASIN		100	CU. YD.
	621	SEDIMENT REMOVAL AND DISPOSAL		845	CU. YD.
	621	PIPE FOR SLOPE DRAINS		750	LIN. FT.
	621	ROCK DITCH CHECKS		284	CU. YD.
	621	WATTLE (20")		334	LIN. FT.
	SP & 623	SPECIAL SECOND SEEDING		32.32	ACRE
	624	SOLID SODDING		1516	SQ. YD.
	626	EROSION CONTROL MATTING (CLASS 3)		100	SQ. YD.
	634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")		1800	LIN. FT.
	635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
	718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4")		40622	LIN. FT.
	718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4")		40908	LIN. FT.
*	SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	(ALTERNATE NO. 1)	286	LIN. FT.
*	SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	(ALTERNATE NO. 2)	286	LIN. FT.
	721	RAISED PAVEMENT MARKERS (TYPE II)		511	EACH
	734	BRIDGE END TERMINAL		1	EACH
	804	REINFORCING STEEL-ROADWAY (GRADE 60)		1440	POUND
	816	FILTER BLANKET		340	SQ. YD.
	816	DUMPED RIPRAP		267	CU. YD.
	SP & 816	STONE RIPRAP FOR SLOPE PLATING		7100	SQ. YD.
	SP	ROCK DITCH LINER		2775	TON

* DENOTES ALTERNATE BID ITEMS.

SUMMARY OF QUANTITIES (BOX 3 OF 3)

ITEM NUMBER	ITEM	QUANTITY	UNIT
	STRUCTURES OVER 20' SPAN		
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	193	CU. YD.
802	CLASS S CONCRETE-BRIDGE	147.60	CU. YD.
802	CLASS S(AE) CONCRETE-BRIDGE	136.30	CU. YD.
803	CLASS 2 PROTECTIVE SURFACE TREATMENT	572.6	SQ. YD.
804	REINFORCING STEEL-BRIDGE (GRADE 60)	46570	POUND
805	STEEL PILING (HP 12X53)	120	LIN. FT.
SP & 807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)	70180	POUND
SP & 808	ELASTOMERIC BEARINGS	9502	CU. IN.
809	SILICONE JOINT SEALANT	79	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	1	EACH
816	FILTER BLANKET	123	SQ. YD.
816	DUMPED RIPRAP	76	CU. YD.

REVISIONS

DATE	REVISION	SHEET NUMBER
11-20-15	REVISED WORDING OF PAGE NAMES ON INDEX OF SHEETS, ADDED SP, ADDED NOTE ON DETAIL FOR COUNTY ROAD TURNOUT, ADDED DETAIL FOR SLOPE RIPRAP, REMOVED DETAIL OF WIDENING FOR GUARDRAIL, REVISED STATIONS OF ROCK FILL, ADDED DETAIL FOR ROCK ONE SIDE ONLY, REVISED SHOULDER SLOPE ON DETAIL OF WIDENING FOR GUARDRAIL, ADDED RAISED PAVEMENT MARKERS, REVISED EARTHWORK QUANTITIES, REVISED COLUMN HEADER ON STRUCTURES BOX, REVISED THICKNESS SHOWN UNDER THE APPROACH GUTTERS BOX, REVISED NUMBER OF SUMMARY OF QUANTITY BOXES, REVISED CURVE NOTES, REVISED HIGH WATER ELEVATION, REVISED EARTHWORK NOTES	2, 5 - 7, 26, 27, 28, 30, 31, 34, 35, 40, 44, 46, 47, 49, 102 - 105, 109 - 111, 129 - 146, 149 - 175, 189 - 194, 208 - 211
11-23-15	ADDED NOTE TO DETAIL OF ROCK FILL ONE SIDE ONLY	6 & 35

11/23/2015

R040207.DGN

SUMMARY OF QUANTITIES & REVISIONS

SURVEY CONTROL COORDINATES

Project Name: s040218
Date: 9/2/2015
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	0.0250	908.837	0.0084	CTL	PD:AHTD STD. CTL MON. STAMPED PN:1
2	507602.6580	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	861.790	0.0054	CTL	PD:AHTD STD. CTL MON. STAMPED PN:7
8	508319.2244	0.0273	627095.3699	0.0250	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	0.0361	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	0.0320	627252.7258	0.0592	825.586	0.0028	CTL	PD:AHTD STD. CTL MON. STAMPED PN:12
13	510724.4326	0.0330	627356.3214	0.0607	830.652	0.0038	CTL	PD:AHTD STD. CTL MON. STAMPED PN:13
14	511236.5970	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	0.0420	962.697	0.0056	CTL	PD:AHTD STD. CTL MON. STAMPED PN:15
16	512362.5264	0.0267	627796.5120	0.0293	996.000	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	515249.3610	0.0317	630939.8175	0.0467	1173.284	0.0082	CTL	PD:AHTD STD. CTL MON. STAMPED PN:19
20	515926.0470	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	1285.030	0.0087	CTL	PD:AHTD STD. CTL MON. STAMPED PN:24
25	520671.0249	0.0224	630410.5130	0.0351	1288.687	0.0088	CTL	PD:AHTD STD. CTL MON. STAMPED PN:25
26	521897.5394	0.0229	630732.8430	0.0293	1287.667	0.0088	CTL	PD:AHTD STD. CTL MON. STAMPED PN:26
27	522761.7740	0.0233	631238.3636	0.0290	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	0.0200	1295.535	0.0087	CTL	PD:AHTD STD. CTL MON. STAMPED PN:29
30	525203.1313	0.0287	633608.0140	0.0221	1219.105	0.0085	CTL	PD:AHTD STD. CTL MON. STAMPED PN:30
31	525808.6456	0.0310	634156.7913	0.0247	1174.710	0.0082	CTL	PD:AHTD STD. CTL MON. STAMPED PN:31
32	527907.5457	0.0890	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	639011.4730	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	635176.4960	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	526848.9740	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	0.0800	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	0.0840	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	0.0890	636864.8087	0.0907	1018.579	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	0.0020	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	30.0000	642286.3009	30.0000	1084.570	0.0001	TBM	PD:RR SPIKE IN 20" OAK
903	532525.5628	30.0000	641371.1628	30.0000	1068.970	0.0031	TBM	PD:NIS 12" OAK
905	531109.9340	30.0000	639570.6623	30.0000	987.442	0.0050	TBM	PD:RR SPIKE IN 12" CEDAR
918	524907.2581	30.0000	633012.1828	30.0000	1266.765	0.0087	TBM	PD:RR SPIKE ROOT 24" OAK
924	521434.2322	30.0000	630492.3276	30.0000	1279.933	0.0087	TBM	PD:NIS 16" OAK
933	513375.9580	30.0000	629670.6669	30.0000	1080.026	0.0079	TBM	PD:NIS 18" OAK
958	509896.7290	30.0000	627387.1213	30.0000	846.480	0.0001	TBM	PD:CPS IN ROOT 12" OAK
961	528960.5445	30.0000	638142.6154	30.0000	965.897	0.0160	TBM	PD:NIS 12" CEDAR
1200	507628.0040	0.0300	623955.5230	0.0300	960.166	0.0081	CTL	PD:8 SPK
1400	507613.2400	0.0245	624890.1812	0.0207	968.644	0.0030	CTL	PD:8 SPK
1500	507568.9600	0.0300	625091.3930	0.0300	957.037	0.0071	CTL	PD:8 SPK
1900	508554.9730	0.0300	627216.2040	0.0300	847.692	0.0050	CTL	PD:8 SPK
2000	508771.9317	0.0288	627321.4275	0.0288	836.761	0.0050	CTL	PD:8 SPK
2100	509019.2277	0.0310	627441.3131	0.0348	846.300	0.0059	CTL	PD:8 SPK
2300	509237.8231	0.0001	627475.7881	0.0001	842.830	0.0001	CTL	PD:8 SPK
2400	509919.3773	0.0001	627385.1540	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	0.0550	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	512683.7560	0.0300	628094.7170	0.0300	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	513308.6882	0.0236	629250.2300	0.0217	1093.266	0.0048	CTL	PD:8 SPK
3600	513258.6840	0.0300	629586.2850	0.0300	1051.303	0.0077	CTL	PD:8 SPK
3700	513414.1400	0.0300	629692.7140	0.0300	1082.020	0.0079	CTL	PD:8 SPK
4200	517077.7263	0.0275	631197.6791	0.0418	1254.051	0.0136	CTL	PD:8 SPK
4400	518371.5100	0.0300	630490.9310	0.0300	1314.284	0.0086	CTL	PD:8 SPK
4500	518659.9016	0.0234	630417.7145	0.0309	1318.510	0.0049	CTL	PD:8 SPK
4900	521027.3721	0.0216	630426.9176	0.0306	1303.386	0.0055	CTL	PD:8 SPK
5000	521377.1480	0.0300	630416.5440	0.0300	1281.922	0.0086	CTL	PD:8 SPK
5100	522240.3642	0.0240	630919.7923	0.0310	1295.551	0.0083	CTL	PD:8 SPK
5200	523190.4690	0.0300	631474.2970	0.0300	1304.869	0.0086	CTL	PD:8 SPK
5400	523750.9879	0.0229	631845.1532	0.0255	1311.702	0.0080	CTL	PD:8 SPK
5500	524615.0510	0.0300	632534.8380	0.0300	1318.445	0.0088	CTL	PD:8 SPK
5600	524991.2730	0.0001	632835.4872	0.0001	1307.949	0.0087	CTL	PD:8 SPK
5700	525072.5790	0.0300	633103.7080	0.0300	1261.883	0.0086	CTL	PD:8 SPK
6000	525828.7355	0.0320	634136.0202	0.0258	1188.599	0.0078	CTL	PD:8 SPK
6100	525797.5041	0.0274	634721.6592	0.0246	1159.998	0.0050	CTL	PD:8 SPK
6200	525933.5450	0.0300	634989.3680	0.0300	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	528300.5280	0.0736	637692.7417	0.0873	957.524	0.0131	CTL	PD:8 SPK
7200	529718.0740	0.0300	638846.1680	0.0300	999.706	0.0063	CTL	PD:8 SPK
7400	530575.2140	0.0300	639155.3420	0.0300	972.409	0.0060	CTL	PD:8 SPK
7500	530878.8370	0.0300	639363.9320	0.0300	970.042	0.0056	CTL	PD:8 SPK
7600	531184.2180	0.0300	639573.7950	0.0300	992.128	0.0050	CTL	PD:8 SPK
7700	531399.0570	0.0300	639793.3210	0.0300	1002.672	0.0049	CTL	PD:8 SPK
7800	531665.2510	0.0300	640174.6230	0.0300	1019.055	0.0049	CTL	PD:8 SPK
7900	532055.8820	0.0300	640666.2490	0.0300	1022.760	0.0046	CTL	PD:8 SPK
8000	532414.1430	0.0300	641117.1480	0.0300	1057.544	0.0037	CTL	PD:8 SPK
8100	532523.1740	0.0300	641254.3830	0.0300	1065.286	0.0035	CTL	PD:8 SPK
8200	532605.3650	0.0300	641512.4120	0.0300	1078.185	0.0027	CTL	PD:8 SPK
8300	532750.6480	0.0300	641968.5820	0.0300	1077.118	0.0020	CTL	PD:8 SPK
8400	532848.5530	0.0300	642488.8010	0.0300	1093.970	0.0020	CTL	PD:8 SPK
8500	532966.8020	0.0300	642596.6720	0.0300	1111.963	0.0033	CTL	PD:CPS
9200	532907.5600	0.0300	642841.6290	0.0300	1097.140	0.0030	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 - USGS 3rd Order (±8mm x Vdist in km) PN: FH 702

Horizontal Datum: ASSUMED 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: NGVD 29 based USGS BM: FH 702
A project Elevation Factor of: 0.999954863 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: 1-9200
From USGS BM: FH 702

Basis of Bearing: Grid Bearings based on GPS Points: N/A
Convergence Angle is: ------ at PN: 0
LT: LG:
Grid Azimuth = Astronomical Azimuth - Convergence Angle

040207 CONST

POINT NAME	POINT NUMBER	STATION	NORTHING	EASTING
POB	8046	225+94.01	520213.1705	630283.0798
PC	8047	231+52.68	520756.1246	630414.6501
PT	8048	233+05.95	520908.1157	630430.5120
PC	8049	236+65.80	521267.8074	630419.8002
PT	8050	238+78.88	521471.6369	630471.6605
PC	8051	262+00.02	523476.6059	631641.1824
PT	8052	263+67.28	523614.4310	631735.6841
PC	8055	278+94.74	524806.4311	632687.8762
PT	8056	283+51.81	525051.8133	633064.3073
PC	8057	288+18.86	525171.2503	633515.8362
PT	8058	290+51.75	525293.7149	633709.6862
PC	8059	295+61.16	525682.5052	634038.8346
PT	8060	299+13.23	525817.1248	634350.7672
PC	8061	303+23.06	525795.2323	634760.0161
PT	8062	305+13.93	525663.8724	634867.2285
PC	8063	306+75.43	525504.1486	634843.3659
PT	8064	309+37.79	525262.3649	634747.5636
PC	8065	311+17.90	525114.3466	634644.9451
PT	8066	315+10.15	524921.8018	634842.1128
PC	8067	316+35.85	524995.8452	634943.6809
PT	8068	318+91.22	525199.0287	635091.4743
PC	8069	319+86.52	525289.5885	635121.1712
PT	8070	321+83.06	525441.8335	635239.3020
PC	8071	324+13.30	525565.6710	635433.4035
PT	8072	325+34.67	525607.6635	635546.3113
PC	8073	325+71.11	525612.9016	635582.3751
PT	8074	329+58.57	525837.8856	635877.4530
PC	8075	334+70.49	526306.9248	636082.5297
PT	8076	336+84.67	526485.1943	636199.4295
PC	8077	337+67.15	526545.6165	636255.5638
PT	8078	339+80.25	526728.4439	636361.5751
PC	8079	341+19.39	526861.2781	636403.0012
PT	8080	343+31.59	527047.6875	636501.8275
PC	8081	348+32.50	527439.4826	636813.9272
PT	8082	350+95.77	527633.4650	636991.6140
PC	8083	372+51.58	529119.1022	638553.7911
PT	8084	375+02.19	529325.4367	638692.4846
PC	8085	382+16.35	529990.4634	638952.8073
PT	8086	385+16.48	530272.6775	639054.8396
PC	8087	388+30.55	530570.7370	639153.8547
PT	8088	389+83.21	530707.5266	639220.5986
PC	8089	394+78.93	531120.2239	639495.2300
PT	8090	396+78.54	531273.6758	639622.3124
PC	8091	398+11.91	531366.9592	639717.6312
PT	8092	399+69.61	531467.4752	639838.9156
PC	8093	402+97.98	531655.4427	640108.1643
PT	8094	404+16.30	531726.1325	640203.0213
PC	8095	413+93.38	532333.9658	640968.0168
PT	8096	419+13.43	532577.3206	641424.3920
PC	8097	424+14.38	532729.3515	641901.7183
PT	8098	425+54.56	532763.6267	642037.5447
PC	8099	429+17.96	532830.8402	642394.6837
PT	8100	431+02.81	532919.3058	642553.3443
POE	8101	431+67.10	532966.8020	642596.6720

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.		040207	36	212

(2) SURVEY CONTROL DETAILS

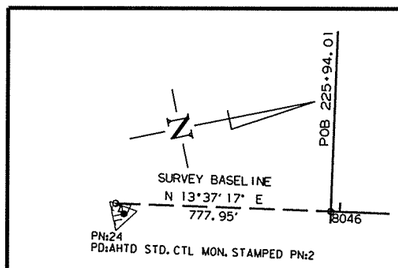
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15

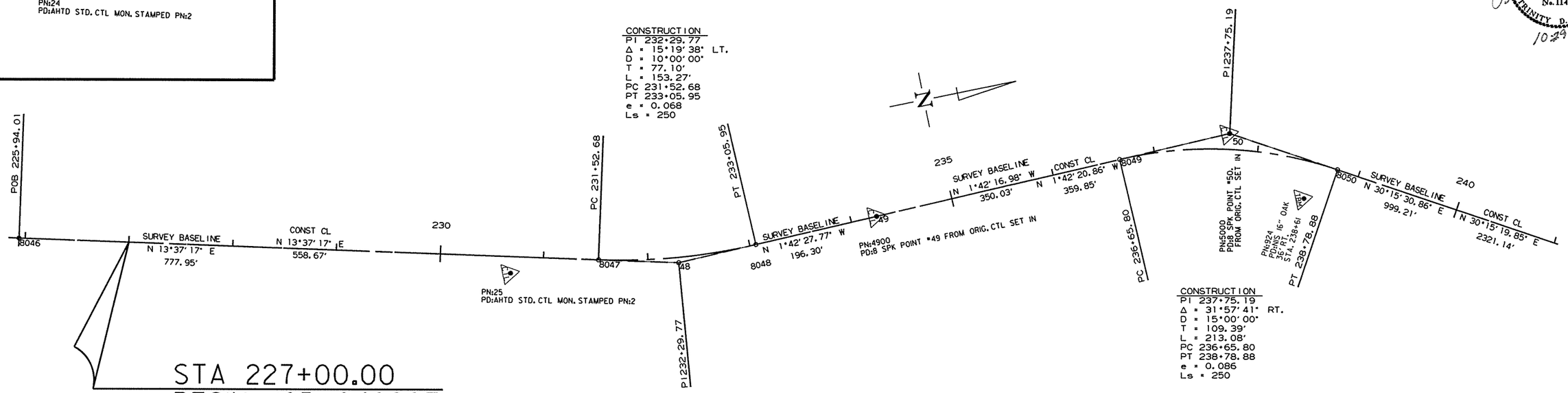
SURVEY CONTROL DETAILS

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.		040207	37	212

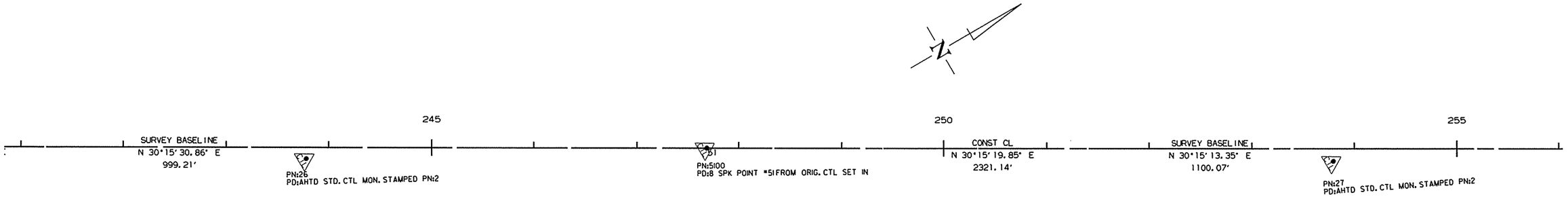
(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15





STA 227+00.00
BEGIN JOB 040207
L.M. 13.46



10/28/2015

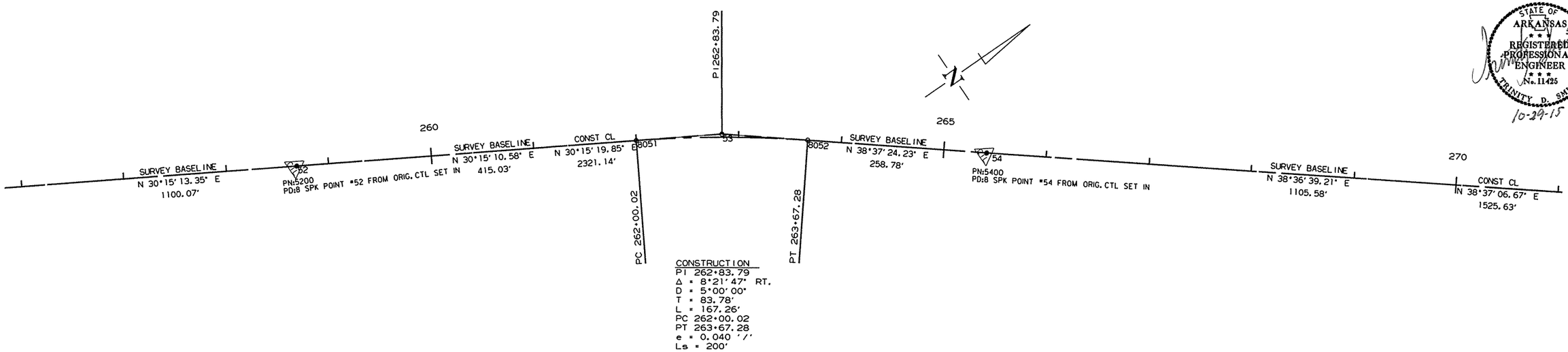
R040207.DGN

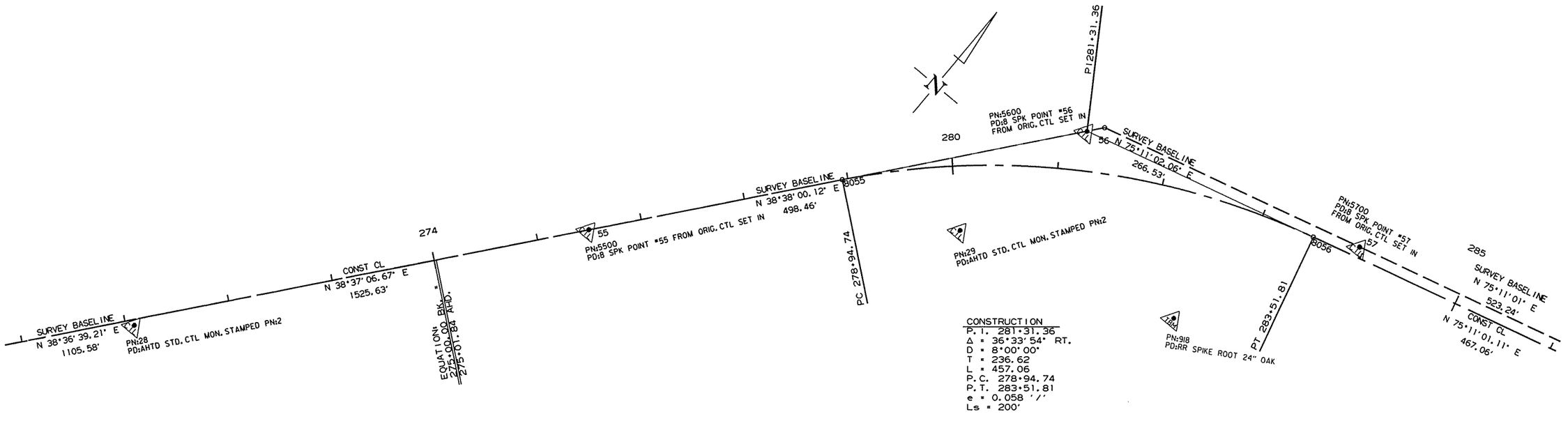
SURVEY CONTROL DETAILS

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.		040207	38	212

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15





10/28/2015

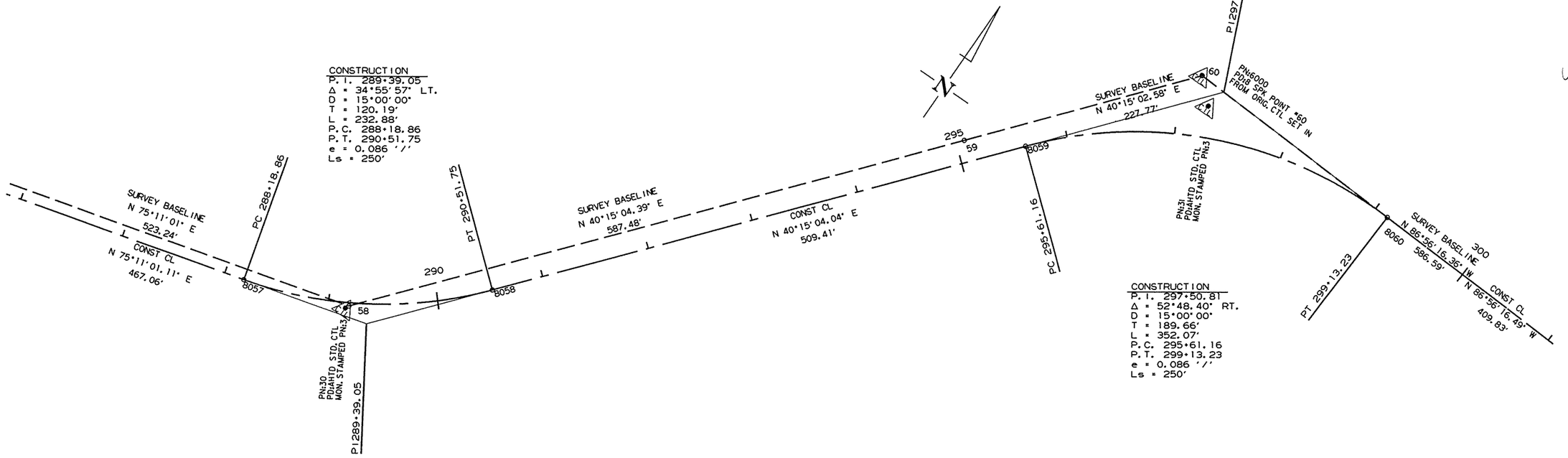
R040207.DGN

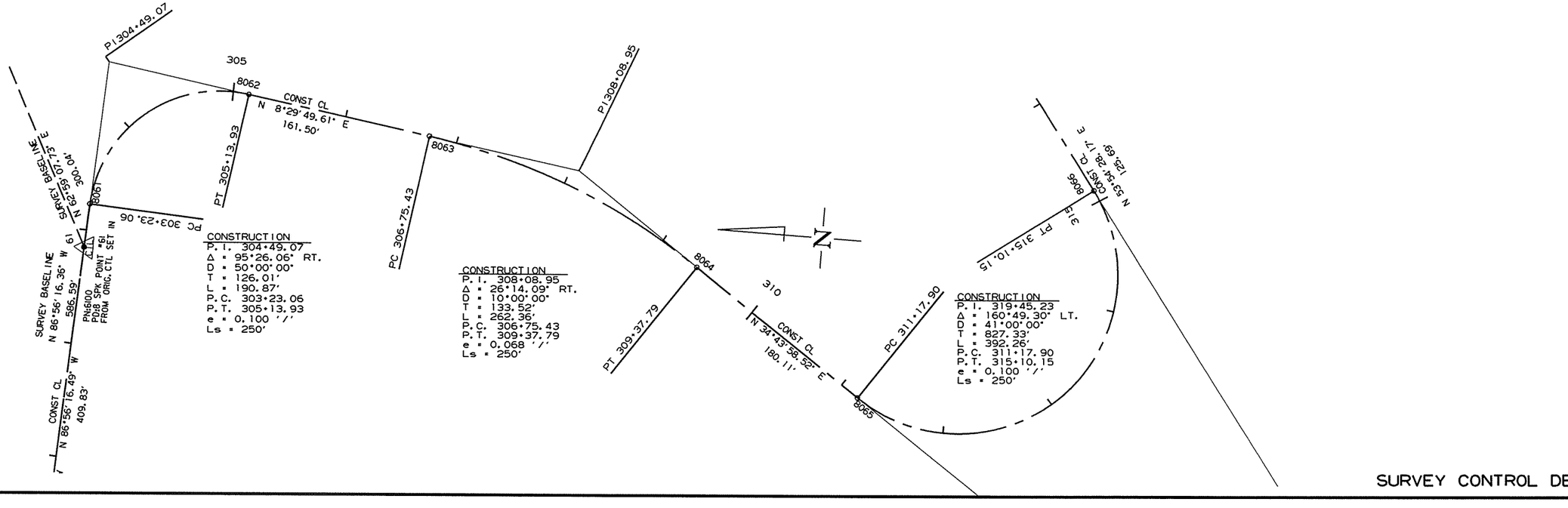
SURVEY CONTROL DETAILS

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.		040207	39	212

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15





SURVEY CONTROL DETAILS

R040207.DGN 10/28/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	40	212

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 11425
TRINITY D. SMITH
11-20-15

CONSTRUCTION
P. I. 317+67.84
Δ = 35°45'08" LT.
D = 14°00'00"
T = 131.10'
L = 255.37'
P.C. 316+35.85
P.T. 318+91.22
e = 0.083 '/'
Ls = 250'

PC 316+35.85
PT 318+91.22
P.I. 317+67.84
8067
CONST CL
N 53°54'28.17" E
125.69'
8068
CONST CL
N 18°09'20.34" E
95.30'
320
8069
PC 319+86.52
P.I. 320+88.83
8070
CONST CL
N 57°27'43.06" E
230.24'
8071
PT 321+83.06

CONSTRUCTION
P. I. 320+88.83
Δ = 39°18'23" RT.
D = 20°00'00"
T = 102.31'
L = 196.53'
P.C. 319+86.52
P.T. 321+83.06
e = 0.097 '/'
Ls = 250'

CONSTRUCTION
P. I. 324+74.91
Δ = 24°16'26" RT.
D = 20°00'00"
T = 61.61'
L = 121.37'
P.C. 324+13.30
P.T. 325+34.67
e = 0.097 '/'
Ls = 250'

PC 324+13.30
PT 325+34.67
P.I. 324+74.91
325
CONST CL
N 81°44'09.10" E
36.44'
8072
8073
PC 325+71.11

CONSTRUCTION
P. I. 327+83.36
Δ = 58°07'11" LT.
D = 15°00'00"
T = 212.25'
L = 387.46'
P.C. 325+71.11
P.T. 329+58.57
e = 0.086 '/'
Ls = 250'

PT 329+58.57
330
CONST CL
N 23°36'58.53" E
511.91'
8074
P.I. 327+83.36

CONSTRUCTION
P. I. 335+78.60
Δ = 19°16'37" RT.
D = 9°00'00"
T = 108.12'
L = 214.19'
P.C. 334+70.49
P.T. 336+84.67
e = 0.063 '/'
Ls = 200'

PC 334+70.49
P.I. 335+78.60
335
8075
CONST CL
N 23°36'58.53" E
511.91'

CONSTRUCTION
P. I. 338+75.50
Δ = 25°34'21" LT.
D = 12°00'00"
T = 108.36'
L = 213.10'
P.C. 337+67.15
P.T. 339+80.25
e = 0.076 '/'
Ls = 250'

PC 337+67.15
PT 336+84.67
8076
CONST CL
N 42°53'35.59" E
82.47'
8077
P.I. 338+75.50

PT 339+80.25
340
CONST CL
N 17°19'14.85" E
139.14'
8078
8079
PC 341+19.39

CONSTRUCTION
P. I. 342+26.72
Δ = 21°13'11" RT.
D = 10°00'00"
T = 107.33'
L = 212.20'
P.C. 341+19.39
P.T. 343+31.59
e = 0.068 '/'
Ls = 250'

P.I. 342+26.72
8080
PT 343+31.59
SURVEY BASELINE
N 46°34'39.82" E
498.70'
67
SURVEY BASELINE
N 46°34'47.90" E
199.75'
68
SURVEY BASELINE
N 46°34'14.08" E
399.57'
345
CONST CL
N 38°32'25.62" E
500.91'

11/20/2015

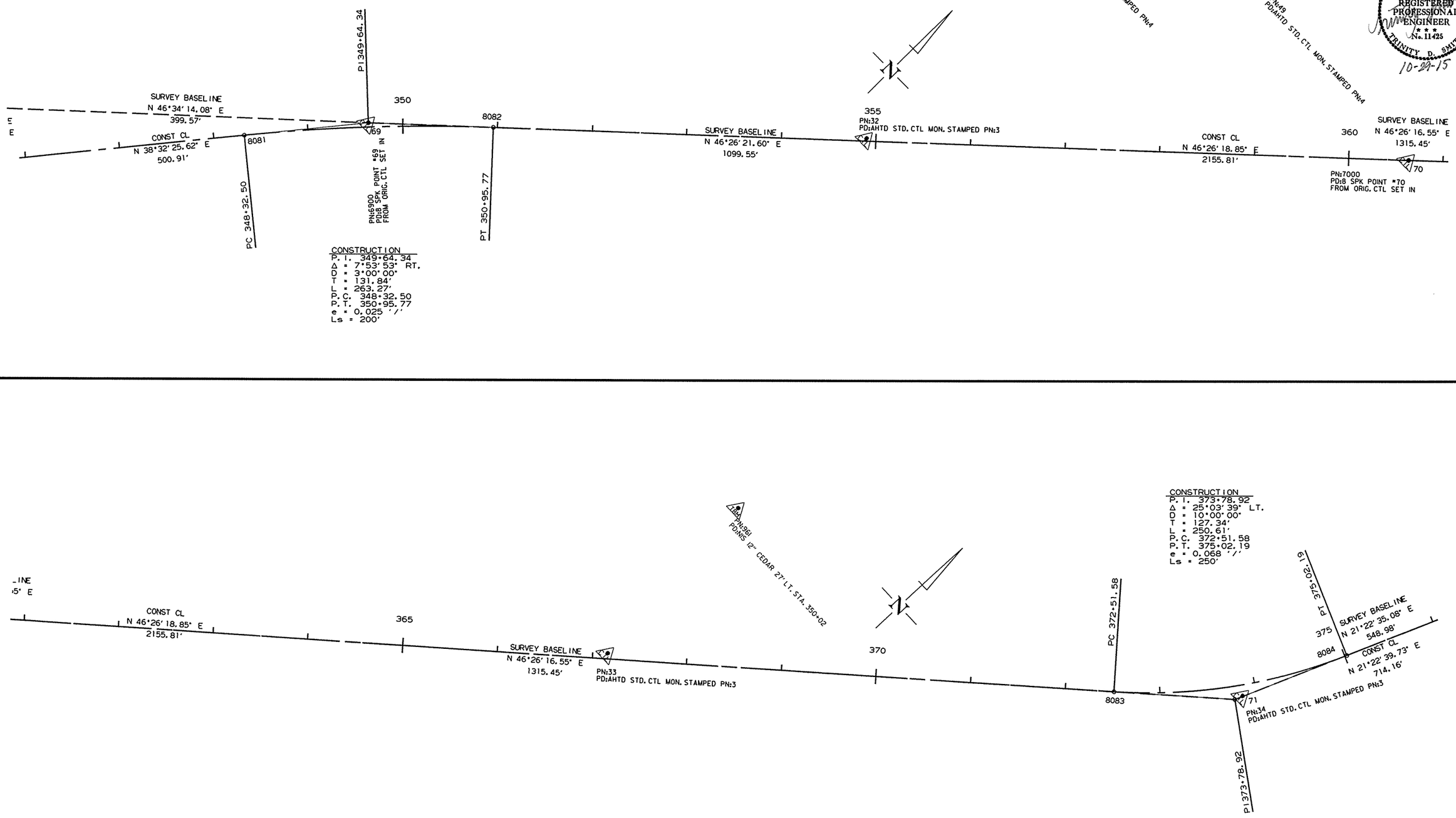
R040207.DGN

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.		040207	41	212

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15



SURVEY CONTROL DETAILS

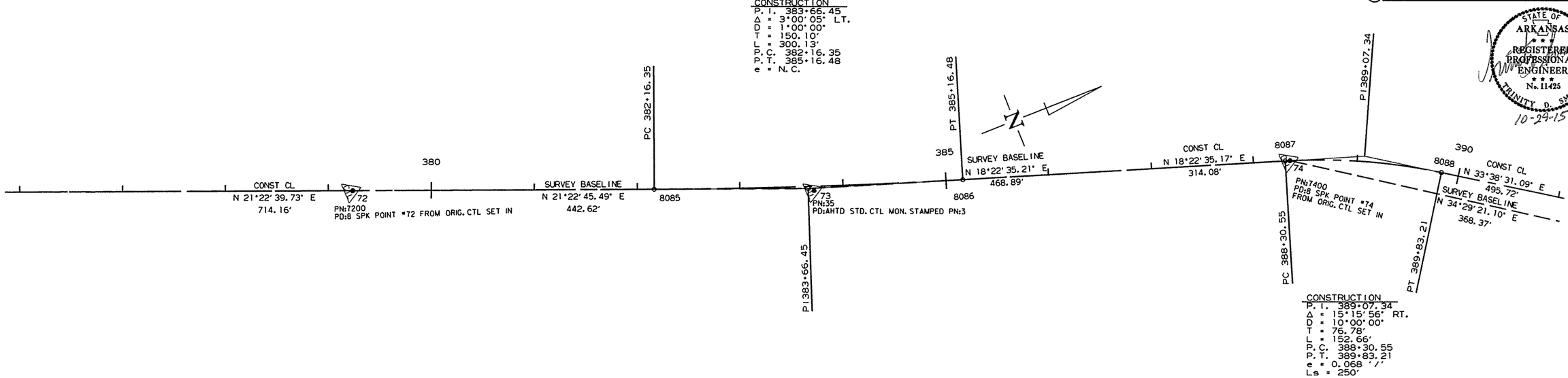
10/28/2015

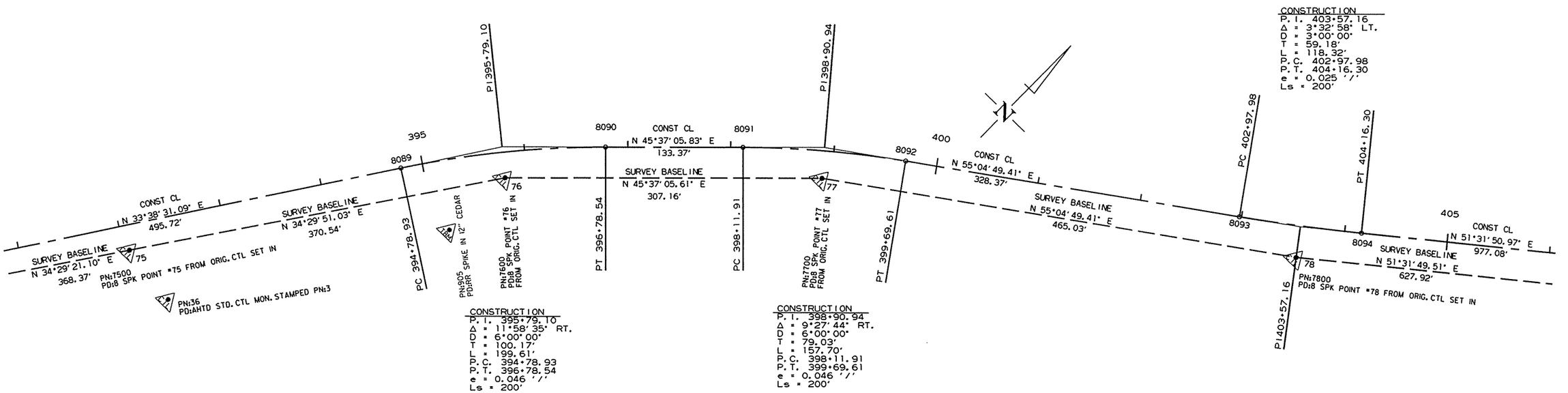
R040207.DGN

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.		040207	42	212

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-24-15





10/28/2015

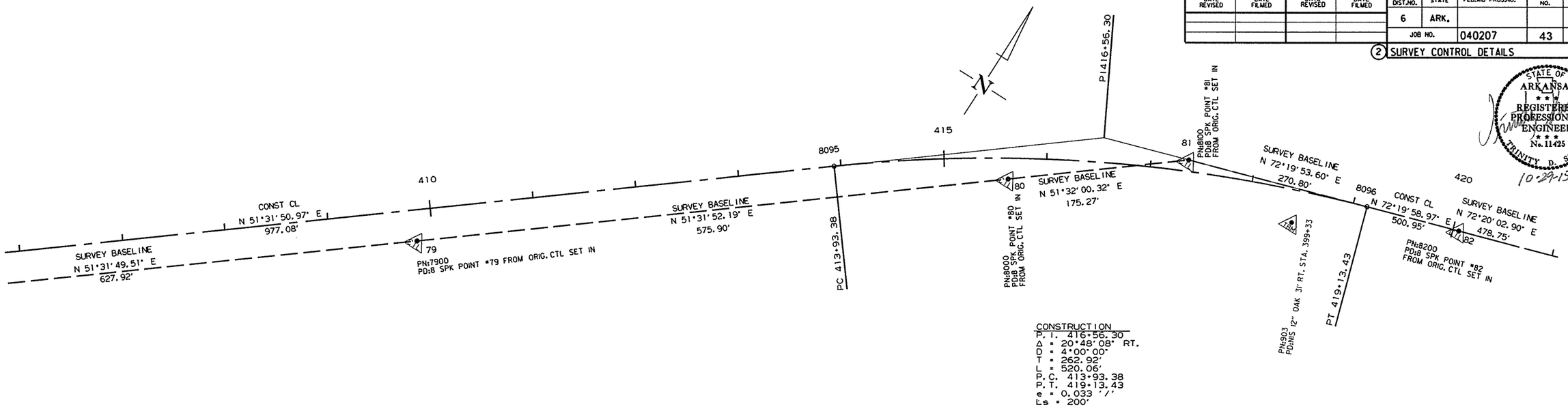
R040207.DGN

SURVEY CONTROL DETAILS

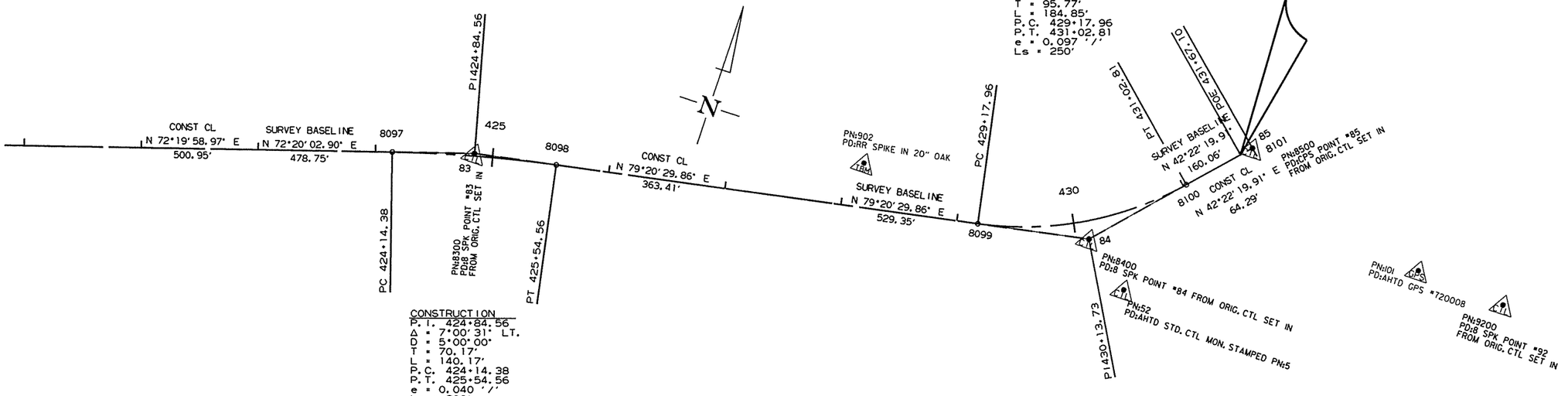
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040207	43	212

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15



STA. 431+55.53
END JOB 040207



SURVEY CONTROL DETAILS

10/28/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
11-20-15			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040207	44	212

(2) PLAN & PROFILE STA. 227+00-STA. 241+00

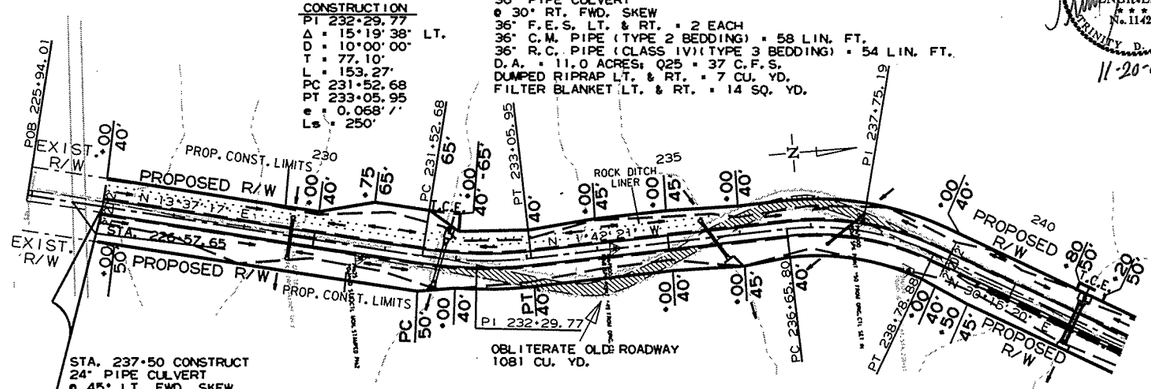
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-20-15

STA. 229+69 IN PLACE
24" X 28" CMP
REMOVE & CONSTRUCT
36" PIPE CULVERT
36" F.E.S. LT. & RT. = 2 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 52 LIN. FT.
36" R.C. PIPE (CLASS V)(TYPE 3 BEDDING) = 46 LIN. FT.
D.A. = 10 ACRES; Q25 = 33 C.F.S.
DUMPED RIPRAP LT. & RT. = 7 CU. YD.
FILTER BLANKET LT. & RT. = 14 SQ. YD.

STA. 231+72 IN PLACE
24" X 25" CMP
REMOVE & CONSTRUCT
@ STA. 231+79
48" PIPE CULVERT
@ 10° LT. FWD. SKEW
48" F.E.S. LT. & RT. = 2 EACH
48" C.M. PIPE (TYPE 2 BEDDING) = 56 LIN. FT.
48" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 52 LIN. FT.
D.A. = 18.4 ACRES; Q25 = 61 C.F.S.
DUMPED RIPRAP LT. & RT. = 7 CU. YD.
FILTER BLANKET LT. & RT. = 14 SQ. YD.

STA. 235+64 IN PLACE
30" X 24" CMP
REMOVE & CONSTRUCT
36" PIPE CULVERT
@ 30° RT. FWD. SKEW
36" F.E.S. LT. & RT. = 2 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 58 LIN. FT.
36" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 54 LIN. FT.
D.A. = 11.0 ACRES; Q25 = 37 C.F.S.
DUMPED RIPRAP LT. & RT. = 7 CU. YD.
FILTER BLANKET LT. & RT. = 14 SQ. YD.

CONSTRUCTION
PI 232+29.77
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'



STA 227+00.00
BEGIN JOB 040207
L.M. 13.46

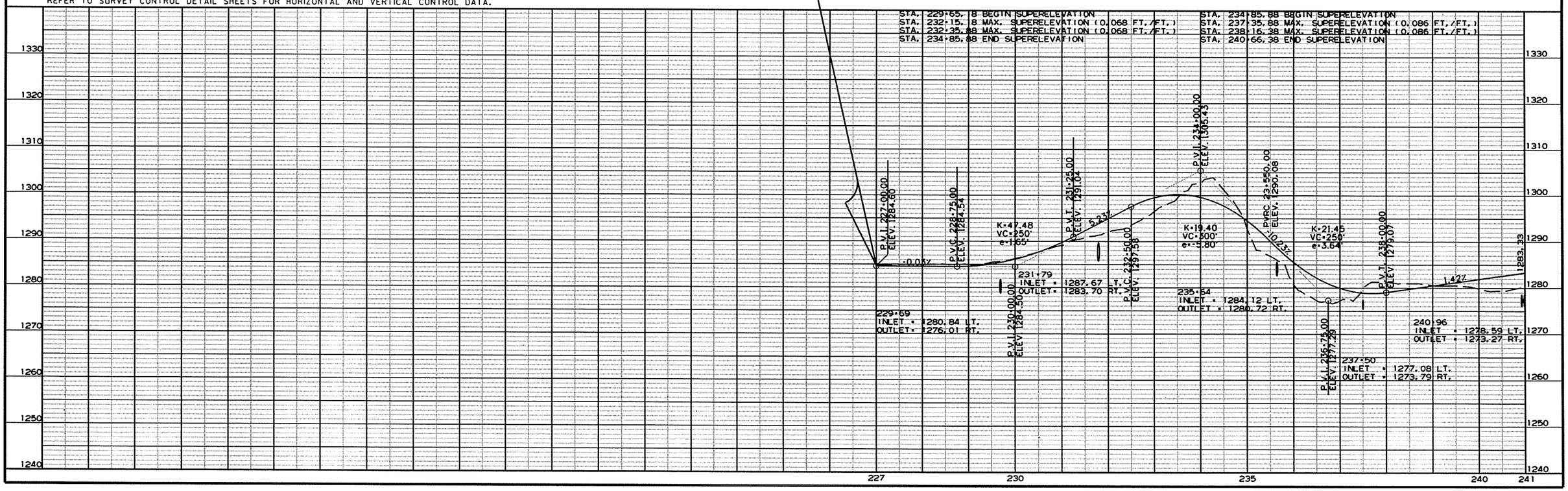
STA. 237+50 CONSTRUCT
24" PIPE CULVERT
@ 45° LT. FWD. SKEW
24" F.E.S. LT. & RT. = 2 EACH
24" C.M. PIPE (TYPE 2 BEDDING) = 62 LIN. FT.
24" R.C. PIPE (CLASS V)(TYPE 3 BEDDING) = 58 LIN. FT.
D.A. = 5.0 ACRES; Q25 = 15 C.F.S.
DUMPED RIPRAP LT. & RT. = 7 CU. YD.
FILTER BLANKET LT. & RT. = 14 SQ. YD.

LOCATION	GUARDRAIL (TYPE A)	TERMINAL ANCHOR POSTS (TY. 1)
STA. 239+50 - STA. 242+50 RT.	300 L.F.	2 EACH

CONSTRUCTION
PI 237+75.19
Δ = 31°57'41" RT.
D = 15°00'00"
T = 109.39'
L = 213.08'
PC 236+65.80
PT 238+78.88
e = 0.086'/'
Ls = 250'

STA. 240+96 IN PLACE
18" X 21" CMP
REMOVE & CONSTRUCT
DBL. 30" PIPE CULVERT
30" F.E.S. LT. & RT. = 4 EACH
30" C.M. PIPE (TYPE 2 BEDDING) = 108 LIN. FT.
30" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 100 LIN. FT.
D.A. = 14.7 ACRES; Q25 = 50 C.F.S.
DUMPED RIPRAP LT. & RT. = 8 CU. YD.
FILTER BLANKET LT. & RT. = 16 SQ. YD.

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



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.		040207	45	212

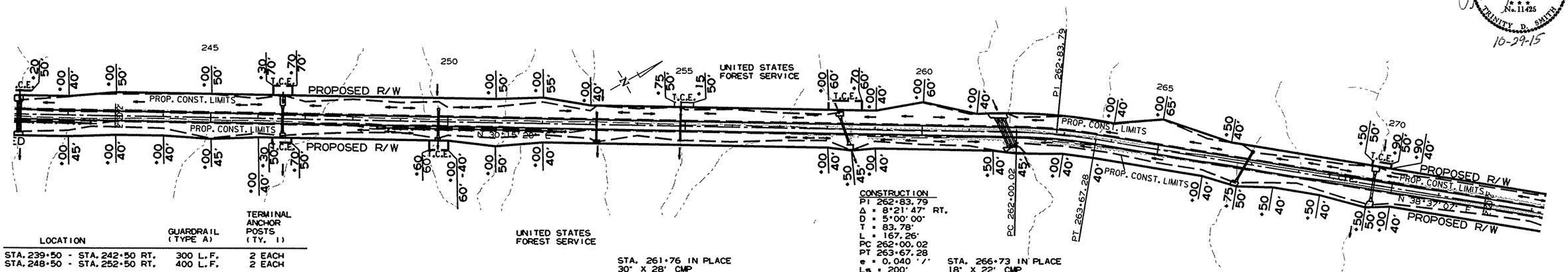
(2) PLAN & PROFILE STA. 241+00-STA. 273+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15

STA. 253+14 IN PLACE
24" X 21' CMP
REMOVE & CONSTRUCT
24" PIPE CULVERT
24" F.E.S. LT. & RT. = 2 EACH
24" C.M. PIPE (TYPE 2 BEDDING) = 52 LIN. FT.
24" R.C. PIPE (CLASS IV) (TYPE 3 BEDDING) = 48 LIN. FT.
D.A. = 4.6 ACRES; Q25 = 16 C.F.S.
DUMPED RIPRAP LT. & RT. = 7 CU. YD.
FILTER BLANKET LT. & RT. = 14 SQ. YD.

STA. 254+90 IN PLACE
24" X 21' CMP
REMOVE & CONSTRUCT
24" 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 IV)(TYPE 3 BEDDING) = 44 LIN. FT.
D.A. = 4.6 ACRES; Q25 = 16 C.F.S.
DUMPED RIPRAP RT. = 6 CU. YD.
FILTER BLANKET RT. = 12 SQ. YD.

STA. 258+51 IN PLACE
24" X 25' CMP
REMOVE & CONSTRUCT
@ STA. 258+35
42" PIPE CULVERT
@ 15° RT. FWD. SKEW
42" F.E.S. LT. & RT. = 2 EACH
42" C.M. PIPE (TYPE 2 BEDDING) = 56 LIN. FT.
42" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 50 LIN. FT.
D.A. = 16.7 ACRES; Q25 = 57 C.F.S.
DUMPED RIPRAP LT. & RT. = 13 CU. YD.
FILTER BLANKET LT. & RT. = 26 SQ. YD.



LOCATION	GUARDRAIL (TYPE A)	TERMINAL ANCHOR POSTS (TY. I)
STA. 239+50 - STA. 242+50 RT.	300 L.F.	2 EACH
STA. 248+50 - STA. 252+50 RT.	400 L.F.	2 EACH

CONSTRUCTION
PI 262+83.79
Δ = 8°21'47" RT.
D = 5°00'00"
T = 83.78'
L = 167.26'
PC 262+00.02
PT 263+67.28
e = 0.040 '/'
Ls = 200'

STA. 246+52 IN PLACE
18" X 21' CMP
REMOVE & CONSTRUCT
42" PIPE CULVERT
42" F.E.S. LT. & RT. = 2 EACH
42" C.M. PIPE (TYPE 2 BEDDING) = 48 LIN. FT.
42" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 42 LIN. FT.
D.A. = 18.4 ACRES; Q25 = 63 C.F.S.
DUMPED RIPRAP LT. & RT. = 11 CU. YD.
FILTER BLANKET LT. & RT. = 22 SQ. YD.

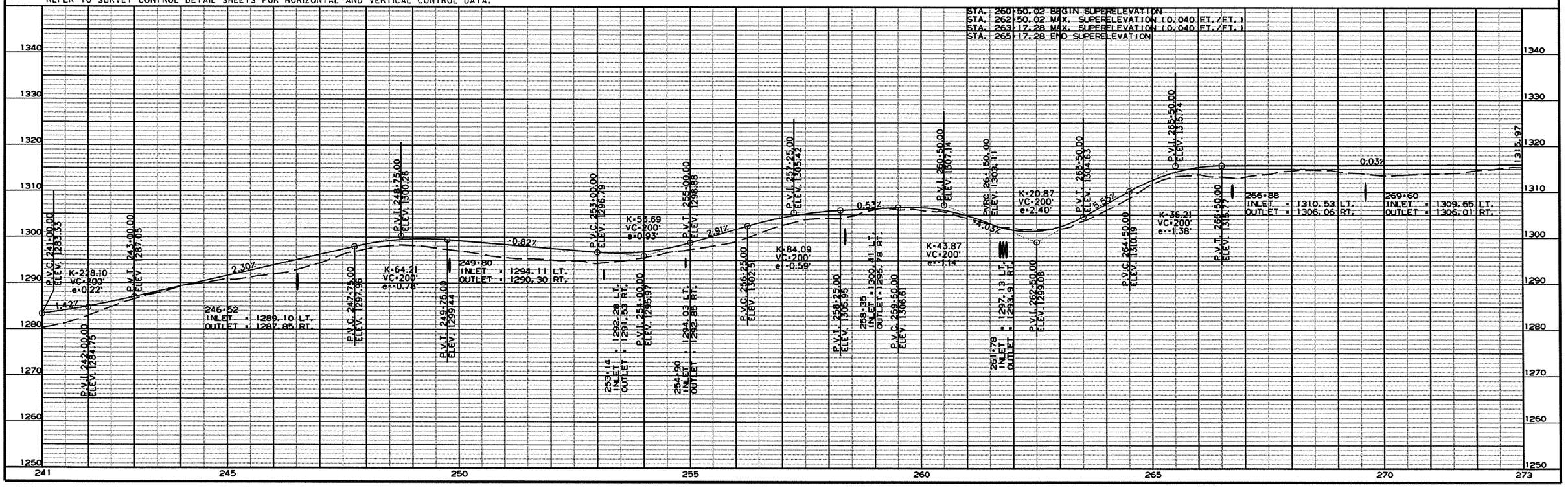
STA. 249+80 IN PLACE
24" X 21' CMP
REMOVE & CONSTRUCT
36" PIPE CULVERT
36" F.E.S. LT. & RT. = 2 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 52 LIN. FT.
36" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 48 LIN. FT.
D.A. = 11.0 ACRES; Q25 = 37 C.F.S.
DUMPED RIPRAP RT. = 4 CU. YD.
FILTER BLANKET RT. = 8 SQ. YD.

STA. 261+76 IN PLACE
30" X 28' CMP
REMOVE & CONSTRUCT
@ STA. 261+78
TRP. 42" PIPE CULVERT
@ 35° RT. FWD. SKEW
42" F.E.S. LT. & RT. = 6 EACH
42" C.M. PIPE (TYPE 2 BEDDING) = 186 LIN. FT.
42" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 168 LIN. FT.
D.A. = 55.1 ACRES; Q25 = 187 C.F.S.
DUMPED RIPRAP LT. & RT. = 41 CU. YD.
FILTER BLANKET LT. & RT. = 82 SQ. YD.

STA. 266+73 IN PLACE
18" X 22' CMP
REMOVE & CONSTRUCT
@ STA. 266+88
36" PIPE CULVERT
@ 20° LT. FWD. SKEW
36" F.E.S. LT. & RT. = 2 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 58 LIN. FT.
36" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 52 LIN. FT.
D.A. = 11.0 ACRES; Q25 = 37 C.F.S.
DUMPED RIPRAP RT. = 5 CU. YD.
FILTER BLANKET RT. = 10 SQ. YD.

STA. 269+60 IN PLACE
24" X 23' CMP
REMOVE & CONSTRUCT
48" PIPE CULVERT
48" F.E.S. LT. & RT. = 2 EACH
48" C.M. PIPE (TYPE 2 BEDDING) = 52 LIN. FT.
48" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 48 LIN. FT.
D.A. = 21.1 ACRES; Q25 = 72 C.F.S.
DUMPED RIPRAP LT. & RT. = 11 CU. YD.
FILTER BLANKET LT. & RT. = 22 SQ. YD.

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



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	46	212

(2) PLAN & PROFILE STA. 273+00-STA. 305+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
TRINITY D. SMITH
NO. 11425
11-20-15

STA. 277+33 IN PLACE
30" X 26" CMP
REMOVE & CONSTRUCT
30" PIPE CULVERT
@ 10° LT. FWD. SKEW
30" F.E.S. LT. & RT. = 2 EACH
30" C.M. PIPE (TYPE 2 BEDDING) = 54 LIN. FT.
30" R.C.PIPE (CLASS IV) (TYPE 3 BEDDING) = 50 LIN. FT.
D.A. = 10 ACRES; Q25 = 24 C.F.S.

STA. 275+50 CONSTRUCT
COUNTY RD. TURNOUT = 25 CU. YD.

STA. 274+26 IN PLACE
18" X 24" CMP
REMOVE & CONSTRUCT
@ STA. 274+66
36" PIPE CULVERT
@ 45° LT. FWD. SKEW
36" F.E.S. LT. & RT. = 2 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 46 LIN. FT.
36" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 40 LIN. FT.
D.A. = 11 ACRES; Q25 = 36 C.F.S.
DUMPED RIPRAP RT. = 5 CU. YD.
FILTER BLANKET RT. = 10 SQ. YD.

STA. 283+45 IN PLACE
36" X 31" CMP
REMOVE & CONSTRUCT
DBL. 54" PIPE CULVERT
@ 35° RT. FWD. SKEW
54" F.E.S. LT. & RT. = 4 EACH
54" C.M. PIPE (TYPE 2 BEDDING) = 168 LIN. FT.
54" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 160 LIN. FT.
D.A. = 76 ACRES; Q25 = 213 C.F.S.

STA. 288+10 IN PLACE
18" X 22" CMP
REMOVE & CONSTRUCT
@ STA. 288+08
24" PIPE CULVERT
24" F.E.S. LT. & RT. = 2 EACH
24" C.M. PIPE (TYPE 2 BEDDING) = 50 LIN. FT.
24" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 46 LIN. FT.
D.A. = 5 ACRES; Q25 = 14 C.F.S.

STA. 296+07 IN PLACE
36" X 30" CMP
REMOVE & CONSTRUCT
@ STA. 296+12
TRP. 36" PIPE CULVERT
36" F.E.S. LT. & RT. = 6 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 174 LIN. FT.
36" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 156 LIN. FT.
D.A. = 40 ACRES; Q25 = 109 C.F.S.

STA. 299+04 IN PLACE
24" X 22" CMP
REMOVE & CONSTRUCT
@ STA. 299+00
48" PIPE CULVERT
48" F.E.S. LT. & RT. = 2 EACH
48" C.M. PIPE (TYPE 2 BEDDING) = 44 LIN. FT.
48" R.C. PIPE (CLASS V)(TYPE 3 BEDDING) = 40 LIN. FT.
D.A. = 29 ACRES; Q25 = 78 C.F.S.

STA. 300+10 IN PLACE
24" X 28" PIPE CULVERT
REMOVE

OBLITERATE EXISTING ROADWAY
1209 CU. YD.

OBLITERATE EXISTING ROADWAY
720 CU. YD.

CONSTRUCTION
P.I. 281+31.36
Δ = 36°33'54" RT.
D = 8°00'00"
T = 236.62'
L = 457.06'
P.C. 278+94.74
P.T. 283+51.81
e = 0.058 '/'
Ls = 200'

CONSTRUCTION
P.I. 289+39.05
Δ = 34°55'57" LT.
D = 15°00'00"
T = 120.19'
L = 232.88'
P.C. 288+18.86
P.T. 290+51.75
e = 0.086 '/'
Ls = 250'

CONSTRUCTION
P.I. 297+50.81
Δ = 52°48.40" RT.
D = 15°00'00"
T = 189.66'
L = 352.07'
P.C. 295+61.16
P.T. 299+13.23
e = 0.086 '/'
Ls = 250'

CONSTRUCTION
P.I. 304+49.07
Δ = 95°26.06" RT.
D = 50°00'00"
T = 126.01'
L = 190.87'
P.C. 303+23.06
P.T. 305+13.93
e = 0.100 '/'
Ls = 250'

LOCATION	GUARDRAIL (TYPE A)	TERMINAL ANCHOR POSTS (TYPE 1)
STA. 280+50.00 TO STA. 298+50.00 RT.	1800 L.F.	2 EACH

OBLITERATION

STA. 297+45 - CONSTRUCT
TRP. 36" PIPE CULVERT
36" F.E.S. LT. & RT. = 6 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 150 LIN. FT.
36" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 132 LIN. FT.
D.A. = 50 ACRES; Q25 = 136 C.F.S.

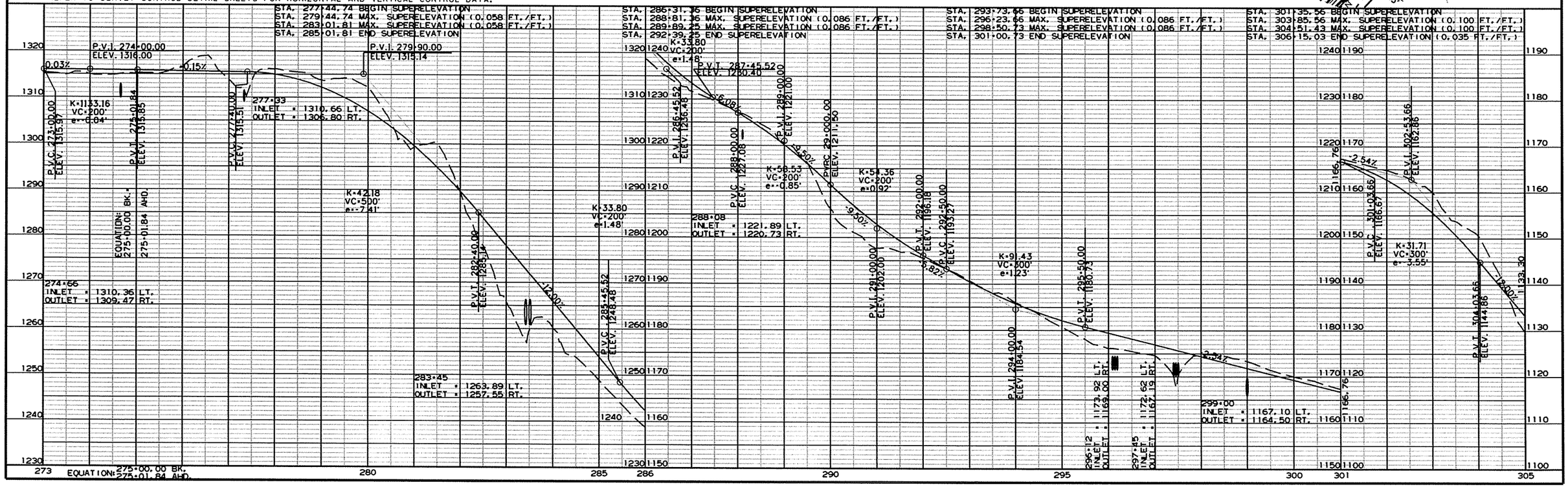
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STA. 277+44.74 BEGIN SUPERELEVATION
STA. 279+44.74 MAX. SUPERELEVATION (0.058 FT./FT.)
STA. 283+01.81 MAX. SUPERELEVATION (0.058 FT./FT.)
STA. 285+01.81 END SUPERELEVATION

STA. 285+31.36 BEGIN SUPERELEVATION
STA. 288+81.36 MAX. SUPERELEVATION (0.086 FT./FT.)
STA. 289+89.25 MAX. SUPERELEVATION (0.086 FT./FT.)
STA. 292+39.25 END SUPERELEVATION

STA. 293+73.66 BEGIN SUPERELEVATION
STA. 296+23.66 MAX. SUPERELEVATION (0.086 FT./FT.)
STA. 298+50.73 MAX. SUPERELEVATION (0.086 FT./FT.)
STA. 301+00.73 END SUPERELEVATION

STA. 301+35.56 BEGIN SUPERELEVATION
STA. 303+85.56 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 304+51.43 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 306+15.03 END SUPERELEVATION (0.035 FT./FT.)



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
11-20-15			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040207	47	212

(2) PLAN & PROFILE STA. 305+00-STA. 337+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
11-20-15
TRINITY D. SMITH

OBLITERATION

OBLITERATE EXISTING ROADWAY
167 CU. YD.

UNITED STATES FOREST SERVICE

PROPOSED R/W

PROP. CONST. LIMITS

ROCK DITCH LINER

N 34°43'59" E

N 53°54'28" E

N 57°27'43" E

N 18°09'20" E

N 23°36'59" E

N 22°53'36" E

PI 319+45.23

PI 317+67.84

PI 320+88.83

PI 324+74.91

PI 327+83.36

PI 335+78.60

PC 303+23.08

PT 305+13.93

PC 306+75.43

PT 309+37.79

PC 311+17.90

PT 315+10.15

PC 316+35.85

PT 319+91.22

PC 319+86.52

PT 321+83.06

PC 324+13.30

PT 325+34.67

PC 325+71.11

PT 329+58.57

PC 334+70.49

PT 336+84.67

304+49.07

SPECIAL FLOOD HAZARD AREA

CONSTRUCTION
P.I. 308+08.95
Δ = 26°14'09" RT.
D = 10°00'00"
T = 133.52'
L = 262.36'
P.C. 306+75.43
P.T. 309+37.79
e = 0.068 '/'
Ls = 250'

CONSTRUCTION
P.I. 319+45.23
Δ = 160°49.30' LT.
D = 41°00'00"
T = 827.33'
L = 392.26'
P.C. 311+17.90
P.T. 315+10.15
e = 0.100 '/'
Ls = 250'

CONSTRUCTION
P.I. 317+67.84
Δ = 35°45'08" LT.
D = 14°00'00"
T = 131.10'
L = 255.37'
P.C. 316+35.85
P.T. 318+91.22
e = 0.083 '/'
Ls = 250'

CONSTRUCTION
P.I. 320+88.83
Δ = 39°18'23" RT.
D = 20°00'00"
T = 102.31'
L = 196.53'
P.C. 319+86.52
P.T. 321+83.06
e = 0.097 '/'
Ls = 250'

CONSTRUCTION
P.I. 324+74.91
Δ = 24°16'26" RT.
D = 20°00'00"
T = 61.61'
L = 121.37'
P.C. 324+13.30
P.T. 325+34.67
e = 0.097 '/'
Ls = 250'

CONSTRUCTION
P.I. 327+83.36
Δ = 58°07'11" LT.
D = 15°00'00"
T = 212.25'
L = 387.46'
P.C. 325+71.11
P.T. 329+58.57
e = 0.086 '/'
Ls = 250'

CONSTRUCTION
P.I. 335+78.60
Δ = 19°16'37" RT.
D = 9°00'00"
T = 108.12'
L = 214.19'
P.C. 334+70.49
P.T. 336+84.67
e = 0.063 '/'
Ls = 200'

LOCATION	GUARDRAIL (TYPE A)	TERMINAL ANCHOR POSTS (TY. 1)
STA. 303+75 TO STA. 311+25 ON LT.	750 L.F.	2 EACH
STA. 315+75 TO STA. 345+25 ON RT.	2950 L.F.	2 EACH

STA. 321+10 - CONSTRUCT
24" PIPE CULVERT
@ 30° RT. FWD. SKEW
24" F.E.S. LT. & RT. = 2 EACH
24" C.M. PIPE (TYPE 2 BEDDING) = 74 LIN. FT.
24" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 70 LIN. FT.
D.A. = 6 ACRES; Q25 = 17 C.F.S.

STA. 322+95 IN PLACE
36" X 25' PIPE NO DES.
REMOVE

STA. 324+50 IN PLACE
2' X 2' X 28' BOX CULVERT
REMOVE

STA. 327+55 IN PLACE
24" X 25' CMP
REMOVE AND CONSTRUCT
36" PIPE CULVERT
36" F.E.S. LT. & RT. = 2 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 66 LIN. FT.
36" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 60 LIN. FT.
D.A. = 17 ACRES; Q25 = 46 C.F.S.

CONCRETE COMBINATION CURB & GUTTER (TYPE A)
STA. 329+00 TO STA. 332+00 ON LT. = 300 L.F.

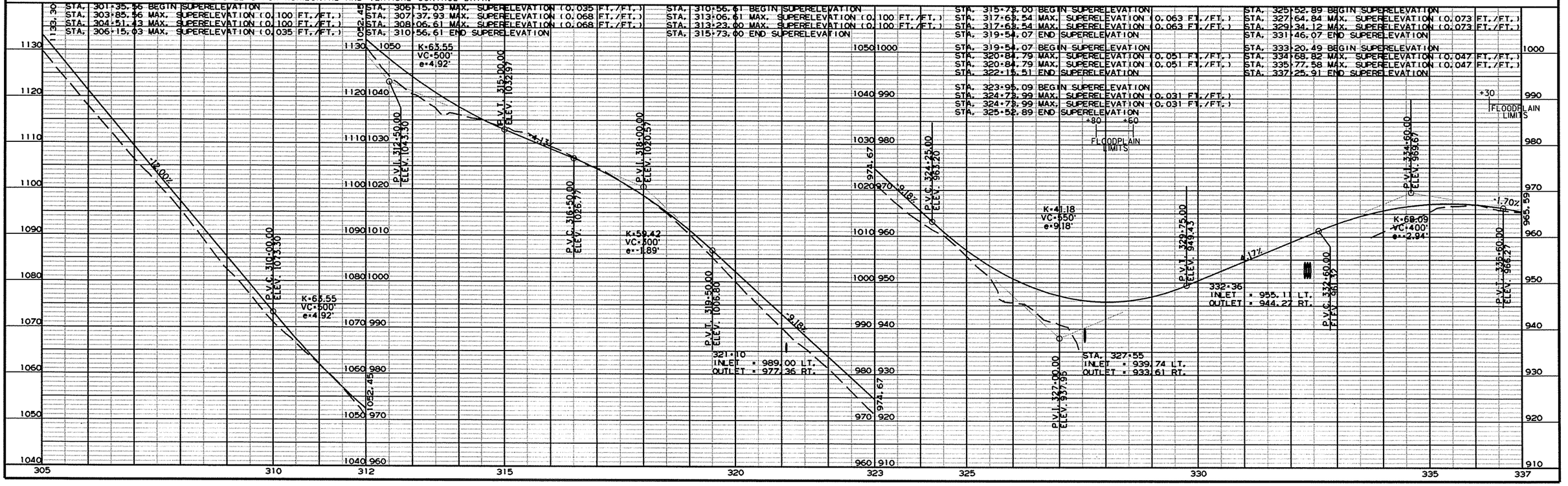
STA. 332+70 IN PLACE
32" X 30" CMP
REMOVE

STA. 332+60 IN PLACE
32" X 27" CMP
REMOVE
STA. 332+36 - CONSTRUCT
TRP. 42" PIPE CULVERT
42" F.E.S. LT. & RT. = 6 EACH
42" C.M. PIPE (TYPE 2 BEDDING) = 186 LIN. FT.
42" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 168 LIN. FT.
D.A. = 74 ACRES; Q25 = 202 C.F.S.

STA. 335+50 IN PLACE
24" X 28' PIPE CULVERT
REMOVE

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

STA. 301+35.56 BEGIN SUPERELEVATION
STA. 303+85.56 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 304+51.43 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 306+15.03 MAX. SUPERELEVATION (0.035 FT./FT.)
STA. 306+15.03 MAX. SUPERELEVATION (0.035 FT./FT.)
STA. 307+37.93 MAX. SUPERELEVATION (0.068 FT./FT.)
STA. 308+06.61 MAX. SUPERELEVATION (0.068 FT./FT.)
STA. 310+56.61 END SUPERELEVATION
STA. 310+56.61 BEGIN SUPERELEVATION
STA. 313+06.61 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 313+23.00 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 315+73.00 END SUPERELEVATION
STA. 315+73.00 BEGIN SUPERELEVATION
STA. 317+63.54 MAX. SUPERELEVATION (0.063 FT./FT.)
STA. 317+63.54 MAX. SUPERELEVATION (0.063 FT./FT.)
STA. 319+54.07 END SUPERELEVATION
STA. 319+54.07 BEGIN SUPERELEVATION
STA. 320+84.79 MAX. SUPERELEVATION (0.051 FT./FT.)
STA. 320+84.79 MAX. SUPERELEVATION (0.051 FT./FT.)
STA. 322+15.51 END SUPERELEVATION
STA. 323+95.09 BEGIN SUPERELEVATION
STA. 324+73.99 MAX. SUPERELEVATION (0.031 FT./FT.)
STA. 324+73.99 MAX. SUPERELEVATION (0.031 FT./FT.)
STA. 325+52.89 END SUPERELEVATION
STA. 325+52.89 BEGIN SUPERELEVATION
STA. 327+64.84 MAX. SUPERELEVATION (0.073 FT./FT.)
STA. 329+34.12 MAX. SUPERELEVATION (0.073 FT./FT.)
STA. 331+46.07 END SUPERELEVATION
STA. 333+20.49 BEGIN SUPERELEVATION
STA. 334+68.82 MAX. SUPERELEVATION (0.047 FT./FT.)
STA. 335+77.58 MAX. SUPERELEVATION (0.047 FT./FT.)
STA. 337+25.91 END SUPERELEVATION



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.		040207	48	212

(2) PLAN & PROFILE STA. 337+00-STA. 369+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15

STA. 341+60 IN PLACE
DBL. 24" X 24' C.M. PIPE CULVERT
REMOVE & CONSTRUCT
42" 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 IV)(TYPE 3 BEDDING) = 54 LIN. FT.
D.A. = 23 ACRES; Q25 = 63 C.F.S.

STA. 343+05 IN PLACE
24" X 27' PIPE CULVERT
REMOVE & CONSTRUCT
24" PIPE CULVERT
24" F.E.S. LT. & RT. = 2 EACH
24" C.M. PIPE (TYPE 2 BEDDING) = 52 LIN. FT.
24" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 48 LIN. FT.
D.A. = 1 ACRES; Q25 = 3 C.F.S.

CONSTRUCTION
P.I. 338+75.50
Δ = 25°34'21" LT.
D = 12°00'00"
T = 108.36'
L = 213.10'
P.C. 337+67.15
P.T. 339+80.25
e = 0.076 '/'
Ls = 250'

STA. 345+19 CONSTRUCT
DROP INLET (H=4'-6") ON LT. W/ 24" R.C. PIPE OUTLET TO RT. W/ F.E.S. ON RT.
24" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 46 LIN. FT.
24" F.E.S. = 1 EACH
TY MO = 4'-0"
TY C = 4' X 3'

STA. 346+22 IN PLACE
24" X 24' C.M. PIPE CULVERT
REMOVE & CONSTRUCT
DROP INLET (H=4'-6") W/OPEN BACK ON LT. W/ 24" R.C. PIPE OUTLET TO RT. W/ F.E.S. ON RT.
24" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 46 LIN. FT.
24" F.E.S. = 1 EACH
TY MO = 4'-0"
TY C = 4' X 3'
D.A. = 2 ACRES; Q25 = 6 C.F.S.

STA. 351+34 IN PLACE
32" X 25' C.M. PIPE CULVERT
REMOVE & CONSTRUCT
48" PIPE CULVERT
@ 20° LT. FWD. SKEW
48" F.E.S. LT. & RT. = 2 EACH
48" C.M. PIPE (TYPE 2 BEDDING) = 82 LIN. FT.
48" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 78 LIN. FT.
D.A. = 32 ACRES; Q25 = 87 C.F.S.

STA. 357+38 IN PLACE
18" X 25' C.M. PIPE CULVERT
REMOVE & CONSTRUCT
DBL. 48" PIPE CULVERT
@ 10° LT. FWD. SKEW
48" F.E.S. LT. & RT. = 4 EACH
48" C.M. PIPE (TYPE 2 BEDDING) = 108 LIN. FT.
48" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 100 LIN. FT.
D.A. = 61 ACRES; Q25 = 166 C.F.S.

STA. 360+86 - CONSTRUCT APPR. ON LT = 95 CU. YD.

STA. 354+00 CONSTRUCT APPR. ON RT. = 95 CU. YD.

STA. 353+20 INSTALL 24" X 36" PIPE CULVERT RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 145 CU. YD.

STA. 360+62 - CONSTRUCT APPR. ON RT = 200 CU. YD.

STA. 363+03 - CONSTRUCT APPR. ON RT = 185 CU. YD.

CONSTRUCTION
P.I. 342+26.72
Δ = 21°13'11" RT.
D = 10°00'00"
T = 107.33'
L = 212.20'
P.C. 341+19.39
P.T. 343+31.59
e = 0.068 '/'
Ls = 250'

CONSTRUCTION
P.I. 349+64.34
Δ = 7°53'53" RT.
D = 3°00'00"
T = 131.84'
L = 263.27'
P.C. 348+32.50
P.T. 350+95.77
e = 0.025 '/'
Ls = 200'

CONCRETE COMBINATION CURB & GUTTER (TYPE A)
STA. 339+00 TO STA. 350+00 ON LT. = 1100 L.F.

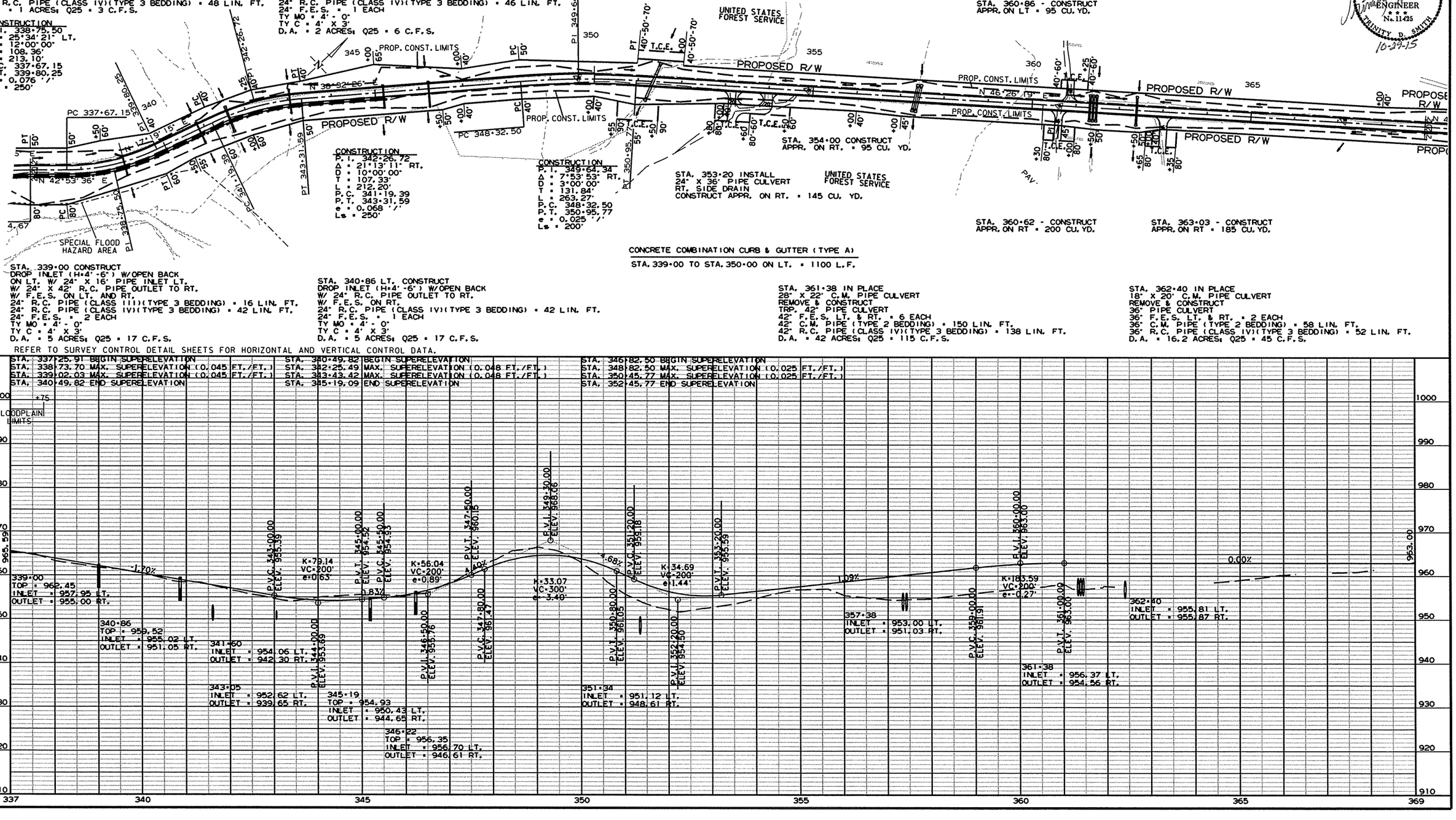
STA. 339+00 CONSTRUCT
DROP INLET (H=4'-6") W/OPEN BACK ON LT. W/ 24" X 16' PIPE INLET LT. W/ 24" X 42' R.C. PIPE OUTLET TO RT. W/ F.E.S. ON LT. AND RT.
24" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 16 LIN. FT.
24" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 42 LIN. FT.
24" F.E.S. = 2 EACH
TY MO = 4'-0"
TY C = 4' X 3'
D.A. = 5 ACRES; Q25 = 17 C.F.S.

STA. 340+86 LT. CONSTRUCT
DROP INLET (H=4'-6") W/OPEN BACK W/ 24" R.C. PIPE OUTLET TO RT. W/ F.E.S. ON RT.
24" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 42 LIN. FT.
24" F.E.S. = 1 EACH
TY MO = 4'-0"
TY C = 4' X 3'
D.A. = 5 ACRES; Q25 = 17 C.F.S.

STA. 361+38 IN PLACE
28" X 22' C.M. PIPE CULVERT
REMOVE & CONSTRUCT
TRP. 42" PIPE CULVERT
42" F.E.S. LT. & RT. = 6 EACH
42" C.M. PIPE (TYPE 2 BEDDING) = 150 LIN. FT.
42" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 138 LIN. FT.
D.A. = 42 ACRES; Q25 = 115 C.F.S.

STA. 362+40 IN PLACE
18" X 20' C.M. PIPE CULVERT
REMOVE & CONSTRUCT
36" PIPE CULVERT
36" F.E.S. LT. & RT. = 2 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 58 LIN. FT.
36" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 52 LIN. FT.
D.A. = 16.2 ACRES; Q25 = 45 C.F.S.

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



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
11-20-15			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040207	49	212

(2) PLAN & PROFILE STA. 369+00-STA. 401+00

STA. 372+24 IN PLACE
DBL. PIPE CULVERT
REMOVE & CONSTRUCT
@ STA. 372+30
DBL. 72" PIPE CULVERT
72" F.E.S. LT. & RT. = 4 EACH
72" C.M. PIPE (TYPE 2 BEDDING) = 144 LIN. FT.
72" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 136 LIN. FT.
D.A. = 149 ACRES; Q25 = 406 C.F.S.

STA. 382+05 IN PLACE
24" X 32' C.M. PIPE CULVERT
REMOVE & CONSTRUCT
DROP INLET (H=4'-6") W/OPEN BACK
ON LT. W/ 24" R.C. PIPE OUTLET TO RT.
W/ F.E.S. ON RT.
24" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 40 LIN. FT.
24" F.E.S. = 1 EACH
TY MO = 4'-0"
TY C = 4' X 3'
D.A. = 3.7 ACRES; Q25 = 11 C.F.S.

STA. 385+82 IN PLACE
24" X 27' C.M. PIPE CULVERT
REMOVE & CONSTRUCT
DBL. 48" PIPE CULVERT
48" F.E.S. LT. & RT. = 4 EACH
48" C.M. PIPE (TYPE 2 BEDDING) = 100 LIN. FT.
48" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 92 LIN. FT.
D.A. = 25.7 ACRES; Q25 = 70 C.F.S.

STA. 371+90 INSTALL
CONSTRUCT APPR. ON LT. = 25 CU. YD.

CONSTRUCTION
P.I. 373+78.92
Δ = 25°03'39" LT.
D = 10°00'00"
T = 127.34'
L = 250.61'
P.C. 372+51.58
P.T. 375+02.19
e = 0.068 '/'
Ls = 250'

CONSTRUCTION
P.I. 383+66.45
Δ = 3°00'05" LT.
D = 1°00'00"
T = 150.10'
L = 300.13'
P.C. 382+16.35
P.T. 385+16.48
e = N.C.

STA. 387+30 INSTALL
18" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 30 CU. YD.

LOCATION	APPROACH GUTTERS (TYPE A) W=4'-0" CU. YD.	REINFORCING STEEL - ROADWAY (GRADE 60) POUND
STA. 390+47.34 - STA. 390+77.34 ON RT.	4.25	360
STA. 390+70.84 - STA. 391+00.84 ON LT.	4.25	360
STA. 392+20.16 - STA. 392+50.16 ON RT.	4.25	360
STA. 392+43.66 - STA. 392+73.66 ON LT.	4.25	360

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-20-15

STA. 393+50 INSTALL
24" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 90 CU. YD.

STA. 371+00 INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. = 5 CU. YD.

STA. 371+70 INSTALL
CONSTRUCT APPR. ON RT. = 320 CU. YD.

CONCRETE COMBINATION CURB & GUTTER (TYPE A)
STA. 381+00 TO STA. 385+00 ON LT. = 400 L.F.

STA. 391+06 - STA. 391+50 IN PLACE
45' X 15' BRIDGE NO. 20653 CONSISTING OF
A SINGLE SPAN WITH STEEL BEAMS AND GRATING WITH CONCRETE
SUPPORTED BY CONCRETE ABUTMENTS.
REMOVE AS EXISTING BRIDGE STRUCTURE = 1.00 LUMP SUM

LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	TERMINAL ANCHOR POSTS (TY. 1)	BRIDGE END TERMINAL
STA. 379+49.19 TO STA. 390+67.94 RT.	1100 L.F.	1 EACH	1 EACH	
STA. 389+97.69 TO STA. 390+91.44 LT.	75 L.F.	1 EACH	1 EACH	
STA. 392+53.06 TO STA. 392+73.06 LT.				1 EACH
STA. 392+29.56 TO STA. 393+23.31 RT.	75 L.F.	1 EACH	1 EACH	

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

CONSTRUCTION
P.I. 389+07.34
Δ = 15°15'56" RT.
D = 10°00'00"
T = 76.78'
L = 152.66'
P.C. 388+30.55
P.T. 389+83.21
e = 0.068 '/'
Ls = 250'

BR. END STA. 390+89.09
BRIDGE NO. 06955
28'-0" CLEAR ROADWAY
142'-10" TOTAL LENGTH
140'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
(42'-6", 55', 42'-6")
BR. END STA. 392+31.91

OBLITERATION

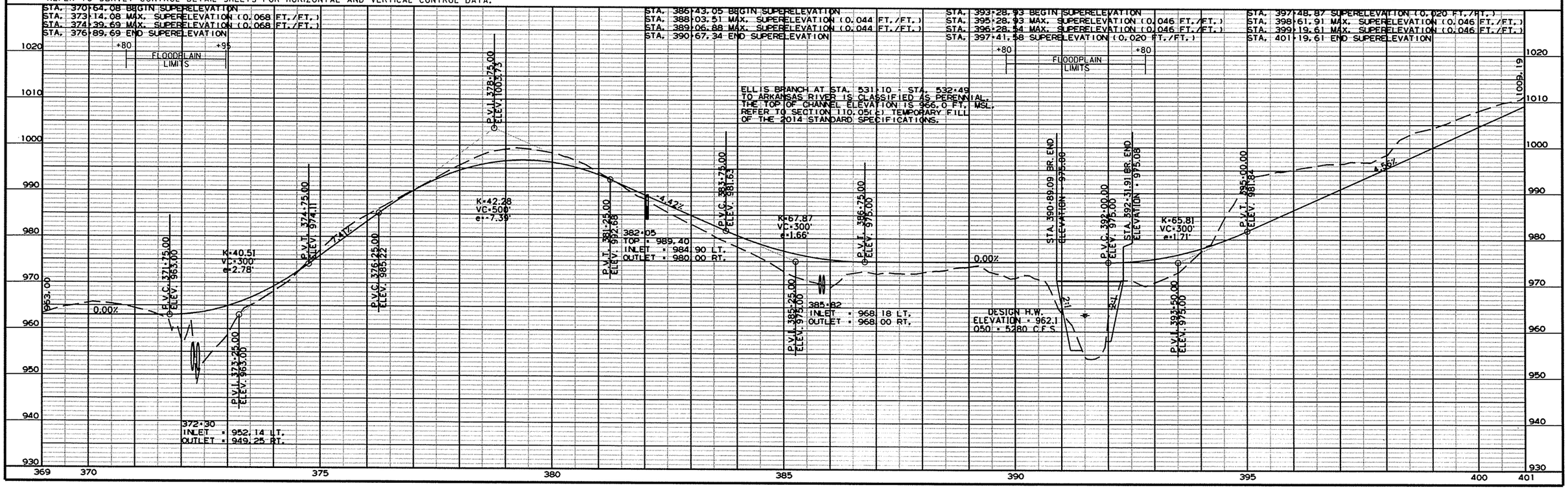
STA. 393+62 IN PLACE
12" X 23' CMP
REMOVE

STA. 393+50 INSTALL
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 55 CU. YD.

CONSTRUCTION
P.I. 395+79.10
Δ = 11°58'35" RT.
D = 6°00'00"
T = 100.17'
L = 199.61'
P.C. 394+78.93
P.T. 396+78.54
e = 0.046 '/'
Ls = 200'

CONSTRUCTION
P.I. 398+90.94
Δ = 9°27'44" RT.
D = 6°00'00"
T = 79.03'
L = 157.70'
P.C. 398+11.91
P.T. 399+69.61
e = 0.046 '/'
Ls = 200'

OBLITERATE EXISTING ROADWAY
3569 CU. YD.



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.		040207	50	212

(2) PLAN & PROFILE STA. 401+00-STA. 431+55.53

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-29-15

STA. 403+93 INSTALL
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 140 CU. YD.

STA. 412+45 IN PLACE
12" X 23' C.M. PIPE CULVERT
REMOVE

STA. 415+78 IN PLACE
16' X 16' X 31' BOX CULVERT
REMOVE & CONSTRUCT
24" PIPE CULVERT
24" F.E.S. LT. & RT. = 2 EACH
24" C.M. PIPE (TYPE 2 BEDDING) = 44 LIN. FT.
24" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 40 LIN. FT.
D.A. = 5.5 ACRES; Q25 = 15 C.F.S.

STA. 422+02 IN PLACE
24" X 31' C.M. PIPE CULVERT
REMOVE & CONSTRUCT
36" PIPE CULVERT
36" 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. = 13 ACRES; Q25 = 36 C.F.S.

CONSTRUCTION
P.I. 403+57.16
Δ = 3°32'58" LT.
D = 3°00'00"
T = 59.18'
L = 118.32'
P.C. 402+97.98
P.T. 404+16.30
e = 0.025 '/'
Ls = 200'

STA. 412+35 - CONSTRUCT
24" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 5 CU. YD.

CONSTRUCTION
P.I. 416+56.30
Δ = 20°48'08" RT.
D = 4°00'00"
T = 262.92'
L = 520.06'
P.C. 413+93.38
P.T. 419+13.43
e = 0.033 '/'
Ls = 200'

CONSTRUCTION
P.I. 430+13.73
Δ = 36°58'10" LT.
D = 20°00'00"
T = 95.77'
L = 184.85'
P.C. 429+17.96
P.T. 431+02.81
e = 0.097 '/'
Ls = 250'

CONSTRUCTION
P.I. 424+84.56
Δ = 7°00'31" LT.
D = 5°00'00"
T = 70.17'
L = 140.17'
P.C. 424+14.38
P.T. 425+54.56
e = 0.040 '/'
Ls = 200'

LOCATION	GUARDRAIL (TYPE A)	TERMINAL ANCHOR POSTS (TY. 1)
STA. 426+25.00 TO STA. 428+50.00 ON RT.	225 L.F.	1 EACH
STA. 428+63.75 TO STA. 428+50.00 ON RT.	50 L.F.	1 EACH
STA. 428+90.63 TO STA. 429+00.00 ON RT.	50 L.F.	1 EACH
STA. 429+00.00 TO STA. 430+50.00 ON RT.	150 L.F.	1 EACH

STA. 426+05 - CONSTRUCT
CO. RD. TURNOUT ON RT. = 45 CU. YD.

OBLITERATE EXISTING ROADWAY
4450 CU. YD.

OBLITERATION

STA. 408+66 IN PLACE
36" X 25' C.M. PIPE CULVERT
REMOVE & CONSTRUCT
@ STA. 408+85
48" PIPE CULVERT
@ 20° LT. FWD. SKEW
48" F.E.S. LT. & RT. = 2 EACH
48" C.M. PIPE (TYPE 2 BEDDING) = 98 LIN. FT.
48" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 94 LIN. FT.
D.A. = 92 ACRES; Q25 = 251 C.F.S.

STA. 412+35 - CONSTRUCT
18" X 34' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 20 CU. YD.

STA. 419+15 - INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 10 CU. YD.
UNCLASSIFIED EXCAVATION = 5 CU. YD.

STA. 417+84 IN PLACE
24" X 28' C.M. PIPE CULVERT
REMOVE & CONSTRUCT
24" PIPE CULVERT
@ 20° LT. FWD. SKEW
24" F.E.S. LT. & RT. = 2 EACH
24" C.M. PIPE (TYPE 2 BEDDING) = 48 LIN. FT.
24" R.C. PIPE (CLASS V)(TYPE 3 BEDDING) = 44 LIN. FT.
D.A. = 5.5 ACRES; Q25 = 15 C.F.S.

STA. 427+88 IN PLACE
24" X 31' C.M. PIPE CULVERT
REMOVE & CONSTRUCT
@ STA. 428+06
24" PIPE CULVERT
24" F.E.S. LT. & RT. = 2 EACH
24" C.M. PIPE (TYPE 2 BEDDING) = 84 LIN. FT.
24" R.C. PIPE (CLASS III)(TYPE 2 BEDDING) = 80 LIN. FT.
D.A. = 7.3 ACRES; Q25 = 20 C.F.S.

STA. 428+48 - IN PLACE
18" X 33' R.C. PIPE
RT. SIDE DRAIN
REMOVE & CONSTRUCT
24" X 98' PIPE CULVERT RT. SIDE DRAIN
CONSTRUCT CO. RD. TURNOUT = 1225 CU. YD.

STA. 429+72 IN PLACE
18" X 24' C.M. PIPE CULVERT
RETAIN

STA. 410+75 IN PLACE
24" X 33' RCP
RETAIN

STA. 431+55.53
END JOB 040207

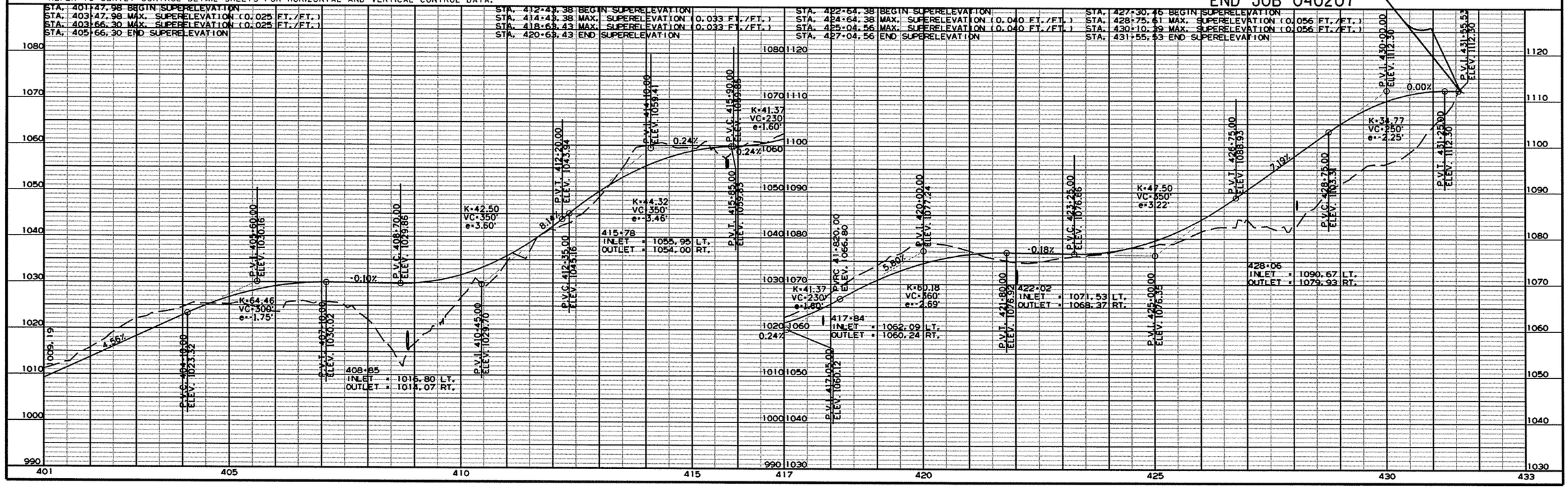
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STA. 401+47.98 BEGIN SUPERELEVATION
STA. 403+47.98 MAX. SUPERELEVATION (0.025 FT./FT.)
STA. 403+66.30 MAX. SUPERELEVATION (0.025 FT./FT.)
STA. 405+66.30 END SUPERELEVATION

STA. 412+49.38 BEGIN SUPERELEVATION
STA. 414+49.38 MAX. SUPERELEVATION (0.033 FT./FT.)
STA. 418+63.43 MAX. SUPERELEVATION (0.033 FT./FT.)
STA. 420+63.43 END SUPERELEVATION

STA. 422+64.38 BEGIN SUPERELEVATION
STA. 424+64.38 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 425+04.56 MAX. SUPERELEVATION (0.040 FT./FT.)
STA. 427+04.56 END SUPERELEVATION

STA. 427+30.46 BEGIN SUPERELEVATION
STA. 428+75.61 MAX. SUPERELEVATION (0.056 FT./FT.)
STA. 430+10.39 MAX. SUPERELEVATION (0.056 FT./FT.)
STA. 431+55.53 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.		040207	51	212
				① 06955 -		LAYOUT		- 45149

Note: For R/W Data and Guard Rail, See Rdwy. Plans.

1'-6" Dumped Riprap on Filter Blanket (see Std. Dwg. No. 55001). Place as shown at both bridge ends, top of Riprap Elevation 966.0.

Toe of Fill

PT 389+83.21

Varies - 2'-0" to 4'-0" Shoulder

Varies - 24'-0" to 28'-0" Fin. Crown

20'-0" Pavement

Tang. Dist. = 105.88'

Approx. 7.0 mi. To Jct. S.H. 220

ELLIS BRANCH

1V:3H

40' Typ.

1V:2H

390+00

391+00

392+00

393+00

394+00

31'-2" out to out

28'-0" Cl. Rdwy.

2.0% Slope

1'-5" Para.

10'-0"

Bridge End Terminal ① (See Rdwy. Plans)

Use Type A Approach Gutters (w=4'-0") at both ends of bridge, see Std. Dwg. No. 55030A.

① Eliminate or modify Type A approach gutter curb section to fit bridge end terminal. No additional payment will be made for eliminating or modifying curb section.

C.L. Bridge & C.L. Construction

N33° 38' 31"E

Tang. Dist. = 247.02'

Approx. 0.7 mi. To Jct. S.H. 170

TRAIL

Sta. 391+17, 27' Rt.

Excavate to Elev. 956.0

Excavate to Elev. 958.0

Sta. 391+78, 24' Rt.

Temporary Constr. Easement Sta. 390+65, 75' Rt.

Toe of Cut

Sta. 390+94, 78' Rt.

Exist. Br. No. 20653

Sta. 391+50, 85' Rt.

Temporary Constr. Easement Sta. 391+90, 90' Rt.

Note: After the new bridge has been open to traffic, the Contractor shall remove the existing bridge and approaches as shown. Approx. 300 cu. yds. of channel excavation.

PLAN

300' V.C.
e = 1.71'
0.0%
4.56%
P.V.I. Sta. 393+50.00
P.V.I. Elev. 975.00

VERTICAL CURVE DATA

Total Length of Bridge = 142'-10"

1'-5" | 140'-0" Continuous Composite W-Beam Unit (42'-6", 55', 42'-6") | 1'-5"

C.L. 2" Poured Silicone Jt.

C.L. 2" Poured Silicone Jt.

Slope intercept Sta. 390+81.09

Beg. of Bridge Sta. 390+89.09 Elev. 975.00

C.L. Deck to Low Steel = 3'-3"

C.L. Bent 2 Sta. 391+33.00 Elev. 975.00

C.L. Deck to Low Side Top of Cap = 3'-8"

Low Steel to Design High Water = 9.8'

C.L. Bent 3 Sta. 391+88.00 Elev. 975.00

Concrete Parapet Rail

End of Bridge Sta. 392+31.91 Elev. 975.08

Slope intercept Sta. 392+39.91

Guard Rail, See Rdwy. Plans

Proposed Grade Line

Existing Ground Line

Exp. | Fix | Fix | Exp.

23'-6"

20'-6"

24' Piles

Elev. 947.83

Elev. 950.83

Elev. 963.92

050 Design H.W. = Elev. 962.1

Bt. 1 | Bt. 2 | Bt. 3 | Bt. 4

Note: All stations and elevations are shown along C.L. Bridge & C.L. Construction. Elevations are shown at Working Point. See Dwg. No. 45156 for "Rounding Detail".

Note: For Soil Borings and Boring Legend, see Drwg. No. 45150.

ELEVATION

HYDRAULIC DATA

Drainage area = 6.8 square miles.

FLOOD	FREQUENCY	DISCHARGE	② NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
DESCRIPTION	YEARS	CFS	FEET	FEET
Design	50	5280	962.1	962.4
Base	100	6410	963.0	963.3
Overtopping	> 500			
Extreme	500	9450	964.8	965.0

② Unconstricted water surface without structure or roadway approaches at the proposed bridge location. Historical H.W. Elev. = 959.9 ft.

Proposed Low Bridge Chord Elev. = 971.75

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 Specifications.

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

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 M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M 270, GR. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, GR. 36)	Fy = 36,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: Piling in Bent 1 shall be HP12x53 (Grade 50) and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 55 tons per pile and into the material designated as hard limestone or hard sandstone on the boring legend. Piles in Bent 1 shall be driven after embankment to bottom of cap is in place and shall have a minimum penetration of 10 feet below bottom of cap. Length of piling shown is for estimating quantities and for use in determining payment for cut-off and build-up in accordance with the Standard Specifications. Actual pile lengths shall be determined in the field. The Contractor shall use approved steel H-Pile driving points on all piles.

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

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 avoid shattering of rock faces by excessive blasting. Concrete shall be poured directly against excavated surfaces of rock. Footing excavations 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 2 Protective Surface Treatment shall be applied to the roadway surface and to the face and top of the concrete parapet rail.

DETAIL DRAWINGS:	DRAWING NO.
End Bents	45151-45152 & 45154-45155
Intermediate Bents	45153
140'-0" Continuous W-Beam Unit	45156 thru 45159
Elastomeric Bearings	45160
Steel Piling	55020
Type A Approach Gutters	55030A

EXISTING BRIDGE: Existing Bridge No. 20653 (Log Mile 1.35) is 13.8' wide and 45' long and consists of two Army Tread deck units with a center concrete deck supported by concrete abutments.

REMOVAL AND SALVAGE: After the new bridge is open to traffic, existing Bridge No. 20653 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-5-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER ELLIS BRANCH
DEVIL'S DEN - WEST (S)
WASHINGTON COUNTY

ROUTE 220 SEC. 3

ARKANSAS STATE HIGHWAY COMMISSION

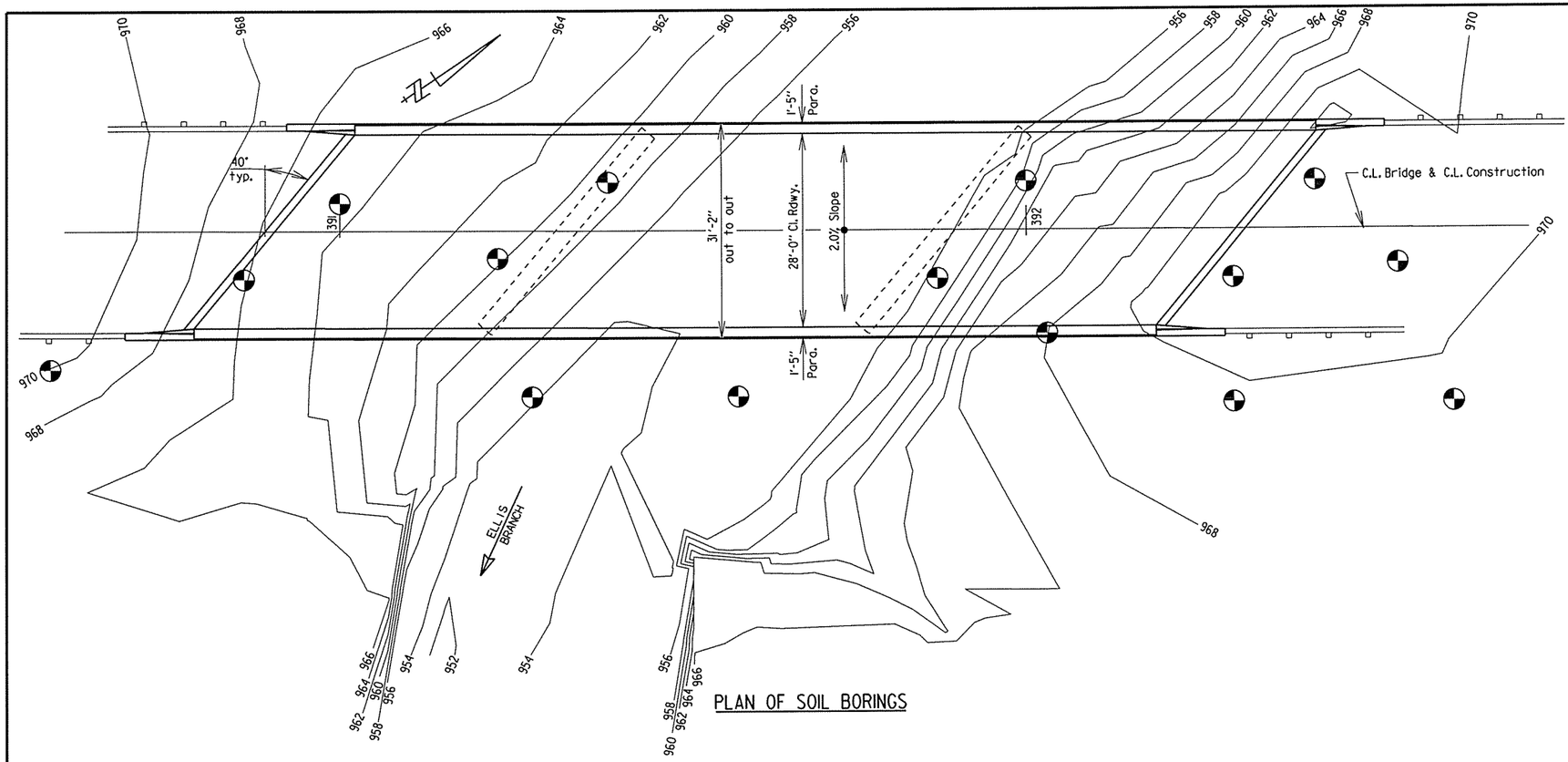
LITTLE ROCK, ARK.

DRAWN BY: LDF DATE: 11-13-96 FILENAME: b040207_11.dgn
CHECKED BY: JWP DATE: 10-5-15 SCALE: 1"= 20'-0"
DESIGNED BY: MEC DATE: 10-96

BRIDGE NO. 06955 DRAWING NO. 45149

PRINT DATE: 10/5/2015

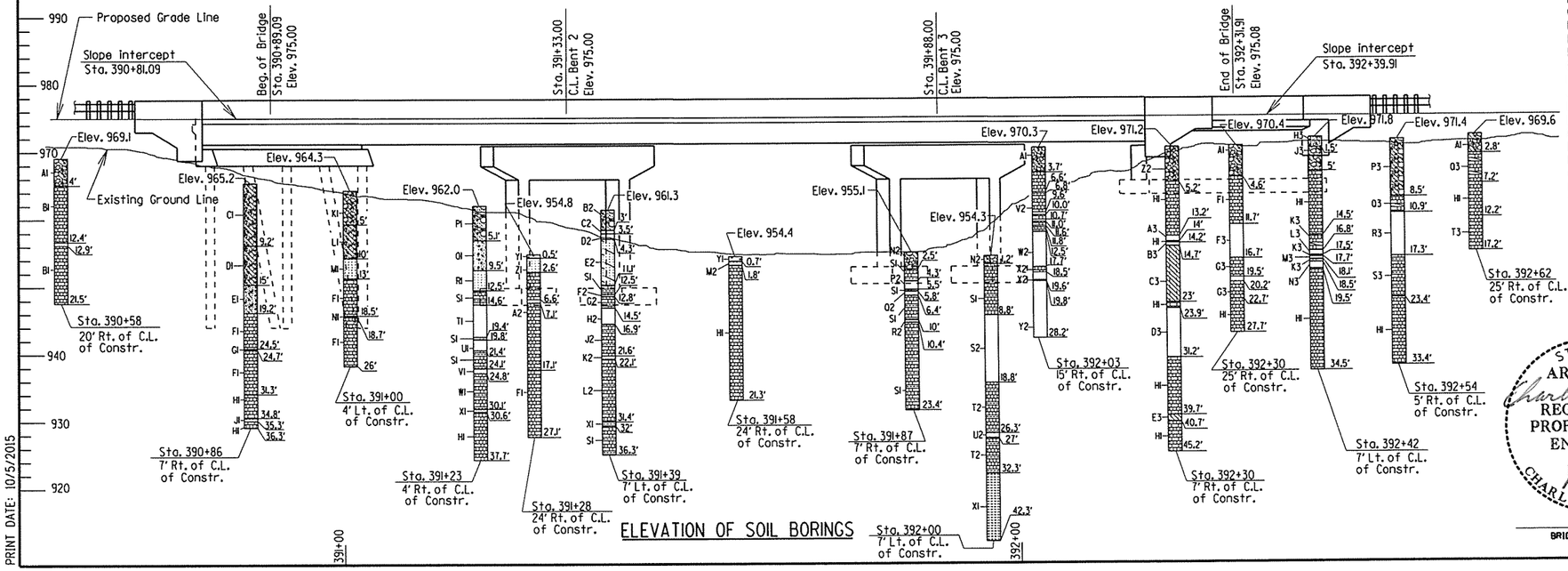
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040207	52	212
				(1) 06955 -		LAYOUT	- 45150	



PLAN OF SOIL BORINGS

BORING LEGEND

A1-Moist, Stiff, Brown and Gray Sandy Clay with Limestone Fragments and Cobbles
B1-Hard, Gray Limestone (A cavity was encountered from 12.4' to 12.9')
C1-Moist to Wet, Medium Stiff, Brown and Gray Sandy, Silty Clay with Sandstone Fragments
D1-Moist, Very Stiff, Brown and Gray Sandy, Silty Clay with Sandstone Fragments
E1-Wet, Loose, Brown and Gray Sand with Clay Seams and Sandstone Fragments
F1-Hard, Gray Fractured Limestone
G1-Cavity (24.5' to 24.7')
H1-Hard, Gray Limestone
J1-Medium Hard, Dark Gray Shale
K1-Moist, Hard to Very Stiff, Brown and Gray Sandy, Silty Clay with Sandstone Fragments and Cobbles
L1-Moist, Hard, Brown and Gray Sandy, Silty Clay with Sandstone Fragments
M1-Hard, Brown and Gray Sandstone
N1-Cavity (18.5' to 18.7')
P1-Moist, Medium Dense, Brown and Gray Sand with Clay Seams, Gravel, Cobbles and Boulders
Q1-Moist, Medium Dense, Gray Sand and Gravel
R1-Hard, Brown and Gray Fractured Sandstone
S1-Hard, Gray Limestone with Thin Dark Gray Shale Seams
T1-Soil-filled Cavity (14.6' - 19.4')
U1-Soil-filled Cavity (19.8' - 21.4')
V1-Soil-filled Cavity (24.1' - 24.8')
W1-Hard, Gray Limestone with Thin Dark Gray Shale Seams (Soil-filled Cavity from 25.3' to 25.4')
X1-Hard, Dark Gray Calcareous Shale
Y1-Wet, Medium Dense, Brown and Gray Creek Gravel
Z1-Medium Hard, Brown and Gray Sandstone with some Poorly-Cemented Sandstone Seams
A2-Hard, Gray Limestone (A cavity was encountered from 6.6' to 7.1')
B2-Moist, Medium Dense, Brown Sand with Clay Seams, Gravel, Cobbles and Boulders
C2-Hard, Brown Fractured Sandstone with Clay Seams
D2-Soil-filled Cavity (3.5' - 4.3')
E2-Hard, Brown and Gray Fractured Sandstone with Clay Seams
F2-Soil-filled Cavity (12.5' - 12.8')
G2-Hard, Gray Limestone with Thin Dark Gray Shale Seams (Soil-filled Cavity from 13.7' to 13.9')
H2-Soil-filled Cavity (14.5' - 16.9')
J2-Hard, Gray Limestone with Thin Dark Gray Shale Seams (Soil-filled Cavity from 17.1' to 17.3')
K2-Soil-filled Cavity (21.6' - 22.1')
L2-Hard, Gray Limestone with Thin Dark Gray Shale Seams (Soil-filled Cavity from 22.8' to 23.0')
M2-Medium Hard, Brown and Gray Sandstone
N2-Moist, Soft, Brown and Gray Sandy Clay with Gravel and Cobbles
P2-Soil-filled Cavity (4.3' - 5.5')
Q2-Soil-filled Cavity (5.8' - 6.4')
R2-Soil-filled Cavity (10.0' - 10.4')
S2-Soil-filled Cavity (18.8' - 18.8')
T2-Hard, Gray Fractured Limestone with Thin Dark Gray Shale Seams
U2-Soil-filled Cavity (26.3' - 27.0')
V2-Hard, Gray Limestone (Cavities were encountered from 6.6' to 6.8'; from 9.6' to 10.0'; from 10.7' to 11.0' and from 11.6' to 11.8')
W2-Soil-filled Cavity (12.5' to 17.7')
X2-Hard, Gray Limestone (A cavity was encountered from 18.5' to 19.6')
Y2-Cavity (19.8' to 28.2')
Z2-Moist, Hard, Brown and Gray Sandy, Silty Clay with Sandstone Fragments and Cobbles
A3-Cavity (13.2' to 14.0')
B3-Cavity (14.2' to 14.7')
C3-Moist, Soft, Brown Silty Clay with Traces of Limestone Fragments
D3-Soil-filled Cavity (23.9' to 31.2')
E3-Moist, Stiff, Gray Silty Clay
F3-Cavity (11.7' to 16.7')
G3-Hard, Gray Fractured Limestone (A cavity was encountered from 19.5 to 20.2')
H3-Moist, Dense, Brown and Gray Sand with Clay Seams and Sandstone Fragments
J3-Moist, Dense, Brown and Gray Sand with Clay Seams, Sandstone Fragments and Cobbles
K3-Hard, Gray Limestone with Clay Seams
L3-Cavity (16.8' to 17.5')
M3-Cavity (17.7' to 18.1')
N3-Cavity (18.5' to 19.5')
P3-Moist, Stiff, Brown and Gray Sandy Clay with Limestone Fragments, Cobbles and Boulders
Q3-Hard, Gray Fractured Limestone with Clay Seams
R3-Cavity (10.9' to 17.3')
S3-Hard, Gray Limestone with Dark Gray Shale Seams
T3-Hard, Gray Limestone with some Dark Gray Shale Seams



ELEVATION OF SOIL BORINGS

PRINT DATE: 10/5/2015

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-5-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER ELLIS BRANCH
DEVIL'S DEN - WEST (S)
WASHINGTON COUNTY

ROUTE 220 SEC. 3

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LDF DATE: 11-15-96
CHECKED BY: JJP DATE: 10-5-15
DESIGNED BY: MEC DATE: 10-96
FILENAME: b040207_l1.dgn
SCALE: 1"= 10'-0"

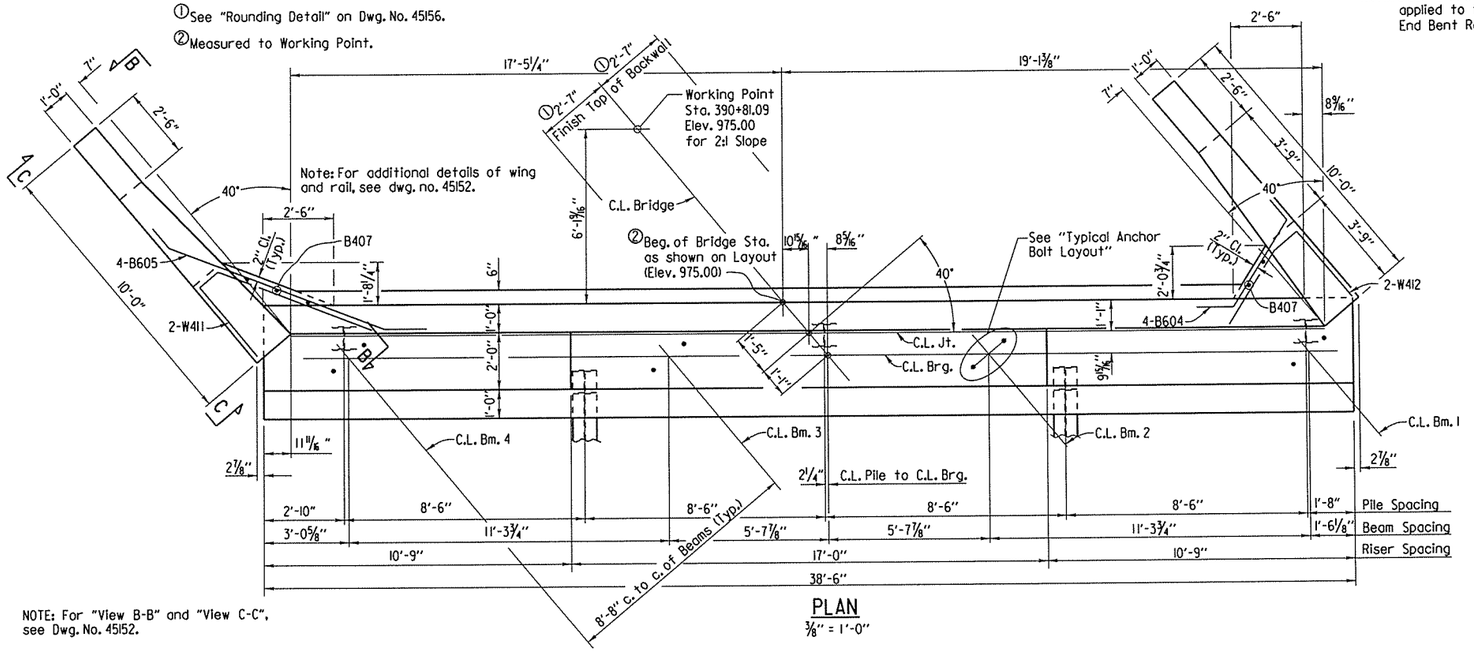
BRIDGE NO. 06955 DRAWING NO. 45150

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.		040207	53	212
				(1) 06955	-	BENT DTLS. -	45151	

①See "Rounding Detail" on Dwg. No. 45156.

②Measured to Working Point.

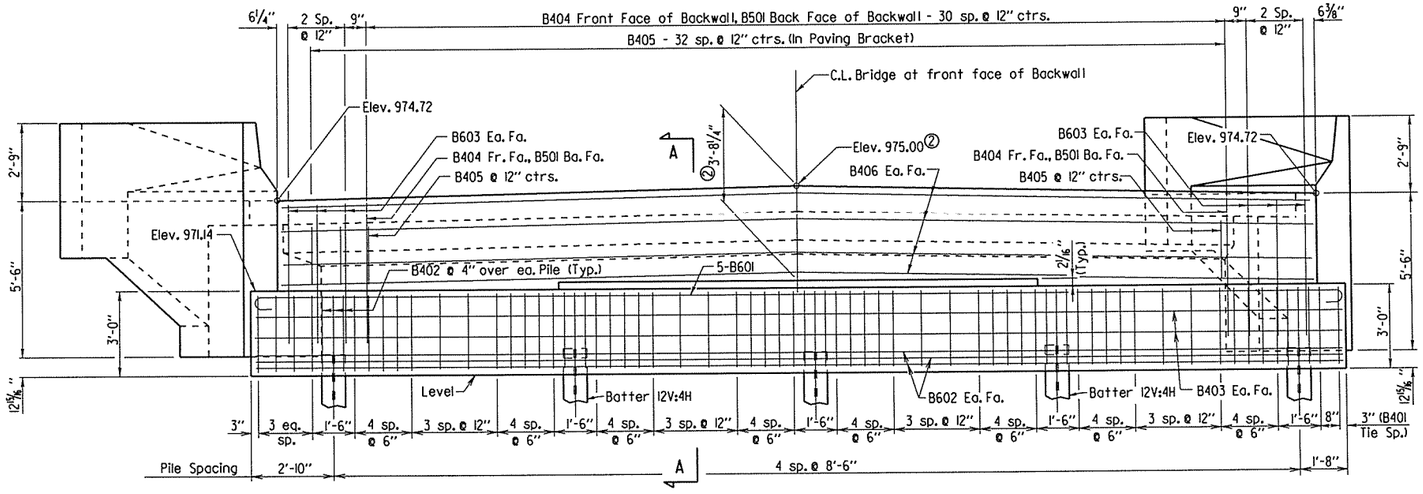
Note: Class 2 Protective Surface Treatment shall be applied to the Roadway Face and Top of the End Bent Rail and to the Top of the Backwall.



PLAN

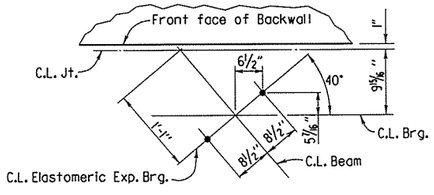
⅜" = 1'-0"

NOTE: For "View B-B" and "View C-C", see Dwg. No. 45152.



ELEVATION (LOOKING BACK)

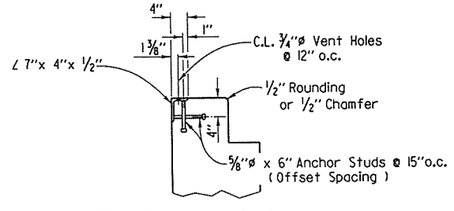
⅜" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT

No Scale

Note: For details of Elastomeric Bearings, see drwg. no. 45160.



Note: For additional Joint Details, see Dwg. No. 45157.

DETAIL Z

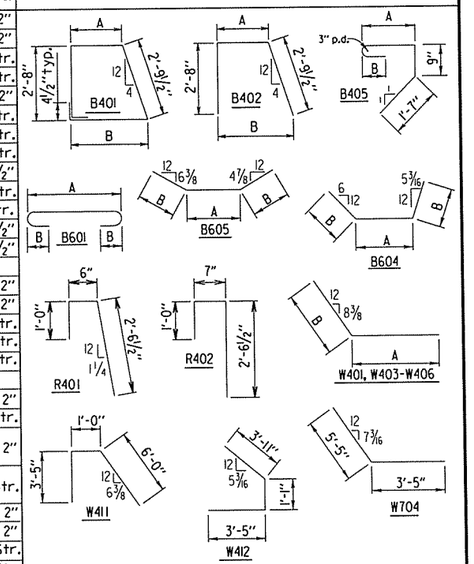
¾" = 1'-0"

Note: Concrete shall be hand packed under the joint armor in the backwall.

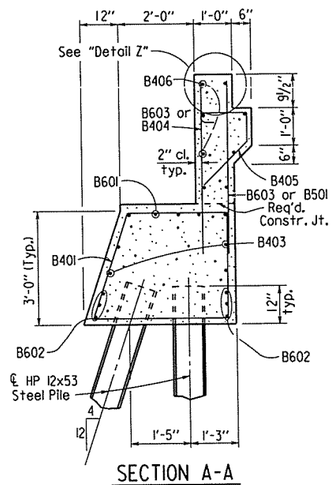
BAR LIST

Mark	No. Req'd.	Length	A	B	Pin Dia.
B401	54	12'-1"	2'-8"	3'-7"	2"
B402	15	8'-0"	2'-8"	3'-7"	2"
B403	4	38'-2"			Str.
B404	31	4'-10"			Str.
B405	33	3'-11"	1'-2"	4½"	2"
B406	8	36'-2"			Str.
B407	5	4'-4"			Str.
B501	31	5'-1"			Str.
B601	5	39'-6"	38'-2"	6"	4½"
B602	6	38'-2"			Str.
B603	12	5'-1"			Str.
B604	4	6'-1"	4'-1"	1'-0"	4½"
B605	4	9'-9"	7'-9"	1'-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	6'-9"	5'-7"	1'-2"	2"
W402	8	7'-11"			Str.
W403-W406	2 Ea.	Var. 3'-6" to 5'-1"	Var. 2'-4" to 3'-11"	1'-2"	2"
W407-W410	2 Ea.	Var. 4'-6" to 6'-5"			Str.
W411	2	10'-3"			2"
W412	2	8'-3"			2"
W701	12	9'-8"			Str.
W702	4	6'-3"			Str.
W703	4	5'-0"			Str.
W704	4	8'-10"			5¼"

Bending Diagrams



(Dimensions are out to out of bars.)



SECTION A-A

½" = 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 (fy = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

The backwall shown above the required construction joint shall not be poured until the entire deck slab has been poured.

Structural steel in end bents shall be AASHTO M 270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".

If anchor bolts are drilled into cap, top reinforcing bars shall be properly spaced to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see Layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-5-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2

DETAILS OF BENT NO. 1

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LDF DATE: 5-6-97 FILENAME: b040207_bl.dgn

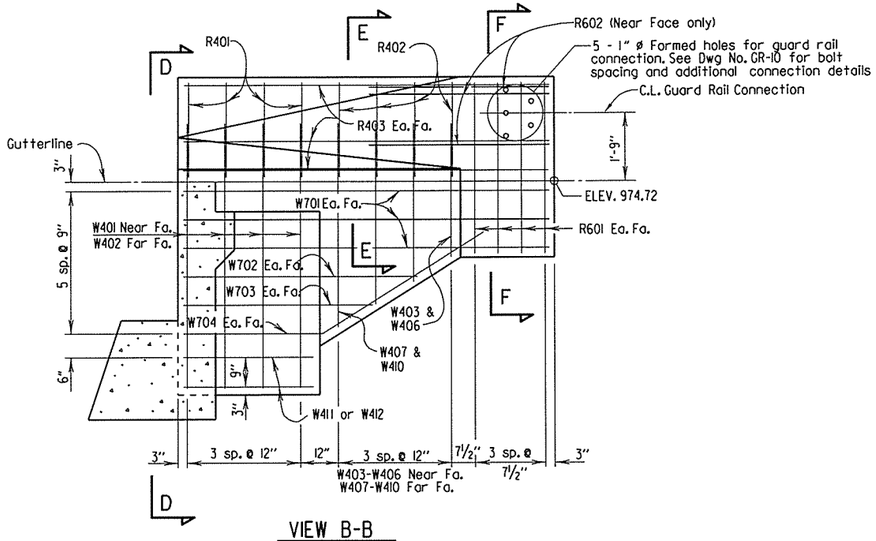
CHECKED BY: JWP DATE: 10-5-15 SCALE: As Noted

DESIGNED BY: GEC DATE: 2-97

BRIDGE NO. 06955 DRAWING NO. 45151

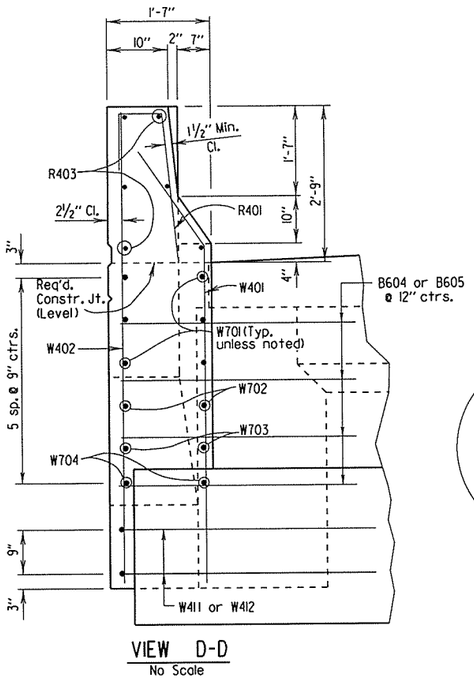
PRINT DATE: 10/5/2015

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.		040207	54	22
				(1) 06955	-	BENT DTLS.	-	45152



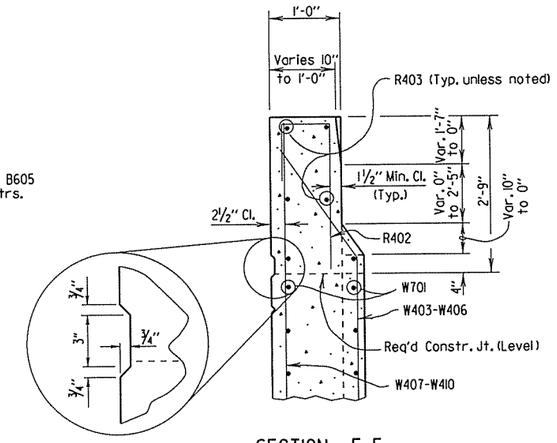
VIEW B-B

½" = 1'-0"



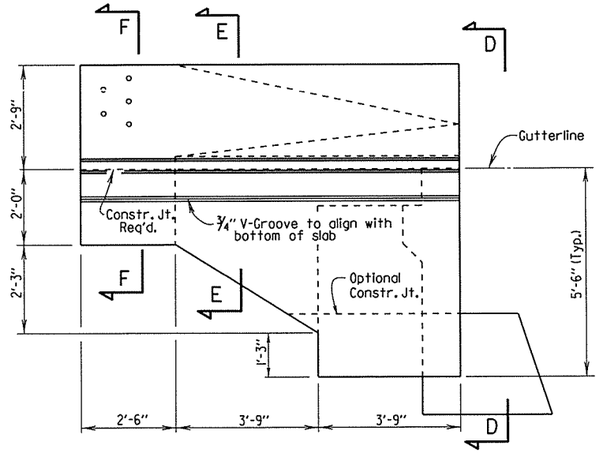
VIEW D-D

No Scale



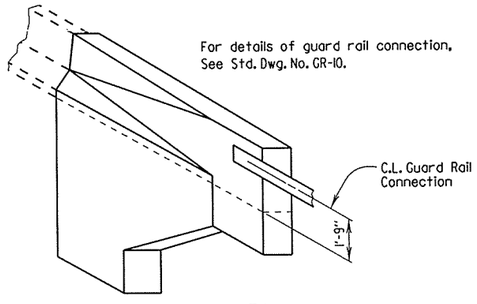
SECTION E-E

No Scale



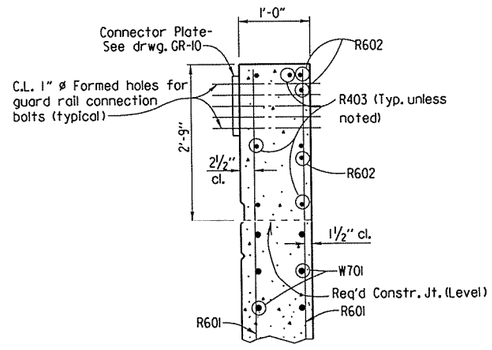
VIEW C-C

½" = 1'-0"



THREE DIMENSIONAL VIEW OF RAIL

No Scale



SECTION F-F

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-5-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT NO. 1

ROUTE SEC.

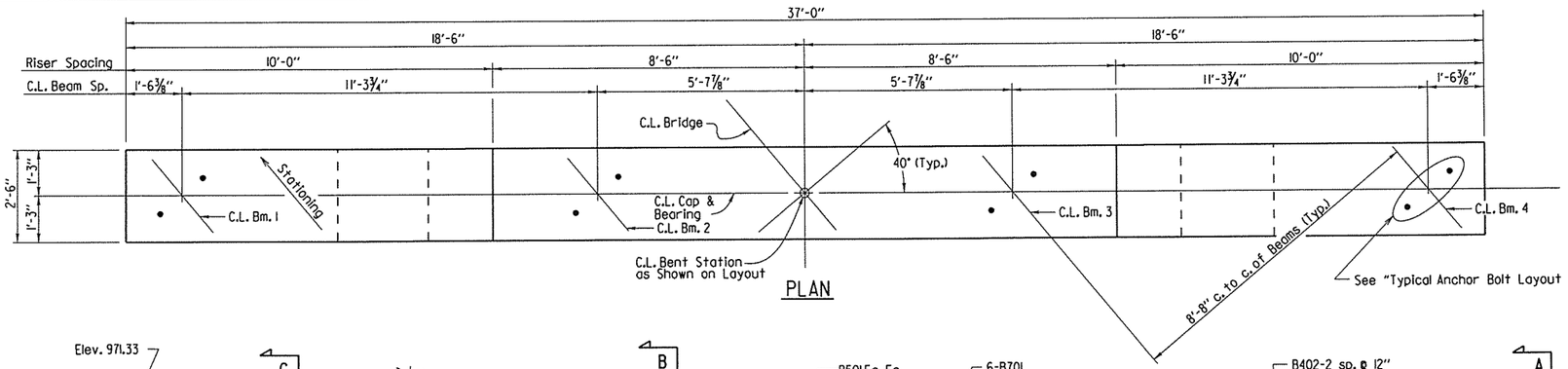
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LDF DATE: 5-6-97
CHECKED BY: JNP DATE: 10-5-15
DESIGNED BY: GEC DATE: 2-97
FILENAME: b040207_bl.dgn
SCALE: As Noted

BRIDGE NO. 06955 DRAWING NO. 45152

PRINT DATE: 10/5/2015

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.		040207	55	212
				(1) 06955 - BENT DTLS. - 45153				

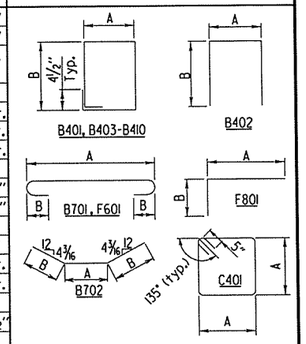


PLAN

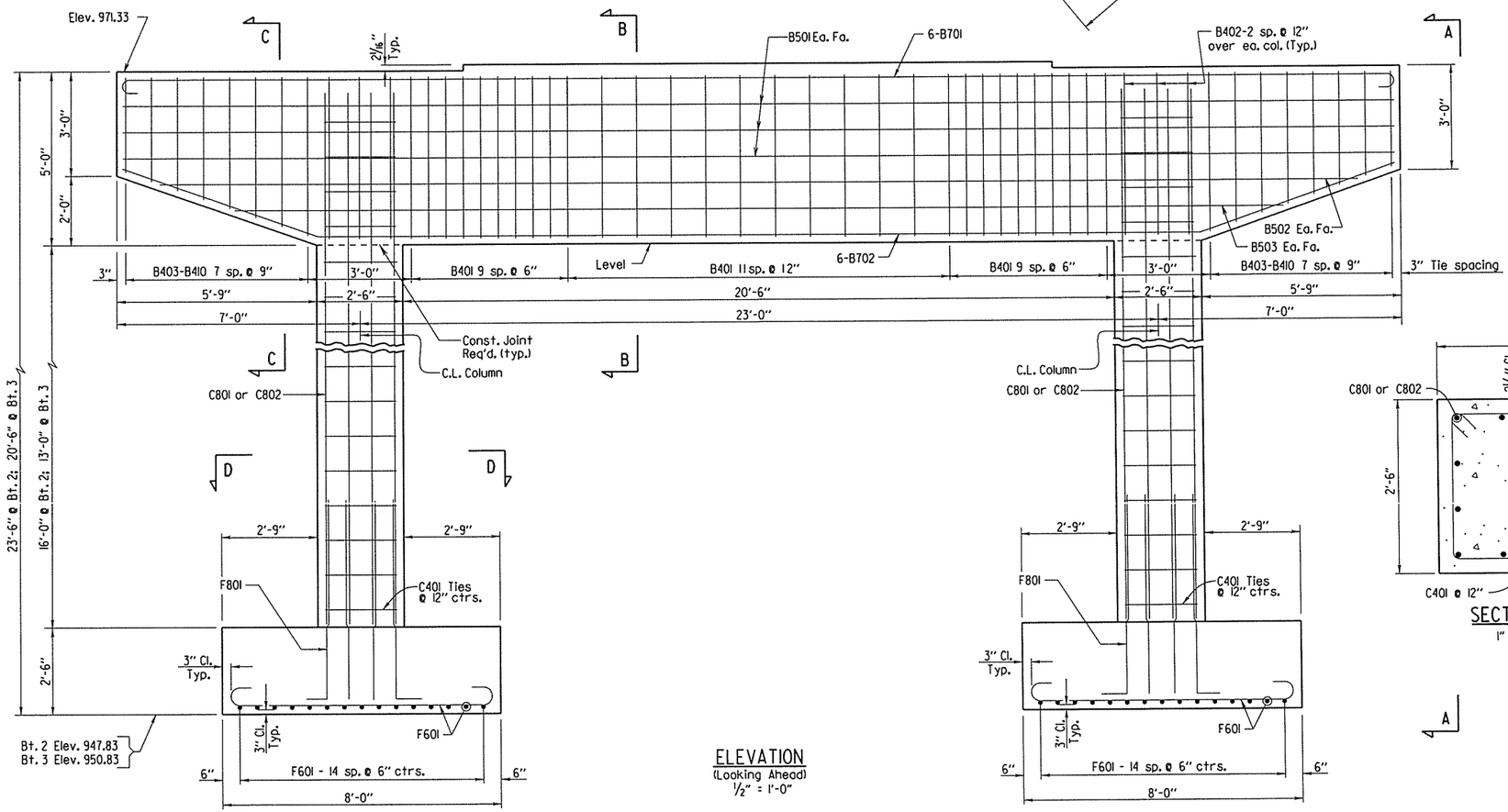
BAR LIST - PER BENT

Mark	No. Req'd. Bt. 2	No. Req'd. Bt. 3	Length	A	B	Pin Dia.
B401	30	30	14'-0"	2'-2"	4'-8"	2"
B402	6	6	11'-4"	2'-2"	4'-8"	2"
B403-B410	2 Ea.	2 Ea.	10'-2" to 13'-10"	2'-2"	2'-9" to 4'-7"	2"
B501	6	6	36'-8"			Str.
B502	2	2	34'-7"			Str.
B503	2	2	30'-3"			Str.
B701	6	6	38'-4"	36'-8"	0'-7"	5 1/4"
B702	6	6	37'-3"	25'-6"	5'-11"	5 1/4"
C401	40	34	8'-10"	2'-1"		3"
C801	24	—	20'-4"			Str.
C802	—	24	17'-4"			Str.
F601	60	60	8'-10"	7'-6"	0'-6"	4 1/2"
F801	24	24	10'-0"	8'-10"	1'-4"	6"

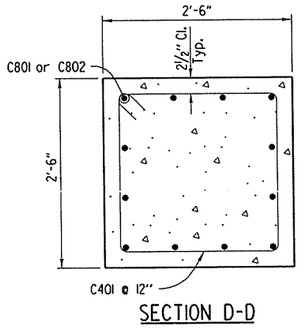
Bending Diagrams



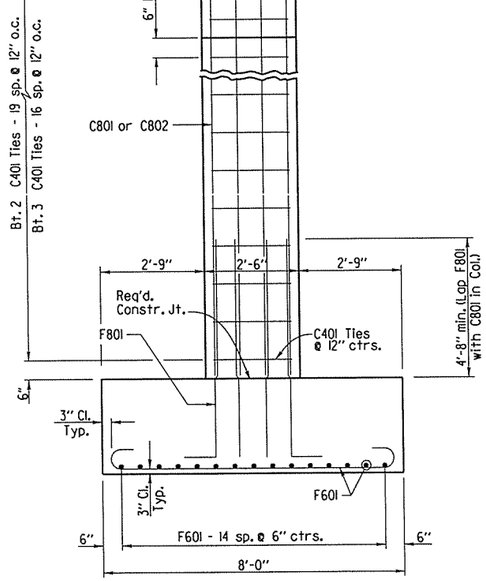
(Dimensions are out to out of bars.)



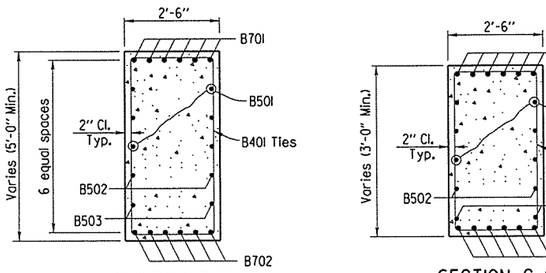
ELEVATION
(Looking Ahead)
1/2" = 1'-0"



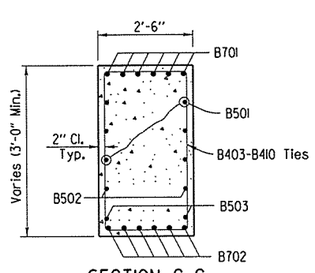
SECTION D-D
1" = 1'-0"



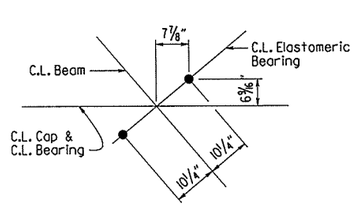
VIEW A-A
1/2" = 1'-0"



SECTION B-B
1/2" = 1'-0"



SECTION C-C
1/2" = 1'-0"



For details of Elastomeric Bearings, See Dwg. No. 45160

TYPICAL ANCHOR BOLT LAYOUT
3/4" = 1'-0"

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

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.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see Layout.

STATE OF ARKANSAS
CHARLES R. ELLIS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-5-15
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF BENT NOS. 2 AND 3

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LDF	DATE: 7-7-97	FILENAME: b040207_b2.dgn	
CHECKED BY: JWP	DATE: 10-5-15	SCALE: As Noted	
DESIGNED BY: CSL	DATE: 7-97		

BRIDGE NO. 06955 DRAWING NO. 45153

PRINT DATE: 10/5/2015

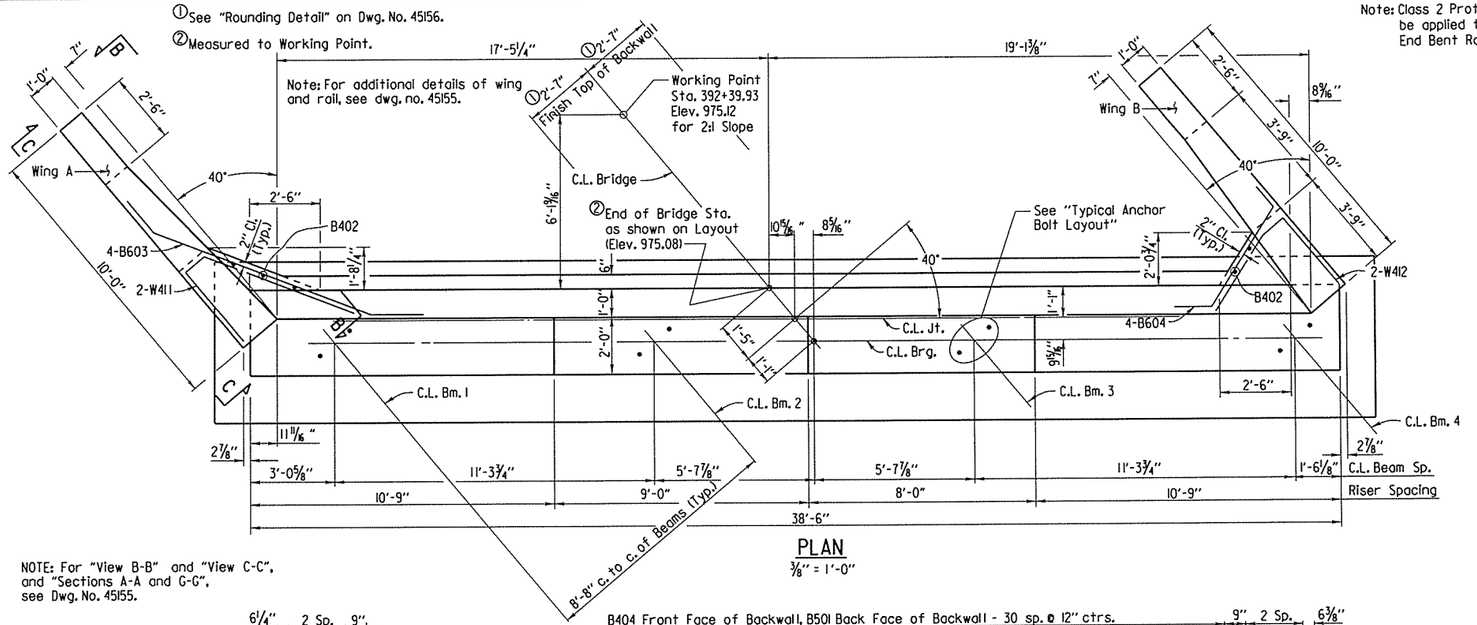
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040207	1	2
				1	06955 -	BENT DTLS. -	45154	

①See "Rounding Detail" on Dwg. No. 45156.

②Measured to Working Point.

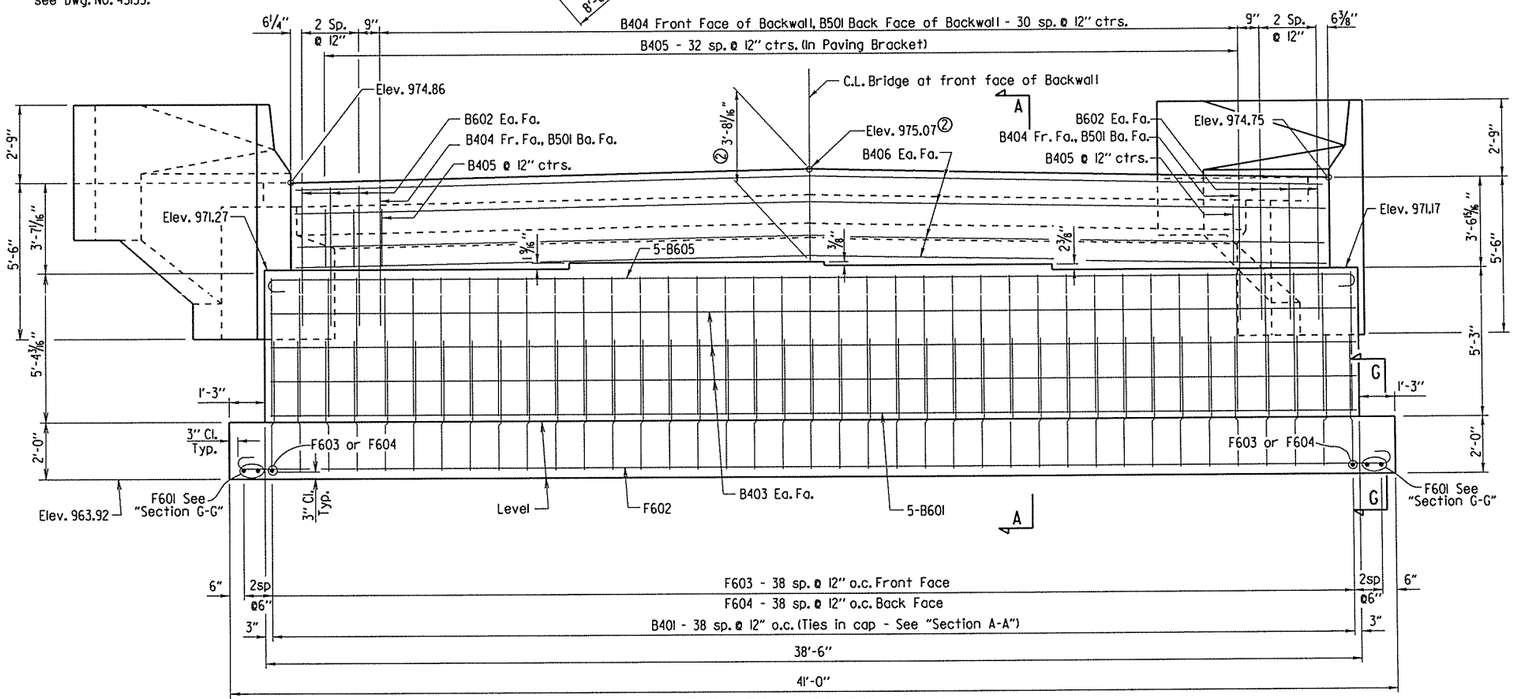
Note: For additional details of wing and rail, see dwg. no. 45155.

Note: Class 2 Protective Surface Treatment Shall be applied to the Roadway Face and Top of End Bent Rail and to the Top of the Backwall.



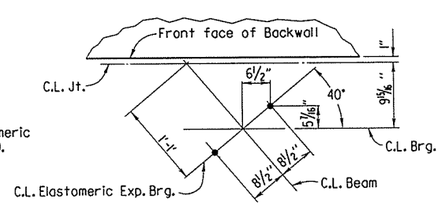
PLAN
3/8" = 1'-0"

NOTE: For "View B-B" and "View C-C", and "Sections A-A and G-G", see Dwg. No. 45155.



ELEVATION (LOOKING AHEAD)
3/8" = 1'-0"

Note: For details of Elastomeric Bearings, see drwg. no. 45160.

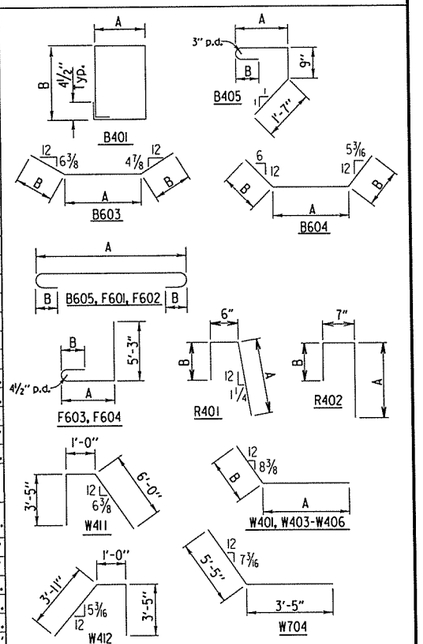


TYPICAL ANCHOR BOLT LAYOUT
No Scale

BAR LIST

Mark	No. Req'd.	Length	A	B	Pin Dia.
B401	39	15'-6"	2'-8"	4'-11"	2"
B402	5	4'-4"			Str.
B403	6	38'-2"			Str.
B404	31	4'-10"			Str.
B405	33	3'-11"	1'-2"	4½"	2"
B406	8	36'-2"			Str.
B501	31	5'-1"			Str.
B601	5	38'-2"			Str.
B602	12	5'-1"			Str.
B603	4	9'-9"	7'-9"	1'-0"	4½"
B604	4	6'-1"	4'-1"	1'-0"	4½"
B605	5	39'-6"	38'-2"	6"	4½"
F601	4	6'-1"	4'-9"	6"	4½"
F602	10	41'-10"	40'-6"	6"	4½"
F603	39	8'-11"	3'-1"	6"	4½"
F604	39	9'-7"	3'-10"	6"	4½"
R401	8	3'-11"	2'-6½"	1'-0"	2"
R402	8	4'-0"	2'-6½"	1'-0"	2"
R403	12	9'-8"			Str.
R601	16	4'-5"			Str.
R602	6	5'-0"			Str.
W401	8	6'-9"	5'-7"	1'-2"	2"
W402	8	7'-11"			Str.
W403-W406	2 Ea.	Var. 3'-6" to 5'-1"	Var. 2'-4" to 3'-11"	1'-2"	2"
W407-W410	2 Ea.	Var. 4'-6" to 6'-5"			Str.
W411	2	10'-3"			2"
W412	2	8'-3"			2"
W701	12	9'-8"			Str.
W702	4	6'-3"			Str.
W703	4	5'-0"			Str.
W704	4	8'-10"			5¼"

Bending Diagrams



(Dimensions are out to out of bars.)

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 (fy = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

The backwall shown above the required construction joint shall not be poured until the entire deck slab has been poured.

Structural steel in end bents shall be AASHTO M 270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (AASHTO M 270, Gr. 50W)".

If anchor bolts are drilled into cap, top reinforcing bars shall be properly spaced to avoid interference with anchor bolts and sheet metal sleeves.

For additional information, see Layout.

No loads or equipment shall be located closer than 5.0 feet from the backwall prior to the completion of pour one in span 3.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-5-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT NO. 4

ROUTE SEC.

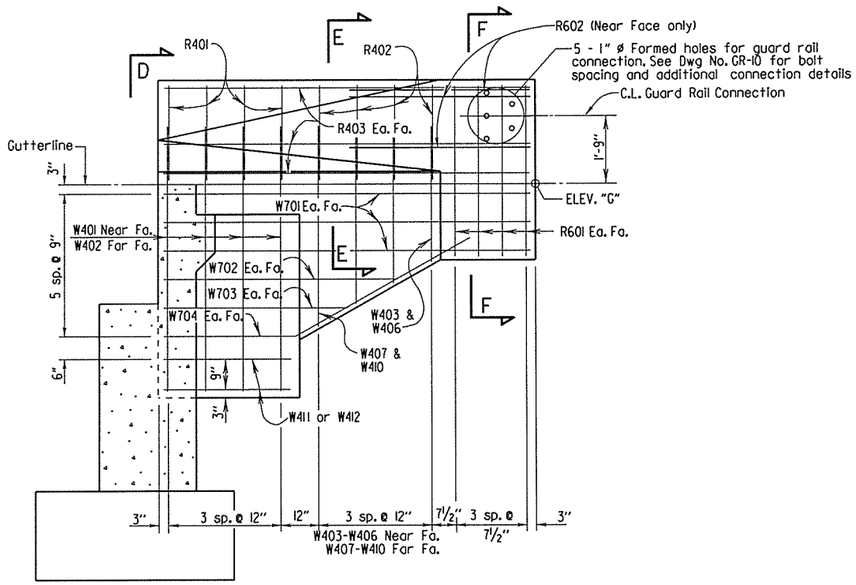
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LDF DATE: 5-12-97
CHECKED BY: JHP DATE: 10-5-15
DESIGNED BY: GEC DATE: 2-97
FILENAME: b040207_b4.dgn
SCALE: As Noted

BRIDGE NO. 06955 DRAWING NO. 45154

PRINT DATE: 10/5/2015

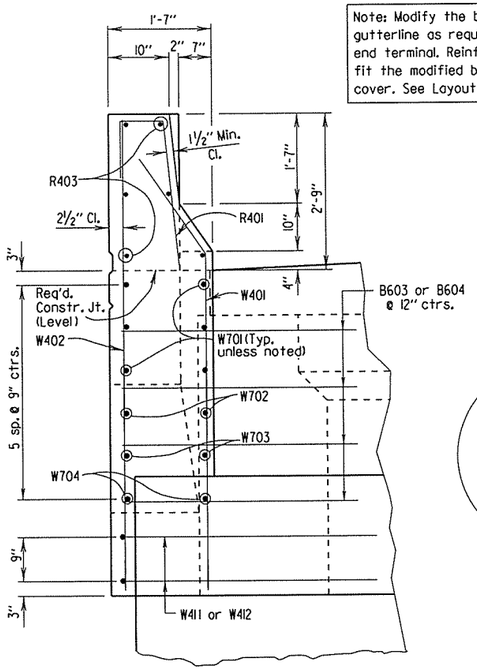
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040207	57	212
				(1)	06955	- BENT DTLS. -	45155	



VIEW B-B
½" = 1'-0"

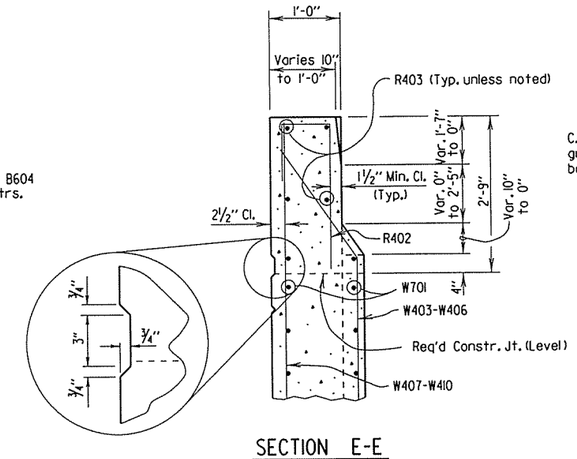
	Elev. "G"	"A"
Wing A	974.93	2'-3⅜"
Wing B	974.78	2'-3⅛"

TABLE OF VARIABLES

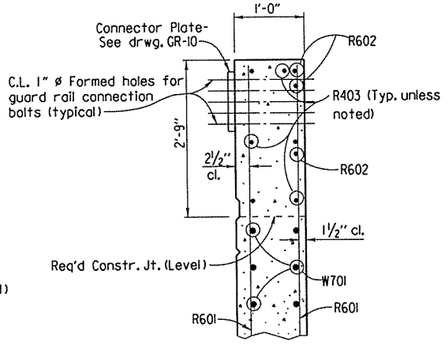


VIEW D-D
No Scale

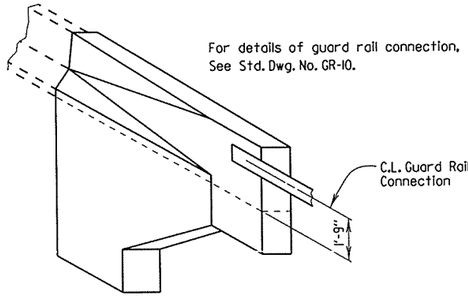
Note: Modify the bridge rail and connection detail above the gutterline as required by the manufacturer of the bridge end terminal. Reinforcing bars that are relocated or bent to fit the modified bridge rail shall have minimum plan concrete cover. See Layout for location of bridge end terminal.



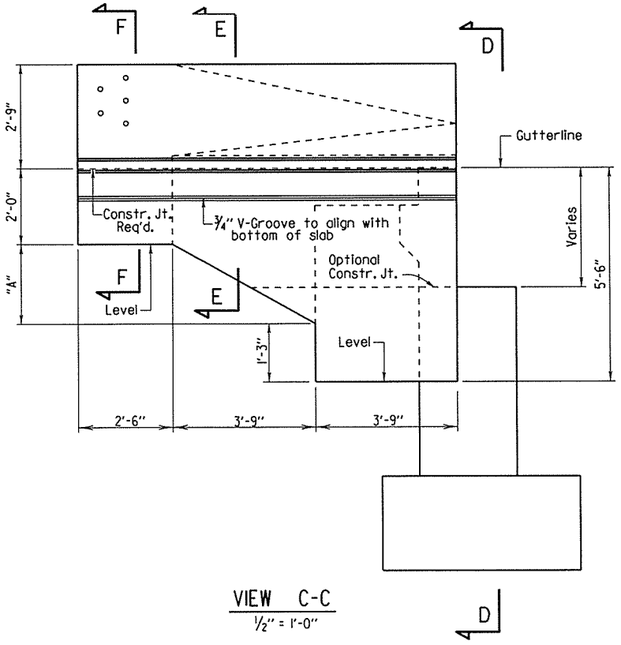
SECTION E-E
No Scale



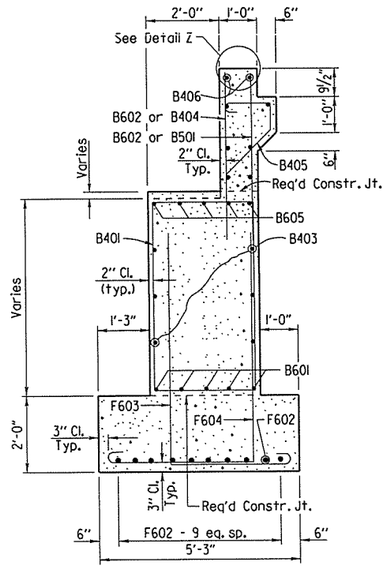
SECTION F-F
No Scale



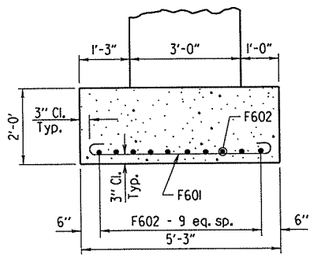
THREE DIMENSIONAL VIEW OF RAIL
No Scale



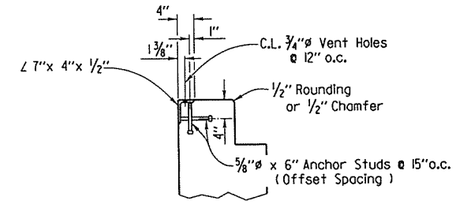
VIEW C-C
½" = 1'-0"



SECTION A-A
½" = 1'-0"



SECTION G-G
½" = 1'-0"



Note: For additional Joint Details, see Dwg. No. 45157.

DETAIL Z
¾" = 1'-0"

Note: Concrete shall be hand packed under the joint armor in the backwall.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-5-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT NO. 4

ROUTE SEC.

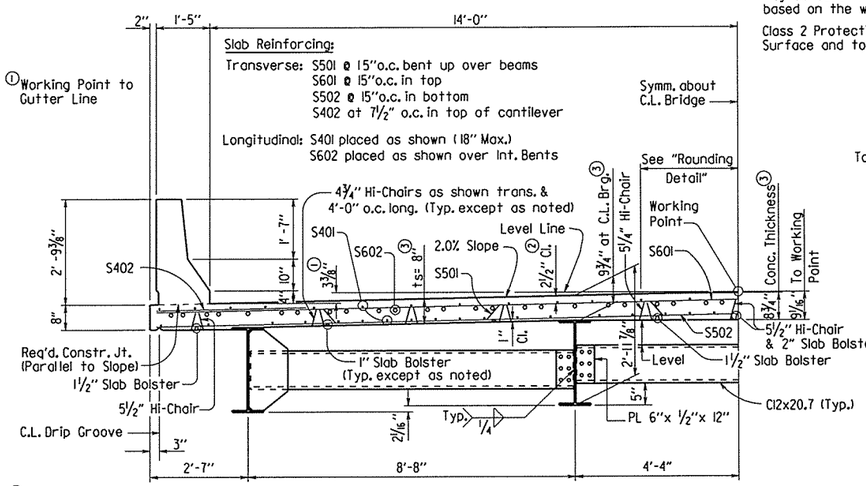
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LDF DATE: 5-12-97
CHECKED BY: JVP DATE: 10-5-15
DESIGNED BY: GEC DATE: 2-97
FILENAME: b040207_b4.dgn
SCALE: As Noted

BRIDGE NO. 06955 DRAWING NO. 45155

PRINT DATE: 10/5/2015

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.		040207	58	212
				① 06955		- W-BEAM UNIT -		45156



② Tolerance: Minus = ¼"
Plus: Equal to amount of slab thickening used to meet slab thickness tolerance-See "Adjustment for Slab Thickness Tolerance" on dwg. no. 45157.

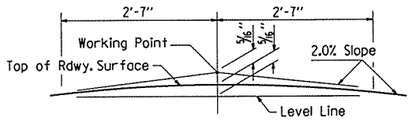
③ See "Adjustment for Slab Thickness Tolerance", Dwg. No. 45157.

TYPICAL HALF-ROADWAY SECTION

½" = 1'-0"

NOTES: At the Contractor's option, one No. 5 straight bar top and bottom may be substituted for Bar S501. Payment for reinforcing will be based on the weight of bar S501.

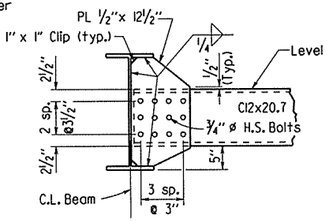
Class 2 Protective Surface Treatment shall be applied to the Roadway Surface and to the Roadway Face & Top of the Concrete Parapet Rail.



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

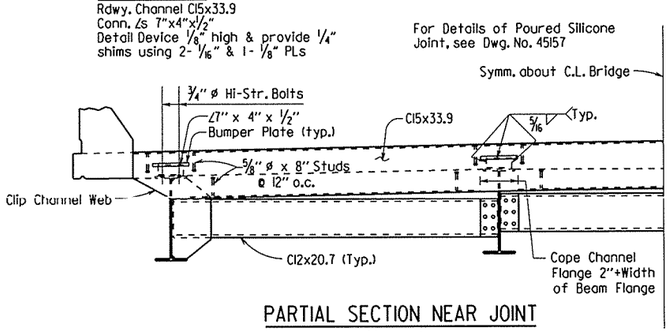
No Scale



NOTE: Bolts in Diaphragm Connections shall be properly installed and tightened in accordance with Subsection 807.71.

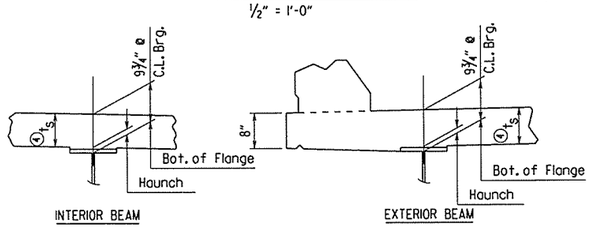
DIAPHRAGM CONNECTION AT EXTERIOR BEAMS

No Scale



PARTIAL SECTION NEAR JOINT

½" = 1'-0"



t_s = slab thickness as shown in "Typical Half-Roadway Section"

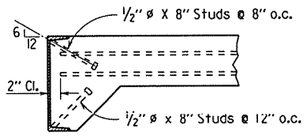
④ Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

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.

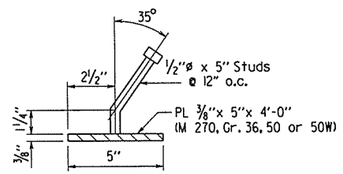
Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.



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

No Scale

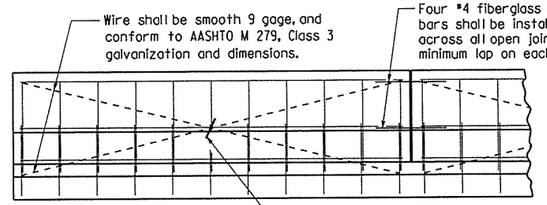


Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as Structural Steel in Beam Spans (M 270, Gr. 50W).

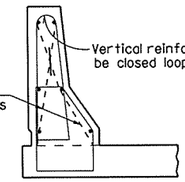
The surfaces of the ⅜" Plates which will not be in contact with concrete shall be painted in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the Fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to Structural Steel in Beam Spans (M 270, Gr. 50W).

DETAIL Z

No Scale



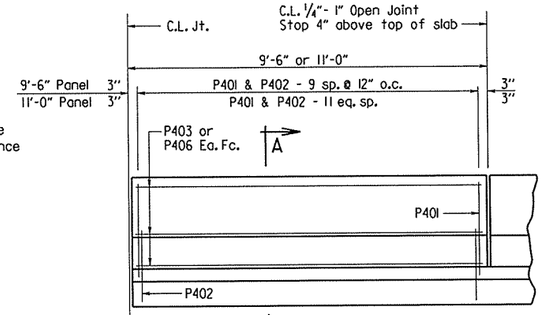
All panels shall be braced as shown to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

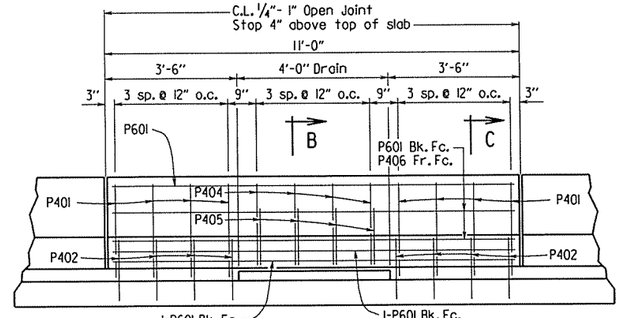


The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Unless otherwise noted, exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish, in place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

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale



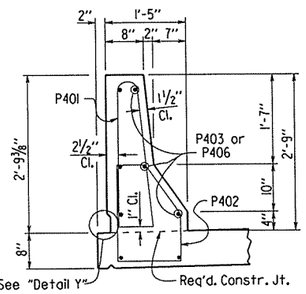


ELEVATION FOR CLOSED PARAPET RAIL

½" = 1'-0"

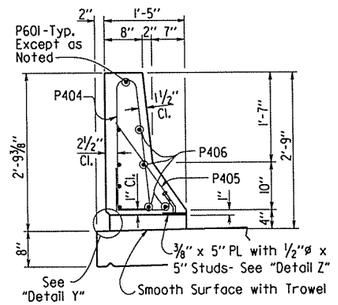
ELEVATION FOR OPEN PARAPET RAIL

½" = 1'-0"



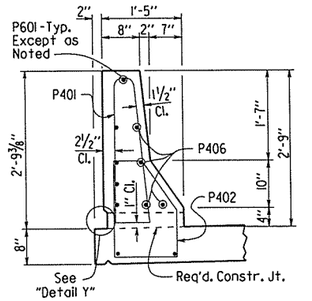
SECTION A-A

¾" = 1'-0"



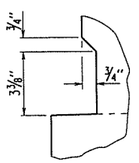
SECTION B-B

¾" = 1'-0"



SECTION C-C

¾" = 1'-0"



DETAIL Y

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
* * *
No. 9235
10-5-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS OF
140'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LDF DATE: 7-14-97 FILENAME: b040207_sl.dgn
CHECKED BY: JYP DATE: 10-5-15 SCALE: As Noted
DESIGNED BY: CAB DATE: 12-96

BRIDGE NO. 06955 DRAWING NO. 45156

PRINT DATE: 10/5/2015

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.		040207	59	212
				(1) 06955		- W-BEAM UNIT -		45157

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Specifications.

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges (1996 edition) with 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 M 31 or M 322, 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. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future dead load deflection due to the railing. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing. Any railing pours made before the entire slab has been placed and cured must be approved by the Engineer.

REINFORCING STEEL :
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. 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. Structural steel completely embedded in concrete may be AASHTO M 270, Grade 36, 50 or 50W 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 and field splice plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, 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 1/4" +/- is allowed for camber.

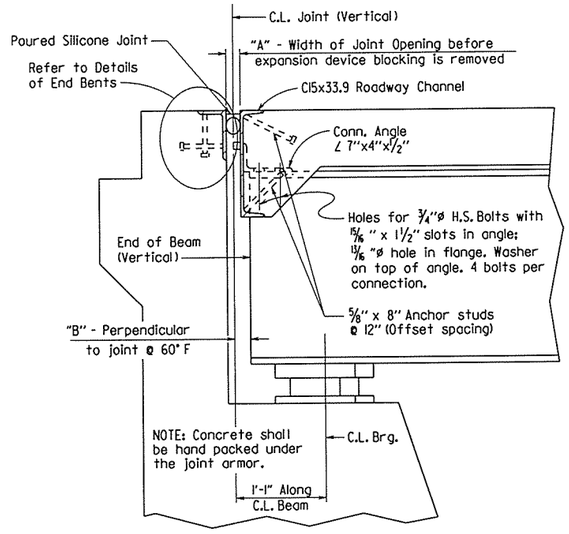
Flange field splice plates for main members shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

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 shall be bolted with high-strength bolts and shall be ¾" ø bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges. Holes for ¾" ø high-strength bolts may be 15/16" ø diameter 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.



NOTE: Section taken normal to C.L. Joint except as noted.

SECTION THRU JOINT AT END BENT

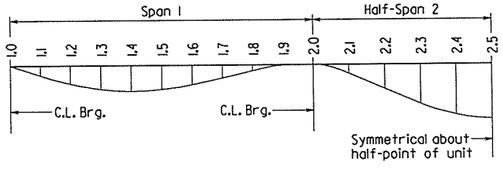
No Scale

TABLE OF DEAD LOAD DEFLECTION (INCHES)

NOTE: Camber for dead load deflection plus vertical curve +/- 1/4" tolerance. Deflections shown are along C.L. Beam from a chord from C.L. Bearing to C.L. Bearing. Vertical curve corrections not included.

	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Exterior	Interior	Exterior	Interior	Exterior	Interior
Span 1	1.0	0.000	0.000	0.000	0.000	0.000	0.000
	1.1	0.010	0.010	0.075	0.096	0.084	0.106
	1.2	0.018	0.019	0.138	0.177	0.154	0.193
	1.3	0.024	0.025	0.179	0.230	0.200	0.251
	1.4	0.025	0.027	0.193	0.249	0.216	0.272
	1.5	0.024	0.025	0.181	0.233	0.203	0.255
	1.6	0.020	0.021	0.147	0.189	0.165	0.207
	1.7	0.013	0.014	0.097	0.125	0.109	0.137
	1.8	0.006	0.006	0.044	0.057	0.050	0.063
	1.9	0.001	0.001	0.006	0.007	0.006	0.007
Half-Span 2	2.0	0.000	0.000	0.000	0.000	0.000	0.000
	2.1	0.009	0.010	0.067	0.087	0.077	0.097
	2.2	0.025	0.027	0.181	0.234	0.207	0.260
	2.3	0.040	0.044	0.295	0.381	0.335	0.421
	2.4	0.050	0.055	0.375	0.484	0.426	0.535
	2.5	0.055	0.060	0.405	0.523	0.459	0.577

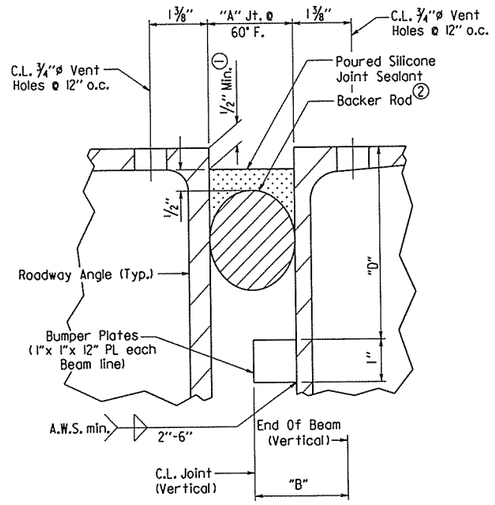
Symmetrical about half-point of unit



DEAD LOAD DEFLECTION DIAGRAM

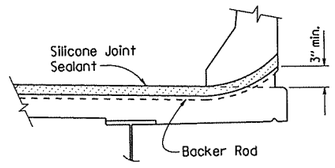
(1) Recess depth as recommended by the sealant Manufacturer.

(2) Use diameter specified by the sealant Manufacturer for the joint width at the time of sealing.



DETAIL OF POURED SILICONE JOINT

No Scale



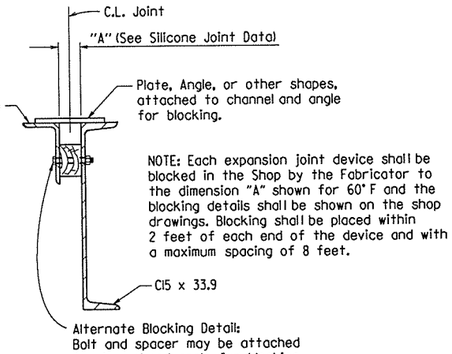
JOINT SEAL PLACEMENT AT CURB

No Scale

TABLE FOR WELD

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



DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

No Scale

EXPANSION DEVICE INSTALLATION AT END BENTS:

The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to pouring the backwall concrete, the blocking shall be removed, the opening adjusted for temperature and grade, and the backwall constructed.

SILICONE JOINT DATA

"A" Width Perpendicular to Joint at 24 Hour Average Temperature (3) Of:			"B" Perpendicular to Joint at 60°F	"D"	Bumper Plate Size
40°F	60°F	80°F			
2 1/8"	2"	1 7/8"	2 1/4"	4 1/2"	1"x 1"x 12"

(3) 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.

STATE OF ARKANSAS
Charles R Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-5-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 4
DETAILS OF
140'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

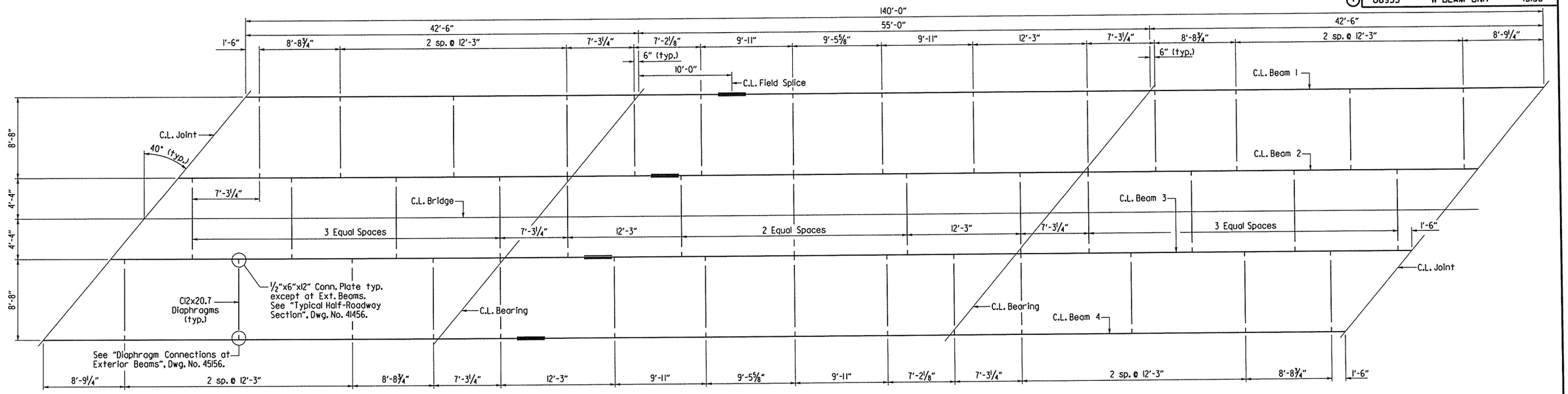
LITTLE ROCK, ARK.

DRAWN BY: LDF DATE: 7-11-97
CHECKED BY: JVP DATE: 10-5-15
DESIGNED BY: CAB DATE: 12-96
FILENAME: b040207_sl.dgn
SCALE: As Noted

BRIDGE NO. 06955 DRAWING NO. 45157

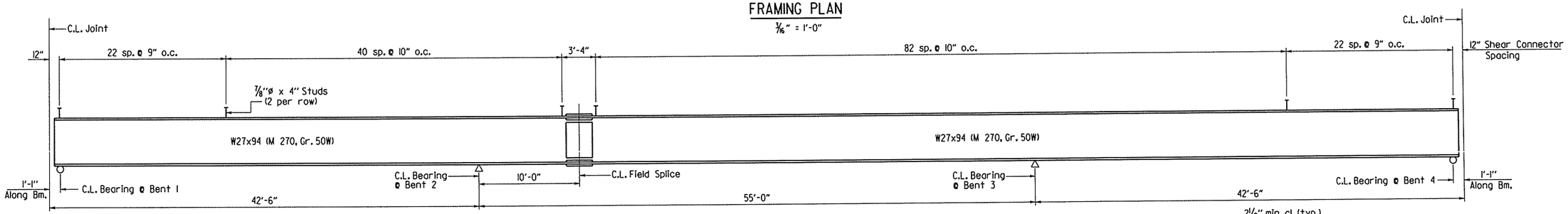
PRINT DATE: 10/5/2015

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.		040207	60	212
				1	06955	- W-BEAM UNIT -	45158	



FRAMING PLAN

3/16" = 1'-0"

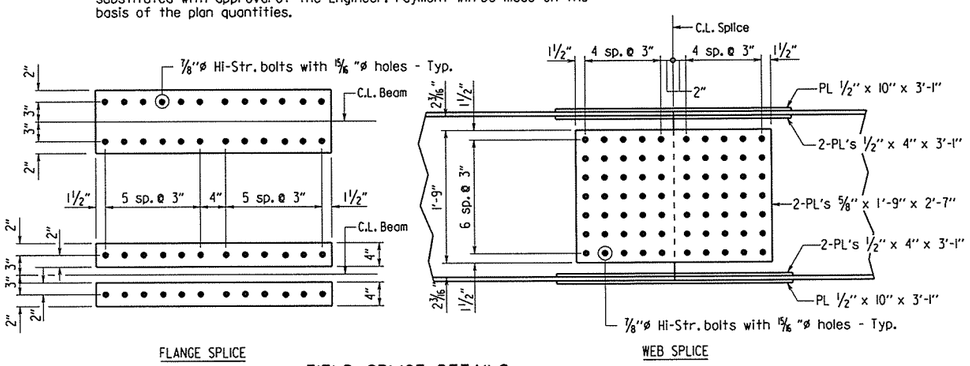


TYPICAL BEAM ELEVATION

No Scale

NOTES: All field splice plates to be AASHTO M 270, Gr. 50W.

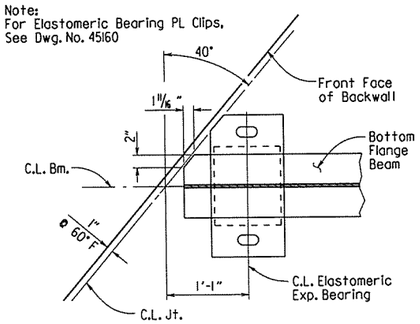
Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.



FIELD SPLICE DETAILS

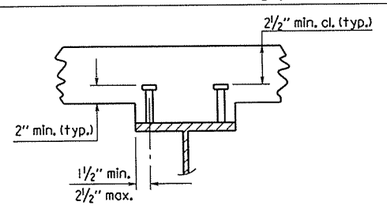
No Scale

Note:
For Elastomeric Bearing PL Clips, See Dwg. No. 45160



PLAN OF BEARING AT END BENTS

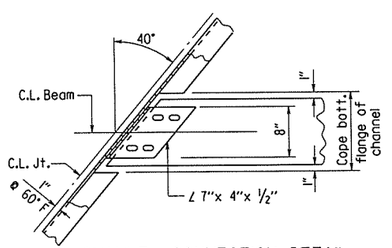
No Scale



Stud Shear Connectors shown shall be ⅞"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. ¾"ø studs may be used in place of the ⅞"ø studs shown at the ratio of 1.361-¾"ø studs in place on one ⅞"ø stud. ⅞"ø studs will be used as the basis for measurement of structural steel in shear connectors.

SHEAR CONNECTOR DETAIL

No Scale



CHANNEL CONNECTION DETAIL

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-5-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF
140'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

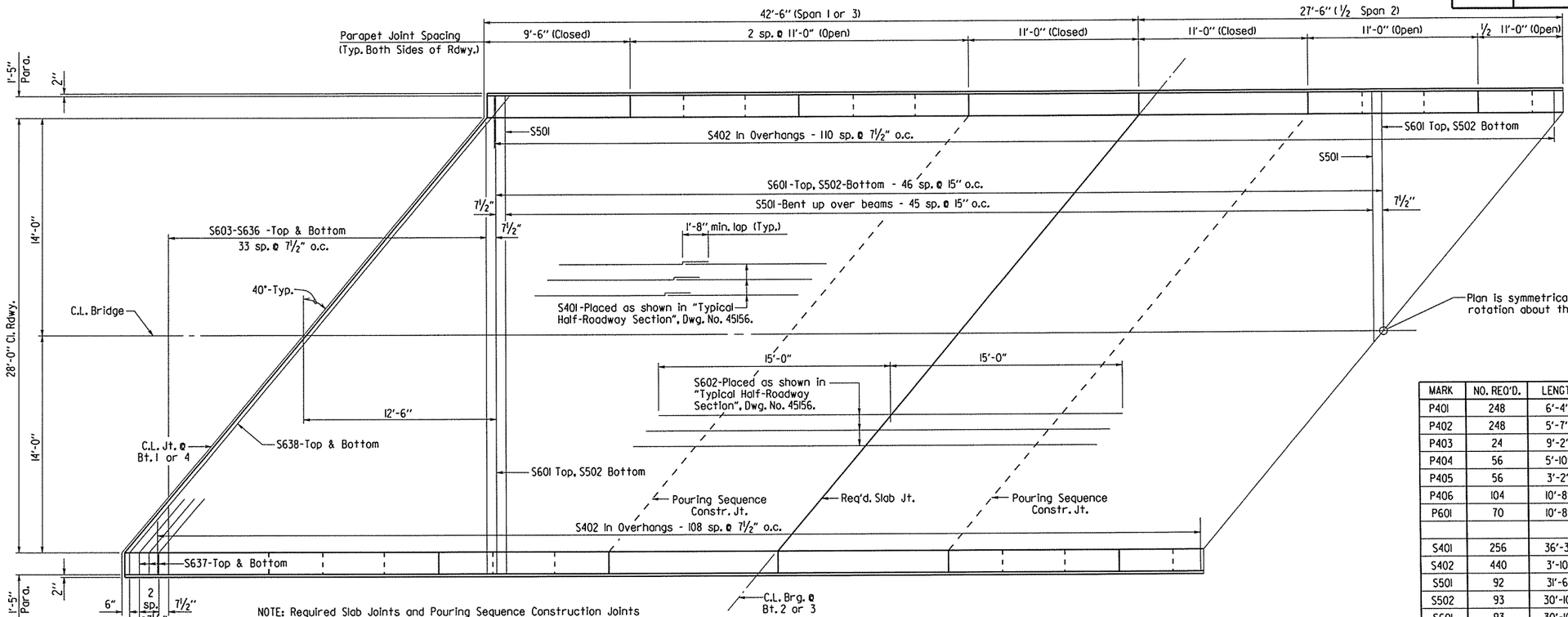
DRAWN BY: LDF DATE: 7-15-97
CHECKED BY: JHP DATE: 10-5-15
DESIGNED BY: CAB DATE: 12-96
FILENAME: b040207_sl.dgn
SCALE: As Noted

BRIDGE NO. 06955 DRAWING NO. 45158

PRINT DATE: 10/5/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

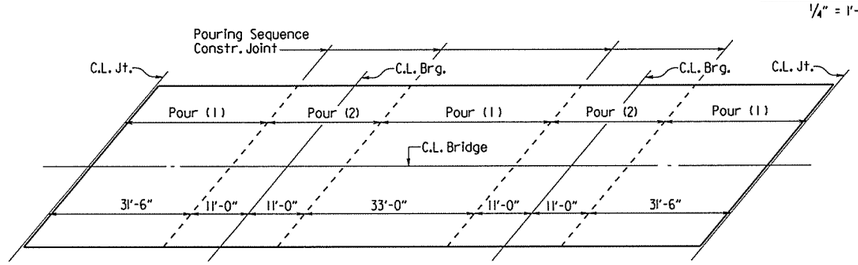
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040207	401	212
06955		- W-BEAM UNIT -		45159



NOTE: Required Slab Joints and Pouring Sequence Construction Joints shall align with parapet joints at front face of parapet.

REINFORCING PLAN

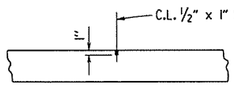
1/4" = 1'-0"



NOTE: Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pour (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between 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.

SLAB POURING SEQUENCE

No Scale



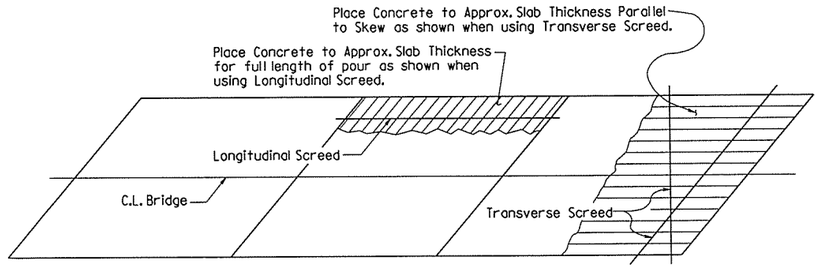
Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to the outside edge of the deck slab and shall align with open joints at the front face of 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

No Scale

VIEW SHOWING LOCATION OF NAME PLATE

No Scale



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

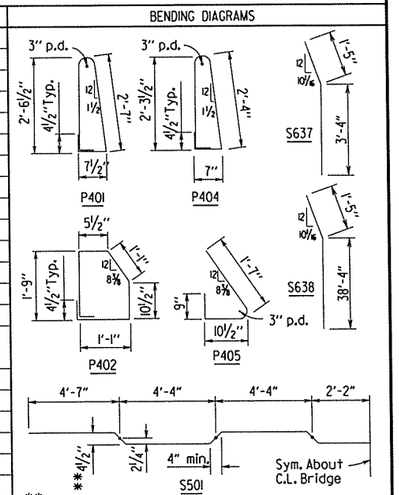
CONCRETE PLACEMENT PROCEDURE

No Scale

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
P401	248	6'-4"	2"
P402	248	5'-7"	2"
P403	24	9'-2"	Str.
P404	56	5'-10"	2"
P405	56	3'-2"	2"
P406	104	10'-8"	Str.
P601	70	10'-8"	Str.
S401	256	36'-3"	Str.
S402	440	3'-10"	Str.
S501	92	31'-6"	3"
S502	93	30'-10"	Str.
S601	93	30'-10"	Str.
S602	96	30'-0"	Str.
S603-S636	4 ea.	4'-7"-29'-2"	Str.
S637	12	4'-9"	4½"
S638	4	39'-9"	4½"

BENDING DIAGRAMS



**½" Overtolerance, No Undertolerance.

(Dimensions are out to out of bars.)

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
10-5-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 4
DETAILS OF
140'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LDF DATE: 7-15-97 FILENAME: b040207_sl.dgn

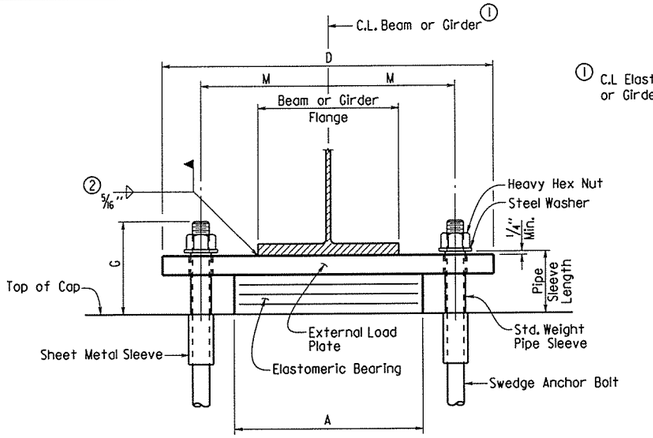
CHECKED BY: JNP DATE: 10-5-15 SCALE: As Noted

DESIGNED BY: CAB DATE: 12-96

BRIDGE NO. 06955 DRAWING NO. 45159

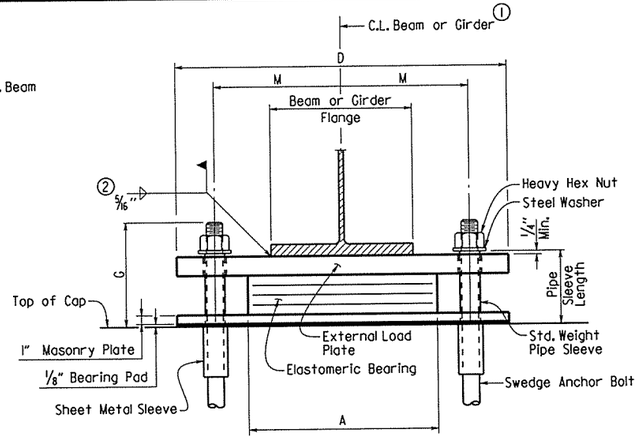
PRINT DATE:10/5/2015

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.		040207	42	212
				① 06955 - ELASTO. BRGS. - 45160				

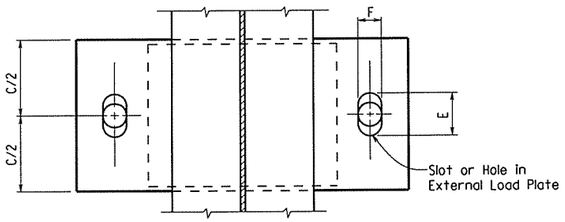


FRONT VIEW - AT BENT NOS. 2 AND 3

① C.L Elastomeric Pad shall be aligned with C.L. Beam or Girder.

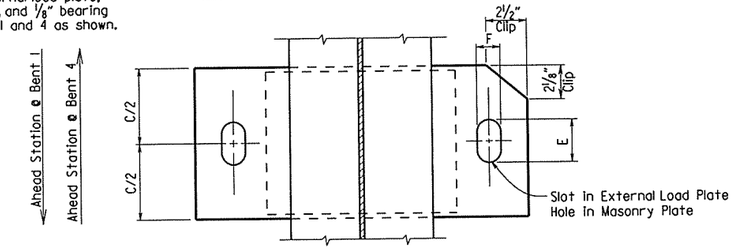


FRONT VIEW - AT BENT NOS. 1 AND 4

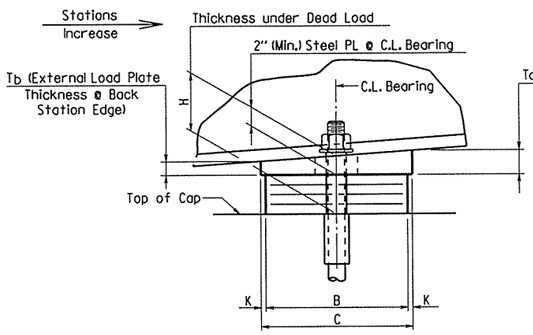


PLAN VIEW - AT BENT NOS. 2 AND 3

NOTE: Clip external load plate, masonry plate, and 1/8" bearing pad at Bents 1 and 4 as shown.



PLAN VIEW - AT BENT NOS. 1 AND 4

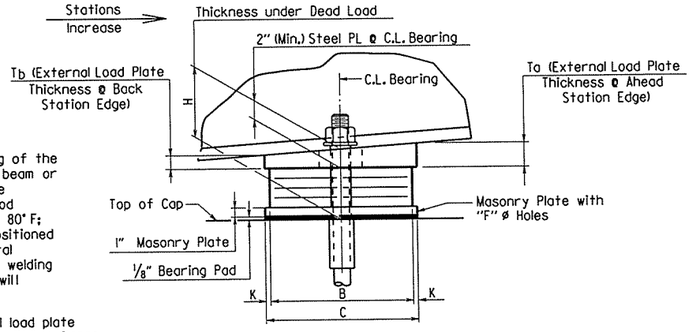


SIDE VIEW - AT BENT NOS. 2 AND 3

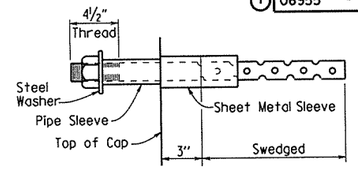
The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in the "Table of Fabricator Variables".

② Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam or 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.

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.



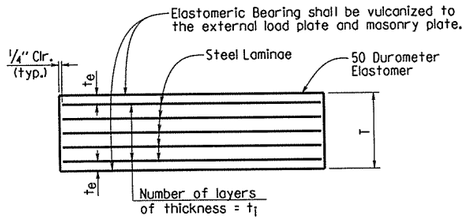
SIDE VIEW - AT BENT NOS. 1 AND 4



ANCHOR BOLT DETAIL

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 concrete. Bolts placed in drilled holes shall be accurately set and fixed using a QPL 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)".



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

t_1 = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_1

ELASTOMERIC BEARING

GENERAL NOTES:

Elastomeric Bearings shall conform to Section 808 and Special Provision Job 040207 "Elastomeric Bearings" 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 and masonry plates shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

External load plates and masonry 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. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)". External load plates, masonry plates and 1/8" bearing pads will not be measured or paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

Bearings with masonry plates shall be seated in accordance with Subsection 807.66. Bearings without masonry plates shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

* Maximum Design Load = Service Load

** Dimension "E" applies to External Load Plates only. "F" ø Holes shall be used in Masonry Plates.

TABLE OF FABRICATOR VARIABLES

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_1	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.)
06955	1	All	Exp.	4	69	10 1/8"	7 5/16"	12 1/2"	10 1/2"	6	1/2"	1/4"	7 @ 12 Ga.	4 1/4"	11 1/2"	22 1/2"	3 3/8"	2 1/4"	1/2"	8 1/2"	2.00"	2.00"	1 1/2" x 27"	55	1 1/2" x 7 5/8"	3" x 6"	3"
	2 & 3	All	Fix.	4	138	8 1/2"	5"	15"	14"	4	1/2"	1/4"	5 @ 12 Ga.	3"	15"	27"	3 1/8"	3 1/8"	1/2"	10 1/4"	2.00"	2.00"	2 1/4" x 33"	55	2 1/2" x 5 1/4"	4" x 6"	4"
	4	All	Exp.	4	69	10 1/8"	7 5/16"	12 1/2"	10 1/2"	6	1/2"	1/4"	7 @ 12 Ga.	4 1/4"	11 1/2"	22 1/2"	3 3/8"	2 1/4"	1/2"	8 1/2"	2.03"	1.97"	1 1/2" x 27"	55	1 1/2" x 7 5/8"	3" x 6"	3"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
* * *
No. 9235
10-5-15
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 8/21/15 FILENAME: b040207_ebl.dgn

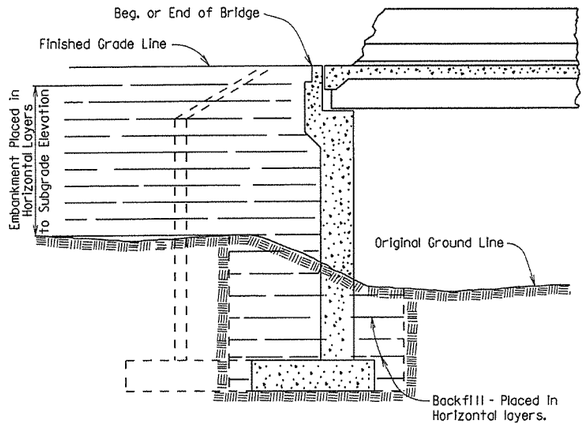
CHECKED BY: CAB DATE: 10-5-15 SCALE: None

DESIGNED BY: CAB DATE: 12-96

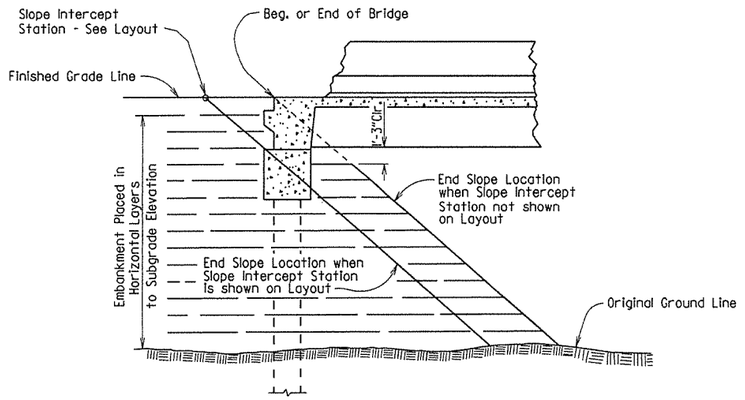
BRIDGE NO. 06955 DRAWING NO. 45160

PRINT DATE: 10/5/2015

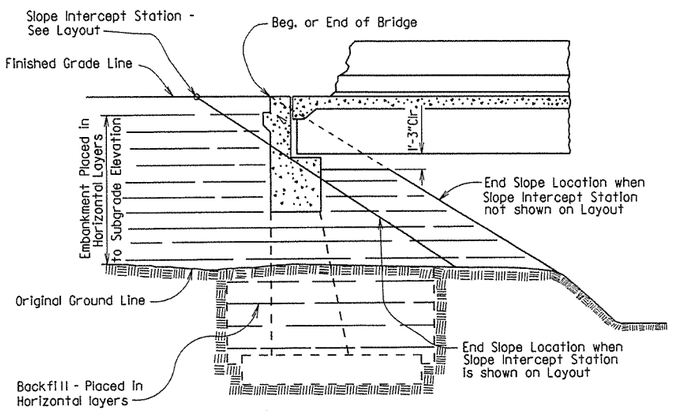
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		63	
				JOB NO.				
				①	EMBANKMENT & BACKFILL		55000	



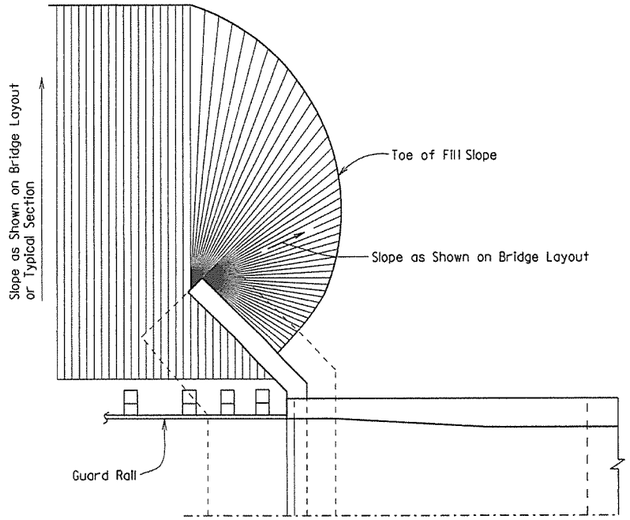
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



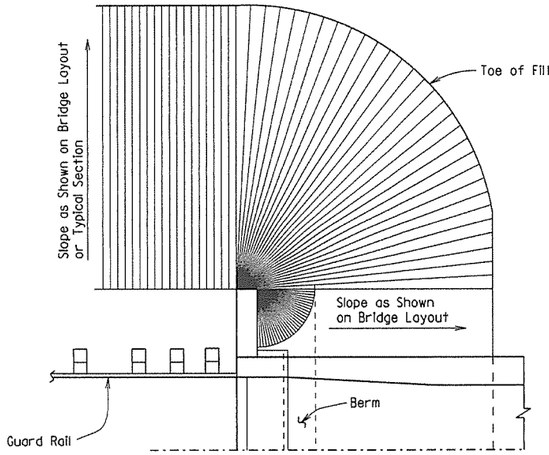
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



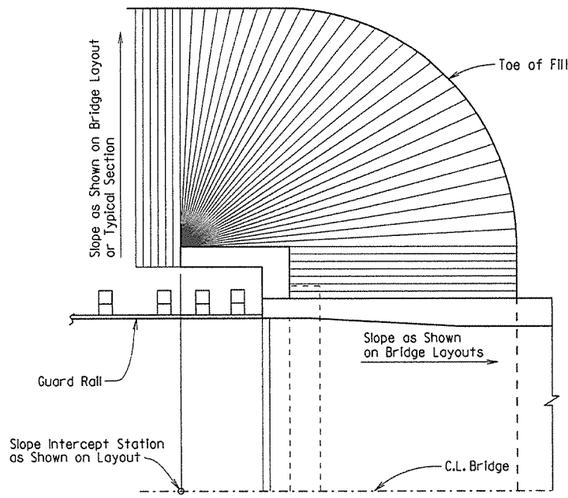
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



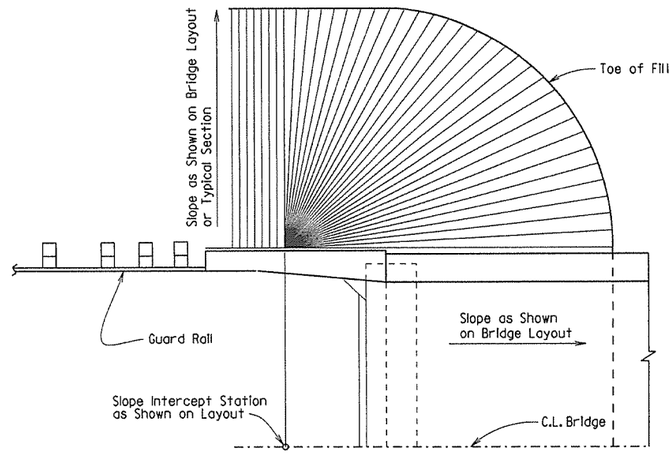
VERTICAL WALL ABUTMENTS



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

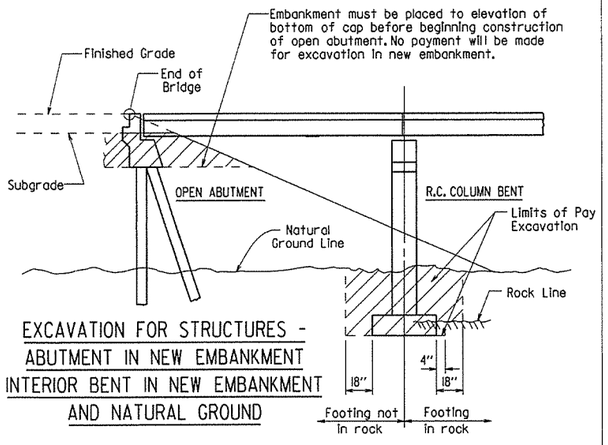
LITTLE ROCK, ARK.

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

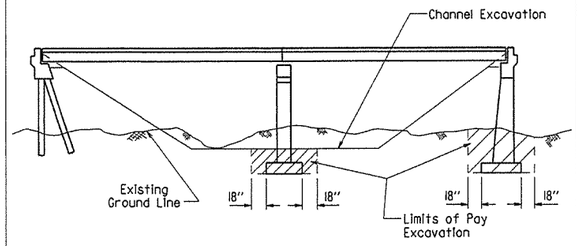
DRAWING NO. 55000

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

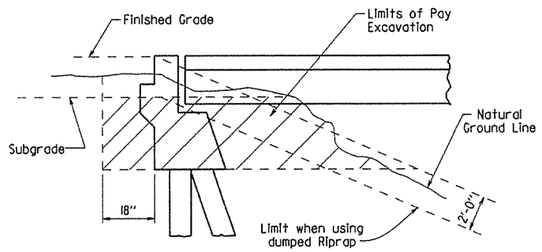
① RIPRAP & EXCAV. 5500I



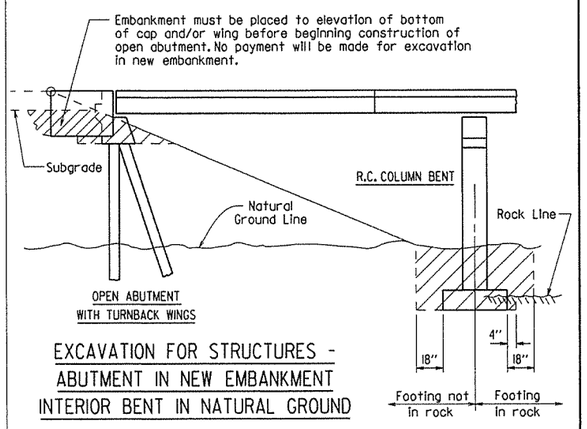
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



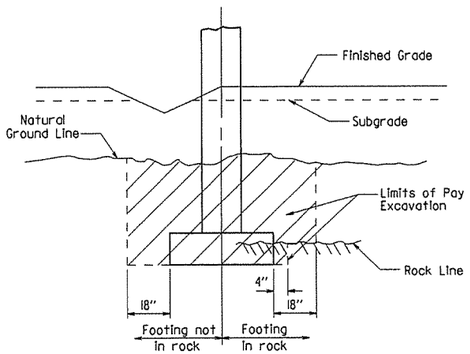
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



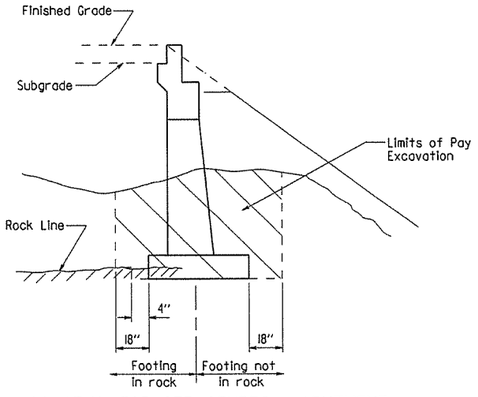
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



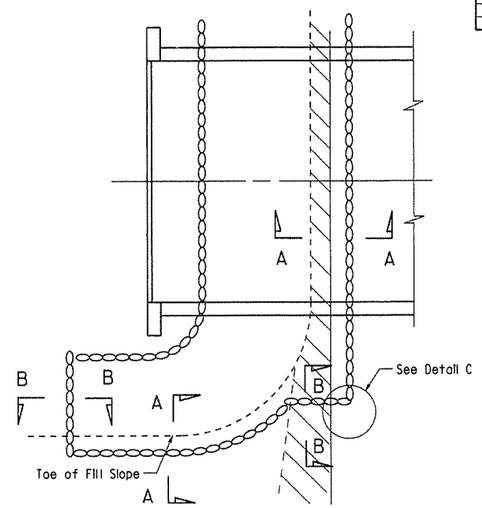
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



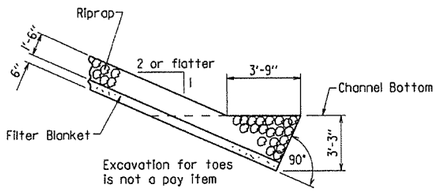
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



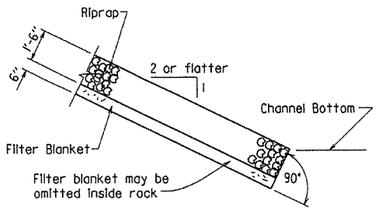
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



PLAN OF DUMPED RIPRAP



SECTION A-A
(Toe Excavation in Soil)

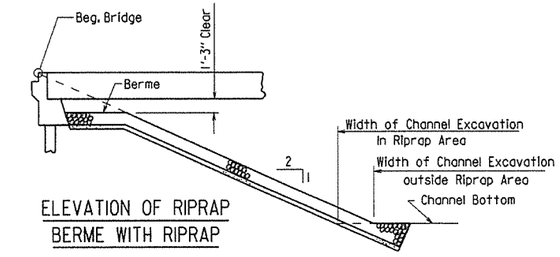


SECTION A-A
(Toe Excavation in Rock)

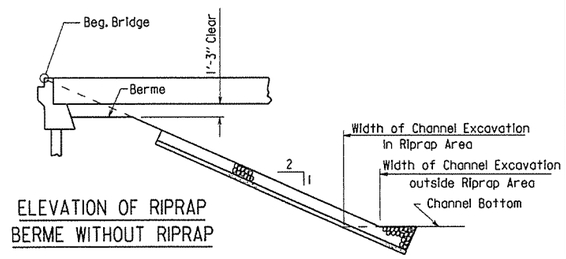
Note : Use this type of toe when rock is encountered which is in a stable condition.

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.

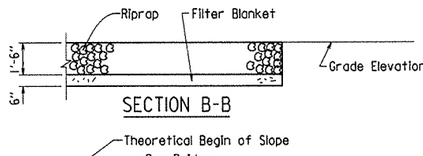
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



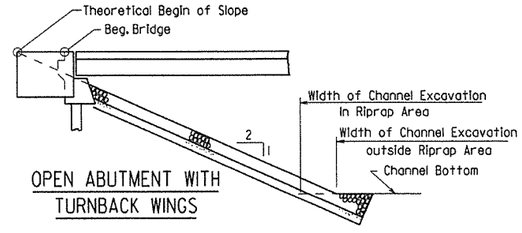
ELEVATION OF RIPRAP BERME WITH RIPRAP



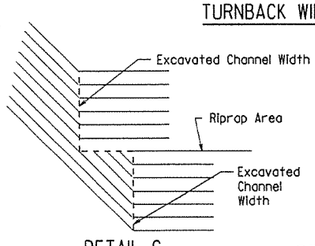
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



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.

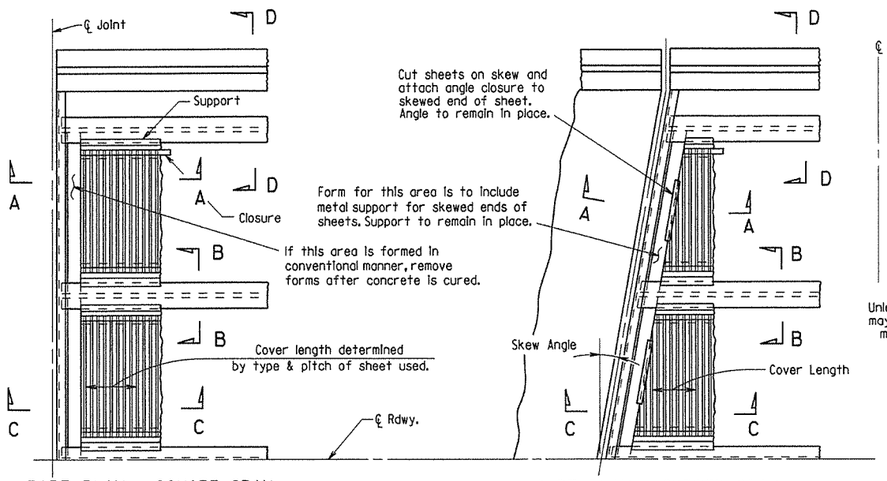
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b5500Idgn

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

DESIGNED BY: STD. DATE:

DRAWING NO. 5500I

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		65	
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

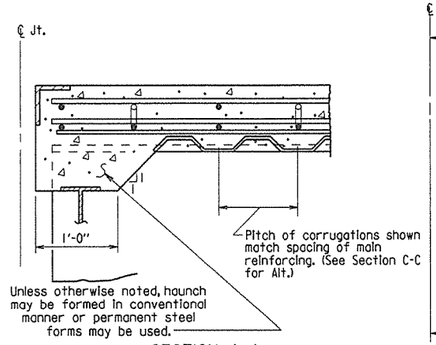


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

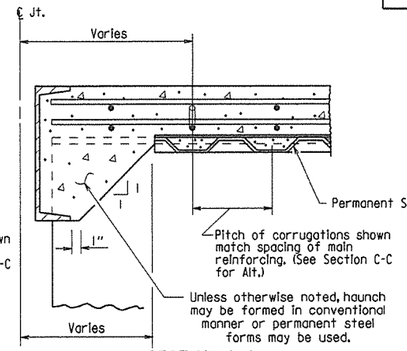
3/8" = 1'-0"



SECTION A-A

N.T.S.

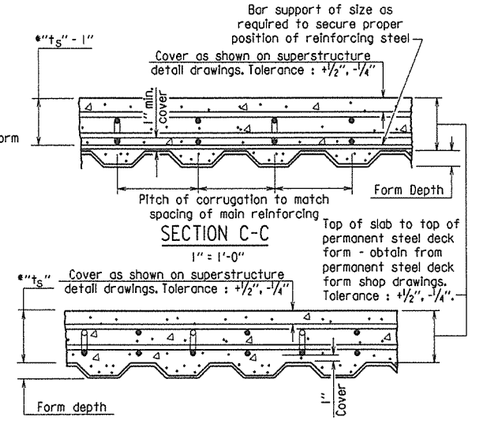
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



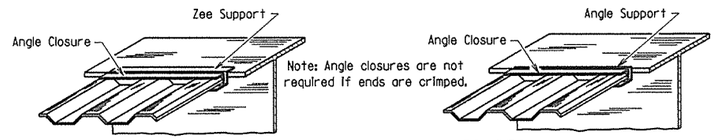
SECTION C-C

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.

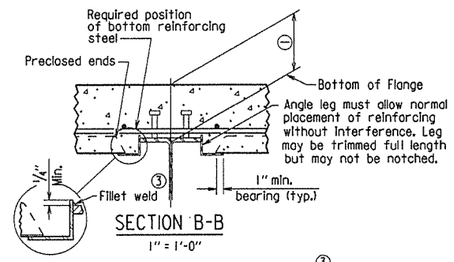
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

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.

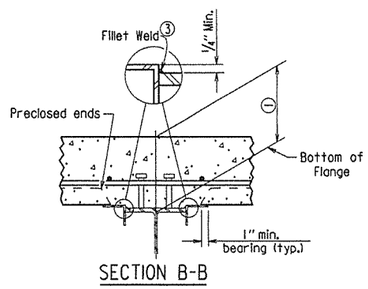


SECTION B-B

1" = 1'-0"

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

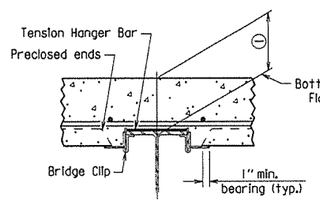
③ Minimum weld: 1/8" x 1' ℄ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

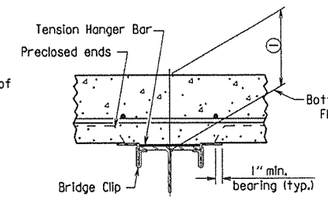
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

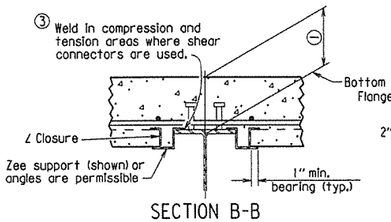
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

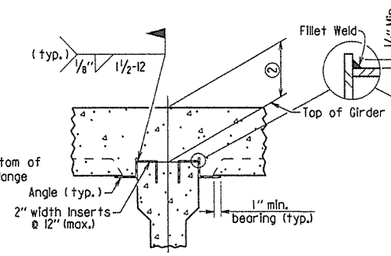
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

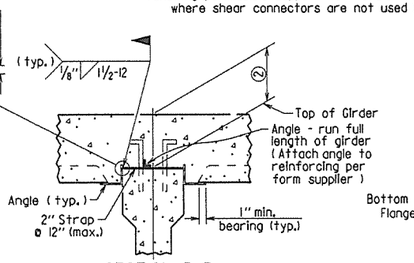


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Insert cast in girder)

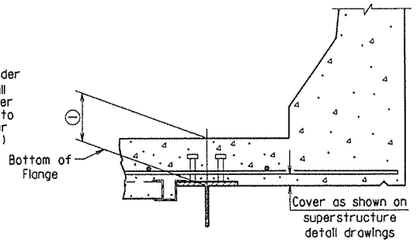


SECTION B-B

(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: —

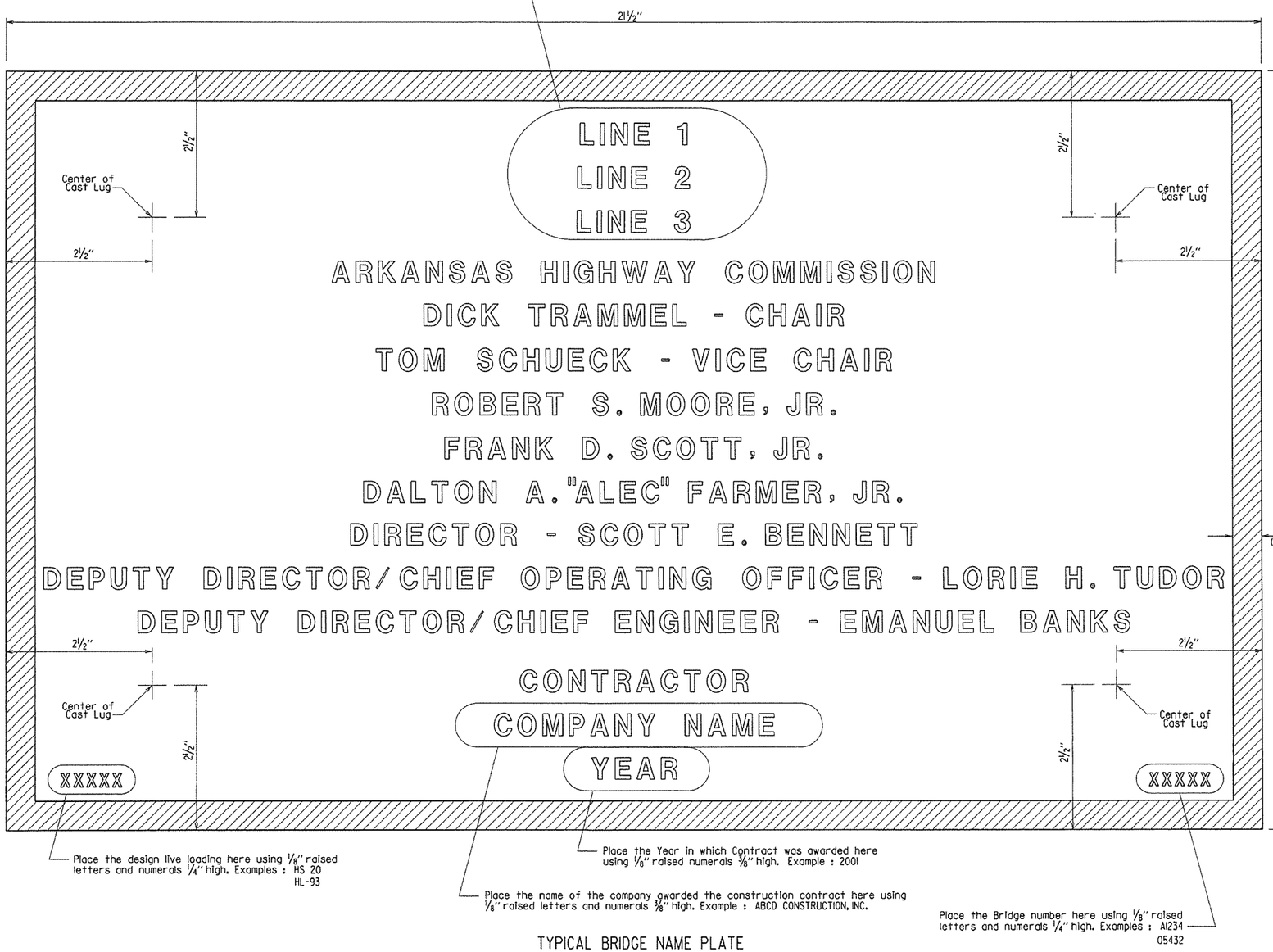
DRAWING NO. 55005

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.		66	
1-14-15				JOB NO.				

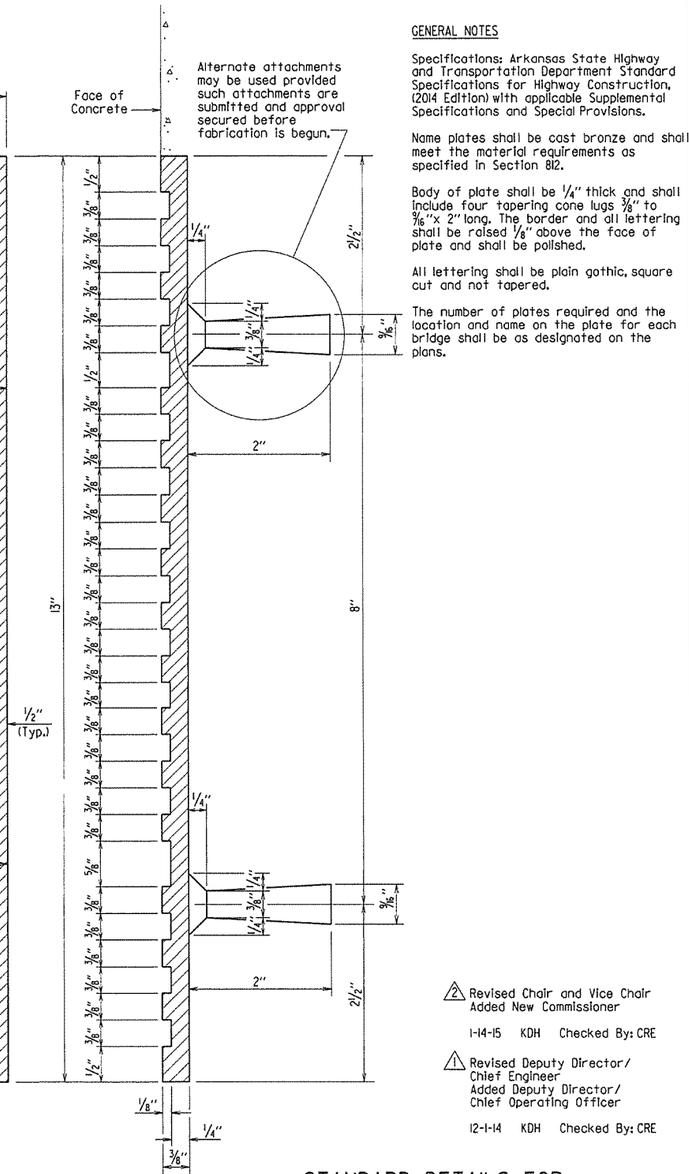
① TYPE D NAME PLATE 55010

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 3/8" 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.		67	
				JOB NO.				
				①	STEEL H-PILES		55020	

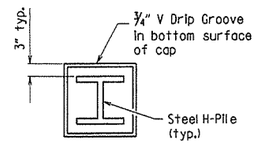
GENERAL NOTES FOR STEEL H-PILES:

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

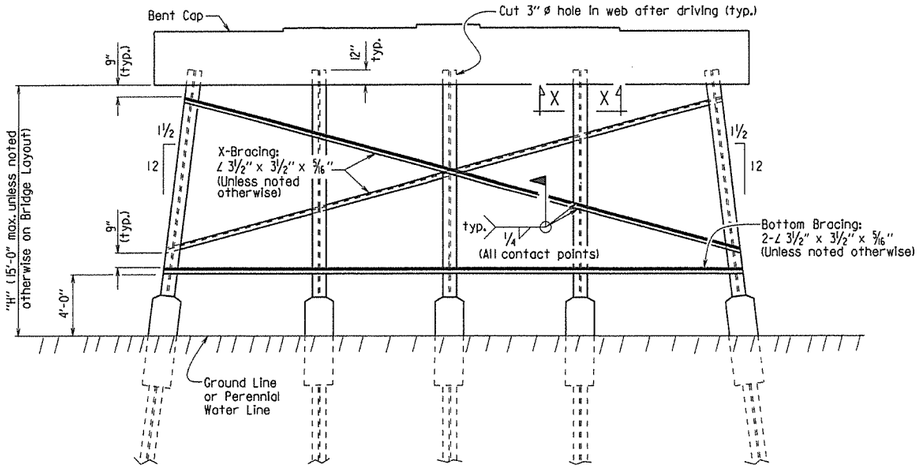
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

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.

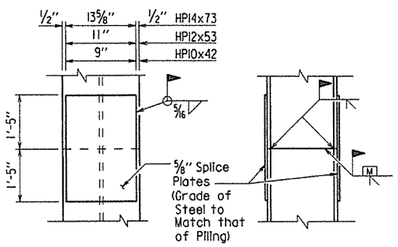
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

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)

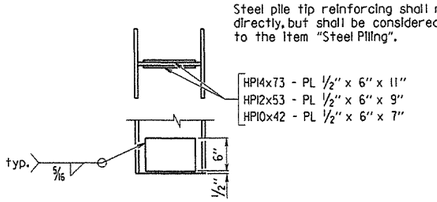


Note:
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

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:

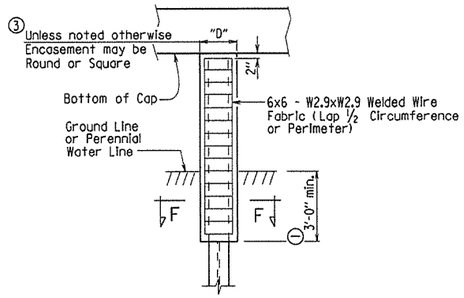
See Bridge Layout for additional notes and required location of pile encasements.

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.

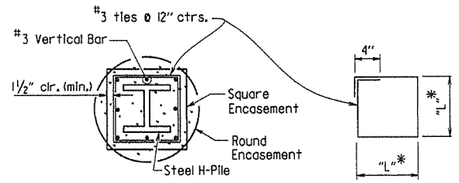
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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)

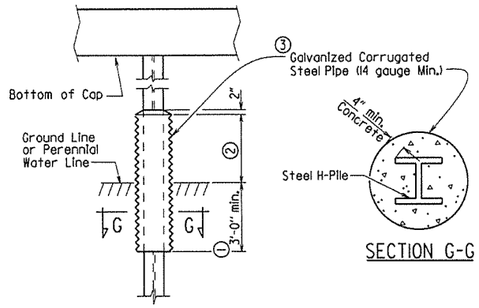


SECTION F-F

*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'-0"	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

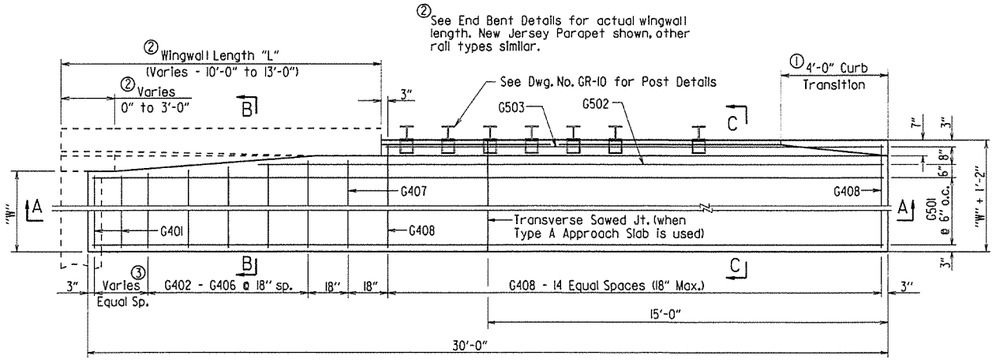
LITTLE ROCK, ARK.

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

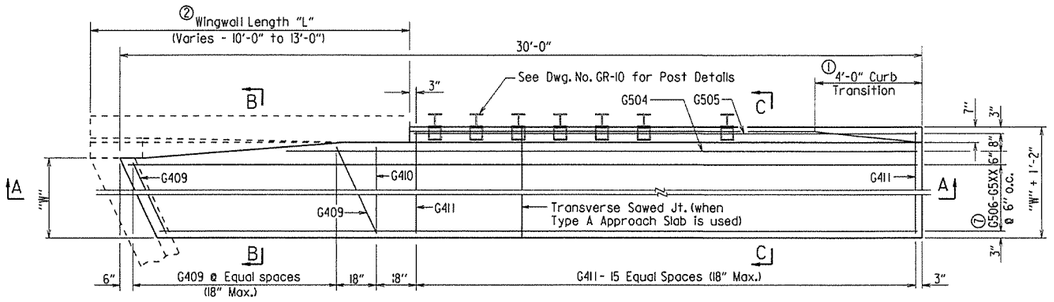
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9/2/15				6	ARK.		68	
				JOB NO.				

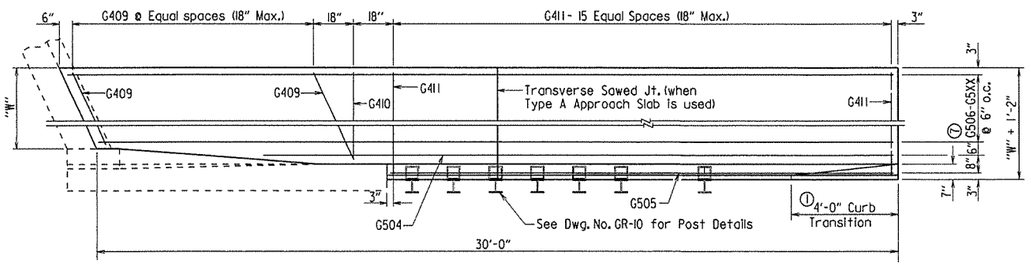
① TYPE A GUTTERS 55030A



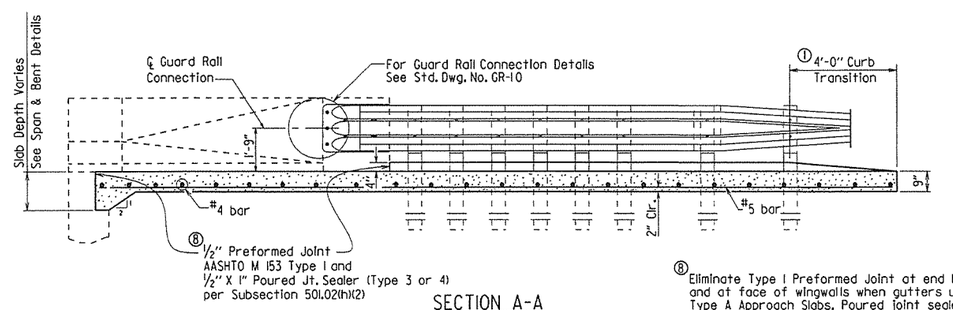
③ Number of G401 bars vary with wingwall length - See Bar List

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





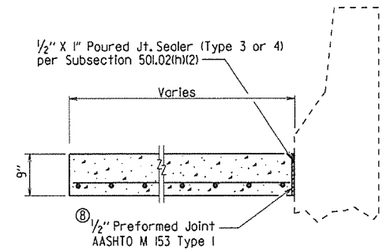
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



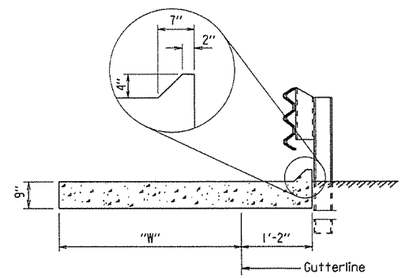
SECTION A-A

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" 2'-0"	3'-0"	4'-0"	6'-0"	8'-0"	Length
Square Bridge	G401	④	④	④	④	④	"W"- 4"
	G402-G406	1 each	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	1	"W"+3"
	G408	15	15	15	15	15	"W"+ 10"
	G501	4	6	8	12	16	29'-8"
	G502	1	1	1	1	1	(35'-5") - "L"
	G503	1	1	1	1	1	30'-8"-"L"
Skewed Bridge	G409	⑥	⑥	⑥	⑥	⑥	⑤
	G410	1	1	1	1	1	"W"+3"
	G411	16	16	16	16	16	"W"+ 10"
	G504	1	1	1	1	1	⑤
	G505	1	1	1	1	1	⑤
	G506 - G5XX ⑦	1 each	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 G509 for "W" = 2' ⚠
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.)
2	210	2.55
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.

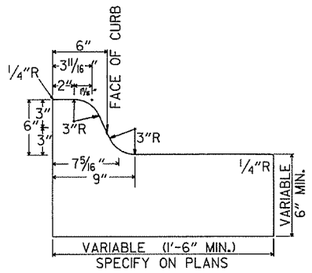
⚠ Revised to add "W" = 2'-0"; By LJB
Checked By: KWY 9/2/15

STANDARD DETAILS FOR TYPE A APPROACH GUTTERS

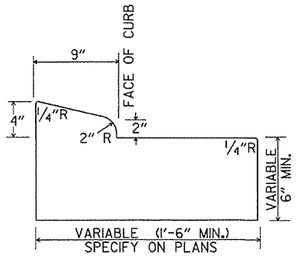
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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:

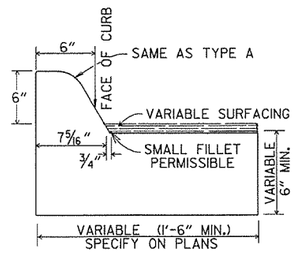
DRAWING NO. 55030A



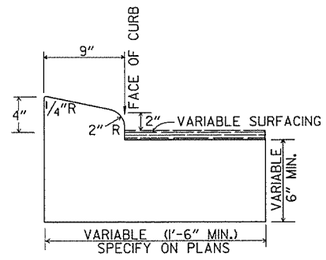
TYPE A



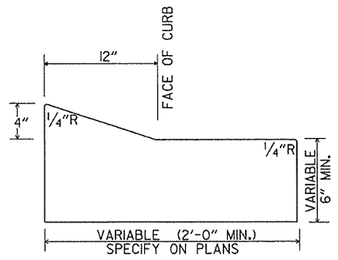
TYPE B-1



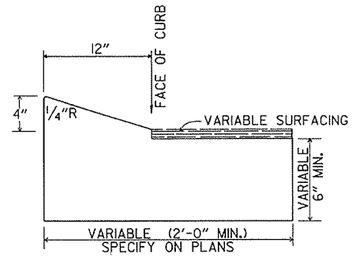
TYPE C



TYPE B-2

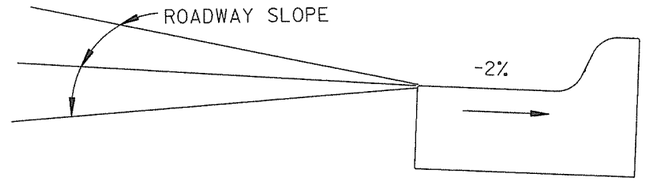


TYPE E-1



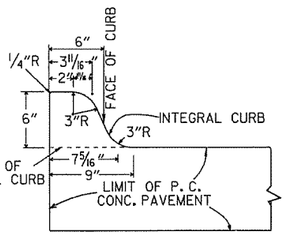
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

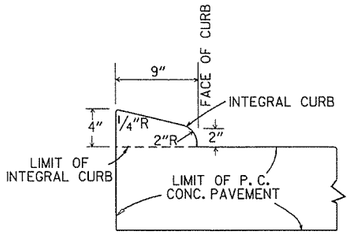


DETAIL OF GUTTER SLOPE

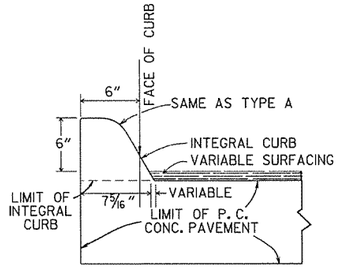
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

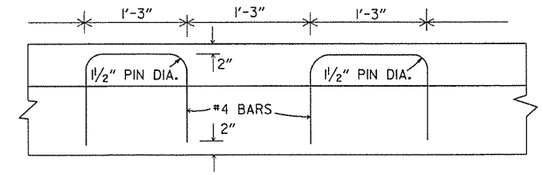


TYPE B



TYPE C

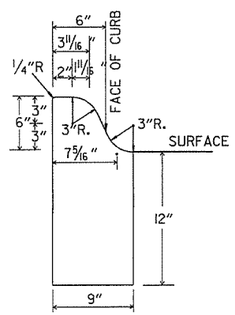
INTEGRAL CURB



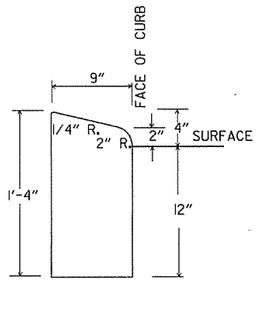
LONGITUDINAL SECTION

ELEVATION

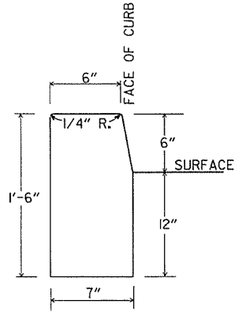
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



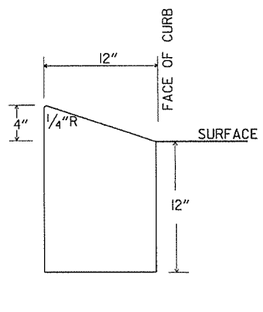
TYPE A



TYPE B

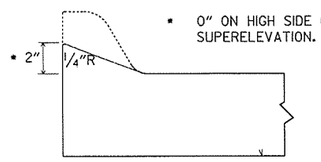


TYPE D



TYPE E

CONCRETE CURB



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

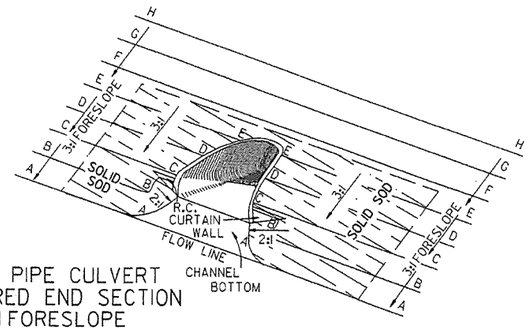
DETAILS OF MODIFIED CURB

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

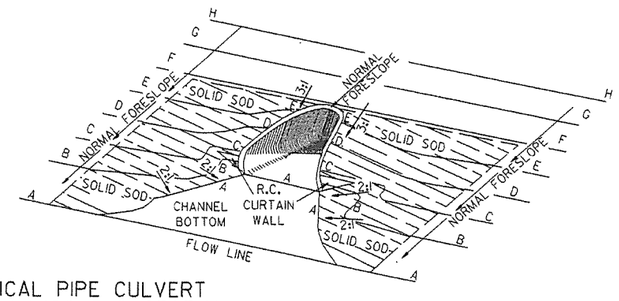
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

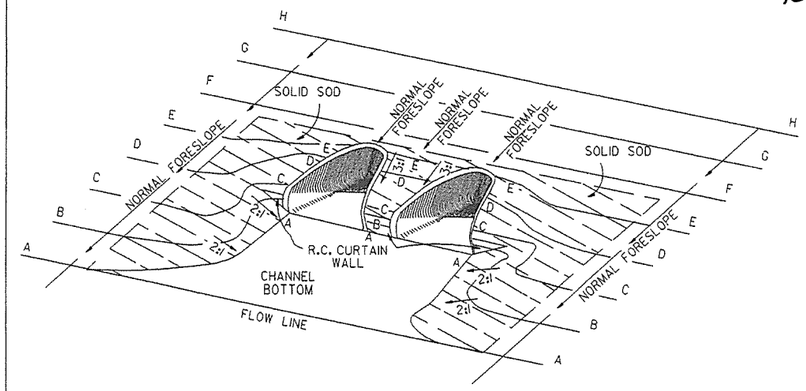
STANDARD DRAWING CG-1



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



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

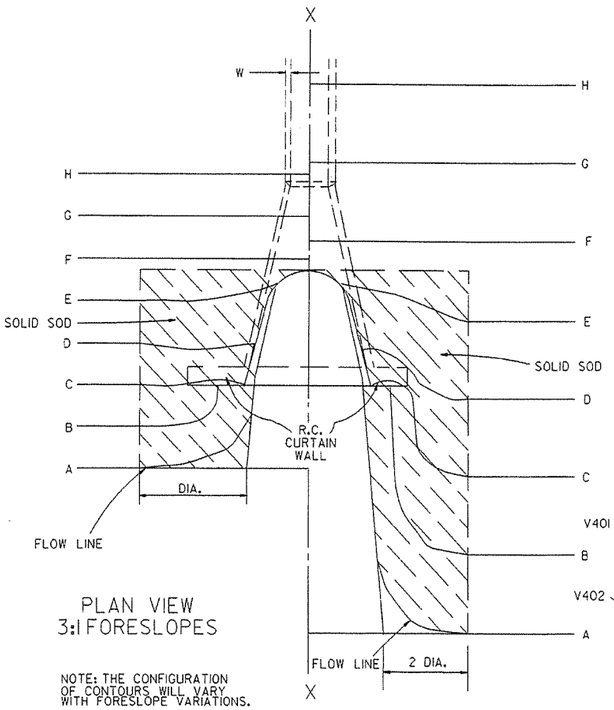
PIPE DIA.	H_1	L_1	L	$\frac{L\ (DBL.)}{2}$	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1½"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9½"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

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

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT								DOUBLE R.C. PIPE CULVERT									
	H401		H402		V401		V402		H401		H402		H403		V401		V402	
	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.
18"	7'-8"	2	1'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

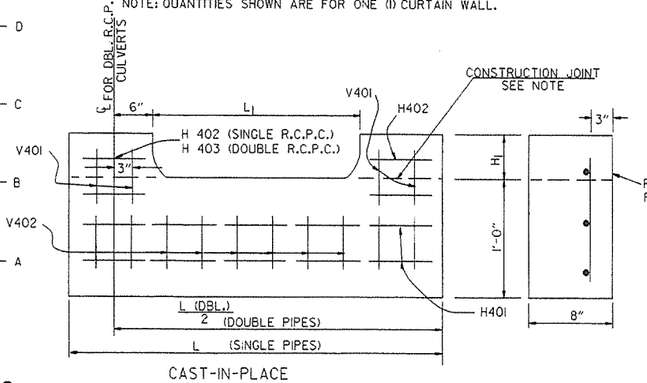
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

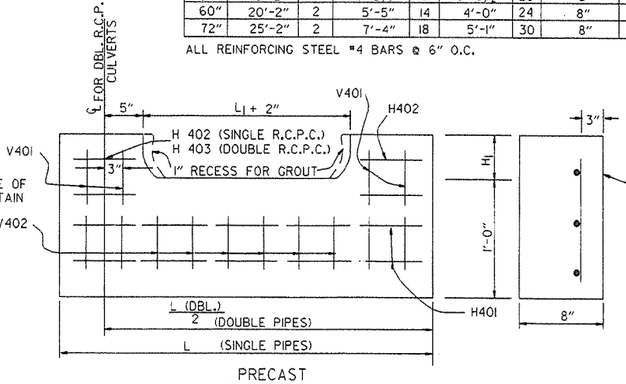
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



CAST-IN-PLACE

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



PRECAST

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

R.C. CURTAIN WALL DETAILS

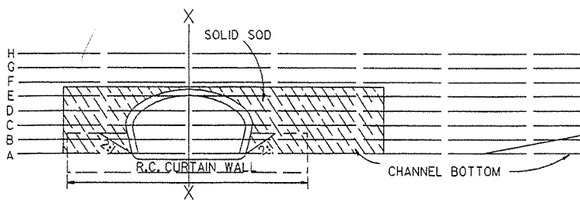
SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C.			DOUBLE R.C.P.C.		
	3:1	4:1	6:1	3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

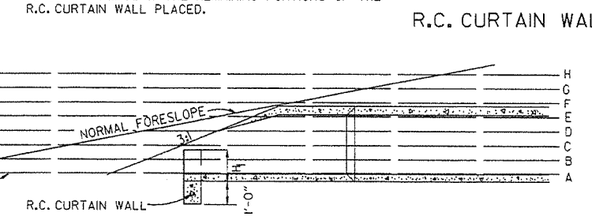
NOTE: QUANTITIES SHOWN ABOVE ARE FOR ONE (1) END OF F.E.S.

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW



SECTIONAL VIEW "X-X"

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

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1

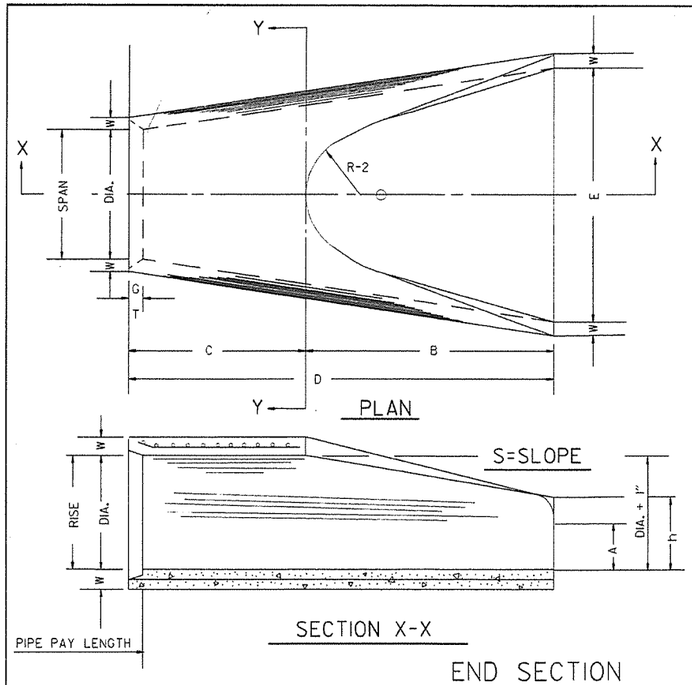
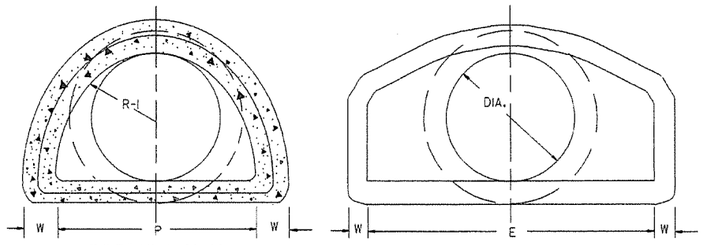


TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. ± 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33⅜"	16Ⅺ⅛"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4⅜"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3:1	37"	47Ⅺ⅛"	24⅜"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅞"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36Ⅺ⅛"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77Ⅺ⅛"	38Ⅺ⅛"	24"	5"	13250	4'-6"



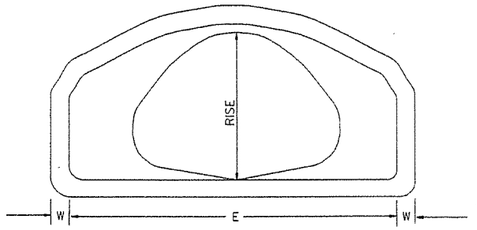
NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

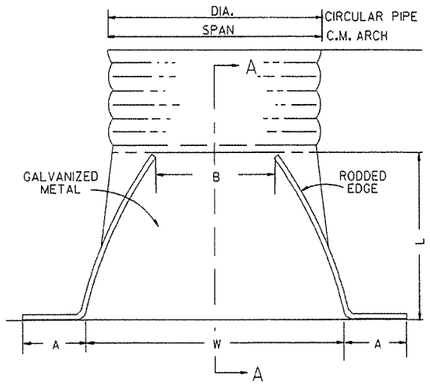
ARCH PIPE

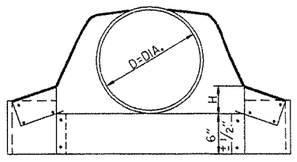
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36⅛"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47⅛"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54⅜"	22"	3½"	2½:1
42	51⅛	51	31⅝	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70⅝"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72⅛"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77⅛"	24"	5"	2¼:1

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

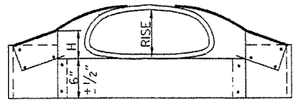


END VIEW
CONCRETE ARCH PIPE





CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

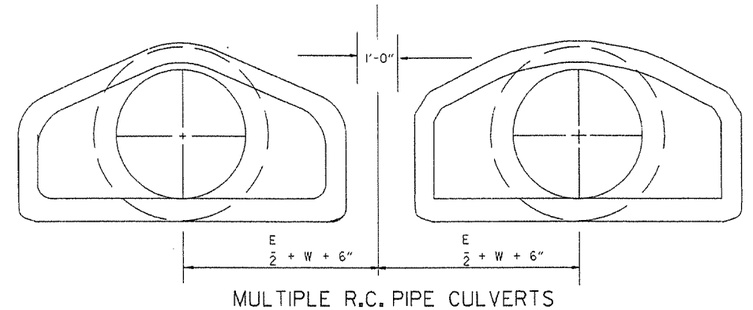
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

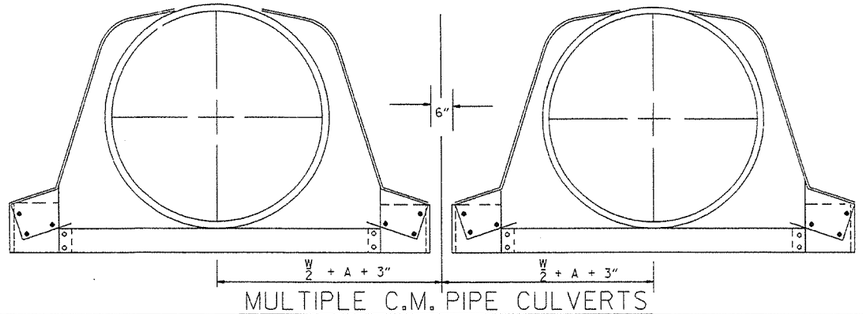
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2¼:1	12
60"	71	47	18	33	12	77	114	2¼:1	12

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

ARKANSAS STATE HIGHWAY COMMISION

FLARED END SECTION

STANDARD DRAWING FES-2

stdfes2.dgn

4'-0" LENGTH DROP INLET

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

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

DROP INLET EXTENSION

4'-0" CLASS A CONC. CU. YDS.	4'-0" REINF. STEEL POUNDS	8'-0" CLASS A CONC. CU. YDS.	8'-0" REINF. STEEL POUNDS
0.58	38	0.87	72

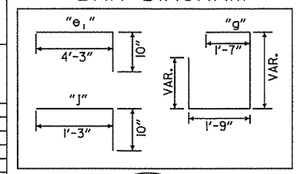
DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.

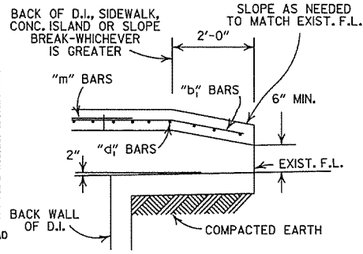
0.04	3		

DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET

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

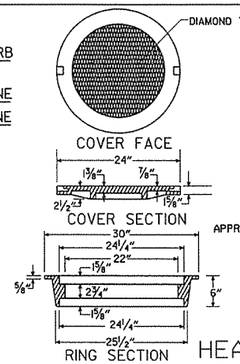
BAR DIAGRAM





BACK OPENING

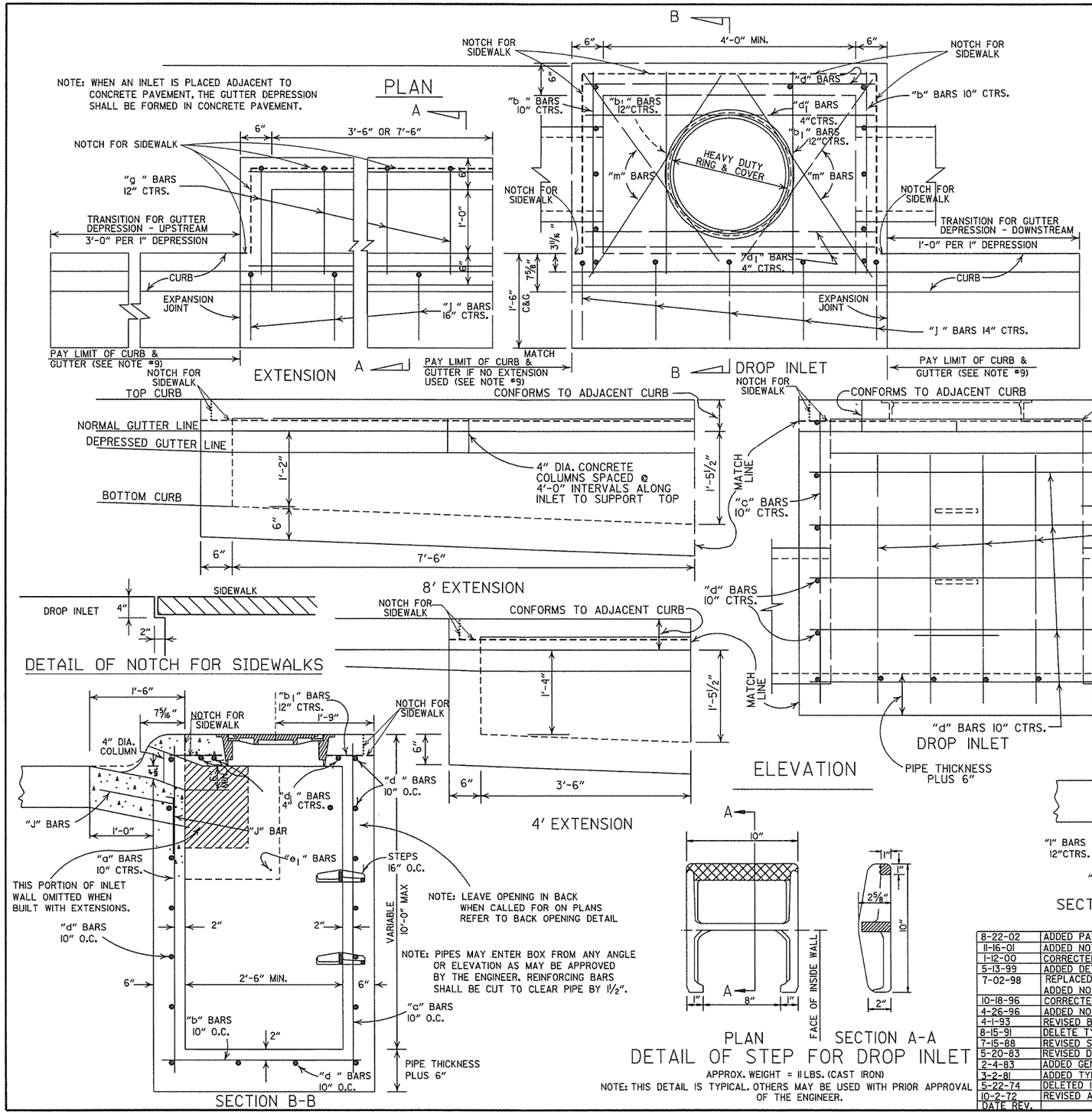
WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).



APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

GENERAL NOTES:
1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
3. ALL REINF. BARS SHALL BE #4 AND HAVE 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
6. WHEN PLANS CALL FOR DROP INLET OVER 10'-0" HIGH, FLOOR AND WALLS SHALL BE CONSTRUCTED AS SHOWN FOR TYPE "RM" DROP INLET (F.P.C.-9D).
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
9. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
10. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
11. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.



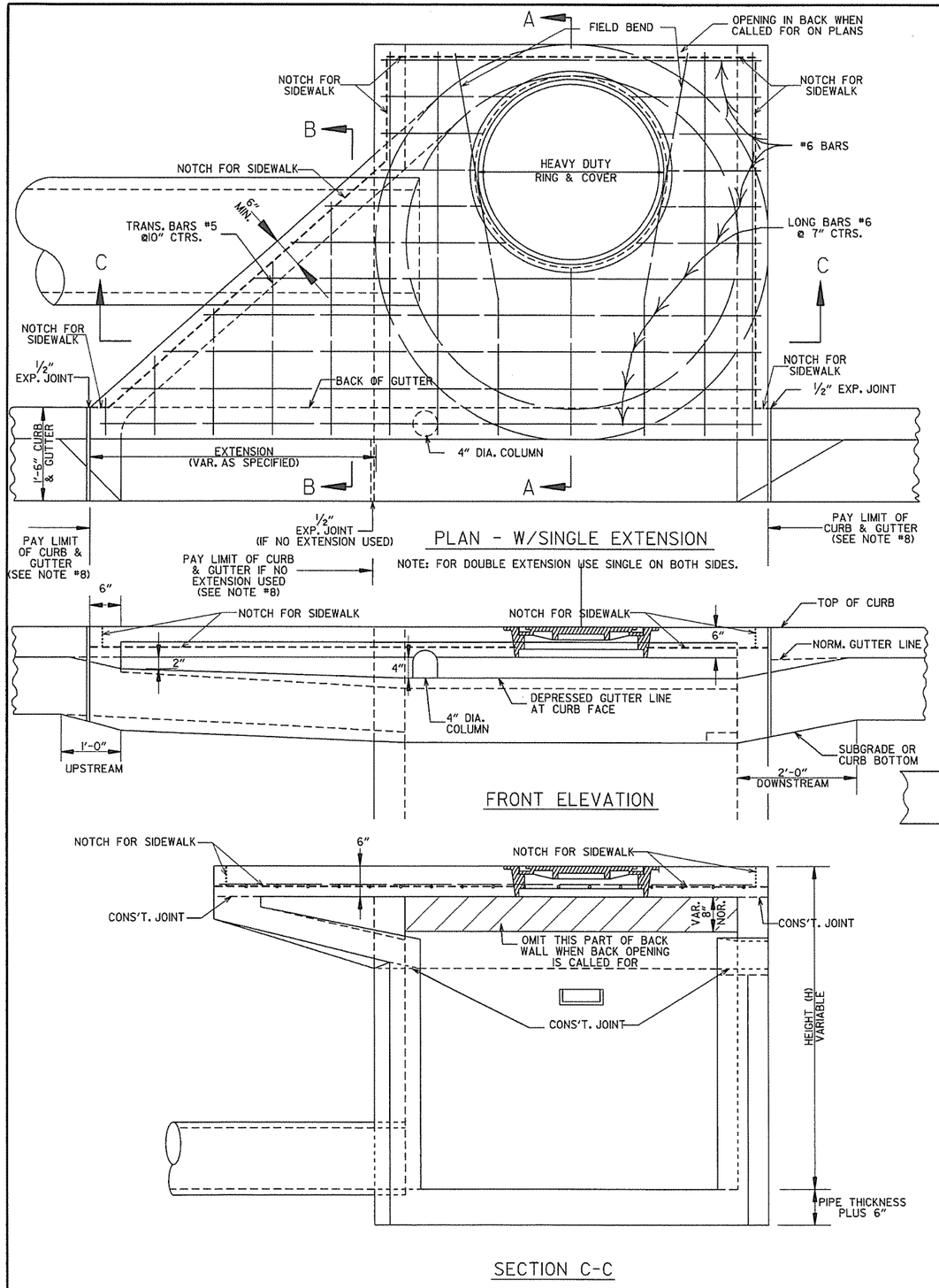
DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER ADDED NOTES 9,10,&11	
10-18-96	CORRECTED SPELLING	
4-26-96	ADDED NOTE 8 & REVISED (4')(8') EXTENSION TITLES	10-18-96
4-1-93	REVISED BACK OPENING & NOTE	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

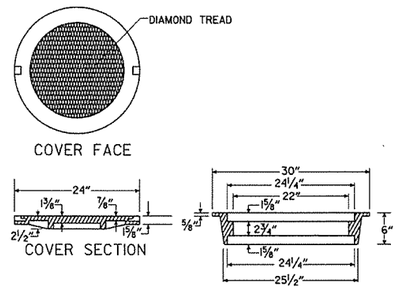
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS

(TYPE C)

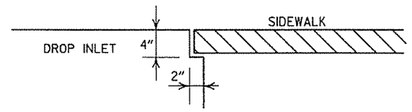
STANDARD DRAWING FPC-9E



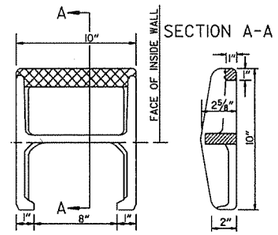


HEAVY DUTY RING & COVER

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



DETAIL OF NOTCH FOR SIDEWALKS

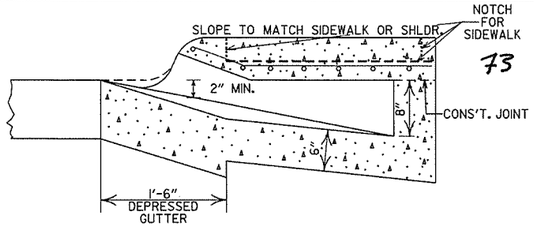


APPROX. WEIGHT = 11 LBS. (CAST IRON)

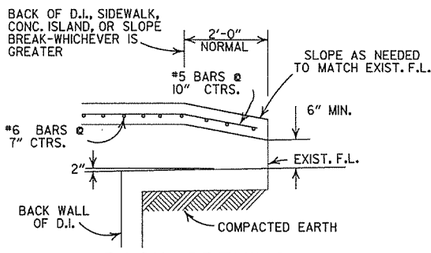
PLAN

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

DETAIL OF STEP FOR DROP INLET



SECTION B-B

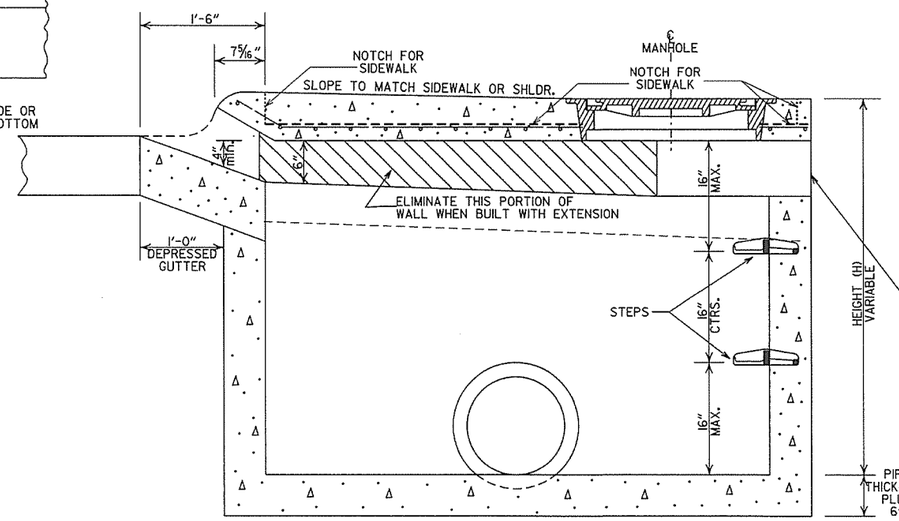


BACK OPENING

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

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OR AS DIRECTED BY THE ENGINEER.
3. ALL REINFORCING BARS SHALL BE GRADE 60 AND HAVE MIN. 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. 4" DIA. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLET AND EXTENSION TO SUPPORT TOP.
6. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
8. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
9. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
10. APPROPRIATE SIZE TYPE C DROP INLETS MAY BE SUBSTITUTED FOR TYPE MO DROP INLETS AS APPROVED BY THE ENGINEER. PAYMENT TO BE AS DROP INLET (TYPE MO).
11. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
12. 4"×2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.



SECTION A-A

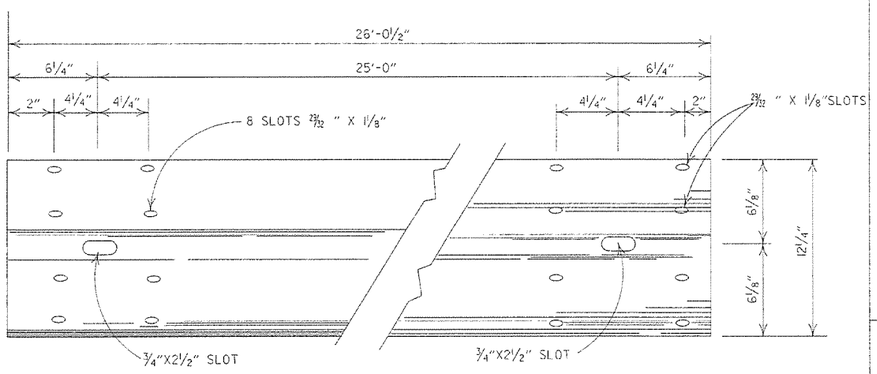
DIA. OF D.I.	DIA. OF OUTLET PIPE	MINIMUM WALL THICKNESS	
		CAST IN PLACE	PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

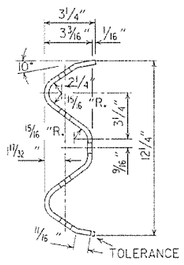
DATE	REVISIONS	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-96	ADDED NOTE 11 & ADJ. OPENING DIMENSION	
10-12-95	CORRECTED *5 BAR SPACING	
7-21-95	CORRECTED DIAMETER OF D.I. IN BOX	
2-2-95	TYPE C TO MO (OPEN, BACK DETAIL)	
11-3-94	REVISED GENERAL NOTES	11-3-94
4-11-93	REV. BACK OPEN. DETAIL & NOTE	4-11-93
8-15-91	REVISED NOTES 11,12 & ADDED BK.OPEN DETAIL	8-15-91
11-30-89	ADDED NOTE NO. 12	11-30-89
5-23-89	ADDED NOTE & MINIMUM WALL THICKNESS	5/5-5-23-89
7-15-88	ADDED EXTEND NOTE TO SECTION A-A	635-7-15-88
1-14-87	MODIFIED WALL THICKNESS	783-1-14-87
6-12-87	ISSUED	4-6-12-87

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M

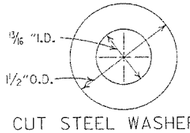




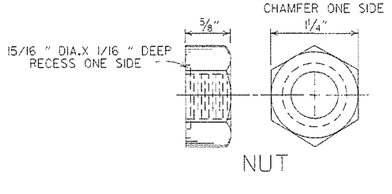
DETAILS OF W-BEAM GUARD RAIL

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

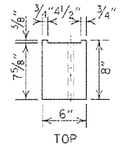
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

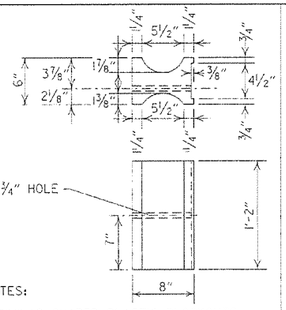


NUT



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

WOOD BLOCKOUT (W-BEAM)

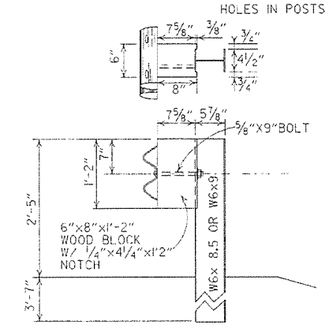


NOTES:

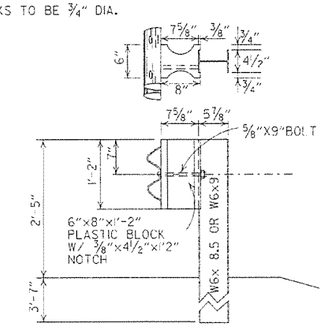
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT (W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE 3/4" DIA.

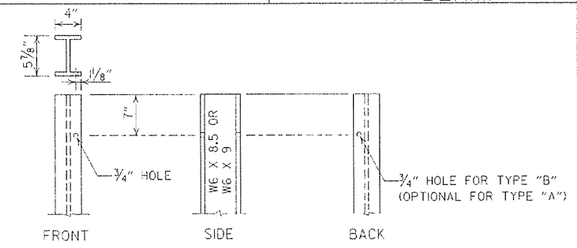


WOOD BLOCKOUT CONNECTIONS

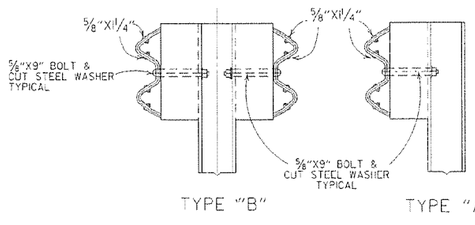


PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



STEEL POST



TYPE "B" TYPE "A"

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE 3/4" DIA.

POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - 1/4".

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.

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

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

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

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

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

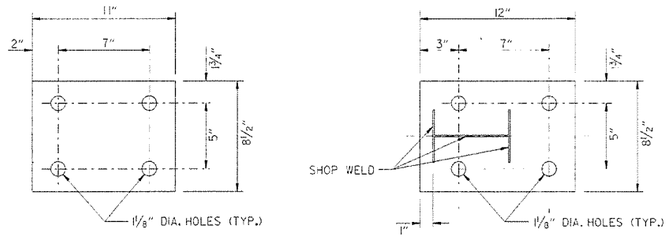
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

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

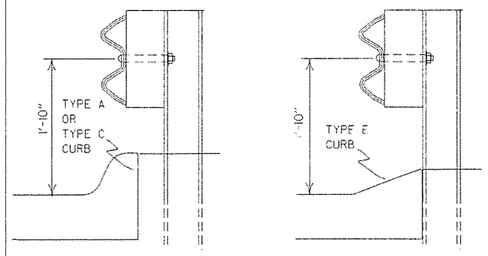
STANDARD DRAWING GR-8



WASHER PLATE

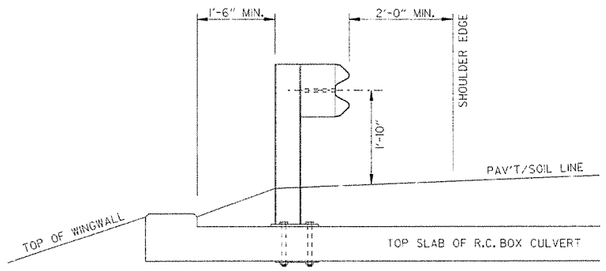
BASE PLATE

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

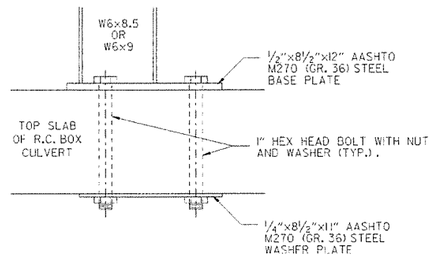


DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

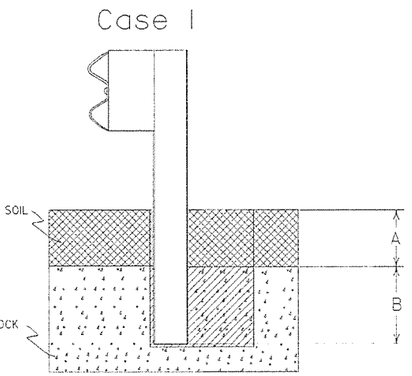
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.

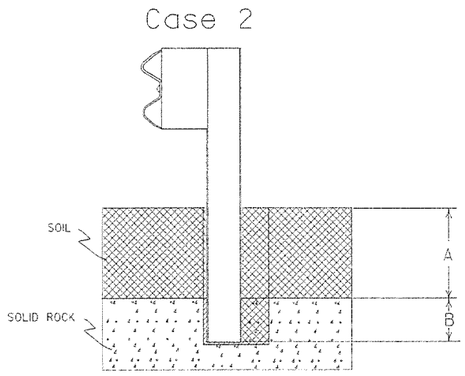


SECTION A-A



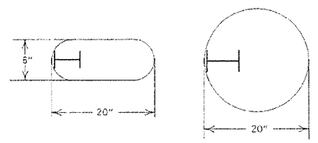
DETAIL OF CONNECTION





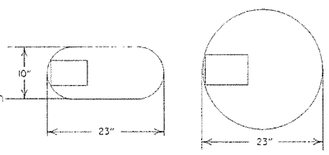
Plan View Steel Posts

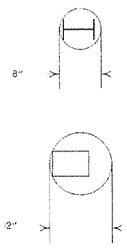
Either hole configuration acceptable



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".

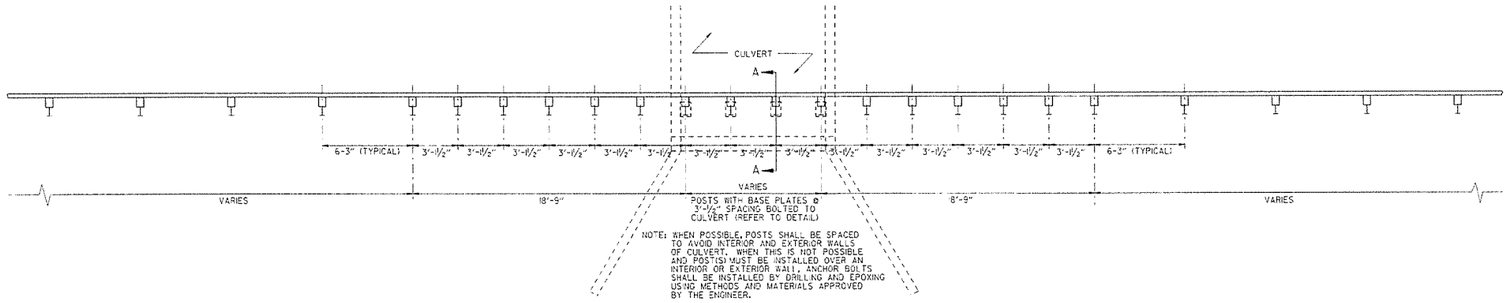
Zone A:
Backfill according to Section 617.03(a).

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.

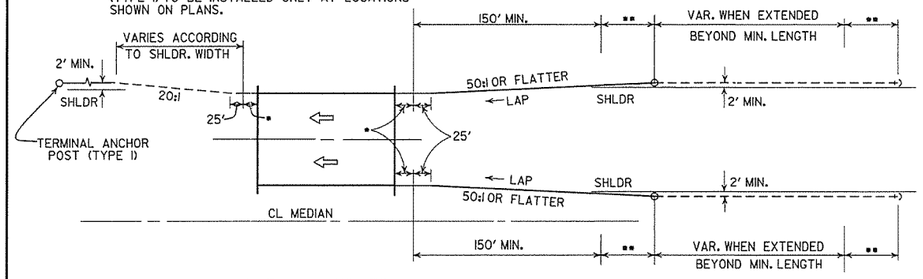
DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
4-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARD RAIL 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

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

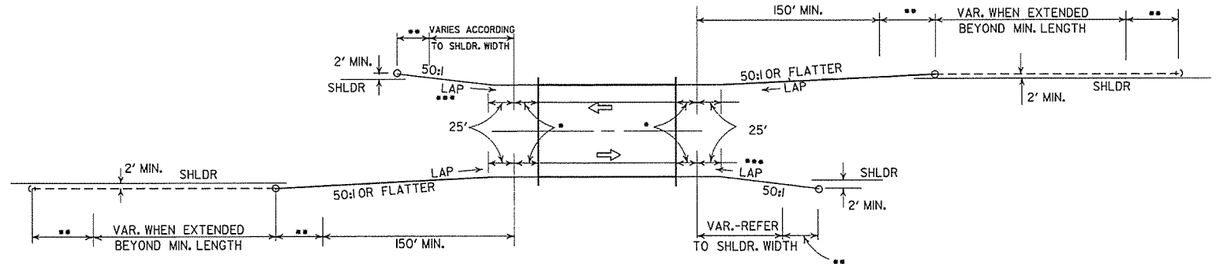
STANDARD DRAWING GR-8A

NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

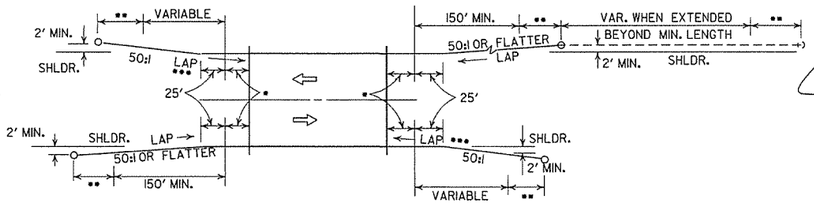
••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

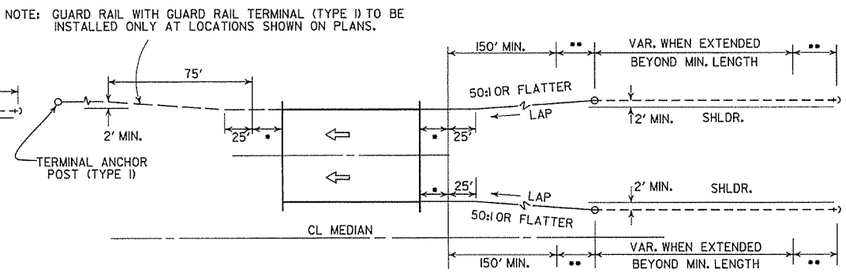
METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• 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

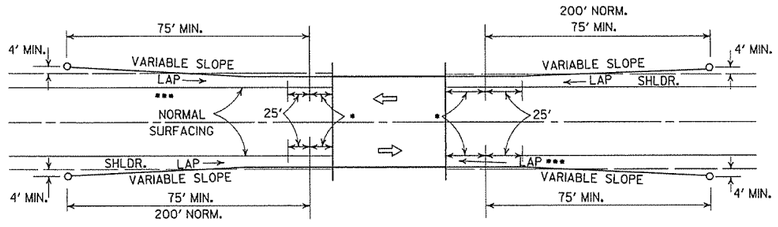
NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



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

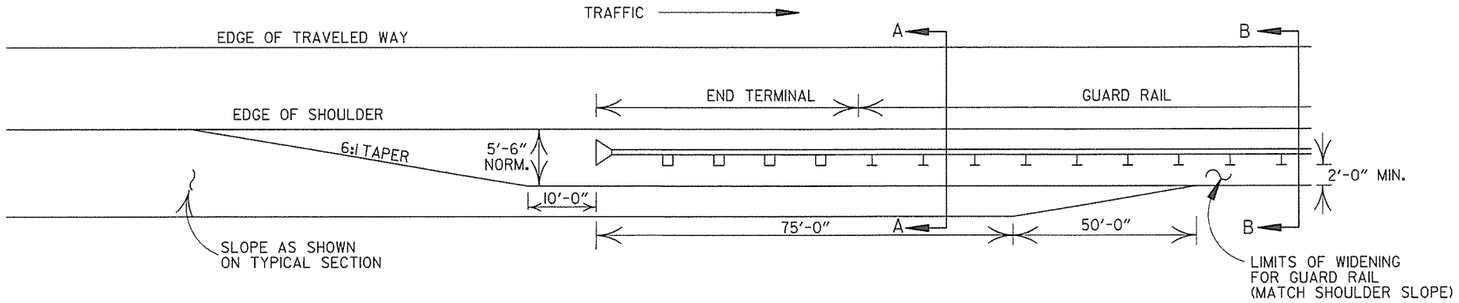
- • THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

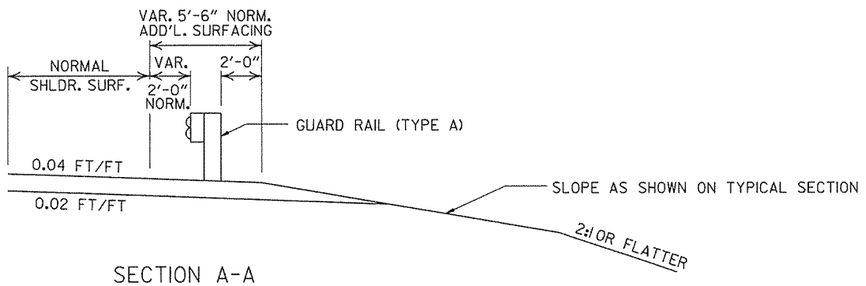
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87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

ARKANSAS STATE HIGHWAY COMMISSION

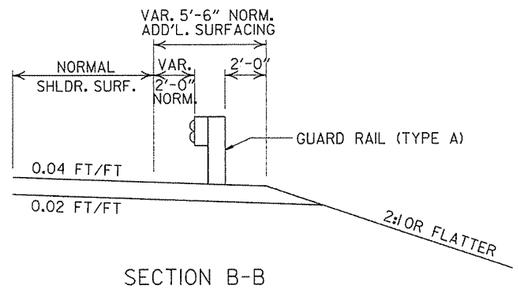
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





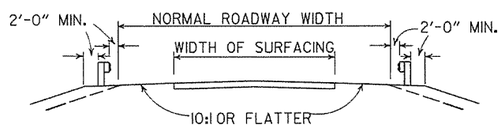
SECTION A-A



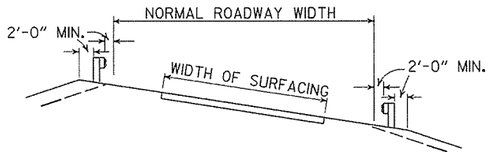
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

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

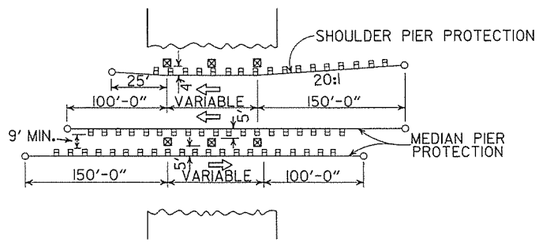


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



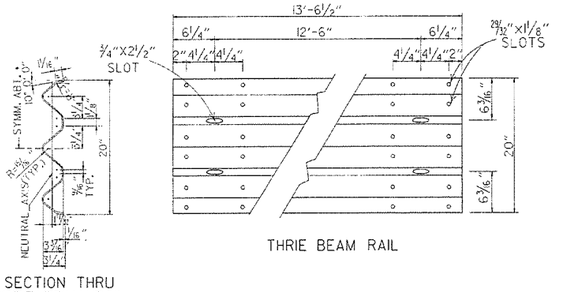
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

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

ARKANSAS STATE HIGHWAY COMMISSION

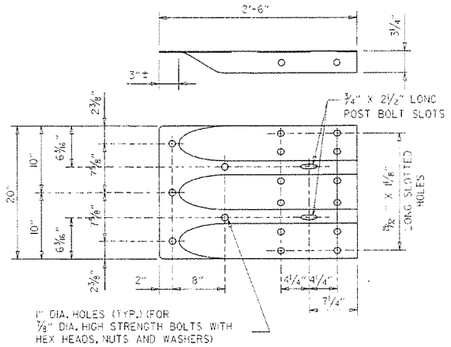
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A



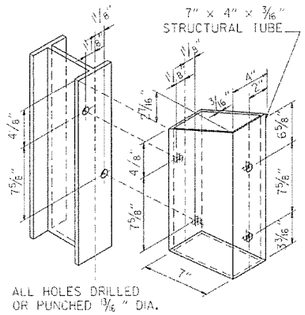
THRIE BEAM RAIL

SECTION THRU
THRIE BEAM RAIL



1" DIA. HOLES (TYP.) (FOR ⅞" DIA. HIGH STRENGTH BOLTS WITH HEX HEADS, NUTS AND WASHERS)

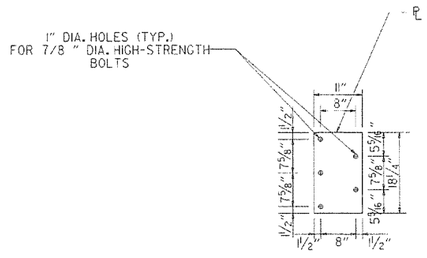
SPECIAL END SHOE



ALL HOLES DRILLED OR PUNCHED ⅜" DIA.

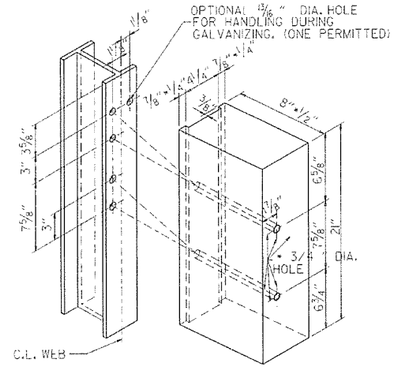
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL

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



CONNECTOR PLATE

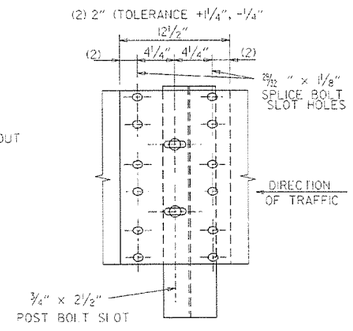
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS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



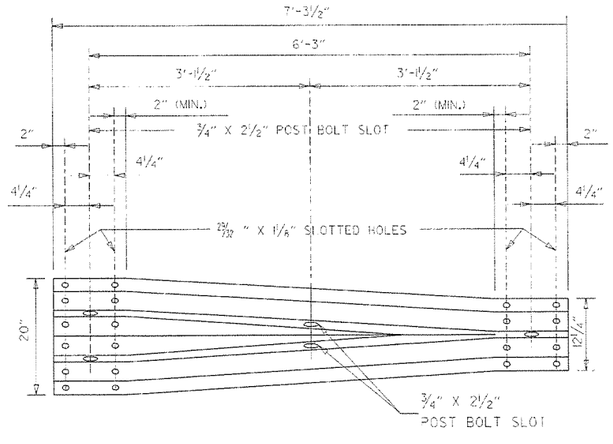
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL
FOR STEEL POST & WOOD
OR PLASTIC BLOCKOUTS

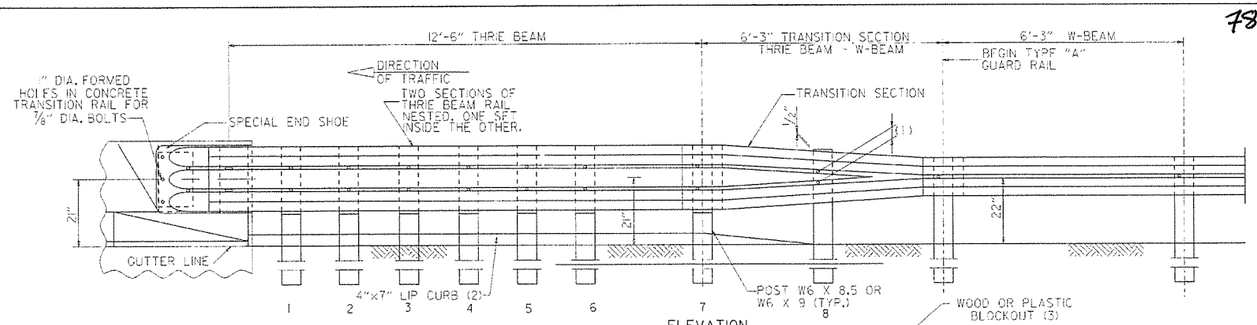
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



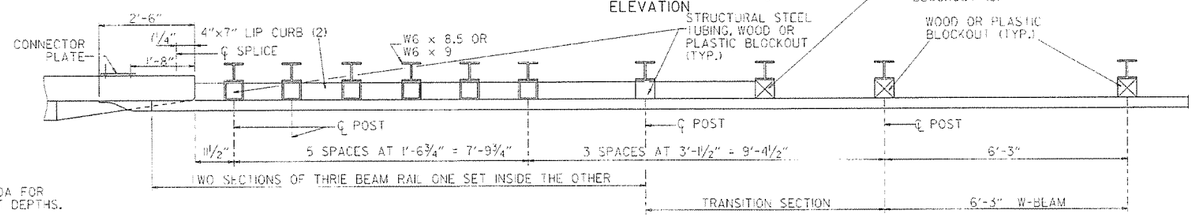
THRIE BEAM RAIL
SPLICE AT POST



TRANSITION SECTION

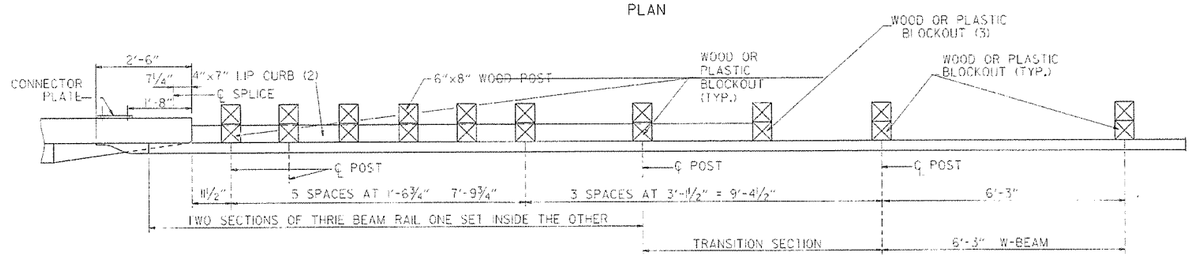


ELEVATION



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# (M00 #) 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.

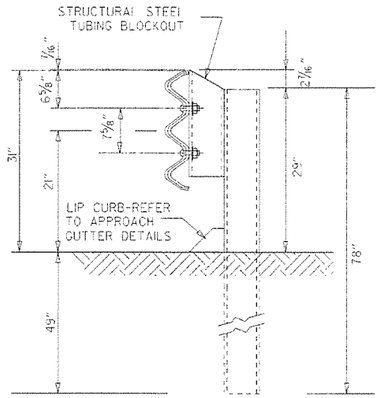
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W BEAM POSTS FOR ENTIRE JOB.

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	

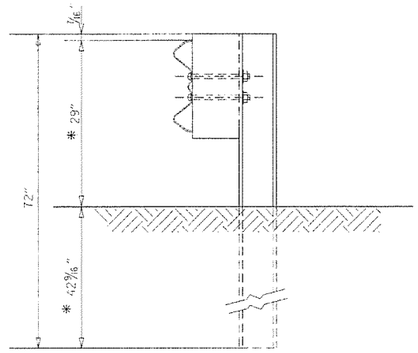
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

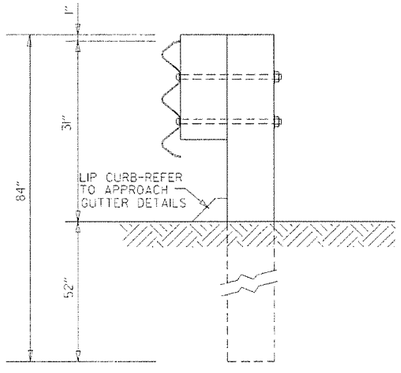


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

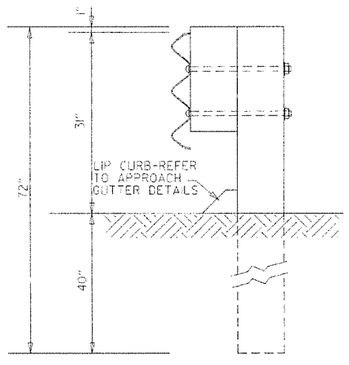


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

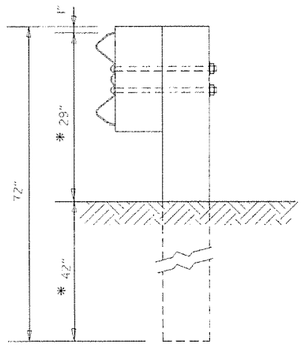
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



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.

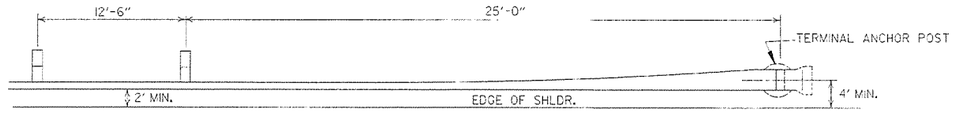
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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	

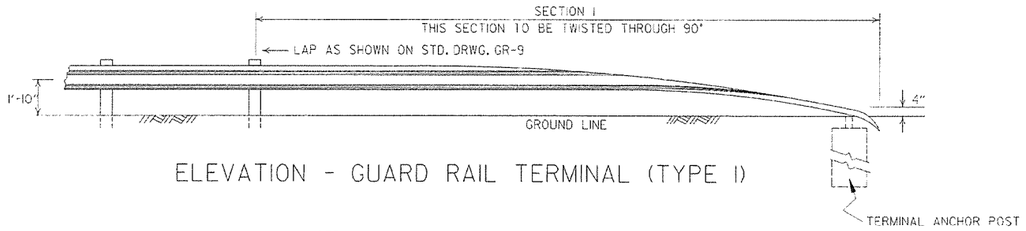
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

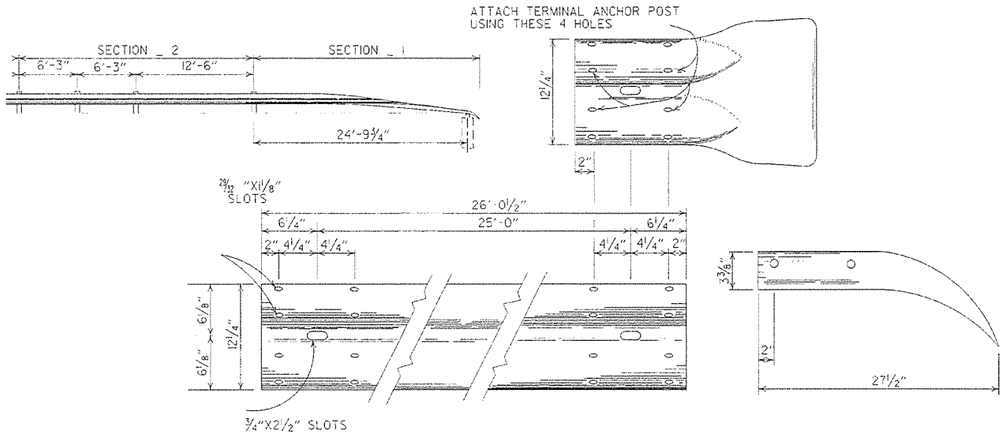


PLAN - GUARD RAIL TERMINAL (TYPE I)



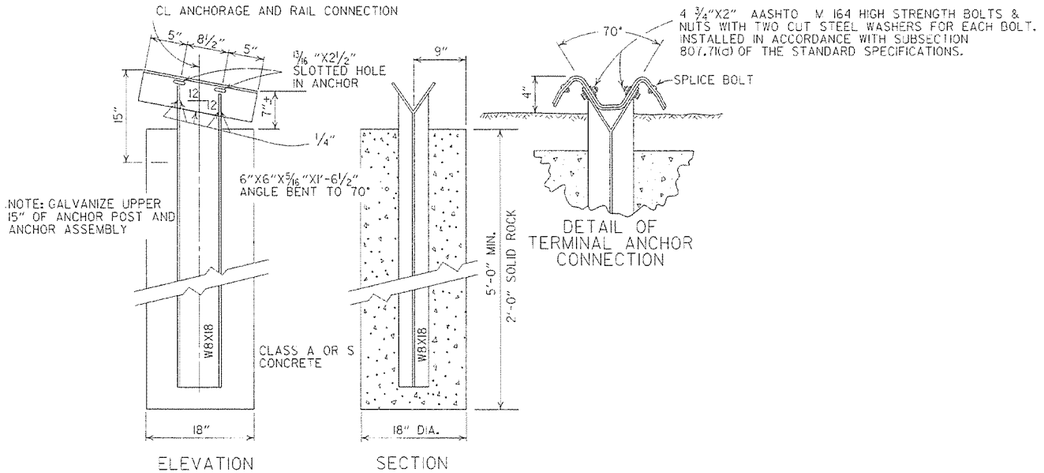
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

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

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	31⅞	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.

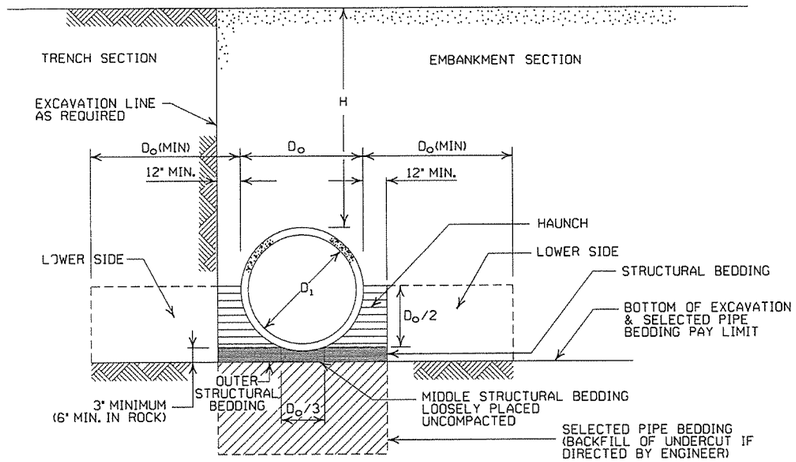
- LEGEND -

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

	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
INSTALLATION TYPE	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

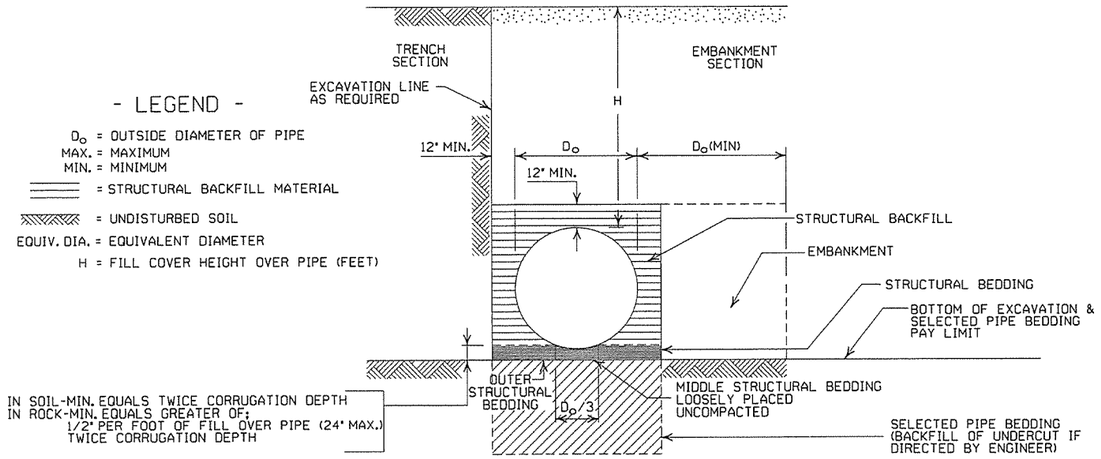
③ SM-3 WILL NOT BE ALLOWED.

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.

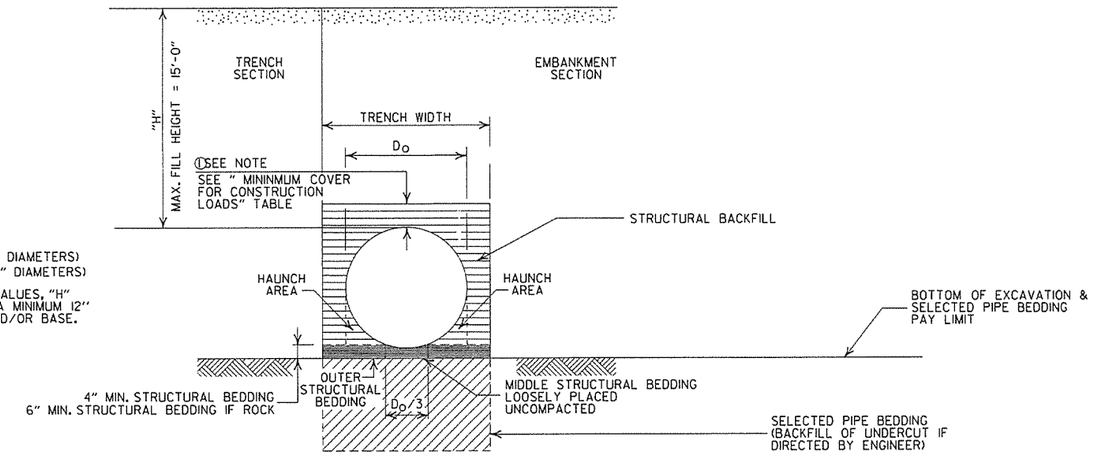
STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

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.



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.

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	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.

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 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

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

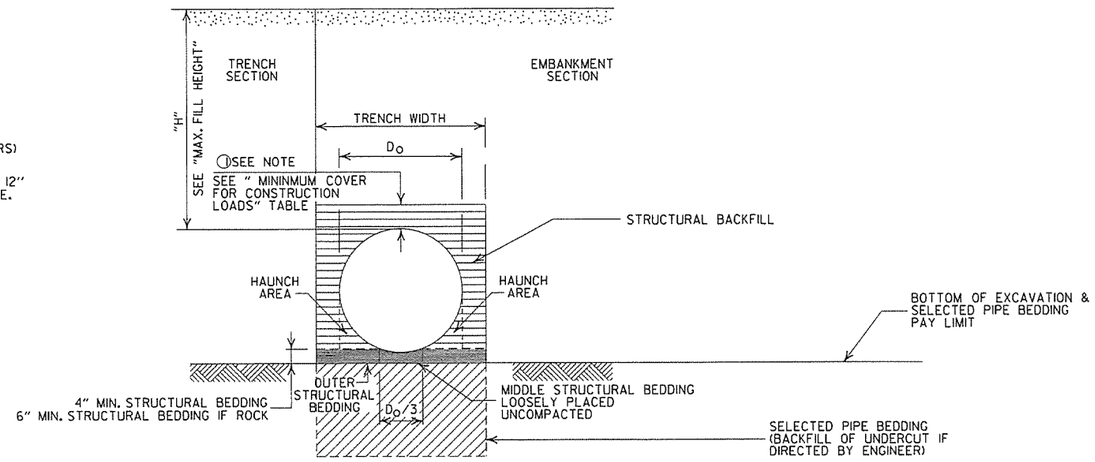
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

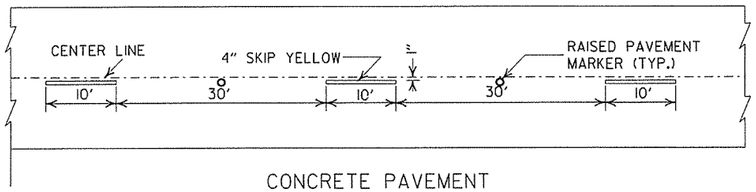
= UNDISTURBED SOIL

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	

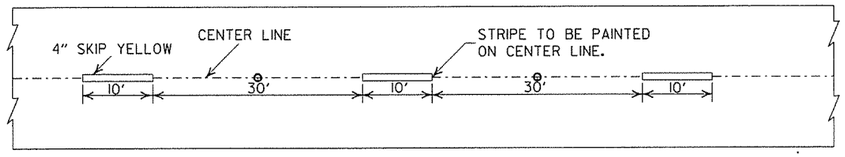
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

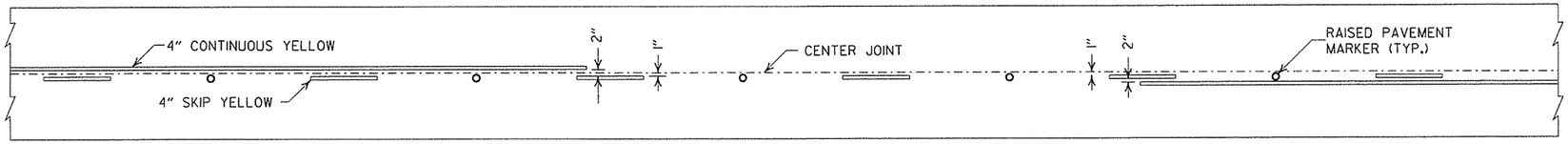


CONCRETE PAVEMENT

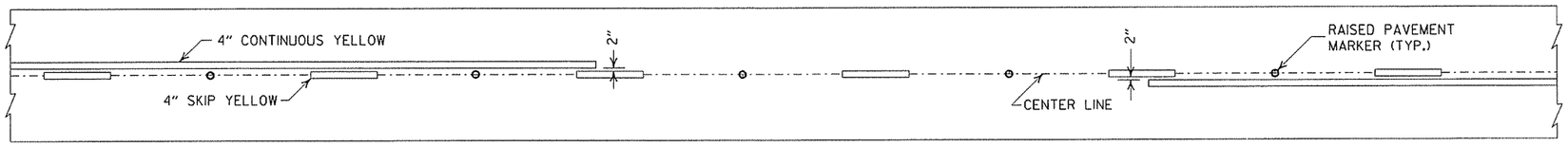


ASPHALT PAVEMENT

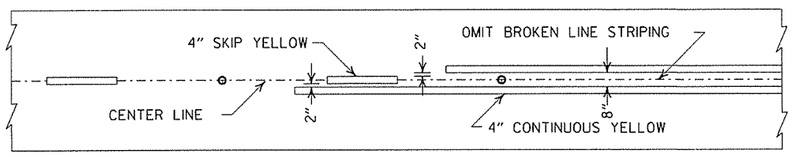
BROKEN LINE STRIPING



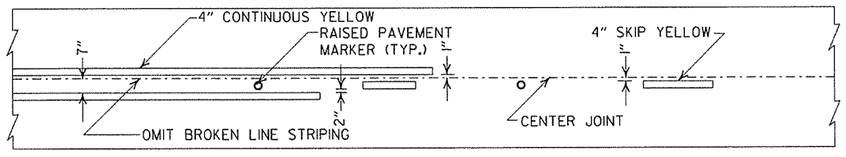
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT



ASPHALT PAVEMENT



CONCRETE PAVEMENT

GENERAL NOTES:

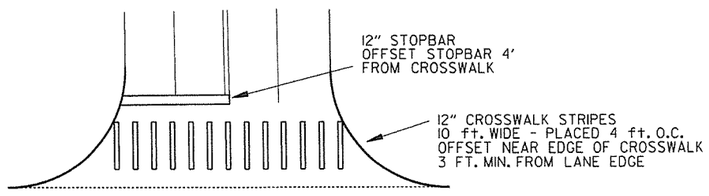
THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

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.

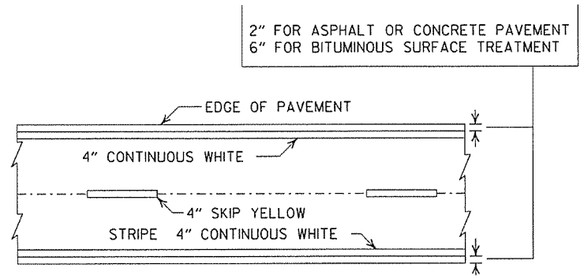
STRIPING AT ADJACENT NO PASSING LANES



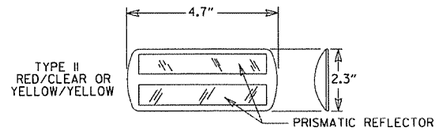
CROSSWALK AND STOPBAR DETAILS

NOTES:

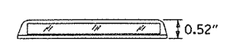
1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED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



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

DATE	REVISION	FILMED
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

ARKANSAS STATE HIGHWAY COMMISSION

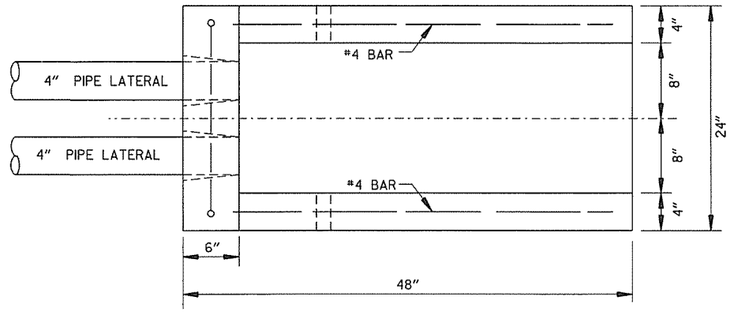
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

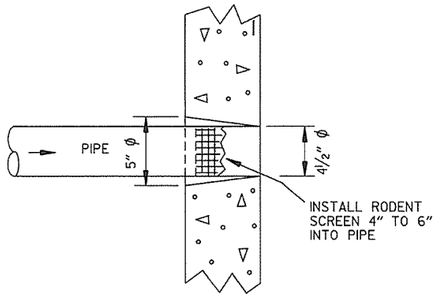
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

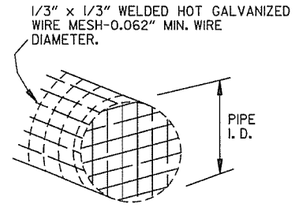
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



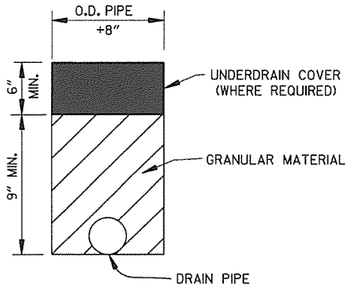
PLAN VIEW

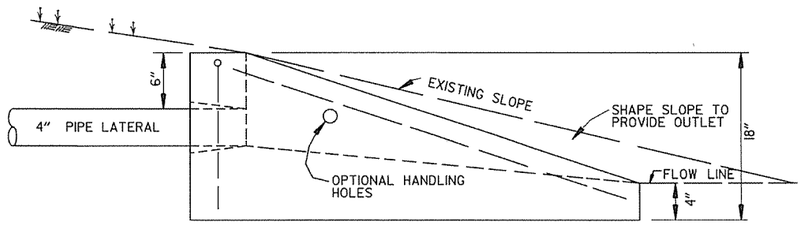


DETAIL OF HOLE FOR 4" PIPE

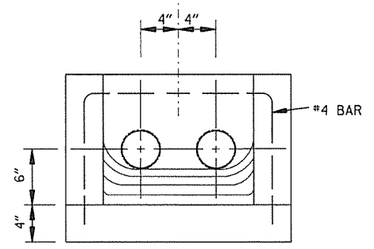


DETAIL OF RODENT SCREEN

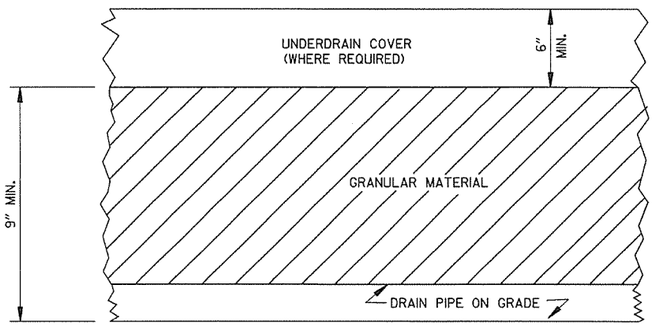




SIDE VIEW

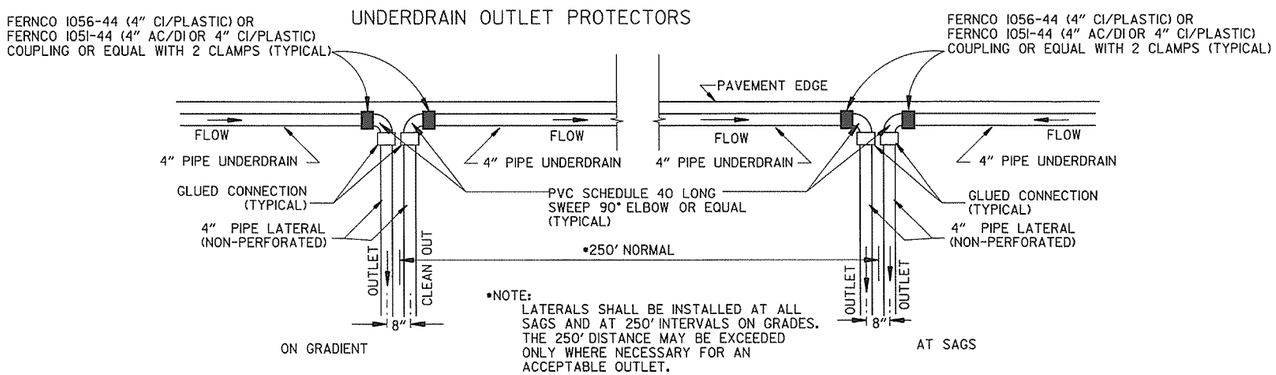


FRONT VIEW



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

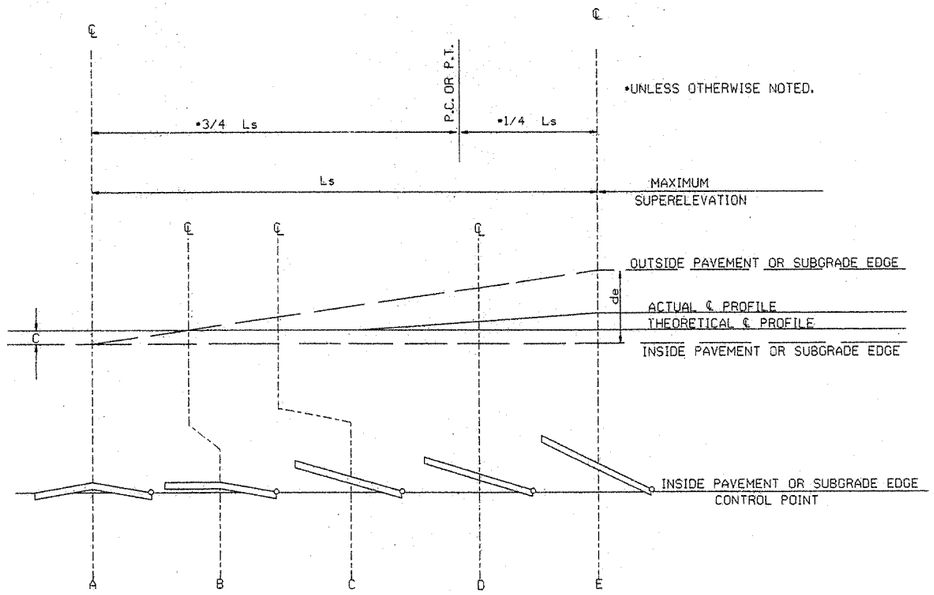
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

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	250	300	0.046		
1° 30′	N.C.			0.021			0.031	200		0.037	225		0.043			0.054		
1° 45′	N.C.			0.025	175		0.036			0.043		300	0.049			0.062		
2° 00′	R.C.			0.028			0.040		250	0.048			0.055			0.070		
2° 15′	R.C.			0.031			0.045			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		200	0.053			0.063			0.072			0.091	335	
3° 00′	0.025			0.040			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	300	0.096	305							
6° 30′	0.050			0.074	200		0.095	280		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′	0.096	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.)



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

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

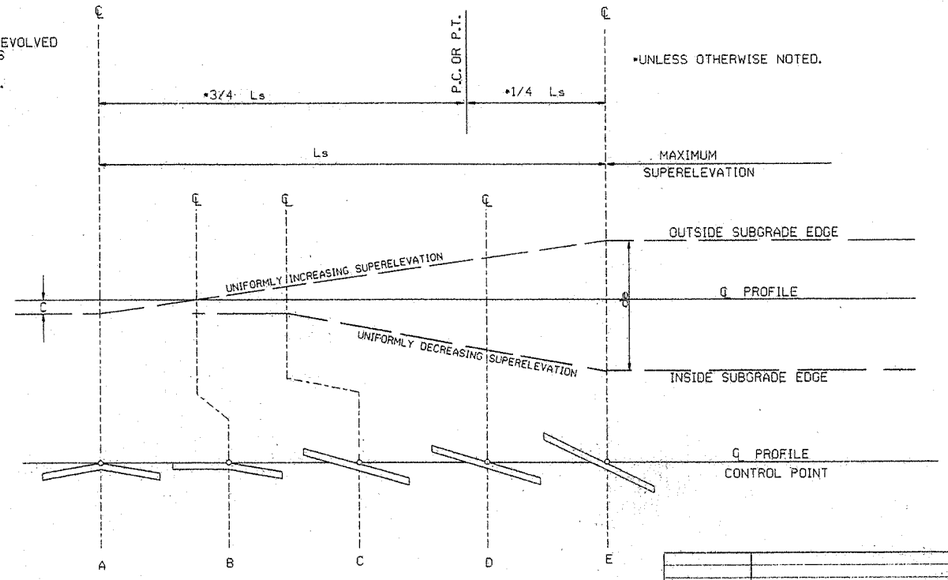
GENERAL NOTES

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.



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

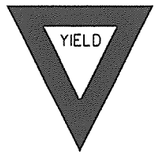
STANDARD DRAWING SE-2

FILE STDSE2.DGN

RI-1

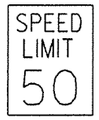
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

RI-2



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

R2-1



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

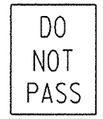
W3-5

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

W3-5a

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

R4-1



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

R4-2

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

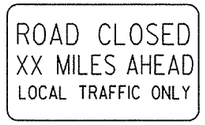
R5-1

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

RII-2

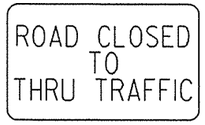
48"X30"

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"

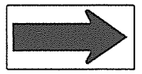
WI-3

STD. 48"X48"

WI-4

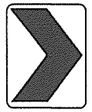
STD. 48"X48"

WI-6



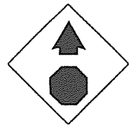
STD. 48"X24"
SPECIAL 60"X30"

WI-8



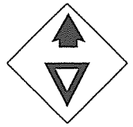
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



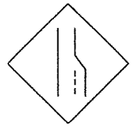
STD. 36"X36"
SPECIAL 48"X48"

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"

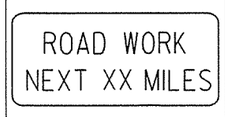
W8-11

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

W8-9

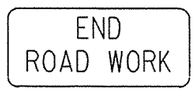
STD. 36"X36"
FWY. 48"X48"

G20-1



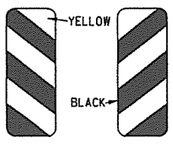
60"X24"

G20-2



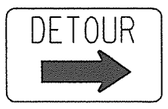
48"X24"

OM-3L OM-3R



12"X36"

M4-9

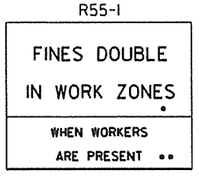


STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1



36"X60"
• USE 6" C LETTERS
•• USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	½ MILE
1000 FT	¾ 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.

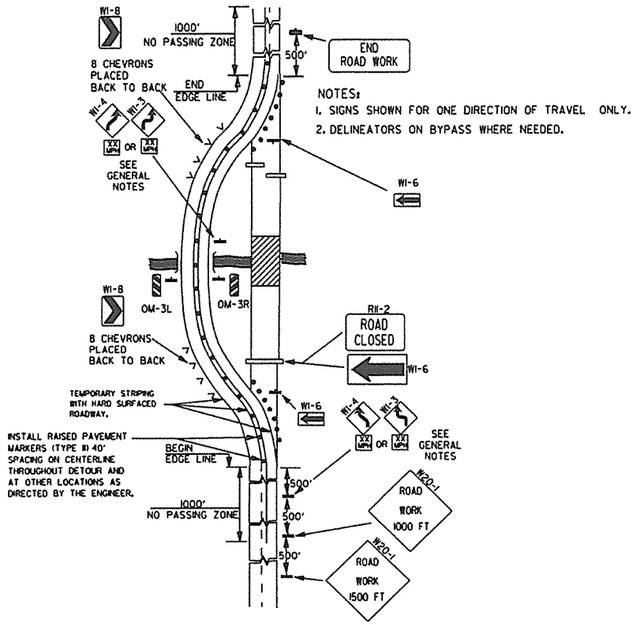
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

DATE	REVISION	FILMED
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
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	
1-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	G-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

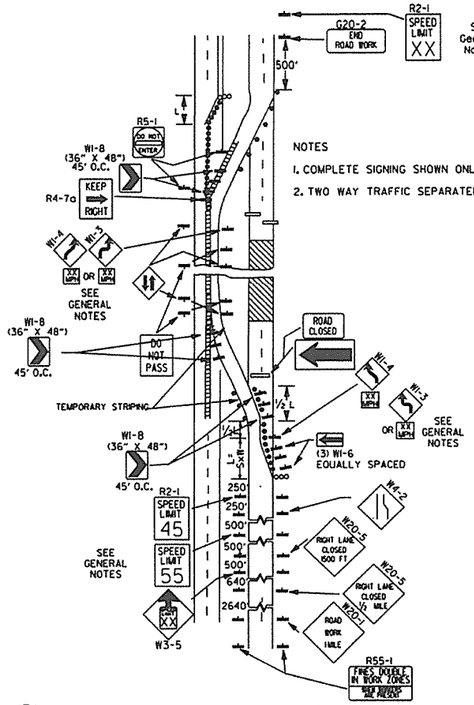
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



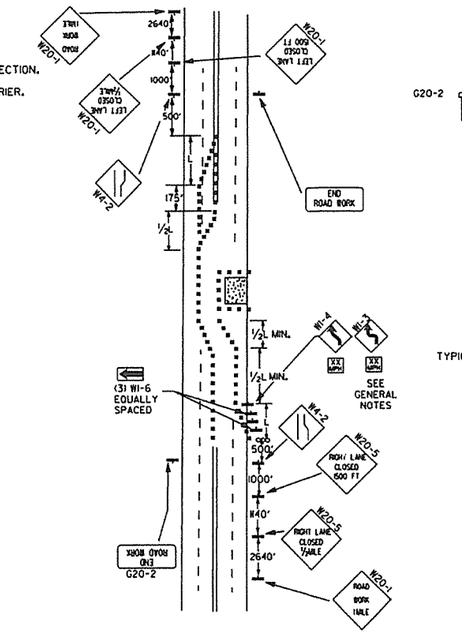
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

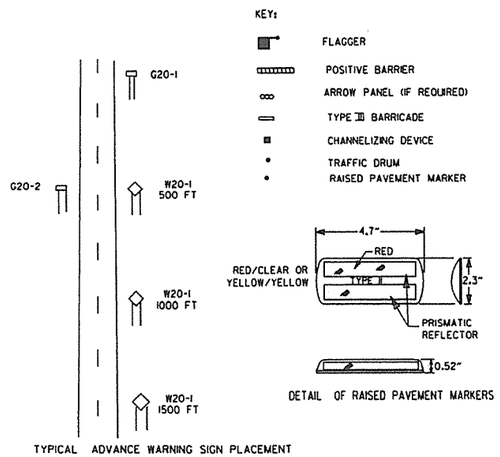


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(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.



TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

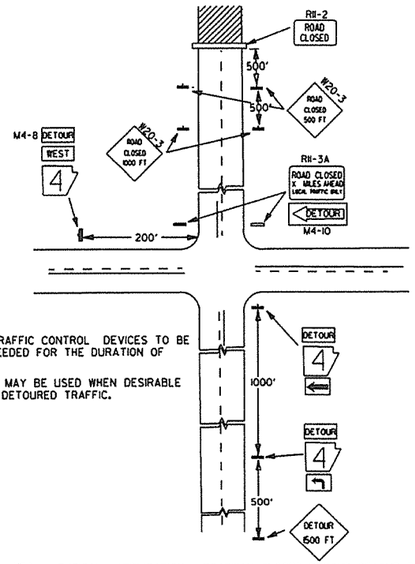
L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ 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.

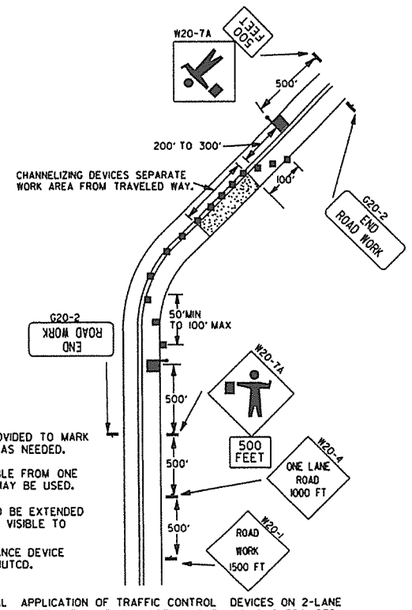
GENERAL NOTES:

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 W3-5 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.
8. 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.



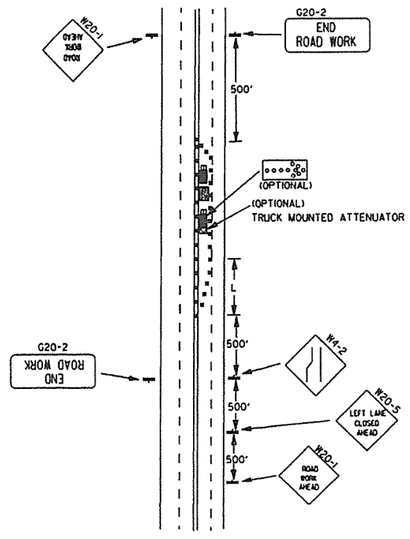
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(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.



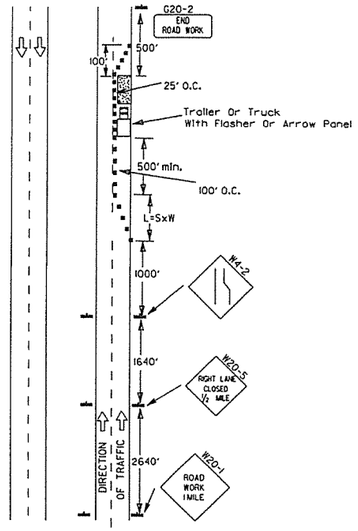
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (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	

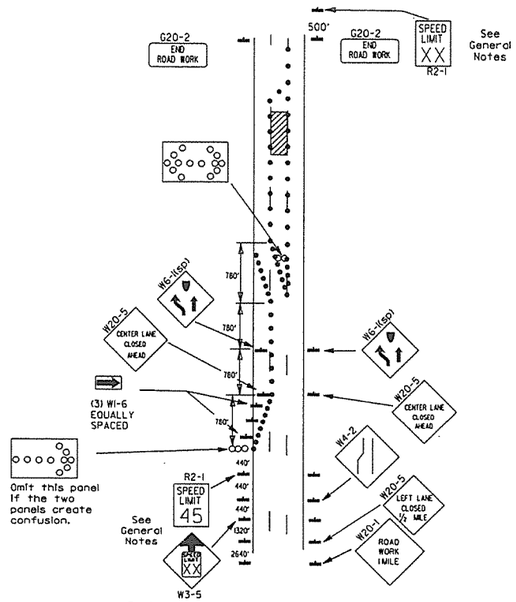
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

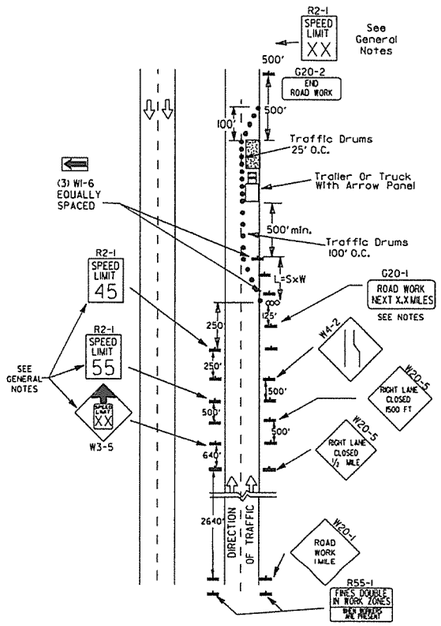
STANDARD DRAWING TC-2



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

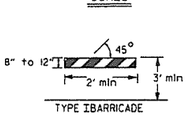
KEY:

- ○○○ 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 W3-5 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.

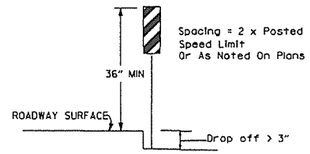
Channelizing devices



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

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

VERTICAL PANEL PLACEMENT



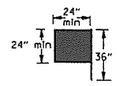
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
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.

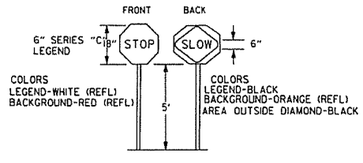
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

FLAG



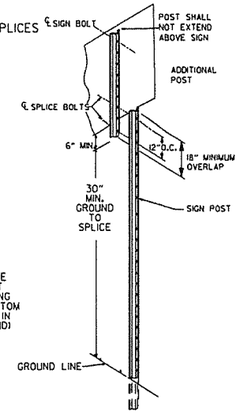
Flag shall be of good grade red material

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
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

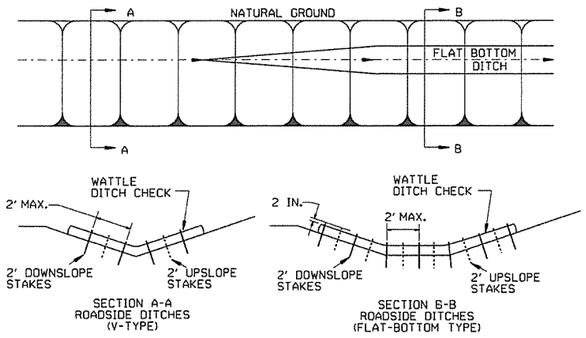
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

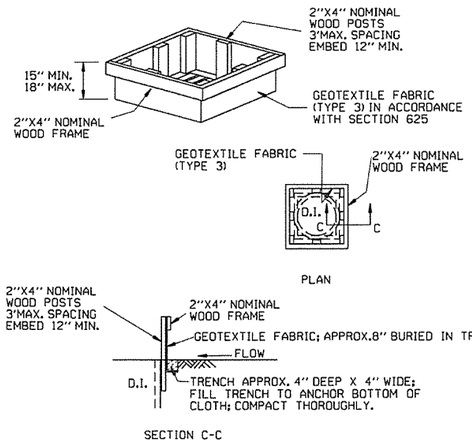
STANDARD DRAWING TC-3

GENERAL NOTES

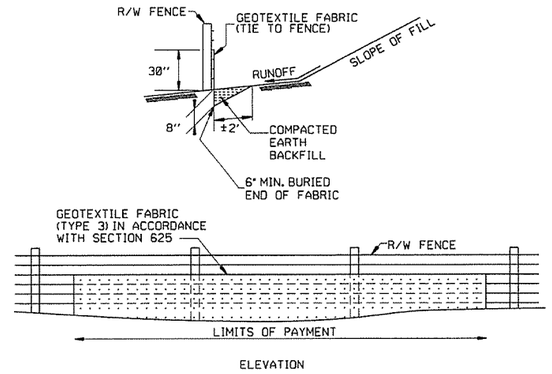
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



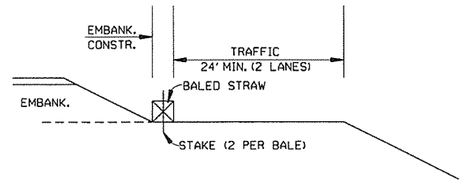
SILT FENCE ON R/W FENCE (E-4)

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.

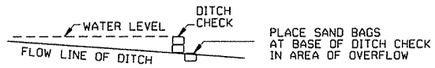
GENERAL NOTES

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.

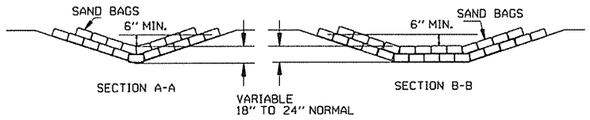


BALED STRAW FILTER BARRIER (E-2)

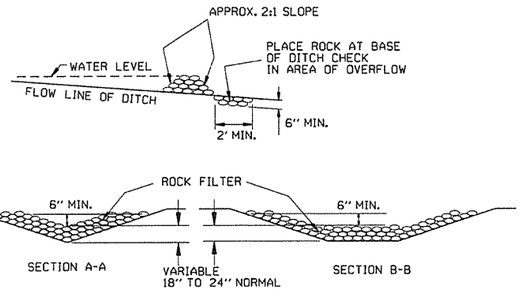
NUMBER OF SAND BAGS AND ARRANGEMENT VARIABLE WITH ON-SITE CONDITIONS.



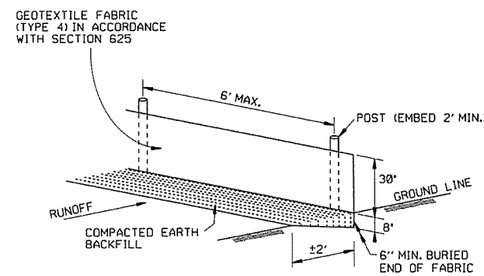
PLACE SAND BAGS AT BASE OF DITCH CHECK IN AREA OF OVERFLOW



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

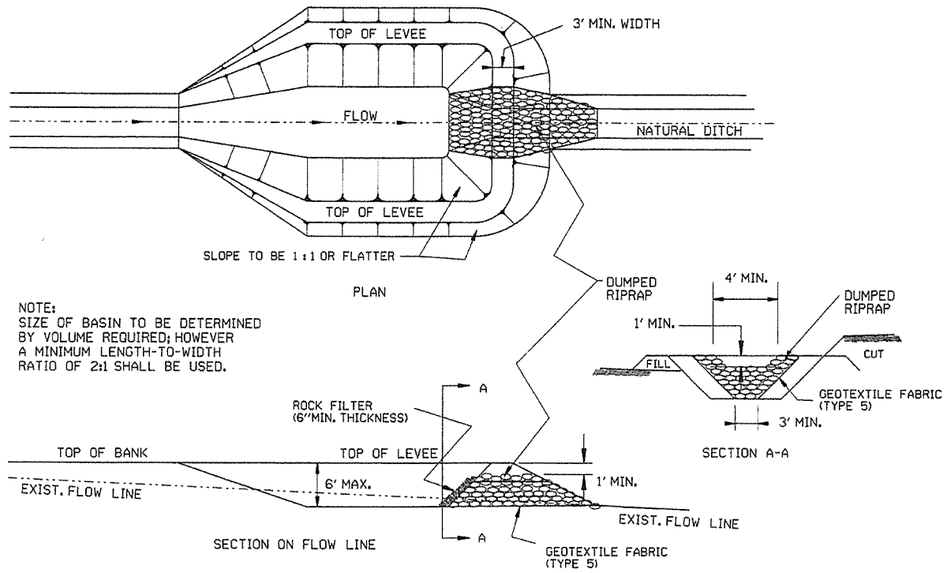
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

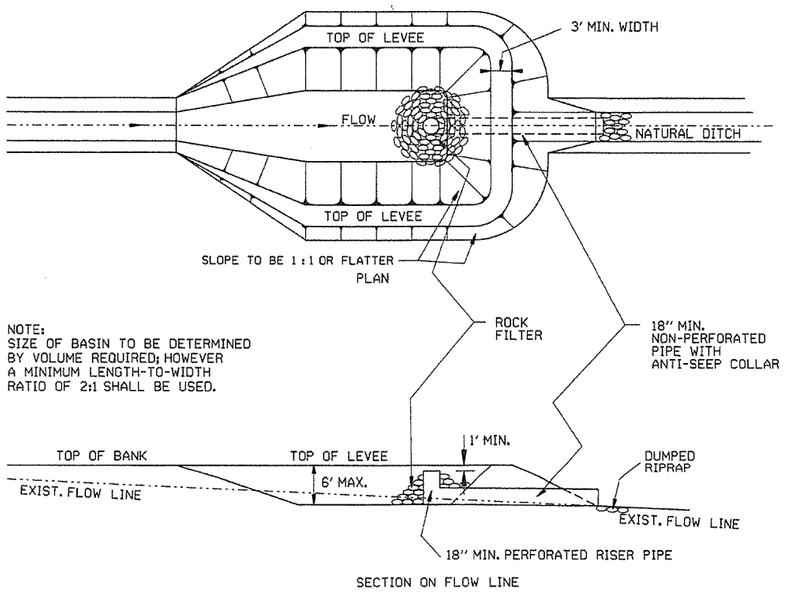
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

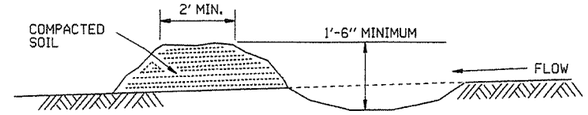
STANDARD DRAWING TEC-1



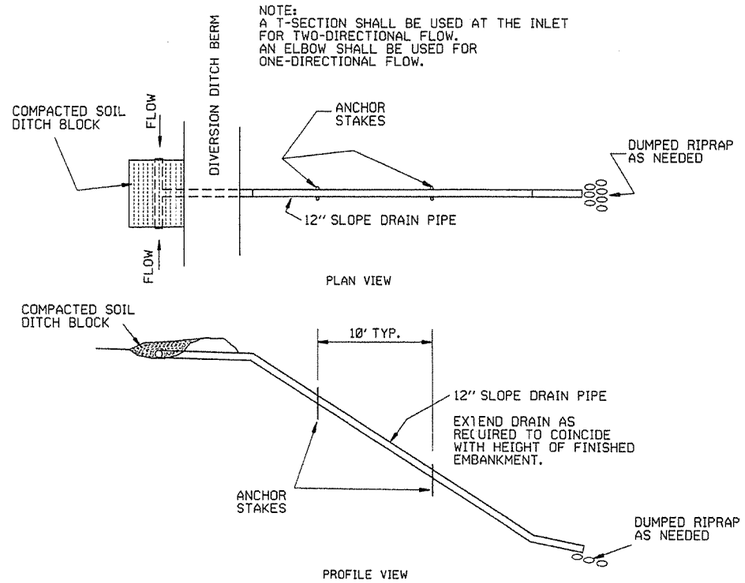
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



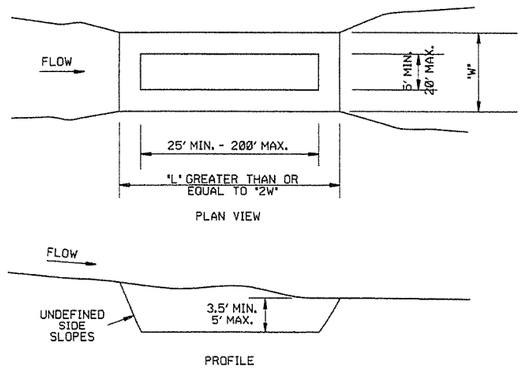
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

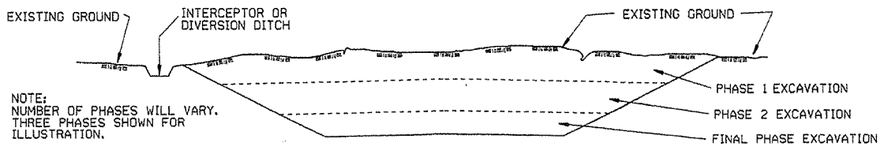
STANDARD DRAWING TEC-2

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



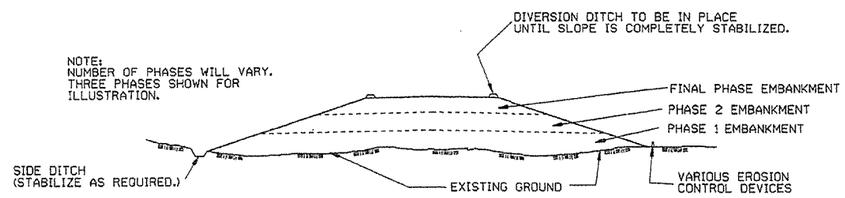
GENERAL NOTE

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

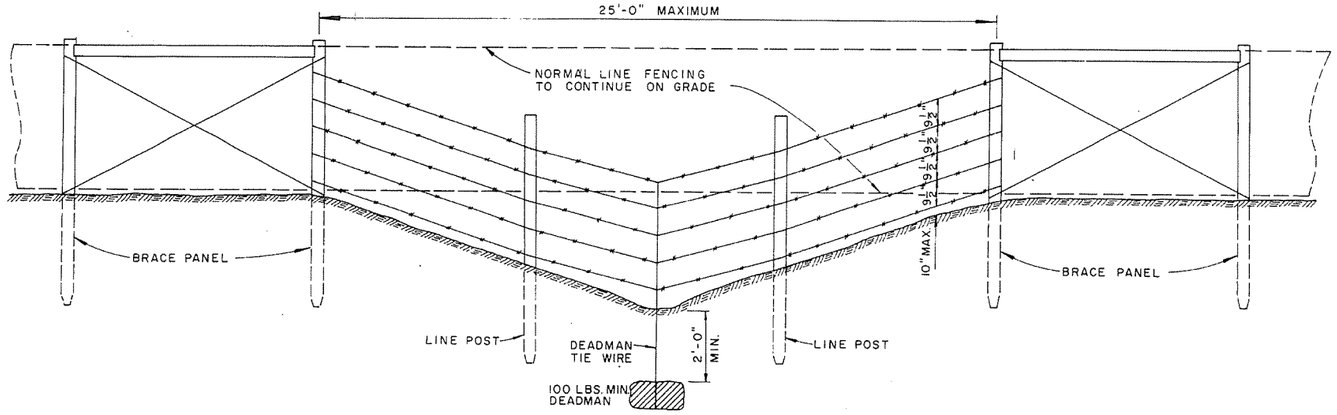
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD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

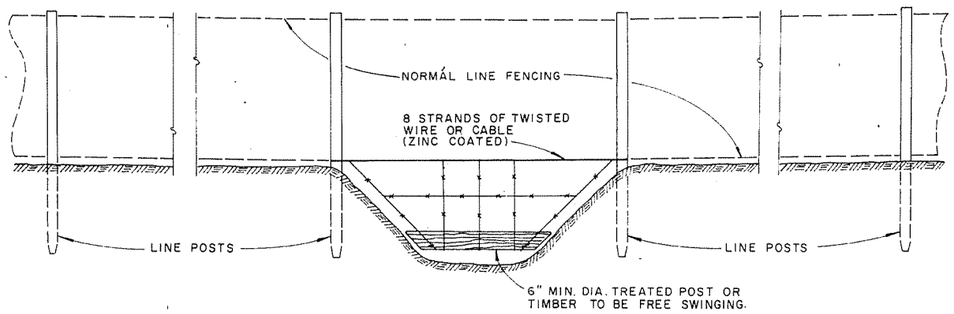
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

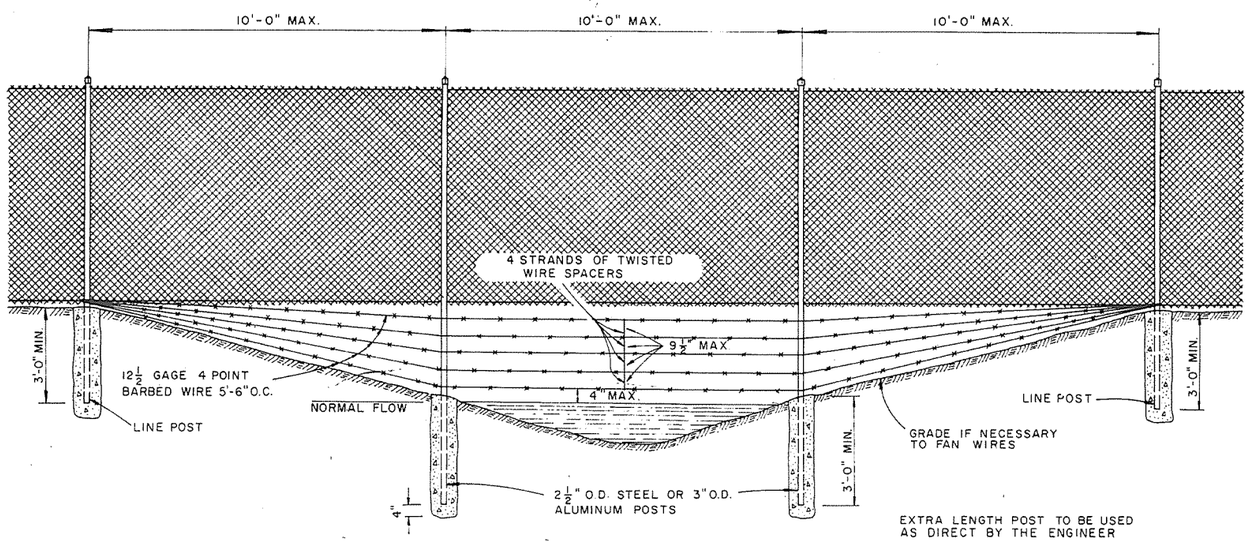
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3







GENERAL NOTES:

THESE INSTALLATIONS TO BE USED WHERE NORMAL FENCING INSTALLATION WOULD CAUSE THE COLLECTING OF DRIFT IN THE CHANNEL OR THE DEPRESSION WILL NOT PERMIT NORMAL INSTALLATION. INSTALLATIONS WILL BE MADE ONLY WHERE DIRECTED BY THE ENGINEER.

WHEN A FENCE LINE APPROACHES A DITCH, GULLY OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP OFF THAT THE FENCE MAY BE STRUNG TO THE POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.

IN TERRAIN OF SUCH EXTREME IRREGULARITY THAT MINOR GRADING WILL NOT BE FEASIBLE, THE NORMAL FENCE SHALL CONTINUE ON GRADE AND THE GULLIES OR DEPRESSIONS TREATED BY AUXILIARY FENCES AS SHOWN.

PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

4-20-79	REVISED TOP RAIL & TENSION WIRE	696-4-20-79
10-2-72	REVISED & REDRAWN	529 10-2-72
DATE	REVISION	DATE FILM'D.

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE WATER GAPS

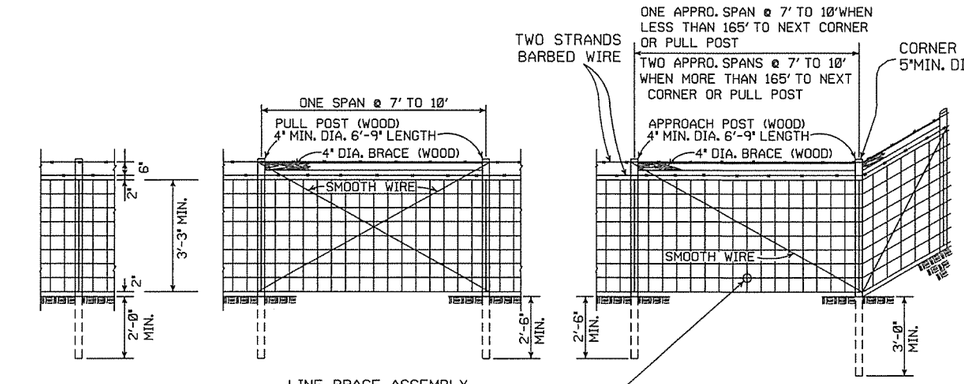
STANDARD DRAWING

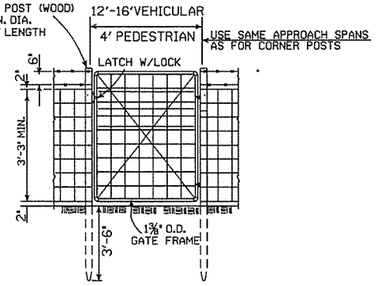
WF-2

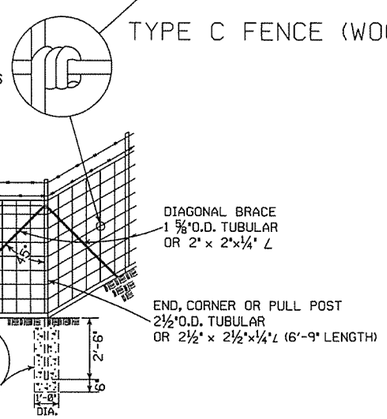
73

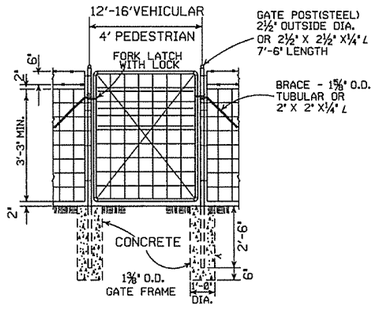
1M—11-71—67001—PPASC

TYPE C FENCE (WOOD POSTS)





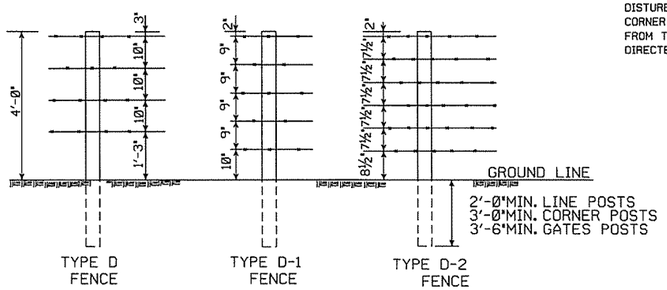




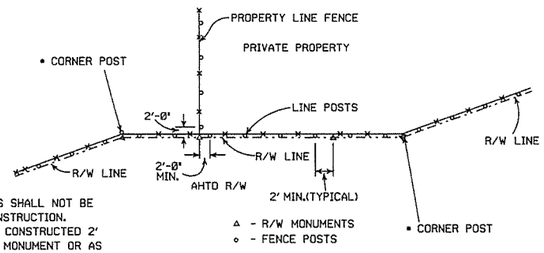
NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.

TYPE C FENCE (STEEL POSTS)

4 STRANDS BARBED WIRE (D)
5 STRANDS BARBED WIRE (D-1)
6 STRANDS BARBED WIRE (D-2)

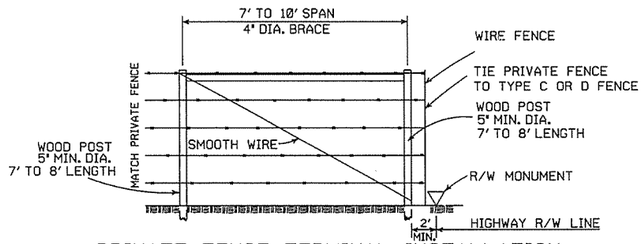


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



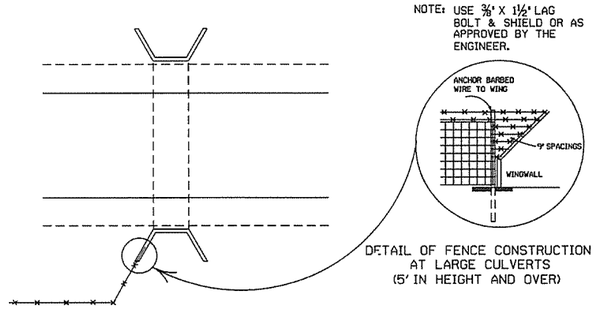
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION

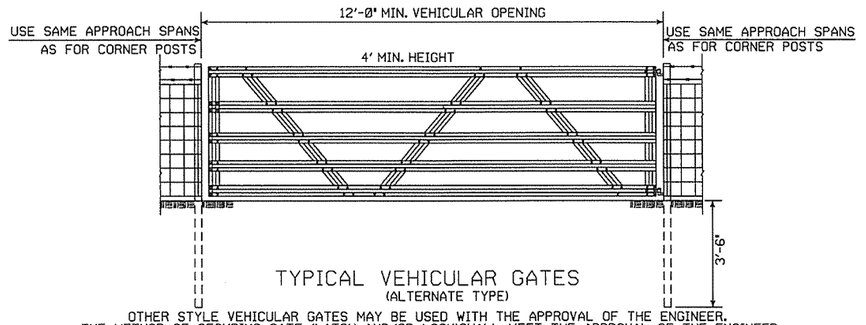


PRIVATE FENCE TERMINAL INSTALLATION

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



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



TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)

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

GENERAL NOTES:

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

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

DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED BY THE ENGINEER.

AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD" AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

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

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

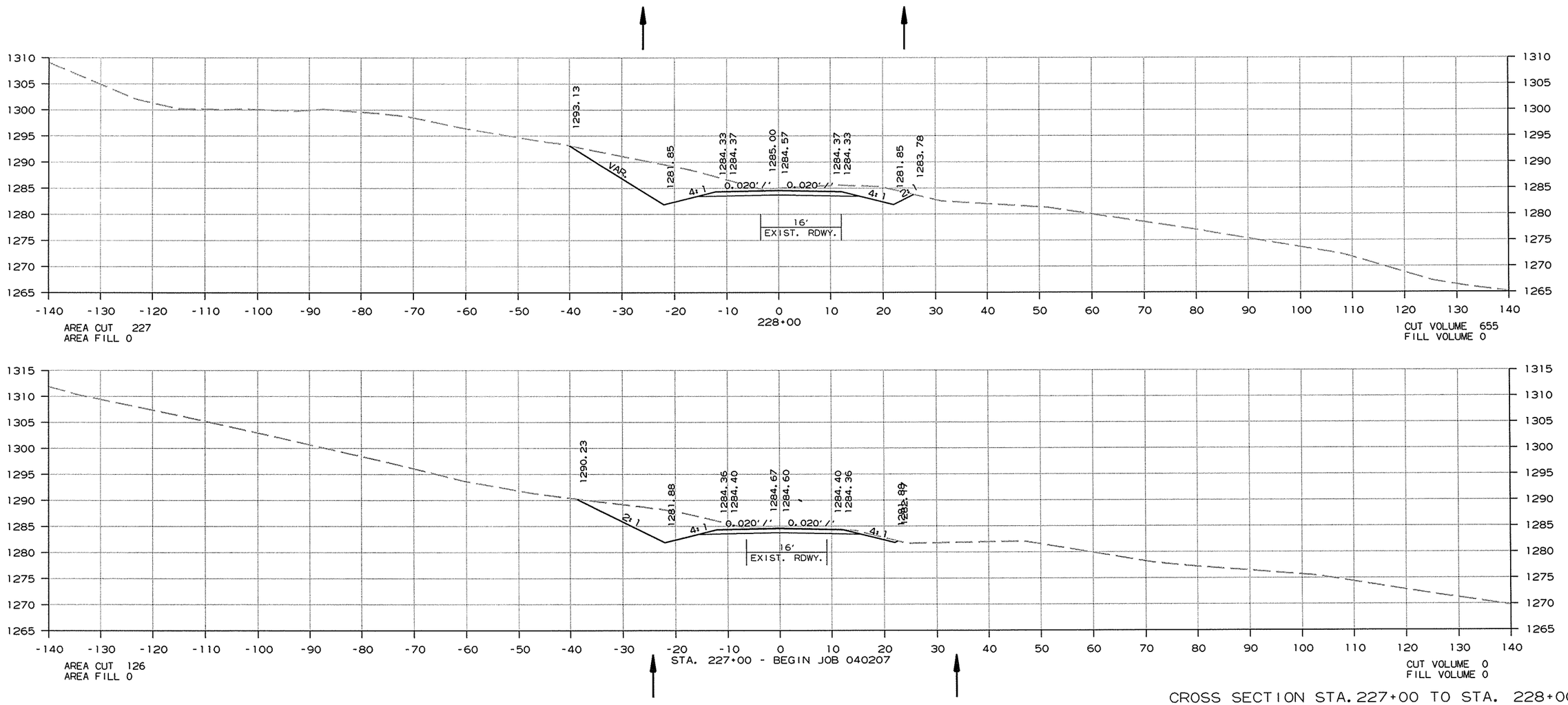
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE C AND D

STANDARD DRAWING WF-4

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040207	96	212

(2) CROSS SECTIONS



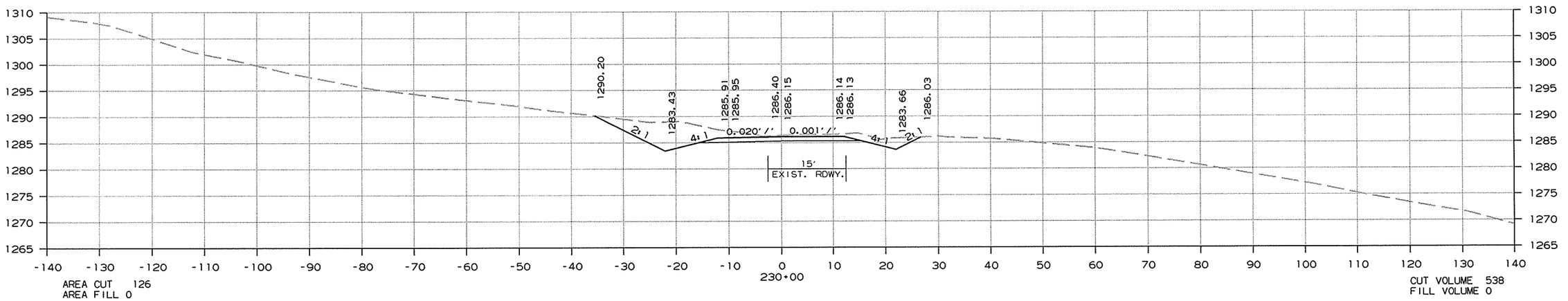
CROSS SECTION STA. 227+00 TO STA. 228+00

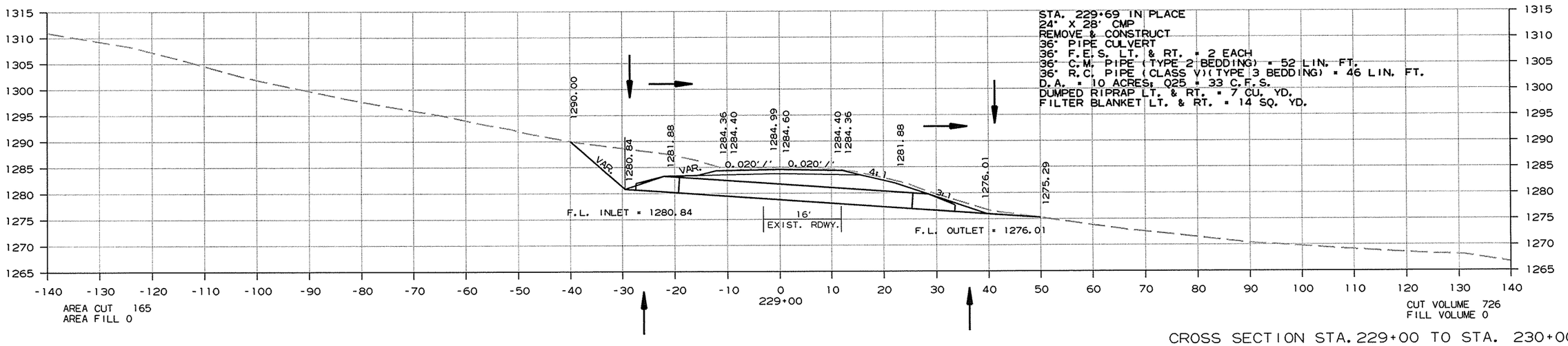
10/29/2015

R040207.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.		040207	97	212

(2) CROSS SECTIONS





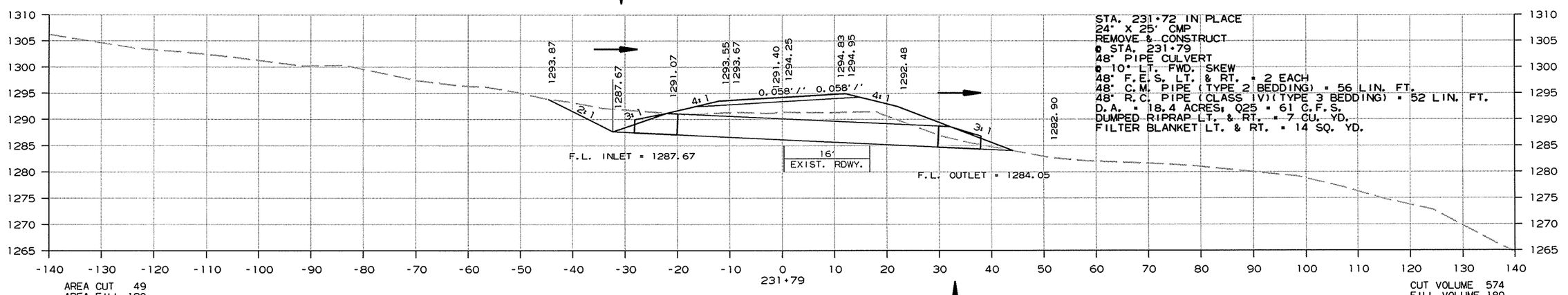
CROSS SECTION STA. 229+00 TO STA. 230+00

10/29/2015

R040207.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.		040207	98	212

(2) CROSS SECTIONS



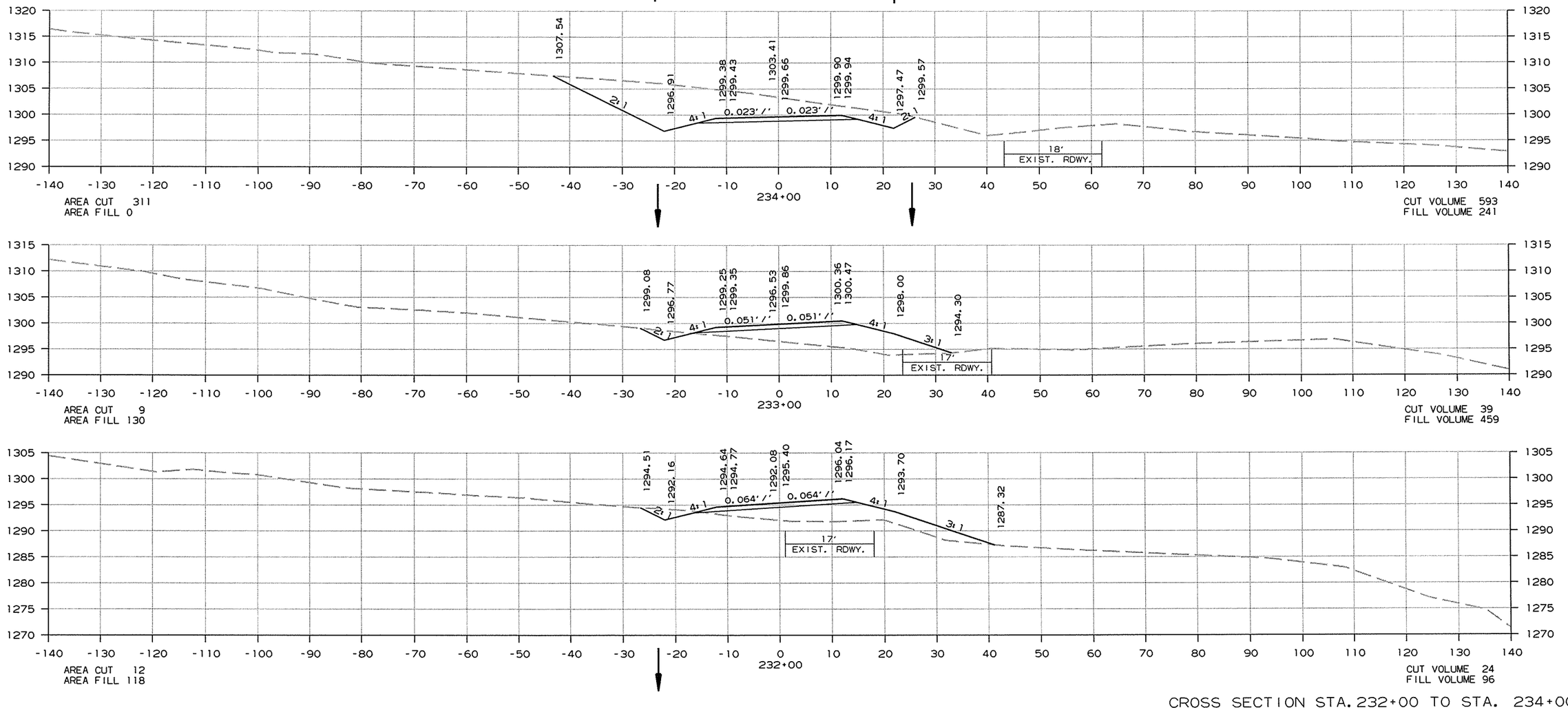
CROSS SECTION STA. 231+00 TO STA. 231+79

10/29/2015

R040207.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.		040207	99	212

(2) CROSS SECTIONS



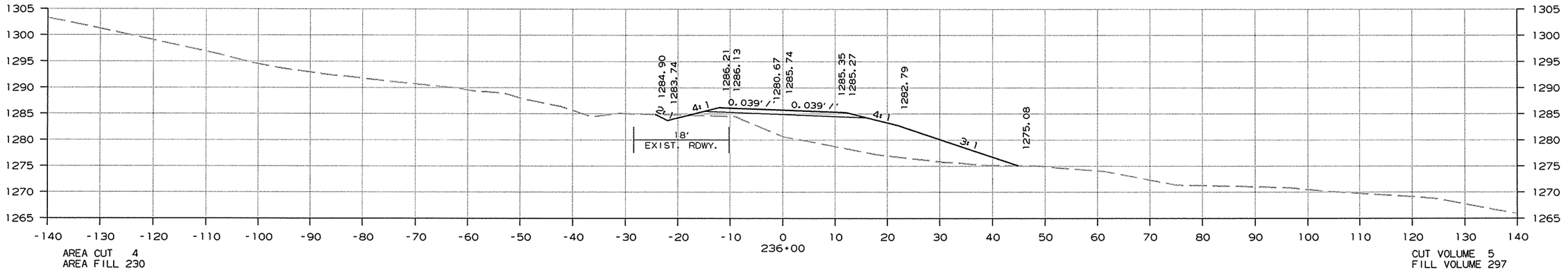
CROSS SECTION STA. 232+00 TO STA. 234+00

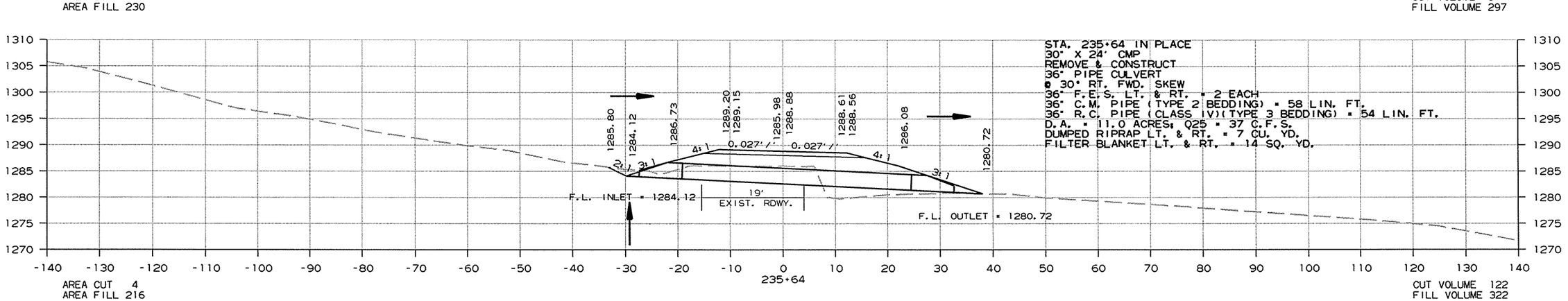
10/29/2015

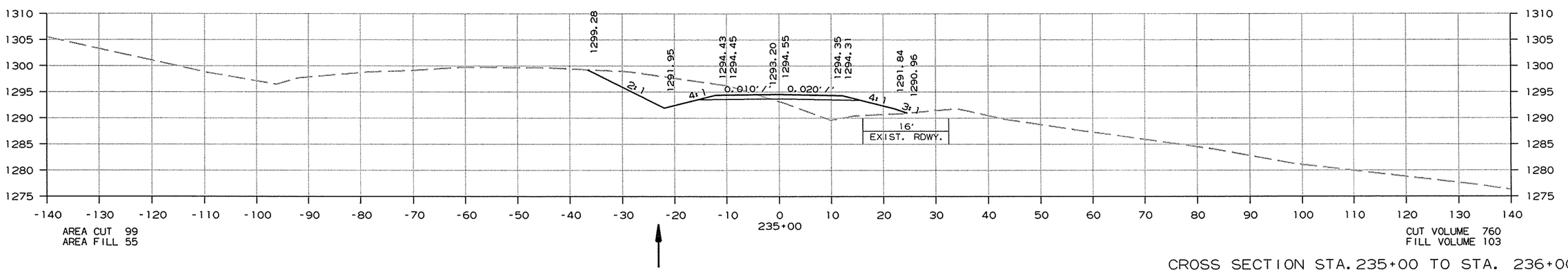
R040207.DGN

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.		040207	100	212

(2) CROSS SECTIONS







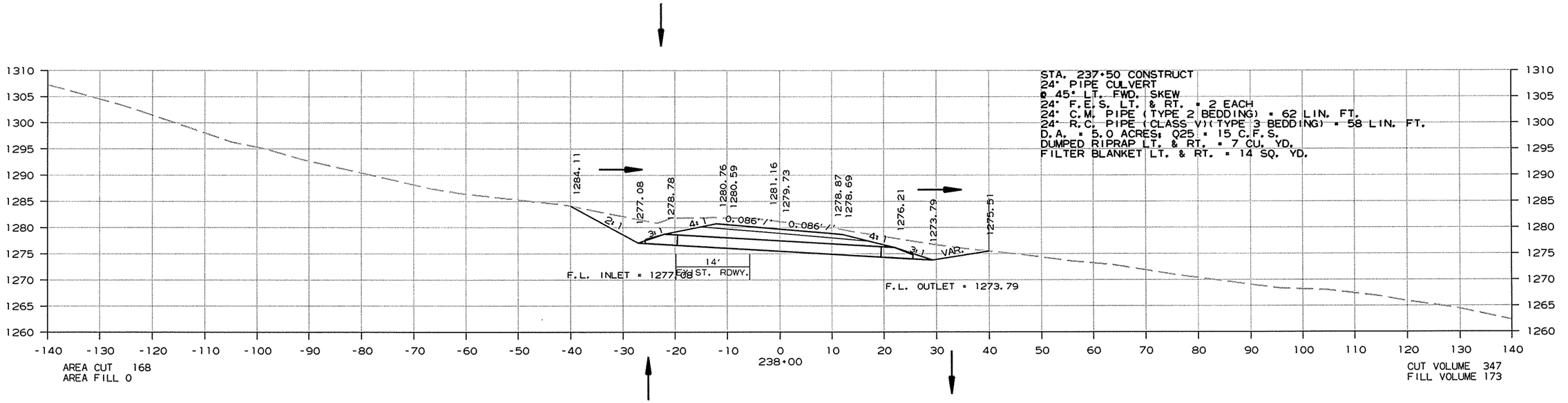
CROSS SECTION STA. 235+00 TO STA. 236+00

10/29/2015

R040207.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.		040207	101	212

(2) CROSS SECTIONS



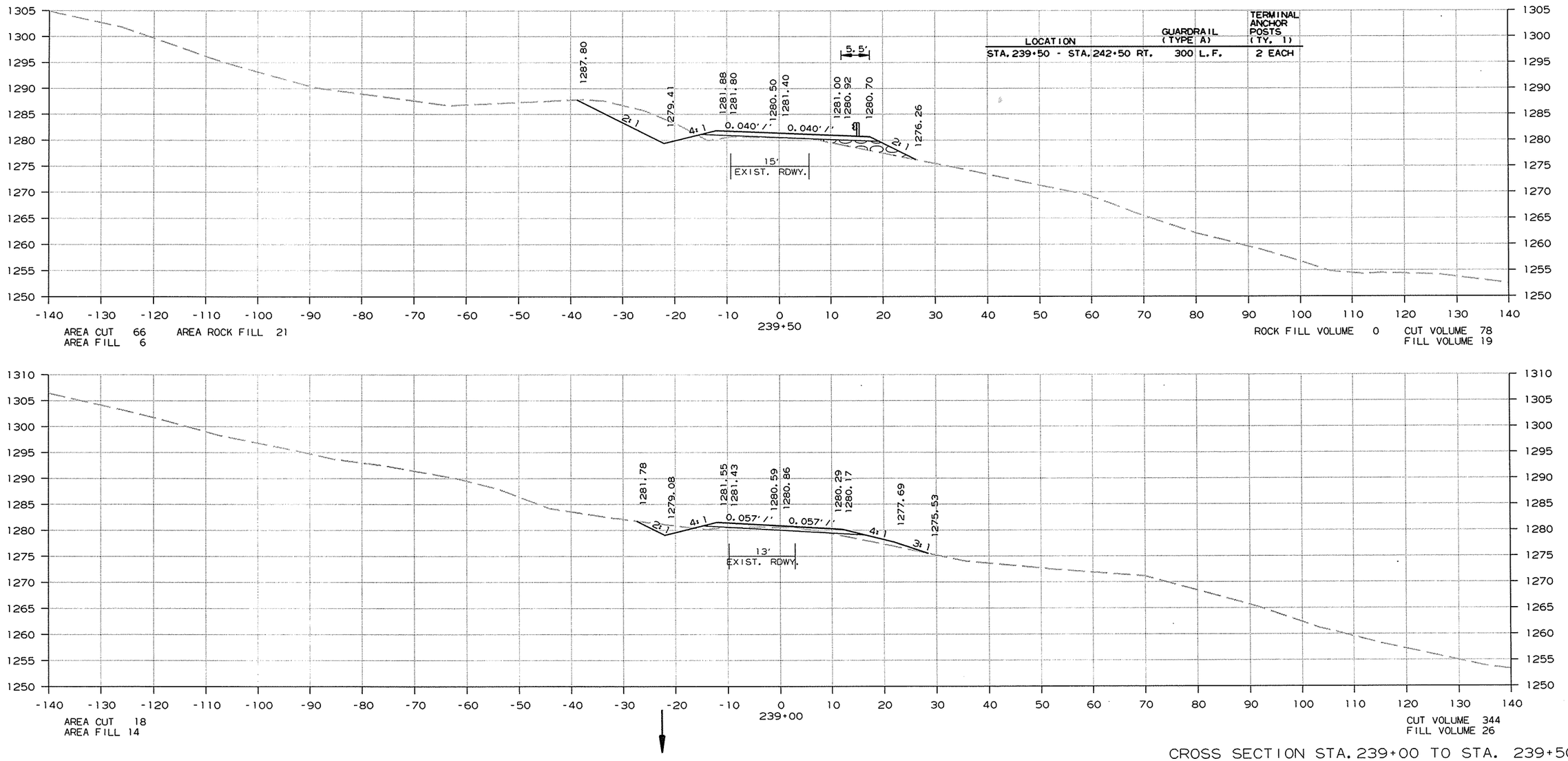
CROSS SECTION STA. 237+00 TO STA. 238+00

10/29/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	102	212

(2) CROSS SECTIONS



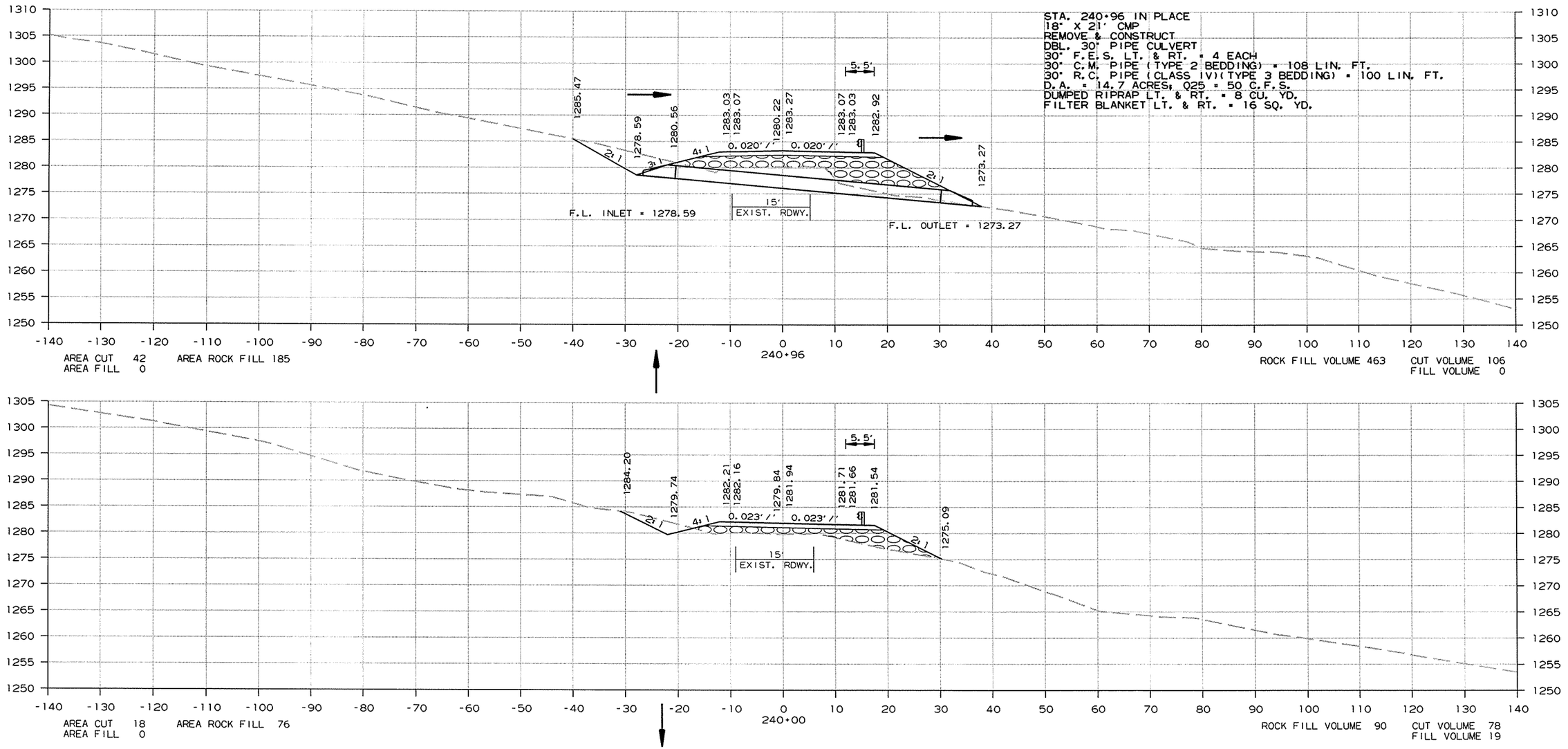
CROSS SECTION STA. 239+00 TO STA. 239+50

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	103	212

(2) CROSS SECTIONS



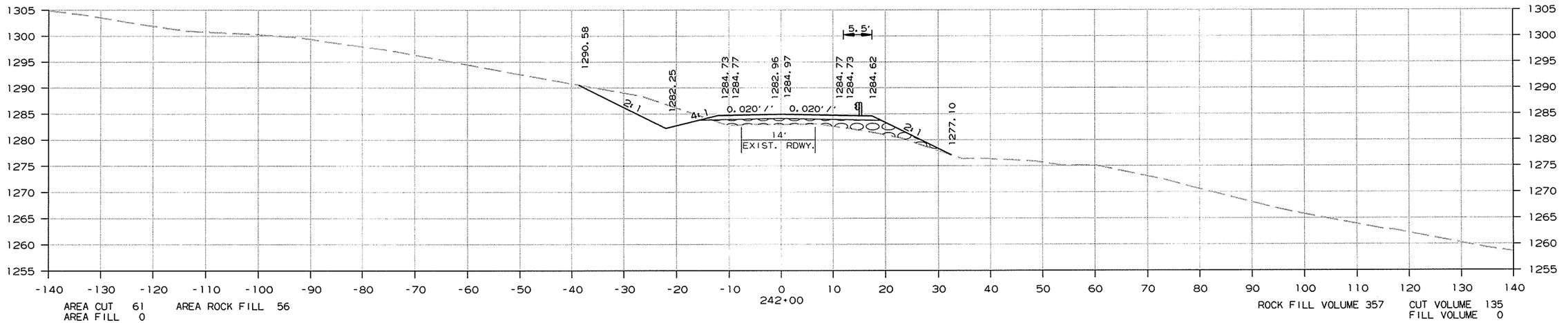
CROSS SECTION STA. 240+00 TO STA. 240+96

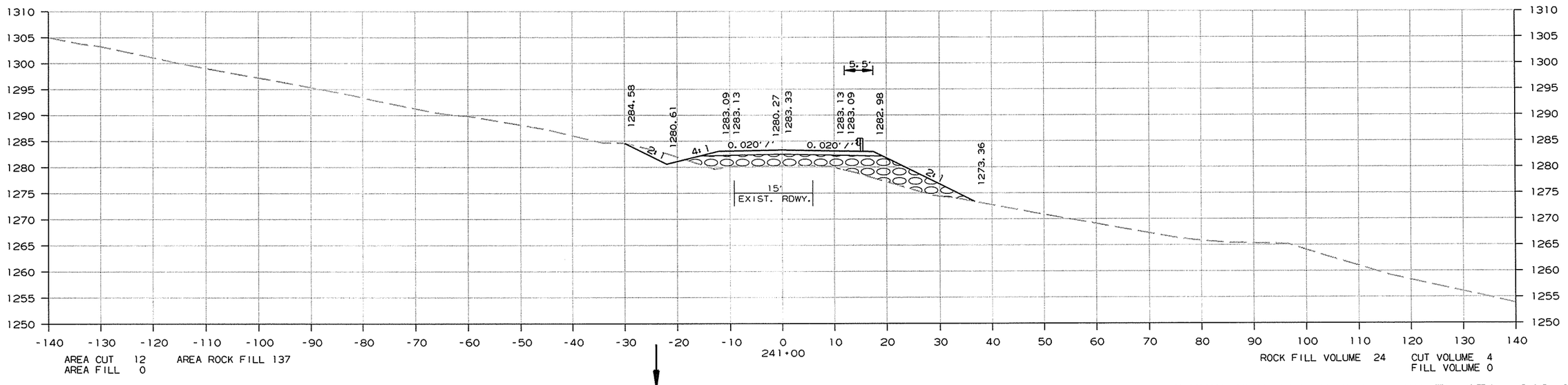
11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	104	212

(2) CROSS SECTIONS





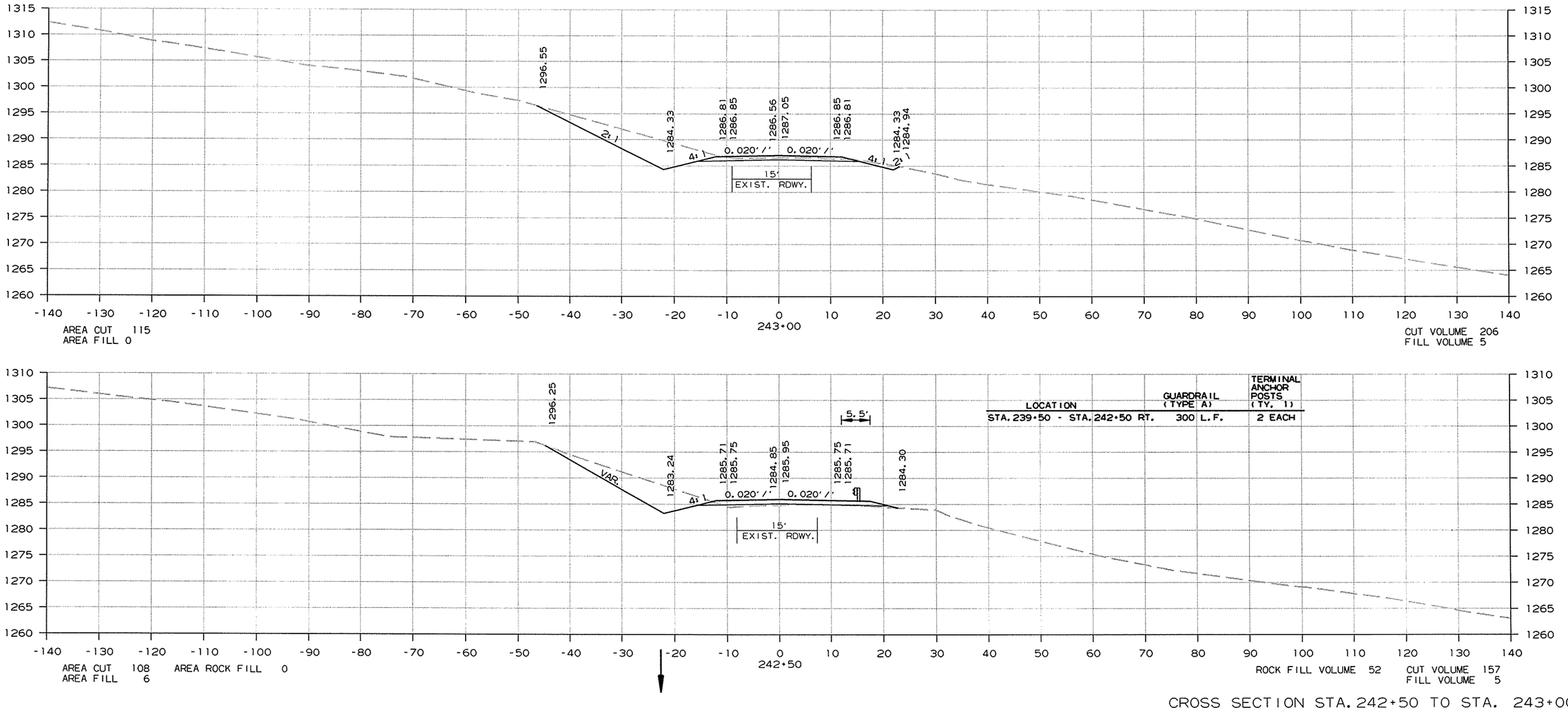
CROSS SECTION STA. 241+00 TO STA. 242+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	105	212

(2) CROSS SECTIONS



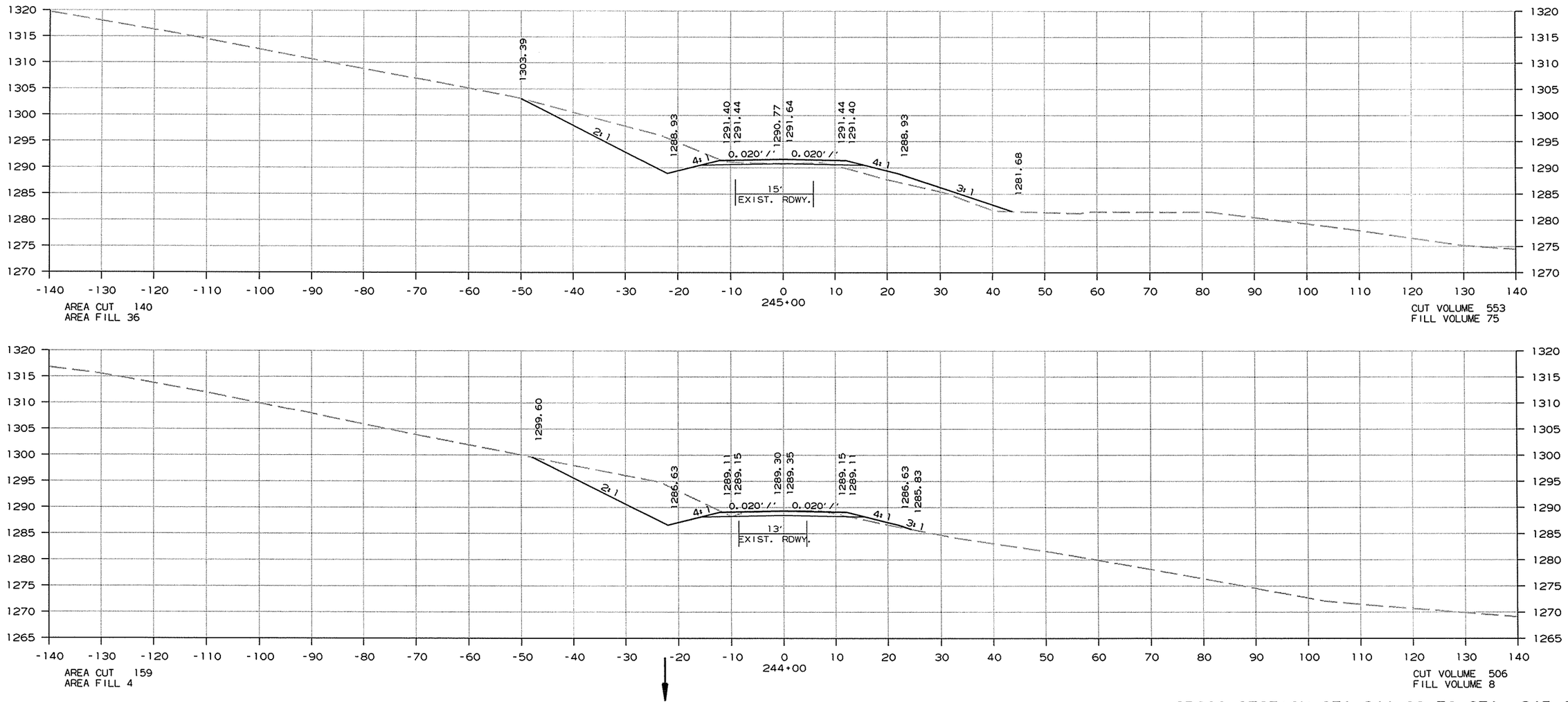
CROSS SECTION STA. 242+50 TO STA. 243+00

11/20/2015

R040207.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.		040207	106	212

(2) CROSS SECTIONS



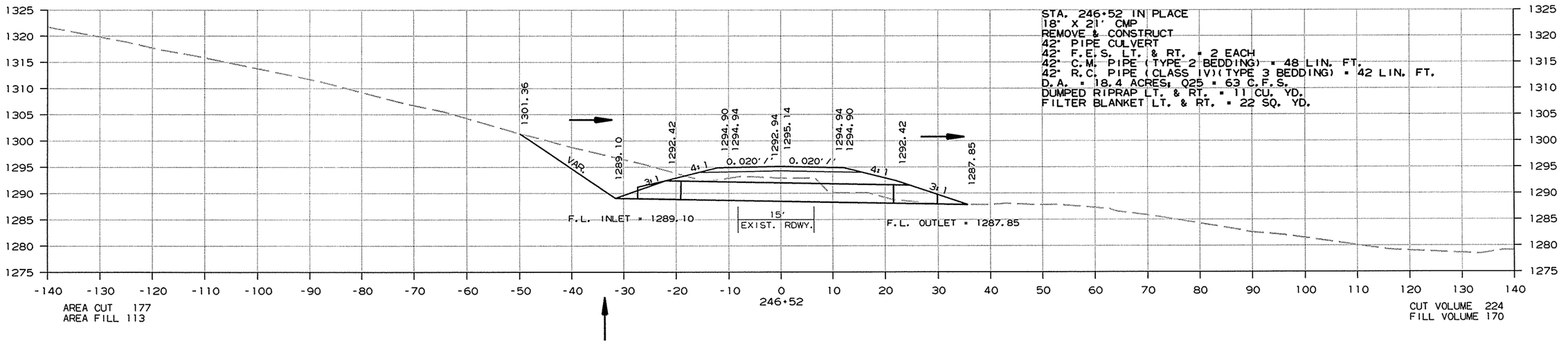
CROSS SECTION STA. 244+00 TO STA. 245+00

10/29/2015

R040207.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.		040207	107	212

(2) CROSS SECTIONS



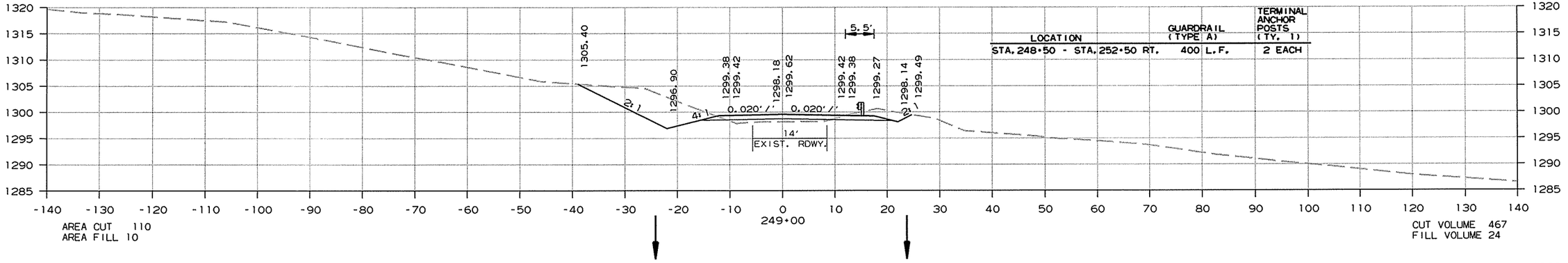
CROSS SECTION STA. 246+00 TO STA. 246+52

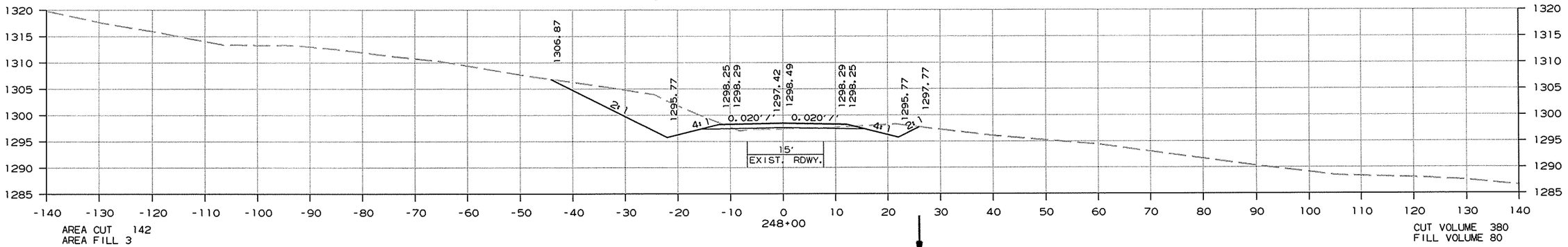
10/29/2015

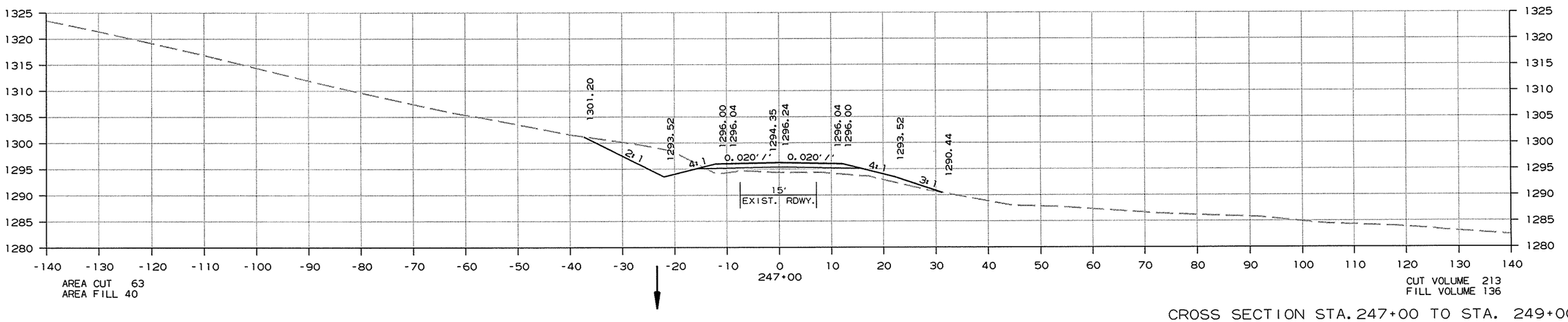
R040207.DGN

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.		040207	108	212

(2) CROSS SECTIONS







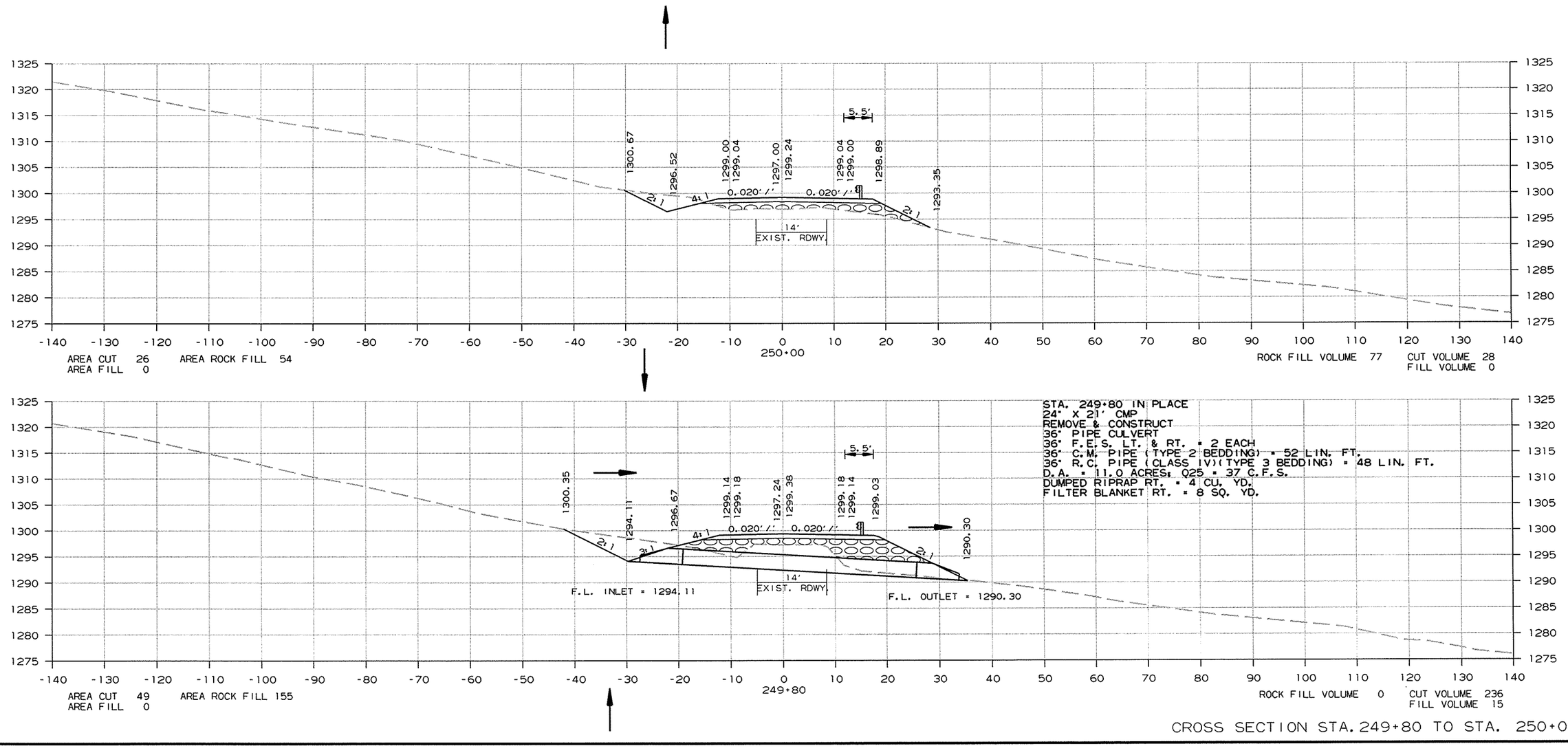
CROSS SECTION STA. 247+00 TO STA. 249+00

10/29/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	109	212

(2) CROSS SECTIONS



CROSS SECTION STA. 249+80 TO STA. 250+00

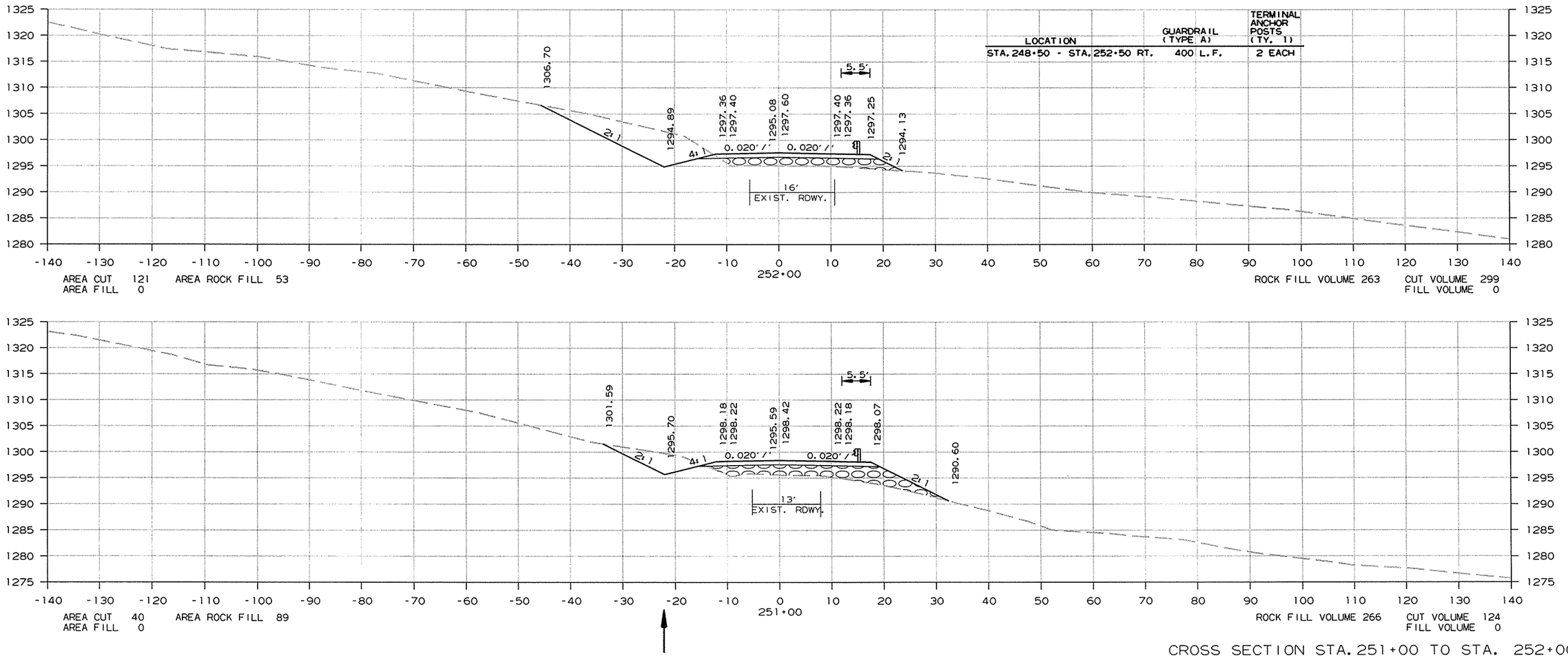
11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	110	212

(2) CROSS SECTIONS

LOCATION	GUARDRAIL (TYPE A)	TERMINAL ANCHOR POSTS (TY. 1)
STA. 248+50 - STA. 252+50 RT.	400 L.F.	2 EACH



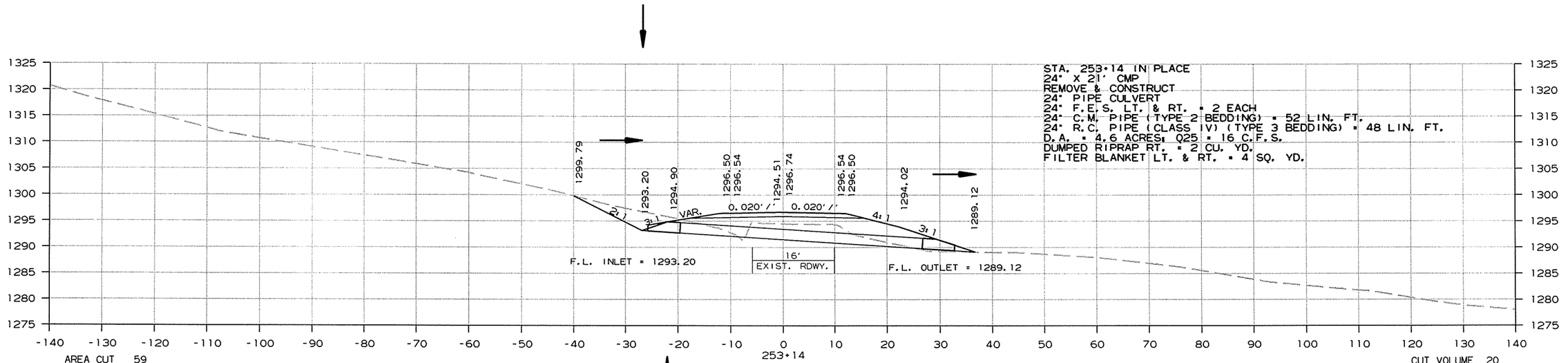
CROSS SECTION STA. 251+00 TO STA. 252+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	111	212

(2) CROSS SECTIONS



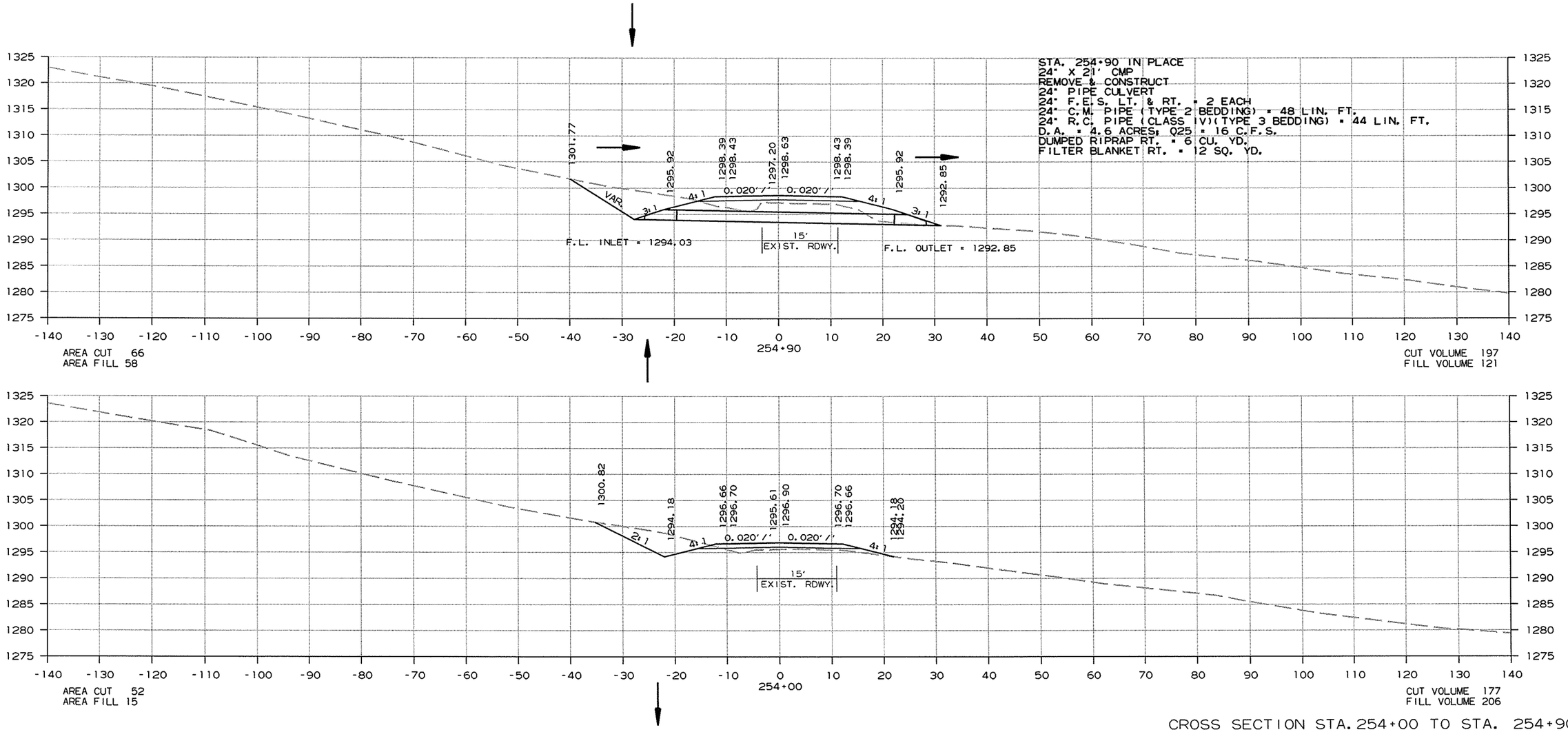
CROSS SECTION STA. 253+00 TO STA. 253+14

11/20/2015

R040207.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.		040207	112	212

(2) CROSS SECTIONS



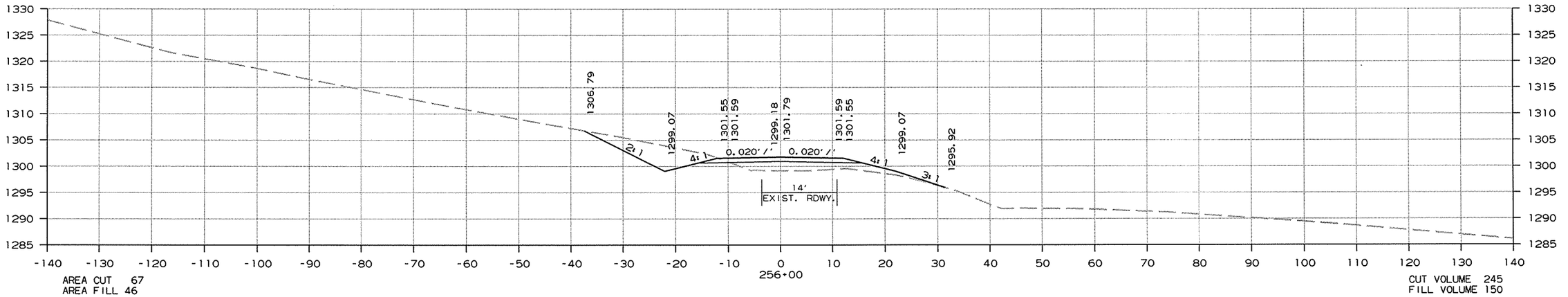
CROSS SECTION STA. 254+00 TO STA. 254+90

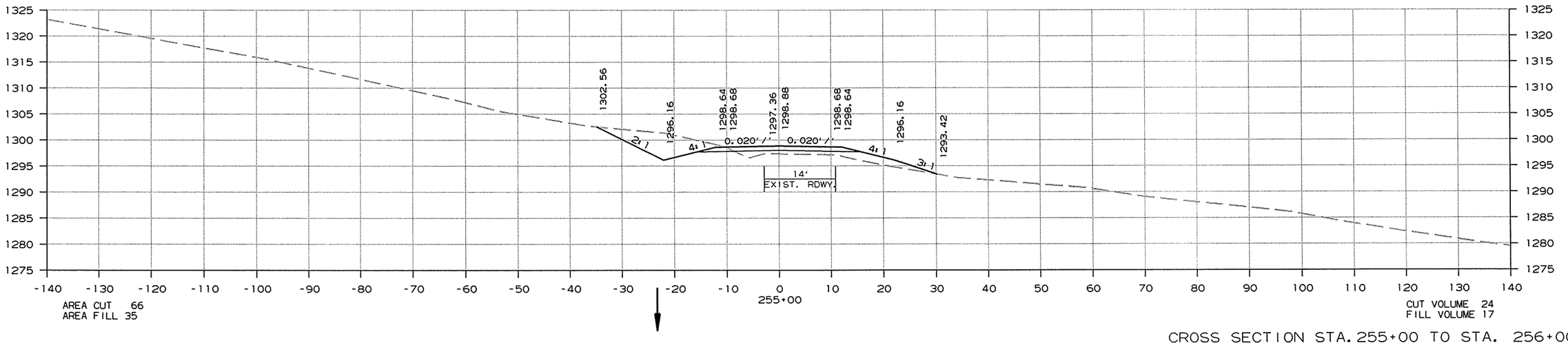
10/29/2015

R040207.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.		040207	113	212

(2) CROSS SECTIONS





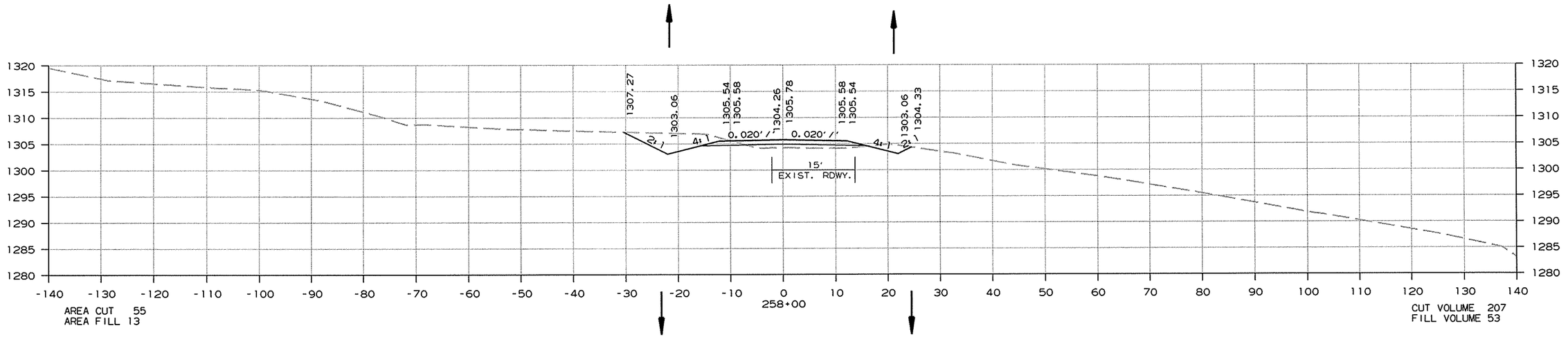
CROSS SECTION STA. 255+00 TO STA. 256+00

10/29/2015

R040207.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.		040207	114	212

(2) CROSS SECTIONS



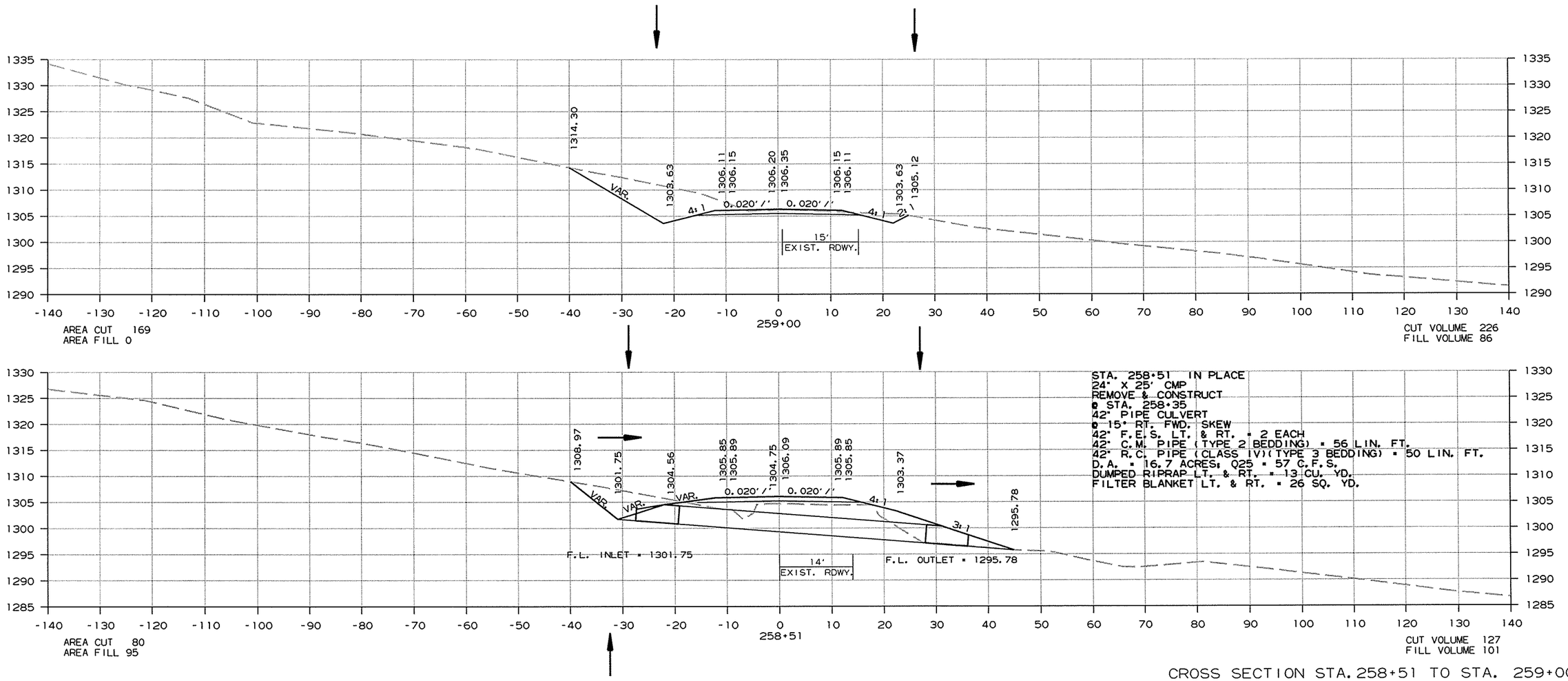
CROSS SECTION STA. 257+00 TO STA. 258+00

10/29/2015

R040207.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.		040207	115	212

(2) CROSS SECTIONS



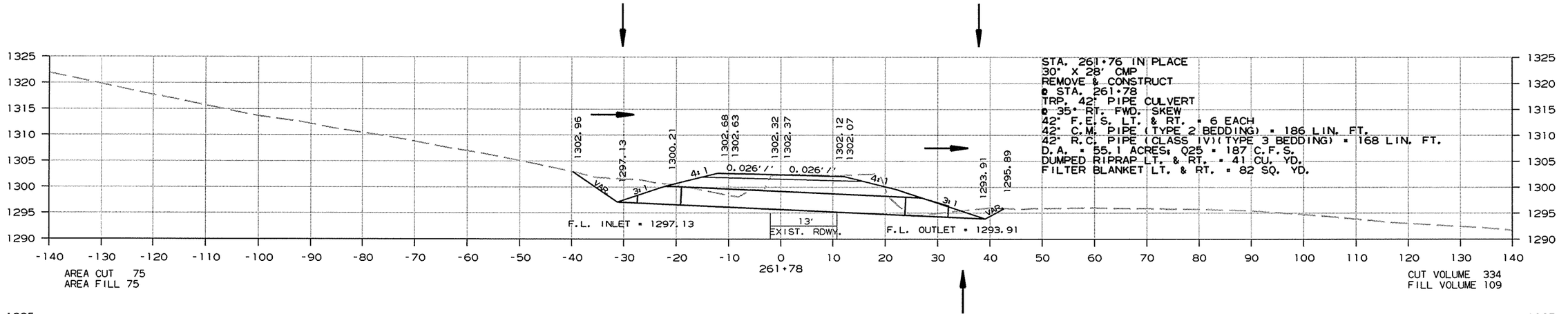
CROSS SECTION STA. 258+51 TO STA. 259+00

10/29/2015

R040207.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.		040207	116	212

(2) CROSS SECTIONS



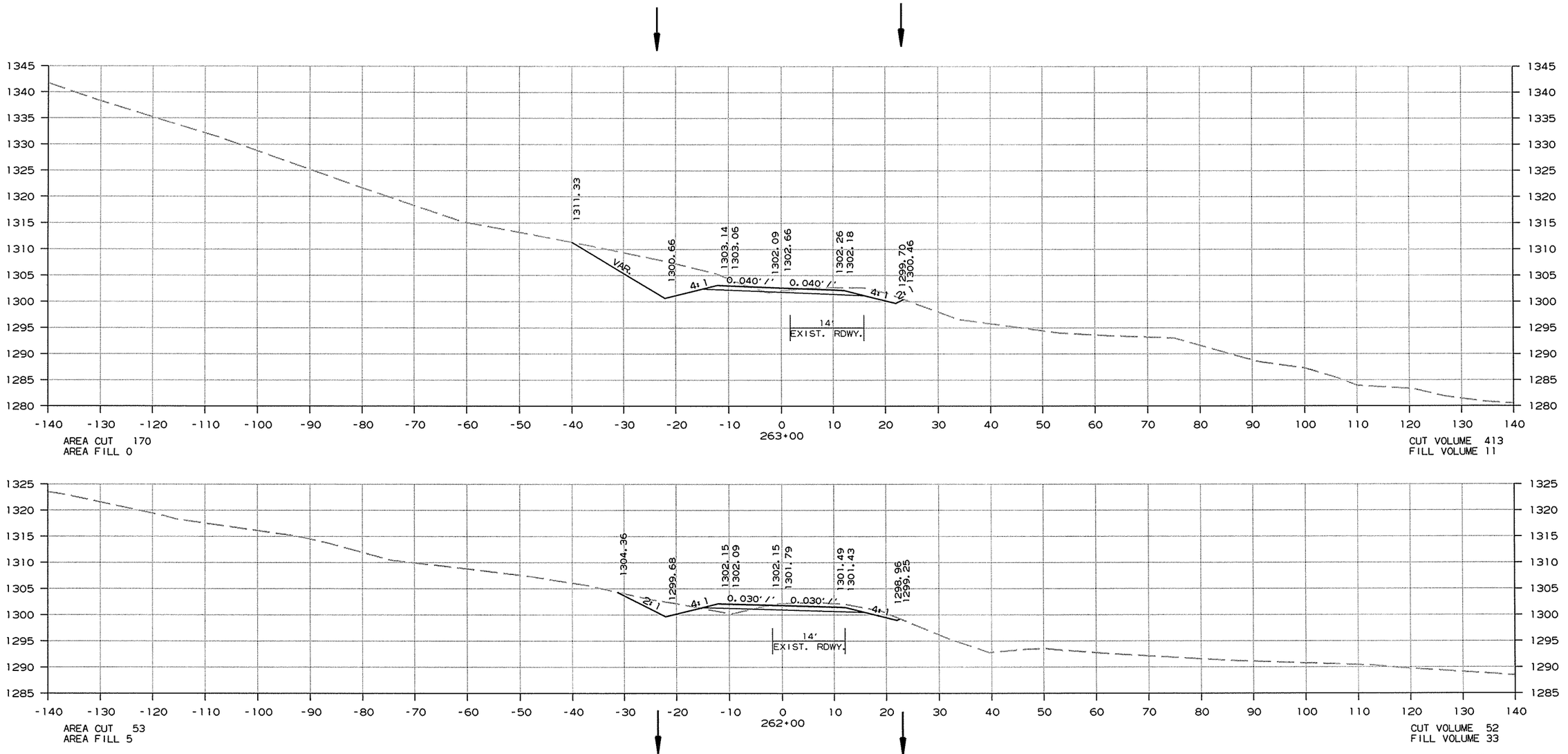
CROSS SECTION STA. 260+00 TO STA. 261+78

10/29/2015

R040207.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.		040207	117	212

(2) CROSS SECTIONS



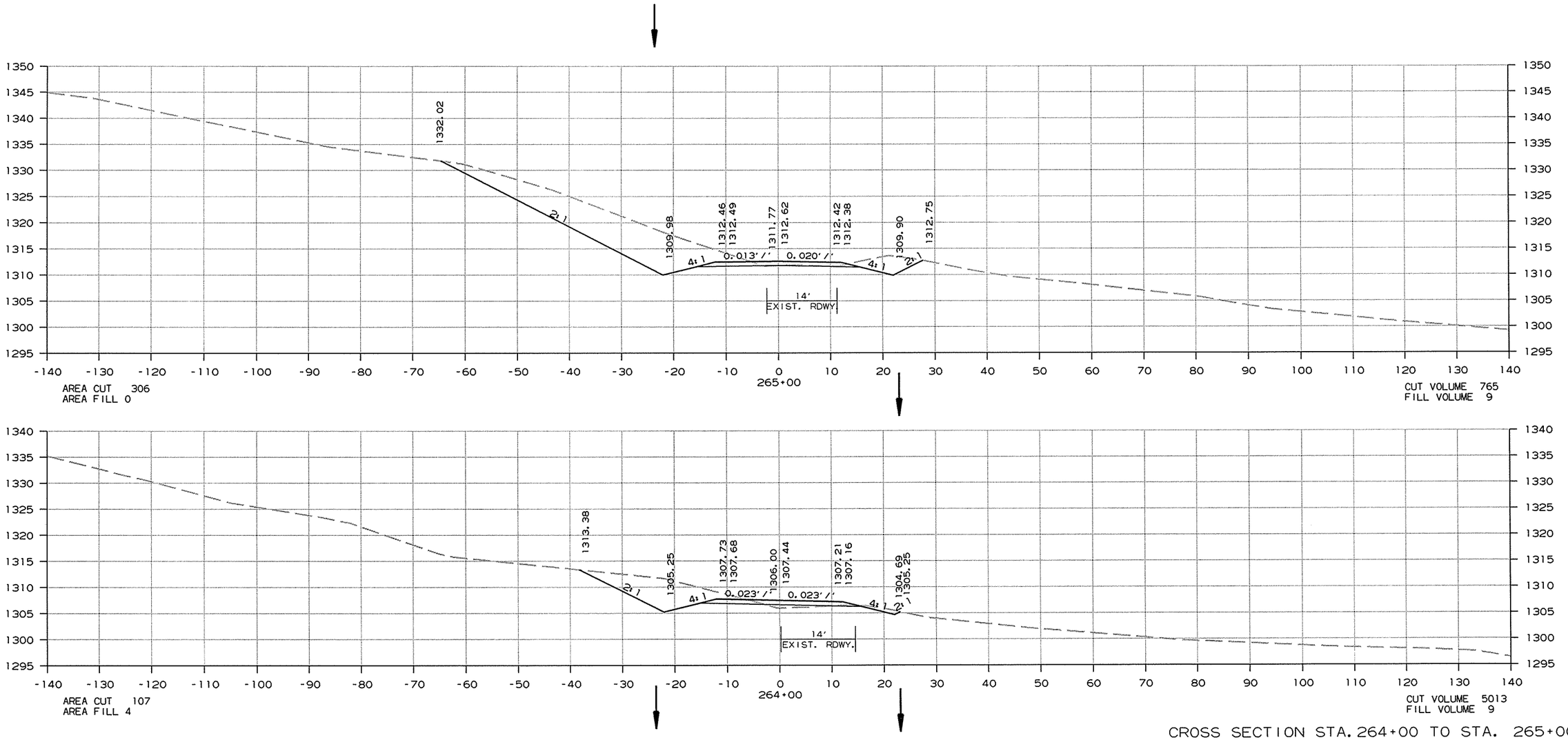
CROSS SECTION STA. 262+00 TO STA. 263+00

10/29/2015

R040207.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.		040207	118	212

(2) CROSS SECTIONS



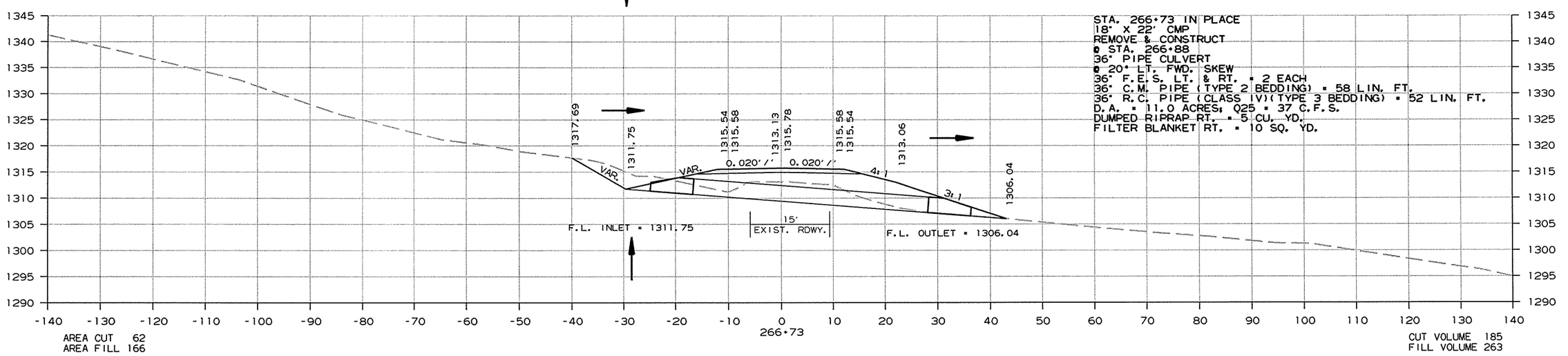
CROSS SECTION STA. 264+00 TO STA. 265+00

10/29/2015

R040207.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.		040207	119	212

(2) CROSS SECTIONS



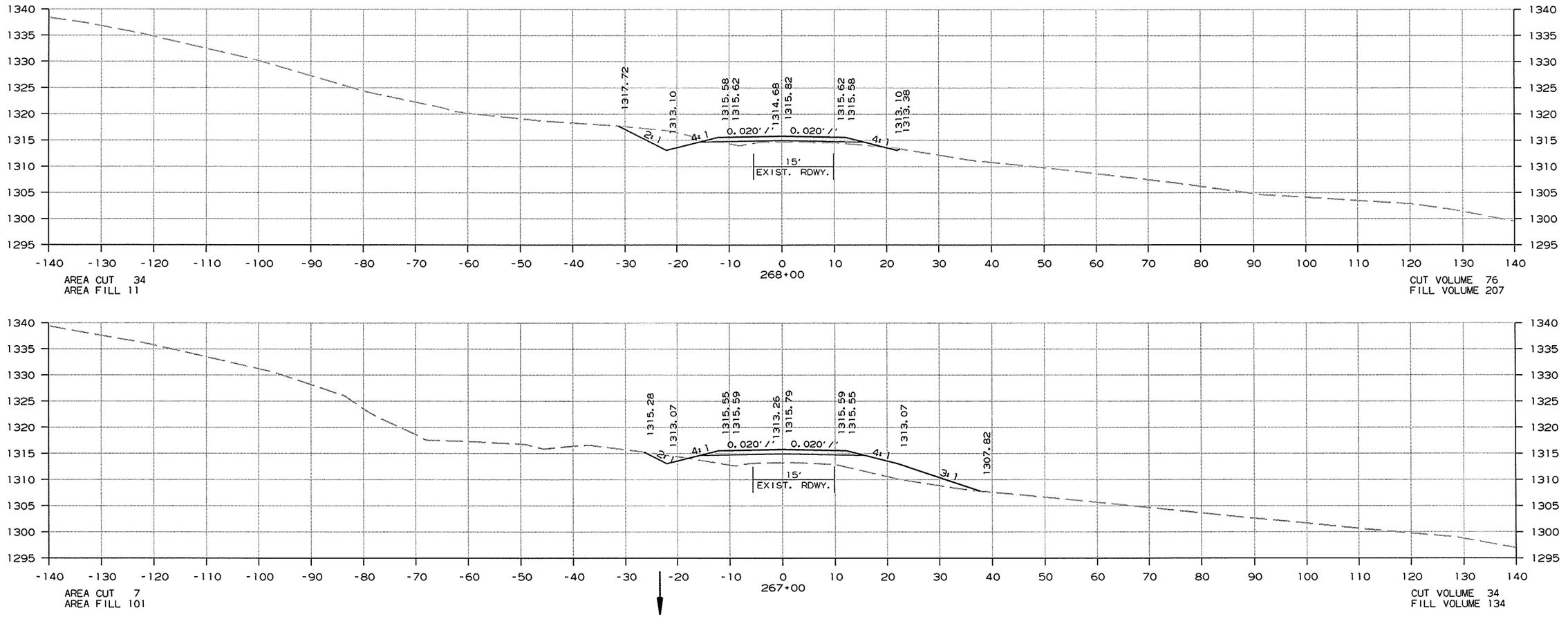
CROSS SECTION STA. 266+00 TO STA. 266+73

10/29/2015

R040207.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.		040207	120	212

(2) CROSS SECTIONS



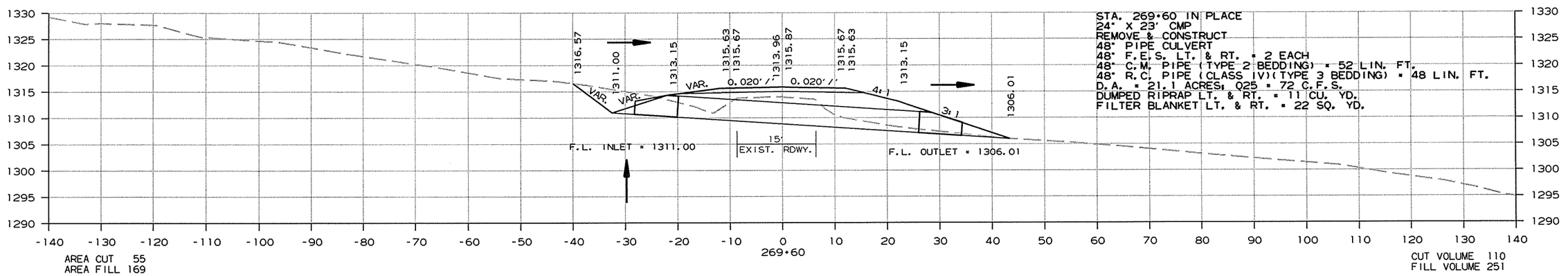
CROSS SECTION STA. 267+00 TO STA. 268+00

10/29/2015

R040207.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.		040207	121	212

(2) CROSS SECTIONS



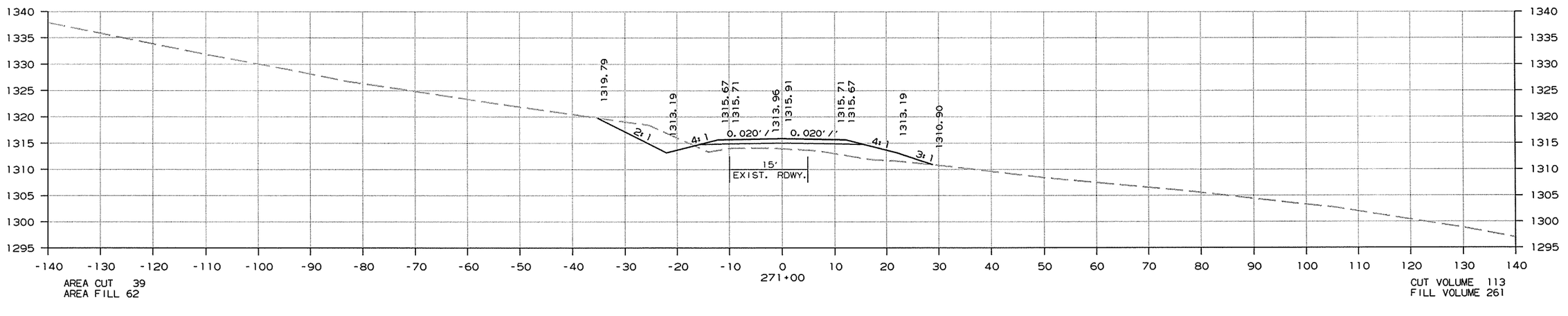
CROSS SECTION STA. 269+00 TO STA. 269+60

10/29/2015

R040207.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.		040207	122	212

(2) CROSS SECTIONS



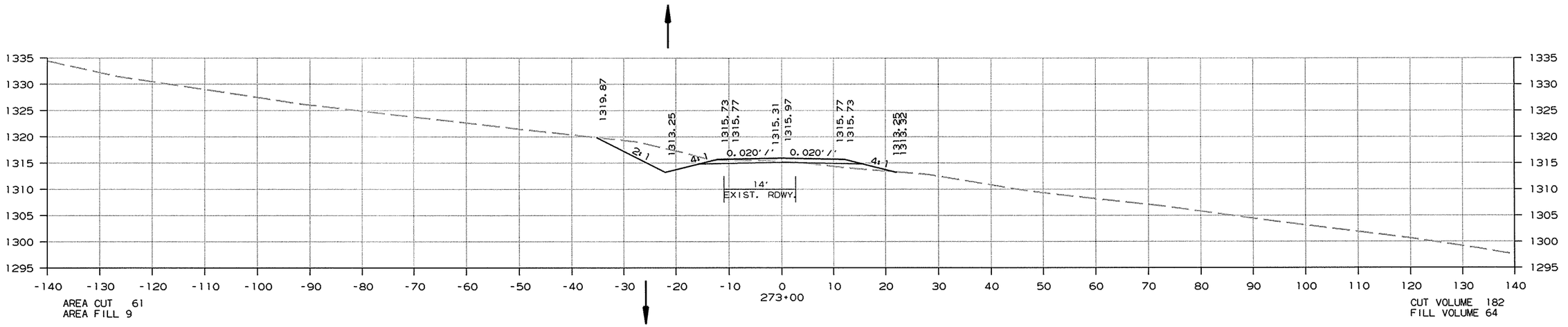
CROSS SECTION STA. 270+00 TO STA. 271+00

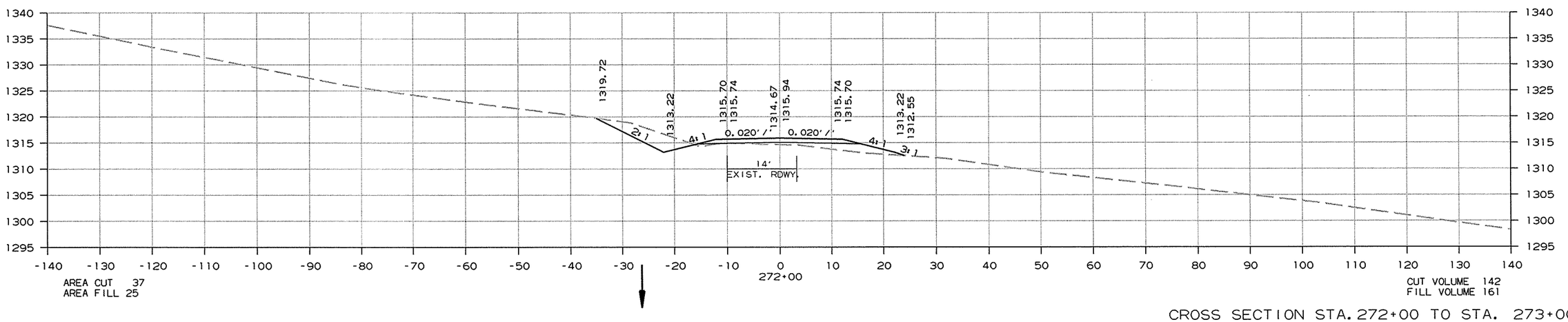
10/29/2015

R040207.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.		040207	123	212

(2) CROSS SECTIONS





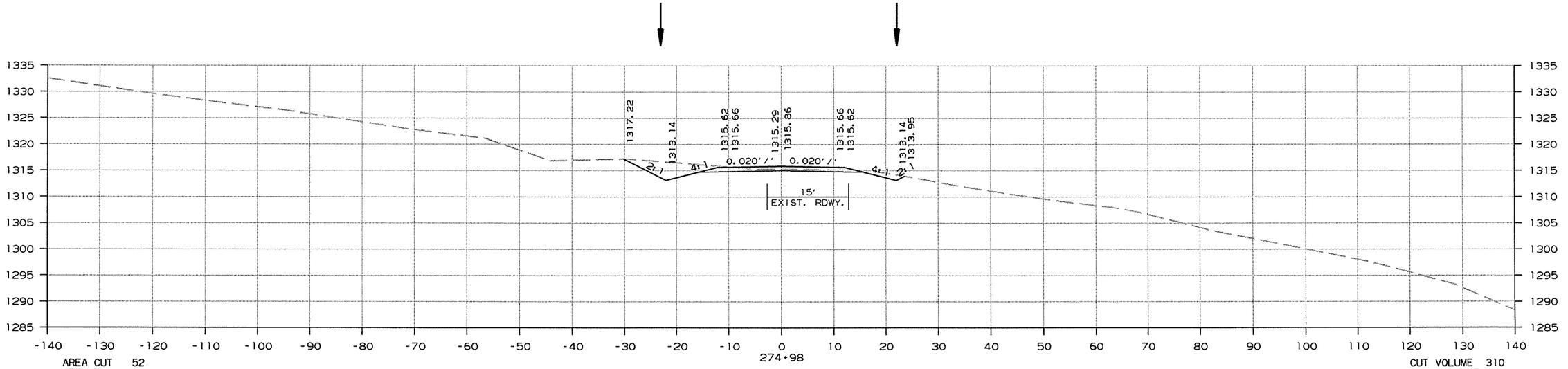
CROSS SECTION STA. 272+00 TO STA. 273+00

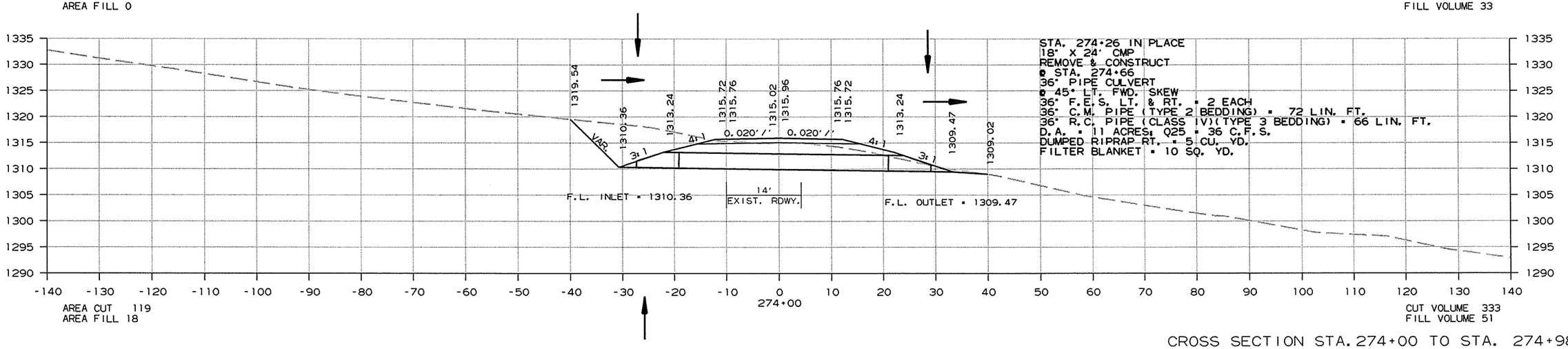
10/29/2015

R040207.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.		040207	124	212

(2) CROSS SECTIONS





STA. 274+26 IN PLACE
18" X 24' CMP
REMOVE & CONSTRUCT
@ STA. 274+66
36" PIPE CULVERT
@ 45° LT. FWD. SKEW
36" F.E.S. LT. & RT. = 2 EACH
36" C.M. PIPE (TYPE 2 BEDDING) = 72 LIN. FT.
36" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 66 LIN. FT.
D.A. = 11 ACRES, Q25 = 36 C.F.S.
DUMPED RIPRAP RT. = 5 CU. YD.
FILTER BLANKET = 10 SQ. YD.

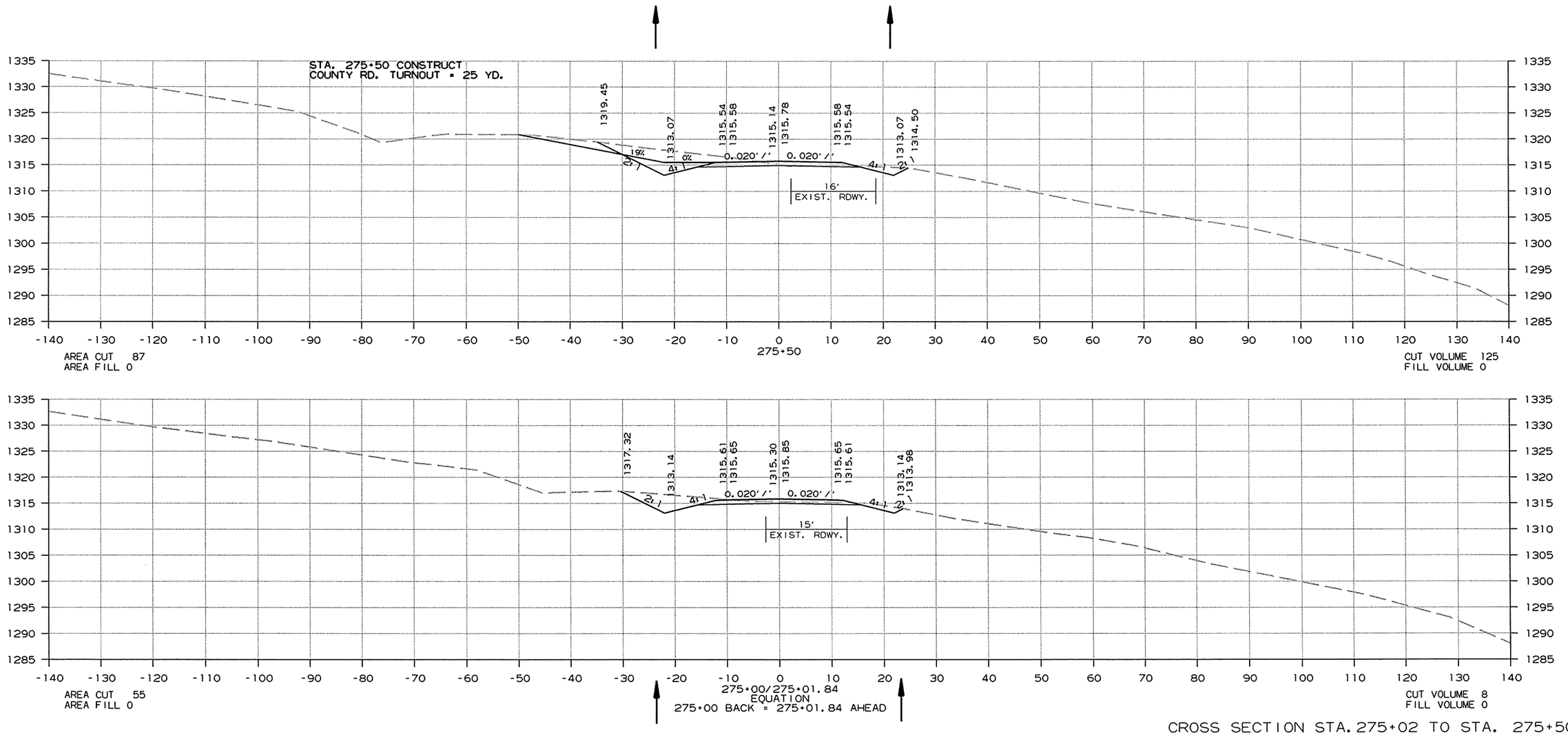
CROSS SECTION STA. 274+00 TO STA. 274+98

10/29/2015

R040207.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.		040207	125	212

(2) CROSS SECTIONS



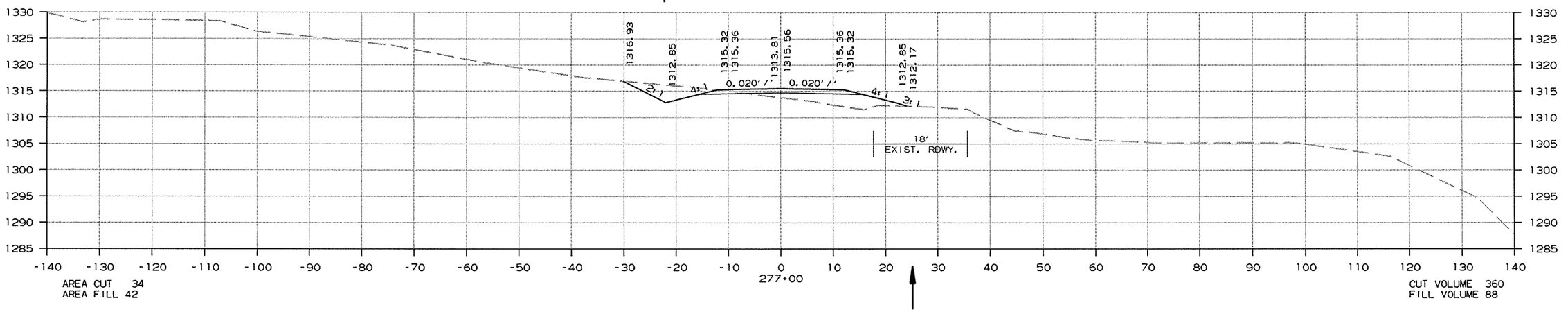
CROSS SECTION STA. 275+02 TO STA. 275+50

10/29/2015

R040207.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.		040207	126	212

(2) CROSS SECTIONS



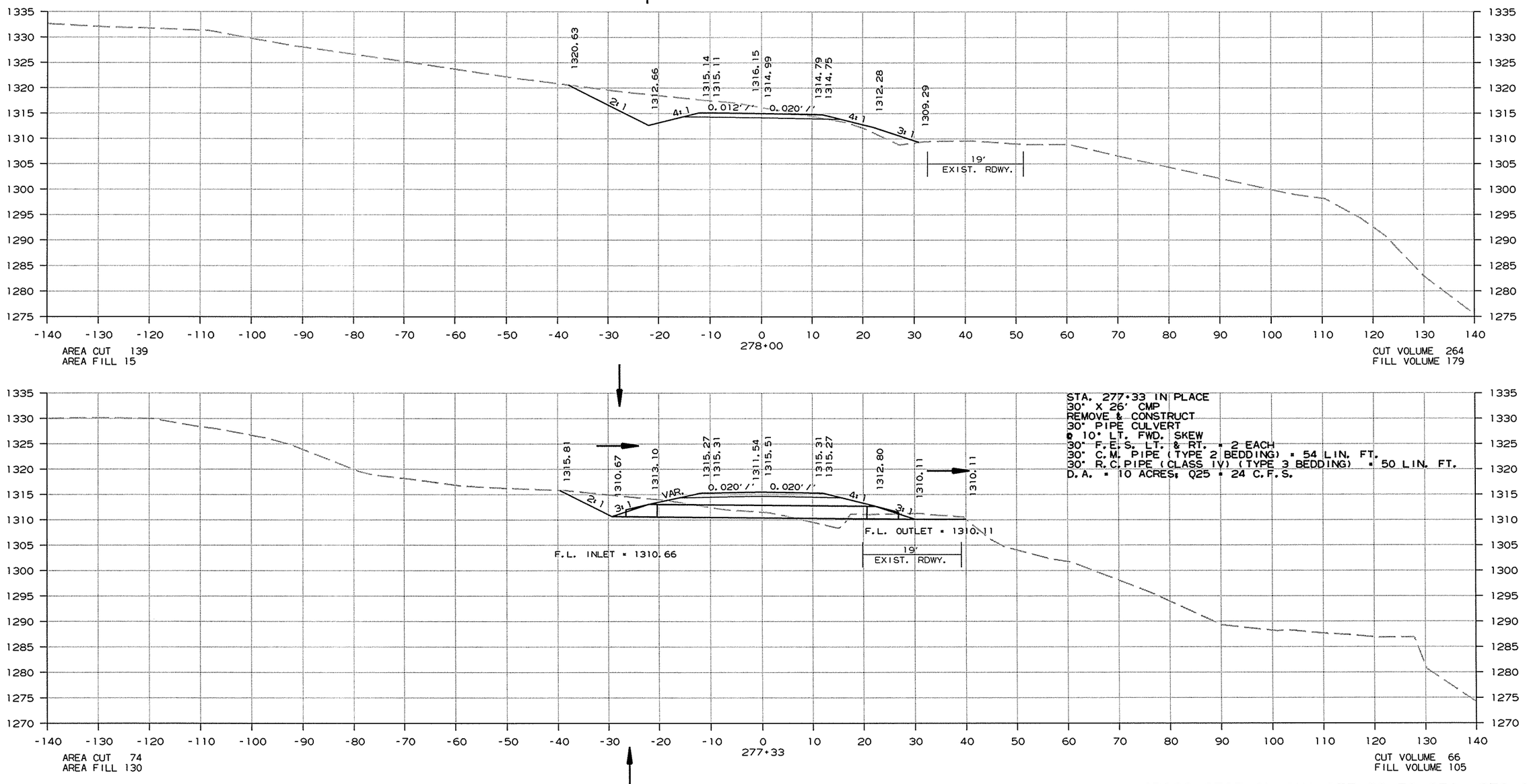
CROSS SECTION STA. 276+00 TO STA. 277+00

10/29/2015

R040207.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.		040207	127	212

(2) CROSS SECTIONS



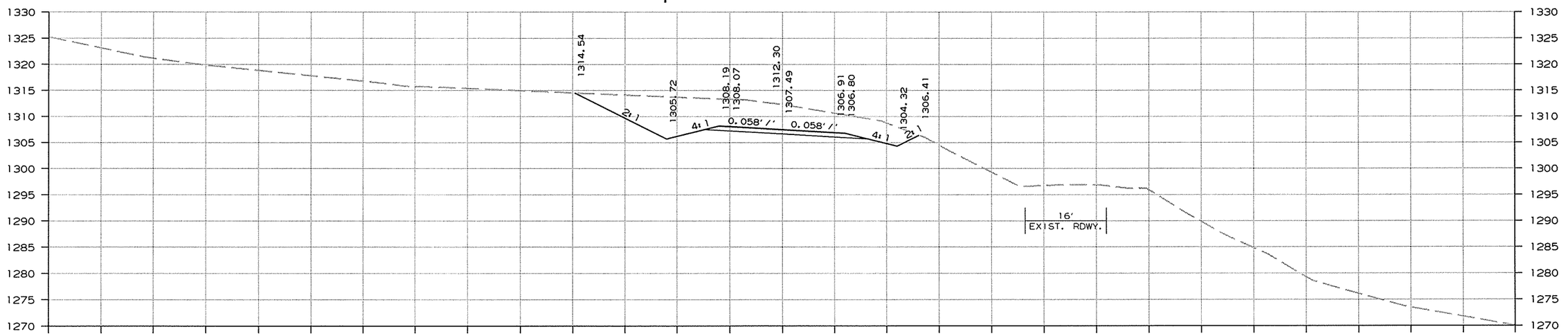
CROSS SECTION STA. 277+33 TO STA. 278+00

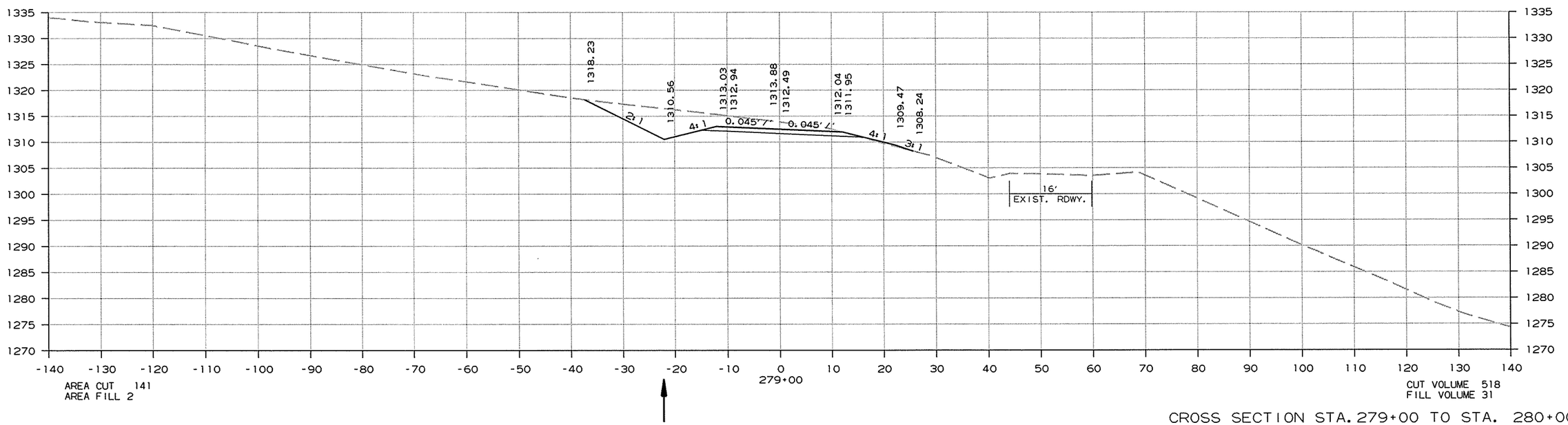
10/29/2015

R040207.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.		040207	128	212

(2) CROSS SECTIONS





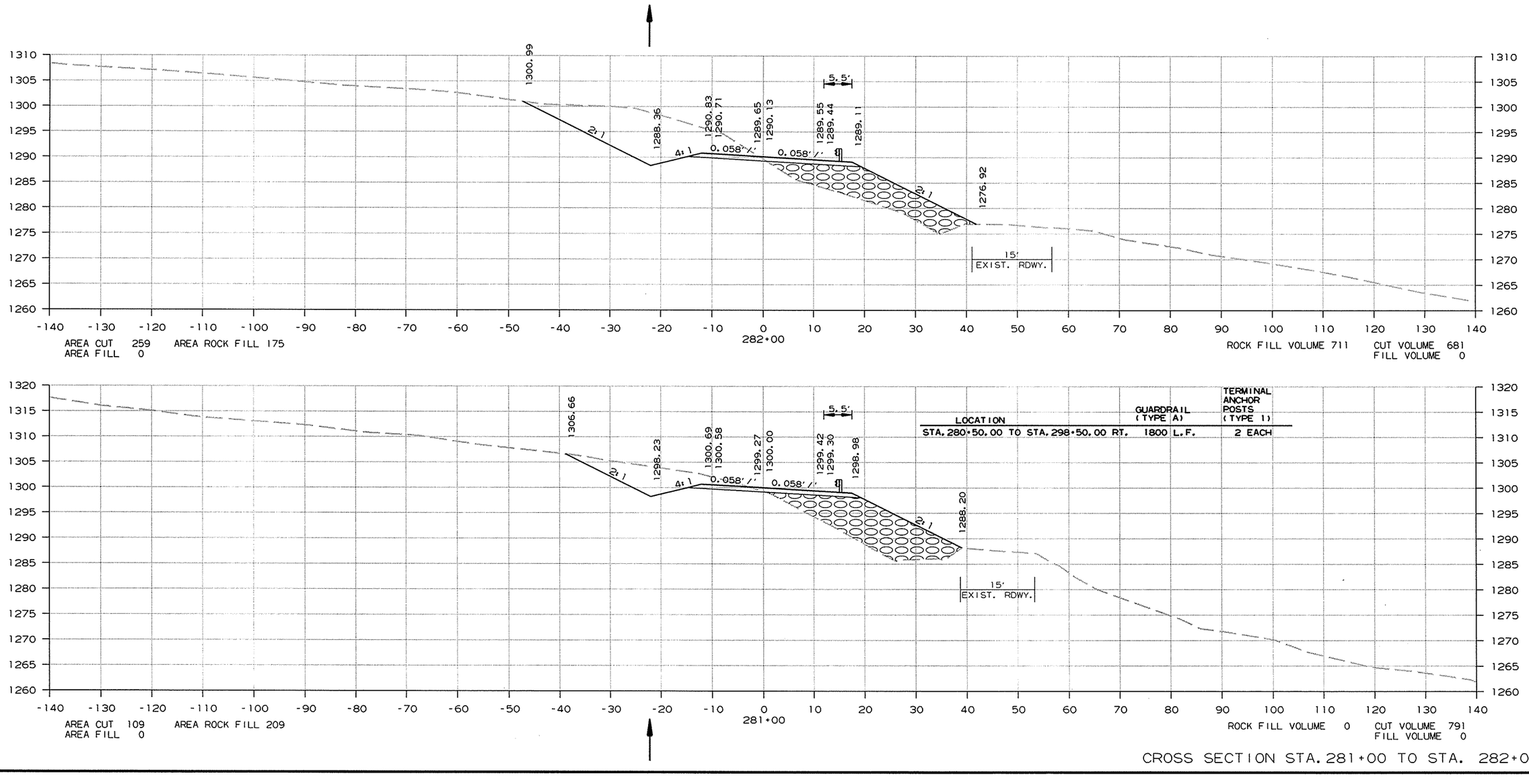
CROSS SECTION STA. 279+00 TO STA. 280+00

10/29/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	129	212

(2) CROSS SECTIONS



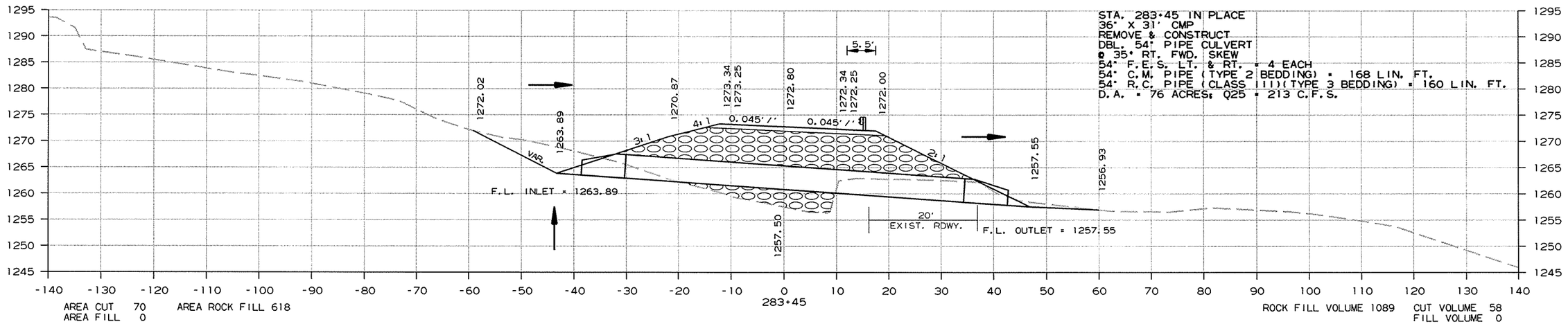
CROSS SECTION STA. 281+00 TO STA. 282+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	130	212

(2) CROSS SECTIONS



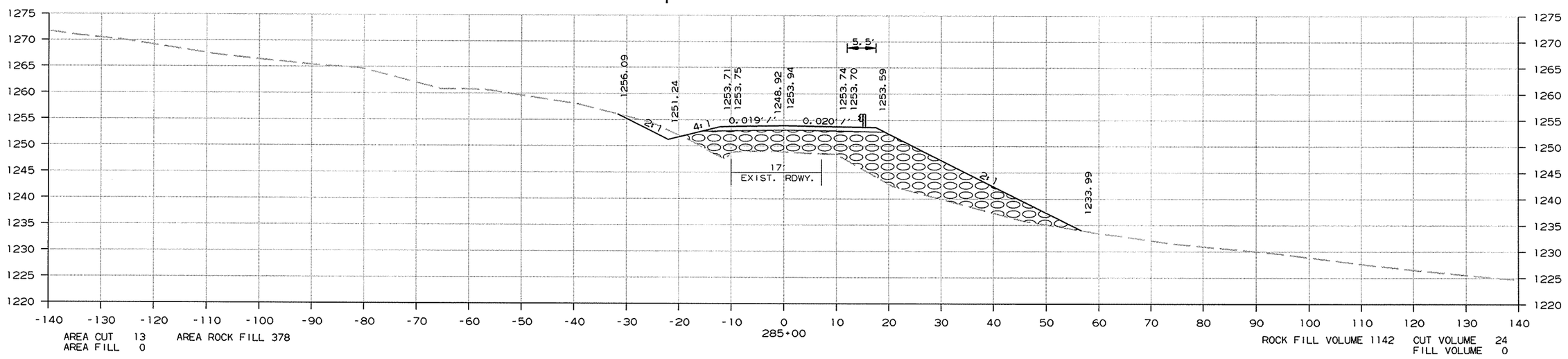
CROSS SECTION STA. 283+00 TO STA. 283+45

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	131	212

(2) CROSS SECTIONS



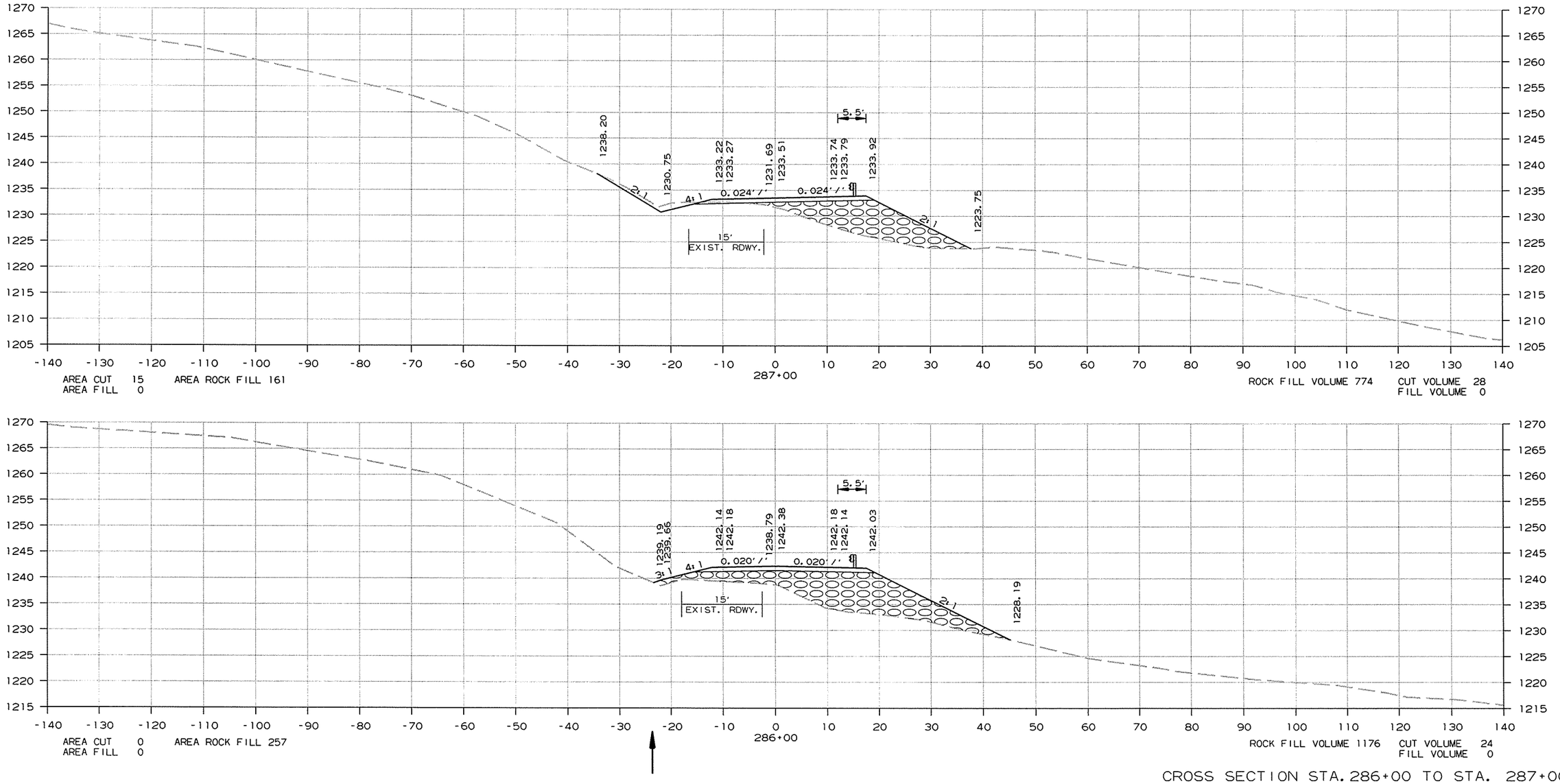
CROSS SECTION STA. 284+00 TO STA. 285+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	132	212

(2) CROSS SECTIONS



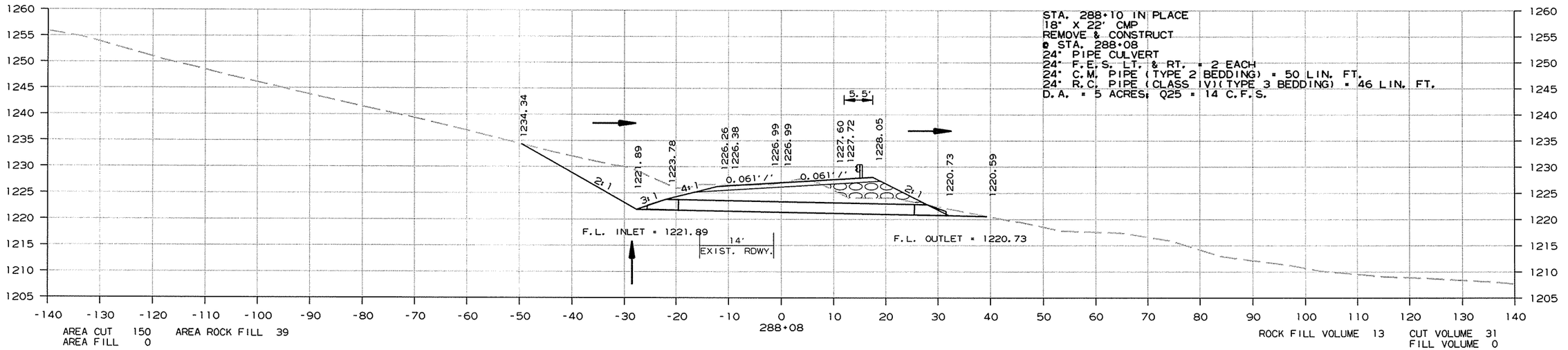
CROSS SECTION STA. 286+00 TO STA. 287+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	133	212

(2) CROSS SECTIONS



CROSS SECTION STA. 288+00 TO STA. 288+08

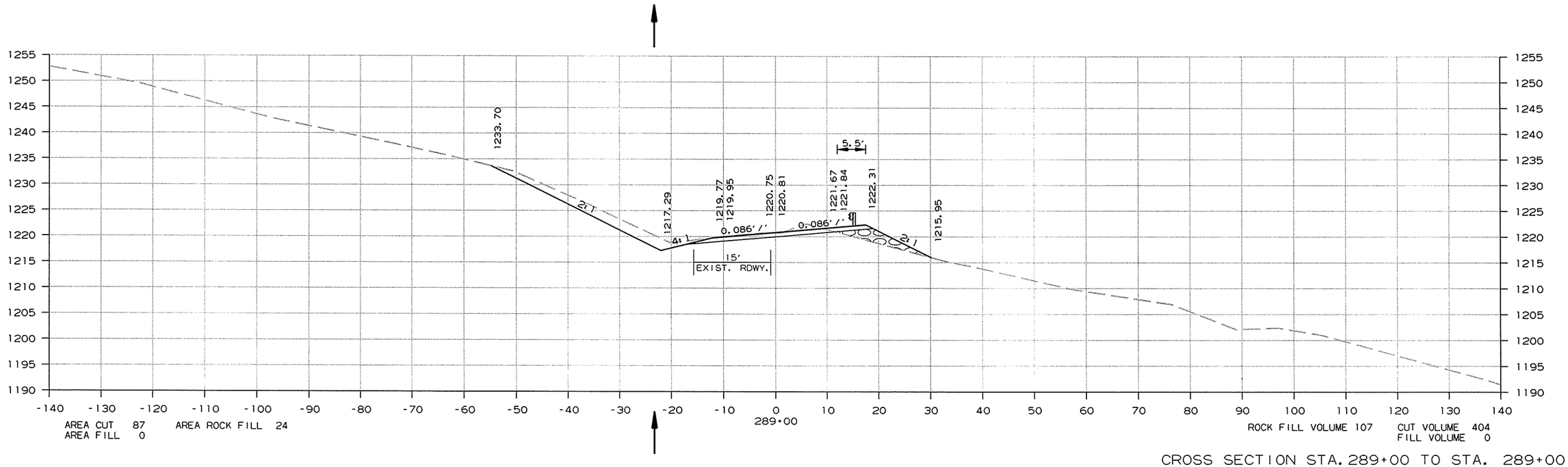
11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
11-20-15			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040207	134	212

(2) CROSS SECTIONS



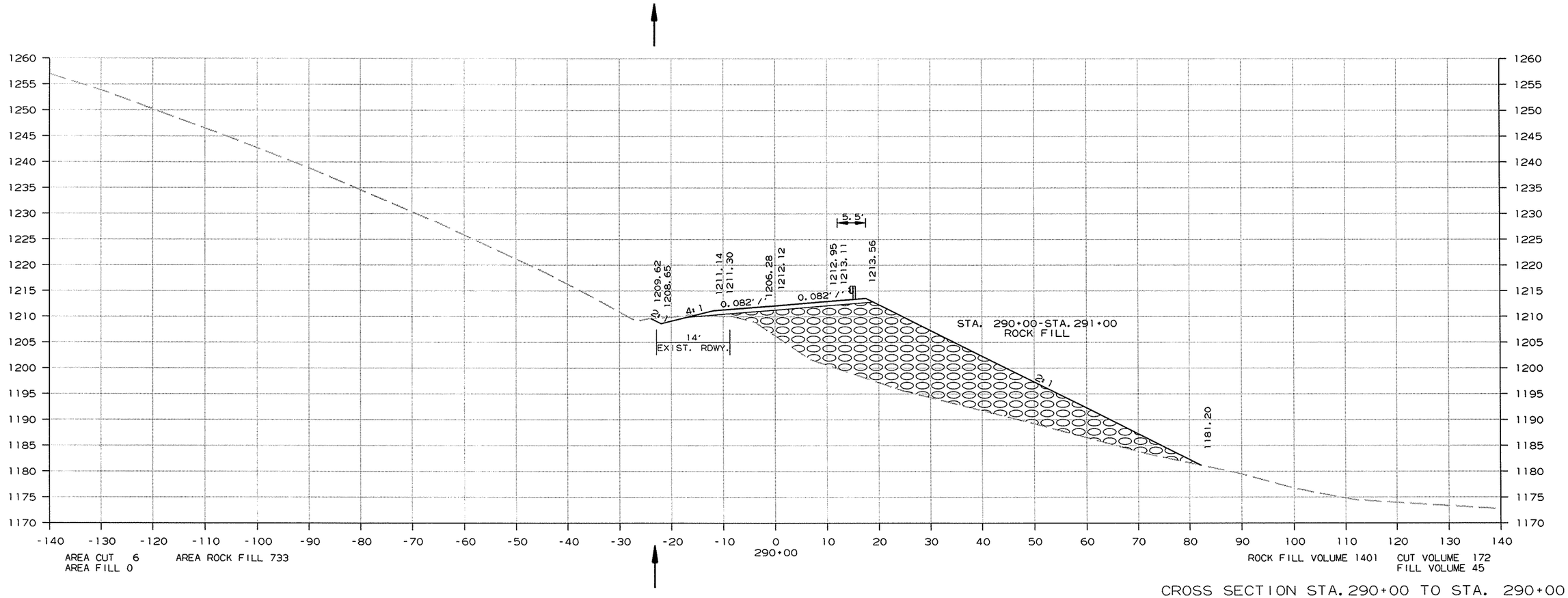
CROSS SECTION STA. 289+00 TO STA. 289+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	135	212

(2) CROSS SECTIONS



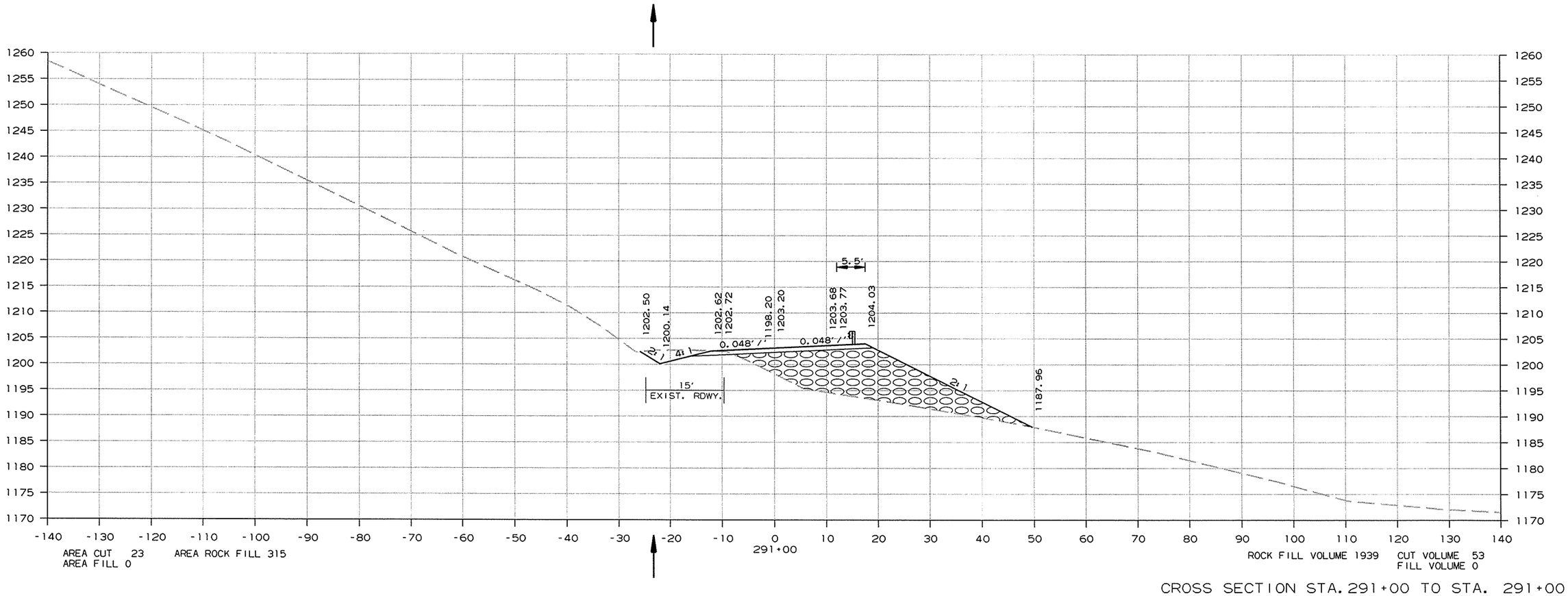
CROSS SECTION STA. 290+00 TO STA. 290+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	136	212

(2) CROSS SECTIONS



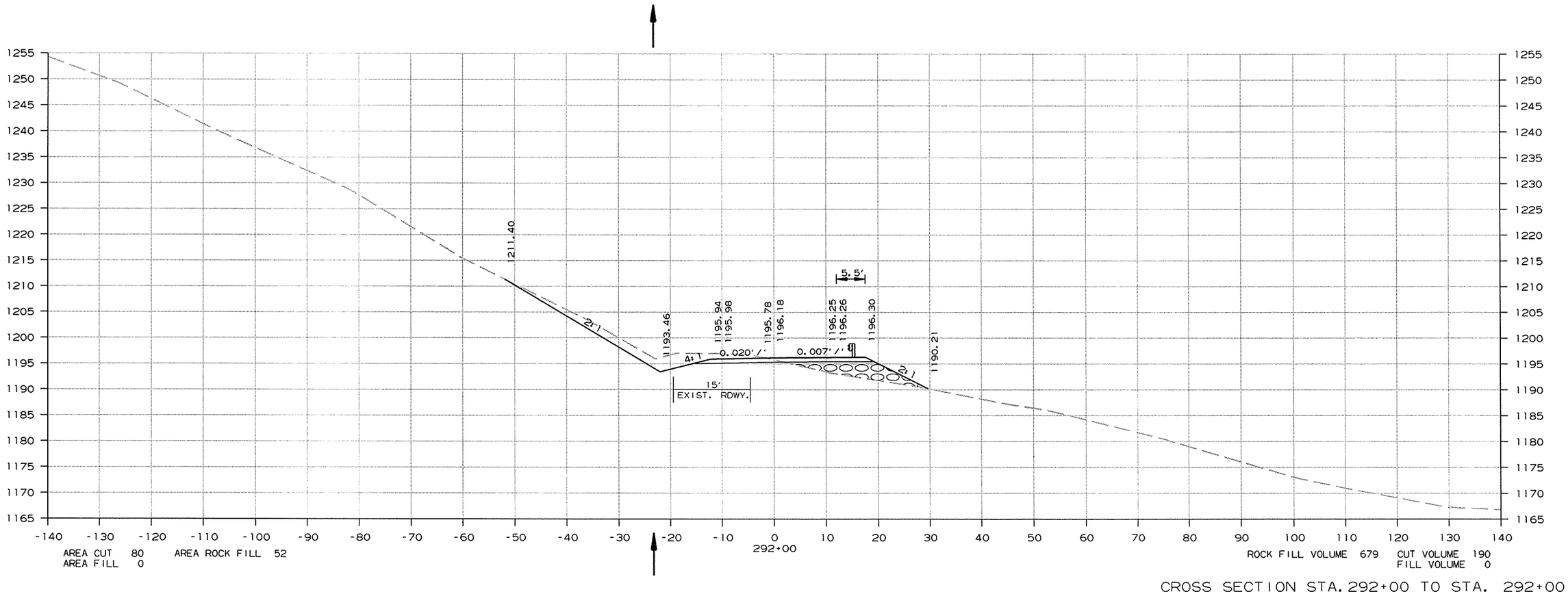
CROSS SECTION STA. 291+00 TO STA. 291+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	137	212

(2) CROSS SECTIONS



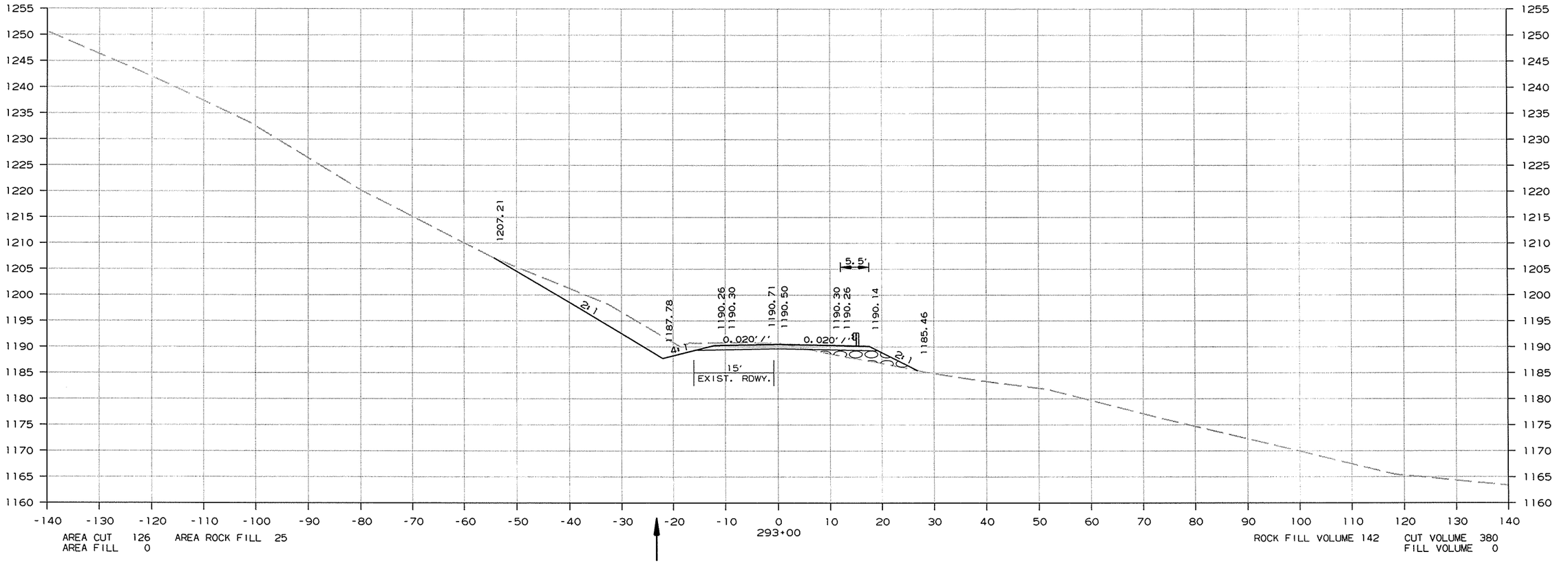
CROSS SECTION STA. 292+00 TO STA. 292+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	138	212

(2) CROSS SECTIONS



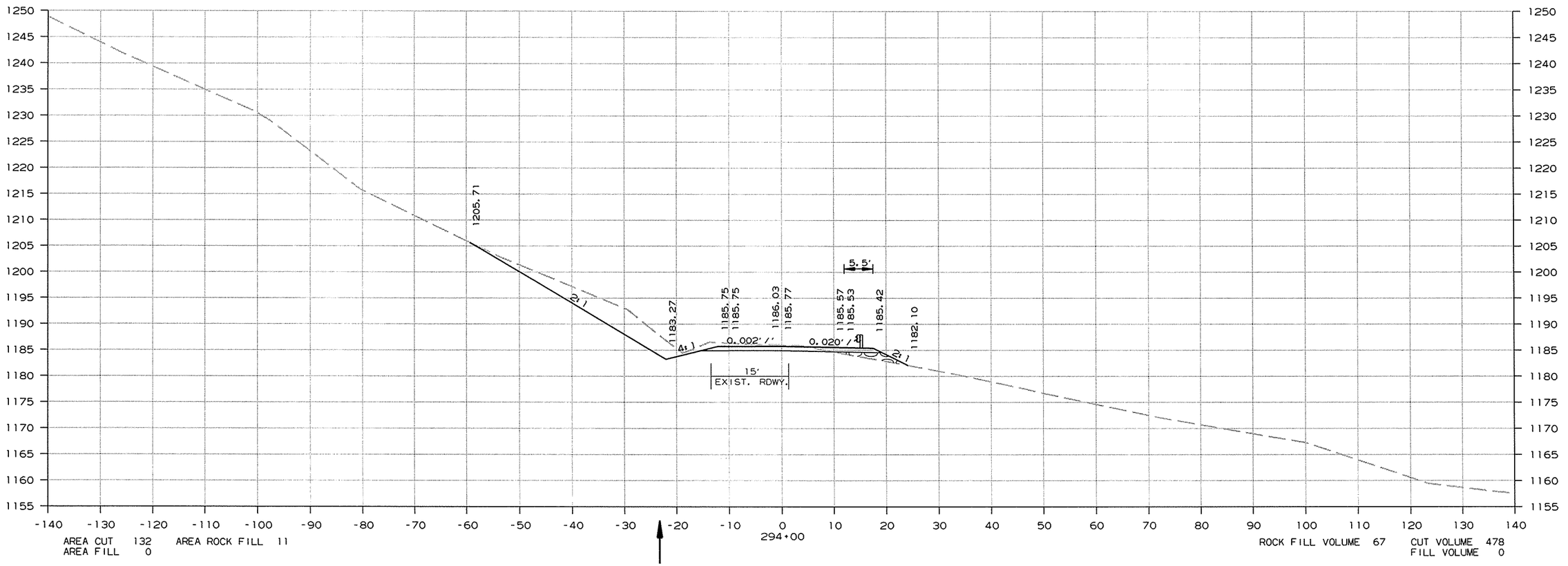
CROSS SECTION STA. 293+00 TO STA. 293+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	139	212

(2) CROSS SECTIONS



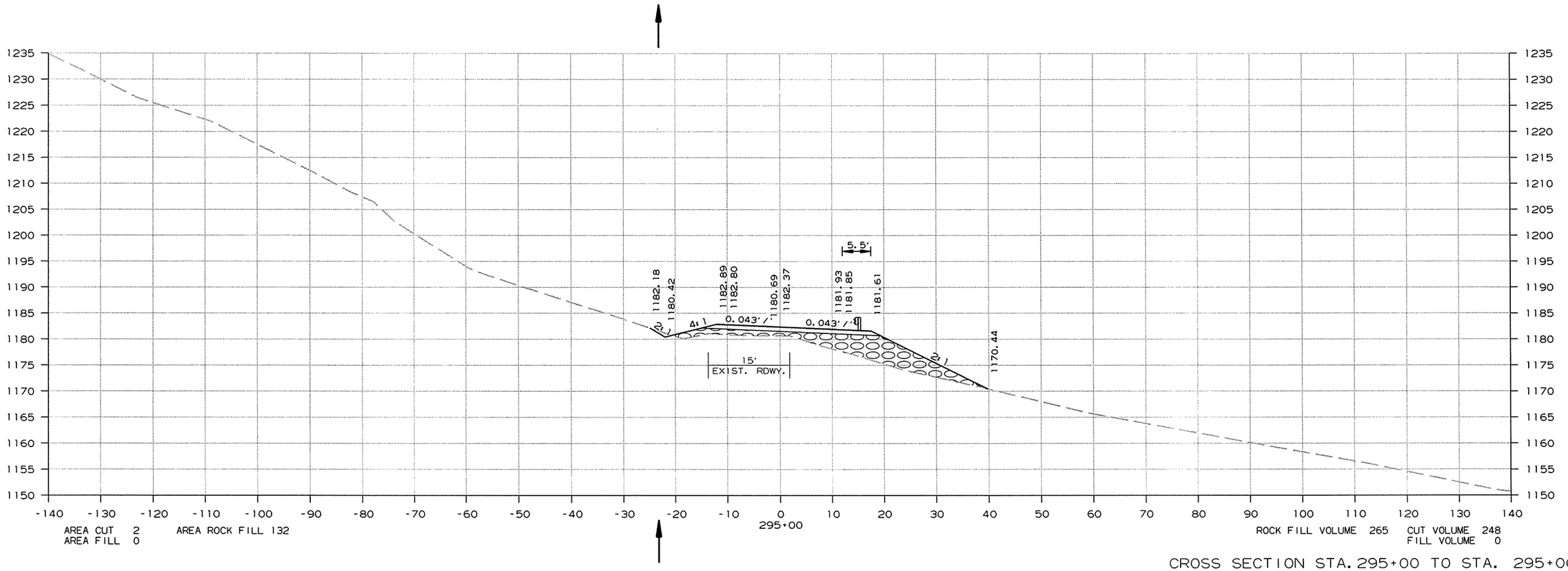
CROSS SECTION STA. 294+00 TO STA. 294+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	140	212

(2) CROSS SECTIONS



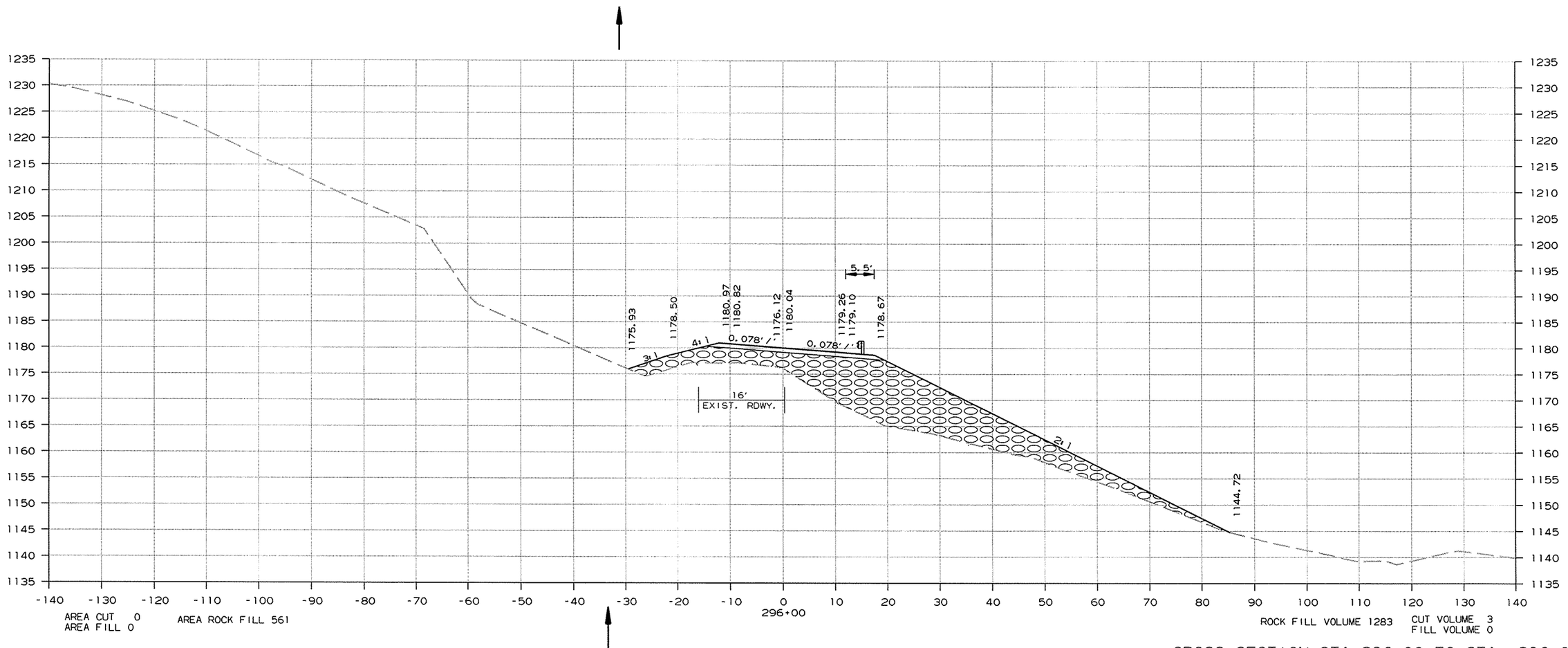
CROSS SECTION STA. 295+00 TO STA. 295+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	141	212

(2) CROSS SECTIONS



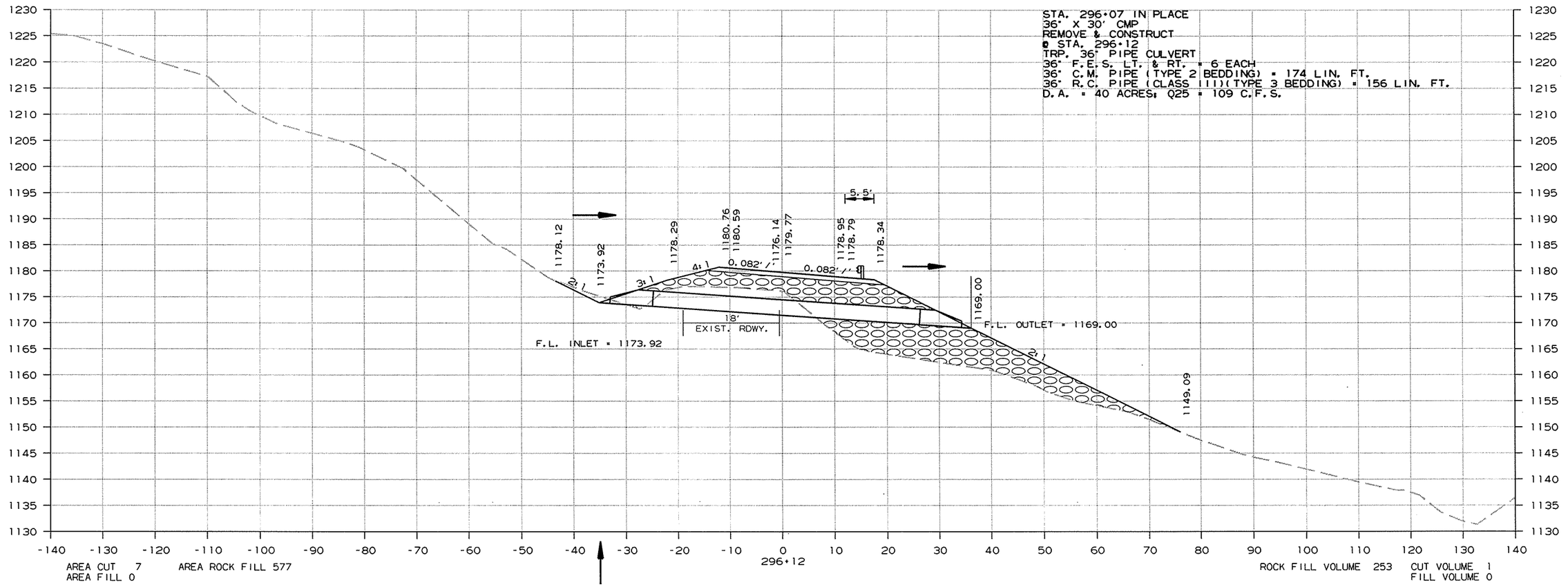
CROSS SECTION STA. 296+00 TO STA. 296+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	142	212

(2) CROSS SECTIONS



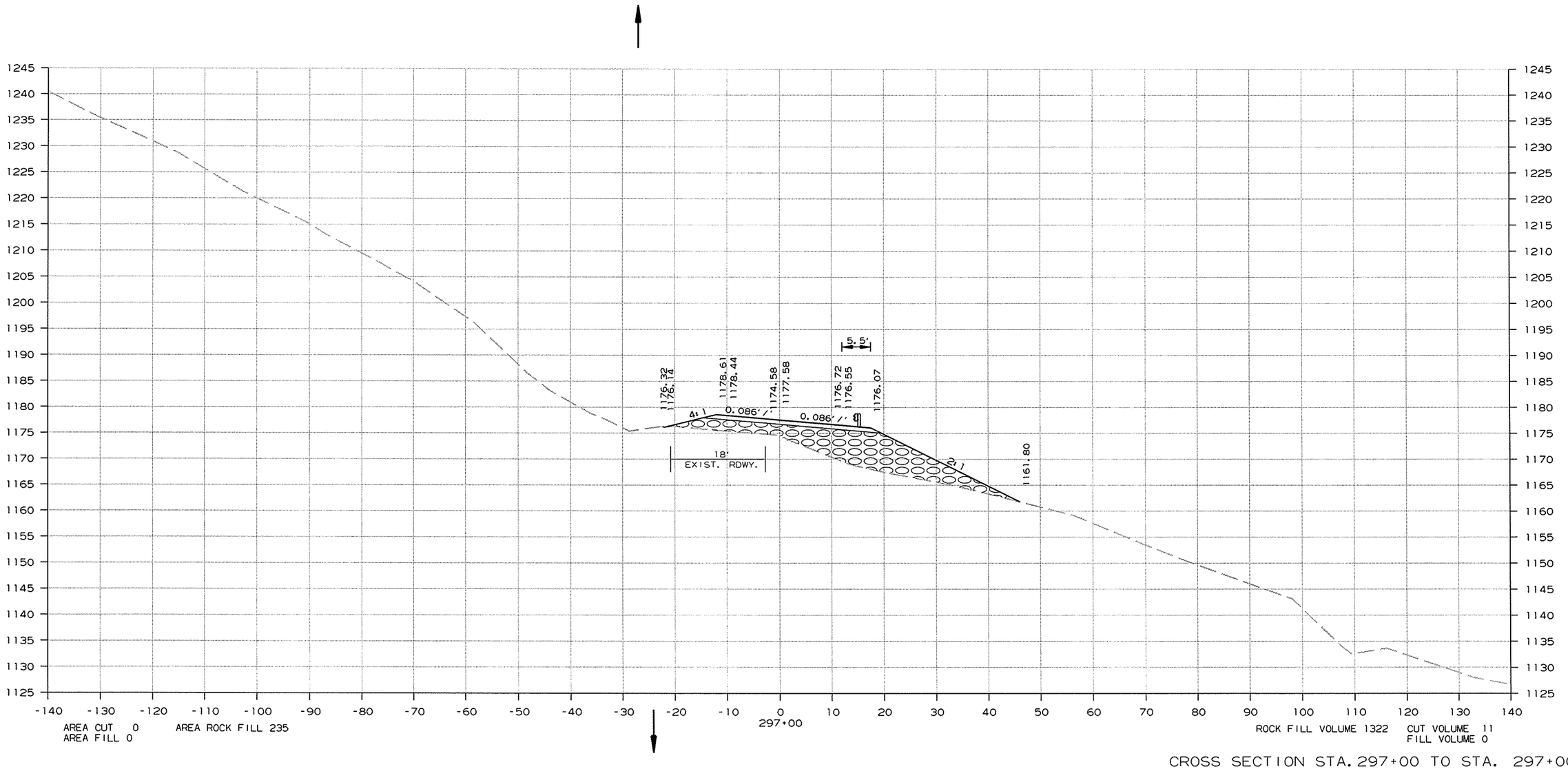
CROSS SECTION STA. 296+12 TO STA. 296+12

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	143	212

(2) CROSS SECTIONS



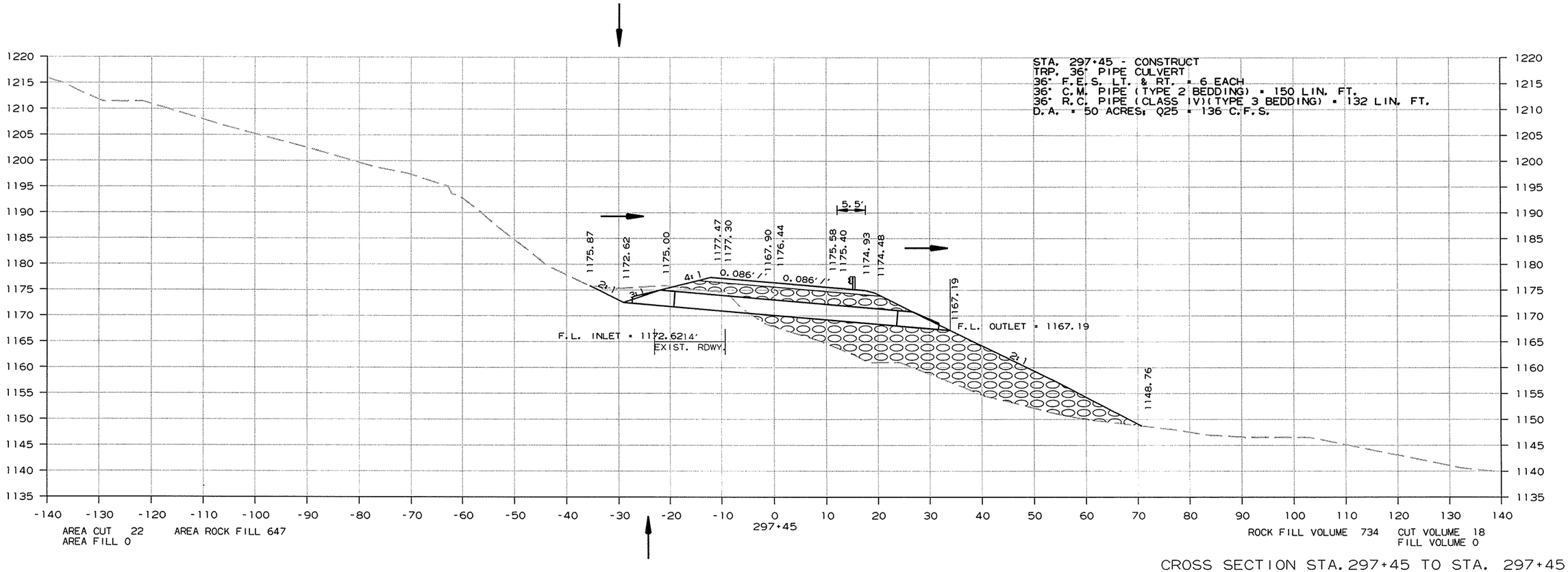
CROSS SECTION STA. 297+00 TO STA. 297+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	144	212

(2) CROSS SECTIONS



CROSS SECTION STA. 297+45 TO STA. 297+45

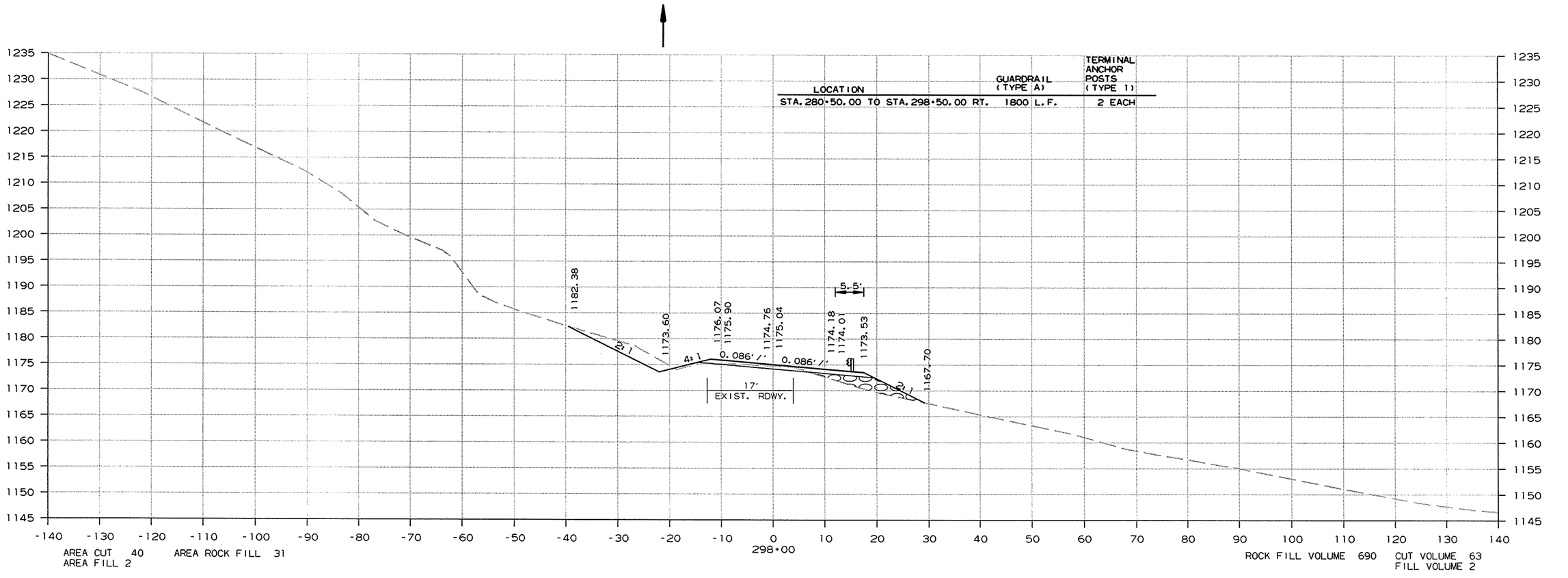
11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	145	212

(2) CROSS SECTIONS

LOCATION	GUARDRAIL (TYPE A)	TERMINAL ANCHOR POSTS (TYPE 1)
STA. 280+50.00 TO STA. 298+50.00 RT.	1800 L.F.	2 EACH



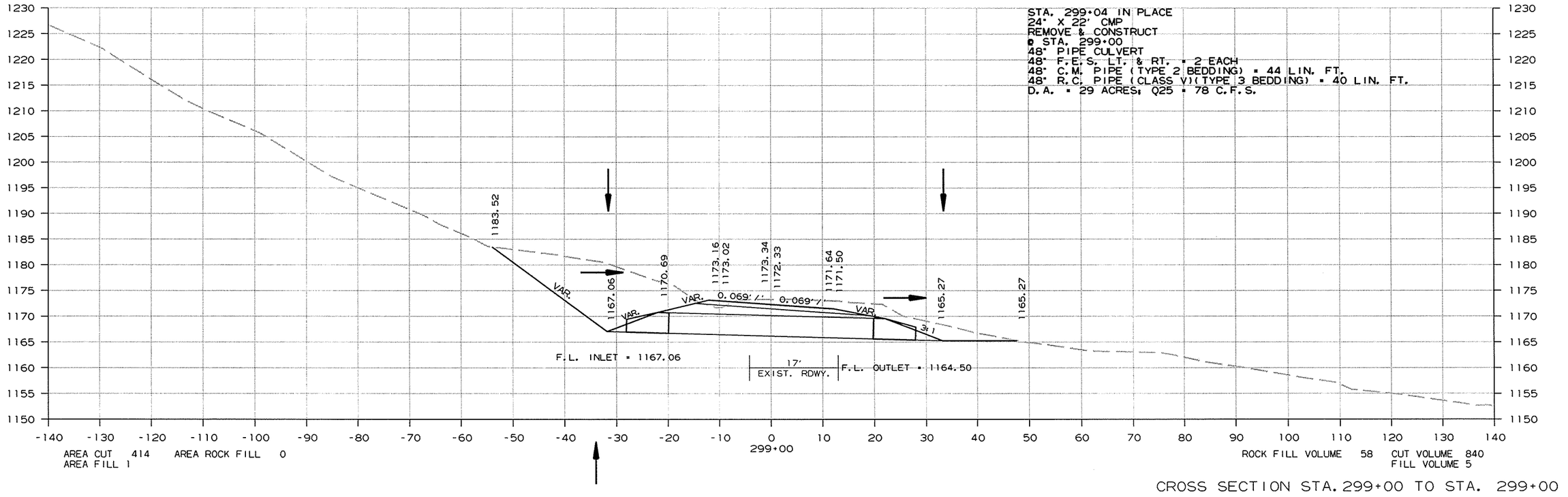
CROSS SECTION STA. 298+00 TO STA. 298+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	146	212

(2) CROSS SECTIONS



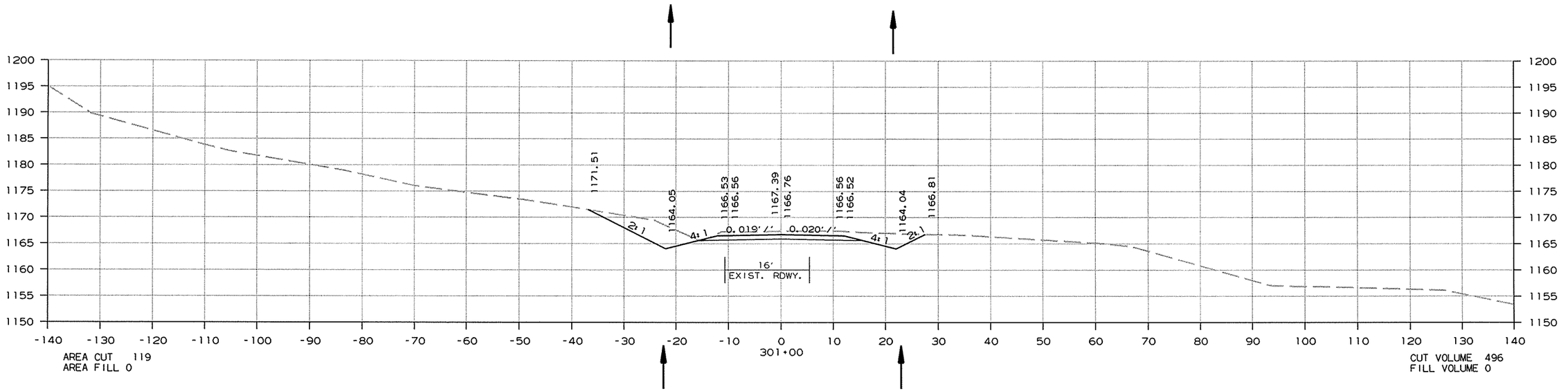
CROSS SECTION STA. 299+00 TO STA. 299+00

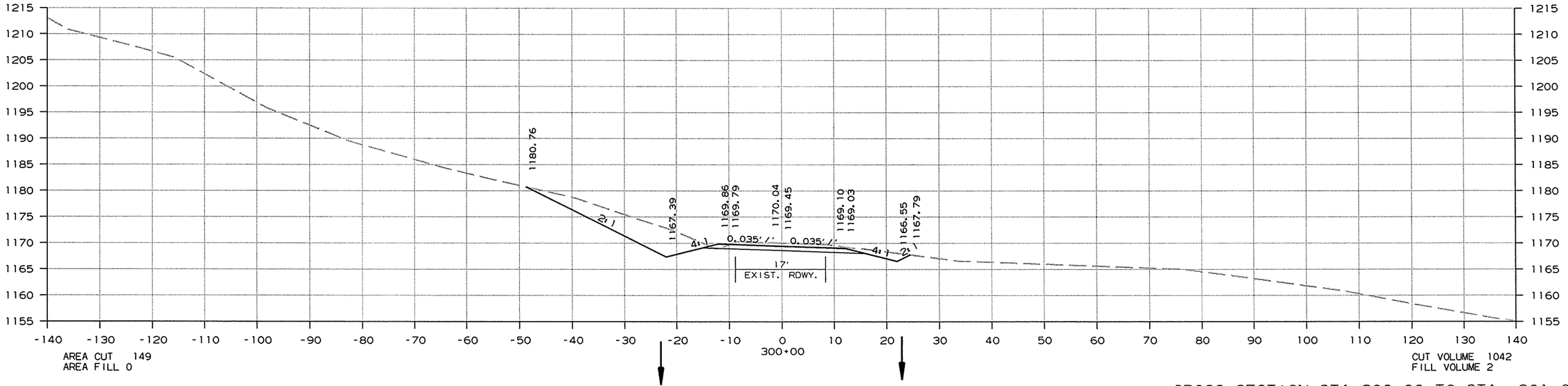
11/20/2015

R040207.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.		040207	147	212

(2) CROSS SECTIONS





CROSS SECTION STA. 300+00 TO STA. 301+00

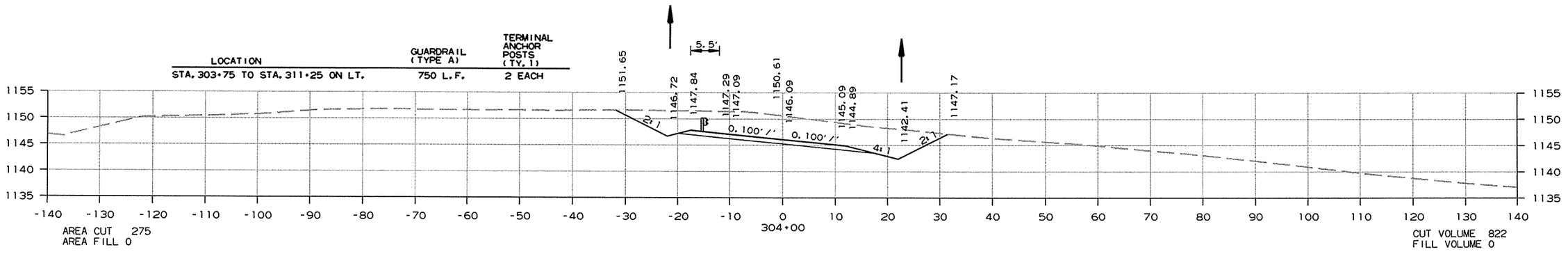
10/29/2015

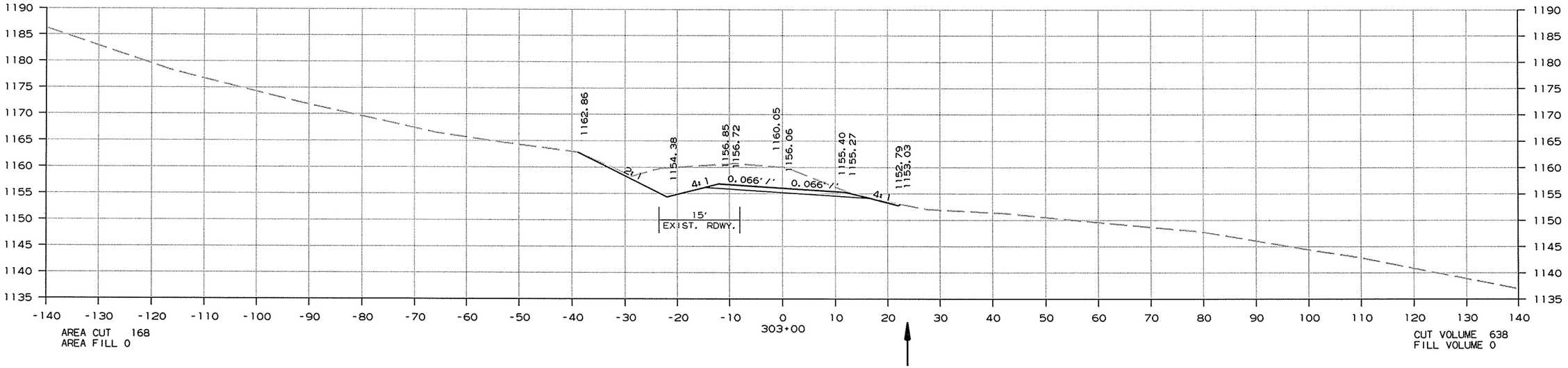
R040207.DGN

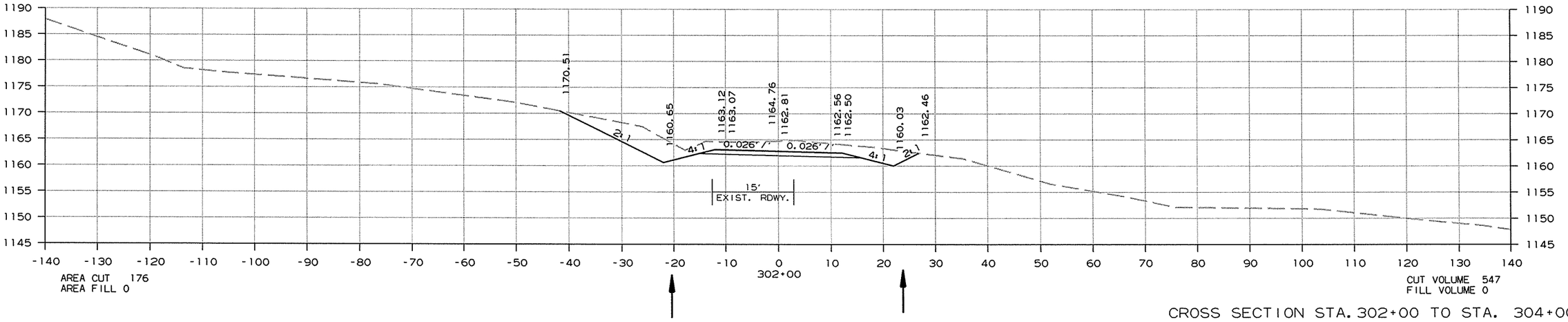
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040207	148	212

(2) CROSS SECTIONS

LOCATION	GUARDRAIL (TYPE A)	TERMINAL ANCHOR POSTS (TY. I)
STA. 303+75 TO STA. 311+25 ON LT.	750 L.F.	2 EACH







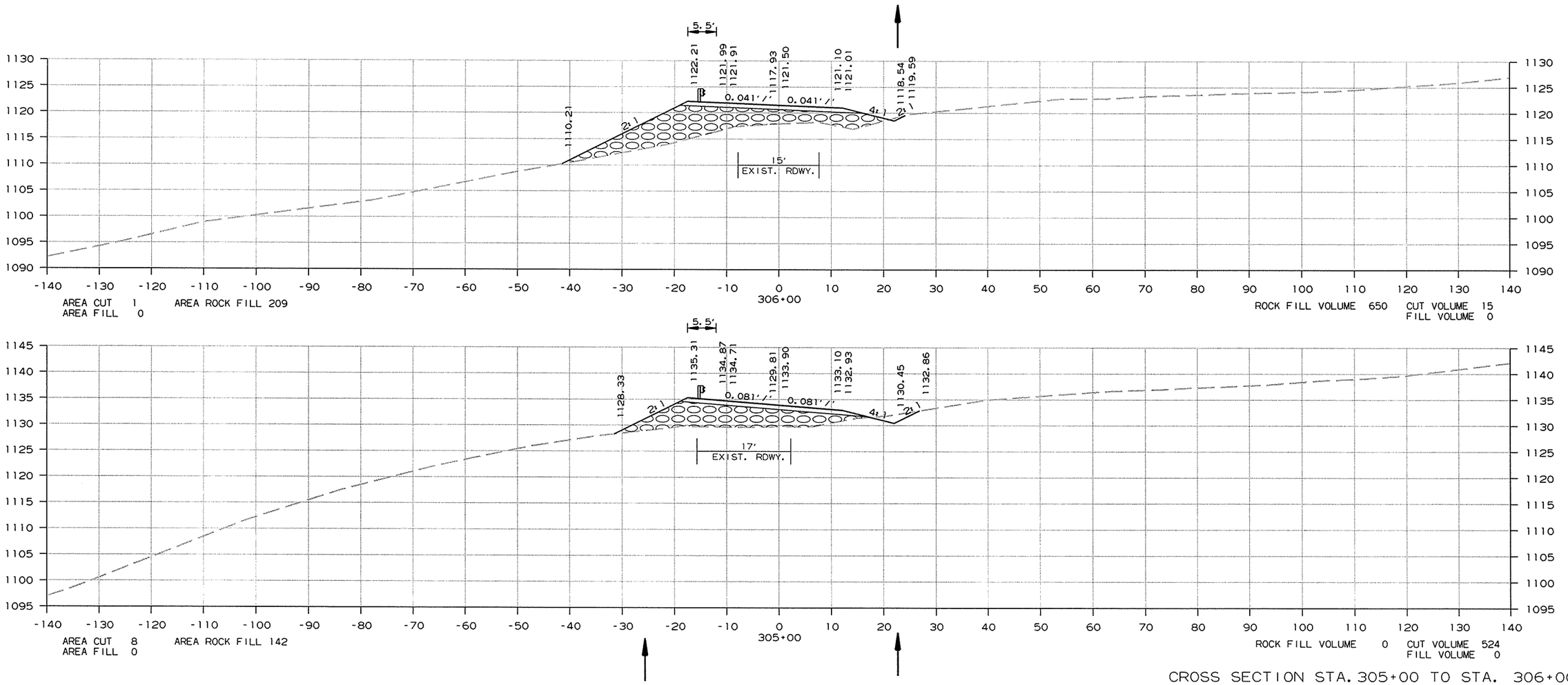
CROSS SECTION STA. 302+00 TO STA. 304+00

10/29/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	149	212

(2) CROSS SECTIONS



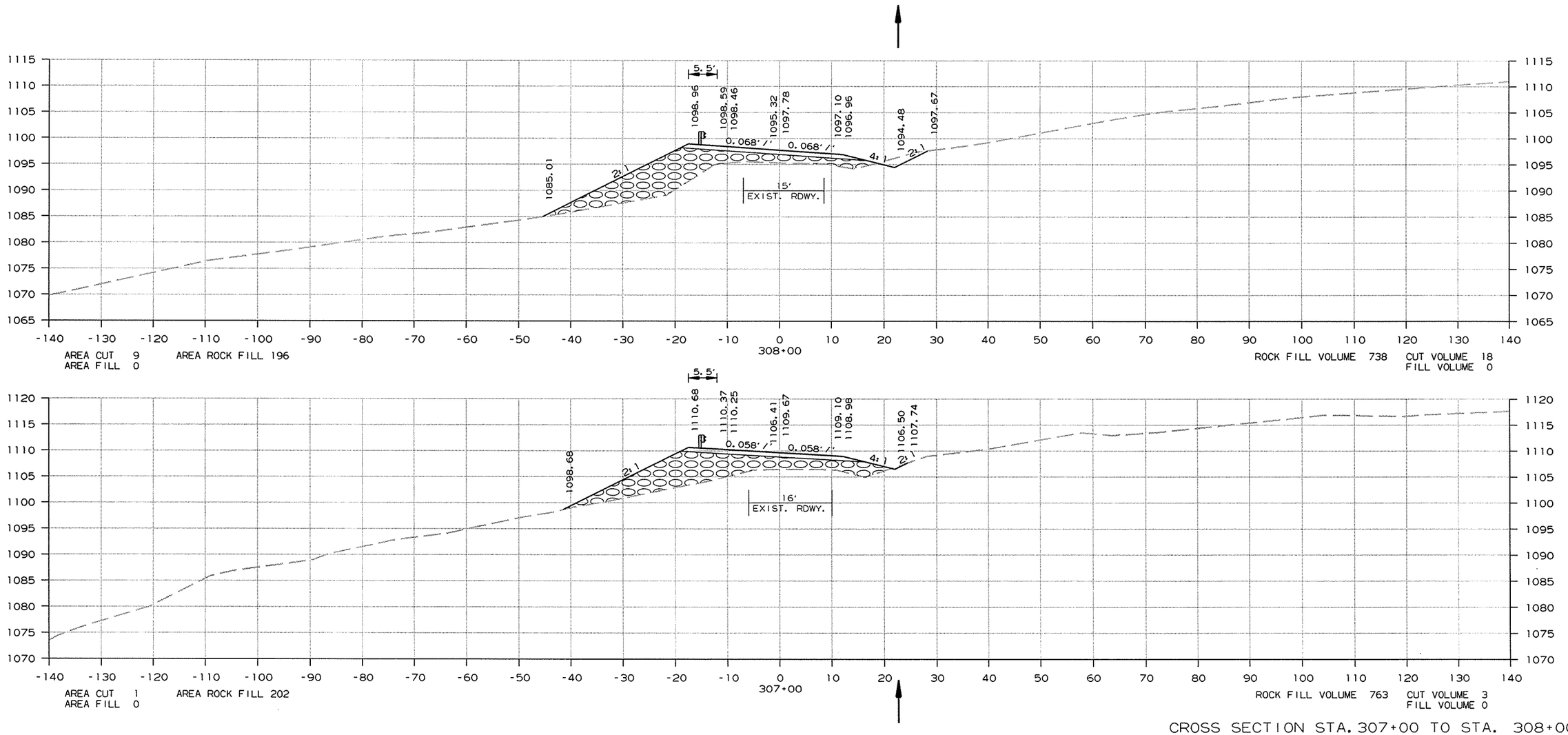
CROSS SECTION STA. 305+00 TO STA. 306+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	150	212

(2) CROSS SECTIONS



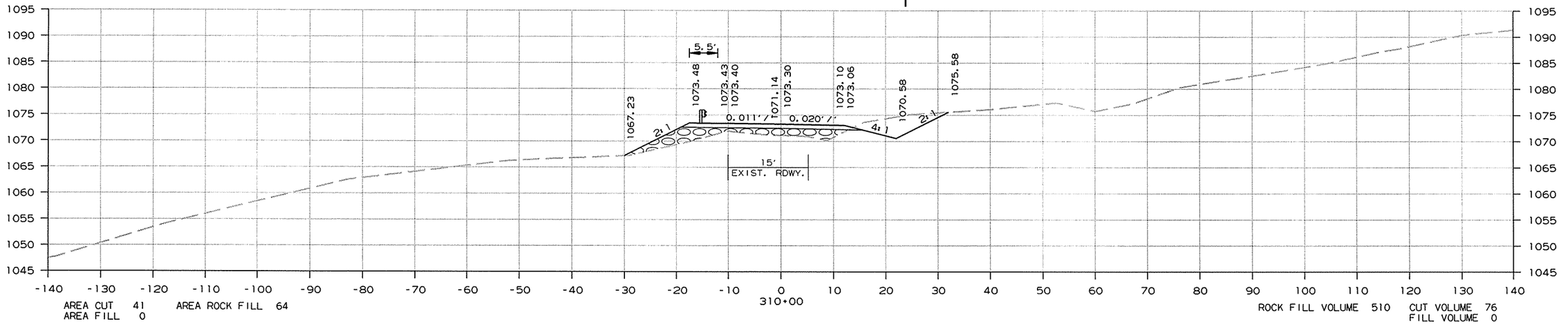
CROSS SECTION STA. 307+00 TO STA. 308+00

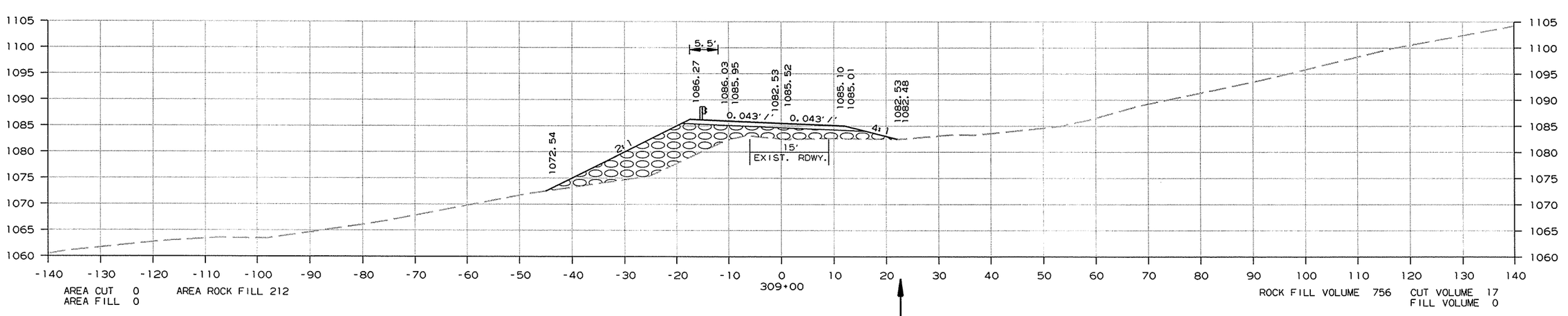
11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	151	212

(2) CROSS SECTIONS





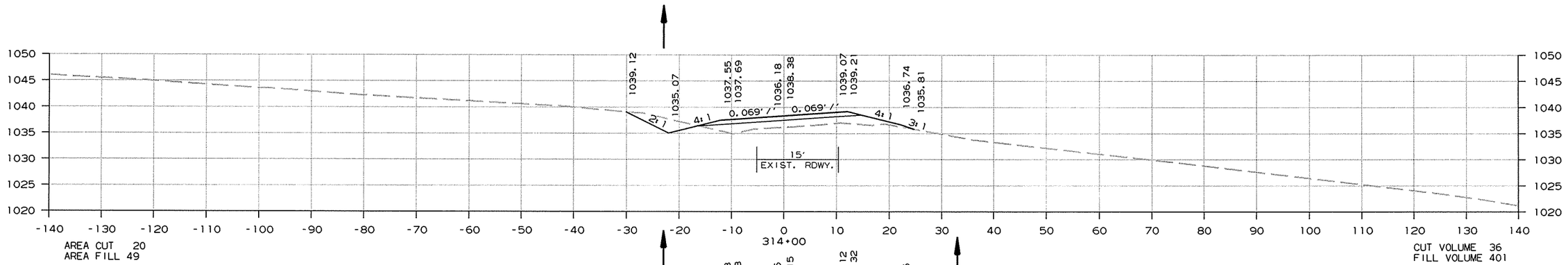
CROSS SECTION STA. 309+00 TO STA. 310+00

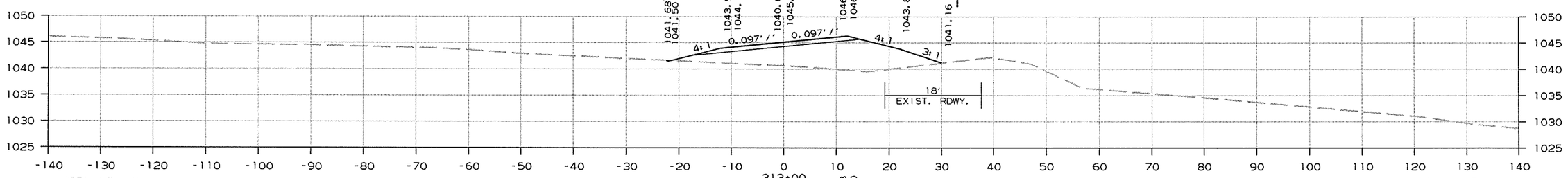
11/20/2015

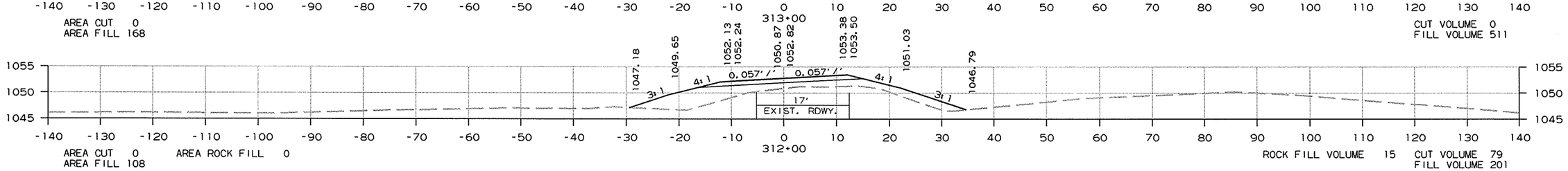
R040207.DGN

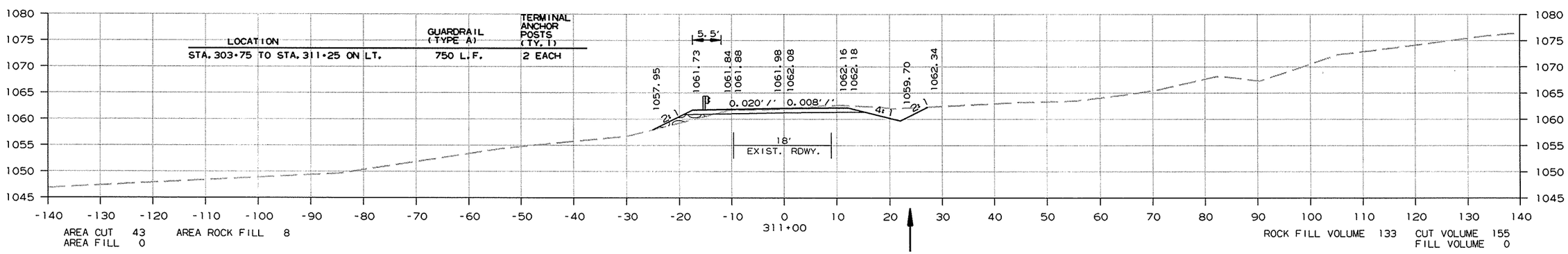
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	152	212

(2) CROSS SECTIONS









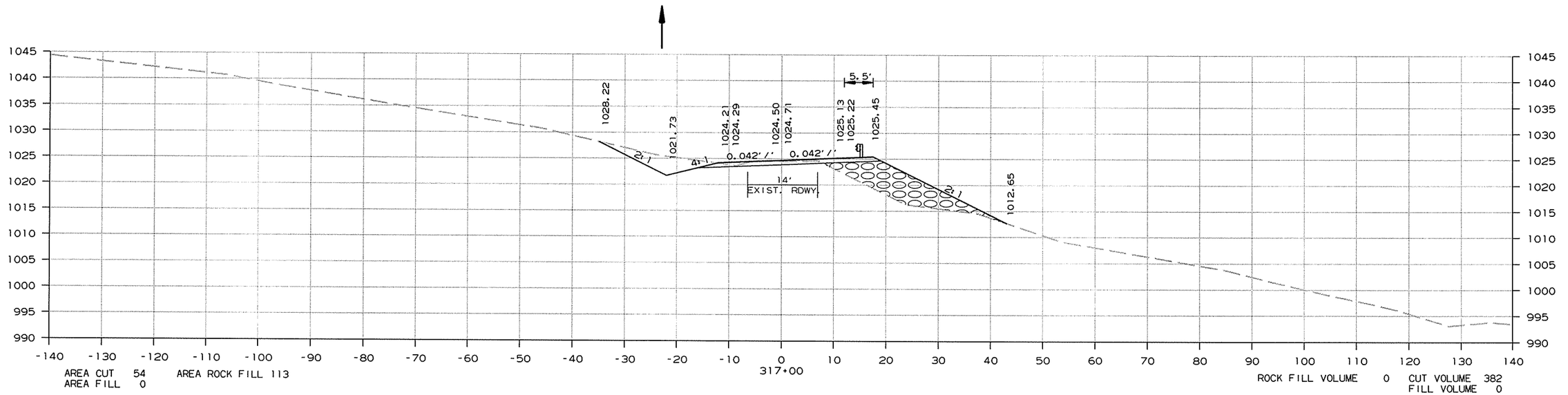
CROSS SECTION STA. 311+00 TO STA. 314+00

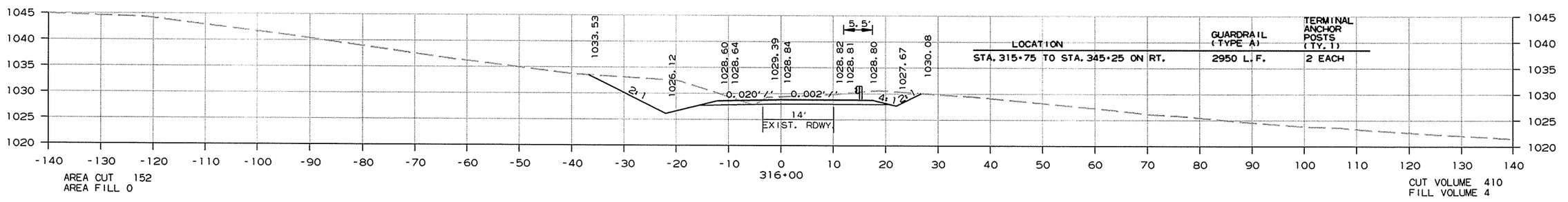
11/20/2015

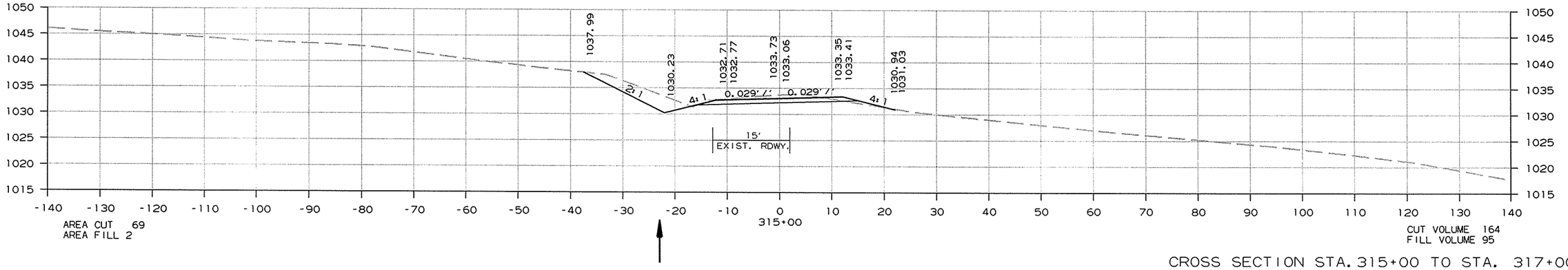
R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	153	212

(2) CROSS SECTIONS







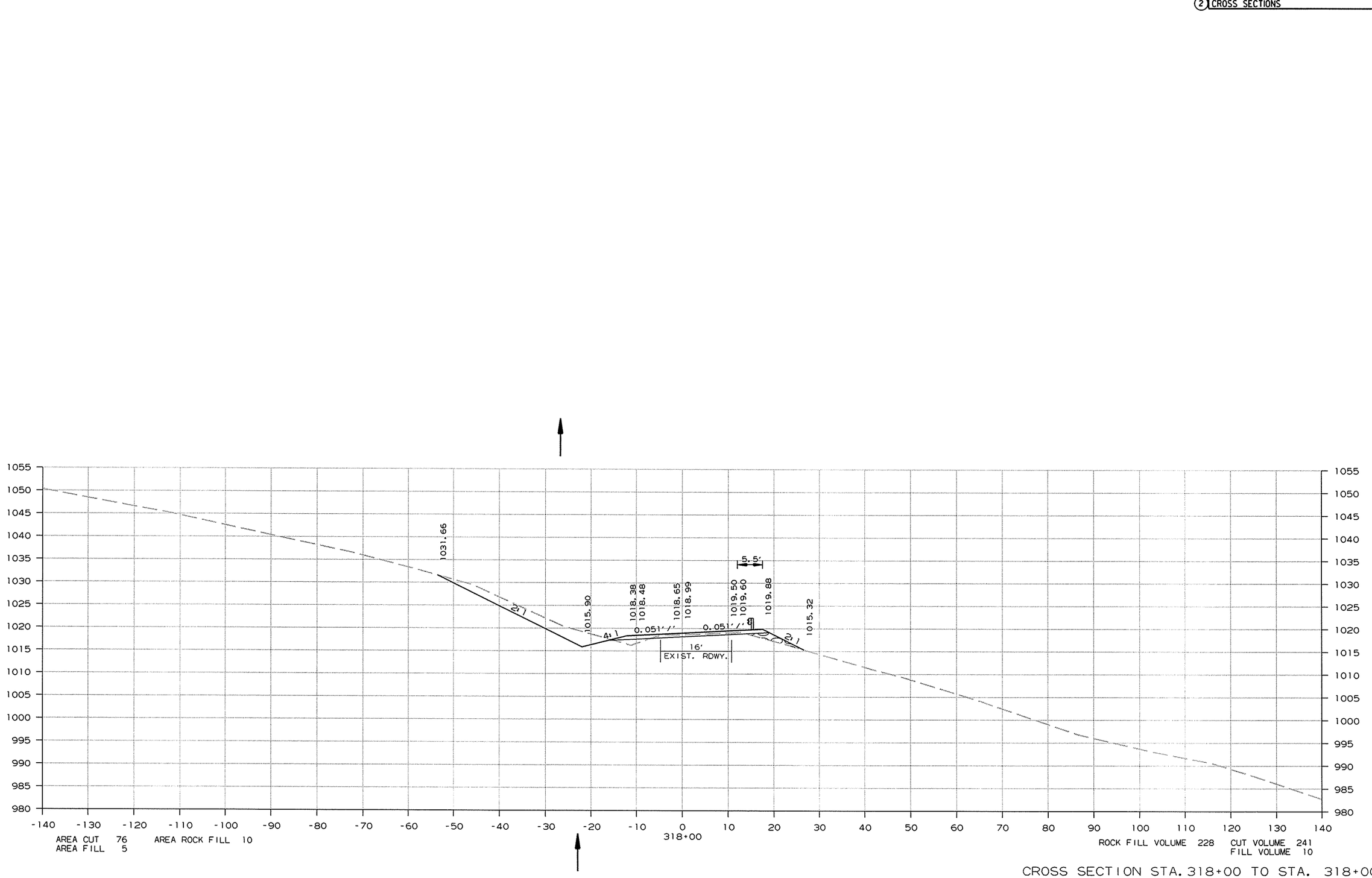
CROSS SECTION STA. 315+00 TO STA. 317+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	154	212

(2) CROSS SECTIONS



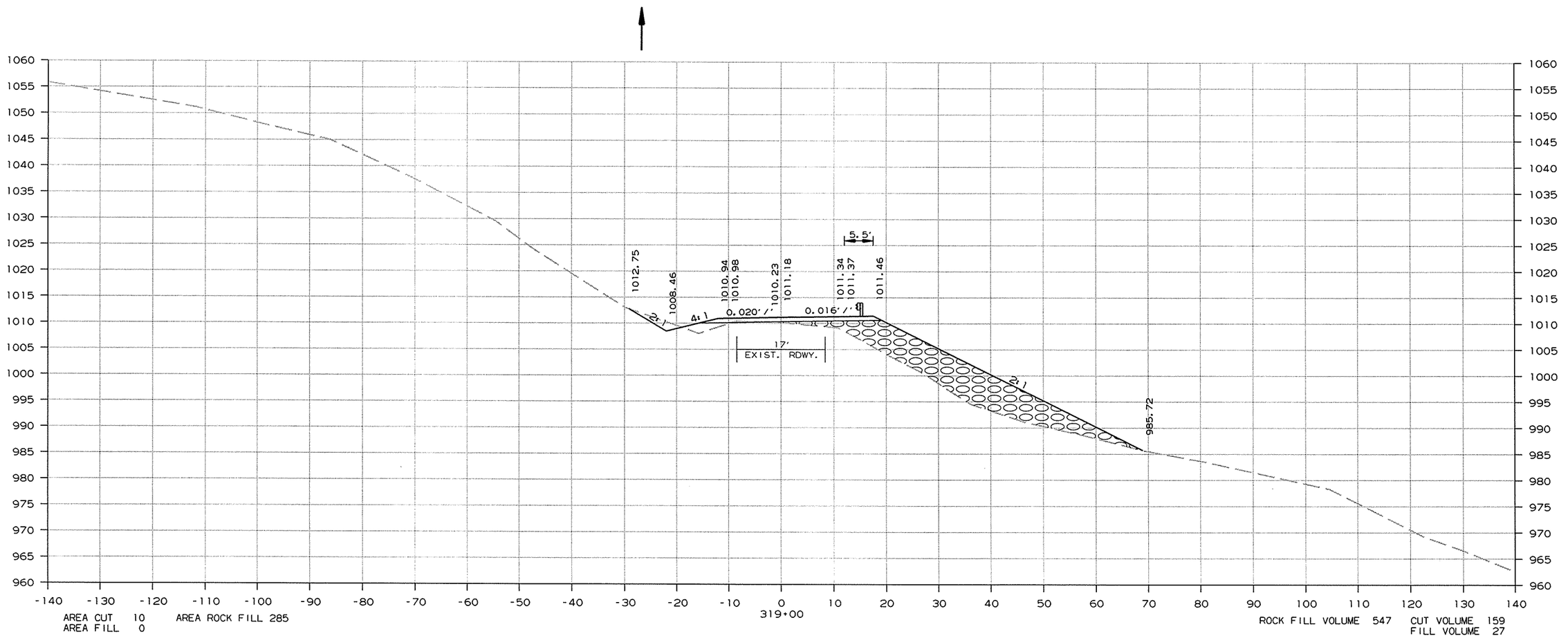
CROSS SECTION STA. 318+00 TO STA. 318+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	155	212

(2) CROSS SECTIONS



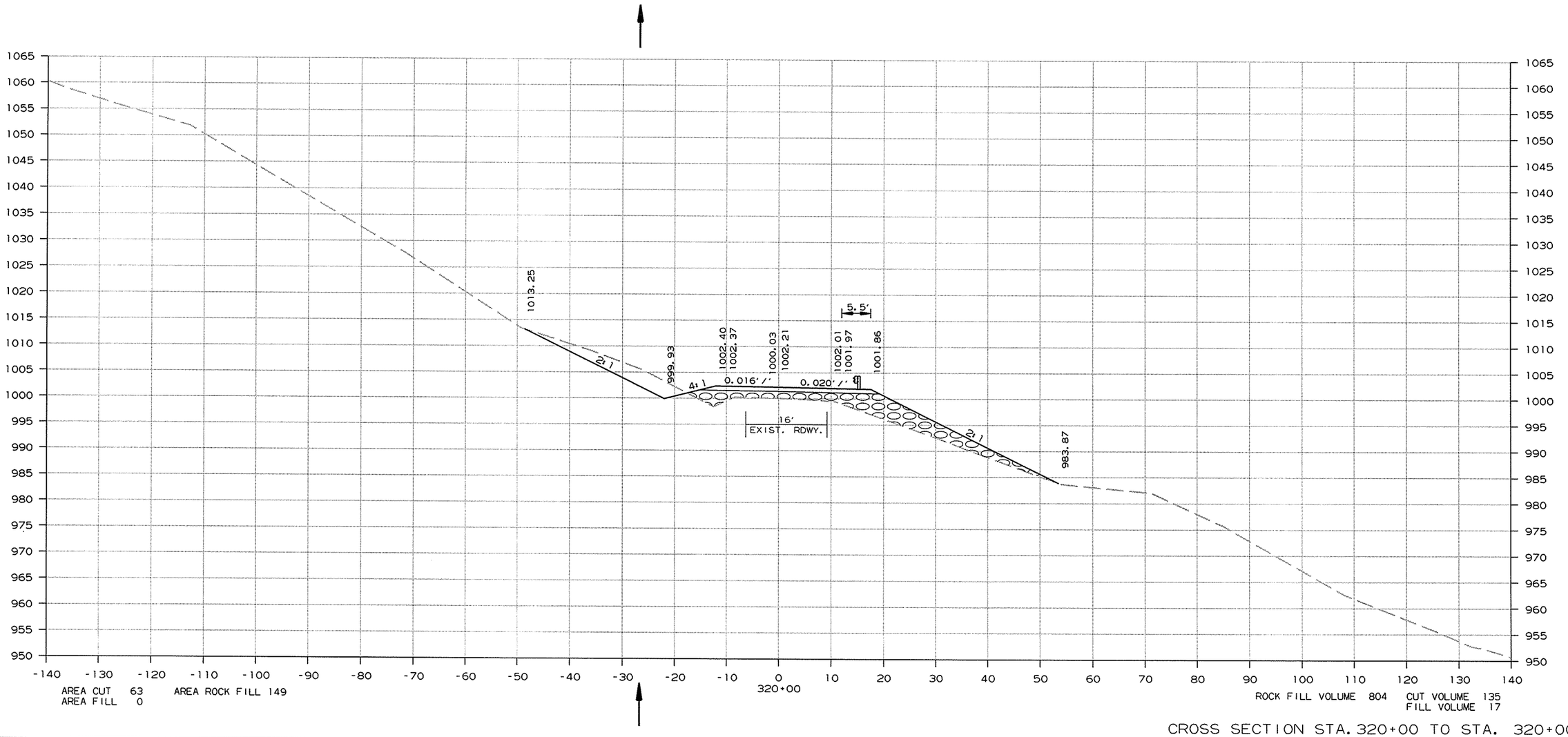
CROSS SECTION STA. 319+00 TO STA. 319+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	156	212

(2) CROSS SECTIONS



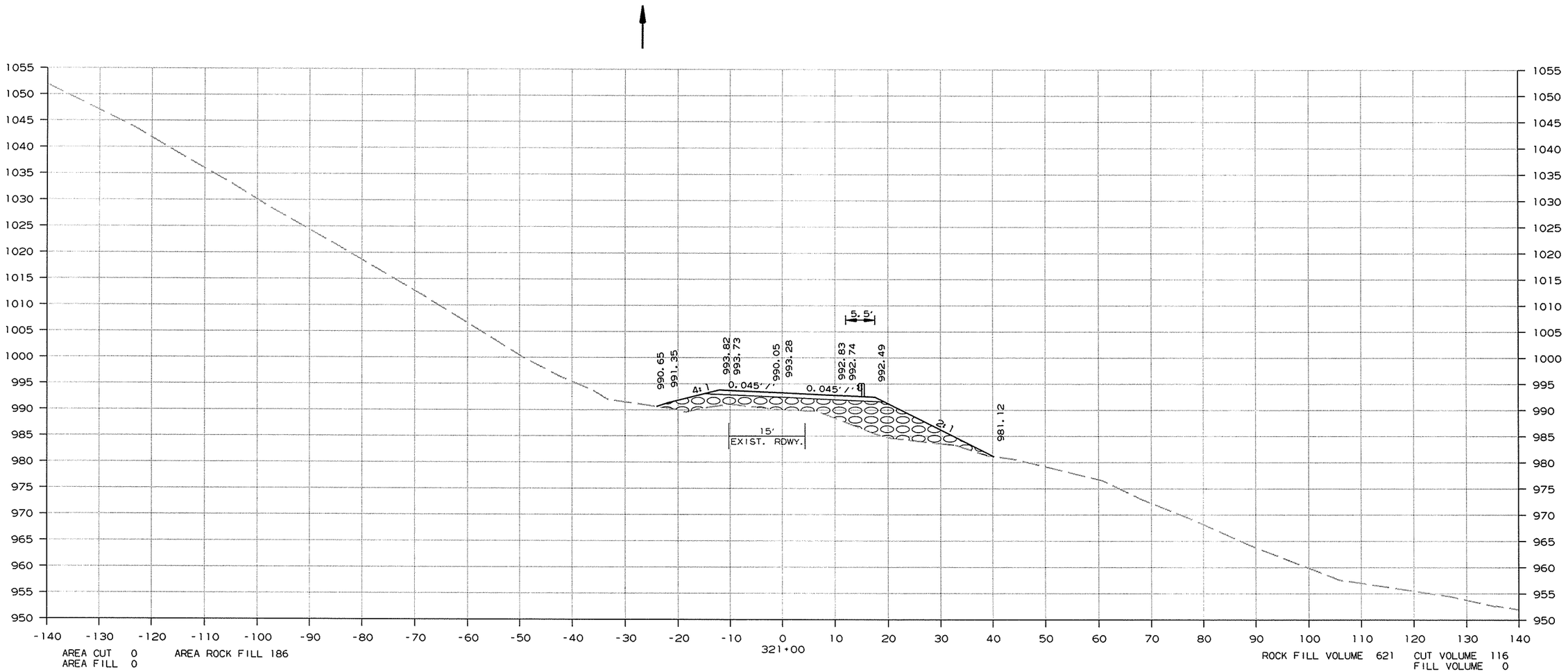
CROSS SECTION STA. 320+00 TO STA. 320+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	157	212

(2) CROSS SECTIONS



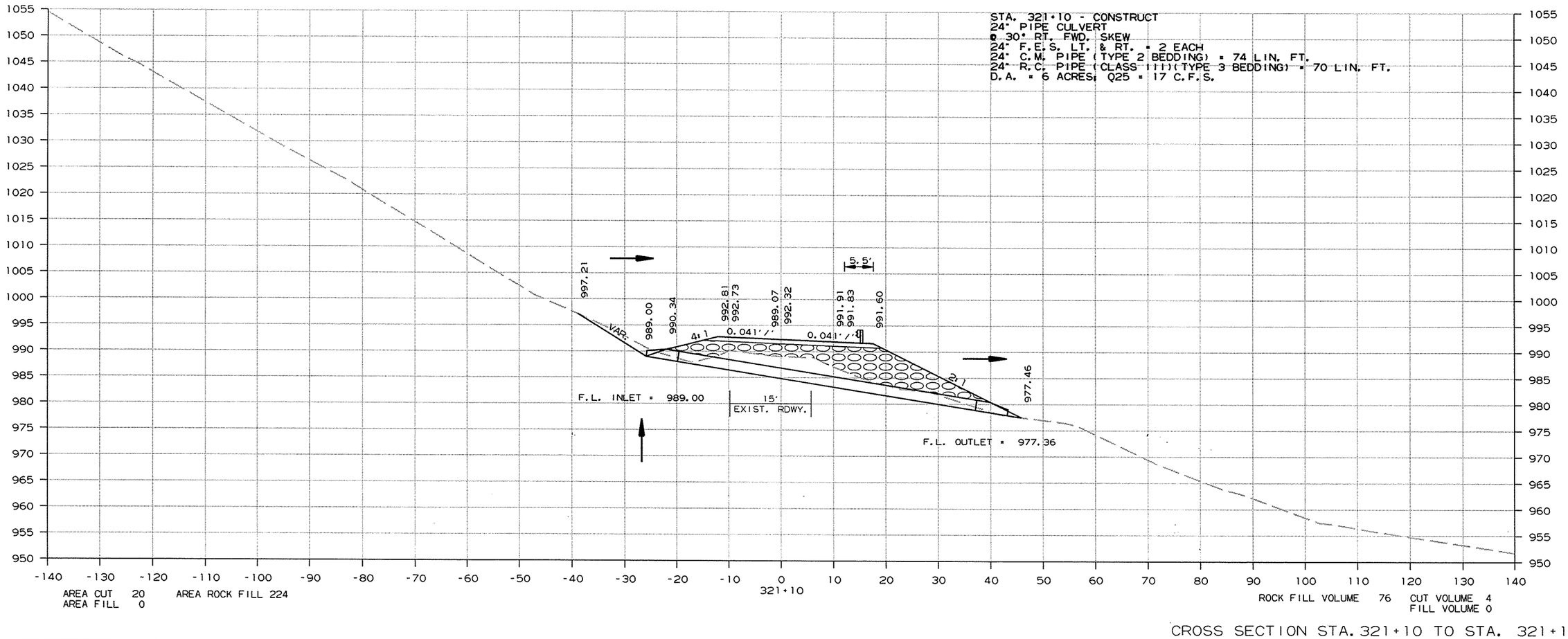
CROSS SECTION STA. 321+00 TO STA. 321+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	158	212

(2) CROSS SECTIONS



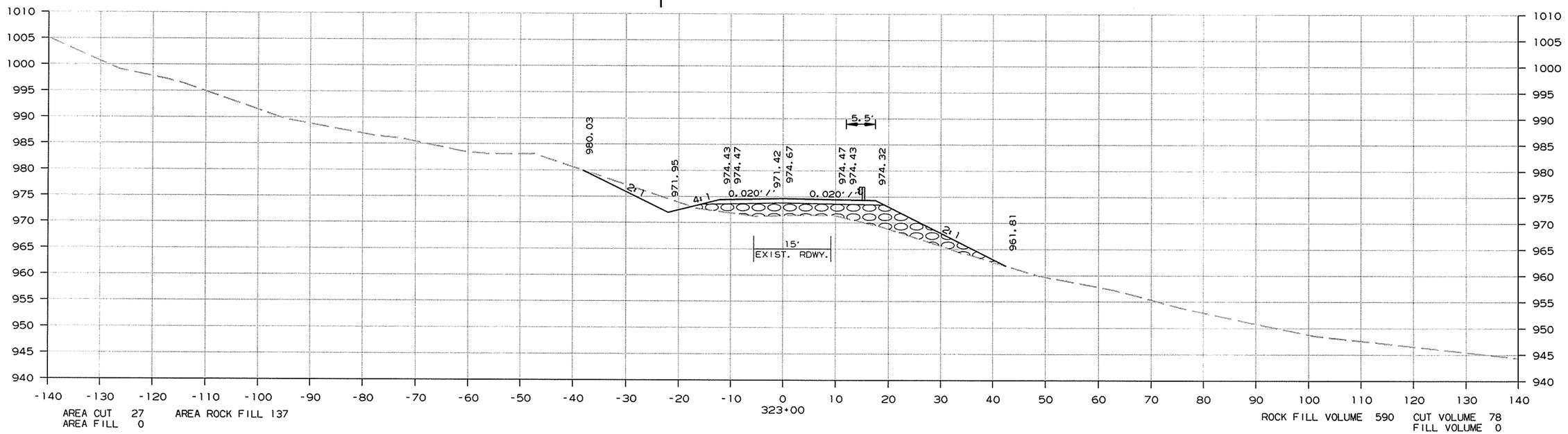
CROSS SECTION STA. 321+10 TO STA. 321+10

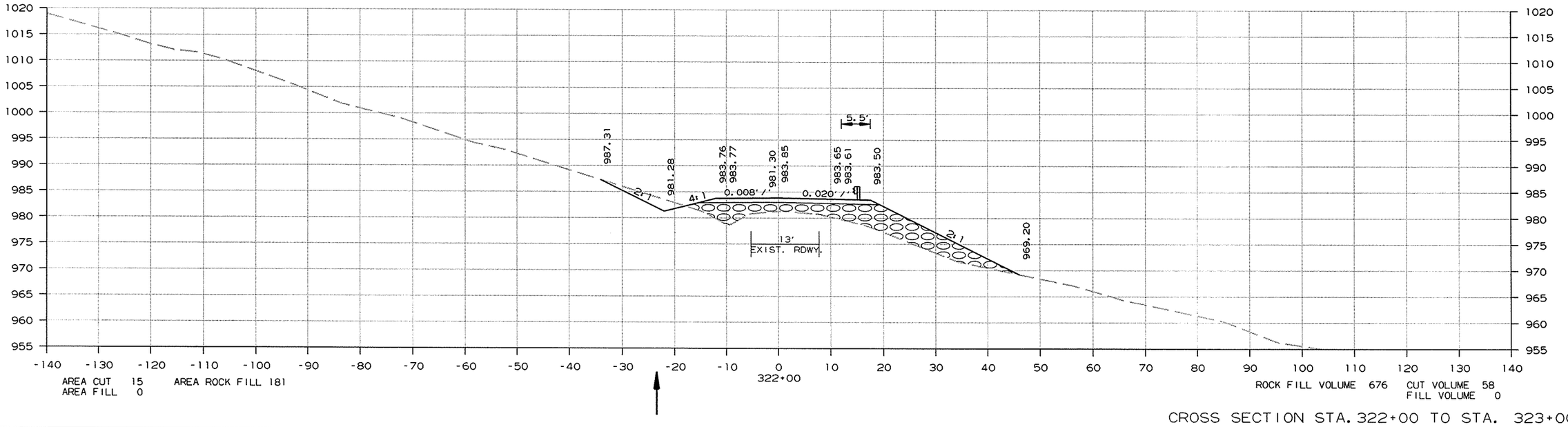
11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	159	212

(2) CROSS SECTIONS





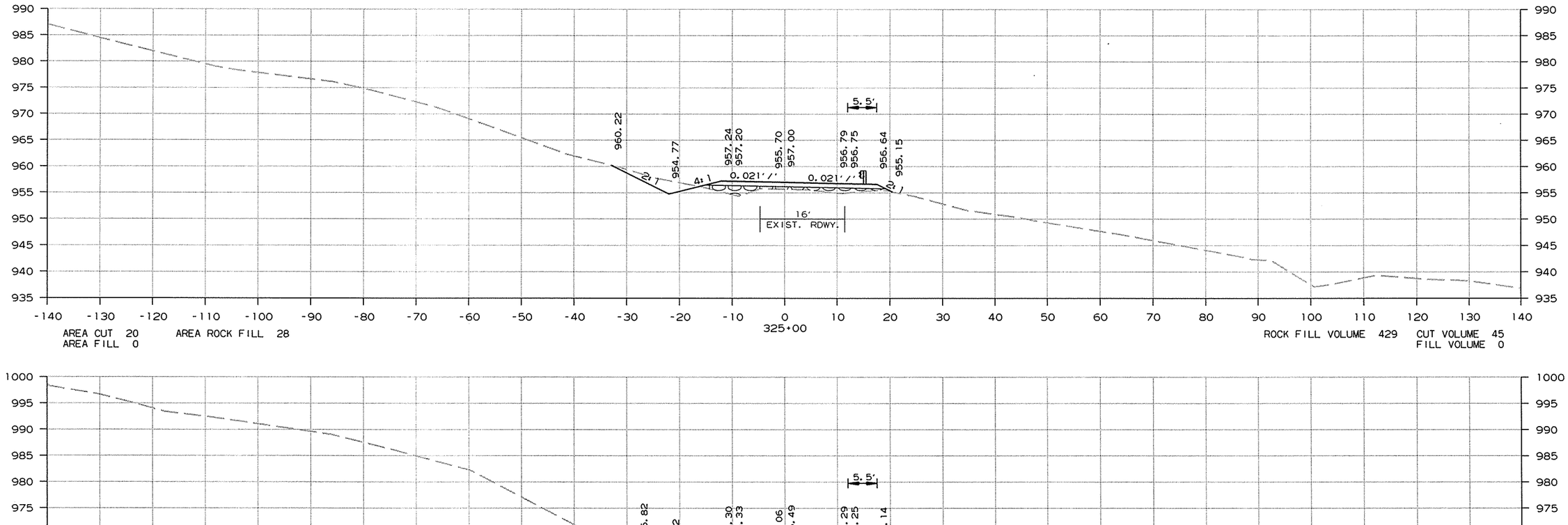
CROSS SECTION STA. 322+00 TO STA. 323+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	160	212

(2) CROSS SECTIONS



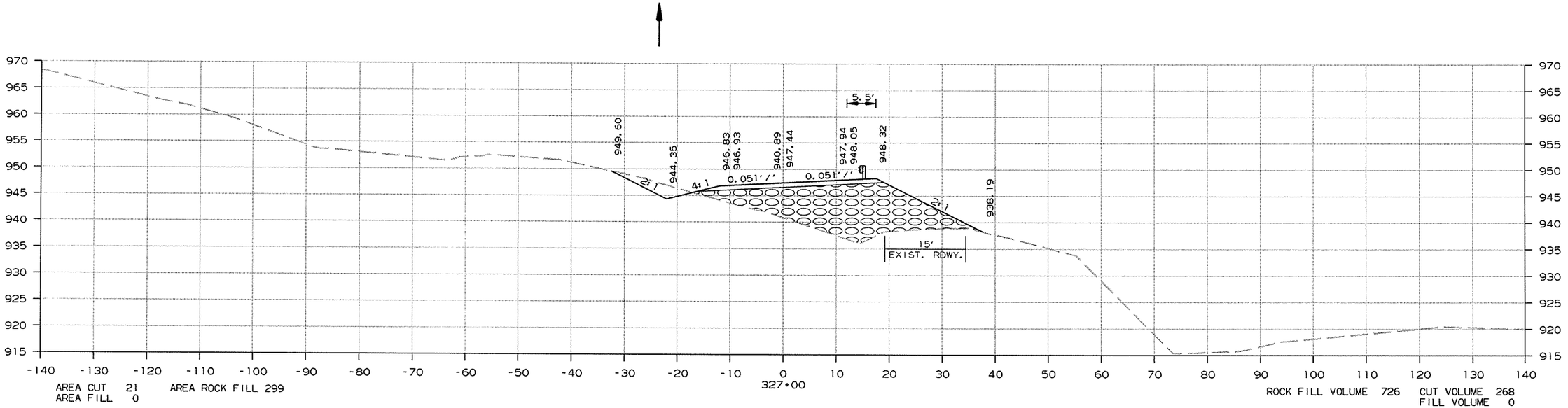
CROSS SECTION STA. 324+00 TO STA. 325+00

11/20/2015

R040207.DGN

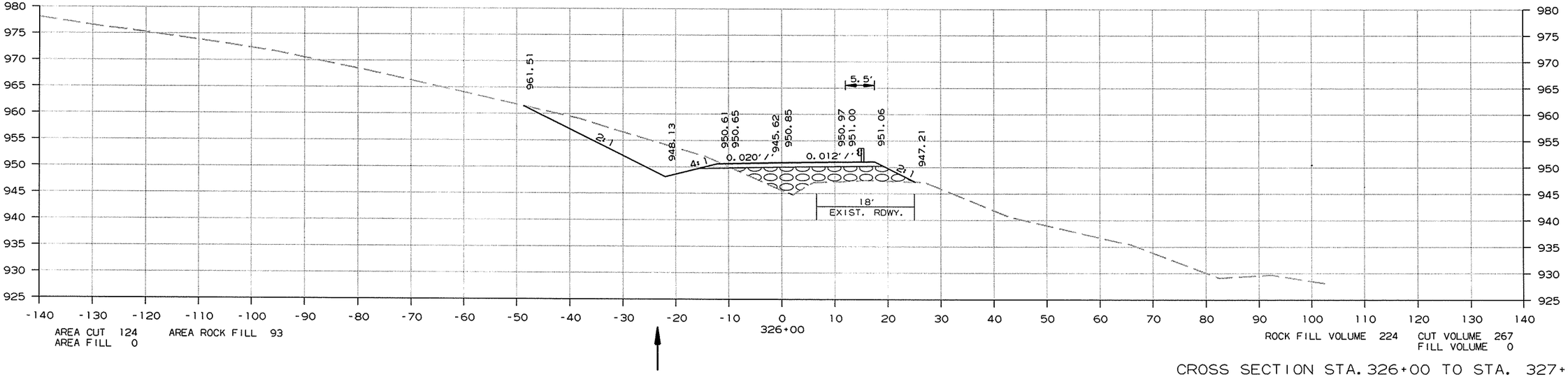
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	161	212

(2) CROSS SECTIONS



AREA CUT 21 AREA ROCK FILL 299
AREA FILL 0

ROCK FILL VOLUME 726 CUT VOLUME 268
FILL VOLUME 0



AREA CUT 124 AREA ROCK FILL 93
AREA FILL 0

ROCK FILL VOLUME 224 CUT VOLUME 267
FILL VOLUME 0

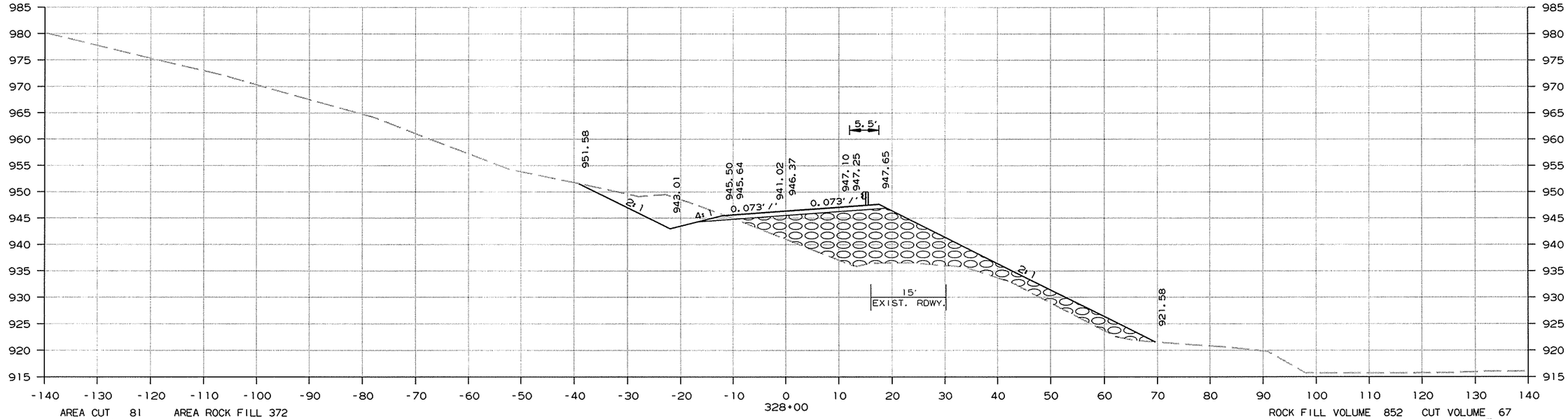
CROSS SECTION STA. 326+00 TO STA. 327+00

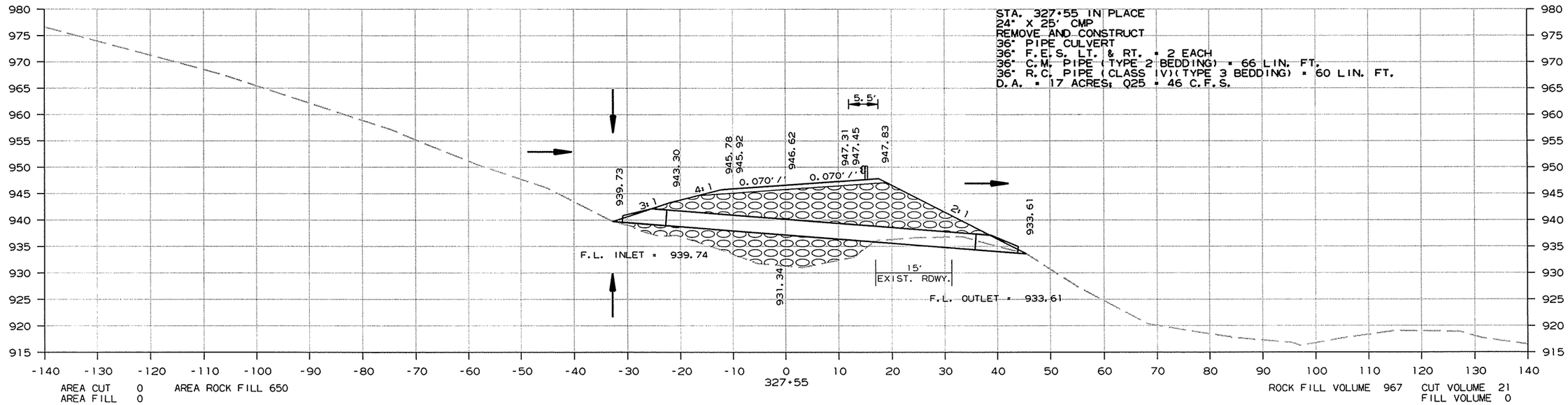
11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	162	212

(2) CROSS SECTIONS





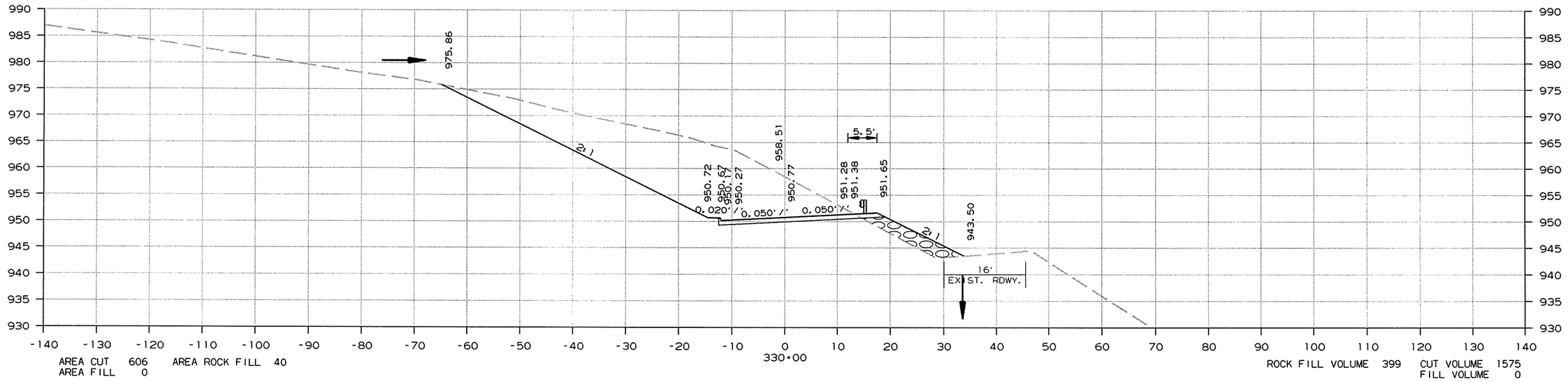
CROSS SECTION STA. 327+55 TO STA. 328+00

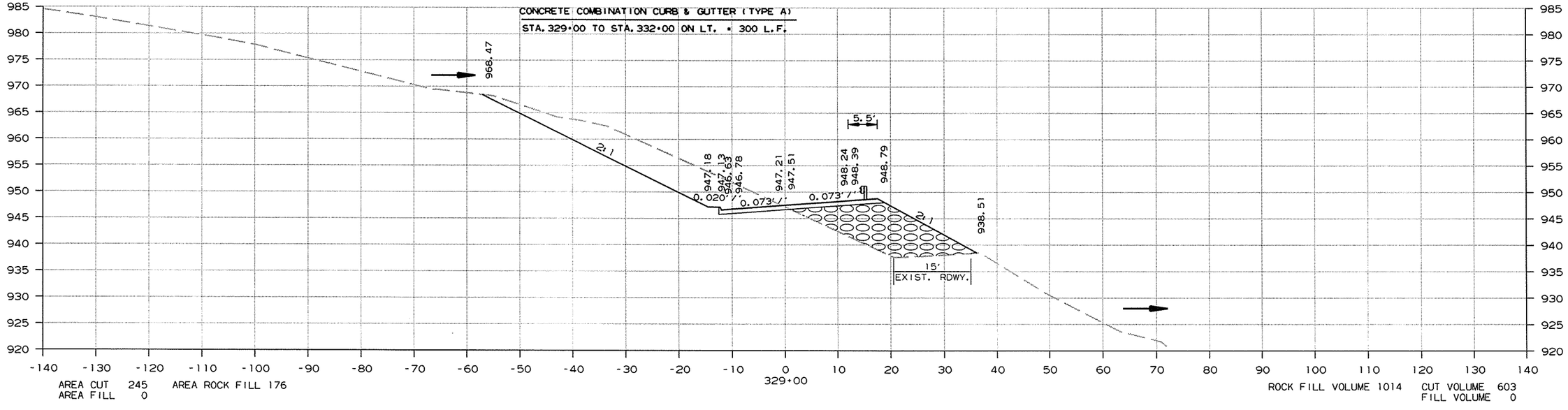
11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	163	212

(2) CROSS SECTIONS





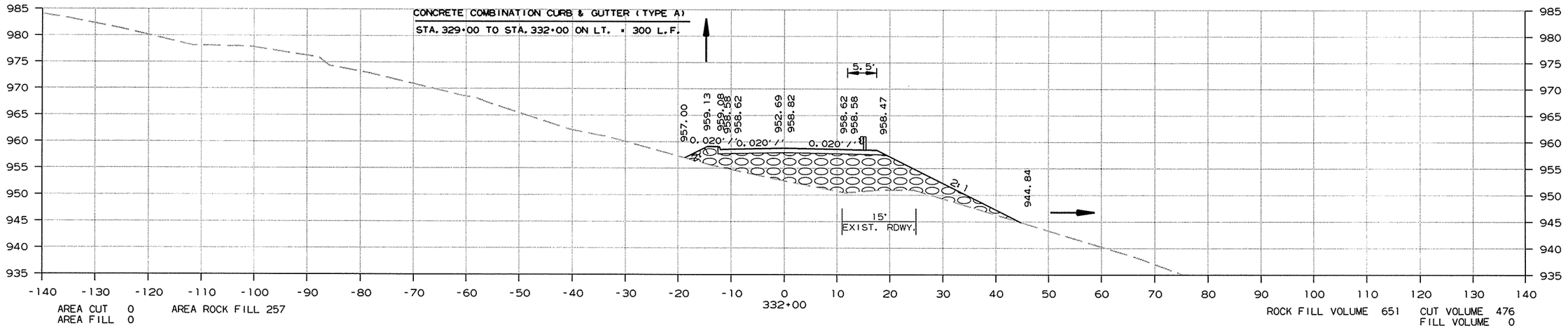
CROSS SECTION STA. 329+00 TO STA. 330+00

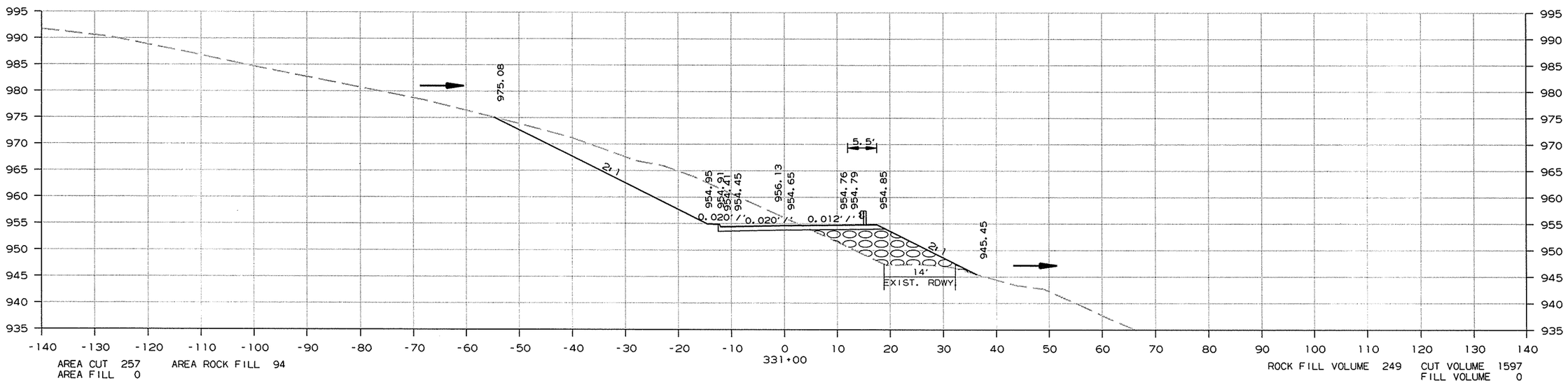
11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	164	212

(2) CROSS SECTIONS





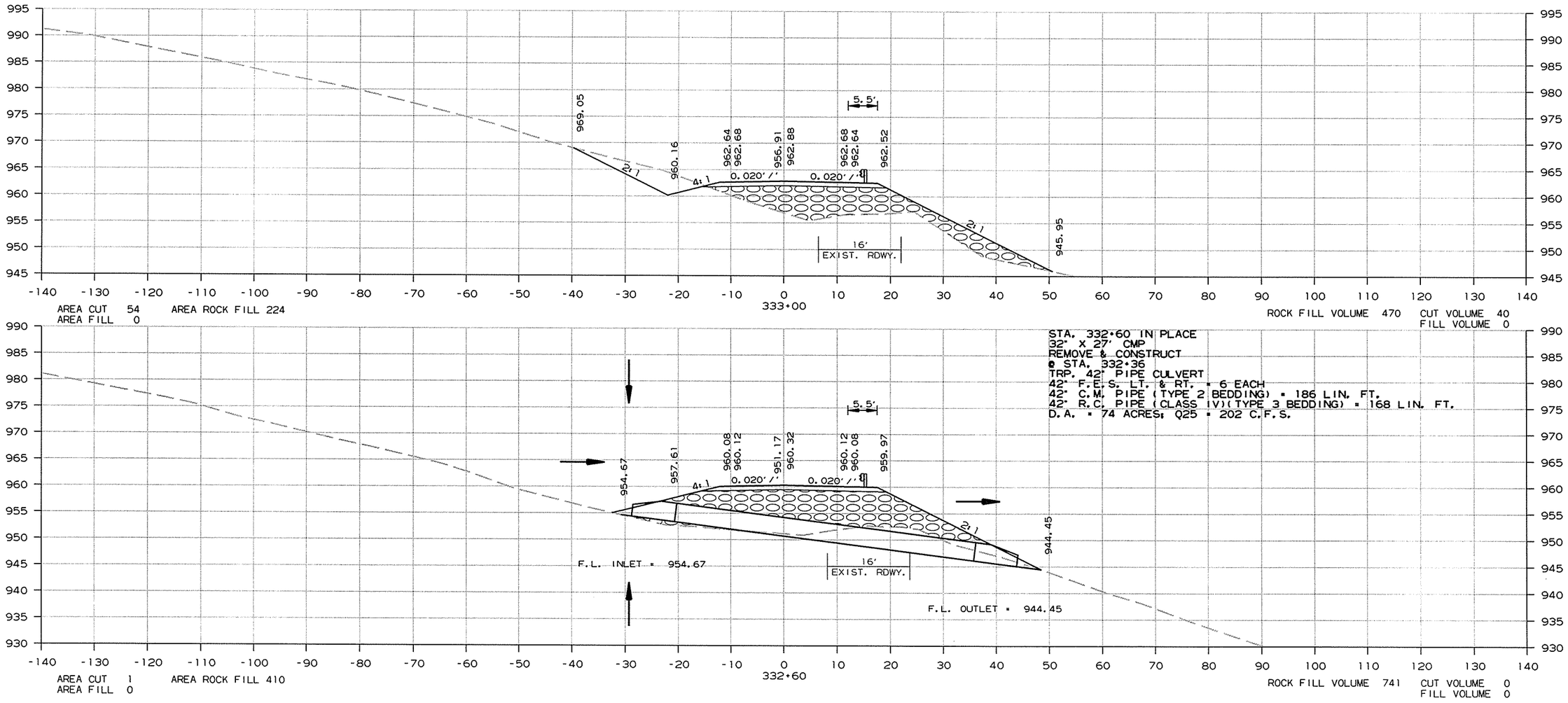
CROSS SECTION STA. 331+00 TO STA. 332+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	165	212

(2) CROSS SECTIONS



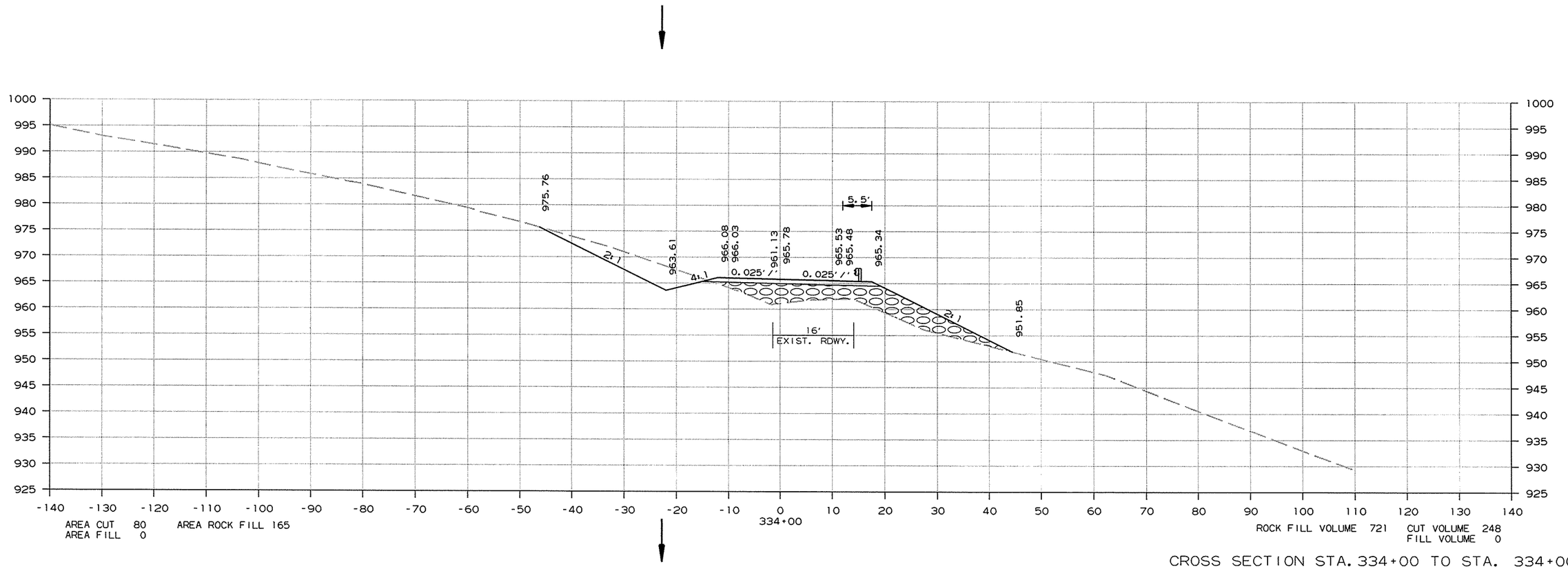
CROSS SECTION STA. 332+36 TO STA. 333+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	166	212

(2) CROSS SECTIONS



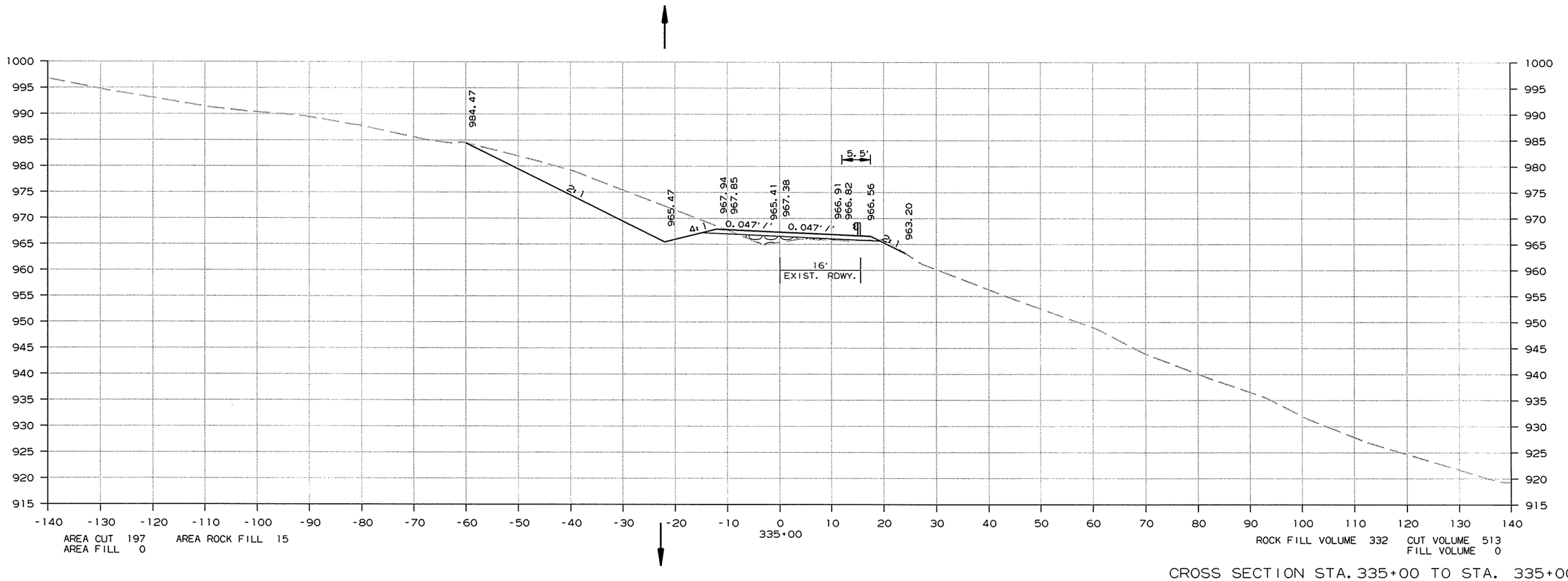
CROSS SECTION STA. 334+00 TO STA. 334+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	167	212

(2) CROSS SECTIONS



AREA CUT 197 AREA ROCK FILL 15
AREA FILL 0

ROCK FILL VOLUME 332 CUT VOLUME 513
FILL VOLUME 0

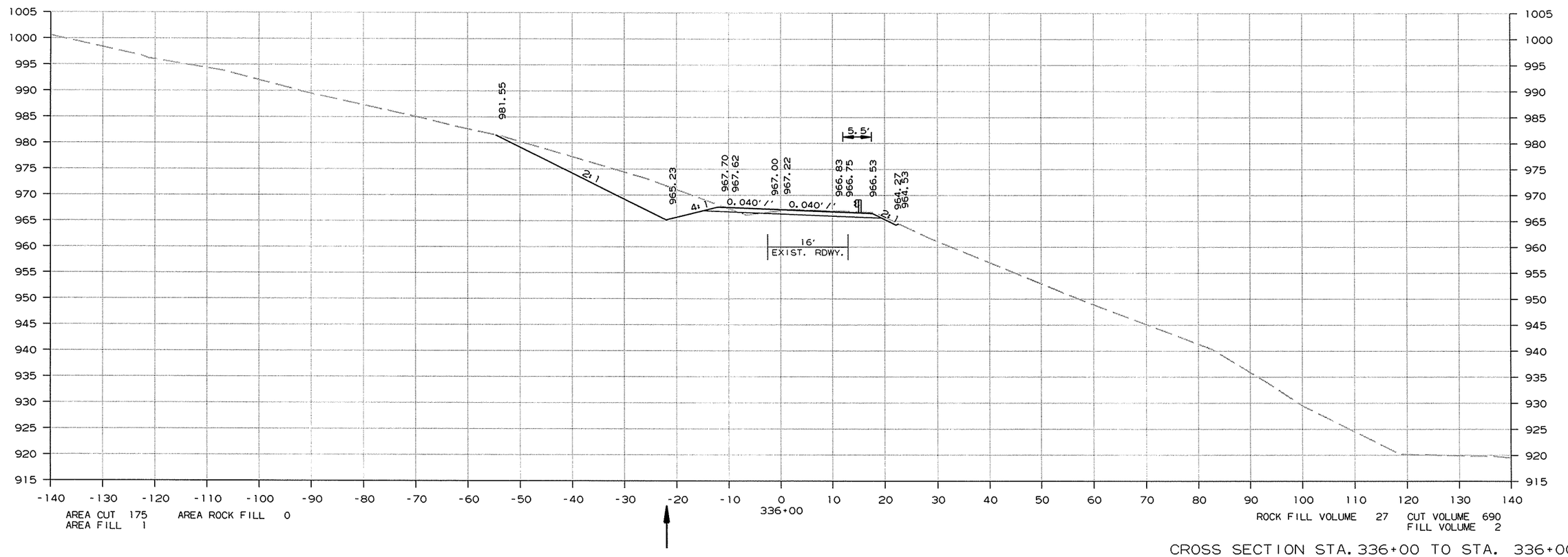
CROSS SECTION STA. 335+00 TO STA. 335+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	168	212

(2) CROSS SECTIONS



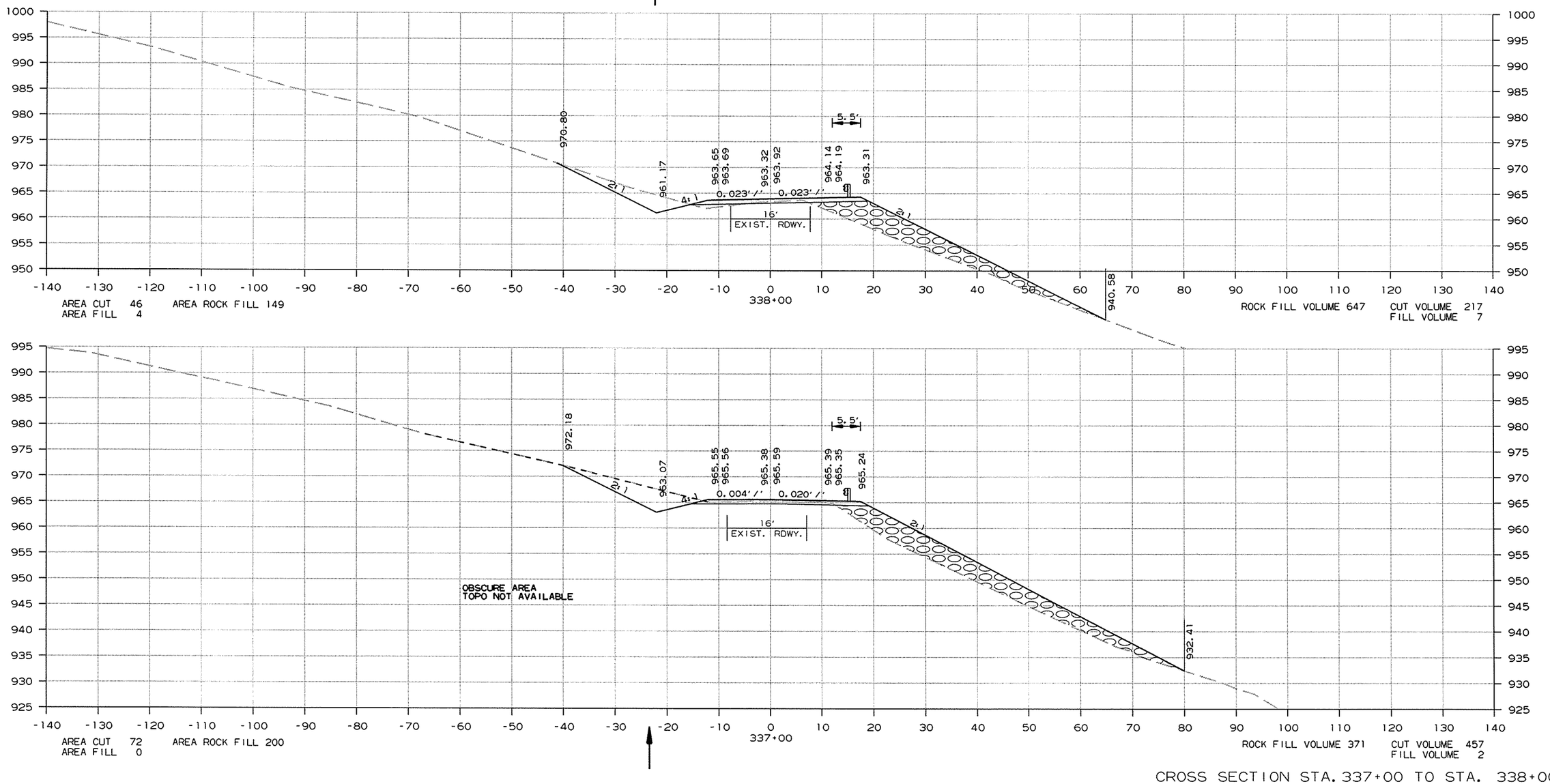
CROSS SECTION STA. 336+00 TO STA. 336+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	169	212

(2) CROSS SECTIONS



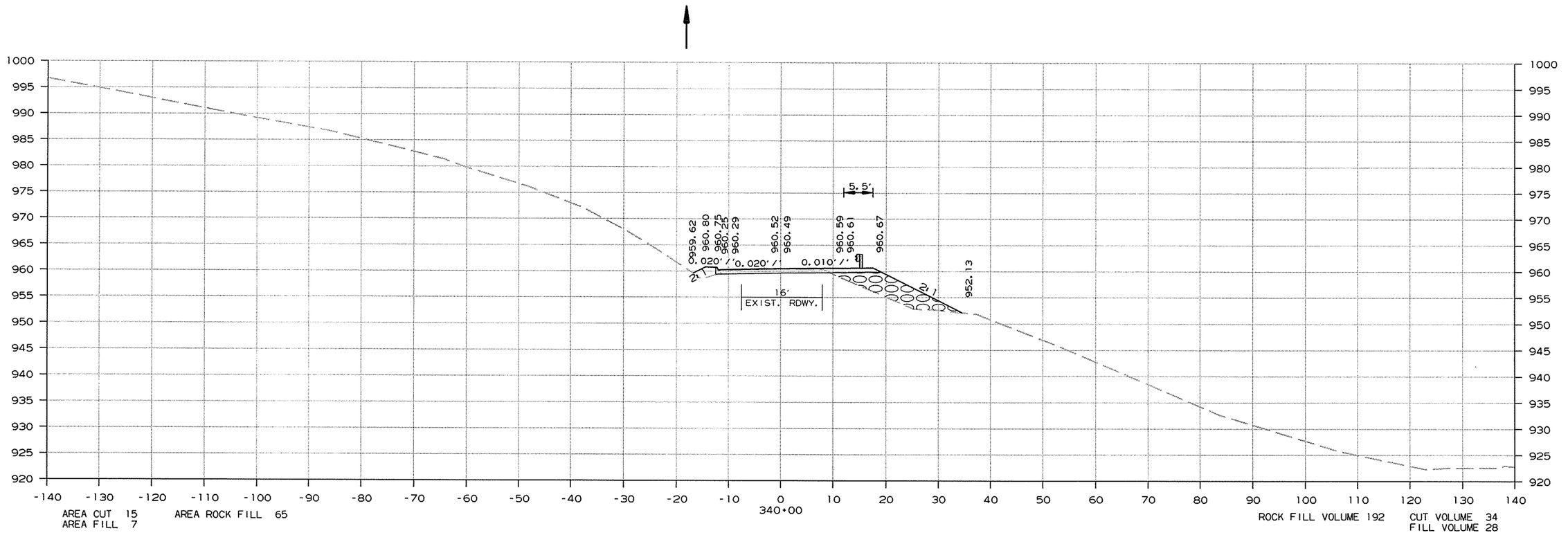
CROSS SECTION STA. 337+00 TO STA. 338+00

11/20/2015

R040207.DGN

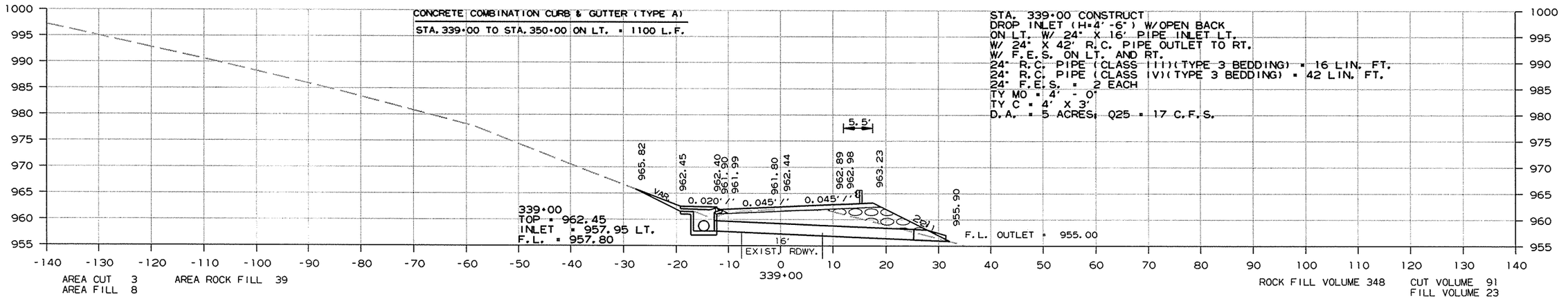
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	170	212

(2) CROSS SECTIONS



CONCRETE COMBINATION CURB & GUTTER (TYPE A)
STA. 339+00 TO STA. 350+00 ON LT. = 1100 L.F.

STA. 339+00 CONSTRUCT
DROP INLET (H=4'-6") W/OPEN BACK
ON LT. W/ 24" X 16' PIPE INLET LT.
W/ 24" X 42' R.C. PIPE OUTLET TO RT.
W/ F.E.S. ON LT. AND RT.
24" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 16 LIN. FT.
24" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 42 LIN. FT.
24" F.E.S. = 2 EACH
TY M0 = 4' - 0"
TY C = 4' X 3'
D.A. = 5 ACRES, Q25 = 17 C.F.S.



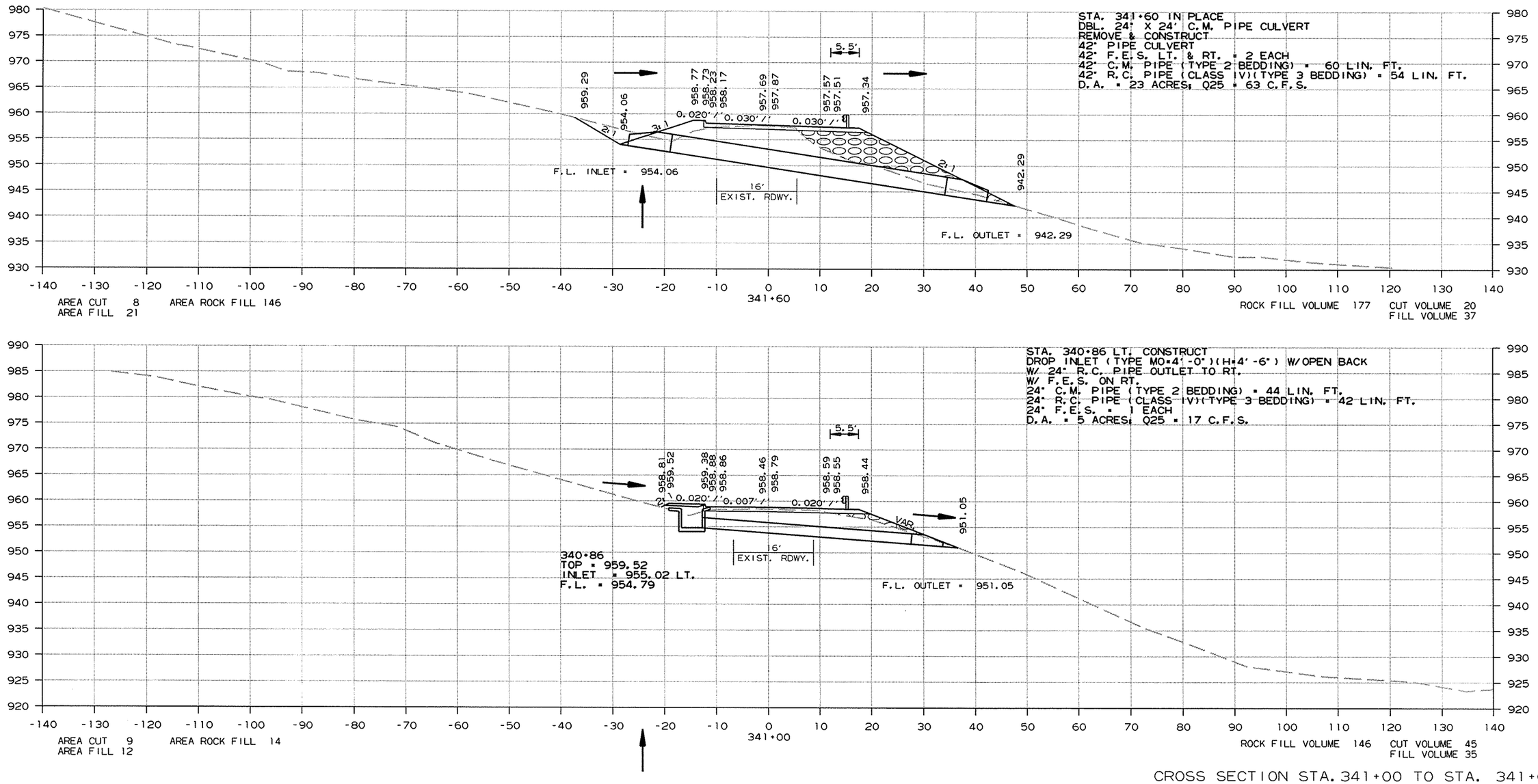
CROSS SECTION STA. 339+00 TO STA. 340+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	171	212

(2) CROSS SECTIONS



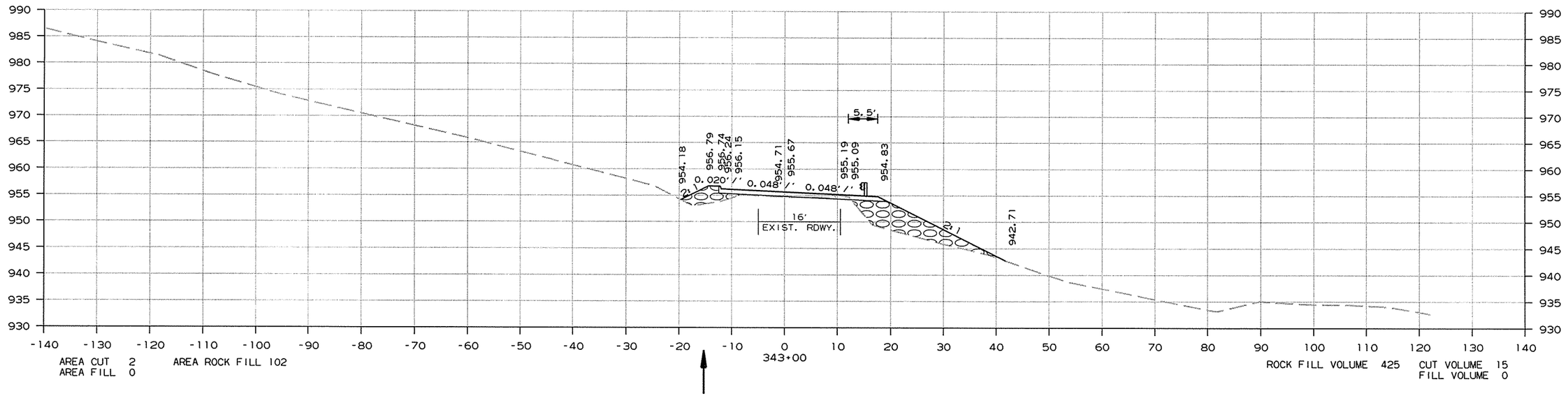
CROSS SECTION STA. 341+00 TO STA. 341+60

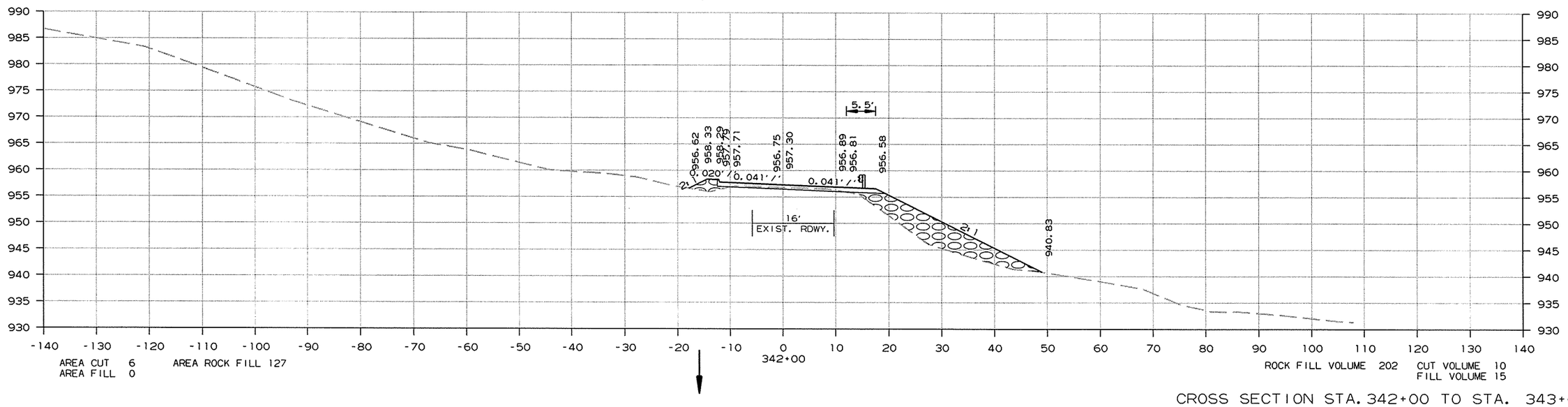
11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	172	212

(2) CROSS SECTIONS





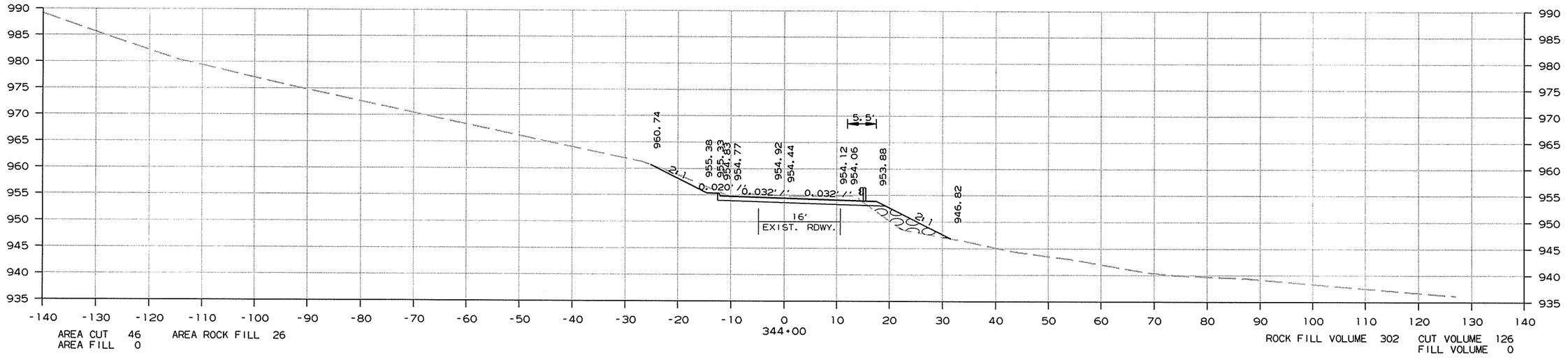
CROSS SECTION STA. 342+00 TO STA. 343+00

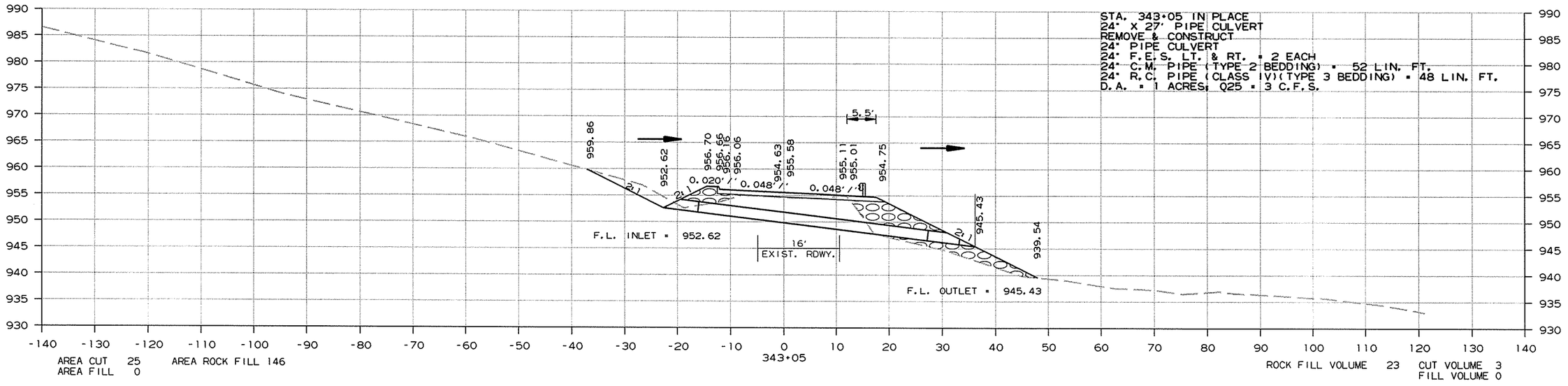
11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	173	212

(2) CROSS SECTIONS





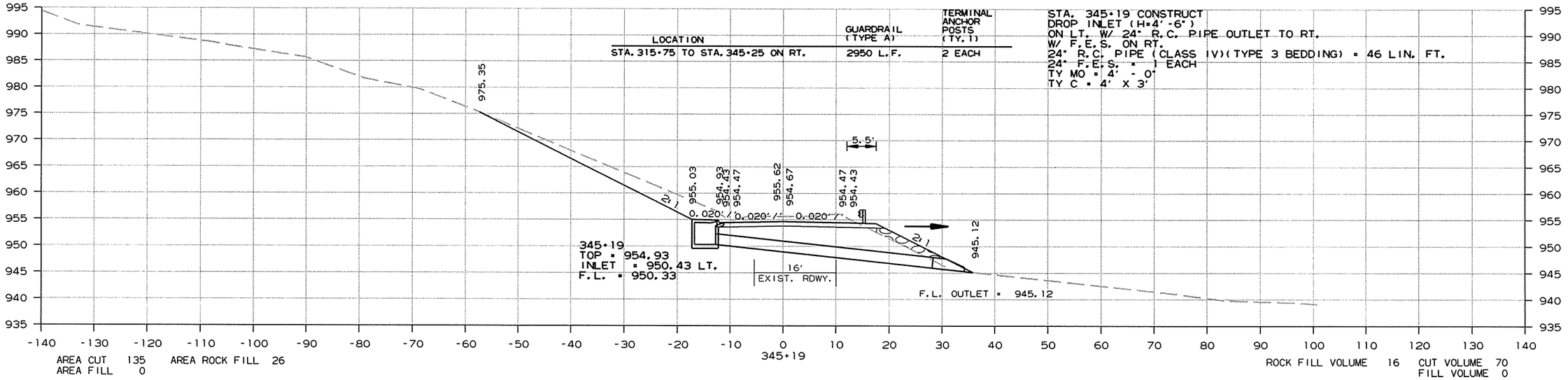
CROSS SECTION STA. 343+05 TO STA. 344+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	174	212

(2) CROSS SECTIONS



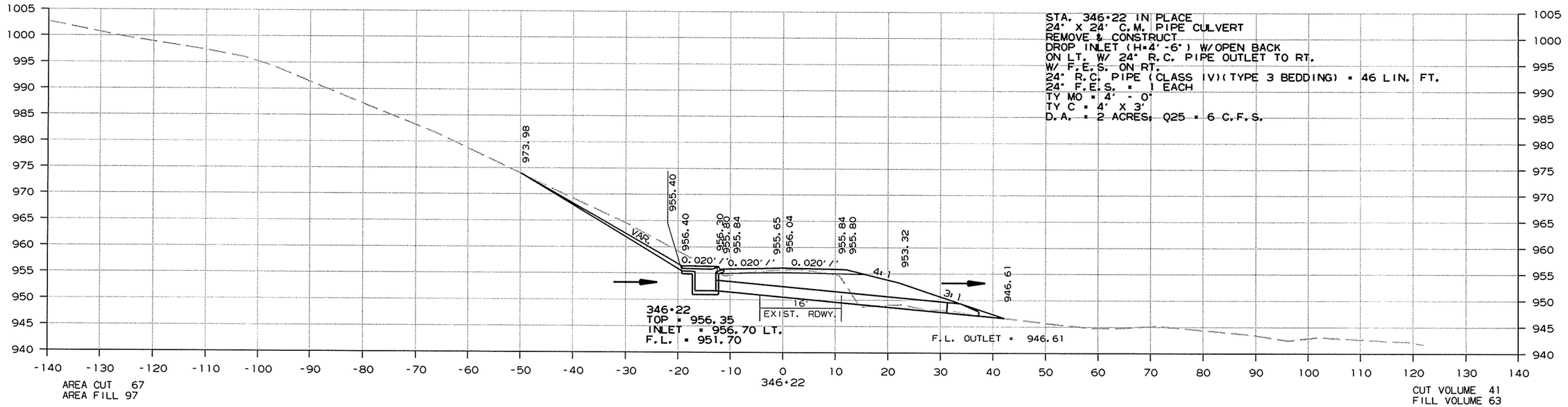
CROSS SECTION STA. 345+00 TO STA. 345+19

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	175	212

(2) CROSS SECTIONS



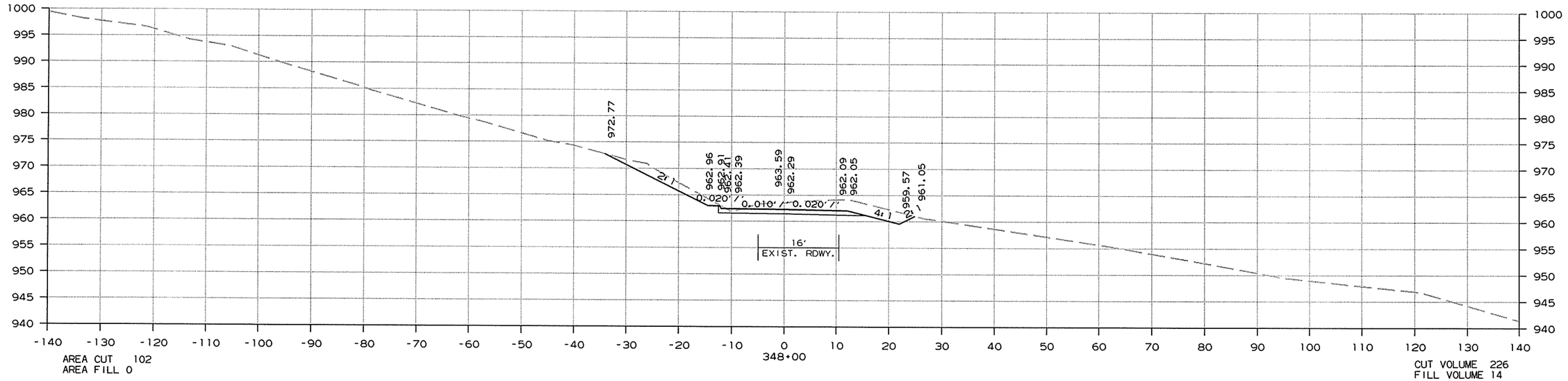
CROSS SECTION STA. 346+00 TO STA. 346+22

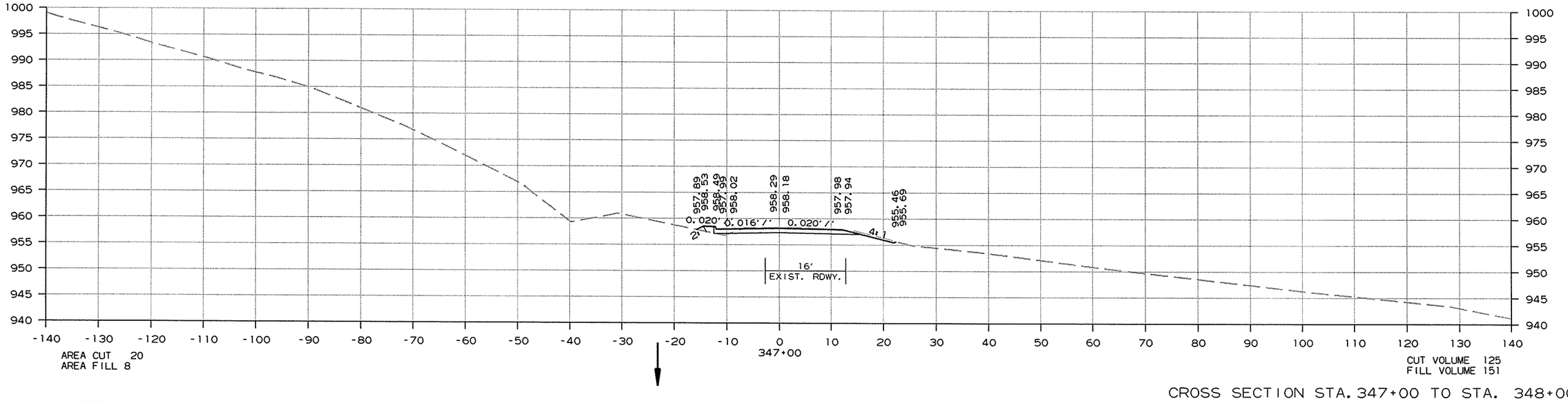
11/20/2015

R040207.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.		040207	176	212

(2) CROSS SECTIONS





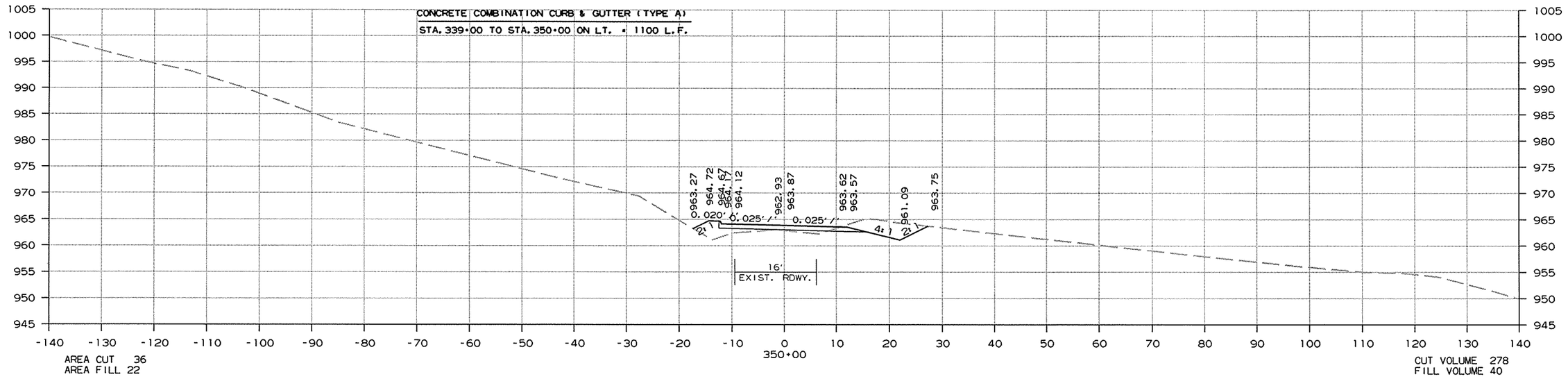
CROSS SECTION STA. 347+00 TO STA. 348+00

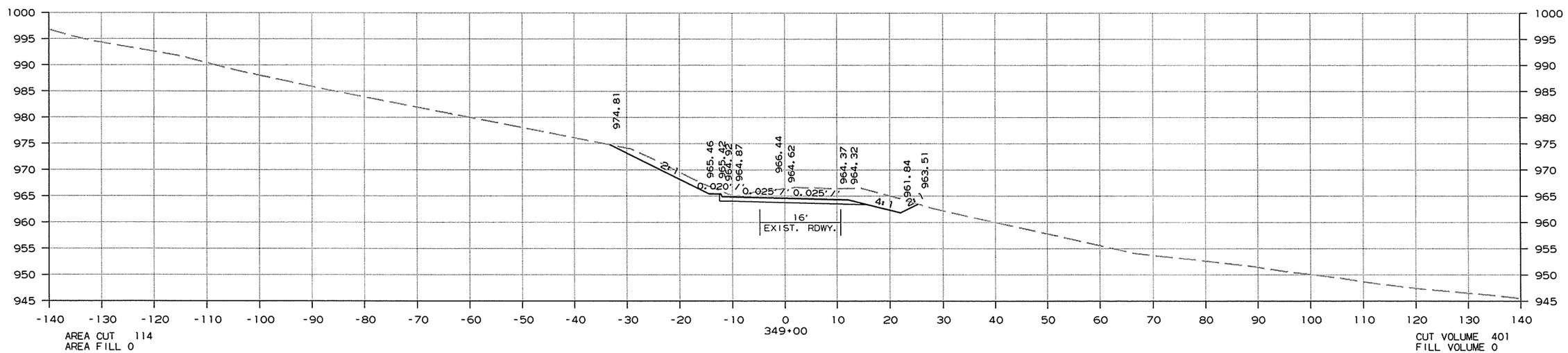
10/29/2015

R040207.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.		040207	177	212

(2) CROSS SECTIONS





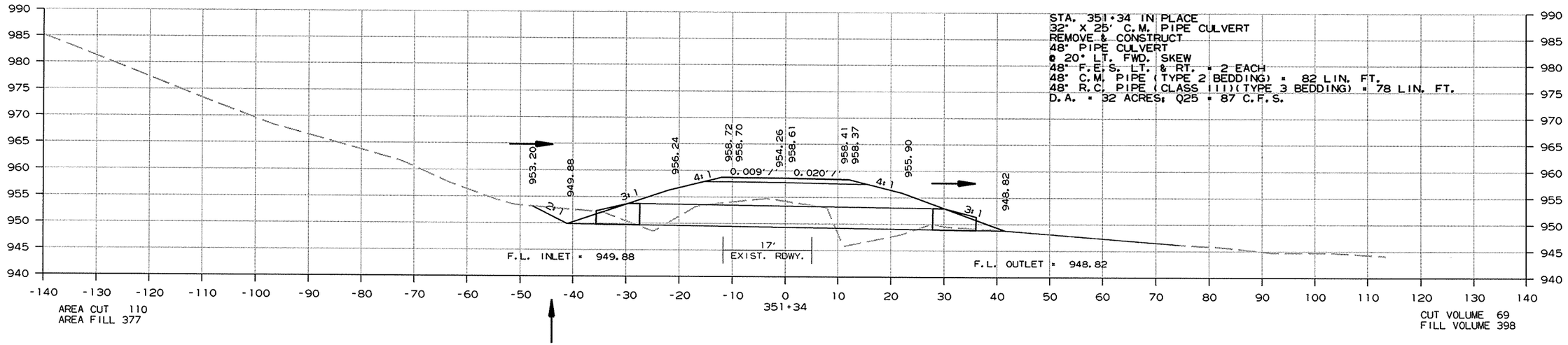
CROSS SECTION STA. 349+00 TO STA. 350+00

10/29/2015

R040207.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.		040207	178	212

(2) CROSS SECTIONS



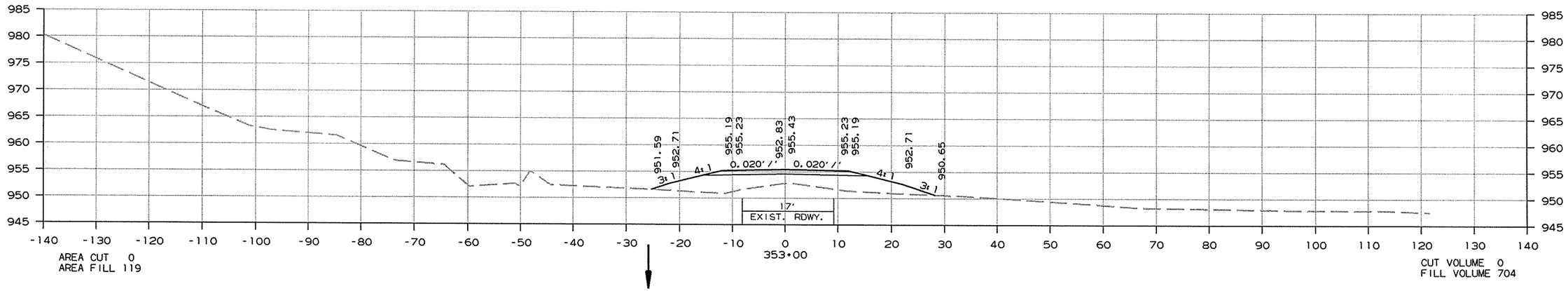
CROSS SECTION STA. 351+00 TO STA. 351+34

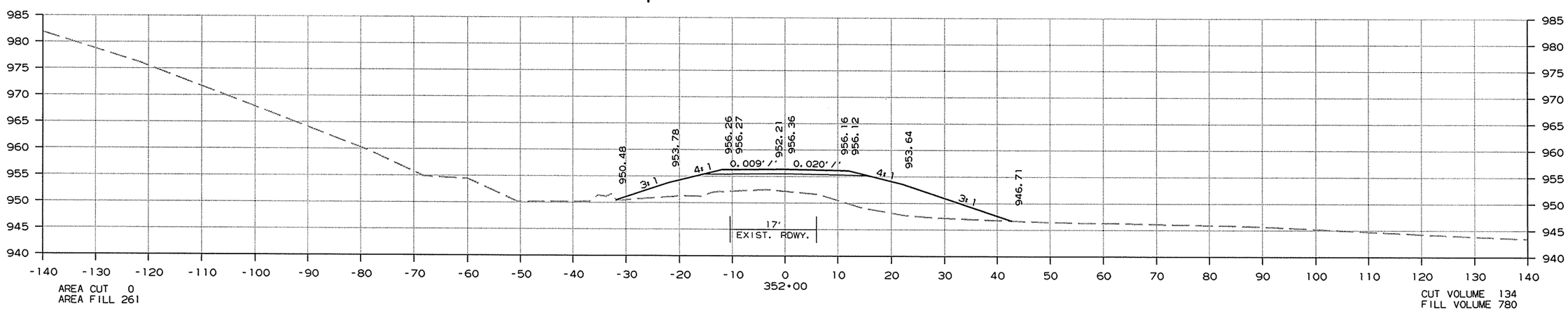
10/29/2015

R040207.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.		040207	179	212

(2) CROSS SECTIONS





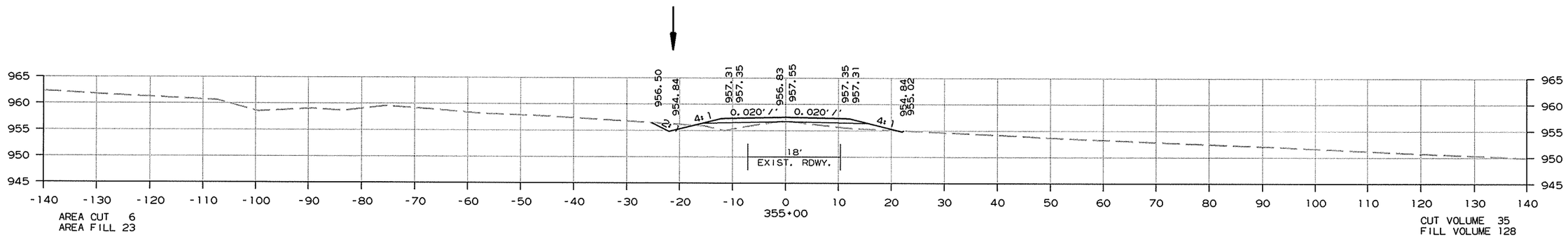
CROSS SECTION STA. 352+00 TO STA. 353+00

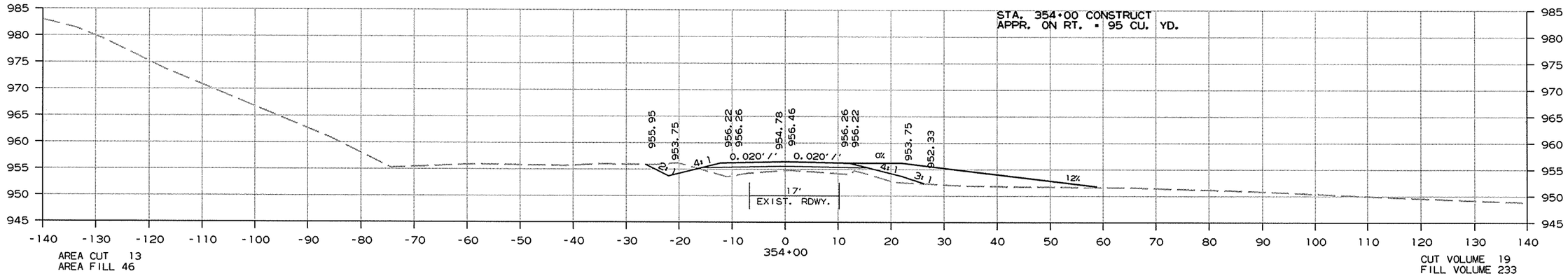
10/29/2015

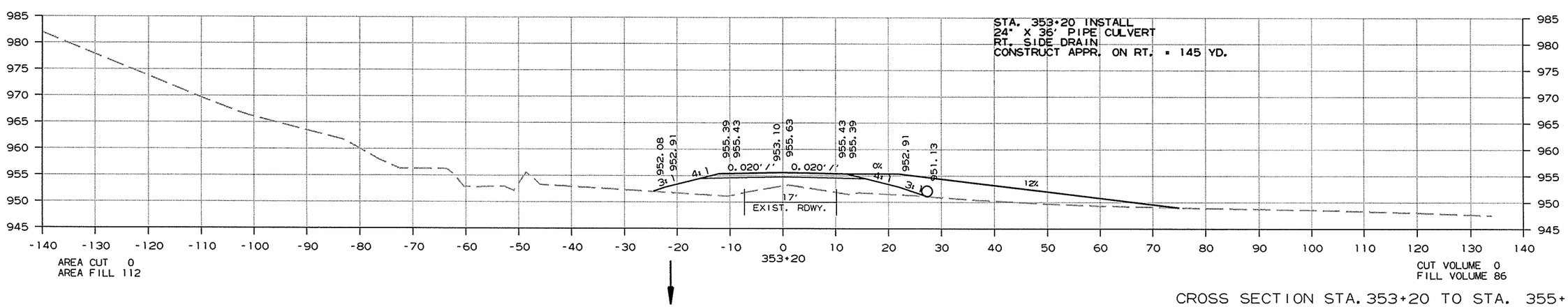
R040207.DGN

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.		040207	180	212

(2) CROSS SECTIONS







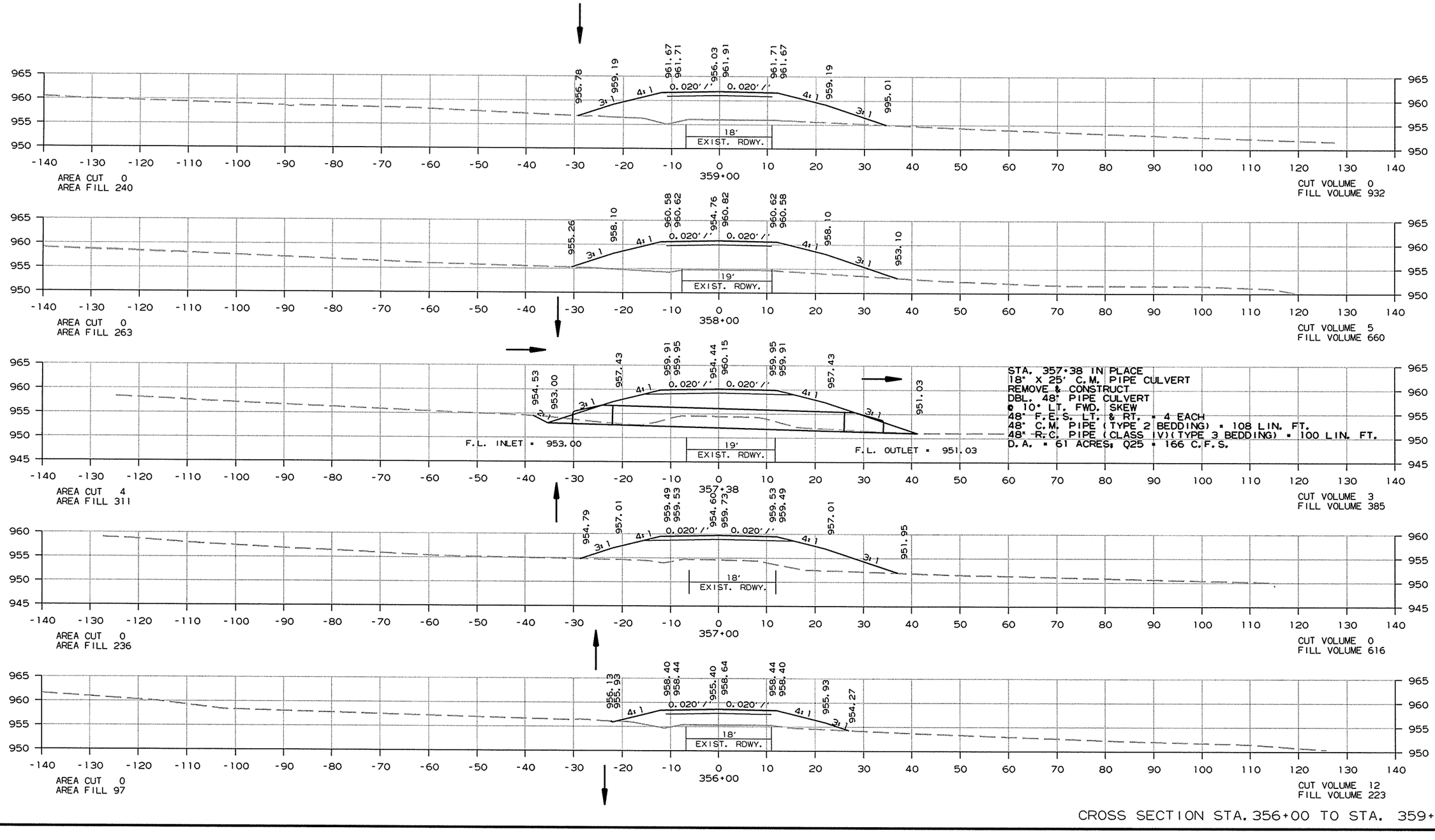
CROSS SECTION STA. 353+20 TO STA. 355+00

10/29/2015

R040207.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.		040207	181	212

(2) CROSS SECTIONS



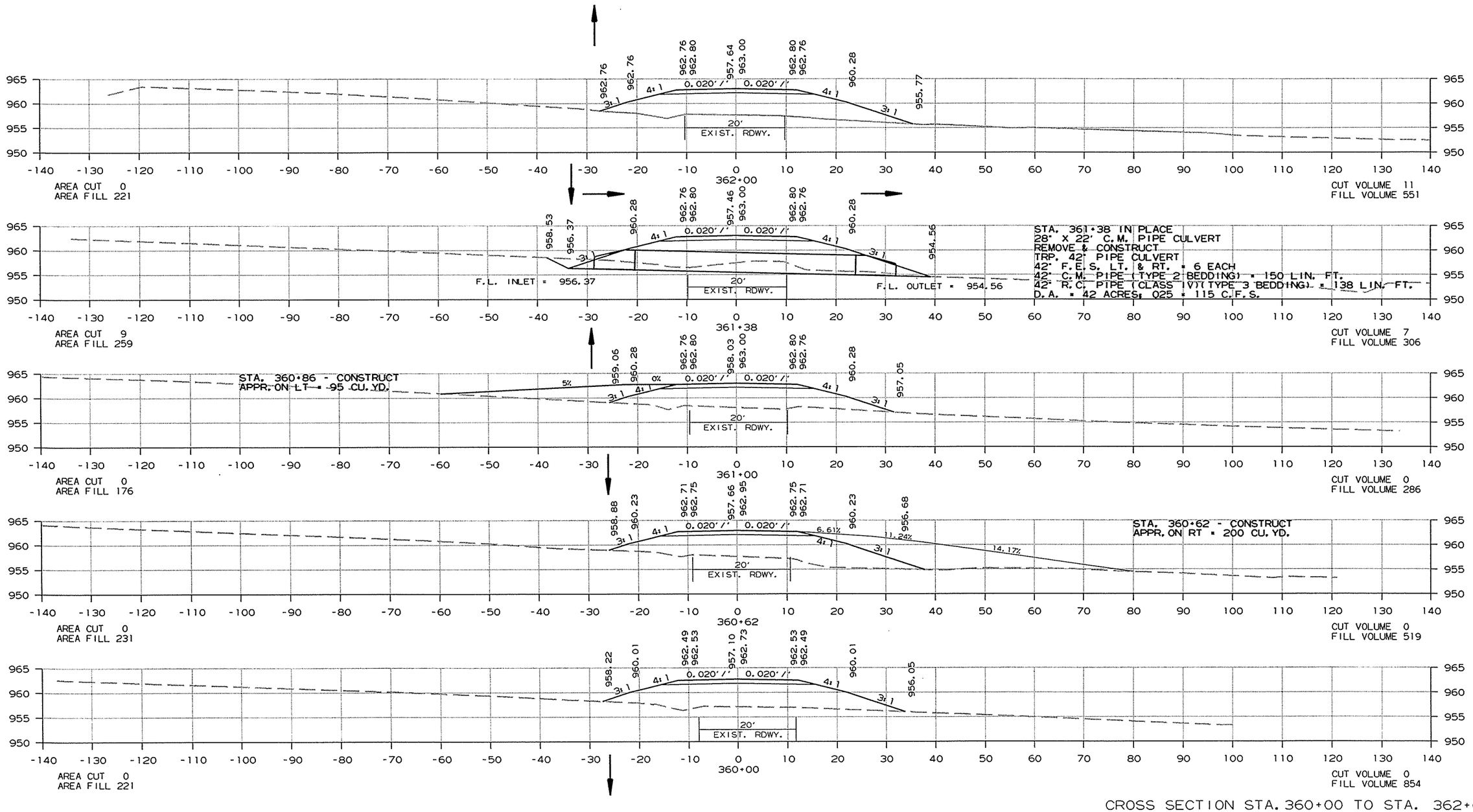
CROSS SECTION STA. 356+00 TO STA. 359+00

10/29/2015

R040207.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.		040207	182	212

(2) CROSS SECTIONS

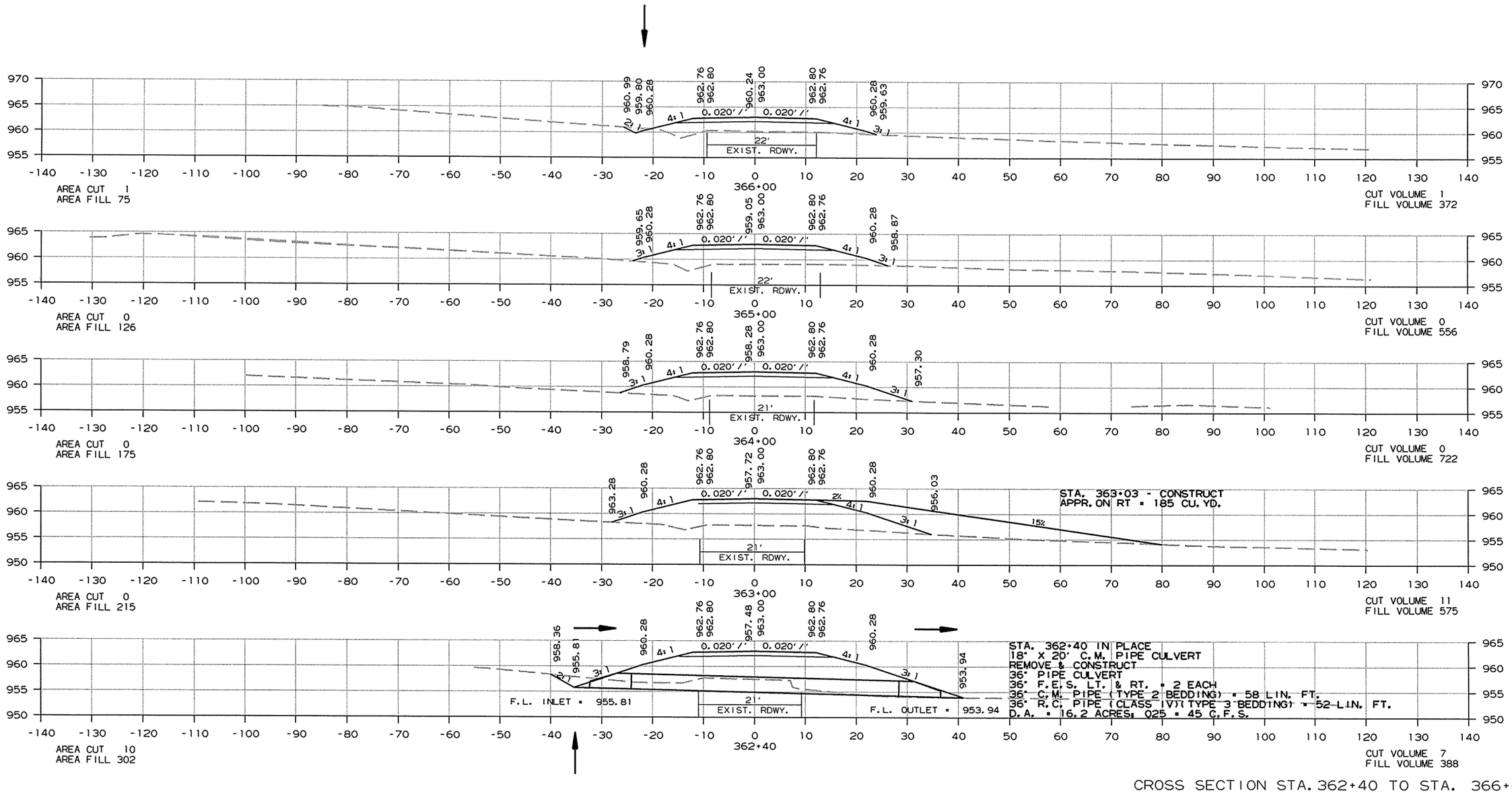


10/29/2015

R040207.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.		040207	183	212

(2) CROSS SECTIONS



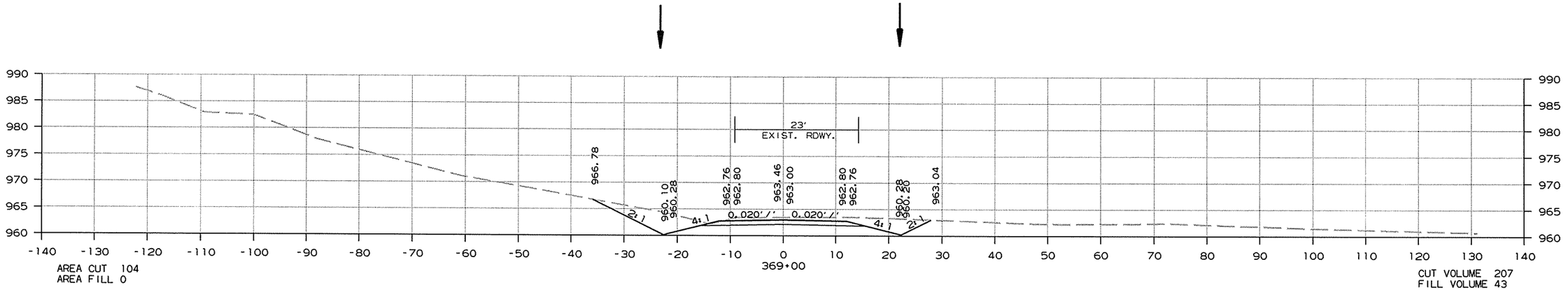
CROSS SECTION STA. 362+40 TO STA. 366+00

10/29/2015

R040207.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.		040207	184	212

(2) CROSS SECTIONS



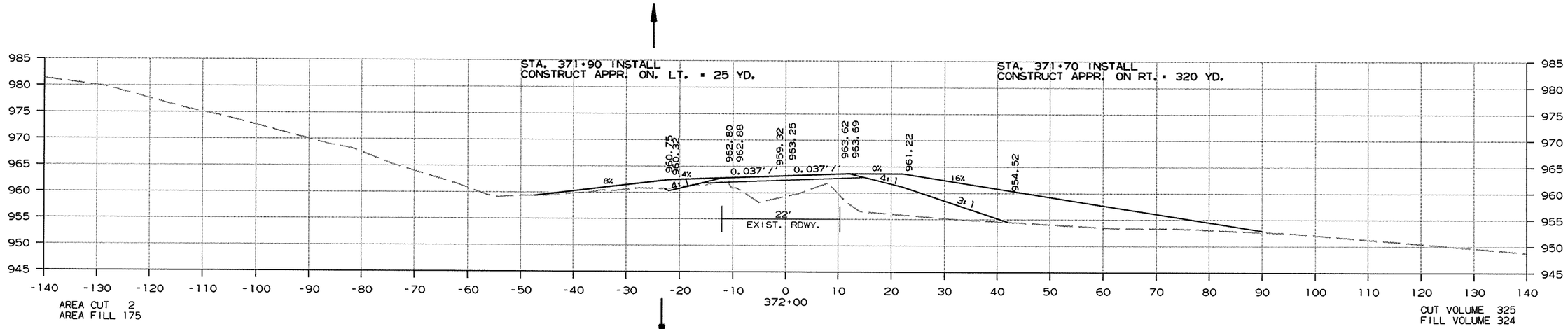
CROSS SECTION STA. 367+00 TO STA. 369+00

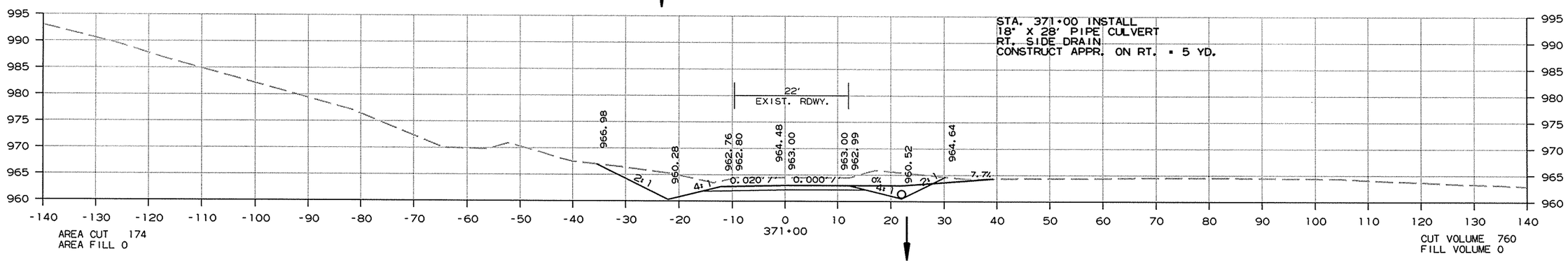
10/29/2015

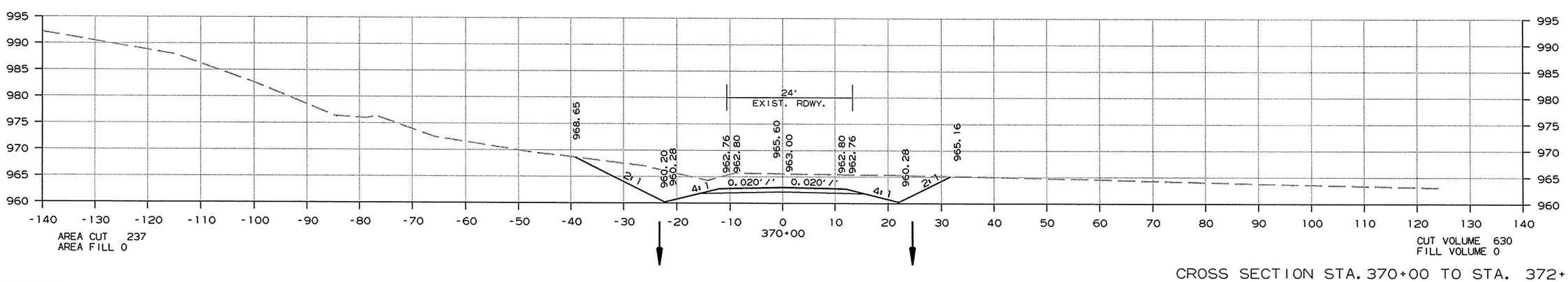
R040207.DGN

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.		040207	185	212

(2) CROSS SECTIONS







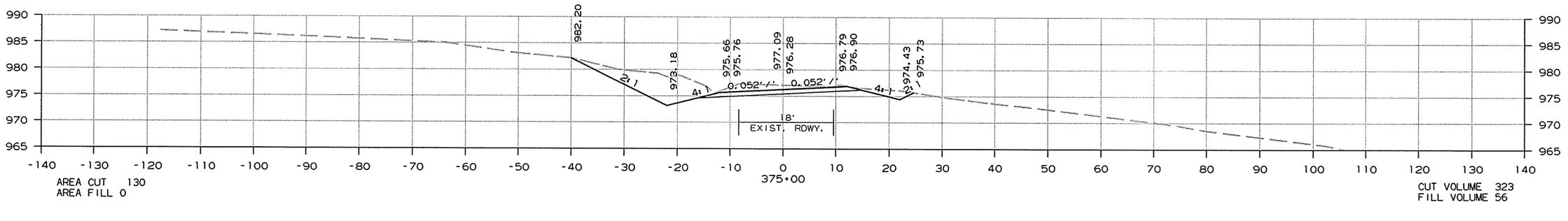
CROSS SECTION STA. 370+00 TO STA. 372+00

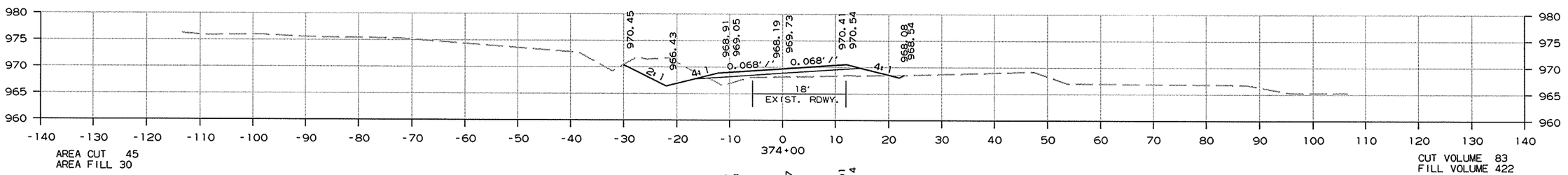
10/29/2015

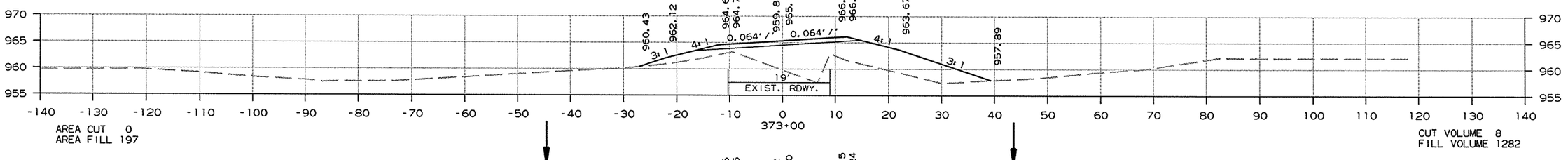
R040207.DGN

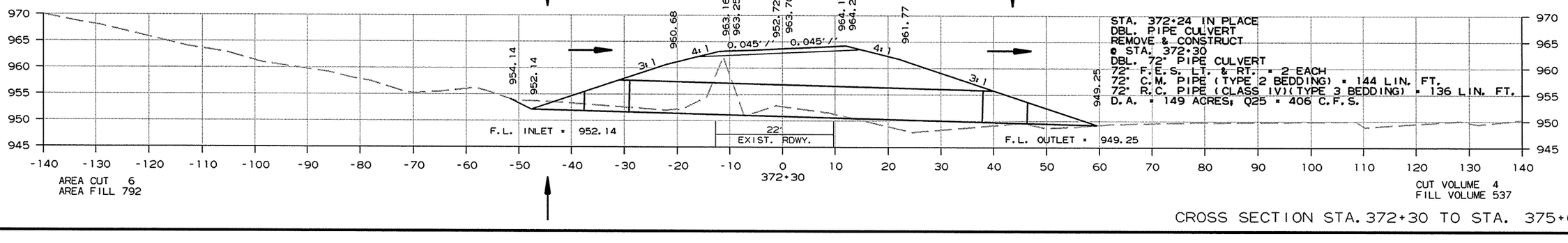
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040207	186	212

(2) CROSS SECTIONS









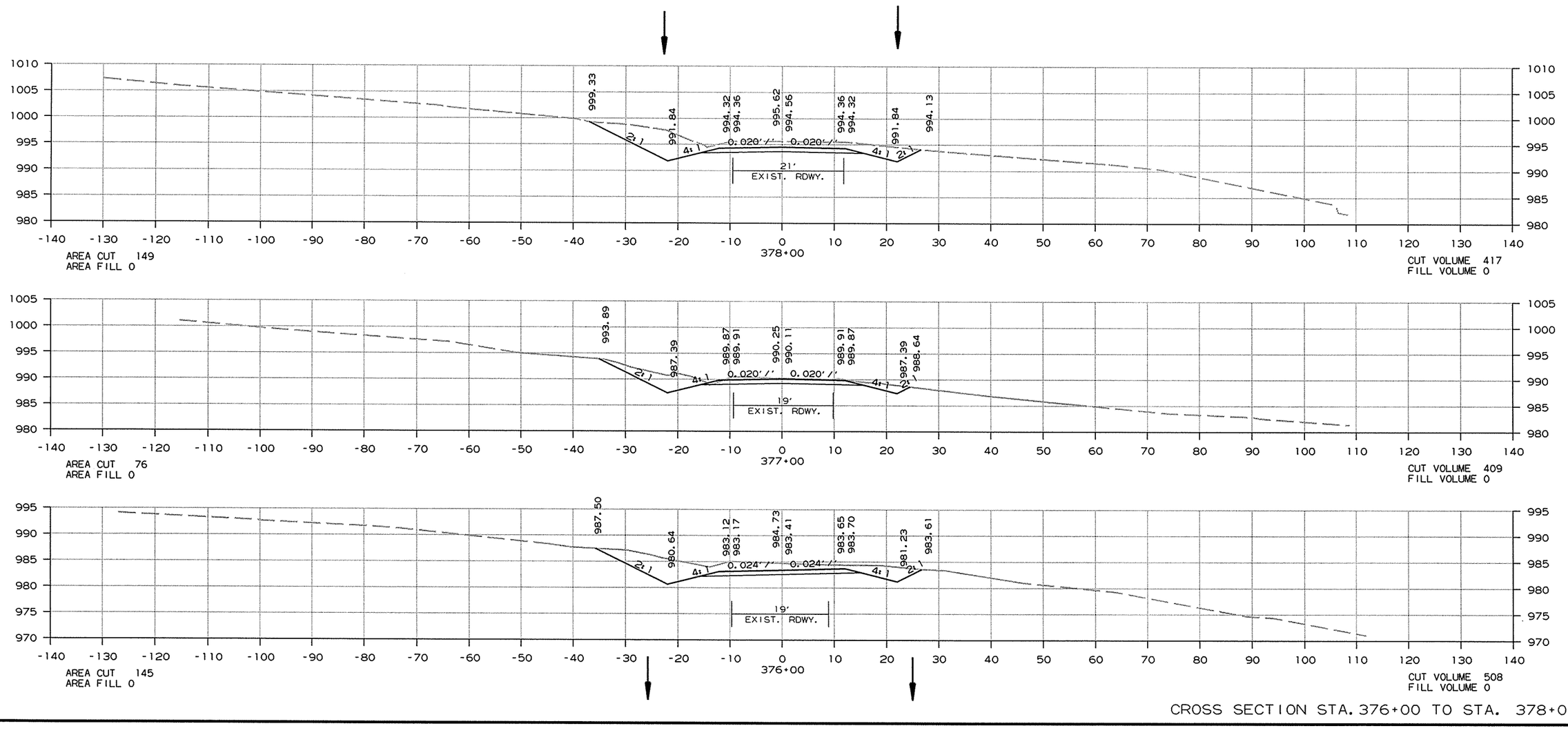
CROSS SECTION STA. 372+30 TO STA. 375+00

10/29/2015

R040207.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.		040207	187	212

(2) CROSS SECTIONS



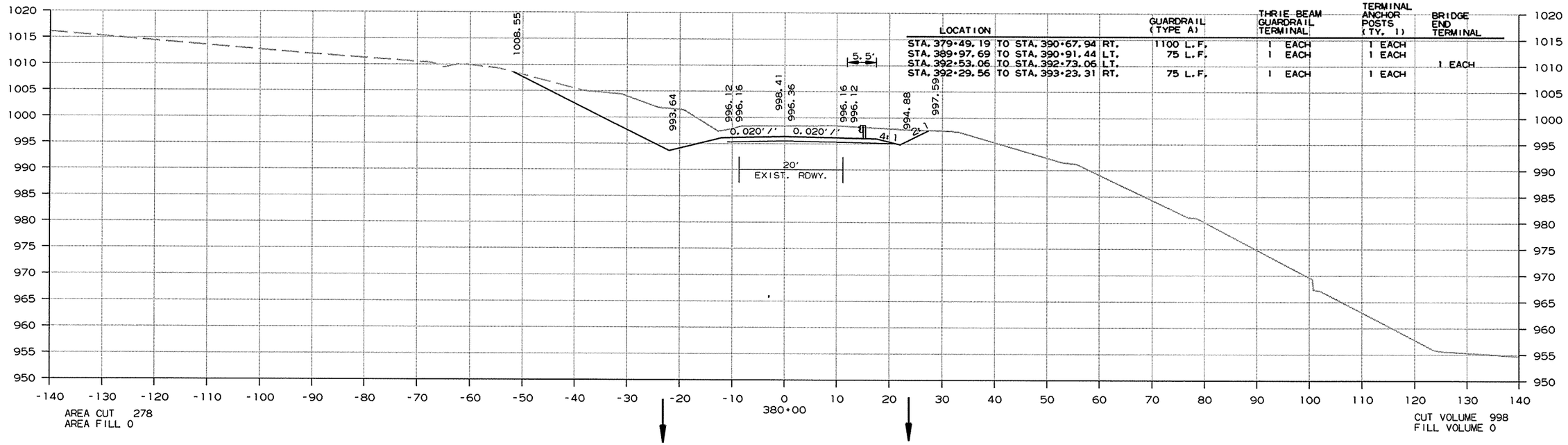
CROSS SECTION STA. 376+00 TO STA. 378+00

10/29/2015

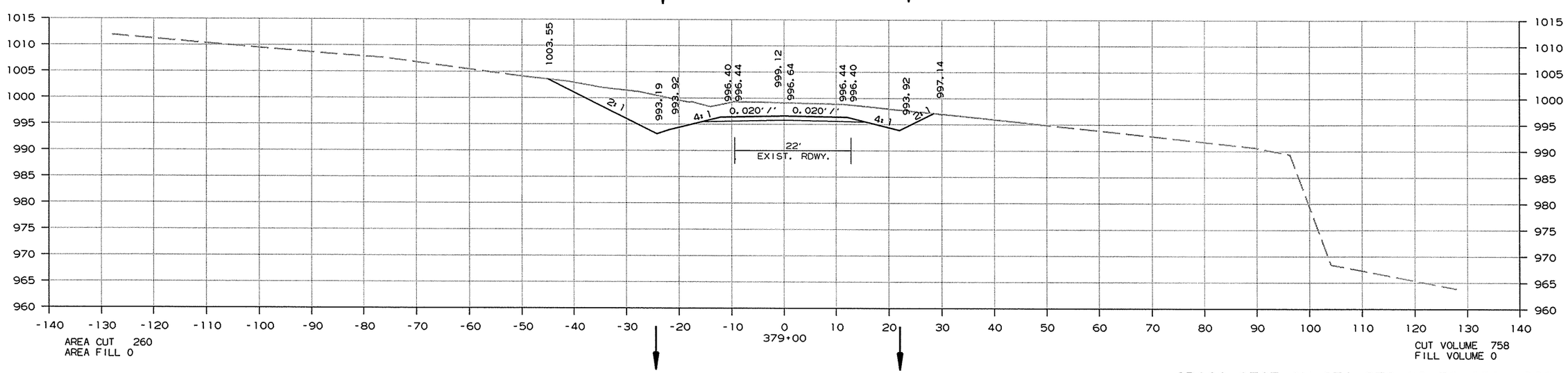
R040207.DGN

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.		040207	188	212

(2) CROSS SECTIONS



LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	TERMINAL ANCHOR POSTS (TY. 1)	BRIDGE END TERMINAL
STA. 379+49.19 TO STA. 390+67.94 RT.	1100 L.F.	1 EACH	1 EACH	
STA. 389+97.69 TO STA. 390+91.44 LT.	75 L.F.	1 EACH	1 EACH	
STA. 392+53.06 TO STA. 392+73.06 LT.				1 EACH
STA. 392+29.56 TO STA. 393+23.31 RT.	75 L.F.	1 EACH	1 EACH	



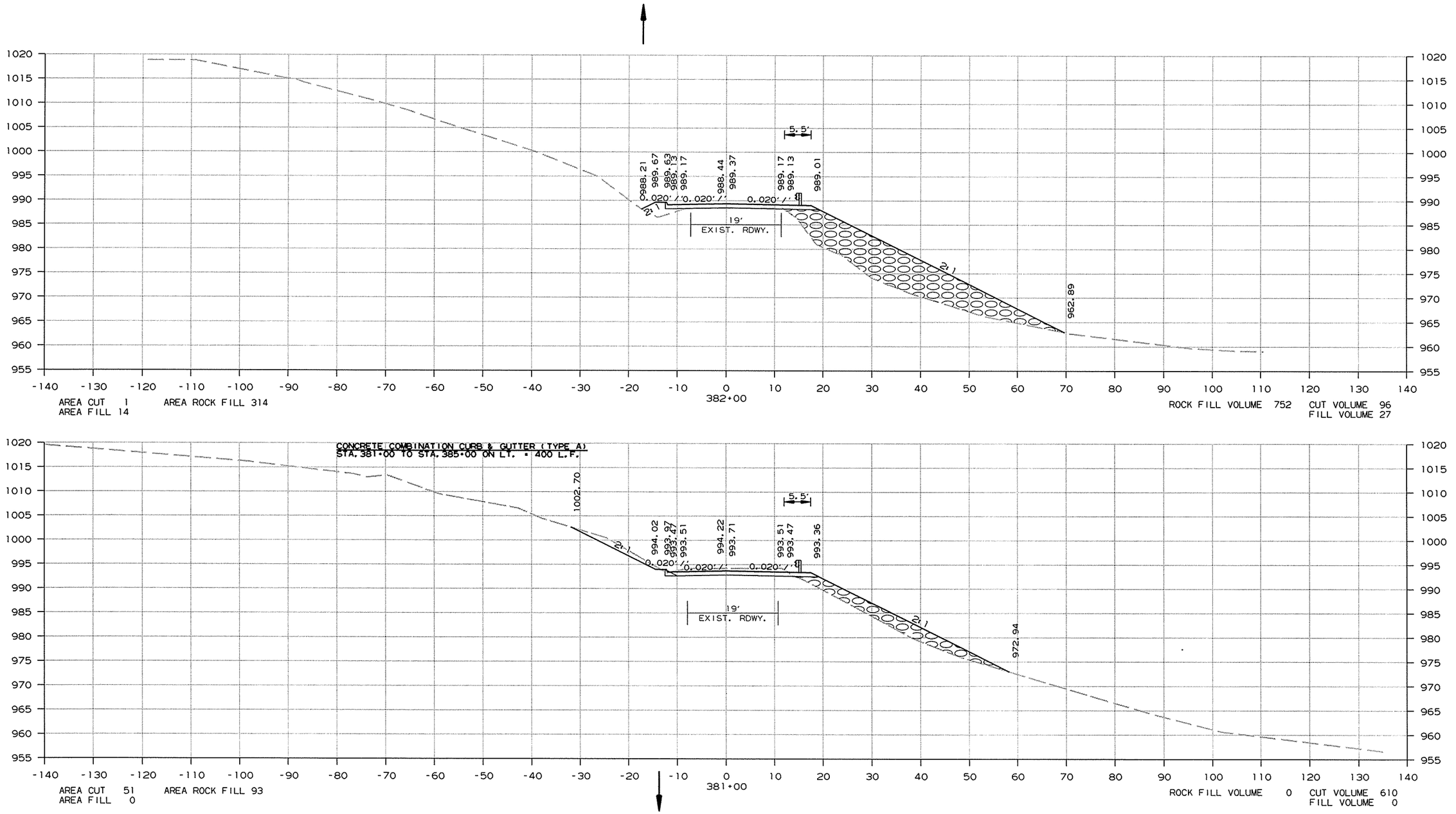
CROSS SECTION STA. 379+00 TO STA. 380+00

10/29/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	189	212

(2) CROSS SECTIONS



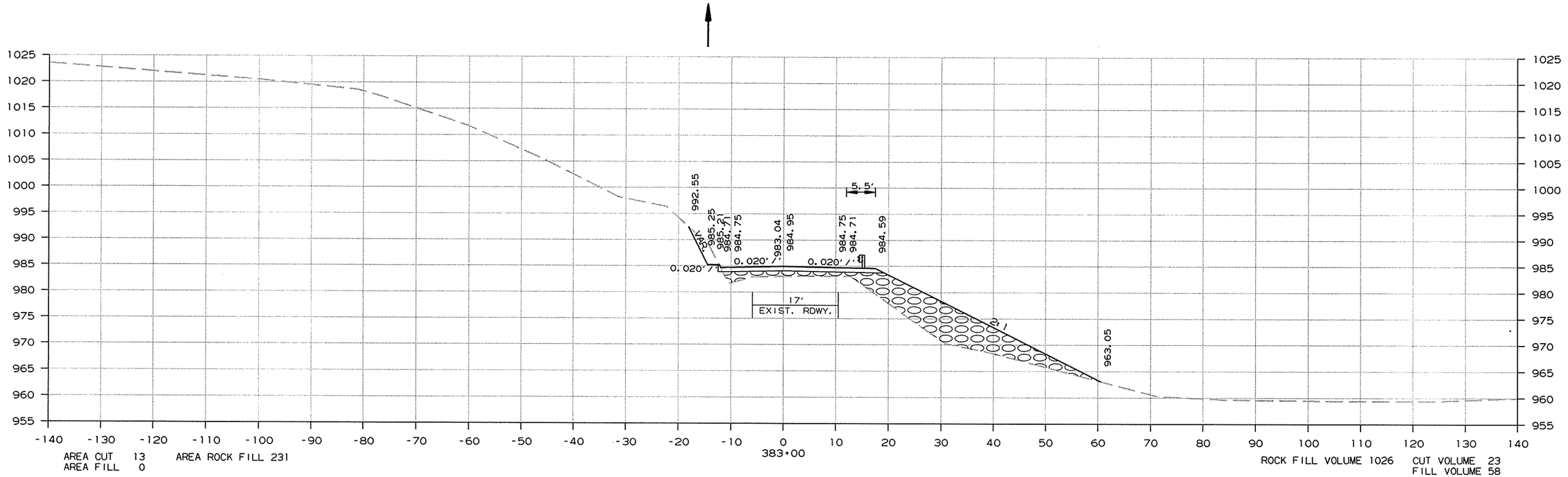
CROSS SECTION STA. 381+00 TO STA. 382+00

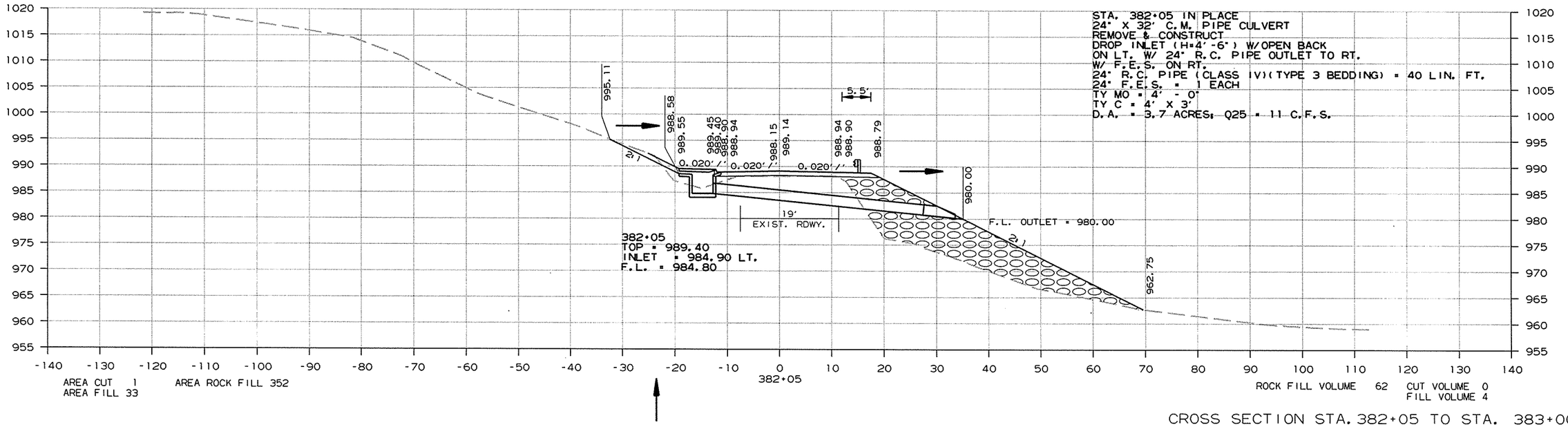
11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	190	212

(2) CROSS SECTIONS





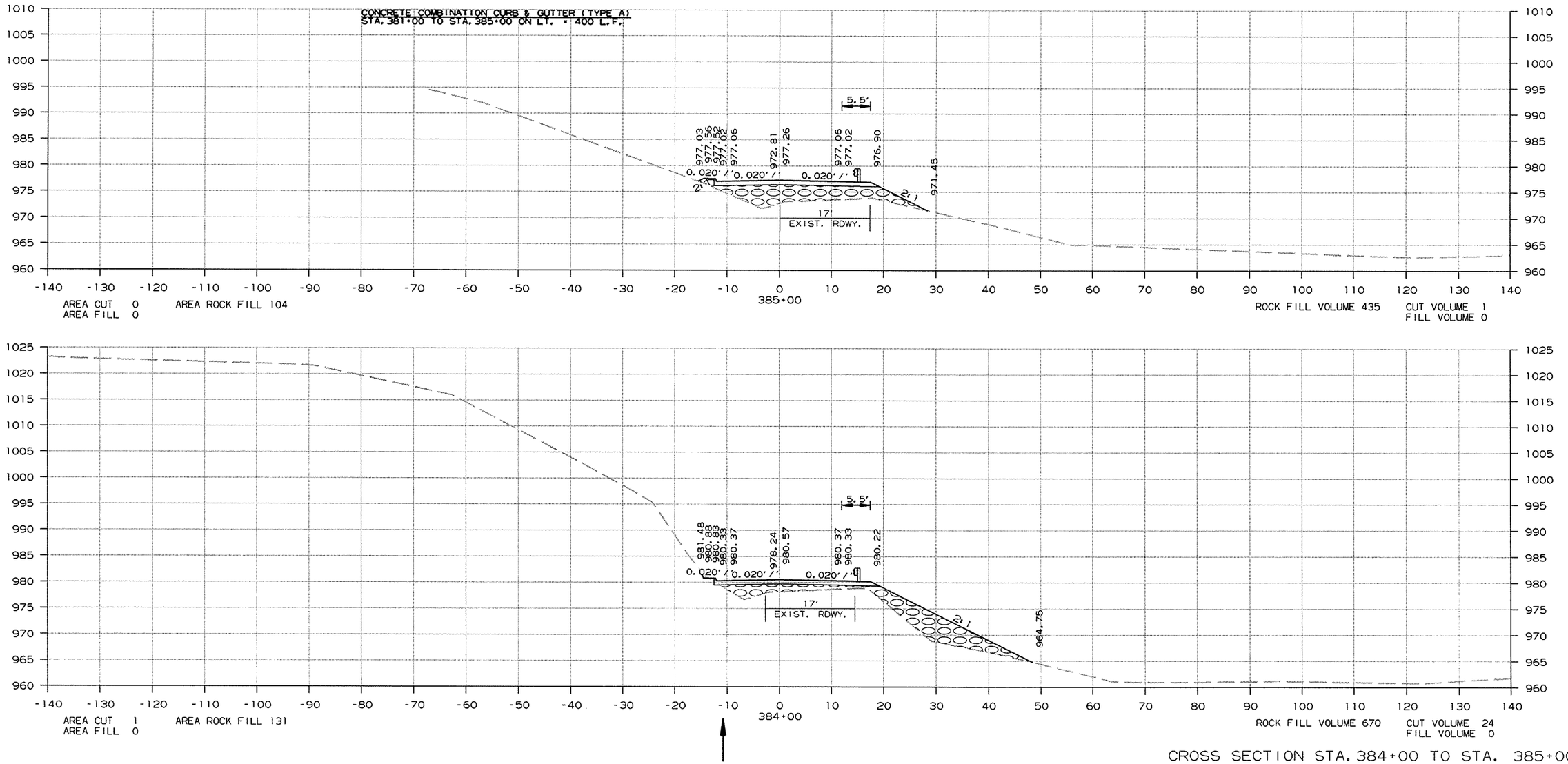
CROSS SECTION STA. 382+05 TO STA. 383+00

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	191	212

(2) CROSS SECTIONS



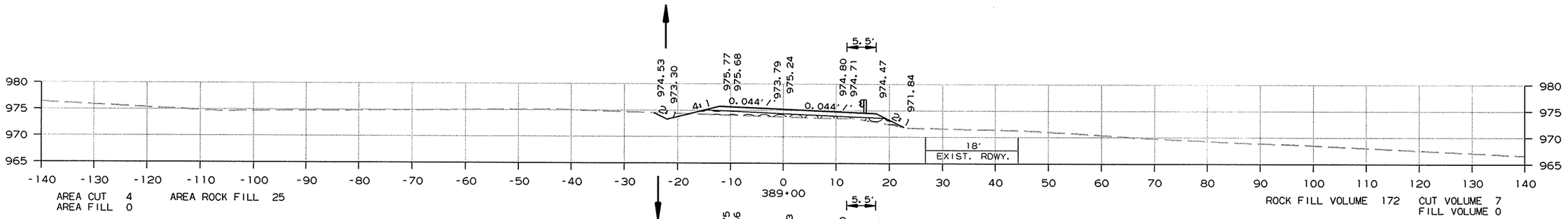
CROSS SECTION STA. 384+00 TO STA. 385+00

11/20/2015

R040207.DGN

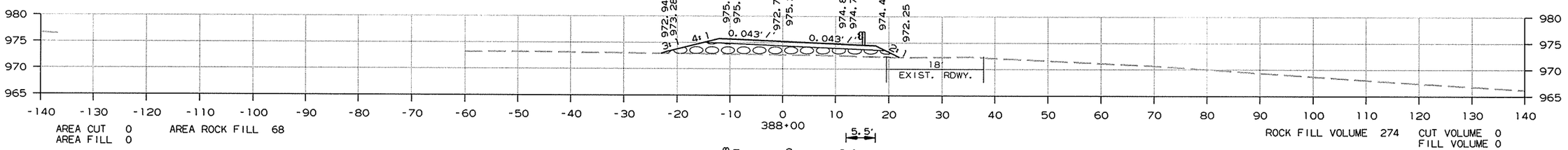
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	192	212

(2) CROSS SECTIONS



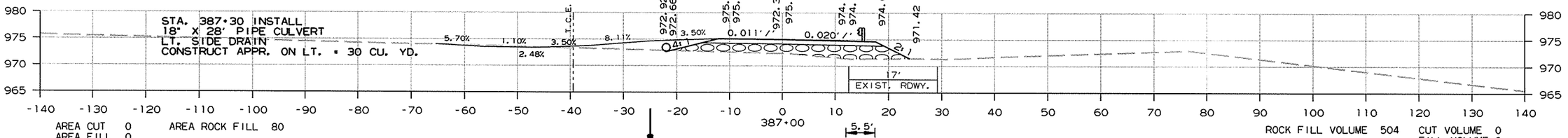
AREA CUT 4 AREA ROCK FILL 25
AREA FILL 0

ROCK FILL VOLUME 172 CUT VOLUME 7
FILL VOLUME 0



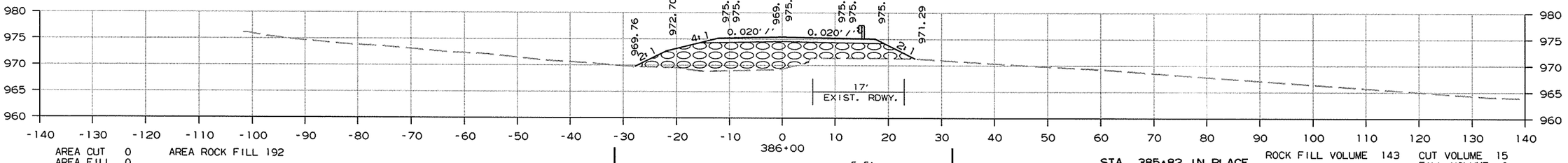
AREA CUT 0 AREA ROCK FILL 68
AREA FILL 0

ROCK FILL VOLUME 274 CUT VOLUME 0
FILL VOLUME 0



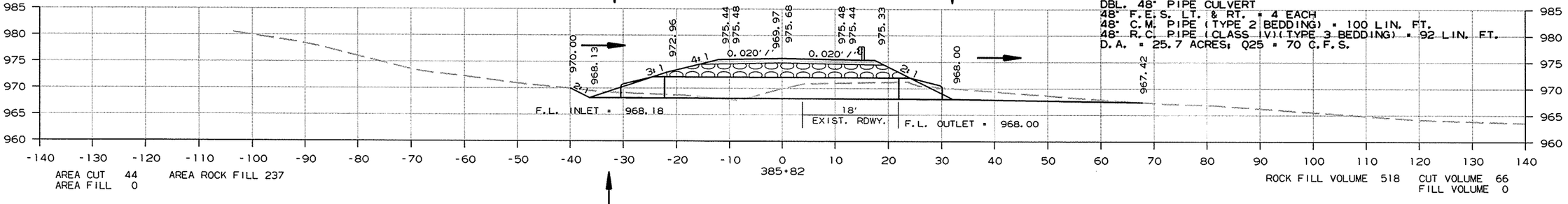
AREA CUT 0 AREA ROCK FILL 80
AREA FILL 0

ROCK FILL VOLUME 504 CUT VOLUME 0
FILL VOLUME 0



AREA CUT 0 AREA ROCK FILL 192
AREA FILL 0

ROCK FILL VOLUME 143 CUT VOLUME 15
FILL VOLUME 0



AREA CUT 44 AREA ROCK FILL 237
AREA FILL 0

STA. 385+82 IN PLACE
24" X 27' C.M. PIPE CULVERT
REMOVE & CONSTRUCT
DBL. 48" PIPE CULVERT
48" F.E.S. LT. & RT. = 4 EACH
48" C.M. PIPE (TYPE 2 BEDDING) = 100 LIN. FT.
48" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 92 LIN. FT.
D.A. = 25.7 ACRES; Q25 = 70 C.F.S.

ROCK FILL VOLUME 518 CUT VOLUME 66
FILL VOLUME 0

CROSS SECTION STA. 385+82 TO STA. 389+00

11/20/2015

R040207.DGN

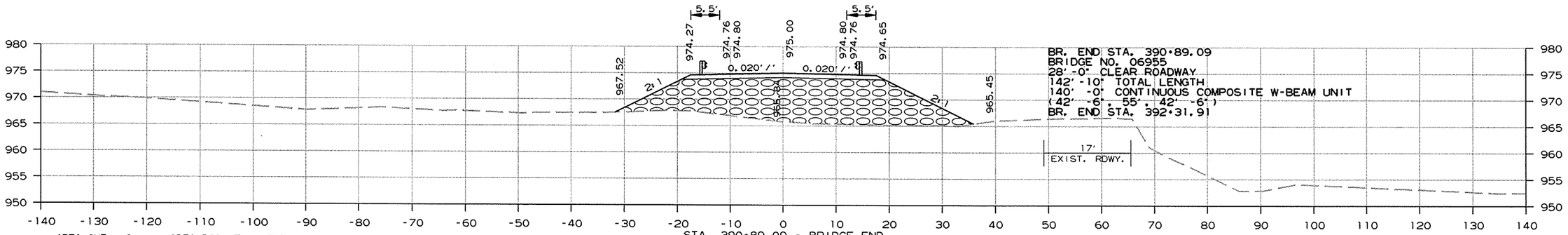
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	193	212

(2) CROSS SECTIONS

AREA CUT 0 AREA ROCK FILL 0
AREA FILL 0

ROCK FILL VOLUME 175 CUT VOLUME 0
FILL VOLUME 0

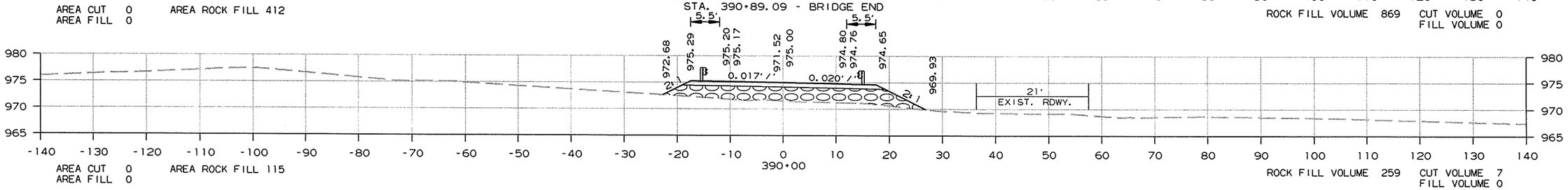
STA. 391+12 - TOE OF SLOPE



AREA CUT 0 AREA ROCK FILL 412
AREA FILL 0

STA. 390+89.09 - BRIDGE END

ROCK FILL VOLUME 869 CUT VOLUME 0
FILL VOLUME 0



AREA CUT 0 AREA ROCK FILL 115
AREA FILL 0

ROCK FILL VOLUME 259 CUT VOLUME 7
FILL VOLUME 0

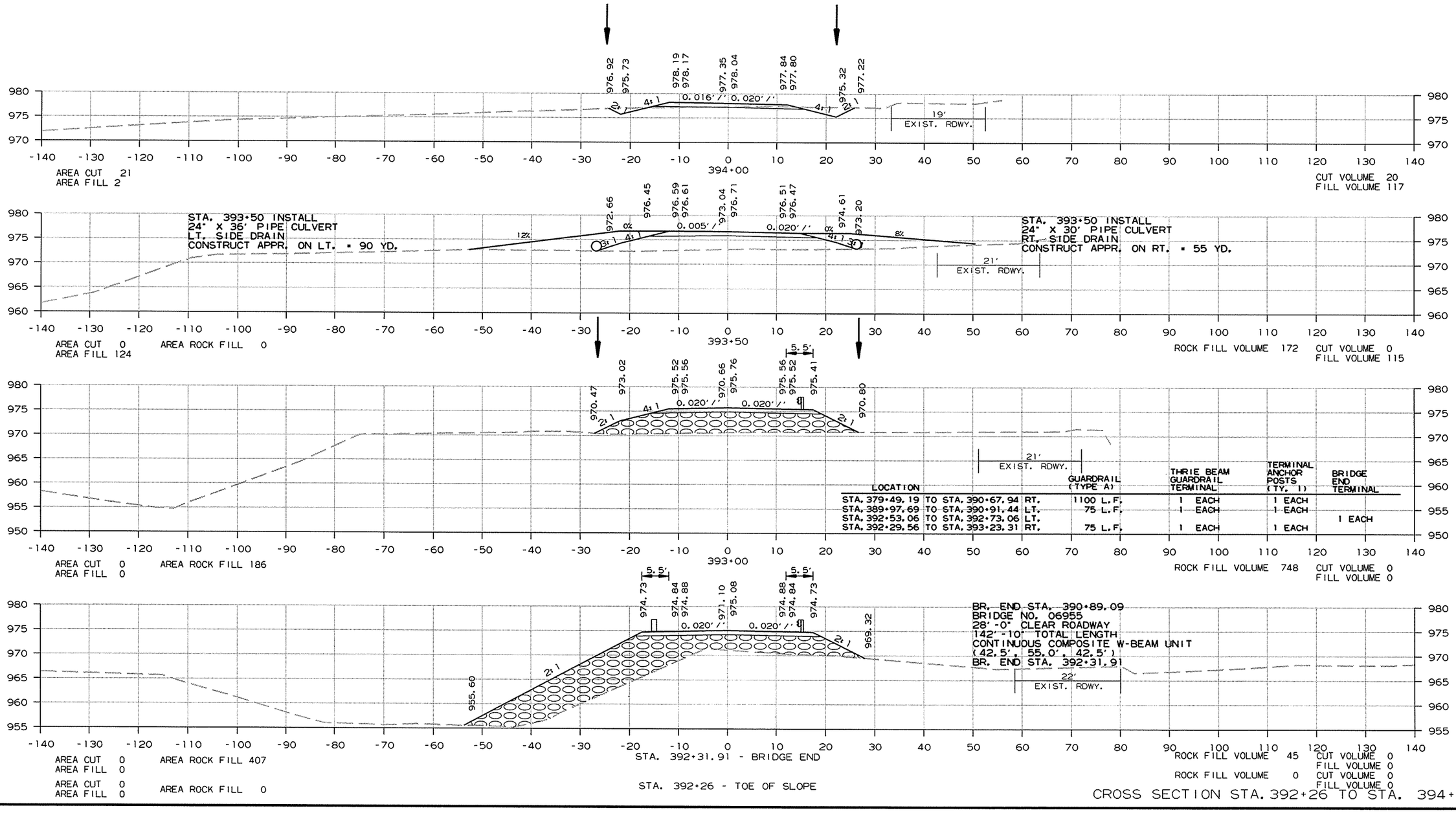
CROSS SECTION STA. 390+00 TO STA. 391+12

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	194	212

(2) CROSS SECTIONS



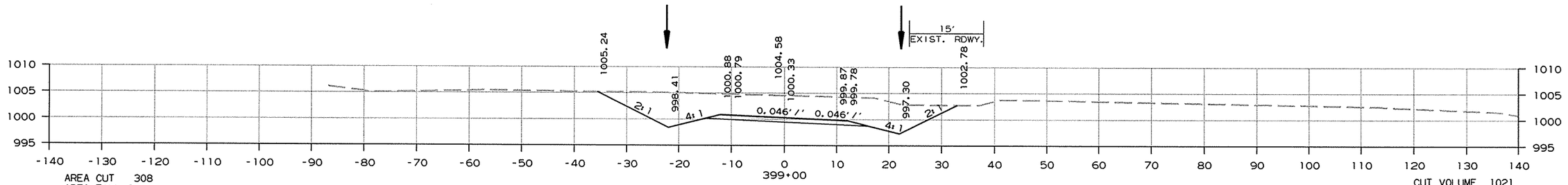
CROSS SECTION STA. 392+26 TO STA. 394+00

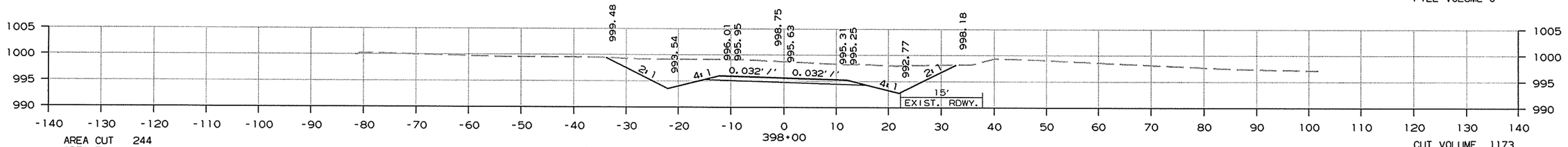
11/20/2015

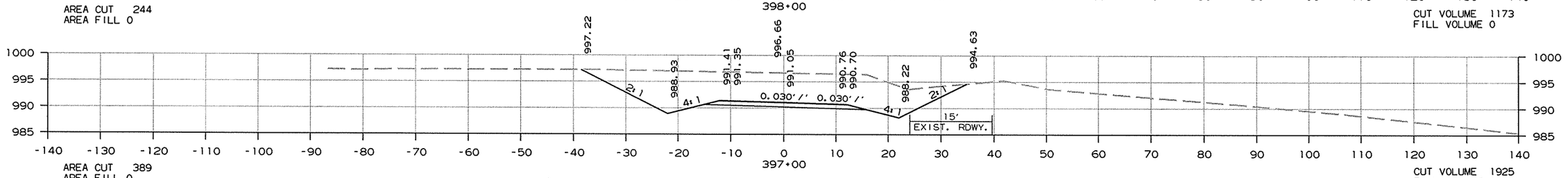
R040207.DGN

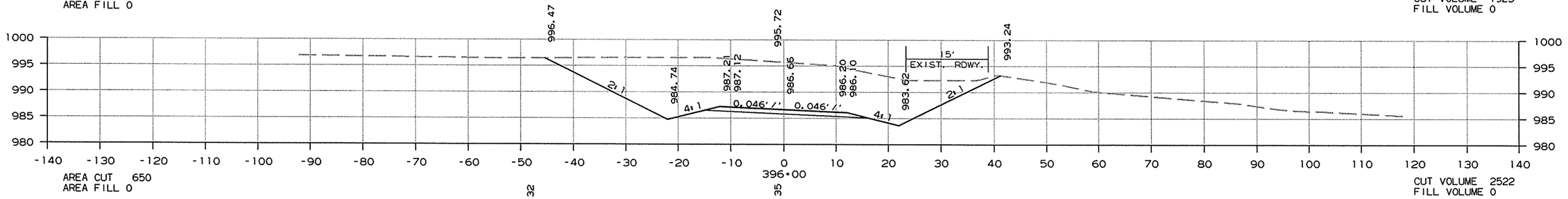
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040207	195	212

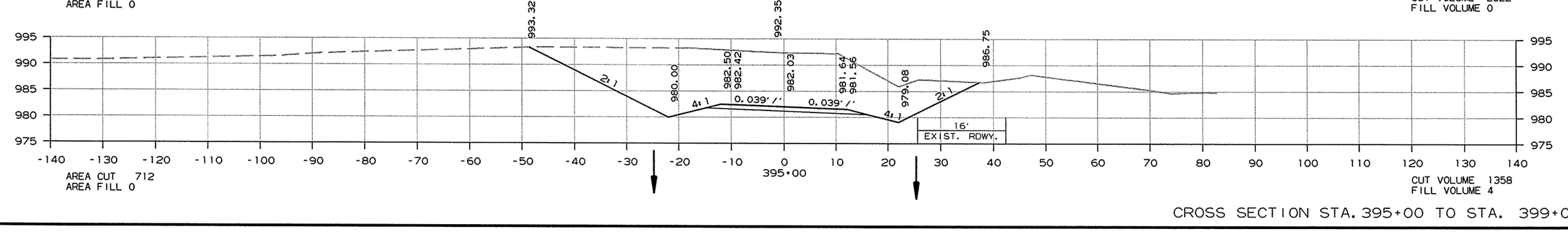
(2) CROSS SECTIONS











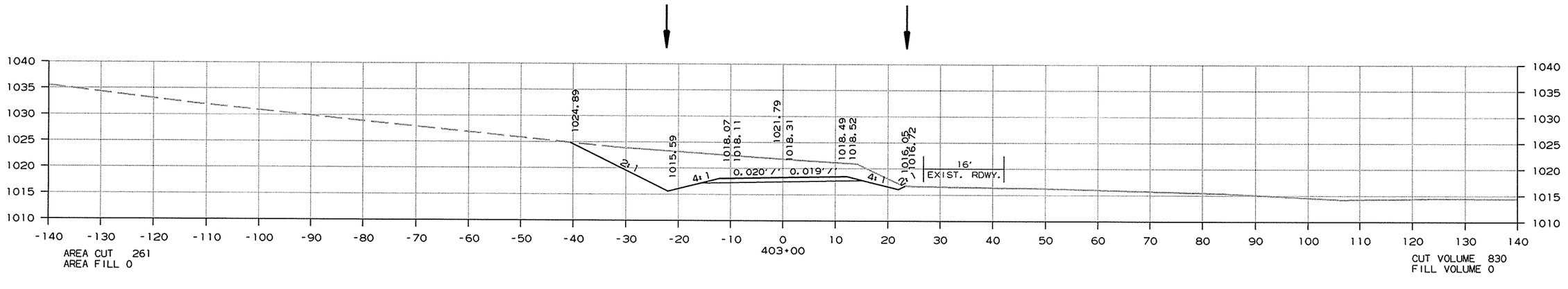
CROSS SECTION STA. 395+00 TO STA. 399+00

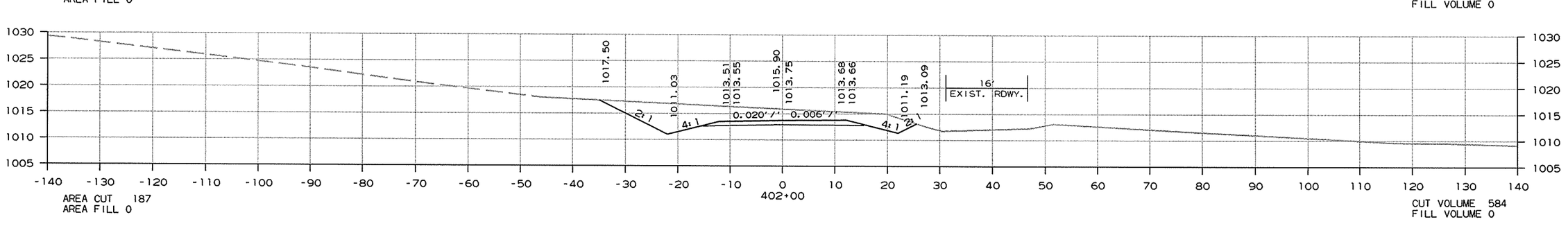
10/29/2015

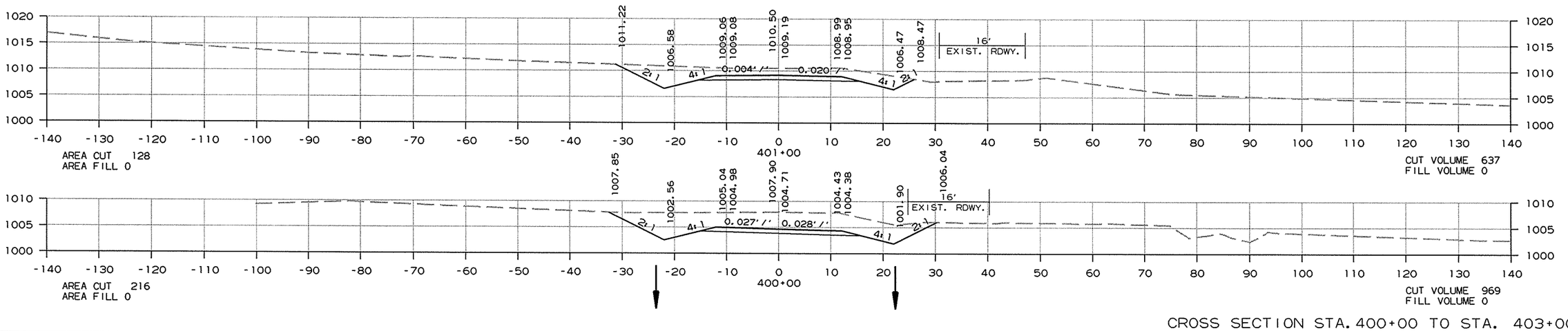
R040207.DGN

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.		040207	196	212

(2) CROSS SECTIONS







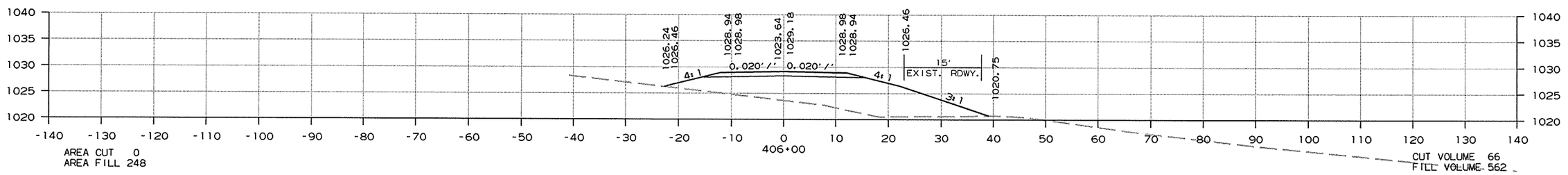
CROSS SECTION STA. 400+00 TO STA. 403+00

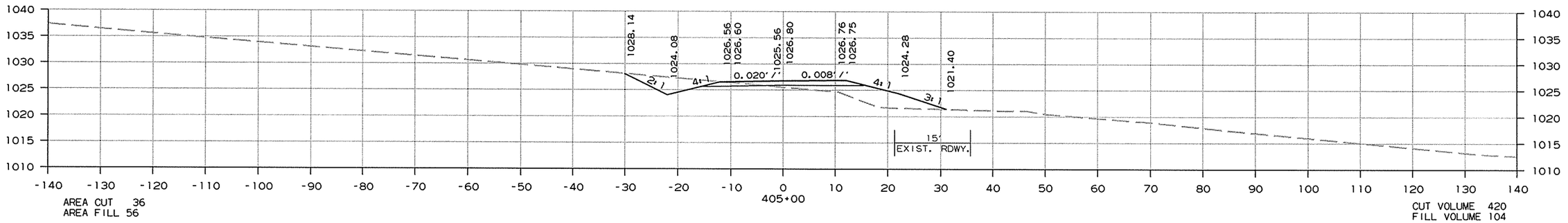
10/29/2015

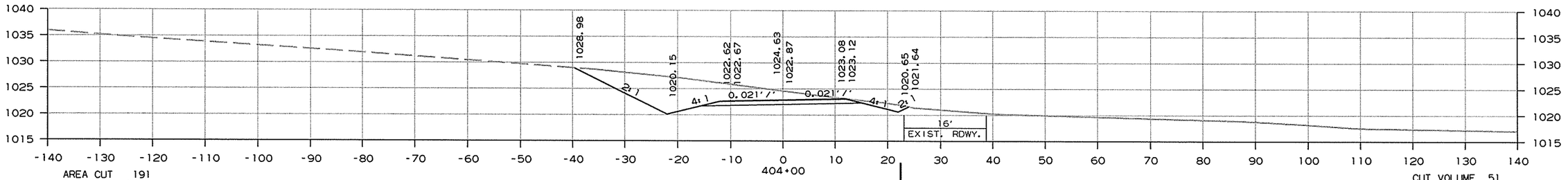
R040207.DGN

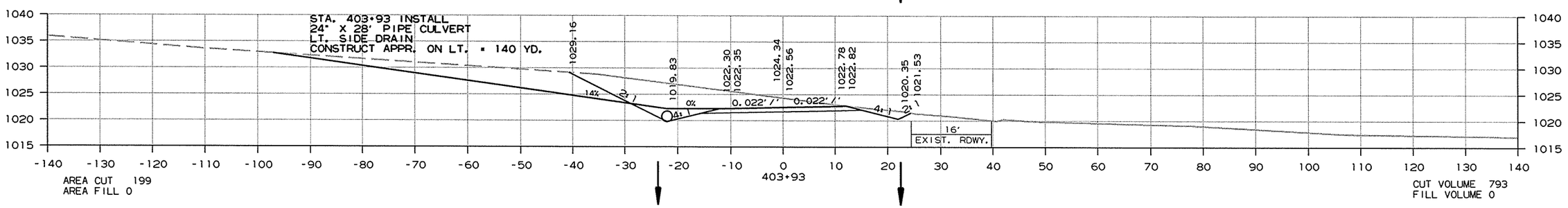
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040207	197	212

(2) CROSS SECTIONS









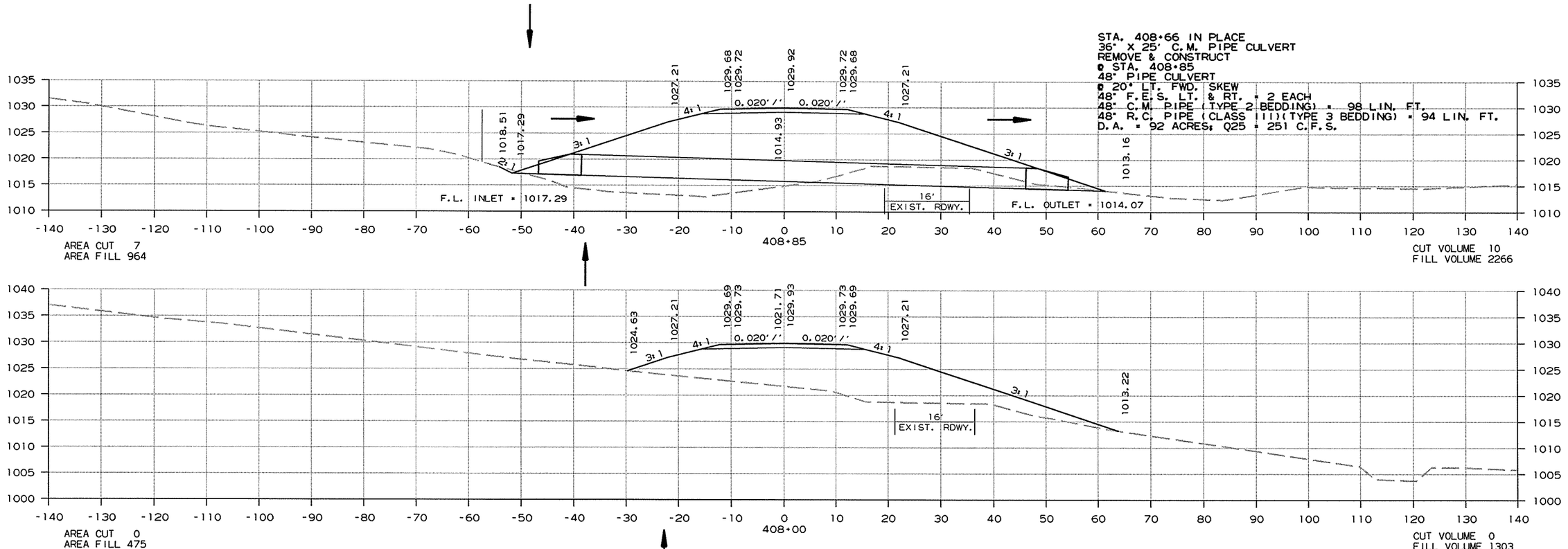
CROSS SECTION STA. 403+93 TO STA. 406+00

10/29/2015

R040207.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.		040207	198	212

(2) CROSS SECTIONS



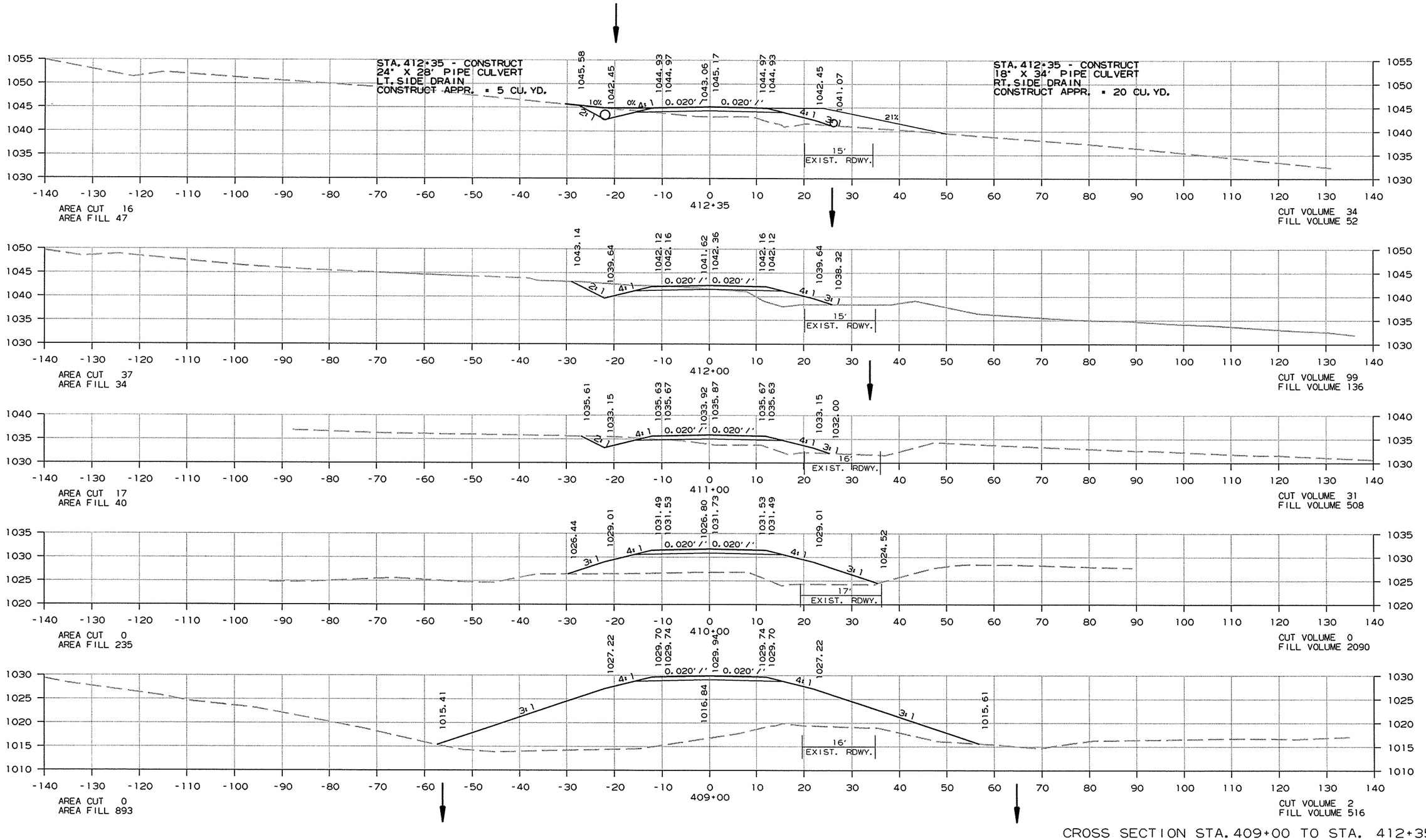
CROSS SECTION STA. 407+00 TO STA. 408+85

10/29/2015

R040207.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.		040207	199	212

(2) CROSS SECTIONS



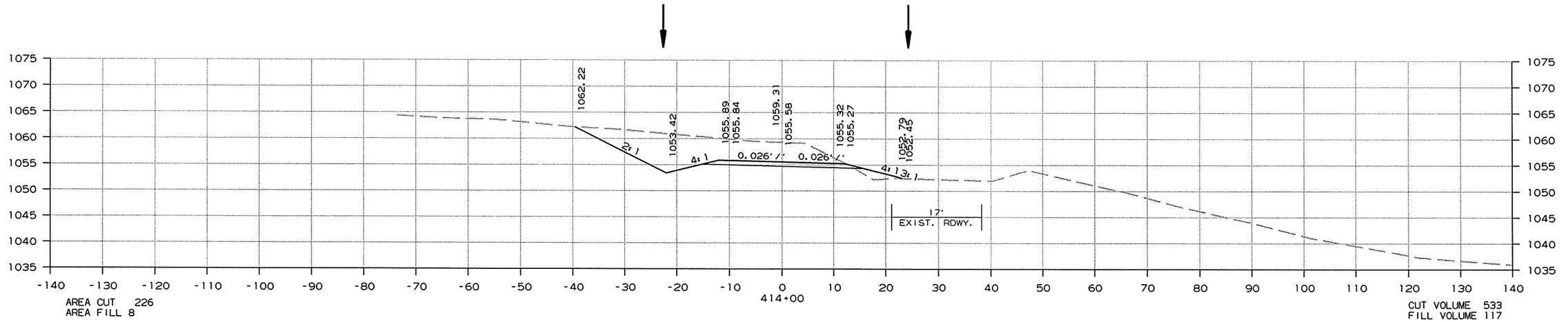
CROSS SECTION STA. 409+00 TO STA. 412+35

10/29/2015

R040207.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.		040207	200	212

(2) CROSS SECTIONS



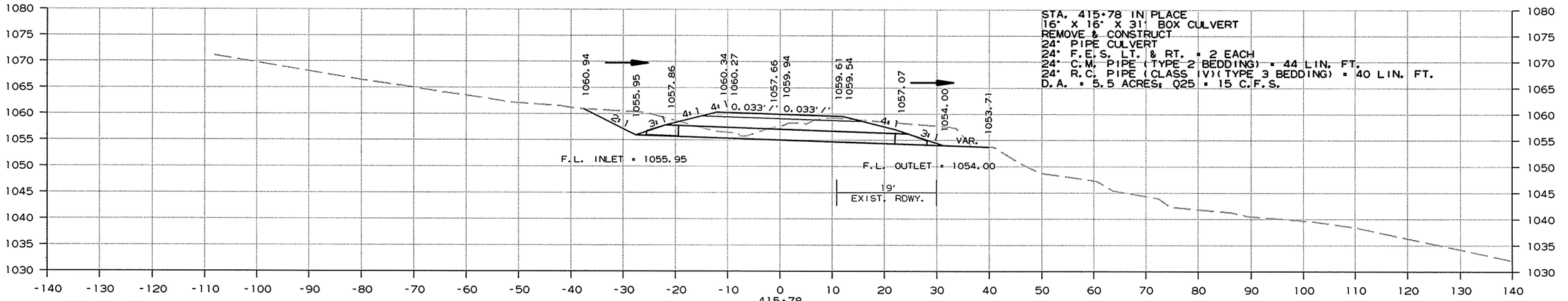
CROSS SECTION STA. 413+00 TO STA. 414+00

10/29/2015

R040207.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.		040207	201	212

(2) CROSS SECTIONS



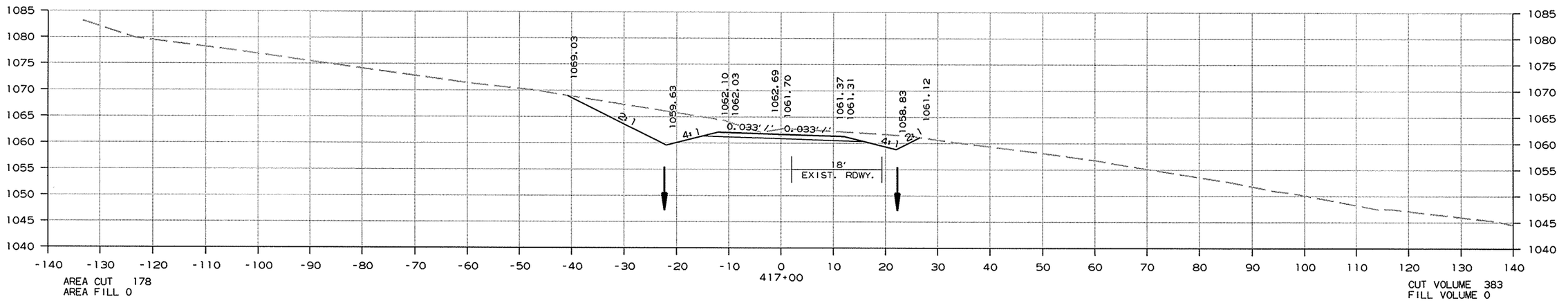
CROSS SECTION STA. 415+00 TO STA. 415+78

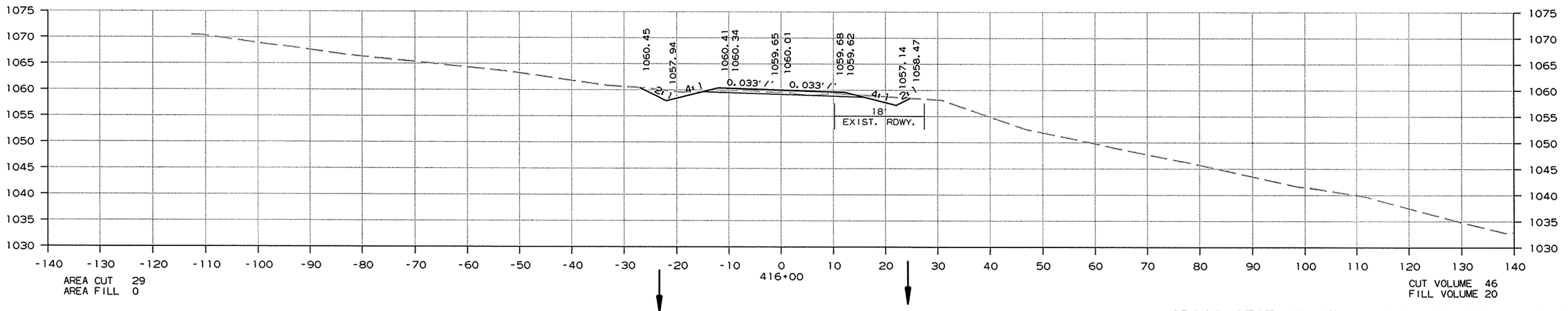
10/29/2015

R040207.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.		040207	202	212

(2) CROSS SECTIONS





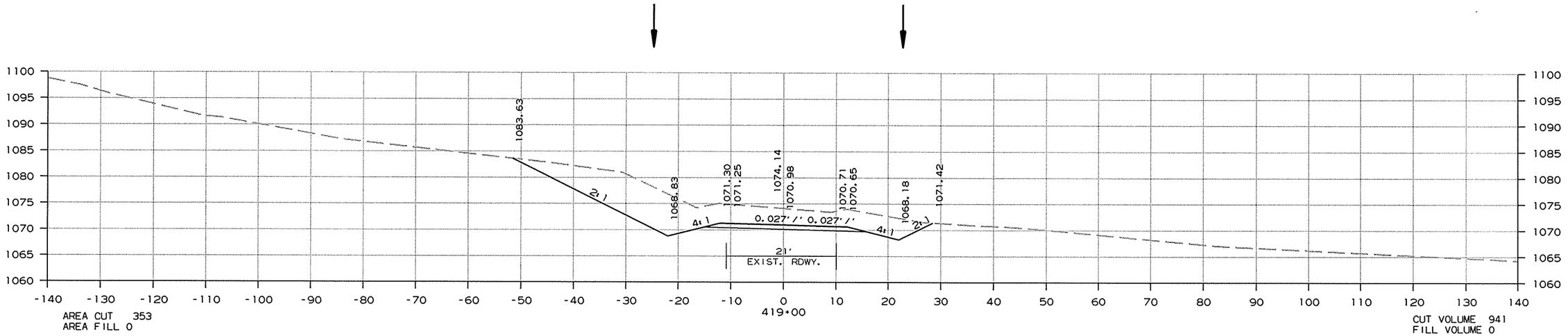
CROSS SECTION STA. 416+00 TO STA. 417+00

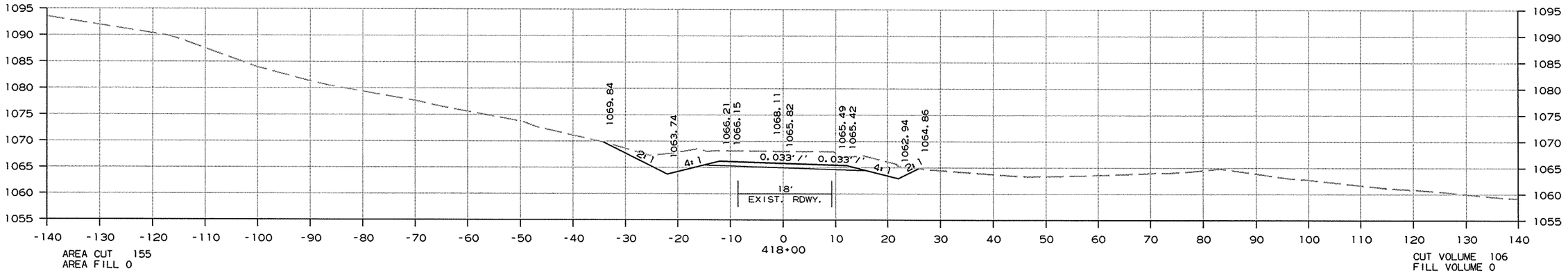
10/29/2015

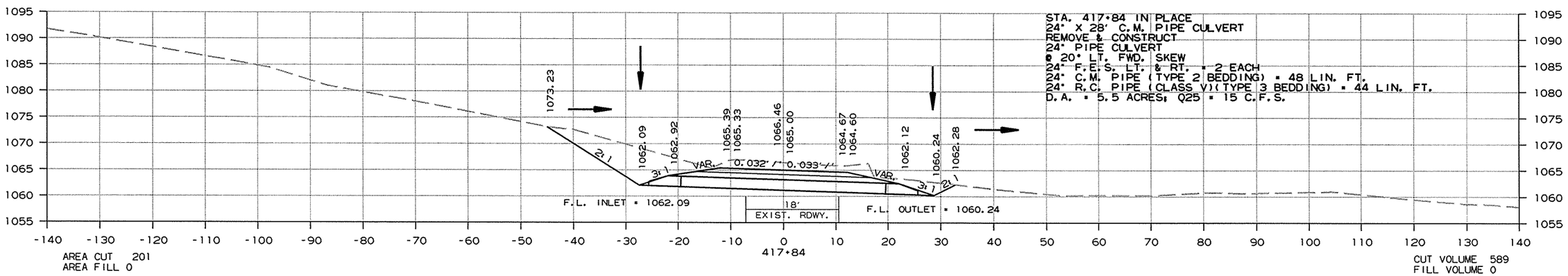
R040207.DGN

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.		040207	203	212

(2) CROSS SECTIONS







STA. 417+84 IN PLACE
24" X 28' C.M. PIPE CULVERT
REMOVE & CONSTRUCT
24" PIPE CULVERT
@ 20° LT. FWD. SKEW
24" F.E.S. LT. & RT. = 2 EACH
24" C.M. PIPE (TYPE 2 BEDDING) = 48 LIN. FT.
24" R.C. PIPE (CLASS V)(TYPE 3 BEDDING) = 44 LIN. FT.
D.A. = 5.5 ACRES; Q25 = 15 C.F.S.

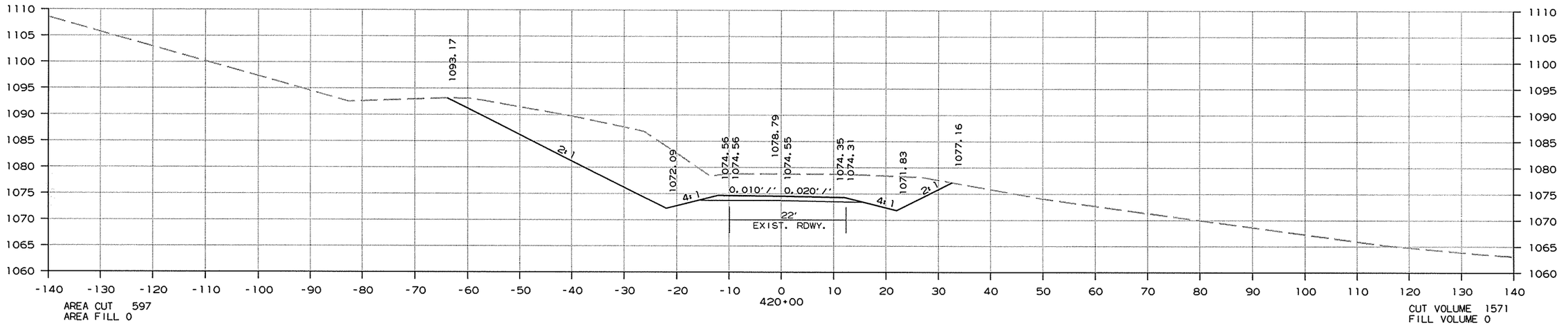
CROSS SECTION STA. 417+84 TO STA. 419+00

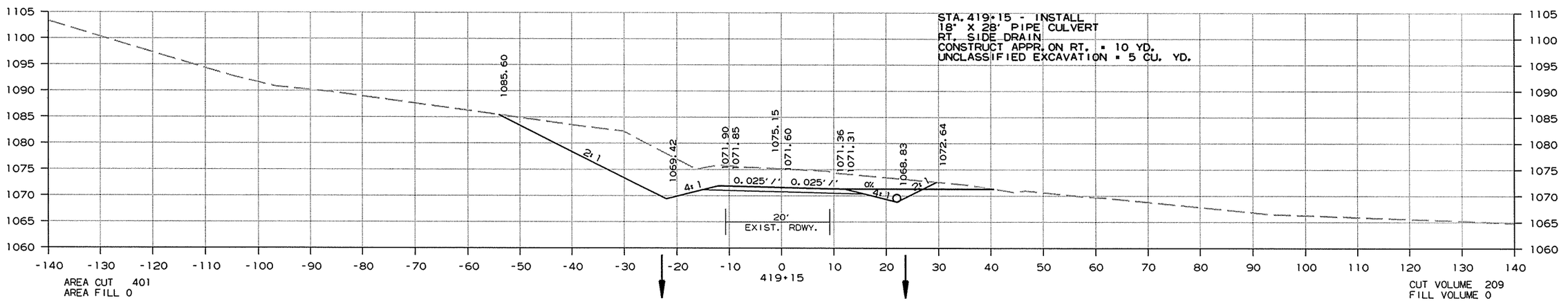
10/29/2015

R040207.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.		040207	204	212

(2) CROSS SECTIONS





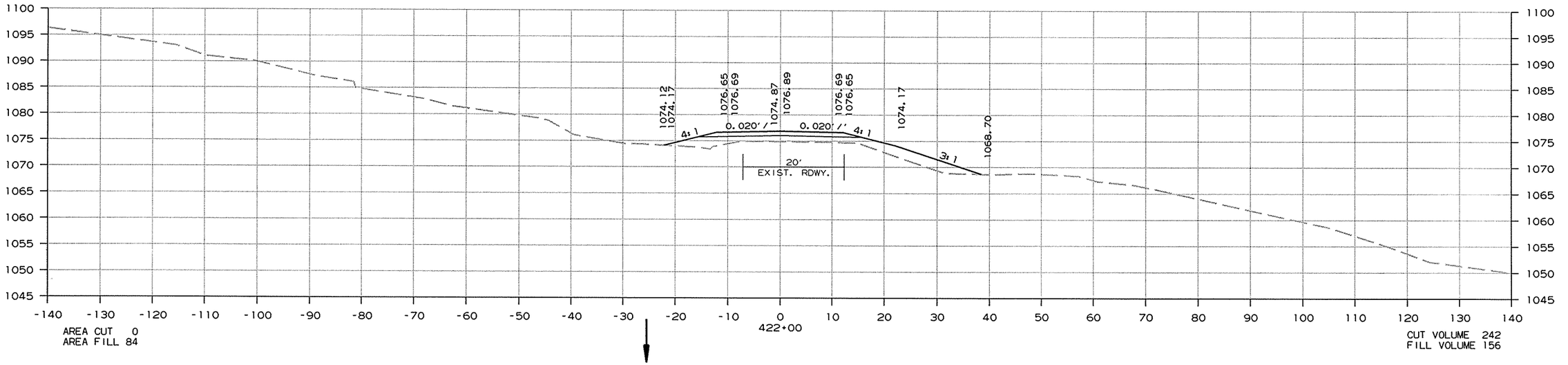
CROSS SECTION STA. 419+15 TO STA. 420+00

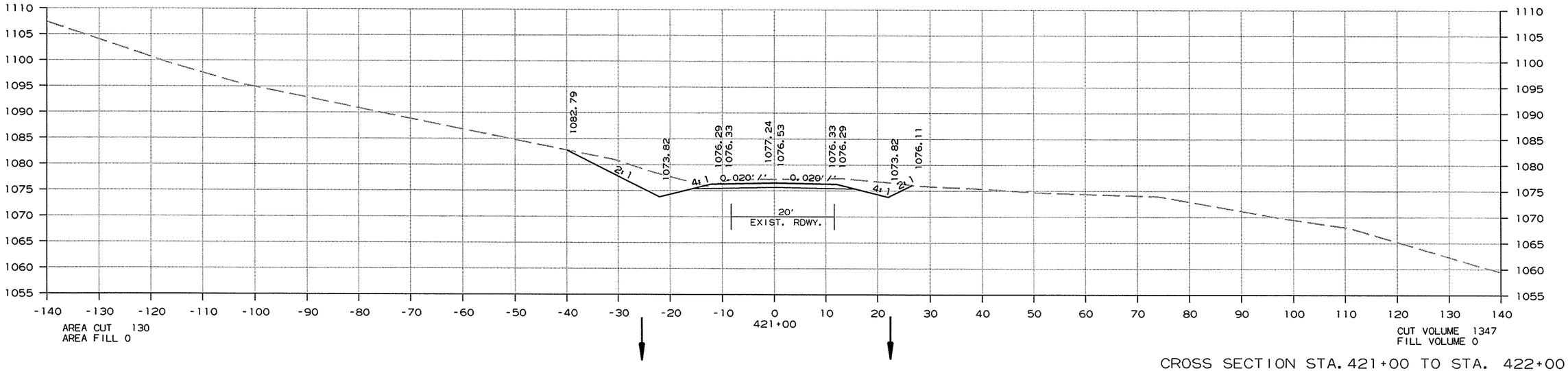
10/29/2015

R040207.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.		040207	205	212

(2) CROSS SECTIONS





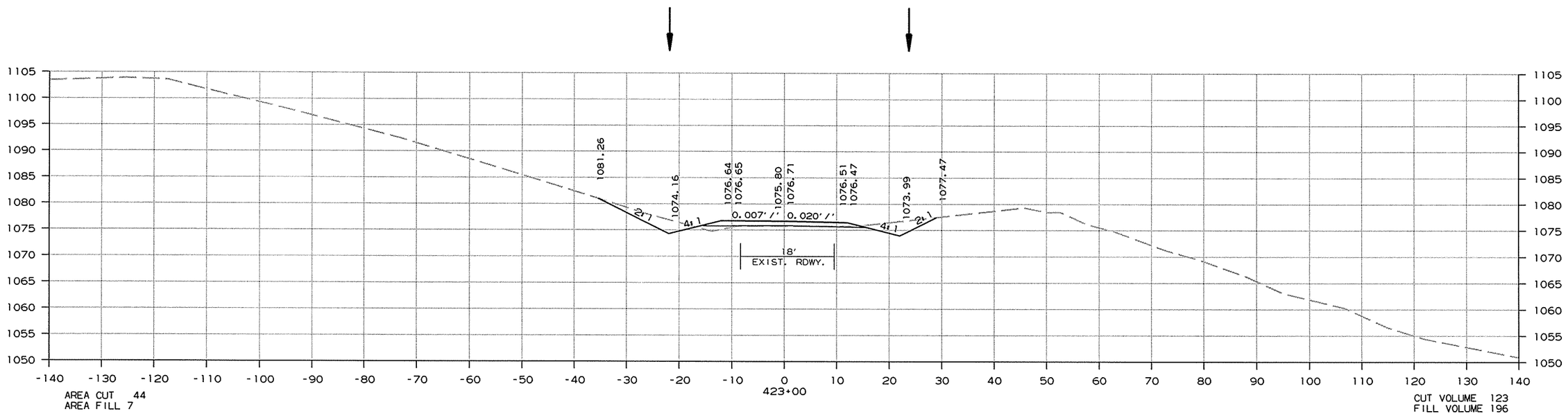
CROSS SECTION STA. 421+00 TO STA. 422+00

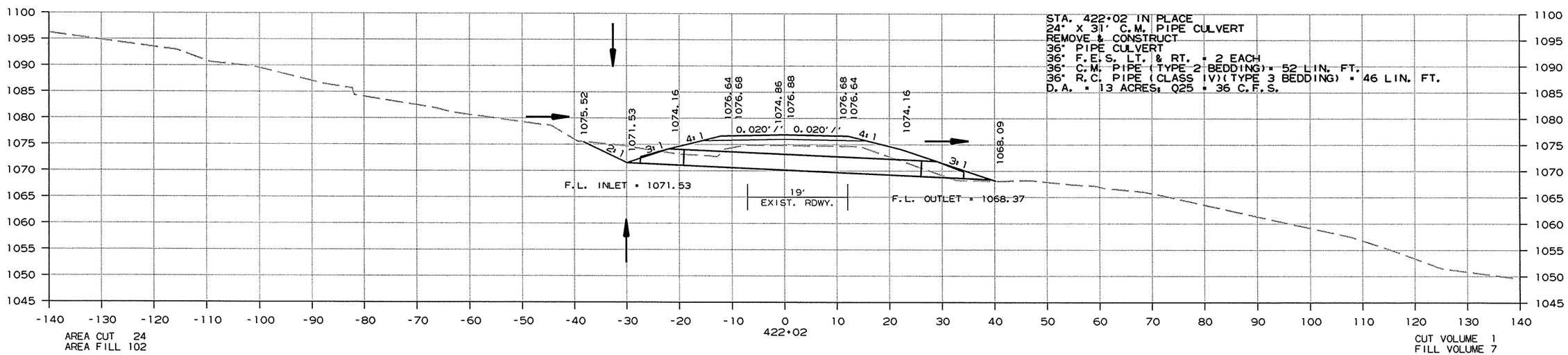
10/29/2015

R040207.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.		040207	206	212

(2) CROSS SECTIONS





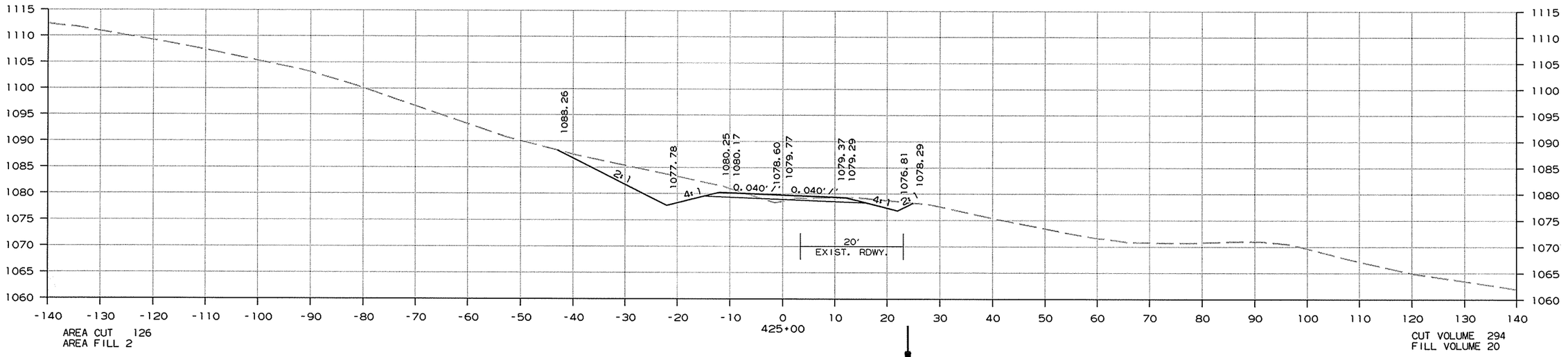
CROSS SECTION STA. 422+02 TO STA. 423+00

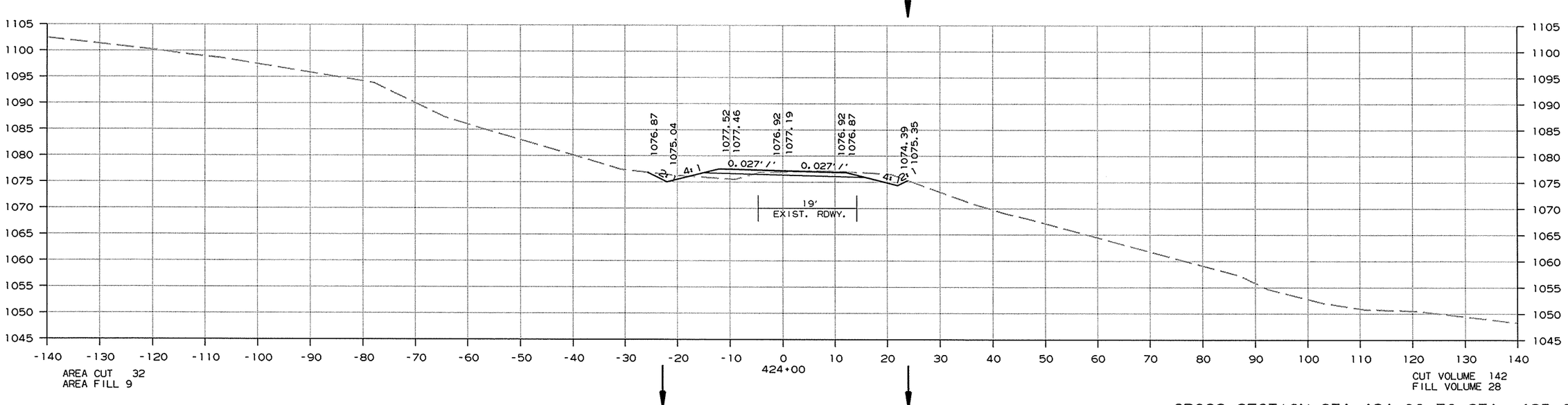
10/29/2015

R040207.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.		040207	207	212

(2) CROSS SECTIONS





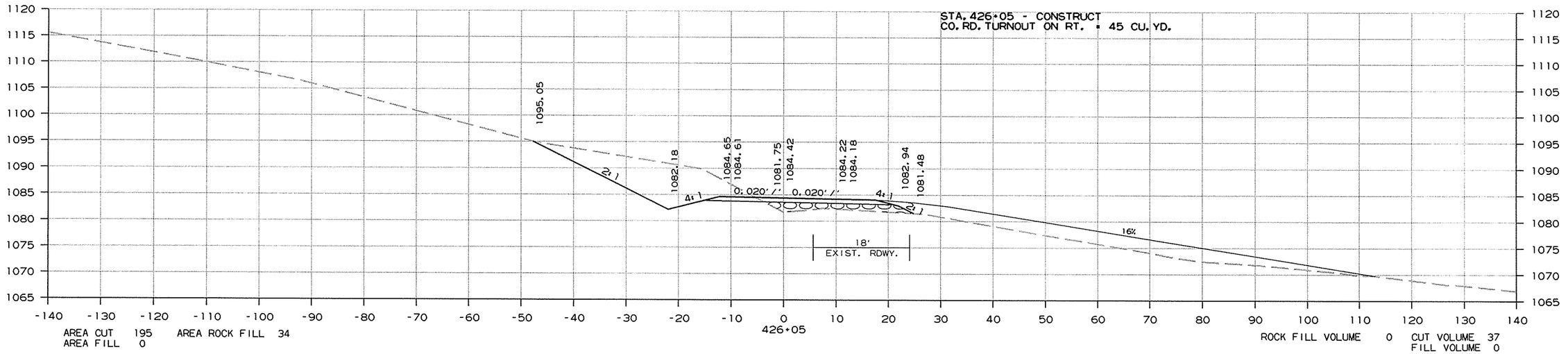
CROSS SECTION STA. 424+00 TO STA. 425+00

10/29/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	208	212

(2) CROSS SECTIONS



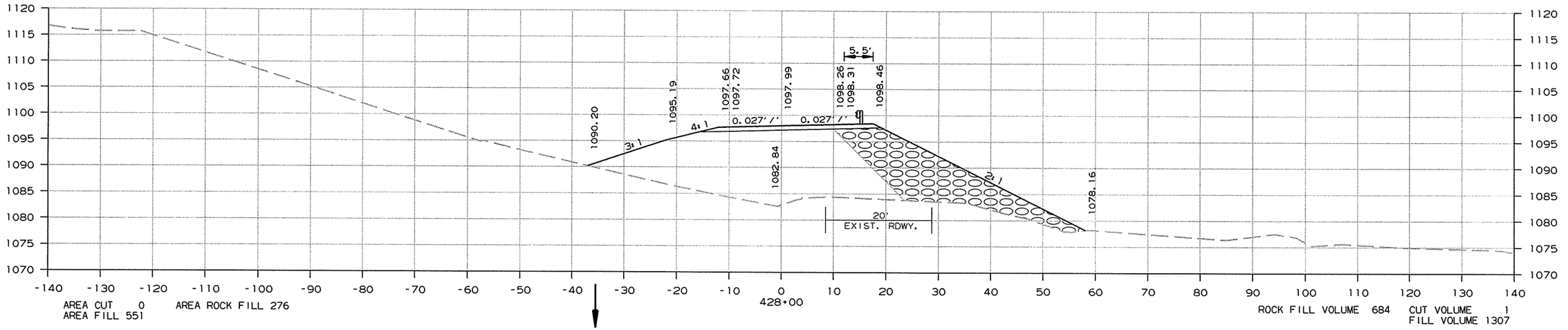
CROSS SECTION STA. 426+00 TO STA. 426+05

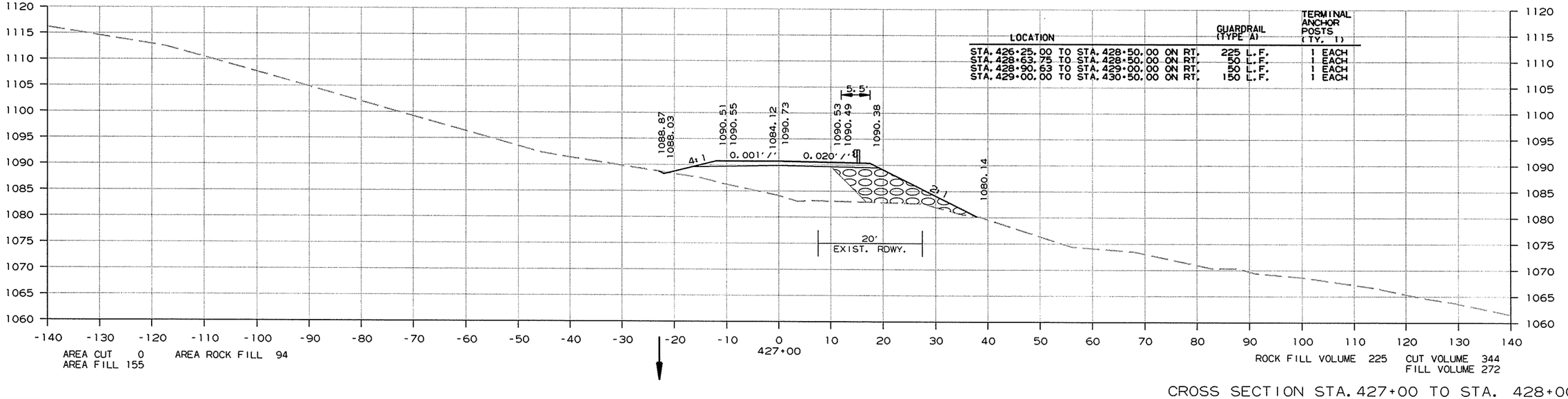
11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	209	212

(2) CROSS SECTIONS





LOCATION	GUARDRAIL (TYPE A)	TERMINAL ANCHOR POSTS (TY. 1)
STA. 426+25.00 TO STA. 428+50.00 ON RT.	225 L.F.	1 EACH
STA. 428+63.75 TO STA. 428+50.00 ON RT.	50 L.F.	1 EACH
STA. 428+90.63 TO STA. 429+00.00 ON RT.	50 L.F.	1 EACH
STA. 429+00.00 TO STA. 430+50.00 ON RT.	150 L.F.	1 EACH

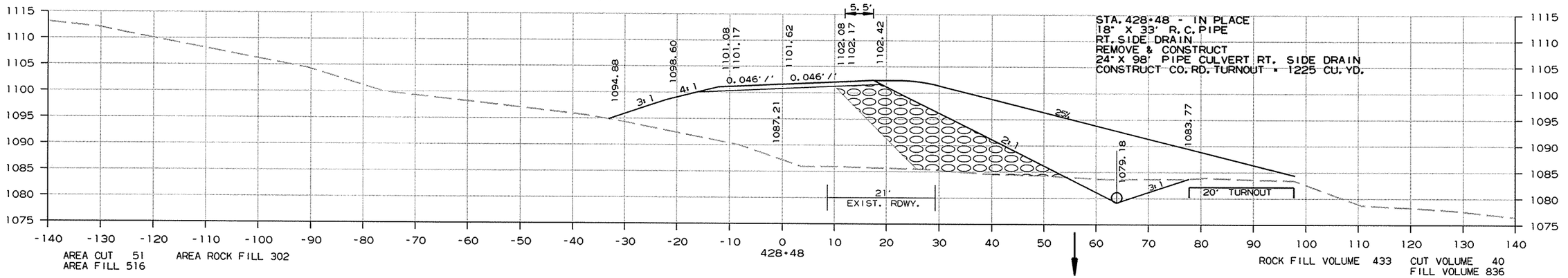
CROSS SECTION STA. 427+00 TO STA. 428+00

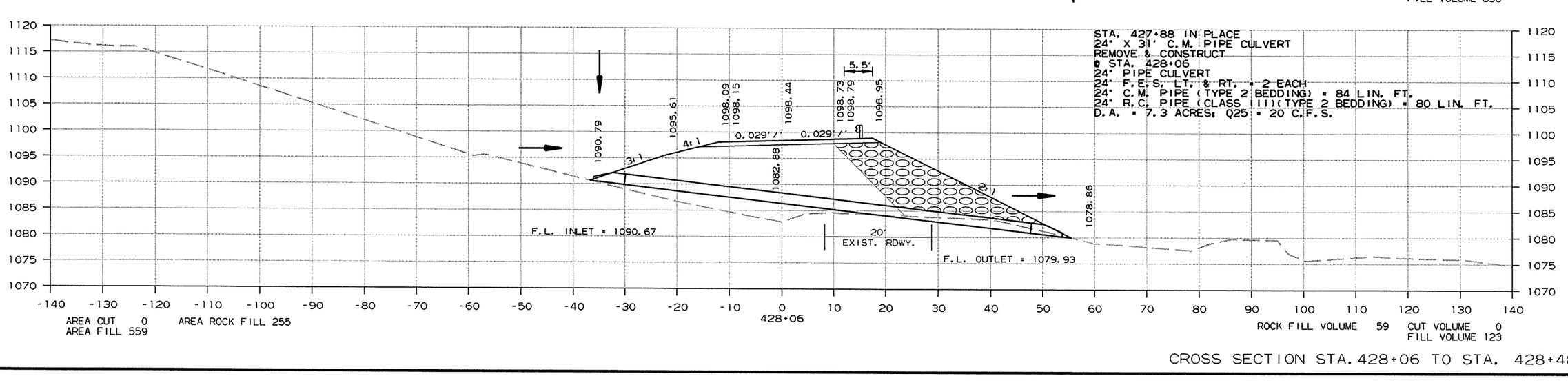
11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	210	212

(2) CROSS SECTIONS





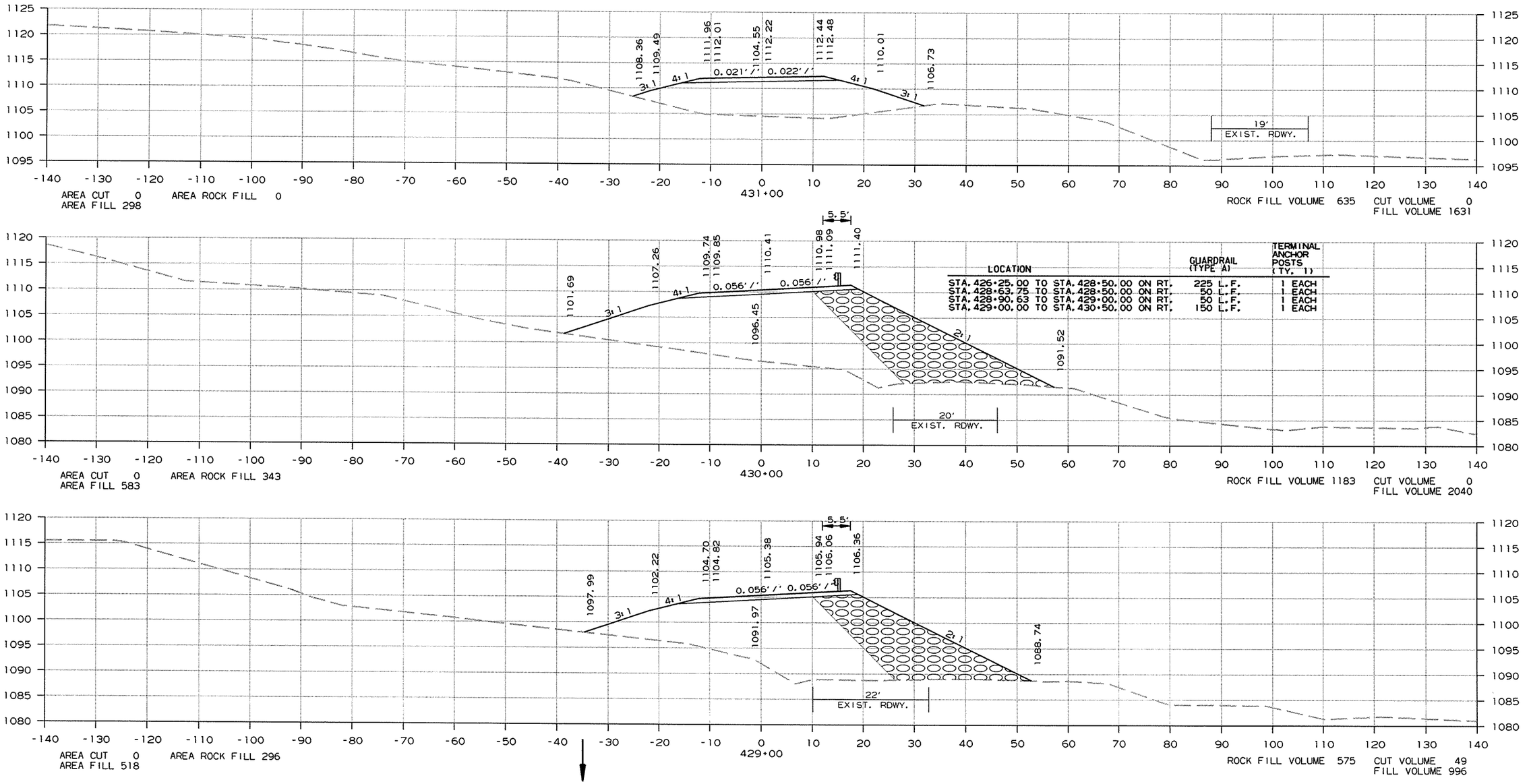
CROSS SECTION STA. 428+06 TO STA. 428+48

11/20/2015

R040207.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-20-15				6	ARK.			
				JOB NO.		040207	211	212

(2) CROSS SECTIONS



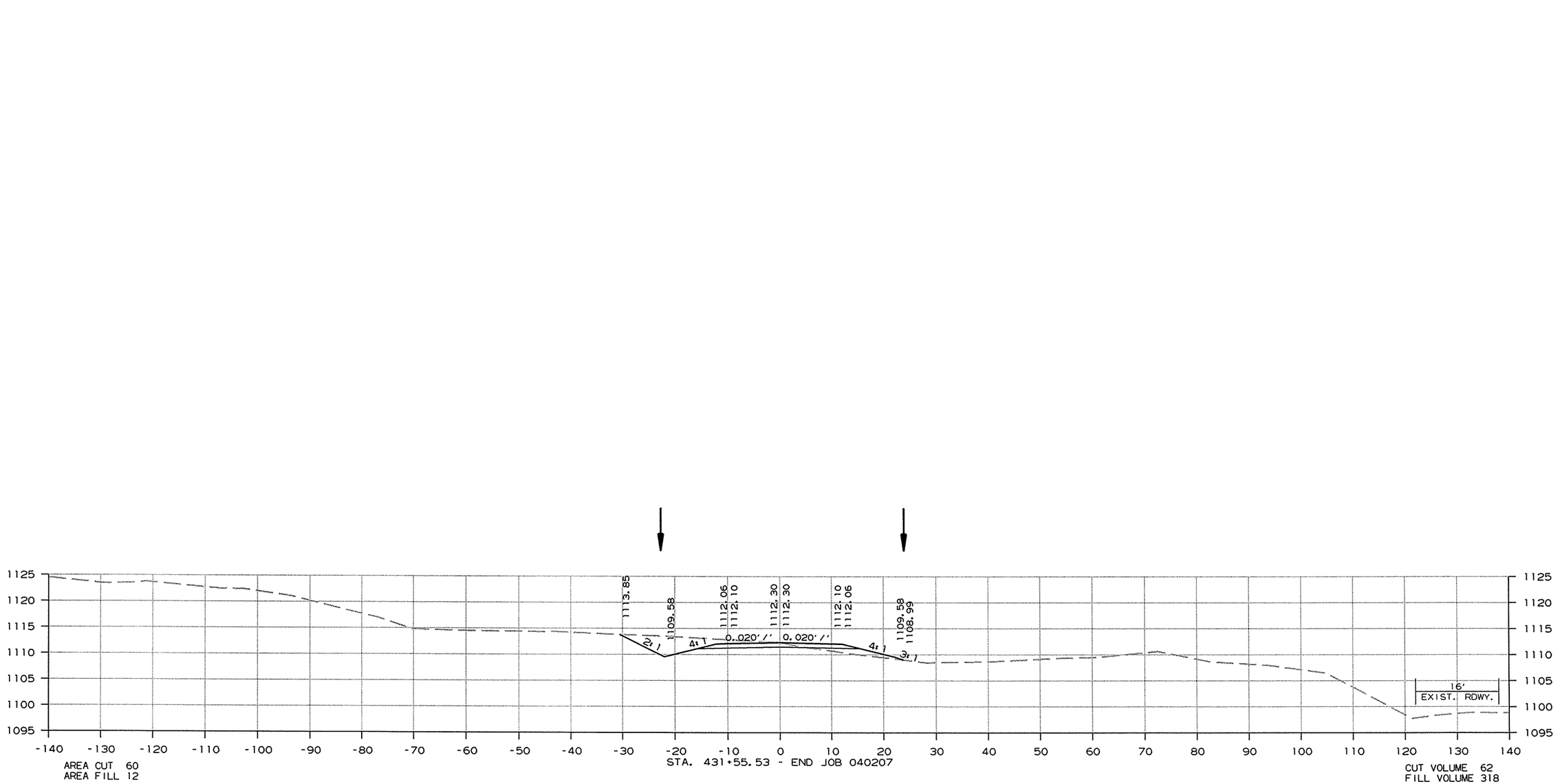
CROSS SECTION STA. 429+00 TO STA. 431+00

11/20/2015

R040207.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.		040207	212	212

(2) CROSS SECTIONS



CROSS SECTION STA. 431+56 TO STA. 431+56

10/29/2015

R040207.DGN